Woodfibre LNG 2024 Annual Air Quality Monitoring Station Report

March 20, 2025

Prepared for:
Woodfibre LNG General Partner Inc

Prepared by:
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Project/File:
123222160

Stantec

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Executive Summary

Woodfibre LNG General Partner Inc. (Woodfibre LNG) is developing the Woodfibre Liquefied Natural Gas Project at the former Woodfibre Pulp Mill site near Skwxwú7mesh (Squamish), British Columbia. In line with regulatory requirements, Stantec developed the Floatel Air Quality Monitoring and Mitigation Plan (FAQMMP) to address the air quality monitoring conditions set out by the Environmental Assessment Office (EAO) under Amendment #3. The plan explicitly aims to demonstrate compliance with air quality standards and to support Woodfibre LNG in determining whether mitigation measures to protect worker health are required during the Project's construction phase.

The monitoring program was implemented to continuously monitor the ambient air quality surrounding the Project site and demonstrate compliance with the regulatory conditions stipulated by the EAO. The program focused on monitoring particulate matter (PM_{10}, $PM_{2.5}$, and TSP), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and volatile organic compounds (VOCs) to protect nearby workers and residents. Air quality data was continuously collected using an Aeroqual AQS1 sampler and, later, an Air Quality Monitoring Station (AQMS) equipped with US EPA-designated instruments. Monthly passive sampling for SO_2 and VOCs was conducted, and data from the meteorology station, which measures wind speed, wind direction, ambient temperature, and rainfall, was also collected to support the air quality analysis.

This annual report presents a summary of the measured ambient air quality during 2024. The monitoring period spanned from July 3 to December 31, 2024. Initially, the Aeroqual AQS1 system was used for interim monitoring (July 3 - October 24). The AQMS was installed and began operation on September 3, 2024, and data has been successfully collected since then. The hourly data revealed that the measured NO_2 concentrations ranged from 0 to 40.2 ppb and remained below British Columbia Air Quality Objectives (BCAQO) and Canadian Ambient Air Quality Standards (CAAQS) threshold limits. The measured 24-hour average $PM_{2.5}$ concentrations ranged from 3.5 to 20.3 µg/m³, while the measured PM_{10} and TSP concentrations showed greater variability, with PM_{10} concentrations ranging from 5.6 µg/m³ to 71.8 µg/m³ and TSP concentrations from 14.6 µg/m³ to 133.8 µg/m³. The monitoring program recorded one air quality exceedance on October 25, 2024, for PM_{10} and TSP. This ambient air quality exceedance was analyzed in the context of meteorology conditions, and no further mitigation measures were deemed necessary. However, given the locations of the onsite work activities and prevailing wind direction during the elevated concentration period, it is unlikely that the dust plume moved toward the Floatel from any direction. Passive sampling for SO_2 and VOCs indicated low concentrations, generally below detection limits, with no significant compounds identified that would require further investigation.

Overall, the ambient air quality monitoring program successfully supported regulatory compliance and demonstrated that the air quality remained within acceptable ambient air quality regulatory standards throughout the 2024 monitoring period. No complaints were received from Floatel residents during this period, indicating that air quality was not a concern.

Table of Contents

List of Tables

List of Figures

List of Photos

List of Appendices

Acronyms / Abbreviations

AGAT	AGAT Laboratories
AQMS	Air Quality Monitoring Station
AQO	British Columbia Air Quality Objective(s)
BC	British Columbia
BC ENV	British Columbia Ministry of Environment and Parks
BCFSM	British Columbia Field Sampling Manual
CAAQS	Canadian Ambient Air Quality Standard(s)
CCME	Canadian Council of Ministers of the Environment
EAO	British Columbia Environmental Assessment Office
EAC	Environmental Assessment Certificate
ECCC	Environment and Climate Change Canada
Floatel	The marine-based work camp, associated facilities and mooring infrastructure dedicated to house approximately 650 Workers during the Construction and Operations of the Project
FAQMMP	Floatel Air Quality Monitoring and Mitigation Plan
FEM	Federal Equivalent Method
FRM	Federal Reference Method
NO_2	Nitrogen Dioxide
NAPS	National Air Pollution Surveillance
PM	Particulate Matter
$PM_{2.5}$	Fine Particulate Matter (less than 2.5 microns (µm) in aerodynamic diameter)
PM_{10}	Particulate Matter (less than 10 microns (µm) in aerodynamic diameter)
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide
SSI	Size Selective Inlet
TSP	Total Suspended Particulate
US EPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds
WMO	World Meteorological Organization
Woodfibre LNG	Woodfibre LNG General Partner Inc.

1 Introduction

The 2024 air quality monitoring program is intended to collect information on the ambient air quality conditions and compare the results to provincial and federal standards and present the results in an annual report for the Woodfibre Liquefied Natural Gas Project. The air quality monitoring program completed during 2024 includes:

- Continuous ambient air quality monitoring for total suspended particulates (TSP), particulate matter 0-10 micron (µm) in diameter (PM_{10}), and particulate matter 0-2.5 µm in diameter ($PM_{2.5}$), and nitrogen dioxide (NO_2) using an Aeroqual AQS1 air quality monitor;
- Collecting continuous TSP, PM_{10}, and $PM_{2.5}$ concentrations from a Beta Attenuation Monitors (BAMs), and NO_2 gas analyzer installed at the Air Quality Monitoring Station (AQMS);
- Passive sampling for Sulphur Dioxide (SO_2) and Volatile Organic Compounds (VOC) at the AQMS; and
- Data collection from the on-site Meteorology station.

The background and ambient air quality objectives for the 2024 monitoring program are summarized below. Section 2 contains a detailed description of the meteorology monitoring program and results. Section 3 contains a detailed description of the ambient air quality monitoring program and results. Section 4 presents an overall summary and Section 5 contains the references.

1.1 Background and Objectives

Woodfibre LNG General Partner Inc. (Woodfibre LNG) is developing the Woodfibre Liquefied Natural Gas Project (the Project) at the former Woodfibre Pulp Mill site, approximately seven kilometres southwest of Skwxwú7mesh (Squamish), British Columbia (BC). In October 2019, Woodfibre LNG applied to amend the Environmental Assessment Certificate (EAC) to include a self-contained floating housing facility (floatel) as temporary accommodations for off-duty construction workers. As a result of this application, an amendment to EAC #E15-02 was approved on November 1, 2023, allowing a floatel for temporary worker accommodations. To support onsite air quality monitoring, Stantec Consulting Ltd. (“Stantec”) prepared the Floatel Air Quality Monitoring and Mitigation Plan (FAQMMP; Rev 6, July 5, 2024) on behalf of Woodfibre LNG (Woodfibre LNG 2024). The FAQMMP was developed to comply with Condition 30 of the Environmental Assessment Office (EAO) Amendment #3 (EAO 2023), which pertains specifically to Floatel air quality monitoring. The Floatel was officially brought into service and made available for worker accommodations on June 21, 2024. The objective of the monitoring is to demonstrate compliance with air quality standards and assist Woodfibre LNG in determining whether mitigation during the Project's construction phase is required to protect worker health. Further details regarding the purpose, duration, and compliance framework are available in the FAQMMP Rev 6 July 5, 2024 (Woodfibre LNG 2024). The Aeroqual AQS1 ambient monitoring system was operated on an interim basis until a new AQMS, equipped with a Thermo Fisher Scientific Model 42i gas analyzer and three Met One Instrument’s BAM 1020s, and passive sampling for SO_2 and VOC, could be deployed.

The AQMS, installed and calibrated on September 3, 2024, has since been continuously measuring $PM_{2.5}$, PM_{10}, TSP, and NO_2 concentrations, along with passive sampling and analysis for SO_2 and VOCs. The Aeroqual AQS1 air sampler was an interim solution between July and October 2024.

The air contaminants monitored at the AQMS, along with their corresponding Canadian Ambient Air Quality Standards (CAAQS) (CCME 2024) and British Columbia Air Quality Objectives (BCAQO) (BC ENV 2021) regulatory criteria, are presented in Table 1.1 and Table 1.2, respectively. There are no BCAQOs or CAAQS for VOCs, and no CAAQS for TSP and PM_{10}.

Table 1.1 Summary of Current and 2025 Canadian Ambient Air Quality Standards for the Contaminants of Potential Concern

Substance	Averaging Period	Concentration [a]			
		(µg/m³) [b, c]		(ppbv) [d]	
		2020	2025	2020	2025
Nitrogen Dioxide (NO_2)	1-hour [e]	113	79	60	42
	Annual [f]	32	23	17.0	12.0
Sulphur Dioxide (SO_2)	1-hour [g]	183	170	70	65
	Annual [h]	13	10.4	5.0	4.0
Fine Particulate Matter ($PM_{2.5}$)	24-hour [i]	27	— [j]	-	-
	Annual [k]	8.8	— [j]	-	-

Notes:

[a] Canadian Ambient Air Quality Standards (CCME 2024) for 2020 and 2025.
[b] µg/m³ is the mass of the substance in micrograms per cubic meter of air.
[c] Standard conditions of 25°C and 101.325 kPa are used to convert from µg/m³ to ppbv.
[d] ppbv is the volume of the substance (parts) per billion volumes of air.
[e] The 3-year average of the annual 98th percentile of the daily maximum 1-hour average concentration.
[f] The average over a single calendar year of all 1-hour average concentrations.
[g] The 3-year average of the annual 99th percentile of the daily maximum 1-hour average concentrations.
[h] The average over a single calendar year of all 1-hour average concentrations.
[i] The 3-year average of the annual 98th percentile of the daily 24-hour average concentrations.
[j] Currently under review by the CCME
[k] The 3-year average of the annual average of the daily 24-hour average concentrations.

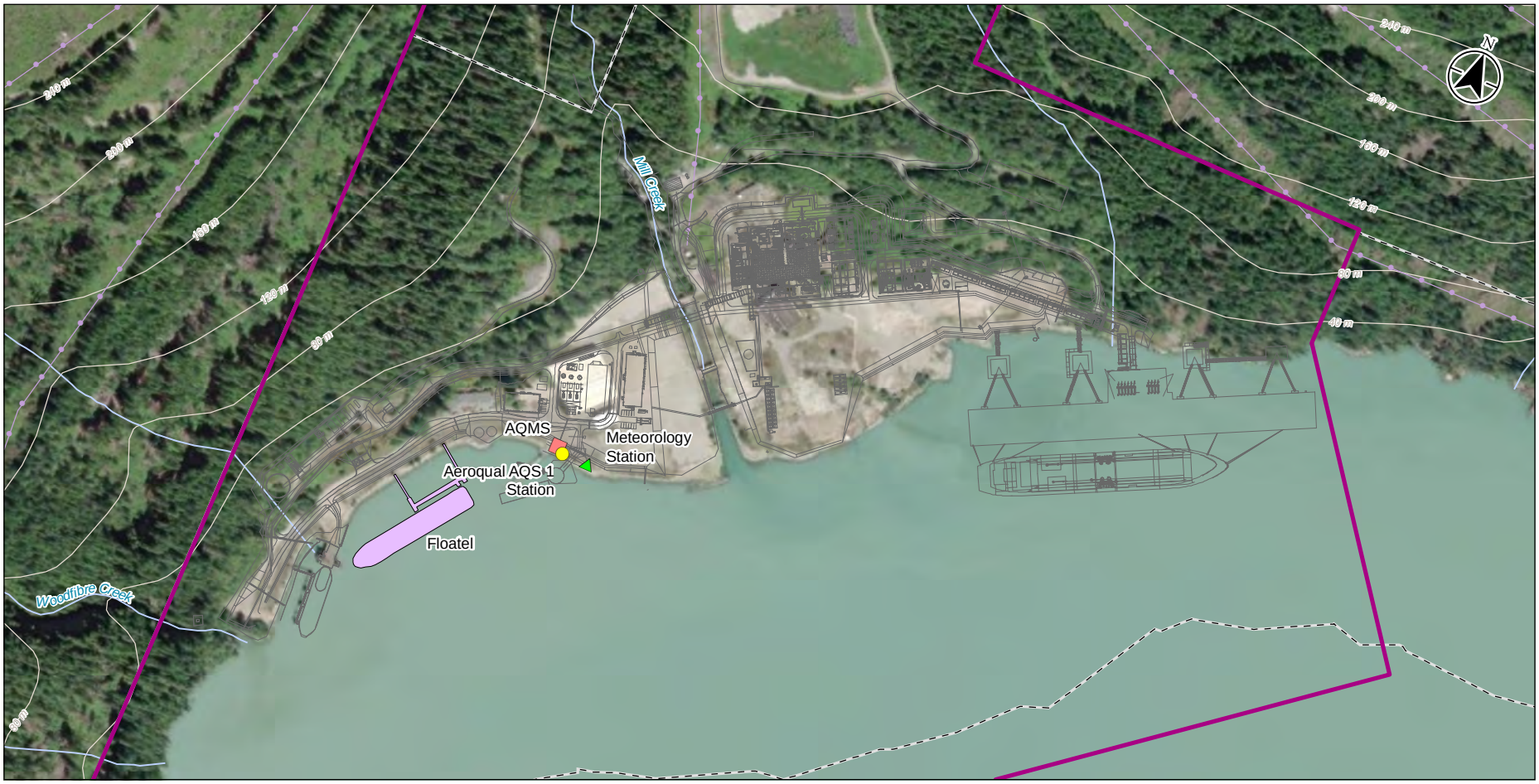
Table 1.2 British Columbia Ambient Air Quality Objectives

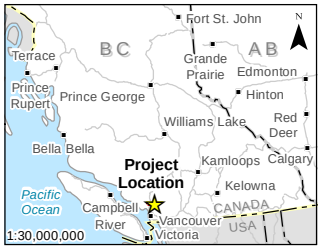
Substance	Averaging Period	Air Quality Objective [a]	
		µg/m^3 [b, c]	ppbv [d]
Nitrogen Dioxide (NO_2)	1-hour [e]	113	60
	Annual [f]	32	17
Sulphur Dioxide (SO_2)	1-hour [g]	183	70
	Annual [h]	13	5
Fine Particulate Matter ($PM_{2.5}$)	24-hour [i]	25	—
	Annual [j]	8.0	—
Coarse Particulate Matter (PM_{10})	24-hour	50	—
Total Suspended Particulate (TSP)	24-hour	120	—
	Annual [k]	60	—

Notes:
[a] British Columbia Air Quality Objectives (BC ENV 2021).
[b] µg/m^3 is the mass of the substance in micrograms per cubic meter of air.
[c] Standard conditions of 25°C and 101.325 kPa are used to convert from µg/m^3 to ppbv.
[d] ppbv is the volume of the substance (parts) per billion volumes of air.
[e] Achievement based on annual 98th percentile of daily 1-hour average maximum (D1HM), averaged over three consecutive years.
[f] Achievement based on annual average of 1-hour average concentrations over one year.
[g] Achievement based on annual 99th percentile of daily 1-hour average maximum (D1HM), averaged over three consecutive years.
[h] Achievement based on annual average of 1-hour concentrations over one year.
[i] Achievement based on annual 98th percentile of daily average, averaged over one year.
[j] Achievement based on annual average, averaged over one year.
[k] Based on geometric mean.

1.2 Monitoring Locations

The location of the AQMS (UTM Easting 481,569 m and Northing 5,501,374 m, NAD83 datum, zone 10U) is adjacent to the existing meteorology station (UTM Easting 481,610 m and Northing 5,501,369 m, NAD83 datum, zone 10U) currently in operation at Woodfibre LNG site (Woodfibre LNG 2024). The location of the Aeroqual AQS1 air monitoring sampler was (UTM Easting 481,577 m and Northing 5,501,370 m, NAD83 datum, zone 10U), also installed adjacent to and between the AQMS and meteorology stations and was operational from July 3 to October 24, 2024. Passive samplers for SO_2 and VOCs were installed on the roof of the AQMS. Figure 1.1 provides a map of the Woodfibre LNG site, showing the locations of the Aeroqual AQS1, AQMS, and meteorology stations.





- Transmission Line
- Topographic Contour
- Watercourse
- Municipal Boundary
- Project Design Linework
- Floatel
- Certified Project Area
- AQMS
- Aeroqual AQS 1 Station
- Meteorology Station

0 50 100 150 200 250 m

1:7,500 (at original document size of 8.5x11)

Notes
1. Coordinate System: NAD 1983 UTM Zone 10N
2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada
3. Orthoimagery: ESRI World Imagery

Stantec

Project Location:
Woodfibre, British Columbia

Project Number: 123222160
Prepared by JPOUCHER on 20250103
Requested by KCHUEN on 20250103
Checked by YMA on 20240828

Client/Project/Report

Woodfibre LNG

Figure No.
1.1

Title
Map of Woodfibre LNG Site

2 Meteorology

Meteorology data collection commenced with the installation of the Woodfibre LNG meteorology station on March 30, 2022. The objective of the meteorology monitoring program is to collect site-specific data that supports the interpretation of air quality monitoring results. Real-time on-site meteorology data plays a critical role in understanding the dispersion, transport, and potential sources of pollutants. This data provides insight into how local weather conditions, such as wind speed, wind direction, temperature, and precipitation, influence air quality trends. The program provides a comprehensive approach to monitoring and managing air quality on-site by integrating meteorology data with the air quality measurements.

2.1 Methods and Data Validation

The Woodfibre LNG meteorology station is equipped to collect a suite of measurements, the installed sensors are summarized in Table 2.1. While the table includes all the measured parameters, this annual air quality report explicitly presents data for wind speed/direction, air temperature, and rainfall only, excluding pressure and relative humidity.

The Woodfibre LNG Meteorology Station siting, sensor installation, data collection and instrument maintenance were conducted according to the Environment and Climate Change Canada (ECCC) Meteorological Service of Canada (MSC) guidelines (Environment Canada 2004) and the British Columbia Ministry of Environment (BC MOE 2016). The ECCC guidelines follow, whenever possible, the standards set by the World Meteorological Organization (WMO) (Environment Canada 2012). The data quality control of the meteorology station was maintained according to MSC guidelines for Co operative Climatological Auto-stations (Environment Canada 2004), British Columbia Field Sampling Manual (BCFSM) (BC ENV 2020) and the United States Environmental Protection Agency's (US EPA) Meteorological Monitoring Guidelines for Regulatory Modeling applications (US EPA 2000).

Table 2.1 Summary of Data Collection Equipment installed at the Meteorology Station

Parameter	Units	Sensor	Datalogger and Communications	Power Supply
Wind Speed and Direction	m/s and Degrees	Model 05108L40 (Jul 1 - Nov 28) and Model 05305-10A (Nov 28 – Dec 31) RM Young Company	Campbell Scientific CR310Cell205: Measurement & Control Datalogger with CELL205 modem (4G LTE CAT1)	Solar panel: SP20L10 Solar Panel 20-Watt 12 Volt Battery: BP8.5 Battery Rechargeable Lead Acid 12 Volt 8.5 Amp-hour
Wind Direction	Degrees			
Air Temperature	°C	Rotronics HC2S3L		
Relative Humidity	%			
Rainfall	mm	Tipping Bucket Rain Gauge SBS500L EML		
Barometric Pressure	hPa	Campbell Scientific BaroVUE10 Digital barometer		

2.2 Results and Discussion

The daily maximum and average wind speeds, daily maximum, minimum, and average air temperatures and daily rainfall precipitation amounts are presented in Appendix A (Table A.1), with monthly averages (July to December 2024) summarized in Table 2.2. Climate normal (1991 to 2020) from ECCC MSC Squamish meteorology station (Government of Canada 2024) are presented in Table 2.3. No daily data gaps were observed for the monitoring period from July 1 to December 31, 2024.

Table 2.2 Monthly Meteorology Conditions at the Woodfibre LNG Site Meteorology Station (July 1 to December 31, 2024)

Monitoring Month	Wind Speed (m/s)		Ambient Temperature (°C)			Total Rainfall (mm)
	Maximum	Average	Minimum	Maximum	Average	
July	11.1	1.1	12.2	29.1	19.3	19.6
August	11.8	1.0	9.7	27.2	18.2	71.8
September	10.8	1.0	5.7	27.3	15.7	91.8
October	10.2	1.1	4.7	19.7	10.1	385.8
November	12.2	1.0	0.0	11.9	5.8	316.0
December	12.2	1.2	0.9	13.1	5.1	428.6

2.2.1 Wind Speed and Direction

Summaries of the monthly averages and monthly maximum gusts for wind speed are presented in Table 2.2. The trends in daily and monthly average wind speeds and daily and monthly maximum wind speeds are illustrated graphically in Figure B.1 and Figure B.2 (Appendix B), respectively. The monthly wind speed data shows the maximum wind speeds ranging from 10.2 m/s in October to 12.2 m/s in November and December. The average wind speeds remained relatively low, varying between 1.0 m/s and 1.2 m/s. July and August recorded the highest maximum gusts at 11.1 m/s and 11.8 m/s, respectively. The monthly averages show minor fluctuations, with wind speed values around 1.0 to 1.1 m/s.

Figure B.3 (Appendix B) presents a wind rose illustrating wind direction and wind speed frequencies from July 1 to December 31, 2024. During this period, the predominant wind directions were from the northwest. Figure B.4 (Appendix B) provides detailed wind direction and wind speed data for each month from July to December 2024. Across all months, the northwest remained the predominant wind direction, with secondary predominant winds observed from the northeast (especially during July 2024).

2.2.2 Ambient Air Temperature

Table 2.2 summarizes the monthly averages for daily minimum, maximum, and average ambient air temperatures. Figure B.5 and Figure B.6 (Appendix B) summarize the variations in daily and monthly minimum, maximum, and average temperatures over the reporting period, highlighting seasonal trends and patterns.

The ambient air temperature data from July 1 to December 31, 2024, reveals distinct seasonal trends. The daily maximum temperatures ranged from 29.1°C in July to 11.9°C in November, reflecting the gradual transition from the summer to the winter months. The daily minimum temperatures showed a similar pattern, ranging from a high of 12.2°C in July to a low of 0°C in November. The monthly average temperatures followed a steady decline over the monitoring period, starting at 19.3°C in July and dropping to 5.1°C in December.

The measured air temperatures during 2024 closely align with the climate normal (1991 to 2020) for Squamish, BC (Table 2.3), with some notable variations. In July, both the monitored average temperature of 19.3°C and the maximum temperature of 29.1°C were higher than the climate normal of 18.5°C and 24.5°C, respectively, indicating a warmer-than-average July. In contrast, November and December showed some differences. November's measured minimum temperature of 0°C was colder than the climate normal of 1.7°C, indicating a cooler-than-normal November. However, December's measured minimum temperature of 0.9°C was warmer than the climate normal of -1.0°C, indicating a warmer-than-normal December. The measured data suggests that 2024 experienced a warmer summer and milder winter than the historical climate normal.

2.2.3 Total Rainfall

The monthly rainfall data recorded at the Woodfibre LNG meteorology station is summarized in Table 2.2. For a more detailed examination, Figure B.7 and Figure B.8 (Appendix B) illustrate the daily and monthly total rainfall, respectively. These figures highlight rainfall patterns and trends observed over the reporting period.

The total monthly rainfall recorded at the Woodfibre LNG meteorology station during 2024 shows significant variation across the months. July experienced the lowest rainfall of 19.6 mm, while rainfall totals increased throughout the year. August and September recorded 71.8 mm and 91.8 mm, respectively. October saw a rise to 385.8 mm, and November and December recorded further substantial rainfall totals of 316.0 mm and 428.6 mm, respectively. The total recorded rainfall indicates an increasing trend in the latter part of the year, with high totals in the fall and winter months.

During 2024, the measured total monthly rainfall at the Woodfibre LNG meteorology station showed both drier and wetter-than-normal months. With 19.6 mm of rainfall, July was drier than the historical climate normal (total precipitation) of 47.5 mm (Table 2.3). September also experienced lower-than-normal rainfall, with 91.8 mm compared to the normal of 125.0 mm. November recorded 316.0 mm, drier than the climate normal of 383.0 mm. In contrast, October and December were wetter than the climate normal,

with 385.8 mm recorded in October (compared to 270.8 mm) and 428.6 mm in December (compared to 339.6 mm).

Table 2.3 Environment Canada Climate Canada (ECCC) Station, Squamish, BC Climate Normal (1991 to 2020)

Monitoring Month	Average Daily Temperature	Average Daily Minimum Temperature	Average Daily Maximum Temperature	Absolute Minimum Temperature	Absolute Maximum Temperature	Total Precipitation
	(°C)	(°C)	(°C)	(°C)	(°C)	(mm)
January	1.8	-0.9	4.5	-13.8	13.5	379.1
February	3.8	0.0	7.6	-11.2	20.0	195.2
March	5.9	1.3	10.4	-9.1	25.9	245.5
April	9.1	3.7	14.5	-4.1	31.5	149.6
May	13.1	7.2	18.9	-1.0	35.9	87.9
June	15.7	10.3	21.1	3.3	36.0	66.9
July	18.5	12.4	24.5	5.1	37.6	47.5
August	18.4	12.2	24.5	5.6	36.9	54.0
September	15.0	9.3	20.7	0.8	38.2	125.0
October	9.7	5.4	13.9	-4.7	27.7	270.8
November	4.7	1.7	7.6	-11.2	16.2	383.0
December	1.4	-1.0	3.8	-13.4	15.2	339.6
Average	9.8	5.1	14.3	-4.5	27.9	n/a
Sum	n/a	n/a	n/a	n/a	n/a	2344.1
Monthly Minimum	1.4	-1.0	3.8	-13.8	13.5	47.5
Monthly Maximum	18.5	12.4	24.5	5.6	38.2	383.0

Notes:
n/a = not applicable.

3 Ambient Air Quality Monitoring

3.1 Methods

3.1.1 Continuous Air Quality Monitoring

The selection of sampling locations for the AQMS followed the siting criteria outlined in the BCFSM (BC ENV 2020). The selection of instrumentation for the AQMS was carried out in accordance with the requirements of the United States Environmental Protection Agency (US EPA) equivalent reference methods for ambient air monitoring, as outlined in the Air Monitoring Guideline in Part B1 of the BCFSM (BC ENV 2020). Particulate matter ($PM_{2.5}$, PM_{10}, and TSP) was continuously monitored following the Standard Operating Procedure for the Continuous Measurements of Ambient PM Using a Beta Attenuation Monitor (Reference No: SOP-05a, BC ENV 2020). The NO_2 concentrations were continuously monitored following the Standard Operating Procedure for the Continuous Measurement of Ambient NOx (Reference No: SOP-03) in Part B1 of the British Columbia Field Sampling Manual (BC ENV 2020).

3.1.1.1 Beta Attenuation Monitor (BAM)

Three separate Met One BAM 1020 air quality monitoring instruments collect and analyze $PM_{2.5}$, PM_{10} and TSP concentrations in ambient air. The BAM 1020 has been widely used by Environment and Climate Change Canada (ECCC) at their nation-wide National Air Pollution Surveillance (NAPS) monitoring stations.

The BAM 1020 measures dust particle mass through the principal of beta ray attenuation across the sampling medium (filter tape). A small C-14 (Carbon 14) element emits a constant source of high-energy electrons known as beta rays. The BAM 1020 first conducts a beta ray count across the clean filter tape, records the value internally, and then proceeds to draw ambient air through the filter tape. Dust particles are collected on the filter tape at the primary record location and scintillation counts are conducted to measure the beta attenuation and calculate the PM concentration in micrograms per cubic metre (µg/m³). Particle size differentiation is carried out utilizing a splitter head (size selective inlet or “SSI”) mounted on the end of the sample inlet tube/pipe. Photo 3.1 shows the BAM $PM_{2.5}$ 1020 continuous ambient air quality monitor at the AQMS.

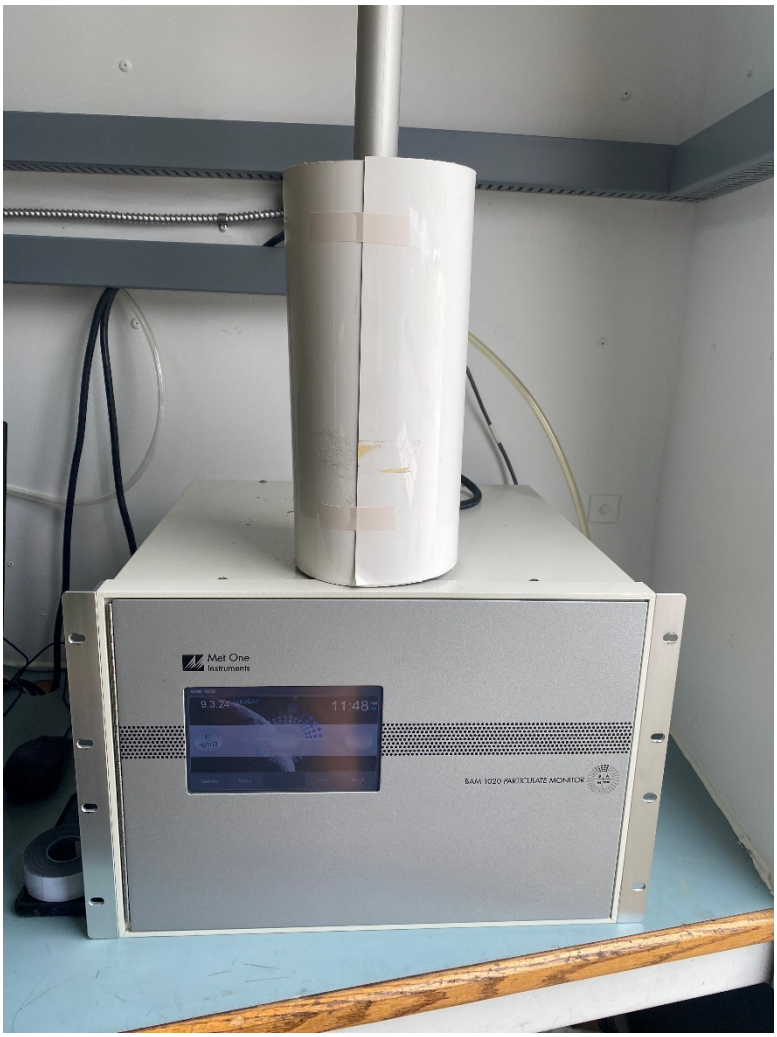


Photo 3.1 BAM 1020 for Continuous $PM_{2.5}$ Monitoring at the Woodfibre LNG AQMS

3.1.1.2 Model 42i (NO-NO_2-Nox) Chemiluminescence Gas Analyzer

The Thermo Scientific Model 42i Chemiluminescence Analyzer, used for continuous monitoring of ambient NO_2 at the AQMS, operates on the principle of chemiluminescence. Nitric oxide (NO) reacts with ozone (O_3) to produce electronically excited nitrogen dioxide, which emits light as it decays to a lower energy state. The intensity of the emitted light is directly proportional to the NO concentration. To measure NO_2, the instrument converts NO_2 to NO using a heated molybdenum converter. The sample is then routed through a solenoid valve directly to the reaction chamber (NO mode) or through the converter (NOx mode). The NOx concentration is measured, and the NO_2 concentration is calculated as the difference between NOx and NO. Photo 3.2 shows the Thermo Scientific Model 42i (NO-NO_2-Nox) gas analyzer installed at the AQMS.

Photo 3.2 Thermo Scientific Model 42i (NO-NO_2-Nox) Gas Analyzer at the Woodfibre LNG AQMS

3.1.1.3 Aeroqual AQS1 Air Quality Monitor

The Aeroqual AQS1 (Photo 3.3) ambient monitoring system was operated on an interim basis from July 3 to October 24, 2024. The Aeroqual AQS1 is not a US EPA Designated Federal Reference and Equivalent Method. The AQS1 Air Quality Monitor measures multiple particle size fractions (including TSP, PM_{10}, and $PM_{2.5}$) and a variety of gas pollutants, including NO_2. For particulate matter ($PM_{2.5}$, PM_{10}, and TSP), the AQS1 uses a laser-based optical particle counter. Air is drawn into the instrument, where particles pass through a focused laser beam. The light scattered by the particles is detected and analyzed to determine their size and concentration. For NO_2, the Aeroqual AQS1 uses an electrochemical gas sensor. This sensor generates an electrical current, measured in nanoamperes, which is proportional to the concentration of NO_2 gas that comes into contact with the sensor.

Photo 3.3 Aeroqual AQS1 for Continuous $PM_{2.5}$, PM_{10}, TSP and NO_2 Monitoring

3.1.2 Passive Air Quality Monitoring

The SO_2 and VOC ambient concentrations were monitored following the Standard Operating Procedure for the Passive/Diffusive Method of Air Sample Collection (Reference No: SOP-07) in Part B1 of the BCFSM (BC ENV 2020). Passive sampling media provided by AGAT Laboratories (AGAT) were used, and the laboratory performed the analysis of the samples to determine SO_2 and VOC concentrations.

3.2 Data Collection, Quality Assurance and Quality Control

The $PM_{2.5}$, PM_{10}, TSP, and NO_2 concentration data are collected using the Envidas Ultimate data acquisition software from the instrument installed at the AQMS. In addition, hourly concentrations for each monitor ($PM_{2.5}$, PM_{10} and TSP) from the Envidas Ultimate software are also verified by comparing with the data trends from each monitor for data correlations and anomalies. The measured $PM_{2.5}$, PM_{10} and TSP concentrations are compared to the BCAQO and the CAAQS. If air quality exceedances are recorded during the monitoring period, they are flagged, Woodfibre LNG is notified, and an air quality exceedance report to identify the cause of the exceedance is prepared.

PM and NO_2 data collected using an Aeroqual AQS1 sampler was continuously recorded on the Aeroqual cloud. The ambient air monitoring and quality assurance/quality control, NAPS guidelines (CCME 2019), BCFSM (BC ENV 2020), and instruments manuals were used as the main reference for the quality assurance and quality control procedure for the AQMS components. Daily online data checks were performed for accuracy, completeness, and to identify any anomalies or equipment malfunctions in the AQMS's measurements. Weekly AQMS visits were performed by the on-site Woodfibre LNG Environmental Monitor (EM) technicians to check the operational conditions of the AQMS including checks on sampling inlets for BAM $PM_{2.5}$, PM_{10}, and TSP samplers and NO_2 gas analyzer, as well as on BAM's filter trap, gas sampling manifold, ambient temperature and pressures sensors, and shelter temperature. The EM technician also checked for active alarms.

As the ambient air quality monitoring data are appended to the Level 0 and master spreadsheets for annual data validation, they undergo strict scrutiny to demonstrate that the dataset is accurate and scientifically defensible, and that equipment performance is assessed. During the data QA/QC process, data continuity was checked, and missing data and the potential causes of missing data were identified and documented. The daily NO_2 gas analyzer zero and span verifications records were checked for abnormal deviations. Multipoint verifications and calibrations were conducted quarterly or following span drifts exceeding ±10% and/or maintenance activities. The data collected between a failed zero/span verification and the subsequent successful verification are considered invalid.

The passive SO_2 and VOC lab report data validation involves reviewing sample collection and laboratory data for accuracy and completeness (number of samples, duplicates and blanks). This includes checking for consistency with chain-of-custody documentation, verifying results against detection limits, and compliance with QA/QC criteria.

Training sessions were conducted with the EM technicians during the 2024 quarterly site visits. The training included daily data checks, weekly AQMS equipment checks for performance and a review of the manufacturer-recommended component replacement, such as BAM filter tape change.

The air quality monitoring data, including calibration, maintenance, and monitoring records, are securely stored and maintained in the Project's SharePoint and electronic file server. Only trained, qualified, and authorized individuals will have access to the data. These records will be kept online for at least five years after the Project completion for documentation, accessibility, and secure archiving.

3.3 Maintenance Activities

Installation and calibration of AQMS were completed on September 3, 2024, and the quarterly calibrations were performed on November 26-27, 2024. The scope of work for the Woodfibre LNG site visit included:

- an AQMS audit
- calibration of the $PM_{2.5}$, PM_{10} and TSP particulate monitors and NO_2 gas analyzers
- annual maintenance of the monitors
- sampling inlet removal and cleaning

- adjusting orientation of the manifold
- filter and component replacements

The BAM $PM_{2.5}$ instrument was replaced on November 27, 2024, as it could not collect valid data between November 15 and November 28 due to a flow controller malfunction and instrument setting. For the BAM $PM_{2.5}$ instrument, which was installed on November 27, the sampling time was adjusted on December 11, between 12:00 and 13:00, from 50 minutes to 42 minutes to meet the United States Environmental Protection Agency (US EPA) Federal Equivalent Method (FEM) requirements for $PM_{2.5}$ monitoring (BC ENV 2020, US EPA 2024, and Met One Instruments 2024). The instrument was intended to operate as a FEM-designated method; however, the sampling time was set to 50 minutes instead of 42 minutes, so it operated as a non-designated method for $PM_{2.5}$ monitoring between November 27, 2024, and December 11, 2024. The data collected while the instrument was operating with a 50-minute sampling time remains valid because the BAM was operating without any errors; however, it falls under a non-designated measurement method rather than the US EPA FEM-approved configuration. The adjustment to 42 minutes is compliant with FEM requirements moving forward.

Data from the NO_2 gas analyzer is missing for November 27 due to quarterly calibration and required cleaning and maintenance of the reaction chamber. Additionally, data is missing for December 1 and December 2 due to a data retrieval issue with the NO_2 gas analyzer. A summary of maintenance and calibration activities conducted in 2024 at the AQMS is presented in Appendix C.

3.4 Results and Discussion

The following sections summarize the validated data for ambient air quality measurements for 2024, including continuous monitoring of $PM_{2.5}$, PM_{10}, TSP, and NO_2 using the BAM 1020 samplers, the Aeroqual AQS1, and the Model 42i NO-NO_2-NOx gas analyzers, as well as SO_2 and VOC data collected using passive sampling media.

Results presented in this report for the Aeroqual AQS1 cover the period from July 3 to October 24, 2024, with the first and last full days of data collection being July 4 and October 23, 2024, respectively. Continuous air monitoring data collected at the AQMS span from September 3 (the installation date) to December 31, 2024, with the first full day of data collection on September 4, 2024. Monthly SO_2 and VOC passive sample media results are presented for the exposure periods of September 1 to November 7, 2024; November 7 to December 2, 2024; and December 2, 2024, to January 7, 2025.

3.4.1 Continuous Air Quality Monitoring

Table 3.1 presents the NO_2 concentrations measured at the Woodfibre LNG AQMS and Aeroqual AQS1 sampling locations during 2024, comparing the monitored values with the applicable BCAQO and CAAQS. Similarly, Table 3.2, Table 3.3, and Table 3.4 present the $PM_{2.5}$ and PM_{10}, and TSP concentrations, respectively, measured at both the AQMS and Aeroqual AQS1 sampling locations, along with comparisons to the relevant ambient air quality standards. Table 3.5 provides the monthly average concentrations of NO_2, $PM_{2.5}$, PM_{10}, and TSP, offering a broader view of the trends over time.

The Langdale Elementary and Squamish Elementary regional air quality stations were selected as reference points for comparisons with Woodfibre LNG monitoring results due to their relative proximity to the construction site and the availability of relevant ambient air quality data. The BC ENV air quality monitoring station at Langdale Elementary provides measurements for $PM_{2.5}$, PM_{10}, NO_2, and SO_2, while Squamish Elementary monitors $PM_{2.5}$, NO_2, and SO_2. There are no BC ENV air quality monitoring stations near the Woodfibre LNG project site that measure TSP and VOCs.

The calculation metrics for the applicable regulatory objectives are presented in Table 1.1 and Table 1.2. The data completeness criteria are established by the Canadian Council of Ministers of the Environment (CCME 2012, CCME 2020). The Aeroqual AQS1 operated from July 3 to October 24, 2024, and the AQMS started operating in September 2024, providing less than 75% valid daily data for the entire year and less than 60% valid data for each three-month period (quarter) of the year. The 2024 data do not meet the data completeness criteria. Therefore, the 2024 particulate matter and NO_2 data are not comprehensively compared to the daily and annual regulatory objectives. Comparisons to the regulatory objectives are provided for information purposes only.

3.4.1.1 NO_2 Results – AQMS and Aeroqual AQS1

A summary of the hourly ambient air monitoring results for NO_2 during 2024 is presented in Figure B.9 (Appendix B), along with the corresponding regulatory criteria and comparisons with Langdale Elementary (BC ENV 2024a) and Squamish Elementary (BC ENV 2024b) regional air quality monitoring stations.

During the 2024 monitoring period, hourly NO_2 concentrations ranged from 0[1] to 40.2 ppb and 0 to 28.2 ppb, recorded at the Woodfibre LNG AQMS and Aeroqual AQS1, respectively. The 1-hour air quality objective for NO_2, as outlined by BCAQO and CAAQS, is determined based on the three-year average of the annual 98th percentile of daily maximum 1-hour average concentrations, with a threshold value of 60 ppb, as specified by CCME 2024 and BC ENV 2021. The measured NO_2 concentrations were consistently higher when monitored using the Aeroqual AQS1 instrument compared to the Thermo Scientific Model 42i gas analyzer at the AQMS and the regional air quality stations during the same period. However, the measured hourly NO_2 concentrations at both Aeroqual AQS1 and AQMS locations (Table 3.1 and Figure B.9) remained consistently below the threshold of 60 ppb throughout the monitoring period. The Aeroqual AQS1 is not a US EPA designated Federal Reference Method (FRM) or FEM. Since the Model 42i gas analyzer is a US EPA designated FRM instrument, its measurements are considered more reliable than those obtained from the Aeroqual AQS1.

Table 3.1 summarizes the maximum 1-hour, 24-hour, and annual average concentrations of NO_2, comparing the monitored values with the applicable BCAQO and CAAQS. No hourly measured value was greater than the 1-hour BCAQO or CAAQS thresholds for NO_2 during the monitoring period. The 2024

[1] The 42i NO-NO2-NOx gas analyzer recording the NO_2 concentrations may occasionally report slightly negative values when the are very low. Both the BCFSM (BC ENV 2020) and the National Air Pollution Surveillance (NAPS, CCME 2019) program provide data validation criteria for gas concentration measurements: values between -3 and 0 ppb are adjusted to 0, while values below -3 ppb are further investigated prior to setting to zero. This approach has been consistently applied in the data validation program.

annual average NO_2 concentration calculated for the Aeroqual AQS1, based on the monitoring period from July 3 to October 24, was 7.9 ppb, while for the AQMS, based on the monitoring period from September 3 to December 31, it was 5.5 ppb. Both values were less than the annual BCAQO and CAAQS thresholds of 17 ppb. There are no daily (24-hour average) BCAQO or CAAQS thresholds for NO_2. The 24-hour average NO_2 data for the 2024 monitoring period are presented in Figure B.10 (Appendix B) and Table A.2 (Appendix A). The NO_2 concentrations recorded at the Woodfibre LNG AQMS site from September to November were similar to those at the regional air quality monitoring stations, indicating minimal impact from site-specific emissions on the ambient NO_2 concentrations. However, the 24-hour average NO_2 concentrations recorded at the Woodfibre LNG AQMS site in December were generally greater than those observed at the regional air quality monitoring stations in Langdale and Squamish, which is expected given the proximity of the AQMS site to active construction activities.

Table 3.1 NO_2 Concentrations and Comparisons to BCAQO and CAAQS

Sampling Location	**Monitoring Period**	**NO_2 Concentrations (ppb)**						
		1-hour Average				**24-hour Average**		**Annual Average**
		98th Percentile of Daily 1-hour Maximum Average	**Max**	**Number of Excursions[1]**	**Data Completeness[2]**	**Max**	**Data Completeness[2]**	
AQMS	Sep 3 – Dec 31	25.8	40.2	0	93.6%	14.4	97.5	5.5
Aeroqual AQS1	July 3 – Oct 24	27.1	28.2	0	99.8%	15.1	100.0	7.9
BCAQO		60 (113 µg/m^3)						17 (32 µg/m^3)
CAAQS		60 (113 µg/m^3)						17 (32 µg/m^3)

Notes:

[1] An excursion is defined as when the daily 1-hour average maximum (D1HM) of NO_2 is greater than the 1-hour BCAQO, but the 98th percentile of D1HM, averaged over three consecutive years values, remains below the BCAQO.

[2] Data completeness is calculated based on the sampling period, not the entire year.

The monthly 1-hour maximum and average NO_2 concentrations are presented in Table 3.5. For the Aeroqual AQS1, monthly 1-hour maximum values ranged from 22.1 to 28.2 ppb, with monthly averages between 7.0 and 9.0 ppb, recorded from July to October 2024. The highest 1-hour maximum and monthly average values were recorded during September 2024. Similarly, at the AQMS, the monthly 1-hour maximum concentrations varied from 20.5 to 40.2 ppb, and monthly averages ranged from 3.5 to 8.7 ppb

during the monitoring period. Both the highest 1-hour maximum and monthly averages at the AQMS were recorded during December 2024.

3.4.1.2 $PM_{2.5}$ Results – AQMS and Aeroqual AQS1

A summary of the hourly ambient air monitoring results for $PM_{2.5}$ during the 2024 monitoring period is presented in Figure B.11 to Figure B.13 (Appendix B), alongside data from the Langdale Elementary (BC ENV 2024a) and Squamish Elementary (BC ENV 2024b) regional air quality monitoring stations. During this period, hourly $PM_{2.5}$ concentrations at the Woodfibre LNG AQMS ranged from 0[2] to 40 µg/m³, while at Aeroqual AQS1, they ranged from 0 to 48.1 µg/m³. The recorded concentrations followed the trend of TSP being higher than PM_{10}, and PM_{10} being higher than $PM_{2.5}$, at both Aeroqual AQS1 and AQMS, with similar trends observed over time.

A summary of the daily (24-hour average) ambient air quality monitoring results for $PM_{2.5}$ in 2024 is presented in Figure B.14 to Figure B.16 (Appendix B) for both the AQMS and Aeroqual AQS1, along with the corresponding regulatory criteria and comparisons with Langdale Elementary (BC ENV 2024a) and Squamish Elementary (BC ENV 2024b) regional air quality monitoring stations. The 24-hour $PM_{2.5}$ BCAQO of 25 µg/m³ and CAAQS of 27 µg/m³ (Table 3.2) are based on the 3-year average of the annual 98th percentile of the daily 24-hour average concentrations, as per BC ENV 2021 and CCME 2024. The annual $PM_{2.5}$ BCAQO of 8.0 µg/m³ and CAAQS of 8.8 µg/m³ (Table 3.2) are based on the annual average over one year and the annual average calculated over three consecutive years, respectively. Both PM monitoring instruments, the Aeroqual AQS1 and the BAM 1020 unit at the AQMS, exhibited similar trends for hourly and 24-hour average concentrations. However, the AQMS consistently recorded higher values compared to the Aeroqual AQS1. Since the BAM 1020 is a US EPA-designated FEM instrument, the hourly and daily PM concentrations it measured are considered more reliable than those recorded by the Aeroqual AQS1, which is not a U.S. EPA-designated FEM instrument.

The 24-hour $PM_{2.5}$ concentrations measured at the AQMS ranged from 3.5 to 20.3 µg/m³, with the maximum concentration of 20.3 µg/m³ recorded on September 6, 2024. At the Aeroqual AQS1, the maximum 24-hour average was 25.8 µg/m³, measured on August 9, 2024, which was greater than the BCAQO threshold of 25 µg/m³. However, this threshold is based on the 3-year average of the annual 98th percentile of daily 24-hour average concentrations, and a single value greater than the BCAQO threshold does not imply non-compliance because three years of monitoring data are not available. The annual average $PM_{2.5}$ concentration for the AQMS was 9.3 µg/m³, which is greater than the BCAQO and CAAQS. In contrast, the annual average for the Aeroqual AQS1 was 5.8 µg/m³. These averages are not considered valid as they do not meet the data completeness requirement of covering at least 75% of the days in a year and 60% of the days in each calendar quarter (CCME 2012). The 24-hour average $PM_{2.5}$ concentrations (Figure B.16, Appendix B) recorded at the Woodfibre LNG AQMS site from September to December were generally higher than those observed at the regional air quality monitoring

[2] The BAM 1020 instrument recording the $PM_{2.5}$ concentrations may occasionally report slightly negative values when the are very low. Both the BCFSM (BC ENV 2020) and the National Air Pollution Surveillance (NAPS, CCME 2019) program provide data validation criteria for $PM_{2.5}$ measurements: values between -3 and 0 µg/m³ are adjusted to 0, while values below -3 µg/m³ are flagged as invalid. This approach has been followed for $PM_{2.5}$ data validation program.

stations in Langdale and Squamish, which is expected given the proximity of the AQMS site to active construction activities. The 24-hour average $PM_{2.5}$ concentrations measured at both Aeroqual AQS1 and AQMS for the 2024 monitoring period are summarized in Appendix A (Table A.2).

Table 3.2 $PM_{2.5}$ Concentrations and Comparisons to BCAQO and CAAQS

Sampling Location	Monitoring Period	$PM_{2.5}$ Concentrations (µg/m³)				
		98th Percentile of 24-hour Average	Maximum 24-hour Average	Number of Excursions[1]	Annual Average	Data Completeness for 24-hour Averages[2]
AQMS	Sep 3 – Dec 31	18.3	20.3	0	9.3	88.2%
Aeroqual AQS1	July 3 – Oct 24	18.4	25.8	1	5.8	100.0%
BCAQO		25			8.0	
CAAQS		27			8.8	

Notes:

[1] An excursion is defined as when the 24-hour average of $PM_{2.5}$ is greater than the 24-hour BCAQO, but the 98th percentile of daily average, average over one year, remains below the BCAQO.

[2] Data completeness is calculated based on the sampling period, not the entire year.

3.4.1.3 PM_{10} Results – AQMS and Aeroqual AQS1

A summary of the hourly average and 24-hour average ambient air monitoring results for PM_{10} during the 2024 monitoring period is presented in Figure B.17 and Figure B.18 (Appendix B), alongside data from the Langdale Elementary (BC ENV 2024a) regional air quality monitoring station. During the 2024 monitoring period, the hourly PM_{10} concentrations ranged from 1 to 284 µg/m³ and 0 to 225.7 µg/m³, recorded at the Woodfibre LNG AQMS and Aeroqual AQS1, respectively.

Table 3.3 presents the daily (24-hour average) PM_{10} concentrations, as shown in Figure B.18 (Appendix B), measured at the AQMS and Aeroqual AQS1 sampling locations during the monitoring period. It compares the monitored values with the applicable BCAQO and includes comparisons with data from the Langdale Elementary (BC ENV 2024a) regional air quality monitoring station.

The 24-hour PM_{10} concentrations measured at the Aeroqual AQS1 ranged from 2.3 to 31.8 µg/m³, with the maximum 24-hour value of 31.8 µg/m³ recorded on August 9, 2024. During the monitoring period from July 3 to October 24, 2024, all values were less than the BCAQO 24-hour standard of 50 µg/m³. The calculated annual average PM_{10} concentration for this period was 10.3 µg/m³; however, it is essential to note that the BCAQO does not have a standard for PM_{10} annual averages.

The 24-hour PM_{10} concentrations measured at the AQMS ranged from 5.6 to 71.8 µg/m³, with the maximum 24-hour value of 71.8 µg/m³ recorded on October 25, 2024. The 24-hour PM_{10} concentrations measured at the AQMS using the BAM 1020 during the monitoring period from September 3 to December 31, 2024, were less than the BCAQO value of 50 µg/m³, except October 25, 2024, when an exceedance was recorded with a 24-hour average value of 71.8 µg/m³ (Table 3.3). The 24-hour average

wind speed recorded on October 25, 2024, was 2.1 m/s, with predominant winds from the northwest quadrant aligned with the active work site. Analysis of on-site air quality and meteorology data, along with a review of on-site work activities and comparison with regional air quality data, revealed that the PM_{10} exceedance was primarily attributable to construction project-related sources. Given the locations of the emission sources and prevailing wind direction during the elevated concentration period on October 25, 2024, it appears unlikely that the dust plume moved toward the Floatel from any direction (see further details in the Air Quality Exceedance Report; Appendix D). The 24-hour average PM_{10} concentrations recorded at the Woodfibre LNG AQMS site (Figure B.18, Appendix B) from September to November were generally higher than those observed at the Langdale Elementary regional air quality monitoring station, which is expected given the proximity of the AQMS site to active construction activities. In contrast, PM_{10} concentrations were comparable to or lower than those at the Langdale Elementary station, except on December 11, when a significantly higher 24-hour average PM_{10} concentration (29.5 µg/m³) was recorded at the AQMS. However, the recorded PM_{10} concentrations remained less than the BC AQO (50 µg/m³). The annual average PM_{10} concentration recorded at the AQMS was 16.5 µg/m³. The 24-hour average PM_{10} concentrations measured at both Aeroqual AQS1 and AQMS for the 2024 monitoring period are summarized in Appendix A (Table A.2).

Table 3.3 PM_{10} Concentrations and Comparisons to BCAQO

Sampling Location	Monitoring Period	PM_{10} Concentrations (µg/m³)			
		Maximum 24-hour Average	Number of Exceedances	Annual Average	Data Completeness for 24-hour Averages[1]
AQMS	Sep 3 – Dec 31	71.8	1	16.5	100.0%
Aeroqual AQS1	July 3 – Oct 24	31.8	0	10.3	100.0%
BCAQO		50			

Note:

[1] Data completeness is calculated based on the sampling period, not the entire year.

3.4.1.4 TSP Results – AQMS and Aeroqual AQS1

A summary of the hourly average ambient air monitoring results for TSP during the 2024 monitoring period at AQMS and Aeroqual AQS1 are presented in Figure B.19 (Appendix B). There are no hourly BCAQO or CAAQS thresholds for TSP. During this period, the hourly TSP concentrations at the Woodfibre LNG AQMS ranged from 8 to 560 µg/m³, while at Aeroqual AQS1, they ranged from 0 to 375.5 µg/m³.

Table 3.4 presents the daily (24-hour average) TSP concentrations measured at the AQMS and Aeroqual AQS1 sampling locations during the monitoring period, along with comparisons to the applicable BCAQO, as shown in Figure B.20 (Appendix B). The 24-hour TSP BCAQO value is 120 µg/m³, and the standard for the annual geometric mean is 60 µg/m³.

The 24-hour average TSP concentrations measured at the Aeroqual AQS1 ranged from 1.7 to 34.8 µg/m³, with a calculated annual geometric mean value of 11.0 µg/m³. At the AQMS, the 24-hour average concentrations ranged from 14.6 to 133.8 µg/m³, with the highest value (a single TSP air quality exceedance) recorded on October 25, 2024, which coincided with the PM_{10} exceedance on the same day. The annual geometric mean for TSP at the AQMS was calculated to be 32.4 µg/m³. The annual geometric mean values for Aeroqual AQS1 and AQMS locations were less than the BCAQO threshold. As discussed in the previous section, TSP air quality exceedance of the 24-hour TSP BCAQO recorded on October 25, 2024, was likely due to onsite work activities and high winds. The 24-hour average TSP concentrations measured at both Aeroqual AQS1 and AQMS for the 2024 monitoring period are summarized in Appendix A (Table A.2).

Table 3.4 TSP Concentrations and Comparisons to BCAQO

Sampling Location	Monitoring Period	TSP Concentrations (µg/m³)			
		Maximum 24-hour Average	Number of Exceedances	Annual Geometric Mean	Data Completeness for 24-hour Averages[1]
AQMS	Sep 3 – Dec 31	133.8	1	32.4	100%
Aeroqual AQS1	July 3 – Oct 24	34.8	0	11.0	100%
BCAQO		120		60	

Note:

[1] Data completeness is calculated based on the sampling period, not the entire year.

Table 3.5 Monthly Average Concentrations of $PM_{2.5}$, PM_{10}, TSP, and NO_2

Month	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)		NO_2 (ppb)			
							1-hour Max		Average	
	Aeroqual	AQMS	Aeroqual	AQMS	Aeroqual	AQMS	Aeroqual	AQMS	Aeroqual	AQMS
July	5.9	-	12.4	-	15.8	-	22.1	-	7.8	-
August	8.3	-	11.9	-	13.7	-	25.4	-	7.0	-
September	5.7	11.8	9.6	19.2	11.5	45.4	28.2	20.5	9.0	6.2
October	2.8	10.2	6.6	18.0	8.5	36.7	27.1	21.3	7.5	3.6
November	-	11.0	-	19.7	-	43.3	-	20.6	-	3.5
December	-	5.4	-	9.5	-	23.3	-	40.2	-	8.7

3.4.2 Passive Air Quality Monitoring

The passive sampling of SO_2 and VOCs provides monthly and annual concentration values. While there are no applicable monthly BCAQO or CAAQS for SO_2, there is an annual threshold against which to compare the monitoring results. For SO_2, the BCAQO and CAAQS annual threshold value is 5 ppb (achievement based on the average over a single calendar year of all 1-hour average concentrations).

Passive sample media for SO_2 and total VOCs were installed on September 1, 2024. However, the samples could not be swapped or submitted for analysis until November 7, 2024, due to shipping, receiving, and logistical issues. The ambient monthly SO_2 and VOC concentrations monitored at the AQMS are presented in Table 3.6 and Laboratory analytical reports are presented in Appendix E. This section compares ambient monthly SO_2 concentrations observed at the AQMS with the BC ENV regional air quality monitoring stations at Squamish Elementary and Langdale Elementary. Since no BC ENV air quality monitoring stations measure VOCs, the monthly VOC concentrations monitored at the AQMS are compared month-to-month to determine trends.

The results for SO_2 and VOC samples collected between September 1 and November 7, 2024, show an average SO_2 concentration of 0.2 ppb and an average VOC concentration of 0.8 ppb. For samples collected during the exposure period from November 7 to December 2, 2024, the average SO_2 and VOC concentrations were below the laboratory detection limits. The results for SO_2 and VOC samples collected between December 2, 2024, and January 7, 2025, show an average SO_2 concentration of <0.2 ppb and an average VOC concentration of 4.3 ppb. The instrument-reported detection limits (RDL) of 0.2 ppb and 0.7 ppb, respectively, for SO_2 and VOC concentrations.

In comparison, the regional monitoring stations reported higher ambient SO_2 concentrations. Squamish Elementary (BC ENV 2024b) recorded 0.6 ppb, 0.6 ppb, 0.1 ppb and 0.1 ppb in September, October, November, and December 2024, respectively. Langdale Elementary (BC ENV 2024a) recorded 0.8 ppb, 1.1 ppb, 0.7 ppb and 0.6 ppb during the same months. These concentrations were generally greater than those measured at the AQMS.

Table 3.6 SO_2 and VOC Concentrations

Sampling Location	Monitoring Period	Average Concentrations (ppb)	
		SO_2 [1]	**VOC as Hexane [1]**
AQMS	Sep 1, 2024 – Nov 7, 2024	0.2	0.8
	Nov 7, 2024 – Dec 2, 2024	<0.2	<0.7
	Dec 2, 2024 – Jan 7, 2025	<0.2	4.3

Note:

[1] Concentrations below the Reported Detection Limit (RDL) are indicated with a '<' symbol.

3.4.3 Air Quality Exceedance and Complaints from Floatel Residents

No complaints were received from the Floatel residents regarding the ambient air quality during 2024. The exceedances of PM_{10} and TSP, recorded on October 25, 2024, were previously discussed in the PM_{10} and TSP Results and Discussion sections. Further details on these exceedances can be found in the Air Quality Exceedance Report (Appendix D).

4 Summary of Ambient Air Quality Monitoring Results

Ambient air quality monitoring was conducted at the Woodfibre LNG AQMS and Aeroqual AQS1 sites during the 2024 monitoring period to evaluate $PM_{2.5}$, PM_{10}, TSP, NO_2, SO_2, and total VOCs. Continuous monitoring was performed for NO_2 and $PM_{2.5}$, PM_{10}, and TSP using advanced US EPA-designated instruments at the AQMS, and the results are summarized here. SO_2 and total VOCs were monitored through monthly passive sampling.

The hourly data for NO_2 indicated concentrations ranging from 0 ppb to 40.2 ppb, with an annual average of 5.5 ppb. These values were below the corresponding regulatory limits of the BCAQO and CAAQS, which are 60 ppb for the maximum 1-hour value and 17 ppb for the annual average.

Continuous $PM_{2.5}$, PM_{10}, and TSP data were collected using BAM 1020 monitors at the AQMS. Results showed:

- $PM_{2.5}$: 24-hour average concentrations ranged from 3.5 µg/m³ to 20.3 µg/m³, with an annual average of 9.3 µg/m³.
- PM_{10}: 24-hour average concentrations ranged from 5.6 µg/m³ to 71.8 µg/m³, with an annual average of 16.5 µg/m³.
- TSP: 24-hour average concentrations ranged from 14.6 µg/m³ to 133.8 µg/m³, with an annual geometric mean value of 32.4 µg/m³.

The measured $PM_{2.5}$ 24-hour values were less than the applicable regulatory thresholds of the BCAQO and CAAQS, which are 25 µg/m³ and 27 µg/m³, respectively. However, the annual average $PM_{2.5}$ concentration of 9.3 µg/m³ was greater than the thresholds of 8.0 µg/m³ for BCAQO and 8.8 µg/m³ for CAAQS. This exceedance is not considered valid as the data did not meet the completeness requirement (CCME, 2012). The 24-hour PM_{10} and TSP concentrations measured at the AQMS during the monitoring period were less than the BCAQO values of 50 µg/m³ and 120 µg/m³, respectively, except for October 25, 2024. On this date, exceedances were recorded with 24-hour PM_{10} and TSP average values of 71.8 µg/m³ and 133.8 µg/m³. These exceedances were likely due to onsite work activities combined with high winds. However, given the locations of the onsite work activities and prevailing wind direction during the elevated concentration period, it is unlikely that the dust plume moved toward the Floatel from any direction.

The monthly passive sampling for SO_2 and VOCs yielded results consistently less than detectable limits or within expected background concentrations. The measured SO_2 concentrations ranged from <0.2 ppb to 0.2 ppb. The measured VOC concentrations were less than the detection limits in most samples, except for a measured average of 4.3 ppb between December 2, 2024, and January 7, 2025.

No complaints were received from the Floatel residents that required further investigation during the 2024 monitoring period.

It is recommended that the ambient air quality monitoring program continue in 2025 at the AQMS site to establish a long-term data set, enable the identification of trends and provide valuable insights into the adaptive management of the ambient air quality in the area.

5 References

BC ENV. 2020. *The British Columbia Field Sampling Manual: Part B: Air and Air Emissions Testing.* Retrieved January 20, 2025, from Government of British Columbia: Ministry of Environment and Climate Change Strategy (BC ENV): Environmental Protection & Sustainability; Research, Monitoring and Reporting; Monitoring; B.C. Field Sampling Manual Web Site: https://www2.gov.bc.ca/assets/gov/environment/research-monitoring-and-reporting/monitoring/emre/manuals/field-sampling-manual/bc_field_sampling_manual_part_b.pdf.

BC ENV. 2021. British Columbia Ambient Air Quality Objectives. Retrieved January 20, 2025, from Government of British Columbia; Environment and Climate Change Strategy (BC Env); Environmental Protection and Sustainability; Air, Land, and Water; Air; Air Quality Management; Regulatory Framework, Objectives and Standards Web Page: https://www2.gov.bc.ca/gov/content/environment/air-land-water/air/air-quality-management/regulatory-framework/objectives-standards and https://www2.gov.bc.ca/assets/gov/environment/air-land-water/air/reports-pub/prov_air_qual_objectives_fact_sheet.pdf.

BC ENV. 2024a. Langdale Elementary - British Columbia Ambient Air Data Archive Website. Retrieved January 20, 2025; https://envistaweb.env.gov.bc.ca/StationReportFast.aspx?ST_ID=86.

BC ENV. 2024b. Squamish Elementary - British Columbia Ambient Air Data Archive Website. Retrieved January 20, 2025; https://envistaweb.env.gov.bc.ca/StationReportFast.aspx?ST_ID=491.

BC MOE. 2016. Technical Guidance 6: Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators. Prepared by the British Columbia Ministry of Environment. https://www2.gov.bc.ca/gov/content/environment/waste-management/industrial-waste/mining-smelting/guidance-documents.

CCME. 2012. Guidance Document on Achievement Determination Canadian Ambient Air Quality Standards for Fine Particulate Matter and Ozone. PN 1483, 978-1-896997-91-9 PDF, Canadian Council of Ministers of the Environment, Winnipeg, Manitoba. Retrieved January 20, 2025, https://ccme.ca/en/res/pn1483_gdad_eng-secured.pdf.

CCME. 2019. NAPS - Ambient Air monitoring and Quality Assurance and control Guidlines. National Air Pollution Surveillance Program (NAPS), Canadian Council of Ministers of the Environment (CCME); Retrieved January 20, 2025, https://ccme.ca/en/res/ambientairmonitoringandqa-qcguidelines_ensecure.pdf.

CCME. 2020. Guidance Document on Achievement Determination for Canadian Ambient Air Quality Standards for Nitrogen Dioxide, Canadian Council of Ministers of the Environment (CCME); Retrieved January 20, 2025, https://ccme.ca/en/res/gdadforcaaqsfornitrogendioxide_en1.0.pdf.

CCME. 2024. Canadian Ambient Air Quality Standards (CAAQS). Retrieved January 20, 2025, from Canadian Council of Ministers of the Environment (CCME); Canada's Air Web Site: https://ccme.ca/en/air-quality-report#slide-7.

EAO. 2023. *Amendment #3 for the Woodfibre LNG Project (Project) Environmental Assessment Certificate #E15-02.* Victoria, British Columbia: British Columbia Environmental Assessment Office (EAO).

Environment Canada. 2004. MSC guidelines for co-operative climatological autostations, Version 3.0.

Environment Canada. 2012. Automatic Weather Station: Sensor Siting Classification. Prepared by Environment Canada. https://wmoomm.sharepoint.com/:b:/s/wmocpdb/EVVIuU1pv_RFuNSZt7HnO-wB8XzEEYCE0-QkPWIx4g0fSQ?e=28zf2L.

Government of Canada. 2024. Climate normal (1991 to 2020) - ECCC MSC Squamish meteorological meteorology station. Retrieved January 20, 2025, https://climate.weather.gc.ca/climate_normals/results_1991_2020_e.html?searchType=stnName_1991&txtStationName_1991=squamish&searchMethod=contains&txtCentralLatMin=0&txtCentralLatSec=0&txtCentralLongMin=0&txtCentralLongSec=0&stnID=355000000&dispBack=1.

Met One Instruments. 2024. *BAM 1020 Operatrion Manual. Met One instruments, Inc. Grants Pass, Oregon, United States. https://metone.com/wp-content/uploads/2024/02/BAM-1020-9805-Manual-Rev-G-Reduced.pdf*.

Woodfibre LNG. (2024). Floatel Air Quality Monitoring and Mitigation Plan Environmental Management Plan, Woodfibre LNG Project: Rev 6 (July 5, 2024). Vancouver, British Columbia: Woodfibre LNG General Partner Inc. (Woodfibre LNG).

US EPA. 2000. Meteorological Monitoring Guidance for Regulatory Modeling Applications. EPA-454/R-99-005.

US EPA. 2024. List of Designated Reference and Equivalent Methods, Issue date June 15, 2024. Retrieved January 20, 2025, https://www.epa.gov/system/files/documents/2024-12/amtic-list-december-2024_final.pdf.

Appendices

Appendix A Meteorology, AQMS and Aeroqual AQS1 Daily Data

Table A.1 Daily Wind Speed, Air Temperature, and Rainfall Recorded at the Woodfibre LNG Meteorology Station – July 1 to December 31, 2024

Date	Daily Wind Speed (m/s)		Daily Air Temperature (°C)			Daily Total Rainfall (mm)
	Max	Avg	Min	Max	Avg	
7/1/2024	7.0	1.6	13.3	22.9	17.6	0.0
7/2/2024	9.9	1.8	12.3	23.3	16.7	0.0
7/3/2024	8.0	1.5	12.2	22.7	17.0	0.0
7/4/2024	5.6	1.0	12.5	23.7	17.8	0.0
7/5/2024	5.2	0.9	14.1	25.7	19.1	0.0
7/6/2024	6.9	0.8	14.6	27.4	19.8	0.0
7/7/2024	3.2	0.7	15.6	29.1	20.5	0.0
7/8/2024	3.4	0.5	15.6	27.8	20.8	0.0
7/9/2024	3.8	0.7	16.2	28.9	21.5	0.0
7/10/2024	5.0	1.1	16.7	27.0	21.1	0.0
7/11/2024	4.9	1.0	14.8	24.8	19.7	0.0
7/12/2024	4.6	0.7	14.5	26.2	19.7	0.0
7/13/2024	4.8	0.8	15.5	26.2	20.1	0.0
7/14/2024	7.4	1.1	15.4	25.7	20.2	0.0
7/15/2024	4.7	0.8	15.1	25.3	19.7	0.0
7/16/2024	3.5	0.8	15.2	26.1	20.0	0.0
7/17/2024	3.9	0.7	16.7	28.6	21.7	0.0
7/18/2024	6.7	1.2	17.1	26.1	21.6	0.0
7/19/2024	5.0	1.2	16.6	26.6	20.7	0.0
7/20/2024	4.0	0.7	15.7	28.7	20.7	0.0
7/21/2024	5.4	1.1	16.2	25.2	20.4	0.0
7/22/2024	9.1	1.8	16.6	23.8	19.0	0.0
7/23/2024	8.0	1.8	16.1	23.2	18.8	0.0
7/24/2024	7.9	1.4	14.3	22.5	17.8	0.0
7/25/2024	11.1	2.3	13.5	20.9	17.0	0.0
7/26/2024	5.9	1.4	12.3	22.8	17.4	0.0
7/27/2024	5.8	1.2	13.9	23.7	18.3	0.0
7/28/2024	4.8	0.9	14.3	23.7	18.7	0.0

Date	Daily Wind Speed (m/s)		Daily Air Temperature (°C)			Daily Total Rainfall (mm)
	Max	Avg	Min	Max	Avg	
7/29/2024	2.6	0.5	15.1	18.1	16.6	18.4
7/30/2024	3.8	0.7	15.4	21.2	18.0	1.2
7/31/2024	5.6	1.1	15.9	23.6	19.3	0.0
8/1/2024	4.6	0.8	15.6	25.8	20.1	0.0
8/2/2024	3.9	0.7	16.1	27.1	20.5	0.0
8/3/2024	3.7	0.7	16.3	25.5	20.6	0.0
8/4/2024	5.4	0.9	15.7	26.0	20.2	0.0
8/5/2024	5.1	0.9	16.0	25.1	20.3	0.0
8/6/2024	7.1	1.3	15.7	23.1	19.0	0.0
8/7/2024	3.8	0.7	14.4	25.5	19.3	0.0
8/8/2024	5.5	0.6	16.0	26.9	20.7	0.0
8/9/2024	7.0	1.0	16.7	27.2	21.8	0.0
8/10/2024	6.1	1.1	16.8	25.5	20.9	0.0
8/11/2024	7.1	0.9	16.5	23.5	19.5	0.4
8/12/2024	7.3	1.2	16.3	19.2	17.9	0.8
8/13/2024	3.5	0.7	15.0	20.1	17.8	0.0
8/14/2024	4.8	0.9	16.2	23.1	19.2	0.0
8/15/2024	4.5	0.8	15.1	22.9	18.8	0.0
8/16/2024	4.9	1.1	15.6	22.8	18.7	0.0
8/17/2024	5.2	0.9	14.8	25.3	19.3	0.0
8/18/2024	11.8	1.4	16.7	24.6	19.4	2.4
8/19/2024	5.8	1.1	13.7	24.0	17.6	0.4
8/20/2024	4.0	0.7	14.5	20.7	16.8	2.4
8/21/2024	5.1	1.2	14.7	17.5	16.4	3.2
8/22/2024	6.8	1.1	14.4	20.7	16.8	1.0
8/23/2024	7.1	1.4	15.0	17.5	16.2	10.4
8/24/2024	5.6	1.4	14.3	18.1	15.6	15.8
8/25/2024	5.1	0.7	12.7	19.0	15.7	0.2
8/26/2024	8.2	0.8	13.6	17.1	14.9	33.2
8/27/2024	8.2	2.5	10.7	19.3	14.7	1.6

Date	Daily Wind Speed (m/s)		Daily Air Temperature (°C)			Daily Total Rainfall (mm)
	Max	Avg	Min	Max	Avg	
8/28/2024	5.1	1.0	9.7	19.5	13.9	0.0
8/29/2024	3.7	0.7	11.6	21.8	16.0	0.0
8/30/2024	2.7	0.6	13.3	24.3	17.5	0.0
8/31/2024	3.4	0.7	15.1	24.9	18.9	0.0
9/1/2024	3.4	0.7	15.5	26.1	19.3	0.0
9/2/2024	5.6	1.1	14.7	22.3	18.3	0.0
9/3/2024	6.6	1.1	15.0	20.5	17.4	0.0
9/4/2024	3.3	0.7	13.5	22.5	17.5	0.0
9/5/2024	3.9	1.0	16.1	27.3	20.2	0.0
9/6/2024	2.9	0.6	15.4	26.7	19.6	0.0
9/7/2024	3.7	0.9	15.7	26.3	19.3	0.0
9/8/2024	5.8	1.0	15.8	22.4	18.7	0.0
9/9/2024	5.9	1.2	14.9	22.2	18.1	0.0
9/10/2024	5.4	1.2	13.2	21.8	16.9	0.2
9/11/2024	6.5	0.8	13.4	18.2	15.3	1.4
9/12/2024	7.8	1.0	13.7	21.5	16.3	0.0
9/13/2024	7.7	0.8	12.8	17.6	14.8	11.2
9/14/2024	7.4	1.2	11.8	17.8	14.1	10.8
9/15/2024	5.7	0.8	11.8	19.0	14.3	0.0
9/16/2024	3.7	1.0	11.0	20.4	14.7	0.0
9/17/2024	7.1	0.9	11.6	17.4	14.4	0.0
9/18/2024	4.7	0.8	12.8	20.5	16.0	0.0
9/19/2024	7.7	1.1	12.4	19.9	15.2	0.0
9/20/2024	5.8	1.4	11.8	18.5	14.2	0.0
9/21/2024	3.9	0.8	11.0	18.8	14.2	0.0
9/22/2024	3.5	0.6	13.0	15.0	13.9	6.6
9/23/2024	2.6	0.5	13.2	18.1	15.2	2.0
9/24/2024	4.4	0.7	13.5	21.9	16.6	10.0
9/25/2024	5.2	1.3	11.9	16.0	14.6	27.2
9/26/2024	5.2	1.5	10.5	14.1	12.1	11.6

Date	Daily Wind Speed (m/s)		Daily Air Temperature (°C)			Daily Total Rainfall (mm)
	Max	Avg	Min	Max	Avg	
9/27/2024	7.7	1.4	10.5	18.0	14.3	10.8
9/28/2024	6.6	1.8	10.1	15.8	12.5	0.0
9/29/2024	10.8	2.2	7.9	16.9	12.3	0.0
9/30/2024	5.0	0.9	5.7	14.5	9.9	0.0
10/1/2024	4.8	1.0	9.5	14.1	11.0	2.6
10/2/2024	6.2	1.7	8.3	15.2	11.5	0.0
10/3/2024	9.8	1.1	6.5	15.5	10.8	0.0
10/4/2024	8.6	1.4	9.1	14.0	10.8	37.4
10/5/2024	3.6	0.6	8.9	14.9	11.1	0.2
10/6/2024	5.9	1.1	11.0	17.3	13.0	0.2
10/7/2024	2.8	0.6	10.9	16.9	13.1	0.0
10/8/2024	3.7	0.9	11.8	17.3	13.7	7.0
10/9/2024	5.0	1.2	9.3	16.0	12.2	0.8
10/10/2024	7.5	1.8	7.4	16.3	10.6	0.0
10/11/2024	8.6	1.5	6.9	16.7	11.4	0.0
10/12/2024	5.3	1.1	9.1	19.7	12.9	0.0
10/13/2024	3.5	0.6	8.2	17.3	12.0	0.0
10/14/2024	6.5	1.0	11.1	15.0	12.7	23.6
10/15/2024	4.5	0.7	10.0	13.9	11.5	0.0
10/16/2024	9.5	1.6	8.3	14.0	10.4	14.0
10/17/2024	4.9	1.1	5.3	13.2	8.5	0.2
10/18/2024	8.2	1.9	5.9	9.3	7.4	46.0
10/19/2024	5.1	1.1	6.6	13.2	8.6	74.2
10/20/2024	5.7	1.2	8.6	12.0	10.0	54.6
10/21/2024	3.4	0.7	7.7	13.3	9.4	0.0
10/22/2024	4.8	0.7	5.9	12.6	8.2	0.0
10/23/2024	4.9	1.0	4.9	10.3	7.2	2.4
10/24/2024	6.3	1.0	4.7	10.8	7.3	0.6
10/25/2024	7.4	2.1	5.3	11.5	8.3	0.0
10/26/2024	6.5	0.9	7.3	11.7	9.1	43.6

Date	Daily Wind Speed (m/s)		Daily Air Temperature (°C)			Daily Total Rainfall (mm)
	Max	Avg	Min	Max	Avg	
10/27/2024	10.2	1.9	8.6	12.3	10.1	44.0
10/28/2024	5.0	1.1	7.7	10.5	8.7	17.0
10/29/2024	4.2	0.7	6.9	10.4	8.2	0.8
10/30/2024	4.6	0.9	6.2	7.6	7.0	10.8
10/31/2024	3.7	0.8	5.9	9.1	7.1	5.8
11/1/2024	3.6	0.8	6.0	8.4	7.0	9.2
11/2/2024	3.8	0.7	5.9	8.8	7.0	1.2
11/3/2024	4.3	0.8	6.5	10.2	7.7	1.2
11/4/2024	8.6	2.0	4.3	8.4	6.2	36.8
11/5/2024	4.7	1.0	3.7	10.6	5.8	0.0
11/6/2024	3.5	0.6	5.4	9.4	6.9	0.0
11/7/2024	3.7	0.9	7.2	10.5	8.7	0.0
11/8/2024	6.5	0.7	8.0	11.9	9.6	14.6
11/9/2024	5.0	0.6	7.9	9.5	8.7	7.6
11/10/2024	4.5	0.7	7.1	9.4	8.0	15.4
11/11/2024	12.2	1.6	7.3	11.3	8.7	39.6
11/12/2024	7.5	0.9	6.6	9.0	7.6	19.8
11/13/2024	6.1	1.3	6.3	7.7	7.0	60.4
11/14/2024	6.1	1.0	4.7	9.7	6.7	16.8
11/15/2024	5.1	1.0	4.0	10.1	5.4	0.0
11/16/2024	4.4	0.9	2.3	4.8	3.6	28.0
11/17/2024	7.4	1.8	3.1	7.5	5.3	5.8
11/18/2024	6.9	1.3	2.4	8.1	3.9	4.2
11/19/2024	7.4	1.4	0.7	6.2	3.0	11.0
11/20/2024	6.3	1.2	2.4	5.5	4.2	15.4
11/21/2024	5.2	1.1	4.4	7.4	5.5	0.6
11/22/2024	7.2	1.7	3.9	7.7	5.8	6.4
11/23/2024	9.8	1.1	5.6	9.3	7.0	12.0
11/24/2024	3.3	0.8	4.6	8.0	5.9	2.2
11/25/2024	6.8	1.4	1.3	8.4	3.9	0.0

Date	Daily Wind Speed (m/s)		Daily Air Temperature (°C)			Daily Total Rainfall (mm)
	Max	Avg	Min	Max	Avg	
11/26/2024	6.2	1.0	0.0	6.6	2.3	0.0
11/27/2024	3.8	0.8	2.2	5.3	3.4	0.0
11/28/2024	2.8	0.7	0.3	4.8	2.5	0.0
11/29/2024	4.4	0.8	1.6	4.2	2.9	5.2
11/30/2024	3.0	0.6	3.7	5.3	4.4	2.6
12/1/2024	4.9	1.1	2.7	8.9	4.6	0.0
12/2/2024	5.0	1.2	1.7	8.7	3.7	0.2
12/3/2024	4.7	0.9	2.2	10.4	4.8	0.0
12/4/2024	5.6	1.0	3.3	13.1	5.6	0.0
12/5/2024	3.3	0.8	2.6	7.6	5.2	0.2
12/6/2024	5.1	1.0	6.1	9.2	7.0	21.4
12/7/2024	12.0	1.5	5.5	11.4	7.8	29.0
12/8/2024	6.7	1.1	4.2	8.7	5.5	6.4
12/9/2024	3.6	1.0	1.3	6.1	4.0	0.0
12/10/2024	4.1	1.1	0.9	5.4	3.0	0.2
12/11/2024	5.8	1.2	2.7	8.9	5.0	0.0
12/12/2024	5.5	1.0	2.4	5.7	4.1	0.0
12/13/2024	3.5	0.9	3.6	4.9	4.2	21.6
12/14/2024	11.6	2.5	4.0	10.0	6.4	31.0
12/15/2024	5.9	1.6	2.0	7.9	4.7	4.2
12/16/2024	5.2	1.3	1.3	3.5	2.2	8.4
12/17/2024	3.7	1.2	2.0	4.0	3.2	35.0
12/18/2024	7.6	1.1	3.6	8.4	5.2	28.2
12/19/2024	4.4	1.1	3.8	5.9	5.1	48.6
12/20/2024	5.1	1.2	5.0	7.7	6.3	10.8
12/21/2024	6.0	1.5	5.5	10.9	7.3	17.2
12/22/2024	3.5	0.8	5.3	7.0	5.9	33.4
12/23/2024	6.4	1.1	5.7	7.8	6.9	13.6
12/24/2024	10.4	2.1	6.1	12.0	8.3	9.2
12/25/2024	7.5	1.9	3.9	7.0	5.4	20.2

Date	Daily Wind Speed (m/s)		Daily Air Temperature (°C)			Daily Total Rainfall (mm)
	Max	Avg	Min	Max	Avg	
12/26/2024	4.5	0.9	2.7	5.9	4.2	31.8
12/27/2024	4.9	1.0	3.9	7.8	4.9	10.8
12/28/2024	4.3	1.0	3.1	4.4	3.8	34.2
12/29/2024	5.1	1.0	3.3	5.4	4.4	5.0
12/30/2024	3.9	0.8	3.2	5.6	4.3	8.0
12/31/2024	4.0	1.1	2.4	5.8	3.7	0.0

Table A.2 Daily $PM_{2.5}$, PM_{10}, TSP, and NO_2 Concentrations Recorded at the AQMS and the Aeroqual AQS1.

Date	AQMS (24-hr Average)				AQMS (1-hr Max)	Aeroqual (24-hr Average)				Aeroqual (1-hr Max)
	$PM_{2.5}$	PM_{10}	TSP	NO_2	NO_2	$PM_{2.5}$	PM_{10}	TSP	NO_2	NO_2
	µg/m³	µg/m³	µg/m³	ppb	ppb	µg/m³	µg/m³	µg/m³	ppb	ppb
7/4/2024	–	–	–	–	–	5.0	11.7	15.0	5.5	10.4
7/5/2024	–	–	–	–	–	5.3	12.3	15.9	7.1	12.3
7/6/2024	–	–	–	–	–	5.2	13.9	18.5	7.7	13.1
7/7/2024	–	–	–	–	–	5.9	14.6	19.1	9.9	18.3
7/8/2024	–	–	–	–	–	8.2	22.2	29.4	10.1	20.6
7/9/2024	–	–	–	–	–	9.3	20.1	25.7	12.2	19.2
7/10/2024	–	–	–	–	–	8.7	20.6	26.6	11.6	16.9
7/11/2024	–	–	–	–	–	5.8	12.7	16.0	8.6	11.6
7/12/2024	–	–	–	–	–	4.6	12.3	16.3	6.9	12.9
7/13/2024	–	–	–	–	–	4.9	10.1	12.7	6.8	15.0
7/14/2024	–	–	–	–	–	6.7	13.6	17.2	8.9	17.1
7/15/2024	–	–	–	–	–	8.9	18.6	23.4	9.4	14.6
7/16/2024	–	–	–	–	–	6.0	9.3	10.9	7.9	14.1
7/17/2024	–	–	–	–	–	7.3	11.2	13.2	10.5	20.3
7/18/2024	–	–	–	–	–	6.7	14.2	17.9	9.2	14.9
7/19/2024	–	–	–	–	–	5.4	10.6	13.2	9.7	14.0
7/20/2024	–	–	–	–	–	6.1	23.2	33.8	10.4	15.0
7/21/2024	–	–	–	–	–	7.5	11.2	13.0	10.9	19.5
7/22/2024	–	–	–	–	–	9.2	13.0	14.2	8.3	18.3
7/23/2024	–	–	–	–	–	6.4	9.5	10.7	6.0	12.4
7/24/2024	–	–	–	–	–	6.1	10.0	12.0	10.0	22.1
7/25/2024	–	–	–	–	–	2.3	5.5	7.2	5.6	10.5
7/26/2024	–	–	–	–	–	3.2	8.0	10.4	7.3	14.1
7/27/2024	–	–	–	–	–	4.9	13.1	17.6	7.1	11.2
7/28/2024	–	–	–	–	–	7.5	11.7	13.9	7.2	11.7
7/29/2024	–	–	–	–	–	4.3	4.5	4.6	3.0	11.6
7/30/2024	–	–	–	–	–	1.9	3.0	3.6	0.7	1.2

Date	AQMS (24-hr Average)				AQMS (1-hr Max)	Aeroqual (24-hr Average)				Aeroqual (1-hr Max)
	$PM_{2.5}$	PM_{10}	TSP	NO_2	NO_2	$PM_{2.5}$	PM_{10}	TSP	NO_2	NO_2
	µg/m³	µg/m³	µg/m³	ppb	ppb	µg/m³	µg/m³	µg/m³	ppb	ppb
7/31/2024	–	–	–	–	–	3.1	6.2	7.8	0.7	1.0
8/1/2024	–	–	–	–	–	3.3	6.8	8.7	0.6	1.0
8/2/2024	–	–	–	–	–	6.0	11.3	14.0	0.5	0.8
8/3/2024	–	–	–	–	–	7.1	11.9	14.3	0.5	0.8
8/4/2024	–	–	–	–	–	6.8	11.4	13.7	0.4	0.7
8/5/2024	–	–	–	–	–	8.8	14.7	17.0	0.3	0.6
8/6/2024	–	–	–	–	–	6.5	9.6	10.9	0.2	0.5
8/7/2024	–	–	–	–	–	8.7	11.5	12.9	4.6	15.3
8/8/2024	–	–	–	–	–	16.7	21.7	24.3	11.1	22.4
8/9/2024	–	–	–	–	–	25.8	31.8	34.8	11.7	23.5
8/10/2024	–	–	–	–	–	22.7	28.1	30.7	12.5	17.8
8/11/2024	–	–	–	–	–	12.5	15.7	16.9	9.4	16.7
8/12/2024	–	–	–	–	–	8.1	10.7	11.5	10.3	14.9
8/13/2024	–	–	–	–	–	8.3	12.4	14.0	9.9	20.4
8/14/2024	–	–	–	–	–	10.5	18.2	22.0	8.7	25.4
8/15/2024	–	–	–	–	–	9.1	11.9	13.6	9.9	20.8
8/16/2024	–	–	–	–	–	7.3	11.7	13.8	9.4	19.1
8/17/2024	–	–	–	–	–	18.4	24.3	26.8	7.0	12.9
8/18/2024	–	–	–	–	–	6.5	6.5	7.0	8.7	18.7
8/19/2024	–	–	–	–	–	2.6	2.6	2.9	7.8	16.4
8/20/2024	–	–	–	–	–	4.7	5.3	5.7	9.8	21.4
8/21/2024	–	–	–	–	–	5.1	7.2	8.3	7.9	14.8
8/22/2024	–	–	–	–	–	4.7	7.2	8.4	6.9	14.5
8/23/2024	–	–	–	–	–	7.1	10.4	11.6	12.9	20.3
8/24/2024	–	–	–	–	–	3.5	6.3	7.5	10.5	17.0
8/25/2024	–	–	–	–	–	4.9	8.3	9.9	8.0	19.8
8/26/2024	–	–	–	–	–	5.1	8.4	9.9	7.4	12.1
8/27/2024	–	–	–	–	–	4.4	5.8	6.5	4.3	13.2
8/28/2024	–	–	–	–	–	4.6	7.7	9.2	5.6	10.7

Date	AQMS (24-hr Average)				AQMS (1-hr Max)	Aeroqual (24-hr Average)				Aeroqual (1-hr Max)
	$PM_{2.5}$	PM_{10}	TSP	NO_2	NO_2	$PM_{2.5}$	PM_{10}	TSP	NO_2	NO_2
	µg/m³	µg/m³	µg/m³	ppb	ppb	µg/m³	µg/m³	µg/m³	ppb	ppb
8/29/2024	–	–	–	–	–	5.7	9.5	11.4	6.6	12.4
8/30/2024	–	–	–	–	–	5.5	10.4	13.0	7.1	12.1
8/31/2024	–	–	–	–	–	5.2	10.8	13.8	8.1	17.9
9/1/2024	–	–	–	–	–	5.0	10.2	12.8	10.0	18.1
9/2/2024	–	–	–	–	–	7.4	11.8	13.8	11.6	19.3
9/3/2024	–	–	–	–	–	6.3	8.6	9.7	10.0	18.7
9/4/2024	13.0	18.3	32.6	4.1	8.3	5.7	9.8	11.9	6.8	12.2
9/5/2024	15.3	29.8	70.1	7.6	16.6	7.1	12.5	15.4	12.8	28.2
9/6/2024	20.3	34.5	78.5	9.7	15.6	16.9	21.9	24.5	12.7	23.6
9/7/2024	18.3	27.3	54.1	9.2	16.4	16.0	20.6	22.9	13.6	24.5
9/8/2024	19.7	32.5	92.0	10.0	14.3	16.4	21.5	23.9	15.1	20.3
9/9/2024	13.3	23.3	61.2	8.2	20.5	10.3	16.2	19.2	12.1	23.9
9/10/2024	12.4	25.2	57.8	6.8	15.0	7.6	14.8	18.3	8.4	19.6
9/11/2024	9.3	11.8	25.2	7.7	20.0	3.4	2.3	1.7	7.9	17.0
9/12/2024	12.9	21.3	58.4	4.6	10.6	5.3	8.8	10.9	6.8	13.6
9/13/2024	11.7	20.7	58.0	7.2	13.2	6.0	7.9	8.8	10.2	15.0
9/14/2024	9.3	11.0	21.8	6.6	14.0	2.1	3.5	4.2	8.6	17.0
9/15/2024	9.2	14.8	31.4	3.4	6.6	1.8	4.0	5.5	5.1	8.8
9/16/2024	10.6	16.9	45.1	3.3	6.1	3.0	7.4	9.8	4.8	7.8
9/17/2024	9.9	19.2	47.4	5.3	8.5	4.0	8.8	11.2	7.9	12.2
9/18/2024	12.0	17.8	52.2	4.6	10.8	3.5	7.6	9.7	6.5	13.8
9/19/2024	10.4	18.3	44.3	4.7	10.6	3.6	8.3	10.6	6.2	11.1
9/20/2024	11.0	18.2	41.5	4.6	10.9	3.8	8.1	10.1	5.6	11.7
9/21/2024	12.8	20.0	43.8	6.6	17.7	5.0	10.5	13.0	8.7	22.8
9/22/2024	12.8	18.0	40.0	8.1	15.7	5.4	9.5	11.2	11.3	17.2
9/23/2024	9.7	14.2	43.1	7.5	16.5	3.6	7.2	8.9	11.2	18.8
9/24/2024	9.3	18.3	49.6	3.7	12.8	3.1	7.4	9.6	7.0	16.1
9/25/2024	9.3	13.1	25.6	8.2	18.8	2.6	6.3	8.0	13.1	28.1
9/26/2024	9.0	11.3	22.0	7.3	16.3	2.5	5.1	6.1	8.3	17.1

Date	AQMS (24-hr Average)				AQMS (1-hr Max)	Aeroqual (24-hr Average)				Aeroqual (1-hr Max)
	$PM_{2.5}$	PM_{10}	TSP	NO_2	NO_2	$PM_{2.5}$	PM_{10}	TSP	NO_2	NO_2
	µg/m³	µg/m³	µg/m³	ppb	ppb	µg/m³	µg/m³	µg/m³	ppb	ppb
9/27/2024	10.6	16.6	29.6	6.5	16.6	5.2	10.4	12.5	9.7	24.7
9/28/2024	10.0	16.0	30.3	5.0	16.1	3.7	7.7	9.6	7.1	19.1
9/29/2024	8.2	15.4	34.5	4.1	16.4	2.3	4.9	6.2	5.0	11.3
9/30/2024	8.5	15.7	35.8	3.9	11.6	1.3	3.3	4.5	5.9	13.5
10/1/2024	9.1	14.8	35.1	4.2	9.3	2.2	5.6	7.4	8.0	14.3
10/2/2024	10.3	15.4	30.1	3.5	11.3	3.6	7.0	8.4	6.6	16.4
10/3/2024	9.1	14.4	28.2	4.3	11.4	2.1	4.9	6.2	7.6	16.6
10/4/2024	9.2	11.7	20.6	5.6	19.5	2.2	3.9	4.6	9.5	27.1
10/5/2024	10.3	15.1	26.9	5.3	13.7	2.8	7.0	9.0	8.8	18.4
10/6/2024	9.1	15.2	29.0	2.8	8.8	2.0	6.1	8.4	6.6	11.4
10/7/2024	9.6	19.5	42.3	3.9	11.6	2.8	9.0	12.3	6.9	12.2
10/8/2024	10.4	18.0	33.1	4.1	19.2	3.5	9.1	12.0	8.9	25.7
10/9/2024	10.8	16.1	40.8	3.0	6.2	3.0	7.7	10.2	6.2	13.8
10/10/2024	8.8	12.0	26.1	1.2	7.9	1.0	3.6	5.0	3.3	8.0
10/11/2024	7.9	16.4	38.5	1.6	4.8	1.7	5.7	7.9	5.4	10.7
10/12/2024	10.4	19.3	42.1	3.4	12.9	3.6	9.3	12.3	7.9	14.5
10/13/2024	12.7	25.3	56.4	4.4	13.3	5.2	12.3	15.9	9.7	23.4
10/14/2024	13.0	22.8	44.3	6.6	14.8	5.6	11.6	14.5	11.0	19.3
10/15/2024	10.5	16.7	34.3	3.9	15.4	3.3	8.6	11.4	7.6	17.5
10/16/2024	8.5	10.3	21.2	2.4	11.2	2.2	4.8	5.9	5.6	15.2
10/17/2024	9.4	11.8	26.0	1.7	9.7	1.1	3.2	4.2	4.8	10.4
10/18/2024	8.8	10.1	21.6	2.5	9.6	1.7	3.9	5.0	7.4	18.2
10/19/2024	8.5	9.7	18.6	4.8	13.2	1.9	3.8	4.5	9.9	15.0
10/20/2024	8.8	10.4	19.0	8.0	19.4	3.9	6.4	7.3	13.3	21.5
10/21/2024	9.6	14.2	24.8	4.8	12.5	2.9	6.4	8.1	8.2	15.9
10/22/2024	9.5	13.6	26.5	1.2	5.8	2.5	6.2	8.0	5.5	10.8
10/23/2024	10.7	13.4	26.8	2.3	9.7	2.7	5.9	7.5	6.4	14.4
10/24/2024	14.3	42.3	89.0	2.7	14.1	–	–	–	–	–
10/25/2024	17.2	71.8	133.8	2.0	9.0	–	–	–	–	–

Date	AQMS (24-hr Average)				AQMS (1-hr Max)	Aeroqual (24-hr Average)				Aeroqual (1-hr Max)
	$PM_{2.5}$	PM_{10}	TSP	NO_2	NO_2	$PM_{2.5}$	PM_{10}	TSP	NO_2	NO_2
	µg/m³	µg/m³	µg/m³	ppb	ppb	µg/m³	µg/m³	µg/m³	ppb	ppb
10/26/2024	10.2	12.5	25.5	4.5	11.7	–	–	–	–	–
10/27/2024	9.4	11.4	23.6	2.0	13.0	–	–	–	–	–
10/28/2024	10.3	17.4	31.5	4.8	21.3	–	–	–	–	–
10/29/2024	9.1	14.9	31.5	1.8	6.7	–	–	–	–	–
10/30/2024	9.7	17.9	34.3	4.9	12.5	–	–	–	–	–
10/31/2024	10.1	22.4	55.3	3.5	9.8	–	–	–	–	–
11/1/2024	12.9	44.0	100.2	1.5	6.6	–	–	–	–	–
11/2/2024	10.9	25.4	59.1	1.6	4.8	–	–	–	–	–
11/3/2024	10.0	13.6	27.2	2.8	10.8	–	–	–	–	–
11/4/2024	9.8	19.0	39.8	2.6	10.5	–	–	–	–	–
11/5/2024	9.7	15.0	29.1	2.7	10.0	–	–	–	–	–
11/6/2024	13.2	22.9	46.5	3.1	7.1	–	–	–	–	–
11/7/2024	11.9	20.0	43.3	1.3	4.3	–	–	–	–	–
11/8/2024	17.5	47.4	104.8	3.0	12.1	–	–	–	–	–
11/9/2024	14.0	27.5	57.4	5.6	13.5	–	–	–	–	–
11/10/2024	12.7	24.5	58.0	1.9	9.7	–	–	–	–	–
11/11/2024	11.5	28.4	58.4	3.3	16.8	–	–	–	–	–
11/12/2024	10.7	18.5	43.5	5.5	11.2	–	–	–	–	–
11/13/2024	10.4	17.8	36.7	7.5	14.6	–	–	–	–	–
11/14/2024	10.2	10.9	27.5	4.6	9.7	–	–	–	–	–
11/15/2024	–	13.5	32.7	1.9	12.9	–	–	–	–	–
11/16/2024	–	8.7	20.5	2.8	11.1	–	–	–	–	–
11/17/2024	–	23.8	53.3	4.1	12.9	–	–	–	–	–
11/18/2024	–	16.0	34.7	3.0	9.6	–	–	–	–	–
11/19/2024	–	13.6	31.1	1.6	9.2	–	–	–	–	–
11/20/2024	–	16.5	35.3	5.0	12.0	–	–	–	–	–
11/21/2024	–	15.5	34.1	1.5	5.5	–	–	–	–	–
11/22/2024	–	37.8	77.6	3.1	8.7	–	–	–	–	–
11/23/2024	–	17.4	36.9	4.5	9.4	–	–	–	–	–

Date	AQMS (24-hr Average)				AQMS (1-hr Max)	Aeroqual (24-hr Average)				Aeroqual (1-hr Max)
	$PM_{2.5}$	PM_{10}	TSP	NO_2	NO_2	$PM_{2.5}$	PM_{10}	TSP	NO_2	NO_2
	µg/m³	µg/m³	µg/m³	ppb	ppb	µg/m³	µg/m³	µg/m³	ppb	ppb
11/24/2024	–	13.6	30.0	1.1	6.7	–	–	–	–	–
11/25/2024	–	27.2	61.3	1.6	20.6	–	–	–	–	–
11/26/2024	–	12.1	30.5	1.0	6.5	–	–	–	–	–
11/27/2024	–	12.5	28.3	–	–	–	–	–	–	–
11/28/2024	–	11.6	31.0	7.7	11.0	–	–	–	–	–
11/29/2024	5.3	8.6	18.0	9.0	14.5	–	–	–	–	–
11/30/2024	4.6	7.6	16.5	8.0	16.8	–	–	–	–	–
12/1/2024	3.8	7.4	16.9	–	–	–	–	–	–	–
12/2/2024	4.3	9.9	27.1	–	–	–	–	–	–	–
12/3/2024	5.4	8.8	20.3	8.1	21.6	–	–	–	–	–
12/4/2024	6.0	9.0	19.7	10.2	23.2	–	–	–	–	–
12/5/2024	6.6	10.5	20.3	8.3	16.5	–	–	–	–	–
12/6/2024	6.8	11.0	21.8	9.3	16.0	–	–	–	–	–
12/7/2024	6.0	13.4	34.8	9.6	18.3	–	–	–	–	–
12/8/2024	4.5	10.9	28.8	8.8	20.5	–	–	–	–	–
12/9/2024	4.4	8.2	22.0	4.8	8.6	–	–	–	–	–
12/10/2024	4.9	13.8	30.6	6.2	10.3	–	–	–	–	–
12/11/2024	8.0	29.5	80.3	8.2	11.7	–	–	–	–	–
12/12/2024	10.6	23.3	67.0	10.4	17.2	–	–	–	–	–
12/13/2024	6.9	8.1	19.0	8.0	21.0	–	–	–	–	–
12/14/2024	6.3	10.4	19.2	9.3	22.4	–	–	–	–	–
12/15/2024	4.2	7.8	17.8	6.8	16.0	–	–	–	–	–
12/16/2024	5.5	6.6	16.1	6.2	14.8	–	–	–	–	–
12/17/2024	4.6	6.0	15.1	6.4	12.6	–	–	–	–	–
12/18/2024	6.1	8.1	17.8	13.5	23.3	–	–	–	–	–
12/19/2024	3.7	6.7	16.9	10.8	20.7	–	–	–	–	–
12/20/2024	3.9	6.2	16.2	11.6	25.8	–	–	–	–	–
12/21/2024	5.6	8.1	19.7	12.0	22.3	–	–	–	–	–
12/22/2024	7.0	9.0	21.5	14.4	40.2	–	–	–	–	–

Date	AQMS (24-hr Average)				AQMS (1-hr Max)	Aeroqual (24-hr Average)				Aeroqual (1-hr Max)
	$PM_{2.5}$	PM_{10}	TSP	NO_2	NO_2	$PM_{2.5}$	PM_{10}	TSP	NO_2	NO_2
	µg/m³	µg/m³	µg/m³	ppb	ppb	µg/m³	µg/m³	µg/m³	ppb	ppb
12/23/2024	5.1	7.8	18.6	12.9	24.8	–	–	–	–	–
12/24/2024	6.4	10.3	21.0	7.2	15.5	–	–	–	–	–
12/25/2024	4.8	6.8	15.7	11.0	27.2	–	–	–	–	–
12/26/2024	4.9	6.9	17.6	8.5	15.0	–	–	–	–	–
12/27/2024	5.3	6.3	16.8	6.7	15.4	–	–	–	–	–
12/28/2024	3.5	6.3	16.3	6.9	10.9	–	–	–	–	–
12/29/2024	4.6	5.8	15.9	5.8	10.9	–	–	–	–	–
12/30/2024	5.0	5.9	17.3	6.0	16.5	–	–	–	–	–
12/31/2024	3.5	5.6	14.6	3.3	7.5	–	–	–	–	–

Appendix B Figures

Figure B.1 Daily Average and Maximum Wind Speed Recorded at the Woodfibre LNG Meteorology Station

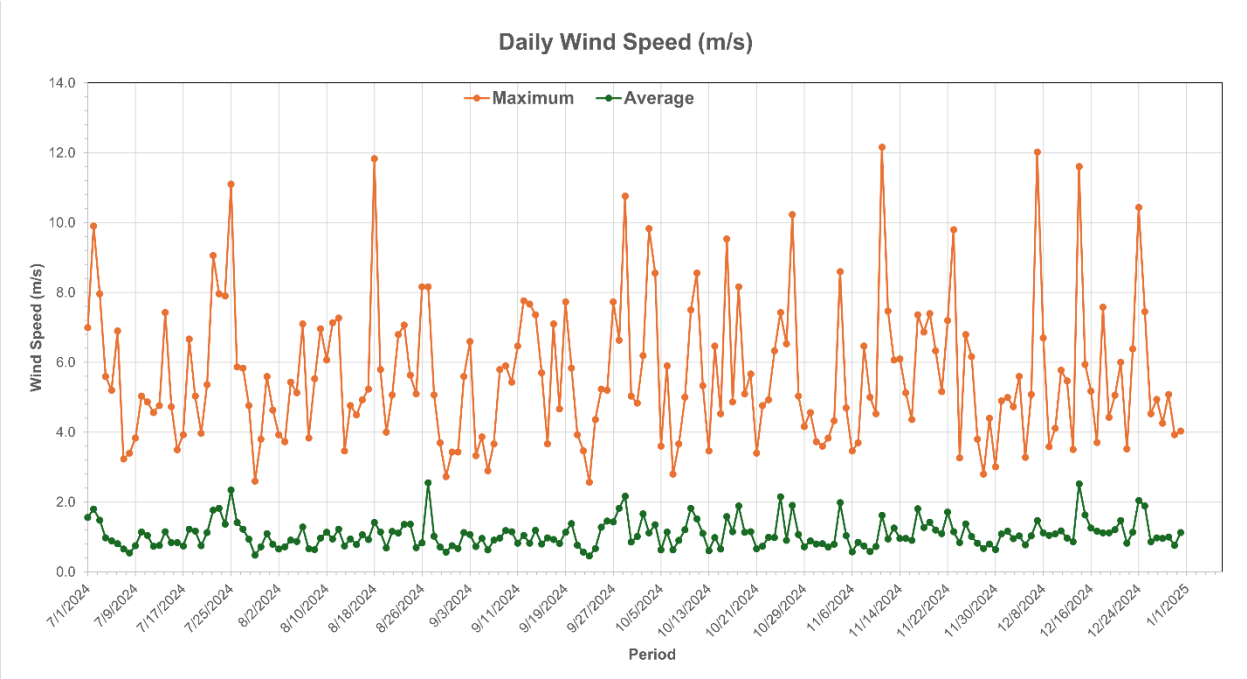


Figure B.2 Monthly Average and Maximum Wind Speed Recorded at the Woodfibre LNG Meteorology Station

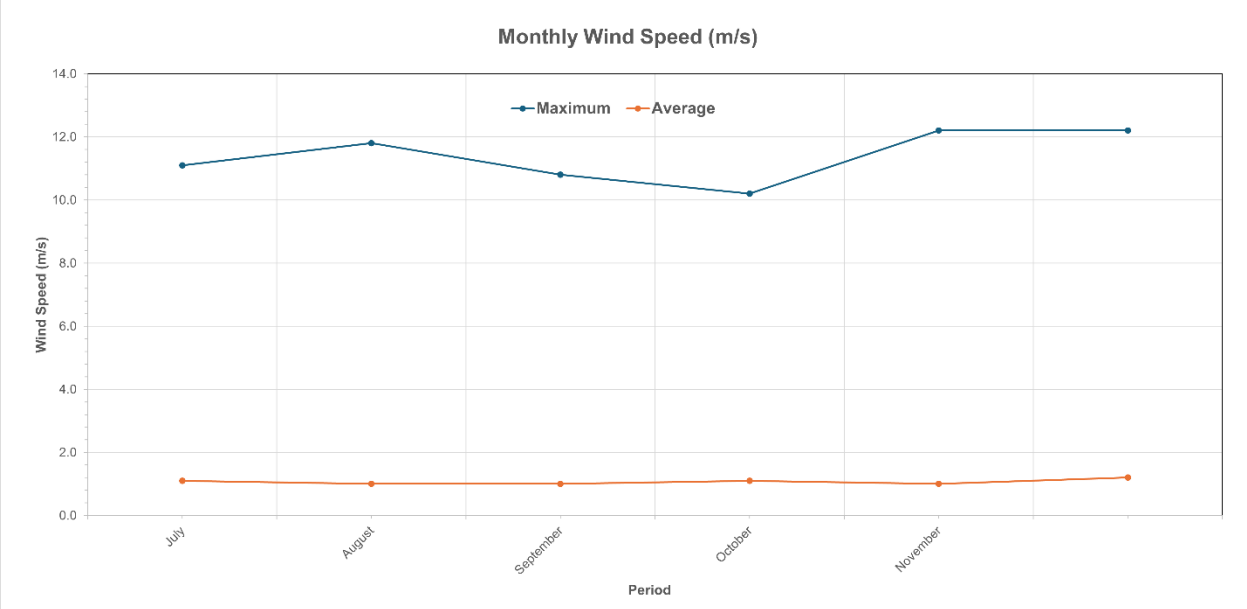


Figure B.3 Windrose for Woodfibre LNG Meteorology Station

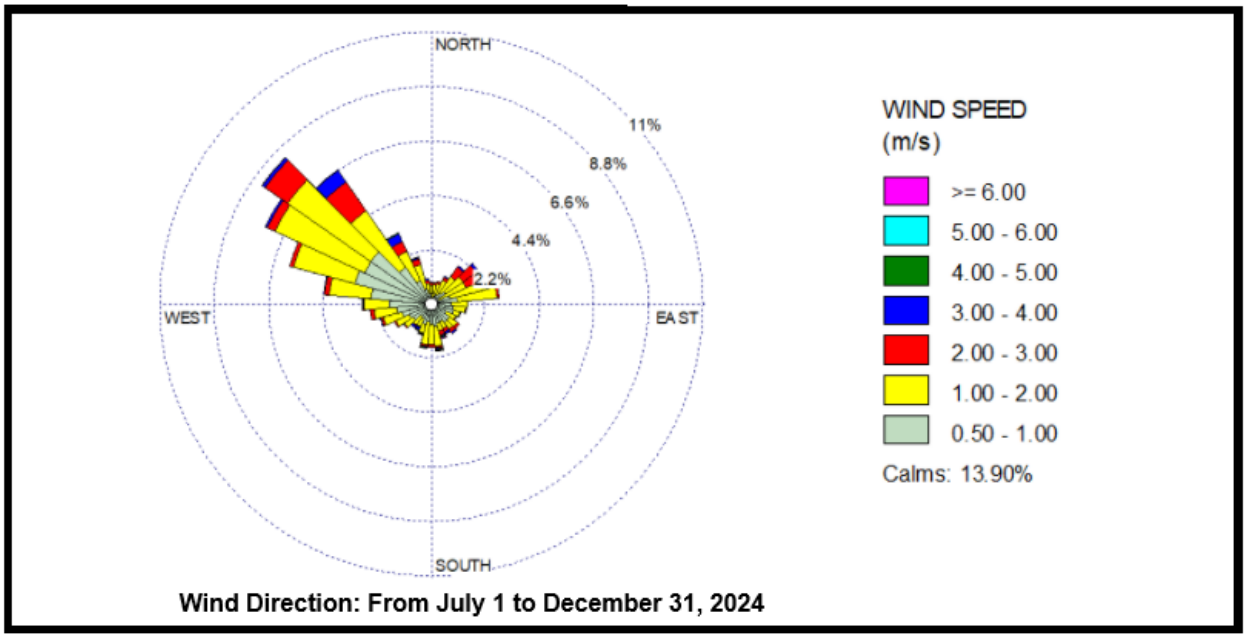


Figure B.4 Monthly Windroses for Woodfibre LNG Meteorology Station for July to December 2024

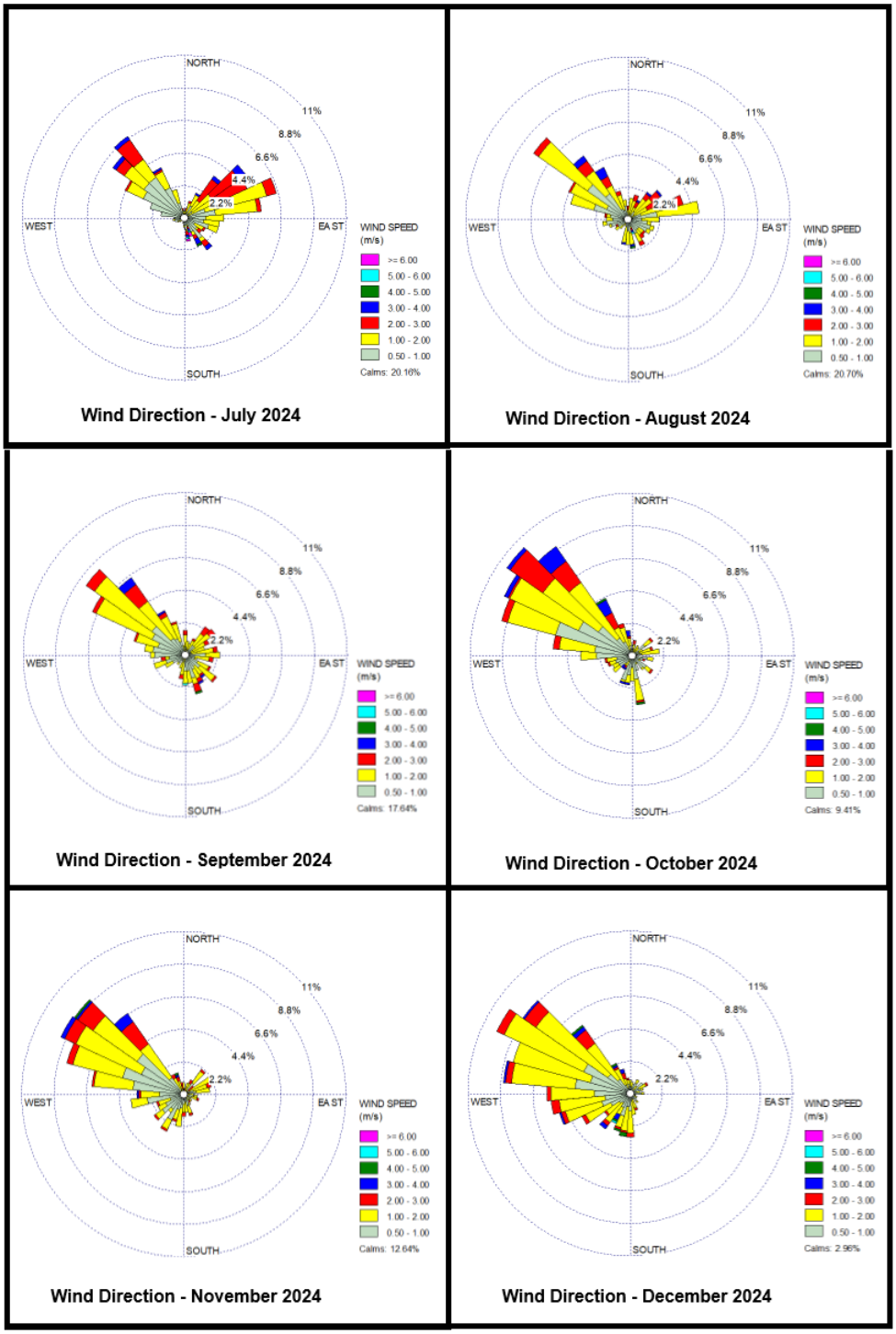


Figure B.5 Daily Average, Minimum and Maximum Air Temperature Recorded at the Woodfibre LNG Meteorology Station

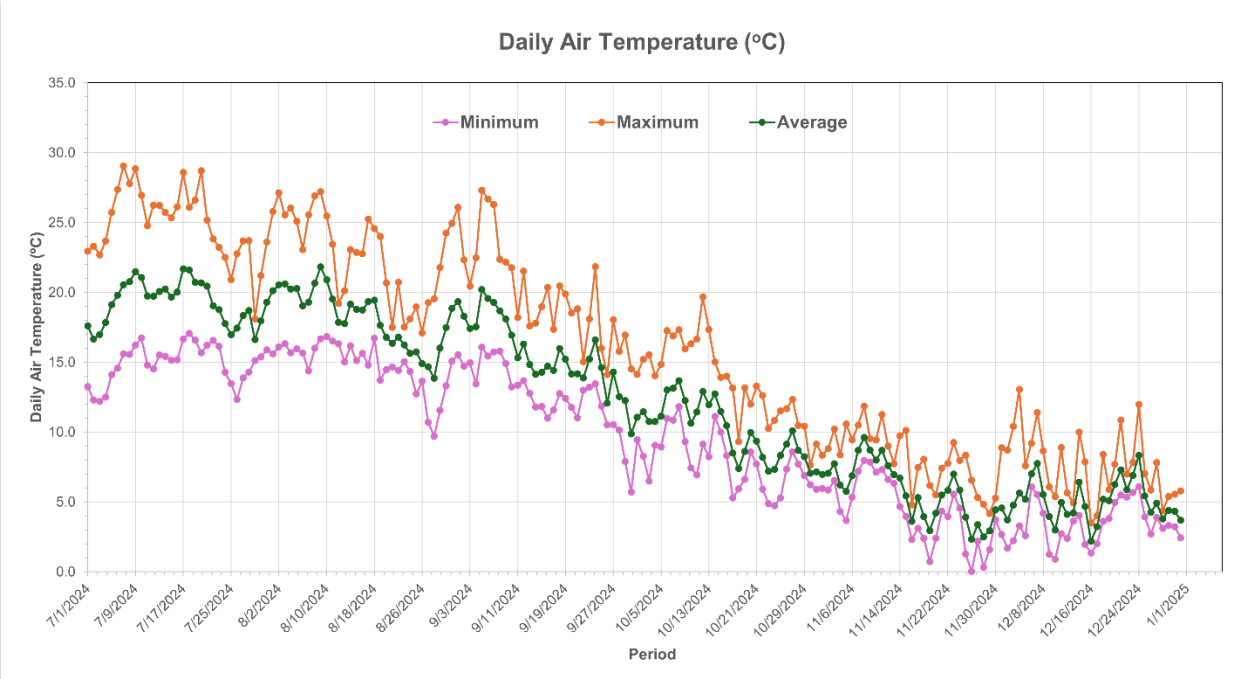


Figure B.6 Monthly Average, Minimum and Maximum Air temperature Recorded at the Woodfibre LNG Meteorology Station

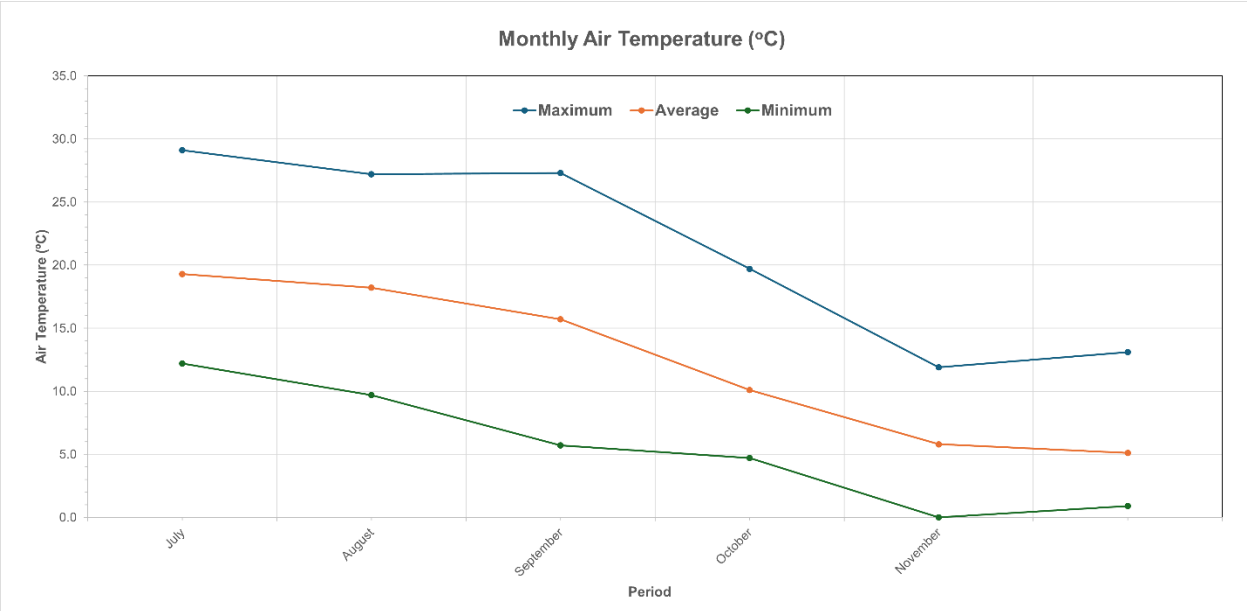


Figure B.7 Daily Total Rainfall Recorded at the Woodfibre LNG Meteorology Station

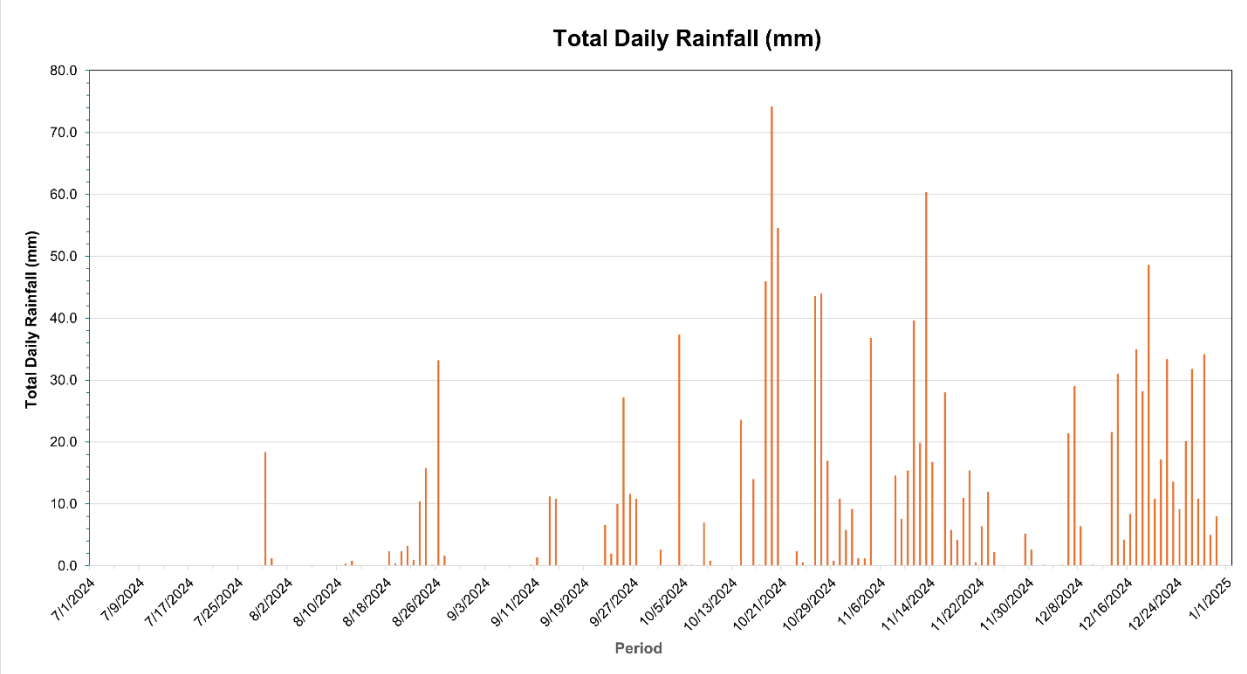


Figure B.8 Monthly Total Rainfall Recorded at the Woodfibre LNG Meteorology Station

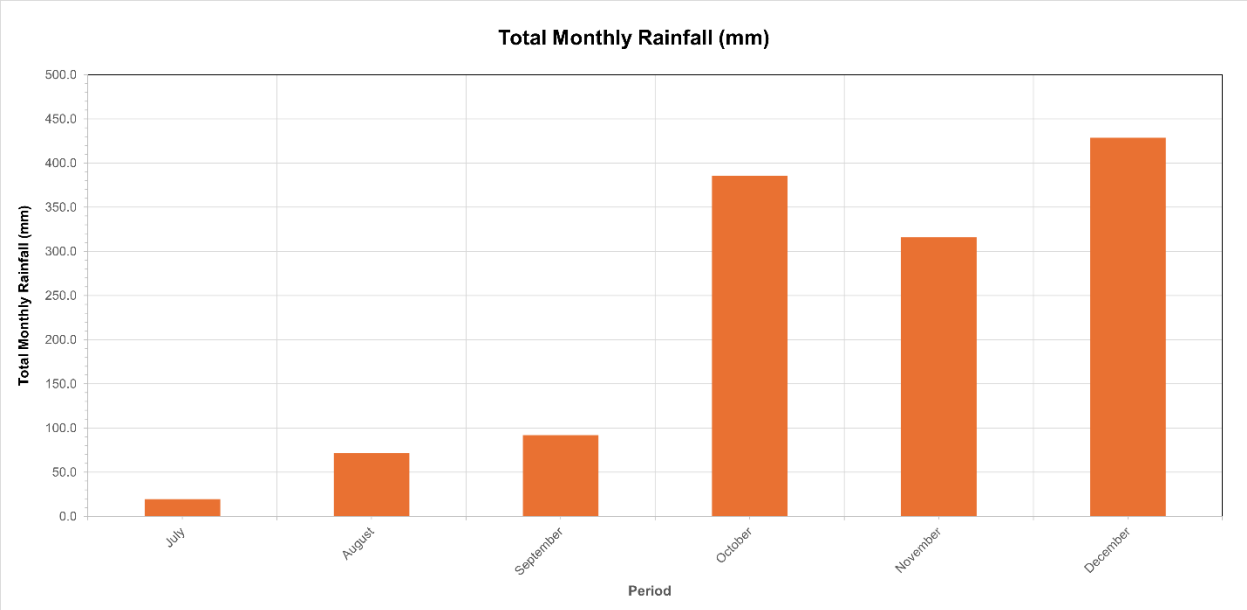


Figure B.9 Hourly NO_2 Concentrations Recorded at the AQMS, Aeroqual AQS1 and at the Langdale and Squamish Regional Air Quality Stations

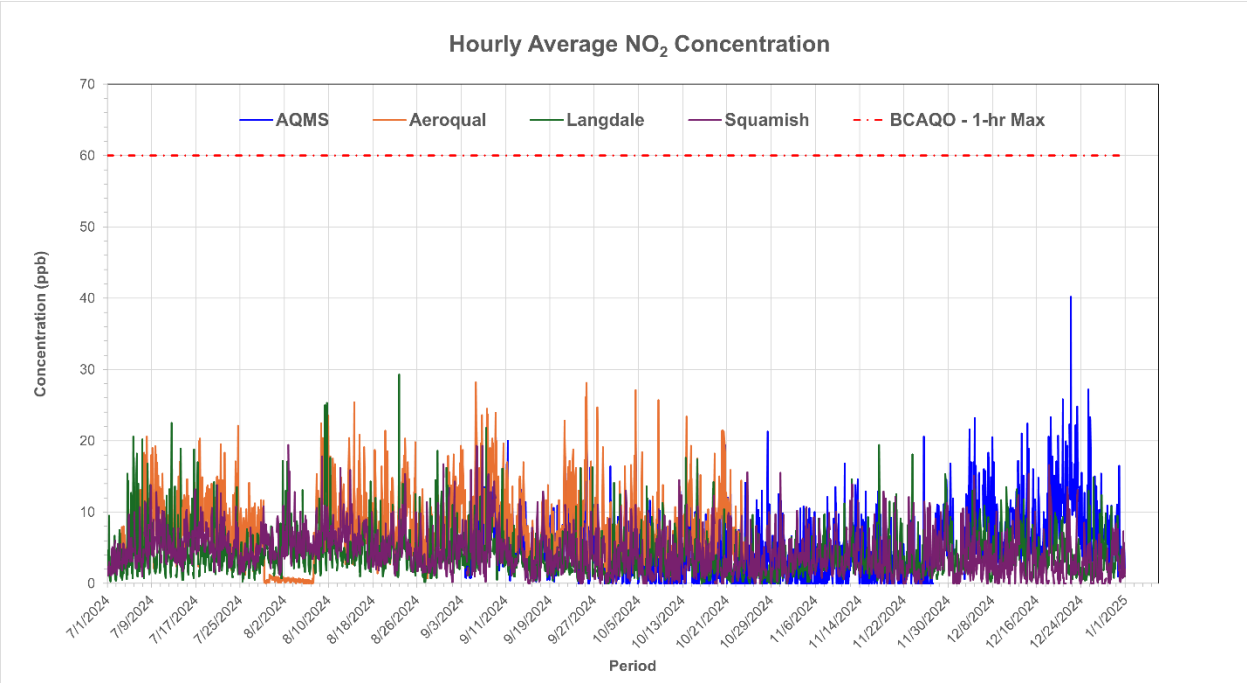


Figure B.10 24-Hour Average NO_2 Concentrations Recorded at the AQMS, Aeroqual AQS1 and at the Langdale and Squamish Regional Air Quality Stations

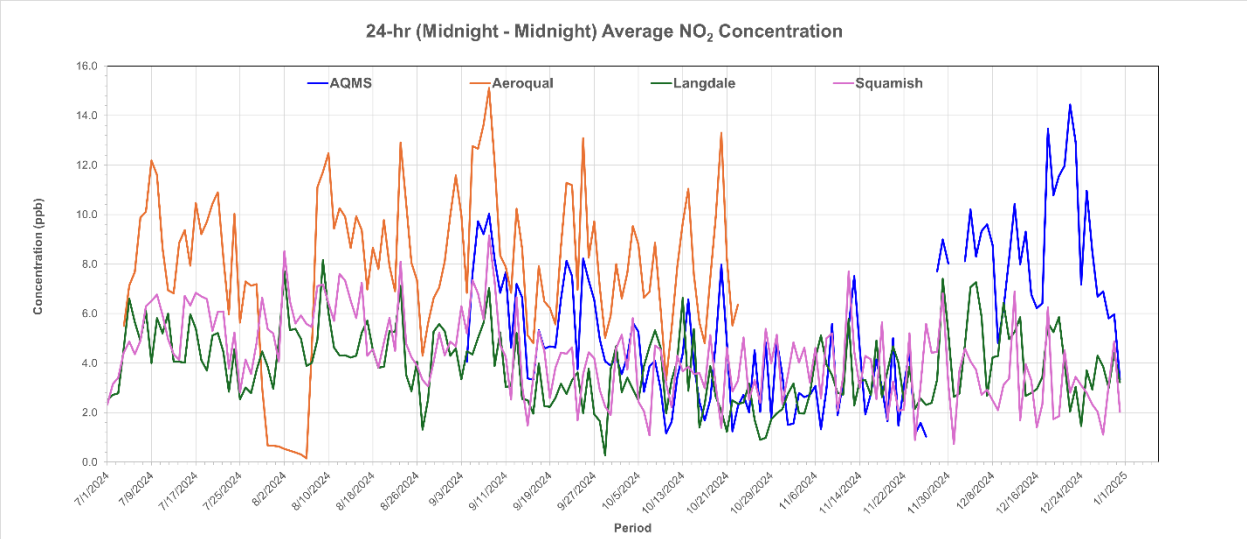


Figure B.11 Hourly PM Concentrations Recorded at the AQMS

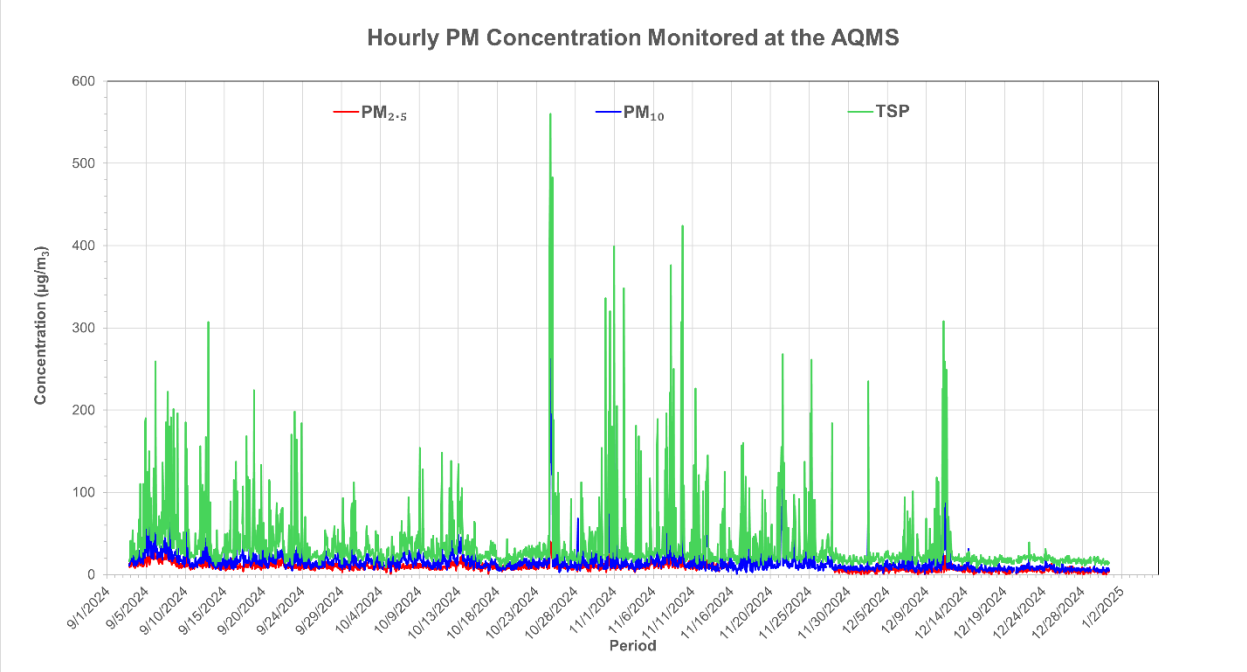


Figure B.12 Hourly PM Concentrations Recorded at the Aeroqual AQS1

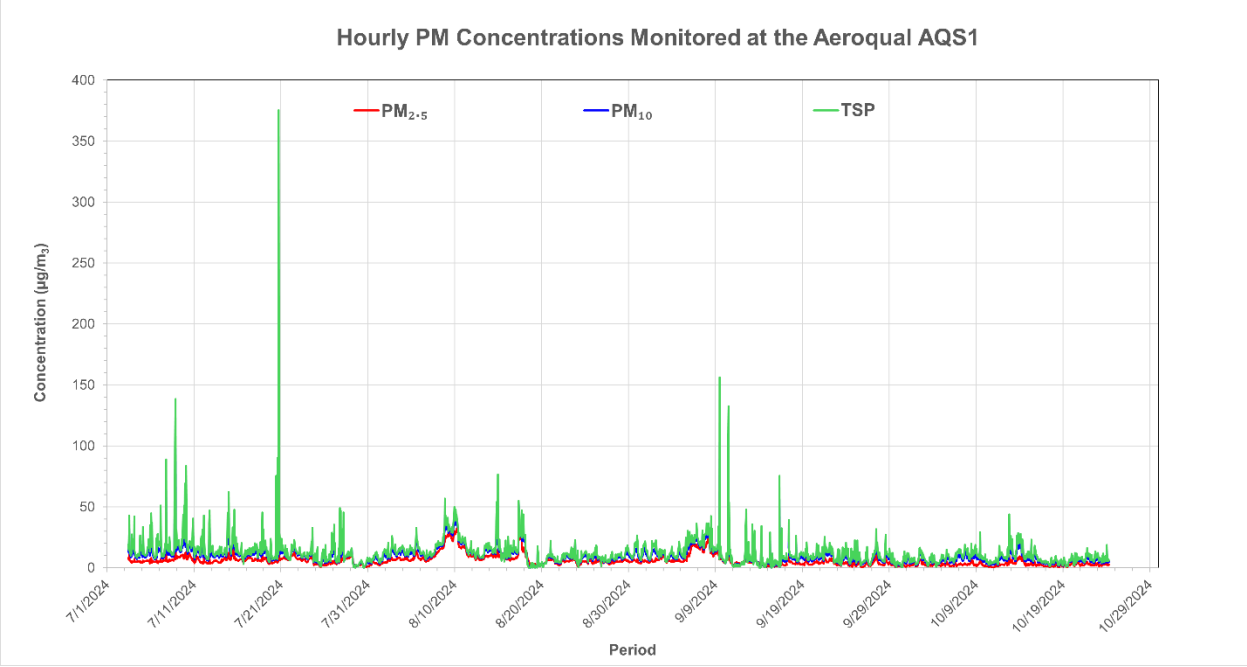


Figure B.13 Hour $PM_{2.5}$ Concentrations Recorded at the AQMS, Aeroqual AQS1 and at the Langdale and Squamish Regional Air Quality Stations

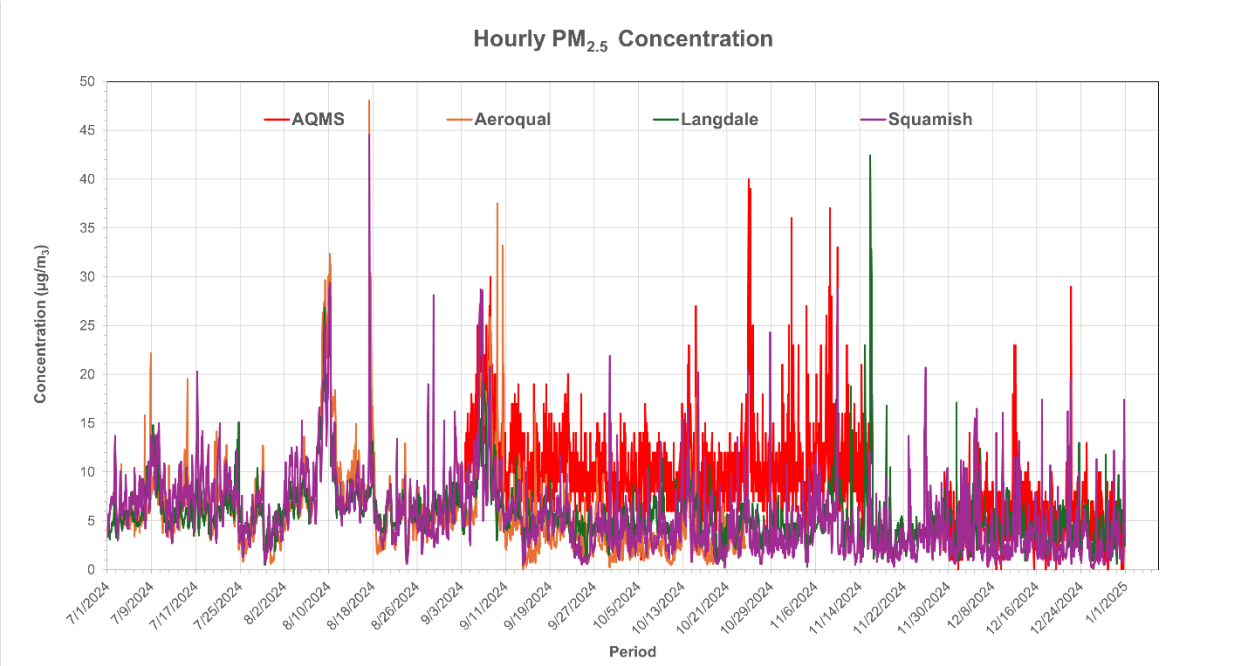


Figure B.14 24-Hourly Average PM Concentrations Recorded at the AQMS

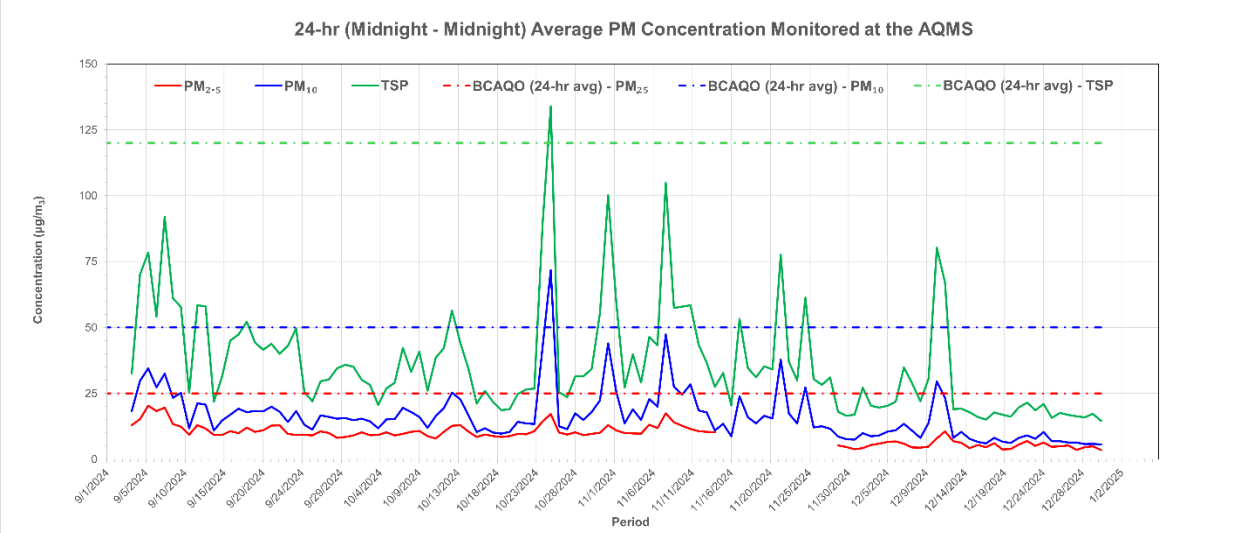


Figure B.15 24-Hourly Average PM Concentrations Recorded at the Aeroqual AQS1

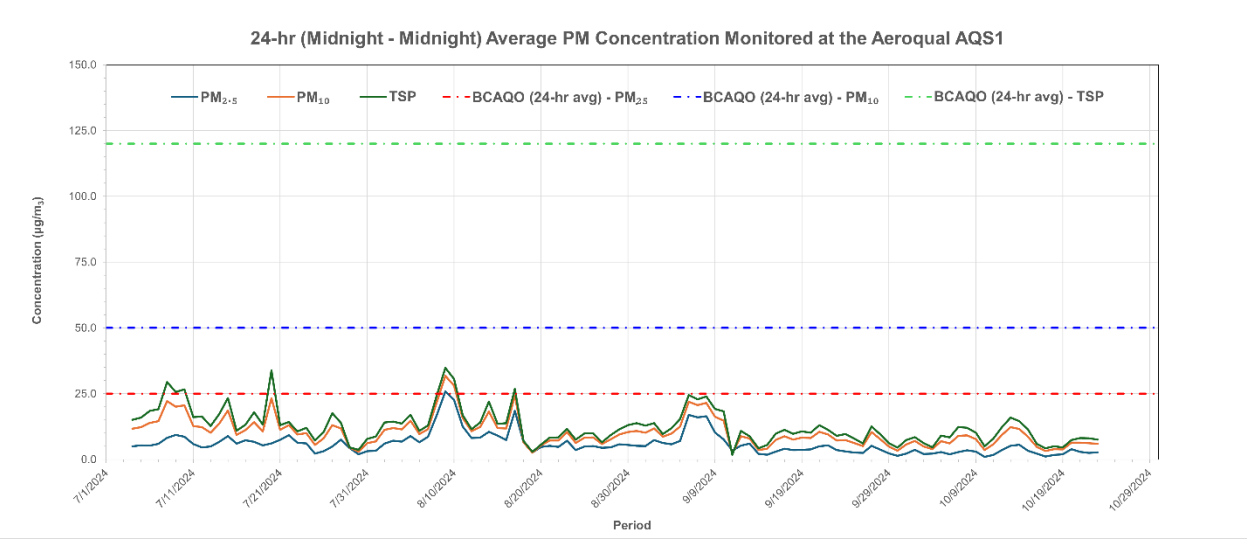


Figure B.16 24-Hour Average $PM_{2.5}$ Concentrations Recorded at the AQMS, Aeroqual AQS1 and at the Langdale and Squamish Regional Air Quality Stations

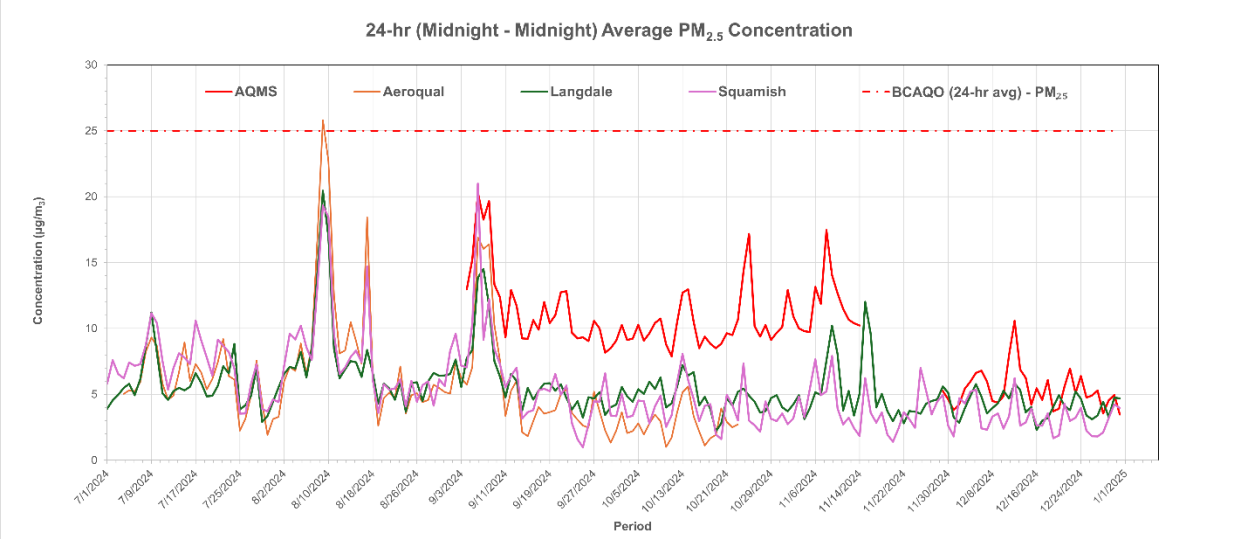


Figure B.17 Hourly PM_{10} Concentrations Recorded at the AQMS, Aeroqual AQS1 and at the Langdale Regional Air Quality Station

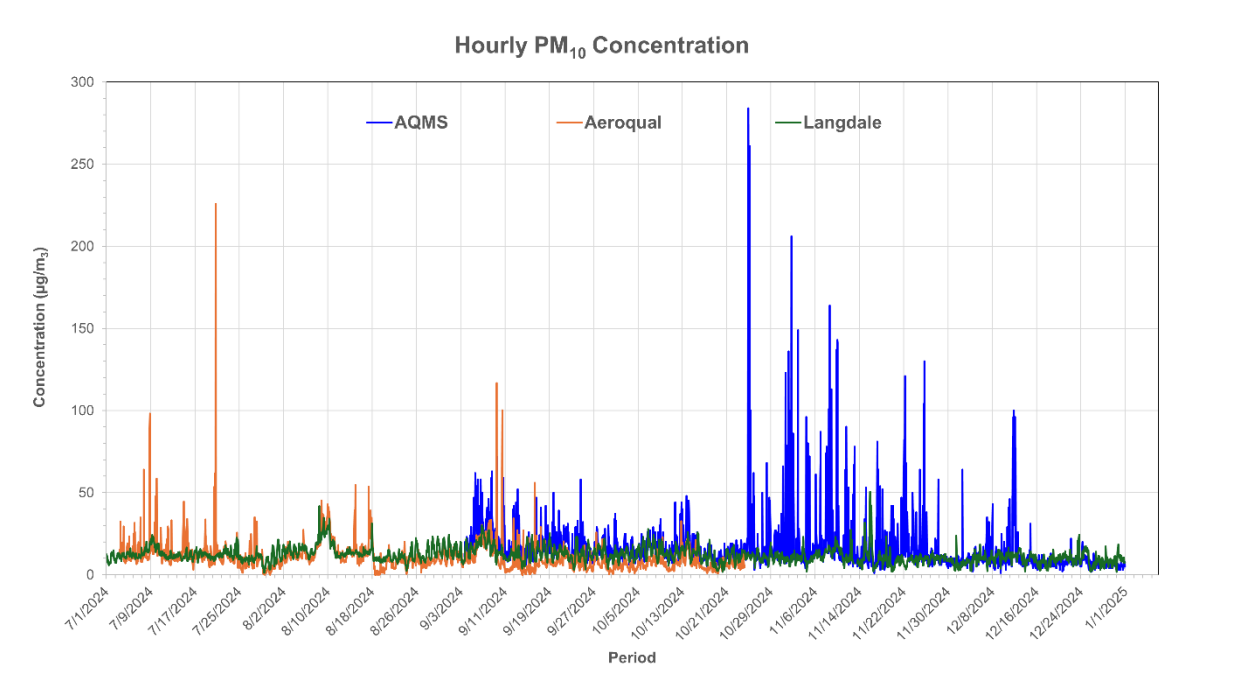


Figure B.18 24-Hourly Average PM_{10} Concentrations Recorded at the AQMS, Aeroqual AQS1 and at the Langdale Regional Air Quality Station

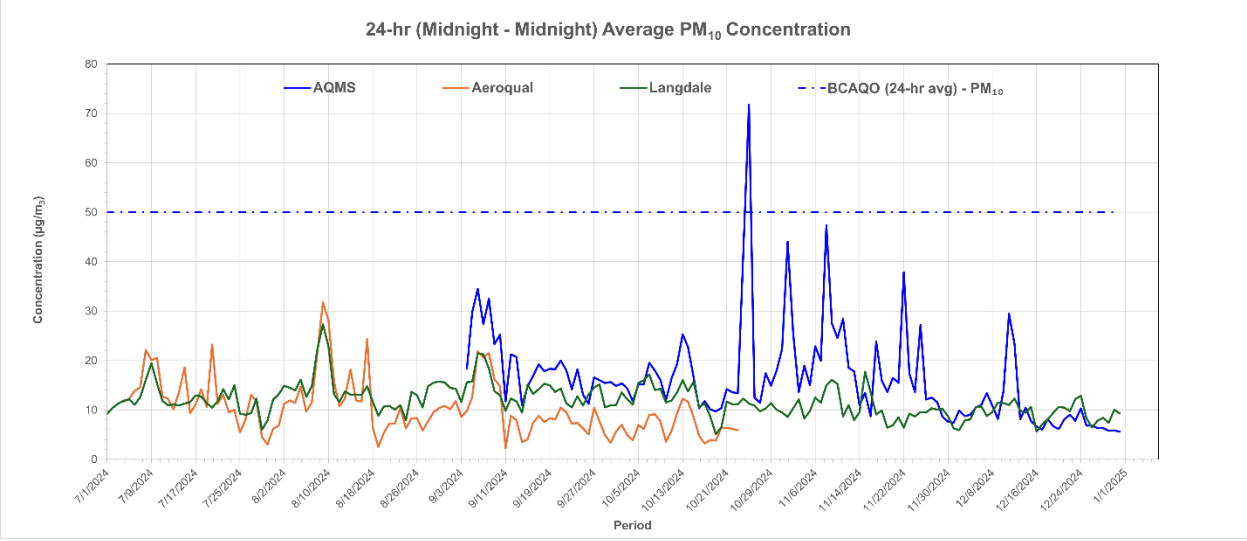


Figure B.19 Hourly TSP Concentrations Recorded at the AQMS and at the Aeroqual AQS1

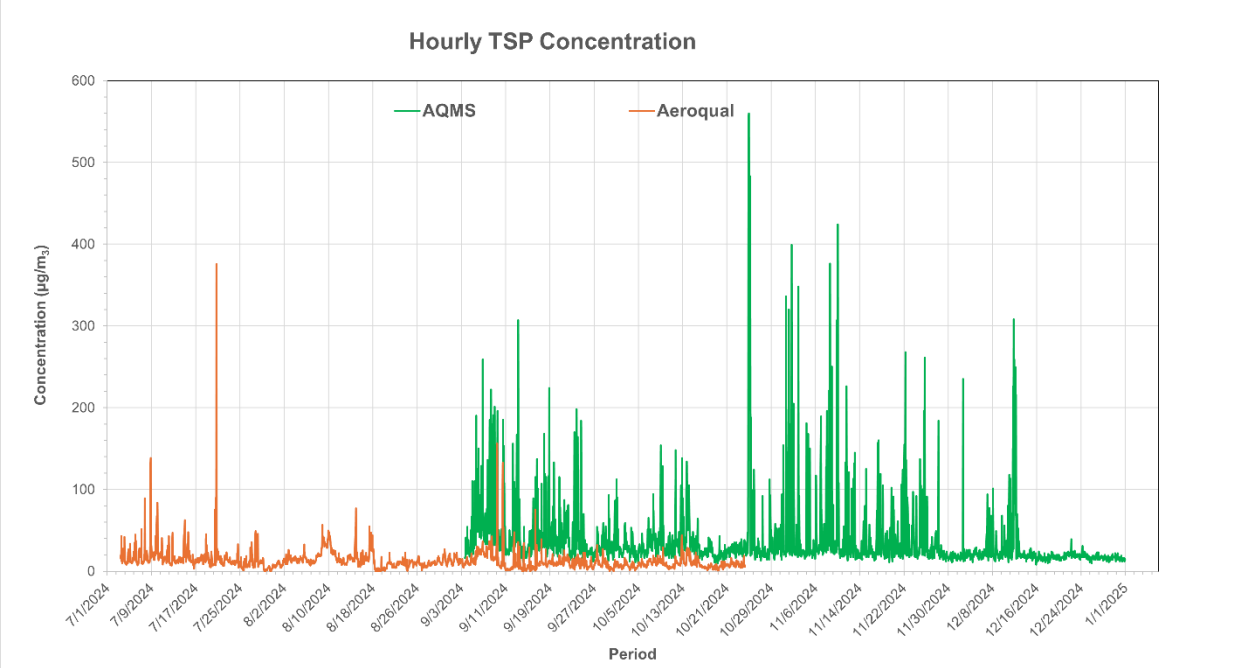
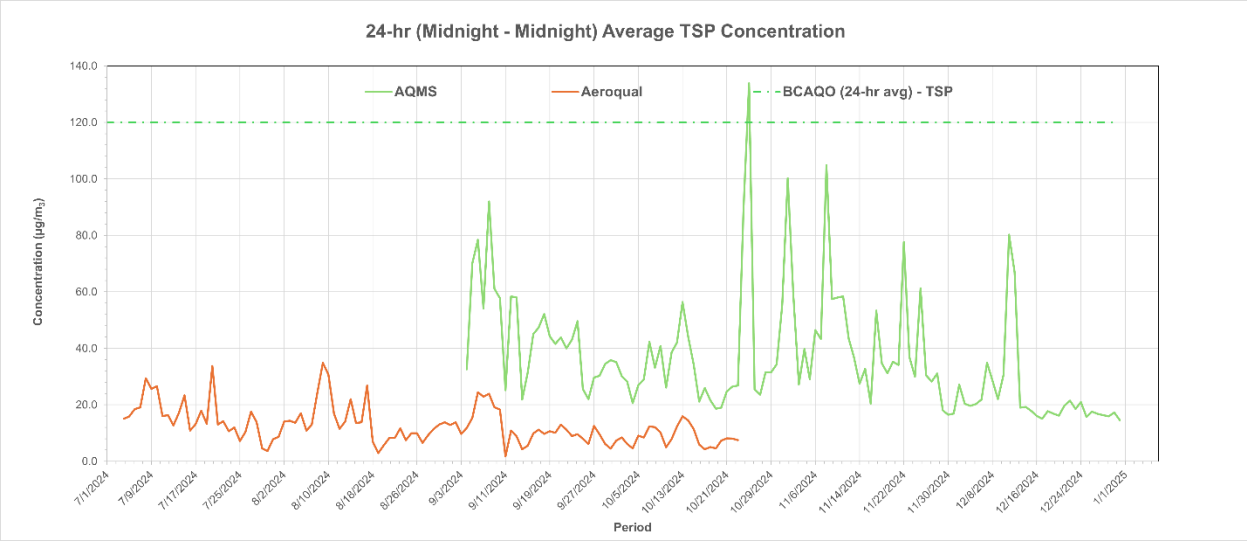


Figure B.20 24-Hourly Average TSP Concentrations Recorded at the AQMS and at the Aeroqual AQS1



Appendix C Summary of Maintenance and Calibration Activities

AGAT Laboratories

$PM_{2.5}$ Audit

Date:	September 3, 2024
Client:	WLNG
Location:	Woodfibre, BC
Coordinates:	
Technician:	Brad Moyles
Method:	Beta Attenuation Mass Monitor
Make:	Met One
Model:	BAM 1020
Serial number:	A12387
Parameter:	PM2.5
Operating Range:	
Start Time:	
Finish Time:	

Diagnostics

Flow Rate:	16.74	L/min
Ambient Temperature:	18.98	°C
Barometric Pressure:	766.8	mmHg
Tape Pressure:	775	mmHg
Filter Relative Humidity:	39	%
Filter Temperature:	27.9	°C
Smart Inlet Heater Status	OK	
Measurement Cycle Time	60 Minutes	
Background Zero:	86%	
Range Offset:		

Audit Reference Instruments

Make/Model	Serial Number	Date Last Calibrated
TriCal	188	Jun-21

Flow Check and Flow Calibration

Sample Flow	Target	Actual (Reference Standard)	Error (%)
As Found Flow/Leak Check	<1.0	0.30	
Check 1	15.0	15.03	0.20%
Check 2	18.4	18.28	-0.66%
Check 3	16.7	16.72	0.12%

Ambient Temperature:	**°C**	**Ambient Pressure:**	**mmHg**
Ambient Temperature (Reference)	18.98	Ambient Pressure (Reference)	767
Ambient Temperature (Analyzer)	19	Ambient Pressure (Analyzer)	767
filter RH:	**%**	**Membrane ABS:**	
Ambient Humidity (Reference)	63	ABS Value (Factory Setting)	0.845
Ambient Humidity (Analyzer)	34	ABS Value (Analyzer)	0.845

Audit Criteria:

Leak Check:	**0.30**	**PASS**
Sample Flow:	**16.68**	**PASS**
Ambient Temperature:	**0.11%**	**PASS**
Ambient Pressure:	**-0.03%**	**PASS**
Ambient RH Error:	**-85.29%**	**FAIL**
Membrane ABS:	**0.00%**	**PASS**

Notes:

Audit Results: **PASS**

AGAT Laboratories

PM_{10} Audit

Date:	September 3, 2024
Client:	WLNG
Location:	Woodfibre, BC
Coordinates:	
Technician:	Brad Moyles
Method:	Beta Attenuation Mass Monitor
Make:	Met One
Model:	BAM 1020
Serial number:	W22222
Parameter:	PM10
Operating Range:	
Start Time:	
Finish Time:	

Diagnostics

Flow Rate:	16.7	L/min
Ambient Temperature:	20.75	°C
Barometric Pressure:	766.4	mmHg
Tape Pressure:	767	mmHg
Filter Relative Humidity:	39	%
Filter Temperature:	30.6	°C
Smart Inlet Heater Status:	OK	
Measurement Cycle Time:	60 Minutes	
Background Zero:	1%	
Range Offset:		

Audit Reference Instruments

Make/Model	Serial Number	Date Last Calibrated
TriCal	188	Jun-21

Flow Check and Flow Calibration

Sample Flow	Target	Actual (Reference Standard)	Error (%)
As Found Flow/Leak Check	<1.0	0.50	
Check 1	15.0	14.94	-0.40%
Check 2	18.4	18.45	0.27%
Check 3	16.7	16.65	-0.30%

Ambient Temperature:	°C	Ambient Pressure:	mmHg
Ambient Temperature (Reference)	20.75	Ambient Pressure (Reference)	766
Ambient Temperature (Analyzer)	21	Ambient Pressure (Analyzer)	766
filter RH:	%	Membrane ABS:	
Ambient Humidity (Reference)	31	ABS Value (Factory Setting)	0.803
Ambient Humidity (Analyzer)	31	ABS Value (Analyzer)	0.803

Audit Criteria:

Leak Check:	0.50	PASS
Sample Flow:	16.70	PASS
Ambient Temperature:	1.19%	PASS
Ambient Pressure:	0.05%	PASS
Ambient RH Error:	0.00%	PASS
Membrane ABS:	0.00%	PASS

Notes:

Audit Results: PASS

AGAT Laboratories

PM_TSP_AUDIT

Date:	September 3, 2024
Client:	WLNG
Location:	Woodfibre, BC
Coordinates:	
Technician:	Brad Moyles
Method:	Beta Attenuation Mass Monitor
Make:	Met One
Model:	BAM 1020
Serial number:	A12385
Parameter:	PM2.5
Operating Range:	
Start Time:	
Finish Time:	

Diagnostics

Flow Rate:	16.69	L/min
Ambient Temperature:	18.85	°C
Barometric Pressure:	766.8	mmHg
Tape Pressure:	775	mmHg
Filter Relative Humidity:	18	%
Filter Temperature:	30	°C
Smart Inlet Heater Status	OK	
Measurement Cycle Time	60 Minutes	
Background Zero:	86%	
Range Offset:		

Audit Reference Instruments

Make/Model	Serial Number	Date Last Calibrated
TriCal	188	Jun-21

Flow Check and Flow Calibration

Sample Flow	Target	Actual (Reference Standard)	Error (%)
As Found Flow/Leak Check	<1.0	0.40	
Check 1	15.0	15.20	1.32%
Check 2	18.4	18.55	0.81%
Check 3	16.7	16.87	1.01%

Ambient Temperature:		**Ambient Pressure:**	**mmHg**
Ambient Temperature (Reference)	18.85	Ambient Pressure (Reference)	767
Ambient Temperature (Analyzer)	18.75	Ambient Pressure (Analyzer)	766
filter RH:	**%**	**Membrane ABS:**	
Ambient Humidity (Reference)	64	ABS Value (Factory Setting)	0.841
Ambient Humidity (Analyzer)	63	ABS Value (Analyzer)	0.841

Audit Criteria:

Leak Check:	**0.40**	**PASS**
Sample Flow:	**16.68**	**PASS**
Ambient Temperature:	**0.53%**	**PASS**
Ambient Pressure:	**0.10%**	**PASS**
Ambient RH Error:	**-1.59%**	**PASS**
Membrane ABS:	**0.00%**	**PASS**

Notes:

Audit Results: **PASS**

Quality System Forms

AGAT Laboratories — NO-NO_2-NO_X Installation

Revision: 3.0
11/13/2024
Jgallwey

AMBIENT AIR ANALYZER CALIBRATION FORM

Instructions - Use this form to record calibration data and calculations. Choose the type of calibration using the drop down menu at the top of the sheet. Complete the site information and include equipment type and serial number (S/N). Fill in all relevant boxes and the acceptance criteria will determine if the calibration hasd passed or failed. If the calibration has failed make necessary correction and/or calibrate the instrument until the calibration passes.

Site Information

Company	Woodfibre LNG	Plant	LNG	Job #	
Location	Squamish, BC			Date	September 3, 2024
				Start Time	8:30
				End Time	
				Last Cal Date:	N/A
					November 30, 2024

Calibrator & Monitor Information

Calibrator Information		Analyzer Information	
Calibrator M/M	Sabio	Analyzer M/M	42i
Calibrator S/N	08500312R	Analyzer S/N	707120758
Zero Air S/N	Zero Air Cylinder	Detection Principle	Chemiluminescence
Verification Date	16-Apr-24		

Calibration Standard

Calibration Standard	Type	ID Number	Expiry Date	NOx Conc.	NO Conc.	ppm ± 2% @ 35ºC	Tank Pressure	
No,Nox	Cylinder	T37WMYH	18-Jul-23	48.5	48.46		2000	PSI

Analyzer Settings	Before Calibration	After Calibration
Concentration Range ppb	0-500 ppb	0-500 ppb
Background ppb	N/A	
Coefficient	N/A	
Sample Flow cc/min	N/A	
Span Value NOX / NO2	N/A	

Calibrator Flow Measurement (sccm)

Calibration Point	Average Cal Gas Flow	Total Flow	Average Dilution Air Flow
Zero	0.0	4999.0	4999.0
High (100%)	51.9	4998.0	4946.1
Middle (60%)	30.5	5000.0	4969.5
Low (30%)	15.4	5000.0	4984.6

Current Shelter Temp	23	ºC
Current Barometric Pressure	769	mm/hg

Calibration Data - NO_X

	Stability Start	15- Minute	12- Minute	9- Minute	6- Minute	3- Minute	Average	Calculated Stability |x| ppb
As Found Zero	8:45	3.1	3.2	4.1	3.8	3.6	3.6	0.4
As Found Span	9:00	507.0	508.9	507.2	507.6	506.2	507.4	0.9
After Zero Adjust	9:15	0.6	0.5	0.6	0.7	0.7	0.6	0.1
After Span Adjust - 1	9:30	498.8	499.9	500.2	502.6	503.2	500.9	1.7
After Span Adjust - 2	9:45	290.1	290.2	290.5	292.3	292.8	291.2	1.1
After Span Adjust - 3	10:00	141.6	141.2	141.5	141.8	141.9	141.6	0.2

Set point	Dilution Air Flow Rate @ STP (corrected)	Calibration Gas Flow @ STP (corrected)	Calculated Conc. (Cc)	Analyzer Response	Correction Factor (Cc/Ci)	Point Error %	Slope Error (%)	Converted Data Response
As Found Zero	1099	0.0	0.0	3.6	N/A	NA		3.6
As Found Span	1087	11.4	503.6	507.4	0.9926	0.7%		507.4
After Zero Adjust	1099	0.0	0.0	0.6	N/A	NA		0.6
After Span Adjust - 1	1087	11.4	503.6	500.9	1.0054	-0.5%	2.5%	500.9
After Span Adjust - 2	1093	6.7	295.9	291.2	1.0160	-1.6%	3.9%	291.2
After Span Adjust - 3	1096	3.4	149.4	141.6	1.0549	-5.5%	8.3%	141.6

Intercept	2.921545
Correlation Coefficient	0.999995
Slope	1.014040

Calibration Data - NO

	Stability Start	15- Minute	12- Minute	9- Minute	6- Minute	3- Minute	Average	Calculated Stability |x| ppb
As Found Zero	8:45	0.0	0.0	-0.1	-0.1	0.0	0.0	0.0
As Found Span	9:00	497.0	497.0	496.0	496.0	496.0	496.4	0.5
After Zero Adjust	9:15	0.2	0.2	0.3	0.0	0.1	0.2	0.1
After Span Adjust - 1	9:30	503.0	503.0	503.0	503.0	503.0	503.0	0.0
After Span Adjust - 2	9:45	294.4	295.0	295.0	295.0	295.0	294.9	0.2
After Span Adjust - 3	10:00	144.0	144.0	144.3	145.0	145.0	144.5	0.5

Set point	Dilution Air Flow Rate @ STP (corrected)	Calibration Gas Flow @ STP (corrected)	Calculated Conc. (Cc)	Analyzer Response	Correction Factor (Cc/Ci)	Point Error %	Slope Error (%)	Converted Data Response
As Found Zero	1099	0.0	0.0	0.0	N/A	NA		0.0
As Found Span	1087	11.4	503.2	496.4	1.0137	-1.4%		496.4
After Zero Adjust	1099	0.0	0.0	0.2	N/A	NA		0.2
After Span Adjust - 1	1087	11.4	503.2	503.0	1.0004	0.0%	1.6%	503.0
After Span Adjust - 2	1093	6.7	295.6	294.9	1.0025	-0.2%	2.1%	294.9
After Span Adjust - 3	1096	3.4	149.3	144.5	1.0332	-3.3%	5.6%	144.5

Intercept	1.902176
Correlation Coefficient	0.999976
Slope	1.012239

Calibration Data - NO_2

	Stability Start	15- Minute	12- Minute	9- Minute	6- Minute	3- Minute	Average	Calculated Stability |x| ppb
15 min ref	10:15	-2.0	-1.0	-1.0	-1.0	-1.0	-1.2	0.4
400	10:30	447.0	447.0	448.0	449.0	449.0	448.0	0.9
300	10:45	241.0	241.0	240.0	240.0	240.0	240.4	0.5
150	11:00	126.0	126.0	126.0	125.0	125.0	125.6	0.5

Set point	Nox Response	NO Response	NO2 Calculated Conc.	NO2 Analyzer Conc.	Correction Factor (Cc/Ci)	Slope Error (%)	Converted Data Response
15 Min Reference	501.0	502.0	-1.0	-1.0	N/A	NA	-1.2
Adjusted GPT 400 O3	492.0	43.0	449.0	449.0	1.0000	2.0%	448.0
GPT 2 (200 cc O3)	494.0	254.0	240.0	240.0	1.0000	2.6%	240.4
GPT 3 (150 cc O3)	495.0	369.0	126.0	126.0	1.0000	3.6%	125.6
Zero	0.0	0.2	-0.2	-0.2	N/A	NA	1.2

Intercept	0.000000
Correlation Coefficient	0.999994
Slope	0.997545

Acceptance Criteria - From Part B1 Ambient Air Quality Monitoring BC Field Sampling Manual

1) Instrument is adjusted to give a correction factor (Ccalculated / Cindicated) as close to 1.0 as possible.

2) Each calibration point must be within ±10% of the expected criteria

3) As found calibration point must be within ±15% of the expected criteria

4) Analyzer must run within ±10% of the manufacturer's specifications

5) Slope must be ≥ 0.90 and ≤ 1.10

6) Intercept must be = 3% of full range of analyzer ± 30 ppb

7) Correlation coefficient must be = 0.9950

	NOx	NO	NO_2
As Found Span vs. Expected	0.7%	-1.4%	2.0%
	PASS	PASS	PASS
After Span Adjust - 1	2.5%	1.6%	2.0%
	PASS	PASS	PASS
After Span Adjust - 2	3.9%	2.1%	2.6%
	PASS	PASS	PASS
After Span Adjust - 3	8.3%	5.6%	3.6%
	PASS	PASS	PASS
Slope	1.014	1.012	0.998
	PASS	PASS	PASS
Intercept	2.92	1.90	0.00
	PASS	PASS	PASS
Correlation	1.000	1.000	1.000
	PASS	PASS	PASS

NOx	**According to BC MOE Guidelines this calibration has PASSED**
NO	**According to BC MOE Guidelines this calibration has PASSED**
NO2	**According to BC MOE Guidelines this calibration has PASSED**

Calibration Performed by: Brad Moyles

Comments: Routine Calibration

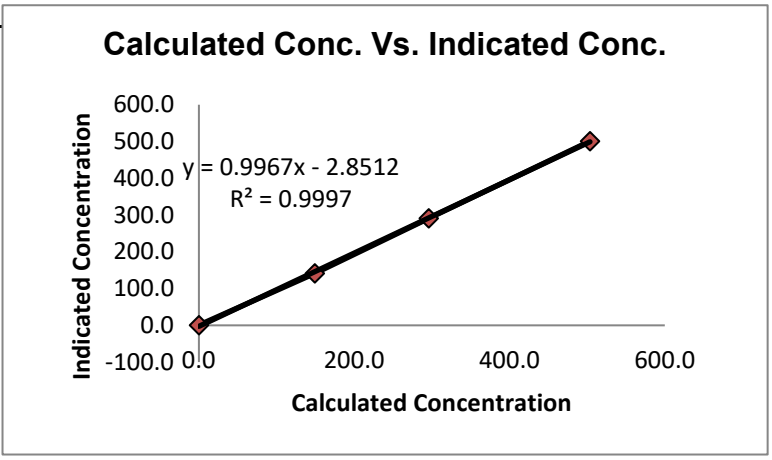
NOx - NO - NO2 Least Squares Calculations

Company: Woodfibre LNG
Date: 3-Sep-24
Analyzer: 42i
Units: ppb
Conc. Range: 0 - 500

Location: Squamish, BC
Job Number: 0.00E+00

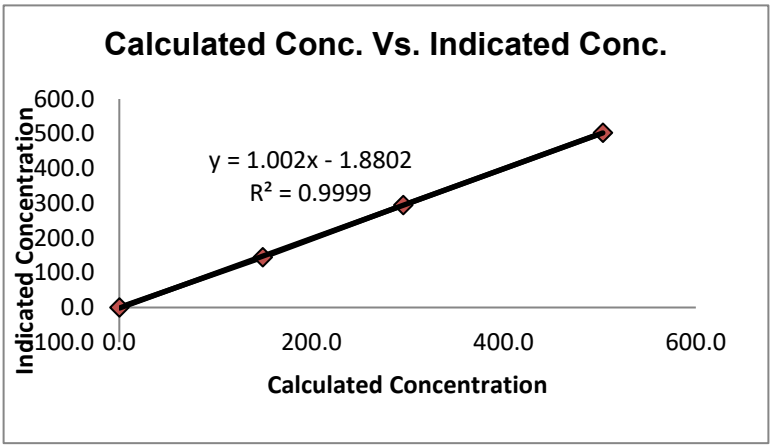
NOx	
Calculated Concentration	Converted Data Response
503.6	500.9
295.9	291.2
149.4	141.6
0.0	0.6

Slope	1.0140
Intercept	2.9215
Correlation	1.0000



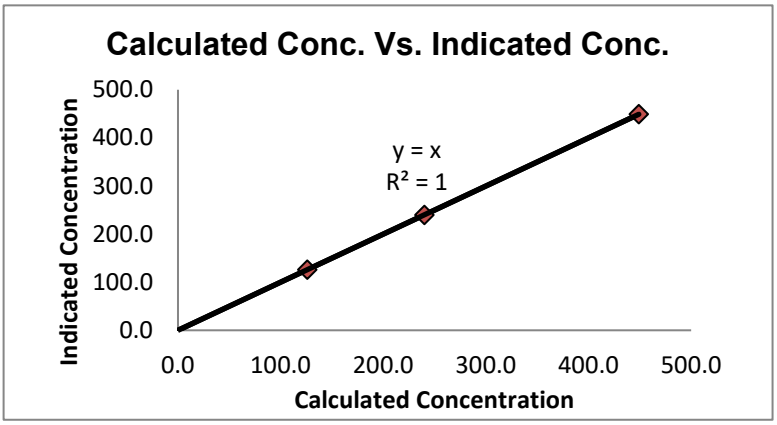
NO	
Calculated Concentration	Converted Data Response
503.2	503.0
295.6	294.9
149.3	144.5
0.0	0.2

Slope	1.0122
Intercept	1.9022
Correlation	1.0000



NO_2	
NO Decrease	NO_2 increase
449.0	449.0
240.0	240.0
126.0	126.0
-0.2	-0.2

Slope	0.9975
Intercept	0.0000
Correlation	1.0000



AGAT Laboratories

$PM_{2.5}$ Audit

Date:	November 27, 2024
Client:	Woodfibre LNG
Location:	Woodfibre, BC
Coordinates:	
Technician:	Brad Moyles
Method:	Beta Attenuation Mass Monitor
Make:	Met One
Model:	BAM 1020
Serial number:	A12387
Parameter:	PM2.5
Operating Range:	1000 ug/m^3
Start Time:	14:00
Finish Time:	15:00

Diagnostics

Flow Rate:	16.73	L/min
Ambient Temperature:	5.7	°C
Barometric Pressure:	771	mmHg
Tape Pressure:	767	mmHg
Filter Relative Humidity:	22	%
Filter Temperature:	24.8	°C
Smart Inlet Heater Status:	OK	
Measurement Cycle Time:	60 Minutes	
Background Zero:	86%	
Range Offset:		

Audit Reference Instruments

Make/Model	Serial Number	Date Last Calibrated
TriCal Flow Device	188	3/28/2024
CNX +3000 Fluke	2445002	3/21/2024

Flow Check and Flow Calibration

Sample Flow	Target	Actual (Reference Standard)	Error (%)
As Found Flow/Leak Check	**<1.0**	0.50	
Check 1	**15.0**	15.41	2.66%
Check 2	**18.4**	18.44	0.22%
Check 3	**16.7**	16.72	0.12%

Ambient Temperature:	**°C**	**Ambient Pressure:**	**mmHg**
Ambient Temperature (Reference)	5.7	Ambient Pressure (Reference)	771
Ambient Temperature (Analyzer)	5.7	Ambient Pressure (Analyzer)	771
filter RH:	**%**	**Membrane ABS:**	
Ambient Humidity (Reference)	22	ABS Value (Factory Setting)	0.855
Ambient Humidity (Analyzer)	22	ABS Value (Analyzer)	0.855

Audit Criteria:

Leak Check:	**0.50**	**PASS**
Sample Flow:	**16.68**	**PASS**
Ambient Temperature:	**0.00%**	**PASS**
Ambient Pressure:	**0.00%**	**PASS**
Ambient RH Error:	**0.00%**	**PASS**
Membrane ABS:	**0.00%**	**PASS**

Notes:

Audit Results: **PASS**

AGAT Laboratories

$PM_{2.5}$ Maintenance Log

TO BE COMPLETED/UPDATED MONTHLY

Maintenance Item	Frequency Due	Completed (Y/N)	Date Last Completed	Next Service Date
Nozzle and vane cleaning	2 Months	Y	11/27/2024	2/28/2025
Leak check	2 Months	Y	11/27/2024	2/28/2025
Flow system check	2 Months	Y	11/27/2024	2/28/2025
Clean capstan shaft and pinch roller	2 Months	Y	11/27/2024	2/28/2025
Clean inlet and cyclone particle trap	2 Months	Y	11/27/2024	2/28/2025
Download and save digital data and error log	2 Months	Y	11/27/2024	2/28/2025
Compare digital data to analog data	2 Months	Y	11/27/2024	2/28/2025
Check and set clock	2 Months	Y	11/27/2024	2/28/2025
Replace filter tape	2 Months	N		2/28/2025
Run SELF TEST	2 Months	Y	11/27/2024	2/28/2025
Download and verify settings file	2 Months	Y	11/27/2024	2/28/2025
Flow system audit and calibration	2 Months	Y	11/27/2024	2/28/2025
Completely disassemble and clean inlet and cyclone	2 Months	Y	11/27/2024	2/28/2025
Ambient pressure, temperature and RH audit and calibration	2 Months	Y	11/27/2024	2/28/2025
Replace or clean pump muffler	12 Months	N		
Test smart heater	24 Months	N		
Perform 72-hour BKGD test	12 Months	N	8/30/2024	9/30/2025
Clean internal debris filter	12 Months	N		
Remove and check membrane span foil	12 Months	Y	11/27/2024	11/30/2024
Beta detector count rate and dark count test	12 Months	N		
Clean vertical inlet tube	12 Months	N		
Test analog DAC output if necessary	12 Months	N		
Replace lithium battery if necessary	12 Months	N		
Rebuild vacuum pump	24 Months	N		
Replace nozzle o-ring	24 Months	N		
Replace pump tubing if necessary	24 Months	N		

AGAT Laboratories

PM_{10} Audit

Date:	November 26, 2024
Client:	Woodfibre LNG
Location:	Woodfibre, BC
Coordinates:	
Technician:	Brad Moyles
Method:	Beta Attenuation Mass Monitor
Make:	Met One
Model:	BAM 1020
Serial number:	W22222
Parameter:	PM10
Operating Range:	1000 ug/m^3
Start Time:	14:00
Finish Time:	15:00

Diagnostics

Flow Rate:	16.64	L/min
Ambient Temperature:	2.5	°C
Barometric Pressure:	766.5	mmHg
Tape Pressure:	766	mmHg
Filter Relative Humidity:	21	%
Filter Temperature:	24.6	°C
Smart Inlet Heater Status:	OK	
Measurement Cycle Time:	60 Minutes	
Background Zero:	1%	
Range Offset:		

Audit Reference Instruments

Make/Model	Serial Number	Date Last Calibrated
TriCal Flow Device	188	3/28/2024
CNX +3000 Fluke	2445002	3/21/2024

Flow Check and Flow Calibration

Sample Flow	Target	Actual (Reference Standard)	Error (%)
As Found Flow/Leak Check	**<1.0**	0.60	
Check 1	**15.0**	15.01	0.07%
Check 2	**18.4**	18.18	-1.21%
Check 3	**16.7**	16.51	-1.15%

Ambient Temperature:	**°C**	**Ambient Pressure:**	**mmHg**
Ambient Temperature (Reference)	2.4	Ambient Pressure (Reference)	767
Ambient Temperature (Analyzer)	2.2	Ambient Pressure (Analyzer)	766
filter RH:	**%**	**Membrane ABS:**	
Ambient Humidity (Reference)	21	ABS Value (Factory Setting)	0.805
Ambient Humidity (Analyzer)	21	ABS Value (Analyzer)	0.805

Audit Criteria:

Leak Check:	**0.60**	**PASS**
Sample Flow:	**16.70**	**PASS**
Ambient Temperature:	**9.09%**	**PASS**
Ambient Pressure:	**0.13%**	**PASS**
Ambient RH Error:	**0.00%**	**PASS**
Membrane ABS:	**0.00%**	**PASS**

Notes:

Audit Results: **PASS**

AGAT Laboratories

PM_{10} Maintenance Log

TO BE COMPLETED/UPDATED MONTHLY

Maintenance Item	Frequency Due	Completed (Y/N)	Date Last Completed	Next Service Date
Nozzle and vane cleaning	As needed	Y	11/27/2024	2/28/2025
Leak check	2 Months	Y	11/27/2024	2/28/2025
Flow system check	2 Months	Y	11/27/2024	2/28/2025
Clean capstan shaft and pinch roller	2 Months	Y	11/27/2024	2/28/2025
Clean inlet and cyclone particle trap	2 Months	Y	11/27/2024	2/28/2025
Download and save digital data and error log	2 Months	Y	11/27/2024	2/28/2025
Compare digital data to analog data	2 Months	Y	11/27/2024	2/28/2025
Check and set clock	2 Months	Y	11/27/2024	2/28/2025
Replace filter tape	2 Months	N		2/28/2025
Run SELF TEST	2 Months	Y	11/27/2024	2/28/2025
Download and verify settings file	2 Months	Y	11/27/2024	2/28/2025
Flow system audit and calibration	2 Months	Y	11/27/2024	2/28/2025
Completely disassemble and clean inlet and cyclone	2 Months	Y	11/27/2024	2/28/2025
Ambient pressure, temperature and RH audit and calibration	2 Months	Y	11/27/2024	2/28/2025
Replace or clean pump muffler	12 Months	N		
Test smart heater	24 Months	N		
Perform 72-hour BKGD test	12 Months	N	8/30/2024	9/30/2025
Clean internal debris filter	12 Months	N		
Remove and check membrane span foil	12 Months	Y	11/27/2024	11/30/2024
Beta detector count rate and dark count test	12 Months	N		
Clean vertical inlet tube	12 Months	N		
Test analog DAC output if necessary	12 Months	N		
Replace lithium battery if necessary	12 Months	N		
Rebuild vacuum pump	24 Months	N		
Replace nozzle o-ring	24 Months	N		
Preplace pump tubing if necessary	24 Months	N		

AGAT Laboratories			eLog Report		
Station	WLNG, Woodfibre, BC		Project #	24C222762	
Date	November 26-27, 2024	Time In	11:00	Time Out	13:00
Weather Conditions	Clear, 2°C		Technician	BM	

On site for AQM station quarterly calibration
Pressure check, passed
Flow calibration, passed for PM10
Flow calibration, failed for PM2.5 - Spare instrument was installed and checked again on the 27th
Leak check, passed
Ambient temperature check, passed
Shelter temperature check, passed
RH check - unable to complete as the reference probe was unavailable
BP check, passed

Cleaned sample inlets for PM2.5 and PM10

AGAT Laboratories

PM_TSP_AUDIT

Date:	November 26, 2024
Client:	Woodfibre LNG
Location:	Woodfibre, BC
Coordinates:	
Technician:	Brad Moyles
Method:	Beta Attenuation Mass Monitor
Make:	Met One
8*-.	BAM 1020
Serial number:	A12385
Parameter:	TSP
Operating Range:	1000 ug/m^3
Start Time:	11:00
Finish Time:	13:00

Diagnostics

Flow Rate:	16.7	L/min
Ambient Temperature:	5	°C
Barometric Pressure:	767	mmHg
Tape Pressure:	767	mmHg
Filter Relative Humidity:	21	%
Filter Temperature:	24	°C
Smart Inlet Heater Status:	OK	
Measurement Cycle Time:	60 Minutes	
Background Zero:	86%	
Range Offset:		

Audit Reference Instruments

Make/Model	Serial Number	Date Last Calibrated
TriCal Flow Device	188	3/28/2024
CNX +3000 Fluke	2445002	3/21/2024

Flow Check and Flow Calibration

Sample Flow	Target	Actual (Reference Standard)	Error (%)
As Found Flow/Leak Check	**<1.0**	0.30	
Check 1	**15.0**	15.17	1.12%
Check 2	**18.4**	18.61	1.13%
Check 3	**16.7**	16.92	1.30%

Ambient Temperature:	**°C**	**Ambient Pressure:**	**mmHg**
Ambient Temperature (Reference)	5	Ambient Pressure (Reference)	767
Ambient Temperature (Analyzer)	5	Ambient Pressure (Analyzer)	766
filter RH:	**%**	**Membrane ABS:**	
Ambient Humidity (Reference)	21	ABS Value (Factory Setting)	0.841
Ambient Humidity (Analyzer)	21	ABS Value (Analyzer)	0.841

Audit Criteria:

Leak Check:	**0.30**	**PASS**
Sample Flow:	**16.68**	**PASS**
Ambient Temperature:	**0.00%**	**PASS**
Ambient Pressure:	**0.13%**	**PASS**
Ambient RH Error:	**0.00%**	**PASS**
Membrane ABS:	**0.00%**	**PASS**

Notes:

Audit Results: **PASS**

AGAT Laboratories

TSP Maintenance Log

TO BE COMPLETED/UPDATED MONTHLY

Maintenance Item	Frequency Due	Completed (Y/N)	Date Last Completed	Next Service Date
Nozzle and vane cleaning	2 Months	Y	11/26/2024	2/28/2025
Leak check	2 Months	Y	11/26/2024	2/28/2025
Flow system check	2 Months	Y	11/26/2024	2/28/2025
Clean capstan shaft and pinch roller	2 Months	Y	11/26/2024	2/28/2025
Clean inlet and cyclone particle trap	2 Months	Y	11/26/2024	2/28/2025
Download and save digital data and error log	2 Months	Y	11/26/2024	2/28/2025
Compare digital data to analog data	2 Months	Y	11/26/2024	2/28/2025
Check and set clock	2 Months	Y	11/26/2024	2/28/2025
Replace filter tape	2 Months	N		2/28/2025
Run SELF TEST	2 Months	Y	11/26/2024	2/28/2025
Download and verify settings file	2 Months	Y	11/26/2024	2/28/2025
Flow system audit and calibration	2 Months	Y	11/26/2024	2/28/2025
Completely disassemble and clean inlet and cyclone	2 Months	Y	11/26/2024	2/28/2025
Ambient pressure, temperature and RH audit and calibration	2 Months	Y	11/26/2024	2/28/2025
Replace or clean pump muffler	12 Months	N		
Test smart heater	24 Months	N		
Perform 72-hour BKGD test	12 Months	N	8/30/2024	30/9/2025
Clean internal debris filter	12 Months	N		
Remove and check membrane span foil	12 Months	N		
Beta detector count rate and dark count test	12 Months	N		
Clean vertical inlet tube	12 Months	N		
Test analog DAC output if necessary	12 Months	N		
Replace lithium battery if necessary	12 Months	N		
Rebuild vacuum pump	24 Months	N		
Replace nozzle o-ring	24 Months	N		
Replace pump tubing if necessary	24 Months	N		

AGAT Laboratories			eLog Report		
Station	WLNG, Woodfibre, BC		Project #	24C222762	
Date	November 26, 2024	Time In	11:00	Time Out	13:00
Weather Conditions	Clear, 2C		Technician	BM	

On site for AQM station quarterly check/calibration
Pressure check, passed
Flow calibration, passed
Leak check, passed
Ambient temperature check, passed
Shelter temperature check, passed
RH check - unable to complete as reference probe was unavailable
BP check, passed

Cleaned sample inlet

Quality System Forms

AGAT Laboratories — $NO\text{-}NO_2\text{-}NO_X$ Routine

Revision: 3.0
12/19/2024
Jgallwey

AMBIENT AIR ANALYZER CALIBRATION FORM

Instructions - Use this form to record calibration data and calculations. Choose the type of calibration using the drop down menu at the top of the sheet. Complete the site information and include equipment type and serial number (S/N). Fill in all relevant boxes and the acceptance criteria will determine if the calibration hasd passed or failed. If the calibration has failed make necessary correction and/or calibrate the instrument until the calibration passes.

Site Information

Company	Woodfibre LNG	Plant	Woodfibre LNG	Job #	24C222762
Location	Woodfibre, BC			Date	November 27, 2024
				Start Time	11:00
				End Time	15:00
				Last Cal Date:	September 3, 2024
					February 28, 2025

Calibrator & Monitor Information

Calibrator Information		Analyzer Information	
Calibrator M/M	Sabio	Analyzer M/M	42i
Calibrator S/N	08500312R	Analyzer S/N	707120758
Zero Air S/N	Zero Air Cylinder	Detection Principle	Chemiluminescence
Verification Date	16-Apr-24		

Calibration Standard

Calibration Standard	Type	ID Number	Expiry Date	NOx Conc.	NO Conc.	ppm ± 2% @ 35ºC	Tank Pressure	
NO, NOx	Cylinder	CC522261	29-Nov-25	51.33	50.84		2000	PSI

Analyzer Settings	Before Calibration	After Calibration
Concentration Range ppb	0-500 ppb	0-500 ppb
Background ppb	N/A	8.3 / 8.2
Coefficient	N/A	1.033 / 0.985
Sample Flow cc/min	N/A	0.626
Span Value NOX / NO2	N/A	374 / 388

Calibrator Flow Measurement (sccm)

Calibration Point	Average Cal Gas Flow	Total Flow	Average Dilution Air Flow
Zero	0.0	4999.0	4999.0
High (100%)	49.2	4998.0	4948.8
Middle (60%)	29.5	5000.0	4970.5
Low (30%)	18.5	5000.0	4981.5

Current Shelter Temp	19.1	ºC
Current Barometric Pressure	769	mm/hg

Calibration Data - NO_X

	Stability Start	15- Minute	12- Minute	9- Minute	6- Minute	3- Minute	Average	Calculated Stability |x| ppb
As Found Zero	9:30	1.6	1.6	1.5	2.3	1.5	1.7	0.3
As Found Span	9:50	394.0	437.0	447.0	465.0	528.0	454.2	43.7
After Zero Adjust	10:50	0.0	0.0	0.0	0.0	0.0	0.0	0.0
After Span Adjust - 1	11:10	503.0	503.0	503.0	501.0	501.0	502.2	1.0
After Span Adjust - 2	11:30	293.0	294.0	294.0	293.0	293.0	293.4	0.5
After Span Adjust - 3	11:45	195.0	194.1	194.1	194.0	193.0	194.0	0.6

Set point	Dilution Air Flow Rate @ STP (corrected)	Calibration Gas Flow @ STP (corrected)	Calculated Conc. (Cc)	Analyzer Response	Correction Factor (Cc/Ci)	Point Error %	Slope Error (%)	Converted Data Response
As Found Zero	913	0.0	0.0	1.7	N/A	NA		1.7
As Found Span	903	9.0	505.3	454.2	1.1125	-11.2%		454.2
After Zero Adjust	913	0.0	0.0	0.0	N/A	NA		0.0
After Span Adjust - 1	903	9.0	505.3	502.2	1.0062	-0.6%	-1.2%	502.2
After Span Adjust - 2	907	5.4	302.8	293.4	1.0322	-3.2%	1.3%	293.4
After Span Adjust - 3	909	3.4	189.9	194.0	0.9788	2.1%	-4.2%	194.0

Intercept	-0.616051
Correlation Coefficient	0.999208
Slope	0.983562

Calibration Data - NO

	Stability Start	15- Minute	12- Minute	9- Minute	6- Minute	3- Minute	Average	Calculated Stability |x| ppb
As Found Zero	9:30	1.4	1.4	1.7	1.4	1.4	1.5	0.1
As Found Span	9:50	387.0	429.0	443.0	458.0	526.0	448.6	45.4
After Zero Adjust	10:50	0.0	0.0	0.1	0.0	0.1	0.0	0.0
After Span Adjust - 1	11:10	503.0	503.0	503.0	501.0	501.0	502.2	1.0
After Span Adjust - 2	11:30	293.0	294.0	294.0	294.0	293.0	293.6	0.5
After Span Adjust - 3	11:45	196.0	194.1	194.1	194.0	194.0	194.4	0.8

Set point	Dilution Air Flow Rate @ STP (corrected)	Calibration Gas Flow @ STP (corrected)	Calculated Conc. (Cc)	Analyzer Response	Correction Factor (Cc/Ci)	Point Error %	Slope Error (%)	Converted Data Response
As Found Zero	913	0.0	0.0	1.5	N/A	NA		1.5
As Found Span	903	9.0	500.5	448.6	1.1156	-11.6%		448.6
After Zero Adjust	913	0.0	0.0	0.0	N/A	NA		0.0
After Span Adjust - 1	903	9.0	500.5	502.2	0.9965	0.3%	-1.3%	502.2
After Span Adjust - 2	907	5.4	300.0	293.6	1.0216	-2.2%	1.0%	293.6
After Span Adjust - 3	909	3.4	188.1	194.4	0.9674	3.3%	-4.7%	194.4

Intercept	-0.810289
Correlation Coefficient	0.999198
Slope	0.991795

Calibration Data - NO_2

	Stability Start	15- Minute	12- Minute	9- Minute	6- Minute	3- Minute	Average	Calculated Stability |x| ppb
15 min ref	12:00	0.9	1.3	0.8	0.8	0.5	0.9	0.3
400	12:20	464.0	466.0	467.0	468.0	469.0	466.8	1.7
300	12:35	371.0	371.0	371.0	371.0	371.0	371.0	0.0
150	12:50	255.0	255.0	255.0	256.0	256.0	255.4	0.5

Set point	Nox Response	NO Response	NO2 Calculated Conc.	NO2 Analyzer Conc.	Correction Factor (Cc/Ci)	Slope Error (%)	Converted Data Response
15 Min Reference	514.0	513.0	1.0	0.9	N/A	NA	0.9
Adjusted GPT 400 O3	497.0	33.0	464.0	466.0	0.9957	-1.4%	466.8
GPT 2 (200 cc O3)	500.0	129.0	371.0	371.0	1.0000	-1.8%	371.0
GPT 3 (150 cc O3)	501.0	245.0	256.0	255.0	1.0039	-1.9%	255.4
Zero	0.0	0.0	0.0	0.0	N/A	NA	1.2

Intercept	0.656217
Correlation Coefficient	0.999976
Slope	1.015914

Converter efficiency	100%

Acceptance Criteria - From Part B1 Ambient Air Quality Monitoring BC Field Sampling Manual

1) Instrument is adjusted to give a correction factor (Ccalculated / Cindicated) as close to 1.0 as possible.

2) Each calibration point must be within ±10% of the expected criteria

3) As found calibration point must be within ±10% of the expected criteria

4) Analyzer must run within ±10% of the manufacturer's specifications

5) Slope must be ≥ 0.90 and ≤ 1.10

6) Intercept must be = 3% of full range of analyzer

7) Correlation coefficient must be = 0.9950

8) Converter efficiency 96-104%

	NOx	NO	NO_2
As Found Span vs. Expected	-11.2%	-11.6%	-1.4%
	FAIL	FAIL	PASS
After Span Adjust - 1	-1.2%	-1.3%	-1.4%
	PASS	PASS	PASS
After Span Adjust - 2	1.3%	1.0%	-1.8%
	PASS	PASS	PASS
After Span Adjust - 3	-4.2%	-4.7%	-1.9%
	PASS	PASS	PASS
Slope	0.984	0.992	1.016
	PASS	PASS	PASS
Intercept	-0.62	-0.81	0.66
	PASS	PASS	PASS
Correlation	0.999	0.999	1.000
	PASS	PASS	PASS

NOx	**According to BC MOE Guidelines this calibration has FAILED**
NO	**According to BC MOE Guidelines this calibration has FAILED**
NO2	**According to BC MOE Guidelines this calibration has PASSED**

Calibration Performed by: Brad Moyles

Comments: Routine Calibration

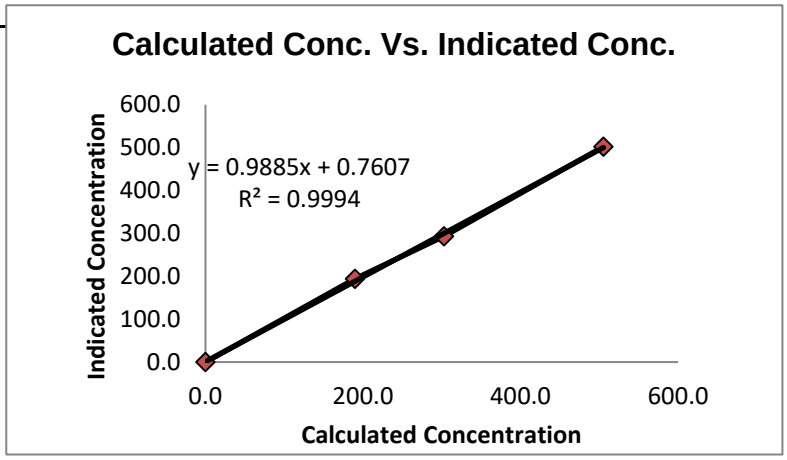
NOx - NO - NO2 Least Squares Calculations

Company: Woodfibre LNG
Date: 27-Nov-24
Analyzer: 42i
Units: ppb
Conc. Range: 0 - 500

Location: Woodfibre, BC
Job Number: 24C222762

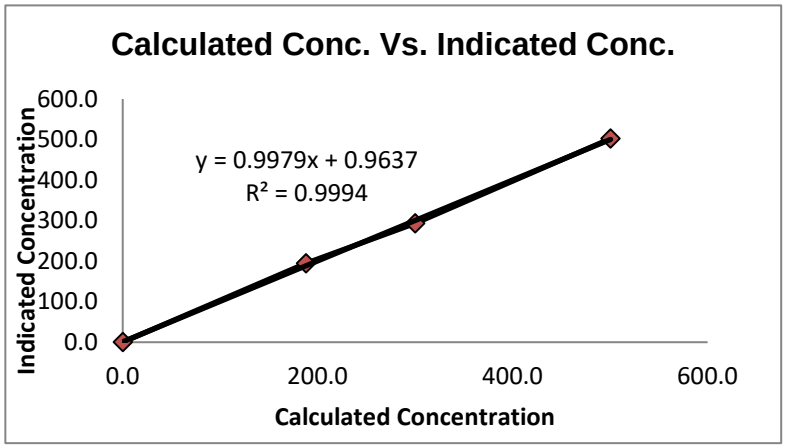
NOx	
Calculated Concentration	Converted Data Response
505.3	502.2
302.8	293.4
189.9	194.0
0.0	0.0

Slope	0.9836
Intercept	-0.6161
Correlation	0.9992



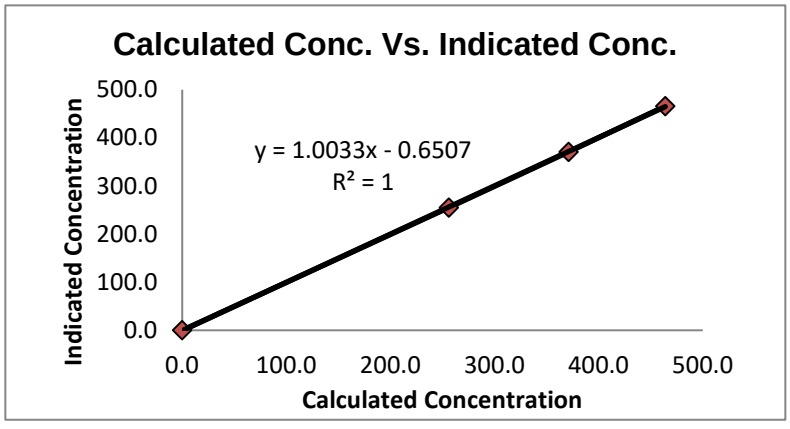
NO	
Calculated Concentration	Converted Data Response
500.5	502.2
300.0	293.6
188.1	194.4
0.0	0.0

Slope	0.9918
Intercept	-0.8103
Correlation	1.0000



NO_2	
NO Decrease	NO_2 increase
464.0	466.0
371.0	371.0
256.0	255.0
0.0	0.0

Slope	1.0159
Intercept	0.6562
Correlation	1.0000



AGAT Laboratories — Analyzer Maintenance Log

Thermo Scientific 450i/43i/42i/45C/43C

Maintenance Item	Frequency Due	Completed (Y/N)	Date Last Completed	Date of Next Check/Service
In-line particulate filter changeout	Bi-Monthly	Y	11/27/2024	2/28/2025
Visual inspection and cleaning (loose connectors and fittings, cracked/clogged Teflon lines, excessive dirt and dust inside)	Bi-Monthly	Y	11/27/2024	2/28/2025
Leak test	Bi-Monthly	Y	11/27/2024	2/28/2025
Fan filter inspection and cleaning	Bi-Monthly	Y	11/27/2024	2/28/2025
Analyzer pump check (flow check) and replacement	Annually	Y		9/3/2025
Perm tube check (stability) and replacement	Annually	Y	9/3/2024	
Zero charcoal replaced	Annually	Y	9/3/2024	
SO2 scrubber beads replaced - 450i/45C ONLY	Annually			9/3/2025
Inspect and replace spent absorbent material (Drierite, silica gel) - 42i ONLY	Annually			9/3/2025

AGAT Laboratories

eLog Report

Station	Woodfibre LNG		Project #	22C222762	
Date	November 27, 2024	Time In	11:00	Time Out	15:00
Weather Conditions	Fair, 2°C		Technician On Site	BM	

LOG DETAILS

Routine Calibration	
As Founds NO, Nox	**NO2 GPT**
Ran zero, span = FAIL	**GPT As Found = PASS**
As found points dropped dramatically over 10 mins,	
showing no stability. Attempted to purge lines and	**Converter Efficiency 100%**
troubleshoot calibration setup to no avail. Contacted	
CD Nova, suggested cleaning reaction chamber.	
Completed this maintenance and points became	
stable. Proceeded with calibration	
Calibration:	
Point 1, 2, 3 = PASS	
INTERNAL Z/S	**INTERNAL Z/S**

Meteorological checks (DRDAS vs Actual)							
AT (Δ°C)	NA	ST (Δ°C)	NA	WS (Δkm/h)	1	WD	okay
Visual check	Y	Visual check	Y	Cups turning	Y	Vane free	Y
Calibrated	NA	Calibrated	NA	Calibrated	NA	Calibrated	NA

Station Checklist			
Flagged in/out of Calibration Mode	Y	Sample Lines Reconnected	Y
Manifold Flow Check	Y	Manifold Clean	Y
Replaced Sample Filters	Y	PC Fan Running	Y
UPS Systems Functioning	Y	Station Housekeeping	Y
Data Backed Up and Polling Active	Y	Monitor Off	Y
Check DR DAS Date/Time	Y	HVAC Check	Y

Appendix D Air Quality Exceedance Report

Stantec

Memo

To:	Ross McCann (Regulatory Project Specialist), Ryan Schucroft (Environmental Site Lead), Jackie Boruch (Environmental Site Lead), Ian McAllister (Compliance Manager) Woodfibre LNG General Partner Inc.	From:	Dr. Kashif Choudhry, Senior Atmospheric Engineer Stantec Consulting Ltd.
Project/File:	123222160 12.2024.300	Date:	November 5, 2024

Reference: WLNG Air Quality Exceedance Report for PM_{10} and TSP – October 25, 2024

Executive Summary

This report investigates the exceedance of the 24-hour British Columbia Ambient Air Quality Objectives (BCAQO) for PM_{10} and TSP, which have a threshold of 50 µg/m³ and 120 µg/m³, respectively. PM_{10} and TSP concentrations, recorded at Woodfibre LNG (WLNG) Air Quality Monitoring Stations (AQMS) using Met One Instrument BAM 1020s, reached a 24-hour average of 71.8 µg/m³ and 133.8 µg/m³ respectively, with elevated hourly concentrations noted from 0:00 to 8:00 PDT. Wind conditions, regional PM_{10} data, and onsite work activities were analyzed to determine the likely sources of the air quality exceedances, which were attributed to project-related activities. Based on the locations of the emission sources and the wind direction during the period of elevated concentrations, it is determined that emissions from the construction rock_crushing and ditching activities at the site caused the elevated concentrations, however on-site staff observations confirmed that the dust plume did not travel towards the Floatel.

1 Introduction

This report assesses the PM_{10} and TSP exceedances observed on October 25, 2024, at the WLNG AQMS examines the environmental and project-related factors contributing to elevated concentrations. This analysis considers local meteorological data, onsite activities, and regional air quality data comparisons to identify the potential sources of the elevated PM_{10} concentrations. The regional ambient air quality monitoring stations (Langdale Elementary and Squamish Elementary) provide information for PM_{10} concentrations, but do not provide information on ambient TSP concentrations.

2 Data Collection and Methodology

- **Guideline Criteria Exceeded:**
  - 24-hour BC Air Quality Objective for PM_{10}: 50 µg/m³
  - 24-hour BC Air Quality Objective for TSP: 120 µg/m³
- **Actual Reading recorded at WLNG AQMS using Met One Instrument BAM 1020s:**
  - PM_{10} (24-hr average): 71.8 µg/m³
  - TSP (24-hr average): 133.8 µg/m³

  Elevated PM_{10} and TSP hourly concentrations were recorded from 0:00 to 8:00 hours and again at 21:00 hours.

- **Climatic Conditions:**
  - Wind Speed: 24-hour average of 2.1 m/s; range of 0.5 – 3.6 m/s
  - Wind Direction: Predominantly from the northwest
  - Total Precipitation (24-hours): 0 mm

Data collection included hourly PM_{10} and TSP readings from WLNG AQMS, hourly wind speed and wind direction measurements from WLNG meteorological station, and regional PM_{10} data from the British Columbia Ministry of Environment (BC MOE) Langdale Elementary air quality monitoring station. The Squamish air quality monitoring station operated under BC MOE does not provide data on ambient levels of PM_{10} and TSP. A North American smoke forecast from firesmoke.ca was also reviewed to assess the potential impacts of wildfire smoke. Onsite activity logs provided insight into dust-generating activities that may have influenced the local ambient air quality.

3 Air Quality Exceedance Investigation

The observed PM_{10} and TSP air quality exceedances were compared to regional air quality and local weather stations. Figure 1 shows that PM_{10} and TSP concentrations recorded at the WLNG air quality station on October 25, 2024, did not correlate well with wind speed. The maximum hourly average wind speed measured at the onsite Meteorological Station was 3.6 m/s, blowing predominantly from the northwest (Figure 2). Figure 3 compares the PM_{10} concentrations recorded at the WLNG AQMS to the regional Langdale Elementary air quality station operated by BC MOE. PM_{10} levels at the WLNG site were significantly higher than those recorded at the Langdale Elementary regional air quality station, particularly between 0:00 and 5:00 hours. Figure 3 also shows that PM_{10} concentrations at the WLNG site were, at times, more than forty-eight times higher than the Langdale Elementary regional air quality station on October 25, 2024. WLNG informed Stantec of various dust-generating activities occurring adjacent to the construction road, less than 100 meters north and approximately 100 to 200 meters northwest of the AQMS station, on October 25, 2024. Activities included rock crushing and ditching work to the north and northwest of the AQMS (see Figure 4 for a summary of the onsite work activities across the construction site), contributing to the observed PM_{10} exceedance at the AQMS. Figure 2 presents a wind rose showing the predominant wind direction during October 25, 2024, indicating wind patterns that likely dispersed particulates (fugitive dust) from the northwest. This aligns with dust-generating activities reported near the AQMS. The North American smoke forecast at firesmoke.ca does not indicate that wildfire smoke affected air quality at the WLNG Site on October 25, 2024. Observations made onsite by the Stantec Air Quality Engineer until the afternoon, along with confirmation from site staff present all day, noted no visual indication of dust travelling toward the Floatel from any direction (east, north, south, or west). Given the locations of the emission sources and prevailing wind direction during the elevated concentration period, it appears unlikely that the dust plume moved toward the Floatel from any direction.

Reference: WLNG Air Quality Exceedance Report for PM10 and TSP – October 25, 2024

4 Conclusion

In conclusion, the PM_{10} and TSP air quality exceedances, recorded at the WLNG site on October 25, 2024, can be attributed to dust-generating project-related construction activities (e.g., rock crushing and ditching) near the monitoring station. Predominant winds from the northwest quadrant likely contributed to the increased PM_{10} and TSP concentrations observed during this period. Therefore, these PM_{10} and TSP exceedances are primarily attributable to the construction project-related sources.

Regards,

Stantec Consulting Ltd.

Dr. Kashif Choudhry Ph.D., P.Eng.
Senior Atmospheric Engineer
Phone: (306) 667-2588
Mobile: (474) 774-0927
kashif.choudhry@stantec.com

stantec.com

Attachments: A: Figures

Reference: WLNG Air Quality Exceedance Report for PM10 and TSP – October 25, 2024

Attachment A Figures

Reference: WLNG Air Quality Exceedance Report for PM10 and TSP – October 25, 2024

Figure 1 PM_{10} and TSP concentrations and wind speed at the WLNG site on October 25, 2024

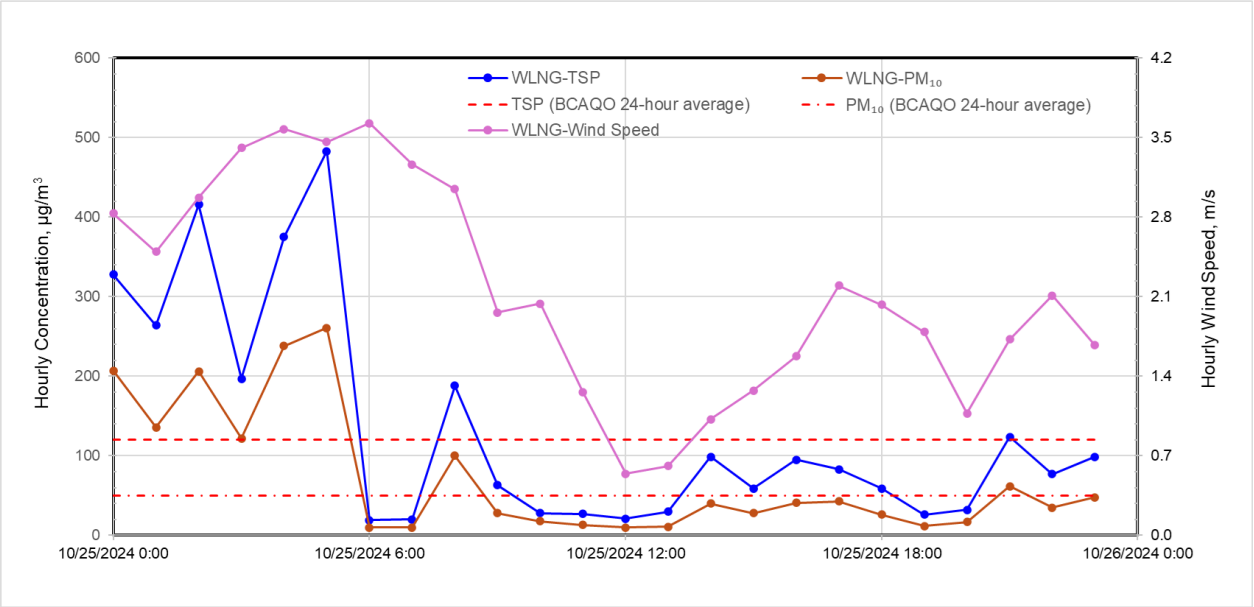
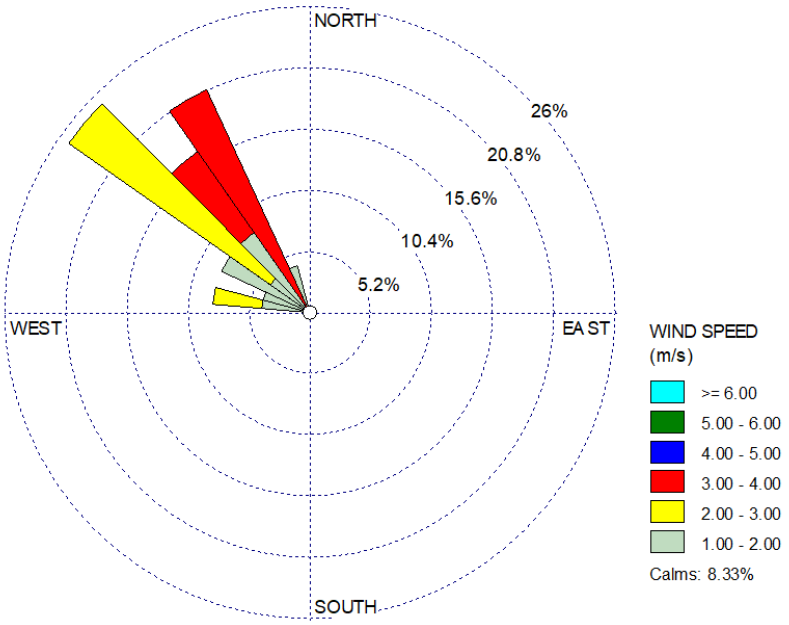
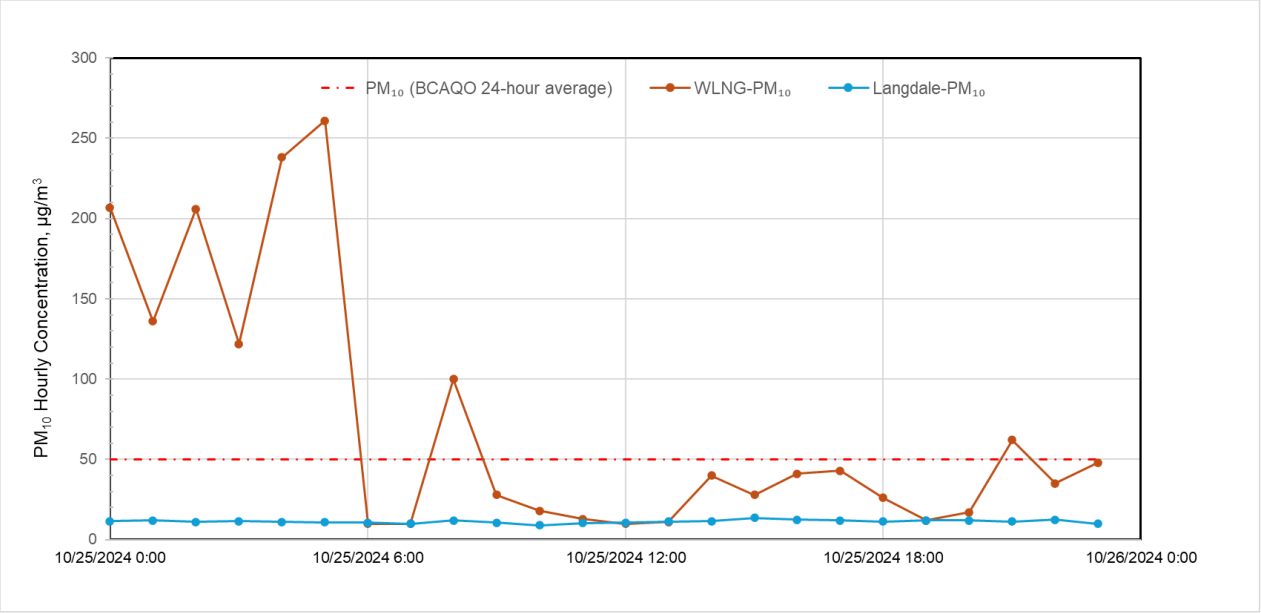


Figure 2 Windrose for the WLNG Meteorological Station, October 25, 2024



Reference: WLNG Air Quality Exceedance Report for PM10 and TSP – October 25, 2024

Figure 3 PM_{10} concentrations at the WLNG site and the Langdale Elementary Regional BC MOE Station on October 25, 2024.

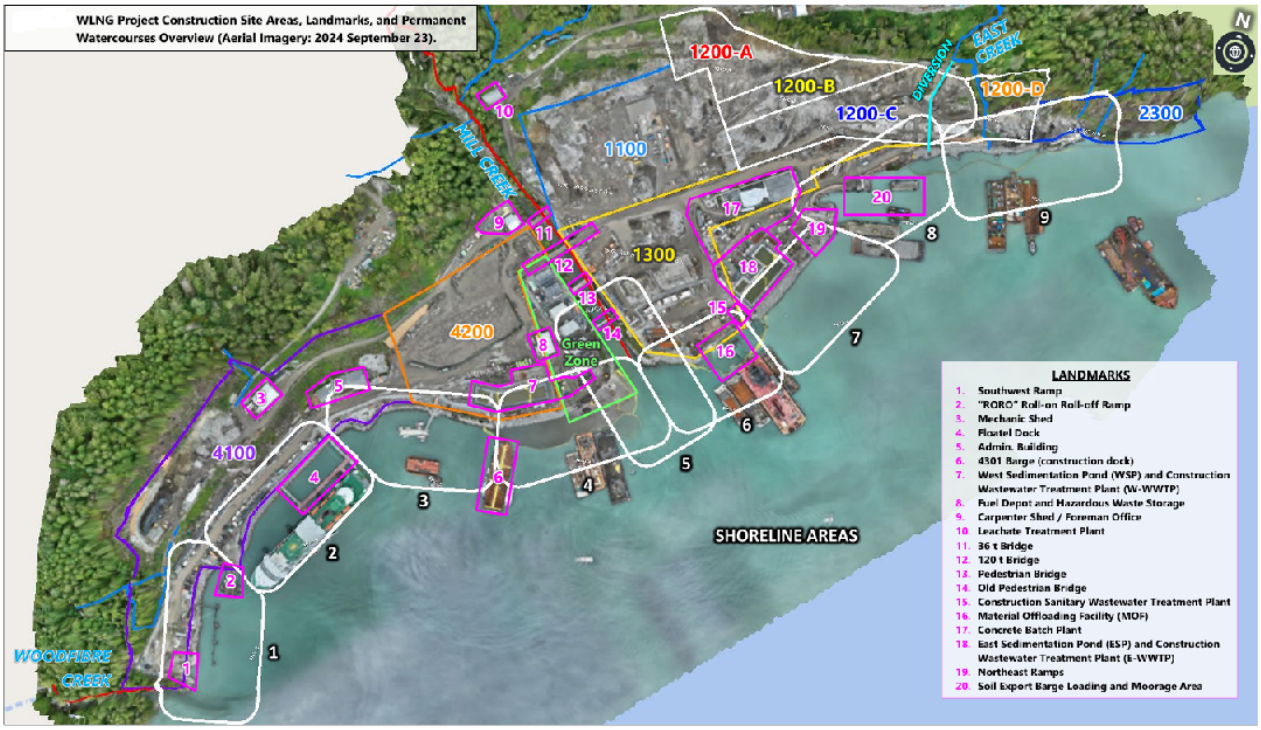


Reference: WLNG Air Quality Exceedance Report for PM10 and TSP – October 25, 2024

Figure 4 Details of the WLNG Onsite Daily Work (Construction) Activities for October 25, 2024.

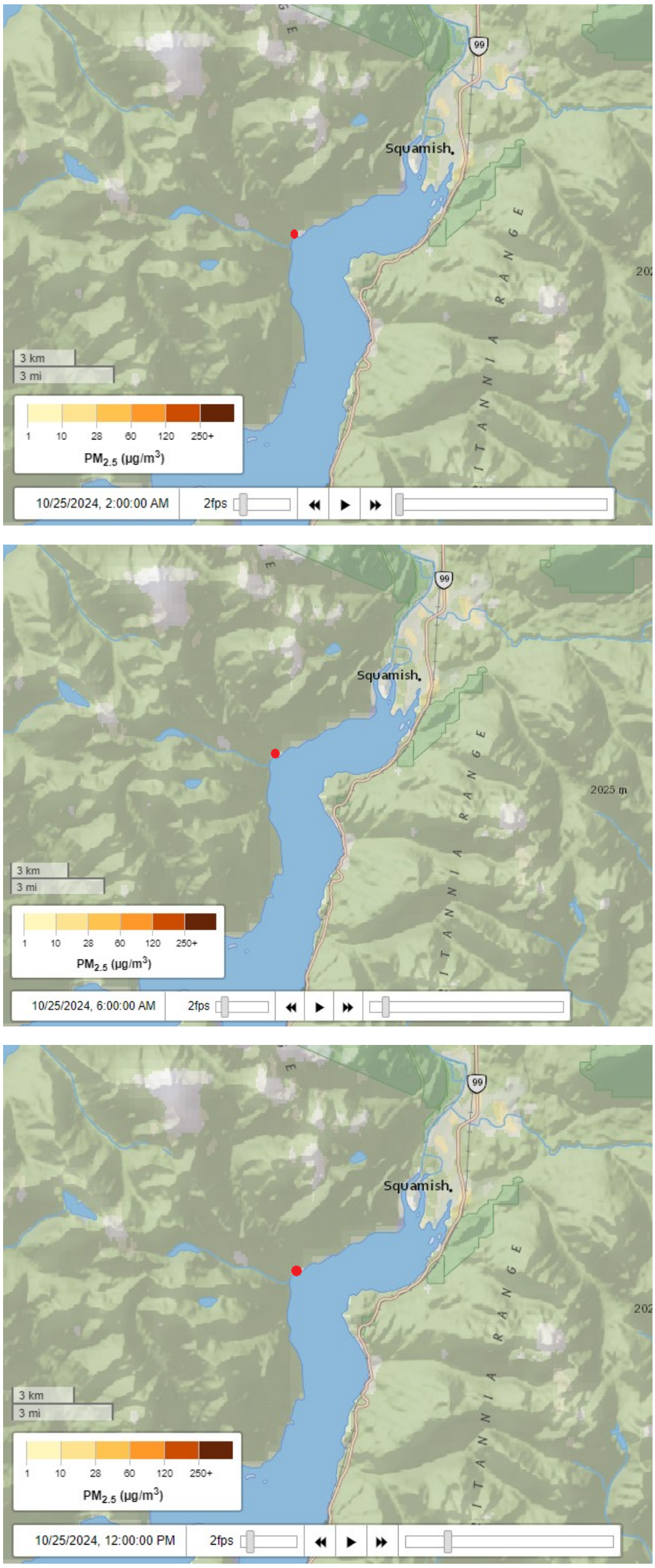
On-site Work Activities

- 1200d – backfill and rock splitting
- 1200b/c - continue drilling for blasting. Continue rock removal. Oversized rocks to be placed at 1100 for Norland to hammer down. Smaller rocks hauled to 4200 for Kode to crush.
- 1200a - blast at 4 pm. 145 kg.
- 4200 - Kode got their crusher repaired and setup at 4200. They commenced crushing last night. Commence fusing water lines and laying pipe near west pond.
- 4100 - continue ditching rework.
- 1100 - continue drilling, rock anchor install, grouting and testing. Continue hammering oversized rocks.
- 2100 – Vibro and impact piling
- Area 6 - place 1000kg rock in east corner of MOF.
- Area 7 - trans loading 50kg/100kg rock.
- Area 8 - continue placing 50kg rock.
- East Creek - placing more backfill.



Reference: WLNG Air Quality Exceedance Report for PM10 and TSP – October 25, 2024

Figure 5 **Smoke modelling output (forecast for 2:00 am, 6:00 am, and 12:00 pm) for October 25, 2024. The timestamps in the figure are based on Saskatchewan time, which observes Central Standard Time (CST) year-round, with no Daylight-Saving Time (DST) adjustment. The WLNG site (red dot) is near the center of the image.**



Appendix E Passive Samples Laboratory Analysis Data Sheets

AGAT Laboratories

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CANADA T2E 6V6
TEL (403)299-2000

http://www.agatlabs.com

CLIENT NAME: STANTEC CONSULTING LTD
100-75 24TH STREET
EAST SASKATOON, SK S7K 0K3

ATTENTION TO: Dan Jarratt/Kashif Choudhry

PROJECT: Woodfibre LNG

AGAT WORK ORDER: 24C222469

AIR QUALITY MONITORING REVIEWED BY: Carmen Andrei, AQM Lab Supervisor

DATE REPORTED: Nov 29, 2024

PAGES (INCLUDING COVER): 6

VERSION*: 1

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*Notes

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- *For environmental samples in the Province of Quebec: The analysis is performed on and results apply to samples as received. A temperature above 6°C upon receipt, as indicated in the Sample Reception Notification (SRN), could indicate the integrity of the samples has been compromised if the delay between sampling and submission to the laboratory could not be minimized.*

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CANADA T2E 6V6
TEL (403)299-2000

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Air Quality Summary

AGAT WORK ORDER: 24C222469

PROJECT: Woodfibre LNG

CLIENT NAME: STANTEC CONSULTING LTD

ATTENTION TO: Dan Jarratt/Kashif Choudhry

SAMPLING SITE:

SAMPLED BY:

Parameter	Unit	Number of Samples	Peak Reading	Network Average
Ambient Sulfur Dioxide	ppbv	2	0.2	0.2
Ambient VOC as Hexane	ppbv	2	0.8	0.8

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Certificate of Analysis

AGAT WORK ORDER: 24C222469

PROJECT: Woodfibre LNG

CLIENT NAME: STANTEC CONSULTING LTD

ATTENTION TO: Dan Jarratt/Kashif Choudhry

SAMPLING SITE:

SAMPLED BY:

Passive Air Quality Sampling

DATE RECEIVED: 2024-11-18

DATE REPORTED: 2024-11-29

				Site#01/ 01Sep/24,08:00 07Nov/24,10:20 /SO2,TVOC
SAMPLE DESCRIPTION:				
SAMPLE TYPE:				FILTER
DATE SAMPLED:				
Parameter	Unit	G / S	RDL	6334115
Ambient Sulfur Dioxide	ppbv		0.2	0.2
Ambient VOC as Hexane	ppbv		0.7	0.8

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

6334115 All samples are field blank subtracted.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By:

AGAT Laboratories

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CANADA T2E 6V6
TEL (403)299-2000

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Certificate of Analysis

AGAT WORK ORDER: 24C222469

PROJECT: Woodfibre LNG

CLIENT NAME: STANTEC CONSULTING LTD

ATTENTION TO: Dan Jarratt/Kashif Choudhry

SAMPLING SITE:

SAMPLED BY:

Passive Quality Assurance

DATE RECEIVED: 2024-11-18

DATE REPORTED: 2024-11-29

Parameter	Unit	G / S	RDL	Site#01/DUP 01Sep/24,08:00 07Nov/24,10:20 /SO2,TVOC FILTER 6334116	BLANK/ 01Sep/24,08:00 07Nov/24,10:20 /SO2,TVOC FILTER 6334117
SAMPLE DESCRIPTION:					
SAMPLE TYPE:					
DATE SAMPLED:					
Ambient Sulfur Dioxide	ppbv		0.2	0.2	<0.2
Ambient VOC as Hexane	ppbv		0.7	0.8	0.7

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Calgary (unless marked by *)

Certified By:

AGAT Laboratories

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Quality Assurance

CLIENT NAME: STANTEC CONSULTING LTD

AGAT WORK ORDER: 24C222469

PROJECT: Woodfibre LNG

ATTENTION TO: Dan Jarratt/Kashif Choudhry

SAMPLING SITE:

SAMPLED BY:

Air Quality Monitoring

RPT Date: Nov 29, 2024			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Passive Air Quality Sampling															
Ambient Sulfur Dioxide	245	6334116	0.2	0.2	NA	< 0.2	96%	90%	110%	98%	80%	120%	104%	80%	120%
Ambient VOC as Hexane	178	6334116	0.8	0.8	NA	0.7	102%	60%	140%	80%	60%	140%			

Comments: If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
Sample spikes and duplicates are not from the same sample.

Certified By:

AGAT Laboratories

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Method Summary

CLIENT NAME: STANTEC CONSULTING LTD

AGAT WORK ORDER: 24C222469

PROJECT: Woodfibre LNG

ATTENTION TO: Dan Jarratt/Kashif Choudhry

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Air Quality Monitoring			
Ambient Sulfur Dioxide	AQM-43-16007	Inhouse Method	ION CHROMATOGRAPH
Ambient VOC as Hexane	IHF-60-25003	Modified NIOSH-1500,1501,1003	GC/MS

AGAT Laboratories

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P: 403.299.2000
webair.agatlabs.com

Chain of Custody Record

Laboratory Use Only

AGAT Job Number:

Notes:

Report Information

Company: Stantec
Contact: Kashif Choudhry
Address: 100-75 24th Street East
Saskatoon, SK, S7K 0K3
Phone: 474-774-0927 Fax:
LSD:
Client Project #: 123222160-12-2024.300

Invoice To Same Yes ☐ / No ☐

Company: Stantec
Contact: accounts.payable.invoices@stantec.com and
Address: 100-75 24th Street East
Saskatoon, SK, S7K 0K3
Phone: 474-774-0927 Fax:
PO/AFE#: 123222160-12-2024.300

Turnaround Time Required (TAT)

Regular TAT ☑ 5 to 7 working days

Rush TAT
☐ Less than 24 hours
☐ 24 to 48 hours
☐ 48 to 72 hours

Date Required:

UPON FILLING OUT THIS SECTION, THE CLIENT ACCEPTS THAT SURCHARGES WILL BE ATTACHED TO THIS ANALYSIS. IF NOT COMPLETED, REGULAR TAT WILL BE DEFAULT.

LABORATORY USE (LAB ID #)	SITE NAME/SAMPLE DESCRIPTION	DATE/TIME INSTALLED	DATE/TIME EXTRACTED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	H2S Passive	SO2 Passive	NO2 Passive	O3 Passive	PM2.5	PM10	TSP	Duplicate - SO2 Passive	Blank - SO2 Passive	VOC Passive	Duplicate - VOC Passive	Blank - VOC Passive
	Please Email reports to:															
	kashif.choudhry@stantec.com															
	daniel.casanova@stantec.com															
	katie.chuen@stantec.com															
	dan.jarratt@stantec.com															
	WLNG-SO2-AQMS	Sept 1, 2024 / 8AM	Nov 7, 2024 / 10:20PM			☑										
	WLNG-SO2-DUPLICATE											☑				
	WLNG-SO2-BLANK												☑			
	WLNG-VOC-AQMS	Sept 1, 2024 / 8AM	Nov 7, 2024 / 10:20PM											☑		
	WLNG-VOC-DUPLICATE														☑	
	WLNG-VOC-Blank															☑

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page _____ of _____

N°:

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CLIENT NAME: STANTEC CONSULTING LTD
100-75 24TH STREET
EAST SASKATOON, SK S7K 0K3

ATTENTION TO: Dan Jarratt/Kashif Choudhry

PROJECT: Woodfibre LNG

AGAT WORK ORDER: 24C230990

AIR QUALITY MONITORING REVIEWED BY: Austin Bowles, Lab Technician

DATE REPORTED: Dec 30, 2024

PAGES (INCLUDING COVER): 6

VERSION*: 1

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Air Quality Summary

AGAT WORK ORDER: 24C230990

PROJECT: Woodfibre LNG

CLIENT NAME: STANTEC CONSULTING LTD

ATTENTION TO: Dan Jarratt/Kashif Choudhry

SAMPLING SITE:

SAMPLED BY:

Parameter	Unit	Number of Samples	Peak Reading	Network Average
Ambient Sulfur Dioxide	ppbv	2	<0.2	<0.2
Ambient VOC as Hexane	ppbv	2	<0.7	<0.7

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Certificate of Analysis

AGAT WORK ORDER: 24C230990

PROJECT: Woodfibre LNG

CLIENT NAME: STANTEC CONSULTING LTD

ATTENTION TO: Dan Jarratt/Kashif Choudhry

SAMPLING SITE:

SAMPLED BY:

Passive Air Quality Sampling

DATE RECEIVED: 2024-12-09

DATE REPORTED: 2024-12-30

				Site#01/ 07Nov/24,10:25 02Dec/24,10:45
		SAMPLE DESCRIPTION:		/SO2,TVOC
		SAMPLE TYPE:		FILTER
		DATE SAMPLED:		
Parameter	Unit	G / S	RDL	6401713
Ambient Sulfur Dioxide	ppbv		0.2	<0.2
Ambient VOC as Hexane	ppbv		0.7	<0.7

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

6401713 All samples are field blank subtracted.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 24C230990

PROJECT: Woodfibre LNG

CLIENT NAME: STANTEC CONSULTING LTD

ATTENTION TO: Dan Jarratt/Kashif Choudhry

SAMPLING SITE:

SAMPLED BY:

Passive Quality Assurance

DATE RECEIVED: 2024-12-09

DATE REPORTED: 2024-12-30

				Site#01/DUP	BLANK/
				07Nov/24,10:25	07Nov/24,10:25
				02Dec/24,10:45	02Dec/24,10:45
		SAMPLE DESCRIPTION:		/SO2,TVOC	/SO2,TVOC
		SAMPLE TYPE:		FILTER	FILTER
		DATE SAMPLED:			
Parameter	Unit	G / S	RDL	6401714	6401715
Ambient Sulfur Dioxide	ppbv		0.2	<0.2	<0.2
Ambient VOC as Hexane	ppbv		0.7	<0.7	1.5

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Calgary (unless marked by *)

Certified By:

AGAT Laboratories

3650 – 21 Street NE
CALGARY, ALBERTA
CANADA T2E 6V6
TEL (403)299-2000

http://www.agatlabs.com

Quality Assurance

CLIENT NAME: STANTEC CONSULTING LTD

AGAT WORK ORDER: 24C230990

PROJECT: Woodfibre LNG

ATTENTION TO: Dan Jarratt/Kashif Choudhry

SAMPLING SITE:

SAMPLED BY:

Air Quality Monitoring

RPT Date: Dec 30, 2024			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Passive Air Quality Sampling															
Ambient Sulfur Dioxide	246	6401714	<0.2	<0.2	NA	< 0.2	99%	90%	110%	101%	80%	120%	104%	80%	120%
Ambient VOC as Hexane	179	6401714	<0.7	<0.7	NA	1.5	92%	60%	140%	129%	60%	140%			

Comments: If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
Sample spikes and duplicates are not from the same sample.

Certified By:

AGAT Laboratories

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Method Summary

CLIENT NAME: STANTEC CONSULTING LTD

AGAT WORK ORDER: 24C230990

PROJECT: Woodfibre LNG

ATTENTION TO: Dan Jarratt/Kashif Choudhry

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Air Quality Monitoring			
Ambient Sulfur Dioxide	AQM-43-16007	Inhouse Method	ION CHROMATOGRAPH
Ambient VOC as Hexane	IHF-60-25003	Modified NIOSH-1500,1501,1003	GC/MS

AGAT Laboratories

Have feedback? Scan here for a quick survey!

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Calgary, AB
T2E 6V6
P: 403.299.2000
webair.agatlabs.com

Laboratory Use Only

AGAT Job Number: 24C230990

Notes:

Chain of Custody Record

Report Information

Company: Stantec
Contact: Kashif Choudhry
Address: 100-75 24th Street East
Saskatoon, SK, S7K 0K3
Phone: 474-774-0927 Fax:
LSD:
Client Project #: 123222160-12-2024.300

Invoice To Same Yes ☐ / No ☐

Company: Stantec
Contact: accounts.payable.invoices@stantec.com and
Address: 100-75 24th Street East
Saskatoon, SK, S7K 0K3
Phone: 474-774-0927 Fax:
PO/AFE#: 123222160-12-2024.300

Turnaround Time Required (TAT)

Regular TAT ☑ 5 to 7 working days

Rush TAT ☐ Less than 24 hours ☐ 24 to 48 hours ☐ 48 to 72 hours

Date Required:

UPON FILLING OUT THIS SECTION, THE CLIENT ACCEPTS THAT SURCHARGES WILL BE ATTACHED TO THIS ANALYSIS. IF NOT COMPLETED, REGULAR TAT WILL BE DEFAULT.

LABORATORY USE (LAB ID #)	SITE NAME/SAMPLE DESCRIPTION	DATE/TIME INSTALLED	DATE/TIME EXTRACTED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	H2S Passive	SO2 Passive	NO2 Passive	O3 Passive	PM2.5	PM10	TSP	Duplicate - SO2 Passive	Blank - SO2 Passive	VOC Passive	Duplicate - VOC Passive	Blank - VOC Passive
	Please Email reports to:															
	kashif.choudhry@stantec.com															
	daniel.casanova@stantec.com															
	katie.chuen@stantec.com															
	dan.jarratt@stantec.com															
	WLNG-SO2-AQMS	Nov 7, 2024 10:25 PM	Dec 2, 2024 10:45 AM			☑	X2									
	WLNG-SO2-DUPLICATE ✓											☑				
	WLNG-SO2-BLANK ✓												☑			
	WLNG-VOC-AQMS	Nov 7, 2024 10:25 PM	Dec 2, 2024 10:45 AM			X2								☑		
	WLNG-VOC-DUPLICATE														☑	
	WLNG-VOC-Blank															☑

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
			Dec 9, 24
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

N°: 120924

AGAT Laboratories

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CALGARY, ALBERTA
CANADA T2E 6V6
TEL (403)299-2000

http://www.agatlabs.com

CLIENT NAME: STANTEC CONSULTING LTD
100-75 24TH STREET
EAST SASKATOON, SK S7K 0K3

ATTENTION TO: Dan Jarratt/Kashif Choudhry

PROJECT: Woodfibre LNG

AGAT WORK ORDER: 25C239794

AIR QUALITY MONITORING REVIEWED BY: Carmen Andrei, AQM Lab Supervisor

DATE REPORTED: Jan 28, 2025

PAGES (INCLUDING COVER): 6

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (403) 299-2000

*Notes

VERSION 1: Total VOC field blank came in with high reading. As per AGAT's QAQC procedure, all samples are lab blank subtracted.
Also, the Total VOC field duplicates are not within acceptance limits. Analysis was repeated with similar results.

AGAT Laboratories

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CANADA T2E 6V6
TEL (403)299-2000

http://www.agatlabs.com

Air Quality Summary

AGAT WORK ORDER: 25C239794

PROJECT: Woodfibre LNG

CLIENT NAME: STANTEC CONSULTING LTD

ATTENTION TO: Dan Jarratt/Kashif Choudhry

SAMPLING SITE:

SAMPLED BY:

Parameter	Unit	Number of Samples	Peak Reading	Network Average
Ambient Sulfur Dioxide	ppbv	2	<0.2	<0.2
Ambient VOC as Hexane	ppbv	2	6.5	4.3

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 25C239794

PROJECT: Woodfibre LNG

CLIENT NAME: STANTEC CONSULTING LTD

ATTENTION TO: Dan Jarratt/Kashif Choudhry

SAMPLING SITE:

SAMPLED BY:

Passive Air Quality Sampling

DATE RECEIVED: 2025-01-15

DATE REPORTED: 2025-01-28

				Site#01/ 02Dec/24,10:48 07Jan/25,10:35
		SAMPLE DESCRIPTION:		/SO2,TVOC
		SAMPLE TYPE:		FILTER
		DATE SAMPLED:		
Parameter	Unit	G / S	RDL	6464355
Ambient Sulfur Dioxide	ppbv		0.2	<0.2
Ambient VOC as Hexane	ppbv		0.7	6.5

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

6464355 All SO2 samples are field blank subtracted.
Total VOC field blank came in with high reading. As per AGAT's QAQC procedure, all samples are lab blank subtracted.
Also, the Total VOC field duplicates are not within acceptance limits. Analysis was repeated with similar results.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By:

AGAT Laboratories

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CANADA T2E 6V6
TEL (403)299-2000

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Certificate of Analysis

AGAT WORK ORDER: 25C239794

PROJECT: Woodfibre LNG

CLIENT NAME: STANTEC CONSULTING LTD

ATTENTION TO: Dan Jarratt/Kashif Choudhry

SAMPLING SITE:

SAMPLED BY:

Passive Quality Assurance

DATE RECEIVED: 2025-01-15

DATE REPORTED: 2025-01-28

Parameter	Unit	G / S	RDL	Site#01/DUP 02Dec/24,10:48 07Jan/25,10:35 /SO2,TVOC FILTER 6464356	BLANK/ 02Dec/24,10:48 07Jan/25,10:35 /SO2,TVOC FILTER 6464357
Ambient Sulfur Dioxide	ppbv		0.2	<0.2	<0.2
Ambient VOC as Hexane	ppbv		0.7	2.1	14.2

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Calgary (unless marked by *)

Certified By:

AGAT Laboratories

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CANADA T2E 6V6
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Quality Assurance

CLIENT NAME: STANTEC CONSULTING LTD

AGAT WORK ORDER: 25C239794

PROJECT: Woodfibre LNG

ATTENTION TO: Dan Jarratt/Kashif Choudhry

SAMPLING SITE:

SAMPLED BY:

Air Quality Monitoring

RPT Date: Jan 28, 2025			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Passive Air Quality Sampling															
Ambient Sulfur Dioxide	248	6464356	<0.2	<0.2	NA	< 0.2	102%	90%	110%	108%	80%	120%	107%	80%	120%
Ambient VOC as Hexane	181	6464356	6.5	2.1	102.7%	< 0.7	90%	60%	140%	112%	60%	140%			

Comments: If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
Sample spikes and duplicates are not from the same sample.

Certified By:

AGAT Laboratories

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CANADA T2E 6V6
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Method Summary

CLIENT NAME: STANTEC CONSULTING LTD

AGAT WORK ORDER: 25C239794

PROJECT: Woodfibre LNG

ATTENTION TO: Dan Jarratt/Kashif Choudhry

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Air Quality Monitoring			
Ambient Sulfur Dioxide	AQM-43-16007	Inhouse Method	ION CHROMATOGRAPH
Ambient VOC as Hexane	IHF-60-25003	Modified NIOSH-1500,1501,1003	GC/MS

AGAT Laboratories

Have feedback? Scan here for a quick survey!

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Chain of Custody Record

Laboratory Use Only
AGAT Job Number: 25C239794
Notes:

Report Information
Company: Stantec
Contact: Kashif Choudhry
Address: 100-75 24th Street East
Saskatoon, SK, S7K 0K3
Phone: 474-774-0927 Fax:
LSD:
Client Project #: 123222160-12-2024.300

Invoice To Same Yes ☐ / No ☐
Company: Stantec
Contact: accounts.payable.invoices@stantec.com and
Address: 100-75 24th Street East
Saskatoon, SK, S7K 0K3
Phone: 474-774-0927 Fax:
PO/AFE#: 123222160-12-2024.300

Turnaround Time Required (TAT)
Regular TAT ☑ 5 to 7 working days
Rush TAT ☐ Less than 24 hours ☐ 24 to 48 hours ☐ 48 to 72 hours
Date Required:
UPON FILLING OUT THIS SECTION, THE CLIENT ACCEPTS THAT SURCHARGES WILL BE ATTACHED TO THIS ANALYSIS. IF NOT COMPLETED, REGULAR TAT WILL BE DEFAULT.

LABORATORY USE (LAB ID #)	SITE NAME/SAMPLE DESCRIPTION	DATE/TIME INSTALLED	DATE/TIME EXTRACTED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	H2S Passive	SO2 Passive	NO2 Passive	O3 Passive	PM2.5	PM10	TSP	Duplicate - SO2 Passive	Blank - SO2 Passive	VOC Passive	Duplicate - VOC Passive	Blank - VOC Passive
	Please Email reports to:															
	kashif.choudhry@stantec.com															
	daniel.casanova@stantec.com															
	katie.chuen@stantec.com															
	dan.jarratt@stantec.com															
	WLNG-SO2-AQMS	Dec 2, 2024	Jan 7, 2025			☑						☑				
	WLNG-SO2-DUPLICATE												☑			
	WLNG-SO2-BLANK													☑		
	WLNG-VOC-AQMS														☑	
	WLNG-VOC-DUPLICATE															☑
	WLNG-VOC-Blank															

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

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Yellow Copy - AGAT
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N°: 011525