Appendix 24: 2021 Air Quality Monitoring Report

AGNICO EAGLE

MELIADINE GOLD MINE

2021 Air Quality Monitoring Report

In Accordance with NIRB Project Certificate No. 006

Prepared by:
Agnico Eagle Mines Limited – Meliadine Division

MARCH 2022

EXECUTIVE SUMMARY

In accordance with Nunavut Impact Review Board (NIRB) Project Certificate No. 006 (NIRB, 2019), and as described in the Air Quality Monitoring Plan, Agnico Eagle Mines Ltd. (Agnico Eagle) continued ambient air quality monitoring at the Meliadine site, near Rankin Inlet in 2021. Monitoring included year-round passive measurement of dustfall at four onsite sampling stations, as well as NO_2 and SO_2 at two locations, over one month averaging periods. Monitoring of suspended particulates (TSP, $PM_{2.5}$, and PM_{10}) occurred year-round at two onsite monitoring stations. Agnico Eagle also conducted summertime dustfall transect sampling (25, 50, 100, 300 m distances from the road) at three locations along the All Weather Access Road (AWAR) and one location along the Rankin Inlet Bypass Road.

In follow-up to the preliminary monitoring reports submitted to the NIRB in August, 2021 and February, 2022, this year-end monitoring report provides a summary of all monitoring methods and results collected in 2021.

Dustfall results are compared to Alberta's Ambient Air Quality Guidelines (Alberta Environment and Parks, 2019) for recreational and industrial areas (AB-Rec, AB-Ind), for context. These guidelines are based on nuisance concerns and are not in place for the protection of environmental or human health. It is anticipated that guidelines for recreational areas may regularly be exceeded in close proximity to the AWAR or mine site, and that guidelines for industrial areas may occasionally be exceeded. For onsite perimeter monitoring stations (DF-4 – DF-7), 37 of the 44 samples collected in 2021 met the AB-Rec guideline, and all samples met the AB-Ind guideline. Historically, an increase in measured dustfall rates has occurred since mid-2017 when the construction period began, as anticipated, but exceedances of even the AB-Rec guideline continue to be relatively uncommon (<12% of samples in 2021).

For AWAR and By-Pass Road transects (DF-1, DF-2, DF-3, and DF-WT, summer-only sampling), overall rates of dustfall were lower than ever observed previously, despite similar or increased traffic in 2021. Historically (2019 and 2020), annual average rates of dustfall have only exceeded AB-Rec at the 25-m distance, and in 2021, average dustfall was well below the guideline for all distances. In total, three of the 62 total dustfall samples from transects exceeded the AB-Rec guideline in 2021. Though sampling later in the season than previously (into October) may have reduced average rates due to effects of snow cover, there were limited differences across sampling months suggesting that dust suppression applied during round 1 (July – August) was as effective in controlling dust as any snow cover later in the season. Dust suppressant in the form of calcium chloride dry product was applied along the length of the AWAR 2 to 3 times per month in June, July, and August.

Suspended particulates (TSP, $PM_{2.5}$, and PM_{10}) were scheduled to be assessed every 6 d in two locations (DF-5 and DF-7) using four Partisol air samplers. Overall data loss was 22% (81 of 366 possible samples), primarily due to a single instrument downtime incident that took it offline for

two months. All results for suspended particulates (285 samples) were below regulatory guidelines for the 24-h averaging time (Government of Nunavut Ambient Air Quality Standards (GN, 2011)/BC Ambient Air Quality Objectives (BC, 2020)) and maximum concentrations predicted in the Final Environmental Impact Statement (FEIS) for the Meliadine Gold Project (Golder 2014), with the exception of a single TSP sample. Annual averages were less than relevant regulatory guidelines and FEIS predictions. Concentrations of metals of concern to the Project in TSP (cadmium and iron) were also less than FEIS-selected health-based screening values and FEIS maximum model predictions in all samples.

Calculated annual average concentrations of NO_2 and SO_2 were well below the Government of Nunavut Ambient Air Quality Standards, and were also less than FEIS maximum predicted values. This was the fifth full year of monitoring for gaseous compounds, and no clear spatial or temporal trends were observed.

As described in the Air Quality Monitoring Plan, a permanent weather station was installed at the Meliadine site, and daily averages for wind speed, direction, temperature, and solar radiation are provided.

Incinerator stack testing was performed in October, 2021. Average measured concentrations of mercury and total dioxins and furans were below the GN standards for these parameters.

Agnico Eagle is required by Environment Canada's Greenhouse Gas Emissions Reporting Program (GHGRP) to track greenhouse gas emissions. Calculated emissions for the Meliadine site (including Rankin Inlet operations) were reported on June 1st, 2021 for the 2020 year. Total emissions were 123,357 tonnes CO_2e, which is less than the FEIS-predicted maximum of 317,000 tonnes CO_2e.

Since monitoring results in 2021 were within applicable air quality standards and FEIS predictions, and/or did not indicate any air quality trends of concern, no additional adaptive management measures are planned. Monitoring in 2022 will proceed according to the Air Quality Monitoring Plan.

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1 INTRODUCTION

1.1 BACKGROUND AND OBJECTIVES

The Meliadine Gold Mine (the Mine) near Rankin Inlet, Nunavut is subject to the terms and conditions of the amended Project Certificate 006 issued by the Nunavut Impact Review Board (NIRB) in accordance with the Nunavut Land Claims Agreement Article 12.5.12 on February 26, 2019 (NIRB, 2019).

In accordance with Conditions 1, 2, 3 and 27b of the Project Certificate, Agnico Eagle maintains the Meliadine Air Quality Monitoring Plan (the Plan) to describe the program for onsite ambient air quality monitoring.

The overall goal of the monitoring program is to confirm the effectiveness of mitigation measures identified in the Project's environmental assessment by measuring key air quality parameters, and in doing so, determine if alternative mitigation strategies are required to further reduce emissions from the Project.

In accordance with the NIRB Project Certificate and the Plan, air quality monitoring for the Meliadine site includes year-round analysis of suspended particulates, dustfall, NO_2 and SO_2. A real time meteorological station has been installed at the site and recorded meteorological data is reported.

A summary of the air quality monitoring program according to the most recent Air Quality Monitoring Plan (Version 2, April 2020) is shown in Table 1. Monitoring according to the pre-construction objectives occurred from 2012 - 2016. In 2017, the project entered the construction phase, which continued in 2018. In 2019, the project entered the operations phase, which continued through 2021.

Table 1. Air quality monitoring objectives according to the Air Quality Monitoring Plan (Version 2, April 2020). *New in Version 2 of the Plan.

Project Phase	Program Objective	Monitoring Equipment
Pre-construction (2012 – 2016)	• To obtain baseline data in order to be able to compare with construction and operation phases	• Three dustfall jars (passive) onsite • Three dustfall jars along AWAR
Construction (2017 – 2018)	• To verify compliance with applicable standards • To apply mitigation measures if necessary	• One TSP/PM_{10} sampling unit (Partisol model 2025) • One passive NO_2 – SO_2 monitor • Four dustfall jars (passive) onsite • Three dustfall jars (passive) along AWAR

Project Phase	Program Objective	Monitoring Equipment
Operations (2019 +)	• To verify the predicted concentrations of TSP, PM_{10}, and $PM_{2.5}$ • To verify that the mitigation measures considered integral to the Project are being incorporated as planned, and are effective	• Two TSP sampling units (Partisol model 2025) (DF-5, DF-7) • Two $PM_{coarse}/PM_{2.5}$ sampling units (Partisol Model 2025-D) (DF-5, DF-7) • Two passive NO_2–SO_2 monitors (DF-5, DF-7) • Four dustfall jars (passive) onsite (DF-4, DF-5, DF-6, DF-7) • **Three dustfall (passive) monitoring transects along AWAR (km 4, 10, 23 – DF-1, DF-2, DF-3) and one along the Rankin Inlet By-Pass Road (DF-WT) – summer season* • **Background dustfall (passive) monitoring at a reference station – summer season*

1.2 Reporting

According to the site's Air Quality Monitoring Plan, a comprehensive report on results of the program is provided to the NIRB by March 31 annually (this document). This report provides results for all monitoring conducted throughout the 2021 calendar year.

In their 2020-2021 Annual Monitoring Report for Agnico Eagle's Meliadine Gold Mine Project, NIRB recommended Agnico Eagle provided an update on the continuation of the saline discharge strategy in 2021 (Recommendation 1), including an analysis on the impacts on air quality.

In accordance with that recommendation, Agnico Eagle provided the preliminary 2021 air quality monitoring report to the NIRB on February 7, 2022, encompassing Partisol monitoring results through October 2021, dustfall monitoring results through November, 2021 and NO_2/SO_2 results through December 2021. Data or conclusions that are new in this year-end 2021 report compared to the preliminary report are highlighted.

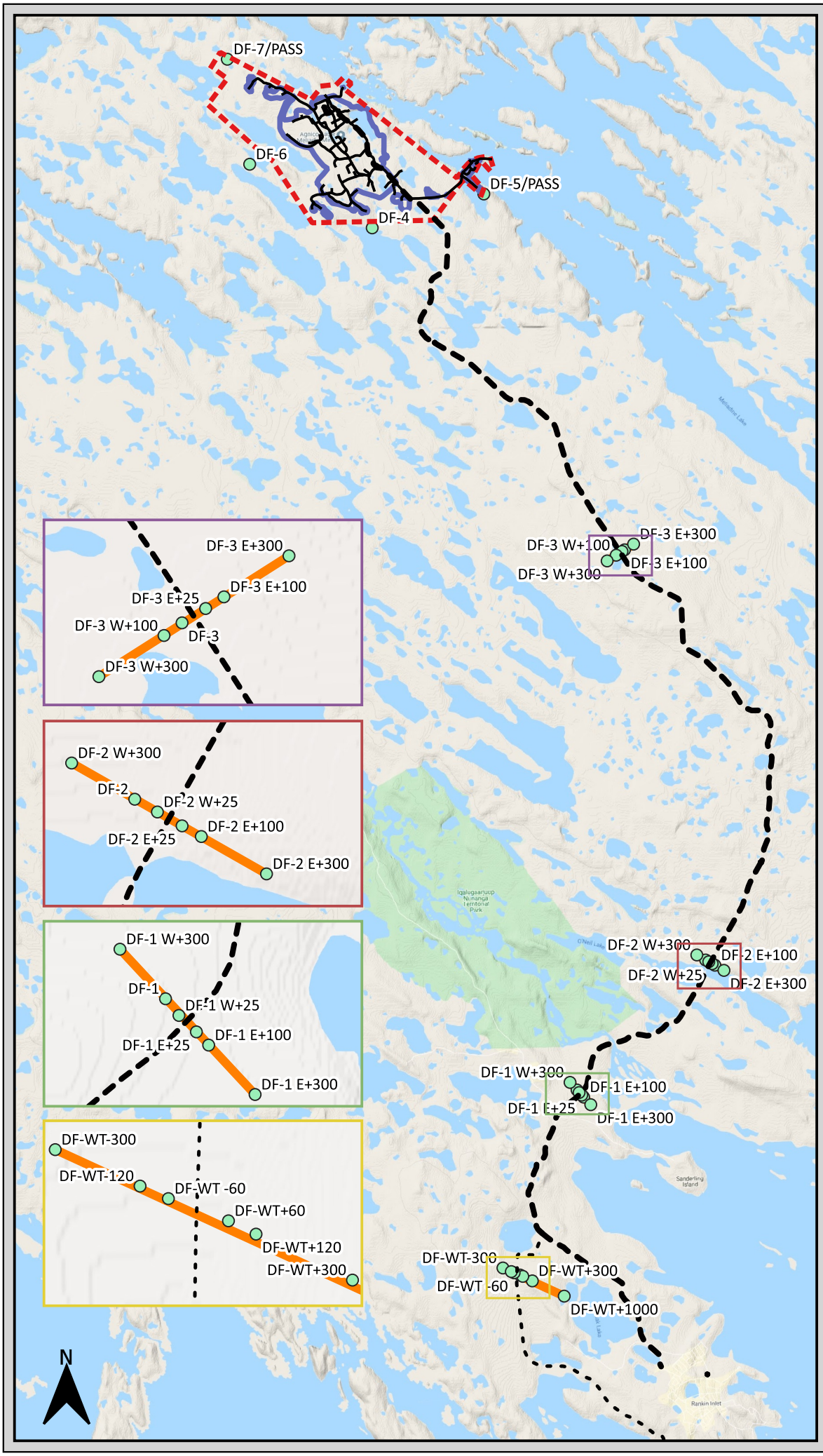
1.3 2021 Program Summary

The 2021 air quality and dustfall monitoring program is summarized in Table 2 and described below, including any deviations from the Plan. Monitoring locations are shown in Figure 1.

Table 2. Planned air quality monitoring locations and parameters. ***Any deviations in the sampling plan in 2021 are in italics. Data loss for each monitoring station is described in Section 2.***

Monitoring Station	UTM (15V)	Parameters	Frequency	General Location	Location Description
DF-WT	542890E 6967093N	Dustfall transect	Summer only	Rankin Inlet By-Pass Road	1.3 km northwest of Nipissak Lake and ~500m southeast (downwind) of community quarry sites. Samples at 60, 120, 300m on each side of the road and 1000 m on the east side.
DF-1	544073E 6970759N	Dustfall transect	Summer only *(sampled August and September)*	AWAR	AWAR km 4 South of Iqalugaarjuup Nunanga Park. Samples at 25, 100, and 300 m on each side of the road. Former year-round station: 100 m from road (west/upwind side)
DF-2	546621E 6973334N	Dustfall transect	Summer only *(former single station also sampled year-round)*	AWAR	AWAR km 10 East of Iqalugaarjuup Nunanga Park. Samples at 25, 100, and 300 m on each side of the road. Former year-round station: 100 m from road (west/upwind side)
DF-3	544899E 6981387N	Dustfall transect	Summer only *(former single station also sampled year-round)*	AWAR	AWAR km 23 North of Iqalugaarjuup Nunanga Park. Samples at 25, 100, and 300 m on each side of the road. Former year-round station: 25 m from road (west/upwind side)
DF-4	540014E 6987836N	Dustfall	Year-round	Onsite	Adjacent to freshwater pumphouse on Lake A8. Downwind of main mine site.
DF-5	542226E 6988507N	Dustfall NO_2, SO_2 TSP, PM_{10}, $PM_{2.5}$	Year-round	Onsite	500 m south-east of the mine camp. Downwind of main mine site. Within Air Quality Impact Assessment Site Study Area.
DF-6	537586E 6989096N	Dustfall	Year-round	Onsite	Adjacent to Lake B5, approx. 600 m southwest of main mine site (direction perpendicular to dominant wind).

Monitoring Station	UTM (15V)	Parameters	Frequency	General Location	Location Description
DF-7	537143E 6991176N	Dustfall NO_2, SO_2 TSP, PM_{10}, $PM_{2.5}$	Year-round	Onsite	Adjacent to emulsion plant, approx. 2 km northwest (upwind) of the camp complex. Within Air Quality Impact Assessment Local Study Area (just outside of Site Study Area).
DF-8	525656E 7001656N Or alternative *2021: 533022E 6999312N*	Dustfall	Summer only	Reference	North end of Meliadine Lake near AEMP Reference Area 2 (MEL-04). UTM approximate. Reference stations may be rotated. *2021: Near the AEMP Reference Area 1 (MEL-03)*



All-Weather Access Road

Rankin Inlet Bypass Road

Haul and Service Road

Production Lease

Infrastructure

Dustfall Transect

Dustfall Location

Air Quality Monitoring Plan

Figure 1

Meliadine Dustfall Locations

0 1 2 3 4 km

1:105000 Scale when printed at 8.5"x11"

Date: 2020-02-10

Drawn By: Bethany Hodgins

Coordinate System: NAD83 CSRS UTM Zone 15 N

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2 METHODS

2.1 SAMPLING METHODOLOGY

2.1.1 Suspended Particulates

Suspended particulates (TSP, PM_{10}, $PM_{2.5}$) were scheduled to be sampled over 24-h averaging periods every six days using a Partisol Plus Model 2025i Sequential Air Sampler (TSP) and a Partisol Plus Model 2025-D Dichotomous Sequential Air Sampler ($PM_{2.5}$ and PM_{coarse}) at monitoring locations DF-5 and DF-7 (Figure 1). 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. TSP filters are also analyzed by the laboratory for cadmium and iron, as described in the Plan.

In 2021, suspended particulate sampling occurred every six days beginning January 4, with the exception of sampling dates where data loss occurred for various reasons (Table 3). As described in the Air Quality Monitoring Plan some data loss is anticipated, particularly during the winter months, due to the extreme weather conditions at the Meliadine site.

For three of the four Partisol units, data loss for the period of this report is considered minor to moderate, with rates of 7 - 23%, or 4 - 14 of 61 possible samples (Table 3). For the dichotomous unit ($PM_{2.5}$/PM_{10}) at DF-7, more extensive data loss occurred early in the year. Equipment failure began March 29 and eventually required removal of the unit from the field for troubleshooting in the indoor environment. After communication with the supplier and manufacturer, additional new parts were ordered by April 10. After receiving and installing the new parts, sampling resumed June 9. No further downtime occurred, and overall data loss to December 30 is 33% for this instrument. Results for $PM_{2.5}$/PM_{10} at the other monitoring station (DF-5) are reviewed in particular for the March 29 – June 9 period of data loss to help understand trends in fine and coarse particulate matter onsite. The DF-5 station is located downwind of the site, and is generally anticipated to receive higher concentrations of mine-related suspended particulate matter than DF-7.

The downtime experienced from March 29 – June 9 at DF-7 resulted in the loss of 24 of the 366 possible particulate samples in 2021. With a rigorous routine maintenance schedule, relatively few instances of data loss occurred due to additional failures of the instrument or software (37 samples across all four instruments). Additional minor losses occurred as a result of torn filters (12 samples), technician error in set-up (6 samples) and logistical errors (2 samples).

Table 3. Summary of data loss due to: software error (e.g. instrument did not correctly initiate sampling sequence), logistical errors (e.g. missing in transit), technician error (e.g. sampling sequence not properly initiated) or other equipment failure (e.g. filter exchange error, broken parts), as indicated. Check mark indicates sample was collected. Results in bold are new in this final report compared to the preliminary report.

Sample Date	TSP		$PM_{2.5}/PM_{10}$	
	DF-5	DF-7	DF-5	DF-7
1/04/21	✓	✓	✓	✓
1/10/21	✓	✓	✓	✓
1/16/21	✓	✓	✓	✓
1/22/21	✓	✓	✓	✓
1/28/21	✓	✓	✓	✓
2/03/21	✓	✓	✓	✓
2/09/21	✓	✓	✓	✓
2/15/21	✓	✓	✓	✓
2/21/21	✓	✓	✓	✓
2/27/21	Equip. failure[1]	✓	Equip. failure[1]	✓
3/05/21	✓	✓	✓	✓
3/11/21	✓	✓	✓	✓
3/17/21	✓	✓	✓	Software error[4]
3/23/21	✓	✓	✓	✓
3/29/21	✓	Software error[4]	✓	Equip. failure[5]
4/04/21	✓	Software error[4]	✓	
4/10/21	✓	✓	✓	
4/16/21	✓	Equip. failure[2]	✓	
4/22/21	✓		✓	
4/28/21	✓		Equip. failure[3]	
5/04/21	✓	✓	✓	
5/10/21	✓	✓	✓	
5/16/21	✓	✓	✓	
5/22/21	✓	✓	✓	
5/28/21	✓	✓	✓	
6/03/21	✓	✓	✓	
6/09/21	✓	✓	✓	✓
6/15/21	✓	✓	✓	✓
6/21/21	✓	✓	✓	✓
6/27/21	Software error[4]	✓	✓	✓
7/03/21	✓	✓	Tech. error[8]	✓
7/09/21	✓	✓	✓	✓
7/15/21	✓	Tech. error[8]	✓	Software error[4]
7/21/21	✓	✓	✓	Software error[4]

Sample Date	TSP		$PM_{2.5}/PM_{10}$	
	DF-5	DF-7	DF-5	DF-7
7/27/21	✓(13 h)	Tech. error[8]	✓(13 h)	✓
8/03/21	✓	Equip. failure[7]	Equip. failure[9]	✓
8/08/21	✓	✓	✓	✓
8/14/21	✓	✓	✓	✓
8/20/21	✓	✓	✓	✓
8/26/21	✓	✓	✓	✓
9/01/21	✓	✓	✓	$PM_{2.5}$ - ✓ PM_{10} – Equip. failure[7]
9/07/21	✓	Equip. failure[7]	$PM_{2.5}$ - ✓ PM_{10} – Equip. failure[7]	$PM_{2.5}$ - ✓ PM_{10} – Equip. failure[7]
9/13/21	✓	✓	✓	✓
9/19/21	✓	✓	✓	✓
9/25/21	Logistical error[6]	✓	✓	✓
10/01/21	Logistical error[6]	✓	✓	$PM_{2.5}$ - ✓ PM_{10} – Equip. failure[7]
10/07/21	✓	Equip. failure[7]	✓	Equip. failure[7]
10/13/21	✓	✓	Software error[4]	✓
10/19/21	✓	✓	Software error[4]	✓
10/25/21	✓	✓	✓	✓
10/31/21	✓	**Equip. failure[7]**	✓	✓
11/06/21	✓	✓	✓	✓
11/12/21	✓	**Equip. failure[7]**	✓	✓
11/18/21	✓	✓	**Equip. failure[9]**	✓
11/24/21	✓	✓		✓
11/30/21	✓	**Software error[4]**		✓
12/06/21	✓	✓		**$PM_{2.5}$ - ✓ PM_{10} – Equip. failure[7]**
12/12/21	✓	**Software error[4]**	✓	✓
12/18/21	✓	✓	**Tech. error[8]**	**Software error[4]**
12/24/21	✓	✓	✓	**Software error[4]**
12/30/21	✓	✓	✓	✓

[1] - The heated shelter door was found to have broken open and no sample was collected due to the low ambient temperature. Door fixed.

[2] – O-ring found to have come off in filter compartment when checked on April 28. Re-set.

[3] – Filter did not exchange properly. Re-set.

[4] – Software error – sample not collected (e.g. shuttle error, no intake or significantly reduced intake)

[5] – Extensive equipment failure requiring supplier and manufacturer support to troubleshoot, resulting in order of additional new parts.

[6] - Filter lost between collection and laboratory

Sample Date	TSP		$PM_{2.5}/PM_{10}$	
	DF-5	DF-7	DF-5	DF-7
[7] - Torn filter, results excluded				
[8] - Sequence not properly initiated				
[9] - Equipment failure fixed by technicians onsite				

2.1.2 Dustfall

Dustfall was collected in open vessels containing a purified liquid matrix (de-ionized water and isopropanol), supplied by a commercial analytical laboratory. Particles are deposited and retained in the liquid, which is then analyzed for total and fixed (non-combustible) dustfall by the supplying laboratory. While regulatory guidelines relate to total dustfall, the non-combustible fraction (fixed dustfall) is considered more representative of mine-related activity because it excludes organic components (e.g. pollen, plants, animal particles).

Dustfall vessels were deployed according to laboratory specifications for sequential one-month periods at each sampling location, retrieved, re-sealed, and shipped back to the laboratory. Canisters were placed on a stand at 2-m height, with an open bucket-style holder fitted with wires around the rim to deter birds (see Figure 2). Calculated dustfall rates were normalized to 30 days (mg/cm^2/30 days).

In 2021, dustfall monitoring was conducted over approximately 30-day periods for onsite year-round sampling stations DF-4, DF-5, DF-6, and DF-7 from December 25, 2020 – December 11, 2021 (Figure 1). No data loss occurred for dustfall samples.

As described in the Air Quality Monitoring Plan, summer-only transect sampling is planned for AWAR stations DF-1 – DF-3. However, year-round samples have historically been collected at single locations associated with these transects (see Table 2), and this sampling may continue opportunistically, as occurred for DF-2 and DF-3 in 2021.

Dustfall was also sampled for AWAR transects DF-2 and DF-3 over three 30-d periods from July 10 – October 11, 2021. AWAR transect DF-1 and By-Pass Road transect DF-WT were sampled over two 30-d periods from August 11 – October 11. These locations were not sampled until August 11 due to a limited supply of sampling canisters onsite.

Finally, background reference dustfall station DF-7 was sampled over three 30-d (approx.) periods from July 19 – October 17, 2021.

Figure 2. Dustfall sampling stand at the Meliadine site.

2.1.3 NO_2 and SO_2

Concentrations of NO_2 and SO_2 by volume (ppb) were analyzed over one-month periods using a passive sampling device provided by Bureau Veritas Laboratories and deployed by Agnico Eagle technicians according to laboratory-identified procedures. Following each sampling period, the sampling device was retrieved and shipped to the commercial laboratory for analysis.

In 2021, the passive samplers for NO_2 and SO_2 were installed at two locations (DF-5 and DF-7; Figure 1). Passive monitoring of NO_2 and SO_2 was conducted over approximately 30-day periods from December 27, 2020 through December 11, 2021. In 2021, one duplicate sampler was also installed for SO_2 at DF-5 and one duplicate sampler was installed for NO_2 at DF-7.

For NO_2, two of 11 sample results were unavailable for location DF-5 due to missing canisters as reported by the laboratory (February 28 – April 29). It is likely that these canisters were accidentally not shipped. Neither NO_2 nor SO_2 results were available for any station for the July 3 – August 11 period due to unlabeled canisters, as reported by the laboratory.

2.2 Data Analysis

2.2.1 Suspended Particulates

2.2.1.1 Data Processing

Laboratory-reported results for mass of particulates were used to calculate associated concentrations of TSP, PM_{10} and $PM_{2.5}$ ($\mu g/m^3$) according to the Partisol operating manual, as follows.

TSP is calculated as:

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

Where: TSP = mass concentration of particulates ($\mu g/m^3$)

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} ($PM_{10-2.5}$), 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 ($\mu g/m^3$)

$M_{2.5}$ = 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 ($\mu g/m^3$)

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 Government of Nunavut Ambient Air Quality Guidelines (2011), concentrations of particulates need to be calculated using air volumes normalized to 25°C and 101.3kPA (standard temperature and pressure; STP). Standardized volumes were recorded by the Partisol unit for each 24-h sampling period, and used in calculations.

2.2.1.2 Regulatory Guidelines and FEIS Predictions

Results of suspended particulate monitoring were compared primarily to available Government of Nunavut (GN) Environmental Guidelines for Ambient Air Quality (October, 2011). Where GN guidelines were not available (i.e. for PM_{10}) results were compared to the BC Air Quality Objective Guidelines (February, 2020). Regulatory guidelines for the measured parameters are provided in Table 4.

Results were additionally compared to FEIS predictions for maximum concentrations of suspended particulates, to ensure estimates were sufficiently conservative, and related impact assessment results continue to be representative (i.e. Atmospheric Environment and Impact Assessment – FEIS Volume 5). Maximum FEIS air quality predictions for the site study area (SSA) and local study area (LSA) where the monitors DF-5 and DF-7 are located, respectively, are shown in Table 4. It is noted that monitoring results include background contributions, whereas model predictions do not, so comparisons to these FEIS predictions are expected to be conservative. Comparisons to predicted peak concentrations (which include influence of meteorological anomalies) may be conducted if such a situation occurs.

Table 4. Government of Nunavut (GN) Environmental Guidelines for Ambient Air Quality (October, 2011), BC Ambient Air Quality Objectives (February, 2020) and FEIS predictions for suspended particulate matter at Meliadine along with the representative monitoring station (DF-5/DF-7).

Parameter	Averaging Time	Regulatory Guideline		FEIS Prediction (µg/m³)	
		Jurisdiction	Guideline (µg/m³)	SSA (represented by DF-5)	LSA (represented by DF-7)
$PM_{2.5}$	24-h	GN	30	55.2	19.6
PM_{10}	24-h	BC	50	104.0	58.2
Total Suspended Particulate (TSP)	24-h	GN	120	213.7	122.3
	Annual geometric mean	GN	60	16.8	17.0

In accordance with Term and Condition 1b of the Project Certificate, concentrations of particulate-bound metals of relevance to the Project (iron and cadmium) are measured in TSP samples to

understand implications for human health, as predicted in the Project's Human Health Risk Assessment (FEIS Volume 10). Results are compared to the FEIS-selected health-based screening values (Golder, 2014, Volume 10, Appendix 10-2), as shown in Table 5, as well as FEIS-predicted maximum concentrations of contaminants for monitoring-site locations Camp (DF-5) and Receptor 1 (DF-7) (Golder, 2014, Volume 10). The FEIS health-based screening values were generally selected as the most conservative air quality guideline from a wide range of jurisdictions, as described in Golder, 2014, Volume 10, Appendix 10-2. These guidelines will provide context for interpreting the results of trace metals analysis in particulate samples.

Table 5. FEIS-selected health-based screening values for chronic inhalation (24-h) from the Project's Human Health Risk Assessment (Golder, 2014, Volume 10), and FEIS-predicted maximum concentrations of contaminants for monitoring-site locations Receptor 1 and Camp (Golder, 2014, Volume 10).

Contaminant	FEIS Values		
	Selected Health-Based Screening Value ($\mu g/m^3$)	**Prediction – Camp (DF-5)** ($\mu g/m^3$)	**Prediction – Receptor 1 (DF-7)** ($\mu g/m^3$)
Cadmium	0.025	0.0180	0.0030
Iron	4	8.7300	3.7000

2.2.2 Dustfall

No standards for dustfall are available for Nunavut. Results of the dustfall analysis are therefore compared to Alberta's Ambient Air Quality Guideline for recreational areas for total dustfall (January, 2019) of 0.53 $mg/cm^2/30d$ and commercial/industrial guideline of 1.58 $mg/cm^2/30d$, to provide context. These guidelines are based on aesthetic or nuisance concerns, and are to be used for airshed planning and management, as a general performance indicator, and to assess local concerns.

Based on measurements for other mine-related roads in Nunavut (Meadowbank Complex), it is anticipated that guidelines for recreational areas may regularly be exceeded in close proximity to the AWAR or mine site, and that guidelines for industrial areas may occasionally be exceeded. However, exceedance of these guidelines does not necessarily indicate that impacts to ecological endpoints (e.g. vegetation or wildlife) are occurring. Impacts of dust deposition on the aquatic and terrestrial environments are assessed and compared with FEIS predictions through the Aquatic Ecosystem Monitoring Program (AEMP) (water and sediment quality monitoring) and Terrestrial Environment Management and Monitoring Program (TEMMP) (soil and vegetation sampling through the ecological risk assessment program).

Dustfall rates are additionally analyzed for indications of spatial trends to look at differences between transect locations, upwind and downwind locations, and distance from the road. A

temporal analysis also checks for consistently increasing trends in the measured dustfall rates year-over-year.

2.2.3 NO_2 and SO_2

NO_2 and SO_2 sampling results are compared with the GN Environmental Guidelines for Ambient Air Quality (October, 2011). Concentrations measured on a monthly basis are averaged and compared to the annual average guidelines for NO_2 (60 µg/m^3 or 32 ppb) and SO_2 (30 µg/m^3 or 11 ppb).

A comparison to FEIS maximum model predictions plus FEIS-assumed background concentrations for NO_2 and SO_2 is also included (Table 6), along with a review of historical data for spatial and temporal trends.

Table 6. Summary of GN guidelines and FEIS predictions (plus assumed background concentrations) for annual average concentrations of NO_2 and SO_2.

Compound	GN Guideline (Annual Average)	FEIS Prediction + Background (Annual Average)	
		SSA (DF-5)	LSA (DF-7)
NO_2	32 ppb	23.3 + 0.05 ppb	12.1 +0.05 ppb
SO_2	11 ppb	0.1 +0.2 ppb	0.0 + 0.2 ppb

2.3 QA/QC

According to the Plan, QA/QC procedures for the monitoring program included the following:

2.3.1 Suspended Particulates

- Trip blanks (laboratory prepared cartridges that travel with the samples but are not exposed to the atmosphere) were collected for the TSP units at both DF-5 and DF-7 on February 9, and both results were below detection limits (<3 ug/filter);
- An accredited laboratory was used for pre-sample preparation and determining sample weights;
- Samples and data were collected by appropriately trained personnel; and
- Qualified personnel interpreted the flow data and confirmed ambient particulate concentrations based on laboratory results.

2.3.2 Dustfall

- A trip blank (laboratory prepared samples that travel with the samples but are not exposed to the atmosphere) was sent with three shipments, and two canisters were analyzed.
    - Results for trip blanks were between 0.024 and 0.086 mg/cm^2/30d, which is greater than the reportable detection limit of 0.001 mg/cm^2/30d.

- These results indicate that dustfall measurements for regular samples may be artificially elevated up to 0.086 mg/cm^2/30d due to travel-related contamination.
- This outcome is considered in data interpretation.

- An accredited laboratory was used for sample preparation and analysis; and
- Samples were collected by appropriately trained personnel.

2.3.3 Passive NO_2-SO_2

- Throughout the year, field duplicates were collected for SO_2 at DF-5 and for NO_2 at DF-7 (results discussed in Section 3.3);
- An accredited laboratory was used for pre-sample preparation and sample analysis;
- Samples were collected by appropriately trained personnel; and
- Qualified personnel interpreted ambient NO_2-SO_2 concentrations based on laboratory results.

3 MONITORING RESULTS

3.1 SUSPENDED PARTICULATES

3.1.1 Current Year TSP, PM_{10} and $PM_{2.5}$

In 2021, suspended particulate sampling was scheduled to occur every six days beginning January 4. Data loss is discussed in Section 2.1.1 and available results are shown in Figures 3, 4, and 5. Since the preliminary report, results from August, November, and December have been added (dates specified in Table 3).

With the exception of a single TSP sample (April 10, DF-7), all values were below the GN or BC guidelines and FEIS predictions for the 24-h averaging time. The DF-7 station is located on the upwind edge of the Meliadine site, and the single exceedance is considered to be an isolated incident, potentially due to a localized event, and not indicative of typical onsite conditions or any trends towards elevated air quality concerns.

Annual average concentrations of TSP calculated for January 4 – December 30 are provided in Table 7. 2021 was the first full year of monitoring. In all cases, measured concentrations were less than the GN guideline and FEIS predictions.

Table 7. Measured and predicted annual average concentrations of TSP for Meliadine monitoring stations DF-5 and DF-7.

Year	DF-5 (µg/m³)		DF-7 (µg/m³)	
	Geometric mean	Arithmetic mean	Geometric mean	Arithmetic mean
	GN Guideline: 60	*FEIS Prediction: 16.8*	*GN Guideline: 60*	*FEIS Prediction: 17.0*
2021	3.4	6.0	3.9	10.0
2021 (preliminary report)	3.8	6.4	4.1	11.0

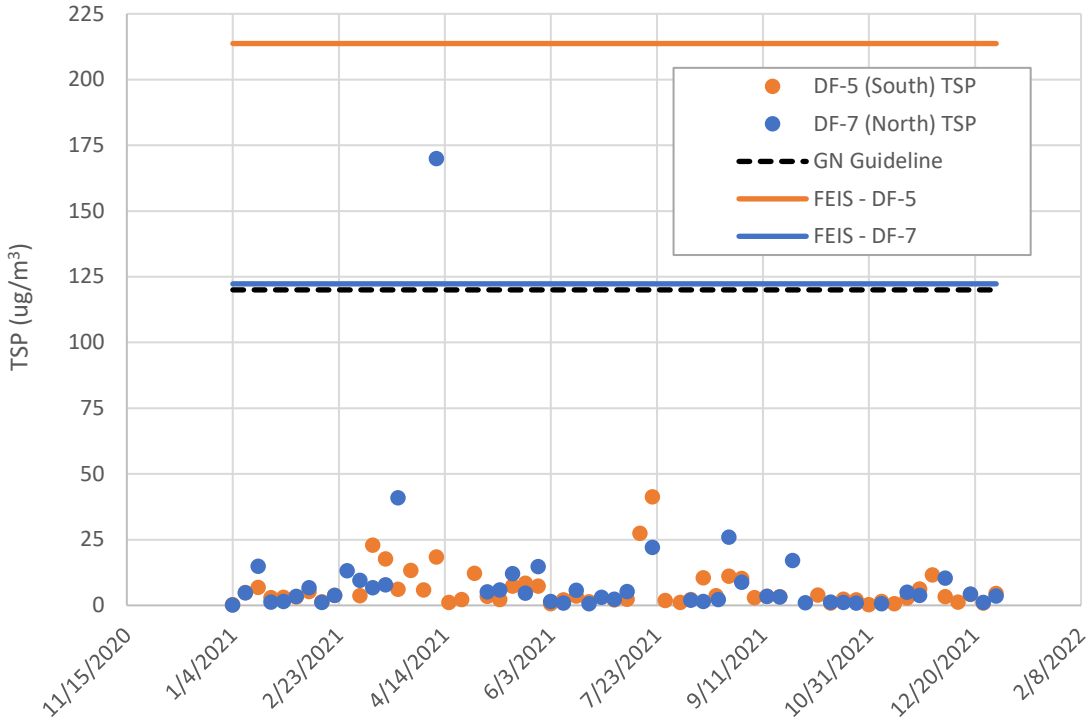

Figure 3. 24-h measured concentrations of total suspended particulates (TSP) at monitoring stations DF-5 and DF-7 at the Meliadine site (points). Lines indicate the Government of Nunavut (GN) guideline and FEIS maximum model predictions for each station.

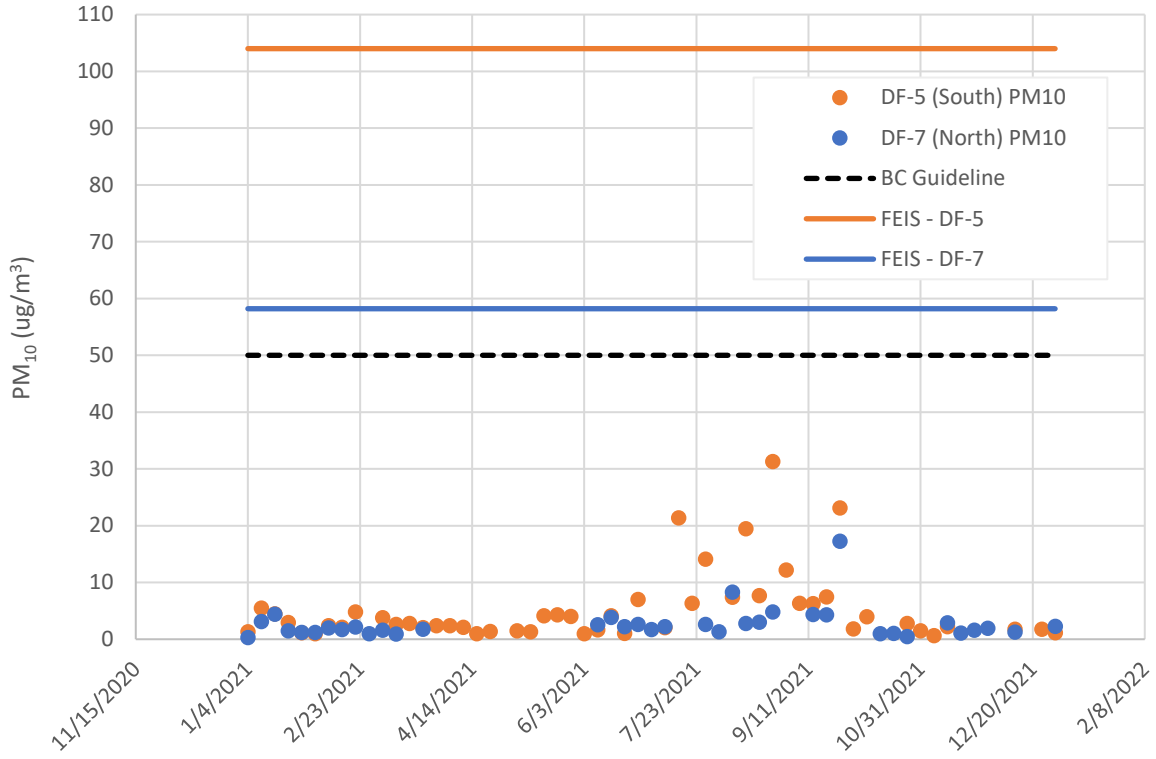

Figure 4. 24-h measured concentrations of PM_{10} at monitoring stations DF-5 and DF-7 at the Meliadine site (points). Lines indicate the BC guideline and FEIS maximum model predictions for each station.

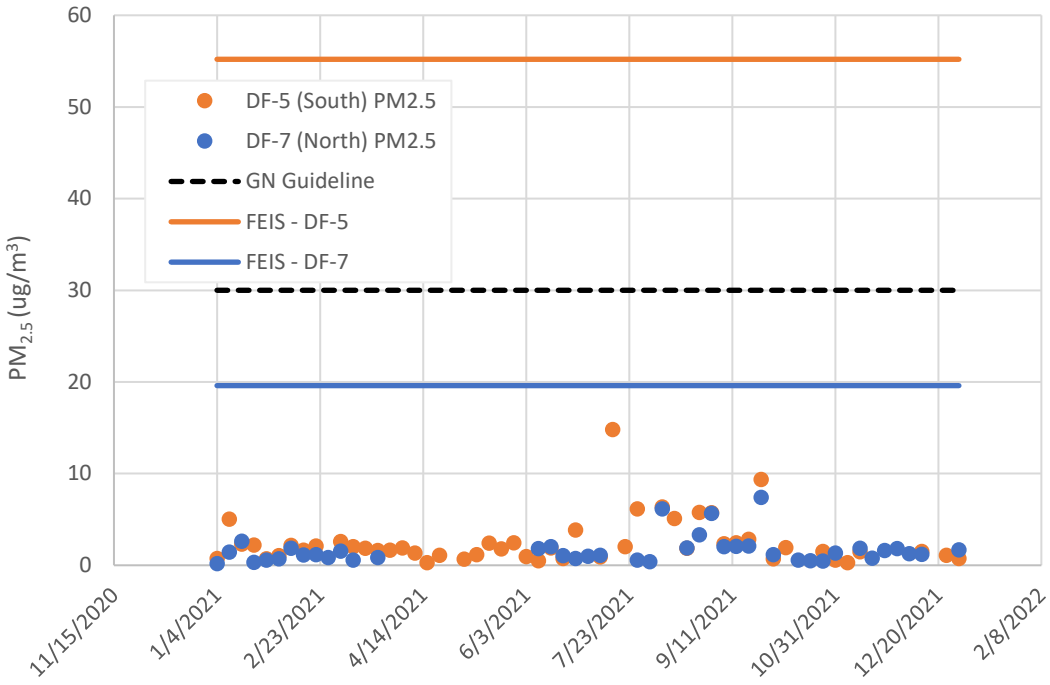

Figure 5. 24-h measured concentrations of $PM_{2.5}$ at monitoring stations DF-5 and DF-7 at the Meliadine site (points). Lines indicate the Government of Nunavut (GN) guideline and FEIS maximum model predictions for each station.

3.1.2 Historical TSP, PM_{10} and $PM_{2.5}$

Monitoring for suspended particulates first began in December 2018 and all historical data is provided in Figures 6, 7, and 8. Partisol instruments were inactive from early 2019 to October 2020, when they were sent for maintenance. Just one TSP sample to date has exceeded regulatory guidelines or FEIS predictions. Since only one full year of data is available, temporal trends are not specifically assessed.

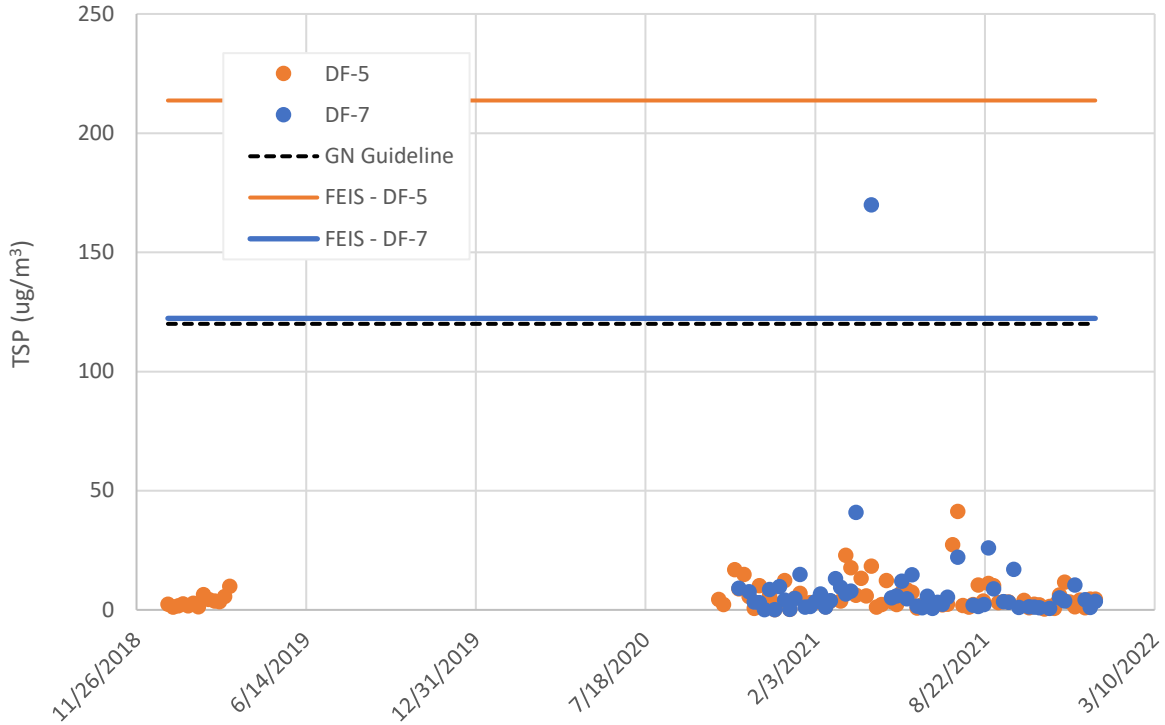

Figure 6. Historical 24-h measured concentrations of total suspended particulates (TSP) at monitoring stations DF-5 and DF-7 at the Meliadine site (points). Lines indicate the Government of Nunavut (GN) guideline and FEIS maximum model predictions for each station.

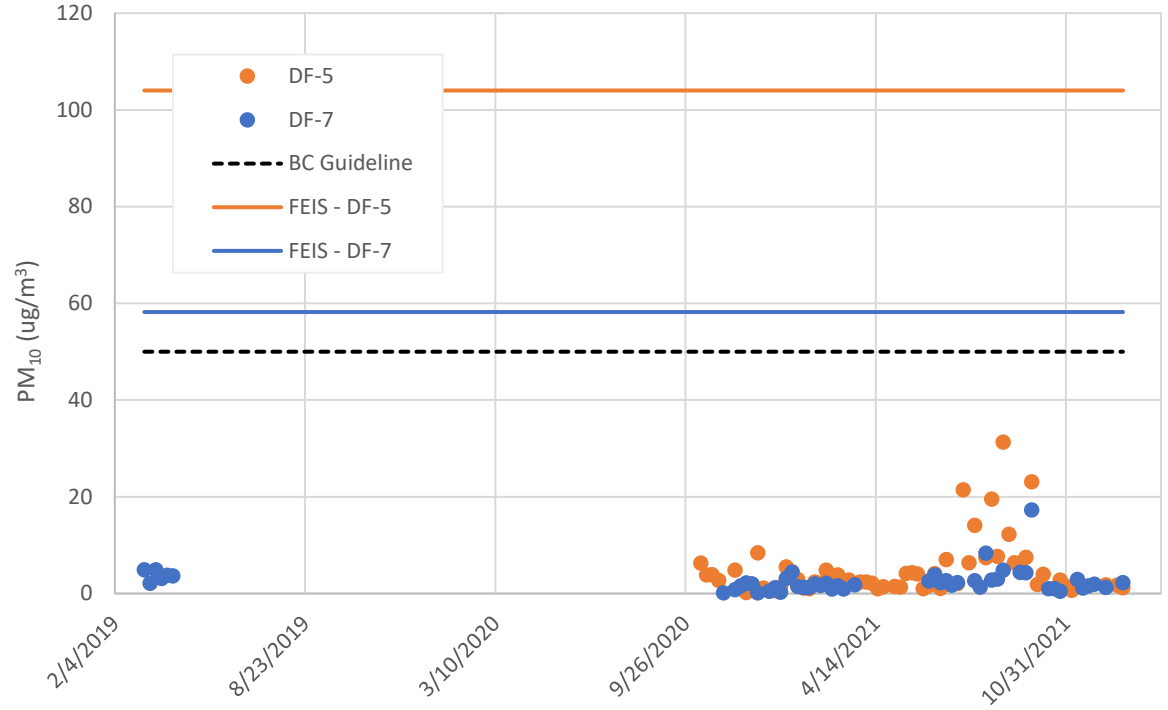

Figure 7. Historical 24-h measured concentrations of PM_{10} at monitoring stations DF-5 and DF-7 at the Meliadine site (points). Lines indicate the BC guideline and FEIS maximum model predictions for each station.

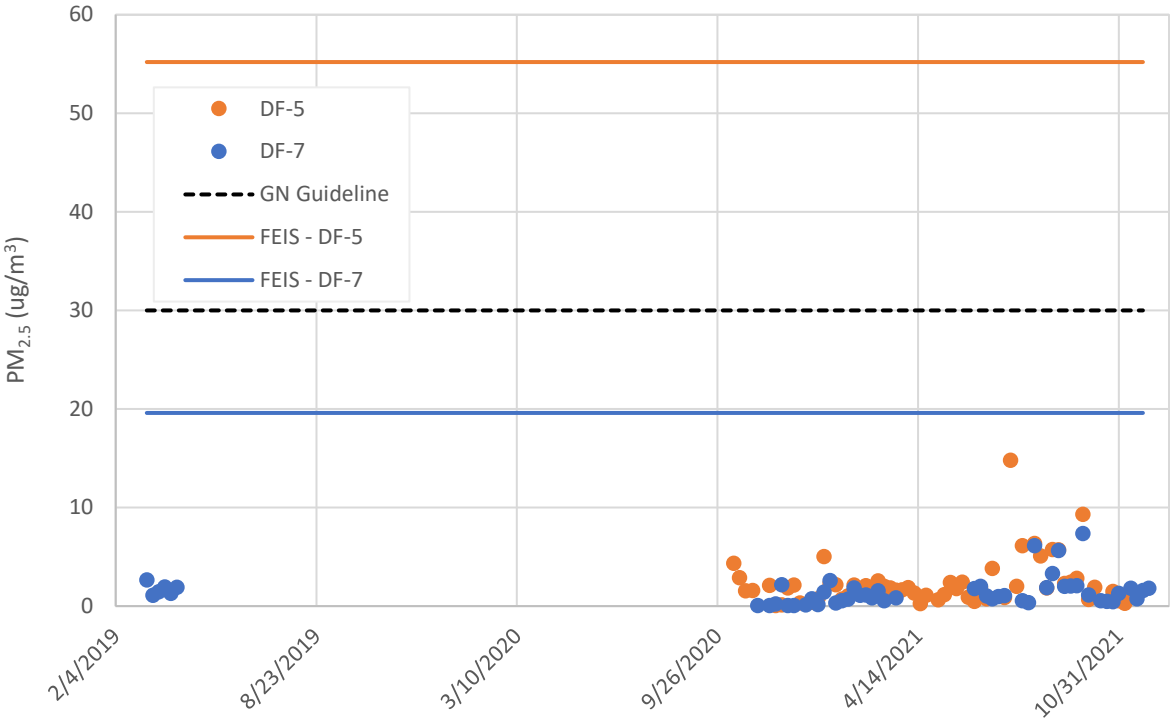

Figure 8. Historical 24-h measured concentrations of $PM_{2.5}$ at monitoring stations DF-5 and DF-7 at the Meliadine site (points). Lines indicate the Government of Nunavut (GN) guideline and FEIS maximum model predictions for each station.

3.1.3 Metals

Concentrations of cadmium and iron measured in TSP samples are shown in Figures 9 and 10 along with the FEIS-selected health-based screening value and maximum model prediction (Section 2.2.1). In addition to the TSP sample loss described in Section 2.1.1, metals results were not received for TSP samples collected on March 11 (DF-7 location –technician error on the analysis request); and February 15 (DF-5 location –lab error).

Since the preliminary report, results for October, November, and December have been added. Where laboratory-reported results (µg/filter) were below the detection limit, ½ the limit was used in volumetric calculations which were performed using Partisol-recorded STP-corrected intake volumes (m^3). For both analyses, the majority of results were below the laboratory detection limit and no exceedances of the FEIS-selected health-based screening values or model predictions occurred for either cadmium or iron.

For station DF-7, the FEIS maximum model prediction for cadmium (0.003 µg/m^3) is less than the volumetric concentration calculated using ½ the laboratory detection limit (0.004 µg/m^3). As a result, the prediction is not plotted on Figure 9, and a comparison to this value will be discussed for samples where detections occur. In 2021, all results for cadmium from both stations were below laboratory detection limits.

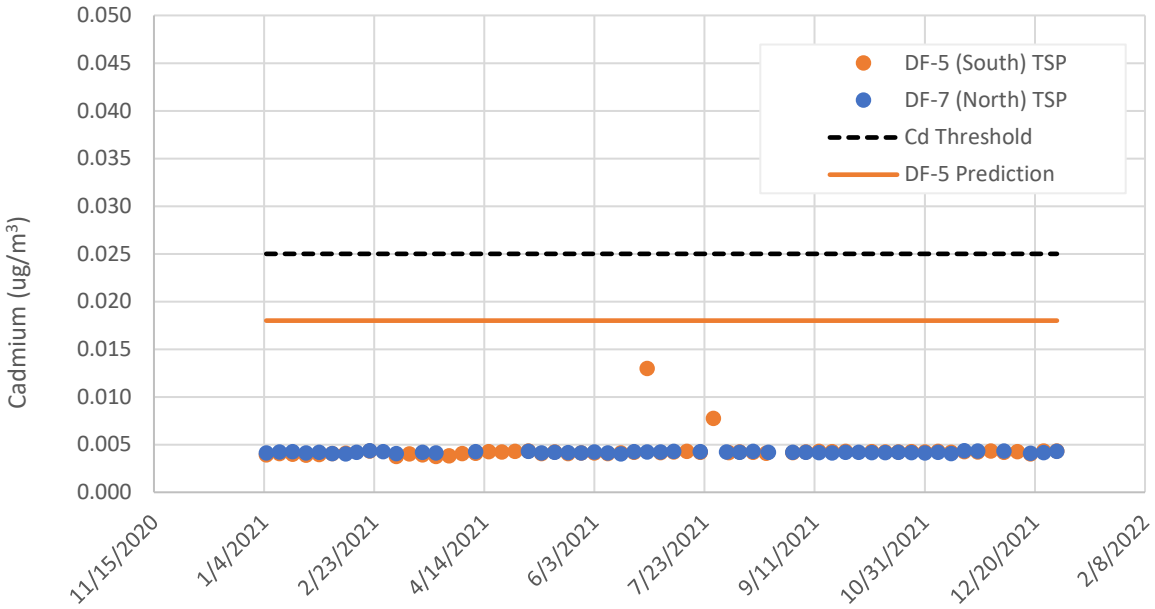

Figure 9. Measured concentrations of cadmium in 24-h TSP samples collected from stations DF-5 and DF-7 at the Meliadine site (points). Dashed line indicates the FEIS-selected health-based screening value, and solid lines indicate the FEIS maximum model-predicted value for station DF-5 (see discussion for DF-7).

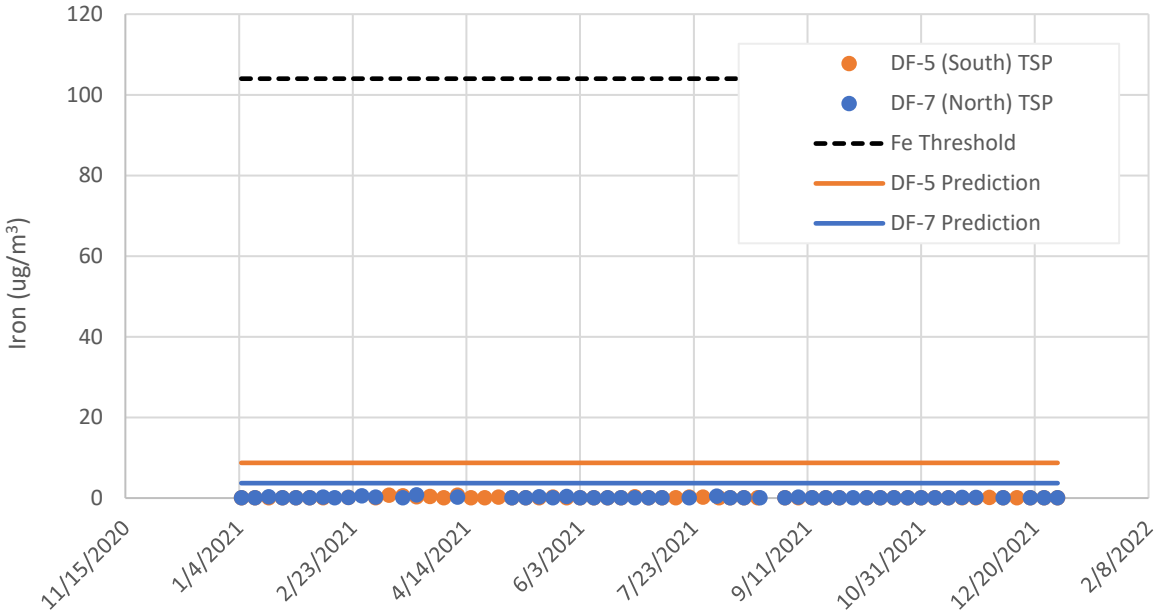

Figure 10. Measured concentrations of iron in 24-h TSP samples collected from stations DF-5 and DF-7 at the Meliadine site (points). Dashed line indicates the FEIS-selected health-based screening value, and solid lines indicate the FEIS maximum model-predicted value for each monitoring station.

3.2 DUSTFALL

3.2.1 Year-Round Sampling Locations

Results for the 2021 dustfall sampling program (30-day normalized rates of dustfall) for monitoring stations DF-2 – DF-7 are provided in Figures 11 – 17. Since the preliminary report, results for November (collection start date) have been added. Results for the December 2021 – January 2022 time period will be included in the 2022 report (just as December 2020 – January 2021 results are reported here). Although the historical year-round stations at DF-1, DF-2, and DF-3 are no longer planned to be sampled year-round, opportunistic sampling at DF-2 and DF-3 occurred throughout 2021 and results are included here. Opportunistic sampling outside of summertime transects (reported in Section 3.2.2) also occurred for DF-1 in November only (not plotted - total dustfall = 0.104 mg/cm^2/30d, fixed dustfall = 0.66 mg/cm^2/30d). Values below the detection limit (0.001 mg/cm^2/30d) are plotted as ½ the limit. Samples are plotted by the collection start date. To provide context, the Alberta Ambient Air Quality Guidelines for recreational/residential and industrial/commercial areas of 0.53 mg/cm^2/30 days and 1.58 mg/cm^2/30 days for total dustfall are indicated.

As discussed in Section 2.2.2, it is anticipated that guidelines for recreational areas may regularly be exceeded in close proximity to the AWAR or mine site, and that guidelines for industrial areas may occasionally be exceeded.

In total, eight of the 67 samples collected in 2021 for these stations exceeded the recreational area guideline of 0.53 mg/cm^2/30d for total dustfall. This included one to three samples each at DF-3, DF-4, DF-6, and DF-7. In four of the eight cases, the exceedance was marginal (max. 0.616 mg/cm^2/30d) and the result for fixed (non-combustible) dustfall was below the recreational area guideline.

No samples collected in 2021 exceeded the industrial/commercial area guideline (1.58 mg/cm^2/30d).

Historical results for total dustfall since 2012 along with the maximum measured background concentration (DF-8, assessed 2019 – 2021) are provided in Figure 18 for assessment of trends over time. Background concentrations at DF-8 measured since 2019 have ranged from 0.041 to 0.361 mg/cm^2/30d, with an average of 0.161 mg/cm^2/30d (n = 6). Generally, an increase in measured dustfall rates has occurred since mid-2017 when the construction period began, and site activity increased (as anticipated). However, exceedances of regulatory guidelines for recreational/residential areas are still considered very infrequent, occurring in <12% of total dustfall samples each year during the operations period. With a single marginal exceedance of the industrial area guideline recorded to date, these results indicate that best management practices in place for dust mitigation continue to be implemented effectively to control emissions.

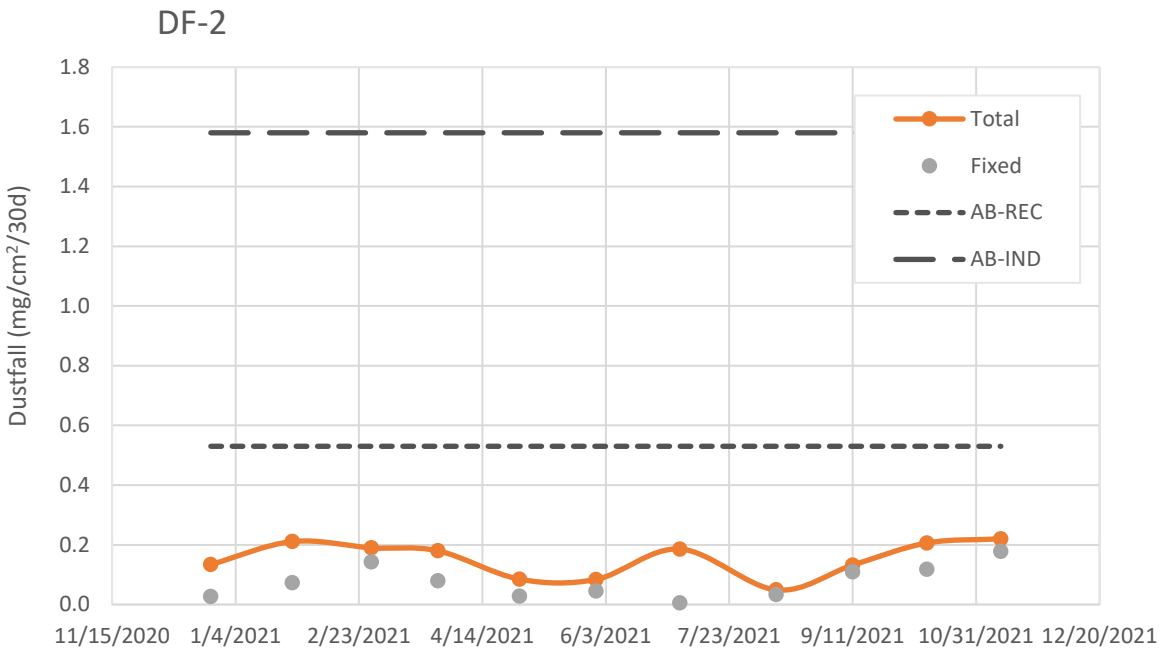

Figure 11. 30-day-normalized rates of total and fixed dustfall at sampling location DF-2 at the Meliadine site in 2021. Symbols represent start date of sample collection. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas.

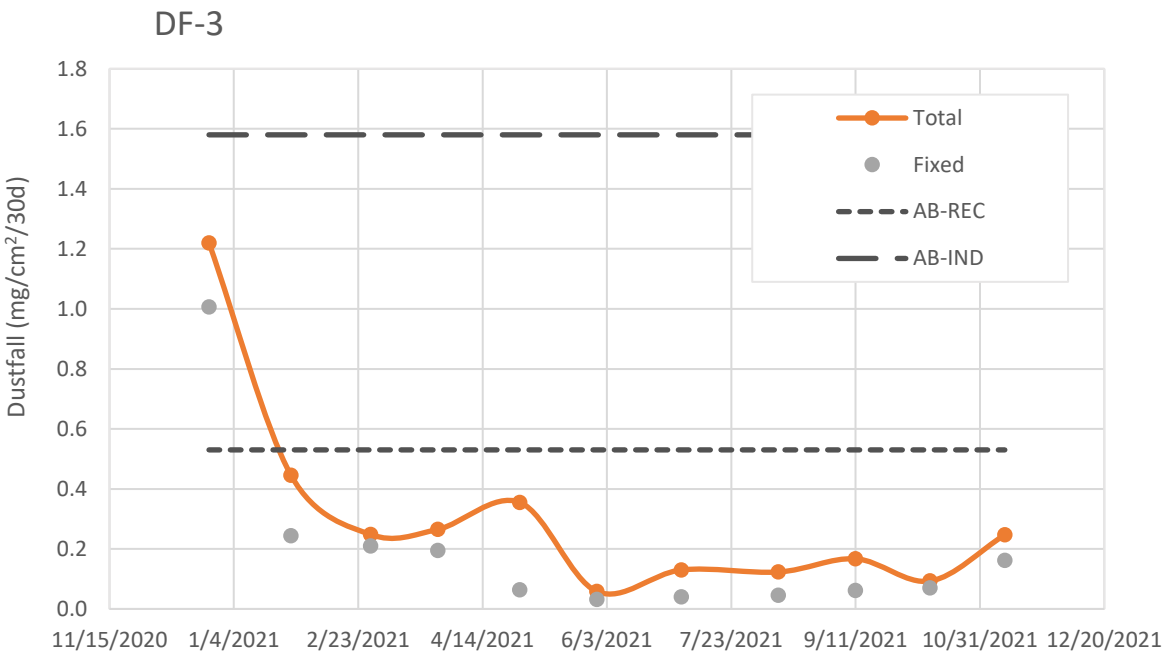

Figure 12. 30-day-normalized rates of total and fixed dustfall at sampling location DF-3 at the Meliadine site in 2021. Symbols represent start date of sample collection. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas.

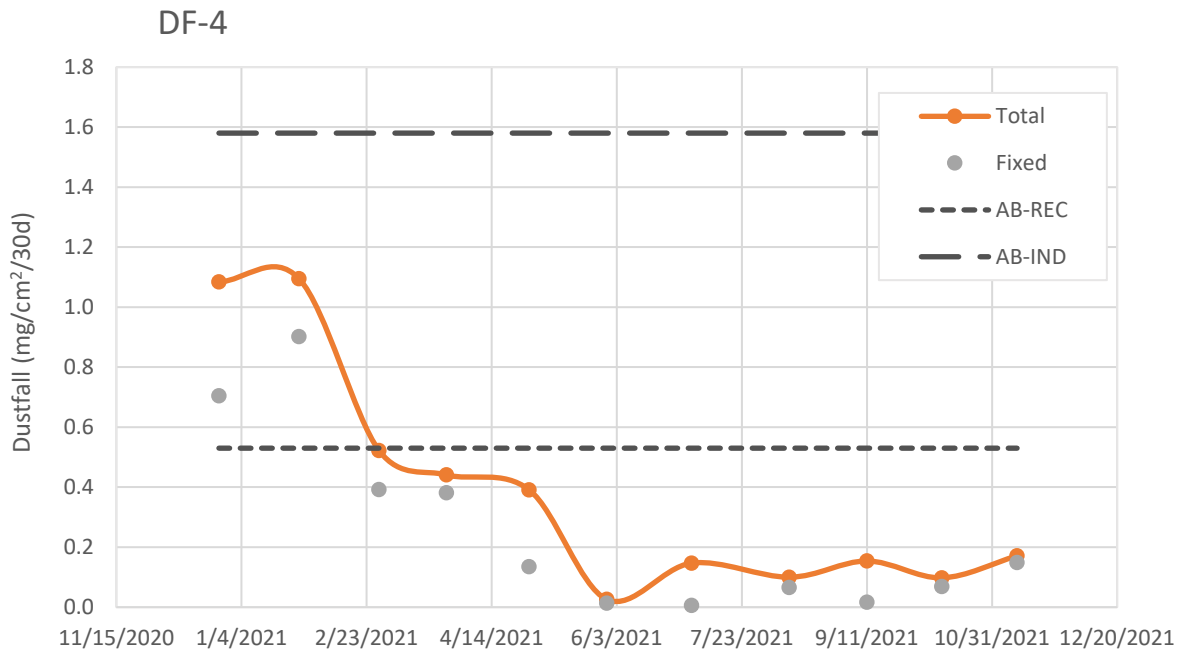

Figure 13. 30-day-normalized rates of total and fixed dustfall at sampling location DF-4 at the Meliadine site in 2021. Symbols represent start date of sample collection. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas.

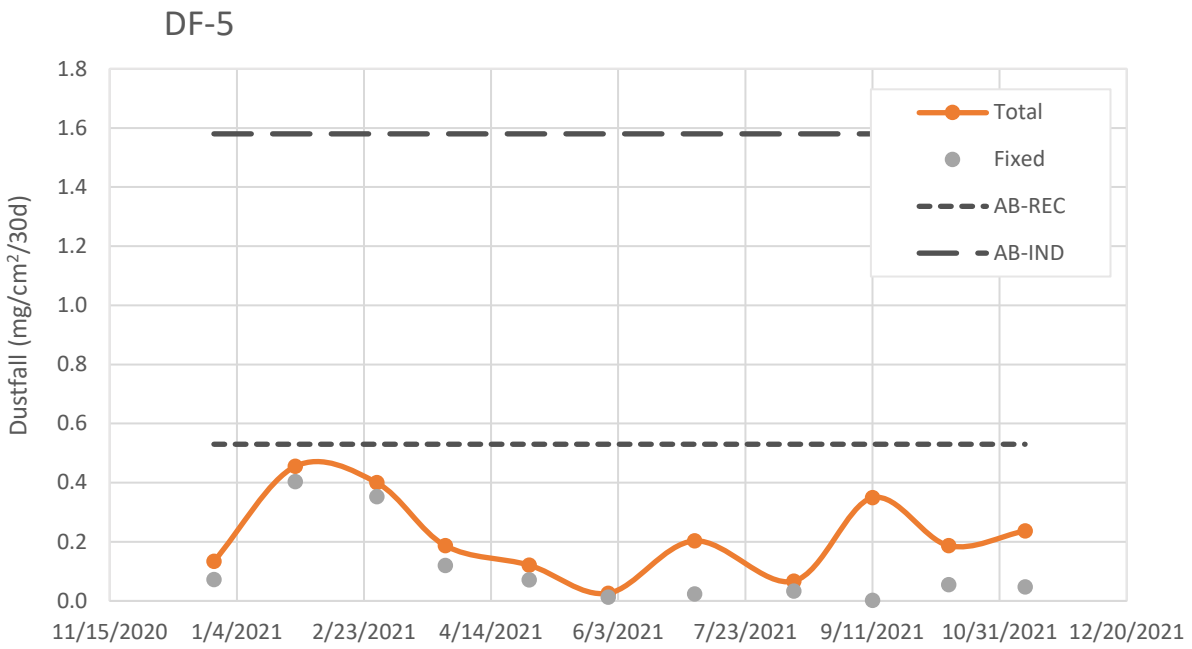

Figure 14. 30-day-normalized rates of total and fixed dustfall at sampling location DF-5 at the Meliadine site in 2021. Symbols represent start date of sample collection. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas.

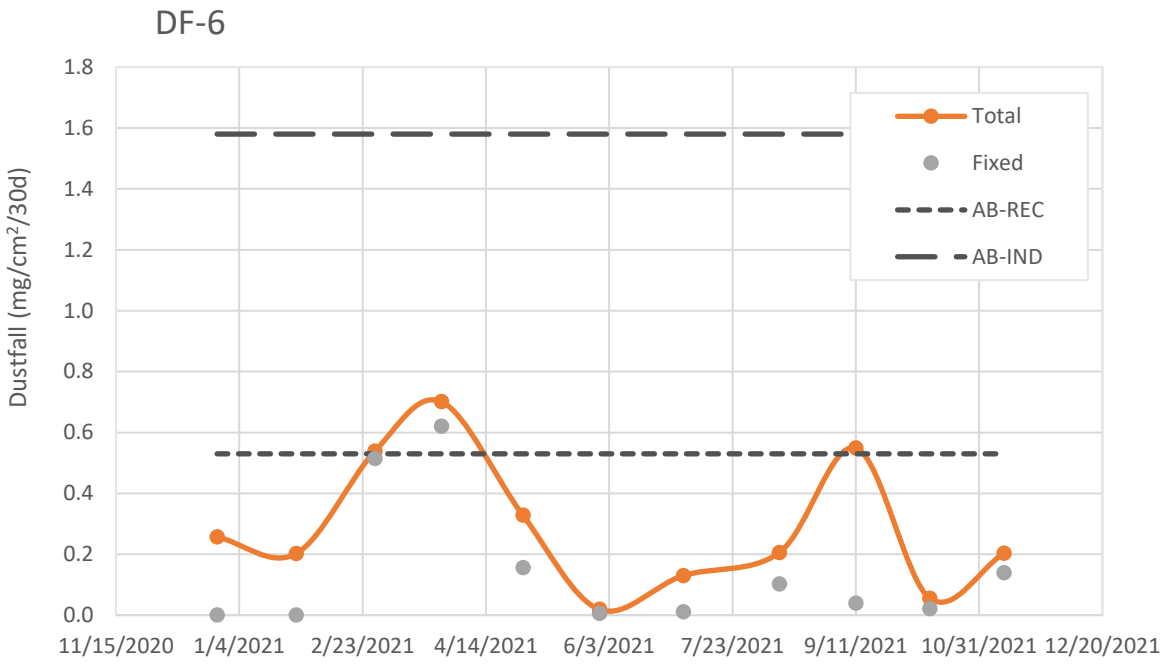

Figure 15. 30-day-normalized rates of total and fixed dustfall at sampling location DF-6 at the Meliadine site in 2021. Symbols represent start date of sample collection. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas.

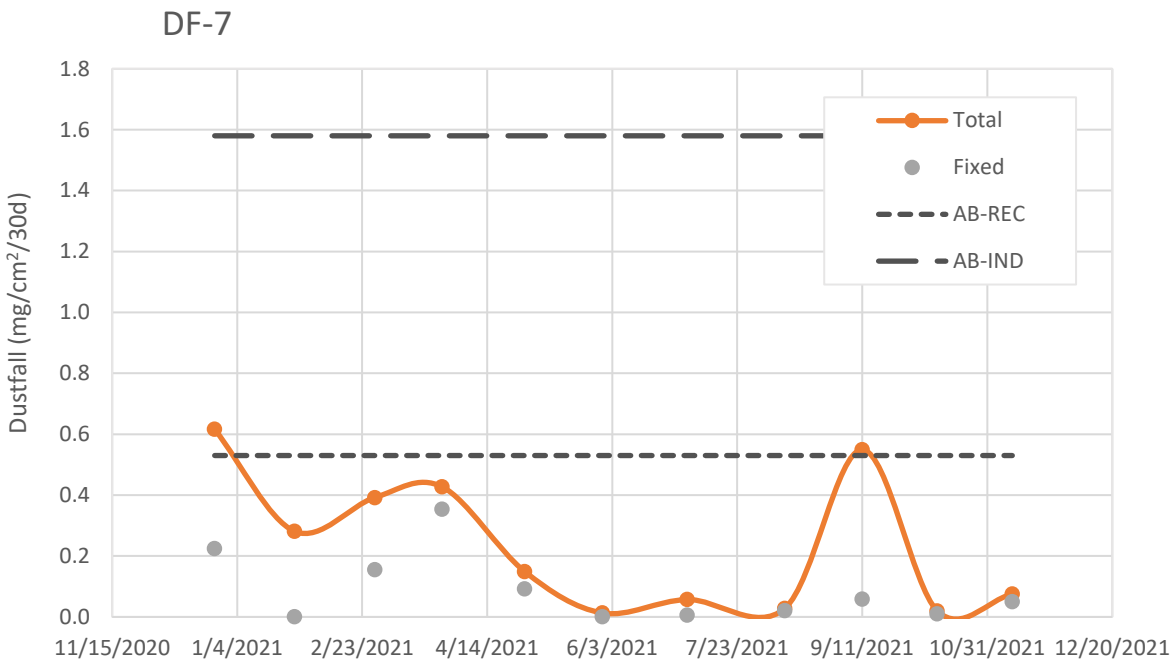

Figure 16. 30-day-normalized rates of total and fixed dustfall at sampling location DF-7 at the Meliadine site in 2021. Symbols represent start date of sample collection. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas.

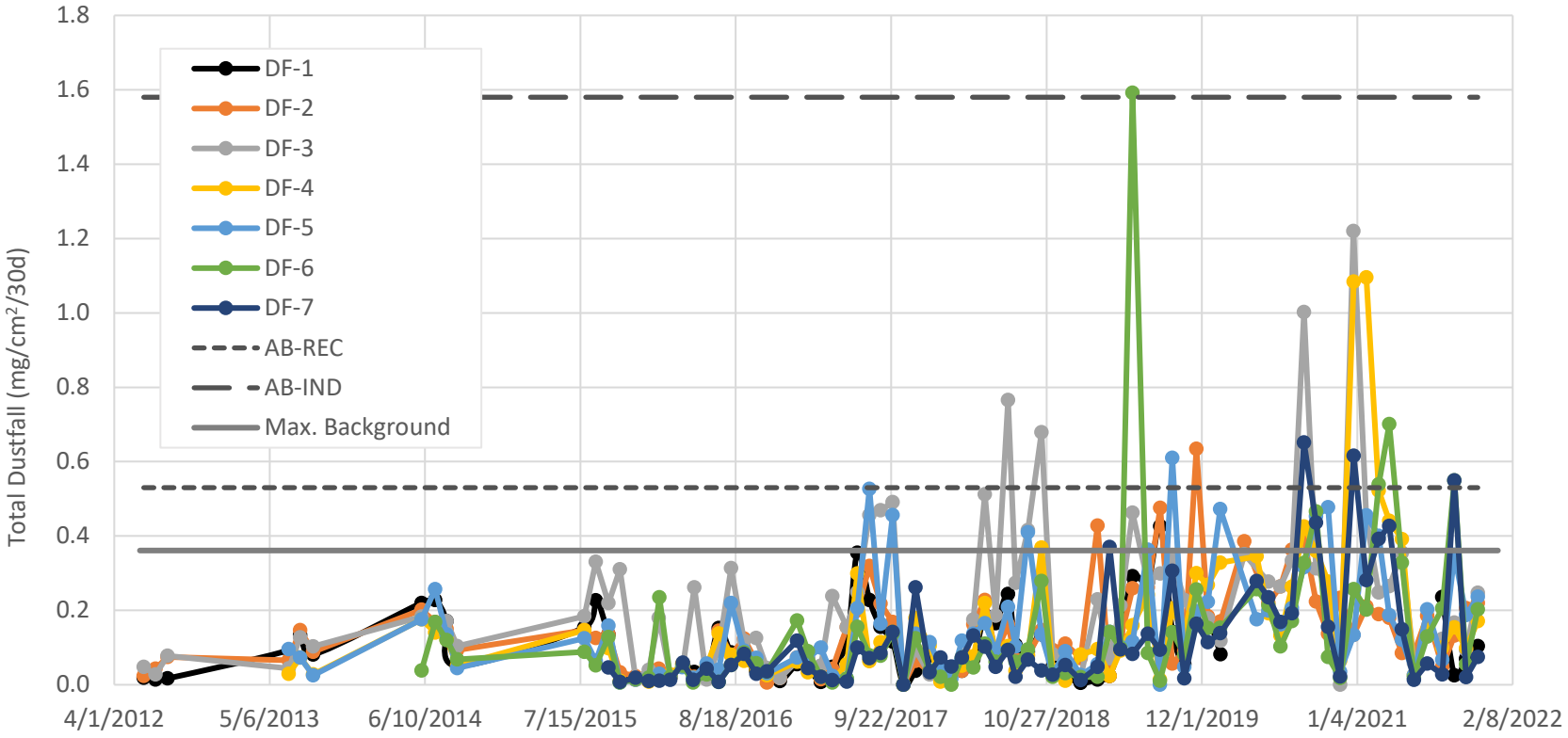

Figure 17. Historical 30-day-normalized rates of total dustfall at the Meliadine site. Symbols represent start date of sample collection. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas. Max. background is from samples at DF-8 (0.36 mg/cm^2/30d in 2021). Pre-construction occurred from 2012 – 2016, construction occurred from 2017 – 2018, and operations have occurred since 2019.

3.2.2 AWAR Dustfall Transects

Dustfall data collected at AWAR transects DF-1, DF-2, DF-3, and By-Pass Road transect DF-WT in 2021 are provided in Figures 18 – 21. While three rounds of sampling were completed for DF-2 and DF-3 (beginning in July, August, and September), sampling for transects DF-1 and DF-WT began in August due to a limited supply of sampling canisters onsite (see Section 7.2 for planned actions to eliminate this issue moving forward).

For station DF-1, all results were below the AB-Rec guideline.

For station DF-2, just one sample marginally exceeded the AB-Rec guideline, and this was collected at 25 m from the road but the fixed dustfall result was substantially lower, indicating an unusually high proportion of organic matter in the sample which is not representative of road-related dust.

For station DF-3, one sample collected at 300 m upwind marginally exceeded the regulatory guideline for recreational areas, but again the fixed dustfall result was substantially lower.

For station DF-WT along the Rankin Inlet By-Pass Road, a single total dustfall result collected at 120 m upwind exceeded the AB-Rec guideline. However, the fixed dustfall result was substantially lower, indicating an unusually high proportion of organic matter in the sample which is not representative of road-related dust. One sample collected at 1000 m downwind approached the guideline, and exceeded the baseline result, but this is considered a local reference station, outside of the influence of the By-Pass Road. Nevertheless, results for this station will be carefully reviewed in 2022.

Historical annual average dustfall data for all AWAR transects (DF-1 – DF-3) combined is shown in Figure 22. For each year, data are averaged across samplings transects and monitoring events (2 – 3 sequential 30-d periods). Despite similar or increased traffic rates[1], average dustfall results in 2021 were lower than observed previously (2019 and 2020). Though sampling later in the season (into October) may have reduced the 2021 average due to effects of snowcover, there were limited differences in average dustfall across sampling months for any given transect (Table 8) suggesting that dust suppression applied during round 1 (July – August) was nearly as effective in controlling dust as snow cover later in the season.

Overall, results of dustfall transect sampling indicate that mitigation measures to control dust along the AWAR were very effective in 2021, with rates of dustfall at or near the recreational area guideline throughout the summer season, even in very close proximity to the road (25 m).

[1] A review of traffic rates will be provided in Meliadine's 2021 Terrestrial Environment Management and Monitoring Plan Report, an appendix of their 2021 Annual Report to the NIRB.

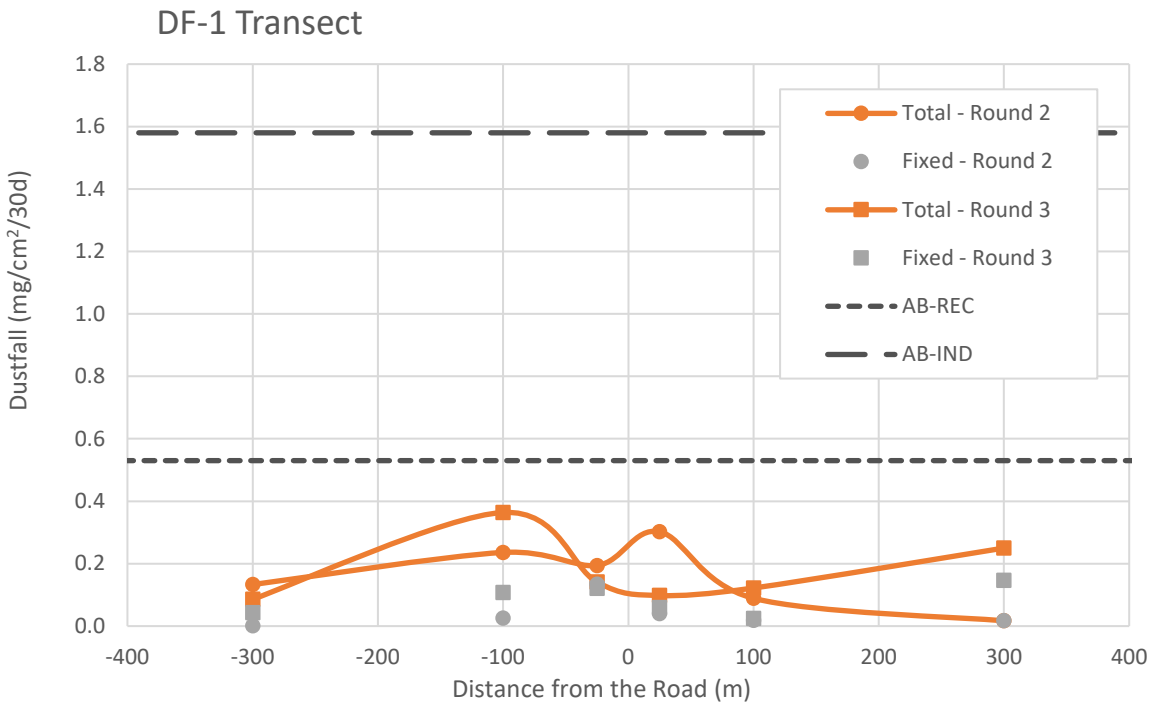

Figure 18. 30-day-normalized rates of total and fixed dustfall for transect DF-1 along the Meliadine AWAR in 2021. Negative values represent the west (upwind) side of the road. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas. Round 2 = August 11 – September 11; Round 3 = September 11 – October 11.

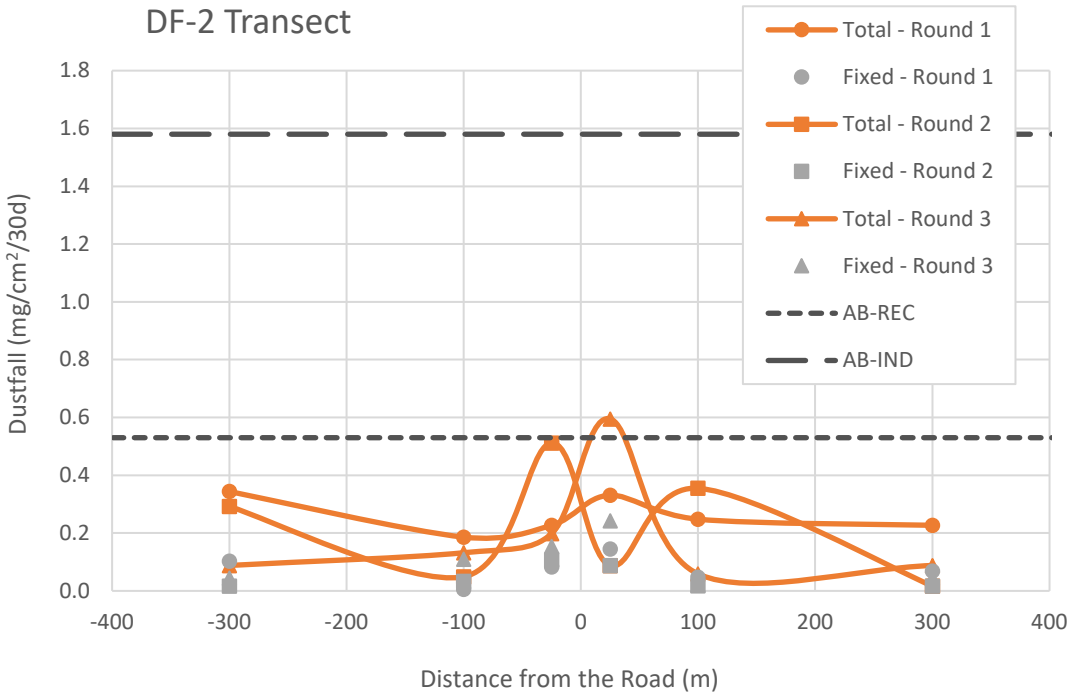

Figure 19. 30-day-normalized rates of total and fixed dustfall for transect DF-2 along the Meliadine AWAR in 2021. Negative values represent the west (upwind) side of the road. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas. Round 1 = July 10 – August 11; Round 2 = August 11 – September 11; Round 3 = September 11 – October 11.

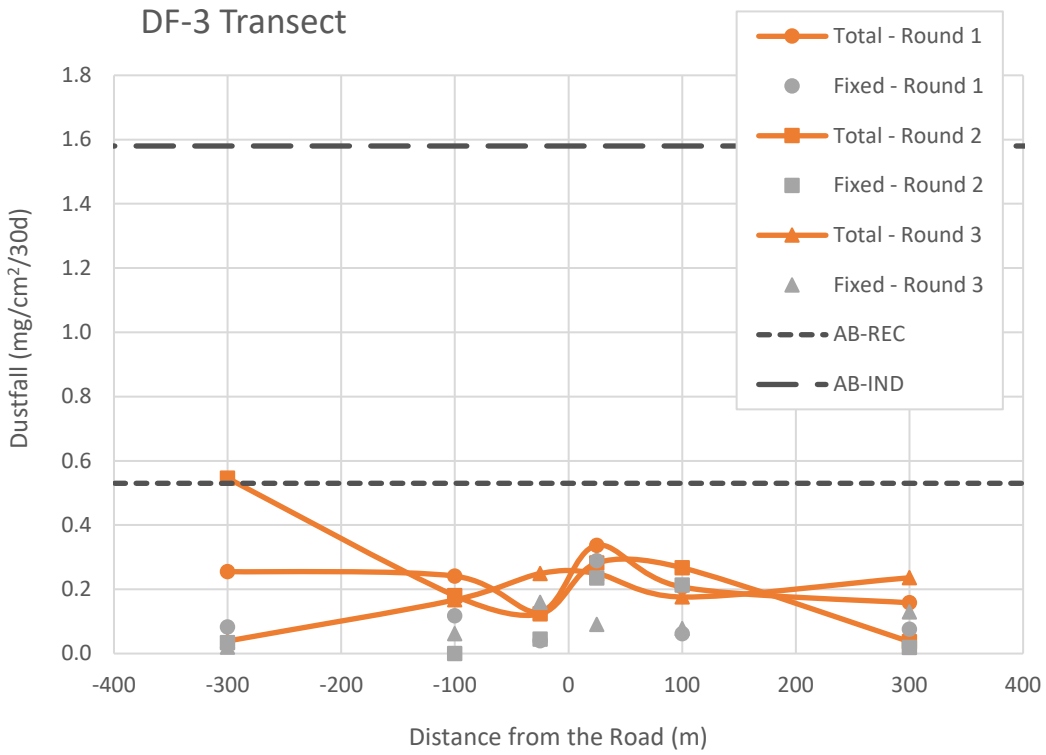

Figure 20. 30-day-normalized rates of total and fixed dustfall for transect DF-3 along the Meliadine AWAR in 2021. Negative values represent the west (upwind) side of the road. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas. Round 1 = July 10 – August 11; Round 2 = August 11 – September 11; Round 3 = September 11 – October 11.

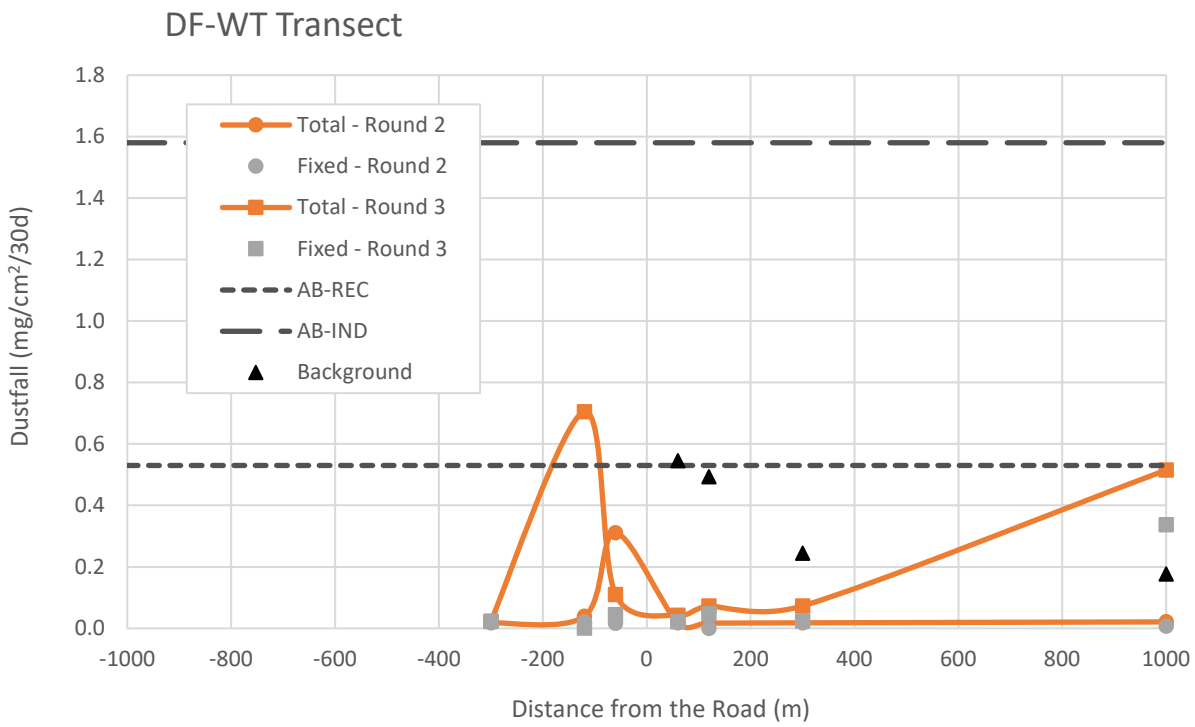

Figure 21. 30-day-normalized rates of total and fixed dustfall for transect DF-WT along the Meliadine By-pass Road in 2021. Negative values represent the west (upwind) side of the road. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas. Background values are maximum recorded total dustfall rates observed in July and August, 2017 and 2018, pre-construction. Round 2 = August 11 – September 11; Round 3 = September 11 – October 11.

Table 8. Average rates of measured total dustfall during each sampling period for Meliadine AWAR dustfall monitoring transects DF-1, DF-2 and DF-3.

Transect	**Round 1** *(Jul 10 – Aug 11)*	**Round 2** *(Aug 11 – Sept 11)*	**Round 3** *(Sept 11 – Oct 11)*
	mg/cm²/30d	mg/cm²/30d	mg/cm²/30d
DF-1	-	0.16	0.18
DF-2	0.26	0.22	0.19
DF-3	0.22	0.24	0.19

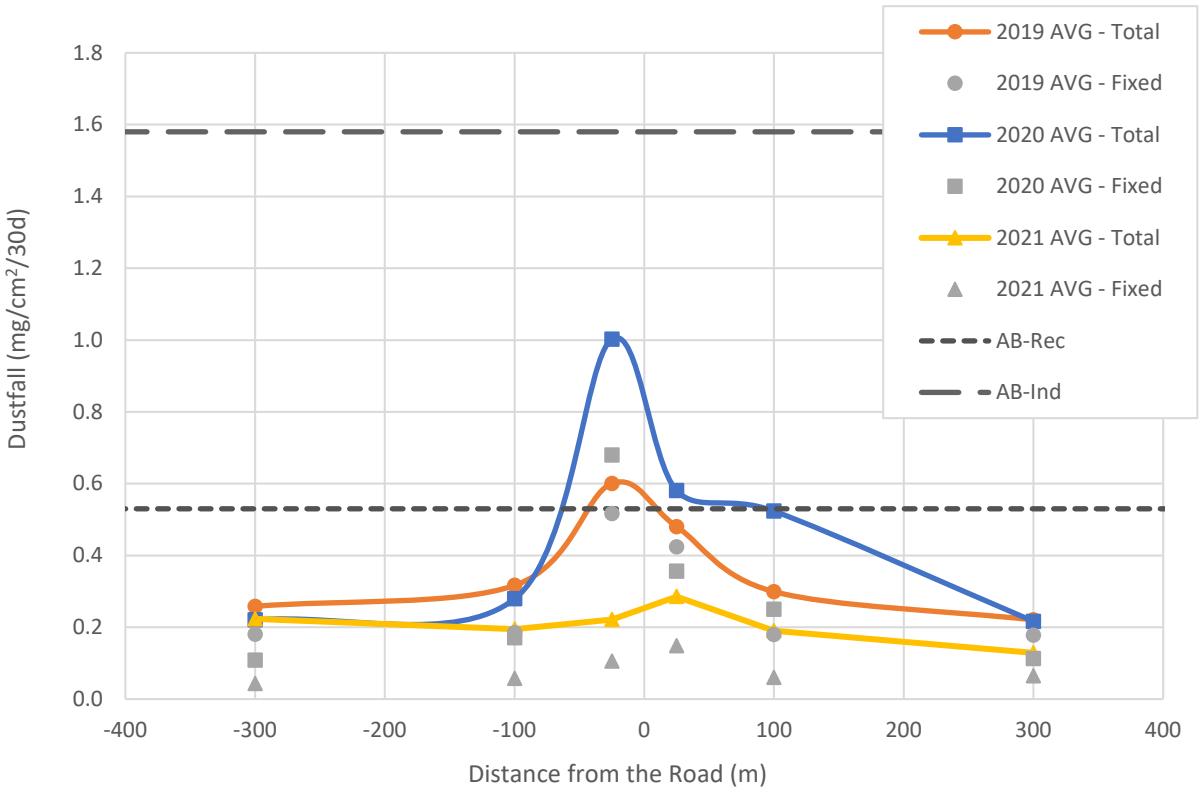

Figure 22. Average 30-day-normalized rates of total and fixed dustfall for summertime sampling transects DF-1, DF-2, and DF-3 along the Meliadine AWAR. Symbols represent average measured dustfall across transects and sampling dates (2-3 consecutive 30-d periods) within each year. Negative values represent the west (upwind) side of the road. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas.

3.3 NO_2 AND SO_2

Monthly-average NO_2 trends in 2021 are provided in Figure 23. All 2021 results were available and provided in the preliminary report, so no changes to this section have been made. Samples are plotted by the collection start date. Concentrations of NO_2 vary between non-detect (<0.1) and 2.1 ppb.

Annual arithmetic mean concentrations were calculated for each station from the monthly average values. The annual mean concentrations of NO_2 were 0.60 and 0.87 ppb for DF-5 and DF-7, respectively (December 26, 2020 – December 11, 2021). These are both well below the Government of Nunavut Ambient Air Quality Standard of 32 ppb for the annual average. These values are also lower than maximum concentrations predicted in the FEIS, adjusted for assumed background concentrations (23.4 ppb and 12.2 ppb for DF-5 and DF-7, respectively).

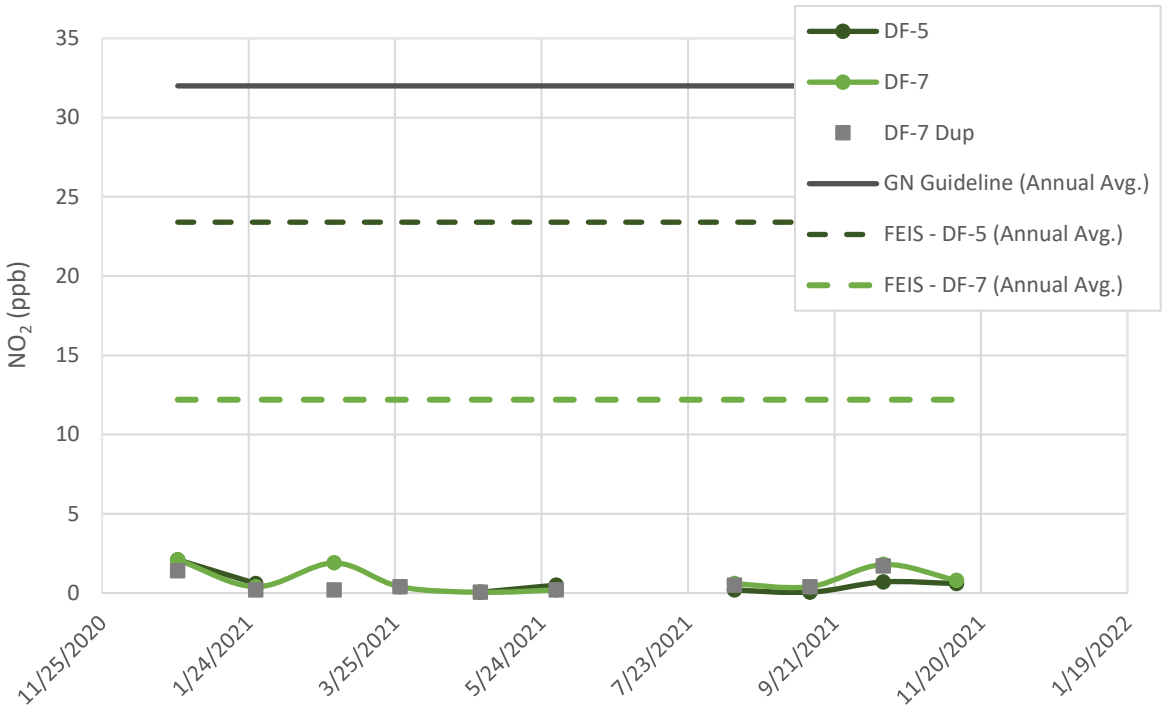

Figure 23. Monthly average concentration of NO_2 at DF-5 and DF-7. Symbols represent the collection start date. Lines indicate GN standard and FEIS predictions for the annual average which are shown for reference, but not apply to individual monthly samples.

Historical results (collected since 2017) are presented in Figure 24. Results remain well below maximum predicted values and no clear trends between sampling stations or over time are evident.

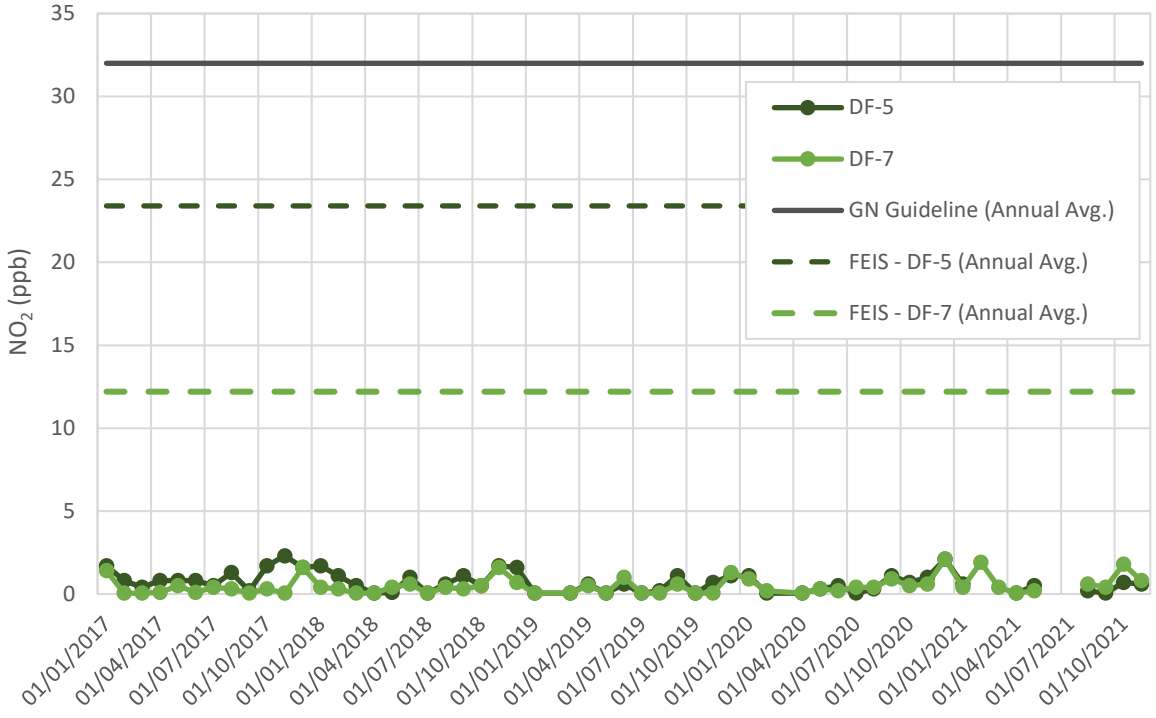

Figure 24. Historical measured monthly average concentration of NO_2 at DF-5 and DF-7. The GN guideline and FEIS predictions for the annual average are indicated for reference but do not apply to individual monthly samples.

Monthly-average SO_2 trends in 2021 are provided in Figure 25. Samples are referred to by the collection start date. Concentrations of SO_2 were non-detect (<0.1 ppb) in the majority of samples (13 of 22), with a maximum measured value of 0.7 ppb (May 30).

Annual arithmetic mean concentrations were calculated for each station from the monthly average values. A value of 0.05 ppb was used for samples below the detection limit (0.1 ppb). The annual mean concentrations of SO_2 were 0.16 and 0.13 ppb for DF-5 and DF-7, respectively (December 26, 2020 – December 11, 2021). These are both less than the Government of Nunavut Ambient Air Quality Standard of 11 ppb for the annual average, and FEIS maximum predicted values of 0.3 ppb and 0.2 ppb for DF-5 and DF-7, respectively.

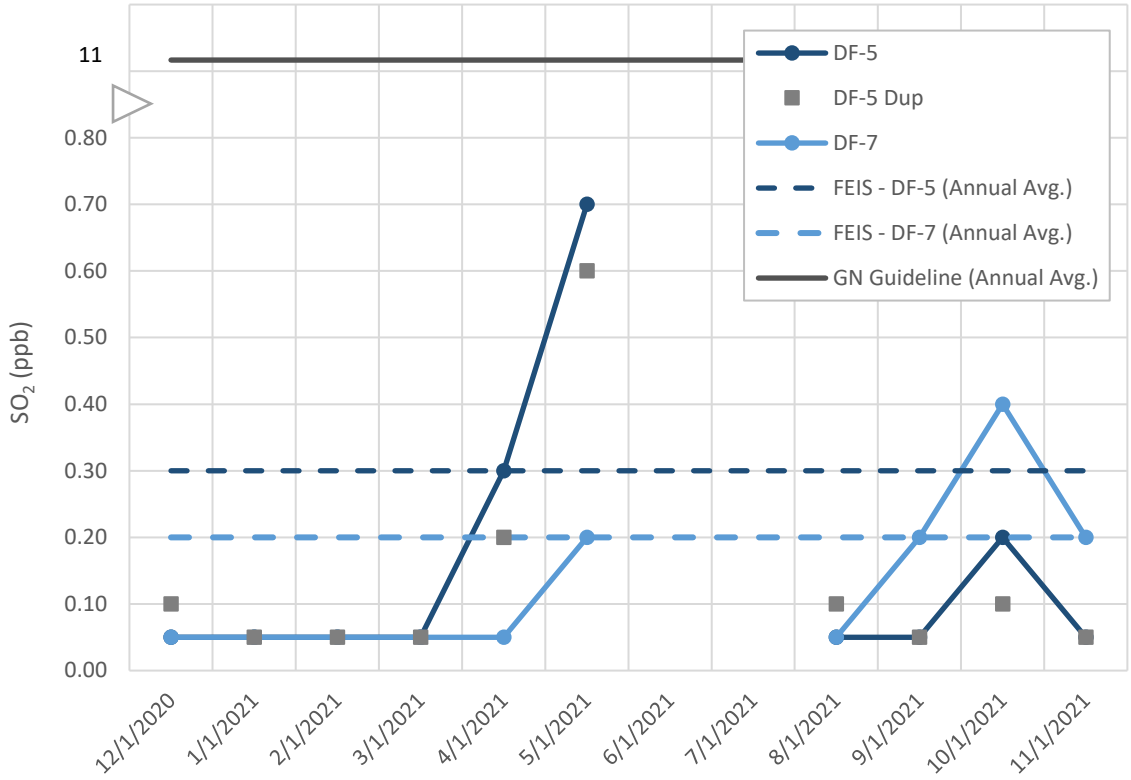

Figure 25. Monthly average concentration of SO_2 at DF-5 and DF-7. Symbols represent the collection start date. The GN guideline and FEIS predictions for the annual average are indicated, for reference, but do not apply to individual monthly samples.

Historical results collected since 2017 are presented in Figure 26. No clear trends between sampling stations or over time are evident.

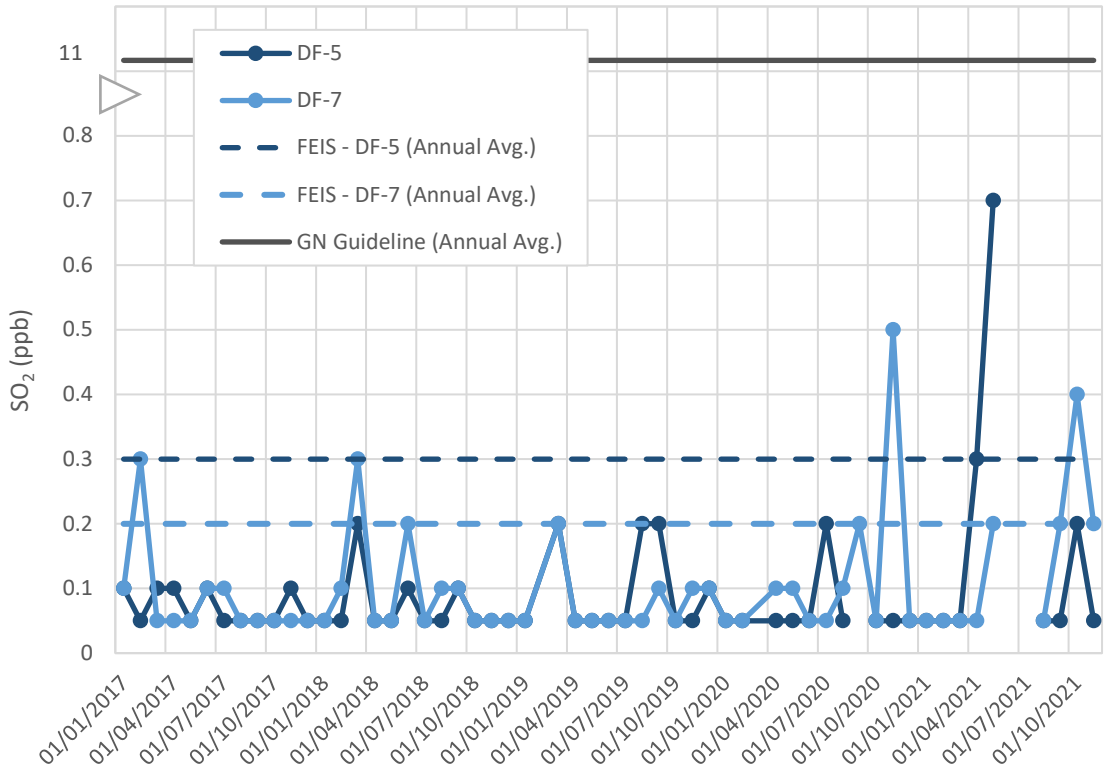

Figure 26. Historical measured monthly average concentration of SO_2 at DF-5 and DF-7. Dashed line indicates GN standard for the annual average, for reference but do not apply to individual monthly samples.

4 METEOROLOGICAL MONITORING

As described in the Air Quality Monitoring Plan, a permanent weather station was installed at the Meliadine site, and daily averages for the following parameters in 2021 are provided in Appendix B:

- wind speed;
- wind direction;
- temperature;
- solar radiation;
- precipitation; and
- relative humidity.

5 INCINERATOR STACK TESTING

Incinerator stack testing was performed in October 2021 and results compared to the GN's Environmental Guideline for the Burning and Incineration of Solid Waste (2012). This report is provided under separate cover, as an appendix of the 2021 Annual Report to the NIRB.

During the assessment, three tests are performed and average results are compared to the relevant GN guidelines for total dioxins and furans and mercury.

Results indicated that the average measured concentration of mercury (0.18 µg/Rm^3) was below the GN standard of 20 µg/Rm^3 and the average measured concentration of total dioxins and furans (70 pg TEQ / Rm³) was also below the GN standard (80 pg TEQ / Rm³).

6 GREENHOUSE GAS EMISSIONS

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

In the Meliadine Project FEIS, total GHG emissions from the mine site were conservatively estimated to be not more than 304,000 tonnes/yr CO_2e. Estimated GHG emissions from the additional marine operations at Rankin Inlet were estimated at approximately 13,000 tonnes/yr CO_2e.

Calculated emissions for the Meliadine site (including Rankin Inlet operations) were last reported on June 1, 2021, for the 2020 reporting period. Total emissions for 2020 were calculated at 123,357 tonnes CO_2e.

7 MITIGATIVE AND ADAPTIVE STRATEGIES

7.1 MITIGATION

Fugitive dust abatement measures were identified in the FEIS for the operations phase as follows, and are being implemented. Since monitoring results in 2021 to date were within applicable air quality criteria and FEIS predictions (with the exception of a single outlier TSP sample), no additional mitigative measures are planned.

- Best management practices to control fugitive particulate emissions from haul roads and material handling, and the AWAR (see Road Management Plan for details).
    - In 2021, dust suppressant application and road watering were conducted as described in Section 7.1.1
- Sources of particulate emissions at the processing facility are controlled through the use of baghouses.

- Enclosures are used to reduce fugitive emissions at the processing facility.
- Exhaust emissions from non-road vehicles are managed through purchasing equipment that meet Tier 3 emission standards.
    - New purchases are Tier 4
- Exhaust emissions from non-road vehicles are managed through regular and routine maintenance of vehicles.
- SO_2 emissions from non-road vehicles and stationary equipment will be reduced through the use of low sulphur diesel fuel (<15 ppm).
    - Actual fuel in use in ultra-low sulphur fuel (<8 ppm)

7.1.1 Dust Suppressant Application

In 2021, Agnico Eagle continued to work towards improving record-keeping for dust suppressant application and road watering activities. The complete details (dates, time, locations, quantities) are provided in Appendix A.

In general, road watering was conducted to control dust on site haul roads and at the crusher located on the Saline Pond 4 (SP4) temporary pad. Road watering occurred at a frequency of every 1 – 10 days between June 19 and August 8, and then again on two occasions in September, with a total of 522 m^3 applied. Watering of stockpiles at the crusher occurred between May 15 and September 6, with a total of 1268.5 m^3 applied. In addition, watering of the Waste Rock Storage Facility (WRSF) occurred on one occasion from September 17-18, with a total of 36 m^3 applied.

Applications of calcium chloride occurred primarily along the AWAR but occasionally onsite as well. Multiple applications (2 – 3 per month) were completed along the length of the AWAR and Bypass Road (except in locations where waterbodies are within 30 m of the road) between June 3 and August 27. A follow up application also occurred in November. A total of 180 bags of $CaCl_2$ product were applied in 2021 (950 kg/bag).

7.2 MONITORING

Based on monitoring results, no management actions or modifications to the monitoring plan were identified in the 2021 Air Quality Monitoring Report to improve the program.

The following actions are planned to be implemented in 2022:

- To reduce instances of data loss due to lost or mislabeled samples, Agnico Eagle will work to improve internal tracking procedures for sample collection and shipping, and procedures for confirming sample receipt and analysis requests at the laboratory;
- Efforts will be made to increase the use of trip/travel blanks for all sample types to one per shipment;
- Dustfall canisters for summer season transect monitoring will be ordered further in advance, with the intention of collecting two sets of 30-d samples, generally throughout

July and August (or when dust generation is expected to peak), in accordance with the Plan.

Monitoring will continue according to the Operations phase schedule, as described in the Air Quality Monitoring Plan. The opportunistic year-round sampling that has occurred at individual stations DF-1, DF-2, and DF-3 is planned to cease, to be replaced by summer-only full transect sampling, as described in the Plan.

8 REFERENCES

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British Columbia (BC) Ministry of the Environment, 2020. British Columbia Ambient Air Quality Objectives. Provincial Air Quality Objective Information Sheet. February 28, 2020.

Golder (Golder Associates), 2014. Final Environmental Impact Statement (FEIS) – Meliadine Gold Project, Nunavut. Volume 5.0 Atmospheric Environment and Impact Assessment. April, 2014.

Golder (Golder Associates), 2014. Final Environmental Impact Statement (FEIS) – Meliadine Gold Project, Nunavut. Volume 10.0 – Environmental and Human Health Risk Assessment. April 2014.

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APPENDIX A: RECORD OF DUST SUPPRESSION

Appendix A Table 1: Record of road and stockpile watering at the Meliadine site in 2021.

Date	Time Started	Time Ended	Location	Volume (m^3)
Road Watering				
7/31/21	22:00	-	AWAR KM9 to KM16	18
7/19/21	8:30	21:00	Haul Road	18
7/19/21	21:00	21:30	TIR011 to WRSF1 Road	18
7/22/21	-	-	Haul Road	108
7/22/21	-	-	TIR011 to WRSF1 Road	90
8/5/21	-	-	TIR011 to Ore Pad Road	72
8/6/21	14:25	15:00	Haul Road	18
8/6/21	14:30	15:00	TIR01 to OP2	18
8/7/21	-	-	Haul Road	36
8/7/21	13:35	14:00	OP2 Haul Road	18
9/5/21	7:15	7:45	TIR01 to WRSF1 Road	18
9/6/21	-	-	TIR01 Road	72
9/16/21	-	-	TIR01 Road	18
Stockpile Watering				
2021-05-15 to 2021-07-20	-	-	SP4 Pad Crusher	1116
8/16/21	6:00	18:00	SP4 Pad Crusher	17.5
8/20/21	-	-	SP4 Pad Crusher	18
8/18/21	6:30	18:00	SP4 Pad Crusher	36
8/19/21	-	-	SP4 Pad Crusher	27
8/22/21	-	-	SP4 Pad Crusher	36
9/6/21	-	-	SP4 Pad Crusher	18
Waste Rock Storage Facility				
9/17/21	-	-	WRSF1	18
9/18/21	-	-	WRSF1	18

Appendix A Table 2: Record of dust suppressant application ($CaCl_2$ product) at the Meliadine site in 2021.

Date	Time Started	Time Ended	Location	Starting Km	Ending Km	$CaCl_2$ Bags (1000 kg)
5/20/21	8:00	14:00	Site	Site haul road	Site TSF road	10
6/3/21	7:00	9:30	AWAR	KM30	KM20	10
6/3/21	11:15	13:30	AWAR	KM29	KM10	10

Date	Time Started	Time Ended	Location	Starting Km	Ending Km	$CaCl_2$ Bags (1000 kg)
6/3/21	14:30	17:00	AWAR	KM9	KM1	10
6/6/21	-	-	Site	Site haul road	Site haul road	2
6/13/21	19:00	23:30	Site	Dyno road	mag road	2
6/13/21	19:00	23:30	AWAR	KM23	KM13	8
6/13/21	19:00	23:30	AWAR	By pass KM6	By-pass KM0	6
6/18/21	1:30	2:00	Site	TSF road	TSF road	4
6/19/21	1:00	1:30	Site	Crusher ramp	crusher ramp	1
6/20/21	21:00	21:30	Site	Crusher ramp	crusher ramp	1
7/10/21	10:00	15:00	AWAR	KM30	Itivia	12
7/11/21	9:00	14:00	Site	Mine site road	Mine site road	14
7/13/21	5:30	8:35	AWAR	KM8	KM13	5
7/13/21	8:30	9:15	AWAR	KM5	KM4	1
7/16/21	5:30	6:00	Site	Camp	Camp	0.33
7/16/21	6:00	6:30	Site	Service Road	Explo Camp	0.66
7/16/21	6:30	9:00	AWAR	KM24	KM30	6
7/16/21	9:00	9:30	AWAR	KM10	KM14	4
7/16/21	9:30	10:30	Site	Mine site road	Mine site road	1
7/17/21	5:30	8:00	Site	Crusher ramp	Paste plant ramp	2
7/20/21	11:30	13:00	AWAR	KM5	No stop zone	3
7/20/21	13:00	16:00	AWAR	KM5	KM30	6
7/31/21	19:00	23:00	AWAR	KM16	KM8	10
8/08/21	20:30	22:00	AWAR	KM25	KM19	5
8/08/21	22:00	22:20	AWAR	KM8	KM7	2
8/08/21	22:50	23:00	Site	TSF road	TSF road	1
8/15/21	18:00	0:30	AWAR	KM21	Itivia	15
8/27/21	18:00	20:00	AWAR	KM30	KM27.5	5
11/02/21	5:30	15:00	AWAR	Itivia	KM30	19
11/02/21	15:00	16:30	Site	All roads	All roads	4

APPENDIX B: DAILY AVERAGE WEATHER DATA

Appendix B Table 1: Daily average temperature, relative humidity (RH), wind speed, wind direction, solar radiation, and precipitation as measured by the Meliadine onsite weather station. *Precipitation measurements may erroneously read as negative under high wind conditions or due to evaporation of the instrument's antifreeze.

Date	Temp. (°C)	RH (%)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Rad. (watts/m^2)	Precipitation* (mm)
2021-01-01	-25.6	83	11.2	298	1.9	-0.14
2021-01-02	-30.0	71	8.9	277	2.3	-0.13
2021-01-03	-36.0	67	4.3	276	2.0	0.09
2021-01-04	-39.1	59	1.4	276	1.9	0.32
2021-01-05	-34.3	76	0.6	276	2.4	-0.18
2021-01-06	-27.5	77	3.5	276	2.0	-0.22
2021-01-07	-26.0	84	9.9	193	2.2	4.08
2021-01-08	-12.6	93	20.4	184	2.7	-0.08
2021-01-09	-17.2	92	22.6	307	4.0	-0.28
2021-01-10	-24.8	85	8.9	293	3.3	0.51
2021-01-11	-25.1	84	3.6	30	3.6	-0.13
2021-01-12	-17.9	87	0.0	131	2.0	0.22
2021-01-13	-16.3	88	0.0	144	2.6	0.18
2021-01-14	-13.0	92	0.1	174	2.9	0.26
2021-01-15	-24.0	86	0.0	340	2.4	-0.01
2021-01-16	-26.4	78	0.0	326	4.3	0.02
2021-01-17	-23.3	82	0.0	342	3.7	0.01
2021-01-18	-27.1	76	0.0	345	3.9	-0.01
2021-01-19	-26.4	78	0.1	349	3.2	-0.03
2021-01-20	-32.2	70	0.0	343	5.7	0.69
2021-01-21	-31.0	74	0.0	249	4.3	-0.40
2021-01-22	-25.1	81	0.0	154	3.6	0.07
2021-01-23	-29.5	72	0.1	338	5.7	0.38
2021-01-24	-27.5	82	0.0	138	3.1	-0.31
2021-01-25	-21.5	86	0.1	27	2.7	0.32
2021-01-26	-18.4	87	5.6	64	4.1	-0.08
2021-01-27	-17.5	88	4.0	138	8.3	0.06
2021-01-28	-21.6	86	0.0	0	7.4	0.24
2021-01-29	-21.8	86	1.8	206	7.4	1.47
2021-01-30	-22.1	86	8.4	162	8.5	2.70
2021-01-31	-16.1	89	10.9	233	9.2	-0.03
2021-02-01	-26.4	86	10.7	352	8.4	-0.10
2021-02-02	-30.0	72	8.9	12	11.7	0.25
2021-02-03	-31.4	71	7.4	4	7.9	0.35

Date	Temp. (°C)	RH (%)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Rad. (watts/m^2)	Precipitation* (mm)
2021-02-04	-33.5	67	13.5	20	9.1	-0.03
2021-02-05	-35.9	65	15.4	13	8.4	-0.06
2021-02-06	-33.1	67	32.2	353	11.3	-0.17
2021-02-07	-33.2	75	33.7	350	14.6	0.01
2021-02-08	-12.2	96	22.8	51	13.4	0.21
2021-02-09	-19.1	96	18.1	151	21.9	0.15
2021-02-10	-27.6	78	11.9	128	21.5	0.38
2021-02-11	-21.1	91	24.8	26	19.9	0.04
2021-02-12	-16.4	90	9.5	15	22.9	0.13
2021-02-13	-27.1	83	12.6	318	21.4	-0.03
2021-02-14	-27.6	77	17.6	349	24.6	-0.01
2021-02-15	-23.5	82	23.5	341	26.1	-0.08
2021-02-16	-26.6	77	12.5	316	19.5	0.07
2021-02-17	-25.7	80	11.9	255	22.4	0.05
2021-02-18	-33.2	71	15.7	328	22.5	0.03
2021-02-19	-32.8	69	13.2	243	20.5	0.42
2021-02-20	-25.4	85	7.9	167	30.6	0.72
2021-02-21	-17.0	89	12.4	202	20.6	0.24
2021-02-22	-20.8	86	12.6	330	27.6	0.13
2021-02-23	-28.0	78	23.6	305	29.3	0.08
2021-02-24	-31.0	70	35.1	342	39.0	-0.22
2021-02-25	-33.7	66	11.7	323	33.3	1.03
2021-02-26	-32.8	78	30.1	261	45.5	0.03
2021-02-27	-38.3	61	32.5	331	46.1	0.07
2021-02-28	-37.0	63	30.7	314	43.1	-0.11
2021-02-29	-33.2	70	23.0	302	37.2	-0.41
2021-03-01	-27.9	75	12.6	331	51.4	0.36
2021-03-02	-33.4	74	5.2	353	33.8	1.67
2021-03-03	-21.1	86	15.8	171	50.5	1.21
2021-03-04	-19.4	88	14.6	131	53.9	-0.01
2021-03-05	-31.2	76	14.1	9	48.5	5.61
2021-03-06	-21.7	89	21.9	162	60.1	0.25
2021-03-07	-12.0	94	21.9	194	50.3	0.00
2021-03-08	-19.2	88	29.2	327	85.4	0.08
2021-03-09	-27.3	83	24.4	298	98.5	0.01
2021-03-10	-29.8	71	20.3	307	100.8	-0.09
2021-03-11	-31.5	70	21.1	335	106.0	0.07
2021-03-12	-31.9	69	12.8	338	108.1	-0.01
2021-03-13	-30.2	71	27.0	352	109.5	-0.04

Date	Temp. (°C)	RH (%)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Rad. (watts/m^2)	Precipitation* (mm)
2021-03-14	-27.5	75	17.2	359	107.6	0.36
2021-03-15	-21.1	87	13.4	125	99.3	1.28
2021-03-16	-20.8	87	17.7	307	112.9	0.24
2021-03-17	-26.6	75	19.3	330	125.5	1.42
2021-03-18	-20.1	90	14.4	167	93.3	-0.13
2021-03-19	-15.4	90	9.8	114	121.7	2.43
2021-03-20	-15.7	90	28.1	129	91.6	0.00
2021-03-21	-14.4	90	22.9	77	118.6	0.11
2021-03-22	-22.8	85	36.2	62	114.3	0.06
2021-03-23	-29.8	70	27.6	345	144.7	-0.15
2021-03-24	-31.2	68	15.6	349	151.7	3.80
2021-03-25	-28.7	77	7.3	27	156.8	1.06
2021-03-26	-18.2	87	18.5	164	125.1	2.08
2021-03-27	-18.6	88	17.2	39	128.7	0.07
2021-03-28	-27.3	74	30.7	346	152.8	-0.08
2021-03-29	-30.1	70	20.3	348	168.3	-0.12
2021-03-30	-31.7	69	11.5	340	176.0	0.02
2021-03-31	-30.0	73	3.4	112	165.3	0.09
2021-04-01	-26.5	79	10.5	108	168.6	1.12
2021-04-02	-16.4	94	52.0	115	106.2	2.41
2021-04-03	-12.7	97	25.9	160	131.1	-0.10
2021-04-04	-17.6	88	25.2	352	167.6	1.65
2021-04-05	-16.7	92	12.5	134	142.8	0.08
2021-04-06	-9.6	92	25.9	83	129.9	0.11
2021-04-07	-11.6	92	27.4	3	191.7	0.73
2021-04-08	-15.3	93	19.0	113	165.2	2.48
2021-04-09	-6.6	97	15.4	168	126.0	0.53
2021-04-10	-10.3	97	25.5	5	141.3	0.04
2021-04-11	-20.4	85	29.2	345	208.9	-0.08
2021-04-12	-22.1	85	17.8	350	218.0	0.02
2021-04-13	-21.1	87	9.5	329	215.3	-0.11
2021-04-14	-11.9	90	17.3	192	191.8	-0.07
2021-04-15	-9.8	94	11.2	204	147.8	-0.11
2021-04-16	-9.2	94	11.0	15	188.6	0.34
2021-04-17	-15.7	93	19.1	4	235.9	-0.09
2021-04-18	-17.6	87	31.0	357	223.9	-0.13
2021-04-19	-19.7	89	15.0	0	243.0	0.28
2021-04-20	-13.9	95	7.5	231	171.9	0.06
2021-04-21	-10.1	95	6.1	298	160.3	-0.08

Date	Temp. (°C)	RH (%)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Rad. (watts/m^2)	Precipitation* (mm)
2021-04-22	-13.8	95	25.4	356	243.5	0.08
2021-04-23	-18.4	88	15.0	322	201.6	-0.06
2021-04-24	-18.9	89	10.6	242	249.8	0.10
2021-04-25	-16.5	89	16.9	148	246.7	0.24
2021-04-26	-13.7	89	21.8	119	194.1	12.00
2021-04-27	-8.5	98	35.3	135	152.5	6.05
2021-04-28	-11.8	95	25.8	195	240.3	3.42
2021-04-29	-11.3	94	11.6	164	233.8	0.09
2021-04-30	-12.4	92	20.1	39	271.4	0.81
2021-05-01	-5.8	100	20.3	29	204.4	0.64
2021-05-02	-0.2	100	15.6	62	212.8	0.37
2021-05-03	-0.1	100	8.7	106	208.4	1.85
2021-05-04	0.3	100	13.0	94	165.4	-0.04
2021-05-05	-1.4	100	16.7	63	160.2	-0.12
2021-05-06	-3.6	100	18.3	32	138.9	0.06
2021-05-07	-4.2	99	19.5	22	281.4	-0.02
2021-05-08	-4.6	99	11.1	5	221.5	0.06
2021-05-09	-3.2	100	8.9	191	196.7	0.12
2021-05-10	-2.1	100	12.0	177	272.6	0.02
2021-05-11	-1.8	100	30.7	337	197.2	-0.30
2021-05-12	-8.9	95	20.1	356	301.8	0.36
2021-05-13	-9.4	99	22.2	295	181.8	-0.02
2021-05-14	-14.8	86	28.7	335	277.8	-0.18
2021-05-15	-11.0	89	23.0	301	286.6	-0.10
2021-05-16	-10.7	92	9.0	47	283.0	0.26
2021-05-17	-11.7	94	11.5	313	258.1	0.00
2021-05-18	-10.1	91	19.9	0	319.0	-0.02
2021-05-19	-11.3	93	15.3	30	314.8	-0.07
2021-05-20	-9.1	94	20.0	277	322.3	0.04
2021-05-21	-6.9	95	19.9	318	278.3	-0.09
2021-05-22	-8.0	93	14.8	311	327.0	0.13
2021-05-23	-4.0	100	16.9	165	193.3	-0.07
2021-05-24	-4.9	99	21.5	62	214.4	0.13
2021-05-25	-5.1	98	22.2	37	234.9	-0.07
2021-05-26	-5.6	97	24.8	353	249.8	0.03
2021-05-27	-2.1	97	13.7	320	336.2	1.84
2021-05-28	0.2	100	17.1	160	189.2	0.78
2021-05-29	0.9	100	15.8	30	169.2	2.24
2021-05-30	0.1	100	13.6	311	184.2	1.84

Date	Temp. (°C)	RH (%)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Rad. (watts/m^2)	Precipitation* (mm)
2021-05-31	-0.9	100	31.2	11	249.6	3.08
2021-06-01	-0.1	100	17.0	264	194.0	0.07
2021-06-02	0.9	100	15.6	47	181.5	-0.03
2021-06-03	1.2	100	19.0	5	335.5	-0.03
2021-06-04	1.0	96	14.3	19	309.9	0.02
2021-06-05	1.7	98	7.9	288	321.1	0.08
2021-06-06	-0.5	99	20.1	118	173.1	0.03
2021-06-07	1.6	100	15.3	40	250.2	-0.04
2021-06-08	2.5	100	18.4	340	247.7	-0.12
2021-06-09	2.2	99	20.2	345	306.4	0.01
2021-06-10	4.1	91	19.0	322	324.3	0.06
2021-06-11	8.0	94	6.7	344	345.6	-0.08
2021-06-12	8.9	98	5.6	167	263.9	-0.02
2021-06-13	10.5	82	8.5	348	338.2	-0.07
2021-06-14	8.2	100	8.7	163	317.2	0.32
2021-06-15	5.4	100	11.1	170	163.6	0.06
2021-06-16	7.4	100	17.8	76	295.9	0.07
2021-06-17	8.2	98	20.2	30	332.4	0.42
2021-06-18	7.2	100	18.3	309	193.8	0.23
2021-06-19	3.2	100	23.8	352	227.3	-0.09
2021-06-20	4.3	99	26.1	14	177.6	-0.03
2021-06-21	5.7	94	20.5	357	228.4	0.53
2021-06-22	6.6	93	19.7	277	146.4	6.75
2021-06-23	5.3	100	15.4	268	196.5	7.37
2021-06-24	2.8	100	33.3	343	138.5	-0.12
2021-06-25	4.3	100	28.8	343	111.0	-0.05
2021-06-26	7.3	98	12.0	297	283.7	0.10
2021-06-27	7.9	97	10.2	237	184.2	0.00
2021-06-28	8.3	97	8.5	330	142.1	-0.04
2021-06-29	11.7	95	9.9	308	342.3	0.00
2021-06-30	8.8	93	17.4	210	268.2	1.79
2021-07-01	8.9	100	21.5	94	241.0	1.86
2021-07-02	10.3	100	13.9	142	285.9	6.05
2021-07-03	7.4	100	10.1	142	114.1	0.01
2021-07-04	7.9	95	17.6	78	257.3	0.07
2021-07-05	9.1	99	15.8	353	307.6	0.38
2021-07-06	11.7	94	17.2	268	236.7	1.05
2021-07-07	12.4	99	19.1	320	205.8	0.01
2021-07-08	12.7	100	15.8	328	332.1	-0.06

Date	Temp. (°C)	RH (%)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Rad. (watts/m^2)	Precipitation* (mm)
2021-07-09	11.8	95	12.0	158	277.5	0.00
2021-07-10	13.5	98	13.0	208	296.3	0.00
2021-07-11	12.1	100	13.7	181	236.0	1.71
2021-07-12	11.2	100	21.2	53	128.3	0.04
2021-07-13	11.2	95	21.4	332	275.2	-0.08
2021-07-14	18.9	87	15.8	250	265.2	0.46
2021-07-15	15.9	95	12.2	200	156.4	17.62
2021-07-16	7.6	100	38.5	51	37.8	-0.10
2021-07-17	10.4	99	25.7	339	269.7	-0.05
2021-07-18	12.6	93	24.3	330	254.8	-0.03
2021-07-19	17.1	87	17.0	316	282.8	0.03
2021-07-20	16.1	87	17.8	330	248.7	0.01
2021-07-21	14.5	90	17.7	344	269.1	-0.01
2021-07-22	14.9	93	17.6	224	268.0	25.12
2021-07-23	10.3	100	15.8	163	78.7	3.75
2021-07-24	9.1	100	32.3	347	105.7	2.81
2021-07-25	8.0	100	49.2	341	110.8	-0.04
2021-07-26	7.4	91	30.4	329	146.6	-0.02
2021-07-27	8.4	95	11.8	329	175.8	0.00
2021-07-28	9.3	95	17.9	333	148.2	1.87
2021-07-29	9.1	97	10.8	173	163.4	0.50
2021-07-30	8.0	94	23.1	136	108.4	-0.01
2021-07-31	9.9	99	15.6	285	141.3	4.06
2021-08-01	10.2	100	16.4	315	71.4	0.64
2021-08-02	9.4	99	17.6	301	122.6	2.68
2021-08-03	10.5	100	26.1	328	143.1	0.22
2021-08-04	8.0	100	37.4	341	188.6	-0.04
2021-08-05	7.5	87	35.8	336	163.9	-0.06
2021-08-06	9.3	92	24.0	340	222.0	0.05
2021-08-07	11.8	97	13.6	213	159.8	4.57
2021-08-08	10.2	100	25.0	277	122.5	-0.02
2021-08-09	9.0	97	35.3	305	168.3	0.03
2021-08-10	9.8	100	13.7	187	127.2	24.32
2021-08-11	7.4	100	29.1	91	24.6	10.14
2021-08-12	7.7	100	44.1	14	44.8	3.50
2021-08-13	8.6	100	38.1	354	91.6	1.21
2021-08-14	10.6	100	19.3	335	206.0	11.51
2021-08-15	8.7	100	20.1	64	140.4	0.01
2021-08-16	9.7	99	12.6	358	218.4	0.24

Date	Temp. (°C)	RH (%)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Rad. (watts/m^2)	Precipitation* (mm)
2021-08-17	6.8	97	16.1	127	77.2	1.09
2021-08-18	8.6	97	11.5	31	107.5	-0.03
2021-08-19	9.8	100	9.9	271	179.1	0.01
2021-08-20	6.4	100	11.8	190	77.8	0.72
2021-08-21	7.4	100	18.7	109	91.4	18.24
2021-08-22	7.1	100	45.2	14	34.8	-0.01
2021-08-23	7.6	38	36.3	339	99.9	0.12
2021-08-24	10.7	89	21.1	313	202.4	0.02
2021-08-25	12.1	98	12.7	263	196.2	-0.13
2021-08-26	16.0	87	16.7	242	199.4	-0.01
2021-08-27	17.3	91	14.4	242	192.3	0.00
2021-08-28	15.0	97	10.5	200	187.6	0.03
2021-08-29	11.4	100	13.4	151	190.5	0.07
2021-08-30	8.0	100	15.5	156	164.7	3.22
2021-08-31	8.6	100	13.9	168	83.6	0.05
2021-09-01	9.6	99	14.0	192	118.9	1.37
2021-09-02	7.8	100	12.6	174	54.8	2.11
2021-09-03	6.8	100	27.0	98	44.8	0.78
2021-09-04	8.5	100	29.6	72	149.9	0.03
2021-09-05	7.2	100	6.5	160	155.5	0.19
2021-09-06	6.2	100	10.9	175	50.3	0.39
2021-09-07	7.1	100	15.4	149	66.6	0.67
2021-09-08	6.0	100	10.5	156	59.3	0.82
2021-09-09	6.6	100	6.9	178	63.2	-0.04
2021-09-10	6.2	100	22.1	123	49.4	4.96
2021-09-11	4.7	100	28.4	78	33.7	0.03
2021-09-12	4.2	100	7.9	231	150.2	11.41
2021-09-13	5.1	100	13.8	177	29.4	8.10
2021-09-14	7.4	100	9.7	251	46.5	0.28
2021-09-15	6.6	100	9.7	315	108.0	0.15
2021-09-16	5.1	100	24.0	72	58.3	1.39
2021-09-17	4.8	100	20.2	36	76.2	2.11
2021-09-18	4.0	100	9.0	349	78.9	0.10
2021-09-19	2.6	100	28.6	116	51.1	0.18
2021-09-20	1.3	100	40.4	56	31.0	0.07
2021-09-21	1.6	100	17.4	2	125.3	0.04
2021-09-22	1.6	100	8.1	157	125.5	-0.06
2021-09-23	2.9	94	29.9	131	52.5	8.49
2021-09-24	3.9	100	37.2	121	20.6	0.28

Date	Temp. (°C)	RH (%)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Rad. (watts/m^2)	Precipitation* (mm)
2021-09-25	3.6	100	20.0	110	45.5	0.02
2021-09-26	2.2	100	8.9	12	43.8	0.02
2021-09-27	3.1	100	12.6	11	94.1	-0.01
2021-09-28	0.9	100	14.8	52	69.6	0.56
2021-09-29	2.9	100	17.6	158	63.3	4.00
2021-09-30	5.3	100	10.1	169	26.5	0.61
2021-10-01	5.1	100	10.4	170	36.3	0.80
2021-10-02	5.0	100	11.4	183	25.1	1.55
2021-10-03	5.0	100	13.1	171	17.1	18.77
2021-10-04	4.9	100	16.2	188	10.8	0.86
2021-10-05	3.8	100	33.8	334	25.7	0.16
2021-10-06	2.0	100	13.9	339	48.8	7.44
2021-10-07	1.3	100	22.3	138	11.9	0.51
2021-10-08	4.4	100	16.4	246	76.9	0.03
2021-10-09	4.5	100	8.8	199	64.9	-0.01
2021-10-10	5.8	100	13.4	198	60.7	3.96
2021-10-11	2.8	100	16.2	69	20.6	6.28
2021-10-12	0.6	100	26.0	355	35.3	0.04
2021-10-13	0.5	100	12.8	264	46.1	0.04
2021-10-14	1.0	100	14.7	157	31.6	1.98
2021-10-15	2.4	100	33.6	117	13.8	4.03
2021-10-16	3.7	100	17.0	142	13.7	0.39
2021-10-17	1.4	100	14.3	277	28.2	0.04
2021-10-18	1.3	100	11.6	250	25.9	0.11
2021-10-19	-0.9	100	25.6	5	25.0	0.01
2021-10-20	-2.5	100	32.7	45	26.8	0.06
2021-10-21	-3.3	99	14.5	70	14.3	0.07
2021-10-22	-3.4	100	12.2	261	34.2	0.02
2021-10-23	-3.0	100	10.4	246	53.3	0.34
2021-10-24	-1.2	100	9.3	221	54.3	0.07
2021-10-25	-2.2	108	11.9	224	28.8	0.06
2021-10-26	1.9	100	16.0	199	23.1	5.90
2021-10-27	2.2	100	12.7	208	4.6	-0.03
2021-10-28	0.4	100	5.5	39	18.5	1.65
2021-10-29	0.1	100	14.2	2	13.3	0.09
2021-10-30	-1.4	100	24.1	360	20.8	-0.01
2021-10-31	-5.5	98	27.7	17	23.5	0.08
2021-11-02	-8.0	100	22.2	10	29.8	-0.02
2021-11-03	-8.1	100	13.7	328	29.3	0.22

Date	Temp. (°C)	RH (%)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Rad. (watts/m^2)	Precipitation* (mm)
2021-11-04	-6.3	100	7.2	318	7.3	0.57
2021-11-05	-3.5	100	5.2	169	5.5	2.88
2021-11-06	-0.5	100	8.9	158	9.9	-0.23
2021-11-07	-3.3	100	9.2	144	16.9	1.75
2021-11-08	-1.1	100	16.9	140	14.2	0.88
2021-11-09	-1.5	100	26.5	126	16.6	-0.08
2021-11-10	-5.3	100	20.7	60	22.3	0.27
2021-11-11	-14.4	98	15.9	6	17.0	0.18
2021-11-12	-16.2	96	1.4	11	11.8	0.26
2021-11-13	-20.1	93	0.7	333	20.3	0.13
2021-11-14	-17.3	96	3.6	176	24.6	-
2021-11-15	-8.1	100	6.4	181	9.7	1.79
2021-11-16	-5.2	100	12.5	221	12.3	0.53
2021-11-17	-9.5	100	8.6	320	12.4	0.17
2021-11-18	-15.3	97	7.5	352	11.3	0.08
2021-11-19	-21.7	97	11.5	356	13.9	0.51
2021-11-20	-17.3	100	2.2	18	7.7	0.02
2021-11-21	-8.2	99	33.0	89	9.6	-0.09
2021-11-22	-12.2	97	32.6	36	8.3	0.26
2021-11-23	-24.2	92	31.0	354	10.1	0.14
2021-11-24	-29.2	79	23.8	300	9.9	-0.10
2021-11-25	-23.2	96	22.4	347	9.1	-0.02
2021-11-26	-16.0	96	31.0	332	7.8	0.00
2021-11-27	-23.6	91	7.6	343	6.2	0.37
2021-11-28	-11.0	97	17.8	121	5.1	0.41
2021-11-29	-12.8	99	16.5	113	7.1	0.10
2021-11-30	-25.5	88	9.4	356	6.2	0.77
2021-12-01	-16.4	98	20.9	41	5.5	0.49
2021-12-02	-21.1	92	47.3	355	4.5	0.07
2021-12-03	-25.5	82	34.9	347	5.6	0.07
2021-12-04	-29.2	75	36.9	343	5.9	0.01
2021-12-05	-30.8	71	30.8	329	5.2	0.04
2021-12-06	-31.0	71	31.0	319	3.9	0.07
2021-12-07	-28.2	81	20.5	326	4.0	0.09
2021-12-08	-25.3	86	21.2	342	4.3	-0.08
2021-12-09	-25.1	88	11.1	353	3.9	123.90
2021-12-10	-12.4	99	18.7	142	3.9	0.09
2021-12-11	-7.6	100	42.6	109	4.4	-0.24
2021-12-12	-10.1	100	21.1	106	5.4	0.08

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Date	Temp. (°C)	RH (%)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Rad. (watts/m^2)	Precipitation* (mm)
2021-12-13	-13.6	98	35.0	79	3.6	0.24
2021-12-14	-19.8	95	17.7	0	3.6	-0.26
2021-12-15	-21.2	91	9.3	272	3.6	0.31
2021-12-16	-19.7	92	23.3	73	2.8	0.69
2021-12-17	-20.2	93	44.5	31	5.5	0.14
2021-12-18	-28.4	82	36.3	350	3.9	0.02
2021-12-19	-30.6	72	27.4	341	3.6	-0.03
2021-12-20	-32.0	71	17.1	317	3.0	0.12
2021-12-21	-32.5	71	10.4	265	3.1	0.16
2021-12-22	-30.1	77	4.0	166	2.9	-0.01
2021-12-23	-30.9	74	9.6	1	3.3	0.70
2021-12-24	-24.6	91	2.9	318	2.2	-0.17
2021-12-25	-18.9	95	16.1	93	1.7	0.06
2021-12-26	-18.1	94	37.6	95	2.3	1.32
2021-12-27	-13.6	96	17.2	100	2.9	-0.22
2021-12-28	-28.4	96	10.2	300	3.8	0.19
2021-12-29	-29.8	79	6.5	349	4.6	0.31
2021-12-30	-22.6	95	11.6	52	3.4	-0.20
2021-12-31	-20.7	92	14.4	49	4.8	0.49