

2023 Second Quarterly Report – Ambient Air Quality Monitoring Program

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Algoma Steel Inc.

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1. Executive Summary

AECOM Canada Ltd. (AECOM) was retained by Algoma Steel Inc. (Algoma) to prepare the 2023 Second Quarterly Report (Report) for the months of April to June 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 second quarter of 2023. 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. Wildfires in the Sault Ste. Marie area were present on June 4th, June 6th, June 8th, as per Air Quality alerts issued by Environment Canada which may have impacted ambient air concentrations.

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	7.16	0.0	2.42	5 ppb (24-hour)	62	5 ppb (24-hour)
Total Reduced Sulphur (TRS) - 10 minute	ppb	130.19	0.0	2.42	10 ppb (10-minute)	249	10 ppb (10-minute)
Sulfur Dioxide (SO ₂) – 10 minute	ppb	133.49	0.01	3.32	67 ppb (10-minute)	37	67 ppb (10-minute)
Sulfur Dioxide (SO ₂) – 1 hour	ppb	99.64	0.10	3.32	40 ppb (1-hour)	116	40 ppb (1-hour)
Sulfur Dioxide (SO ₂) – 24 hour	ppb	20.71	0.32	3.32	100 ppb (24-hour)	0	100 ppb (24-hour)
Particulate Matter less than 10 microns (PM ₁₀)	µg/m ³	289.16	0.69	69.20	N/A	1082	50 µg/m ³ (AAQC 24-hour)
Non-Continuous Parameters (Quarterly)							
Total Suspended Particulate (TSP)	µg/m ³	1050	83.60	352.75	127 µg/m ³ (24-hour)	11	N/A
Total Suspended Particulate Ferric Oxide	µg/m ³	513	1.76	51.38	25 µg/m ³ (24-hour)	5	25 µg/m ³ (24-hour)
Total Suspended Particulate Manganese	µg/m ³	5.64	0.095	1.426	0.4 µg/m ³ (24-hour)	11	0.4 µg/m ³ (24-hour)
Total Suspended Particulate Nickel	µg/m ³	66	0.019	4.409	0.2 µg/m ³ (24-hour)	1	0.2 µg/m ³ (24-hour)
Total Suspended Particulate Metals (TSP Metals except Ferric Oxide, Manganese, Nickel)	µg/m ³	Various Parameters - No Excursions to Report					
Volatile Organic Compounds (VOCs except Benzene, Dichloromethane, Alpha Pinene)	µg/m ³	Various Parameters - No Excursions to Report					
Volatile Organic Compounds (Benzene)	µg/m ³	26.60	0.08	4.70	0.45 (Annual)	2	2.3 µg/m ³ (24-hour)
Volatile Organic Compounds (Dichloromethane)	µg/m ³	1890	1.32	276	220 µg/m ³ (24-hour)	1	220 µg/m ³ (24-hour)
Volatile Organic Compounds (Alpha Pinene)	µg/m ³	13825	0.14	2026	270 µg/m ³ (24-hour)	2	270 µg/m ³ (24-hour)
Poly-cyclic Aromatic Hydrocarbons (Benzo(a)pyrene)	ng/m ³	0.30	0.01	0.10	0.01 ng/m ³ (Annual)	3	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	3.40	1.71	3.54	5 ppb (24-hour)	206	5 ppb (24-hour)
Total Reduced Sulphur (TRS) - 10 minute	ppb	21.50	0.04	3.54	10 ppb (10-minute)	71	10 ppb (10-minute)
Sulfur Dioxide (SO ₂) – 10 minute	ppb	62.66	0.08	7.25	67 ppb (10-minute)	0	67 ppb (10-minute)
Sulfur Dioxide (SO ₂) – 1 hour	ppb	48.56	1.60	7.25	40 ppb (1-hour)	9	40 ppb (1-hour)
Sulfur Dioxide (SO ₂) – 24 hour	ppb	18.61	2.08	7.25	100 ppb (24-hour)	0	100 ppb (24-hour)
Particulate Matter less than 10 microns (PM ₁₀) - 24 hour	µg/m ³	264.37	0.50	36.95	N/A	578	50 µg/m ³ (24-hour)
Non-Continuous Parameters (Quarterly)							
Total Suspended Particulate (TSP)	µg/m ³	306	18.10	124.43	127 µg/m ³ (24-hour)	7	N/A
Total Suspended Particulate Ferric Oxide	µg/m ³	24.30	0.41	4.83	25 µg/m ³ (24-hour)	0	25 µg/m ³ (24-hour)
Total Suspended Particulate Manganese	µg/m ³	0.49	0.02	0.178	0.4 µg/m ³ (24-hour)	2	0.4 µg/m ³ (24-hour)

Parameter	Units	Maximum	Minimum	Arithmetic Mean (Quarterly)	Standard	Number of Excursions	Guideline, AAQC Criteria
Total Suspended Particulate Metals (TSP Metals except Manganese)	µg/m ³	Various Parameters - No Excursions to Report					
Volatile Organic Compounds (VOCs except Benzene, Dichloromethane, and Alpha Pinene)	µg/m ³	Various Parameters - No Excursions to Report					
Volatile Organic Compounds (Benzene)	µg/m ³	2.65	0.08	0.89	0.45 (Annual)	1	2.3 µg/m ³ (24-hour)
Volatile Organic Compounds (Dichloromethane)	µg/m ³	1740	0.09	317.18	223 µg/m ³ (24-hour)	2	220 µg/m ³ (24-hour)
Volatile Organic Compounds (Alpha Pinene)	µg/m ³	5855	0.14	1341	270 µg/m ³ (24-hour)	2	270 µg/m ³ (24-hour)
Poly-cyclic Aromatic Hydrocarbons (Benzo(a)pyrene)	ng/m ³	4.85	0.004	0.71	0.01 ng/m ³ (Annual)	1	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	4.47	0.97	2.24	5 ppb (24-hour)	0	5 ppb (24-hour)
Total Reduced Sulphur (TRS) - 10 minute	ppb	17.94	0	2.24	10 ppb (10-minute)	2	10 ppb (10-minute)
Sulfur Dioxide (SO ₂) – 10 minute	ppb	66.94	0.0	2.49	67 ppb (10-minute)	0	67 ppb (10-minute)
Sulfur Dioxide (SO ₂) – 1 hour	ppb	48.51	0.81	2.49	40 ppb (1-hour)	20	40 ppb (1-hour)
Sulfur Dioxide (SO ₂) – 24 hour	ppb	18.1	2.57	2.49	100 ppb (24-hour)	0	100 ppb (24-hour)
Particulate Matter less than 10 microns (PM ₁₀) - 24 hour	µg/m ³	280.34	3.84	42.09	N/A	642	50 µg/m ³ (AAQC 24-hour)

Non-Continuous Parameters (Quarterly)

Total Suspended Particulate (TSP)	µg/m ³	256	62.40	133.05	127 µg/m ³ (24-hour)	6	N/A
Total Suspended Particulate Ferric Oxide	µg/m ³	11.10	1.42	5.35	25 µg/m ³ (24-hour)	0	25 µg/m ³ (24-hour)
Total Suspended Particulate Manganese	µg/m ³	0.607	0.087	0.271	0.4 µg/m ³ (24-hour)	3	0.4 µg/m ³ (24-hour)
Total Suspended Particulate Metals (TSP Metals except Ferric Oxide and Manganese)	µg/m ³	Various Parameters - No Excursions to Report					
Volatile Organic Compounds (VOCs except Benzene, Dichloromethane, and Alpha Pinene)	µg/m ³	Various Parameters - No Excursions to Report					
Volatile Organic Compounds (Benzene)	µg/m ³	4.44	0.08	1.51	0.45 (Annual)	2	2.3 µg/m ³ (24-hour)
Volatile Organic Compounds (Dichloromethane)	µg/m ³	709	2.85	148.87	220 µg/m ³ (24-hour)	2	220 µg/m ³ (24-hour)
Volatile Organic Compounds (Alpha Pinene)	µg/m ³	1094	0.14	291	270 µg/m ³ (24-hour)	2	270 µg/m ³ (24-hour)
Poly-cyclic Aromatic Hydrocarbons (Benzo(a)pyrene)	ng/m ³	9.28	0.01	1.97	0.01 ng/m ³ (Annual)	7	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	10.41	5.81	7.69	7	1	N/A
Adelaide Street Dustfall Station (71045)*	g/m ² /30day	4.04	0.68	2.08	7	0	N/A
Spadina Street Dustfall Station (71015)*	g/m ² /30day	7.23	3.87	5.18	7	1	N/A
Wilding Avenue Dustfall Station (71043)*	g/m ² /30day	12.55	1.99	5.81	7	1	N/A

*Dustfall values are after optical characterization.

