Appendix 42

Meadowbank and Whale Tail 2023 Air Quality and Dustfall Monitoring Report

AGNICO EAGLE

MEADOWBANK COMPLEX

2023 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, 2024

EXECUTIVE SUMMARY

The 2023 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 established based on these values.

For all monitoring stations and parameters, the majority of results met regulatory guidelines, FEIS predictions, and current management thresholds. Overall, no trends towards increasing or unpredicted air quality concerns were observed at the Meadowbank Complex in 2023.

In total, 467 of 477 24-h suspended particulate samples (including TSP, PM_{10}, and $PM_{2.5}$) across three monitoring stations met applicable regulatory guidelines for the 24-h average. Regulatory guidelines for the annual average were met for all monitoring stations and relevant size fractions (TSP, $PM_{2.5}$).

Of 59 dustfall samples collected throughout the year at onsite locations DF-1 – DF-6, none exceeded the Alberta guideline for industrial/commercial areas. For dustfall along the AWAR and WTHR, the established dust management threshold (0.53 mg/cm^2/30d at 500 m; equivalent to the Alberta guideline for residential/recreational areas) was met for all sampling events and transects.

Annual average NO_2 as measured using passive samplers met the GN guideline of 32 ppb and the 2025 CAAQS of 12 ppb for all stations (DF-1, DF-2, DF-6b, DF-8, DF-9). Continuous NO_2 measurements was collected at DF-7 from June – December, 2023. Although conditions for data validity were not met (daily calibration checks were not performed by the instrument), available results were also 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 2023 were 253,815 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 2023.

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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 2023, 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 Canada's Greenhouse Gas Emissions Reporting Program (GHGRP) (Section 7).

1.2 DUST MITIGATION

In 2023, road dust management was carried out in accordance with the Air Quality and Dustfall Monitoring Plan (Version 6, March 2022), and the Whale Tail Haul Road Management Plan (Version 3, April 2020). 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, Version 6 – March 2022).

Location	Frequency	Indicator	Threshold	Mitigation Measure
Haul road and site access roads	Regular weekly or more frequency inspection by road supervisor 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	Frequency	Indicator	Threshold	Mitigation Measure
Mine site, including travel areas	Regular weekly or more frequent inspection by the site supervisor during the late spring and summer periods.	Measured dustfall Measured PM	Deterioration of visibility Safety concern Dust reaching Whale Tail Lake or Mammoth 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 concern	Use water as a dust suppressant.

The following sections discuss the application of dust suppressant or watering for each location identified in Table 1 in 2023. Other than dust suppressant application or road watering, records are not specifically maintained on the implementation of other mitigation actions (e.g. grading, new material additions) in response to dustfall thresholds. Rather, the effectiveness of the mitigation overall is determined based on results of dustfall and suspended particulate monitoring for the current year (Section 4.5).

1.2.1 AWAR and Whale Tail Haul Road Dust Suppression

1.2.1.1 AWAR

According to the Air Quality and Dustfall Monitoring Plan (Version 6, March 2022), a calcium chloride dust suppressant is planned to be applied twice during the summer season on five specified sections of the AWAR, two locations in Baker Lake, and one onsite location (Table 2). The second application is completed as needed, based on visual inspection of the ongoing efficacy of the first application. Between May 13 – August 17, 2023, dust suppressant (dry flake product) was applied at least once or twice to the required sections. Locations are described in Table 2, and have been generally consistent

since this program began in 2017. Beyond the locations identified in the Air Quality and Dustfall Monitoring Plan, calcium chloride dry flake product was also applied on various road sections between the hamlet of Baker Lake and km 10 (multiple time points in June and August), and all the way from km 0 to km 20 (as a high traffic area near the hamlet) in mid-August, 2023. In total, more than 226 bags (1000 kg each) were applied on the AWAR in 2023.

In addition to calcium chloride dry flake product, water was applied at various locations along the AWAR between May 13 and August 17, totalling approximately 637 m^3.

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

Table 2. Dust suppressant locations along the Meadowbank AWAR in 2023, as described in the Air Quality Monitoring Plan (Version 6). ***Italics indicate supplemental dust suppression locations in 2023, over and above the plan requirements.***

Location Type	Dust Suppression Location	Rationale	# 1000 kg Bags Applied
Hamlet	Agnico Eagle spud barge area	High traffic area near hamlet	(not recorded)
Hamlet	Agnico Eagle tank farm to Arctic Fuel site	High traffic area near hamlet	7
Hamlet	*Gatehouse to Baker Lake*	*High traffic area near hamlet*	*66*
AWAR	*km 10 – Gatehouse*	*High traffic area near hamlet*	*31*
AWAR	km 10 - 12	High traffic area near hamlet & area of concern to HTO – proximity to lake	6
AWAR	*km 12-20*	*High traffic area near hamlet*	*(not recorded)*
AWAR	km 24 – 26 (27)	Area of concern to HTO – proximity to lake	20
AWAR	*km 35, 37 - 39*	*New since 2021 (road design and surface stability; safety)*	*40*
AWAR	km 48 - 50	Area of concern to HTO – water crossing	(not recorded)
AWAR	km 68 - 70	Location identified by Agnico Eagle – water crossing	(not recorded)
AWAR	km 80 – 84	Location identified by Agnico Eagle – proximity to water & crossing	12
AWAR	*km 91 - 93*	*New since 2020 (safety considerations)*	*12*
Onsite	Emulsion plant road and km 104 - 106	High traffic area onsite	32

1.2.1.2 Whale Tail Haul Road

For the Whale Tail Haul Road, 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 2023, dust suppressant in the form of calcium chloride (dry flake product) was again applied to the entire length of the WTHR between May 10 and September 24. Generally, two to three applications were completed for all sections (applications along the entire length in May and July, and follow-up applications in certain areas). In total, 1297 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 10 and September 24, approximately 10,589 m^3 of water were applied on the WTHR.

1.2.2 Mine Site

Road watering was conducted regularly for roads and pits on the Whale Tail and Meadowbank sites in the summer season. In addition, calcium chloride dust suppressant was applied at various Whale Tail site and Meadowbank site locations in June and July. As in previous years, watering was also conducted regularly throughout the summer months for the Meadowbank airstrip, as needed.

1.3 COMMUNITY CONCERNS

As described in the Air Quality and Dustfall Monitoring Plan (Version 6, March 2022), Agnico records community concerns that are raised with regards to dust generated by traffic on the AWAR and Whale Tail Haul Road.

Throughout 2023, 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. The Baker Lake HTO were asked to identify the berry pickers. Agnico Eagle also requested names of berry pickers from the Kivalliq Elders Advisory Committee and are now engaging with a select group of berry pickers in the community of Baker Lake. 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. The day after, 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. Elders noticed the difference in the areas where suppressant had been added. Please note, before formally acknowledging the collection of Inuit Qaujimajatuqangit, participants need to consent to engage, and validate possible discussed IQ. Once processed with participants, Agnico Eagle could document and integrate such IQ into its operations.

Agnico Eagle will continue in 2024 to investigate alternative dust mitigation measures and is committed to continuing consultation with the community, and specifically, with the group of berry pickers.

In the past, consultation with the Hamlet was conducted to identify major areas of concern along the AWAR. Five areas were identified, and Tetraflake ($CaCl_2$) is applied during the summer to mitigate dust in those areas. Additional dust suppression methods could be implemented along the AWAR and WTHR depending on community concerns and traditional knowledge information given during regular consultations.

1.4 MONITORING LOCATIONS

Air quality and dustfall monitoring is conducted at eight locations around the Meadowbank and Whale Tail Mines. Dustfall is monitored at five transects along the AWAR and Whale Tail Haul Road. 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 3, and locations are shown in relation to minesite features in Figures 1 and 2.

Table 3. UTM coordinates for the Meadowbank air quality and dustfall monitoring locations (all zone 14W). ^DF-6 replaced DF-5 in May 2019.

Monitoring Location	Measured Parameters	Easting	Northing
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	Passive NO_2	632407	7233254
DF-9	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

PROJECT: DA11-062-08

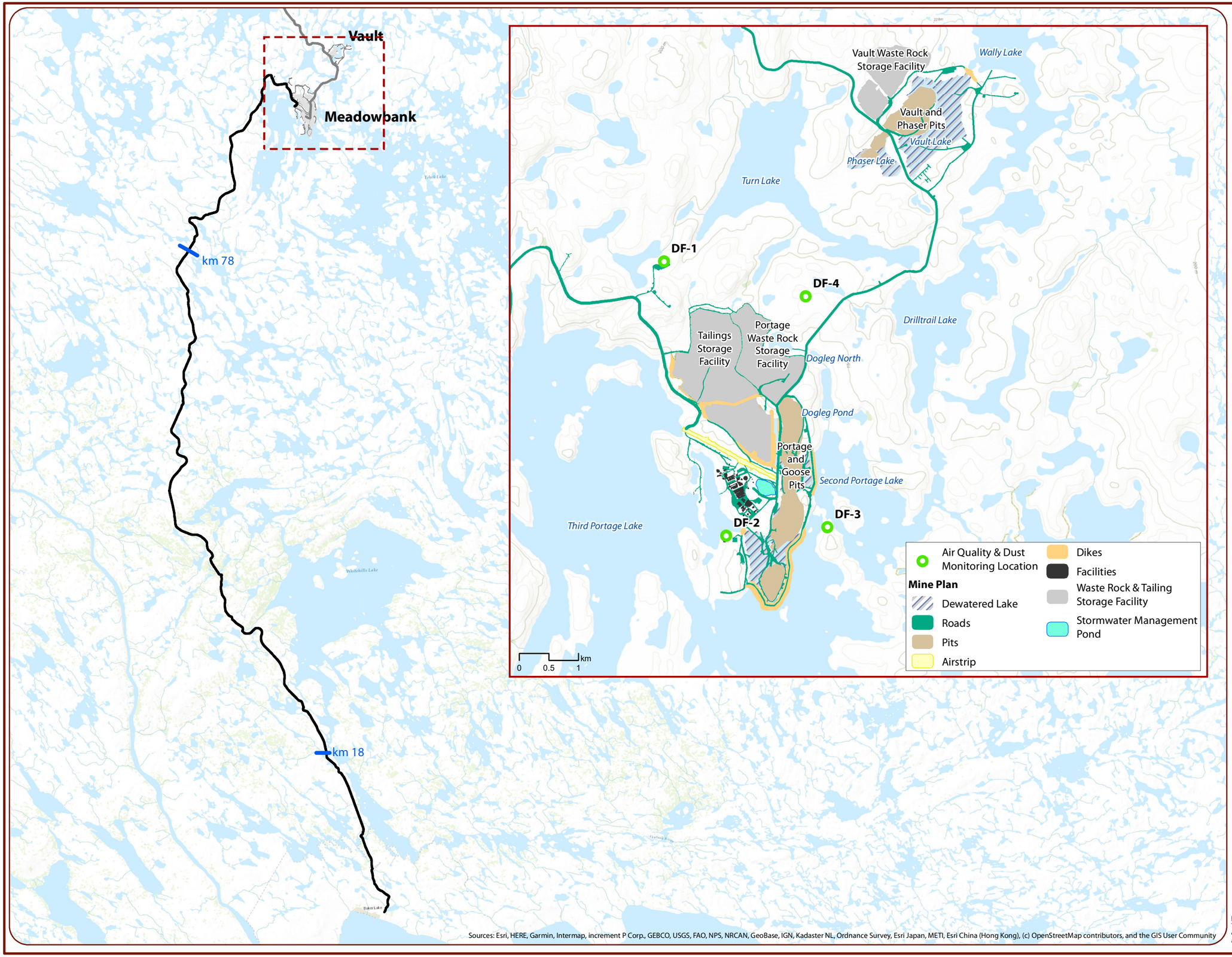
CLIENT: Agnico-Eagle Mines Ltd. Meadowbank Division

DATE: 12, March 2020

DRAWN BY: Janel Sauder

Figure 1: Air Quality and Dustfall Monitoring Locations

Meadowbank Site and All Weather Access Road



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

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CLIENT: Agnico-Eagle Mines Ltd. Meadowbank Division

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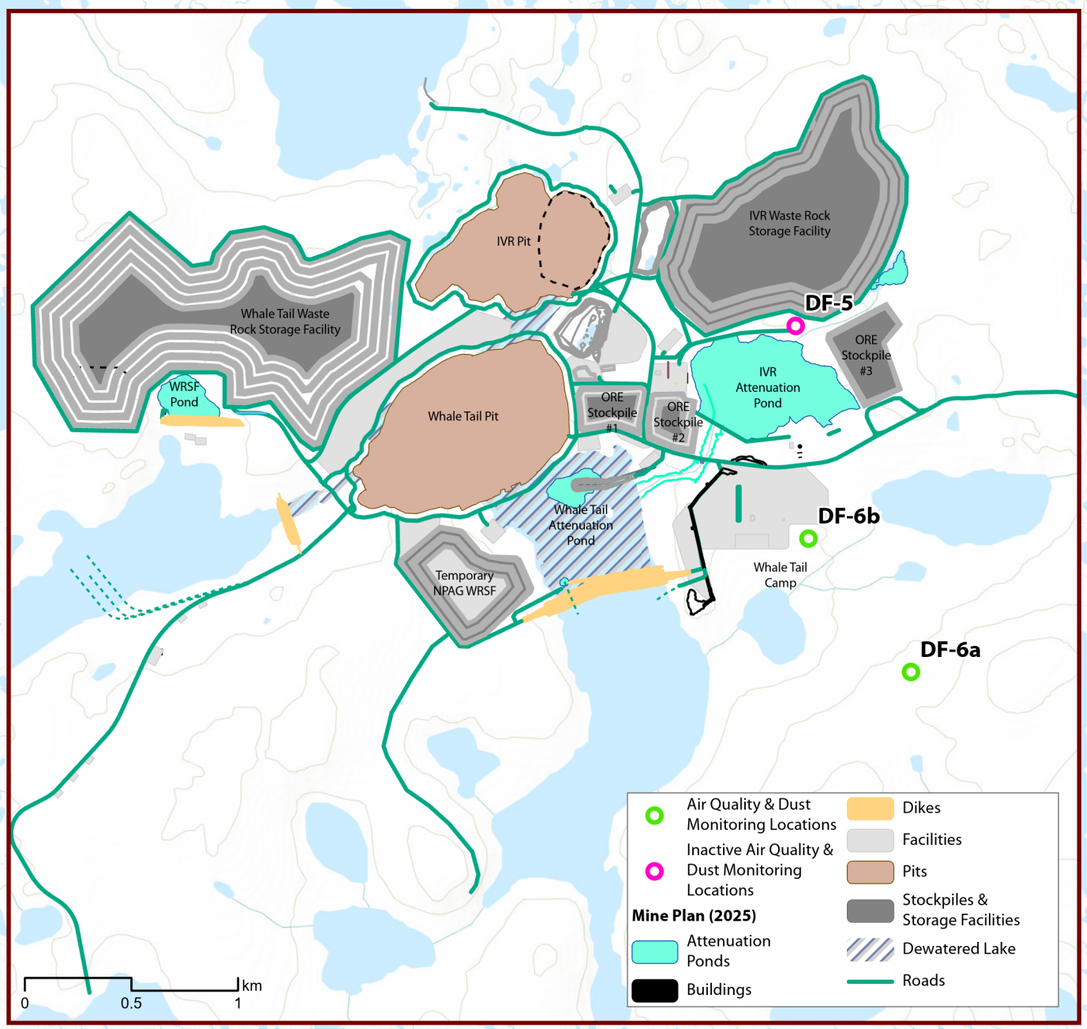
DRAWN BY: Janel Sauder/Nicole White

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

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1.4.1 Meadowbank Onsite 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. 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 Onsite 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 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 Whale Tail and Meadowbank. The station is downwind of the Whale Tail Mine 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 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. Agnico will continue to apply dust suppressant in these locations (Section 1.2.1), but monitoring is conducted only in areas without suppressant (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 sequential air samplers (single and dichotomous units) installed at three locations to measure:

- Total suspended particulates (TSP) – particulate matter less than 100 µm;
- PM_{10} – particulate matter less than 10 µm; and
- $PM_{2.5}$ – particulate matter less than 2.5 µm.

In 2023, 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 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 Meadowbank and Whale Tail 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 methods for dustfall measurement (ASTM, 2004), 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 per ASTM 1739-98). 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. However, due to the difficulty of constructing and deploying stands to hold the large number of sample containers used for roadside dustfall transects, all road-side sampling canisters were deployed at ground level from 2013 - 2019. Although comparative studies conducted in 2012, 2019, and 2020 indicated that samples collected at ground level provide a conservative (high) estimate of dustfall relative to collection at 2 m, all sample collection canisters were moved to stands beginning in 2020 based on comments received from regulators.

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 (other than instrument downtime – see 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 the 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. Full details of the program are provided in the Meadowbank and Whale Tail Greenhouse Gas Reduction Plan.

SECTION 3 • DATA ANALYSIS

3.1 REGULATORY STANDARDS

Regulatory standards for the air quality parameters of concern are provided in Table 4. 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).

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 according to thresholds for dust management described in the Air Quality and Dustfall Monitoring Plan (March, 2022). 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. 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.

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 4. 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 Project 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 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. The closest NO_2 monitoring station (DF-2) is at a distance of approximately 1 km southwest (cross-wind) from this location.

Table 5 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 5. Model-predicted maximum concentrations of measured criteria air contaminants for location DF-1 and DF-2 at the Meadowbank Mine (from Cumberland, 2005).

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

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. Maximum predicted values for the DF-6 locations on the Whale Tail Mine are shown in Table 6. 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 6. Model-predicted maximum concentrations of measured criteria air contaminants for location DF-6a or b (as applicable) the Whale Tail site (FEIS Addendum, Appendix 4C – Agnico Eagle, 2018b).

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

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 7 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 7. Predicted maximum monthly dust deposition rate as a function of distance from the Whale Tail Haul Road (FEIS Addendum, Appendix 4C, Table 4-C-24 – Agnico Eagle, 2018b).

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

SECTION 4 • 2023 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 five of the six Partisol units, minimal data loss occurred in 2023 (i.e. valid results are available for all or nearly all targeted sampling dates). For the $PM_{2.5}$/PM_{10} unit at DF-2, however, results are only available for 34 of the 60 sampling dates, with downtime occurring from January 18 – March 1, May 12 – June 11, and September 15 – December 2. Operational errors leading to these extended periods of sample loss were ultimately diagnosed and a new spare part was ordered and installed.

As in previous years, TSP concentrations for the Meadowbank Complex were generally well below regulatory standards, with six of 174 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 202 µg/m^3 was recorded at DF-6b (May 18), which continues to be within the historically recorded high value of 459 µg/m^3 (Section 5.1).

For PM_{10}, one of 94 samples 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, with a maximum of 60 µg/m^3 on March 31 (DF-2). This is also the only sample to exceed the relevant FEIS prediction for this station and parameter of 46.7 µg/m^3. At DF-1, no samples exceeded the FEIS prediction of 26.7 µg/m^3. 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 two of 60 samples in 2023.

For $PM_{2.5}$, one of 150 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, and this same sample also exceeded the FEIS 24-h maximum model prediction for this station. One $PM_{2.5}$ sample at station DF-2 also exceeded the relevant FEIS 24-h maximum model prediction for that station. 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 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.

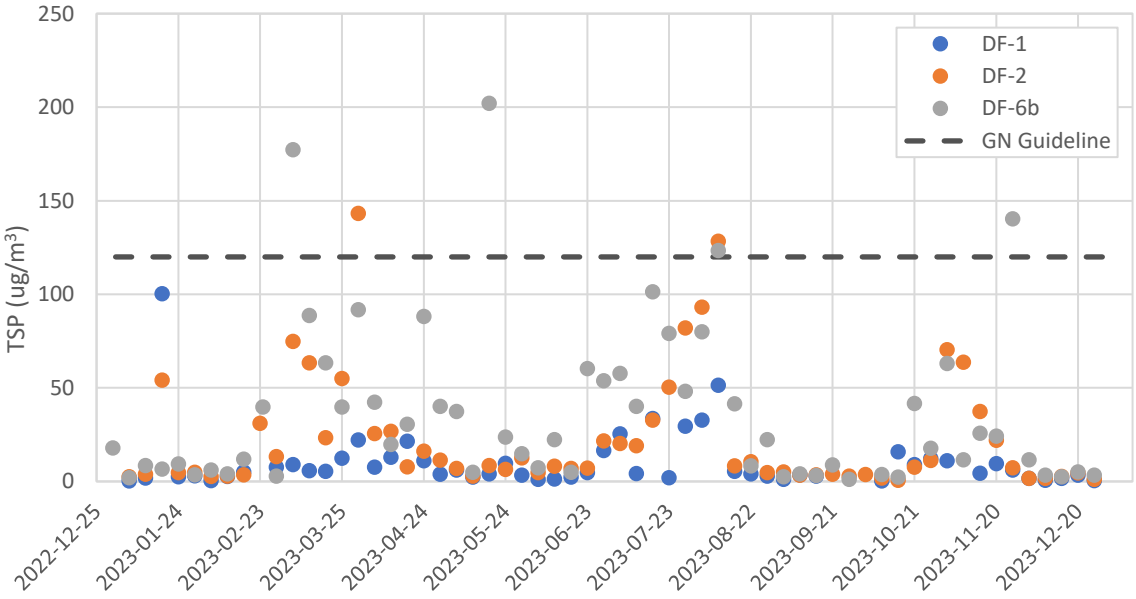

Figure 3. 24-h average concentrations of total suspended particulates (TSP) at Meadowbank Complex stations DF-1, DF-2, and DF-6b. Dashed line indicates the 24-hr average GN guideline for ambient air quality.

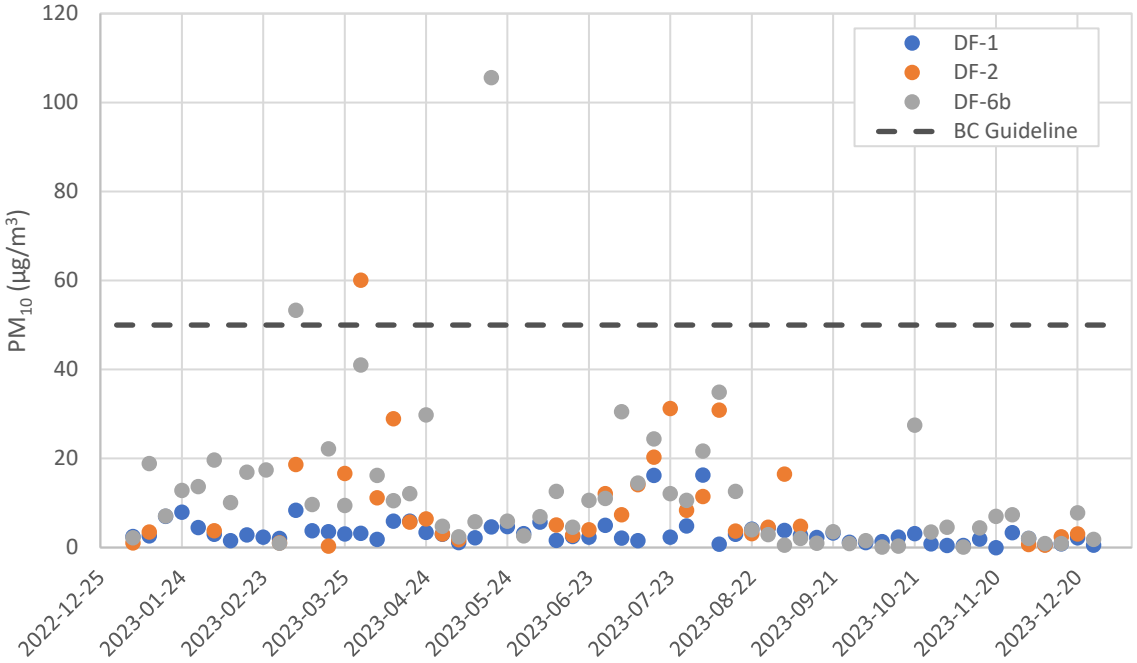

Figure 4. 24-h average concentration of airborne particulate matter less than 10 microns (PM_{10}) at Meadowbank Complex stations DF-1, DF-2, DF-6b. Dashed line indicates the BC Air Quality Objective for this parameter.

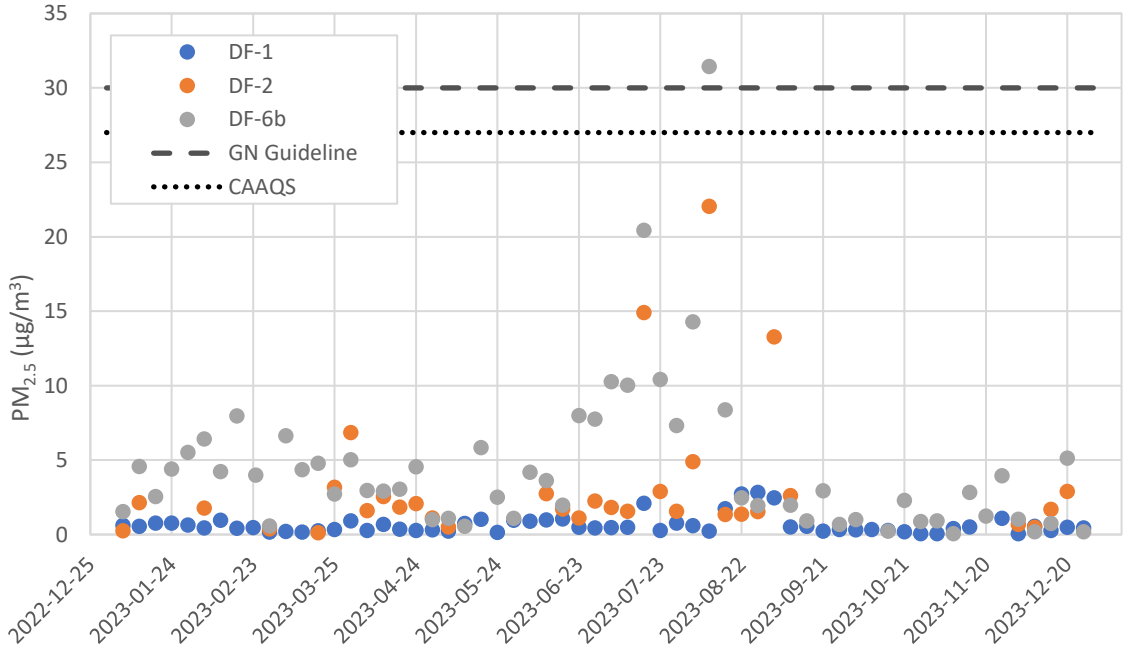

Figure 5. 24-h average concentration of airborne particulate matter less than 2.5 microns ($PM_{2.5}$) at Meadowbank Complex stations DF-1, DF-2, and DF-6b. Dashed line indicates the GN guideline for ambient air quality, and the dotted line represents the Canadian Ambient Air Quality Standard (CAAQS; 2020).

4.1.2 Annual Average

Annual geometric mean concentrations of TSP at DF-1, DF-2, and DF-6b were 5.0, 10.3, and 17.6 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 8).

Annual arithmetic mean concentrations of $PM_{2.5}$ were 0.7, 3.3 and 4.5 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 8). 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 9. All results were less than model predictions in 2023.

Table 8. 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. "-" indicates not available or not required to be calculated for annual reporting purposes.

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

Table 9. 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 (Cumberland, 2005; Agnico Eagle, 2018b - Appendix 4C).

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	

4.2 DUSTFALL

4.2.1 Onsite Locations DF-1 – DF-6

Results of the 2023 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 (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 2023, none exceeded the AB-Ind guideline for total dustfall. One sample at DF-3 (April 6 deployment) was accidentally left in the field for 2 months. Results are shown here for reference, with explanation.

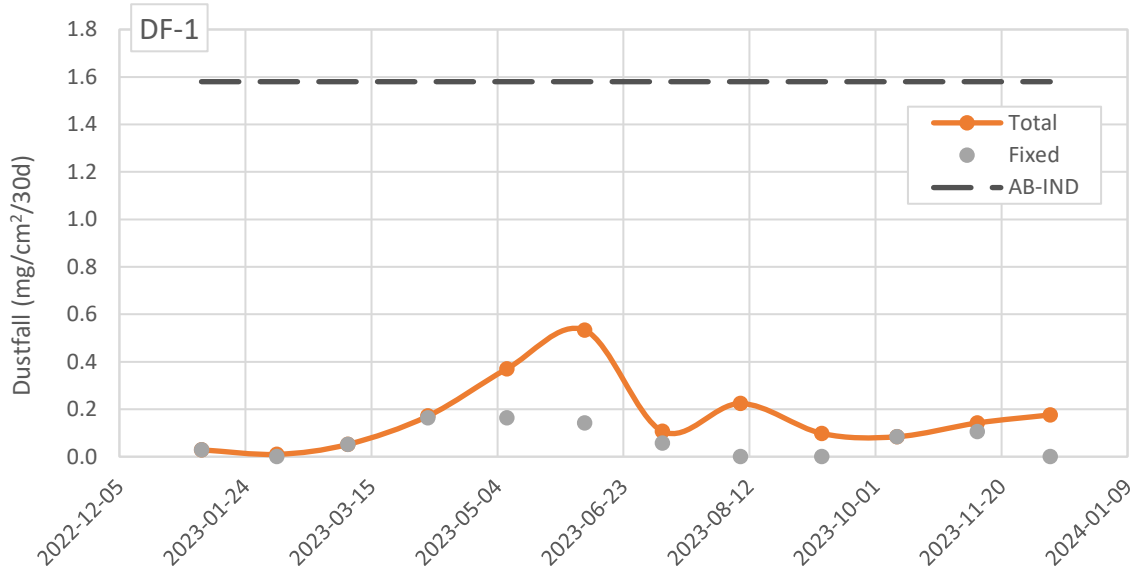

Figure 6. 30-day-normalized rates of total and fixed dustfall at DF-1 at the Meadowbank Mine. Points represent start date of sample collection. AB-IND indicates the Alberta guideline for industrial/commercial areas, which is equivalent to the management threshold for this station.

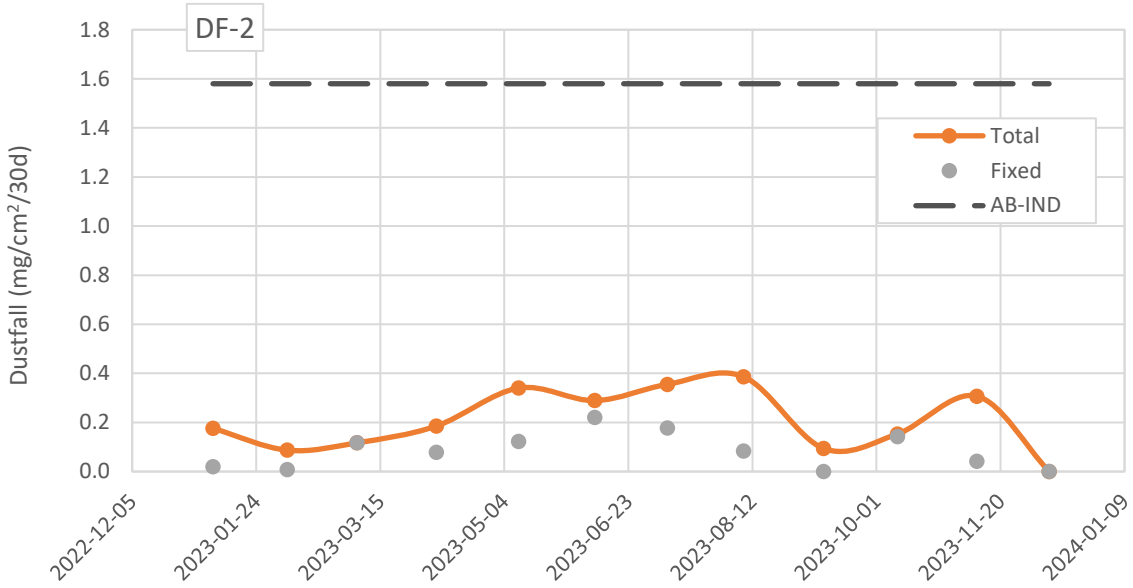

Figure 7. 30-day-normalized rates of total and fixed dustfall at DF-2 at the Meadowbank Mine. Points represent start date of sample collection. AB-IND indicates the Alberta guideline for industrial/commercial areas, which is equivalent to the management threshold for this station.

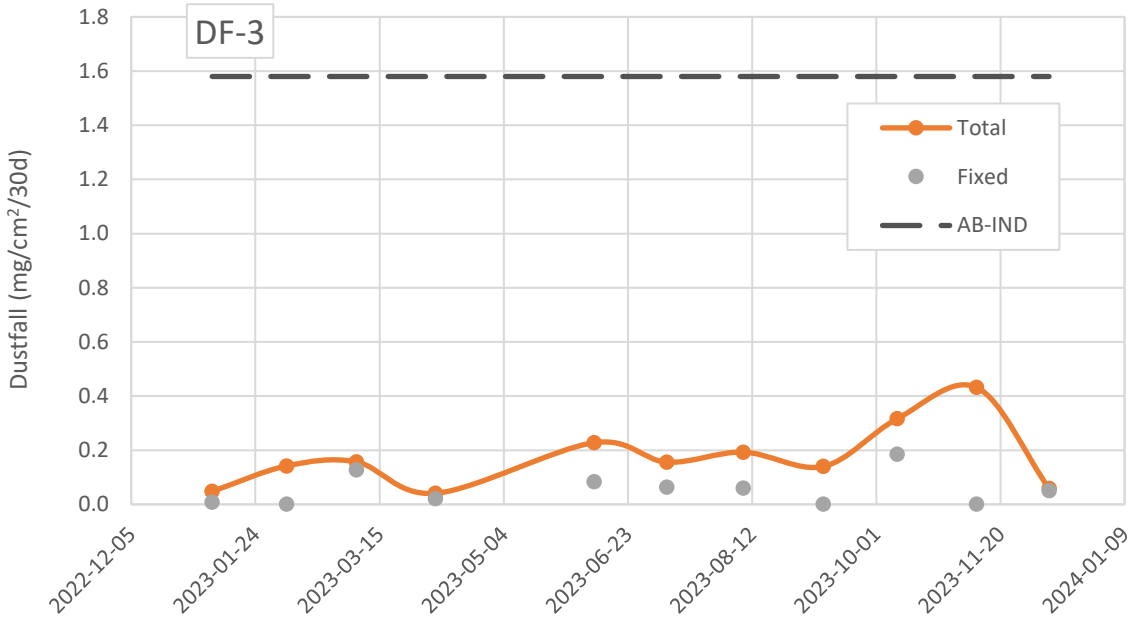

Figure 8. 30-day-normalized rates of total and fixed dustfall at DF-3 at the Meadowbank Mine. Points represent start date of sample collection. AB-IND indicates the Alberta guideline for industrial/commercial areas, which is equivalent to the management threshold for this station. *The April canister was accidentally left in the field for 2 months.

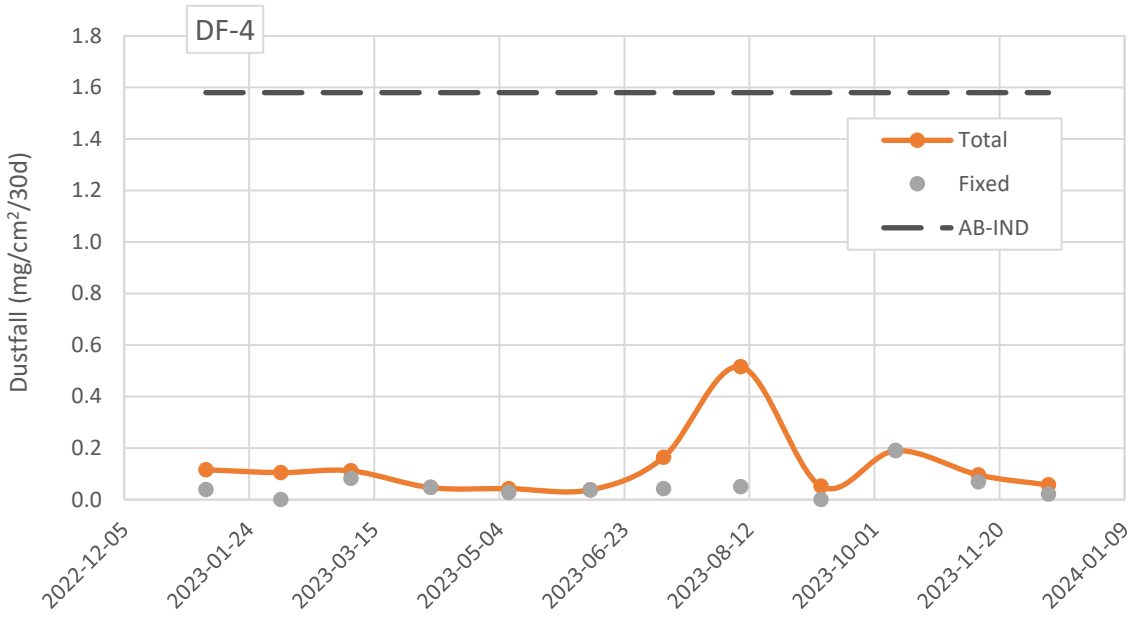

Figure 9. 30-day-normalized rates of total and fixed dustfall at DF-4 at the Meadowbank Mine. Points represent start date of sample collection. AB-IND indicates the Alberta guideline for industrial/commercial areas, which is equivalent to the management threshold for this station.

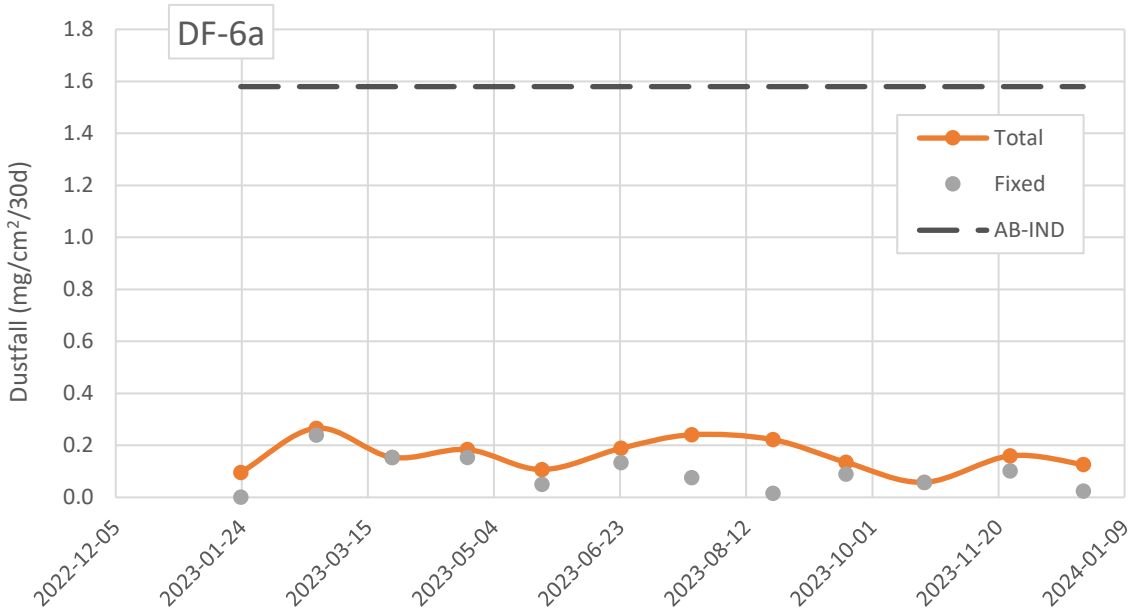

Figure 10. 30-day-normalized rates of total and fixed dustfall at DF-6a at the Whale Tail Mine. Points represent start date of sample collection. AB-IND indicates the Alberta guideline for industrial/commercial areas, which is equivalent to the management threshold for this station.

4.2.2 Meadowbank AWAR Dustfall Transects

As described in Section 1.4.4, dustfall sampling was conducted over three one-month periods at two transects along the AWAR in 2023, in areas where dust suppressant was not applied. 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 (March, 2022). 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). For both transect locations, unusual sample results were reported for a single canister during the July (Round 2) deployment. At km 18, the total dustfall result for 100 m west was reported at 221 mg/cm^2/30d, and at km 78 the sample at 25 m west was reported at 20 mg/cm^2/30d. In both cases, the result for fixed (non-combustible) dustfall was identical or nearly identical to the total dustfall result. This type of event has occurred on one or two occasions since dustfall monitoring began in 2011, but previously, the highest total dustfall rate observed was 13 mg/cm^2/30d (single sample at DF-1 in 2021). Based on results to date within and across transects, these are considered to be outlier events, likely caused by a localized dust or contamination event, and not indicative of mine-related trends.

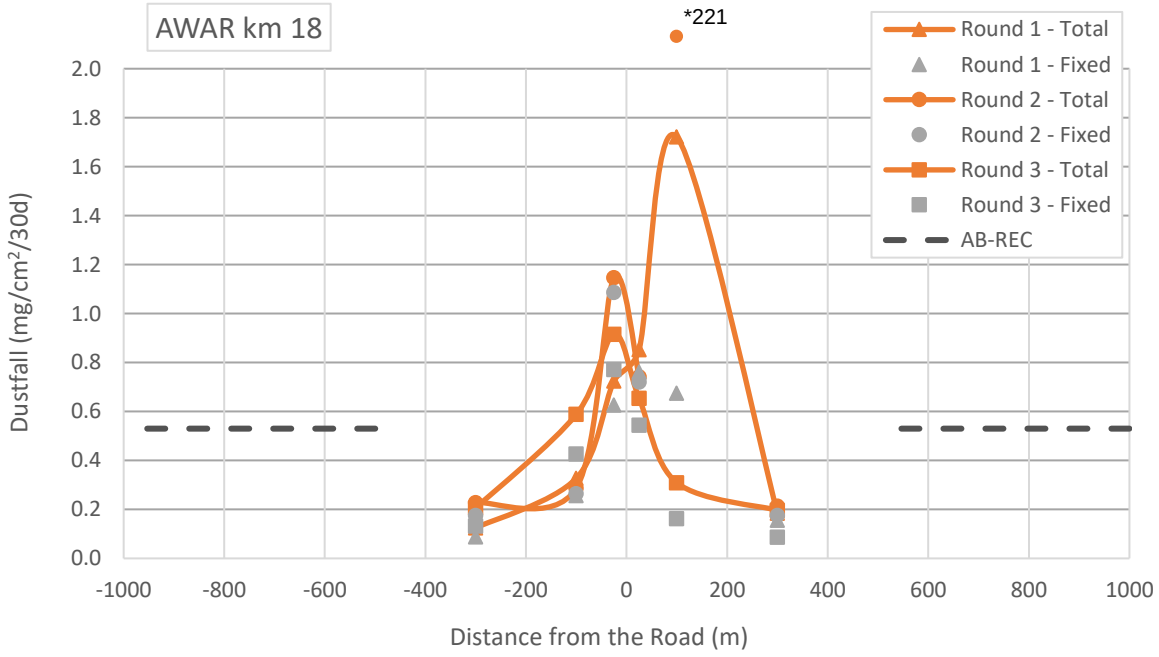

Figure 11. 30-day-normalized rates of total and fixed dustfall at km 18 along the Meadowbank AWAR in 2023. Points represent start date of sample collection. Round 1 began June 6, Round 2 began July 7, and Round 3 began August 6. Positive distances represent the upwind/west side of the road, and negative distances represent the downwind/east side. *Outlier event, explained in text.

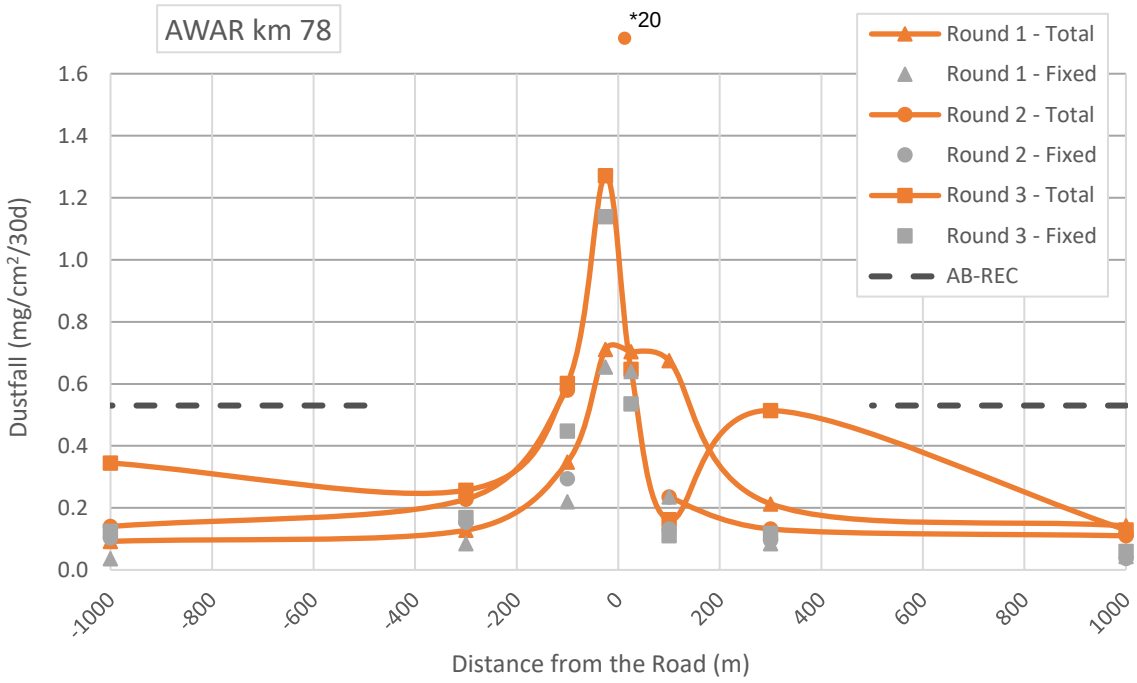

Figure 12. 30-day-normalized rates of total and fixed dustfall at km 78 along the Meadowbank AWAR in 2023. Points represent start date of sample collection. Round 1 began June 6, Round 2 began July 7, and Round 3 began August 6. Positive distances represent the upwind/west side of the road, and negative distances represent the downwind/east side. *Outlier event, explained in text.

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 2023. Results are provided in Figures 13 - 15.

As in previous years, some specific FEIS Addendum model predictions were exceeded, but 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.

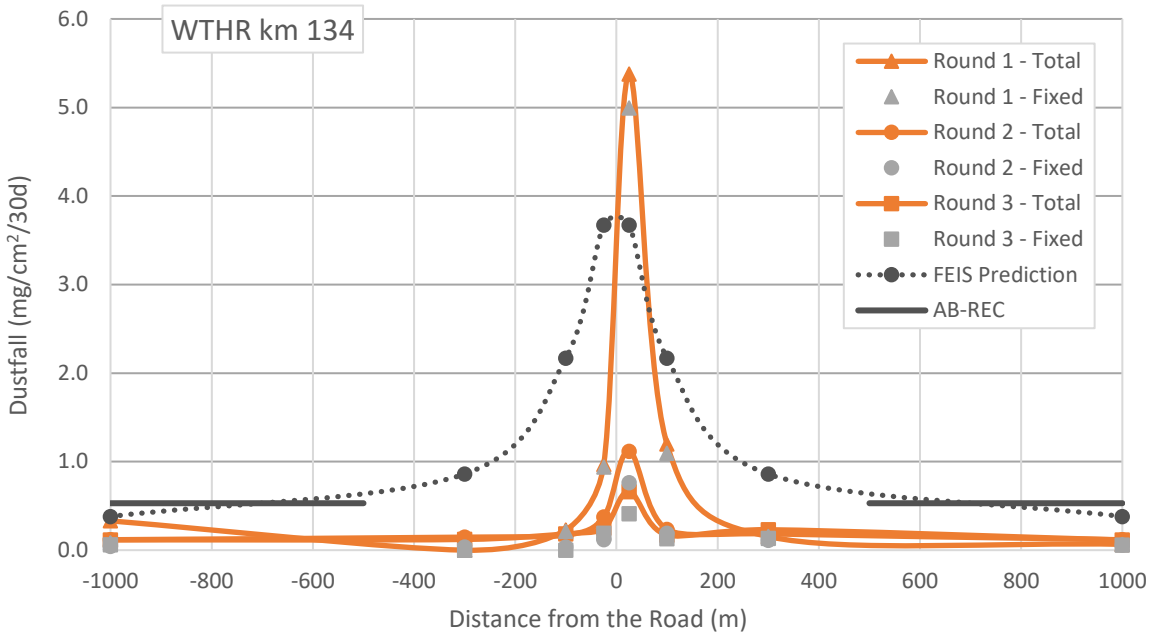

Figure 13. 30-day-normalized rates of total and fixed dustfall at km 134 along the Meadowbank WTHR in 2023. Points represent start date of sample collection. Round 1 began June 6, Round 2 began July 6, and Round 3 began August 5. Positive distances represent the west side of the road, and negative distances represent the east side.

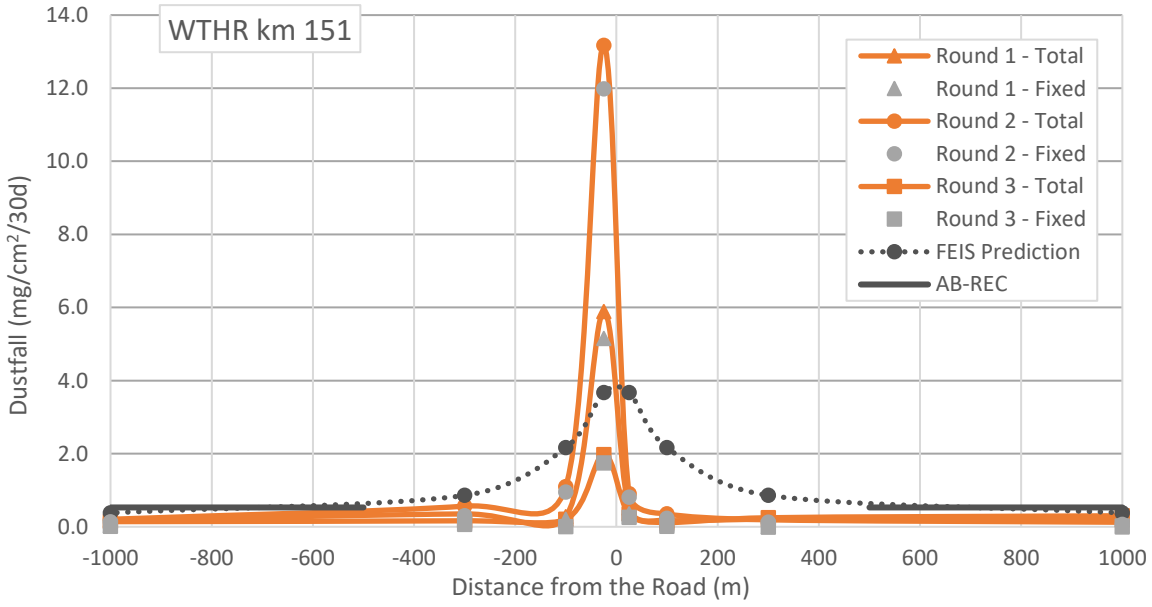

Figure 14. 30-day-normalized rates of total and fixed dustfall at km 151 along the Meadowbank WTHR in 2023. Points represent start date of sample collection. Round 1 began June 6, Round 2 began July 6, and Round 3 began August 5. Positive distances represent the west side of the road, and negative distances represent the east side.

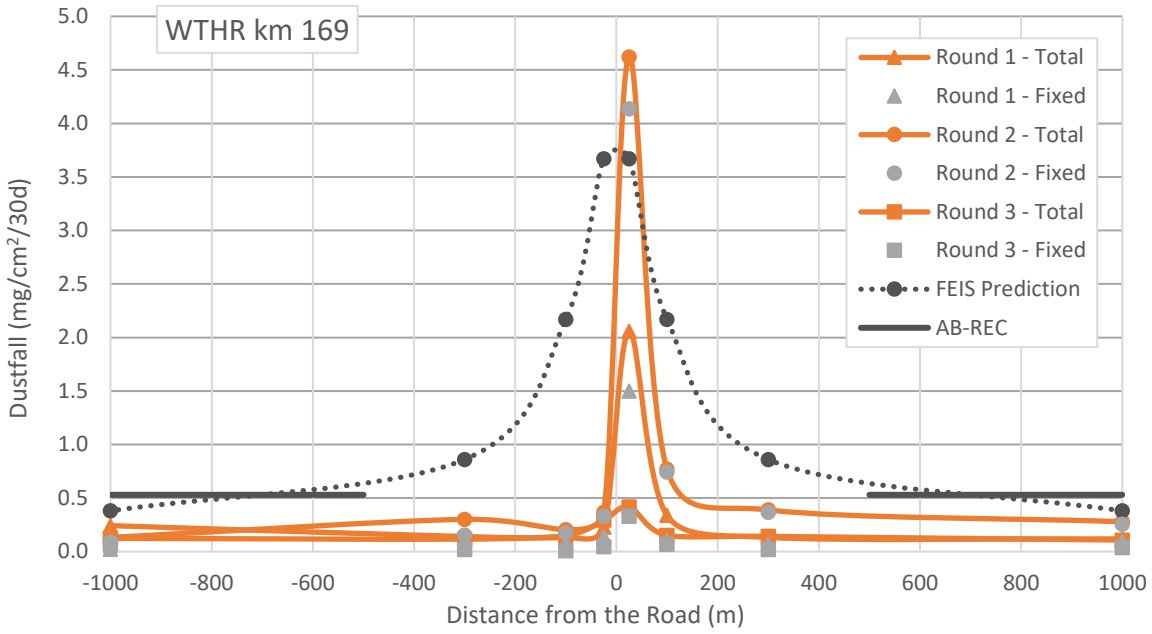

Figure 15. 30-day-normalized rates of total and fixed dustfall at km 169 along the Meadowbank WTHR in 2023. Points represent start date of sample collection. Round 1 began June 6, Round 2 began July 6, and Round 3 began August 5. Positive distances represent the west side of the road, and negative distances represent the east side.

4.3 NO_2

4.3.1 Passive NO_2

Monthly-average NO_2 trends in 2023 as measured by passive sampling devices are provided in Figure 17. 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 2023, concentrations of NO_2 varied between non-detect (<0.1 ppb) and 9.1 ppb. The maximum value is somewhat greater than monthly averages observed previously for the Meadowbank Complex (Section 5.3), but this appears to have been an isolated event, and monthly averages throughout the rest of the year were within historical ranges.

Annual arithmetic mean concentrations were calculated for each station from the monthly-average values (Table 10). These 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 10. 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 (DF-2 in Cumberland, 2005; DF-6b in Agnico Eagle, 2018b - Appendix 4C).

Year	*Guidelines*		*FEIS Predictions*		Measured Values				
	GN	***CAAQS***	***DF-2***	***DF-6b***	**DF-1**	**DF-2**	**DF-6b**	**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

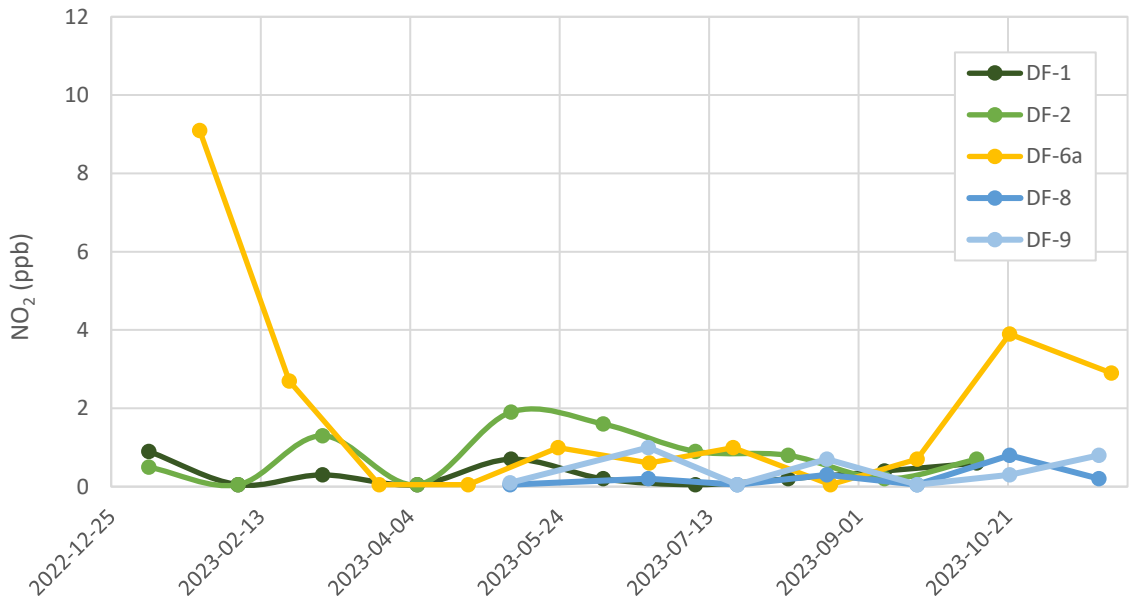

Figure 16. Monthly average concentration of NO_2 at Meadowbank Complex monitoring stations DF-1, DF-2, DF-6a, DF-8, and DF-9. Points represent start date of sample collection. Y-axis is scaled to the 2025 Canadian Ambient Air Quality Standard for the annual average, for reference (12 ppb).

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. At the time of a pre-scheduled quarterly calibration and servicing on July 26, 2022, a problem with the instrument's ozonator was identified, which was preventing proper function. The instrument was not functional again until June 2023. Throughout this time, servicing was ongoing via the supplier and calibration service provider. A summary of this issue is documented in Section 4.4.

To identify valid data for reporting purposes in 2023, the recorded dataset for June 4 – December 31, 2023 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 (+/- 2ppb for zero check, +/- 10% for span check).

Between June 4 and December 31, 2023, zero checks were within targets except for five individual dates which were excluded from the final dataset (September 13 and 14, October 4 and 19, December 13). However, span checks were not performed from June 4 through December 31,

2023, except November 4 – 8. An apparent issue with the test gas canister was identified and fixed on November 3 during a visit by the service provider, but span checks began failing again on November 9, three days after the service provider left site.

On March 4, 2024 the service provider returned to site and performed an as-found verification, which indicated the analyzer remains within calibration standards, despite ongoing issues with span checks. As a result, all 2023 data that was not excluded from analysis on the basis of outliers or calibration failures (as described in this section) is shown in this report to have been collected within quality control targets.

Further details of Agnico's ongoing work to correct this issue are detailed in Section 4.4.

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

Three events were identified. On November 5, a single measurement at 157 ppb was recorded at 1:17 pm. This was during the period that the service technician was onsite. On December 13, elevated concentrations were recorded from 2:41 – 3:05 am, and on December 15 elevated concentrations were recorded from 10:56 – 11:12 pm. In all cases the hourly averages for these time periods were excluded from the final dataset.

Results for November 3 are also removed from the final dataset since calibration/maintenance procedures occurred on this date.

The one-minute data was then processed to calculate hourly and 24-h averages for NO_2, for comparison to regulatory guidelines. No quantitative FEIS predictions are available for the DF-7 location.

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 valid data collected from June 4 – December 31 was 0.14 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 10 in Section 4.3.1).

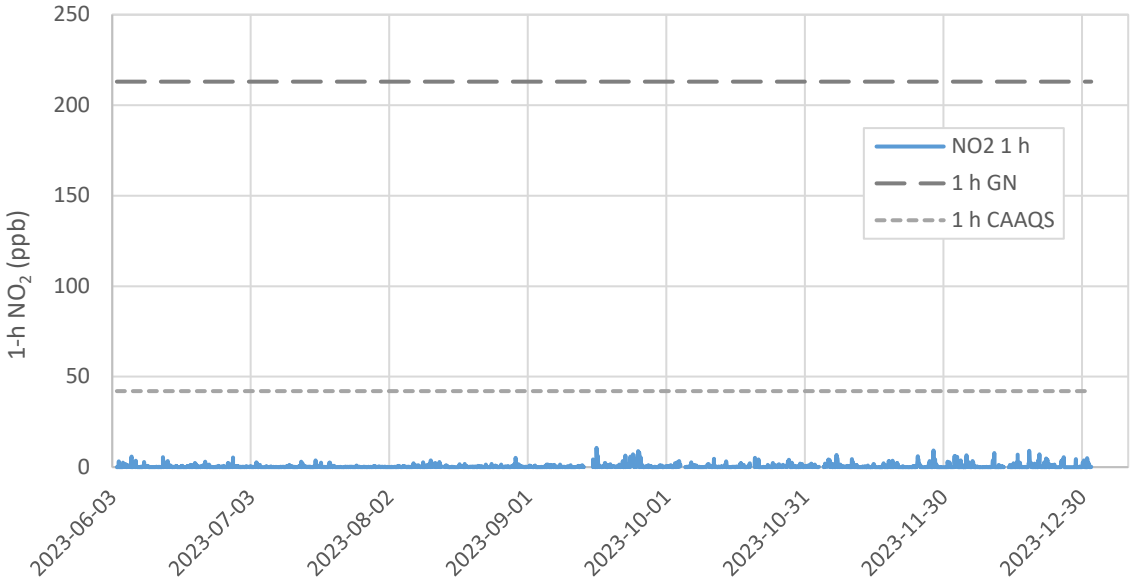

Figure 17. Calculated 1-h average concentrations of NO_2 at station DF-7 in 2023, along with the Government of Nunavut (GN) guideline and 2025 Canadian Ambient Air Quality Standard (CAAQS).

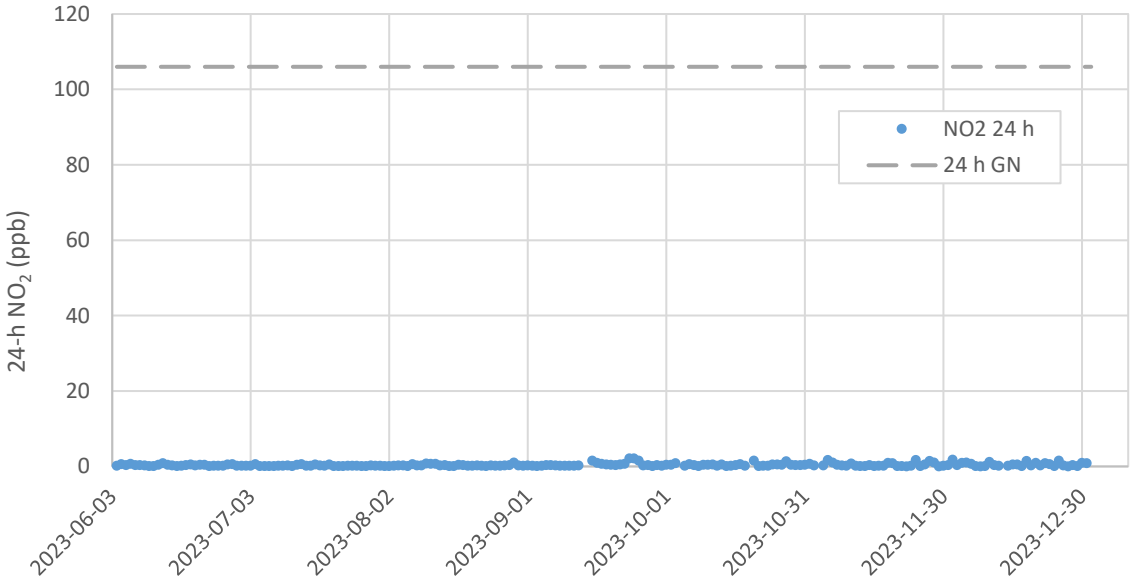

Figure 18. Calculated 24-h average concentrations of NO_2 at station DF-7 in 2023, along with the Government of Nunavut (GN) guideline.

4.4 QA/QC

QA/QC procedures in 2023 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 suspended particulate and NO_2 samples, and use of field duplicates for road-side dustfall samples.

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 brought the Partisol supplier onsite most recently in November, 2023 and March, 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.

For five of the six Partisol units, limited or no data loss occurred in 2023. For each unit, Table 11 shows the monitoring period for 2023 reporting along with available and actual number of 24-h samples collected. For these five units, occasional data loss occurred primarily due to torn filters. For the $PM_{2.5}$/PM_{10} unit at DF-2, downtime was more extended (January 18 – March 1, May 12 – June 11, and September 15 – December 2) as instrument malfunction and follow-up diagnostics occurred, ultimately requiring a new part from the supplier.

Table 11. Available and actual number of 24-h samples collected in 2023 for suspended particulates.

Location	Monitoring Period	# Available Sampling Dates	# Valid Samples Collected		
			$PM_{2.5}$	PM_{10}	TSP
DF-1	January 6 – December 26	60	59	59	55
DF-2	January 6 – December 26	60	33	34	60
DF-6b	January 6 – December 26	60	58	60	59

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. 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 2023, 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 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 quarterly or bi-annual calibration and servicing by professionals brought onsite.

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. The instrument arrived back onsite December 23, and was re-installed December 28. 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 a return visit by the service provided in early March, 2024, as-found verification was performed and the instrument was found to be properly calibrated. Although calibration checks are not being performed, the instrument remains within calibration standards. The supplier could not resolve the issue that is stopping the calibrator from performing span checks, but several parts were replaced on a precautionary basis. Agnico continues to work with the supplier to remedy the ongoing span-check 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 2023, these laboratory-supplied containers were analyzed for eight NO_2 shipments at the Meadowbank Mine and ten shipments at the Whale Tail Mine. Detections occurred in all blanks, from 0.1 to 2.2 ppb, which 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 12. 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 12. 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 2023.

Location	Start Date	Sample	Duplicate	RPD
		(mg/cm^2/30d)	(mg/cm^2/30d)	(%)
AWAR km 18; 100 m E	Jun. 6	0.327	0.306	7
AWAR km 18; 300 m W	Jun. 6	0.185	0.498	63
AWAR km 78; 25 m E	Aug. 6	1.271	1.393	9
AWAR km 78; 300 m W	Jun. 6	0.213	0.148	44
WTHR km 134; 25 m E	Jun. 6	0.970	1.153	16
WTHR km 151; 100 m E	Jun. 6	0.279	0.345	19
WTHR km 169; 25 m E	Jun. 6	0.140	0.096	46

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 (Version 6; March, 2022). These thresholds and results for 2023 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 in 2023.

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

- The threshold was met for all stations.
- Mitigation activities related to dust deposition for onsite locations are therefore considered to have been effective in 2023.

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 2023, one of 58 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 met.

- Based on these results, mitigation activities related to suspended particulates at the Whale Tail Mine are considered to have been effective in 2023.

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).

For Meadowbank Mine stations DF-1 and DF-2, concentrations of suspended particulates have been relatively stable, with the exception of peaks caused by punctual events (e.g. fire at the garage adjacent to DF-2, and associated reconstruction works in March-May 2022). Overall concentrations of suspended particulates do not appear to have been increasing over time at these stations.

For DF-6b, a greater number of samples approached or exceeded regulatory guideline values in 2022 than observed previously, and the management threshold for the annual average TSP concentration was exceeded in that year (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 the management threshold was met.

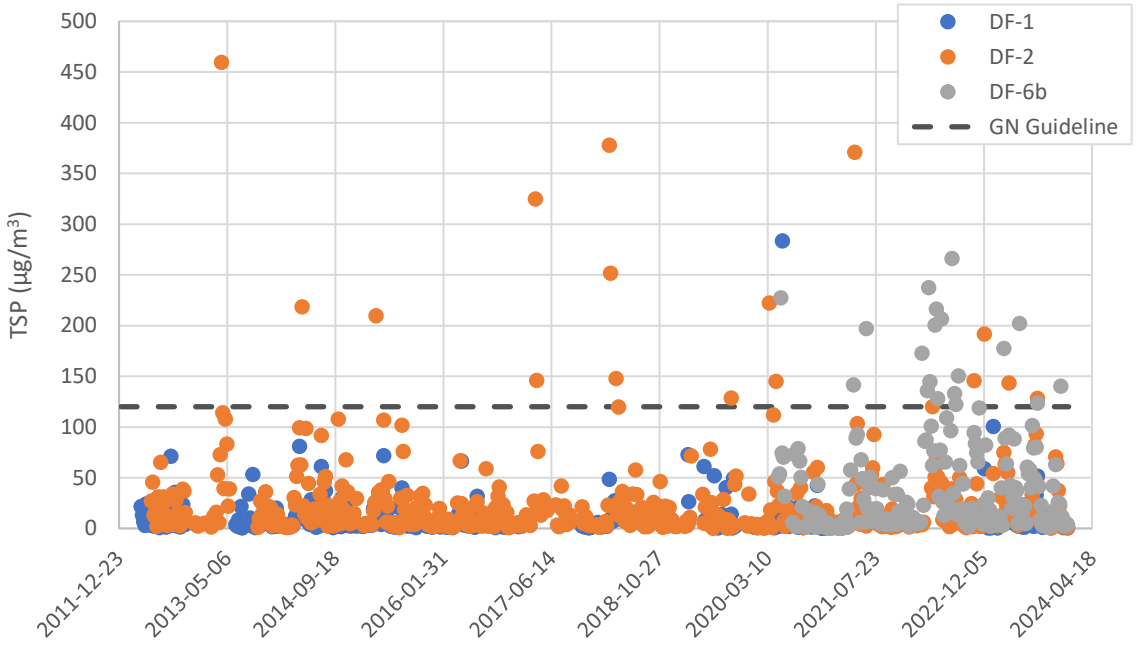

Figure 19. Historical 24-h average concentrations of total suspended particulates (TSP) at Meadowbank Complex stations DF-1, DF-2, and DF-6b. Dashed line indicates the 24-hr average GN guideline for ambient air quality.

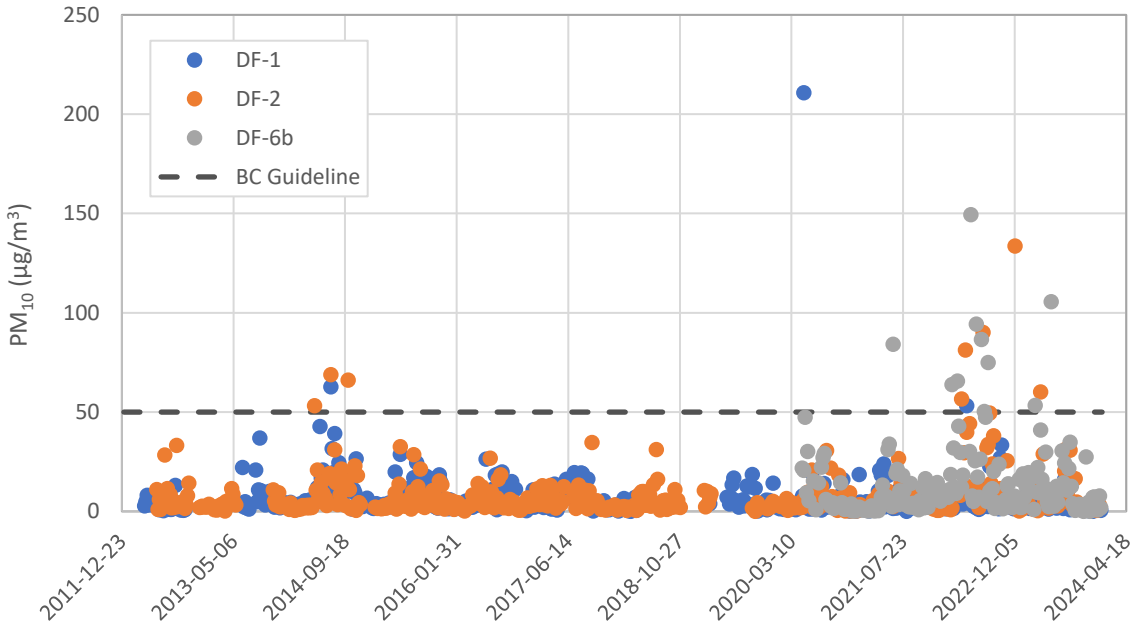

Figure 20. Historical 24-h average concentration of airborne particulate matter less than 10 microns (PM_{10}) at Meadowbank stations DF-1, DF-2, and DF-6b. Dashed line indicates the BC Air Quality Objective for this parameter.

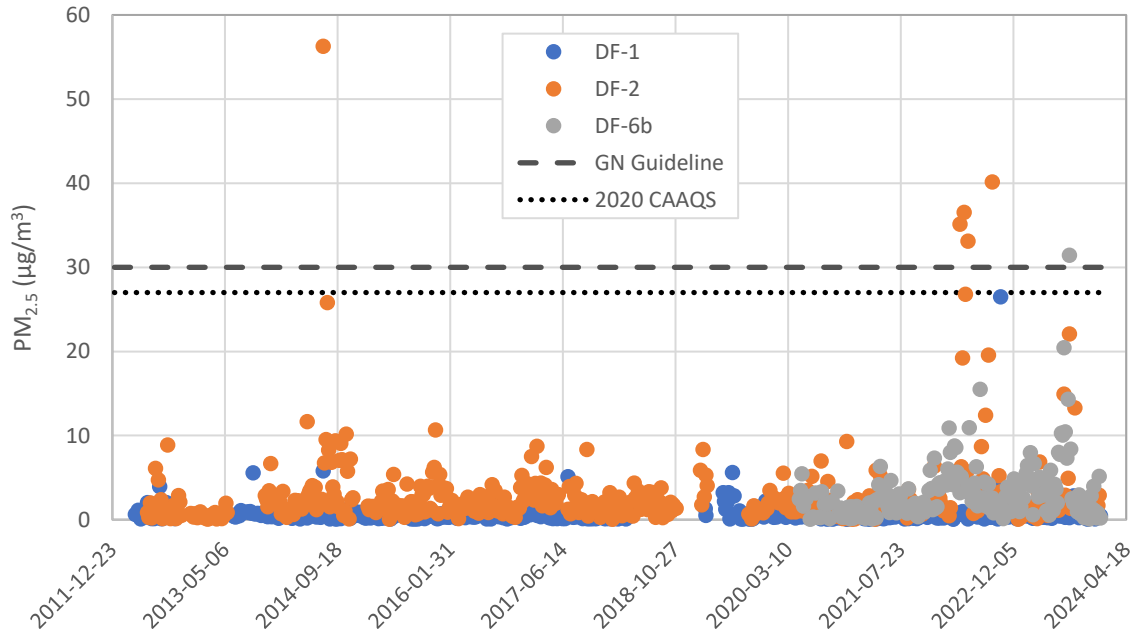

Figure 21. Historical 24-h average concentration of airborne particulate matter less than 2.5 microns ($PM_{2.5}$) at Meadowbank stations DF-1, DF-2, and DF-6b. Dashed line indicates the 24-hr average GN guideline and dotted line indicates the CAAQS.

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.

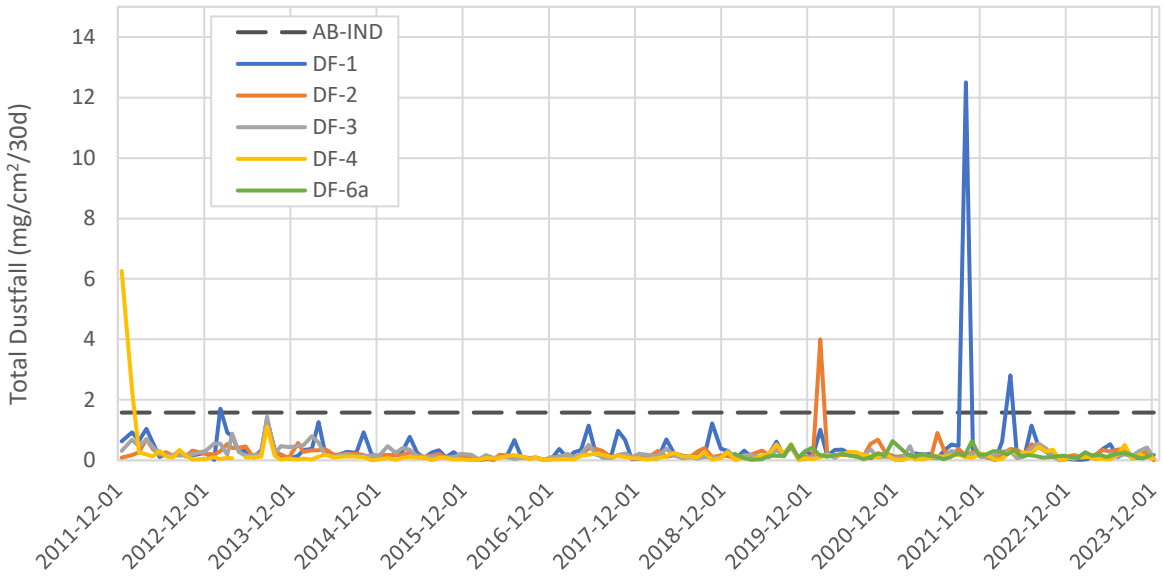

Figure 22. Historical 30-day-normalized rates of total dustfall at DF-1 – DF-6 at the Meadowbank Complex.

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 1.8 m height began, while previously sampling was conducted at ground level.

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. In 2023, similar to 2020 and 2021, results tended to be lower than those observed historically, especially in close proximity to the road. This is likely a result of the switch to sampling on stands, which reduces the influence of re-entrainment on dustfall results. 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.

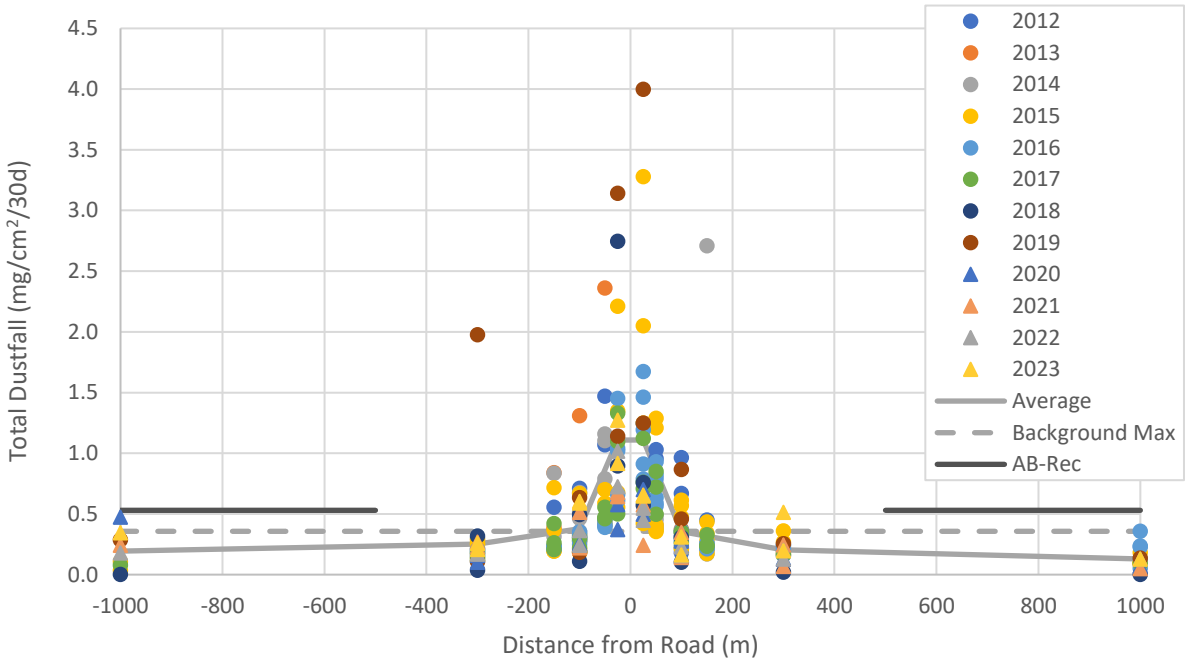

Figure 23. Total dustfall rates (mg/cm²/30d) for all samples collected since 2012 (August sampling events) along the Meadowbank AWAR in areas without dust suppression. Negative distances represent the downwind (east) side of the road, and positive distances represent the upwind (west) side.

5.2.3 Whale Tail Haul Road Dustfall Transects

All results collected to date in August along the Whale Tail Haul Road (2018 - 2023) 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 2023 were similar to or those observed in August in recent years. It is common for single samples at 25 m from the road to exceed specific impact predictions for this distance, but the transect and side of the road are not consistent. Overall rates of dustfall do not appear to be increasing year over year.

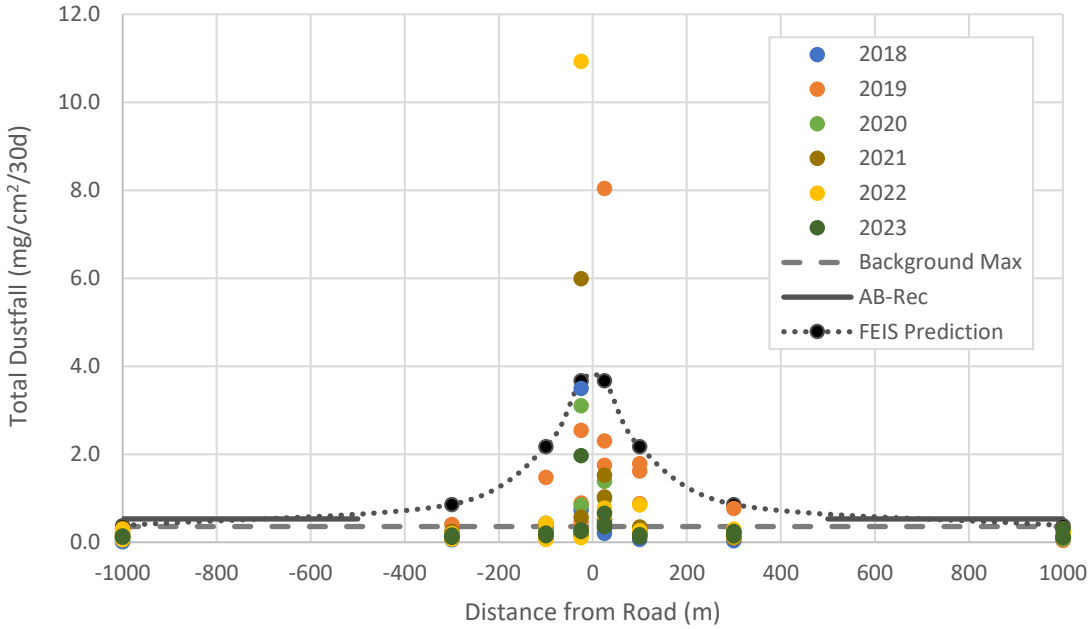

Figure 24. Total dustfall rates (mg/cm^2/30d) for all samples collected in August along the Whale Tail Haul Road to date. Data in 2018 and 2019 was collected at ground level, while 2020+ samples were collected at 1.8 m. Negative distances represent the east side of the road, and positive distances represent 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 concentrations of NO_2 in the area have remained well below guidelines for the annual average (12 ppb), and are not increasing over time.

Historical results are not yet presented for DF-7 (continuous NO_2), since valid data has only been collected from approximately February – June, 2022 and June – December, 2023.

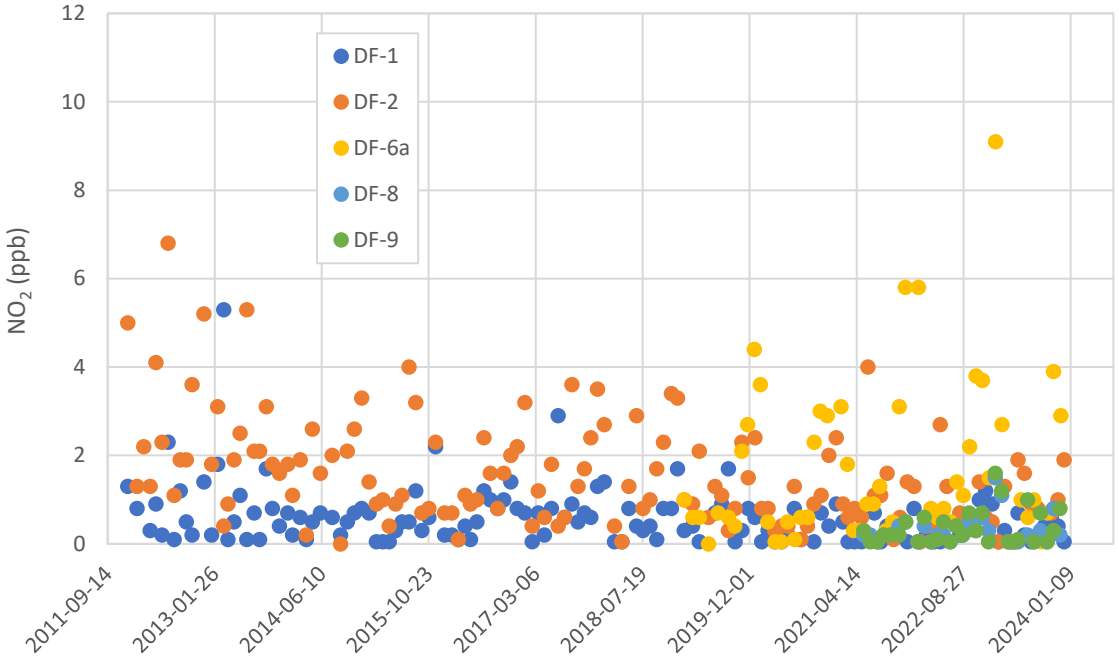

Figure 25. Historical monthly average concentration of NO_2 at DF-1, DF-2, DF-6a, DF-8, and DF-9. Points represent start date of sample collection. Y-axis is scaled to the 2025 CAAQS for the annual average (12 ppb), for reference.

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 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.

Estimated greenhouse gas emissions for the Meadowbank Complex are reported to Environment Canada's Greenhouse Gas Emissions Reporting Program by June 1, annually, for the preceding calendar year. Results calculated to date are shown in Table 13.

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

Table 13. Estimated greenhouse gas emissions for the Meadowbank site as reported to Environment Canada's Greenhouse Gas Emissions Reporting Program. 2018+ includes Meadowbank and Whale Tail sites. *[1]Re-calculated in 2020, *[2] in 2021, *[3] in 2022. **Preliminary at the time of reporting.

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*[1]
2020	225,385*[2]
2021	243,893*[3]
2022	249,362
2023	253,815**

SECTION 8 • INCINERATOR STACK TESTING

Incinerator stack testing is conducted under Agnico Eagle's Incinerator Waste Management Plan (Version 10, June 2022), and results are summarized here.

Operation of the Meadowbank Complex incinerator ceased at the end of November, 2022, so no stack testing was conducted in 2023.

SECTION 9 • SUMMARY

9.1 SUSPENDED PARTICULATES (TSP, PM_{10}, $PM_{2.5}$)

For TSP, six of 174 samples across all three stations exceeded the GN 24-h guideline of 120 µg/m^3 in 2023. However, this includes four samples at the Whale Tail Mine location (DF-6b), where exceedances were predicted in the FEIS Addendum (Section 3.2). The GN guideline for the annual average was met for all stations, and the FEIS Addendum prediction (also the current management threshold) for the maximum annual average TSP at DF-6b (45 µg/m^3) was met.

For PM_{10}, three of 153 samples across all three stations exceeded the BC guideline for the 24-h average, including two samples at station DF-6b, where exceedances were predicted in the FEIS Addendum (Section 3.2). There are no annual average guidelines for PM_{10}.

For $PM_{2.5}$, one of 150 samples across all three stations exceeded the GN guideline of 30 µg/m^3 and the 2020 Canadian Ambient Air Quality Standard of 27 µg/m^3 for the 24-h average. For all three stations annual averages for $PM_{2.5}$ were less than the 2020 CAAQS and relevant FEIS predictions.

9.2 DUSTFALL

Across 59 dustfall samples collected at onsite locations DF-1 – DF-6, none exceeded the relevant Alberta Ambient Air Quality Guideline for industrial/commercial areas.

For samples collected along the AWAR and WTHR transects, some individual results exceeded specific FEIS predictions, but only at the 25 m distance. No relevant exceedances of the established dust management threshold (0.53 mg/cm^2/30d at 500 m) occurred.

9.3 NO_2

Measured using passive samplers, annual average concentrations of NO_2 were less than the GN guideline of 32 ppb, the 2025 CAAQS of 12 ppb, and FEIS predictions for all stations at the Meadowbank Complex.

Available results for continuous NO_2 monitoring in 2023 indicated all measured concentrations were less than the relevant 1-h, 24-h, and annual average standards (GN and/or CAAQS).

9.4 GHG EMISSIONS

Estimated greenhouse gas emissions for the Meadowbank Complex in 2023 for reporting to Environment Canada's Greenhouse Gas Emissions Reporting Program were 253,815 tonnes CO_2 equivalent (preliminary at the time of reporting).

9.5 INCINERATOR EMISSIONS

Operation of the incinerator ceased in November, 2022, so no stack testing was conducted in 2023.

9.6 CONCLUSION

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.

Unpredicted exceedances of relevant short-term ambient air quality guidelines were limited to 4 of 477 24-h samples for suspended particulates. 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 2023.

Management thresholds for dustfall were also met along the AWAR and WTHR. Based on these results, road dust mitigation is considered to have been effective at maintaining levels of deposited particulates below the established thresholds in 2023.

Overall, no trends towards increasing or unpredicted air quality concerns were observed at the Meadowbank Complex in 2023.

SECTION 10 • ACTIONS

The following actions were identified for 2023, with Agnico's response at this time:

- Set the remaining Partisol units to record STP-standardized intake volume.
    - To be completed.
- Implementation of actions to help reduce generation of suspended particulate matter at the Whale Tail site:
    - Review of mitigation options presented in the Air Quality and Dustfall Monitoring Plan (e.g. supplemental dust suppression, grading, material addition) with relevant onsite departments to assist in determining the optimal solution ahead of the 2023 dry season.
        - Completed
    - Thorough mid-year review of monitoring data to assist in confirming effectiveness of any supplemental mitigation.
        - Completed

Based on results in 2023, no new management actions are planned for 2024. Agnico will continue to work with the supplier of the continuous NO_2 analyzer to address the many operational difficulties encountered to date.

Monitoring will proceed according to the Air Quality and Dustfall Monitoring Plan.

SECTION 11 • REFERENCES

Cumberland Resources Ltd. (Cumberland) 2005. Meadowbank Gold Project Air Quality Impact Assessment Report.

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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

APPENDIX A

Weather Data

Table A- 1. Daily temperature, wind speed and wind direction in 2023 at the Meadowbank Mine.

Date	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
1/01/2023	-17.6	-16.8	-18.3	5.10	141
1/02/2023	-19.8	-18.0	-21.2	1.72	124
1/03/2023	-29.1	-24.3	-33.5	9.47	328
1/04/2023	-35.5	-33.2	-36.4	5.06	316
1/05/2023	-33.1	-28.9	-35.6	1.96	116
1/06/2023	-27.4	-25.9	-29.0	2.33	143
1/07/2023	-27.9	-25.6	-29.9	5.70	86
1/08/2023	-23.4	-22.0	-26.1	5.23	92
1/09/2023	-23.3	-22.2	-26.7	2.83	105
1/10/2023	-30.0	-28.9	-31.4	0.95	62
1/11/2023	-23.7	-15.7	-30.4	5.96	122
1/12/2023	-23.5	-14.8	-32.6	9.77	297
1/13/2023	-29.9	-28.0	-32.9	5.65	280
1/14/2023	-28.7	-26.8	-31.6	4.42	283
1/15/2023	-34.3	-30.6	-36.9	2.12	255
1/16/2023	-26.2	-21.4	-30.8	6.87	115
1/17/2023	-19.2	-18.7	-20.6	6.01	111
1/18/2023	-21.0	-19.4	-23.5	5.17	96
1/19/2023	-16.2	-14.1	-20.6	7.61	124
1/20/2023	-13.7	-11.3	-15.4	5.13	93
1/21/2023	-13.6	-8.4	-16.6	8.94	287
1/22/2023	-23.3	-15.7	-30.4	10.72	322
1/23/2023	-33.7	-30.1	-35.5	6.32	313
1/24/2023	-34.3	-30.9	-37.1	5.33	301
1/25/2023	-32.5	-29.7	-37.2	5.70	287
1/26/2023	-35.9	-32.9	-37.3	6.82	307
1/27/2023	-34.9	-32.3	-37.5	6.82	308
1/28/2023	-33.8	-29.3	-37.4	5.27	319
1/29/2023	-33.2	-31.0	-36.0	8.49	317
1/30/2023	-33.7	-30.9	-36.6	4.46	298
1/31/2023	-37.8	-36.2	-39.9	7.86	335
2/01/2023	-38.3	-36.3	-40.7	5.15	309
2/02/2023	-40.1	-38.9	-41.3	5.68	330
2/03/2023	-38.7	-35.2	-41.6	4.78	298
2/04/2023	-37.1	-34.9	-38.9	1.84	309
2/05/2023	-38.7	-34.5	-40.6	0.19	21
2/06/2023	-39.7	-35.8	-41.2	0.22	21

Date	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
2/07/2023	-39.8	-37.9	-41.7	0.50	21
2/08/2023	-38.9	-37.0	-40.1	0.07	21
2/09/2023	-33.5	-30.8	-37.1	0.35	21
2/10/2023	-31.9	-29.3	-36.4	0.81	140
2/11/2023	-34.9	-29.7	-39.2	5.56	324
2/12/2023	-39.4	-38.1	-40.7	2.85	315
2/13/2023	-35.1	-30.6	-39.8	3.70	90
2/14/2023	-31.8	-28.9	-36.6	4.28	7
2/15/2023	-36.2	-34.5	-39.3	4.83	310
2/16/2023	-38.2	-34.8	-40.2	5.54	296
2/17/2023	-39.3	-37.1	-41.9	5.17	300
2/18/2023	-40.6	-38.1	-43.2	3.62	300
2/19/2023	-40.3	-36.9	-42.5	5.16	310
2/20/2023	-39.9	-38.2	-41.2	5.78	306
2/21/2023	-40.4	-37.8	-44.9	4.87	321
2/22/2023	-42.0	-39.3	-45.1	3.87	313
2/23/2023	-37.9	-34.1	-41.7	4.73	300
2/24/2023	-32.9	-29.7	-38.1	7.51	298
2/25/2023	-31.8	-29.8	-35.1	5.43	292
2/26/2023	-34.7	-28.9	-37.9	0.33	268
2/27/2023	-35.9	-33.0	-38.2	0.52	156
2/28/2023	-33.6	-27.8	-37.6	1.32	249
3/01/2023	-36.4	-34.2	-38.5	3.21	319
3/02/2023	-35.6	-29.5	-39.2	1.83	92
3/03/2023	-29.6	-24.7	-35.6	2.91	75
3/04/2023	-25.2	-23.0	-29.1	3.18	48
3/05/2023	-30.4	-26.2	-34.8	0.47	108
3/06/2023	-31.4	-29.4	-33.5	3.97	306
3/07/2023	-30.9	-25.9	-34.0	2.62	319
3/08/2023	-26.8	-22.8	-33.6	6.70	327
3/09/2023	-25.8	-23.7	-30.2	7.55	311
3/10/2023	-28.8	-23.5	-31.3	1.93	229
3/11/2023	-27.8	-23.7	-32.0	2.26	114
3/12/2023	-26.4	-22.0	-29.4	2.04	98
3/13/2023					
3/14/2023	-28.7	-26.9	-31.4	7.33	316
3/15/2023	-27.8	-24.5	-32.1	4.20	315
3/16/2023	-28.1	-22.4	-32.0	1.02	286

Date	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
3/17/2023	-29.0	-23.9	-33.3	0.84	171
3/18/2023	-26.4	-22.3	-30.4	2.31	107
3/19/2023	-25.7	-23.9	-29.8	4.98	344
3/20/2023	-27.9	-23.3	-31.5	5.04	333
3/21/2023	-28.8	-26.6	-31.6	4.33	331
3/22/2023	-28.2	-24.8	-32.4	1.86	300
3/23/2023	-27.4	-25.1	-30.8	2.40	142
3/24/2023	-26.7	-23.9	-30.8	3.58	158
3/25/2023	-23.1	-19.9	-26.2	5.83	95
3/26/2023	-23.4	-20.5	-25.5	5.82	15
3/27/2023	-24.8	-22.5	-27.4	9.23	348
3/28/2023	-26.1	-22.0	-30.6	6.29	338
3/29/2023	-21.0	-17.8	-24.1	7.81	340
3/30/2023	-23.0	-19.7	-26.5	7.22	110
3/31/2023	-21.8	-17.4	-26.5	5.37	74
4/01/2023	-20.5	-17.0	-25.7	7.49	9
4/02/2023	-20.2	-16.5	-24.7	5.40	13
4/03/2023	-23.9	-19.4	-28.2	4.13	344
4/04/2023	-25.2	-20.1	-31.8	1.24	14
4/05/2023	-26.8	-22.0	-31.2	1.68	296
4/06/2023	-26.0	-20.9	-31.3	2.59	149
4/07/2023	-20.2	-15.6	-24.3	2.64	154
4/08/2023	-14.7	-12.2	-18.3	4.49	112
4/09/2023	-12.0	-7.4	-18.0	8.29	113
4/10/2023	-11.4	-10.5	-12.2	8.28	289
4/11/2023	-10.9	-7.5	-14.5	7.04	348
4/12/2023	-15.2	-11.7	-19.9	3.21	2
4/13/2023	-16.1	-12.6	-20.1	2.29	55
4/14/2023	-18.1	-12.5	-24.3	2.17	329
4/15/2023	-16.1	-10.8	-21.4	3.17	349
4/16/2023	-15.7	-10.6	-22.9	1.57	339
4/17/2023	-15.4	-10.8	-21.2	1.92	126
4/18/2023	-9.1	-8.6	-9.8	3.29	175
4/19/2023	-7.8	-4.6	-11.6	2.85	238
4/20/2023	-10.7	-6.2	-15.1	4.26	293
4/21/2023	-12.1	-9.5	-16.6	2.81	324
4/22/2023	-13.9	-8.7	-20.2	0.52	316
4/23/2023	-11.7	-7.1	-18.2	0.00	336

Date	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
4/24/2023	-12.7	-7.9	-19.5	0.06	152
4/25/2023	-11.1	-8.5	-17.4	0.01	353
4/26/2023	-13.1	-7.2	-20.7	0.41	118
4/27/2023	-8.7	-5.8	-12.6	0.92	128
4/28/2023	-6.6	-5.3	-8.5	0.30	149
4/29/2023	-7.8	-4.7	-10.4	0.51	146
4/30/2023	-7.8	-3.3	-12.4	0.00	110
5/01/2023	-7.2	-4.4	-12.0	0.01	130
5/02/2023	-3.5	-0.5	-6.0	0.32	117
5/03/2023	-4.2	-2.8	-6.8	9.98	112
5/04/2023	-2.5	-1.3	-3.6	8.55	124
5/05/2023	-0.5	1.5	-2.2	9.54	155
5/06/2023	0.5	3.5	-3.3	2.02	339
5/07/2023	-2.0	1.3	-6.4	4.13	93
5/08/2023	1.9	6.4	-1.5	3.96	164
5/09/2023	3.3	6.5	-1.3	2.93	297
5/10/2023	0.8	4.7	-2.5	3.74	103
5/11/2023	0.9	2.7	-0.4	3.97	246
5/12/2023	0.9	3.0	-0.6	7.74	318
5/13/2023	0.3	2.6	-1.5	5.62	242
5/14/2023	3.0	9.2	-0.9	4.47	6
5/15/2023	-1.7	0.7	-4.1	5.37	8
5/16/2023	-3.1	0.6	-6.5	3.24	24
5/17/2023	0.3	5.8	-5.5	1.93	180
5/18/2023	1.6	5.3	-2.9	6.53	307
5/19/2023	-3.1	0.4	-6.2	6.45	332
5/20/2023	-3.2	-0.5	-6.6	4.60	199
5/21/2023	-6.1	-2.1	-8.9	7.10	318
5/22/2023	2.3	8.7	-6.3	5.11	219
5/23/2023	-0.4	1.8	-3.3	7.80	333
5/24/2023	3.5	11.3	-3.3	6.15	249
5/25/2023	7.5	12.7	3.1	4.41	193
5/26/2023	-2.1	5.7	-5.5	8.79	349
5/27/2023	-0.3	5.2	-6.2	7.24	174
5/28/2023	1.0	3.5	-1.5	7.35	55
5/29/2023	5.3	11.0	0.3	7.01	160
5/30/2023	0.2	3.1	-2.4	8.23	5
5/31/2023	0.1	3.8	-3.1	4.75	42

Date	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
6/01/2023	3.2	8.8	-2.0	4.79	117
6/02/2023	5.2	10.8	1.4	7.95	144
6/03/2023	7.1	12.1	3.2	4.14	146
6/04/2023	7.1	11.7	3.0	3.22	30
6/05/2023	8.4	15.0	2.0	3.10	159
6/06/2023	8.5	13.7	3.7	4.40	147
6/07/2023	7.9	14.3	2.7	6.30	116
6/08/2023	8.7	16.3	2.8	4.24	203
6/09/2023	5.7	10.3	3.1	7.82	8
6/10/2023	7.0	15.2	-0.5	5.22	308
6/11/2023	10.7	18.7	1.7	5.45	176
6/12/2023	2.1	5.5	-1.0	7.69	352
6/13/2023	5.1	10.5	-0.5	5.75	329
6/14/2023	8.9	14.8	1.4	2.96	334
6/15/2023	11.7	16.7	6.5	2.69	113
6/16/2023	7.1	10.8	2.7	4.40	134
6/17/2023	3.1	4.9	1.7	6.26	121
6/18/2023	6.4	11.5	2.2	3.65	263
6/19/2023	7.5	12.9	3.5	4.31	270
6/20/2023	4.8	8.1	1.9	6.61	294
6/21/2023	7.6	11.6	3.6	1.96	321
6/22/2023	10.1	14.9	4.1	4.72	249
6/23/2023	11.3	16.4	5.7	3.59	95
6/24/2023	13.9	19.0	8.5	3.27	261
6/25/2023	7.5	15.0	5.1	6.39	348
6/26/2023	5.3	8.2	3.4	11.29	318
6/27/2023	9.0	14.7	3.9	7.58	301
6/28/2023	9.5	16.0	2.8	4.06	327
6/29/2023	13.1	18.1	7.9	2.05	80
6/30/2023	15.4	20.5	8.0	1.09	220
7/01/2023	16.6	21.2	12.0	2.74	75
7/02/2023	14.5	19.5	9.0	5.20	331
7/03/2023	12.6	15.0	9.3	5.21	23
7/04/2023	12.2	16.0	8.1	4.49	12
7/05/2023	12.4	16.6	7.6	2.32	221
7/06/2023	11.9	15.6	9.1	6.31	5
7/07/2023	8.4	11.5	6.4	6.02	326
7/08/2023	8.1	10.8	5.5	3.81	325

Date	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
7/09/2023	8.4	11.7	6.4	5.52	17
7/10/2023	10.8	14.7	7.3	5.89	51
7/11/2023	14.8	21.1	9.2	2.58	26
7/12/2023	16.0	20.7	12.1	4.01	56
7/13/2023	11.4	14.2	9.3	7.15	17
7/14/2023	10.4	13.3	8.8	4.55	75
7/15/2023					
7/16/2023	16.0	20.2	11.0	4.35	338
7/17/2023	15.9	21.5	10.6	4.51	343
7/18/2023	19.4	25.4	12.4	3.68	287
7/19/2023	17.3	21.3	12.4	5.69	340
7/20/2023	14.4	19.3	9.6	6.79	342
7/21/2023	16.0	20.9	10.0	5.08	313
7/22/2023	9.6	16.3	6.4	8.23	330
7/23/2023	11.8	17.1	8.2	6.69	336
7/24/2023	14.6	19.4	9.5	5.06	3
7/25/2023	15.3	19.4	11.9	4.89	24
7/26/2023	16.4	20.7	12.3	4.37	32
7/27/2023	18.3	20.5	15.1	6.00	15
7/28/2023	16.9	21.9	12.5	7.03	338
7/29/2023	17.3	22.3	11.9	4.86	351
7/30/2023	18.0	23.1	12.3	3.18	50
7/31/2023	19.0	24.5	12.9	2.07	283
8/01/2023	18.3	22.1	13.6	3.32	347
8/02/2023	17.4	22.3	12.8	4.75	359
8/03/2023	18.2	24.3	11.9	4.24	341
8/04/2023	19.5	24.2	12.5	2.44	327
8/05/2023	20.6	26.1	14.4	2.50	208
8/06/2023	15.5	19.3	13.5	4.87	3
8/07/2023	14.0	18.1	11.6	7.01	27
8/08/2023	16.8	20.7	12.9	4.22	103
8/09/2023	19.2	21.5	15.6	3.41	338
8/10/2023	17.0	21.6	12.0	2.97	318
8/11/2023	17.8	22.2	14.1	3.15	284
8/12/2023	18.2	23.8	14.8	2.53	210
8/13/2023	18.2	23.0	13.9	4.74	165
8/14/2023	18.1	22.2	13.5	6.65	186
8/15/2023	13.8	17.4	10.7	7.43	259

Date	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
8/16/2023	11.4	15.2	9.0	6.36	229
8/17/2023	10.4	13.5	7.5	5.48	279
8/18/2023	11.9	13.8	9.3	2.54	313
8/19/2023	12.6	15.3	10.4	2.69	115
8/20/2023	10.1	12.0	8.6	3.41	247
8/21/2023	9.5	11.4	8.3	9.00	295
8/22/2023	8.3	9.8	6.9	7.23	292
8/23/2023	10.4	15.1	6.5	4.51	256
8/24/2023	7.2	10.0	4.7	7.45	345
8/25/2023	9.0	14.2	4.4	4.69	288
8/26/2023	8.4	10.9	6.5	5.53	262
8/27/2023	5.9	9.1	2.6	8.40	322
8/28/2023	3.1	4.9	1.2	10.40	302
8/29/2023	4.3	7.8	1.5	6.93	308
8/30/2023	5.9	8.5	2.5	3.46	199
8/31/2023	6.0	7.6	4.3	6.40	316
9/01/2023	4.1	5.7	2.3	3.82	12
9/02/2023	4.5	8.4	1.0	6.70	98
9/03/2023	5.7	6.8	2.4	7.86	80
9/04/2023	2.3	3.5	1.2	10.93	335
9/05/2023	3.3	5.6	1.8	7.61	319
9/06/2023	2.1	5.1	-0.6	5.03	311
9/07/2023	3.1	6.3	0.6	3.21	11
9/08/2023	7.3	10.7	5.1	3.71	178
9/09/2023	7.1	9.8	5.0	4.56	166
9/10/2023	6.5	9.1	4.3	4.33	223
9/11/2023	7.0	11.7	3.2	4.62	261
9/12/2023	8.4	12.7	5.5	5.85	201
9/13/2023	5.2	8.7	2.2	5.40	49
9/14/2023	3.6	6.2	1.8	3.73	94
9/15/2023	3.6	7.2	0.4	2.65	74
9/16/2023	4.8	9.4	0.4	2.56	169
9/17/2023	5.9	9.6	3.0	8.52	146
9/18/2023	7.6	8.7	6.8	5.07	147
9/19/2023	7.7	8.8	6.8	2.67	264
9/20/2023	7.6	8.2	6.5	7.39	119
9/21/2023	6.9	8.0	6.1	3.03	144
9/22/2023	6.7	9.6	4.3	3.05	268

Date	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
9/23/2023	7.7	11.7	3.8	5.90	239
9/24/2023	12.4	13.7	11.0	7.93	161
9/25/2023	12.4	17.6	8.7	4.42	169
9/26/2023	10.9	14.3	7.3	8.26	181
9/27/2023	4.7	7.3	3.5	8.51	309
9/28/2023	4.7	5.8	3.1	11.22	94
9/29/2023	4.9	6.1	2.2	5.00	160
9/30/2023	2.3	3.6	1.4	8.11	293
10/01/2023	1.4	2.3	-0.4	12.72	306
10/02/2023	0.2	1.6	-1.0	9.95	305
10/03/2023	-1.5	1.0	-3.3	3.16	282
10/04/2023	-0.2	3.4	-2.9	4.15	91
10/05/2023	0.8	2.0	-0.8	3.93	68
10/06/2023	-1.6	0.6	-3.8	6.19	335
10/07/2023	-1.2	0.3	-5.2	6.82	305
10/08/2023	-4.9	-2.7	-6.6	3.52	294
10/09/2023	0.5	3.8	-5.2	11.03	170
10/10/2023	4.1	6.6	1.4	5.80	163
10/11/2023	1.9	3.8	0.4	6.18	103
10/12/2023	4.4	7.8	2.3	5.60	153
10/13/2023	4.6	9.5	1.5	3.08	194
10/14/2023	3.1	5.9	1.6	2.94	349
10/15/2023	4.4	9.4	2.0	5.04	196
10/16/2023	4.5	7.4	1.6	3.11	183
10/17/2023	1.5	3.5	0.2	2.10	190
10/18/2023	1.2	1.7	0.7	7.57	312
10/19/2023	0.7	1.2	-1.3	6.35	334
10/20/2023	-1.3	0.2	-3.3	3.87	129
10/21/2023	0.0	1.3	-1.5	8.48	147
10/22/2023	-1.9	2.0	-3.6	11.25	253
10/23/2023	-3.4	-2.1	-4.9	12.06	223
10/24/2023	-5.2	-2.7	-7.9	8.08	332
10/25/2023	-4.5	-3.2	-7.8	8.86	290
10/26/2023	-4.1	-3.1	-5.2	10.98	302
10/27/2023	-6.7	-4.8	-9.7	7.46	299
10/28/2023	-9.1	-7.5	-10.9	1.98	310
10/29/2023	-8.7	-7.6	-10.3	2.57	301
10/30/2023	-9.7	-8.1	-12.2	3.22	200

Date	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
10/31/2023	-7.7	-5.1	-9.0	8.74	212
11/01/2023	-8.5	-3.3	-11.2	11.38	298
11/02/2023	-10.8	-8.2	-13.6	7.38	306
11/03/2023	-6.5	-4.0	-11.4	11.19	318
11/04/2023	-10.6	-4.6	-15.2	4.66	40
11/05/2023	-10.7	-7.1	-15.1	6.80	317
11/06/2023	-15.6	-11.0	-18.2	2.18	297
11/07/2023	-18.3	-14.1	-21.7	0.36	252
11/08/2023	-15.4	-11.3	-20.2	3.31	72
11/09/2023	-15.1	-13.5	-17.8	5.64	347
11/10/2023	-15.1	-13.8	-17.5	3.58	190
11/11/2023	-17.2	-15.2	-19.3	5.29	92
11/12/2023	-10.8	-5.5	-18.9	7.67	112
11/13/2023	-3.9	-2.2	-5.6	5.21	123
11/14/2023	-3.1	-1.9	-7.4	3.80	160
11/15/2023	-10.5	-7.2	-12.0	3.04	261
11/16/2023	-15.2	-11.2	-21.6	2.26	349
11/17/2023	-15.1	-13.5	-18.9	3.90	325
11/18/2023	-14.9	-12.8	-20.1	5.01	317
11/19/2023	-20.9	-19.5	-22.4	3.75	302
11/20/2023	-19.7	-17.5	-21.3	1.20	54
11/21/2023	-9.3	-4.5	-15.6	6.77	128
11/22/2023	-10.0	-5.9	-16.6	16.76	322
11/23/2023	-19.2	-16.4	-20.6	21.02	325
11/24/2023	-15.8	-12.9	-19.3	9.12	302
11/25/2023	-16.8	-15.6	-19.8	1.57	46
11/26/2023	-16.6	-14.4	-19.8	7.77	332
11/27/2023	-22.9	-17.1	-27.0	9.19	318
11/28/2023	-27.2	-24.8	-28.7	1.60	276
11/29/2023	-28.5	-25.9	-29.8	2.66	3
11/30/2023	-22.3	-18.6	-26.7	13.24	330
12/01/2023	-13.2	-8.9	-18.7	11.82	340
12/02/2023	-15.4	-10.3	-18.4	1.83	168
12/03/2023	-16.4	-13.9	-19.7	1.59	153
12/04/2023	-12.7	-8.6	-18.2	7.68	135
12/05/2023	-23.8	-8.5	-29.0	2.42	235
12/06/2023	-21.3	-15.5	-27.5	1.20	87
12/07/2023	-13.4	-11.0	-15.7	4.70	74

Date	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Average Wind Speed (m/s)	Average Wind Direction (deg.)
12/08/2023	-14.0	-10.9	-20.7	5.36	3
12/09/2023	-20.9	-16.3	-24.4	5.36	327
12/10/2023	-14.5	-12.6	-19.9	5.38	332
12/11/2023	-18.7	-15.5	-23.2	2.51	59
12/12/2023	-22.1	-20.2	-25.3	0.59	326
12/13/2023	-24.2	-16.3	-30.4	0.60	293
12/14/2023	-22.1	-14.5	-29.9	6.70	115
12/15/2023	-16.0	-11.0	-22.8	9.14	31
12/16/2023	-27.6	-26.1	-28.7	1.24	112
12/17/2023	-25.0	-19.8	-29.0	3.22	313
12/18/2023	-20.1	-18.3	-22.9	6.06	271
12/19/2023	-24.9	-22.6	-28.5	2.18	322
12/20/2023	-29.5	-27.8	-30.7	5.15	303
12/21/2023	-29.6	-27.9	-30.9	3.52	162
12/22/2023	-18.9	-14.1	-28.9	7.54	105
12/23/2023	-22.5	-19.9	-24.9	4.31	295
12/24/2023	-20.7	-17.1	-25.1	5.73	69
12/25/2023	-17.0	-15.6	-20.7	9.40	46
12/26/2023	-24.6	-19.4	-28.0	4.79	320
12/27/2023	-19.8	-17.5	-25.2	6.56	113
12/28/2023	-14.1	-11.2	-17.6	11.53	119
12/29/2023	-12.9	-10.7	-14.4	6.15	139
12/30/2023	-14.4	-11.4	-21.4	8.04	298
12/31/2023	-22.1	-18.7	-25.1	3.46	280

APPENDIX B

Review of FEIS-Designed Air Quality Mitigation Measures

Table B-1: Mitigation measures described in the Project FEIS Addendum (Table 3-C-1) to reduce impacts of the project on area air quality and climate, and commentary on current implementation.

Project Activity	**Planned Mitigation Measure** (FEIS Addendum Volume 3, Table 3-C-1)	**Implementation (2023)**
General construction, operations, and decommissioning activities associated with the Whale Tail Pit and the haul road; and Mining of the Whale Tail Pit	All vehicles will adhere to the 50 km/h speed limit.	**Yes**
	Regular maintenance will be implemented for equipment and vehicles.	**Yes** – Maintenance logs
Upgrading of the haul road from the Whale Tail Pit to the Meadowbank Mine	Implement dust control measures, if needed on mine roads.	**Yes –** Air Quality and Dustfall Monitoring Plan
	Equipment and vehicles will comply with relevant non-road emission criteria at the time of purchase.	**Yes –** Air Quality and Dustfall Monitoring Plan
	Regular maintenance will be implemented for equipment and vehicles.	**Yes** – Maintenance logs
Traffic on the haul road from the Whale Tail Pit to the Meadowbank Mine	Watering of roads and enforcing speed limits to suppress dust production.	**Yes –** Air Quality and Dustfall Monitoring Plan
	Equipment and vehicles will comply with relevant non-road emission criteria at the time of purchase	**Yes –** Air Quality and Dustfall Monitoring Plan
	Regular maintenance will be implemented for equipment and vehicles	**Yes** – Maintenance logs
Construction of the Whale Tail Pit	Best Management practices for controlling fugitive dust from construction activities	**Yes** – Air Quality and Dustfall Monitoring Plan
	Equipment and vehicles will comply with relevant non-road emission criteria at the time of purchase	**Yes** – Air Quality and Dustfall Monitoring Plan
	Regular maintenance will be implemented for equipment and vehicles	**Yes** – Maintenance Logs
Mining of the Whale Tail Pit	Watering of pit roads and enforcing speed limits to suppress dust production.	**Yes** – Air Quality and Dustfall Monitoring Plan
	Equipment and vehicles will comply with relevant non-road emission criteria at the time of purchase.	**Yes** – Air Quality and Dustfall Monitoring Plan
	Regular maintenance will be implemented for equipment and vehicles.	**Yes** – Maintenance logs
	Enclosures are used to reduce fugitive emissions at the processing facility	**Yes** – Air Quality and Dustfall Monitoring Plan
	Adherence to the Incinerator Waste Management Plan	**Yes** - Incinerator Waste Management Plan