Appendix 24 : 2020 Air Quality Monitoring Report

AGNICO EAGLE

MELIADINE GOLD PROJECT

2020 Air Quality Monitoring Report

In Accordance with NIRB Project Certificate No. 006

Prepared by:
Agnico Eagle Mines Limited – Meliadine Division

MARCH 2021

EXECUTIVE SUMMARY

In accordance with NIRB Project Certificate No. 006, and as described in the Air Quality Monitoring Plan (Version 2, April 2020), Agnico Eagle Mines Ltd. (Agnico Eagle) continued ambient air quality monitoring at the Meliadine site, near Rankin Inlet in 2020. Through this program, Agnico Eagle aims to measure ambient concentrations of airborne particulates, dustfall, and gaseous compounds (NO_2 and SO_2) using a combination of active and passive sampling methods.

In accordance with the Plan, monitoring in 2020 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. Agnico also conducted the second year of summertime dustfall transect sampling at two locations along the AWAR. One transect along the AWAR and one transect along the Rankin Inlet Bypass Road could not be sampled due to COVID-related restrictions. After being sent for professional repairs and calibration in 2019, all four Partisol units were re-installed in October 2020 for the analysis of suspended particulates (TSP, $PM_{2.5}$, and PM_{10}) at two onsite monitoring stations.

Dustfall results for all onsite perimeter monitoring stations (DF-4 – DF-7) are compared to Alberta Environment's Ambient Air Quality Guidelines (Alberta Environment and Parks, 2017) for recreational and industrial areas (AB-Rec, AB-Ind), for context. In 2020, one of 40 onsite samples exceeded AB-Rec (August 20, DF-7), and no samples exceeded the industrial area guideline. Historically, an increase in measured dustfall rates has occurred since mid-2017 when the construction period began, as anticipated. Despite increasing site activity, levels of dustfall at site perimeter monitoring stations are generally well within AB-Rec guidelines, with exceedances occurring in a maximum of 4% of total dustfall samples in any given year since that time.

For AWAR transects (DF-2 and DF-3, summer-only sampling), dustfall declined below AB-Rec between 25 m and 100 m from the road for most sampling events and locations in 2020. During the second and third sampling event at DF-3, this distance was extended to approximately 150 – 250 m for the downwind side of the road only. Historically (2019 and 2020), annual average rates of dustfall have only exceeded AB-Rec at the 25-m distance.

Dust suppressant in the form of calcium chloride was applied primarily along the AWAR between June 21 - July 3, and again on July 21/22 and August 4 – 8. Road watering was conducted to control dust on site haul roads, and occurred at a frequency of every 1 – 14 days between July 3 and August 25. Results of dustfall monitoring indicate that for both onsite and AWAR locations, these and other best-management practices in place for dust mitigation are being effectively implemented to minimize emissions.

Suspended particulates (TSP, $PM_{2.5}$, and PM_{10}) were assessed in two locations using Partisol air samplers beginning in October, 2020, after repairs and reinstallation by the supplier. All results

for suspended particulates 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 were below maximum concentrations predicted in the FEIS. Annual averages were not calculated because data was only collected over 2-3 months. Concentrations of metals of concern to the Project in TSP (cadmium and iron) were 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 FEIS maximum predicted values. This was the fourth 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 September, 2020. Measured concentrations of mercury were below the GN standard of 20 µg/Rm^3 in all three tests. Measured concentrations of total dioxins and furans were also below the GN standard (80 pg TEQ / Rm^3 @ 11 % v/v O_2) in all three tests.

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, 2020 for the 2019 year. Total emissions were 108,077 tonnes CO_2e, which is less than the FEIS-predicted maximum of 317,000 tonnes CO_2e.

Since monitoring results in 2020 were within applicable air quality standards and FEIS predictions, no additional adaptive management measures are planned. Monitoring in 2021 will proceed according to the Air Quality Monitoring Plan (Version 2, April 2020).

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1 INTRODUCTION

1.1 BACKGROUND AND OBJECTIVES

In February 2015, Agnico Eagle Mines Ltd. (Agnico Eagle) was issued NIRB Project Certificate No. 006 for the Meliadine Gold Project, near Rankin Inlet, NU. In accordance with Conditions 1, 2, 3 and 27b of the Project Certificate, Agnico Eagle maintains the Meliadine Air Quality Monitoring Plan (the Plan; Version 2, April 2020) to describe the program for onsite ambient air quality monitoring.

The overall intention 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 in 2020.

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

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 2020 Monitoring Locations and Dates

The 2020 air quality and dustfall monitoring program is summarized in Table 2 and described below, including any deviations from the Plan.

1.2.1 Suspended Particulates

Sampling for suspended particulates occurs at stations DF-5 and DF-7, and began at the end of 2018. Sampling at the South unit (DF-5) began on December 3, 2018 (TSP only), and sampling at the North unit (DF-7) began on December 21, 2018 ($PM_{2.5}/PM_{10}$ only). The additional two units were not operational when the supplier left site following installation (summer 2018). It was anticipated that both TSP and $PM_{2.5}/PM_{10}$ units would be active at both locations in 2019. However, successful operation of the Partisol units at the Meliadine site has proven very challenging. Due to a combination of equipment failure and increased wear and tear on equipment due to sub-Arctic weather conditions, and limited servicing and repair possibilities on site, a reduced dataset was available for 2019 (generally January – April). The units could not be made operational through onsite troubleshooting after that point. To rectify these issues, Agnico shipped all four Partisol units for servicing by the supplier in mid-2019, and planned for the supplier to provide onsite re-installation, spare parts, and maintenance training to the Environment Department technicians as soon as possible after repairs were made. This was anticipated for spring 2020. However, due to travel restrictions under COVID-19, the supplier visit was delayed until September 2020. During this visit (September 28 – October 5), the supplier provided training on installation and maintenance of the Partisol instruments to all available Environment Technicians. The Partisol samplers (TSP and $PM_{10}/PM_{2.5}$) were installed by the supplier at DF-5 and verified in working order before the supplier left site. The first 2020 sample for compliance

monitoring purposes was obtained on October 12 at this location. The Partisol samplers for monitoring location DF-7 were installed by the trained Environment Technicians on October 29, and the first compliance sampling event occurred on November 5.

To ensure continued function of the Partisols without significant interruption in the sampling program, Agnico has obtained a set of spare parts as recommended by the supplier, and technicians are carrying out a schedule of routine maintenance.

1.2.2 Dustfall

Dustfall monitoring was conducted over approximately 30-day periods for year-round sampling stations DF-2 – DF-7 from December 16, 2019 – December 25/26, 2020. DF-1, which is located south of the AWAR gatehouse, was only sampled twice (approx. 30-d periods between December 16 – February 23) due to COVID-19 restrictions aimed at eliminating potential for community contact. As described in the Air Quality Monitoring Plan (Version 2, April, 2020), summer-only sampling is planned for AWAR stations DF-1 – DF-3 moving forward. However, winter-time samples may continue to be collected opportunistically at these stations, as occurred in 2020.

Dustfall was also sampled for AWAR transects (DF-2 and DF-3) over three 30-d periods from June 20 – September 20, 2020. The summertime dustfall sampling at transects DF-1 and DF-WT could not be conducted due to COVID restrictions, as these transects are located south of the AWAR gatehouse.

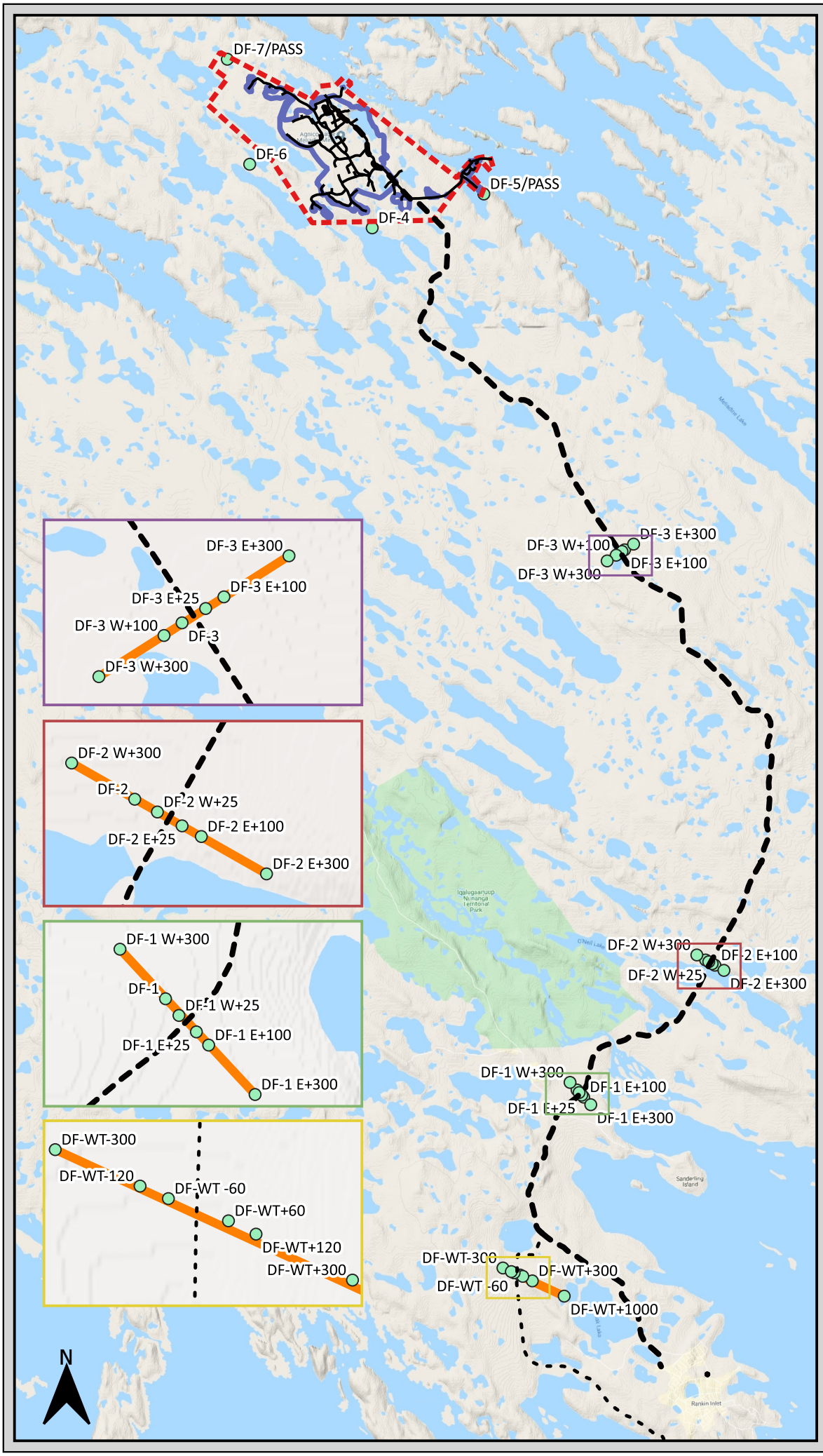
1.2.3 NO_2 and SO_2

Passive samplers for NO_2 and SO_2 were installed at two locations (DF-5 and DF-7). Passive monitoring of NO_2 and SO_2 was conducted over approximately 30 day periods from December 6, 2019 through December 21, 2020. In 2020, one duplicate sampler was also installed for SO_2 at DF-5 and one duplicate sampler was installed for NO_2 at DF-7, beginning in April.

Table 2. Air quality monitoring locations and parameters. *Any changes in 2020 are in italics.*

Monitoring Station	UTM (15V)	Parameters	Frequency	General Location	Location Description
DF-WT *(not sampled)*	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, 300, and 1000 m on each side of the road.
DF-1 *(not sampled)*	544073E 6970759N	Dustfall transect	Summer only	AWAR	AWAR km 4 South of Iqalugaarjuup Nunanga Park. Samples at 25, 100, and 300 m on each side of the road. Historical year-round station: 100 m from road (west/upwind side)

Monitoring Station	UTM (15V)	Parameters	Frequency	General Location	Location Description
DF-2 *(sampled year-round)*	546621E 6973334N	Dustfall transect	Summer only	AWAR	AWAR km 10 East of Iqalugaarjuup Nunanga Park. Samples at 25, 100, and 300 m on each side of the road. Historical year-round station: 100 m from road (west/upwind side)
DF-3 *(sampled year-round)*	544899E 6981387N	Dustfall transect	Summer only	AWAR	AWAR km 23 North of Iqalugaarjuup Nunanga Park. Samples at 25, 100, and 300 m on each side of the road. Historical 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).
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	Dustfall	Summer only	Reference	North end of Meliadine Lake near AEMP Reference Area 2 (MEL-04). UTM approximate. Reference stations may be rotated.



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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1.3 Dust Suppressant Application

In 2020, Agnico endeavored to improve 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. Watering occurred at a frequency of every 1 – 14 days between July 3 and August 25, with a total of 666 m^3 applied.

Applications of calcium chloride occurred primarily along the AWAR. Initial applications were completed along the entire length of the AWAR and Bypass Road between June 21 and July 3 (except in locations where waterbodies are within 30 m of the road). Follow up applications were completed along the entire length of the road on July 21/22 and again on August 4/8 (to km 21).

2 Methods

2.1 Sampling Methodology

2.1.1 Suspended Particulates

Suspended particulates (TSP, PM_{10}, $PM_{2.5}$) were sampled over 24-h 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 DF-5 and DF-7. 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.

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). Dustfall canisters were provided by and analyzed by Bureau Veritas Laboratories.

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.

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 (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} ($PM_{10-2.5}$), 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 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.

1.1.1.1 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 3.

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. Air Quality 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 3. 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 3. 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 ($\mu g/m^3$)	
		Jurisdiction	Guideline ($\mu g/m^3$)	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 4, 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 4. 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 or the Northwest Territories. Results of the dustfall analysis are therefore compared to the Alberta Ambient Air Quality Guideline for recreational areas for total dustfall (June, 2016) 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 AEMP (water and sediment quality monitoring) and 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 will also check 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 $\mu g/m^3$ or 32 ppb) and SO_2 (30 $\mu g/m^3$ 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 5), along with a review of historical data for spatial and temporal trends.

Table 5. 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

- Field blanks (laboratory prepared cartridges that are passed through the Partisol without any air intake) were collected for $PM_{2.5}$ and PM_{10} on November 5 and 11, and all results were below or very near detection limits (<3, 3, or 4 ug/filter);
- Samplers were sent for professional maintenance and calibration, and re-installed onsite by the supplier or supplier-trained technicians;
- 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 travel blank (laboratory prepared samples that travel with the samples but are not exposed to the atmosphere) was sent with four shipments.
    - Results between 0.05 and 0.1 mg/cm^2/30d occurred, 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 0.1 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

- An accredited laboratory was used for pre-sample preparation and 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 TSP, PM_{10} and $PM_{2.5}$

In 2020, suspended particulate sampling occurred every six days beginning October 12 at DF-5, and November 11 at DF-7. Samples were not collected on October 24 (TSP), November 5, 11 and December 23 ($PM_{2.5}$/PM_{10}) at DF-5 and on November 11 and December 17 (both instruments) at DF-7. These occasional omissions were due to either field blank collection (November 5 and 11 at DF-5), instrument intake error or logistical difficulties (e.g. torn filter, missing in transit). Available results are shown in Figures 3, 4, and 5.

All values were below the GN or BC guidelines and FEIS predictions for the 24-h averaging time. Since data was only available for a maximum two-month period, annual averages were not calculated.

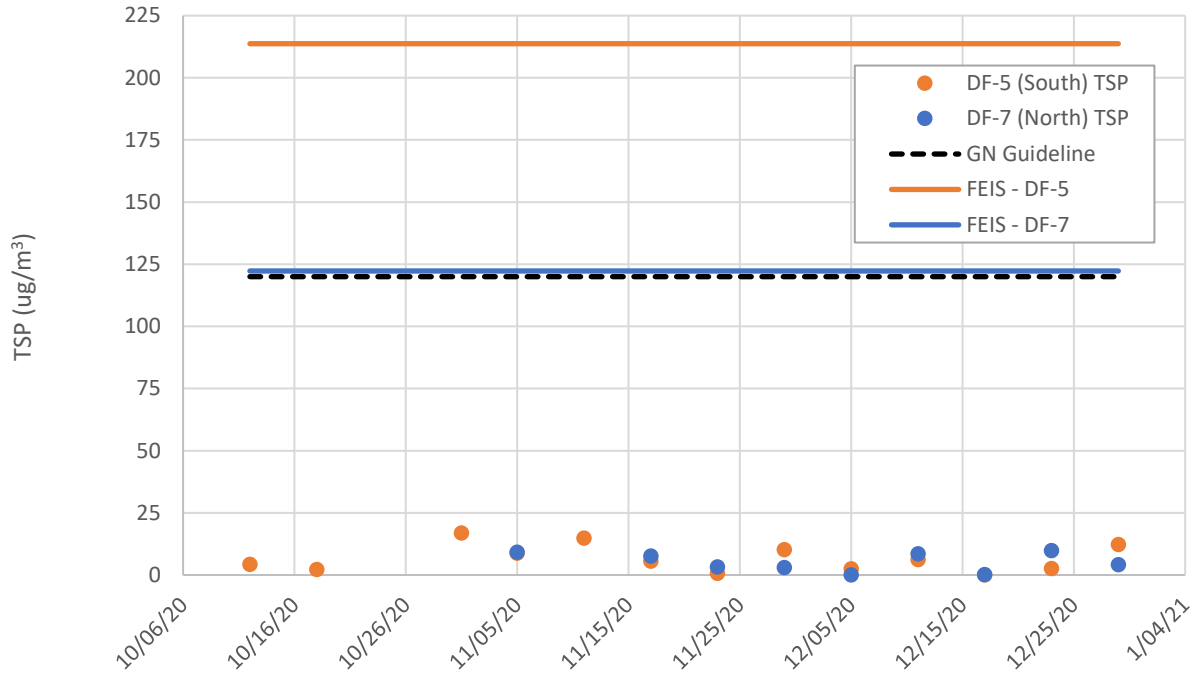

Figure 3. 24-h measured concentrations of total suspended particulates (TSP) at monitoring stations DF-5 and DF-7 at the Meliadine site (points). Lines indicate the Government of Nunavut (GN) guideline and FEIS maximum model predictions for each station.

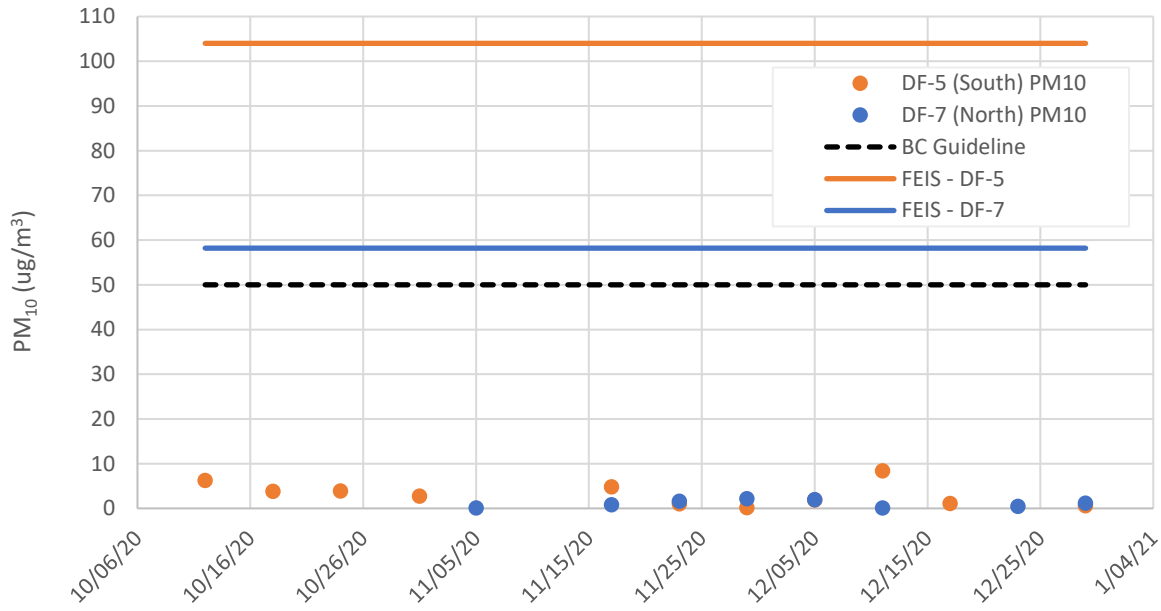

Figure 4. 24-h measured concentrations of PM_{10} at monitoring stations DF-5 and DF-7 at the Meliadine site (points). Lines indicate the BC guideline and FEIS maximum model predictions for each station.

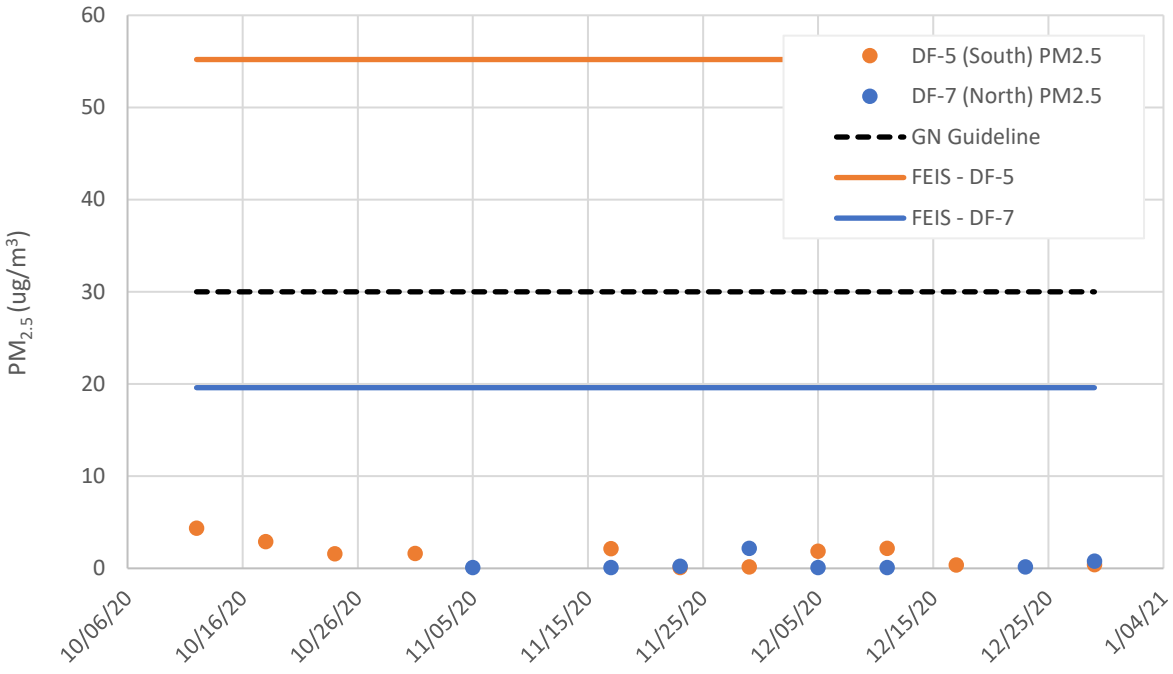

Figure 5. 24-h measured concentrations of $PM_{2.5}$ at monitoring stations DF-5 and DF-7 at the Meliadine site (points). Lines indicate the Government of Nunavut (GN) guideline and FEIS maximum model predictions for each station.

Monitoring for suspended particulates 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. No results to date have exceeded regulatory guidelines or FEIS predictions.

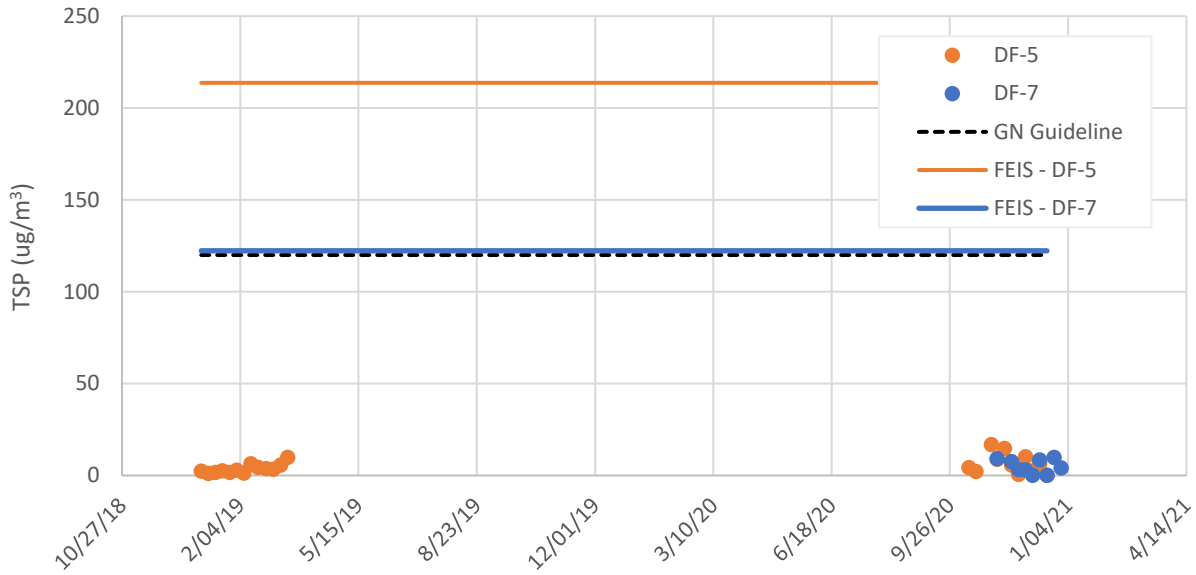

Figure 6. Historical 24-h measured concentrations of total suspended particulates (TSP) at monitoring stations DF-5 and DF-7 at the Meliadine site (points). Lines indicate the Government of Nunavut (GN) guideline and FEIS maximum model predictions for each station.

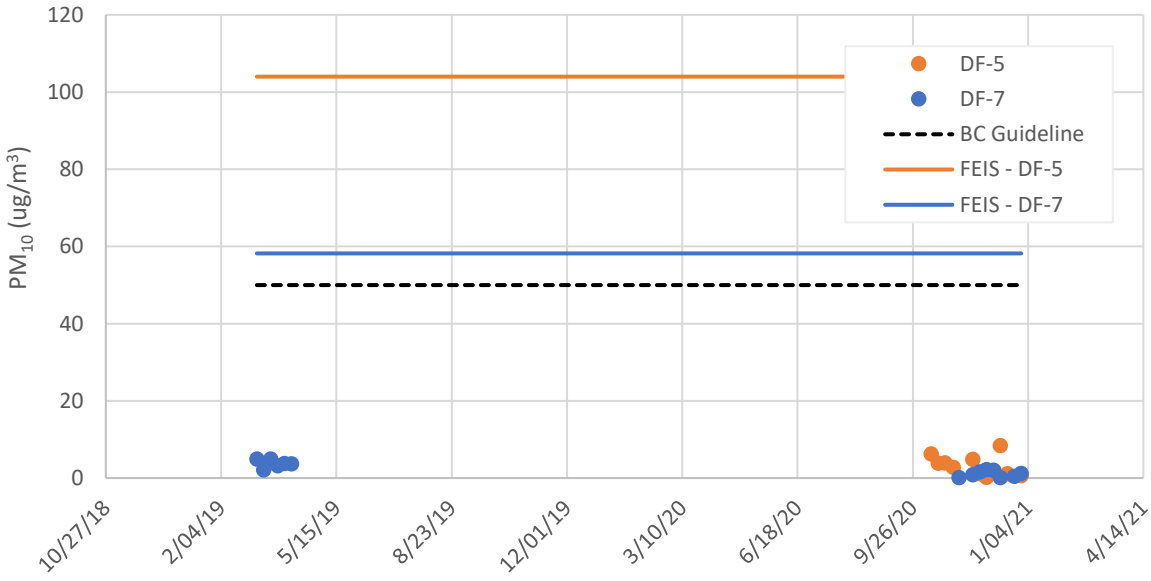

Figure 7. Historical 24-h measured concentrations of PM_{10} at monitoring stations DF-5 and DF-7 at the Meliadine site (points). Lines indicate the BC guideline and FEIS maximum model predictions for each station.

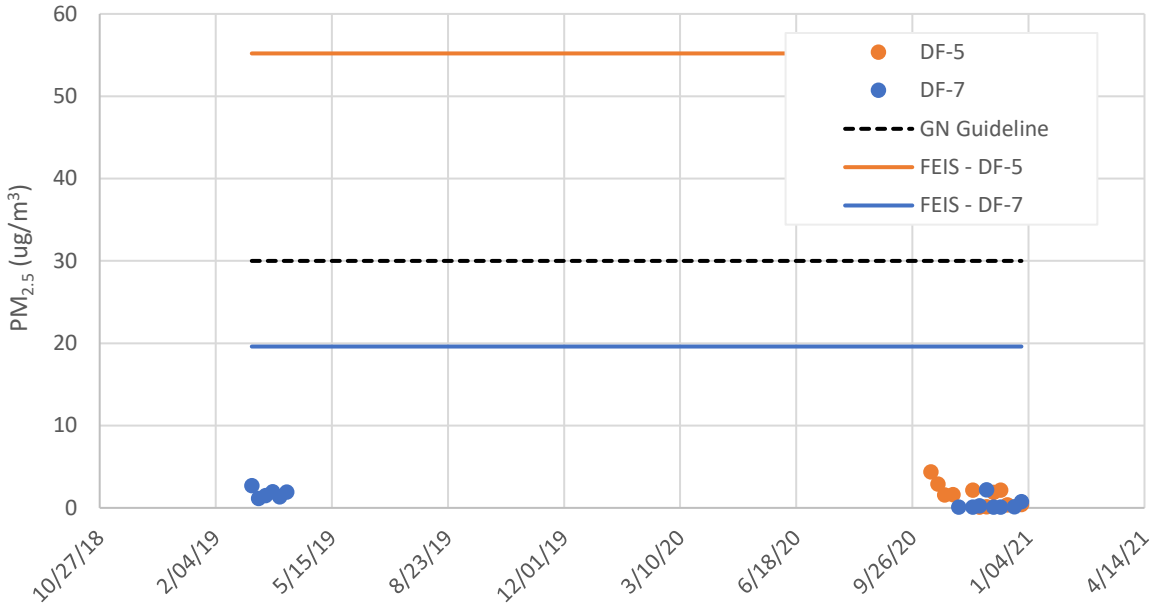

Figure 8. Historical 24-h measured concentrations of $PM_{2.5}$ at monitoring stations DF-5 and DF-7 at the Meliadine site (points). Lines indicate the Government of Nunavut (GN) guideline and FEIS maximum model predictions for each station.

3.1.2 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). 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). 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 2020, all results for cadmium from both stations were below laboratory detection limits.

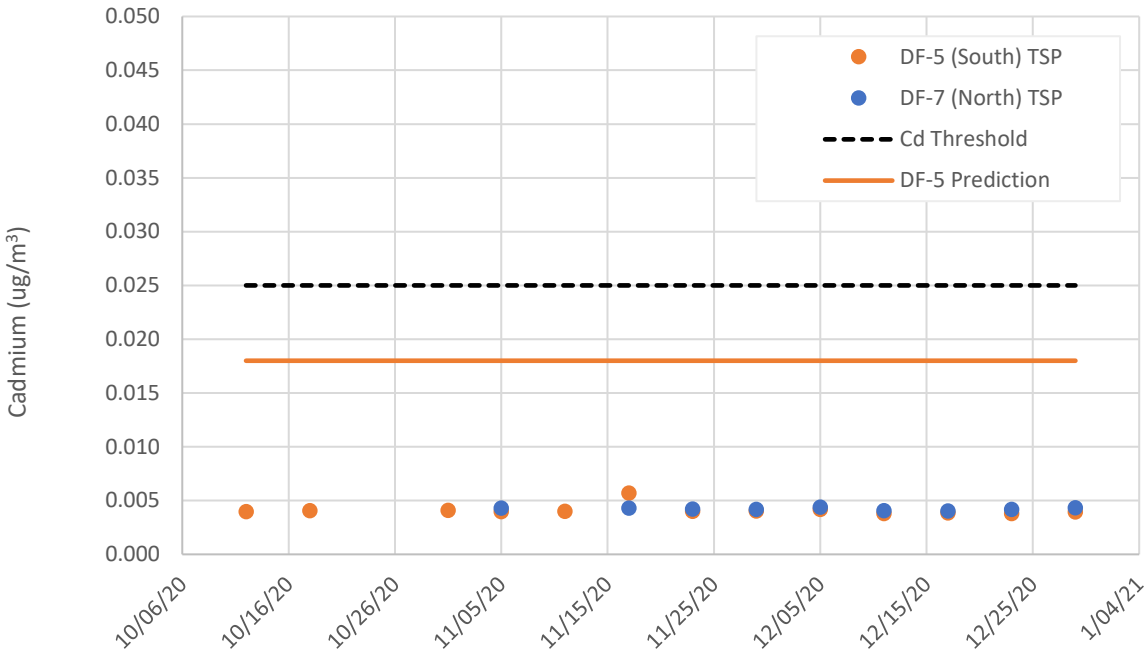

Figure 9. Measured concentrations of cadmium in 24-h TSP samples collected from stations DF-5 and DF-7 at the Meliadine site (points). Dashed line indicates the FEIS-selected health-based screening value, and solid lines indicate the FEIS maximum model-predicted value for station DF-5 (see discussion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

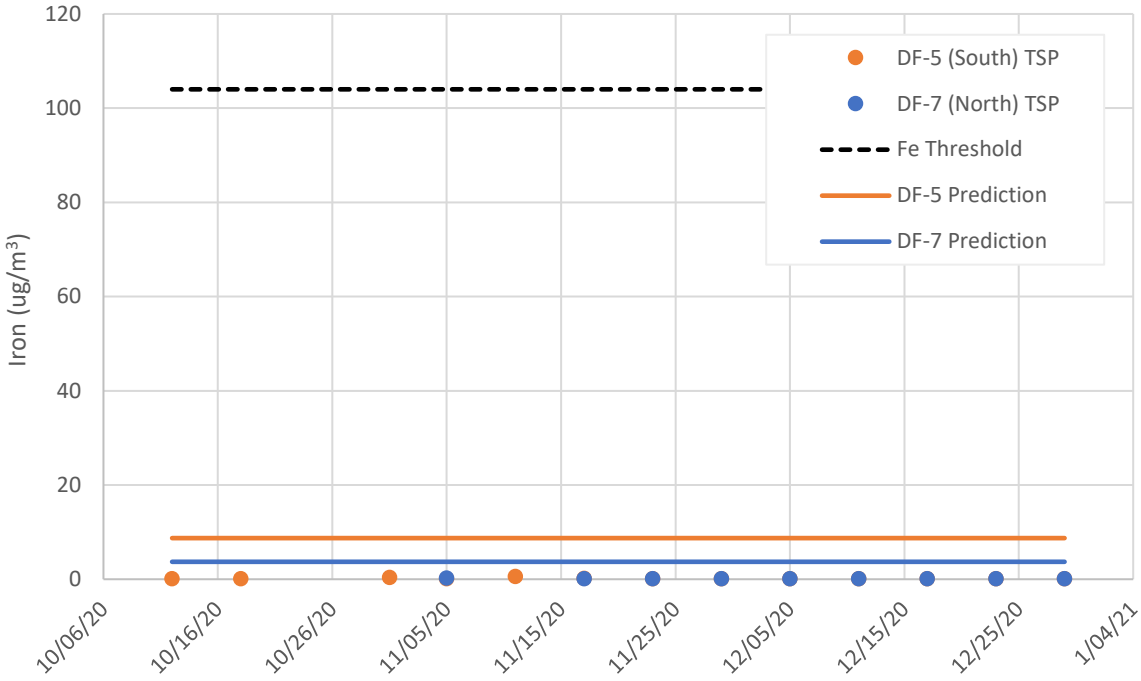

Figure 10. Measured concentrations of iron in 24-h TSP samples collected from stations DF-5 and DF-7 at the Meliadine site (points). Dashed line indicates the FEIS-selected health-based screening value, and solid lines indicate the FEIS maximum model-predicted value for each monitoring station.

3.2 DUSTFALL

3.2.1 Year-Round Sampling Locations

Results of the 2020 dustfall sampling program (30-day normalized rates of dustfall) for monitoring stations DF-1 – DF-7 are provided in Figures 11 - 17. One set of samples for all stations (installed February 22/23) was left in the field for an extended period of 57 or 58 days, rather than the normal 30-d sampling period, due to access restrictions at the onset of the COVID-19 pandemic. Because performance of the samplers over this extended period is unknown (e.g. reduced sample retention due to water evaporation), these results are omitted from the analysis. 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.

In total, two of the 70 samples collected at these stations in 2020 exceeded the recreational area guideline for total dustfall (one sample each at DF-3, DF-7). However, the result for fixed (non-combustible) dustfall in both cases was below the recreational area guideline, indicating that an unusually high proportion of organic material was present in the sample.

Historical results for total dustfall since 2012 are provided in Figure 18 for assessment of trends over time. 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 <4% of total dustfall samples each year during the operations period. These results indicate that best management practices in place for dust mitigation are being implemented effectively to control emissions.

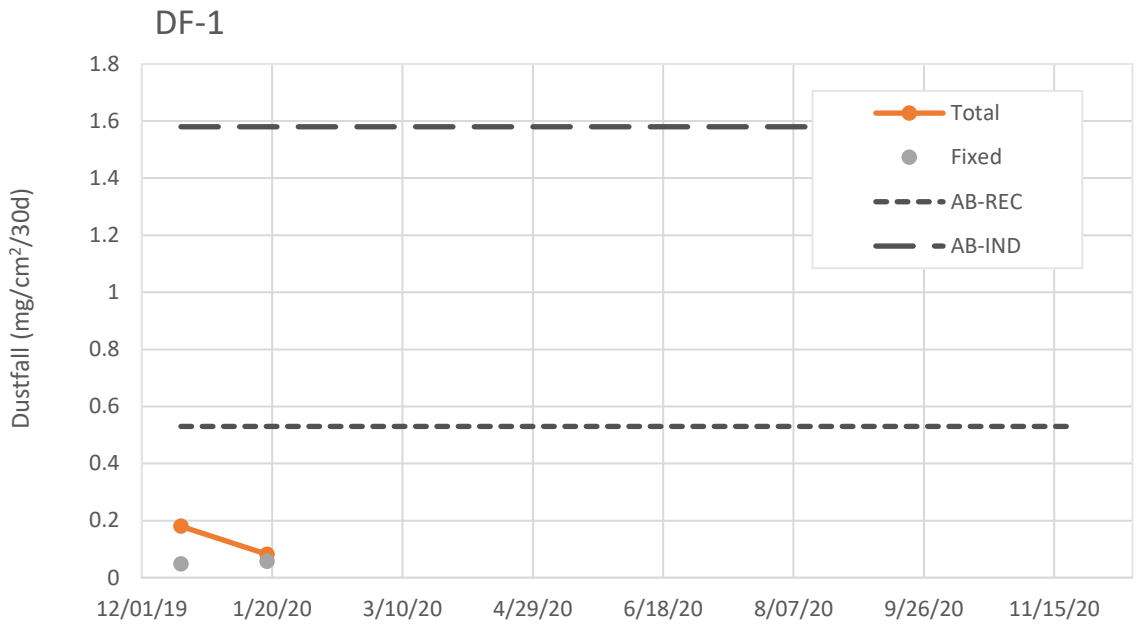

Figure 11. 30-day-normalized rates of total and fixed dustfall at sampling location DF-1 at the Meliadine site in 2020. Symbols represent start date of sample collection. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas.

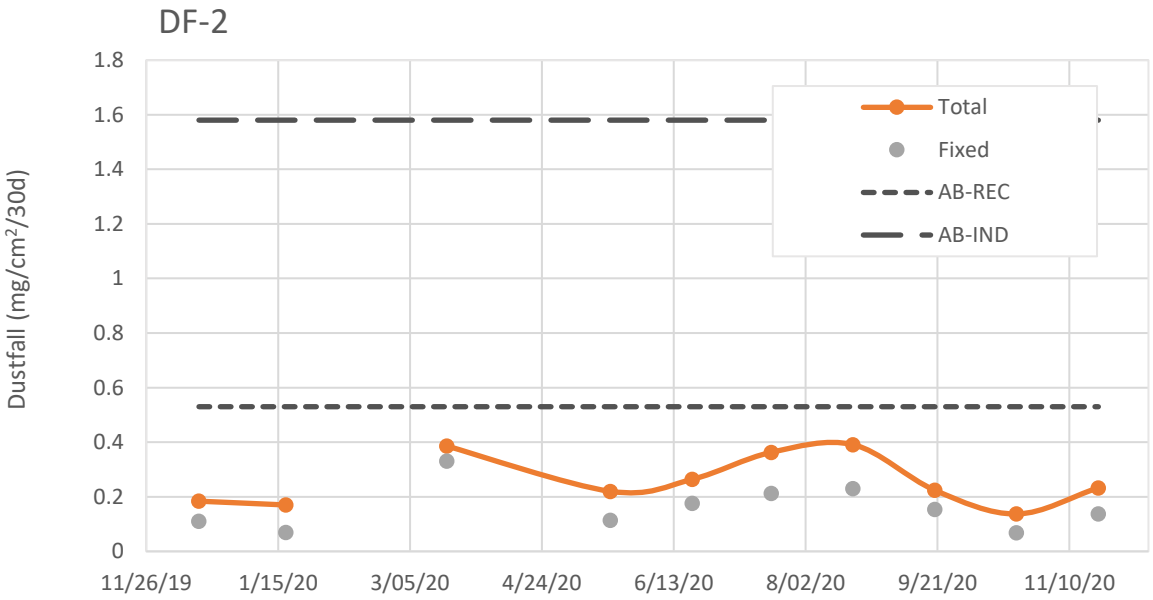

Figure 12. 30-day-normalized rates of total and fixed dustfall at sampling location DF-2 at the Meliadine site in 2020. Symbols represent start date of sample collection. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas.

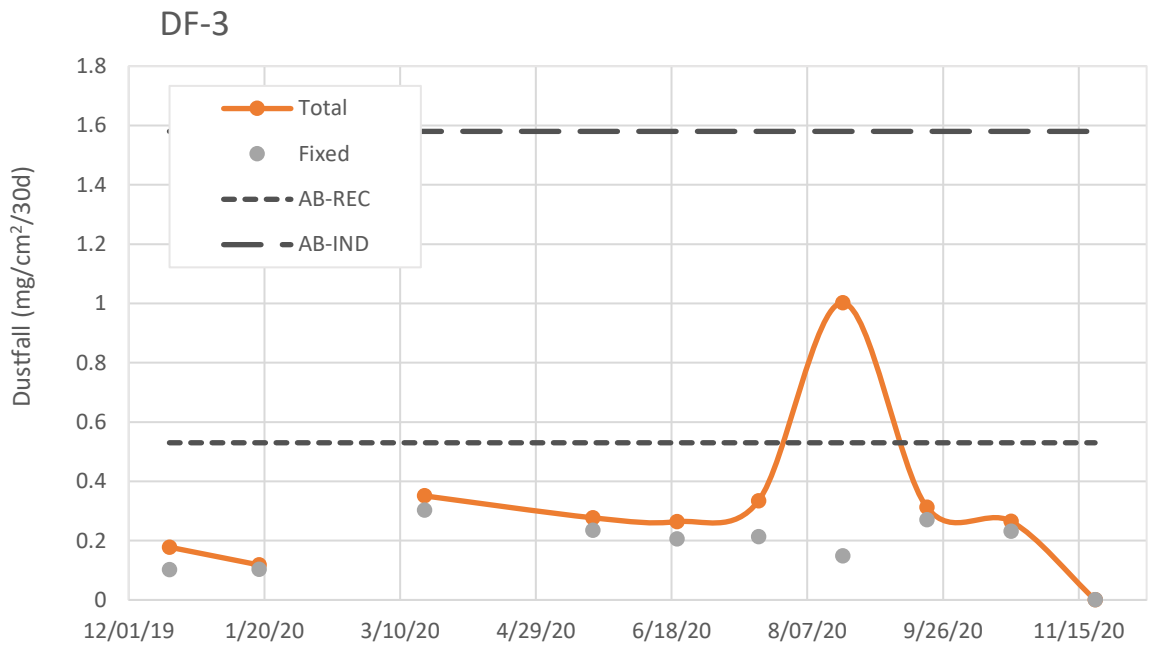

Figure 13. 30-day-normalized rates of total and fixed dustfall at sampling location DF-3 at the Meliadine site in 2020. Symbols represent start date of sample collection. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas.

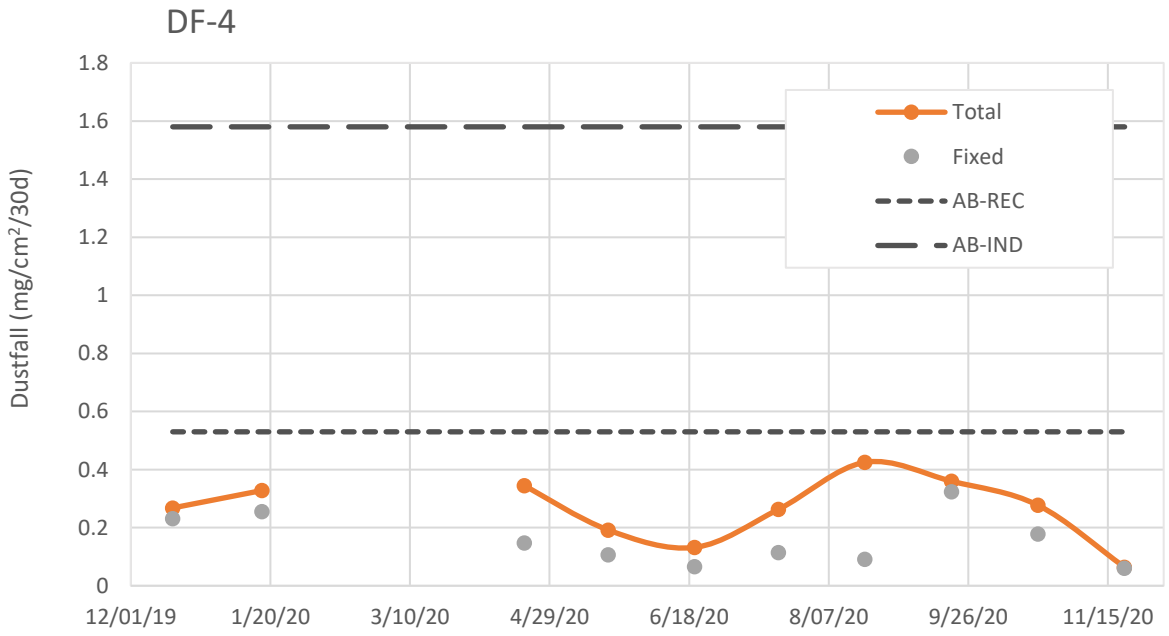

Figure 14. 30-day-normalized rates of total and fixed dustfall at sampling location DF-4 at the Meliadine site in 2020. Symbols represent start date of sample collection. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas.

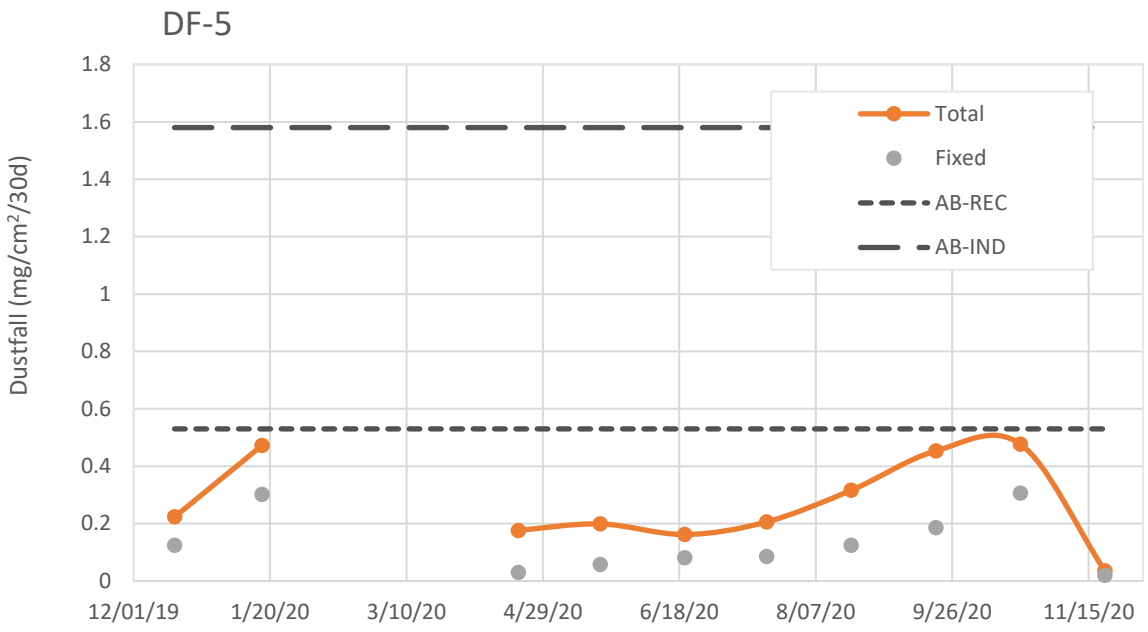

Figure 15. 30-day-normalized rates of total and fixed dustfall at sampling location DF-5 at the Meliadine site in 2019. Symbols represent start date of sample collection. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas.

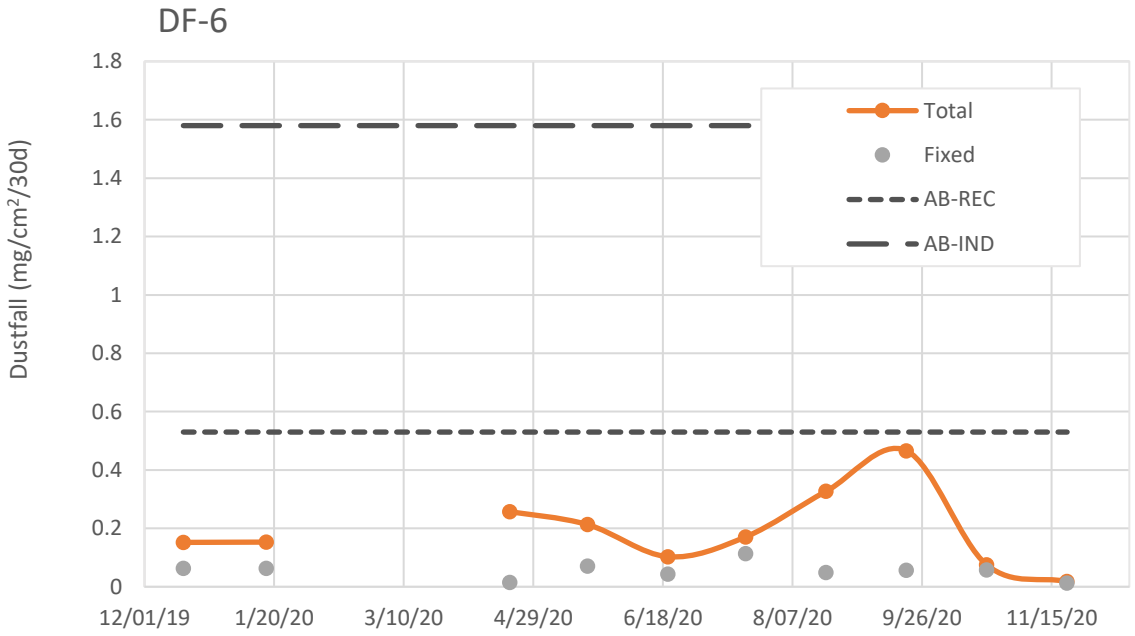

Figure 16. 30-day-normalized rates of total and fixed dustfall at sampling location DF-6 at the Meliadine site in 2020. Symbols represent start date of sample collection. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas.

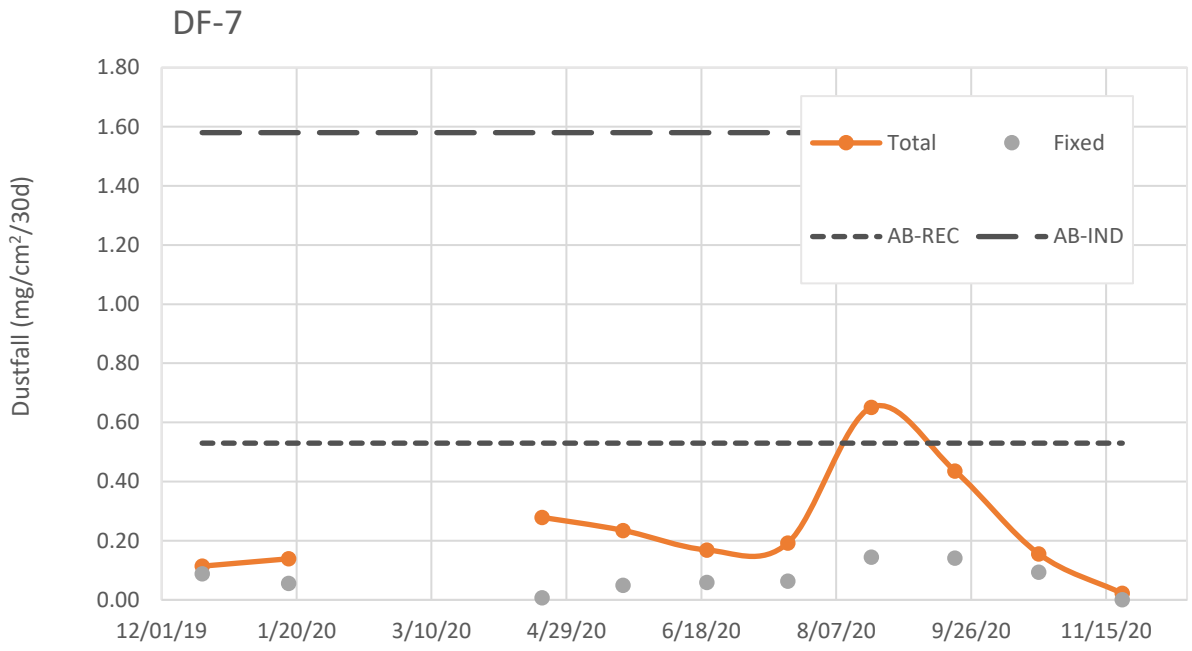

Figure 17. 30-day-normalized rates of total and fixed dustfall at sampling location DF-7 at the Meliadine site in 2020. Symbols represent start date of sample collection. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas.

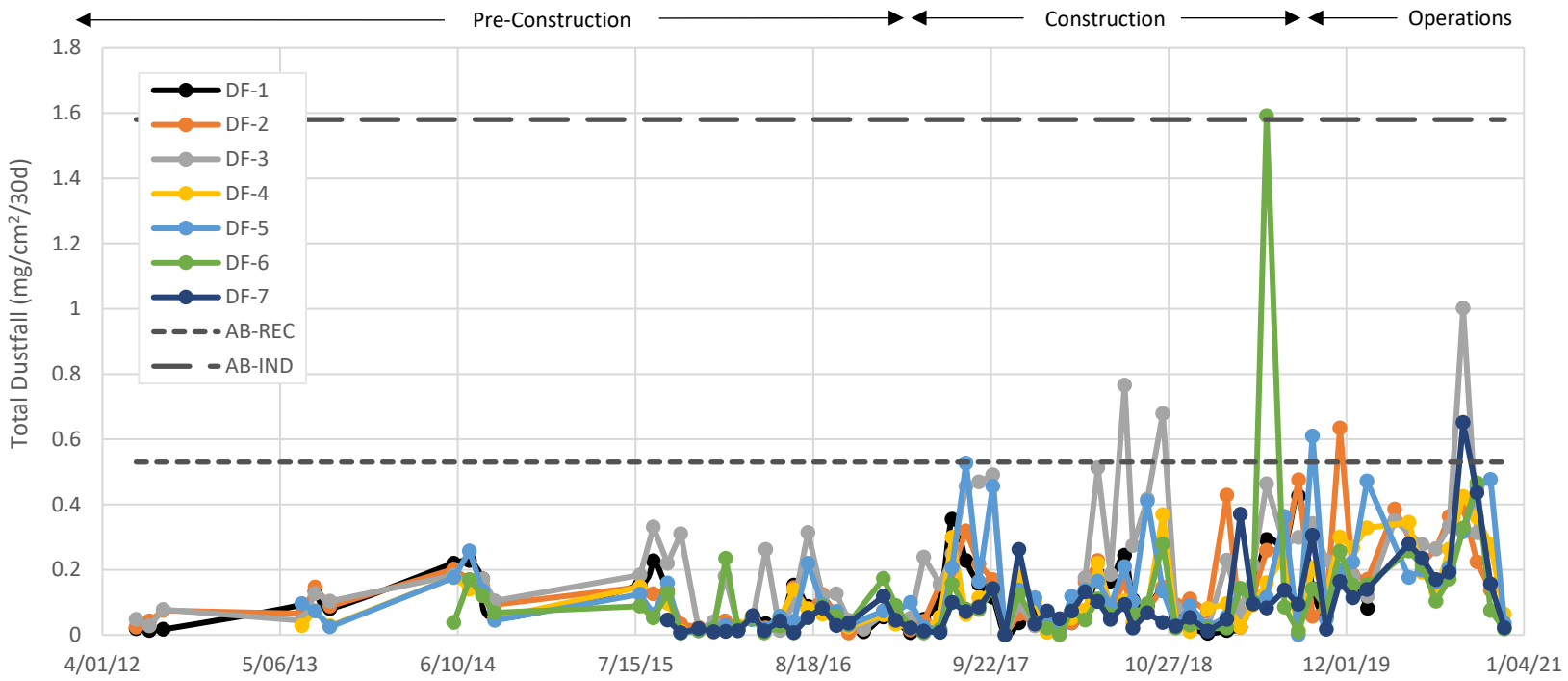

Figure 18. Historical 30-day-normalized rates of total dustfall at the Meliadine site. Symbols represent start date of sample collection. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas.

3.2.2 AWAR Dustfall Transects

Dustfall data collected at AWAR transects DF-2 and DF-3 in 2020 are provided in Figures 19 and 20. Transects DF-1 and DF-WT could not be sampled due to COVID-related restrictions to minimize community contact.

For station DF-2, rates of dustfall declined below regulatory guidelines for recreational areas between 25 m and 100 m on the upwind (west) side of the road, and between 25 m and 300 m on the downwind (east) side of the road. One exceedance of the AB guideline for industrial areas occurred (25 m distance), and five exceedances of the recreational area guideline occurred (25 and 100 m distance). In two of these cases (both during round 1, June 20 – July 20), the fixed dustfall result was significantly lower, indicating an unusually high proportion of organic matter in the samples. Measured rates of dustfall continue to decline to background levels (approximately 0.2 mg/cm^2/30d) by the 300 m distance on both up- and downwind sides of the road.

For station DF-3, rates of dustfall declined below regulatory guidelines for recreational areas between 25 m and 100 m from the road. Only two total dustfall samples for this transect exceeded at the recreational area guideline, and both were during round 3 (August 20 – September 20) at the 25-m distance. For both of these samples, the fixed dustfall result was substantially lower, indicating an unusually high proportion of organic matter in the samples.

Dust suppressant was applied along the AWAR primarily between June 21 – July 3, and again on July 20-21 (Section 2.3). These dates coincide with the initiation of dustfall sampling rounds 1 and 2 (June 20/July 20). Average rates of dustfall during each round of sampling are shown in Table 6, and were slightly higher during round 3, when dust suppressant was not applied.

Historical annual average dustfall data for all AWAR transects combined is shown in Figure 21. For each year, data are averaged across samplings transects and monitoring events (2 – 3 sequential 30-d periods). While average total dustfall results were higher in 2020 compared to 2019, this difference was only seen in close proximity to the road (100 m or less). The AB-Rec guideline has only been exceeded historically at the 25-m distance for annual averages, and results at 300 m remain within the range of measured background rates of dustfall, which have been measured at reference station DF-8 up to 0.213 mg/cm^2/30d historically.

These results indicate that despite increased traffic rates in 2020 compared to 2019, elevated rates of dustfall remain restricted to a corridor of less than 100 - 300 m from the AWAR. Trends will continue to be monitored, in particular at the 100 m downwind distance where results were most variable in 2020.

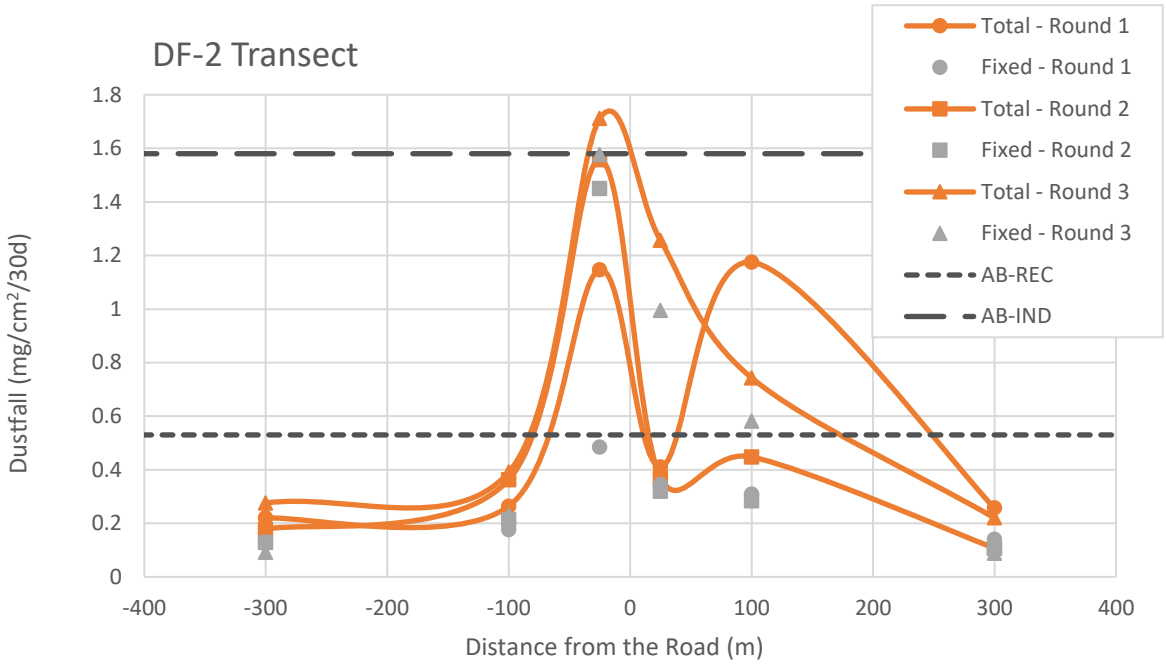

Figure 19. 30-day-normalized rates of total and fixed dustfall for transect DF-2 along the Meliadine AWAR in 2020. Negative values represent the west (upwind) side of the road. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas.

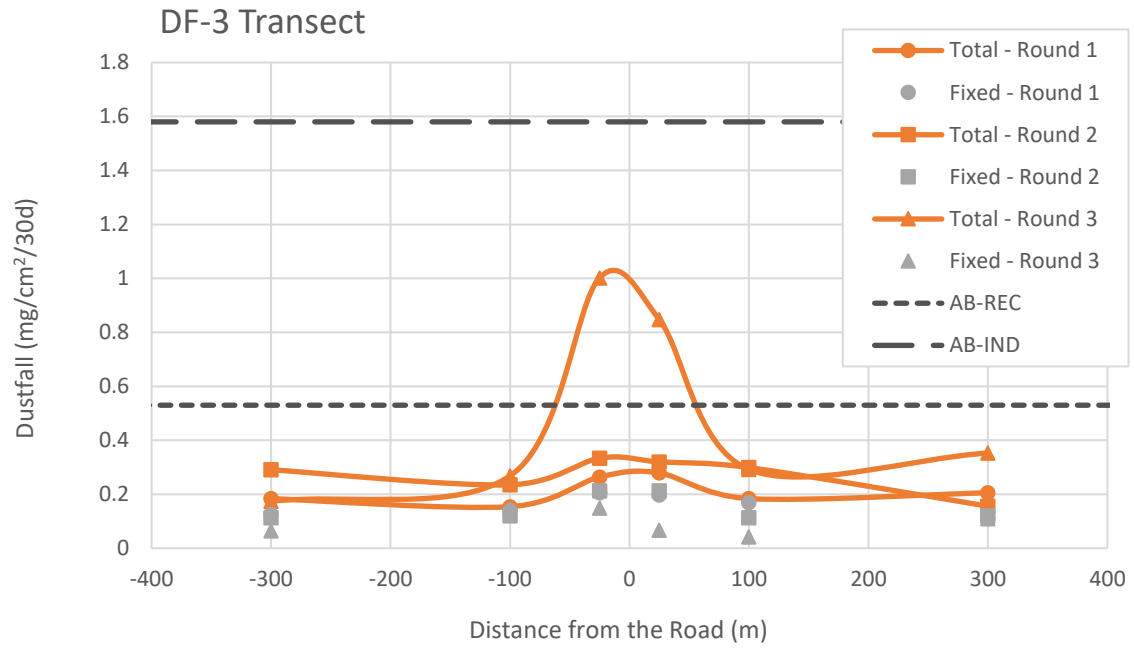

Figure 20. 30-day-normalized rates of total and fixed dustfall for transect DF-3 along the Meliadine AWAR in 2020. Negative values represent the west (upwind) side of the road. Dashed lines indicate the Alberta Ambient Air Quality Guideline for recreational and industrial areas.

Table 6. Average rates of measured total dustfall during each sampling period for Meliadine AWAR dustfall monitoring transects DF-2 and DF-3.

Transect	Round 1 *(June 20 – July 20)*	Round 2 *(July 20 – August 20)*	Round 3 *(August 20 – September 20)*
DF-2	0.58 mg/cm^2/30d	0.50 mg/cm^2/30d	0.77 mg/cm^2/30d
DF-3	0.21 mg/cm^2/30d	0.27 mg/cm^2/30d	0.49 mg/cm^2/30d

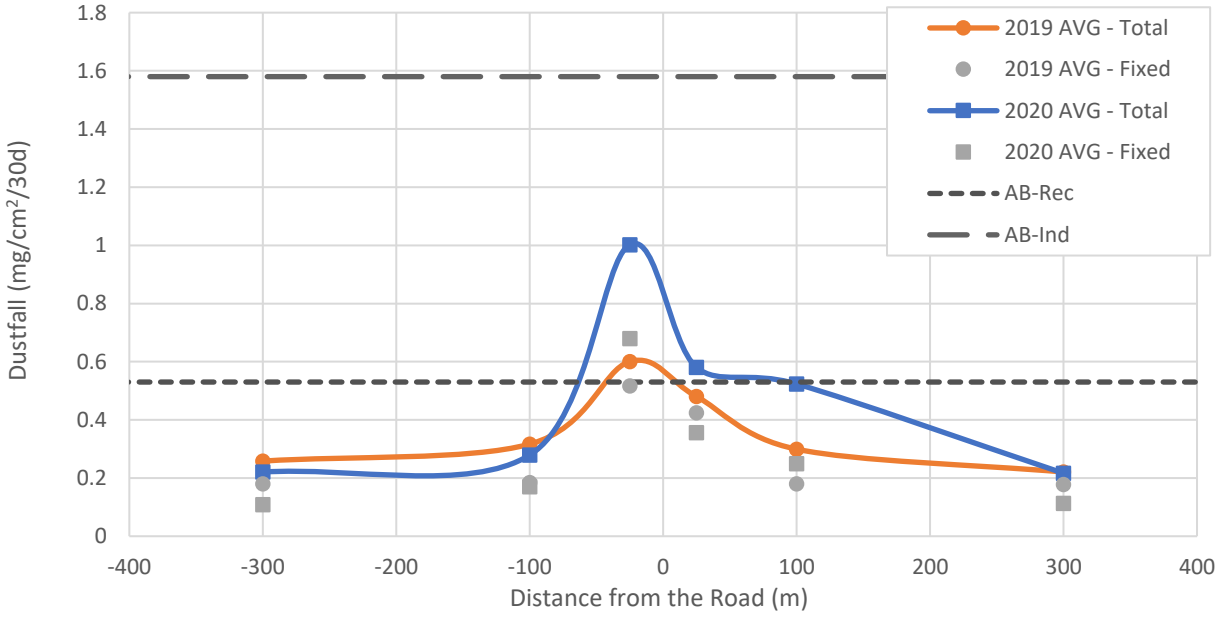

Figure 21. Average 30-day-normalized rates of total and fixed dustfall for summertime sampling transects DF-1, DF-2, and DF-3 along the Meliadine AWAR. Symbols represent average measured dustfall across transects and sampling dates (2-3 consecutive 30-d periods) within each year. Negative values represent 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 2020 are provided in Figure 22. Samples are plotted by the collection start date. Concentrations of NO_2 vary between non-detect (<0.1) and 1.3 ppb.

Annual arithmetic mean concentrations were calculated for each station from the monthly average values. The annual mean concentrations of NO_2 were 0.57 and 0.52 ppb for DF-5 and DF-7, respectively (December 16, 2019 – December 21, 2020). 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).

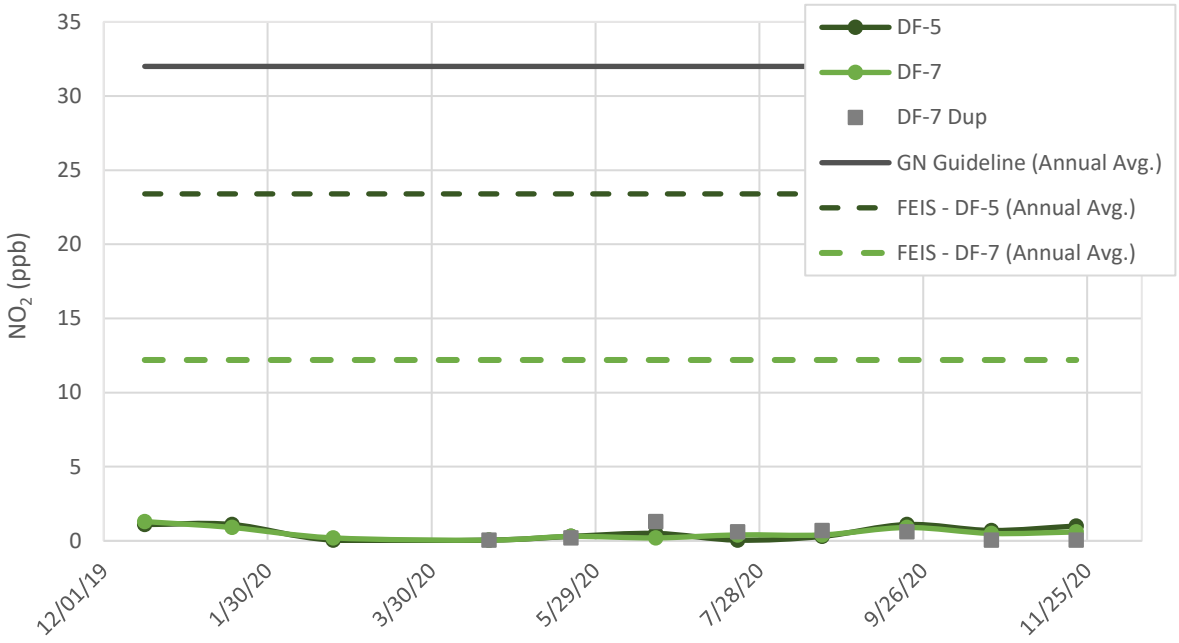

Figure 22. Monthly average concentration of NO_2 at DF-5 and DF-7. Symbols represent the collection start date. Dashed line indicates GN standard for the annual average but do not apply to individual monthly samples..

Historical results (collected since 2017) are presented in Figure 23. Results remain well below maximum predicted values and no clear trends between sampling stations or over time are evident.

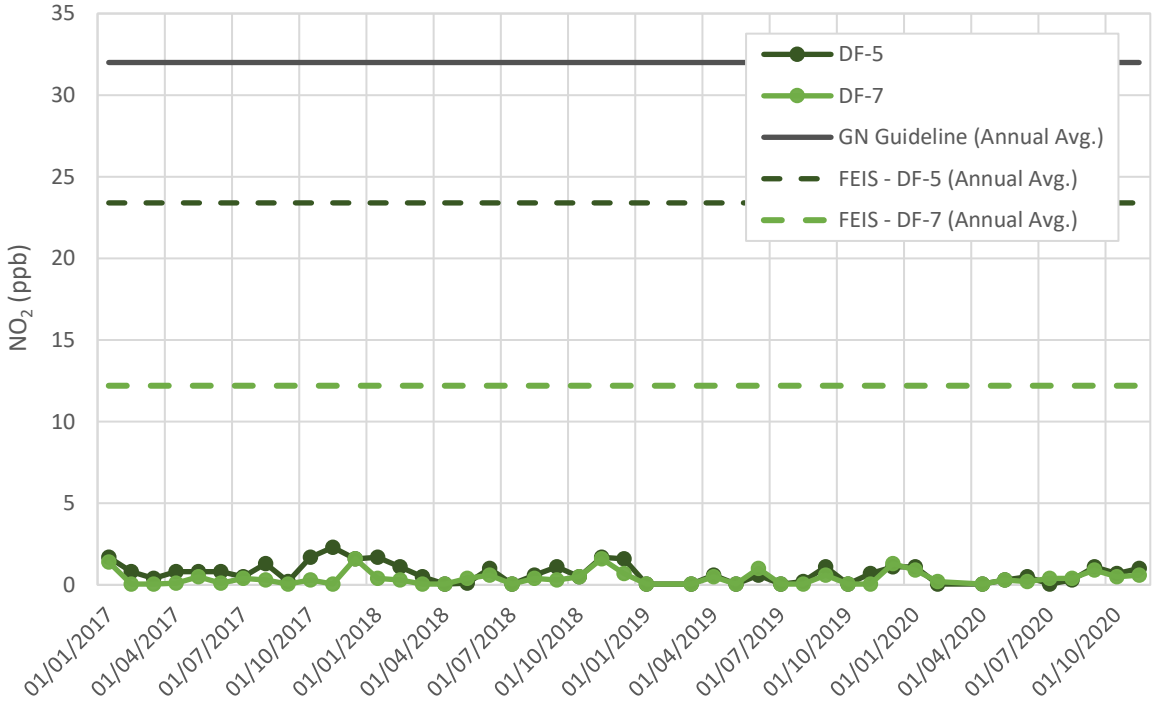

Figure 23. Historical measured monthly average concentration of NO_2 at DF-5 and DF-7. The GN guideline and FEIS predictions for the annual average are indicated, for reference but do not apply to individual monthly samples..

Monthly-average SO_2 trends in 2020 are provided in Figure 24. 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 0.5 ppb (November 21).

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 0.07 and 0.12 ppb for DF-5 and DF-7, respectively (December 16, 2019 – December 21, 2020). 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.

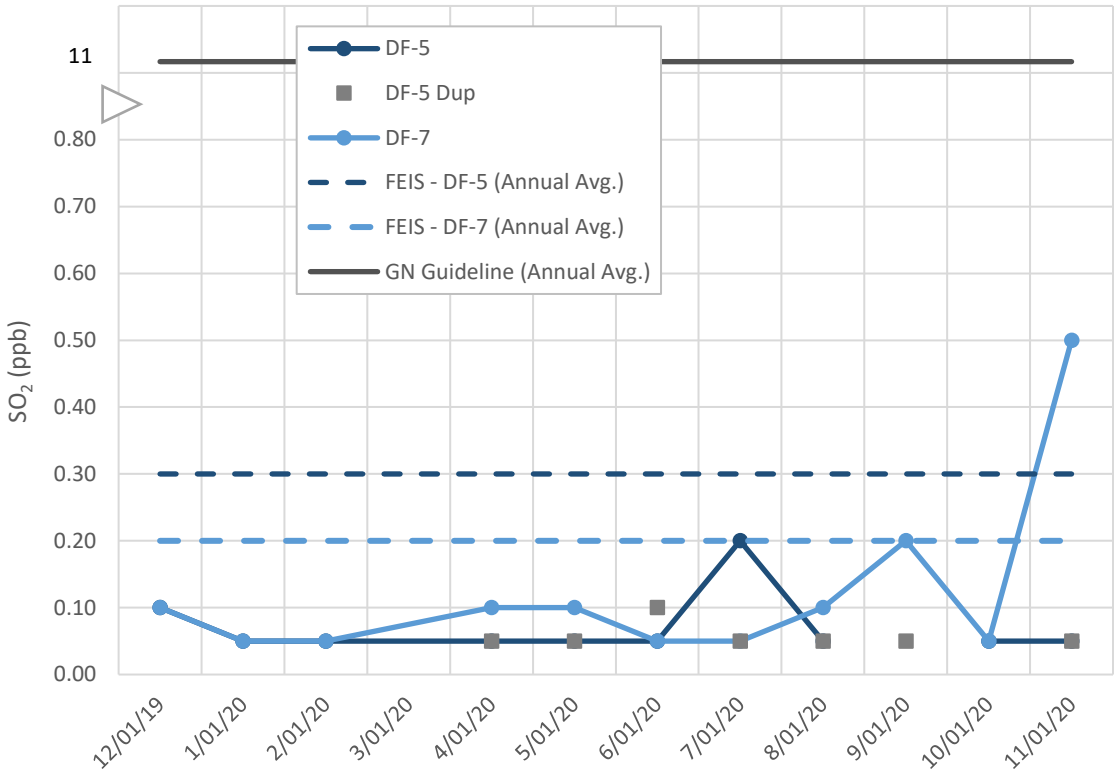

Figure 24. Monthly average concentration of SO_2 at DF-5 and DF-7. Symbols represent the collection start date. The GN guideline and FEIS predictions for the annual average are indicated, for reference, but do not apply to individual monthly samples.

Historical results (collected since 2017) are presented in Figure 25. No clear trends between sampling stations or over time are evident.

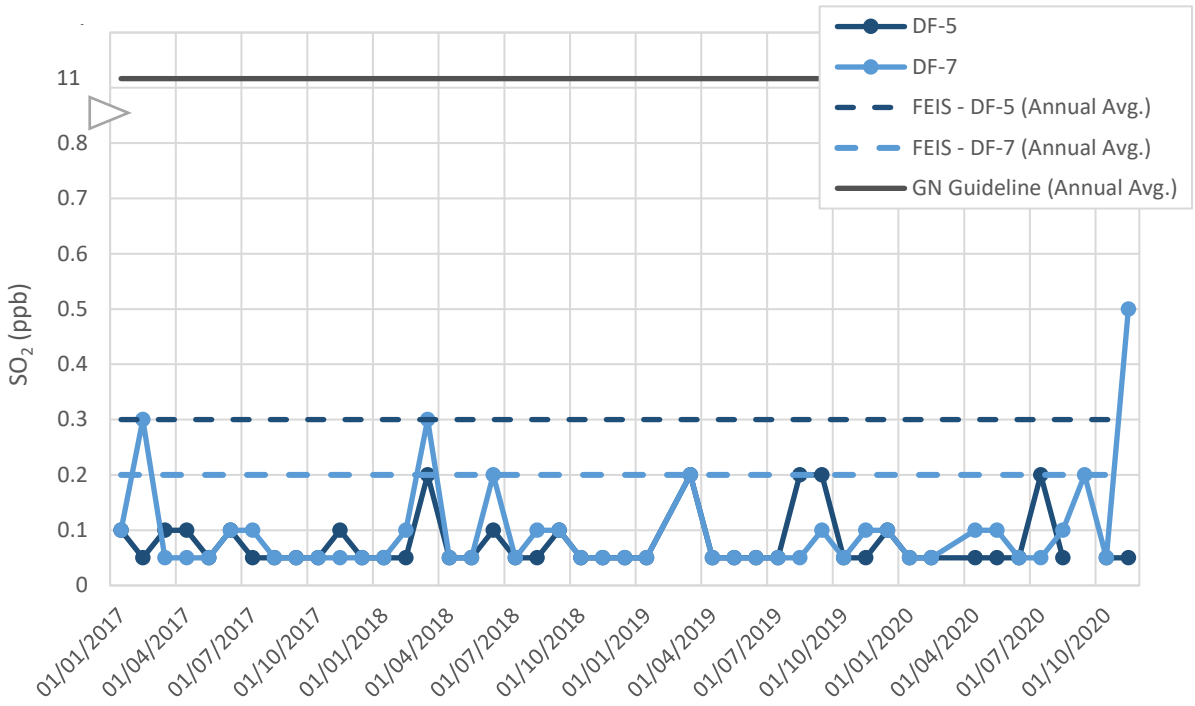

Figure 25. Historical measured monthly average concentration of SO_2 at DF-5 and DF-7. Dashed line indicates GN standard for the annual average, for reference but do not apply to individual monthly samples.

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 2020 are provided in Appendix B:

- wind speed;
- wind direction;
- temperature;
- solar radiation.

5 INCINERATOR STACK TESTING

Incinerator stack testing was performed in September, 2020 to ensure standards provided in the GN's Environmental Guideline for the Burning and Incineration of Solid Waste (2012) are not being exceeded. This report is provided under separate cover, as an appendix of the 2020 Annual Report to the NIRB.

The measured concentrations of mercury were below the GN standard of 20 µg/Rm^3 in all three tests. Measured concentrations of total dioxins and furans were also below the GN standard (80 pg TEQ / Rm³ @ 11 % v/v O2) in all three tests.

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 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 31, 2020, for the 2019 reporting period. Total emissions for 2019 were calculated at 108,077 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 2020 were within applicable air quality criteria and FEIS predictions, 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).
- 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)

7.2 MONITORING

The following items were identified in the 2019 Air Quality Monitoring Report to improve the program, and Agnico's actions in 2020 are indicated.

- Continue to investigate alternate sampling equipment for suspended particulates to potentially replace Partisols, due to persistent, ongoing equipment malfunctions.

In 2020, all four Partisol instruments were re-installed onsite after extensive repairs by the supplier, who also provided updated training and maintenance schedules to onsite staff. As a result, Agnico is hopeful that equipment malfunctions will be minimal moving forward. However, in recognition of the significant unforeseen difficulties that have arisen in operating the Partisols at Meliadine, Agnico has continued to investigate other options for particulate monitoring, including real-time monitors. Discussions with practitioners and other industry representatives continued in 2020 to understand the pros and cons of different instruments. Based on the performance of the now re-installed Partisols moving forward, Agnico will consider the installation of alternate equipment as necessary.

- Enact revisions to monitoring locations and analyses as described in the updated Air Quality Monitoring Plan (Version 2, April 2020), including:
    - Analysis of certain metals in suspended particulates;
        - Complete
    - Supplemental dustfall monitoring at reference stations;
        - Complete
    - Addition of dustfall transect monitoring locations at DF-1, DF-2, DF-3, and DF-WT (completed already in 2019);
        - Complete
    - Reduction in monitoring frequency for DF-1, DF-2, and DF-3 from year-round to summer-only.
        - No monitoring at DF-1 beyond February 2020 due to COVID restrictions.
        - Monitoring year-round continued at DF-2 and DF-3 opportunistically.
- Target use of one travel blank per shipment, for each sample type.
    - Travel blanks were shipped with four of 12 dustfall sample shipments and one of four Partisol sample submissions.

No additional management actions are planned in 2021. Monitoring will continue be conducted according to the Operations phase schedule, as described in the Air Quality Monitoring Plan (Version 2, April, 2020).

8 REFERENCES

Alberta Environment and Parks, 2017. Alberta Ambient Air Quality Objectives and Guidelines Summary. Air Policy Branch, Alberta Environment and Parks.

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 – Meliadine Gold Project, Nunavut. Volume 5.0 Atmospheric Environment and Impact Assessment. April, 2014.

Government of Nunavut (GN), Department of Environment. 2011. Environmental Guideline for Ambient Air Quality.

APPENDIX A: RECORD OF DUST SUPPRESSION

Appendix A Table 1: Record of road watering at the Meliadine site in 2020.

Date	Time Started	Time Ended	Location	Volume (m^3)
7/3/20	8 33	9 35	Open Pit Road	18
7/14/20	15 00	16 15	Pit Haul Road	36
7/15/20	8 00	0:00	Pit Haul Road	90
7/23/20	13 00	16 00	Haul Road	54
7/24/20	10 00	16 00	Haul Road	72
7/29/20	14 30	15 30	Haul Road	18
7/30/20	14 00	15 00	Haul Road	18
8/1/20	7 00	7 50	Haul Road	18
8/2/20	13 20	16 30	Haul Road	54
8/3/20	8 30	8 55	Haul Road	18
8/4/20	12 15	15 30	Haul Road	54
8/4/20	14 30	15 30	AWAR	18
8/5/20	8 00	8 55	WSRF Ramp 3	18
8/5/20	9 00	0:00	Ramp	18
8/5/20	10 00	11 00	Ring Road	18
8/5/20	3 30	8 30	AWAR	90
8/20/20	14 00	15 00	Ramp	18
8/20/20	15 00	16 00	Haul Road	18
8/25/20	13 00	14 20	Tiri 2 Ramp	18

Appendix A Table 2: Record of dust suppressant application ($CaCl_2$) at the Meliadine site in 2020.

Date	Time Started	Time Ended	Location	Starting Km	Ending Km	$CaCl_2$ Bags/ Truck
6/21/20	6:30	11:30	AWAR	30	24	12
6/21/20	12:00	16:45	AWAR	24	18	12
6/29/20	9:00	9:30	AWAR	29.5	28	1
6/29/20	9:50	10:30	AWAR	25	22	2
6/29/20	10:45	11:00	AWAR	21	19.5	1
6/29/20	11:30	12:30	AWAR	18	16	1
6/29/20	14:00	15:45	AWAR	16	14.5	2
6/30/20	7:45	9:00	AWAR	14.5	11.5	2
6/30/20	9:15	10:00	AWAR	10	8.5	1
6/30/20	10:15	12:00	AWAR	8	6.5	2
6/30/20	13:00	16:00	AWAR	ByPass 6.5	ByPass 2.5	3

Date	Time Started	Time Ended	Location	Starting Km	Ending Km	$CaCl_2$ Bags/ Truck
7/1/20	8:00	9:30	AWAR	ByPass 2.5	ByPass 0	2
7/1/20	10:00	10:30	AWAR	25	26.5	1
7/2/20	16:00	17:00	Site	TSF road	TSF road	2
7/3/20	8:00	8:30	AWAR	30	29	1
7/3/20	8:40	9:15	AWAR	25	24	1
7/3/20	10:00	10:30	AWAR	6	8	1
7/3/20	10:45	11:15	AWAR	8	10	1
7/3/20	11:30	12:10	AWAR	12	14	1
7/3/20	12:30	13:55	AWAR	15	18	3
7/3/20	14:15	15:00	AWAR	18	20	1
7/21/20	9:00	10:30	Site	Tiri 2 Haul	Tiri 2 Haul	4
7/21/20	14 00	18 00	AWAR	30	Itivia	8
7/22/20	18 00	12 30	AWAR	30	Itivia	8
8/04/20	12:00	15:00	AWAR	Itivia	21	12
8/04/20	15:30	17:00	Haul Rd			4
8/08/20	12:30	1:00	AWAR	15	18	3

APPENDIX B: DAILY AVERAGE WEATHER DATA

Appendix B Table 1: Daily average temperature, wind speed, wind direction, and solar radiation as measured by the Meliadine onsite weather station.

Date	Temperature (°C)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Radiation (watts/m^2)
2020-01-01	-19.0	22.6	167	2.6
2020-01-02	-16.1	16.3	135	2.3
2020-01-03	-15.0	3.5	51	2.7
2020-01-04	-19.6	12.0	33	3.7
2020-01-05	-31.9	7.2	5	6.6
2020-01-06	-31.3	3.3	13	3.1
2020-01-07	-29.4	17.0	348	2.7
2020-01-08	-30.4	17.2	331	5.5
2020-01-09	-31.2	11.8	317	5.5
2020-01-10	-33.3	10.7	330	4.9
2020-01-11	-35.9	12.0	336	4.4
2020-01-12	-35.0	12.2	319	4.7
2020-01-13	-34.6	7.4	276	5.2
2020-01-14	-34.7	11.0	308	4.7
2020-01-15	-36.8	14.6	341	4.4
2020-01-16	-28.6	21.9	333	3.0
2020-01-17	-22.3	21.9	331	2.4
2020-01-18	-23.1	17.3	322	4.9
2020-01-19	-24.4	22.5	316	3.3
2020-01-20	-17.6	32.6	318	7.6
2020-01-21	-25.8	9.5	2	14.7
2020-01-22	-28.4	6.0	24	9.2
2020-01-23	-34.8	16.1	357	16.6
2020-01-24	-31.4	6.8	56	4.7
2020-01-25	-26.7	3.9	75	8.8
2020-01-26	-26.6	2.8	24	16.8
2020-01-27	-24.4	10.8	194	11.6
2020-01-28	-21.6	20.4	322	25.5
2020-01-29	-22.4	15.3	180	9.0
2020-01-30	-15.8	11.9	293	3.7
2020-01-31	-17.4	24.1	171	4.7
2020-02-01	-14.9	14.3	308	6.0
2020-02-02	-21.0	11.6	36	6.5
2020-02-03	-20.9	13.3	52	9.2
2020-02-04	-28.1	15.9	353	25.4
2020-02-05	-33.8	16.1	329	20.3
2020-02-06	-31.3	16.8	346	20.1

Date	Temperature (°C)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Radiation (watts/m^2)
2020-02-07	-33.9	11.9	336	28.3
2020-02-08	-28.8	19.4	269	17.0
2020-02-09	-34.1	20.9	335	18.2
2020-02-10	-33.1	14.5	315	18.3
2020-02-11	-35.1	10.2	336	24.2
2020-02-12	-38.6	19.1	349	30.6
2020-02-13	-35.3	21.4	341	31.6
2020-02-14	-36.0	13.2	334	34.5
2020-02-15	-35.9	13.1	337	20.5
2020-02-16	-36.5	21.1	341	24.8
2020-02-17	-31.1	20.3	323	29.9
2020-02-18	-32.0	17.2	327	28.7
2020-02-19	-35.0	18.2	344	32.0
2020-02-20	-30.1	12.5	332	44.7
2020-02-21	-27.8	19.2	121	20.2
2020-02-22	-25.8	23.6	48	42.8
2020-02-23	-33.8	9.1	348	44.3
2020-02-24	-34.4	11.9	357	45.7
2020-02-25	-30.3	20.5	348	36.6
2020-02-26	-30.2	18.3	338	47.0
2020-02-27	-30.0	7.7	203	49.2
2020-02-28	-20.2	17.9	184	28.9
2020-02-29	-19.0	13.8	155	44.8
2020-03-01	-16.5	20.4	149	35.8
2020-03-02	-17.5	24.7	173	39.4
2020-03-03	-31.3	14.6	348	67.6
2020-03-04	-31.0	14.3	355	80.9
2020-03-05	-31.0	6.1	42	79.2
2020-03-06	-23.2	19.2	174	54.4
2020-03-07	-31.6	20.7	341	63.6
2020-03-08	-38.5	27.0	335	72.4
2020-03-09	-36.0	14.6	338	95.5
2020-03-10	-29.2	12.4	185	93.4
2020-03-11	-22.4	18.3	180	93.0
2020-03-12	-22.0	15.6	150	82.0
2020-03-13	-22.8	7.4	33	98.1
2020-03-14	-32.2	14.5	352	107.4
2020-03-15	-29.5	16.5	271	109.1
2020-03-16	-17.0	20.8	231	87.7

Date	Temperature (°C)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Radiation (watts/m^2)
2020-03-17	-17.8	21.7	337	98.8
2020-03-18	-27.4	23.3	341	126.3
2020-03-19	-29.7	21.2	336	136.2
2020-03-20	-29.3	20.5	334	130.6
2020-03-21	-28.0	9.7	339	145.6
2020-03-22	-19.9	19.2	197	129.5
2020-03-23	-13.6	11.5	203	131.0
2020-03-24	-17.5	25.7	339	126.2
2020-03-25	-25.1	13.5	294	158.5
2020-03-26	-24.0	11.3	200	155.4
2020-03-27	-18.4	14.6	170	157.4
2020-03-28	-23.6	21.0	339	124.6
2020-03-29	-28.3	18.7	11	140.8
2020-03-30	-26.6	22.2	337	178.4
2020-03-31	-27.3	6.8	299	180.2
2020-04-01	-25.8	9.7	26	180.2
2020-04-02	-20.2	24.9	64	140.2
2020-04-03	-11.9	30.5	105	232.9
2020-04-04	-13.4	24.6	103	180.7
2020-04-05	-13.8	21.2	95	202.8
2020-04-06	-12.9	13.0	71	193.0
2020-04-07	-14.1	5.0	23	206.5
2020-04-08	-14.9	6.9	70	211.9
2020-04-09	-11.7	10.6	76	211.0
2020-04-10	-13.3	5.3	79	187.1
2020-04-11	-16.7	6.4	20	183.9
2020-04-12	-16.8	14.8	334	198.9
2020-04-13	-19.7	24.8	343	216.5
2020-04-14	-20.8	27.4	327	193.8
2020-04-15	-18.2	24.5	346	227.9
2020-04-16	-16.6	21.9	344	222.6
2020-04-17	-19.4	24.8	334	205.9
2020-04-18	-23.9	24.7	336	217.4
2020-04-19	-22.6	25.1	337	226.5
2020-04-20	-22.0	15.8	333	244.0
2020-04-21	-21.4	8.3	349	246.4
2020-04-22	-19.5	3.0	47	214.9
2020-04-23	-15.4	19.1	157	158.9
2020-04-24	-10.4	27.3	157	178.1

Date	Temperature (°C)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Radiation (watts/m^2)
2020-04-25	-11.4	13.8	206	224.7
2020-04-26	-13.7	9.4	74	219.0
2020-04-27	-12.2	17.1	58	218.0
2020-04-28	-18.1	19.6	21	264.8
2020-04-29	-17.4	9.1	145	285.1
2020-04-30	-8.9	22.1	165	190.7
2020-05-01	-3.7	13.7	96	212.2
2020-05-02	-12.4	19.1	1	292.7
2020-05-03	-15.3	17.4	349	290.8
2020-05-04	-9.3	10.4	212	266.4
2020-05-05	-4.8	16.9	246	175.4
2020-05-06	-11.9	33.1	344	288.8
2020-05-07	-11.9	24.9	5	279.2
2020-05-08	-6.8	10.7	30	191.4
2020-05-09	-9.4	20.2	2	293.0
2020-05-10	-12.5	24.3	12	313.2
2020-05-11	-14.2	27.1	346	310.5
2020-05-12	-11.2	22.6	341	304.4
2020-05-13	-10.1	8.8	20	294.1
2020-05-14	-11.1	21.0	334	307.4
2020-05-15	-12.3	11.3	346	214.1
2020-05-16	-12.0	15.1	206	299.2
2020-05-17	-4.4	14.9	177	321.5
2020-05-18	-3.2	24.0	166	178.4
2020-05-19	-6.9	8.9	284	331.8
2020-05-20	-5.5	18.8	90	122.3
2020-05-21	-5.6	25.1	321	283.5
2020-05-22	-5.8	26.7	328	275.1
2020-05-23	-4.5	12.1	19	201.8
2020-05-24	-2.8	20.5	132	137.8
2020-05-25	-0.7	17.2	67	155.7
2020-05-26	-3.6	19.7	347	265.6
2020-05-27	-7.8	11.7	332	279.6
2020-05-28	-8.4	13.7	2	303.9
2020-05-29	-4.8	19.2	340	281.7
2020-05-30	-2.8	19.0	328	220.0
2020-05-31	-1.9	10.5	352	295.7
2020-06-01	-2.1	12.7	323	238.6
2020-06-02	-2.6	7.2	310	265.2

Date	Temperature (°C)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Radiation (watts/m^2)
2020-06-03	-2.4	23.5	145	162.5
2020-06-04	-0.4	26.4	131	282.8
2020-06-05	-0.3	14.0	75	321.8
2020-06-06	-1.4	14.3	351	341.0
2020-06-07	0.7	17.4	326	275.3
2020-06-08	-0.4	17.8	355	192.2
2020-06-09	-0.5	14.9	355	325.9
2020-06-10	0.5	10.2	23	328.0
2020-06-11	0.9	10.7	359	276.7
2020-06-12	2.8	17.4	346	358.3
2020-06-13	4.5	12.1	294	366.3
2020-06-14	5.6	10.8	312	288.9
2020-06-15	4.6	14.3	340	308.9
2020-06-16	6.4	6.2	120	333.3
2020-06-17	3.9	9.4	19	281.1
2020-06-18	5.8	12.0	342	360.4
2020-06-19	8.4	10.1	327	342.0
2020-06-20	11.6	12.3	216	345.4
2020-06-21	12.8	12.4	214	320.7
2020-06-22	12.6	12.5	206	324.6
2020-06-23	13.2	9.1	208	300.9
2020-06-24	16.6	9.8	240	325.1
2020-06-25	11.7	15.4	173	297.7
2020-06-26	9.9	13.2	162	88.7
2020-06-27	5.5	19.2	146	93.0
2020-06-28	6.9	10.2	161	223.9
2020-06-29	11.6	6.4	98	265.5
2020-06-30	14.6	10.1	301	338.8
2020-07-01	21.1	7.3	254	442.0
2020-07-02	18.3	8.7	211	345.3
2020-07-03	15.0	10.6	188	343.4
2020-07-04	13.4	8.6	174	261.2
2020-07-05	11.2	14.8	184	286.1
2020-07-06	10.7	16.6	174	317.7
2020-07-07	11.6	17.3	147	287.0
2020-07-08	10.6	7.2	93	76.1
2020-07-09	12.3	10.7	110	261.4
2020-07-10	10.7	8.4	141	115.4
2020-07-11	14.9	11.4	314	316.1

Date	Temperature (°C)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Radiation (watts/m^2)
2020-07-12	15.3	9.5	315	323.6
2020-07-13	13.0	18.0	193	317.0
2020-07-14	9.7	23.8	169	327.6
2020-07-15	11.1	28.9	133	237.8
2020-07-16	12.8	20.7	114	275.4
2020-07-17	13.6	10.9	343	114.4
2020-07-18	12.6	23.2	330	97.9
2020-07-19	14.1	22.4	347	260.3
2020-07-20	14.1	19.5	359	295.3
2020-07-21	16.5	12.5	333	316.3
2020-07-22	17.9	14.6	319	311.4
2020-07-23	16.2	8.8	155	298.3
2020-07-24	16.8	8.6	190	303.7
2020-07-25	13.9	14.8	120	288.3
2020-07-26	12.1	22.4	139	176.0
2020-07-27	13.7	23.5	126	211.6
2020-07-28	15.6	15.0	131	297.3
2020-07-29	14.4	10.5	172	300.5
2020-07-30	12.9	19.8	179	203.5
2020-07-31	16.9	14.2	314	233.5
2020-08-01	12.5	23.9	347	158.2
2020-08-02	15.0	18.6	348	272.6
2020-08-03	16.7	10.1	261	252.3
2020-08-04	20.1	13.6	208	247.9
2020-08-05	20.4	16.9	191	259.4
2020-08-06	22.8	8.4	283	271.3
2020-08-07	17.8	8.7	126	169.9
2020-08-08	13.0	11.9	126	157.5
2020-08-09	11.3	16.3	178	213.1
2020-08-10	11.9	21.1	129	137.9
2020-08-11	12.9	16.5	98	75.2
2020-08-12	13.1	10.4	92	261.6
2020-08-13	15.7	6.5	312	146.1
2020-08-14	11.2	16.4	159	193.2
2020-08-15	10.9	21.7	153	56.0
2020-08-16	14.3	9.4	144	217.5
2020-08-17	12.7	22.3	342	112.4
2020-08-18	11.1	19.0	334	163.9
2020-08-19	8.1	14.4	334	79.7

Date	Temperature (°C)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Radiation (watts/m^2)
2020-08-20	9.6	10.5	208	209.2
2020-08-21	8.6	25.0	167	52.5
2020-08-22	8.5	18.3	343	142.4
2020-08-23	6.9	17.2	354	109.6
2020-08-24	9.4	6.2	323	216.0
2020-08-25	10.4	8.8	356	214.7
2020-08-26	11.0	7.5	237	224.2
2020-08-27	10.3	16.7	170	251.4
2020-08-28	8.7	15.0	155	95.4
2020-08-29	8.9	10.0	166	168.8
2020-08-30	9.1	7.6	206	77.8
2020-08-31	8.7	17.5	172	82.1
2020-09-01	9.1	34.2	136	59.6
2020-09-02	8.7	19.7	139	32.7
2020-09-03	9.1	8.6	107	78.3
2020-09-04	8.4	11.8	348	82.9
2020-09-05	8.9	16.7	15	80.7
2020-09-06	7.6	20.2	7	48.2
2020-09-07	5.6	20.2	33	53.1
2020-09-08	4.2	15.8	20	111.7
2020-09-09	3.3	11.6	302	129.9
2020-09-10	6.2	19.2	184	40.9
2020-09-11	6.0	17.9	344	79.2
2020-09-12	3.4	15.0	350	119.6
2020-09-13	3.1	5.1	41	164.7
2020-09-14	5.6	15.3	340	172.9
2020-09-15	1.2	17.5	307	106.9
2020-09-16	1.3	18.9	261	58.6
2020-09-17	1.2	20.8	5	68.0
2020-09-18	0.8	11.2	326	82.6
2020-09-19	1.3	8.8	270	79.4
2020-09-20	4.9	13.4	195	99.6
2020-09-21	6.3	14.9	301	50.3
2020-09-22	3.9	13.1	73	33.6
2020-09-23	3.0	13.1	55	47.2
2020-09-24	2.1	9.1	334	60.1
2020-09-25	4.2	9.3	210	106.8
2020-09-26	3.7	20.2	143	22.8
2020-09-27	3.9	21.1	99	37.7

Date	Temperature (°C)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Radiation (watts/m^2)
2020-09-28	2.7	13.8	54	117.8
2020-09-29	1.0	9.5	115	73.9
2020-09-30	1.6	18.7	102	49.8
2020-10-01	0.1	15.5	17	101.8
2020-10-02	-0.4	13.5	339	101.0
2020-10-03	1.1	12.2	324	37.8
2020-10-04	0.0	11.9	324	40.3
2020-10-05	-0.2	5.7	279	17.8
2020-10-06	-1.3	19.1	357	79.9
2020-10-07	-1.4	21.0	345	38.9
2020-10-08	-0.7	36.0	336	27.4
2020-10-09	-0.9	18.2	347	89.2
2020-10-10	-2.3	8.5	356	58.5
2020-10-11	-2.7	10.6	342	42.4
2020-10-12	-1.2	17.4	135	32.6
2020-10-13	2.0	31.8	123	6.4
2020-10-14	2.2	19.2	143	19.4
2020-10-15	1.2	21.3	142	33.3
2020-10-16	-0.7	12.6	136	42.6
2020-10-17	-1.5	9.4	94	63.0
2020-10-18	-1.5	6.2	87	49.6
2020-10-19	-2.3	4.0	35	59.0
2020-10-20	-5.2	5.9	303	30.9
2020-10-21	-6.7	14.1	307	31.1
2020-10-22	-5.6	15.6	290	44.3
2020-10-23	-4.2	20.7	334	32.7
2020-10-24	-6.2	20.7	344	42.5
2020-10-25	-7.0	9.3	340	25.7
2020-10-26	-7.5	13.7	347	29.0
2020-10-27	-6.9	15.4	237	25.5
2020-10-28	-9.9	30.0	355	36.6
2020-10-29	-11.6	35.4	353	36.4
2020-10-30	-12.2	16.9	296	27.6
2020-10-31	-13.2	26.5	328	33.0
2020-11-02	-19.5	18.9	8	0.0
2020-11-03	-18.6	21.5	359	32.7
2020-11-04	-17.5	10.7	37	17.4
2020-11-05	-11.3	18.7	258	24.0
2020-11-06	-16.2	47.2	351	22.4

Date	Temperature (°C)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Radiation (watts/m^2)
2020-11-07	-18.7	17.7	11	19.7
2020-11-08	-13.9	12.4	38	14.9
2020-11-09	-17.9	5.8	279	18.9
2020-11-10	-14.4	8.0	241	13.4
2020-11-11	-13.5	20.3	242	12.4
2020-11-12	-19.8	26.1	310	15.6
2020-11-13	-19.9	16.7	266	20.4
2020-11-14	-15.2	22.3	225	13.9
2020-11-15	-23.2	19.0	359	18.1
2020-11-16	-27.0	12.6	5	17.2
2020-11-17	-18.8	19.7	347	9.4
2020-11-18	-14.9	31.8	335	11.2
2020-11-19	-19.8	7.8	251	11.7
2020-11-20	-19.9	14.9	308	10.3
2020-11-21	-23.4	13.3	295	9.2
2020-11-22	-20.9	11.2	274	7.1
2020-11-23	-24.4	19.1	345	6.9
2020-11-24	-22.7	12.8	324	5.3
2020-11-25	-24.0	4.8	254	4.5
2020-11-26	-18.4	0.9	8	2.3
2020-11-27	-13.9	26.9	75	8.0
2020-11-28	-22.9	13.6	8	7.1
2020-11-29	-27.4	3.6	336	12.6
2020-11-30	-18.8	9.2	189	3.7
2020-12-01	-13.5	16.3	231	6.3
2020-12-02	-13.7	9.8	124	4.4
2020-12-03	-8.4	7.5	59	5.4
2020-12-04	-10.1	12.6	31	4.8
2020-12-05	-10.7	6.6	250	3.7
2020-12-06	-10.4	6.1	33	4.5
2020-12-07	-6.4	16.3	194	3.4
2020-12-08	-7.4	12.7	77	4.6
2020-12-09	-5.7	11.4	129	2.7
2020-12-10	-11.5	25.9	6	3.9
2020-12-11	-22.3	34.7	349	1.9
2020-12-12	-32.5	18.6	325	1.8
2020-12-13	-34.5	10.8	243	1.5
2020-12-14	-34.2	8.1	260	1.8
2020-12-15	-38.3	4.7	255	1.6

Date	Temperature (°C)	Wind Speed (km/h)	Wind Direction (deg.)	Solar Radiation (watts/m^2)
2020-12-16	-34.3	2.8	176	1.3
2020-12-17	-33.2	1.5	186	1.2
2020-12-18	-37.8	4.6	345	1.5
2020-12-19	-34.1	15.5	9	1.8
2020-12-20	-37.1	19.5	348	1.6
2020-12-21	-33.7	25.3	345	2.6
2020-12-22	-31.3	34.5	338	3.1
2020-12-23	-24.5	22.4	352	1.4
2020-12-24	-32.8	20.7	334	1.4
2020-12-25	-28.6	8.0	195	1.4
2020-12-26	-19.0	21.5	122	1.7
2020-12-27	-19.9	18.5	97	1.9
2020-12-28	-24.5	42.8	356	2.0
2020-12-29	-26.0	46.4	340	2.5
2020-12-30	-27.9	41.0	335	2.3
2020-12-31	-24.3	28.4	341	2.0