Appendix 42

Meadowbank and Whale Tail 2024 Air Quality and Dustfall Monitoring Report

AGNICO EAGLE

MEADOWBANK COMPLEX

2024 Air Quality and Dustfall Monitoring Report

In Accordance with NIRB Project Certificates No.004 and No.008

Prepared by:
Agnico Eagle Mines Limited – Meadowbank Complex

March, 2025

EXECUTIVE SUMMARY

The 2024 air quality and dustfall monitoring program at the Meadowbank Complex was conducted according to the Air Quality and Dustfall Monitoring Plan, Version 6 (March, 2022). The objective of this program is to measure dustfall, NO_2, and suspended particulates (TSP, PM_{10}, $PM_{2.5}$) at various monitoring locations around the Meadowbank and Whale Tail Mines, Meadowbank All-Weather Access Road (AWAR), and Whale Tail Haul Road (WTHR).

Results are primarily compared to Government of Nunavut (GN) Environmental Guidelines for Ambient Air Quality and/or Canadian Ambient Air Quality Standards (CAAQS) for TSP, $PM_{2.5}$ and NO_2; BC Ambient Air Quality Objectives for PM_{10}; and Alberta Environment and Parks Ambient Air Quality Guidelines for passive dustfall. Results are also compared to model predictions from the Project's Final Environmental Impact Statement (FEIS), where suitable. In some cases, management thresholds are also established based on these values.

Across all stations and parameters, nearly all monitoring results met regulatory guidelines, FEIS predictions, and current management thresholds. Visual interpretation of historical results did not indicate any trends towards consistently increasing values in 2024.

In total, 489 of 496 24-h suspended particulate samples (including TSP, PM_{10}, and $PM_{2.5}$) across three monitoring stations met the relevant regulatory guidelines for the 24-h average. Regulatory guidelines for the annual averaging time were met for all monitoring stations and particulate matter size fractions (TSP, $PM_{2.5}$).

Of 59 monthly-average dustfall samples collected throughout the year at onsite locations DF-1 – DF-6, one exceeded the onsite dust management threshold (1.58 mg/cm^2/30 d). Along the AWAR and WTHR, the established dust management threshold (0.53 mg/cm^2/30d at 500 m) was met for all sampling events and transects.

Annual average NO_2 as measured using monthly-average passive samplers met the GN guideline and the 2025 CAAQS for all stations (DF-1, DF-2, DF-6b, DF-8, DF-9). Continuous NO_2 measurements were collected at DF-7 throughout the year. All validated results were less than the relevant 1-h, 24-h, and annual standards (GN and/or 2025 CAAQS).

Estimated greenhouse gas emissions for the Meadowbank Complex as calculated for reporting to Environment Canada's Greenhouse Gas Emissions Reporting Program in 2024 are 267,716 tonnes CO_2 equivalent (preliminary value at the time of reporting), which is less than the FEIS prediction.

Operation of the Meadowbank Complex incinerator ceased in November, 2022, so stack testing was not performed in 2024.

Based on these results, no unpredicted air quality concerns are identified and no changes to current mitigation measures and best practices are planned for 2025.

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SECTION 1 • INTRODUCTION

1.1 BACKGROUND AND OBJECTIVES

In accordance with conditions of NIRB Project Certificates No.004 and No.008, air quality and dustfall monitoring was conducted at the Meadowbank Complex in 2024, as described in the Air Quality and Dustfall Monitoring Plan - Version 6 (March, 2022). The objective of this program is to measure ambient outdoor air quality (suspended particulates, NO_2, dustfall) around the Meadowbank and Whale Tail Mines. Dustfall is also monitored along the Meadowbank All-Weather Access Road (AWAR) and Whale Tail Haul Road (WTHR) as a component of this plan.

This report provides results of current year air quality monitoring (Section 4), historical trends (Section 5), onsite weather data (Section 6), and greenhouse gas emissions data as required by Environment and Climate Change Canada's Greenhouse Gas Reporting Program (GHGRP) (Section 7).

1.2 DUST MITIGATION

In 2024, road dust management was carried out in accordance with the Air Quality and Dustfall Monitoring Plan, and the Whale Tail Haul Road Management Plan. Road dust mitigation options consist primarily of:

- Enforcing or temporarily lowering speed limits
- Grading road surfaces
- Placement of new coarser material on the road surface
- Road watering or application of dust suppressants

Dust management actions are planned according to pre-determined monitoring thresholds (Table 1). Both visual indicators and numeric thresholds are used to determine when specified mitigation measures need to be initiated.

Table 1. Thresholds and mitigation measures (Air Quality and Dustfall Monitoring Plan).

Location	Assessment Frequency	Indicator	Threshold	Mitigation Measures
Haul road and site access roads	Weekly (or more) during the late spring and summer periods	Measured dustfall Visibility	Deterioration of visibility Safety concern High dust levels evident near significant waterbodies Dustfall exceeding 0.53 mg/cm^2/30-day at 500 m from the AWAR or WTHR	Use of water and/or dust suppressant in areas requiring attention. Grade the road surface. Add new granular material to the road surface. Temporarily lower the speed limit on the road.

Location	Assessment Frequency	Indicator	Threshold	Mitigation Measures
Mine site, including travel areas	Weekly (or more) during the late spring and summer periods	Measured dustfall Measured PM	Deterioration of visibility Safety concern Dust reaching Whale Tail Lake or Mammoth (Kangislulik) Lake Dustfall exceeding 1.58 mg/cm^2/30-day at stations DF-1 to DF-6 Active PM results exceeding FEIS predictions at DF-6	Use of water and/or dust suppressant on exposed surfaces such as parking areas, pads, haul, access and service roads. Review mitigation measures in place. Add new granular material to surface. If applicable, grade the surface. Temporarily lower the speed limit on site.
Ramps in the open pits	Regular inspection by pit supervisor during summer period	Visibility	Deterioration of visibility Safety concerns	Use water as a dust suppressant.

The following sections discuss the application of dust suppressant or watering for haul roads, access roads, and onsite roads in 2024. Records are maintained for the application of dust suppressant and road watering, as well as for re-surfacing activities (tons of aggregate by date). In total, 1222 tons of aggregate were applied on the AWAR, and 168,080 tons were applied on the WTHR. Records do not currently specify whether road re-surfacing activities are conducted in response to dust-related concerns or for regular maintenance. Rather, the need for adjustments to the road maintenance program overall is determined based on results of dustfall and suspended particulate monitoring (Section 4.5).

1.2.1 AWAR and Whale Tail Haul Road Dust Suppression

1.2.1.1 AWAR

Between May 23 and July 13, 2024, dust suppressant (commercial dry flake calcium chloride product) was applied along the full length of the AWAR, from km 1 to km 110 (582 bags, 1000 kg each), at a rate of approximately 5 – 6 bags per km. Additional product was applied at the Agnico Eagle spud barge laydown area (12 bags), Baker Lake fuel tank area (6 bags), and the local transportation contractor shop (6 bags). This was the first year of application along the full length of the AWAR. Historically, dust

suppressant was applied at eight (or more) specified locations of 2 – 4 km each, selected in consultation with the Baker Lake HTO (approximately 226 bags total in 2023).

In addition to calcium chloride, water was applied along the full length of the AWAR and at hamlet-based facilities between May 23 and July 12, totalling approximately 4,045 m^3. This is a substantial increase over what was applied in 2023 (637 m^3).

Section 4.5 provides a discussion on the apparent effectiveness of the mitigation using quantitative dustfall monitoring thresholds.

1.2.1.2 Whale Tail Haul Road

For the Whale Tail Haul Road, planned management actions primarily consist of enforcing speed limits, grading, placement of new material, and if necessary, road watering or application of dust suppressants. The implementation of dust mitigation measures is determined by the Road Supervisor and Environment Department based on visibility concerns, or where dust deposition is potentially impacting traditional land uses, fish habitat, and/or water quality.

In 2024, dust suppressant in the form of calcium chloride (commercial dry flake product) was again applied to the entire length of the WTHR (km 115 to km 179). The full length was treated between May 13 and June 9, and again between July 25 and August 9, with additional applications in certain areas through September 3. In total, 830 bags (1000 kg each) were applied.

In addition to calcium chloride, road watering was conducted along the entire WTHR throughout the summer season, as needed. Between May 13 and September 3, approximately 10,500 m^3 of water were applied on the WTHR.

1.2.2 Mine Site

Road watering was conducted regularly for onsite roads, pits, and the airstrip (as needed) at the Meadowbank Complex in the summer season. In addition, calcium chloride dust suppressant was applied at various onsite locations, primarily around the Meadowbank Camp and Whale Tail pits.

1.3 COMMUNITY CONCERNS

As described in the Air Quality and Dustfall Monitoring Plan, Agnico Eagle records community concerns that are raised with regards to dust generated by traffic on the AWAR and WTHR. Throughout 2024, Agnico Eagle ensured Baker Lake community members and key stakeholders were continuously informed and consulted on various topics, including environmental concerns of community members. No specific comments or complaints were received on this topic by the Meadowbank Environment Department.

The NIRB requested Agnico Eagle to provide an action plan for the development of a community-based monitoring program for dust. In response to the NIRB's recommendations, Agnico Eagle began the development of a community-based dustfall monitoring program in 2022. Agnico Eagle met with Hamlet Council on February 16th, 2022 and the Baker Lake HTO on February 17th, 2022 to discuss the development of the Baker Lake Dust Advisory Group (BLDAG). The first meeting in February 2022 was to identify the groups impacted by dust generated by Agnico Eagle operations. In August 2022, a berry picking session was held with two harvesters to collect IQ and listen to the experiences of these individuals to assist Agnico Eagle in better mitigating potential effects of dust. In 2023, Agnico Eagle continued to collaborate with the community of Baker Lake to identify areas of concern along the road. In early September, Agnico Eagle had an open public session on the AWAR. and a bus tour took 16

interested elders along the AWAR to locate and note where dust suppressant had been added on the road, up to km 65.

In the past, consultation with the Hamlet was conducted to identify major areas of concern along the AWAR. Five areas were identified, and dust suppressant (dry flake product) was applied during the summer to mitigate dust in those areas. In 2024, Agnico Eagle applied dust suppressant along the full length of the AWAR. Moving forward, Agnico Eagle will evaluate the benefits of continuing the BLDAG.

1.4 MONITORING LOCATIONS

Air quality and dustfall monitoring is conducted at eight locations around the Meadowbank Complex. Dustfall is monitored at five transects along the AWAR and WTHR. NO_2 is monitored at two locations along the WTHR (two passive monitors and one co-located continuous gas analyzer). For all locations, UTM coordinates are provided in Table 2, and locations are shown in relation to minesite features in Figures 1 and 2.

Table 2. Locations of the Meadowbank Complex air quality and dustfall monitoring locations.

Monitoring Location	Measured Parameters	UTM Coordinates (Zone 14W)	
DF-1	TSP, PM_{10}, $PM_{2.5}$, passive NO_2, dustfall	636850	7217663
DF-2	TSP, PM_{10}, $PM_{2.5}$, passive NO_2, dustfall	637895	7213049
DF-3	Dustfall	639599	7213198
DF-4	Dustfall	639233	7217074
DF-6a^	Passive NO_2 and dustfall	608842	7254348
DF-6b^	TSP, PM_{10}, $PM_{2.5}$,	608361	7254974
DF-7	Continuous NO_2	632414	7233318
DF-8 (km 132)	Passive NO_2	632407	7233254
DF-9 (km 151)	Passive NO_2	618033	7238670
AWAR km 18	Dustfall	640208	7152082
AWAR km 78	Dustfall	626155	7199739
WTHR km 134	Dustfall	630941	7234375
WTHR km 151	Dustfall	618132	7238621
WTHR km 169	Dustfall	613782	7249508
^DF-6 replaced DF-5 in May 2019.			

PROJECT: DA11-062-08

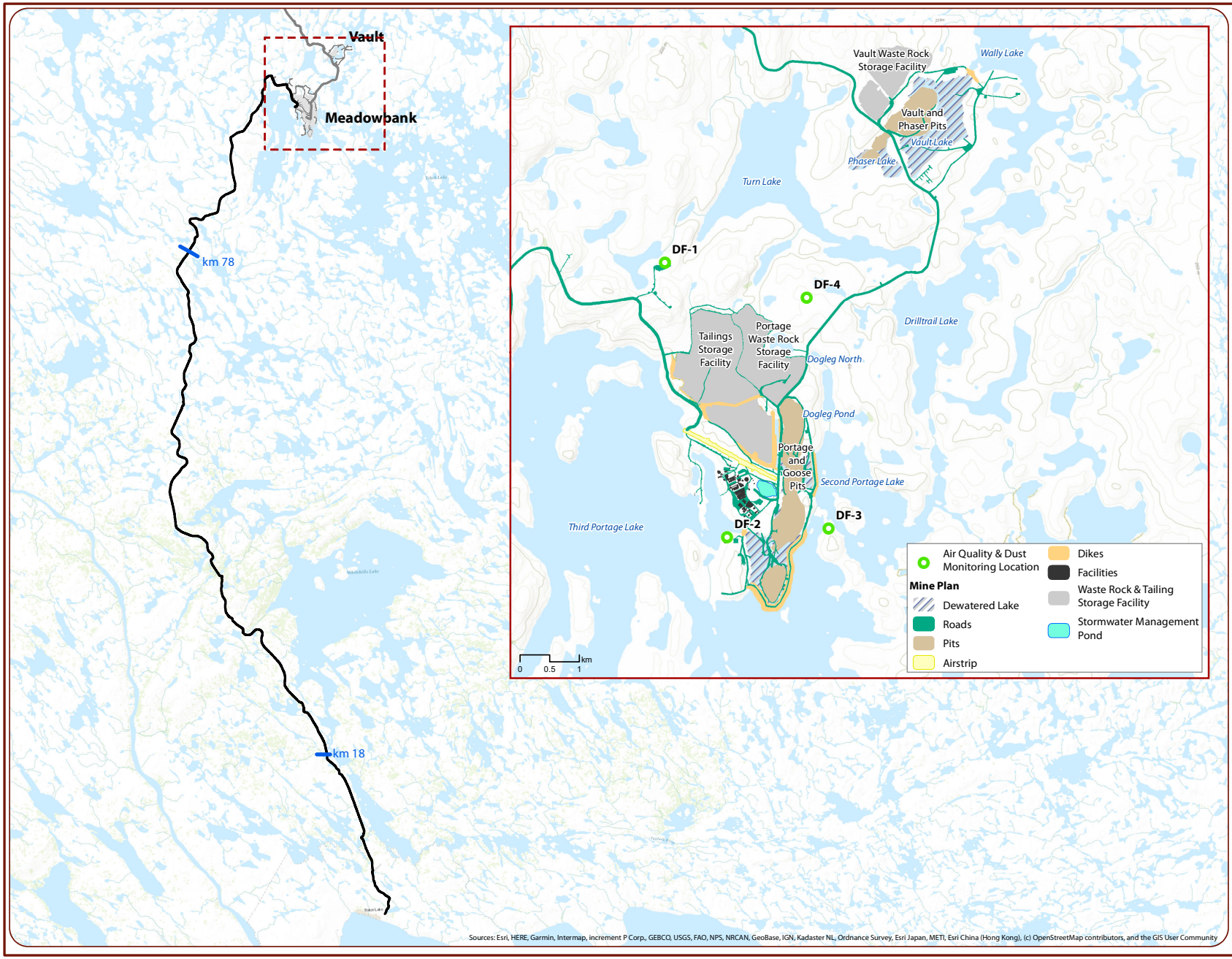
CLIENT: Agnico-Eagle Mines Ltd. Meadowbank Division

DATE: 12, March 2020

DRAWN BY: Janel Sauder

Figure 1: Air Quality and Dustfall Monitoring Locations

Meadowbank Site and All Weather Access Road



Dustfall Monitoring Transect

Mine Plan

All Weather Access Road (AWAR)

Road

Mine Site

0 4 8 16

Kilometres

SCALE: 1:350,000

N

UTM Zone 17N NAD83

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Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

PROJECT: DA11-062-08

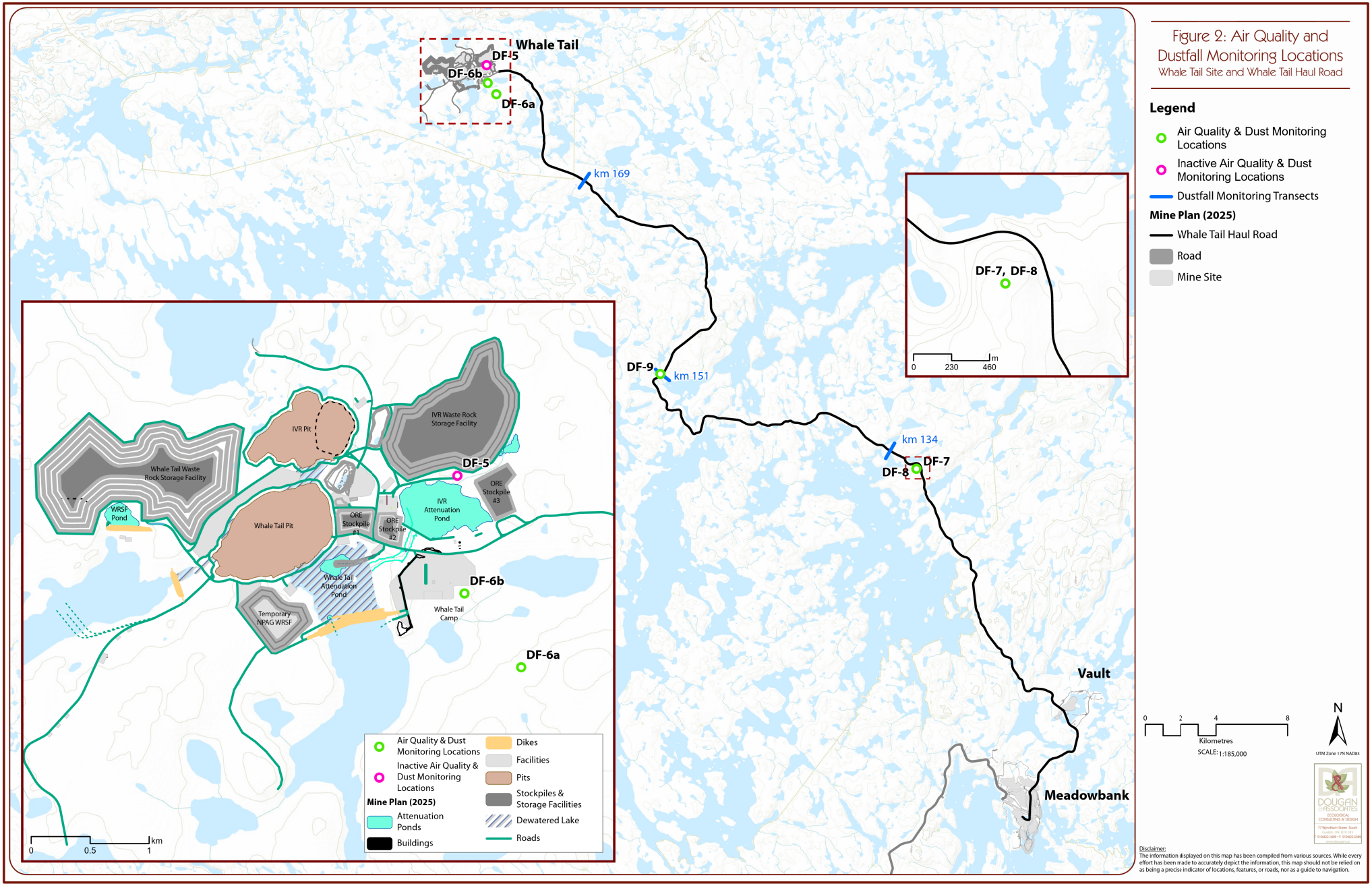
CLIENT: Agnico-Eagle Mines Ltd. Meadowbank Division

DATE: 12, February 2022

DRAWN BY: Janel Sauder/Nicole White

Figure 2: Air Quality and Dustfall Monitoring Locations

Whale Tail Site and Whale Tail Haul Road



Legend

- Air Quality & Dust Monitoring Locations
- Inactive Air Quality & Dust Monitoring Locations
- Dustfall Monitoring Transects

Mine Plan (2025)

- Whale Tail Haul Road
- Road
- Mine Site

0 2 4 8

Kilometres

SCALE: 1:185,000

N

UTM Zone 17N NAD83

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1.4.1 Meadowbank Mine Locations DF-1 – DF-4

Monitoring locations for the Meadowbank Mine were determined in consultation with Environment Canada in 2011. One station was moved in 2012 due to changes in the location of the Vault haul road (see 2012 Annual Report – Air Quality and Dust Monitoring Report).

Station DF-1 is located next to the explosive storage area (emulsion plant), and approximately 500 m north of the all-weather access road. TSP, PM_{10} and $PM_{2.5}$, NO_2 and dustfall are monitored at this location year-round.

Station DF-2 is located at the northern corner of South Camp Island, near the former TCG contractor area. All parameters (TSP, PM_{10} and $PM_{2.5}$, NO_2 and dustfall) are monitored at this location year-round.

Station DF-3 is approximately 1,800 m east of the East Dike. According to the Plan, dustfall only is monitored at this location year-round.

Station DF-4 is approximately 1,500 m southwest of Vault Pit. The original location of this monitoring station was chosen before the beginning of the construction of the Vault Road. Realignment of the road during construction placed the station within 10 feet of the road. Therefore, Agnico re-positioned Station DF-4 approximately 480 m to the north-west on February 29, 2012 to be representative of the originally intended location relative to the road. According to the Plan, dustfall only is monitored at this location year-round.

1.4.2 Whale Tail Mine Location DF-6 a & b

Station DF-6 replaced DF-5 in May 2019 to accommodate the Whale Tail Expansion Project after only 4 months of monitoring for dustfall and NO_2 at that station.

Station DF-6a (Figure 2) is sited approximately 800 to 1,000 m southeast of the Whale Tail Camp in a representative area for dustfall and NO_2. Station DF-6b (Figure 2) is located on the southern edge of the main camp in an area identified as significant for determination of particulate matter (TSP, PM_{10} and $PM_{2.5}$) relative to concentrations predicted further from the project footprint. Monitoring at DF-6a started in May 2019 for dustfall and NO_2. Suspended particulate monitoring (TSP, PM_{10}, $PM_{2.5}$) began at station DF-6b in April 2020[1].

1.4.3 Whale Tail Haul Road Locations DF-7, DF-8, and DF-9

In 2021, a continuous NO_2 analyzer was installed at station DF-7 (Figure 2), along with a co-located passive NO_2 monitoring station (DF-8). This station is sited near the communications tower at kilometer 132 along the Whale Tail Haul Road. This location was chosen in consultation with ECCC, and primarily because there is readily available AC power from a diesel generator used to provide power to the communications tower. Stations DF-7 and DF-8 are located approximately 200 m upwind of the generator to minimize the impacts of NO_2 emissions from the generator. This monitoring location was also chosen to provide an assessment of regional NO_2 concentrations that are not unduly influenced by a single facility but are still able to account for the impacts of developments at the Meadowbank Complex. The station is downwind of the Whale Tail site according to the predominant wind directions in the area, which is also a requirement of Project Certificate No.008 Condition 1.c.

Station DF-9 (passive NO_2) was added in 2021 at WTHR km 151, within approximately 110 m of the road (west side).

[1] Although the Partisol instruments were installed at this station in November 2019, a permanent power supply was not available until April 2020.

1.4.4 Meadowbank AWAR Dustfall Transects

Dustfall transects were established beginning in 2012 at kilometers 18 and 78 along the AWAR from Baker Lake to Meadowbank (Figure 1). . Dustfall samples are collected annually during the summer season over two or three 1-month averaging periods at these transects. Transects include sample collection at 25 m, 100 m, and 300 m from the road on both sides (east/downwind and west/upwind). Stations are also located at 1,000 m for the km 78 transect only (presence of waterbodies has precluded sampling at this distance for km 18). These distances were chosen to bracket the smallest FEIS-predicted zone of influence (ZOI) for wildlife, which was 100 m. The zone of maximum dustfall has previously been reported to be within 300 m of roads under heavier use than the Meadowbank AWAR (Auerbach et al. 1997).

Previously (from 2017-2019), transects have also been monitored in five locations where dust suppressant was applied (km 11, 25, 50, 69, 80). The purpose of these temporary monitoring stations was to evaluate the effectiveness of dust mitigation measures in comparison to the reference sites at km 18 and 78. This assessment was complete in 2019, and indicated that the application of dust suppressant effectively reduced roadside dustfall levels. In 2024, dust suppressant was applied as specified in Section 1.2.1, along the full length of the AWAR, including km 18 and 78.

1.4.5 Whale Tail Haul Road Dustfall Transects

In 2019, dustfall transects were established between kilometers 18 & 19, 36 & 37, and 54 & 55 along the Whale Tail Haul Road. In 2019, the WTHR km markers were re-named as a continuation of the AWAR. The WTHR thus begins at km 115, and the sampling locations were renamed as km 134, 151, and 169, respectively (Figure 2).

Dustfall samples are collected during the summer season over two or three 1-month averaging periods. Each transect includes stations at 25 m, 100 m, 300 m and 1,000 m on each side of the haul road. The 1,000 m sample at location km 151 east was historically (2018 – 2020) collected at approximately 800 m, due to the presence of a waterbody, but in 2021 it was moved along the shoreline to 1,000 m.

SECTION 2 • MONITORING METHODS

2.1 TSP, PM_{10}, $PM_{2.5}$ (DF-1, DF-2, DF-6B)

Suspended particulate matter may be generated by wind erosion of local landscapes, movement of vehicles/equipment, airstrip activities, construction activities, the combustion of diesel fuel, and solid waste incineration.

The monitoring program for suspended particulates utilizes Partisol Model 2025 air samplers (single and dichotomous units) installed at three locations to measure:

- Total suspended particulates (TSP);
- PM_{10} – particulate matter less than 10 µm; and
- $PM_{2.5}$ – particulate matter less than 2.5 µm.

In 2024, suspended particulate monitoring (TSP, PM_{10}, $PM_{2.5}$) was scheduled for 24-h periods every six days using Partisol Plus Model 2025 Sequential Air Samplers (TSP) and Partisol Plus Model 2025-D Dichotomous Sequential Air Samplers ($PM_{2.5}$ and PM_{coarse}). Partisol samplers draw in a stream of ambient air at a controlled flow rate, and particulates are collected on a pre-weighed filter supplied by an accredited laboratory. The exposed filter is then shipped back to the laboratory and re-weighed to measure the total accumulated particulates. Calculations for TSP, PM_{10} and $PM_{2.5}$ were performed according to the Partisol operating manual, as follows.

TSP is calculated as:

$$TSP = M_{TSP}/V$$

Where: TSP = mass concentration of particulates (µg/m^3)

M_{TSP} = final mass of TSP filter – initial mass of filter (µg/filter)

V = volume of air drawn in during the sampling period (~24 m^3)

Since the dichotomous unit splits the intake air stream to determine $PM_{2.5}$ and PM_{coarse} ($PM_{10\text{-}2.5}$), the volume of air is different for each filter. Calculations are performed as follows:

$PM_{2.5}$ is calculated as:

$$PM_{2.5} = M_{2.5}/V_{2.5}$$

Where: $PM_{2.5}$ = mass concentration of particulates (µg/m^3)

$M_{2.5}$ = final mass of $PM_{2.5}$ filter – initial mass of filter (µg/filter)

$V_{2.5}$ = volume of air drawn through the $PM_{2.5}$ filter during the sampling period (~21.7 m^3)

And PM_{coarse} is calculated as:

$$PM_{coarse} = M_{coarse}/V_{total} – PM_{2.5}(V_{coarse}/V_{total})$$

Where: PM_{coarse} = mass concentration of particulates (µg/m^3)

M_{coarse} = final mass of PM_{coarse} filter – initial mass of filter (µg/filter)

V_{total} = total volume of air drawn into unit during sampling (~24m^3)

V_{coarse} = volume of air drawn through the PM_{coarse} filter during the sampling period (~2.4 m^3)

Concentration of PM_{10} is then calculated as PM_{coarse} + $PM_{2.5}$.

For comparison to regulatory guidelines, concentrations of particulates need to be calculated using air volumes normalized to 25°C and 101.3kPA (standard temperature and pressure; STP). Depending on system settings, standardized volumes were either recorded by the Partisol unit, or were calculated from average ambient temperature and pressure values recorded by the Partisol unit during the sampling period.

2.2 DUSTFALL (DF-1 – DF-6; AWAR AND WTHR TRANSECTS)

Dustfall collection provides a measure of particulate deposition in the vicinity of the mine site. The main dust generation processes at the Meadowbank Complex are wind erosion of site structures (e.g. the Waste Rock Storage Facilities), and fugitive sources from open pit mining, rock crushing and movement of vehicles/equipment/air traffic on site.

In accordance with ASTM 1739-98 methods, dustfall samples were collected in open vessels containing a purified liquid matrix, provided by an accredited laboratory. Particles are deposited and retained in the liquid, which is then filtered to remove large particles (e.g. leaves, twigs) and analyzed by the accredited laboratory for total and fixed (non-combustible) dustfall. Sampling containers are deployed in the field over one-month periods, and calculated dustfall rates are normalized to 30 days (mg/cm^2/30 days). This sampling method is widely used in air quality studies in Nunavut and elsewhere for dustfall monitoring.

ASTM methods suggest collection of the dustfall sample at 2-3 m height on a utility pole to prevent re-entrainment of particulates from the ground, and to reduce vandalism and potential for wildlife interaction. For locations DF-1 – DF-6, samples have always been collected in this manner. Dustfall transect samples were moved to 2-m stands beginning in 2020.

2.3 NO_2

NO_2 is produced primarily through the combustion of hydrocarbons in powerplants, vehicles and other mining equipment, and during blasting.

2.3.1 Passive NO_2 (DF-1, DF-2, DF-6a, DF-8, DF-9)

Ambient concentrations of NO_2 by volume (ppb) are analyzed over one-month periods (approximately 30 days) using a passive sampling device provided by the accredited laboratory. The annual average NO_2 concentration by volume was calculated from the monthly data.

2.3.2 Continuous NO_2 (DF-7)

In July, 2021, a continuous NOx analyser (ThermoScientific 42iQ NO-NO_2-NOx Analyzer) was installed at one location (DF-7), and ambient concentrations of NO_2 by volume (ppb; 1-min averaging time) have been measured since that time, except during instrument downtime (Section 4.3).

Each year, the recorded dataset is screened according to ECCC (2019) to identify valid data for reporting purposes. Briefly, data is reviewed and corrected as feasible for flags, outliers, and instrument drift. Full details for data manipulations in the current monitoring year are provided in Section 4.3.2.

2.4 WEATHER DATA

Weather data for the dustfall and air quality monitoring plan is collected using the Meadowbank and Whale Tail permanent climate station. Daily averages for wind speed, wind direction and temperature are provided from this station (Appendix A).

In addition, a wind sensor was installed along with the NOx analyser at DF-7, with 1-min and hourly average wind speed and wind direction recorded. Wind monitoring can be used to help identify sources of pollutants as needed, based on wind direction.

2.5 GREENHOUSE GAS EMISSIONS

Agnico Eagle is required by ECCC's Greenhouse Gas Reporting Program (GHGRP) to track greenhouse gas emissions based on annual fuel consumption, composition and the US EPA's AP-42 emission factors. Full details of the program are provided in the Meadowbank Complex Greenhouse Gas Reduction Plan.

SECTION 3 • DATA ANALYSIS

3.1 REGULATORY STANDARDS AND GUIDELINES

Regulatory standards for the air quality parameters of concern used in this assessment are provided in Table 3. In general, for simplicity, calculated time-based averages are compared directly to the relevant standard, even where less conservative statistical forms apply (e.g. for $PM_{2.5}$, all measured 24-h averages are compared to the CAAQS value, even though that limit applies to the 3-year average of the annual 98th percentile of the daily 24-hour average concentrations).

Data collected from the onsite air quality monitoring stations are compared primarily to the applicable Government of Nunavut Environmental Guidelines for Ambient Air Quality (October, 2011). These standards are available for TSP, $PM_{2.5}$, and NO_2.

No PM_{10} standard is available in Nunavut, so results are compared to the BC Ambient Air Quality Objective (November, 2021). This value is equivalent to the GNWT (2023) guideline.

Likewise, no standards for dustfall are available for Nunavut. Results of the dustfall analysis for transects along the AWAR and the WTHR are compared to the Alberta Environment and Parks Ambient Air Quality Guideline (January, 2019) for residential and recreational areas (AB-Rec) according to thresholds for dust management described in the Air Quality and Dustfall Monitoring Plan. Results of dustfall analysis at onsite stations DF-1 to DF-6 are compared to the Alberta Environment and Parks Ambient Air Quality Guideline for commercial and industrial areas (AB-Ind). These dustfall guidelines relate to nuisance and aesthetic concerns, and may be used for airshed planning and management, as a general performance indicator, and to assess local concerns. The GNWT (2023) dustfall guideline lies between the AB-Rec and AB-Ind values, and is not specifically discussed in this report since management thresholds were previously developed using the Alberta guidelines, and since these values are not representative of ecological health thresholds.

Continuous NO_2 monitoring results and $PM_{2.5}$ data are also compared to Canadian Ambient Air Quality Standards (CAAQS). CAAQS represent voluntary objectives for an individual site, and are typically used at a regional scale for airshed planning purposes.

Table 3. Applicable standards for ambient air quality for the Meadowbank Complex.

Parameter	Averaging Period	GN Guideline		CAAQS (2020 or 2025, as available)		Other Standard
		µg/m³	ppb	µg/m³	ppb	
TSP	24-h	120	-	-	-	-
	Annual (geometric)	60	-	-	-	-
PM_{10}	24-h	-	-	-	-	50 µg/m³*
$PM_{2.5}$	24-h	30	-	27**	-	-
	Annual (arithmetic)	-	-	8.8***	-	-
NO_2	1-h	400	213	-	42‡	-
	24-h	200	106	-	-	-
	Annual (arithmetic)	60	32	-	12.0‡‡	-
Total Dustfall	30-d	-	-	-	-	0.53 mg/cm²/30 d^ 1.58 mg/cm²/30 d^^

* BC Ambient Air Quality Objective (November, 2021)
** The 3-year average of the annual 98th percentile of the daily 24-hour average concentrations
***The 3-year average of the annual average of all 1-hour concentrations
‡The 3-year average of the annual 98th percentile of the daily maximum 1-hour average concentrations
‡‡The average over a single calendar year of all 1-hour average concentrations
^ Alberta Ambient Air Quality Guideline for recreational/residential areas (January, 2019) – applied to AWAR & WTHR transects (500+ m).
^^ Alberta Ambient Air Quality Guideline for commercial/industrial areas (January, 2019) – applied to DF-1 – DF-6 onsite locations.

3.2 FEIS PREDICTIONS

Air quality modelling is a statistical exercise that captures the maximum and average emissions expected from certain sources, and seeks to determine ground-level concentrations at various locations under specific meteorological conditions and terrain factors. Additionally, air quality modelling often does not include transboundary transport or other background sources of contaminants, and it typically assesses specific size fractions of particulates that may not align with field monitoring methods. Therefore, accuracy of quantitative predictions made in the FEIS cannot specifically be assessed through field monitoring.

For the purposes of this report, comparisons to FEIS predictions are therefore considered at a screening level only, and in some cases as management thresholds established in the Air Quality and Dustfall Management Plan. Individual sample results may be expected to exceed predictions occasionally, as a result of localized events that occur outside the established bounds of modeling. Specific reasons for differences between predictions and field monitoring results are discussed further in results sections, where applicable. In some cases, as described below, measured or estimated background concentrations were able to be added to predicted values to improve the comparison.

3.2.1 Meadowbank Mine

In order to estimate potential impacts of the Meadowbank Complex operations on air quality, modeling exercises were conducted as a component of the original project FEIS to determine emission rates and dispersion of various criteria air contaminants from different sources (Air Quality Impact Assessment, Cumberland, 2005)[2]. Maximum predicted values of NO_2 (annual average), $PM_{2.5}$ (24-h and annual average), and PM_{10} (24-h) are available from that assessment for comparison to measured values. It is noted however that these model predictions only include emissions from mobile and power plant sources. FEIS predictions for TSP and dust deposition were considered unsuitable for comparison to field measurements (i.e. monitoring results) since only emissions from three specific point sources were required to be modeled (TSF, WRSF, ore stockpile).

The following specific methods were used to identify FEIS predictions for comparison to monitoring results, and add background concentrations:

- Modeled values for suspended particulates ($PM_{2.5}$ and PM_{10}) were obtained for the two monitoring locations (DF-1 and DF-2) from the FEIS Air Quality Impact Assessment Figures 6.2 – 6.24. PM_{10} values were derived from Figures 6.7 and 6.8, based on references in the text (Table 6.1), although these figures are labelled as SP. Model values for a TSF size of 960x560m were used in the comparison.

- The 2016 impact assessment for the Whale Tail Mine calculated background values for $PM_{2.5}$ of 6.7 and 3.6 µg/m^3 for 24-h and annual averaging times, respectively (Agnico Eagle, 2016 - Whale Tail Pit FEIS, Appendix 4-A). No background data was available for other size classes of suspended particulates, but these $PM_{2.5}$ values were added to predicted concentrations of $PM_{2.5}$ and PM_{10} for the comparison, since $PM_{2.5}$ forms a subset of PM_{10}.

- For NO_2, modeling results were only provided in the FEIS for the maximum predicted ground-level concentration, which occurred adjacent to the power plant. It is noted that the closest NO_2 monitoring station (DF-2) is at a distance of approximately 1 km southwest (cross-wind) from this location.

Table 4 summarizes the FEIS model predictions for these parameters.

No quantitative predictions for air quality parameters were made in the Meadowbank FEIS for the AWAR.

[2] As part of the FEIS for the Whale Tail Project (Agnico Eagle, 2016), qualitative assessments were performed for ongoing use of the Meadowbank mill and AWAR, but no quantitative changes to original FEIS predictions were included.

Table 4. Model-predicted maximum concentrations of measured criteria air contaminants for location DF-1 and DF-2 at the Meadowbank Mine.

Parameter	Location	Averaging Time	Concentration*
PM_{10}	DF-1	24-h	26.7 µg/m^3
	DF-2	24-h	46.7 µg/m^3
$PM_{2.5}$	DF-1	24-h	26.7 µg/m^3
		Annual	4.6 µg/m^3
	DF-2	24-h	16.7 µg/m^3
		Annual	4.1 µg/m^3
NO_2	DF-2	Annual	4.97 ppb
*Cumberland (2005)			

3.2.2 Whale Tail Mine

For the Whale Tail Mine, measured values at DF-6 are also compared to FEIS Addendum-modeled maximum concentrations for this location (upper limit of the associated isopleth band). Maximum predicted values for the DF-6 locations on the Whale Tail Mine are shown in Table 5. However it is noted that for TSP in particular, the size fraction of particles assessed through air quality modeling is limited (typically <30 µm aerodynamic diameter), whereas Partisol instruments may intake larger suspended particles if they occur in the vicinity of the instrument. Therefore as noted above, this is considered a screening level comparison only.

Dust deposition rates were predicted for the Whale Tail Haul Road (see Section 3.2) but not for the Whale Tail Mine site.

Table 5. Model-predicted maximum concentrations of measured criteria air contaminants for location DF-6a or b (as applicable) at the Whale Tail site.

Parameter	Location	Averaging Time	Concentration*
TSP	DF-6b	24-h	>120 µg/m^3
		Annual	30 - 45 µg/m^3
PM_{10}	DF-6b	24-h	>50 µg/m^3
$PM_{2.5}$	DF-6b	24-h	21 - 28 µg/m^3
		Annual	5 – 7.5 µg/m^3
NO_2	DF-6a	Annual	8 - 16 ppb
* Agnico Eagle (2018b) - FEIS Addendum, Appendix 4C			

3.2.3 Whale Tail Haul Road

3.2.3.1 NO_2

FEIS Addendum modelling (Agnico Eagle, 2018) indicated that low level emissions of NO_2 would be produced by vehicles using the Whale Tail Haul Road. The model predicted ground level concentrations

of NO_2 due to haul road vehicle emissions represent a very small increase compared to background concentrations and are well below their relevant ambient air quality standards. No quantitative predictions were made for comparison to measured NO_2 values.

3.2.3.2 Dustfall

The primary goal of Whale Tail Haul Road dustfall monitoring is to track trends in dustfall generated by Whale Tail Haul Road traffic, and verify predictions made in the FEIS Addendum. However, due to differences in particle sizes collected by static dustfall monitors (typically <850 µm) and those assessed through air quality emissions and dispersion modelling (typically <30 µm), these are considered conservative, screening-level comparisons only. Since dustfall canisters collect particles across a much wider range of sizes than included in standard modeling, they are very likely to measure higher rates of total dustfall than those specified in the FEIS. However, if measured dustfall is lower than predicted dustfall, model results can be verified as conservative.

Table 6 shows FEIS Addendum-predicted maximum monthly dust deposition from haul-road generated dust as a function of distance from the road. Results of the Whale Tail Haul Road monitoring program (total dustfall) are compared to these values plus background concentrations of total dustfall. A background dustfall value of 0.27 mg/cm^2/30d is assumed, based on the maximum dustfall rate measured in this area (km 37, now km 152) during baseline studies for this area in 2015.

In general, FEIS Addendum predictions indicated that maximum monthly dust deposition rates will be below the Alberta guideline for residential and recreational areas within 500 m of the haul road (0.53 mg/cm^2/30d). This value was also set as the threshold for supplemental dust mitigation measures (Section 1.2).

Table 6. Predicted maximum monthly dust deposition rate as a function of distance from the Whale Tail Haul Road.

Distance (m)	Predicted Dust Deposition (mg/cm^2/30d)	Measured Maximum Background Dust Deposition (mg/cm^2/30d)	Predicted + Background Dust Deposition* (mg/cm^2/30d)
25	3.4	0.27	3.67
100	1.9	0.27	2.17
300	0.59	0.27	0.86
1000	0.11	0.27	0.38
*Agnico Eagle (2018b) - FEIS Addendum, Appendix 4C, Table 4-C-24			

SECTION 4 • 2024 MONITORING RESULTS

4.1 TSP, PM_{10}, $PM_{2.5}$

4.1.1 24-h Average

Sampling dates and 24-h average concentrations of TSP, PM_{10} and $PM_{2.5}$ are shown in Figures 3 - 5. Data loss and operational difficulties for the Partisol samplers are discussed further in Section 4.4, but for all six Partisol units, data loss was considered minimal. Downtime only extended beyond one or two samples in a row for the $PM_{2.5}$/PM_{10} unit at DF-2, where instrument malfunction requiring onsite diagnosis and repair occurred between March 31 and June 5.

As in previous years, TSP concentrations for the Meadowbank Complex were generally well below regulatory standards, with five of 173 samples across the three monitoring stations exceeding the GN's 24-h standard of 120 µg/m^3. This included four samples at the Whale Tail Mine location (DF-6b) where FEIS Addendum modeling predicted this would occur (Section 3.2.1). A maximum measured value of 260 µg/m^3 was recorded at DF-2 (March 25), which continues to be within the historically recorded high value of 459 µg/m^3 (Section 5.1).

For PM_{10}, none of the 103 samples collected across Meadowbank Mine stations DF-1 and DF-2 exceeded the BC Air Quality Objective of 50 µg/m^3 for the 24-h average, or the relevant FEIS predictions. As noted in Section 3.2.1, these predictions only account for power plant and mobile sources, so it is expected they may be exceeded in some portion of field samples. FEIS Addendum predictions for the Whale Tail Mine indicated that maximum PM_{10} concentrations at DF-6b would exceed the BC 24-h standard of 50 µg/m^3, which occurred in one of 59 samples in 2024.

For $PM_{2.5}$, one of 161 samples across all three stations exceeded the GN guideline of 30 µg/m^3 for the 24-h average and the 2020 Canadian Ambient Air Quality Standard of 27 µg/m^3 for the 24-h average. This occurred at DF-6b (36 µg/m^3, August 10), and this same sample also exceeded the FEIS 24-h maximum model prediction for this station, which also occurred in two samples at DF-2 (July 23 and 29, max. 23 µg/m^3). As indicated above, the DF-1 and DF-2 predictions only account for power plant and mobile sources, so it is expected they may be exceeded in some portion of field samples.

In general, peaks in measured concentrations of suspended particulates occurred in March-April and July-August, which is similar to previous years and likely related to reduced snow cover and increased site activity during the summer season. Inter-annual trends are discussed in Section 5.1.

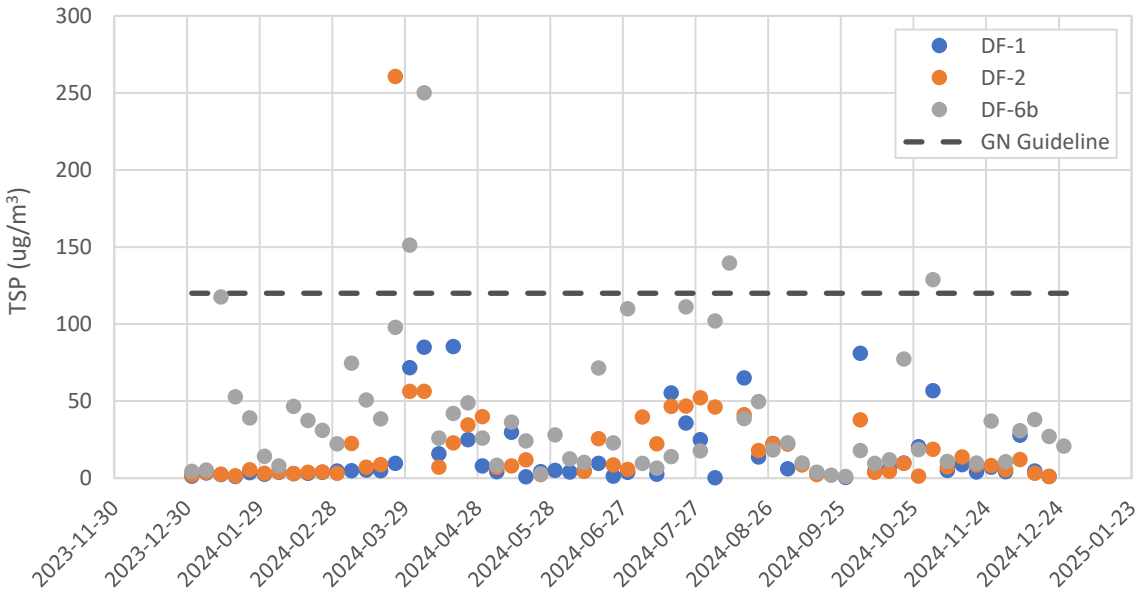

Figure 3. 24-h average concentrations of total suspended particulates (TSP) at Meadowbank Complex stations DF-1, DF-2, and DF-6b.

Note: Dashed line indicates the 24-hr average GN guideline for ambient air quality.

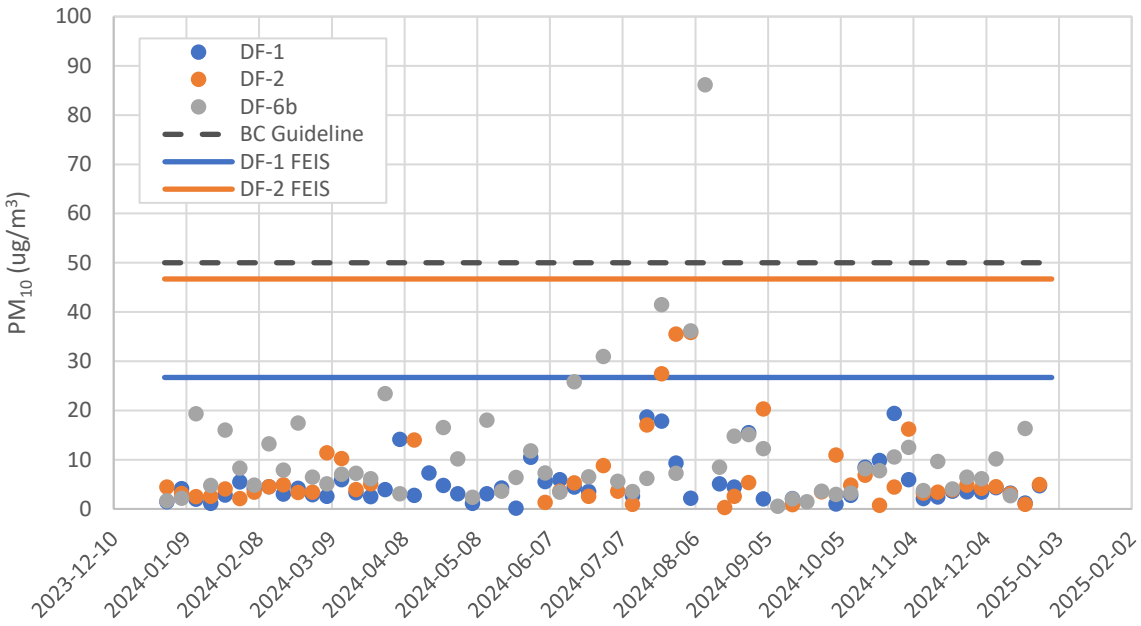

Figure 4. 24-h average concentration of airborne particulate matter less than 10 microns (PM_{10}) at Meadowbank Complex stations DF-1, DF-2, DF-6b.

Note: Dashed line indicates the BC Air Quality Objective for this parameter. Solid lines indicate FEIS maximum model predictions (see text).

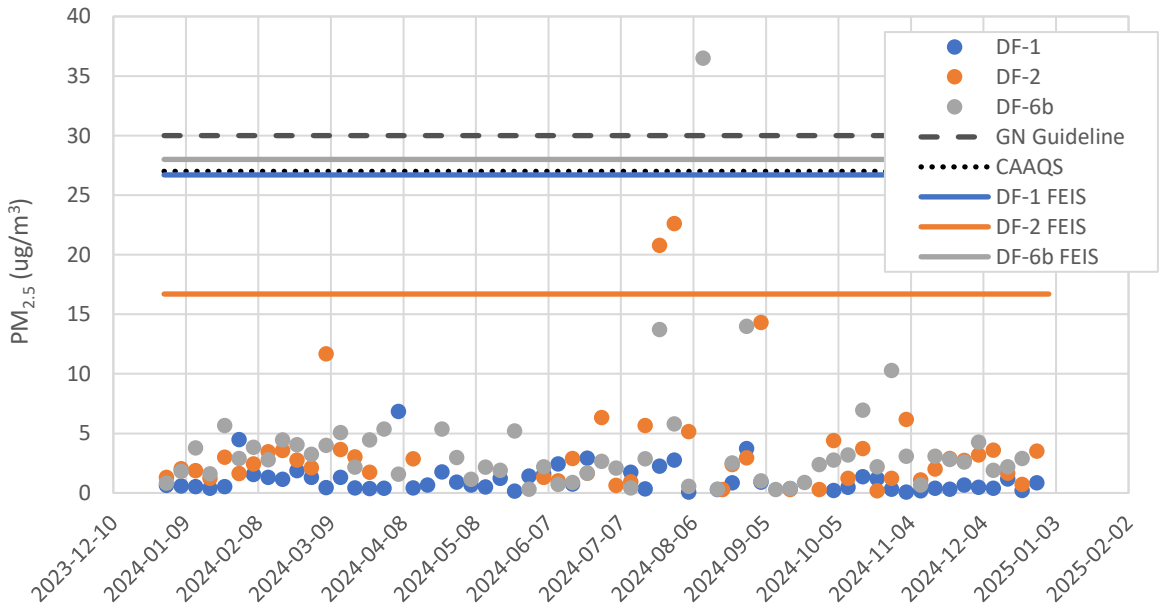

Figure 5. 24-h average concentration of airborne particulate matter less than 2.5 microns ($PM_{2.5}$) at Meadowbank Complex stations DF-1, DF-2, and DF-6b.

Note: Dashed line indicates the GN guideline for ambient air quality, and the dotted line represents the Canadian Ambient Air Quality Standard (CAAQS; 2020). Solid lines indicate FEIS maximum model predictions (see text).

4.1.2 Annual Average

Annual geometric mean concentrations of TSP at DF-1, DF-2, and DF-6b were 6.6, 9.7, and 24.1 µg/m^3, respectively. These results are less than the GN guideline for the annual average of 60 µg/m^3, and are similar to values observed in previous years (Table 7).

Annual arithmetic mean concentrations of $PM_{2.5}$ were 1.1, 3.7 and 3.7 µg/m^3 at DF-1, DF-2, and DF-6b respectively, which are all less than the 2020 Canadian Ambient Air Quality Standard of 8.8 µg/m^3 (Table 7). It is noted that the CAAQS for $PM_{2.5}$ is based on the 3-year average of 24-hr concentrations. Comparisons to annual averages are considered conservative, and 3-year results will be reviewed if any exceedances occur in annual data.

The annual arithmetic mean TSP concentration was also calculated from measured 24-h samples and compared along with the $PM_{2.5}$ annual arithmetic mean to the Meadowbank FEIS and Whale Tail FEIS Addendum model-predicted maximum annual concentrations. These values are shown in Table 8. All results were less than model predictions in 2024.

Table 7. Annual geometric mean concentrations of TSP and arithmetic mean concentrations of $PM_{2.5}$ at DF-1, DF-2, and DF-6b for comparison with the GN guideline and CAAQS.

Year	TSP (µg/m^3)				$PM_{2.5}$ (µg/m^3)			
	DF-1	DF-2	DF-6b	GN Guideline	DF-1	DF-2	DF-6b	CAAQS
2012	8	12	-	60	-	-	-	-
2013	4.6	14.0	-	60	-	-	-	-
2014	6.5	12.8	-	60	-	-	-	-
2015	5.1	9.8	-	60	-	-	-	10
2016	3.8	6.4	-	60	-	-	-	10
2017	2.1	10.5	-	60	-	-	-	10
2018	4.9	9.8	-	60	0.2	1.4	-	10
2019	7.0	6.6	-	60	0.5	1.5	-	10
2020	3.8	7.1	14.1	60	0.6	1.9	1.5	8.8
2021	1.6	6.2	9.4	60	0.5	1.9	1.8	8.8
2022	5.3	10.7	32.6	60	1.1	6.5	3.9	8.8
2023	5.0	10.3	17.6	60	0.7	3.3	4.5	8.8
2024	6.6	9.7	24.1	60	1.1	3.7	3.7	8.8
"-" indicates not available or not required to be calculated for annual reporting purposes.								

Table 8. Arithmetic mean of the measured 24-h concentrations and FEIS-modeled maximum annual average concentrations of TSP and $PM_{2.5}$ for monitoring stations DF-1, DF-2, and DF-6b at the Meadowbank Complex.

Year	DF-1		DF-2		DF-6b			
	$PM_{2.5}$ (µg/m^3)		$PM_{2.5}$ (µg/m^3)		TSP (µg/m^3)		$PM_{2.5}$ (µg/m^3)	
	Measured	FEIS*	Measured	FEIS*	Measured	FEIS	Measured	FEIS^
2020	0.6	4.6	1.9	4.1	35.0	30 - 45	1.4	5 – 7.5
2021	0.5		1.9		24.3		1.8	
2022	1.1		**6.5**		**64.9**		3.9	
2023	0.7		3.3		37.1		4.5	
2024	1.1		3.7		41.7		3.7	

* Cumberland, 2005
^ Agnico Eagle (2018b) - Appendix 4C

4.2 DUSTFALL

4.2.1 Onsite Locations DF-1 – DF-6a

Results of the 2024 onsite dustfall sampling program (30 day-normalized rates of total and fixed dustfall) are provided in Figures 6 - 10. Samples are plotted by the collection start date. For samples below detection limits (typically 0.001 mg/cm^2/30-d), half the limit is used in calculations and figures. To provide context, the Alberta Ambient Air Quality Guideline for industrial/commercial areas for total dustfall (AB-Ind) is indicated (1.58 mg/cm^2/30-d). This guideline is based on aesthetic or nuisance concerns and is to be used for airshed planning and management, as a general performance indicator, and to assess local concerns. The established threshold for dust mitigation actions for these onsite stations is equivalent to this guideline.

Of the 59 onsite dustfall samples collected in 2024, one exceeded the AB-Ind guideline for total dustfall. One sample at DF-6a (Sept. 19 deployment) went missing in the field.

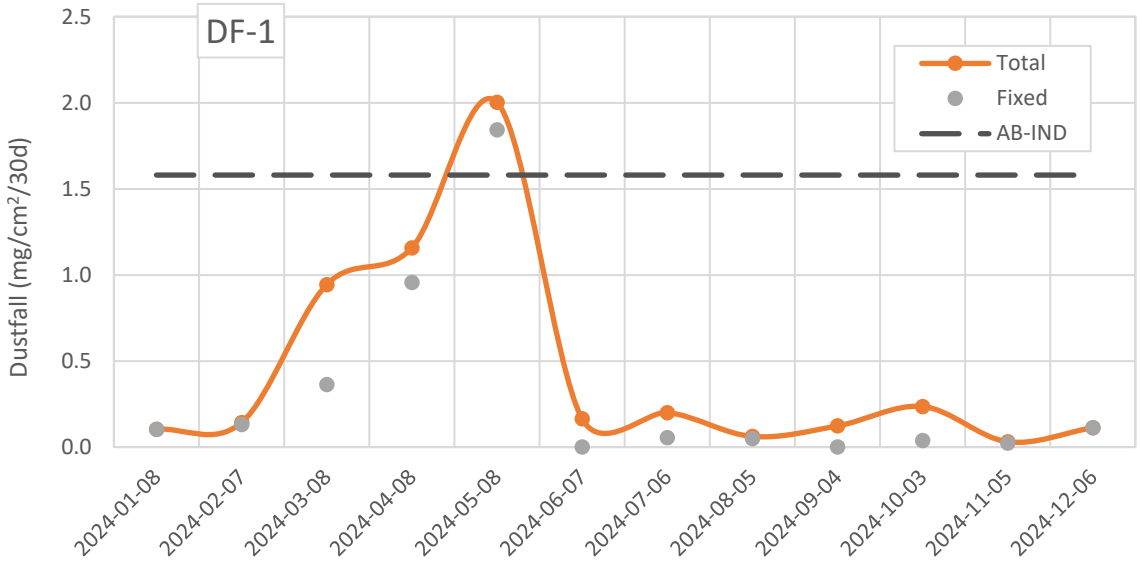

Figure 6. 30-day-normalized rates of total and fixed dustfall at DF-1 at the Meadowbank Mine.

Note: Points represent start date of sample collection. AB-IND indicates the Alberta guideline for industrial/commercial areas, which is equivalent to the management threshold for this station.

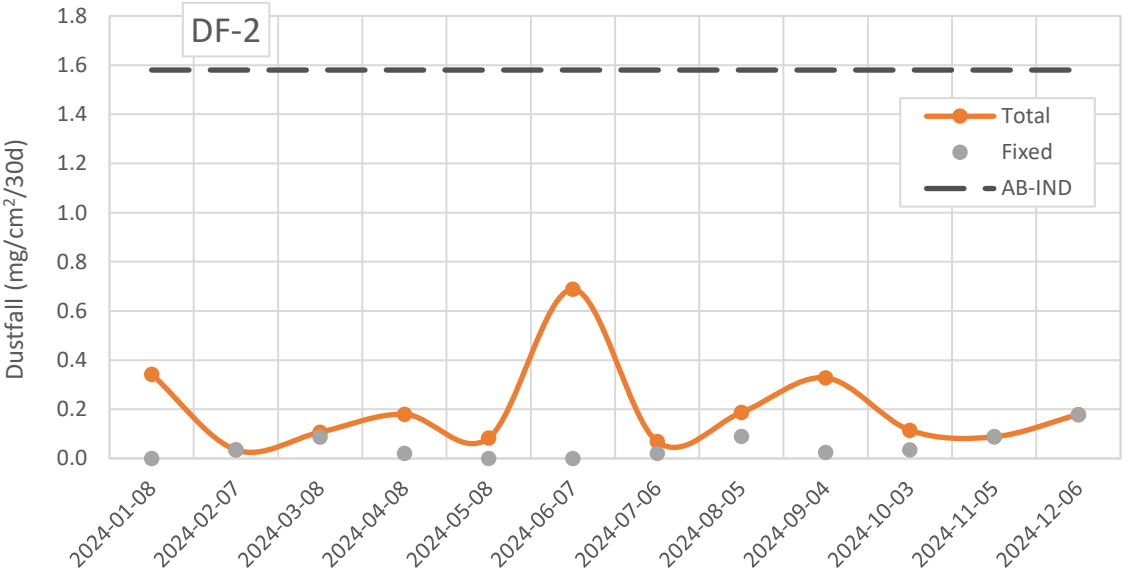

Figure 7. 30-day-normalized rates of total and fixed dustfall at DF-2 at the Meadowbank Mine.

Note: Points represent start date of sample collection. AB-IND indicates the Alberta guideline for industrial/commercial areas, which is equivalent to the management threshold for this station.

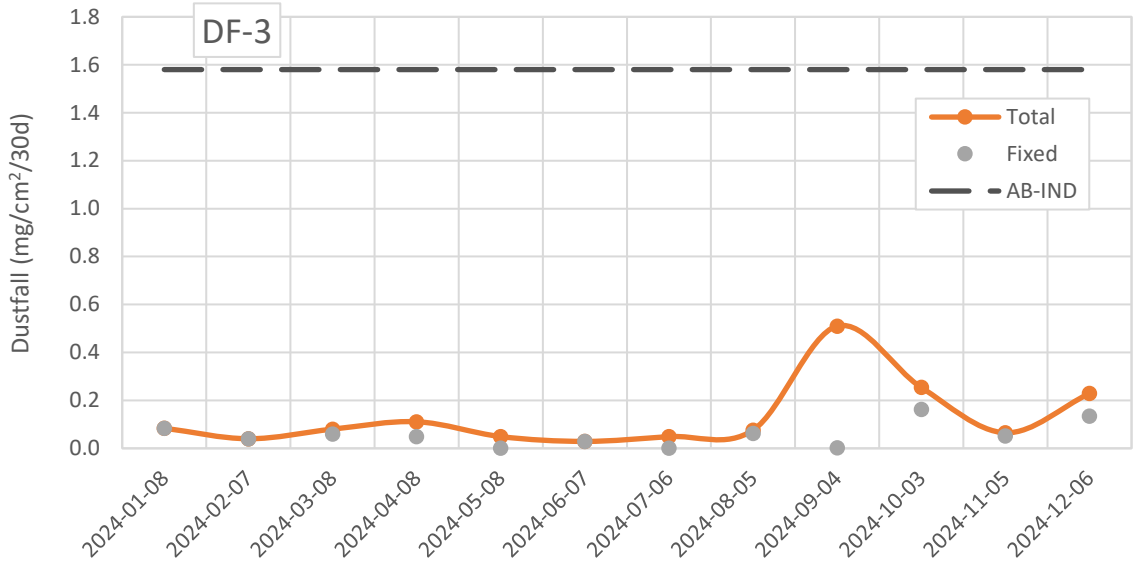

Figure 8. 30-day-normalized rates of total and fixed dustfall at DF-3 at the Meadowbank Mine.

Note: Points represent start date of sample collection. AB-IND indicates the Alberta guideline for industrial/commercial areas, which is equivalent to the management threshold for this station.

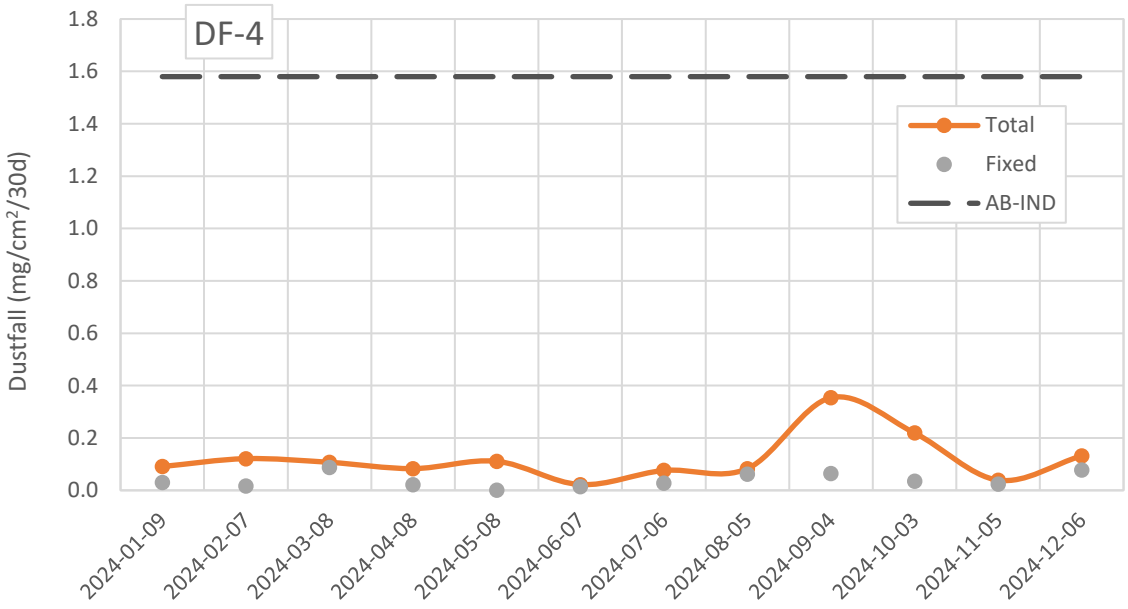

Figure 9. 30-day-normalized rates of total and fixed dustfall at DF-4 at the Meadowbank Mine.

Note: Points represent start date of sample collection. AB-IND indicates the Alberta guideline for industrial/commercial areas, which is equivalent to the management threshold for this station.

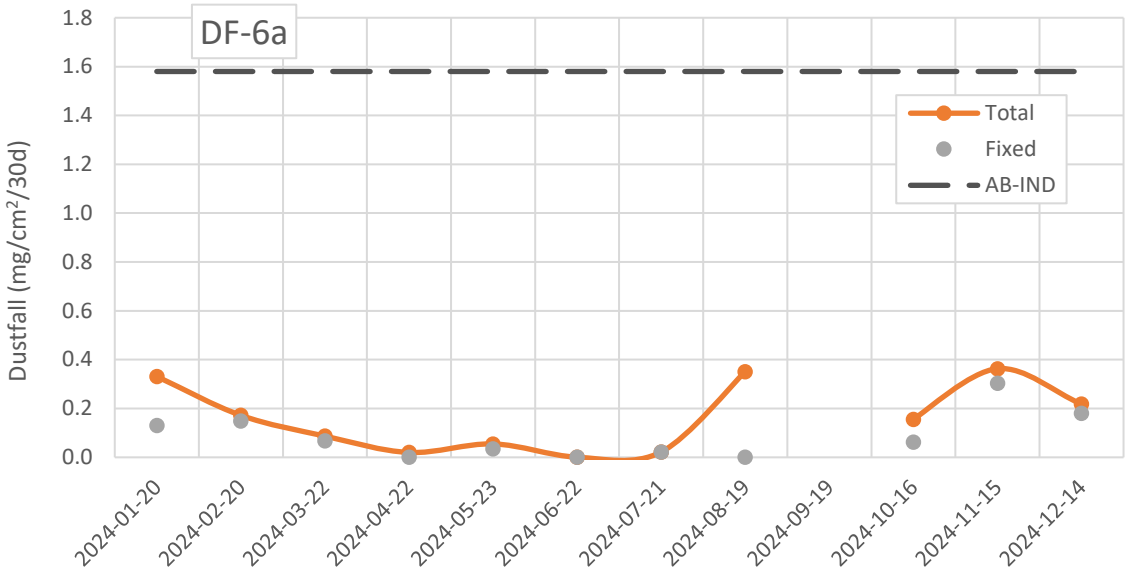

Figure 10. 30-day-normalized rates of total and fixed dustfall at DF-6a at the Whale Tail Mine.

Note: Points represent start date of sample collection. AB-IND indicates the Alberta guideline for industrial/commercial areas, which is equivalent to the management threshold for this station.

4.2.2 Meadowbank AWAR Dustfall Transects

As described in Section 1.4.4, dustfall sampling was conducted over three one-month periods beginning June 11 at two transects along the AWAR (km 18 and 78). In 2024, dust suppressant was applied along the full length of the AWAR, including in these areas (June 16 at km 78, July 1 at km 18).. Results are presented in Figures 11 and 12, and are compared to the Alberta Ambient Air Quality Guideline for recreational/residential areas (AB-Rec). This guideline is applied to samples collected at and beyond 500 m, according to the management threshold established in the current Air Quality and Dustfall Monitoring Plan. It should be noted that this guideline is based on nuisance and aesthetic concerns, and not necessarily impacts to vegetation or wildlife. It is also generally considered to apply to a specific dust source, over and above background values. Therefore, this is considered a conservative, screening-level comparison, and any significant, ongoing exceedances will be further investigated.

For all six transects, trends indicated the AB-Rec threshold was met or would be met for total dustfall at 500 m. For AWAR transect km 18, samples are not collected at the 1,000 m location, due to presence of a waterbody at approximately 800 m from the road, so 300 m is the furthest sample collection point, and results at 500 m are inferred to be less than the management threshold based on results at 300 m (Figure 11).

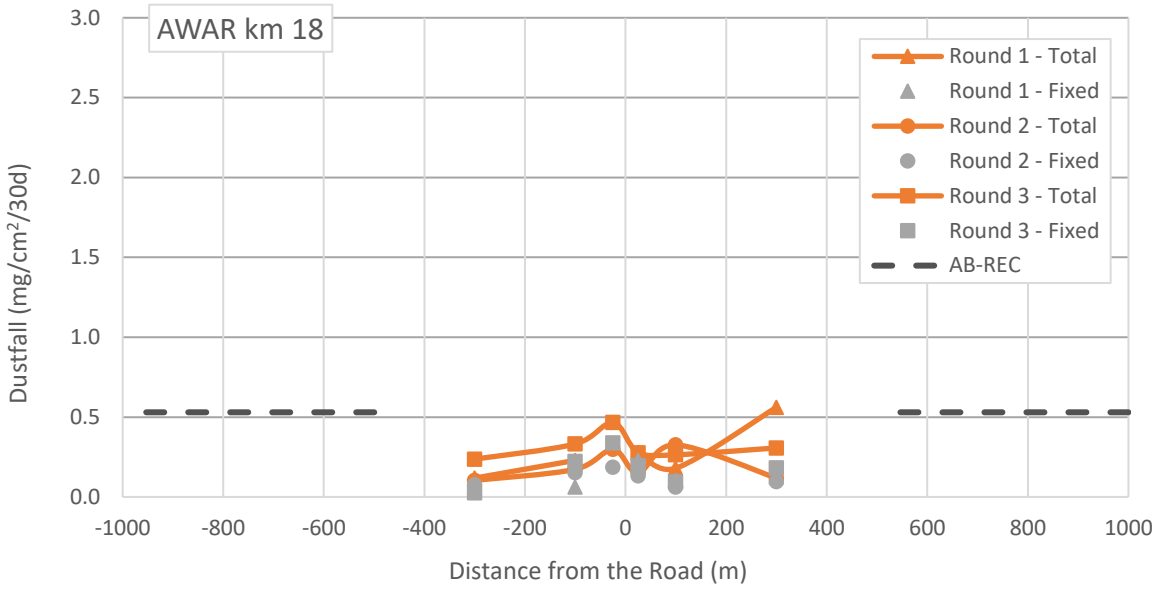

Figure 11. 30-day-normalized rates of total and fixed dustfall at km 18 along the Meadowbank AWAR in summer, 2024.

Note: Points represent start date of sample collection. Positive distances represent the upwind/west side of the road, and negative distances represent the downwind/east side.

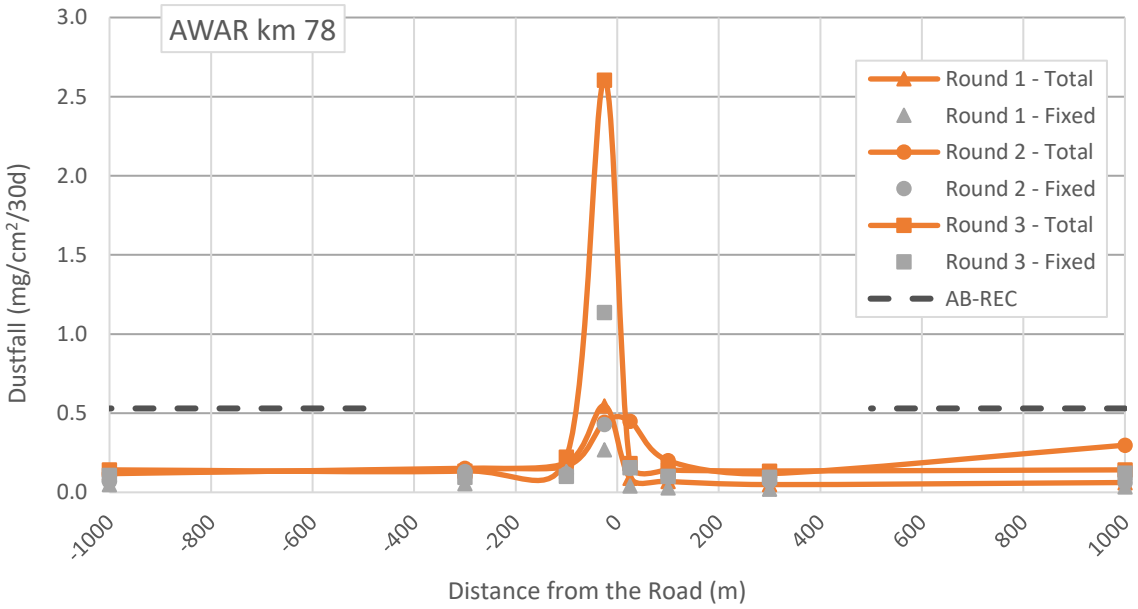

Figure 12. 30-day-normalized rates of total and fixed dustfall at km 78 along the Meadowbank AWAR in summer 2024. Points represent start date of sample collection.

Note: Positive distances represent the upwind/west side of the road, and negative distances represent the downwind/east side.

4.2.3 Whale Tail Haul Road Dustfall Transects

As described in Section 1.4.5, dustfall sampling was conducted over three one-month periods at three transects along the WTHR in 2024, beginning June 11. Results are provided in Figures 13 - 15. During round 1 at km 151, sample canisters at 25 m east, 300 m east, and 1000 m west were lost in the field. At km 169, the sample canister at 300 m east was lost for round 1. It is considered likely they were pulled from their holders by strong wind events. This has occurred from time to time historically.

As in previous years, some specific FEIS Addendum model predictions were exceeded, but only in single samples and only within very close proximity to the road (25 m). The overarching FEIS prediction that maximum deposition rates along the AWAR would decline below the AB-Rec guideline within 500 m of the road was met in all cases. This prediction is equivalent to the management threshold.

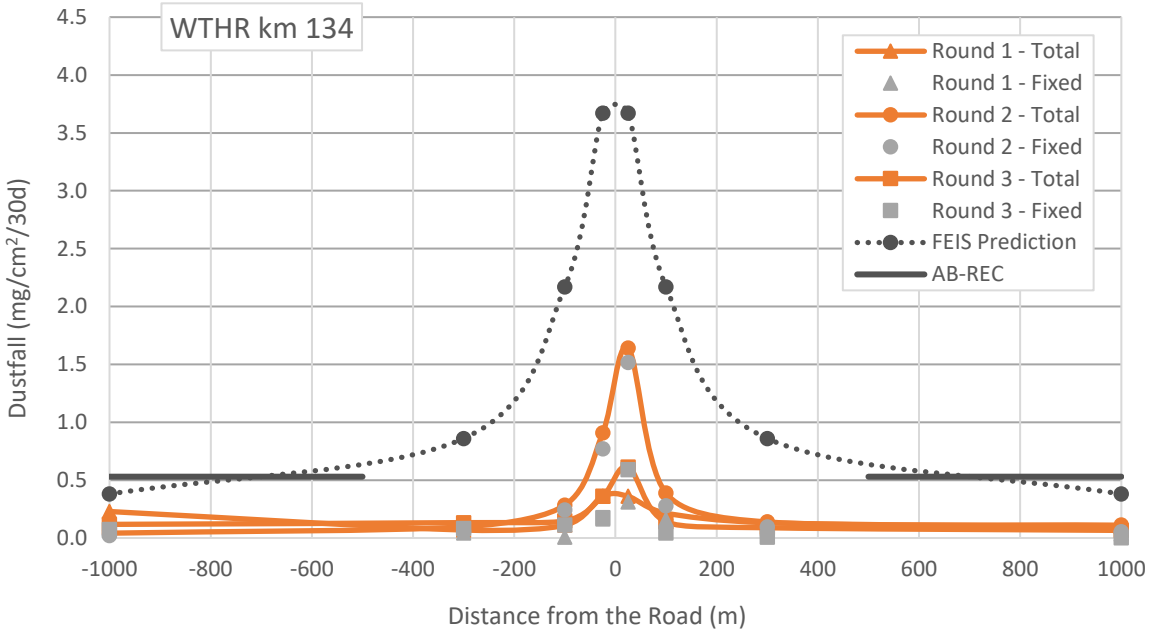

Figure 13. 30-day-normalized rates of total and fixed dustfall at km 134 along the Meadowbank WTHR in summer, 2024.

Note: Positive distances represent the west side of the road, and negative distances represent the east side.

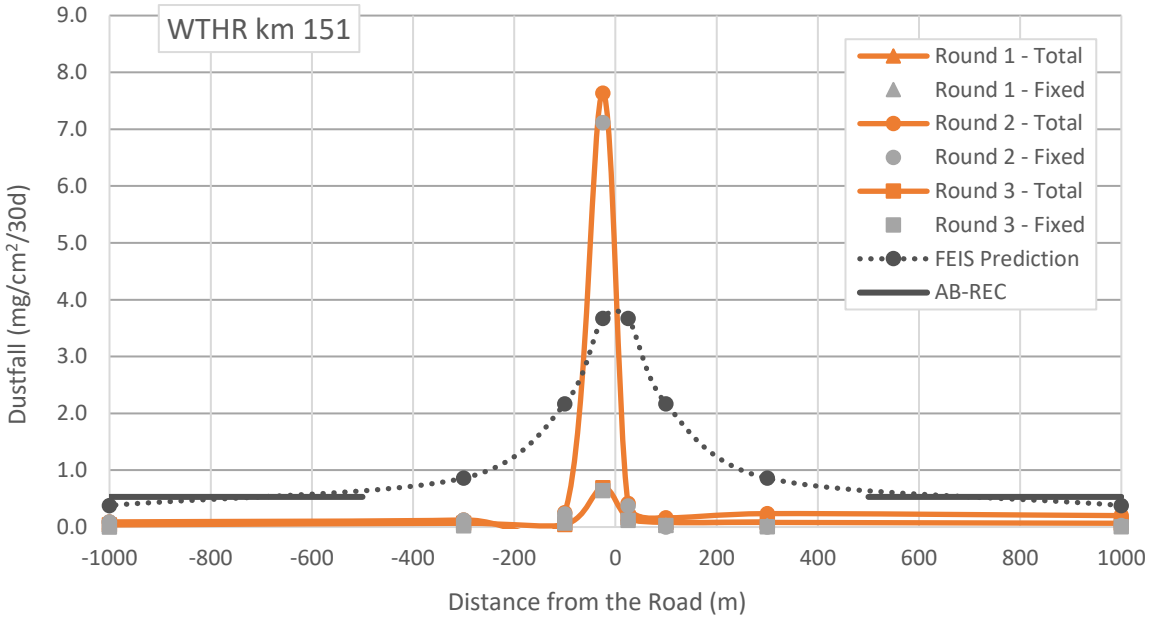

Figure 14. 30-day-normalized rates of total and fixed dustfall at km 151 along the Meadowbank WTHR in summer, 2024.

Note: Positive distances represent the west side of the road, and negative distances represent the east side.

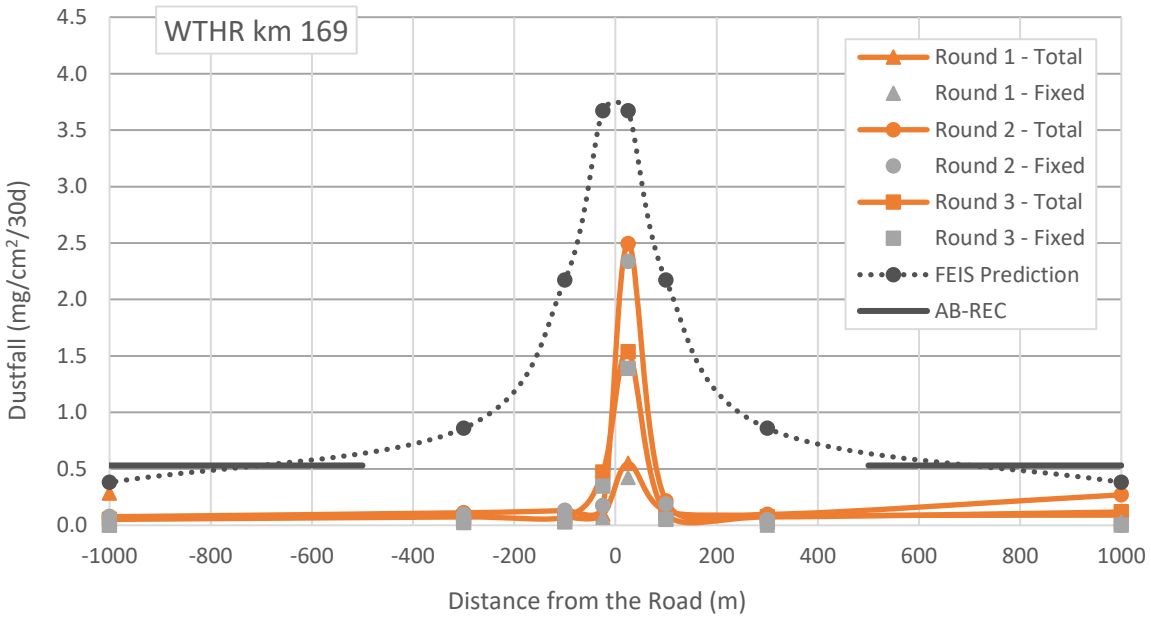

Figure 15. 30-day-normalized rates of total and fixed dustfall at km 169 along the Meadowbank WTHR in summer, 2024.

Note: Positive distances represent the west side of the road, and negative distances represent the east side.

4.3 NO_2

4.3.1 Passive NO_2

Monthly-average NO_2 trends in 2024 as measured by passive sampling devices are provided in Figure 16. Samples are plotted by the collection start date. For samples below detection limits (0.1 ppb), half the limit is used in calculations and figures. In 2024, monthly-average concentrations of NO_2 varied between non-detect (<0.1 ppb) and 5.4 ppb.

Annual arithmetic mean concentrations were calculated for each station from the monthly-average values (Table 9). Annual averages are all less than the GN Ambient Air Quality Standard of 32 ppb and the 2025 CAAQS of 12.0 ppb. Results for DF-2 and DF-6a were also less than the maximum FEIS model-predicted annual averages.

Table 9. Arithmetic mean of the measured 1-month passive sampler NO_2 concentrations, along with the GN guideline, 2025 Canadian Ambient Air Quality Standard (CAAQS), and FEIS maximum model prediction.

Year	*Guidelines*		*FEIS Predictions*		Measured Values				
	GN	***CAAQS***	***DF-2****	***DF-6a^***	**DF-1**	**DF-2**	**DF-6a**	**DF-8**	**DF-9**
	ppb	*ppb*	*ppb*	*ppb*	ppb	ppb	ppb	ppb	ppb
2021	*32*	*12*	*4.97*	*8 – 16*	0.30	1.27	1.66	0.25	0.27
2022					0.44	0.94	2.17	0.27	0.31
2023					0.33	0.91	2.00	0.40	0.54
2024					0.51	1.42	1.77	0.30	0.23
*Cumberland (2005) ^Agnico Eagle (2018b) – Appendix 4C									

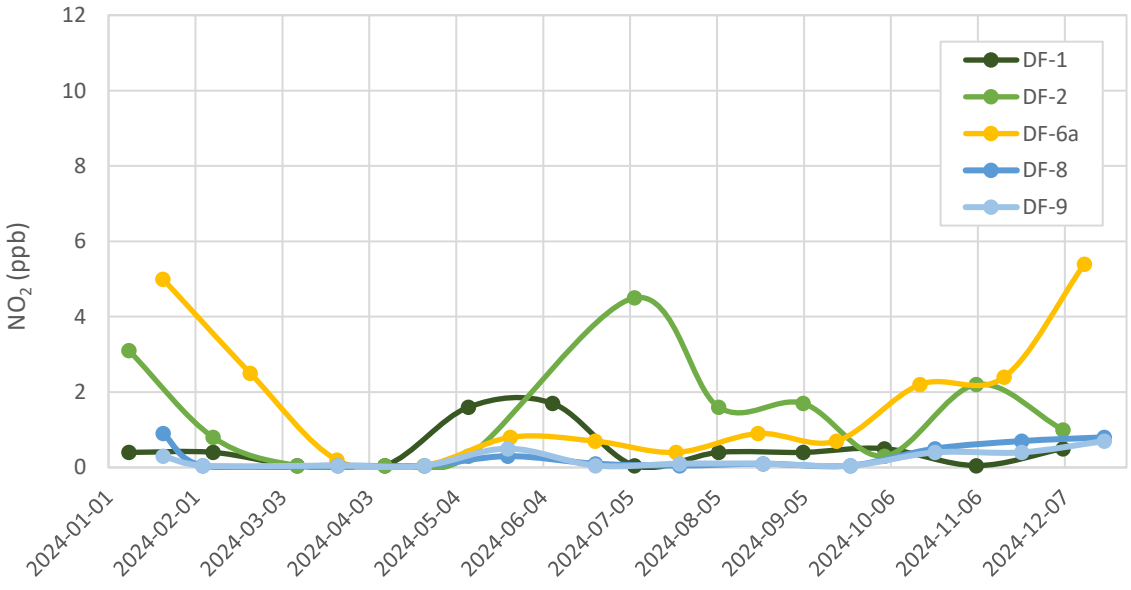

Figure 16. Monthly average concentration of NO_2 at Meadowbank Complex monitoring stations DF-1, DF-2, DF-6a, DF-8, and DF-9.

Note: Points represent start date of sample collection. Y-axis is scaled to the 2025 Canadian Ambient Air Quality Standard for the annual average, for reference (12 ppb).

4.3.2 Continuous NO_2

As described in Section 2.3, a continuous NO_2 analyzer was installed at location DF-7 in July, 2021, and monitoring results are reported annually. To identify valid data for reporting purposes in 2024, the recorded dataset for January 1 – December 31, 2024 was screened according to ECCC (2019) as described below.

1 – Review of daily calibration checks (zero and span check) to identify data recorded outside of acceptable targets (+/- 2 ppb for zero check, +/- 10% for span check).

During the data review, it was determined that since November, 2023 (when an onsite calibration by the service provider was performed), the instrument has been set to perform daily zero and low span calibrations, rather than checks. When this procedure ran correctly, reported measurements were within targets. However, through conversation with the service provider, it was determined likely that as soon as a power interruption occurred, the test gas flow was no longer engaged during the daily auto calibrations, and ambient air was measured instead. Since ambient air was outside of the range of acceptability for low span calibrations, no calibration occurred and the auto low span procedure was flagged as a fail. Since ambient air was within acceptable targets for the background/zero calibration procedure, the instrument self-calibrated using ambient NO/NOx as 0 ppb. This occurred after any power interruption until the instrument was re-set. Because brief power interruptions are very common (at least 125 interruptions of 1 min or more occurred in 2024), nearly the entire dataset was collected under these conditions in 2024. Daily calibrations only ran correctly on February 17, 18, 19, March 2 – 9, and September 27.

In 2024, as-found verifications were performed by the service provider on March 2 and September 27. Both indicated the analyzer remained within calibration standards at that time. As a result, all data from January 1 – September 27, 2024 that was not excluded from analysis on the basis of outliers (described below) or instrument servicing (March 2-3, September 27) is shown in this report to have been collected within quality control targets. Data from September 28 – December 31, 2024, is shown as pending validation (through next as-found verification).

Agnico Eagle continues to work with the service provider to find solutions to these problems which are now known to be caused by any power interruption.

2 – Screening for outliers (elevated concentrations, generally >100 ppb, potentially caused by an idling vehicle in close proximity).

Four events were identified (February 12, 12:46 am; May 6, 2:48 pm; October 6, 11:55 pm; December 7, 1:20 pm). In all cases the hourly averages for these time periods were excluded from the final dataset.

Results collected during any low span calibrations was removed (1 – 2 am, dates indicated above). All data for March 2 & 3 and September 27 are also removed from the final dataset since calibration/maintenance procedures occurred during this time.

The one-minute data was then processed to calculate hourly and 24-h averages for NO_2. According to ECCC (2019), negative hourly averages were corrected to zero in this process, and hours with less than 45 min of data were removed.

All hourly and 24-h averages were well below the GN guideline and 2025 CAAQS (Figures 17 and 18). The annual average based on all data collected from January 1 – December 31 was 0.31 ppb. This is well

below the GN standard (32 ppb) and 2025 CAAQS (12 ppb), and similar to annual averages calculated using co-located passive sampling devices (DF-8; Table 9 in Section 4.3.1). No quantitative FEIS predictions are available for the DF-7 location.

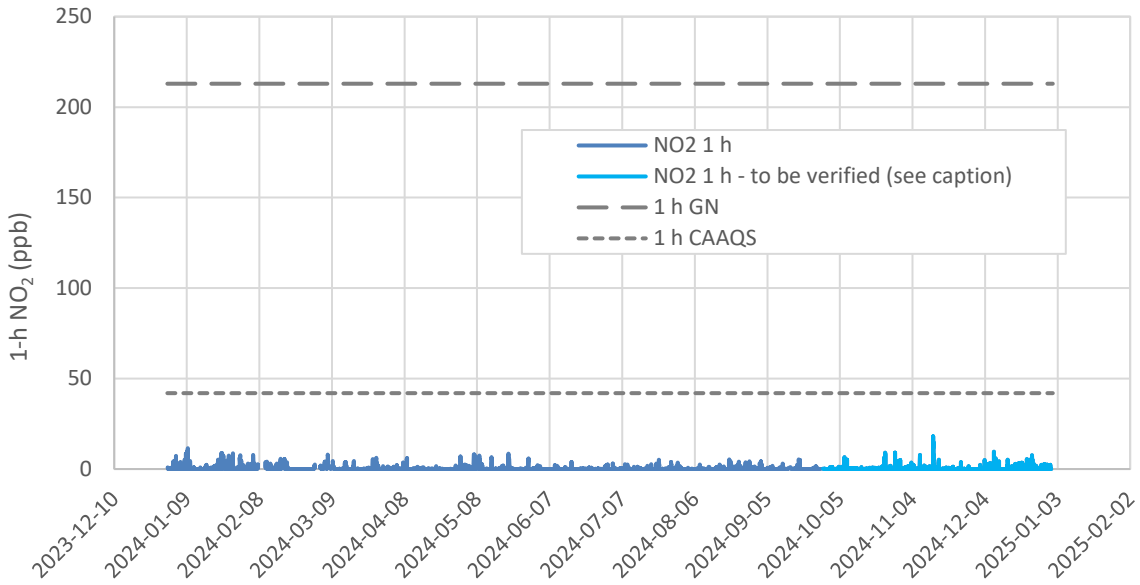

Figure 17. Calculated 1-h average concentrations of NO_2 at station DF-7 in 2024, along with the Government of Nunavut (GN) guideline and 2025 Canadian Ambient Air Quality Standard (CAAQS).

Note: Data collected since September 27, 2024 has yet to be validated through as-found instrument verification (see text).

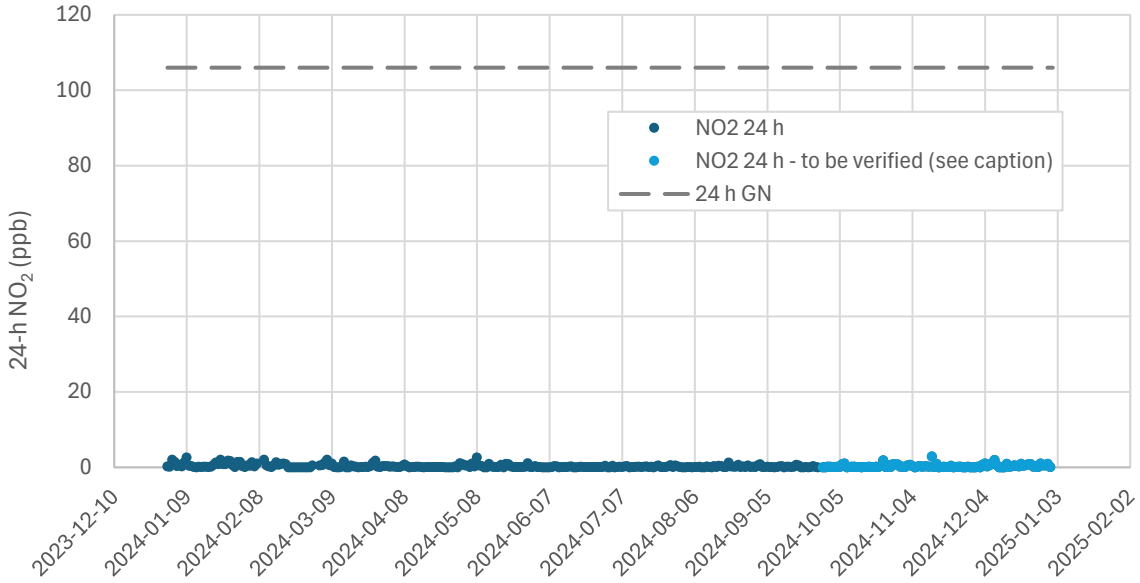

Figure 18. Calculated 24-h average concentrations of NO_2 at station DF-7 in 2024, along with the Government of Nunavut (GN) guideline.

Note: Data collected since September 27, 2024 has yet to be validated through as-found instrument verification (see text).

4.4 QA/QC

QA/QC procedures in 2024 included the use of an accredited lab for sample preparation and analysis, sample collection by appropriate personnel (trained by a professional air quality specialist), use of travel blanks for passive NO_2, and use of field duplicates for dustfall transects.

Maintenance and replacement schedules for the Partisol and continuous NO_2 instruments are also discussed here, along with any data loss due to operational downtime or sampling errors.

4.4.1 Partisol Operations and Maintenance

Due to ongoing difficulties in maintaining the Partisol instruments, repairs continue to be performed or parts replaced as necessary on all units. Agnico Eagle brought the Partisol supplier onsite most recently in March and November, 2024 to complete a full audit of the six instruments in use, and provide supplemental training to Environment Department personnel. During these visits, the supplier provided maintenance, along with recommendations for improved performance and reduction of downtime, a list of parts needed for some units repairs/maintenance, and a list of spares parts. Spare parts are held onsite to reduce operational delays, but it is not considered feasible to maintain a complete set of replacement parts.

Following these audits, limited data loss occurred for all six Partisol instruments in 2024. For each unit, Table 10 shows the monitoring period for 2024 reporting along with available and actual number of valid 24-h samples collected. Occasional data loss occurs primarily due to instrument run errors (e.g. filter cartridge doesn't shuttle properly). For the $PM_{2.5}/PM_{10}$ unit at DF-2, downtime was more extended (March 31 – June 5) after instrument malfunction occurred, requiring onsite repair.

Table 10. Available and actual number of valid 24-h samples collected in 2024 for suspended particulates.

Location	Monitoring Period	# Available Sampling Dates	# Valid Samples Collected		
			$PM_{2.5}$	PM_{10}	TSP
DF-1	January 1 – December 26	61	55	55	57
DF-2	January 1 – December 26	61	48	48	56
DF-6b	January 1 – December 26	61	59	59	60

As part of QA procedures and data processing, Partisol operational data files are downloaded from each instrument and reviewed to ensure sampling occurred without error, and confirm intake volumes for use in volumetric calculations. Sample volumes and durations within approximately 10% of targets are considered valid for reporting purposes. Where reduced volume sampling occurs (e.g. due to power outage or instrument failure), samples are discarded.

As discussed in Section 2.1, concentrations of particulates need to be calculated using air volumes normalized to 25°C and 101.3kPA (standard temperature and pressure; STP). In 2024, depending on system settings, standardized volumes were either recorded by the Partisol unit (DF-1 TSP, DF-2 $PM_{2.5}$/PM_{10}, DF-6b), or were calculated from average ambient temperature and pressure values recorded by the Partisol unit during the sampling period (DF-1 $PM_{2.5}$/PM_{10}, DF-2 TSP).

4.4.2 Continuous NO_2 Operations and Maintenance

As described in Section 2.3, the continuous NO_2 analyzer was installed at location DF-7 in July, 2021. Routine maintenance is performed weekly by onsite technicians trained by the supplying consultant, with at least bi-annual calibration and servicing by professionals brought onsite.

Various issues have resulted in instrument downtime or data validity caveats, as documented here.

At the time of a pre-scheduled onsite quarterly calibration and servicing on July 26, 2022 by the supplier, a problem with the instrument's ozonator board was identified, which was preventing proper function. The instrument was not functional until June, 2023 while servicing was ongoing via the supplier and calibration service provider. Specifically, the replacement of the ozonator board SD card was initially proposed by the supplier. It was shipped to site and installed but found to be defective (August 2022). A new card was shipped and installed in mid-September, but did not fix the problem. The instrument was shipped south to the supplier for repairs (November 8). Multiple problems were found including: a faulty pressure board, a minor system leak caused by a cracked convertor cartridge fitting, and a manufacturer recall on the ozone destroyer and pump. This extensive list of broken parts so early in the instrument's life is considered unusual by the supplier, and they are working with Agnico to identify potential causes and mitigation measures to limit similar issues in the future.

Instrument repairs were completed by December 15, 2022. The instrument arrived back onsite December 23, and was re-installed December 28, 2022. However, the instrument failed again shortly after installation, and the supplier was brought back onsite (February 2023) to provide maintenance. The issue was again determined to be a damaged ozonator, which was ordered and brought to site by the supplier and installed on June 3, 2023. The instrument was calibrated and operational beginning June 4, 2023.

However, during a servicing visit on November 3, 2023, the instrument was found not to be performing calibration (low span) checks. These checks had not been performed since June 4. The service provider fixed this issue, and the unit performed properly until November 9, when span checks again ceased. During return visits by the service provider in early March, 2024 and September, 2024, as-found verification was performed and the instrument was found to be properly calibrated. Although calibration checks were not being performed, the instrument remained within calibration standards. The supplier could not resolve the issue at the time, but several parts were replaced on a precautionary basis.

During data review in 2024 and through subsequent discussion with the supplier, it was determined that daily calibrations or checks only run correctly until a power interruption occurs, at which time test gas flow fails and does not resume until it is manually re-set. Since brief power interruptions are very common (at least 125 interruptions occurred in 2024), it is not realistic for Agnico Eagle technicians to manually visit and re-set the instrument after each one. Agnico Eagle continues to work with the supplier to remedy this issue.

4.4.3 Travel Blanks and Field Duplicates

Collection of travel blanks and field duplicates is not specified in the management plan for air quality parameters (except passive NO_2, described below), but these are collected opportunistically.

As part of the laboratory method, collection of travel blanks is required for passive NO_2 samplers. In 2024, these laboratory-supplied containers were analyzed for all NO_2 shipments (25 blanks total) and results ranged from non-detect (0.1 ppb) to 1.6 ppb. This is similar to previous years. Blank subtraction is performed by the accredited laboratory as part of the analytical method and so final results reported here include that subtraction.

Field duplicate dustfall canisters are collected in the immediate vicinity of regular transect samples to help characterize variability in deposition. The relative percent difference (RPD) values calculated for total dustfall for duplicate canisters are shown in Table 11. Relative to other media, RPDs in dustfall samples have tended to be very high. This variability is taken into consideration when interpreting the results of the dustfall studies.

Table 11. Relative Percent Difference (RPD) values for total dustfall in duplicate dustfall canisters on the east (E) or west (W) side of the Whale Tail Haul Road (WTHR) and All-Weather Access Road (AWAR) in 2024.

Location	Start Date	Sample	Duplicate	RPD
		(mg/cm^2/30d)	(mg/cm^2/30d)	(%)
AWAR km 18; 100 m E	Jun. 11	0.229	0.291	12
	Jul. 11	0.173	0.146	8
	Aug. 10	0.330	0.264	11
AWAR km 78; 25 m E	Aug. 6	0.547	0.485	6
	Jul. 11	0.443	0.499	6
	Aug. 10	2.605	0.418	72
WTHR km 134; 25 m E	Jun. 11	0.360	0.139	44
WTHR km 151; 100 m E	Jun. 11	0.152	0.139	4
WTHR km 169; 25 m E	Jul. 11	0.173	0.319	30

4.5 EFFECTIVENESS OF MITIGATION

The effectiveness of mitigation measures discussed in Section 1.2 to reduce the generation of road dust is determined here through comparison of monitoring results with numeric thresholds identified in the Air Quality and Dustfall Monitoring Plan. These thresholds and results for 2024 are summarized below with a commentary on effectiveness of the mitigation.

Threshold 1: *Dustfall exceeding 0.53 mg/cm^2/30-day at 500 m from the AWAR or WTHR.*

- This threshold was met (km 78, km 134, km 151, km 169) or spatial trends indicate it would be met (km 18) for all transect locations.
- Mitigation activities related to road dust along the AWAR and WTHR are therefore considered to have been effective as designed in 2024.

Threshold 2: *Dustfall exceeding 1.58 mg/cm^2/30-day at stations DF-1 to DF-6.*

- A single monthly sample across all five year-round monitoring stations exceeded this threshold. Given the high variability in dustfall samples, occasional results above the threshold are not considered indicative of trends requiring changes in dust mitigation measures.
- Mitigation activities related to dust deposition for onsite locations are therefore considered to have been effective in 2024.

Threshold 3: *Active PM results exceeding FEIS predictions at DF-6b.*

- For the 24-h averaging time, FEIS predictions with an upper bound are only available for $PM_{2.5}$. In 2024, one of 59 measurements for $PM_{2.5}$ exceeded this prediction. As described in Section 3.2, individual sample exceedances are generally considered indicative of a localized event, rather than a mine-related trend towards unpredicted air quality concerns.
- The FEIS predictions for the maximum annual average concentrations of TSP (45 µg/m^3) and $PM_{2.5}$ (7.5 µg/m^3) were not exceeded.
- Based on these results, mitigation activities related to suspended particulates at the Whale Tail Mine are considered to have been effective in 2024.

SECTION 5 • HISTORICAL COMPARISON

5.1 TSP, PM_{10}, $PM_{2.5}$

In order to understand trends of suspended particulate concentrations at the Meadowbank Complex over time, measured values of TSP, PM_{10}, and $PM_{2.5}$ at DF-1, DF-2, and DF-6b were plotted since monitoring began in 2012 (DF-1, DF-2) and 2020 (DF-6b) (Figures 19 - 21).

Across all three stations, concentrations of suspended particulates have been relatively stable historically. Brief peaks in $PM_{2.5}$ have occurred in recent years at DF-2 and DF-6b. The observed peak at DF-2 in 2022 was likely caused by a fire at the adjacent garage and associated reconstruction works (March-May

2022). Summertime peaks above historical averages have also occurred in August 2023 and July 2024 at DF-2, with similar observations at Whale Tail Mine station DF-6b. In both cases these were restricted to two or three sequential samples and are likely caused by generally increased site activity in summer months. Overall, field sampling results have rarely exceeded 24-h FEIS predictions or regulatory guidelines, and average concentrations of suspended particulates do not appear to have been increasing over time.

For Whale Tail Mine station DF-6b, the management threshold for annual average TSP concentration was exceeded in 2022 (the threshold is equivalent to the FEIS prediction, but less than the GN guideline for the annual average). A review of potential causes and mitigation was initiated at that time, and actions appear to have been effective, since in 2023 and 2024 the management threshold was met.

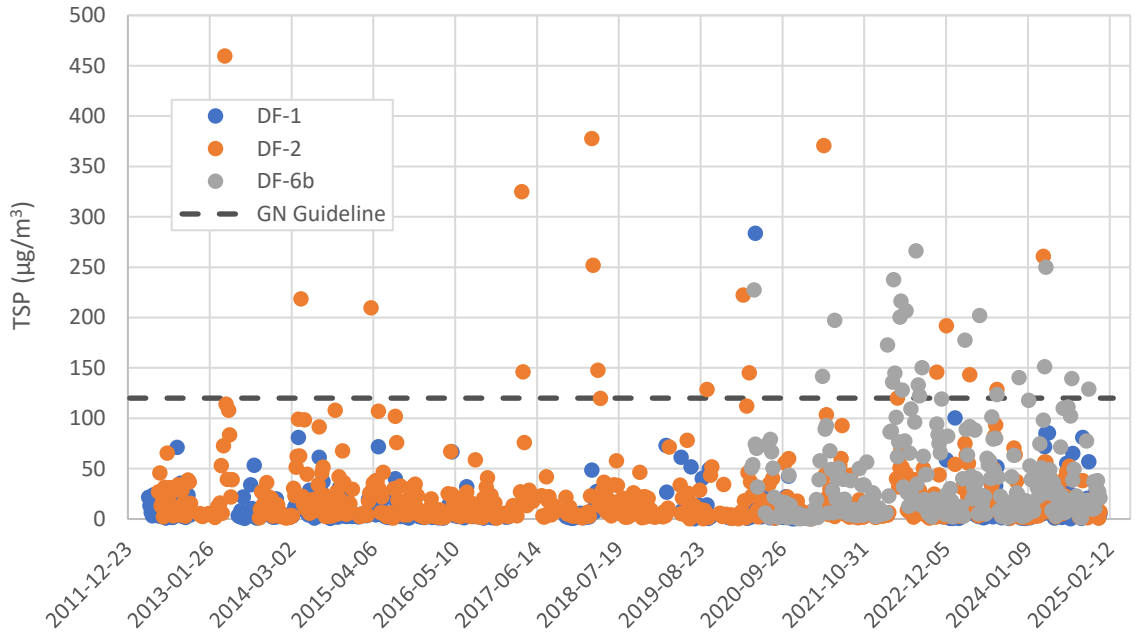

Figure 19. Historical 24-h average measured concentrations of total suspended particulates (TSP) at Meadowbank Complex stations DF-1, DF-2, and DF-6b.

Note: Dashed line indicates the GN Ambient Air Quality Guideline.

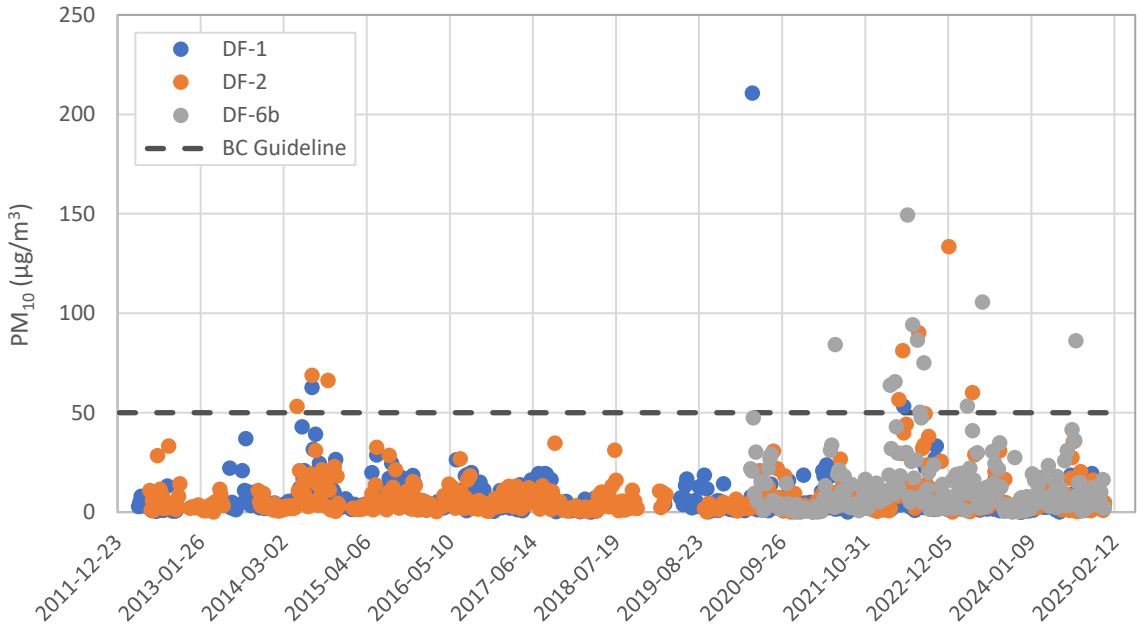

Figure 20. Historical 24-h average measured concentrations of PM_{10} at Meadowbank Complex stations DF-1, DF-2, and DF-6b.

Note: Dashed line indicates the BC Ambient Air Quality Objective.

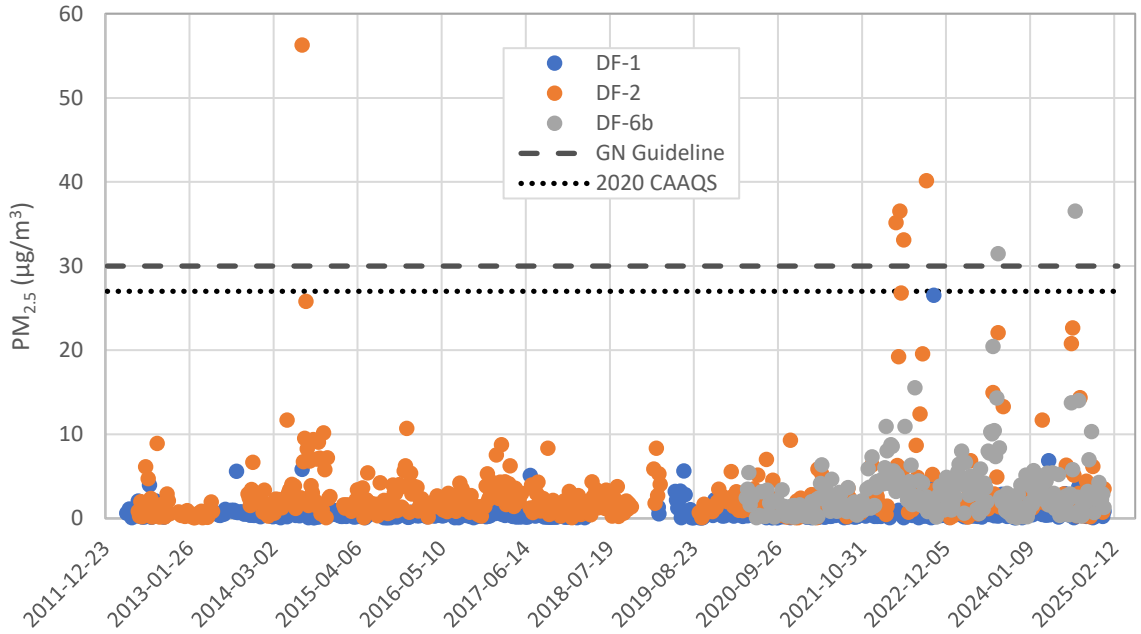

Figure 21. Historical 24-h average measured concentrations of $PM_{2.5}$ at Meadowbank Complex stations DF-1, DF-2, and DF-6b.

Note: Dashed line indicates the 24-hr average GN Ambient Air Quality Guideline and dotted line indicates the CAAQS.

5.2 DUSTFALL

5.2.1 Onsite Locations DF-1 – DF-6

In order to understand trends in deposition of particulate matter at the Meadowbank Complex over time, measured values of dustfall at DF-1, DF-2, DF-3, DF-4, and DF-6a were plotted since monitoring began in 2012 and 2020 (Figure 22). Isolated exceedances of the regulatory guideline have occurred, but rates of dustfall do not appear to have been increasing over time.

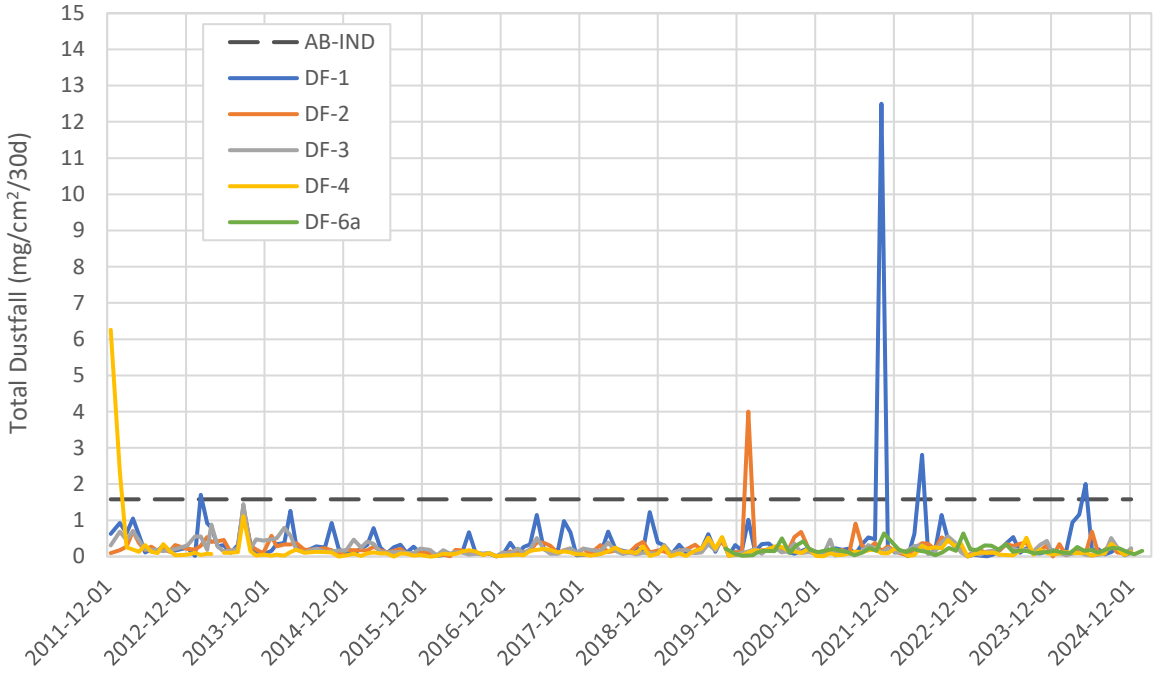

Figure 22. Historical 30-day-normalized rates of total dustfall at DF-1 – DF-6 at the Meadowbank Complex.

5.2.2 Meadowbank AWAR Dustfall Transects

All results collected along the Meadowbank AWAR to date (since 2012) in locations without dust suppression are presented in Figure 23 in relation to AB-Rec. Results are compared here only for samples collected mainly in August, since historically sampling was only performed during this month, when the highest traffic rates and driest weather occurs. In 2020, sampling on stands at approximately 2 m height began, while previously sampling was conducted at ground level. This sampling method reduces the influence of re-entrainment on dustfall results.

The range of background concentrations was determined from a total of 34 samples collected from four reference locations in 2014 – 2019, including: an established external reference site near Inuggugayualik Lake, baseline samples for the proposed Whale Tail Haul Road, and samples collected 1,000 m upwind of the AWAR at km 18 and 78.

Overall, results demonstrate that measured concentrations of dustfall are not increasing over time. Historically and regardless of sampling method, the current threshold for supplemental mitigation of

dustfall (0.53 mg/cm^2/30d at 500 m) has never been exceeded among these August samples, with all but one sample at 300 m and beyond falling below this threshold.

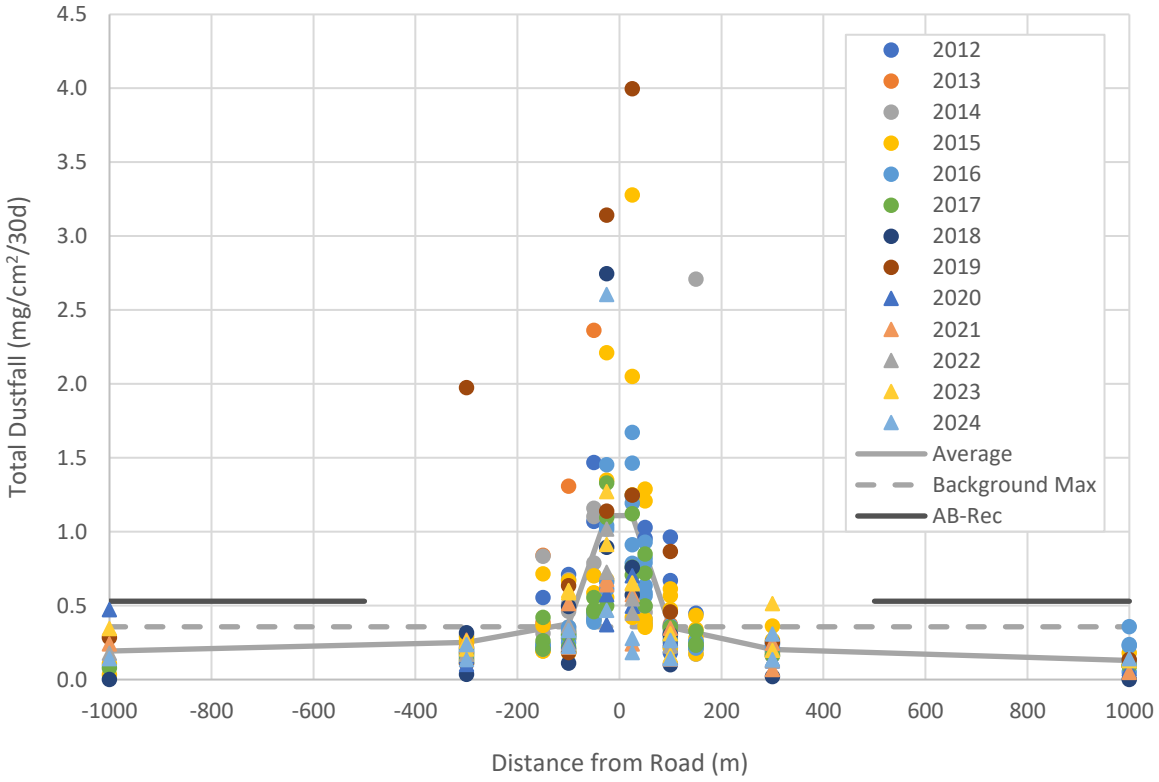

Figure 23. Total dustfall rates (mg/cm^2/30 d) for all samples collected since 2012 (August sampling events) along the Meadowbank AWAR.

Note: Negative distances represent the downwind (east) side of the road, and positive distances represent the upwind (west) side.

5.2.3 Whale Tail Haul Road Dustfall Transects

All results collected to date in August along the Whale Tail Haul Road (2018 - 2024) are shown in Figure 24. This month was chosen for comparative purposes to align with AWAR methods (see above) and because it generally represents the worst-case dustfall scenario (driest conditions and highest rates of traffic). In 2020, sampling on stands began, while sampling in 2018 and 2019 was at ground level.

Generally, rates of dustfall in August 2024 were lower than recent years. Historically, some single samples at 25 m from the road have exceeded specific impact predictions for this distance, but the transect and side of the road are not consistent. As discussed in Section 3.2, differences between dustfall collection methods and deposition modelling mean this comparison is considered for informational purposes only. Overall rates of dustfall do not appear to be increasing year over year.

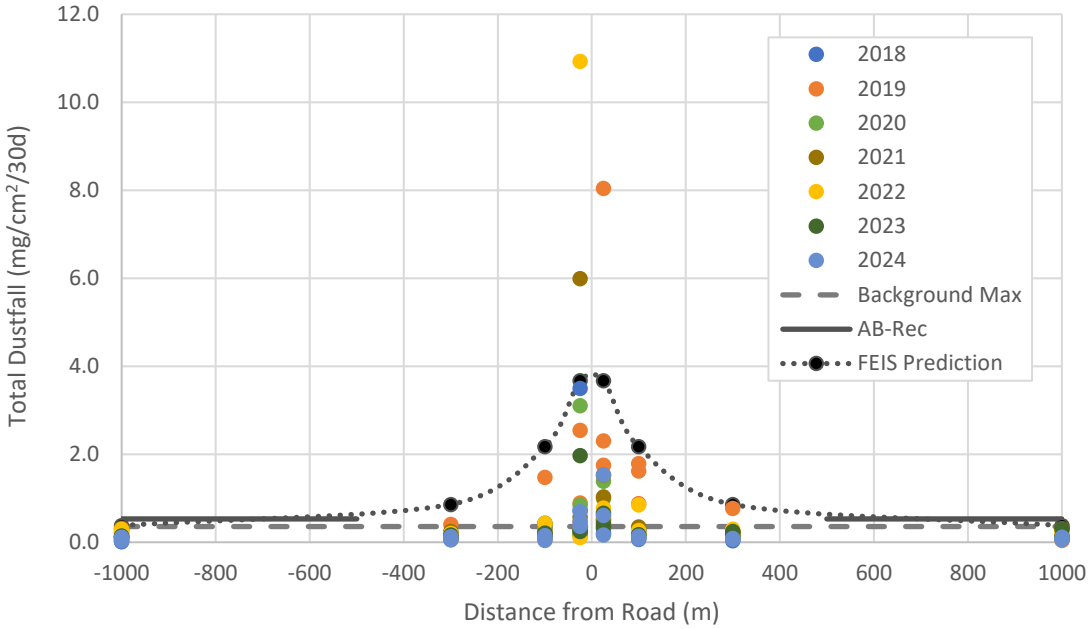

Figure 24. Total dustfall rates (mg/cm^2/30d) for all samples collected in August along the Whale Tail Haul Road to date.

Note: Data in 2018 and 2019 was collected at ground level, while 2020+ samples were collected at 1.8 m. Negative distances represent the east side of the road, and positive distances represent the west side. FEIS Prediction values are from the FEIS Addendum Appendix 4C, Table 4-C-24 (Agnico Eagle, 2018b).

5.3 NO_2

In order to understand trends in concentrations of gaseous pollutants at the Meadowbank Complex over time, measured values of NO_2 collected using passive samplers at DF-1, DF-2, DF-6a, DF-8, and DF-9 were plotted since monitoring began in 2012 (DF-1, DF-2) and 2018 (DF-6a) and 2021 (DF-8, DF-9) (Figure 25). These results indicate that even monthly-average concentrations of NO_2 in the area have remained well below guidelines for the annual average (e.g. CAAQS of 12 ppb), and are not increasing over time.

Historical results for the 24-h average concentration of NO_2 at DF-7 are presented in Figure 26. As described in Section 4.3.2, data collected since September 27, 2024 has yet to be validated. All results historically have been less than the GN guideline for this averaging time.

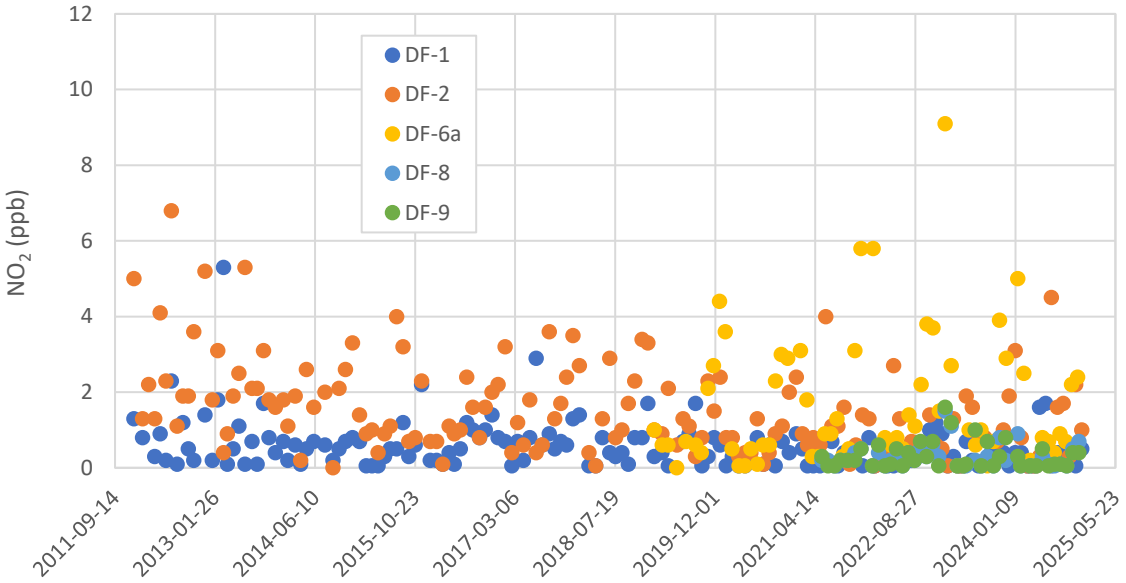

Figure 25. Historical monthly average concentration of NO_2 at DF-1, DF-2, DF-6a, DF-8, and DF-9. Points represent start date of sample collection. Y-axis is scaled to the 2025 CAAQS for the annual average (12 ppb), for reference.

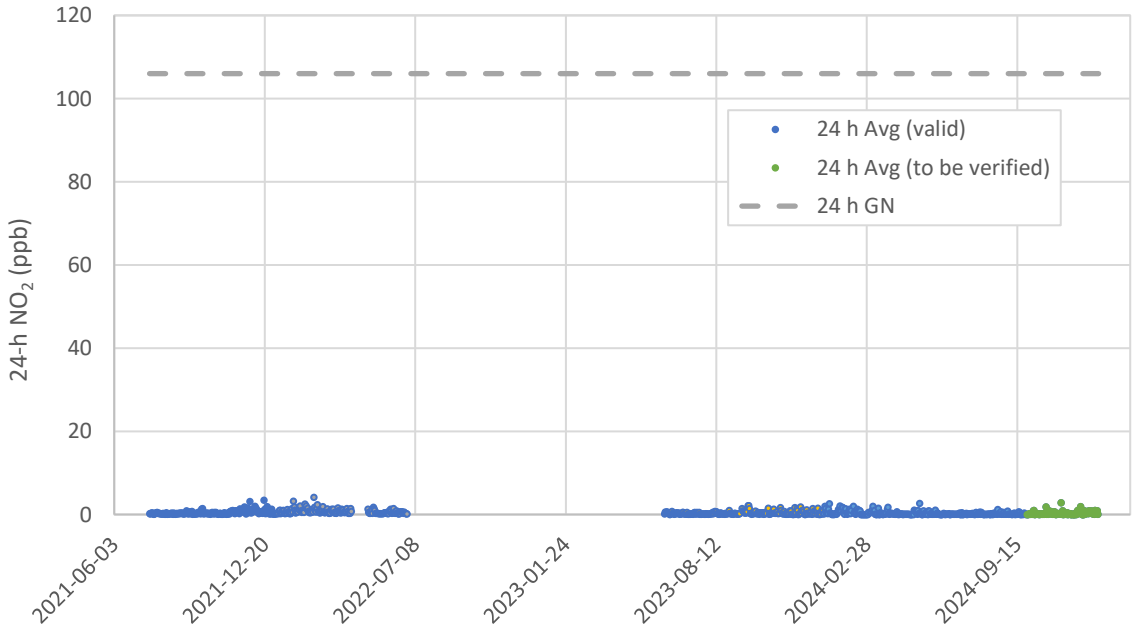

Figure 26. Calculated 24-h average concentrations of NO_2 at station DF-7 to date, along with the Government of Nunavut (GN) guideline.

Note: Data collected since September 27, 2024 has yet to be validated through as-found instrument verification (see text).

SECTION 6 • WEATHER DATA

Weather data is collected using the mine site's permanent weather stations at the Meadowbank and Whale Tail Mines, and the monitoring station installed at DF-7. Daily averages for wind speed, wind direction and temperature are provided from the Meadowbank permanent station in Appendix A. Wind data from the DF-7 location is not specifically reported but is reviewed and reported as necessary in interpretation of NO_2 analyzer results.

SECTION 7 • GREENHOUSE GAS EMISSIONS

Agnico Eagle is required by Environment Canada's Greenhouse Gas Emissions Reporting Program (GHGRP) to track greenhouse gas emissions based on annual fuel consumption, composition and the US EPA's AP-42 emission factors.

Calculated greenhouse gas emissions for the Meadowbank Complex are reported to Environment and Climate Change Canada's Greenhouse Gas Reporting Program by June 1, annually, for the preceding calendar year. Results calculated to date are shown in Table 12. Values for the current year are preliminary at the time of this report.

Annual emissions continue to remain below the FEIS Addendum (Agnico Eagle, 2018) prediction for the Meadowbank Complex of 344,200 tonnes CO_2e.

Table 12. Estimated greenhouse gas emissions for the Meadowbank Complex as reported to Environment and Climate Change Canada's Greenhouse Gas Reporting Program.

Reporting Year	Calculated CO_2 Emissions (tonnes CO_2 equivalent)
2012	202,201
2013	195,686
2014	179,889
2015	187,280
2016	184,223
2017	194,440
2018	186,122
2019	195,564
2020	225,385
2021	243,893
2022	249,362
2023	253,808
2024	267,716*
*Preliminary at the time of reporting.	

SECTION 8 • INCINERATOR STACK TESTING

Incinerator stack testing was conducted under Agnico Eagle's Incinerator Waste Management Plan, but operation of the Meadowbank Complex incinerator ceased at the end of November, 2022.

SECTION 9 • SUMMARY

Across all monitoring stations, measured parameters, and averaging times, the vast majority of air quality monitoring results met regulatory guidelines, FEIS predictions, and current management thresholds (Table 13).

Relevant short-term ambient air quality guidelines (for 1-h NO_2, 24-h NO_2, 24-h SP) were met in all but 7 of 496 samples for suspended particulates. Five of these samples were collected at stations where FEIS modelling predicted it would occur. Calculated 1-h and 24-h averages for NO_2 were all less than relevant guidelines.

No annual averages exceeded relevant standards or management thresholds (TSP, PM_{10}, $PM_{2.5}$, NO_2). Based on these results, mitigation measures in place to control suspended particulates and NO_2 at the Meadowbank Complex are considered to have been effective in 2024.

Management thresholds for dustfall were also met along the AWAR and WTHR. A single dustfall sample exceeded the threshold among 59 onsite measurements. Based on these results, dust mitigation is considered to have been effective at maintaining levels of deposited particulates below the established thresholds in 2024.

No incinerator stack testing was required in 2024, and reportable GHGRP emissions were less than FEIS predictions.

Overall, no trends towards increasing or unpredicted air quality concerns were observed at the Meadowbank Complex in 2024.

Table 13. Summary of air quality monitoring results for the Meadowbank Complex in 2024.

Parameter	Station ID	24-h						Annual	
		Reg. Guideline*	n	Min.	Mean	Max	n > Reg. guideline	Reg. Guideline*	Mean
$PM_{2.5}$	DF-1	30	55	0.07	1.11	6.83	0	8.8	1.1
	DF-2		48	0.18	3.67	22.6	0		3.7
	DF-6b		59	0.28	3.70	**36.5**	1		3.7
PM_{10}	DF-1	50	55	0.15	5.11	19.4	0	-	-
	DF-2		48	0.32	6.98	35.9	0		-
	DF-6b		59	0.58	10.1	86.2	1		-
TSP	DF-1	120	57	0.17	15.6	85.3	0	60	6.6
	DF-2		56	0.96	20.2	261	1		9.7
	DF-6b		60	1.03	41.7	250	4		24.1
Parameter	**Station ID**	**1-h/24-h**						**Annual**	
		Reg. Guideline*	n	Min.	Mean	Max	n > Reg. guideline	Reg. Guideline*	Mean
NO_2	DF-1	-	-	-	-	-	-	12	0.51
	DF-2	-	-	-	-	-	-		1.42
	DF-6a	-	-	-	-	-	-		1.77
	DF-7 1-h	42 ppb	8562	0.0	0.31	18.1	0		0.31
	DF-7 24-h	106 ppb	361	0.0	0.31	2.8	0		
	DF-8	-	-	-	-	-	-		0.30
	DF-9	-	-	-	-	-	-		0.23
Parameter	**Station ID**	**30-d (Onsite)**						**30-d (Transects)**	
		Mgnt. Threshold	n	Min.	Mean	Max	n > threshold	Mgnt. Threshold	Threshold met?
Total Dustfall	DF-1	1.58	12	0.03	0.44	2.00	1	-	-
	DF-2		12	0.04	0.20	0.69	0		
	DF-3		12	0.03	0.13	0.51	0		
	DF-4		12	0.02	0.12	0.35	0		
	DF-6a		11	<0.001	0.16	0.36	0		
	AWAR^	-	-	-	-	-	-	0.53 @ 500 m	Yes
	WTHR^		-	-	-	-	-		Yes

*Guideline references and associated calculation methods are provided in Section 3.1.
^Results for transect samples at a distance of 500 m + from the road, for comparison to the management threshold.

SECTION 10 • ACTIONS

No new management actions were planned for 2024. Agnico Eagle continued to work with the supplier of the continuous NO_2 analyzer to address the many operational difficulties encountered to date.

No new management actions are planned for 2025. Monitoring will proceed according to the Air Quality and Dustfall Monitoring Plan.

SECTION 11 • REFERENCES

Agnico Eagle Mines Ltd. (Agnico Eagle) 2018b. FEIS Addendum for the Whale Tail Pit – Expansion Project – Volume 4: Atmospheric Environment. December, 2018.

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ECCC, 2019. CCME NAPS Ambient Air Monitoring and Quality Assurance/Quality Control Guidelines. PN 1599 ISBN 978-1-77202-056-4 PDF. Available online: https://ccme.ca/en/res/ambientairmonitoringandqa-qcguidelines_ensecure.pdf

Government of the Northwest Territories (GNWT), 2023. Ambient Air Quality Monitoring Guideline – In Support of the Environmental Agreements and Memorandums of Understanding with Mine Operators. April, 2023.

APPENDIX A

Weather Data

Table A- 1. Daily temperature, wind speed and wind direction in 2024 at the Meadowbank Mine.

Date (24-h Ending)	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
1/01/2024	-23.3	-19.0	-25.4	5.49	55
1/02/2024	-27.2	-25.4	-28.5	5.67	324
1/03/2024	-24.9	-22.4	-26.8	7.98	319
1/04/2024	-29.7	-23.6	-33.2	5.89	305
1/05/2024	-31.0	-24.5	-34.0	6.62	307
1/06/2024	-26.3	-21.0	-30.5	8.61	311
1/07/2024	-29.8	-28.4	-31.0	4.76	297
1/08/2024	-31.3	-30.1	-33.8	3.15	278
1/09/2024	-33.2	-32.2	-35.1	2.28	167
1/10/2024	-35.2	-33.1	-36.9	0.75	48
1/11/2024	-33.5	-31.7	-34.5	1.91	325
1/12/2024	-33.6	-31.1	-35.6	4.44	356
1/13/2024	-31.1	-29.7	-32.3	6.28	335
1/14/2024	-29.9	-27.4	-32.1	11.15	339
1/15/2024	-32.2	-30.6	-33.5	11.10	330
1/16/2024	-24.8	-16.3	-31.6	13.31	338
1/17/2024	-11.1	-2.6	-18.8	8.55	43
1/18/2024	-15.0	-10.7	-20.7	7.20	344
1/19/2024	-16.3	-11.6	-20.2	5.70	338
1/20/2024	-18.3	-16.3	-21.0	4.84	283
1/21/2024	-25.1	-18.2	-31.5	6.21	279
1/22/2024	-33.9	-31.1	-37.3	5.08	279
1/23/2024	-32.0	-27.0	-37.3	6.33	290
1/24/2024	-30.7	-28.1	-33.4	2.87	144
1/25/2024	-31.5	-27.0	-34.0	3.84	220
1/26/2024	-30.0	-25.2	-34.4	5.70	280
1/27/2024	-30.7	-27.8	-34.3	4.75	208
1/28/2024	-36.1	-33.7	-38.9	3.68	300
1/29/2024	-32.6	-23.1	-39.0	4.76	118
1/30/2024	-21.2	-20.1	-23.1	4.84	253
1/31/2024	-31.2	-23.0	-35.5	3.98	353
2/01/2024	-29.2	-22.4	-36.3	3.79	118
2/02/2024	-19.4	-15.5	-22.4	5.99	115
2/03/2024	-13.4	-12.6	-15.6	5.39	119
2/04/2024	-12.7	-11.4	-13.6	3.52	113
2/05/2024	-20.5	-9.8	-26.5	6.66	206
2/06/2024	-28.9	-20.2	-35.2	4.21	291

Date (24-h Ending)	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
2/07/2024	-34.4	-32.8	-36.0	3.72	278
2/08/2024	-33.4	-32.0	-34.6	1.82	95
2/09/2024	-31.6	-28.2	-35.1	2.23	133
2/10/2024	-26.1	-24.4	-29.8	0.95	109
2/11/2024	-25.2	-21.8	-29.6	0.45	314
2/12/2024	-26.7	-22.9	-30.4	4.68	105
2/13/2024	-20.0	-15.5	-23.9	8.97	161
2/14/2024	-30.7	-27.1	-32.7	9.95	334
2/15/2024	-33.8	-31.8	-35.3	7.29	314
2/16/2024	-31.8	-29.9	-33.8	4.35	291
2/17/2024	-28.3	-26.2	-34.2	1.10	68
2/18/2024	-29.4	-24.2	-35.1	3.29	13
2/19/2024	-33.7	-31.1	-35.6	2.84	285
2/20/2024	-34.1	-30.2	-39.9	2.70	328
2/21/2024	-38.2	-35.9	-40.1	4.34	305
2/22/2024	-36.4	-34.4	-37.9	3.51	307
2/23/2024	-33.1	-30.9	-34.7	7.07	321
2/24/2024	-27.4	-21.7	-34.1	4.68	126
2/25/2024	-28.2	-22.2	-35.7	7.51	343
2/26/2024	-33.4	-28.4	-37.0	7.20	315
2/27/2024	-32.3	-28.7	-35.0	10.29	328
2/28/2024	-36.3	-34.4	-37.6	6.13	312
2/29/2024	-35.6	-32.4	-38.8	3.84	296
3/01/2024	-33.1	-29.7	-35.9	3.36	309
3/02/2024	-31.9	-29.1	-35.7	3.57	309
3/03/2024	-31.5	-29.3	-33.5	5.78	311
3/04/2024	-33.8	-32.0	-35.9	3.87	262
3/05/2024	-33.4	-29.7	-36.7	2.42	177
3/06/2024	-27.6	-21.8	-33.4	5.38	205
3/07/2024	-33.3	-29.9	-36.6	2.56	285
3/08/2024	-33.6	-26.7	-37.3	4.00	107
3/09/2024	-22.2	-18.8	-26.8	5.37	77
3/10/2024	-22.9	-18.8	-28.5	3.59	87
3/11/2024	-11.3	-10.6	-12.1	12.04	130
3/12/2024	-21.9	-21.4	-23.1	8.34	334
3/13/2024	-26.2	-23.0	-27.9	7.10	326
3/14/2024	-27.1	-22.7	-30.5	1.11	325
3/15/2024	-23.1	-18.5	-28.9	1.50	340

Date (24-h Ending)	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
3/16/2024	-22.0	-20.5	-26.0	8.20	325
3/17/2024	-27.9	-24.3	-31.6	4.76	311
3/18/2024	-24.5	-20.6	-32.8	6.12	23
3/19/2024	-24.5	-20.6	-32.8	6.12	23
3/20/2024	-32.8	-30.3	-35.3	8.65	322
3/21/2024	-30.3	-27.3	-32.7	10.43	334
3/22/2024	-29.5	-26.2	-31.9	7.81	333
3/23/2024	-31.4	-28.2	-34.5	6.21	326
3/24/2024	-25.9	-17.9	-33.8	2.21	331
3/25/2024	-20.5	-16.5	-24.3	0.00	0
3/26/2024	-23.1	-19.1	-27.7	0.85	161
3/27/2024	-22.1	-16.6	-27.0	3.27	115
3/28/2024	-23.3	-17.3	-27.4	1.82	86
3/29/2024	-21.6	-16.7	-27.4	0.27	292
3/30/2024	-28.4	-22.5	-31.5	8.90	327
3/31/2024	-31.6	-28.0	-35.1	3.38	290
4/01/2024	-29.2	-23.8	-34.8	2.70	118
4/02/2024	-21.6	-15.4	-28.3	5.65	97
4/03/2024	-13.4	-8.3	-20.3	8.68	120
4/04/2024	-8.7	-6.1	-11.9	7.98	138
4/05/2024	-10.2	-5.6	-19.1	10.35	138
4/06/2024	-18.8	-13.8	-23.5	3.24	274
4/07/2024	-13.2	-10.0	-18.3	.	.
4/08/2024	-10.2	-8.9	-11.0	.	.
4/09/2024	-6.5	-4.4	-8.9	.	.
4/10/2024	-6.3	-3.9	-10.4	.	.
4/11/2024	-8.4	-4.9	-12.8	.	.
4/12/2024	-16.4	-12.8	-19.7	.	.
4/13/2024	-15.6	-11.4	-20.8	.	.
4/14/2024	-10.4	-7.5	-15.2	9.00	146
4/15/2024	-10.7	-8.4	-13.2	6.58	130
4/16/2024	-8.2	-5.0	-11.5	6.46	149
4/17/2024	-9.5	-4.5	-15.3	8.49	329
4/18/2024	-17.7	-15.3	-21.0	3.88	312
4/19/2024	-17.2	-11.1	-23.7	0.07	244
4/20/2024	-13.0	-7.7	-20.8	2.14	355
4/21/2024	-22.3	-18.2	-26.3	9.04	316
4/22/2024	-22.6	-18.8	-26.7	2.14	301

Date (24-h Ending)	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
4/23/2024	-23.1	-20.5	-26.4	4.00	132
4/24/2024	-16.7	-12.7	-21.2	3.80	227
4/25/2024	-13.8	-12.8	-14.6	5.08	272
4/26/2024	-14.5	-12.5	-16.5	3.42	288
4/27/2024	-18.6	-16.4	-20.7	7.13	346
4/28/2024	-15.6	-13.4	-18.3	7.89	290
4/29/2024	-14.1	-10.8	-17.7	4.71	259
4/30/2024	-14.8	-11.5	-19.8	2.00	356
5/01/2024	-14.7	-12.0	-18.4	3.78	35
5/02/2024	-10.9	-5.8	-17.7	3.37	92
5/03/2024	-5.8	-2.7	-8.2	5.17	92
5/04/2024	-3.9	-0.8	-7.7	6.09	86
5/05/2024	-1.3	0.2	-4.5	4.77	78
5/06/2024	-4.8	-1.9	-7.8	1.88	68
5/07/2024	-3.5	-1.5	-5.4	.	.
5/08/2024	-5.7	-2.2	-8.6	.	.
5/09/2024	-4.5	-0.1	-9.4	.	.
5/10/2024	0.3	1.2	-0.1	4.01	71
5/11/2024	-0.7	2.0	-5.6	5.10	32
5/12/2024	-9.9	-5.5	-12.5	7.12	13
5/13/2024	-9.7	-4.3	-16.1	4.76	259
5/14/2024	-2.3	-0.7	-5.2	7.01	159
5/15/2024	-4.6	-0.6	-9.7	8.12	136
5/16/2024	-4.2	-2.6	-5.9	9.40	131
5/17/2024	-3.4	-2.5	-4.4	8.18	129
5/18/2024	-2.0	-1.0	-2.5	5.94	123
5/19/2024	-0.6	1.8	-2.9	5.80	103
5/20/2024	0.2	3.1	-2.8	5.32	57
5/21/2024	0.3	3.1	-3.3	2.01	65
5/22/2024	0.0	3.9	-5.2	1.37	176
5/23/2024	-0.5	3.1	-5.5	3.41	167
5/24/2024	1.3	5.8	-3.3	4.03	193
5/25/2024	3.1	7.1	-1.0	3.89	185
5/26/2024	3.4	7.5	-0.8	4.12	193
5/27/2024	0.9	2.4	-1.6	6.24	22
5/28/2024	-0.2	3.4	-3.8	7.31	328
5/29/2024	1.8	6.9	-3.9	3.40	275
5/30/2024	4.1	9.8	-1.3	3.61	59

Date (24-h Ending)	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
5/31/2024	2.5	6.6	-2.5	4.90	49
6/01/2024	2.0	3.6	0.3	7.29	78
6/02/2024	1.0	4.2	-1.2	7.48	78
6/03/2024	1.0	3.8	-2.2	5.85	101
6/04/2024	0.9	3.6	-0.6	4.59	98
6/05/2024	2.0	4.9	-1.2	4.26	93
6/06/2024	4.0	6.7	1.1	4.50	73
6/07/2024	5.7	10.7	0.8	4.96	50
6/08/2024	7.2	11.9	2.5	5.16	34
6/09/2024	3.1	7.9	-2.0	6.93	329
6/10/2024	9.5	13.5	4.7	5.07	261
6/11/2024	3.7	4.9	1.6	3.63	3
6/12/2024	3.2	6.5	0.3	5.39	1
6/13/2024	3.3	7.4	-1.3	5.10	339
6/14/2024	5.9	9.3	1.3	2.19	329
6/15/2024	6.3	9.0	3.5	4.24	343
6/16/2024	5.6	10.1	1.6	2.68	344
6/17/2024	8.7	13.1	3.1	3.34	88
6/18/2024	7.8	10.0	5.4	5.90	31
6/19/2024	6.6	10.6	3.7	6.53	7
6/20/2024	5.2	8.1	3.0	6.63	330
6/21/2024	8.4	10.5	5.9	4.95	308
6/22/2024	5.6	10.2	1.3	7.34	308
6/23/2024	6.9	9.0	4.5	5.36	320
6/24/2024	6.3	10.0	1.1	3.56	320
6/25/2024	5.8	7.7	3.4	7.18	330
6/26/2024	7.0	12.1	2.4	4.50	312
6/27/2024	5.6	8.3	1.7	5.72	353
6/28/2024	8.3	13.2	4.3	4.87	347
6/29/2024	12.5	15.9	5.1	4.79	300
6/30/2024	13.2	19.2	7.0	5.96	299
7/01/2024	14.8	23.7	7.0	3.97	188
7/02/2024	16.1	20.9	10.0	4.23	301
7/03/2024	11.1	17.2	6.1	5.35	290
7/04/2024	8.7	10.3	6.1	6.45	310
7/05/2024	10.2	16.0	4.0	3.47	231
7/06/2024	10.8	13.1	9.0	8.86	300
7/07/2024	10.6	17.3	6.7	5.03	284

Date (24-h Ending)	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
7/08/2024	7.6	10.5	5.4	10.27	307
7/09/2024	10.1	14.2	6.9	5.60	319
7/10/2024	11.6	16.4	7.4	4.15	264
7/11/2024	9.5	12.5	5.2	11.58	282
7/12/2024	7.2	9.8	4.6	11.81	316
7/13/2024	9.0	13.2	4.8	1.87	321
7/14/2024	12.7	17.7	6.2	.	.
7/15/2024	15.6	20.1	11.2	.	.
7/16/2024	17.6	20.1	14.2	.	.
7/17/2024	19.3	25.5	13.1	.	.
7/18/2024	16.9	18.6	14.4	.	.
7/19/2024	16.5	21.5	11.1	.	.
7/20/2024	15.8	20.3	12.1	0.78	30
7/21/2024	15.3	19.2	10.6	4.85	10
7/22/2024	17.8	23.7	10.9	3.74	298
7/23/2024	19.3	24.9	13.5	2.61	259
7/24/2024	18.4	26.1	8.8	6.17	281
7/25/2024	7.3	11.3	4.1	7.94	335
7/26/2024	13.1	19.1	7.6	7.37	242
7/27/2024	14.7	18.3	11.2	3.21	357
7/28/2024	15.9	21.3	10.1	4.25	210
7/29/2024	9.9	14.7	7.5	5.30	20
7/30/2024	15.8	24.2	8.5	4.72	131
7/31/2024	14.9	17.0	11.5	6.88	192
8/01/2024	13.4	18.9	10.7	4.37	159
8/02/2024	9.9	13.0	7.2	6.20	354
8/03/2024	9.3	13.0	5.7	5.02	4
8/04/2024	9.8	13.3	6.6	4.54	3
8/05/2024	9.8	13.7	6.0	6.15	353
8/06/2024	9.8	12.9	7.4	7.10	342
8/07/2024	12.4	15.3	7.6	6.47	333
8/08/2024	14.6	19.8	9.9	5.25	338
8/09/2024	17.5	24.4	11.3	4.05	259
8/10/2024	24.6	27.6	19.3	3.15	280
8/11/2024	21.7	27.6	15.8	3.89	262
8/12/2024	19.5	24.3	15.6	4.40	248
8/13/2024	20.2	22.1	17.4	3.53	187
8/14/2024	14.0	17.5	9.2	6.38	1

Date (24-h Ending)	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
8/15/2024	9.9	11.7	8.5	5.27	58
8/16/2024	11.3	14.1	9.6	3.21	47
8/17/2024	10.3	12.1	8.0	3.04	275
8/18/2024	11.2	15.5	8.0	2.72	267
8/19/2024	11.9	15.9	8.1	4.05	245
8/20/2024	14.0	20.1	8.4	4.33	203
8/21/2024	15.9	19.2	13.2	6.55	155
8/22/2024	16.7	21.2	13.5	5.15	234
8/23/2024	10.3	14.0	7.2	6.65	300
8/24/2024	11.4	15.4	6.3	6.48	202
8/25/2024	13.8	16.8	11.3	6.22	299
8/26/2024	9.8	12.0	8.6	7.13	23
8/27/2024	10.5	14.0	7.8	9.16	345
8/28/2024	12.2	16.0	8.9	5.14	216
8/29/2024	12.3	13.9	11.2	5.12	179
8/30/2024	8.7	11.7	5.6	8.01	44
8/31/2024	4.6	6.2	3.6	6.63	84
9/01/2024	6.8	10.5	4.0	4.76	352
9/02/2024	6.3	8.7	2.9	4.72	315
9/03/2024	8.2	10.4	6.2	4.71	116
9/04/2024	5.1	7.1	2.7	7.51	347
9/05/2024	3.1	5.7	0.8	6.04	337
9/06/2024	4.0	7.0	0.8	3.43	313
9/07/2024	8.5	11.4	5.9	7.66	167
9/08/2024	11.5	16.2	8.7	4.06	222
9/09/2024	10.7	11.2	10.3	3.10	198
9/10/2024	9.1	10.8	7.4	4.21	13
9/11/2024	7.8	9.1	6.7	10.60	119
9/12/2024	5.5	7.2	3.6	9.56	210
9/13/2024	7.3	13.3	2.9	7.23	227
9/14/2024	10.3	12.6	8.6	3.88	176
9/15/2024	8.1	9.7	6.5	7.47	74
9/16/2024	6.6	7.1	5.8	8.92	36
9/17/2024	6.6	7.3	5.7	4.77	351
9/18/2024	6.1	7.7	4.7	2.43	321
9/19/2024	8.3	11.5	5.7	4.58	143
9/20/2024	10.6	12.8	8.9	5.63	177
9/21/2024	7.0	9.2	4.6	7.29	342

Date (24-h Ending)	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
9/22/2024	3.9	4.8	3.2	11.52	337
9/23/2024	5.0	7.0	3.4	6.71	5
9/24/2024	7.7	9.1	5.8	5.05	45
9/25/2024	6.1	7.6	4.1	6.63	100
9/26/2024	5.7	7.3	4.4	4.33	178
9/27/2024	7.4	9.8	5.6	6.53	124
9/28/2024	6.8	8.2	4.7	10.69	180
9/29/2024	5.9	7.4	4.1	9.63	235
9/30/2024	5.3	7.3	3.4	8.23	224
10/01/2024	4.8	9.1	1.4	3.54	220
10/02/2024	1.8	4.2	0.0	11.68	359
10/03/2024	1.0	2.5	-0.7	12.47	359
10/04/2024	-0.5	0.6	-1.2	11.15	333
10/05/2024	0.5	1.3	-0.1	7.99	302
10/06/2024	0.5	0.9	0.0	8.36	262
10/07/2024	0.3	1.5	-1.5	4.79	271
10/08/2024	-0.5	1.5	-2.5	2.25	167
10/09/2024	1.0	2.4	-1.1	8.96	134
10/10/2024	2.2	2.7	1.5	11.11	135
10/11/2024	1.8	3.0	0.8	6.21	266
10/12/2024	-0.1	0.9	-1.5	11.53	301
10/13/2024	-0.9	-0.1	-1.7	10.92	312
10/14/2024	-1.7	-0.8	-3.5	6.25	343
10/15/2024	0.1	2.4	-3.2	7.91	174
10/16/2024	2.5	5.2	-0.5	9.77	205
10/17/2024	-0.5	0.9	-2.0	7.36	259
10/18/2024	-0.3	1.4	-3.6	5.94	93
10/19/2024	0.0	1.1	-3.4	12.17	180
10/20/2024	-3.5	-2.3	-4.7	17.06	255
10/21/2024	-2.1	-1.1	-3.2	12.92	288
10/22/2024	-4.7	-2.5	-6.4	8.03	295
10/23/2024	-6.3	-4.7	-9.0	6.03	285
10/24/2024	-6.9	-4.8	-9.7	5.75	155
10/25/2024	-4.7	-3.5	-7.1	5.67	220
10/26/2024	-5.8	-3.8	-8.6	3.87	290
10/27/2024	-6.5	-4.1	-9.6	6.08	287
10/28/2024	-10.8	-7.5	-13.4	3.81	224
10/29/2024	-2.6	-2.0	-3.2	9.24	123

Date (24-h Ending)	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
10/30/2024	-2.1	-1.1	-3.4	5.61	117
10/31/2024	-3.2	-1.8	-5.2	11.54	336
11/01/2024	-6.2	-4.9	-7.6	13.10	310
11/02/2024	-7.5	-6.9	-8.8	9.74	315
11/03/2024	-15.8	-14.4	-16.4	3.02	278
11/04/2024	-11.5	-7.8	-16.3	4.49	137
11/05/2024	-7.3	-6.6	-7.9	5.60	70
11/06/2024	-11.4	-7.4	-14.2	7.82	347
11/07/2024	-11.9	-10.9	-12.9	5.00	219
11/08/2024	-13.7	-11.8	-16.8	4.95	8
11/09/2024	-13.8	-10.3	-15.9	5.73	188
11/10/2024	-11.6	-8.6	-15.2	7.90	5
11/11/2024	-16.6	-14.6	-19.2	5.87	271
11/12/2024	-15.8	-14.4	-18.5	8.96	283
11/13/2024	-20.1	-17.3	-21.8	3.27	124
11/14/2024	-16.7	-15.0	-20.0	5.46	35
11/15/2024	-16.6	-14.5	-18.5	3.12	319
11/16/2024	-15.9	-9.1	-19.7	1.68	93
11/17/2024	-4.9	-2.7	-9.2	6.70	116
11/18/2024	-2.4	-0.9	-3.7	7.85	140
11/19/2024	-1.0	-0.4	-3.3	7.82	110
11/20/2024	-8.8	-1.2	-15.5	7.27	190
11/21/2024	-13.7	-9.6	-16.5	2.19	288
11/22/2024	-7.6	-7.1	-9.4	7.26	351
11/23/2024	-13.4	-9.0	-18.5	7.01	339
11/24/2024	-15.1	-12.9	-19.6	8.13	324
11/25/2024	-17.7	-16.3	-20.5	5.30	263
11/26/2024	-17.3	-13.3	-20.2	6.05	196
11/27/2024	-17.5	-14.5	-20.1	8.22	178
11/28/2024	-18.0	-14.1	-24.2	6.35	340
11/29/2024	-24.2	-23.5	-25.2	2.92	353
11/30/2024	-23.9	-21.6	-25.7	3.99	349
12/01/2024	-24.9	-22.2	-26.4	4.52	355
12/02/2024	-24.3	-21.2	-26.8	5.44	332
12/03/2024	-27.0	-24.3	-28.1	2.34	261
12/04/2024	-25.1	-22.2	-29.1	2.79	195
12/05/2024	-27.1	-24.8	-29.3	4.81	293
12/06/2024	-27.4	-24.3	-29.8	3.01	315

Date (24-h Ending)	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
12/07/2024	-29.6	-27.8	-31.3	1.59	341
12/08/2024	-31.9	-30.4	-33.5	0.57	90
12/09/2024	-26.5	-21.3	-31.6	3.85	148
12/10/2024	-26.2	-19.9	-30.3	3.11	298
12/11/2024	-27.4	-24.6	-30.0	6.20	330
12/12/2024	-29.7	-27.9	-30.8	5.49	323
12/13/2024	-30.1	-28.5	-31.3	4.23	325
12/14/2024	-25.6	-19.7	-29.7	3.74	103
12/15/2024	-23.8	-19.2	-30.2	4.05	256
12/16/2024	-24.1	-21.5	-26.9	8.01	280
12/17/2024	-25.8	-21.2	-30.2	6.96	283
12/18/2024	-24.9	-21.2	-29.4	6.67	294
12/19/2024	-25.1	-19.8	-30.4	4.07	283
12/20/2024	-26.6	-23.2	-29.5	6.31	300
12/21/2024	-26.1	-23.4	-28.3	5.26	280
12/22/2024	-24.9	-22.9	-26.6	4.13	137
12/23/2024	-21.1	-19.2	-23.7	3.22	145
12/24/2024	-19.1	-16.8	-21.1	3.96	149
12/25/2024	-18.4	-15.3	-24.6	5.92	33
12/26/2024	-21.2	-15.5	-25.6	9.35	98
12/27/2024	-12.1	-10.0	-15.5	10.04	102
12/28/2024	-13.1	-11.8	-14.0	6.81	91
12/29/2024	-14.8	-13.1	-17.3	5.29	104
12/30/2024	-10.3	-5.2	-17.4	5.84	99
12/31/2024	-9.1	-5.5	-13.2	5.57	94

APPENDIX B

Review of FEIS-Designed Air Quality Mitigation Measures

Table B-1: Meadowbank Mine: FEIS-designed mitigation measures to reduce impacts of the project on area air quality, and commentary on current implementation.

Emission Source	**Planned Mitigation Measure** (Cumberland (2005) - Air Quality and Noise Management Plan)	**Implementation (2024)**
Plant Production Facilities	Select the diesel power plant engines with low NOx emissions to prevent ozone formation and with low hydrocarbon emissions to lower GHG emissions	**N/A**
	Use low sulphur content diesel fuel to mitigate SO2 emissions	**Yes -** Use of summer fuel
	Collect and vent any process emissions (flotation, CIP circuit, carbon treatment, gold refining, and cyanide detoxification) into the atmosphere	**Yes -** All process enclosed in the mill facility except leach tank
	Design all stacks using good engineering practice (including accessible sampling ports and adequate height) to ensure the required dispersion to meet ambient air quality objectives	**Yes -** Design to meet engineering practice
	Implement fleet maintenance program to ensure that all diesel-powered equipment will operate efficiently, thereby reducing air emissions	**Yes-** Preventive maintenance per manufacture recommendation
	Install dust filters at the primary crusher building and at fine grinding facilities (SAG mill and ball mill) and provide dust suppression equipment (dust covers, sonic sprays, etc.)	**Yes -** Filter installed at major dust generating equipment
	Install enclosure of feed conveyor to avoid fugitive emissions during windy weather	**Yes -** All conveyers are enclosed
	Provide crushed ore stockpile enclosure to limit any dust to indoor environment	**Yes -** Enclosed in a dome
Transportation	Impose vehicle speed limit on Vault haul road to mitigate fugitive dust and reduce engine emissions	**Yes** - Speed limit enforcement on Vault Haul Road and AWAR
	Apply dust suppressants (water, calcium chloride) to haul and service roads during dry weather to mitigate fugitive dust	**Yes -** AWAR Transportation Management Plan, Air Quality and Dustfall Monitoring Plan
	To reduce vehicle emissions, do not let motors idle, except when necessary	**Yes -** No idle policy
	Upgrade road-surfacing materials using local coarse rocky aggregates	**Yes -** Road Management Plan
Blasting & Waste Disposal	Limit blasting to calm days or use delay blasting technique; natural mitigation to take place when mining pits are from 85 to 175 m below the ground level; ore and waste to be coarse run-of-mine muck not prone to generating excessive dust	**N/A –** No blasting occurred
	Cover dewatered tailings with non-potentially acid-generating (non-PAG) aggregates to control wind erosion	**Yes-**Progressive work ongoing including placement of a cover
Miscellaneous	Provide pressure valves to control fuel vapour fugitive emissions from the storage tanks	**Yes -** Installed at all locations
	Use water spray instead of pneumatic flushing while cleaning equipment and working areas when temperature is above the freezing point	**Yes -** All machine cleaning is done inside shop (wash bay)
	Use site-generated mineral material (dirt, aggregate, etc.) to cover disposed solid waste at the waste dump	**Yes -** Mine Waste Management Plan
	Select waste incinerator with build-in emission control system (secondary combustion chamber, catalytic converter, etc.) and install a stack to disperse emissions to concentrations below ambient air quality objectives	**N/A –** Incinerator dismantled

Emission Source	Planned Mitigation Measure (Cumberland (2005) - Air Quality and Noise Management Plan)	Implementation (2024)
	Apply vegetation cover on stripped areas and long-term stockpiles	**N/A -** Natural revegetation to occur during the reclamation phase. Revegetation option to be considered in the Final Closure and Reclamation Plan.

Table B-2: Whale Tail Mine: FEIS-designed mitigation measures to reduce impacts of the project on area air quality and climate, and commentary on current implementation.

Project Activity	Planned Mitigation Measure (Agnico Eagle (2018) Volume 3, Table 3-C-1)	Implementation (2024)
General construction, operations, and decommissioning activities associated with the Whale Tail Pit and the haul road; and Mining of the Whale Tail Mine	All vehicles will adhere to the 50 km/h speed limit.	**Yes** – Whale Tail Haul Road Management Plan
	Regular maintenance will be implemented for equipment and vehicles.	**Yes** – Maintenance logs
Upgrading of the haul road from the Whale Tail Mine to the Meadowbank Mine	Implement dust control measures, if needed on mine roads.	**Yes –** Air Quality and Dustfall Monitoring Plan, Whale Tail Haul Road Management Plan
	Equipment and vehicles will comply with relevant non-road emission criteria at the time of purchase.	**Yes**
	Regular maintenance will be implemented for equipment and vehicles.	**Yes** – Maintenance logs
Traffic on the haul road from the Whale Tail Mine to the Meadowbank Mine	Watering of roads and enforcing speed limits to suppress dust production.	**Yes –** Air Quality and Dustfall Monitoring Plan, Whale Tail Haul Road Management Plan
	Equipment and vehicles will comply with relevant non-road emission criteria at the time of purchase	**Yes**
	Regular maintenance will be implemented for equipment and vehicles	**Yes** – Maintenance logs
Construction of the Whale Tail Mine	Best Management practices for controlling fugitive dust from construction activities	**Yes** – Best practices
	Equipment and vehicles will comply with relevant non-road emission criteria at the time of purchase	**Yes**
	Regular maintenance will be implemented for equipment and vehicles	**Yes** – Maintenance Logs
Mining of the Whale Tail Mine	Watering of pit roads and enforcing speed limits to suppress dust production.	**Yes -** Air Quality and Dustfall Monitoring Plan, Whale Tail Haul Road Management Plan
	Equipment and vehicles will comply with relevant non-	**Yes**

Project Activity	**Planned Mitigation Measure** (Agnico Eagle (2018) Volume 3, Table 3-C-1)	**Implementation (2024)**
	road emission criteria at the time of purchase.	
	Regular maintenance will be implemented for equipment and vehicles.	**Yes** – Maintenance logs
	Enclosures are used to reduce fugitive emissions at the processing facility	**Yes** – Mine site design
	Adherence to the Incinerator Waste Management Plan	**N/A –** No incinerator onsite