Summary Details of Request

File Number:	Applicant Type:	Request Wording:	Date Released:
BCER2025-023	Media	*1. Copies of all monthly reports submitted by LNG Canada Development Inc. for the LNG Canada Export Terminal Project related to its commissioning phase activities. Specifically, the records required under Section 10.2.1 "Fuel Gas Use (Commissioning Only)" of Permit PA-110588, issued under the Environmental Management Act. (Date Range: Sep. 1, 2024 to Aug. 1, 2025)* *2. Copies of all monthly reports related to emission monitoring during the operational phase of the terminal. Specifically, the records required under Section 10.2.3 "Continuous Emission Monitoring System Reporting"; 102.4 "Flaring Activity Reporting" and 10.2.5 "Permit Contravention" of Permit PA-110588. (Date Range: Aug. 1, 2025 to Dec. 1, 2025)* *3. Copies of all quarterly reports, if any, required under Section 10.3 of Permit PA-110588. (Date Range: Sep. 1, 2024 to Dec. 1, 2025)*	22-JAN-2026

BRITISH COLUMBIA ENERGY REGULATOR

File: 292-30/BCER2025-023

January 22, 2026

VIA ELECTRONIC MAIL

Dear

Re: Request for Access to Records – Response
***Freedom of Information and Protection of Privacy Act* (FOIPPA)**

I am writing further regarding your request received by the BC Energy Regulator (BCER) for access to records relating to copies of monthly and quarterly reports submitted by LNG Canada Development Inc relating to permit PA-110588.

The records located in response to your request will be delivered through the BCER's secure file transfer site: Web Transfer Client (bc-er.ca). Your access credentials and instructions will be provided in a separate email containing a self-destructing message. The records will be available for 14 days from the date of this letter; therefore, it is recommended that you download or transfer files to your desired personal location. A complete copy of FOIPPA is available online at: Freedom of Information and Protection of Privacy Act (gov.bc.ca)

Please note, a copy of these records will be published on the BCER's website within five business days after release. To find out more about proactive disclosure of requests, please visit the BCER website: Proactive-Disclosure-of-FOI-Requests-Guide.pdf. Your file is now closed. Pursuant to section 52 of the FOIPPA, you may ask the Office of the Information and Privacy Commissioner (OIPC) to review any decision, act, or failure to act with regard to your request under FOIPPA within 30 business days by writing to:

Information and Privacy Commissioner
PO Box 9038 Stn Prov Govt
4th Floor, 947 Fort Street
Victoria BC V8W 9A4
Phone: 250.387.5629 Fax: 250.387.1696
Email: info@oipc.bc.ca

If you request a review, please provide the OIPC with a copy of your original request, a copy of the BCER's response, and the reasons or grounds upon which you are requesting the review. Further information on the complaint and review process can be found on the OIPC website: https://www.oipc.bc.ca. Please write FOIIntake@bc-er.ca, if you have any questions regarding your request or require any further clarification.

Sincerely,

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BC Energy Regulator

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Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Quarterly Report (Q3 2024)

Document Number	L001-09800-HE-7180-4676
DCAF Control ID	N/A
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REVISION CONTROL PAGE

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1. Overview

1.1. Project Background

The LNG Canada (LNGC) liquefied natural gas facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

1.2. Purpose

On July 15, 2024, the BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., under the provisions of the BC *Environmental Management* Act, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Permit PA-110588 applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.3 of Permit PA-110588 (Quarterly Reporting) for Q3 2024.

Refer to Appendix B for a list of all quarterly reports that have been issued under Permit PA-110588.

1.3. LNG Facility Status

On the afternoon of August 31, 2024, fuel gas was introduced into Unit 1000 (Inlet Facilities) for the first time from the Coastal Gas Link pipeline, commencing the pressurization of piping and the startup fuel gas heater. The introduction of fuel gas into the fuel gas headers down to the flare area, and the first supply of fuel gas to the pilot on the warm wet flare occurred on September 1, 2024.

Under Permit PA-110588, the “Commissioning” phase is defined as “*that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.”* Operations is the period of time which follows Commissioning. Therefore, “Commissioning”, under PA-110588, commenced on September 1, 2024.

A monthly report for August 2024 was submitted to the BCER, noting there were no emissions from the LNG Facility (document: L001-09800-HE-7180-4611); therefore, the applicable information is also included herein given it is within the same quarterly reporting period.

During Q3 2024, discharges of air contaminants occurred from the following authorized works:

- One (1) warm/wet flare

The gas turbine engine in Train 1, String 1 commenced the “first fire” activities at the end of September 2024, with fuel gas being introduced into this module to initially support the preparation activities (e.g.., leak testing, testing of the gas chromographs and wobbe index meter), the first “fail to ignite” test commenced. However, there was no fuel gas combusted in the gas turbine in the reporting period, fuel gas in this module was sent to the warm/wet flare.

The Initial Performance Period (IPP) did not commence during Q3 2024 (which is defined as the period that “*commences upon the completion of the initial performance test for LNG Train 1”*).

2. Ambient Air Monitoring Data issues (Condition 10.3.1)

2.1. Permit Condition

Under Condition 10.3.1, the quarterly report shall include the following information:

a. (i) identification of, (ii) description of, and (iii) reason(s) for any ambient air or meteorological monitoring data deletion or resubmission;

b. (i) identification of, (ii) description of, and (iii) reason(s) for any missed calibrations from ambient air analyzers that were required to be calibrated during the reporting period;

c. (i) identification and (ii) description of any other issues with the ambient air or meteorological monitoring data; and

d. if any passive monitor fails to collect a sample for one sample period, the Permittee shall include the reasons for the absence of data within the report.

This condition applies to the locations where LNG Canada is conducting continuous monitoring activities:

- Under Condition 6.2.2, LNG Canada is required to conduct continuous monitoring of ambient air concentrations of nitrogen dioxide (NO_2) and ozone (O_3) at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2). In addition, prior to commencement of Operations, LNG Canada is required to conduct continuous monitoring of total hydrocarbons (HC-T) at either Kitimat Riverlodge or Kitimat Whitesail.
- Under Condition 6.3, LNG Canada is required to obtain or collect continuous monitoring data for the following meteorological parameters, at stations where conducting the continuous monitoring of ambient air concentrations: temperature, wind speed, wind direction, and standard deviation of wind direction.
- Under Condition 6.4, LNG Canada is required to conduct passive monitoring of NO_2 concentrations at thirteen locations (defined within the permit).

2.2. Data and Assessment

LNG Canada engaged Trinity Consultants to oversee the ambient air quality monitoring for NO_2 and O_3 at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2). Trinity Consultants published a report that addresses the data issues in these locations, as required under Condition 10.3.1 (a) to (c) as follows (refer to Appendix E, Attachment 1):

- Kitamaat Village (Site 1): Table 2-2 contains the data completeness; and Table 3-2 contains the percent data recovery. Section 3.3 outlines the data shortfall periods and known issues during the reporting period.
- Riverlodge (Site 2): Table 2-3 contains the data completeness; and Table 4-2 contains the percent data recovery. Section 4.3 outlines the data shortfall periods and known issues during the reporting period.
- General: Section 2.3 contains the details on ambient air or meteorological monitoring data deletion and resubmissions; and missed calibrations.

Note, the HC-T analyzer was installed at Kitimat Riverlodge (Site 2) in October 2024, therefore will be included in subsequent quarterly reports.

LNG Canada engaged Tetra Tech to oversee the passive NO_2 monitoring program, who published a technical memorandum that addresses the data issues in these locations, as required under Condition 10.3.1 (d) (refer to Appendix E, Attachment 2).

3. Ambient Air Monitoring Results (Condition 10.3.2)

3.1. Permit Condition

Under Condition 10.3.2, the quarterly report shall include the following information for each parameter monitored by the Permittee (per Section 6 of Permit PA-110588).

a. the percentage of valid hourly data at each continuous ambient air monitoring station;

b. (i) a time series plot of the hourly average ambient air concentrations at each continuous ambient air monitoring station, and (ii) a discussion of the context around any data anomalies in the time series plot;

c. i) minimum, (ii) average, (iii) median and (iv) maximum ambient air concentrations at each continuous ambient air monitoring station for the period;

d. a monthly wind rose for each continuous ambient air monitoring station for the months being monitored generated using meteorological data collected at the ambient air monitoring station;

e. a summary of passive NO_2 monitoring analysis for each monitored location (based on available laboratory analysis results for that reporting period and include results from the previous reporting period(s) that were not included in previous summaries); and

f. a summary of precipitation monitoring chemistry for each monitored location (based on available laboratory analysis results for that reporting period and include results from the previous reporting period(s) that were not included in previous summaries).

As noted in Section 2.1, Condition 10.3.2 (a) to (d) applies to NO_2, O_3, and meteorological data (temperature, wind speed, wind direction, and standard deviation of wind direction) monitored at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2); and will apply to HC-T next reporting period.

3.2. Data and Assessment

The report issued by Trinity Consultants also includes the information required under Condition 10.3.1 (a) to (d) at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2) as follows (refer to Appendix E, Attachment 1):

- Kitamaat Village (Site 1):
    - Table 2-2 contains the data completeness
    - Section 3.2 contains the monitoring results and trends, including the time series plot of the hourly average ambient air concentrations; average, maximum, and minium values (Table 2-1 contains the average and median values); and monthly wind roses.
- Riverlodge (Site 2):
    - Table 2-3 contains the data completeness; and Table 4-2 contains the percent data recovery.
    - Section 4.2 contains the monitoring results and trends, including the time series plot of the hourly average ambient air concentrations; average, maximum, and minium values (Table 2-1 contains the average and median values); and monthly wind roses.

The monitoring results and trends for the Whitesail Monitoring Station is also included in Appendix E, Attachment 1, for awareness purposes only.

The technical memorandum issued by Tetra Tech includes a summary of passive NO_2 monitoring analysis for each monitored location required under Condition 10.3.1 (e) (refer to Appendix E, Attachment 2).

There is no precipitation chemistry included in herein quarterly report. The end of the first sampling period will be October 30, 2024; therefore, information will be shared in the next quarterly report.

4. Ambient Air Monitoring Evaluation (Condition 10.3.3)

4.1. Permit Condition

Under Condition 10.3.3, the quarterly report shall include following information for NO_2, SO_2 and $PM_{2.5}$, continuously monitored at Kitamaat Village (Kitimat Haisla Village) (Site 1), Kitimat Riverlodge (Site 2) and Kitimat Whitesail:

a. a comparison of the measured ambient air concentrations at each ambient air monitoring stations to the applicable numerical metrics of the BCAAQO; and

b. (i) a description of any measured ambient air concentrations in excess of the numerical metrics of the BCAAQO, if applicable, (ii) a description of any known contributing factors from authorized works, and (iii) a description of action (if any) taken by the Permittee.

4.2. Data and Assessment

Data from continuous ambient air quality monitoring stations in Kitimat are publically available via the BC Ministry of Environment and Climate Change Strategy, at: Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

The publically available data for NO_2, SO_2 and $PM_{2.5}$ at the three continuous ambient air quality monitoring stations are provided in graphs in Appendix C; the graphs also contain the applicable BCAAQO metric. This information is also presented in a time-series in the report published by Trinity that includes data from July 2024 (refer to Appendix E, Attachment 1)

There were no ambient air quality concentrations of NO_2 and SO_2 measured in excess of the BCAAQO metrics in August or September 2024. There were elevated $PM_{2.5}$ (24-hour running average) measurements on August 17, 2024, at all three continuous ambient air quality stations, due to elevated $PM_{2.5}$ (1-hour) measurements commencing from early evening on August 16, 2024. When using the daily maximum value, rather than the 24-hour running average, the PM2.5 did not exceed the AQO metric (refer to Appendix E, Attachment 1). These emissions are not attributable to the authorized emissions from the LNG facility under Permit PA-110588, given the discharge had not commenced in this period.

5. Source Testing Results (Condition 10.3.4)

5.1. Permit Condition

Under Condition 10.3.4, the quarterly report shall include the following information:

a. identification of the dates of any source sampling activities carried out during the reporting period;

b. identification of the testing company that carried out any source sampling activities during the reporting period;

c. a brief overview of any continuous emission monitoring system (CEMS) initial or re-certification tests carried out during the reporting period;

d. a brief overview of the results of any complete or incomplete (i) manual stack surveys, (ii) CEMS performance evaluation carried out during the period;

e. an explanation for stopping or aborting any incomplete (i) manual stack survey, (ii) CEMS performance evaluation;

f. a brief overview of any required corrective actions taken or planned in response to the source sampling activities; and

g. the manual stack source emissions survey reports and CEMS performance evaluation reports.

Conditions within Permit PA-110588 that inform the scope of this reporting include:

- Under Condition 5.1.2, LNG Canada shall undertake manual stack sampling every six months in the IPP on the gas turbine / WHRU stacks.
- Under Condition 5.2.2, LNG Canada shall undertake manual stack sampling for each AGI on a quarterly basis for one year.
- Under Condition 5.3, the CEMS performance evaluations or manual stack surveys shall be conducted while the equipment is operating at normal capacity while combusting the primary fuel for that unit.

5.2. Data and Assessment

Manual stack sampling has not commenced as outlined below:

- The IPP has not commenced therefore has not triggered the manual stack sampling for the gas turbines / WHRU.
- The AGI has not commenced operations; this will occur after the Acid Gas Removal Unit becomes operational (this unit produces the acid gas for incineration); therefore has not triggered this program.

The CEMS performance evaluation has not yet commenced; the first relative accuracy test audit (RATA) will occur after the gas turbines/WHRUs, and the AGIs are operating at normal capacity while combusting the primary fuel for that unit.

6. Inlet Gas Sulphur Report (Condition 10.3.5)

6.1. Permit Condition

Under Condition 10.3.5, the quarterly report shall include the following information:

a. daily percentage of hydrogen sulphide of the facility inlet gas; and

b. total estimated sulphur in the facility inlet gas, based on the analysis of the monthly gas samples.

6.2. Data and Assessment

Appendix D contains the daily percentage of hydrogen sulphide (H_2S) and total estimated sulphur in the facility inlet gas (from Coastal Gas Link).

7. References

- BC Ministry of Environment and Climate Change Strategy, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca), accessed October 02, 2024.

Appendix A Abbreviations

AGI	Acid Gas Incinerator
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
EPC	Engineering, Procurement, and Construction
H_2S	Hydrogen Sulphide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
JFJV	JGC Fluor BC LNG Joint Venture
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit
$\mu g/m^3$	micrograms per cubic meter

Appendix B Previous Quarterly Reports Issued Under PA-110588

Quarter / Year	Document #	Date Issued
Q3 2024	L001-09800-HE-7180-4676	22-Oct-2024; Revised 03-Feb-2025 (Rev B)

Appendix C Ambient Air Quality Evaluation (Condition 10.3.3)

Herein contains the evaluation of NO_2, SO_2 and $PM_{2.5}$ at the continuously monitored at Kitamaat Village (Kitimat Haisla Village) (Site 1), Kitimat Riverlodge (Site 2) and Kitimat Whitesail. This evaluation was also included in the monthly reports during commissioning; herein contains the same information based on the quarterly reporting period (August and September).

Nitrogen Dioxide (NO_2)

The publicly available data of 1-hour NO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure C-1. The BCAAQO for 1-hour NO_2 is 60 parts per billion (ppb) (equates to 113 µg/m^3), calculated by the 98th percentile of daily 1-hour maximum over three years; this metric is also illustrated in Figure C-1.

There is a BCAAQO for annual NO_2 (17 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

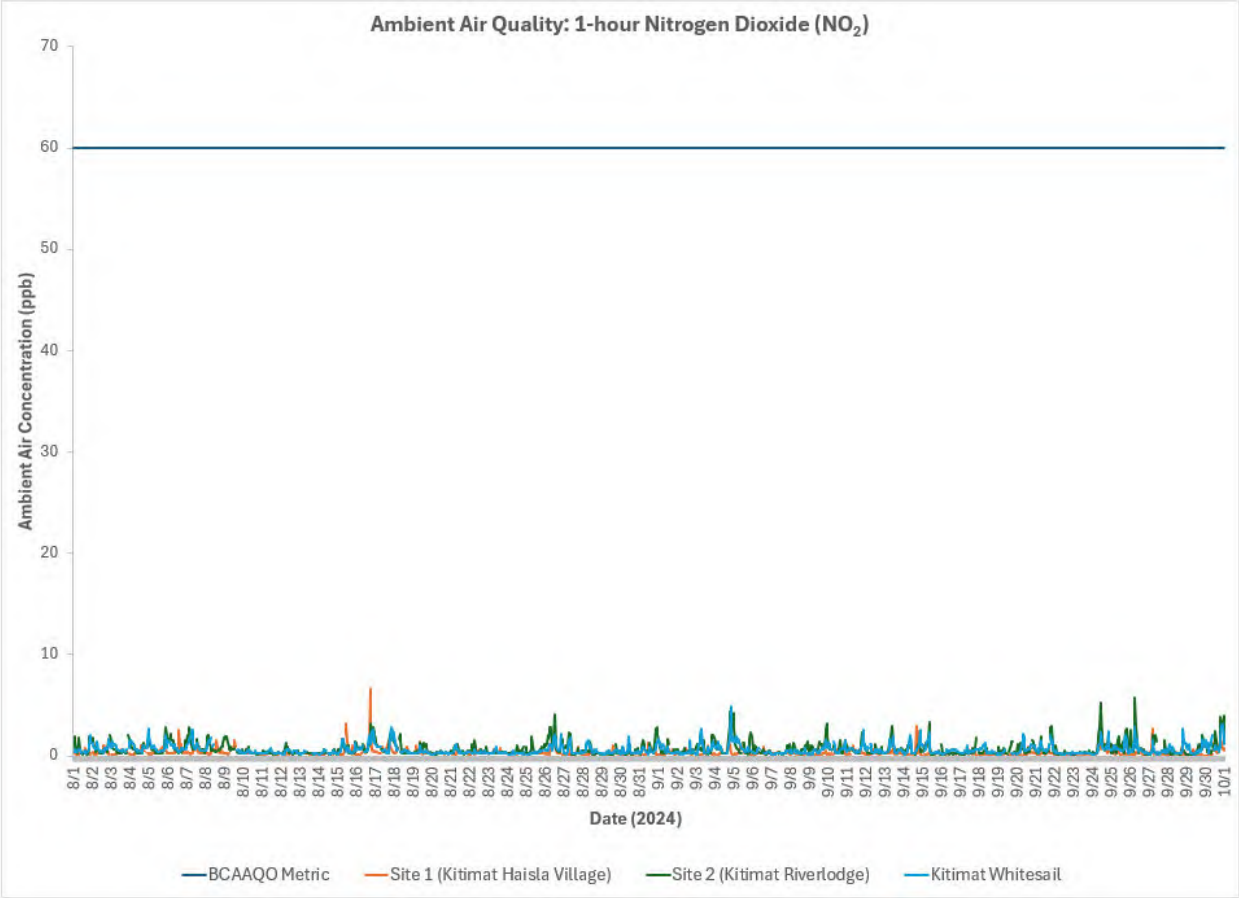

Figure C-1: Ambient Air Quality - 1-hour Nitrogen Dioxide (NO_2)

Sulphur Dioxide (SO_2)

The publicaly available data of 1-hour SO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure C-2. BC adopted the 2020 Canadian Ambient Air Quality Standard (CAAQS) as the BCAAQO for 1-hour SO_2, which is 70 parts per billion (ppb) (equates to 183 µg/m^3), calculated by the annual 99th percentile of daily 1-hour averaged over three consecutive years; this metric is also illustrated in Figure C-2.

There is a BCAAQO for annual SO_2 (5 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

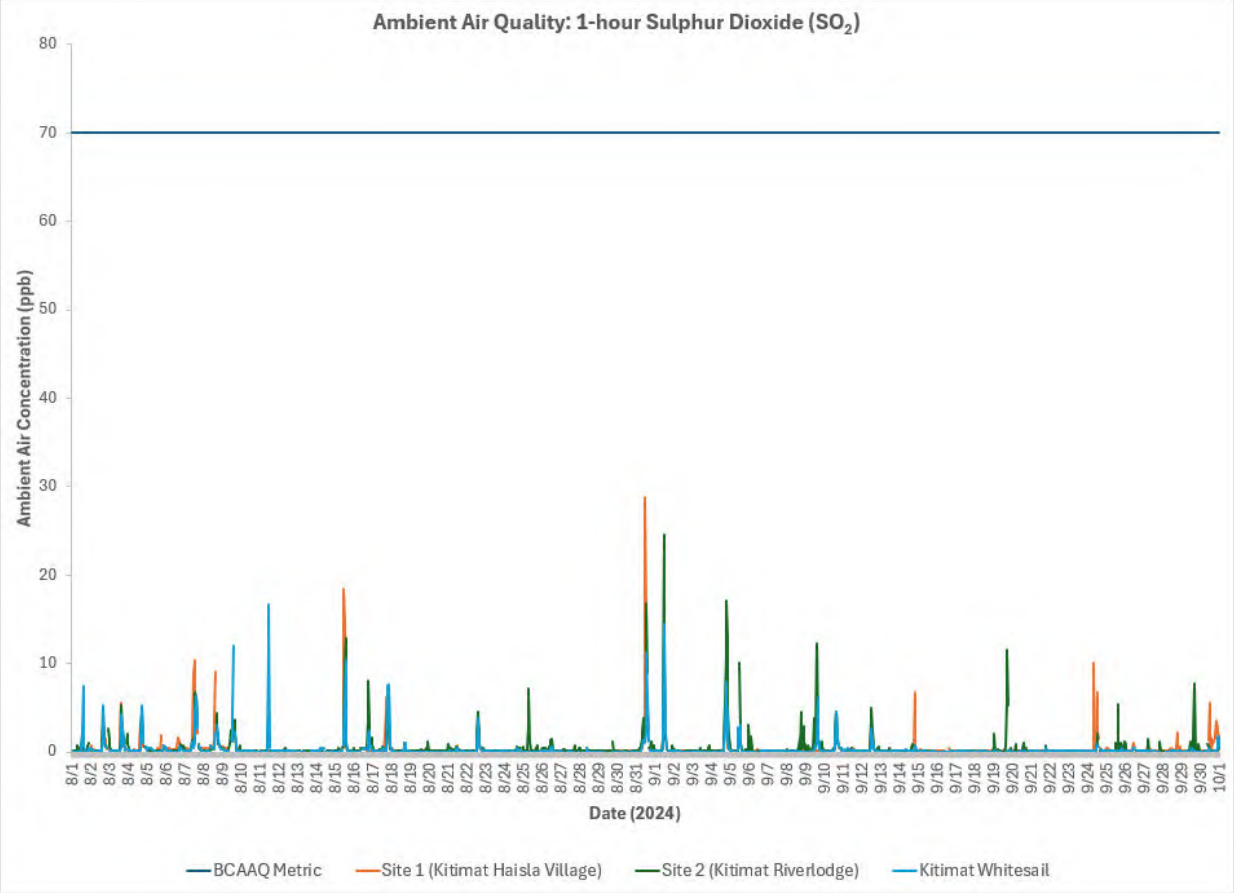

Figure C-2: Ambient Air Quality - 1-hour Sulphur Dioxide (SO_2)

Fine Particulate Matter ($PM_{2.5}$)

The publicaly available data of 24-hour running average for $PM_{2.5}$ from the three continuous ambient air quality monitoring stations is illustrated in Figure C-3 (note, the values will be slightly different if using the daily maximum as the basis for the 24-hour assessment). The BCAAQO for 24-hour $PM_{2.5}$ is 25 µg/m^3, calculated by the 98th percentile of daily average, over one year; this metric is also illustrated in Figure C-3.

There is a BCAAQO for annual $PM_{2.5}$ (8 µg/m^3 based on the annual average, over one year) however this information is not published for each monitoring station therefore is not provided herein.

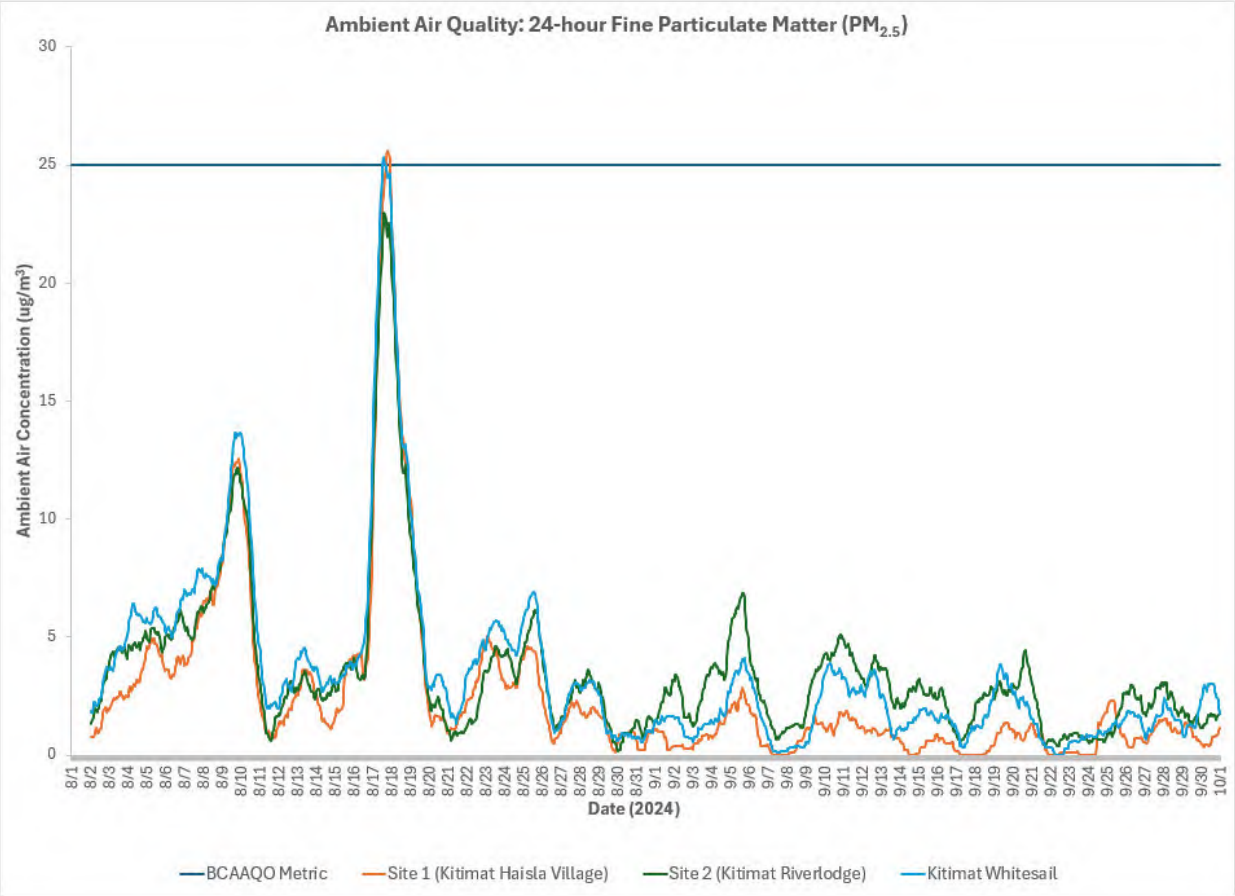

Figure C-3: Ambient Air Quality - 24-hour Fine Particulate Matter ($PM_{2.5}$)

Appendix D Inlet Gas Sulphur Report (Condition 10.3.5)

The daily percentage of hydrogen sulphide (H_2S) in the facility's inlet gas is based on the data collected at the Kitimat Sales Meter Station in parts per million weight (ppmw) (Tag no: CA: KITSL-H2SCN.curval) where the natural gas flow is metered before it enters the LNG Canada Facility; then converted to a percentage value for herein reporting. Natural gas was first introduced into the LNG Canada Facility on August 31, 2024, therefore the daily percentage of H_2S in the inlet gas is provided from this date in Table D-1.

Table D-1: Daily Percentage of Hydrogen Sulphide in Inlet Gas [Q3-2024]

Date	H_2S Concentration (%)
31-Aug-24	0.00000068
1-Sep-24	0.00000138
2-Sep-24	0.00000060
3-Sep-24	0.00000106
4-Sep-24	0.00000187
5-Sep-24	0.00000080
6-Sep-24	0.00000181
7-Sep-24	0.00000107
8-Sep-24	0.00000096
9-Sep-24	0.00000178
10-Sep-24	0.00000154
11-Sep-24	0.00000275
12-Sep-24	0.00000086
13-Sep-24	0.00000138
14-Sep-24	0.00000142
15-Sep-24	0.00000230
16-Sep-24	0.00000073
17-Sep-24	0.00000143
18-Sep-24	0.00000068
19-Sep-24	0.00000160
20-Sep-24	0.00000169
21-Sep-24	0.00000342
22-Sep-24	0.00000503
23-Sep-24	0.00000383
24-Sep-24	0.00000275
25-Sep-24	0.00000127
26-Sep-24	0.00000024
27-Sep-24	0.00000087
28-Sep-24	0.00000165
29-Sep-24	0.00000160
30-Sep-24	0.00000190

Feed inlet gas is regularly verified through manual sampling and laboratory analysis. These manual samples are collected and analyzed by the LNG Canada Laboratory using ASTM D 5504-2012 test method. During the reporting period, there was more than one sample measured within the month, as indicated in Table D-2.

Table D-2: Total Measured Sulphur Content in Inlet Gas [Q3-2024]

Date	Total Measured Sulphur Content (ppmw)
17-Sep-24	0.18
25-Sep-24	0.35

The methodology is outlined below:

1. **Sample Collection:** Grab samples of the inlet gas are collected from Unit-1000.
2. **Sample Analysis:** The samples are analyzed at the LNG Canada laboratory using a Total sulfur analyzer with UVF detection (refer to Figure D-1). The analysis provides the total sulphur concentration of various sulphur compounds.

3. **Data Verification:** The results of the laboratory analysis are reviewed for consistency and accuracy by the LNG Canada laboratory. Any discrepancies or outliers are investigated and, if necessary, the analysis is repeated. The LNG Canada laboratory also performs internal quality control checks, including the analysis of certified reference materials and method blanks with each batch of samples where applicable.

Product:	Total Sulfur in Condensate/Gas UVF detection
Methods:	ASTM D5453 /ASTM D6667
Model:	VF-210 NSX-2100
Tag:	A-10
Manufacturer:	Nittoseiko
Country of Origin:	Japan
Number of Systems:	1
Unit Price:	Quoted

Figure D-1: UVF Sampling for Total Sulphur

Appendix E List of Attachments

Number	Title
1	Trinity Consultants, Ambient Air Quality Monitoring Report July – September 2024, LNG Canada (October 2024)
2	Tetra Tech Technical Memo, PA-110588 – Passive NO_2 Monitoring Results for Q3 2024 (October 18, 2024)

Attachment 1 Trinity Consultants, Ambient Air Quality Monitoring Report July – September 2024, LNG Canada (October 2024)

AMBIENT AIR QUALITY MONITORING REPORT JULY - SEPTEMBER 2024

LNG CANADA

TRINITY CONSULTANTS
4525 Wasatch Blvd.
Suite 200
Salt Lake City, Utah
801-272-3000

October 2024

Project 244501.0077

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1.0 INTRODUCTION

This report, prepared for LNG Canada by Trinity Consultants (Trinity), summarizes the LNG Canada's nitrogen dioxide (NO_2) and Ozone (O_3) monitoring network data collected at the Kitamaat Village and Riverlodge Stations for the third quarter (July 1 through September 30), 2024. In addition, sulfur dioxide (SO_2) and particulate matter 2.5 microns in size or less ($PM_{2.5}$) presented in this report for the Kitamaat Village and Riverlodge stations have been provided by Rio Tinto BC Works. Rio Tinto BC works also provided the third quarter 2024 meteorological data for the Kitamaat Village, Riverlodge, and Whitesail stations as well as the NO_2, O_3, SO_2, and $PM_{2.5}$ data collected at the Whitesail station.

The monitoring performed by LNG Canada is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) and satisfies the requirement for collection of continuous air quality data as described under Sections 10.3, 10.3.1, 10.3.2 & 10.3.3 in LNGC's Air Discharge Permit PA-110588.

LNG Canada owns, operates, and maintains an ambient air monitoring network around the LNG Canada Kitimat LNG export facility. This ambient air quality monitoring network consists of two air quality monitoring stations that are strategically located in the Kitimat Valley of British Columbia (BC) at the Kitamaat Village (Village) and Riverlodge. The Kitamaat Village and Riverlodge stations are owned by Rio Tinto Alcan Inc. and are part of Rio Tinto's air quality monitoring network. LNG Canada's continuous monitoring equipment are housed in the Rio Tinto air quality shelters at Kitamaat Village and Riverlodge locations. The locations of these stations within the Kitimat Valley are presented in Figure 1.1.

Figure 1.1 Locations of LNG Canada and Rio Tinto BC Works Ambient Air Monitoring Stations in Kitimat Valley

1.1 Kitamaat Village

The Village Ambient Air Station is in the Haisla Nation community of Kitamaat Village. The site is located within the yard of the Kitamaat Village sewage treatment plant. Area land use is suburban with a mix of dwellings, commercial buildings, forest, ocean, and parkland. The ground cover immediately around the site is compacted gravel, natural ground cover, cut grass, and asphalt. An aerial view of the site is presented in Figure 1.2. A photograph of the Kitamaat Village Ambient Air Quality Monitoring Station is presented in Figure 1.3.

Figure 1.2 Aerial View of Kitamaat Village Ambient Air Quality Monitoring Station

Figure 1.3 Photograph of Kitamaat Village Ambient Air Quality Monitoring Station

1.2 Riverlodge

The Riverlodge Ambient Air Station is located on Columbia Avenue in Kitimat, BC across the street from the Riverlodge Community Centre. The monitoring station is an aged industrial trailer with a meteorological tower mounted to the frame and hitch of the trailer. Land use around the site is suburban low-density housing, park land and forest. Land cover immediately around the site is short grass, gravel and asphalt parking lot, buildings, and forested lands. An aerial view of the site is shown in Figure 1.4. A photograph of the Riverlodge ambient air station is presented in Figure 1.5.

Figure 1.4 Aerial View of Riverlodge Ambient Air Quality Monitoring Station

Figure 1.5 Photograph of Riverlodge Ambient Air Quality Monitoring Station

1.3 Whitesail

Rio Tinto BC Works' operates and maintains the Whitesail monitoring station located in the Kitimat Valley. Like the Riverlodge monitoring station, the Whitesail monitoring station is considered a residential monitoring station. The Whitesail Ambient Air Station is in the Whitesail neighborhood of Kitimat, BC. and is situated on land owned by the Mountain View Alliance Church. Area land use is a suburban residential, forested, and park land. The ground cover around the site is grass, compacted gravel, asphalt, buildings, and forested land. An aerial view of the site is presented as Figure 1.6. A photograph of the station is presented as Figure 1.7.

Figure 1.6 Aerial View of Whitesail Ambient Air Quality Monitoring Station

Figure 1.7 Photograph of Whitesail Ambient Air Quality Monitoring Station

2.0 THIRD QUARTER 2024 REPORT SUMMARY

The LNG Canada and Rio Tinto BC Works air quality monitoring data collected during the third quarter (July 1 through September 30) at the Kitamaat Village, Riverlodge, and Whitesail stations are summarized in this section.

2.1 British Columbia Air Quality Objectives

British Columbia has adopted air quality objectives and standards for a number of contaminants, including $PM_{2.5}$, SO_2, O_3, and NO_2. The British Columbia Ambient Air Quality Objectives (BCAAQO) and the 2020 Canadian Ambient Air Quality Standard (for SO_2) that have been developed by the British Columbia Ministry of Environment are as follows:

Pollutant	Averaging Period	British Columbia Ambient Air Quality Objective (BCAAQO)	2020 Canadian Ambient Air Quality Standard (CAAQS)
SO_2	1-hour[a]	75 (ppb)	70 (ppb)
	Annual[b]	10 (ppb)	5 (ppb)
NO_2	1-hour[c]	60 (ppb)	--
	Annual[d]	17 (ppb)	--
$PM_{2.5}$	24-hours[e]	25 ($\mu g/m^3$)	--
	Annual	8 ($\mu g/m^3$)	--
O_3	1-hour	82 (ppb)	--
	8-hour[f]	--	62 (ppb)

[a] Achievement based on annual 99th percentile of daily 1-hour maximum, averaged over three consecutive years.

[b] Achievement based on annual average of 1-hour concentrations over one year.

[c] 98th percentile of daily 1-hour maximum over three years

[d] Average of 1-hour concentrations over one year

[e] 98th percentile of daily average over one year

[f] Achievement based on annual 4th highest daily 8-hour maximum, averaged over three consecutive years

2.2 Pollutant Concentrations and Data Completeness

During the third quarter, there were no exceedances of the BCAAQO for SO_2, NO_2, and $PM_{2.5}$. The average and median hourly $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations measured during the third quarter at the Kitamaat Village, Riverlodge, and Whitesail monitoring stations are summarized in Table 2-1. Tables 2-2 through 2-4 present the maximum $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations, a comparison to the BCAAQOs, and data completeness for the third quarter 2024. In Tables 2-2 through 2-4 it should be noted that, as applicable, SO_2 exceedance counts include BCAAQO and 2020 CAAQS.

Table 2-1 Average and Median Pollutant Statistics for Third Quarter 2024

Station	$PM_{2.5}$ ($\mu g/m^3$)		SO_2 (ppb)		NO_2 (ppb)		O_3 (ppb)	
	Average	Median	Average	Median	Average	Median	Average	Median
Kitamaat Village	2.4	1.0	0.4	0.2	0.2	0.2	18.6	18.0
Riverlodge	3.2	2.0	0.7	0.2	0.5	0.3	17.8	19.0
Whitesail	3.3	2.0	0.3	0.1	0.6	0.4	17.6	18.0

Table 2-2 Kitamaat Village Station Third Quarter 2024 Data Summary

Parameter	1-hour average						24-hour Average 8-hour Average								
	Maximum Concentration			Exceedances of BCAAQO[1]			Maximum Concentration			Exceedances of BCAAQO[1]			Data Completeness		
	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.
$PM_{2.5}$ (µg/m^3)[3]	11.0	38.0	8.0	--	--	--	6.0	22.5	2.0	0.0	0.0	0.0	97.8	97.1	89.1
SO_2 (ppb)	13.1	28.8	10.1	0.0	0.0	0.0	1.6	3.0	1.2	-	-	-	94.9	93.9	94.9
NO_2 (ppb)	3.0	6.6	3.0	0.0	0.0	0.0	0.3	0.8	0.7	-	-	-	94.9	94.9	94.9
O_3 (ppb)	37.0	37.0	44.0	0.0	0.0	0.0	33.0[2]	33.0[2]	40.0[2]	0.0	0.0	0.0	94.9	94.9	94.9

1 British Columbia Ambient Air Quality Objective (AAQO)
2 8-hour maximum
3 24-hour $PM_{2.5}$ concentrations were determined from midnight to midnight

Table 2-3 Riverlodge Station Third Quarter 2024 Data Summary

Parameter	1-hour average						24-hour Average 8-hour Average								
	Maximum Concentration			Exceedances of BCAAQO[1]			Maximum Concentration			Exceedances of BCAAQO[1]			Data Completeness		
	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.
$PM_{2.5}$ (µg/m^3)[3]	19.0	35.0	14.0	--	--	--	7.8	20.5	5.4	0.0	0.0	0.0	98.6	99.4	98.2
SO_2 (ppb)	60.9	16.8	24.6	0.0	0.0	0.0	7.5	2.1	2.5	-	-	-	94.5	95.5	93.5
NO_2 (ppb)	5.0	4.2	5.9	0.0	0.0	0.0	0.8	1.4	1.4	-	-	-	94.5	95.5	95.2
O_3 (ppb)	43.0	43.0	41.0	0.0	0.0	0.0	37.0[2]	35.0[2]	38.0[2]	0.0	0.0	0.0	94.5	95.5	95.2

1 British Columbia Ambient Air Quality Objective (AAQO)
2 8-hour maximum
3 24-hour $PM_{2.5}$ concentrations were determined from midnight to midnight

Table 2-4 Whitesail Station Third Quarter 2024 Data Summary

Parameter	1-hour average						24-hour Average 8-hour Average								
	Maximum Concentration			Exceedances of BCAAQO[1]			Maximum Concentration			Exceedances of BCAAQO[1]			Data Completeness		
	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.
$PM_{2.5}$ ($\mu g/m^3$)[3]	14.0	37.0	9.0	--	--	--	8.2	22.8	3.5	0.0	0.0	0.0	99.4	99.1	95.9
SO_2 (ppb)	14.5	16.6	14.5	0.0	0.0	0.0	3.2	1.4	1.6	-	-	-	95.1	94.0	94.5
NO_2 (ppb)	2.4	2.9	4.9	0.0	0.0	0.0	0.9	1.3	1.3	-	-	-	95.1	79.4	94.5
O_3 (ppb)	42.0	43.0	39.0	0.0	0.0	0.0	34.0[2]	34.0[2]	34.0[2]	0.0	0.0	0.0	95.1	94.0	94.5

1 British Columbia Ambient Air Quality Objective (AAQO)
2 8-hour maximum
3 24-hour $PM_{2.5}$ concentrations were determined from midnight to midnight

2.3 Third Quarter 2024 Ambient Air Monitoring Issues

During the third quarter of 2024, there were no ambient air or meteorological monitoring data deletions or resubmissions made for any of the monitoring stations outlined in this report. No required calibrations of the ambient air quality analyzers were missed during the third quarter. There were no issues identified with the ambient air or monitoring data besides the data besides the data completeness for $PM_{2.5}$ in September at Kitamaat Village. During the month of September at Kitamaat Village, the continuous $PM_{2.5}$ monitor had a data recovery rate of 89.1%. This was primarily due to hourly ambient values below the -3 $\mu g/m^3$ threshold being invalidated according to Ministry guidelines. During the third quarter of 2024, there were no exceedances of the numerical metrics of the BCAAQO.

3.0 JULY - SEPTEMBER 2024 KITAMAAT VILLAGE AMBIENT AIR QUALITY STATION MONITORING ACTIVITIES

This section provides a summary of the monitoring activities conducted at the LNG Canada Kitamaat Village Ambient Air Quality Station for July through September 2024. Table 3-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Kitamaat Village monitoring station. Site visit notes for the third quarter, SO_2, $PM_{2.5}$, O_3, and NO_2 concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, and NO_2 trends for the third quarter 2024 are also presented in this section.

Table 3-1 LNG Canada Instrumentation at the Kitamaat Village Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Kitamaat Village			
NO_2	Teledyne-API T200	Chemiluminescence	8598
O_3	Teledyne-API T400	UV Absorption	7486
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	905
Zero Air Source	Teledyne API T701	Zero-Air Generator	2555

3.1 Site Visit Notes

The Kitamaat Village site visit notes for the third quarter are summarized here and in Appendix A.

- On July 3, 2024, the site technician adjusted the clock on the NO_2 analyzer to the correct time.
- On July 8, 2024, the site technician adjusted the clock on the NO_2 analyzer to the correct time.
- On July 9, 2024, the site technician adjusted the clock on the NO_2 analyzer to the correct time.
- On July 14, 2024, the Trinity data manager noticed that the daily zero and span sequences were not correct in the Envidas data acquisition system. The program in Envidas was corrected.
- On July 16, 2024, the site technician adjusted the clock on the NO_2 analyzer and T700 calibrator to correct time. The shelter temperature was adjusted.
- On July 18, 2024, the site technician adjusted the clock on the NO_2 analyzer and T700 calibrator to correct time. The NO_2 analyzer inlet filter was replaced.
- On July 24, 2024, remote "as found" and "after adjustment" calibrations were performed on the NO_2 analyzer.
- On August 1, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers and T700U calibrator to the correct time. General site maintenance was performed, and blinds were installed in the shelter to help with temperature control.
- On August 9, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers and T700U calibrator to the correct time.

- On August 14, 2024, the site technician replaced the O_3 and NO_x analyzer inlet filters and updated the Envidas logger. The clocks on the NO_2 and O_3 analyzers and T700U calibrator were updated to the correct time.

- On August 20, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers and T700U calibrator to the correct time and performed a weekly site check.

- On August 27, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers and T700U calibrator to the correct time. Cobwebs were cleared from near the analyzer's intake.

- On August 28, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers to the correct time.

- On September 4, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time.

- On September 10, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers to the correct time.

- On September 16, 2024, remote "as found" and "after adjustment" multipoint verifications were performed on the NO_x analyzer.

- On September 19, 2024, a remote "as found" multipoint verification was performed on the O_3 analyzer.

- On September 19, 2024, the site technician replaced the O_3 and NO_x analyzer inlet filters. The clocks on the NO_2 and O_3 analyzers, and T700U calibrator were updated to the correct time.

- On September 20, 2024, the site technician was at the shelter to investigate the drop in shelter temperature. A space heater was added into the shelter.

3.2 Monitoring Results and Trends

A summary of the $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations monitoring statistics for the third quarter 2024 for the Kitamaat Village Station is presented in Table 3-2.

Table 3-2 Summary of $PM_{2.5}$, SO_2, NO_2, and O_3 Concentrations for the Kitamaat Village Station, July – September 2024

Statistic	$PM_{2.5}$ (µg/m³)[1]				SO2 (ppb)[1]				NO_2 (ppb)				O_3 (ppb)			
	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3
1-hour Avg.	1.9	4.3	0.9	2.4	0.4	0.5	0.4	0.4	0.1	0.4	0.3	0.2	18.5	19.0	18.4	18.6
1-Hour Max.	11.0	38.0	8.0	38.0	13.1	28.8	10.1	28.8	3.0	6.6	3.0	6.6	37.0	37.0	44.0	44.0
1-Hour Min.[2]	0.0	0.0	0.0	0.0	-0.1	-0.2	0.1	-0.2	-0.3	0.1	-0.1	-0.3	2.0	1.0	1.0	1.0
Mean Daily Max.	6.1	23.0	2.0	23.0	1.7	3.2	1.3	3.2	0.3	0.9	0.7	0.9	29.2	29.5	36.2	36.2
Mean Daily Min.	0.3	0.4	0.0	0.0	0.2	-0.1	0.1	-0.1	-0.2	0.2	0.1	-0.2	7.0	7.6	8.7	7.0
24-hour Avg.	1.9	4.3	0.8	2.3	0.4	0.5	0.4	0.4	0.1	0.4	0.3	0.3	29.0	19.0	18.4	22.1
24-hour Daily Max.[3]	6.0	22.5	2.0	22.5	1.6	3.0	1.2	3.0	0.3	0.8	0.7	0.8	--	--	--	--
8-hour Max.	--	--	--	--	--	--	--	--	--	--	--	--	37.0	33.0	40.0	40.0
Median	1.0	2.0	0.0	1.0	0.2	0.1	0.2	0.2	0.0	0.2	0.2	0.2	18.0	18.0	18.0	18.0
Percent Data Recovery	97.8	97.1	89.1	94.6	94.9	93.9	94.9	94.6	94.9	94.9	94.9	94.9	94.9	94.9	94.9	94.9

[1] $PM_{2.5}$ and SO_2 third quarter 2024 data provided by Rio Tinto BC Works.

[2] Slightly negative concentrations are inherent with proper analyzer operation due to subtle levels of noise in the zero baseline setpoint. Negative values may be interpreted as zero and only occur when the air is very clean.

[3] 24-hour $PM_{2.5}$ daily maximum concentrations determined from midnight to midnight.

The average $PM_{2.5}$ concentration during the third quarter was 2.4 µg/m^3 and the median $PM_{2.5}$ concentration during the third quarter was 1.0 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration during the third quarter was 38.0 µg/m^3 which occurred in August. The maximum 24-hour $PM_{2.5}$ concentration for the third quarter was 22.5 µg/m^3 which also occurred in August. During the third quarter, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

The average SO_2 concentration at the Kitamaat Village for the third quarter was 0.4 ppb with a median concentration of 0.2 ppb. The maximum hourly SO_2 concentration during the third quarter was 28.8 ppb which occurred in August. During the third quarter, there were no exceedances of the 1-hour SO_2 BCAAQO of 75 ppb or the 1-hour SO_2 CAAQS of 70 ppb at Kitamaat Village station.

The average NO_2 concentration at the Kitamaat Village for the third quarter was 0.2 ppb and the median NO_2 concentration was 0.2. The maximum hourly NO_2 concentration during the third quarter at Kitamaat Village was 6.6 ppb which occurred in August. During the third quarter, there were no exceedances of the 1-hour NO_2 BCAAQO of 60 ppb at the Kitamaat Village station.

The average O_3 concentration at the Kitamaat Village for the third quarter was 18.6 ppb and the median O_3 concentration was 18.0 ppb. The maximum hourly O_3 concentration of 44.0 ppb occurred in September. The maximum 8-hour O_3 concentration during the third quarter was 40.0 ppb which also occurred in September. During the third quarter, there were no exceedances of the 1-hour O_3 BCAAQO advisory level of 82 ppb and the 8-hour CAAQS of 62 ppb at the Kitamaat Village station.

Time series plots of $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations for the third quarter, by month, are presented in Figures 3.1 through 3.3.

Figure 3.1 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO_2, and O_3 Concentration Data for the Kitamaat Village Station, July 2024

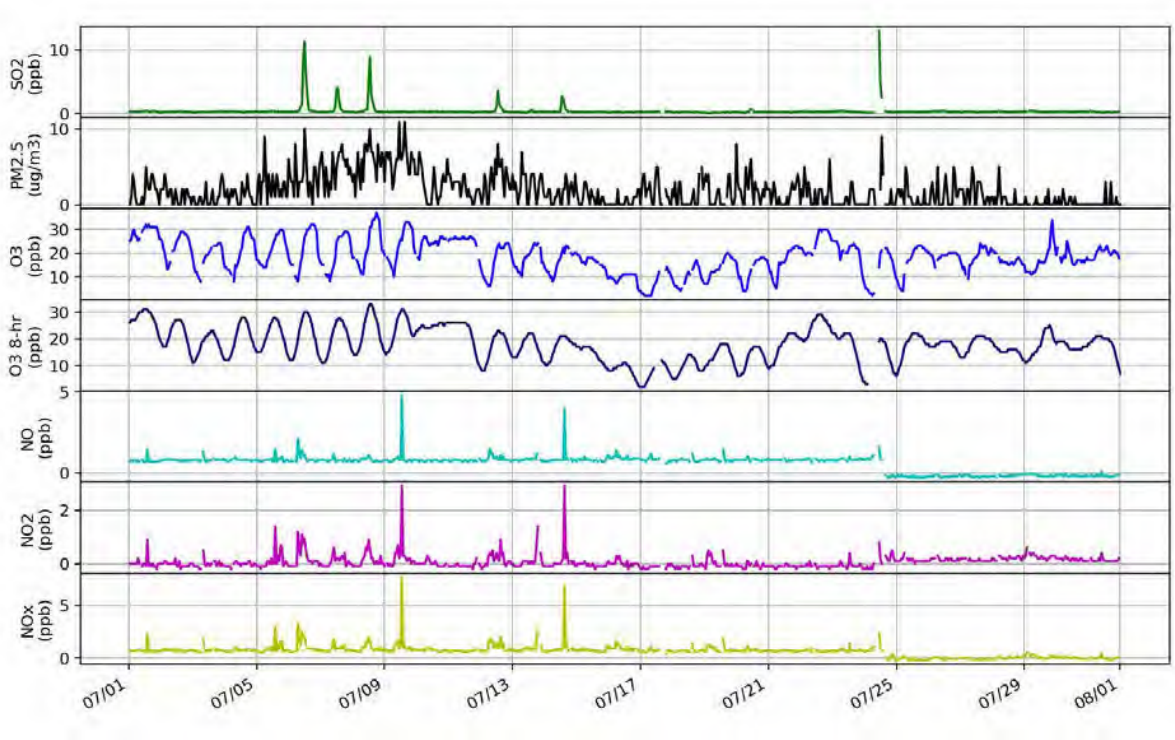


Figure 3.2 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO_2, and O_3 Concentration Data for the Kitamaat Village Station, August 2024

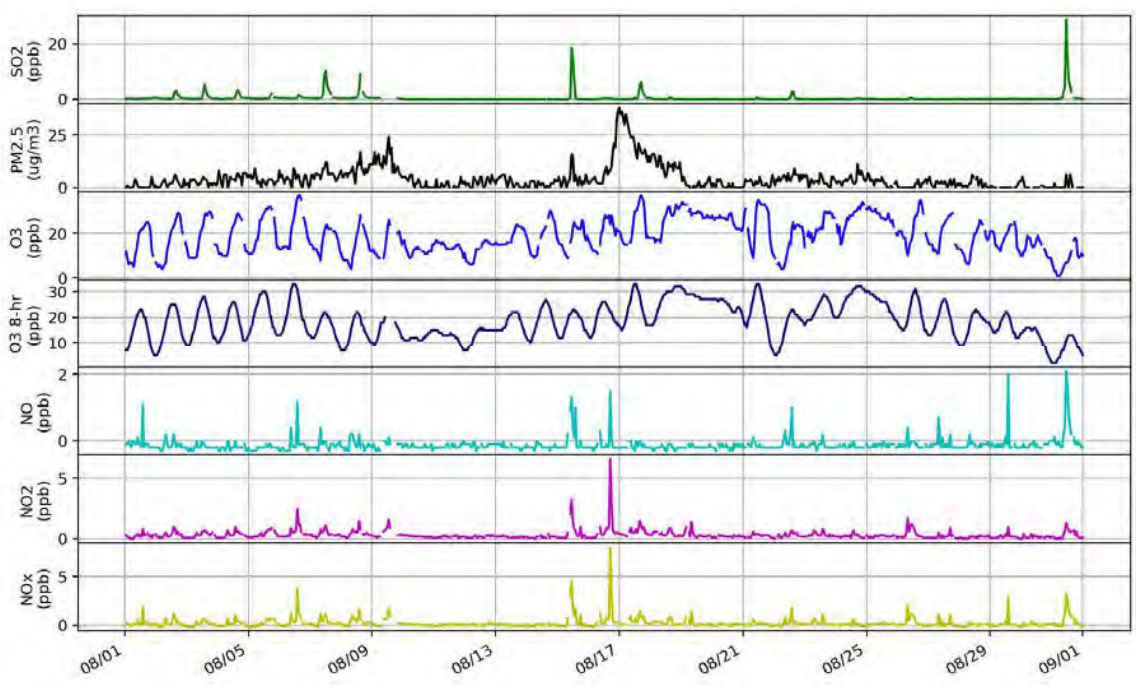
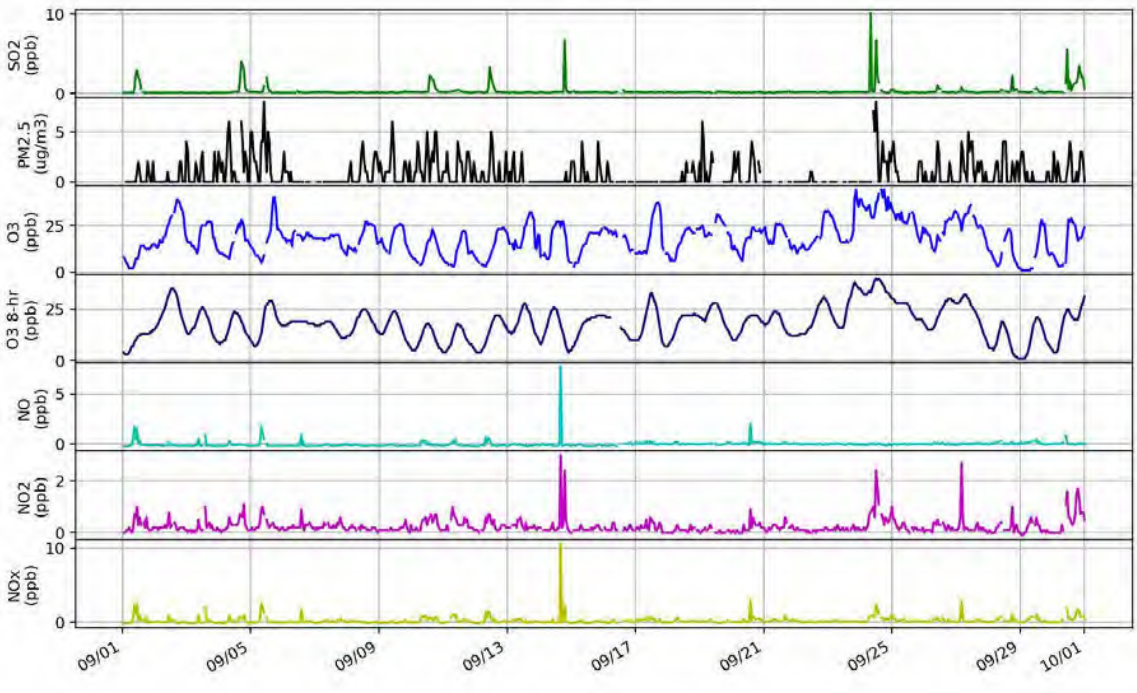


Figure 3.3 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO_2, and O_3 Concentration Data for the Kitamaat Village Station, September 2024



Wind speed and wind direction data are collected by Rio Tinto BC Works at the Kitamaat Village station. Figures 3.4 through 3.6 present the monthly Kitamaat Village station wind roses for July through September 2024.

Figure 3.4 July 2024 Kitamaat Village Station Wind Rose

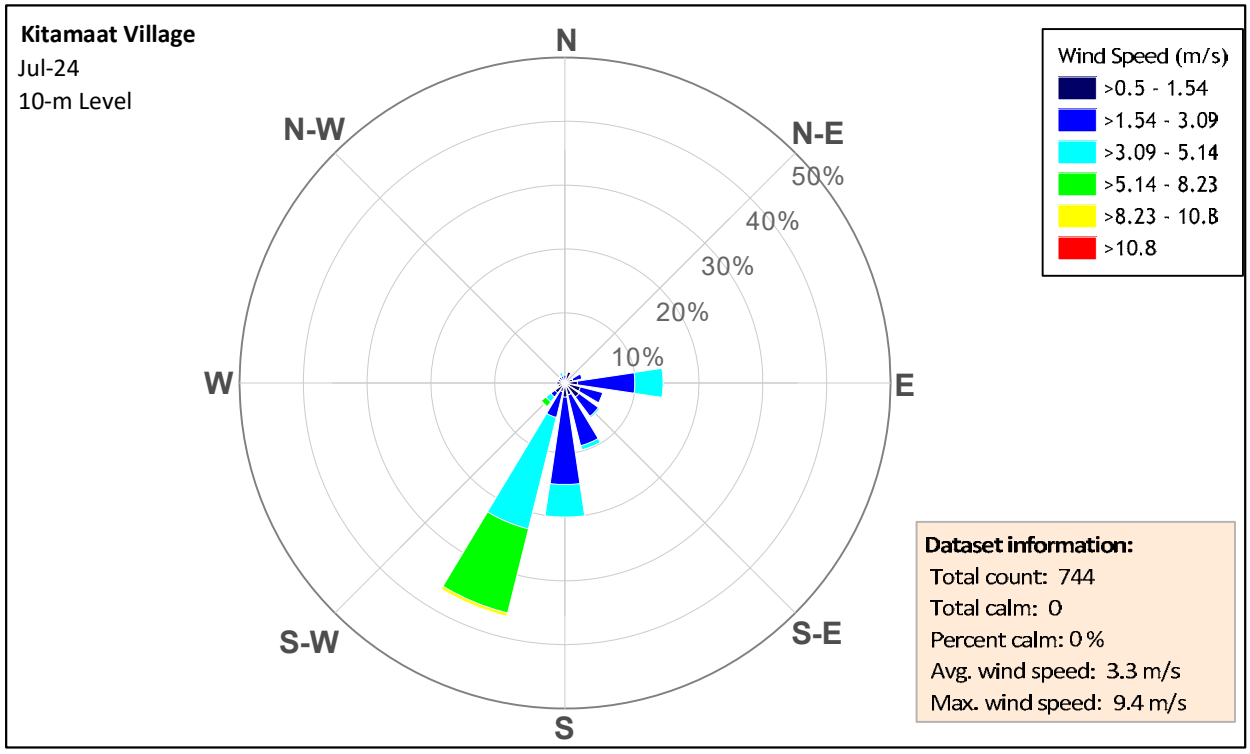


Figure 3.5 August 2024 Kitamaat Village Station Wind Rose

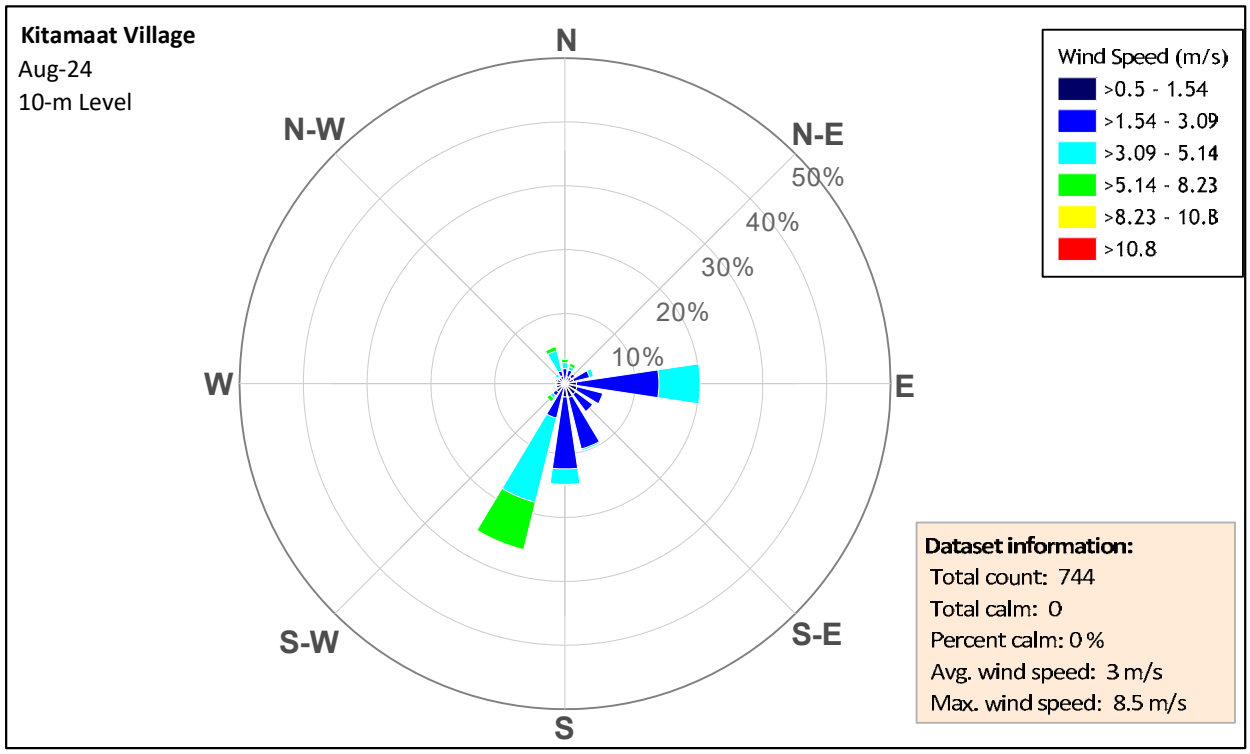
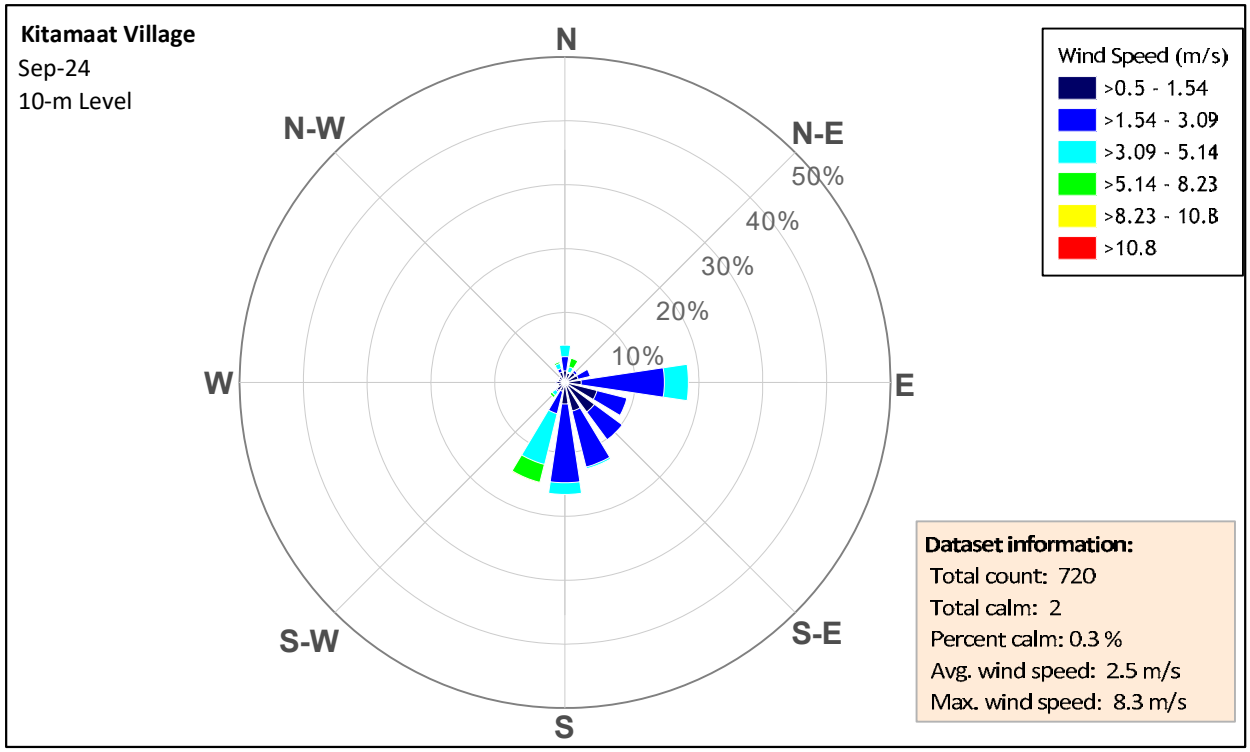


Figure 3.6 September 2024 Kitamaat Village Station Wind Rose



3.3 Third Quarter 2024 Ambient Air Monitoring Data Issues

Table 3-3 presents the Kitamaat Village station data shortfall periods and known issues, during the third quarter, that led to pollutant concentration data loss.

During the month of September, the continuous $PM_{2.5}$ monitor had a data recovery rate of 89.1%. This was primarily due to hourly ambient values below the -3 µg/m^3 threshold being invalidated, per ministry guidelines. This is inherent in this type of particulate monitor (Met One, model BAM 1020) when ambient concentrations are low, near the instrument's baseline.

Table 3-3 Data Shortfall Periods and Noted Issues During Third Quarter 2024 at Kitamaat Village Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
$SO_2/O_3/NO_2$	7/03/2024	1500	7/03/2024	1500	1	SO_2 Filter Change
$SO_2/O_3/NO_2$	7/18/2024	0800	7/18/2024	0800	1	LNG NO_x/O_3 Filters Change
$SO_2/O_3/NO_2$	7/24/2024	0800	7/24/2024	1000	3	LNG NO_x Analyzer Calibration
$PM_{2.5}$	7/24/2024	0800	7/24/2024	1100	3	Monthly BAM Maintenance
$SO_2/O_3/NO_2$	7/24/2024	1400	7/24/2024	1500	1	LNG NO_x Analyzer Calibration
$SO_2/O_3/NO_2$	8/09/2024	0700	8/09/2024	0800	2	SO_2 As Found Multipoint Verification
SO_2	8/09/2024	0900	8/09/2024	1600	8	SO_2 Analyzer Maintenance
$SO_2/O_3/NO_2$	8/09/2024	1700	8/09/2024	1900	3	SO_2 Analyzer Calibration
$SO_2/O_3/NO_2$	8/14/2024	1500	8/14/2024	1600	3	SO_2 Analyzer Maintenance
$PM_{2.5}$	8/28/2024	1200	8/28/2024	1200	1	Monthly BAM Maintenance
$SO_2/O_3/NO_2$	9/16/2024	1100	9/16/2024	1400	4	LNG NO_x Analyzer Calibration
$SO_2/O_3/NO_2$	9/19/2024	1000	9/19/2024	1000	1	LNG O_3 As Found Multipoint Verification
$SO_2/O_3/NO_2$	9/19/2024	1100	9/19/2024	1100	1	LNG O_3/NO_x Filter Changes
$PM_{2.5}$	9/19/2024	1400	9/19/2024	1400	1	Monthly BAM Maintenance

4.0 JULY - SEPTEMBER 2024 RIVERLODGE AMBIENT AIR QUALITY STATION MONITORING STATION

This section provides a summary of the monitoring activities conducted at the LNG Canada Riverlodge Ambient Air Quality Station for July through September 2024. Table 4-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Riverlodge monitoring station. Site visit notes, SO_2, $PM_{2.5}$, O_3, and NO_2 concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, and NO_2 trends for August 2024 are also presented below.

Table 4-1 LNG Canada Instrumentation at the Riverlodge Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Riverlodge			
NO_2	Teledyne-API T200	Chemiluminescence	8599
O_3	Teledyne-API T400	UV Absorption	7487
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	906
Zero Air Source	Teledyne API T701	Zero-Air Generator	2556

4.1 Site Visit Notes

The Riverlodge site visit notes for the third quarter are summarized here and in Appendix A.

- On July 2, 2024, the site technician adjusted the clock on the NO_2 analyzer to the correct time.
- On July 5, 2024, the site technician adjusted the clock on the NO_2 analyzer and T700U calibrator to the correct time.
- On July 18, 2024, the site technician adjusted the clock on the NO_2 analyzer and T700U calibrator to the correct time. The NO_2 analyzer inlet filter was replaced.
- On July 22, 2024, the site technician adjusted the clock on the NO_2 analyzer and T700U calibrator to the correct time. The output pressure was increased on the T701 zero air generator.
- On July 24, 2024, remote "as found" and "after adjustment" calibrations were performed on the NO_2 analyzer.
- On August 2, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers and T700U calibrator to the correct time. The Envidas operating system and time was also updated.
- On August 7, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers to the correct time.
- On August 14, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers and T700U calibrator to the correct time. Updates were installed on the Envidas logger. Cobwebs were cleared by the analyzer's inlets.

- On August 21, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers and T700U calibrator to the correct time and performed a weekly site check.
- On August 28, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers to the correct time.
- On September 4, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, Envidas logger, and T700U calibrator to the correct time. Cobwebs were cleared from near the inlet.
- On September 10, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers to the correct time.
- On September 18, 2024, the site technician replaced the O_3 and NO_x analyzer inlet filters. The clocks on the NO_2 and O_3 analyzers, Envidas logger, and T700U calibrator were updated to the correct time.
- On September 19, 2024, a remote "as found" multipoint verifications was performed on the O_3 analyzer.

4.2 Monitoring Results and Trends

A summary of the $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations monitoring statistics for the third quarter 2024 for the Riverlodge Station is presented in Table 4-2.

Table 4-2 Summary of $PM_{2.5}$, SO_2, NO_2, and O_3 Concentrations for the Riverlodge Station, July – September 2024

Statistic	$PM_{2.5}$ (µg/m³)[1]				SO_2 (ppb)[1]				NO_2 (ppb)				O_3 (ppb)			
	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3
1-hour Avg.	2.6	4.6	2.5	3.2	1.2	0.5	0.5	0.7	0.4	0.7	0.7	0.5	18.0	18.2	17.4	17.8
1-Hour Max.	19.0	35.0	14.0	35.0	60.9	16.8	24.6	60.9	5.0	4.2	5.9	6.6	43.0	43.0	41.0	43.0
1-Hour Min.[2]	0.0	0.0	0.0	0.0	0.1	-0.1	-0.3	-0.3	-0.2	0.1	0.1	-0.2	0.0	0.0	0.0	
Mean Daily Max.	8.1	20.9	5.3	20.9	7.9	2.2	2.6	7.9	0.9	1.5	1.5	1.5	28.6	29.8	32.7	32.7
Mean Daily Min.[2]	0.6	0.2	0.6	0.2	0.1	0.1	-0.2	-0.2	-0.1	0.2	0.3	-0.1	7.5	8.8	7.7	7.5
24-hour Avg.	2.6	4.6	2.5	3.2	1.2	0.5	0.5	0.7	0.3	0.7	0.7	0.5	18.0	18.2	17.4	18.1
24-hour Daily Max.[3]	7.8	20.5	5.4	20.5	7.5	2.1	2.5	7.5	0.8	1.4	1.4	1.4	--	--	--	--
8-hour Max.	--	--	--	--	--	--	--	--	--	--	--	--	37.0	28.6	38.0	38.0
Median	2.0	3.0	2.0	2.0	0.7	0.2	0.1	0.2	0.2	0.4	0.4	0.3	19.0	19.0	19.0	19.0
Percent Data Recovery	98.6	99.4	98.2	98.7	94.5	95.5	93.5	94.5	94.5	95.5	95.2	94.9	94.5	95.5	95.2	95.1

[1] $PM_{2.5}$ and SO_2 third quarter 2024 data provided by Rio Tinto BC Works.

[2] Slightly negative concentrations are inherent with proper analyzer operation due to subtle levels of noise in the zero baseline setpoint. Negative values may be interpreted as zero and only occur when the air is very clean.

[3] 24-hour $PM_{2.5}$ daily maximum concentrations determined from midnight to midnight.

The average $PM_{2.5}$ concentration during the third quarter was 3.2 µg/m^3 and the median $PM_{2.5}$ concentration during the third quarter was 2.0 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration during the third quarter was 35.0 µg/m^3 which occurred in August. The maximum 24-hour $PM_{2.5}$ concentration for the third quarter was 20.5 µg/m^3 which also occurred in August. During the third quarter, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

The average SO_2 concentration at the Riverlodge for the third quarter was 0.7 ppb with a median concentration of 0.7 ppb. The maximum hourly SO_2 concentration during the third quarter was 60.9 ppb which occurred in July. During the third quarter, there were no exceedances of the 1-hour BCAAQO of 75 ppb or the 1-hour CAAQS of 70 ppb for SO_2 at the Riverlodge station.

The average NO_2 concentration at the Riverlodge station for the third quarter was 0.5 ppb and the median NO_2 concentration was 0.2 ppb. The maximum hourly NO_2 concentration during the third quarter at Riverlodge was 6.6 ppb, which occurred in August. During the third quarter, there were no exceedances of the 1-hour NO_2 BCAAQO of 60 ppb at the Riverlodge station.

The average O_3 concentration at the Riverlodge station for the third quarter was 17.8 ppb and the median O_3 concentration was 19.0 ppb. The maximum hourly O_3 concentration of 43.0 ppb which occurred in July. The maximum 8-hour O_3 concentration during the third quarter was 38.0 ppb which occurred in September. During the third quarter, there were no exceedances of the 1-hour O_3 BCAAQO advisory level of 82 ppb and the 8-hour CAAQS of 62 ppb at the Riverlodge station.

Time series plots of $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations for the third quarter, by month, are presented in Figures 4.1 through 4.3.

Figure 4.1 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO_2, and O_3 Concentration Data for the Riverlodge Station, July 2024

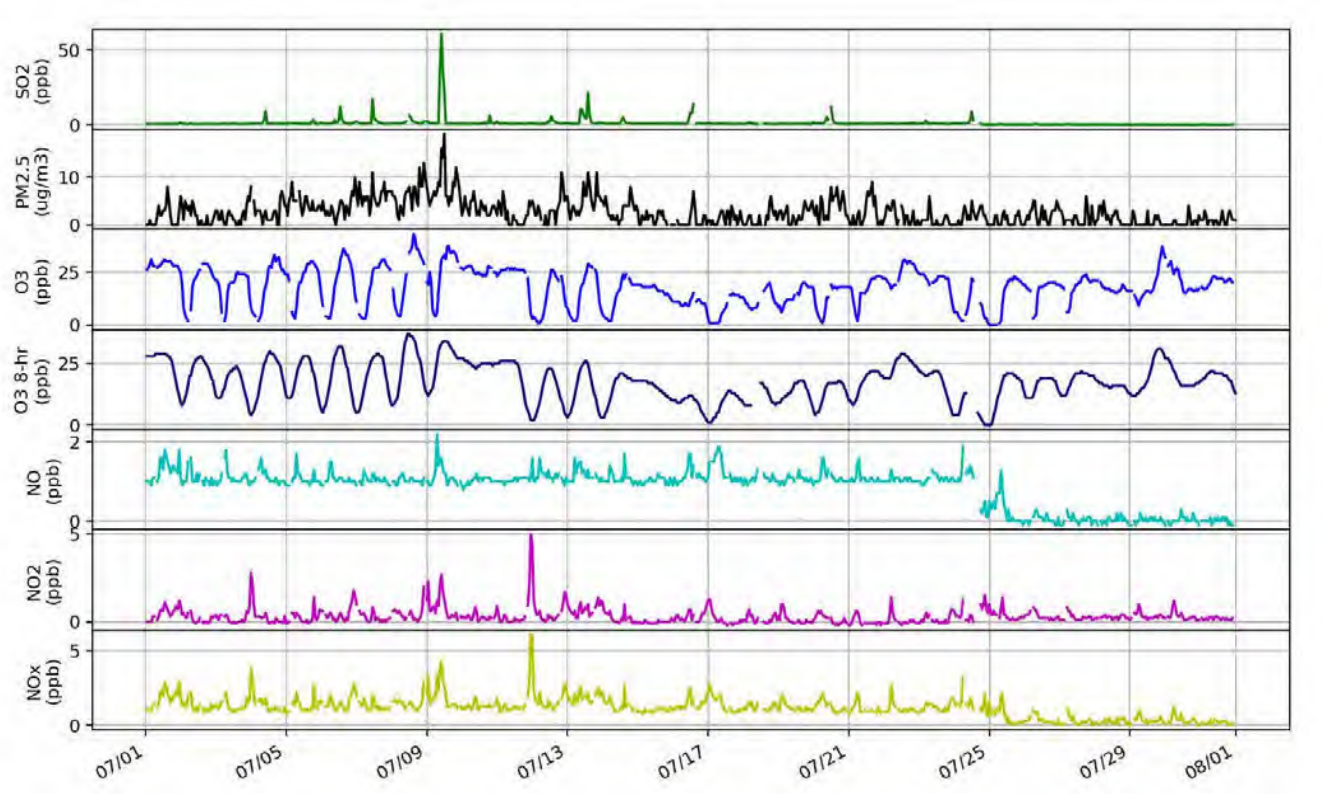


Figure 4.2 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO_2, and O_3 Concentration Data for the Riverlodge Station, August 2024

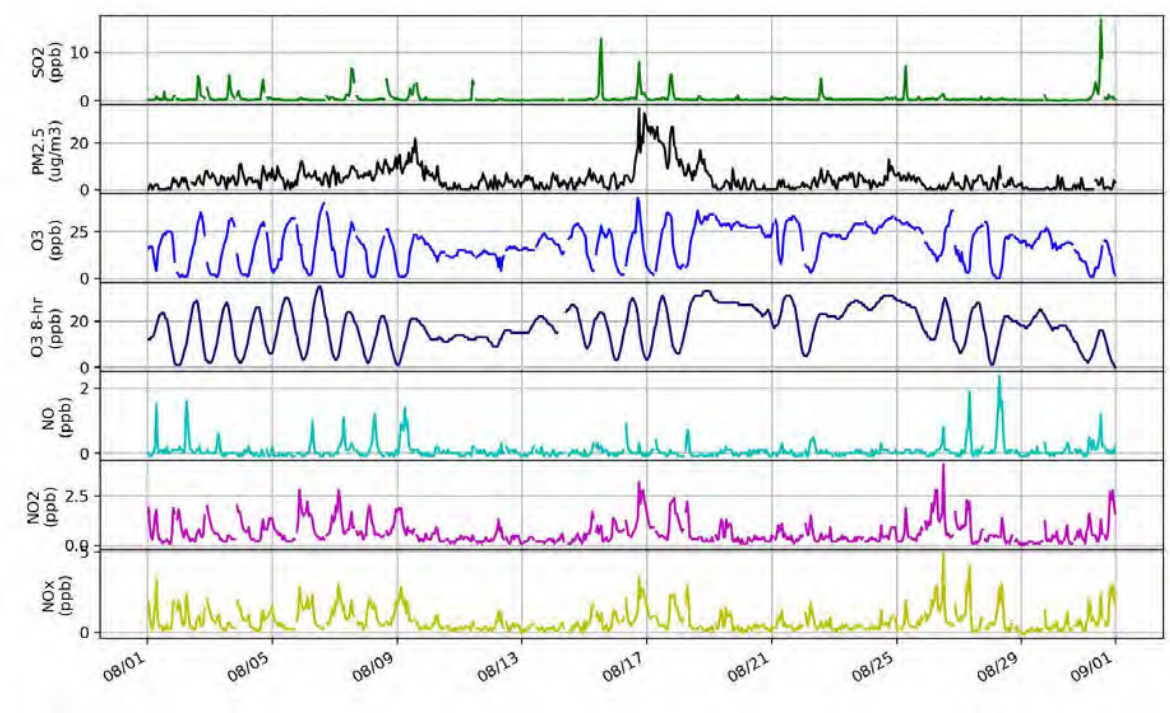
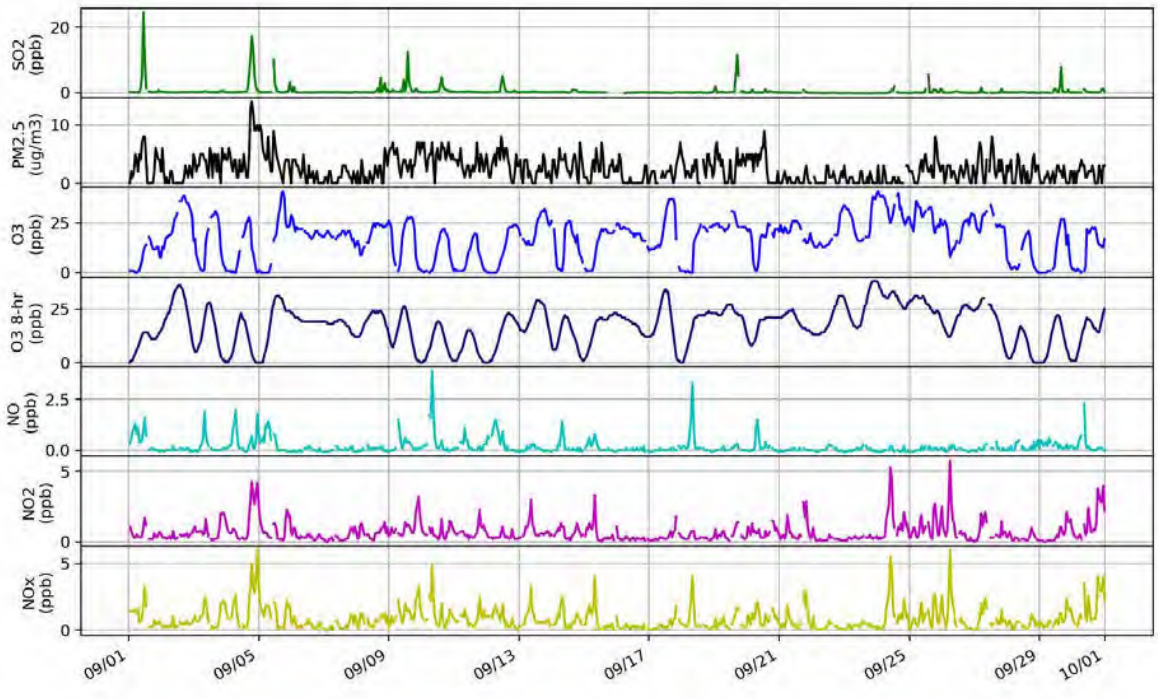


Figure 4.3 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO_2, and O_3 Concentration Data for the Riverlodge Station, September 2024



Wind speed and wind direction data are collected by Rio Tinto BC Works at the Riverlodge station. Figures 4.4 through 4.6 present the monthly Riverlodge station wind roses for July through September 2024.

Figure 4.4 July 2024 Riverlodge Station Wind Rose

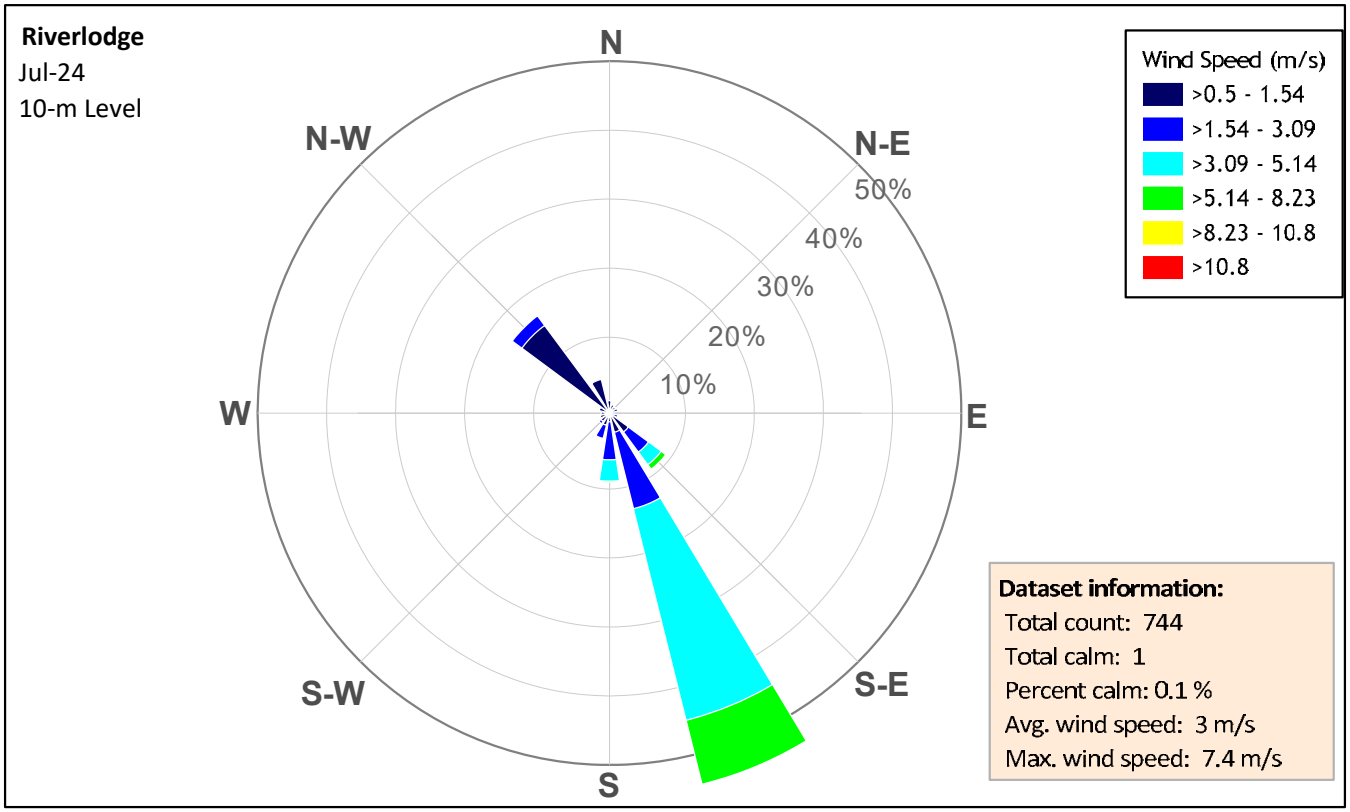


Figure 4.5 August 2024 Riverlodge Station Wind Rose

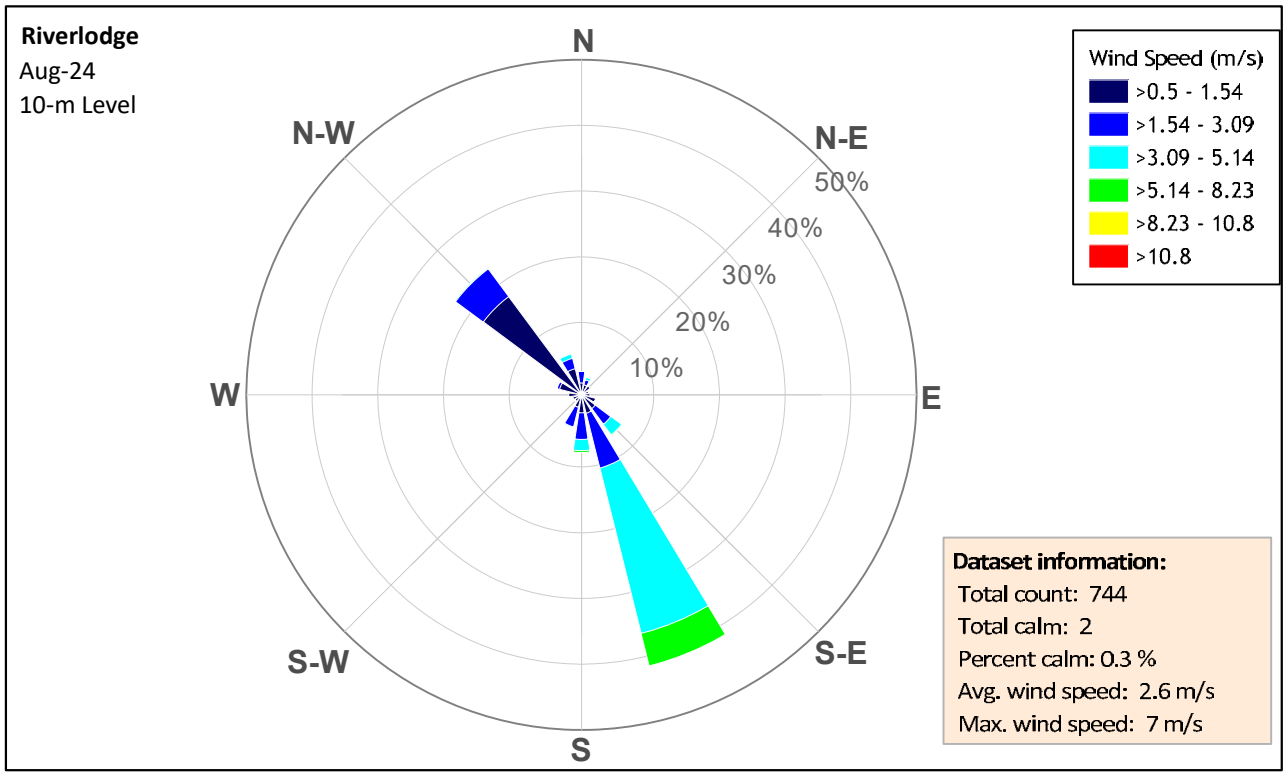
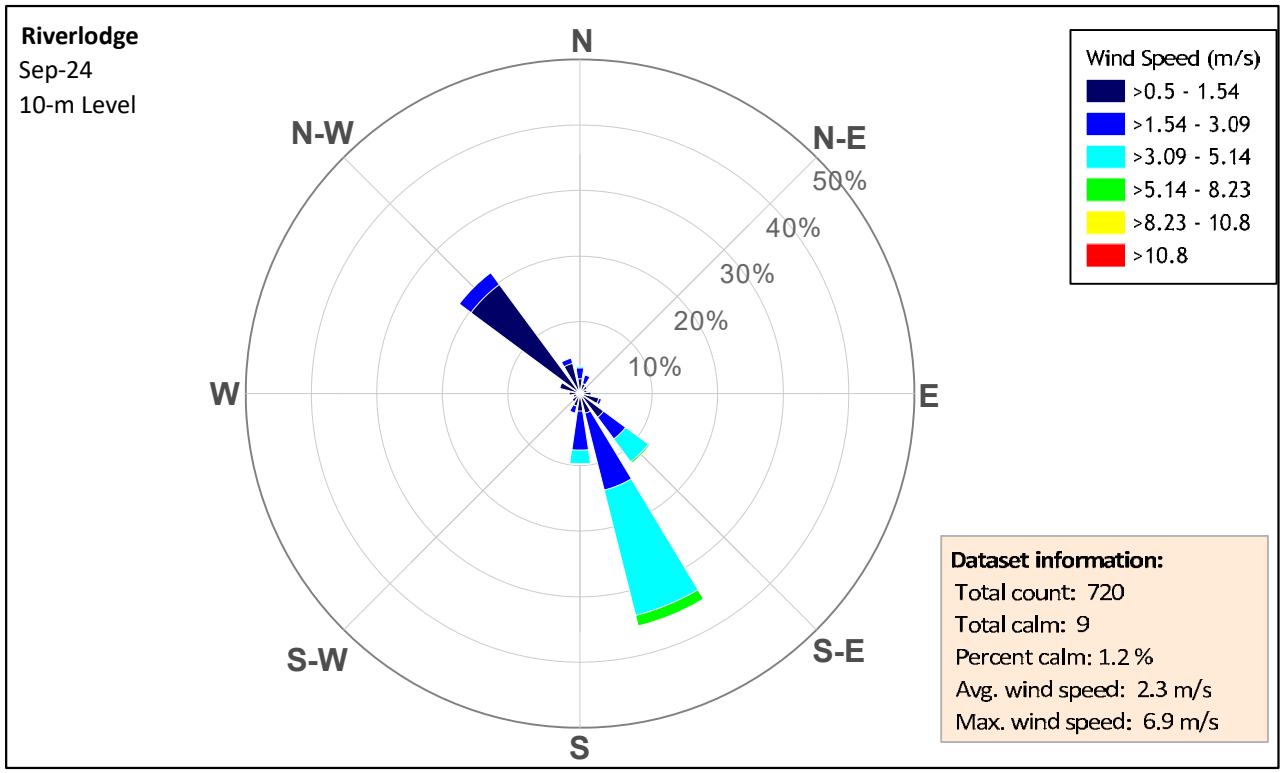


Figure 4.6 September 2024 Riverlodge Station Wind Rose



4.3 Third Quarter 2024 Ambient Air Monitoring Data Issues

Table 4-3 presents the Riverlodge station data shortfall periods and known issues, during the third quarter, that led to pollutant concentration data loss.

Table 4-3 Data Shortfall Periods and Noted Issues During Third Quarter 2024 at Riverlodge Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
$SO_2/O_3/NO_2$	7/02/2024	1400	7/02/2024	1400	1	SO_2 Filter Change
$SO_2/O_3/NO_2$	7/08/2024	1100	7/08/2024	1100	1	SO_2 Regulator Troubleshooting
$SO_2/O_3/NO_2$	7/18/2024	1100	7/18/2024	1200	2	LNG NO_x/O_3 Filters Change
$PM_{2.5}$	7/18/2024	1100	7/18/2024	1400	4	Clock Reset
$PM_{2.5}$	7/22/2024	1000	7/22/2024	1100	1	Monthly BAM Maintenance
$SO_2/O_3/NO_2$	7/24/2024	1400	7/24/2024	1700	4	SO_2 Analyzer Calibration; LNG NO_x Analyzer Calibration
$PM_{2.5}$	8/02/2024	0900	8/02/2024	0900	1	Clock Reset
$SO_2/O_3/NO_2$	8/14/2024	1000	8/14/2024	1100	2	LNG NO_x/O_3 Filters Change
PM2.5	8/28/2024	0800	8/28/2024	0900	2	Monthly BAM Maintenance
$SO_2/O_3/NO_2$	9/18/2024	1500	9/18/2024	1500	1	LNG NO_x/O_3 Filters Change
$PM_{2.5}$	9/18/2024	1400	9/18/2024	1500	2	Monthly BAM Maintenance
$SO_2/O_3/NO_2$	9/19/2024	1200	9/19/2024	1200	1	O_3 As Found MP Verification
$PM_{2.5}$	9/27/2024	1000	9/27/2024	1000	1	Clock Reset
$SO_2/O_3/NO_2$	9/27/2024	1000	9/27/2024	1100	2	HF As Found MP Verification

5.0 JULY - SEPTEMBER 2024 WHITESAIL AMBIENT AIR QUALITY STATION MONITORING STATION

This section provides a summary of the monitoring data collected by Rio Tinto BC Works at their Whitesail monitoring station for July through September 2024. Table 5-1 presents a list of the Rio Tinto BC Works air quality monitoring equipment operating at the Whitesail monitoring station.

Table 5-1 Rio Tinto BC Works Instrumentation at the Whitesail Station

Parameter	Manufacturer/Model	Serial Number
SO_2	Thermo Scientific 43i	1161530005
$PM_{2.5}$	Met One BAM 1020	P15216
O_3	Teledyne-API T400	3830
NO_x	Teledyne-API T200	4271

5.1 Monitoring Results and Trends

A summary of the $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations monitoring statistics for the third quarter 2024 for the Whitesail Station is presented in Table 5-2.

Table 5-2 Summary of $PM_{2.5}$, SO_2, NO_2, and O_3 Concentrations for the Whitesail Station, July – September 2024

Statistic	$PM_{2.5}$ (µg/m³)[1]				SO_2 (ppb)[1]				NO_2 (ppb)				O_3 (ppb)			
	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3
1-hour Avg.	2.7	5.4	1.7	3.3	0.5	0.4	0.2	0.3	0.6	0.6	0.7	0.6	17.5	18.5	17.0	17.6
1-Hour Max.	14.0	37.0	9.0	37.0	14.5	16.6	14.5	16.6	2.4	2.9	4.9	4.9	42.0	43.0	39.0	43.0
1-Hour Min.[2]	0.0	0.0	0.0	0.0	-0.6	-1.0	-0.3	-1.0	0.1	0.1	0.1	0.1	0.0	1.0	0.0	1.0
Mean Daily Max.	8.2	22.8	3.4	22.8	3.2	1.4	1.7	3.2	0.9	1.3	1.3	1.3	25.2	26.8	30.3	30.3
Mean Daily Min.	0.8	0.7	0.2	0.2	-0.3	-0.1	-0.1	-0.3	0.3	0.3	0.2	0.3	7.8	8.2	7.5	8.2
24-hour Avg.	2.7	5.3	1.7	3.2	0.5	0.4	0.2	0.4	0.6	0.6	0.7	0.6	17.5	18.5	17.1	17.7
24-hour Daily Max.[3]	8.1	22.5	3.5	22.5	3.0	1.3	1.6	3.0	0.9	1.1	1.3	1.3	--	--	--	--
8-hour Max.	--	--	--	--	--	--	--	--	--	--	--	--	34.0	34.0	34.0	34.0
Median	2.0	4.0	1.0	2.0	0.1	0.0	0.0	0.1	0.4	0.4	0.4	0.4	18.0	18.0	18.0	18.0
Percent Data Recovery	99.4	99.1	95.9	98.1	95.1	94.0	94.5	94.5	95.1	79.4	94.5	89.7	95.1	94.0	94.5	94.5

[1] $PM_{2.5}$, SO_2, NO_2, and O_3 third quarter 2024 data for Whitesail provided by Rio Tinto BC Works.

[2] Slightly negative concentrations are inherent with proper analyzer operation due to subtle levels of noise in the zero baseline setpoint. Negative values may be interpreted as zero and only occur when the air is very clean.

[3] 24-hour $PM_{2.5}$ daily maximum concentrations determined from midnight to midnight.

The average $PM_{2.5}$ concentration during the third quarter was 3.3 µg/m^3 and the median $PM_{2.5}$ concentration during the third quarter was 2.0 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration during the third quarter was 37.0 µg/m^3 which occurred in August. The maximum 24-hour $PM_{2.5}$ concentration for the third quarter was 22.5 µg/m^3 which also occurred in August. During the third quarter, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

The average SO_2 concentration at the Whitesail for the third quarter was 0.3 ppb with a median concentration of 0.1 ppb. The maximum hourly SO_2 concentration during the third quarter was 16.6 ppb which occurred in August. During the third quarter, there were no exceedances of the 1-hour BCAAQO of 75 ppb or the 1-hour CAAQS of 70 ppb for SO_2 at the Whitesail station.

The average NO_2 concentration at the Whitesail station for the third quarter was 0.6 ppb and the median NO_2 concentration was 0.4 ppb. The maximum hourly NO_2 concentration during the third quarter at Whitesail was 4.9 ppb which occurred in September. During the third quarter, there were no exceedances of the 1-hour NO_2 BCAAQO of 60 ppb at the Whitesail station.

The average O_3 concentration at the Whitesail station for the third quarter was 17.6 ppb and the median O_3 concentration was 18.0 ppb. The maximum hourly O_3 concentration of 43.0 ppb occurred in August. The maximum 8-hour O_3 concentration during the third quarter was 34.0 ppb which occurred in July, August, and September. During the third quarter, there were no exceedances of the 1-hour O_3 BCAAQO advisory level of 82 ppb and the 8-hour CAAQS of 62 ppb at the Whitesail station.

Time series plots of $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations for the third quarter, by month, are presented in Figures 5.1 through 5.3.

Figure 5.1 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO_2, and O_3 Concentration Data for the Whitesail Station, July 2024

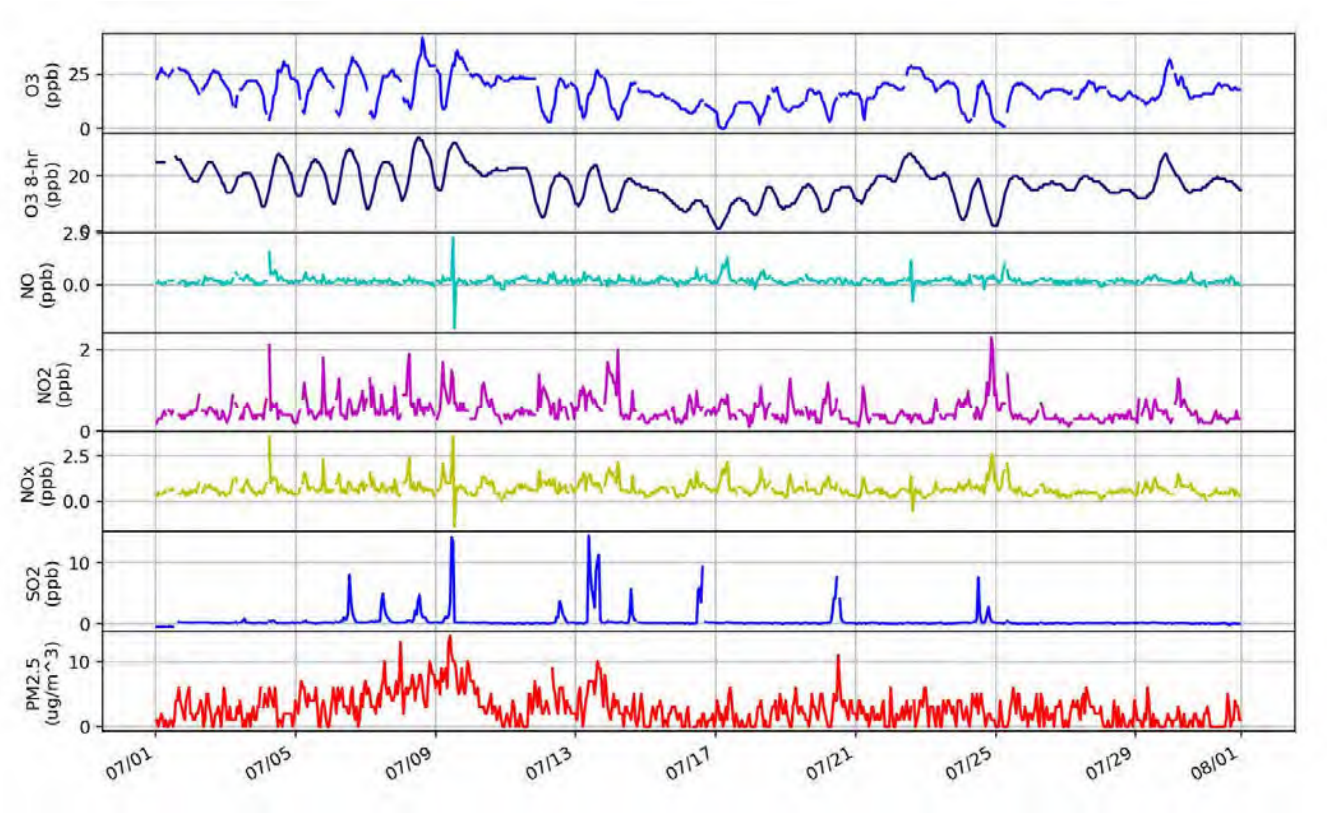


Figure 5.2 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO_2, and O_3 Concentration Data for the Whitesail Station, August 2024

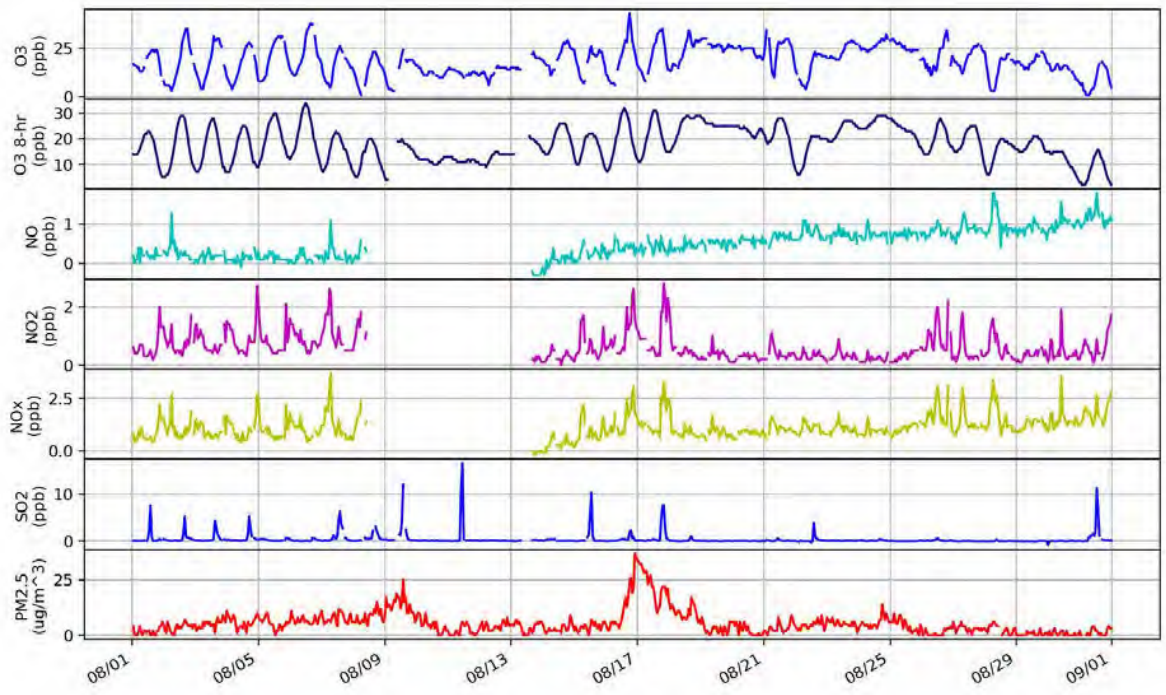
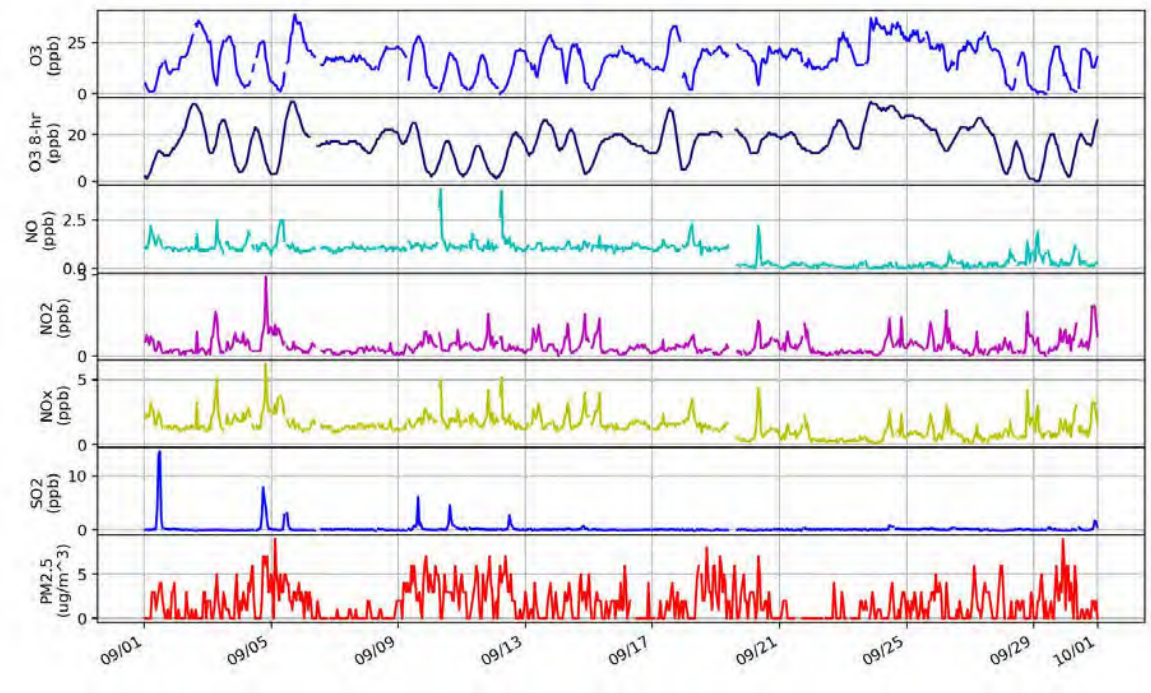


Figure 5.3 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO_2, and O_3 Concentration Data for the Whitesail Station, September 2024



Wind speed and wind direction data are collected by Rio Tinto BC Works at the Whitesail station. Figures 5.4 through 5.6 present the monthly Whitesail station wind roses for July through September 2024.

Figure 5.4 July 2024 Whitesail Station Wind Rose

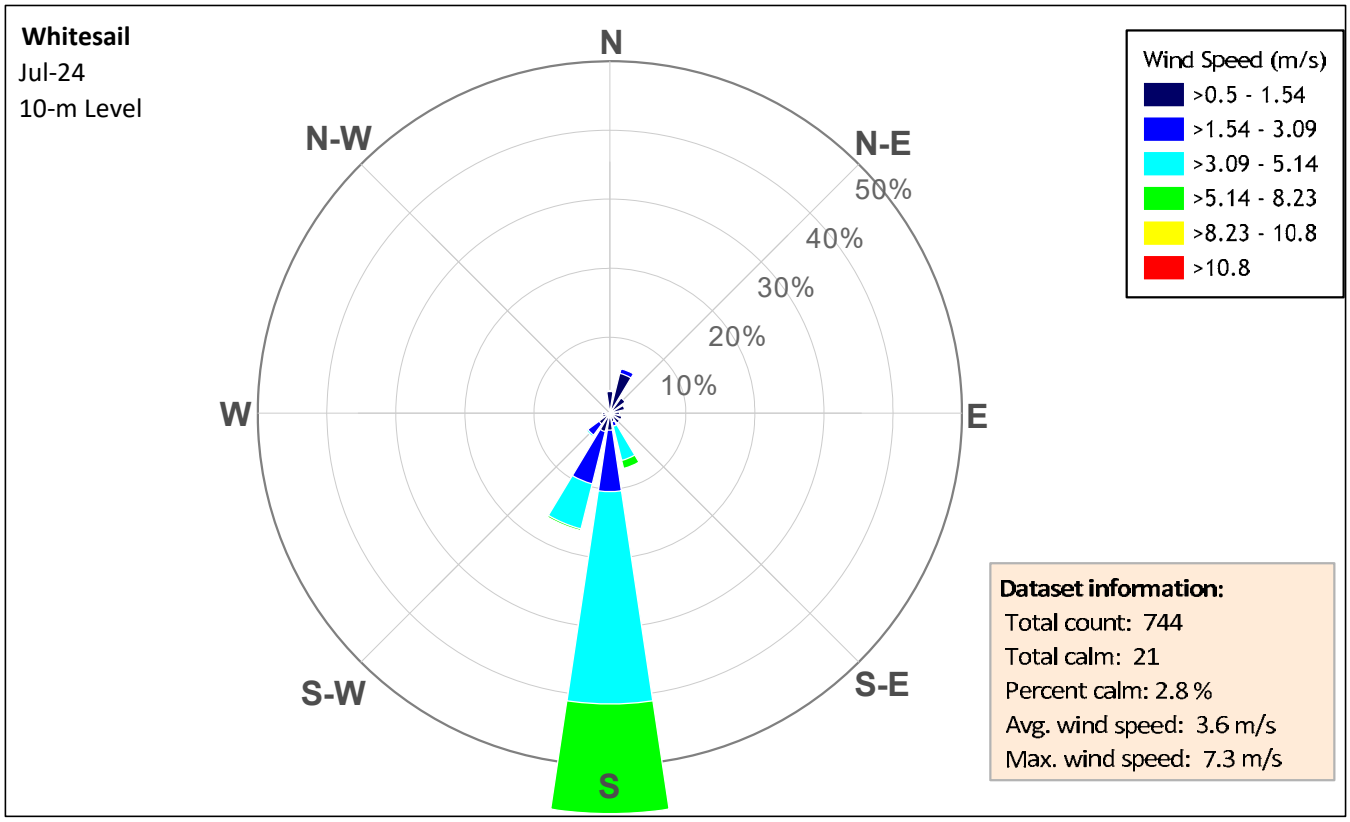


Figure 5.5 August 2024 Whitesail Station Wind Rose

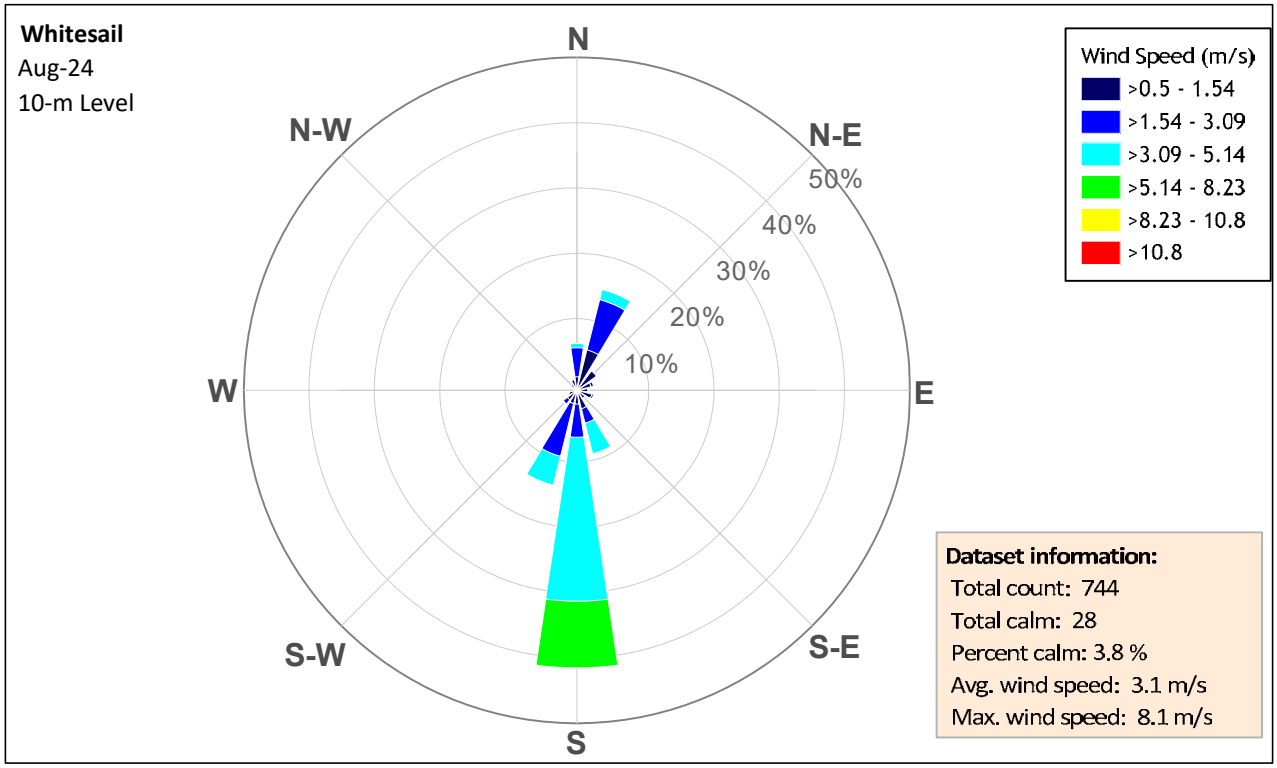
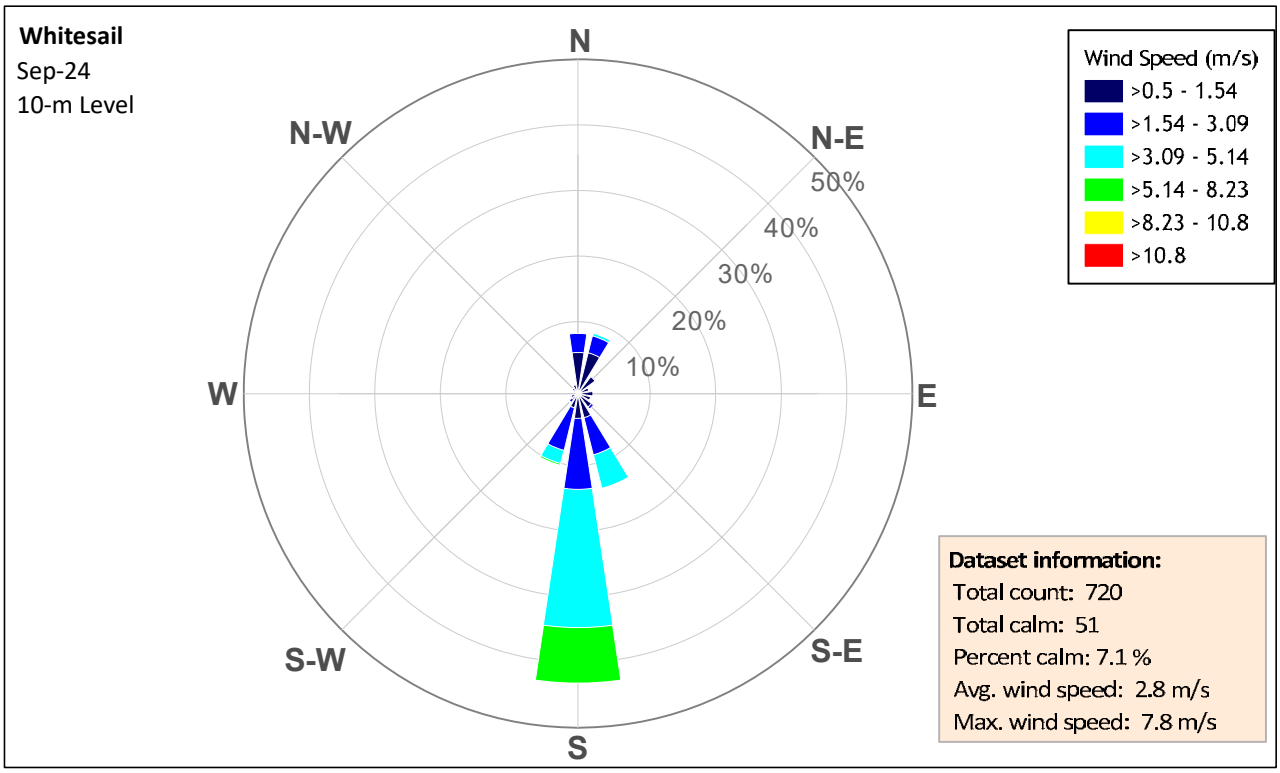


Figure 5.6 September 2024 Whitesail Station Wind Rose



5.2 Third Quarter 2024 Ambient Air Monitoring Data Issues

Table 5-3 presents the Whitesail station data shortfall periods and known issues, during the third quarter, that led to pollutant concentration data loss.

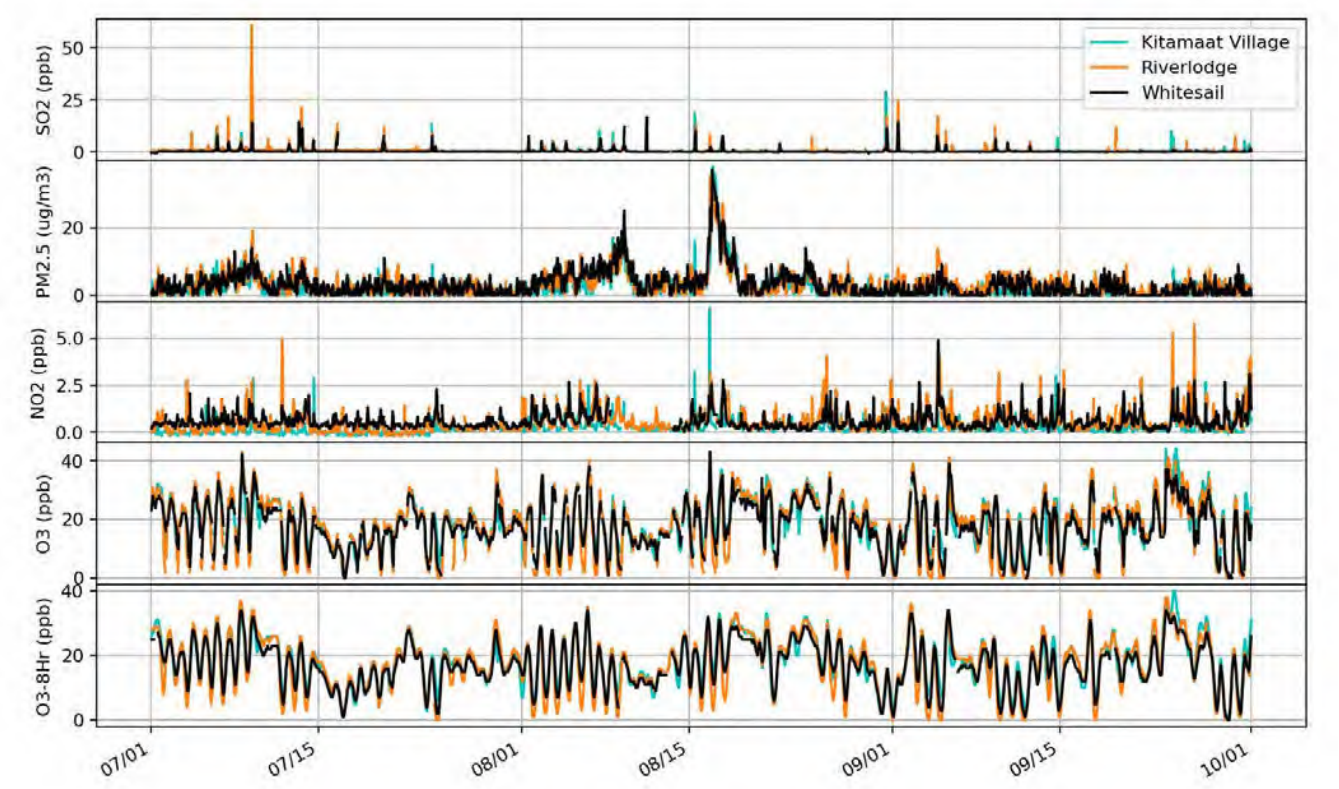
Table 5-3 Data Shortfall Periods and Noted Issues During Third Quarter 2024 at Whitesail Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
$SO_2/O_3/NO_2$	7/01/2024	1300	7/01/2024	1500	3	SO_2 Analyzer Calibration
$SO_2/O_3/NO_2$	7/03/2024	0900	7/03/2024	0900	1	Filters Changed
$PM_{2.5}$	7/22/2024	1500	7/22/2024	1500	1	Monthly BAM Maintenance
$SO_2/O_3/NO_2$	8/01/2024	1000	8/01/2024	1000	1	Filters Changed
$SO_2/O_3/NO_2$	8/08/2024	0700	8/08/2024	0800	1	NO_x Analyzer As Found Multipoint Verification
NO_2	8/08/2024	1100	8/09/2024	0700	21	Annual Maintenance
$SO_2/O_3/NO_2$	8/09/2024	0800	8/09/2024	1000	3	NO_x Analyzer Calibration
NO_2	8/09/2024	1100	8/13/2024	0700	21	Stabilizing Following Maintenance
$SO_2/O_3/NO_2$	8/13/2024	0800	8/13/2024	1500	8	NO_x Analyzer Calibration
$SO_2/O_3/NO_2$	9/04/2024	0900	9/04/2024	0900	1	Filters Changed
$SO_2/O_3/NO_2$	9/06/2024	1200	9/06/2024	1300	2	NO_x Analyzer Calibration
$SO_2/O_3/NO_2$	9/19/2024	1000	9/19/2024	1500	6	NO_x Analyzer Calibration / O_3 Analyzer As Found Multipoint Verification

6.0 STATION COMPARISON

Figure 6.1 presents comparative time series plots of Third Quarter 2024 $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations from the Kitamaat Village, Riverlodge, and Whitesail monitoring stations. $PM_{2.5}$ and SO_2 data were obtained from Rio Tinto BC works for Kitamaat Village and Riverlodge stations. $PM_{2.5}$, SO_2, NO_2, and O_3 concentration data were obtained from Rio Tinto BC works for the Whitesail monitoring station. These graphs are useful for evaluating pollutant dispersion and for concentration comparison purposes.

Figure 6.1 Comparison of Hourly $PM_{2.5}$, SO_2, NO_2, and O_3 and 8-hour O_3 Concentrations in Micrograms per Cubic Meter Kitamaat Village, Riverlodge, and Whitesail Monitoring Locations, Third Quarter 2024



APPENDIX A. SITE NOTES FOR KITAMAAT VILLAGE AND RIVERLODGE

07/03/2024 - Rio Tinto maintenance

Wednesday, June 26, 2024 1:05 PM

Village

Author of Entry: Matthew Kurtz

Date of Activity: July 3, 2024
Start Time: 13:39
End Time: 14:40
Technician: Matthew Kurtz

Reason for Visit

Rio Tinto activities

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

T400:

-Clock is 9 seconds ahead, adjusted at 14:19.

T200:

-Clock is 70 seconds ahead, adjusted at 14:20.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- NO and SO2 tank pressure 2000 psi and 26 psi line pressure. (line pressure adjusted to 23.5).
- Shelter temperature 27.4 C, within spec.

07/08/2024 - Rio Tinto maintenance

Wednesday, June 26, 2024 1:05 PM

Village

Author of Entry: Matthew Kurtz

Date of Activity: July 8, 2024
Start Time: 9:50
End Time: 10:50
Technician: Matthew Kurtz

Reason for Visit

Rio Tinto activities

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

T400:

-Clock is 26 seconds ahead, adjusted at 10:43.

T200:

-Clock is 26 seconds ahead, adjusted at 10:44.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

- **Site Observations**
  - Station temperature 24.7 C, within spec.
  - SO2 and NO tank pressure 2010 psi and line pressure 35 psi as found, 29.5 psi as left
  - Nitrogen tank pressure 1520 psi and line pressure 33.5 psi.
  - Oxygen tank pressure 2050 psi and line pressure 31 psi.

07/09/2024 - Rio Tinto maintenance

Wednesday, June 26, 2024 1:05 PM

Village

Author of Entry: Matthew Kurtz

Date of Activity: July 9, 2024
Start Time: 12:36
End Time: 10:50
Technician: Matthew Kurtz

Reason for Visit

Rio Tinto activities

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

T400:

-Clock is 26 seconds ahead, adjusted at 10:43.

T200:

-Clock is 26 seconds ahead, adjusted at 10:44.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

- **Site Observations**
  - NO and SO2 tank pressure 2000 psi and 33.5 psi line pressure. (line pressure adjusted to 23.5).
  - Shelter temperature 28 C, within spec.

07/15/2024 - Envidas Corrections

Monday, July 15, 2024 2:34 PM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 7/15/24
Start Time: 1300
End Time: 1300
Technician: WL

Reason for Visit

Noticed daily zero and span sequences were not correct in Envidas.

Description

Repaired daily zero/span programming for NOx and O3. Please reach out to Trinity if the correct NO2 data and/or NO/NO2NOx/O3 zero and span checks are desired. As the permit is not yet in place, Envidas corrections are assumed to not be necessary.

Site Visit Checklist

- ☐ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☐ Zero air system pressure at 30 PSI
- ☐ Calibration gas cylinder pressure at 30 PSI
- ☐ Calibration gas tank pressure > 500 PSI
- ☐ Check for analyzer warnings: _____
- ☐ Check for calibrator warnings: _____
- ☐ Analyzer filters exchanged
- ☐ MFC checks performed (semi-annual)
- ☐ Inlet Teflon exchanged (annual)
- ☐ Zero Air media replaced (annual)
- ☐ Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- ☐ Annual Maintenance *(Second Quarter)*

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

07/16/2024 - Rio Tinto activities and station check

Tuesday, July 16, 2024 1:59 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: July 16, 2024
Start Time: 13:50
End Time: 15:11
Technician: Adrienne Kaul

Reason for Visit

Rio Tinto activities and station check.

Description

Envidas:

-Downloaded windows updates.
-Clock accurate within 1 second, no adjustments made.
-Restarted computer at 14:55 to allow updates to take affect.

T200:

-Clock updated at 14:08; clock was 2 minutes and 34 seconds ahead prior to adjustment.

T400:

-Clock updated at 14:10; clock was 2 minutes and 37 seconds ahead prior to adjustment.

T700:

-Clock updated at 14:11; clock was 70 seconds ahead before adjustment.

HVAC:

-Turned down baseboard heater.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 2000 psi and line pressure 33 psi.
- Station temperature 28.1 C, within spec.
- T400 O3 alert: 06/27/2024 5:23:18 PM System Reset. Warning raised when system is reset.
- T700 Calibrator alert: 06/27/2024 5:23:15 PM System Reset. Warning raised when system is reset.

07/18/2024 - Analyzer inlet filter changes

Thursday, July 18, 2024 7:30 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: July 18, 2024
Start Time: 7:24
End Time: 8:30
Technician: Adrienne Kaul

Reason for Visit

On site for analyzer inlet filter changes

Description

Nox and O3:
-Data flagged 7:31-7:52 for Nox and O3 inlet filter changes.
-Manual span test 7:40-7:47
-NOx analyzer reading 162.1 ppb NO with 161.3 ppb supplied by calibrator.
T700 Calibrator:
-Clock 7 seconds ahead, updated at 8:22.
T200 NOx:
-Clock updated at 8:23, clock 7 seconds ahead before adjustment
T400 O3:
-Clock updated at 8:24; clock 8 seconds ahead before adjustment.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: See below
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 2000 psi and line pressure 32.5 psi.
- Shelter temperature 26.6 C, within spec.
- T200 NOx alert: 07/17/2024 5:16:18 PM System Reset. Warning raised when the system is reset.
- T400 O3 alert: 07/17/2024 5:16:41 PM System Reset. Warning raised when the system is reset.
- T700 calibrator alert: 07/17/2024 5:16:42 PM System Reset. Warning raised when the system is reset.

07/24/2024 - NOx Calibration

Thursday, July 25, 2024 3:06 PM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 7/24/2024
Start Time: 808, 1247
End Time: 954, 1501
Technician: WL

Reason for Visit

Perform calibration of the recently installed NOx analyzer.

Description

808-954: NOx as found MP verification
955-1113: VALID DATA; miscommunication between myself and the onsite technician caused data to falsely be flagged; activities were postponed due to high ambient SO2. Data between this time is VALID.
1247-1501: NOx zero and span adjustments; NOx MP verification after adjustment

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

Kitimat Village 2024-

Trinity Consultants

NITROGEN OXIDES CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Village
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 7/24/2024 **Start Time** 8:18
Stop Time 9:48

Analyzer Mfg Teledyne-API
Analyzer Model T200
Analyzer s/n 8598

Anal. Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 905
Cert Date: 5/20/2024

Audit Gas: Linde
Concentration: 10.0 ppm
Serial #: DT0046813
Certification Date: 4/4/2024
Expiration Date: 4/4/2027

Zero Air Source: T-API
Model: T701
Serial #: 2555
Certification Date: 5/20/2024

INPUT (X) NO (PPB)	RESPONSE (Y) NO (PPB)	RESPONSE (Y) NO_2 (PPB)	RESPONSE (Y) NO_X (PPB)	NO % DIFF	NO BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.8	-0.2	0.6	/	-1.1	1.95	0.4%
40.1	41.9	-0.4	41.4	4.4%	40.9	0.93	0.2%
89.8	93.9	0.0	93.8	4.6%	93.1	0.83	0.2%
139.8	142.6	0.0	142.6	2.0%	145.5	-2.90	-0.6%
199.0	202.2	-0.2	202.1	1.6%	207.6	-5.38	-1.1%
298.7	316.7	0.0	316.7	6.0%	312.1	4.57	0.9%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X % DIFF	NO_X BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-1.4	2.02	0.4%
3.4%	40.7	0.73	0.1%
4.5%	92.9	0.91	0.2%
2.0%	145.4	-2.77	-0.6%
1.6%	207.5	-5.41	-1.1%
6.0%	312.2	4.53	0.9%

	NO	NO_x		NO	NO_x
Slope (m)	1.0487	1.0497	1.05 to 0.95	0.9527	0.9518
Intercept (b)	-1.1042	-1.3694	(≤ ± 10)	1.1752	1.4253
Correlation Coefficent (r)	0.9995	0.9995	(≥ 0.995)	0.99952	0.99952
Average % Difference	3.73%	3.48%		3.73%	3.48%

Calibrated By Wyndam Lewis

= cell containing equations

Template Revised 7/10/23

Trinity Consultants

NITROGEN DIOXIDE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Village
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 7/24/2024 **Start Time** 8:18
Stop Time 9:48

Analyzer Mfg Teledyne-API
Analyzer Model T200

Anal. Range 0- 500 **PPB**

Analyzer s/n 8598

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.0 ppm	**Model:**	T701
Serial #:	905	**Serial #:**	DT0046813	**Serial #:**	2555
Cert Date:	5/20/2024	**Certification Date:**	4/4/2024	**Certification Date:**	5/20/2024
		Expiration Date:	4/4/2027		

	CAL INPUT (X)		CALC ACTUAL	DAS RESPONSE (Y)			CALCULATED (Y) [ORIG]		[REM]		[CONV]	% DIFF
	NO (PPB)	O_3 (PPB)	$[NO_2]_A$ (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO (PPB)	NO_X (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO_2 (% OR PPB)
TITRATION	0.0	0.0	0.0	0.8	0.6	-0.2	---	---	---	---	-0.20	-0.2 ppb
	300.0	250.0	250.5	53.7	313.4	259.6	302.9	302.9	52.4	299.7	247.37	3.6%
	300.0	150.0	153.6	155.5	313.6	158.1	302.9	302.9	149.3	299.9	150.62	2.9%
	300.0	70.0	71.5	241.7	317.4	75.6	302.9	302.9	231.4	303.5	72.12	5.8%

NO TITRATION

298.7	0.0	---	316.7	316.7	0.0

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9793 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 97.9% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION		
Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.4	-0.58	-0.1%
259.4	0.24	0.0%
159.1	-1.04	-0.2%
74.2	1.38	0.3%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	1.0337	1.05 to 0.95	0.9527	0.9518
Intercept (b)	0.3874	(≤ ± 10)	1.1752	1.4253
Correlation Coefficent (r)	0.99995	(≥ 0.995)	0.9995	0.9995
Average % Difference	4.14%		3.73%	3.48%

Calibrated By Wyndam Lewis = cell containing equations

Kitimat Village 2024-

Trinity Consultants

NITROGEN OXIDES CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME LNG Kitimat Village **Date** 7/24/2024 **Start Time** 13:25

PROJECT 244501.0077 **Stop Time** 14:55

SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API **Anal. Range 0-** 500 **PPB**

Analyzer Model T200

Analyzer s/n 8598

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.0 ppm	**Model:**	T701

Serial #:	905	**Serial #:**	DT0046813	**Serial #:**	2555
Cert Date:	5/20/2024	**Certification Date:**	4/4/2024	**Certification Date:**	5/20/2024
		Expiration Date:	4/4/2027		

INPUT (X) NO (PPB)	RESPONSE (Y) NO (PPB)	NO_2 (PPB)	NO_X (PPB)	NO % DIFF	NO BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	-0.1	0.0	-0.1	/	-2.1	1.95	0.4%
40.1	39.2	0.0	39.2	-2.3%	38.2	0.91	0.2%
89.8	89.1	-0.2	88.9	-0.8%	88.3	0.83	0.2%
139.8	135.7	-0.1	135.6	-2.9%	138.6	-2.88	-0.6%
199.0	192.8	-0.3	192.5	-3.1%	198.1	-5.35	-1.1%
298.6	302.9	-0.2	302.7	1.4%	298.4	4.54	0.9%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X % DIFF	NO_X BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-2.1	1.98	0.4%
-2.2%	38.2	0.98	0.2%
-1.0%	88.2	0.72	0.1%
-3.0%	138.4	-2.84	-0.6%
-3.3%	198.0	-5.46	-1.1%
1.4%	298.1	4.62	0.9%

	NO	NO_x		NO	NO_x
Slope (m)	1.0062	1.0053	1.05 to 0.95	0.9928	0.9937
Intercept (b)	-2.0830	-2.0903	(≤ ± 10)	2.2004	2.2136
Correlation Coefficent (r)	0.9995	0.9995	(≥ 0.995)	0.99948	0.99947
Average % Difference	-1.54%	-1.63%		2.12%	2.18%

Calibrated By Wyndam Lewis = cell containing equations

Template Revised 7/10/23

Trinity Consultants

NITROGEN DIOXIDE CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME	LNG Kitimat Village	**Date**	7/24/2024	**Start Time**	13:25
PROJECT	244501.0077			**Stop Time**	14:55
SITE OPERATOR	Trinity				

Analyzer Mfg	Teledyne-API	**Anal. Range 0-**	500 **PPB**
Analyzer Model	T200		
Analyzer s/n	8598		

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.0 ppm	**Model:**	T701
Serial #:	905	**Serial #:**	DT0046813	**Serial #:**	2555
Cert Date:	5/20/2024	**Certification Date:**	4/4/2024	**Certification Date:**	5/20/2024
		Expiration Date:	4/4/2027		

	CAL INPUT (X) NO (PPB)	O_3 (PPB)	CALC ACTUAL $[NO_2]_A$ (PPB)	DAS RESPONSE (Y) NO (PPB)	NO_X (PPB)	NO_2 (PPB)	CALCULATED (Y) [ORIG] NO (PPB)	[ORIG] NO_X (PPB)	[REM] NO (PPB)	[REM] NO_X (PPB)	[CONV] NO_2 (PPB)	% DIFF NO_2 (% OR PPB)
	0.0	0.0	0.0	-0.1	-0.1	0.0	---	---	---	---	0.02	0.0 ppb
RATION	300.0	250.0	246.6	54.5	300.8	246.2	302.9	303.0	56.3	301.1	244.69	-0.2%

300.0	150.0	151.8	150.0	299.6	149.6	302.9	303.0	151.1	299.9	148.72	-1.5%
300.0	70.0	70.9	231.5	302.8	71.3	302.9	303.0	232.0	303.1	70.99	0.6%

NO TITRATION

298.6	0.0	---	302.9	302.7	-0.2

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9894 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 98.9% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION

Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.06	0.0%
245.5	0.72	0.1%
151.1	-1.51	-0.3%
70.5	0.73	0.1%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	0.9957	1.05 to 0.95	0.9928	0.9937
Intercept (b)	-0.0358	(≤ ± 10)	2.2004	2.2136
Correlation Coefficent (r)	0.99995	(≥ 0.995)	0.9995	0.9995
Average % Difference	-0.35%		2.12%	2.18%

Calibrated By Wyndam Lewis

= cell containing equations

07/24/2024 - Rio Tinto maintenance activities

Wednesday, July 24, 2024 8:05 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: July 24, 2024
Start Time: 8:02
End Time: 12:57
Technician: Adrienne Kaul

Reason for Visit

On site for Rio Tinto maintenance activities.

Description

Envidas:

-Downloaded windows updates.

-Clock updated at 10:28, clock was 2 seconds ahead before adjustment.

T700U Calibrator:

-Clock updated at 10:31, clock was 65 seconds ahead before adjustment.

T400 Calibrator:

-Clock updated at 10:33, clock was 65 seconds ahead before adjustment.

T200 Calibrator:

-Clock updated at 10:34, clock was 66 seconds ahead before adjustment.

Communications:

-Antenna cable to router disconnected 12:04-12:08 to run cable through wall instead of through open window.

Analyzer inlet:

-Spider web cleaned from near inlet at 12:53.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1975 psi and line pressure 33 psi.
- Shelter temperature 25.2 C, within spec.
- T700U calibrator alert: 07/18/2024 8:14:04 PM System Reset. Warning raised when system is reset.
- T400 O3 alert: 07/18/2024 8:13:51 PM System Reset. Warning raised when system is reset.

08/01/2024 - Rio Tinto activities

Thursday, August 1, 2024 1:39 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: August 1, 2024
Start Time: 12:55
End Time: 14:35
Technician: Adrienne Kaul

Reason for Visit

On site for RT site activities and blind installation for improved shelter temperature control.

Description

General site maintenance:

-Installed blind on east window to prevent direct solar radiation from being incident on the ambient temperature sensor and to improve shelter temperature control.

T200 NOx:

-Clock updated at 14:00; clock was 94 seconds ahead before adjustment.

T400 O3:

-Clock updated at 14:03; clock was 93 seconds ahead before adjustment.

T700U Calibrator:

-Clock updated at 15:04; clock was 94 seconds ahead before adjustment. Clock 2 seconds behind after adjustment.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter temperature 27.1 C, within spec.
- SO2 and NO tank pressure 1960 psi and line pressure 32 psi.

08/09/2024 - Rio Tinto Activities

Friday, August 9, 2024 7:46 AM

Village

Author of Entry: Matthew Kurtz

Date of Activity: August 9, 2024
Start Time: 7:43
End Time: 18:00
Technician: Matthew Kurtz and Adrienne Kaul

Reason for Visit

On site for RT activities

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

T400 O3:

-Clock is 40 seconds ahead, adjusted at 7:51.

T700U:

-Clock is 87 seconds ahead, adjusted at 7:53.

NO, NO2, NOx, O3, SO2:

-Data flagged 7:57-8:00 for RT maintenance
-Data flagged 16:18-17:52 for RT maintenance

T200 NOx:

-Clock updated at 17:47, was 93 seconds ahead.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- NO and SO2 tank pressure 1990 psi and 32.5 psi line pressure.
- Shelter temperature 26.2 C, within spec.

08/09/2024 - Rio Tinto Activities

Tuesday, August 13, 2024 3:34 PM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 8/9/24
Start Time: 550
End Time: 1910
Technician: WL

Reason for Visit

Offline for RT activities.

Description

[describe what activities were performed during the maintenance]

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

08/14/2024 - Analyzer inlet filter changes and Rio Tinto activities

Wednesday, August 14, 2024 1:52 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: August 14, 2024
Start Time: 12:00
End Time: 16:08
Technician: Adrienne Kaul

Reason for Visit

On site to change O3 and NOx analyzer inlet filters.

Description

Attempted rebuild of spare station pump on arrival to site.

Envidas:
-Updates downloaded.
-Installed updates and restarted computer at 12:56.
T400 (O3) and T200 (SO2):
-Data flagged for Rio Tinto maintenance activities 13:51-14:13.
-Data flagged to remove Rio Tinto analyzer from manifold and cap inlet to allow sampling during RT maintenance activities
-Data flagged through logger 15:02-15:32 (should have been flagged starting at 15:01):
-O3 and NOx inlet filters changed.
-O3 running at 160 ppb 15:11-15:26 to precondition filters.
-O3 reading was 157.6 ppb with 160.3 ppb supplied by the calibrator at end of test.
-Cobwebs cleared from inlet at 15:24
T200 NOx:
-Clock updated at 15:42; clock was 15 seconds ahead before adjustment.
T400 O3:
-Clock updated at 15:43; clock was 12 seconds ahead before adjustment.
T700 U Calibrator:
-Clock updated at 15:45; clock was 13 seconds ahead before adjustment.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1940 psi and line pressure 32 psi.
- Shelter temperature 27.9 C, within spec but high. New fan is ordered for the site; this will help to better distribute cold and warm air in the shelter leading to more consistent and cooler temperatures.

08/20/2024 - Rio Tinto maintenance activities

Tuesday, August 20, 2024 2:17 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: August 20, 2024
Start Time: 12:59
End Time: 15:00
Technician: Adrienne Kaul

Reason for Visit

On site for Rio Tinto maintenance and site weekly check.

Description

T700U Calibrator:

-Clock updated at 14:26, clock was 69 seconds ahead before adjustment.

T400 O3:

-Clock updated at 14:27; clock was 68 seconds ahead before adjustment.

T200 NOx:

-Clock updated at 14:28; clock was 69 seconds ahead before adjustment.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter temperature 27 C, within spec.
- SO2 and NO tank pressure 1925 psi and line pressure 32 psi.

08/27/2024 - Rio Tinto Activities

Tuesday, August 27, 2024 11:10 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: August 27, 2024
Start Time: 11:08
End Time: 11:45
Technician: Adrienne Kaul

Reason for Visit

On site to change PUF sample

Description

T200 NOx:

-Clock updated at 11:13; clock was 78 seconds ahead before adjustment.

T400 O3:

-Clock updated at 11:14; clock was 78 seconds ahead before adjustment.

T700U Calibrator:

-Clock updated at 11:15; clock was 88 seconds ahead before adjustment.

T200 and T400 intake:

-Cobwebs cleared from near intake at 11:21.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1910 psi and line pressure 31 psi.
- Shelter temperature 27.3 C, within spec.

08/28/2024 - Rio Tinto maintenance

Wednesday, August 28, 2024 11:14 AM

Village

Author of Entry: Matthew Kurtz

Date of Activity: August 28, 2024
Start Time: 11:12
End Time: 12:03
Technician: Matthew Kurtz, Adrienne Kaul

Reason for Visit

RTA activities

Description

Envdias:

-Clock is accurate to the second.

T200:

-Clock is 12 seconds ahead, adjusted at 11:53.

T400:

-Clock is 13 seconds ahead adjusted at 11:54.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1915 psi and line pressure 31.5 psi.
- Shelter temperature 26.8 C, within spec, but high.

09/04/2024 - PUF sample change and inlet filter

Wednesday, September 4, 2024 2:14 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: September 4, 2024
Start Time: 14:12
End Time: 15:07
Technician: Adrienne Kaul

Reason for Visit

On site to change PUF sample and change inlet filter

Description

Envidas:
-Clock accurate, no adjustments made.
-Downloaded windows updates.
T700U calibrator:
-Clock updated at 14:20; clock was 71 seconds ahead before update.
T400 O3:
-Clock updated at 14:21; clock was 69 seconds ahead before update.
T200 NOx:
-Clock updated at 14:22; clock was 74 seconds ahead before update.
NOx and O3:
-Data flagged 14:45-15:02 for Rio Tinto maintenance

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1920 psi and line pressure 32 psi.
- Shelter temperature 27.7 C, within spec.

09/10/2024 - RTA activities

Tuesday, September 10, 2024 10:39 AM

Village

Author of Entry: Matthew Kurtz

Date of Activity: September 10, 2024
Start Time: 10:40
End Time: 11:10
Technician: Matthew Kurtz

Reason for Visit

RTA activities

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

T400:

-Clock is 66 seconds ahead, adjusted at 10:43.

T200:

-Clock is 97 seconds ahead, adjusted at 11:02.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1910 psi and line pressure 31.5 psi.
- Shelter temperature 26.4 C, within spec.

09/11/2024 - Rio Tinto Activities

Wednesday, September 11, 2024 11:13 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: September 11, 2024
Start Time: 11:10
End Time: 11:30
Technician: Adrienne Kaul

Reason for Visit

On site for Rio Tinto activities

Description

On site for Rio Tinto activities

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter temperature 26.8 C within spec.

09/16/2024 - NOx Calibration

Monday, September 16, 2024 12:38 PM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 9/16/24
Start Time: 950
End Time: 1410
Technician: WL

Reason for Visit

Calibrate NOx analyzer.

Description

NOx as found MP verification
Zero and span adjustments
NOx MP After adjustment

Site Visit Checklist

- ☐ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☐ Zero air system pressure at 30 PSI
- ☐ Calibration gas cylinder pressure at 30 PSI
- ☐ Calibration gas tank pressure > 500 PSI
- ☐ Check for analyzer warnings: _____
- ☐ Check for calibrator warnings: _____
- ☐ Analyzer filters exchanged
- ☐ MFC checks performed (semi-annual)
- ☐ Inlet Teflon exchanged (annual)
- ☐ Zero Air media replaced (annual)
- ☐ Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- ☐ Annual Maintenance *(Second Quarter)*

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

Kitimat Village 2024-

Trinity Consultants

NITROGEN OXIDES CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Village **Date** 9/16/2024 **Start Time** 9:59
PROJECT 244501.0077 **Stop Time** 11:29
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API **Anal. Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8598

CALIBRATION EQUIPMENT:

Calibrator: T-API **Audit Gas:** Linde **Zero Air Source:** T-API
Model: T700U **Concentration:** 10.0 ppm **Model:** T701
Serial #: 905 **Serial #:** DT0046813 **Serial #:** 2555
Cert Date: 5/20/2024 **Certification Date:** 4/4/2024 **Certification Date:** 5/20/2024
Expiration Date: 4/4/2027

INPUT (X)	RESPONSE (Y)			NO	NO BEST-FIT DETERMINATION		
NO (PPB)	NO (PPB)	NO_2 (PPB)	NO_X (PPB)	% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	-0.3	0.0	-0.3	/	-2.0	1.73	0.3%
40.1	40.6	-0.3	40.4	1.3%	39.5	1.07	0.2%
89.8	91.9	-0.3	91.6	2.3%	91.1	0.83	0.2%
139.8	140.2	-0.3	139.9	0.3%	142.9	-2.71	-0.5%
198.9	198.8	0.1	198.9	-0.1%	204.2	-5.38	-1.1%
298.6	312.0	-0.3	311.7	4.5%	307.5	4.46	0.9%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X	NO_X BEST-FIT DETERMINATION		
% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-2.2	1.86	0.4%
0.6%	39.4	0.97	0.2%
2.0%	90.9	0.71	0.1%
0.1%	142.7	-2.82	-0.6%
0.0%	204.0	-5.09	-1.0%
4.4%	307.3	4.37	0.9%

	NO	NO_x		NO	NO_x
Slope (m)	1.0368	1.0366	1.05 to 0.95	0.9636	0.9638
Intercept (b)	-2.0335	-2.1906	(≤ ± 10)	2.0805	2.2263
Correlation Coefficent (r)	0.9995	0.9996	(≥ 0.995)	0.99953	0.99955
Average % Difference	1.67%	1.42%		1.69%	1.42%

Calibrated By Wyndam Lewis = cell containing equations

Template Revised 7/10/23

Trinity Consultants

NITROGEN DIOXIDE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Village **Date** 9/16/2024 **Start Time** 9:59
PROJECT 244501.0077 **Stop Time** 11:29
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API **Anal. Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8598

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.0 ppm	**Model:**	T701
Serial #:	905	**Serial #:**	DT0046813	**Serial #:**	2555
Cert Date:	5/20/2024	**Certification Date:**	4/4/2024	**Certification Date:**	5/20/2024
		Expiration Date:	4/4/2027		

	CAL INPUT (X)		CALC ACTUAL	DAS RESPONSE (Y)			CALCULATED (Y) [ORIG]		CALCULATED (Y) [REM]		CALCULATED (Y) [CONV]	% DIFF
	NO (PPB)	O_3 (PPB)	$[NO_2]_A$ (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO (PPB)	NO_X (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO_2 (% OR PPB)
TITRATION	0.0	0.0	0.0	-0.3	-0.3	0.0	---	---	---	---	-0.02	0.0 ppb
	300.0	250.0	239.9	63.1	309.5	246.5	302.7	302.7	62.8	300.5	237.77	2.8%
	300.0	150.0	147.2	159.2	309.2	150.0	302.7	302.7	155.5	300.2	144.83	1.9%
	300.0	70.0	69.2	240.2	313.6	73.4	302.7	302.7	233.5	304.5	71.02	6.1%

NO TITRATION

298.6	0.0	---	312.0	311.7	-0.3

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9777 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 97.8% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION

Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.8	-0.77	-0.2%
246.2	0.32	0.1%
151.4	-1.39	-0.3%
71.5	1.84	0.4%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	1.0231	1.05 to 0.95	0.9636	0.9638
Intercept (b)	0.7537	(≤ ± 10)	2.0805	2.2263
Correlation Coefficent (r)	0.99991	(≥ 0.995)	0.9995	0.9996
Average % Difference	3.56%		1.69%	1.42%

Calibrated By Wyndam Lewis = cell containing equations

Kitimat Village 2024-

Trinity Consultants

NITROGEN OXIDES CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME	LNG Kitimat Village	**Date**	9/16/2024	**Start Time**	12:20
PROJECT	244501.0077			**Stop Time**	13:50
SITE OPERATOR	Trinity				
Analyzer Mfg	Teledyne-API	**Anal. Range 0-**	500	**PPB**	
Analyzer Model	T200				
Analyzer s/n	8598				

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.0 ppm	**Model:**	T701
Serial #:	905	**Serial #:**	DT0046813	**Serial #:**	2555

Cert Date: 5/20/2024 **Certification Date:** 4/4/2024 **Certification Date:** 5/20/2024
Expiration Date: 4/4/2027

INPUT (X) NO (PPB)	RESPONSE (Y) NO (PPB)	RESPONSE (Y) NO_2 (PPB)	RESPONSE (Y) NO_X (PPB)	NO % DIFF	NO BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.0	0.0	0.0	/	-1.7	1.75	0.3%
40.1	39.5	-0.1	39.3	-1.6%	38.4	1.06	0.2%
89.8	88.8	0.6	89.4	-1.1%	88.1	0.70	0.1%
139.8	135.3	0.7	136.0	-3.2%	138.1	-2.80	-0.6%
198.9	192.2	0.7	192.9	-3.4%	197.2	-5.00	-1.0%
298.5	301.1	0.0	301.1	0.9%	296.8	4.29	0.9%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X % DIFF	NO_X BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-1.5	1.52	0.3%
-1.9%	38.6	0.70	0.1%
-0.4%	88.4	1.03	0.2%
-2.7%	138.4	-2.41	-0.5%
-3.0%	197.6	-4.67	-0.9%
0.9%	297.3	3.84	0.8%

	NO	NO_x		NO	NO_x
Slope (m)	1.0000	1.0009	1.05 to 0.95	0.9990	0.9983
Intercept (b)	-1.7050	-1.5143	(≤ ± 10)	1.8229	1.6103
Correlation Coefficent (r)	0.9995	0.9996	(≥ 0.995)	0.99953	0.99961
Average % Difference	-1.69%	-1.45%		2.03%	1.80%

Calibrated By Wyndam Lewis = cell containing equations

Template Revised 7/10/23

Trinity Consultants

NITROGEN DIOXIDE CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME LNG Kitimat Village **Date** 9/16/2024 **Start Time** 12:20
PROJECT 244501.0077 **Stop Time** 13:50
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API **Anal. Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8598

CALIBRATION EQUIPMENT:

Calibrator: T-API **Audit Gas:** Linde **Zero Air Source:** T-API
Model: T700U **Concentration:** 10.0 ppm **Model:** T701
Serial #: 905 **Serial #:** DT0046813 **Serial #:** 2555
Cert Date: 5/20/2024 **Certification Date:** 4/4/2024 **Certification Date:** 5/20/2024
Expiration Date: 4/4/2027

	CAL INPUT (X) NO (PPB)	CAL INPUT (X) O_3 (PPB)	CALC ACTUAL $[NO_2]_A$ (PPB)	DAS RESPONSE (Y) NO (PPB)	DAS RESPONSE (Y) NO_X (PPB)	DAS RESPONSE (Y) NO_2 (PPB)	CALCULATED (Y) [ORIG] NO (PPB)	[ORIG] NO_X (PPB)	[REM] NO (PPB)	[REM] NO_X (PPB)	[CONV] NO_2 (PPB)	% DIFF NO_2 (% OR PPB)
TITRATION	0.0	0.0	0.0	0.0	0.0	0.0	---	---	---	---	-0.04	0.0 ppb
	300.0	250.0	234.4	66.5	299.6	233.1	302.6	302.2	68.2	300.7	232.89	-0.6%
	300.0	150.0	145.3	155.7	298.0	142.3	302.6	302.2	157.4	299.1	142.16	-2.0%

300.0	70.0	67.9	233.1	301.9	68.7	302.6	302.2	234.7	303.0	68.73	1.2%

NO TITRATION

298.5	0.0	---	301.1	301.1	0.0

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9870 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 98.7% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION

Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.2	-0.22	0.0%
232.4	0.73	0.1%
144.1	-1.77	-0.4%
67.5	1.26	0.3%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	0.9906	1.05 to 0.95	0.9990	0.9983
Intercept (b)	0.1780	(≤ ± 10)	1.8229	1.6103
Correlation Coefficent (r)	0.99991	(≥ 0.995)	0.9995	0.9996
Average % Difference	-0.47%		2.03%	1.80%

Calibrated By Wyndam Lewis

= cell containing equations

09/17/2024 - RTA activities

Tuesday, September 17, 2024 10:31 AM

Village

Author of Entry: Matthew Kurtz

Date of Activity: September 17, 2024
Start Time: 10:30
End Time: 11:00
Technician: Matthew Kurtz

Reason for Visit

RTA activities.

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

T400:

-Clock is 78 seconds ahead, adjusted at 10:56.

T200:

-Clock is 81 seconds ahead, adjusted at 10:57.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1900 psi and line pressure 31.5 psi.
- Shelter temperature 26 C, within spec.
- Ambient aspirator is loud.

09/19/2024 - Inlet filter change & RTA activities

Thursday, September 19, 2024 12:34 PM

Village

Author of Entry: Matthew Kurtz

Date of Activity: September 19, 2024
Start Time: 12:35
End Time: 13:30
Technician: Matthew Kurtz, Adrienne Kaul

Reason for Visit

T200 and T400 inlet filter changes.

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

T700U:

-Clock is 23 seconds ahead, adjusted at 12:39.

T400:

-Clock is 7 seconds ahead, adjusted at 12:43.
-Data flagged 12:45-13:05.
-Inlet filter changed.

T200:

-Clock is 20 seconds ahead.
-Data flagged 12:45-13:05.
-Inlet filter changed.
-Manual span at 220 ppb running 12:53-12:59.
-Read 213.4 ppb with 219.2 supplied by calibrator for final full minute of run.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1890 psi and line pressure 32 psi.
- Shelter temperature 26 C, within spec.
- Ambient aspirator is loud.

09/19/2024 - O3 As Found MP

Thursday, September 19, 2024 3:47 PM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 9/19/24
Start Time: 855
End Time: 1010
Technician: WL

Reason for Visit

Perform quarterly O3 as found MP verification.

Description

[describe what activities were performed during the maintenance]

Site Visit Checklist

- ☐ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☐ Zero air system pressure at 30 PSI
- ☐ Calibration gas cylinder pressure at 30 PSI
- ☐ Calibration gas tank pressure > 500 PSI
- ☐ Check for analyzer warnings: _____
- ☐ Check for calibrator warnings: _____
- ☐ Analyzer filters exchanged
- ☐ MFC checks performed (semi-annual)
- ☐ Inlet Teflon exchanged (annual)
- ☐ Zero Air media replaced (annual)
- ☐ Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- ☐ Annual Maintenance *(Second Quarter)*

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

Kitimat Village 2024-

Trinity

Consultants

OZONE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Village
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 9/19/2024 **Start Time** 9:03 **Stop Time** 10:03

Analyzer Mfg Teledyne-API
Analyzer Model T400
Analyzer s/n 7486

Anal. Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	N/A	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	N/A	**Model:**	T701
Serial #:	905	**Serial #:**	N/A	**Serial #:**	2555
Cert Date:	5/20/2024	**Certification Date:**	N/A	**Certification Date:**	5/20/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard
m: 1
b: 0
r:
Calibration Date:

INPUT (Txfr Standard)		RESPONSE		BEST-FIT DETERMINATION		
Raw Input (PPB)	Corrected (X) (PPB)	(Y) (PPB)	% DIFF.	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.0	0.9	/	0.7	0.21	0.0%
39.9	39.9	41.2	3.21%	41.2	0.01	0.0%
90.2	90.2	91.8	1.77%	92.2	-0.37	-0.1%
150.4	150.4	153.4	1.99%	153.2	0.18	0.0%
250.6	250.6	255.0	1.76%	254.8	0.18	0.0%
399.9	399.90	406.2	1.58%	406.2	-0.02	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib Input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	1.014	1.05 to 0.95
Intercept(b)	0.705	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	2.06%	

COMMENTS

Calibrated By Wyndam Lewis

= cell containing equations

09/20/2024 - Heater diagnosis

Friday, September 20, 2024 10:05 AM

Village

Author of Entry: Matthew Kurtz

Date of Activity:
Start Time: 10:05
End Time: 11:40
Technician: Matthew Kurtz

Reason for Visit

On site to look at recent shelter temperature drop from 09/19/24 - 09/20/24.

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

T400:

-Clock is accurate to the second, no adjustments made.

T200:

-Clock is accurate to the second, no adjustments made.

Shelter:

-Temperature turned up on baseboard heater at the back of the shelter.
-Added addition space heater.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1820 psi and line pressure 32.5 psi.
- Shelter temperature 16.9 C, as found. Adjusted baseboard heater at the back of the shelter.
- Ambient aspirator is loud.

09/24/2024 - RTA Activities

Tuesday, September 24, 2024 7:42 AM

Village

Author of Entry: Matthew Kurtz

Date of Activity: September 24, 2024
Start Time: 7:42
End Time: 8:20
Technician: Matthew Kurtz

Reason for Visit

RTA Activities

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

T400:

-Clock is 53 seconds ahead, adjusted at 7:51.

T200:

-Clock is 52 seconds ahead, adjusted at 7:52.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1900 psi and line pressure 32 psi.
- Shelter temperature 60 min 28.8 C, as found. Removed space heater.
- Shelter temperature 1 min 26.8 C as left.
- Ambient aspirator is loud.

07/02/2024 - Weekly stations check

Tuesday, June 4, 2024 9:48 AM

Riverlodge

Author of Entry: Matthew Kurtz

Date of Activity: July 2, 2024
Start Time: 13:14
End Time: 13:56
Technician: Matthew Kurtz

Reason for Visit

RTA activities

Description

Envidas:

-Clock is 2 seconds behind, adjusted at 13:18.

T200:

-Clock is 20 seconds ahead, adjusted at 13:44.

T400:

-Clock is 14 seconds ahead, adjusted at 13:45.

RTA Activities:

-Data flagged at 13:26 - 13:50.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Station temperature 25.5 C, within spec.
- SO2 and NO tank pressure 2030 psi and line pressure 32 psi.
- Nitrogen tank pressure 1590 psi and line pressure 33.5 psi.
- Oxygen tank pressure 0 psi and line pressure 30 psi.

07/05/2024 - Rio Tinto Activities

Friday, July 5, 2024 7:18 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: July 5, 2024
Start Time: 7:15; 11:47
End Time: 9:05; 12:10
Technician: Adrienne Kaul

Reason for Visit

On site for Rio Tinto maintenance activities

Description

Envidas logger:
-Clock accurate within 2 seconds.
T700 Calibrator:
-Clock updated at 7:47; clock was 14 seconds ahead before adjustment.
T200 NOx:
-Clock updated at 7:50; clock was 26 seconds ahead before adjustment.
T400 O3:
-Clock updated at 7:51; clock was 15 seconds ahead before adjustment.
T200 NOx and T400 O3:
-Data flagged 8:10-8:20.
-O2 20.9% running 8:11-8:16. HF analyzer reading 21.429% last full minute of run.
Vacuumed station.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 2030 psi and line pressure 32 psi.
- Shelter temperature 27.2 C, within spec.
- SO2 pump flow rate is decreasing. Flow is at 0.461 L/min rather than usual ~0.5 lpm. Pump needs to be replaced.
- T700 warning: 07/04/2024 - 12:35:30 AM system reset. Warning raised when the system is reset.
- T200 warning: 07/04/2024 12:35:26 AM system reset. Warning raised when the system is reset.
- T400 warning: 07/04/2024 12:35:25 AM system reset. Warning raised when the system is reset.
- Need an additional fan for shelter temperature control on site.

07/18/2024 - Weekly station check and NOx and O3 inlet filter changes.

Thursday, July 18, 2024 10:18 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: July 18, 2024
Start Time: 10:15; 13:10
End Time: 11:30; 13:18
Technician: Adrienne Kaul

Reason for Visit

On site for weekly station check and NOx and O3 inlet filter changes.

Description

Envidas:
- -Downloaded updates.
- -Updated clock at 10:23, clock was 2 seconds ahead before adjustment.
- -Computer restarted at 11:14 to allow updates to take affect.

T200 NOx:
- -Clock was updated at 10:28. Clock was 62 seconds ahead before update.

T400 O3:
- -Clock was updated at 10:29. Clock was 1 minute ahead before update.

T700U:
- -Clock was updated at 10:30; Clock was 1 minute ahead before update.

T200 NOx, and T400 O3:
- -Data flagged 10:45-11:12
- -Analyzer inlet filters changed.
- -Manual span 10:53-11:07
  - -NO reading 155.2 ppb with 155.7 ppb supplied by calibrator.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: See below
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter temperature 27.8 C, within spec.
- NO and SO2 tank pressure 2010 psi and line pressure 30 psi.
- T700U Calibrator alert: 07/12/2024 6:15:44 AM System Reset. Warning raised when the system is reset.
- T200 NOx alert: 07/12/2024 6:15:39 AM System Reset. Warning raised when the system is reset.
- T400 O3 alert: 07/12/2024 6:15:34 AM System Reset. Warning raised when the system is reset.

07/22/2024 - Rio Tinto maintenance activities

Monday, July 22, 2024 8:48 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: July 22, 2024
Start Time: 8:45
End Time: 10:50
Technician: Adrienne Kaul

Reason for Visit

On site for Rio Tinto maintenance activities

Description

Envidas:
-Downloaded updates.
-Clock 2 seconds ahead updated at 8:51.

T700U:
-Clock updated at 8:55, clock was 33 seconds ahead before adjustment.

T701:
-Increased output pressure to closer to 30 psi.

T200 NOx:
-Clock updated at 9:55, clock was 45 seconds ahead before adjustment.

T400 O3:
-Clock updated at 9:56, clock was 45 seconds ahead before adjustment.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter temperature 24.5 C, within spec.
- SO2 and NO tank pressure 2000 psi and line pressure 30 psi.
- There was a swarm of wasps at the site. There is possibly a nest under the porch at station.

07/24/2024 - NOx Calibration

Thursday, July 25, 2024 3:59 PM

Riverlodge

Author of Entry: Wyndam Lewis

Date of Activity: 7/24/24
Start Time: 1250
End Time: 1700
Technician: WL

Reason for Visit

Automated daily zero/span checks indicate the analyzer could benefit from calibration.

Description

NOx as found MP verification
NOx zero and span adjustments
NOx MP verification after adjustment

Site Visit Checklist

- ☐ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☐ Zero air system pressure at 30 PSI
- ☐ Calibration gas cylinder pressure at 30 PSI
- ☐ Calibration gas tank pressure > 500 PSI
- ☐ Check for analyzer warnings: _____
- ☐ Check for calibrator warnings: _____
- ☐ Analyzer filters exchanged
- ☐ MFC checks performed (semi-annual)
- ☐ Inlet Teflon exchanged (annual)
- ☐ Zero Air media replaced (annual)
- ☐ Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- ☐ Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

Kitimat Riverlodge

Trinity Consultants

NITROGEN OXIDES CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 7/24/2024 **Start Time** 12:56
Stop Time 14:26

Analyzer Mfg Teledyne-API
Analyzer Model T200
Analyzer s/n 8599

Anal. Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 906
Cert Date: 5/17/2024

Audit Gas: Linde
Concentration: 9.99 ppm
Serial #: DT0051259
Certification Date: 4/4/2024
Expiration Date: 4/4/2027

Zero Air Source: T-API
Model: T701
Serial #: 2556
Certification Date: 5/16/2024

INPUT (X) NO (PPB)	RESPONSE (Y) NO (PPB)	RESPONSE (Y) NO_2 (PPB)	RESPONSE (Y) NO_X (PPB)	NO % DIFF	NO BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.9	-0.3	0.7	/	0.0	0.98	0.2%
40.1	38.9	-0.4	38.5	-2.9%	38.9	0.04	0.0%
90.0	86.6	-0.2	86.5	-3.8%	87.3	-0.70	-0.1%
139.9	135.2	-0.7	134.5	-3.4%	135.7	-0.52	-0.1%
200.2	193.5	-0.7	192.8	-3.3%	194.2	-0.73	-0.1%
300.2	292.2	-1.3	290.9	-2.7%	291.3	0.93	0.2%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X % DIFF	NO_X BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-0.2	0.84	0.2%
-3.9%	38.6	-0.07	0.0%
-3.9%	86.9	-0.36	-0.1%
-3.9%	135.1	-0.61	-0.1%
-3.7%	193.4	-0.61	-0.1%
-3.1%	290.1	0.81	0.2%

	NO	NO_x		NO	NO_x
Slope (m)	0.9703	0.9669	1.05 to 0.95	1.0305	1.0342
Intercept (b)	-0.0321	-0.1584	(≤ ± 10)	0.0401	0.1688
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	0.99997	0.99998
Average % Difference	-3.22%	-3.69%		3.22%	3.69%

Calibrated By Wyndam Lewis

= cell containing equations

Template Revised 7/10/23

Trinity Consultants

NITROGEN DIOXIDE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 7/24/2024 **Start Time** 12:56
Stop Time 14:26

Analyzer Mfg Teledyne-API
Analyzer Model T200

Anal. Range 0- 500 **PPB**

Analyzer s/n 8599

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	9.99 ppm	**Model:**	T701
Serial #:	906	**Serial #:**	DT0051259	**Serial #:**	2556
Cert Date:	5/17/2024	**Certification Date:**	4/4/2024	**Certification Date:**	5/16/2024
		Expiration Date:	4/4/2027		

	CAL INPUT (X)		CALC ACTUAL	DAS RESPONSE (Y)			CALCULATED (Y) [ORIG]		[REM]		[CONV]	% DIFF
	NO (PPB)	O_3 (PPB)	$[NO_2]_A$ (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO (PPB)	NO_X (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO_2 (% OR PPB)
TITRATION	0.0	0.0	0.0	0.9	0.7	-0.3	---	---	---	---	-0.26	-0.3 ppb
	300.0	250.0	272.3	28.0	289.8	261.8	301.2	301.0	28.9	299.9	271.14	-3.8%
	300.0	150.0	172.1	125.2	287.5	162.3	301.2	301.0	129.1	297.5	168.58	-5.7%
	300.0	70.0	85.2	209.5	290.7	81.2	301.2	301.0	215.9	300.8	85.02	-4.7%

NO TITRATION

300.2	0.0	---	292.2	290.9	-1.3

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9958 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 99.6% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION

Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
-0.9	0.60	0.1%
260.6	1.24	0.2%
164.4	-2.07	-0.4%
81.0	0.24	0.0%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	0.9601	1.05 to 0.95	1.0305	1.0342
Intercept (b)	-0.8607	(≤ ± 10)	0.0401	0.1688
Correlation Coefficent (r)	0.99992	(≥ 0.995)	1.0000	1.0000
Average % Difference	-4.75%		3.22%	3.69%

Calibrated By Wyndam Lewis = cell containing equations

Kitimat Riverlodge

Trinity Consultants

NITROGEN OXIDES CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME LNG Kitimat Riverlodge **Date** 7/24/2024 **Start Time** 15:19

PROJECT 244501.0077 **Stop Time** 16:49

SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API **Anal. Range 0-** 500 **PPB**

Analyzer Model T200

Analyzer s/n 8599

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	9.99 ppm	**Model:**	T701

Serial #:	906	**Serial #:**	DT0051259	**Serial #:**	2556
Cert Date:	5/17/2024	**Certification Date:**	4/4/2024	**Certification Date:**	5/16/2024
		Expiration Date:	4/4/2027		

INPUT (X) NO (PPB)	RESPONSE (Y) NO (PPB)	RESPONSE (Y) NO_2 (PPB)	RESPONSE (Y) NO_X (PPB)	NO % DIFF	NO BEST-FIT DETERMINATION Predicted (Y)	NO BEST-FIT DETERMINATION Residual (PPB)	NO BEST-FIT DETERMINATION Residual (<2% Full Scale)	NO_X % DIFF	NO_X BEST-FIT DETERMINATION Predicted (Y)	NO_X BEST-FIT DETERMINATION Residual (PPB)	NO_X BEST-FIT DETERMINATION Residual (<2% Full Scale)
0.0	0.0	0.0	0.0	/	-0.4	0.49	0.1%	/	-0.6	0.61	0.1%
40.1	39.7	0.0	39.7	-1.0%	39.6	0.09	0.0%	-1.1%	39.5	0.14	0.0%
90.0	88.9	-0.1	88.8	-1.2%	89.4	-0.50	-0.1%	-1.3%	89.5	-0.65	-0.1%
139.9	139.2	0.0	139.2	-0.5%	139.2	-0.02	0.0%	-0.5%	139.4	-0.19	0.0%
200.2	198.8	0.4	199.2	-0.7%	199.4	-0.61	-0.1%	-0.5%	199.7	-0.52	-0.1%
300.2	299.8	0.6	300.4	-0.1%	299.2	0.56	0.1%	0.1%	299.8	0.61	0.1%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

	NO	NO_x		NO	NO_x
Slope (m)	0.9983	1.0006	1.05 to 0.95	1.0017	0.9993
Intercept (b)	-0.4421	-0.6043	(≤ ± 10)	0.4454	0.6071
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	0.99999	0.99999
Average % Difference	-0.72%	-0.67%		0.72%	0.70%

Calibrated By Wyndam Lewis = cell containing equations

Template Revised 7/10/23

Trinity Consultants

NITROGEN DIOXIDE CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME LNG Kitimat Riverlodge **Date** 7/24/2024 **Start Time** 15:19
PROJECT 244501.0077 **Stop Time** 16:49
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API **Anal. Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8599

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	9.99 ppm	**Model:**	T701
Serial #:	906	**Serial #:**	DT0051259	**Serial #:**	2556
Cert Date:	5/17/2024	**Certification Date:**	4/4/2024	**Certification Date:**	5/16/2024
		Expiration Date:	4/4/2027		

	CAL INPUT (X) NO (PPB)	CAL INPUT (X) O_3 (PPB)	CALC ACTUAL $[NO_2]_A$ (PPB)	DAS RESPONSE (Y) NO (PPB)	DAS RESPONSE (Y) NO_X (PPB)	DAS RESPONSE (Y) NO_2 (PPB)	CALCULATED (Y) [ORIG] NO (PPB)	CALCULATED (Y) [ORIG] NO_X (PPB)	CALCULATED (Y) [REM] NO (PPB)	CALCULATED (Y) [REM] NO_X (PPB)	CALCULATED (Y) [CONV] NO_2 (PPB)	% DIFF NO_2 (% OR PPB)
ZERO CALIBRATION	0.0	0.0	0.0	0.0	0.0	0.0	---	---	---	---	-0.04	0.0 ppb
	300.0	250.0	273.0	27.3	298.8	271.5	300.8	300.8	27.8	299.2	271.37	-0.5%

300.0	150.0	172.0	128.1	297.0	168.9	300.8	300.8	128.8	297.4	168.59	-1.8%
300.0	70.0	85.2	214.7	298.6	83.8	300.8	300.8	215.5	299.0	83.45	-1.7%

NO TITRATION

300.2	0.0	---	299.8	300.4	0.6

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 1.0015 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 100.2% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION

Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
-0.7	0.65	0.1%
270.6	0.91	0.2%
170.2	-1.33	-0.3%
84.0	-0.23	0.0%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	0.9938	1.05 to 0.95	1.0017	0.9993
Intercept (b)	-0.6891	(≤ ± 10)	0.4454	0.6071
Correlation Coefficent (r)	0.99996	(≥ 0.995)	1.0000	1.0000
Average % Difference	-1.34%		0.72%	0.70%

Calibrated By Wyndam Lewis

= cell containing equations

08/02/2024 - Rio Tinto maintenance activities

Friday, August 2, 2024 7:45 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: August 2, 2024
Start Time: 7:40
End Time: 8:36
Technician: Adrienne Kaul

Reason for Visit

Rio Tinto maintenance activities.

Description

Envidas:

-Downloaded windows updates.

-Clock updated at 8:09, clock was 2 seconds ahead before update.

T700U:

-Clock updated at 8:19, clock was 2 minutes and 8 seconds ahead before adjustment.

T200 NOx:

-Clock updated at 8:20, clock was 2 minutes and 6 seconds ahead before adjustment.

T400 O3:

-Clock updated at 8:21, clock was 2 minutes and 9 seconds ahead before adjustment.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter temperature 23.8 C, within spec.
- SO2 tank pressure 1960 psi and line pressure 29 psi.
- All connections tight from manifold to analyzers.

08/07/2024 - Weekly stations check

Wednesday, August 7, 2024 11:00 AM

River Lodge

Author of Entry: Matthew Kurtz

Date of Activity: August 7, 2024
Start Time: 11:00
End Time: 11:20
Technician: Matthew Kurtz

Reason for Visit

Weekly stations check

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

T200:

-Clock is 63 seconds ahead, adjusted at 11:16.

T400:

-Clock is 62 seconds ahead, adjusted at 11:17.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Station temperature 24.5 C, within spec.
- SO2 and NO tank pressure 1990 psi and line pressure 30 psi.
- Nitrogen tank pressure 1310 psi and line pressure 34 psi.
- Oxygen tank pressure 1700 psi and line pressure 30.5 psi.

08/14/2024 - NOx and O3 inlet filter replacement

Wednesday, August 14, 2024 9:47 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: August 14, 2024
Start Time: 9:41
End Time: 10:50
Technician: Adrienne Kaul

Reason for Visit

Weekly station check and inlet filter replacement.

Description

Envidas:
- -Updates downloaded.
- -Clock accurate.
- -Computer restarted at 10:33

T200 NOx and T400 O3:
- -Data flagged 9:48-10:13.
- -Ozone being generated at 160 PPB 9:57-10:07
  - -Ozone analyzer reading 152.4 ppb with 159.3 ppb supplied by calibrator.
- -Cobwebs cleared from analyzer inlet at 10:37

T200 NOx:
- -Clock updated at 10:21, clock was 100 seconds ahead before adjustment.

T400 O3:
- -Clock updated at 10:23; clock was 83 seconds ahead before adjustment.

T700U Calibrator:
- -Clock updated at 10:25; clock was 80 seconds ahead before adjustment.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- HF inlet heater 68C at 9:58.
- Station temperature 22.8C, within spec.
- SO2 and NO tank pressure 1950 psi and line pressure 31 psi.

08/21/2024 - Weekly Station Check

Wednesday, August 21, 2024 12:26 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: August 21, 2024
Start Time: 12:06
End Time: 12:50
Technician: Adrienne Kaul

Reason for Visit

On site to perform weekly site check.

Description

T700U Calibrator:

-Clock updated at 12:39, clock was 81 seconds ahead before adjustment.

T200 NOx:

-Clock updated at 12:40; clock was 80 seconds ahead before adjustment.

T400 O3:

-Clock updated at 12:42; clock was 83 seconds ahead before adjustment.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1950 psi and line pressure 33 psi.
- Shelter temperature 23.5 C, within spec.

08/28/2024 - Rio Tinto maintenance

Wednesday, August 28, 2024 7:09 AM

Riverlodge

Author of Entry: Matthew Kurtz

Date of Activity: August 28, 2024
Start Time: 7:07
End Time: 8:45
Technician: Matthew Kurtz, Adrienne Kaul

Reason for Visit

RTA activities

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

T200:

-Clock is 77 seconds ahead, adjusted at 8:27

T400:

-Clock is 78 seconds ahead, adjusted at 8:29

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

- **Site Observations**
  - Station temperature 24.5 C, within spec.
  - SO2 and NO tank pressure 1960 psi and line pressure 32.5 psi.
  - Nitrogen tank pressure 1180 psi and line pressure 33 psi.
  - Oxygen tank pressure 1440 psi and line pressure 30.5 psi.

09/04/2024 - Rio Tinto maintenance activities

Wednesday, September 4, 2024 1:17 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: September 4, 2024
Start Time: 13:15
End Time: 13:55
Technician: Adrienne Kaul

Reason for Visit

On site for weekly site check and inlet filter change.

Description

Envidas:
-Clock two seconds ahead, updated at 13:18.
T700U Calibrator:
-Clock updated 13:27-13:28, clock was 82 seconds ahead before adjustment.
T200 NOx:
-Clock updated at 14:28, clock was 78 seconds ahead before adjustment.
T400 O3:
-Clock updated at 13:29; clock was 79 seconds ahead before adjustment.
NOx and O3:
-Data flagged 13:31-13:45 for Rio Tinto activities.
-Cobwebs cleared from near inlet at 13:51.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter temperature 23.1 C, within spec.
- SO2 and NO tank pressure 1930 psi and line pressure 33 psi.
- Ambient temperature aspirator working.

09/10/2024 - Weekly stations check

Tuesday, September 10, 2024 9:06 AM

Riverlodge

Author of Entry: Matthew Kurtz

Date of Activity: September 10, 2024
Start Time: 9:07
End Time: 9:20
Technician: Matthew Kurtz

Reason for Visit

Weekly station checks

Description

Envidas:

-Clock is accurate to the second.

T200:

-Clock is 68 seconds ahead, adjusted at 9:17.

T400:

-Clock is 74 seconds ahead, adjusted at 9:18.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Station temperature 23.5 C, within spec.
- SO2 and NO tank pressure 1910 psi and line pressure 33.5 psi.
- Nitrogen tank pressure 1090 psi and line pressure 32.5 psi.
- Oxygen tank pressure 1290 psi and line pressure 31 psi.

09/11/2024 - Rio Tinto activities

Wednesday, September 11, 2024 10:33 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: September 11, 2024
Start Time: 10:30
End Time: 10:45
Technician: Adrienne Kaul

Reason for Visit

Rio Tinto activities

Description

Rio Tinto activities

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter temperature 22.7 C, within spec.

09/18/2024 - NOx and O3 inlet filter replacement/RTA Activities

Wednesday, September 18, 2024 12:36 PM

River Lodge

Author of Entry: Matthew Kurtz

Date of Activity: September 18, 2024
Start Time: 12:36
End Time: 14:30
Technician: Matthew Kurtz, Adrienne Kaul

Reason for Visit
RTA Activities

Description

Envidas:
-Clock is 2 seconds ahead, adjusted at 12:39.

T200:
-Clock is 90 seconds ahead, adjusted at 12:51.
-Inlet filter changed #450-47-3
-N0 analyzer reading 151.89 ppb with 159.2 ppb supplied by calibrator.

T400:
-Clock is 95 seconds ahead, adjusted at 12:52
-Inlet filter changed #450-47-3
-O3 analyzer reading 153.47 ppb with 160 ppb supplied by calibrator.

SO2 & HF:
-Data flagged 13:59-14:27.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Station temperature 23.5 C, within spec.
- SO2 and NO tank pressure 1900 psi and line pressure 34.5 psi.
- Nitrogen tank pressure 1010 psi and line pressure 34 psi.
- Oxygen tank pressure 1190 psi and line pressure 31 psi.

09/27/2024 - Rio Tinto Maintenance Activities

Friday, September 27, 2024 9:20 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: September 27, 2024
Start Time: 9:16; 17:07
End Time: 16:08; 17:16
Technician: Adrienne Kaul

Reason for Visit

On site for Rio Tinto maintenance activities.

Description

HVAC:
-Increased baseboard heater set point as temperature fell below spec in past 24 hours.
-Station temperature seems to be staying in mid-20s range.

Envidas:
-Downloaded and installed windows updates.
-Clock updated at 9:25; clock was one second ahead prior to update.

T700U:
-Clock updated at 9:34; clock 100 seconds ahead prior to update.

T200 NOx:
-Clock updated at 9:35; clock 103 seconds ahead prior to update.

T400 O3:
-Clock updated at 9:36; clock 102 seconds ahead prior to update.

NOx and O3:
-Data flagged 13:45 to 15:12 for Rio Tinto maintenance activities.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- HF inlet heater 66 C at 9:23
- Shelter temperature 22.3 C, within spec.
- SO2 and NO tank pressure 1880 psi and line pressure 34 psi.
- Ambient temperature aspirator working.
- Need to order a better pedestal fan for site to help stabilize shelter temperatures.

09/19/2024 - O3 As Found MP

Thursday, September 19, 2024 3:47 PM

Riverlodge

Author of Entry: Wyndam Lewis

Date of Activity: 9/19/24
Start Time: 1055
End Time: 1210
Technician: WL

Reason for Visit

Perform quarterly O3 as found MP verification.

Description

[describe what activities were performed during the maintenance]

Site Visit Checklist

- ☐ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☐ Zero air system pressure at 30 PSI
- ☐ Calibration gas cylinder pressure at 30 PSI
- ☐ Calibration gas tank pressure > 500 PSI
- ☐ Check for analyzer warnings: _____
- ☐ Check for calibrator warnings: _____
- ☐ Analyzer filters exchanged
- ☐ MFC checks performed (semi-annual)
- ☐ Inlet Teflon exchanged (annual)
- ☐ Zero Air media replaced (annual)
- ☐ Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- ☐ Annual Maintenance *(Second Quarter)*

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

Kitimat Riverlodge

Trinity Consultants

OZONE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 9/19/2024 **Start Time** 11:01
Stop Time 12:01

Analyzer Mfg Teledyne-API
Analyzer Model T400
Analyzer s/n 7487

Anal. Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	N/A	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	N/A	**Model:**	T701
Serial #:	906	**Serial #:**	N/A	**Serial #:**	2556
Cert Date:	5/17/2024	**Certification Date:**	N/A	**Certification Date:**	5/16/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard
m: 1
b: 0
r:
Calibration Date:

INPUT (Txfr Standard)		RESPONSE		BEST-FIT DETERMINATION		
Raw Input (PPB)	Corrected (X) (PPB)	(Y) (PPB)	% DIFF.	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.0	-0.6	/	-0.7	0.09	0.0%
40.0	40.0	39.9	-0.32%	39.6	0.23	0.0%
90.0	90.0	89.7	-0.33%	90.0	-0.33	-0.1%
150.2	150.2	150.3	0.07%	150.7	-0.41	-0.1%
250.0	250.0	251.4	0.56%	251.3	0.11	0.0%
400.2	400.20	402.7	0.62%	402.7	0.03	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	1.008	1.05 to 0.95
Intercept(b)	-0.675	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	0.12%	

COMMENTS

Calibrated By Wyndam Lewis

= cell containing equations

Attachment 2 Tetra Tech Technical Memo, PA-110588 – Passive NO_2 Monitoring Results for Q3 2024 (October 18, 2024)

TETRA TECH

TECHNICAL MEMO

ISSUED FOR USE

To:	Tauseef Zia Siddiqui	**Date:**	October 18, 2024
File:	704-ENW.GENV03699-01	**Memo No.:**	Q3 2024
From:	Tetra Tech Canada Inc.		
Subject:	PA-110588 - Passive NO_2 Monitoring Results for Q3 2024 Document Control #: L001-00000-HE-0702-0002		

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNGC facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQMMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region. The passive sampling results have been collected over a period of 30 days (+/- 4 days as per the B.C. Field Sampling Manual – Part B1 Ambient Air Quality Monitoring, Reference No: SOP-07, Standard Operating Procedure for the Passive/Diffusive Method of Air Sample Collection) and compiled into monthly reports. This memorandum provides a summary of the results for this past quarter that covers the July, August, and September 2024 sampling periods. The monthly reports are attached in Appendix B.

2.0 PASSIVE MONITORING RESULTS

The passively measured 30-day average NO_2 concentrations during each sample deployment over the quarterly period (July to September 2024) are summarized for each monitoring location in Table 1.

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Vancouver, BC V6C 1N5 CANADA
Tel 604.685.0275 Fax 604.684.6241

Table 1: Passive NO_2 Sampling Results (July – September 2024)

Passive Sampler Location	30-day Average NO_2 Concentration (ppb)		
	July 2024	August 2024	September 2024
Lakelse Lake A04	< 0.1	0.1	0.2
V01	< 0.1	< 0.1	0.1
KHV-2	< 0.1	0.1	0.1
KHV-1	< 0.1	0.1	0.2
V10B	n.a. [1]	0.9	1.1
V12	< 0.1	0.2	0.3
V08	< 0.1	0.2	0.4
V06	< 0.1	0.2	0.3
V05	< 0.1	0.2	0.3
Kitimat Industrial (V14)	0.5	0.8	1.0
Predicted Maximum NO_2	0.5	0.6	0.9
Kitimat Riverlodge	0.2	0.4	0.6
Kitimat Whitesail	< 0.1	0.3	0.5

1 Station V10B was vandalized and sample media within the housings were removed during the July deployment. Results for V10B are unavailable for the July sampling period.

The highest 30-day average NO_2 concentration measured over the quarterly period was 1.1 ppb at sample location V10B, located southwest of the LNGC facility. The second highest 30-day measurement was 1.0 ppb along the west side of town at Kitimat Industrial, north of the LNGC facility. While there is no 30-day Provincial Air Quality Objective for NO_2, the annual criterion is 17 ppb, which provides an indicator for the passively measured 30-day NO2 concentrations.

3.0 SAMPLING COMPLETENESS

All passive samples were collected successfully over the quarterly period with the exception of V10B in July due to tampering/vandalism of the sampling media and housing unit. As a result, no passive results were available for the entire July sampling period at the V10B location. There were no other instances of missing or unsuccessful samples over the quarterly period.

4.0 LIMITATIONS OF REPORT

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5.0 CLOSURE

We trust this technical memo meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

Prepared by:
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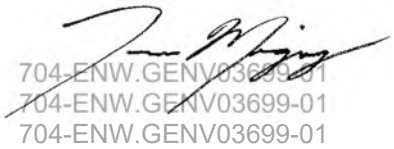

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Attachments Appendix A – Limitations on the Use of this Document
Appendix B – Monthly Reports

APPENDIX A

LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

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TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

MONTHLY REPORTS

TETRA TECH

September 13, 2024

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FILE: 704-ENW.GENV03699-01

LNG Canada

Via Email: Tauseef-ZIA.Siddiqui@lngcanada.ca
KIT-Regulatory-Compliance@lngcanada.ca

Attention: Tauseef Zia Siddiqui

Subject: Passive Monitoring for Nitrogen Dioxide - LNG Canada – July 2024
Document Control #: L001-00000-HE-0702-0419

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNG facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQMMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region as described in Table 1. The spatial distribution of the passive monitoring station network through the Kitimat Valley is shown on the attached Figure 1.

Table 1: LNGC's Passive NO_2 Monitoring Network

Site	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Lakelse Lake A04	527457	6025573	2.2
V01	524757	6017435	2.1
KHV-2	523357	5980636	2.1
KHV-1	522919	5980606	2.1
V10B	519425	5984090	2.1
V12	517790	5977294	2.0
V08	521425	5994249	2.0
V06	520970	5996240	2.0
V05	520457	5999250	2.0
Kitimat Industrial	520424	5990356	2.1
Predicted Maximum NO_2	522463	5989506	2.3
Kitimat Riverlodge	521536	5989486	2.2
Kitimat Whitesail	523612	5990998	2.3

Tetra Tech Canada Inc.
Unit 2, 4065 Motz Road
Terrace, BC V8G 3N1
Tel 250.631.9446

The sampling methodology adheres to protocols described in the document '*Standard Operating Procedure (SOP) – Passive Monitoring for Nitrogen Dioxide (NO_2)*', dated March 2024. More information on the sampling methodology can be found in this document.

2.0 AMBIENT CONDITIONS DURING DEPLOYMENT PERIOD

Winds

Winds were dominated by inflows (southerly winds) over the period June 28 through July 31. Figure 1 shows wind roses for hourly wind observations during the July sampler deployment period at ENV-AQN Kitimat Whitesail and Terrace Airport.

Precipitation

A total of 42.8 mm of precipitation was recorded between June 28 to July 31 at ECCC Kitimat Forest Ave. 24.6 mm of precipitation was recorded at ECCC Terrace A. Comparing to previous July precipitation totals over the past ten years, these values appear to be generally typical of a drier year July for the region.

Air Quality – Nitrogen Dioxide

NO_2 is continuously measured and reported on an hourly basis at ENV-AQN station Kitimat Whitesail. Over the July deployment period (June 28 – July 31), the maximum 1-hour NO_2 concentration was 2.3 ppb, or 3.8% of the British Columbia Air Quality Objective (BCAQO) of 60 ppb. The 30-day average NO_2 concentration, taken as the average of all available one-hour measurements during the sampling period, was 0.5 ppb. While there is no 30-day BCAQO, the annual criterion is 17 ppb, which provides another indicator of ambient air quality with respect to NO_2. There were 39 hours of missing data out of 777 hours, or 95% data completeness. Figure 2 plots the 1-hour NO_2 concentration over the sampling period.

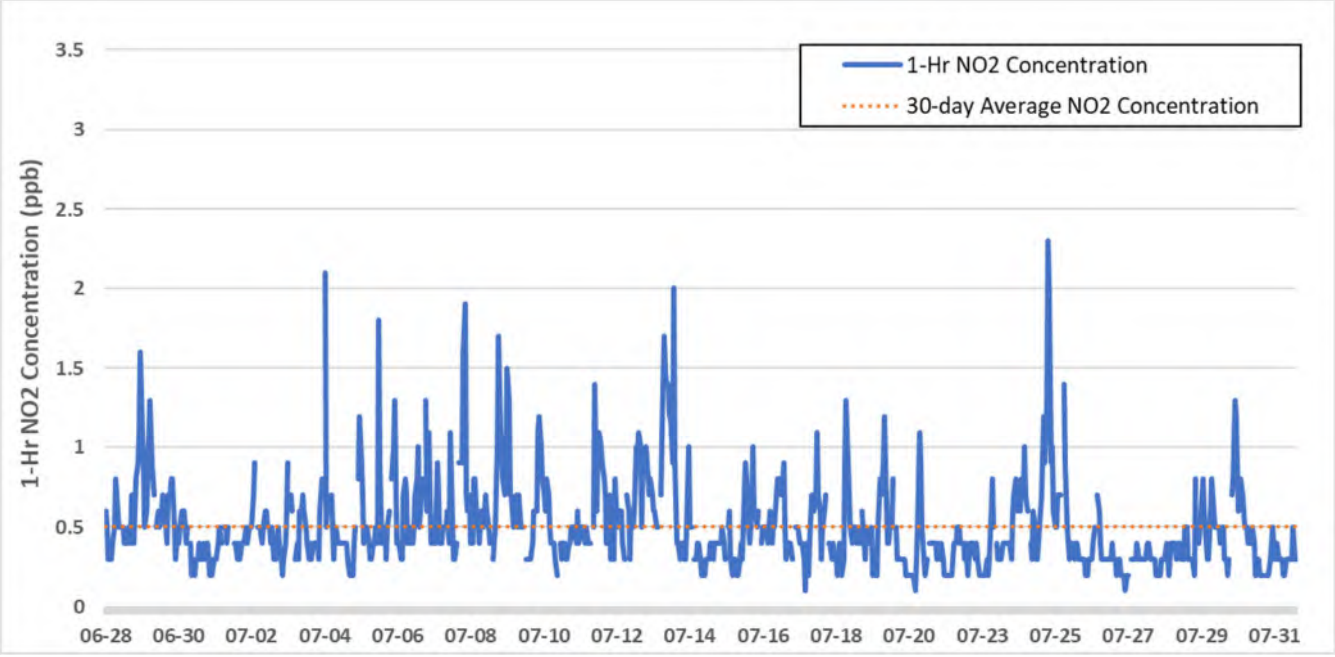

Figure 2: 1-Hr NO_2 Readings at ENV-AQN Kitimat Whitesail (June 28 – July 31)

3.0 PASSIVE MONITORING RESULTS

The passively measured 30-day NO_2 concentrations are listed for each site in Table 2. The 30-day NO_2 concentration based on continuous measurement is also listed for Kitimat Whitesail, as a measure of validation of the sampling results. Each site's housing utilizes two samplers for statistical redundancy, the mean of which is used as the overall measurement.

The measured 30-day NO_2 concentrations are shown through the study area on Figure 1. The highest readings occurred in town, where combustion sources of NOx are more plentiful, also located north of the LNGC facility. Specifically, the highest readings in July 2024 were along the west side of town at Kitimat Industrial and at the location of the predicted maximum NO_2 concentration.

Bureau Veritas Passive Sampling Laboratory Report is attached in Appendix B.

Table 2: Passive NO_2 Sampling Results (July 2024)

Site	Start	End	Duration (Days)	30-day NO_2 Concentration (ppb)			St. Dev	30 Day NO_2
				Sample 1	Sample 2	Mean		
Lakelse Lake A04	6/28/2024 7:30	7/31/2024 8:00	33.0	< 0.1	< 0.1	< 0.1	n.a.	
V01	6/28/2024 8:40	7/31/2024 9:00	33.0	< 0.1	0.1	< 0.1	n.a.	
KHV-2	6/28/2024 9:35	7/31/2024 10:15	33.0	< 0.1	< 0.1	< 0.1	n.a.	
KHV-1	6/28/2024 9:45	7/31/2024 10:00	33.0	< 0.1	< 0.1	< 0.1	n.a.	
V10B	6/28/2024 10:20	n.a. [1]	n.a. [1]	n.a. [1]	n.a. [1]	n.a. [1]	n.a. [1]	
V12	6/28/2024 10:55	7/31/2024 11:25	33.0	< 0.1	< 0.1	< 0.1	n.a.	
V08	6/28/2024 12:00	7/31/2024 12:25	33.0	< 0.1	0.1	< 0.1	n.a.	
V06	6/28/2024 12:10	7/31/2024 12:40	33.1	< 0.1	0.1	< 0.1	n.a.	
V05	6/28/2024 12:25	7/31/2024 12:55	33.0	< 0.1	< 0.1	< 0.1	n.a.	
Kitimat Industrial (V14)	6/28/2024 13:10	7/31/2024 13:20	33.0	0.5	0.5	0.5	0	
Predicted Maximum NO_2	6/28/2024 13:50	7/31/2024 14:00	33.0	0.5	0.4	0.5	0.07	
Kitimat Riverlodge	7/2/2024 08:30	7/31/2024 13:40	29.2	0.2	0.2	0.2	0	
Kitimat Whitesail	7/2/2024 08:45	7/31/2024 14:15	29.2	< 0.1	< 0.1	< 0.1	n.a.	0.5

1 Station V10B was vandalized and sample media within the housings were removed during the July deployment. Results for V10B are unavailable for the July sampling period.

4.0 SAMPLING PROGRAM ANOMOLIES

- The sampling media within the housing unit at V10B were discovered to have been removed. This tampering/vandalism at Station V10B was initially reported by Trinity Consultants during a site visit of their passive SO_2 monitoring program. As a result, there are no passive results at V10B for July 2024.
- Due to the missing media at V10B and the cut housing mountings that occurred at V10B in June 2024, to reduce the potential for future vandalism, KVH-1, KVH-2, V10B, Kitimat Industrial (V14), Predicted Maximum NO_2, Kitimat Riverlodge, and Kitimat Whitesail monitoring locations were raised to a height of 3.0 m on Wednesday, July 31, 2024, as requested by LNGC. A longer telespar mounting post was installed at V10B to accommodate the increased height. The new sampling heights will be reflected in the August 2024 sampling and described in the subsequent monthly summary report.

5.0 LIMITATIONS OF REPORT

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6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

FILE: 704-ENW.GENV03699-01
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FILE: 704-ENW.GENV03699-01

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2024-09-13

Reviewed by:
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TETRA TECH CANADA INC.
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/jmt

Attachments Figure 1. Mean 30-day NO_2 Concentration July 2024
Appendix A – Limitations on the Use of this Document
Appendix B – Bureau Veritas Passive Sampling Laboratory Report

FIGURES

Figure 1 Mean 30-day NO_2 Concentration July 2024

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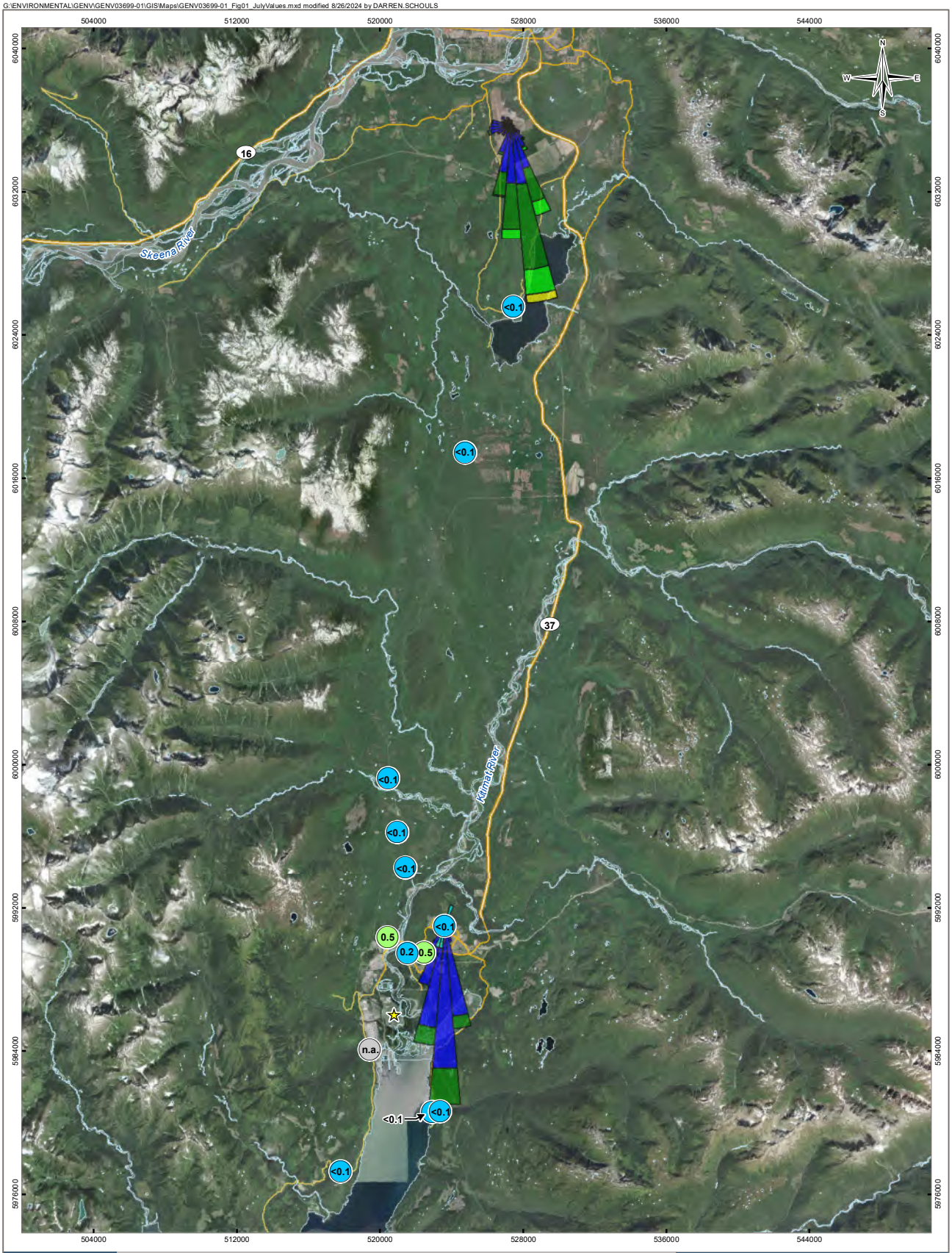

LEGEND

Mean 30-Day NO_2 Concentration (ppb)

- 0 - 0.5
- 0.5 - 1.0
- N.A.
- LNGC Site
- Highway
- Main Road
- Local Road
- Watercourse/Waterbody

Rose Plot - Wind (m/s)

- 1 - 3
- 3 - 6
- 6 - 9
- 9 - 12
- 12 - 15

NOTES
Base data source:
Imagery from ESRI; Maxar
CanVec 1:250,000 (2019)

STATUS
ISSUED FOR USE

LNGC NO2 PASSIVE MONITORING

Mean 30-day NO2 Concentration July 2024

PROJECTION UTM Zone 9	**DATUM** NAD83				**CLIENT** Haisla Triton Ltd.
Scale: 1:200,000 (4 2 0 4 Kilometres)					TETRA TECH
FILE NO. GENV03699-01_Fig01_JulyValues.mxd					
OFFICE Tt-VANC	**DWN** DS	**CKD** MRB	**APVD** TM	**REV** 0	**Figure 1**
DATE August 26, 2024	**PROJECT NO.** ENW.GENV03699-01				

APPENDIX A

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In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

BUREAU VERITAS PASSIVE SAMPLING LABORATORY REPORT

Your P.O. #: 704-ENW.GENV03699-01
Your Project #: NO2 MONITORING
Site Location: 2024/06/28-2024/07/31

Attention: Travis Miguez

Tetra Tech Canada Inc.
#2 4065 Motz Road
Terrace, BC
CANADA V8G 3N1

Report Date: 2024/08/19
Report #: R3543343
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C459678
Received: 2024/08/06, 08:00

Sample Matrix: Air
Samples Received: 26

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Comments are listed below	2	N/A	2024/08/07		
NO2 Passive Analysis	24	2024/08/08	2024/08/19	PTC SOP-00148	Passive NO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Branko Banjac, General Manager responsible for Alberta Petroleum laboratory operations.

Bureau Veritas Job #: C459678
Report Date: 2024/08/19

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/06/28-2024/07/31
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CST187	CST188	CST189	CST190	CST191	CST192		
Sampling Date		2024/06/28 07:30	2024/06/28 07:30	2024/06/28 08:40	2024/06/28 08:40	2024/06/28 09:45	2024/06/28 09:45		
	UNITS	#1 LAKELSE LAKE	#2 LAKELSE LAKE-DUP	#3 VO1	#4 VO1-DUP	#5 KHV-1	#6 KHV-1-DUP	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.1	B469695
RDL = Reportable Detection Limit									

Bureau Veritas ID		CST193	CST194			CST195	CST196	
Sampling Date		2024/06/28 09:35	2024/06/28 09:35			2024/06/28 10:20	2024/06/28 10:20	
	UNITS	#7 KHV-2	#7 KHV-2-DUP	RDL	QC Batch	#9 V10B	#10 V10B-DUP	QC Batch
Industrial								
Comment	N/A					SEE REMARK	SEE REMARK	ONSITE
Passive Monitoring								
Calculated NO2	ppb	<0.1	<0.1	0.1	B469695			
RDL = Reportable Detection Limit								

Bureau Veritas ID		CST197	CST198	CST199	CST200	CST201	CST202	CST203		
Sampling Date		2024/06/28 10:55	2024/06/28 10:55	2024/06/28 12:00	2024/06/28 12:00	2024/06/28 12:10	2024/06/28 12:10	2024/06/28 12:25		
	UNITS	#11 V12	#12 V12-DUP	#13 V08	#14 V08-DUP	#15 V06	#16 V06-DUP	#17 V05	RDL	QC Batch
Passive Monitoring										
Calculated NO2	ppb	<0.1	<0.1	<0.1	0.1	<0.1	0.1	<0.1	0.1	B469695
RDL = Reportable Detection Limit										

Bureau Veritas ID		CST204	CST205	CST206	CST207		
Sampling Date		2024/06/28 12:25	2024/06/28 13:10	2024/06/28 13:10	2024/06/28 13:50		
	UNITS	#18 V05-DUP	#19 Kitimat Industrial	#20Kitimat Industrial-DUP	#21 Predicted Max	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	<0.1	0.5	0.5	0.5	0.1	B469695
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C459678
Report Date: 2024/08/19

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/06/28-2024/07/31
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CST208		CST209	CST210		
Sampling Date		2024/06/28 13:50		2024/06/28 08:30	2024/06/28 08:30		
	UNITS	#22 Predicted Max-DUP	QC Batch	#23 Kitimat Riverlodge	#24Kitimat Riverlodge -DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	0.4	B469695	0.2	0.2	0.1	B469807
RDL = Reportable Detection Limit							

Bureau Veritas ID		CST211	CST212		
Sampling Date		2024/06/28 08:45	2024/06/28 08:45		
	UNITS	#25 Kitimat Whitesail	#26 Kitimat Whitesail-DUP	RDL	QC Batch
Passive Monitoring					
Calculated NO2	ppb	<0.1	<0.1	0.1	B469807
RDL = Reportable Detection Limit					

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C459678
Report Date: 2024/08/19

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/06/28-2024/07/31
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

GENERAL COMMENTS

Sample CST195 [#9 V10B] : Missing

Sample CST196 [#10 V10B-DUP] : Missing

Results relate only to the items tested.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C459678
Report Date: 2024/08/19

QUALITY ASSURANCE REPORT

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/06/28-2024/07/31
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

			Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B469695	Calculated NO2		98	90 - 110	<0.1	ppb		
B469807	Calculated NO2		100	90 - 110	<0.1	ppb		
ONSITE	Comment						NC	N/A

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

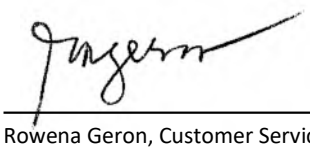
Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C459678
Report Date: 2024/08/19

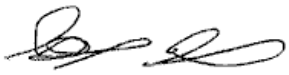
Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/06/28-2024/07/31
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Rowena Geron, Customer Service Associate



Steven Gloux, Senior Analyst

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Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

TETRA TECH

September 27, 2024

ISSUED FOR USE
FILE: 704-ENW.GENV03699-01

LNG Canada

Via Email: Tauseef-ZIA.Siddiqui@lngcanada.ca
KIT-Regulatory-Compliance@lngcanada.ca

Attention: Tauseef Zia Siddiqui

Subject: Passive Monitoring for Nitrogen Dioxide - LNG Canada – August 2024
Document Control #: L001-00000-HE-0702-0419

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNG facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQMMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region as described in Table 1. The spatial distribution of the passive monitoring station network through the Kitimat Valley is shown on the attached Figure 1.

Table 1: LNGC's Passive NO_2 Monitoring Network

Site	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Lakelse Lake A04	527457	6025573	2.2
V01	524757	6017435	2.1
KHV-2	523357	5980636	2.1
KHV-1	522919	5980606	2.1
V10B	519425	5984090	2.1
V12	517790	5977294	2.0
V08	521425	5994249	2.0
V06	520970	5996240	2.0
V05	520457	5999250	2.0
Kitimat Industrial	520424	5990356	2.1
Predicted Maximum NO_2	522463	5989506	2.3
Kitimat Riverlodge	521536	5989486	2.2
Kitimat Whitesail	523612	5990998	2.3

Tetra Tech Canada Inc.
Unit 2, 4065 Motz Road
Terrace, BC V8G 3N1
Tel 778.309.1605

The sampling methodology adheres to protocols described in the document '*Standard Operating Procedure (SOP) – Passive Monitoring for Nitrogen Dioxide (NO_2)*', dated March 2024. More information on the sampling methodology can be found in this document.

2.0 AMBIENT CONDITIONS DURING DEPLOYMENT PERIOD

Winds

Winds were dominated by inflows (up-valley, southerly winds) over the period July 31 through August 30; however, with the end of summer approaching, outflows (down-valley, northerly winds) are becoming a slightly more frequent occurrence. Figure 1 shows wind roses for hourly wind observations during the August sampler deployment period at ENV-AQN Kitimat Whitesail and Terrace Airport.

Precipitation

A total of 55.6 mm of precipitation was recorded between July 31 to August 30 at ECCC Kitimat Forest Ave. 30.0 mm of precipitation was recorded at ECCC Terrace A. Comparing to previous July precipitation totals over the past ten years, these values appear to be generally typical of a drier year August for the region.

Air Quality – Nitrogen Dioxide

NO_2 is continuously measured and reported on an hourly basis at ENV-AQN station Kitimat Whitesail. Over the August deployment period (July 31 – August 30), the maximum 1-hour NO_2 concentration was 2.8 ppb, or 4.7% of the British Columbia Air Quality Objective (BCAQO) of 60 ppb. The 30-day average NO_2 concentration, taken as the average of all available one-hour measurements during the sampling period, was 0.6 ppb. While there is no 30-day BCAQO, the annual criterion is 17 ppb, which provides another indicator of ambient air quality with respect to NO_2. There were 70 hours of missing data out of 673 hours, or 90% data completeness. Figure 2 plots the 1-hour NO_2 concentration over the sampling period.

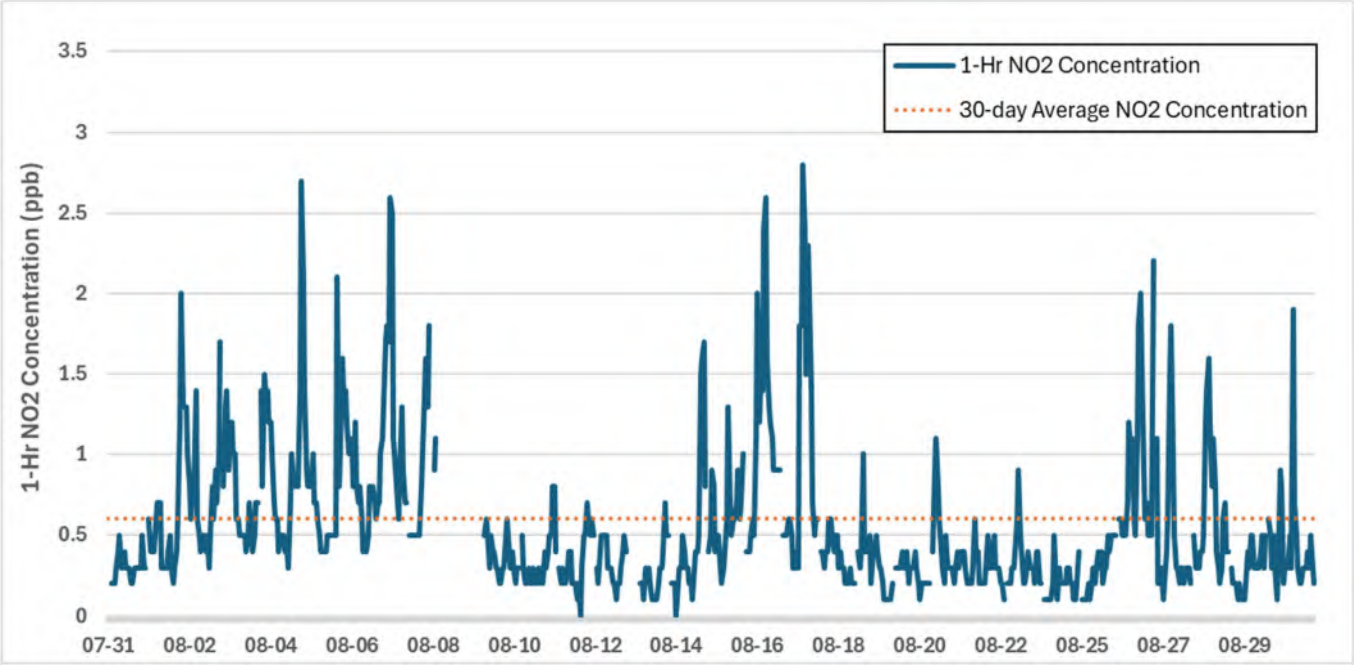

Figure 2: 1-Hr NO_2 Readings at ENV-AQN Kitimat Whitesail (July 31 – August 30)

3.0 PASSIVE MONITORING RESULTS

The passively measured 30-day NO_2 concentrations are listed for each site in Table 2. The 30-day NO_2 concentration based on continuous measurement is also listed for Kitimat Whitesail, as a measure of validation of the sampling results. Each site's housing utilizes two samplers for statistical redundancy, the mean of which is used as the overall measurement.

The measured 30-day NO_2 concentrations are shown through the study area on Figure 1. The highest readings occurred in town, where combustion sources of NOx are more plentiful, also located north of the LNGC facility. Specifically, the highest readings in August 2024 were along the west side of town at Kitimat Industrial and south of the LNGC facility at sample location V10B.

Bureau Veritas Passive Sampling Laboratory Report is attached in Appendix B.

Table 2: Passive NO_2 Sampling Results (August 2024)

Site	Start	End	Duration (Days)	30-day NO_2 Concentration (ppb)			St. Dev	30 Day NO_2
				Sample 1	Sample 2	Mean		
Lakelse Lake A04	7/31/2024 8:00	8/30/2024 7:45	30.0	0.1	0.1	0.1	0	
V01	7/31/2024 9:00	8/30/2024 8:45	30.0	< 0.1	0.1	< 0.1	n.a.	
KHV-2	7/31/2024 10:15	8/30/2024 9:55	30.0	0.1	0.1	0.1	0	
KHV-1	7/31/2024 10:00	8/30/2024 9:45	30.0	0.1	0.1	0.1	0	
V10B	7/31/2024 10:45	8/30/2024 10:30	30.0	0.9	0.8	0.9	0.07	
V12	7/31/2024 11:25	8/30/2024 10:50	30.0	0.2	0.2	0.2	0	
V08	7/31/2024 12:25	8/30/2024 11:50	30.0	0.2	0.2	0.2	0	
V06	7/31/2024 12:40	8/30/2024 12:00	30.0	0.2	0.1	0.2	0.07	
V05	7/31/2024 12:55	8/30/2024 12:10	30.0	0.2	0.2	0.2	0	
Kitimat Industrial (V14)	7/31/2024 13:20	8/30/2024 13:00	30.0	0.8	0.8	0.8	0	
Predicted Maximum NO_2	7/31/2024 14:00	8/30/2024 13:20	30.0	0.5	0.6	0.6	0.07	
Kitimat Riverlodge	7/31/2024 13:40	8/30/2024 13:10	30.0	0.4	0.4	0.4	0	
Kitimat Whitesail	7/31/2024 14:15	8/30/2024 13:45	30.0	0.3	0.2	0.3	0.07	0.6

4.0 SAMPLING PROGRAM ANOMOLIES

No sampling program anomalies were noted for the month of August.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01

Prepared by:
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Environment & Water Practice
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Eden.Hamilton@tetratech.com

FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01

Reviewed by:
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FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01

2024-09-27

Reviewed by:
Paul Gardner, M.A.Sc., P.Eng.
Senior Contaminated Sites Specialist
Environment & Water Practice
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Paul.Gardner@tetratech.com

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
PERMIT NUMBER: 1001972

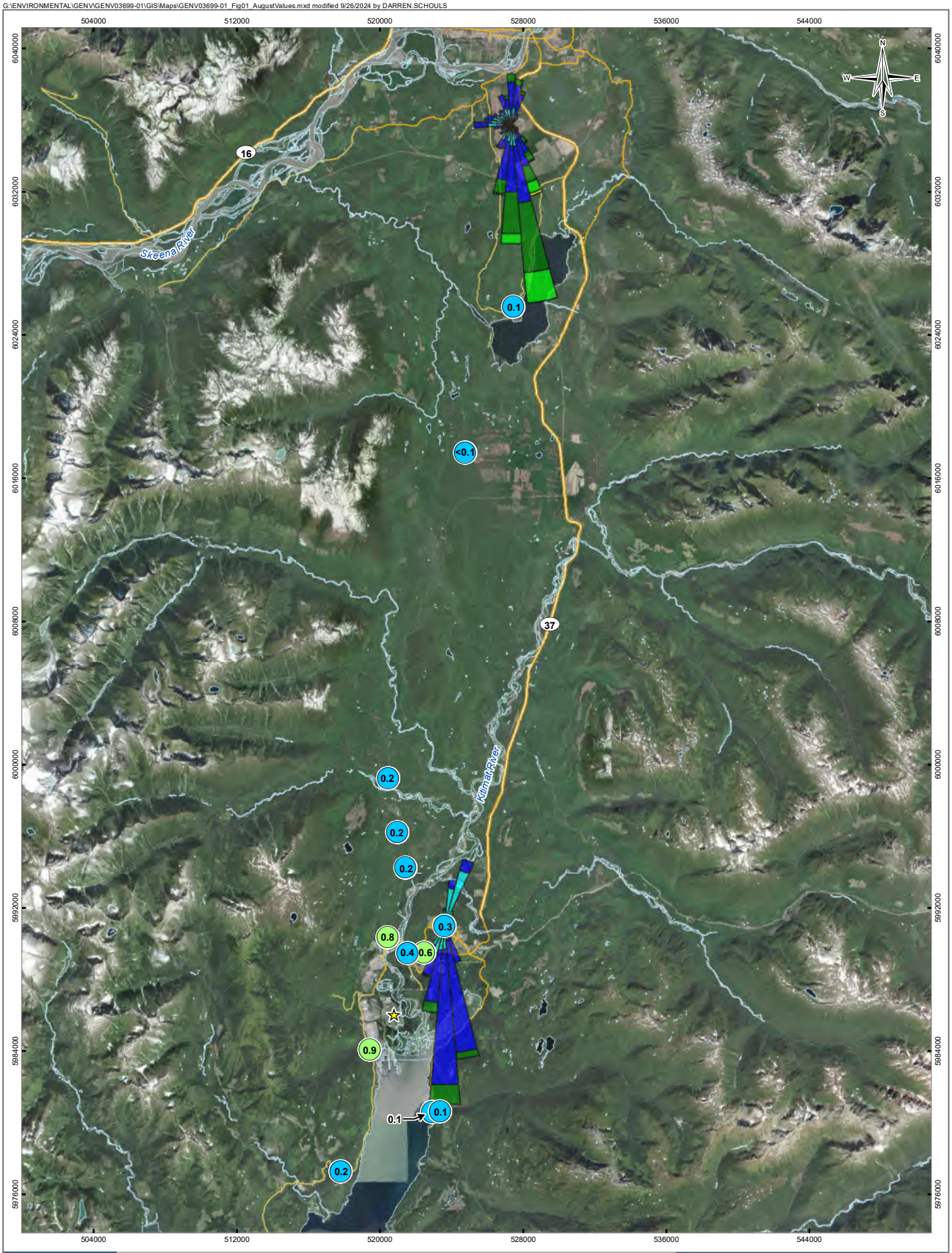
/jmt

Attachments Figure 1. Mean 30-day NO_2 Concentration August 2024
Appendix A – Limitations on the Use of this Document
Appendix B – Bureau Veritas Passive Sampling Laboratory Report

FIGURES

Figure 1 Mean 30-day NO_2 Concentration August 2024

G:\ENVIRONMENTAL\GENV\GENV03699-01\GIS\Maps\GENV03699-01_Fig01_AugustValues.mxd modified 9/26/2024 by DARREN.SCHOULS



LEGEND

Mean 30-Day NO_2 Concentration

- 0 - 0.5
- 0.5 - 1.0
- LNGC Site
- Highway
- Main Road
- Local Road
- Watercourse/Waterbody

Rose Plot - Wind (m/s)

- 1 - 3
- 3 - 6
- 6 - 9
- 9 - 12
- 12 - 15

NOTES
Base data source:
Imagery from ESRI; Maxar
CanVec 1:250,000 (2019)

STATUS
ISSUED FOR USE

LNGC NO2 PASSIVE MONITORING

Mean 30-day NO2 Concentration August 2024

PROJECTION: UTM Zone 9	DATUM: NAD83				CLIENT: Haisla Triton Ltd.
Scale: 1:200,000 (4 2 0 4 Kilometres)					TETRA TECH
FILE NO.: GENV03699-01_Fig01_AugustValues.mxd					
OFFICE: Tt-VANC	DWN: DS	CKD: MRB	APVD: TM	REV: 0	Figure 1
DATE: September 26, 2024	PROJECT NO.: ENW.GENV03699-01				

APPENDIX A

LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

1.1 USE OF DOCUMENT AND OWNERSHIP

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Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

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If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by third parties other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

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The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary exploration, investigation, and assessment.

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1.7 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

BUREAU VERITAS PASSIVE SAMPLING LABORATORY REPORT

Your P.O. #: 704-ENW.GENV03699-01
Your Project #: NO2 MONITORING
Site Location: 2024/07/31-2024/08/30

Attention: Travis Miguez

Tetra Tech Canada Inc.
#2 4065 Motz Road
Terrace, BC
CANADA V8G 3N1

Report Date: 2024/09/24
Report #: R3561172
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C469355
Received: 2024/09/05, 09:30

Sample Matrix: Air
Samples Received: 26

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	26	2024/09/06	2024/09/24	PTC SOP-00148	Passive NO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Branko Banjac, General Manager responsible for Alberta Petroleum laboratory operations.

Bureau Veritas Job #: C469355
Report Date: 2024/09/24

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/07/31-2024/08/30
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CUT045	CUT046	CUT047	CUT048	CUT049	CUT050		
Sampling Date		2024/07/31 08:00	2024/07/31 08:00	2024/07/31 09:00	2024/07/31 09:00	2024/07/31 10:00	2024/07/31 10:00		
	UNITS	#1 LAKELSE LAKE	#2 LAKELSE LAKE-DUP	#3 VO1	#4 VO1-DUP	#5 KHV-1	#6 KHV-1-DUP	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.1	0.1	<0.1	0.1	0.1	0.1	0.1	B511643
RDL = Reportable Detection Limit									

Bureau Veritas ID		CUT051	CUT052	CUT053	CUT054	CUT055	CUT056	CUT057		
Sampling Date		2024/07/31 10:15	2024/07/31 10:15	2024/07/31 10:45	2024/07/31 10:45	2024/07/31 11:25	2024/07/31 11:25	2024/07/31 12:25		
	UNITS	#7 KHV-2	#8 KHV-2-DUP	#9 V10B	#10 V10B-DUP	#11 V12	#12 V12-DUP	#13 V08	RDL	QC Batch
Passive Monitoring										
Calculated NO2	ppb	0.1	0.1	0.9	0.8	0.2	0.2	0.2	0.1	B511643
RDL = Reportable Detection Limit										

Bureau Veritas ID		CUT058	CUT059	CUT060	CUT061	CUT062	CUT063		
Sampling Date		2024/07/31 12:25	2024/07/31 12:40	2024/07/31 12:40	2024/07/31 12:55	2024/07/31 12:55	2024/07/31 13:20		
	UNITS	#14 V08-DUP	#15 V06	#16 V06-DUP	#17 V05	#18 V05-DUP	#19 Kitimat Industrial	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.2	0.2	0.1	0.2	0.2	0.8	0.1	B511643
RDL = Reportable Detection Limit									

Bureau Veritas ID		CUT064		CUT065	CUT066		
Sampling Date		2024/07/31 13:20		2024/07/31 13:40	2024/07/31 13:40		
	UNITS	#20Kitimat Industrial-DUP	QC Batch	#21 Kitimat Riverlodge	#22Kitimat Riverlodge -DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	0.8	B511643	0.4	0.4	0.1	B511648
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C469355
Report Date: 2024/09/24

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/07/31-2024/08/30
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CUT067	CUT068	CUT069	CUT070		
Sampling Date		2024/07/31 14:00	2024/07/31 14:00	2024/07/31 14:15	2024/07/31 14:15		
	UNITS	#23 Predicted Max	#24 Predicted Max-DUP	#25 Kitimat Whitesail	#26 Kitimat Whitesail-DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	0.5	0.6	0.3	0.2	0.1	B511648
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C469355
Report Date: 2024/09/24

QUALITY ASSURANCE REPORT

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/07/31-2024/08/30
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

			Spiked Blank		Method Blank	
QC Batch	**Parameter**	**Date**	**% Recovery**	**QC Limits**	**Value**	**UNITS**
B511643	Calculated NO2		109	90 - 110	<0.1	ppb
B511648	Calculated NO2		92	90 - 110	<0.1	ppb

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C469355
Report Date: 2024/09/24

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/07/31-2024/08/30
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Steven Gloux, Senior Analyst

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Branko Banjac, General Manager responsible for Alberta Petroleum laboratory operations.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

TETRA TECH

October 15, 2024

ISSUED FOR USE
FILE: 704-ENW.GENV03699-01

LNG Canada

Via Email: Tauseef-ZIA.Siddiqui@lngcanada.ca
KIT-Regulatory-Compliance@lngcanada.ca

Attention: Tauseef Zia Siddiqui

Subject: Passive Monitoring for Nitrogen Dioxide - LNG Canada – September 2024
Document Control #: L001-00000-HE-0702-0421

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNGC facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQMMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region as described in Table 1. The spatial distribution of the passive monitoring station network through the Kitimat Valley is shown on the attached Figure 1.

Table 1: LNGC's Passive NO_2 Monitoring Network

Site	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Lakelse Lake A04	527457	6025573	2.2
V01	524757	6017435	2.1
KHV-2	523357	5980636	2.1
KHV-1	522919	5980606	2.1
V10B	519425	5984090	2.1
V12	517790	5977294	2.0
V08	521425	5994249	2.0
V06	520970	5996240	2.0
V05	520457	5999250	2.0
Kitimat Industrial	520424	5990356	2.1
Predicted Maximum NO_2	522463	5989506	2.3
Kitimat Riverlodge	521536	5989486	2.2
Kitimat Whitesail	523612	5990998	2.3

Tetra Tech Canada Inc.
Unit 2, 4065 Motz Road
Terrace, BC V8G 3N1
Tel 778.309.1605

The sampling methodology adheres to protocols described in the document '*Standard Operating Procedure (SOP) – Passive Monitoring for Nitrogen Dioxide (NO_2)*', dated March 2024. More information on the sampling methodology can be found in this document.

2.0 AMBIENT CONDITIONS DURING DEPLOYMENT PERIOD

Winds

Winds were still dominated by inflows (up-valley, southerly winds) over the period August 30 through October 2; however, as the autumn season has begun, outflows (down-valley, northerly winds) are becoming more frequent (~20% of the time). Figure 1 shows wind roses for hourly wind observations during the September sampler deployment period at ENV-AQN Kitimat Whitesail and Terrace Airport.

Precipitation

A total of 364.7 mm of precipitation was recorded between August 30 through October 2 at ECCC Kitimat Forest Avenue. 154.5 mm of precipitation was recorded at ECCC Terrace A. Comparing to precipitation normals for the region, these totals are above average for September for the region.

Air Quality – Nitrogen Dioxide

NO_2 is continuously measured and reported on an hourly basis at ENV-AQN station Kitimat Whitesail. Over the September deployment period (August 30 – October 2), the maximum 1-hour NO_2 concentration was 5.1 ppb, or 8.5% of the British Columbia Air Quality Objective (BCAQO) of 60 ppb. The 30-day average NO_2 concentration, taken as the average of all available one-hour measurements during the sampling period, was 0.6 ppb. While there is no 30-day BCAQO, the annual criterion is 17 ppb, which provides another indicator of ambient air quality with respect to NO_2. There were 45 hours of missing data out of 770 hours, or 94% data completeness. Figure 2 plots the 1-hour NO_2 concentration over the sampling period.

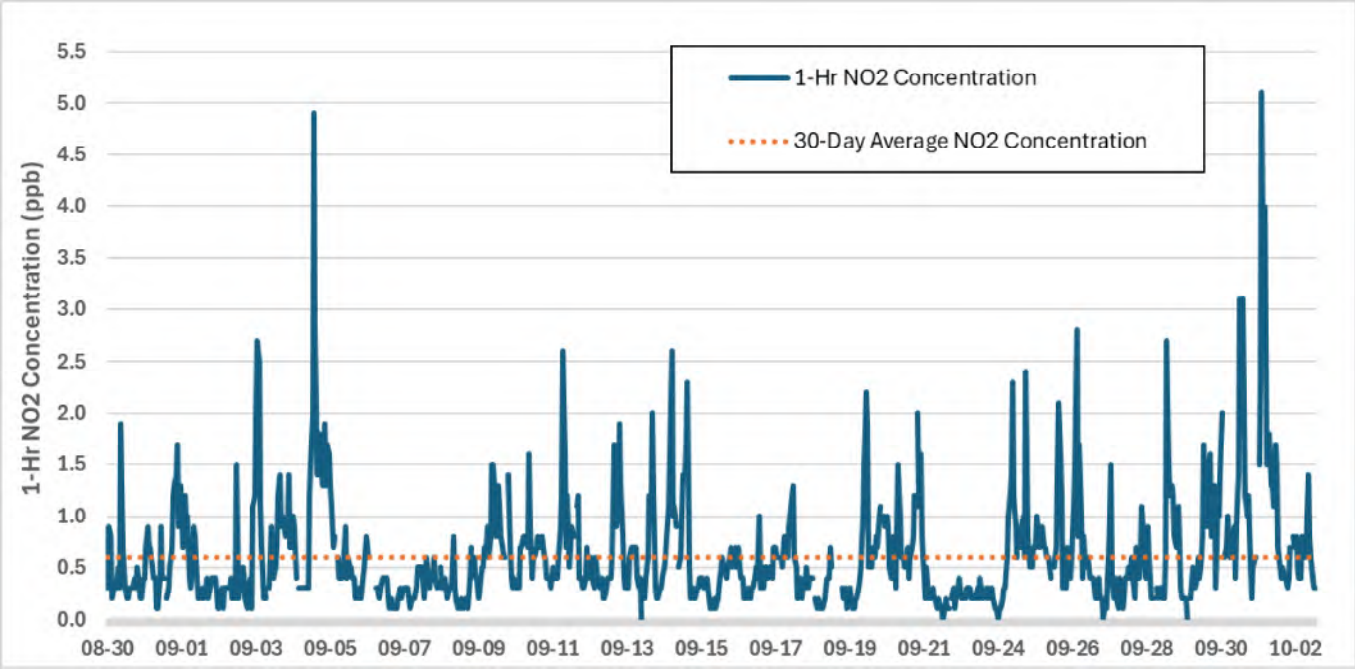

Figure 2: 1-Hr NO_2 Readings at ENV-AQN Kitimat Whitesail (August 30 – October 2)

3.0 PASSIVE MONITORING RESULTS

The passively measured 30-day NO_2 concentrations are listed for each site in Table 2. The 30-day NO_2 concentration based on continuous measurement is also listed for Kitimat Whitesail, as a measure of validation of the sampling results. Each site's housing utilizes two samplers for statistical redundancy, the mean of which is used as the overall measurement.

The measured 30-day NO_2 concentrations are shown through the study area on Figure 1. The highest readings occurred in town, where combustion sources of NOx are more plentiful, also located north of the LNGC facility. Specifically, the highest readings in September 2024 were along the west side of town at Kitimat Industrial and south of the LNGC facility at sample location V10B.

Bureau Veritas Passive Sampling Laboratory Report is attached in Appendix B.

Table 2: Passive NO_2 Sampling Results (September 2024)

Site	Start	End	Duration (Days)	30-day NO_2 Concentration (ppb)			St. Dev	30 Day NO_2
				Sample 1	Sample 2	Mean		
Lakelse Lake A04	8/30/2024 7:45	10/2/2024 8:00	33.0	0.1	0.2	0.15	0.07	
V01	8/30/2024 8:45	10/2/2024 9:00	33.0	0.1	0.1	0.1	0	
KHV-2	8/30/2024 9:55	10/2/2024 10:00	33.0	0.1	0.1	0.1	0	
KHV-1	8/30/2024 9:45	10/2/2024 9:50	33.0	0.2	0.2	0.2	0	
V10B	8/30/2024 10:30	10/22024 10:30	33.0	0.9	1.3	1.1	0.28	
V12	8/30/2024 10:50	10/2/2024 10:55	33.0	0.4	0.2	0.3	0.14	
V08	8/30/2024 11:50	10/2/2024 11:35	33.0	0.3	0.4	0.35	0.07	
V06	8/30/2024 12:00	10/22024 11:50	33.0	0.2	0.3	0.25	0.07	
V05	8/30/2024 12:10	10/2/2024 12:00	33.0	0.3	0.3	0.3	0	
Kitimat Industrial (V14)	8/30/2024 13:00	10/2/2024 13:00	33.0	0.9	1.0	0.95	0.07	
Predicted Maximum NO_2	8/30/2024 13:20	10/2/2024 13:20	33.0	0.9	0.9	0.9	0	
Kitimat Riverlodge	8/30/2024 13:10	10/2/2024 13:10	33.0	0.6	0.6	0.6	0	
Kitimat Whitesail	8/30/2024 13:45	10/2/2024 13:45	33.0	0.5	0.4	0.45	0.07	0.6

4.0 SAMPLING PROGRAM ANOMOLIES

No sampling program anomalies were noted for the month of September.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01

Prepared by:
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FILE: 704-ENW.GENV03699-01
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FILE: 704-ENW.GENV03699-01
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2024-10-15

Reviewed by:
Paul Gardner, M.A.Sc., P.Eng.
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PERMIT TO PRACTICE
TETRA TECH CANADA INC.
PERMIT NUMBER: 1001972

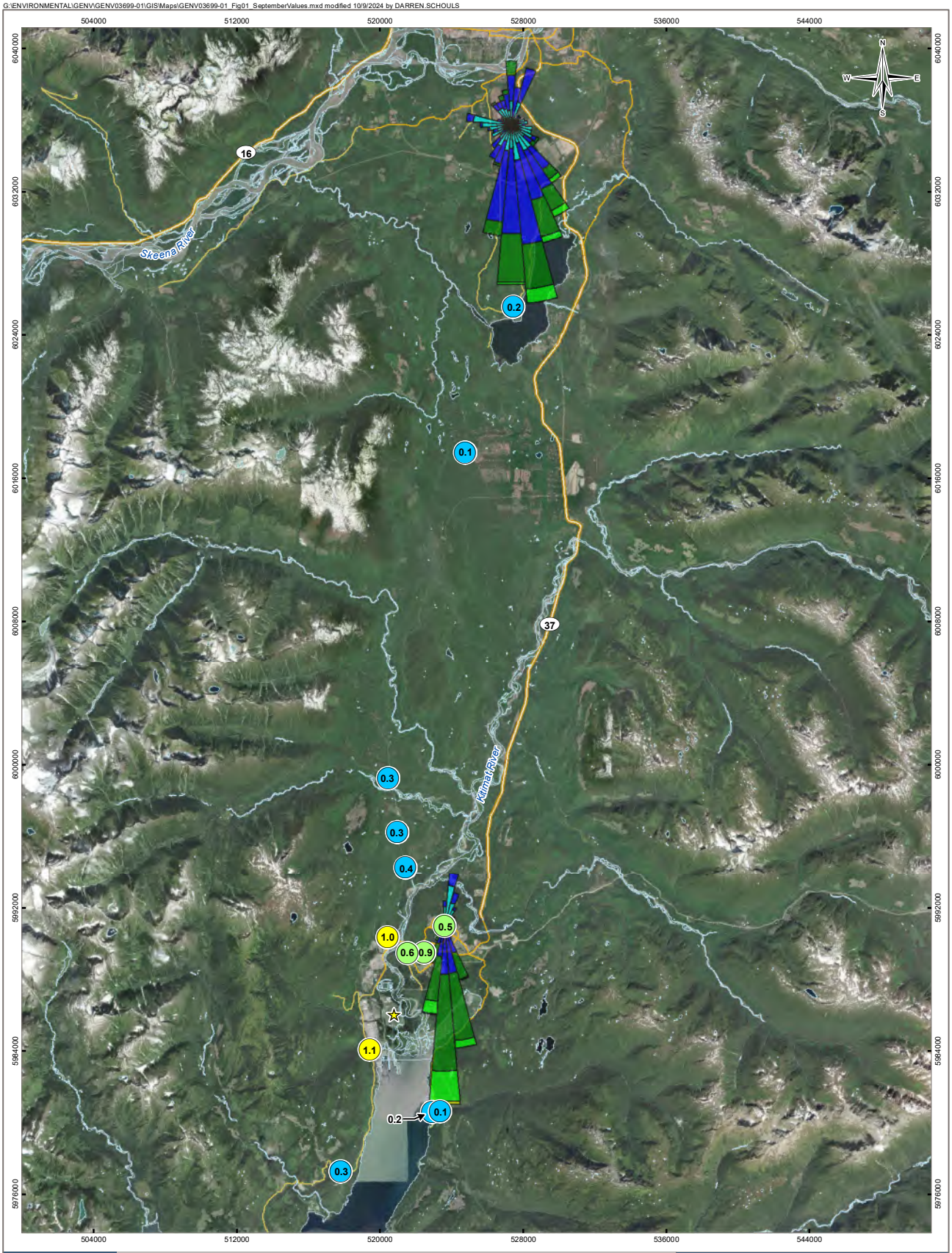
/sy

Attachments Figure 1. Mean 30-day NO_2 Concentration September 2024
Appendix A – Limitations on the Use of this Document
Appendix B – Bureau Veritas Passive Sampling Laboratory Report

FIGURES

Figure 1 Mean 30-day NO_2 Concentration September 2024

G:\ENVIRONMENTAL\GENV\GENV03699-01\GIS\Maps\GENV03699-01_Fig01_SeptemberValues.mxd modified 10/9/2024 by DARREN.SCHOULS



LEGEND

Mean 30-Day NO_2 Concentration

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- LNGC Site
- Highway
- Main Road
- Local Road
- Watercourse/Waterbody

Rose Plot - Wind (m/s)

- 1 - 3
- 3 - 6
- 6 - 9
- 9 - 12
- 12 - 15

NOTES
Base data source:
Imagery from ESRI; Maxar
CanVec 1:250,000 (2019)

STATUS
ISSUED FOR USE

LNGC NO2 PASSIVE MONITORING

Mean 30-day NO2 Concentration September 2024

PROJECTION: UTM Zone 9	DATUM: NAD83				CLIENT: Haisla Triton Ltd.
Scale: 1:200,000 (4 2 0 4 Kilometres)					TETRA TECH
FILE NO.: GENV03699-01_Fig01_SeptemberValues.mxd					
OFFICE: Tt-VANC	DWN: DS	CKD: MRB	APVD: TM	REV: 0	Figure 1
DATE: October 9, 2024	PROJECT NO.: ENW.GENV03699-01				

APPENDIX A

LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

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The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

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APPENDIX B

BUREAU VERITAS PASSIVE SAMPLING LABORATORY REPORT

Your P.O. #: 704-ENW.GENV03699-01
Your Project #: NO2 MONITORING
Site Location: 2024/08/30-2024/10/02

Attention: Travis Miguez

Tetra Tech Canada Inc.
#2 4065 Motz Road
Terrace, BC
CANADA V8G 3N1

Report Date: 2024/10/08
Report #: R3568705
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C478915
Received: 2024/10/07, 10:58

Sample Matrix: Air
Samples Received: 26

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	26	2024/10/07	2024/10/08	PTC SOP-00148	Passive NO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500

==========

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Bureau Veritas Job #: C478915
Report Date: 2024/10/08

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/08/30-2024/10/02
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CWY457	CWY458	CWY459	CWY460	CWY461	CWY462		
Sampling Date		2024/08/30 07:45	2024/08/30 07:45	2024/08/30 08:45	2024/08/30 08:45	2024/08/30 09:45	2024/08/30 09:45		
	UNITS	#1 LAKELSE LAKE	#2 LAKELSE LAKE-DUP	#3 VO1	#4 VO1-DUP	#5 KHV-1	#6 KHV-1-DUP	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.1	0.2	0.1	0.1	0.2	0.2	0.1	B556712
RDL = Reportable Detection Limit									

Bureau Veritas ID		CWY463	CWY464	CWY465	CWY466	CWY467	CWY468	CWY469		
Sampling Date		2024/08/30 09:55	2024/08/30 09:55	2024/08/30 10:30	2024/08/30 10:30	2024/08/30 10:50	2024/08/30 10:50	2024/08/30 11:50		
	UNITS	#7 KHV-2	#8 KHV-2-DUP	#9 V10B	#10 V10B-DUP	#11 V12	#12 V12-DUP	#13 V08	RDL	QC Batch
Passive Monitoring										
Calculated NO2	ppb	0.1	0.1	0.9	1.3	0.4	0.2	0.3	0.1	B556712
RDL = Reportable Detection Limit										

Bureau Veritas ID		CWY470	CWY471	CWY472	CWY473	CWY474	CWY475		
Sampling Date		2024/08/30 11:50	2024/08/30 12:00	2024/08/30 12:00	2024/08/30 12:10	2024/08/30 12:10	2024/08/30 13:00		
	UNITS	#14 V08-DUP	#15 V06	#16 V06-DUP	#17 V05	#18 V05-DUP	#19 Kitimat Industrial	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.4	0.2	0.3	0.3	0.3	0.9	0.1	B556712
RDL = Reportable Detection Limit									

Bureau Veritas ID		CWY476		CWY477	CWY478		
Sampling Date		2024/08/30 13:00		2024/08/30 13:10	2024/08/30 13:10		
	UNITS	#20Kitimat Industrial-DUP	QC Batch	#21 Kitimat Riverlodge	#22Kitimat Riverlodge -DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	1.0	B556712	0.6	0.6	0.1	B556715
RDL = Reportable Detection Limit							

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Bureau Veritas Job #: C478915
Report Date: 2024/10/08

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/08/30-2024/10/02
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CWY479	CWY480	CWY481	CWY482		
Sampling Date		2024/08/30 13:20	2024/08/30 13:20	2024/08/30 13:45	2024/08/30 13:45		
	UNITS	#23 Predicted Max	#24 Predicted Max-DUP	#25 Kitimat Whitesail	#26 Kitimat Whitesail-DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	0.9	0.9	0.5	0.4	0.1	B556715
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C478915
Report Date: 2024/10/08

QUALITY ASSURANCE REPORT

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/08/30-2024/10/02
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

			Spiked Blank		Method Blank	
QC Batch	**Parameter**	**Date**	**% Recovery**	**QC Limits**	**Value**	**UNITS**
B556712	Calculated NO2		101	90 - 110	<0.1	ppb
B556715	Calculated NO2		100	90 - 110	<0.1	ppb

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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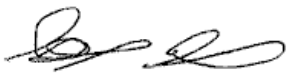
Bureau Veritas Job #: C478915
Report Date: 2024/10/08

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/08/30-2024/10/02
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Steven Gloux, Senior Analyst

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Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Monthly Report (September 2024)

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REVISION CONTROL PAGE

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1. Executive Summary

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. The BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., for the discharge of air contaminants to the environment from the LNG Facility.

Permit PA-110588 requires a monthly report to be submitted to the BCER that includes data/information on:

- Fuel Gas Use (for Commissioning only)
- Continuous Emissions Monitoring System (for Operations only)
- Flaring Activities
- Ambient Air Monitoring Evaluation
- Facility sulphur dioxide (SO_2) Emissions

Herein is the monthly report for September 2024. A summary of the findings for this reporting period is as follows:

- There were no instances of permit non-compliances during the reporting period.
- There were no ambient air quality concentrations of nitrogen dixoide (NO_2), SO_2 and respirable particulate matter ($PM_{2.5}$) measured in excess of the BC ambient air quality objective (AAQO) metrics at the three continuous ambient air quality monitoring stations identified in Permit PA-110588 (Kitamaat Village (Kitimat Haisla Village); Kitimat Riverlodge and Kitimat Whitesail).
- There were air emissions from one authorised discharge sources defined in Sections 2.1 to 2.7 of Permit PA-110588: warm/wet flare.
- The maximum hourly cumulative SO_2 rate in September was calculated to be 0.026 kg/hour, significantly below the Permit PA-110588 limit of 140 kg/hour.

2. Overview

2.1. Project Background

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

2.2. Purpose

On July 15, 2024, the BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., under the provisions of the BC *Environmental Management Act*, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Permit PA-110588 applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.2 of Permit PA-110588 (Monthly Reporting) for September 2024.

Refer to Appendix B for a list of all monthly reports that have been issued under Permit PA-110588.

2.3. LNG Facility Status

On the afternoon of August 31, 2024, fuel gas was introduced into Unit 1000 (Inlet Facilities) for the first time from the Coastal Gas Link pipeline, commencing the pressurization of piping and the startup fuel gas heater. The introduction of fuel gas into the fuel gas headers down to the flare area, and the first supply of fuel gas to the pilot on the warm wet flare occurred on September 1, 2024.

Under Permit PA-110588, the “Commissioning” phase is defined as “*that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.”* Operations is the period of time which follows Commissioning. Therefore, “Commissioning”, under PA-110588, commenced on September 1, 2024.

During September 2024, discharges of air contaminants occurred from the following authorized works:

- One (1) warm/wet flare

The gas turbine engine in Train 1, String 1 commenced the “first fire” activities at the end of September 2024, with fuel gas introduced into this module to support the preparation activities (e.g.., leak testing, testing of the gas chromographs and wobbe index meter), and the first “fail to ignite” test commenced; however, there was no fuel gas combusted in the gas turbine in the reporting period. The fuel gas within this module was sent to the warm/wet flare for combustion.

The Initial Performance Period (IPP) did not commence during September 2024 (which is defined as the period that “*commences upon the completion of the initial performance test for LNG Train 1”*).

3. Fuel Gas Use (Commissioning Only) (Condition 10.2.1)

3.1. Permit Condition

Under Condition 10.2.1, the monthly report shall identify and provide a summary of fuel gas use at the facility during Commissioning. The monthly report shall include the following information:

a. the daily volume of fuel gas combusted and vented;

b. the daily mass emissions of nitrogen oxides (NOx), sulphur oxides (SOx), carbon monoxide (CO), particulate matter with an aerodynamic diameter smaller than 2.5 micrometers (PM2.5), volatile organic compounds (VOCs) and total hydrocarbons (HC-T), for the authorized works in Section 2.1 and 2.2; and

c. the quantification method (under Section 9 of Permit PA-110588) and representative calculations.

3.2. Data and Assessment

Appendix C contains the summary of the daily volume of fuel gas combusted and vented as well as the daily mass emissions of NO_X, SO_X, CO, $PM_{2.5}$, VOCs, and HC-T from the gas turbine engines/WHRUs and AGIs (which are Sections 2.1 and 2.2 of PA-110588, respectively) in September 2024.

The basis for this assessment is as follows:

- The daily volume of fuel gas combusted and vented at the LNG Facility is based on the daily volume of fuel gas introduced into the LNG facility, as all this fuel gas is used for testing purposes during Commissioning; rather than for producing LNG. Note, this is a conservative approach, and does not account for the time lag between pressurizing systems with fuel gas to it being combusted or vented.
- As there was no fuel gas combusted in the gas turbines or AGIs in the reporting period, the daily mass emissions from these systems are shown with “zero” values in Appendix C.

4. CEMS Zero and Span Reporting (Condition 10.2.2)

4.1. Permit Condition

Under Condition 10.2.2, during Operations, after the completion of the initial continuous emissions monitoring system (CEMS) performance evaluation, the monthly report shall include a summary of all CEMS out of control calibration zero and span events that occurred during the month.

4.2. Data and Assessment

As Operations has not yet commenced, there is no CEMS zero and span reporting for this month.

5. CEMS Reporting (Condition 10.2.3)

5.1. Permit Condition

Under Condition 10.2.3, during Operations, after the completion of the initial CEMS performance evaluation, the Permittee shall provide a summary of CEMS data collected during the month.

5.2. Data and Assessment

As Operations has not yet commenced, there is no CEMS reporting for this month.

6. Flaring Activity Reporting (Condition 10.2.4)

6.1. Permit Condition

Under Condition 10.2.4, a summary of all flaring activity carried out during the month is to be included in the monthly report. The monthly report shall include the following information:

a. identification of the flare source;

b. description of the type of process gas sent to flare;

c. the volume of gas sent to the flare during each event;

d. the reason for the flaring event;

e. any external notifications sent out, if applicable;

f. the (i) daily and (ii) monthly volume of gas being flared for each source; and

g. the (i) daily and (ii) monthly contaminant emission totals for each source, parameters include NO_x, CO, $PM_{2.5}$, SO_x, VOCs, and HC-T.

h. the quantification method (under Section 9) and representative calculations

6.2. Data and Assessment

In Permit PA-110588, flaring activities are described as either a routine flaring event (continuous) or a non-routine flaring event (intermittent). Routine flaring discharges include the continuous flare pilots, which are supplied by fuel gas to provide a continuous ignition source so that any gas sent to the flare as a result of upset conditions ("non-routine flaring") is immediately combusted. The permit application to support Permit PA-110588 also described the other small sources of process gas that are continuously sent to the flare, including compressor seal gas, analyzer sample returns and passing valves.

Process gas refers to the natural gas stream intended for LNG production; the incoming fuel gas stream from Coastal Gas Link that undergoes several treatment stages (acid gas removal, pre-cooling, and finally, liquefaction) prior to being exported as LNG.

Appendix D contains the flaring activities tables, as follows:

- Table D-1: Flaring Events Table
- Table D-2: Warm/Wet Flare Volume and Emissions Summary
- Table D-3: Cold/Dry Flare Volume and Emissions Summary
- Table D-4: Storage and Loading Flare Volume and Emissions Summary
- Table D-5: Spare Flare Volume and Emissions Summary
- Table D-6: Liquid Burner Volume and Emissions Summary

Sample calculations are also provided in Appendix D (Exhibit D-1). The basis for this assessment is as follows:

- The daily volume of gas flared is sourced from the flow meters upstream of the applicable flare. In cases where the flow is below the detection limit of the flow meters, the sum of flow from upstream flow meters is used.
- The daily mass emissions from each flare source reported herein are calcuated based on published emission factors for industrial flares (refer to Table 1), except for SO_X, which is calculated based on a mass balance and assumed destruction efficiency.

- During this reporting month, the following flare systems were not used, therefore shown with “zero” values for emissions: cold/dry flare, storage and loading flare, spare flare and liquid burner.

Table 1: Emission Factors used for the Flare System

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.12	lb/MMBtu	B	Based on an average smoking flare (soot in concentration values: 177 ug/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from ug/L to lb/MMBtu is documented in the “Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015”, issued to USEPA by RTI International.

7. Permit Contravention (Condition 10.2.5)

7.1. Permit Condition

Under Condition 10.2.5, a summary of all instances of permit non-compliances BCER is to be included in the monthly report, including a description of the event (date, time, circumstances), a summary of the investigation findings, the completed and ongoing actions taken in response to the non-compliance event, and the date of self-disclosure notifications to the BCER.

7.2. Assessment

There were no instances of permit non-compliances during the reporting period.

8. Pollution Control Technologies (Condition 10.2.6)

8.1. Permit Condition

Under Condition 10.2.6, a discussion of any operational or performance issues or significant maintenance activities with any pollution control technologies of the authorized works and equipment required by the permit is to be included in the monthly report.

The pollution control technologies identified in the permit application supporting PA-110588 were the:

- Dry low emissions combustor optimization system in the gas turbines (dry low NOx burners); and
- Catalysts in the WHRUs, to convert CO in the exhaust gas to carbon dioxide.

8.2. Assessment

There were no instances of operational or performance issues, or significant maintenance activities with the pollution control technologies within the reporting period, given Operations has not yet commenced.

9. Ambient Air Monitoring Evaluation (Commissioning Only) (Condition 10.2.7)

9.1. Permit Condition

Under Condition 10.2.7, the following information for nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and $PM_{2.5}$ from three continuous ambient air quality monitoring stations (Kitamaat Village (Kitimat Haisla Village) (Site 1); Kitimat Riverlodge (Site 2) and Kitimat Whitesail) are to be included in the monthly report during Commissioning where information is publicly available:

a. a comparison of the measured ambient air concentrations at each ambient air monitoring stations to the applicable numerical metrics of the BC ambient air quality objectives (BCAAQO);

b. (i) a description of any measured ambient air concentrations in excess of the numerical metrics of the BCAAQO, if applicable, (ii) a description of any known contributing factors from authorized works, and (iii) a description of action (if any) taken by the Permittee.

The monthly report shall also include the time series plot of the hourly average ambient air concentration of ozone (O_3) data from these stations.

9.2. Data and Assessment

Data from continuous ambient air quality monitoring stations in Kitimat are publically available via the BC Ministry of Environment and Climate Change Strategy, at: Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

The publically available data for NO_2, SO_2 and $PM_{2.5}$ at the three continuous ambient air quality monitoring stations are provided in graphs in Appendix E; the graphs also contain the applicable BCAAQO. The time series plot for the hourly average ambient air concentration of O_3 is also provided in Appendix E.

There were no ambient air quality concentrations of NO_2, SO_2 and $PM_{2.5}$ measured in excess of the BCAAQO metrics in the reporting period.

10. Facility SO_2 Emission Limit (Condition 10.2.8)

10.1. Permit Condition

Under Condition 10.2.8, for all authorized sources in Sections 2.1 to 2.7, for each day of the month, the maximum hourly cumulative SO_2 discharge rate is to be provided in the monthly report, including the percentage breakdown of the sources contributing to the maximum discharge rate of each day.

10.2. Data and Assessment

Appendix F contains the cumulative SO_2 discharge rate from the authorized sources in Section 2.1 to 2.7 (refer to Section 2.2), including the percentage breakdown of the sources contributing to the maximum discharge rate shown for each day.

The representative calculations for SO_2 for the flare system is provided in Appendix D, Exhibit D-1 for flaring.

11. References

- BC Ministry of Environment and Climate Change Strategy, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca), accessed October 02, 2024.

Appendix A Abbreviations

AGI	Acid Gas Incinerator
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
CO	Carbon monoxide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
JFJV	JGC Fluor BC LNG Joint Venture
KMS	Kitimat Metering Station
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
VOC	Volatile Organic Compound
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit
$\mu g/m^3$	micrograms per cubic meter

Appendix B Previous Monthly Reports Issued Under PA-110588

Month	Document #	Date Issued
August 2024	L001-09800-HE-7180-4611	04-Sep-2024
September 2024	L001-09800-HE-7180-4612	22-Oct-2024, Revised 03-Feb-2025 (Rev B)

Appendix C Fuel Gas Use During Commissioning (Condition 10.2.1)

All fuel gas introduced into the LNG facility during this period was flared due to ongoing commissioning activities. Moreover, there is no LNG production that occurred in this period. For the month of September all daily fuel gas volumes were obtained from the Kitimat Metering Station (KMS) (Tag: KITSL-V1P.curval) under atmospheric pressure (Pressure = 1 atm) (refer to Table C-1). The fuel volumes below were corrected to 20°C.

Table C-1: Fuel Gas Use During Commissioning

Date	Volume of Fuel Gas Introduced to LNG Facility (m^3/day)
01-Sep-2024	146,606
02-Sep-2024	138,280
03-Sep-2024	118,686
04-Sep-2024	103,172
05-Sep-2024	94,190
06-Sep-2024	144,964
07-Sep-2024	93,299
08-Sep-2024	128,967
09-Sep-2024	109,357
10-Sep-2024	117,999
11-Sep-2024	284,966
12-Sep-2024	179,767
13-Sep-2024	460,689
14-Sep-2024	522,880
15-Sep-2024	518,137
16-Sep-2024	533,356
17-Sep-2024	541,886
18-Sep-2024	540,787
19-Sep-2024	644,610
20-Sep-2024	544,472
21-Sep-2024	551,675
22-Sep-2024	551,811
23-Sep-2024	551,785
24-Sep-2024	554,527
25-Sep-2024	552,411
26-Sep-2024	559,134
27-Sep-2024	557,292
28-Sep-2024	816,033
29-Sep-2024	731,837
30-Sep-2024	604,102
Monthly Total	**11,997,677**

There was no combustion of fuel gas in the gas turbines during the reporting period (refer to Table C-2).

Table C-2: Fuel Gas Use During Commissioning – Gas Turbines

Date	Volume of Fuel Gas Used (m^3)	Mass Emissions (kg) [1]					
		NO_X	SO_X	CO	$PM_{2.5}$	VOCs	HC-T
01-Sep-2024	-	-	-	-	-	-	-
02-Sep-2024	-	-	-	-	-	-	-
03-Sep-2024	-	-	-	-	-	-	-
04-Sep-2024	-	-	-	-	-	-	-
05-Sep-2024	-	-	-	-	-	-	-
06-Sep-2024	-	-	-	-	-	-	-
07-Sep-2024	-	-	-	-	-	-	-
08-Sep-2024	-	-	-	-	-	-	-
09-Sep-2024	-	-	-	-	-	-	-
10-Sep-2024	-	-	-	-	-	-	-
11-Sep-2024	-	-	-	-	-	-	-
12-Sep-2024	-	-	-	-	-	-	-
13-Sep-2024	-	-	-	-	-	-	-
14-Sep-2024	-	-	-	-	-	-	-
15-Sep-2024	-	-	-	-	-	-	-
16-Sep-2024	-	-	-	-	-	-	-
17-Sep-2024	-	-	-	-	-	-	-
18-Sep-2024	-	-	-	-	-	-	-
19-Sep-2024	-	-	-	-	-	-	-
20-Sep-2024	-	-	-	-	-	-	-
21-Sep-2024	-	-	-	-	-	-	-
22-Sep-2024	-	-	-	-	-	-	-
23-Sep-2024	-	-	-	-	-	-	-
24-Sep-2024	-	-	-	-	-	-	-
25-Sep-2024	-	-	-	-	-	-	-
26-Sep-2024	-	-	-	-	-	-	-
27-Sep-2024	-	-	-	-	-	-	-
28-Sep-2024	-	-	-	-	-	-	-
29-Sep-2024	-	-	-	-	-	-	-
30-Sep-2024	-	-	-	-	-	-	-
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

There was no combustion of fuel gas in the AGIs during the reporting period (refer to Table C-3).

Table C-3: Fuel Gas Use During Commissioning – Acid Gas Incinerator

Date	Volume of Fuel Gas Used (m^3)	Mass Emissions (kg) [1]					
		NO_X	SO_X	CO	$PM_{2.5}$	VOCs	HC-T
01-Sep-2024	-	-	-	-	-	-	-
02-Sep-2024	-	-	-	-	-	-	-
03-Sep-2024	-	-	-	-	-	-	-
04-Sep-2024	-	-	-	-	-	-	-
05-Sep-2024	-	-	-	-	-	-	-
06-Sep-2024	-	-	-	-	-	-	-
07-Sep-2024	-	-	-	-	-	-	-
08-Sep-2024	-	-	-	-	-	-	-
09-Sep-2024	-	-	-	-	-	-	-
10-Sep-2024	-	-	-	-	-	-	-
11-Sep-2024	-	-	-	-	-	-	-
12-Sep-2024	-	-	-	-	-	-	-
13-Sep-2024	-	-	-	-	-	-	-
14-Sep-2024	-	-	-	-	-	-	-
15-Sep-2024	-	-	-	-	-	-	-
16-Sep-2024	-	-	-	-	-	-	-
17-Sep-2024	-	-	-	-	-	-	-
18-Sep-2024	-	-	-	-	-	-	-
19-Sep-2024	-	-	-	-	-	-	-
20-Sep-2024	-	-	-	-	-	-	-
21-Sep-2024	-	-	-	-	-	-	-
22-Sep-2024	-	-	-	-	-	-	-
23-Sep-2024	-	-	-	-	-	-	-
24-Sep-2024	-	-	-	-	-	-	-
25-Sep-2024	-	-	-	-	-	-	-
26-Sep-2024	-	-	-	-	-	-	-
27-Sep-2024	-	-	-	-	-	-	-
28-Sep-2024	-	-	-	-	-	-	-
29-Sep-2024	-	-	-	-	-	-	-
30-Sep-2024	-	-	-	-	-	-	-
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Appendix D Flaring Activity (Condition 10.2.4)

Table D-1: Flaring Event Overview

Flare	Event Type	Event Date & Time			Description	Volume of Gas to Flare Per Event (m^3)	External Notifications Undertaken
		Start	End	Duration (hours)			
Warm/Wet	Routine and Non-Routine[1]	01-Sep-2024	30-Sep-2024	Continuous	Introduction of fuel gas into the LNG Facility to support Commissioning	11,997,678	Yes, issued 28-Aug-2024 and 19-Sep-2024[1]
Cold/Dry	Routine	N/A	N/A	N/A	Not Used		N/A
Storage and Loading	Routine	N/A	N/A	N/A	Not Used		N/A
Spare	Routine	N/A	N/A	N/A	Not Used		N/A
Liquid Burner	Routine	N/A	N/A	N/A	Not Used		N/A

Notes:

1. Fuel Gas was introduced into the LNG Facility on August 30, 2024; which was routed to the flare area on September 1, 2024, commencing the emissions at the warm wet flare (as pilot gas). In this reporting period, it is predominately “non-routine” flaring undertake, to support commissioning and start-up activities. During September, fuel gas was introduced into various areas of the LNG Facility, after receipt of the applicable Leave to Operate (LTO) from the BC Energy Regulator. This fuel gas is not considered process gas. There were some fluctuations in flare rates and flame heights; courtesy notifications were provided to the BCER for awareness during this period. This period also includes the eSubmission notification to the BCER on September 19, 2024, related to the activities to support the gas turbine first fire in LNG Train 1 String 1.

All fuel gas introduced into the LNG facility during this period was eventually flared (refer to Table D-2; and note in Appendix C). The fuel volumes below were corrected to 20°C.

Table D-2: Flaring Event – Warm/Wet Flare Volume and Emissions Summary

Date	Volume of Fuel Gas Flared (m^3)	Mass Emissions (kg/day)					
		NOx	CO	PM2.5	SOx	VOCs	HC-T
01-Sep-2024	146,606	177	725	281	0.039	1,543	327
02-Sep-2024	138,280	167	684	265	0.037	1,455	309
03-Sep-2024	118,686	143	587	227	0.032	1,249	265
04-Sep-2024	103,172	124	510	197	0.028	1,086	230
05-Sep-2024	94,190	113	466	180	0.025	991	210
06-Sep-2024	144,964	175	717	277	0.039	1,526	324
07-Sep-2024	93,299	112	461	179	0.025	982	208
08-Sep-2024	128,967	155	638	247	0.034	1,357	288
09-Sep-2024	109,357	132	541	209	0.029	1,151	244
10-Sep-2024	117,999	142	583	226	0.032	1,242	263
11-Sep-2024	284,966	343	1,408	545	0.076	2,998	636
12-Sep-2024	179,767	216	888	344	0.048	1,890	401
13-Sep-2024	460,689	554	2,273	880	0.123	4,840	1,027
14-Sep-2024	522,880	629	2,581	999	0.139	5,495	1,166
15-Sep-2024	518,137	624	2,559	991	0.138	5,448	1,156
16-Sep-2024	533,356	642	2,634	1,020	0.142	5,607	1,189
17-Sep-2024	541,886	651	2,673	1,035	0.144	5,691	1,207
18-Sep-2024	540,787	650	2,669	1,033	0.144	5,682	1,205
19-Sep-2024	644,610	776	3,184	1,233	0.172	6,780	1,438
20-Sep-2024	544,472	656	2,692	1,042	0.145	5,732	1,216
21-Sep-2024	551,675	665	2,729	1,057	0.147	5,811	1,233
22-Sep-2024	551,811	665	2,730	1,057	0.147	5,813	1,233
23-Sep-2024	551,785	664	2,724	1,055	0.147	5,800	1,230
24-Sep-2024	554,527	665	2,729	1,056	0.147	5,810	1,233
25-Sep-2024	552,411	662	2,715	1,051	0.146	5,780	1,226
26-Sep-2024	559,134	669	2,745	1,063	0.298	5,844	1,240
27-Sep-2024	557,292	667	2,736	1,059	0.297	5,825	1,236
28-Sep-2024	816,033	977	4,007	1,551	0.435	8,531	1,810
29-Sep-2024	731,837	877	3,597	1,392	0.390	7,657	1,624
30-Sep-2024	604,102	724	2,969	1,149	0.322	6,321	1,341
Monthly Total	**1,997,677**	**14,417**	**59,152**	**22,898**	**4.07**	**125,937**	**26,714**

*Final totals may be subject to rounding adjustments

This cold/dry flare was not used in the reporting month (refer to Table D-3).

Table D-3: Flaring Event – Cold/Dry Flare Volume and Emissions Summary

Date	Volume of Fuel Gas Flared (m^3)	Mass Emissions (kg/day)					
		NOx	CO	PM2.5	SOx	VOCs	HC-T
01-Sep-2024	-	-	-	-	-	-	-
02-Sep-2024	-	-	-	-	-	-	-
03-Sep-2024	-	-	-	-	-	-	-
04-Sep-2024	-	-	-	-	-	-	-
05-Sep-2024	-	-	-	-	-	-	-
06-Sep-2024	-	-	-	-	-	-	-
07-Sep-2024	-	-	-	-	-	-	-
08-Sep-2024	-	-	-	-	-	-	-
09-Sep-2024	-	-	-	-	-	-	-
10-Sep-2024	-	-	-	-	-	-	-
11-Sep-2024	-	-	-	-	-	-	-
12-Sep-2024	-	-	-	-	-	-	-
13-Sep-2024	-	-	-	-	-	-	-
14-Sep-2024	-	-	-	-	-	-	-
15-Sep-2024	-	-	-	-	-	-	-
16-Sep-2024	-	-	-	-	-	-	-
17-Sep-2024	-	-	-	-	-	-	-
18-Sep-2024	-	-	-	-	-	-	-
19-Sep-2024	-	-	-	-	-	-	-
20-Sep-2024	-	-	-	-	-	-	-
21-Sep-2024	-	-	-	-	-	-	-
22-Sep-2024	-	-	-	-	-	-	-
23-Sep-2024	-	-	-	-	-	-	-
24-Sep-2024	-	-	-	-	-	-	-
25-Sep-2024	-	-	-	-	-	-	-
26-Sep-2024	-	-	-	-	-	-	-
27-Sep-2024	-	-	-	-	-	-	-
28-Sep-2024	-	-	-	-	-	-	-
29-Sep-2024	-	-	-	-	-	-	-
30-Sep-2024	-	-	-	-	-	-	-
Monthly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

The storage and loading flare was not used in the reporting month (refer to Table D-4).

Table D-4: Flaring Event – Storage and Loading Flare Volume and Emissions Summary

Date	Volume of Fuel Gas Flared (m^3)	Mass Emissions (kg/day)					
		NOx	CO	PM2.5	SOx	VOCs	HC-T
01-Sep-2024	-	-	-	-	-	-	-
02-Sep-2024	-	-	-	-	-	-	-
03-Sep-2024	-	-	-	-	-	-	-
04-Sep-2024	-	-	-	-	-	-	-
05-Sep-2024	-	-	-	-	-	-	-
06-Sep-2024	-	-	-	-	-	-	-
07-Sep-2024	-	-	-	-	-	-	-
08-Sep-2024	-	-	-	-	-	-	-
09-Sep-2024	-	-	-	-	-	-	-
10-Sep-2024	-	-	-	-	-	-	-
11-Sep-2024	-	-	-	-	-	-	-
12-Sep-2024	-	-	-	-	-	-	-
13-Sep-2024	-	-	-	-	-	-	-
14-Sep-2024	-	-	-	-	-	-	-
15-Sep-2024	-	-	-	-	-	-	-
16-Sep-2024	-	-	-	-	-	-	-
17-Sep-2024	-	-	-	-	-	-	-
18-Sep-2024	-	-	-	-	-	-	-
19-Sep-2024	-	-	-	-	-	-	-
20-Sep-2024	-	-	-	-	-	-	-
21-Sep-2024	-	-	-	-	-	-	-
22-Sep-2024	-	-	-	-	-	-	-
23-Sep-2024	-	-	-	-	-	-	-
24-Sep-2024	-	-	-	-	-	-	-
25-Sep-2024	-	-	-	-	-	-	-
26-Sep-2024	-	-	-	-	-	-	-
27-Sep-2024	-	-	-	-	-	-	-
28-Sep-2024	-	-	-	-	-	-	-
29-Sep-2024	-	-	-	-	-	-	-
30-Sep-2024	-	-	-	-	-	-	-
Monthly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

The spare flare was not used in the reporting month (refer to Table D-5).

Table D-5: Flaring Event – Spare Flare Volume and Emissions Summary

Date	Volume of Fuel Gas Flared (m^3)	Mass Emissions (kg/day)					
		NOx	CO	PM2.5	SOx	VOCs	HC-T
01-Sep-2024	-	-	-	-	-	-	-
02-Sep-2024	-	-	-	-	-	-	-
03-Sep-2024	-	-	-	-	-	-	-
04-Sep-2024	-	-	-	-	-	-	-
05-Sep-2024	-	-	-	-	-	-	-
06-Sep-2024	-	-	-	-	-	-	-
07-Sep-2024	-	-	-	-	-	-	-
08-Sep-2024	-	-	-	-	-	-	-
09-Sep-2024	-	-	-	-	-	-	-
10-Sep-2024	-	-	-	-	-	-	-
11-Sep-2024	-	-	-	-	-	-	-
12-Sep-2024	-	-	-	-	-	-	-
13-Sep-2024	-	-	-	-	-	-	-
14-Sep-2024	-	-	-	-	-	-	-
15-Sep-2024	-	-	-	-	-	-	-
16-Sep-2024	-	-	-	-	-	-	-
17-Sep-2024	-	-	-	-	-	-	-
18-Sep-2024	-	-	-	-	-	-	-
19-Sep-2024	-	-	-	-	-	-	-
20-Sep-2024	-	-	-	-	-	-	-
21-Sep-2024	-	-	-	-	-	-	-
22-Sep-2024	-	-	-	-	-	-	-
23-Sep-2024	-	-	-	-	-	-	-
24-Sep-2024	-	-	-	-	-	-	-
25-Sep-2024	-	-	-	-	-	-	-
26-Sep-2024	-	-	-	-	-	-	-
27-Sep-2024	-	-	-	-	-	-	-
28-Sep-2024	-	-	-	-	-	-	-
29-Sep-2024	-	-	-	-	-	-	-
30-Sep-2024	-	-	-	-	-	-	-
Monthly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

The liquid burner was not used in the reporting month (refer to Table D-6).

Table D-6: Flaring Event – Liquid Burner Volume and Emissions Summary

Date	Volume of Fuel Gas Flared (m^3)	Mass Emissions (kg/day)					
		NOx	CO	PM2.5	SOx	VOCs	HC-T
01-Sep-2024	-	-	-	-	-	-	-
02-Sep-2024	-	-	-	-	-	-	-
03-Sep-2024	-	-	-	-	-	-	-
04-Sep-2024	-	-	-	-	-	-	-
05-Sep-2024	-	-	-	-	-	-	-
06-Sep-2024	-	-	-	-	-	-	-
07-Sep-2024	-	-	-	-	-	-	-
08-Sep-2024	-	-	-	-	-	-	-
09-Sep-2024	-	-	-	-	-	-	-
10-Sep-2024	-	-	-	-	-	-	-
11-Sep-2024	-	-	-	-	-	-	-
12-Sep-2024	-	-	-	-	-	-	-
13-Sep-2024	-	-	-	-	-	-	-
14-Sep-2024	-	-	-	-	-	-	-
15-Sep-2024	-	-	-	-	-	-	-
16-Sep-2024	-	-	-	-	-	-	-
17-Sep-2024	-	-	-	-	-	-	-
18-Sep-2024	-	-	-	-	-	-	-
19-Sep-2024	-	-	-	-	-	-	-
20-Sep-2024	-	-	-	-	-	-	-
21-Sep-2024	-	-	-	-	-	-	-
22-Sep-2024	-	-	-	-	-	-	-
23-Sep-2024	-	-	-	-	-	-	-
24-Sep-2024	-	-	-	-	-	-	-
25-Sep-2024	-	-	-	-	-	-	-
26-Sep-2024	-	-	-	-	-	-	-
27-Sep-2024	-	-	-	-	-	-	-
28-Sep-2024	-	-	-	-	-	-	-
29-Sep-2024	-	-	-	-	-	-	-
30-Sep-2024	-	-	-	-	-	-	-
Monthly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Exhibit D-1: Sample Emission Calculations – Flaring

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 10,000 parts per millon (ppm) in one percent.

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable meters include:
    - Tag KITSL-SG.CURVAL: Specific gravity of fuel gas at KMS.
    - Tag KITSL-HVG.CURVAL: Higher heating value (HHV) of fuel gas at KMS at 15°C, corrected to 20 °C.
    - Tag KITSL-SG.CURVAL: Natural gas relative density was obtained (daily values at 1 atm) at KMS. This was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
- Emission factors: Refer to Table 1 within the report.

Emission Calculation Basis – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right)$$
$$\times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using September 1, 2024, and NOx for the example:

Convert volumetric flow rate to mass flow rate:

Volumetric flow rate = 146,606 m^3/day – corrected to 20 °C.

Mass flow rate = 146,606 m^3/day x 0.758839 kg/m^3 = 111,250.35 kg/day

NOx Mass Emission (kg/day)

= 111,250.35 (kg/day) x 41.21 (MJ/Sm^3) x 1/0.7588 (Sm^3/kg) x 1/1000 (GJ/MJ) x 0.9478 (MMBTU/GJ) x 0.068 (lb/MMBTU) x 0.4535 kg/lb

= 176.59 kg/day ≈ 177 kg/day

Similar calculations follow for CO, $PM_{2.5}$, VOC, and HC-T, however all HHV values in their calculations are converted to LHV.

Emission Calculation Basis – when using Engineering Estimates (only applies to SOx):

Total sulfur content (S) in feed gas samples was analyzed periodically by the LNG Canada laboratory. Table D-7 below table summarizes the laboratory results.

Table D-7: Total Sulphur Content Measured in the Feed Gas (Laboratory Results)

Date	Total Sulphur in Feed Gas (ppmw)	%
17-Sep-2024	0.18	0.000018
26-Sep-2024	0.35	0.000035

To bridge periods between measurements, the following approach was used:

- September 1 - 25: SO_2 emissions were calculated using the September 17 total sulphur measurement.
- September 26 - 30: The September 26 measurement was applied.

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

Using September 1, 2024, for the example, where the percent sulphur in the fuel gas was 0.18 ppmw (September 17 data for Total Sulphur):

SO_2 Mass Emission (kg/day)

=111,250.35 (kg/day) x (0.000018) x (1/100) x 64.066/32.065 x 1

= 0.039 kg/day

The same calculation approach would follow for SO_2 (kg/h) numbers; with the flow rate in kg/hour rather than kg/day.

Appendix E Ambient Air Quality Evaluation (Condition 10.2.7)

Nitrogen Dioxide (NO_2)

The publicly available data of 1-hour NO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-1. The BCAAQO for 1-hour NO_2 is 60 parts per billion (ppb) (equates to 113 µg/m^3), calculated by the 98th percentile of daily 1-hour maximum over three years; this metric is also illustrated in Figure E-1.

There is a BCAAQO for annual NO_2 (17 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

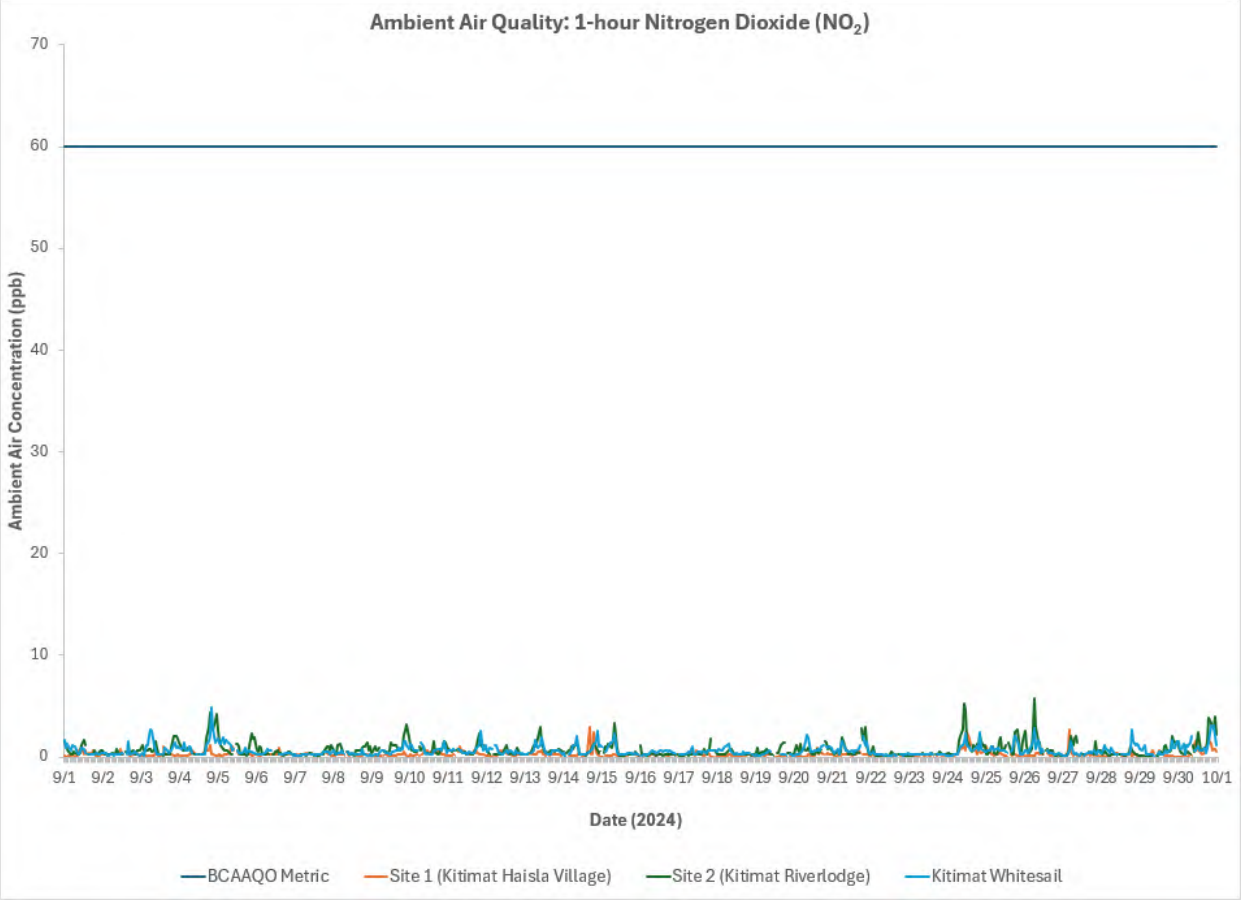

Figure E-1: Ambient Air Quality - 1-hour Nitrogen Dioxide (NO_2)

Sulphur Dioxide (SO_2)

The publicaly available data of 1-hour SO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-2. BC adopted the 2020 Canadian Ambient Air Quality Standard (CAAQS) as the BCAAQO for 1-hour SO_2, which is 70 parts per billion (ppb) (equates to 183 µg/m^3), calculated by the annual 99th percentile of daily 1-hour averaged over three consecutive years; this metric is also illustrated in Figure E-2.

There is a BCAAQO for annual SO_2 (5 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

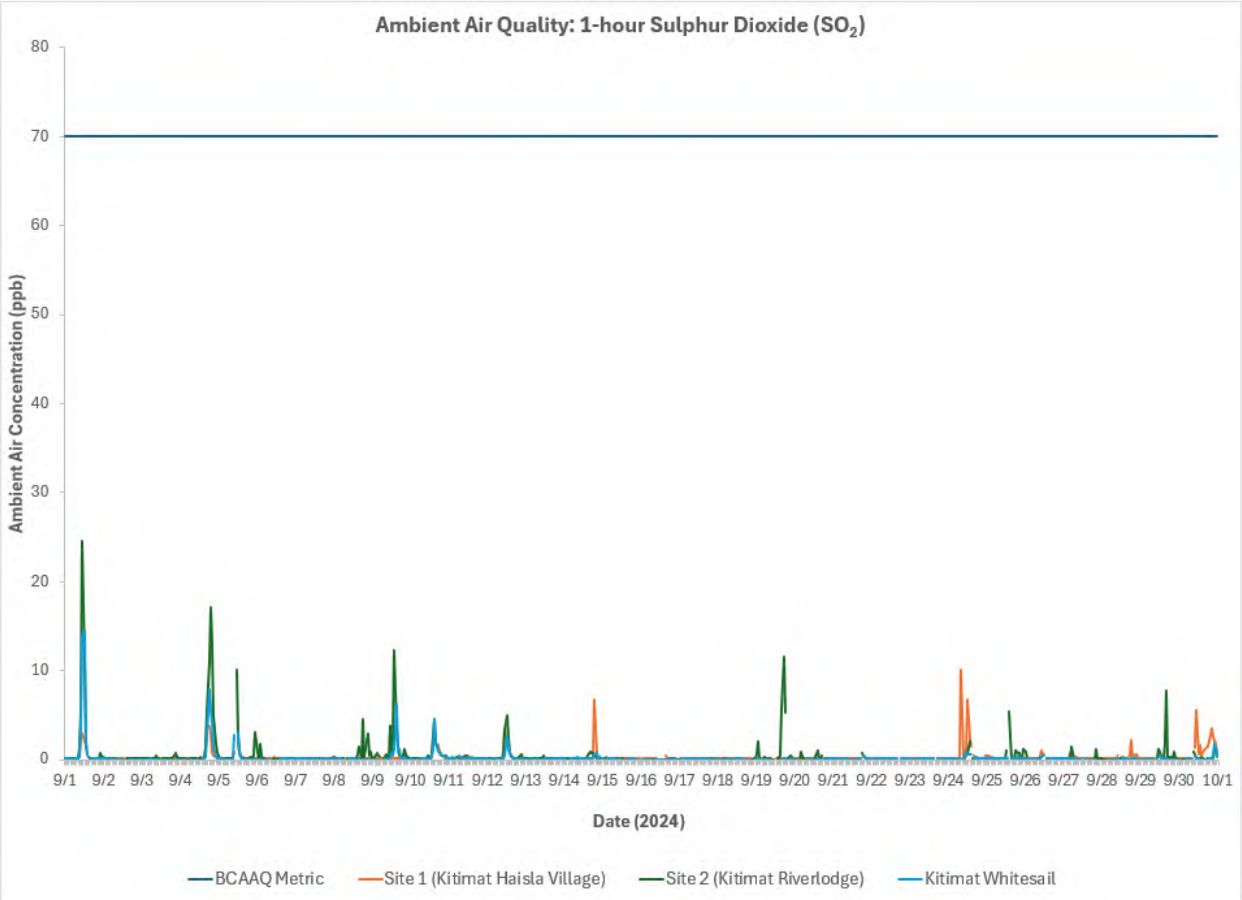

Figure E-2: Ambient Air Quality - 1-hour Sulphur Dioxide (SO_2)

Fine Particulate Matter ($PM_{2.5}$)

The publicaly available data of 24-hour running average for $PM_{2.5}$ from the three continuous ambient air quality monitoring stations is illustrated in Figure E-3. The BCAAQO for 24-hour $PM_{2.5}$ is 25 µg/m^3, calculated by the 98th percentile of daily average, over one year; this metric is also illustrated in Figure E-3.

There is a BCAAQO for annual $PM_{2.5}$ (8 µg/m^3 based on the annual average, over one year) however this information is not published for each monitoring station therefore is not provided herein.

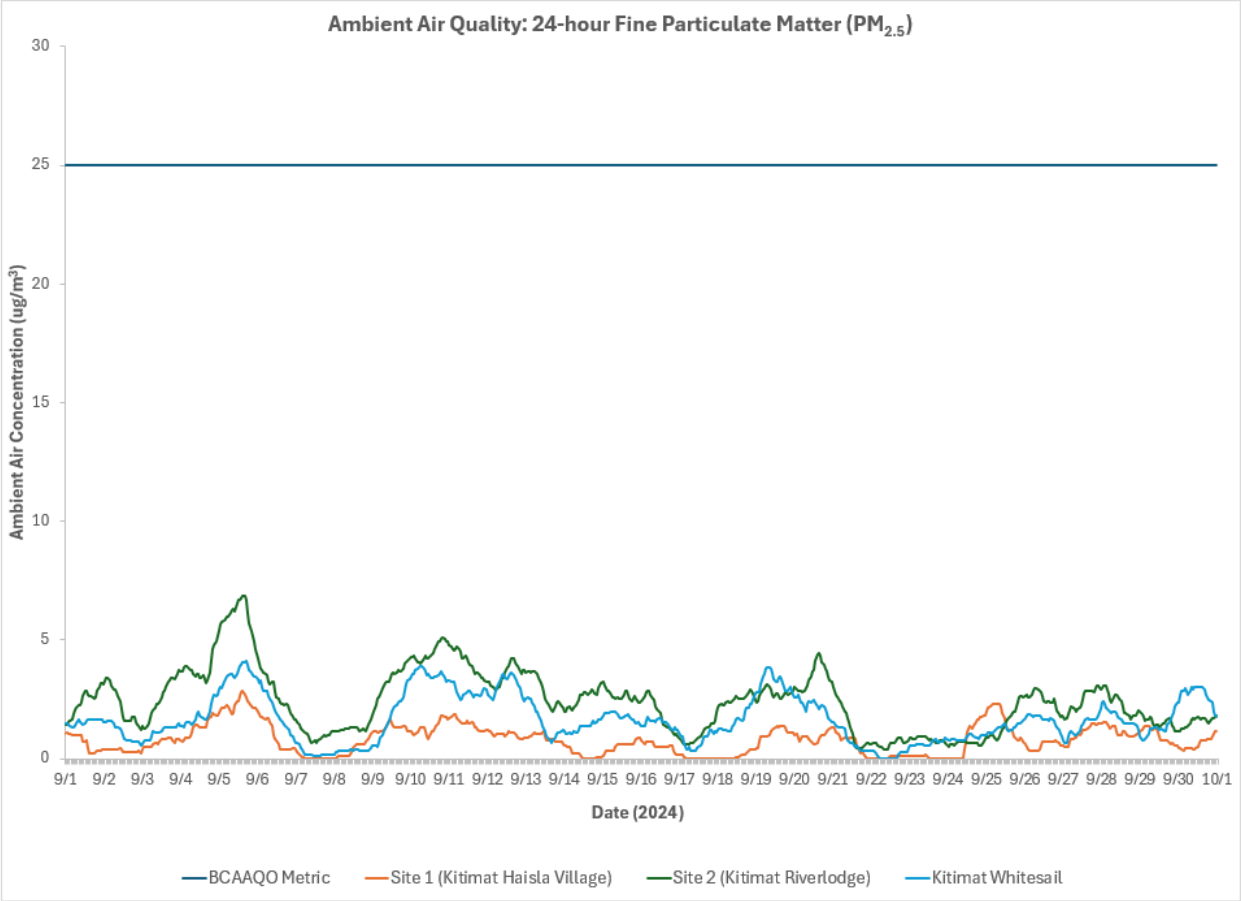

Figure E-3: Ambient Air Quality - 24-hour Fine Particulate Matter ($PM_{2.5}$)

Ozone (O_3)

The publicaly available data of 1-hour O_3 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-4.

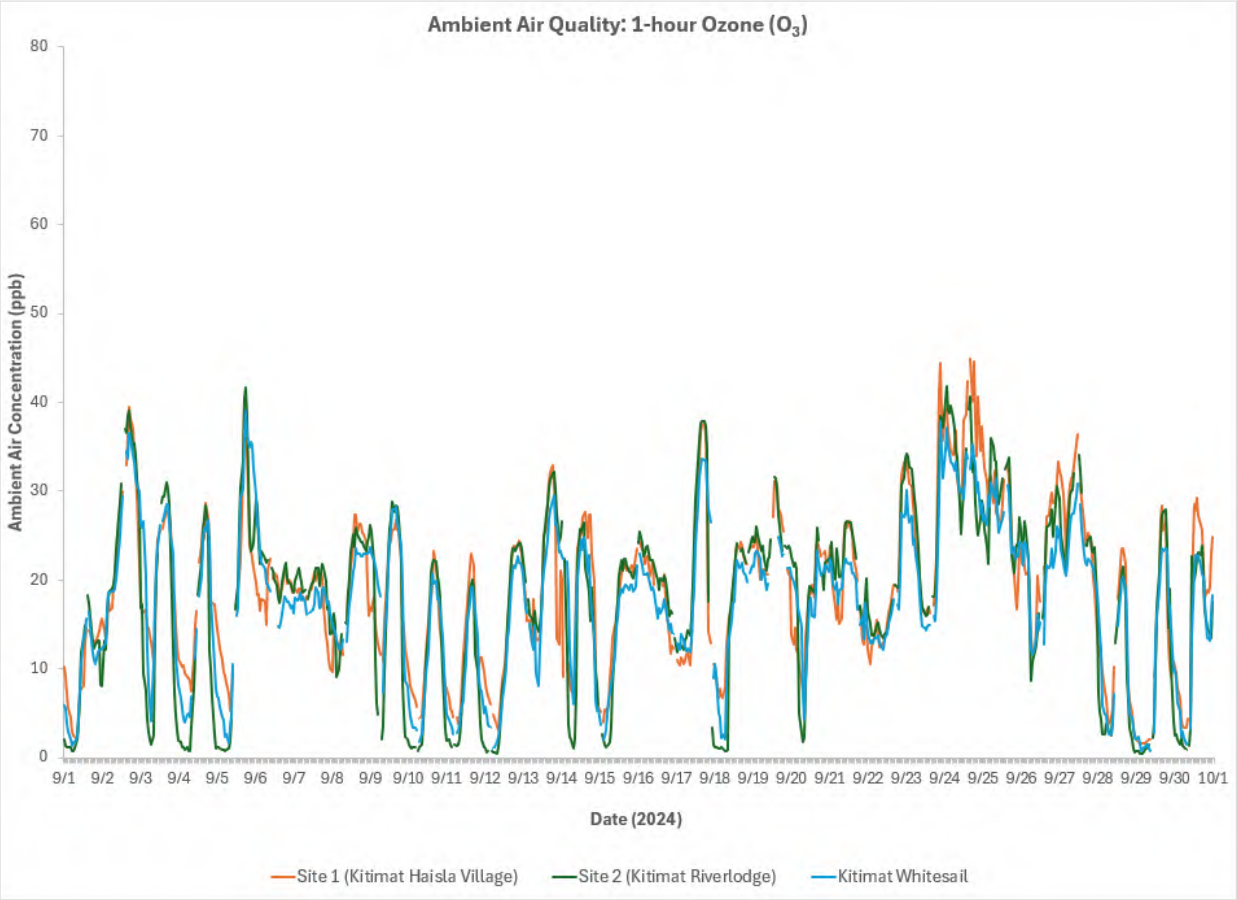

Figure E-4: Ambient Air Quality - 1-hour Ozone (O_3)

Appendix F Facility SO_2 Emission Limit (Condition 10.2.8)

Table F-1 presents the maximum hourly cumulative SO_2 discharge rate per day. It does not imply that the maximum discharge rate occurred for the full 24 hours that day. The maximum hourly rate was based on the maximum hourly flow rate obtained from the KMS (Tag: CA:KIT:KITSL-Q1.currate).

Table F-1: Maximum Hourly SO_2 Discharge Rate for Each Day

Date	Max Hourly SO_2 Discharge Rate (kg/hr)	Breakdown of Sources Contributing (%)						
		GT/ WHRU	AGI	F-WW	F-CD	F-SL	F-S	F-LB
01-Sep-2024	0.0016	-	-	100%	-	-	-	-
02-Sep-2024	0.0021	-	-	100%	-	-	-	-
03-Sep-2024	0.0015	-	-	100%	-	-	-	-
04-Sep-2024	0.0013	-	-	100%	-	-	-	-
05-Sep-2024	0.0011	-	-	100%	-	-	-	-
06-Sep-2024	0.0016	-	-	100%	-	-	-	-
07-Sep-2024	0.0046	-	-	100%	-	-	-	-
08-Sep-2024	0.0022	-	-	100%	-	-	-	-
09-Sep-2024	0.0022	-	-	100%	-	-	-	-
10-Sep-2024	0.0031	-	-	100%	-	-	-	-
11-Sep-2024	0.0045	-	-	100%	-	-	-	-
12-Sep-2024	0.0052	-	-	100%	-	-	-	-
13-Sep-2024	0.0059	-	-	100%	-	-	-	-
14-Sep-2024	0.0064	-	-	100%	-	-	-	-
15-Sep-2024	0.0069	-	-	100%	-	-	-	-
16-Sep-2024	0.0059	-	-	100%	-	-	-	-
17-Sep-2024	0.0061	-	-	100%	-	-	-	-
18-Sep-2024	0.0063	-	-	100%	-	-	-	-
19-Sep-2024	0.0074	-	-	100%	-	-	-	-
20-Sep-2024	0.0119	-	-	100%	-	-	-	-
21-Sep-2024	0.0080	-	-	100%	-	-	-	-
22-Sep-2024	0.0064	-	-	100%	-	-	-	-
23-Sep-2024	0.0067	-	-	100%	-	-	-	-
24-Sep-2024	0.0068	-	-	100%	-	-	-	-
25-Sep-2024	0.0071	-	-	100%	-	-	-	-
26-Sep-2024	0.0132	-	-	100%	-	-	-	-
27-Sep-2024	0.0130	-	-	100%	-	-	-	-
28-Sep-2024	0.0238	-	-	100%	-	-	-	-
29-Sep-2024	0.0255	-	-	100%	-	-	-	-
30-Sep-2024	0.0204	-	-	100%	-	-	-	-

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Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Monthly Report (October 2024)

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1. Executive Summary

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. The BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., for the discharge of air contaminants to the environment from the LNG Facility.

Permit PA-110588 requires a monthly report to be submitted to the BCER that includes data/information on:

- Fuel Gas Use (for Commissioning only)
- Continuous Emissions Monitoring System (for Operations only)
- Flaring Activities
- Ambient Air Monitoring Evaluation
- Facility sulphur dioxide (SO_2) Emissions

Herein is the monthly report for October 2024. A summary of the findings for this reporting period is as follows:

- There were no instances of permit non-compliances during the reporting period.
- There were no ambient air quality concentrations of nitrogen dixoide (NO_2), SO_2 and respirable particulate matter ($PM_{2.5}$) measured in excess of the BC ambient air quality objective (AAQO) metrics at the three continuous ambient air quality monitoring stations identified in Permit PA-110588 (Kitamaat Village (Kitimat Haisla Village); Kitimat Riverlodge and Kitimat Whitesail).
- There were air emissions from four authorised discharge sources defined in Sections 2.1 to 2.7 of Permit PA-110588: Gas turbine engine in LNG Train 1, String 1; warm/wet flare; cold/dry flare and the liquid burner.
- The warm/wet flare was the largest source of air emissions, as all the fuel gas introduced into the facility is used for testing purposes during Commissioning, rather than for producing LNG. The maximum hourly cumulative SO_2 rate in October was calculated to be 0.26 kg/hour, significantly below the Permit PA-110588 limit of 140 kg/hour.

2. Overview

2.1. Project Background

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

2.2. Purpose

On July 15, 2024, the BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., under the provisions of the BC *Environmental Management Act*, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Permit PA-110588 applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.2 of Permit PA-110588 (Monthly Reporting) for October 2024.

Refer to Appendix B for a list of all monthly reports that have been issued under Permit PA-110588.

2.3. LNG Facility Status

On the afternoon of August 31, 2024, fuel gas was introduced into Unit 1000 (Inlet Facilities) for the first time from the Coastal Gas Link (CGL) pipeline, commencing the pressurization of piping and the startup fuel gas heater. The introduction of fuel gas into the fuel gas headers down to the flare area, and the first supply of fuel gas to the pilot on the warm/wet flare occurred on September 1, 2024.

During October 2024, key activities (associated with air emissions) included:

- First fire of the LMS100 gas turbine in Train 1, String 1, using fuel gas from supplied by the CGL pipeline. This gas turbine also supported the nitrogen run test of the associated compressors.
- Import of liquid refrigerant (ethane and propane) from a refrigerant carrier ship into the facility. The import activity resulted in flaring from the cold dry flare. The flare knock-out drum, blowcase and liquid burner were also tested during this import activity.
- Commissioning of the flow meters used in measuring inlet gas into the facility and flare volumes. These flow meters, which had been pre-commissioned in the manufacturers facilities, were calibrated online using the

process fluid. As such, data from these meters have not been used for the purpose of this monthly report (alternate meters and/or calculations have been employed to determine the reported values herein).

Therefore, during October 2024, discharges of air contaminants occurred from the following authorized works:

- One (1) gas turbine engine (LNG Train 1, String 1)
- One (1) warm/wet flare
- One (1) cold/dry flare
- Liquid burner

Under Permit PA-110588, the “Commissioning” phase is defined as “that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.” Operations is the period of time which follows Commissioning. Therefore, “Commissioning”, under Permit PA-110588, commenced on September 1, 2024. The first cargo has not yet been shipped from LNG Train 1.

The Initial Performance Period (IPP) did not commence during October 2024 (which is defined as the period that “*commences upon the completion of the initial performance test for LNG Train 1”*).

3. Fuel Gas Use (Commissioning Only) (Condition 10.2.1)

3.1. Permit Condition

Under Condition 10.2.1, the monthly report shall identify and provide a summary of fuel gas use at the facility during Commissioning. The monthly report shall include the following information:

a. the daily volume of fuel gas combusted and vented;

b. the daily mass emissions of nitrogen oxides (NOx), sulphur oxides (SOx), carbon monoxide (CO), particulate matter with an aerodynamic diameter smaller than 2.5 micrometers (PM2.5), volatile organic compounds (VOCs) and total hydrocarbons (HC-T), for the authorized works in Section 2.1 and 2.2; and

c. the quantification method (under Section 9 of Permit PA-110588) and representative calculations.

3.2. Data and Assessment

Appendix C contains the summary of the daily volume of fuel gas combusted and vented as well as the daily mass emissions of NO_X, SO_X, CO, $PM_{2.5}$, VOCs, and HC-T from the gas turbine engines (which is Section 2.1 of Permit PA-110588) in October 2024.

The basis for this assessment is as follows:

- The daily volume of fuel gas combusted and vented at the LNG Facility is based on the daily volume of fuel gas introduced into the LNG facility, as all this fuel gas is used for testing purposes during Commissioning; rather than for producing LNG. Note, this is a conservative approach, and does not account for the time lag between pressurizing systems with fuel gas to it being combusted or vented. The data for this report was obtained from the Kitimat Metering Station (KMS) using the CGL meter.
- The daily mass emissions from the gas turbine engine reported herein are calculated based on published emission factors for stationary gas turbines (refer to Table 1); and therefore are not a reflection of the actual measured emissions from the gas turbines installed on site (that information will be available in Operations, once the continuous emissions monitoring system (CEMS) has undergone the relative accuacy test audit (RATA)).
- As there was no fuel gas combusted in the AGIs in the reporting period, the daily mass emissions from these systems are shown with “zero” values in Appendix C.

Table 1 Natural Gas-Fired Turbine Emission Factors

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.099	lb/MMBtu	D	
SO_x	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.94S	lb/MMBtu	B	Where “S” is the percent sulphur in fuel. “S” to be informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014). If “S” is not available, the AP-42 states to use 3.4 E-03 lb/MMBtu for natural gas turbines (0.0034).

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
CO	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.015	lb/MMBtu	D	
PM2.5	USEPA AP-42: Table 3.1-2a (uncontrolled; condensable)	0.0047	lb/MMBtu	C	
VOC	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.0021	lb/MMBtu	D	AP-42 states that VOC emissions are assumed equal to the sum of organic emissions.
HC-T	Engineering Estimate	16.1 x % operating load	g/s	N/A	There is no AP-42 emissions factor for total hydrocarbons. The permit application used a basis of 16.1 g/s per gas turbine during Operations; therefore this value will be used and factored down based on the estimated operating load for the turbine.

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 3.1 is applicable for Stationary Gas Turbines.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.

4. CEMS Zero and Span Reporting (Condition 10.2.2)

4.1. Permit Condition

Under Condition 10.2.2, during Operations, after the completion of the initial CEMS performance evaluation, the monthly report shall include a summary of all CEMS out of control calibration zero and span events that occurred during the month.

4.2. Data and Assessment

As Operations has not yet commenced, there is no CEMS zero and span reporting for this month.

5. CEMS Reporting (Condition 10.2.3)

5.1. Permit Condition

Under Condition 10.2.3, during Operations, after the completion of the initial CEMS performance evaluation, the Permittee shall provide a summary of CEMS data collected during the month.

5.2. Data and Assessment

As Operations has not yet commenced, there is no CEMS reporting for this month.

6. Flaring Activity Reporting (Condition 10.2.4)

6.1. Permit Condition

Under Condition 10.2.4, a summary of all flaring activity carried out during the month is to be included in the monthly report. The monthly report shall include the following information:

a. identification of the flare source;

b. description of the type of process gas sent to flare;

c. the volume of gas sent to the flare during each event;

d. the reason for the flaring event;

e. any external notifications sent out, if applicable;

f. the (i) daily and (ii) monthly volume of gas being flared for each source; and

g. the (i) daily and (ii) monthly contaminant emission totals for each source, parameters include NO_x, CO, $PM_{2.5}$, SO_x, VOCs, and HC-T.

h. the quantification method (under Section 9) and representative calculations

6.2. Data and Assessment

In Permit PA-110588, flaring activities are described as either a routine flaring event (continuous) or a non-routine flaring event (intermittent). Routine flaring discharges include the continuous flare pilots, which are supplied by fuel gas to provide a continuous ignition source so that any gas sent to the flare as a result of upset conditions ("non-routine flaring") is immediately combusted. The permit application to support Permit PA-110588 also described the other small sources of process gas that are continuously sent to the flare, including compressor seal gas, analyzer sample returns and passing valves.

Process gas refers to the natural gas stream intended for LNG production; the incoming fuel gas stream from Coastal Gas Link that undergoes several treatment stages (acid gas removal, pre-cooling, and finally, liquefaction) prior to being exported as LNG.

Appendix D contains the flaring activities tables, as follows:

- Table D-1: Flaring Events Table
- Table D-2: Warm/Wet Flare Volume and Emissions Summary
- Table D-3: Cold/Dry Flare Volume and Emissions Summary
- Table D-4: Storage and Loading Flare Volume and Emissions Summary
- Table D-5: Spare Flare Volume and Emissions Summary
- Table D-6: Liquid Burner Volume and Emissions Summary

Sample calculations are also provided in Appendix D (Exhibit D-1). The basis for this assessment is as follows:

- The daily volume of gas flared is sourced from the flow meters upstream of the applicable flare. In cases where the flow is below the detection limit of the flow meters, the sum of flow from upstream flow meters is used.
- The daily mass emissions from each flare source reported herein are calculated based on published emission factors for industrial flares (refer to Table 2), except for SO_X, which is calculated based on a mass balance and assumed destruction efficiency.

- During this reporting month, the storage and loading flare and spare flare were not used, therefore shown with "zero" values for emissions.

Table 2: Emission Factors used for the Flare System

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.12	lb/MMBtu	B	Based on an average smoking flare (soot in concentration values: 177 ug/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from ug/L to lb/MMBtu is documented in the "Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015", issued to USEPA by RTI International.

7. Permit Contravention (Condition 10.2.5)

7.1. Permit Condition

Under Condition 10.2.5, a summary of all instances of permit non-compliances are to be included in the monthly report, including a description of the event (date, time, circumstances), a summary of the investigation findings, the completed and ongoing actions taken in response to the non-compliance event, and the date of self-disclosure notifications to the BCER.

7.2. Assessment

There were no instances of permit non-compliances during the reporting period.

8. Pollution Control Technologies (Condition 10.2.6)

8.1. Permit Condition

Under Condition 10.2.6, a discussion of any operational or performance issues or significant maintenance activities with any pollution control technologies of the authorized works and equipment required by the permit is to be included in the monthly report.

The pollution control technologies identified in the permit application supporting Permit PA-110588 were the:

- Dry low emissions combustor optimization system in the gas turbines (dry low NOx burners); and
- Catalysts in the WHRUs, to convert CO in the exhaust gas to carbon dioxide.

8.2. Assessment

There were no instances of operational or performance issues, or significant maintenance activities with the pollution control technologies within the reporting period, given Operations has not yet commenced.

9. Ambient Air Monitoring Evaluation (Commissioning Only) (Condition 10.2.7)

9.1. Permit Condition

Under Condition 10.2.7, the following information for nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and $PM_{2.5}$ from three continuous ambient air quality monitoring stations (Kitamaat Village (Kitimat Haisla Village) (Site 1); Kitimat Riverlodge (Site 2) and Kitimat Whitesail) are to be included in the monthly report during Commissioning where information is publicly available:

a. a comparison of the measured ambient air concentrations at each ambient air monitoring stations to the applicable numerical metrics of the BC ambient air quality objectives (BCAAQO);

b. (i) a description of any measured ambient air concentrations in excess of the numerical metrics of the BCAAQO, if applicable, (ii) a description of any known contributing factors from authorized works, and (iii) a description of action (if any) taken by the Permittee.

The monthly report shall also include the time series plot of the hourly average ambient air concentration of ozone (O_3) data from these stations.

9.2. Data and Assessment

Data from continuous ambient air quality monitoring stations in Kitimat are publically available via the BC Ministry of Environment and Climate Change Strategy, at: Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

The publically available data for NO_2, SO_2 and $PM_{2.5}$ at the three continuous ambient air quality monitoring stations are provided in graphs in Appendix E; the graphs also contain the applicable BCAAQO. The time series plot for the hourly average ambient air concentration of O_3 is also provided in Appendix E.

There were no ambient air quality concentrations of NO_2, SO_2 and $PM_{2.5}$ measured in excess of the BCAAQO metrics in the reporting period.

10. Facility SO_2 Emission Limit (Condition 10.2.8)

10.1. Permit Condition

Under Condition 10.2.8, for all authorized sources in Sections 2.1 to 2.7, for each day of the month, the maximum hourly cumulative SO_2 discharge rate is to be provided in the monthly report, including the percentage breakdown of the sources contributing to the maximum discharge rate of each day.

10.2. Data and Assessment

Appendix F contains the cumulative SO_2 discharge rate from the authorized sources in Permit PA-110588 Section 2.1 to 2.7 (refer to Section 2.2), including the percentage breakdown of the sources contributing to the maximum discharge rate shown for each day.

The representative calculations for SO_2 for the gas turbine and the flare system are provided in Appendix C, Exhibit C-1, and Appendix D, Exhibit D-1 respectively.

11. References

- BC Ministry of Environment and Climate Change Strategy, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca), accessed November 04, 2024.

Appendix A Abbreviations

AGI	Acid Gas Incinerator
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
CGL	Coastal Gas Link (Pipeline)
CO	Carbon monoxide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
JFJV	JGC Fluor BC LNG Joint Venture
KMS	Kitimat Metering Station
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
VOC	Volatile Organic Compound
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit

$\mu g/m^3$	micrograms per cubic meter

Appendix B Previous Monthly Reports Issued Under PA-110588

Month	Document #	Date Issued
August 2024	L001-09800-HE-7180-4611	04-Sep-2024
September 2024	L001-09800-HE-7180-4612	22-Oct-2024, Revised 03-Feb-2025 (Rev B)
October 2024	L001-09800-HE-7180-4613	26-Nov-2024, Revised 03-Feb-2025 (Rev B)

Appendix C Fuel Gas Use During Commissioning (Condition 10.2.1)

There was no LNG production that occurred in this period. For the month of October all daily fuel gas volumes were obtained from the KMS (Tag: KITSL-V1P.curval) under atmospheric pressure (Pressure = 1 atm) (refer to Table C-1). The fuel volumes below were corrected to 20°C.

Table C-1: Fuel Gas Use During Commissioning

Date	Volume of Fuel Gas Introduced to LNG Facility (m^3/d)
01-Oct-2024	608,578
02-Oct-2024	547,485
03-Oct-2024	549,942
04-Oct-2024	233,849
05-Oct-2024	396,922
06-Oct-2024	656,948
07-Oct-2024	493,853
08-Oct-2024	528,048
09-Oct-2024	515,967
10-Oct-2024	472,446
11-Oct-2024	615,946
12-Oct-2024	408,434
13-Oct-2024	541,235
14-Oct-2024	388,658
15-Oct-2024	382,038
16-Oct-2024	383,848
17-Oct-2024	381,018
18-Oct-2024	378,920
19-Oct-2024	386,011
20-Oct-2024	392,493
21-Oct-2024	389,073
22-Oct-2024	389,103
23-Oct-2024	392,459
24-Oct-2024	404,529
25-Oct-2024	393,601
26-Oct-2024	394,134
27-Oct-2024	493,049
28-Oct-2024	421,914
29-Oct-2024	389,357
30-Oct-2024	388,031
31-Oct-2024	389,036
Monthly Total	**13,706,925**

The LMS100 Gas Turbine in Train 1, String 1, achieved two significant milestones in October 2024:

- First fire with fuel gas volumes (from the LMS 100 gas turbine fuel gas meter) (CA:KIT:114FI1601.PV) was successfully completed on October 6, 2024.
- Mechanical Run Test for the associated MR-PMR refrigeration compressors using nitrogen, which concluded on October 13, 2024.
- The fuel volumes below were obtained by dividing the values from the mass flow meter (CA:KIT:114FI1601.PV) by the fuel gas density obtained from KITSL-SG.CURVAL (KMS).

Table C-2: Fuel Gas Use During Commissioning – Gas Turbines

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NO_X	CO	$PM_{2.5}$	SO_2	VOCs	HC-T
01-Oct-2024	-	-	-	-	-	-	-
02-Oct-2024	-	-	-	-	-	-	-
03-Oct-2024	-	-	-	-	-	-	-

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NO_X	CO	$PM_{2.5}$	SO_2	VOCs	HC-T
04-Oct-2024	-	-	-	-	-	-	-
05-Oct-2024	-	-	-	-	-	-	-
06-Oct-2024	13,136	22.9	3.5	1.1	0.11	0.49	1.5
07-Oct-2024	9,137	15.9	2.4	0.8	0.08	0.34	1.5
08-Oct-2024	11,352	19.8	3.0	0.9	0.09	0.42	2.0
09-Oct-2024	17,905	31.2	4.7	1.5	0.15	0.66	1.8
10-Oct-2024	13,089	22.8	3.5	1.1	0.11	0.48	3.2
11-Oct-2024	11,649	20.2	3.1	1.0	0.10	0.43	3.2
12-Oct-2024	-	-	-	-	-	-	-
13-Oct-2024	32,976	57.3	8.7	2.7	0.27	1.22	31.5
14-Oct-2024	-	-	-	-	-	-	-
15-Oct-2024	-	-	-	-	-	-	-
16-Oct-2024	-	-	-	-	-	-	-
17-Oct-2024	-	-	-	-	-	-	-
18-Oct-2024	-	-	-	-	-	-	-
19-Oct-2024	-	-	-	-	-	-	-
20-Oct-2024	-	-	-	-	-	-	-
21-Oct-2024	-	-	-	-	-	-	-
22-Oct-2024	-	-	-	-	-	-	-
23-Oct-2024	-	-	-	-	-	-	-
24-Oct-2024	-	-	-	-	-	-	-
25-Oct-2024	-	-	-	-	-	-	-
26-Oct-2024	-	-	-	-	-	-	-
27-Oct-2024	-	-	-	-	-	-	-
28-Oct-2024	-	-	-	-	-	-	-
29-Oct-2024	-	-	-	-	-	-	-
30-Oct-2024	-	-	-	-	-	-	-
31-Oct-2024	-	-	-	-	-	-	-
Total	**109,244**	**190**	**29**	**9**	**0.9**	**4**	**45**

*Final totals may be subject to rounding adjustments

There was no combustion of fuel gas in the AGIs during the reporting period (refer to Table C-3).

Table C-3: Fuel Gas Use During Commissioning – Acid Gas Incinerator

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NO_X	SO_X	CO	$PM_{2.5}$	VOCs	HC-T
01-Oct-2024	-	-	-	-	-	-	-
02-Oct-2024	-	-	-	-	-	-	-
03-Oct-2024	-	-	-	-	-	-	-
04-Oct-2024	-	-	-	-	-	-	-
05-Oct-2024	-	-	-	-	-	-	-
06-Oct-2024	-	-	-	-	-	-	-
07-Oct-2024	-	-	-	-	-	-	-
08-Oct-2024	-	-	-	-	-	-	-
09-Oct-2024	-	-	-	-	-	-	-
10-Oct-2024	-	-	-	-	-	-	-
11-Oct-2024	-	-	-	-	-	-	-
12-Oct-2024	-	-	-	-	-	-	-
13-Oct-2024	-	-	-	-	-	-	-
14-Oct-2024	-	-	-	-	-	-	-
15-Oct-2024	-	-	-	-	-	-	-
16-Oct-2024	-	-	-	-	-	-	-
17-Oct-2024	-	-	-	-	-	-	-
18-Oct-2024	-	-	-	-	-	-	-
19-Oct-2024	-	-	-	-	-	-	-
20-Oct-2024	-	-	-	-	-	-	-
21-Oct-2024	-	-	-	-	-	-	-
22-Oct-2024	-	-	-	-	-	-	-
23-Oct-2024	-	-	-	-	-	-	-
24-Oct-2024	-	-	-	-	-	-	-
25-Oct-2024	-	-	-	-	-	-	-
26-Oct-2024	-	-	-	-	-	-	-
27-Oct-2024	-	-	-	-	-	-	-
28-Oct-2024	-	-	-	-	-	-	-
29-Oct-2024	-	-	-	-	-	-	-
30-Oct-2024	-	-	-	-	-	-	-
31-Oct-2024	-	-	-	-	-	-	-
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Exhibit C-1: Sample Emission Calculations – Gas Turbine

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hour (h) to 1 day (d)
    - 10,000 parts per millon (ppm) in one percent

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable sources of data from the meters include:
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - Tag CA:KIT:114FI1601.PV: LNG Train 1, String 1 (1KT-1460); fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:114BHS1423.PV: Gas Turbine Operating Load (MW)
    - Emission factors: Refer to Table 1 within the report.

The sample calcuation below is based on the data from October 6, 2024.

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:114FI1601.PV is converted to volume flow rate using the fluid density of 0.7511 kg/m^3.

- Mass flow rate = 411.1 kg/h

Volume flow rate (m^3/h)

= 0.7511 / 411.1 = 547.33 m^3/h

Volume flow rate (m^3/d)

= 547.33 × 24 ≈ 13,136 m^3/d

Step 2: Emission Calculation – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using NOx for the example; NOx Mass Emission (kg/d)

= 9,867 x 40.92 x 1/ 0.7511 x 1/1000 x 0.9478 x 0.099 x 0.4535

= 22.9 kg/d

For SO_2, 0.94S was used as the emission factor - where "S" is the percent sulphur in fuel (refer to Table 1). "S" is based on the total sulphur content of the fuel gas (from the laboratory analysis) given fuel gas was used to fuel the gas turbine this month (refer to Appendix D, Table D-7).

SOx Mass Emission (kg/d)

= 9,867 x 40.92 x 1/ 0.7511 x 1/1000 x 0.9478 x 0.94*(0.000497) x 0.4535

= 0.11 kg/d

Emission Calculation Basis – when using Engineering Estimates (only applies to HC-T)

Formula: HC-T Mass Emission (kg/h)

$$= 16.1\frac{\text{g}}{\text{s}} \times \frac{\text{Operating load (\%)}}{100} \times \frac{1\ \text{kg}}{1000\ \text{g}} \times \frac{3600\ \text{s}}{1\ \text{h}}$$

Using October 6, 2024, for the example, where the gas turbine operating load of 0.1195 MW was obtained from CA:KIT:114BHS1423.PV. For the purposes of this calculation, the maximum operating load of the LMS100 is approximately 110 MW.

Operating load (%)

= 0.1195 MW / 110 MW

= 0.001087 X 100 = 0.1087 %

HC-T Mass Emission (kg/h)

= 16.1 x 0.1087/100 x 1/1000 x 3600/1

= 0.0063 kg/h

HC-T Mass Emission (kg/d)

= 0.0063 x 24

= 1.5 kg/d

Appendix D Flaring Activity (Condition 10.2.4)

Table D-1: Flaring Event Overview

Flare	Event Type	Event Date & Time			Description	Volume of Gas to Flare Per Event (m^3/month)	External Notifications Undertaken
		Start	End	Duration			
Warm/Wet	Routine and Non-Routine[1]	01-Oct-2024	31-Oct-2024	Continuous	Pilots, assist gas, passing valves; and supporting start-up activities.	13,576,105	N/A
Warm/Wet	Non-Routine[1]	06-Oct-2024	13-Oct-2024	Intermittent	Gas Turbine / Compressor Test Run	109,254	Yes, issued 19-Sep-2024[1]
Cold/Dry	Routine[2]	16-Oct-2024	31-Oct-2024	Continuous	Commence use of the pilots to support start-up activities	2,932	N/A[2]
Cold/Dry	Non Routine[2]	20-Oct-2024	31-Oct-2024	Intermittent	Flaring due to refrigerant import	98,216	Yes, issued 17-Oct-2024[2]
Storage and Loading	Routine	N/A	N/A	N/A	Not Used	N/A	N/A
Spare	Routine	N/A	N/A	N/A	Not Used	N/A	N/A
Liquid Burner	Routine and Non-Routine	18-Oct-2024	31-Oct-2024	Continuous	Pilots were lit and assist gas to support the blowcase testing.	16,168	Yes, issued 17-Oct-2024[2]
Liquid Burner	Non Routine[1]	18-Oct-2024	31-Oct-2024	Intermittent	Supporting refrigerant import (including blowcase testing)	26,013	Yes, issued 17-Oct-2024[2]

Notes:

1. In this reporting period, flaring is undertaken to support commissioning and start-up activities. During October, fuel gas was available in various areas of the LNG Facility, after receipt of the applicable Leave to Operate (LTO) from the BC Energy Regulator (notifications submitted in August and September 2024). This fuel gas is not considered process gas. The notification for flaring associated with the gas turbine / compressor test run was initially submitted on September 19, 2024, given the series of supporting activities required leading up to undertaking the test run, which commenced in October 2024.
2. In this reporting period, predominately “non-routine” flaring undertaken, to support commissioning and start-up activities (import of refrigerants). The first notification on October 17, 2024, was associated with refrigerant import; the pilot was lit in advance after receipt of the applicable LTO from the BC Energy Regulator. Updates were provided to the BC Energy Regulator via emails / in the scheduled weekly meetings. LNG Canada also provided a courtesy notification to the BC Energy Regulator on October 28, 2024, after visible emissions were observed from the liquid burner, during the blowcase testing.

The data for the warm/wet flare was derived from the KMS CGL inlet gas meter (refer to Table C-1). The following volumes were subtracted because they were measured and reported separately herein:

- The LMS100 Gas Turbine fuel gas consumption from October 6 to 13 (refer to Table C-2);
- The pilot for the cold dry flare (refer to Table D-3);
- The pilot for the liquid burner (refer to Table D-6);
- The assist gas for the liquid burner from October 20 to 28 (refer to Table D-6); and
- The fuel gas for blowcase testing conducted from October 27 to 28 (refer to Table D-6).

The fuel volumes below were corrected to 20°C.

Table D-2: Flaring Event – Warm/Wet Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOCs	HC-T
01-Oct-2024	608,578	729	2,990	1,157	4.5	6,366	1,350
02-Oct-2024	547,485	655	2,689	1,041	4.1	5,726	1,215
03-Oct-2024	549,942	658	2,701	1,046	4.1	5,751	1,220
04-Oct-2024	233,849	280	1,149	445	1.7	2,445	519
05-Oct-2024	396,922	475	1,949	754	3.0	4,150	880
06-Oct-2024	643,812	770	3,160	1,223	4.8	6,727	1,427
07-Oct-2024	484,716	580	2,378	921	3.6	5,064	1,074
08-Oct-2024	516,696	618	2,536	982	3.9	5,398	1,145
09-Oct-2024	498,062	596	2,444	946	3.7	5,203	1,104
10-Oct-2024	459,357	549	2,252	872	3.4	4,795	1,017
11-Oct-2024	604,297	722	2,960	1,146	4.5	6,303	1,337
12-Oct-2024	408,434	488	2,001	774	3.0	4,259	904
13-Oct-2024	508,259	607	2,491	964	3.8	5,303	1,125
14-Oct-2024	388,658	464	1,905	738	2.9	4,056	860
15-Oct-2024	382,038	457	1,874	725	1.3	3,989	846
16-Oct-2024	383,673	459	1,883	729	1.3	4,009	850
17-Oct-2024	380,829	456	1,871	724	1.3	3,982	845
18-Oct-2024	378,717	453	1,860	720	1.3	3,961	840
19-Oct-2024	385,341	461	1,892	732	1.3	4,029	855
20-Oct-2024	391,334	468	1,920	743	1.4	4,089	867
21-Oct-2024	387,710	463	1,902	736	1.3	4,048	859
22-Oct-2024	387,729	463	1,901	736	1.3	4,047	859
23-Oct-2024	391,084	467	1,917	742	1.4	4,081	866
24-Oct-2024	403,158	481	1,975	765	1.4	4,205	892
25-Oct-2024	392,226	468	1,921	744	1.4	4,090	867
26-Oct-2024	392,766	469	1,922	744	1.4	4,093	868
27-Oct-2024	474,536	565	2,317	897	1.6	4,934	1,047
28-Oct-2024	401,103	475	1,949	755	1.4	4,150	880
29-Oct-2024	387,201	456	1,872	725	1.6	3,986	845
30-Oct-2024	385,875	453	1,860	720	1.6	3,959	840

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOCs	HC-T
31-Oct-2024	386,877	454	1,863	721	1.6	3,967	842
Monthly Total	**13,541,264**	**16,160**	**66,305**	**25,666**	**75**	**141,165**	**29,944**

*Final totals may be subject to rounding adjustments

The pilot for the cold/dry flare was lit on October 16, 2024 (CA:KIT:062FI0343.PV). The refrigerant import activities that required the use of the cold/dry flare commenced on October 20, 2024 and was completed on October 25, 2024. The sphere was filled to approximately 70% for ethane and 85% for propane. Sphere level reading and instrumentation details were used to estimate the amount of ethane and propane stored in the sphere, and ultimately the volumes sent to the flare. The total imported volumes for ethane and propane was determined using ship volumes.

Table D-3: Flaring Event – Cold/Dry Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOCs	HC-T
01-Oct-2024	-	-	-	-	-	-	-
02-Oct-2024	-	-	-	-	-	-	-
03-Oct-2024	-	-	-	-	-	-	-
04-Oct-2024	-	-	-	-	-	-	-
05-Oct-2024	-	-	-	-	-	-	-
06-Oct-2024	-	-	-	-	-	-	-
07-Oct-2024	-	-	-	-	-	-	-
08-Oct-2024	-	-	-	-	-	-	-
09-Oct-2024	-	-	-	-	-	-	-
10-Oct-2024	-	-	-	-	-	-	-
11-Oct-2024	-	-	-	-	-	-	-
12-Oct-2024	-	-	-	-	-	-	-
13-Oct-2024	-	-	-	-	-	-	-
14-Oct-2024	-	-	-	-	-	-	-
15-Oct-2024	-	-	-	-	-	-	-
16-Oct-2024	175	0.2	0.9	0.3	0.001	2	0.4
17-Oct-2024	189	0.2	0.9	0.4	0.001	2	0.4
18-Oct-2024	203	0.2	1.0	0.4	0.001	2	0.4
19-Oct-2024	206	0.3	1.0	0.4	0.001	2	0.5
20-Oct-2024	1,655	3	11	4	0.005	23	5
21-Oct-2024	18,120	34	141	54	0.047	300	64
22-Oct-2024	12,532	23	96	37	0.032	205	44
23-Oct-2024	15,980	30	124	48	0.041	263	56
24-Oct-2024	30,993	58	243	94	0.079	517	110
25-Oct-2024	15,067	32	135	52	0.045	287	61
26-Oct-2024	8,682	22	94	36	0.032	199	42

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOCs	HC-T
27-Oct-2024	2,864	5	23	9	0.010	48	10
28-Oct-2024	2,180	3	14	5	0.008	29	6
29-Oct-2024	1,745	2	8	3	0.006	18	4
30-Oct-2024	1,748	2	8	3	0.006	18	4
31-Oct-2024	1,750	2	8	3	0.006	18	4
Monthly Total	**114,088**	**218**	**908**	**352**	**0.32**	**1,934**	**410**

*Final totals may be subject to rounding adjustments

The storage and loading flare was not used in the reporting month (refer to Table D-4).

Table D-4: Flaring Event – Storage and Loading Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOCs	HC-T
01-Oct-2024	-	-	-	-	-	-	-
02-Oct-2024	-	-	-	-	-	-	-
03-Oct-2024	-	-	-	-	-	-	-
04-Oct-2024	-	-	-	-	-	-	-
05-Oct-2024	-	-	-	-	-	-	-
06-Oct-2024	-	-	-	-	-	-	-
07-Oct-2024	-	-	-	-	-	-	-
08-Oct-2024	-	-	-	-	-	-	-
09-Oct-2024	-	-	-	-	-	-	-
10-Oct-2024	-	-	-	-	-	-	-
11-Oct-2024	-	-	-	-	-	-	-
12-Oct-2024	-	-	-	-	-	-	-
13-Oct-2024	-	-	-	-	-	-	-
14-Oct-2024	-	-	-	-	-	-	-
15-Oct-2024	-	-	-	-	-	-	-
16-Oct-2024	-	-	-	-	-	-	-
17-Oct-2024	-	-	-	-	-	-	-
18-Oct-2024	-	-	-	-	-	-	-
19-Oct-2024	-	-	-	-	-	-	-
20-Oct-2024	-	-	-	-	-	-	-
21-Oct-2024	-	-	-	-	-	-	-
22-Oct-2024	-	-	-	-	-	-	-
23-Oct-2024	-	-	-	-	-	-	-
24-Oct-2024	-	-	-	-	-	-	-
25-Oct-2024	-	-	-	-	-	-	-
26-Oct-2024	-	-	-	-	-	-	-
27-Oct-2024	-	-	-	-	-	-	-

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOCs	HC-T
28-Oct-2024	-	-	-	-	-	-	-
29-Oct-2024	-	-	-	-	-	-	-
30-Oct-2024	-	-	-	-	-	-	-
31-Oct-2024	-	-	-	-	-	-	-
Monthly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

The spare flare was not used in the reporting month (refer to Table D-5).

Table D-5: Flaring Event – Spare Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOCs	HC-T
01-Oct-2024	-	-	-	-	-	-	-
02-Oct-2024	-	-	-	-	-	-	-
03-Oct-2024	-	-	-	-	-	-	-
04-Oct-2024	-	-	-	-	-	-	-
05-Oct-2024	-	-	-	-	-	-	-
06-Oct-2024	-	-	-	-	-	-	-
07-Oct-2024	-	-	-	-	-	-	-
08-Oct-2024	-	-	-	-	-	-	-
09-Oct-2024	-	-	-	-	-	-	-
10-Oct-2024	-	-	-	-	-	-	-
11-Oct-2024	-	-	-	-	-	-	-
12-Oct-2024	-	-	-	-	-	-	-
13-Oct-2024	-	-	-	-	-	-	-
14-Oct-2024	-	-	-	-	-	-	-
15-Oct-2024	-	-	-	-	-	-	-
16-Oct-2024	-	-	-	-	-	-	-
17-Oct-2024	-	-	-	-	-	-	-
18-Oct-2024	-	-	-	-	-	-	-
19-Oct-2024	-	-	-	-	-	-	-
20-Oct-2024	-	-	-	-	-	-	-
21-Oct-2024	-	-	-	-	-	-	-
22-Oct-2024	-	-	-	-	-	-	-
23-Oct-2024	-	-	-	-	-	-	-
24-Oct-2024	-	-	-	-	-	-	-
25-Oct-2024	-	-	-	-	-	-	-
26-Oct-2024	-	-	-	-	-	-	-
27-Oct-2024	-	-	-	-	-	-	-
28-Oct-2024	-	-	-	-	-	-	-
29-Oct-2024	-	-	-	-	-	-	-

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOCs	HC-T
30-Oct-2024	-	-	-	-	-	-	-
31-Oct-2024	-	-	-	-	-	-	-
Monthly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

The pilot for the liquid burner was ignited on October 19, 2024. While both ethane and propane refrigerants were imported, only the propane refrigerant was introduced to the liquid burner. Propane refrigerant import activities related to liquid burner began on October 27, 2024, and was completed on October 28, 2024. Flare volumes to the liquid burner were calculated using changes in the cold flare KO drum volume. Motive gas (CA:KIT:062FI0254.PV) was used to push propane liquid to the liquid burners, with assist gas (CA:KIT:062FI0361.PV; CA:KIT:062FI0381.PV; CA:KIT:062FI0400.PV) and existing pilot gas facilitating the flaring process. The total propane imported was determined based on ship volumes.

Table D-6: Flaring Event – Liquid Burner Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOCs	HC-T
01-Oct-2024	-	-	-	-	-	-	-
02-Oct-2024	-	-	-	-	-	-	-
03-Oct-2024	-	-	-	-	-	-	-
04-Oct-2024	-	-	-	-	-	-	-
05-Oct-2024	-	-	-	-	-	-	-
06-Oct-2024	-	-	-	-	-	-	-
07-Oct-2024	-	-	-	-	-	-	-
08-Oct-2024	-	-	-	-	-	-	-
09-Oct-2024	-	-	-	-	-	-	-
10-Oct-2024	-	-	-	-	-	-	-
11-Oct-2024	-	-	-	-	-	-	-
12-Oct-2024	-	-	-	-	-	-	-
13-Oct-2024	-	-	-	-	-	-	-
14-Oct-2024	-	-	-	-	-	-	-
15-Oct-2024	-	-	-	-	-	-	-
16-Oct-2024	-	-	-	-	-	-	-
17-Oct-2024	-	-	-	-	-	-	-
18-Oct-2024	-	-	-	-	-	-	-
19-Oct-2024	464	0.6	2	0.9	0.002	5	1.0
20-Oct-2024	416	0.5	2	0.8	0.001	4	0.9
21-Oct-2024	405	0.5	2	0.8	0.001	4	0.9
22-Oct-2024	402	0.5	2	0.8	0.001	4	0.9
23-Oct-2024	406	0.5	2	0.8	0.001	4	0.9
24-Oct-2024	402	0.5	2	0.8	0.001	4	0.9
25-Oct-2024	399	0.5	2	0.8	0.001	4	0.9

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOCs	HC-T
26-Oct-2024	390	0.5	2	0.8	0.001	4	0.9
27-Oct-2024	33,080	64	269	104	0.119	572	121
28-Oct-2024	27,490	46	190	73	0.097	404	86
29-Oct-2024	412	0.5	2	1	0.002	4	1
30-Oct-2024	408	0.5	2	1	0.002	4	1
31-Oct-2024	409	0.5	2	1	0.002	4	1
Monthly Total	**65,084**	**116**	**480**	**186**	**0.23**	**1,023**	**217**

*Final totals may be subject to rounding adjustments

Exhibit D-1: Sample Emission Calculations – Warm/Wet Flare

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 h to 1 day (d)
    - 10,000 parts per millon (ppm) in one percent.

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable meters include:
    - KITSL-V1P.curval (KMS): This tag provides the daily fuel gas volume data recorded at the KMS. These volumes, measured at atmospheric pressure, serve as the primary input for calculating flared gas volumes.
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density was obtained (daily values at 1 atm) This was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - CA:KIT:114FI1601.PV: This tag records the fuel gas consumption of the LMS100 Gas Turbine. Although this fuel gas is not directly flared, its consumption is subtracted from the gross fuel gas volume (KITSL-V1P.curval) to accurately determine the net volume of fuel gas sent to the warm/wet flare, as described in Table D-2 and the accompanying explanation.
    - CA:KIT:062FI0254.PV: This tag measures the motive gas (fuel gas) utilized in the liquid propane flaring process. This motive gas is used to transfer propane to the liquid burners, as detailed in Table D-6.
    - CA:KIT:062FI0361.PV, CA:KIT:062FI0381.PV, CA:KIT:062FI0400.PV: These tags quantify the assist gas volumes (fuel gas) employed in conjunction with the liquid burner flaring operations (Table D-6).
    - CA:KIT:062FI0343.PV: This tag measures the total fuel gas consumption for all flare pilots. The portions attributable to the cold dry flare and the liquid burner were determined using flare tip allocations and subtracted from the total to determine the warm/wet flare pilot gas consumption.
    - Emission factors: Refer to Table 2 within the report.

Emission Calculation Basis – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow } \left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value } \left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}} \left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000} \left(\frac{\text{GJ}}{\text{MJ}}\right)$$
$$\times 0.9478 \left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor } \left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535 \text{ kg}}{1 \text{ lb}}$$

Using October 1, 2024, and NOx for the example:

Convert volumetric flow rate to mass flow rate:

Volumetric flow rate = 608,578 m^3/d – corrected to 20°C.

Mass flow rate = 608,578 m^3/d x 0.75201012 kg/m^3 = 457,657 kg/d

NOx Mass Emission (kg/d)

= 457,657 x 40.97 x 1/0.75201012 x 1/1000 x 0.9478 x 0.068 x 0.4535

≈ 729 kg/d

Similar calculations follow for CO, $PM_{2.5}$, VOC, and HC-T, however all HHV values in their calculations are converted to LHV.

Emission Calculation Basis – when using Engineering Estimates (only applies to SOx):

Total sulfur content (S) in feed gas samples was analyzed periodically by the LNG Canada laboratory. Table D-7 below table summarizes the laboratory results.

Table D-7: Total Sulphur Content Measured in the Feed Gas (Laboratory Results)

Date	Total Sulphur in Feed Gas (ppmw)	%
08-Oct-2024	4.97	0.000497
15-Oct-2024	2.31	0.000231
29-Oct-2024	2.88	0.000288

To bridge periods between measurements, the following approach was used:

- October 1 - 14: SO_2 emissions were calculated using the October 8 total sulphur measurement.
- October 15 - 28: The October 15, 2024 measurement was applied.
- October 29 - 31: The October 29, 2024 measurement was applied.

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

Using October 1, 2024, for the example, where we use percent sulphur in the fuel gas to be 4.97 ppmw.

SO_2 Mass Emission (kg/d)

= 457,657 x (0.000497) x (1/100) x 64.066/32.065 x 1

= 4.4 kg/d

The same calculation approach would follow for SO_2 (kg/h) numbers; with the flow rate in kg/h rather than kg/d.

Appendix E Ambient Air Quality Evaluation (Condition 10.2.7)

Nitrogen Dioxide (NO_2)

The publicly available data of 1-hour NO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-1. The BCAAQO for 1-hour NO_2 is 60 parts per billion (ppb) (equates to 113 µg/m^3), calculated by the 98th percentile of daily 1-hour maximum over three years; this metric is also illustrated in Figure E-1.

There is a BCAAQO for annual NO_2 (17 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

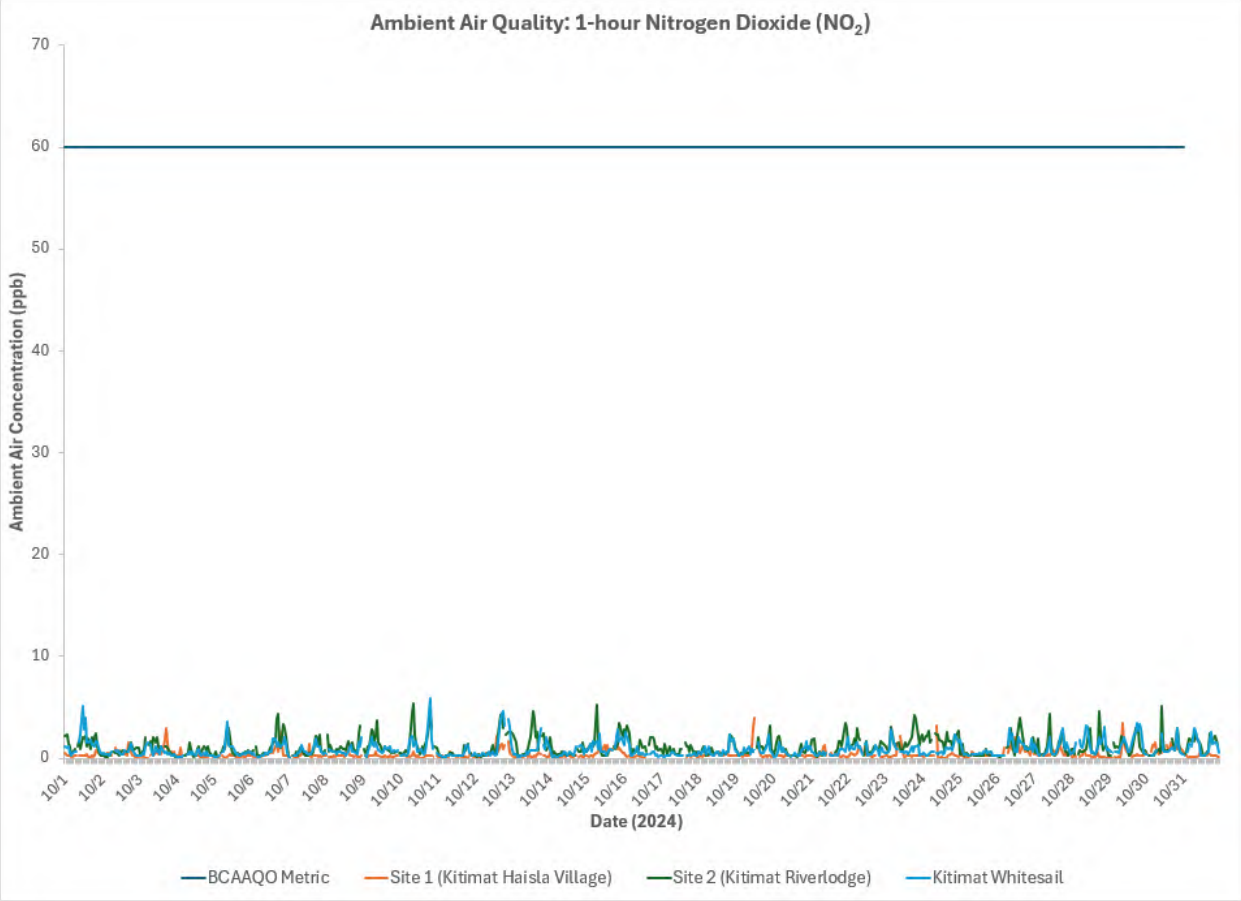

Figure E-1: Ambient Air Quality - 1-hour Nitrogen Dioxide (NO_2)

Sulphur Dioxide (SO_2)

The publicaly available data of 1-hour SO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-2. BC adopted the 2020 Canadian Ambient Air Quality Standard (CAAQS) as the BCAAQO for 1-hour SO_2, which is 70 parts per billion (ppb) (equates to 183 µg/m^3), calculated by the annual 99th percentile of daily 1-hour averaged over three consecutive years; this metric is also illustrated in Figure E-2.

There is a BCAAQO for annual SO_2 (5 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

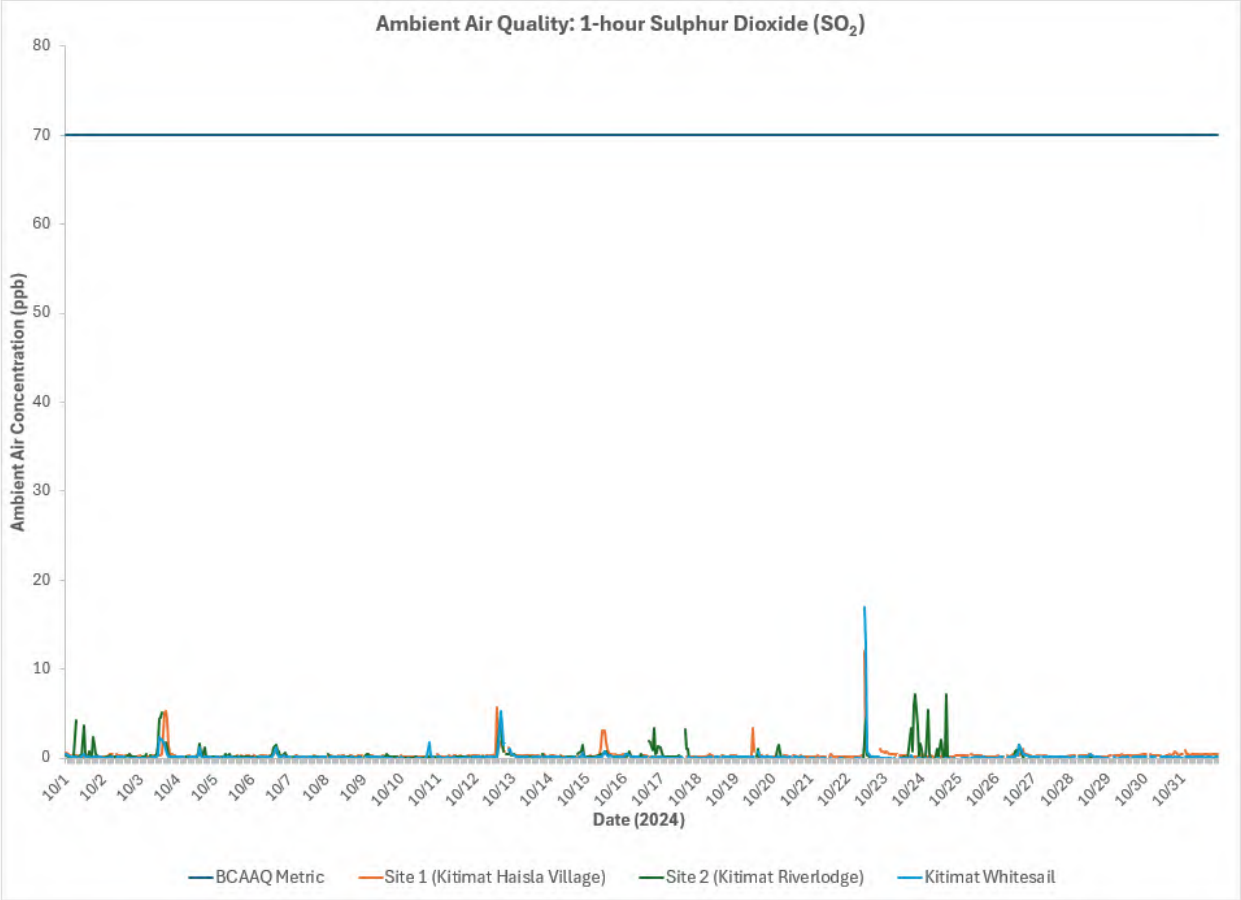

Figure E-2: Ambient Air Quality - 1-hour Sulphur Dioxide (SO_2)

Fine Particulate Matter ($PM_{2.5}$)

The publicaly available data of 24-hour running average for $PM_{2.5}$ from the three continuous ambient air quality monitoring stations is illustrated in Figure E-3. The BCAAQO for 24-hour $PM_{2.5}$ is 25 µg/m^3, calculated by the 98th percentile of daily average, over one year; this metric is also illustrated in Figure E-3.

There is a BCAAQO for annual $PM_{2.5}$ (8 µg/m^3 based on the annual average, over one year) however this information is not published for each monitoring station therefore is not provided herein.

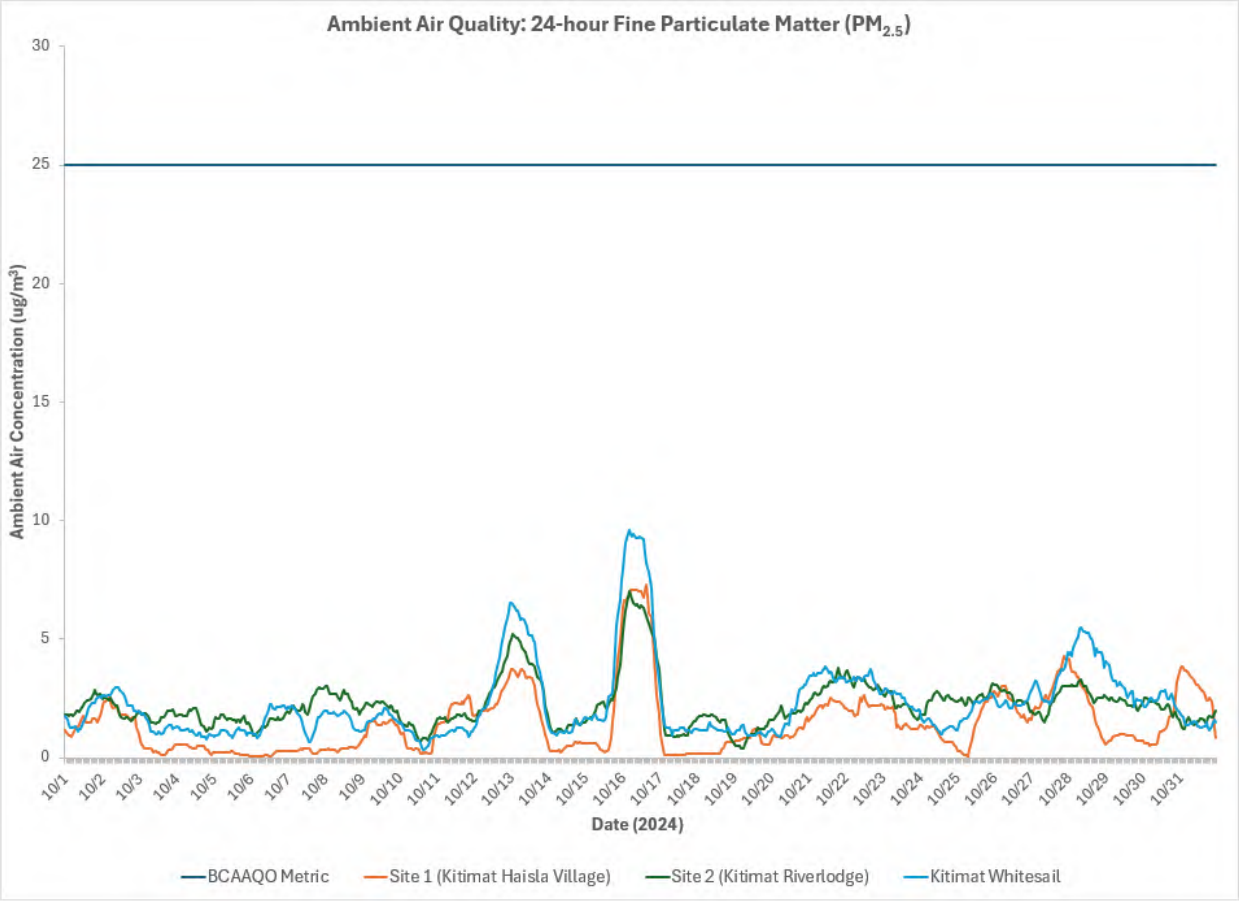

Figure E-3: Ambient Air Quality - 24-hour Fine Particulate Matter ($PM_{2.5}$)

Ozone (O_3)

The publicaly available data of 1-hour O_3 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-4.

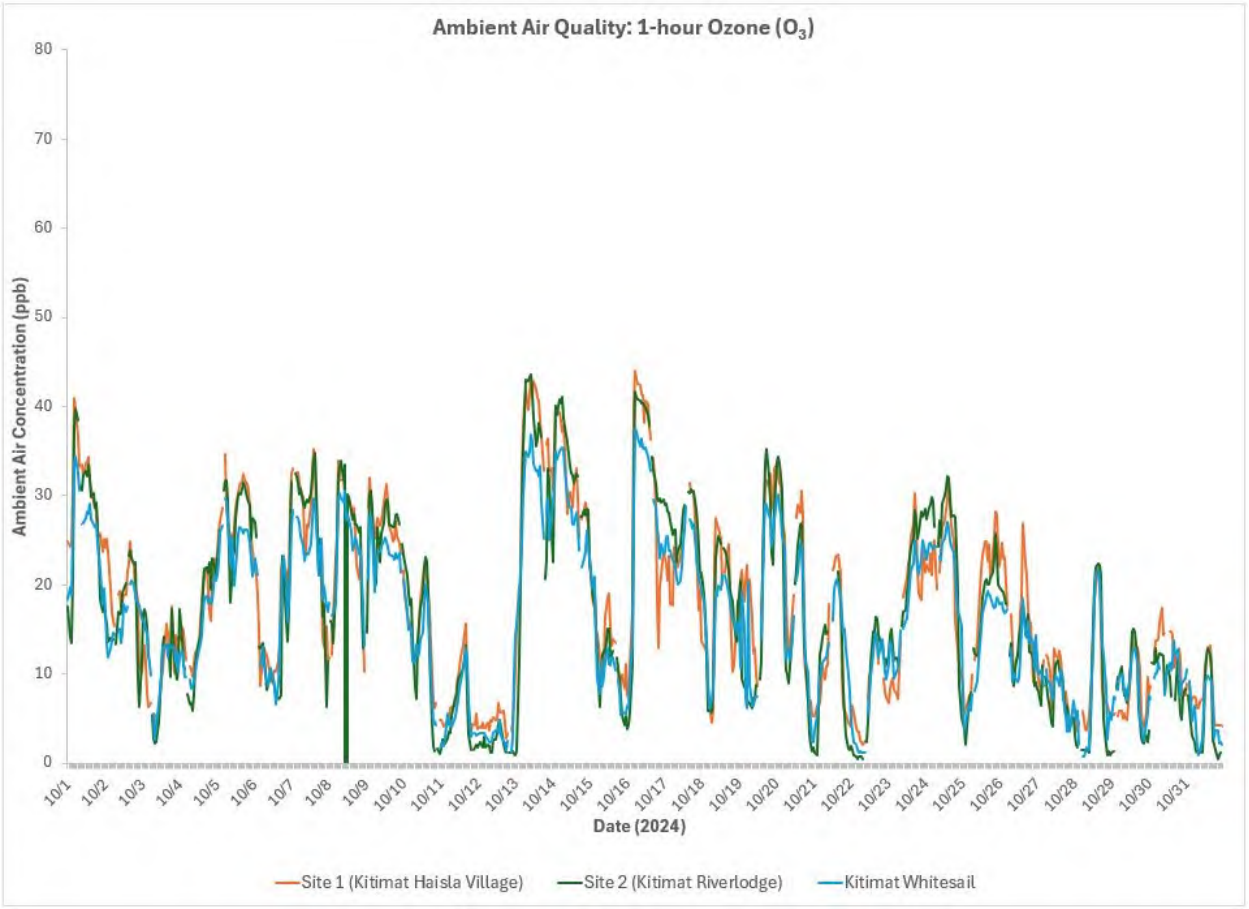

Figure E-4: Ambient Air Quality - 1-hour Ozone (O_3)

Appendix F Facility SO_2 Emission Limit (Condition 10.2.8)

Table F-1 presents the maximum hourly cumulative SO_2 discharge rate per day. It does not imply that the maximum discharge rate occurred for the full 24 hours that day. The maximum hourly rate was based on the maximum hourly flow rate obtained for each of the contributing sources below on the respective dates. The total sulfur content was obtained from Table D-7.

The total sulfur content in the imported ethane and propane was measured to be less than 1 ppm from sampling undertaken in the LNG Canada laboratory. However, for the purposes of this report and to adopt a conservative approach, the sulfur content is assumed to be 1 ppm in the ethane and propane import.

Table F-1: Maximum Hourly SO_2 Discharge Rate for Each Day

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine / WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
01-Oct-2024	0.189	-	-	100.00%	-	-	-	-
02-Oct-2024	0.170	-	-	100.00%	-	-	-	-
03-Oct-2024	0.171	-	-	100.00%	-	-	-	-
04-Oct-2024	0.157	-	-	100.00%	-	-	-	-
05-Oct-2024	0.160	-	-	100.00%	-	-	-	-
06-Oct-2024	0.230	14.00%	-	86.00%	-	-	-	-
07-Oct-2024	0.217	14.85%	-	85.15%	-	-	-	-
08-Oct-2024	0.249	15.15%	-	84.85%	-	-	-	-
09-Oct-2024	0.256	12.37%	-	87.63%	-	-	-	-
10-Oct-2024	0.234	13.66%	-	86.34%	-	-	-	-
11-Oct-2024	0.211	15.77%	-	84.23%	-	-	-	-
12-Oct-2024	0.189	-	-	100.00%	-	-	-	-
13-Oct-2024	0.210	27.78%	-	72.22%	-	-	-	-
14-Oct-2024	0.179	-	-	100.00%	-	-	-	-
15-Oct-2024	0.082	-	-	100.00%	-	-	-	-
16-Oct-2024	0.082	-	-	99.98%	0.02%	-	-	-
17-Oct-2024	0.081	-	-	99.34%	0.66%	-	-	-
18-Oct-2024	0.080	-	-	99.98%	0.02%	-	-	-
19-Oct-2024	0.079	-	-	99.88%	0.04%	-	-	0.08%
20-Oct-2024	0.078	-	-	98.18%	1.73%	-	-	0.09%
21-Oct-2024	0.078	-	-	72.14%	27.78%	-	-	0.08%
22-Oct-2024	0.079	-	-	81.25%	18.67%	-	-	0.08%
23-Oct-2024	0.079	-	-	75.89%	24.03%	-	-	0.08%
24-Oct-2024	0.080	-	-	76.04%	23.89%	-	-	0.07%
25-Oct-2024	0.080	-	-	86.76%	13.17%	-	-	0.07%
26-Oct-2024	0.081	-	-	90.85%	9.08%	-	-	0.07%

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine / WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
27-Oct-2024	0.092	0.0%	-	73.69%	2.90%	-	-	23.41%
28-Oct-2024	0.132	0.0%	-	43.50%	0.82%	-	-	55.68%
29-Oct-2024	0.101	0.0%	-	99.62%	0.31%	-	-	0.07%
30-Oct-2024	0.100	0.0%	-	99.62%	0.31%	-	-	0.07%
31-Oct-2024	0.100	0.0%	-	99.61%	0.31%	-	-	0.08%

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Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Monthly Report (November 2024)

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1. Executive Summary

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. The BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., for the discharge of air contaminants to the environment from the LNG Facility.

Permit PA-110588 requires a monthly report to be submitted to the BCER that includes data/information on:

- Fuel Gas Use (for Commissioning only)
- Continuous Emissions Monitoring System (for Operations only)
- Flaring Activities
- Ambient Air Monitoring Evaluation
- Facility sulphur dioxide (SO_2) Emissions

Herein is the monthly report for November 2024. A summary of the findings for this reporting period is as follows:

- There were no instances of permit non-compliances during the reporting period.
- There were no ambient air quality concentrations of nitrogen dixoide (NO_2) or SO_2 measured in excess of the BC ambient air quality objective (AAQO) metrics at the three continuous ambient air quality monitoring stations identified in Permit PA-110588 (Kitamaat Village (Kitimat Haisla Village); Kitimat Riverlodge and Kitimat Whitesail). The was elevated respirable particulate matter ($PM_{2.5}$) measured at Kitamaat Village (Kitimat Haisla Village measured for two hours on November 4, 2024 that is suspected to be erronus data.
- There were air emissions from three authorised discharge sources defined in Sections 2.1 to 2.7 of Permit PA-110588: warm/wet flare; cold/dry flare and the liquid burner.

The warm/wet flare was the largest source of air emissions, as all the fuel gas introduced into the facility is used for testing purposes during Commissioning, rather than for producing LNG. The maximum hourly cumulative SO_2 rate in November was calculated to be 0.018 kg/hour, significantly below the Permit PA-110588 limit of 140 kg/hour.

2. Overview

2.1. Project Background

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

2.2. Purpose

On July 15, 2024, the BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., under the provisions of the BC *Environmental Management Act*, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Permit PA-110588 applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.2 of Permit PA-110588 (Monthly Reporting) for November 2024.

Refer to Appendix B for a list of all monthly reports that have been issued under Permit PA-110588.

2.3. LNG Facility Status

On the afternoon of August 31, 2024, fuel gas was introduced into Unit 1000 (Inlet Facilities) for the first time from the Coastal Gas Link (CGL) pipeline, commencing the pressurization of piping and the startup fuel gas heater. The introduction of fuel gas into the fuel gas headers down to the flare area, and the first supply of fuel gas to the pilot on the warm/wet flare occurred on September 1, 2024.

During November 2024, discharges of air contaminants occurred from the following authorized works:

- One (1) warm/wet flare
- One (1) cold/dry flare
- Liquid burner

Under Permit PA-110588, the “Commissioning” phase is defined as “that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.” Operations is the period of time which follows Commissioning. Therefore, “Commissioning”, under Permit PA-110588, commenced on September 1, 2024. The first cargo has not yet been shipped from LNG Train 1.

The Initial Performance Period (IPP) did not commence during November 2024 (which is defined as the period that "*commences upon the completion of the initial performance test for LNG Train 1"*).

3. Fuel Gas Use (Commissioning Only) (Condition 10.2.1)

3.1. Permit Condition

Under Condition 10.2.1, the monthly report shall identify and provide a summary of fuel gas use at the facility during Commissioning. The monthly report shall include the following information:

a. the daily volume of fuel gas combusted and vented;

b. the daily mass emissions of nitrogen oxides (NOx), sulphur oxides (SOx), carbon monoxide (CO), particulate matter with an aerodynamic diameter smaller than 2.5 micrometers (PM2.5), volatile organic compounds (VOCs) and total hydrocarbons (HC-T), for the authorized works in Section 2.1 and 2.2; and

c. the quantification method (under Section 9 of Permit PA-110588) and representative calculations.

3.2. Data and Assessment

Appendix C contains the summary of the daily volume of fuel gas combusted and vented as well as the daily mass emissions of NO_X, SO_X, CO, $PM_{2.5}$, VOCs, and HC-T from the gas turbine engines (which is Section 2.1 of Permit PA-110588) in November 2024.

The basis for this assessment is as follows:

- The daily volume of fuel gas combusted and vented at the LNG Facility is based on the daily volume of fuel gas introduced into the LNG facility, as all this fuel gas is used for testing purposes during Commissioning; rather than for producing LNG. Note, this is a conservative approach, and does not account for the time lag between pressurizing systems with fuel gas to it being combusted or vented. The data for this report was obtained from the Kitimat Metering Station (KMS) using the CGL meter.
- As there was no fuel gas combusted in the gas turbines and AGIs in the reporting period, the daily mass emissions from these systems are shown with “zero” values in Appendix C.

4. CEMS Zero and Span Reporting (Condition 10.2.2)

4.1. Permit Condition

Under Condition 10.2.2, during Operations, after the completion of the initial CEMS performance evaluation, the monthly report shall include a summary of all CEMS out of control calibration zero and span events that occurred during the month.

4.2. Data and Assessment

As Operations has not yet commenced, there is no CEMS zero and span reporting for this month.

5. CEMS Reporting (Condition 10.2.3)

5.1. Permit Condition

Under Condition 10.2.3, during Operations, after the completion of the initial CEMS performance evaluation, the Permittee shall provide a summary of CEMS data collected during the month.

5.2. Data and Assessment

As Operations has not yet commenced, there is no CEMS reporting for this month.

6. Flaring Activity Reporting (Condition 10.2.4)

6.1. Permit Condition

Under Condition 10.2.4, a summary of all flaring activity carried out during the month is to be included in the monthly report. The monthly report shall include the following information:

a. identification of the flare source;

b. description of the type of process gas sent to flare;

c. the volume of gas sent to the flare during each event;

d. the reason for the flaring event;

e. any external notifications sent out, if applicable;

f. the (i) daily and (ii) monthly volume of gas being flared for each source; and

g. the (i) daily and (ii) monthly contaminant emission totals for each source, parameters include NO_x, CO, $PM_{2.5}$, SO_x, VOCs, and HC-T.

h. the quantification method (under Section 9) and representative calculations

6.2. Data and Assessment

In Permit PA-110588, flaring activities are described as either a routine flaring event (continuous) or a non-routine flaring event (intermittent). Routine flaring discharges include the continuous flare pilots, which are supplied by fuel gas to provide a continuous ignition source so that any gas sent to the flare as a result of upset conditions ("non-routine flaring") is immediately combusted. The permit application to support Permit PA-110588 also described the other small sources of process gas that are continuously sent to the flare, including compressor seal gas, analyzer sample returns and passing valves.

Process gas refers to the natural gas stream intended for LNG production; the incoming fuel gas stream from Coastal Gas Link that undergoes several treatment stages (acid gas removal, pre-cooling, and finally, liquefaction) prior to being exported as LNG.

Appendix D contains the flaring activities tables, as follows:

- Table D-1: Flaring Events Table
- Table D-2: Warm/Wet Flare Volume and Emissions Summary
- Table D-3: Cold/Dry Flare Volume and Emissions Summary
- Table D-4: Storage and Loading Flare Volume and Emissions Summary
- Table D-5: Spare Flare Volume and Emissions Summary
- Table D-6: Liquid Burner Volume and Emissions Summary

Sample calculations are also provided in Appendix D (Exhibit D-1). The basis for this assessment is as follows:

- The daily volume of gas flared is sourced from the flow meters upstream of the applicable flare. In cases where the flow is below the detection limit of the flow meters, the sum of flow from upstream flow meters is used.
- The daily mass emissions from each flare source reported herein are calculated based on published emission factors for industrial flares (refer to Table 1), except for SO_X, which is calculated based on a mass balance and assumed destruction efficiency.

- During this reporting month, the storage and loading flare and spare flare were not used, therefore shown with "zero" values for emissions.

Table 1: Emission Factors used for the Flare System

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.12	lb/MMBtu	B	Based on an average smoking flare (soot in concentration values: 177 ug/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from ug/L to lb/MMBtu is documented in the "Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015", issued to USEPA by RTI International.

7. Permit Contravention (Condition 10.2.5)

7.1. Permit Condition

Under Condition 10.2.5, a summary of all instances of permit non-compliances are to be included in the monthly report, including a description of the event (date, time, circumstances), a summary of the investigation findings, the completed and ongoing actions taken in response to the non-compliance event, and the date of self-disclosure notifications to the BCER.

7.2. Assessment

There were no instances of permit non-compliances during the reporting period.

8. Pollution Control Technologies (Condition 10.2.6)

8.1. Permit Condition

Under Condition 10.2.6, a discussion of any operational or performance issues or significant maintenance activities with any pollution control technologies of the authorized works and equipment required by the permit is to be included in the monthly report.

The pollution control technologies identified in the permit application supporting Permit PA-110588 were the:

- Dry low emissions combustor optimization system in the gas turbines (dry low NOx burners); and
- Catalysts in the WHRUs, to convert CO in the exhaust gas to carbon dioxide.

8.2. Assessment

There were no instances of operational or performance issues, or significant maintenance activities with the pollution control technologies within the reporting period, given Operations has not yet commenced.

9. Ambient Air Monitoring Evaluation (Commissioning Only) (Condition 10.2.7)

9.1. Permit Condition

Under Condition 10.2.7, the following information for nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and $PM_{2.5}$ from three continuous ambient air quality monitoring stations (Kitamaat Village (Kitimat Haisla Village) (Site 1); Kitimat Riverlodge (Site 2) and Kitimat Whitesail) are to be included in the monthly report during Commissioning where information is publicly available:

a. a comparison of the measured ambient air concentrations at each ambient air monitoring stations to the applicable numerical metrics of the BC ambient air quality objectives (BCAAQO);

b. (i) a description of any measured ambient air concentrations in excess of the numerical metrics of the BCAAQO, if applicable, (ii) a description of any known contributing factors from authorized works, and (iii) a description of action (if any) taken by the Permittee.

The monthly report shall also include the time series plot of the hourly average ambient air concentration of ozone (O_3) data from these stations.

9.2. Data and Assessment

Data from continuous ambient air quality monitoring stations in Kitimat are publically available via the BC Ministry of Environment and Climate Change Strategy, at: Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

The publically available data for NO_2, SO_2 and $PM_{2.5}$ at the three continuous ambient air quality monitoring stations are provided in graphs in Appendix E; the graphs also contain the applicable BCAAQO. The time series plot for the hourly average ambient air concentration of O_3 is also provided in Appendix E.

There were no ambient air quality concentrations of NO_2 or SO_2 measured in excess of the BCAAQO metrics in the reporting period. Elevated respirable particulate matter ($PM_{2.5}$) was measured at Kitamaat Village (Kitimat Haisla Village on November 4, 2024, for two hours (17:00 and 18:00). $PM_{2.5}$ data from this station was not published from the evening of October 31, 2024, to November 4, 2024, at 15:00; this spike occurred shortly after the data from this station began being published again. LNG Canada followed up with Trinity Consultants who advised that the raw preliminary data from November has not undergone their validation / quality assurance process yet, and as this event occurred just after the annual 72-hour test has occurred, there is a possibility that the measurements were erroneous and may be invalidated (LNG Canada, 2024). Elevated values of $PM_{2.5}$ were not measured at the other ambient monitoring stations for this period.

10. Facility SO_2 Emission Limit (Condition 10.2.8)

10.1. Permit Condition

Under Condition 10.2.8, for all authorized sources in Sections 2.1 to 2.7, for each day of the month, the maximum hourly cumulative SO_2 discharge rate is to be provided in the monthly report, including the percentage breakdown of the sources contributing to the maximum discharge rate of each day.

10.2. Data and Assessment

Appendix F contains the cumulative SO_2 discharge rate from the authorized sources in Permit PA-110588 Section 2.1 to 2.7 (refer to Section 2.2), including the percentage breakdown of the sources contributing to the maximum discharge rate shown for each day.

The representative calculations for SO_2 for the flare system are provided in Appendix D, Exhibit D-1.

11. References

- BC Ministry of Environment and Climate Change Strategy, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca), accessed December 2, 2024.
- LNG Canada, 2024. Correspondance with Trinity Consultants related to elevated PM2.5 measurements at Haisla Village, December 9.

Appendix A Abbreviations

AGI	Acid Gas Incinerator
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
CGL	Coastal Gas Link (Pipeline)
CO	Carbon monoxide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
JFJV	JGC Fluor BC LNG Joint Venture
KMS	Kitimat Metering Station
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
VOC	Volatile Organic Compound
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit

µg/m^3	micrograms per cubic meter

Appendix B Previous Monthly Reports Issued Under PA-110588

Month	Document #	Date Issued
August 2024	L001-09800-HE-7180-4611	04-Sep-2024
September 2024	L001-09800-HE-7180-4612	22-Oct-2024; Revised 03-Feb-2025 (Rev B)
October 2024	L001-09800-HE-7180-4613	26-Nov-2024; Revised 03-Feb-2025 (Rev B)
November 2024	L001-09800-HE-7180-4614	16-Dec-2024; Revised 03-Feb-2025 (Rev B)

Appendix C Fuel Gas Use During Commissioning (Condition 10.2.1)

There was no LNG production that occurred in this period. For the month of November all daily fuel gas volumes were obtained from the KMS (Tag: KITSL-V1P.curval) under atmospheric pressure (Pressure = 1 atm) (refer to Table C-1). The fuel volumes below were corrected to 20°C.

Table C-1: Fuel Gas Use During Commissioning

Date	Volume of Fuel Gas Introduced to LNG Facility (m^3/d)
01-Nov-2024	143,126
02-Nov-2024	7,276
03-Nov-2024	5,840
04-Nov-2024	5,368
05-Nov-2024	4,573
06-Nov-2024	6,165
07-Nov-2024	157,016
08-Nov-2024	6,520
09-Nov-2024	6,720
10-Nov-2024	7,135
11-Nov-2024	5,762
12-Nov-2024	5,698
13-Nov-2024	5,786
14-Nov-2024	6,082
15-Nov-2024	5,997
16-Nov-2024	6,193

Date	Volume of Fuel Gas Introduced to LNG Facility (m^3/d)
17-Nov-2024	6,193
18-Nov-2024	6,193
19-Nov-2024	6,094
20-Nov-2024	6,277
21-Nov-2024	6,730
22-Nov-2024	5,161
23-Nov-2024	6,553
24-Nov-2024	6,707
25-Nov-2024	3,891
26-Nov-2024	61,346
27-Nov-2024	73,350
28-Nov-2024	75,313
29-Nov-2024	63,902
30-Nov-2024	45,765
Monthly Total	**758,732**

There was no combustion of fuel gas in the Gas Turbines during the reporting period (refer to Table C-2).

Table C-2: Fuel Gas Use During Commissioning – Gas Turbines

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NO_X	SO_X	CO	$PM_{2.5}$	VOCs	HC-T
01-Nov-2024	-	-	-	-	-	-	-
02-Nov-2024	-	-	-	-	-	-	-
03-Nov-2024	-	-	-	-	-	-	-
04-Nov-2024	-	-	-	-	-	-	-
05-Nov-2024	-	-	-	-	-	-	-
06-Nov-2024	-	-	-	-	-	-	-
07-Nov-2024	-	-	-	-	-	-	-
08-Nov-2024	-	-	-	-	-	-	-
09-Nov-2024	-	-	-	-	-	-	-
10-Nov-2024	-	-	-	-	-	-	-

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NO_X	SO_X	CO	$PM_{2.5}$	VOCs	HC-T
11-Nov-2024	-	-	-	-	-	-	-
12-Nov-2024	-	-	-	-	-	-	-
13-Nov-2024	-	-	-	-	-	-	-
14-Nov-2024	-	-	-	-	-	-	-
15-Nov-2024	-	-	-	-	-	-	-
16-Nov-2024	-	-	-	-	-	-	-
17-Nov-2024	-	-	-	-	-	-	-
18-Nov-2024	-	-	-	-	-	-	-
19-Nov-2024	-	-	-	-	-	-	-
20-Nov-2024	-	-	-	-	-	-	-
21-Nov-2024	-	-	-	-	-	-	-
22-Nov-2024	-	-	-	-	-	-	-
23-Nov-2024	-	-	-	-	-	-	-
24-Nov-2024	-	-	-	-	-	-	-
25-Nov-2024	-	-	-	-	-	-	-
26-Nov-2024	-	-	-	-	-	-	-
27-Nov-2024	-	-	-	-	-	-	-
28-Nov-2024	-	-	-	-	-	-	-
29-Nov-2024	-	-	-	-	-	-	-
30-Nov-2024	-	-	-	-	-	-	-
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

There was no combustion of fuel gas in the AGIs during the reporting period (refer to Table C-3).

Table C-3: Fuel Gas Use During Commissioning – Acid Gas Incinerator

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NO_X	SO_X	CO	$PM_{2.5}$	VOCs	HC-T
01-Nov-2024	-	-	-	-	-	-	-
02-Nov-2024	-	-	-	-	-	-	-
03-Nov-2024	-	-	-	-	-	-	-
04-Nov-2024	-	-	-	-	-	-	-
05-Nov-2024	-	-	-	-	-	-	-
06-Nov-2024	-	-	-	-	-	-	-
07-Nov-2024	-	-	-	-	-	-	-
08-Nov-2024	-	-	-	-	-	-	-
09-Nov-2024	-	-	-	-	-	-	-
10-Nov-2024	-	-	-	-	-	-	-
11-Nov-2024	-	-	-	-	-	-	-
12-Nov-2024	-	-	-	-	-	-	-

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NO_X	SO_X	CO	$PM_{2.5}$	VOCs	HC-T
13-Nov-2024	-	-	-	-	-	-	-
14-Nov-2024	-	-	-	-	-	-	-
15-Nov-2024	-	-	-	-	-	-	-
16-Nov-2024	-	-	-	-	-	-	-
17-Nov-2024	-	-	-	-	-	-	-
18-Nov-2024	-	-	-	-	-	-	-
19-Nov-2024	-	-	-	-	-	-	-
20-Nov-2024	-	-	-	-	-	-	-
21-Nov-2024	-	-	-	-	-	-	-
22-Nov-2024	-	-	-	-	-	-	-
23-Nov-2024	-	-	-	-	-	-	-
24-Nov-2024	-	-	-	-	-	-	-
25-Nov-2024	-	-	-	-	-	-	-
26-Nov-2024	-	-	-	-	-	-	-
27-Nov-2024	-	-	-	-	-	-	-
28-Nov-2024	-	-	-	-	-	-	-
29-Nov-2024	-	-	-	-	-	-	-
30-Nov-2024	-	-	-	-	-	-	-
31-Nov-2024	-	-	-	-	-	-	-
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Appendix D Flaring Activity (Condition 10.2.4)

Table D-1: Flaring Event Overview

Flare	Event Type	Event Date & Time			Description	Volume of Gas to Flare Per Event (m^3/month)	External Notifications Undertaken
		Start	End	Duration			
Warm/Wet	Routine	01-Nov-2024	30-Nov-2024	Continuous	Pilot and purge gas.	101,780	N/A
Warm/Wet	Non-Routine	01-Nov-2024	30-Nov-2024	Continuous	Assist gas and supporting start-up activities[1]	593,643	N/A
Cold/Dry	Routine	01-Nov-2024	30-Nov-2024	Continuous	Pilot, and fuel gas purges to support start-up activities	49,122	N/A
Storage and Loading	Routine	N/A	N/A	N/A	Not Used	N/A	N/A
Spare	Routine	N/A	N/A	N/A	Not Used	N/A	N/A
Liquid Burner	Routine	01-Nov-2024	30-Nov-2024	Continuous	Pilot	14,187	N/A

Notes:

1. In this reporting period, flaring is undertaken to support commissioning and start-up activities; in accordance with Leave(s) to Operate from the BC Energy Regulator. This fuel gas is not considered process gas.

The data for the warm/wet flare was derived from the KMS CGL inlet gas meter (refer to Table C-1). The following volumes were subtracted because they were measured and reported separately herein:

- The pilot for the cold dry flare (refer to Table D-3);
- The fuel gas purges to the cold dry flare (refer to Table D-3).
- The pilot for the liquid burner (refer to Table D-6);

The fuel volumes below were corrected to 20°C.

Table D-2: Flaring Event – Warm/Wet Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOCs	HC-T
01-Nov-2024	146,364	172	706	273	0.117	1,503	319
02-Nov-2024	11,536	14	56	22	0.009	119	25
03-Nov-2024	10,094	12	49	19	0.008	104	22
04-Nov-2024	8,888	10	43	17	0.007	91	19
05-Nov-2024	7,352	9	35	14	0.006	76	16
06-Nov-2024	8,974	11	43	17	0.007	92	20
07-Nov-2024	10,094	12	49	19	0.008	104	22
08-Nov-2024	9,299	11	45	17	0.007	96	20
09-Nov-2024	9,481	11	46	18	0.008	98	21
10-Nov-2024	9,891	12	48	18	0.008	102	22
11-Nov-2024	8,538	10	41	16	0.007	88	19
12-Nov-2024	8,481	10	41	16	0.016	87	19
13-Nov-2024	8,569	10	41	16	0.016	88	19
14-Nov-2024	8,846	10	43	17	0.016	91	19
15-Nov-2024	8,754	10	42	16	0.016	90	19
16-Nov-2024	8,950	11	43	17	0.017	92	20
17-Nov-2024	8,941	11	43	17	0.017	92	20
18-Nov-2024	8,926	11	43	17	0.017	92	19
19-Nov-2024	8,817	10	43	17	0.014	91	19
20-Nov-2024	8,930	11	43	17	0.014	92	19
21-Nov-2024	9,407	11	45	18	0.015	97	21
22-Nov-2024	7,893	9	38	15	0.013	81	17
23-Nov-2024	9,266	11	45	17	0.015	95	20
24-Nov-2024	9,371	11	45	18	0.015	96	20
25-Nov-2024	6,515	8	32	12	0.010	67	14
26-Nov-2024	64,024	75	310	120	0.119	659	140
27-Nov-2024	76,070	90	368	143	0.142	784	166
28-Nov-2024	78,042	92	378	146	0.146	805	171
29-Nov-2024	66,639	79	323	125	0.124	687	146
30-Nov-2024	48,471	57	235	91	0.091	500	106
Monthly Total	**695,423**	**819**	**3,362**	**1,301**	**1.02**	**7,158**	**1,518**

*Final totals may be subject to rounding adjustments

For the month of November, the reporting for the cold/dry flare is from the pilot (CA:KIT:062FI0343.PV) and fuel gas purges (CA:KIT:062FI0021.PV and CA:KIT:062FI0022.PV) (refer to Table D-3).

Table D-3: Flaring Event – Cold/Dry Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOCs	HC-T
01-Nov-2024	1,334	1.6	6.4	2.5	0.001	14	2.9
02-Nov-2024	295	0.3	1.4	0.6	0.000	3	0.6
03-Nov-2024	297	0.3	1.4	0.6	0.000	3	0.6
04-Nov-2024	1,034	1.2	5.0	1.9	0.001	11	2.3
05-Nov-2024	1,764	2.1	8.5	3.3	0.001	18	3.8
06-Nov-2024	1,753	2.1	8.5	3.3	0.001	18	3.8
07-Nov-2024	1,759	2.1	8.5	3.3	0.001	18	3.8
08-Nov-2024	1,763	2.1	8.5	3.3	0.001	18	3.8
09-Nov-2024	1,769	2.1	8.5	3.3	0.001	18	3.9
10-Nov-2024	1,769	2.1	8.5	3.3	0.001	18	3.9
11-Nov-2024	1,762	2.1	8.5	3.3	0.001	18	3.8
12-Nov-2024	1,760	2.1	8.5	3.3	0.003	18	3.8
13-Nov-2024	1,759	2.1	8.5	3.3	0.003	18	3.8
14-Nov-2024	1,767	2.1	8.5	3.3	0.003	18	3.9
15-Nov-2024	1,769	2.1	8.5	3.3	0.003	18	3.9
16-Nov-2024	1,768	2.1	8.5	3.3	0.003	18	3.9
17-Nov-2024	1,771	2.1	8.6	3.3	0.003	18	3.9
18-Nov-2024	1,777	2.1	8.6	3.3	0.003	18	3.9
19-Nov-2024	1,779	2.1	8.6	3.3	0.003	18	3.9
20-Nov-2024	1,801	2.1	8.7	3.4	0.003	19	3.9
21-Nov-2024	1,795	2.1	8.7	3.4	0.003	18	3.9
22-Nov-2024	1,776	2.1	8.6	3.3	0.003	18	3.9
23-Nov-2024	1,783	2.1	8.6	3.3	0.003	18	3.9
24-Nov-2024	1,799	2.1	8.7	3.4	0.003	19	3.9
25-Nov-2024	1,812	2.1	8.8	3.4	0.003	19	4.0
26-Nov-2024	1,795	2.1	8.7	3.4	0.003	18	3.9
27-Nov-2024	1,780	2.1	8.6	3.3	0.003	18	3.9
28-Nov-2024	1,776	2.1	8.6	3.3	0.003	18	3.9
29-Nov-2024	1,773	2.1	8.6	3.3	0.003	18	3.9
30-Nov-2024	1,783	2.1	8.6	3.3	0.003	18	3.9
Monthly Total	**49,122**	**58**	**237**	**92**	**0.072**	**502**	**107**

*Final totals may be subject to rounding adjustments

The storage and loading flare was not used in the reporting month (refer to Table D-4).

Table D-4: Flaring Event – Storage and Loading Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOCs	HC-T
01-Nov-2024	-	-	-	-	-	-	-
02-Nov-2024	-	-	-	-	-	-	-
03-Nov-2024	-	-	-	-	-	-	-
04-Nov-2024	-	-	-	-	-	-	-
05-Nov-2024	-	-	-	-	-	-	-
06-Nov-2024	-	-	-	-	-	-	-
07-Nov-2024	-	-	-	-	-	-	-
08-Nov-2024	-	-	-	-	-	-	-
09-Nov-2024	-	-	-	-	-	-	-
10-Nov-2024	-	-	-	-	-	-	-
11-Nov-2024	-	-	-	-	-	-	-
12-Nov-2024	-	-	-	-	-	-	-
13-Nov-2024	-	-	-	-	-	-	-
14-Nov-2024	-	-	-	-	-	-	-
15-Nov-2024	-	-	-	-	-	-	-
16-Nov-2024	-	-	-	-	-	-	-
17-Nov-2024	-	-	-	-	-	-	-
18-Nov-2024	-	-	-	-	-	-	-
19-Nov-2024	-	-	-	-	-	-	-
20-Nov-2024	-	-	-	-	-	-	-
21-Nov-2024	-	-	-	-	-	-	-
22-Nov-2024	-	-	-	-	-	-	-
23-Nov-2024	-	-	-	-	-	-	-
24-Nov-2024	-	-	-	-	-	-	-
25-Nov-2024	-	-	-	-	-	-	-
26-Nov-2024	-	-	-	-	-	-	-
27-Nov-2024	-	-	-	-	-	-	-
28-Nov-2024	-	-	-	-	-	-	-
29-Nov-2024	-	-	-	-	-	-	-
30-Nov-2024	-	-	-	-	-	-	-
Monthly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

The spare flare was not used in the reporting month (refer to Table D-5).

Table D-5: Flaring Event – Spare Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOCs	HC-T
01-Nov-2024	-	-	-	-	-	-	-
02-Nov-2024	-	-	-	-	-	-	-
03-Nov-2024	-	-	-	-	-	-	-
04-Nov-2024	-	-	-	-	-	-	-
05-Nov-2024	-	-	-	-	-	-	-
06-Nov-2024	-	-	-	-	-	-	-
07-Nov-2024	-	-	-	-	-	-	-
08-Nov-2024	-	-	-	-	-	-	-
09-Nov-2024	-	-	-	-	-	-	-
10-Nov-2024	-	-	-	-	-	-	-
11-Nov-2024	-	-	-	-	-	-	-
12-Nov-2024	-	-	-	-	-	-	-
13-Nov-2024	-	-	-	-	-	-	-
14-Nov-2024	-	-	-	-	-	-	-
15-Nov-2024	-	-	-	-	-	-	-
16-Nov-2024	-	-	-	-	-	-	-
17-Nov-2024	-	-	-	-	-	-	-
18-Nov-2024	-	-	-	-	-	-	-
19-Nov-2024	-	-	-	-	-	-	-
20-Nov-2024	-	-	-	-	-	-	-
21-Nov-2024	-	-	-	-	-	-	-
22-Nov-2024	-	-	-	-	-	-	-
23-Nov-2024	-	-	-	-	-	-	-
24-Nov-2024	-	-	-	-	-	-	-
25-Nov-2024	-	-	-	-	-	-	-
26-Nov-2024	-	-	-	-	-	-	-
27-Nov-2024	-	-	-	-	-	-	-
28-Nov-2024	-	-	-	-	-	-	-
29-Nov-2024	-	-	-	-	-	-	-
30-Nov-2024	-	-	-	-	-	-	-
31-Nov-2024	-	-	-	-	-	-	-
Monthly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

The emissions associated with the liquid burner are from the pilot.

Table D-6: Flaring Event – Liquid Burner Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOCs	HC-T
01-Nov-2024	418	0.49	2.0	0.78	0.000	4.3	0.91
02-Nov-2024	435	0.51	2.1	0.81	0.000	4.5	0.95
03-Nov-2024	439	0.52	2.1	0.82	0.000	4.5	0.96
04-Nov-2024	437	0.51	2.1	0.82	0.000	4.5	0.95
05-Nov-2024	447	0.53	2.2	0.84	0.000	4.6	0.97
06-Nov-2024	428	0.50	2.1	0.80	0.000	4.4	0.93
07-Nov-2024	441	0.52	2.1	0.82	0.000	4.5	0.96
08-Nov-2024	448	0.53	2.2	0.84	0.000	4.6	0.98
09-Nov-2024	461	0.54	2.2	0.86	0.000	4.7	1.00
10-Nov-2024	465	0.55	2.2	0.87	0.000	4.8	1.02
11-Nov-2024	452	0.53	2.2	0.85	0.000	4.7	0.99
12-Nov-2024	448	0.53	2.2	0.84	0.001	4.6	0.98
13-Nov-2024	448	0.53	2.2	0.84	0.001	4.6	0.98
14-Nov-2024	459	0.54	2.2	0.86	0.001	4.7	1.00
15-Nov-2024	465	0.55	2.2	0.87	0.001	4.8	1.02
16-Nov-2024	466	0.55	2.3	0.87	0.001	4.8	1.02
17-Nov-2024	472	0.56	2.3	0.88	0.001	4.9	1.03
18-Nov-2024	482	0.57	2.3	0.90	0.001	5.0	1.05
19-Nov-2024	488	0.57	2.4	0.91	0.001	5.0	1.07
20-Nov-2024	537	0.63	2.6	1.00	0.001	5.5	1.17
21-Nov-2024	519	0.61	2.5	0.97	0.001	5.3	1.13
22-Nov-2024	483	0.57	2.3	0.90	0.001	5.0	1.05
23-Nov-2024	495	0.58	2.4	0.93	0.001	5.1	1.08
24-Nov-2024	527	0.62	2.5	0.99	0.001	5.4	1.15
25-Nov-2024	554	0.65	2.7	1.04	0.001	5.7	1.21
26-Nov-2024	518	0.61	2.5	0.97	0.001	5.3	1.13
27-Nov-2024	490	0.58	2.4	0.92	0.001	5.0	1.07
28-Nov-2024	485	0.57	2.3	0.91	0.001	5.0	1.06
29-Nov-2024	480	0.57	2.3	0.90	0.001	5.0	1.05
30-Nov-2024	500	0.59	2.4	0.94	0.001	5.2	1.09
Monthly Total	**14,187**	**17**	**69**	**27**	**0.020**	**146**	**31**

*Final totals may be subject to rounding adjustments

Exhibit D-1: Sample Emission Calculations – Warm/Wet Flare

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 h to 1 day (d)
    - 10,000 parts per millon (ppm) in one percent.

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable meters include:
    - KITSL-V1P.curval (KMS): This tag provides the daily fuel gas volume data recorded at the KMS. These volumes, measured at atmospheric pressure, serve as the primary input for calculating flared gas volumes.
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density was obtained (daily values at 1 atm) This was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - CA:KIT:062FI0343.PV: This tag measures the total fuel gas consumption for all flare pilots. The portions attributable to the cold dry flare and the liquid burner were determined using flare tip allocations and subtracted from the total to determine the warm/wet flare pilot gas consumption.
    - CA:KIT:062FI0021.PV; CA:KIT:062FI0022.PV: These tags provide the fuel gas purges from the cold dry flare.
    - Emission factors: Refer to Table 1 within the report.

Emission Calculation Basis – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using November 1, 2024, and NOx for the example:

Convert volumetric flow rate to mass flow rate:

Volumetric flow rate = 146,364 m^3/d – corrected to 20°C.

Mass flow rate = 146,364m^3/d x 0.737649583 kg/m^3 = 107,965.34 kg/d

NOx Mass Emission (kg/d)

= 107,965.34 x 40.209 x 1/0.737649583 x 1/1000 x 0.9478 x 0.068 x 0.4535

≈ 172 kg/d

Similar calculations follow for CO, $PM_{2.5}$, VOC, and HC-T, however all HHV values in their calculations are converted to LHV.

Emission Calculation Basis – when using Engineering Estimates (only applies to SOx):

Total sulfur content (S) in feed gas samples was analyzed periodically by the LNG Canada laboratory. Table D-7 below table summarizes the laboratory results.

Table D-7: Total Sulphur Content Measured in the Feed Gas (Laboratory Results)

Date	Total Sulphur in Feed Gas (ppmw)	%
06-Nov-24	0.54	0.000054
12-Nov-24	1.26	0.000126
19-Nov-24	1.08	0.000108
26-Nov-24	1.26	0.000126

To bridge periods between measurements, the following approach was used:

- November 1 - 11: SO_2 emissions were calculated using the November 6 total sulphur measurement.
- November 12 - 18: The November 12, 2024 measurement was applied.
- November 19 – 25: The November 19, 2024 measurement was applied.
- November 26 – 30: The November 26, 2024 measurement was applied.

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

Using November 1, 2024, for the example, where we use percent sulphur in the fuel gas to be 0.3 ppmw.

SO_2 Mass Emission (kg/d)

= 107,965.34 x (0.000054) x (1/100) x 64.066/32.065 x 1

≈ 0.117 kg/d

The same calculation approach would follow for SO_2 (kg/h) numbers; with the flow rate in kg/h rather than kg/d.

Appendix E Ambient Air Quality Evaluation (Condition 10.2.7)

Nitrogen Dioxide (NO_2)

The publicly available data of 1-hour NO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-1. The BCAAQO for 1-hour NO_2 is 60 parts per billion (ppb) (equates to 113 µg/m^3), calculated by the 98th percentile of daily 1-hour maximum over three years; this metric is also illustrated in Figure E-1.

There is a BCAAQO for annual NO_2 (17 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

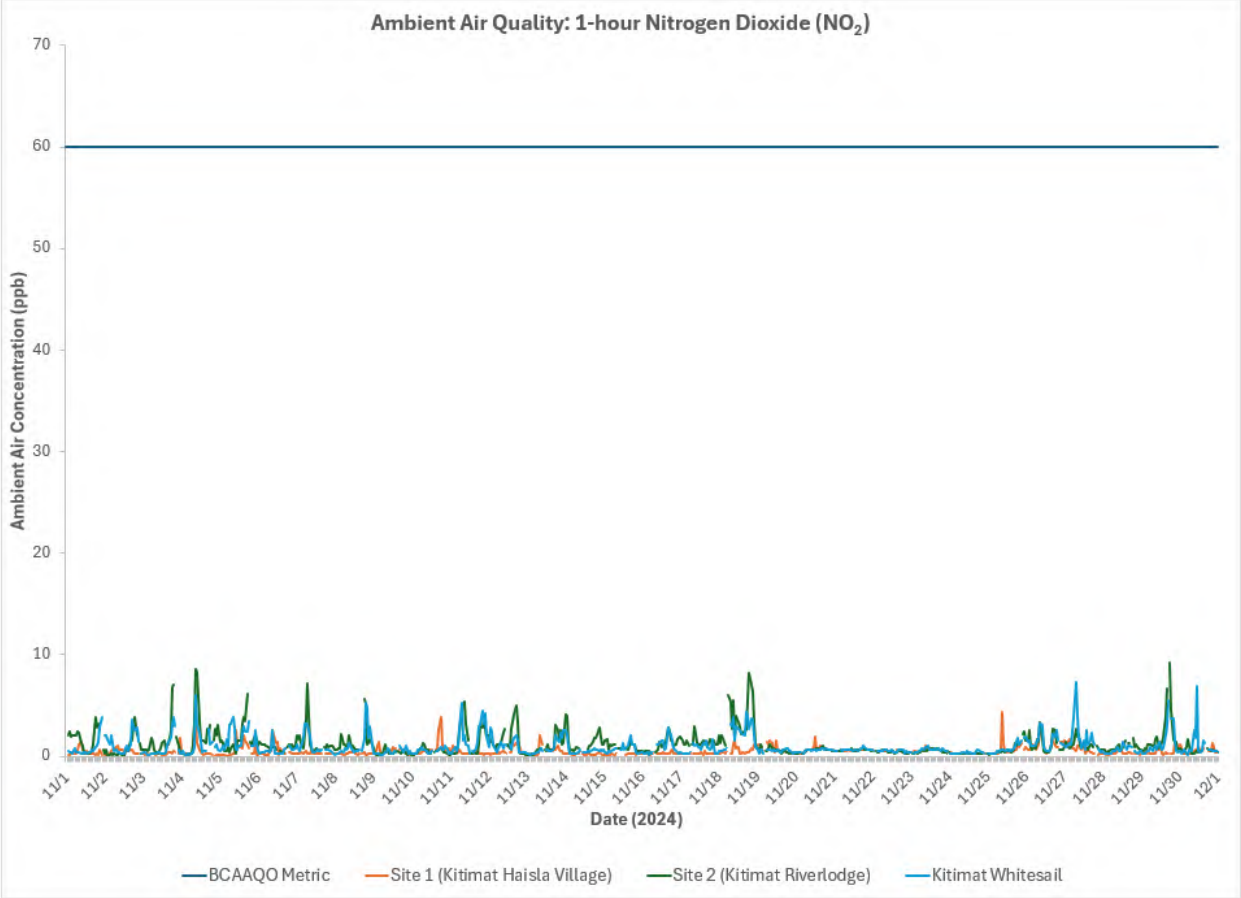

Figure E-1: Ambient Air Quality - 1-hour Nitrogen Dioxide (NO_2)

Sulphur Dioxide (SO_2)

The publicly available data of 1-hour SO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-2. BC adopted the 2020 Canadian Ambient Air Quality Standard (CAAQS) as the BCAAQO for 1-hour SO_2, which is 70 parts per billion (ppb) (equates to 183 µg/m^3), calculated by the annual 99th percentile of daily 1-hour averaged over three consecutive years; this metric is also illustrated in Figure E-2.

There is a BCAAQO for annual SO_2 (5 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

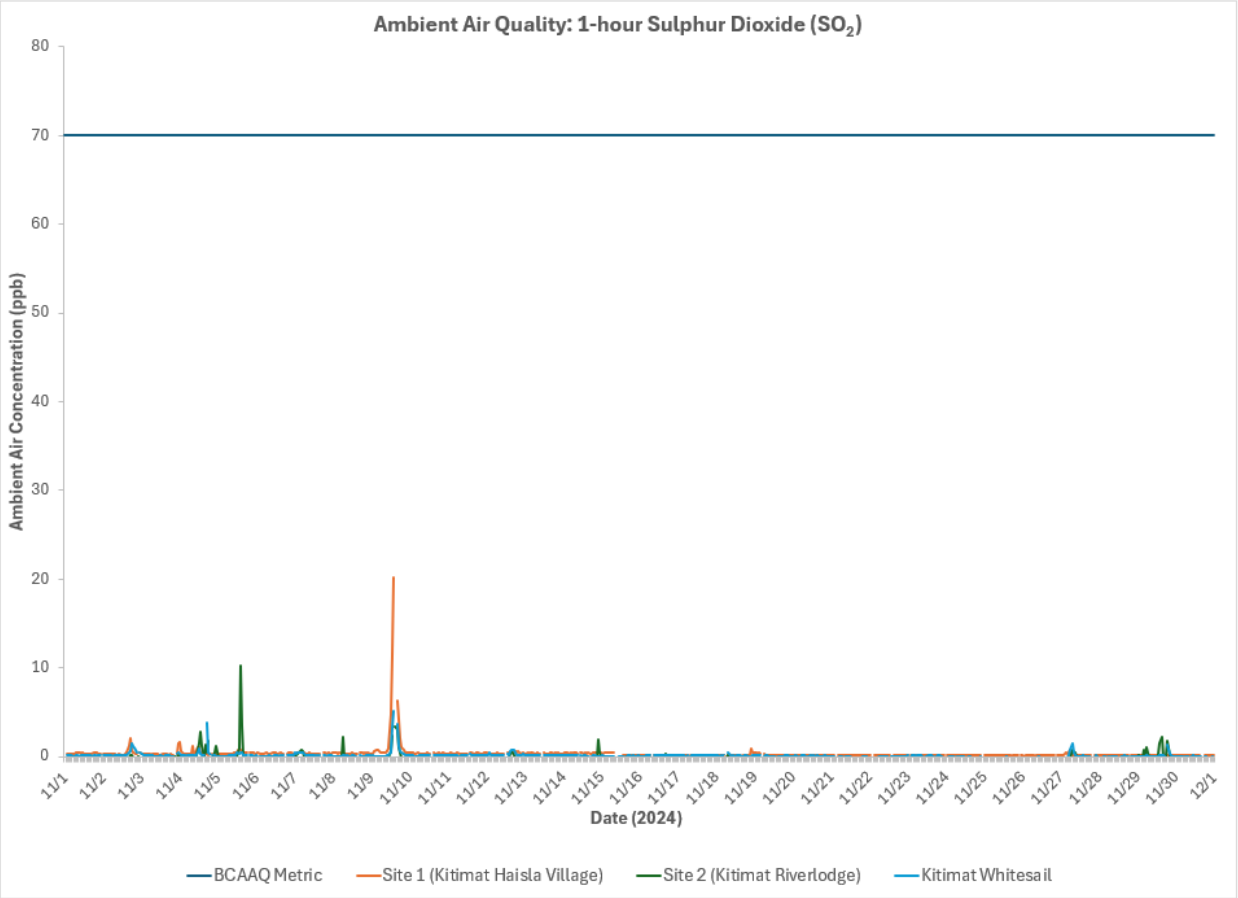

Figure E-2: Ambient Air Quality - 1-hour Sulphur Dioxide (SO_2)

Fine Particulate Matter ($PM_{2.5}$)

The publicly available data of 24-hour running average for $PM_{2.5}$ from the three continuous ambient air quality monitoring stations is illustrated in Figure E-3. The BCAAQO for 24-hour $PM_{2.5}$ is 25 µg/m^3, calculated by the 98th percentile of daily average, over one year; this metric is also illustrated in Figure E-3. Refer to Section 9.2 for explanation related to the potential erroneous data.

There is a BCAAQO for annual $PM_{2.5}$ (8 µg/m^3 based on the annual average, over one year) however this information is not published for each monitoring station therefore is not provided herein.

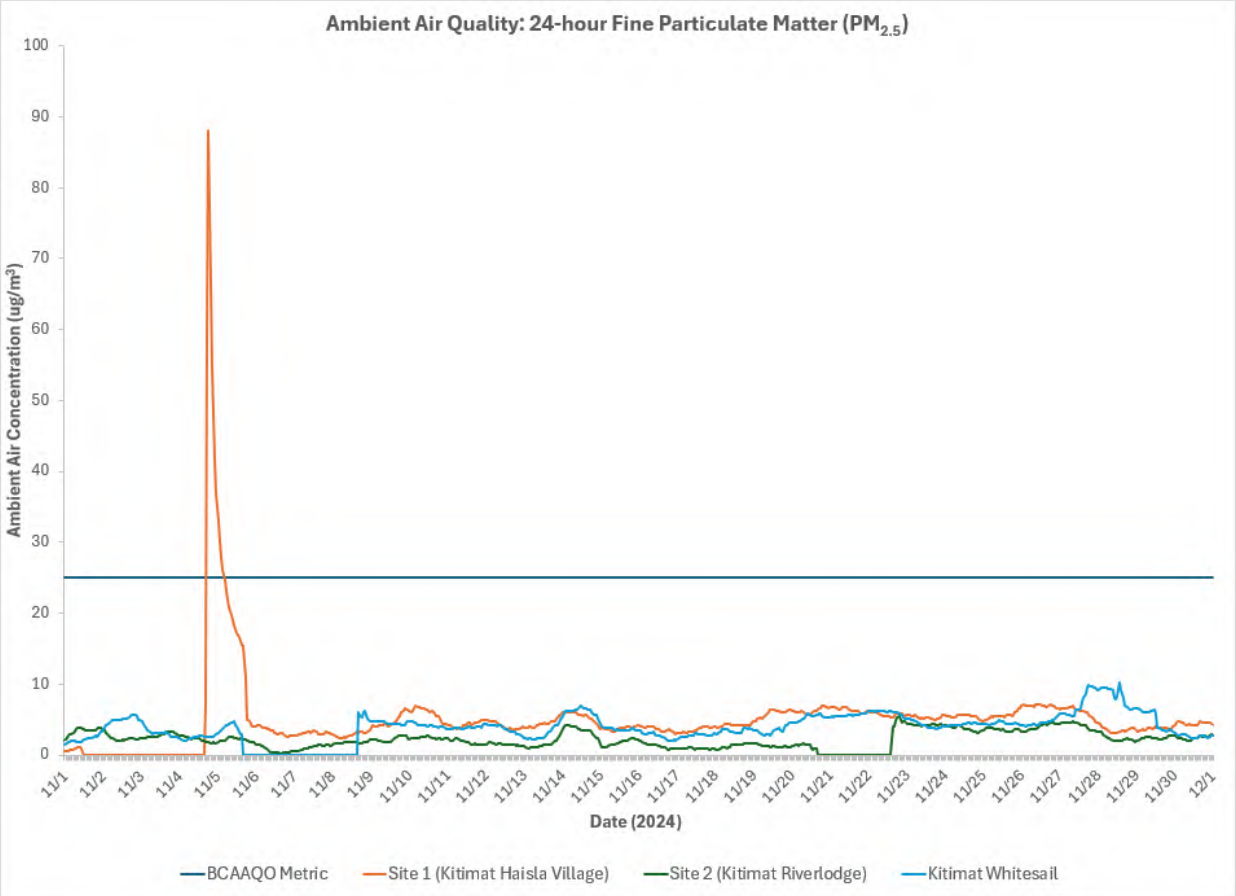

Figure E-3: Ambient Air Quality - 24-hour Fine Particulate Matter ($PM_{2.5}$)

Ozone (O_3)

The publicly available data of 1-hour O_3 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-4.

Figure E-4: Ambient Air Quality - 1-hour Ozone (O_3)

Appendix F Facility SO_2 Emission Limit (Condition 10.2.8)

Table F-1 presents the maximum hourly cumulative SO_2 discharge rate per day. It does not imply that the maximum discharge rate occurred for the full 24 hours that day. The maximum hourly rate was based on the maximum hourly flow rate obtained for each of the contributing sources below on the respective dates. The total sulfur content was obtained from Table D-7.

Table F-1: Maximum Hourly SO_2 Discharge Rate For Each Day

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
01-Nov-2024	0.0134	-	-	99.45%	0.44%	-	-	0.11%
02-Nov-2024	0.0014	-	-	94.86%	4.10%	-	-	1.04%
03-Nov-2024	0.0028	-	-	99.10%	0.36%	-	-	0.54%
04-Nov-2024	0.0024	-	-	96.86%	2.49%	-	-	0.65%
05-Nov-2024	0.0017	-	-	95.61%	3.47%	-	-	0.92%
06-Nov-2024	0.0015	-	-	95.16%	3.87%	-	-	0.97%
07-Nov-2024	0.0028	-	-	97.36%	2.11%	-	-	0.53%
08-Nov-2024	0.0015	-	-	95.01%	3.96%	-	-	1.03%
09-Nov-2024	0.0017	-	-	95.58%	3.50%	-	-	0.92%
10-Nov-2024	0.0028	-	-	97.36%	2.08%	-	-	0.56%
11-Nov-2024	0.0019	-	-	96.09%	3.10%	-	-	0.81%
12-Nov-2024	0.0026	-	-	93.43%	5.21%	-	-	1.36%
13-Nov-2024	0.0040	-	-	95.63%	3.46%	-	-	0.91%
14-Nov-2024	0.0034	-	-	94.90%	4.04%	-	-	1.06%
15-Nov-2024	0.0040	-	-	95.59%	3.48%	-	-	0.93%
16-Nov-2024	0.0120	-	-	98.56%	1.14%	-	-	0.30%
17-Nov-2024	0.0120	-	-	98.54%	1.15%	-	-	0.31%
18-Nov-2024	0.0121	-	-	98.53%	1.15%	-	-	0.32%
19-Nov-2024	0.0028	-	-	94.65%	4.20%	-	-	1.15%
20-Nov-2024	0.0047	-	-	96.63%	2.57%	-	-	0.80%
21-Nov-2024	0.0033	-	-	95.17%	3.69%	-	-	1.14%
22-Nov-2024	0.0048	-	-	96.71%	2.51%	-	-	0.78%
23-Nov-2024	0.0035	-	-	95.62%	3.42%	-	-	0.96%
24-Nov-2024	0.0038	-	-	95.90%	3.17%	-	-	0.93%
25-Nov-2024	0.0039	-	-	95.93%	3.09%	-	-	0.98%
26-Nov-2024	0.0184	-	-	99.13%	0.66%	-	-	0.21%
27-Nov-2024	0.0071	-	-	97.82%	1.69%	-	-	0.49%
28-Nov-2024	0.0089	-	-	98.29%	1.33%	-	-	0.38%

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
29-Nov-2024	0.0075	-	-	97.98%	1.58%	-	-	0.44%
30-Nov-2024	0.0091	-	-	98.31%	1.31%	-	-	0.38%

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Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Monthly Report (December 2024)

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1. Executive Summary

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. The BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., for the discharge of air contaminants to the environment from the LNG Facility.

Permit PA-110588 requires a monthly report to be submitted to the BCER that includes data/information on:

- Fuel Gas Use (for Commissioning only)
- Continuous Emissions Monitoring System (for Operations only)
- Flaring Activities
- Ambient Air Monitoring Evaluation
- Facility sulphur dioxide (SO_2) Emissions

Herein is the monthly report for December 2024. A summary of the findings for this reporting period is as follows:

- There were no instances of permit non-compliances during the reporting period.
- There were no ambient air quality concentrations of nitrogen dixoide (NO_2), SO_2 or respirable particulate matter ($PM_{2.5}$) measured in excess of the BC ambient air quality objective (AAQO) metrics at the three continuous ambient air quality monitoring stations identified in Permit PA-110588 (Kitamaat Village (Kitimat Haisla Village); Kitimat Riverlodge and Kitimat Whitesail).
- There were air emissions from five authorised discharge sources defined in Sections 2.1 to 2.7 of Permit PA-110588: warm/wet flare; cold/dry flare, liquid burner, Acid Gas Incinerator (AGI) in Train 1, and the gas turbine engine in Train 1, String 2.

The warm/wet flare was the largest source of air emissions, as all the fuel gas introduced into the facility is used for testing purposes during Commissioning, rather than for producing LNG. The maximum hourly cumulative SO_2 rate in December was calculated to be 0.0629 kg/hour.

2. Overview

2.1. Project Background

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

2.2. Purpose

On July 15, 2024, the BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., under the provisions of the BC *Environmental Management Act*, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Permit PA-110588 applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.2 of Permit PA-110588 (Monthly Reporting) for December 2024.

Refer to Appendix B for a list of all monthly reports that have been issued under Permit PA-110588.

2.3. LNG Facility Status

On the afternoon of August 31, 2024, fuel gas was introduced into Unit 1000 (Inlet Facilities) for the first time from the Coastal Gas Link (CGL) pipeline, commencing the pressurization of piping and the startup fuel gas heater. The introduction of fuel gas into the fuel gas headers down to the flare area, and the first supply of fuel gas to the pilot on the warm/wet flare occurred on September 1, 2024.

During December 2024, discharges of air contaminants occurred from the following authorized works:

- One (1) gas turbine (in Train 1, String 2)
- One (1) AGI (in Train 1)
- One (1) warm/wet flare
- One (1) cold/dry flare
- Liquid burner

Under Permit PA-110588, the “Commissioning” phase is defined as “that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.” Operations is the period

of time which follows Commissioning. Therefore, “Commissioning”, under Permit PA-110588, commenced on September 1, 2024. The first cargo has not yet been shipped from LNG Train 1.

The Initial Performance Period (IPP) did not commence during October 2024 (which is defined as the period that “*commences upon the completion of the initial performance test for LNG Train 1”*).

3. Fuel Gas Use (Commissioning Only) (Condition 10.2.1)

3.1. Permit Condition

Under Condition 10.2.1, the monthly report shall identify and provide a summary of fuel gas use at the facility during Commissioning. The monthly report shall include the following information:

a. the daily volume of fuel gas combusted and vented;

b. the daily mass emissions of nitrogen oxides (NOx), sulphur oxides (SOx), carbon monoxide (CO), particulate matter with an aerodynamic diameter smaller than 2.5 micrometers (PM2.5), volatile organic compounds (VOCs) and total hydrocarbons (HC-T), for the authorized works in Section 2.1 and 2.2; and

c. the quantification method (under Section 9 of Permit PA-110588) and representative calculations.

3.2. Data and Assessment

Appendix C contains the summary of the daily volume of fuel gas combusted and flared as well as the daily mass emissions of NO_X, SO_X, CO, $PM_{2.5}$, VOCs, and HC-T from the gas turbine and AGI (which is Section 2.1 and 2.2 of Permit PA-110588 respectively) in December 2024.

The basis for this assessment is as follows:

- The daily volume of fuel gas combusted and flared at the LNG Facility is based on the daily volume of fuel gas introduced into the LNG facility, as all this fuel gas is used for testing purposes during Commissioning; rather than for producing LNG. This is a conservative approach, and does not account for the time lag between pressurizing systems with fuel gas to it being combusted or flared. The data for this report was obtained from the Kitimat Metering Station (KMS) using the CGL meter.
- The daily mass emissions from the gas turbine engine reported herein are calculated based on published emission factors for stationary gas turbines (refer to Table 1); and therefore are not a reflection of the actual measured emissions from the gas turbines installed on site (that information will be available in Operations, once the continuous emissions monitoring system (CEMS) has undergone the relative accuacy test audit (RATA)).
- The daily mass emissions from the AGI during this reporting month were from testing of the burner system using fuel gas, therefore emissions are estimated herein based on published emission factors for a flare, to represent a high temperature oxidation process to burn hydrocarbons (refer to Table 2). Similar to the gas turbine engines, the data from the CEMS associated with the AGI will be available after the RATA has been undertaken (which will be undertaken when acid gas is being generated in the Acid Gas Recovery Units (AGRUs)).

Table 1 Natural Gas-Fired Turbine Emission Factors

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.099	lb/MMBtu	D	

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
SO_x	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.94S	lb/MMBtu	B	Where “S” is the percent sulphur in fuel. “S” to be informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014). If “S” is not available, the AP-42 states to use 3.4 E-03 lb/MMBtu for natural gas turbines (0.0034).
CO	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.015	lb/MMBtu	D	
PM2.5	USEPA AP-42: Table 3.1-2a (uncontrolled; condensable)	0.0047	lb/MMBtu	C	
VOC	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.0021	lb/MMBtu	D	AP-42 states that VOC emissions are assumed equal to the sum of organic emissions.
HC-T	Engineering Estimate	16.1 x % operating load	g/s	N/A	There is no AP-42 emissions factor for total hydrocarbons. The permit application used a basis of 16.1 g/s per gas turbine during Operations; therefore this value will be used and factored down based on the estimated operating load for the turbine.

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 3.1 is applicable for Stationary Gas Turbines.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.

Table 2: Emission Factors used for the AGI (Based on Flare)

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
SO_X	Engineering Estimate				There is no AP-42 emissions factor for SO_X; therefore it is based on fuel gas sulphur content informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014).The assumed destruction efficiency is 100%.
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.027	lb/MMBtu	B	Based on a lightly smoking flare (soot in concentration values: 40 ug/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from ug/L to lb/MMBtu is documented in the “Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015”, issued to USEPA by RTI International.

4. CEMS Zero and Span Reporting (Condition 10.2.2)

4.1. Permit Condition

Under Condition 10.2.2, during Operations, after the completion of the initial CEMS performance evaluation, the monthly report shall include a summary of all CEMS out of control calibration zero and span events that occurred during the month.

4.2. Data and Assessment

As Operations has not yet commenced, there is no CEMS zero and span reporting for this month.

5. CEMS Reporting (Condition 10.2.3)

5.1. Permit Condition

Under Condition 10.2.3, during Operations, after the completion of the initial CEMS performance evaluation, the Permittee shall provide a summary of CEMS data collected during the month.

5.2. Data and Assessment

As Operations has not yet commenced, there is no CEMS reporting for this month.

6. Flaring Activity Reporting (Condition 10.2.4)

6.1. Permit Condition

Under Condition 10.2.4, a summary of all flaring activity carried out during the month is to be included in the monthly report. The monthly report shall include the following information:

a. identification of the flare source;

b. description of the type of process gas sent to flare;

c. the volume of gas sent to the flare during each event;

d. the reason for the flaring event;

e. any external notifications sent out, if applicable;

f. the (i) daily and (ii) monthly volume of gas being flared for each source; and

g. the (i) daily and (ii) monthly contaminant emission totals for each source, parameters include NO_x, CO, $PM_{2.5}$, SO_x, VOCs, and HC-T.

h. the quantification method (under Section 9) and representative calculations

6.2. Data and Assessment

In Permit PA-110588, flaring activities are described as either a routine flaring event (continuous) or a non-routine flaring event (intermittent). Routine flaring discharges include the continuous flare pilots, which are supplied by fuel gas to provide a continuous ignition source so that any gas sent to the flare as a result of upset conditions ("non-routine flaring") is immediately combusted. The permit application to support Permit PA-110588 also described the other small sources of process gas that are continuously sent to the flare, including compressor seal gas, analyzer sample returns and passing valves.

Process gas refers to the natural gas stream intended for LNG production; the incoming fuel gas stream from Coastal Gas Link that undergoes several treatment stages (acid gas removal, pre-cooling, and finally, liquefaction) prior to being exported as LNG.

Appendix D contains the flaring activities tables, as follows:

- Table D-1: Flaring Events Table
- Table D-2: Warm/Wet Flare Volume and Emissions Summary
- Table D-3: Cold/Dry Flare Volume and Emissions Summary
- Table D-4: Storage and Loading Flare Volume and Emissions Summary
- Table D-5: Spare Flare Volume and Emissions Summary
- Table D-6: Liquid Burner Volume and Emissions Summary

Sample calculations are also provided in Appendix D (Exhibit D-1). The basis for this assessment is as follows:

- The daily volume of gas flared is sourced from the flow meters upstream of the applicable flare. In cases where the flow is below the detection limit of the flow meters, the sum of flow from upstream flow meters is used.
- The daily mass emissions from each flare source reported herein are calcuated based on published emission factors for industrial flares (refer to Table 3), except for SO_X, which is calculated based on a mass balance and assumed destruction efficiency.

- During this reporting month, the storage and loading flare and spare flare were not used, therefore shown with “zero” values for emissions.

Table 3: Emission Factors used for the Flare System

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.12	lb/MMBtu	B	Based on an average smoking flare (soot in concentration values: 177 ug/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from ug/L to lb/MMBtu is documented in the “Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015”, issued to USEPA by RTI International.

7. Permit Contravention (Condition 10.2.5)

7.1. Permit Condition

Under Condition 10.2.5, a summary of all instances of permit non-compliances are to be included in the monthly report, including a description of the event (date, time, circumstances), a summary of the investigation findings, the completed and ongoing actions taken in response to the non-compliance event, and the date of self-disclosure notifications to the BCER.

7.2. Assessment

There were no instances of permit non-compliances during the reporting period.

8. Pollution Control Technologies (Condition 10.2.6)

8.1. Permit Condition

Under Condition 10.2.6, a discussion of any operational or performance issues or significant maintenance activities with any pollution control technologies of the authorized works and equipment required by the permit is to be included in the monthly report.

The pollution control technologies identified in the permit application supporting Permit PA-110588 were the:

- Dry low emissions combustor optimization system in the gas turbines (dry low NOx burners); and
- Catalysts in the WHRUs, to convert CO in the exhaust gas to carbon dioxide.

8.2. Assessment

There were no instances of operational or performance issues, or significant maintenance activities with the pollution control technologies within the reporting period, given Operations has not yet commenced.

9. Ambient Air Monitoring Evaluation (Commissioning Only) (Condition 10.2.7)

9.1. Permit Condition

Under Condition 10.2.7, the following information for nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and $PM_{2.5}$ from three continuous ambient air quality monitoring stations (Kitamaat Village (Kitimat Haisla Village) (Site 1); Kitimat Riverlodge (Site 2) and Kitimat Whitesail) are to be included in the monthly report during Commissioning where information is publicly available:

a. a comparison of the measured ambient air concentrations at each ambient air monitoring stations to the applicable numerical metrics of the BC ambient air quality objectives (BCAAQO);

b. (i) a description of any measured ambient air concentrations in excess of the numerical metrics of the BCAAQO, if applicable, (ii) a description of any known contributing factors from authorized works, and (iii) a description of action (if any) taken by the Permittee.

The monthly report shall also include the time series plot of the hourly average ambient air concentration of ozone (O_3) data from these stations.

9.2. Data and Assessment

Data from continuous ambient air quality monitoring stations in Kitimat are publically available via the BC Ministry of Environment and Climate Change Strategy, at: Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

The publically available data for NO_2, SO_2 and $PM_{2.5}$ at the three continuous ambient air quality monitoring stations are provided in graphs in Appendix E; the graphs also contain the applicable BCAAQO. The time series plot for the hourly average ambient air concentration of O_3 is also provided in Appendix E.

There were no ambient air quality concentrations of NO_2, SO_2 and $PM_{2.5}$ measured in excess of the BCAAQO metrics in the reporting period.

10. Facility SO_2 Emission Limit (Condition 10.2.8)

10.1. Permit Condition

Under Condition 10.2.8, for all authorized sources in Sections 2.1 to 2.7, for each day of the month, the maximum hourly cumulative SO_2 discharge rate is to be provided in the monthly report, including the percentage breakdown of the sources contributing to the maximum discharge rate of each day.

10.2. Data and Assessment

Appendix F contains the cumulative SO_2 discharge rate from, the authorized sources in Permit PA-110588 Section 2.1 to 2.7 (refer to Section 2.2), including the percentage breakdown of the sources contributing to the maximum discharge rate shown for each day.

The representative calculations for SO_2 are provided in Appendix C for the gas turbine and AGI, and Appendix D for the flare system.

11. References

- BC Ministry of Environment and Climate Change Strategy, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca), accessed January 5, 2025.

Appendix A Abbreviations

AGI	Acid Gas Incinerator
AGRU	Acid Gas Removal Unit
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
CGL	Coastal Gas Link (Pipeline)
CO	Carbon monoxide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
JFJV	JGC Fluor BC LNG Joint Venture
KMS	Kitimat Metering Station
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
MRT	Mechanical Run Test
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
VOC	Volatile Organic Compound

WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit
$\mu g/m^3$	micrograms per cubic meter

Appendix B Previous Monthly Reports Issued Under PA-110588

Month	Document #	Date Issued
August 2024	L001-09800-HE-7180-4611	04-Sep-2024
September 2024	L001-09800-HE-7180-4612	22-Oct-2024
October 2024	L001-09800-HE-7180-4613	26-Nov-2024
November 2024	L001-09800-HE-7180-4614	16-Dec-2024
December 2024	L001-09800-HE-7180-4684	23-Jan-2025

Appendix C Fuel Gas Use During Commissioning (Condition 10.2.1)

There was no LNG production that occurred in this period. For the month of December, all daily fuel gas volumes were obtained from the KMS (Tag: KITSL-V1P.curval) under atmospheric pressure (Pressure = 1 atm) (refer to Table C-1). The fuel volumes below were corrected to 20°C.

Table C-1: Fuel Gas Use During Commissioning*

Date	Volume of Fuel Gas Introduced to LNG Facility (m^3/d)
01-Dec-2024	54,123
02-Dec-2024	52,402
03-Dec-2024	51,710
04-Dec-2024	58,962
05-Dec-2024	50,459
06-Dec-2024	51,550
07-Dec-2024	52,446
08-Dec-2024	49,753
09-Dec-2024	198,169
10-Dec-2024	200,770
11-Dec-2024	143,898
12-Dec-2024	158,086
13-Dec-2024	159,465
14-Dec-2024	151,380
15-Dec-2024	159,955
16-Dec-2024	174,778
17-Dec-2024	193,482
18-Dec-2024	265,447
19-Dec-2024	370,378
20-Dec-2024	302,790
21-Dec-2024	580,746
22-Dec-2024	297,448
23-Dec-2024	257,812
24-Dec-2024	238,464
25-Dec-2024	239,033
26-Dec-2024	237,000
27-Dec-2024	234,763
28-Dec-2024	231,417
29-Dec-2024	236,449
30-Dec-2024	233,357
31-Dec-2024	232,288
Monthly Total	**5,918,780**

* Individual and final totals may be subject to rounding adjustments

The LMS100 Gas Turbine in Train 1, String 2, achieved two significant milestones in December 2024:

- First fire with fuel gas volumes (from the LMS 100 gas turbine fuel gas meter) (CA:KIT:114FI1601.PV) was successfully completed on December 19, 2024.
- Mechanical Run Test (MRT) for the associated MR-PMR refrigeration compressors using nitrogen, which concluded on December 21, 2024. Furthing testing activities followed the MRT.
- The fuel volumes below (Table C-2) were obtained by dividing the values from the mass flow meter (CA:KIT:114FI2601.PV) by the fuel gas density obtained from KITSL-SG.CURVAL (KMS)

Table C-2: Fuel Gas Use During Commissioning – Gas Turbines

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Dec-2024	-	-	-	-	-	-	-
02-Dec-2024	-	-	-	-	-	-	-
03-Dec-2024	-	-	-	-	-	-	-
04-Dec-2024	-	-	-	-	-	-	-
05-Dec-2024	-	-	-	-	-	-	-
06-Dec-2024	-	-	-	-	-	-	-
07-Dec-2024	-	-	-	-	-	-	-
08-Dec-2024	-	-	-	-	-	-	-
09-Dec-2024	-	-	-	-	-	-	-
10-Dec-2024	-	-	-	-	-	-	-
11-Dec-2024	-	-	-	-	-	-	-
12-Dec-2024	-	-	-	-	-	-	-
13-Dec-2024	-	-	-	-	-	-	-
14-Dec-2024	-	-	-	-	-	-	-
15-Dec-2024	-	-	-	-	-	-	-
16-Dec-2024	-	-	-	-	-	-	-
17-Dec-2024	-	-	-	-	-	-	-
18-Dec-2024	-	-	-	-	-	-	-
19-Dec-2024	1,102	1.9	0.3	0.1	0.0015	0.04	1.4
20-Dec-2024	1,925	3.4	0.5	0.2	0.0025	0.07	1.4
21-Dec-2024	55,352	96.3	14.6	4.6	0.0731	2.04	79.7
22-Dec-2024	-	-	-	-	-	-	-
23-Dec-2024	631	1.1	0.2	0.1	0.0007	0.02	1.4
24-Dec-2024	-	-	-	-	-	-	-
25-Dec-2024	634	1.1	0.2	0.1	0.0007	0.02	1.4
26-Dec-2024	-	-	-	-	-	-	-
27-Dec-2024	-	-	-	-	-	-	-
28-Dec-2024	-	-	-	-	-	-	-
29-Dec-2024	-	-	-	-	-	-	-
30-Dec-2024	-	-	-	-	-	-	-
31-Dec-2024	-	-	-	-	-	-	-
Total	**59,644**	**103.7**	**15.7**	**5.1**	**0.078**	**2.19**	**85.2**

* Individual and final totals may be subject to rounding adjustments

The Burner Management System for the AGI was tested using low pressure fuel gas as part of the commissioning activities. It is important to note that no acid gas was combusted during this phase of testing.

Table C-3: Fuel Gas Use During Commissioning – Acid Gas Incinerator

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Dec-2024	-	-	-	-	-	-	-
02-Dec-2024	-	-	-	-	-	-	-
03-Dec-2024	-	-	-	-	-	-	-
04-Dec-2024	-	-	-	-	-	-	-
05-Dec-2024	-	-	-	-	-	-	-
06-Dec-2024	252	0.3	1.2	0.110	0.0006	2.61	0.55
07-Dec-2024	20	0.0	0.1	0.010	0.0000	0.21	0.04
08-Dec-2024	53	0.1	0.3	0.020	0.0001	0.55	0.12
09-Dec-2024	-	-	-	-	-	-	-
10-Dec-2024	-	-	-	-	-	-	-
11-Dec-2024	-	-	-	-	-	-	-
12-Dec-2024	-	-	-	-	-	-	-
13-Dec-2024	-	-	-	-	-	-	-
14-Dec-2024	-	-	-	-	-	-	-
15-Dec-2024	2	0.00	0.01	0.001	0.0000	0.02	0.00
16-Dec-2024	-	-	-	-	-	-	-
17-Dec-2024	138	0.2	0.7	0.060	0.0002	1.44	0.31
18-Dec-2024	-	-	-	-	-	-	-
19-Dec-2024	-	-	-	-	-	-	-
20-Dec-2024	-	-	-	-	-	-	-
21-Dec-2024	-	-	-	-	-	-	-
22-Dec-2024	-	-	-	-	-	-	-
23-Dec-2024	-	-	-	-	-	-	-
24-Dec-2024	-	-	-	-	-	-	-
25-Dec-2024	-	-	-	-	-	-	-
26-Dec-2024	-	-	-	-	-	-	-
27-Dec-2024	-	-	-	-	-	-	-
28-Dec-2024	-	-	-	-	-	-	-
29-Dec-2024	-	-	-	-	-	-	-
30-Dec-2024	-	-	-	-	-	-	-
31-Dec-2024	-	-	-	-	-	-	-
Total	**465**	**0.6**	**2.3**	**0.2**	**0.001**	**4.83**	**1.02**

* Final totals may be subject to rounding adjustments

Exhibit C-1: Sample Emission Calculations – Gas Turbine

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hour (h) to 1 day (d)
    - 10,000 parts per millon (ppm) in one percent

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable sources of data from the meters include:
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - Tag CA:KIT:114FI2601.PV: LNG Train 1, String 2 (1KT-1460); fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:114BHS2423.PV: Gas Turbine Operating Load (MW)
    - Emission factors: Refer to Table 1 within the report.

The sample calcuation below is based on the data from December 19, 2024.

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:114FI2601.PV is converted to volume flow rate using the fluid density of 0.750462 kg/m^3.

- Mass flow rate = 34.47 kg/h

Volume flow rate (m^3/h)

= 34.47 / 0.750462 ≈ 45.94 m^3/h

Volume flow rate (m^3/d)

= 45.94 × 24 ≈ 1,102 m^3/d

Step 2: Emission Calculation – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using NOx for the example; NOx Mass Emission (kg/d)

= (34.47 x 24) x 40.83 x 1/ 0.750462 x 1/1000 x 0.9478 x 0.099 x 0.4535

= 1.9 kg/d

For SO_2, 0.94S was used as the emission factor - where "S" is the percent sulphur in fuel (refer to Table 1). "S" is based on the total sulphur content of the fuel gas (from the laboratory analysis) given fuel gas was used to fuel the gas turbine this month (refer to Appendix D, Table D-7).

SOx Mass Emission (kg/d)

= (34.47 x 24) x 40.83 x 1/ 0.750462 x 1/1000 x 0.9478 x 0.94*(0.000080) x 0.4535

≈ 0.0015 kg

Emission Calculation Basis – when using Engineering Estimates (only applies to HC-T)

Formula: HC-T Mass Emission (kg/h)

$$= 16.1\frac{\text{g}}{\text{s}} \times \frac{\text{Operating load (\%)}}{100} \times \frac{1\ \text{kg}}{1000\ \text{g}} \times \frac{3600\ \text{s}}{1\ \text{h}}$$

Using December 19, 2024, for the example, where the gas turbine operating load of 0.11 MW was obtained from CA:KIT:114BHS2423.PV. For the purposes of this calculation, the maximum operating load of the LMS100 is approximately 110 MW.

Operating load (%)

= 0.11 MW / 110 MW x 100

= 0.001 x 100 = 0.1%

HC-T Mass Emission (kg/h)

= 16.1 x 0.1/100 x 1/1000 x 3600/1

= 0.0577 kg/h

HC-T Mass Emission (kg/d)

= 0.0577 x 24

≈ 1.4 kg/d

Exhibit C-2: Sample Emission Calculations – AGI

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hours (h) to 1 day (d)
    - 10,000 parts per million (ppm) in one percent

Input Values

The applicable sources of data from the meters include:

- Tag CA:KIT:119FI0302.PV: Fuel gas consumption by the acid gas incinerator (daily values).
- Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
- Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) multiplied by a reference air density of 1.225 kg/m³ (15°C, 1 atm) and corrected to standard conditions (20°C, 1 atm) to determine the actual natural gas density.
- Emission Factors: Refer to Table 1 within the report.

The sample calculation below is based on the data from December 6, 2024.

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:119FI0302.PV is converted to volume flow rate using the fluid density of 0.7442296 kg/m³ (sample data).

Mass flow rate = 7.81 kg/h x 24 h ≈ 187 kg/d

Volume flow rate (m³/d):

= Mass flow rate ÷ Fluid density

= 187 ÷ 0.7442296 ≈ 252 m³/d

Step 2: Emission Calculation – Using Emission Factors

Formula: Mass Emission (kg/d) =

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right)$$
$$\times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Example: NOx Emissions

- Fuel Gas Flow (kg/d): 7.81 kg/h × 24 = 187 kg/d
- High Heating Value (HHV): 40.52 MJ/Sm³
- Natural Gas Density: 0.7442296 kg/m³
- NOx Emission Factor: 0.068 lb/MMBTU

NOx Mass Emission (kg/d):

= (187) × (40.52) × (1 ÷ 0.7442296) × (1 ÷ 1000) × (0.9478) × (0.068) × (0.4535)

≈ 0.30 kg/d

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

For SO_2, total sulphur is based on the total sulphur content of the fuel gas (from the laboratory analysis) given fuel gas was used to fuel the AGI this month (refer to Appendix D, Table D-7).

SO_2 Mass Emission (kg/d):

= 187 x (0.000161) x (1/100) x 64.066/32.065 x 1

≈ 0.0006 kg/d

Appendix D Flaring Activity (Condition 10.2.4)

Table D-1: Flaring Event Overview

Flare	Event Type	Event Date & Time			Description	Volume of Gas to Flare Per Event (m^3/month)	External Notifications Undertaken
		Start	End	Duration			
Warm/Wet	Routine	01-Dec-2024	31-Dec-2024	Continuous	Pilot and purge gas.	9,418	N/A
Warm/Wet	Non-Routine	01-Dec-2024	31-Dec-2024	Continuous	Assist gas and supporting start-up activities[1]	5,779,694	03-Dec-2024 (AGI) 16-Dec-2024 (Gas Turbine)
Cold/Dry	Routine	01-Dec-2024	31-Dec-2024	Continuous	Pilot, and fuel gas purges to support start-up activities	54,548	N/A
Storage and Loading	N/A	N/A	N/A	N/A	Not Used	N/A	N/A
Spare	N/A	N/A	N/A	N/A	Not Used	N/A	N/A
Liquid Burner	Routine	01-Dec-2024	31-Dec-2024	Continuous	Pilot	15,008	N/A

Notes:

1. In this reporting period, flaring is undertaken to support commissioning and start-up activities; in accordance with Leave(s) to Operate from the BC Energy Regulator. This fuel gas is not considered process gas.

The data for the warm/wet flare was derived from the KMS CGL inlet gas meter (refer to Table C-1). The following volumes were subtracted because they were measured and reported separately herein:

- The pilot for the cold dry flare (refer to Table D-3);
- The fuel gas purges to the cold dry flare (refer to Table D-3).
- The pilot for the liquid burner (refer to Table D-6);
- The fuel gas use into the gas turbine (refer to Table C-2)
- The fuel gas use into the AGI (refer to Table C-3)

The fuel volumes below were corrected to 20°C.

Table D-2: Flaring Event – Warm/Wet Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Dec-2024	51,854	61	251	97	0.124	535	114
02-Dec-2024	50,164	59	243	94	0.120	518	110
03-Dec-2024	49,479	59	240	93	0.118	511	108
04-Dec-2024	56,736	67	276	107	0.135	587	124
05-Dec-2024	48,237	57	234	91	0.115	499	106
06-Dec-2024	49,078	58	239	92	0.117	508	108
07-Dec-2024	50,198	59	244	94	0.120	520	110
08-Dec-2024	47,469	56	231	89	0.114	491	104
09-Dec-2024	195,904	232	954	369	0.469	2,030	431
10-Dec-2024	198,507	236	967	374	0.476	2,060	437
11-Dec-2024	141,654	168	691	267	0.340	1,471	312
12-Dec-2024	155,858	185	761	295	0.374	1,620	344
13-Dec-2024	157,235	187	768	297	0.378	1,635	347
14-Dec-2024	149,149	178	729	282	0.359	1,552	329
15-Dec-2024	157,689	188	771	298	0.379	1,641	348
16-Dec-2024	172,483	206	844	327	0.207	1,796	381
17-Dec-2024	191,035	228	935	362	0.229	1,990	422
18-Dec-2024	263,132	314	1,288	499	0.316	2,742	582
19-Dec-2024	367,022	438	1,797	696	0.440	3,826	812
20-Dec-2024	298,618	357	1,463	566	0.358	3,115	661
21-Dec-2024	523,176	625	2,564	993	0.628	5,460	1,158
22-Dec-2024	295,226	353	1,447	560	0.355	3,081	654
23-Dec-2024	254,958	305	1,250	484	0.272	2,661	565
24-Dec-2024	236,246	282	1,158	448	0.252	2,466	523
25-Dec-2024	236,184	282	1,158	448	0.252	2,466	523
26-Dec-2024	234,785	281	1,151	446	0.250	2,451	520
27-Dec-2024	232,545	278	1,140	441	0.248	2,428	515
28-Dec-2024	229,184	274	1,124	435	0.244	2,393	508
29-Dec-2024	234,205	280	1,149	445	0.250	2,446	519
30-Dec-2024	231,102	276	1,133	439	0.246	2,413	512

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
31-Dec-2024	230,000	275	1,128	437	0.245	2,402	509
Monthly Total	**5,789,112**	**6,904**	**28,328**	**10,965**	**8.53**	**60,314**	**12,796**

* Individual and final totals may be subject to rounding adjustments

For the month of December, the reporting for the cold/dry flare is from the pilot (CA:KIT:062FI0343.PV) and fuel gas purges (CA:KIT:062FI0021.PV and CA:KIT:062FI0022.PV) (refer to Table D-3).

Table D-3: Flaring Event – Cold/Dry Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Dec-2024	1,778	2.10	8.62	3.34	0.0042	18.4	3.9
02-Dec-2024	1,767	2.09	8.57	3.32	0.0042	18.3	3.9
03-Dec-2024	1,765	2.09	8.56	3.32	0.0042	18.2	3.9
04-Dec-2024	1,762	2.09	8.56	3.31	0.0042	18.2	3.9
05-Dec-2024	1,760	2.08	8.55	3.31	0.0042	18.2	3.9
06-Dec-2024	1,759	2.08	8.55	3.31	0.0042	18.2	3.9
07-Dec-2024	1,761	2.09	8.56	3.31	0.0042	18.2	3.9
08-Dec-2024	1,763	2.09	8.58	3.32	0.0042	18.3	3.9
09-Dec-2024	1,773	2.10	8.63	3.34	0.0042	18.4	3.9
10-Dec-2024	1,771	2.10	8.63	3.34	0.0042	18.4	3.9
11-Dec-2024	1,762	2.10	8.60	3.33	0.0042	18.3	3.9
12-Dec-2024	1,756	2.09	8.57	3.32	0.0042	18.3	3.9
13-Dec-2024	1,756	2.09	8.57	3.32	0.0042	18.3	3.9
14-Dec-2024	1,756	2.09	8.58	3.32	0.0042	18.3	3.9
15-Dec-2024	1,766	2.10	8.64	3.34	0.0042	18.4	3.9
16-Dec-2024	1,776	2.12	8.69	3.36	0.0021	18.5	3.9
17-Dec-2024	1,778	2.12	8.70	3.37	0.0021	18.5	3.9
18-Dec-2024	1,779	2.12	8.71	3.37	0.0021	18.5	3.9
19-Dec-2024	1,759	2.10	8.61	3.33	0.0021	18.3	3.9
20-Dec-2024	1,756	2.10	8.60	3.33	0.0021	18.3	3.9
21-Dec-2024	1,746	2.09	8.56	3.31	0.0021	18.2	3.9
22-Dec-2024	1,746	2.09	8.56	3.31	0.0021	18.2	3.9
23-Dec-2024	1,746	2.09	8.56	3.31	0.0019	18.2	3.9
24-Dec-2024	1,745	2.09	8.55	3.31	0.0019	18.2	3.9
25-Dec-2024	1,743	2.08	8.55	3.31	0.0019	18.2	3.9
26-Dec-2024	1,743	2.08	8.55	3.31	0.0019	18.2	3.9
27-Dec-2024	1,745	2.09	8.56	3.31	0.0019	18.2	3.9
28-Dec-2024	1,750	2.09	8.58	3.32	0.0019	18.3	3.9
29-Dec-2024	1,755	2.10	8.61	3.33	0.0019	18.3	3.9
30-Dec-2024	1,758	2.10	8.62	3.34	0.0019	18.4	3.9
31-Dec-2024	1,768	2.11	8.67	3.36	0.0019	18.5	3.9
Monthly Total	**54,548**	**65**	**266**	**103**	**0.095**	**567**	**120**

* Individual and final totals may be subject to rounding adjustments

The storage and loading flare was not used in the reporting month (refer to Table D-4).

Table D-4: Flaring Event – Storage and Loading Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Dec-2024	-	-	-	-	-	-	-
02-Dec-2024	-	-	-	-	-	-	-
03-Dec-2024	-	-	-	-	-	-	-
04-Dec-2024	-	-	-	-	-	-	-
05-Dec-2024	-	-	-	-	-	-	-
06-Dec-2024	-	-	-	-	-	-	-
07-Dec-2024	-	-	-	-	-	-	-
08-Dec-2024	-	-	-	-	-	-	-
09-Dec-2024	-	-	-	-	-	-	-
10-Dec-2024	-	-	-	-	-	-	-
11-Dec-2024	-	-	-	-	-	-	-
12-Dec-2024	-	-	-	-	-	-	-
13-Dec-2024	-	-	-	-	-	-	-
14-Dec-2024	-	-	-	-	-	-	-
15-Dec-2024	-	-	-	-	-	-	-
16-Dec-2024	-	-	-	-	-	-	-
17-Dec-2024	-	-	-	-	-	-	-
18-Dec-2024	-	-	-	-	-	-	-
19-Dec-2024	-	-	-	-	-	-	-
20-Dec-2024	-	-	-	-	-	-	-
21-Dec-2024	-	-	-	-	-	-	-
22-Dec-2024	-	-	-	-	-	-	-
23-Dec-2024	-	-	-	-	-	-	-
24-Dec-2024	-	-	-	-	-	-	-
25-Dec-2024	-	-	-	-	-	-	-
26-Dec-2024	-	-	-	-	-	-	-
27-Dec-2024	-	-	-	-	-	-	-
28-Dec-2024	-	-	-	-	-	-	-
29-Dec-2024	-	-	-	-	-	-	-
30-Dec-2024	-	-	-	-	-	-	-
31-Dec-2024	-	-	-	-	-	-	-
Monthly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

The spare flare was not used in the reporting month (refer to Table D-5).

Table D-5: Flaring Event – Spare Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Dec-2024	-	-	-	-	-	-	-
02-Dec-2024	-	-	-	-	-	-	-
03-Dec-2024	-	-	-	-	-	-	-
04-Dec-2024	-	-	-	-	-	-	-
05-Dec-2024	-	-	-	-	-	-	-
06-Dec-2024	-	-	-	-	-	-	-
07-Dec-2024	-	-	-	-	-	-	-
08-Dec-2024	-	-	-	-	-	-	-
09-Dec-2024	-	-	-	-	-	-	-
10-Dec-2024	-	-	-	-	-	-	-
11-Dec-2024	-	-	-	-	-	-	-
12-Dec-2024	-	-	-	-	-	-	-
13-Dec-2024	-	-	-	-	-	-	-
14-Dec-2024	-	-	-	-	-	-	-
15-Dec-2024	-	-	-	-	-	-	-
16-Dec-2024	-	-	-	-	-	-	-
17-Dec-2024	-	-	-	-	-	-	-
18-Dec-2024	-	-	-	-	-	-	-
19-Dec-2024	-	-	-	-	-	-	-
20-Dec-2024	-	-	-	-	-	-	-
21-Dec-2024	-	-	-	-	-	-	-
22-Dec-2024	-	-	-	-	-	-	-
23-Dec-2024	-	-	-	-	-	-	-
24-Dec-2024	-	-	-	-	-	-	-
25-Dec-2024	-	-	-	-	-	-	-
26-Dec-2024	-	-	-	-	-	-	-
27-Dec-2024	-	-	-	-	-	-	-
28-Dec-2024	-	-	-	-	-	-	-
29-Dec-2024	-	-	-	-	-	-	-
30-Dec-2024	-	-	-	-	-	-	-
31-Dec-2024	-	-	-	-	-	-	-
Monthly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

The emissions associated with the liquid burner are from the pilot (refer to Table D-6).

Table D-6: Flaring Event – Liquid Burner Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Dec-2024	491	0.58	2.38	0.92	0.0012	5.1	1.1
02-Dec-2024	471	0.56	2.29	0.88	0.0011	4.9	1.0
03-Dec-2024	467	0.55	2.27	0.88	0.0011	4.8	1.0
04-Dec-2024	463	0.55	2.25	0.87	0.0011	4.8	1.0
05-Dec-2024	462	0.55	2.25	0.87	0.0011	4.8	1.0
06-Dec-2024	461	0.55	2.24	0.87	0.0011	4.8	1.0
07-Dec-2024	467	0.55	2.27	0.88	0.0011	4.8	1.0
08-Dec-2024	468	0.55	2.27	0.88	0.0011	4.8	1.0
09-Dec-2024	491	0.58	2.39	0.93	0.0012	5.1	1.1
10-Dec-2024	492	0.58	2.40	0.93	0.0012	5.1	1.1
11-Dec-2024	482	0.57	2.35	0.91	0.0012	5.0	1.1
12-Dec-2024	472	0.56	2.30	0.89	0.0011	4.9	1.0
13-Dec-2024	475	0.57	2.32	0.90	0.0011	4.9	1.0
14-Dec-2024	475	0.57	2.32	0.90	0.0011	4.9	1.0
15-Dec-2024	497	0.59	2.43	0.94	0.0012	5.2	1.1
16-Dec-2024	519	0.62	2.54	0.98	0.0006	5.4	1.1
17-Dec-2024	531	0.63	2.60	1.01	0.0006	5.5	1.2
18-Dec-2024	536	0.64	2.62	1.01	0.0006	5.6	1.2
19-Dec-2024	495	0.59	2.42	0.94	0.0006	5.2	1.1
20-Dec-2024	491	0.59	2.40	0.93	0.0006	5.1	1.1
21-Dec-2024	472	0.56	2.32	0.90	0.0006	4.9	1.0
22-Dec-2024	476	0.57	2.33	0.90	0.0006	5.0	1.1
23-Dec-2024	476	0.57	2.33	0.90	0.0005	5.0	1.1
24-Dec-2024	474	0.57	2.32	0.90	0.0005	4.9	1.0
25-Dec-2024	472	0.56	2.31	0.90	0.0005	4.9	1.0
26-Dec-2024	471	0.56	2.31	0.90	0.0005	4.9	1.0
27-Dec-2024	473	0.57	2.32	0.90	0.0005	4.9	1.0
28-Dec-2024	483	0.58	2.37	0.92	0.0005	5.0	1.1
29-Dec-2024	489	0.58	2.40	0.93	0.0005	5.1	1.1
30-Dec-2024	497	0.59	2.44	0.94	0.0005	5.2	1.1
31-Dec-2024	519	0.62	2.55	0.99	0.0006	5.4	1.2
Monthly Total	**15,008**	**17.9**	**73.3**	**28.4**	**0.026**	**155.9**	**32.9**

* Individual and final totals may be subject to rounding adjustments

Exhibit D-1: Sample Emission Calculations – Warm/Wet Flare

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 h to 1 day (d)
    - 10,000 parts per millon (ppm) in one percent.

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable meters include:
    - KITSL-V1P.curval (KMS): This tag provides the daily fuel gas volume data recorded at the KMS. These volumes, measured at atmospheric pressure, serve as the primary input for calculating flared gas volumes.
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density was obtained (daily values at 1 atm) This was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - CA:KIT:062FI0343.PV: This tag measures the total fuel gas consumption for all flare pilots. The portions attributable to the cold dry flare and the liquid burner were determined using flare tip allocations and subtracted from the total to determine the warm/wet flare pilot gas consumption.
    - CA:KIT:062FI0021.PV; CA:KIT:062FI0022.PV: These tags provide the fuel gas purges from the cold dry flare.
    - Emission factors: Refer to Table 3 within the report.

Emission Calculation Basis – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using December 1, 2024, and NOx for the example:

Convert volumetric flow rate to mass flow rate:

Volumetric flow rate = 51,854 m^3/d – corrected to 20°C.

Mass flow rate = 51,854 m^3/d x 0.74247323 kg/m^3 = 38,500 kg/d

NOx Mass Emission (kg/d)

= 38,500 x 40.44 x 1/0.74247323 x 1/1000 x 0.9478 x 0.068 x 0.4535

≈ 61 kg/d

Similar calculations follow for CO, $PM_{2.5}$, VOC, and HC-T, however all HHV values in their calculations are converted to LHV.

Emission Calculation Basis – when using Engineering Estimates (only applies to SOx):

Total sulfur content (S) in feed gas samples was analyzed periodically by the LNG Canada laboratory. Table D-7 below table summarizes the laboratory results.

Table D-7: Total Sulphur Content Measured in the Feed Gas (Laboratory Results)

Date	Total Sulphur in Feed Gas (ppmw)	%
December 9, 2024	1.61	0.000161
December 16, 2024	0.80	0.000080
December 23, 2024	0.71	0.000071

To bridge periods between measurements, the following approach was used:

- December 1 - 15: SO_2 emissions were calculated using the December 9 total sulphur measurement.
- December 16 – 22: The December 16, 2024 measurement was applied.
- December 23 – 31: The December 23, 2024 measurement was applied.

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

Using December 1, 2024, for the example, where we use percent sulphur in the fuel gas to be 1.61 ppmw.

SO_2 Mass Emission (kg/d)

= 38,500 x (0.000161) x (1/100) x 64.066/32.065 x 1

≈ 0.124 kg/d

The same calculation approach would follow for SO_2 (kg/h) numbers; with the flow rate in kg/h rather than kg/d.

Appendix E Ambient Air Quality Evaluation (Condition 10.2.7)

Nitrogen Dioxide (NO_2)

The publicly available data of 1-hour NO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-1. The BCAAQO for 1-hour NO_2 is 60 parts per billion (ppb) (equates to 113 µg/m^3), calculated by the 98th percentile of daily 1-hour maximum over three years; this metric is also illustrated in Figure E-1.

There is a BCAAQO for annual NO_2 (17 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

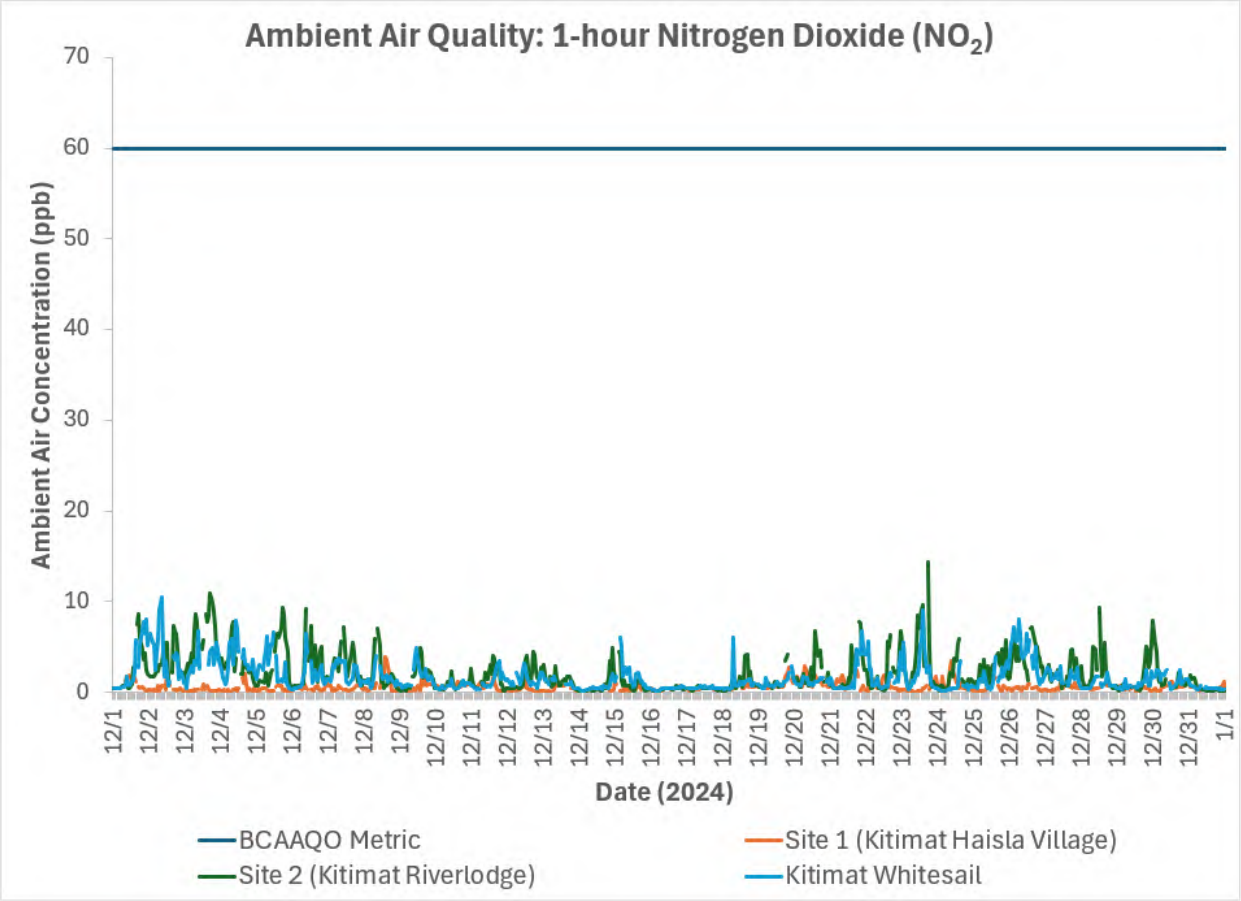

Figure E-1: Ambient Air Quality - 1-hour Nitrogen Dioxide (NO_2)

Sulphur Dioxide (SO_2)

The publicly available data of 1-hour SO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-2. BC adopted the 2020 Canadian Ambient Air Quality Standard (CAAQS) as the BCAAQO for 1-hour SO_2, which is 70 parts per billion (ppb) (equates to 183 µg/m^3), calculated by the annual 99th percentile of daily 1-hour averaged over three consecutive years; this metric is also illustrated in Figure E-2.

There is a BCAAQO for annual SO_2 (5 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

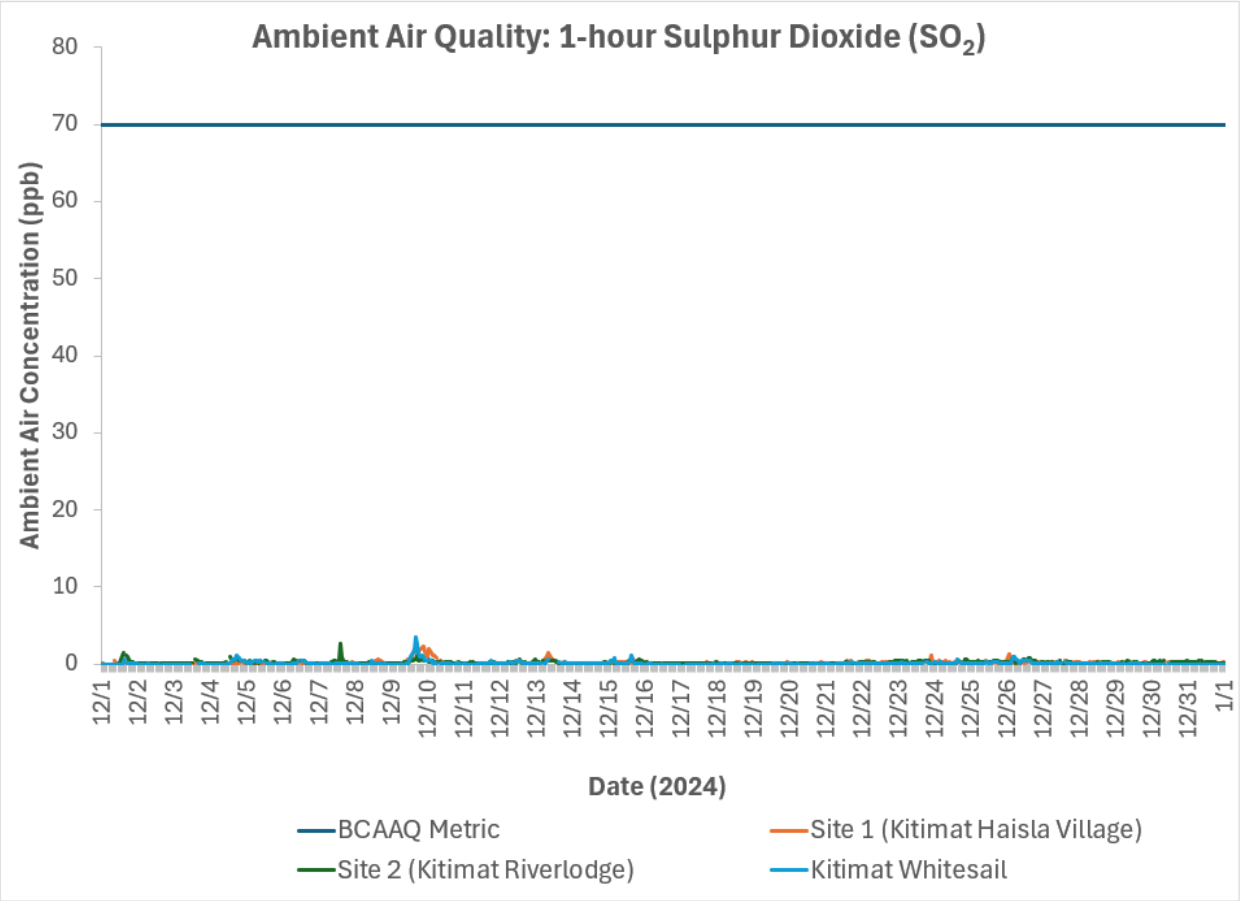

Figure E-2: Ambient Air Quality - 1-hour Sulphur Dioxide (SO_2)

Fine Particulate Matter ($PM_{2.5}$)

The publicly available data of 24-hour running average for $PM_{2.5}$ from the three continuous ambient air quality monitoring stations is illustrated in Figure E-3. The BCAAQO for 24-hour $PM_{2.5}$ is 25 µg/m^3, calculated by the 98th percentile of daily average, over one year; this metric is also illustrated in Figure E-3. Refer to Section 9.2 for explanation related to the potential erroneous data.

There is a BCAAQO for annual $PM_{2.5}$ (8 µg/m^3 based on the annual average, over one year) however this information is not published for each monitoring station therefore is not provided herein.

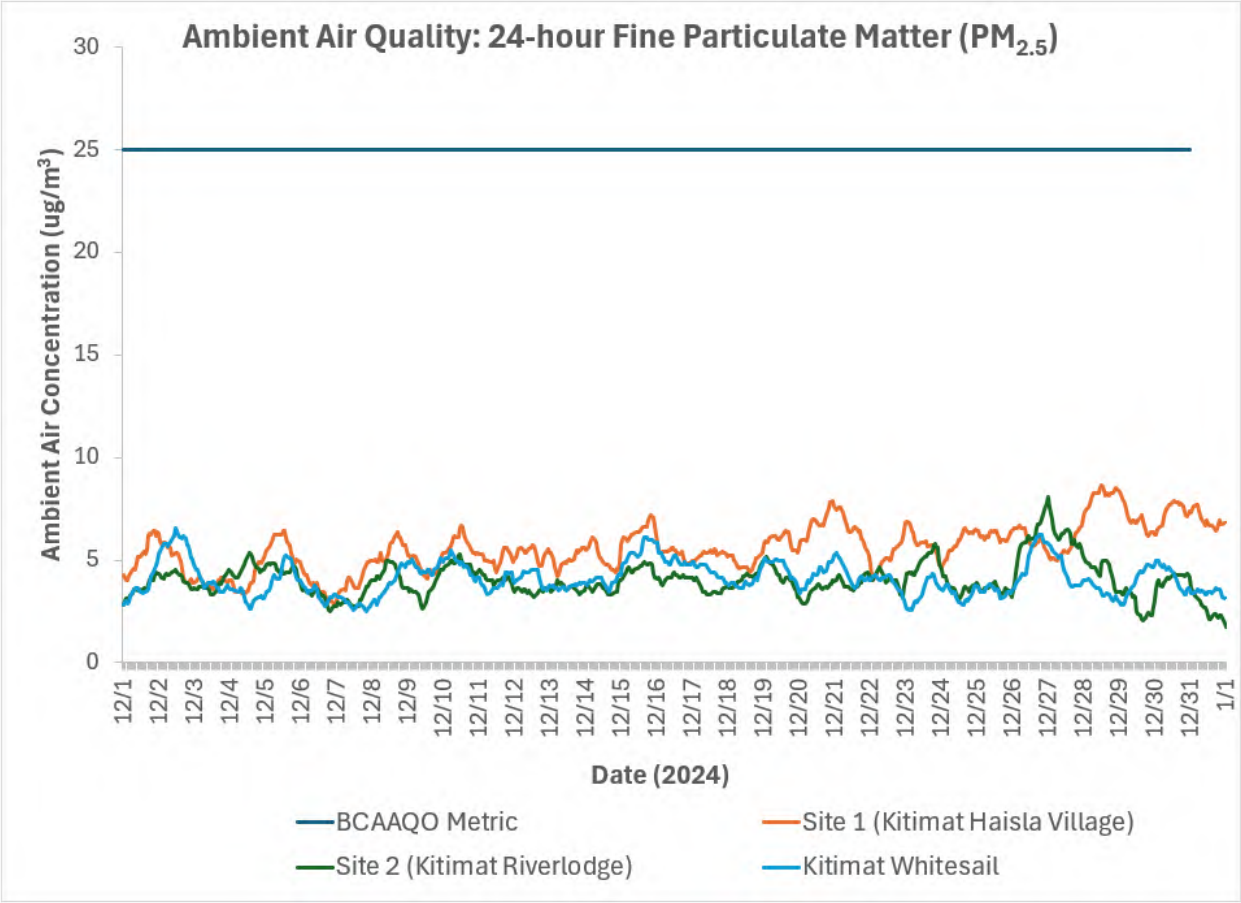

Figure E-3: Ambient Air Quality - 24-hour Fine Particulate Matter ($PM_{2.5}$)

Ozone (O_3)

The publicly available data of 1-hour O_3 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-4.

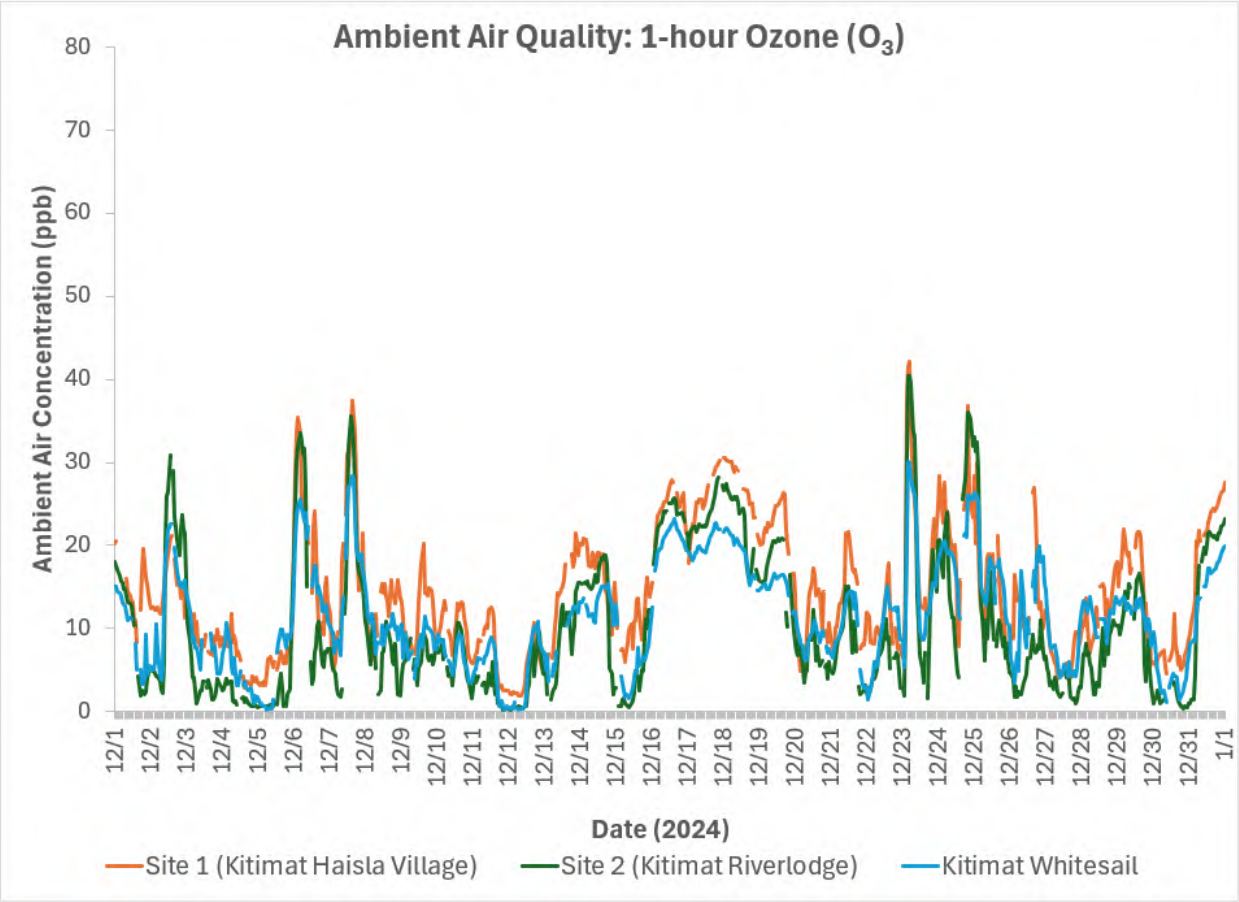

Figure E-4: Ambient Air Quality - 1-hour Ozone (O_3)

Appendix F Facility SO_2 Emission Limit (Condition 10.2.8)

Table F-1 presents the maximum hourly cumulative SO_2 discharge rate per day. It does not imply that the maximum discharge rate occurred for the full 24 hours that day. The maximum hourly rate was based on the maximum hourly flow rate obtained for each of the contributing sources below on the respective dates. The total sulfur content was obtained from Table D-7.

Table F-1: Monthly SO_2 Discharge Rate

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
01-Dec-2024	0.0175	0.00%	0.00%	98.69%	1.02%	-	-	0.29%
02-Dec-2024	0.0167	0.00%	0.00%	98.65%	1.06%	-	-	0.29%
03-Dec-2024	0.0152	0.00%	0.00%	98.53%	1.16%	-	-	0.31%
04-Dec-2024	0.0251	0.00%	0.00%	99.11%	0.70%	-	-	0.19%
05-Dec-2024	0.0118	0.00%	0.00%	98.11%	1.49%	-	-	0.40%
06-Dec-2024	0.0122	0.00%	0.91%	97.27%	1.44%	-	-	0.38%
07-Dec-2024	0.0157	0.00%	0.10%	98.47%	1.13%	-	-	0.30%
08-Dec-2024	0.0138	0.00%	0.27%	98.11%	1.28%	-	-	0.34%
09-Dec-2024	0.0388	0.00%	0.00%	99.41%	0.46%	-	-	0.13%
10-Dec-2024	0.0366	0.00%	0.00%	99.37%	0.49%	-	-	0.14%
11-Dec-2024	0.0365	0.00%	0.00%	99.37%	0.49%	-	-	0.14%
12-Dec-2024	0.0331	0.00%	0.00%	99.32%	0.53%	-	-	0.15%
13-Dec-2024	0.0318	0.00%	0.00%	99.30%	0.55%	-	-	0.15%
14-Dec-2024	0.0301	0.00%	0.00%	99.25%	0.59%	-	-	0.16%
15-Dec-2024	0.0320	0.00%	0.06%	99.21%	0.56%	-	-	0.17%
16-Dec-2024	0.0334	0.00%	0.00%	99.31%	0.53%	-	-	0.16%
17-Dec-2024	0.0359	0.00%	0.12%	99.56%	0.25%	-	-	0.08%
18-Dec-2024	0.0182	0.00%	0.00%	99.35%	0.49%	-	-	0.16%
19-Dec-2024	0.0600	1.66%	0.00%	98.15%	0.15%	-	-	0.04%
20-Dec-2024	0.0403	4.37%	0.00%	95.35%	0.22%	-	-	0.06%
21-Dec-2024	0.0629	20.43%	0.00%	79.39%	0.14%	-	-	0.04%
22-Dec-2024	0.0380	0.00%	0.00%	99.71%	0.23%	-	-	0.06%
23-Dec-2024	0.0235	0.00%	0.00%	99.58%	0.33%	-	-	0.09%
24-Dec-2024	0.0241	0.00%	0.00%	99.59%	0.32%	-	-	0.09%
25-Dec-2024	0.0253	0.00%	0.00%	99.61%	0.31%	-	-	0.08%
26-Dec-2024	0.0213	0.00%	0.00%	99.54%	0.36%	-	-	0.10%
27-Dec-2024	0.0180	0.00%	0.00%	99.45%	0.43%	-	-	0.12%
28-Dec-2024	0.0177	0.00%	0.00%	99.43%	0.44%	-	-	0.13%

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
29-Dec-2024	0.0175	0.00%	0.00%	99.42%	0.45%	-	-	0.13%
30-Dec-2024	0.0162	0.00%	0.00%	99.36%	0.49%	-	-	0.15%
31-Dec-2024	0.0157	0.00%	0.00%	99.33%	0.51%	-	-	0.16%

* Individual values may be subject to rounding adjustments

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Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Quarterly Report (Q4 2024)

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1. Overview

1.1. Project Background

The LNG Canada (LNGC) liquefied natural gas facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

1.2. Purpose

On July 15, 2024, the BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., under the provisions of the BC *Environmental Management* Act, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Permit PA-110588 applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.3 of Permit PA-110588 (Quarterly Reporting) for Q4 2024.

Refer to Appendix B for a list of all quarterly reports that have been issued under Permit PA-110588.

1.3. LNG Facility Status

On the afternoon of August 31, 2024, fuel gas was introduced into Unit 1000 (Inlet Facilities) for the first time from the Coastal Gas Link pipeline, commencing the pressurization of piping and the startup fuel gas heater. The introduction of fuel gas into the fuel gas headers down to the flare area, and the first supply of fuel gas to the pilot on the warm wet flare occurred on September 1, 2024.

Under Permit PA-110588, the “Commissioning” phase is defined as “*that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.”* Operations is the period of time which follows Commissioning. Therefore, “Commissioning”, under Permit PA-110588, commenced on September 1, 2024. The first cargo has not yet been shipped from LNG Train 1.

During Q4 2024, discharges of air contaminants occurred from the following authorized works:

- Two (2) gas turbine engines (LNG Train 1, String 1 and String 2)
- One (1) AGI (LNG Train 1)
- One (1) warm/wet flare

- One (1) cold/dry flare
- Liquid burner

The Initial Performance Period (IPP) did not commence during Q3 2024 (which is defined as the period that "*commences upon the completion of the initial performance test for LNG Train 1"*).

2. Ambient Air Monitoring Data issues (Condition 10.3.1)

2.1. Permit Condition

Under Condition 10.3.1, the quarterly report shall include the following information:

a. (i) identification of, (ii) description of, and (iii) reason(s) for any ambient air or meteorological monitoring data deletion or resubmission;

b. (i) identification of, (ii) description of, and (iii) reason(s) for any missed calibrations from ambient air analyzers that were required to be calibrated during the reporting period;

c. (i) identification and (ii) description of any other issues with the ambient air or meteorological monitoring data; and

d. if any passive monitor fails to collect a sample for one sample period, the Permittee shall include the reasons for the absence of data within the report.

This condition applies to the locations where LNG Canada is conducting continuous monitoring activities:

- Under Condition 6.2.2, LNG Canada is required to conduct continuous monitoring of ambient air concentrations of nitrogen dioxide (NO_2) and ozone (O_3) at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2). In addition, prior to commencement of Operations, LNG Canada is required to conduct continuous monitoring of total hydrocarbons (HC-T) at either Kitimat Riverlodge or Kitimat Whitesail.
- Under Condition 6.3, LNG Canada is required to obtain or collect continuous monitoring data for the following meteorological parameters, at stations where conducting the continuous monitoring of ambient air concentrations: temperature, wind speed, wind direction, and standard deviation of wind direction.
- Under Condition 6.4, LNG Canada is required to conduct passive monitoring of NO_2 concentrations at thirteen locations (defined within the permit).

2.2. Data and Assessment

LNG Canada engaged Trinity Consultants to oversee the ambient air quality monitoring for NO_2 and O_3 at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2). Trinity Consultants published a report that addresses the data issues in these locations, as required under Condition 10.3.1 (a) to (c) as follows (refer to Appendix E, Attachment 1):

- Kitamaat Village (Site 1): Table 2-2 contains the data completeness; and Table 3-2 contains the percent data recovery. Section 3.3 outlines the data shortfall periods and known issues during the reporting period.
- Riverlodge (Site 2): Table 2-3 contains the data completeness; and Table 4-2 contains the percent data recovery. Section 4.3 outlines the data shortfall periods and known issues during the reporting period.
- General: Section 2.3 contains the details on ambient air or meteorological monitoring data deletion and resubmissions; and missed calibrations.

The HC-T analyzer was installed at Kitimat Riverlodge (Site 2) in October 2024. Calibration and data validation were completed in January 2025. The analyzer is now operational, and its results will be included in the next quarterly report.

LNG Canada engaged Tetra Tech to oversee the passive NO_2 monitoring program, who published a technical memorandum that addresses the data issues in these locations, as required under Condition 10.3.1 (d) (refer to Appendix E, Attachment 2).

3. Ambient Air Monitoring Results (Condition 10.3.2)

3.1. Permit Condition

Under Condition 10.3.2, the quarterly report shall include the following information for each parameter monitored by the Permittee (per Section 6 of Permit PA-110588):

a. the percentage of valid hourly data at each continuous ambient air monitoring station;

b. (i) a time series plot of the hourly average ambient air concentrations at each continuous ambient air monitoring station, and (ii) a discussion of the context around any data anomalies in the time series plot;

c. i) minimum, (ii) average, (iii) median and (iv) maximum ambient air concentrations at each continuous ambient air monitoring station for the period;

d. a monthly wind rose for each continuous ambient air monitoring station for the months being monitored generated using meteorological data collected at the ambient air monitoring station;

e. a summary of passive NO_2 monitoring analysis for each monitored location (based on available laboratory analysis results for that reporting period and include results from the previous reporting period(s) that were not included in previous summaries); and

f. a summary of precipitation monitoring chemistry for each monitored location (based on available laboratory analysis results for that reporting period and include results from the previous reporting period(s) that were not included in previous summaries).

As noted in Section 2.1, Condition 10.3.2 (a) to (d) applies to NO_2, O_3, and meteorological data (temperature, wind speed, wind direction, and standard deviation of wind direction) monitored at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2); and will apply to HC-T next reporting period.

3.2. Data and Assessment

The report issued by Trinity Consultants also includes the information required under Condition 10.3.1 (a) to (d) at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2) as follows (refer to Appendix E, Attachment 1):

- Kitamaat Village (Site 1):
    - Table 2-2 contains the data completeness.
    - Section 3.2 contains the monitoring results and trends, including the time series plot of the hourly average ambient air concentrations; average, maximum, and minium values (Table 2-1 contains the average and median values); and monthly wind roses.
- Riverlodge (Site 2):
    - Table 2-3 contains the data completeness.
    - Section 4.2 contains the monitoring results and trends, including the time series plot of the hourly average ambient air concentrations; average, maximum, and minium values (Table 2-1 contains the average and median values); and monthly wind roses.

The monitoring results and trends for the Whitesail Monitoring Station is also included in Appendix E, Attachment 1, for awareness purposes only.

The technical memorandum issued by Tetra Tech includes a summary of passive NO_2 monitoring analysis for each monitored location required under Condition 10.3.1 (e) (refer to Appendix E, Attachment 2).

LNG Canada engaged Stantec consultants to implement and execute the precipitation chemistry monitoring program; which uses ion exchange resin (IER) column samplers. The precipitation chemistry data is currently not available for inclusion herein as the results from the October 2024 sampling retrieval are still pending; the third-party laboratory is experiencing delays as they navigate this program for the first time.

4. Ambient Air Monitoring Evaluation (Condition 10.3.3)

4.1. Permit Condition

Under Condition 10.3.3, the quarterly report shall include following information for NO_2, SO_2 and $PM_{2.5}$, continuously monitored at Kitamaat Village (Kitimat Haisla Village) (Site 1), Kitimat Riverlodge (Site 2) and Kitimat Whitesail:

a. a comparison of the measured ambient air concentrations at each ambient air monitoring stations to the applicable numerical metrics of the BCAAQO; and

b. (i) a description of any measured ambient air concentrations in excess of the numerical metrics of the BCAAQO, if applicable, (ii) a description of any known contributing factors from authorized works, and (iii) a description of action (if any) taken by the Permittee.

4.2. Data and Assessment

Data from continuous ambient air quality monitoring stations in Kitimat are publically available via the BC Ministry of Environment and Climate Change Strategy, at: Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

The publically available data for NO_2, SO_2 and $PM_{2.5}$ at the three continuous ambient air quality monitoring stations are provided in graphs in Appendix C; the graphs also contain the applicable BCAAQO metric. This information is also presented in a time-series in the report published by Trinity that includes data from October 2024 (refer to Appendix E, Attachment 1)

There were no ambient air quality concentrations of NO_2 and SO_2 measured in excess of the BCAAQO metrics in Q4 2024. Refer to Appendix C for the discussion on $PM_{2.5}$.

5. Source Testing Results (Condition 10.3.4)

5.1. Permit Condition

Under Condition 10.3.4, the quarterly report shall include the following information:

a. identification of the dates of any source sampling activities carried out during the reporting period;

b. identification of the testing company that carried out any source sampling activities during the reporting period;

c. a brief overview of any continuous emission monitoring system (CEMS) initial or re-certification tests carried out during the reporting period;

d. a brief overview of the results of any complete or incomplete (i) manual stack surveys, (ii) CEMS performance evaluation carried out during the period;

e. an explanation for stopping or aborting any incomplete (i) manual stack survey, (ii) CEMS performance evaluation;

f. a brief overview of any required corrective actions taken or planned in response to the source sampling activities; and

g. the manual stack source emissions survey reports and CEMS performance evaluation reports.

Conditions within Permit PA-110588 that inform the scope of this reporting include:

- Under Condition 5.1.2, LNG Canada shall undertake manual stack sampling every six months in the IPP on the gas turbine / WHRU stacks.
- Under Condition 5.2.2, LNG Canada shall undertake manual stack sampling for each AGI on a quarterly basis for one year.
- Under Condition 5.3, the CEMS performance evaluations or manual stack surveys shall be conducted while the equipment is operating at normal capacity while combusting the primary fuel for that unit.

5.2. Data and Assessment

Manual stack sampling has not commenced as outlined below:

- The IPP has not commenced therefore has not triggered the manual stack sampling for the gas turbines / WHRU.
- The AGI has not commenced operations; this will occur after the Acid Gas Removal Unit becomes operational (this unit produces the acid gas for incineration); therefore has not triggered this program.

The CEMS performance evaluation has not yet commenced; the first relative accuracy test audit (RATA) will occur after the gas turbines/WHRUs, and the AGIs are operating at normal capacity while combusting the primary fuel for that unit.

6. Inlet Gas Sulphur Report (Condition 10.3.5)

6.1. Permit Condition

Under Condition 10.3.5, the quarterly report shall include the following information:

a. daily percentage of hydrogen sulphide of the facility inlet gas; and

b. total estimated sulphur in the facility inlet gas, based on the analysis of the monthly gas samples.

6.2. Data and Assessment

Appendix D contains the daily percentage of hydrogen sulphide (H_2S) and total estimated sulphur in the facility inlet gas (from Coastal Gas Link).

7. References

- BC Ministry of Environment and Climate Change Strategy, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca), accessed January 5, 2025.

Appendix A Abbreviations

AGI	Acid Gas Incinerator
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
EPC	Engineering, Procurement, and Construction
H_2S	Hydrogen Sulphide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
JFJV	JGC Fluor BC LNG Joint Venture
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit
$\mu g/m^3$	micrograms per cubic meter

Appendix B Previous Quarterly Reports Issued Under PA-110588

Quarter / Year	Document #	Date Issued
Q3 2024	L001-09800-HE-7180-4676	22-Oct-2024
Q4 2024	L001-09800-HE-7180-4685	23-Jan-2025

Appendix C Ambient Air Quality Evaluation (Condition 10.3.3)

Herein contains the evaluation of NO_2, SO_2 and $PM_{2.5}$ at the continuously monitored at Kitamaat Village (Kitimat Haisla Village) (Site 1), Kitimat Riverlodge (Site 2) and Kitimat Whitesail. This evaluation was also included in the monthly reports during commissioning; herein contains the same information based on the quarterly reporting period (October to December 2024).

Nitrogen Dioxide (NO_2)

The publicly available data of 1-hour NO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure C-1. The BCAAQO for 1-hour NO_2 is 60 parts per billion (ppb) (equates to 113 µg/m^3), calculated by the 98th percentile of daily 1-hour maximum over three years; this metric is also illustrated in Figure C-1.

There is a BCAAQO for annual NO_2 (17 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

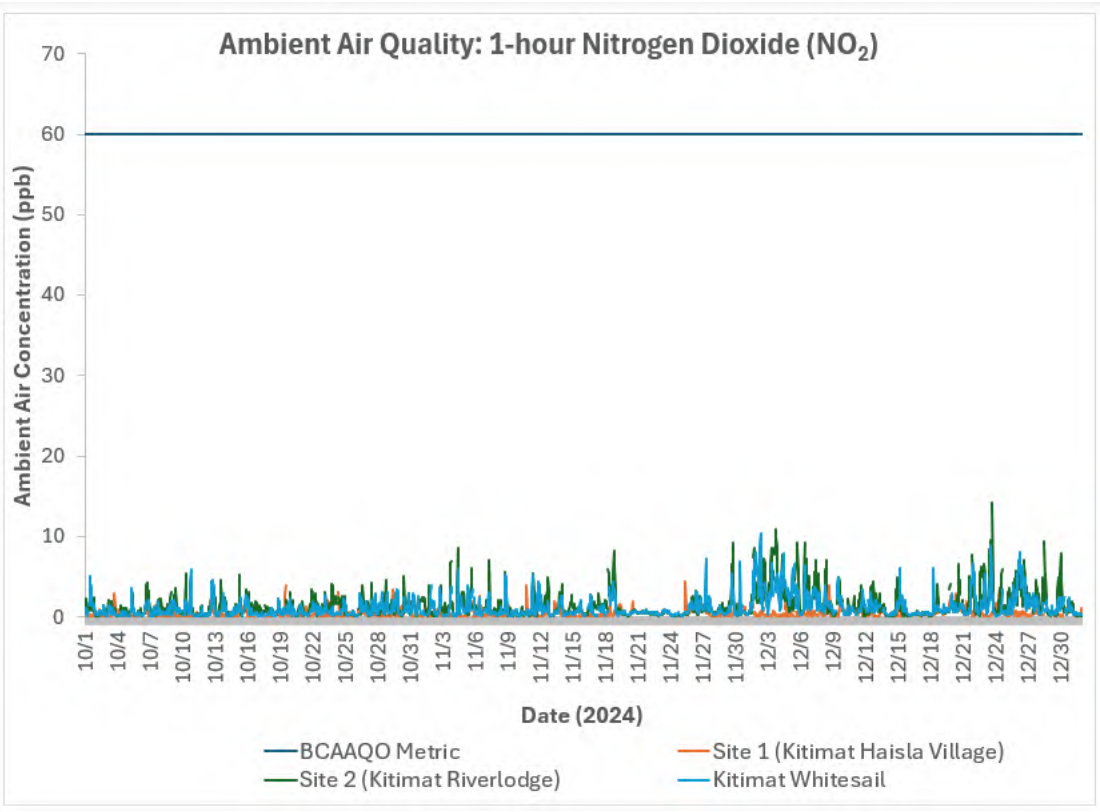

Figure C-1: Ambient Air Quality - 1-hour Nitrogen Dioxide (NO_2)

Sulphur Dioxide (SO_2)

The publicaly available data of 1-hour SO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure C-2. BC adopted the 2020 Canadian Ambient Air Quality Standard (CAAQS) as the BCAAQO for 1-hour SO_2, which is 70 parts per billion (ppb) (equates to 183 µg/m^3), calculated by the annual 99th percentile of daily 1-hour averaged over three consecutive years; this metric is also illustrated in Figure C-2.

There is a BCAAQO for annual SO_2 (5 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

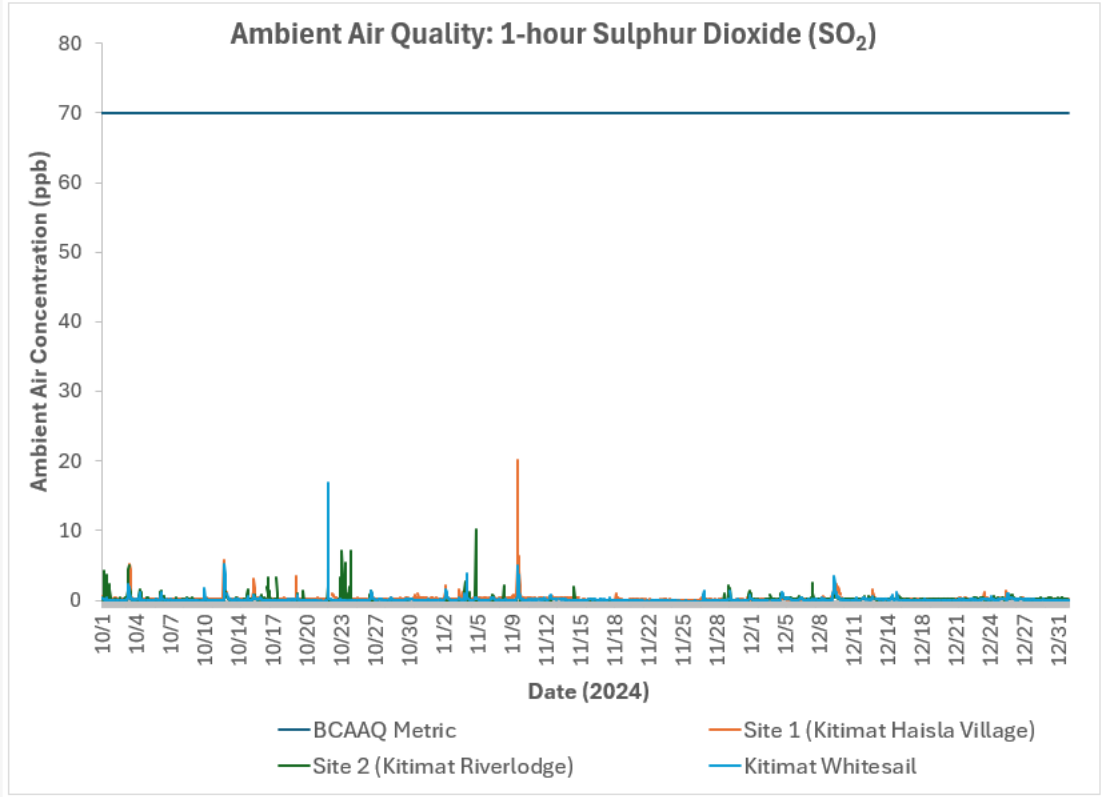

Figure C-2: Ambient Air Quality - 1-hour Sulphur Dioxide (SO_2)

Fine Particulate Matter ($PM_{2.5}$)

The publicaly available data of 24-hour running average for $PM_{2.5}$ from the three continuous ambient air quality monitoring stations is illustrated in Figure C-3 (note, the values will be slightly different if using the daily maximum as the basis for the 24-hour assessment). The BCAAQO for 24-hour $PM_{2.5}$ is 25 µg/m^3, calculated by the 98th percentile of daily average, over one year; this metric is also illustrated in Figure C-3.

There is a BCAAQO for annual $PM_{2.5}$ (8 µg/m^3 based on the annual average, over one year) however this information is not published for each monitoring station therefore is not provided herein.

As noted in the Permit PA-110588 monthly report for November 2024 (L001-09800-HE-7180-4614), elevated $PM_{2.5}$ was measured at Kitamaat Village (Kitimat Haisla Village) on November 4, 2024, for two hours (17:00 and 18:00). $PM_{2.5}$ data from this station was not published from the evening of October 31, 2024, to November 4, 2024, at 15:00; this spike occurred shortly after the data from this station began being published again. As noted in the November 2024 monthly report, and in Appendix E, Attachment 1, Trinity Consultants advised that these values are likely erroneous and may be invalidated; and the 24-hour average value for November 4 will be invalidated as the unit was offline for most of the day prior to these readings. Elevated values of $PM_{2.5}$ were not measured at the other ambient monitoring stations for this period.

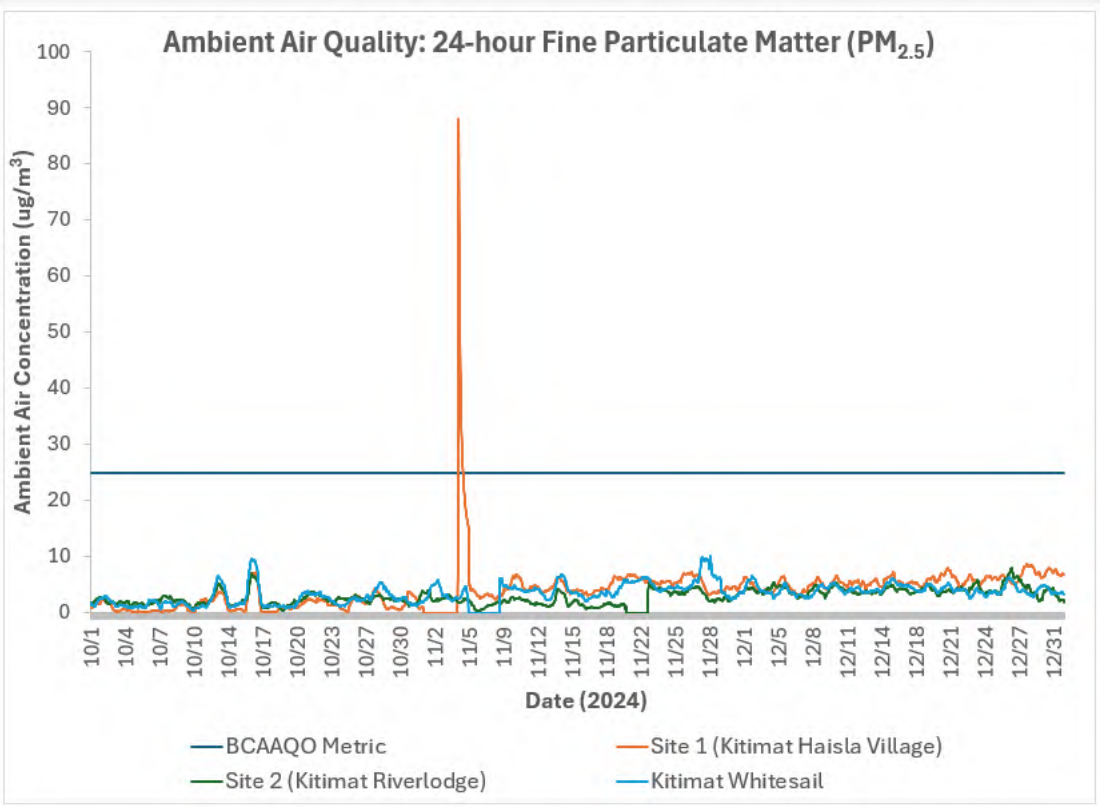

Figure C-3: Ambient Air Quality - 24-hour Fine Particulate Matter ($PM_{2.5}$)

Appendix D Inlet Gas Sulphur Report (Condition 10.3.5)

The daily percentage of hydrogen sulphide (H_2S) in the facility's inlet gas is based on the data collected at the Kitimat Sales Meter Station in parts per million weight (ppmw) (Tag no: CA: KITSL-H2SCN.curval) where the natural gas flow is metered before it enters the LNG Canada Facility; then converted to a percentage value for herein reporting. During this reporting period, daily measurements of H_2S were conducted. The tables below present the highest H_2S levels recorded each day.

Table D-1: Daily Percentage of Hydrogen Sulphide in Inlet Gas [Q4 2024]

Date	H_2S Concentration (%)
1-Oct-2024	0.0000034
2-Oct-2024	0.0000026
3-Oct-2024	0.0000035
4-Oct-2024	0.0000035
5-Oct-2024	0.0000025
6-Oct-2024	0.0000043
7-Oct-2024	0.0000051
8-Oct-2024	0.0000034
9-Oct-2024	0.0000033
10-Oct-2024	0.0000051
11-Oct-2024	0.0000048
12-Oct-2024	0.0000044
13-Oct-2024	0.0000060
14-Oct-2024	0.0000019
15-Oct-2024	0.0000026
16-Oct-2024	0.0000017
17-Oct-2024	0.0000042
18-Oct-2024	0.0000042
19-Oct-2024	0.0000050
20-Oct-2024	0.0000041
21-Oct-2024	0.0000197
22-Oct-2024	0.0000051
23-Oct-2024	0.0000043
24-Oct-2024	0.0000067
25-Oct-2024	0.0000068
26-Oct-2024	0.0000068
27-Oct-2024	0.0000109
28-Oct-2024	0.0000226
29-Oct-2024	0.0000332
30-Oct-2024	0.0000531
31-Oct-2024	0.0000579

Date	H_2S Concentration (%)
1-Nov-2024	0.000085
2-Nov-2024	0.000046
3-Nov-2024	0.000019
4-Nov-2024	0.000010
5-Nov-2024	0.000005
6-Nov-2024	0.000004
7-Nov-2024	0.000076
8-Nov-2024	0.000056
9-Nov-2024	0.000018
10-Nov-2024	0.000007
11-Nov-2024	0.000008
12-Nov-2024	0.000007
13-Nov-2024	0.000004
14-Nov-2024	0.000004
15-Nov-2024	0.000003
16-Nov-2024	0.000002
17-Nov-2024	0.000005
18-Nov-2024	0.000004
19-Nov-2024	0.000007
20-Nov-2024	0.000004
21-Nov-2024	0.000010
22-Nov-2024	0.000007
23-Nov-2024	0.000008
24-Nov-2024	0.000008
25-Nov-2024	0.000004
26-Nov-2024	0.000021
27-Nov-2024	0.000079
28-Nov-2024	0.000082
29-Nov-2024	0.000086
30-Nov-2024	0.000079

Date	H_2S Concentration (%)
1-Dec-2024	0.000070
2-Dec-2024	0.000075
3-Dec-2024	0.000074
4-Dec-2024	0.000075
5-Dec-2024	0.000077
6-Dec-2024	0.000071
7-Dec-2024	0.000072
8-Dec-2024	0.000070
9-Dec-2024	0.000094
10-Dec-2024	0.000100
11-Dec-2024	0.000102
12-Dec-2024	0.000097
13-Dec-2024	0.000094
14-Dec-2024	0.000093
15-Dec-2024	0.000094
16-Dec-2024	0.000082
17-Dec-2024	0.000092
18-Dec-2024	0.000097
19-Dec-2024	0.000103
20-Dec-2024	0.000110
21-Dec-2024	0.000104
22-Dec-2024	0.000108
23-Dec-2024	0.000103
24-Dec-2024	0.000102
25-Dec-2024	0.000104
26-Dec-2024	0.000105
27-Dec-2024	0.000101
28-Dec-2024	0.000105
29-Dec-2024	0.000098
30-Dec-2024	0.000103
31-Dec-2024	0.000108

Feed inlet gas is regularly verified through manual sampling and laboratory analysis. These manual samples are collected and analyzed by the LNG Canada Laboratory using ASTM D 5504-2012 test method. During the reporting period, there was more than one sample measured within the month, as indicated in Table D-2.

Table D-2: Total Measured Sulphur Content in Inlet Gas [Q4 2024]

Date	Total Measured Sulphur Content (ppmw)
8-Oct-24	4.97
15-Oct-24	2.31
29-Oct-24	2.88
06-Nov-24	0.54
12-Nov-24	1.26
19-Nov-24	1.08
26-Nov-24	1.26
9-Dec-2024	1.61
16-Dec-2024	0.80
23-Dec-2024	0.71

The methodology is outlined below:

1. **Sample Collection:** Grab samples of the inlet gas are collected from Unit-1000.
2. **Sample Analysis:** The samples are analyzed at the LNG Canada laboratory using a Total sulfur analyzer with UVF detection (refer to Figure D-1). The analysis provides the total sulphur concentration of various sulphur compounds.
3. **Data Verification:** The results of the laboratory analysis are reviewed for consistency and accuracy by the LNG Canada laboratory. Any discrepancies or outliers are investigated and, if necessary, the analysis is repeated. The LNG Canada laboratory also performs internal quality control checks, including the analysis of certified reference materials and method blanks with each batch of samples where applicable.

Product:	Total Sulfur in Condensate/Gas UVF detection
Methods:	ASTM D5453 /ASTM D6667
Model:	VF-210 NSX-2100
Tag:	A-10
Manufacturer:	Nittoseiko
Country of Origin:	Japan
Number of Systems:	1
Unit Price:	Quoted

Figure D-1: UVF Sampling for Total Sulphur

Appendix E List of Attachments

Number	Title
1	Trinity Consultants, Ambient Air Quality Monitoring Report October – December 2024, LNG Canada (January 2025)
2	Tetra Tech Technical Memo, PA-110588 – Passive NO_2 Monitoring Results for Q4 2024 (January 15, 2025)

Attachment 1 Trinity Consultants, Ambient Air Quality Monitoring Report October – December 2024, LNG Canada (January 2025)

AMBIENT AIR QUALITY MONITORING REPORT OCTOBER - DECEMBER 2024

LNG CANADA

TRINITY CONSULTANTS
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January 2025

Project 244501.0077

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1.0 INTRODUCTION

This report, prepared for LNG Canada by Trinity Consultants (Trinity), summarizes the LNG Canada's nitrogen dioxide (NO_2) and Ozone (O_3) monitoring network data collected at the Kitamaat Village and Riverlodge Stations for the fourth quarter (October 1 through December 31), 2024. In addition, sulfur dioxide (SO_2) and particulate matter 2.5 microns in size or less ($PM_{2.5}$) presented in this report for the Kitamaat Village and Riverlodge stations have been provided by Rio Tinto BC Works. Rio Tinto BC works also provided the fourth quarter 2024 meteorological data for the Kitamaat Village, Riverlodge, and Whitesail stations as well as the NO_2, O_3, SO_2, and $PM_{2.5}$ data collected at the Whitesail station.

The monitoring performed by LNG Canada is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) and satisfies the requirement for collection of continuous air quality data as described under Sections 10.3, 10.3.1, 10.3.2 & 10.3.3 in LNGC's Air Discharge Permit PA-110588.

LNG Canada owns, operates, and maintains an ambient air monitoring network around the LNG Canada Kitimat LNG export facility. This ambient air quality monitoring network consists of two air quality monitoring stations that are strategically located in the Kitimat Valley of British Columbia (BC) at the Kitamaat Village (Village) and Riverlodge. The Kitamaat Village and Riverlodge stations are owned by Rio Tinto Alcan Inc. and are part of Rio Tinto's air quality monitoring network. LNG Canada's continuous monitoring equipment are housed in the Rio Tinto air quality shelters at Kitamaat Village and Riverlodge locations. The locations of these stations within the Kitimat Valley are presented in Figure 1.1.

Figure 1.1 Locations of LNG Canada and Rio Tinto BC Works Ambient Air Monitoring Stations in Kitimat Valley

1.1 Kitamaat Village

The Village Ambient Air Station is in the Haisla Nation community of Kitamaat Village. The site is located within the yard of the Kitamaat Village sewage treatment plant. Area land use is suburban with a mix of dwellings, commercial buildings, forest, ocean, and parkland. The ground cover immediately around the site is compacted gravel, natural ground cover, cut grass, and asphalt. An aerial view of the site is presented in Figure 1.2. A photograph of the Kitamaat Village Ambient Air Quality Monitoring Station is presented in Figure 1.3.

Figure 1.2 Aerial View of Kitamaat Village Ambient Air Quality Monitoring Station

Figure 1.3 Photograph of Kitamaat Village Ambient Air Quality Monitoring Station

1.2 Riverlodge

The Riverlodge Ambient Air Station is located on Columbia Avenue in Kitimat, BC across the street from the Riverlodge Community Centre. The monitoring station is an aged industrial trailer with a meteorological tower mounted to the frame and hitch of the trailer. Land use around the site is suburban low-density housing, park land and forest. Land cover immediately around the site is short grass, gravel and asphalt parking lot, buildings, and forested lands. An aerial view of the site is shown in Figure 1.4. A photograph of the Riverlodge ambient air station is presented in Figure 1.5.

Figure 1.4 Aerial View of Riverlodge Ambient Air Quality Monitoring Station

Figure 1.5 Photograph of Riverlodge Ambient Air Quality Monitoring Station

1.3 Whitesail

Rio Tinto BC Works' operates and maintains the Whitesail monitoring station located in the Kitimat Valley. Like the Riverlodge monitoring station, the Whitesail monitoring station is considered a residential monitoring station. The Whitesail Ambient Air Station is in the Whitesail neighborhood of Kitimat, BC. and is situated on land owned by the Mountain View Alliance Church. Area land use is a suburban residential, forested, and park land. The ground cover around the site is grass, compacted gravel, asphalt, buildings, and forested land. An aerial view of the site is presented as Figure 1.6. A photograph of the station is presented as Figure 1.7.

Figure 1.6 Aerial View of Whitesail Ambient Air Quality Monitoring Station

Figure 1.7 Photograph of Whitesail Ambient Air Quality Monitoring Station

2.0 FOURTH QUARTER 2024 REPORT SUMMARY

The LNG Canada and Rio Tinto BC Works air quality monitoring data collected during the fourth quarter (October 1 through December 31) at the Kitamaat Village, Riverlodge, and Whitesail stations are summarized in this section.

2.1 British Columbia Air Quality Objectives

British Columbia has adopted air quality objectives and standards for a number of contaminants, including $PM_{2.5}$, SO_2, O_3, and NO_2. The British Columbia Ambient Air Quality Objectives (BCAAQO) and the 2020 Canadian Ambient Air Quality Standard (for SO_2) that have been developed by the British Columbia Ministry of Environment are as follows:

Pollutant	Averaging Period	British Columbia Ambient Air Quality Objective (BCAAQO)	2020 Canadian Ambient Air Quality Standard (CAAQS)
SO_2	1-hour[a]	75 (ppb)	70 (ppb)
	Annual[b]	10 (ppb)	5 (ppb)
NO_2	1-hour[c]	60 (ppb)	--
	Annual[d]	17 (ppb)	--
$PM_{2.5}$	24-hours[e]	25 ($\mu g/m^3$)	--
	Annual	8 ($\mu g/m^3$)	--
O_3	1-hour	82 (ppb)	--
	8-hour[f]	--	62 (ppb)

[a] Achievement based on annual 99th percentile of daily 1-hour maximum, averaged over three consecutive years.

[b] Achievement based on annual average of 1-hour concentrations over one year.

[c] 98th percentile of daily 1-hour maximum over three years

[d] Average of 1-hour concentrations over one year

[e] 98th percentile of daily average over one year

[f] Achievement based on annual 4th highest daily 8-hour maximum, averaged over three consecutive years

2.2 Pollutant Concentrations and Data Completeness

During the fourth quarter, there were no exceedances of the BCAAQO for SO_2, NO_2, and $PM_{2.5}$. The average and median hourly $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations measured during the fourth quarter at the Kitamaat Village, Riverlodge, and Whitesail monitoring stations are summarized in Table 2-1. Tables 2-2 through 2-4 present the maximum $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations, a comparison to the BCAAQOs, and data completeness for the fourth quarter 2024. In Tables 2-2 through 2-4 it should be noted that, as applicable, SO_2 exceedance counts include BCAAQO and 2020 CAAQS.

Table 2-1 Average and Median Pollutant Statistics for Fourth Quarter 2024

Station	$PM_{2.5}$ (µg/m^3)		SO_2 (ppb)		NO_2 (ppb)		O_3 (ppb)	
	Average	Median	Average	Median	Average	Median	Average	Median
Kitamaat Village	4.0	4.0	0.3	0.2	0.5	0.3	17.8	17.0
Riverlodge	2.9	3.0	0.1	0.1	1.5	0.9	15.5	14.0
Whitesail	3.6	3.0	0.1	0.1	1.2	0.7	14.8	14.0

Table 2-2 Kitamaat Village Station Fourth Quarter 2024 Data Summary

Parameter	1-hour average						24-hour Average 8-hour Average								
	Maximum Concentration			Exceedances of BCAAQO[1]			Maximum Concentration			Exceedances of BCAAQO[1]			Data Completeness		
	Oct.	Nov.	Dec.	Oct.	Nov.	Dec.	Oct.	Nov.	Dec.	Oct.	Nov.	Dec.	Oct.	Nov.	Dec.
$PM_{2.5}$ ($\mu g/m^3$)[3]	20.0	13.0	25.0	-	-	-	6.3	7.0	8.3	0	0	0	91.6	87.0	98.7
SO_2 (ppb)	12.1	20.3	2.3	0	0	0	1.2	2.6	1.0	-	-	-	94.0	95.0	93.6
NO_2 (ppb)	4.0	4.5	4.0	0	0	0	0.9	1.1	1.1	-	-	-	91.9	95.0	93.6
O_3 (ppb)	44.0	44.0	42.0	0	0	0	41.0[2]	40.0[2]	31.0[2]	0	0	0	94.7	95.0	93.6

1 British Columbia Ambient Air Quality Objective (AAQO)
2 8-hour maximum
3 24-hour $PM_{2.5}$ concentrations were determined from midnight to midnight

Table 2-3 Riverlodge Station Fourth Quarter 2024 Data Summary

Parameter	1-hour average						24-hour Average 8-hour Average								
	Maximum Concentration			Exceedances of BCAAQO[1]			Maximum Concentration			Exceedances of BCAAQO[1]			Data Completeness		
	Oct.	Nov.	Dec.	Oct.	Nov.	Dec.	Oct.	Nov.	Dec.	Oct.	Nov.	Dec.	Oct.	Nov.	Dec.
$PM_{2.5}$ ($\mu g/m^3$)[3]	17.0	18.0	20.0	-	-	-	5.3	4.5	8.0	0	0	0	98.8	88.8	99.0
SO_2 (ppb)	7.2	10.2	2.7	0	0	0	1.0	0.4	0.4	-	-	-	94.5	94.8	95.3
NO_2 (ppb)	5.5	9.3	14.3	0	0	0	1.9	3.5	6.0	-	-	-	94.5	94.8	95.2
O_3 (ppb)	43.0	43.0	40.0	0	0	0	40.0[2]	40.0[2]	33.0[2]	0	0	0	94.5	94.8	95.3

1 British Columbia Ambient Air Quality Objective (AAQO)
2 8-hour maximum
3 24-hour $PM_{2.5}$ concentrations were determined from midnight to midnight

Table 2-4 Whitesail Station Fourth Quarter 2024 Data Summary

Parameter	1-hour average						24-hour Average 8-hour Average								
	Maximum Concentration			Exceedances of BCAAQO[1]			Maximum Concentration			Exceedances of BCAAQO[1]			Data Completeness		
	Oct.	Nov.	Dec.	Oct.	Nov.	Dec.	Oct.	Nov.	Dec.	Oct.	Nov.	Dec.	Oct.	Nov.	Dec.
$PM_{2.5}$ ($\mu g/m^3$)[3]	26.0	54.0	15.0	-	-	-	7.9	9.2	5.9	0	0	0	96.4	87.0	99.5
SO_2 (ppb)	16.9	5.2	3.5	0	0	0	1.4	0.7	0.7	-	-	-	95.2	95.6	94.4
NO_2 (ppb)	5.9	7.4	10.6	0	0	0	1.5	2.2	4.2	-	-	-	95.2	95.6	94.4
O_3 (ppb)	37.0	36.0	30.0	0	0	0	35.0[2]	34.0[2]	25.0[2]	0	0	0	95.2	95.6	94.4

1 British Columbia Ambient Air Quality Objective (AAQO)
2 8-hour maximum
3 24-hour $PM_{2.5}$ concentrations were determined from midnight to midnight

2.3 Fourth Quarter 2024 Ambient Air Monitoring Issues

During the fourth quarter of 2024, there were no ambient air or meteorological monitoring data deletions or resubmissions made for any of the monitoring stations outlined in this report. No required calibrations of the ambient air quality analyzers were missed during the fourth quarter. There were no issues identified with the ambient air or monitoring data besides the completeness for $PM_{2.5}$ in November at Kitamaat Village, Riverlodge, and Whitesail. During the month of November at Kitamaat Village, Riverlodge, and Whitesail, the continuous $PM_{2.5}$ monitors had a data recovery rate of 87.0%, 88.8%, and 87.0%, respectively. This was due to the required 72-hour zero filter background tests that were conducted on the particulate monitors in November. During the fourth quarter of 2024, there were no exceedances of the numerical metrics of the BCAAQO.

3.0 OCTOBER - DECEMBER 2024 KITAMAAT VILLAGE AMBIENT AIR QUALITY STATION MONITORING ACTIVITIES

This section provides a summary of the monitoring activities conducted at the LNG Canada Kitamaat Village Ambient Air Quality Station for October through December 2024. Table 3-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Kitamaat Village monitoring station. Site visit notes for the fourth quarter, SO_2, $PM_{2.5}$, O_3, and NO_2 concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, and NO_2 trends for the fourth quarter 2024 are also presented in this section.

Table 3-1 LNG Canada Instrumentation at the Kitamaat Village Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Kitamaat Village			
NO_2	Teledyne-API T200	Chemiluminescence	8598
O_3	Teledyne-API T400	UV Absorption	7486
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	905
Zero Air Source	Teledyne API T701	Zero-Air Generator	2555

3.1 Site Visit Notes

The Kitamaat Village site visit notes for the fourth quarter are summarized here and in Appendix A.

- On October 1, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers to the correct time.
- On October 8, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers to the correct time.
- On October 10, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers to the correct time.
- On October 16, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers to the correct time.
- On October 17, 2024, a remote "after adjustment" multipoint verification was performed on the NO_x analyzer after a power outage the day prior.
- On October 22, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers to the correct time.
- On October 29, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers to the correct time.
- On October 30, 2024, the MOE conducted an audit of the gaseous analyzers.

- On October 31, 2024, the site technician was onsite to change the inlet filters on the NO_2 and O_3 analyzers. The clocks on the NO_2 and O_3 analyzers, and T700U calibrator were adjusted to the correct time.

- On November 4, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time.

- On November 12, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers to the correct time.

- On November 19, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, T700U calibrator, and Envidas logger to the correct time.

- On November 21, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time.

- On November 28, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, T700U calibrator, and Envidas logger to the correct time. The shelter temperature was adjusted.

- On November 30, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, T700U calibrator, and Envidas logger to the correct time. The sample filters were replaced on the analyzers.

- On December 3, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time.

- On December 12, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, the T700U calibrator, and Envidas datalogger to the correct time.

- On December 13, 2024, the site technician performed checks on the mass flow controllers on the calibrator and adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time.

- On December 16, 2024, remote multipoint calibrations were performed on the O_3 analyzer, and the semi-annual check was conducted on the ozone transfer standard.

- On December 17, 2024, the site technician performed quarterly multi-point calibrations on the NO_x analyzer and adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator logger to the correct time. An "after maintenance" remote multipoint verification was also performed on the NOx analyzer to obtain the latest NO_2 target concentrations.

- On December 18, 2024, a remote multi-point after calibration adjustment was performed on the NO_2 analyzer.

- On December 24, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time. The inlet sample filter was replaced.

- On December 31, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time.

3.2 Monitoring Results and Trends

A summary of the $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations monitoring statistics for the fourth quarter 2024 for the Kitamaat Village Station is presented in Table 3-2.

Table 3-2 Summary of $PM_{2.5}$, SO_2, NO_2, and O_3 Concentrations for the Kitamaat Village Station, October – December 2024

Statistic	$PM_{2.5}$ (µg/m³)[1]				SO2 (ppb)[1]				NO_2 (ppb)				O_3 (ppb)			
	Oct.	Nov.	Dec.	Q4	Oct.	Nov.	Dec.	Q4	Oct.	Nov.	Dec.	Q4	Oct.	Nov.	Dec.	Q4
1-hour Avg.	1.5	4.8	5.7	4.0	0.4	0.4	0.3	0.3	0.4	0.5	0.6	0.5	17.5	22.1	14.0	17.8
1-Hour Max.	20.0	13.0	25.0	25.0	12.1	20.3	2.3	20.3	4.0	4.5	4.0	4.5	44.0	44.0	42.0	44.0
1-Hour Min.[2]	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	-0.1	0.1	-0.1	-0.1	2.0	2.0	1.0	1.0
Mean Daily Max.	5.9	6.8	8.4	8.4	1.3	2.7	1.0	2.7	1.0	1.1	1.2	1.2	35.1	32.1	27.0	35.1
Mean Daily Min.	0.1	2.0	2.9	0.1	0.3	0.1	0.2	0.1	0.2	0.2	0.3	0.2	4.1	5.2	4.7	4.1
24-hour Avg.	1.5	4.8	5.7	4.0	0.4	0.4	0.3	0.4	0.4	0.5	0.4	0.4	17.4	22.1	14.1	17.9
24-hour Daily Max.[3]	6.3	7.0	8.3	8.3	1.2	2.6	1.0	2.6	0.9	1.1	1.1	1.1	--	--	--	0.0
8-hour Max.	--	--	--	--	--	--	--	--	--	--	--	--	41.0	40.0	31.0	41.0
Median	0.0	5.0	5.0	4.0	0.3	0.2	0.2	0.2	0.2	0.4	0.4	0.3	16.0	24.0	12.0	17.0
Percent Data Recovery	91.6	87.0	98.7	92.4	94.0	95.0	93.6	94.2	91.9	95.0	93.6	93.5	94.7	95.0	93.6	94.4

[1] $PM_{2.5}$ and SO_2 fourth quarter 2024 data provided by Rio Tinto BC Works.

[2] Slightly negative concentrations are inherent with proper analyzer operation due to subtle levels of noise in the zero baseline setpoint. Negative values may be interpreted as zero and only occur when the air is very clean.

[3] 24-hour $PM_{2.5}$ daily maximum concentrations determined from midnight to midnight.

Note: A 72-hour background test was concluded on November 4 on the $PM_{2.5}$ sampler. On November 4, two hours (hours 17:00 and 18:00) recorded hourly $PM_{2.5}$ concentrations to be over 100 µg/m³. Since the 72-hour test had just concluded, it is possible that these values were erroneous and may be invalidated. It is worth noting that the 24-hour average for November 4 will be invalidated as the annual background test maintenance had the unit offline for most of the day prior to these readings. In addition, the sampler tape was inspected for the time period in question and no significant particulate was found deposited on the tape.

The average $PM_{2.5}$ concentration during the fourth quarter was 4.0 µg/m^3 and the median $PM_{2.5}$ concentration during the fourth quarter was 4.0 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration during the fourth quarter was 25.0 µg/m^3 which occurred in December. The maximum 24-hour $PM_{2.5}$ concentration for the fourth quarter was 8.3 µg/m^3 which also occurred in December. During the fourth quarter, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

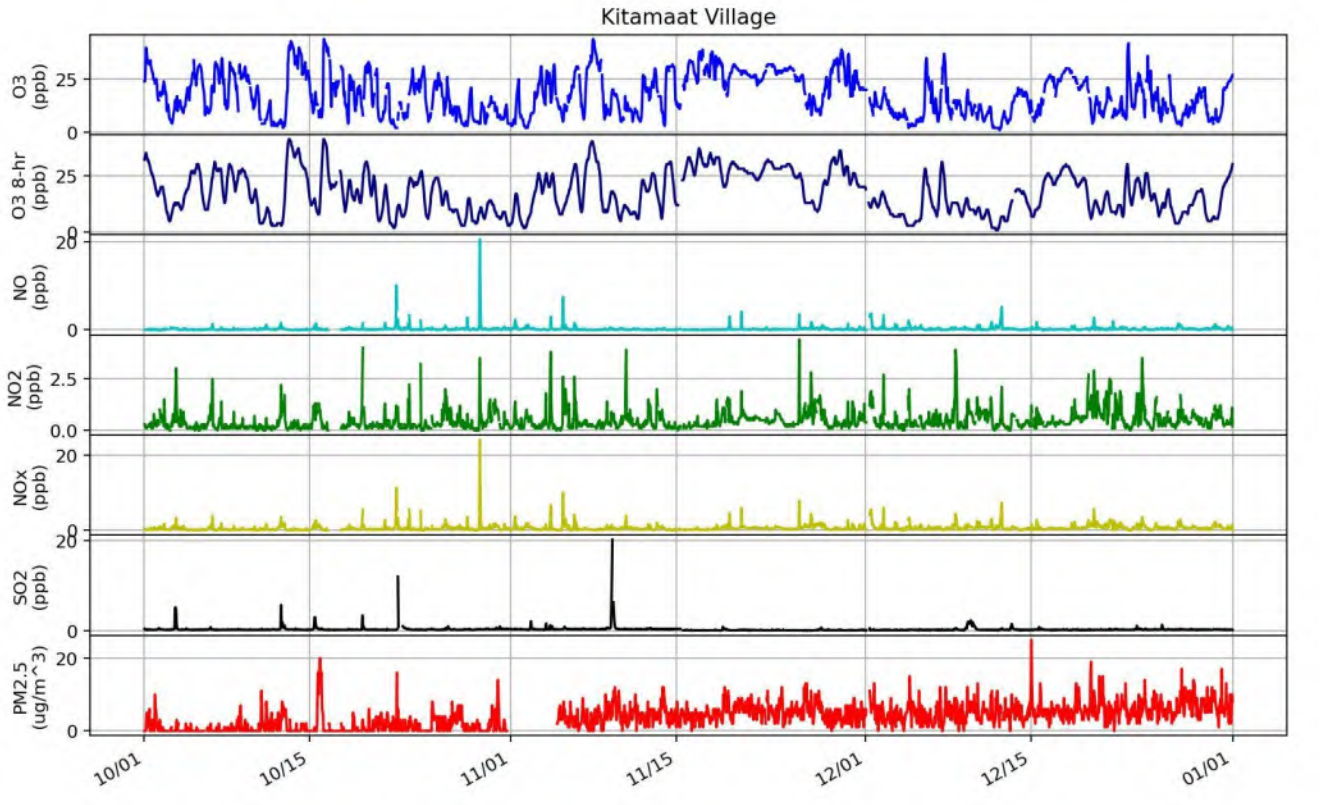
The average SO_2 concentration at the Kitamaat Village for the fourth quarter was 0.3 ppb with a median concentration of 0.2 ppb. The maximum hourly SO_2 concentration during the fourth quarter was 20.3 ppb which occurred in November. During the fourth quarter, there were no exceedances of the 1-hour SO_2 BCAAQO of 75 ppb or the 1-hour SO_2 CAAQS of 70 ppb at Kitamaat Village station.

The average NO_2 concentration at the Kitamaat Village for the fourth quarter was 0.5 ppb and the median NO_2 concentration was 0.3. The maximum hourly NO_2 concentration during the fourth quarter at Kitamaat Village was 4.5 ppb which occurred in November. During the fourth quarter, there were no exceedances of the 1-hour NO_2 BCAAQO of 60 ppb at the Kitamaat Village station.

The average O_3 concentration at the Kitamaat Village for the fourth quarter was 17.8 ppb and the median O_3 concentration was 17.0 ppb. The maximum hourly O_3 concentration of 44.0 ppb occurred in October and November. The maximum 8-hour O_3 concentration during the fourth quarter was 41.0 ppb which occurred in October. During the fourth quarter, there were no exceedances of the 1-hour O_3 BCAAQO advisory level of 82 ppb and the 8-hour CAAQS of 62 ppb at the Kitamaat Village station.

A time series plots of $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations for the fourth quarter is presented in Figure 3.1.

Figure 3.1 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO/NO_2/NOx, and O_3/O_3 -8hr Concentration Data for the Kitamaat Village Station, Fourth Quarter 2024



Wind speed, wind direction, and temperature data are collected by Rio Tinto BC Works at the Kitamaat Village station. Figures 3.2 through 3.4 present the monthly Kitamaat Village station wind roses for October through December 2024. Figure 3.5 presents a time series plot of wind speed and direction, and temperature for the fourth quarter, 2024.

Figure 3.2 October 2024 Kitamaat Village Station Wind Rose

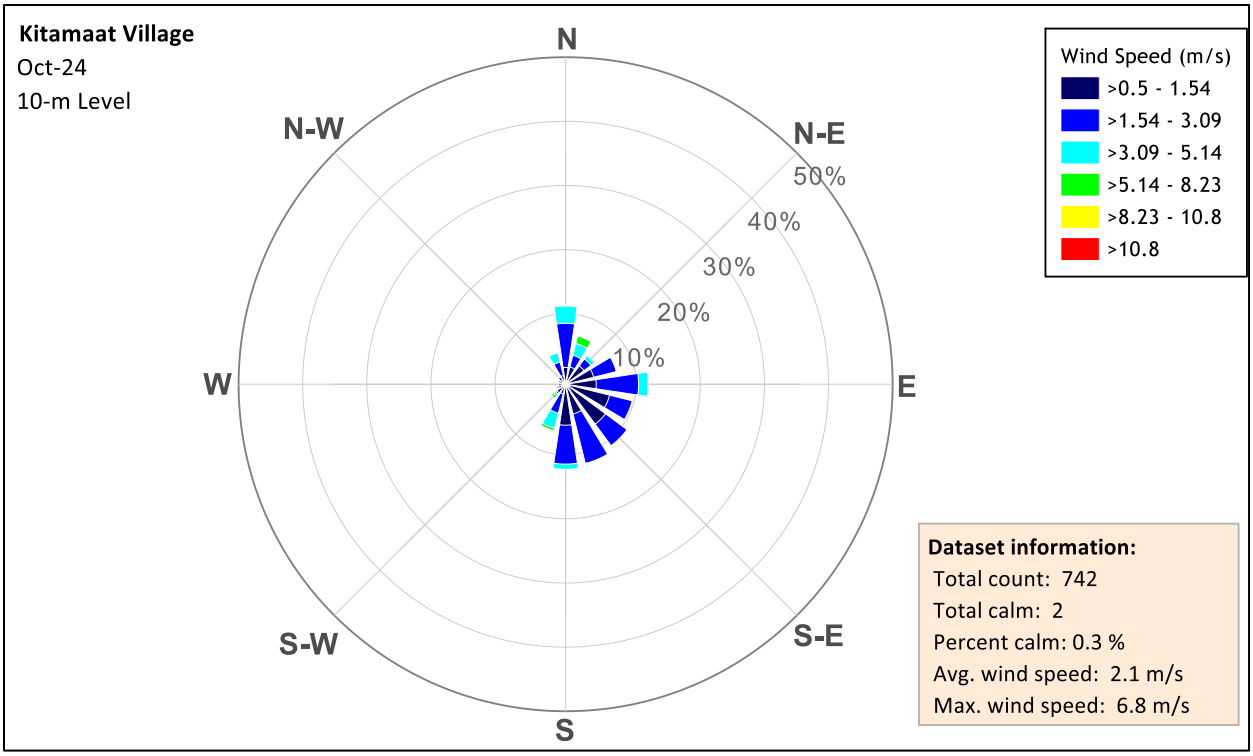


Figure 3.3 November 2024 Kitamaat Village Station Wind Rose

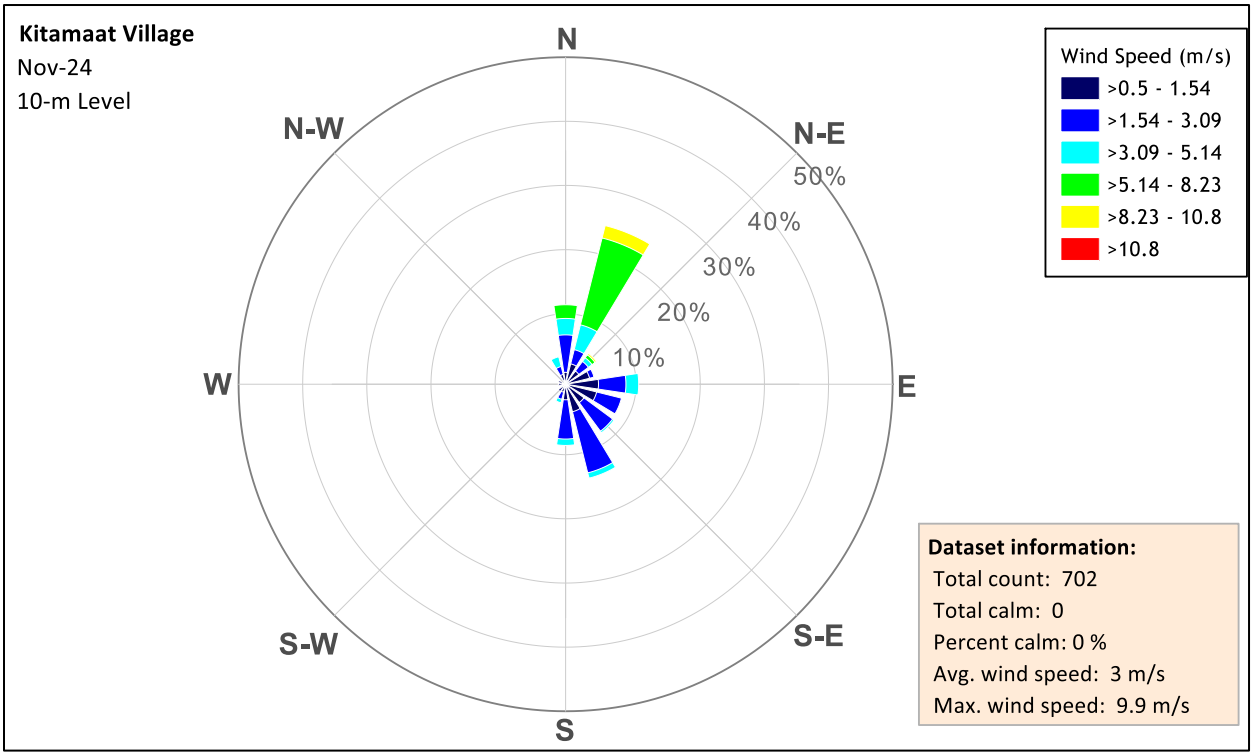


Figure 3.4 December 2024 Kitamaat Village Station Wind Rose

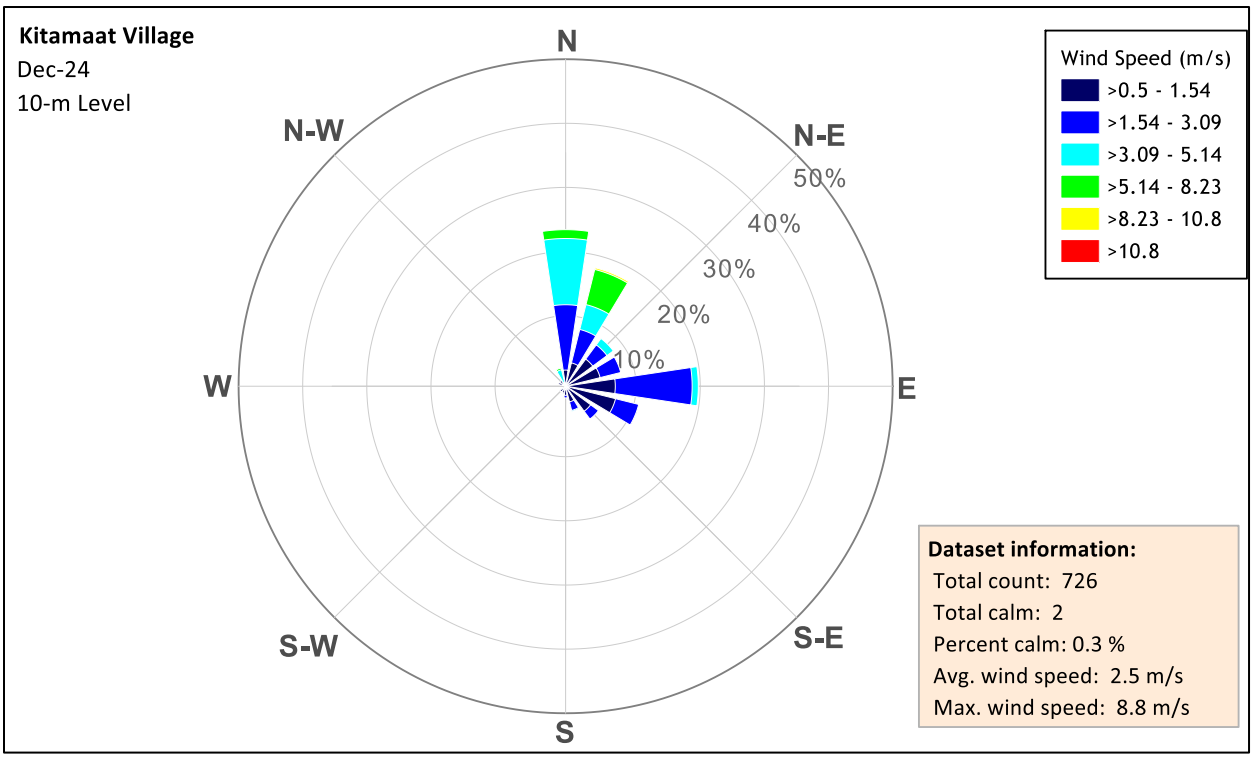
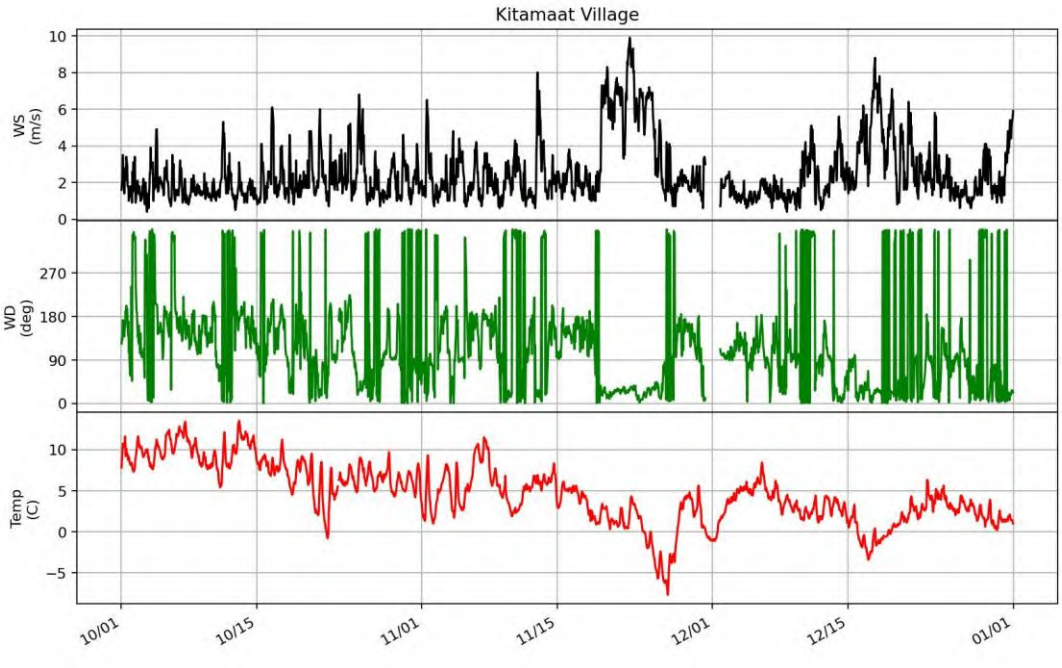


Figure 3.5 Time Series Plot of Wind Speed, Wind Direction, and Temperature Data at Kitimaat Village Station for Fourth Quarter 2024



3.3 Fourth Quarter 2024 Ambient Air Monitoring Data Issues

Table 3-3 presents the Kitamaat Village station data shortfall periods and known issues, during the fourth quarter, that led to pollutant concentration data loss.

Table 3-3 Data Shortfall Periods and Noted Issues During Fourth Quarter 2024 at Kitamaat Village Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
NO_x	10/16/2024	1400	10/17/2024	1100	22	Power outage
Wind	11/30/2024	700	12/1/2024	1800	36	Sensor frozen
$PM_{2.5}/SO_2/O_3/NO_x$	12/1/2024	200	12/1/2024	700	6	Power Outage
$SO_2/O_3/NO_x$	10/17/2024	1200	10/17/2024	1500	4	LNG NO_x Calibration
$SO_2/O_3/NO_x$	10/22/2024	1300	10/22/2024	1300	1	Troubleshooting
SO_2	10/22/2024	1400	10/22/2024	1800	5	SO_2 Maintenance Issue
$SO_2/O_3/NO_x$	10/22/2024	1900	10/22/2024	2000	2	SO_2 MP Verification
All Met	10/23/2024	0900	10/23/2024	1000	2	Meteorological Calibration
$SO_2/O_3/NO_x$	10/30/2024	1100	10/30/2024	1200	2	MOE Audit
$PM_{2.5}$	10/30/2024	1200	10/30/2024	1200	1	MOE Audit
$PM_{2.5}$	10/31/2024	1700	10/31/2024	1700	1	Monthly BAM Maintenance
$PM_{2.5}$	10/31/2024	1800	11/04/2024	1500	93	BAM Zero Background Test
$SO_2/O_3/NO_x$	11/15/2024	0900	11/15/2024	1300	5	SO_2 Calibration
$SO_2/O_3/NO_x$	11/30/2024	1600	11/30/2024	1600	1	Replace Filters
$SO_2/O_3/NO_x$	12/3/2024	1000	12/3/2024	1000	1	Replace Filters
$PM_{2.5}$	12/12/2024	1200	12/12/2024	1300	2	Monthly BAM Maintenance
$SO_2/O_3/NO_x$	12/13/2024	1500	12/13/2024	1700	3	MFC Verification
$SO_2/O_3/NO_x$	12/16/2024	1500	12/16/2024	1600	2	O_3 Transfer Standard Check
$SO_2/O_3/NO_x$	12/17/2024	1500	12/17/2024	1600	2	NO_x/SO_2 MP Verification After Maintenance
$SO_2/O_3/NO_x$	12/18/2024	1100	12/18/2024	1200	2	SO_2 Calibration

4.0 OCTOBER - DECEMBER 2024 RIVERLODGE AMBIENT AIR QUALITY STATION MONITORING STATION

This section provides a summary of the monitoring activities conducted at the LNG Canada Riverlodge Ambient Air Quality Station for October through December 2024. Table 4-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Riverlodge monitoring station. Site visit notes, SO_2, $PM_{2.5}$, O_3, and NO_2 concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, and NO_2 trends for fourth quarter 2024 are also presented below.

Table 4-1 LNG Canada Instrumentation at the Riverlodge Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Riverlodge			
NO_2	Teledyne-API T200	Chemiluminescence	8599
O_3	Teledyne-API T400	UV Absorption	7487
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	906
Zero Air Source	Teledyne API T701	Zero-Air Generator	2556

4.1 Site Visit Notes

The Riverlodge site visit notes for the fourth quarter are summarized here and in Appendix A.

- On October 2, 2024, the site technician replaced the O_3 and NO_x analyzer inlet filters and adjusted the clocks on the NO_2 and O_3 analyzers.
- On October 3, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time. A shelf was installed to accommodate the Teledyne Model N901, serial number 80 total hydrocarbon (THC) analyzer. The Teledyne N901 was installed and connected to the manifold and connections secured. The analyzer was power on and appeared to be working normally.
- On October 4, 2024, the site technician completed the installation of the N901 THC analyzer. The system was leak checked, and a small leak was found on the T701 zero air generator which was corrected. The clocks on the NO_2 and O_3 analyzers, and T700U calibrator were updated to the correct time.
- On October 8, 2024, the CSI data logger was reprogrammed to add the THC analyzer.
- On October 10, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers.
- On October 15, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers.
- On October 18, 2024, a remote span test was performed on the THC analyzer.
- On October 21, 2024, a Trinity instrumentation specialist and the site operators were onsite to perform ozone transfer standard checks of the T400 O_3 analyzer and T700 calibration ozone bench. The clocks on the NO_2 and O_3 analyzers, and T700U calibrator were updated to the correct time.

- On October 23, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers.
- On October 30, 2024, the MOE conducted an audit of the gaseous analyzers.
- On October 31, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers and T700U calibrator. The NO_2 and O_3 analyzers inlet filters were replaced.
- On November 6, 2024, a remote "as found" multipoint verification was performed on the NO_2 analyzer. No adjustments were made to the analyzer.
- On November 8, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, T700U calibrator, and Envidas logger to the correct time.
- On November 14, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time.
- On November 18, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers to the correct time.
- On November 19, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator. The power was restored to the CSI datalogger after a loose wire was found and reconnected to the positive terminal.
- On November 22, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator.
- On November 26, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator. Troubleshooting was performed on the N901 methane and total hydrocarbons analyzer.
- On November 28, 2024, the site technician reignited the flame on the N901 methane and total hydrocarbons analyzer. The flame lit and normal operation was resumed. The clocks on the NO_2 and O_3 analyzers, and T700U calibrator were updated to the correct time.
- On November 30, 2024, the site technician replaced the inlet filters on the NO_x and O_3 analyzers. The clocks on the NO_x analyzer and T700 calibrator were updated to the correct time.
- On December 3, 2024, the site technician changed the inlet filter and adjusted the clocks on the NO_2 and O_3 analyzers, T700U calibrator, and Envidas logger to the correct time.
- On December 4, 2024, the site technician replaced the nitrogen cylinder on the N901 THC analyzer and adjusted the clocks on the NO_2 and O_3 analyzers to the correct time.
- On December 13, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, T700U, calibrator and Envidas data logger to the correct time.
- On December 19, 2024, the site technician installed a hydrocarbon scrubber on the T701 zero air generator. The inlet filters were replaced on the NO_2 and O_3 analyzers. The site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time.

- On December 20, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator.
- On December 23, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, T700U calibrator, and Envidas data logger.
- On December 27, 2024, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator.

4.2 Monitoring Results and Trends

A summary of the $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations monitoring statistics for the fourth quarter 2024 for the Riverlodge Station is presented in Table 4-2.

Table 4-2 Summary of $PM_{2.5}$, SO_2, NO_2, and O_3 Concentrations for the Riverlodge Station, October - December 2024

Statistic	$PM_{2.5}$ (µg/m³)[1]				SO_2 (ppb)[1]				NO_2 (ppb)				O_3 (ppb)			
	Oct.	Nov.	Dec.	Q4	Oct.	Nov.	Dec.	Q4	Oct.	Nov.	Dec.	Q4	Oct.	Nov.	Dec.	Q4
1-hour Avg.	2.3	2.4	4.1	2.9	0.2	0.0	0.3	0.1	1.2	1.2	2.1	1.5	16.6	20.5	9.9	15.5
1-Hour Max.	17.0	18.0	20.0	20.0	7.2	10.2	2.7	10.2	5.5	9.3	14.3	14.3	43.0	43.0	40.0	43.0
1-Hour Min.[2]	0.0	0.0	0.0	0.0	-0.5	-0.5	-0.2	-0.5	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Mean Daily Max.	5.0	4.8	8.1	8.1	1.1	0.5	0.5	1.1	2.0	3.6	6.1	6.1	33.4	33.1	23.2	33.4
Mean Daily Min.[2]	0.6	0.6	1.8	0.6	-0.4	-0.4	0.2	-0.4	0.4	0.3	0.4	0.3	1.8	2.1	1.2	1.2
24-hour Avg.	2.3	2.3	4.1	2.2	0.2	-0.2	0.3	0.1	1.2	1.2	2.1	1.5	16.5	20.6	9.9	15.7
24-hour Daily Max.[3]	5.3	4.5	8.0	8.0	1.0	0.4	0.4	1.0	1.9	3.5	6.0	6.0	--	--	--	0.0
8-hour Max.	--	--	--	--	--	--	--	--	--	--	--	--	40.0	40.0	33.0	40.0
Median	2.0	2.0	4.0	3.0	0.1	-0.2	0.2	0.0	0.9	0.8	1.3	0.9	15.0	23.0	7.0	14.0
Percent Data Recovery	98.8	88.8	99.0	95.5	94.5	94.8	95.3	94.9	94.5	94.8	95.2	94.8	94.5	94.8	95.3	94.9

[1] $PM_{2.5}$ and SO_2 fourth quarter 2024 data provided by Rio Tinto BC Works.

[2] Slightly negative concentrations are inherent with proper analyzer operation due to subtle levels of noise in the zero baseline setpoint. Negative values may be interpreted as zero and only occur when the air is very clean.

[3] 24-hour $PM_{2.5}$ daily maximum concentrations determined from midnight to midnight.

The average $PM_{2.5}$ concentration during the fourth quarter was 2.9 µg/m^3 and the median $PM_{2.5}$ concentration during the fourth quarter was 3.0 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration during the fourth quarter was 20.0 µg/m^3 which occurred in December. The maximum 24-hour $PM_{2.5}$ concentration for the fourth quarter was 8.0 µg/m^3 which also occurred in December. During the fourth quarter, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

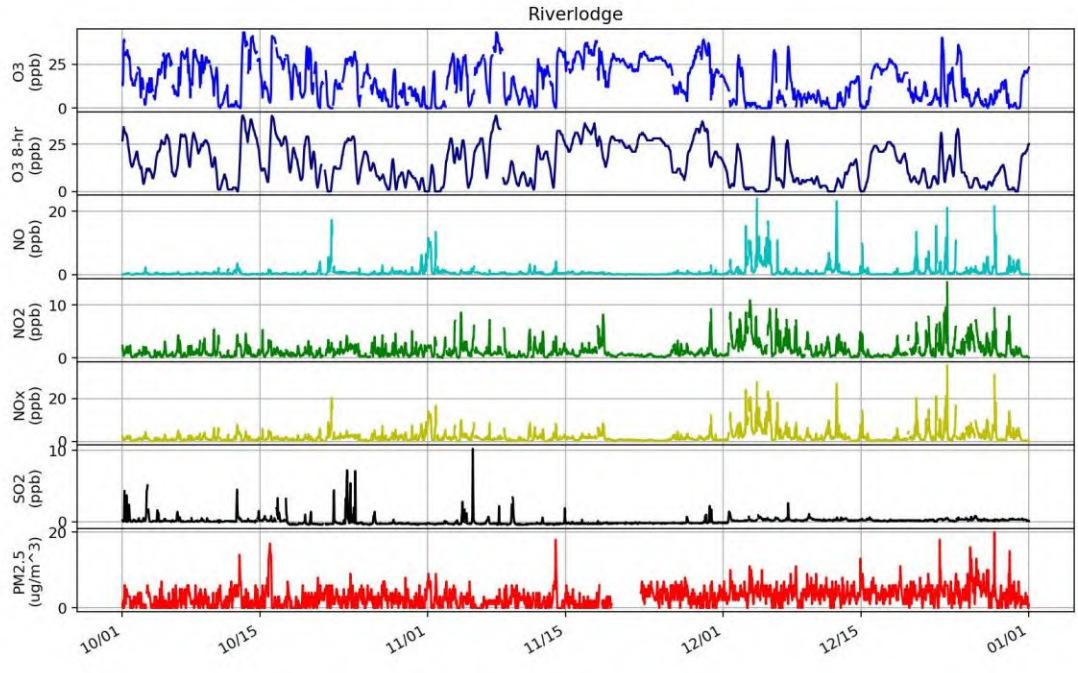
The average SO_2 concentration at the Riverlodge for the fourth quarter was 0.1 ppb with a median concentration of 0.1 ppb. The maximum hourly SO_2 concentration during the fourth quarter was 10.2 ppb which occurred in November. During the fourth quarter, there were no exceedances of the 1-hour BCAAQO of 75 ppb or the 1-hour CAAQS of 70 ppb for SO_2 at the Riverlodge station.

The average NO_2 concentration at the Riverlodge station for the fourth quarter was 1.5 ppb and the median NO_2 concentration was 0.9 ppb. The maximum hourly NO_2 concentration during the fourth quarter at Riverlodge was 14.3 ppb, which occurred in December. During the fourth quarter, there were no exceedances of the 1-hour NO_2 BCAAQO of 60 ppb at the Riverlodge station.

The average O_3 concentration at the Riverlodge station for the fourth quarter was 15.5 ppb and the median O_3 concentration was 14.0 ppb. The maximum hourly O_3 concentration of 43.0 ppb occurred in October and November. The maximum 8-hour O_3 concentration during the fourth quarter was 40.0 ppb which occurred in October and November. During the fourth quarter, there were no exceedances of the 1-hour O_3 BCAAQO advisory level of 82 ppb and the 8-hour CAAQS of 62 ppb at the Riverlodge station.

A time series plot of $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations for the fourth quarter is presented in Figure 4.1.

Figure 4.1 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO/NO_2/NOx, and O_3/O_3 -8hr Concentration Data for the Riverlodge Station, Fourth Quarter 2024



Wind speed and wind direction data are collected by Rio Tinto BC Works at the Riverlodge station. Figures 4.2 through 4.4 present the monthly Riverlodge station wind roses for October through December 2024. Figure 4.5 presents a time series plot of Riverlodge wind speed and direction, and temperature for the fourth quarter, 2024.

Figure 4.2 October 2024 Riverlodge Station Wind Rose

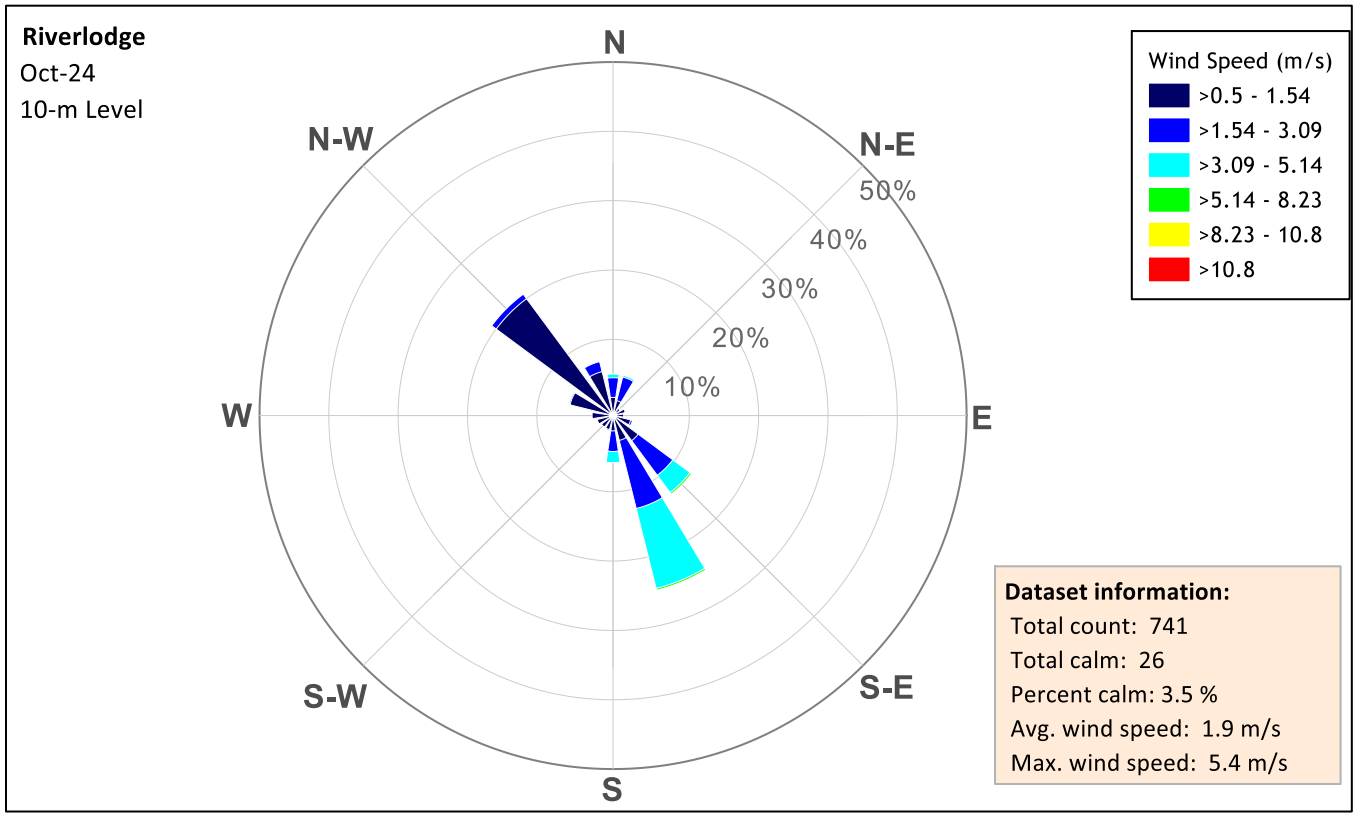


Figure 4.3 November 2024 Riverlodge Station Wind Rose

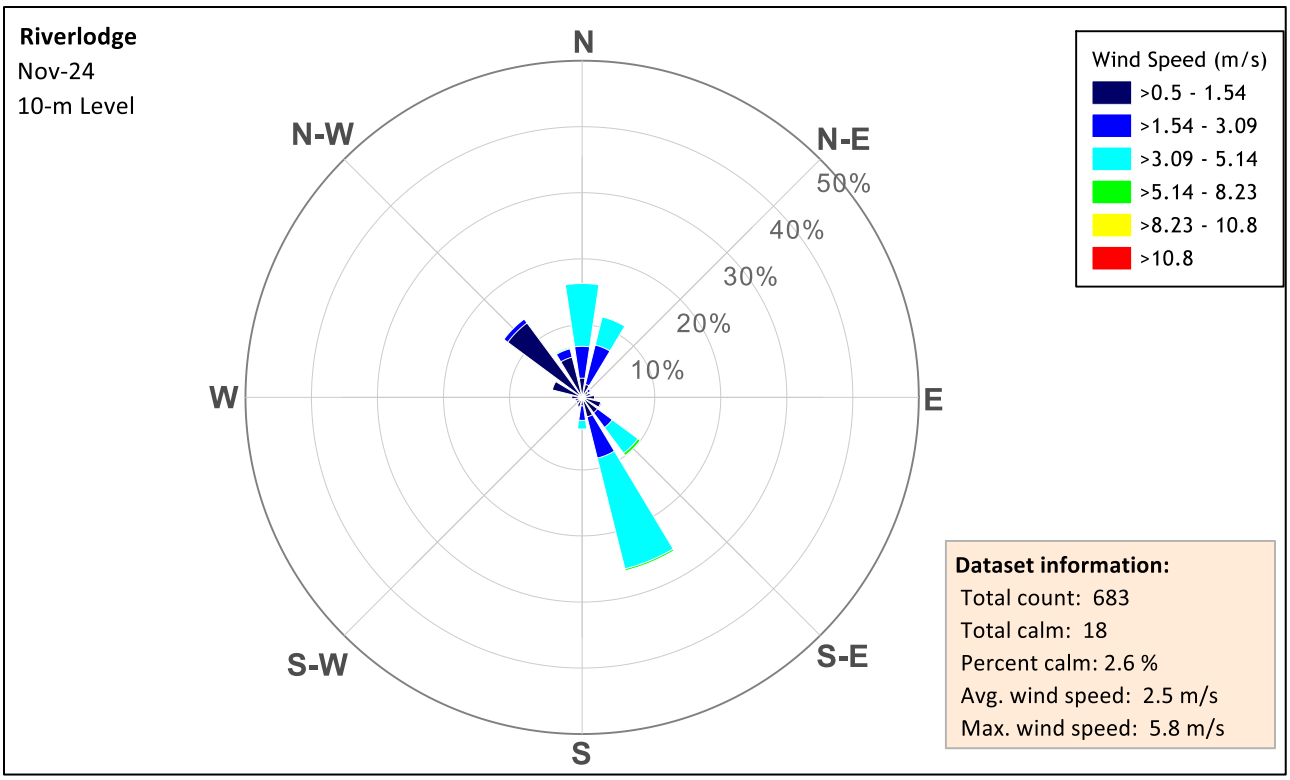


Figure 4.4 December 2024 Riverlodge Station Wind Rose

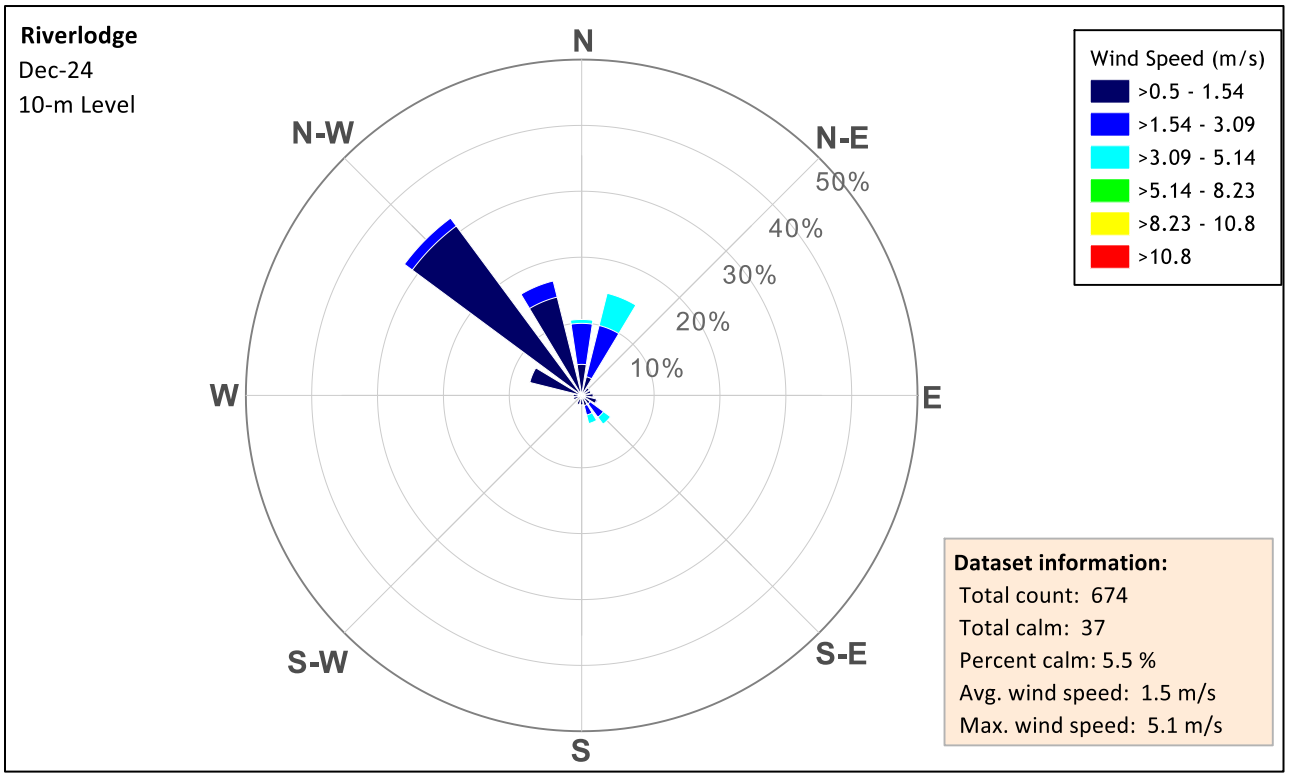
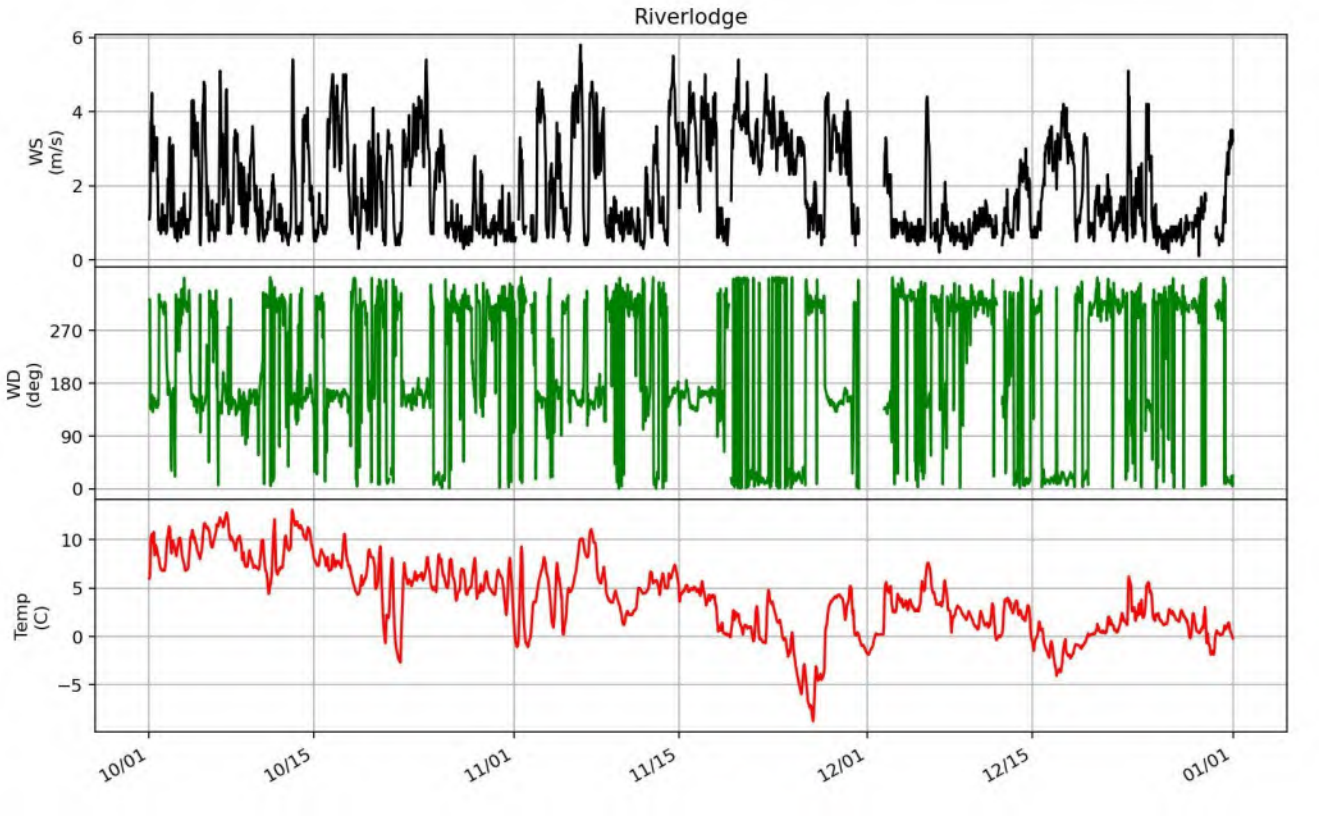


Figure 4.5 Time Series Plot of Wind Speed, Wind Direction, and Temperature Data at Riverlodge Station for Fourth Quarter 2024



4.3 Fourth Quarter 2024 Ambient Air Monitoring Data Issues

Table 4-3 presents the Riverlodge station data shortfall periods and known issues, during the fourth quarter, that led to pollutant concentration data loss.

Table 4-3 Data Shortfall Periods and Noted Issues During Fourth Quarter 2024 at Riverlodge Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
$SO_2/O_3/NO_x$	10/02/2024	1400	10/02/2024	1400	1	Filters Changed
$SO_2/O_3/NO_x$	10/03/2024	1500	10/03/2024	1500	1	LNG THC Analyzer Installation
All Met	10/21/2024	1000	10/21/2024	1200	3	Meteorological Calibration
$SO_2/O_3/NO_x$	10/21/2024	1200	10/21/2024	1500	4	Calibrator MFC Verification
$PM_{2.5}$	10/21/2024	1400	10/21/2024	1500	2	Monthly BAM Maintenance
$SO_2/O_3/NO_x$	10/30/2024	1500	10/30/2024	1600	2	MOE Audit
$PM_{2.5}$	10/30/2024	1500	10/30/2024	1500	1	MOE Audit
$PM_{2.5}$	10/31/2024	1300	10/31/2024	1300	1	Clock Adjustments
Winds	11/01/2024	0400	11/01/2024	0800	5	Anemometer frozen
Winds	11/02/2024	0100	11/02/2024	0900	9	Anemometer frozen
$SO_2/O_3/NO_x$	11/06/2024	1200	11/06/2024	1300	2	NOx As Found MP
$SO_2/O_3/NO_x$	11/08/2024	1600	11/08/2024	1700	2	Filters Changed
$PM_{2.5}$	11/18/2024	1100	11/18/2024	1600	6	Monthly BAM Maintenance
$PM_{2.5}$	11/19/2024	1700	11/22/2024	1400	70	BAM $PM_{2.5}$ Zero Background Test
Winds	11/19/2024	0600	11/19/2024	0900	4	Anemometer frozen
$SO_2/O_3/NO_x$	11/28/2024	1500	11/28/2024	1500	1	HF MP Verification
$PM_{2.5}$	11/28/2024	1400	11/28/2024	1400	1	Clock Adjustments
$SO_2/O_3/NO_x$	11/30/2024	1400	11/30/2024	1400	1	Filters Changed
Winds	11/30/2024	0000	11/30/2024	0000	1	Anemometer frozen
Winds	11/30/2024	0700	12/02/2024	0900	51	Anemometer frozen
$SO_2/O_3/NO_x$	12/04/2024	1100	12/04/2024	1100	1	SO_2 Filter Change
Winds	12/12/2024	0000	12/12/2024	0900	10	Anemometer frozen
$SO_2/O_3/NO_x$	12/16/2024	1100	12/16/2024	1100	1	SO_2 As Found MP Verification
$SO_2/O_3/NO_x$	12/19/2024	1700	12/19/2024	1700	1	Filter Change / T701 Maintenance
$PM_{2.5}$	12/23/2024	1300	12/23/2024	1600	4	Monthly BAM Maintenance
Winds	12/28/2024	0800	12/28/2024	1200	5	Anemometer frozen
Winds	12/29/2024	1800	12/30/2024	1200	19	Anemometer frozen
Winds	12/30/2024	2100	12/30/2024	2300	3	Anemometer frozen

5.0 OCTOBER - DECEMBER 2024 WHITESAIL AMBIENT AIR QUALITY STATION MONITORING STATION

This section provides a summary of the monitoring data collected by Rio Tinto BC Works at their Whitesail monitoring station for October through December 2024. Table 5-1 presents a list of the Rio Tinto BC Works air quality monitoring equipment operating at the Whitesail monitoring station.

Table 5-1 Rio Tinto BC Works Instrumentation at the Whitesail Station

Parameter	Manufacturer/Model	Serial Number
SO_2	Thermo Scientific 43i	1161530005
$PM_{2.5}$	Met One BAM 1020	P15216
O_3	Teledyne-API T400	3830
NO_x	Teledyne-API T200	4271

5.1 Monitoring Results and Trends

A summary of the $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations monitoring statistics for the fourth quarter 2024 for the Whitesail Station is presented in Table 5-2.

Table 5-2 Summary of $PM_{2.5}$, SO_2, NO_2, and O_3 Concentrations for the Whitesail Station, October - December 2024

Statistic	$PM_{2.5}$ (µg/m³)[1]				SO_2 (ppb)[1]				NO_2 (ppb)				O_3 (ppb)			
	Oct.	Nov.	Dec.	Q4	Oct.	Nov.	Dec.	Q4	Oct.	Nov.	Dec.	Q4	Oct.	Nov.	Dec.	Q4
1-hour Avg.	2.4	4.4	4.1	3.6	0.2	0.1	0.2	0.1	0.9	1.0	1.7	1.2	15.7	17.9	11.0	14.8
1-Hour Max.	26.0	54.0	15.0	54.0	16.9	5.2	3.5	16.9	5.9	7.4	10.6	10.6	37.0	36.0	30.0	37.0
1-Hour Min.[2]	0.0	0.0	0.0	0.0	-0.5	-0.5	-0.3	-0.5	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0
Mean Daily Max.	7.7	9.4	6.0	9.4	1.5	0.8	0.8	1.5	1.6	2.3	4.3	4.3	30.1	26.6	19.9	30.1
Mean Daily Min.	1.0	2.1	2.9	2.9	-0.1	-0.2	-0.1	-0.2	0.4	0.4	0.5	0.4	4.8	5.3	2.5	2.5
24-hour Avg.	2.4	4.4	4.1	4.4	0.2	0.1	0.2	0.2	0.9	1.0	1.7	1.2	15.7	18.0	11.0	14.9
24-hour Daily Max.[3]	7.9	9.2	5.9	9.2	1.4	0.7	0.7	1.4	1.5	2.2	4.2	4.2	--	--	--	--
8-hour Max.	--	--	--	--	--	--	--	--	--	--	--	--	35.0	34.0	25.0	35.0
Median	2.0	4.0	4.0	3.0	0.1	0.1	0.1	0.1	0.6	0.6	1.1	0.7	15.0	20.0	10.0	14.0
Percent Data Recovery	96.4	87.0	99.5	94.3	95.2	95.6	94.4	95.1	95.2	95.6	94.4	95.1	95.2	95.6	94.4	95.1

[1] $PM_{2.5}$, SO_2, NO_2, and O_3 fourth quarter 2024 data for Whitesail provided by Rio Tinto BC Works.

[2] Slightly negative concentrations are inherent with proper analyzer operation due to subtle levels of noise in the zero baseline setpoint. Negative values may be interpreted as zero and only occur when the air is very clean.

[3] 24-hour $PM_{2.5}$ daily maximum concentrations determined from midnight to midnight.

The average $PM_{2.5}$ concentration during the fourth quarter was 3.6 µg/m^3 and the median $PM_{2.5}$ concentration during the fourth quarter was 3.0 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration during the fourth quarter was 54.0 µg/m^3 which occurred in November. The maximum 24-hour $PM_{2.5}$ concentration for the fourth quarter was 9.2 µg/m^3 which also occurred in November. During the fourth quarter, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

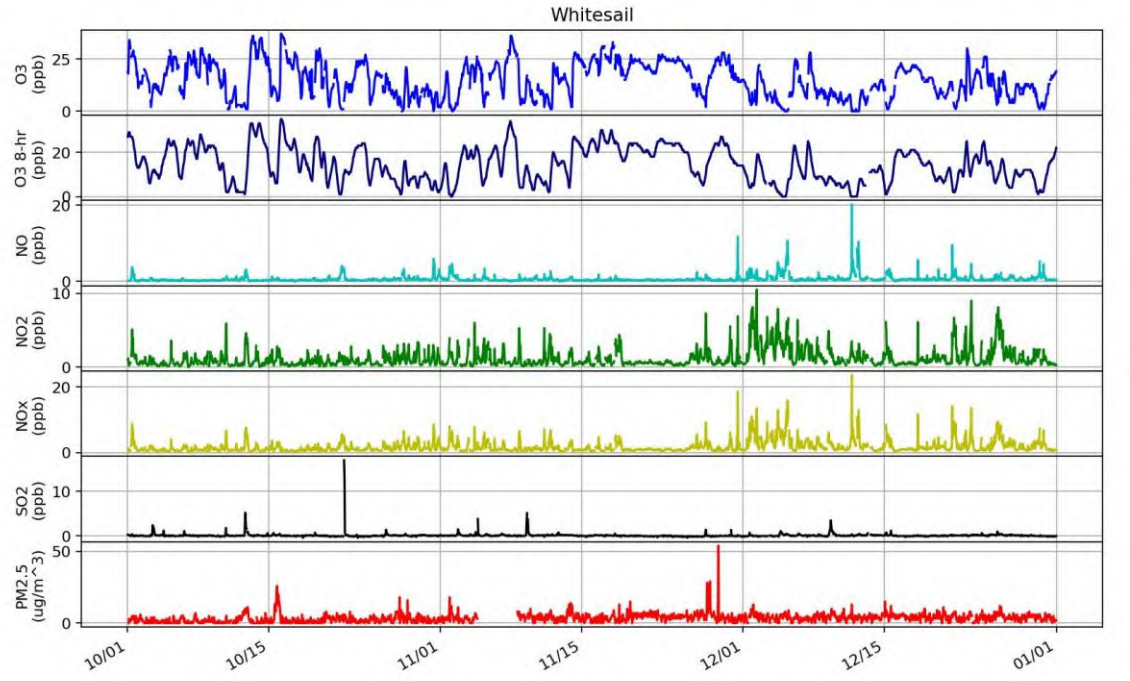
The average SO_2 concentration at the Whitesail for the fourth quarter was 0.1 ppb with a median concentration of 0.1 ppb. The maximum hourly SO_2 concentration during the fourth quarter was 16.9 ppb which occurred in October. During the fourth quarter, there were no exceedances of the 1-hour BCAAQO of 75 ppb or the 1-hour CAAQS of 70 ppb for SO_2 at the Whitesail station.

The average NO_2 concentration at the Whitesail station for the fourth quarter was 1.2 ppb and the median NO_2 concentration was 0.7 ppb. The maximum hourly NO_2 concentration during the fourth quarter at Whitesail was 10.6 ppb which occurred in December. During the fourth quarter, there were no exceedances of the 1-hour NO_2 BCAAQO of 60 ppb at the Whitesail station.

The average O_3 concentration at the Whitesail station for the fourth quarter was 14.8 ppb and the median O_3 concentration was 14.0 ppb. The maximum hourly O_3 concentration of 37.0 ppb occurred in October. The maximum 8-hour O_3 concentration during the fourth quarter was 35.0 ppb which occurred October. During the fourth quarter, there were no exceedances of the 1-hour O_3 BCAAQO advisory level of 82 ppb and the 8-hour CAAQS of 62 ppb at the Whitesail station.

A time series plot of $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations for the fourth quarter is presented in Figure 5.1.

Figure 5.1 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO/NO_2/NOx, and O_3/O_3 -8hr Concentration Data for the Whitesail Station, Fourth Quarter 2024



Wind speed and wind direction data are collected by Rio Tinto BC Works at the Whitesail station. Figures 5.2 through 5.4 present the monthly Whitesail station wind roses for October through December 2024. Figure 5.5 presents a time series plot of Whitesail wind speed and direction, and temperature for the fourth quarter, 2024.

Figure 5.2 October 2024 Whitesail Station Wind Rose

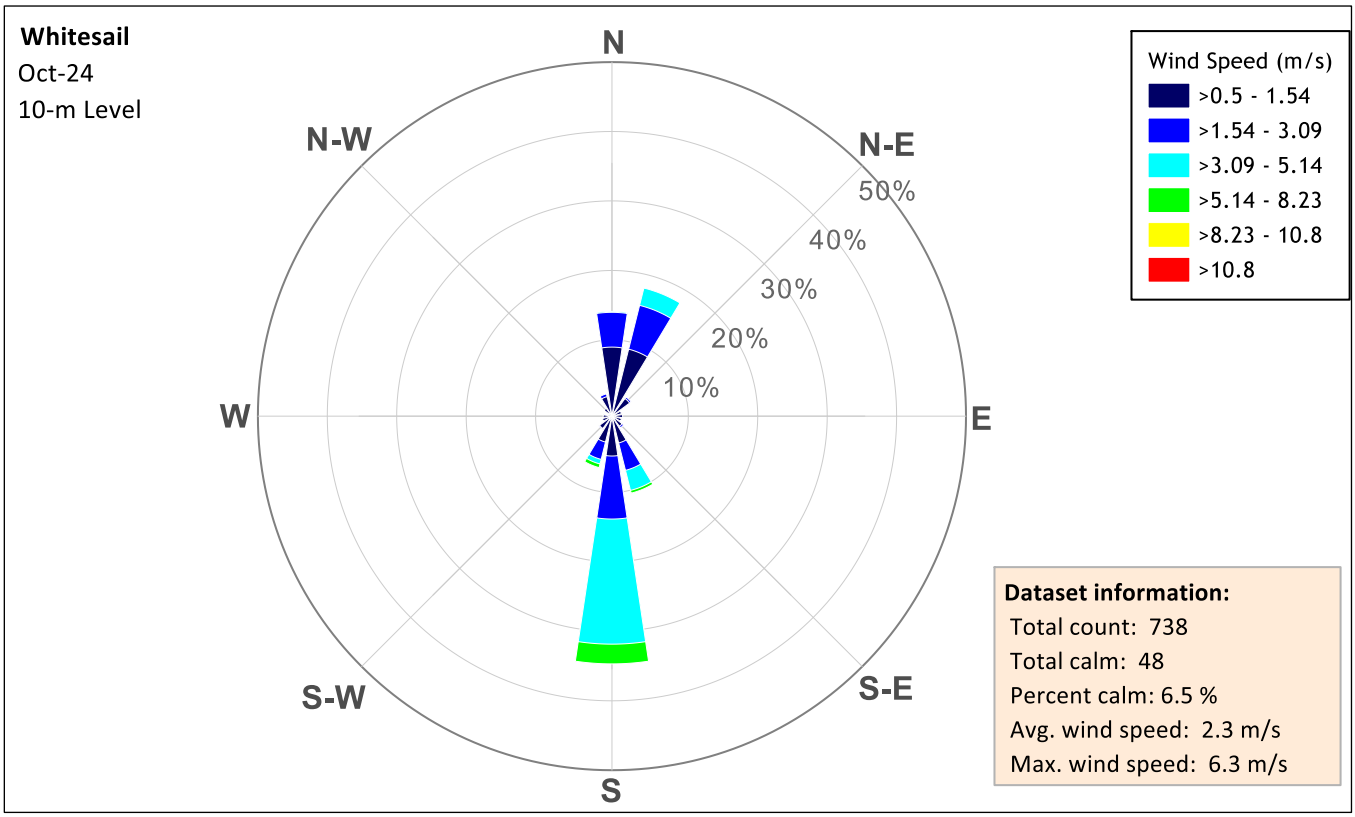


Figure 5.3 November 2024 Whitesail Station Wind Rose

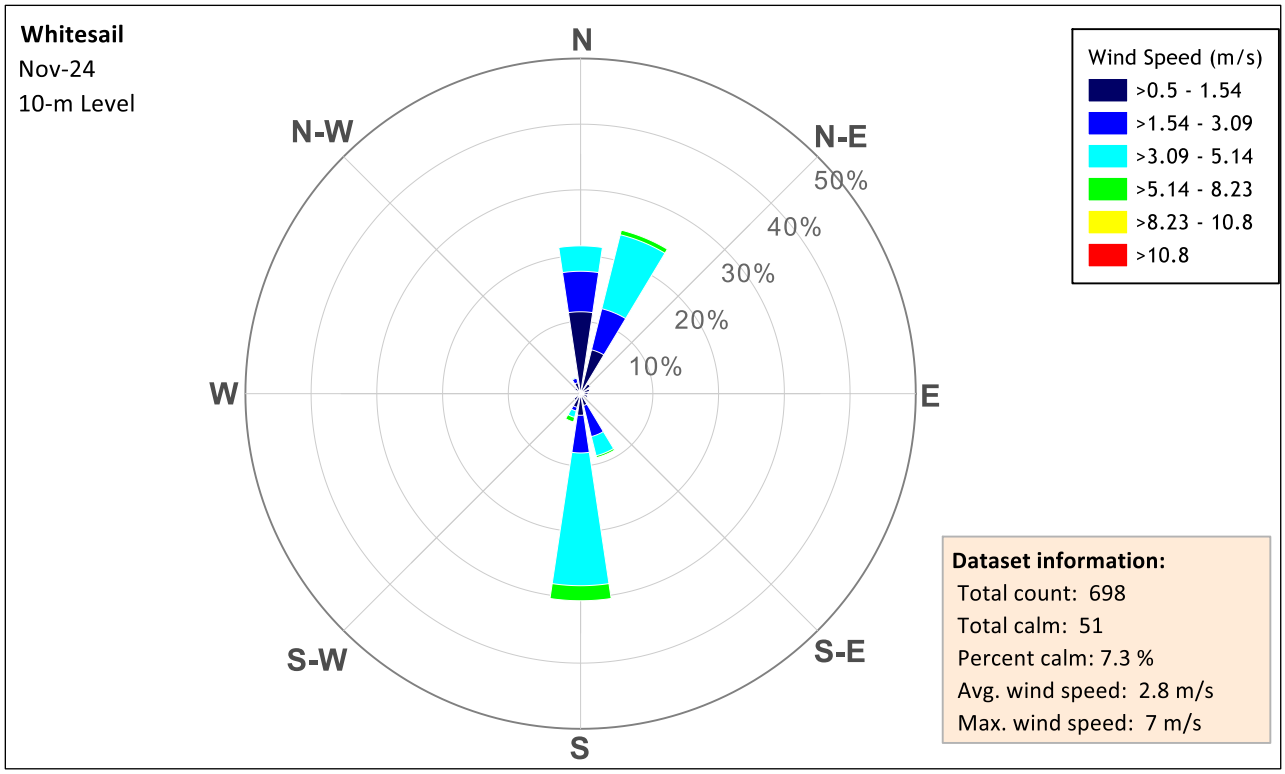


Figure 5.4 December 2024 Whitesail Station Wind Rose

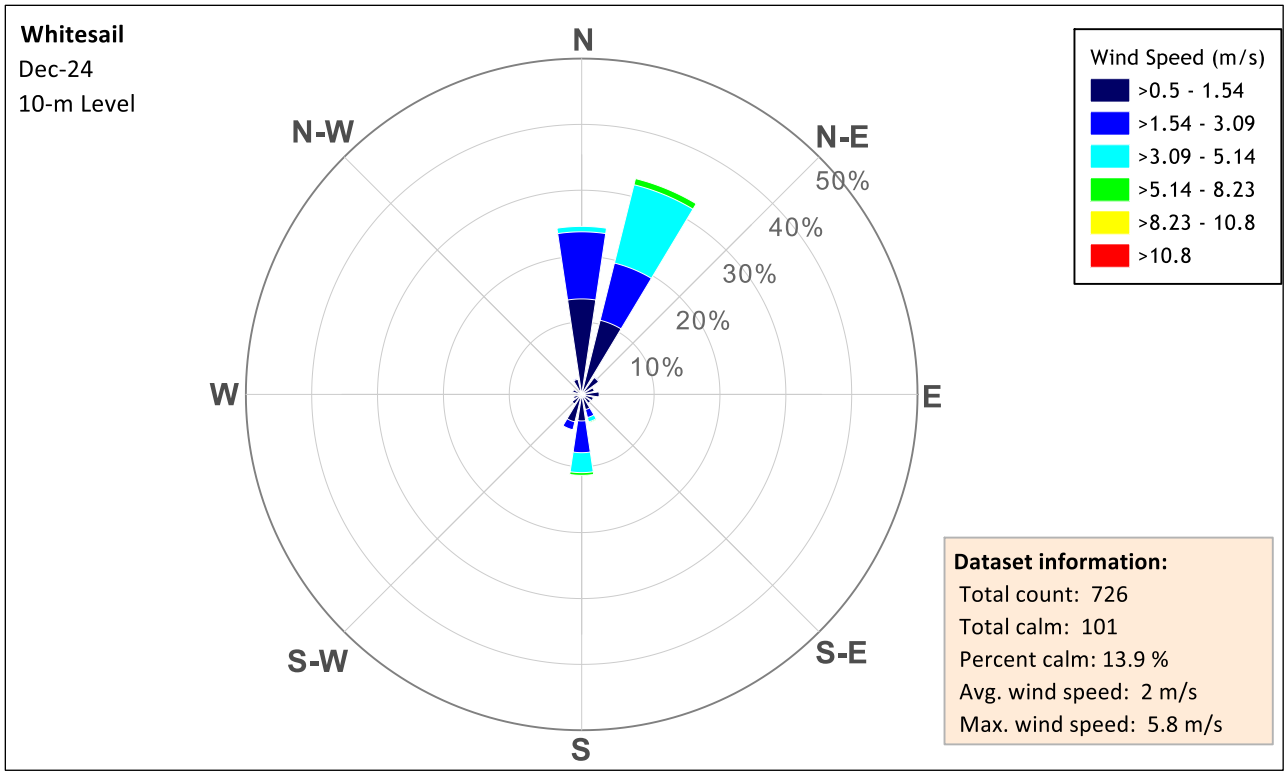


Figure 5.5 Time Series Plot of Wind Speed, Wind Direction, and Temperature Data at Whitesail Station for Fourth Quarter 2024

5.2 Fourth Quarter 2024 Ambient Air Monitoring Data Issues

Table 5-3 presents the Whitesail station data shortfall periods and known issues, during the fourth quarter, that led to pollutant concentration data loss.

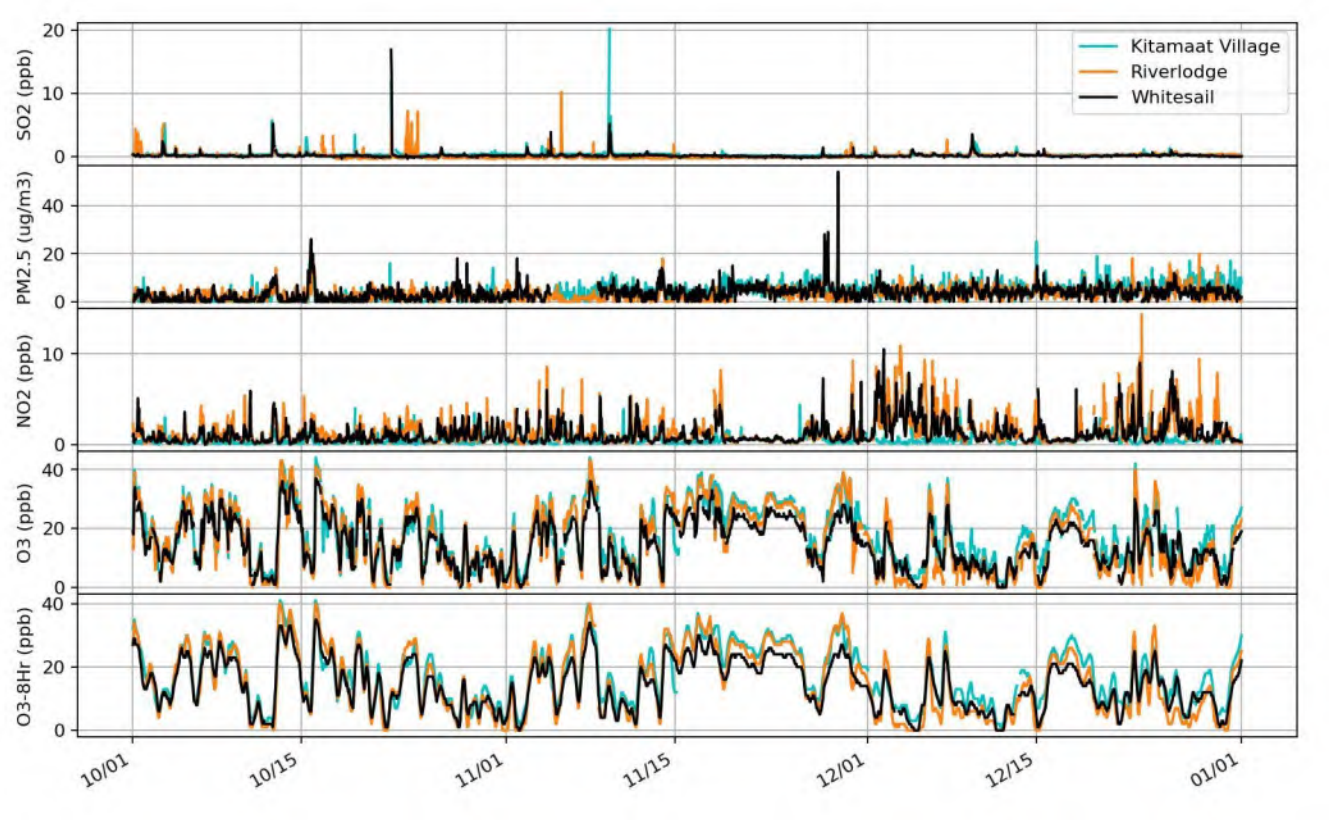
Table 5-3 Data Shortfall Periods and Noted Issues During Fourth Quarter 2024 at Whitesail Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
$SO_2/O_3/NO_2$	10/02/2024	1400	10/02/2024	1400	1	Filters Changed
All Met	10/22/2024	0800	10/22/2024	1300	6	Meteorological Calibration
$SO_2/O_3/NO_2$	10/30/2024	0800	10/30/2024	0900	2	MOE Audit
$PM_{2.5}$	10/30/2024	0900	10/30/2024	0900	1	MOE Audit
$PM_{2.5}$	10/31/2024	1400	10/31/2024	1500	2	Monthly BAM Maintenance
$PM_{2.5}$	11/04/2024	1700	11/08/2024	1500	71	BAM Zero Background Test
$SO_2/O_3/NO_2$	11/04/2024	1600	11/04/2024	1600	1	Filters Changed
Winds	11/18/2024	1900	11/19/2024	1000	16	Anemometer frozen
Winds	11/27/2024	0200	11/27/2024	0700	6	Anemometer frozen
Winds	12/1/2024	0700	12/1/2024	1600	10	Anemometer frozen
$SO_2/O_3/NO_2$	12/03/2024	1100	12/03/2024	1500	5	Filters Changed
$SO_2/O_3/NO_2$	12/13/2024	0900	12/13/2024	1400	6	MFC Verification and Ozone Transfer Check
$PM_{2.5}$	12/23/2024	1700	12/23/2024	1700	1	Monthly BAM Maintenance
Winds	12/29/2024	0300	12/29/2024	1000	8	Anemometer frozen

6.0 STATION COMPARISON

Figure 6.1 presents comparative time series plots of fourth quarter 2024 $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations from the Kitamaat Village, Riverlodge, and Whitesail monitoring stations. $PM_{2.5}$ and SO_2 data were obtained from Rio Tinto BC works for Kitamaat Village and Riverlodge stations. $PM_{2.5}$, SO_2, NO_2, and O_3 concentration data were obtained from Rio Tinto BC works for the Whitesail monitoring station. These graphs are useful for evaluating pollutant dispersion and for concentration comparison purposes.

Figure 6.1 Comparison of Hourly $PM_{2.5}$, SO_2, NO_2, and O_3 and 8-hour O_3 Concentrations Kitamaat Village, Riverlodge, and Whitesail Monitoring Locations, Fourth Quarter 2024



APPENDIX A. SITE NOTES FOR KITAMAAT VILLAGE AND RIVERLODGE

10/01/2024 - RTA activities & Inlet filter change

Tuesday, October 1, 2024 12:07 PM

Village

Author of Entry: Matthew Kurtz

Date of Activity: October 1, 2024
Start Time: 12:08
End Time: 12:58
Technician: Matthew Kurtz

Reason for Visit

PUF sample change and LNGC activities

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

T400:

-Clock is 21 seconds ahead, adjusted at 12:14.
-Inlet filter changed.

T200:

-Clock is 22 seconds ahead, adjusted at 12:15.
-Inlet filter changed.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1890 psi and line pressure 30.5 psi.
- Shelter temperature 60 min 26.2 C, as found.
- Ambient aspirator is loud.

10/08/2024 - RTA activities

Tuesday, October 8, 2024 7:59 AM

Village

Author of Entry: Matthew Kurtz

Date of Activity: October 8, 2024
Start Time: 7:45
End Time: 8:30
Technician: Matthew Kurtz

Reason for Visit

RTA activities

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

T400:

-Clock is 28 seconds ahead, adjusted at 8:04.

T200:

-Clock is 26 seconds ahead, adjusted at 8:05.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1890 psi and line pressure 31 psi.
- Shelter temperature 60 min 26.2 C, as found.
- Ambient aspirator is loud.

10/10/2024 - RTA activities

Thursday, October 10, 2024 10:50 AM

Village

Author of Entry: Matthew Kurtz

Date of Activity: October 10, 2024
Start Time: 10:50
End Time: 11:18
Technician: Matthew Kurtz

Reason for Visit

RTA ativities

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

T200:

-Clock is 18 seconds ahead, adjusted at 10:57.

T400:

-Clock is 19 seconds ahead, adjusted at 10:58.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1870 psi and line pressure 31 psi.
- Shelter temperature 60 min 25.9 C, as found.
- Ambient aspirator is loud.

10/16/2024 - Weekly stations check

Wednesday, October 16, 2024 10:29 AM

Village

Author of Entry: Matthew Kurtz

Date of Activity: October 16, 2024
Start Time: 10:30
End Time: 11:35
Technician: Matthew Kurtz, Adrienne Kaul

Reason for Visit

Weekly stations check.

Description

Envidas:

-Clock is 3 seconds ahead, adjusted at 10:31.

T400:

-Clock is 69 seconds ahead, adjusted at 10:37.

T200:

-Clock is 66 seconds ahead, adjusted at 10:37.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1860 psi and line pressure 30.5 psi.
- Shelter temperature 60 min 25.8 C, as found.
- Ambient aspirator is loud.

10/17/2024 - NOx Calibration

Thursday, October 17, 2024 1:19 PM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 10/17/24
Start Time: 1350
End Time: 1430
Technician: WL

Reason for Visit

Yesterday, a site power outage caused the NOx analyzer to lose its calibration.

Description

NOx zero and span adjustments performed.
NOx analyzer soft rebooted.
Reboot resolved the flow issue and reset the instrument's calibration again.
Performed another zero/span adjustment.
NOx MP verification after adjustment performed with great results.

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____
  (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

Kitimat Village 2024-

Trinity Consultants

NITROGEN OXIDES CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME LNG Kitimat Village **Date** 10/17/2024 **Start Time** 11:58
PROJECT 244501.0077 **Stop Time** 13:28
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API **Anal. Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8598

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 905
Cert Date: 5/20/2024

Audit Gas: Linde
Concentration: 10.0 ppm
Serial #: DT0046813
Certification Date: 4/4/2024
Expiration Date: 4/4/2027

Zero Air Source: T-API
Model: T701
Serial #: 2555
Certification Date: 5/20/2024

INPUT (X) NO (PPB)	RESPONSE (Y) NO (PPB)	RESPONSE (Y) NO_2 (PPB)	RESPONSE (Y) NO_X (PPB)	NO % DIFF	NO BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.0	-0.1	0.0	/	-1.5	1.51	0.3%
40.1	39.7	0.0	39.7	-0.9%	38.7	1.05	0.2%
89.9	89.6	-0.2	89.4	-0.3%	88.6	1.02	0.2%
139.8	135.6	0.4	136.1	-3.0%	138.6	-2.96	-0.6%
198.9	193.1	0.0	193.1	-2.9%	197.8	-4.67	-0.9%
298.6	301.7	0.8	302.5	1.0%	297.7	4.05	0.8%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X % DIFF	NO_X BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-1.7	1.62	0.3%
-1.0%	38.6	1.09	0.2%
-0.6%	88.6	0.76	0.2%
-2.6%	138.8	-2.66	-0.5%
-2.9%	198.1	-5.03	-1.0%
1.3%	298.3	4.22	0.8%

	NO	NO_x		NO	NO_x
Slope (m)	1.0018	1.0045	1.05 to 0.95	0.9974	0.9946
Intercept (b)	-1.4865	-1.6650	(≤ ± 10)	1.5920	1.7716
Correlation Coefficent (r)	0.9996	0.9995	(≥ 0.995)	0.99957	0.99955
Average % Difference	-1.22%	-1.16%		1.64%	1.68%

Calibrated By Wyndam Lewis = cell containing equations

Template Revised 7/10/23

Trinity Consultants

NITROGEN DIOXIDE CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME LNG Kitimat Village **Date** 10/17/2024 **Start Time** 11:58

PROJECT 244501.0077 Stop Time 13:28

SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API Anal. Range 0- 500 PPB

Analyzer Model T200

Analyzer s/n 8598

CALIBRATION EQUIPMENT:

Calibrator:	T-API	Audit Gas:	Linde	Zero Air Source:	T-API
Model:	T700U	Concentration:	10.0 ppm	Model:	T701
Serial #:	905	Serial #:	DT0046813	Serial #:	2555
Cert Date:	5/20/2024	Certification Date:	4/4/2024	Certification Date:	5/20/2024
		Expiration Date:	4/4/2027		

	CAL INPUT (X)		CALC ACTUAL	DAS RESPONSE (Y)			CALCULATED (Y) [ORIG]		[REM]		[CONV]	% DIFF
	NO (PPB)	O_3 (PPB)	$[NO_2]_A$ (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO (PPB)	NO_X (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO_2 (% OR PPB)
TITRATION	0.0	0.0	0.0	0.0	0.0	-0.1	---	---	---	---	-0.07	-0.1 ppb
	300.0	250.0	237.9	63.1	300.0	236.9	302.5	302.6	64.5	300.2	235.46	-0.4%
	300.0	150.0	146.5	154.8	299.9	145.1	302.5	302.6	156.0	300.1	143.92	-1.0%
	300.0	70.0	68.2	233.3	302.7	69.4	302.5	302.6	234.3	302.8	68.42	1.7%

NO TITRATION

298.6	0.0	---	301.7	302.5	0.8

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9846 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 98.5% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION

Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.5	-0.53	-0.1%
236.7	0.17	0.0%
145.9	-0.84	-0.2%
68.2	1.20	0.2%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	0.9929	1.05 to 0.95	0.9974	0.9946
Intercept (b)	0.4646	(≤ ± 10)	1.5920	1.7716
Correlation Coefficent (r)	0.99996	(≥ 0.995)	0.9996	0.9995
Average % Difference	0.11%		1.64%	1.68%

Calibrated By Wyndam Lewis = cell containing equations

10/22/2024 - Rio Tinto Activities

Wednesday, October 23, 2024 10:26 AM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 10/22/24
Start Time: 1745
End Time: 1930
Technician: WL

Reason for Visit

Perform Rio Tinto activities.

Description

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

Kitimat Village 2024-

Trinity Consultants

SULFUR DIOXIDE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME Kitimat Village
PROJECT 247201.0045
SITE OPERATOR Trinity

Date 10/22/2024
Start Time 18:18
Stop Time 19:18

Analyzer Mfg Thermo
Analyzer Model 43i
Analyzer s/n 1317958355

Anal. Range 0- 200 **PPB**

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 905
Cert Date: 5/20/2024

Calibration Gas: Linde
Concentration: 9.91 ppm
Serial #: DT0046813
Certification Date: 4/4/2024
Expiration Date: 4/4/2027

Zero Air Source: T-API
Model: T701
Serial #: 2555
Certification Date: 5/20/2024

CAL INPUT	RESPONSE		BEST-FIT DETERMINATION		
(X) (PPB)	(Y) (PPB)	% DIFF.	Predicted (Y)	Residual (PPB)	Residual (<±2% Full Scale)
0.0	1.6	—	0.9	0.74	0.4%
40.1	42.6	6.41%	42.5	0.19	0.1%
70.0	72.6	3.80%	73.5	-0.84	-0.4%
99.8	103.0	3.21%	104.4	-1.42	-0.7%
129.8	136.2	4.93%	135.5	0.66	0.3%
158.4	165.9	4.73%	165.2	0.68	0.3%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

COMMENTS

Slope(m)	1.037	1.05 to 0.95
Intercept(b)	0.883	(≤ ± 30)
Correlation Coefficent(r)	0.9999	(≥ 0.995)
Average % Difference	4.62%	

Calibrated By Wyndam Lewis

= cell containing equations

10/22/2024 - Weekly stations check

Tuesday, October 22, 2024 12:27 PM

Village

Author of Entry: Matthew Kurtz

Date of Activity: October 22, 2024
Start Time: 12:20
End Time: 13:25
Technician: Matthew Kurtz

Reason for Visit

Weekly stations check and RTA activities.

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

T400:

-Clock is 59 seconds ahead, adjusted at 12:47.

T200:

-Clock is 48 seconds ahead, adjusted at 12:48.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1850 psi and line pressure 31 psi.
- Shelter temperature is 22.8 C, at 12:50. Within spec.
- Ambient aspirator is loud.

10/23/2024 - semi-annual met cal and maintenance

Wednesday, October 23, 2024 6:48 AM

Village

Author of Entry: Matthew Kurtz and Adrienne Kaul

Date of Activity: October 23, 2024
Start Time: 6:45
End Time: 10:40
Technician: Matthew Kurtz, Adrienne Kaul, and Ryan Evans

Reason for Visit

Semi-annual MET tower calibration and maintenance.

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

BAM 1020 PM2.5:

-Clock is 84 seconds ahead, no adjustments made.

SO2:

-Clock is accurate to the second, no adjustments made.
-Sample flow is 0.514 L/min.

T700U:

-Clock is 7 seconds ahead, adjusted at 6:56.

MET:

-Wind speed, wind direction, temperature, flagged to maintain 8:40-10:05.

~LNGC~

T400:

-Clock is 3 seconds ahead, adjusted at 6:57.

T200:

-Clock is 9 seconds ahead, adjusted at 6:58.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [x] Shelter temp reference check: Datalogger temp 24.1 C Ref temp 24.0 C (ref s/n)11722132 (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1830 psi and line pressure 31.5 psi.
- Shelter temperature is 24.9 C, at 6:50, within spec.
- Ambient aspirator working great.

10/29/2024 - weekly station checks

Tuesday, October 29, 2024 10:56 AM

Village

Author of Entry: Matthew Kurtz

Date of Activity: October 29, 2024
Start Time: 10:55
End Time: 11:23
Technician: Matthew Kurtz

Reason for Visit

Weekly station checks & RTA activities.

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

T400:

-Clock is 10 seconds ahead, adjusted at 11:03.

T200:

-Clock is 9 seconds ahead, adjusted at 11:04.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1820 psi and line pressure 30.5 psi.
- Shelter temperature 60 min 25.8 C, as found.
- Active sewage removal at station.

10/30/2024 - MOE audit

Wednesday, October 30, 2024 9:49 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: October 30, 2024
Start Time: 9:42
End Time: 12:20
Technician: Adrienne Kaul

Reason for Visit

On site for MOE audit

Description

T200 (NOx) and T400 (O3)data flagged 10:11-12:10 for audits.

PM audits occurred during 11:00 hour.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- T200 alert: 10/17/2024 11:34:04 AM System Reset. Warning raised when system is reset.

10/31/2024 - Analyzer inlet changes and RT activities

Thursday, October 31, 2024 2:29 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: October 31, 2024
Start Time: 14:26
End Time: 17:07
Technician: Adrienne Kaul

Reason for Visit

On site to change analyzer inlet filters.

Description

Envidas logger:

-Clock updated at 14:32. Clock was 3 seconds ahead before update.

-Downloaded windows updates.

T400 O3:

-Clock updated at 14:35. Clock was 23 seconds ahead before update.

T200 NOx:

-Clock updated at 14:36. Clock was 21 seconds ahead before update.

T700U Calibrator:

-Clock updated at 14:38. Clock was 27 seconds ahead before update.

T200 (O3) and T200 (NOx):

-Data flagged 14:45-15:12.

-Inlet filters changed on both analyzers.

-Test point, 160 ppb NOx from 14:50-15:08. Analyzer was not meeting target with flow rate set to 3.0 lpm, so increased calibrator supply to 4.5 lpm at 15:00. SO2 analyzer reading high ~166.3 ppb post flow increase with 158.3 ppb supplied. NOx analyzer read 158.4 ppb with 159. 8 ppb supplied for last complete minute of calibration.

-All pneumatic connections from manifold to analyzers felt tight.

HVAC:

-Turned down baseboard heater.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1720 psi and line pressure 32 psi.
- Station temperature 26.3 C, within spec.

10/02/2024 - Weekly stations check & Inlet filter changes

Wednesday, October 2, 2024 12:51 PM

Riverlodge

Author of Entry: Matthew Kurtz

Date of Activity: October 2, 2024
Start Time: 12:52
End Time: 13:45
Technician: Matthew Kurtz

Reason for Visit

Inlet filter changed and weekly stations check. LNGC activities.

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

S02 & HF:

-Data flagged at 13:06

T200:

-Clock is 59 seconds ahead, adjusted at 13:05.
-NOx filter changed.
-Manual span test started at 13:20-13:25, results are 158.5 with 159.91 ppb supplied by calibrator.

T400:

-Clock is 62 seconds ahead, adjusted at 13:06.
-O3 filter changed.
-Manual span test started at 13:27-13:34, results are 157.54 ppb with 160.00 pbb supplied by calibrator.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Station temperature 24.6 C, within spec.
- Nitrogen tank pressure 910 psi and line pressure 34 psi.
- SO2 and NO tank pressure 1860 psi and line pressure 33.5 psi.

- Oxygen tank pressure 1000 psi and line pressure 32.5 psi.

10/03/2024 - N901 hydrocarbon analyzer installation

Thursday, October 3, 2024 7:46 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: October 3, 2024
Start Time: 7:34
End Time: 15:56
Technician: Adrienne Kaul

Reason for Visit

On site for LNGC maintenance.

Description

Envidas logger:
- -Clock accurate no adjustments made.
- -Downloaded updates.

Riverlodge webswitch 2:
- -New webswitch installed mounted to wall under N901 analyzer.
- -IP address is 192.168.13.181.

T200 NOx:
- -Clock updated at 7:51, clock was 4 seconds ahead before update.
- -Data flagged to maintain 13:59-14:19 for N901 connection to manifold.

T400 O3:
- -Clock one second behind, no adjustment made.
- -Data flagged to maintain 13:59-14:19 for N901 connection to manifold.

T700U Calibrator:
- -Clock adjusted at 7:55, clock was 7 seconds ahead before adjustment.

T701:
- -Powered down unit 10:15-10:16 to plug into Riverlodge webswitch 1 port 6.

N901 Hydrocarbon:
- -Installed shelf for analyzer.
- -Analyzer is Teledyne MODEL N901, S/N 80, and manufacture date 2024-SEP.
- -Analyzer is powered by Riverlodge Webswitch 2 outlet 2.
- -Connected new hydrogen, UHP nitrogen, zero air, sample, and exhaust lines.
  - -Zero air generator set to output pressure of 50 psi to supply N901 with t-fitting and regulator to downgrade pressure to 30 psi to supply T700 calibrator.
  - -No leaks detected from nitrogen or hydrogen tanks on all fittings through to analyzer.
  - -Nitrogen outlet pressure set to 65 psi.
  - -Hydrogen outlet pressure set to 50 psi.
- -Analyzer connected to manifold 13:59-14:19. All connections felt tight and secure.
- -Analyzer powered up and appeared to be working normally.
- -Analyzer powered down unit overnight. Tomorrow I will confirm no leaks in supply lines prior to bringing the unit into continuous operation.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 50 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)

- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter temperature 23.1 C, within spec.
- SO2 and NO tank pressure 1880 psi and line pressure 32.5 psi.
- Nitrogen-N901 tank 2325 psi.
- Hydrogen-N901 tank pressure 1800 psi.
- Ambient temperature aspirator working.

10/04/2024 - N901 Hydrocarbon analyzer installation finalization

Friday, October 4, 2024 7:21 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: October 4, 2024
Start Time: 7:18: 14:37
End Time: 13:03; 14:40
Technician: Adrienne Kaul

Reason for Visit

On site for N901 hydrocarbon analyzer installation finalization.

Description

N901:

-Analyzer powered on at 9:30.
-No leaks detected on nitrogen, and hydrogen supply lines to analyzer or accessible fittings in analyzer.
-Manual did not have leak test instructions. I contacted teledyne technical support but was unable to get through, left message and will follow up next week.
-Factory installed inlet filter may be installed backwards. However, filter manual and filter design indicates that the filter is not direction sensitive.
-One small leak found on T701 zero air generator outlet and was corrected, no other leaks were detected.
-Installed brackets to keep analyzer in place on shelf.
-Accidentally restarted analyzer due to webswitch power cycle at 11:20.
-Analyzer clock 1 second behind, no update made. Analyzer clock was changed to standard time by deselecting daylight savings option.

Envidas:

-Restarted computer at 12:35 to allow updates to take effect.
-Clock accurate.

T200 NOx:

-Clock updated at 12:36, clock 13 seconds ahead before update.

T400 O3:

-Clock updated at 12:37, clock 13 seconds ahead before update.

T700U:

-Clock updated at 12:39, clock was 13 seconds ahead before update and 1 second behind post update.
-Spec gas cylinder DT0051259 (9.99 ppm NO and 9.81 ppm SO2, expiry 04/04/2027) removed from site.
-New spec gas cylinder was installed on site CC748570 (616 ppm CH4, 10.42 ppm NO, 199.1 ppm C3H8, and 10.10 ppm SO2, expiry 07/08/2027). Regulator was purged, all connections were leak test and no leaks were detected. New concentrations updated for cylinder 1 T700 for SO2 and NO. USR1 is the methane concentration of the tank. The T700U only allows for 3 standard gas concentrations to be added for a single cylinder to the calibrator, therefore propane will not display on the screen when doing onsite calibrations.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 50 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI

- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- N901 Hydrogen cylinder pressure 2350 psi and line pressure 50 psi. Pressure is steady indicating no leaks. Pressure constant when rechecked at 14:39.
- N901 Nitrogen cylinder pressure 2520 psi and line pressure 65 psi. Pressure is steady indicating no leaks. Pressure constant when rechecked at 14:39.
- SO2, NO, CH4 and C3H8 cylinder pressure 2000 psi and line pressure 33 psi.
- Shelter temperature 24 C, within spec.
- Ambient temperature aspirator sounded like it is working.

10/08/2024 - CSI Logger Update

Thursday, October 10, 2024 10:37 AM

Riverlodge

Author of Entry: Wyndam Lewis

Date of Activity: 10/8/24
Start Time: 1300
End Time: 1400
Technician: WL

Reason for Visit

Add THC to CSI logger.

Description

A few minutes of data was invalid while logger program updates were made. No hours were invalidated.

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

10/10/2024 - Weekly station checks

Thursday, October 10, 2024 9:25 AM

Riverlodge

Author of Entry: Matthew Kurtz

Date of Activity: October 10, 2024
Start Time: 9:25
End Time: 9:52
Technician: Matthew Kurtz

Reason for Visit

Weekly station checks

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

N901:

-Clock is accurate to the second, no adjustments made.

T200:

-Clock is 67 seconds ahead, adjusted at 9:43.

T400:

-Clock is 69 seconds ahead, adjusted at 9:44.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Station temperature 25.4 C, within spec.
- N901 Hydrogen cylinder pressure 2290 psi and line pressure 49 psi.
- N901 Nitrogen cylinder pressure 2430 psi and line pressure 63.5 psi.
- Oxygen 20.9% cylinder pressure 950 psi and line pressure 34 psi.
- G2205 Nitrogen cylinder pressure 890 psi and line pressure 33 psi.
- SO2, NO, CH4 and C3H8 cylinder pressure 2000 psi and line pressure 32.5 psi.
- Ambient temperature aspirator working.

10/15/2024 - Weekly stations check

Tuesday, October 15, 2024 10:48 AM

Riverlodge

Author of Entry: Matthew Kurtz

Date of Activity: October 15, 2024
Start Time: 10:50
End Time: 11:18
Technician: Matthew Kurtz

Reason for Visit

Weekly stations check.

Description

Envidas:

-Clock is 1 second behind, adjusted at 10:50.

T200:

-Clock is 58 seconds ahead, adjusted at 11:03.

T400:

-Clock is 61 seconds ahead, adjusted at 11:04.

N901:

-Clock is accurate to the second, no adjustments made.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, CH4 and C3H8 cylinder pressure 2000 psi and line pressure 33.5 psi.
- Oxygen 20.9% cylinder pressure 840 psi and line pressure 33.5 psi.
- Shelter temperature 25.6 C, within spec.
- Ambient temperature aspirator sound like it is working.
- N901 Nitrogen cylinder pressure 2140 psi and line pressure 64 psi.
- N901 Hydrogen cylinder pressure 2190 psi and line pressure 50 psi.

10/17/2024 - Supplies pick-up RTA activities

Thursday, October 17, 2024 6:15 AM

Riverlodge

Author of Entry: Matthew Kurtz

Date of Activity: October 17, 2024
Start Time: 6:15
End Time: 6:25
Technician: Matthew Kurtz & Adrienne Kaul

Reason for Visit

Supplies pick-up for RTA activities.

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, CH4 and C3H8 cylinder pressure 2000 psi and line 32.5 pressure psi.
- Oxygen 20.9% cylinder pressure psi 810 and line pressure 32.5 psi.
- N901 Nitrogen cylinder pressure 2140 psi and line pressure 64.5 psi.
- N901 Hydrogen cylinder pressure 2150 psi and line pressure 50 psi.
- Shelter temperature 25.8 C, within spec.
- Ambient temperature aspirator sound like it is working.

10/18/2024 - THC Troubleshooting

Friday, October 18, 2024 9:12 AM

Riverlodge

Author of Entry: Wyndam Lewis

Date of Activity: 10/18/24
Start Time: 655
End Time: 715
Technician: WL

Reason for Visit

Test THC span response.

Description

[describe what activities were performed during the maintenance]

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

10/21/2024 - O3 transfer check and T700U MFCs

Monday, October 21, 2024 6:48 AM

Riverlodge

Author of Entry: Matthew Kurtz and Adrienne Kaul

Date of Activity: October 21, 2024
Start Time: 6:49
End Time: 15:00
Technician: Matthew Kurtz, Adrienne Kaul, and Ryan Evans

Reason for Visit

On site to perform ozone transfer checks of T400 Ozone analyzer and T700U calibrator ozone bench.

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

N901 Hydrocarbon analyzer:

-Clock is accurate to the second, no adjustments made.

T200 NOx analyzer:

-Clock is 66 seconds ahead, adjusted at 7:05.

T400 Ozone analyzer:

-Clock is 65 seconds ahead, adjusted at 7:05.

T700U:

-Clock is 60 seconds ahead, adjusted at 6:55.
-Passing as found calibrations of dilutant and calibration gas MFCs.
-Adjustments made to calibration gas flows.
-Passing after adjustment calibration of gas MFCs.

T400 Ozone transfer standard:

-SN 5996 powered on at 7:34.

T400 and T200 analyzer data flagged to maintain at 13:14-14:42 for multi-point checks with the transfer standard supplied with the same gas. Passing results were recorded for both the T400 and T700U calibrator. See the attached calibration sheets. No adjustments were made to T400 or T700 U calibrator.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)

- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- N901 Nitrogen cylinder pressure 1920 psi and line pressure 63.5 psi.
- N901 Hydrogen cylinder pressure 2070 psi and line pressure 48.5 psi.
- SO2, NO, CH4 and C3H8 cylinder pressure 2000 psi and line pressure 32.5 psi.
- Shelter temperature 25.2 C, within spec.
- G2205 HF inlet heater temperature 63 C, at 6:58.
- Ambient temperature aspirator is working.

Riverlodge 2024-1021

Trinity Consultants

CALIBRATOR OZONE CHECK SHEET

AS FOUND

SITE NAME Kitimat Riverlodge
PROJECT 247201.0045
SITE OPERATOR Trinity Consultants

Date 10/21/2024 **Start Time** 13:00 **Stop Time** 14:30

Analyzer Mfg T-API
Analyzer Model T700U
Analyzer s/n 906

Anal. Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	Transfer Standard:	T-API	Zero Air Source:	T-API
Model:	T700U	Model:	T400	Model:	T701U
Serial #:	906	Serial #:	7487	Serial #:	2556
Cert Date:	10/21/2024	Certification Date:	10/1/2024	Certification Date:	5/16/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard
m: 1.0013
b: -0.0675
r: 1.0000
Calibration Date: 10/01/2024

Transfer **Calibrator**

INPUT (Txfr Standard) Raw Input (PPB)	INPUT (Txfr Standard) Corrected (X) (PPB)	RESPONSE (Y) (PPB)	RESPONSE % DIFF.	BEST-FIT DETERMINATION Predicted (Y)	BEST-FIT DETERMINATION Residual (PPB)	BEST-FIT DETERMINATION Residual (<2% Full Scale)
0.3	0.4	0.0	/	-0.3	0.29	0.1%
399.5	399.0	399.5	0.11%	398.5	0.99	0.2%
301.5	301.2	299.8	-0.46%	300.6	-0.81	-0.2%
151.5	151.4	150.3	-0.71%	150.8	-0.46	-0.1%
91.0	90.9	90.7	-0.27%	90.3	0.38	0.1%
45.1	45.11	44.9	-0.46%	44.5	0.43	0.1%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

COMMENTS

Slope(m)	1.000	1.05 to 0.95
Intercept(b)	-0.656	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	-0.36%	

Calibrated By Adrienne Kaul = cell containing equations

Riverlodge 2024-1021

Trinity Consultants

OZONE CALIBRATION SHEET
AS FOUND

SITE NAME Kitimat Riverlodge
PROJECT 247201.0045
SITE OPERATOR Trinity Consultants

Date 10/21/2024 **Start Time** 13:14 **Stop Time** 14:30

Analyzer Mfg T-API
Analyzer Model T400
Analyzer s/n 7487

Anal. Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**		**Zero Air Source:**	T-API
Model:	T700U	**Model:**		**Model:**	T701
Serial #:	906	**Serial #:**		**Serial #:**	2556
Cert Date:	10/21/2024	**Certification Date:**		**Certification Date:**	5/16/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard
m: 1
b: 0
r: 1.0000
Calibration Date: n/a

Calibrator **Site Analyzer**

INPUT (Txfr Standard) Raw Input (PPB)	INPUT (Txfr Standard) Corrected (X) (PPB)	RESPONSE (Y) (PPB)	RESPONSE % DIFF.	BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
399.5	399.5	401.7	/	401.1	0.57	0.1%
299.8	299.8	300.8	0.33%	300.9	-0.09	0.0%
150.3	150.3	150.2	-0.07%	150.6	-0.39	-0.1%
90.7	90.7	91.3	0.66%	90.7	0.63	0.1%
44.9	44.9	44.6	-0.67%	44.6	-0.03	0.0%
0.0	0.00	0	0.00%	-0.5	0.51	0.1%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	1.005	1.05 to 0.95
Intercept(b)	-0.515	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	0.05%	

COMMENTS

Calibrated By Adrienne Kaul = cell containing equations

10/30/2024 - MOE Audit

Wednesday, October 30, 2024 1:21 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: October 30, 2024
Start Time: 13:10
End Time: 15:35
Technician: Adrienne Kaul

Reason for Visit

On site for MOE audits

Description

T200 (NOx) and T400 (ozone) flagged to maintain 13:48-15:27 (**Data flag should have been applied starting at 13:30).**

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: See below
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- T700U alert: 10/21/2024 - 12:31:29 PM System Reset. Warning raised when the system is reset.

10/31/2024 - Inlet filter changes

Thursday, October 31, 2024 11:47 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: October 31, 2024
Start Time: 11:47
End Time: 12:25
Technician: Adrienne Kaul

Reason for Visit

LNGC maintenance activities.

Description

T200 NOx:

-Clock updated at 12:06. Clock was 1 minute and 57 seconds ahead before update.

T400 O3:

-Clock updated at 12:07. Clock was 1 minute and 58 seconds ahead before update.

T200 (NOx) and T400 (O3):

-Data flagged 11:47-12:04 for inlet filter changes on both units.

-NO supplied at 160 ppb 11:55-12:00 to precondition filter. Analyzer read 154 ppb for last complete minute of the run with 159.7 ppb supplied by calibrator.

T701 Zero air generator:

-Output pressure changed from 47 psi to 50 psi.

T700U Calibrator:

-Clock updated at 12:10. Clock was 1 minute and 56 seconds ahead before update.

Hydrocarbon analyzer N901:

-Clock accurate.

Envidas logger:

-Clock 2 seconds ahead, updated at 12:18.

-Windows updates downloaded.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 50 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1960 psi and line pressure 31 psi.
- N901 Nitrogen tank pressure 1550 psi and line pressure 62.5 psi.
- N901 Hydrogen tank pressure 1850 psi and line pressure 50 psi.
- Shelter temperature 27 C, within spec at 12:17.
- HF inlet heater 63 C at 12:18.

11/04/2024 - RT maintenance activities

Monday, November 4, 2024 9:00 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: November 4, 2024
Start Time: 8:57
End Time: 13:58
Technician: Adrienne Kaul

Reason for Visit

On site for RT maintenance activities.

Description

T200 NOx:

-Clock was 43 seconds ahead and was updated at 9:04.

T400 O3:

-Clock was 43 seconds ahead and was updated at 9:05.

T700U Calibrator:

-Clock was 41 seconds ahead and was updated at 9:06.

T200 and T400:

-Data flagged 13:34-13:49 for RT maintenance activities.(Flag could have been removed slightly earlier to save data).

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1810 psi and line pressure 32 psi.
- Shelter temperature 25.4 C, within spec.

11/05/2024 - Weekly stations check

Tuesday, November 5, 2024 1:54 PM

Village

Author of Entry: Matthew Kurtz

Date of Activity: November 5, 2024
Start Time: 13:50
End Time: 14:22
Technician: Matthew Kurtz

Reason for Visit

PUF sample change.

Description

Envidas:

-Clock is 2 seconds ahead, adjusted at 13:55.

T400:

-Clock is 15 seconds ahead, adjusted at 14:02

T200:

-Clock is 15 seconds ahead, adjusted at 14:02

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1810 psi and line pressure 30.5 psi.
- Shelter temperature 60 min 25.6 C, as found.
- Active sewage removal at station.

11/12/2024 - Weekly stations check

Tuesday, November 12, 2024 11:52 AM

Village

Author of Entry: Matthew Kurtz

Date of Activity: November 12, 2024
Start Time: 11:50
End Time: 12:30
Technician: Matthew Kurtz

Reason for Visit

Weekly stations check & RTA activities.

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

T400:

-Clock is 80 seconds ahead, adjusted at 11:59.

T200:

-Clock is 80 seconds ahead, adjusted at 11:59.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1810 psi and line pressure 30.5 psi.
- Shelter temperature 26.2 C at 11:59, as found.

11/15/2024 - Rio Tinto Activities

Friday, November 15, 2024 9:41 AM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 11/15/24
Start Time: 935
End Time: 1220
Technician: WL

Reason for Visit

Perform Rio Tinto activities

Description

Site Visit Checklist

- ☐ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☐ Zero air system pressure at 30 PSI
- ☐ Calibration gas cylinder pressure at 30 PSI
- ☐ Calibration gas tank pressure > 500 PSI
- ☐ Check for analyzer warnings: _____
- ☐ Check for calibrator warnings: _____
- ☐ Analyzer filters exchanged
- ☐ MFC checks performed (semi-annual)
- ☐ Inlet Teflon exchanged (annual)
- ☐ Zero Air media replaced (annual)
- ☐ Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- ☐ Annual Maintenance *(Second Quarter)*

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

11/19/2024 - Weekly Station Check

Tuesday, November 19, 2024 1:18 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: November 19, 2024
Start Time: 13:10
End Time: 13:58
Technician: Adrienne Kaul

Reason for Visit

On site for Rio Tinto Activities

Description

T200 NOx:

-Clock updated at 13:23; clock was 77 seconds ahead before update.

T400 O3:

-Clock updated at 13:27; clock was 77 seconds ahead before update.

T700U Calibrator:

-Clock updated at 13:28; clock was 79 seconds ahead before update.

Envidas logger:

-Clock 2 seconds ahead and updated at 13:29.

-Downloaded windows updates.

-Computer will need to be restarted next visit after updates are downloaded.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1800 psi and line pressure 32 psi.
- Shelter temperature 23.8 C, within spec.
- T400 O3: 10/16/2024 ~13:11:43 System Reset. Warning raised when the system is reset.
- T700U: 10/16/2024 13:11:43 System Reset. Warning raised when the system is reset.

11/21/2024 - RT Activities

Thursday, November 21, 2024 10:13 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: November 21, 2024
Start Time: 9:47
End Time: 12:55
Technician: Adrienne Kaul

Reason for Visit

RT activities

Description

T700U Calibrator:

-Clock was 21 seconds ahead, updated at 10:18

T400 O3:

-Clock was 20 seconds ahead, updated at 10:20.

T200 NOx:

-Clock was 21 seconds ahead, updated at 10:21.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1790 psi and line pressure 32 psi.
- Shelter temperature 24.7 C, within spec.

11/28/2024 - Weekly station check

Thursday, November 28, 2024 8:39 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: November 28, 2024
Start Time: 8:36
End Time: 9:25
Technician: Adrienne Kaul

Reason for Visit

On site for weekly station check.

Description

Envidas:

-Computer was logged out after arrival, likely power outage since last site visit.
-Downloaded windows updates.
-Clock was 2 seconds ahead and updated at 8:41.
-Computer restarted at 9:14

HVAC:

-AC temperature increased from 77 F to 78 F.

T700U Calibrator:

-Clock was 69 seconds ahead, updated at 8:47.

T200 NOx:

-Clock was 69 seconds ahead, updated at 8:51.

T400 O3:

-Clock was 69 seconds ahead, updated at 8:52.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Station temperature 25.3 C, within spec.
- SO2 and NO tank pressure 1770 psi and line pressure 32 psi.
- T700 U warning: 11/22/2024 1:30:42 PM System Reset. Warning raised when the system is reset.
- T200 warning: 11/22/2024 1:30:58 PM System Reset. Warning raised when the system is reset.
- T400 warning: 11/22/2024 1:30:35 PM System Reset. Warning raised when the system is reset.

11/30/2024 - LNGC activities

Saturday, November 30, 2024 2:27 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: November 30, 2024
Start Time: 14:27
End Time: 15:15
Technician: Adrienne Kaul

Reason for Visit

On site for analyzer filter changes

Description

NOx and O3 data flagged 14:45-15:10 for maintenance activities.

-Ozone generated at 400 ppb from 14:53-15:05

-T400 O3 analyzer read 401.9 ppb with 399.9 ppb supplied by calibrator for last full minute of the run.

Envidas:

-Clock 2 seconds ahead, updated at 14:29.

T700U Calibrator:

-Clock 27 seconds behind and updated at 14:32.

T400 O3:

-Clock was 24 seconds ahead and updated at 14:36.

T200 NOx:

-Clock was 24 seconds ahead and updated at 14:37

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1775 psi and line pressure 32 psi.
- Shelter temperature 24.9 C, within spec.

11/06/2024 - NOx As Found MP

Tuesday, November 12, 2024 4:25 PM

Riverlodge

Author of Entry: Wyndam Lewis

Date of Activity: 11/6/24
Start Time: 1055
End Time: 1245
Technician: WL

Reason for Visit

Obtain the latest NO2 targets from the T700 calibrator.

Description

NOx as found MP verification. No adjustments made.

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

Kitimat Riverlodge

Trinity Consultants

NITROGEN OXIDES CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge **Date** 11/6/2024 **Start Time** 11:02
PROJECT 244501.0077 **Stop Time** 12:32
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API **Anal. Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8599

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.42 ppm	**Model:**	T701
Serial #:	906	**Serial #:**	CC748570	**Serial #:**	2556
Cert Date:	5/17/2024	**Certification Date:**	7/8/2024	**Certification Date:**	5/16/2024
		Expiration Date:	7/8/2027		

INPUT (X)	RESPONSE (Y)			NO	NO BEST-FIT DETERMINATION		
NO (PPB)	NO (PPB)	NO_2 (PPB)	NO_X (PPB)	% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	-0.1	-0.1	-0.2	/	-0.7	0.63	0.1%
40.1	38.4	-0.1	38.3	-4.3%	39.1	-0.69	-0.1%
90.0	88.3	-0.4	87.9	-1.9%	88.6	-0.30	-0.1%
140.0	138.4	-0.2	138.1	-1.1%	138.2	0.19	0.0%
200.2	198.2	0.3	198.5	-1.0%	197.9	0.25	0.1%
300.3	297.2	0.2	297.4	-1.0%	297.3	-0.07	0.0%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X	NO_X BEST-FIT DETERMINATION		
% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-1.0	0.77	0.2%
-4.5%	38.9	-0.59	-0.1%
-2.3%	88.5	-0.57	-0.1%
-1.4%	138.2	-0.06	0.0%
-0.8%	198.0	0.51	0.1%
-1.0%	297.5	-0.07	0.0%

	NO	NO_x		NO	NO_x
Slope (m)	0.9923	0.9938	1.05 to 0.95	1.0078	1.0062
Intercept (b)	-0.7053	-0.9783	(≤ ± 10)	0.7131	0.9877
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	0.99999	0.99999
Average % Difference	-1.87%	-2.01%		1.87%	2.01%

Calibrated By Wyndam Lewis = cell containing equations

Template Revised 7/10/23

Trinity Consultants

NITROGEN DIOXIDE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge **Date** 11/6/2024 **Start Time** 11:02
PROJECT 244501.0077 **Stop Time** 12:32
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API **Anal. Range 0-** 500 **PPB**
Analyzer Model T200

Analyzer s/n 8599

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.42 ppm	**Model:**	T701
Serial #:	906	**Serial #:**	CC748570	**Serial #:**	2556
Cert Date:	5/17/2024	**Certification Date:**	7/8/2024	**Certification Date:**	5/16/2024
		Expiration Date:	7/8/2027		

TITRATION

CAL INPUT (X) NO (PPB)	CAL INPUT (X) O_3 (PPB)	CALC ACTUAL $[NO_2]_A$ (PPB)	DAS RESPONSE (Y) NO (PPB)	DAS RESPONSE (Y) NO_X (PPB)	DAS RESPONSE (Y) NO_2 (PPB)	CALCULATED (Y) [ORIG] NO (PPB)	CALCULATED (Y) [ORIG] NO_X (PPB)	CALCULATED (Y) [REM] NO (PPB)	CALCULATED (Y) [REM] NO_X (PPB)	CALCULATED (Y) [CONV] NO_2 (PPB)	% DIFF NO_2 (% OR PPB)
0.0	0.0	0.0	-0.1	-0.2	-0.1	---	---	---	---	-0.13	-0.1 ppb
300.0	250.0	276.5	22.8	296.5	273.7	300.2	300.2	23.7	299.3	275.59	-1.0%
300.0	150.0	174.9	123.6	292.6	169.0	300.2	300.2	125.3	295.4	170.12	-3.4%
300.0	70.0	84.7	213.2	297.2	84.0	300.2	300.2	215.6	300.0	84.45	-0.8%

NO TITRATION

300.3	0.0	---	297.2	297.4	0.2

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9972 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 99.7% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION

Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
-0.5	0.38	0.1%
272.1	1.58	0.3%
172.0	-3.00	-0.6%
83.0	1.04	0.2%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	0.9860	1.05 to 0.95	1.0078	1.0062
Intercept (b)	-0.5097	(≤ ± 10)	0.7131	0.9877
Correlation Coefficent (r)	0.99985	(≥ 0.995)	1.0000	1.0000
Average % Difference	-1.73%		1.87%	2.01%

Calibrated By Wyndam Lewis

= cell containing equations

11/08/2024 - RT maintenance activities

Friday, November 8, 2024 4:27 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: November 8, 2024
Start Time: 11:15; 14:33; 15:50
End Time: 11:19; 14:36; 17:10
Technician: Adrienne Kaul

Reason for Visit

Supply pick up and RT maintenance activities

Description

T200 NOx and T400 O3:

-Data flagged 15:50-16:54 for RT maintenance activities.

Envidas:

-Clock was 3 seconds ahead. Clock was synced at 16:46:03.

T200 NOx analyzer:

-Clock was 94 seconds ahead and was updated at 16:49.

T400 O3 analyzer:

-Clock was 97 seconds ahead and was updated at 16:51.

T700U:

-Clock was 94 seconds ahead and was updated at 16:53.

N901:

-Clock accurate.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter temperature 26.8 C, within spec.
- SO2, NO and hydrocarbon tank pressure 1950 psi and line pressure 32 psi.
- Nitrogen N901 pressure 1125 psi and line pressure 65 psi.
- Hydrogen N901 tank pressure 1200 psi and line pressure 50 psi.

11/14/2024 - Weekly station check and RT activities

Thursday, November 14, 2024 8:16 AM

Riverlodge

Author of Entry: Matthew Kurtz and Adrienne Kaul

Date of Activity: November 14, 2024
Start Time: 8:17
End Time: 12:55
Technician: Matthew Kurtz, Adrienne Kaul

Reason for Visit

Weekly station check and RT activities

Description

Envidas:

-Clock is accurate to the second, no adjustments made.
-Downloaded windows updates

N901:

-Clock is accurate to the second, no adjustments made.

T700U:

-Clock is 64 seconds ahead, adjusted at 8:23.

T200:

-Clock is 63 seconds ahead, adjusted at 8:31.

T400:

-Clock is 63 seconds ahead, adjusted at 8:31.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [x] Annual Maintenance

Site Observations

- Shelter temperature 24.2 C, within spec.
- N901 Nitrogen cylinder pressure 1000 psi and line pressure 62.5 psi.
- N901 Hydrogen cylinder pressure 1600 psi and line pressure 50 psi.

11/18/2024 - RTA Activities

Monday, November 18, 2024 9:17 AM

Riverlodge

Author of Entry: Matthew Kurtz

Date of Activity: December 18, 2024
Start Time: 9:17
End Time: 13:10
Technician: Matthew Kurtz, Adrienne Kaul

Reason for Visit

BAM 1020 PM10 72 hour maintenance

Description

Envidas:

-Clock is accurate to the second, no adjustments made.

-Clock is 42 seconds ahead, adjusted at 9:23.

N901:

-Clock is accurate to the second, no adjustments made.

T200:

-Clock is 45 seconds ahead, adjusted at 9:31.

T400:

-Clock is 45 seconds ahead, adjusted at 9:31.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Oxygen 20.9% cylinder pressure 450 psi and line pressure 32.5 psi.
- Shelter temperature 26.6 C, within spec.
- N901 Nitrogen cylinder pressure 900 psi and line pressure 62.5 psi.
- N901 Hydrogen cylinder pressure 1510 psi and line pressure 49.5 psi.

11/19/2024 - CSI logger outage investigation

Tuesday, November 19, 2024 4:52 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: November 19, 2024
Start Time: 16:22
End Time: 17:01
Technician: Adrienne Kaul

Reason for Visit

[i.e. On site to perform calibration]

Description

CSI logger:

-Power restored at 16:34 after loose positive terminal wire was reconnected to the logger.

-Clock 2 seconds behind and not updated. Clock will update at top of the hour.

Envidas:

-Computer restarted at 16:39 to allow updates to take effect.

-Clock accurate.

T700U calibrator:

-Clock updated at 16:52. Clock was 14 seconds ahead before update.

T701 Zero air generator:

-Decreased pressure output pressure from 52 to 50 psi.

T400 O3:

-Clock was 14 seconds ahead, updated at 16:58.

T200 NOx:

-Clock was 13 seconds ahead, updated at 146:59

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 50 PSI and downregulated to 30 psi.
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Nitrogen tank pressure 800 psi and line pressure 65 psi.
- Hydrogen tank pressure 1500 psi and line pressure 50 psi.
- SO2, NO, CH4, and C3H8 tank pressure 1950 psi and line pressure 32 psi.
- Shelter temperature 26.4 C, within spec.

11/22/2024 - Rio Tinto Activities

Friday, November 22, 2024 7:56 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: November 22, 2024
Start Time: 7:55
End Time: 12:25
Technician: Adrienne Kaul

Reason for Visit

RT activities

Description

Envidas:

-Windows updates downloaded.

-Clock 1 second ahead, no adjustment made.

T700U Calibrator:

-Clock updated at 8:03; clock was 30 seconds ahead before update.

T400 O3:

-Clock was 32 seconds ahead and updated at 8:10.

T200 NOx:

-Clock was 30 seconds ahead and updated at 8:30.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 50 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Nitrogen tank pressure 700 psi and line pressure 63 psi.
- Hydrogen tank pressure 1450 psi and line pressure 50 psi.
- SO2, NO, C3H8, and CH4 tank pressure 1950 psi and line pressure 32.5 psi.
- Shelter temperature 23.1 C.

11/26/2024 - N901 flame out troubleshooting

Tuesday, November 26, 2024 8:52 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: November 26, 2024
Start Time: 8:46
End Time: 9:40
Technician: Adrienne Kaul

Reason for Visit

N901 flame outage

Description

N901:

-Carrier aux gas pressure (Nitrogen UHP) had too low of an outlet pressure. Outlet pressure was increased from 50-70 psi.
-Switched exit standby mode to On.
-Reignition attempted at 8:58.
-Instrument restarted at 9:06.
-Continuous results and Exit standby need to be toggled to ON on HOME menu to initiate start sequence.
-Several unsuccessful restarts attempted. I will contact technical support for assistance.

Envidas:

-Clock accurate.
-Windows updates downloaded.
-Logger restarted at 9:00 to allow updates to take effect.

T200 NOx:

-Clock was 47 seconds ahead, updated at 9:13.

T400 O3:

-Clock was 48 seconds ahead, updated at 9:14.

T700U Calibrator:

-Clock was 47 seconds ahead, updated at 9:15.

T701 Zero Air Generator:

-Output pressure increased from 50 psi to 52 psi.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 50 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Hydrogen tank pressure 1400 psi and line pressure 50 psi.
- Nitrogen tank pressure 550 psi and line pressure 72 psi.
- SO2, NO, C3H8, and CH4 tank pressure 1950 psi and line pressure 32 psi.
- Station temperature 23.8 C, within spec.

11/28/2024 - RT activities

Thursday, November 28, 2024 12:42 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: November 28, 2024
Start Time: 12:41
End Time: 14:49
Technician: Adrienne Kaul

Reason for Visit

On site for RT activities

Description

N901:

-Attempted flame reignition on arrival. Flame lit and normal operation resumed.

T700U:

-Clock was 25 seconds ahead and updated at 13:02.

T200 NOx:

-Clock was 25 seconds ahead and updated at 13:03.

-Data flagged 13:59-14:18 for RT activities.

T400 O3:

-Clock was 25 seconds ahead and updated at 13:04.

-Data flagged 13:59-14:18 for RT activities.

-All connections on manifold and to all analyzers felt tight after RT maintenance activities.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Nitrogen tank pressure 520 psi and line pressure 60 psi.
- Hydrogen tank pressure 1400 and line pressure 54 psi.
- SO2, NO, C3H8, and CH4 tank pressure 1940 psi and line pressure 32 psi.
- Hydrogen tank lot number 12441100493977.
- Nitrogen tank lot number 133421401.

11/30/2024 - Filter changes

Thursday, November 28, 2024 12:42 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: November 30, 2024
Start Time: 13:18
End Time: 14:00
Technician: Adrienne Kaul

Reason for Visit

On site to change analyzer inlet filters.

Description

NOx, O3 and Hydrocarbon:
-Data flagged 13:18-13:51
-O3 ran through system at 400 ppb from 13:27-13:45
-T400 read 396.4 ppb with 400.1 ppb supplied by calibrator
-Gas analyzer intake is clear of snow.

N901:
-Analyzer measuring.
-Clock was 1 second behind and no adjustment was made.

T700U:
-Clock was 33 seconds ahead and updated at 13:40.

T200 NOx:
-Analyzer filter exchanged. Filter assembly glass and white o-ring cleaned.
-Clock updated at 13:38; clock was 22 seconds ahead before adjustment.

T400 O3:
-Analyzer filter exchanged. Filter assembly glass and white o-ring cleaned.
-Clock updated at 13:39; clock was 22 seconds ahead before adjustment.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Nitrogen tank pressure 450 psi and line pressure 60 psi. Need to order new tank and have installed in the next two weeks.
- Hydrogen tank pressure 1380 and line pressure 54 psi.
- SO2, NO, C3H8, and CH4 tank pressure 1930 psi and line pressure 32 psi.

12/03/2024 - RT maintenance activities

Tuesday, December 3, 2024 9:04 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: December 3, 2024
Start Time: 8:54
End Time: 9:48
Technician: Adrienne Kaul

Reason for Visit

RT Maintenance activities

Description

O3 and NOx:

-Data flagged 8:59-9:42 for Rio Tinto activities. Flag should have been removed at 9:17.

T700U Calibrator:

-Clock updated at 9:08; clock was 23 seconds ahead before update.

T200 NOx:

-Clock updated at 9:16; clock was 25 seconds ahead before update.

T400 O3:

-Clock updated at 9:17; clock was 23 seconds ahead before update.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1775 psi and line pressure 31 psi.
- T200 NOx alert: 12/01/2024 12:39:23 PM System Reset. Warning raised when system is reset.
- T400 O3 alert: 12/01/2024 12:39:14 PM System Reset. Warning raised when system is reset.
- T700U calibrator alert: 12/01/2024 12:39:14 PM System Reset. Warning raised when system is reset.

12/12/2024 - RT Activities

Tuesday, November 19, 2024 1:18 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: December 12, 2024
Start Time: 9:40
End Time: 12:30
Technician: Adrienne Kaul

Reason for Visit

On site for Rio Tinto Activities

Description

T700U:

-Clock updated at 9:47, clock was one minute and 44 seconds ahead before update.

T400:

-Clock updated at 9:48, clock was one minute and 43 seconds ahead before update.

T200:

-Clock updated at 9:50, clock was one minute and 43 seconds ahead before update.

Envidas:

-Clock updated at 9:52, clock was 2 seconds ahead before update.

-Changed logger time sync rate to every 3600 seconds.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1760 psi and line pressure 32 psi.
- Shelter temperature 25.7 C, within spec.

12/13/2024 - MFCs and Ozone transfer check

Friday, December 13, 2024 1:48 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: December 13, 2024
Start Time: 13:44
End Time: 17:50
Technician: Adrienne Kaul

Reason for Visit

MFCs and ozone transfer check set-up

Description

T700U:

-MFCs performed 14:11-16:49

-Dilutent as found 1.25% and after adjustment -0.53%.

-Calibration as found -2.66% and after adjustment -0.08%.

-Clock updated at 17:26, clock was 15 seconds ahead before adjustment.

O3 Transfer standard SN 5996 powered on at 13:49.

All gas analyzers data flagged 16:49-17:09.

-Ozone ran at 400 ppb 16:54-17:01 to warm up ozone generation bench in T700.

-ZPS 11 started at 17:04 and aborted at 17:07 due to anticipated needed of adjustment of T700U ozone bench and T400. Calibrations will be performed remotely on Monday.

T400:

-Clock updated at 17:28, clock was 15 seconds ahead before update.

T200:

-Clock updated at 17:29, clock was 15 seconds ahead before update.

Envidas:

-Clock accurate within 1 second.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [x] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter temperature 26.2 C, within spec.

- SO2 and NO tank pressure 1750 psi and line pressure 32 psi.

12/16/2024 - O3 Transfer Standard Check

Tuesday, December 17, 2024 9:38 AM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 12/16/24
Start Time: 1400
End Time: 1525
Technician: WL

Reason for Visit

Perform semi-annual O3 transfer standard check.

Description

O3 as found MP verification against calibrator
O3 transfer standard check (transfer against T700)

No adjustments made.

Site Visit Checklist

- ☐ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☐ Zero air system pressure at 30 PSI
- ☐ Calibration gas cylinder pressure at 30 PSI
- ☐ Calibration gas tank pressure > 500 PSI
- ☐ Check for analyzer warnings: _____
- ☐ Check for calibrator warnings: _____
- ☐ Analyzer filters exchanged
- ☐ MFC checks performed (semi-annual)
- ☐ Inlet Teflon exchanged (annual)
- ☐ Zero Air media replaced (annual)
- ☐ Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- ☐ Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

Kitimat Village 2024-

Choose Fil

Trinity Consultants

OZONE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Village
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 12/16/2024 **Start Time** 14:14
Stop Time 15:14

Analyzer Mfg Teledyne-API
Analyzer Model T400
Analyzer s/n 7486

Anal. Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	N/A	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	N/A	**Model:**	T701
Serial #:	905	**Serial #:**	N/A	**Serial #:**	2555
Cert Date:	5/20/2024	**Certification Date:**	N/A	**Certification Date:**	5/20/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard
m: 1
b: 0
r:
Calibration Date:

INPUT (Txfr Standard) Raw Input (PPB)	Corrected (X) (PPB)	RESPONSE (Y) (PPB)	% DIFF.	BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.0	1.5	/	1.2	0.31	0.1%
40.1	40.1	41.4	3.34%	41.9	-0.50	-0.1%
89.7	89.7	92.0	2.56%	92.4	-0.37	-0.1%
149.9	149.9	154.1	2.80%	153.6	0.53	0.1%
250.2	250.2	255.1	1.96%	255.6	-0.45	-0.1%
399.8	399.80	407.7	1.98%	407.7	0.05	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	1.017	1.05 to 0.95
Intercept(b)	1.169	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	2.53%	

COMMENTS

Calibrated By Wyndam Lewis

= cell containing equations

pdf
LNGC Village 2024-1216

Trinity **CALIBRATOR OZONE CHECK**

Trinity Consultants

SHEET
AS FOUND

SITE NAME LNGC Kitimat Village **Date** 12/16/2024 **Start Time** 14:00
PROJECT LNGC **Stop Time** 15:15
SITE OPERATOR Trinity Consultants

Analyzer Mfg T-API **Anal. Range 0-** 500 **PPB**
Analyzer Model T700U
Analyzer s/n 905

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	Transfer Standard:	T-API	Zero Air Source:	T-API
Model:	T700U	Model:	T400	Model:	T701U
Serial #:	905	Serial #:	5996	Serial #:	2555
Cert Date:	N/A	Certification Date:	10/1/2024	Certification Date:	N/A

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard
m: 1.0013
b: -0.0675
r: 1.0000
Calibration Date: 10/1/2024

Transfer **Calibrator**

INPUT (Txfr Standard)		RESPONSE		BEST-FIT DETERMINATION		
Raw Input (PPB)	Corrected (X) (PPB)	(Y) (PPB)	% DIFF.	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
-1.0	-0.9	0.0	/	0.4	-0.40	-0.1%
405.9	405.4	399.8	-1.37%	400.5	-0.64	-0.1%
254.6	254.3	253.0	-0.53%	251.7	1.26	0.3%
152.6	152.4	151.8	-0.42%	151.4	0.39	0.1%
90.1	90.1	89.7	-0.39%	90.0	-0.28	-0.1%
39.08	39.10	40.18	2.77%	39.8	0.37	0.1%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	0.985	1.05 to 0.95
Intercept(b)	1.310	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	0.01%	

COMMENTS

Calibrated By Adrienne Kaul

= cell containing equations

12/17/2024 - NOx MP calibration

Tuesday, December 17, 2024 1:55 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: December 17, 2024
Start Time: 13:55
End Time: 15:10
Technician: Adrienne Kaul

Reason for Visit

On site to trigger NOx and SO2 quarterly multi-point (MP and remove O3 transfer standard from site

Description

NOx and O3:

-Data 13:57-14:03 to remove transfer standard from supply tree.

-O3 transfer standard powered off at 14:00 and removed from supply tree.

-ZPS 10 triggered at 14:10 to start NOx MP calibration sequence. NOx and O3 data will be auto-flagged for the duration of the MP calibration.

T200 NOx:

-Clock updated at 14:24 and was 44 seconds ahead before update.

T400 O3:

-Clock updated at 14:25-14:26 and was 44 seconds ahead before update. Clock was 1 second behind after update.

T700 Calibrator:

-Clock updated 14:27-14:28 and was 44 seconds ahead before update.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1730 psi and line pressure 32 psi.
- Shelter temperature 24.7 C, within spec.
- A truck was idling on site from before I arrived to approximately 14:15.
- All intake connections felt tight from manifold to analyzers.

12/17/2024 - NOx MP After Maintenance

Wednesday, December 18, 2024 12:03 PM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 12/17/24
Start Time: 1405
End Time: 1550
Technician: WL

Reason for Visit

Perform NOx MP verification following maintenance and to obtain the latest NO2 targets.
Perform RT activities

Description

NOx MP after maintenance. An adjustment will be made tomorrow morning.

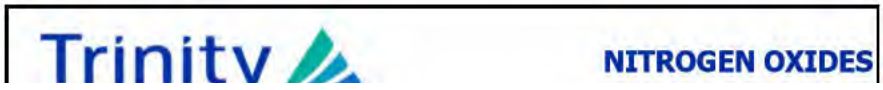
Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

Kitimat Village 2024-



Consultants

CALIBRATION SHEET

After Maintenance Multi-point Verification

SITE NAME LNG Kitimat Village
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 12/17/2024 **Start Time** 14:15
Stop Time 15:45

Analyzer Mfg Teledyne-API
Analyzer Model T200
Analyzer s/n 8598

Anal. Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 905
Cert Date: 12/13/2024

Audit Gas: Linde
Concentration: 10.0 ppm
Serial #: DT0046813
Certification Date: 4/4/2024
Expiration Date: 4/4/2027

Zero Air Source: T-API
Model: T701
Serial #: 2555
Certification Date: 5/20/2024

INPUT (X) NO (PPB)	RESPONSE (Y) NO (PPB)	RESPONSE (Y) NO_2 (PPB)	RESPONSE (Y) NO_X (PPB)	NO % DIFF	NO BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	-0.1	-0.1	-0.1	/	-0.9	0.79	0.2%
40.1	37.8	0.0	37.8	-5.8%	37.9	-0.12	0.0%
89.8	85.5	0.1	85.5	-4.8%	86.0	-0.50	-0.1%
139.6	133.6	-0.1	133.5	-4.3%	134.2	-0.59	-0.1%
199.1	191.7	0.5	192.2	-3.7%	191.8	-0.06	0.0%
299.0	288.9	-0.3	288.6	-3.4%	288.4	0.48	0.1%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X % DIFF	NO_X BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-0.9	0.72	0.1%
-5.9%	37.9	-0.17	0.0%
-4.8%	86.0	-0.51	-0.1%
-4.4%	134.2	-0.69	-0.1%
-3.5%	191.8	0.45	0.1%
-3.5%	288.4	0.20	0.0%

	NO	NO_x		NO	NO_x
Slope (m)	0.9676	0.9675	1.05 to 0.95	1.0335	1.0336
Intercept (b)	-0.8856	-0.8699	(≤ ± 10)	0.9187	0.9027
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	0.99999	0.99999
Average % Difference	-4.39%	-4.39%		4.39%	4.39%

Calibrated By Wyndam Lewis

= cell containing equations

Template Revised 7/10/23

Trinity Consultants

NITROGEN DIOXIDE CALIBRATION SHEET

After Maintenance Multi-point Verification

SITE NAME LNG Kitimat Village
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 12/17/2024 **Start Time** 14:15
Stop Time 15:45

Analyzer Mfg Teledyne-API
Analyzer Model T200
Analyzer s/n 8598

Anal. Range 0- 500 **PPB**

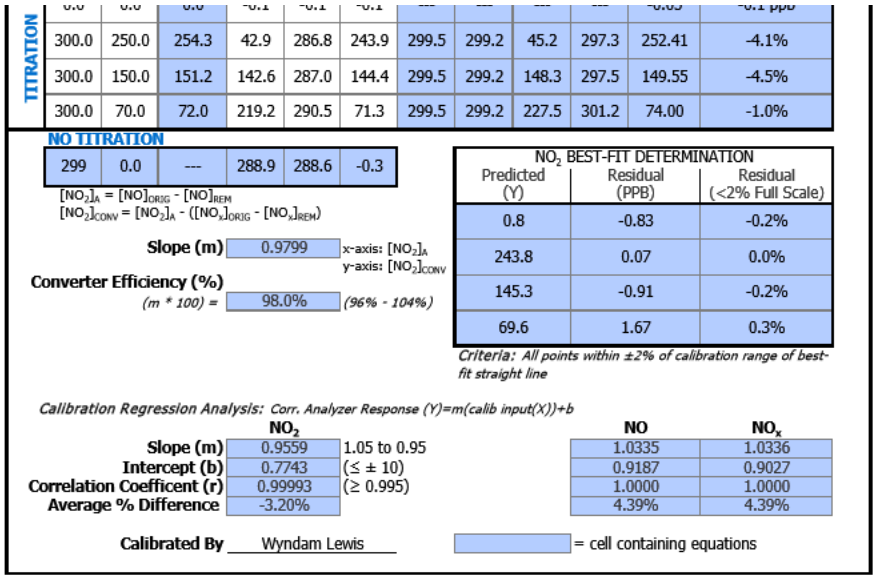
CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 905
Cert Date: 12/13/2024

Audit Gas: Linde
Concentration: 10.0 ppm
Serial #: DT0046813
Certification Date: 4/4/2024
Expiration Date: 4/4/2027

Zero Air Source: T-API
Model: T701
Serial #: 2555
Certification Date: 5/20/2024

CAL INPUT (X) NO (PPB)	CAL INPUT (X) O_3 (PPB)	CALC ACTUAL $[NO_2]_A$ (PPB)	DAS RESPONSE (Y) NO (PPB)	DAS RESPONSE (Y) NO_X (PPB)	DAS RESPONSE (Y) NO_2 (PPB)	CALCULATED (Y) [ORIG] NO (PPB)	CALCULATED (Y) [ORIG] NO_X (PPB)	CALCULATED (Y) [REM] NO (PPB)	CALCULATED (Y) [REM] NO_X (PPB)	CALCULATED (Y) [CONV] NO_2 (PPB)	% DIFF NO_2 (% OR PPB)
0.0	0.0	0.0	0.1	0.1	0.1					0.05	0.1 ppb



TITRATION

300.0	250.0	254.3	42.9	286.8	243.9	299.5	299.2	45.2	297.3	252.41	-4.1%
300.0	150.0	151.2	142.6	287.0	144.4	299.5	299.2	148.3	297.5	149.55	-4.5%
300.0	70.0	72.0	219.2	290.5	71.3	299.5	299.2	227.5	301.2	74.00	-1.0%

NO TITRATION

299	0.0	---	288.9	288.6	-0.3

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$
$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9799 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)
*(m * 100) =* 98.0% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION

Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.8	-0.83	-0.2%
243.8	0.07	0.0%
145.3	-0.91	-0.2%
69.6	1.67	0.3%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	0.9559	1.05 to 0.95	1.0335	1.0336
Intercept (b)	0.7743	(≤ ± 10)	0.9187	0.9027
Correlation Coefficent (r)	0.99993	(≥ 0.995)	1.0000	1.0000
Average % Difference	-3.20%		4.39%	4.39%

Calibrated By Wyndam Lewis = cell containing equations

12/18/2024 - NOx Calibration

Wednesday, December 18, 2024 12:07 PM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 12/18/24
Start Time: 950
End Time: 1210
Technician: WL

Reason for Visit

Calibration NOx analyzer
Perform RT activities

Description

NOx span adjustment following yesterday evening's MP
NOx MP after adjustment

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

LNG Village
2024-1218

Trinity Consultants

NITROGEN OXIDES CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME LNG Kitimat Village **Date** 12/18/2024 **Start Time** 10:29
PROJECT 244501.0077 **Stop Time** 11:59
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API **Anal. Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8598

CALIBRATION EQUIPMENT:

Calibrator: T-API **Audit Gas:** Linde **Zero Air Source:** T-API
Model: T700U **Concentration:** 10.0 ppm **Model:** T701
Serial #: 905 **Serial #:** DT0046813 **Serial #:** 2555
Cert Date: 12/13/2024 **Certification Date:** 4/4/2024 **Certification Date:** 5/20/2024
Expiration Date: 4/4/2027

INPUT (X)	RESPONSE (Y)			NO	NO BEST-FIT DETERMINATION		
NO (PPB)	NO (PPB)	NO_2 (PPB)	NO_X (PPB)	% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	-0.1	0.0	-0.1	/	-0.9	0.86	0.2%
40.1	39.0	0.0	39.1	-2.7%	39.1	-0.04	0.0%
89.8	87.8	0.4	88.1	-2.2%	88.6	-0.82	-0.2%
139.6	138.0	0.6	138.6	-1.1%	138.3	-0.28	-0.1%
199.1	197.3	1.4	198.6	-0.9%	197.6	-0.30	-0.1%
298.9	297.7	0.8	298.5	-0.4%	297.1	0.58	0.1%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X	NO_X BEST-FIT DETERMINATION		
% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-0.9	0.81	0.2%
-2.6%	39.2	-0.18	0.0%
-1.9%	89.0	-0.87	-0.2%
-0.7%	138.8	-0.22	0.0%
-0.3%	198.4	0.23	0.0%
-0.1%	298.3	0.24	0.0%

	NO	NO_x		NO	NO_x
Slope (m)	0.9971	1.0009	1.05 to 0.95	1.0029	0.9991
Intercept (b)	-0.9173	-0.9071	(≤ ± 10)	0.9241	0.9097
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	0.99998	0.99999
Average % Difference	-1.47%	-1.12%		1.47%	1.12%

Calibrated By Wyndam Lewis = cell containing equations

Template Revised 7/10/23

Trinity Consultants

NITROGEN DIOXIDE CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME LNG Kitimat Village **Date** 12/18/2024 **Start Time** 10:29
PROJECT 244501.0077 **Stop Time** 11:59
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API **Anal. Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8598

CALIBRATION EQUIPMENT:

Calibrator: T-API **Audit Gas:** Linde **Zero Air Source:** T-API
Model: T700U **Concentration:** 10.0 ppm **Model:** T701
Serial #: 905 **Serial #:** DT0046813 **Serial #:** 2555
Cert Date: 12/13/2024 **Certification Date:** 4/4/2024 **Certification Date:** 5/20/2024
Expiration Date: 4/4/2027

	CAL INPUT (X)		CALC ACTUAL	DAS RESPONSE (Y)			CALCULATED (Y)					% DIFF
							[ORIG]		[REM]		[CONV]	
	NO (PPB)	O_3 (PPB)	$[NO_2]_A$ (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO (PPB)	NO_X (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO_2 (% OR PPB)
CALIBRATION	0.0	0.0	0.0	-0.1	-0.1	0.0	---	---	---	---	-0.04	0.0 ppb
	300.0	250.0	249.8	48.6	295.8	247.2	299.5	299.1	49.6	296.4	247.14	-1.1%
	300.0	150.0	151.1	147.0	295.5	148.5	299.5	299.1	148.3	296.1	148.14	-1.7%

	300.0	70.0	72.8	225.1	299.2	74.1	299.5	299.1	226.7	299.8	73.51	1.8%

NO TITRATION

298.9	0.0	---	297.7	298.5	0.8

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9818 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 98.2% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION

Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.7	-0.72	-0.1%
247.0	0.22	0.0%
149.7	-1.18	-0.2%
72.5	1.68	0.3%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	0.9858	1.05 to 0.95	1.0029	0.9991
Intercept (b)	0.6858	(≤ ± 10)	0.9241	0.9097
Correlation Coefficent (r)	0.99993	(≥ 0.995)	1.0000	1.0000
Average % Difference	-0.32%		1.47%	1.12%

Calibrated By Wyndam Lewis = cell containing equations

12/24/2024 - Inlet filter change

Tuesday, December 24, 2024 12:34 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: December 24, 2024
Start Time: 12:30
End Time: 13:30
Technician: Adrienne Kaul

Reason for Visit

On site to change PUF sample.

Description

Envidas:
-Clock accurate.
T700U:
-Clock was 79 seconds ahead and adjusted at 12:39.
T200 NOx:
-Clock was 80 seconds ahead and adjusted 12:41-12:42.
T400 O3:
-Clock was 79 seconds ahead and adjusted at 12:44.
All gas analyzers:
-Data flagged 12:45-13:07.
-O3 running at 400 ppb from 12:54-13:05.
-T400 O3 analyzer read 401.9 ppb for the last minute of the run with 400.4 ppb supplied.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1730 psi and line pressure 32 psi.
- Shelter temperature 25.7 C, within spec.

12/31/2024 - Weekly equipment check

Tuesday, December 31, 2024 3:45 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: December 31, 2024
Start Time: 15:40
End Time: 16:22
Technician: Adrienne Kaul

Reason for Visit

RT activities and weekly equipment check.

Description

Envidas:

-Clock accurate.

T700:

-Clock was 1 minute and 22 seconds ahead and was updated at 15:50-15:51 and was one second behind after update.

T200 NOx:

-Clock was 83 seconds ahead and was updated at 15:57.

T400 O3:

-Clock was 82 seconds ahead and was updated at 15:58.

PUF:

-Sample off ETI: 527.305 hours, magnehelic reading: 56.75" water, and 7-day timer ~20 minutes behind.

-Sample on ETI: 527.305 hours and magnehelic reading: 54.5" water.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1720 psi and line pressure 32 psi.
- Station temperature 25.2, within spec.
- Ambient temperature aspirator is working.
- Wind speed and direction sensors appear to be working normally.

12/03/2024 - RT activities at nitrogen tank delivery

Tuesday, December 3, 2024 11:13 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: December 3, 2024
Start Time: 11:09
End Time: 12:00
Technician: Adrienne Kaul

Reason for Visit

On site to change inlet filter and receive delivery of Nitrogen cylinders.

Description

Envidas:

-Clock was 2 seconds ahead and updated at 11:20.

T700U Calibrator:

-Clock was 24 seconds ahead and updated at 11:38.

T200 NOx:

-Clock was 26 seconds ahead and updated at 11:41.

T400 O3:

-Clock was 26 seconds ahead and updated at 11:42-11:43.

NOx and O3 data:

-Briefly flagged to maintain for RT maintenance 11:45-11:46. Maintenance activities were stopped due to start of daily checks.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, C3H8, and CH4 tank pressure 1940 psi and line pressure 31 psi.
- Shelter temperature 26 C, within spec.
- Nitrogen tank pressure 200 psi and line pressure 75 psi.
- H2 tank pressure 1300 psi and line pressure 55 psi.
- T700U alert: 12/01/2024 12:13:22 PM System Reset. Warning raised when system is reset.
- T400 alert: 12/01/2024 12:13:23 PM System Reset. Warning raised when system is reset.
- T200 alert: 12/01/2024 12:13:19 PM System Reset. Warning raised when system is reset.

12/04/2024 - N901 Nitrogen tank replacement

Wednesday, December 4, 2024 8:32 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: December 4, 2024
Start Time: 8:27; 13:54
End Time: 12:15; 14:03
Technician: Adrienne Kaul

Reason for Visit

On site for RT maintenance activities and to replace N901 nitrogen cylinder.

Description

N901:

-Powered down at 8:48 for Nitrogen tank replacement.
-Gas cylinder replaced and regulator installed on new tank. Old cylinder lot number 133421401 and new cylinder lot number 133432602. All connections leak tested on regulator and no leaks were detected.
-Regulator purged 9:32-9:35.
-Analyzer powered on at 9:41.
-No leaks detected from regulator to analyzer.

O3, NOx and hydrocarbon:

-Data flagged 9:46-10:46 for RT maintenance activities.

T200 NOx:

-Clock was 9 seconds ahead and updated at 10:48.

T400 O3:

-Clock was 9 seconds ahead at updated at 10:49.

N901:

-Clock was 1 second behind, no adjustment made.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NOx, C3H8, and CH4 tank pressure 1930 psi and line pressure 32 psi.
- Old Nitrogen (133421401) tank pressure 190 psi and line pressure 75 psi.
- New Nitrogen (133432602) tank pressure 2650 psi and line pressure 72 psi. On return visit tank pressure 2650 psi and line pressure 70 psi-no apparent leaks.
- Hydrogen tank pressure 1290 psi and line pressure 34 psi.

12/13/2024 - Weekly station check

Friday, December 13, 2024 1:01 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: December 13, 2024
Start Time: 13:00
End Time: 13:25
Technician: Adrienne Kaul

Reason for Visit

On site to perform weekly station check

Description

Envidas:

-Clock was 2 seconds ahead and updated at 13:03.

T200 NOx:

-Clock updated at 13:14, clock was 1 minute and 45 seconds ahead before adjustment.

T400:

-Clock updated at 13:15, clock was 1 minute and 48 seconds ahead before adjustment.

T700U:

-Clock was 1 minute and 46 seconds ahead and updated at 13:17.

N901:

-Clock was 1 second ahead, no adjustment was made.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1920 psi and line pressure 34 psi.
- Shelter temperature 24.8 C, within spec.
- Nitrogen tank pressure 2250 psi and line pressure 72 psi.
- Hydrogen tank pressure 54 psi, increased to 55 psi.

12/16/2024 - RT Activities

Monday, December 16, 2024 12:15 PM

Riverlodge

Author of Entry: Wyndam Lewis

Date of Activity: 12/16/24
Start Time: 950
End Time: 1105
Technician: WL

Reason for Visit

Perform RT activities.

Description

[describe what activities were performed during the maintenance]

Site Visit Checklist

- ☐ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☐ Zero air system pressure at 30 PSI
- ☐ Calibration gas cylinder pressure at 30 PSI
- ☐ Calibration gas tank pressure > 500 PSI
- ☐ Check for analyzer warnings: _____
- ☐ Check for calibrator warnings: _____
- ☐ Analyzer filters exchanged
- ☐ MFC checks performed (semi-annual)
- ☐ Inlet Teflon exchanged (annual)
- ☐ Zero Air media replaced (annual)
- ☐ Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- ☐ Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

12/19/2024 - T701 hydrocarbon scrubber installation and inlet filter installation

Thursday, December 19, 2024 9:01 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: December 19, 2024
Start Time: 8:57
End Time: 16:50
Technician: Adrienne Kaul

Reason for Visit

On site to install T701 hydrocarbon scrubber.

Description

T200 (NOx), N901 and T400 (O3) analyzers flagged to maintain 9:03-9:13 for RT maintenance activities.

T200 (NOx), N901 and T400 (O3) erroneously at 15:44.

T200 (NOx) and T400 (O3) analyzers flagged at 15:46-16:30 for inlet filter changes.

-NO running 16:02-16:15 @ 4 lpm.
-NOx read 153.2 ppb with 160.0 ppb supplied.
-Zero running 16:15-16:25 to test if hydrocarbon scrubber is working.
-With zero running the NHMC hydrocarbon initially showed a non-zero reading.
-Values fell after around 5 minutes of operation.
-CH4 29 ppb
-NMHC 126.2 ppb
-THC 155.2 ppb.

T700U:
-Clock was 1 minute and five seconds ahead before adjustment and was 1 second ahead after adjustment.

T200 NOx:
-Clock was 65 seconds ahead prior to adjustment at 9:23.

T400 O3:
-Clock was 67 seconds ahead prior to adjustment at 9:25.

T701:
-Some purafil residue noticed in line between charcoal and purafil scrubber.
-Line from T701 to pressure reducer had small kink but line was inspected and observed to be in good condition.
-Outlet line disconnected at 9:36.
-New hydrocarbon scrubber installed.
-Splice was installed between CO scrubber and T701 outlet to extend line.
-New line installed from pump to coil.
-T701 read 53.5 psi at 15:29, and read 53.5 psi at 15:35 indicating no leak.
-T701 read 47 psi at 15:56 and 43 psi at 16:02.
-T701 read 51 psi at 16:33 and 49 psi at 16:37 indicating a leak.
-Unit reconnected to pneumatic supply lines as leak is outward it will not affect data quality. Unit will be further leak tested when time allows.
-T701 powered on at 14:41

N901:
-Flame reignition sequence started at ~16:40

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)

- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1910 psi and line pressure 34 psi.
- Hydrogen tank pressure 1000 psi and line pressure 55 psi.
- Nitrogen tank pressure 1990 psi and line pressure 72 psi.
- Extremely snowy at site.

12/20/2024 - Tool and supply pick up

Friday, December 20, 2024 11:54 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: December 20, 2024
Start Time: 11:42
End Time: 12:18
Technician: Adrienne Kaul

Reason for Visit

On site to pick up supplies from yesterday's work.

Description

T700U:

-Clock was 13 seconds ahead and updated at 12:02.

T400 O3:

-Clock was 15 seconds ahead and updated at 12:06

T200 NOx:

-Clock was 14 seconds ahead and updated at 12:07.

N901 Hydrocarbon:

-Clock accurate within 1 second, no adjustment made.

-Unit is not registering any NMHC.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1920 psi and line pressure 34 psi.
- Nitrogen tank pressure 1975 psi and line pressure 72.5 psi.
- Hydrogen tank pressure 1000 psi and line pressure 55 psi.
- Shelter temperature 25.6 C, within spec.
- T701 unit is running almost non-stop.

12/23/2024 - RT Activities and weekly site check

Monday, December 23, 2024 10:21 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: December 23, 2024
Start Time: 10:20; 14:28
End Time: 14:20; 14:35
Technician: Adrienne Kaul

Reason for Visit

On site for weekly site check.

Description

Envidas:

-Clock is 1 second behind and was synced at 10:24.

T700U Calibrator:

-Clock was 32 seconds ahead and updated at 10:42.

All gas analyzers flagged 10:45-10:56 for RT activities.

T400 O3:

-Clock was 35 seconds ahead and updated 10:56-10:57.

T200 NOx:

-Clock was 34 seconds ahead and updated at 10:59.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Nitrogen tank pressure 1820 psi and line pressure 62.5 psi.
- Hydrogen tank pressure 950 psi and line pressure 55 psi.
- SO2 and NO tank pressure 1910 psi and line pressure 33.5 psi.
- Shelter temperature 24.8 C, within spec.

12/27/2024 - RT activities

Friday, December 27, 2024 3:02 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: 12/27/2024
Start Time: 14:48
End Time: 15:27
Technician: Adrienne Kaul

Reason for Visit

On site for RT activities

Description

T700U Calibrator:

-Clock was 49 seconds ahead and updated at 15:12.

T200 NOx:

-Clock was 49 seconds ahead and updated at 15:20.

T400 O3:

-Clock was 50 seconds ahead and updated at 15:21.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1910 psi and line pressure 33 psi.
- Nitrogen tank pressure 1675 psi and line pressure 72.5 psi.
- Hydrogen tank pressure 875 psi and line pressure 55 psi.

12/30/2024 - RT Activities

Monday, December 30, 2024 12:23 PM

Riverlodge

Author of Entry: Wyndam Lewis

Date of Activity: 12/30/24
Start Time: 1030
End Time: 1120
Technician: WL

Reason for Visit

Perform RT activities.

Description

Accidentally left data flagged from 1045-1120.

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

Attachment 2 Tetra Tech Technical Memo, PA-110588 – Passive NO_2 Monitoring Results for Q4 2024 (January 15, 2025)

TETRA TECH

TECHNICAL MEMO

ISSUED FOR USE

To:	Tauseef Zia Siddiqui	**Date:**	January 15, 2025
File:	704-ENW.GENV03699-01	**Memo No.:**	Q4 2024
From:	Tetra Tech Canada Inc.		
Subject:	PA-110588 - Passive NO_2 Monitoring Results for Q4 2024 Document Control #: L001-00000-HE-0702-1002 PA-110588		

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNGC facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQDMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region. The passive sampling results have been collected over a period of 30 days (+/- 4 days as per the B.C. Field Sampling Manual – Part B1 Ambient Air Quality Monitoring, Reference No: SOP-07, Standard Operating Procedure for the Passive/Diffusive Method of Air Sample Collection) and compiled into monthly reports. This memorandum provides a summary of the results for this past quarter that covers the October, November, and December 2024 sampling periods. The monthly reports are attached in Appendix B.

2.0 PASSIVE MONITORING RESULTS

The passively measured 30-day average NO_2 concentrations during each sample deployment over the quarterly period (October to December 2024) are summarized for each monitoring location in Table 1.

Tetra Tech Canada Inc.
Suite 1000 – 10th Floor, 885 Dunsmuir Street
Vancouver, BC V6C 1N5 CANADA
Tel 604.685.0275 Fax 604.684.6241

Table 1: Passive NO_2 Sampling Results (October – December 2024)

Passive Sampler Location	30-day Average NO_2 Concentration (ppb)		
	October 2024	November 2024	December 2024
Lakelse Lake A04	0.2	0.3	0.2
**V01	0.2	0.2	Decommissioned
KHV-2	0.2	0.3	0.2
KHV-1	0.5	1.0	0.7
V10B	1.0	1.3	1.8
V12	0.6	0.9	1.6
**V08	0.2	0.3	Decommissioned
**V06	0.3	0.3	Decommissioned
**V05	0.3	0.2	Decommissioned
Kitimat Industrial (V14)	1.1	1.7	1.4
*Predicted Maximum NO_2	0.9	1.4	2.2
Kitimat Riverlodge	1.1	1.7	1.8
Kitimat Whitesail	0.5	0.8	1.2

*Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum concentration of NO_2 inclusive of facility emissions within Kitimat.
**V01, V05, V06 and V08 locations were unable to be sampled as they were inaccessible and therefore decommissioned during the December deployment period.

The highest 30-day average NO_2 concentration measured over the quarterly period was 2.2 ppb at the *Predicted Maximum NO_2 sample location, located northeast of the LNGC facility. While there is no 30-day Provincial Air Quality Objective for NO_2, the annual criterion is 17 ppb, which provides an indicator for the passively measured 30-day NO_2 concentrations.

3.0 SAMPLING COMPLETENESS

All passive samples were collected successfully over the quarterly period except for V01, V05, V06 and V08 which were unable to be sampled during the December deployment period as they are located on a forest service road that is inaccessible during the winter months. The samplers were decommissioned at the end of the November deployment period for the remainder of the winter season.

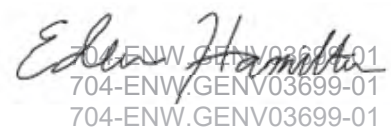
4.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

5.0 CLOSURE

We trust this technical memo meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.



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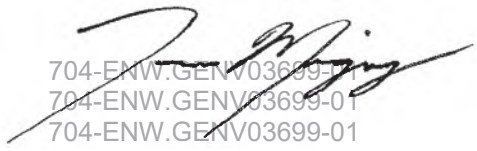

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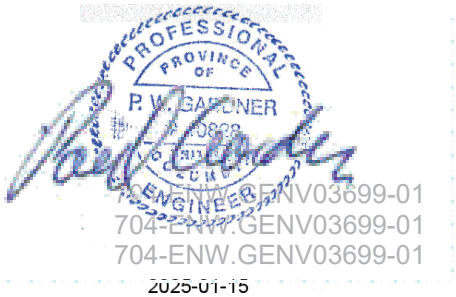

2025-01-15

Reviewed by:
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PERMIT TO PRACTICE
TETRA TECH CANADA INC.
PERMIT NUMBER: 1001972

/sy

Attachments Appendix A – Limitations on the Use of this Document
Appendix B – Monthly Reports

APPENDIX A

LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

1.1 USE OF DOCUMENT AND OWNERSHIP

This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

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Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

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If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by third parties other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary exploration, investigation, and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

MONTHLY REPORTS

OCTOBER REPORT

TETRA TECH

December 18, 2024

ISSUED FOR USE
FILE: 704-ENW.GENV03699-01

LNG Canada

Via Email: Tauseef-ZIA.Siddiqui@lngcanada.ca
KIT-Regulatory-Compliance@lngcanada.ca

Attention: Tauseef Zia Siddiqui

Subject: Passive Monitoring for Nitrogen Dioxide - LNG Canada – October 2024
Document Control #: L001-00000-HE-0702-0422

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNG facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQMMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region as described in Table 1. The spatial distribution of the passive monitoring station network through the Kitimat Valley is shown on the attached Figure 1.

Table 1: LNGC's Passive NO_2 Monitoring Network

Site Name	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Lakelse Lake A04	527457	6025573	2.2
V01	524757	6017435	2.1
KHV-2	523357	5980636	2.1
KHV-1	522919	5980606	2.1
V10B	519425	5984090	2.1
V12	517790	5977294	2.0
V08	521425	5994249	2.0
V06	520970	5996240	2.0
V05	520457	5999250	2.0
Kitimat Industrial	520424	5990356	2.1
Predicted Maximum NO_2	522463	5989506	2.3
Kitimat Riverlodge	521536	5989486	2.2
Kitimat Whitesail	523612	5990998	2.3

Tetra Tech Canada Inc.
Unit 2, 4065 Motz Road
Terrace, BC V8G 3N1
Tel 778.309.1605

The sampling methodology adheres to protocols described in the document '*Standard Operating Procedure (SOP) – Passive Monitoring for Nitrogen Dioxide (NO_2)*', dated March 2024. More information on the sampling methodology can be found in this document.

2.0 AMBIENT CONDITIONS DURING DEPLOYMENT PERIOD

Winds

Winds were generally bimodal over the deployment period October 2 through to the 31 with inflows (up-valley, southerly winds) and outflows (down-valley, northerly winds) frequently occurring although inflows were still slightly more prevalent. Figure 1 shows wind roses for hourly wind observations during the October sampler deployment period at ENV-AQN Kitimat Whitesail and Terrace Airport.

Precipitation

A total of 359.9 mm of precipitation was recorded between October 2 through 31 at Environment and Climate Change Canada (ECCC) Kitimat Forest Avenue. 156.0 mm of precipitation was recorded at ECCC Terrace A. Comparing to precipitation normals for the region, these totals are typical of October averages for the region.

Air Quality – Nitrogen Dioxide

NO_2 is continuously measured and reported on an hourly basis at ENV-AQN station Kitimat Whitesail. Over the October deployment period (October 2 to 31), the maximum 1-hour NO_2 concentration was 5.9 ppb, or 9.8% of the British Columbia Air Quality Objective (BCAQO) of 60 ppb. The 30-day average NO_2 concentration, taken as the average of all available one-hour measurements during the sampling period, was 0.8 ppb. While there is no 30-day BCAQO, the annual criterion is 17 ppb, which provides another indicator of ambient air quality with respect to NO_2. There were 34 hours of missing data out of 685 hours, or 95% data completeness. Figure 2 plots the 1-hour NO_2 concentration over the sampling period.

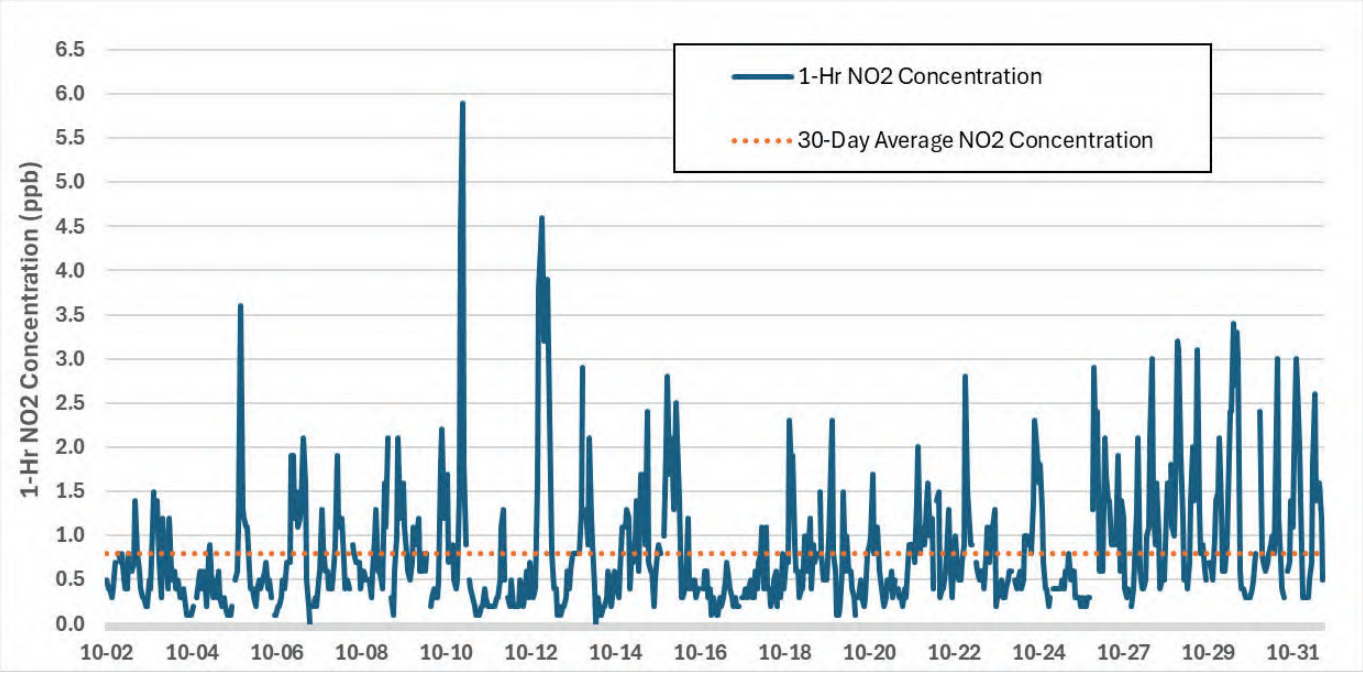

Figure 2: 1-Hr NO_2 Readings at ENV-AQN Kitimat Whitesail (October 2 to 31)

3.0 PASSIVE MONITORING RESULTS

The passively measured 30-day NO_2 concentrations are listed for each site in Table 2. The 30-day NO_2 concentration based on continuous measurement is also listed for Kitimat Whitesail, as a measure of validation of the sampling results. Each site's housing utilizes two samplers for statistical redundancy, the mean of which is used as the overall measurement.

The measured 30-day NO_2 concentrations are shown through the study area on Figure 1. The highest readings occurred in town, where combustion sources of NOx are more plentiful, also located north of the LNGC facility. Specifically, the highest readings in October 2024 were along the west side of town at Kitimat Industrial and Kitimat Riverlodge.

Bureau Veritas Passive Sampling Laboratory Report is attached in Appendix B.

Table 2: Passive NO_2 Sampling Results (October 2024)

Site Name	Start	End	Duration (Days)	30-day NO_2 Concentration (ppb)			St. Dev	30 Day NO_2
				Sample 1	Sample 2	Mean		
Lakelse Lake A04	10/2/2024 8:00	10/31/2024 8:00	30.0	0.2	0.2	0.2	0	
V01	10/2/2024 9:00	10/31/2024 9:00	30.0	0.2	0.2	0.2	0	
KHV-2	10/2/2024 10:00	10/31/2024 9:55	30.0	0.2	0.2	0.2	0	
KHV-1	10/2/2024 9:50	10/31/2024 9:45	30.0	0.4	0.5	0.5	0.1	
V10B	10/2/2024 10:30	10/31/2024 10:25	30.0	0.8	1.2	1.0	0.3	
V12	10/2/2024 10:55	10/31/2024 10:45	30.0	0.6	0.5	0.6	0.1	
V08	10/2/2024 11:35	10/31/2024 11:20	30.0	0.2	0.2	0.2	0	
V06	10/2/2024 11:50	10/31/2024 11:40	30.0	0.2	0.3	0.3	0.1	
V05	10/2/2024 12:00	10/31/2024 12:00	30.0	0.3	0.3	0.3	0	
Kitimat Industrial (V14)	10/2/2024 12:45	10/31/2024 12:30	30.0	1.1	1.1	1.1	0	
*Predicted Maximum NO_2	10/2/2024 13:10	10/31/2024 13:50	30.0	0.9	0.9	0.9	0	
Kitimat Riverlodge	10/2/2024 13:00	10/31/2024 13:40	30.0	1.0	1.1	1.1	0.1	
Kitimat Whitesail	10/2/2024 13:20	10/31/2024 14:10	30.0	0.5	0.4	0.5	0.1	0.8

*Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum concentration of NO_2 inclusive of facility emissions within Kitimat.

4.0 SAMPLING PROGRAM ANOMOLIES

No sampling program anomalies were noted for the month of October.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01

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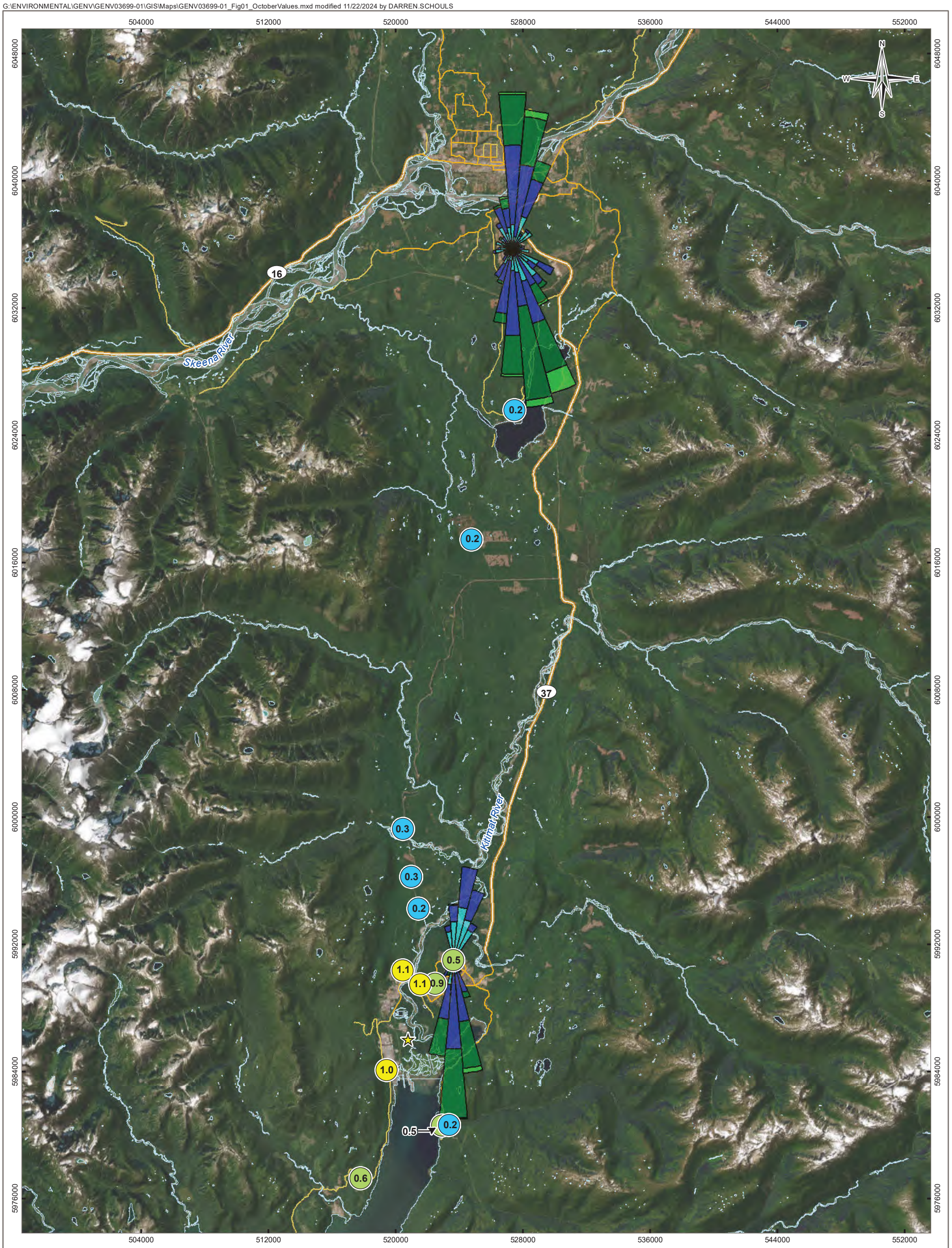
/sy

Attachments Figure 1. Mean 30-day NO_2 Concentration October 2024
Appendix A – Limitations on the Use of this Document
Appendix B – Bureau Veritas Passive Sampling Laboratory Report

FIGURES

Figure 1 Mean 30-day NO_2 Concentration October 2024

G:\ENVIRONMENTAL\GENV\GENV03699-01\GIS\Maps\GENV03699-01_Fig01_OctoberValues.mxd modified 11/22/2024 by DARREN.SCHOULS



LEGEND

Mean 30-Day NO_2 Concentration

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- LNGC Site
- Highway
- Main Road
- Local Road
- Watercourse/Waterbody

Rose Plot - Wind (m/s)

- 1 - 3
- 3 - 6
- 6 - 9
- 9 - 12

NOTES
Base data source:
Imagery from ESRI; Maxar
CanVec 1:250,000 (2019)

STATUS
ISSUED FOR USE

LNGC NO2 PASSIVE MONITORING

Mean 30-day NO2 Concentration October 2024

PROJECTION UTM Zone 9			**DATUM** NAD83		**CLIENT** Haisla Triton Ltd.
Scale: 1:225,000 (4 2 0 4 Kilometres)					TETRA TECH
FILE NO. GENV03699-01_Fig01_OctoberValues.mxd					
OFFICE Tt-VANC	**DWN** DS	**CKD** MRB	**APVD** TM	**REV** 0	**Figure 1**
DATE November 22, 2024	**PROJECT NO.** ENW.GENV03699-01				

APPENDIX A

LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

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Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

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1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by third parties other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

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This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary exploration, investigation, and assessment.

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In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

BUREAU VERITAS PASSIVE SAMPLING LABORATORY REPORT

Your P.O. #: 704-ENW.GENV03699-01
Your Project #: NO2 MONITORING
Site Location: 2024/10/02-2024/10/31

Attention: Travis Miguez

Tetra Tech Canada Inc.
#2 4065 Motz Road
Terrace, BC
CANADA V8G 3N1

Report Date: 2024/11/20
Report #: R3589822
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C490360
Received: 2024/11/06, 08:00

Sample Matrix: Air
Samples Received: 26

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	26	2024/11/08	2024/11/19	PTC SOP-00148	Passive NO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Branko Banjac, General Manager responsible for Alberta Petroleum laboratory operations.

Bureau Veritas Job #: C490360
Report Date: 2024/11/20

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/10/02-2024/10/31
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CZR987	CZR988	CZR989	CZR990	CZR991	CZR992		
Sampling Date		2024/10/02 08:00	2024/10/02 08:00	2024/10/02 09:00	2024/10/02 09:00	2024/10/02 09:50	2024/10/02 09:50		
	UNITS	#1 LAKELSE LAKE	#2 LAKELSE LAKE-DUP	#3 VO1	#4 VO1-DUP	#5 KHV-1	#6 KHV-1-DUP	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.2	0.2	0.2	0.2	0.4	0.5	0.1	B610314
RDL = Reportable Detection Limit									

Bureau Veritas ID		CZR993	CZR994	CZR995	CZR996	CZR997	CZR998	CZR999		
Sampling Date		2024/10/02 10:00	2024/10/02 10:00	2024/10/02 10:30	2024/10/02 10:30	2024/10/02 10:55	2024/10/02 10:55	2024/10/02 11:35		
	UNITS	#7 KHV-2	#8 KHV-2-DUP	#9 V10B	#10 V10B-DUP	#11 V12	#12 V12-DUP	#13 V08	RDL	QC Batch
Passive Monitoring										
Calculated NO2	ppb	0.2	0.2	0.8	1.2	0.6	0.5	0.2	0.1	B610314
RDL = Reportable Detection Limit										

Bureau Veritas ID		CZS000	CZS001	CZS002	CZS003	CZS004	CZS005		
Sampling Date		2024/10/02 11:35	2024/10/02 11:50	2024/10/02 11:50	2024/10/02 12:00	2024/10/02 12:00	2024/10/02 12:45		
	UNITS	#14 V08-DUP	#15 V06	#16 V06-DUP	#17 V05	#18 V05-DUP	#19 Kitimat Industrial	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.2	0.2	0.3	0.3	0.3	1.1	0.1	B610314
RDL = Reportable Detection Limit									

Bureau Veritas ID		CZS006		CZS007	CZS008		
Sampling Date		2024/10/02 12:45		2024/10/02 13:00	2024/10/02 13:00		
	UNITS	#20Kitimat Industrial-DUP	QC Batch	#21 Kitimat Riverlodge	#22Kitimat Riverlodge -DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	1.1	B610314	1.1	1.0	0.1	B610319
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C490360
Report Date: 2024/11/20

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/10/02-2024/10/31
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CZS009	CZS010	CZS011	CZS012		
Sampling Date		2024/10/02 13:10	2024/10/02 13:10	2024/10/02 13:20	2024/10/02 13:20		
	UNITS	#23 Predicted Max	#24 Predicted Max-DUP	#25 Kitimat Whitesail	#26 Kitimat Whitesail-DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	0.9	0.9	0.5	0.4	0.1	B610319
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C490360
Report Date: 2024/11/20

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/10/02-2024/10/31
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

GENERAL COMMENTS

Sample CZR995 [#9 V10B] : Result for CZR995(#9 V10B) is confirmed. -YL6 20241119

Sample CZR996 [#10 V10B-DUP] : Result for CZR996(#10 V10B DUP) is confirmed. -YL6 20241119

Results relate only to the items tested.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

NOVEMBER REPORT

TETRA TECH

January 9, 2025

ISSUED FOR USE
FILE: 704-ENW.GENV03699-01

LNG Canada

Via Email: Tauseef-ZIA.Siddiqui@lngcanada.ca
KIT-Regulatory-Compliance@lngcanada.ca

Attention: Tauseef Zia Siddiqui

Subject: Passive Monitoring for Nitrogen Dioxide - LNG Canada – November 2024 Document Control #: L001-00000-HE-0702-0423

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNG facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQMMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region as described in Table 1. The spatial distribution of the passive monitoring station network through the Kitimat Valley is shown on the attached Figure 1.

Table 1: LNGC's Passive NO_2 Monitoring Network

Site Name	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Lakelse Lake A04	527457	6025573	2.2
V01	524757	6017435	2.1
KHV-2	523357	5980636	2.1
KHV-1	522919	5980606	2.1
V10B	519425	5984090	2.1
V12	517790	5977294	2.0
V08	521425	5994249	2.0
V06	520970	5996240	2.0
V05	520457	5999250	2.0
Kitimat Industrial	520424	5990356	2.1
Predicted Maximum NO_2	522463	5989506	2.3
Kitimat Riverlodge	521536	5989486	2.2
Kitimat Whitesail	523612	5990998	2.3

Tetra Tech Canada Inc.
Unit 2, 4065 Motz Road
Terrace, BC V8G 3N1
Tel 778.309.1605

The sampling methodology adheres to protocols described in the document '*Standard Operating Procedure (SOP) – Passive Monitoring for Nitrogen Dioxide (NO_2)*', dated March 2024. More information on the sampling methodology can be found in this document.

2.0 AMBIENT CONDITIONS DURING DEPLOYMENT PERIOD

Winds

Wind direction was very bimodal during the period October 31 through November 29, with a slightly higher frequency of outflow (northerly, down-valley) winds, typical of the late fall pattern for the Kitimat Valley. The highest wind speeds over the deployment period however occurred with inflows associated with synoptic events. Figure 1 shows wind roses for hourly wind observations during the November sampler deployment period at ENV-AQN Kitimat Whitesail and Terrace Airport.

Precipitation

A total of 300.1 mm of precipitation was recorded between October 31 through November 29 at ECCC Kitimat Forest Avenue. 122.1 mm of precipitation was recorded at ECCC Terrace A. Comparing to precipitation normals for the region, these totals are slightly below average for November for the region.

Air Quality – Nitrogen Dioxide

NO_2 is continuously measured and reported on an hourly basis at ENV-AQN station Kitimat Whitesail. Over the November deployment period (October 31- November 29), the maximum 1-hour NO_2 concentration measured at Kitimat Whitesail was 7.3 ppb, or 12.2% of the British Columbia Air Quality Objective (BCAQO) of 60 ppb. The 30-day average NO_2 concentration, taken as the average of all available one-hour measurements during the sampling period, was 1.0 ppb. While there is no 30-day BCAQO, the annual criterion is 17 ppb, which provides another indicator of ambient air quality with respect to NO_2. There were 33 hours of missing data from Kitimat Whitesail out of 686 hours, or 95% data completeness. Figure 2 plots the 1-hour NO_2 concentration measured by Kitimat Whitesail air quality station over the sampling period.

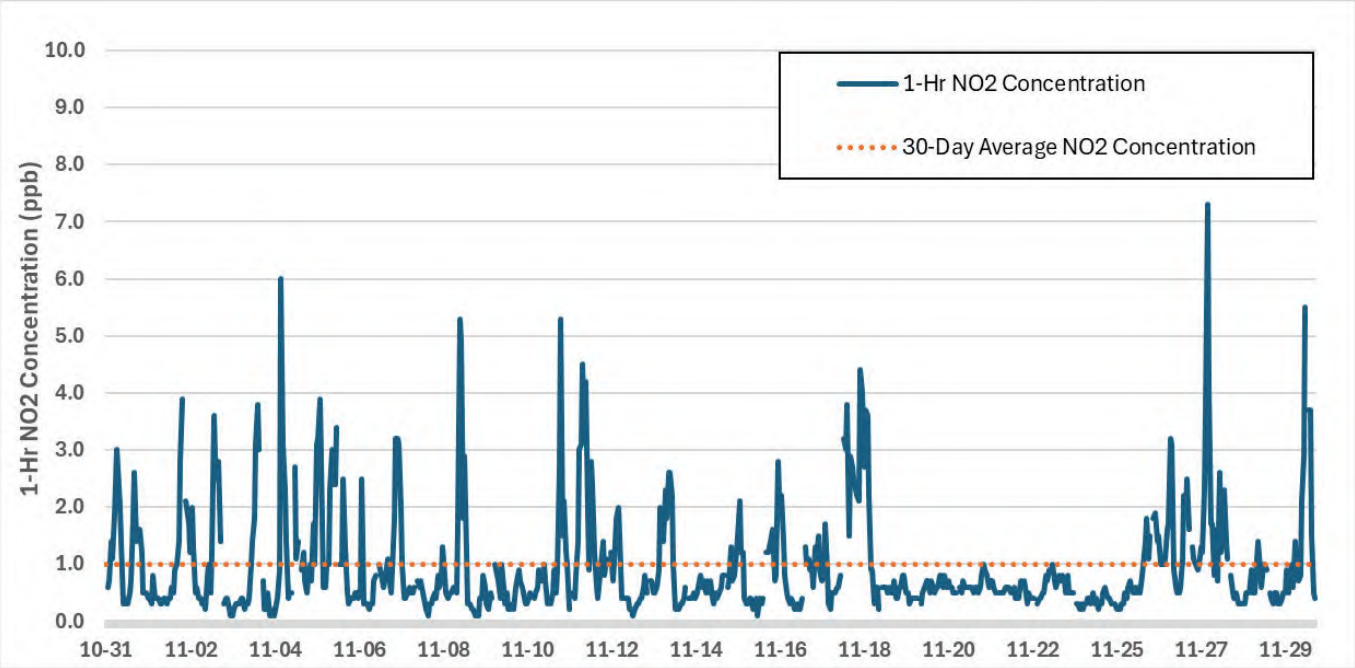

Figure 2: 1-Hr NO_2 Readings at ENV-AQN Kitimat Whitesail (October 31- November 29)

3.0 PASSIVE MONITORING RESULTS

The passively measured 30-day NO_2 concentrations are listed for each site in Table 2. The 30-day NO_2 concentration based on continuous measurement is also listed for Kitimat Whitesail, as a measure of validation of the sampling results. Each site's housing utilizes two samplers for statistical redundancy, the mean of which is used as the overall measurement.

The measured 30-day NO_2 concentrations are shown through the study area on Figure 1. The highest readings occurred in town, where combustion sources of NOx are more plentiful, also located north of the LNGC facility. Specifically, the highest readings in November 2024 were along the west side of town at Kitimat Industrial and Kitimat Riverlodge. It is also noted that the 30-day NO_2 concertation at KHV-1 has increased, slightly in October and again in November.

NO_2 concentrations in Kitimat were slightly higher than the summer months, continuing the trend that was observed to a lesser degree in October. Although these concentrations are well below representative (e.g., annual) criteria, this trend may be attributed to the gradual change towards winter conditions for the region.

Bureau Veritas Passive Sampling Laboratory Report is attached in Appendix B.

Table 2: Passive NO_2 Sampling Results (November 2024)

Site Name	Start	End	Duration (Days)	30-day NO_2 Concentration (ppb)			St. Dev	30 Day NO_2
				Sample 1	Sample 2	Mean		
Lakelse Lake A04	10/31/2024 8:00	11/29/2024 9:20	29.1	0.3	0.2	0.3	0.1	
V01	10/31/2024 9:00	11/29/2024 10:25	29.0	0.2	0.1	0.2	0.1	
KHV-2	10/31/2024 9:55	11/29/2024 11:35	29.0	0.3	0.3	0.3	0	
KHV-1	10/31/2024 9:45	11/29/2024 11:30	29.0	1.0	0.9	1.0	0.1	
V10B	10/31/2024 10:25	11/29/2024 12:10	29.1	1.1	1.4	1.3	0.2	
V12	10/31/2024 10:45	11/29/2024 12:30	29.0	0.6	1.1	0.9	0.4	
V08	10/31/2024 11:20	11/29/2024 13:30	29.1	0.2	0.3	0.3	0.1	
V06	10/31/2024 11:40	11/29/2024 13:35	29.0	0.2	0.4	0.3	0.1	
V05	10/31/2024 11:55	11/29/2024 13:50	29.0	0.2	0.2	0.2	0	
Kitimat Industrial (V14)	10/31/2024 12:30	11/29/2024 14:10	29.1	1.6	1.7	1.7	0.1	
*Predicted Maximum NO_2	10/31/2024 13:50	11/29/2024 14:35	29.1	1.4	1.4	1.4	0	
Kitimat Riverlodge	10/31/2024 13:40	11/29/2024 14:25	29.0	1.6	1.7	1.7	0.1	
Kitimat Whitesail	10/31/2024 14:10	11/29/2024 14:50	29.0	0.9	0.6	0.8	0.2	1.4

*Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum concentration of NO2 inclusive of facility emissions within Kitimat.

4.0 SAMPLING PROGRAM ANOMOLIES

Tetra Tech notes that there was a slightly higher than expected difference between redundant samples at V12 in November (0.6 ppb and 1.1 ppb). The 30-day value was reported as the mean of the two, as is standard protocol, however the maximum value of 1.1 ppb at V12, while still well below representative criteria and lower than the maximum measured at other sites in the program, can be considered.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

FILE: 704-ENW.GENV03699-01
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FILE: 704-ENW.GENV03699-01

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P. W. GARDNER
40828
FILE: 704-ENW.GENV03699-01
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FILE: 704-ENW.GENV03699-01
2025-01-09

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
PERMIT NUMBER: 1001972

Reviewed by:
Paul Gardner, M.A.Sc., P.Eng.
Senior Contaminated Sites Specialist
Environment & Water Practice
Direct Line: 604.722.7944
Paul.Gardner@tetratech.com

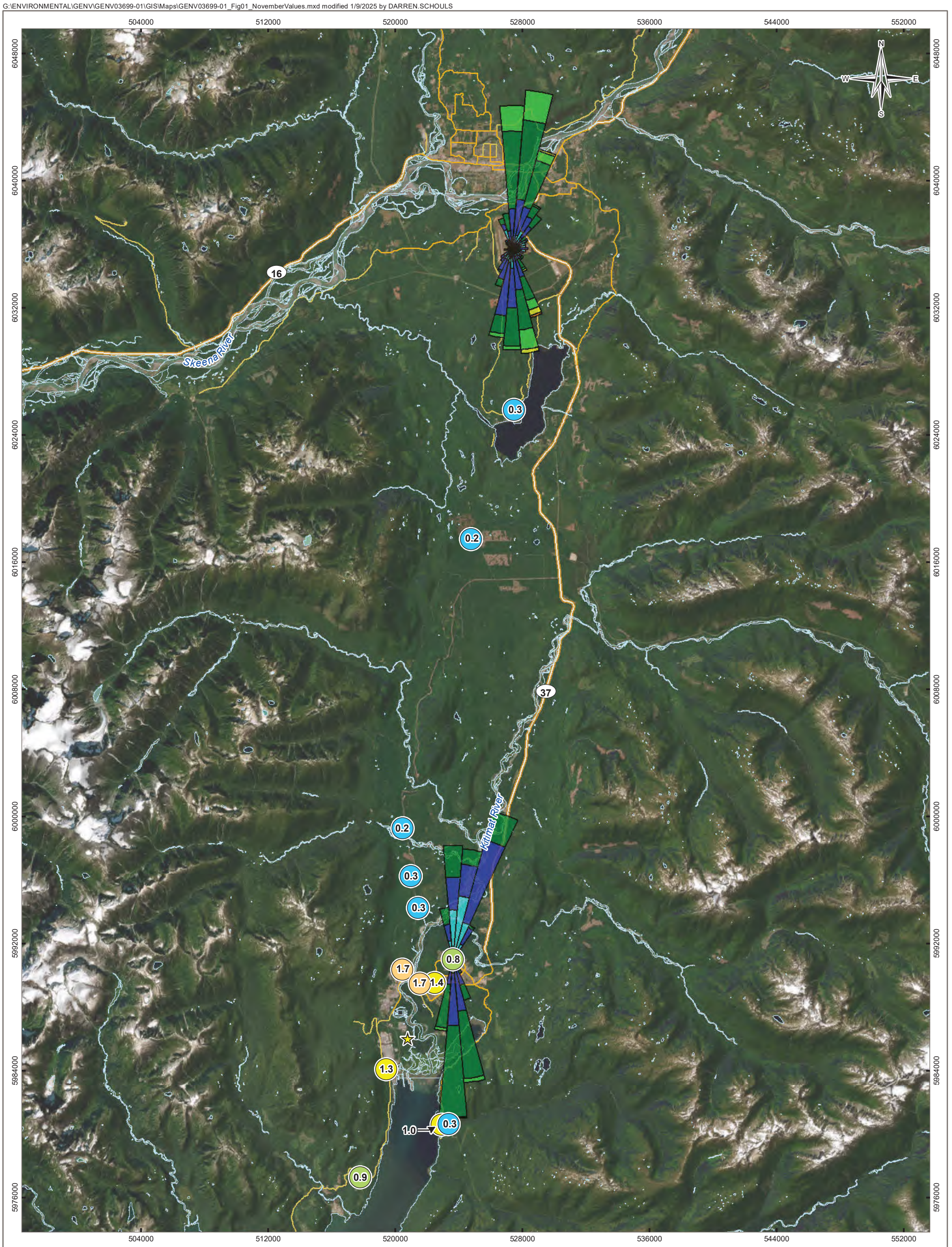
/sy

Attachments Figure 1. Mean 30-day NO_2 Concentration November 2024
Appendix A – Limitations on the Use of this Document
Appendix B – Bureau Veritas Passive Sampling Laboratory Report

FIGURES

Figure 1 Mean 30-day NO_2 Concentration November 2024

G:\ENVIRONMENTAL\GENV\GENV03699-01\GIS\Maps\GENV03699-01_Fig01_NovemberValues.mxd modified 1/9/2025 by DARREN.SCHOULS



LEGEND

Mean 30-Day NO_2 Concentration (ppb)

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0

- LNGC Site
- Highway
- Main Road
- Local Road
- Watercourse/Waterbody

Rose Plot - Wind (m/s)

- 1 - 3
- 3 - 6
- 6 - 9
- 9 - 12
- 12 - 15
- 15 - 18

NOTES
Base data source:
Imagery from ESRI; Maxar
CanVec 1:250,000 (2019)

STATUS
ISSUED FOR USE

LNGC NO2 PASSIVE MONITORING

Mean 30-day NO2 Concentration November 2024

PROJECTION UTM Zone 9	**DATUM** NAD83	**CLIENT** Haisla Triton Ltd.
Scale: 1:225,000 — 4 2 0 4 Kilometres		TETRA TECH
FILE NO. GENV03699-01_Fig01_NovemberValues.mxd		
OFFICE Tt-VANC	**DWN** DS / **CKD** MRB / **APVD** TM / **REV** 0	Figure 1
DATE January 9, 2025	**PROJECT NO.** ENW.GENV03699-01	

APPENDIX A

LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

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In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

BUREAU VERITAS PASSIVE SAMPLING LABORATORY REPORT

Your P.O. #: 704-ENW.GENV03699-01
Your Project #: NO2 MONITORING
Site Location: 2024/10/31-2024/11/29

Attention: Travis Miguez

Tetra Tech Canada Inc.
#2 4065 Motz Road
Terrace, BC
CANADA V8G 3N1

Report Date: 2024/12/18
Report #: R3602778
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C499920
Received: 2024/12/05, 08:00

Sample Matrix: Air
Samples Received: 26

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	26	2024/12/10	2024/12/18	PTC SOP-00148	Passive NO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500
==========
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Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C499920
Report Date: 2024/12/18

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/10/31-2024/11/29
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DBT100	DBT101	DBT102	DBT103	DBT104	DBT105		
Sampling Date		2024/10/31 08:00	2024/10/31 08:00	2024/10/31 09:00	2024/10/31 09:00	2024/10/31 09:45	2024/10/31 09:45		
	UNITS	#1 LAKELSE LAKE	#2 LAKELSE LAKE-DUP	#3 VO1	#4 VO1-DUP	#5 KHV-1	#6 KHV-1-DUP	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.3	0.2	0.2	0.1	1.0	0.9	0.1	B635909
RDL = Reportable Detection Limit									

Bureau Veritas ID		DBT106	DBT107	DBT108	DBT109	DBT110	DBT111	DBT112		
Sampling Date		2024/10/31 09:55	2024/10/31 09:55	2024/10/31 10:25	2024/10/31 10:25	2024/10/31 10:45	2024/10/31 10:45	2024/10/31 11:20		
	UNITS	#7 KHV-2	#8 KHV-2-DUP	#9 V10B	#10 V10B-DUP	#11 V12	#12 V12-DUP	#13 V08	RDL	QC Batch
Passive Monitoring										
Calculated NO2	ppb	0.3	0.3	1.1	1.4	0.6	1.1	0.2	0.1	B635909
RDL = Reportable Detection Limit										

Bureau Veritas ID		DBT113	DBT114	DBT115	DBT116	DBT117	DBT119		
Sampling Date		2024/10/31 11:20	2024/10/31 11:40	2024/10/31 11:40	2024/10/31 11:55	2024/10/31 11:55	2024/10/31 12:30		
	UNITS	#14 V08-DUP	#15 V06	#16 V06-DUP	#17 V05	#18 V05-DUP	#19 Kitimat Industrial	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.3	0.2	0.4	0.2	0.2	1.6	0.1	B635909
RDL = Reportable Detection Limit									

Bureau Veritas ID		DBT120		DBT121	DBT122		
Sampling Date		2024/10/31 12:30		2024/10/31 13:40	2024/10/31 13:40		
	UNITS	#20Kitimat Industrial-DUP	QC Batch	#21 Kitimat Riverlodge	#22Kitimat Riverlodge -DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	1.7	B635909	1.6	1.7	0.1	B635940
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C499920
Report Date: 2024/12/18

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/10/31-2024/11/29
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DBT123	DBT124	DBT125	DBT126		
Sampling Date		2024/10/31 13:50	2024/10/31 13:50	2024/10/31 14:10	2024/10/31 14:10		
	UNITS	#23 Predicted Max	#24 Predicted Max-DUP	#25 Kitimat Whitesail	#26 Kitimat Whitesail-DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	1.4	1.4	0.9	0.6	0.1	B635940
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C499920
Report Date: 2024/12/18

QUALITY ASSURANCE REPORT

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/10/31-2024/11/29
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

			Spiked Blank		Method Blank	
QC Batch	**Parameter**	**Date**	**% Recovery**	**QC Limits**	**Value**	**UNITS**
B635909	Calculated NO2		100	90 - 110	<0.1	ppb
B635940	Calculated NO2		99	90 - 110	<0.1	ppb

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

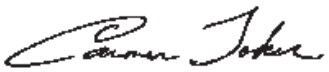
Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C499920
Report Date: 2024/12/18

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/10/31-2024/11/29
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Carmen Toker, CT, Manager Air Laboratory Services

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Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

DECEMBER REPORT

TETRA TECH

January 15, 2025

LNG Canada

ISSUED FOR USE
FILE: 704-ENW.GENV03699-01
Via Email: Tauseef-ZIA.Siddiqui@lngcanada.ca
KIT-Regulatory-Compliance@lngcanada.ca

Attention: Tauseef Zia Siddiqui

Subject: Passive Monitoring for Nitrogen Dioxide – LNG Canada – December 2024
Document Control #: L001-00000-HE-0702-0424

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNG facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQMMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region as described in Table 1. The spatial distribution of the passive monitoring station network through the Kitimat Valley is shown on the attached Figure 1. Note that four sampling locations (V01, V08, V06 and V05) have been decommissioned for the winter due to inaccessibility.

Table 1: LNGC's Passive NO_2 Monitoring Network

Site	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Lakelse Lake A04	527457	6025573	2.2
V01	524757	6017435	2.1
KHV-2	523357	5980636	2.1
KHV-1	522919	5980606	2.1
V10B	519425	5984090	2.1
V12	517790	5977294	2.0
V08	521425	5994249	2.0
V06	520970	5996240	2.0
V05	520457	5999250	2.0
Kitimat Industrial	520424	5990356	2.1

Tetra Tech Canada Inc.
Unit 2, 4065 Motz Road
Terrace, BC V8G 3N1
Tel 778.309.1605

Site	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Predicted Maximum NO_2	522463	5989506	2.3
Kitimat Riverlodge	521536	5989486	2.2
Kitimat Whitesail	523612	5990998	2.3

The sampling methodology adheres to protocols described in the document '*Standard Operating Procedure (SOP) – Passive Monitoring for Nitrogen Dioxide (NO_2)*', dated March 2024. More information on the sampling methodology can be found in this document.

2.0 AMBIENT CONDITIONS DURING DEPLOYMENT PERIOD

Winds

Winds were dominated by outflows (down-valley, northerly winds) over the period November 29 through December 30, typical of the winter pattern for the Kitimat Valley. Inflow (southerly) winds were of lower speeds than observed on previous months. Frequent periods of foggy, stagnant conditions occurred throughout the month accompanied with drizzle/freezing rain/snow where winds were generally quite calm. Figure 1 shows wind roses for hourly wind observations during the December sampler deployment period at ENV-AQN Kitimat Whitesail and Terrace Airport.

Precipitation

240 mm of precipitation was recorded between November 29 through December 30 at ECCC Kitimat Forest Avenue. 103 mm of precipitation was recorded at ECCC Terrace A. Comparing to precipitation normals, these totals are below average for December for the region.

Air Quality – Nitrogen Dioxide

NO_2 is continuously measured and reported on an hourly basis at ENV-AQN station Kitimat Whitesail. Over the December deployment period (November 29 – December 30), the maximum 1-hour NO_2 concentration was 10.5 ppb, or 17.5% of the British Columbia Air Quality Objective (BCAQO) of 60 ppb. The 30-day average NO_2 concentration, taken as the average of all available one-hour measurements during the sampling period, was 1.7 ppb. While there is no 30-day BCAQO, the annual criterion is 17 ppb, which provides another indicator of ambient air quality with respect to NO_2. There were 43 hours of missing data out of 725 hours, or 94% data completeness. Figure 2 plots the 1-hour NO_2 concentration over the sampling period.

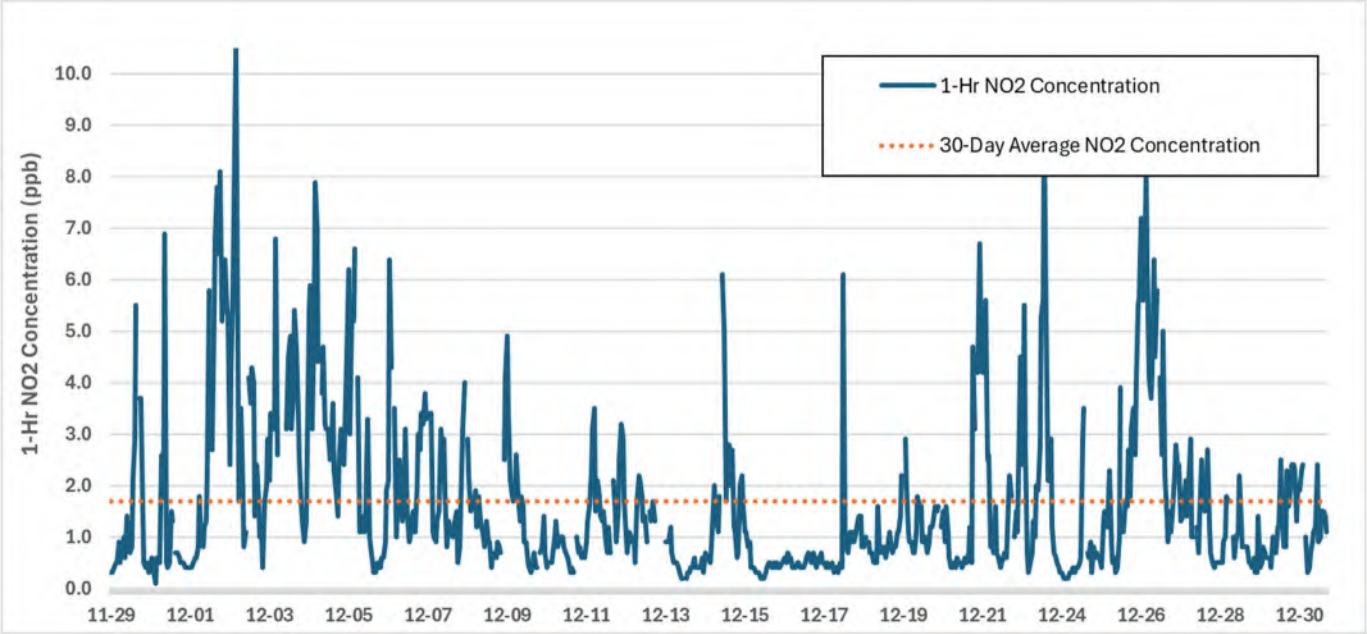

Figure 2: 1-Hr NO_2 Readings at ENV-AQN Kitimat Whitesail (November 29 - December 30)

3.0 PASSIVE MONITORING RESULTS

The passively measured 30-day NO_2 concentrations are listed for each site in Table 2. The 30-day NO_2 concentration based on continuous measurement is also listed for Kitimat Whitesail, as a measure of validation of the sampling results. Each site's housing utilizes two samplers for statistical redundancy, the mean of which is used as the overall measurement.

The measured 30-day NO_2 concentrations are shown through the study area on Figure 1. The highest readings occurred in town, where combustion sources of NOx are more plentiful, also located north of the LNGC facility. Specifically, the highest readings in December 2024 were along the west side of town at the Predicted Maximum NO_2 location[1]. Overall, December concentrations in Kitimat where slightly higher than the summer months, continuing the trend that was observed in October and November. Although the measured NO_2 concentrations are well below representative (e.g. annual) criteria, this trend can likely be attributed to seasonality, which includes meteorological conditions associated with poorer atmospheric mixing as well as an increase in community-based sources of combustion such as heating.

Bureau Veritas Passive Sampling Laboratory Report is attached in Appendix B.

[1] Sampling station 'Predicted Maximum NO2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum ground level concentration of NO2 inclusive of facility emissions within Kitimat

Table 2: Passive NO_2 Sampling Results (December 2024)

Site	Start	End	Duration (Days)	30-day NO_2 Concentration (ppb)			St. Dev	30 Day NO_2
				Sample 1	Sample 2	Mean		
Lakelse Lake A04	11/29/2024 9:20	12/30/2024 8:55	30.0	0.2	0.2	0.2	0	
**V01	Decommissioned for winter.							
KHV-2	11/29/2024 11:35	12/30/2024 10:15	31.0	0.2	0.2	0.2	0	
KHV-1	11/29/2024 11:30	12/30/2024 10:10	31.0	0.7	0.6	0.7	0.1	
V10B	11/29/2024 12:10	12/30/2024 10:45	31.0	1.7	1.9	1.8	0.1	
V12	11/29/2024 12:30	12/30/2024 11:00	31.0	1.6	1.5	1.6	0.1	
**V08	Decommissioned for winter.							
**V06	Decommissioned for winter.							
**V05	Decommissioned for winter.							
Kitimat Industrial (V14)	11/29/2024 14:10	12/30/2024 11:25	30.9	1.3	1.5	1.4	0.1	
*Predicted Maximum NO_2	11/29/2024 14:35	12/30/2024 11:50	30.9	2.2	2.1	2.2	0.1	
Kitimat Riverlodge	11/29/2024 14:25	12/30/2024 11:40	30.9	1.9	1.7	1.8	0.1	
Kitimat Whitesail	11/29/2024 14:50	12/30/2024 12:00	30.9	1.2	1.1	1.2	0.1	1.7

*Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum ground level concentration of NO_2 inclusive of facility emissions within Kitimat.

**V01, V05, V06 and V08 locations have been decommissioned for the winter period due to inaccessibility.

4.0 SAMPLING PROGRAM ANOMOLIES

The following sampling program anomalies were noted for the month of December:

- Passive samplers V01, V05, V06 and V08 were decommissioned at the end of the November deployment period for the duration of the winter as they are located on a forest service road that is inaccessible during the winter months.
- Winds observed at meteorological and air quality stations through the Kitimat and Terrace region had periods of obvious snow/ice affected data (prolonged periods of reported 0 m/s wind speed when air temperatures were near or slightly below 0ºC during precipitation events). The wind data is used by Bureau Veritas as an adjustment in the determination of analysis if the average wind speed for the month is below 1.3 m/s. Ice affected data was either supplemented using spatial substitution where possible, or removed where no suitable substitutions were available. Note that there were no instances of a wind speed reported to Bureau Veritas for any of the passive stations below the low wind threshold of the analytical method.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01

Prepared by:
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Environment & Water Practice
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FILE: 704-ENW.GENV03699-01
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FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01

2025-01-15

Reviewed by:
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PERMIT TO PRACTICE
TETRA TECH CANADA INC.
PERMIT NUMBER: 1001972

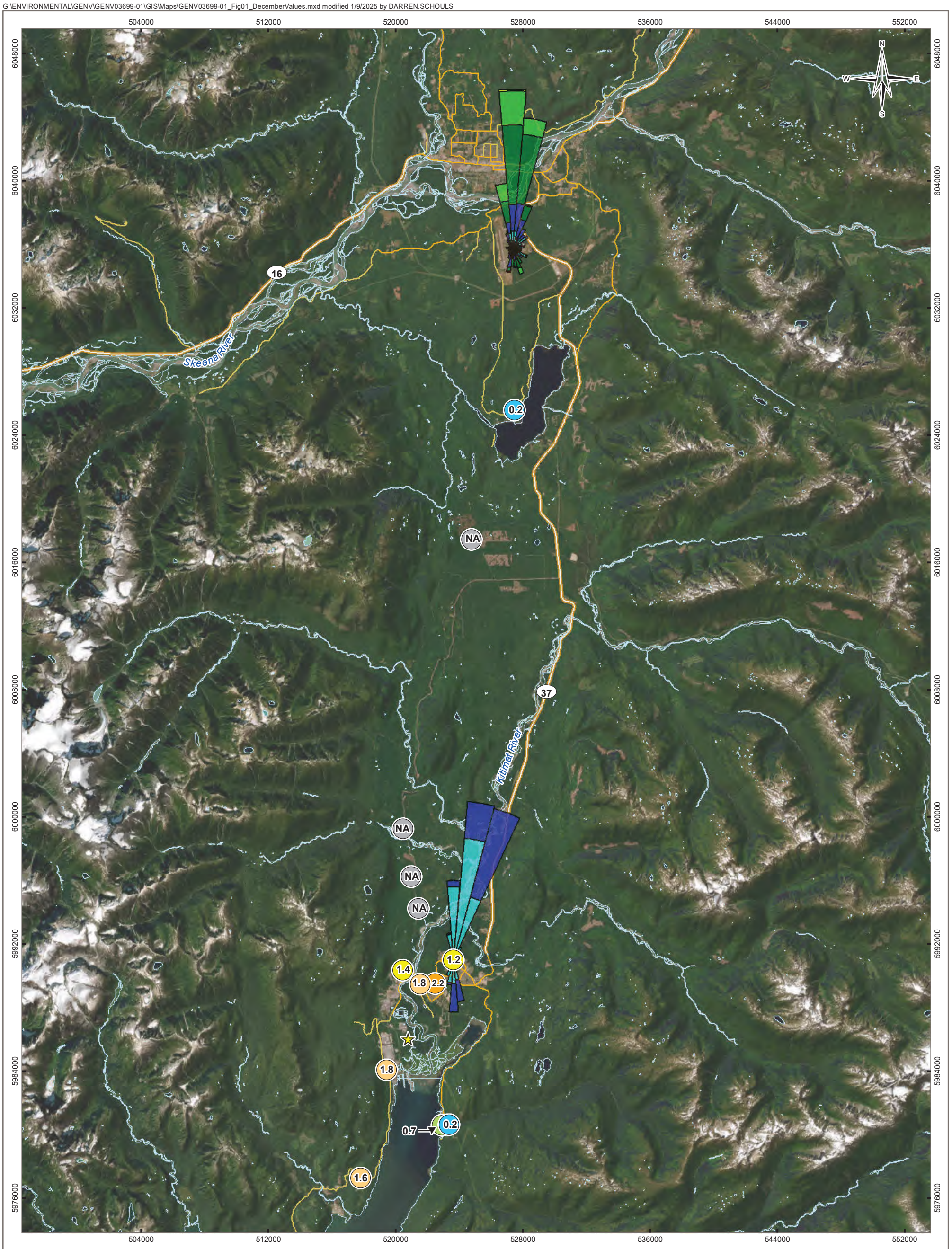
/sy

Attachments Figure 1. Mean 30-day NO_2 Concentration December 2024
Appendix A – Limitations on the Use of this Document
Appendix B – Bureau Veritas Passive Sampling Laboratory Report

FIGURES

Figure 1 Mean 30-day NO_2 Concentration December 2024

G:\ENVIRONMENTAL\GENV\GENV03699-01\GIS\Maps\GENV03699-01_Fig01_DecemberValues.mxd modified 1/9/2025 by DARREN.SCHOULS



LEGEND

Mean 30-Day NO_2 Concentration (ppb)

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- 2.0 - 2.5
- Decommissioned

- LNGC Site
- Highway
- Main Road
- Local Road
- Watercourse/Waterbody

Rose Plot - Wind (m/s)

- 1 - 3
- 3 - 6
- 6 - 9
- 9 - 12
- 12 - 15

NOTES
Base data source:
Imagery from ESRI; Maxar
CanVec 1:250,000 (2019)

STATUS
ISSUED FOR USE

LNGC NO2 PASSIVE MONITORING

Mean 30-day NO2 Concentration December 2024

PROJECTION UTM Zone 9	**DATUM** NAD83	**CLIENT** Haisla Triton Ltd.
Scale: 1:225,000 — 4 2 0 4 — Kilometres		TETRA TECH
FILE NO. GENV03699-01_Fig01_DecemberValues.mxd		
OFFICE Tt-VANC	**DWN** DS / **CKD** MRB / **APVD** TM / **REV** 0	Figure 1
DATE January 9, 2025	**PROJECT NO.** ENW.GENV03699-01	

APPENDIX A

LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

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APPENDIX B

BUREAU VERITAS PASSIVE SAMPLING LABORATORY REPORT

Your P.O. #: 704-ENW.GENV03699-01
Your Project #: NO2 MONITORING
Site Location: 2024/11/29-2024/12/30

Attention: Travis Miguez

Tetra Tech Canada Inc.
#2 4065 Motz Road
Terrace, BC
CANADA V8G 3N1

Report Date: 2025/01/08
Report #: R3609102
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C500438
Received: 2025/01/03, 08:00

Sample Matrix: Air
Samples Received: 18

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	18	2025/01/06	2025/01/07	PTC SOP-00148	Passive NO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500

==========

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Bureau Veritas Job #: C500438
Report Date: 2025/01/08

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/11/29-2024/12/30
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DCS355	DCS356	DCS357	DCS358	DCS359		
Sampling Date		2024/11/29 09:20	2024/11/29 09:20	2024/11/29 11:30	2024/11/29 11:30	2024/11/29 11:35		
	UNITS	#1 LAKELSE LAKE	#2 LAKELSE LAKE-DUP	#3 KHV-1	#4 KHV-1-DUP	#5 KHV-2	RDL	QC Batch
Passive Monitoring								
Calculated NO2	ppb	0.2	0.2	0.7	0.6	0.2	0.1	B652667
RDL = Reportable Detection Limit								

Bureau Veritas ID		DCS360	DCS361	DCS362	DCS363	DCS364	DCS365		
Sampling Date		2024/11/29 11:35	2024/11/29 12:10	2024/11/29 12:10	2024/11/29 12:30	2024/11/29 12:30	2024/11/29 14:10		
	UNITS	#6 KHV-2-DUP	#7 V10B	#8 V10B-DUP	#9 V12	#10 V12-DUP	#11 Kitimat Industrial	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.2	1.7	1.9	1.6	1.5	1.3	0.1	B652667
RDL = Reportable Detection Limit									

Bureau Veritas ID		DCS366	DCS367	DCS368	DCS369		
Sampling Date		2024/11/29 14:10	2024/11/29 14:25	2024/11/29 14:25	2024/11/29 14:35		
	UNITS	#12Kitimat Industrial-DUP	#13 Kitimat Riverlodge	#14Kitimat Riverlodge -DUP	#15 Predicted Max	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	1.5	1.9	1.7	2.2	0.1	B652667
RDL = Reportable Detection Limit							

Bureau Veritas ID		DCS370	DCS371	DCS372		
Sampling Date		2024/11/29 14:35	2024/11/29 14:50	2024/11/29 14:50		
	UNITS	#16 Predicted Max-DUP	#17 Kitimat Whitesail	#18 Kitimat Whitesail-DUP	RDL	QC Batch
Passive Monitoring						
Calculated NO2	ppb	2.1	1.2	1.1	0.1	B652667
RDL = Reportable Detection Limit						

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C500438
Report Date: 2025/01/08

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/11/29-2024/12/30
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C500438
Report Date: 2025/01/08

QUALITY ASSURANCE REPORT

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/11/29-2024/12/30
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

			Spiked Blank		Method Blank	
QC Batch	**Parameter**	**Date**	**% Recovery**	**QC Limits**	**Value**	**UNITS**
B652667	Calculated NO2		99	90 - 110	<0.1	ppb

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C500438
Report Date: 2025/01/08

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/11/29-2024/12/30
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Steven Gloux, Senior Analyst

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Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

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Joint venture companies

Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Monthly Report (January 2025)

Document Number	L001-09800-HE-7180-4691
DCAF Control ID	N/A
Document Revision	A
Document Status	Issued for Information
Discipline Document Type	HE7180 – Other Report
Author Organization	JFJV
Revision Date	26-Feb-2025
Export Control	Not Controlled – No Disclosure of Technology
Security Classification	Restricted
Approving Organization	JFJV

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REVISION CONTROL PAGE

Revision Status				Approving Organization		
Rev	**Date**	**Document Status**	**Author**	**Reviewer**	**Approver**	**Review Code**
A	26-Feb-2025	Issued for Information	J. Forrest S. Sarfraz T. Siddiqui	K. Hart R. Kabganian J. Forrest	K. Hart B. Ashton	N/A

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1. Executive Summary

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. The BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., for the discharge of air contaminants to the environment from the LNG Facility.

Permit PA-110588 requires a monthly report to be submitted to the BCER that includes data/information on:

- Fuel Gas Use (for Commissioning only)
- Continuous Emissions Monitoring System (for Operations only)
- Flaring Activities
- Ambient Air Monitoring Evaluation
- Facility sulphur dioxide (SO_2) Emissions

Herein is the monthly report for January 2025. A summary of the findings for this reporting period is as follows:

- There were no instances of permit non-compliances during the reporting period.
- There were no ambient air quality concentrations of nitrogen dixoide (NO_2), SO_2 or respirable particulate matter ($PM_{2.5}$) measured in excess of the BC ambient air quality objective (BCAAQO) metrics at the three continuous ambient air quality monitoring stations identified in Permit PA-110588 (Kitamaat Village (Kitimat Haisla Village); Kitimat Riverlodge and Kitimat Whitesail).
- There were air emissions from four authorised discharge sources defined in Sections 2.1 to 2.7 of Permit PA-110588: warm/wet flare; cold/dry flare, liquid burner, and the gas turbine engine in Train 1, String 1.

The warm/wet flare was the largest source of air emissions, as all the fuel gas introduced into the facility is used for testing purposes during Commissioning, rather than for producing LNG. The maximum hourly cumulative SO_2 rate in January 2025 was calculated to be 0.26 kg/hour.

2. Overview

2.1. Project Background

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia, Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

2.2. Purpose

On July 15, 2024, the BCER issued WDA discharge permit PA-110588 to LNG Canada Development Inc., under the provisions of the BC *Environmental Management Act*, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Permit PA-110588 applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.2 of Permit PA-110588 (Monthly Reporting) for January 2025.

Refer to Appendix B for a list of all monthly reports that have been issued under Permit PA-110588.

2.3. LNG Facility Status

On the afternoon of August 31, 2024, fuel gas was introduced into Unit 1000 (Inlet Facilities) for the first time from the Coastal Gas Link (CGL) pipeline, commencing the pressurization of piping and the startup fuel gas heater. The introduction of fuel gas into the fuel gas headers down to the flare area, and the first supply of fuel gas to the pilot on the warm/wet flare occurred on September 1, 2024.

During January 2025, discharges of air contaminants occurred from the following authorized works:

- One (1) gas turbine (in Train 1, String 1)
- One (1) warm/wet flare
- One (1) cold/dry flare
- Liquid burner

Under Permit PA-110588, the “Commissioning” phase is defined as “that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.” Operations is the period of time which follows Commissioning. Therefore, “Commissioning”, under Permit PA-110588, commenced on September 1, 2024. The first cargo has not yet been shipped from LNG Train 1.

The Initial Performance Period (IPP) did not commence during January 2025 (which is defined as the period that "*commences upon the completion of the initial performance test for LNG Train 1"*).

3. Fuel Gas Use (Commissioning Only) (Condition 10.2.1)

3.1. Permit Condition

Under Condition 10.2.1, the monthly report shall identify and provide a summary of fuel gas use at the facility during Commissioning. The monthly report shall include the following information:

a. the daily volume of fuel gas combusted and vented;

b. the daily mass emissions of nitrogen oxides (NOx), sulphur oxides (SOx), carbon monoxide (CO), particulate matter with an aerodynamic diameter smaller than 2.5 micrometers (PM2.5), volatile organic compounds (VOCs) and total hydrocarbons (HC-T), for the authorized works in Section 2.1 and 2.2; and

c. the quantification method (under Section 9 of Permit PA-110588) and representative calculations.

3.2. Data and Assessment

Appendix C contains the summary of the daily volume of fuel gas combusted and flared as well as the daily mass emissions of NO_X, SO_X, CO, $PM_{2.5}$, VOCs, and HC-T from the gas turbine and AGI (which is Section 2.1 and 2.2 of Permit PA-110588 respectively) in January 2025.

The basis for this assessment is as follows:

- The daily volume of fuel gas combusted and flared at the LNG Facility is based on the daily volume of fuel gas introduced into the LNG facility, as all this fuel gas is used for testing purposes during Commissioning; rather than for producing LNG. This is a conservative approach, and does not account for the time lag between pressurizing systems with fuel gas to it being combusted or flared. The data for this report was obtained from the Kitimat Metering Station (KMS) using the CGL meter.
- The daily mass emissions from the gas turbine engine reported herein are calculated based on published emission factors for stationary gas turbines (refer to Table 1); and therefore are not a reflection of the actual measured emissions from the gas turbines installed on site (that information will be available in Operations, once the continuous emissions monitoring system (CEMS) has undergone the relative accuacy test audit (RATA)).
- As there was no fuel gas combusted in the AGIs in the reporting period, the daily mass emissions from these systems are shown with “zero” values in Appendix C.

Table 1 Natural Gas-Fired Turbine Emission Factors

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.099	lb/MMBtu	D	
SO_x	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.94S	lb/MMBtu	B	Where “S” is the percent sulphur in fuel. “S” to be informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014). If “S” is not available, the AP-42 states to use 3.4 E-03 lb/MMBtu for natural gas turbines (0.0034).
CO	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.015	lb/MMBtu	D	

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
PM2.5	USEPA AP-42: Table 3.1-2a (uncontrolled; condensable)	0.0047	lb/MMBtu	C	
VOC	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.0021	lb/MMBtu	D	AP-42 states that VOC emissions are assumed equal to the sum of organic emissions.
HC-T	Engineering Estimate	16.1 x % operating load	g/s	N/A	There is no AP-42 emissions factor for total hydrocarbons. The permit application used a basis of 16.1 g/s per gas turbine during Operations; therefore this value will be used and factored down based on the estimated operating load for the turbine.

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 3.1 is applicable for Stationary Gas Turbines.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.

4. CEMS Zero and Span Reporting (Condition 10.2.2)

4.1. Permit Condition

Under Condition 10.2.2, during Operations, after the completion of the initial CEMS performance evaluation, the monthly report shall include a summary of all CEMS out of control calibration zero and span events that occurred during the month.

4.2. Data and Assessment

As Operations has not yet commenced, there is no CEMS zero and span reporting for this month.

5. CEMS Reporting (Condition 10.2.3)

5.1. Permit Condition

Under Condition 10.2.3, during Operations, after the completion of the initial CEMS performance evaluation, the Permittee shall provide a summary of CEMS data collected during the month.

5.2. Data and Assessment

As Operations has not yet commenced, there is no CEMS reporting for this month.

6. Flaring Activity Reporting (Condition 10.2.4)

6.1. Permit Condition

Under Condition 10.2.4, a summary of all flaring activity carried out during the month is to be included in the monthly report. The monthly report shall include the following information:

a. identification of the flare source;

b. description of the type of process gas sent to flare;

c. the volume of gas sent to the flare during each event;

d. the reason for the flaring event;

e. any external notifications sent out, if applicable;

f. the (i) daily and (ii) monthly volume of gas being flared for each source; and

g. the (i) daily and (ii) monthly contaminant emission totals for each source, parameters include NO_x, CO, $PM_{2.5}$, SO_x, VOCs, and HC-T.

h. the quantification method (under Section 9) and representative calculations

6.2. Data and Assessment

In Permit PA-110588, flaring activities are described as either a routine flaring event (continuous) or a non-routine flaring event (intermittent). Routine flaring discharges include the continuous flare pilots, which are supplied by fuel gas to provide a continuous ignition source so that any gas sent to the flare as a result of upset conditions ("non-routine flaring") is immediately combusted. The permit application to support Permit PA-110588 also described the other small sources of process gas that are continuously sent to the flare, including compressor seal gas, analyzer sample returns and passing valves.

Process gas refers to the natural gas stream intended for LNG production; the incoming fuel gas stream from Coastal Gas Link that undergoes several treatment stages (acid gas removal, pre-cooling, and finally, liquefaction) prior to being exported as LNG.

Appendix D contains the flaring activities tables, as follows:

- Table D-1: Flaring Events Table
- Table D-2: Warm/Wet Flare Volume and Emissions Summary
- Table D-3: Cold/Dry Flare Volume and Emissions Summary
- Table D-4: Storage and Loading Flare Volume and Emissions Summary
- Table D-5: Spare Flare Volume and Emissions Summary
- Table D-6: Liquid Burner Volume and Emissions Summary

Sample calculations are also provided in Appendix D (Exhibit D-1). The basis for this assessment is as follows:

- The daily volume of gas flared is sourced from the flow meters upstream of the applicable flare. In cases where the flow is below the detection limit of the flow meters, the sum of flow from upstream flow meters is used.
- The daily mass emissions from each flare source reported herein are calcuated based on published emission factors for industrial flares (refer to Table 2), except for SO_X, which is calculated based on a mass balance and assumed destruction efficiency.

- During this reporting month, the storage and loading flare and spare flare were not used, therefore shown with "zero" values for emissions.

Table 2: Emission Factors used for the Flare System

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.12	lb/MMBtu	B	Based on an average smoking flare (soot in concentration values: 177 ug/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from ug/L to lb/MMBtu is documented in the "Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015", issued to USEPA by RTI International.

7. Permit Contravention (Condition 10.2.5)

7.1. Permit Condition

Under Condition 10.2.5, a summary of all instances of permit non-compliances are to be included in the monthly report, including a description of the event (date, time, circumstances), a summary of the investigation findings, the completed and ongoing actions taken in response to the non-compliance event, and the date of self-disclosure notifications to the BCER.

7.2. Assessment

There were no instances of permit non-compliances during the reporting period.

8. Pollution Control Technologies (Condition 10.2.6)

8.1. Permit Condition

Under Condition 10.2.6, a discussion of any operational or performance issues or significant maintenance activities with any pollution control technologies of the authorized works and equipment required by the permit is to be included in the monthly report.

The pollution control technologies identified in the permit application supporting Permit PA-110588 were the:

- Dry low emissions combustor optimization system in the gas turbines (dry low NOx burners); and
- Catalysts in the WHRUs, to convert CO in the exhaust gas to carbon dioxide.

8.2. Assessment

There were no instances of operational or performance issues, or significant maintenance activities with the pollution control technologies within the reporting period, given Operations has not yet commenced.

9. Ambient Air Monitoring Evaluation (Commissioning Only) (Condition 10.2.7)

9.1. Permit Condition

Under Condition 10.2.7, the following information for nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and $PM_{2.5}$ from three continuous ambient air quality monitoring stations (Kitamaat Village (Kitimat Haisla Village) (Site 1); Kitimat Riverlodge (Site 2) and Kitimat Whitesail) are to be included in the monthly report during Commissioning where information is publicly available:

a. a comparison of the measured ambient air concentrations at each ambient air monitoring stations to the applicable numerical metrics of the BC ambient air quality objectives (BCAAQO);

b. (i) a description of any measured ambient air concentrations in excess of the numerical metrics of the BCAAQO, if applicable, (ii) a description of any known contributing factors from authorized works, and (iii) a description of action (if any) taken by the Permittee.

The monthly report shall also include the time series plot of the hourly average ambient air concentration of ozone (O_3) data from these stations.

9.2. Data and Assessment

Data from continuous ambient air quality monitoring stations in Kitimat are publically available via the BC Ministry of Environment and Climate Change Strategy, at: Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

The publically available data for NO_2, SO_2 and $PM_{2.5}$ at the three continuous ambient air quality monitoring stations are provided in graphs in Appendix E; the graphs also contain the applicable BCAAQO. The time series plot for the hourly average ambient air concentration of O_3 is also provided in Appendix E.

There were no ambient air quality concentrations of NO_2, SO_2 and $PM_{2.5}$ measured in excess of the BCAAQO metrics in the reporting period.

10. Facility SO_2 Emission Limit (Condition 10.2.8)

10.1. Permit Condition

Under Condition 10.2.8, for all authorized sources in Sections 2.1 to 2.7, for each day of the month, the maximum hourly cumulative SO_2 discharge rate is to be provided in the monthly report, including the percentage breakdown of the sources contributing to the maximum discharge rate of each day.

10.2. Data and Assessment

Appendix F contains the cumulative SO_2 discharge rate from the authorized sources in Permit PA-110588 Section 2.1 to 2.7 (refer to Section 2.2), including the percentage breakdown of the sources contributing to the maximum discharge rate shown for each day.

The representative calculations for SO_2 are provided in Appendix C for the gas turbine, and Appendix D for the flare system.

11. References

- BC Ministry of Environment and Climate Change Strategy, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca), accessed February 3, 2025.

Appendix A Abbreviations

AGI	Acid Gas Incinerator
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
CGL	Coastal Gas Link (Pipeline)
CO	Carbon monoxide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
JFJV	JGC Fluor BC LNG Joint Venture
KMS	Kitimat Metering Station
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
VOC	Volatile Organic Compound
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit

µg/m^3	micrograms per cubic meter

Appendix B Previous Monthly Reports Issued Under PA-110588

Month	Document #	Date Issued
August 2024	L001-09800-HE-7180-4611	04-Sep-2024
September 2024	L001-09800-HE-7180-4612	22-Oct-2024; Revised 03-Feb-2025 (Rev B)
October 2024	L001-09800-HE-7180-4613	26-Nov-2024; Revised 03-Feb-2025 (Rev B)
November 2024	L001-09800-HE-7180-4614	16-Dec-2025; Revised 03-Feb-2025 (Rev B)
December 2024	L001-09800-HE-7180-4684	23-Jan-2025
January 2025	L001-09800-HE-7180-4691	26-Feb-2025

Appendix C Fuel Gas Use During Commissioning (Condition 10.2.1)

There was no LNG production that occurred in this period. For the month of January, all daily fuel gas volumes were obtained from the KMS (Tag: KITSL-V1P.curval) under atmospheric pressure (Pressure = 1 atm) (refer to Table C-1). The fuel volumes below were corrected to 20°C.

Table C-1: Fuel Gas Use During Commissioning

Date	Volume of Fuel Gas Introduced to LNG Facility (m^3/d)*
01-Jan-2025	232,381
02-Jan-2025	238,763
03-Jan-2025	430,469
04-Jan-2025	435,011
05-Jan-2025	428,599
06-Jan-2025	400,713
07-Jan-2025	260,497
08-Jan-2025	244,765
09-Jan-2025	242,124
10-Jan-2025	238,562
11-Jan-2025	238,105
12-Jan-2025	248,147
13-Jan-2025	171,265
14-Jan-2025	165,245
15-Jan-2025	168,310
16-Jan-2025	179,859
17-Jan-2025	176,361
18-Jan-2025	177,930
19-Jan-2025	206,218
20-Jan-2025	195,363
21-Jan-2025	195,966
22-Jan-2025	370,901
23-Jan-2025	199,086
24-Jan-2025	235,266
25-Jan-2025	288,627
26-Jan-2025	245,142
27-Jan-2025	211,389
28-Jan-2025	260,374
29-Jan-2025	380,075
30-Jan-2025	490,072
31-Jan-2025	625,701
Monthly Total	**8,581,286**

* Individual and final totals may be subject to rounding adjustments

The LMS100 Gas Turbine in Train 1, String 1, achieved two significant milestones in January 2025:

- A Seal Break-In Test was successfully conducted on the gas turbine, with a notable achievement of reaching a maximum load of 80 MW. This marked a critical step in validating the performance of the gas turbine.
- The fuel volumes below (Table C-2) were obtained by dividing the values from the mass flow meter (CA:KIT:114FI1601.PV) by the fuel gas density obtained from KITSL-SG.CURVAL (KMS).
- The venting of fuel gas associated with the gas turbine start up activities during this period is accounted for in Table C-1.

Table C-2: Fuel Gas Use During Commissioning – Gas Turbines

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Jan-2025	-	-	-	-	-	-	-
02-Jan-2025	-	-	-	-	-	-	-
03-Jan-2025	-	-	-	-	-	-	-
04-Jan-2025	-	-	-	-	-	-	-
05-Jan-2025	-	-	-	-	-	-	-
06-Jan-2025	-	-	-	-	-	-	-
07-Jan-2025	-	-	-	-	-	-	-
08-Jan-2025	-	-	-	-	-	-	-
09-Jan-2025	-	-	-	-	-	-	-
10-Jan-2025	-	-	-	-	-	-	-
11-Jan-2025	-	-	-	-	-	-	-
12-Jan-2025	-	-	-	-	-	-	-
13-Jan-2025	-	-	-	-	-	-	-
14-Jan-2025	-	-	-	-	-	-	-
15-Jan-2025	-	-	-	-	-	-	-
16-Jan-2025	-	-	-	-	-	-	-
17-Jan-2025	-	-	-	-	-	-	-
18-Jan-2025	-	-	-	-	-	-	-
19-Jan-2025	-	-	-	-	-	-	-
20-Jan-2025	-	-	-	-	-	-	-
21-Jan-2025	-	-	-	-	-	-	-
22-Jan-2025	-	-	-	-	-	-	-
23-Jan-2025	-	-	-	-	-	-	-
24-Jan-2025	5,076	8.8	1.3	0.4	0.04	0.2	1.4
25-Jan-2025	6,302	10.9	1.7	0.5	0.1	0.2	1.5
26-Jan-2025	6,736	11.7	1.8	0.6	0.1	0.2	1.7
27-Jan-2025	7,558	13.1	2.0	0.6	0.1	0.3	3.2
28-Jan-2025	37,115	64.3	9.7	3.1	0.3	1.4	44
29-Jan-2025	172,180	298.4	45.2	14.2	1.5	6.3	239
30-Jan-2025	306,626	531.3	80.5	25.2	2.6	11.3	544
31-Jan-2025	365,718	633.7	96.0	30.1	3.1	13.4	730
Total	**907,311**	**1,572**	**238**	**74.7**	**7.7**	**33**	**1,566**

* Individual and final totals may be subject to rounding adjustments

There was no combustion of fuel gas in the AGIs during the reporting period (refer to Table C-3).

Table C-3: Fuel Gas Use During Commissioning – Acid Gas Incinerator

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Jan-2025	-	-	-	-	-	-	-
02-Jan-2025	-	-	-	-	-	-	-
03-Jan-2025	-	-	-	-	-	-	-
04-Jan-2025	-	-	-	-	-	-	-
05-Jan-2025	-	-	-	-	-	-	-
06-Jan-2025	-	-	-	-	-	-	-
07-Jan-2025	-	-	-	-	-	-	-
08-Jan-2025	-	-	-	-	-	-	-
09-Jan-2025	-	-	-	-	-	-	-
10-Jan-2025	-	-	-	-	-	-	-
11-Jan-2025	-	-	-	-	-	-	-
12-Jan-2025	-	-	-	-	-	-	-
13-Jan-2025	-	-	-	-	-	-	-
14-Jan-2025	-	-	-	-	-	-	-
15-Jan-2025	-	-	-	-	-	-	-
16-Jan-2025	-	-	-	-	-	-	-
17-Jan-2025	-	-	-	-	-	-	-
18-Jan-2025	-	-	-	-	-	-	-
19-Jan-2025	-	-	-	-	-	-	-
20-Jan-2025	-	-	-	-	-	-	-
21-Jan-2025	-	-	-	-	-	-	-
22-Jan-2025	-	-	-	-	-	-	-
23-Jan-2025	-	-	-	-	-	-	-
24-Jan-2025	-	-	-	-	-	-	-
25-Jan-2025	-	-	-	-	-	-	-
26-Jan-2025	-	-	-	-	-	-	-
27-Jan-2025	-	-	-	-	-	-	-
28-Jan-2025	-	-	-	-	-	-	-
29-Jan-2025	-	-	-	-	-	-	-
30-Jan-2025	-	-	-	-	-	-	-
31-Jan-2025	-	-	-	-	-	-	-
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Exhibit C-1: Sample Emission Calculations – Gas Turbine

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hour (h) to 1 day (d)
    - 10,000 parts per millon (ppm) in one percent

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable sources of data from the meters include:
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - Tag CA:KIT:114FI1601.PV: LNG Train 1, String 1 (1KT-1460); fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:114BHS1423.PV: Gas Turbine Operating Load (MW)
    - Emission factors: Refer to Table 1 within the report.

The sample calcuation below is based on the data from January 24, 2025.

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:114FI1601.PV is converted to volume flow rate using the fluid density of 0.748162 kg/m^3.

- Mass flow rate = 3,797 kg/d

Volume flow rate (m^3/d)

= 3,797 / 0.748162 ≈ 5,076 m^3/d

Step 2: Emission Calculation – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using NOx for the example; NOx Mass Emission (kg/d)

= 3,797 x 40.72 x 1/ 0.748162 x 1/1000 x 0.9478 x 0.099 x 0.4535

≈ 8.8 kg/d

For SO_2, 0.94S was used as the emission factor - where "S" is the percent sulphur in fuel (refer to Table 1). "S" is based on the total sulphur content of the fuel gas (from the laboratory analysis) given fuel gas was used to fuel the gas turbine this month (refer to Appendix D, Table D-7).

SOx Mass Emission (kg/d)

= 3,797 x 40.72 x 1/ 0.748162 x 1/1000 x 0.9478 x 0.94*(0.000516) x 0.4535

≈ 0.04 kg

Emission Calculation Basis – when using Engineering Estimates (only applies to HC-T)

Formula: HC-T Mass Emission (kg/h)

$$= 16.1 \frac{\text{g}}{\text{s}} \times \frac{\text{Operating load (\%)}}{100} \times \frac{1\ \text{kg}}{1000\ \text{g}} \times \frac{3600\ \text{s}}{1\ \text{h}}$$

Using January 24, 2025, for the example, where the gas turbine operating load of 0.11 MW was obtained from CA:KIT:114BHS1423.PV. For the purposes of this calculation, the maximum operating load of the LMS100 is approximately 110 MW.

Operating load (%)

= (0.11 MW / 110 MW) x 100 = 0.101%

HC-T Mass Emission (kg/h)

= 16.1 x 0.101/100 x 1/1000 x 3600/1

= 0.058 kg/h

HC-T Mass Emission (kg/d)

= 0.058 x 24

≈ 1.4 kg/d

Appendix D Flaring Activity (Condition 10.2.4)

Table D-1: Flaring Event Overview

Flare	Event Type	Event Date & Time			Description	Volume of Gas to Flare Per Event (m^3/month)	External Notifications Undertaken
		Start	End	Duration			
Warm/Wet	Routine	01-Jan-2025	31-Jan-2025	Continuous	Pilot and purge gas.	6,995	N/A
Warm/Wet	Non-Routine	01-Jan-2025	31-Jan-2025	Continuous	Assist gas and supporting start-up activities[1]	7,622,230	January 15, 2025
Cold/Dry	Routine	01-Jan-2025	31-Jan-2025	Continuous	Pilot, and fuel gas purges to support start-up activities	26,963	N/A
Storage and Loading	N/A	N/A	N/A	N/A	Not Used	N/A	N/A
Spare	N/A	N/A	N/A	N/A	Not Used	N/A	N/A
Liquid Burner	Routine	01-Jan-2025	31-Jan-2025	Continuous	Pilot	15,740	N/A

Notes:

1. In this reporting period, flaring is undertaken to support commissioning and start-up activities; in accordance with Leave(s) to Operate from the BC Energy Regulator. This fuel gas is not considered process gas.

The data for the warm/wet flare was derived from the KMS CGL inlet gas meter (refer to Table C-1). The following volumes were subtracted because they were measured and reported separately:

- The pilot for the cold dry flare (refer to Table D-3);
- The fuel gas purges to the cold dry flare (refer to Table D-3).
- The pilot for the liquid burner (refer to Table D-6);
- The fuel gas use into the gas turbine (refer to Table C-2) and associated venting from authorized vents from Gas Turbine Train 1 String 1

The fuel volumes below were corrected to 20°C.

Table D-2: Flaring Event – Warm/Wet Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Jan-2025	230,071	275	1,128	437	0.7	2,402	510
02-Jan-2025	236,435	283	1,159	449	0.7	2,469	524
03-Jan-2025	428,152	512	2,100	813	1.4	4,470	948
04-Jan-2025	432,711	517	2,122	821	1.4	4,518	958
05-Jan-2025	426,316	510	2,091	809	1.4	4,451	944
06-Jan-2025	398,164	476	1,952	756	1.3	4,156	882
07-Jan-2025	258,370	309	1,266	490	0.8	2,696	572
08-Jan-2025	242,732	290	1,189	460	0.8	2,532	537
09-Jan-2025	239,899	286	1,175	455	0.8	2,501	531
10-Jan-2025	236,334	282	1,157	448	0.7	2,463	522
11-Jan-2025	235,870	281	1,154	447	0.7	2,457	521
12-Jan-2025	245,907	293	1,202	465	0.8	2,560	543
13-Jan-2025	169,047	201	826	320	0.5	1,759	373
14-Jan-2025	164,554	196	804	311	1.3	1,712	363
15-Jan-2025	167,990	200	821	318	1.3	1,747	371
16-Jan-2025	179,174	213	875	339	1.4	1,864	395
17-Jan-2025	175,743	209	858	332	1.4	1,827	388
18-Jan-2025	177,147	211	865	335	1.4	1,842	391
19-Jan-2025	205,420	244	1,003	388	1.6	2,136	453
20-Jan-2025	194,600	232	950	368	1.5	2,023	429
21-Jan-2025	195,258	232	954	369	1.5	2,030	431
22-Jan-2025	370,171	441	1,808	700	2.9	3,848	816
23-Jan-2025	198,387	236	969	375	1.5	2,062	437
24-Jan-2025	229,150	273	1,119	433	1.8	2,382	505
25-Jan-2025	281,268	335	1,373	532	2.2	2,924	620
26-Jan-2025	237,318	282	1,159	449	1.8	2,467	523
27-Jan-2025	202,736	241	990	383	1.6	2,108	447
28-Jan-2025	222,220	264	1,085	420	1.7	2,310	490
29-Jan-2025	206,865	246	1,010	391	1.6	2,151	456
30-Jan-2025	182,345	217	890	345	1.4	1,896	402

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
31-Jan-2025	258,871	308	1,264	489	2.0	2,691	571
Monthly Total	**7,629,225**	**9,095**	**37,318**	**14,447**	**41.7**	**79,454**	**16,853**

* Individual and final totals may be subject to rounding adjustments

For the month of January, the reporting for the cold/dry flare is from the pilot (CA:KIT:062FI0343.PV) and fuel gas purges (CA:KIT:062FI0021.PV and CA:KIT:062FI0022.PV) (refer to Table D-3).

Table D-3: Flaring Event – Cold/Dry Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Jan-2025	1,776	2.12	8.71	3.37	0.006	18.5	3.9
02-Jan-2025	1,782	2.13	8.74	3.38	0.006	18.6	3.9
03-Jan-2025	1,778	2.13	8.72	3.38	0.006	18.6	3.9
04-Jan-2025	1,773	2.12	8.69	3.37	0.006	18.5	3.9
05-Jan-2025	1,768	2.11	8.67	3.36	0.006	18.5	3.9
06-Jan-2025	1,773	2.12	8.69	3.36	0.006	18.5	3.9
07-Jan-2025	1,753	2.09	8.59	3.33	0.006	18.3	3.9
08-Jan-2025	1,734	2.07	8.50	3.29	0.006	18.1	3.8
09-Jan-2025	1,747	2.08	8.55	3.31	0.006	18.2	3.9
10-Jan-2025	1,749	2.09	8.56	3.31	0.006	18.2	3.9
11-Jan-2025	1,753	2.09	8.58	3.32	0.006	18.3	3.9
12-Jan-2025	1,755	2.09	8.58	3.32	0.006	18.3	3.9
13-Jan-2025	1,736	2.07	8.48	3.28	0.006	18.1	3.8
14-Jan-2025	213	0.25	1.04	0.40	0.002	2.2	0.5
15-Jan-2025	211	0.25	1.03	0.40	0.002	2.2	0.5
16-Jan-2025	211	0.25	1.03	0.40	0.002	2.2	0.5
17-Jan-2025	230	0.27	1.12	0.43	0.002	2.4	0.5
18-Jan-2025	241	0.29	1.18	0.46	0.002	2.5	0.5
19-Jan-2025	245	0.29	1.20	0.46	0.002	2.6	0.5
20-Jan-2025	235	0.28	1.15	0.44	0.002	2.4	0.5
21-Jan-2025	218	0.26	1.06	0.41	0.002	2.3	0.5
22-Jan-2025	225	0.27	1.10	0.42	0.002	2.3	0.5
23-Jan-2025	215	0.26	1.05	0.41	0.002	2.2	0.5
24-Jan-2025	221	0.26	1.08	0.42	0.002	2.3	0.5
25-Jan-2025	226	0.27	1.10	0.43	0.002	2.4	0.5
26-Jan-2025	236	0.28	1.15	0.45	0.002	2.5	0.5
27-Jan-2025	237	0.28	1.16	0.45	0.002	2.5	0.5
28-Jan-2025	221	0.26	1.08	0.42	0.002	2.3	0.5
29-Jan-2025	218	0.26	1.06	0.41	0.002	2.3	0.5
30-Jan-2025	240	0.29	1.17	0.45	0.002	2.5	0.5
31-Jan-2025	243	0.29	1.18	0.46	0.002	2.5	0.5
Monthly Total	**26,963**	**32**	**132**	**51**	**0.10**	**281**	**60**

* Individual and final totals may be subject to rounding adjustments

The storage and loading flare was not used in the reporting month (refer to Table D-4).

Table D-4: Flaring Event – Storage and Loading Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Jan-2025	-	-	-	-	-	-	-
02-Jan-2025	-	-	-	-	-	-	-
03-Jan-2025	-	-	-	-	-	-	-
04-Jan-2025	-	-	-	-	-	-	-
05-Jan-2025	-	-	-	-	-	-	-
06-Jan-2025	-	-	-	-	-	-	-
07-Jan-2025	-	-	-	-	-	-	-
08-Jan-2025	-	-	-	-	-	-	-
09-Jan-2025	-	-	-	-	-	-	-
10-Jan-2025	-	-	-	-	-	-	-
11-Jan-2025	-	-	-	-	-	-	-
12-Jan-2025	-	-	-	-	-	-	-
13-Jan-2025	-	-	-	-	-	-	-
14-Jan-2025	-	-	-	-	-	-	-
15-Jan-2025	-	-	-	-	-	-	-
16-Jan-2025	-	-	-	-	-	-	-
17-Jan-2025	-	-	-	-	-	-	-
18-Jan-2025	-	-	-	-	-	-	-
19-Jan-2025	-	-	-	-	-	-	-
20-Jan-2025	-	-	-	-	-	-	-
21-Jan-2025	-	-	-	-	-	-	-
22-Jan-2025	-	-	-	-	-	-	-
23-Jan-2025	-	-	-	-	-	-	-
24-Jan-2025	-	-	-	-	-	-	-
25-Jan-2025	-	-	-	-	-	-	-
26-Jan-2025	-	-	-	-	-	-	-
27-Jan-2025	-	-	-	-	-	-	-
28-Jan-2025	-	-	-	-	-	-	-
29-Jan-2025	-	-	-	-	-	-	-
30-Jan-2025	-	-	-	-	-	-	-
31-Jan-2025	-	-	-	-	-	-	-
Monthly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

The spare flare was not used in the reporting month (refer to Table D-5).

Table D-5: Flaring Event – Spare Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Jan-2025	-	-	-	-	-	-	-
02-Jan-2025	-	-	-	-	-	-	-
03-Jan-2025	-	-	-	-	-	-	-
04-Jan-2025	-	-	-	-	-	-	-
05-Jan-2025	-	-	-	-	-	-	-
06-Jan-2025	-	-	-	-	-	-	-
07-Jan-2025	-	-	-	-	-	-	-
08-Jan-2025	-	-	-	-	-	-	-
09-Jan-2025	-	-	-	-	-	-	-
10-Jan-2025	-	-	-	-	-	-	-
11-Jan-2025	-	-	-	-	-	-	-
12-Jan-2025	-	-	-	-	-	-	-
13-Jan-2025	-	-	-	-	-	-	-
14-Jan-2025	-	-	-	-	-	-	-
15-Jan-2025	-	-	-	-	-	-	-
16-Jan-2025	-	-	-	-	-	-	-
17-Jan-2025	-	-	-	-	-	-	-
18-Jan-2025	-	-	-	-	-	-	-
19-Jan-2025	-	-	-	-	-	-	-
20-Jan-2025	-	-	-	-	-	-	-
21-Jan-2025	-	-	-	-	-	-	-
22-Jan-2025	-	-	-	-	-	-	-
23-Jan-2025	-	-	-	-	-	-	-
24-Jan-2025	-	-	-	-	-	-	-
25-Jan-2025	-	-	-	-	-	-	-
26-Jan-2025	-	-	-	-	-	-	-
27-Jan-2025	-	-	-	-	-	-	-
28-Jan-2025	-	-	-	-	-	-	-
29-Jan-2025	-	-	-	-	-	-	-
30-Jan-2025	-	-	-	-	-	-	-
31-Jan-2025	-	-	-	-	-	-	-
Monthly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

The emissions associated with the liquid burner are from the pilot (refer to Table D-6).

Table D-6: Flaring Event – Liquid Burner Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Jan-2025	534	0.64	2.6	1.01	0.002	5.6	1.2
02-Jan-2025	546	0.65	2.7	1.04	0.002	5.7	1.2
03-Jan-2025	539	0.64	2.6	1.02	0.002	5.6	1.2
04-Jan-2025	528	0.63	2.6	1.00	0.002	5.5	1.2
05-Jan-2025	515	0.62	2.5	0.98	0.002	5.4	1.1
06-Jan-2025	525	0.63	2.6	1.00	0.002	5.5	1.2
07-Jan-2025	482	0.58	2.4	0.91	0.002	5.0	1.1
08-Jan-2025	480	0.57	2.4	0.91	0.002	5.0	1.1
09-Jan-2025	478	0.57	2.3	0.91	0.002	5.0	1.1
10-Jan-2025	479	0.57	2.4	0.91	0.002	5.0	1.1
11-Jan-2025	482	0.57	2.4	0.91	0.002	5.0	1.1
12-Jan-2025	484	0.58	2.4	0.92	0.002	5.0	1.1
13-Jan-2025	482	0.57	2.4	0.91	0.002	5.0	1.1
14-Jan-2025	478	0.57	2.3	0.90	0.004	5.0	1.1
15-Jan-2025	475	0.57	2.3	0.90	0.004	4.9	1.0
16-Jan-2025	474	0.56	2.3	0.90	0.004	4.9	1.0
17-Jan-2025	517	0.62	2.5	0.98	0.004	5.4	1.1
18-Jan-2025	542	0.64	2.7	1.02	0.004	5.6	1.2
19-Jan-2025	552	0.66	2.7	1.04	0.004	5.7	1.2
20-Jan-2025	529	0.63	2.6	1.00	0.004	5.5	1.2
21-Jan-2025	490	0.58	2.4	0.93	0.004	5.1	1.1
22-Jan-2025	506	0.60	2.5	0.96	0.004	5.3	1.1
23-Jan-2025	484	0.58	2.4	0.91	0.004	5.0	1.1
24-Jan-2025	496	0.59	2.4	0.94	0.004	5.2	1.1
25-Jan-2025	508	0.61	2.5	0.96	0.004	5.3	1.1
26-Jan-2025	530	0.63	2.6	1.00	0.004	5.5	1.2
27-Jan-2025	534	0.64	2.6	1.01	0.004	5.6	1.2
28-Jan-2025	496	0.59	2.4	0.94	0.004	5.2	1.1
29-Jan-2025	490	0.58	2.4	0.93	0.004	5.1	1.1
30-Jan-2025	539	0.64	2.6	1.02	0.004	5.6	1.2
31-Jan-2025	546	0.65	2.7	1.03	0.004	5.7	1.2
Monthly Total	**15,740**	**18.8**	**77**	**29.8**	**0.09**	**164**	**35**

* Individual and final totals may be subject to rounding adjustments

Exhibit D-1: Sample Emission Calculations – Warm/Wet Flare

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 h to 1 day (d)
    - 10,000 parts per millon (ppm) in one percent.

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable meters include:
    - KITSL-V1P.curval (KMS): This tag provides the daily fuel gas volume data recorded at the KMS. These volumes, measured at atmospheric pressure, serve as the primary input for calculating flared gas volumes.
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density was obtained (daily values at 1 atm) This was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - CA:KIT:062FI0343.PV: This tag measures the total fuel gas consumption for all flare pilots. The portions attributable to the cold dry flare and the liquid burner were determined using flare tip allocations and subtracted from the total to determine the warm/wet flare pilot gas consumption.
    - CA:KIT:062FI0021.PV; CA:KIT:062FI0022.PV: These tags provide the fuel gas purges from the cold dry flare.
    - Emission factors: Refer to Table 2 within the report.

Emission Calculation Basis – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using January 1, 2025, and NOx for the example:

Convert volumetric flow rate to mass flow rate:

Volumetric flow rate = 230,071 m^3/d – corrected to 20°C.

Mass flow rate = 230,071 m^3/d x 0.75177808 kg/m^3 = 172,962 kg/d

NOx Mass Emission (kg/d)

= 172,962 x 40.89 x 1/0.75177808 x 1/1000 x 0.9478 x 0.068 x 0.4535

≈ 275 kg/d

Similar calculations follow for CO, $PM_{2.5}$, VOC, and HC-T, however all HHV values in their calculations are converted to LHV.

Emission Calculation Basis – when using Engineering Estimates (only applies to SOx):

Total sulfur content (S) in feed gas samples was analyzed periodically by the LNG Canada laboratory. Table D-7 below table summarizes the laboratory results.

Table D-7: Total Sulphur Content Measured in the Feed Gas (Laboratory Results)

Date	Total Sulphur in Feed Gas (ppmw)	%
01-Jan-2025	2.11	0.000211
14-Jan-2025	5.16	0.000516

To bridge periods between measurements, the following approach was used:

- January 1 - 13: SO_2 emissions were calculated using the January 1, 2025 total sulphur measurement.
- January 14 – 31: The January 14, 2025 measurement was applied.

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

Using January 1, 2025, for the example, where the applied percent sulphur in the fuel gas is 2.11 ppmw.

SO_2 Mass Emission (kg/d)

= 172,962 x (0.000211) x (1/100) x 64.066/32.065 x 1

≈ 0.7 kg/d

The same calculation approach would follow for SO_2 (kg/h) numbers; with the flow rate in kg/h rather than kg/d.

Appendix E Ambient Air Quality Evaluation (Condition 10.2.7)

Nitrogen Dioxide (NO_2)

The publicly available data of 1-hour NO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-1. The BCAAQO for 1-hour NO_2 is 60 parts per billion (ppb) (equates to 113 µg/m^3), calculated by the 98th percentile of daily 1-hour maximum over three years; this metric is also illustrated in Figure E-1.

There is a BCAAQO for annual NO_2 (17 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

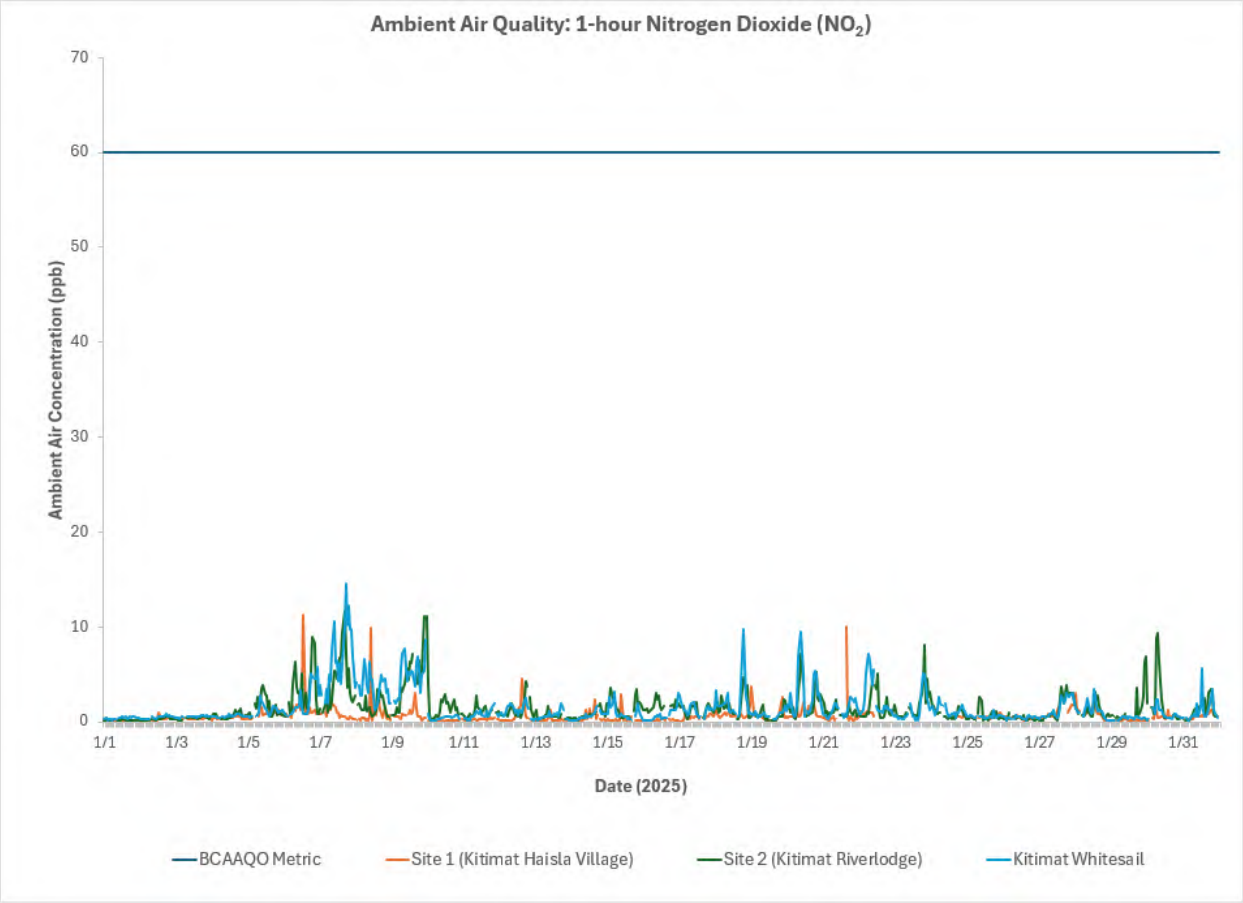

Figure E-1: Ambient Air Quality - 1-hour Nitrogen Dioxide (NO_2)

Sulphur Dioxide (SO_2)

The publicly available data of 1-hour SO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-2. BC adopted the 2020 Canadian Ambient Air Quality Standard (CAAQS) as the BCAAQO for 1-hour SO_2, which is 70 parts per billion (ppb) (equates to 183 µg/m^3), calculated by the annual 99th percentile of daily 1-hour averaged over three consecutive years; this metric is also illustrated in Figure E-2.

There is a BCAAQO for annual SO_2 (5 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

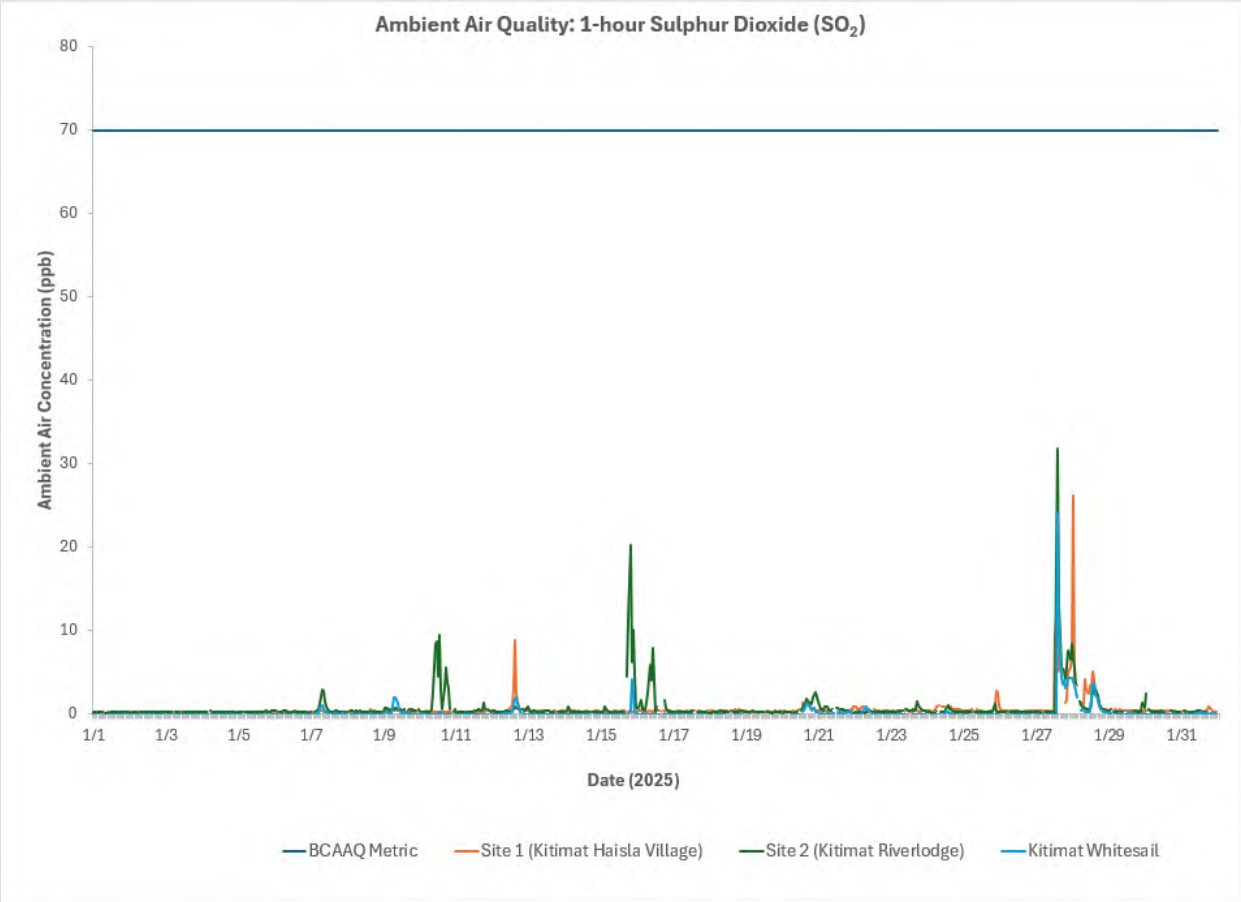

Figure E-2: Ambient Air Quality - 1-hour Sulphur Dioxide (SO_2)

Fine Particulate Matter ($PM_{2.5}$)

The publicly available data of 24-hour running average for $PM_{2.5}$ from the three continuous ambient air quality monitoring stations is illustrated in Figure E-3. The BCAAQO for 24-hour $PM_{2.5}$ is 25 µg/m^3, calculated by the 98th percentile of daily average, over one year; this metric is also illustrated in Figure E-3.

There is a BCAAQO for annual $PM_{2.5}$ (8 µg/m^3 based on the annual average, over one year) however this information is not published for each monitoring station therefore is not provided herein.

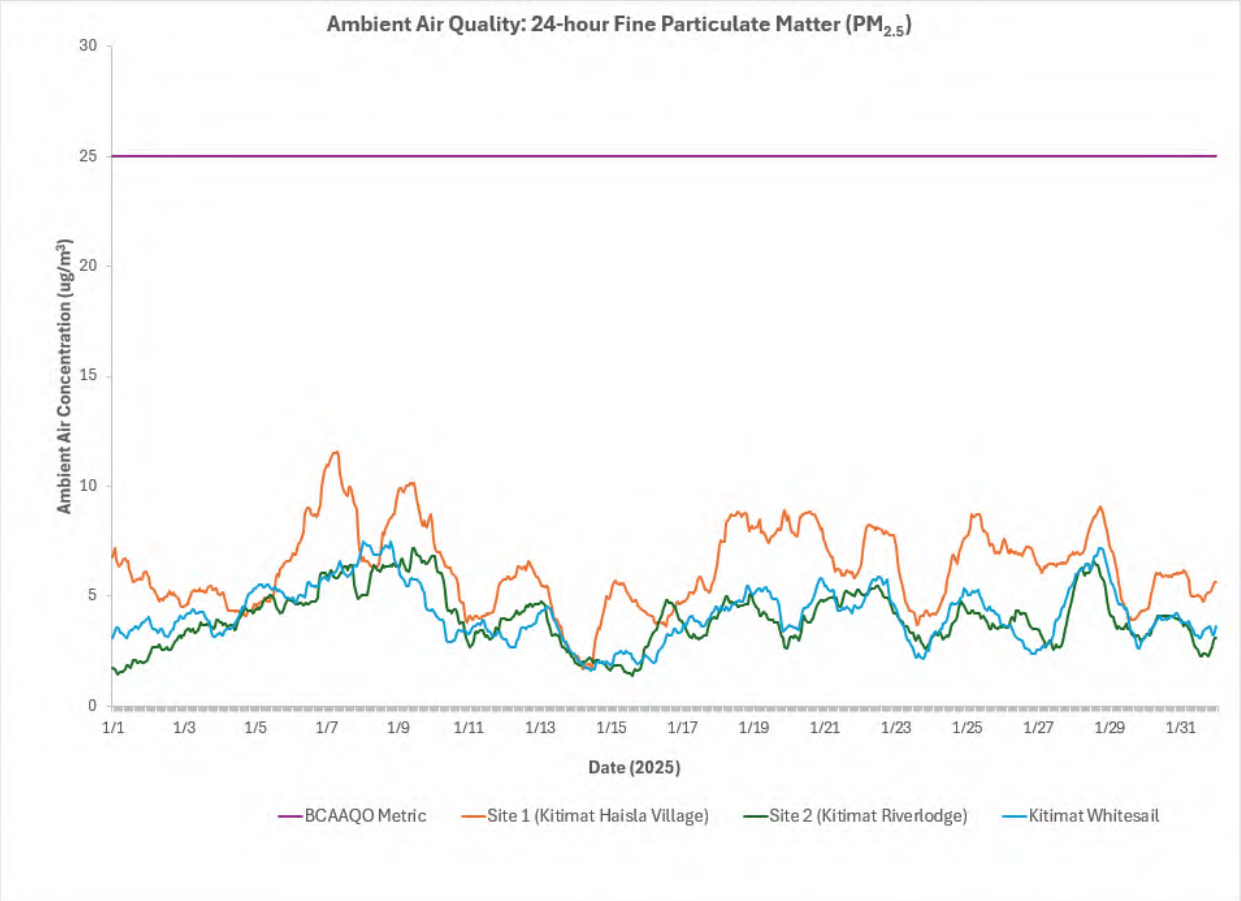

Figure E-3: Ambient Air Quality - 24-hour Fine Particulate Matter ($PM_{2.5}$)

Ozone (O_3)

The publicly available data of 1-hour O_3 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-4.

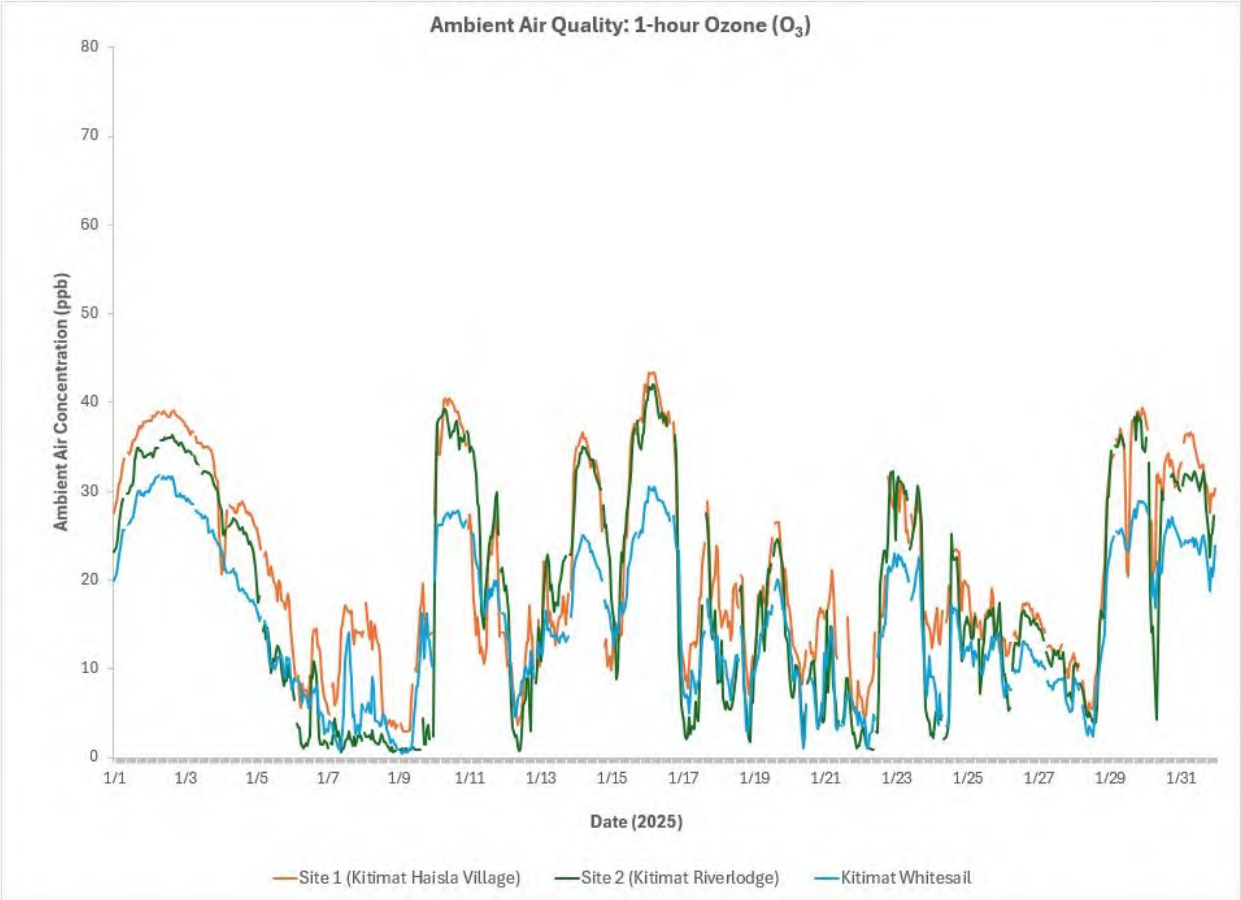

Figure E-4: Ambient Air Quality - 1-hour Ozone (O_3)

Appendix F Facility SO_2 Emission Limit (Condition 10.2.8)

Table F-1 presents the maximum hourly cumulative SO_2 discharge rate per day. It does not imply that the maximum discharge rate occurred for the full 24 hours that day. The maximum hourly rate was based on the maximum hourly flow rate obtained for each of the contributing sources below on the respective dates. The total sulfur content was obtained from Table D-7.

Table F-1: Maximum Hourly SO_2 Discharge Rate for Each Day

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
01-Jan-2025	0.0368	-	-	99.16%	0.64%	-	-	0.20%
02-Jan-2025	0.0365	-	-	99.15%	0.65%	-	-	0.20%
03-Jan-2025	0.0699	-	-	99.55%	0.34%	-	-	0.11%
04-Jan-2025	0.0594	-	-	99.48%	0.40%	-	-	0.12%
05-Jan-2025	0.0602	-	-	99.49%	0.39%	-	-	0.12%
06-Jan-2025	0.0576	-	-	99.47%	0.42%	-	-	0.13%
07-Jan-2025	0.0529	-	-	99.40%	0.45%	-	-	0.15%
08-Jan-2025	0.0360	-	-	99.17%	0.65%	-	-	0.18%
09-Jan-2025	0.0429	-	-	99.31%	0.54%	-	-	0.15%
10-Jan-2025	0.0347	-	-	99.16%	0.66%	-	-	0.18%
11-Jan-2025	0.0435	-	-	99.32%	0.53%	-	-	0.15%
12-Jan-2025	0.0385	-	-	99.23%	0.60%	-	-	0.17%
13-Jan-2025	0.0343	-	-	99.14%	0.67%	-	-	0.19%
14-Jan-2025	0.0632	-	-	98.86%	0.89%	-	-	0.25%
15-Jan-2025	0.0580	-	-	99.61%	0.12%	-	-	0.26%
16-Jan-2025	0.0628	-	-	99.64%	0.11%	-	-	0.25%
17-Jan-2025	0.0600	-	-	99.91%	0.02%	-	-	0.07%
18-Jan-2025	0.0590	-	-	99.53%	0.15%	-	-	0.32%
19-Jan-2025	0.0912	-	-	99.71%	0.09%	-	-	0.20%
20-Jan-2025	0.0707	-	-	99.61%	0.12%	-	-	0.27%
21-Jan-2025	0.1000	-	-	99.58%	0.13%	-	-	0.29%
22-Jan-2025	0.2528	-	-	99.91%	0.03%	-	-	0.07%
23-Jan-2025	0.1308	-	-	99.82%	0.06%	-	-	0.13%
24-Jan-2025	0.2589	16.45%	-	83.46%	0.03%	-	-	0.06%
25-Jan-2025	0.2298	15.42%	-	84.48%	0.03%	-	-	0.07%
26-Jan-2025	0.2059	13.36%	-	86.51%	0.04%	-	-	0.09%
27-Jan-2025	0.0900	26.88%	-	72.82%	0.09%	-	-	0.21%
28-Jan-2025	0.1607	45.15%	-	54.68%	0.05%	-	-	0.12%
29-Jan-2025	0.1810	42.88%	-	56.99%	0.04%	-	-	0.09%

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
30-Jan-2025	0.2000	65.06%	-	34.78%	0.05%	-	-	0.11%
31-Jan-2025	0.2284	62.58%	-	37.30%	0.04%	-	-	0.08%

* Individual values may be subject to rounding adjustments

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Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Monthly Report (February 2025)

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1. Executive Summary

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. The BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., for the discharge of air contaminants to the environment from the LNG Facility.

Permit PA-110588 requires a monthly report to be submitted to the BCER that includes data/information on:

- Fuel Gas Use (for Commissioning only)
- Continuous Emissions Monitoring System (for Operations only)
- Flaring Activities
- Ambient Air Monitoring Evaluation
- Facility sulphur dioxide (SO_2) Emissions

Herein is the monthly report for February 2025. A summary of the findings for this reporting period is as follows:

- There were no instances of permit non-compliances during the reporting period.
- There were no ambient air quality concentrations of nitrogen dixoide (NO_2), SO_2 or respirable particulate matter ($PM_{2.5}$) measured in excess of the BC ambient air quality objective (BCAAQO) metrics at the three continuous ambient air quality monitoring stations identified in Permit PA-110588 (Kitamaat Village (Kitimat Haisla Village); Kitimat Riverlodge and Kitimat Whitesail).
- There were air emissions from five authorised discharge sources defined in Sections 2.1 to 2.7 of Permit PA-110588: warm/wet flare; cold/dry flare, liquid burner, the gas turbine engine in Train 1, String 1, and the acid gas incinerator in Train 1.

The warm/wet flare was the largest source of air emissions, as all the fuel gas introduced into the facility is used for testing purposes during Commissioning, rather than for producing LNG. The maximum hourly cumulative SO_2 rate in February 2025 was calculated to be 0.54 kg/hour.

2. Overview

2.1. Project Background

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia, Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

2.2. Purpose

On July 15, 2024, the BCER issued WDA discharge permit PA-110588 to LNG Canada Development Inc., under the provisions of the BC *Environmental Management Act*, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Permit PA-110588 applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.2 of Permit PA-110588 (Monthly Reporting) for February 2025.

Refer to Appendix B for a list of all monthly reports that have been issued under Permit PA-110588.

2.3. LNG Facility Status

On the afternoon of August 31, 2024, fuel gas was introduced into Unit 1000 (Inlet Facilities) for the first time from the Coastal Gas Link (CGL) pipeline, commencing the pressurization of piping and the startup fuel gas heater. The introduction of fuel gas into the fuel gas headers down to the flare area, and the first supply of fuel gas to the pilot on the warm/wet flare occurred on September 1, 2024.

During February 2025, discharges of air contaminants occurred from the following authorized works:

- One (1) gas turbine (in Train 1, String 1)
- One (1) AGI (in Train 1)
- One (1) warm/wet flare
- One (1) cold/dry flare
- Liquid burner

Under Permit PA-110588, the “Commissioning” phase is defined as “that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.” Operations is the period

of time which follows Commissioning. Therefore, “Commissioning”, under Permit PA-110588, commenced on September 1, 2024. The first cargo has not yet been shipped from LNG Train 1.

The Initial Performance Period (IPP) did not commence during January 2025 (which is defined as the period that “*commences upon the completion of the initial performance test for LNG Train 1”*).

3. Fuel Gas Use (Commissioning Only) (Condition 10.2.1)

3.1. Permit Condition

Under Condition 10.2.1, the monthly report shall identify and provide a summary of fuel gas use at the facility during Commissioning. The monthly report shall include the following information:

a. the daily volume of fuel gas combusted and vented;

b. the daily mass emissions of nitrogen oxides (NOx), sulphur oxides (SOx), carbon monoxide (CO), particulate matter with an aerodynamic diameter smaller than 2.5 micrometers (PM2.5), volatile organic compounds (VOCs) and total hydrocarbons (HC-T), for the authorized works in Section 2.1 and 2.2; and

c. the quantification method (under Section 9 of Permit PA-110588) and representative calculations.

3.2. Data and Assessment

Appendix C contains the summary of the daily volume of fuel gas combusted and flared as well as the daily mass emissions of NO_X, SO_X, CO, $PM_{2.5}$, VOCs, and HC-T from the gas turbine and AGI (which is Section 2.1 and 2.2 of Permit PA-110588 respectively) in February 2025.

The basis for this assessment is as follows:

- The daily volume of fuel gas combusted and flared at the LNG Facility is based on the daily volume of fuel gas introduced into the LNG facility, as all this fuel gas is used for testing purposes during Commissioning; rather than for producing LNG. This is a conservative approach, and does not account for the time lag between pressurizing systems with fuel gas to it being combusted or flared. The data for this report was obtained from the Kitimat Metering Station (KMS) using the CGL meter.
- The daily mass emissions from the gas turbine engine reported herein are calculated based on published emission factors for stationary gas turbines (refer to Table 1); and therefore are not a reflection of the actual measured emissions from the gas turbines installed on site (that information will be available in Operations, once the continuous emissions monitoring system (CEMS) has undergone the relative accuacy test audit (RATA)).
- The daily mass emissions from the AGI during this reporting month were from the commissioning activity of drying out the AGI, therefore emissions are estimated herein based on published emission factors for a flare, to represent a high temperature oxidation process to burn hydrocarbons (refer to Table 2). Similar to the gas turbine engines, the data from the CEMS associated with the AGI will be available after the RATA has been undertaken (which will be undertaken when acid gas is being generated in the Acid Gas Recovery Units (AGRUs)).

Table 1 Natural Gas-Fired Turbine Emission Factors

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.099	lb/MMBtu	D	

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
SO_x	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.94S	lb/MMBtu	B	Where “S” is the percent sulphur in fuel. “S” to be informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014). If “S” is not available, the AP-42 states to use 3.4 E-03 lb/MMBtu for natural gas turbines (0.0034).
CO	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.015	lb/MMBtu	D	
PM2.5	USEPA AP-42: Table 3.1-2a (uncontrolled; condensable)	0.0047	lb/MMBtu	C	
VOC	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.0021	lb/MMBtu	D	AP-42 states that VOC emissions are assumed equal to the sum of organic emissions.
HC-T	Engineering Estimate	16.1 x % operating load	g/s	N/A	There is no AP-42 emissions factor for total hydrocarbons. The permit application used a basis of 16.1 g/s per gas turbine during Operations; therefore this value will be used and factored down based on the estimated operating load for the turbine.

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 3.1 is applicable for Stationary Gas Turbines.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.

Table 2: Emission Factors used for the AGI (Based on Flare)

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
SO_X	Engineering Estimate				There is no AP-42 emissions factor for SO_X; therefore it is based on fuel gas sulphur content informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014).The assumed destruction efficiency is 100%.
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.027	lb/MMBtu	B	Based on a lightly smoking flare (soot in concentration values: 40 ug/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from ug/L to lb/MMBtu is documented in the “Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015”, issued to USEPA by RTI International.

4. CEMS Zero and Span Reporting (Condition 10.2.2)

4.1. Permit Condition

Under Condition 10.2.2, during Operations, after the completion of the initial CEMS performance evaluation, the monthly report shall include a summary of all CEMS out of control calibration zero and span events that occurred during the month.

4.2. Data and Assessment

As Operations has not yet commenced, there is no CEMS zero and span reporting for this month.

5. CEMS Reporting (Condition 10.2.3)

5.1. Permit Condition

Under Condition 10.2.3, during Operations, after the completion of the initial CEMS performance evaluation, the Permittee shall provide a summary of CEMS data collected during the month.

5.2. Data and Assessment

As Operations has not yet commenced, there is no CEMS reporting for this month.

6. Flaring Activity Reporting (Condition 10.2.4)

6.1. Permit Condition

Under Condition 10.2.4, a summary of all flaring activity carried out during the month is to be included in the monthly report. The monthly report shall include the following information:

a. identification of the flare source;

b. description of the type of process gas sent to flare;

c. the volume of gas sent to the flare during each event;

d. the reason for the flaring event;

e. any external notifications sent out, if applicable;

f. the (i) daily and (ii) monthly volume of gas being flared for each source;

g. the (i) daily and (ii) monthly contaminant emission totals for each source, parameters include NO_x, CO, $PM_{2.5}$, SO_x, VOCs, and HC-T; and

h. the quantification method (under Section 9) and representative calculations.

6.2. Data and Assessment

In Permit PA-110588, flaring activities are described as either a routine flaring event (continuous) or a non-routine flaring event (intermittent). Routine flaring discharges include the continuous flare pilots, which are supplied by fuel gas to provide a continuous ignition source so that any gas sent to the flare as a result of upset conditions ("non-routine flaring") is immediately combusted. The permit application to support Permit PA-110588 also described the other small sources of process gas that are continuously sent to the flare, including compressor seal gas, analyzer sample returns and passing valves.

Process gas refers to the natural gas stream intended for LNG production; the incoming fuel gas stream from Coastal Gas Link that undergoes several treatment stages (acid gas removal, pre-cooling, and finally, liquefaction) prior to being exported as LNG.

Appendix D contains the flaring activities tables, as follows:

- Table D-1: Flaring Events Table
- Table D-2: Warm/Wet Flare Volume and Emissions Summary
- Table D-3: Cold/Dry Flare Volume and Emissions Summary
- Table D-4: Storage and Loading Flare Volume and Emissions Summary
- Table D-5: Spare Flare Volume and Emissions Summary
- Table D-6: Liquid Burner Volume and Emissions Summary

Sample calculations are also provided in Appendix D (Exhibit D-1). The basis for this assessment is as follows:

- The daily volume of gas flared is sourced from the flow meters upstream of the applicable flare. In cases where the flow is below the detection limit of the flow meters, the sum of flow from upstream flow meters is used.
- The daily mass emissions from each flare source reported herein are calcuated based on published emission factors for industrial flares (refer to Table 3), except for SO_X, which is calculated based on a mass balance and assumed destruction efficiency.

- During this reporting month, the storage and loading flare and spare flare were not used, therefore shown with "zero" values for emissions.

Table 3: Emission Factors used for the Flare System

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.12	lb/MMBtu	B	Based on an average smoking flare (soot in concentration values: 177 ug/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from ug/L to lb/MMBtu is documented in the "Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015", issued to USEPA by RTI International.

7. Permit Contravention (Condition 10.2.5)

7.1. Permit Condition

Under Condition 10.2.5, a summary of all instances of permit non-compliances are to be included in the monthly report, including a description of the event (date, time, circumstances), a summary of the investigation findings, the completed and ongoing actions taken in response to the non-compliance event, and the date of self-disclosure notifications to the BCER.

7.2. Assessment

There were no instances of permit non-compliances during the reporting period.

8. Pollution Control Technologies (Condition 10.2.6)

8.1. Permit Condition

Under Condition 10.2.6, a discussion of any operational or performance issues or significant maintenance activities with any pollution control technologies of the authorized works and equipment required by the permit is to be included in the monthly report.

The pollution control technologies identified in the permit application supporting Permit PA-110588 were the:

- Dry low emissions combustor optimization system in the gas turbines (dry low NOx burners); and
- Catalysts in the WHRUs, to convert CO in the exhaust gas to carbon dioxide.

8.2. Assessment

There were no instances of operational or performance issues, or significant maintenance activities with the pollution control technologies within the reporting period, given Operations has not yet commenced.

9. Ambient Air Monitoring Evaluation (Commissioning Only) (Condition 10.2.7)

9.1. Permit Condition

Under Condition 10.2.7, the following information for nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and $PM_{2.5}$ from three continuous ambient air quality monitoring stations (Kitamaat Village (Kitimat Haisla Village) (Site 1); Kitimat Riverlodge (Site 2) and Kitimat Whitesail) are to be included in the monthly report during Commissioning where information is publicly available:

a. a comparison of the measured ambient air concentrations at each ambient air monitoring stations to the applicable numerical metrics of the BC ambient air quality objectives (BCAAQO);

b. (i) a description of any measured ambient air concentrations in excess of the numerical metrics of the BCAAQO, if applicable, (ii) a description of any known contributing factors from authorized works, and (iii) a description of action (if any) taken by the Permittee.

The monthly report shall also include the time series plot of the hourly average ambient air concentration of ozone (O_3) data from these stations.

9.2. Data and Assessment

Data from continuous ambient air quality monitoring stations in Kitimat are publicly available via the BC Ministry of Environment and Climate Change Strategy, at: Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

The publicly available data for NO_2, SO_2 and $PM_{2.5}$ at the three continuous ambient air quality monitoring stations are provided in graphs in Appendix E; the graphs also contain the applicable BCAAQO. The time series plot for the hourly average ambient air concentration of O_3 is also provided in Appendix E.

There were no ambient air quality concentrations of NO_2, SO_2 and $PM_{2.5}$ measured in excess of the BCAAQO metrics in the reporting period.

10. Facility SO_2 Emission Limit (Condition 10.2.8)

10.1. Permit Condition

Under Condition 10.2.8, for all authorized sources in Sections 2.1 to 2.7, for each day of the month, the maximum hourly cumulative SO_2 discharge rate is to be provided in the monthly report, including the percentage breakdown of the sources contributing to the maximum discharge rate of each day.

10.2. Data and Assessment

Appendix F contains the cumulative SO_2 discharge rate from the authorized sources in Permit PA-110588 Section 2.1 to 2.7 (refer to Section 2.2), including the percentage breakdown of the sources contributing to the maximum discharge rate shown for each day.

The representative calculations for SO_2 are provided in Appendix C for the gas turbine and AGI, and Appendix D for the flare system.

11. References

- BC Ministry of Environment and Climate Change Strategy, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca), accessed March 3, 2025.

Appendix A Abbreviations

AGI	Acid Gas Incinerator
AGRU	Acid Gas Removal Unit
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
CGL	Coastal Gas Link (Pipeline)
CO	Carbon monoxide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
JFJV	JGC Fluor BC LNG Joint Venture
KMS	Kitimat Metering Station
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
VOC	Volatile Organic Compound
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit
$\mu g/m^3$	micrograms per cubic meter

Appendix B Previous Monthly Reports Issued Under PA-110588

Month	Document #	Date Issued
August 2024	L001-09800-HE-7180-4611	04-Sep-2024
September 2024	L001-09800-HE-7180-4612	22-Oct-2024; Revised 03-Feb-2025 (Rev B)
October 2024	L001-09800-HE-7180-4613	26-Nov-2024; Revised 03-Feb-2025 (Rev B)
November 2024	L001-09800-HE-7180-4614	16-Dec-2025; Revised 03-Feb-2025 (Rev B)
December 2024	L001-09800-HE-7180-4684	23-Feb-2025
January 2025	L001-09800-HE-7180-4691	26-Feb-2025
February 2025	L001-09800-HE-7180-4692	27-Mar-2025

Appendix C Fuel Gas Use During Commissioning (Condition 10.2.1)

There was no LNG production that occurred in this period. For this month, all daily fuel gas volumes were obtained from the KMS (Tag: KITSL-V1P.curval) under atmospheric pressure (Pressure = 1 atm) (refer to Table C-1). The fuel volumes below were corrected to 20°C.

Table C-1: Fuel Gas Use During Commissioning

Date	Volume of Fuel Gas Introduced to LNG Facility (m^3/d)*
01-Feb-2025	655,253
02-Feb-2025	679,554
03-Feb-2025	490,516
04-Feb-2025	403,984
05-Feb-2025	353,554
06-Feb-2025	353,282
07-Feb-2025	351,082
08-Feb-2025	353,194
09-Feb-2025	672,632
10-Feb-2025	555,802
11-Feb-2025	671,414
12-Feb-2025	669,074
13-Feb-2025	667,320
14-Feb-2025	670,567
15-Feb-2025	659,473
16-Feb-2025	650,891
17-Feb-2025	428,569
18-Feb-2025	297,686
19-Feb-2025	340,404
20-Feb-2025	482,869
21-Feb-2025	286,877
22-Feb-2025	272,194
23-Feb-2025	278,167
24-Feb-2025	167,218
25-Feb-2025	172,571
26-Feb-2025	172,595
27-Feb-2025	175,557
28-Feb-2025	182,918
Monthly Total	**12,115,217**

* Individual and final totals may be subject to rounding adjustments

The LMS100 Gas Turbine in Train 1, String 1, achieved a significant milestone by successfully completing an extended nitrogen run. During this activity, nitrogen gas was circulated through the units instead of natural gas. This approach enabled simultaneous completion of two critical preparatory tasks in Train 1: the regeneration of all four molecular sieve beds and the pre-dry out of the Mercury Guard Bed. The molecular sieve beds serve as essential components for removing moisture from natural gas. Concurrently, the Mercury Guard Bed designed to capture trace mercury that could potentially damage aluminum heat exchangers, underwent successful pre-drying to ensure optimal performance during subsequent operations.

The fuel volumes below (Table C-2) were obtained by dividing the values from the mass flow meter (CA:KIT:114FI1601.PV) by the fuel gas density obtained from KITSL-SG.CURVAL (KMS).

The venting of fuel gas associated with the gas turbine start up activities during this period is accounted for in Table C-1.

Table C-2: Fuel Gas Use During Commissioning – Gas Turbines

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Feb-2025	373,787	648	98	31	1.5	14	744
02-Feb-2025	372,390	645	98	31	1.5	14	735
03-Feb-2025	127,748	221	34	11	0.5	5	252
04-Feb-2025	11,585	20	3	1	0.05	0.4	6
05-Feb-2025	-	-	-	-	-	-	-
06-Feb-2025	-	-	-	-	-	-	-
07-Feb-2025	-	-	-	-	-	-	-
08-Feb-2025	-	-	-	-	-	-	-
09-Feb-2025	-	-	-	-	-	-	-
10-Feb-2025	243,302	422	64	20	1.0	9	460
11-Feb-2025	343,906	596	90	28	1.4	13	652
12-Feb-2025	340,577	590	89	28	1.4	13	646
13-Feb-2025	337,215	584	89	28	1.4	12	638
14-Feb-2025	337,014	584	89	28	0.9	12	630
15-Feb-2025	335,399	581	88	28	0.9	12	625
16-Feb-2025	333,070	577	87	27	0.9	12	621
17-Feb-2025	103,231	179	27	9	0.3	4	192
18-Feb-2025	1,027	2	0.3	0.1	0.003	0.04	1
19-Feb-2025	1,859	3	1	0.2	0.005	0.1	1
20-Feb-2025	-	-	-	-	-	-	-
21-Feb-2025	-	-	-	-	-	-	-
22-Feb-2025	-	-	-	-	-	-	-
23-Feb-2025	-	-	-	-	-	-	-
24-Feb-2025	-	-	-	-	-	-	-
25-Feb-2025	-	-	-	-	-	-	-
26-Feb-2025	-	-	-	-	-	-	-
27-Feb-2025	-	-	-	-	-	-	-
28-Feb-2025	-	-	-	-	-	-	-
Total	**3,262,110**	**5,652**	**857**	**270**	**12**	**120**	**6,203**

* Individual and final totals may be subject to rounding adjustments

The refractory dry-out process of the AGI in Train 1 was successfully completed; which involved gradually increasing temperatures (via the burners) in controlled stages to remove moisture from the refractory lining of the incinerator (refer to Table C-3). The final dry-out process was undertaken over several days, with temperatures reaching a maximum of 550°C. Refractory materials serve as heat-resistant linings that protect equipment from extreme temperatures. Proper curing through this controlled dry-out process is essential to prevent cracks or damage during subsequent operation. It is important to note that no acid gas was combusted during this phase of testing.

Table C-3: Fuel Gas Use During Commissioning – Acid Gas Incinerator

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Feb-2025	-	-	-	-	-	-	-
02-Feb-2025	-	-	-	-	-	-	-
03-Feb-2025	-	-	-	-	-	-	-
04-Feb-2025	-	-	-	-	-	-	-
05-Feb-2025	-	-	-	-	-	-	-
06-Feb-2025	24	0.03	0.1	0.01	< 0.001	0.3	0.05
07-Feb-2025	-	-	-	-	-	-	-
08-Feb-2025	-	-	-	-	-	-	-
09-Feb-2025	8	0.01	0.04	< 0.01	< 0.001	0.08	0.02
10-Feb-2025	-	-	-	-	-	-	-
11-Feb-2025	-	-	-	-	-	-	-
12-Feb-2025	-	-	-	-	-	-	-
13-Feb-2025	-	-	-	-	-	-	-
14-Feb-2025	-	-	-	-	-	-	-
15-Feb-2025	-	-	-	-	-	-	-
16-Feb-2025	-	-	-	-	-	-	-
17-Feb-2025	-	-	-	-	-	-	-
18-Feb-2025	-	-	-	-	-	-	-
19-Feb-2025	-	-	-	-	-	-	-
20-Feb-2025	-	-	-	-	-	-	-
21-Feb-2025	-	-	-	-	-	-	-
22-Feb-2025	-	-	-	-	-	-	-
23-Feb-2025	38	0.1	0.2	0.02	< 0.001	0.4	0.1
24-Feb-2025	186	0.2	1	0.08	< 0.001	2	0.4
25-Feb-2025	170	0.2	1	0.07	< 0.001	2	0.4
26-Feb-2025	138	0.2	1	0.06	< 0.001	1	0.3
27-Feb-2025	45	0.1	0.2	0.02	< 0.001	0.5	0.1
28-Feb-2025	2,693	3	13	1.2	0.01	28	6
Total	**3,302**	**3**	**17**	**1**	**0.01**	**33**	**6**

* Individual and final totals may be subject to rounding adjustments

Exhibit C-1: Sample Emission Calculations – Gas Turbine

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hour (h) to 1 day (d)
    - 10,000 parts per millon (ppm) in one percent

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable sources of data from the meters include:
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - Tag CA:KIT:114FI1601.PV: LNG Train 1, String 1 (1KT-1460); fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:114BHS1423.PV: Gas Turbine Operating Load (MW)
    - Emission factors: Refer to Table 1 within the report.

The sample calcuation below is based on the data from February 01, 2025.

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:114FI1601.PV is converted to volume flow rate using the fluid density of 0.748147 kg/m^3.

- Mass flow rate = 279,648 kg/d

Volume flow rate (m^3/d)

= (279,648 / 0.748147) ≈ 373,787 m^3/d

Step 2: Emission Calculation – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using NOx for the example; NOx Mass Emission (kg/d)

= 278,496 x 40.75 x (1 / 0.748147) x (1 / 1000) x 0.9478 x 0.099 x 0.4535

≈ 648 kg/d

For SO_2, 0.94S was used as the emission factor - where "S" is the percent sulphur in fuel (refer to Table 1). "S" is based on the total sulphur content of the fuel gas (from the laboratory analysis) given fuel gas was used to fuel the gas turbine this month (refer to Appendix D, Table D-7).

SOx Mass Emission (kg/d)

= 279,648 x 40.75 x (1 / 0.74814722) x (1 / 1000) x 0.9478 x 0.94*(0.000249) x 0.4535

≈ 1.5 kg

Emission Calculation Basis – when using Engineering Estimates (only applies to HC-T)

Formula: HC-T Mass Emission (kg/h)

$$= 16.1 \frac{\text{g}}{\text{s}} \times \frac{\text{Operating load (\%)}}{100} \times \frac{1\ \text{kg}}{1000\ \text{g}} \times \frac{3600\ \text{s}}{1\ \text{h}}$$

Using February 1, 2025, for the example, where the gas turbine operating load of 58.86 MW was obtained from CA:KIT:114BHS1423.PV. For the purposes of this calculation, the maximum operating load of the LMS100 is approximately 110 MW.

Operating load (%)

= (58.86 MW / 110 MW) x 100 = 53.5%

HC-T Mass Emission (kg/h)

= 16.1 x (53.5 / 100) x (1 / 1000) x (3600 / 1)

= 31.01 kg/h

HC-T Mass Emission (kg/d)

= 31.01 x 24

≈ 744 kg/d

Exhibit C-2: Sample Emission Calculations – Acid gas incinerator

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hours (h) to 1 day (d)
    - 10,000 parts per million (ppm) in one percent

Input Values

The applicable sources of data from the meters include:

- Tag CA:KIT:119FI0302.PV: Fuel gas consumption by the acid gas incinerator (daily values).
- Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
- Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) multiplied by a reference air density of 1.225 kg/m³ (15°C, 1 atm) and corrected to standard conditions (20°C, 1 atm) to determine the actual natural gas density.
- Emission Factors: Refer to Table 2 within the report.

The sample calculation below is based on the data from February 28, 2025.

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:119FI0302.PV is converted to volume flow rate using the fluid density of 0.755036757 kg/m³.

Mass flow rate = 2,033 kg/d

Volume flow rate (m³/d):

= Mass flow rate / Fluid density

= 2,033 / 0.755036757 ≈ 2,693 m³/d

Step 2: Emission Calculation – Using Emission Factors

Formula: Mass Emission (kg/d) =

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right)$$
$$\times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Example: NOx Emissions

- Fuel Gas Flow (kg/d): 2,033 kg/d
- High Heating Value (HHV): 41.04 MJ/Sm³
- Natural Gas Density: 0.755036757 kg/m³
- NOx Emission Factor: 0.068 lb/MMBTU

NOx Mass Emission (kg/d):

= 2,033 × 41.04 × (1 / 0.755036757) × (1 / 1000) × 0.9478 × 0.068 × 0.4535

≈ 3 kg/d

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

For SO_2, total sulphur is based on the total sulphur content of the fuel gas for February 28 (from the laboratory analysis) given fuel gas was used to fuel the AGI this month (refer to Appendix D, Table D-7).

SO_2 Mass Emission (kg/d):

= 2,033 x 0.000318 x (1 / 100) x (64.066 / 32.065) x 1

≈ 0.01 kg/d

Appendix D Flaring Activity (Condition 10.2.4)

Table D-1: Flaring Event Overview

Flare	Event Type	Event Date & Time			Description	Volume of Gas to Flare Per Event (m^3/month)	External Notifications Undertaken
		Start	End	Duration			
Warm/Wet	Routine	01-Feb-2025	28-Feb-2025	Continuous	Pilot and purge gas	6,610	
Warm/Wet	Non-Routine	01-Feb-2025	28-Feb-2025	Continuous	Assist gas and supporting start-up activities[1]	8,820,635	07-Feb-2025 14-Feb-2025
Cold/Dry	Routine	01-Feb-2025	28-Feb-2025	Continuous	Pilot, and fuel gas purges to support start-up activities	6,610	
Storage and Loading	N/A	N/A	N/A	N/A	Not Used	0	
Spare	N/A	N/A	N/A	N/A	Not Used	0	
Liquid Burner	Routine	01-Feb-2025	28-Feb-2025	Continuous	Pilot	14,870	

Notes:

1. In this reporting period, flaring is undertaken to support commissioning and start-up activities; in accordance with Leave(s) to Operate from the BC Energy Regulator. This fuel gas is not considered process gas.

The data for the warm/wet flare was derived from the KMS CGL inlet gas meter (refer to Table C-1). The following volumes were subtracted because they were measured and reported separately:

- The pilot for the cold dry flare (refer to Table D-3)
- The fuel gas purges to the cold dry flare (refer to Table D-3)
- The pilot for the liquid burner (refer to Table D-6)
- The fuel gas use into the gas turbine (refer to Table C-2) and associated venting from authorized vents from Gas Turbine Train 1 String 1
- The fuel gas use into the acid gas incinerator (refer to Table C-3) and associated venting from authorized vents

The fuel volumes below were corrected to 20°C.

Table D-2: Flaring Event – Warm/Wet Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Feb-2025	280,609	334	1,368	530	1.0	2,914	618
02-Feb-2025	306,309	364	1,494	578	1.1	3,180	675
03-Feb-2025	361,907	431	1,765	683	1.3	3,758	797
04-Feb-2025	391,578	466	1,910	739	1.5	4,066	862
05-Feb-2025	352,728	420	1,720	666	1.3	3,662	777
06-Feb-2025	352,438	419	1,719	665	1.3	3,659	776
07-Feb-2025	350,269	417	1,708	661	1.3	3,637	771
08-Feb-2025	352,381	419	1,718	665	1.3	3,659	776
09-Feb-2025	671,802	800	3,276	1,268	2.5	6,975	1,480
10-Feb-2025	311,680	371	1,524	590	1.2	3,245	688
11-Feb-2025	326,684	389	1,593	617	0.8	3,392	720
12-Feb-2025	327,673	390	1,598	619	0.8	3,402	722
13-Feb-2025	329,328	392	1,606	622	0.8	3,419	725
14-Feb-2025	332,784	396	1,623	628	0.8	3,455	733
15-Feb-2025	323,280	385	1,577	610	0.8	3,357	712
16-Feb-2025	317,058	377	1,546	599	0.8	3,292	698
17-Feb-2025	324,589	386	1,583	613	0.8	3,370	715
18-Feb-2025	295,926	352	1,443	559	0.9	3,073	652
19-Feb-2025	337,642	402	1,651	639	1.0	3,515	746
20-Feb-2025	482,160	575	2,358	913	1.4	5,020	1,065
21-Feb-2025	285,996	342	1,402	543	0.8	2,986	633
22-Feb-2025	271,316	325	1,334	516	0.8	2,840	602
23-Feb-2025	277,255	332	1,363	528	0.8	2,902	616
24-Feb-2025	166,171	199	817	316	0.5	1,739	369
25-Feb-2025	171,540	206	843	326	0.8	1,796	381
26-Feb-2025	171,756	206	844	327	0.8	1,798	381
27-Feb-2025	174,837	210	860	333	0.8	1,830	388
28-Feb-2025	179,549	215	883	342	0.9	1,880	399

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
Monthly Total	**8,827,245**	**10,520**	**43,126**	**16,695**	**29**	**91,821**	**19,477**

* Individual and final totals may be subject to rounding adjustments

For this month, the reporting for the cold/dry flare is from the pilot (CA:KIT:062FI0343.PV) and fuel gas purges (CA:KIT:062FI0021.PV and CA:KIT:062FI0022.PV) (refer to Table D-3).

Table D-3: Flaring Event – Cold/Dry Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Feb-2025	263	0.3	1	0.5	0.001	3	0.6
02-Feb-2025	263	0.3	1	0.5	0.001	3	0.6
03-Feb-2025	265	0.3	1	0.5	0.001	3	0.6
04-Feb-2025	253	0.3	1	0.5	0.001	3	0.6
05-Feb-2025	254	0.3	1	0.5	0.001	3	0.6
06-Feb-2025	253	0.3	1	0.5	0.001	3	0.6
07-Feb-2025	250	0.3	1	0.5	0.001	3	0.6
08-Feb-2025	250	0.3	1	0.5	0.001	3	0.6
09-Feb-2025	253	0.3	1	0.5	0.001	3	0.6
10-Feb-2025	253	0.3	1	0.5	0.001	3	0.6
11-Feb-2025	254	0.3	1	0.5	0.001	3	0.6
12-Feb-2025	254	0.3	1	0.5	0.001	3	0.6
13-Feb-2025	239	0.3	1	0.5	0.001	2	0.5
14-Feb-2025	237	0.3	1	0.4	0.001	2	0.5
15-Feb-2025	245	0.3	1	0.5	0.001	3	0.5
16-Feb-2025	234	0.3	1	0.4	0.001	2	0.5
17-Feb-2025	230	0.3	1	0.4	0.001	2	0.5
18-Feb-2025	226	0.3	1	0.4	0.001	2	0.5
19-Feb-2025	222	0.3	1	0.4	0.001	2	0.5
20-Feb-2025	219	0.3	1	0.4	0.001	2	0.5
21-Feb-2025	215	0.3	1	0.4	0.001	2	0.5
22-Feb-2025	215	0.3	1	0.4	0.001	2	0.5
23-Feb-2025	213	0.3	1	0.4	0.001	2	0.5
24-Feb-2025	209	0.3	1	0.4	0.001	2	0.5
25-Feb-2025	209	0.3	1	0.4	0.001	2	0.5
26-Feb-2025	216	0.3	1	0.4	0.001	2	0.5
27-Feb-2025	208	0.2	1	0.4	0.001	2	0.5
28-Feb-2025	208	0.2	1	0.4	0.001	2	0.5
Monthly Total	**6,610**	**8**	**28**	**13**	**0.03**	**69**	**15**

* Individual and final totals may be subject to rounding adjustments

The storage and loading flare was not used in the reporting month (refer to Table D-4).

Table D-4: Flaring Event – Storage and Loading Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Feb-2025	-	-	-	-	-	-	-
02-Feb-2025	-	-	-	-	-	-	-
03-Feb-2025	-	-	-	-	-	-	-
04-Feb-2025	-	-	-	-	-	-	-
05-Feb-2025	-	-	-	-	-	-	-
06-Feb-2025	-	-	-	-	-	-	-
07-Feb-2025	-	-	-	-	-	-	-
08-Feb-2025	-	-	-	-	-	-	-
09-Feb-2025	-	-	-	-	-	-	-
10-Feb-2025	-	-	-	-	-	-	-
11-Feb-2025	-	-	-	-	-	-	-
12-Feb-2025	-	-	-	-	-	-	-
13-Feb-2025	-	-	-	-	-	-	-
14-Feb-2025	-	-	-	-	-	-	-
15-Feb-2025	-	-	-	-	-	-	-
16-Feb-2025	-	-	-	-	-	-	-
17-Feb-2025	-	-	-	-	-	-	-
18-Feb-2025	-	-	-	-	-	-	-
19-Feb-2025	-	-	-	-	-	-	-
20-Feb-2025	-	-	-	-	-	-	-
21-Feb-2025	-	-	-	-	-	-	-
22-Feb-2025	-	-	-	-	-	-	-
23-Feb-2025	-	-	-	-	-	-	-
24-Feb-2025	-	-	-	-	-	-	-
25-Feb-2025	-	-	-	-	-	-	-
26-Feb-2025	-	-	-	-	-	-	-
27-Feb-2025	-	-	-	-	-	-	-
28-Feb-2025	-	-	-	-	-	-	-
Monthly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

The spare flare was not used in the reporting month (refer to Table D-5).

Table D-5: Flaring Event – Spare Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Feb-2025	-	-	-	-	-	-	-
02-Feb-2025	-	-	-	-	-	-	-
03-Feb-2025	-	-	-	-	-	-	-
04-Feb-2025	-	-	-	-	-	-	-
05-Feb-2025	-	-	-	-	-	-	-
06-Feb-2025	-	-	-	-	-	-	-
07-Feb-2025	-	-	-	-	-	-	-
08-Feb-2025	-	-	-	-	-	-	-
09-Feb-2025	-	-	-	-	-	-	-
10-Feb-2025	-	-	-	-	-	-	-
11-Feb-2025	-	-	-	-	-	-	-
12-Feb-2025	-	-	-	-	-	-	-
13-Feb-2025	-	-	-	-	-	-	-
14-Feb-2025	-	-	-	-	-	-	-
15-Feb-2025	-	-	-	-	-	-	-
16-Feb-2025	-	-	-	-	-	-	-
17-Feb-2025	-	-	-	-	-	-	-
18-Feb-2025	-	-	-	-	-	-	-
19-Feb-2025	-	-	-	-	-	-	-
20-Feb-2025	-	-	-	-	-	-	-
21-Feb-2025	-	-	-	-	-	-	-
22-Feb-2025	-	-	-	-	-	-	-
23-Feb-2025	-	-	-	-	-	-	-
24-Feb-2025	-	-	-	-	-	-	-
25-Feb-2025	-	-	-	-	-	-	-
26-Feb-2025	-	-	-	-	-	-	-
27-Feb-2025	-	-	-	-	-	-	-
28-Feb-2025	-	-	-	-	-	-	-
Monthly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

The emissions associated with the liquid burner are from the pilot (refer to Table D-6).

Table D-6: Flaring Event – Liquid Burner Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Feb-2025	593	0.7	3	1	0.002	6	1
02-Feb-2025	593	0.7	3	1	0.002	6	1
03-Feb-2025	596	0.7	3	1	0.002	6	1
04-Feb-2025	568	0.7	3	1	0.002	6	1
05-Feb-2025	572	0.7	3	1	0.002	6	1
06-Feb-2025	569	0.7	3	1	0.002	6	1
07-Feb-2025	564	0.7	3	1	0.002	6	1
08-Feb-2025	566	0.7	3	1	0.002	6	1
09-Feb-2025	570	0.7	3	1	0.002	6	1
10-Feb-2025	569	0.7	3	1	0.002	6	1
11-Feb-2025	571	0.7	3	1	0.001	6	1
12-Feb-2025	572	0.7	3	1	0.001	6	1
13-Feb-2025	540	0.6	3	1	0.001	6	1
14-Feb-2025	533	0.6	3	1	0.001	6	1
15-Feb-2025	552	0.7	3	1	0.001	6	1
16-Feb-2025	529	0.6	3	1	0.001	6	1
17-Feb-2025	519	0.6	3	1	0.001	5	1
18-Feb-2025	511	0.6	3	1	0.001	5	1
19-Feb-2025	501	0.6	3	1	0.001	5	1
20-Feb-2025	491	0.6	2	1	0.001	5	1
21-Feb-2025	489	0.6	2	1	0.001	5	1
22-Feb-2025	484	0.6	2	1	0.001	5	1
23-Feb-2025	482	0.6	2	1	0.001	5	1
24-Feb-2025	474	0.6	2	1	0.001	5	1
25-Feb-2025	472	0.6	2	1	0.002	5	1
26-Feb-2025	485	0.6	2	1	0.002	5	1
27-Feb-2025	468	0.6	2	1	0.002	5	1
28-Feb-2025	469	0.6	2	1	0.002	5	1
Monthly Total	**14,902**	**18**	**75**	**28**	**0.04**	**156**	**28**

* Individual and final totals may be subject to rounding adjustments

Exhibit D-1: Sample Emission Calculations – Warm/Wet Flare

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 h to 1 day (d)
    - 10,000 parts per millon (ppm) in one percent.

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable meters include:
    - KITSL-V1P.curval (KMS): This tag provides the daily fuel gas volume data recorded at the KMS. These volumes, measured at atmospheric pressure, serve as the primary input for calculating flared gas volumes.
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density was obtained (daily values at 1 atm) This was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - CA:KIT:062FI0343.PV: This tag measures the total fuel gas consumption for all flare pilots. The portions attributable to the cold dry flare and the liquid burner were determined using flare tip allocations and subtracted from the total to determine the warm/wet flare pilot gas consumption.
    - CA:KIT:062FI0021.PV; CA:KIT:062FI0022.PV: These tags provide the fuel gas purges from the cold dry flare.
    - Emission factors: Refer to Table 3 within the report.

Emission Calculation Basis – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using February 1, 2025, and NOx for the example:

Convert volumetric flow rate to mass flow rate:

Volumetric flow rate = 280,609 m^3/d – corrected to 20°C.

Mass flow rate = 280,609 m^3/d x 0.74814722 kg/m^3 = 209,937 kg/d

NOx Mass Emission (kg/d)

= 209,937 x 40.72 x (1 / 0.74814722) x (1 / 1000) x 0.9478 x 0.068 x 0.4535

≈ 334 kg/d

Similar calculations follow for CO, $PM_{2.5}$, VOC, and HC-T, however all HHV values in their calculations are converted to LHV.

Emission Calculation Basis – when using Engineering Estimates (only applies to SOx):

Total sulfur content (S) in feed gas samples was analyzed periodically by the LNG Canada laboratory. Table D-7 summarizes the laboratory results.

Table D-7: Total Sulphur Content Measured in the Feed Gas (Laboratory Results)

Date	Total Sulphur in Feed Gas (ppmw)	%
04-Feb-2025	2.49	0.000249
11-Feb-2025	1.60	0.000160
18-Feb-2025	1.96	0.000196
25-Feb-2025	3.18	0.000318

To bridge periods between measurements, the following approach was used:

- February 1 - 10: SO_2 emissions were calculated using the February 04, 2025 total sulphur measurement.
- February 11 – 17: The February 11, 2025 measurement was applied.
- February 18 – 24: The February 18, 2025 measurement was applied.
- February 25 – 28: The February 25, 2025 measurement was applied.

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

Using February 01, 2025, for the example, where the applied percent sulphur in the fuel gas is 2.49 ppmw.

SO_2 Mass Emission (kg/d)

= 209,937 x 0.000249 x (1 / 100) x (64.066 / 32.065) x 1

≈ 1.0 kg/d

The same calculation approach would follow for SO_2 (kg/h) numbers; with the flow rate in kg/h rather than kg/d.

Appendix E Ambient Air Quality Evaluation (Condition 10.2.7)

Nitrogen Dioxide (NO_2)

The publicly available data of 1-hour NO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-1. The BCAAQO for 1-hour NO_2 is 60 parts per billion (ppb) (equates to 113 µg/m^3), calculated by the 98th percentile of daily 1-hour maximum over three years; this metric is also illustrated in Figure E-1.

There is a BCAAQO for annual NO_2 (17 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

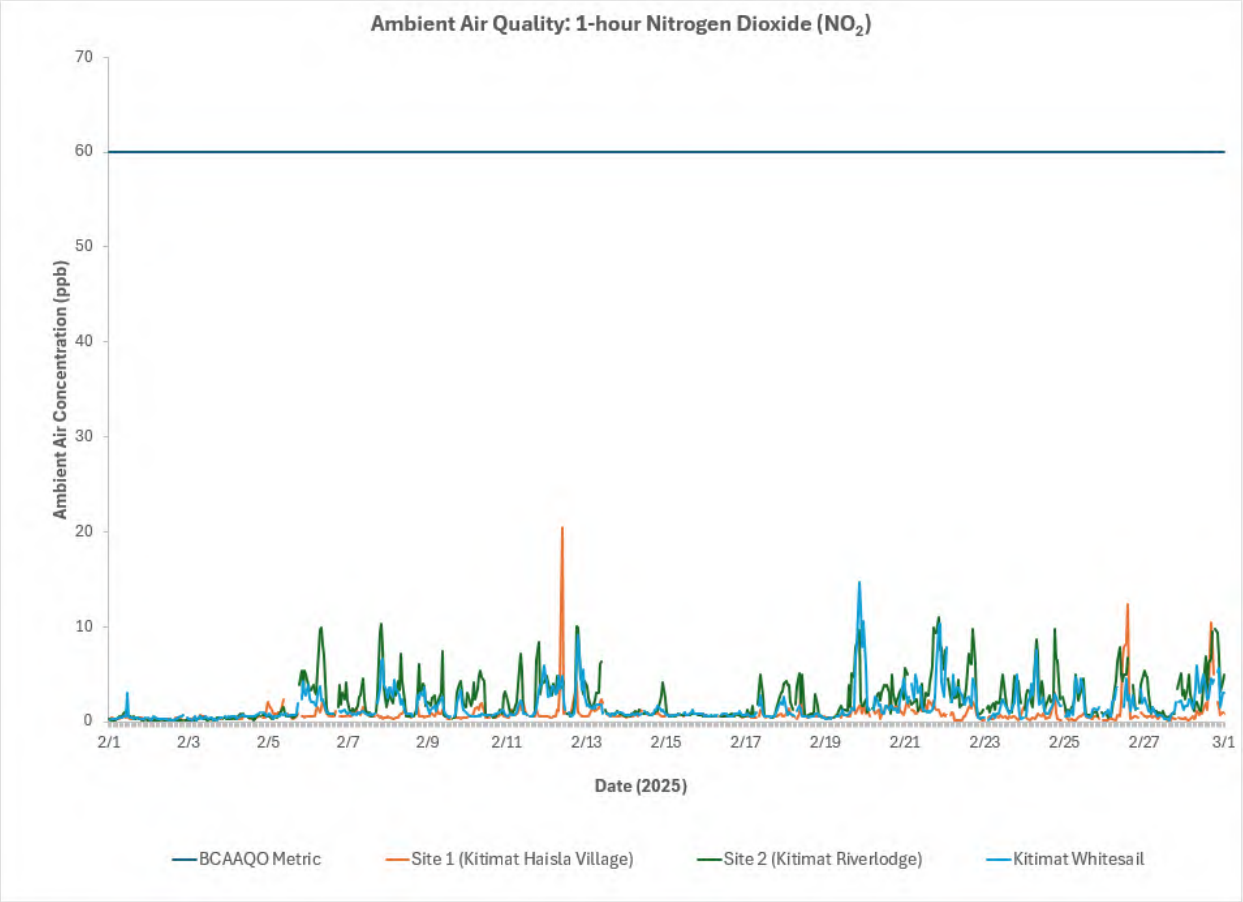

Figure E-1: Ambient Air Quality - 1-hour Nitrogen Dioxide (NO_2)

Sulphur Dioxide (SO_2)

The publicly available data of 1-hour SO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-2. BC adopted the 2020 Canadian Ambient Air Quality Standard (CAAQS) as the BCAAQO for 1-hour SO_2, which is 70 parts per billion (ppb) (equates to 183 µg/m^3), calculated by the annual 99th percentile of daily 1-hour averaged over three consecutive years; this metric is also illustrated in Figure E-2.

There is a BCAAQO for annual SO_2 (5 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

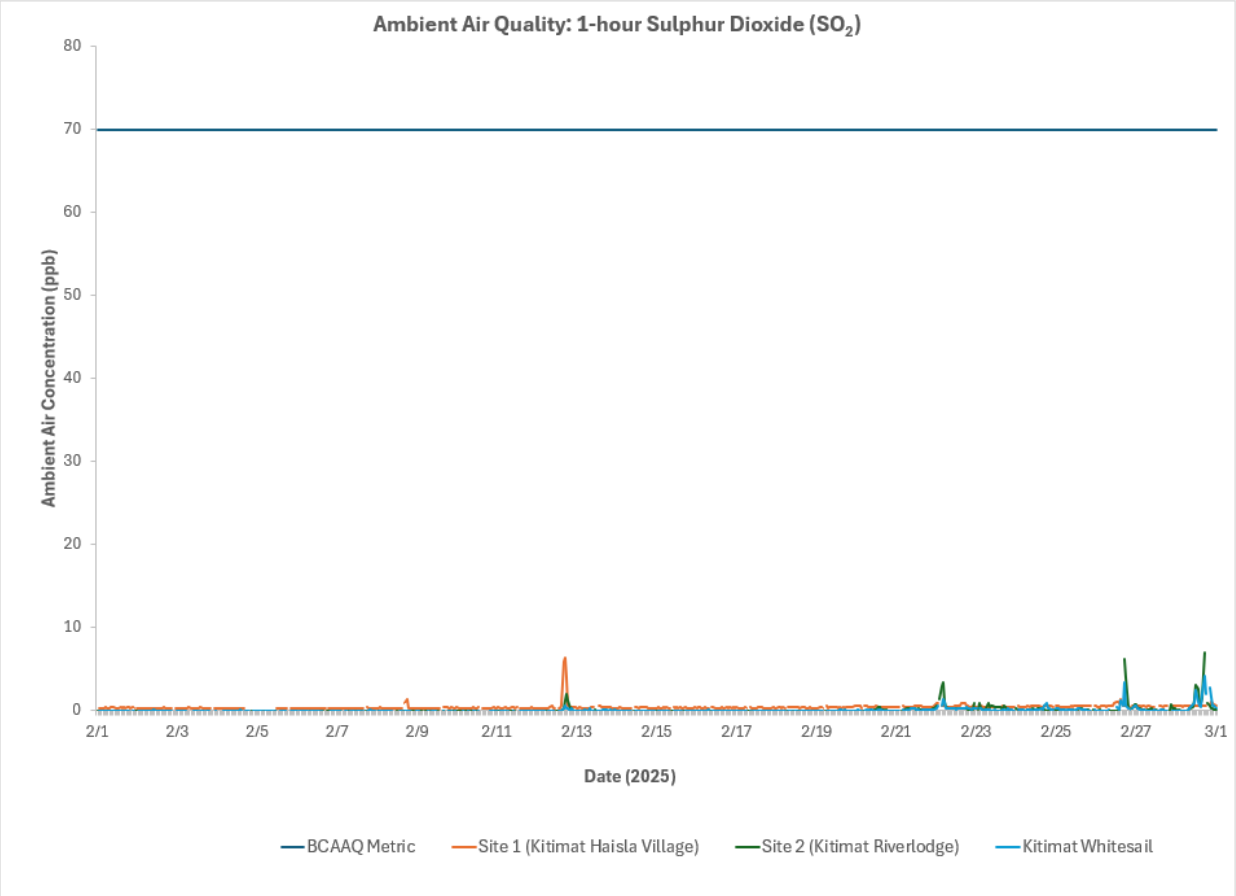

Figure E-2: Ambient Air Quality - 1-hour Sulphur Dioxide (SO_2)

Fine Particulate Matter ($PM_{2.5}$)

The publicly available data of 24-hour running average for $PM_{2.5}$ from the three continuous ambient air quality monitoring stations is illustrated in Figure E-3. The BCAAQO for 24-hour $PM_{2.5}$ is 25 µg/m^3, calculated by the 98th percentile of daily average, over one year; this metric is also illustrated in Figure E-3.

There is a BCAAQO for annual $PM_{2.5}$ (8 µg/m^3 based on the annual average, over one year) however this information is not published for each monitoring station therefore is not provided herein.

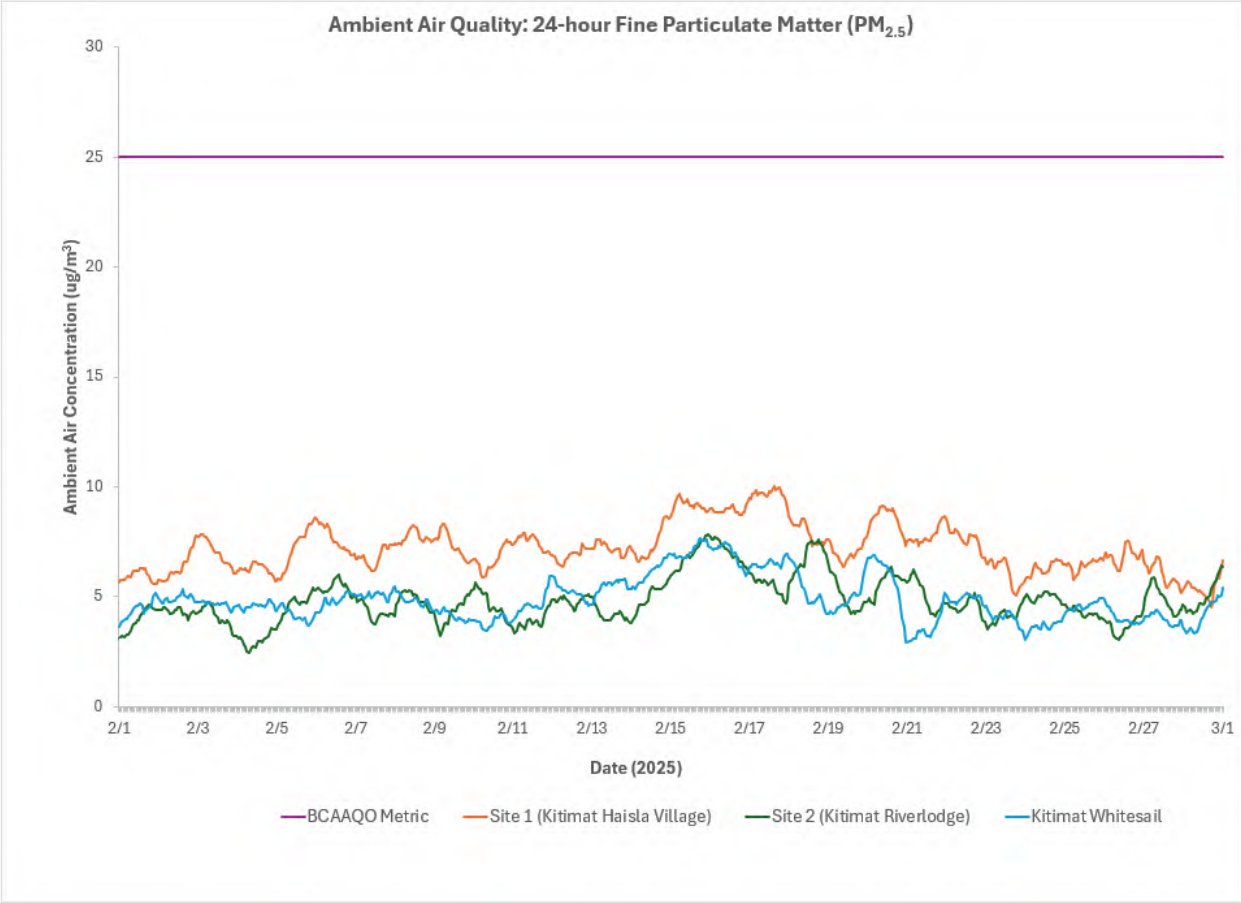

Figure E-3: Ambient Air Quality - 24-hour Fine Particulate Matter ($PM_{2.5}$)

Ozone (O_3)

The publicly available data of 1-hour O_3 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-4.

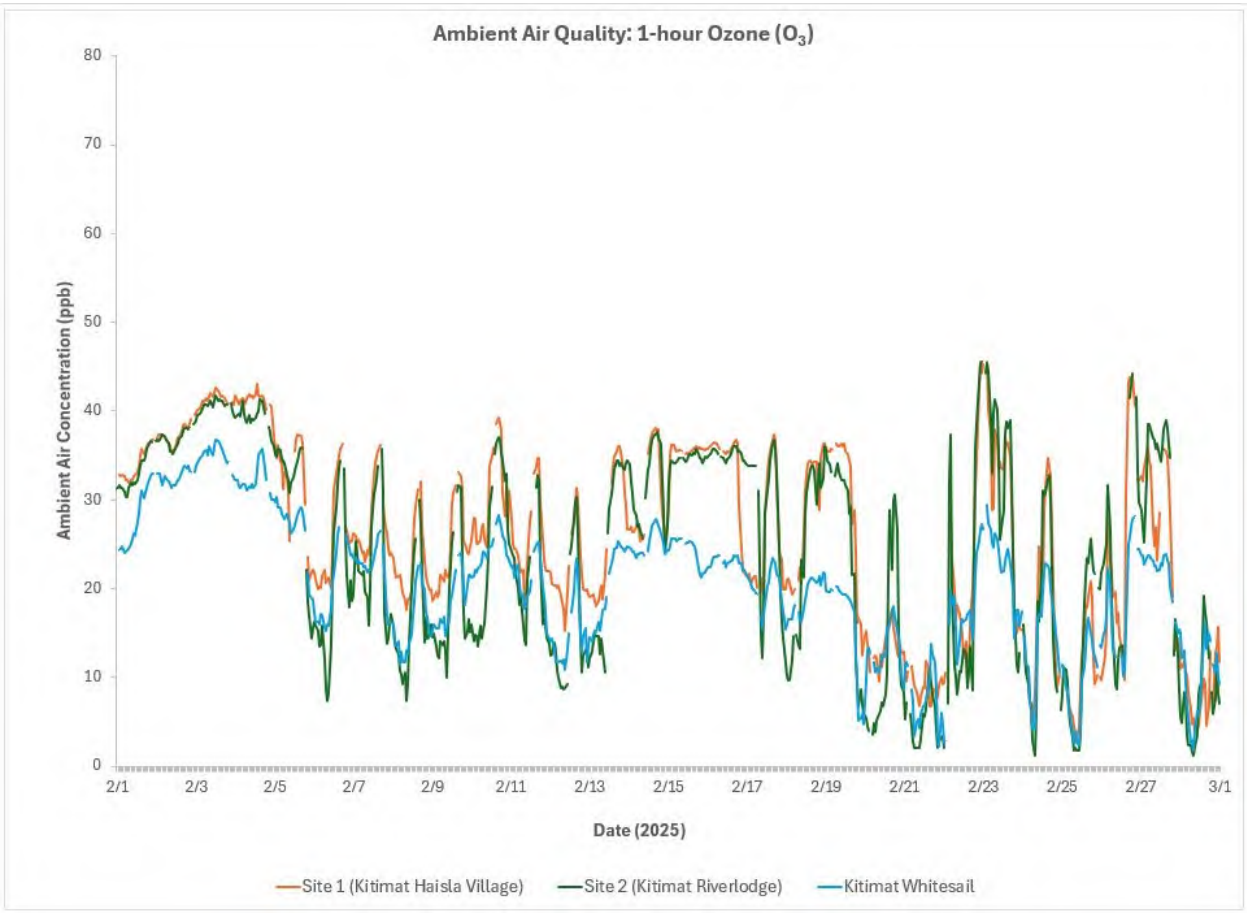

Figure E-4: Ambient Air Quality - 1-hour Ozone (O_3)

Appendix F Facility SO_2 Emission Limit (Condition 10.2.8)

Table F-1 presents the maximum hourly cumulative SO_2 discharge rate per day. It does not imply that the maximum discharge rate occurred for the full 24 hours that day. The maximum hourly rate was based on the maximum hourly flow rate obtained for each of the contributing sources below on the respective dates. The total sulfur content was obtained from Table D-7.

Table F-1: Maximum Hourly SO_2 Discharge Rate for Each Day

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
01-Feb-2025	0.131	48.87%	-	51.01%	0.03%	-	-	0.09%
02-Feb-2025	0.119	53.55%	-	46.33%	0.03%	-	-	0.09%
03-Feb-2025	0.120	52.75%	-	47.13%	0.03%	-	-	0.09%
04-Feb-2025	0.126	10.91%	-	88.95%	0.03%	-	-	0.11%
05-Feb-2025	0.059	-	-	99.68%	0.07%	-	-	0.25%
06-Feb-2025	0.059	-	0.11%	99.66%	0.07%	-	-	0.16%
07-Feb-2025	0.059	-	-	99.69%	0.07%	-	-	0.24%
08-Feb-2025	0.057	-	-	99.66%	0.07%	-	-	0.27%
09-Feb-2025	0.541	-	0.01%	99.96%	0.01%	-	-	0.02%
10-Feb-2025	0.138	44.02%	-	55.84%	0.03%	-	-	0.11%
11-Feb-2025	0.100	54.49%	-	45.38%	0.03%	-	-	0.10%
12-Feb-2025	0.100	53.79%	-	46.08%	0.03%	-	-	0.10%
13-Feb-2025	0.100	53.54%	-	46.33%	0.03%	-	-	0.10%
14-Feb-2025	0.100	53.40%	-	46.50%	0.02%	-	-	0.08%
15-Feb-2025	0.070	52.56%	-	47.31%	0.03%	-	-	0.10%
16-Feb-2025	0.070	54.72%	-	45.14%	0.04%	-	-	0.10%
17-Feb-2025	0.083	43.64%	-	56.21%	0.03%	-	-	0.12%
18-Feb-2025	0.057	4.93%	-	94.85%	0.05%	-	-	0.17%
19-Feb-2025	0.158	1.33%	-	98.61%	0.02%	-	-	0.04%
20-Feb-2025	0.100	-	-	99.91%	0.03%	-	-	0.06%
21-Feb-2025	0.046	-	-	99.79%	0.06%	-	-	0.15%
22-Feb-2025	0.037	-	-	99.77%	0.07%	-	-	0.16%
23-Feb-2025	0.039	-	0.22%	99.34%	0.07%	-	-	0.37%
24-Feb-2025	0.038	-	0.11%	99.55%	0.07%	-	-	0.27%
25-Feb-2025	0.043	-	0.51%	98.66%	0.10%	-	-	0.73%
26-Feb-2025	0.049	-	0.17%	99.36%	0.09%	-	-	0.38%
27-Feb-2025	0.044	-	0.19%	99.29%	0.10%	-	-	0.42%
28-Feb-2025	0.055	-	1.46%	98.30%	0.07%	-	-	0.17%

* Individual values may be subject to rounding adjustments

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Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Monthly Report (March 2025)

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1. Executive Summary

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. The BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., for the discharge of air contaminants to the environment from the LNG Facility.

Permit PA-110588 requires a monthly report to be submitted to the BCER that includes data/information on:

- Fuel Gas Use (for Commissioning only)
- Continuous Emissions Monitoring System (for Operations only)
- Flaring Activities
- Ambient Air Monitoring Evaluation
- Facility sulphur dioxide (SO_2) Emissions

Herein is the monthly report for March 2025. A summary of the findings for this reporting period is as follows:

- There were no instances of permit non-compliances during the reporting period.
- There were no ambient air quality concentrations of nitrogen dixoide (NO_2), SO_2 or respirable particulate matter ($PM_{2.5}$) measured in excess of the BC ambient air quality objective (BCAAQO) metrics at the three continuous ambient air quality monitoring stations identified in Permit PA-110588 (Kitamaat Village (Kitimat Haisla Village); Kitimat Riverlodge and Kitimat Whitesail).
- There were air emissions from five authorised discharge sources defined in Sections 2.1 to 2.7 of Permit PA-110588: warm/wet flare, cold/dry flare, liquid burner, storage and loading flare, and the acid gas incinerator in Train 1.

The warm/wet flare was the largest source of air emissions, as all the fuel gas introduced into the facility is used for testing purposes during Commissioning, rather than for producing LNG. The maximum hourly cumulative SO_2 rate in March 2025 was calculated to be 0.03 kg/hour.

2. Overview

2.1. Project Background

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia, Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

2.2. Purpose

On July 15, 2024, the BCER issued WDA discharge permit PA-110588 to LNG Canada Development Inc., under the provisions of the BC *Environmental Management Act*, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Permit PA-110588 applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.2 of Permit PA-110588 (Monthly Reporting) for March 2025.

Refer to Appendix B for a list of all monthly reports that have been issued under Permit PA-110588.

2.3. LNG Facility Status

On the afternoon of August 31, 2024, fuel gas was introduced into Unit 1000 (Inlet Facilities) for the first time from the Coastal Gas Link (CGL) pipeline, commencing the pressurization of piping and the startup fuel gas heater. The introduction of fuel gas into the fuel gas headers down to the flare area, and the first supply of fuel gas to the pilot on the warm/wet flare occurred on September 1, 2024.

During March 2025, discharges of air contaminants occurred from the following authorized works:

- One (1) AGI (in Train 1)
- One (1) warm/wet flare
- One (1) cold/dry flare
- One (1) storage and loading flare
- Liquid burner

Under Permit PA-110588, the “Commissioning” phase is defined as “that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.” Operations is the period

of time which follows Commissioning. Therefore, “Commissioning”, under Permit PA-110588, commenced on September 1, 2024. The first cargo has not yet been shipped from LNG Train 1.

The Initial Performance Period (IPP) did not commence during March 2025 (which is defined as the period that “*commences upon the completion of the initial performance test for LNG Train 1”*).

3. Fuel Gas Use (Commissioning Only) (Condition 10.2.1)

3.1. Permit Condition

Under Condition 10.2.1, the monthly report shall identify and provide a summary of fuel gas use at the facility during Commissioning. The monthly report shall include the following information:

a. the daily volume of fuel gas combusted and vented;

b. the daily mass emissions of nitrogen oxides (NOx), sulphur oxides (SOx), carbon monoxide (CO), particulate matter with an aerodynamic diameter smaller than 2.5 micrometers (PM2.5), volatile organic compounds (VOCs) and total hydrocarbons (HC-T), for the authorized works in Section 2.1 and 2.2; and

c. the quantification method (under Section 9 of Permit PA-110588) and representative calculations.

3.2. Data and Assessment

Appendix C contains the summary of the daily volume of fuel gas combusted and flared as well as the daily mass emissions of NO_X, SO_X, CO, $PM_{2.5}$, VOCs, and HC-T from the gas turbine and AGI (which is Section 2.1 and 2.2 of Permit PA-110588 respectively) in March 2025.

The basis for this assessment is as follows:

- The daily volume of fuel gas combusted and flared at the LNG Facility is based on the daily volume of fuel gas introduced into the LNG facility, as all this fuel gas is used for testing purposes during Commissioning; rather than for producing LNG. This is a conservative approach, and does not account for the time lag between pressurizing systems with fuel gas to it being combusted or flared. The data for this report was obtained from the Kitimat Metering Station (KMS) using the CGL meter.
- As there was no fuel gas combusted in the gas turbines in the reporting period, the daily mass emissions from these systems are shown with “zero” values in Appendix C.
- The daily mass emissions from the AGI during this reporting month were from the commissioning activity of drying out the AGI, therefore emissions are estimated herein based on published emission factors for a flare, to represent a high temperature oxidation process to burn hydrocarbons (refer to Table 1). The data from the continuous emissions monitoring system (CEMS) associated with the AGI will be available after the relative accracy test audit (RATA) has been undertaken (which will be undertaken when acid gas is being generated in the Acid Gas Recovery Units (AGRUs)).

Table 1: Emission Factors used for the AGI (Based on Flare)

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
SO_X	Engineering Estimate				There is no AP-42 emissions factor for SO_X; therefore it is based on fuel gas sulphur content informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014).The assumed destruction efficiency is 100%.
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.027	lb/MMBtu	B	Based on a lightly smoking flare (soot in concentration values: 40 ug/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from ug/L to lb/MMBtu is documented in the “Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015”, issued to USEPA by RTI International.

4. CEMS Zero and Span Reporting (Condition 10.2.2)

4.1. Permit Condition

Under Condition 10.2.2, during Operations, after the completion of the initial CEMS performance evaluation, the monthly report shall include a summary of all CEMS out of control calibration zero and span events that occurred during the month.

4.2. Data and Assessment

As Operations has not yet commenced, there is no CEMS zero and span reporting for this month.

5. CEMS Reporting (Condition 10.2.3)

5.1. Permit Condition

Under Condition 10.2.3, during Operations, after the completion of the initial CEMS performance evaluation, the Permittee shall provide a summary of CEMS data collected during the month.

5.2. Data and Assessment

As Operations has not yet commenced, there is no CEMS reporting for this month.

6. Flaring Activity Reporting (Condition 10.2.4)

6.1. Permit Condition

Under Condition 10.2.4, a summary of all flaring activity carried out during the month is to be included in the monthly report. The monthly report shall include the following information:

a. identification of the flare source;

b. description of the type of process gas sent to flare;

c. the volume of gas sent to the flare during each event;

d. the reason for the flaring event;

e. any external notifications sent out, if applicable;

f. the (i) daily and (ii) monthly volume of gas being flared for each source;

g. the (i) daily and (ii) monthly contaminant emission totals for each source, parameters include NO_x, CO, $PM_{2.5}$, SO_x, VOCs, and HC-T; and

h. the quantification method (under Section 9) and representative calculations.

6.2. Data and Assessment

In Permit PA-110588, flaring activities are described as either a routine flaring event (continuous) or a non-routine flaring event (intermittent). Routine flaring discharges include the continuous flare pilots, which are supplied by fuel gas to provide a continuous ignition source so that any gas sent to the flare as a result of upset conditions ("non-routine flaring") is immediately combusted. The permit application to support Permit PA-110588 also described the other small sources of process gas that are continuously sent to the flare, including compressor seal gas, analyzer sample returns and passing valves.

Process gas refers to the natural gas stream intended for LNG production; the incoming fuel gas stream from Coastal Gas Link that undergoes several treatment stages (acid gas removal, pre-cooling, and finally, liquefaction) prior to being exported as LNG.

Appendix D contains the flaring activities tables, as follows:

- Table D-1: Flaring Events Table
- Table D-2: Warm/Wet Flare Volume and Emissions Summary
- Table D-3: Cold/Dry Flare Volume and Emissions Summary
- Table D-4: Storage and Loading Flare Volume and Emissions Summary
- Table D-5: Spare Flare Volume and Emissions Summary
- Table D-6: Liquid Burner Volume and Emissions Summary

Sample calculations are also provided in Appendix D (Exhibit D-1). The basis for this assessment is as follows:

- The daily volume of gas flared is sourced from the flow meters upstream of the applicable flare. In cases where the flow is below the detection limit of the flow meters, the sum of flow from upstream flow meters is used.
- The daily mass emissions from each flare source reported herein are calcuated based on published emission factors for industrial flares (refer to Table 2), except for SO_X, which is calculated based on a mass balance and assumed destruction efficiency.
- During this reporting month, the spare flare were not used, therefore shown with "zero" values for emissions.

Table 2: Emission Factors used for the Flare System

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.12	lb/MMBtu	B	Based on an average smoking flare (soot in concentration values: 177 ug/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from ug/L to lb/MMBtu is documented in the “Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015”, issued to USEPA by RTI International.

7. Permit Contravention (Condition 10.2.5)

7.1. Permit Condition

Under Condition 10.2.5, a summary of all instances of permit non-compliances are to be included in the monthly report, including a description of the event (date, time, circumstances), a summary of the investigation findings, the completed and ongoing actions taken in response to the non-compliance event, and the date of self-disclosure notifications to the BCER.

7.2. Assessment

There were no instances of permit non-compliances during the reporting period.

8. Pollution Control Technologies (Condition 10.2.6)

8.1. Permit Condition

Under Condition 10.2.6, a discussion of any operational or performance issues or significant maintenance activities with any pollution control technologies of the authorized works and equipment required by the permit is to be included in the monthly report.

The pollution control technologies identified in the permit application supporting Permit PA-110588 were the:

- Dry low emissions combustor optimization system in the gas turbines (dry low NOx burners); and
- Catalysts in the WHRUs, to convert CO in the exhaust gas to carbon dioxide.

8.2. Assessment

There were no instances of operational or performance issues, or significant maintenance activities with the pollution control technologies within the reporting period, given Operations has not yet commenced.

9. Ambient Air Monitoring Evaluation (Commissioning Only) (Condition 10.2.7)

9.1. Permit Condition

Under Condition 10.2.7, the following information for nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and $PM_{2.5}$ from three continuous ambient air quality monitoring stations (Kitamaat Village (Kitimat Haisla Village) (Site 1); Kitimat Riverlodge (Site 2) and Kitimat Whitesail) are to be included in the monthly report during Commissioning where information is publicly available:

a. a comparison of the measured ambient air concentrations at each ambient air monitoring stations to the applicable numerical metrics of the BC ambient air quality objectives (BCAAQO);

b. (i) a description of any measured ambient air concentrations in excess of the numerical metrics of the BCAAQO, if applicable, (ii) a description of any known contributing factors from authorized works, and (iii) a description of action (if any) taken by the Permittee.

The monthly report shall also include the time series plot of the hourly average ambient air concentration of ozone (O_3) data from these stations.

9.2. Data and Assessment

Data from continuous ambient air quality monitoring stations in Kitimat are publicly available via the BC Ministry of Environment and Climate Change Strategy, at: Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

The publicly available data for NO_2, SO_2 and $PM_{2.5}$ at the three continuous ambient air quality monitoring stations are provided in graphs in Appendix E; the graphs also contain the applicable BCAAQO. The time series plot for the hourly average ambient air concentration of O_3 is also provided in Appendix E.

There were no ambient air quality concentrations of NO_2, SO_2 and $PM_{2.5}$ measured in excess of the BCAAQO metrics in the reporting period.

10. Facility SO_2 Emission Limit (Condition 10.2.8)

10.1. Permit Condition

Under Condition 10.2.8, for all authorized sources in Sections 2.1 to 2.7, for each day of the month, the maximum hourly cumulative SO_2 discharge rate is to be provided in the monthly report, including the percentage breakdown of the sources contributing to the maximum discharge rate of each day.

10.2. Data and Assessment

Appendix F contains the cumulative SO_2 discharge rate from the authorized sources in Permit PA-110588 Section 2.1 to 2.7 (refer to Section 2.2), including the percentage breakdown of the sources contributing to the maximum discharge rate shown for each day.

The representative calculations for SO_2 are provided in Appendix C for the AGI, and Appendix D for the flare system.

11. References

- BC Ministry of Environment and Parks, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca), accessed April 2, 2025.

Appendix A Abbreviations

AGI	Acid Gas Incinerator
AGRU	Acid Gas Removal Unit
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
CGL	Coastal Gas Link (Pipeline)
CO	Carbon monoxide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
JFJV	JGC Fluor BC LNG Joint Venture
KMS	Kitimat Metering Station
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
VOC	Volatile Organic Compound
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit
$\mu g/m^3$	micrograms per cubic meter

Appendix B Previous Monthly Reports Issued Under PA-110588

Month	Document #	Date Issued
August 2024	L001-09800-HE-7180-4611	04-Sep-2024
September 2024	L001-09800-HE-7180-4612	22-Oct-2024; Revised 03-Mar-2025 (Rev B)
October 2024	L001-09800-HE-7180-4613	26-Nov-2024; Revised 03-Mar-2025 (Rev B)
November 2024	L001-09800-HE-7180-4614	16-Dec-2025; Revised 03-Mar-2025 (Rev B)
December 2024	L001-09800-HE-7180-4684	23-Jan-2025
January 2025	L001-09800-HE-7180-4691	26-Feb-2025
February 2025	L001-09800-HE-7180-4692	27-Mar-2025
March 2025	L001-09800-HE-7180-4702	30-Apr-2025

Appendix C Fuel Gas Use During Commissioning (Condition 10.2.1)

There was no LNG production that occurred in this period. For this month, all daily fuel gas volumes were obtained from the KMS (Tag: KITSL-V1P.curval) under atmospheric pressure (Pressure = 1 atm) (refer to Table C-1). The fuel volumes below were corrected to 20°C.

Table C-1: Fuel Gas Use During Commissioning

Date	Volume of Fuel Gas Introduced to LNG Facility (m^3/d)*
01-Mar-2025	185,026
02-Mar-2025	192,486
03-Mar-2025	147,886
04-Mar-2025	176,055
05-Mar-2025	165,989
06-Mar-2025	171,769
07-Mar-2025	174,456
08-Mar-2025	147,510
09-Mar-2025	158,939
10-Mar-2025	172,279
11-Mar-2025	177,814
12-Mar-2025	172,142
13-Mar-2025	185,078
14-Mar-2025	185,346
15-Mar-2025	186,722
16-Mar-2025	181,111
17-Mar-2025	178,502
18-Mar-2025	178,685
19-Mar-2025	181,945
20-Mar-2025	180,653
21-Mar-2025	185,091
22-Mar-2025	196,056
23-Mar-2025	186,704
24-Mar-2025	185,816
25-Mar-2025	186,214
26-Mar-2025	178,509
27-Mar-2025	188,084
28-Mar-2025	193,003
29-Mar-2025	189,124
30-Mar-2025	185,221
31-Mar-2025	189,205
Monthly Total	**5,563,420**

* Individual and final totals may be subject to rounding adjustments

Table C-2: Fuel Gas Use During Commissioning – Gas Turbines

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Mar-2025	-	-	-	-	-	-	-
02-Mar-2025	-	-	-	-	-	-	-
03-Mar-2025	-	-	-	-	-	-	-
04-Mar-2025	-	-	-	-	-	-	-
05-Mar-2025	-	-	-	-	-	-	-
06-Mar-2025	-	-	-	-	-	-	-
07-Mar-2025	-	-	-	-	-	-	-
08-Mar-2025	-	-	-	-	-	-	-
09-Mar-2025	-	-	-	-	-	-	-
10-Mar-2025	-	-	-	-	-	-	-
11-Mar-2025	-	-	-	-	-	-	-
12-Mar-2025	-	-	-	-	-	-	-
13-Mar-2025	-	-	-	-	-	-	-
14-Mar-2025	-	-	-	-	-	-	-
15-Mar-2025	-	-	-	-	-	-	-
16-Mar-2025	-	-	-	-	-	-	-
17-Mar-2025	-	-	-	-	-	-	-
18-Mar-2025	-	-	-	-	-	-	-
19-Mar-2025	-	-	-	-	-	-	-
20-Mar-2025	-	-	-	-	-	-	-
21-Mar-2025	-	-	-	-	-	-	-
22-Mar-2025	-	-	-	-	-	-	-
23-Mar-2025	-	-	-	-	-	-	-
24-Mar-2025	-	-	-	-	-	-	-
25-Mar-2025	-	-	-	-	-	-	-
26-Mar-2025	-	-	-	-	-	-	-
27-Mar-2025	-	-	-	-	-	-	-
28-Mar-2025	-	-	-	-	-	-	-
29-Mar-2025	-	-	-	-	-	-	-
30-Mar-2025	-	-	-	-	-	-	-
31-Mar-2025	-	-	-	-	-	-	-
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

* Individual and final totals may be subject to rounding adjustments

The refractory dry-out process of the AGI in Train 1 that commenced in February 2025 was completed by early March 2025. Refractory materials serve as heat-resistant linings that protect equipment from extreme temperatures. Proper curing through this controlled dry-out process is essential to prevent cracks or damage during subsequent operation. It is important to note that no acid gas was combusted during this phase of testing.

Table C-3: Fuel Gas Use During Commissioning – Acid Gas Incinerator

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Mar-2025	5,899	7	29	3	0.01	62	13
02-Mar-2025	8,313	10	41	4	0.01	87	18
03-Mar-2025	19,908	24	98	9	0.03	209	44
04-Mar-2025	5,997	7	30	3	0.01	63	13
05-Mar-2025	-	-	-	-	-	-	-
06-Mar-2025	-	-	-	-	-	-	-
07-Mar-2025	-	-	-	-	-	-	-
08-Mar-2025	-	-	-	-	-	-	-
09-Mar-2025	-	-	-	-	-	-	-
10-Mar-2025	-	-	-	-	-	-	-
11-Mar-2025	-	-	-	-	-	-	-
12-Mar-2025	-	-	-	-	-	-	-
13-Mar-2025	-	-	-	-	-	-	-
14-Mar-2025	-	-	-	-	-	-	-
15-Mar-2025	-	-	-	-	-	-	-
16-Mar-2025	-	-	-	-	-	-	-
17-Mar-2025	-	-	-	-	-	-	-
18-Mar-2025	-	-	-	-	-	-	-
19-Mar-2025	-	-	-	-	-	-	-
20-Mar-2025	-	-	-	-	-	-	-
21-Mar-2025	-	-	-	-	-	-	-
22-Mar-2025	-	-	-	-	-	-	-
23-Mar-2025	-	-	-	-	-	-	-
24-Mar-2025	-	-	-	-	-	-	-
25-Mar-2025	-	-	-	-	-	-	-
26-Mar-2025	-	-	-	-	-	-	-
27-Mar-2025	-	-	-	-	-	-	-
28-Mar-2025	-	-	-	-	-	-	-
29-Mar-2025	-	-	-	-	-	-	-
30-Mar-2025	-	-	-	-	-	-	-
31-Mar-2025	-	-	-	-	-	-	-
Total	**40,117**	**48**	**198**	**19**	**0.06**	**421**	**88**

* Individual and final totals may be subject to rounding adjustments

Exhibit C-1: Sample Emission Calculations – Acid gas incinerator

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hours (h) to 1 day (d)
    - 10,000 parts per million (ppm) in one percent

Input Values

The applicable sources of data from the meters include:

- Tag CA:KIT:119FI0302.PV: Fuel gas consumption by the acid gas incinerator (daily values).
- Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
- Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) multiplied by a reference air density of 1.225 kg/m³ (15°C, 1 atm) and corrected to standard conditions (20°C, 1 atm) to determine the actual natural gas density.
- Emission Factors: Refer to Table 1 within the report.

The sample calculation below is based on the data from March 01, 2025.

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:119FI0302.PV is converted to volume flow rate using the fluid density of 0.755036877 kg/m³.

Mass flow rate = 4,453.68 kg/d

Volume flow rate (m³/d):

= Mass flow rate / Fluid density

= 4,453.68 / 0.755036877 ≈ 5,898.6 m³/d

Step 2: Emission Calculation – Using Emission Factors

Formula: Mass Emission (kg/d) =

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Example: NOx Emissions

- Fuel Gas Flow (kg/d): 4,453.68 kg/d
- High Heating Value (HHV): 41.04 MJ/Sm³
- Natural Gas Density: 0.755036877 kg/m³
- NOx Emission Factor: 0.068 lb/MMBTU

NOx Mass Emission (kg/d):

= 4,453.68 × 41.04 × (1 / 0.755036877) × (1 / 1000) × 0.9478 × 0.068 × 0.4535

≈ 7 kg/d

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

For SO_2, total sulphur is based on the total sulphur content of the fuel gas for March 04 (from the laboratory analysis) given fuel gas was used to fuel the AGI this month (refer to Appendix D, Table D-7).

SO_2 Mass Emission (kg/d):

= 4,453.68 x 0.000141 x (1 / 100) x (64.066 / 32.065) x 1

≈ 0.01 kg/d

Appendix D Flaring Activity (Condition 10.2.4)

Table D-1: Flaring Event Overview

Flare	Event Type	Event Date & Time			Description	Volume of Gas to Flare Per Event (m^3/month)	External Notifications Undertaken
		Start	End	Duration			
Warm/Wet	Routine	01-Mar-2025	31-Mar-2025	Continuous	Pilot and purge gas	6,367	
Warm/Wet	Non-Routine	01-Mar-2025	31-Mar-2025	Continuous	Assist gas and supporting start-up activities[1]	5,492,295	
Cold/Dry	Routine	01-Mar-2025	31-Mar-2025	Continuous	Pilot	6,368	
Cold/Dry	Non-Routine	17-Mar-2025	31-Mar-2025	Continuous	Vaporization within the C2 sphere	874	
Storage and Loading	Routine	19-Mar-2025	31-Mar-2025	Continuous	Pilot	2,582	
Spare	N/A	N/A	N/A	N/A	Not Used	0	
Liquid Burner	Routine	01-Mar-2025	31-Mar-2025	Continuous	Pilot	15,691	

Notes:

1. In this reporting period, flaring is undertaken to support commissioning and start-up activities; in accordance with Leave(s) to Operate from the BC Energy Regulator. This fuel gas is not considered process gas.

The data for the warm/wet flare was derived from the KMS CGL inlet gas meter (refer to Table C-1). The following volumes were subtracted because they were measured and reported separately:

- The pilot for the cold dry flare (refer to Table D-3)
- The pilot for the liquid burner (refer to Table D-6)
- The pilot for the storage and loading flare (refer to Table D-4)
- The fuel gas use into the acid gas incinerator (refer to Table C-3) and associated venting from authorized vents

The fuel volumes below were corrected to 20°C.

Table D-2: Flaring Event – Warm/Wet Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Mar-2025	178,454	214	877	340	0.3	1,868	396
02-Mar-2025	183,492	220	902	349	0.3	1,921	407
03-Mar-2025	127,297	153	626	242	0.2	1,333	283
04-Mar-2025	169,386	203	833	322	0.3	1,773	376
05-Mar-2025	165,315	198	813	315	0.2	1,731	367
06-Mar-2025	171,094	205	841	326	0.3	1,791	380
07-Mar-2025	173,785	208	854	331	0.3	1,819	386
08-Mar-2025	146,839	176	722	279	0.2	1,537	326
09-Mar-2025	158,276	189	778	301	0.2	1,657	351
10-Mar-2025	171,594	205	844	327	0.3	1,796	381
11-Mar-2025	177,100	212	868	336	0.3	1,849	392
12-Mar-2025	171,454	205	841	325	0.3	1,790	380
13-Mar-2025	184,393	220	904	350	0.3	1,925	408
14-Mar-2025	184,650	220	903	350	0.3	1,922	408
15-Mar-2025	186,020	222	910	352	0.3	1,937	411
16-Mar-2025	180,413	215	882	342	0.3	1,878	398
17-Mar-2025	177,815	211	867	336	0.3	1,846	392
18-Mar-2025	177,997	211	868	336	0.2	1,848	392
19-Mar-2025	181,023	215	880	341	0.2	1,874	398
20-Mar-2025	179,698	213	874	338	0.2	1,861	395
21-Mar-2025	184,128	218	896	347	0.2	1,907	404
22-Mar-2025	195,102	231	949	367	0.3	2,020	429
23-Mar-2025	185,745	220	903	350	0.2	1,923	408
24-Mar-2025	184,862	219	899	348	0.2	1,914	406
25-Mar-2025	185,259	220	901	349	0.3	1,918	407
26-Mar-2025	177,572	211	864	334	0.3	1,839	390
27-Mar-2025	187,138	222	910	352	0.3	1,938	411
28-Mar-2025	192,049	228	934	362	0.3	1,989	422
29-Mar-2025	188,170	223	915	354	0.3	1,948	413
30-Mar-2025	184,274	219	896	347	0.3	1,908	405

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
31-Mar-2025	188,268	223	916	354	0.3	1,949	414
Monthly Total	**5,498,662**	**6,549**	**26,870**	**10,402**	**8.3**	**57,209**	**12,136**

* Individual and final totals may be subject to rounding adjustments

For this month, the reporting for the cold/dry flare is from the pilot (CA:KIT:062FI0343.PV). Additionally, there was some vaporization in the C2 sphere from March 17, resulting in a portion of the C2 (ethane) gas being flared in the cold-dry flare from the valve: 026PCV1012 (refer to Table D-3).

There were no fuel gas purges (CA:KIT:062FI0021.PV and CA:KIT:062FI0022.PV) in this month.

Table D-3: Flaring Event – Cold/Dry Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Mar-2025	207	0.3	1	0.4	0.0003	2	0.5
02-Mar-2025	210	0.3	1	0.4	0.0003	2	0.5
03-Mar-2025	209	0.3	1	0.4	0.0003	2	0.5
04-Mar-2025	207	0.3	1	0.4	0.0003	2	0.5
05-Mar-2025	207	0.3	1	0.4	0.0003	2	0.5
06-Mar-2025	208	0.3	1	0.4	0.0003	2	0.5
07-Mar-2025	206	0.3	1	0.4	0.0003	2	0.5
08-Mar-2025	207	0.3	1	0.4	0.0003	2	0.5
09-Mar-2025	204	0.2	1	0.4	0.0003	2	0.5
10-Mar-2025	211	0.3	1	0.4	0.0003	2	0.5
11-Mar-2025	220	0.3	1	0.4	0.0004	2	0.5
12-Mar-2025	212	0.3	1	0.4	0.0004	2	0.5
13-Mar-2025	211	0.3	1	0.4	0.0004	2	0.5
14-Mar-2025	214	0.3	1	0.4	0.0004	2	0.5
15-Mar-2025	216	0.3	1	0.4	0.0004	2	0.5
16-Mar-2025	215	0.3	1	0.4	0.0004	2	0.5
17-Mar-2025	211	0.3	1	0.4	0.0004	2	0.5
18-Mar-2025	241	0.3	1	0.4	0.0003	2	0.5
19-Mar-2025	214	0.2	1	0.4	0.0003	2	0.4
20-Mar-2025	229	0.2	1	0.4	0.0003	2	0.4
21-Mar-2025	237	0.2	1	0.4	0.0003	2	0.4
22-Mar-2025	233	0.2	1	0.4	0.0003	2	0.4
23-Mar-2025	229	0.2	1	0.4	0.0003	2	0.4
24-Mar-2025	254	0.2	1	0.4	0.0003	2	0.4
25-Mar-2025	272	0.2	1	0.4	0.0004	2	0.4
26-Mar-2025	287	0.2	1	0.4	0.0004	2	0.4
27-Mar-2025	273	0.2	1	0.4	0.0004	2	0.4
28-Mar-2025	282	0.2	1	0.4	0.0004	2	0.4
29-Mar-2025	251	0.2	1	0.4	0.0004	2	0.4
30-Mar-2025	342	0.2	1	0.4	0.0004	2	0.4
31-Mar-2025	322	0.2	1	0.4	0.0004	2	0.4
Monthly Total	**7,241**	**7.9**	**31**	**12.4**	**0.01**	**62**	**14.2**

* Individual and final totals may be subject to rounding adjustments

The storage and loading flare was brought online on March 19 to prepare for the LNG import activities that commenced in April 2025 (refer to Table D-4).

Table D-4: Flaring Event – Storage and Loading Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Mar-2025	-	-	-	-	-	-	-
02-Mar-2025	-	-	-	-	-	-	-
03-Mar-2025	-	-	-	-	-	-	-
04-Mar-2025	-	-	-	-	-	-	-
05-Mar-2025	-	-	-	-	-	-	-
06-Mar-2025	-	-	-	-	-	-	-
07-Mar-2025	-	-	-	-	-	-	-
08-Mar-2025	-	-	-	-	-	-	-
09-Mar-2025	-	-	-	-	-	-	-
10-Mar-2025	-	-	-	-	-	-	-
11-Mar-2025	-	-	-	-	-	-	-
12-Mar-2025	-	-	-	-	-	-	-
13-Mar-2025	-	-	-	-	-	-	-
14-Mar-2025	-	-	-	-	-	-	-
15-Mar-2025	-	-	-	-	-	-	-
16-Mar-2025	-	-	-	-	-	-	-
17-Mar-2025	-	-	-	-	-	-	-
18-Mar-2025	-	-	-	-	-	-	-
19-Mar-2025	193	0.2	0.94	0.4	0.0003	2	0.4
20-Mar-2025	200	0.2	0.97	0.4	0.0003	2	0.4
21-Mar-2025	201	0.2	0.98	0.4	0.0003	2	0.4
22-Mar-2025	200	0.2	0.97	0.4	0.0003	2	0.4
23-Mar-2025	200	0.2	0.98	0.4	0.0003	2	0.4
24-Mar-2025	200	0.2	0.97	0.4	0.0003	2	0.4
25-Mar-2025	200	0.2	0.97	0.4	0.0004	2	0.4
26-Mar-2025	196	0.2	0.96	0.4	0.0004	2	0.4
27-Mar-2025	198	0.2	0.96	0.4	0.0004	2	0.4
28-Mar-2025	200	0.2	0.97	0.4	0.0004	2	0.4
29-Mar-2025	200	0.2	0.97	0.4	0.0004	2	0.4
30-Mar-2025	198	0.2	0.96	0.4	0.0004	2	0.4
31-Mar-2025	196	0.2	0.95	0.4	0.0004	2	0.4
Monthly Total	**2,582**	**3**	**12.5**	**4.9**	**0.01**	**27**	**5.7**

* Individual and final totals may be subject to rounding adjustments

The spare flare was not used in the reporting month (refer to Table D-5).

Table D-5: Flaring Event – Spare Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Mar-2025	-	-	-	-	-	-	-
02-Mar-2025	-	-	-	-	-	-	-
03-Mar-2025	-	-	-	-	-	-	-
04-Mar-2025	-	-	-	-	-	-	-
05-Mar-2025	-	-	-	-	-	-	-
06-Mar-2025	-	-	-	-	-	-	-
07-Mar-2025	-	-	-	-	-	-	-
08-Mar-2025	-	-	-	-	-	-	-
09-Mar-2025	-	-	-	-	-	-	-
10-Mar-2025	-	-	-	-	-	-	-
11-Mar-2025	-	-	-	-	-	-	-
12-Mar-2025	-	-	-	-	-	-	-
13-Mar-2025	-	-	-	-	-	-	-
14-Mar-2025	-	-	-	-	-	-	-
15-Mar-2025	-	-	-	-	-	-	-
16-Mar-2025	-	-	-	-	-	-	-
17-Mar-2025	-	-	-	-	-	-	-
18-Mar-2025	-	-	-	-	-	-	-
19-Mar-2025	-	-	-	-	-	-	-
20-Mar-2025	-	-	-	-	-	-	-
21-Mar-2025	-	-	-	-	-	-	-
22-Mar-2025	-	-	-	-	-	-	-
23-Mar-2025	-	-	-	-	-	-	-
24-Mar-2025	-	-	-	-	-	-	-
25-Mar-2025	-	-	-	-	-	-	-
26-Mar-2025	-	-	-	-	-	-	-
27-Mar-2025	-	-	-	-	-	-	-
28-Mar-2025	-	-	-	-	-	-	-
29-Mar-2025	-	-	-	-	-	-	-
30-Mar-2025	-	-	-	-	-	-	-
31-Mar-2025	-	-	-	-	-	-	-
Monthly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

The emissions associated with the liquid burner are from the pilot (refer to Table D-6).

Table D-6: Flaring Event – Liquid Burner Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Mar-2025	466	0.6	2	0.9	0.001	5	1
02-Mar-2025	471	0.6	2	0.9	0.001	5	1
03-Mar-2025	471	0.6	2	0.9	0.001	5	1
04-Mar-2025	465	0.6	2	0.9	0.001	5	1
05-Mar-2025	467	0.6	2	0.9	0.001	5	1
06-Mar-2025	467	0.6	2	0.9	0.001	5	1
07-Mar-2025	464	0.6	2	0.9	0.001	5	1
08-Mar-2025	465	0.6	2	0.9	0.001	5	1
09-Mar-2025	459	0.6	2	0.9	0.001	5	1
10-Mar-2025	474	0.6	2	0.9	0.001	5	1
11-Mar-2025	494	0.6	2	0.9	0.001	5	1
12-Mar-2025	476	0.6	2	0.9	0.001	5	1
13-Mar-2025	474	0.6	2	0.9	0.001	5	1
14-Mar-2025	482	0.6	2	0.9	0.001	5	1
15-Mar-2025	486	0.6	2	0.9	0.001	5	1
16-Mar-2025	483	0.6	2	0.9	0.001	5	1
17-Mar-2025	475	0.6	2	0.9	0.001	5	1
18-Mar-2025	476	0.6	2	0.9	0.001	5	1
19-Mar-2025	537	0.6	3	1	0.001	6	1
20-Mar-2025	555	0.7	3	1	0.001	6	1
21-Mar-2025	560	0.7	3	1	0.001	6	1
22-Mar-2025	555	0.7	3	1	0.001	6	1
23-Mar-2025	557	0.7	3	1	0.001	6	1
24-Mar-2025	555	0.7	3	1	0.001	6	1
25-Mar-2025	556	0.7	3	1	0.001	6	1
26-Mar-2025	545	0.7	3	1	0.001	6	1
27-Mar-2025	550	0.7	3	1	0.001	6	1
28-Mar-2025	555	0.7	3	1	0.001	6	1
29-Mar-2025	555	0.7	3	1	0.001	6	1
30-Mar-2025	551	0.7	3	1	0.001	6	1
31-Mar-2025	545	0.7	3	1	0.001	6	1
Monthly Total	**15,691**	**19.8**	**75**	**29.2**	**0.03**	**167.2**	**31.6**

* Individual and final totals may be subject to rounding adjustments

Exhibit D-1: Sample Emission Calculations – Warm/Wet Flare

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 h to 1 day (d)
    - 10,000 parts per millon (ppm) in one percent.

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable meters include:
    - KITSL-V1P.curval (KMS): This tag provides the daily fuel gas volume data recorded at the KMS. These volumes, measured at atmospheric pressure, serve as the primary input for calculating flared gas volumes.
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density was obtained (daily values at 1 atm) This was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - CA:KIT:062FI0343.PV: This tag measures the total fuel gas consumption for all flare pilots. The portions attributable to the cold dry flare and the liquid burner were determined using flare tip allocations and subtracted from the total to determine the warm/wet flare pilot gas consumption.
    - CA:KIT:062FI0021.PV; CA:KIT:062FI0022.PV: These tags provide the fuel gas purges from the cold dry flare.
    - Emission factors: Refer to Table 2 within the report.

Emission Calculation Basis – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using March 1, 2025, and NOx for the example:

Convert volumetric flow rate to mass flow rate:

Volumetric flow rate = 178,454 m^3/d – corrected to 20°C.

Mass flow rate = 178,454 m^3/d x 0.75503688 kg/m^3 = 134,739 kg/d

NOx Mass Emission (kg/d)

= 134,739 x 41.04 x (1 / 0.75503688) x (1 / 1000) x 0.9478 x 0.068 x 0.4535

≈ 214 kg/d

Similar calculations follow for CO, $PM_{2.5}$, VOC, and HC-T, however all HHV values in their calculations are converted to LHV.

Emission Calculation Basis – when using Engineering Estimates (only applies to SOx):

Total sulfur content (S) in feed gas samples was analyzed periodically by the LNG Canada laboratory. Table D-7 summarizes the laboratory results.

Table D-7: Total Sulphur Content Measured in the Feed Gas (Laboratory Results)

Date	Total Sulphur in Feed Gas (PPMW)	%
04-Mar-2025	1.41	0.000141
11-Mar-2025	1.24	0.000124
18-Mar-2025	0.89	0.000089
25-Mar-2025	1.20	0.000120

To bridge periods between measurements, the following approach was used:

- March 1 - 10: SO_2 emissions were calculated using the March 04, 2025 total sulphur measurement.
- March 11 - 17: The March 11, 2025 measurement was applied.
- March 18 - 24: The March 18, 2025 measurement was applied.
- March 25 - 31: The March 25, 2025 measurement was applied.

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

Using March 01, 2025, for the example, where the applied percent sulphur in the fuel gas is 1.41 PPMW.

SO_2 Mass Emission (kg/d)

= 134,739 x 0.000141 x (1 / 100) x (64.066 / 32.065) x 1

≈ 0.4 kg/d

The same calculation approach would follow for SO_2 (kg/h) numbers; with the flow rate in kg/h rather than kg/d.

Appendix E Ambient Air Quality Evaluation (Condition 10.2.7)

Nitrogen Dioxide (NO_2)

The publicly available data of 1-hour NO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-1. The BCAAQO for 1-hour NO_2 is 60 parts per billion (ppb) (equates to 113 µg/m^3), calculated by the 98th percentile of daily 1-hour maximum over three years; this metric is also illustrated in Figure E-1.

There is a BCAAQO for annual NO_2 (17 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

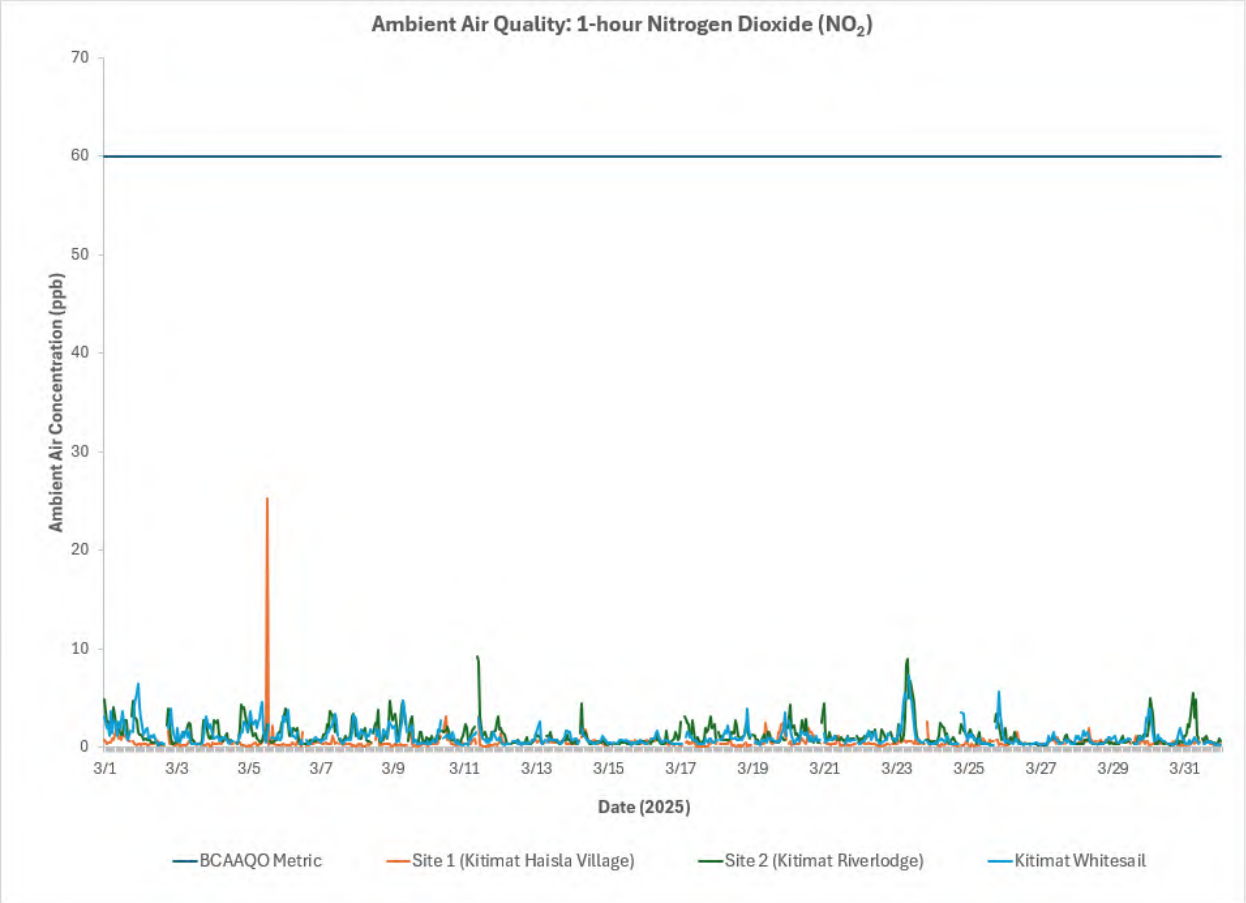

Figure E-1: Ambient Air Quality - 1-hour Nitrogen Dioxide (NO_2)

Sulphur Dioxide (SO_2)

The publicly available data of 1-hour SO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-2. BC adopted the 2020 Canadian Ambient Air Quality Standard (CAAQS) as the BCAAQO for 1-hour SO_2, which is 70 parts per billion (ppb) (equates to 183 µg/m^3), calculated by the annual 99th percentile of daily 1-hour averaged over three consecutive years; this metric is also illustrated in Figure E-2.

There is a BCAAQO for annual SO_2 (5 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

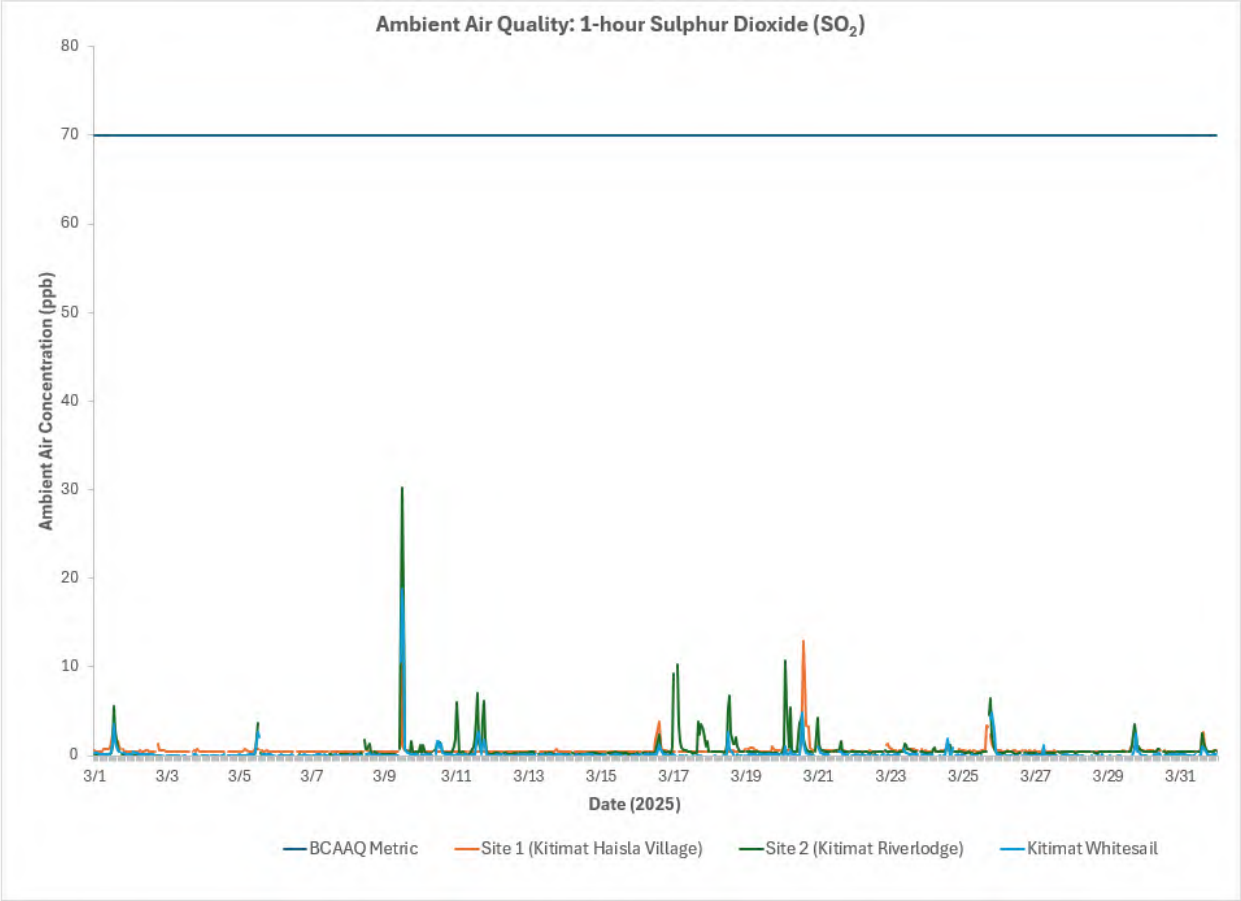

Figure E-2: Ambient Air Quality - 1-hour Sulphur Dioxide (SO_2)

Fine Particulate Matter ($PM_{2.5}$)

The publicly available data of 24-hour running average for $PM_{2.5}$ from the three continuous ambient air quality monitoring stations is illustrated in Figure E-3. The BCAAQO for 24-hour $PM_{2.5}$ is 25 µg/m^3, calculated by the 98th percentile of daily average, over one year; this metric is also illustrated in Figure E-3.

There is a BCAAQO for annual $PM_{2.5}$ (8 µg/m^3 based on the annual average, over one year) however this information is not published for each monitoring station therefore is not provided herein.

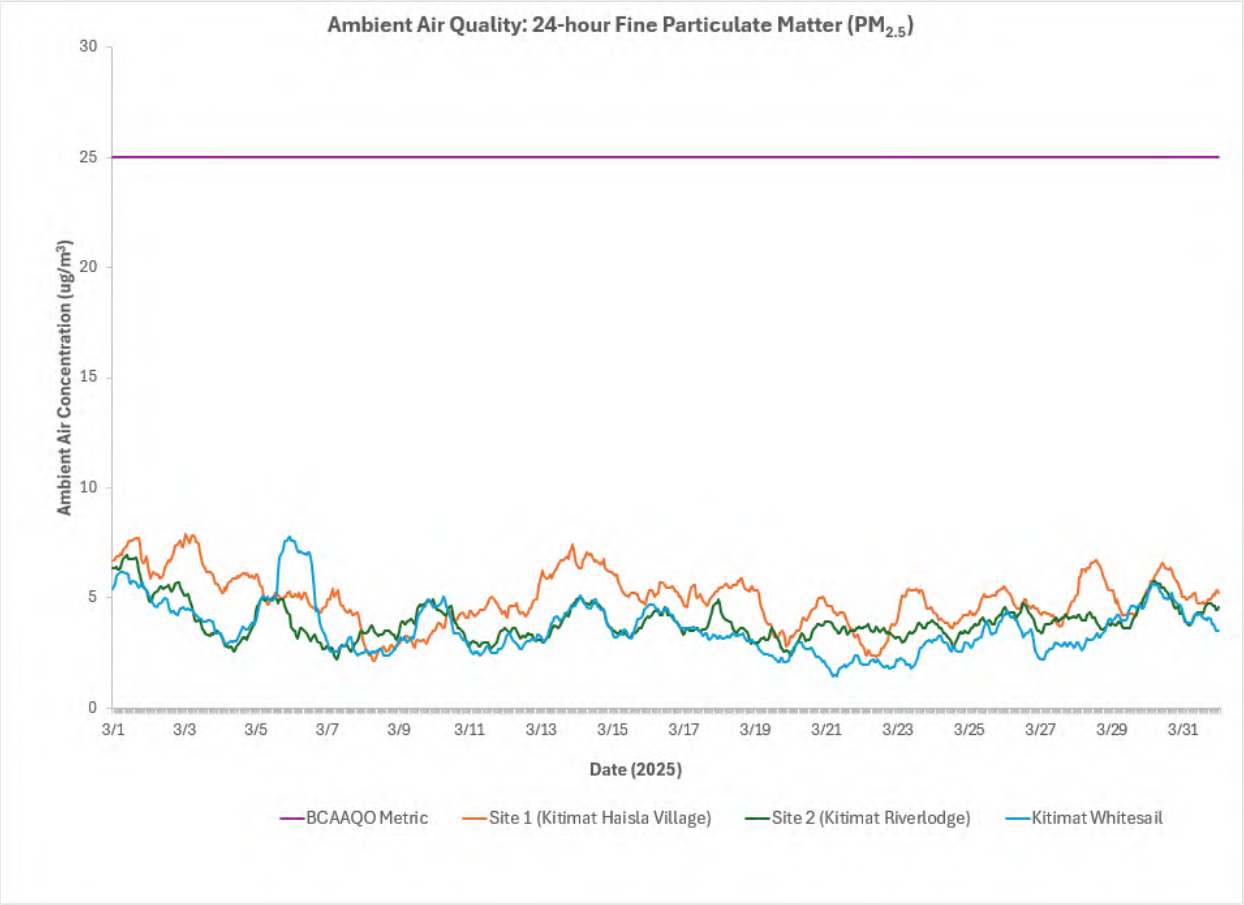

Figure E-3: Ambient Air Quality - 24-hour Fine Particulate Matter ($PM_{2.5}$)

Ozone (O_3)

The publicly available data of 1-hour O_3 from the three continuous ambient air quality monitoring stations is illustrated in Figure E-4.

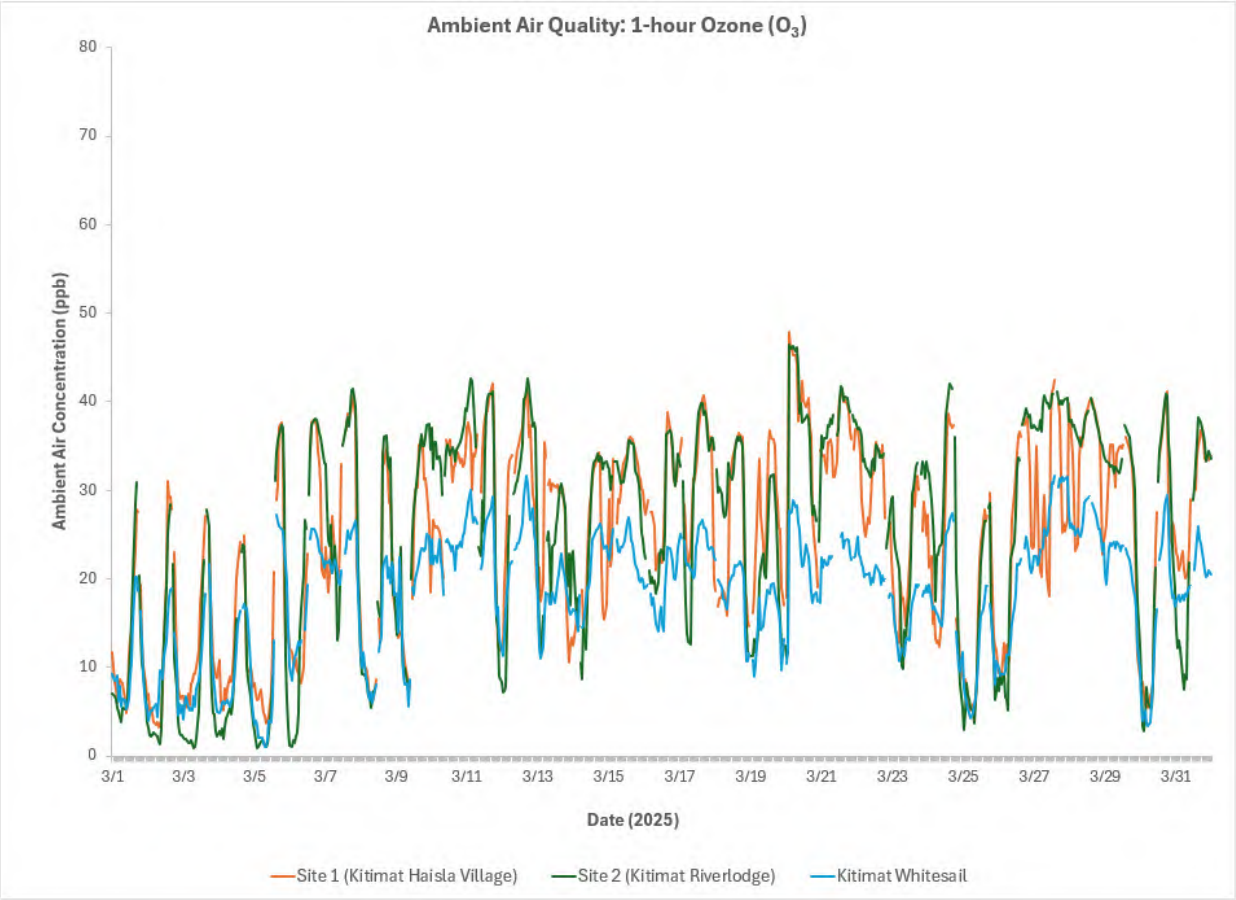

Figure E-4: Ambient Air Quality - 1-hour Ozone (O_3)

Appendix F Facility SO_2 Emission Limit (Condition 10.2.8)

Table F-1 presents the maximum hourly cumulative SO_2 discharge rate per day. It does not imply that the maximum discharge rate occurred for the full 24 hours that day. The maximum hourly rate was based on the maximum hourly flow rate obtained for each of the contributing sources below on the respective dates. The total sulfur content was obtained from Table D-7.

Table F-1: Maximum Hourly SO_2 Discharge Rate for Each Day

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
01-Mar-2025	0.02	-	2.49%	97.18%	0.11%	-		0.22%
02-Mar-2025	0.02	-	4.30%	95.42%	0.08%	-		0.20%
03-Mar-2025	0.03	-	6.98%	92.76%	0.10%	-		0.16%
04-Mar-2025	0.03	-	5.98%	93.82%	0.06%	-		0.14%
05-Mar-2025	0.02	-	-	99.64%	0.10%	-		0.26%
06-Mar-2025	0.02	-	-	99.61%	0.11%	-		0.28%
07-Mar-2025	0.02	-	-	99.64%	0.10%	-		0.26%
08-Mar-2025	0.02	-	-	99.61%	0.11%	-		0.28%
09-Mar-2025	0.02	-	-	99.71%	0.08%	--		0.21%
10-Mar-2025	0.03	-	-	99.78%	0.06%	-		0.16%
11-Mar-2025	0.03	-	-	99.72%	0.08%	-	-	0.20%
12-Mar-2025	0.03	-	-	99.68%	0.12%	-	-	0.20%
13-Mar-2025	0.03	-	-	99.76%	0.08%	-	-	0.16%
14-Mar-2025	0.02	-	-	99.71%	0.08%	-	-	0.21%
15-Mar-2025	0.03	-	-	99.78%	0.07%	-	-	0.15%
16-Mar-2025	0.02	-	-	99.76%	0.08%	-	-	0.16%
17-Mar-2025	0.02	-	-	99.73%	0.09%	-	-	0.18%
18-Mar-2025	0.02	-	-	99.75%	0.10%	-	-	0.15%
19-Mar-2025	0.02	-	-	99.55%	0.13%	0.13%	-	0.19%
20-Mar-2025	0.02	-	-	99.54%	0.13%	0.13%	-	0.20%
21-Mar-2025	0.01	-	-	99.51%	0.14%	0.14%	-	0.21%
22-Mar-2025	0.02	-	-	99.54%	0.13%	0.13%	-	0.20%
23-Mar-2025	0.02	-	-	99.61%	0.11%	0.11%	-	0.17%
24-Mar-2025	0.01	-	-	99.44%	0.16%	0.16%	-	0.24%
25-Mar-2025	0.01	-	-	99.37%	0.16%	0.16%	-	0.31%
26-Mar-2025	0.02	-	-	99.49%	0.13%	0.13%	-	0.25%
27-Mar-2025	0.02	-	-	99.49%	0.13%	0.13%	-	0.25%
28-Mar-2025	0.02	-	-	99.56%	0.11%	0.11%	-	0.22%

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
29-Mar-2025	0.02	-	-	99.51%	0.12%	0.12%	-	0.25%
30-Mar-2025	0.02	-	-	99.48%	0.13%	0.13%	-	0.26%
31-Mar-2025	0.02	-	-	99.49%	0.13%	0.13%	-	0.25%

* Individual values may be subject to rounding adjustments

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Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Quarterly Report (Q1 2025)

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1. Overview

1.1. Project Background

The LNG Canada (LNGC) liquefied natural gas facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

1.2. Purpose

On July 15, 2024, the BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., under the provisions of the BC *Environmental Management* Act, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Permit PA-110588 applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.3 of Permit PA-110588 (Quarterly Reporting) for Q1 2025.

Refer to Appendix B for a list of all quarterly reports that have been issued under Permit PA-110588.

1.3. LNG Facility Status

On the afternoon of August 31, 2024, fuel gas was introduced into Unit 1000 (Inlet Facilities) for the first time from the Coastal Gas Link pipeline, commencing the pressurization of piping and the startup fuel gas heater. The introduction of fuel gas into the fuel gas headers down to the flare area, and the first supply of fuel gas to the pilot on the warm wet flare occurred on September 1, 2024.

Under Permit PA-110588, the “Commissioning” phase is defined as “*that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.”* Operations is the period of time which follows Commissioning. Therefore, “Commissioning”, under Permit PA-110588, commenced on September 1, 2024. The first cargo has not yet been shipped from LNG Train 1.

During Q1 2025, discharges of air contaminants occurred from the following authorized works:

- One (1) gas turbine engine (LNG Train 1, String 1)
- One (1) AGI (LNG Train 1)
- One (1) warm/wet flare

- One (1) cold/dry flare
- One (1) storage and loading flare
- Liquid burner

The Initial Performance Period (IPP) did not commence during Q1 2025 (which is defined as the period that "*commences upon the completion of the initial performance test for LNG Train 1"*).

2. Ambient Air Monitoring Data issues (Condition 10.3.1)

2.1. Permit Condition

Under Condition 10.3.1, the quarterly report shall include the following information:

a. (i) identification of, (ii) description of, and (iii) reason(s) for any ambient air or meteorological monitoring data deletion or resubmission;

b. (i) identification of, (ii) description of, and (iii) reason(s) for any missed calibrations from ambient air analyzers that were required to be calibrated during the reporting period;

c. (i) identification and (ii) description of any other issues with the ambient air or meteorological monitoring data; and

d. if any passive monitor fails to collect a sample for one sample period, the Permittee shall include the reasons for the absence of data within the report.

This condition applies to the locations where LNG Canada is conducting continuous monitoring activities:

- Under Condition 6.2.2, LNG Canada is required to conduct continuous monitoring of ambient air concentrations of nitrogen dioxide (NO_2) and ozone (O_3) at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2). In addition, prior to commencement of Operations, LNG Canada is required to conduct continuous monitoring of total hydrocarbons (HC-T) at either Kitimat Riverlodge or Kitimat Whitesail.
- Under Condition 6.3, LNG Canada is required to obtain or collect continuous monitoring data for the following meteorological parameters, at stations where conducting the continuous monitoring of ambient air concentrations: temperature, wind speed, wind direction, and standard deviation of wind direction.
- Under Condition 6.4, LNG Canada is required to conduct passive monitoring of NO_2 concentrations at thirteen locations (defined within the permit).

2.2. Data and Assessment

LNG Canada engaged Trinity Consultants to oversee the ambient air quality monitoring for NO_2 and O_3 at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2). Trinity Consultants published a report that addresses the data issues in these locations, as required under Condition 10.3.1 (a) to (c) as follows (refer to Appendix E, Attachment 1):

- Kitamaat Village (Site 1): Table 2-2 contains the data completeness; and Table 3-2 contains the percent data recovery. Section 3.3 outlines the data shortfall periods and known issues during the reporting period.
- Riverlodge (Site 2): Table 2-3 contains the data completeness; and Table 4-2 contains the percent data recovery. Section 4.3 outlines the data shortfall periods and known issues during the reporting period.
- General: Section 2.3 contains the details on ambient air or meteorological monitoring data deletion and resubmissions; and missed calibrations.

The HC-T analyzer was installed at Kitimat Riverlodge (Site 2) in October 2024. Calibration and data validation were completed in January 2025; therefore, the results are included in this quarterly report (refer to Appendix E, Attachment 1).

LNG Canada engaged Tetra Tech to oversee the passive NO_2 monitoring program, who published a technical memorandum that addresses the data issues in these locations, as required under Condition 10.3.1 (d) (refer to Appendix E, Attachment 2).

3. Ambient Air Monitoring Results (Condition 10.3.2)

3.1. Permit Condition

Under Condition 10.3.2, the quarterly report shall include the following information for each parameter monitored by the Permittee (per Section 6 of Permit PA-110588):

a. the percentage of valid hourly data at each continuous ambient air monitoring station;

b. (i) a time series plot of the hourly average ambient air concentrations at each continuous ambient air monitoring station, and (ii) a discussion of the context around any data anomalies in the time series plot;

c. i) minimum, (ii) average, (iii) median and (iv) maximum ambient air concentrations at each continuous ambient air monitoring station for the period;

d. a monthly wind rose for each continuous ambient air monitoring station for the months being monitored generated using meteorological data collected at the ambient air monitoring station;

e. a summary of passive NO_2 monitoring analysis for each monitored location (based on available laboratory analysis results for that reporting period and include results from the previous reporting period(s) that were not included in previous summaries); and

f. a summary of precipitation monitoring chemistry for each monitored location (based on available laboratory analysis results for that reporting period and include results from the previous reporting period(s) that were not included in previous summaries).

As noted in Section 2.1, Condition 10.3.2 (a) to (d) applies to NO_2, O_3, and meteorological data (temperature, wind speed, wind direction, and standard deviation of wind direction) monitored at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2); and HC-T at Kitimat Riverlodge (Site 2).

3.2. Data and Assessment

The report issued by Trinity Consultants also includes the information required under Condition 10.3.1 (a) to (d) at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2) as follows (refer to Appendix E, Attachment 1):

- Kitamaat Village (Site 1):
    - Table 2-2 contains the data completeness.
    - Section 3.2 contains the monitoring results and trends, including the time series plot of the hourly average ambient air concentrations; average, maximum, and minium values (Table 2-1 contains the average and median values); and monthly wind roses.
- Riverlodge (Site 2):
    - Table 2-3 contains the data completeness.
    - Section 4.2 contains the monitoring results and trends, including the time series plot of the hourly average ambient air concentrations; average, maximum, and minium values (Table 2-1 contains the average and median values); and monthly wind roses.

The monitoring results and trends for the Whitesail Monitoring Station is also included in Appendix E, Attachment 1, for awareness purposes only.

The technical memorandum issued by Tetra Tech includes a summary of passive NO_2 monitoring analysis for each monitored location required under Condition 10.3.1 (e) (refer to Appendix E, Attachment 2).

LNG Canada engaged Stantec consultants to implement and execute the precipitation chemistry monitoring program, which uses ion exchange resin (IER) column samplers. The report issued by the University of British Columbia includes a summary of precipitation monitoring chemistry required under Condition 10.3.2 (f) for the samplers deployed from July 25, 2024 to October 25, 2024 at monitoring locations (B123-A, B108) (refer to Appendix E, Attachment 3).

4. Ambient Air Monitoring Evaluation (Condition 10.3.3)

4.1. Permit Condition

Under Condition 10.3.3, the quarterly report shall include following information for NO_2, SO_2 and $PM_{2.5}$, continuously monitored at Kitamaat Village (Kitimat Haisla Village) (Site 1), Kitimat Riverlodge (Site 2) and Kitimat Whitesail:

a. a comparison of the measured ambient air concentrations at each ambient air monitoring stations to the applicable numerical metrics of the BCAAQO; and

b. (i) a description of any measured ambient air concentrations in excess of the numerical metrics of the BCAAQO, if applicable, (ii) a description of any known contributing factors from authorized works, and (iii) a description of action (if any) taken by the Permittee.

4.2. Data and Assessment

Data from continuous ambient air quality monitoring stations in Kitimat are publicly available via the BC Ministry of Environment and Climate Change Strategy, at: Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

The publicly available data for NO_2, SO_2 and $PM_{2.5}$ at the three continuous ambient air quality monitoring stations are provided in graphs in Appendix C; the graphs also contain the applicable BCAAQO metric. This information is also presented in a time-series in the report published by Trinity (refer to Appendix E, Attachment 1)

There were no ambient air quality concentrations of NO_2, SO_2 and $PM_{2.5}$ measured in excess of the BCAAQO metrics in Q1 2025.

5. Source Testing Results (Condition 10.3.4)

5.1. Permit Condition

Under Condition 10.3.4, the quarterly report shall include the following information:

a. identification of the dates of any source sampling activities carried out during the reporting period;

b. identification of the testing company that carried out any source sampling activities during the reporting period;

c. a brief overview of any continuous emission monitoring system (CEMS) initial or re-certification tests carried out during the reporting period;

d. a brief overview of the results of any complete or incomplete (i) manual stack surveys, (ii) CEMS performance evaluation carried out during the period;

e. an explanation for stopping or aborting any incomplete (i) manual stack survey, (ii) CEMS performance evaluation;

f. a brief overview of any required corrective actions taken or planned in response to the source sampling activities; and

g. the manual stack source emissions survey reports and CEMS performance evaluation reports.

Conditions within Permit PA-110588 that inform the scope of this reporting include:

- Under Condition 5.1.2, LNG Canada shall undertake manual stack sampling every six months in the IPP on the gas turbine / WHRU stacks.
- Under Condition 5.2.2, LNG Canada shall undertake manual stack sampling for each AGI on a quarterly basis for one year.
- Under Condition 5.3, the CEMS performance evaluations or manual stack surveys shall be conducted while the equipment is operating at normal capacity while combusting the primary fuel for that unit.

5.2. Data and Assessment

Manual stack sampling has not commenced as outlined below:

- The IPP has not commenced therefore has not triggered the manual stack sampling for the gas turbines / WHRU.
- The AGI has not commenced operations; this will occur after the Acid Gas Removal Unit becomes operational (this unit produces the acid gas for incineration); therefore has not triggered this program.

The CEMS performance evaluation has not yet commenced; the first relative accuracy test audit (RATA) will occur after the gas turbines/WHRUs, and the AGIs are operating at normal capacity while combusting the primary fuel for that unit.

6. Inlet Gas Sulphur Report (Condition 10.3.5)

6.1. Permit Condition

Under Condition 10.3.5, the quarterly report shall include the following information:

a. daily percentage of hydrogen sulphide of the facility inlet gas; and

b. total estimated sulphur in the facility inlet gas, based on the analysis of the monthly gas samples.

6.2. Data and Assessment

Appendix D contains the daily percentage of hydrogen sulphide (H_2S) and total estimated sulphur in the facility inlet gas (from Coastal Gas Link).

7. References

- BC Ministry of Environment and Parks, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca), accessed April 2, 2025.

Appendix A Abbreviations

AGI	Acid Gas Incinerator
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
EPC	Engineering, Procurement, and Construction
H_2S	Hydrogen Sulphide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
JFJV	JGC Fluor BC LNG Joint Venture
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit
$\mu g/m^3$	micrograms per cubic meter

Appendix B Previous Quarterly Reports Issued Under PA-110588

Quarter / Year	Document #	Date Issued
Q3 2024	L001-09800-HE-7180-4676	Rev A 22-Oct-2024; Rev B issued 03-Feb-2025
Q4 2024	L001-09800-HE-7180-4685	23-Jan-2025
Q1 2025	L001-09800-HE-7180-4703	30-Apr-2025

Appendix C Ambient Air Quality Evaluation (Condition 10.3.3)

Herein contains the evaluation of NO_2, SO_2 and $PM_{2.5}$ at the continuously monitored at Kitamaat Village (Kitimat Haisla Village) (Site 1), Kitimat Riverlodge (Site 2) and Kitimat Whitesail. This evaluation was also included in the monthly reports during commissioning; herein contains the same information based on the quarterly reporting period (January to March 2025).

Nitrogen Dioxide (NO_2)

The publicly available data of 1-hour NO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure C-1. The BCAAQO for 1-hour NO_2 is 60 parts per billion (ppb) (equates to 113 µg/m^3), calculated by the 98th percentile of daily 1-hour maximum over three years; this metric is also illustrated in Figure C-1.

There is a BCAAQO for annual NO_2 (17 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

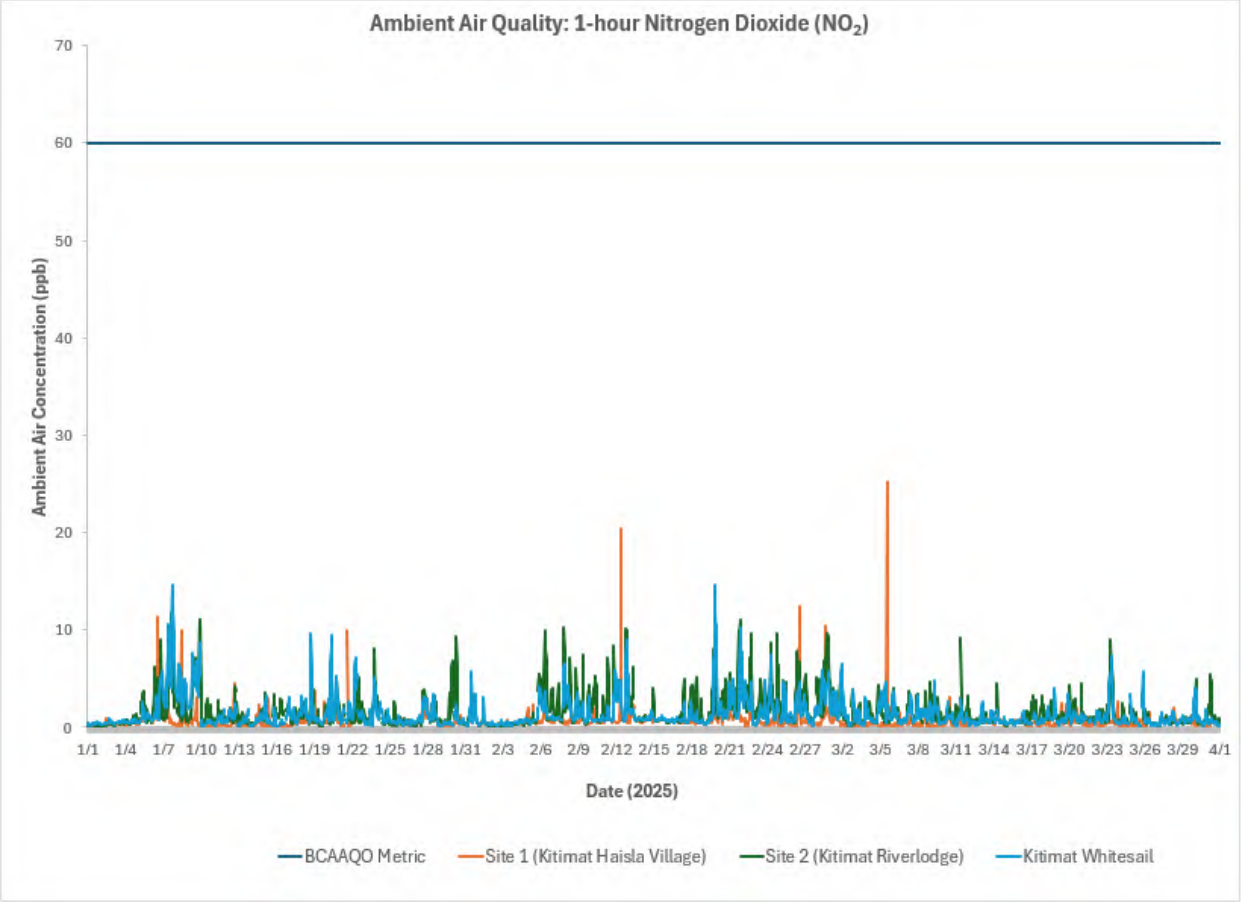

Figure C-1: Ambient Air Quality - 1-hour Nitrogen Dioxide (NO_2)

Sulphur Dioxide (SO_2)

The publicly available data of 1-hour SO_2 from the three continuous ambient air quality monitoring stations is illustrated in Figure C-2. BC adopted the 2020 Canadian Ambient Air Quality Standard (CAAQS) as the BCAAQO for 1-hour SO_2, which is 70 parts per billion (ppb) (equates to 183 µg/m^3), calculated by the annual 99th percentile of daily 1-hour averaged over three consecutive years; this metric is also illustrated in Figure C-2.

There is a BCAAQO for annual SO_2 (5 ppb, based on the annual average of the 1-hour concentrations) however this information is not published for each monitoring station therefore is not provided herein.

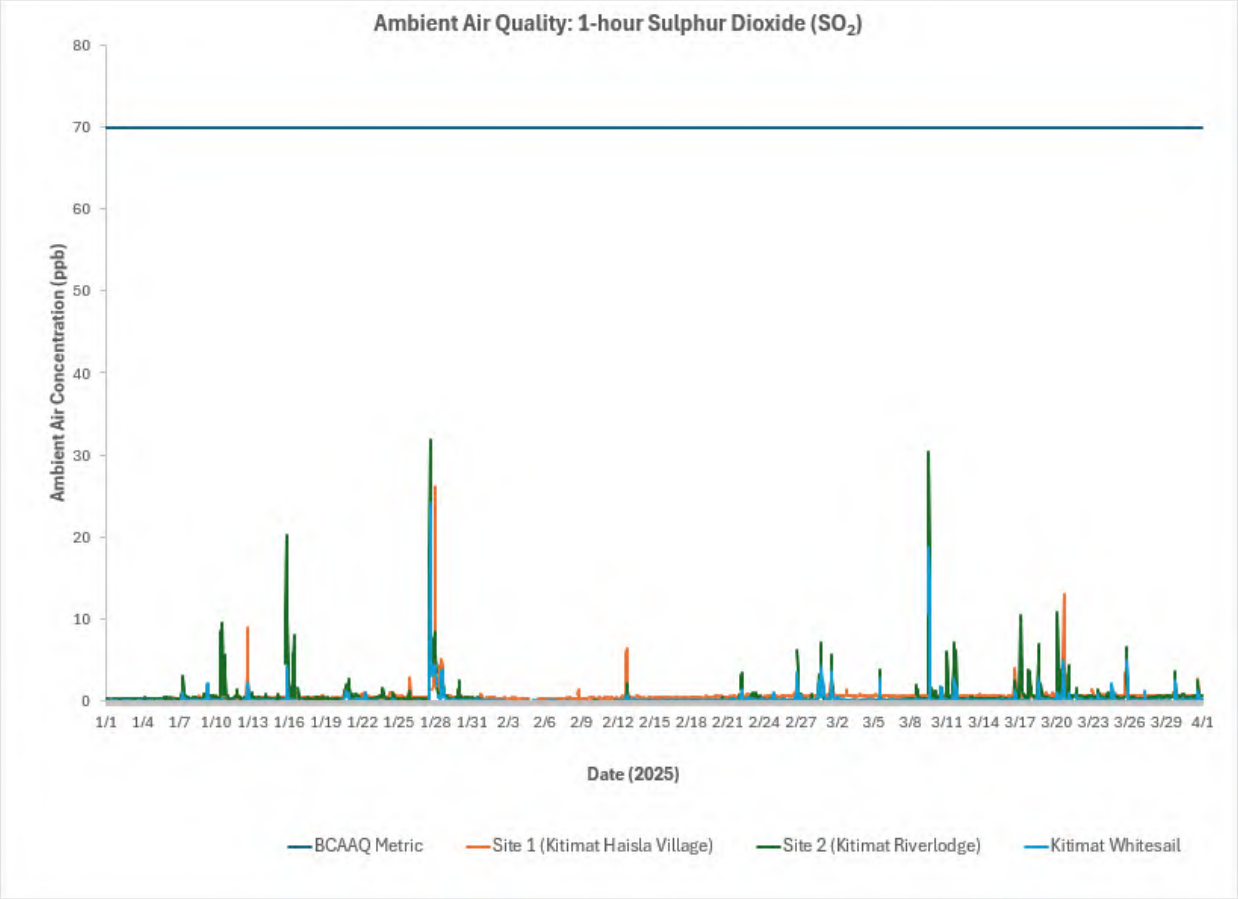

Figure C-2: Ambient Air Quality - 1-hour Sulphur Dioxide (SO_2)

Fine Particulate Matter ($PM_{2.5}$)

The publicly available data of 24-hour running average for $PM_{2.5}$ from the three continuous ambient air quality monitoring stations is illustrated in Figure C-3 (note, the values will be slightly different if using the daily maximum as the basis for the 24-hour assessment). The BCAAQO for 24-hour $PM_{2.5}$ is 25 µg/m^3, calculated by the 98th percentile of daily average, over one year; this metric is also illustrated in Figure C-3.

There is a BCAAQO for annual $PM_{2.5}$ (8 µg/m^3 based on the annual average, over one year) however this information is not published for each monitoring station therefore is not provided herein.

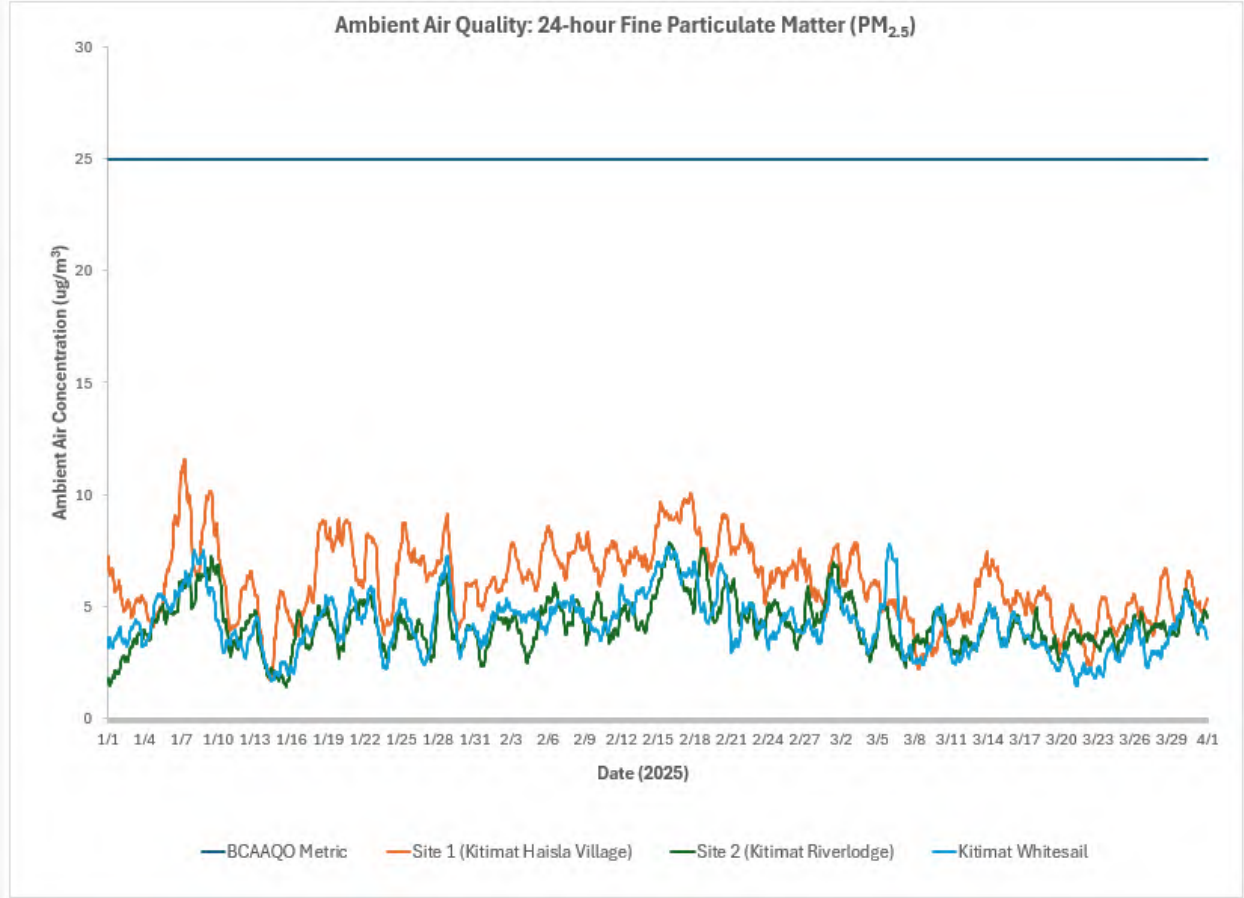

Figure C-3: Ambient Air Quality - 24-hour Fine Particulate Matter ($PM_{2.5}$)

Appendix D Inlet Gas Sulphur Report (Condition 10.3.5)

The daily percentage of hydrogen sulphide (H_2S) in the facility's inlet gas is based on the data collected at the Kitimat Sales Meter Station in parts per million weight (ppmw) (Tag no: CA: KITSL-H2SCN.curval) where the natural gas flow is metered before it enters the LNG Canada Facility; then converted to a percentage value for herein reporting. During this reporting period, daily measurements of H_2S were conducted. The tables below present the highest H_2S levels recorded each day.

Table D-1: Daily Percentage of Hydrogen Sulphide in Inlet Gas [Q1 2025]

Date	H_2S Concentration (%)
1-Jan-2025	0.000089
2-Jan-2025	0.000091
3-Jan-2025	0.000112
4-Jan-2025	0.000107
5-Jan-2025	0.000112
6-Jan-2025	0.000114
7-Jan-2025	0.000120
8-Jan-2025	0.000115
9-Jan-2025	0.000119
10-Jan-2025	0.000119
11-Jan-2025	0.000115
12-Jan-2025	0.000117
13-Jan-2025	0.000118
14-Jan-2025	0.000115
15-Jan-2025	0.000115
16-Jan-2025	0.000112
17-Jan-2025	0.000105
18-Jan-2025	0.000114
19-Jan-2025	0.000111
20-Jan-2025	0.000118
21-Jan-2025	0.000122
22-Jan-2025	0.000125
23-Jan-2025	0.000124
24-Jan-2025	0.000115
25-Jan-2025	0.000116
26-Jan-2025	0.000123
27-Jan-2025	0.000120
28-Jan-2025	0.000118
29-Jan-2025	0.000131
30-Jan-2025	0.000119
31-Jan-2025	0.000119

Date	H_2S Concentration (%)
1-Feb-2025	0.000098
2-Feb-2025	0.000103
3-Feb-2025	0.000105
4-Feb-2025	0.000115
5-Feb-2025	0.000094
6-Feb-2025	0.000102
7-Feb-2025	0.000123
8-Feb-2025	0.000107
9-Feb-2025	0.000111
10-Feb-2025	0.000122
11-Feb-2025	0.000108
12-Feb-2025	0.000103
13-Feb-2025	0.000096
14-Feb-2025	0.000108
15-Feb-2025	0.000107
16-Feb-2025	0.000113
17-Feb-2025	0.000112
18-Feb-2025	0.000102
19-Feb-2025	0.000104
20-Feb-2025	0.000102
21-Feb-2025	0.000079
22-Feb-2025	0.000070
23-Feb-2025	0.000065
24-Feb-2025	0.000058
25-Feb-2025	0.000056
26-Feb-2025	0.000053
27-Feb-2025	0.000051
28-Feb-2025	0.000052

Date	H_2S Concentration (%)
1-Mar-2025	0.000054
2-Mar-2025	0.000057
3-Mar-2025	0.000055
4-Mar-2025	0.000055
5-Mar-2025	0.000059
6-Mar-2025	0.000072
7-Mar-2025	0.000075
8-Mar-2025	0.000077
9-Mar-2025	0.000075
10-Mar-2025	0.000079
11-Mar-2025	0.000082
12-Mar-2025	0.000080
13-Mar-2025	0.000094
14-Mar-2025	0.000104
15-Mar-2025	0.000108
16-Mar-2025	0.000113
17-Mar-2025	0.000125
18-Mar-2025	0.000134
19-Mar-2025	0.000135
20-Mar-2025	0.000136
21-Mar-2025	0.000140
22-Mar-2025	0.000146
23-Mar-2025	0.000154
24-Mar-2025	0.000152
25-Mar-2025	0.000154
26-Mar-2025	0.000153
27-Mar-2025	0.000161
28-Mar-2025	0.000153
29-Mar-2025	0.000152
30-Mar-2025	0.000156
31-Mar-2025	0.000145

Feed inlet gas is regularly verified through manual sampling and laboratory analysis. These manual samples are collected and analyzed by the LNG Canada Laboratory using ASTM D 5504-2012 test method. During the reporting period, there was more than one sample measured within the month, as indicated in Table D-2.

Table D-2: Total Measured Sulphur Content in Inlet Gas [Q1 2025]

Date	Total Measured Sulphur Content (PPMW)
1-Jan-25	2.11
14-Jan-25	5.16
4-Feb-25	2.49
11-Feb-25	1.60
18-Feb-25	1.96
25-Feb-25	3.18
4-Mar-25	1.41
11-Mar-25	1.24
18-Mar-25	0.89
25-Mar-25	1.20

The methodology is outlined below:

1. **Sample Collection:** Grab samples of the inlet gas are collected from Unit-1000.
2. **Sample Analysis:** The samples are analyzed at the LNG Canada laboratory using a Total sulfur analyzer with UVF detection (refer to Figure D-1). The analysis provides the total sulphur concentration of various sulphur compounds.
3. **Data Verification:** The results of the laboratory analysis are reviewed for consistency and accuracy by the LNG Canada laboratory. Any discrepancies or outliers are investigated and, if necessary, the analysis is repeated. The LNG Canada laboratory also performs internal quality control checks, including the analysis of certified reference materials and method blanks with each batch of samples where applicable.

Product:	Total Sulfur in Condensate/Gas UVF detection
Methods:	ASTM D5453 /ASTM D6667
Model:	VF-210 NSX-2100
Tag:	A-10
Manufacturer:	Nittoseiko
Country of Origin:	Japan
Number of Systems:	1
Unit Price:	Quoted

Figure D-1: UVF Sampling for Total Sulphur

Appendix E List of Attachments

Number	Title
1	Trinity Consultants, Ambient Air Quality Monitoring Report January – March 2025, LNG Canada (April 2025)
2	Tetra Tech Technical Memo, PA-110588 – Passive NO_2 Monitoring Results for Q1 2025 (April 25, 2025)
3	The University of British Columbia, Precipitation Chemistry Report (February 05, 2025)

Attachment 1 Trinity Consultants, Ambient Air Quality Monitoring Report January – March 2025, LNG Canada (April 2025)

AMBIENT AIR QUALITY MONITORING REPORT JANUARY – MARCH 2025

LNGCANADA

TRINITY CONSULTANTS
4525 Wasatch Blvd.
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Salt Lake City, Utah
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April 2025

Project 244501.0077

Trinity Consultants

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1.0 INTRODUCTION

This report, prepared for LNG Canada by Trinity Consultants (Trinity), summarizes the LNG Canada's nitrogen dioxide (NO_2) and Ozone (O_3) monitoring network data collected at the Kitamaat Village and Riverlodge Stations for the first quarter (January 1 through March 31), 2025. In January 2025, a Total Hydrocarbon analyzer was installed and operated at the Riverlodge station. Sulfur dioxide (SO_2) and particulate matter 2.5 microns in size or less ($PM_{2.5}$) presented in this report for the Kitamaat Village and Riverlodge stations have been provided by Rio Tinto BC Works. Rio Tinto BC Works also provided the first quarter 2025 meteorological data for the Kitamaat Village, Riverlodge, and Whitesail stations as well as the NO_2, O_3, SO_2, and $PM_{2.5}$ data collected at the Whitesail station.

The monitoring performed by LNG Canada is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) and satisfies the requirement for collection of continuous air quality data as described under Sections 10.3, 10.3.1, 10.3.2 & 10.3.3 in LNGC's Air Discharge Permit PA-110588.

LNG Canada owns, operates, and maintains an ambient air monitoring network around the LNG Canada Kitimat LNG export facility. This ambient air quality monitoring network consists of two air quality monitoring stations that are strategically located in the Kitimat Valley of British Columbia (BC) at the Kitamaat Village (Village) and Riverlodge. The Kitamaat Village and Riverlodge stations are owned by Rio Tinto Alcan Inc. and are part of Rio Tinto's air quality monitoring network. LNG Canada's continuous monitoring equipment are housed in the Rio Tinto air quality shelters at Kitamaat Village and Riverlodge locations. The locations of these stations within the Kitimat Valley are presented in Figure 1.1.

Figure 1.1 Locations of LNG Canada and Rio Tinto BC Works Ambient Air Monitoring Stations in Kitimat Valley

1.1 Kitamaat Village

The Village Ambient Air Station is in the Haisla Nation community of Kitamaat Village. The site is located within the yard of the Kitamaat Village sewage treatment plant. Area land use is suburban with a mix of dwellings, commercial buildings, forest, ocean, and parkland. The ground cover immediately around the site is compacted gravel, natural ground cover, cut grass, and asphalt. An aerial view of the site is presented in Figure 1.2. A photograph of the Kitamaat Village Ambient Air Quality Monitoring Station is presented in Figure 1.3.

Figure 1.2 Aerial View of Kitamaat Village Ambient Air Quality Monitoring Station

Figure 1.3 Photograph of Kitamaat Village Ambient Air Quality Monitoring Station

1.2 Riverlodge

The Riverlodge Ambient Air Station is located on Columbia Avenue in Kitimat, BC across the street from the Riverlodge Community Centre. The monitoring station is an aged industrial trailer with a meteorological tower mounted to the frame and hitch of the trailer. Land use around the site is suburban low-density housing, park land and forest. Land cover immediately around the site is short grass, gravel and asphalt parking lot, buildings, and forested lands. An aerial view of the site is shown in Figure 1.4. A photograph of the Riverlodge ambient air station is presented in Figure 1.5.

Figure 1.4 Aerial View of Riverlodge Ambient Air Quality Monitoring Station

Figure 1.5 Photograph of Riverlodge Ambient Air Quality Monitoring Station

1.3 Whitesail

Rio Tinto BC Works' operates and maintains the Whitesail monitoring station located in the Kitimat Valley. Like the Riverlodge monitoring station, the Whitesail monitoring station is considered a residential monitoring station. The Whitesail Ambient Air Station is in the Whitesail neighborhood of Kitimat, BC. and is situated on land owned by the Mountain View Alliance Church. Area land use is a suburban residential, forested, and park land. The ground cover around the site is grass, compacted gravel, asphalt, buildings, and forested land. An aerial view of the site is presented as Figure 1.6. A photograph of the station is presented as Figure 1.7.

Figure 1.6 Aerial View of Whitesail Ambient Air Quality Monitoring Station

Figure 1.7 Photograph of Whitesail Ambient Air Quality Monitoring Station

2.0 FIRST QUARTER 2025 REPORT SUMMARY

The LNG Canada and Rio Tinto BC Works air quality monitoring data collected during the first quarter (January 1 through March 31) 2025 at the Kitamaat Village, Riverlodge, and Whitesail stations are summarized in this section.

2.1 British Columbia Air Quality Objectives

British Columbia has adopted air quality objectives and standards for a number of contaminants, including $PM_{2.5}$, SO_2, O_3, and NO_2. The British Columbia Ambient Air Quality Objectives (BCAAQO) and the 2020 Canadian Ambient Air Quality Standard (for SO_2) that have been developed by the British Columbia Ministry of Environment are as follows:

Pollutant	Averaging Period	British Columbia Ambient Air Quality Objective (BCAAQO)	2020 Canadian Ambient Air Quality Standard (CAAQS)
SO_2	1-hour	75 (ppb)[a]	70 (ppb)[b]
	Annual	--	5 (ppb)[c]
NO_2	1-hour	60 (ppb)[d]	60 (ppb)[d]
	Annual	17 (ppb)[e]	17 (ppb)[e]
$PM_{2.5}$	24-hours	25 ($\mu g/m^3$)[f]	27 ($\mu g/m^3$)[g]
	Annual	8 ($\mu g/m^3$)[e]	8.8 ($\mu g/m^3$)[h]
O_3	1-hour	82 (ppb)	
	8-hour		62 (ppb)[i]

[a] Achievement based on annual 97th percentile of daily 1-hour maximum averaged over 2015-2017, annual 97.5th percentile of daily 1-hour maximum averaged over 2016-2018, and annual 98th percentile of daily 1-hour maximum averaged over 2017-2019, with one allowable excursion above 75 ppb to a maximum of 85 ppb over a three-year period prior to 2020.

[b] Achievement based on annual 99th percentile of daily 1-hour maximum, averaged over three consecutive years.

[c] Achievement based on annual average of 1-hour concentrations over one year.

[d] Achievement based on annual 98th percentile of daily 1-hour maximum averaged over three consecutive years

[e] Achievement based on annual average of 1-hour concentrations over one year

[f] Achievement based on annual 98th percentile of daily average, over one year

[g] Achievement based on annual 98th percentile of daily average, averaged over three consecutive years.

[h] Achievement based on annual average, averaged over three consecutive years.

[i] Achievement based on annual 4th highest daily 8-hour maximum, averaged over three consecutive years.

2.2 Pollutant Concentrations and Data Completeness

During the first quarter, there were no exceedances of the BCAAQO for SO_2, NO_2, and $PM_{2.5}$. The average and median hourly $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations measured during the first quarter at the Kitamaat Village, Riverlodge, and Whitesail monitoring stations are summarized in Table 2-1. Tables 2-2 through 2-4 present the maximum $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations, a comparison to the BCAAQOs, and data completeness for the first quarter of 2025. In Tables 2-2 through 2-4 it should be noted that, as applicable, SO_2 exceedance counts include BCAAQO and 2020 CAAQS.

Table 2-1 Average and Median Pollutant Statistics for First Quarter 2025

Station	$PM_{2.5}$ ($\mu g/m^3$)		SO_2 (ppb)		NO_2 (ppb)		O_3 (ppb)	
	Average	Median	Average	Median	Average	Median	Average	Median
Kitamaat Village	6.1	6.0	0.5	0.4	0.6	0.4	23.6	24.0
Riverlodge	4.2	4.0	0.5	0.2	1.6	0.9	21.9	23.0
Whitesail	4.2	4.0	0.1	0.0	1.4	0.8	17.5	18.0

Table 2-2 Kitamaat Village Station First Quarter 2025 Data Summary

Parameter	1-hour average						24-hour Average 8-hour Average						Data Completeness		
	Maximum Concentration			Exceedances of BCAAQO[1]			Maximum Concentration			Exceedances of BCAAQO[1]					
	Jan.	Feb.	Mar.	Jan.	Feb.	Mar.	Jan.	Feb.	Mar.	Jan.	Feb.	Mar.	Jan.	Feb.	Mar.
$PM_{2.5}$ ($\mu g/m^3$)[3]	26.0	22.0	20.0	-	-	-	11.0	9.5	7.6	0	0	0	98.0	99.5	99.5
SO_2 (ppb)	26.2	6.3	15.2	0	0	0	4.3	1.0	2.0	-	-	-	93.9	92.8	95.6
NO_2 (ppb)	11.3	20.4	25.3	0	0	0	1.6	2.1	1.5	-	-	-	87.5	95.0	95.6
O_3 (ppb)	43.0	45.0	47.0	0	0	0	42.0[2]	42.0[2]	43.0[2]	0	0	0	93.7	95.0	95.6

1 British Columbia Ambient Air Quality Objective (AAQO)
2 8-hour maximum
3 24-hour $PM_{2.5}$ concentrations were determined from midnight to midnight

Table 2-3 Riverlodge Station First Quarter 2025 Data Summary

Parameter	1-hour average						24-hour Average 8-hour Average						Data Completeness		
	Maximum Concentration			Exceedances of BCAAQO[1]			Maximum Concentration			Exceedances of BCAAQO[1]					
	Jan.	Feb.	Mar.	Jan.	Feb.	Mar.	Jan.	Feb.	Mar.	Jan.	Feb.	Mar.	Jan.	Feb.	Mar.
$PM_{2.5}$ ($\mu g/m^3$)[3]	22.0	17.0	14.0	-	-	-	6.8	7.8	5.3	0	0	0	98.8	98.9	99.5
SO_2 (ppb)	31.9	7.0	30.3	0	0	0	5.2	0.9	3.2	-	-	-	93.6	95.3	95.3
NO_2 (ppb)	11.8	11.0	9.2	0	0	0	4.7	4.8	2.5	-	-	-	93.6	95.3	95.3
O_3 (ppb)	41.0	45.0	46.0	0	0	0	40.0[2]	43.0[2]	44.0[2]	0	0	0	93.6	95.3	95.3
THC (ppm)	2.31	2.60	2.35	--[4]	--[4]	--[4]	2.10	2.23	2.17	--[4]	--[4]	--[4]	44.5[4]	85.8	93.6

1 British Columbia Ambient Air Quality Objective (AAQO)
2 8-hour maximum
3 24-hour $PM_{2.5}$ concentrations were determined from midnight to midnight
4 There are no BCAAQO's for Total Hydrocarbon (THC). THC Analyzer was installed and calibrated on January 16, 2025.

Table 2-4 Whitesail Station First Quarter 2025 Data Summary

Parameter	1-hour average						24-hour Average 8-hour Average								
	Maximum Concentration			Exceedances of BCAAQO[1]			Maximum Concentration			Exceedances of BCAAQO[1]			Data Completeness		
	Jan.	Feb.	Mar.	Jan.	Feb.	Mar.	Jan.	Feb.	Mar.	Jan.	Feb.	Mar.	Jan.	Feb.	Mar.
$PM_{2.5}$ ($\mu g/m^3$)[3]	18.0	17.0	27.0	-	-	-	7.2	7.4	7.9	0	0	0	99.4	99.5	99.2
SO_2 (ppb)	24.1	4.1	18.8	0	0	0	3.0	1.0	2.1	-	-	-	95.5	95.1	94.8
NO_2 (ppb)	14.7	14.7	7.3	0	0	0	6.6	3.4	2.6	-	-	-	95.5	95.1	94.8
O_3 (ppb)	31.0	36.0	31.0	0	0	0	31.0[2]	35.0[2]	30.0[2]	0	0	0	95.3	95.0	94.8

1 British Columbia Ambient Air Quality Objective (AAQO)
2 8-hour maximum
3 24-hour $PM_{2.5}$ concentrations were determined from midnight to midnight

2.3 First Quarter 2025 Ambient Air Monitoring Issues

During the first quarter of 2025, there were no ambient air or meteorological monitoring data deletions or resubmissions made for any of the monitoring stations outlined in this report. No required calibrations of the ambient air quality analyzers were missed during the first quarter.

There was a power outage at the Kitamaat Village shelter that affected the $NO/NO_2/NO_x$ analyzer from January 22 through 24, 2025. $NO/NO_2/NO_x$ concentration data were missing for 48 hours during this period. The $PM_{2.5}$ analyzer experienced a tape malfunction on January 14 and 9 hours of data were missing. The $PM_{2.5}$ sampler malfunctioned beginning February 4 at 17:00 ending February 5 at 08:00. 16 hours of $PM_{2.5}$ data were missing during this period.

At the Riverlodge station, official data collection began on January 16, 2025 for the total hydrocarbon analyzer after a successful multipoint calibration was performed. From February 1 at 20:00 through February 4 at 14:00, the total hydrocarbon analyzer malfunctioned due to ice buildup that had clogged the exhaust line. THC data were therefore invalid during this period. 355 hours of THC data were missing during this period. On March 20 and March 27, 2025, the THC analyzer flatlined and 12 hours of THC data were missing during these periods.

The anemometer at Riverlodge froze on January 6, 7, and January 25. 19 hours of wind speed and wind direction data were invalidated during the frozen time periods. A power outage on January 10 through 11 affected the $PM_{2.5}$ sampler. The sampler was offline for 3 hours during this period. A tape malfunction on the $PM_{2.5}$ sampler caused 4 hours of data to be lost on February 17 and February 18. A power outage on March 27 at 05:00 affected the O_3, $NO/NO_2/NO_x$, and SO_2 analyzer and $PM_{2.5}$ sampler. One hour of data was lost.

During the first quarter of 2025, there were no exceedances of the numerical metrics of the BCAAQO.

3.0 JANUARY - MARCH 2025 KITAMAAT VILLAGE AMBIENT AIR QUALITY STATION MONITORING ACTIVITIES

This section provides a summary of the monitoring activities conducted at the LNG Canada Kitamaat Village Ambient Air Quality Station for January through March 2025. Table 3-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Kitamaat Village monitoring station. Site visit notes for the first quarter, SO_2, $PM_{2.5}$, O_3, and NO_2 concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, and NO_2 trends for the first quarter 2025 are also presented in this section.

Table 3-1 LNG Canada Instrumentation at the Kitamaat Village Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Kitamaat Village			
NO_2	Teledyne-API T200	Chemiluminescence	8598
O_3	Teledyne-API T400	UV Absorption	7486
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	905
Zero Air Source	Teledyne API T701	Zero-Air Generator	2555

3.1 Site Visit Notes

The Kitamaat Village site visit notes for the first quarter are summarized here and in Appendix A.

- On January 9, 2025, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time. The inlet filters on the NO_x and O_3 analyzers were replaced.
- On January 21, 2025, a remote "as found" multipoint verification was performed on the O_3 analyzer prior to maintenance.
- On January 22, 2025, a remote O_3 analyzer zero baseline adjustment was made, followed by an "after maintenance" multipoint verification.
- On January 24, 2025, a remote multipoint calibration was performed on the $NO/NO_2/NO_x$ analyzer after a zero reset, due to a recent power outage at the station.
- On January 27, 2025, the NO_2 analyzer was rebooted remotely. An "after calibration adjustment" remote multipoint verification was then performed on the NO_x analyzer.
- On February 4, 2025, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time during the weekly station visit check.
- On February 11, 2025, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time.
- On February 13, 2025, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time. The sample inlet filters were also changed.

- On February 17, 2025, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time.
- On February 19, 2025, the site technician adjusted the clocks on the Envidas data logger and T700U calibrator to the correct time.
- On February 25, 2025, the site technician adjusted the clocks on the O_3 analyzer, Envidas data logger, and T700U calibrator to the correct time.
- On February 27, 2025, the MOE was onsite to perform audits of the NO_x and O_3 analyzers.
- On March 4, 2025, the site technician replaced the NO_x and O_3 analyzer inlet filters and adjusted the clocks on the O_3 and NO_x analyzers and T700U calibrator to the correct time during the weekly station visit check.
- On March 11, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas data logger and T700U calibrator to the correct time.
- On March 18, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas data logger and T700U calibrator to the correct time.
- On March 25, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas data logger and T700U calibrator to the correct time.
- On March 27, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and T700U calibrator to the correct time.

3.2 Monitoring Results and Trends

A summary of the $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations monitoring statistics for the first quarter 2025 for the Kitamaat Village Station is presented in Table 3-2.

Table 3-2 Summary of $PM_{2.5}$, SO_2, NO_2, and O_3 Concentrations for the Kitamaat Village Station, January – March 2025

Statistic	$PM_{2.5}$ ($\mu g/m^3$)[1]				SO_2 (ppb)[1]				NO_2 (ppb)				O_3 (ppb)			
	Jan.	Feb.	Mar.	Q1	Jan.	Feb.	Mar.	Q1	Jan.	Feb.	Mar.	Q1	Jan.	Feb.	Mar.	Q1
1-hour Avg.	6.3	7.3	5.0	6.2	0.6	0.5	0.7	0.6	0.6	0.9	0.6	0.7	20.9	25.8	24.3	23.7
1-Hour Max.	26.0	22.0	20.0	26.0	26.2	6.3	15.2	26.2	11.3	20.4	25.3	25.3	43.0	45.0	47.0	47.0
1-Hour Min.[2]	0.0	0.0	0.0	0.0	0.2	0.2	0.4	0.2	0.1	0.1	0.1	0.1	2.0	2.0	3.0	2.0
Mean Daily Max.	11.0	9.4	7.6	11.0	3.3	1.1	2.1	3.3	1.6	2.2	1.6	2.2	38.0	40.9	37.3	40.9
Mean Daily Min.	2.4	5.4	2.9	2.4	0.3	0.3	0.5	0.3	0.2	0.3	0.3	0.2	8.3	8.0	11.2	8.0
Percent Data Recovery	98.0	99.5	99.5	99.0	93.9	92.8	95.6	94.1	87.5	95.0	95.6	92.7	93.7	95.0	95.6	94.8
24-hour Daily Max.[3]	11.0	9.5	7.6	11.0	4.3	1.0	2.0	4.3	1.6	2.1	1.5	2.1	--	--	--	--
8-hour Max.	--	--	--	--	--	--	--	--	--	--	--	--	42.0	42.0	43.0	43.0
24-hour Avg.	6.3	7.3	5.0	6.2	0.6	0.5	0.7	0.6	0.6	0.9	0.6	0.7	20.8	25.9	24.3	23.7
Median	6.0	7.0	5.0	6.0	0.3	0.4	0.5	0.4	0.4	0.6	0.4	0.4	17.0	26.0	26.0	24.0

[1] $PM_{2.5}$ and SO_2 first quarter 2025 data provided by Rio Tinto BC Works.

[2] Slightly negative concentrations are inherent with proper analyzer operation due to subtle levels of noise in the zero baseline setpoint. Negative values may be interpreted as zero and only occur when the air is very clean.

[3] 24-hour $PM_{2.5}$ daily maximum concentrations determined from midnight to midnight.

The average $PM_{2.5}$ concentration during the first quarter was 6.2 µg/m^3 and the median $PM_{2.5}$ concentration during the first quarter was 6.0 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration during the first quarter was 26.0 µg/m^3 which occurred in January. The maximum 24-hour $PM_{2.5}$ concentration for the first quarter was 11.0 µg/m^3 which also occurred in January. During the first quarter, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

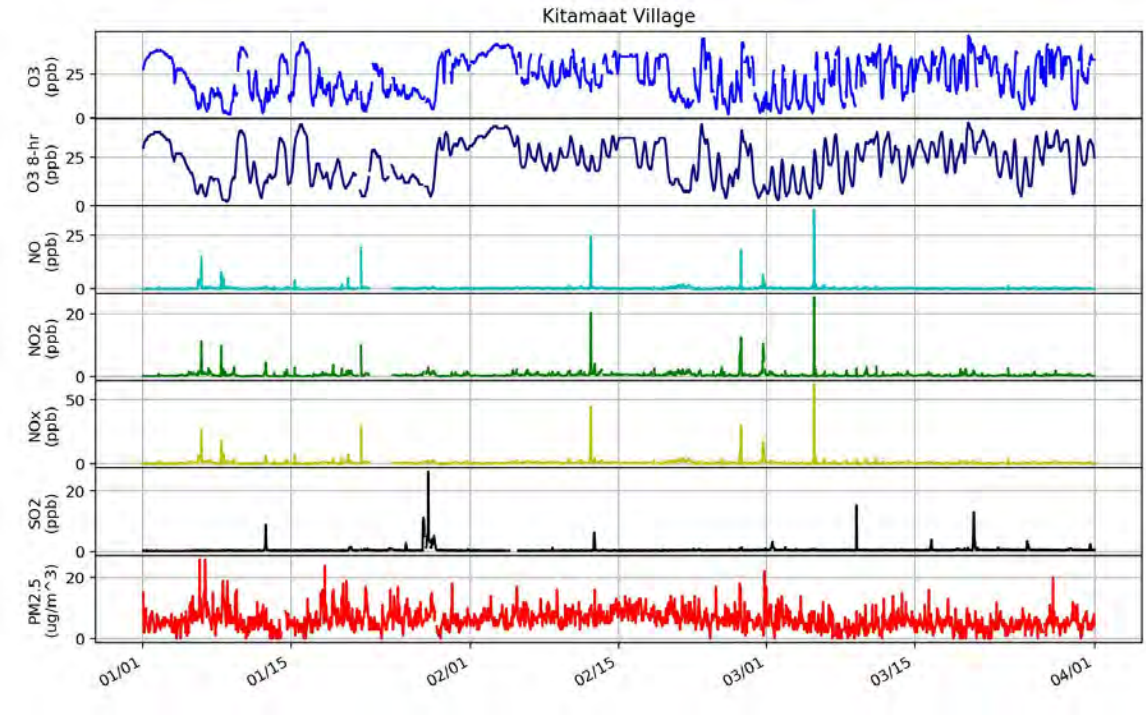
The average SO_2 concentration at the Kitamaat Village for the first quarter was 0.6 ppb with a median concentration of 0.4 ppb. The maximum hourly SO_2 concentration during the first quarter was 26.2 ppb which occurred in January. During the first quarter, there were no exceedances of the 1-hour SO_2 BCAAQO of 75 ppb or the 1-hour SO_2 CAAQS of 70 ppb at Kitamaat Village station.

The average NO_2 concentration at the Kitamaat Village for the first quarter was 0.7 ppb and the median NO_2 concentration was 0.4. The maximum hourly NO_2 concentration during the first quarter at Kitamaat Village was 25.3 ppb which occurred in March. During the first quarter, there were no exceedances of the 1-hour NO_2 BCAAQO of 60 ppb at the Kitamaat Village station.

The average O_3 concentration at the Kitamaat Village for the first quarter was 23.7 ppb and the median O_3 concentration was 24.0 ppb. The maximum hourly O_3 concentration of 47.0 ppb occurred in March. The maximum 8-hour O_3 concentration during the first quarter was 43.0 ppb which occurred in March. During the first quarter, there were no exceedances of the 1-hour O_3 BCAAQO advisory level of 82 ppb and the 8-hour CAAQS of 62 ppb at the Kitamaat Village station.

Time series plots of $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations for the first quarter are presented in Figure 3.1.

Figure 3.1 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO/NO_2/NO_x, and O_3/O_3 -8hr Concentration Data for the Kitamaat Village Station, First Quarter 2025



Wind speed, wind direction, and temperature data are collected by Rio Tinto BC Works at the Kitamaat Village station. Figures 3.2 through 3.4 present the monthly Kitamaat Village station wind roses for January through March 2025. Figure 3.5 presents a time series plot of wind speed and direction, and temperature for the first quarter, 2025.

Figure 3.2 January 2025 Kitamaat Village Station Wind Rose

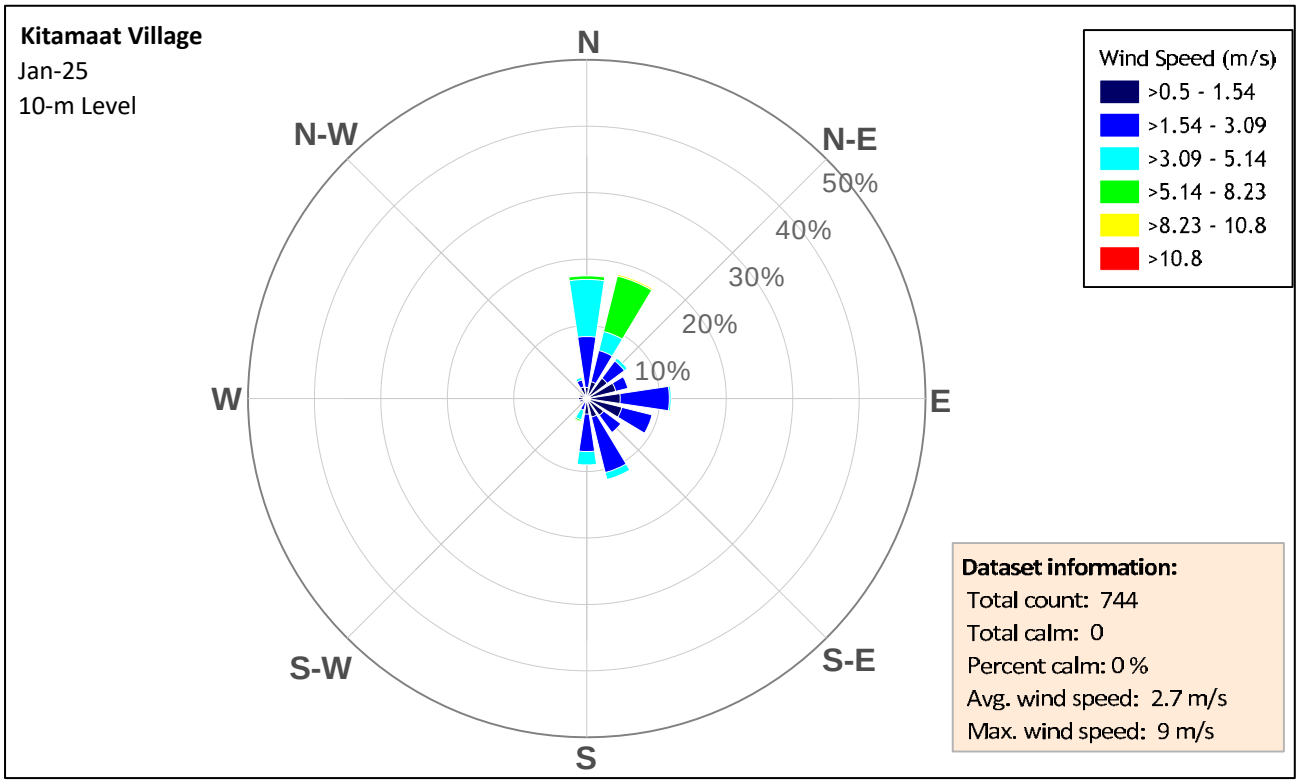


Figure 3.3 February 2025 Kitamaat Village Station Wind Rose

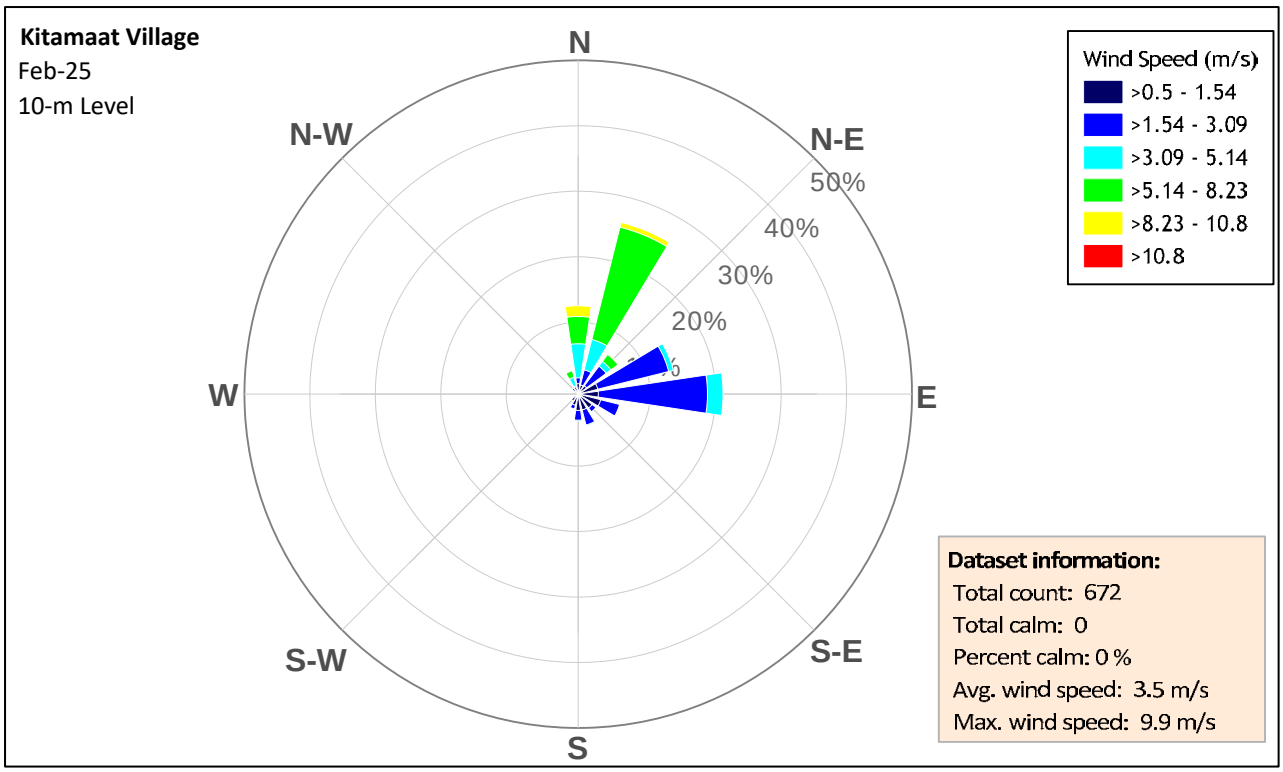


Figure 3.4 March 2025 Kitamaat Village Station Wind Rose

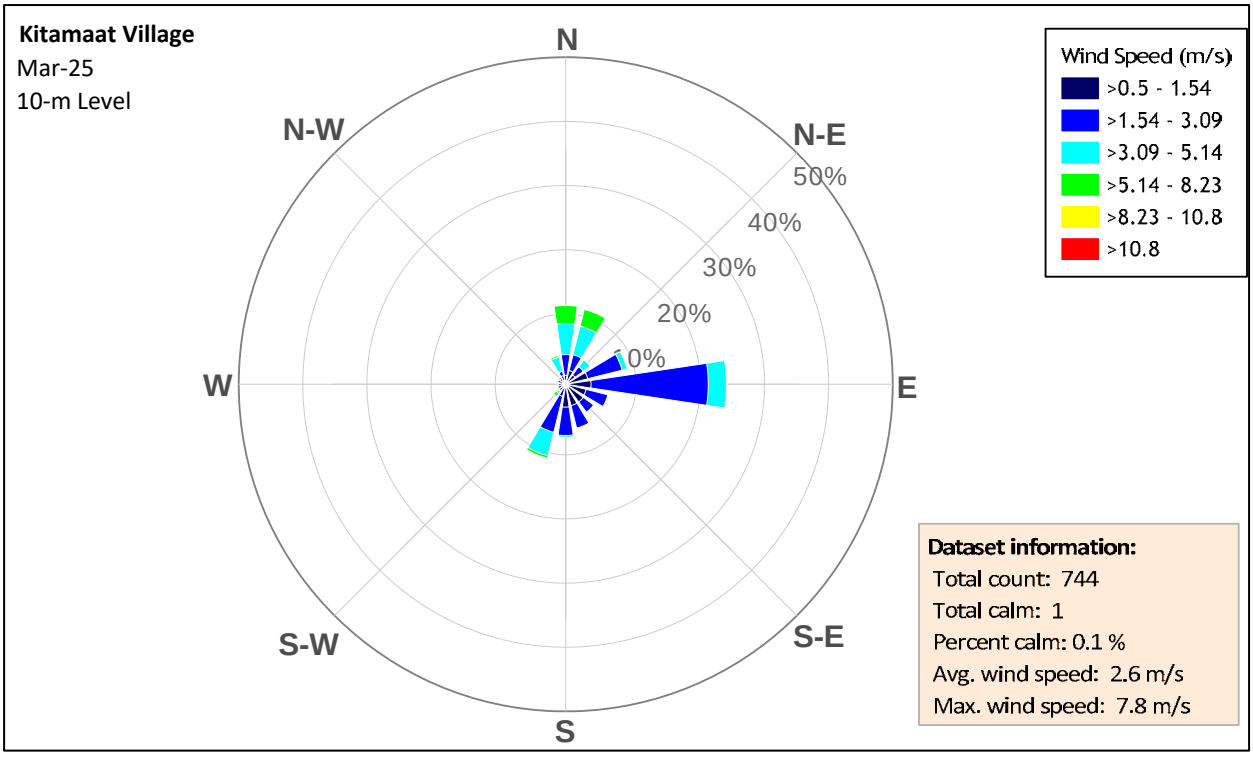
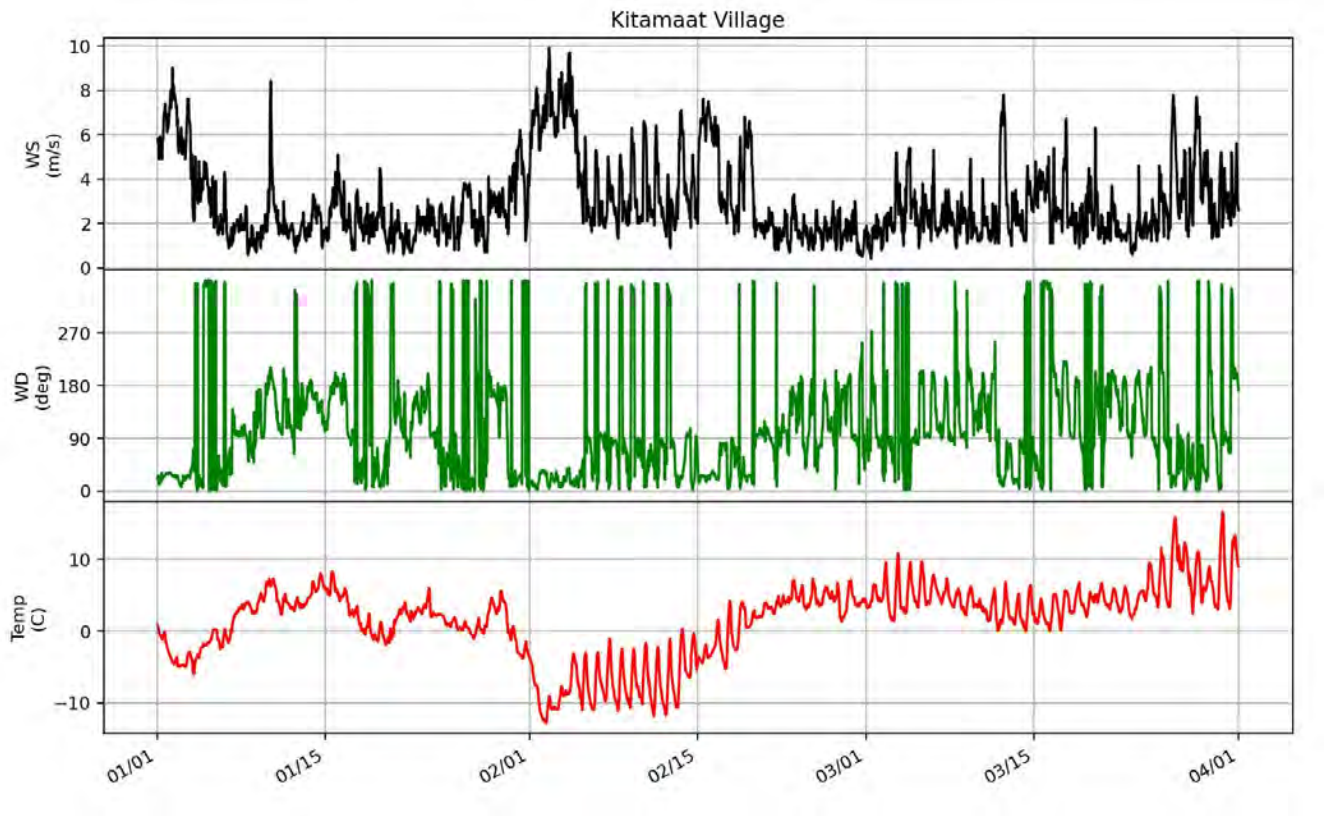


Figure 3.5 Time Series Plot of Wind Speed, Wind Direction, and Temperature Data at Kitimaat Village Station for First Quarter 2025



3.3 First Quarter 2025 Ambient Air Monitoring Data Issues

Table 3-3 presents the Kitamaat Village station data shortfall periods and known issues, during the first quarter, that led to pollutant concentration data loss.

Table 3-3 Data Shortfall Periods and Noted Issues During First Quarter 2025 at Kitamaat Village Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
$SO_2/O_3/NO_x$	1/09/2025	1000	1/09/2025	1000	1	Replace Filters
$PM_{2.5}$	1/14/2025	0300	1/14/2025	1100	9	Tape Malfunction
$PM_{2.5}$	1/14/2025	1100	1/14/2025	1100	1	Leak Check / Tape Change
O_3	1/21/2025	0900	1/21/2025	0900	1	O_3 As Found MP Verification
O_3	1/21/2025	1000	1/21/2025	1200	3	O_3 Maintenance
$SO_2/O_3/NO_x/PM_{2.5}$	1/22/2025	1100	1/22/2025	1100	1	Power Outage
NO_x	1/22/2025	1200	1/24/2025	1100	48	Malfunction from power out.
O_3	1/22/2025	1300	1/22/2025	1400	2	O_3 MP After Adjustment
NO_x	1/24/2025	1200	1/24/2025	1400	3	NO_x Calibration
NO_x	1/27/2025	1600	1/27/2025	1800	3	NO_x Troubleshooting / Repair / Calibration
$PM_{2.5}$	1/28/2025	1600	1/28/2025	1800	3	Monthly Flow Rate Verification and Maintenance
	2/04/2025	1700	2/05/2025	0800	16	Analyzer malfunction
$SO_2/O_3/NO_x$	2/05/2025	1000	2/05/2025	1100	2	SO_2 Calibration
$SO_2/O_3/NO_x$	2/13/2025	1200	2/13/2025	1200	1	Filters Changed
$PM_{2.5}$	2/17/2025	1700	2/17/2025	1800	2	Monthly Flow Rate Verification and Maintenance
$SO_2/O_3/NO_x/PM_{2.5}$	2/27/2025	1200	2/27/2025	1300	2	MOE Audit
$SO_2/O_3/NO_x/PM_{2.5}$	3/04/2025	1600	3/04/2025	1600	1	Filters Changed
$PM_{2.5}$	3/04/2025	1600	3/04/2025	1700	2	Monthly Flow Rate Verification and Maintenance

4.0 JANUARY – MARCH 2025 RIVERLODGE AMBIENT AIR QUALITY STATION MONITORING STATION

This section provides a summary of the monitoring activities conducted at the LNG Canada Riverlodge Ambient Air Quality Station for January through March 2025. Table 4-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Riverlodge monitoring station. Site visit notes, SO_2, $PM_{2.5}$, O_3, and NO_2 concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, and NO_2 trends for first quarter 2025 are also presented below.

Table 4-1 LNG Canada Instrumentation at the Riverlodge Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Riverlodge			
NO_2	Teledyne-API T200	Chemiluminescence	8599
O_3	Teledyne-API T400	UV Absorption	7487
THC	Teledyne-API N901	Flame Ionization Detector	80
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	906
Zero Air Source	Teledyne API T701	Zero-Air Generator	2556

4.1 Site Visit Notes

The Riverlodge site visit notes for the first quarter are summarized here and in Appendix A.

- On January 3, 2025, the N901 THC analyzer was reignited. Water was observed in the FID exhaust line and a pump was used to dry out the FID exhaust line. Ice was also found in the exhaust tube and the exhaust tubing was rerun to exit the building at the same location as the NO_2 and O_3 analyzers. The site technician changed the NO_2 and O_3 analyzers' inlet filters and adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time.

- On January 7, 2025, the site technician was onsite for weekly site checks. The clocks on the NO_2 and O_3 analyzers, T700U calibrator and Envidas logger were adjusted to the correct time.

- On January 9, 2025, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, T700U, calibrator and Envidas data logger to the correct time.

- On January 16, 2025, the site technician installed a new methane cylinder, CC243371, for calibrations on the THC analyzer. The site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time. A multipoint "after analyzer adjustment" calibration verification was performed on the N901 THC analyzer.

- On January 23, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, T700U calibrator, and Envidas data logger.

- On January 27, 2025, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, T700U calibrator, and Envidas data logger.

- On January 30, 2025, remote “as found” and “after adjustment” calibrations were performed on the THC and NO_x analyzers.

- On January 30, 2025, the site technician replaced hydrogen and ultra-pure air cylinders with new cylinders, SN12441101250322 (ultra-pure air cylinder). No serial number for hydrogen cylinder was found. The clocks on the NO_2 and O_3 analyzers, T700U calibrator, and Envidas data logger were adjusted.

- On February 4, 2025, the site technician investigated an outage of the N901 THC analyzer. It was found that the exhaust line was frozen. The exterior line was cut shorter where there was no ice buildup in the line. The analyzer was relit. The site technician changed the NO_2 and O_3 analyzers’ inlet filters and adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time.

- On February 17, 2025, the site technician was onsite for weekly site checks. The clocks on the NO_2 and O_3 analyzers were updated to the correct time.

- On February 26, 2025, the MOE was onsite to perform audits of the NO_x and O_3 analyzers.

- On February 27, 2025, the MOE was onsite to pick up their equipment that was stored at the site overnight.

- On March 4, 2025, the site technician changed the NO_2, O_3, and THC analyzers’ inlet filters and adjusted the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time.

- On March 6, 2025, the site technician updated the clocks on the NO_2 and O_3 analyzers, and Envidas data logger and T700U calibrator to the correct time. Windows was updated on the Envidas.

- On March 12, 2025, the site technician updated the clocks on the NO_2 and O_3 analyzers, and Envidas data logger and T700U calibrator to the correct time.

- On March 21, 2025, a remote “as found” calibration was performed on the O_3 analyzer.

- On March 25, 2025, the site technician updated the clocks on the NO_2 and O_3 analyzers, and Envidas data logger and T700U calibrator to the correct time.

- March 27, 2025, the site technician updated the clocks on the NO_2 and O_3 analyzers, and Envidas data logger to the correct time.

4.2 Monitoring Results and Trends

A summary of the $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations monitoring statistics for the first quarter 2025 for the Riverlodge Station is presented in Table 4-2. Table 4-3 presents a summary of the THC monitoring statistics for the first quarter 2025 at the Riverlodge station.

Table 4-2 Summary of $PM_{2.5}$, SO_2, NO_2, and O_3 Concentrations for the Riverlodge Station, January - March 2025

Statistic	$PM_{2.5}$ (µg/m³)[1]				SO_2 (ppb)[1]				NO_2 (ppb)				O_3 (ppb)			
	Jan.	Feb.	Mar.	Q1	Jan.	Feb.	Mar.	Q1	Jan.	Feb.	Mar.	Q1	Jan.	Feb.	Mar.	Q1
1-hour Avg.	4.1	4.9	3.9	4.3	0.8	0.1	0.7	0.5	1.5	2.2	1.3	1.7	17.5	23.9	24.5	22.0
1-Hour Max.	22.0	17.0	14.0	22.0	31.9	7.0	30.3	31.9	11.8	11.0	9.2	11.8	41.0	45.0	46.0	46.0
1-Hour Min.[2]	0.0	0.0	0.0	0.0	-0.3	-0.3	-0.2	-0.3	0.1	0.1	0.2	0.1	0.0	1.0	0.0	0.0
Mean Daily Max.	6.9	7.9	5.2	7.9	5.2	1.0	3.3	5.2	4.7	4.7	2.7	4.7	36.5	40.2	39.0	40.2
Mean Daily Min.[2]	1.7	3.2	2.4	1.7	0.2	-0.3	-0.2	-0.3	0.2	0.2	0.5	0.2	1.0	4.6	7.3	1.0
Percent Data Recovery	98.8	98.9	99.5	99.1	93.6	95.3	95.3	94.7	93.6	95.3	95.3	94.7	93.6	95.3	95.3	94.7
24-hour Daily Max.[3]	6.8	7.8	5.3	7.8	5.2	0.9	3.2	5.2	4.7	4.8	2.5	4.8	--	--	--	--
8-hour Max.	---	---	--	--	--	--	--	--	--	--	--	--	40.0	43.0	44.0	44.0
24-hour Avg.	4.1	4.9	3.9	4.3	0.8	0.1	0.7	0.5	1.5	2.3	1.3	1.7	17.7	23.9	24.6	22.1
Median	4.0	5.0	4.0	4.0	0.3	-0.1	0.3	0.2	0.9	1.3	0.8	0.9	16.0	26.0	29.0	23.0

[1] $PM_{2.5}$ and SO_2 first quarter 2025 data provided by Rio Tinto BC Works.

[2] Slightly negative concentrations are inherent with proper analyzer operation due to subtle levels of noise in the zero baseline setpoint. Negative values may be interpreted as zero and only occur when the air is very clean.

[3] 24-hour $PM_{2.5}$ daily maximum concentrations determined from midnight to midnight.

Table 4-3 Summary of THC Concentrations for the Riverlodge Station, January - March 2025

Statistic	THC (ppb)			
	Jan.	Feb.	Mar.	Q1
1-hour Avg.	2.07	2.16	2.12	2.12
1-Hour Max.	2.31	2.60	2.35	2.60
1-Hour Min.[2]	2.00	2.03	2.05	2.00
Mean Daily Max.	2.10	2.20	2.20	2.20
Mean Daily Min.[2]	2.10	2.10	2.10	2.10
Percent Data Recovery	44.5[1]	85.8	93.6	74.6
24-hour Daily Max.[3]	2.10	2.23	2.17	2.23
8-hour Max.	---	---	---	---
24-hour Avg.	2.07	2.16	2.12	2.12
Median	2.06	2.16	2.12	2.12

[1] THC Analyzer was installed and calibrated on January 16, 2025.

The average $PM_{2.5}$ concentration at Riverlodge during the first quarter was 4.3 µg/m^3 and the median $PM_{2.5}$ concentration during the first quarter was 4.0 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration during the first quarter was 22.0 µg/m^3 which occurred in January. The maximum 24-hour $PM_{2.5}$ concentration for the first quarter was 7.8 µg/m^3 which also occurred in February. During the first quarter, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

The average SO_2 concentration at the Riverlodge for the first quarter was 0.5 ppb with a median concentration of 0.2 ppb. The maximum hourly SO_2 concentration during the first quarter was 31.9 ppb which occurred in January. During the first quarter, there were no exceedances of the 1-hour BCAAQO of 75 ppb or the 1-hour CAAQS of 70 ppb for SO_2 at the Riverlodge station.

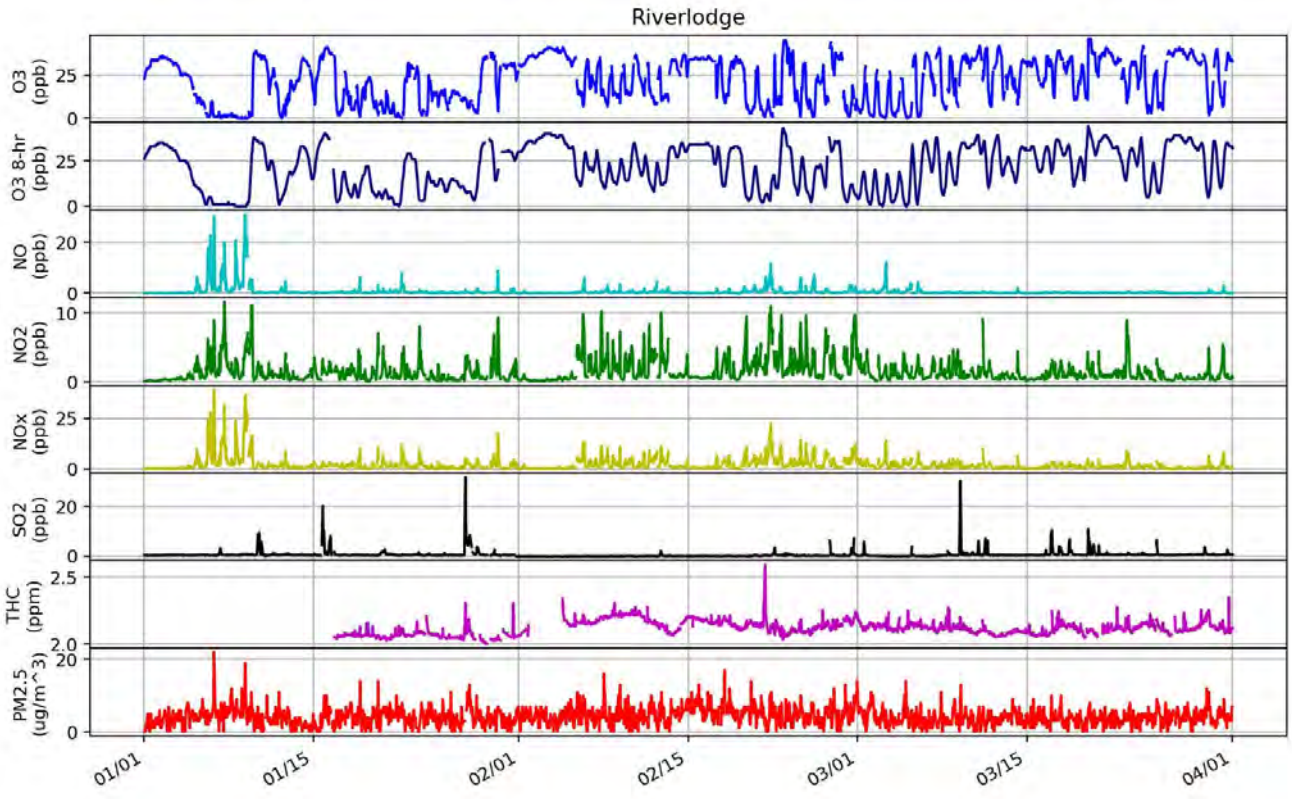
The average NO_2 concentration at the Riverlodge station for the first quarter was 1.7 ppb and the median NO_2 concentration was 0.9 ppb. The maximum hourly NO_2 concentration during the first quarter at Riverlodge was 11.8 ppb, which occurred in January. During the first quarter, there were no exceedances of the 1-hour NO_2 BCAAQO of 60 ppb at the Riverlodge station.

The average O_3 concentration at the Riverlodge station for the first quarter was 22.0 ppb and the median O_3 concentration was 23.0 ppb. The maximum hourly O_3 concentration of 46.0 ppb occurred in March. The maximum 8-hour O_3 concentration during the first quarter was 44.0 ppb which occurred in March. During the first quarter, there were no exceedances of the 1-hour O_3 BCAAQO advisory level of 82 ppb and the 8-hour CAAQS of 62 ppb at the Riverlodge station.

The average THC concentration at the Riverlodge for the first quarter was 2.12 ppm with a median concentration of 2.12 ppb. The maximum hourly THC concentration during the first quarter was 2.60 ppb which occurred in February.

A time series plot of $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations for the first quarter is presented in Figure 4.1.

Figure 4.1 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO / NO_2 / NOx, and O_3 / O_3 -8hr Concentration Data for the Riverlodge Station, First Quarter 2025



Wind speed and wind direction data are collected by Rio Tinto BC Works at the Riverlodge station. Figures 4.2 through 4.4 present the monthly Riverlodge station wind roses for January through March 2025. Figure 4.5 presents a time series plot of Riverlodge wind speed and direction, and temperature for the first quarter, 2024.

Figure 4.2 January 2025 Riverlodge Station Wind Rose

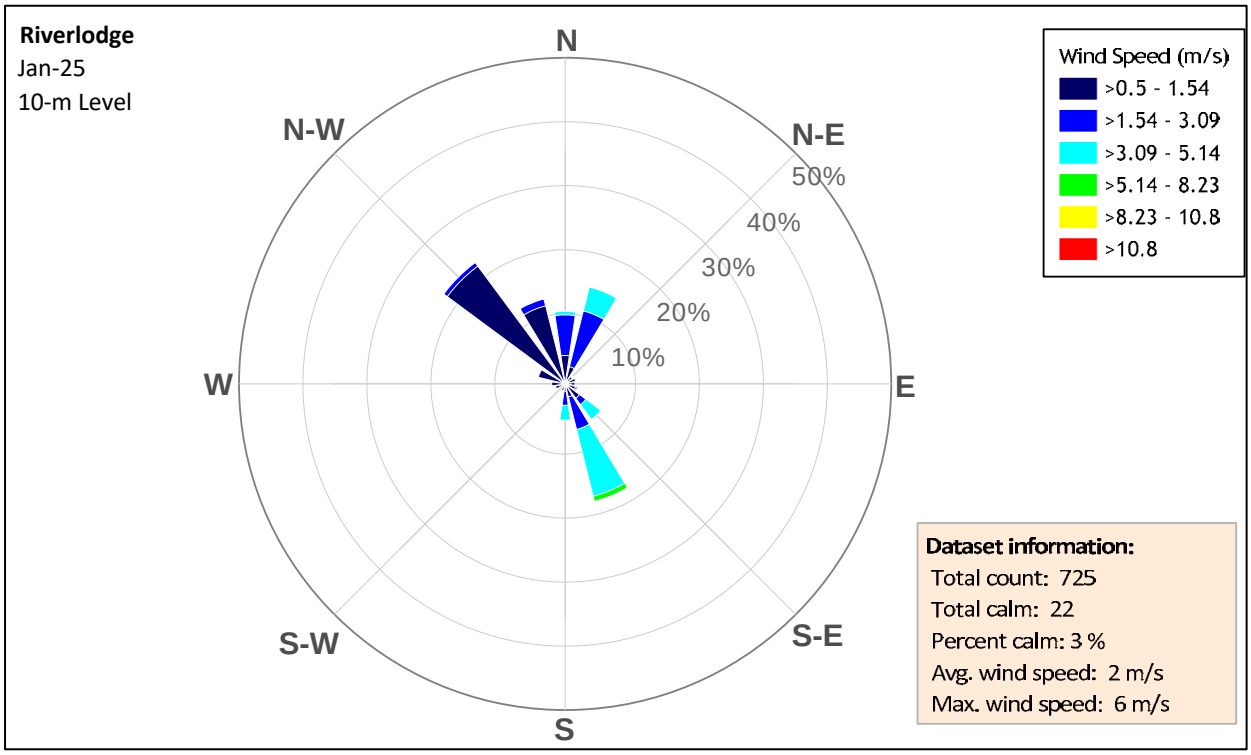


Figure 4.3 February 2025 Riverlodge Station Wind Rose

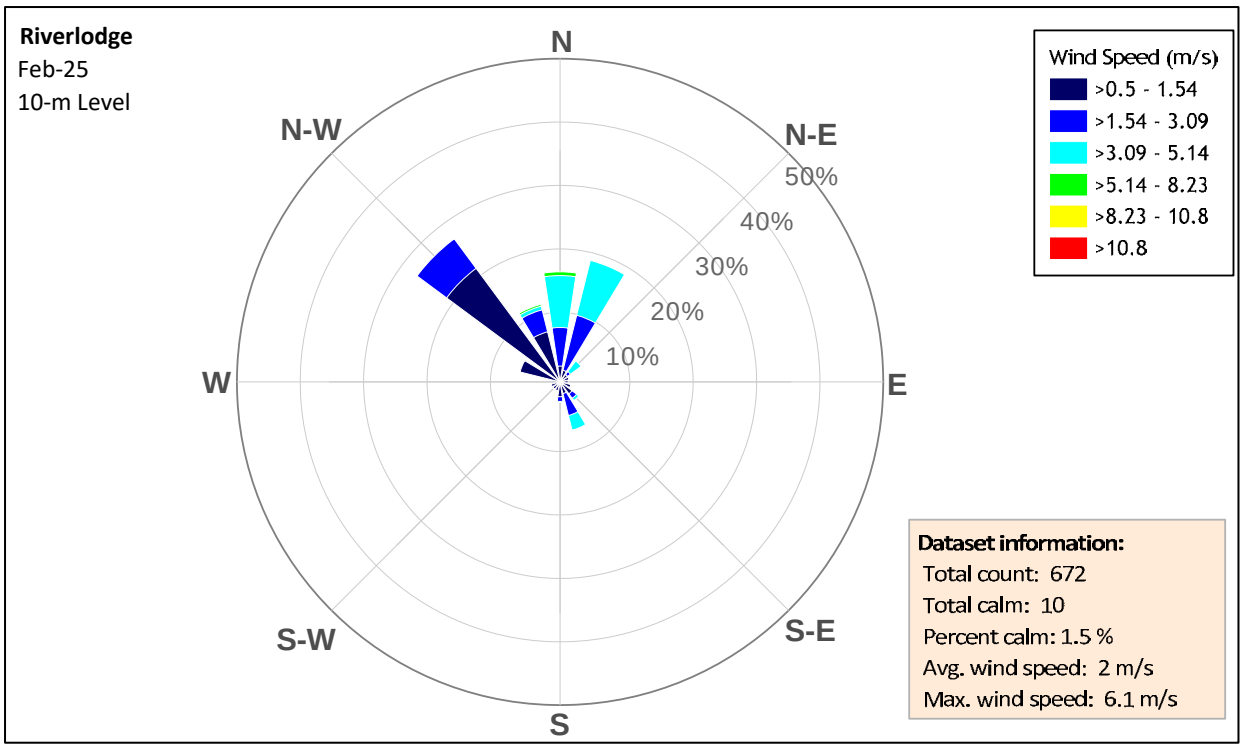


Figure 4.4 March 2025 Riverlodge Station Wind Rose

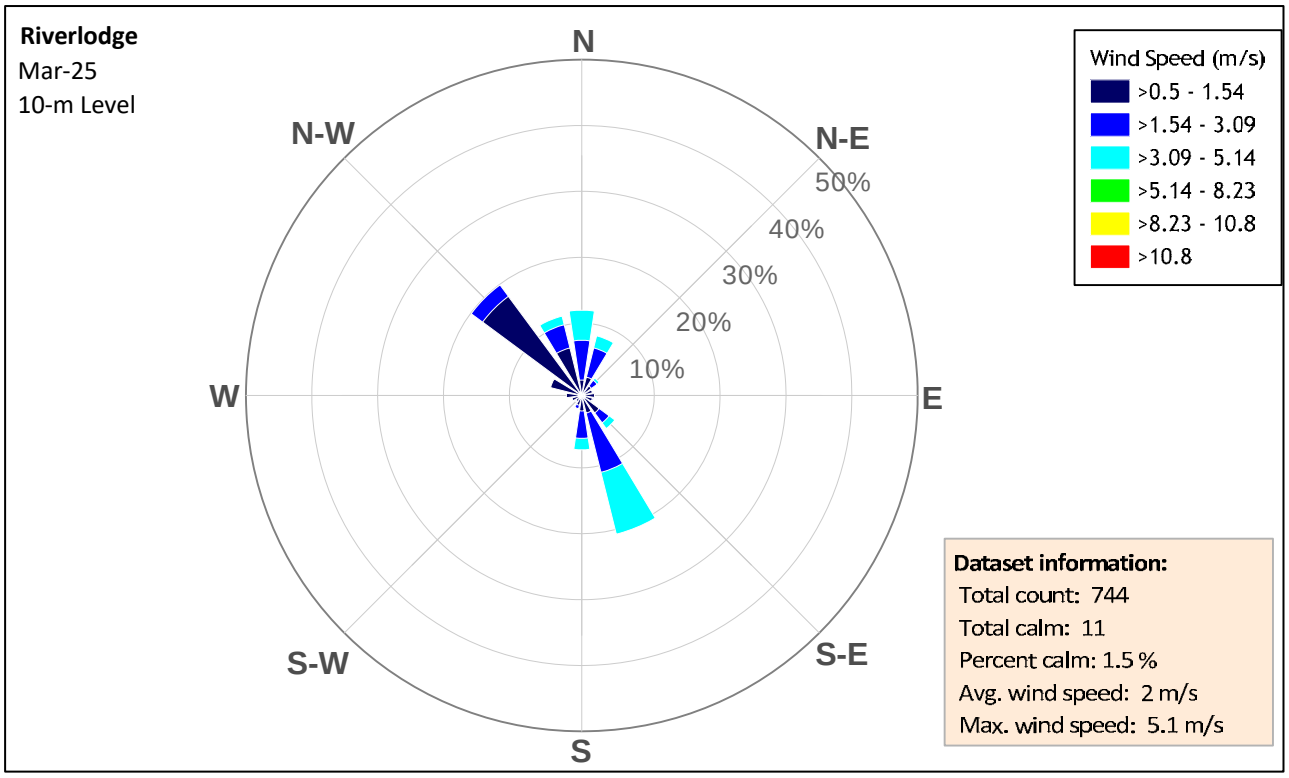
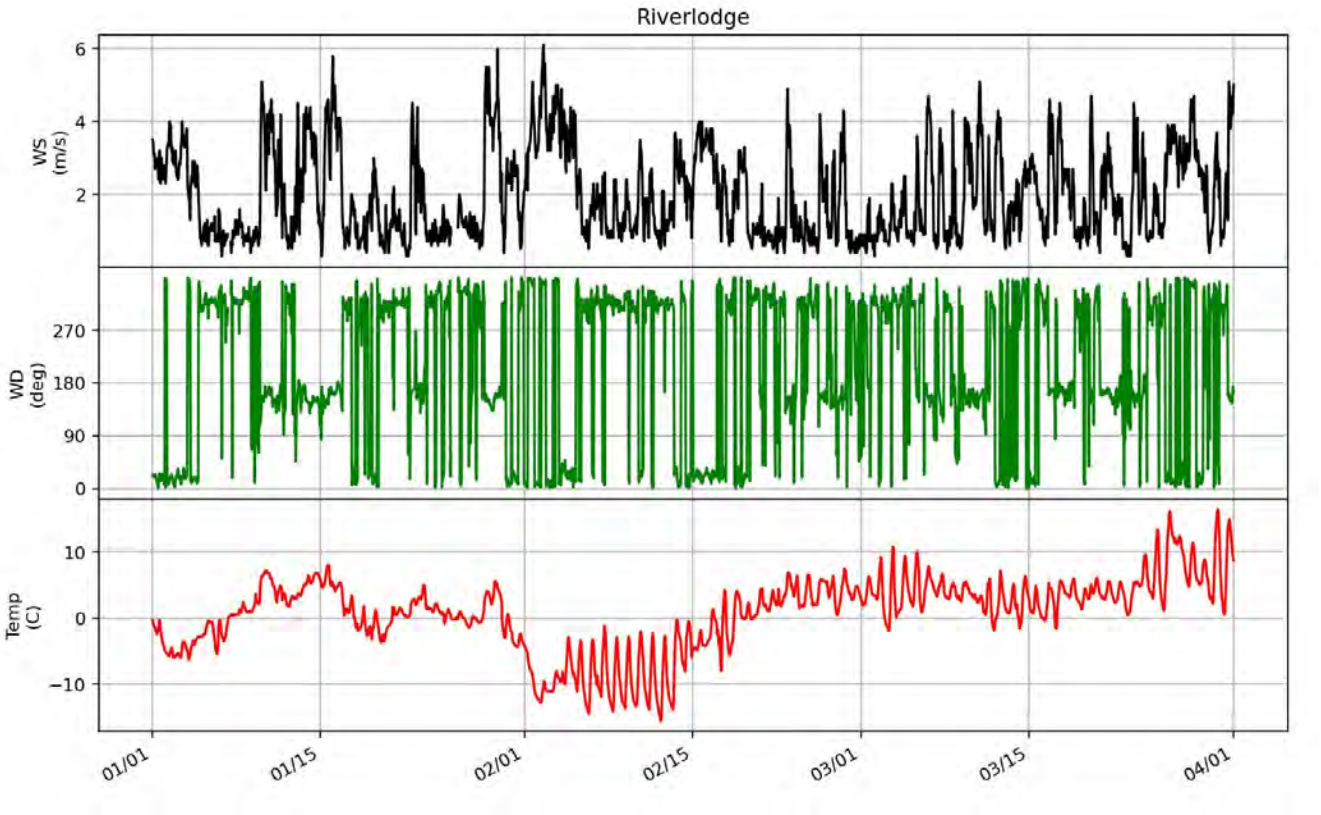


Figure 4.5 Time Series Plot of Wind Speed, Wind Direction, and Temperature Data at Riverlodge Station for First Quarter 2025



4.3 First Quarter 2025 Ambient Air Monitoring Data Issues

Table 4-4 presents the Riverlodge station data shortfall periods and known issues, during the first quarter, that led to pollutant concentration data loss.

Table 4-4 Data Shortfall Periods and Noted Issues During First Quarter 2025 at Riverlodge Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
$O_3/NO_x/SO_2$	1/03/2025	1000	1/03/2025	1000	1	Inlet filters Changed
$O_3/NO_x/SO_2$	1/09/2025	1500	1/09/2025	1500	1	O_2 Tank Replacement
$PM_{2.5}$	1/10/2025	2300	1/11/2025	0100	3	Power Outage
$PM_{2.5}$	1/16/2025	1200	1/16/2025	1300	2	Clock Reset
$O_3/NO_x/THC/SO_2$	1/16/2025	1400	1/16/2025	1700	4	Official THC Setup and Calibration
$PM_{2.5}$	1/23/2025	1300	1/23/2025	1500	3	Monthly Flow Rate Verification and Maintenance
$PM_{2.5}$	1/27/2025	1400	1/27/2025	1500	2	Turned off during PM10 Troubleshooting
$O_3/NO_x/THC/SO_2$	1/29/2025	1000	1/29/2025	1500	6	T700 Calibrator Troubleshooting
$O_3/NO_x/THC/SO_2$	1/30/2025	1300	1/30/2025	1600	4	THC Calibration
THC	1/31/2025	1800	1/31/2025	1800	1	Carrier Gas Replacement (H2/N2)
THC	2/1/2025	2000	2/4/2025	1400	67	Inlet frozen
$O_3/NO_x/THC/SO_2$	2/11/2025	1400	2/11/2025	1400	1	Filter Changed
$PM_{2.5}$	2/17/2025	1400	2/17/2025	1600	3	Monthly Flow Rate Verification and Maintenance
$PM_{2.5}$	2/18/2025	0200	2/18/2025	0300	2	Tape malfunction
$O_3/NO_x/THC/SO_2/PM_{2.5}$	2/26/2025	1500	2/26/2025	1600	2	MOE Audit
$O_3/NO_x/THC/SO_2$	3/4/2025	1300	3/4/2025	1300	1	Inlet filters changed
PM2.5	3/4/2025	1000	3/4/2025	1300	4	Monthly Flow Rate Verification and Maintenance
THC	3/6/2025	1600	3/6/2025	1600	1	Affected during Site Maintenance
THC	3/20/2025	2300	3/21/2025	0500	7	Flatlined, rebooted
O_3	3/21/2025	900	3/21/2025	900	1	O_3 As Found MP Verification
THC	3/27/2025	0000	3/27/2025	0400	5	Flatlined, rebooted

5.0 JANUARY – MARCH 2025 WHITESAIL AMBIENT AIR QUALITY STATION MONITORING STATION

This section provides a summary of the monitoring data collected by Rio Tinto BC Works at their Whitesail monitoring station for January through March 2025. Table 5-1 presents a list of the Rio Tinto BC Works air quality monitoring equipment operating at the Whitesail monitoring station.

Table 5-1 Rio Tinto BC Works Instrumentation at the Whitesail Station

Parameter	Manufacturer / Model	Serial Number
SO_2	Thermo Scientific 43i	1161530005
$PM_{2.5}$	Met One BAM 1020	P15216
O_3	Teledyne-API T400	3830
NO_x	Teledyne-API T200	4271

5.1 Monitoring Results and Trends

A summary of the $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations monitoring statistics for the first quarter 2025 for the Whitesail Station is presented in Table 5-2.

Table 5-2 Summary of $PM_{2.5}$, SO_2, NO_2, and O_3 Concentrations for the Whitesail Station, January – March 2025

Statistic	$PM_{2.5}$ (µg/m³)[1]				SO_2 (ppb)[1]				NO_2 (ppb)				O_3 (ppb)			
	Jan.	Feb.	Mar.	Q1	Jan.	Feb.	Mar.	Q1	Jan.	Feb.	Mar.	Q1	Jan.	Feb.	Mar.	Q1
1-hour Avg.	4.3	5.0	3.6	4.3	0.2	0.1	0.2	0.2	1.5	1.6	1.1	1.4	14.9	20.0	17.8	17.6
1-Hour Max.	18.0	17.0	27.0	27.0	24.1	4.1	18.8	24.1	14.7	14.7	7.3	14.7	31.0	36.0	31.0	36.0
1-Hour Min.[2]	0.0	0.0	0.0	0.0	-0.5	-0.5	-0.3	-0.5	0.1	0.1	0.2	0.1	0.0	1.0	0.0	0.0
Mean Daily Max.	7.2	7.4	7.9	7.9	3.0	1.0	2.1	3.0	6.7	3.4	2.6	6.7	29.7	33.7	27.3	33.7
Mean Daily Min.	1.9	2.7	1.9	1.9	-0.2	-0.2	-0.1	-0.2	0.4	0.4	0.5	0.4	2.4	6.7	8.5	2.4
Percent Data Recovery	99.4	99.5	99.2	99.4	95.5	95.1	94.8	95.1	95.5	95.1	94.8	95.1	95.3	95.0	94.8	95.0
24-hour Daily Max.[3]	7.2	7.3	7.6	7.6	3.0	0.9	2.0	3.0	6.6	3.4	2.6	6.6	--	--	--	--
8-hour Max.	--	--	--	--	--	--	--	--	--	--	--	--	31.0	35.0	30.0	35.0
24-hour Avg.	4.3	5.0	3.6	4.3	0.2	0.1	0.2	0.2	1.5	1.6	1.1	1.4	15.0	20.0	17.9	17.6
Median	4.0	5.0	3.0	4.0	-0.1	0.0	0.0	0.0	0.8	0.9	0.8	0.8	13.0	21.0	19.0	18.0

[1] $PM_{2.5}$, SO_2, NO_2, and O_3 first quarter 2025 data for Whitesail provided by Rio Tinto BC Works.

[2] Slightly negative concentrations are inherent with proper analyzer operation due to subtle levels of noise in the zero baseline setpoint. Negative values may be interpreted as zero and only occur when the air is very clean.

[3] 24-hour $PM_{2.5}$ daily maximum concentrations determined from midnight to midnight.

The average $PM_{2.5}$ concentration at Whitesail during the first quarter was 4.3 µg/m^3 and the median $PM_{2.5}$ concentration during the first quarter was 4.0 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration during the first quarter was 27.0 µg/m^3 which occurred in March. The maximum 24-hour $PM_{2.5}$ concentration for the first quarter was 7.6 µg/m^3 which also occurred in March. During the first quarter, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

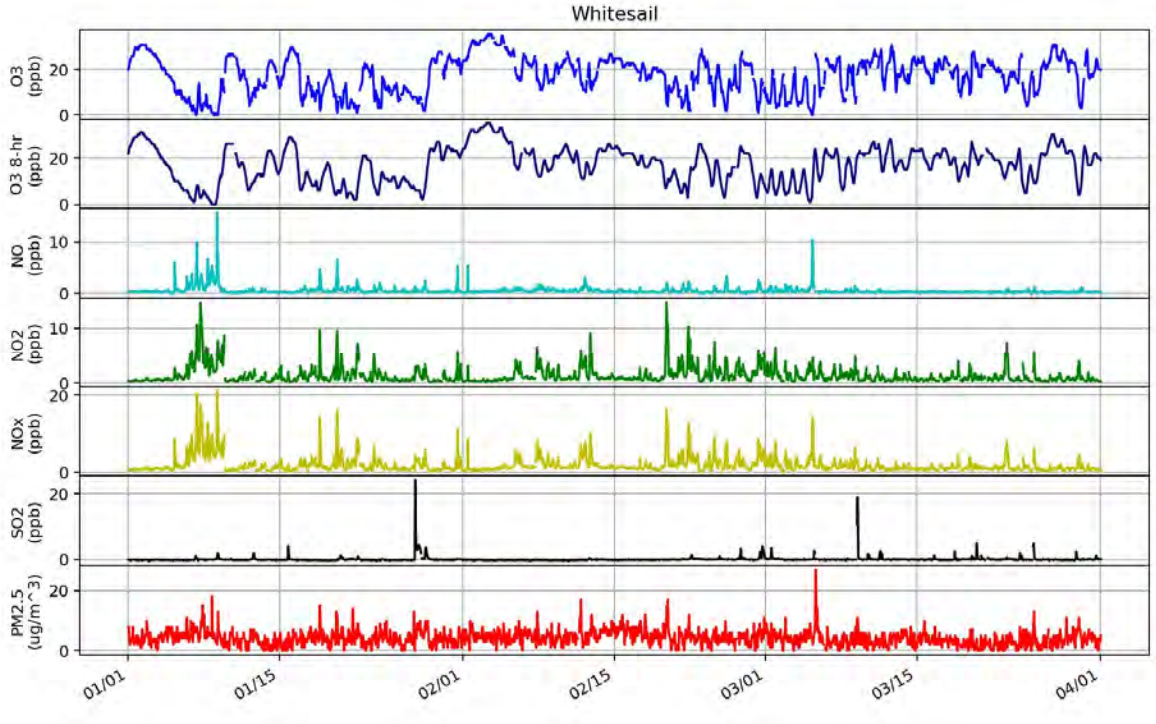
The average SO_2 concentration at the Whitesail for the first quarter was 0.2 ppb with a median concentration of 0.0 ppb. The maximum hourly SO_2 concentration during the first quarter was 24.1 ppb which occurred in January. During the first quarter, there were no exceedances of the 1-hour BCAAQO of 75 ppb or the 1-hour CAAQS of 70 ppb for SO_2 at the Whitesail station.

The average NO_2 concentration at the Whitesail station for the first quarter was 1.4 ppb and the median NO_2 concentration was 0.8 ppb. The maximum hourly NO_2 concentration during the first quarter at Whitesail was 14.7 ppb which occurred in January and February. During the first quarter, there were no exceedances of the 1-hour NO_2 BCAAQO of 60 ppb at the Whitesail station.

The average O_3 concentration at the Whitesail station for the first quarter was 17.6 ppb and the median O_3 concentration was 18.0 ppb. The maximum hourly O_3 concentration of 36.0 ppb occurred in February. The maximum 8-hour O_3 concentration during the first quarter was 35.0 ppb which occurred in February. During the first quarter, there were no exceedances of the 1-hour O_3 BCAAQO advisory level of 82 ppb and the 8-hour CAAQS of 62 ppb at the Whitesail station.

A time series plot of $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations for the first quarter is presented in Figure 5.1.

Figure 5.1 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO/NO_2/NOx, and O_3/O_3 -8hr Concentration Data for the Whitesail Station, First Quarter 2025



Wind speed and wind direction data are collected by Rio Tinto BC Works at the Whitesail station. Figures 5.2 through 5.4 present the monthly Whitesail station wind roses for January through March 2025. Figure 5.5 presents a time series plot of Whitesail wind speed and direction, and temperature for the first quarter, 2025.

Figure 5.2 January 2025 Whitesail Station Wind Rose

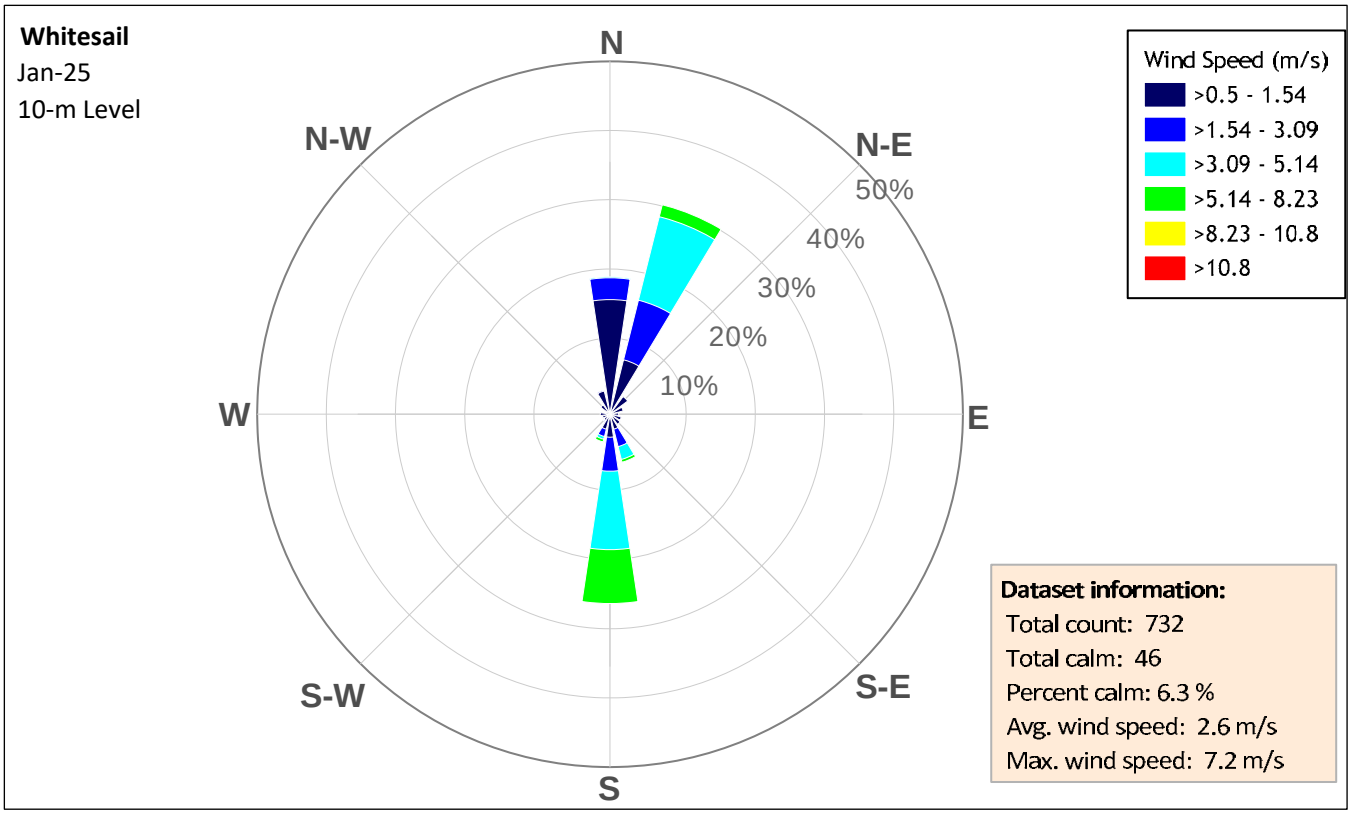


Figure 5.3 February 2025 Whitesail Station Wind Rose

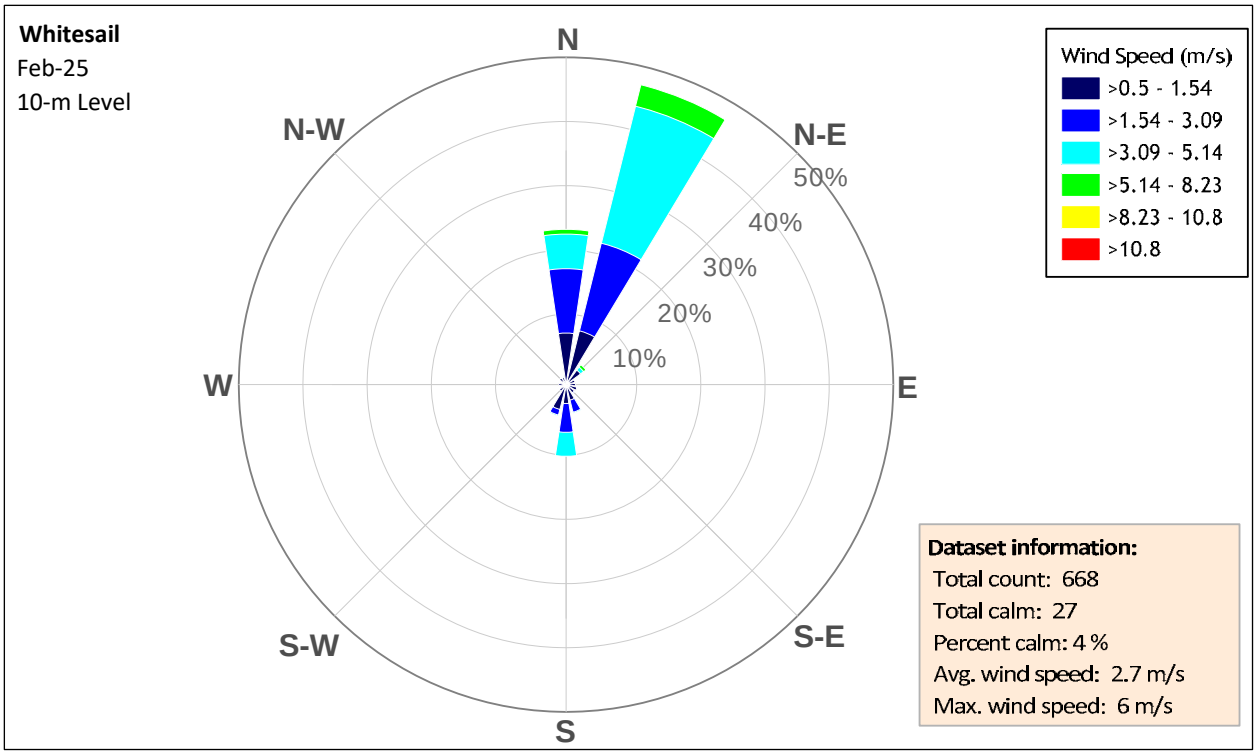


Figure 5.4 March 2025 Whitesail Station Wind Rose

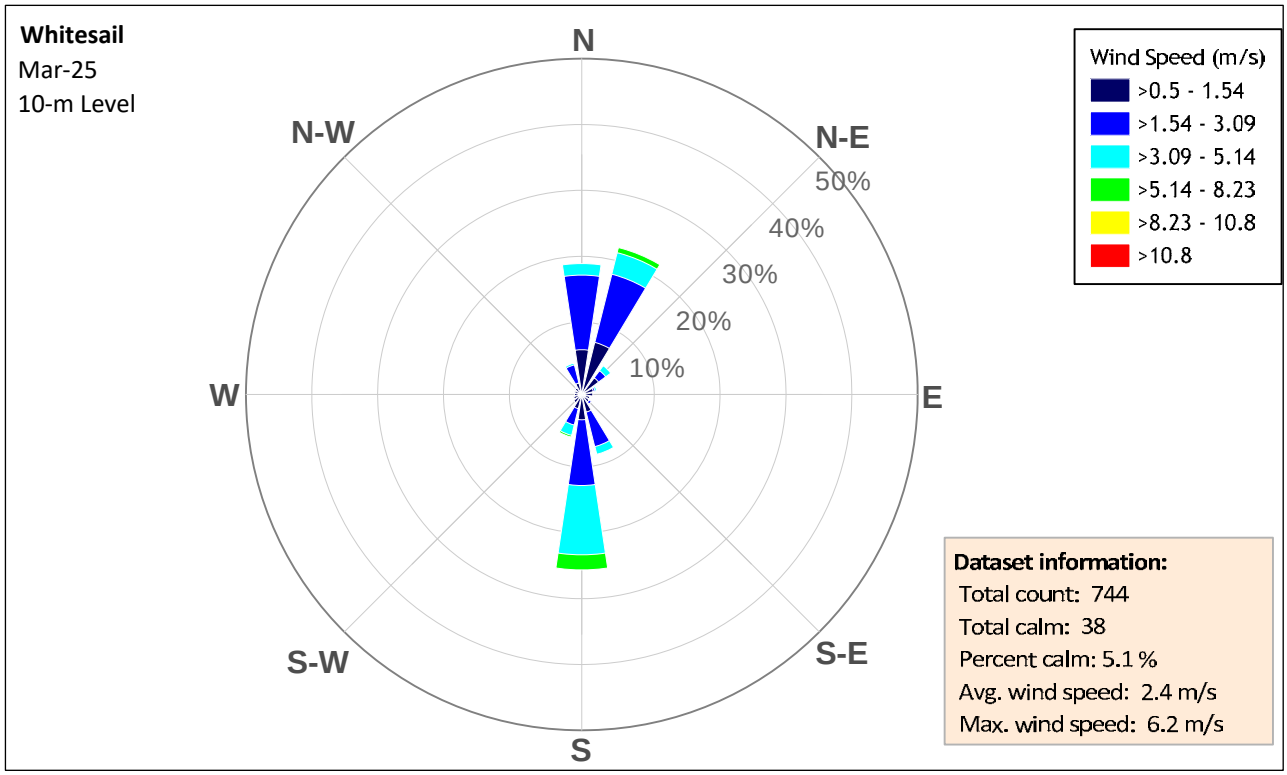
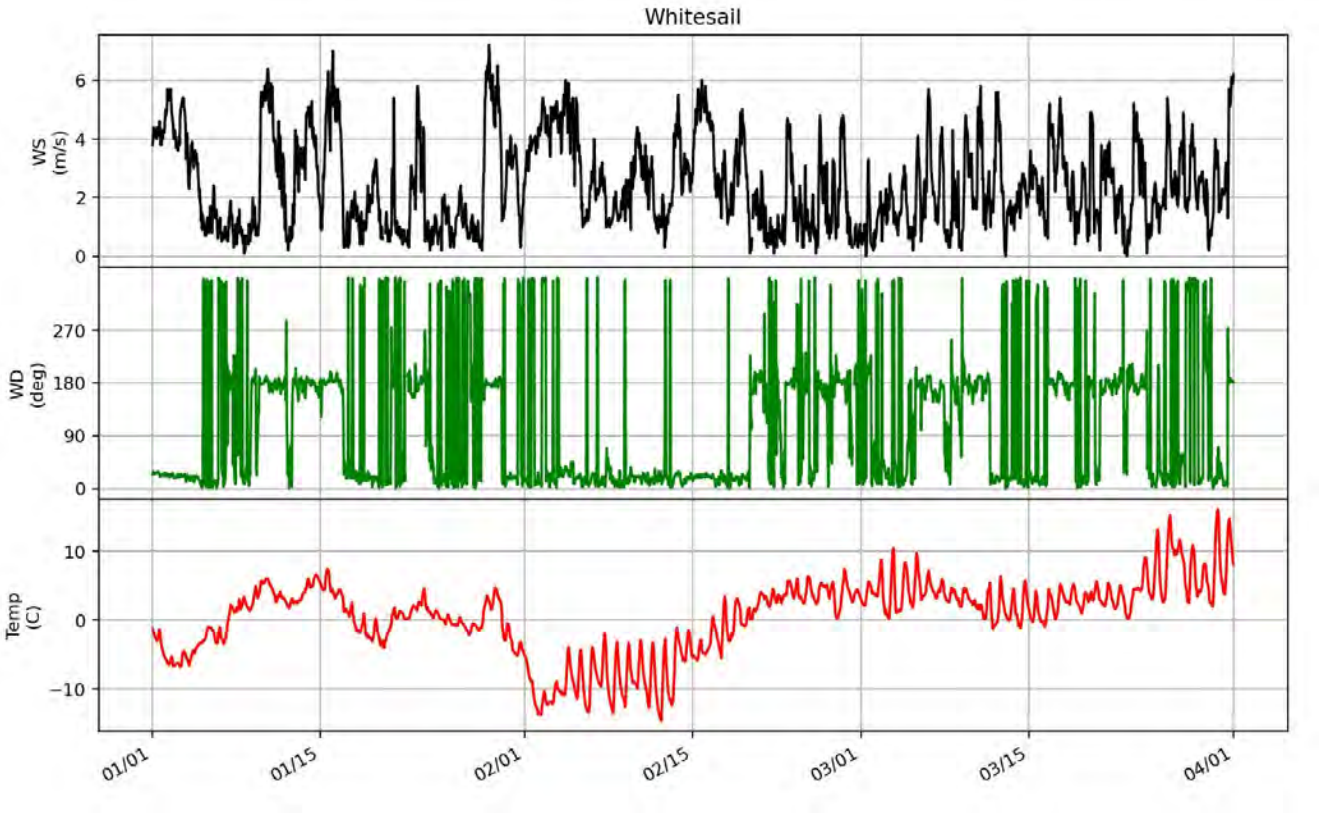


Figure 5.5 Time Series Plot of Wind Speed, Wind Direction, and Temperature Data at Whitesail Station for First Quarter 2025



5.2 First Quarter 2025 Ambient Air Monitoring Data Issues

Table 5-3 presents the Whitesail station data shortfall periods and known issues, during the first quarter, that led to pollutant concentration data loss.

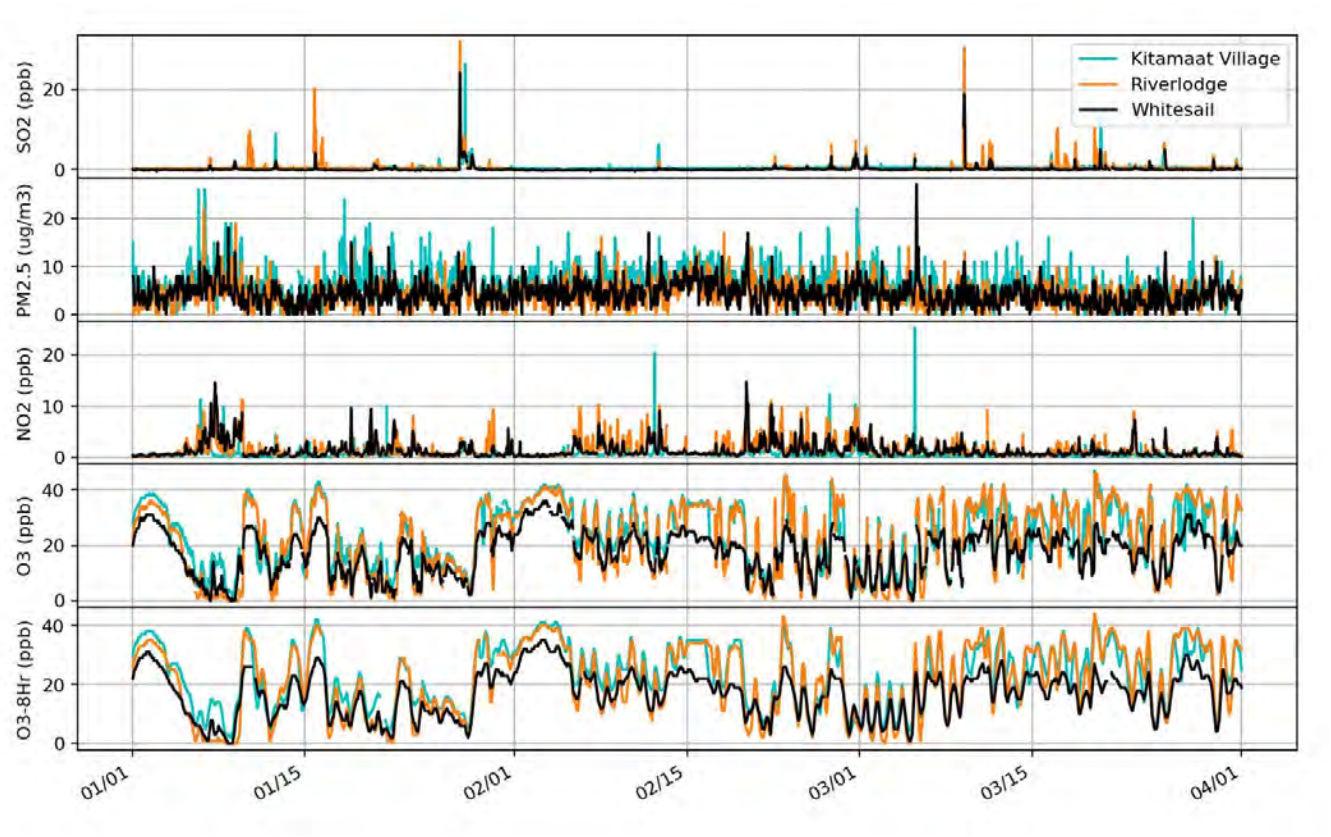
Table 5-3 Data Shortfall Periods and Noted Issues During First Quarter 2025 at Whitesail Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
$PM_{2.5}$	1/23/2025	1600	1/23/2025	1700	2	Monthly Flow Rate Verification and Maintenance
$O_3/NO_x/SO_2$	2/06/2025	1600	2/06/2025	1600	1	Filters Changed
$PM_{2.5}$	2/11/20225	1600	2/11/20225	1700	2	Monthly Flow Rate Verification and Maintenance
$O_3/NO_x/SO_2/PM_{2.5}$	2/26/2025	900	2/26/2025	1100	3	MOE Audit
$O_3/NO_x/SO_2$	3/6/2025	900	3/6/2025	900	1	Filters Changed
$PM_{2.5}$	3/6/2025	1100	3/6/2025	1200	2	Monthly Flow Rate Verification and Maintenance
$O_3/NO_x/SO_2$	3/21/2025	800	3/21/2025	1200	5	SO_2/O_3 As Found MP Verification; NO_x Calibration

6.0 STATION COMPARISON

Figure 6.1 presents comparative time series plots of first quarter 2025 $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations from the Kitamaat Village, Riverlodge, and Whitesail monitoring stations. $PM_{2.5}$ and SO_2 data were obtained from Rio Tinto BC works for Kitamaat Village and Riverlodge stations. $PM_{2.5}$, SO_2, NO_2, and O_3 concentration data were obtained from Rio Tinto BC works for the Whitesail monitoring station. These graphs are useful for evaluating pollutant dispersion and for concentration comparison purposes.

Figure 6.1 Comparison of Hourly $PM_{2.5}$, SO_2, NO_2, and O_3 and 8-hour O_3 Concentrations Kitamaat Village, Riverlodge, and Whitesail Monitoring Locations, First Quarter 2025



APPENDIX A. SITE NOTES FOR KITAMAAT VILLAGE AND RIVERLODGE

01/09/2025 - Inlet filter changes and RT activities

Thursday, January 9, 2025 8:51 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: January 9, 2025
Start Time: 8:45
End Time:
Technician: Adrienne Kaul

Reason for Visit

On site to change inlet filters and for RT activities

Description

T700U Calibrator:

-Clock was 65 seconds ahead and was updated at 8:58.

T200 NOx:

-Clock was 65 seconds ahead and was updated 9:01-9:02.

T400 O3:

-Clock was 65 seconds ahead and was updated at 9:03.

NOx and O3:

-All pneumatic connections felt tight from manifold through to analyzer.

-Data flagged 9:08-9:43

-Inlet filters changed on both analyzers and 1-2 um filters installed. O-rings and glass were cleaned prior to new filter installation.

-Ozone running at 400 ppb 9:23- 9:37 to precondition the inlet filter.

-O3 analyzer read 401.0 with 399.6 ppb supplied

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Station temperature 25.8 C, within spec.
- SO2 and NO tank pressure 1720 psi and line pressure 32 psi.

01/21/2025 - O3 As Found MP

Tuesday, January 21, 2025 12:38 PM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 1/21/25
Start Time: 820
End Time: 935
Technician: WL

Reason for Visit

Perform O3 as found MP verification prior to today's maintenance.

Description

[describe what activities were performed during the maintenance]

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

Kitimat Village 2025-

Trinity Consultants

OZONE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Village
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 1/21/2025 **Start Time** 8:26 **Stop Time** 9:26

Analyzer Mfg Teledyne-API
Analyzer Model T400
Analyzer s/n 7486

Anal. Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	N/A	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	N/A	**Model:**	T701
Serial #:	905	**Serial #:**	N/A	**Serial #:**	2555
Cert Date:	N/A	**Certification Date:**	N/A	**Certification Date:**	5/20/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard
m: 1
b: 0
r:
Calibration Date:

INPUT (Txfr Standard) Raw Input (PPB)	INPUT (Txfr Standard) Corrected (X) (PPB)	RESPONSE (Y) (PPB)	RESPONSE % DIFF.	BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.0	1.2	/	1.2	0.06	0.0%
40.0	40.0	41.7	4.23%	41.8	-0.12	0.0%
89.8	89.8	91.9	2.34%	92.4	-0.52	-0.1%
150.1	150.1	153.2	2.07%	153.7	-0.51	-0.1%
249.7	249.7	254.0	1.72%	254.9	-0.94	-0.2%
400.1	400.10	408	1.97%	407.8	0.20	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

COMMENTS

Slope(m)	1.016	1.05 to 0.95
Intercept(b)	1.152	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	2.47%	

Calibrated By Wyndam Lewis

= cell containing equations

01/22/2025 - O3 Zero Adjustment

Thursday, January 23, 2025 7:59 AM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 1/22/25
Start Time: 1550
End Time: 1705
Technician: WL

Reason for Visit

Perform follow up O3 zero baseline adjustment

Description

The O3 MP verification after maintenance last night had a zero value of approximately 1 ppb.
O3 zero adjusted down to 0-0.2 ppb.
O3 MP after adjustment performed

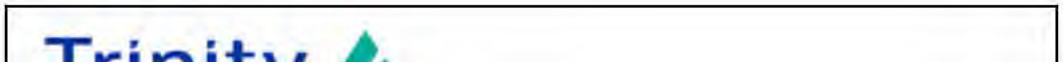
Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

Kitimat Village 2025-



Trinity Consultants

OZONE CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME LNG Kitimat Village
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 1/22/2025 **Start Time** 15:56 **Stop Time** 16:56

Analyzer Mfg Teledyne-API
Analyzer Model T400
Analyzer s/n 7486

Anal. Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	N/A	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	N/A	**Model:**	T701
Serial #:	905	**Serial #:**	N/A	**Serial #:**	2555
Cert Date:	N/A	**Certification Date:**	N/A	**Certification Date:**	5/20/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard
m: 1
b: 0
r:
Calibration Date:

INPUT (Txfr Standard)		RESPONSE		BEST-FIT DETERMINATION		
Raw Input (PPB)	Corrected (X) (PPB)	(Y) (PPB)	% DIFF.	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.0	0.0	/	-0.2	0.23	0.0%
40.1	40.1	40.6	1.20%	40.7	-0.09	0.0%
90.6	90.6	91.9	1.43%	92.2	-0.29	-0.1%
149.8	149.8	153.4	2.40%	152.6	0.80	0.2%
249.7	249.7	254.9	2.08%	254.5	0.37	0.1%
400.4	400.40	408.2	1.95%	408.3	-0.10	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	1.020	1.05 to 0.95
Intercept(b)	-0.249	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	1.81%	

COMMENTS

Calibrated By Wyndam Lewis

= cell containing equations

01/24/2025 - NOx Calibration

Friday, January 24, 2025 2:50 PM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 1/24/25
Start Time: 1110
End Time: 1325
Technician: WL

Reason for Visit

NOx calibration shifted on 1/22.

Description

NOx zero reset performed.
Interestingly, this brought the span back to where it should be. No span adjustment was performed.
NOx MP verification after adjustment performed with great results

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

Kitimat Village 2025-

Trinity Consultants

NITROGEN OXIDES CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME LNG Kitimat Village **Date** 1/24/2025 **Start Time** 11:49
PROJECT 244501.0077 **Stop Time** 13:19
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API **Anal. Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8598

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.0 ppm	**Model:**	T701
Serial #:	905	**Serial #:**	DT0046813	**Serial #:**	2555
Cert Date:	12/13/2024	**Certification Date:**	4/4/2024	**Certification Date:**	5/20/2024
		Expiration Date:	4/4/2027		

INPUT (X) NO (PPB)	RESPONSE (Y) NO (PPB)	RESPONSE (Y) NO_2 (PPB)	RESPONSE (Y) NO_X (PPB)	NO % DIFF	NO BEST-FIT DETERMINATION Predicted (Y)	NO BEST-FIT DETERMINATION Residual (PPB)	NO BEST-FIT DETERMINATION Residual (<2% Full Scale)
0.0	0.0	0.0	0.0	/	-0.6	0.56	0.1%
40.1	40.6	-0.6	40.0	1.0%	40.4	0.12	0.0%
89.8	90.4	-0.6	89.8	0.7%	91.2	-0.79	-0.2%
139.6	141.7	-0.8	140.9	1.5%	142.1	-0.39	-0.1%
199.0	203.1	-1.8	201.4	2.1%	202.8	0.30	0.1%
298.7	304.9	-2.4	302.5	2.1%	304.7	0.21	0.0%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X % DIFF	NO_X BEST-FIT DETERMINATION Predicted (Y)	NO_X BEST-FIT DETERMINATION Residual (PPB)	NO_X BEST-FIT DETERMINATION Residual (<2% Full Scale)
/	-0.6	0.58	0.1%
-0.4%	40.1	-0.14	0.0%
0.0%	90.5	-0.68	-0.1%
0.9%	141.0	-0.09	0.0%
1.2%	201.2	0.17	0.0%
1.3%	302.3	0.15	0.0%

	NO	NO_x		NO	NO_x
Slope (m)	1.0220	1.0142	1.05 to 0.95	0.9784	0.9860
Intercept (b)	-0.5828	-0.5949	(≤ ± 10)	0.5728	0.5884
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	0.99999	0.99999
Average % Difference	1.47%	0.60%		1.47%	0.76%

Calibrated By Wyndam Lewis = cell containing equations

Template Revised 7/10/23

Trinity Consultants

NITROGEN DIOXIDE CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME LNG Kitimat Village **Date** 1/24/2025 **Start Time** 11:49
PROJECT 244501.0077 **Stop Time** 13:19
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API **Anal. Range 0-** 500 **PPB**

Analyzer Model T200
Analyzer s/n 8598

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.0 ppm	**Model:**	T701
Serial #:	905	**Serial #:**	DT0046813	**Serial #:**	2555
Cert Date:	12/13/2024	**Certification Date:**	4/4/2024	**Certification Date:**	5/20/2024
		Expiration Date:	4/4/2027		

TITRATION

CAL INPUT (X) NO (PPB)	CAL INPUT (X) O_3 (PPB)	CALC ACTUAL $[NO_2]_A$ (PPB)	DAS RESPONSE (Y) NO (PPB)	DAS RESPONSE (Y) NO_X (PPB)	DAS RESPONSE (Y) NO_2 (PPB)	CALCULATED (Y) [ORIG] NO (PPB)	CALCULATED (Y) [ORIG] NO_X (PPB)	CALCULATED (Y) [REM] NO (PPB)	CALCULATED (Y) [REM] NO_X (PPB)	CALCULATED (Y) [CONV] NO_2 (PPB)	% DIFF NO_2 (% OR PPB)
0.0	0.0	0.0	0.0	0.0	0.0	---	---	---	---	0.01	0.0 ppb
300.0	250.0	263.6	35.5	299.1	263.6	298.9	298.8	35.3	295.5	260.27	0.0%
300.0	150.0	149.8	151.8	300.6	148.8	298.9	298.8	149.1	297.0	147.93	-0.7%
300.0	70.0	72.2	231.1	302.8	71.7	298.9	298.8	226.7	299.1	72.50	-0.7%

NO TITRATION

298.7	0.0	---	304.9	302.5	-2.4

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$
$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9814 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)
*(m * 100) =* 98.1% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION

Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
-0.4	0.36	0.1%
263.2	0.39	0.1%
149.4	-0.62	-0.1%
71.8	-0.13	0.0%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	0.9998	1.05 to 0.95	0.9784	0.9860
Intercept (b)	-0.3511	(≤ ± 10)	0.5728	0.5884
Correlation Coefficent (r)	0.99999	(≥ 0.995)	1.0000	1.0000
Average % Difference	-0.45%		1.47%	0.76%

Calibrated By Wyndam Lewis

= cell containing equations

01/27/2025 - NOx Calibration

Wednesday, January 29, 2025 2:23 PM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 1/27/25
Start Time: 1520
End Time: 1745
Technician: WL

Reason for Visit

Calibrate analyzer after reboot.

Description

NOx analyzer returned to normal operation after today's reboot. It was determined that a power outage on 1/22 caused the issue.
NOx zero and span adjustments
NOx MP after adjustment

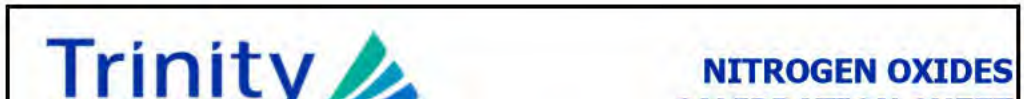
Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

Kitimat Village 2025-



Consultants

CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME LNG Kitimat Village **Date** 1/27/2025 **Start Time** 16:10
PROJECT 244501.0077 **Stop Time** 17:40
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API **Anal. Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8598

CALIBRATION EQUIPMENT:

Calibrator: T-API **Audit Gas:** Linde **Zero Air Source:** T-API
Model: T700U **Concentration:** 10.0 ppm **Model:** T701
Serial #: 905 **Serial #:** DT0046813 **Serial #:** 2555
Cert Date: 12/13/2024 **Certification Date:** 4/4/2024 **Certification Date:** 5/20/2024
Expiration Date: 4/4/2027

INPUT (X)	RESPONSE (Y)			NO	NO BEST-FIT DETERMINATION		
NO (PPB)	NO (PPB)	NO_2 (PPB)	NO_X (PPB)	% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.1	0.0	0.1	/	-1.0	1.11	0.2%
40.1	38.8	0.0	38.7	-3.4%	38.9	-0.14	0.0%
89.8	87.3	0.3	87.5	-2.8%	88.3	-0.95	-0.2%
139.6	137.2	0.2	137.4	-1.7%	137.7	-0.55	-0.1%
199.0	196.7	0.9	197.5	-1.2%	196.8	-0.09	0.0%
298.7	296.5	1.1	297.6	-0.7%	295.9	0.62	0.1%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X	NO_X BEST-FIT DETERMINATION		
% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-1.1	1.24	0.2%
-3.5%	38.9	-0.18	0.0%
-2.6%	88.5	-0.98	-0.2%
-1.6%	138.2	-0.78	-0.2%
-0.8%	197.5	0.05	0.0%
-0.4%	297.0	0.65	0.1%

	NO	NO_x		NO	NO_x
Slope (m)	0.9939	0.9980	1.05 to 0.95	1.0061	1.0020
Intercept (b)	-0.9989	-1.1391	(≤ ± 10)	1.0112	1.1489
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	0.99998	0.99997
Average % Difference	-1.97%	-1.75%		1.97%	1.75%

Calibrated By Wyndam Lewis = cell containing equations

Template Revised 7/10/23

Trinity Consultants

NITROGEN DIOXIDE CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME LNG Kitimat Village **Date** 1/27/2025 **Start Time** 16:10
PROJECT 244501.0077 **Stop Time** 17:40
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API **Anal. Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8598

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.0 ppm	**Model:**	T701
Serial #:	905	**Serial #:**	DT0046813	**Serial #:**	2555
Cert Date:	12/13/2024	**Certification Date:**	4/4/2024	**Certification Date:**	5/20/2024
		Expiration Date:	4/4/2027		

	CAL INPUT (X)		CALC ACTUAL	DAS RESPONSE (Y)			CALCULATED (Y)					% DIFF
							[ORIG]		[REM]		[CONV]	
	NO (PPB)	O_3 (PPB)	$[NO_2]_A$ (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO (PPB)	NO_X (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO_2 (% OR PPB)
TITRATION	0.0	0.0	0.0	0.1	0.1	0.0	---	---	---	---	-0.01	0.0 ppb
	300.0	250.0	262.6	35.5	295.3	259.8	299.3	299.3	36.7	297.0	260.27	-1.1%
	300.0	150.0	150.5	146.9	293.4	146.5	299.3	299.3	148.8	295.1	146.30	-2.7%
	300.0	70.0	72.8	224.1	296.7	72.6	299.3	299.3	226.5	298.4	71.94	-0.4%

NO TITRATION

298.7	0.0	---	296.5	297.6	1.1	

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9943 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 99.4% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION		
Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
-0.2	0.18	0.0%
259.0	0.83	0.2%
148.4	-1.86	-0.4%
71.7	0.85	0.2%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	0.9870	1.05 to 0.95	1.0061	1.0020
Intercept (b)	-0.1915	(≤ ± 10)	1.0112	1.1489
Correlation Coefficent (r)	0.99993	(≥ 0.995)	1.0000	1.0000
Average % Difference	-1.37%		1.97%	1.75%

Calibrated By Wyndam Lewis = cell containing equations

01/27/2025 - NOx Analyzer low flow rate investigation

Monday, January 27, 2025 1:27 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: January 27, 2025
Start Time: 13:23
End Time: 15:17
Technician: Adrienne Kaul

Reason for Visit

On site to investigate low NOx flow rate.

Description

Envidas:

-Clock accurate.

T200 NOx and T400 O3:

-Data flagged through logger 14:36-14:38 for zero check. Flag should have been left on 1 minute longer.

T700U calibrator:

-Tightened outlet fitting off calibrator to manifold.

-Clock was 6 seconds ahead and was updated at 15:08. Clock was 1 second behind after update.

T200 NOx:

-NOx data should have been flagged 13:23 onwards. Flag applied in Envidas at 13:33.

-Tightened NOx analyzer inlet fitting. Tubing felt tight on 01/09/2025 so this is likely not significant.

-Installed site back up pump and the flow rate result was the same.

-Bypassed scrubber filter and the same flow rate result was observed.

-Rxcell pressure was 3.4 inHg indicating that the pump is in good condition.

-The analyzer was power cycled at 14:29. The zero shifted and flow rate increase to 582 cc/min.

-Data left flagged in Envidas.

-Clock was 9 seconds ahead and was updated at 13:04. Clock was 1 second behind after update.

-NOx data left flagged in Envidas.

T400 O3:

-Clock was 1 minute and 2 second ahead and was updated at 15:06.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter temperature 24.3 C within spec.

- SO2 and NO tank pressure 1700 psi and line pressure 31 psi.
- T400: 10:37:41 AM System Reset. Warning raised when the system is reset.
- There was a truck idling at site on arrival.
- The truck returned and was idling at site when I left today.

02/17/2025 - RT activities

Monday, February 17, 2025 3:22 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: February 17, 2025
Start Time: 15:18
End Time: 16:48
Technician: Adrienne Kaul

Reason for Visit

RT activities

Description

Envidas:

-Clock accurate.

T700U Calibrator:

-Clock was 39 seconds ahead and was updated at 15:25.

T400 O3:

-Clock was 50 seconds ahead and was updated at 15:30. Clock was 1 second behind after adjustment.

T200 NOx:

-Clock was 49 seconds ahead and was updated at 15:32.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1150 psi and line pressure 30 psi

02/19/2025 - RT activities

Wednesday, February 19, 2025 12:32 PM

Village

Author of Entry: Nathan McMillan

Date of Activity: 02/19/25
Start Time: 1224
End Time: 1332
Technician: Nathan McMillan

Reason for Visit

RT activities

Description

Envidas:

-Clock was 2 seconds ahead. Updated at 1237

T700U Calibrator:

-Clock was 21 seconds ahead and was updated at 1241.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1650 psi and line pressure 30 psi.
- Plastic cover on wiring box on the outside of shelter was broken off. Cover put back but is loosely on.

02/25/2025 - RT activities

Tuesday, February 25, 2025 11:03 AM

Village

Author of Entry: Nathan McMillan

Date of Activity: 02/25/25
Start Time: 1100
End Time: 1142
Technician: Nathan McMillan

Reason for Visit
RT activities

Description

Envidas:

-Clock was 2 seconds ahead. Updated at 1108

T700U Calibrator:

-Clock was 68 seconds ahead and was updated at 1111.

T400 O3:

-Clock was 89 seconds ahead and was updated at 1116

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1650 psi and line pressure 30 psi.

02/27/2025 - MOE audit

Monday, March 3, 2025 10:00 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: February 27, 2025
Start Time: 11:00
End Time: 13:08
Technician: Adrienne Kaul, Jennifer Chudak , Jonathan Lai, and Tauseef Siddiqui

Reason for Visit

On site for MOE audit of NOx, and O3 analyzers and RT equipment

Description

NOx and O3:

-Data flagged 11:08-13:05.

-All connections to analyzers, manifold, and calibrator felt tight post audit.

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Trinity left site before MOE truck.

03/04/2025 - RT Activities

Tuesday, March 4, 2025 9:41 AM

Village

Author of Entry: Nathan McMillan

Date of Activity: 03/04/2025
Start Time: 0939
End Time: 1020
Technician: Nathan McMillan

Reason for Visit

RT Activities

Description

Envidas:

-Clock was 1 second ahead. Updated at 0947

T700U Calibrator:

-Clock was 82 seconds ahead and was updated at 0949.

T400 O3:

-Clock was 80 seconds ahead and was updated at 0954

T200NOx:

- Clock was 171 minutes ahead and was updated at

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1610 psi and line pressure 30 psi.

03/11/2025 - RT activities

Tuesday, March 11, 2025 9:25 AM

Village

Author of Entry: Nathan McMillan

Date of Activity: 03/11/2025
Start Time: 0921
End Time: 10:07
Technician: Nathan McMillan

Reason for Visit

RT activities

Description

Envidas: clock was 1 second ahead. Clock updated at 0932

T700U Calibrator:

-Clock was 81 seconds ahead and was updated at 0936.

T400O3:

-Clock was 80 seconds ahead and was updated at 0937.

T200NOx:

- Clock was 80 seconds ahead and was updated at 0939.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1610 psi and line pressure 30 psi.

03/18/2025 - RT Activities

Tuesday, March 18, 2025 9:29 AM

Village

Author of Entry: Nathan McMillan

Date of Activity: 03/18/2025
Start Time: 0926
End Time: 0959
Technician: Nathan McMillan

Reason for Visit

RT activities

Description

Envidas: clock was 2 seconds ahead. Clock updated at 0933

T700U Calibrator:

-Clock was 81 seconds ahead and was updated at 0936.

T400O3:

-Clock was 80 seconds ahead and was updated at 0937.

T200NOx:

- Clock was 81 seconds ahead and was updated at 0938.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1610 psi and line pressure 30 psi.

03/25/2025 - RT activities

Tuesday, March 25, 2025 9:05 AM

Village

Author of Entry: Nathan McMillan

Date of Activity: 03/25/2025
Start Time: 0903
End Time: 0936
Technician: Nathan McMillan

Reason for Visit

RT Activities

Description

Envidas: Clock was 1 second ahead. Clock updated at 0910

T700U Calibrator:

-Clock was 81 seconds ahead and was updated at 0914.

T400O3:

-Clock was 80 seconds ahead and was updated at 0915.

T200NOx:

- Clock was 80 seconds ahead and was updated at 0916.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1610 psi and line pressure 30 psi.

03/27/2025 - RT activities

Thursday, March 27, 2025 7:22 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: 03/27/2025
Start Time: 7:20
End Time: 9:40
Technician: Adrienne Kaul and Nathan McMillan

Reason for Visit

RT activities

Description

Envidas:

-Clock accurate.

T700U Calibrator:

-Clock was 3 seconds ahead and was updated at 7:32. Clock was 1 second behind after update.

T400 O3:

-Clock was 5 seconds behind and was updated at 7:33.

T200 NOx:

-Clock was 3 seconds ahead and was updated at 7:34. Clock was 1 second behind after update.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1610 psi and line pressure 30 psi.
- T700U alert: 03/27/2025 4:12:06 AM System Reset. Warning raised when system is reset.
- T400 alert: 03/27/2025 4:12:10 AM System Reset. Warning raised when system is reset.
- T200 alert: 03/27/2025 4:12:19 AM System Reset. Warning raised when system is reset.

01/03/2025 - N901 Flameout and inlet filter change

Friday, January 3, 2025 8:17 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: January 3, 2025
Start Time: 8:15; 12:28
End Time: 9:55; 14:19
Technician: Adrienne Kaul

Reason for Visit

On site to investigate flame out.

Description

N901 THC:

-Analyzer reignition procedure started at 8:15 by toggling exit standby to On and toggling continuous results from Off to On
-Clock accurate.
-Water observed in FID exhaust line.
-Flame reignited at 9:32 with FID exhaust disconnected.
-Pump was used to dry out FID exhaust line.
-Analyzer was in igniting mode at 9:51.
-Flame re-ignited on second visit after ice was thawed from the exhaust tube line and exhaust was rerun to exit building at the same location as the NOx and O3 analyzers.

T200 NOx:

-Clock was 77 seconds ahead and updated at 8:26-8:29.

T400 O3:

-Clock was 78 seconds ahead and updated at 8:27.

T700U Calibrator:

-Clock was 77 seconds ahead and updated at 8:31-8:33.

Envidas:

-Clock accurate.
-Windows updates downloaded.
-Computer restarted at 9:09 to allow updates to take affect.

THC, NOx and O3:

-Data flagged from 8:47-9:25 for analyzer inlet filter changes.
-NOx and O3 inlet filters changed and new 1-2um filters installed. O-rings and glass were also cleaned with distilled water.
-All connections from manifold to gas analyzers felt tight and secure.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)

- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- N901 alerts:
  - 01/02/2025 - 3:09:17 PM FID Flameout Warning. FID Unexpected Flameout.
  - 01/02/2025 - 3:09:18 PM Measurement Aborted Warning. Measurement Mode Aborted, See Additional Warnings for Cause.
- Nitrogen tank pressure 1400 psi and line pressure 70 psi.
- Hydrogen tank pressure 750 psi and line pressure 55 psi.
- SO2, NO, C3H8 and CH4 tank pressure 1900 psi and line pressure 34 psi.
- Bring leak test solution, duct seal and ladder next site visit to ensure everything at site is working correctly.

01/07/2025 - Weekly site check and RT activities

Tuesday, January 7, 2025 1:35 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: January 7, 2025
Start Time: 12:25
End Time: 14:12
Technician: Adrienne Kaul

Reason for Visit

Weekly site check and RT activities

Description

Envidas logger:

-Clock was 2 seconds ahead and was synced at 13:37.

-Checked for windows updates.

T700U Calibrator:

-Clock was 48 seconds ahead and was updated at 13:41 and was one second ahead after update.

T200 NOx:

-Clock was 48 seconds ahead and was updated 13:45-13:46.

T400 O3:

-Clock was 48 seconds ahead and was updated 13:48-13:49.

N901:

-Clock was 1 second behind before and after update 13:50-13:51

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Nitrogen tank pressure 1230 psi and line pressure 57 psi.
- Hydrogen tank pressure 700 psi and line pressure 55 psi.
- SO2, C2H8, CH4, and NO tank pressure 1900 psi and line pressure 34 psi.

01/07/2025 - RT Activities

Tuesday, January 7, 2025 12:10 PM

Riverlodge

Author of Entry: Wyndam Lewis

Date of Activity: 1/7/25
Start Time: 1105
End Time: 1115
Technician: WL

Reason for Visit

Perform Rio Tinto activities.

Description

[describe what activities were performed during the maintenance]

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

01/09/2025 - HF calibration tank installations

Thursday, January 9, 2025 12:58 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: January 9, 2025
Start Time: 12:50
End Time: 15:13
Technician: Adrienne Kaul

Reason for Visit

On site to install new Oxygen and Nitrogen cylinders used to calibrate HF analyzer.

Description

Envidas:

-Clock 2 seconds ahead, synced at 13:01.

T700U:

-Clock was 23 seconds ahead and adjusted at 13:05.

T200 NOx:

-Clock was 24 seconds ahead and adjusted 13:06-13:07.

T400 O3:

-Clock was 24 seconds ahead and adjusted at 13:08.

O3 and NOx:

-Data flagged 14:15-14:37 for RT activities. Flags could have been removed prior to 14:30, flag was accidentally left on too long.

-Data flagged 15:07-15:09 for RT activities.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, C3H8, and CH4 tank pressure 1900 psi and line pressure 34 psi.
- Oxygen 10% tank pressure 1100 psi and line pressure 30+ psi.
- Nitrogen tank pressure 1150 psi and line pressure 66 psi.
- Hydrogen tank pressure 680 psi and line pressure 55 psi.

01/16/2025 - LNGC activities and weekly station check

Thursday, January 16, 2025 10:40 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: January 16, 2025
Start Time: 10:36
End Time: 16:15
Technician: Adrienne Kaul

Reason for Visit

On site for LNGC activities and weekly station check.

Description

Envidas:

-Clock accurate.

-Downloaded windows updates.

T700U Calibrator:

-Clock was 64 seconds ahead and was updated at 11:04.

Concentration for cylinder 2 was added to the calibrator 598 ppm CH4 added as HC.

T200 NOx:

-Clock was 65 seconds ahead was updated 11:11-11:12.

T400 O3:

-Clock was 65 seconds ahead and was updated at 11:13

N901 THC:

-Clock accurate.

-New CH4 cylinder installed at site CC243371 concentration 598 ppm.

-Regulator purged 13:02-13:05.

-New lines connected to calibrator.

Data flagged 13:11-13:33

-To adjust outlet flow pressure of T701.

Data flagged 14:46-15:53

N901 :

-Zero running 14:10-14:28. O2 calibrated at 14:28. O2 area stored: 62386 and O2 area meas: 62386.

-CH4 span calibration running @ 8 ppm 14:38-14:48.

-CH4 span calibration running @ 8 ppm 14:57-15:15, it needed to run for longer to stabilize.

-CH4 span calibrated.

-THC span 15:17-15:50 running @ ~8 ppm CH4.

-15:52

-MP calibration started at 15:52. Passing results; slope requirement on calibration sheet is not applicable for this analyzer.

-Flag analyzer is set to false at 15:53.

-No leaks detected on supply lines or on new cylinder.

-No leaks detected on relocated N901 hydrogen and nitrogen cylinders, regulators, and supply lines.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged

- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Nitrogen tank pressure 900 psi and line pressure 66 psi.
- Hydrogen tank pressure 500 psi and line pressure 55 psi.
- SO2, NO, C2H8 and CH4 cylinder pressure 1880 psi and line pressure 30 psi.
- CH4 tank pressure 2000 psi and line pressure 30 psi.
- T700U calibrator: 01/10/2025 10:58:22 PM System Reset. Warning raised when the system is reset.
- T200 NOx: 01/10/2025 10:58:19 PM System Reset. Warning raised when the system is reset.
- T400 O3: 01/10/2025 10:58:15 PM System Reset. Warning raised when the system is reset.

Kitimat Riverlodge

Trinity Consultants

METHANE, NON-METHANE, TOTAL HYDROCARBON CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME LNG Kitimat Riverlodge — **Date** 1/16/2025 — **Start Time** 16:01 — **Stop Time** 17:01
PROJECT 244501.0077
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API — **Anal. Range 0-** 20 **PPM**
Analyzer Model N901
Analyzer s/n 80

CALIBRATION EQUIPMENT:

Calibrator: T-API — **Model:** T700U — **Serial #:** 906 — **Cert Date:** 10/21/2024
Audit Gas: Linde — **Concentration:** 616 ppm — **Serial #:** CC748570 — **Certification Date:** 7/8/2024 — **Expiration Date:** 7/8/2027
Zero Air Source: T-API — **Model:** T701 — **Serial #:** 2556 — **Certification Date:** 5/16/2024

METHANE			NON-METHANE HYDROCARBON			TOTAL HYDROCARBON		
CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.
0.000	0.000	—	0.000	0.000	—	0.000	0.000	—
2.441	2.494	2.2%	2.367	2.203	-6.9%	4.808	4.698	-2.3%
4.271	4.328	1.3%	4.142	3.819	-7.8%	8.410	8.150	-3.1%
6.094	6.170	1.2%	5.909	5.462	-7.6%	12.000	11.630	-3.1%
7.928	7.994	0.8%	7.687	7.145	-7.1%	15.620	15.140	-3.1%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	CH_4	NMHC	THC	
Slope (m)	1.008	0.928	0.968	1.05 to 0.95
Intercept (b)	0.016	-0.004	0.014	(≤ ± 10)
Correlation Coefficent (r)	1.0000	1.0000	1.0000	(≥ 0.995)
Average % Difference	1.40%	-7.34%	-2.88%	

Calibrated By Adrienne Kaul — = cell containing equations

01/23/2025 - RT activities and weekly site visit

Thursday, January 23, 2025 11:59 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: January 23, 2025
Start Time: 11:50
End Time: 14:25
Technician: Adrienne Kaul

Reason for Visit

On site for RT activities and weekly site visit.

Description

Envidas:

-Clock was 2 seconds ahead and was updated at 13:57.

-Computer restarted at 13:58 to allow windows updates to take affect.

T700 Calibrator:

-Clock was 84 seconds ahead and was updated at 14:09.

N901 THC, NMHC, and CH4:

-Hydrogen supply pressure increased from 45 to 50 psi.

-Clock was 1 second behind, no adjustment was made.

T400 O3:

-Clock was 83 seconds ahead and was updated at 14:15.

T200 NOx:

-Clock was 81 seconds ahead and was updated at 14:17.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, C2H8, and CH4 tank pressure 1850 psi and line pressure 30 psi.
- Nitrogen tank pressure 600 psi and line pressure 65 psi.
- Hydrogen tank pressure 380 psi and line pressure 45 psi.

01/27/2025 - Rio Tinto activities

Monday, January 27, 2025 10:06 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: January 27, 2025
Start Time: 9:53; 13:00
End Time: 12:52; 13:05
Technician: Adrienne Kaul

Reason for Visit

On site for Rio Tinto activities

Description

Envidas:

-Clock was 2 seconds ahead and was updated at 10:28:30.

T700 Calibrator:

-Clock was 44 seconds ahead and was updated at 10:31.

T200 NOx:

-Clock was 45 seconds ahead and was updated at 10:36.

T400 O3:

-Clock was 45 seconds ahead and was updated at 10:37.

N901 Hydrocarbon:

-Clock accurate.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, CH4, and C2H8 tank pressure 1870 psi and line pressure 30 psi.
- Nitrogen tank pressure 450 psi and line pressure 67 psi. New tank was ordered and will be installed this week.
- Hydrogen tank pressure 300 psi and line pressure 50 psi. New tank was ordered and will be installed this week.

01/30/2025 - THC/NOx Calibration

Thursday, January 30, 2025 3:24 PM

Riverlodge

Author of Entry: Wyndam Lewis

Date of Activity: 1/30/25
Start Time: 1150
End Time: 1600
Technician: WL

Reason for Visit

Calibrate THC and NOx analyzers.

Description

THC/NOx as found MP verifications
THC and NOx span adjustments; NOx zero adjustment
THC/NOx MP after adjustment

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

LNG Riverlodge

Trinity Consultants

METHANE, NON-METHANE, TOTAL HYDROCARBON CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge **Date** 1/30/2025 **Start Time** 11:56
PROJECT 244501.0077 **Stop Time** 12:56
SITE OPERATOR Trinity

Analyzer Mfg Baseline - Mocon **Anal. Range 0-** 20 **PPM**
Analyzer Model N901
Analyzer s/n 80

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 906
Cert Date: 10/21/2024

Audit Gas: Linde
Concentration: 616 ppm
Serial #: CC748570
Certification Date: 7/8/2024
Expiration Date: 7/8/2027

Zero Air Source: T-API
Model: T701
Serial #: 2556
Certification Date: 5/16/2024

METHANE			NON-METHANE HYDROCARBON			TOTAL HYDROCARBON		
CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.
0.000	0.000	---	0.000	0.000	---	0.000	0.000	---
2.442	2.468	1.1%	2.367	2.134	-9.8%	4.809	4.594	-4.5%
4.272	4.285	0.3%	3.712	3.400	-8.4%	7.997	7.323	-8.4%
6.095	6.122	0.4%	5.910	5.354	-9.4%	12.010	11.480	-4.4%
7.928	7.935	0.1%	7.688	7.037	-8.5%	15.620	14.970	-4.2%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	CH_4	NMHC	THC	
Slope (m)	1.001	0.914	0.958	1.05 to 0.95
Intercept (b)	0.011	-0.011	-0.075	(≤ ± 10)
Correlation Coefficent (r)	1.0000	1.0000	0.9997	(≥ 0.995)
Average % Difference	0.48%	-9.03%	-5.37%	

Calibrated By Wyndam Lewis = cell containing equations

LNGC Riverlodge

Trinity Consultants

NITROGEN OXIDES CALIBRATION SHEET
As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge | **Date** 1/30/2025 | **Start Time** 11:56
PROJECT 244501.0077 | **Stop Time** 14:00
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API | **Anal. Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8599

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.42 ppm	**Model:**	T701
Serial #:	906	**Serial #:**	CC748570	**Serial #:**	2556
Cert Date:	10/21/2024	**Certification Date:**	7/8/2024	**Certification Date:**	5/16/2024
		Expiration Date:	7/8/2027		

INPUT (X) NO (PPB)	RESPONSE (Y) NO (PPB)	RESPONSE (Y) NO_2 (PPB)	RESPONSE (Y) NO_X (PPB)	NO % DIFF	NO BEST-FIT DETERMINATION Predicted (Y)	NO BEST-FIT DETERMINATION Residual (PPB)	NO BEST-FIT DETERMINATION Residual (<2% Full Scale)
0.0	-0.2	-0.1	-0.2	/	-0.5	0.37	0.1%
41.3	39.3	-0.2	39.0	-5.0%	39.3	-0.02	0.0%
72.3	69.1	-0.2	68.9	-4.4%	69.1	0.00	0.0%
134.1	128.5	0.0	128.4	-4.2%	128.7	-0.18	0.0%
164.9	157.8	0.4	158.1	-4.3%	158.4	-0.56	-0.1%
300.4	289.3	0.0	289.3	-3.7%	288.9	0.39	0.1%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X % DIFF	NO_X BEST-FIT DETERMINATION Predicted (Y)	NO_X BEST-FIT DETERMINATION Residual (PPB)	NO_X BEST-FIT DETERMINATION Residual (<2% Full Scale)
/	-0.7	0.43	0.1%
-5.5%	39.2	-0.10	0.0%
-4.7%	69.0	-0.13	0.0%
-4.3%	128.6	-0.24	0.0%
-4.1%	158.3	-0.24	0.0%
-3.7%	289.0	0.29	0.1%

	NO	NO_x		NO	NO_x
Slope (m)	0.9635	0.9643	1.05 to 0.95	1.0379	1.0370
Intercept (b)	-0.5191	-0.6769	(≤ ± 10)	0.5402	0.7028
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	0.99999	1.00000
Average % Difference	-4.30%	-4.44%		4.30%	4.44%

Calibrated By Wyndam Lewis = cell containing equations

Template Revised 7/10/23

Trinity Consultants

NITROGEN DIOXIDE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge | **Date** 1/30/2025 | **Start Time** 11:56
PROJECT 244501.0077 | **Stop Time** 14:00
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API | **Anal. Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8599

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.42 ppm	**Model:**	T701

Serial #:	906	**Serial #:**	CC748570	**Serial #:**	2556
Cert Date:	10/21/2024	**Certification Date:**	7/8/2024	**Certification Date:**	5/16/2024
		Expiration Date:	7/8/2027		

	CAL INPUT (X)		CALC ACTUAL	DAS RESPONSE (Y)			CALCULATED (Y) [ORIG]		CALCULATED (Y) [REM]		CALCULATED (Y) [CONV]	% DIFF
	NO (PPB)	O_3 (PPB)	$[NO_2]_A$ (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO (PPB)	NO_X (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO_2 (% OR PPB)
TITRATION	0.0	0.0	0.0	-0.1	-0.2	-0.1	---	---	---	---	-0.13	-0.1 ppb
	300.0	250.0	269.1	30.0	288.0	258.0	300.8	300.7	31.7	299.3	267.75	-4.2%
	300.0	150.0	169.1	126.4	288.4	161.9	300.8	300.7	131.7	299.8	168.14	-4.2%
	300.0	70.0	84.9	207.5	287.9	80.4	300.8	300.7	215.9	299.2	83.45	-5.3%

NO TITRATION

300.4	0.0	---	289.3	289.3	0.0

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 1.0002 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 100.0% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION

Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
-0.5	0.38	0.1%
257.8	0.12	0.0%
161.8	0.12	0.0%
81.0	-0.62	-0.1%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	0.9599	1.05 to 0.95	1.0379	1.0370
Intercept (b)	-0.5075	(≤ ± 10)	0.5402	0.7028
Correlation Coefficent (r)	0.99999	(≥ 0.995)	1.0000	1.0000
Average % Difference	-4.58%		4.30%	4.44%

Calibrated By Wyndam Lewis = cell containing equations

LNG Riverlodge

Trinity Consultants

METHANE, NON-METHANE, TOTAL HYDROCARBON CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME LNG Kitimat Riverlodge **Date** 1/30/2025 **Start Time** 14:23
PROJECT 244501.0077 **Stop Time** 15:53
SITE OPERATOR Trinity

Analyzer Mfg Baseline - Mocon **Anal. Range 0-** 20 **PPM**
Analyzer Model N901
Analyzer s/n 80

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	616 ppm	**Model:**	T701
Serial #:	906	**Serial #:**	CC748570	**Serial #:**	2556
Cert Date:	10/21/2024	**Certification Date:**	7/8/2024	**Certification Date:**	5/16/2024
		Expiration Date:	7/8/2027		

METHANE			NON-METHANE HYDROCARBON			TOTAL HYDROCARBON		
CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.
0.000	0.034	---	0.000	0.000	---	0.000	0.034	---
2.370	2.489	5.0%	2.298	2.312	0.6%	4.669	4.801	2.8%
5.322	5.507	3.5%	5.160	5.320	3.1%	10.480	10.830	3.3%
8.270	8.550	3.4%	8.020	8.220	2.5%	16.300	16.770	2.9%
11.830	12.210	3.2%	11.470	11.830	3.1%	23.310	24.040	3.1%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	CH_4	NMHC	THC	
Slope (m)	1.029	1.032	1.030	1.05 to 0.95
Intercept (b)	0.039	-0.025	0.017	(≤ ± 10)
Correlation Coefficent (r)	1.0000	1.0000	1.0000	(≥ 0.995)
Average % Difference	3.77%	2.34%	3.05%	

Calibrated By Wyndam Lewis = cell containing equations

Kitimat Riverlodge

Trinity Consultants

NITROGEN OXIDES CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME LNG Kitimat Riverlodge — **Date** 1/30/2025 — **Start Time** 14:23
PROJECT 244501.0077 — **Stop Time** 15:53
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API — **Anal. Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8599

CALIBRATION EQUIPMENT:

Calibrator:	T-API	Audit Gas:	Linde	Zero Air Source:	T-API
Model:	T700U	Concentration:	10.42 ppm	Model:	T701
Serial #:	906	Serial #:	CC748570	Serial #:	2556
Cert Date:	10/21/2024	Certification Date:	7/8/2024	Certification Date:	5/16/2024
		Expiration Date:	7/8/2027		

INPUT (X)	RESPONSE (Y)	NO	NO BEST-FIT DETERMINATION

NO (PPB)	NO (PPB)	NO_2 (PPB)	NO_X (PPB)	% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.0	0.0	0.0	/	-0.2	0.19	0.0%
40.1	40.6	-0.1	40.5	1.2%	40.7	-0.08	0.0%
90.0	91.2	-0.1	91.1	1.3%	91.5	-0.30	-0.1%
140.0	142.5	-0.4	142.1	1.8%	142.4	0.07	0.0%
200.2	203.9	0.2	204.1	1.8%	203.8	0.14	0.0%
300.2	305.6	-0.1	305.5	1.8%	305.6	-0.03	0.0%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X % DIFF	NO_X BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-0.3	0.27	0.1%
1.1%	40.6	-0.05	0.0%
1.2%	91.4	-0.32	-0.1%
1.5%	142.4	-0.26	-0.1%
1.9%	203.7	0.42	0.1%
1.8%	305.6	-0.06	0.0%

	NO	NO_x		NO	NO_x
Slope (m)	1.0187	1.0187	1.05 to 0.95	0.9817	0.9816
Intercept (b)	-0.1835	-0.2672	(≤ ± 10)	0.1804	0.2632
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	1.00000	1.00000
Average % Difference	1.60%	1.50%		1.60%	1.50%

Calibrated By Wyndam Lewis = cell containing equations

Template Revised 7/10/23

Trinity Consultants

NITROGEN DIOXIDE CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME LNG Kitimat Riverlodge **Date** 1/30/2025 **Start Time** 14:23
PROJECT 244501.0077 **Stop Time** 15:53
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API **Anal. Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8599

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 906
Cert Date: 10/21/2024

Audit Gas: Linde
Concentration: 10.42 ppm
Serial #: CC748570
Certification Date: 7/8/2024
Expiration Date: 7/8/2027

Zero Air Source: T-API
Model: T701
Serial #: 2556
Certification Date: 5/16/2024

	CAL INPUT (X) NO (PPB)	CAL INPUT (X) O_3 (PPB)	CALC ACTUAL $[NO_2]_A$ (PPB)	DAS RESPONSE (Y) NO (PPB)	DAS RESPONSE (Y) NO_X (PPB)	DAS RESPONSE (Y) NO_2 (PPB)	CALCULATED (Y) [ORIG] NO (PPB)	CALCULATED (Y) [ORIG] NO_X (PPB)	CALCULATED (Y) [REM] NO (PPB)	CALCULATED (Y) [REM] NO_X (PPB)	CALCULATED (Y) [CONV] NO_2 (PPB)	% DIFF NO_2 (% OR PPB)
TITRATION	0.0	0.0	0.0	0.0	0.0	0.0	---	---	---	---	-0.01	0.0 ppb
	300.0	250.0	267.5	33.1	304.7	271.5	300.2	300.1	32.7	299.4	266.72	1.5%
	300.0	150.0	173.2	129.2	300.2	171.0	300.2	300.1	127.0	294.9	167.96	-1.2%
	300.0	70.0	81.8	222.3	304.3	82.1	300.2	300.1	218.4	299.0	80.59	0.4%

NO TITRATION

						NO_2 BEST-FIT DETERMINATION
300.2	0.0	---	305.6	305.5	-0.1	

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$
$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 1.0024 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)
*(m * 100) =* 100.2% *(96% - 104%)*

Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
-0.9	0.89	0.2%
269.5	1.95	0.4%
174.2	-3.17	-0.6%
81.8	0.33	0.1%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	1.0110	1.05 to 0.95	0.9817	0.9816
Intercept (b)	-0.8993	(≤ ± 10)	0.1804	0.2632
Correlation Coefficent (r)	0.99982	(≥ 0.995)	1.0000	1.0000
Average % Difference	0.22%		1.60%	1.50%

Calibrated By Wyndam Lewis

= cell containing equations

01/31/2025 - Hydrogen and UHP Nitrogen tank replacement

Friday, January 31, 2025 11:14 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: January 31, 2025
Start Time: 10:33
End Time: 19:00
Technician: Adrienne Kaul

Reason for Visit

On site to replace Hydrogen and UHP Nitrogen tanks and for RT activities

Description

N901:

-Put in standby mode at 17:23 and out of standby at 18:07.
-CH4 and THC data flagged in Envidas 17:24-18:10.
-Old carrier UHP cylinder lot number 133432602 removed.
-Old hydrogen fuel cylinder SN 12441100493977 removed.
-New carrier UHP cylinder lot number 133501603 SN 12441101250322 installed.
-New hydrogen fuel cylinder no serial number installed.
-Clock accurate, no adjustment made.
-Leak tested all fittings and no leaks were detected.

Envidas:

-Clock was 1 second ahead and was updated at 18:32.

T700U calibrator:

-Clock was 28 seconds ahead and was updated at 18:37. Clock was 1 second behind after update.

T200 NOx:

-Clock was 49 seconds ahead and was updated at 18:43. Clock was 1 second behind after update.

T400 O3:

-Clock was 50 seconds ahead and was updated at 18:45.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- N901 nitrogen tank pressure new 2580 psi and line pressure 65 psi.
- N901 hydrogen tank pressure new 2380 psi and line pressure 50 psi.
- CH4 cylinder pressure 1990 psi and line pressure 32 psi.

- SO_2, C_2H_8, and CH_4 cylinder pressure 1830 psi and line pressure 30 psi.
- T701 needs a leak test, running frequently; this should not affect data as it would be an outward leak.
- No leaks detected on outlet line of CH_4 and NO/SO_2 tank.

02/04/2025 - 901 outage investigation

Tuesday, February 4, 2025 1:29 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: February 4, 2025
Start Time: 13:23
End Time: 17:20
Technician: Adrienne Kaul

Reason for Visit

On site for N901 THC, NMHC, and CH4 outage investigation and RT activities.

Description

N901:

-Exhaust line was frozen.

-Cut exterior line shorter to point where there was no ice build up in line.

-Flame relight procedure started at 13:28.

-Flags removed from THC, NMHC, and CH4 in Envidas at 13:39.

Envidas:

-Clock accurate.

T700U Calibrator:

-Clock was 43 seconds ahead and was updated at 13:51. Clock was 1 second behind after update.

N901 CH4, THC, and NMHC:

-Clock accurate.

T200 NOx:

-Clock was 43 seconds ahead and was updated at 13:54.

T400 O3:

-Clock was 44 seconds ahead and was updated at 13:55

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- N901 Nitrogen tank pressure 2500 psi and line pressure 65 psi.
- N901 Hydrogen tank pressure 2375 psi and line pressure 50 psi.
- CH4 tank pressure 2000 psi and line pressure 33 psi.
- SO2, NO, C2H8, and CH4 tank pressure 1830 psi and line pressure 31 psi.
- Station temperature 25.1 C, within spec.

02/17/2025 - Weekly station check

Monday, February 17, 2025 1:24 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: February 17, 2025
Start Time: 13:06
End Time: 14:44
Technician: Adrienne Kaul

Reason for Visit

On site for weekly station check and RT activities

Description

T200 NOx:

-Clock was 72 seconds ahead and was updated at 13:26. Clock was 1 second behind after adjustment.

T400 O3:

-Clock was 8 seconds ahead and was updated at 13:28.

N901:

-Clock accurate.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- T400 alert: 02/17/2025 6:51:38 System Reset. Warning raised when the system is reset.
- SO2, NO, C2H8, and CH4 tank pressure 1820 psi and line pressure 32 psi
- CH4 tank pressure 2000 psi and line pressure 34 psi.
- Hydrogen tank pressure 2100 psi and line pressure 50 psi
- Nitrogen tank pressure 2000 psi and line pressure 65 psi.

02/26/2025 - MOE audit

Wednesday, February 26, 2025 12:30 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: February 26, 2025
Start Time: 13:31
End Time: 16:04
Technician: Adrienne Kaul, Jennifer Chudak, Jonathan Lai, and Tauseef Siddiqui

Reason for Visit

On site for MOE audit of NOx and O3 analyzers, and RT equipment.

Description

NOx and O3 analyzers:

-Data flagged 13:52-15:54, data should have been flagged until 15:59 as some loose fittings were found post-audit after flag was removed.

-Tightened NOx, and O3 lines post audit and RT equipment connections and 3/8" to 1/4" reducer to RT equipment from manifold.

-The RT 3/8" to 1/4" fitting loose connection could have been present pre-audit but was likely loosened during audit activities.

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

02/27/2025 - MOE equipment pick up

Monday, March 3, 2025 9:52 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: February 27, 2025
Start Time: 8:18
End Time: 8:43
Technician: Adrienne Kaul, Jennifer Chudak, and Jonathan Lai

Reason for Visit

On site to pick up MOE equipment that was stored on site overnight.

Description

[describe what activities were performed during the maintenance]

Site Visit Checklist

- ☐ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☐ Zero air system pressure at 30 PSI
- ☐ Calibration gas cylinder pressure at 30 PSI
- ☐ Calibration gas tank pressure > 500 PSI
- ☐ Check for analyzer warnings: _____
- ☐ Check for calibrator warnings: _____
- ☐ Analyzer filters exchanged
- ☐ MFC checks performed (semi-annual)
- ☐ Inlet Teflon exchanged (annual)
- ☐ Zero Air media replaced (annual)
- ☐ Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- ☐ Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

03/04/2025 - RT activities and inlet filter changes

Tuesday, March 4, 2025 8:56 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: March 4, 2025
Start Time: 8:55
End Time: 12:44
Technician: Adrienne Kaul

Reason for Visit

On site to perform BAM 1020 maintenance

Description

T700U Calibrator:

-Clock was 2 minutes and 54 seconds ahead and was updated at 11:30:00.

T200 NOx:

-Clock was 2 minutes and 53 seconds ahead and was updated at 11:34.

T400 O3:

-Clock was 2 minutes and 57 seconds ahead and was updated 11:35-11:36. Clock was 1 second behind after update.

N901 THC, CH4, NMHC:

-Clock accurate.

NOx, O3, and THC/CH4/NMHC analyzers flagged 11:45-12:41 for inlet filter changes (Flag was removed at 12:37 prematurely).

-New 1-2 um filters installed in NOx, and O3

-SO2 running to precondition filters 12:27-12:37.

-All connections on manifold, through to analyzers, and from calibrator to manifold felt tight.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, C3H8, and CH4 tank pressure 1800 psi and line pressure 32 psi.
- Nitrogen tank pressure 1400 psi and line pressure 65 psi.
- Hydrogen tank pressure 1820 psi and line pressure 50 psi.

Kitimat - Riverlodge

Trinity Consultants

MET ONE BETA ATTENUATION MASS MONITOR - $PM_{2.5}$

CALIBRATION

SITE NAME	Kitimat Riverlodge	**Date**	3/4/2025	**Start Time**	10:08
PROJECT	247201.0045			**Stop Time**	11:19
SITE OPERATOR	Trinity Consultants				

Analyzer Mfg	Met One Instruments
Analyzer Model	BAM 1020
Analyzer s/n	P15218

= Cell Containing Equations

CALIBRATION EQUIPMENT:

	Model	Serial Number
Temperature Standard	Streamline Pro	M080406
Pressure Standard	Streamline Pro	M080406
Flow Standard	Streamline Pro	M080406
Certification Date	10/1/2024	

LEAK CHECK

As Found	0.4	LPM
As Left	0.4	LPM

LEAK CHECK CRITERIA
LEAK < 1.0 LPM

TEMPERATURE SENSOR CALIBRATION

	BAM Temp.	Ref. Std. Temp.	DIFF.
As Found	4.6	4.4	-0.2
As Left	4.6	4.5	-0.1

TEMPERATURE CRITERIA
DIFFERENCE < ±2.1°C

PRESSURE SENSOR CALIBRATION

	BAM Press.	Ref. Std. Press.	DIFF.
As Found	757	756.2	-0.8
As Left	756	756.3	0.3

PRESSURE CRITERIA
DIFFERENCE < ±10.1 mm Hg

FLOW CALIBRATION

As Found (LPM)

BAM TARGET	BAM Flow	Ref. Std. Flow	% DIFF.
15.0	15.0	15.07	0.5%
18.4	18.4	18.39	-0.1%
16.7	16.7	16.71	0.1%

As Left (LPM)

BAM TARGET	BAM Flow	Ref. Std. Flow	% DIFF.
15.0	15.0	15.07	0.5%
18.4	18.3	18.36	0.3%
16.7	16.7	16.72	0.1%

FLOW CRITERIA
DIFFERENCE < ±2.1% of Ref. (after adjustment)

COMMENTS

Highest value during leak test was 1.1 lpm, leak settled at 0.4 lpm. Adjusted temperature. Highest leak test after maintenance was 1.2 lpm, leak settled at 0.4 lpm.

MONTHLY MAINTENANCE

- ☑ Nozzle and vane cleaning
- ☑ Leak Check
- ☑ Flow Rate Verification
- ☑ Clean Capstan & Pinch Rollers
- ☑ Clean PM_{10} Head
- ☐ Clean $PM_{2.5}$ Inlet
- ☐ Check Error Log
- ☐ Download Digital Data Log
- ☑ Replace Filter Tape
- ☑ Other — Tape self-test passed.

Calibrated By Adrienne Kaul

03/06/2025 - RT activities

Thursday, March 6, 2025 9:45 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: March 6, 2025
Start Time: 9:44; 14:23
End Time: 9:46; 15:19
Technician: Adrienne Kaul

Reason for Visit

On site for HF Q1 MP calibration

Description

Envidas:

-Windows updates downloaded.

-Clock was 2 seconds ahead and updated at 14:27:26.

T700U Calibrator:

-Clock was 23 seconds ahead and was updated at 14:31.

N901 CH4, THC, NMHC:

-Clock was 1 second behind, no adjustment was made.

T200 NOx:

-Clock was 24 seconds ahead and updated at 14:34. Clock was 1 second behind after update.

T400 O3:

-Clock was 24 seconds ahead and update at 14:35.

NOx, O3, THC, CH4, and NMHC:

-Data flagged 14:45-15:10 for RT activities

-All connections to analyzers, manifold, calibrator and calibration felt tight post RT activities.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, C3H8, and CH4 tank pressure 2000 psi and line pressure 32.5 psi.
- Nitrogen tank pressure 1830 psi and line pressure 65 psi.
- Hydrogen tank pressure 1790 psi and line pressure 50 psi.

03/12/2025 - Weekly station check

Wednesday, March 12, 2025 8:25 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: March 12, 2025
Start Time: 8:22
End Time: 8:55
Technician: Adrienne Kaul

Reason for Visit

On site to perform weekly site check.

Description

Envidas:

-Clock 1 second ahead and was updated at 8:27:26.

T700U Calibrator:

-Clock was 65 seconds ahead and was updated at 8:33. Clock was 1 second behind after update.

N901:

-Clock was 1 second behind and was updated at 8:41.

T200 NOx:

-Clock was 65 seconds ahead and was updated 8:43-8:44. Clock was 1 second behind after update.

T400 O3:

-Clock was 67 seconds ahead and was updated 8:45-8:46. Clock was 1 second behind after update.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, C3H8, and CH4 tank pressure 1880 psi and line pressure 32 psi.
- Nitrogen tank pressure 1100 psi and line pressure 65 psi; this will need to be replaced in two weeks time.
- CH4 tank pressure 1990 psi and line pressure 34 psi.
- Hydrogen tank pressure 1675 psi and line pressure 50 psi.

03/21/2025 - O3 As Found MP

Friday, March 21, 2025 1:17 PM

Riverlodge

Author of Entry: Wyndam Lewis

Date of Activity: 3/21/25
Start Time: 745
End Time: 900
Technician: WL

Reason for Visit

Perform routine O3 as found MP

Description

O3 as found MP verification
No adjustments

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

KitimatRive... 2025-0321

Trinity Consultants

OZONE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge | **Date** 3/21/2025 | **Start Time** 7:55
PROJECT 244501.0077 | **Stop Time** 8:55
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API | **Anal. Range 0-** 500 **PPB**
Analyzer Model T400
Analyzer s/n 7487

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	N/A	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	N/A	**Model:**	T701
Serial #:	906	**Serial #:**	N/A	**Serial #:**	2556
Cert Date:	N/A	**Certification Date:**	N/A	**Certification Date:**	5/16/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard
m: 1
b: 0
r:
Calibration Date:

INPUT (Txfr Standard)		RESPONSE		BEST-FIT DETERMINATION		
Raw Input (PPB)	Corrected (X) (PPB)	(Y) (PPB)	% DIFF.	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.0	0.0	/	0.2	-0.18	0.0%
40.0	40.0	40.9	2.25%	40.6	0.24	0.0%
90.2	90.2	91.9	1.88%	91.4	0.48	0.1%
150.0	150.0	151.6	1.07%	151.9	-0.29	-0.1%
250.3	250.3	253.8	1.40%	253.3	0.49	0.1%
399.4	399.40	404	1.15%	404.1	-0.07	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	1.011	1.05 to 0.95
Intercept(b)	0.213	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	1.55%	

COMMENTS

Calibrated By Wyndam Lewis

= cell containing equations

03/25/2025 - Weekly station check

Tuesday, March 25, 2025 1:42 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: March 25, 2025
Start Time: 13:38
End Time: 14:15
Technician: Adrienne Kaul

Reason for Visit

On site for weekly station check

Description

Envidas logger:

-Clock was 3 seconds ahead and was synced at 13:44:34.

T200 NOx:

-Clock was 2 minutes and 35 seconds ahead and was updated at 13:59.

T400 O3:

-Clock was 2 minutes and 39 seconds ahead and was updated at 14:00.

N901 CH4, NMHC, and THC:

-Clock was less than 1 second ahead and no adjustment was made.

T700 Calibrator:

-Clock was 2 minutes and 36 seconds ahead and was updated at 14:12 and was one second behind after update.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- CH4, C3H8, SO2, and NO tank pressure 1775 psi and line pressure 31.5 psi.
- Nitrogen tank pressure 610 psi and line pressure 65 psi.
- Hydrogen tank pressure 1410 psi and line pressure 50 psi.

03/27/2025 - Cylinder drop off

Thursday, March 27, 2025 12:39 PM

Riverlodge

Author of Entry: A. Kaul and N.McMillan

Date of Activity: 03/27/2025
Start Time: 12:33
End Time: 13:05
Technician: Adrienne Kaul and Nathan McMillan

Reason for Visit

Nitrogen cylinder drop off and RT activities

Description

Envidas:

-Clock accurate.

T700U Calibrator:

-Clock was 4 seconds ahead. Updated at 12:46. Clock 2 seconds behind after update.

BAM1020 PM10:

-Clock was 87 seconds ahead. No adjustments made.

BAM1025 PM2.5:

-Clock was 77 seconds ahead. No adjustments made.

N901 CH4, NMHC, and THC:

-Clock was accurate.

T400 O3:

-Clock was 4 seconds ahead. Updated at 12:49. Clock 2 seconds behind after update.

T200 NOx:

-Clock was 5 seconds ahead. Updated at 12:50. Clock 2 seconds behind after update.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 NO CH4 and propane: tank pressure 1775 psi and line pressure: 32 psi.
- CH4: tank pressure: 2000 psi and line pressure: 33 psi.
- UHP Nitrogen: tank pressure: 550 psi and line pressure: 65 psi
- Hydrogen: tank pressure: 1380 psi and line pressure: 50 psi
- T400 O3 alert: 03/27/2025 4:12:38 AM System Reset. Warning raised when the system is reset.
- T200 NOx alert: 03/27/2025 4:12:32 AM System Reset. Warning raised when the system is reset.
- T700U calibrator: 03/27/2025 4:12:41 AM System Reset. Warning raised when the system is reset.

Attachment 2 Tetra Tech Technical Memo, PA-110588 – Passive NO_2 Monitoring Results for Q1 2025 (April 25, 2025)

TETRA TECH

TECHNICAL MEMO

ISSUED FOR USE

To:	Tauseef Zia Siddiqui	**Date:**	April 25, 2025
File:	704-ENW.GENV03699-01	**Memo No.:**	Q1 2025
From:	Tetra Tech Canada Inc.		
Subject:	PA-110588 - Passive NO_2 Monitoring Results for Q1 2025 Document Control #: L001-00000-HE-0702-1003 PA-110588		

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNGC facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQDMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region. The passive sampling results have been collected over a period of 30 days (+/- 4 days as per the B.C. Field Sampling Manual – Part B1 Ambient Air Quality Monitoring, Reference No: SOP-07, Standard Operating Procedure for the Passive/Diffusive Method of Air Sample Collection) and compiled into monthly reports. This memorandum provides a summary of the results for this past quarter that covers the January, February, and March 2025 sampling periods. The monthly reports are attached in Appendix B.

2.0 PASSIVE MONITORING RESULTS

The passively measured 30-day average NO_2 concentrations during each sample deployment over the quarterly period (January to March 2025) are summarized for each monitoring location in Table 1.

Tetra Tech Canada Inc.
Suite 1000 – 10th Floor, 885 Dunsmuir Street
Vancouver, BC V6C 1N5 CANADA
Tel 604.685.0275 Fax 604.684.6241

Table 1: Passive NO_2 Sampling Results (January – March 2025)

Passive Sampler Location	30-day Average NO_2 Concentration (ppb)		
	January 2025	February 2025	March 2025
Lakelse Lake A04	0.2	0.3	0.3
**V01	Decommissioned	Decommissioned	Decommissioned
KHV-2	0.2	0.2	0.2
KHV-1	0.8	1.0	0.6
V10B	1.5	2.2	1.2
V12	1.2	1.9	0.8
**V08	Decommissioned	Decommissioned	Decommissioned
**V06	Decommissioned	Decommissioned	Decommissioned
**V05	Decommissioned	Decommissioned	Decommissioned
Kitimat Industrial (V14)	1.1	1.7	1.0
*Predicted Maximum NO_2	1.6	2.1	1.1
Kitimat Riverlodge	1.5	1.4	1.2
Kitimat Whitesail	0.8	0.9	0.8

*Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum concentration of NO_2 inclusive of facility emissions within Kitimat.
**V01, V05, V06 and V08 locations were unable to be sampled as they were inaccessible and therefore decommissioned during the December deployment period.

The highest 30-day average NO_2 concentration measured over the quarterly period was 2.2 ppb at the V10B sample location, located southwest of the LNGC facility. While there is no 30-day Provincial Air Quality Objective for NO_2, the annual criterion is 17 ppb, which provides an indicator for the passively measured 30-day NO_2 concentrations.

3.0 SAMPLING COMPLETENESS

All passive samples were collected successfully over the quarterly period except for V01, V05, V06 and V08 which were unable to be sampled during the Q1 2025 deployment period as they are located on a forest service road that is inaccessible during the winter months. The samplers were decommissioned at the end of the November deployment period for the remainder of the winter season.

4.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

5.0 CLOSURE

We trust this technical memo meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

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PERMIT TO PRACTICE
TETRA TECH CANADA INC.
PERMIT NUMBER: 1001972

/sy

Attachments Appendix A – Limitations on the Use of this Document
Appendix B – Monthly Reports

APPENDIX A

LIMITATIONS ON THE USE OF THIS DOCUMENT

APPENDIX B

MONTHLY REPORTS

JANUARY 2025 REPORT

TETRA TECH

February 25, 2025

ISSUED FOR USE
FILE: 704-ENW.GENV03699-01

LNG Canada

Via Email: Tauseef-ZIA.Siddiqui@lngcanada.ca
KIT-Regulatory-Compliance@lngcanada.ca

Attention: Tauseef Zia Siddiqui

Subject: Passive Monitoring for Nitrogen Dioxide – LNG Canada – January 2025
Document Control #: L001-00000-HE-0702-0445

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNG facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQDMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region as described in Table 1. The spatial distribution of the passive monitoring station network through the Kitimat Valley is shown on the attached Figure 2. Note that four sampling locations (V01, V08, V06 and V05) have been decommissioned for the winter due to inaccessibility.

Table 1: LNGC's Current Passive NO_2 Monitoring Network

Site	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Lakelse Lake A04	527457	6025573	2.2
V01	524757	6017435	2.1
KHV-2	523357	5980636	3.0
KHV-1	522919	5980606	3.0
V10B	519425	5984090	3.0
V12	517790	5977294	2.0
V08	521425	5994249	2.0
V06	520970	5996240	2.0
V05	520457	5999250	2.0
Kitimat Industrial	520424	5990356	3.0
Predicted Maximum NO_2	522463	5989506	3.0
Kitimat Riverlodge	521536	5989486	3.0
Kitimat Whitesail	523612	5990998	3.0

Tetra Tech Canada Inc.
Unit 2, 4065 Motz Road
Terrace, BC V8G 3N1
Tel 778.309.1605

The sampling methodology adheres to protocols described in the document '*Standard Operating Procedure (SOP) – Passive Monitoring for Nitrogen Dioxide (NO_2)*', dated March 2024. More information on the sampling methodology can be found in this document.

2.0 AMBIENT CONDITIONS DURING DEPLOYMENT PERIOD

Winds

Winds returned to a more bimodal pattern over the period December 30, 2024, through January 31, 2025, although outflows (northerly, down-valley) winds, typical of winter, were more prevalent. Frequent periods of foggy, stagnant conditions occurred throughout the month accompanied with drizzle/freezing rain/snow where winds were generally quite calm. Figure 2 shows wind roses for hourly wind observations during the January sampler deployment period at ENV-AQN Kitimat Whitesail and Terrace Airport.

Precipitation

189.5 mm of precipitation was recorded between December 30, 2024, through January 31, 2025, at ECCC Kitimat Forest Avenue. 78.3 mm of precipitation was recorded at ECCC Terrace A. Comparing to precipitation normals, these totals are below average for January for the region by approximately 100 mm.

Air Quality – Nitrogen Dioxide

NO_2 is continuously measured and reported on an hourly basis at ENV-AQN station Kitimat Whitesail. Over the January deployment period (December 30, 2024 – January 31, 2025), the maximum 1-hour NO_2 concentration was 14.6 ppb, or 24.33% of the British Columbia Air Quality Objective (BCAQO) of 60 ppb. The 30-day average NO_2 concentration, taken as the average of all available one-hour measurements during the sampling period, was 1.4 ppb. While there is no 30-day BCAQO, the annual criterion is 17 ppb, which provides another indicator of ambient air quality with respect to NO_2. There were 36 hours of missing data out of 756 hours, or 95% data completeness. Figure 1 plots the 1-hour NO_2 concentration over the sampling period.

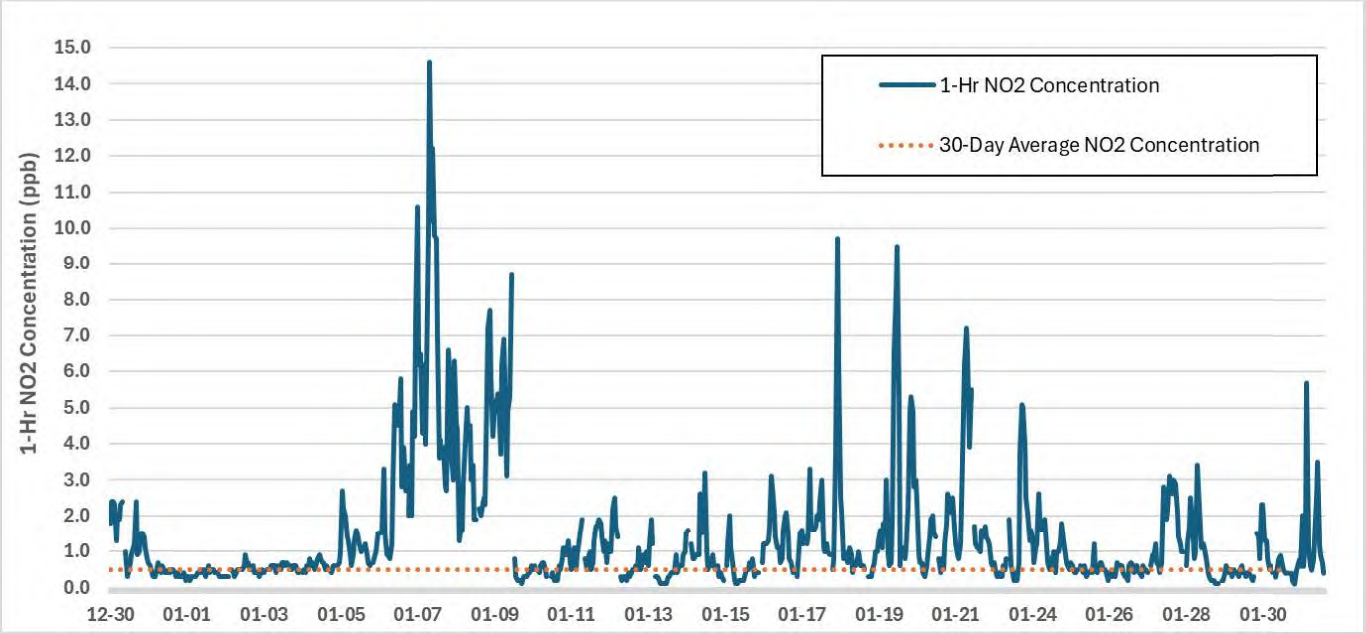

Figure 1: 1-Hr NO_2 Readings at ENV-AQN Kitimat Whitesail (December 30, 2024 – January 31, 2025)

3.0 PASSIVE MONITORING RESULTS

The passively measured 30-day NO_2 concentrations are listed for each site in Table 2. The 30-day NO_2 concentration based on continuous measurement is also listed for Kitimat Whitesail, as a measure of validation of the sampling results. Each site's housing utilizes two samplers for statistical redundancy, the mean of which is used as the overall measurement.

The measured 30-day NO_2 concentrations are shown through the study area on Figure 2. The highest readings occurred in town, where combustion sources of NOx are more plentiful, also located north of the LNGC facility. Specifically, the highest readings in January 2025 were along the west side of town at the Predicted Maximum NO_2 location[1]. Overall, January concentrations in Kitimat where slightly higher than the summer months, however, have decreased in comparison to the December results when concentrations were slightly elevated compared to previous months of the 2024 monitoring program. Although the measured NO_2 concentrations are well below representative (e.g. annual) criteria, higher concentrations during the winter months can likely be attributed to seasonality, which includes meteorological conditions associated with poorer atmospheric mixing as well as an increase in community-based sources of combustion such as heating.

Bureau Veritas Passive Sampling Laboratory Report is attached in Appendix B.

[1] Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum ground level concentration of NO_2 inclusive of facility emissions within Kitimat

Table 2: Passive NO_2 Sampling Results (January 2025)

Site	Start	End	Duration (Days)	30-day NO_2 Concentration (ppb)			St. Dev	30 Day NO_2
				Sample 1	Sample 2	Mean		
Lakelse Lake A04	12/30/2024 8:55	01/31/2025 9:20	32.0	0.2	0.2	0.2	0	
**V01	Decommissioned for winter.							
KHV-2	12/30/2024 10:15	01/31/2025 10:55	32.0	0.2	0.2	0.2	0	
KHV-1	12/30/2024 10:10	01/31/2025 10:45	32.0	0.7	0.8	0.8	0.1	
V10B	12/30/2024 10:45	01/31/2025 11:25	32.0	1.6	1.3	1.5	0.2	
V12	12/30/2024 11:00	01/31/2025 11:40	32.0	1.1	1.2	1.2	0.1	
**V08	Decommissioned for winter.							
**V06	Decommissioned for winter.							
**V05	Decommissioned for winter.							
Kitimat Industrial (V14)	12/30/2024 11:25	01/31/2025 12:10	32.0	1.1	1.0	1.1	0.1	
*Predicted Maximum NO_2	12/30/2024 11:50	01/31/2025 12:10	32.0	1.5	1.7	1.6	0.1	
Kitimat Riverlodge	12/30/2024 11:40	01/31/2025 12:20	32.0	1.5	1.4	1.5	0.1	
Kitimat Whitesail	12/30/2024 12:00	01/31/2025 13:10	32.0	0.8	0.8	0.8	0	1.4

*Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum ground level concentration of NO_2 inclusive of facility emissions within Kitimat.
**V01, V05, V06 and V08 locations have been decommissioned for the winter period due to inaccessibility.

4.0 SAMPLING PROGRAM ANOMOLIES

One sampling program anomaly was noted for the month of January. Passive samplers V01, V05, V06 and V08 were decommissioned at the end of the November 2024 deployment period for the duration of the winter as they are located on a forest service road that is inaccessible during the winter months.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in Appendix A or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01

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PERMIT TO PRACTICE
TETRA TECH CANADA INC.
PERMIT NUMBER: 1001972

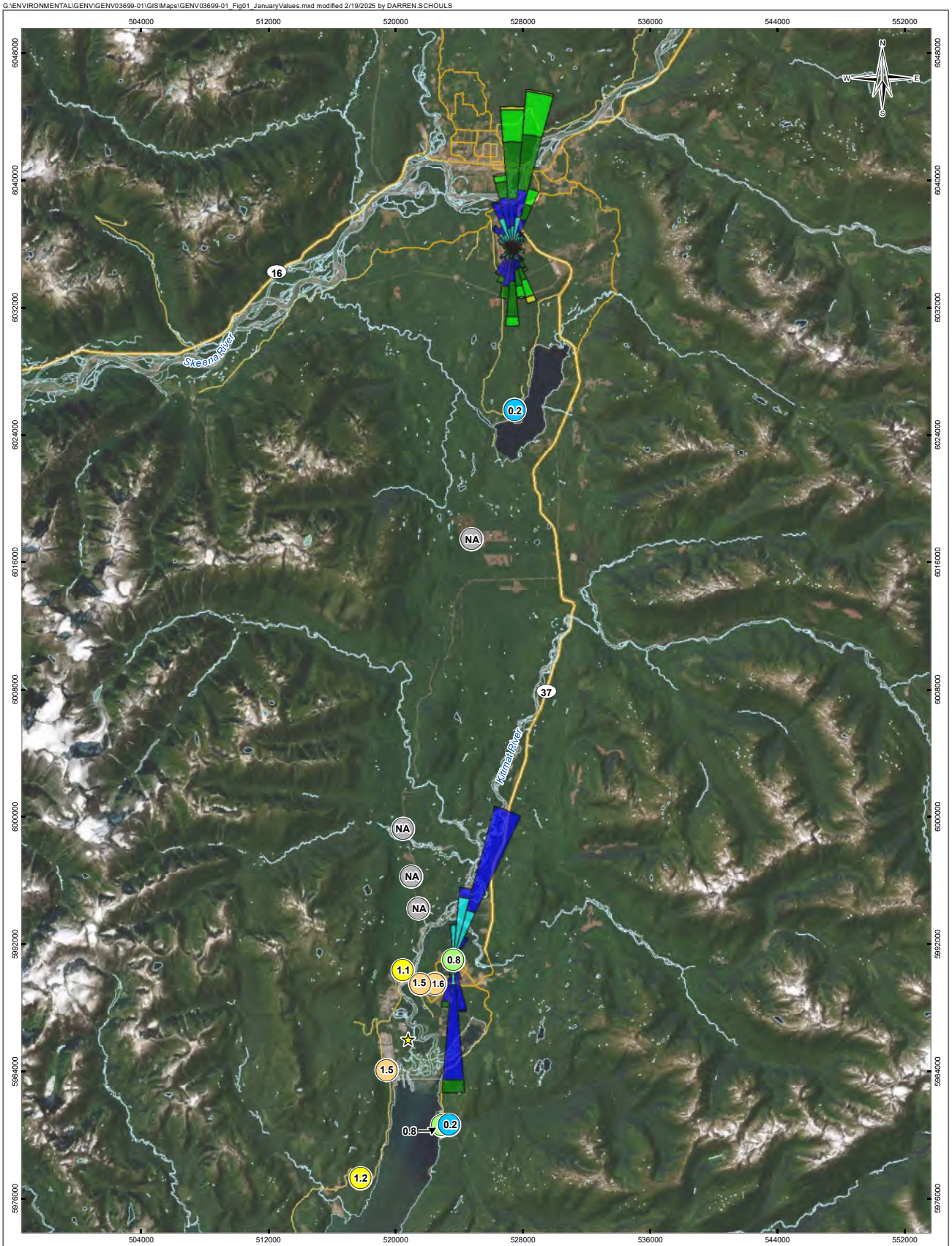
/ces

Attachments Figure 2: Mean 30-day NO_2 Concentration January 2025
Appendix A: Tetra Tech's Limitations on the Use of this Document
Appendix B: Bureau Veritas Passive Sampling Laboratory Report

FIGURE

Figure 2 Mean 30-day NO_2 Concentration January 2025

G:\ENVIRONMENTAL\GENV\GENV03699-01\GIS\Maps\GENV03699-01_Fig01_JanuaryValues.mxd modified 2/19/2025 by DARREN.SCHOULS



LEGEND

Mean 30-Day NO_2 Concentration (ppb)

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- Decommissioned

- LNGC Site
- Highway
- Main Road
- Local Road
- Watercourse/Waterbody

Rose Plot - Wind (m/s)

- 1 - 3
- 3 - 6
- 6 - 9
- 9 - 12
- 12 - 15

NOTES
Base data source:
Imagery from ESRI; Maxar
CanVec 1:250,000 (2019)

STATUS
ISSUED FOR USE

LNGC NO2 PASSIVE MONITORING

Mean 30-day NO2 Concentration January 2025

PROJECTION	DATUM	CLIENT
UTM Zone 9	NAD83	Haisla Triton Ltd.

Scale: 1:225,000
4 2 0 4
Kilometres

TETRA TECH

FILE NO.
GENV03699-01_Fig01_JanuaryValues.mxd

OFFICE	DWN	CKD	APVD	REV
Tt-VANC	DS	MRB	TM	0

DATE	PROJECT NO.
February 19, 2025	ENW.GENV03699-01

Figure 2

APPENDIX A

TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

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This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

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Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed TETRA TECH's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

1.3 STANDARD OF CARE

Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

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While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

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This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

BUREAU VERITAS PASSIVE SAMPLING LABORATORY REPORT

Your P.O. #: 704-ENW.GENV03699-01
Your Project #: NO2 MONITORING
Site Location: 2024/12/30-2025/01/31

Attention: Travis Miguez

Tetra Tech Canada Inc.
#2 4065 Motz Road
Terrace, BC
CANADA V8G 3N1

Report Date: 2025/02/14
Report #: R3622784
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C511812
Received: 2025/02/05, 08:00

Sample Matrix: Air
Samples Received: 18

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	18	2025/02/07	2025/02/13	PTC SOP-00148	Passive NO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Branko Banjac, General Manager responsible for Alberta Petroleum laboratory operations.

Bureau Veritas Job #: C511812
Report Date: 2025/02/14

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/12/30-2025/01/31
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DEC501	DEC502	DEC503	DEC504	DEC505		
Sampling Date		2024/12/30 08:55	2024/12/30 08:55	2024/12/30 10:10	2024/12/30 10:10	2024/12/30 10:15		
	UNITS	#1 LAKELSE LAKE	#2 LAKELSE LAKE-DUP	#3 KHV-1	#4 KHV-1-DUP	#5 KHV-2	RDL	QC Batch
Passive Monitoring								
Calculated NO2	ppb	0.2	0.2	0.7	0.8	0.2	0.1	B684836
RDL = Reportable Detection Limit								

Bureau Veritas ID		DEC506	DEC507	DEC508	DEC509	DEC510	DEC511		
Sampling Date		2024/12/30 10:15	2024/12/30 10:45	2024/12/30 10:45	2024/12/30 11:00	2024/12/30 11:00	2024/12/30 11:25		
	UNITS	#6 KHV-2-DUP	#7 V10B	#8 V10B-DUP	#9 V12	#10 V12-DUP	#11 Kitimat Industrial	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.2	1.6	1.3	1.1	1.2	1.1	0.1	B684836
RDL = Reportable Detection Limit									

Bureau Veritas ID		DEC512	DEC513	DEC514	DEC515		
Sampling Date		2024/12/30 11:25	2024/12/30 11:40	2024/12/30 11:40	2024/12/30 11:50		
	UNITS	#12Kitimat Industrial-DUP	#13 Kitimat Riverlodge	#14Kitimat Riverlodge -DUP	#15 Predicted Max	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	1.0	1.5	1.4	1.5	0.1	B684836
RDL = Reportable Detection Limit							

Bureau Veritas ID		DEC516	DEC517	DEC518		
Sampling Date		2024/12/30 11:50	2024/12/30 12:00	2024/12/30 12:00		
	UNITS	#16 Predicted Max-DUP	#17 Kitimat Whitesail	#18 Kitimat Whitesail-DUP	RDL	QC Batch
Passive Monitoring						
Calculated NO2	ppb	1.7	0.8	0.8	0.1	B684836
RDL = Reportable Detection Limit						

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C511812
Report Date: 2025/02/14

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/12/30-2025/01/31
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C511812
Report Date: 2025/02/14

QUALITY ASSURANCE REPORT

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/12/30-2025/01/31
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

			Spiked Blank		Method Blank	
QC Batch	**Parameter**	**Date**	**% Recovery**	**QC Limits**	**Value**	**UNITS**
B684836	Calculated NO2		98	90 - 110	<0.1	ppb

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

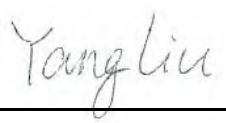
Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C511812
Report Date: 2025/02/14

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2024/12/30-2025/01/31
Your P.O. #: 704-ENW.GENV03699-01
Sampler Initials: ML

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Yang Liu, Laboratory Supervisor

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Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

FEBRUARY 2025 REPORT

TETRA TECH

March 21, 2025

ISSUED FOR USE
FILE: 704-ENW.GENV03699-01

LNG Canada

Via Email: Tauseef-ZIA.Siddiqui@lngcanada.ca
KIT-Regulatory-Compliance@lngcanada.ca

Attention: Tauseef Zia Siddiqui

Subject: Passive Monitoring for Nitrogen Dioxide – LNG Canada – February 2025
Document Control #: L001-00000-HE-0702-0446

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNG facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQDMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region as described in Table 1. The spatial distribution of the passive monitoring station network through the Kitimat Valley is shown on the attached Figure 1. Note that four sampling locations (V01, V08, V06 and V05) have been decommissioned for the winter due to inaccessibility.

Tetra Tech Canada Inc.
Unit 2, 4065 Motz Road
Terrace, BC V8G 3N1
Tel 778.309.1605

Table 1: LNGC's Passive NO_2 Monitoring Network

Site	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Lakelse Lake A04	527457	6025573	2.2
V01	524757	6017435	2.1
KHV-2	523357	5980636	3.0
KHV-1	522919	5980606	3.0
V10B	519425	5984090	3.0
V12	517790	5977294	2.0
V08	521425	5994249	2.0
V06	520970	5996240	2.0
V05	520457	5999250	2.0
Kitimat Industrial	520424	5990356	3.0
Predicted Maximum NO_2	522463	5989506	3.0
Kitimat Riverlodge	521536	5989486	3.0
Kitimat Whitesail	523612	5990998	3.0

The sampling methodology adheres to protocols described in the document '*Standard Operating Procedure (SOP) – Passive Monitoring for Nitrogen Dioxide (NO_2)*', dated March 2024. More information on the sampling methodology can be found in this document.

2.0 AMBIENT CONDITIONS DURING DEPLOYMENT PERIOD

Winds

Winds were predominantly outflows over the period January 31 through February 28, typical of winter for the Kitimat Valley. Outflow conditions occurred exclusively through the first half of February due to an arctic high pressure ridge bringing cold temperatures to the region. Figure 2 shows wind roses for hourly wind observations during the February sampler deployment period at ENV-AQN Kitimat Whitesail and Terrace Airport.

Precipitation

145.9 mm of precipitation was recorded between January 31 through February 28 at ECCC Kitimat Forest Avenue. 91.9 mm of precipitation was recorded at ECCC Terrace A. Comparing to precipitation normals, these totals are below average for February for Kitimat by approximately 40 mm and Terrace by approximately 20 mm.

Air Quality – Nitrogen Dioxide

NO_2 is continuously measured and reported on an hourly basis at ENV-AQN station Kitimat Whitesail. Over the February deployment period (January 31 – February 28), the maximum 1-hour NO_2 concentration was 14.7 ppb, or 24.5% of the British Columbia Air Quality Objective (BCAQO) of 60 ppb. The 30-day average NO_2 concentration, taken as the average of all available one-hour measurements during the sampling period, was 1.6 ppb. While there is no 30-day BCAQO, the annual criterion is 17 ppb, which provides another indicator of ambient air quality with respect to NO_2. There were 35 hours of missing data out of 661 hours, or 95% data completeness. Figure 2 plots the 1-hour NO_2 concentration over the sampling period.

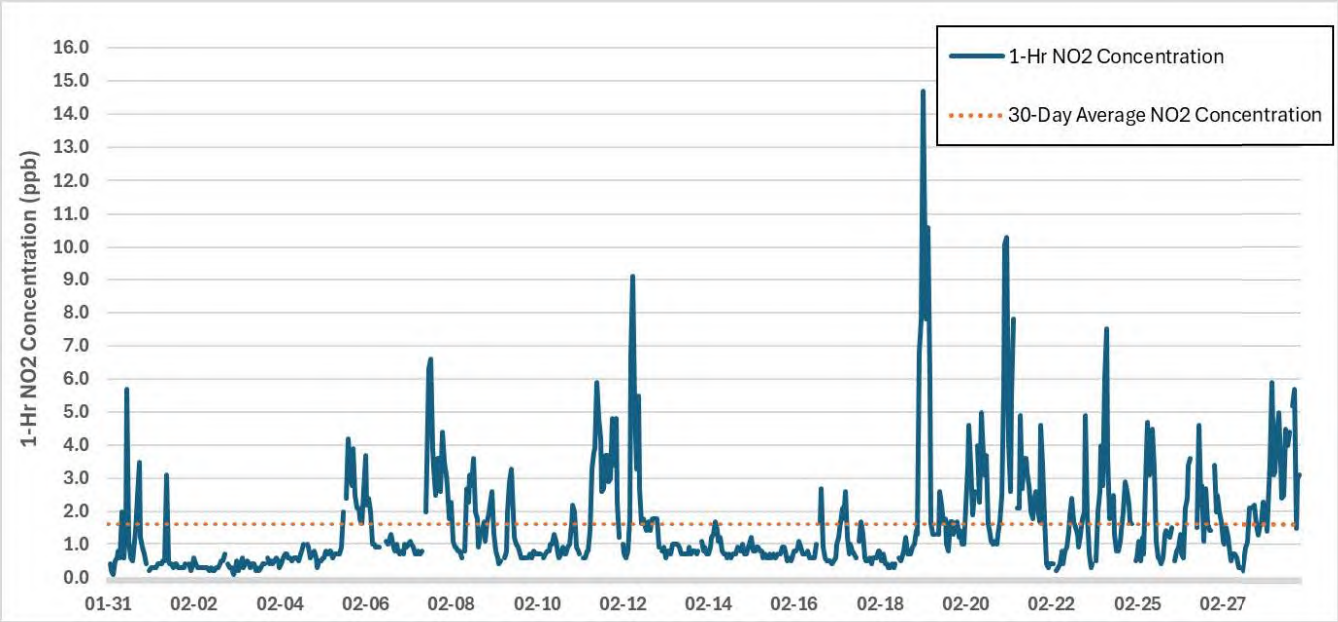

Figure 2: 1-Hr NO_2 Readings at ENV-AQN Kitimat Whitesail (January 31 - February 28)

3.0 PASSIVE MONITORING RESULTS

The passively measured 30-day NO_2 concentrations are listed for each site in Table 2. The 30-day NO_2 concentration based on continuous measurement is also listed for Kitimat Whitesail, as a measure of validation of the sampling results. Each site's housing utilizes two samplers for statistical redundancy, the mean of which is used as the overall measurement.

The measured 30-day NO_2 concentrations are shown through the study area on Figure 1. The highest readings occurred in town, where combustion sources of NOx are more plentiful, also located north of the LNGC facility. Specifically, the highest readings in February 2025 were along the west side of town at the Predicted Maximum NO_2 location[1] and south of the LNGC facility at sample location V10B. Overall, February concentrations in Kitimat where slightly higher than the 2024 summer months and the 2025 January results. Although the measured NO_2 concentrations are well below representative (e.g. annual) criteria, higher concentrations during the winter months can likely be attributed to seasonality, which includes meteorological conditions associated with poorer atmospheric mixing as well as an increase in community-based sources of combustion such as heating.

Bureau Veritas Passive Sampling Laboratory Report is attached in Appendix B.

[1] Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum ground level concentration of NO_2 inclusive of facility emissions within Kitimat

Table 2: Passive NO_2 Sampling Results (MONTH 2025)

Site	Start	End	Duration (Days)	30-day NO_2 Concentration (ppb)			St. Dev	30 Day NO_2
				Sample 1	Sample 2	Mean		
Lakelse Lake A04	01/31/2025 9:20	02/28/2025 8:30	28.0	0.2	0.3	0.3	0.1	
**V01	Decommissioned for winter.							
KHV-2	01/31/2025 10:55	02/28/2025 10:20	28.0	0.2	0.2	0.2	0	
KHV-1	01/31/2025 10:45	02/28/2025 10:10	28.0	0.9	1.0	1.0	0.1	
V10B	01/31/2025 11:25	02/28/2025 10:50	28.0	2.1	2.2	2.2	0.1	
V12	01/31/2025 11:40	02/28/2025 11:10	28.0	2.1	1.7	1.9	0.3	
**V08	Decommissioned for winter.							
**V06	Decommissioned for winter.							
**V05	Decommissioned for winter.							
Kitimat Industrial (V14)	01/31/2025 12:10	02/28/2025 11:30	28.0	1.6	1.7	1.7	0.1	
*Predicted Maximum NO_2	01/31/2025 12:45	02/28/2025 12:20	28.0	1.8	2.3	2.1	0.4	
Kitimat Riverlodge	01/31/2025 12:20	02/28/2025 11:55	28.0	1.3	1.5	1.4	0.1	
Kitimat Whitesail	01/31/2025 13:10	02/28/2025 12:45	28.0	0.9	0.9	0.9	0	1.6

*Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum ground level concentration of NO_2 inclusive of facility emissions within Kitimat.

**V01, V05, V06 and V08 locations have been decommissioned for the winter period due to inaccessibility.

4.0 SAMPLING PROGRAM ANOMOLIES

One sampling program anomaly was noted for the month of February. Passive samplers V01, V05, V06 and V08 were decommissioned at the end of the November 2024 deployment period for the duration of the winter as they are located on a forest service road that is inaccessible during the winter months.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01

Prepared by:
Eden Hamilton, BASc., EIT
Junior Environmental Engineer-in-Training
Environment & Water Practice
Direct Line: 604.238.3621
Eden.Hamilton@tetratech.com

FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01

Reviewed by:
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FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01

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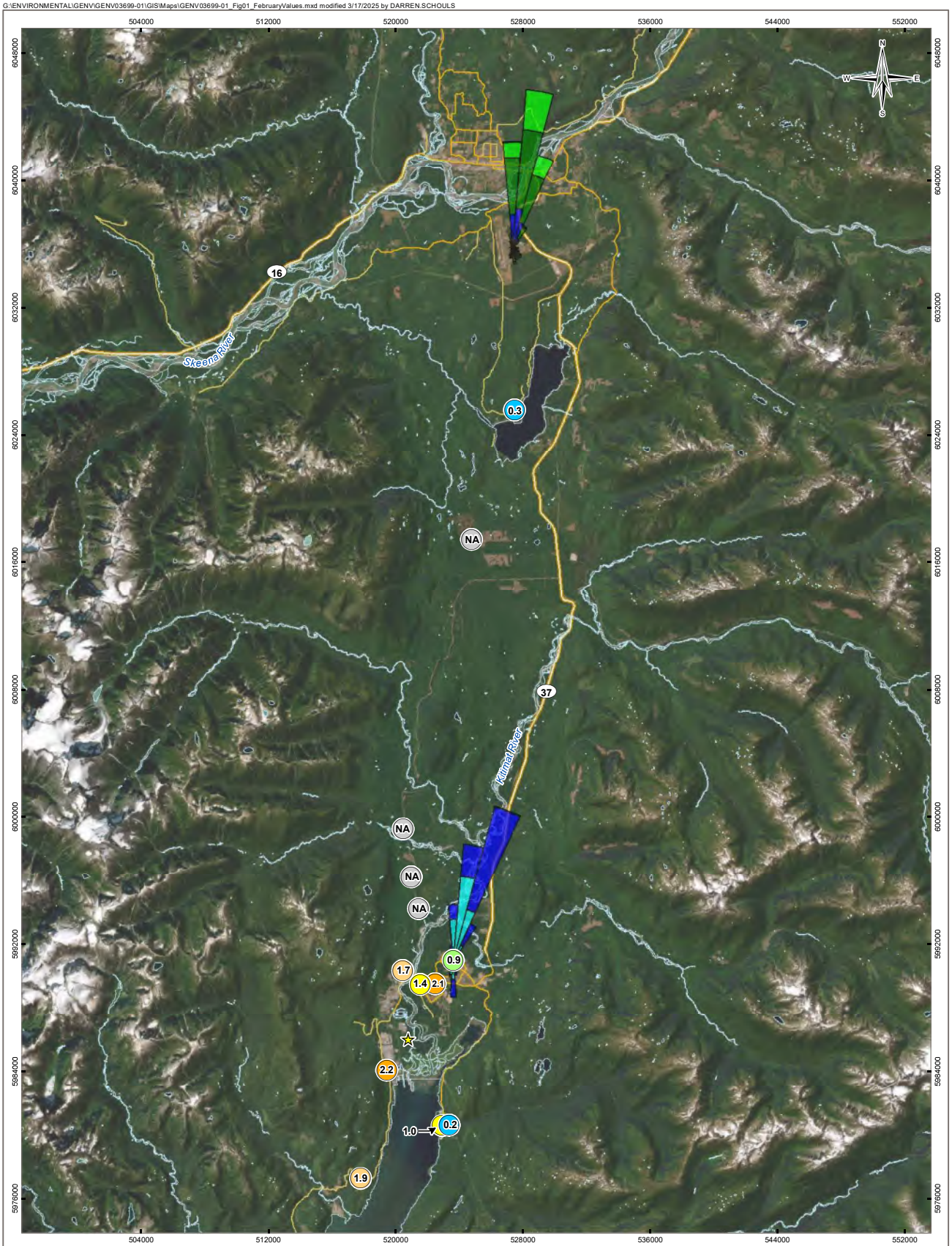
/sy

Attachments Figure 1. Mean 30-day NO_2 Concentration February 2025
Appendix A – Limitations on the Use of this Document
Appendix B – Bureau Veritas Passive Sampling Laboratory Report

FIGURES

Figure 1 Mean 30-day NO_2 Concentration February 2025

G:\ENVIRONMENTAL\GENV\GENV03699-01\GIS\Maps\GENV03699-01_Fig01_FebruaryValues.mxd modified 3/17/2025 by DARREN.SCHOULS



LEGEND

Mean 30-Day NO_2 Concentration (ppb)

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- 2.0 - 2.5
- Decommissioned

- LNGC Site
- Highway
- Main Road
- Local Road
- Watercourse/Waterbody

Rose Plot - Wind (m/s)

- 1 - 3
- 3 - 6
- 6 - 9
- 9 - 12
- 12 - 15

NOTES
Base data source:
Imagery from ESRI; Maxar
CanVec 1:250,000 (2019)

STATUS
ISSUED FOR USE

LNGC NO2 PASSIVE MONITORING

Mean 30-day NO2 Concentration February 2025

PROJECTION: UTM Zone 9	DATUM: NAD83			CLIENT: Haisla Triton Ltd.
Scale: 1:225,000 (4 2 0 4 Kilometres)				TETRA TECH
FILE NO.: GENV03699-01_Fig01_FebruaryValues.mxd				
OFFICE: Tt-VANC	DWN: DS	CKD: MRB	APVD: TM	REV: 0
DATE: March 17, 2025	PROJECT NO.: ENW.GENV03699-01			Figure 1

APPENDIX A

LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

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1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

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The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary exploration, investigation, and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

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In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

BUREAU VERITAS PASSIVE SAMPLING LABORATORY REPORT

Your P.O. #: 704-ENW.GENV03699-01.002
Your Project #: NO2 MONITORING
Site Location: 2025/01/31-2025/02/28

Attention: Travis Miguez

Tetra Tech Canada Inc.
#2 4065 Motz Road
Terrace, BC
CANADA V8G 3N1

Report Date: 2025/03/14
Report #: R3634025
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C519092
Received: 2025/03/04, 12:00

Sample Matrix: Air
Samples Received: 18

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	18	2025/03/06	2025/03/13	PTC SOP-00148	Passive NO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Rowena Geron
Customer Service Associate
14 Mar 2025 08:52:17

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Branko Banjac, General Manager responsible for Alberta Petroleum laboratory operations.

Bureau Veritas Job #: C519092
Report Date: 2025/03/14

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/01/31-2025/02/28
Your P.O. #: 704-ENW.GENV03699-01.002
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DFQ086	DFQ087	DFQ088	DFQ090	DFQ091		
Sampling Date		2025/01/31 09:20	2025/01/31 09:20	2025/01/31 10:45	2025/01/31 10:45	2025/01/31 10:55		
	UNITS	#1 LAKELSE LAKE	#2 LAKELSE LAKE-DUP	#3 KHV-1	#4 KHV-1-DUP	#5 KHV-2	RDL	QC Batch
Passive Monitoring								
Calculated NO2	ppb	0.2	0.3	0.9	1.0	0.2	0.1	B711307
RDL = Reportable Detection Limit								

Bureau Veritas ID		DFQ092	DFQ096	DFQ100	DFQ101	DFQ102	DFQ103		
Sampling Date		2025/01/31 10:55	2025/01/31 11:25	2025/01/31 11:25	2025/01/31 11:40	2025/01/31 11:40	2025/01/31 12:10		
	UNITS	#6 KHV-2-DUP	#7 V10B	#8 V10B-DUP	#9 V12	#10 V12-DUP	#11 Kitimat Industrial	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.2	2.1	2.2	2.1	1.7	1.6	0.1	B711307
RDL = Reportable Detection Limit									

Bureau Veritas ID		DFQ104	DFQ105	DFQ106	DFQ107		
Sampling Date		2025/01/31 12:10	2025/01/31 12:20	2025/01/31 12:20	2025/01/31 12:45		
	UNITS	#12Kitimat Industrial-DUP	#13 Kitimat Riverlodge	#14Kitimat Riverlodge -DUP	#15 Predicted Max	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	1.7	1.3	1.5	1.8	0.1	B711307
RDL = Reportable Detection Limit							

Bureau Veritas ID		DFQ111	DFQ112	DFQ113		
Sampling Date		2025/01/31 12:45	2025/01/31 13:10	2025/01/31 13:10		
	UNITS	#16 Predicted Max-DUP	#17 Kitimat Whitesail	#18 Kitimat Whitesail-DUP	RDL	QC Batch
Passive Monitoring						
Calculated NO2	ppb	2.3	0.9	0.9	0.1	B711307
RDL = Reportable Detection Limit						

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C519092
Report Date: 2025/03/14

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/01/31-2025/02/28
Your P.O. #: 704-ENW.GENV03699-01.002
Sampler Initials: ML

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C519092
Report Date: 2025/03/14

QUALITY ASSURANCE REPORT

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/01/31-2025/02/28
Your P.O. #: 704-ENW.GENV03699-01.002
Sampler Initials: ML

			Spiked Blank		Method Blank	
QC Batch	**Parameter**	**Date**	**% Recovery**	**QC Limits**	**Value**	**UNITS**
B711307	Calculated NO2		97	90 - 110	<0.1	ppb

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

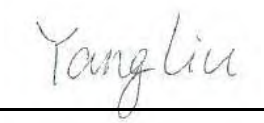
Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C519092
Report Date: 2025/03/14

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/01/31-2025/02/28
Your P.O. #: 704-ENW.GENV03699-01.002
Sampler Initials: ML

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Yang Liu, Laboratory Supervisor

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Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

MARCH 2025 REPORT

TETRA TECH

April 25, 2025

ISSUED FOR USE
FILE: 704-ENW.GENV03699-01

LNG Canada

Via Email: Tauseef-ZIA.Siddiqui@lngcanada.ca
KIT-Regulatory-Compliance@lngcanada.ca

Attention: Tauseef Zia Siddiqui

Subject: Passive Monitoring for Nitrogen Dioxide – LNG Canada – March 2025
Document Control #: L001-00000-HE-0702-0447

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNG facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQDMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region as described in Table 1. The spatial distribution of the passive monitoring station network through the Kitimat Valley is shown on the attached Figure 1. Note that four sampling locations (V01, V08, V06, and V05) have been decommissioned for the winter due to inaccessibility.

Tetra Tech Canada Inc.
Unit 2, 4065 Motz Road
Terrace, BC V8G 3N1
Tel 778.309.1605

Table 1: LNGC's Passive NO_2 Monitoring Network

Site	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Lakelse Lake A04	527457	6025573	2.2
V01	524757	6017435	2.1
KHV-2	523357	5980636	3.0
KHV-1	522919	5980606	3.0
V10B	519425	5984090	3.0
V12	517790	5977294	2.0
V08	521425	5994249	2.0
V06	520970	5996240	2.0
V05	520457	5999250	2.0
Kitimat Industrial	520424	5990356	3.0
Predicted Maximum NO_2	522463	5989506	3.0
Kitimat Riverlodge	521536	5989486	3.0
Kitimat Whitesail	523612	5990998	3.0

The sampling methodology adheres to protocols described in the document '*Standard Operating Procedure (SOP) – Passive Monitoring for Nitrogen Dioxide (NO_2)*', dated March 2024. More information on the sampling methodology can be found in this document.

2.0 AMBIENT CONDITIONS DURING DEPLOYMENT PERIOD

Winds

Winds were bimodal over the period February 28 through March 31, 2025, with periods of both inflow (southerly, up-valley) and outflows (northerly, down-valley), typical of spring conditions for the Kitimat Valley. Figure 2 shows wind roses for hourly wind observations during the March sampler deployment period at ENV-AQN Kitimat Whitesail and Terrace Airport.

Precipitation

88.3 mm of precipitation was recorded between February 28 through March 31 at ECCC Kitimat Forest Avenue. 34.8 mm of precipitation was recorded at ECCC Terrace A. Comparing to precipitation normals, these totals are below average for March for the region by approximately 60 to 70 mm.

Air Quality – Nitrogen Dioxide

NO_2 is continuously measured and reported on an hourly basis at ENV-AQN station Kitimat Whitesail. Over the March deployment period (February 28 – March 31), the maximum 1-hour NO_2 concentration was 7.3 ppb, or 12.2% of the British Columbia Air Quality Objective (BCAQO) of 60 ppb. The 30-day average NO_2 concentration, taken as the average of all available one-hour measurements during the sampling period, was 1.1 ppb. While there is no 30-day BCAQO, the annual criterion is 17 ppb, which provides another indicator of ambient air quality with respect to NO_2. There were 40 hours of missing data out of 728 hours, or 95% data completeness. Figure 2 plots the 1-hour NO_2 concentration over the sampling period.

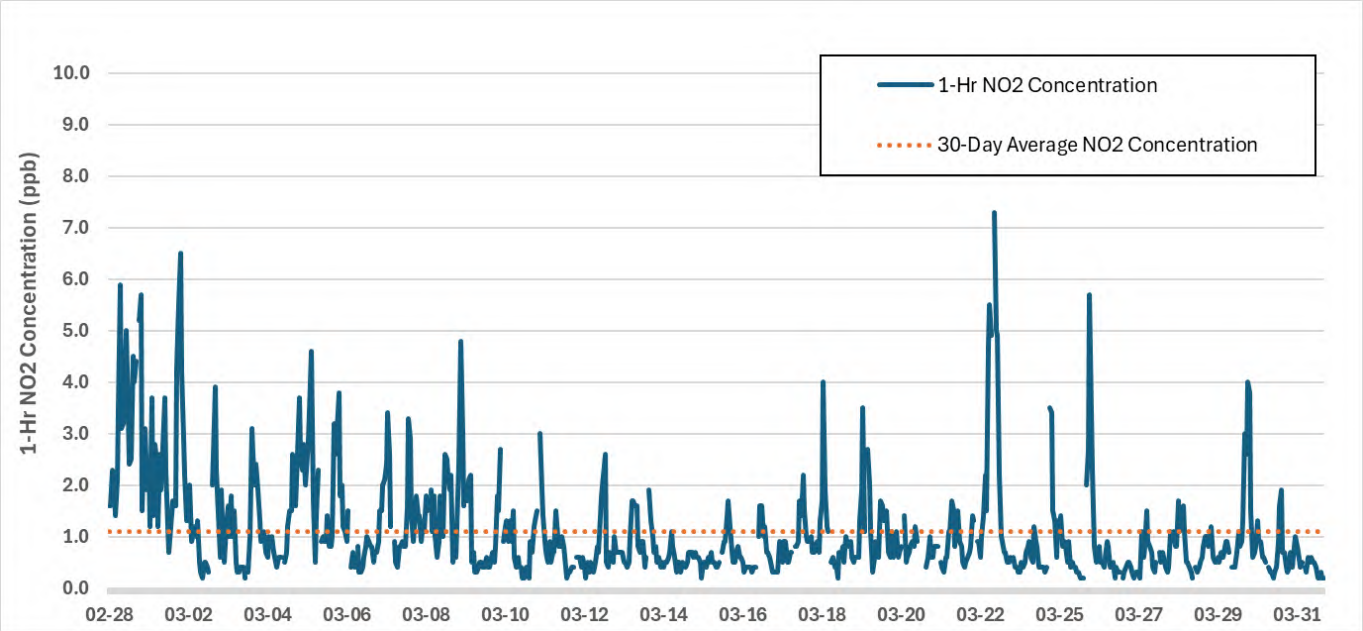

Figure 2: 1-Hr NO_2 Readings at ENV-AQN Kitimat Whitesail (February 28 – March 31)

3.0 PASSIVE MONITORING RESULTS

The passively measured 30-day NO_2 concentrations are listed for each site in Table 2. The 30-day NO_2 concentration based on continuous measurement is also listed for Kitimat Whitesail, as a measure of validation of the sampling results. Each site's housing utilizes two samplers for statistical redundancy, the mean of which is used as the overall measurement.

The measured 30-day NO_2 concentrations are shown through the study area on Figure 1. The highest readings occurred in town, where combustion sources of NOx are more plentiful, also located north of the LNGC facility. Specifically, the highest readings in March 2025 were along the west side and southwest side of town at the Kitimat Riverlodge and V10B locations at 1.2 ppb. Overall, March concentrations in Kitimat were slightly higher than the summer months, however, have decreased in comparison to the slightly elevated to previous winter months. Although the measured NO_2 concentrations are well below representative (e.g. annual) criteria, higher concentrations during the winter months can likely be attributed to seasonality, which includes meteorological conditions associated with poorer atmospheric mixing as well as an increase in community-based sources of combustion such as heating.

Bureau Veritas Passive Sampling Laboratory Report is attached in Appendix B.

Table 2: Passive NO_2 Sampling Results (March 2025)

Site	Start	End	Duration (Days)	30-day NO_2 Concentration (ppb)			St. Dev	30 Day NO_2
				Sample 1	Sample 2	Mean		
Lakelse Lake A04	02/28/2025 8:30	03/31/2025 8:45	31.0	0.1	0.4	0.3	0.2	
**V01	Decommissioned for winter.							
KHV-2	02/28/2025 10:20	03/31/2025 10:40	31.0	0.1	0.2	0.2	0.1	
KHV-1	02/28/2025 10:10	03/31/2025 10:30	31.0	0.6	0.6	0.6	0	
V10B	02/28/2025 10:50	03/31/2025 11:10	31.0	1.2	1.2	1.2	0	
V12	02/28/2025 11:10	03/31/2025 11:30	31.0	0.8	0.7	0.8	0.1	
**V08	Decommissioned for winter.							
**V06	Decommissioned for winter.							
**V05	Decommissioned for winter.							
Kitimat Industrial (V14)	02/28/2025 11:30	03/31/2025 12:00	31.0	1.0	0.9	1.0	0.1	
*Predicted Maximum NO_2	02/28/2025 12:20	03/31/2025 13:45	31.1	1.0	1.1	1.1	0.1	
Kitimat Riverlodge	02/28/2025 11:55	03/31/2025 13:35	31.1	1.3	1.1	1.2	0.1	
Kitimat Whitesail	02/28/2025 12:45	03/31/2025 14:00	31.1	0.9	0.7	0.8	0.1	1.1

*Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum ground level concentration of NO_2 inclusive of facility emissions within Kitimat.

**V01, V05, V06 and V08 locations have been decommissioned for the winter period due to inaccessibility.

4.0 SAMPLING PROGRAM ANOMOLIES

Passive samplers V01, V05, V06 and V08 were decommissioned at the end of the November 2024 deployment period for the duration of the winter as they are located on a forest service road that is inaccessible during the winter months.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01

Prepared by:
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FILE: 704-ENW.GENV03699-01
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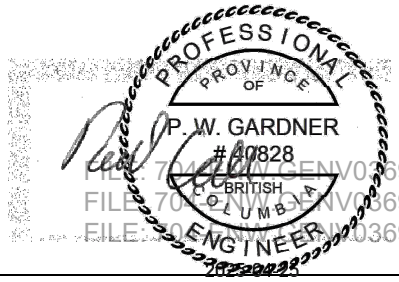
Reviewed by:
Travis Miguez, B.Sc., EP
Senior Meteorology and Air Quality Specialist
Air and Noise Assessment Group
Direct Line: 604.608.8640
Travis.Miguez@tetratech.com



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FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
PERMIT NUMBER: 1001972

Reviewed by:
Paul Gardner, M.A.Sc., P.Eng.
Senior Contaminated Sites Specialist
Environment & Water Practice
Direct Line: 604.722.7944
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/sy

Attachments Figure 1. Mean 30-day NO_2 Concentration March 2025
Appendix A – Limitations on the Use of this Document
Appendix B – Bureau Veritas Passive Sampling Laboratory Report

FIGURES

Figure 1 Mean 30-day NO_2 Concentration March 2025

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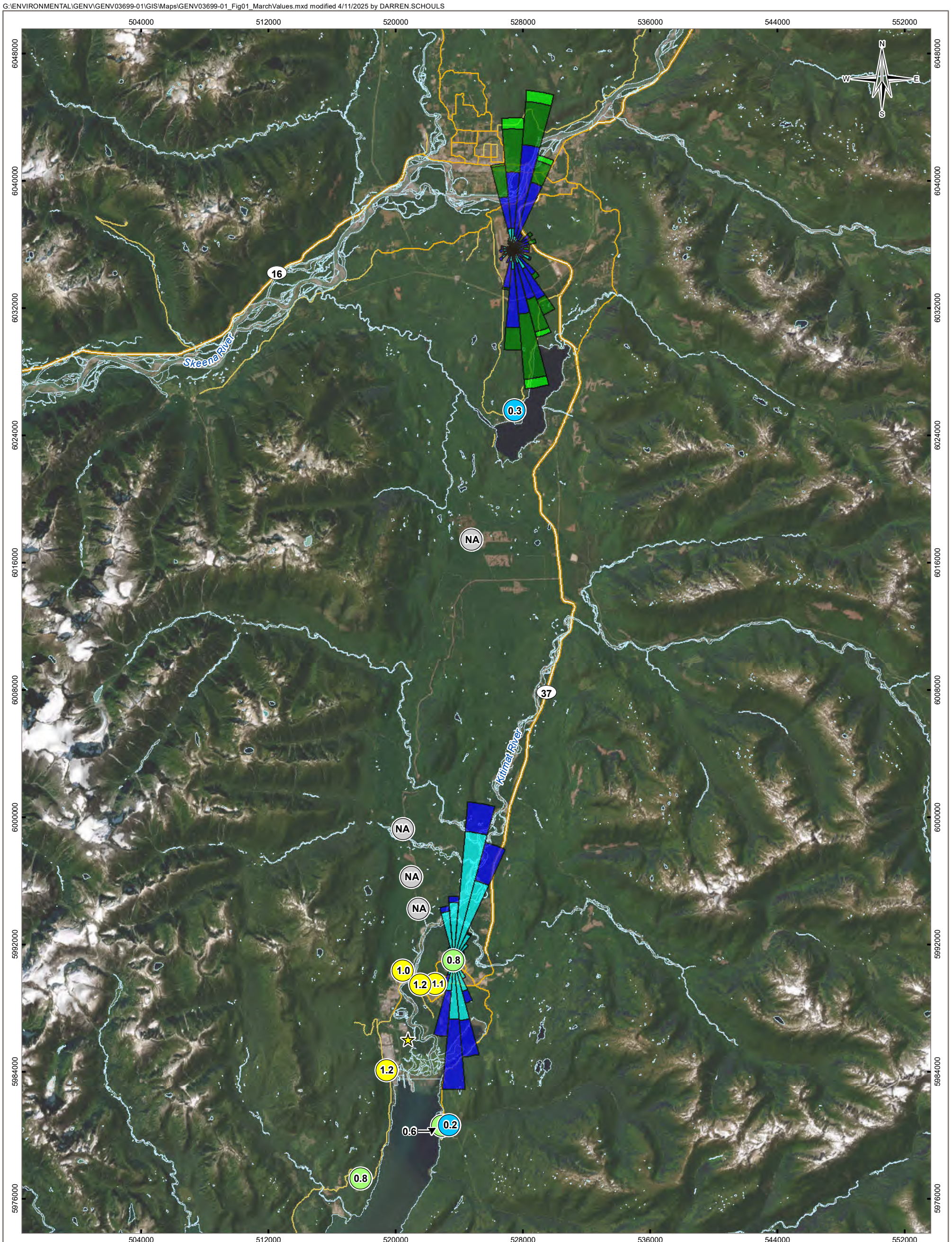

LEGEND

Mean 30-Day NO_2 Concentration (ppb)

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- Decommissioned

- LNGC Site
- Highway
- Main Road
- Local Road
- Watercourse/Waterbody

Rose Plot - Wind (m/s)

- 1 - 3
- 3 - 6
- 6 - 9
- 9 - 12

NOTES
Base data source:
Imagery from ESRI; Maxar
CanVec 1:250,000 (2019)

STATUS
ISSUED FOR USE

LNGC NO2 PASSIVE MONITORING

Mean 30-day NO2 Concentration March 2025

PROJECTION	DATUM	CLIENT
UTM Zone 9	NAD83	Haisla Triton Ltd.

Scale: 1:225,000
4 2 0 4
Kilometres

TETRA TECH

FILE NO.
GENV03699-01_Fig01_MarchValues.mxd

OFFICE	DWN	CKD	APVD	REV
Tt-VANC	DS	MRB	TM	0

DATE
April 11, 2025

PROJECT NO.
ENW.GENV03699-01

Figure 1

APPENDIX A

LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

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APPENDIX B

BUREAU VERITAS PASSIVE SAMPLING LABORATORY REPORT

Your P.O. #: 704-ENW.GENV03699-01.002
Your Project #: NO2 MONITORING
Site Location: 2025/02/28-2025/03/31

Attention: Travis Miguez

Tetra Tech Canada Inc.
#2 4065 Motz Road
Terrace, BC
CANADA V8G 3N1

Report Date: 2025/04/08
Report #: R3644572
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C527257
Received: 2025/04/03, 10:00

Sample Matrix: Air
Samples Received: 18

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	18	2025/04/04	2025/04/07	PTC SOP-00148	Passive NO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Rowena Geron
Customer Service Associate
08 Apr 2025 08:08:59

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500

==========

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Bureau Veritas Job #: C527257
Report Date: 2025/04/08

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/02/28-2025/03/31
Your P.O. #: 704-ENW.GENV03699-01.002
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DHG915	DHG916	DHG917	DHG918	DHG919		
Sampling Date		2025/02/28 08:30	2025/02/28 08:30	2025/02/28 10:10	2025/02/28 10:10	2025/02/28 10:20		
	UNITS	#1 LAKELSE LAKE	#2 LAKELSE LAKE-DUP	#3 KHV-1	#4 KHV-1-DUP	#5 KHV-2	RDL	QC Batch
Passive Monitoring								
Calculated NO2	ppb	0.1	0.4	0.6	0.6	0.1	0.1	B744654
RDL = Reportable Detection Limit								

Bureau Veritas ID		DHG920	DHG921	DHG922	DHG923	DHG924	DHG925		
Sampling Date		2025/02/28 10:20	2025/02/28 10:50	2025/02/28 10:50	2025/02/28 11:10	2025/02/28 11:10	2025/02/28 11:30		
	UNITS	#6 KHV-2-DUP	#7 V10B	#8 V10B-DUP	#9 V12	#10 V12-DUP	#11 Kitimat Industrial	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.2	1.2	1.2	0.8	0.7	1.0	0.1	B744654
RDL = Reportable Detection Limit									

Bureau Veritas ID		DHG926	DHG927	DHG928	DHG929		
Sampling Date		2025/02/28 11:30	2025/02/28 11:55	2025/02/28 11:55	2025/02/28 12:20		
	UNITS	#12Kitimat Industrial-DUP	#13 Kitimat Riverlodge	#14Kitimat Riverlodge -DUP	#15 Predicted Max	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	0.9	1.3	1.1	1.0	0.1	B744654
RDL = Reportable Detection Limit							

Bureau Veritas ID		DHG930	DHG931	DHG932		
Sampling Date		2025/02/28 12:20	2025/02/28 12:45	2025/02/28 12:45		
	UNITS	#16 Predicted Max-DUP	#17 Kitimat Whitesail	#18 Kitimat Whitesail-DUP	RDL	QC Batch
Passive Monitoring						
Calculated NO2	ppb	1.1	0.9	0.7	0.1	B744654
RDL = Reportable Detection Limit						

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C527257
Report Date: 2025/04/08

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/02/28-2025/03/31
Your P.O. #: 704-ENW.GENV03699-01.002
Sampler Initials: ML

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C527257
Report Date: 2025/04/08

QUALITY ASSURANCE REPORT

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/02/28-2025/03/31
Your P.O. #: 704-ENW.GENV03699-01.002
Sampler Initials: ML

			Spiked Blank		Method Blank	
QC Batch	**Parameter**	**Date**	**% Recovery**	**QC Limits**	**Value**	**UNITS**
B744654	Calculated NO2		98	90 - 110	<0.1	ppb

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

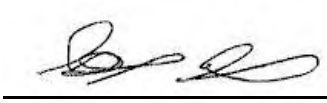
Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C527257
Report Date: 2025/04/08

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/02/28-2025/03/31
Your P.O. #: 704-ENW.GENV03699-01.002
Sampler Initials: ML

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Steven Gloux, Senior Analyst

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Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Attachment 3 The University of British Columbia, Precipitation Chemistry Report (February 05, 2025)

Laboratory Methods and Operating Procedures for Determining Ionic Deposition Flux Using Field - Exposed Ion Exchange Resin (IER)

&

Results from the First Round of Samplers

Prepared for:

April Hauk and Matthew Deane

Stantec

Prepared by:

Maryam Shahmansoori

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Department of Chemical and Biological Engineering

The University of British Columbia

February 5, 2025

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1. Overview

To effectively evaluate ecosystem responses to air pollution, it is essential to assess ecosystem exposure to biologically significant pollutants, often accomplished using passive sampling techniques. These techniques greatly enhance the ability to estimate pollution exposure across varied landscapes and provide vital data on atmospheric inputs, especially at remote sites where active monitoring is less feasible. Passive sampler techniques do not require electronic monitoring, making them ideal for long-term, widespread, and low-maintenance deployment. This facilitates a faster understanding of deposition patterns and their impacts across diverse areas. There are two main types of passive samplers: passive samplers for gaseous pollutants and Ion Exchange Resin (IER) samplers for ionic deposition. Gaseous passive samplers rely on diffusion to transport pollutants through filters or screens onto a capture medium, typically over weeks or months. These samplers measure pollutant concentrations in the atmosphere, often expressed in mass-per-volume units, such as micrograms per cubic meter ($\mu g/m^3$). Ion Exchange Resin (IER) collectors capture ionic deposition inputs from solutions, such as precipitation or throughfall, as they passively percolate through resin columns that adsorb and accumulate ions. By assessing ion concentrations, it is possible to calculate atmospheric deposition rates over the monitoring period. For deposition rates, typical units include kilograms per hectare per year ($kg\ ha^{-1}\ yr^{-1}$) or milligrams per square meter per year ($mg\ m^{-2}\ yr^{-1}$). These samplers are versatile and can be placed under tree canopies to capture throughfall deposition or in open areas to collect bulk deposition. Throughfall captures ions from precipitation, snowmelt, and cloud water that interact with canopy surfaces before reaching the ground, effectively integrating multiple deposition forms. Unlike conventional methods, IER samplers do not collect solution samples in the field; rather, only the ions retained in the resin column are analysed in the lab. This approach enables long-term exposure without the need for regular maintenance or electronic equipment. Despite their benefits, passive sampling techniques have limitations, including their inability to capture high-resolution diurnal data or respond to fluctuations in atmospheric pollutant levels. Such data are critical for some biological studies, especially for phytotoxic pollutants, and thus require complementary active sampling methods. Furthermore, IER samplers do not capture the solution itself, meaning additional collection may be needed for studies requiring pH or event-specific data. Throughfall deposition, measured as ions collected by IER samplers, offers an integrated sample reflecting dry, wet, and fog/cloud water deposition. However, in regions with limited

rainfall, throughfall deposition measurements can be incomplete, and canopy interactions may retain 20-30% of deposited nitrogen, unaccounted for in throughfall data. The inferential approach, which uses passive sampling data combined with parameters such as leaf area index, pollutant deposition velocity, and land cover type, can estimate dry deposition fluxes to forests or shrublands, but it requires careful application. Combining passive and active techniques, supported by statistical models, allows for a more comprehensive assessment of air pollutant impacts, supporting both empirical research and simulation model validation [1-6].

3. Materials and Methods

3.1. IER samplers specifications

We have received three sets of eight IER samplers from Stantec Consulting Ltd., including **B123-A Throughfall, B108 Throughfall, and B108 Bulk** IER samplers (Fig. 1 and Table 1).

Fig. 1: Ion Exchange Resin samplers columns

Table 1: Ion Exchange Resin samplers identification and information

Site ID	Type	Anions	Cations	Field Blank	Deployment Date	Retrieval Date	Note
B123-A	TF*	3	3	2	July 25, 2024	Oct. 25, 2024	---
B108	TF*	3	3	2	July 25, 2024	Oct. 25, 2024	---
B108	Bulk	3	3	2	July 25, 2024	Oct. 25, 2024	**Note with the columns:** Samples were flooded-May affect the results **Lab Observation:** For two samplers (B108-Bu5 and B108-Bu6), the sponge, along with some resin, had come out of the column and was in the drain cap.

*TF = Throughfall

- Both the funnel and the snow tube are 200mm in diameter.

3.2 Extraction Solutions:

– Extraction solution for NO_3^-, NH_4^+, SO_4^{2-}, PO_4^{2-}: 1N Potassium Iodide (KI)

– Extraction solution for Cations (Ca^{2+}, Mg^{2+}, Na^+, K^+): 1N Ammonium Acetate ($NH_4C_2H_3O_2$).

3.3 Laboratory Equipment:

– Lachat Quickchem 8500 Flow Injection Analyzer

– Thermo Fisher Aquion IC, utilizing a Dionex IonPac AS22 Analytical Column with the nominal eluent (4.5 mM Na2CO3/1.4 mM NaHCO3). Suppression was provided by the Dionex AERS 500, run time was 12 minutes. Conductivity detection was performed with a DS6 heated conductivity cell.

– ICP-OES iCAP Pro XP with prepFAST3 auto dilution system. Concentrations were measured axially for Na 589.592 nm line; and radially for Ca 422.673 nm, K 766.490nm, and Mg 285.213 nm lines.

– Analytical balance

3.4. Laboratory Methods and Protocols for Analysis Following Field Exposure

Analytical methods evolve over time and can vary across laboratories depending on the available equipment. Details of IER column extraction may also vary based on factors such as column size and the specific IER employed. Table 2 provides information on the extractant

solutions used for ion extraction from IER columns, as well as the typical analytical procedures for various anions and cations. Based on the data summarized in Table 2, the within column extraction method was chosen, utilizing a 1M potassium iodide solution for anion extraction and a 1M ammonium acetate solution for cation extraction (Fenn et al., 2018).

Table 2. The extractant solutions used for ionic extraction from IER columns and the analytical procedures typically used for various anions and cations.

Extraction Method	**NO_3^-**	**SO_4^{2-}**	**Cl^-**	**PO_4^{3-}**	**NH_4^+**	**Ca_2^+**	**Mg_2^+**	**Na^+**	**K^+**	**References**
200 ml of 2 M KCl	☑				☑					Fenn and Poth, (2004)
150 ml of 1.0 M (KI) - Batch	☑	☑	☑							Simkin et al., (2003)
200 ml of 1N KI+100 ml of 1N KI	☑	☑		☑	☑					Fenn et al., (2013)
150 ml of 1N KI. for base cation an additional extraction of 200ml KCl. The KI and KCl extracts were proportionately combined	☑	☑	☑	☑	☑	☑	☑	☑		Fenn et al. (2015a)
150 ml of 1N KI for anions. For base cation separate field-exposed IER columns Extract with 200 ml of 1N Ammonium Acetate	☑	☑	☑	☑	☑	☑	☑	☑	☑	Fenn et al., (2018)
Approximately a 10-g subsample was taken and extracted twice with 50 ml sulphuric acid (2 M) to determine cations (K^+, Na^+, Mg^{2+}, Ca^{2+} , Al, Fe, Mn) and P. To measure NO_3-N, another 10g ion exchange resin was extracted with sodium chloride (1 M) solution.	☑			☑		☑	☑	☑	☑	Köhler et al., (2012)
The resins were extracted (1:50 w/v) with 1.0 M KCl for NH^{4+} and NO_3^- and 0.5 M HCl for SO_4^{2-}, Na^+, K^+, Ca^{2+} and Mg^{2+}.	☑	☑			☑	☑	☑	☑	☑	Yamashita et al., (2014)

4. Procedures for Extracting the IER column Following Field Exposure

4.1 KI Resin Extraction Procedure for Analysis of NO_3^- , NH_4^+, SO_4^{2-}, PO_4^{2-}, and Cl^- within the column

The protocol used to extract the samplers, was based on the procedures suggested at the Forest Service Laboratory in Riverside. That is, after field exposure, the IER columns are typically extracted twice using 75 mL of 1N KI for each extraction. The two extracts are then combined, and the concentrations of NO_3^-, SO_4^{2-}, and PO_4^{3-} are analysed using ion chromatography, while ammonium is measured colorimetrically. Below provides a step-by-step procedure used to extract the samples:

1. Each column was properly labelled according to its specifications.
2. For each column, the PVC bottom drain cap was replaced with a black drip reducer adapter (Figure 2A) to attach a drip irrigation on/off valve (Figure 2B) using the irrigation distribution pipe (Figure 2C). The original cap was carefully removed over a clean disposable weighing boat to collect any spilled resin. Before attaching the new cap, it was confirmed and made sure that the sponge was firmly in place. Any spilled resin was returned to the column by removing the top cap and the sponge.
3. The top cap was removed over a large, clean, disposable weighing boat, and the sponge was carefully extracted using tweezers. The container was then securely attached to the top of the column with the use of Teflon tape.
4. All the columns, equipped with a bottom valve and a top container, were positioned vertically in the setup (Fig. 3).
5. With the valve fully closed, 100 mL of deionized water was added to the container and allowed to sit for 20 minutes.
6. After 20 minutes, the valve was slowly opened to allow water to drain at a rate of two drops per second for 10 minutes. Subsequently, the valve was fully opened to drain the remaining water.
7. Steps 5 and 6 were repeated, and then residual water was completely removed using a handheld air pump.
8. Column specifications were written on a 250 mL sample bottle (bottles without caps or labels were pre-weighed) and each was placed under a resin tube.
9. With the valve closed, 75 mL of 1N KI was poured into the reservoir and left to stand for 20 minutes.
10. After 20 minutes, the valve was slowly opened to drain at a rate of two drops per second for 10 minutes. Subsequently, the valve was fully opened to drain the remaining solutions.
11. Steps 5 and 6 were repeated once again for a total of about 150 mL in each bottle, then using a handheld air pump, residual extractant solution was removed completely.

12. The weights of both the bottle containing the extractant solution and the empty bottle were recorded in a spreadsheet.

13. Each bottle was shaken to mix the solution. The bottles were stored in a freezer and kept in dark to prevent light exposure.

14. Samples were analysed colorimetrically for ammonium and via ion chromatography for nitrate, sulfate, phosphate, and chloride.

Notes: The 1*N* KI extractant solution should be made up fresh daily as it is light sensitive. Each resin tube will yield in a 150-mL sample [2].

Fig. 2: Parts for replacing the bottom PVC drain cap, A) black adapter drip reducer, B) drip irrigation On/Off valve, C) irrigation distribution tubing, D) handheld air pump

Fig 3: Placing the equipped columns in the set-up

4.2. Ammonium Acetate Resin Extraction Procedure for Analysis of Base Cations (Ca^{2+}, Mg^{2+}, K^{+}, Na^{+})

IER column can also be analysed for ions such as Ca^{2+}, Mg^{2+}, Na^{+}, or other metals using techniques like inductively coupled plasma atomic emission spectroscopy (ICP-AES)[1]. If comprehensive base cation deposition data are needed (for example, to include K^{+} deposition), separate field-exposed IER columns can be extracted with an alternative solution, such as 1N ammonium acetate ($NH_4C_2H_3O_2$) or 1N hydrochloric acid (HCl), rather than using a potassium-based salt.

Extraction with ammonium acetate, a commonly used extractant for base cation analysis in soil, is recommended. This process can be conducted by percolating ammonium acetate through intact columns, using methods similar to those applied for KI extraction.

Note: Extraction needs to be performed in a fume hood due to potential odour from ammonium acetate during the IER extraction. Ammonium acetate is a stronger extractant than HCl, particularly for the extraction of Ca^{2+} from the IER columns, although either extractant can be used [2]. Below provides a step-by-step procedure used to extract the samples for target cations:

1. Each column was properly labelled according to its specifications.
2. The PVC bottom drain cap was replaced with a black drip reducer adapter (Figure 2A) to attach a drip irrigation on/off valve (Figure 2B) using the irrigation distribution pipe (Figure 2C). The original cap was carefully removed over a clean disposable weighing boat to collect any spilled resin. Before attaching the new cap, make sure that the sponge was firmly in place. Any spilled resin was returned to the column by removing the top cap and the sponge.
3. The top cap was removed over a large, clean, disposable weighing boat, and the sponge was carefully extracted using tweezers. The container was then securely attached to the top of the column with the use of Teflon tape.
4. All columns, equipped with a bottom valve and a top container, were placed vertically in the setup (Fig. 3).
5. With the valve fully closed, 100 mL of deionized water was added to the reservoir and allowed to sit for 20 minutes.
6. After 20 minutes, the valve was slowly opened to allow water to drain at a rate of two drops per second for 10 minutes. Subsequently, the valve was fully opened to drain the remaining water.
7. Steps 5 and 6 were repeated, and then residual water was completely removed using a handheld air pump.
8. Column specifications were written on a 250 mL sample bottle (bottles without caps or labels were pre-weighed) and each was placed under a resin tube.

9. With the valve closed, 100 mL of 1*N* ammonium acetate ($NH_4C_2H_3O_2$) was poured into the reservoir and left to stand for 20 minutes.

10. After 20 minutes, the valve was slowly opened to drain at a rate of two drops per second for 10 minutes. Subsequently, the valve was fully opened to drain the remaining Solutions.

11. Steps 5 and 6 were repeated once again for a total of about 200 mL in each bottle, then using a handheld air pump residual extractant solution was removed completely.

12. The weights of both the bottle containing the extractant solution and the empty bottle were recorded in a spreadsheet.

13. Steps 8 through 13 were repeated using new preweighed 250-mL bottles. Each resin tube will result in two, 200-mL samples. Each will be analysed separately.

14. Each bottle was shaken to mix the solution. The bottles were stored in a freezer and in the dark conditions to avoid light sensitivity. For storage under 48 hours, bottles were stored in the refrigerator.

15. The extracted cations were analysed with Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES).

5. Analysis and Results

For the measurement of chloride, nitrate, phosphate, and sulfate anions by ion chromatography (IC) and calcium, potassium, magnesium, and sodium cations by ICP-OES, 50 mL of the each of the extractant solution was sent to the BC Ministry of Environment and Park's Environmental Laboratory, with appropriate protection. The reported results are presented in Tables 2 and 3.

Ammonium concentration in the samples was determined using the colorimetric method via Flow Injection Analysis (FIA) with the Lachat QuickChem 8500 Flow Injection Analyzer, and the results are shown in Table 4. This method is based on the Berthelot reaction, where ammonia reacts with alkaline phenol and sodium hypochlorite to form indophenol blue. Sodium nitroprusside (nitroferricyanide) is added to enhance sensitivity. The absorbance of the reaction product is measured at 630 nm, providing a direct correlation to the original ammonia concentration in the sample.

Table 2: IC results for anions in KI extractant - BC Environmental Laboratory

Method		**Anions via IC**			
Reference		**SM 4110B modified**			
Analysis Date		**1/15/2025**			
		Cl	**NO_3**	**PO_4**	**SO_4**
Parameter		**Chloride**	**Nitrate**	**Phosphate**	**Sulphate**
Units		**mg/L**	**mg/L**	**mg/L**	**mg/L**
Dilution Factor		**10**	**5**	**10**	**10**
Sample #	**Sample Identity**				
1	B123A-TFB1	12.1	6.0	<DL*	<DL*
2	B123A-TF1	90.9	6.1	<DL*	155.0
3	B123A-TF2	94.0	8.6	<DL*	135.2
4	B123A-TF3	119.6	7.7	<DL*	154.2
5	B108-TFB1	13.8	6.5	<DL*	18.5
6	B108-TF1	37.6	6.5	<DL*	156.6
7	B108-TF2	64.5	9.5	<DL*	298.3
8	B108-TF3	70.3	9.9	<DL*	305.9
9	B108-BUB1	15.7	7.0	<DL*	20.7
10	B108-BU1	27.5	13.3	<DL*	74.8
11	B108-BU2	44.7	22.3	<DL*	122.4
12	B108-BU3	28.8	18.8	<DL*	86.4

Samples were frozen at -20°C until testing.
*<DL = Below Detection Limit
TF: Through Fall
TFB1: Through Fall Blank 1
BUB1: Bulk Blank 1

Table 3: ICP-OES results for Cations - BC Environmental Laboratory

Method		Dissolved Metals via ICP-OES				Dilution
Reference		EPA 6020 modified				Factor
Analysis Date		1/16/2025				
Parameter		Ca	K	Mg	Na	
Units		mg/L	mg/L	mg/L	mg/L	
Estimated Detection Limit (undiluted)		0.01	0.3	0.01	0.1	
Estimated Detection Limit (10x)		0.1	3.0	0.1	1.0	
Sample #	Sample Identity					
13	B123A-TFB2-1	0.82	<DL*	0.09	2.8	1x
14	B123A-TFB2-2	0.25	<DL*	<DL*	0.5	1x
15	B123A-TF4-1	30.83	853.8	21.00	22.7	10x
16	B123A-TF4-2	11.98	34.9	2.53	<DL*	10x
17	B123A-TF5-1	36.08	536.4	12.45	11.7	10x
18	B123A-TF5-2	6.88	4.7	0.84	<DL*	1x
19	B123A-TF6-1	32.21	575.3	14.38	14.4	10x
20	B123A-TF6-2	9.54	6.0	1.16	<DL*	1x
21	B108-TFB2-1	0.63	<DL*	0.08	<DL*	1x
22	B108-TFB2-2	0.16	<DL*	<DL*	<DL*	1x
23	B108-TF4-1	26.53	79.1	15.97	12.2	10x
24	B108-TF4-2	5.82	1.2	1.26	<DL*	1x
25	B108-TF5-1	18.52	60.0	14.02	6.6	10x
26	B108-TF5-2	3.30	0.5	0.72	0.4	1x
27	B108-TF6-1	16.55	36.6	11.81	5.5	10x
28	B108-TF6-2	2.76	0.3	0.46	<DL*	1x
29	B108-BUB2-1	0.65	<DL*	0.10	0.2	1x
30	B108-BUB2-2	0.18	<DL*	<DL*	<DL*	1x
31	B108-BU4-1	10.11	5.1	2.08	7.9	1x
32	B108-BU4-2	1.23	<DL*	0.08	<DL*	1x
33	B108-BU5-1	22.61	15.3	3.75	4.9	10x
34	B108-BU5-2	2.60	<DL*	0.10	<DL*	1x
35	B108-BU6-1	4.01	3.8	1.23	4.1	1x
36	B108-BU6-2	0.90	<DL*	0.07	0.3	1x

Samples were frozen at -20°C until testing.
*<DL = Below Detection Limit
TF: Through Fall
TFB2-1: Through Fall Blank 2-First Extraction
TFB2-2: Through Fall Blank 2-Second Extraction
BUB2-1: Bulk Blank 2-First Extraction
BUB2-2: Bulk Blank 2-Second Extraction

Table 4: Ammonium results - Colorimetrically

Parameter		NH_4^+-N	NH_4^+
Unit		mg/L	mg/L
Sample #	Sample Identity		
1	B123A-TFB1	<DL*	<DL*
2	B123A-TF1	2.74	3.52
3	B123A-TF2	7.96	10.23
4	B123A-TF3	3.52	4.53
5	B108-TFB1	0.70	0.89
6	B108-TF1	2.08	2.67
7	B108-TF2	2.1	2.70
8	B108-TF3	1.34	1.72
9	B108-BUB1	0.042	0.05
10	B108-BU1	2.24	2.88
11	B108-BU2	5.92	7.61
12	B108-BU3	2.78	3.57

*<DL = Below Detection Limit
TF: Through Fall
TFB1: Through Fall Blank 1
BUB1: Bulk Blank 1

6. Calculations for Deposition Fluxes

1. The weight of the extractant solution from each IER column was determined by subtracting the weight of the empty bottle from the weight of the bottle containing the extractant solution. The weight was then converted to volume using the specific density values: 1N KI = 1.118 g/mL and 1N ammonium acetate = 1.0173 g/mL. The identification for each column and volume of each extractant solution are shown in Table 5.

2. The mass of each ion in the extract was calculated by multiplying the extractant volume by the ion concentration.

3. For cations extracted in two steps, with the first stage labelled as extraction 1 and the second as extraction 2, the ion masses from both extractions were summed to determine the total deposition.

4. The deposition was determined based on the elemental content (e.g., NO_3-N, SO_4-S), using the percentage of the element in each compound. For ecosystem reporting, total inorganic nitrogen (DIN) was calculated as the sum of NH_4-N and NO_3-N values.

5. The collector surface area (both the funnel and the snow tube are 200 mm in diameter) was used to express the deposition as mass per unit area (kg ha^{-1}).

6. To obtain the deposition flux, the amount of deposition as mass per area was reported over the exposure time period of each column (3 months) (kg ha^{-1} /3 months).

7. For each of the field-exposed IER column extractions, the data were blank-corrected by subtracting field blank values from sample results.

8. After completing the necessary calculations, the deposition flux for anions extracted with potassium iodide and cations extracted with ammonium acetate are presented in Tables 6 and 7, respectively.

Table 5: Weight and volume of the extract from each IER column

Sample #	Sample Name	Initial weight (g)	Final weight (g)	Weight of Extract (g)	specific density of extraction solvent (g/mL)	Volume of extraction solvent (L)
1	B123A-TFB1	22.24	188.6	166.36	1.118	0.149
2	B123A-TF1	22.25	191.28	169.03	1.118	0.151
3	B123A-TF2	22.37	191.88	169.51	1.118	0.152
4	B123A-TF3	22.51	191.98	169.47	1.118	0.152
5	B108-TFB1	22.36	190.62	168.26	1.118	0.151
6	B108-TF1	22.32	191.02	168.7	1.118	0.151
7	B108-TF2	22.28	191.03	168.75	1.118	0.151
8	B108-TF3	22.37	192.2	169.83	1.118	0.152
9	B108-BUB1	22.29	185.57	163.28	1.118	0.146
10	B108-BU1	22.33	189.46	167.13	1.118	0.149
11	B108-BU2	22.44	188.04	165.6	1.118	0.148
12	B108-BU3	22.32	189.68	167.36	1.118	0.150
13	B123A-TFB2-1	22.24	225.57	203.33	1.0173	0.200
14	B123A-TFB2-2	22.39	222.23	199.84	1.0173	0.196
15	B123A-TF4-1	22.23	226.23	204	1.0173	0.201
16	B123A-TF4-2	22.31	221.58	199.27	1.0173	0.196
17	B123A-TF5-1	22.34	225.25	202.91	1.0173	0.199
18	B123A-TF5-2	22.49	223.66	201.17	1.0173	0.198
19	B123A-TF6-1	22.39	226.66	204.27	1.0173	0.201
20	B123A-TF6-2	22.21	221.43	199.22	1.0173	0.196
21	B108-TFB2-1	22.05	224.01	201.96	1.0173	0.199
22	B108-TFB2-2	22.2	222.14	199.94	1.0173	0.197
23	B108-TF4-1	22.33	226.87	204.54	1.0173	0.201
24	B108-TF4-2	22.14	223.3	201.16	1.0173	0.198
25	B108-TF5-1	22.23	227.35	205.12	1.0173	0.202
26	B108-TF5-2	22.37	221.25	198.88	1.0173	0.195
27	B108-TF6-1	22.29	224.15	201.86	1.0173	0.198
28	B108-TF6-2	22.25	221.09	198.84	1.0173	0.195
29	B108-BUB2-1	22.36	226.95	204.59	1.0173	0.201
30	B108-BUB2-2	22.19	222.02	199.83	1.0173	0.196
31	B108-BU4-1	22.19	226.05	203.86	1.0173	0.200
32	B108-BU4-2	22.21	221.66	199.45	1.0173	0.196
33	B108-BU5-1	22.27	226.41	204.14	1.0173	0.201
34	B108-BU5-2	22.34	222.35	200.01	1.0173	0.197
35	B108-BU6-1	22.4	228.04	205.64	1.0173	0.202
36	B108-BU6-2	22.21	220.57	198.36	1.0173	0.195

Table 6: Deposition flux for anions extracted with potassium iodide

		Cl	NO_3-N	NH_4^+-N	PO_4-P	SO_4-S
Units		**kg ha^{-1} per 3 months**	**kg ha^{-1} per 3 months**	**kg ha^{-1} per 3 months**	**kg ha^{-1} per 3 months**	**kg ha^{-1} per 3 months**
Sample #	**Sample ID**					
2	B123A-TF1	3.80	0.002	0.13	-	2.49
3	B123A-TF2	3.96	0.03	0.38	-	2.17
4	B123A-TF3	5.20	0.02	0.17	-	2.48
6	B108-TF1	1.14	0.00	0.07	-	2.21
7	B108-TF2	2.44	0.033	0.07	-	4.48
8	B108-TF3	2.74	0.038	0.03	-	4.63
10	B108-BU1	0.58	0.069	0.10	-	0.87
11	B108-BU2	1.38	0.16	0.28	-	1.60
12	B108-BU3	0.64	0.13	0.13	-	1.05

Table 7: Deposition flux for cations extracted with ammonium acetate

Parameter		**Ca**	**K** *	**Mg**	**Na**
Units		**kg ha^{-1} per 3 months**	**kg ha^{-1} per 3 months**	**kg ha^{-1} per 3 months**	**kg ha^{-1} per 3 months**
Sample #	**Sample ID**				
15,16	B123A-TF4	2.65	56.68	1.49	1.24
17,18	B123A-TF5	2.66	34.35	0.84	0.53
19,20	B123A-TF6	2.59	37.15	0.99	0.71
23,24	B108-TF4	2.01	5.14	1.10	0.78
25,26	B108-TF5	1.34	3.88	0.94	0.45
27,28	B108-TF6	1.17	2.33	0.77	0.35
31,32	B108-BU4	0.67	0.33	0.13	0.49
33,34	B108-BU5	1.55	0.98	0.24	0.30
35,36	B108-BU6	0.26	0.24	0.08	0.27

* *Levels in B123A sets are unusually high, potentially indicating outliers or possible field disturbances or contamination.*

7. Discussion and Conclusion

Evaluation of deposition data revealed that average DIN (Dissolved Inorganic N) values at the B123A-TF, B108-TF, and B108-BU samplers were 0.24, 0.08, and 0.3 (kg N ha^{-1} per 3 months) respectively, indicating relatively low levels. Due to the strong preferential uptake of nitrate (NO_3-N) by the canopy, nitrogen deposition in the B108-TF is significantly lower than B108-BU, a pattern also observed in previous studies.

Sulfur deposition during the same period exhibited higher levels, with average values of 2.38, 3.78, and 1.17 (kg S ha^{-1} per 3 months) at the B123A-TF, B108-TF, and B108-BU samplers, respectively.

For calcium, the deposition rate across different categories ranges from an average of 0.83 to 2.63 (kg ha^{-1} per 3 months), with B108-BU sets showing the lowest values and B123A sets

giving the highest. A similar trend is observed for other metals, including potassium, magnesium, and sodium. Specifically, the lowest values for magnesium (0.08) and sodium (0.27) were found in the B108-BU6 sampler, while the highest values, 1.49 for magnesium and 1.24 for sodium, were recorded in the B123A-TF4 sampler. Additionally, potassium levels in B123A sets are unusually high, potentially indicating outliers or possible field disturbances or contamination.

Field observations during the collection of IER samplers indicated that “Samples were flooded-May affect the results”. Additionally, laboratory observations revealed that in two samplers (B108-Bu5 and B108-Bu6), the sponge had dislodged from the column, along with some resin, and was found in the drain cap. Considering this information is essential for accurately analysing the results.

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Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Monthly Report (April 2025)

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1. Executive Summary

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. The BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., for the discharge of air contaminants to the environment from the LNG Facility.

Permit PA-110588 requires a monthly report to be submitted to the BCER that includes data/information on:

- Fuel Gas Use (for Commissioning only)
- Continuous Emissions Monitoring System (for Operations only)
- Flaring Activities
- Ambient Air Monitoring Evaluation
- Facility sulphur dioxide (SO_2) Emissions

Herein is the monthly report for April 2025. A summary of the findings for this reporting period is as follows:

- There were no instances of permit non-compliances during the reporting period.
- There were no ambient air quality concentrations of nitrogen dixoide (NO_2), SO_2 or respirable particulate matter ($PM_{2.5}$) measured in excess of the BC ambient air quality objective (BCAAQO) metrics at the three continuous ambient air quality monitoring stations identified in Permit PA-110588 (Kitamaat Village (Kitimat Haisla Village); Kitimat Riverlodge and Kitimat Whitesail).
- There were air emissions from four authorised discharge sources defined in Sections 2.1 to 2.7 of Permit PA-110588: warm/wet flare, cold/dry flare, liquid burner, and storage and loading flare.

The storage and loading flare was the largest source of air emissions, due to the LNG import activity. The maximum hourly cumulative SO_2 rate in April 2025 was calculated to be 0.038 kg/hour.

2. Overview

2.1. Project Background

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia, Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

2.2. Purpose

On July 15, 2024, the BCER issued WDA discharge permit PA-110588 to LNG Canada Development Inc., under the provisions of the BC *Environmental Management Act*, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Permit PA-110588 applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.2 of Permit PA-110588 (Monthly Reporting) for April 2025.

Refer to Appendix B for a list of all monthly reports that have been issued under Permit PA-110588.

2.3. LNG Facility Status

On the afternoon of August 31, 2024, fuel gas was introduced into Unit 1000 (Inlet Facilities) for the first time from the Coastal Gas Link (CGL) pipeline, commencing the pressurization of piping and the startup fuel gas heater. The introduction of fuel gas into the fuel gas headers down to the flare area, and the first supply of fuel gas to the pilot on the warm/wet flare occurred on September 1, 2024.

The main commissioning activity in April was the LNG import that took place between 2nd of April and 3rd of May. The activity included gradual cooldown of the LNG receiving equipment to cryogenic temperatures that resulted in flaring from the storage and loading flare.

During April 2025, discharges of air contaminants occurred from the following authorized works:

- One (1) warm/wet flare
- One (1) cold/dry flare
- One (1) storage and loading flare
- Liquid burner

Under Permit PA-110588, the “Commissioning” phase is defined as “that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.” Operations is the period of time which follows Commissioning. Therefore, “Commissioning”, under Permit PA-110588, commenced on September 1, 2024. The first cargo has not yet been shipped from LNG Train 1.

The Initial Performance Period (IPP) did not commence during April 2025 (which is defined as the period that “*commences upon the completion of the initial performance test for LNG Train 1”*).

3. Fuel Gas Use (Commissioning Only) (Condition 10.2.1)

3.1. Permit Condition

Under Condition 10.2.1, the monthly report shall identify and provide a summary of fuel gas use at the facility during Commissioning. The monthly report shall include the following information:

a. the daily volume of fuel gas combusted and vented;

b. the daily mass emissions of nitrogen oxides (NOx), sulphur oxides (SOx), carbon monoxide (CO), particulate matter with an aerodynamic diameter smaller than 2.5 micrometers (PM2.5), volatile organic compounds (VOCs) and total hydrocarbons (HC-T), for the authorized works in Section 2.1 and 2.2; and

c. the quantification method (under Section 9 of Permit PA-110588) and representative calculations.

3.2. Data and Assessment

Appendix C contains the summary of the daily volume of fuel gas combusted and flared as well as the daily mass emissions of NO_X, SO_X, CO, $PM_{2.5}$, VOCs, and HC-T from the gas turbine and AGI (which is Section 2.1 and 2.2 of Permit PA-110588 respectively) in April 2025.

The basis for this assessment is as follows:

- The daily volume of fuel gas combusted and flared at the LNG Facility is based on the daily volume of fuel gas introduced into the LNG facility, as all this fuel gas is used for testing purposes during Commissioning; rather than for producing LNG. This is a conservative approach, and does not account for the time lag between pressurizing systems with fuel gas to it being combusted or flared. The data for this report was obtained from the Kitimat Metering Station (KMS) using the CGL meter.
- Emissions from AGI are estimated based on published emission factors for a flare, to represent a high temperature oxidation process to burn hydrocarbons (refer to Table 2). Similar to the gas turbine engines, the data from the CEMS associated with the AGI will be available after the RATA has been undertaken (which will be undertaken when acid gas is being generated in the Acid Gas Recovery Units (AGRUs)).

Table 1 Natural Gas-Fired Turbine Emission Factors

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.099	lb/MMBtu	D	
SO_x	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.94S	lb/MMBtu	B	Where “S” is the percent sulphur in fuel. “S” to be informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014). If “S” is not available, the AP-42 states to use 3.4 E-03 lb/MMBtu for natural gas turbines (0.0034).
CO	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.015	lb/MMBtu	D	

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
PM2.5	USEPA AP-42: Table 3.1-2a (uncontrolled; condensable)	0.0047	lb/MMBtu	C	
VOC	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.0021	lb/MMBtu	D	AP-42 states that VOC emissions are assumed equal to the sum of organic emissions.
HC-T	Engineering Estimate	16.1 x % operating load	g/s	N/A	There is no AP-42 emissions factor for total hydrocarbons. The permit application used a basis of 16.1 g/s per gas turbine during Operations; therefore this value will be used and factored down based on the estimated operating load for the turbine.

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 3.1 is applicable for Stationary Gas Turbines.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.

Table 2: Emission Factors used for the AGI (Based on Flare)

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
SO_X	Engineering Estimate				There is no AP-42 emissions factor for SO_X; therefore it is based on fuel gas sulphur content informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014).The assumed destruction efficiency is 100%.
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.027	lb/MMBtu	B	Based on a lightly smoking flare (soot in concentration values: 40 ug/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from ug/L to lb/MMBtu is documented in the “Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015”, issued to USEPA by RTI International.

4. CEMS Zero and Span Reporting (Condition 10.2.2)

4.1. Permit Condition

Under Condition 10.2.2, during Operations, after the completion of the initial CEMS performance evaluation, the monthly report shall include a summary of all CEMS out of control calibration zero and span events that occurred during the month.

4.2. Data and Assessment

As Operations has not yet commenced, there is no CEMS zero and span reporting for this month.

5. CEMS Reporting (Condition 10.2.3)

5.1. Permit Condition

Under Condition 10.2.3, during Operations, after the completion of the initial CEMS performance evaluation, the Permittee shall provide a summary of CEMS data collected during the month.

5.2. Data and Assessment

As Operations has not yet commenced, there is no CEMS reporting for this month.

6. Flaring Activity Reporting (Condition 10.2.4)

6.1. Permit Condition

Under Condition 10.2.4, a summary of all flaring activity carried out during the month is to be included in the monthly report. The monthly report shall include the following information:

a. identification of the flare source;

b. description of the type of process gas sent to flare;

c. the volume of gas sent to the flare during each event;

d. the reason for the flaring event;

e. any external notifications sent out, if applicable;

f. the (i) daily and (ii) monthly volume of gas being flared for each source;

g. the (i) daily and (ii) monthly contaminant emission totals for each source, parameters include NO_x, CO, $PM_{2.5}$, SO_x, VOCs, and HC-T; and

h. the quantification method (under Section 9) and representative calculations.

6.2. Data and Assessment

In Permit PA-110588, flaring activities are described as either a routine flaring event (continuous) or a non-routine flaring event (intermittent). Routine flaring discharges include the continuous flare pilots, which are supplied by fuel gas to provide a continuous ignition source so that any gas sent to the flare as a result of upset conditions ("non-routine flaring") is immediately combusted. The permit application to support Permit PA-110588 also described the other small sources of process gas that are continuously sent to the flare, including compressor seal gas, analyzer sample returns and passing valves.

Process gas refers to the natural gas stream intended for LNG production; the incoming gas stream from Coastal Gas Link that undergoes several treatment stages (acid gas removal, pre-cooling, and finally, liquefaction) prior to being exported as LNG.

Appendix D contains the flaring activities tables, as follows:

- Table D-1: Flaring Events Table
- Table D-2: Warm/Wet Flare Volume and Emissions Summary
- Table D-3: Cold/Dry Flare Volume and Emissions Summary
- Table D-4: Storage and Loading Flare Volume and Emissions Summary
- Table D-5: Spare Flare Volume and Emissions Summary
- Table D-6: Liquid Burner Volume and Emissions Summary

Sample calculations are also provided in Appendix D (Exhibit D-1). The basis for this assessment is as follows:

- The daily volume of gas flared is sourced from the flow meters upstream of the applicable flare. In cases where the flow is below the detection limit of the flow meters, the sum of flow from upstream flow meters is used.
- The daily mass emissions from each flare source reported herein are calcuated based on published emission factors for industrial flares (refer to Table 3), except for SO_X, which is calculated based on a mass balance and assumed destruction efficiency.

Table 3: Emission Factors used for the Flare System

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.12	lb/MMBtu	B	Based on an average smoking flare (soot in concentration values: 177 ug/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from ug/L to lb/MMBtu is documented in the “Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015”, issued to USEPA by RTI International.

7. Permit Contravention (Condition 10.2.5)

7.1. Permit Condition

Under Condition 10.2.5, a summary of all instances of permit non-compliances are to be included in the monthly report, including a description of the event (date, time, circumstances), a summary of the investigation findings, the completed and ongoing actions taken in response to the non-compliance event, and the date of self-disclosure notifications to the BCER.

7.2. Assessment

There were no instances of permit non-compliances during the reporting period.

8. Pollution Control Technologies (Condition 10.2.6)

8.1. Permit Condition

Under Condition 10.2.6, a discussion of any operational or performance issues or significant maintenance activities with any pollution control technologies of the authorized works and equipment required by the permit is to be included in the monthly report.

The pollution control technologies identified in the permit application supporting Permit PA-110588 were the:

- Dry low emissions combustor optimization system in the gas turbines (dry low NOx burners); and
- Catalysts in the WHRUs, to convert CO in the exhaust gas to carbon dioxide.

8.2. Assessment

There were no instances of operational or performance issues, or significant maintenance activities with the pollution control technologies within the reporting period, given Operations has not yet commenced.

9. Ambient Air Monitoring Evaluation (Commissioning Only) (Condition 10.2.7)

9.1. Permit Condition

Under Condition 10.2.7, the following information for nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and $PM_{2.5}$ from three continuous ambient air quality monitoring stations (Kitamaat Village (Kitimat Haisla Village) (Site 1); Kitimat Riverlodge (Site 2) and Kitimat Whitesail) are to be included in the monthly report during Commissioning where information is publicly available:

a. a comparison of the measured ambient air concentrations at each ambient air monitoring stations to the applicable numerical metrics of the BC ambient air quality objectives (BCAAQO);

b. (i) a description of any measured ambient air concentrations in excess of the numerical metrics of the BCAAQO, if applicable, (ii) a description of any known contributing factors from authorized works, and (iii) a description of action (if any) taken by the Permittee.

The monthly report shall also include the time series plot of the hourly average ambient air concentration of ozone (O_3) data from these stations.

9.2. Data and Assessment

Data from continuous ambient air quality monitoring stations in Kitimat are publicly available via the BC Ministry of Environment and Climate Change Strategy, at: Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

The publicly available data for NO_2, SO_2 and $PM_{2.5}$ at the three continuous ambient air quality monitoring stations are provided in graphs in Appendix E; the graphs also contain the applicable BCAAQO. The time series plot for the hourly average ambient air concentration of O_3 is also provided in Appendix E.

There were no ambient air quality concentrations of NO_2, SO_2 and $PM_{2.5}$ measured in excess of the BCAAQO metrics in the reporting period.

10. Facility SO_2 Emission Limit (Condition 10.2.8)

10.1. Permit Condition

Under Condition 10.2.8, for all authorized sources in Sections 2.1 to 2.7, for each day of the month, the maximum hourly cumulative SO_2 discharge rate is to be provided in the monthly report, including the percentage breakdown of the sources contributing to the maximum discharge rate of each day.

10.2. Data and Assessment

Appendix F contains the cumulative SO_2 discharge rate from the authorized sources in Permit PA-110588 Section 2.1 to 2.7 (refer to Section 2.2), including the percentage breakdown of the sources contributing to the maximum discharge rate shown for each day.

The representative calculations for SO_2 are provided in Appendix C for the gas turbine and AGI, and Appendix D for the flare system.

11. References

- BC Ministry of Environment and Parks, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca), accessed April 2, 2025.

Appendix A Abbreviations

AGI	Acid Gas Incinerator
AGRU	Acid Gas Removal Unit
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
CGL	Coastal Gas Link (Pipeline)
CO	Carbon monoxide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
JFJV	JGC Fluor BC LNG Joint Venture
KMS	Kitimat Metering Station
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
VOC	Volatile Organic Compound
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit
$\mu g/m^3$	micrograms per cubic meter

Appendix B Previous Monthly Reports Issued Under PA-110588

Month	Document #	Date Issued
August 2024	L001-09800-HE-7180-4611	04-Sep-2024
September 2024	L001-09800-HE-7180-4612	22-Oct-2024; Revised 03-Mar-2025 (Rev B)
October 2024	L001-09800-HE-7180-4613	26-Nov-2024; Revised 03-Mar-2025 (Rev B)
November 2024	L001-09800-HE-7180-4614	16-Dec-2025; Revised 03-Mar-2025 (Rev B)
December 2024	L001-09800-HE-7180-4684	23-Mar-2025
January 2025	L001-09800-HE-7180-4691	26-Mar-2025
February 2025	L001-09800-HE-7180-4692	27-Mar-2025
March 2025	L001-09800-HE-7180-4702	25-Apr-2025
April 2025	L001-09800-HE-7180-4704	30-May-2025

Appendix C Fuel Gas Use During Commissioning (Condition 10.2.1)

There was no LNG production that occurred in this period. For this month, all daily fuel gas volumes were obtained from the KMS (Tag: KITSL-V1P.curval) under atmospheric pressure (Pressure = 1 atm) (refer to Table C-1). The fuel volumes below were corrected to 20°C.

The increase in fuel gas observed on April 8 and onwards was due to the commencement of assist gas to the storage and loading (FLP) flare.

Table C-1: Fuel Gas Use During Commissioning

Date	Volume of Fuel Gas Introduced to LNG Facility (m^3/d)*
01-Apr-25	193,500
02-Apr-25	187,295
03-Apr-25	180,071
04-Apr-25	177,019
05-Apr-25	177,528
06-Apr-25	185,972
07-Apr-25	222,495
08-Apr-25	431,459
09-Apr-25	516,917
10-Apr-25	409,993
11-Apr-25	366,247
12-Apr-25	325,654
13-Apr-25	330,029
14-Apr-25	390,968
15-Apr-25	417,928
16-Apr-25	591,895
17-Apr-25	414,062
18-Apr-25	368,485
19-Apr-25	370,825
20-Apr-25	401,142
21-Apr-25	385,068
22-Apr-25	377,234
23-Apr-25	373,775
24-Apr-25	359,634
25-Apr-25	336,235
26-Apr-25	347,426
27-Apr-25	355,870
28-Apr-25	360,753
29-Apr-25	352,818
30-Apr-25	357,192
Monthly Total	**10,265,489**

* Individual and final totals may be subject to rounding adjustments

Table C-2: Fuel Gas Use During Commissioning – Gas Turbines

There was no fuel gas consumption on the Gas Turbines

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Apr-25	-	-	-	-	-	-	-
02-Apr-25	-	-	-	-	-	-	-
03-Apr-25	-	-	-	-	-	-	-
04-Apr-25	-	-	-	-	-	-	-
05-Apr-25	-	-	-	-	-	-	-
06-Apr-25	-	-	-	-	-	-	-
07-Apr-25	-	-	-	-	-	-	-
08-Apr-25	-	-	-	-	-	-	-
09-Apr-25	-	-	-	-	-	-	-
10-Apr-25	-	-	-	-	-	-	-
11-Apr-25	-	-	-	-	-	-	-
12-Apr-25	-	-	-	-	-	-	-
13-Apr-25	-	-	-	-	-	-	-
14-Apr-25	-	-	-	-	-	-	-
15-Apr-25	-	-	-	-	-	-	-
16-Apr-25	-	-	-	-	-	-	-
17-Apr-25	-	-	-	-	-	-	-
18-Apr-25	-	-	-	-	-	-	-
19-Apr-25	-	-	-	-	-	-	-
20-Apr-25	-	-	-	-	-	-	-
21-Apr-25	-	-	-	-	-	-	-
22-Apr-25	-	-	-	-	-	-	-
23-Apr-25	-	-	-	-	-	-	-
24-Apr-25	-	-	-	-	-	-	-
25-Apr-25	-	-	-	-	-	-	-
26-Apr-25	-	-	-	-	-	-	-
27-Apr-25	-	-	-	-	-	-	-
28-Apr-25	-	-	-	-	-	-	-
29-Apr-25	-	-	-	-	-	-	-
30-Apr-25	-	-	-	-	-	-	-
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

* Individual and final totals may be subject to rounding adjustments

Table C-3: Fuel Gas Use During Commissioning – Acid Gas Incinerator

There was no fuel gas consumption on the Acid Gas Incinerator.

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Apr-25	-	-	-	-	-	-	-
02-Apr-25	-	-	-	-	-	-	-
03-Apr-25	-	-	-	-	-	-	-
04-Apr-25	-	-	-	-	-	-	-
05-Apr-25	-	-	-	-	-	-	-
06-Apr-25	-	-	-	-	-	-	-
07-Apr-25	-	-	-	-	-	-	-
08-Apr-25	-	-	-	-	-	-	-
09-Apr-25	-	-	-	-	-	-	-
10-Apr-25	-	-	-	-	-	-	-
11-Apr-25	-	-	-	-	-	-	-
12-Apr-25	-	-	-	-	-	-	-
13-Apr-25	-	-	-	-	-	-	-
14-Apr-25	-	-	-	-	-	-	-
15-Apr-25	-	-	-	-	-	-	-
16-Apr-25	-	-	-	-	-	-	-
17-Apr-25	-	-	-	-	-	-	-
18-Apr-25	-	-	-	-	-	-	-
19-Apr-25	-	-	-	-	-	-	-
20-Apr-25	-	-	-	-	-	-	-
21-Apr-25	-	-	-	-	-	-	-
22-Apr-25	-	-	-	-	-	-	-
23-Apr-25	-	-	-	-	-	-	-
24-Apr-25	-	-	-	-	-	-	-
25-Apr-25	-	-	-	-	-	-	-
26-Apr-25	-	-	-	-	-	-	-
27-Apr-25	-	-	-	-	-	-	-
28-Apr-25	-	-	-	-	-	-	-
29-Apr-25	-	-	-	-	-	-	-
30-Apr-25	-	-	-	-	-	-	-
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

* Individual and final totals may be subject to rounding adjustments

Appendix D Flaring Activity (Condition 10.2.4)

Table D-1: Flaring Event Overview

Flare	Event Type	Event Date & Time			Description	Volume of Gas to Flare Per Event (m^3/month)	External Notifications Undertaken
		Start	End	Duration			
Warm/Wet	Routine	01-Apr-2025	30-Apr-2025	Continuous	Pilot and purge gas	5,887	
Warm/Wet	Non-Routine	01-Apr-2025	30-Apr-2025	Continuous	Assist gas and supporting start-up activities[1]	6,424,186	
Cold/Dry	Routine	01-Apr-2025	30-Apr-2025	Continuous	Pilot, and fuel gas purges to support start-up activities	34,947	
Cold/Dry	Non-Routine	17-Apr-2025	30-Apr-2025	Continuous	Vaporization within the C2 sphere	1,116	
Storage and Loading	Routine	01-Apr-2025	30-Apr-2025	Continuous	Pilot	5,887	
Storage and Loading	Non-Routine	N/A	N/A	N/A	LNG Import and Assist gas	16,178,797	29-Apr-2025
Spare	N/A	N/A	N/A	N/A	Not Used	0	
Liquid Burner	Routine	01-Apr-2025	30-Apr-2025	Continuous	Pilot	13,239	

Notes:

1. In this reporting period, flaring is undertaken to support commissioning and start-up activities; in accordance with Leave(s) to Operate from the BC Energy Regulator. This fuel gas is not considered process gas.

The data for the warm/wet flare was derived from the KMS CGL inlet gas meter (refer to Table C-1). The following volumes were subtracted because they were measured and reported separately:

- The pilot and fuel gas purges for the cold dry flare (refer to Table D-3)
- The pilot for the liquid burner (refer to Table D-6)
- The pilot and assist gas for the storage and loading flare (refer to Table D-4)

The fuel volumes below were corrected to 20°C.

Table D-2: Flaring Event – Warm/Wet Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Apr-25	192,593	229	939	364	0.3	2,000	424
02-Apr-25	186,348	221	909	352	0.2	1,935	410
03-Apr-25	179,146	213	874	338	0.3	1,860	395
04-Apr-25	176,103	209	859	332	0.3	1,828	388
05-Apr-25	176,606	210	861	333	0.3	1,834	389
06-Apr-25	184,562	219	900	348	0.3	1,916	406
07-Apr-25	212,291	252	1,035	401	0.3	2,204	468
08-Apr-25	331,034	393	1,614	625	0.4	3,437	729
09-Apr-25	358,780	426	1,750	677	0.4	3,725	790
10-Apr-25	241,922	288	1,180	457	0.3	2,512	533
11-Apr-25	200,868	239	980	379	0.2	2,086	442
12-Apr-25	196,470	234	958	371	0.2	2,040	433
13-Apr-25	216,529	257	1,056	409	0.2	2,248	477
14-Apr-25	223,429	266	1,090	422	0.2	2,320	492
15-Apr-25	225,455	268	1,100	426	0.2	2,341	497
16-Apr-25	404,879	481	1,975	764	0.4	4,204	892
17-Apr-25	218,518	260	1,066	413	0.2	2,269	481
18-Apr-25	214,904	256	1,051	407	0.2	2,237	475
19-Apr-25	211,390	252	1,037	401	0.2	2,207	468
20-Apr-25	215,679	258	1,060	410	0.2	2,258	479
21-Apr-25	227,918	273	1,121	434	0.2	2,386	506
22-Apr-25	245,859	295	1,212	469	0.3	2,581	547
23-Apr-25	190,973	230	942	364	0.2	2,005	425
24-Apr-25	174,929	210	862	334	0.2	1,836	389
25-Apr-25	168,369	202	828	320	0.2	1,762	374
26-Apr-25	168,747	202	830	321	0.2	1,766	375
27-Apr-25	172,630	207	846	328	0.2	1,802	382
28-Apr-25	174,913	209	858	332	0.2	1,826	387
29-Apr-25	166,934	200	819	317	0.1	1,743	370
30-Apr-25	171,295	205	840	325	0.1	1,788	379
Monthly Total	**6,430,073**	**7,664**	**31,452**	**12,173**	**7**	**66,956**	**14,202**

* Individual and final totals may be subject to rounding adjustments

For this month, the reporting for the cold/dry flare is from the pilot (CA:KIT:062FI0343.PV). There was also some vaporization in the C2 sphere continuing from the 17th of March to 7th of April, resulting in a portion of the C2 (ethane) gas being flared in the cold-dry flare from the valve: 026PCV1012 - refer to Table D-3.

Additionally, there were some fuel gas purges (CA:KIT:062FI0021.PV and CA:KIT:062FI0022.PV) from the cold-dry flare in this month. The fuel gas purges were increased from April 7 onwards.

Table D-3: Flaring Event – Cold/Dry Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Apr-25	422	0.6	2	1.0	0.0004	6	1.1
02-Apr-25	454	0.6	2	1.1	0.0005	6	1.2
03-Apr-25	465	0.7	3	1.1	0.0004	6	1.3
04-Apr-25	525	0.8	3	1.3	0.0004	7	1.5
05-Apr-25	400	0.5	2	0.9	0.0004	5	1.0
06-Apr-25	940	1.3	6	2.0	0.0012	11	2.3
07-Apr-25	1,407	1.7	7	2.7	0.0022	15	3.1
08-Apr-25	1,374	1.6	7	2.6	0.0015	14	3.0
09-Apr-25	1,375	1.6	7	2.6	0.0015	14	3.0
10-Apr-25	1,376	1.6	7	2.6	0.0015	14	3.0
11-Apr-25	1,377	1.6	7	2.6	0.0015	14	3.0
12-Apr-25	1,374	1.6	7	2.6	0.0015	14	3.0
13-Apr-25	1,377	1.6	7	2.6	0.0015	14	3.0
14-Apr-25	1,376	1.6	7	2.6	0.0015	14	3.0
15-Apr-25	1,380	1.6	7	2.6	0.0015	14	3.0
16-Apr-25	1,376	1.6	7	2.6	0.0015	14	3.0
17-Apr-25	1,370	1.6	7	2.6	0.0015	14	3.0
18-Apr-25	1,370	1.6	7	2.6	0.0015	14	3.0
19-Apr-25	1,367	1.6	7	2.6	0.0015	14	3.0
20-Apr-25	1,364	1.6	7	2.6	0.0015	14	3.0
21-Apr-25	1,360	1.6	7	2.6	0.0015	14	3.0
22-Apr-25	1,358	1.6	7	2.6	0.0014	14	3.0
23-Apr-25	1,357	1.6	7	2.6	0.0014	14	3.0
24-Apr-25	1,354	1.6	7	2.6	0.0014	14	3.0
25-Apr-25	1,357	1.6	7	2.6	0.0014	14	3.0
26-Apr-25	1,361	1.6	7	2.6	0.0014	14	3.0
27-Apr-25	1,361	1.6	7	2.6	0.0014	14	3.0
28-Apr-25	1,362	1.6	7	2.6	0.0014	14	3.0
29-Apr-25	1,362	2.0	7.0	3.0	0.0011	14	3.0
30-Apr-25	1,361	2.0	7.0	3.0	0.0011	14	3.0
Monthly Total	**36,062**	**44**	**186**	**71**	**0.04**	**378**	**81**

* Individual and final totals may be subject to rounding adjustments

The storage and loading flare (FLP) was brought online on the 19th of March (CA:KIT:062FI0343.PV). The LNG import vessel berthed at the terminal on April 2, 2025.

- Pre-cooldown operations and system lining up commenced on April 6, 2025, with controlled flaring of natural gas to the storage and loading flare to enable safe cooldown.
- Liquid LNG transfer from the ship to the onshore tank began on April 27, 2025, following completion of cooldown and system readiness checks.
- The LNG import concluded with the ship departing on May 3, 2025.

In addition to flaring from the LNG import, assist gas was flared (CA:KIT:062FI0351.PV) from the FLP.

Table D-4: Flaring Event – Storage and Loading Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Apr-25	199	0.24	1	0.37	0.0	2	0.44
02-Apr-25	201	0.24	1	0.38	0.0	2	0.44
03-Apr-25	200	0.24	1	0.38	0.0	2	0.44
04-Apr-25	198	0.24	1	0.37	0.0	2	0.44
05-Apr-25	199	0.24	1	0.38	0.0	2	0.44
06-Apr-25	220	0.26	1	0.42	0.0	2	0.48
07-Apr-25	8,391	10	41	16	0.0	87	18
08-Apr-25	505,260	557	2,287	885	0.1	4,868	1,033
09-Apr-25	1,091,163	1,198	4,914	1,902	0.2	10,462	2,219
10-Apr-25	518,160	579	2,374	919	0.2	5,053	1,072
11-Apr-25	435,624	488	2,006	777	0.2	4,270	906
12-Apr-25	319,584	359	1,475	570	0.1	3,139	667
13-Apr-25	429,348	477	1,956	757	0.1	4,164	883
14-Apr-25	685,255	759	3,115	1,206	0.2	6,632	1,407
15-Apr-25	854,291	945	3,876	1,501	0.2	8,254	1,751
16-Apr-25	786,699	871	3,574	1,384	0.2	7,609	1,614
17-Apr-25	728,223	808	3,319	1,285	0.2	7,066	1,499
18-Apr-25	879,097	968	3,972	1,537	0.2	8,456	1,794
19-Apr-25	1,141,574	1,253	5,142	1,991	0.2	10,947	2,322
20-Apr-25	1,243,324	1,367	5,608	2,171	0.2	11,939	2,532
21-Apr-25	268,860	309	1,269	491	0.2	2,701	573
22-Apr-25	479,752	535	2,194	849	0.1	4,671	991
23-Apr-25	1,071,870	1,182	4,849	1,878	0.2	10,324	2,190
24-Apr-25	1,524,003	1,671	6,858	2,655	0.2	14,600	3,097
25-Apr-25	1,199,937	1,318	5,409	2,094	0.2	11,516	2,443
26-Apr-25	362,896	413	1,695	657	0.2	3,610	766
27-Apr-25	422,374	478	1,961	759	0.2	4,175	885
28-Apr-25	759,822	843	3,460	1,340	0.2	7,367	1,563
29-Apr-25	235,339	275	1,131	438	0.1	2,408	511

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
30-Apr-25	232,621	273	1,118	433	0.1	2,382	505
Monthly Total	**16,184,684**	**17,937**	**73,609**	**28,497**	**4.00**	**156,712**	**33,244**

* Individual and final totals may be subject to rounding adjustments

The spare flare was not used in the reporting month (refer to Table D-5).

Table D-5: Flaring Event – Spare Flare Volume and Emissions Summary

There was no flaring on the Spare Flare.

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Apr-25	-	-	-	-	-	-	-
02-Apr-25	-	-	-	-	-	-	-
03-Apr-25	-	-	-	-	-	-	-
04-Apr-25	-	-	-	-	-	-	-
05-Apr-25	-	-	-	-	-	-	-
06-Apr-25	-	-	-	-	-	-	-
07-Apr-25	-	-	-	-	-	-	-
08-Apr-25	-	-	-	-	-	-	-
09-Apr-25	-	-	-	-	-	-	-
10-Apr-25	-	-	-	-	-	-	-
11-Apr-25	-	-	-	-	-	-	-
12-Apr-25	-	-	-	-	-	-	-
13-Apr-25	-	-	-	-	-	-	-
14-Apr-25	-	-	-	-	-	-	-
15-Apr-25	-	-	-	-	-	-	-
16-Apr-25	-	-	-	-	-	-	-
17-Apr-25	-	-	-	-	-	-	-
18-Apr-25	-	-	-	-	-	-	-
19-Apr-25	-	-	-	-	-	-	-
20-Apr-25	-	-	-	-	-	-	-
21-Apr-25	-	-	-	-	-	-	-
22-Apr-25	-	-	-	-	-	-	-
23-Apr-25	-	-	-	-	-	-	-
24-Apr-25	-	-	-	-	-	-	-
25-Apr-25	-	-	-	-	-	-	-
26-Apr-25	-	-	-	-	-	-	-
27-Apr-25	-	-	-	-	-	-	-
28-Apr-25	-	-	-	-	-	-	-
29-Apr-25	-	-	-	-	-	-	-
30-Apr-25	-	-	-	-	-	-	-
Monthly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

The emissions associated with the liquid burner are from the pilot (refer to Table D-6).

Table D-6: Flaring Event – Liquid Burner Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Apr-25	447	0.5	2	1	0.001	5	1
02-Apr-25	452	0.5	2	1	0.001	5	1
03-Apr-25	450	0.5	2	1	0.001	5	1
04-Apr-25	445	0.5	2	1	0.001	5	1
05-Apr-25	448	0.5	2	1	0.001	5	1
06-Apr-25	444	0.5	2	1	0.001	5	1
07-Apr-25	441	0.5	2	1	0.001	5	1
08-Apr-25	439	0.5	2	1	0.000	5	1
09-Apr-25	443	0.5	2	1	0.000	5	1
10-Apr-25	445	0.5	2	1	0.000	5	1
11-Apr-25	445	0.5	2	1	0.000	5	1
12-Apr-25	443	0.5	2	1	0.000	5	1
13-Apr-25	447	0.5	2	1	0.000	5	1
14-Apr-25	447	0.5	2	1	0.000	5	1
15-Apr-25	451	0.5	2	1	0.000	5	1
16-Apr-25	447	0.5	2	1	0.000	5	1
17-Apr-25	436	0.5	2	1	0.000	5	1
18-Apr-25	438	0.5	2	1	0.000	5	1
19-Apr-25	441	0.5	2	1	0.000	5	1
20-Apr-25	442	0.5	2	1	0.000	5	1
21-Apr-25	438	0.5	2	1	0.000	5	1
22-Apr-25	437	0.5	2	1	0.000	5	1
23-Apr-25	440	0.5	2	1	0.000	5	1
24-Apr-25	430	0.5	2	1	0.000	5	1
25-Apr-25	435	0.5	2	1	0.000	5	1
26-Apr-25	438	0.5	2	1	0.000	5	1
27-Apr-25	433	0.5	2	1	0.000	5	1
28-Apr-25	433	0.5	2	1	0.000	5	1
29-Apr-25	434	0.52	2.1	0.82	0.000	4.5	1
30-Apr-25	430	0.51	2.1	0.82	0.000	4.5	1
Monthly Total	**13,239**	**15**	**60**	**30**	**0.007**	**149**	**30**

* Individual and final totals may be subject to rounding adjustments

Exhibit D-1: Sample Emission Calculations – Warm/Wet Flare

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 h to 1 day (d)
    - 10,000 parts per millon (ppm) in one percent.

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable meters include:
    - KITSL-V1P.curval (KMS): This tag provides the daily fuel gas volume data recorded at the KMS. These volumes, measured at atmospheric pressure, serve as the primary input for calculating flared gas volumes.
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density was obtained (daily values at 1 atm) This was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - CA:KIT:062FI0343.PV: This tag measures the total fuel gas consumption for all flare pilots. The portions attributable to the cold dry flare and the liquid burner were determined using flare tip allocations and subtracted from the total to determine the warm/wet flare pilot gas consumption.
    - CA:KIT:062FI0021.PV; CA:KIT:062FI0022.PV: These tags provide the fuel gas purges from the cold dry flare.
    - Emission factors: Refer to Table 3 within the report.

Emission Calculation Basis – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using April 1, 2025, and NOx for the example:

Convert volumetric flow rate to mass flow rate:

Volumetric flow rate = 192,593 m^3/d – corrected to 20°C.

Mass flow rate = 192,593 m^3/d x 0.74635780 kg/m^3 = 143,743 kg/d

NOx Mass Emission (kg/d)

= 143,743 x 40.62 x (1 / 0.74635780) x (1 / 1000) x 0.9478 x 0.068 x 0.4535

≈ 229 kg/d

Similar calculations follow for CO, $PM_{2.5}$, VOC, and HC-T, however all HHV values in their calculations are converted to LHV.

Emission Calculation Basis – when using Engineering Estimates (only applies to SOx):

Total sulfur content (S) in feed gas samples was analyzed periodically by the LNG Canada laboratory. Table D-7 summarizes the laboratory results.

Table D-7: Total Sulphur Content Measured in the Feed Gas (Laboratory Results)

Date	Total Sulphur in Feed Gas (PPMW)	%
01-Apr-25	1.07	0.000107
08-Apr-25	0.71	0.000071
17-Apr-25	0.71	0.000071
22-Apr-25	0.70	0.000070
29-Apr-25	0.53	0.000053

To bridge periods between measurements, the following approach was used:

- April 1 - 7: SO_2 emissions were calculated using the April 01, 2025 total sulphur measurement.
- April 8 - 16: The April 8, 2025 measurement was applied.
- April 17 - 21: The April 17, 2025 measurement was applied.
- April 22 - 28: The April 22, 2025 measurement was applied.
- April 29 - 30: The April 29, 2025 measurement was applied.

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

Using April 01, 2025, for the example, where the applied percent sulphur in the fuel gas is 1.07 PPMW.

SO_2 Mass Emission (kg/d)

= 143,743 x 0.000107 x (1 / 100) x (64.066 / 32.065) x 1

≈ 0.3 kg/d

The same calculation approach would follow for SO_2 (kg/h) numbers; with the flow rate in kg/h rather than kg/d.

Appendix E Ambient Air Quality Evaluation (Condition 10.2.7)

See attachment – AMBIENT AIR QUALITY MONITORING REPORT APRIL 2025, TRINITY CONSULTANTS

Appendix F Facility SO_2 Emission Limit (Condition 10.2.8)

Table F-1 presents the maximum hourly cumulative SO_2 discharge rate per day. It does not imply that the maximum discharge rate occurred for the full 24 hours that day. The maximum hourly rate was based on the maximum hourly flow rate obtained for each of the contributing sources below on the respective dates. The total sulfur content was obtained from Table D-7.

Table F-1: Maximum Hourly SO_2 Discharge Rate for Each Day

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
01-Apr-25	0.020	-	-	99.80%	0.05%	0.05%	-	0.10%
02-Apr-25	0.011	-	-	99.37%	0.18%	0.18%	-	0.27%
03-Apr-25	0.013	-	-	99.36%	0.16%	0.16%	-	0.32%
04-Apr-25	0.012	-	-	99.67%	0.08%	0.08%	-	0.17%
05-Apr-25	0.013	-	-	99.44%	0.16%	0.16%	-	0.24%
06-Apr-25	0.013	-	-	99.47%	0.15%	0.15%	-	0.23%
07-Apr-25	0.021	-	-	99.16%	0.09%	0.61%	-	0.14%
08-Apr-25	0.024	-	-	70.89%	0.04%	28.99%	-	0.08%
09-Apr-25	0.025	-	-	72.46%	0.04%	27.42%	-	0.08%
10-Apr-25	0.024	-	-	67.99%	0.04%	31.88%	-	0.09%
11-Apr-25	0.018	-	-	57.61%	0.06%	42.22%	-	0.11%
12-Apr-25	0.018	-	-	56.92%	0.06%	42.91%	-	0.11%
13-Apr-25	0.016	-	-	52.04%	0.06%	47.77%	-	0.13%
14-Apr-25	0.020	-	-	57.94%	0.05%	41.91%	-	0.10%
15-Apr-25	0.019	-	-	52.78%	0.05%	47.01%	-	0.16%
16-Apr-25	0.038	-	-	78.35%	0.03%	21.54%	-	0.08%
17-Apr-25	0.019	-	-	52.00%	0.05%	47.85%	-	0.10%
18-Apr-25	0.019	-	-	51.34%	0.05%	48.50%	-	0.11%
19-Apr-25	0.019	-	-	54.58%	0.05%	45.26%	-	0.11%
20-Apr-25	0.018	-	-	52.94%	0.05%	46.90%	-	0.11%
21-Apr-25	0.031	-	-	72.00%	0.03%	27.90%	-	0.07%
22-Apr-25	0.025	-	-	66.53%	0.04%	33.35%	-	0.08%
23-Apr-25	0.020	-	-	56.92%	0.05%	42.93%	-	0.10%
24-Apr-25	0.018	-	-	54.81%	0.05%	45.03%	-	0.11%
25-Apr-25	0.018	-	-	54.05%	0.06%	45.78%	-	0.11%
26-Apr-25	0.017	-	-	52.71%	0.06%	47.11%	-	0.12%
27-Apr-25	0.018	-	-	54.92%	0.06%	44.91%	-	0.11%
28-Apr-25	0.018	-	-	54.92%	0.06%	44.91%	-	0.11%

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
29-Apr-25	0.017	-	-	51.38%	0.06%	48.44%	-	0.12%
30-Apr-25	0.017	-	-	52.63%	0.06%	47.19%	-	0.12%

* Individual values may be subject to rounding adjustments

AMBIENT AIR QUALITY MONITORING REPORT APRIL 2025

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1.0 INTRODUCTION

This report, prepared for LNG Canada by Trinity Consultants (Trinity), summarizes the LNG Canada's nitrogen dioxide (NO_2) and Ozone (O_3) monitoring network data collected at the Kitamaat Village and Riverlodge Stations for April 1 through April 30, 2025.

Sulfur dioxide (SO_2) and particulate matter 2.5 microns in size or less ($PM_{2.5}$) data presented in this report have been provided by Rio Tinto BC Works. In addition, in January 2025, a Total Hydrocarbon (THC) analyzer was installed and operated at the Riverlodge station. The monitoring performed by LNG Canada is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) and satisfies the requirement for collection of continuous air quality data as described under Sections 6.2, 6.2.1, 6.2.2 & 6.3 in LNGC's Air Discharge Permit PA-110588.

LNG Canada owns, operates, and maintains an ambient air monitoring network around the LNG Canada Kitimat LNG export facility. This ambient air quality monitoring network consists of two air quality monitoring stations that are strategically located in the Kitimat Valley of British Columbia (BC) at the Kitamaat Village (Village) and Riverlodge. The Kitamaat Village and Riverlodge stations are owned by Rio Tinto Alcan Inc. and are part of Rio Tinto's air quality monitoring network. LNG Canada's continuous monitoring equipment are housed in the Rio Tinto air quality shelters at Kitamaat Village and Riverlodge locations. The locations of these stations within the Kitimat Valley are presented in Figure 1.1.

Figure 1.1 Locations of LNG Canada Ambient Air Monitoring Stations in Kitimat Valley

1.1 Kitamaat Village

The Village Ambient Air Station is in the Haisla Nation community of Kitamaat Village. The site is located within the yard of the Kitamaat Village sewage treatment plant. Area land use is suburban with a mix of dwellings, commercial buildings, forest, ocean, and parkland. The ground cover immediately around the site is compacted gravel, natural ground cover, cut grass, and asphalt. An aerial view of the site is presented in Figure 1.2. A photograph of the Kitamaat Village Ambient Air Quality Monitoring Station is presented in Figure 1.3.

Figure 1.2 Aerial View of Kitamaat Village Ambient Air Quality Monitoring Station

Figure 1.3 Photograph of Kitamaat Village Ambient Air Quality Monitoring Station

1.2 Riverlodge

The Riverlodge Ambient Air Station is located on Columbia Avenue in Kitimat, BC across the street from the Riverlodge Community Centre. The monitoring station is an aged industrial trailer with a meteorological tower mounted to the frame and hitch of the trailer. Land use around the site is suburban low-density housing, park land and forest. Land cover immediately around the site is short grass, gravel and asphalt parking lot, buildings, and forested lands. An aerial view of the site is shown in Figure 1.4. A photograph of the Riverlodge ambient air station is presented in Figure 1.5.

Figure 1.4 Aerial View of Riverlodge Ambient Air Quality Monitoring Station

Figure 1.5 Photograph of Riverlodge Ambient Air Quality Monitoring Station

2.0 APRIL 2025 REPORT SUMMARY

The LNG Canada air quality monitoring data collected for April 2025 at the Kitamaat Village and Riverlodge stations are summarized in this section.

British Columbia has adopted air quality objectives and standards for a number of contaminants, including $PM_{2.5}$, SO_2, O_3, and NO_2. The British Columbia Ambient Air Quality Objectives (BCAAQO) and the 2020 Canadian Ambient Air Quality Standard (for SO_2) that have been developed by the British Columbia Ministry of Environment are as follows:

Pollutant	Averaging Period	British Columbia Ambient Air Quality Objective (BCAAQO)	2020 Canadian Ambient Air Quality Standard (CAAQS)
SO_2	1-hour	75 (ppb)[a]	70 (ppb)[b]
	Annual	--	5 (ppb)[c]
NO_2	1-hour	60 (ppb)[d]	60 (ppb)[d]
	Annual	17 (ppb)[e]	17 (ppb)[e]
$PM_{2.5}$	24-hours	25 ($\mu g/m^3$)[f]	27 ($\mu g/m^3$)[g]
	Annual	8 ($\mu g/m^3$)[e]	8.8 ($\mu g/m^3$)[h]
O_3	1-hour	82 (ppb)	
	8-hour		62 (ppb)[i]

[a] Achievement based on annual 97th percentile of daily 1-hour maximum averaged over 2015-2017, annual 97.5th percentile of daily 1-hour maximum averaged over 2016-2018, and annual 98th percentile of daily 1-hour maximum averaged over 2017-2019, with one allowable excursion above 75 ppb to a maximum of 85 ppb over a three-year period prior to 2020.

[b] Achievement based on annual 99th percentile of daily 1-hour maximum, averaged over three consecutive years.

[c] Achievement based on annual average of 1-hour concentrations over one year.

[d] Achievement based on annual 98th percentile of daily 1-hour maximum averaged over three consecutive years

[e] Achievement based on annual average of 1-hour concentrations over one year

[f] Achievement based on annual 98th percentile of daily average, over one year

[g] Achievement based on annual 98th percentile of daily average, averaged over three consecutive years.

[h] Achievement based on annual average, averaged over three consecutive years.

[i] Achievement based on annual 4th highest daily 8-hour maximum, averaged over three consecutive years.

2.1 Kitamaat Village

Table 2-1 summarizes the data completeness and maximum pollutant concentrations observed at the Kitamaat Village monitoring station for April 1 through April 30, 2025.

Table 2-1 Kitamaat Village Station April 2025 Data Summary

Parameter	Data Completeness	1-Hour Average		24-Hour Average 8-hour Average[2]	
		Maximum Concentration	Exceedances of BCAAQO[1]	Maximum Concentration	Exceedances of BCAAQO[1]
$PM_{2.5}$ (µg/m³)	99.8	16.0	-	7.4	0.0
SO_2 (ppb)	95.2	13.7	0.0	1.9	-
NO_2 (ppb)	95.2	21.3	0.0	1.7	-
O_3 (ppb)[2]	95.2	45.0	0.0	43.0	0.0

[1] British Columbia Ambient Air Quality Objective (BCAAQO)
[2] 8-hour maximum

2.1.1 Data Quality Notes

- None.

2.1.2 Calibration / Maintenance Notes

- On April 2, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas logger, and T700U calibrator to the correct time during the station visit.
- On April 8, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas data logger, and T700U calibrator to the correct time.
- On April 15, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas data logger, and T700U calibrator to the correct time.
- On April 22, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas data logger, and T700U calibrator to the correct time.
- On April 23, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas data logger, and T700U calibrator to the correct time. Mass flow controller (MFC) checks were performed on the T700U calibrator. The photo detector was adjusted. A calibrator O_3 check was performed as well as a multipoint verification on the O_3 analyzer.
- On April 29, 2025, the site technician adjusted the clocks on the O_3, SO_2, and NO_x analyzers, Envidas data logger, and T700U calibrator to the correct time.

2.2 Riverlodge Station

Table 2-2 summarizes the data completeness and maximum pollutant concentrations observed at the Riverlodge monitoring station for April 1 through April 30, 2025.

Table 2-2 Riverlodge Station April 2025 Data Summary

Parameter	Data Completeness	1-Hour Average		24-Hour Average 8-Hour Average[2]	
		Maximum Concentration	Exceedances of BCAAQO[1]	Maximum Concentration	Exceedances of BCAAQO[1]
$PM_{2.5}$ (µg/m³)	99.4	13.0	-	5.5	0.0
SO_2 (ppb)	94.2	22.5	0.0	2.8	-
NO_2 (ppb)	94.2	5.8	0.0	1.8	-
O_3 (ppb)[2]	93.0	48.0	0.0	45.0	0.0
THC (ppm)	93.9	2.61	--[3]	2.22	--[3]

[1] British Columbia Ambient Air Quality Objective (BCAAQO)
[2] 8-hour maximum
[3] There are no BCAAQO's for Total Hydrocarbon (THC).

2.2.1 Data Quality Notes

- None.

2.2.2 Calibration / Maintenance Notes

- On April 3, 2025, the site technician changed the NO_2, O_3, and THC analyzers' inlet filters and adjusted the clocks on the NO_2, THC, and O_3 analyzers, Envidas logger, and T700U calibrator to the correct time.
- On April 8, 2025, the site technician updated the clocks on the NO_2, THC, and O_3 analyzers, and T700U calibrator to the correct time. The shelter temperature was adjusted.
- On April 10, 2025, the site technician updated the clocks on the NO_2, THC, and O_3 analyzers, and T700U calibrator to the correct time. The photodetector voltage was adjusted on the ozone analyzer. An "after maintenance" multipoint verification was then performed on the ozone analyzer.
- On April 17, 2025, the site technician adjusted the clocks on the NO_2, THC, and O_3 analyzers, Envidas logger, and T700U calibrator to the correct time. Windows updates were downloaded on the Envidas logger. Vegetation was trimmed around the shelter.
- On April 23, 2025, the site technician adjusted the temperature in the shelter.
- On April 24, 2025, the site technician adjusted the clocks on the NO_2, THC, and O_3 analyzers, Envidas logger, and T700U calibrator to the correct time. Vegetation was cut from around the shelter's front step.

- On April 25, 2025, the site technician performed "as found" and "after adjustment" MFC checks on the T700U calibrator. A calibrator ozone check and multipoint verification of the O_3 analyzer was also performed. The site technician adjusted the clocks on the NO_2, THC, and O_3 analyzers, Envidas logger, and T700U calibrator to the correct time.

- On April 29, 2025, the site technician adjusted the clocks on the NO_2, THC, and O_3 analyzers, Envidas logger, and T700U calibrator to the correct time.

3.0 APRIL 2025 KITAMAAT VILLAGE AMBIENT AIR QUALITY STATION MONITORING ACTIVITIES

This section provides a summary of the monitoring activities conducted at the LNG Canada Kitamaat Village Ambient Air Quality Station for April 2025. Table 3-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Kitamaat Village monitoring station. Site visit notes, SO_2, $PM_{2.5}$, O_3, and NO_2 concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, and NO_2 trends for April 2025 are also presented below.

Table 3-1 LNG Canada Instrumentation at the Kitamaat Village Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Kitamaat Village			
NO_2	Teledyne-API T200	Chemiluminescence	8598
O_3	Teledyne-API T400	UV Absorption	7486
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	905
Zero Air Source	Teledyne API T701	Zero-Air Generator	2555

3.1 Site Visit Notes

Site visit notes are summarized in Appendix A.

3.2 Monitoring Results and Trends

There were no exceedances of the CAAQS for SO_2 at the Kitamaat Village station in April 2025. The mean SO_2 concentration at the Kitamaat Village for April was 0.8 ppb with a maximum hourly concentration of 13.7 ppb.

The mean 1-hour $PM_{2.5}$ concentration in April was 4.4 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration was 16.0 µg/m^3. The 24-hour average concentration was 4.4 µg/m^3 and the maximum 24-hour $PM_{2.5}$ concentration for April was 7.4 µg/m^3. In April, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

The mean O_3 concentration at the Kitamaat Village for April was 27.3 ppb with a maximum hourly O_3 concentration of 45.0 ppb. The maximum 8-hour O_3 concentration was 43.0 ppb. There were no exceedances of the one-hour BCAAQO or 8-hour 2020 CAAQS for O_3 at the Kitamaat Village station in April 2025.

The mean NO_2 concentration at the Kitamaat Village for April was 0.5 ppb with a maximum hourly NO_2 concentration of 21.3 ppb. There were no exceedances of the one-hour 60 ppb BCAAQO for NO_2 at the Kitamaat Village station in April 2025.

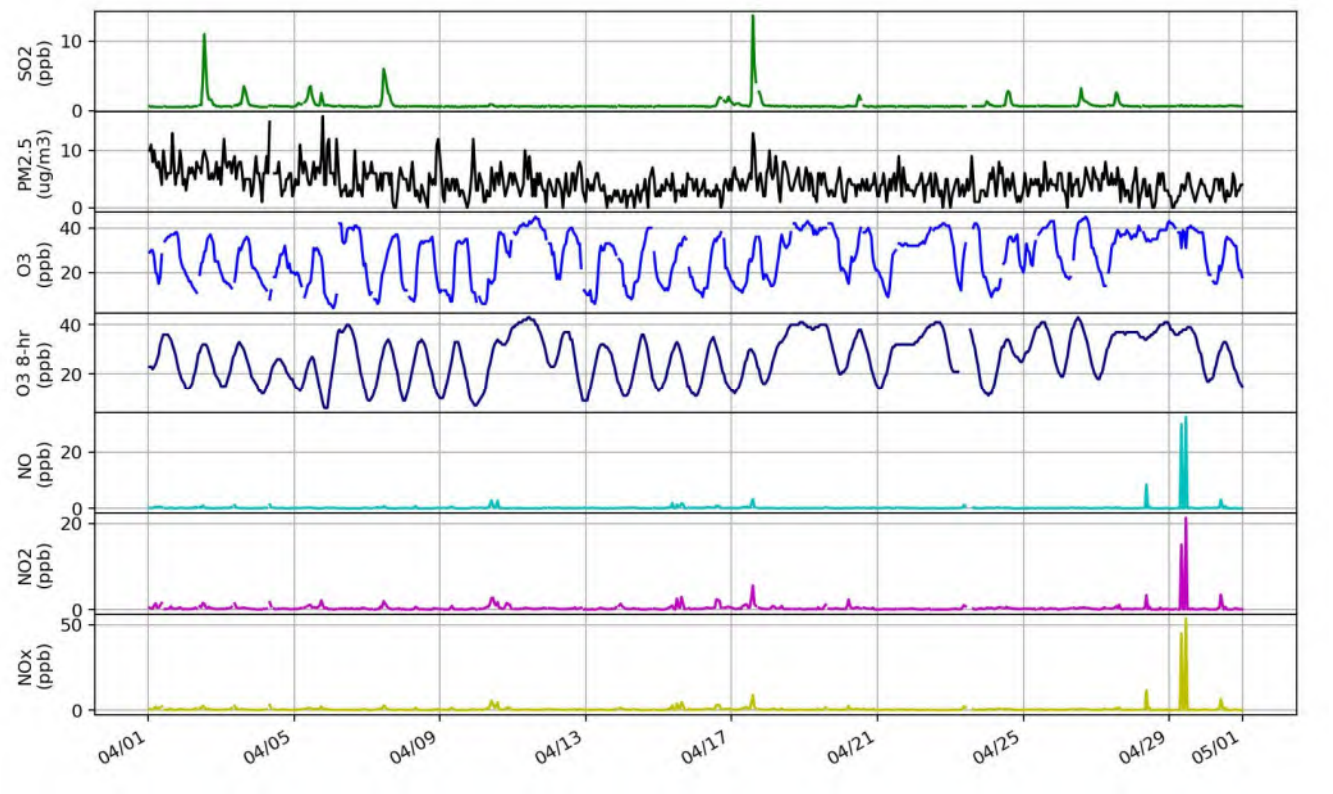
Table 3-2 tabulates the extreme and mean daily maximum readings, mean readings, and extreme and mean daily minimum readings for the 1-hour average SO_2, $PM_{2.5}$, NO_2 and O_3 concentrations for April 2025. Figure 3.1 graphically illustrates the time series for the month for the pollutants described in Table 3-2.

Table 3-2 Summary of SO_2, $PM_{2.5}$, O_3, and NO_2, Concentrations for the Kitamaat Village Station, April 2025

Statistic	SO_2 (ppb)[1]	$PM_{2.5}$[1] (µg/m³)	NO_2 (ppb)	O_3 (ppb)
1-Hour Mean	0.8	4.4	0.5	27.3
1-Hour Maximum	13.7	16.0	21.3	45.0
1-Hour Minimum	0.5	0.0	0.1	4.0
Mean Daily Maximum	2.0	7.5	1.8	40.9
Mean Daily Minimum	0.6	2.9	0.2	18.5
Data Recovery	95.2	99.8	95.2	95.2
24-hour Daily Maximum	1.9	7.4	1.7	--
8-Hour Maximum	--	--	--	43.0
24-Hour Average	0.8	4.4	0.5	27.3
Median	0.6	4.0	0.2	30.0

[1] SO_2 and $PM_{2.5}$ April 2025 data provided by Rio Tinto BC Works.

Figure 3.1 Time Series of 1-Hour Averaged SO_2, $PM_{2.5}$, O_3, and NO_2 Concentration Data for the Kitamaat Village Station, April 2025



4.0 APRIL 2025 RIVERLODGE AMBIENT AIR QUALITY STATION MONITORING STATION

This section provides a summary of the monitoring activities conducted at the LNG Canada Riverlodge Ambient Air Quality Station for April 2025. Table 4-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Riverlodge monitoring station. Site visit notes, SO_2, $PM_{2.5}$, O_3, NO_2, and THC concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, NO_2, and THC trends for April 2025 are also presented below.

Table 4-1 LNG Canada Instrumentation at the Riverlodge Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Riverlodge			
NO_2	Teledyne-API T200	Chemiluminescence	8599
O_3	Teledyne-API T400	UV Absorption	7487
THC	Teledyne-API N901	Flame Ionization Detector	80
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	906
Zero Air Source	Teledyne API T701	Zero-Air Generator	2556

4.1 Site Visit Notes

Site visit notes are summarized in Appendix A.

4.2 Monitoring Results and Trends

The mean SO_2 concentration at the Riverlodge for April was 1.1 ppb with a maximum hourly concentration of 22.5 ppb. There were no exceedances of the CAAQS for SO_2 at the Riverlodge station in April 2025.

The mean 1-hour $PM_{2.5}$ concentration at the Riverlodge station for April was 3.8 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration was 13.0 µg/m^3. The maximum 24-hour $PM_{2.5}$ concentration for April was 5.5 µg/m^3. In April, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

The mean O_3 concentration at the Riverlodge station for April was 27.2 ppb with a maximum hourly O_3 concentration of 48.0 ppb. The maximum 8-hour O_3 concentration was 45.0 ppb. There were no exceedances of the one-hour BCAAQO or 8-hour 2020 CAAQS for O_3 at Riverlodge station in April 2025.

The mean NO_2 concentration at the Riverlodge station for April was 1.1 ppb with a maximum hourly NO_2 concentration of 5.8 ppb. There were no exceedances of the one-hour BCAAQO for NO_2 at the Riverlodge station in April 2025.

The mean THC concentration at the Riverlodge station for April was 2.16 ppm with a maximum hourly THC concentration of 2.61 ppm.

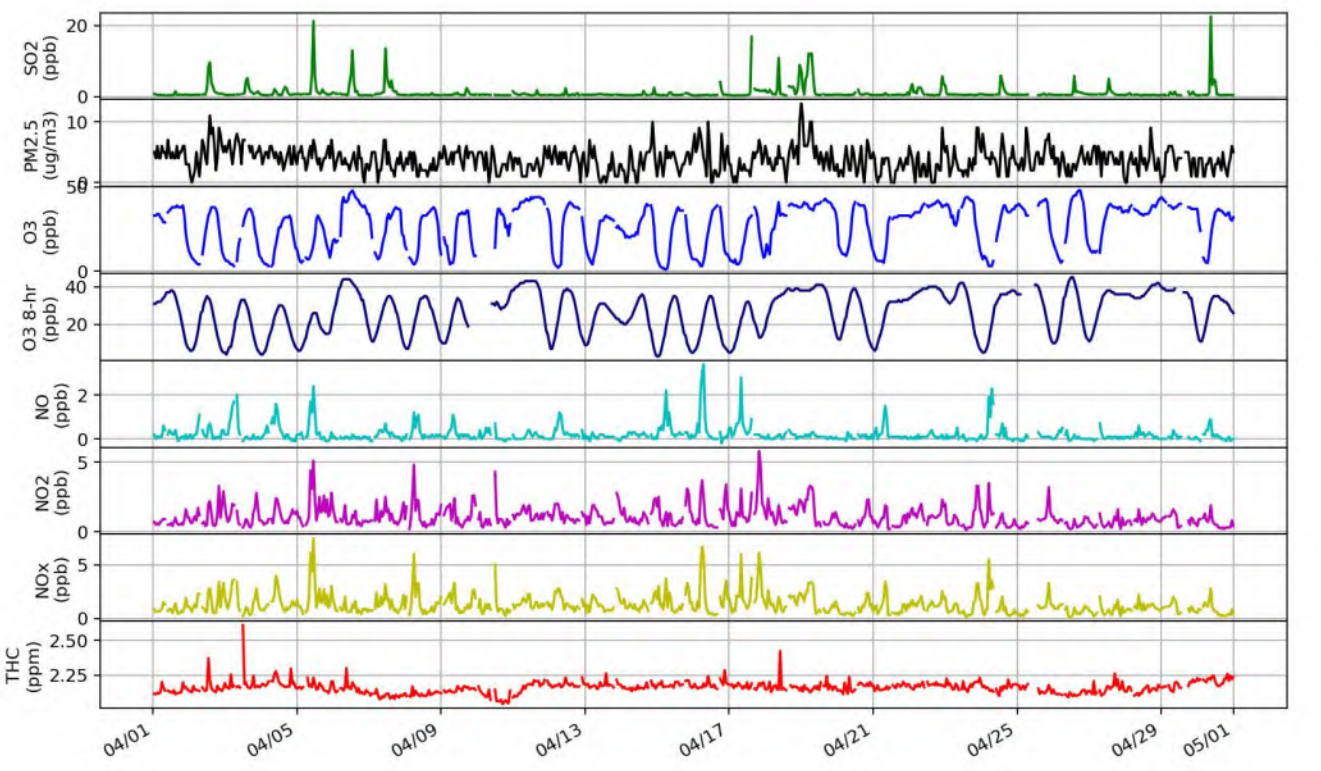
Table 4-2 tabulates the extreme and mean daily maximum readings, mean readings, and extreme and mean daily minimum readings for the 1-hour average SO_2, $PM_{2.5}$, NO_2, O_3, and THC concentrations for April 2025 at Riverlodge station. Figure 4.1 graphically illustrates the time series for the month for the pollutants described in Table 4-2.

Table 4-2 Summary of SO_2, $PM_{2.5}$, O_3, NO_2, and THC Concentrations for the Riverlodge Station, April 2025

Statistic	SO_2 (ppb)[1]	$PM_{2.5}$ ($\mu g/m^3$)[1]	NO_2 (ppb)	O_3 (ppb)	THC (ppm)
1-Hour Mean	1.1	3.8	1.1	27.2	2.16
1-Hour Maximum	22.5	13.0	5.8	48.0	2.61
1-Hour Minimum	0.3	0.0	0.1	1.0	2.04
Mean Daily Maximum	3.0	5.6	1.8	41.5	2.30
Mean Daily Minimum	0.5	2.4	0.7	15.9	2.10
Data Recovery	94.2	99.4	94.2	93.0	93.9
24-hour Daily Maximum	2.8	5.5	1.8	---	2.22
8-hour Maximum	--	--	---	45.0	---
24-Hour Average	1.1	3.8	1.1	27.3	2.16
Median	0.5	4.0	0.9	32.0	2.16

[1] SO_2 and $PM_{2.5}$ April 2025 data provided by Rio Tinto BC Works.

Figure 4.1 Time Series of 1-Hour Averaged SO_2, $PM_{2.5}$, O_3, NO_2, and THC Concentrations for the Riverlodge Station, April 2025



5.0 STATION COMPARISON

Figures 5.1 through 5.5 present comparative time series plots of April 2025 SO_2, $PM_{2.5}$, O_3, and NO_2 concentrations from the Kitamaat Village and Riverlodge monitoring stations. $PM_{2.5}$ and SO_2 data were obtained from Rio Tinto BC works for these stations. These graphs are useful for evaluating pollutant dispersion and for concentration comparison purposes.

Figure 5.1 Comparison of Hourly SO_2 Concentrations in Parts per Billion from Kitamaat Village and Riverlodge Monitoring Locations for April 2025

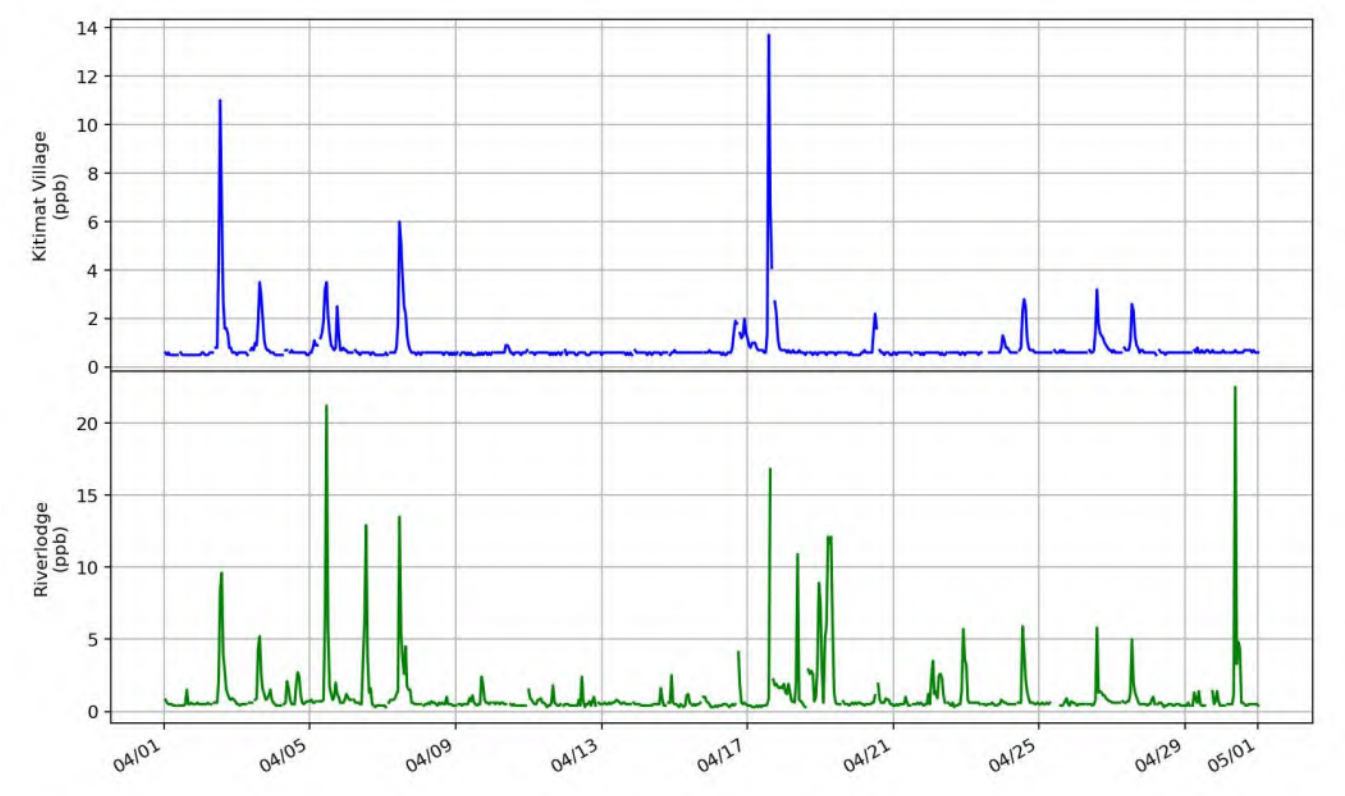


Figure 5.2 Comparison of Hourly $PM_{2.5}$ Concentrations in Micrograms per Cubic Meter Kitamaat Village and Riverlodge Monitoring Locations for April 2025

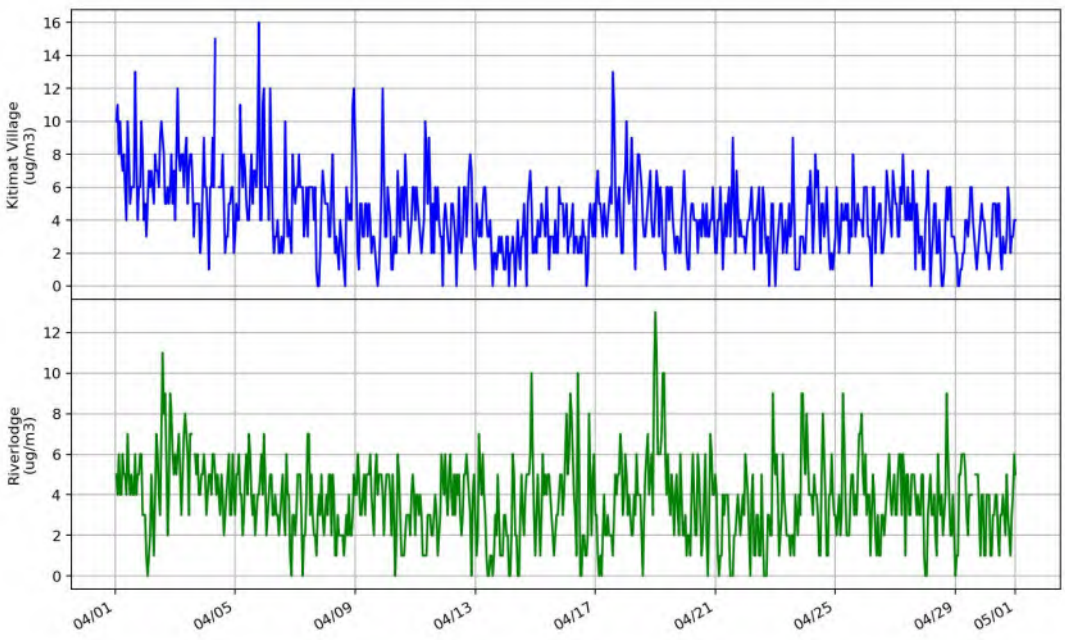


Figure 5.3 Comparison of Hourly NO_2 Concentrations in Parts per Billion from Kitamaat Village and Riverlodge Monitoring Locations for April 2025

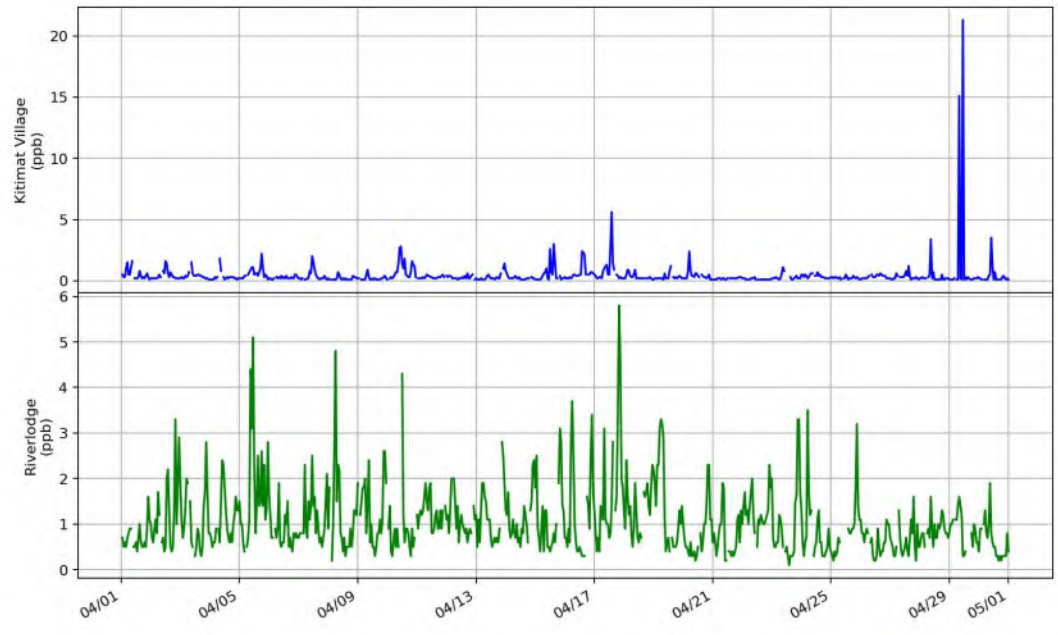


Figure 5.4 Comparison of Hourly O_3 Concentrations in Parts per Billion from Kitamaat Village and Riverlodge Monitoring Locations for April 2025

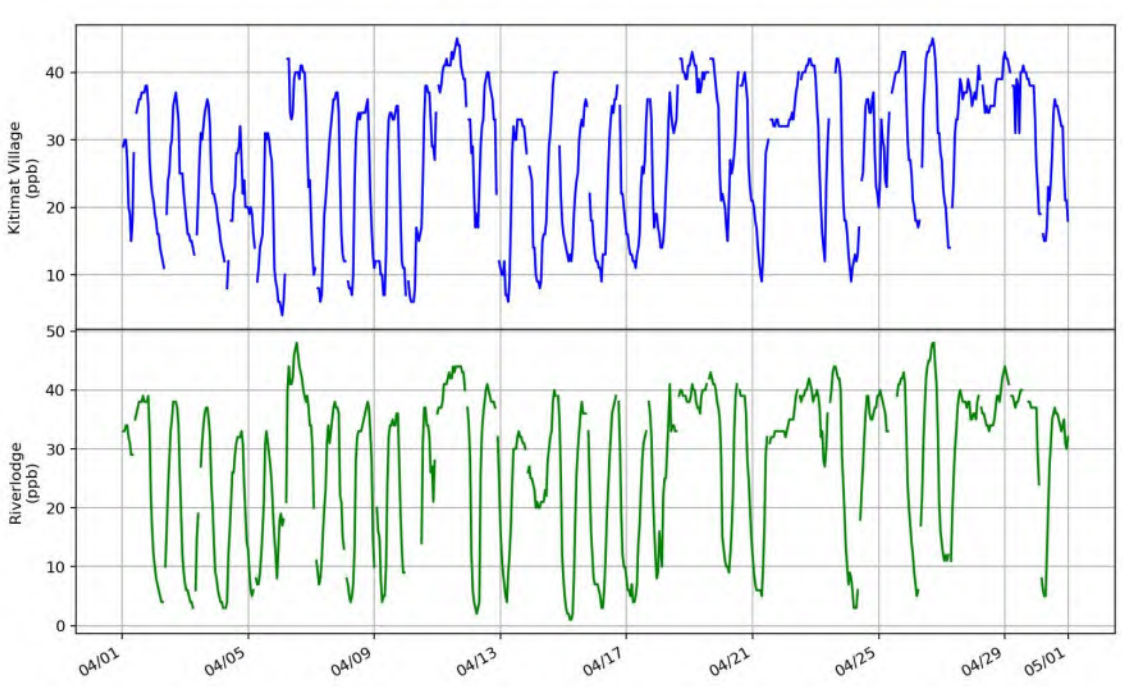
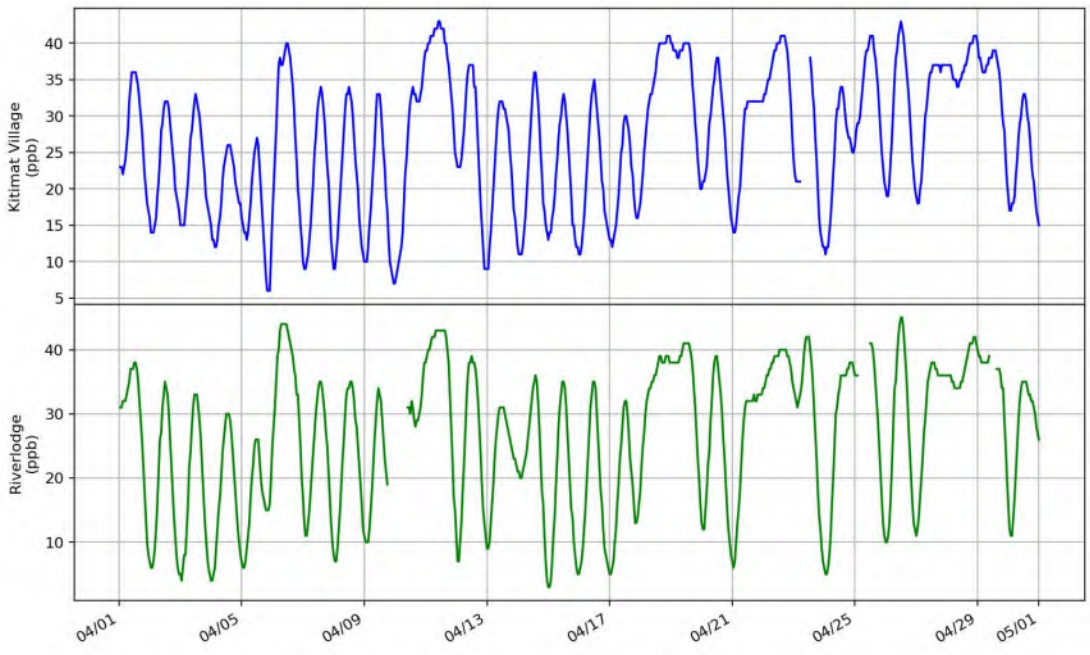


Figure 5.5 Comparison of Eight-Hour O_3 Concentrations in Parts per Billion from Kitamaat Village and Riverlodge Monitoring Locations for April 2025



APPENDIX A. SITE NOTES

04/02/2025 - RT Activities

Wednesday, April 2, 2025 9:48 AM

Village

Author of Entry: Nathan McMillan and Adrienne Kaul

Date of Activity: 04/02/2025
Start Time: 0946
End Time: 1025
Technician: Nathan McMillan

Reason for Visit

RT Activities

Description

Envidas: Clock was 1 second ahead. Clock updated at 0952.

T700U Calibrator:

-Clock was 9 seconds ahead and was updated at 0956.

T400O3:

-Clock was 70 seconds ahead and was updated at 0957.

T200NOx:

-Clock was 69 seconds ahead and was updated at 0958.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1600 psi and line pressure 30 psi.
- Shelter temperature 25.9 C, within spec.

04/08/2025 - RT Activities

Tuesday, April 8, 2025 9:09 AM

Village

Author of Entry: Nathan McMillan and Adrienne Kaul

Date of Activity: 04/08/2025
Start Time: 0906
End Time: 0939
Technician: Nathan McMillan

Reason for Visit

RT Activities

Description

Envidas: Clock was 1 second ahead. Clock updated at 0913.

T700U Calibrator:

-Clock was 45 seconds ahead and was updated at 0916.

T400O3:

-Clock was 46 seconds ahead and was updated at 0920.

T200NOx:

- Clock was 46 seconds ahead and was updated at 0921.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1600 psi and line pressure 30 psi.
- Shelter temperature 26.4 C, within spec.

04/15/2025 - RT Activities

Tuesday, April 15, 2025 11:35 AM

Village

Author of Entry: Nathan McMillan and Adrienne Kaul

Date of Activity: 04/15/2025
Start Time: 1129
End Time: 1213
Technician: Nathan McMillan

Reason for Visit

RT Activities

Description

Envidas: Clock was 1 second ahead. Clock updated at 1139.

T700U Calibrator:

-Clock was 82 seconds ahead and was updated at 1143.

T400O3:

-Clock was 81 seconds ahead and was updated at 1144.

T200NOx:

- Clock was 81 seconds ahead and was updated at 1146.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1590 psi and line pressure 30 psi.
- Shelter temperature 27.1 C, within spec.

04/22/2025 - RT Activities

Tuesday, April 22, 2025 12:40 PM

Village

Author of Entry: Nathan McMillan and Adrienne Kaul

Date of Activity: 04/22/2025
Start Time: 1236
End Time: 1318
Technician: Nathan McMillan

Reason for Visit

RT Activities

Description

Envidas: Clock was 2 seconds ahead. Clock updated at 1245.
T700U Calibrator:
-Clock was 83 seconds ahead and was updated at 1250.
Alert - 04/21/2025 - 1:14:49 PM Photo Ref Warning
T400O3:
-Clock was 81 seconds ahead and was updated at 1251.
T200NOx:

- Clock was 82 seconds ahead and was updated at 1257.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1580 psi and line pressure 30 psi.
- Shelter temperature 26.6 C, within spec.

04/23/2025 - T700U alert check, MFCs, and O3 transfer check

Wednesday, April 23, 2025 8:34 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: April 23, 2025
Start Time: 8:32; 13:30
End Time: 12:45; 15:15
Technician: Adrienne Kaul

Reason for Visit

On site to check T700U Calibrator

Description

T700U:
- -Clock was 11 seconds ahead and was updated at 8:49.
- -Photo ref voltage 2495.5 mV.
- -Photo detector adjusted from 2490.6 mV to 4597.7 mV resolving photo ref voltage alert.
- -MFCs performed 10:41-12:22 with passing results. No adjustments made
  - -Dil average: 0.95%
  - -Cal average: -0.81%
- -Ozone generated at 400 ppb at 3.5 lpm from 12:22-12:27 to warm-up calibrator ozone bench.
- -Ozone calibration sequence started at 12:29

T400 O3:
- -Clock was 11 seconds ahead and was updated at 8:48.

T200 NOx:
- -Clock was 11 seconds ahead and was updated at 8:51.

Envidas:
- -Clock was 2 seconds ahead and was synced at 8:53.
- -Windows updates downloaded.
- -Computer restarted at 10:21 to allow updates to take effect.

T400 transfer standard powered on at 9:25.
- -Transfer standard connected to data logger.
- -Lamp stability error, restarted unit 11:03-11:05.
- -Ozone calibration sequence started at 12:29

NOx and O3 data flagged to maintain 9:45-12:32:
- -Automatic ZPS checks were interrupted at 9:45.

NOx and O3 data flagged to maintain 14:17-14:20:
- -Transfer standard disconnected and powered off.

NOx and O3 data flagged to maintain 14:50-15:02:
- -RT Activities were performed.

T701:
- -Powered off at 9:45.
- -Leak checked 10:21-10:22 at 28.75 psi at start of test and 28.75 psi at end of test.
- -Some Purafil residue seen in lines between scrubbers.
- -Need new scrubber pads before replacing charcoal and purafil media for annual maintenance.

Site Visit Checklist

- ☑ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☑ Zero air system pressure at 30 PSI

- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [x] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter temperature 26.6 C, within spec.
- Wind speed and direction sensors appear to be working normally.
- Ambient temperature aspirator is working.
- Wind speed and direction sensors are working normally.
- T700U alert: 04/22/2025 12:54:27 PM Photo Ref Warning. Trigger: Photo Ref value outside specified range [2500-4995 mV].
- Sewage treatment plant has maintenance activities occurring today. There is a new pump being installed on site and sewage pumping occurring today. Periodically vehicles were idling on site.

Village 2025-0423 MFC

MFC FLOW CHECK SHEET-AS FOUND

Date: 4/23/25			Temp (C):	22.0		
Time: 10:41			Pressure (mmHg):	768		
Location: Village			MFC #:	DIL1		
Model: API T700U		Serial Number:	905	Corr factor:	n/a	
Point #				BIOS lpm	Station lpm	percent difference
1				0.518	0.530	2.24%
2				1.061	1.069	0.79%
3				1.597	1.613	1.02%
4				2.128	2.148	0.94%
5				2.662	2.687	0.96%
6				3.196	3.223	0.84%
7				3.723	3.744	0.56%
8				4.255	4.289	0.81%
9				4.773	4.816	0.89%
10				5.298	5.351	1.00%
11				5.829	5.871	0.73%
12				6.345	6.405	0.94%

13				6.868	6.934	0.96%
14				7.385	7.452	0.90%
15				7.915	7.991	0.96%
16				8.440	8.514	0.88%
17				8.953	9.045	1.03%
18				9.478	9.571	0.99%
19				10.011	10.089	0.78%
20				10.531	10.608	0.73%

Comments: 0.95% Average % Diff

BIOS s/n 140792
Definer 220H
0 - 10 LPM STD temp 25.0

Technician: Adrienne Kaul

MFC FLOW CHECK SHEET-CALIBRATION AS FOUND

Date: 4/23/25 Temp (C): 23.3 Correction Calculation: Flow Calculation:
Time: 11:44 Pressure: 765 mmHg (P-Pv) * 298 vol * corr factor
Location: Village MFC #: CAL1 29.92 273 + T time
Model: API T700U Serial Number: 905 Corr factor: n/a

Point #			Changed? *	BIOS (cc/min)	Station (cc/min)	percent difference
1				6.101	6.1	-0.01%
2				12.116	12.0	-0.96%
3				18.065	17.9	-0.91%
4				23.903	23.7	-0.85%
5				29.744	29.5	-0.82%
6				35.398	35.2	-0.56%
7				41.087	40.7	-0.94%
8				46.736	46.3	-0.93%
9				52.349	51.8	-1.05%
10				57.763	57.3	-0.80%
11				63.367	62.8	-0.89%
12				68.702	68.3	-0.59%
13				74.487	73.8	-0.92%
14				80.136	79.3	-1.04%
15				85.800	85.3	-0.58%
16				91.764	91.0	-0.83%
17				97.451	96.6	-0.87%
18				103.360	102.6	-0.74%
19				109.540	108.6	-0.86%
20				115.540	114.4	-0.99%

Comments: -0.81% Average % Diff

BIOS s/n 140619
Definer 220-L
0 - 100 cc STD Temp 25.0

Technician: Adrienne Kaul

KitimatVilla...
2025-0423

Trinity Consultants

CALIBRATOR OZONE CHECK SHEET

AS FOUND

SITE NAME	LNG Kitimat Village	**Date** 4/23/2025	**Start Time** 12:38
PROJECT	244501.0770		**Stop Time** 13:38
SITE OPERATOR	Trinity Consultants		

Analyzer Mfg	T-API	**Anal. Range 0-**	500 **PPB**
Analyzer Model	T700U		
Analyzer s/n	905		

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	T-API	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	T400	**Model:**	T701
Serial #:	905	**Serial #:**	5996	**Serial #:**	2555
Cert Date:	N/A	**Certification Date:**	2/28/2025	**Certification Date:**	5/20/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard

m:	1.001
b:	-0.8323
r:	1.0000
Calibration Date:	2/28/2025

Transfer **Calibrator**

INPUT (Txfr Standard)		RESPONSE		BEST-FIT DETERMINATION		
Raw Input (PPB)	Corrected (X) (PPB)	(Y) (PPB)	% DIFF.	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
-0.9	-0.1	0.0	/	0.5	-0.48	-0.1%
38.7	39.5	39.9	1.11%	39.4	0.50	0.1%
90.0	90.7	90.0	-0.82%	89.8	0.16	0.0%
150.3	151.0	149.8	-0.78%	149.1	0.70	0.1%
252.7	253.3	250.0	-1.29%	249.7	0.26	0.1%
405.3	405.7	399.6	-1.51%	399.7	-0.11	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	0.984	1.05 to 0.95
Intercept(b)	0.574	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	-0.66%	

COMMENTS

No adjustments made.

Calibrated By Adrienne Kaul

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KitimatVilla...
2025-0423

Trinity

Consultants

OZONE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Village
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 4/23/2025 **Start Time** 12:38 **Stop Time** 13:38

Analyzer Mfg Teledyne-API
Analyzer Model T400
Analyzer s/n 7486

Anal. Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	N/A	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	N/A	**Model:**	T701
Serial #:	905	**Serial #:**	N/A	**Serial #:**	2555
Cert Date:	4/23/2025	**Certification Date:**	N/A	**Certification Date:**	5/20/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard
m: 1
b: 0
r:
Calibration Date:

INPUT (Txfr Standard) Raw Input (PPB)	Corrected (X) (PPB)	RESPONSE (Y) (PPB)	% DIFF.	BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.0	0.3	/	-0.2	0.47	0.1%
40.0	40.0	40.3	0.60%	40.6	-0.37	-0.1%
90.0	90.0	91.0	1.11%	91.6	-0.59	-0.1%
149.8	149.8	152.4	1.74%	152.6	-0.17	0.0%
250.0	250.0	254.4	1.76%	254.7	-0.35	-0.1%
399.7	399.70	407.5	1.95%	407.4	0.10	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

COMMENTS

No adjustments made.

Slope(m)	1.020	1.05 to 0.95
Intercept(b)	-0.181	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	1.43%	

Calibrated By Adrienne Kaul

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04/29/2025- RT Activities

Tuesday, April 29, 2025 1:03 PM

Village

Author of Entry: Nathan McMillan and Adrienne Kaul

Date of Activity: 04/29/2025
Start Time: 1300
End Time: 1330
Technician: Nathan McMillan

Reason for Visit

RT Activities

Description

Envidas: Clock was 6 seconds ahead. Clock updated at 1306.

T700U Calibrator:

-Clock was 70 seconds ahead and was updated at 1308.

T400O3:

-Clock was 69 seconds ahead and was updated at 1309.

T200NOx:

- Clock was 70 seconds ahead and was updated at 1311.

43iSO2:

Clock was 12 seconds behind. Updated at 1312.

BAM1020:

Clock was 82 seconds ahead. No adjustments made.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1550 psi and line pressure 30 psi.
- Shelter temperature 26.5 C, within spec.

04/03/2025 - Inlet filter change and N901 Nitrogen tank replacement

Thursday, April 3, 2025 9:13 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: April 3, 2025
Start Time: 9:11;14:03
End Time: 13:48;14:10
Technician: Adrienne Kaul

Reason for Visit

On site to change analyzer inlet filters.

Description

Envidas logger:

-Clock was 3 seconds ahead and was updated at 4/3/2025 9:16:31.

-Downloaded and installed windows updates.

T700U Calibrator:

-Clock was 79 seconds ahead and was updated at 9:28.

T400 O3:

-Clock was 81 seconds ahead and was updated at 9:31.

T200 NOx:

-Clock was 80 seconds ahead and was updated at 9:33.

N901 CH4, NMHC, and THC:

-Clock was 1 second ahead and was updated at 9:34.

-N901 in standby mode at 10:10-11:02.

-New UHP nitrogen tank installed.

-No leaks detected on regulator of N2 and hydrogen tanks, outlet fitting of CH4 tank and 21% Oxygen tank.

Filter changes:

-All supply connections to analyzers, manifold connections, and calibrator output connections felt tight prior to filter change.

-All analyzer data N901 (CH4, NMHC, and THC), T400 (O3), and T200 (NOx) flagged 9:45-10:23 for inlet filter changes.

-SO2 running at 160 ppb 10:08-10:17 to precondition inlet filters.

-All supply connections to analyzers, manifold connections, and calibrator output connections felt tight after filter change.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, CH4, and C3H8 tank pressure 1760 psi and line pressure 30 psi; decreased line pressure.
- CH4 tank pressure 2000 psi and line pressure 35 psi.
- Purafil and Charcoal, and dryer mol sieve on site. No replacement pads for scrubbers. No T200 and T400 annual maintenance kits.
- Nitrogen (N901) tank pressure 200 psi and line pressure 65 psi. Removed. Lot number 133501603
- Hydrogen (N901) tank pressure 1250 psi and line pressure 52.5 psi.
- New Nitrogen tank pressure 2575 psi and line pressure 65 psi. Installed. Lot number 133506501.
- Dropped off cylinder cart at site.

04/08/2025 - Weekly site check

Tuesday, April 8, 2025 8:40 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: April 8, 2025
Start Time: 8:38
End Time: 9:25
Technician: Adrienne Kaul

Reason for Visit

On site for weekly station check

Description

Envidas:

-Clock accurate, no adjustment made

-Logger restarted at 8:45 to allow updates to take effect.

T700U Calibrator:

-Clock was 56 seconds ahead and adjusted at 8:59.

HVAC:

-Turned down baseboard heater.

T400 O3:

-Clock was 57 seconds ahead and was updated at 9:12.

T200 NOx:

-Clock was 55 seconds ahead and was updated at 9:13. Clock was 1 second behind after update.

N901 CH4, THC, and NMHC:

-Clock was 2 seconds behind and was updated at 9:15.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, CH4, NO, C3H8 tank pressure 1750 psi and line pressure 31 psi.
- CH4 tank pressure 2000 psi and line pressure 35 psi.
- Nitrogen tank pressure 2350 psi and line pressure 65 psi.
- Hydrogen tank pressure 1160 psi and line pressure 50 psi.

04/10/2025 - O3 analyzer troubleshooting

Thursday, April 10, 2025 8:34 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: April 10, 2025
Start Time: 8:30
End Time: 9:32
Technician: Adrienne Kaul

Reason for Visit

On site to investigate T400 O3 flatlined readings.

Description

Envidas:

-Clock accurate.

T400 O3:

-Clock was 3 seconds ahead and updated at 8:39-8:53.

-Data flagged to maintain 8:40- for photodetector adjustment.

-Photodetector voltage adjusted from 2505.4 mV to 4598.8 mV.

-No adjustments made. Photodetector voltage does not affect analyzer readings and a calibration after photodetector voltage adjustment is not required by the manufacturers operational manual.

-A precautionary multipoint calibration ZPS 11 started at 9:03. Calibration showed passing results

T200 NOx:

-Clock was 23 seconds ahead and was updated at 9:10.

N901 CH4, THC, and NMHC:

-Clock was 1 second behind and was updated 9:11-9:12.

T700U Calibrator:

-Clock was 22 seconds ahead and was updated at 9:13.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Hydrogen tank pressure 1140 psi and line pressure 50 psi.
- Nitrogen tank pressure 2300 psi and line pressure 65 psi.
- CH4 tank pressure 2000 psi and line pressure 36 psi.
- SO2, NO, CH4, C3H8 tank pressure 1760 psi and line pressure 30 psi.

KitimatRive...
2025-0410

Trinity Consultants

OZONE CALIBRATION SHEET

After Maintenance Multi-point Verification

SITE NAME LNG Kitimat Riverlodge
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 4/10/2025 **Start Time** 9:13 **Stop Time** 10:13

Analyzer Mfg Teledyne-API
Analyzer Model T400
Analyzer s/n 7487

Anal. Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	N/A	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	N/A	**Model:**	T701
Serial #:	906	**Serial #:**	N/A	**Serial #:**	2556
Cert Date:	10/21/2024	**Certification Date:**	N/A	**Certification Date:**	5/16/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard
m: 1
b: 0
r:
Calibration Date:

INPUT (Txfr Standard) Raw Input (PPB)	INPUT (Txfr Standard) Corrected (X) (PPB)	RESPONSE (Y) (PPB)	RESPONSE % DIFF.	BEST-FIT DETERMINATION Predicted (Y)	BEST-FIT DETERMINATION Residual (PPB)	BEST-FIT DETERMINATION Residual (<2% Full Scale)
0.0	0.0	1.0	/	0.7	0.26	0.1%
40.3	40.3	41.5	2.78%	41.4	0.05	0.0%
90.1	90.1	90.8	0.78%	91.6	-0.83	-0.2%
149.4	149.4	151.2	1.20%	151.5	-0.28	-0.1%
250.2	250.2	252.8	1.04%	253.2	-0.40	-0.1%
399.9	399.90	404.4	1.13%	404.3	0.12	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	1.009	1.05 to 0.95
Intercept(b)	0.700	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	1.38%	

COMMENTS
Verification following flatlined readings.

Calibrated By Adrienne Kaul

= cell containing equations

04/17/2025 - Weekly station check

Thursday, April 17, 2025 9:02 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: April 17, 2025
Start Time: 8:55
End Time: 10:30
Technician: Adrienne Kaul

Reason for Visit

On site for weekly station inspection.

Description

Envidas:

-Clock was 1 second ahead and was synced at 9:15.

-Windows updates downloaded.

-Computer restarted at around 9:48 to allow updates to take effect.

T700U Calibrator:

-Clock was 81 seconds ahead and was updated at 9:19.

N901 CH4, NMHC and THC:

-Clock was 32 seconds ahead and was updated at 9:41. Clock was 1 second ahead after update.

T200 NOx:

-Clock was 21 seconds ahead and was updated at 9:43.

T400 O3:

-Clock was 84 seconds ahead and was updated at 9:45. Clock was 1 second behind after update

Site maintenance:

-String trimming around site from 9:59-10:23/

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, CH4, NO, C3H8 tank pressure 1750 psi and line pressure 30 psi.
- UHP Nitrogen 2050 psi and line pressure 65 psi.
- Hydrogen tank pressure 1000 psi and line pressure 50 psi.
- CH4 tank pressure 2000 psi and line pressure 36 psi.

04/23/2025 - Supply pick-up

Wednesday, April 23, 2025 1:04 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: April 23, 2025
Start Time: 13:03
End Time: 13:08
Technician: Adrienne Kaul

Reason for Visit

On site to look for T701 supplies

Description

HVAC:

-Decreased baseboard setpoint

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

04/24/2025 - Weekly station check

Thursday, April 24, 2025 1:02 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: April 24, 2025
Start Time: 12:55
End Time: 13:31
Technician: Adrienne Kaul

Reason for Visit

On site for weekly station check.

Description

Envidas:

-Clock was 1 second ahead and was synced at 13:13.

G2205 HF:

-Clock was 21 seconds behind and was updated at 13:15.

43i SO2:

-Clock was 1 second ahead and was updated at 13:16.

BAM 1020 PM10:

-Clock was 90 seconds ahead and no adjustment was made.

BAM 1020 PM2.5:

-Clock was 84 seconds ahead and no adjustment was made.

N901 CH4, NMHC, and THC:

-Clock was 83 seconds ahead and was updated at 13:19. Clock was 1 second behind after update.

T200 NOx:

-Clock was 80 seconds ahead and was updated at 13:21.

T400 O3:

-Clock was 82 seconds ahead and was updated at 13:22.

Miscellaneous site maintenance:

-Cut mountain ash growing up under station front step.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Nitrogen tank pressure 1900 psi and line pressure 32.5 psi.
- SO2, NO, C3H8, and CH4 tank pressure 1500 psi and line pressure 30 psi.
- Oxygen 21% tank pressure 490 psi and line pressure 30 psi; new tank has been ordered.
- Nitrogen tank pressure 1780 psi and line pressure 65 psi.

- Hydrogen tank pressure 875 psi a0nd line pressure 50 psi.; Need to order new hydrogen tank for site.
- Oxygen 10% tank pressure 1050 psi and line pressure 30+ psi.
- Station temperature 26.8 C, within spec.
- HF inlet heater 60 C at 13:07.
- Ambient temperature aspirator is working.
- Wind speed and direction sensors appear to be working normally.

04/25/2025 - MFCs and transfer check

Friday, April 25, 2025 8:26 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: April 25, 2025
Start Time: 8:13; 15:32
End Time: 12:03; 16:30
Technician: Adrienne Kaul

Reason for Visit

On site for MFCs and transfer check

Description

T400 O3 transfer standard powered on at 8:25. Power cycled at 8:33.

Analyzer data flagged to maintain. 8:53-11:49 for MFCs on T700U
-Dilutant as found: 0.97% and Calibration as found: 0.82%.
-Adjustments made to dil and cal MFCs.
-Dilutant after adjustment: 0.97% and Calibration after adjustment: 0.82%.

Ozone MP and transfer check started at 11:48.
-Passing as found calibrator and site analyzer checks. No adjustments made.

Data flagged 15:34-15:36. Flag can be removed as no work was done in this interval.

Analyzer data flagged 15:52-15:54 to remove transfer standard.
-All connections to NOx and O3 analyzers felt tight after transfer standard was removed.

Envidas:
-Clock was 4 seconds ahead and was synced at 16:09.
T200 NOx:
-Clock was 14 seconds ahead and was updated at 16:12.
T400 O3:
-Clock was 14 seconds ahead and was updated at 16:13.
T700U Calibrator:
-Clock was 97 seconds ahead and was updated at 16:15.
N901 CH4, NMHC, and THC:
-Clock was 14 seconds ahead and was updated at 16:18.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [x] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____
  (Criteria +/- 2.0 degrees Celsius)

- [x] Annual Maintenance

Site Observations

- SO2, NO, C3H8, and CH4 tank pressure 1740 psi and line pressure 30 psi.
- CH4 tank pressure 2000 psi and line pressure 36 psi.
- Nitrogen tank pressure 1730 psi and line pressure 65 psi.
- Hydrogen tank pressure 850 psi and line pressure 50 psi.
- Ambient temperature aspirator is working.
- Wind speed and direction sensors appear to be working normally.

KitimatRive... 2025-0425

Trinity Consultants

CALIBRATOR OZONE CHECK SHEET

AS FOUND

SITE NAME	Kitimat Riverlodge	**Date**	4/25/2025	**Start Time**	11:59
PROJECT	244501.0077			**Stop Time**	12:59
SITE OPERATOR	Trinity Consultants				

Analyzer Mfg	T-API	**Anal. Range 0-**	500 **PPB**
Analyzer Model	T700U		
Analyzer s/n	906		

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	T-API	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	T400	**Model:**	T701
Serial #:	906	**Serial #:**	5996	**Serial #:**	2556
Cert Date:	N/A	**Certification Date:**	2/28/2025	**Certification Date:**	5/16/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard

m:	1.001
b:	-0.8323
r:	1.0000
Calibration Date:	2/28/2025

Transfer **Calibrator**

INPUT (Txfr Standard) Raw Input (PPB)	INPUT (Txfr Standard) Corrected (X) (PPB)	RESPONSE (Y) (PPB)	RESPONSE % DIFF.	BEST-FIT DETERMINATION Predicted (Y)	BEST-FIT DETERMINATION Residual (PPB)	BEST-FIT DETERMINATION Residual (<2% Full Scale)
-0.9	-0.1	0.0	/	0.9	-0.86	-0.2%
39.1	39.9	40.4	1.07%	40.2	0.16	0.0%
89.0	89.7	90.4	0.73%	89.2	1.23	0.2%
150.2	150.9	150.1	-0.52%	149.3	0.82	0.2%
252.2	252.8	249.5	-1.30%	249.5	0.04	0.0%
404.8	405.23	399.2	-1.49%	399.3	-0.14	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	0.983	1.05 to 0.95
Intercept(b)	0.943	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	-0.30%	

COMMENTS

No adjustments made

Calibrated By Adrienne Kaul

= cell containing equations

KitimatRive...
2025-0425

Trinity Consultants

OZONE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME	LNG Kitimat Riverlodge	**Date**	4/25/2025	**Start Time**	11:59
PROJECT	244501.0077			**Stop Time**	12:59
SITE OPERATOR	Trinity				

Analyzer Mfg	Teledyne-API	**Anal. Range 0-**	500 **PPB**
Analyzer Model	T400		
Analyzer s/n	7487		

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	N/A	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	N/A	**Model:**	T701
Serial #:	906	**Serial #:**	N/A	**Serial #:**	2556
Cert Date:	4/25/2025	**Certification Date:**	N/A	**Certification Date:**	5/16/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard

m:	1
b:	0
r:	
Calibration Date:	

INPUT (Txfr Standard) Raw Input (PPB)	INPUT (Txfr Standard) Corrected (X) (PPB)	RESPONSE (Y) (PPB)	RESPONSE % DIFF.	BEST-FIT DETERMINATION Predicted (Y)	BEST-FIT DETERMINATION Residual (PPB)	BEST-FIT DETERMINATION Residual (<2% Full Scale)
0.0	0.0	0.1	/	0.1	0.05	0.0%
40.0	40.0	40.7	1.88%	40.4	0.25	0.1%
89.9	89.9	90.9	1.11%	90.9	-0.01	0.0%
150.0	150.0	151.7	1.13%	151.6	0.07	0.0%
249.6	249.6	252.9	1.32%	252.3	0.65	0.1%
399.5	399.50	403.6	1.03%	403.7	-0.10	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	1.010	1.05 to 0.95
Intercept(b)	0.085	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	1.29%	

COMMENTS

No adjustments made.

Calibrated By Adrienne Kaul

= cell containing equations

Riverlodge
2025-0425

MFC FLOW CHECK SHEET-AS FOUND

Date: 4/25/25 **Temp (C): 24.5**

Time: 9:01 **Pressure (mmHg): 762**

Location: Riverlodge MFC #: DIL1

Model: API T700U Serial Number: 906 Corr factor: n/a

Point #				BIOS lpm	Station lpm	percent difference
1				0.512	0.540	5.47%
2				1.068	1.089	1.97%
3				1.617	1.639	1.35%
4				2.166	2.182	0.75%
5				2.710	2.729	0.69%
6				3.255	3.277	0.69%
7				3.799	3.819	0.53%
8				4.347	4.360	0.31%
9				4.875	4.902	0.56%
10				5.416	5.431	0.27%
11				5.962	5.989	0.45%
12				6.478	6.532	0.84%
13				7.015	7.063	0.68%
14				7.536	7.583	0.62%
15				8.062	8.125	0.78%
16				8.587	8.651	0.74%
17				9.141	9.202	0.67%
18				9.670	9.738	0.71%
19				10.202	10.276	0.73%
20				10.724	10.784	0.56%
						0.97%

Comments: BIOS s/n 140792 Average % Diff

Definer 220-H

0 - 10 LPM STD temp 25

Technician: Adrienne Kaul

MFC FLOW CHECK SHEET-AFTER ADJUSTMENT

Date: 4/25/25 Temp (C): 24.6

Time: 9:01 Pressure (mmHg): 762

Location: Riverlodge MFC #: DIL1

Model: API T700U Serial Number: 906 Corr factor: n/a

Point #				BIOS lpm	Station lpm	percent difference
1				0.510	0.512	0.36%
2				1.057	1.068	1.01%
3				1.603	1.617	0.85%
4				2.147	2.166	0.88%
5				2.685	2.710	0.95%
6				3.224	3.255	0.96%
7				3.767	3.799	0.85%
8				4.309	4.347	0.88%
9				4.848	4.875	0.55%
10				5.373	5.416	0.81%
11				5.912	5.962	0.85%
12				6.458	6.478	0.32%

13				6.984	7.015	0.45%
14				7.511	7.536	0.33%
15				8.039	8.062	0.28%
16				8.564	8.587	0.27%
17				9.102	9.141	0.43%
18				9.632	9.670	0.39%
19				10.179	10.202	0.23%
20				10.680	10.724	0.41%
Comments:						0.60%
	BIOS s/n	140792				Average % Diff
	Definer 220-H					
	0 - 10 LPM			STD temp	25	
Technician:	Adrienne Kaul					

MFC FLOW CHECK SHEET-AS FOUND

Date:	4/25/25	Temp (C):	26.2	Correction Calculation:		Flow Calculation:
Time:	10:09	Pressure:	759 mmHg	(P-Pv) *	298	vol * corr factor
Location:	Riverlodge	MFC #:	CAL1	29.92	273 + T	time
Model:	API T700U	Serial Number:	906	Corr factor:	n/a	
Point #			Changed? *	BIOS (cc/min)	Station (cc/min)	percent difference
1				5.087	5.3	4.19%
2				10.617	10.8	1.72%
3				16.094	16.3	1.28%
4				21.487	21.7	0.99%
5				26.864	27.0	0.51%
6				32.158	32.2	0.13%
7				37.492	37.5	0.02%
8				42.611	42.7	0.21%
9				47.853	47.9	0.10%
10				52.974	53.2	0.43%
11				58.243	58.5	0.44%
12				63.430	63.7	0.43%
13				68.495	68.9	0.59%
14				73.810	74.2	0.53%
15				78.944	79.5	0.70%
16				84.519	85.9	1.63%
17				90.161	90.7	0.60%
18				95.607	96.1	0.52%
19				101.550	102.6	1.03%
20				107.310	107.6	0.27%
Comments:						0.82%
	BIOS s/n	140619				Average % Diff
	Definer 220-L					
	0 - 100 cc			STD Temp	25	
Technician:	Adrienne Kaul					

MFC FLOW CHECK SHEET-AFTER ADJUSTMENT

Date:	4/25/25	Temp (C):	24.8	Correction Calculation:		Flow Calculation:
Time:	10:09	Pressure:	759 mmHg	(P-Pv) *	298	vol * corr factor
Location:	Riverlodge	MFC #:	CAL1	29.92	273 + T	time
Model:	API T700U	Serial Number:	906	Corr factor:	n/a	

Point #			Changed? *	BIOS (cc/min)	Station (cc/min)	percent difference
1				5.052	5.1	0.96%
2				10.653	10.6	-0.50%
3				16.146	16.1	-0.28%
4				21.478	21.5	0.10%
5				26.795	26.9	0.39%
6				32.056	32.2	0.45%
7				37.375	37.5	0.33%
8				42.314	42.6	0.68%
9				47.732	47.9	0.35%
10				52.858	53.0	0.27%
11				58.131	58.2	0.12%
12				63.481	63.4	-0.13%
13				68.724	68.5	-0.33%
14				73.980	73.8	-0.24%
15				79.218	78.9	-0.40%
16				84.733	84.5	-0.27%
17				89.946	90.2	0.28%
18				95.739	95.6	-0.15%
19				101.510	101.6	0.09%
20				107.370	107.3	-0.07%

Comments:					0.08%
	BIOS s/n	140619			Average % Diff
	Definer 220-L				
	0 - 100 cc		STD Temp	25	
Technician:	Adrienne Kaul				

04/29/2025 - RT activities

Tuesday, April 29, 2025 12:50 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: April 29, 2025
Start Time: 12:50; 15:36
End Time: 15:46; 16:41
Technician: Adrienne Kaul

Reason for Visit

On site for weekly site check and RT activities

Description

Envidas:

-Clock was 1 second ahead and synced at 12:53.

T200 NOx:

-Clock was 43 seconds ahead and updated at 12:56. Clock was 1 second behind following update.

T400 O3:

-Clock was 44 seconds ahead and updated at 12:57. Clock was 1 second behind following update.

N901 CH4, NMHC, and THC:

-Clock was 45 seconds ahead and updated at 12:59.

T700U Calibrator:

-Clock was 44 seconds ahead and was updated at 13:05.

Analyzer data flagged 13:09-14:32 for RT activities

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter temperature 25.6 C, within spec.
- SO2, NO, C3H8, and CH4 tank pressure 1740 psi and line pressure 30 psi.
- CH4 tank pressure 2000 psi and line pressure 36 psi.
- Nitrogen tank pressure 1590 psi and line pressure 65 psi.
- Hydrogen tank pressure 1275 psi and line pressure 50 psi.
- Ambient temperature aspirator sounds to be working normally.
- Wind speed and direction sensors appear to be working normally.

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Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Monthly Report (May 2025)

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Revision Status				Approving Organization		
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1. Executive Summary

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. The BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., for the discharge of air contaminants to the environment from the LNG Facility.

Permit PA-110588 requires a monthly report to be submitted to the BCER that includes data/information on:

- Fuel Gas Use (for Commissioning only)
- Continuous Emissions Monitoring System (for Operations only)
- Flaring Activities
- Ambient Air Monitoring Evaluation
- Facility sulphur dioxide (SO_2) Emissions

Herein is the monthly report for May 2025. A summary of the findings for this reporting period is as follows:

- There were no instances of permit non-compliances during the reporting period.
- There were no ambient air quality concentrations of nitrogen dixoide (NO_2), SO_2 or respirable particulate matter ($PM_{2.5}$) measured in excess of the BC ambient air quality objective (BCAAQO) metrics at the three continuous ambient air quality monitoring stations identified in Permit PA-110588 (Kitamaat Village (Kitimat Haisla Village); Kitimat Riverlodge and Kitimat Whitesail).
- There were air emissions from six authorised discharge sources defined in Sections 2.1 to 2.7 of Permit PA-110588: warm/wet flare, cold/dry flare, liquid burner, storage and loading flare, gas turbine string 1, and Train 1 acid gas incinerator.

The storage and loading flare was the largest source of air emissions mainly from the LNG tank. The maximum hourly cumulative SO_2 rate in May 2025 was calculated to be 0.261 kg/hour.

2. Overview

2.1. Project Background

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia, Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

2.2. Purpose

On July 15, 2024, the BCER issued WDA discharge permit PA-110588 to LNG Canada Development Inc., under the provisions of the BC *Environmental Management Act*, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Permit PA-110588 applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.2 of Permit PA-110588 (Monthly Reporting) for May 2025.

Refer to Appendix B for a list of all monthly reports that have been issued under Permit PA-110588.

2.3. LNG Facility Status

On the afternoon of August 31, 2024, fuel gas was introduced into Unit 1000 (Inlet Facilities) for the first time from the Coastal Gas Link (CGL) pipeline, commencing the pressurization of piping and the startup fuel gas heater. The introduction of fuel gas into the fuel gas headers down to the flare area, and the first supply of fuel gas to the pilot on the warm/wet flare occurred on September 1, 2024.

The main commissioning activity in May was the startup of the warm end of Train 1, with the gas turbine and acid gas removal unit (U1100) starting on May 28th. This process is a critical step towards bringing Train 1 online towards producing first drop of LNG.

During May 2025, discharges of air contaminants occurred from the following authorized works:

- One (1) warm/wet flare
- One (1) cold/dry flare
- One (1) storage and loading flare
- Liquid burner
- Gas turbine String 1

- Train 1 acid gas incinerator

Under Permit PA-110588, the “Commissioning” phase is defined as “that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.” Operations is the period of time which follows Commissioning. Therefore, “Commissioning”, under Permit PA-110588, commenced on September 1, 2024. The first cargo has not yet been shipped from LNG Train 1.

The Initial Performance Period (IPP) did not commence during May 2025 (which is defined as the period that “*commences upon the completion of the initial performance test for LNG Train 1”*).

3. Fuel Gas Use (Commissioning Only) (Condition 10.2.1)

3.1. Permit Condition

Under Condition 10.2.1, the monthly report shall identify and provide a summary of fuel gas use at the facility during Commissioning. The monthly report shall include the following information:

a. the daily volume of fuel gas combusted and vented;

b. the daily mass emissions of nitrogen oxides (NOx), sulphur oxides (SOx), carbon monoxide (CO), particulate matter with an aerodynamic diameter smaller than 2.5 micrometers ($PM_{2.5}$), volatile organic compounds (VOCs) and total hydrocarbons (HC-T), for the authorized works in Section 2.1 and 2.2; and

c. the quantification method (under Section 9 of Permit PA-110588) and representative calculations.

3.2. Data and Assessment

Appendix C contains the summary of the daily volume of fuel gas combusted and flared as well as the daily mass emissions of NO_X, SO_X, CO, $PM_{2.5}$, VOCs, and HC-T from the gas turbine and AGI (which is Section 2.1 and 2.2 of Permit PA-110588 respectively) in May 2025.

The basis for this assessment is as follows:

- The daily volume of fuel gas combusted and flared at the LNG Facility is based on the daily volume of fuel gas introduced into the LNG facility, as all this fuel gas is used for testing purposes during Commissioning; rather than for producing LNG. This is a conservative approach, and does not account for the time lag between pressurizing systems with fuel gas to it being combusted or flared. The data for this report was obtained from the Kitimat Metering Station (KMS) using the CGL meter.
- Emissions from AGI are estimated based on published emission factors for a flare, to represent a high temperature oxidation process to burn hydrocarbons (refer to Table 2). Similar to the gas turbine engines, the data from the CEMS associated with the AGI will be available after the RATA has been undertaken (which will be undertaken when a stable load of acid gas is being generated in the Acid Gas Recovery Units (AGRUs)).

Table 1 Natural Gas-Fired Turbine Emission Factors

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.099	lb/MMBtu	D	
SO_x	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.94S	lb/MMBtu	B	Where “S” is the percent sulphur in fuel. “S” to be informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014). If “S” is not available, the AP-42 states to use 3.4 E-03 lb/MMBtu for natural gas turbines (0.0034).
CO	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.015	lb/MMBtu	D	

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
PM2.5	USEPA AP-42: Table 3.1-2a (uncontrolled; condensable)	0.0047	lb/MMBtu	C	
VOC	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.0021	lb/MMBtu	D	AP-42 states that VOC emissions are assumed equal to the sum of organic emissions.
HC-T	Engineering Estimate	16.1 x % operating load	g/s	N/A	There is no AP-42 emissions factor for total hydrocarbons. The permit application used a basis of 16.1 g/s per gas turbine during Operations; therefore this value will be used and factored down based on the estimated operating load for the turbine.

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 3.1 is applicable for Stationary Gas Turbines.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.

Table 2: Emission Factors used for the AGI (Based on Flare)

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
SO_X	Engineering Estimate				There is no AP-42 emissions factor for SO_X; therefore it is based on fuel gas sulphur content informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014).The assumed destruction efficiency is 100%.
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.027	lb/MMBtu	B	Based on a lightly smoking flare (soot in concentration values: 40 ug/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from ug/L to lb/MMBtu is documented in the “Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015”, issued to USEPA by RTI International.

4. CEMS Zero and Span Reporting (Condition 10.2.2)

4.1. Permit Condition

Under Condition 10.2.2, during Operations, after the completion of the initial CEMS performance evaluation, the monthly report shall include a summary of all CEMS out of control calibration zero and span events that occurred during the month.

4.2. Data and Assessment

As Operations has not yet commenced, there is no CEMS zero and span reporting for this month.

5. CEMS Reporting (Condition 10.2.3)

5.1. Permit Condition

Under Condition 10.2.3, during Operations, after the completion of the initial CEMS performance evaluation, the Permittee shall provide a summary of CEMS data collected during the month.

5.2. Data and Assessment

As Operations has not yet commenced, there is no CEMS reporting for this month.

6. Flaring Activity Reporting (Condition 10.2.4)

6.1. Permit Condition

Under Condition 10.2.4, a summary of all flaring activity carried out during the month is to be included in the monthly report. The monthly report shall include the following information:

a. identification of the flare source;

b. description of the type of process gas sent to flare;

c. the volume of gas sent to the flare during each event;

d. the reason for the flaring event;

e. any external notifications sent out, if applicable;

f. the (i) daily and (ii) monthly volume of gas being flared for each source;

g. the (i) daily and (ii) monthly contaminant emission totals for each source, parameters include NO_x, CO, $PM_{2.5}$, SO_x, VOCs, and HC-T; and

h. the quantification method (under Section 9) and representative calculations.

6.2. Data and Assessment

In Permit PA-110588, flaring activities are described as either a routine flaring event (continuous) or a non-routine flaring event (intermittent). Routine flaring discharges include the continuous flare pilots, which are supplied by fuel gas to provide a continuous ignition source so that any gas sent to the flare as a result of upset conditions ("non-routine flaring") is immediately combusted. The permit application to support Permit PA-110588 also described the other small sources of process gas that are continuously sent to the flare, including compressor seal gas, analyzer sample returns and passing valves.

Process gas refers to the natural gas stream intended for LNG production; the incoming gas stream from Coastal Gas Link (CGL) that undergoes several treatment stages (acid gas removal, pre-cooling, and finally, liquefaction) prior to being exported as LNG.

Appendix D contains the flaring activities tables, as follows:

- Table D-1: Flaring Events Table
- Table D-2: Warm/Wet Flare Volume and Emissions Summary
- Table D-3: Cold/Dry Flare Volume and Emissions Summary
- Table D-4: Storage and Loading Flare Volume and Emissions Summary
- Table D-5: Spare Flare Volume and Emissions Summary
- Table D-6: Liquid Burner Volume and Emissions Summary

Sample calculations are also provided in Appendix D (Exhibit D-1). The basis for this assessment is as follows:

- The daily volume of gas flared is sourced from the flow meters upstream of the applicable flare. In cases where the flow is below the detection limit of the flow meters, the sum of flow from upstream flow meters is used.
- The daily mass emissions from each flare source reported herein are calcuated based on published emission factors for industrial flares (refer to Table 3), except for SO_X, which is calculated based on a mass balance and assumed destruction efficiency.

Table 3: Emission Factors used for the Flare System

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.12	lb/MMBtu	B	Based on an average smoking flare (soot in concentration values: 177 ug/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from ug/L to lb/MMBtu is documented in the “Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015”, issued to USEPA by RTI International.

7. Permit Contravention (Condition 10.2.5)

7.1. Permit Condition

Under Condition 10.2.5, a summary of all instances of permit non-compliances are to be included in the monthly report, including a description of the event (date, time, circumstances), a summary of the investigation findings, the completed and ongoing actions taken in response to the non-compliance event, and the date of self-disclosure notifications to the BCER.

7.2. Assessment

There were no instances of permit non-compliances during the reporting period.

8. Pollution Control Technologies (Condition 10.2.6)

8.1. Permit Condition

Under Condition 10.2.6, a discussion of any operational or performance issues or significant maintenance activities with any pollution control technologies of the authorized works and equipment required by the permit is to be included in the monthly report.

The pollution control technologies identified in the permit application supporting Permit PA-110588 were the:

- Dry low emissions combustor optimization system in the gas turbines (dry low NOx burners); and
- Catalysts in the WHRUs, to convert CO in the exhaust gas to carbon dioxide.

8.2. Assessment

There were no instances of operational or performance issues, or significant maintenance activities with the pollution control technologies within the reporting period, given Operations has not yet commenced.

9. Ambient Air Monitoring Evaluation (Commissioning Only) (Condition 10.2.7)

9.1. Permit Condition

Under Condition 10.2.7, the following information for nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and $PM_{2.5}$ from three continuous ambient air quality monitoring stations (Kitamaat Village (Kitimat Haisla Village) (Site 1); Kitimat Riverlodge (Site 2) and Kitimat Whitesail) are to be included in the monthly report during Commissioning where information is publicly available:

a. a comparison of the measured ambient air concentrations at each ambient air monitoring stations to the applicable numerical metrics of the BC ambient air quality objectives (BCAAQO);

b. (i) a description of any measured ambient air concentrations in excess of the numerical metrics of the BCAAQO, if applicable, (ii) a description of any known contributing factors from authorized works, and (iii) a description of action (if any) taken by the Permittee.

The monthly report shall also include the time series plot of the hourly average ambient air concentration of ozone (O_3) data from these stations.

9.2. Data and Assessment

Data from continuous ambient air quality monitoring stations in Kitimat are publicly available via the BC Ministry of Environment and Climate Change Strategy, at: Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

The publicly available data for NO_2, SO_2 and $PM_{2.5}$ at the three continuous ambient air quality monitoring stations are provided in graphs in Appendix E; the graphs also contain the applicable BCAAQO. The time series plot for the hourly average ambient air concentration of O_3 is also provided in Appendix E.

There were no ambient air quality concentrations of NO_2, SO_2 and $PM_{2.5}$ measured in excess of the BCAAQO metrics in the reporting period.

10. Facility SO_2 Emission Limit (Condition 10.2.8)

10.1. Permit Condition

Under Condition 10.2.8, for all authorized sources in Sections 2.1 to 2.7, for each day of the month, the maximum hourly cumulative SO_2 discharge rate is to be provided in the monthly report, including the percentage breakdown of the sources contributing to the maximum discharge rate of each day.

10.2. Data and Assessment

Appendix F contains the cumulative SO_2 discharge rate from the authorized sources in Permit PA-110588 Section 2.1 to 2.7 (refer to Section 2.2), including the percentage breakdown of the sources contributing to the maximum discharge rate shown for each day.

The representative calculations for SO_2 are provided in Appendix C for the gas turbine and AGI, and Appendix D for the flare system.

11. References

- BC Ministry of Environment and Parks, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca), accessed April 2, 2025.

Appendix A Abbreviations

AGI	Acid Gas Incinerator
AGRU	Acid Gas Removal Unit
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
CGL	Coastal Gas Link (Pipeline)
CO	Carbon monoxide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
JFJV	JGC Fluor BC LNG Joint Venture
KMS	Kitimat Metering Station
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
VOC	Volatile Organic Compound
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit
$\mu g/m^3$	micrograms per cubic meter

Appendix B Previous Monthly Reports Issued Under PA-110588

Month	Document #	Date Issued
August 2024	L001-09800-HE-7180-4611	04-Sep-2024
September 2024	L001-09800-HE-7180-4612	22-Oct-2024; Revised 03-Mar-2025 (Rev B)
October 2024	L001-09800-HE-7180-4613	26-Nov-2024; Revised 03-Mar-2025 (Rev B)
November 2024	L001-09800-HE-7180-4614	16-Dec-2025; Revised 03-Mar-2025 (Rev B)
December 2024	L001-09800-HE-7180-4684	23-Mar-2025
January 2025	L001-09800-HE-7180-4691	26-Mar-2025
February 2025	L001-09800-HE-7180-4692	27-Mar-2025
March 2025	L001-09800-HE-7180-4702	25-Apr-2025
April 2025	L001-09800-HE-7180-4708	30-May-2025
May 2025	L001-09800-HE-7180-4708	30-Jun-2025

Appendix C Fuel Gas Use During Commissioning (Condition 10.2.1)

There was no LNG production that occurred in this period. For this month, all daily fuel gas volumes were obtained from the KMS (Tag: KITSL-V1P.curval) under atmospheric pressure (Pressure = 1 atm) (refer to Table C-1). The fuel volumes below were corrected to 20°C.

The increase in fuel gas towards the end of the month was due to the commencement of the warm end of Train 1.

Table C-1: Fuel Gas Use During Commissioning

Date	Volume of Fuel Gas Introduced to LNG Facility (m^3/d)*
01-May-25	366,247
02-May-25	271,124
03-May-25	360,448
04-May-25	371,944
05-May-25	377,641
06-May-25	313,751
07-May-25	227,073
08-May-25	344,170
09-May-25	227,276
10-May-25	229,311
11-May-25	224,326
12-May-25	226,971
13-May-25	221,478
14-May-25	235,212
15-May-25	217,306
16-May-25	211,202
17-May-25	205,302
18-May-25	204,590
19-May-25	203,369
20-May-25	208,252
21-May-25	290,861
22-May-25	544,283
23-May-25	430,035
24-May-25	399,209
25-May-25	410,502
26-May-25	416,809
27-May-25	395,750
28-May-25	426,372
29-May-25	697,497
30-May-25	1,412,593
31-May-25	1,724,607
Monthly Total	**12,395,511**

* Individual and final totals may be subject to rounding adjustments

Table C-2: Fuel Gas Use During Commissioning – Gas Turbines

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-May-25	-	-	-	-	-	-	-
02-May-25	-	-	-	-	-	-	-
03-May-25	-	-	-	-	-	-	-
04-May-25	-	-	-	-	-	-	-
05-May-25	-	-	-	-	-	-	-
06-May-25	-	-	-	-	-	-	-
07-May-25	-	-	-	-	-	-	-
08-May-25	-	-	-	-	-	-	-
09-May-25	-	-	-	-	-	-	-
10-May-25	-	-	-	-	-	-	-
11-May-25	-	-	-	-	-	-	-
12-May-25	-	-	-	-	-	-	-
13-May-25	-	-	-	-	-	-	-
14-May-25	-	-	-	-	-	-	-
15-May-25	-	-	-	-	-	-	-
16-May-25	-	-	-	-	-	-	-
17-May-25	-	-	-	-	-	-	-
18-May-25	-	-	-	-	-	-	-
19-May-25	-	-	-	-	-	-	-
20-May-25	-	-	-	-	-	-	-
21-May-25	-	-	-	-	-	-	-
22-May-25	-	-	-	-	-	-	-
23-May-25	64	0.1	0.02	0.01	0.0	0.00	1
24-May-25	-	-	-	-	-	-	-
25-May-25	-	-	-	-	-	-	-
26-May-25	-	-	-	-	-	-	-
27-May-25	-	-	-	-	-	-	-
28-May-25	1,160	2.0	0.3	0.1	0.0	0.04	1.4
29-May-25	247,721	428	65	20	0.4	9	404
30-May-25	295,032	511	77	24	0.4	11	504
31-May-25	376,683	647	98	31	1	14	762
Total	**920,660**	**1,588**	**240**	**75**	**2**	**34**	**1,672**

* Individual and final totals may be subject to rounding adjustments

Table C-3: Fuel Gas Use During Commissioning – Acid Gas Incinerator

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-May-25	-	-	-	-	-	-	-
02-May-25	-	-	-	-	-	-	-
03-May-25	-	-	-	-	-	-	-
04-May-25	-	-	-	-	-	-	-
05-May-25	-	-	-	-	-	-	-
06-May-25	-	-	-	-	-	-	-
07-May-25	-	-	-	-	-	-	-
08-May-25	-	-	-	-	-	-	-
09-May-25	-	-	-	-	-	-	-
10-May-25	-	-	-	-	-	-	-
11-May-25	-	-	-	-	-	-	-
12-May-25	-	-	-	-	-	-	-
13-May-25	-	-	-	-	-	-	-
14-May-25	-	-	-	-	-	-	-
15-May-25	-	-	-	-	-	-	-
16-May-25	-	-	-	-	-	-	-
17-May-25	-	-	-	-	-	-	-
18-May-25	-	-	-	-	-	-	-
19-May-25	-	-	-	-	-	-	-
20-May-25	-	-	-	-	-	-	-
21-May-25	-	-	-	-	-	-	-
22-May-25	-	-	-	-	-	-	-
23-May-25	1,766	2	9	1	0.0	18	4
24-May-25	6,263	7	30	3	0.01	65	14
25-May-25	17,499	21	85	7	0.02	181	38
26-May-25	21,262	25	103	9	0.03	220	47
27-May-25	11,170	13	54	5	0.01	116	25
28-May-25	5,738	7	28	2	0.01	59	13
29-May-25	23,990	28	117	10	0.03	249	53
30-May-25	23,868	28	116	10	0.03	248	53
31-May-25	23,713	28	115	10	0.03	245	52
Total	**135,269**	**159**	**657**	**57**	**0.17**	**1,401**	**299**

* Individual and final totals may be subject to rounding adjustments

Exhibit C-1: Sample Emission Calculations – Gas Turbine

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hour (h) to 1 day (d)
    - 10,000 parts per millon (ppm) in one percent

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable sources of data from the meters include:
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - Tag CA:KIT:114FI1601.PV: LNG Train 1, String 1 (1KT-1460); fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:114BHS1423.PV: Gas Turbine Operating Load (MW)
    - Emission factors: Refer to Table 1 within the report.

The sample calcuation below is based on the data from May 28, 2025.

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:114FI1601.PV is converted to volume flow rate using the fluid density of 0.745039664 kg/m³.

- Mass flow rate = 846 kg/d

Volume flow rate (m³/d)

= (864 / 0.745039664) ≈ 1,160 m^3/d

Step 2: Emission Calculation – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow} \left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value} \left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}} \left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000} \left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478 \left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor} \left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535 \text{ kg}}{1 \text{ lb}}$$

Using NOx for the example; NOx Mass Emission (kg/d)

= 864 x 40.58 x 1/ 0.745039664 x 1/1000 x 0.9478 x 0.099 x 0.4535

≈ 2 kg/d

For SO_2, 0.94S was used as the emission factor - where "S" is the percent sulphur in fuel (refer to Table 1). "S" is based on the total sulphur content of the fuel gas (from the laboratory analysis) given fuel gas was used to fuel the gas turbine this month (refer to Appendix D, Table D-7).

SOx Mass Emission (kg/d)

= 864 x 40.58 x 1/ 0.745039664 x 1/1000 x 0.9478 x 0.94*(0.000090) x 0.4535

≈ 0.0017 kg

Emission Calculation Basis – when using Engineering Estimates (only applies to HC-T)

Formula: HC-T Mass Emission (kg/h)

$$= 16.1 \frac{\text{g}}{\text{s}} \times \frac{\text{Operating load (\%)}}{100} \times \frac{1\ \text{kg}}{1000\ \text{g}} \times \frac{3600\ \text{s}}{1\ \text{h}}$$

Using February 1, 2025, for the example, where the gas turbine operating load of 58.86 MW was obtained from CA:KIT:114BHS1423.PV. For the purposes of this calculation, the maximum operating load of the LMS100 is approximately 110 MW.

Operating load (%)

= (0.11 MW / 110 MW) x 100 = 0.1 %

HC-T Mass Emission (kg/h)

= 16.1 x 0.1/100 x 1/1000 x 3600/1

= 0.05796 kg/h

HC-T Mass Emission (kg/d)

= 0.05796 x 24

≈ 1.4 kg/d

Exhibit C-2: Sample Emission Calculations – Acid gas incinerator

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hours (h) to 1 day (d)
    - 10,000 parts per million (ppm) in one percent

Input Values

The applicable sources of data from the meters include:

- Tag CA:KIT:119FI0302.PV: Fuel gas consumption by the acid gas incinerator (daily values).
- Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
- Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) multiplied by a reference air density of 1.225 kg/m³ (15°C, 1 atm) and corrected to standard conditions (20°C, 1 atm) to determine the actual natural gas density.
- Emission Factors: Refer to Table 2 within the report.

The sample calculation below is based on the data from May 28, a2025.

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:119FI0302.PV is converted to volume flow rate using the fluid density of 0.745039664 kg/m³.

Mass flow rate = 4,275 kg/d

Volume flow rate (m³/d):

= Mass flow rate / Fluid density

= 4,275 / 0.745039664 ≈ 5,738 m³/d

Step 2: Emission Calculation – Using Emission Factors

Formula: Mass Emission (kg/d) =

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Example: NOx Emissions

- NOx Emission Factor: 0.068 lb/MMBTU

NOx Mass Emission (kg/d):

= 4,275 × 40.58 × (1 / 0.745039664) × (1 / 1000) × 0.9478 × 0.068 × 0.4535

≈ 7 kg/d

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

For SO_2, total sulphur is based on the total sulphur content of the fuel gas for May 26 (from the laboratory analysis) given fuel gas was used to fuel the AGI this month (refer to Appendix D, Table D-7).

SO_2 Mass Emission (kg/d):

= 4,275 x 0.00009 x (1 / 100) x (64.066 / 32.065) x 1

≈ 0.01 kg/d

Appendix D Flaring Activity (Condition 10.2.4)

Table D-1: Flaring Event Overview

Flare	Event Type	Event Date & Time			Description	Volume of Gas to Flare Per Event (m^3/month)	External Notifications Undertaken
		Start	End	Duration			
Warm/Wet	Routine	01-May-2025	31-May-2025	Continuous	Pilot and purge gas	16,746	
Warm/Wet	Non-Routine	01-May-2025	31-May-2025	Continuous	Assist gas and supporting start-up activities[1]	5,494,165	
Cold/Dry	Routine	01-May-2025	31-May-2025	Continuous	Pilot, and fuel gas purges to support start-up activities	51,706	
Storage and Loading	Routine	01-May-2025	31-May-2025	Continuous	Pilot and purge gas	202,583	
Storage and Loading	Non-Routine	01-May-2025	31-May-2025	N/A	LNG boil off and Assist gas	16,946,120	
Spare	N/A	N/A	N/A	N/A	Not Used	0	
Liquid Burner	Routine	01-May-2025	31-May-2025	Continuous	Pilot	13,870	
Liquid Burner	Non-Routine	01-May-2025	31-May-2025	Continuous	Assist Gas	32	

Notes:

1. In this reporting period, flaring is undertaken to support commissioning and start-up activities; in accordance with Leave(s) to Operate from the BC Energy Regulator. This fuel gas is not considered process gas.

The data for the warm/wet flare was derived from the KMS CGL inlet gas meter (refer to Table C-1). The following volumes were subtracted because they were measured and reported separately:

- The pilot and fuel gas purges for the cold dry flare (refer to Table D-3)
- The pilot for the liquid burner (refer to Table D-6)
- The pilot, assist gas, fuel gas purges and LNG boil of gas for the storage and loading flare (refer to Table D-4)
- The fuel gas going into the acid gas generator (refer to Table C-3)
- The fuel gas going into the gas turbine (refer to Table C-2)

The fuel volumes below were corrected to 20°C.

Table D-2: Flaring Event – Warm/Wet Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-May-25	174,071	208	854	330	0.1	1,817	385
02-May-25	172,928	207	848	328	0.1	1,805	383
03-May-25	181,485	217	890	344	0.1	1,895	402
04-May-25	179,446	214	880	341	0.1	1,873	397
05-May-25	184,772	220	904	350	0.1	1,924	408
06-May-25	165,581	197	808	313	0.1	1,719	365
07-May-25	32,172	38	157	61	0.0	334	71
08-May-25	158,751	189	774	300	0.1	1,648	350
09-May-25	32,104	38	157	61	0.0	333	71
10-May-25	34,085	40	166	64	0.0	354	75
11-May-25	33,603	40	164	63	0.0	349	74
12-May-25	31,719	38	154	60	0.0	328	70
13-May-25	40,074	48	195	75	0.1	415	88
14-May-25	39,909	47	194	75	0.1	413	88
15-May-25	21,974	26	107	41	0.1	228	48
16-May-25	15,861	19	77	30	0.1	164	35
17-May-25	9,878	12	48	19	0.0	102	22
18-May-25	9,726	12	47	18	0.0	101	21
19-May-25	10,218	12	50	19	0.0	106	22
20-May-25	15,019	18	73	28	0.0	156	33
21-May-25	97,657	116	475	184	0.1	1,011	214
22-May-25	351,076	416	1,707	661	0.5	3,635	771
23-May-25	235,071	279	1,143	443	0.3	2,434	516
24-May-25	199,881	237	972	376	0.3	2,070	439
25-May-25	199,935	237	972	376	0.3	2,070	439
26-May-25	202,441	240	985	381	0.3	2,096	445
27-May-25	191,466	227	931	360	0.3	1,983	421
28-May-25	226,349	268	1,101	426	0.3	2,344	497
29-May-25	232,420	276	1,130	438	0.3	2,407	510

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
30-May-25	901,011	1,072	4,394	1,701	1.2	9,355	1,984
31-May-25	1,130,228	1,334	5,482	2,122	1.5	11,671	2,476
Monthly Total	**5,510,911**	**6,542**	**26,839**	**10,388**	**7**	**57,140**	**12,120**

* Individual and final totals may be subject to rounding adjustments

For this month, the reporting for the cold/dry flare is from the pilot (CA:KIT:062FI0343.PV). Additionally, there were some fuel gas purges (CA:KIT:062FI0021.PV and CA:KIT:062FI0022.PV) from the cold-dry flare in this month.

Table D-3: Flaring Event – Cold/Dry Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-May-25	1,362	2	7	3	0.001	14	3
02-May-25	1,365	2	7	3	0.001	14	3
03-May-25	1,367	2	7	3	0.001	14	3
04-May-25	1,367	2	7	3	0.001	14	3
05-May-25	1,374	2	7	3	0.001	14	3
06-May-25	2,931	4	14	6	0.002	30	6
07-May-25	2,907	4	14	6	0.002	30	6
08-May-25	2,920	4	14	6	0.002	30	6
09-May-25	2,920	4	14	6	0.002	30	6
10-May-25	2,918	4	14	6	0.002	30	6
11-May-25	2,919	4	14	6	0.002	30	6
12-May-25	2,911	4	14	6	0.002	30	6
13-May-25	2,913	4	14	6	0.011	30	6
14-May-25	2,913	4	14	6	0.011	30	6
15-May-25	2,915	4	14	6	0.011	30	6
16-May-25	2,913	4	14	6	0.011	30	6
17-May-25	2,914	4	14	6	0.011	30	6
18-May-25	2,323	3	11	4	0.009	24	5
19-May-25	605	1	3	1	0.002	6	1
20-May-25	605	1	3	1	0.0008	6	1
21-May-25	604	1	3	1	0.0008	6	1
22-May-25	604	1	3	1	0.0008	6	1
23-May-25	604	1	3	1	0.0008	6	1
24-May-25	604	1	3	1	0.0008	6	1
25-May-25	604	1	3	1	0.0008	6	1
26-May-25	604	1	3	1	0.0008	6	1
27-May-25	604	1	3	1	0.0008	6	1
28-May-25	604	1	3	1	0.0008	6	1
29-May-25	604	1	3	1	0.0008	6	1
30-May-25	602	1	3	1	0.0008	6	1
31-May-25	306	0.0	1	1	0.0004	3	1
Monthly Total	**51,706**	**73**	**251**	**104**	**0.09**	**529**	**105**

* Individual and final totals may be subject to rounding adjustments

The storage and loading flare (FLP) pilot (CA:KIT:062FI0343.PV) has been operating. Additional flaring was done from the LNG import which concluded with the ship departing on May 3, 2025. Other sources of flaring from FLP were assist gas (CA:KIT:062FI0351.PV), and fuel gas purges (CA:KIT:062FI0131.PV; CA:KIT:062FI0133.PV; CA:KIT:062FI0041.PV).

Table D-4: Flaring Event – Storage and Loading Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-May-25	394,014	471	1,933	748.49	0.2	4,117	873
02-May-25	151,571	181	744	287.85	0.1	1,583	336
03-May-25	439,087	525	2,154	833.66	0.1	4,585	973
04-May-25	628,902	751	3,081	1,192.76	0.2	6,560	1,392
05-May-25	594,704	709	2,909	1,126.06	0.2	6,194	1,314
06-May-25	536,149	638	2,618	1,013.52	0.1	5,574	1,182
07-May-25	497,254	591	2,425	939	0.2	5,165	1,095
08-May-25	568,499	675	2,772	1,073	0.1	5,901	1,252
09-May-25	633,126	752	3,085	1,194	0.2	6,568	1,393
10-May-25	582,010	691	2,836	1,098	0.2	6,036	1,280
11-May-25	529,614	628	2,580	998	0.2	5,493	1,165
12-May-25	524,605	623	2,555	989	0.2	5,440	1,154
13-May-25	553,641	657	2,696	1,044	0.7	5,740	1,218
14-May-25	568,178	675	2,767	1,071	0.7	5,891	1,250
15-May-25	568,235	675	2,767	1,071	0.7	5,890	1,249
16-May-25	580,115	689	2,825	1,094	0.7	6,013	1,275
17-May-25	600,666	713	2,924	1,132	0.7	6,224	1,320
18-May-25	582,670	691	2,836	1,098	0.7	6,036	1,280
19-May-25	524,243	622	2,551	988	0.7	5,431	1,152
20-May-25	592,313	702	2,882	1,116	0.3	6,134	1,301
21-May-25	637,504	756	3,102	1,201	0.3	6,603	1,400
22-May-25	640,749	760	3,117	1,207	0.3	6,636	1,408
23-May-25	594,567	705	2,894	1,120	0.3	6,160	1,307
24-May-25	581,209	690	2,829	1,095	0.3	6,023	1,278
25-May-25	607,234	721	2,956	1,144	0.3	6,293	1,335
26-May-25	597,291	709	2,907	1,125	0.3	6,188	1,313
27-May-25	581,515	690	2,830	1,096	0.3	6,025	1,278
28-May-25	580,293	688	2,824	1,093	0.3	6,012	1,275
29-May-25	599,094	711	2,916	1,129	0.3	6,207	1,316
30-May-25	540,213	643	2,637	1,021	0.3	5,614	1,191
31-May-25	539,438	637.0	2,613.0	1,012.0	0.3	5,563.0	1,180.0
Monthly Total	**17,148,703**	**20,369**	**83,565**	**32,350**	**11**	**177,899**	**37,735**

* Individual and final totals may be subject to rounding adjustments

The spare flare was not used in the reporting month (refer to Table D-5).

Table D-5: Flaring Event – Spare Flare Volume and Emissions Summary

There was no flaring on the Spare Flare.

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-May-25	-	-	-	-	-	-	-
02-May-25	-	-	-	-	-	-	-
03-May-25	-	-	-	-	-	-	-
04-May-25	-	-	-	-	-	-	-
05-May-25	-	-	-	-	-	-	-
06-May-25	-	-	-	-	-	-	-
07-May-25	-	-	-	-	-	-	-
08-May-25	-	-	-	-	-	-	-
09-May-25	-	-	-	-	-	-	-
10-May-25	-	-	-	-	-	-	-
11-May-25	-	-	-	-	-	-	-
12-May-25	-	-	-	-	-	-	-
13-May-25	-	-	-	-	-	-	-
14-May-25	-	-	-	-	-	-	-
15-May-25	-	-	-	-	-	-	-
16-May-25	-	-	-	-	-	-	-
17-May-25	-	-	-	-	-	-	-
18-May-25	-	-	-	-	-	-	-
19-May-25	-	-	-	-	-	-	-
20-May-25	-	-	-	-	-	-	-
21-May-25	-	-	-	-	-	-	-
22-May-25	-	-	-	-	-	-	-
23-May-25	-	-	-	-	-	-	-
24-May-25	-	-	-	-	-	-	-
25-May-25	-	-	-	-	-	-	-
26-May-25	-	-	-	-	-	-	-
27-May-25	-	-	-	-	-	-	-
28-May-25	-	-	-	-	-	-	-
29-May-25	-	-	-	-	-	-	-
30-May-25	-	-	-	-	-	-	-
31-May-25							
Monthly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

The emissions associated with the liquid burner are from the pilot (refer to Table D-6).

Table D-6: Flaring Event – Liquid Burner Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-May-25	435	0.5	2	1	0.00	5	1
02-May-25	440	0.5	2	1	0.00	5	1
03-May-25	441	0.5	2	1	0.00	5	1
04-May-25	439	0.5	2	1	0.00	5	1
05-May-25	446	0.5	2	1	0.00	5	1
06-May-25	489	0.6	2	1	0.00	5	1
07-May-25	428	0.5	2	1	0.00	4	1
08-May-25	452	0.5	2	1	0.00	5	1
09-May-25	448	0.5	2	1	0.00	5	1
10-May-25	448	0.5	2	1	0.00	5	1
11-May-25	449	0.5	2	1	0.00	5	1
12-May-25	449	0.5	2	1	0.00	5	1
13-May-25	449	0.5	2	1	0.002	5	1
14-May-25	449	0.5	2	1	0.002	5	1
15-May-25	449	0.5	2	1	0.002	5	1
16-May-25	448	0.5	2	1	0.002	5	1
17-May-25	449	0.5	2	1	0.002	5	1
18-May-25	449	0.5	2	1	0.002	5	1
19-May-25	449	0.5	2	1	0.002	5	1
20-May-25	449	0.5	2	1	0.001	5	1
21-May-25	450	0.5	2	1	0.001	5	1
22-May-25	451	0.5	2	1	0.001	5	1
23-May-25	450	0.5	2	1	0.001	5	1
24-May-25	449	0.5	2	1	0.001	5	1
25-May-25	449	0.5	2	1	0.001	5	1
26-May-25	449	0.5	2	1	0.001	5	1
27-May-25	449	0.5	2	1	0.001	5	1
28-May-25	449	0.5	2	1	0.001	5	1
29-May-25	449	0.5	2.2	0.9	0.001	5	1
30-May-25	448	0.5	2.2	0.9	0.001	5	1
31-May-25	454	0.5	2.2	0.9	0.001	5	1
Monthly Total	**13,902**	**16**	**63**	**31**	**0.03**	**154**	**31**

* Individual and final totals may be subject to rounding adjustments

Exhibit D-1: Sample Emission Calculations – Warm/Wet Flare

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 h to 1 day (d)
    - 10,000 parts per millon (ppm) in one percent.

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable meters include:
    - KITSL-V1P.curval (KMS): This tag provides the daily fuel gas volume data recorded at the KMS. These volumes, measured at atmospheric pressure, serve as the primary input for calculating flared gas volumes.
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density was obtained (daily values at 1 atm) This was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - CA:KIT:062FI0343.PV: This tag measures the total fuel gas consumption for all flare pilots. The portions attributable to the cold dry flare and the liquid burner were determined using flare tip allocations and subtracted from the total to determine the warm/wet flare pilot gas consumption.
    - CA:KIT:062FI0021.PV; CA:KIT:062FI0022.PV: These tags provide the fuel gas purges from the cold dry flare.
    - Emission factors: Refer to Table 3 within the report.

Emission Calculation Basis – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using May 1, 2025, and NOx for the example:

Convert volumetric flow rate to mass flow rate:

Volumetric flow rate = 147,071 m^3/d – corrected to 20°C.

Mass flow rate = 147,071 m^3/d x 0.75173931 kg/m^3 = 130,856 kg/d

NOx Mass Emission (kg/d)

= 130,856 x 40.92 x (1 / 0.75173931) x (1 / 1000) x 0.9478 x 0.068 x 0.4535

≈ 208 kg/d

Similar calculations follow for CO, $PM_{2.5}$, VOC, and HC-T, however all HHV values in their calculations are converted to LHV.

Emission Calculation Basis – when using Engineering Estimates (only applies to SOx):

Total sulfur content (S) in feed gas samples was analyzed periodically by the LNG Canada laboratory. Table D-7 summarizes the laboratory results.

Table D-7: Total Sulphur Content Measured in the Feed Gas (Laboratory Results)

Date	Total Sulphur in Feed Gas (PPMW)	%
06-May-25	0.53	0.000053
13-May-25	2.50	0.000250
20-May-25	0.89	0.000089
26-May-25	0.90	0.000090

To bridge periods between measurements, the following approach was used:

- May 1 - 12: SO_2 emissions were calculated using the May 06, 2025 total sulphur measurement.
- May 13 - 19: The May 13, 2025 measurement was applied.
- May 20 - 25: The May 20, 2025 measurement was applied.
- May 26 - 31: The May 26, 2025 measurement was applied.

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

Using May 01, 2025, for the example, where the applied percent sulphur in the fuel gas is 0.53 PPMW.

SO_2 Mass Emission (kg/d)

= 143,743 x 0.000107 x (1 / 100) x (64.066 / 32.065) x 1

≈ 0.3 kg/d

The same calculation approach would follow for SO_2 (kg/h) numbers; with the flow rate in kg/h rather than kg/d.

Appendix E Ambient Air Quality Evaluation (Condition 10.2.7)

See attachment – AMBIENT AIR QUALITY MONITORING REPORT MAY 2025, TRINITY CONSULTANTS

Appendix F Facility SO_2 Emission Limit (Condition 10.2.8)

Table F-1 presents the maximum hourly cumulative SO_2 discharge rate per day. It does not imply that the maximum discharge rate occurred for the full 24 hours that day. The maximum hourly rate was based on the maximum hourly flow rate obtained for each of the contributing sources below on the respective dates. The total sulfur content was obtained from Table D-7.

Table F-1: Maximum Hourly SO_2 Discharge Rate for Each Day

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
01-May-25	0.013	-	-	50.35%	0.00%	49.57%	-	0.08%
02-May-25	0.013	-	-	50.89%	0.00%	49.03%	-	0.08%
03-May-25	0.014	-	-	53.43%	0.00%	46.50%	-	0.07%
04-May-25	0.013	-	-	50.39%	0.00%	49.53%	-	0.08%
05-May-25	0.013	-	-	49.40%	0.32%	50.20%	-	0.08%
06-May-25	0.013	-	-	51.22%	0.46%	48.17%	-	0.15%
07-May-25	0.011	-	-	43.16%	0.62%	55.87%	-	0.35%
08-May-25	0.021	-	-	70.23%	0.23%	29.49%	-	0.05%
09-May-25	0.011	-	-	42.11%	0.45%	57.26%	-	0.18%
10-May-25	0.010	-	-	33.99%	0.52%	65.39%	-	0.10%
11-May-25	0.010	-	-	37.06%	0.49%	62.35%	-	0.10%
12-May-25	0.011	-	-	39.62%	0.47%	59.81%	-	0.10%
13-May-25	0.051	-	-	40.91%	0.53%	58.44%	-	0.12%
14-May-25	0.055	-	-	45.66%	0.49%	53.74%	-	0.11%
15-May-25	0.043	-	-	30.43%	0.60%	68.83%	-	0.14%
16-May-25	0.043	-	-	29.66%	0.61%	69.59%	-	0.14%
17-May-25	0.038	-	-	19.94%	0.69%	79.21%	-	0.16%
18-May-25	0.042	-	-	28.17%	0.62%	71.07%	-	0.14%
19-May-25	0.044	-	-	32.12%	0.59%	67.15%	-	0.14%
20-May-25	0.014	-	-	21.92%	0.07%	77.86%	-	0.15%
21-May-25	0.018	-	-	40.86%	0.06%	58.97%	-	0.11%
22-May-25	0.054	0.00%	0.13%	80.14%	0.02%	19.67%	-	0.04%
23-May-25	0.039	0.77%	0.00%	71.81%	0.03%	27.34%	-	0.05%
24-May-25	0.025	-	-	57.21%	0.04%	42.67%	-	0.08%
25-May-25	0.028	-	-	62.29%	0.04%	37.60%	-	0.07%
26-May-25	0.033	-	-	67.27%	0.03%	32.64%	-	0.06%
27-May-25	0.028	-	-	62.18%	0.04%	37.71%	-	0.07%
28-May-25	0.040	-	-	72.95%	0.03%	26.97%	-	0.05%
29-May-25	0.049	37.67%	0.00%	40.32%	0.02%	21.95%	-	0.04%

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
30-May-25	0.261	7.06%	0.00%	88.82%	0.00%	4.11%	-	0.01%
31-May-25	0.138	17.69%	0.96%	73.55%	0.01%	7.77%	-	0.02%

* Individual values may be subject to rounding adjustments

AMBIENT AIR QUALITY MONITORING REPORT MAY 2025

LNG CANADA

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1.0 INTRODUCTION

This report, prepared for LNG Canada by Trinity Consultants (Trinity), summarizes the LNG Canada's nitrogen dioxide (NO_2) and Ozone (O_3) monitoring network data collected at the Kitamaat Village and Riverlodge Stations for May 1 through May 31, 2025.

Sulfur dioxide (SO_2) and particulate matter 2.5 microns in size or less ($PM_{2.5}$) data presented in this report have been provided by Rio Tinto BC Works. In addition, in January 2025, a Total Hydrocarbon (THC) analyzer was installed and operated at the Riverlodge station. The monitoring performed by LNG Canada is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) and satisfies the requirement for collection of continuous air quality data as described under Sections 6.2, 6.2.1, 6.2.2 & 6.3 in LNGC's Air Discharge Permit PA-110588.

LNG Canada owns, operates, and maintains an ambient air monitoring network around the LNG Canada Kitimat LNG export facility. This ambient air quality monitoring network consists of two air quality monitoring stations that are strategically located in the Kitimat Valley of British Columbia (BC) at the Kitamaat Village (Village) and Riverlodge. The Kitamaat Village and Riverlodge stations are owned by Rio Tinto Alcan Inc. and are part of Rio Tinto's air quality monitoring network. LNG Canada's continuous monitoring equipment are housed in the Rio Tinto air quality shelters at Kitamaat Village and Riverlodge locations. The locations of these stations within the Kitimat Valley are presented in Figure 1.1.

Figure 1.1 Locations of LNG Canada Ambient Air Monitoring Stations in Kitimat Valley

1.1 Kitamaat Village

The Village Ambient Air Station is in the Haisla Nation community of Kitamaat Village. The site is located within the yard of the Kitamaat Village sewage treatment plant. Area land use is suburban with a mix of dwellings, commercial buildings, forest, ocean, and parkland. The ground cover immediately around the site is compacted gravel, natural ground cover, cut grass, and asphalt. An aerial view of the site is presented in Figure 1.2. A photograph of the Kitamaat Village Ambient Air Quality Monitoring Station is presented in Figure 1.3.

Figure 1.2 Aerial View of Kitamaat Village Ambient Air Quality Monitoring Station

Figure 1.3 Photograph of Kitamaat Village Ambient Air Quality Monitoring Station

1.2 Riverlodge

The Riverlodge Ambient Air Station is located on Columbia Avenue in Kitimat, BC across the street from the Riverlodge Community Centre. The monitoring station is an aged industrial trailer with a meteorological tower mounted to the frame and hitch of the trailer. Land use around the site is suburban low-density housing, park land and forest. Land cover immediately around the site is short grass, gravel and asphalt parking lot, buildings, and forested lands. An aerial view of the site is shown in Figure 1.4. A photograph of the Riverlodge ambient air station is presented in Figure 1.5.

Figure 1.4 Aerial View of Riverlodge Ambient Air Quality Monitoring Station

Figure 1.5 Photograph of Riverlodge Ambient Air Quality Monitoring Station

2.0 MAY 2025 REPORT SUMMARY

The LNG Canada air quality monitoring data collected for May 2025 at the Kitamaat Village and Riverlodge stations are summarized in this section.

British Columbia has adopted air quality objectives and standards for a number of contaminants, including $PM_{2.5}$, SO_2, O_3, and NO_2. The British Columbia Ambient Air Quality Objectives (BCAAQO) and the 2020 Canadian Ambient Air Quality Standard (for SO_2) that have been developed by the British Columbia Ministry of Environment are as follows:

Pollutant	Averaging Period	British Columbia Ambient Air Quality Objective (BCAAQO)	2020 Canadian Ambient Air Quality Standard (CAAQS)
SO_2	1-hour	75 (ppb)[a]	70 (ppb)[b]
	Annual	--	5 (ppb)[c]
NO_2	1-hour	60 (ppb)[d]	60 (ppb)[d]
	Annual	17 (ppb)[e]	17 (ppb)[e]
$PM_{2.5}$	24-hours	25 ($\mu g/m^3$)[f]	27 ($\mu g/m^3$)[g]
	Annual	8 ($\mu g/m^3$)[e]	8.8 ($\mu g/m^3$)[h]
O_3	1-hour	82 (ppb)	
	8-hour		62 (ppb)[i]

[a] Achievement based on annual 97th percentile of daily 1-hour maximum averaged over 2015-2017, annual 97.5th percentile of daily 1-hour maximum averaged over 2016-2018, and annual 98th percentile of daily 1-hour maximum averaged over 2017-2019, with one allowable excursion above 75 ppb to a maximum of 85 ppb over a three-year period prior to 2020.

[b] Achievement based on annual 99th percentile of daily 1-hour maximum, averaged over three consecutive years.

[c] Achievement based on annual average of 1-hour concentrations over one year.

[d] Achievement based on annual 98th percentile of daily 1-hour maximum averaged over three consecutive years

[e] Achievement based on annual average of 1-hour concentrations over one year

[f] Achievement based on annual 98th percentile of daily average, over one year

[g] Achievement based on annual 98th percentile of daily average, averaged over three consecutive years.

[h] Achievement based on annual average, averaged over three consecutive years.

[i] Achievement based on annual 4th highest daily 8-hour maximum, averaged over three consecutive years.

2.1 Kitamaat Village

Table 2-1 summarizes the data completeness and maximum pollutant concentrations observed at the Kitamaat Village monitoring station for May 1 through May 31, 2025.

Table 2-1 Kitamaat Village Station May 2025 Data Summary

Parameter		1-Hour Average		24-Hour Average 8-hour Average[2]	
	Data Completeness	Maximum Concentration	Exceedances of BCAAQO[1]	Maximum Concentration	Exceedances of BCAAQO[1]
$PM_{2.5}$ (µg/m³)	99.8	18.0	-	5.1	0.0
SO_2 (ppb)	94.8	10.5	0.0	1.4	-
NO_2 (ppb)	94.8	9.7	0.0	1.5	-
O_3 (ppb)[2]	94.8	47.0	0.0	44.0	0.0

[1] British Columbia Ambient Air Quality Objective (BCAAQO)
[2] 8-hour maximum

2.1.1 Data Quality Notes

- None.

2.1.2 Calibration / Maintenance Notes

- On May 6, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas logger, and T700U calibrator to the correct time during the station visit.
- On May 12, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and T700U calibrator to the correct time during the station visit.
- On May 13, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas logger, and T700U calibrator to the correct time during the station visit. The zero air media and SO_2 analyzer inlet filter were replaced.
- On May 14, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and T700U calibrator to the correct time during the station visit.
- On May 15, 2025, remote "as found" and "after adjustment" multipoint verifications were performed on the NO_x analyzer.
- On May 20, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and T700U calibrator to the correct time.
- On May 27, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and T700U calibrator to the correct time.

2.2 Riverlodge Station

Table 2-2 summarizes the data completeness and maximum pollutant concentrations observed at the Riverlodge monitoring station for May 1 through May 31, 2025.

Table 2-2 Riverlodge Station May 2025 Data Summary

Parameter	Data Completeness	1-Hour Average		24-Hour Average 8-Hour Average[2]	
		Maximum Concentration	Exceedances of BCAAQO[1]	Maximum Concentration	Exceedances of BCAAQO[1]
$PM_{2.5}$ (µg/m³)	98.8	14.0	-	6.7	0.0
SO_2 (ppb)	95.1	55.0	0.0	10.4	-
NO_2 (ppb)	95.2	5.8	0.0	2.5	-
O_3 (ppb)[2]	95.2	47.0	0.0	43.0	0.0
THC (ppm)	87.4	2.48	--[3]	2.28	--[3]

[1] British Columbia Ambient Air Quality Objective (BCAAQO)
[2] 8-hour maximum
[3] There are no BCAAQO's for Total Hydrocarbon (THC).

2.2.1 Data Quality Notes

- None.

2.2.2 Calibration / Maintenance Notes

- On May 9, 2025, remote "as found" multipoint verifications were performed on the NO_x and THC analyzers.
- On May 14, 2025, the site technician updated the clocks on the NO_2, THC, and O_3 analyzers, T700U calibrator, and Envidas logger to the correct time.
- On May 16, 2025, the site technician serviced the T701 zero air generator. A leak was found upstream of the hydrocarbon scrubber. Two bad ferrules were found on copper tubing and the ferrules were replaced. The clocks on the NO_2, THC, and O_3 analyzers, T700U calibrator, and Envidas logger were updated to the correct time.
- On May 21, 2025, the site technician investigated an air pressure alert on the N901 THC analyzer. The outlet pressure was below the required 50 psi for all analyzers and the calibrator connected to the system. No leaks were detected. The unit was power cycled, and the outlet pressure returned to 50.5 psi. The clocks on the NO_2, THC, and O_3 analyzers, T700U calibrator, and Envidas to the correct time.
- On May 29, 2025, the site technician was onsite to check an outage on the N901 THC analyzer. The site technician restored the N901 to operation after restarting the flame and increasing the hydrogen inlet pressure. The clocks on the NO_2 and O_3 analyzers, and T700U calibrator were updated to the correct time. Windows updates were downloaded on the Envidas logger.

3.0 MAY 2025 KITAMAAT VILLAGE AMBIENT AIR QUALITY STATION MONITORING ACTIVITIES

This section provides a summary of the monitoring activities conducted at the LNG Canada Kitamaat Village Ambient Air Quality Station for May 2025. Table 3-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Kitamaat Village monitoring station. Site visit notes, SO_2, $PM_{2.5}$, O_3, and NO_2 concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, and NO_2 trends for May 2025 are also presented below.

Table 3-1 LNG Canada Instrumentation at the Kitamaat Village Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Kitamaat Village			
NO_2	Teledyne-API T200	Chemiluminescence	8598
O_3	Teledyne-API T400	UV Absorption	7486
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	905
Zero Air Source	Teledyne API T701	Zero-Air Generator	2555

3.1 Site Visit Notes

Site visit notes are summarized in Appendix A.

3.2 Monitoring Results and Trends

There were no exceedances of the CAAQS for SO_2 at the Kitamaat Village station in May 2025. The mean SO_2 concentration at the Kitamaat Village for May was 0.5 ppb with a maximum hourly concentration of 10.5 ppb.

The mean 1-hour $PM_{2.5}$ concentration in May was 3.6 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration was 18.0 µg/m^3. The 24-hour average concentration was 3.6 µg/m^3 and the maximum 24-hour $PM_{2.5}$ concentration for May was 5.1 µg/m^3. In May, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

The mean O_3 concentration at the Kitamaat Village for May was 25.3 ppb with a maximum hourly O_3 concentration of 47.0 ppb. The maximum 8-hour O_3 concentration was 44.0 ppb. There were no exceedances of the one-hour BCAAQO or 8-hour 2020 CAAQS for O_3 at the Kitamaat Village station in May 2025.

The mean NO_2 concentration at the Kitamaat Village for May was 0.4 ppb with a maximum hourly NO_2 concentration of 9.7 ppb. There were no exceedances of the one-hour 60 ppb BCAAQO for NO_2 at the Kitamaat Village station in May 2025.

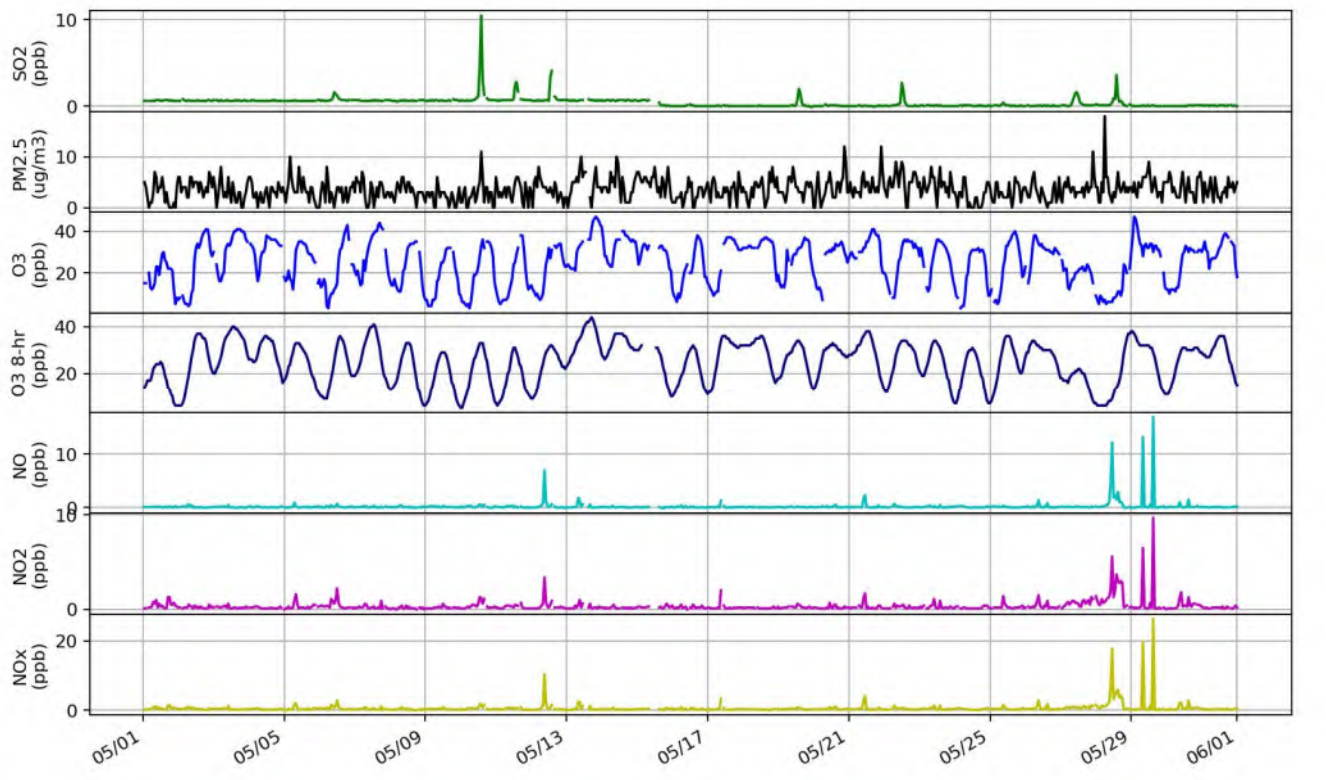
Table 3-2 tabulates the extreme and mean daily maximum readings, mean readings, and extreme and mean daily minimum readings for the 1-hour average SO_2, $PM_{2.5}$, NO_2 and O_3 concentrations for May 2025. Figure 3.1 graphically illustrates the time series for the month for the pollutants described in Table 3-2.

Table 3-2 Summary of SO_2, $PM_{2.5}$, O_3, and NO_2, Concentrations for the Kitamaat Village Station, May 2025

Statistic	SO_2 (ppb)[1]	$PM_{2.5}$[1] ($\mu g/m^3$)	NO_2 (ppb)	O_3 (ppb)
1-Hour Mean	0.5	3.6	0.4	25.3
1-Hour Maximum	10.5	18.0	9.7	47.0
1-Hour Minimum	-0.1	0.0	0.0	3.0
Mean Daily Maximum	1.5	5.1	1.7	34.3
Mean Daily Minimum	0.1	2.1	0.2	10.4
Data Recovery	94.8	99.8	94.8	94.8
24-hour Daily Maximum	1.4	5.1	1.5	---
8-Hour Maximum	---	---	---	44.0
24-Hour Average	0.4	3.6	0.4	25.3
Median	0.3	3.0	0.2	28.0

[1] SO_2 and $PM_{2.5}$ May 2025 data provided by Rio Tinto BC Works.

Figure 3.1 Time Series of 1-Hour Averaged SO_2, $PM_{2.5}$, O_3, and NO_2 Concentration Data for the Kitamaat Village Station, May 2025



4.0 MAY 2025 RIVERLODGE AMBIENT AIR QUALITY STATION MONITORING STATION

This section provides a summary of the monitoring activities conducted at the LNG Canada Riverlodge Ambient Air Quality Station for May 2025. Table 4-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Riverlodge monitoring station. Site visit notes, SO_2, $PM_{2.5}$, O_3, NO_2, and THC concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, NO_2, and THC trends for May 2025 are also presented below.

Table 4-1 LNG Canada Instrumentation at the Riverlodge Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Riverlodge			
NO_2	Teledyne-API T200	Chemiluminescence	8599
O_3	Teledyne-API T400	UV Absorption	7487
THC	Teledyne-API N901	Flame Ionization Detector	80
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	906
Zero Air Source	Teledyne API T701	Zero-Air Generator	2556

4.1 Site Visit Notes

Site visit notes are summarized in Appendix A.

4.2 Monitoring Results and Trends

The mean SO_2 concentration at the Riverlodge for May was 1.1 ppb with a maximum hourly concentration of 55.0 ppb. There were no exceedances of the CAAQS for SO_2 at the Riverlodge station in May 2025.

The mean 1-hour $PM_{2.5}$ concentration at the Riverlodge station for May was 2.7 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration was 14.0 µg/m^3. The maximum 24-hour $PM_{2.5}$ concentration for May was 6.7 µg/m^3. In May, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

The mean NO_2 concentration at the Riverlodge station for May was 1.0 ppb with a maximum hourly NO_2 concentration of 5.8 ppb. There were no exceedances of the one-hour BCAAQO for NO_2 at the Riverlodge station in May 2025.

The mean O_3 concentration at the Riverlodge station for May was 25.5 ppb with a maximum hourly O_3 concentration of 47.0 ppb. The maximum 8-hour O_3 concentration was 43.0 ppb. There were no exceedances of the one-hour BCAAQO or 8-hour 2020 CAAQS for O_3 at Riverlodge station in May 2025.

The mean THC concentration at the Riverlodge station for May was 2.18 ppm with a maximum hourly THC concentration of 2.48 ppm.

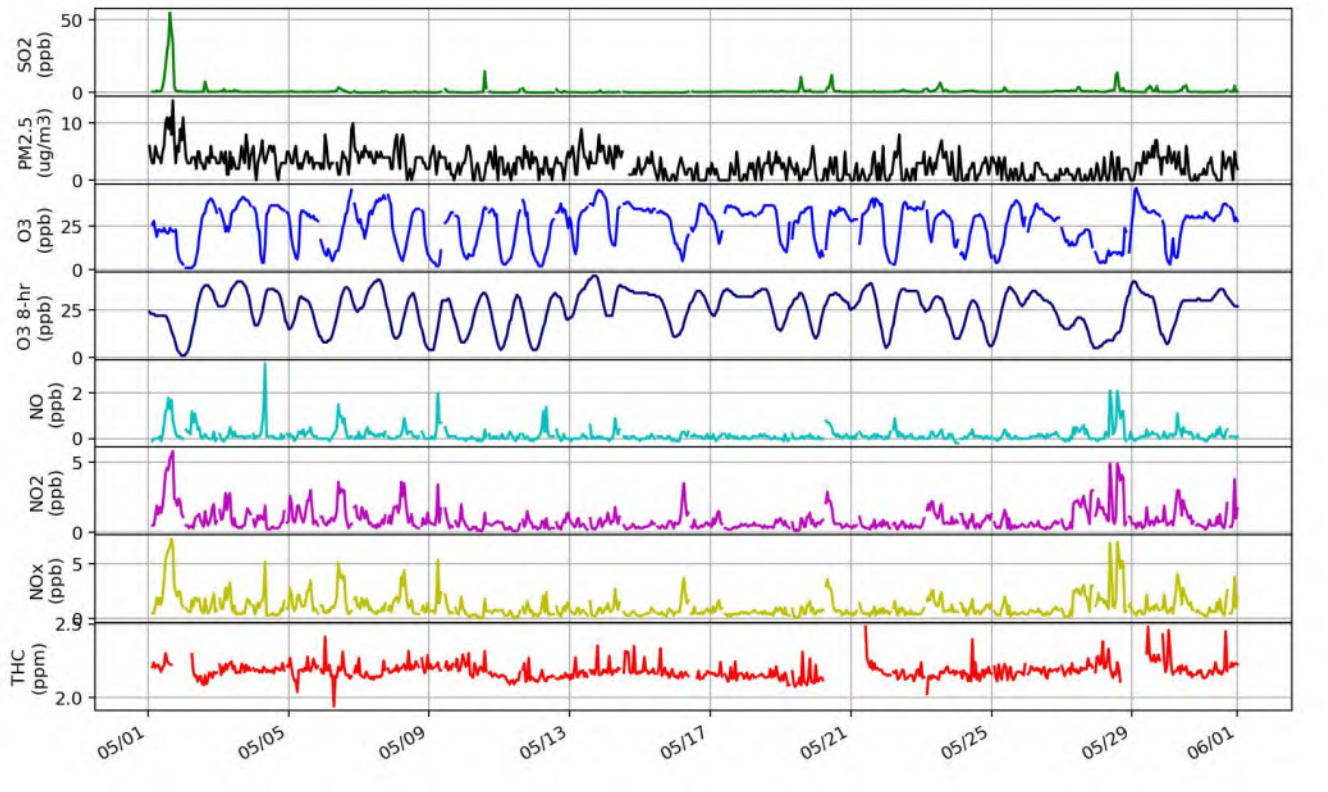
Table 4-2 tabulates the extreme and mean daily maximum readings, mean readings, and extreme and mean daily minimum readings for the 1-hour average SO_2, $PM_{2.5}$, NO_2, O_3, and THC concentrations for May 2025 at Riverlodge station. Figure 4.1 graphically illustrates the time series for the month for the pollutants described in Table 4-2.

Table 4-2 Summary of SO_2, $PM_{2.5}$, O_3, NO_2, and THC Concentrations for the Riverlodge Station, May 2025

Statistic	SO_2 (ppb)[1]	$PM_{2.5}$ ($\mu g/m^3$)[1]	NO_2 (ppb)	O_3 (ppb)	THC (ppm)
1-Hour Mean	1.1	2.7	1.0	25.5	2.18
1-Hour Maximum	55.0	14.0	5.8	47.0	2.48
1-Hour Minimum	0.0	0.0	0.1	1.0	1.94
Mean Daily Maximum	10.9	6.5	2.6	34.2	2.30
Mean Daily Minimum	0.1	0.9	0.5	9.7	2.20
Data Recovery	95.1	98.8	95.2	95.2	87.4
24-hour Daily Maximum	10.4	6.7	2.5	---	2.28
8-hour Maximum	---	---	---	43.0	---
24-Hour Average	1.1	2.7	1.0	25.5	2.18
Median	0.4	3.0	0.6	30.0	2.18

[1] SO_2 and $PM_{2.5}$ May 2025 data provided by Rio Tinto BC Works.

Figure 4.1 Time Series of 1-Hour Averaged SO_2, $PM_{2.5}$, O_3, NO_2, and THC Concentrations for the Riverlodge Station, May 2025



5.0 STATION COMPARISON

Figures 5.1 through 5.5 present comparative time series plots of May 2025 SO_2, $PM_{2.5}$, O_3, and NO_2 concentrations from the Kitamaat Village and Riverlodge monitoring stations. $PM_{2.5}$ and SO_2 data were obtained from Rio Tinto BC works for these stations. These graphs are useful for evaluating pollutant dispersion and for concentration comparison purposes.

Figure 5.1 Comparison of Hourly SO_2 Concentrations in Parts per Billion from Kitamaat Village and Riverlodge Monitoring Locations for May 2025

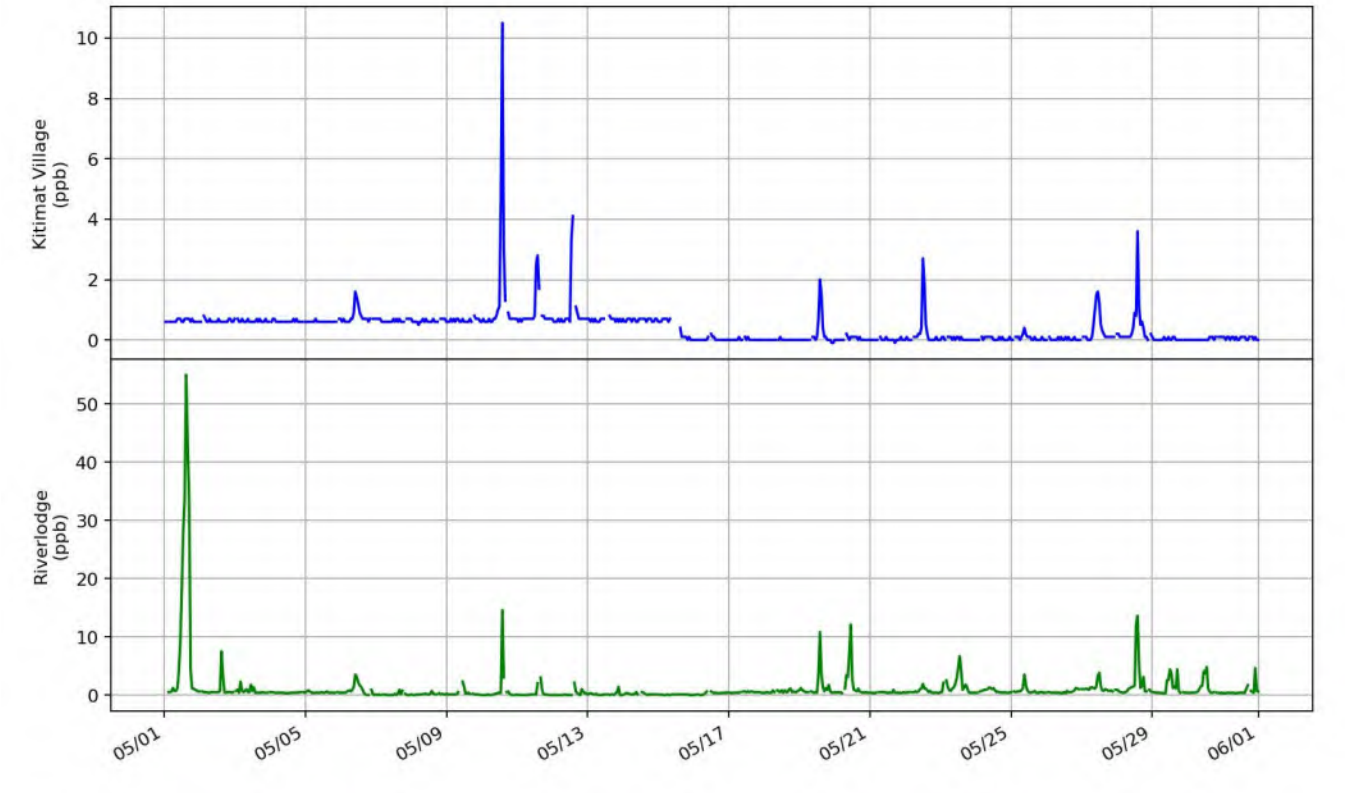


Figure 5.2 Comparison of Hourly $PM_{2.5}$ Concentrations in Micrograms per Cubic Meter Kitamaat Village and Riverlodge Monitoring Locations for May 2025

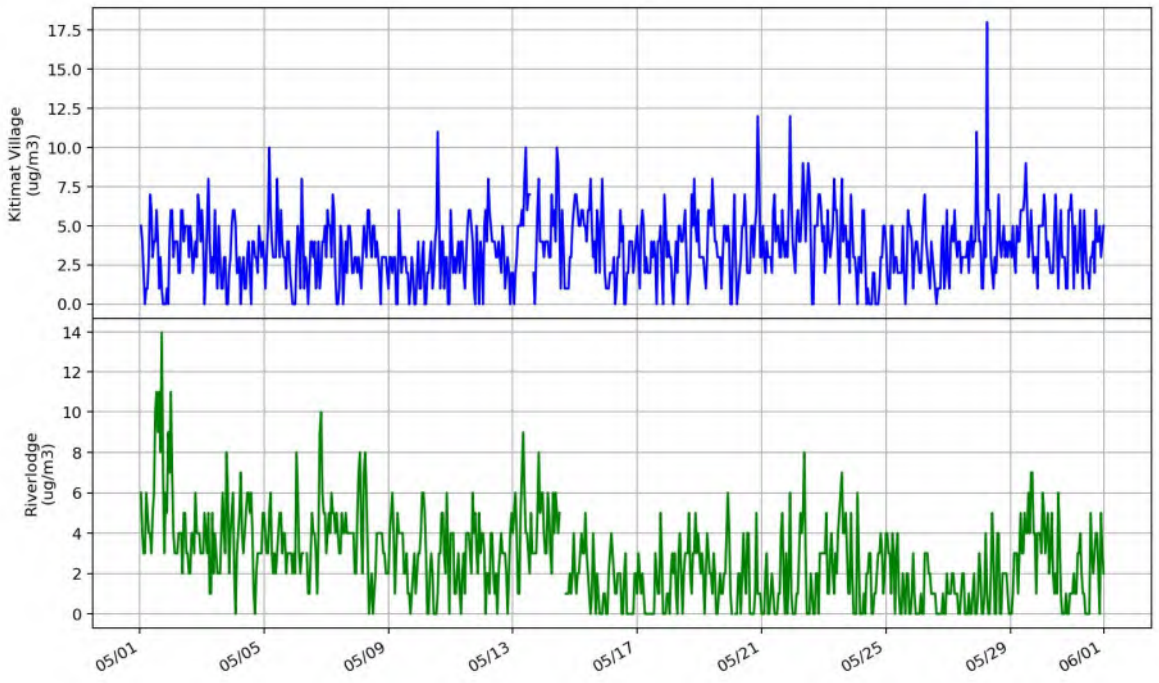


Figure 5.3 Comparison of Hourly NO_2 Concentrations in Parts per Billion from Kitamaat Village and Riverlodge Monitoring Locations for May 2025

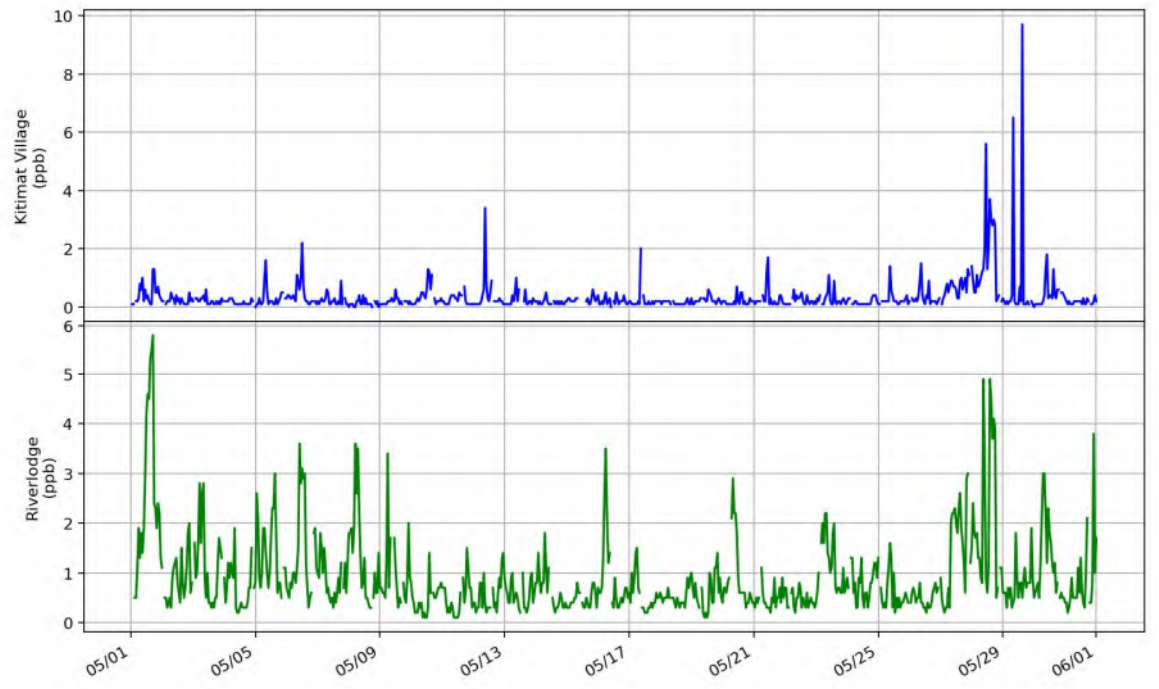


Figure 5.4 Comparison of Hourly O_3 Concentrations in Parts per Billion from Kitamaat Village and Riverlodge Monitoring Locations for May 2025

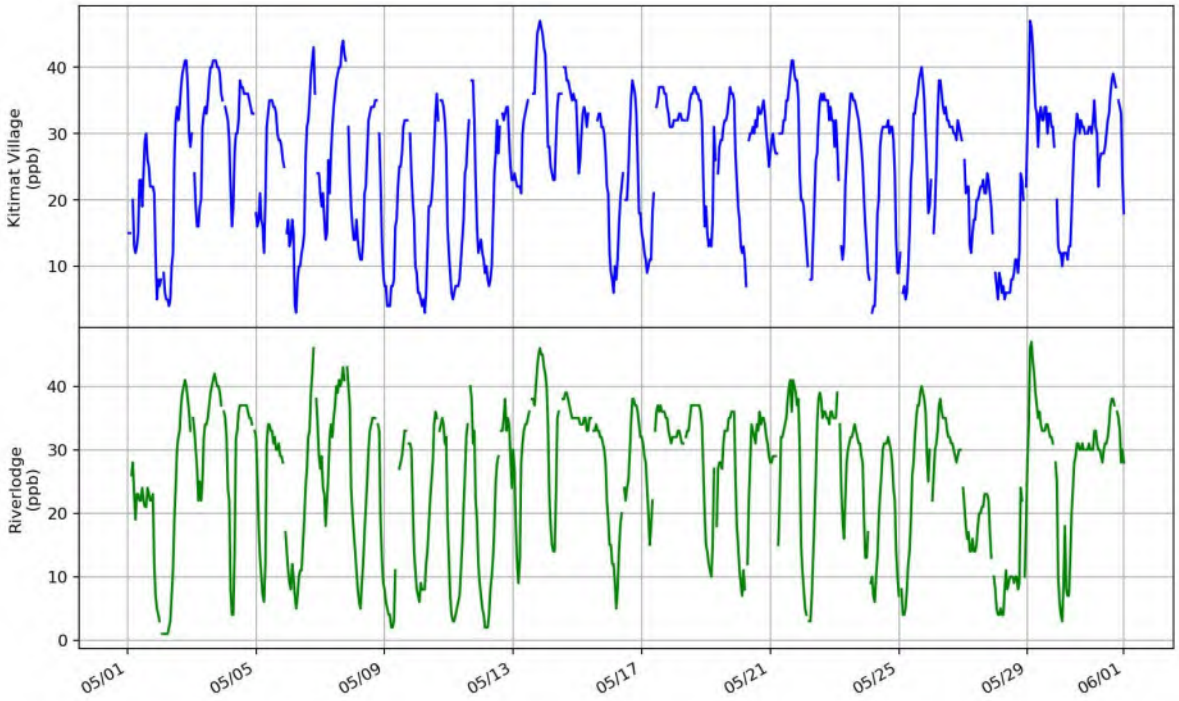
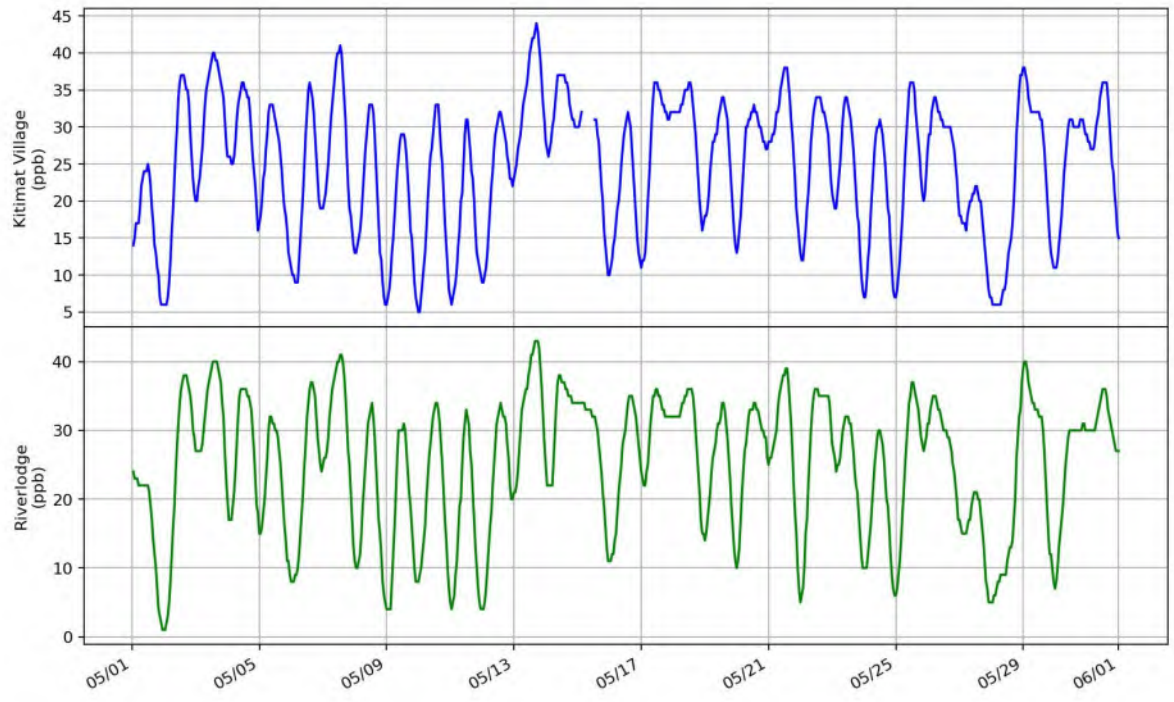


Figure 5.5 Comparison of Eight-Hour O_3 Concentrations in Parts per Billion from Kitamaat Village and Riverlodge Monitoring Locations for May 2025



APPENDIX A. SITE NOTES

05/06/2025 - RT Activities

Tuesday, May 6, 2025 12:46 PM

Village

Author of Entry: Nathan McMillan

Date of Activity: 05/06/2025
Start Time: 1243
End Time: 1321
Technician: Nathan McMillan

Reason for Visit

RT Activities

Description

Envidas: Clock was 2 seconds ahead. Clock updated at 1252.

T700U Calibrator:

-Clock was 81 seconds ahead and was updated at 1255.

T400O3:

-Clock was 80 seconds ahead and was updated at 1258.

T200NOx:

- Clock was 80 seconds ahead and was updated at 1301.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1540 psi and line pressure 30 psi.
- Shelter temperature 26.7 C, within spec.

05/12/2025 - Station check and RT activities

Monday, May 12, 2025 11:16 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: 05/12/2025
Start Time: 1114
End Time: 1145
Technician: Nathan McMillan

Reason for Visit

Station check and RT activities

Description

Envidas: Clock was accurate

T700U Calibrator:

-Clock was 68 seconds ahead and was updated at 1124.

T400O3:

-Clock was 68 seconds ahead and was updated at 1126.

T200NOx:

- Clock was 68 seconds ahead and was updated at 1127.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1520 psi and line pressure 30 psi.

05/13/2025 - Zero Air Media and inlet filters

Tuesday, May 13, 2025 8:15 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: May 13, 2025
Start Time: 8:13
End Time: 14:19
Technician: Adrienne Kaul

Reason for Visit

On site to change zero air media and change SO2 inlet filter

Description

Envidas:

-Clock was 3 seconds ahead and time was synced at 8:24.

T200 NOx:

-Clock was 10 seconds ahead and was updated at 8:27.

T400 O3:

-Clock was 13 seconds ahead and was updated at 8:29.

T700U Calibrator:

-Clock was 11 seconds ahead and was updated at 8:31 and was 1 second behind after update.

T701:

-Powered off at 8:38.
-Some purafil residue in line between charcoal and purafil canisters.
-Cleaned charcoal and purafil scrubber canisters and fittings. Replaced charcoal and purafil scrubber o-rings, retainer pads, and teflon line between charcoal and purafil scrubber canisters.
-Replaced inlet particulate filter and cleaned assembly.
-Leak test T701 pressure 33.25 psi at 10:47 and 33.25 at 10:58.
-Dewpoint override button pressed at 11:02.
-T701 running continuously to dry out media 11:03-11:28
-Dewpoint override button pressed at 11:31.

T200 and T400:

-All connections felt tight prior to filter changes
-Data flagged 11:03-11:59.
-Analyzer inlet filters changed and new 1-2 um filters installed.
-All connections felt tight after filter changes.
-Ozone generated at 400 ppb from 11:32-11:48.
Analyzer read 404.9 ppb with 399.5 ppb supplied by calibrator for last full minute of the run.
-Inlet screen cleaned and re-installed.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [x] Inlet Teflon exchanged (annual)

- [x] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1650 psi and line pressure 31 psi.
- Inlet tubing inspected and it appears to be in good condition.
- Current HVAC set up and extra equipment at the site is causing large temperature swings near analyzers. Installation of a new AC unit near analyzers and repair of the non-operational baseboard on east side of shelter would help better regulate shelter temperature.

05/14/2025 - Weekly station check and RT activities

Wednesday, May 14, 2025 12:32 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: 05/14/2025
Start Time: 1232
End Time: 1256
Technician: Nathan McMillan

Reason for Visit

Weekly station check and RT activities

Description

Envidas: Clock was accurate

T700U Calibrator:

-Clock was 13 seconds ahead and was updated at 1236.

T400O3:

-Clock was 13 seconds ahead and was updated at 1238.

T200NOx:

- Clock was 12 seconds ahead and was updated at 1239.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1520 psi and line pressure 30 psi.
- Shelter temperature 26.6 C, within spec.

05/15/2025 - NOx Calibration and RT Activities

Thursday, May 15, 2025 4:51 PM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 5/15/25
Start Time: 755
End Time: 1400
Technician: WL

Reason for Visit

Calibrate NOx analyzer
Also perform RT activities

Description

755-1045: NOx as found MP; NOx span adjustment; RT activities
1045-1215: AUTOMATED DAILY ZERO/SPAN CHECKS
1215-1400: NOx MP After Adjustment; RT activities

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

KitimatVilla...
2025-0515

NITROGEN OXIDES CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Village
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 5/15/2025 **Start Time** 8:04
Stop Time 9:34

Analyzer Mfg Teledyne-API
Analyzer Model T200
Analyzer s/n 8598

Anal. Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 905
Cert Date: 12/13/2024

Audit Gas: Linde
Concentration: 10.0 ppm
Serial #: DT0046813
Certification Date: 4/4/2024
Expiration Date: 4/4/2027

Zero Air Source: T-API
Model: T701
Serial #: 2555
Certification Date: 5/20/2024

INPUT (X)	RESPONSE (Y)			NO	NO BEST-FIT DETERMINATION		
NO (PPB)	NO (PPB)	NO_2 (PPB)	NO_X (PPB)	% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.1	-0.1	0.0	/	-1.0	1.10	0.2%
40.1	41.2	-0.1	41.1	3.0%	41.5	-0.23	0.0%
89.8	93.4	0.5	93.9	4.0%	94.2	-0.84	-0.2%
139.6	146.3	0.8	147.1	4.8%	147.1	-0.77	-0.2%
199.2	210.6	0.1	210.7	5.7%	210.3	0.31	0.1%
299.2	316.8	1.0	317.8	5.9%	316.4	0.44	0.1%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X	NO_X BEST-FIT DETERMINATION		
% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-1.1	1.05	0.2%
2.6%	41.6	-0.44	-0.1%
4.6%	94.5	-0.58	-0.1%
5.4%	147.5	-0.37	-0.1%
5.8%	210.9	-0.18	0.0%
6.2%	317.3	0.53	0.1%

	NO	NO_x		NO	NO_x
Slope (m)	1.0607	1.0639	1.05 to 0.95	0.9427	0.9399
Intercept (b)	-1.0091	-1.0567	(≤ ± 10)	0.9567	0.9971
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	0.99998	0.99998
Average % Difference	4.68%	4.91%		4.68%	4.91%

Calibrated By Wyndam Lewis

= cell containing equations

Template Revised 7/10/23

NITROGEN DIOXIDE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Village
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 5/15/2025 **Start Time** 8:04
Stop Time 9:34

Analyzer Mfg	Teledyne-API	**Anal. Range 0-**	500 **PPB**
Analyzer Model	T200		
Analyzer s/n	8598		

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.0 ppm	**Model:**	T701
Serial #:	905	**Serial #:**	DT0046813	**Serial #:**	2555
Cert Date:	12/13/2024	**Certification Date:**	4/4/2024	**Certification Date:**	5/20/2024
		Expiration Date:	4/4/2027		

	CAL INPUT (X)		CALC ACTUAL	DAS RESPONSE (Y)			CALCULATED (Y) [ORIG]		[REM]		[CONV]	% DIFF
	NO (PPB)	O_3 (PPB)	$[NO_2]_A$ (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO (PPB)	NO_X (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO_2 (% OR PPB)
TITRATION	0.0	0.0	0.0	0.1	0.0	-0.1	---	---	---	---	-0.10	-0.1 ppb
	300.0	250.0	240.2	62.0	314.9	252.9	299.6	299.7	59.4	297.0	237.47	5.3%
	300.0	150.0	134.5	174.1	315.4	141.3	299.6	299.7	165.1	297.4	132.27	5.0%
	300.0	70.0	65.5	247.3	317.7	70.4	299.6	299.7	234.1	299.6	65.42	7.5%

NO TITRATION

299.2	0.0	---	316.8	317.8	1.0

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9858 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 98.6% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION

Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.5	-0.55	-0.1%
252.9	0.00	0.0%
141.8	-0.54	-0.1%
69.3	1.09	0.2%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	1.0509	1.05 to 0.95	0.9427	0.9399
Intercept (b)	0.4582	(≤ ± 10)	0.9567	0.9971
Correlation Coefficent (r)	0.99997	(≥ 0.995)	1.0000	1.0000
Average % Difference	5.93%		4.68%	4.91%

Calibrated By Wyndam Lewis = cell containing equations

KitimatVilla...
2025-0515

Trinity Consultants

NITROGEN OXIDES CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME	LNG Kitimat Village	**Date**	5/15/2025	**Start Time**	12:25
PROJECT	244501.0077			**Stop Time**	13:55
SITE OPERATOR	Trinity				

Analyzer Mfg	Teledyne-API	**Anal. Range 0-**	500 **PPB**
Analyzer Model	T200		
Analyzer s/n	8598		

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.0 ppm	**Model:**	T701
Serial #:	905	**Serial #:**	DT0046813	**Serial #:**	2555
Cert Date:	12/13/2024	**Certification Date:**	4/4/2024	**Certification Date:**	5/20/2024
		Expiration Date:	4/4/2027		

INPUT (X)	RESPONSE (Y)			NO	NO BEST-FIT DETERMINATION		
NO (PPB)	NO (PPB)	NO_2 (PPB)	NO_X (PPB)	% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.1	0.0	0.1	/	-0.3	0.46	0.1%
40.0	39.5	0.4	39.8	-1.5%	39.7	-0.26	-0.1%
89.8	88.8	0.3	89.1	-1.1%	89.5	-0.69	-0.1%
139.6	139.6	-0.3	139.3	0.0%	139.3	0.29	0.1%
199.2	199.2	0.0	199.2	0.0%	198.9	0.27	0.1%
299.2	298.9	0.3	299.2	-0.1%	299.0	-0.07	0.0%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X	NO_X BEST-FIT DETERMINATION		
% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-0.3	0.33	0.1%
-0.5%	39.8	0.03	0.0%
-0.8%	89.6	-0.49	-0.1%
-0.2%	139.4	-0.12	0.0%
0.0%	199.0	0.15	0.0%
0.0%	299.1	0.10	0.0%

	NO	NO_x		NO	NO_x
Slope (m)	1.0004	1.0005	1.05 to 0.95	0.9996	0.9995
Intercept (b)	-0.3478	-0.2544	(≤ ± 10)	0.3496	0.2551
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	0.99999	1.00000
Average % Difference	-0.54%	-0.30%		0.54%	0.30%

Calibrated By Wyndam Lewis

= cell containing equations

Template Revised 7/10/23

Trinity Consultants

NITROGEN DIOXIDE CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME	LNG Kitimat Village	**Date**	5/15/2025	**Start Time**	12:25
PROJECT	244501.0077			**Stop Time**	13:55
SITE OPERATOR	Trinity				

Analyzer Mfg	Teledyne-API	**Anal. Range 0-**	500 **PPB**
Analyzer Model	T200		
Analyzer s/n	8598		

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.0 ppm	**Model:**	T701
Serial #:	905	**Serial #:**	DT0046813	**Serial #:**	2555
Cert Date:	12/13/2024	**Certification Date:**	4/4/2024	**Certification Date:**	5/20/2024
		Expiration Date:	4/4/2027		

CAL INPUT	CALC	DAS RESPONSE (Y)	CALCULATED (Y)	% DIFF

	CAL INPUT (X)		CALC ACTUAL	BAR RESPONSE (Y)			CALCULATED (Y) [ORIG]		[REM]		[CONV]	% DIFF
	NO (PPB)	O_3 (PPB)	$[NO_2]_A$ (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO (PPB)	NO_X (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO_2 (% OR PPB)
TITRATION	0.0	0.0	0.0	0.1	0.1	0.0	---	---	---	---	-0.04	0.0 ppb
	300.0	250.0	242.6	56.2	296.7	240.6	299.1	299.3	56.5	296.8	240.14	-0.8%
	300.0	150.0	137.0	161.8	296.3	134.4	299.1	299.3	162.1	296.4	134.14	-1.9%
	300.0	70.0	66.8	232.1	298.8	66.7	299.1	299.3	232.4	298.9	66.37	-0.1%

NO TITRATION

299.2	0.0	---	298.9	299.2	0.3

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9893 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 98.9% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION

Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
-0.1	0.03	0.0%
240.1	0.48	0.1%
135.6	-1.19	-0.2%
66.0	0.68	0.1%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	0.9899	1.05 to 0.95	0.9996	0.9995
Intercept (b)	-0.0644	(≤ ± 10)	0.3496	0.2551
Correlation Coefficent (r)	0.99997	(≥ 0.995)	1.0000	1.0000
Average % Difference	-0.95%		0.54%	0.30%

Calibrated By Wyndam Lewis

= cell containing equations

05/20/2025 - Weekly station check and RT activities

Tuesday, May 20, 2025 1:06 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: 05/20/2025
Start Time: 1239
End Time: 1337
Technician: Nathan McMillan

Reason for Visit

Weekly station check and RT activities

Description

Envidas: Clock was accurate

T700U Calibrator:

-Clock was 70 seconds ahead and was updated at 1310.

T400O3:

-Clock was 69 seconds ahead and was updated at 1312.

T200NOx:

- Clock was 70 seconds ahead and was updated at 1315.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1510 psi and line pressure 30 psi.

05/27/2025 - Weekly station check and RT activities

Tuesday, May 27, 2025 9:53 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: 05/27/2025
Start Time: 0950
End Time: 1028
Technician: Nathan McMillan

Reason for Visit

Weekly station check and RT activities

Description

Envidas: Clock was accurate

T700U Calibrator:

-Clock was 79 seconds ahead and was updated at 0958.

T400O3:

-Clock was 79 seconds ahead and was updated at 1002.

T200NOx:

- Clock was 79 seconds ahead and was updated at 1001.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1500 psi and line pressure 30 psi.
-

05/09/2025 - NOx/THC As Found MPs

Monday, May 12, 2025 12:06 PM

Riverlodge

Author of Entry: Wyndam Lewis

Date of Activity: 5/9/25
Start Time: 750
End Time: 930
Technician: WL

Reason for Visit

Obtain the latest NO2 targets from the T700 calibrator.
Also perform THC as found MP verification
Also perform RT activities

Description

NOx/THC as found MP verifications

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

KitimatRive...
2025-0509

Trinity Consultants

NITROGEN OXIDES CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge | **Date** 5/9/2025 | **Start Time** 7:57
PROJECT 244501.0077 | **Stop Time** 9:27
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API | **Anal. Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8599

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 906
Cert Date: 10/21/2024

Audit Gas: Linde
Concentration: 10.42 ppm
Serial #: CC748570
Certification Date: 7/8/2024
Expiration Date: 7/8/2027

Zero Air Source: T-API
Model: T701
Serial #: 2556
Certification Date: 5/16/2024

INPUT (X)	RESPONSE (Y)			NO	NO BEST-FIT DETERMINATION		
NO (PPB)	NO (PPB)	NO_2 (PPB)	NO_X (PPB)	% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.0	0.0	0.0	/	-0.7	0.71	0.1%
40.1	39.5	0.0	39.4	-1.4%	39.4	0.03	0.0%
89.9	88.9	0.2	89.1	-1.1%	89.4	-0.51	-0.1%
140.0	139.1	-0.2	138.9	-0.6%	139.6	-0.53	-0.1%
200.1	199.6	-0.3	199.2	-0.2%	199.9	-0.28	-0.1%
300.1	300.7	0.6	301.2	0.2%	300.1	0.58	0.1%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X	NO_X BEST-FIT DETERMINATION		
% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-0.8	0.78	0.2%
-1.5%	39.4	0.07	0.0%
-0.9%	89.4	-0.28	-0.1%
-0.8%	139.6	-0.75	-0.1%
-0.4%	199.9	-0.75	-0.1%
0.4%	300.3	0.92	0.2%

	NO	NO_x		NO	NO_x
Slope (m)	1.0024	1.0033	1.05 to 0.95	0.9976	0.9966
Intercept (b)	-0.7071	-0.8217	(≤ ± 10)	0.7084	0.8245
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	0.99999	0.99998
Average % Difference	-0.65%	-0.66%		0.73%	0.81%

Calibrated By Wyndam Lewis

= cell containing equations

Template Revised 7/10/23

Trinity Consultants

NITROGEN DIOXIDE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge | **Date** 5/9/2025 | **Start Time** 7:57

PROJECT 244501.0077 Stop Time 9:27

SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API Anal. Range 0- 500 PPB

Analyzer Model T200

Analyzer s/n 8599

CALIBRATION EQUIPMENT:

Calibrator:	T-API	Audit Gas:	Linde	Zero Air Source:	T-API
Model:	T700U	Concentration:	10.42 ppm	Model:	T701
Serial #:	906	Serial #:	CC748570	Serial #:	2556
Cert Date:	10/21/2024	Certification Date:	7/8/2024	Certification Date:	5/16/2024
		Expiration Date:	7/8/2027		

	CAL INPUT (X)		CALC ACTUAL	DAS RESPONSE (Y)			CALCULATED (Y) [ORIG]		[REM]		[CONV]	% DIFF
	NO (PPB)	O_3 (PPB)	$[NO_2]_A$ (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO (PPB)	NO_X (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO_2 (% OR PPB)
TITRATION	0.0	0.0	0.0	0.0	0.0	0.0	---	---	---	---	-0.04	0.0 ppb
	300.0	250.0	290.4	9.6	299.9	290.2	300.7	301.0	10.3	299.7	289.09	-0.1%
	300.0	150.0	175.5	124.8	297.7	173.0	300.7	301.0	125.2	297.5	171.98	-1.4%
	300.0	70.0	83.4	217.1	300.6	83.5	300.7	301.0	217.3	300.4	82.80	0.1%

NO TITRATION

300.1	0.0	---	300.7	301.2	0.6	

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9975 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 99.8% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION		
Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
-0.3	0.25	0.0%
289.3	0.87	0.2%
174.7	-1.72	-0.3%
82.9	0.61	0.1%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	0.9974	1.05 to 0.95	0.9976	0.9966
Intercept (b)	-0.2871	(≤ ± 10)	0.7084	0.8245
Correlation Coefficent (r)	0.99996	(≥ 0.995)	1.0000	1.0000
Average % Difference	-0.45%		0.73%	0.81%

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KitimatRive... 2025-0509

Trinity Consultants

METHANE, NON-METHANE, TOTAL HYDROCARBON CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge | **Date** 5/9/2025 | **Start Time** 7:57
PROJECT 244501.0077 | **Stop Time** 9:27
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API | **Anal. Range 0-** 20 **PPM**
Analyzer Model N901
Analyzer s/n 80

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 906
Cert Date: 10/21/2024

Audit Gas: Linde
Concentration: 616 ppm
Serial #: CC748570
Certification Date: 7/8/2024
Expiration Date: 7/8/2027

Zero Air Source: T-API
Model: T701
Serial #: 2556
Certification Date: 5/16/2024

METHANE			NON-METHANE HYDROCARBON			TOTAL HYDROCARBON		
CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.
0.000	0.000	---	0.000	0.094	---	0.000	0.094	---
2.368	2.474	4.5%	2.296	2.441	6.3%	4.664	4.915	5.4%
5.317	5.529	4.0%	5.156	5.390	4.5%	10.470	10.920	4.3%
8.270	8.540	3.3%	8.020	8.410	4.9%	16.300	16.950	4.0%
11.830	12.170	2.9%	11.470	12.030	4.9%	23.300	24.210	3.9%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	CH_4	NMHC	THC	
Slope (m)	1.028	1.041	1.035	1.05 to 0.95
Intercept (b)	0.029	0.061	0.089	(≤ ± 10)
Correlation Coefficent (r)	1.0000	1.0000	1.0000	(≥ 0.995)
Average % Difference	3.65%	5.15%	4.39%	

Calibrated By Wyndam Lewis

= cell containing equations

05/14/2025 - Inlet filter changes

Wednesday, May 14, 2025 8:04 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: May 14, 2025
Start Time: 7:50
End Time: 15:20
Technician: Adrienne Kaul

Reason for Visit

On site to perform calibration

Description

Envidas:

-Clock 2 seconds ahead and synced at 9:31.

T700U Calibrator:

-Clock was 1 minute and 39 seconds ahead and updated at 9:35-9:36

T200 NOx:

-Clock is one minute and 47 seconds ahead and was updated at 9:45-9:46. T400 O3:

T400 O3:

-Clock is one minute and 40 seconds ahead and was updated at 9:47.

N901 CH4, NMHC, THC:

-Clock is 1 second ahead and was updated 9:48-9:49.

-Analyzer set to sync every two hours and no further clock adjustments should be necessary.

-Flame-out due to T701 and T700U maintenance activities.

-Exited standby mode at 11:31 and back sampling at 11:33.

T200, T400, and N901 data flagged 10:04-11:56

-All accessible connections to analyzers, calibrator and within manifold felt tight prior to filter change.

-New 1-2um filters installed on T400 and T200 analyzers

-All accessible connections to analyzers, calibrator and within manifold felt tight after filter change.

-Attempted to run 400 ppb O3 running at 11:01 but no ozone was generated due to low lamp voltage.

-O3 ran at 400 ppb at 11:34-11:45.

-Analyzer read 400.7 ppb with 399.5 ppb supplied by calibrator

-Washed, dried and re-installed bug screen on analyzer roof-top inlet.

T700U:

-Lamp bench voltage is too low.

-Dilutant in line disconnected.

-Bench voltage adjusted from ~2721.0 mV to 4619.6 mV and alerts resolved.

-Dilutant in line reconnected. No leaks detected at back of calibrator or at HF calibration system connection.

T701:

-Zero air generator powered off at 11:23 and back on at 11:30.

Site Visit Checklist

- ☑ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☑ Zero air system pressure at 30 PSI
- ☑ Calibration gas cylinder pressure at 30 PSI
- ☑ Calibration gas tank pressure > 500 PSI
- ☑ Check for analyzer warnings: _____
- ☑ Check for calibrator warnings: See below

- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [x] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- T700U alert: 05/06/2025 - 6:18:20 AM System Reset warning raised when system is reset.
- T200 alert: 05/06/2025 - 6:18:22 AM System Reset. Warning raised when system is reset.
- T400 alert: 05/06/2025 - 6:18:09 AM System Reset. Warning raised when system is reset.
- SO2, NO, CH4, C3H8 tank pressure 1700 psi and line pressure 30 psi.
- O2 10% tank pressure 1550 psi and line pressure 30+ psi.
- Inlet teflon inspected; teflon is in good condition with no noticeable build up of debris or dust.
- Two nitrogen and one hydrogen cylinder removed from site. Two new hydrogen and one new nitrogen brought into the station for LNGC use.
- Left rack slides at site for installation with sliding shelf for PM10 unit. Need to order General Devices part B-308 to adapt rack to work with the slides.

05/16/2025 - T701 annual servicing

Friday, May 16, 2025 8:29 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: May 16, 2025
Start Time: 8:52
End Time: 14:18
Technician: Adrienne Kaul

Reason for Visit

On site for T701 servicing.

Description

NMHC, THC, and CH4 N901:

-Flagged to maintain 8:58-13:22
-Unit put in standby mode at 8:59.
-Re-ignited flame at 13:08.
-Unit appeared to be reading accurately at 13:21; flag could potentially be removed a couple of minutes earlier.
-Unit in standby at 13:31 and restarted after T701 put in RH override mode.
-Data flagged 13:31-13:37.
-Clock was 1 second ahead and was synced at 13:59.

T701:

-Powered off at 8:59.
-Pressure 54.25 psi at 9:40. Pressure at 50.75 psi at 9:51.
-Leak tested unit and found a leak upstream of the hydrocarbon scrubber. Two bad ferrules (spinning on tubing) found on copper tubing. Replaced brass ferrule (cut copper pipe shorter to cut off bad piece) and tightened stainless steel ferrule. Both ferrules felt tight after maintenance; no leaks were detected with snoop solution. **This leak was outward, downstream of T701 pressurized internal tank, not inward and would not have affected any THC analyzer reading or with any calibrations performed on site.**
-Pressure 57.5 psi at 11:13 and 57.5 at 11:19 with tubing to charcoal and purafil scrubbers capped.
-Replaced charcoal and purafil scrubbers, retainer pads and o-rings. Replaced tubing between charcoal and purafil scrubbers.
-Leak tested entire T701 unit by capping the T701 outlet line and RH sensor outlets: pressure was 53.25 psi at 12:37 and 53.25 psi at 12:47; passing result.
-Repeat leak tested entire T701 unit with T701 outlet line and RH sensor outlet: pressure was 55.5 psi at 12:55 and 55.5 and 13:01.
-Reconnected outlet line and RH sensor line.
-Set T701 outlet pressure to 50 psi to supply N901 with required pressure.
-Unit appears to be cycling on less frequently and is quieter after maintenance activities.
-RH alarm started and unit put in RH override mode at approximately 13:34.
-No leak detected on outlet line of T701 and connection to t fitting.

Envidas:

-Clock was 1 second ahead and was synced at 13:55.

T200 NOx:

-Clock was 25 seconds ahead and was updated at 13:57.

T400 O3:

-Clock was 26 seconds ahead and was updated at 13:58.

T700U Calibrator:

-Clock was 25 seconds ahead at was updated at 14:00.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [x] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter temperature 26.7 C, within spec.
- SO2, NO, CH4, C3H8 tank pressure 1700 psi and line pressure 30 psi.
- CH4 tank pressure 2000 psi and line pressure 35 psi.
- Hydrogen tank pressure 475 psi and line pressure 50 psi.
- Nitrogen tank pressure aux 980 psi and line pressure increased from approximately 65 psi to 70 psi to meet manual requirements for N901 at 14:07.

05/21/2025 - N901 Air pressure alert investigation

Wednesday, May 21, 2025 8:49 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: May 21, 2025
Start Time: 8:44; 12:32; 14:24
End Time: 10:45; 12:34; 15:20
Technician: Adrienne Kaul

Reason for Visit

N901 air pressure alert investigation.

Description

T701 Zero air generator:

-Outlet pressure was found to be at 44 psi; this is below the required 50 psi for all analyzers and calibrator connected to the system.

-Leak test unit powered off 14:45-15:02

-Unit pressure 51.5 psi at 14:50 and 51.5 at 14:56 with RH line and outlet capped. Passing result no significant unit leaks.

-Leak tested RH sensor t-fitting and no leak was detected.

-No leaks detected in T-701 outlet line.

-Leak tested T701 outlet

-Unit powered on at 15:02.

-T701 outlet pressure 50.5 psi.

N901 CH4, THC, and NMHC:

-Unit restarted at 8:50 after zero air output increased.

-Unit appeared to be operating normally at 8:53 and invalid data flags for CH4, THC, and NMHC reset at 8:54.

-Clock was accurate within 1 second, no adjustment was made.

-Data flagged 14:45-15:05; data appeared to be dynamic around 15:11

-Unit re-ignition triggered at 15:02

Envidas:

-Clock was 2 seconds ahead and time was synced at 9:10.

-Windows updates downloaded at 9:10.

T200 NOx:

-Clock was 55 seconds ahead and was updated at 9:13.

T400 O3:

-Clock was 56 seconds ahead and was updated at 9:16.

T700U Calibrator:

-Clock was 56 seconds ahead and was updated at 9:18.

N901, T200 and T400 analyzer data flagged 10:09-10:12 for RT activities.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)

- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- N901: Air Pressure Alert. *This is for FID air input (zero air from T701).*
- SO2, NO, CH4, C3H8 tank pressure 1700 psi and line pressure 30 psi.
- CH4 tank pressure 2000 psi and line pressure 36 psi.
- Nitrogen tank pressure 800 psi and line pressure 70 psi.
- Hydrogen tank pressure 400 psi and line pressure 50 psi; new tank is on site but will be installed next week to use remaining gas in installed tank.

05/29/2025 - N901 outage check and new H2 tank install

Thursday, May 29, 2025 - 9:28 AM

Riverdale

Author of Entry: Adrienne Kaul

Date of Activity: 05/29/2025
Start Time: 9:22
End Time: 11:15
Technician: Adrienne Kaul

Reason for Visit

On site for weekly site check and N901 outage

Description

Envidas:

-Clock accurate.

-Windows updates downloaded.

N901 CH4/NMHC/THC:

-Hydrogen inlet pressure was increased at 9:52 from 50 to 60 psi.

-Flame restart procedure was run at 9:52 and was successful. Back in operation at 10:00 am

-Clock was accurate.

-Entered standby at 10:28.

-Old hydrogen tank 206 4309 02 removed

-New hydrogen tank 206 4082 02 installed. Regulator purged. All regulator and regulator outlet fittings tested and no leak was detected. Initial tank pressure was 2420 psi and line pressure was set to 55 psi.

-Exited standby mode at 10:41. Data should be flagged to maintain 10:28-~10:43 (whenever data became dynamic).

T700U Calibrator:

-Clock was 1 minute and 32 seconds ahead and was updated at 10:04.

T200 NOx:

-Clock was 91 seconds ahead and was updated at 10:06.

T400 O3:

-Clock was 1 minute and 33 seconds ahead and was updated at 10:07.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, C3H8, and CH4 tank pressure 1700 psi and line pressure increased from 25 to 30 psi.
- CH4 tank pressure 2000 and line pressure 35 psi.

- Nitrogen tank pressure 500 psi and line pressure 70 psi
- Hydrogen tank pressure 150 psi and line pressure increased from 50 to 60 psi.

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Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Monthly Report (June 2025)

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1. Executive Summary

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. The BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., for the discharge of air contaminants to the environment from the LNG Facility.

Permit PA-110588 requires a monthly report to be submitted to the BCER that includes data/information on:

- Fuel Gas Use (for Commissioning only)
- Continuous Emissions Monitoring System
- Flaring Activities
- Ambient Air Monitoring Evaluation
- Facility sulphur dioxide (SO_2) Emissions

Herein is the monthly report for June 2025. A summary of the findings for this reporting period is as follows:

- There were no instances of permit non-compliances during the reporting period.
- There were no ambient air quality concentrations of nitrogen dixoide (NO_2), SO_2 or respirable particulate matter ($PM_{2.5}$) measured in excess of the BC ambient air quality objective (BCAAQO) metrics at the three continuous ambient air quality monitoring stations identified in Permit PA-110588 (Kitamaat Village (Kitimat Haisla Village); Kitimat Riverlodge and Kitimat Whitesail).
- There were air emissions from eight authorised discharge sources defined in Sections 2.1 to 2.7 of Permit PA-110588: warm/wet flare, cold/dry flare, liquid burner, storage and loading flare, spare flare, gas turbine string 1, gas turbine string 2, and Train 1 acid gas incinerator.
- The cold/dry flare was the largest source of air emissions mainly from starting of the cold-end of Train 1. The maximum hourly cumulative SO_2 rate in June 2025 was calculated to be 1.40 kg/hour.

2. Overview

2.1. Project Background

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia, Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

2.2. Purpose

On July 15, 2024, the BCER issued WDA discharge permit PA-110588 to LNG Canada Development Inc., under the provisions of the BC *Environmental Management Act*, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Permit PA-110588 applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.2 of Permit PA-110588 (Monthly Reporting) for June 2025.

Refer to Appendix B for a list of all monthly reports that have been issued under Permit PA-110588.

2.3. LNG Facility Status

On the afternoon of August 31, 2024, fuel gas was introduced into Unit 1000 (Inlet Facilities) for the first time from the Coastal Gas Link (CGL) pipeline, commencing the pressurization of piping and the startup fuel gas heater. The introduction of fuel gas into the fuel gas headers down to the flare area, and the first supply of fuel gas to the pilot on the warm/wet flare occurred on September 1, 2024.

LNG Canada started producing liquified natural gas (LNG) on June 22nd, 2025, and successfully loaded the first cargo of LNG destined for global markets on June 30th, 2025, marking the start of operations at Canada’s first large-scale LNG export facility.

During this month, discharges of air contaminants occurred from the following authorized works:

- One (1) warm/wet flare
- One (1) cold/dry flare
- One (1) storage and loading flare
- One (1) spare flare
- One (1) Liquid burner

- Two (2) Gas turbine String 1 and String 2
- One (1) Train 1 acid gas incinerator

Under Permit PA-110588, the “Commissioning” phase is defined as “that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.” Operations is the period of time which follows Commissioning. Therefore, “Commissioning”, under Permit PA-110588, commenced on September 1, 2024.

The Initial Performance Period (IPP) did not commence during June 2025 (which is defined as the period that “*commences upon the completion of the initial performance test for LNG Train 1”*).

3. Fuel Gas Use (Commissioning Only) (Condition 10.2.1)

3.1. Permit Condition

Under Condition 10.2.1, the monthly report shall identify and provide a summary of fuel gas use at the facility during Commissioning. The monthly report shall include the following information:

a. the daily volume of fuel gas combusted and vented;

b. the daily mass emissions of nitrogen oxides (NOx), sulphur oxides (SOx), carbon monoxide (CO), particulate matter with an aerodynamic diameter smaller than 2.5 micrometers ($PM_{2.5}$), volatile organic compounds (VOCs) and total hydrocarbons (HC-T), for the authorized works in Section 2.1 and 2.2; and

c. the quantification method (under Section 9 of Permit PA-110588) and representative calculations.

3.2. Data and Assessment

Appendix C contains the summary of the daily volume of fuel gas combusted and flared as well as the daily mass emissions of NO_X, SO_X, CO, $PM_{2.5}$, VOCs, and HC-T from the gas turbines and AGI (which is Section 2.1 and 2.2 of Permit PA-110588 respectively) in June 2025.

The basis for this assessment is as follows:

- The daily volume of fuel gas combusted and flared at the LNG Facility is based on the daily volume of fuel gas introduced into the LNG facility, as all this fuel gas is used for testing purposes during Commissioning; rather than for producing LNG. This is a conservative approach, and does not account for the time lag between pressurizing systems with fuel gas to it being combusted or flared. The data for this report was obtained from the Kitimat Metering Station (KMS) using the CGL meter.
- Emissions from AGI are estimated based on published emission factors for a flare, to represent a high temperature oxidation process to burn hydrocarbons (refer to Table 2). Similar to the gas turbine engines, the data from the CEMS associated with the AGI will be available after the RATA has been undertaken (which will be done when a stable, full plant load is achieved.)
- Emissions from the gas turbines are calculated using published emission factors from the US EPA AP-42, as detailed in Table 1. An engineering estimate based on the turbine's operating load is used for total hydrocarbons (HC-T), as a specific AP-42 factor is not available. This calculation methodology is used for the period, as the Continuous Emissions Monitoring System (CEMS) for the gas turbines has not yet completed its final certification. The data from the CEMS will be utilized for reporting following the successful completion of the Relative Accuracy Test Audit (RATA), which will be conducted after a stable, full plant load is achieved.

Table 1 Natural Gas-Fired Turbine Emission Factors

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.099	lb/MMBtu	D	

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
SO_x	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.94S	lb/MMBtu	B	Where “S” is the percent sulphur in fuel. “S” to be informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014). If “S” is not available, the AP-42 states to use 3.4 E-03 lb/MMBtu for natural gas turbines (0.0034).
CO	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.015	lb/MMBtu	D	
PM2.5	USEPA AP-42: Table 3.1-2a (uncontrolled; condensable)	0.0047	lb/MMBtu	C	
VOC	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.0021	lb/MMBtu	D	AP-42 states that VOC emissions are assumed equal to the sum of organic emissions.
HC-T	Engineering Estimate	16.1 x % operating load	g/s	N/A	There is no AP-42 emissions factor for total hydrocarbons. The permit application used a basis of 16.1 g/s per gas turbine during Operations; therefore this value will be used and factored down based on the estimated operating load for the turbine.

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 3.1 is applicable for Stationary Gas Turbines.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.

Table 2: Emission Factors used for the AGI (Based on Flare)

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
SO_X	Engineering Estimate				There is no AP-42 emissions factor for SO_X; therefore it is based on fuel gas sulphur content informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014).The assumed destruction efficiency is 100%.
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.027	lb/MMBtu	B	Based on a lightly smoking flare (soot in concentration values: 40 ug/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from ug/L to lb/MMBtu is documented in the “Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015”, issued to USEPA by RTI International.

4. CEMS Zero and Span Reporting (Condition 10.2.2)

4.1. Permit Condition

Under Condition 10.2.2, during Operations, after the completion of the initial CEMS performance evaluation, the monthly report shall include a summary of all CEMS out of control calibration zero and span events that occurred during the month.

4.2. Data and Assessment

As CEMS certification and RATA has not yet been completed, there is no CEMS zero and span reporting for this month.

5. CEMS Reporting (Condition 10.2.3)

5.1. Permit Condition

Under Condition 10.2.3, during Operations, after the completion of the initial CEMS performance evaluation, the Permittee shall provide a summary of CEMS data collected during the month.

5.2. Data and Assessment

As CEMS certification and RATA has not yet been completed, there is no CEMS zero and span reporting for this month.

6. Flaring Activity Reporting (Condition 10.2.4)

6.1. Permit Condition

Under Condition 10.2.4, a summary of all flaring activity carried out during the month is to be included in the monthly report. The monthly report shall include the following information:

a. identification of the flare source;

b. description of the type of process gas sent to flare;

c. the volume of gas sent to the flare during each event;

d. the reason for the flaring event;

e. any external notifications sent out, if applicable;

f. the (i) daily and (ii) monthly volume of gas being flared for each source;

g. the (i) daily and (ii) monthly contaminant emission totals for each source, parameters include NO_x, CO, $PM_{2.5}$, SO_x, VOCs, and HC-T; and

h. the quantification method (under Section 9) and representative calculations.

6.2. Data and Assessment

In Permit PA-110588, flaring activities are described as either a routine flaring event (continuous) or a non-routine flaring event (intermittent). Routine flaring discharges include the continuous flare pilots, which are supplied by fuel gas to provide a continuous ignition source so that any gas sent to the flare as a result of upset conditions ("non-routine flaring") is immediately combusted. The permit application to support Permit PA-110588 also described the other small sources of process gas that are continuously sent to the flare, including compressor seal gas, analyzer sample returns and passing valves.

Process gas refers to the natural gas stream intended for LNG production; the incoming gas stream from Coastal Gas Link (CGL) that undergoes several treatment stages (acid gas removal, pre-cooling, and finally, liquefaction) prior to being exported as LNG.

Appendix D contains the flaring activities tables, as follows:

- Table D-1: Flaring Events Table
- Table D-2: Warm/Wet Flare Volume and Emissions Summary
- Table D-3: Cold/Dry Flare Volume and Emissions Summary
- Table D-4: Storage and Loading Flare Volume and Emissions Summary
- Table D-5: Spare Flare Volume and Emissions Summary
- Table D-6: Liquid Burner Volume and Emissions Summary

Sample calculations are also provided in Appendix D (Exhibit D-1). The basis for this assessment is as follows:

- The daily volume of gas flared is sourced from the flow meters upstream of the applicable flare. In cases where the flow is below the detection limit of the flow meters, the sum of flow from upstream flow meters is used.
- The daily mass emissions from each flare source reported herein are calcuated based on published emission factors for industrial flares (refer to Table 3), except for SO_X, which is calculated based on a mass balance and assumed destruction efficiency.

Table 3: Emission Factors used for the Flare System

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.12	lb/MMBtu	B	Based on an average smoking flare (soot in concentration values: 177 ug/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from ug/L to lb/MMBtu is documented in the “Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015”, issued to USEPA by RTI International.

7. Permit Contravention (Condition 10.2.5)

7.1. Permit Condition

Under Condition 10.2.5, a summary of all instances of permit non-compliances are to be included in the monthly report, including a description of the event (date, time, circumstances), a summary of the investigation findings, the completed and ongoing actions taken in response to the non-compliance event, and the date of self-disclosure notifications to the BCER.

7.2. Assessment

There were no instances of permit non-compliances during the reporting period.

8. Pollution Control Technologies (Condition 10.2.6)

8.1. Permit Condition

Under Condition 10.2.6, a discussion of any operational or performance issues or significant maintenance activities with any pollution control technologies of the authorized works and equipment required by the permit is to be included in the monthly report.

The pollution control technologies identified in the permit application supporting Permit PA-110588 were the:

- Dry low emissions combustor optimization system in the gas turbines (dry low NOx burners); and
- Catalysts in the WHRUs, to convert CO in the exhaust gas to carbon dioxide.

8.2. Assessment

There were no instances of operational or performance issues, or significant maintenance activities with the pollution control technologies within the reporting period, given Operations has not yet commenced.

9. Ambient Air Monitoring Evaluation (Commissioning Only) (Condition 10.2.7)

9.1. Permit Condition

Under Condition 10.2.7, the following information for nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and $PM_{2.5}$ from three continuous ambient air quality monitoring stations (Kitamaat Village (Kitimat Haisla Village) (Site 1); Kitimat Riverlodge (Site 2) and Kitimat Whitesail) are to be included in the monthly report during Commissioning where information is publicly available:

a. a comparison of the measured ambient air concentrations at each ambient air monitoring stations to the applicable numerical metrics of the BC ambient air quality objectives (BCAAQO);

b. (i) a description of any measured ambient air concentrations in excess of the numerical metrics of the BCAAQO, if applicable, (ii) a description of any known contributing factors from authorized works, and (iii) a description of action (if any) taken by the Permittee.

The monthly report shall also include the time series plot of the hourly average ambient air concentration of ozone (O_3) data from these stations.

9.2. Data and Assessment

Data from continuous ambient air quality monitoring stations in Kitimat are publicly available via the BC Ministry of Environment and Climate Change Strategy, at: Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

The publicly available data for NO_2, SO_2 and $PM_{2.5}$ at the three continuous ambient air quality monitoring stations are provided in graphs in Appendix E; the graphs also contain the applicable BCAAQO. The time series plot for the hourly average ambient air concentration of O_3 is also provided in Appendix E.

There were no ambient air quality concentrations of NO_2, SO_2 and $PM_{2.5}$ measured in excess of the BCAAQO metrics in the reporting period.

10. Facility SO_2 Emission Limit (Condition 10.2.8)

10.1. Permit Condition

Under Condition 10.2.8, for all authorized sources in Sections 2.1 to 2.7, for each day of the month, the maximum hourly cumulative SO_2 discharge rate is to be provided in the monthly report, including the percentage breakdown of the sources contributing to the maximum discharge rate of each day.

10.2. Data and Assessment

Appendix F contains the cumulative SO_2 discharge rate from the authorized sources in Permit PA-110588 Section 2.1 to 2.7 (refer to Section 2.2), including the percentage breakdown of the sources contributing to the maximum discharge rate shown for each day.

The representative calculations for SO_2 are provided in Appendix C for the gas turbine and AGI, and Appendix D for the flare system.

11. References

- BC Ministry of Environment and Parks, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca)

Appendix A Abbreviations

AGI	Acid Gas Incinerator
AGRU	Acid Gas Removal Unit
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
CGL	Coastal Gas Link (Pipeline)
CO	Carbon monoxide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
KMS	Kitimat Metering Station
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
VOC	Volatile Organic Compound
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit
$\mu g/m^3$	Micrograms per cubic meter

Appendix B Previous Monthly Reports Issued Under PA-110588

Month	Document #	Date Issued
August 2024	L001-09800-HE-7180-4611	04-Sep-2024
September 2024	L001-09800-HE-7180-4612	22-Oct-2024; Revised 03-Mar-2025 (Rev B)
October 2024	L001-09800-HE-7180-4613	26-Nov-2024; Revised 03-Mar-2025 (Rev B)
November 2024	L001-09800-HE-7180-4614	16-Dec-2025; Revised 03-Mar-2025 (Rev B)
December 2024	L001-09800-HE-7180-4684	23-Mar-2025
January 2025	L001-09800-HE-7180-4691	26-Mar-2025
February 2025	L001-09800-HE-7180-4692	27-Mar-2025
March 2025	L001-09800-HE-7180-4702	25-Apr-2025
April 2025	L001-00000-HE-7180-1553	30-May-2025
May 2025	L001-00000-HE-7180-1554	30-Jun-2025
June 2025	L001-00000-HE-7180-1555	31-Jul-2025

Appendix C Fuel Gas Use During Commissioning (Condition 10.2.1)

For this month, all daily fuel gas volumes were obtained from the KMS (Tag: KITSL-V1P.curval) under atmospheric pressure (Pressure = 1 atm) (refer to Table C-1). The fuel volumes below were corrected to 20°C.

The increase in fuel gas towards half-way through the month was due to the commencement of the cold-end of LNG Train 1 with LNG production starting on June 22, 2025.

Table C-1: Fuel Gas Use During Commissioning

Date	Volume of Fuel Gas Introduced to LNG Facility (m^3/d)*
01-Jun-25	846,233
02-Jun-25	756,605
03-Jun-25	973,199
04-Jun-25	2,114,058
05-Jun-25	2,508,180
06-Jun-25	1,536,303
07-Jun-25	1,980,988
08-Jun-25	1,903,974
09-Jun-25	2,017,511
10-Jun-25	1,837,643
11-Jun-25	1,234,353
12-Jun-25	531,465
13-Jun-25	1,539,966
14-Jun-25	1,461,528
15-Jun-25	958,854
16-Jun-25	4,913,200

Date	Volume of Fuel Gas Introduced to LNG Facility (m^3/d)*
17-Jun-25	10,725,027
18-Jun-25	11,169,407
19-Jun-25	10,793,800
20-Jun-25	11,416,216
21-Jun-25	11,594,558
22-Jun-25	11,175,613
23-Jun-25	11,973,827
24-Jun-25	11,167,982
25-Jun-25	10,137,210
26-Jun-25	10,934,470
27-Jun-25	10,975,805
28-Jun-25	11,084,865
29-Jun-25	13,279,802
30-Jun-25	14,785,279
Monthly Total	**188,327,921**

* Individual and final totals may be subject to rounding adjustments

Table C-2: Fuel Gas Use During Commissioning – Gas Turbines String 1 and String 2

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Jun-25	337,467	576	87	27	0.1	12	619
02-Jun-25	322,404	550	83	26	0.1	12	569
03-Jun-25	315,551	539	82	26	0.1	11	578
04-Jun-25	285,056	491	74	23	0.08	10.41	482
05-Jun-25	299,952	520	79	25	0.1	11	523
06-Jun-25	258,149	448	68	21	0.1	10	513
07-Jun-25	362,796	631	96	30	0.1	13	741
08-Jun-25	339,535	591	90	28	0.1	13	661
09-Jun-25	336,921	588	89	28	0.1	12	655
10-Jun-25	384,109	670	102	32	1.4	14	818
11-Jun-25	366,986	640	97	30	1.3	14	834
12-Jun-25	25,206	44	7	2	0.09	1	19
13-Jun-25	316,651	553	84	26	1.1	12	611
14-Jun-25	378,855	660	100	31	1.3	14	779
15-Jun-25	188,162	327	50	16	0.7	7	345
16-Jun-25	212,807	368	56	18	0.7	8	420
17-Jun-25	361,148	627	95	30	1.0	13	722
18-Jun-25	362,714	629	95.3	29.9	0.96	13.35	726
19-Jun-25	372,463	645	98	30.6	0.98	13.7	750
20-Jun-25	363,125	631.5	95.7	30.0	1.0	13	730
21-Jun-25	412,337	715.4	108.4	34.0	1.1	15	886
22-Jun-25	487,496	845.3	128.1	40.1	1.3	17.93	1,126
23-Jun-25	481,389	837.2	126.8	39.7	1.3	17.76	1,118
24-Jun-25	477,965	829.0	125.6	39.4	0.3	17.59	1,102
25-Jun-25	469,996	814.6	123.4	38.7	0.3	17.28	1,076
26-Jun-25	473,421	819.1	124.1	38.9	0.3	17.38	1,084
27-Jun-25	476,673	822.7	124.7	39.1	0.3	17.45	1,089
28-Jun-25	468,707	808.6	122.5	38.4	0.3	17.15	1,057
29-Jun-25	687,326	1,185.1	179.6	56.3	0.4	25.14	1,426
30-Jun-25	813,666	1,401.6	212.4	66.5	0.5	29.73	1,706
Total	**11,439,033**	**19,807**	**3,004**	**941**	**18**	**420**	**23,765**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Table C-3: Fuel Gas Use During Commissioning – Acid Gas Incinerator

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Jun-25	24,116	28	116.1	10	0.010	247	52
02-Jun-25	23,877	28	115	10	0.010	245	52
03-Jun-25	23,748	28	114	10	0.010	244	52
04-Jun-25	23,041	27	112	10	0.010	238	50
05-Jun-25	8,965	11	44	4	-	93	20
06-Jun-25	5,718	6.81	28.0	2.43	0.0015	59.5	12.62
07-Jun-25	3,418	4	17	1	0.001	36	8
08-Jun-25	13,852	17	68	6	0.004	145	31
09-Jun-25	20,419	24.47	100.40	8.7	0.00554	213.75	45.34
10-Jun-25	33,924	41	167	15	0.009	355	75
11-Jun-25	2,446	3	12	1	0.001	26	5
12-Jun-25	202	0.2	1.0	0.1	-	2.1	0.5
13-Jun-25	41	0.1	0.2	-	-	0.4	0.1
14-Jun-25	33	0.04	0.16	0.01	-	0.4	0.1
15-Jun-25	23	0.03	0.11	0.01	-	0.2	0.1
16-Jun-25	138	0.2	0.7	0.1	-	1.4	0.3
17-Jun-25	123	0.2	0.6	0.1	-	1.3	0.3
18-Jun-25	10,714	12.8	52.4	4.6	0.03	111.5	23.7
19-Jun-25	74,413	88.5	363.2	31.6	0.24	773.3	164.0
20-Jun-25	110,566	132.1	541.9	47.2	0.35	1,153.7	244.7
21-Jun-25	3,217	3.8	15.7	1.4	0.01	33.5	7.1
22-Jun-25	32,280	38.5	157.8	13.7	0.10	335.9	71.2
23-Jun-25	8,328	10.0	40.8	3.6	0.02	86.9	18.4
24-Jun-25	44	0.1	0.2	0.02	-	0.5	0.1
25-Jun-25	32	-	0.2	0.01	-	0.3	0.1
26-Jun-25	16	-	0.1	0.01	-	0.2	-
27-Jun-25	51	0.1	0.3	0.02	-	0.5	0.1
28-Jun-25	69	0.1	0.3	0.03	-	0.7	0.2
29-Jun-25	1,623	1.9	7.9	0.7	-	16.8	3.6
30-Jun-25	4,368	5.2	21.2	1.9	0.0100	45.15	9.58
Total	**429,805**	**512**	**2,098**	**183**	**0.82**	**4,467**	**947**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Exhibit C-1: Sample Emission Calculations – Gas Turbine

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hour (h) to 1 day (d)
    - 10,000 parts per millon (ppm) in one percent

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable sources of data from the meters include:
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - Tag CA:KIT:114FI1601.PV: LNG Train 1, String 1 (1KT-1460); fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:114FI2601.PV: LNG Train 1, String 2 (1KT-1470); fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:114BHS1423.PV, Tag CA:KIT:114BHS2423.PV: Gas Turbine Operating Load (MW)
    - Emission factors: Refer to Table 1 within the report.

The sample calcuation below is based on the data from June 01, 2025.

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:114FI2601.PV & CA:KIT:114FI2601.PV is converted to volume flow rate using the fluid density of 0.736142403 kg/m³.

- Mass flow rate = 248,424 kg/d

Volume flow rate (m³/d)

= (248,424.00 / 0.736142403) ≈ 337,467 m^3/d

Step 2: Emission Calculation – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow } \left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value } \left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}} \left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478 \left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor } \left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535 \text{ kg}}{1 \text{ lb}}$$

Using NOx for the example; NOx Mass Emission (kg/d)

= 248,424.00 x 40.13 x 1/ 0.736142403 x 1/1000 x 0.9478 x 0.099 x 0.4535

≈ 576 kg/d

For SO_2, 0.94S was used as the emission factor - where "S" is the percent sulphur in fuel (refer to Table 1). "S" is based on the total sulphur content of the fuel gas (from the laboratory analysis) given fuel gas was used to fuel the gas turbine this month (refer to Appendix D, Table D-7).

SOx Mass Emission (kg/d)

= 248,424.00 x 40.58 x 1/ 0.736142403 x 1/1000 x 0.9478 x 0.94*(0.000018) x 0.4535

≈ 0.10 kg

Emission Calculation Basis – when using Engineering Estimates (only applies to HC-T)

Formula: HC-T Mass Emission (kg/h)

$$= 16.1\frac{\text{g}}{\text{s}} \times \frac{\text{Operating load (\%)}}{100} \times \frac{1 \text{ kg}}{1000 \text{ g}} \times \frac{3600 \text{ s}}{1 \text{ h}}$$

Using the same date, for the example, where the gas turbine operating load of 48.9810911 MW was obtained from CA:KIT:114BHS2423.PV & CA:KIT:114BHS2423.PV. For the purposes of this calculation, the maximum operating load of the LMS100 is approximately 110 MW.

Operating load (%)

= (48.98 MW / 110 MW) x 100 = 44.52 %

HC-T Mass Emission (kg/h)

= 16.1 x 44.52/100 x 1/1000 x 3600/1

= 25.8037 kg/h

HC-T Mass Emission (kg/d)

= 25.8037 x 24

≈ 619.3 kg/d

Exhibit C-2: Sample Emission Calculations – Acid gas incinerator

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hours (h) to 1 day (d)
    - 10,000 parts per million (ppm) in one percent

Input Values

The applicable sources of data from the meters include:

- Tag CA:KIT:119FI0302.PV: Fuel gas consumption by the acid gas incinerator
- Tag CA:KIT:119FI0001.PV: Acid gas to incinerator
- Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
- Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) multiplied by a reference air density of 1.225 kg/m³ (15°C, 1 atm) and corrected to standard conditions (20°C, 1 atm) to determine the actual natural gas density.
- Emission Factors: Refer to Table 1 within the report.

The sample calculation below is based on the data from June 01, 2025.

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:119FI0302.PV is converted to volume flow rate using the fluid density of 0.736142403 kg/m³.

Mass flow rate = 17,753 kg/d

Volume flow rate (m³/d):

= Mass flow rate / Fluid density

= 17,753 / 0.736142403 ≈ 24,116 m³/d

Step 2: Emission Calculation – Using Emission Factors

Formula: Mass Emission (kg/d) =

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Example: NOx Emissions

- NOx Emission Factor: 0.068 lb/MMBTU

NOx Mass Emission (kg/d):

= 17,753 × 40.13 × (1 / 0.736142403) × (1 / 1000) × 0.9478 × 0.068 × 0.4535

≈ 28 kg/d

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

For SO_2, total sulphur is based on the total sulphur content of the fuel gas for June 03, 2025 (from the laboratory analysis) given fuel gas was used to fuel the AGI this month (refer to Appendix D, Table D-7).

SO_2 Mass Emission (kg/d):

= 17,753 x 0.000018 x (1 / 100) x (64.066 / 32.065) x 1

≈ 0.01 kg/d

Appendix D Flaring Activity (Condition 10.2.4)

Table D-1: Flaring Event Overview

Flare	Event Type	Event Date & Time			Description	Volume of Gas to Flare Per Event (m^3/month)	External Notifications Undertaken
		Start	End	Duration			
Warm/Wet	Routine	01-Jun-2025	30-Jun-2025	Continuous	Pilot and purge gas	6,011	
Warm/Wet	Non-Routine	01-Jun-2025	30-Jun-2025	Continuous	Assist gas and supporting start-up activities[1]	14,266,171	
Cold/Dry	Routine	01-Jun-2025	30-Jun-2025	Continuous	Pilot, and fuel gas purges to support start-up activities	17,934	
Cold/Dry	Non-Routine	01-Jun-2025	30-Jun-2025	Continuous	LNG cold-end Train 1 startup	54,156,986	
Storage and Loading	Routine	01-Jun-2025	30-Jun-2025	Continuous	Pilot and purge gas	5,976	
Storage and Loading	Non-Routine	01-Jun-2025	30-Jun-2025	Continuous	LNG boil off and Assist gas	39,402,963	
Spare	Routine	01-Jun-2025	30-Jun-2025	Continuous	Pilot and purge gas	1,199	
Spare	Non-Routine	01-Jun-2025	30-Jun-2025	Continuous	Repair on the FCD line-up which required diverting flow to spare flare	502,805	
Liquid Burner	Routine	01-Jun-2025	30-Jun-2025	Continuous	Pilot	13,399	
Liquid Burner	Non-Routine	01-Jun-2025	30-Jun-2025	Continuous	Assist Gas	1,478,013	

Notes:

1. In this reporting period, flaring is undertaken to support commissioning and start-up activities; in accordance with Leave(s) to Operate from the BC Energy Regulator. This fuel gas is not considered process gas.

The data for the warm/wet flare was derived from the main warm/wet flare flowmeter (CA:KIT:062FI0103.PV) including pilot and assist gas (CA:KIT:062FI0312.PV) and subtracting nitrogen purges.

The fuel volumes below were corrected to 20°C.

Table D-2: Flaring Event – Warm/Wet Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Jun-2025	200,263	235	963	373	0.1	2,051	435
2-Jun-2025	199,808	234	961	372	-	2,046	434
3-Jun-2025	409,402	481	1,975	764	0.1	4,204	892
4-Jun-2025	1,205,817	1,426	5,848	2,264	0.3	12,451	2,641
5-Jun-2025	1,532,022	1,823	7,471	2,892	0.4	15,907	3,374
6-Jun-2025	721,166	859	3,527	1,365	0.2	7,508	1,593
7-Jun-2025	856,841	1,023	4,201	1,626	0.2	8,945	1,897
8-Jun-2025	877,652	1,049	4,304	1,666	0.2	9,162	1,944
9-Jun-2025	958,331	1,148	4,712	1,824	0.3	10,032	2,128
10-Jun-2025	661,482	793	3,252	1,259	2.1	6,924	1,469
11-Jun-2025	206,204	247	1,014	392	0.7	2,159	458
12-Jun-2025	308,872	370	1,519	588	1.0	3,233	686
13-Jun-2025	588,578	705	2,894	1,120	1.9	6,161	1,307
14-Jun-2025	363,550	435	1,783	690	1.2	3,795	805
15-Jun-2025	224,442	268	1,098	425	0.7	2,337	496
16-Jun-2025	1,328,618	1,580	6,479	2,508	4.2	13,795	2,926
17-Jun-2025	269,930	322	1,320	511	0.6	2,810	596
18-Jun-2025	283,477	338	1,386	537	0.7	2,951	626
19-Jun-2025	230,989	275	1,126	436	0.6	2,398	509
20-Jun-2025	189,697	227	930	360	0.5	1,980	420
21-Jun-2025	300,116	358	1,468	568	0.7	3,125	663
22-Jun-2025	277,361	330	1,356	525	0.7	2,888	613
23-Jun-2025	291,323	348	1,428	553	0.7	3,041	645
24-Jun-2025	244,211	291	1,194	462	0.1	2,543	539
25-Jun-2025	221,719	264	1,084	420	0.1	2,308	490
26-Jun-2025	229,609	273	1,120	433	0.1	2,384	506
27-Jun-2025	251,624	298	1,224	474	0.1	2,605	553
28-Jun-2025	264,527	313	1,287	498	0.1	2,739	581
29-Jun-2025	280,539	332	1,364	528	0.2	2,905	616
30-Jun-2025	294,012	348	1,426	552	0.2	3,036	644
Monthly Total	**14,272,182**	**16,993**	**69,714**	**26,985**	**19**	**148,423**	**31,486**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

For this month, the reporting for the cold/dry flare is from the main flowmeter (CA:KIT:062FI0123.PV) and including pilot (CA:KIT:062FI0343.PV) and subtracting nitrogen purges.

Table D-3: Flaring Event – Cold/Dry Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Jun-2025	611	0.7	3	1.1	-	6	1.3
2-Jun-2025	610	0.7	3	1.1	-	6	1.3
3-Jun-2025	609	0.7	3	1.1	-	6	1.3
4-Jun-2025	196,136	231.9	952	368.3	0.1000	2,026	429.7
5-Jun-2025	466,594	555.2	2,278	881.8	0.1000	4,850	1,028.8
6-Jun-2025	362,520	431.9	1,772	685.9	0.1000	3,772	800.2
7-Jun-2025	508,695	607.4	2,492	964.8	0.1000	5,306	1,125.6
8-Jun-2025	406,358	485.9	1,994	771.7	0.1000	4,245	900.4
9-Jun-2025	393,150	471.1	1,933	748.3	0.1000	4,115	873.0
10-Jun-2025	492,010	589.7	2,420	936.7	1.6000	5,152	1,092.8
11-Jun-2025	463,366	554.7	2,276	881.0	1.5000	4,845	1,027.8
12-Jun-2025	595	0.7	3	1.1	-	6	1.3
13-Jun-2025	414,335	496.6	2,038	788.8	1.3000	4,338	920.3
14-Jun-2025	485,503	581.0	2,384	922.8	1.6000	5,075	1,076.6
15-Jun-2025	326,755	389.5	1,598	618.5	1.0000	3,402	721.6
16-Jun-2025	2,826,033	3,360.2	13,786	5,336.4	9.0000	29,350	6,225.9
17-Jun-2025	8,976,729	10,704.9	43,921	17,001.8	21.5000	93,510	19,835.5
18-Jun-2025	9,366,857	11,161.9	45,793	17,726.2	22.4000	97,494	20,680.6
19-Jun-2025	9,007,041	10,714.7	43,962	17,017.4	21.5000	93,596	19,853.7
20-Jun-2025	9,667,413	11,548.3	47,378	18,339.9	23.2000	100,870	21,396.6
21-Jun-2025	8,125,783	9,683.0	39,725	15,377.6	19.5000	84,577	17,940.5
22-Jun-2025	920,653	1,096.5	4,500	1,741.8	2.2000	9,580	2,032.1
23-Jun-2025	640,707	765.4	3,140	1,215.5	1.5000	6,685	1,418.1
24-Jun-2025	122,264	145.7	598	231.3	0.1000	1,272	269.9
25-Jun-2025	596	0.7	3	1.1	-	6	1.3
26-Jun-2025	597	0.7	3	1.1	-	6	1.3
27-Jun-2025	599	0.7	3	1.1	-	6	1.3
28-Jun-2025	599	0.7	3	1.1	-	6	1.3
29-Jun-2025	600	1.0	3.0	1.0	-	6	1.3
30-Jun-2025	602	1.0	3.0	1.0	-	6	1.3
Monthly Total	**54,174,920**	**64,583**	**264,970**	**102,567**	**128.50**	**564,120**	**119,663**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

The storage and loading flare (FLP) pilot (CA:KIT:062FI0343.PV) has been operating. Additional flaring was done during the warming of the LNG tank as the boil-off gas compressor had not started. Other sources of flaring from FLP were assist gas (CA:KIT:062FI0351.PV), and fuel gas purges (CA:KIT:062FI0131.PV; CA:KIT:062FI0133.PV; CA:KIT:062FI0041.PV).

Table D-4: Flaring Event – Storage and Loading Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Jun-2025	543,545	637.54	2,616	1,012.65	0.10	5,570	1,181
2-Jun-2025	628,846	737.22	3,025	1,170.92	0.17	6,440	1,366
3-Jun-2025	792,677	930.68	3,818	1,478.02	0.20	8,129	1,724
4-Jun-2025	740,090	867.97	3,562	1,379.18	0.20	7,585	1,608
5-Jun-2025	606,200	721.31	2,960	1,145.64	0.20	6,301	1,337
6-Jun-2025	546,377	650.92	2,670	1,033.71	0.10	5,685	1,206
7-Jun-2025	556,335	664	2,726	1,055	0.20	5,803	1,231
8-Jun-2025	580,681	694	2,849	1,103	0.2	6,065	1,287
9-Jun-2025	621,501	745	3,056	1,183	0.2	6,506	1,380
10-Jun-2025	1,055,923	1,218	4,999	1,935	2.1	10,643	2,258
11-Jun-2025	1,531,981	1,727	7,085	2,742	1.9	15,083	3,200
12-Jun-2025	896,604	1,033	4,238	1,641	1.7	9,023	1,914
13-Jun-2025	847,714	984	4,039	1,564	1.8	8,600	1,825
14-Jun-2025	806,378	943	3,870	1,497	2.0	8,237	1,748
15-Jun-2025	938,401	1,084	4,446	1,721	2.0	9,467	2,008
16-Jun-2025	1,113,369	1,268	5,204	2,014	1.9	11,079	2,350
17-Jun-2025	1,270,878	1,442	5,918	2,291	1.5	12,600	2,673
18-Jun-2025	1,207,999	1,374	5,636	2,182	1.5	12,000	2,545
19-Jun-2025	1,137,173	1,295	5,316	2,058	1.4	11,317	2,400
20-Jun-2025	1,287,856	1,457	5,977	2,313	1.3	12,726	2,700
21-Jun-2025	1,980,237	2,252	9,241	3,577	2.4	19,673	4,173
22-Jun-2025	2,495,550	2,857	11,724	4,539	3.4	24,960	5,294
23-Jun-2025	1,827,747	2,171	8,905	3,447	4.1	18,959	4,022
24-Jun-2025	1,921,814	2,251	9,236	3,575	0.8	19,665	4,171
25-Jun-2025	2,398,078	2,758	11,318	4,382	0.8	24,098	5,112
26-Jun-2025	2,910,846	3,317	13,609	5,269	0.8	28,974	6,146
27-Jun-2025	2,540,503	2,905	11,919	4,613	0.8	25,376	5,383
28-Jun-2025	1,734,425	2,036	8,355	3,234	0.8	17,788	3,773
29-Jun-2025	1,286,468	1,499	6,151	2,381	0.6	13,095	2,778
30-Jun-2025	2,602,743	3,021	12,396	4,799	1.1	26,392	5,599
Monthly Total	**39,408,939**	**45,541**	**186,864**	**72,335**	**36.3**	**397,839**	**84,392**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Table D-5: Flaring Event – Spare Flare Volume and Emissions Summary

The spare flare pilot was not in operation for the majority of the reporting period, and as such, the flare remained inactive. However, the spare flare pilot brought into service from June 25th to support commissioning activities. The volumes and emissions reported in the table below for these dates reflect intermittent, non-routine flaring and include the combustion of the associated pilot and assist gas.

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Jun-2025	-	-	-	-	-	-	-
2-Jun-2025	-	-	-	-	-	-	-
3-Jun-2025	-	-	-	-	-	-	-
4-Jun-2025	-	-	-	-	-	-	-
5-Jun-2025	-	-	-	-	-	-	-
6-Jun-2025	-	-	-	-	-	-	-
7-Jun-2025	-	-	-	-	-	-	-
8-Jun-2025	-	-	-	-	-	-	-
9-Jun-2025	-	-	-	-	-	-	-
10-Jun-2025	-	-	-	-	-	-	-
11-Jun-2025	-	-	-	-	-	-	-
12-Jun-2025	-	-	-	-	-	-	-
13-Jun-2025	-	-	-	-	-	-	-
14-Jun-2025	-	-	-	-	-	-	-
15-Jun-2025	-	-	-	-	-	-	-
16-Jun-2025	-	-	-	-	-	-	-
17-Jun-2025	-	-	-	-	-	-	-
18-Jun-2025	-	-	-	-	-	-	-
19-Jun-2025	-	-	-	-	-	-	-
20-Jun-2025	-	-	-	-	-	-	-
21-Jun-2025	-	-	-	-	-	-	-
22-Jun-2025	-	-	-	-	-	-	-
23-Jun-2025	-	-	-	-	-	-	-
24-Jun-2025	-	-	-	-	-	-	-
25-Jun-2025	51,498	61	252	97	-	536	114
26-Jun-2025	44,764	53	218	84	-	465	99
27-Jun-2025	45,470	54	221	86	-	471	100
28-Jun-2025	153,224	182	745	288	0.1	1,586	336
29-Jun-2025	115,041	136	559	216	0.1	1,190	252
30-Jun-2025	94,007	111	456	177	0.1	972	206
Monthly Total	**504,004**	**597**	**2,451**	**948**	**0.30**	**5,220**	**1,107**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

In addition to the continuous pilot gas, the emissions reported for the liquid burner are primarily associated with non-routine flaring from blowcase testing conducted as part of commissioning activities.

This testing involved the controlled combustion of two main liquid streams: a heavier hydrocarbon stream from the blowcase (114HCV-0003) and a lighter stream from the LNG rundown line (114HCV-0009). The daily emissions data presented in Table D-6 below reflects the combination of these activities, assist gas (CA:KIT:062FI0361.PV, CA:KIT:062FI0381.PV, CA:KIT:062FI0400.PV) and the pilot.

Table D-6: Flaring Event – Liquid Burner Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Jun-2025	457	0.5	2	1	-	5	1
2-Jun-2025	456	0.5	2	1	-	5	1
3-Jun-2025	454	0.5	2	1	-	5	1
4-Jun-2025	452	0.5	2	1	-	5	1
5-Jun-2025	447	0.5	2	1	-	5	1
6-Jun-2025	447	0.5	2	1	-	5	1
7-Jun-2025	447	0.5	2	1	-	5	1
8-Jun-2025	447	0.5	2	1	-	5	1
9-Jun-2025	447	0.5	2	1	-	5	1
10-Jun-2025	446	0.5	2	1	-	5	1
11-Jun-2025	445	0.5	2	1	-	5	1
12-Jun-2025	446	0.5	2	1	-	5	1
13-Jun-2025	447	0.5	2	1	-	5	1
14-Jun-2025	446	0.5	2	1	-	5	1
15-Jun-2025	448	0.5	2	1	-	5	1
16-Jun-2025	448	0.5	2	1	-	5	1
17-Jun-2025	137,283	291	1,195	463	1	2,544	540
18-Jun-2025	140,225	297	1,221	472	1	2,599	551
19-Jun-2025	140,244	297	1,221	472	1	2,599	551
20-Jun-2025	140,205	297	1,221	472	1	2,599	551
21-Jun-2025	134,742	286	1,173	454	1	2,497	530
22-Jun-2025	38,423	64	263	102	-	560	119
23-Jun-2025	515,490	863	3,543	1,371	2	7,542	1,600
24-Jun-2025	290,537	487	1,996	773	-	4,250	901
25-Jun-2025	447	0.5	2	1	-	5	1
26-Jun-2025	450	0.5	2	1	-	5	1
27-Jun-2025	449	0.5	2	1	-	5	1
28-Jun-2025	450	0.5	2	1	-	5	1
29-Jun-2025	451	0.53	2.20	0.85	-	5	1
30-Jun-2025	451	0.53	2.20	0.85	-	5	1
Monthly Total	**1,547,027**	**2,893**	**11,877**	**4,601**	**7**	**25,300**	**5,365**

* Individual and final totals may be subject to rounding adjustments
**Values absent are outside the range of significant figures

Exhibit D-1: Sample Emission Calculations – Warm/Wet Flare

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 h to 1 day (d)
    - 10,000 parts per millon (ppm) in one percent.

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable meters include:
    - KITSL-V1P.curval (KMS): This tag provides the daily fuel gas volume data recorded at the KMS. These volumes, measured at atmospheric pressure, serve as the primary input for calculating flared gas volumes.
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density was obtained (daily values at 1 atm) This was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - CA:KIT:062FI0343.PV: This tag measures the total fuel gas consumption for all flare pilots. The portions attributable to the cold dry flare and the liquid burner were determined using flare tip allocations and subtracted from the total to determine the warm/wet flare pilot gas consumption.
    - CA:KIT:062FI0103.PV: This is the main flow meter for the warm/wet flare
    - Emission factors: Refer to Table 2 within the report.

Emission Calculation Basis – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right)$$
$$\times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using June 01, 2025, and NOx for the example:

Convert volumetric flow rate to mass flow rate:

Volumetric flow rate = 200,263 m^3/d – corrected to 20°C.

Mass flow rate = 200,263 m^3/d x 0.73614240 kg/m^3 = 147,422 kg/d

NOx Mass Emission (kg/d)

= 147,422 x 40.13 x (1 / 0.73614240) x (1 / 1000) x 0.9478 x 0.068 x 0.4535

≈ 235 kg/d

Similar calculations follow for CO, $PM_{2.5}$, VOC, and HC-T, however all HHV values in their calculations are converted to LHV.

Emission Calculation Basis – when using Engineering Estimates (only applies to SOx):

Total sulfur content (S) in feed gas samples was analyzed periodically by the LNG Canada laboratory. Table D-7 summarizes the laboratory results.

Table D-7: Total Sulphur Content Measured in the Feed Gas (Laboratory Results)

Date	Total Sulphur in Feed Gas (PPMW)	%
03-Jun-25	0.18	0.000018
10-Jun-25	2.13	0.000213
17-Jun-25	1.60	0.000016
24-Jun-25	0.36	0.000036

To bridge periods between measurements, the following approach was used:

- June 1 - 9: SO_2 emissions were calculated using the June 03, 2025 total sulphur measurement.
- June 10 - 16: The June 10, 2025 measurement was applied.
- June 17 - 23: The June 17, 2025 measurement was applied.
- June 24 - 30: The June 24, 2025 measurement was applied.

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

Using June 03, 2025, for the example, where the applied percent sulphur in the fuel gas is 0.18 PPMW.

SO_2 Mass Emission (kg/d)

= 147,422 x 0.000018 x (1 / 100) x (64.066 / 32.065) x 1

≈ 0.1 kg/d

The same calculation approach would follow for SO_2 (kg/h) numbers; with the flow rate in kg/h rather than kg/d.

Appendix E Ambient Air Quality Evaluation (Condition 10.2.7)

See attachment – AMBIENT AIR QUALITY MONITORING REPORT JUNE 2025, TRINITY CONSULTANTS

Appendix F Facility SO_2 Emission Limit (Condition 10.2.8)

Table F-1 presents the maximum hourly cumulative SO_2 discharge rate per day. It does not imply that the maximum discharge rate occurred for the full 24 hours that day. The maximum hourly rate was based on the maximum hourly flow rate obtained for each of the contributing sources below on the respective dates. The total sulfur content was obtained from Table D-7.

Table F-1: Maximum Hourly SO_2 Discharge Rate for Each Day

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
01-Jun-25	0.022	22.12%	1.24%	10.89%	26.35%	39.40%	0.00%	0.00%
02-Jun-25	0.016	23.74%	1.70%	17.97%	2.26%	54.33%	0.00%	0.00%
03-Jun-25	0.041	9.42%	0.65%	59.20%	0.39%	30.34%	0.00%	0.00%
04-Jun-25	0.050	8.67%	0.54%	57.60%	12.87%	20.32%	0.00%	0.00%
05-Jun-25	0.052	7.32%	0.51%	62.84%	10.97%	18.36%	0.00%	0.00%
06-Jun-25	0.036	13.11%	0.50%	33.10%	26.20%	27.09%	0.00%	0.00%
07-Jun-25	0.037	14.05%	0.49%	37.77%	22.22%	25.47%	0.00%	0.00%
08-Jun-25	0.030	14.62%	0.91%	33.15%	19.86%	31.46%	0.00%	0.00%
09-Jun-25	0.032	13.23%	0.95%	34.15%	17.46%	34.21%	0.00%	0.00%
10-Jun-25	0.390	16.24%	2.71%	33.73%	16.80%	30.52%	0.00%	0.00%
11-Jun-25	0.323	24.01%	1.26%	12.28%	21.80%	40.65%	0.00%	0.00%
12-Jun-25	0.354	17.30%	0.01%	22.04%	25.62%	35.03%	0.00%	0.00%
13-Jun-25	0.367	19.71%	0.03%	28.76%	21.60%	29.90%	0.00%	0.00%
14-Jun-25	0.395	17.85%	0.02%	20.03%	33.98%	28.12%	0.00%	0.00%
15-Jun-25	0.328	16.28%	0.02%	10.15%	38.12%	35.43%	0.00%	0.00%
16-Jun-25	1.243	4.99%	0.00%	77.11%	8.92%	8.98%	0.00%	0.00%
17-Jun-25	1.405	3.89%	0.00%	21.44%	67.52%	5.78%	0.00%	1.37%
18-Jun-25	1.168	3.39%	0.11%	2.46%	85.38%	7.02%	0.00%	1.64%
19-Jun-25	1.148	3.81%	1.13%	2.51%	82.07%	8.81%	0.00%	1.67%
20-Jun-25	1.174	3.59%	1.00%	1.65%	85.16%	6.97%	0.00%	1.63%
21-Jun-25	1.215	3.79%	0.92%	2.68%	84.96%	6.07%	0.00%	1.58%
22-Jun-25	1.159	4.78%	0.25%	2.68%	81.97%	8.66%	0.00%	1.66%
23-Jun-25	0.359	15.21%	3.46%	8.78%	33.66%	33.54%	0.00%	5.35%
24-Jun-25	0.058	20.98%	0.01%	11.28%	10.81%	49.43%	0.00%	7.49%
25-Jun-25	0.066	17.97%	0.01%	7.95%	15.52%	39.68%	18.87%	0.00%
26-Jun-25	0.054	22.26%	0.02%	10.48%	0.24%	56.68%	10.32%	0.00%
27-Jun-25	0.046	26.69%	0.02%	13.42%	0.10%	53.93%	5.84%	0.00%
28-Jun-25	0.066	18.82%	0.01%	10.23%	0.03%	43.45%	27.46%	0.00%
29-Jun-25	0.059	30.54%	0.09%	11.65%	0.11%	41.17%	16.44%	0.00%

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
30-Jun-25	0.080	27.82%	0.20%	8.21%	0.24%	46.23%	17.30%	0.00%

* Individual values may be subject to rounding adjustments

AMBIENT AIR QUALITY MONITORING REPORT JUNE 2025

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1.0 INTRODUCTION

This report, prepared for LNG Canada by Trinity Consultants (Trinity), summarizes the LNG Canada's nitrogen dioxide (NO_2) and Ozone (O_3) monitoring network data collected at the Kitamaat Village and Riverlodge Stations for June 1 through June 30, 2025.

Sulfur dioxide (SO_2) and particulate matter 2.5 microns in size or less ($PM_{2.5}$) data presented in this report have been provided by Rio Tinto BC Works. In addition, in January 2025, a Total Hydrocarbon (THC) analyzer was installed and operated at the Riverlodge station. The monitoring performed by LNG Canada is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) and satisfies the requirement for collection of continuous air quality data as described under Sections 6.2, 6.2.1, 6.2.2 & 6.3 in LNGC's Air Discharge Permit PA-110588.

LNG Canada owns, operates, and maintains an ambient air monitoring network around the LNG Canada Kitimat LNG export facility. This ambient air quality monitoring network consists of two air quality monitoring stations that are strategically located in the Kitimat Valley of British Columbia (BC) at the Kitamaat Village (Village) and Riverlodge. The Kitamaat Village and Riverlodge stations are owned by Rio Tinto Alcan Inc. and are part of Rio Tinto's air quality monitoring network. LNG Canada's continuous monitoring equipment are housed in the Rio Tinto air quality shelters at Kitamaat Village and Riverlodge locations. The locations of these stations within the Kitimat Valley are presented in Figure 1.1.

Figure 1.1 Locations of LNG Canada Ambient Air Monitoring Stations in Kitimat Valley

1.1 Kitamaat Village

The Village Ambient Air Station is in the Haisla Nation community of Kitamaat Village. The site is located within the yard of the Kitamaat Village sewage treatment plant. Area land use is suburban with a mix of dwellings, commercial buildings, forest, ocean, and parkland. The ground cover immediately around the site is compacted gravel, natural ground cover, cut grass, and asphalt. An aerial view of the site is presented in Figure 1.2. A photograph of the Kitamaat Village Ambient Air Quality Monitoring Station is presented in Figure 1.3.

Figure 1.2 Aerial View of Kitamaat Village Ambient Air Quality Monitoring Station

Figure 1.3 Photograph of Kitamaat Village Ambient Air Quality Monitoring Station

1.2 Riverlodge

The Riverlodge Ambient Air Station is located on Columbia Avenue in Kitimat, BC across the street from the Riverlodge Community Centre. The monitoring station is an aged industrial trailer with a meteorological tower mounted to the frame and hitch of the trailer. Land use around the site is suburban low-density housing, park land and forest. Land cover immediately around the site is short grass, gravel and asphalt parking lot, buildings, and forested lands. An aerial view of the site is shown in Figure 1.4. A photograph of the Riverlodge ambient air station is presented in Figure 1.5.

Figure 1.4 Aerial View of Riverlodge Ambient Air Quality Monitoring Station

Figure 1.5 Photograph of Riverlodge Ambient Air Quality Monitoring Station

2.0 JUNE 2025 REPORT SUMMARY

The LNG Canada air quality monitoring data collected for June 2025 at the Kitamaat Village and Riverlodge stations are summarized in this section.

British Columbia has adopted air quality objectives and standards for a number of contaminants, including $PM_{2.5}$, SO_2, O_3, and NO_2. The British Columbia Ambient Air Quality Objectives (BCAAQO) and the 2020 Canadian Ambient Air Quality Standard (for SO_2) that have been developed by the British Columbia Ministry of Environment are as follows:

Pollutant	Averaging Period	British Columbia Ambient Air Quality Objective (BCAAQO)	2020 Canadian Ambient Air Quality Standard (CAAQS)
SO_2	1-hour	75 (ppb)[a]	70 (ppb)[b]
	Annual	--	5 (ppb)[c]
NO_2	1-hour	60 (ppb)[d]	60 (ppb)[d]
	Annual	17 (ppb)[e]	17 (ppb)[e]
$PM_{2.5}$	24-hours	25 ($\mu g/m^3$)[f]	27 ($\mu g/m^3$)[g]
	Annual	8 ($\mu g/m^3$)[e]	8.8 ($\mu g/m^3$)[h]
O_3	1-hour	82 (ppb)	
	8-hour		62 (ppb)[i]

[a] Achievement based on annual 97th percentile of daily 1-hour maximum averaged over 2015-2017, annual 97.5th percentile of daily 1-hour maximum averaged over 2016-2018, and annual 98th percentile of daily 1-hour maximum averaged over 2017-2019, with one allowable excursion above 75 ppb to a maximum of 85 ppb over a three-year period prior to 2020.

[b] Achievement based on annual 99th percentile of daily 1-hour maximum, averaged over three consecutive years.

[c] Achievement based on annual average of 1-hour concentrations over one year.

[d] Achievement based on annual 98th percentile of daily 1-hour maximum averaged over three consecutive years

[e] Achievement based on annual average of 1-hour concentrations over one year

[f] Achievement based on annual 98th percentile of daily average, over one year

[g] Achievement based on annual 98th percentile of daily average, averaged over three consecutive years.

[h] Achievement based on annual average, averaged over three consecutive years.

[i] Achievement based on annual 4th highest daily 8-hour maximum, averaged over three consecutive years.

2.1 Kitamaat Village

Table 2-1 summarizes the data completeness and maximum pollutant concentrations observed at the Kitamaat Village monitoring station for June 1 through June 30, 2025.

Table 2-1 Kitamaat Village Station June 2025 Data Summary

Parameter	Data Completeness	1-Hour Average		24-Hour Average 8-hour Average[2]	
		Maximum Concentration	Exceedances of BCAAQO[1]	Maximum Concentration	Exceedances of BCAAQO[1]
$PM_{2.5}$ (µg/m³)	99.4	26.0	-	15.4	0.0
SO_2 (ppb)	95.7	4.3	0.0	0.7	-
NO_2 (ppb)	95.6	13.0	0.0	1.0	-
O_3 (ppb)[2]	95.6	40.0	0.0	37.0	0.0

[1] British Columbia Ambient Air Quality Objective (BCAAQO)
[2] 8-hour maximum

2.1.1 Data Quality Notes

- None.

2.1.2 Calibration / Maintenance Notes

- On June 3, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas logger, and T700U calibrator to the correct time during the station visit.
- On June 10, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and T700U calibrator to the correct time during the station visit.
- On June 17, 2025, the site technician adjusted the clocks on the Envidas logger and T700U calibrator to the correct time during the station visit.
- On June 19, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, $PM_{2.5}$ sampler, and T700U calibrator to the correct time during the station visit. The O_3 and NO_x inlet filers were replaced.
- On June 25, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700U calibrator, and Envidas data logger to the correct time.
- On June 26, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700U calibrator, and Envidas data logger to the correct time.

2.2 Riverlodge Station

Table 2-2 summarizes the data completeness and maximum pollutant concentrations observed at the Riverlodge monitoring station for June 1 through June 30, 2025.

Table 2-2 Riverlodge Station June 2025 Data Summary

Parameter	Data Completeness	1-Hour Average		24-Hour Average 8-Hour Average[2]	
		Maximum Concentration	Exceedances of BCAAQO[1]	Maximum Concentration	Exceedances of BCAAQO[1]
$PM_{2.5}$ (µg/m³)	98.8	24.0	-	15.6	0.0
SO_2 (ppb)	95.5	24.7	0.0	2.3	-
NO_2 (ppb)	95.5	12.7	0.0	1.9	
O_3 (ppb)[2]	95.5	43.0	0.0	39.0	0.0
THC (ppm)	93.7	2.67	--[3]	2.26	--[3]

[1] British Columbia Ambient Air Quality Objective (BCAAQO)
[2] 8-hour maximum
[3] There are no BCAAQO's for Total Hydrocarbon (THC).

2.2.1 Data Quality Notes

- None.

2.2.2 Calibration / Maintenance Notes

- On June 6, 2025, the site technician updated the clocks on the NO_2, THC, and O_3 analyzers, T700U calibrator, and Envidas logger to the correct time.
- On June 12, 2025, the site technician updated the clocks on the NO_2, THC, and O_3 analyzers, T700U calibrator, and Envidas logger to the correct time.
- On June 25, 2025, the site technician updated the clocks on the NO_2, THC, and O_3 analyzers, T700U calibrator, and Envidas to the correct time. The meteorological sensors on the tower were calibrated.
- On June 27, 2025, the clocks on the NO_2 and O_3 analyzers, and T700U calibrator were updated to the correct time. Windows updates were downloaded and installed on the Envidas logger.

3.0 JUNE 2025 KITAMAAT VILLAGE AMBIENT AIR QUALITY STATION MONITORING ACTIVITIES

This section provides a summary of the monitoring activities conducted at the LNG Canada Kitamaat Village Ambient Air Quality Station for June 2025. Table 3-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Kitamaat Village monitoring station. Site visit notes, SO_2, $PM_{2.5}$, O_3, and NO_2 concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, and NO_2 trends for June 2025 are also presented below.

Table 3-1 LNG Canada Instrumentation at the Kitamaat Village Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Kitamaat Village			
NO_2	Teledyne-API T200	Chemiluminescence	8598
O_3	Teledyne-API T400	UV Absorption	7486
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	905
Zero Air Source	Teledyne API T701	Zero-Air Generator	2555

3.1 Site Visit Notes

Site visit notes are summarized in Appendix A.

3.2 Monitoring Results and Trends

There were no exceedances of the CAAQS for SO_2 at the Kitamaat Village station in June 2025. The mean SO_2 concentration at the Kitamaat Village for June was 0.2 ppb with a maximum hourly concentration of 4.3 ppb.

The mean 1-hour $PM_{2.5}$ concentration in June was 4.4 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration was 26.0 µg/m^3. The 24-hour average concentration was 4.4 µg/m^3 and the maximum 24-hour $PM_{2.5}$ concentration for June was 15.4 µg/m^3. In June, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

The mean O_3 concentration at the Kitamaat Village for June was 23.5 ppb with a maximum hourly O_3 concentration of 40.0 ppb. The maximum 8-hour O_3 concentration was 37.0 ppb. There were no exceedances of the one-hour BCAAQO or 8-hour 2020 CAAQS for O_3 at the Kitamaat Village station in June 2025.

The mean NO_2 concentration at the Kitamaat Village for June was 0.4 ppb with a maximum hourly NO_2 concentration of 13.0 ppb. There were no exceedances of the one-hour 60 ppb BCAAQO for NO_2 at the Kitamaat Village station in June 2025.

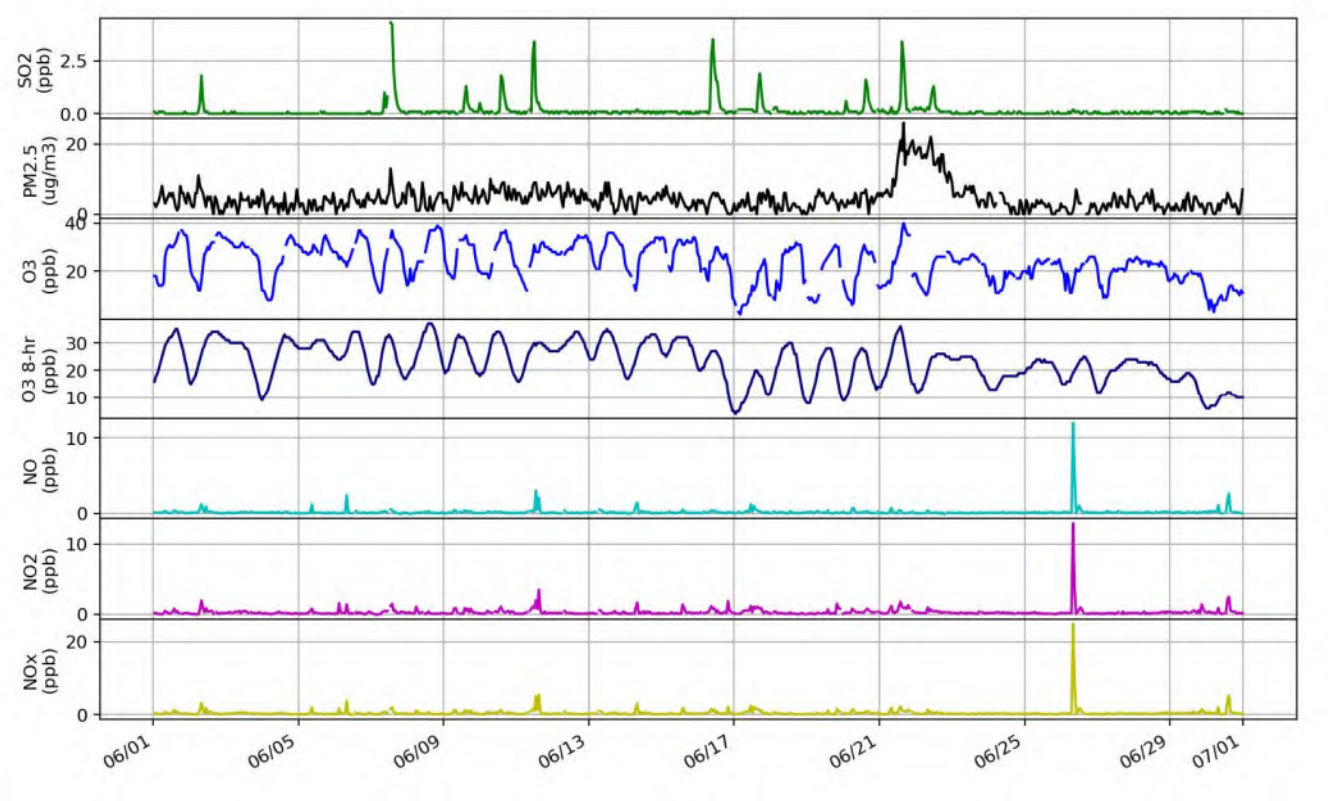
Table 3-2 tabulates the extreme and mean daily maximum readings, mean readings, and extreme and mean daily minimum readings for the 1-hour average SO_2, $PM_{2.5}$, NO_2 and O_3 concentrations for June 2025. Figure 3.1 graphically illustrates the time series for the month for the pollutants described in Table 3-2.

Table 3-2 Summary of SO_2, $PM_{2.5}$, O_3, and NO_2, Concentrations for the Kitamaat Village Station, June 2025

Statistic	SO_2 (ppb)[1]	$PM_{2.5}$[1] (µg/m³)	NO_2 (ppb)	O_3 (ppb)
1-Hour Mean	0.2	4.4	0.4	23.5
1-Hour Maximum	4.3	26.0	13.0	40.0
1-Hour Minimum	0.0	0.0	0.0	2.0
Mean Daily Maximum	0.7	15.7	1.0	30.7
Mean Daily Minimum	0.1	2.0	0.2	9.3
Data Recovery	95.7	99.4	95.6	95.6
24-hour Daily Maximum	0.7	15.4	1.0	---
8-Hour Maximum	---	---	---	37.0
24-Hour Average	0.2	4.4	0.4	23.5
Median	0.1	4.0	0.2	24.0

[1] SO_2 and $PM_{2.5}$ June 2025 data provided by Rio Tinto BC Works.

Figure 3.1 Time Series of 1-Hour Averaged SO_2, $PM_{2.5}$, O_3, and NO_2 Concentration Data for the Kitamaat Village Station, June 2025



4.0 JUNE 2025 RIVERLODGE AMBIENT AIR QUALITY STATION MONITORING STATION

This section provides a summary of the monitoring activities conducted at the LNG Canada Riverlodge Ambient Air Quality Station for June 2025. Table 4-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Riverlodge monitoring station. Site visit notes, SO_2, $PM_{2.5}$, O_3, NO_2, and THC concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, NO_2, and THC trends for June 2025 are also presented below.

Table 4-1 LNG Canada Instrumentation at the Riverlodge Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Riverlodge			
NO_2	Teledyne-API T200	Chemiluminescence	8599
O_3	Teledyne-API T400	UV Absorption	7487
THC	Teledyne-API N901	Flame Ionization Detector	80
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	906
Zero Air Source	Teledyne API T701	Zero-Air Generator	2556

4.1 Site Visit Notes

Site visit notes are summarized in Appendix A.

4.2 Monitoring Results and Trends

The mean SO_2 concentration at the Riverlodge for June was 0.7 ppb with a maximum hourly concentration of 24.7 ppb. There were no exceedances of the CAAQS for SO_2 at the Riverlodge station in June 2025.

The mean 1-hour $PM_{2.5}$ concentration at the Riverlodge station for June was 3.3 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration was 24.0 µg/m^3. The maximum 24-hour $PM_{2.5}$ concentration for June was 15.6 µg/m^3. In June, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

The mean NO_2 concentration at the Riverlodge station for June was 0.7 ppb with a maximum hourly NO_2 concentration of 12.7 ppb. There were no exceedances of the one-hour BCAAQO for NO_2 at the Riverlodge station in June 2025.

The mean O_3 concentration at the Riverlodge station for June was 23.5 ppb with a maximum hourly O_3 concentration of 43.0 ppb. The maximum 8-hour O_3 concentration was 39.0 ppb. There were no exceedances of the one-hour BCAAQO or 8-hour 2020 CAAQS for O_3 at Riverlodge station in June 2025.

The mean THC concentration at the Riverlodge station for June was 2.20 ppm with a maximum hourly THC concentration of 2.67 ppm.

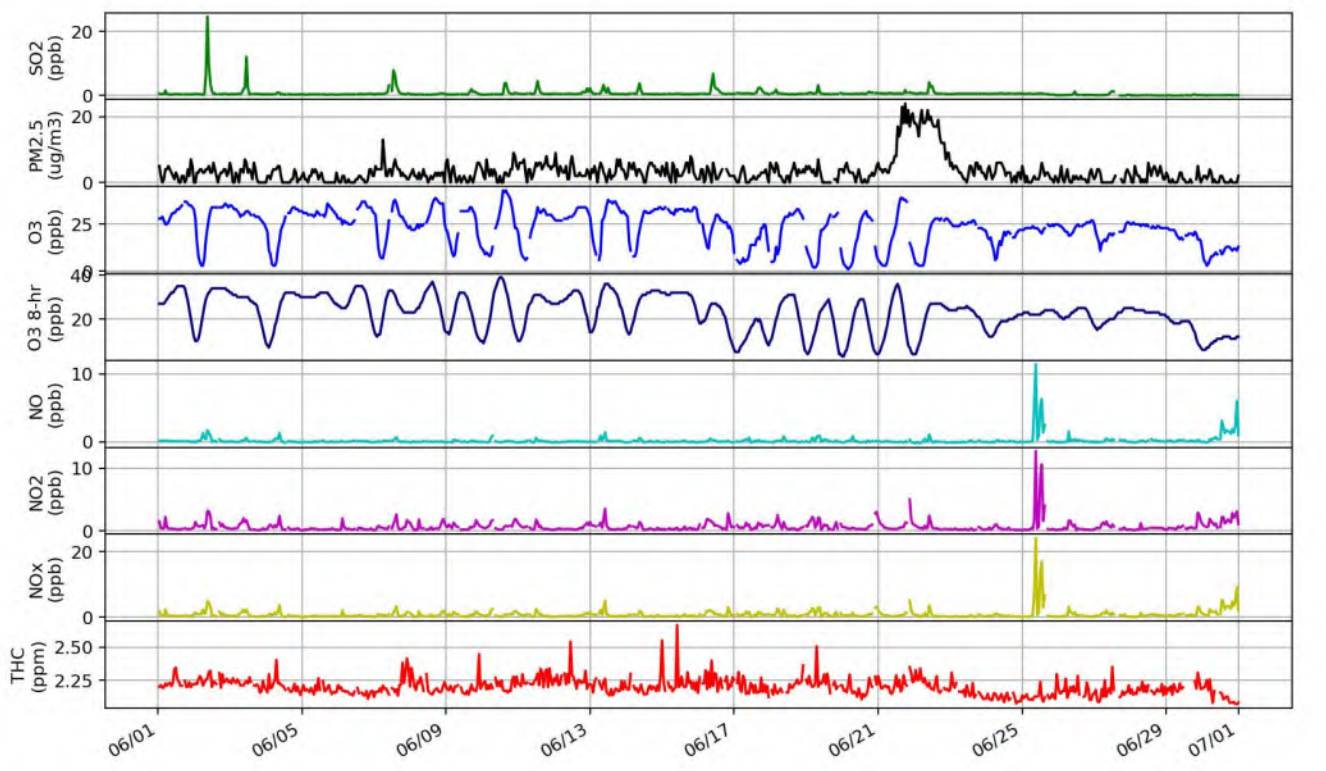
Table 4-2 tabulates the extreme and mean daily maximum readings, mean readings, and extreme and mean daily minimum readings for the 1-hour average SO_2, $PM_{2.5}$, NO_2, O_3, and THC concentrations for June 2025 at Riverlodge station. Figure 4.1 graphically illustrates the time series for the month for the pollutants described in Table 4-2.

Table 4-2 Summary of SO_2, $PM_{2.5}$, O_3, NO_2, and THC Concentrations for the Riverlodge Station, June 2025

Statistic	SO_2 (ppb)[1]	$PM_{2.5}$ ($\mu g/m^3$)[1]	NO_2 (ppb)	O_3 (ppb)	THC (ppm)
1-Hour Mean	0.7	3.3	0.7	23.5	2.20
1-Hour Maximum	24.7	24.0	12.7	43.0	2.67
1-Hour Minimum	0.0	0.0	0.1	1.0	2.07
Mean Daily Maximum	2.5	16.1	2.0	32.5	2.30
Mean Daily Minimum	0.1	1.0	0.3	9.5	2.20
Data Recovery	95.5	98.8	95.5	95.5	93.7
24-hour Daily Maximum	2.3	15.6	1.9	---	2.26
8-hour Maximum	---	---	---	39.0	---
24-Hour Average	0.7	3.3	0.7	23.4	2.20
Median	0.5	2.0	0.4	25.0	2.19

[1] SO_2 and $PM_{2.5}$ June 2025 data provided by Rio Tinto BC Works.

Figure 4.1 Time Series of 1-Hour Averaged SO_2, $PM_{2.5}$, O_3, NO_2, and THC Concentrations for the Riverlodge Station, June 2025



5.0 STATION COMPARISON

Figures 5.1 through 5.5 present comparative time series plots of June 2025 SO_2, $PM_{2.5}$, O_3, and NO_2 concentrations from the Kitamaat Village and Riverlodge monitoring stations. $PM_{2.5}$ and SO_2 data were obtained from Rio Tinto BC works for these stations. These graphs are useful for evaluating pollutant dispersion and for concentration comparison purposes.

Figure 5.1 Comparison of Hourly SO_2 Concentrations in Parts per Billion from Kitamaat Village and Riverlodge Monitoring Locations for June 2025

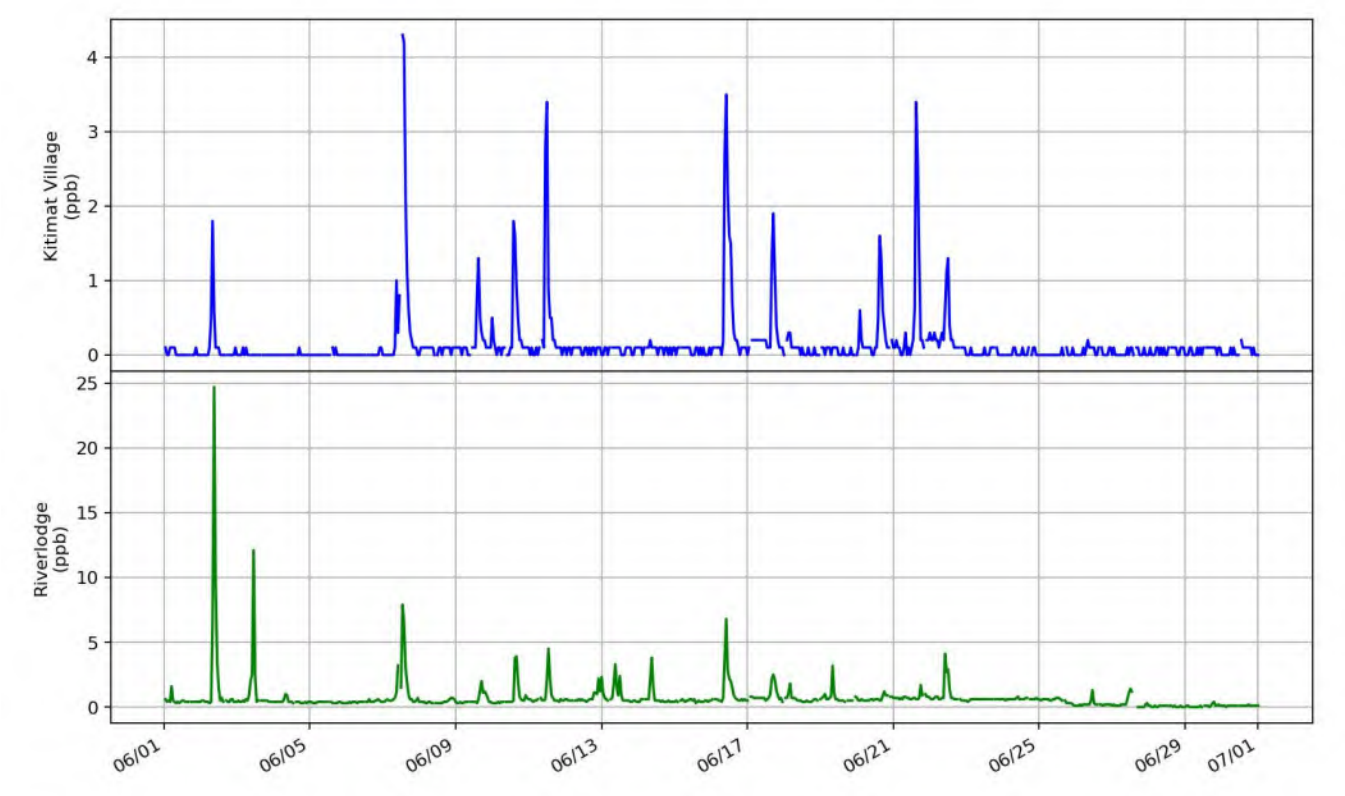


Figure 5.2 Comparison of Hourly $PM_{2.5}$ Concentrations in Micrograms per Cubic Meter Kitamaat Village and Riverlodge Monitoring Locations for June 2025

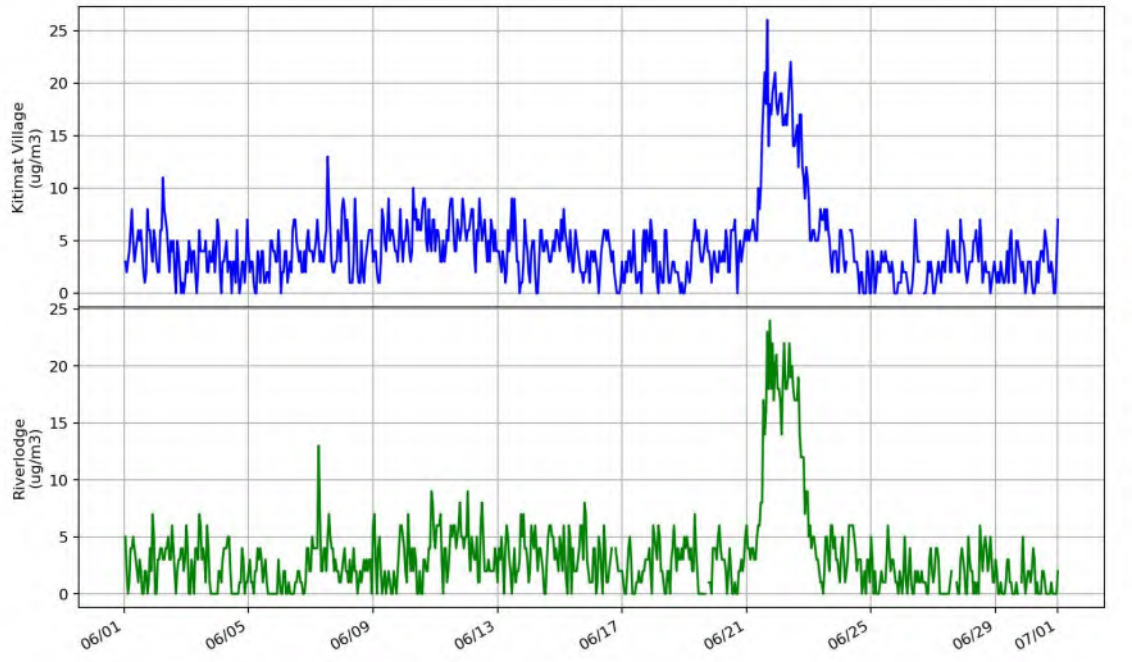


Figure 5.3 Comparison of Hourly NO_2 Concentrations in Parts per Billion from Kitamaat Village and Riverlodge Monitoring Locations for June 2025

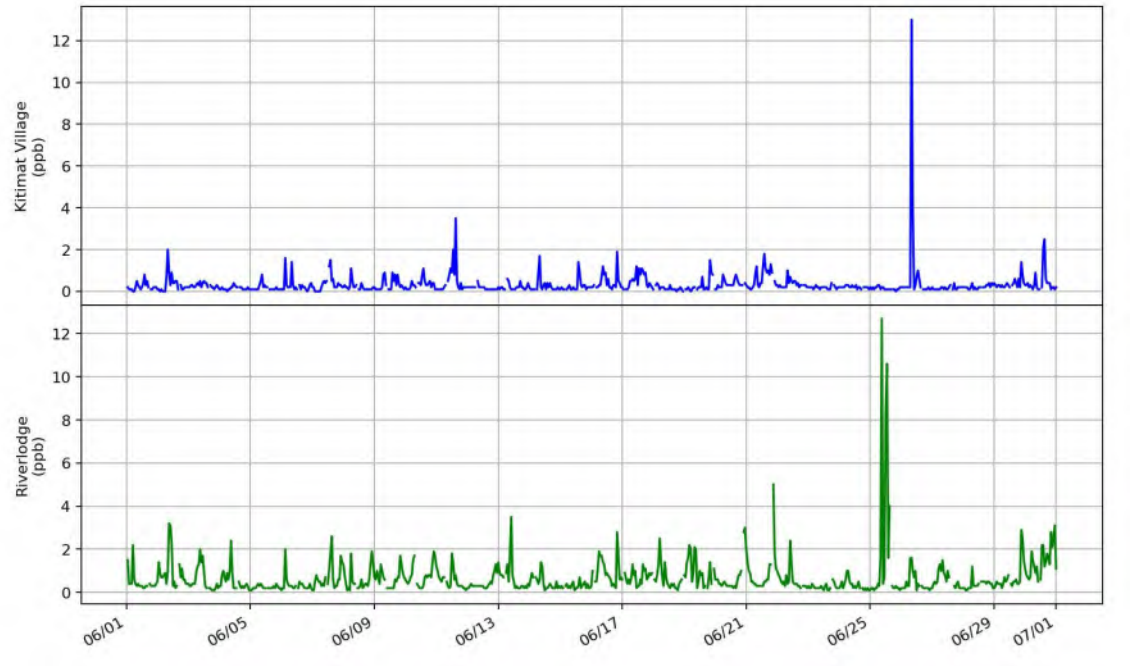


Figure 5.4 Comparison of Hourly O_3 Concentrations in Parts per Billion from Kitamaat Village and Riverlodge Monitoring Locations for June 2025

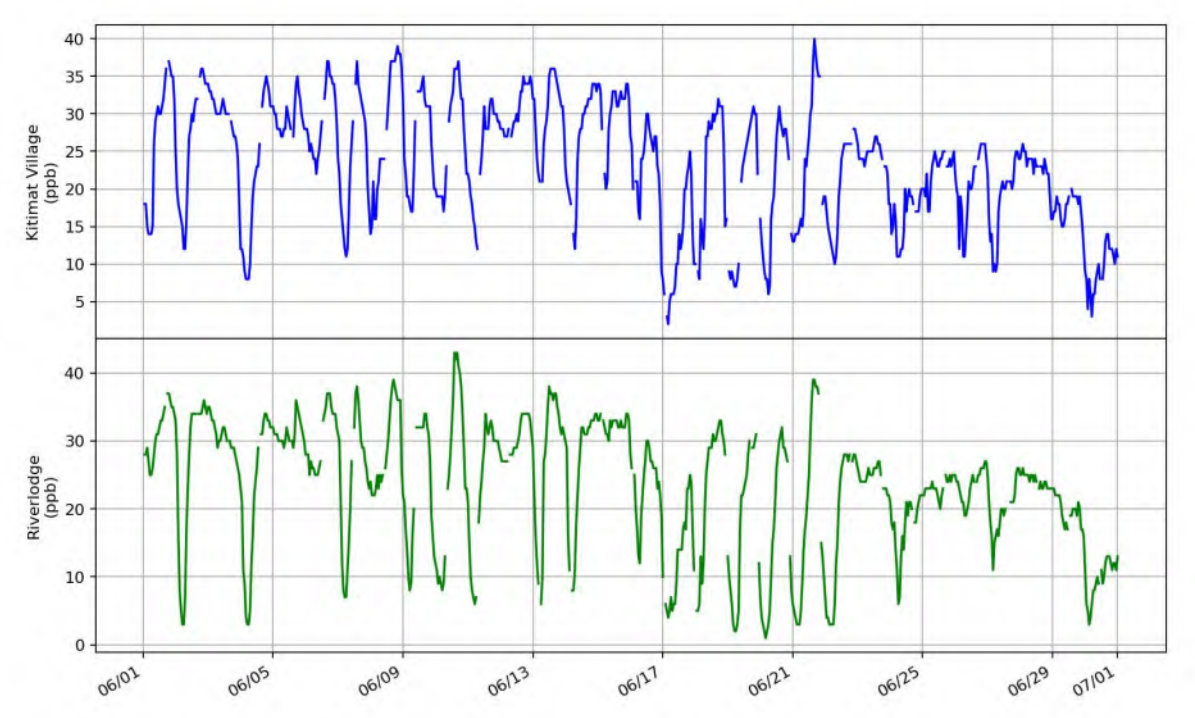
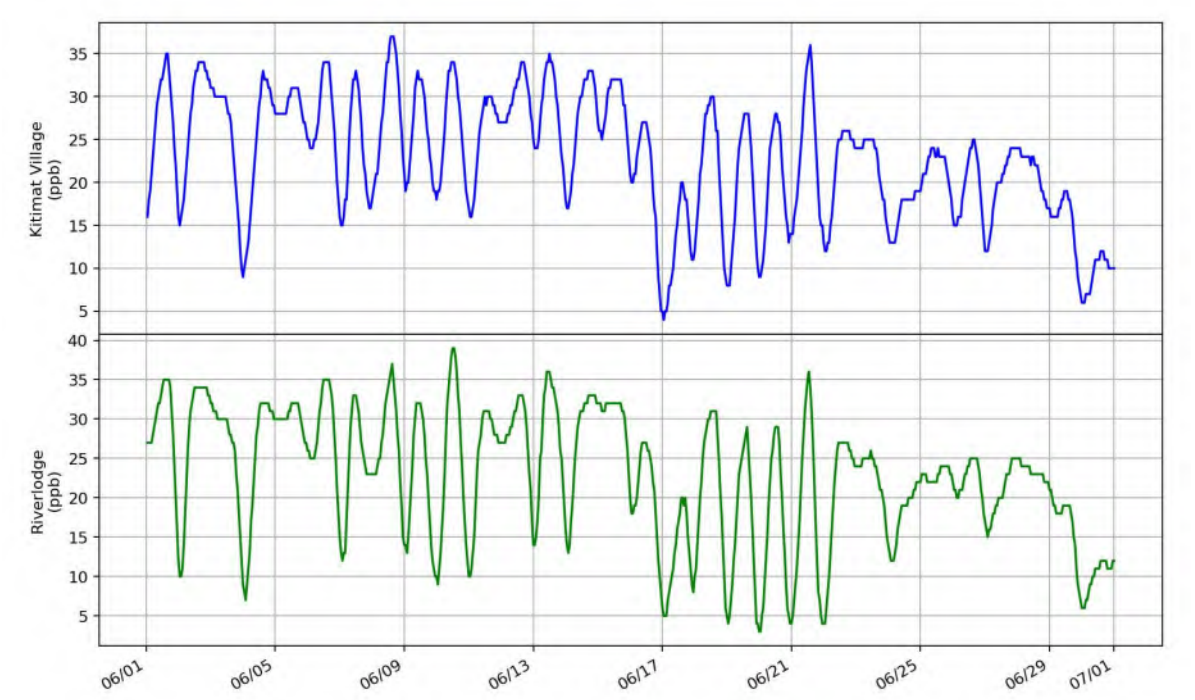


Figure 5.5 Comparison of Eight-Hour O_3 Concentrations in Parts per Billion from Kitamaat Village and Riverlodge Monitoring Locations for June 2025



APPENDIX A. SITE NOTES

06/03/2025 - Weekly station check and RT activities

Tuesday, June 3, 2025 11:24 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: 06/03/2025
Start Time: 1118
End Time: 1159
Technician: Nathan McMillan

Reason for Visit

Weekly station check and RT activities

Description

Envidas: Clock was 2 seconds ahead. Clock updated at 1128.

T700U Calibrator:

-Clock was 83 seconds ahead and was updated at 1130.

T400O3:

-Clock was 81 seconds ahead and was updated at 1134.

T200NOx:

- Clock was 82 seconds ahead and was updated at 1135.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1500 psi and line pressure 30 psi.

06/10/2025 - Weekly station check and RT activities

Tuesday, June 10, 2025 12:26 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: 06/10/2025
Start Time: 1224
End Time: 1253
Technician: Nathan McMillan

Reason for Visit

Weekly station check and RT activities

Description

Envidas: Clock was accurate.

T700U Calibrator:

-Clock was 82 seconds ahead and was updated at 1232.

T400O3:

-Clock was 82 seconds ahead and was updated at 1233.

T200NOx:

- Clock was 82 seconds ahead and was updated at 1234.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1500 psi and line pressure 30 psi.

06/17/2025 - Weekly station check and RT activities

Tuesday, June 17, 2025 10:12 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: 06/10/2025
Start Time: 0958
End Time: 1039
Technician: Nathan McMillan

Reason for Visit

Weekly station check and RT activities

Description

Envidas: Clock was 3 seconds ahead. Updated at 1016.

T700U Calibrator:

-Clock was 80 seconds ahead and was updated at 1018.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Ambient temperature aspirator is working.
- SO2 and NO tank pressure 1490 psi and line pressure 30 psi.
- Shelter temperature 26.1 C, within spec.

06/19/2025 - Inlet filter changes

Thursday, June 19, 2025 7:12 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: June 19, 2025
Start Time: 8:10
End Time: 9:41
Technician: Adrienne Kaul

Reason for Visit

On site to change PUF sample, calibrate PUF sampler, and change inlet filters

Description

Envidas:

-Clock was 3 seconds ahead and was synced at 8:18.

-Windows updates downloaded and installed.

T200 NOx:

-Clock was 1 minute and 43 seconds ahead and was updated at 7:18.

T400 O3:

-Clock was 1 minute and 42 seconds ahead and was updated at 7:20.

T700 Calibrator:

-Clock was 22 seconds ahead and was updated at 8:23.

BAM 1020 PM2.5;

-Clock was 81 seconds ahead and was updated at 7:23.

O3 and NOx data flagged 7:50-8:15

-Analyzer inlet filters replaced with 1-2 um filters.

-160 ppb SO2 running from 8:03-8:11.

-All connections felt tight after filter change.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1460 psi and line pressure 30 psi.

06/25/2025 - Weekly Station Check

Wednesday, June 25, 2025 9:15 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: 06/25/2025
Start Time: 0909
End Time: 1006
Technician: Nathan McMillan

Reason for Visit

Weekly station check

Description

Envidas:

Clock was 1 second ahead. Updated at 0922.

T700U Calibrator:

Clock was 16 seconds ahead and was updated at 0925.

O3-T400:

Clock was 18 seconds ahead. Updated at 0940.

NOx-T200:

Alert-06/24/2025 5:19:26 AM Time Sync Failure

Clock was 18 seconds ahead. Updated at 0943.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1480 psi and line pressure 30 psi.

06/26/2025 - RT Activities

Thursday, June 26, 2025 6:30 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: June 26, 2025
Start Time: 6:23
End Time: 13:58
Technician: Adrienne Kaul, Kayeanna MacKenzie, and Ben Vickers

Reason for Visit

On site to perform RT activities

Description

Envidas:

-Clock was 2 seconds ahead and was synced at 13:41.

T200 NOx:

-Clock was 15 seconds ahead and was synced at 13:43. Clock was 1 second behind after update.

T400 O3:

-Clock was 14 seconds ahead and was synced at 13:44.

T700 Calibrator:

-Clock was 14 seconds ahead and was synced at 13:45. Clock was 1 second behind after update.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Shelter temp reference check: Shelter temp (Envidas)26.3 C Ref temp 26.2 C(ref s/n)11722132 (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1450 psi and line pressure 30 psi.
- T700 alert: 06/24/2025 5:19:13 AM System Reset. Warning raised when system is reset.
- T400 alert: 06/24/2025 5:18:59 AM System Reset. Warning raised when system is reset.
- T200 alert: 06/24/2024 5:19:24 AM System Reset. Warning raised when system is reset.

06/06/2025 - Weekly station check

Friday, June 6, 2025 1:47 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: June 6, 2025
Start Time: 13:46
End Time: 15:11
Technician: Adrienne Kaul

Reason for Visit

On site for weekly site check

Description

Envidas logger:

-Clock was 2 seconds ahead and was updated at 13:56.

T200 NOx:

-Clock was 94 seconds ahead and was updated at 13:55-13:56

T400 O3:

-Clock was 94 seconds ahead and was updated at 13:58.

N901 CH4, NMHC, and THC:

-Clock accurate.

-Instrument put in standby mode at 14:13 and data flagged to maintain in Envidas 14:15-14:46.

-Old Nitrogen cylinder was uninstalled 133501506 final pressure 200 psi.

-New Nitrogen cylinder was installed SN: 133508503. Initial pressure 2600 psi and line pressure set to 70 psi.

-No leaks detected in fittings in regulator and outlet line.

T700U Calibrator:

-Clock was 95 seconds ahead and was updated at 14:01.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO C3H8, and CH4 tank pressure 1690 psi and line pressure 32 psi.
- CH4 tank pressure 2000 psi and line pressure 36 psi.
- Nitrogen tank pressure 200 psi and line pressure 72.5 psi
- Hydrogen tank pressure 2260 psi and line pressure 55 psi.

06/12/2025 - Weekly site check

Thursday, June 12, 2025 11:40 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: June 12, 2025
Start Time: 11:35
End Time: 12:37
Technician: Adrienne Kaul

Reason for Visit

Weekly site inspection

Description

Envidas:

-Clock accurate within 1 second.

T200 NOx:

-Clock was 67 seconds ahead and was updated at 12:03.

T400 O3:

-Clock was 69 seconds ahead and was updated at 12:05.

N901 CH4/NMHC/THC:

-Clock accurate.

T700U Calibrator:

-Clock was 67 seconds ahead and was updated at 12:07.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, CH4, C3H8 tank pressure 1700 psi and line pressure 33 psi.
- CH4 tank pressure 2000 psi and line pressure 35 psi.
- Nitrogen tank pressure 2290 psi and line pressure 71 psi.
- Hydrogen tank pressure 2150 psi and line pressure 55 psi.
- Need to create storage area for spare N2 and H2 cylinders for LNGC cylinders.

06/25/2025 - RT Activities and weekly site check

Thursday, June 19, 2025 1:11 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: Jun 25, 2025
Start Time: 6:43
End Time: 15:05
Technician: Adrienne Kaul, Kayeanna MacKenzie, and Sarah Peden

Reason for Visit

Meteorological sensor calibration

Description

Envidas logger:

-Clock was 1 second ahead and was synced at 14:43.

T200 NOx:

-Clock was 17 seconds ahead and was updated at 14:46.

T400 O3:

-Clock was 1 minute and 9 seconds ahead and was updated at 14:48.

N901 THC, CH4, and NMHC:

-Clock was 1 second behind and no adjustment was made.

T700U Calibrator:

-Clock was 1 minute and 7 seconds ahead and was updated at 14:52.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Ambient temperature aspirator is working.
- SO2, CH4, C3H8, and NO tank pressure: 1675 psi and line pressure:. 34 psi
- CH4 tank pressure: 2000psi and line pressure:. 35 psi
- Nitrogen UHP tank pressure 1725psi and line pressure: .72 psi
- Hydrogen UHP tank pressure 1890 psi and line pressure: 55 psi

06/27/2025 - RT Activities

Friday, June 27, 2025 1:12 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: June 27, 2025
Start Time: 13:02
End Time: 16:02
Technician: Adrienne Kaul

Reason for Visit

RT Activities

Description

Envidas:

-Clock was 2 seconds ahead and was synced at 13:17.

-Windows updates downloaded and installed.

-Computer restarted at 15:31 and was back online at 15:59. Data could be backfilled to Envidas from the data logger.

T200 NOx:

-Clock was 23 seconds ahead and updated at 13:21.

T400 O3:

-Clock was 22 seconds ahead and was updated at 13:23.

N901 THC, CH4, NMHC:

-Clock accurate.

T700 Calibrator:

-Clock was 21 seconds ahead and was updated at 13:25.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Daily ZPS checks appear to be running normally.
- SO2, C3H8, CH4, and NO tank pressure 1660 psi and line pressure 31 psi.
- CH4 tank pressure 2000 psi and line pressure 35 psi.
- Nitrogen UHP tank pressure 1690 psi and line pressure 71 psi.
- Hydrogen UHP tank pressure 1850 psi and line pressure 55 psi.
- Passive SO2 duplicate sample fell out of sampler head while on site.

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Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Quarterly Report (Q2 2025)

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REVISION CONTROL PAGE

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Rev	**Date**	**Document Status**	**Author**	**Reviewer**	**Approver**	**Review Code**
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1. Overview

1.1. Project Background

The LNG Canada (LNGC) liquefied natural gas facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

1.2. Purpose

On July 15, 2024, the BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., under the provisions of the BC *Environmental Management* Act, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Permit PA-110588 applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.3 of Permit PA-110588 (Quarterly Reporting) for Q2 2025.

Refer to Appendix B for a list of all quarterly reports that have been issued under Permit PA-110588.

1.3. LNG Facility Status

On the afternoon of August 31, 2024, fuel gas was introduced into Unit 1000 (Inlet Facilities) for the first time from the Coastal Gas Link pipeline, commencing the pressurization of piping and the startup fuel gas heater. The introduction of fuel gas into the fuel gas headers down to the flare area, and the first supply of fuel gas to the pilot on the warm wet flare occurred on September 1, 2024. LNG Canada started producing liquified natural gas (LNG) on June 22nd, 2025, and successfully loaded the first cargo of LNG destined for global markets on June 30th, 2025, marking the start of operations at Canada’s first large-scale LNG export facility.

Under Permit PA-110588, the “Commissioning” phase is defined as “*that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.”* Operations is the period of time which follows Commissioning. Therefore, “Commissioning”, under Permit PA-110588, commenced on September 1, 2024, and ended with the departure of 1st cargo.

The Initial Performance Period (IPP) did not commence during Q2 2025 (which is defined as the period that “*commences upon the completion of the initial performance test for LNG Train 1”*).

During Q2 2025, discharges of air contaminants occurred from the following authorized works:

- Two (2) gas turbine engine (LNG Train 1, String 1 & String 2)
- One (1) AGI (LNG Train 1)
- One (1) warm/wet flare
- One (1) cold/dry flare
- One (1) storage and loading flare
- One (1) spare flare
- Liquid burner

2. Ambient Air Monitoring Data issues (Condition 10.3.1)

2.1. Permit Condition

Under Condition 10.3.1, the quarterly report shall include the following information:

a. (i) identification of, (ii) description of, and (iii) reason(s) for any ambient air or meteorological monitoring data deletion or resubmission.

b. (i) identification of, (ii) description of, and (iii) reason(s) for any missed calibrations from ambient air analyzers that were required to be calibrated during the reporting period.

c. (i) identification and (ii) description of any other issues with the ambient air or meteorological monitoring data; and

d. if any passive monitor fails to collect a sample for one sample period, the Permittee shall include the reasons for the absence of data within the report.

This condition applies to the locations where LNG Canada is conducting continuous monitoring activities:

- Under Condition 6.2.2, LNG Canada is required to conduct continuous monitoring of ambient air concentrations of nitrogen dioxide (NO_2) and ozone (O_3) at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2). In addition, prior to commencement of Operations, LNG Canada is required to conduct continuous monitoring of total hydrocarbons (HC-T) at either Kitimat Riverlodge or Kitimat Whitesail.
- Under Condition 6.3, LNG Canada is required to obtain or collect continuous monitoring data for the following meteorological parameters, at stations where conducting the continuous monitoring of ambient air concentrations: temperature, wind speed, wind direction, and standard deviation of wind direction.
- Under Condition 6.4, LNG Canada is required to conduct passive monitoring of NO_2 concentrations at thirteen locations (defined within the permit).

2.2. Data and Assessment

LNG Canada engaged Trinity Consultants to oversee the ambient air quality monitoring for NO_2 and O_3 at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2). Trinity Consultants published a report that addresses the data issues in these locations, as required under Condition 10.3.1 (a) to (c)

There were no ambient air or meteorological monitoring data deletions or resubmissions made for any of the monitoring stations outlined in this report. No required calibrations of the ambient air quality analyzers were missed during the second quarter. There were no exceedances of the numerical metrics of the BCAAQO

Refer to Appendix D, Attachment 1 for more details:

- Kitamaat Village (Site 1): Table 2-2 contains the data completeness; and Table 3-2 contains the percent data recovery. Section 3.3 outlines the data shortfall periods and known issues during the reporting period.
- Riverlodge (Site 2): Table 2-3 contains the data completeness; and Table 4-2 contains the percent data recovery. Section 4.3 outlines the data shortfall periods and known issues during the reporting period.
- General: Section 2.3 contains the details on ambient air or meteorological monitoring data deletion and resubmissions; and missed calibrations.

LNG Canada engaged Tetra Tech to oversee the passive NO_2 monitoring program, who published a technical memorandum that addresses the data issues in these locations, as required under Condition 10.3.1(d)

All passive samples were collected successfully over the quarterly period, except for V12 which did not have a duplicate sample collected for the month of April. During the pickups and deployment on March 31, the sampler to be deployed

at station V12 fell apart due to failed sealing around the plastic casing on the sampler unit. As a result, only one passive sampler was deployed at station V12, meaning there is no redundant measurement at this location for April. On April 30 during the pickups and deployment, the single sampler was collected from station V12, and two samplers were redeployed for the May sampling period.

Refer to Appendix D, Attachment 2 for additional details.

3. Ambient Air Monitoring Results (Condition 10.3.2)

3.1. Permit Condition

Under Condition 10.3.2, the quarterly report shall include the following information for each parameter monitored by the Permittee (per Section 6 of Permit PA-110588):

a. the percentage of valid hourly data at each continuous ambient air monitoring station;

b. (i) a time series plot of the hourly average ambient air concentrations at each continuous ambient air monitoring station, and (ii) a discussion of the context around any data anomalies in the time series plot;

c. i) minimum, (ii) average, (iii) median and (iv) maximum ambient air concentrations at each continuous ambient air monitoring station for the period;

d. a monthly wind rose for each continuous ambient air monitoring station for the months being monitored generated using meteorological data collected at the ambient air monitoring station;

e. a summary of passive NO_2 monitoring analysis for each monitored location (based on available laboratory analysis results for that reporting period and include results from the previous reporting period(s) that were not included in previous summaries); and

f. a summary of precipitation monitoring chemistry for each monitored location (based on available laboratory analysis results for that reporting period and include results from the previous reporting period(s) that were not included in previous summaries).

As noted in Section 2.1, Condition 10.3.2 (a) to (d) applies to NO_2, O_3, and meteorological data (temperature, wind speed, wind direction, and standard deviation of wind direction) monitored at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2); and HC-T at Kitimat Riverlodge (Site 2).

3.2. Data and Assessment

Ambient Air Monitoring Stations:

The report issued by Trinity Consultants includes the information required under Condition 10.3.2 (a) to (d) at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2) as follows (refer to Appendix D, Attachment 1):

During the second quarter, there were no exceedances of the BCAAQO for SO2, NO2, and PM2.5. The average and median hourly PM2.5, SO2, NO2, and O3 concentrations measured at the Kitamaat Village, Riverlodge, and Whitesail monitoring stations are summarized in Table 2-1 of Appendix D, Attachment 1. Tables 2-2 through 2-4 present the maximum PM2.5, SO2, NO2, and O3 concentrations, a comparison to the BCAAQOs, and data completeness for the second quarter of 2025. In Tables 2-2 through 2-4 it should be noted that, as applicable, SO_2 exceedance counts include BCAAQO and 2020 CAAQS.
The monitoring results and trends for the Whitesail Monitoring Station is also included in Appendix D, Attachment 1, for awareness purposes only.

Passive Monitoring:
The technical memorandum issued by Tetra Tech includes a summary of passive NO_2 monitoring analysis for each monitored location required under Condition 10.3.2 (e) (refer to Appendix D, Attachment 2). The passively measured 30-day average NO2 concentrations during each sample deployment over the quarterly period (April to June 2025) are summarized for each monitoring location in Table 1 Appendix D, Attachment 2.
The highest 30-day average NO2 concentration measured over the quarterly period was 1.3 ppb at the Kitimat Industrial (V14) sample location, located north of the LNGC facility. While there is no 30-day Provincial Air Quality Objective for NO2, the annual criterion is 17 ppb, which provides an indicator for the passively measured 30-day NO2 concentrations.

Precipitation Monitoring:

LNG Canada engaged Stantec consultants to implement and execute the precipitation chemistry monitoring program to comply with the requirements of section 10.3.2(f). Precipitation monitoring is achieved with ion exchange resin (IER) column samplers. Precipitation monitoring is conducted twice per year. For the annual deposition, the first and second round of results have been added together. Going forward, annual deposition will be calculated as a rolling annual total, adding the new set of results to the previous set. Average deposition levels based on sampling and data analysis for precipitation chemistry data are summarized in table 3.5 below.

Table 3.5: Average Deposition Levels for the Sampling Period of Six to Seven Months

Sampling Location	Cl (kg/ha)	NO3-N (kg/ha)	NH4+-N (kg/ha)	PO4-P (kg/ha)	SO4-S (kg/ha)	Ca (kg/ha)	K (kg/ha)	Mg (kg/ha)	Na (kg/ha)
LNGC-Admin	2.75	0.20	0.20	-	3.90	0.70	0.77	0.27	3.43
B123a-LNGC	1.72	-	0.25	-	2.22	2.97	22.68 [1]	1.34	1.30
B108-alt-TF	1.29	-	0.12	-	4.47	1.64	3.48	0.96	0.80
B108-alt-BU	1.18	0.32	0.24	-	2.06	0.15	-	0.08	0.49

Note:
Average deposition levels for the LNGC-Admin and B123a-LNGC sets are based upon seven months of sample collection from October 25, 2024 to May 30, 2025.
Average deposition levels for the B108-alt-TF and B108-alt-BU sets are based upon six months of sample collection from October 25, 2024 to April 25, 2025.
[1] Levels in B123a-LNGC sets are unusually high, potentially indicating outliers or possible field disturbances or contamination. The expected concentration of K is due to expected leaching through the forest canopy, continued monitoring in Q4 2025 will further get investigated.

Table 3.6: Annual Nitrogen and Sulphur Deposition Levels (Based upon Period of Six to Seven Months)

Sampling Location	Total Nitrogen (Dissolved Inorganic Nitrogen) Deposition (kg/ha/y (N))	Total Sulphur Deposition (kg/ha/y (S))
LNGC-Admin	0.7	6.7
B123a-LNGC	1.0	5.5
B108-alt-TF	0.3	11.0
B108-alt-BU	1.1	4.3

Notes:

- Deposition rate for the LNGC-Admin sets is estimated based upon seven months of sample collection from October 25, 2024, to May 30, 2025.
- Deposition rate for the B123a-LNGC sets is estimated based upon ten months of sample collection from July 25, 2024, to May 30, 2025.
- Deposition rates for the B108-alt-TF and B108-alt-BU sets are estimated based upon nine months of sample collection from July 25, 2024, to April 25, 2025.

4. Ambient Air Monitoring Evaluation (Condition 10.3.3)

4.1. Permit Condition

Under Condition 10.3.3, the quarterly report shall include following information for NO_2, SO_2 and $PM_{2.5}$, continuously monitored at Kitamaat Village (Kitimat Haisla Village) (Site 1), Kitimat Riverlodge (Site 2) and Kitimat Whitesail:

a. a comparison of the measured ambient air concentrations at each ambient air monitoring stations to the applicable numerical metrics of the BCAAQO; and

b. (i) a description of any measured ambient air concentrations in excess of the numerical metrics of the BCAAQO, if applicable, (ii) a description of any known contributing factors from authorized works, and (iii) a description of action (if any) taken by the Permittee.

4.2. Data and Assessment

Data from continuous ambient air quality monitoring stations in Kitimat are publicly available via the BC Ministry of Environment and Climate Change Strategy, at: Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

The publicly available data for NO2, SO2 and PM2.5 at the three continuous ambient air quality monitoring stations are provided in graphs in the report presented in a time-series (refer to Appendix D, Attachment 1). During the second quarter of 2025, there were no exceedances of the numerical metrics of the BCAAQO.

Figure 6.1, Appendix D, Attachment 1 shows the comparison of hourly PM2.5, SO2, NO2, and O3 and 8-hour O3 Concentrations Kitamaat Village, Riverlodge, and Whitesail Monitoring Locations, Second Quarter 2025

5. Source Testing Results (Condition 10.3.4)

5.1. Permit Condition

Under Condition 10.3.4, the quarterly report shall include the following information:

a. identification of the dates of any source sampling activities carried out during the reporting period.

b. identification of the testing company that carried out any source sampling activities during the reporting period;

c. a brief overview of any continuous emission monitoring system (CEMS) initial or re-certification tests carried out during the reporting period;

d. a brief overview of the results of any complete or incomplete (i) manual stack surveys, (ii) CEMS performance evaluation carried out during the period;

e. an explanation for stopping or aborting any incomplete (i) manual stack survey, (ii) CEMS performance evaluation;

f. a brief overview of any required corrective actions taken or planned in response to the source sampling activities; and

g. the manual stack source emissions survey reports and CEMS performance evaluation reports.

Conditions within Permit PA-110588 that inform the scope of this reporting include:

- Under Condition 5.1.2, LNG Canada shall undertake manual stack sampling every six months in the IPP on the gas turbine / WHRU stacks.
- Under Condition 5.2.2, LNG Canada shall undertake manual stack sampling for each AGI on a quarterly basis for one year.
- Under Condition 5.3, the CEMS performance evaluations or manual stack surveys shall be conducted while the equipment is operating at normal capacity while combusting the primary fuel for that unit.

5.2. Data and Assessment

CEMS Performance Evaluation:

The Continuous Emissions Monitoring System (CEMS) performance evaluation has not yet started. The first Relative Accuracy Test Audit (RATA) will be conducted once the gas turbines/WHRUs and the AGIs are operating at normal capacity and using the primary fuel.

Manual Stack Sampling:

Manual stack sampling for the gas turbines/WHRU has not commenced. The AGI has started operations but is running at low loads and is still in stabilization mode, so it hasn't triggered the manual stack sampling program.

6. Inlet Gas Sulphur Report (Condition 10.3.5)

6.1. Permit Condition

Under Condition 10.3.5, the quarterly report shall include the following information:

a. daily percentage of hydrogen sulphide of the facility inlet gas; and

b. total estimated sulphur in the facility inlet gas, based on the analysis of the monthly gas samples.

6.2. Data and Assessment

Appendix C contains the daily percentage of hydrogen sulphide (H_2S) and total estimated sulphur in the facility inlet gas (from Coastal Gas Link) in compliance to permit condition 10.3.5(a) and (b).

The daily percentage of H_2S is based on the data collected at the Kitimat Sales Meter Station where the natural gas flow is metered before it enters the LNG Canada Facility. The results are presented in Table C-1. The average quarterly H_2S measurement for the period is 1.54 ppmw, and the maximum quarterly H_2S measurement is 7.82 ppmw on June 26, 2025.

Total Sulphur in the feed inlet gas is verified through manual sampling and laboratory analysis. These manual samples are collected and analyzed by the LNG Canada Laboratory using ASTM D 5504-2012 test method. The results are presented in Table C-2. During the reporting period, there was more than one sample measured within the month, as indicated in Table C-2.

The methodology is outlined below:

1. **Sample Collection:** Grab samples of the inlet gas are collected from Unit-1000.
2. **Sample Analysis:** The samples are analyzed at the LNG Canada laboratory using a Total sulfur analyzer with UVF detection (refer to Figure C-1). The analysis provides the total sulphur concentration of various sulphur compounds.
3. **Data Verification:** The results of the laboratory analysis are reviewed for consistency and accuracy by the LNG Canada laboratory. Any discrepancies or outliers are investigated and, if necessary, the analysis is repeated. The LNG Canada laboratory also performs internal quality control checks, including the analysis of certified reference materials and method blanks with each batch of samples where applicable.

Product:	Total Sulfur in Condensate/Gas UVF detection
Methods:	ASTM D5453 /ASTM D6667
Model:	VF-210 NSX-2100
Tag:	A-10
Manufacturer:	Nittoseiko
Country of Origin:	Japan
Number of Systems:	1
Unit Price:	Quoted

Figure 1: UVF Sampling for Total Sulphur

7. References

- BC Ministry of Environment and Parks, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca), accessed April 2, 2025.

Appendix A Abbreviations

AGI	Acid Gas Incinerator
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
EPC	Engineering, Procurement, and Construction
H_2S	Hydrogen Sulphide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
JFJV	JGC Fluor BC LNG Joint Venture
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit
$\mu g/m^3$	micrograms per cubic meter

Appendix B Previous Quarterly Reports Issued Under PA-110588

Quarter / Year	Document #	Date Issued
Q3 2024	L001-09800-HE-7180-4676	Rev A 22-Oct-2024; Rev B issued 03-Feb-2025
Q4 2024	L001-09800-HE-7180-4685	23-Jan-2025
Q1 2025	L001-09800-HE-7180-4703	25-Apr-2025

Appendix C Inlet Gas Sulphur Report (Condition 10.3.5)

The daily percentage of hydrogen sulphide (H_2S) in the facility's inlet gas is based on the data collected at the Kitimat Sales Meter Station in parts per million volume (ppmv) (Tag no: CA: KITSL-H2SCN.curval) where the natural gas flow is metered before it enters the LNG Canada Facility; then converted to ppmw and then to a percentage value for reporting herein. During this reporting period, daily measurements of H_2S were conducted. The tables below present the average H_2S levels recorded each day.

Table C-1: Daily Average Percentage of Hydrogen Sulphide in Inlet Gas [Q2 2025]

Date	H_2S Concentration (%)
1-Apr-2025	0.000251
2-Apr-2025	0.000252
3-Apr-2025	0.000263
4-Apr-2025	0.000274
5-Apr-2025	0.000267
6-Apr-2025	0.000269
7-Apr-2025	0.000257
8-Apr-2025	0.000247
9-Apr-2025	0.000231
10-Apr-2025	0.000217
11-Apr-2025	0.000212
12-Apr-2025	0.000217
13-Apr-2025	0.000222
14-Apr-2025	0.000224
15-Apr-2025	0.000223
16-Apr-2025	0.000193
17-Apr-2025	0.000200
18-Apr-2025	0.000189
19-Apr-2025	0.000163
20-Apr-2025	0.000131
21-Apr-2025	0.000102
22-Apr-2025	0.000083
23-Apr-2025	0.000071
24-Apr-2025	0.000060
25-Apr-2025	0.000057
26-Apr-2025	0.000054
27-Apr-2025	0.000061
28-Apr-2025	0.000067
29-Apr-2025	0.000069
30-Apr-2025	0.000068

Date	H_2S Concentration (%)
1-May-2025	0.000068
2-May-2025	0.000064
3-May-2025	0.000061
4-May-2025	0.000059
5-May-2025	0.000025
6-May-2025	0.000068
7-May-2025	0.000070
8-May-2025	0.000081
9-May-2025	0.000099
10-May-2025	0.000104
11-May-2025	0.000117
12-May-2025	0.000129
13-May-2025	0.000121
14-May-2025	0.000131
15-May-2025	0.000143
16-May-2025	0.000153
17-May-2025	0.000149
18-May-2025	0.000150
19-May-2025	0.000155
20-May-2025	0.000159
21-May-2025	0.000143
22-May-2025	0.000140
23-May-2025	0.000141
24-May-2025	0.000152
25-May-2025	0.000150
26-May-2025	0.000148
27-May-2025	0.000146
28-May-2025	0.000143
29-May-2025	0.000130
30-May-2025	0.000103
31-May-2025	0.000198

Date	H_2S Concentration (%)
1-Jun-2025	0.000174
2-Jun-2025	0.000170
3-Jun-2025	0.000283
4-Jun-2025	0.000366
5-Jun-2025	0.000384
6-Jun-2025	0.000365
7-Jun-2025	0.000118
8-Jun-2025	0.000081
9-Jun-2025	0.000056
10-Jun-2025	0.000099
11-Jun-2025	0.000079
12-Jun-2025	0.000078
13-Jun-2025	0.000086
14-Jun-2025	0.000142
15-Jun-2025	0.000132
16-Jun-2025	0.000118
17-Jun-2025	0.000105
18-Jun-2025	0.000138
19-Jun-2025	0.000138
20-Jun-2025	0.000181
21-Jun-2025	0.000152
22-Jun-2025	0.000202
23-Jun-2025	0.000147
24-Jun-2025	0.000202
25-Jun-2025	0.000176
26-Jun-2025	0.000339
27-Jun-2025	0.000213
28-Jun-2025	0.000200
29-Jun-2025	0.000234
30-Jun-2025	0.000268

Feed inlet gas is regularly verified through manual sampling and laboratory analysis. These manual samples are collected and analyzed by the LNG Canada Laboratory using ASTM D 5504-2012 test method. During the reporting period, there was more than one sample measured within the month, as indicated in Table C-2.

Table C-2: Total Measured Sulphur Content in Inlet Gas [Q2 2025]

Date	Total Measured Sulphur Content (PPMW)
1-Apr-25	1.07
8-Apr -25	0.71
17-Apr -25	0.71
22-Apr -25	0.71
29-Apr -25	0.53
6-May-25	0.53
13-May-25	2.50
20-May-25	0.89
26-May-25	0.89
3-Jun-25	0.18
10-Jun-25	2.13
17-Jun-25	1.60
24-Jun-25	0.36

Appendix D List of Attachments

Number	Title
1	Trinity Consultants, Ambient Air Quality Monitoring Report April – June 2025, LNG Canada (July 25, 2025)
2	Tetra Tech Technical Memo, PA-110588 – Passive NO_2 Monitoring Results for Q1 2025 (July 24, 2025)

Attachment 1 Trinity Consultants, Ambient Air Quality Monitoring Report April – June 2025, LNG Canada (Q2 2025)

Attachment 2 Tetra Tech Technical Memo, PA-110588 – Passive NO_2 Monitoring Results for Q2 2025 (July 24, 2025)

AMBIENT AIR QUALITY MONITORING REPORT APRIL - JUNE 2025

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July 2025

Project 244501.0077

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1.0 INTRODUCTION

This report, prepared for LNG Canada by Trinity Consultants (Trinity), summarizes the LNG Canada's nitrogen dioxide (NO_2) and Ozone (O_3) monitoring network data collected at the Kitamaat Village and Riverlodge Stations for the second quarter (April 1 through June 30), 2025. In January 2025, a Total Hydrocarbon analyzer was installed and operated at the Riverlodge station. Sulfur dioxide (SO_2) and particulate matter 2.5 microns in size or less ($PM_{2.5}$) presented in this report for the Kitamaat Village and Riverlodge stations have been provided by Rio Tinto BC Works. Rio Tinto BC Works also provided the second quarter 2025 meteorological data for the Kitamaat Village, Riverlodge, and Whitesail stations as well as the NO_2, O_3, SO_2, and $PM_{2.5}$ data collected at the Whitesail station.

The monitoring performed by LNG Canada is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) and satisfies the requirement for collection of continuous air quality data as described under Sections 10.3, 10.3.1, 10.3.2 & 10.3.3 in LNGC's Air Discharge Permit PA-110588.

LNG Canada owns, operates, and maintains an ambient air monitoring network around the LNG Canada Kitimat LNG export facility. This ambient air quality monitoring network consists of two air quality monitoring stations that are strategically located in the Kitimat Valley of British Columbia (BC) at the Kitamaat Village (Village) and Riverlodge. The Kitamaat Village and Riverlodge stations are owned by Rio Tinto Alcan Inc. and are part of Rio Tinto's air quality monitoring network. LNG Canada's continuous monitoring equipment are housed in the Rio Tinto air quality shelters at Kitamaat Village and Riverlodge locations. The locations of these stations within the Kitimat Valley are presented in Figure 1.1.

Figure 1.1 Locations of LNG Canada and Rio Tinto BC Works Ambient Air Monitoring Stations in Kitimat Valley

1.1 Kitamaat Village

The Village Ambient Air Station is in the Haisla Nation community of Kitamaat Village. The site is located within the yard of the Kitamaat Village sewage treatment plant. Area land use is suburban with a mix of dwellings, commercial buildings, forest, ocean, and parkland. The ground cover immediately around the site is compacted gravel, natural ground cover, cut grass, and asphalt. An aerial view of the site is presented in Figure 1.2. A photograph of the Kitamaat Village Ambient Air Quality Monitoring Station is presented in Figure 1.3.

Figure 1.2 Aerial View of Kitamaat Village Ambient Air Quality Monitoring Station

Figure 1.3 Photograph of Kitamaat Village Ambient Air Quality Monitoring Station

1.2 Riverlodge

The Riverlodge Ambient Air Station is located on Columbia Avenue in Kitimat, BC across the street from the Riverlodge Community Centre. The monitoring station is an aged industrial trailer with a meteorological tower mounted to the frame and hitch of the trailer. Land use around the site is suburban low-density housing, park land and forest. Land cover immediately around the site is short grass, gravel and asphalt parking lot, buildings, and forested lands. An aerial view of the site is shown in Figure 1.4. A photograph of the Riverlodge ambient air station is presented in Figure 1.5.

Figure 1.4 Aerial View of Riverlodge Ambient Air Quality Monitoring Station

Figure 1.5 Photograph of Riverlodge Ambient Air Quality Monitoring Station

1.3 Whitesail

Rio Tinto BC Works operates and maintains the Whitesail monitoring station located in the Kitimat Valley. Like the Riverlodge monitoring station, the Whitesail monitoring station is considered a residential monitoring station. The Whitesail Ambient Air Station is in the Whitesail neighborhood of Kitimat, BC. and is situated on land owned by the Mountain View Alliance Church. Area land use is a suburban residential, forested, and park land. The ground cover around the site is grass, compacted gravel, asphalt, buildings, and forested land. An aerial view of the site is presented as Figure 1.6. A photograph of the station is presented as Figure 1.7.

Figure 1.6 Aerial View of Whitesail Ambient Air Quality Monitoring Station

Figure 1.7 Photograph of Whitesail Ambient Air Quality Monitoring Station

2.0 SECOND QUARTER 2025 REPORT SUMMARY

The LNG Canada and Rio Tinto BC Works air quality monitoring data collected during the second quarter (April 1 through June 30) 2025 at the Kitamaat Village, Riverlodge, and Whitesail stations are summarized in this section.

2.1 British Columbia Air Quality Objectives

British Columbia has adopted air quality objectives and standards for a number of contaminants, including $PM_{2.5}$, SO_2, O_3, and NO_2. The British Columbia Ambient Air Quality Objectives (BCAAQO) and the 2020 Canadian Ambient Air Quality Standard (for SO_2) that have been developed by the British Columbia Ministry of Environment are as follows:

Pollutant	Averaging Period	British Columbia Ambient Air Quality Objective (BCAAQO)	2020 Canadian Ambient Air Quality Standard (CAAQS)
SO_2	1-hour	75 (ppb)[a]	70 (ppb)[b]
	Annual	--	5 (ppb)[c]
NO_2	1-hour	60 (ppb)[d]	60 (ppb)[d]
	Annual	17 (ppb)[e]	17 (ppb)[e]
$PM_{2.5}$	24-hours	25 ($\mu g/m^3$)[f]	27 ($\mu g/m^3$)[g]
	Annual	8 ($\mu g/m^3$)[e]	8.8 ($\mu g/m^3$)[h]
O_3	1-hour	82 (ppb)	
	8-hour		62 (ppb)[i]

[a] Achievement based on annual 97th percentile of daily 1-hour maximum averaged over 2015-2017, annual 97.5th percentile of daily 1-hour maximum averaged over 2016-2018, and annual 98th percentile of daily 1-hour maximum averaged over 2017-2019, with one allowable excursion above 75 ppb to a maximum of 85 ppb over a three-year period prior to 2020.

[b] Achievement based on annual 99th percentile of daily 1-hour maximum, averaged over three consecutive years.

[c] Achievement based on annual average of 1-hour concentrations over one year.

[d] Achievement based on annual 98th percentile of daily 1-hour maximum averaged over three consecutive years

[e] Achievement based on annual average of 1-hour concentrations over one year

[f] Achievement based on annual 98th percentile of daily average, over one year

[g] Achievement based on annual 98th percentile of daily average, averaged over three consecutive years.

[h] Achievement based on annual average, averaged over three consecutive years.

[i] Achievement based on annual 4th highest daily 8-hour maximum, averaged over three consecutive years.

2.2 Pollutant Concentrations and Data Completeness

During the second quarter, there were no exceedances of the BCAAQO for SO_2, NO_2, and $PM_{2.5}$. The average and median hourly $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations measured during the second quarter at the Kitamaat Village, Riverlodge, and Whitesail monitoring stations are summarized in Table 2-1. Tables 2-2 through 2-4 present the maximum $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations, a comparison to the BCAAQOs, and data completeness for the second quarter of 2025. In Tables 2-2 through 2-4 it should be noted that, as applicable, SO_2 exceedance counts include BCAAQO and 2020 CAAQS.

Table 2-1 Average and Median Pollutant Statistics for Second Quarter 2025

Station	$PM_{2.5}$ ($\mu g/m^3$)		SO_2 (ppb)		NO_2 (ppb)		O_3 (ppb)	
	Average	Median	Average	Median	Average	Median	Average	Median
Kitamaat Village	4.1	4.0	0.4	0.5	0.4	0.2	25.3	27.0
Riverlodge	3.2	3.0	0.9	0.5	0.9	0.6	25.3	28.0
Whitesail	3.2	3.0	0.4	0.0	0.7	0.5	18.1	19.0

Table 2-2 Kitamaat Village Station Second Quarter 2025 Data Summary

Parameter	1-hour average						24-hour Average 8-hour Average								
	Maximum Concentration			Exceedances of BCAAQO[1]			Maximum Concentration			Exceedances of BCAAQO[1]			Data Completeness		
	Apr.	May	June	Apr.	May	June	Apr.	May	June	Apr.	May	June	Apr.	May	June
$PM_{2.5}$ ($\mu g/m^3$)[3]	16.0	18.0	26.0	-	-	-	7.4	5.1	15.4	0	0	0	99.8	99.8	99.4
SO_2 (ppb)	13.7	10.5	4.3	0	0	0	1.9	1.4	0.7	-	-	-	95.2	94.8	95.7
NO_2 (ppb)	21.3	9.7	13.0	0	0	0	1.7	1.5	1.0	-	-	-	95.2	94.8	95.6
O_3 (ppb)[2]	45.0	47.0	40.0	0	0	0	43.0	44.0	37.0	0	0	0	95.2	94.8	95.6

1 British Columbia Ambient Air Quality Objective (AAQO)
2 8-hour maximum
3 24-hour $PM_{2.5}$ concentrations were determined from midnight to midnight

Table 2-3 Riverlodge Station Second Quarter 2025 Data Summary

Parameter	1-hour average						24-hour Average 8-hour Average								
	Maximum Concentration			Exceedances of BCAAQO[1]			Maximum Concentration			Exceedances of BCAAQO[1]			Data Completeness		
	Apr.	May	June	Apr.	May	June	Apr.	May	June	Apr.	May	June	Apr.	May	June
$PM_{2.5}$ ($\mu g/m^3$)[3]	13.0	14.0	24.0	-	-	-	5.5	6.7	15.6	0	0	0	99.4	98.8	98.8
SO_2 (ppb)	22.5	55.0	24.7	0	0	0	2.8	10.4	2.3	-	-	-	94.2	95.1	95.5
NO_2 (ppb)	5.8	5.8	12.7	0	0	0	1.8	2.5	1.9	-	-	-	94.2	95.2	95.5
O_3 (ppb)[2]	48.0	47.0	43.0	0	0	0	45.0[2]	43.0[2]	39.0[2]	0	0	0	93.0	95.2	95.5
THC (ppm)	2.61	2.48	2.67	--[4]	--[4]	--[4]	2.22	2.28	2.26	--[4]	--[4]	--[4]	93.9	87.4	93.7

1 British Columbia Ambient Air Quality Objective (AAQO)
2 8-hour maximum
3 24-hour $PM_{2.5}$ concentrations were determined from midnight to midnight
4 There are no BCAAQO's for Total Hydrocarbon (THC). THC Analyzer was installed and calibrated on January 16, 2025.

Table 2-4 Whitesail Station Second Quarter 2025 Data Summary

Parameter	1-hour average						24-hour Average 8-hour Average								
	Maximum Concentration			Exceedances of BCAAQO[1]			Maximum Concentration			Exceedances of BCAAQO[1]			Data Completeness		
	Apr.	May	June	Apr.	May	June	Apr.	May	June	Apr.	May	June	Apr.	May	June
$PM_{2.5}$ ($\mu g/m^3$)[3]	19.0	11.0	27.0	-	-	-	7.1	5.4	16.1	0	0	0	99.8	99.2	97.7
SO_2 (ppb)	9.5	34.4	12.8	0	0	0	1.2	8.3	0.9	-	-	-	94.9	95.5	94.6
NO_2 (ppb)	8.5	5.4	23.5	0	0	0	1.9	2.5	1.8	-	-	-	94.9	95.5	94.6
O_3 (ppb)[2]	34.0	34.0	37.0	0	0	0	32.0	31.0	32.0	0	0	0	94.9	95.5	94.4

1 British Columbia Ambient Air Quality Objective (AAQO)
2 8-hour maximum
3 24-hour $PM_{2.5}$ concentrations were determined from midnight to midnight

2.3 Second Quarter 2025 Ambient Air Monitoring Issues

During the second quarter of 2025, there were no ambient air or meteorological monitoring data deletions or resubmissions made for any of the monitoring stations outlined in this report. No required calibrations of the ambient air quality analyzers were missed during the second quarter.

During the second quarter of 2025, there were no exceedances of the numerical metrics of the BCAAQO.

3.0 APRIL - JUNE 2025 KITAMAAT VILLAGE AMBIENT AIR QUALITY STATION MONITORING ACTIVITIES

This section provides a summary of the monitoring activities conducted at the LNG Canada Kitamaat Village Ambient Air Quality Station for April through June 2025. Table 3-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Kitamaat Village monitoring station. Site visit notes for the second quarter, SO_2, $PM_{2.5}$, O_3, and NO_2 concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, and NO_2 trends for the second quarter 2025 are also presented in this section.

Table 3-1 LNG Canada Instrumentation at the Kitamaat Village Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Kitamaat Village			
NO_2	Teledyne-API T200	Chemiluminescence	8598
O_3	Teledyne-API T400	UV Absorption	7486
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	905
Zero Air Source	Teledyne API T701	Zero-Air Generator	2555

3.1 Site Visit Notes

The Kitamaat Village site visit notes for the second quarter are summarized here and in Appendix A.

- On April 2, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas logger, and T700U calibrator to the correct time during the station visit.
- On April 8, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas data logger, and T700U calibrator to the correct time.
- On April 15, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas data logger, and T700U calibrator to the correct time.
- On April 22, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas data logger, and T700U calibrator to the correct time.
- On April 23, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas data logger, and T700U calibrator to the correct time. Mass flow controller (MFC) checks were performed on the T700U calibrator. The photo detector was adjusted. A calibrator O_3 check was performed as well as a multipoint verification on the O_3 analyzer.
- On April 29, 2025, the site technician adjusted the clocks on the O_3, SO_2, and NO_x analyzers, Envidas data logger, and T700U calibrator to the correct time.
- On May 6, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas logger, and T700U calibrator to the correct time during the station visit.

- On May 12, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and T700U calibrator to the correct time during the station visit.

- On May 13, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas logger, and T700U calibrator to the correct time during the station visit. The zero air media and SO_2 analyzer inlet filter were replaced.

- On May 14, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and T700U calibrator to the correct time during the station visit.

- On May 15, 2025, remote "as found" and "after adjustment" multipoint verifications were performed on the NO_x analyzer.

- On May 20, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and T700U calibrator to the correct time.

- On May 27, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and T700U calibrator to the correct time.

- On June 3, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas logger, and T700U calibrator to the correct time during the station visit.

- On June 10, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and T700U calibrator to the correct time during the station visit.

- On June 17, 2025, the site technician adjusted the clocks on the Envidas logger and T700U calibrator to the correct time during the station visit.

- On June 19, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, $PM_{2.5}$ sampler, and T700U calibrator to the correct time during the station visit. The O_3 and NO_x inlet filers were replaced.

- On June 25, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700U calibrator, and Envidas data logger to the correct time.

- On June 26, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700U calibrator, and Envidas data logger to the correct time.

3.2 Monitoring Results and Trends

A summary of the $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations monitoring statistics for the second quarter 2025 for the Kitamaat Village Station is presented in Table 3-2.

Table 3-2 Summary of $PM_{2.5}$, SO_2, NO_2, and O_3 Concentrations for the Kitamaat Village Station, April - June 2025

Statistic	$PM_{2.5}$ (µg/m³)[1]				SO_2 (ppb)[1]				NO_2 (ppb)				O_3 (ppb)			
	April	May	June	Q2	April	May	June	Q2	April	May	June	Q2	April	May	June	Q2
1-hour Avg.	4.4	3.6	4.4	4.1	0.8	0.5	0.2	0.5	0.5	0.4	0.4	0.4	27.3	25.3	23.5	25.4
1-Hour Max.	16.0	18.0	26.0	26.0	13.7	10.5	4.3	13.7	21.3	9.7	13.0	21.3	45.0	47.0	40.0	47.0
1-Hour Min.[2]	0.0	0.0	0.0	0.0	0.5	-0.1	0.0	-0.1	0.1	0.0	0.0	0.0	4.0	3.0	2.0	2.0
Mean Daily Max.	7.5	5.1	15.7	15.7	2.0	1.5	0.7	2.0	1.8	1.7	1.0	1.8	40.9	34.3	30.7	40.9
Mean Daily Min.	2.9	2.1	2.0	2.0	0.6	0.1	0.1	0.1	0.2	0.2	0.2	0.2	18.5	10.4	9.3	9.3
Percent Data Recovery	99.8	99.8	99.4	99.7	95.2	94.8	95.7	95.2	95.2	94.8	95.6	95.2	95.2	94.8	95.6	95.2
24-hour Daily Max.[3]	7.4	5.1	15.4	15.4	1.9	1.4	0.7	1.9	1.7	1.5	1.0	1.7	---	---	---	---
8-hour Max.	---	---	---	---	---	---	---	---	---	---	---	---	43.0	44.0	37.0	44.0
24-hour Avg.	4.4	3.6	4.4	4.1	0.8	0.4	0.2	0.5	0.5	0.4	0.4	0.4	27.3	25.3	23.5	25.4
Median	4.0	3.0	4.0	3.7	0.6	0.3	0.1	0.3	0.2	0.2	0.2	0.2	30.0	28.0	24.0	27.3

[1] $PM_{2.5}$ and SO_2 second quarter 2025 data provided by Rio Tinto BC Works.

[2] Slightly negative concentrations are inherent with proper analyzer operation due to subtle levels of noise in the zero baseline setpoint. Negative values may be interpreted as zero and only occur when the air is very clean.

[3] 24-hour $PM_{2.5}$ daily maximum concentrations determined from midnight to midnight.

The average $PM_{2.5}$ concentration during the second quarter was 4.1 µg/m^3 and the median $PM_{2.5}$ concentration during the second quarter was 3.7 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration during the second quarter was 26.0 µg/m^3 which occurred in June. The maximum 24-hour $PM_{2.5}$ concentration for the second quarter was 15.4 µg/m^3 which also occurred in June. During the second quarter, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

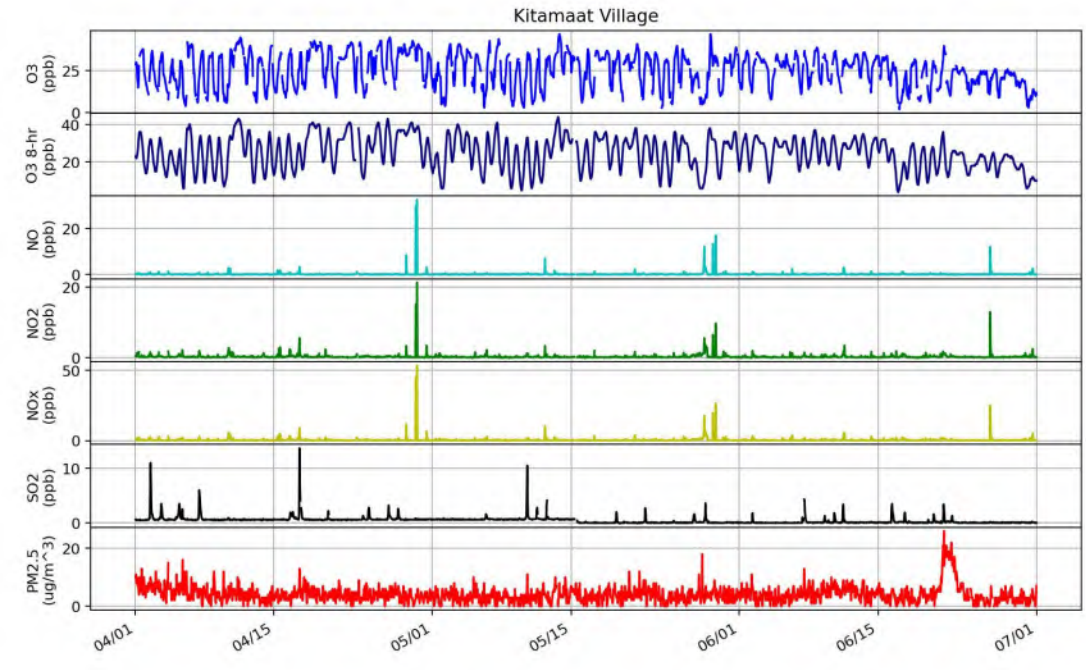
The average SO_2 concentration at the Kitamaat Village for the second quarter was 0.5 ppb with a median concentration of 0.3 ppb. The maximum hourly SO_2 concentration during the second quarter was 13.7 ppb which occurred in April. During the second quarter, there were no exceedances of the 1-hour SO_2 BCAAQO of 75 ppb or the 1-hour SO_2 CAAQS of 70 ppb at Kitamaat Village station.

The average NO_2 concentration at the Kitamaat Village for the second quarter was 0.4 ppb and the median NO_2 concentration was 0.2. The maximum hourly NO_2 concentration during the second quarter at Kitamaat Village was 21.3 ppb which occurred in April. During the second quarter, there were no exceedances of the 1-hour NO_2 BCAAQO of 60 ppb at the Kitamaat Village station.

The average O_3 concentration at the Kitamaat Village for the second quarter was 25.4 ppb and the median O_3 concentration was 27.3 ppb. The maximum hourly O_3 concentration of 47.0 ppb occurred in May. The maximum 8-hour O_3 concentration during the second quarter was 44.0 ppb which occurred in May. During the second quarter, there were no exceedances of the 1-hour O_3 BCAAQO advisory level of 82 ppb and the 8-hour CAAQS of 62 ppb at the Kitamaat Village station.

Time series plots of $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations for the second quarter are presented in Figure 3.1.

Figure 3.1 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO/NO_2/NO_x, and O_3/O_3 -8hr Concentration Data for the Kitamaat Village Station, Second Quarter 2025



Wind speed, wind direction, and temperature data are collected by Rio Tinto BC Works at the Kitamaat Village station. Figures 3.2 through 3.4 present the monthly Kitamaat Village station wind roses for April through June 2025. Figure 3.5 presents a time series plot of wind speed and direction, and temperature for the second quarter, 2025.

Figure 3.2 April 2025 Kitamaat Village Station Wind Rose

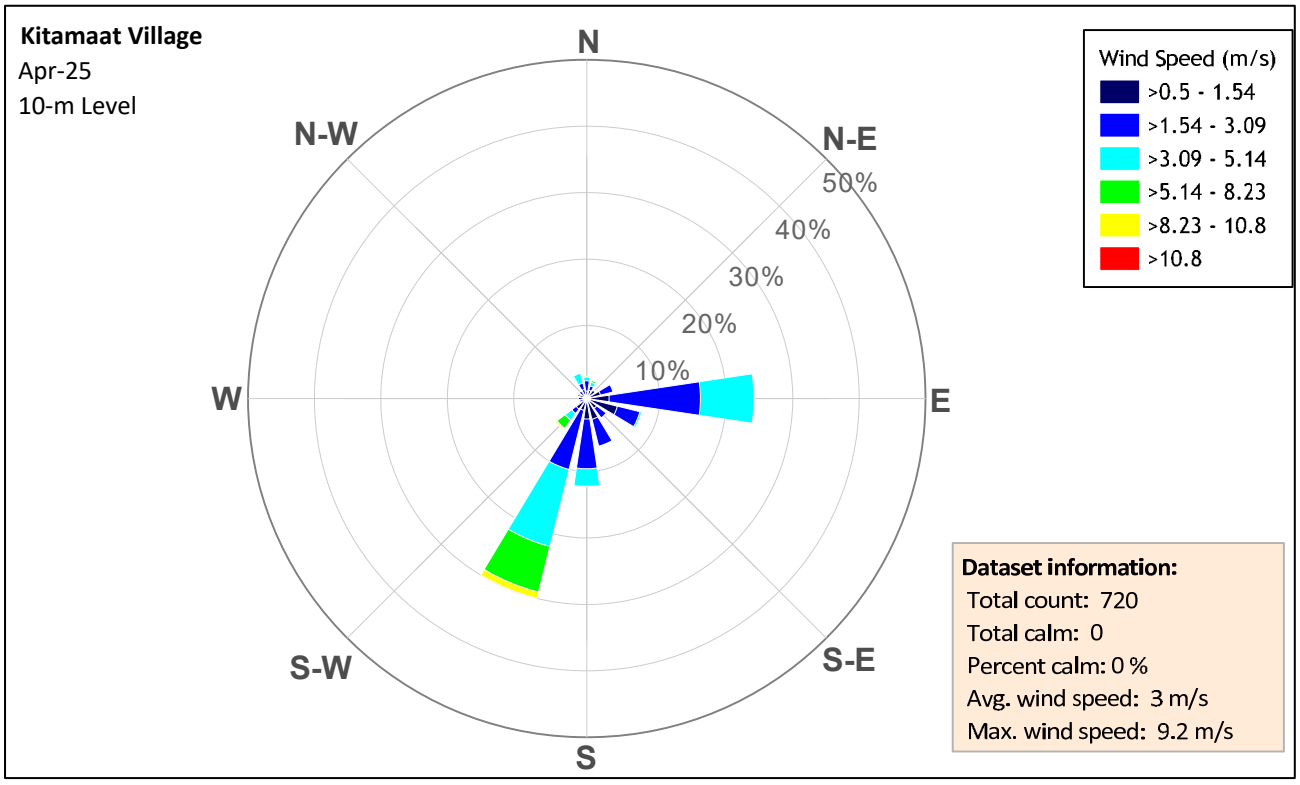


Figure 3.3 May 2025 Kitamaat Village Station Wind Rose

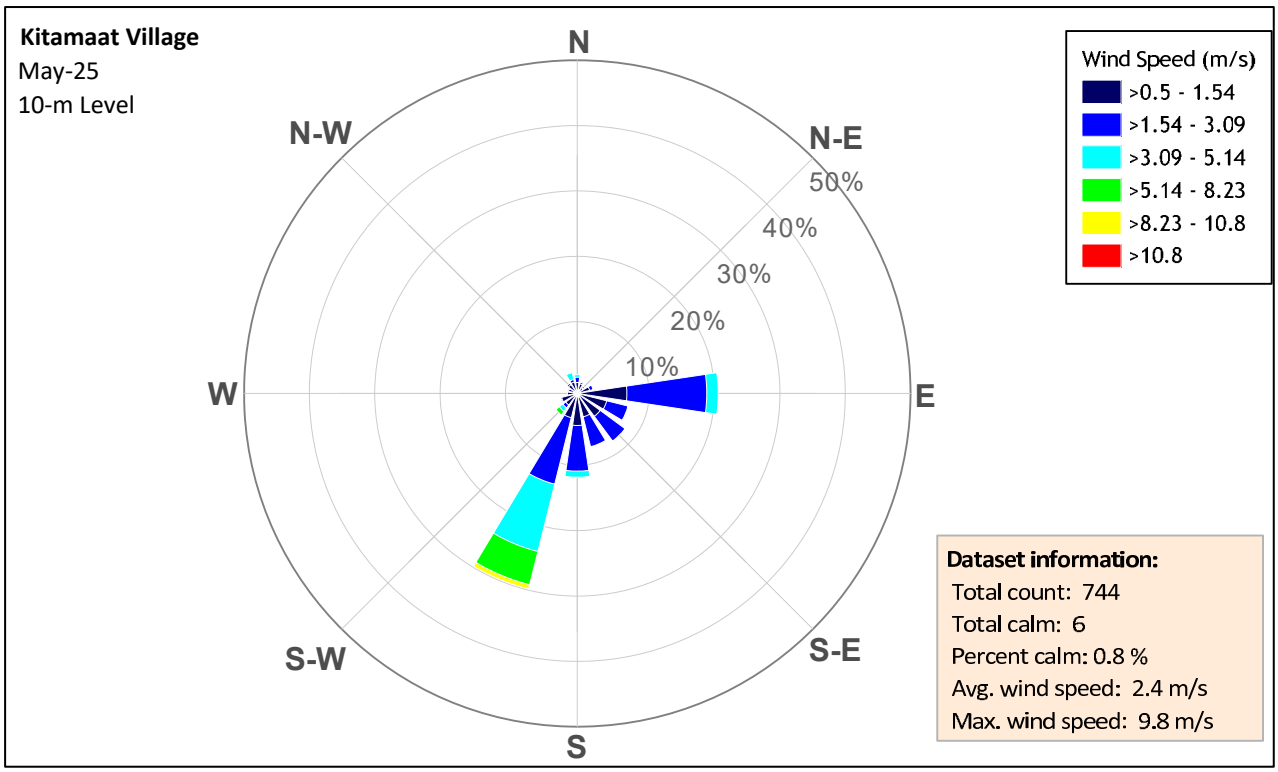


Figure 3.4 June 2025 Kitamaat Village Station Wind Rose

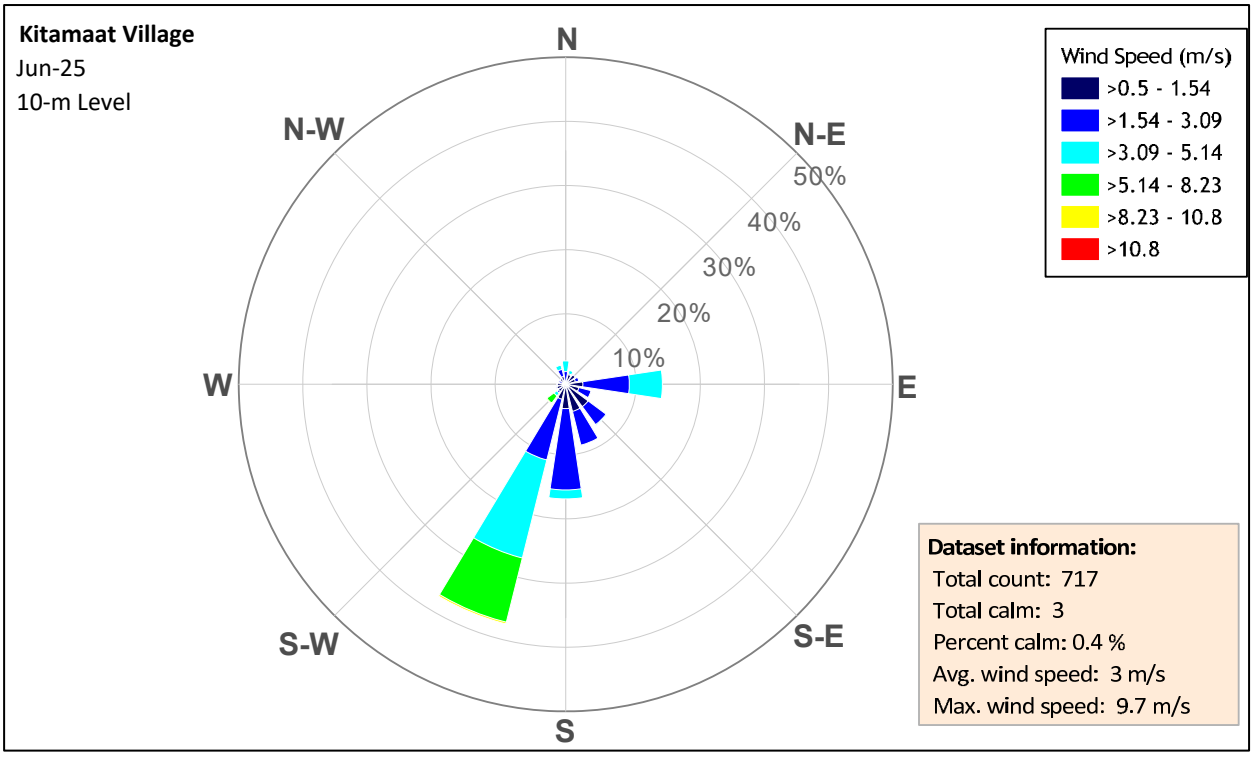
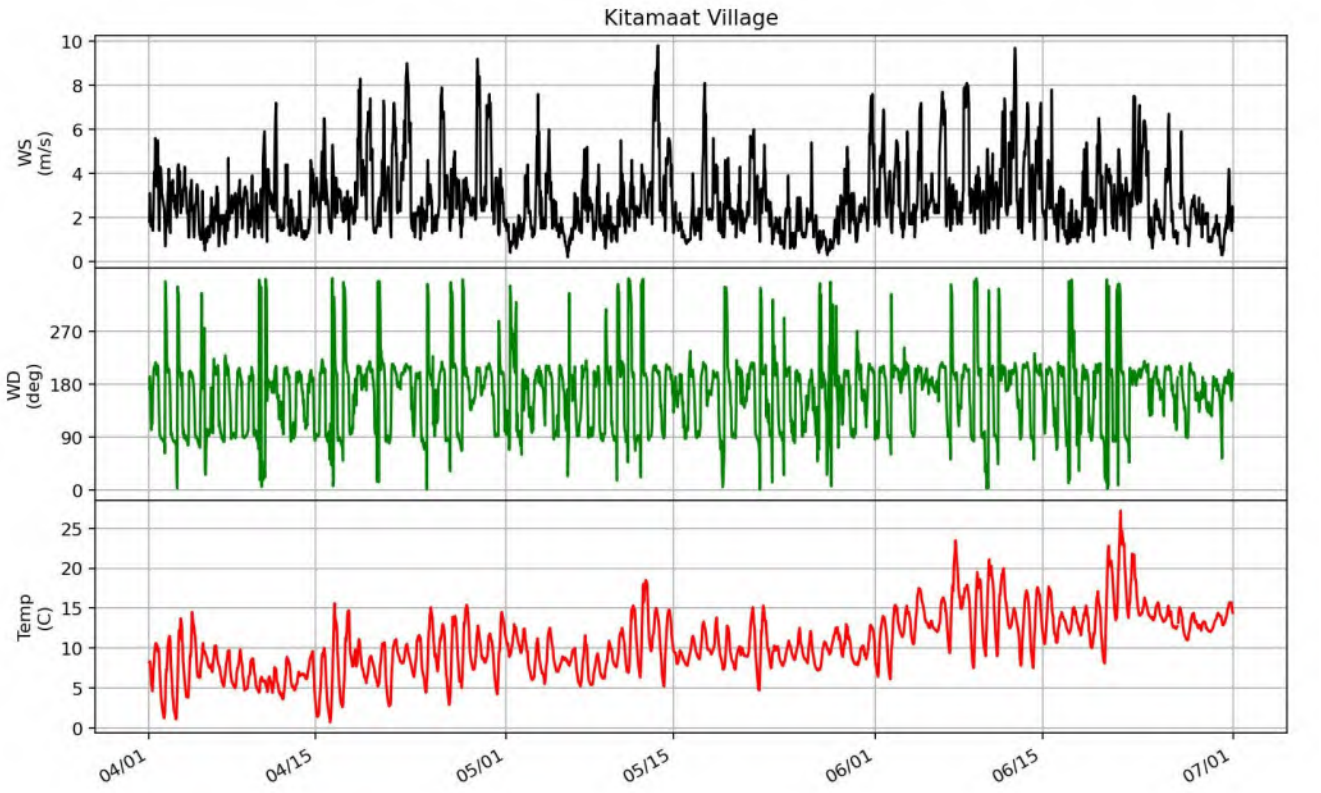


Figure 3.5 Time Series Plot of Wind Speed, Wind Direction, and Temperature Data at Kitimaat Village Station for Second Quarter 2025



3.3 Second Quarter 2025 Ambient Air Monitoring Data Issues

Table 3-3 presents the Kitamaat Village station data shortfall periods and known issues, during the second quarter, that led to pollutant concentration data loss.

Table 3-3 Data Shortfall Periods and Noted Issues During Second Quarter 2025 at Kitamaat Village Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
$PM_{2.5}$	4/04/2025	09:00	4/04/2025	10:00	2	Monthly Flow Rate Verification and Maintenance
$O_3/NO_x/SO_2$	4/04/2025	10:00	4/04/2025	10:00	1	Filter Change
$O_3/NO_x/SO_2$	4/23/2025	12:00	4/23/2025	14:00	3	T700 MFC Verification and Ozone Transfer Standard Check; T701 Maintenance
$O_3/NO_x/SO_2$	5/13/2025	12:00	5/13/2025	12:00	3	Filter Change; T701 Maintenance
$PM_{2.5}$	5/13/2025	14:00	5/13/2025	15:00	2	Monthly Flow Rate Verification and Maintenance
$O_3/NO_x/SO_2$	5/15/2025	09:00	5/15/2025	14:00	6	SO_2/NO_x Calibration
$O_3/NO_x/SO_2$	6/19/2025	09:00	6/19/2025	09:00	1	Filter Change
Temperature	6/26/2025	09:00	6/26/2025	09:00	1	Calibration Verification
Winds	6/26/2025	10:00	6/26/2025	12:00	3	Calibration Verification
$PM_{2.5}$	6/24/2025	06:00	06/24/2025	07:00	2	Power outage
$PM_{2.5}$	6/26/2025	14:00	6/26/2025	16:00	3	Monthly Flow Rate Verification and Maintenance

4.0 APRIL - JUNE 2025 RIVERLODGE AMBIENT AIR QUALITY STATION MONITORING STATION

This section provides a summary of the monitoring activities conducted at the LNG Canada Riverlodge Ambient Air Quality Station for April through June 2025. Table 4-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Riverlodge monitoring station. Site visit notes, SO_2, $PM_{2.5}$, O_3, and NO_2 concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, and NO_2 trends for second quarter 2025 are also presented below.

Table 4-1 LNG Canada Instrumentation at the Riverlodge Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Riverlodge			
NO_2	Teledyne-API T200	Chemiluminescence	8599
O_3	Teledyne-API T400	UV Absorption	7487
THC	Teledyne-API N901	Flame Ionization Detector	80
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	906
Zero Air Source	Teledyne API T701	Zero-Air Generator	2556

4.1 Site Visit Notes

The Riverlodge site visit notes for the second quarter are summarized here and in Appendix A.

- On April 3, 2025, the site technician changed the NO_2, O_3, and THC analyzers' inlet filters and adjusted the clocks on the NO_2, THC, and O_3 analyzers, Envidas logger, and T700U calibrator to the correct time.
- On April 8, 2025, the site technician updated the clocks on the NO_2, THC, and O_3 analyzers, and T700U calibrator to the correct time. The shelter temperature was adjusted.
- On April 10, 2025, the site technician updated the clocks on the NO_2, THC, and O_3 analyzers, and T700U calibrator to the correct time. The photodetector voltage was adjusted on the ozone analyzer. An "after maintenance" multipoint verification was then performed on the ozone analyzer.
- On April 17, 2025, the site technician adjusted the clocks on the NO_2, THC, and O_3 analyzers, Envidas logger, and T700U calibrator to the correct time. Windows updates were downloaded on the Envidas logger. Vegetation was trimmed around the shelter.
- On April 23, 2025, the site technician adjusted the temperature in the shelter.
- On April 24, 2025, the site technician adjusted the clocks on the NO_2, THC, and O_3 analyzers, Envidas logger, and T700U calibrator to the correct time. Vegetation was cut from around the shelter's front step.

- On April 25, 2025, the site technician performed "as found" and "after adjustment" MFC checks on the T700U calibrator. A calibrator ozone check and multipoint verification of the O_3 analyzer was also performed. The site technician adjusted the clocks on the NO_2, THC, and O_3 analyzers, Envidas logger, and T700U calibrator to the correct time.

- On April 29, 2025, the site technician adjusted the clocks on the NO_2, THC, and O_3 analyzers, Envidas logger, and T700U calibrator to the correct time.

- On May 9, 2025, remote "as found" multipoint verifications were performed on the NO_x and THC analyzers.

- On May 14, 2025, the site technician updated the clocks on the NO_2, THC, and O_3 analyzers, T700U calibrator, and Envidas logger to the correct time.

- On May 16, 2025, the site technician serviced the T701 zero air generator. A leak was found upstream of the hydrocarbon scrubber. Two bad ferrules were found on copper tubing and the ferrules were replaced. The clocks on the NO_2, THC, and O_3 analyzers, T700U calibrator, and Envidas logger were updated to the correct time.

- On May 21, 2025, the site technician investigated an air pressure alert on the N901 THC analyzer. The outlet pressure was below the required 50 psi for all analyzers and the calibrator connected to the system. No leaks were detected. The unit was power cycled, and the outlet pressure returned to 50.5 psi. The clocks on the NO_2, THC, and O_3 analyzers, T700U calibrator, and Envidas to the correct time.

- On May 29, 2025, the site technician was onsite to check an outage on the N901 THC analyzer. The site technician restored the N901 to operation after restarting the flame and increasing the hydrogen inlet pressure. The clocks on the NO_2 and O_3 analyzers, and T700U calibrator were updated to the correct time. Windows updates were downloaded on the Envidas logger.

- On June 6, 2025, the site technician updated the clocks on the NO_2, THC, and O_3 analyzers, T700U calibrator, and Envidas logger to the correct time.

- On June 12, 2025, the site technician updated the clocks on the NO_2, THC, and O_3 analyzers, T700U calibrator, and Envidas logger to the correct time.

- On June 25, 2025, the site technician updated the clocks on the NO_2, THC, and O_3 analyzers, T700U calibrator, and Envidas to the correct time. The meteorological sensors on the tower were calibrated.

- On June 27, 2025, the clocks on the NO_2 and O_3 analyzers, and T700U calibrator were updated to the correct time. Windows updates were downloaded and installed on the Envidas logger.

4.2 Monitoring Results and Trends

A summary of the $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations monitoring statistics for the second quarter 2025 for the Riverlodge Station is presented in Table 4-2. Table 4-3 presents a summary of the THC monitoring statistics for the second quarter 2025 at the Riverlodge station.

Table 4-2 Summary of $PM_{2.5}$, SO_2, NO_2, and O_3 Concentrations for the Riverlodge Station, April - June 2025

Statistic	$PM_{2.5}$ (µg/m³)[1]				SO_2 (ppb)[1]				NO_2 (ppb)				O_3 (ppb)			
	April	May	June	Q2	April	May	June	Q2	April	May	June	Q2	April	May	June	Q2
1-hour Avg.	3.8	2.7	3.3	3.3	1.1	1.1	0.7	1.0	1.1	1.0	0.7	0.9	27.2	25.5	23.5	25.4
1-Hour Max.	13.0	14.0	24.0	24.0	22.5	55.0	24.7	55.0	5.8	5.8	12.7	12.7	48.0	47.0	43.0	48.0
1-Hour Min.[2]	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.1	0.1	0.1	1.0	1.0	1.0	1.0
Mean Daily Max.	5.6	6.5	16.1	16.1	3.0	10.9	2.5	10.9	1.8	2.6	2.0	2.6	41.5	34.2	32.5	41.5
Mean Daily Min.[2]	2.4	0.9	1.0	0.9	0.5	0.1	0.1	0.1	0.7	0.5	0.3	0.3	15.9	9.7	9.5	9.5
Percent Data Recovery	99.4	98.8	98.8	99.0	94.2	95.1	95.5	94.9	94.2	95.2	95.5	95.0	93.0	95.2	95.5	94.6
24-hour Daily Max.[3]	5.5	6.7	15.6	15.6	2.8	10.4	2.3	10.4	1.8	2.5	1.9	2.5	---	---	---	---
8-hour Max.	---	---	---	---	---	---	---	---	---	---	---	---	45.0	43.0	39.0	45.0
24-hour Avg.	3.8	2.7	3.3	3.3	1.1	1.1	0.7	1.0	1.1	1.0	0.7	0.9	27.3	25.5	23.4	25.4
Median	4.0	3.0	2.0	3.0	0.5	0.4	0.5	0.5	0.9	0.6	0.4	0.6	32.0	30.0	25.0	28.0

[1] $PM_{2.5}$ and SO_2 second quarter 2025 data provided by Rio Tinto BC Works.

[2] Slightly negative concentrations are inherent with proper analyzer operation due to subtle levels of noise in the zero baseline setpoint. Negative values may be interpreted as zero and only occur when the air is very clean.

[3] 24-hour $PM_{2.5}$ daily maximum concentrations determined from midnight to midnight.

Table 4-3 Summary of THC Concentrations for the Riverlodge Station, April - June 2025

Statistic	THC (ppb)			
	April	May	June	Q2
1-hour Avg.	2.16	2.18	2.20	2.18
1-Hour Max.	2.61	2.48	2.67	2.67
1-Hour Min.[2]	2.04	1.94	2.07	1.94
Mean Daily Max.	2.30	2.30	2.30	2.30
Mean Daily Min.[2]	2.10	2.20	2.20	2.10
Percent Data Recovery	93.9	87.4	93.7	91.67
24-hour Daily Max.[3]	2.22	2.28	2.26	2.28
8-hour Max.	---	---	---	---
24-hour Avg.	2.16	2.18	2.20	2.18
Median	2.16	2.18	2.19	2.17

The average $PM_{2.5}$ concentration at Riverlodge during the second quarter was 3.3 µg/m^3 and the median $PM_{2.5}$ concentration during the second quarter was 3.0 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration during the second quarter was 24.0 µg/m^3 which occurred in June. The maximum 24-hour $PM_{2.5}$ concentration for the second quarter was 15.6 µg/m^3 which also occurred in June. During the second quarter, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

The average SO_2 concentration at the Riverlodge for the second quarter was 1.0 ppb with a median concentration of 0.5 ppb. The maximum hourly SO_2 concentration during the second quarter was 55.0 ppb which occurred in May. During the second quarter, there were no exceedances of the 1-hour BCAAQO of 75 ppb or the 1-hour CAAQS of 70 ppb for SO_2 at the Riverlodge station.

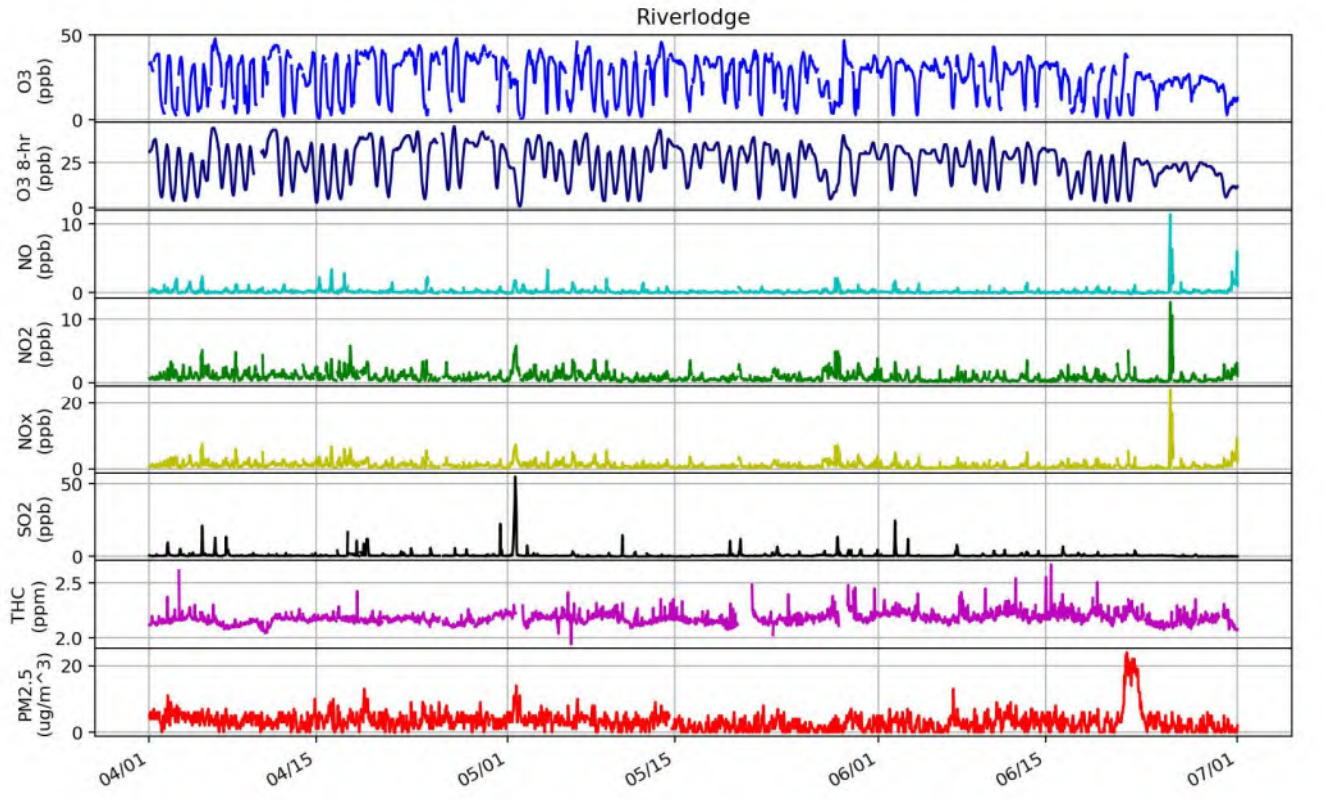
The average NO_2 concentration at the Riverlodge station for the second quarter was 0.9 ppb and the median NO_2 concentration was 0.6 ppb. The maximum hourly NO_2 concentration during the second quarter at Riverlodge was 12.7 ppb, which occurred in June. During the second quarter, there were no exceedances of the 1-hour NO_2 BCAAQO of 60 ppb at Riverlodge station.

The average O_3 concentration at Riverlodge station for the second quarter was 25.4 ppb and the median O_3 concentration was 28.0 ppb. The maximum hourly O_3 concentration of 48.0 ppb occurred in April. The maximum 8-hour O_3 concentration during the second quarter was 45.0 ppb which occurred in April. During the second quarter, there were no exceedances of the 1-hour O_3 BCAAQO advisory level of 82 ppb and the 8-hour CAAQS of 62 ppb at Riverlodge station.

The average THC concentration at the Riverlodge for the second quarter was 2.18 ppm with a median concentration of 2.17 ppb. The maximum hourly THC concentration during the second quarter was 2.67 ppb which occurred in June.

A time series plot of $PM_{2.5}$, SO_2, NO_2, ,O_3 and THC concentrations for the second quarter is presented in Figure 4.1.

Figure 4.1 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, $NO/NO_2/NOx$, O_3/O_3 -8hr, and THC Concentration Data for the Riverlodge Station, Second Quarter 2025



Wind speed and wind direction data are collected by Rio Tinto BC Works at the Riverlodge station. Figures 4.2 through 4.4 present the monthly Riverlodge station wind roses for April through June 2025. Figure 4.5 presents a time series plot of Riverlodge wind speed and direction, and temperature for the second quarter, 2025.

Figure 4.2 April 2025 Riverlodge Station Wind Rose

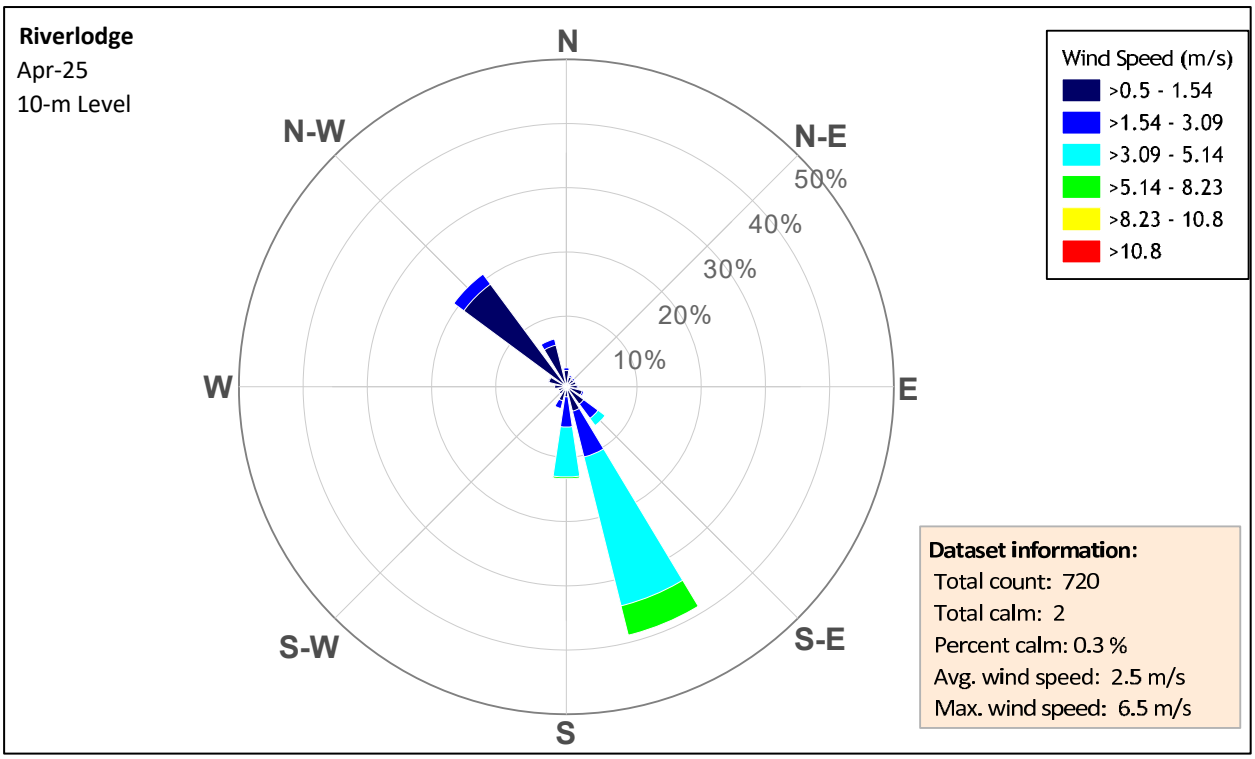


Figure 4.3 May 2025 Riverlodge Station Wind Rose

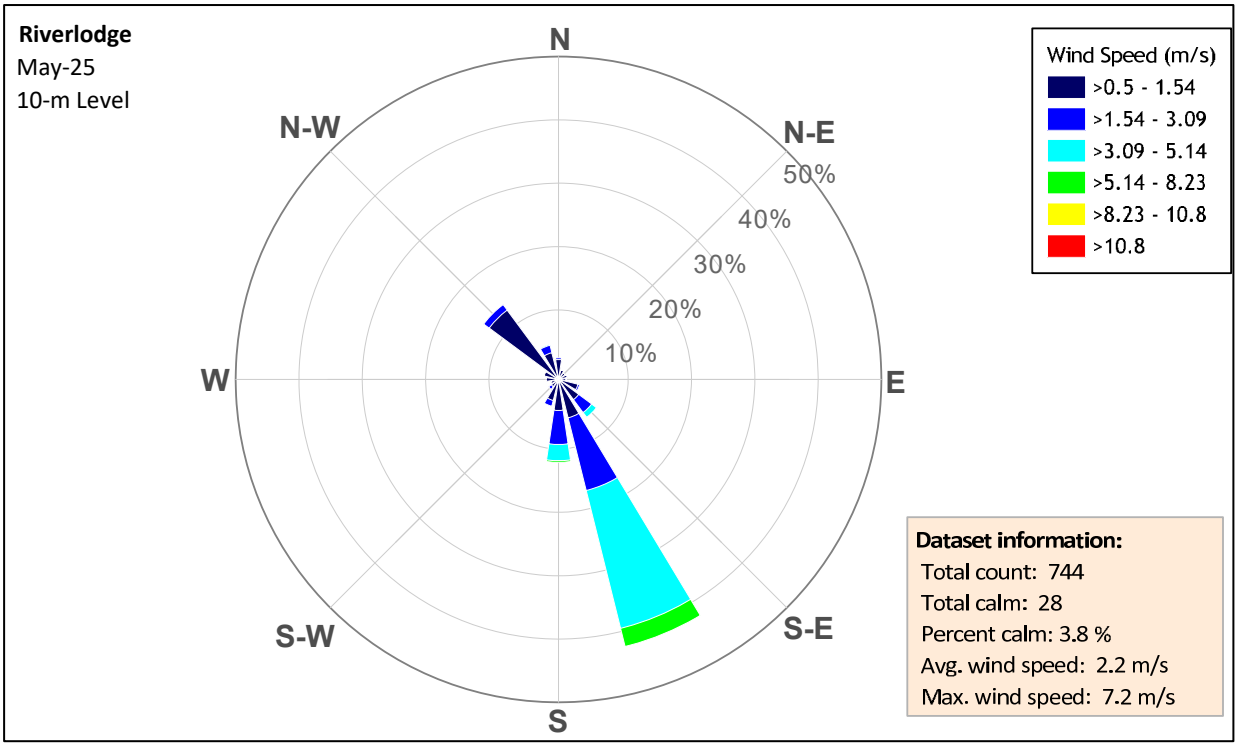


Figure 4.4 June 2025 Riverlodge Station Wind Rose

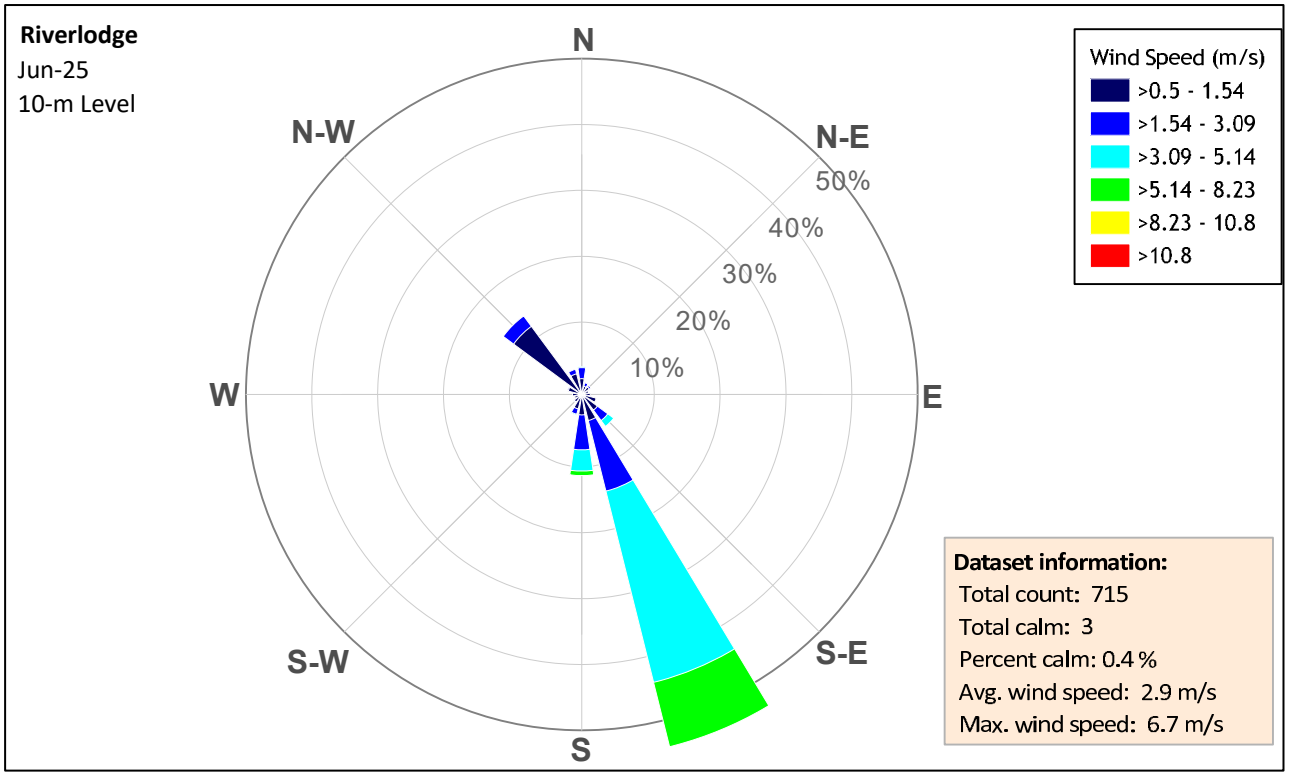
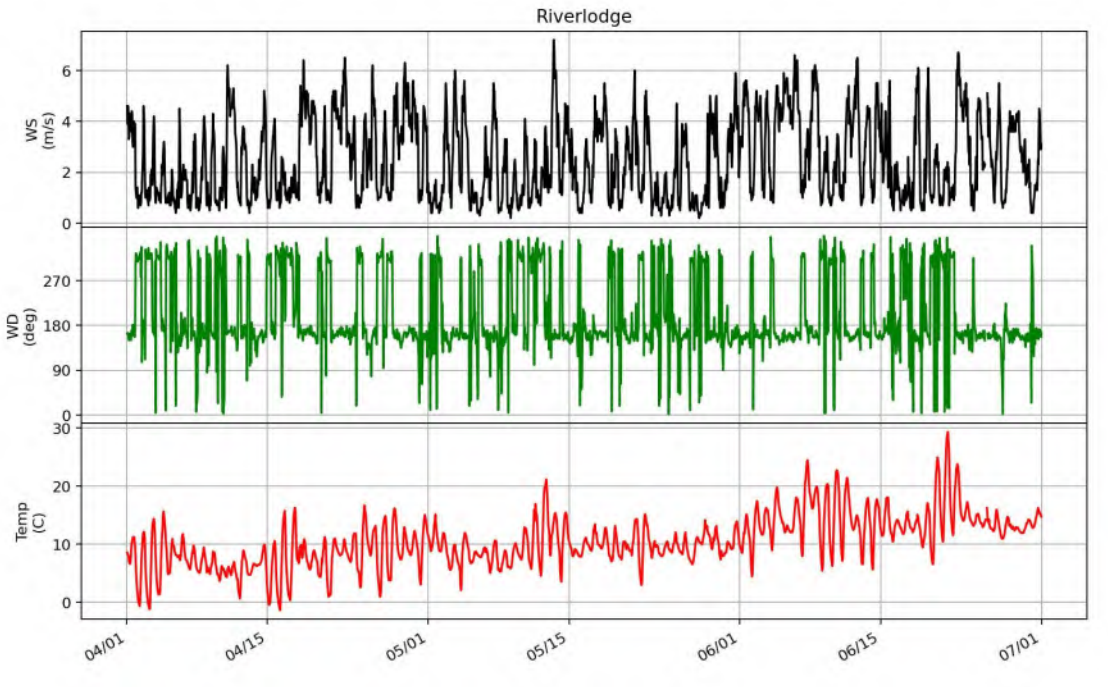


Figure 4.5 Time Series Plot of Wind Speed, Wind Direction, and Temperature Data at Riverlodge Station for Second Quarter 2025



4.3 Second Quarter 2025 Ambient Air Monitoring Data Issues

Table 4-4 presents the Riverlodge station data shortfall periods and known issues, during the second quarter, that led to pollutant concentration data loss.

Table 4-4 Data Shortfall Periods and Noted Issues During Second Quarter 2025 at Riverlodge Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
$SO_2/NO_x/O_3$/THC	4/03/2025	11:00	4/30/2025	11:00	1	Filter Change
$PM_{2.5}$	4/03/2025	13:00	4/03/2025	15:00	3	Monthly Flow Rate Verification and Maintenance
THC	4/05/2025	06:00	4/05/2025	06:00		Not stabilized
O_3	4/10/2025	01:00	4/10/2025	09:00	9	Low lamp voltage
$SO_2/NO_x/O_3$/THC	4/10/2025	10:00	4/10/2025	11:00	2	O_3 Maintenance and MP Verification
$SO_2/NO_x/O_3$/THC	4/25/2025	09:00	4/25/2025	13:00	5	T700 MFC Verification and Ozone Transfer Standard
$SO_2/NO_x/O_3$/THC / $PM_{2.5}$	4/29/2025	14:00	4/29/2025	15:00	2	HF MP Verification and Clock Adjustments
$SO_2/NO_x/O_3$/THC	4/29/2025	17:00	4/29/2025	17:00	1	SO_2 Maintenance
THC	5/01/2025	17:00	5/02/2025	05:00	13	Analyzer flatlined and rebooted
$PM_{2.5}$	5/06/2025	07:00	5/06/2025	08:00	2	Power outage
$SO_2/NO_x/O_3$/THC	5/09/2025	09:00	5/09/2025	10:00	2	NO_x/THC/SO_2 As Found MP Cal. Verification
$SO_2/NO_x/O_3$/THC	5/14/2025	11:00	5/14/2025	12:00	2	Filter Change
$PM_{2.5}$	5/14/2025	13:00	5/14/2025	17:00	5	Monthly Flow Rate Verification and Maintenance
THC	5/16/2025	11:00	5/16/2025	14:00	4	Analyzer flatlined and rebooted
THC	5/20/2025	07:00	5/21/2025	09:00	27	Analyzer flatlined
THC	5/28/2025	17:00	5/29/2025	09:00	17	Analyzer flatlined; pressures increased
THC	6/06/2025	15:00	6/06/2025	15:00	1	Analyzer flatlined
$PM_{2.5}$	6/16/2025	17:00	6/16/2025	18:00	2	Power outage
$PM_{2.5}$	6/19/2025	17:00	6/19/2025	18:00	2	Maintenance
$SO_2/NO_x/O_3$/THC	6/19/2025	17:00	6/19/2025	17:00	1	Filters Changed
THC	6/23/2025	05:00	6/23/2025	05:00	1	Analyzer flatlined
Winds	6/25/2025	10:00	6/25/2025	14:00	5	Cal. verification
Temperature	6/25/2025	12:00	6/25/2025	13:00	2	Cal. verification
$PM_{2.5}$	6/27/2025	14:00	6/27/2025	17:00	4	Monthly Flow Rate Verification and Maintenance
$SO_2/NO_x/O_3$/THC	6/27/2025	16:00	6/27/2025	16:00	1	Station Maintenance
$PM_{2.5}$	6/29/2025	18:00	6/29/2025	19:00	1	Power outage
THC	6/29/2025	14:00	6/29/2025	18:00	5	Analyzer flatlined
THC	6/30/2025	09:00	6/30/2025	10:00	2	Analyzer flatlined

5.0 APRIL - JUNE 2025 WHITESAIL AMBIENT AIR QUALITY STATION MONITORING STATION

This section provides a summary of the monitoring data collected by Rio Tinto BC Works at their Whitesail monitoring station for April through June 2025. Table 5-1 presents a list of the Rio Tinto BC Works air quality monitoring equipment operating at the Whitesail monitoring station.

Table 5-1 Rio Tinto BC Works Instrumentation at the Whitesail Station

Parameter	Manufacturer/Model	Serial Number
SO_2	Thermo Scientific 43i	1161530005
$PM_{2.5}$	Met One BAM 1020	P15216
O_3	Teledyne-API T400	3830
NO_x	Teledyne-API T200	4271

5.1 Monitoring Results and Trends

A summary of the $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations monitoring statistics for the second quarter 2025 for the Whitesail Station is presented in Table 5-2.

Table 5-2 Summary of $PM_{2.5}$, SO_2, NO_2, and O_3 Concentrations for the Whitesail Station, April - June 2025

Statistic	$PM_{2.5}$ (µg/m³)[1]				SO_2 (ppb)[1]				NO_2 (ppb)				O_3 (ppb)			
	April	May	June	Q2	April	May	June	Q2	April	May	June	Q2	April	May	June	Q2
1-hour Avg.	3.5	2.8	3.6	3.3	0.3	0.6	0.3	0.4	1.0	0.8	0.6	0.7	18.4	18.0	17.9	18.1
1-Hour Max.	19.0	11.0	27.0	27.0	9.5	34.4	12.8	34.4	8.5	5.4	23.5	23.5	34.0	34.0	37.0	37.0
1-Hour Min.[2]	0.0	0.0	0.0	0.0	-0.3	-0.3	-0.3	-0.3	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1.0
Mean Daily Max.	7.1	5.4	16.5	16.5	1.3	8.7	1.0	8.7	2.0	2.5	1.9	2.5	26.3	25.5	22.6	26.3
Mean Daily Min.	2.1	1.5	0.5	0.5	-0.1	-0.1	-0.1	-0.1	0.4	0.3	0.3	0.3	12.7	11.3	9.5	9.5
Percent Data Recovery	99.8	99.2	97.7	98.9	94.9	95.5	94.6	95.0	94.9	95.5	94.6	95.0	94.9	95.5	94.4	94.9
24-hour Daily Max.[3]	7.1	5.4	16.1	16.1	1.2	8.3	0.9	8.3	1.9	2.5	1.8	2.5	--	--	--	--
8-hour Max.	--	--	--	--	--	--	--	--	--	--	--	--	32.0	31.0	32.0	32.0
24-hour Avg.	3.5	2.8	3.6	3.3	0.3	0.7	0.3	0.4	1.0	0.8	0.6	0.8	18.4	18.0	17.9	18.1
Median	3.0	3.0	3.0	3.0	0.0	0.1	0.1	0.0	0.6	0.5	0.4	0.5	20.0	19.0	18.0	19.0

[1] $PM_{2.5}$, SO_2, NO_2, and O_3 second quarter 2025 data for Whitesail provided by Rio Tinto BC Works.

[2] Slightly negative concentrations are inherent with proper analyzer operation due to subtle levels of noise in the zero baseline setpoint. Negative values may be interpreted as zero and only occur when the air is very clean.

[3] 24-hour $PM_{2.5}$ daily maximum concentrations determined from midnight to midnight.

The average $PM_{2.5}$ concentration at Whitesail during the second quarter was 3.3 µg/m^3 and the median $PM_{2.5}$ concentration during the second quarter was 3.0 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration during the second quarter was 27.0 µg/m^3 which occurred in June. The maximum 24-hour $PM_{2.5}$ concentration for the second quarter was 16.1 µg/m^3 which also occurred in June. During the second quarter, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

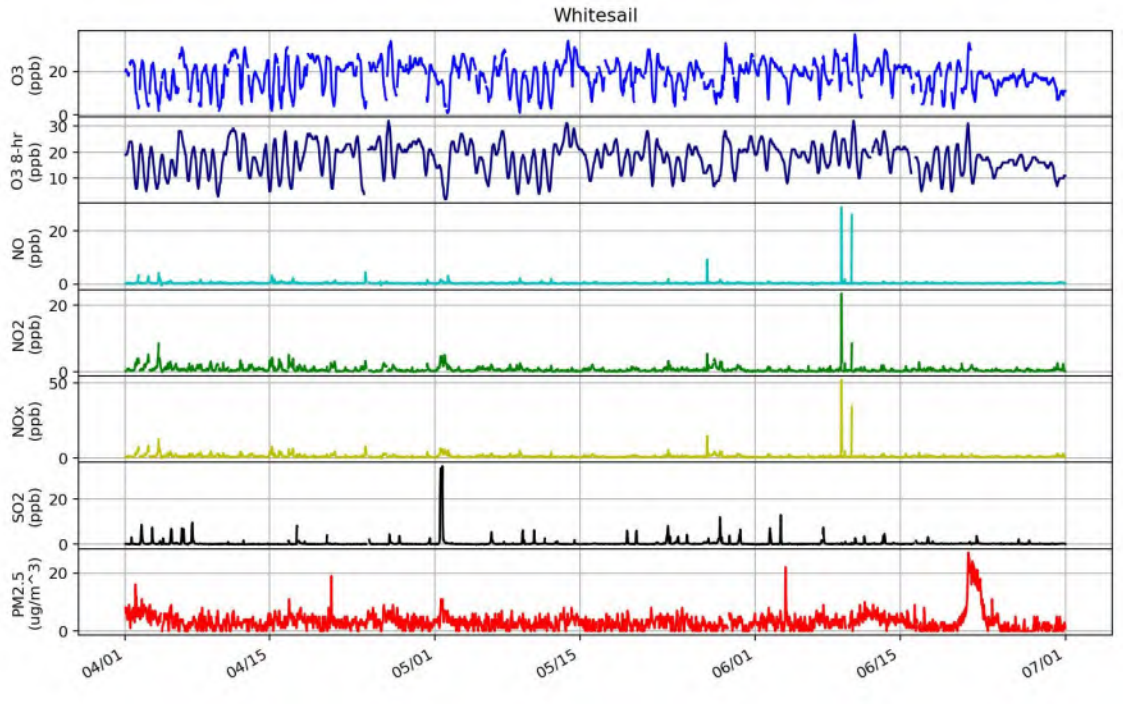
The average SO_2 concentration at the Whitesail for the second quarter was 0.4 ppb with a median concentration of 0.0 ppb. The maximum hourly SO_2 concentration during the second quarter was 34.4 ppb which occurred in May. During the second quarter, there were no exceedances of the 1-hour BCAAQO of 75 ppb or the 1-hour CAAQS of 70 ppb for SO_2 at the Whitesail station.

The average NO_2 concentration at the Whitesail station for the second quarter was 0.7 ppb and the median NO_2 concentration was 0.5 ppb. The maximum hourly NO_2 concentration during the second quarter at Whitesail was 23.5 ppb which occurred in June. During the second quarter, there were no exceedances of the 1-hour NO_2 BCAAQO of 60 ppb at Whitesail station.

The average O_3 concentration at the Whitesail station for the second quarter was 18.1 ppb and the median O_3 concentration was 19.0 ppb. The maximum hourly O_3 concentration of 37.0 ppb occurred in June. The maximum 8-hour O_3 concentration during the second quarter was 32.0 ppb which occurred in April and June. During the second quarter, there were no exceedances of the 1-hour O_3 BCAAQO advisory level of 82 ppb and the 8-hour CAAQS of 62 ppb at the Whitesail station.

A time series plot of $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations for the second quarter is presented in Figure 5.1.

Figure 5.1 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO/NO_2/NO_x, and O_3/O_3 -8hr Concentration Data for the Whitesail Station, Second Quarter 2025



Wind speed and wind direction data are collected by Rio Tinto BC Works at the Whitesail station. Figures 5.2 through 5.4 present the monthly Whitesail station wind roses for April through June 2025. Figure 5.5 presents a time series plot of Whitesail wind speed and direction, and temperature for the second quarter, 2025.

Figure 5.2 April 2025 Whitesail Station Wind Rose

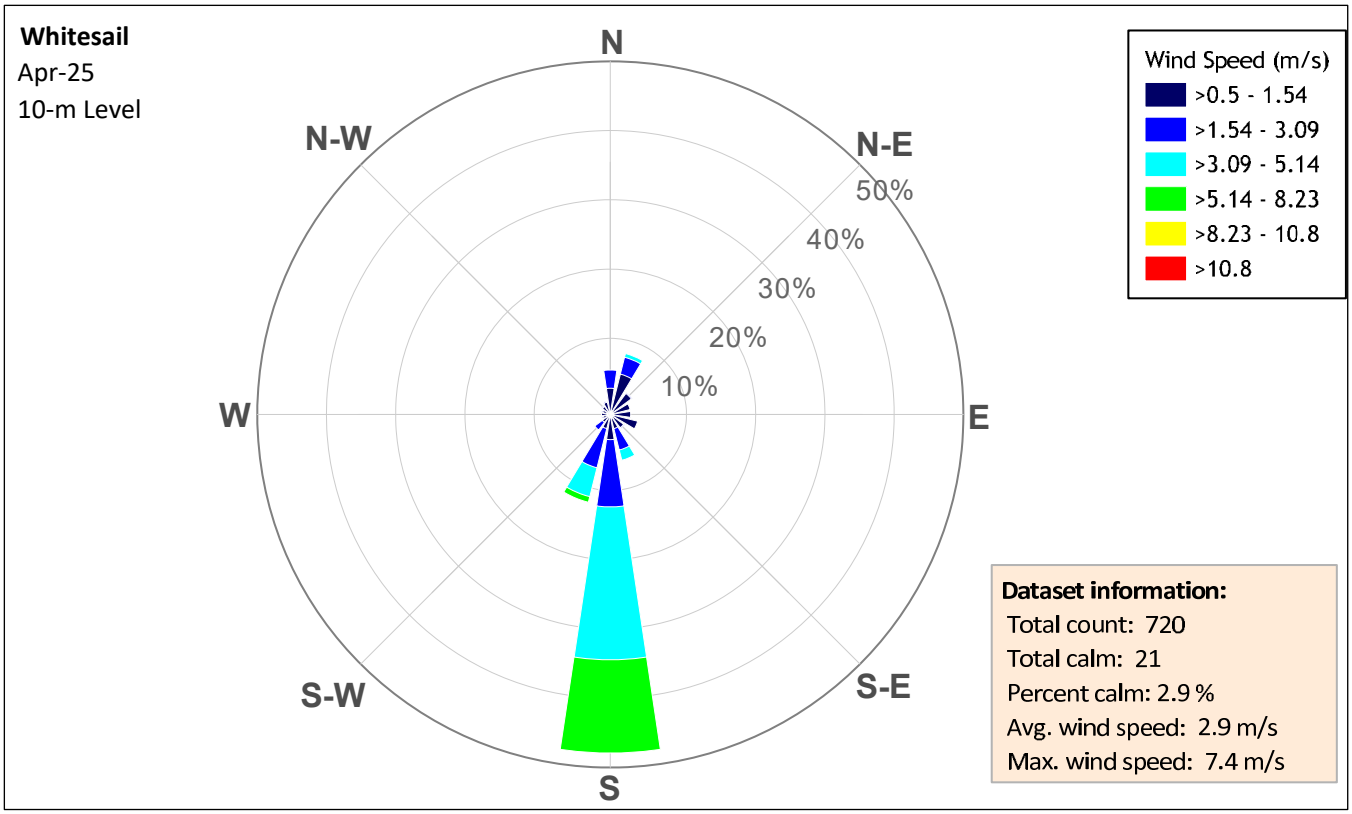


Figure 5.3 May 2025 Whitesail Station Wind Rose

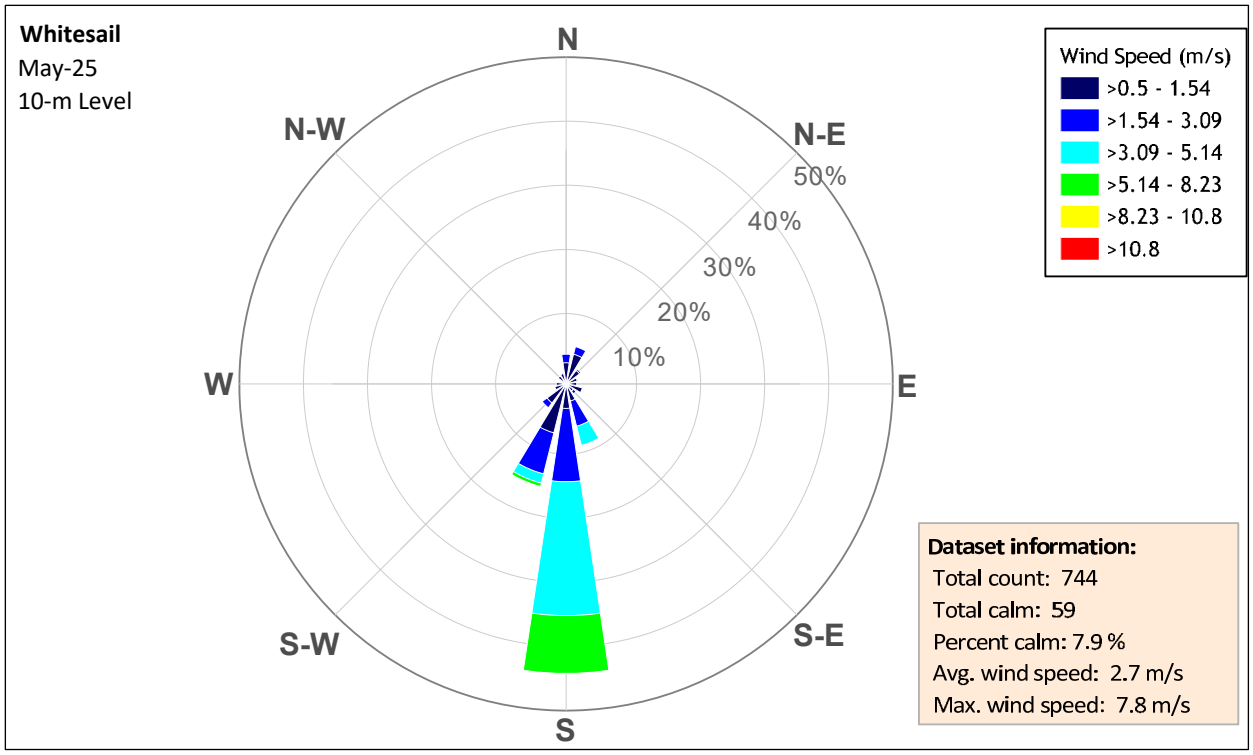


Figure 5.4 June 2025 Whitesail Station Wind Rose

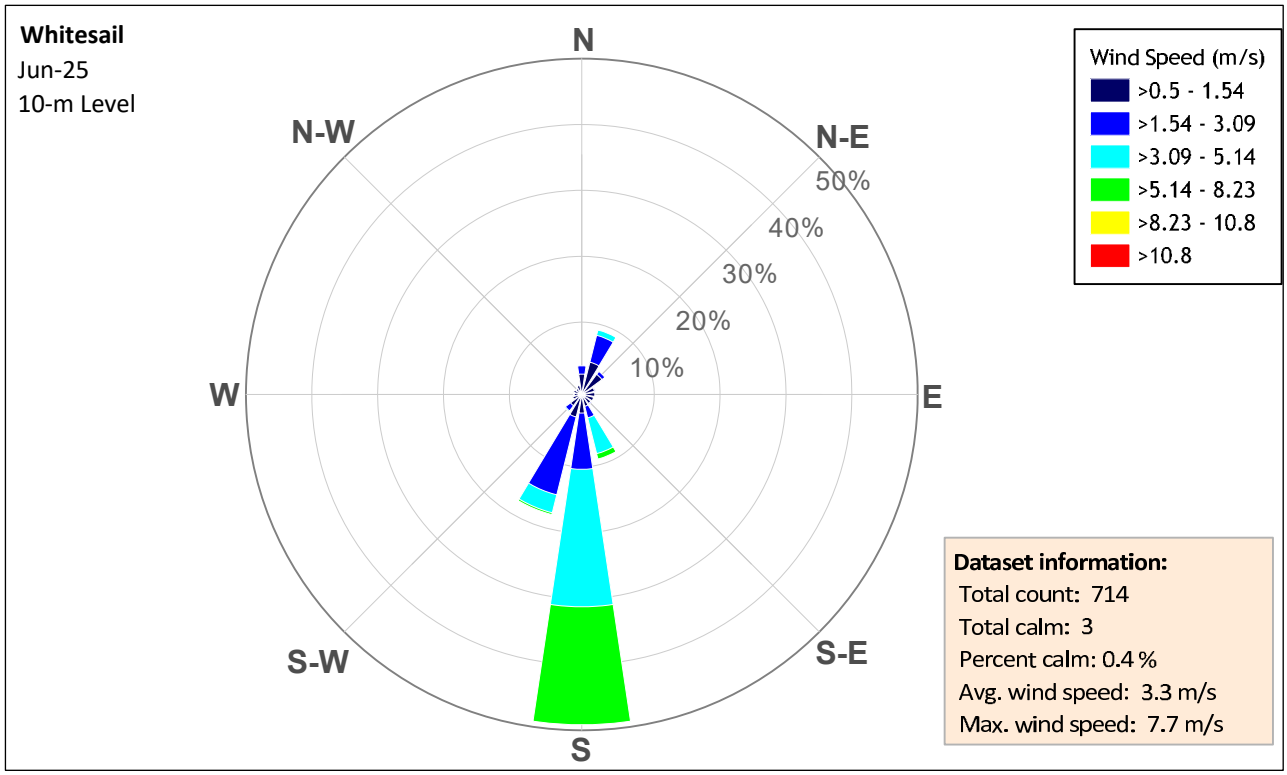
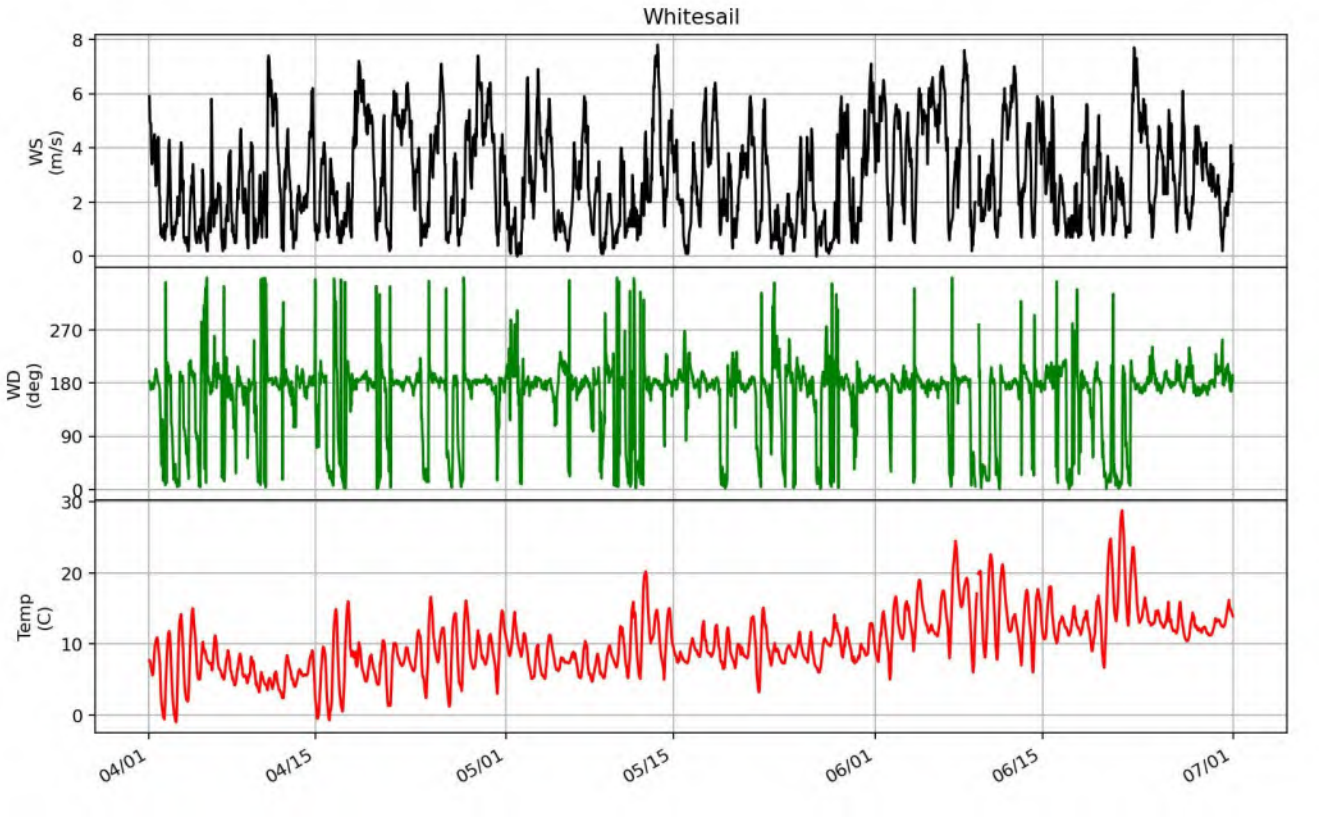


Figure 5.5 Time Series Plot of Wind Speed, Wind Direction, and Temperature Data at Whitesail Station for Second Quarter 2025



5.2 Second Quarter 2025 Ambient Air Monitoring Data Issues

Table 5-3 presents the Whitesail station data shortfall periods and known issues, during the second quarter, that led to pollutant concentration data loss.

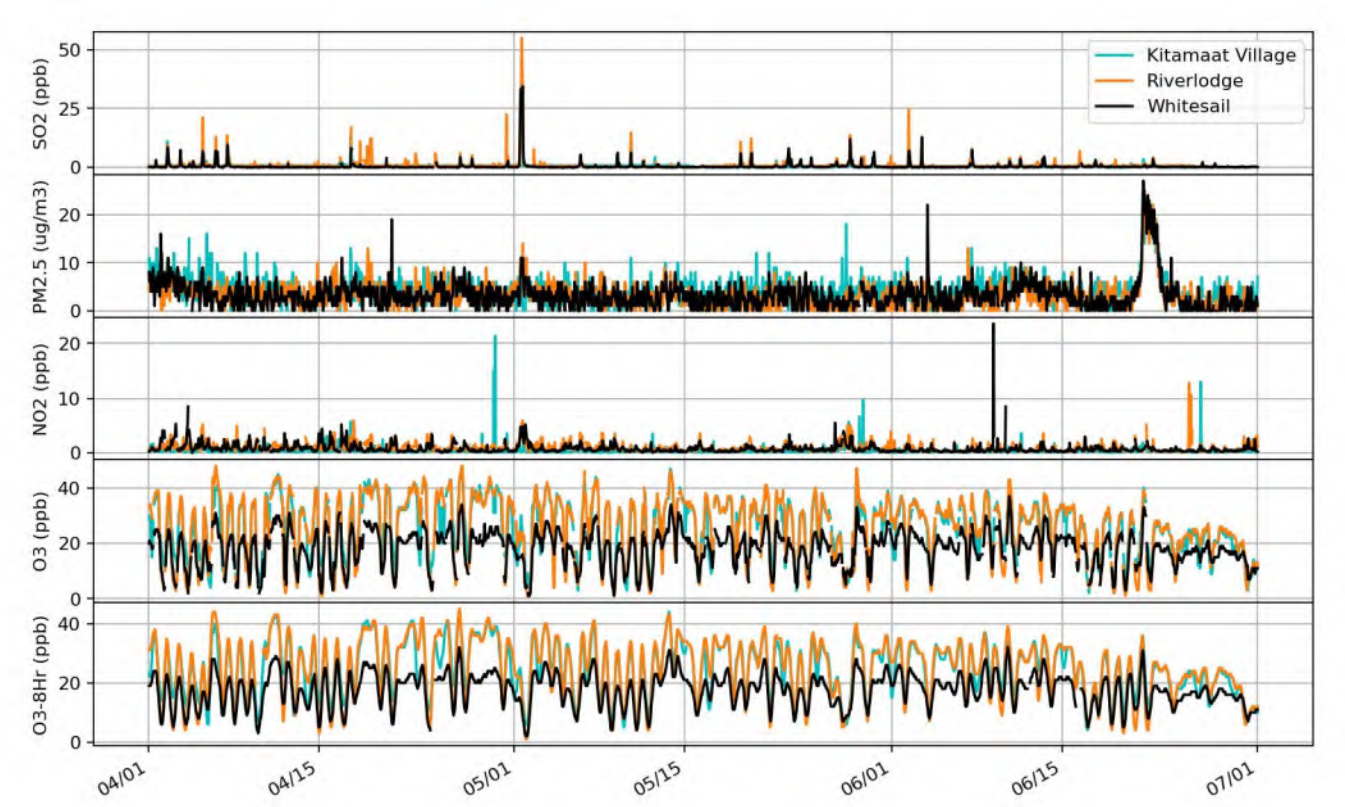
Table 5-3 Data Shortfall Periods and Noted Issues During Second Quarter 2025 at Whitesail Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
$PM_{2.5}$	4/04/2025	12:00	4/04/2025	13:00	2	Monthly Flow Rate Verification and Maintenance
$SO_2/NO_x/O_3$	4/04/2025	13:00	4/04/2025	13:00	1	Filter Change
$SO_2/NO_x/O_3$	4/24/2025	09:00	4/24/2025	14:00	6	T700 MFC Verification and Ozone Transfer Standard
$PM_{2.5}$	5/06/2025	07:00	5/06/2025	08:00	2	Power Outage
$SO_2/NO_x/O_3$	5/16/2025	17:00	5/16/2025	17:00	1	Filter Change
$PM_{2.5}$	5/16/2025	16:00	5/16/2025	17:00	2	Tape Replaced
$PM_{2.5}$	5/29/2025	09:00	5/29/2025	10:00	2	Monthly Flow Rate Verification and Maintenance
$PM_{2.5}$	6/09/2025	19:00	6/09/2025	24:00	6	Tape Error
Winds	6/09/2025	10:00	6/09/2025	15:00	6	Calibration Verification
Temperature	6/09/2025	13:00	6/09/2025	14:00	2	Calibration Verification
$SO_2/NO_x/O_3$	6/09/2025	18:00	6/09/2025	19:00	2	Station Maintenance
$SO_2/NO_x/O_3$	6/12/2025	10:00	6/12/2025	11:00	2	NO_x Pump Rebuild
$PM_{2.5}$	06/12/2025	12:00	06/12/2025	14:00	3	Tape Error
$SO_2/NO_x/O_3$	6/16/2025	09:00	6/16/2025	12:00	4	NO_x Calibration / SO_2 As Found MP Verification
$PM_{2.5}$	6/16/2025	17:00	6/16/2025	18:00	2	Power Outage
O_3	6/16/2025	18:00	6/16/2025	18:00	1	Power Outage
$PM_{2.5}$	6/27/2025	10:00	6/27/2025	12:00	3	Monthly Flow Rate Verification and Maintenance
$PM_{2.5}$	6/29/2025	18:00	6/29/2025	19:00	2	Power Outage
O_3	6/29/2025	18:00	6/29/2025	18:00	1	Power Outage

6.0 STATION COMPARISON

Figure 6.1 presents comparative time series plots of second quarter 2025 $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations from the Kitamaat Village, Riverlodge, and Whitesail monitoring stations. $PM_{2.5}$ and SO_2 data were obtained from Rio Tinto BC works for Kitamaat Village and Riverlodge stations. $PM_{2.5}$, SO_2, NO_2, and O_3 concentration data were obtained from Rio Tinto BC works for the Whitesail monitoring station. These graphs are useful for evaluating pollutant dispersion and for concentration comparison purposes.

Figure 6.1 Comparison of Hourly $PM_{2.5}$, SO_2, NO_2, and O_3 and 8-hour O_3 Concentrations Kitamaat Village, Riverlodge, and Whitesail Monitoring Locations, Second Quarter 2025



APPENDIX A. SITE NOTES FOR KITAMAAT VILLAGE AND RIVERLODGE

04/02/2025 - RT Activities

Wednesday, April 2, 2025 9:48 AM

Village

Author of Entry: Nathan McMillan and Adrienne Kaul

Date of Activity: 04/02/2025
Start Time: 0946
End Time: 1025
Technician: Nathan McMillan

Reason for Visit

RT Activities

Description

Envidas: Clock was 1 second ahead. Clock updated at 0952.

T700U Calibrator:

-Clock was 9 seconds ahead and was updated at 0956.

T400O3:

-Clock was 70 seconds ahead and was updated at 0957.

T200NOx:

-Clock was 69 seconds ahead and was updated at 0958.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1600 psi and line pressure 30 psi.
- Shelter temperature 25.9 C, within spec.

04/08/2025 - RT Activities

Tuesday, April 8, 2025 9:09 AM

Village

Author of Entry: Nathan McMillan and Adrienne Kaul

Date of Activity: 04/08/2025
Start Time: 0906
End Time: 0939
Technician: Nathan McMillan

Reason for Visit

RT Activities

Description

Envidas: Clock was 1 second ahead. Clock updated at 0913.

T700U Calibrator:

-Clock was 45 seconds ahead and was updated at 0916.

T400O3:

-Clock was 46 seconds ahead and was updated at 0920.

T200NOx:

- Clock was 46 seconds ahead and was updated at 0921.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1600 psi and line pressure 30 psi.
- Shelter temperature 26.4 C, within spec.

04/15/2025 - RT Activities

Tuesday, April 15, 2025 11:35 AM

Village

Author of Entry: Nathan McMillan and Adrienne Kaul

Date of Activity: 04/15/2025
Start Time: 1129
End Time: 1213
Technician: Nathan McMillan

Reason for Visit

RT Activities

Description

Envidas: Clock was 1 second ahead. Clock updated at 1139.

T700U Calibrator:

-Clock was 82 seconds ahead and was updated at 1143.

T400O3:

-Clock was 81 seconds ahead and was updated at 1144.

T200NOx:

- Clock was 81 seconds ahead and was updated at 1146.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1590 psi and line pressure 30 psi.
- Shelter temperature 27.1 C, within spec.

04/22/2025 - RT Activities

Tuesday, April 22, 2025 12:40 PM

Village

Author of Entry: Nathan McMillan and Adrienne Kaul

Date of Activity: 04/22/2025
Start Time: 1236
End Time: 1318
Technician: Nathan McMillan

Reason for Visit

RT Activities

Description

Envidas: Clock was 2 seconds ahead. Clock updated at 1245.
T700U Calibrator:
-Clock was 83 seconds ahead and was updated at 1250.
Alert - 04/21/2025 - 1:14:49 PM Photo Ref Warning
T400O3:
-Clock was 81 seconds ahead and was updated at 1251.
T200NOx:

- Clock was 82 seconds ahead and was updated at 1257.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1580 psi and line pressure 30 psi.
- Shelter temperature 26.6 C, within spec.

04/23/2025 - T700U alert check, MFCs, and O3 transfer check

Wednesday, April 23, 2025 8:34 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: April 23, 2025
Start Time: 8:32; 13:30
End Time: 12:45; 15:15
Technician: Adrienne Kaul

Reason for Visit

On site to check T700U Calibrator

Description

T700U:
- -Clock was 11 seconds ahead and was updated at 8:49.
- -Photo ref voltage 2495.5 mV.
- -Photo detector adjusted from 2490.6 mV to 4597.7 mV resolving photo ref voltage alert.
- -MFCs performed 10:41-12:22 with passing results. No adjustments made
  - -Dil average: 0.95%
  - -Cal average: -0.81%
- -Ozone generated at 400 ppb at 3.5 lpm from 12:22-12:27 to warm-up calibrator ozone bench.
- -Ozone calibration sequence started at 12:29

T400 O3:
- -Clock was 11 seconds ahead and was updated at 8:48.

T200 NOx:
- -Clock was 11 seconds ahead and was updated at 8:51.

Envidas:
- -Clock was 2 seconds ahead and was synced at 8:53.
- -Windows updates downloaded.
- -Computer restarted at 10:21 to allow updates to take effect.

T400 transfer standard powered on at 9:25.
- -Transfer standard connected to data logger.
- -Lamp stability error, restarted unit 11:03-11:05.
- -Ozone calibration sequence started at 12:29

NOx and O3 data flagged to maintain 9:45-12:32:
- -Automatic ZPS checks were interrupted at 9:45.

NOx and O3 data flagged to maintain 14:17-14:20:
- -Transfer standard disconnected and powered off.

NOx and O3 data flagged to maintain 14:50-15:02:
- -RT Activities were performed.

T701:
- -Powered off at 9:45.
- -Leak checked 10:21-10:22 at 28.75 psi at start of test and 28.75 psi at end of test.
- -Some Purafil residue seen in lines between scrubbers.
- -Need new scrubber pads before replacing charcoal and purafil media for annual maintenance.

Site Visit Checklist

- ☑ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☑ Zero air system pressure at 30 PSI

- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [x] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter temperature 26.6 C, within spec.
- Wind speed and direction sensors appear to be working normally.
- Ambient temperature aspirator is working.
- Wind speed and direction sensors are working normally.
- T700U alert: 04/22/2025 12:54:27 PM Photo Ref Warning. Trigger: Photo Ref value outside specified range [2500-4995 mV].
- Sewage treatment plant has maintenance activities occurring today. There is a new pump being installed on site and sewage pumping occurring today. Periodically vehicles were idling on site.

Village 2025-0423 MFC

MFC FLOW CHECK SHEET-AS FOUND

Date: 4/23/25			Temp (C):	22.0		
Time: 10:41			Pressure (mmHg):	768		
Location: Village			MFC #:	DIL1		
Model: API T700U		Serial Number:	905	Corr factor:	n/a	
Point #				BIOS lpm	Station lpm	percent difference
1				0.518	0.530	2.24%
2				1.061	1.069	0.79%
3				1.597	1.613	1.02%
4				2.128	2.148	0.94%
5				2.662	2.687	0.96%
6				3.196	3.223	0.84%
7				3.723	3.744	0.56%
8				4.255	4.289	0.81%
9				4.773	4.816	0.89%
10				5.298	5.351	1.00%
11				5.829	5.871	0.73%
12				6.345	6.405	0.94%

13				6.868	6.934	0.96%
14				7.385	7.452	0.90%
15				7.915	7.991	0.96%
16				8.440	8.514	0.88%
17				8.953	9.045	1.03%
18				9.478	9.571	0.99%
19				10.011	10.089	0.78%
20				10.531	10.608	0.73%

Comments: 0.95% Average % Diff

BIOS s/n 140792
Definer 220H
0 - 10 LPM STD temp 25.0

Technician: Adrienne Kaul

MFC FLOW CHECK SHEET-CALIBRATION AS FOUND

Date: 4/23/25 Temp (C): 23.3 Correction Calculation: Flow Calculation:
Time: 11:44 Pressure: 765 mmHg (P-Pv) * 298 vol * corr factor
Location: Village MFC #: CAL1 29.92 273 + T time
Model: API T700U Serial Number: 905 Corr factor: n/a

Point #			Changed? *	BIOS (cc/min)	Station (cc/min)	percent difference
1				6.101	6.1	-0.01%
2				12.116	12.0	-0.96%
3				18.065	17.9	-0.91%
4				23.903	23.7	-0.85%
5				29.744	29.5	-0.82%
6				35.398	35.2	-0.56%
7				41.087	40.7	-0.94%
8				46.736	46.3	-0.93%
9				52.349	51.8	-1.05%
10				57.763	57.3	-0.80%
11				63.367	62.8	-0.89%
12				68.702	68.3	-0.59%
13				74.487	73.8	-0.92%
14				80.136	79.3	-1.04%
15				85.800	85.3	-0.58%
16				91.764	91.0	-0.83%
17				97.451	96.6	-0.87%
18				103.360	102.6	-0.74%
19				109.540	108.6	-0.86%
20				115.540	114.4	-0.99%

Comments: -0.81% Average % Diff

BIOS s/n 140619
Definer 220-L
0 - 100 cc STD Temp 25.0

Technician: Adrienne Kaul

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2025-0423

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CALIBRATOR OZONE CHECK SHEET

AS FOUND

SITE NAME	LNG Kitimat Village	**Date** 4/23/2025	**Start Time** 12:38
PROJECT	244501.0770		**Stop Time** 13:38
SITE OPERATOR	Trinity Consultants		

Analyzer Mfg	T-API	**Anal. Range 0-**	500 **PPB**
Analyzer Model	T700U		
Analyzer s/n	905		

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	T-API	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	T400	**Model:**	T701
Serial #:	905	**Serial #:**	5996	**Serial #:**	2555
Cert Date:	N/A	**Certification Date:**	2/28/2025	**Certification Date:**	5/20/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard

m:	1.001
b:	-0.8323
r:	1.0000
Calibration Date:	2/28/2025

Transfer **Calibrator**

INPUT (Txfr Standard)		RESPONSE		BEST-FIT DETERMINATION		
Raw Input (PPB)	Corrected (X) (PPB)	(Y) (PPB)	% DIFF.	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
-0.9	-0.1	0.0	/	0.5	-0.48	-0.1%
38.7	39.5	39.9	1.11%	39.4	0.50	0.1%
90.0	90.7	90.0	-0.82%	89.8	0.16	0.0%
150.3	151.0	149.8	-0.78%	149.1	0.70	0.1%
252.7	253.3	250.0	-1.29%	249.7	0.26	0.1%
405.3	405.7	399.6	-1.51%	399.7	-0.11	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	0.984	1.05 to 0.95
Intercept(b)	0.574	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	-0.66%	

COMMENTS

No adjustments made.

Calibrated By Adrienne Kaul

= cell containing equations

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2025-0423

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OZONE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Village
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 4/23/2025 **Start Time** 12:38 **Stop Time** 13:38

Analyzer Mfg Teledyne-API
Analyzer Model T400
Analyzer s/n 7486

Anal. Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	N/A	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	N/A	**Model:**	T701
Serial #:	905	**Serial #:**	N/A	**Serial #:**	2555
Cert Date:	4/23/2025	**Certification Date:**	N/A	**Certification Date:**	5/20/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard
m: 1
b: 0
r:
Calibration Date:

INPUT (Txfr Standard) Raw Input (PPB)	Corrected (X) (PPB)	RESPONSE (Y) (PPB)	% DIFF.	BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.0	0.3	/	-0.2	0.47	0.1%
40.0	40.0	40.3	0.60%	40.6	-0.37	-0.1%
90.0	90.0	91.0	1.11%	91.6	-0.59	-0.1%
149.8	149.8	152.4	1.74%	152.6	-0.17	0.0%
250.0	250.0	254.4	1.76%	254.7	-0.35	-0.1%
399.7	399.70	407.5	1.95%	407.4	0.10	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

COMMENTS

No adjustments made.

Slope(m)	1.020	1.05 to 0.95
Intercept(b)	-0.181	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	1.43%	

Calibrated By Adrienne Kaul

= cell containing equations

04/29/2025- RT Activities

Tuesday, April 29, 2025 1:03 PM

Village

Author of Entry: Nathan McMillan and Adrienne Kaul

Date of Activity: 04/29/2025
Start Time: 1300
End Time: 1330
Technician: Nathan McMillan

Reason for Visit

RT Activities

Description

Envidas: Clock was 6 seconds ahead. Clock updated at 1306.

T700U Calibrator:

-Clock was 70 seconds ahead and was updated at 1308.

T400O3:

-Clock was 69 seconds ahead and was updated at 1309.

T200NOx:

- Clock was 70 seconds ahead and was updated at 1311.

43iSO2:

Clock was 12 seconds behind. Updated at 1312.

BAM1020:

Clock was 82 seconds ahead. No adjustments made.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1550 psi and line pressure 30 psi.
- Shelter temperature 26.5 C, within spec.

05/06/2025 - RT Activities

Tuesday, May 6, 2025 12:46 PM

Village

Author of Entry: Nathan McMillan

Date of Activity: 05/06/2025
Start Time: 1243
End Time: 1321
Technician: Nathan McMillan

Reason for Visit

RT Activities

Description

Envidas: Clock was 2 seconds ahead. Clock updated at 1252.

T700U Calibrator:

-Clock was 81 seconds ahead and was updated at 1255.

T400O3:

-Clock was 80 seconds ahead and was updated at 1258.

T200NOx:

- Clock was 80 seconds ahead and was updated at 1301.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1540 psi and line pressure 30 psi.
- Shelter temperature 26.7 C, within spec.

05/12/2025 - Station check and RT activities

Monday, May 12, 2025 11:16 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: 05/12/2025
Start Time: 1114
End Time: 1145
Technician: Nathan McMillan

Reason for Visit

Station check and RT activities

Description

Envidas: Clock was accurate

T700U Calibrator:

-Clock was 68 seconds ahead and was updated at 1124.

T400O3:

-Clock was 68 seconds ahead and was updated at 1126.

T200NOx:

- Clock was 68 seconds ahead and was updated at 1127.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1520 psi and line pressure 30 psi.

05/13/2025 - Zero Air Media and inlet filters

Tuesday, May 13, 2025 8:15 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: May 13, 2025
Start Time: 8:13
End Time: 14:19
Technician: Adrienne Kaul

Reason for Visit

On site to change zero air media and change SO2 inlet filter

Description

Envidas:

-Clock was 3 seconds ahead and time was synced at 8:24.

T200 NOx:

-Clock was 10 seconds ahead and was updated at 8:27.

T400 O3:

-Clock was 13 seconds ahead and was updated at 8:29.

T700U Calibrator:

-Clock was 11 seconds ahead and was updated at 8:31 and was 1 second behind after update.

T701:

-Powered off at 8:38.
-Some purafil residue in line between charcoal and purafil canisters.
-Cleaned charcoal and purafil scrubber canisters and fittings. Replaced charcoal and purafil scrubber o-rings, retainer pads, and teflon line between charcoal and purafil scrubber canisters.
-Replaced inlet particulate filter and cleaned assembly.
-Leak test T701 pressure 33.25 psi at 10:47 and 33.25 at 10:58.
-Dewpoint override button pressed at 11:02.
-T701 running continuously to dry out media 11:03-11:28
-Dewpoint override button pressed at 11:31.

T200 and T400:

-All connections felt tight prior to filter changes
-Data flagged 11:03-11:59.
-Analyzer inlet filters changed and new 1-2 um filters installed.
-All connections felt tight after filter changes.
-Ozone generated at 400 ppb from 11:32-11:48.
Analyzer read 404.9 ppb with 399.5 ppb supplied by calibrator for last full minute of the run.
-Inlet screen cleaned and re-installed.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [x] Inlet Teflon exchanged (annual)

- [x] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1650 psi and line pressure 31 psi.
- Inlet tubing inspected and it appears to be in good condition.
- Current HVAC set up and extra equipment at the site is causing large temperature swings near analyzers. Installation of a new AC unit near analyzers and repair of the non-operational baseboard on east side of shelter would help better regulate shelter temperature.

05/14/2025 - Weekly station check and RT activities

Wednesday, May 14, 2025 12:32 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: 05/14/2025
Start Time: 1232
End Time: 1256
Technician: Nathan McMillan

Reason for Visit

Weekly station check and RT activities

Description

Envidas: Clock was accurate

T700U Calibrator:

-Clock was 13 seconds ahead and was updated at 1236.

T400O3:

-Clock was 13 seconds ahead and was updated at 1238.

T200NOx:

- Clock was 12 seconds ahead and was updated at 1239.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1520 psi and line pressure 30 psi.
- Shelter temperature 26.6 C, within spec.

05/15/2025 - NOx Calibration and RT Activities

Thursday, May 15, 2025 4:51 PM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 5/15/25
Start Time: 755
End Time: 1400
Technician: WL

Reason for Visit

Calibrate NOx analyzer
Also perform RT activities

Description

755-1045: NOx as found MP; NOx span adjustment; RT activities
1045-1215: AUTOMATED DAILY ZERO/SPAN CHECKS
1215-1400: NOx MP After Adjustment; RT activities

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

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2025-0515

NITROGEN OXIDES CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Village
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 5/15/2025 **Start Time** 8:04
Stop Time 9:34

Analyzer Mfg Teledyne-API
Analyzer Model T200
Analyzer s/n 8598

Anal. Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 905
Cert Date: 12/13/2024

Audit Gas: Linde
Concentration: 10.0 ppm
Serial #: DT0046813
Certification Date: 4/4/2024
Expiration Date: 4/4/2027

Zero Air Source: T-API
Model: T701
Serial #: 2555
Certification Date: 5/20/2024

INPUT (X)	RESPONSE (Y)			NO	NO BEST-FIT DETERMINATION		
NO (PPB)	NO (PPB)	NO_2 (PPB)	NO_X (PPB)	% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.1	-0.1	0.0	/	-1.0	1.10	0.2%
40.1	41.2	-0.1	41.1	3.0%	41.5	-0.23	0.0%
89.8	93.4	0.5	93.9	4.0%	94.2	-0.84	-0.2%
139.6	146.3	0.8	147.1	4.8%	147.1	-0.77	-0.2%
199.2	210.6	0.1	210.7	5.7%	210.3	0.31	0.1%
299.2	316.8	1.0	317.8	5.9%	316.4	0.44	0.1%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X	NO_X BEST-FIT DETERMINATION		
% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-1.1	1.05	0.2%
2.6%	41.6	-0.44	-0.1%
4.6%	94.5	-0.58	-0.1%
5.4%	147.5	-0.37	-0.1%
5.8%	210.9	-0.18	0.0%
6.2%	317.3	0.53	0.1%

	NO	NO_x		NO	NO_x
Slope (m)	1.0607	1.0639	1.05 to 0.95	0.9427	0.9399
Intercept (b)	-1.0091	-1.0567	(≤ ± 10)	0.9567	0.9971
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	0.99998	0.99998
Average % Difference	4.68%	4.91%		4.68%	4.91%

Calibrated By Wyndam Lewis

= cell containing equations

Template Revised 7/10/23

NITROGEN DIOXIDE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Village
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 5/15/2025 **Start Time** 8:04
Stop Time 9:34

Analyzer Mfg	Teledyne-API	**Anal. Range 0-**	500 **PPB**
Analyzer Model	T200		
Analyzer s/n	8598		

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.0 ppm	**Model:**	T701
Serial #:	905	**Serial #:**	DT0046813	**Serial #:**	2555
Cert Date:	12/13/2024	**Certification Date:**	4/4/2024	**Certification Date:**	5/20/2024
		Expiration Date:	4/4/2027		

	CAL INPUT (X)		CALC ACTUAL	DAS RESPONSE (Y)			CALCULATED (Y) [ORIG]		[REM]		[CONV]	% DIFF
	NO (PPB)	O_3 (PPB)	$[NO_2]_A$ (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO (PPB)	NO_X (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO_2 (% OR PPB)
TITRATION	0.0	0.0	0.0	0.1	0.0	-0.1	---	---	---	---	-0.10	-0.1 ppb
	300.0	250.0	240.2	62.0	314.9	252.9	299.6	299.7	59.4	297.0	237.47	5.3%
	300.0	150.0	134.5	174.1	315.4	141.3	299.6	299.7	165.1	297.4	132.27	5.0%
	300.0	70.0	65.5	247.3	317.7	70.4	299.6	299.7	234.1	299.6	65.42	7.5%

NO TITRATION

299.2	0.0	---	316.8	317.8	1.0

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9858 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 98.6% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION

Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.5	-0.55	-0.1%
252.9	0.00	0.0%
141.8	-0.54	-0.1%
69.3	1.09	0.2%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	1.0509	1.05 to 0.95	0.9427	0.9399
Intercept (b)	0.4582	(≤ ± 10)	0.9567	0.9971
Correlation Coefficent (r)	0.99997	(≥ 0.995)	1.0000	1.0000
Average % Difference	5.93%		4.68%	4.91%

Calibrated By Wyndam Lewis = cell containing equations

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2025-0515

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NITROGEN OXIDES CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME	LNG Kitimat Village	**Date**	5/15/2025	**Start Time**	12:25
PROJECT	244501.0077			**Stop Time**	13:55
SITE OPERATOR	Trinity				

Analyzer Mfg	Teledyne-API	**Anal. Range 0-**	500 **PPB**
Analyzer Model	T200		
Analyzer s/n	8598		

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.0 ppm	**Model:**	T701
Serial #:	905	**Serial #:**	DT0046813	**Serial #:**	2555
Cert Date:	12/13/2024	**Certification Date:**	4/4/2024	**Certification Date:**	5/20/2024
		Expiration Date:	4/4/2027		

INPUT (X)	RESPONSE (Y)			NO	NO BEST-FIT DETERMINATION		
NO (PPB)	NO (PPB)	NO_2 (PPB)	NO_X (PPB)	% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.1	0.0	0.1	/	-0.3	0.46	0.1%
40.0	39.5	0.4	39.8	-1.5%	39.7	-0.26	-0.1%
89.8	88.8	0.3	89.1	-1.1%	89.5	-0.69	-0.1%
139.6	139.6	-0.3	139.3	0.0%	139.3	0.29	0.1%
199.2	199.2	0.0	199.2	0.0%	198.9	0.27	0.1%
299.2	298.9	0.3	299.2	-0.1%	299.0	-0.07	0.0%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X	NO_X BEST-FIT DETERMINATION		
% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-0.3	0.33	0.1%
-0.5%	39.8	0.03	0.0%
-0.8%	89.6	-0.49	-0.1%
-0.2%	139.4	-0.12	0.0%
0.0%	199.0	0.15	0.0%
0.0%	299.1	0.10	0.0%

	NO	NO_x		NO	NO_x
Slope (m)	1.0004	1.0005	1.05 to 0.95	0.9996	0.9995
Intercept (b)	-0.3478	-0.2544	(≤ ± 10)	0.3496	0.2551
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	0.99999	1.00000
Average % Difference	-0.54%	-0.30%		0.54%	0.30%

Calibrated By Wyndam Lewis

= cell containing equations

Template Revised 7/10/23

Trinity Consultants

NITROGEN DIOXIDE CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME	LNG Kitimat Village	**Date**	5/15/2025	**Start Time**	12:25
PROJECT	244501.0077			**Stop Time**	13:55
SITE OPERATOR	Trinity				

Analyzer Mfg	Teledyne-API	**Anal. Range 0-**	500 **PPB**
Analyzer Model	T200		
Analyzer s/n	8598		

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Audit Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.0 ppm	**Model:**	T701
Serial #:	905	**Serial #:**	DT0046813	**Serial #:**	2555
Cert Date:	12/13/2024	**Certification Date:**	4/4/2024	**Certification Date:**	5/20/2024
		Expiration Date:	4/4/2027		

CAL INPUT	CALC	DAS RESPONSE (Y)	CALCULATED (Y)	% DIFF

	CAL INPUT (X)		CALC ACTUAL	BAR RESPONSE (Y)			CALCULATED (Y) [ORIG]		[REM]		[CONV]	% DIFF
	NO (PPB)	O_3 (PPB)	$[NO_2]_A$ (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO (PPB)	NO_X (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO_2 (% OR PPB)
TITRATION	0.0	0.0	0.0	0.1	0.1	0.0	---	---	---	---	-0.04	0.0 ppb
	300.0	250.0	242.6	56.2	296.7	240.6	299.1	299.3	56.5	296.8	240.14	-0.8%
	300.0	150.0	137.0	161.8	296.3	134.4	299.1	299.3	162.1	296.4	134.14	-1.9%
	300.0	70.0	66.8	232.1	298.8	66.7	299.1	299.3	232.4	298.9	66.37	-0.1%

NO TITRATION

299.2	0.0	---	298.9	299.2	0.3

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9893 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 98.9% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION

Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
-0.1	0.03	0.0%
240.1	0.48	0.1%
135.6	-1.19	-0.2%
66.0	0.68	0.1%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	0.9899	1.05 to 0.95	0.9996	0.9995
Intercept (b)	-0.0644	(≤ ± 10)	0.3496	0.2551
Correlation Coefficent (r)	0.99997	(≥ 0.995)	1.0000	1.0000
Average % Difference	-0.95%		0.54%	0.30%

Calibrated By Wyndam Lewis

= cell containing equations

05/20/2025 - Weekly station check and RT activities

Tuesday, May 20, 2025 1:06 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: 05/20/2025
Start Time: 1239
End Time: 1337
Technician: Nathan McMillan

Reason for Visit

Weekly station check and RT activities

Description

Envidas: Clock was accurate

T700U Calibrator:

-Clock was 70 seconds ahead and was updated at 1310.

T400O3:

-Clock was 69 seconds ahead and was updated at 1312.

T200NOx:

- Clock was 70 seconds ahead and was updated at 1315.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1510 psi and line pressure 30 psi.

05/27/2025 - Weekly station check and RT activities

Tuesday, May 27, 2025 9:53 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: 05/27/2025
Start Time: 0950
End Time: 1028
Technician: Nathan McMillan

Reason for Visit

Weekly station check and RT activities

Description

Envidas: Clock was accurate

T700U Calibrator:

-Clock was 79 seconds ahead and was updated at 0958.

T400O3:

-Clock was 79 seconds ahead and was updated at 1002.

T200NOx:

- Clock was 79 seconds ahead and was updated at 1001.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1500 psi and line pressure 30 psi.
-

06/03/2025 - Weekly station check and RT activities

Tuesday, June 3, 2025 11:24 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: 06/03/2025
Start Time: 1118
End Time: 1159
Technician: Nathan McMillan

Reason for Visit

Weekly station check and RT activities

Description

Envidas: Clock was 2 seconds ahead. Clock updated at 1128.

T700U Calibrator:

-Clock was 83 seconds ahead and was updated at 1130.

T400O3:

-Clock was 81 seconds ahead and was updated at 1134.

T200NOx:

- Clock was 82 seconds ahead and was updated at 1135.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1500 psi and line pressure 30 psi.

06/10/2025 - Weekly station check and RT activities

Tuesday, June 10, 2025 12:26 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: 06/10/2025
Start Time: 1224
End Time: 1253
Technician: Nathan McMillan

Reason for Visit

Weekly station check and RT activities

Description

Envidas: Clock was accurate.

T700U Calibrator:

-Clock was 82 seconds ahead and was updated at 1232.

T400O3:

-Clock was 82 seconds ahead and was updated at 1233.

T200NOx:

- Clock was 82 seconds ahead and was updated at 1234.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1500 psi and line pressure 30 psi.

06/17/2025 - Weekly station check and RT activities

Tuesday, June 17, 2025 10:12 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: 06/10/2025
Start Time: 0958
End Time: 1039
Technician: Nathan McMillan

Reason for Visit

Weekly station check and RT activities

Description

Envidas: Clock was 3 seconds ahead. Updated at 1016.

T700U Calibrator:

-Clock was 80 seconds ahead and was updated at 1018.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Ambient temperature aspirator is working.
- SO2 and NO tank pressure 1490 psi and line pressure 30 psi.
- Shelter temperature 26.1 C, within spec.

06/19/2025 - Inlet filter changes

Thursday, June 19, 2025 7:12 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: June 19, 2025
Start Time: 8:10
End Time: 9:41
Technician: Adrienne Kaul

Reason for Visit

On site to change PUF sample, calibrate PUF sampler, and change inlet filters

Description

Envidas:

-Clock was 3 seconds ahead and was synced at 8:18.

-Windows updates downloaded and installed.

T200 NOx:

-Clock was 1 minute and 43 seconds ahead and was updated at 7:18.

T400 O3:

-Clock was 1 minute and 42 seconds ahead and was updated at 7:20.

T700 Calibrator:

-Clock was 22 seconds ahead and was updated at 8:23.

BAM 1020 PM2.5;

-Clock was 81 seconds ahead and was updated at 7:23.

O3 and NOx data flagged 7:50-8:15

-Analyzer inlet filters replaced with 1-2 um filters.

-160 ppb SO2 running from 8:03-8:11.

-All connections felt tight after filter change.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1460 psi and line pressure 30 psi.

06/25/2025 - Weekly Station Check

Wednesday, June 25, 2025 9:15 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: 06/25/2025
Start Time: 0909
End Time: 1006
Technician: Nathan McMillan

Reason for Visit

Weekly station check

Description

Envidas:

Clock was 1 second ahead. Updated at 0922.

T700U Calibrator:

Clock was 16 seconds ahead and was updated at 0925.

O3-T400:

Clock was 18 seconds ahead. Updated at 0940.

NOx-T200:

Alert-06/24/2025 5:19:26 AM Time Sync Failure

Clock was 18 seconds ahead. Updated at 0943.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1480 psi and line pressure 30 psi.

06/26/2025 - RT Activities

Thursday, June 26, 2025 6:30 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: June 26, 2025
Start Time: 6:23
End Time: 13:58
Technician: Adrienne Kaul, Kayeanna MacKenzie, and Ben Vickers

Reason for Visit

On site to perform RT activities

Description

Envidas:

-Clock was 2 seconds ahead and was synced at 13:41.

T200 NOx:

-Clock was 15 seconds ahead and was synced at 13:43. Clock was 1 second behind after update.

T400 O3:

-Clock was 14 seconds ahead and was synced at 13:44.

T700 Calibrator:

-Clock was 14 seconds ahead and was synced at 13:45. Clock was 1 second behind after update.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Shelter temp reference check: Shelter temp (Envidas)26.3 C Ref temp 26.2 C(ref s/n)11722132 (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1450 psi and line pressure 30 psi.
- T700 alert: 06/24/2025 5:19:13 AM System Reset. Warning raised when system is reset.
- T400 alert: 06/24/2025 5:18:59 AM System Reset. Warning raised when system is reset.
- T200 alert: 06/24/2024 5:19:24 AM System Reset. Warning raised when system is reset.

04/03/2025 - Inlet filter change and N901 Nitrogen tank replacement

Thursday, April 3, 2025 9:13 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: April 3, 2025
Start Time: 9:11;14:03
End Time: 13:48;14:10
Technician: Adrienne Kaul

Reason for Visit

On site to change analyzer inlet filters.

Description

Envidas logger:

-Clock was 3 seconds ahead and was updated at 4/3/2025 9:16:31.

-Downloaded and installed windows updates.

T700U Calibrator:

-Clock was 79 seconds ahead and was updated at 9:28.

T400 O3:

-Clock was 81 seconds ahead and was updated at 9:31.

T200 NOx:

-Clock was 80 seconds ahead and was updated at 9:33.

N901 CH4, NMHC, and THC:

-Clock was 1 second ahead and was updated at 9:34.

-N901 in standby mode at 10:10-11:02.

-New UHP nitrogen tank installed.

-No leaks detected on regulator of N2 and hydrogen tanks, outlet fitting of CH4 tank and 21% Oxygen tank.

Filter changes:

-All supply connections to analyzers, manifold connections, and calibrator output connections felt tight prior to filter change.

-All analyzer data N901 (CH4, NMHC, and THC), T400 (O3), and T200 (NOx) flagged 9:45-10:23 for inlet filter changes.

-SO2 running at 160 ppb 10:08-10:17 to precondition inlet filters.

-All supply connections to analyzers, manifold connections, and calibrator output connections felt tight after filter change.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, CH4, and C3H8 tank pressure 1760 psi and line pressure 30 psi; decreased line pressure.
- CH4 tank pressure 2000 psi and line pressure 35 psi.
- Purafil and Charcoal, and dryer mol sieve on site. No replacement pads for scrubbers. No T200 and T400 annual maintenance kits.
- Nitrogen (N901) tank pressure 200 psi and line pressure 65 psi. Removed. Lot number 133501603
- Hydrogen (N901) tank pressure 1250 psi and line pressure 52.5 psi.
- New Nitrogen tank pressure 2575 psi and line pressure 65 psi. Installed. Lot number 133506501.
- Dropped off cylinder cart at site.

04/08/2025 - Weekly site check

Tuesday, April 8, 2025 8:40 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: April 8, 2025
Start Time: 8:38
End Time: 9:25
Technician: Adrienne Kaul

Reason for Visit

On site for weekly station check

Description

Envidas:

-Clock accurate, no adjustment made

-Logger restarted at 8:45 to allow updates to take effect.

T700U Calibrator:

-Clock was 56 seconds ahead and adjusted at 8:59.

HVAC:

-Turned down baseboard heater.

T400 O3:

-Clock was 57 seconds ahead and was updated at 9:12.

T200 NOx:

-Clock was 55 seconds ahead and was updated at 9:13. Clock was 1 second behind after update.

N901 CH4, THC, and NMHC:

-Clock was 2 seconds behind and was updated at 9:15.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, CH4, NO, C3H8 tank pressure 1750 psi and line pressure 31 psi.
- CH4 tank pressure 2000 psi and line pressure 35 psi.
- Nitrogen tank pressure 2350 psi and line pressure 65 psi.
- Hydrogen tank pressure 1160 psi and line pressure 50 psi.

04/10/2025 - O3 analyzer troubleshooting

Thursday, April 10, 2025 8:34 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: April 10, 2025
Start Time: 8:30
End Time: 9:32
Technician: Adrienne Kaul

Reason for Visit

On site to investigate T400 O3 flatlined readings.

Description

Envidas:

-Clock accurate.

T400 O3:

-Clock was 3 seconds ahead and updated at 8:39-8:53.

-Data flagged to maintain 8:40- for photodetector adjustment.

-Photodetector voltage adjusted from 2505.4 mV to 4598.8 mV.

-No adjustments made. Photodetector voltage does not affect analyzer readings and a calibration after photodetector voltage adjustment is not required by the manufacturers operational manual.

-A precautionary multipoint calibration ZPS 11 started at 9:03. Calibration showed passing results

T200 NOx:

-Clock was 23 seconds ahead and was updated at 9:10.

N901 CH4, THC, and NMHC:

-Clock was 1 second behind and was updated 9:11-9:12.

T700U Calibrator:

-Clock was 22 seconds ahead and was updated at 9:13.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Hydrogen tank pressure 1140 psi and line pressure 50 psi.
- Nitrogen tank pressure 2300 psi and line pressure 65 psi.
- CH4 tank pressure 2000 psi and line pressure 36 psi.
- SO2, NO, CH4, C3H8 tank pressure 1760 psi and line pressure 30 psi.

KitimatRive...
2025-0410

Trinity Consultants

OZONE CALIBRATION SHEET

After Maintenance Multi-point Verification

SITE NAME LNG Kitimat Riverlodge
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 4/10/2025 **Start Time** 9:13 **Stop Time** 10:13

Analyzer Mfg Teledyne-API
Analyzer Model T400
Analyzer s/n 7487

Anal. Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	N/A	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	N/A	**Model:**	T701
Serial #:	906	**Serial #:**	N/A	**Serial #:**	2556
Cert Date:	10/21/2024	**Certification Date:**	N/A	**Certification Date:**	5/16/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard
m: 1
b: 0
r:
Calibration Date:

INPUT (Txfr Standard) Raw Input (PPB)	INPUT (Txfr Standard) Corrected (X) (PPB)	RESPONSE (Y) (PPB)	RESPONSE % DIFF.	BEST-FIT DETERMINATION Predicted (Y)	BEST-FIT DETERMINATION Residual (PPB)	BEST-FIT DETERMINATION Residual (<2% Full Scale)
0.0	0.0	1.0	/	0.7	0.26	0.1%
40.3	40.3	41.5	2.78%	41.4	0.05	0.0%
90.1	90.1	90.8	0.78%	91.6	-0.83	-0.2%
149.4	149.4	151.2	1.20%	151.5	-0.28	-0.1%
250.2	250.2	252.8	1.04%	253.2	-0.40	-0.1%
399.9	399.90	404.4	1.13%	404.3	0.12	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	1.009	1.05 to 0.95
Intercept(b)	0.700	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	1.38%	

COMMENTS
Verification following flatlined readings.

Calibrated By Adrienne Kaul

= cell containing equations

04/17/2025 - Weekly station check

Thursday, April 17, 2025 9:02 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: April 17, 2025
Start Time: 8:55
End Time: 10:30
Technician: Adrienne Kaul

Reason for Visit

On site for weekly station inspection.

Description

Envidas:

-Clock was 1 second ahead and was synced at 9:15.

-Windows updates downloaded.

-Computer restarted at around 9:48 to allow updates to take effect.

T700U Calibrator:

-Clock was 81 seconds ahead and was updated at 9:19.

N901 CH4, NMHC and THC:

-Clock was 32 seconds ahead and was updated at 9:41. Clock was 1 second ahead after update.

T200 NOx:

-Clock was 21 seconds ahead and was updated at 9:43.

T400 O3:

-Clock was 84 seconds ahead and was updated at 9:45. Clock was 1 second behind after update

Site maintenance:

-String trimming around site from 9:59-10:23/

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, CH4, NO, C3H8 tank pressure 1750 psi and line pressure 30 psi.
- UHP Nitrogen 2050 psi and line pressure 65 psi.
- Hydrogen tank pressure 1000 psi and line pressure 50 psi.
- CH4 tank pressure 2000 psi and line pressure 36 psi.

04/23/2025 - Supply pick-up

Wednesday, April 23, 2025 1:04 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: April 23, 2025
Start Time: 13:03
End Time: 13:08
Technician: Adrienne Kaul

Reason for Visit

On site to look for T701 supplies

Description

HVAC:

-Decreased baseboard setpoint

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

04/24/2025 - Weekly station check

Thursday, April 24, 2025 1:02 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: April 24, 2025
Start Time: 12:55
End Time: 13:31
Technician: Adrienne Kaul

Reason for Visit

On site for weekly station check.

Description

Envidas:

-Clock was 1 second ahead and was synced at 13:13.

G2205 HF:

-Clock was 21 seconds behind and was updated at 13:15.

43i SO2:

-Clock was 1 second ahead and was updated at 13:16.

BAM 1020 PM10:

-Clock was 90 seconds ahead and no adjustment was made.

BAM 1020 PM2.5:

-Clock was 84 seconds ahead and no adjustment was made.

N901 CH4, NMHC, and THC:

-Clock was 83 seconds ahead and was updated at 13:19. Clock was 1 second behind after update.

T200 NOx:

-Clock was 80 seconds ahead and was updated at 13:21.

T400 O3:

-Clock was 82 seconds ahead and was updated at 13:22.

Miscellaneous site maintenance:

-Cut mountain ash growing up under station front step.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Nitrogen tank pressure 1900 psi and line pressure 32.5 psi.
- SO2, NO, C3H8, and CH4 tank pressure 1500 psi and line pressure 30 psi.
- Oxygen 21% tank pressure 490 psi and line pressure 30 psi; new tank has been ordered.
- Nitrogen tank pressure 1780 psi and line pressure 65 psi.

- Hydrogen tank pressure 875 psi a0nd line pressure 50 psi.; Need to order new hydrogen tank for site.
- Oxygen 10% tank pressure 1050 psi and line pressure 30+ psi.
- Station temperature 26.8 C, within spec.
- HF inlet heater 60 C at 13:07.
- Ambient temperature aspirator is working.
- Wind speed and direction sensors appear to be working normally.

04/25/2025 - MFCs and transfer check

Friday, April 25, 2025 8:26 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: April 25, 2025
Start Time: 8:13; 15:32
End Time: 12:03; 16:30
Technician: Adrienne Kaul

Reason for Visit

On site for MFCs and transfer check

Description

T400 O3 transfer standard powered on at 8:25. Power cycled at 8:33.

Analyzer data flagged to maintain. 8:53-11:49 for MFCs on T700U
-Dilutant as found: 0.97% and Calibration as found: 0.82%.
-Adjustments made to dil and cal MFCs.
-Dilutant after adjustment: 0.97% and Calibration after adjustment: 0.82%.

Ozone MP and transfer check started at 11:48.
-Passing as found calibrator and site analyzer checks. No adjustments made.

Data flagged 15:34-15:36. Flag can be removed as no work was done in this interval.

Analyzer data flagged 15:52-15:54 to remove transfer standard.
-All connections to NOx and O3 analyzers felt tight after transfer standard was removed.

Envidas:
-Clock was 4 seconds ahead and was synced at 16:09.
T200 NOx:
-Clock was 14 seconds ahead and was updated at 16:12.
T400 O3:
-Clock was 14 seconds ahead and was updated at 16:13.
T700U Calibrator:
-Clock was 97 seconds ahead and was updated at 16:15.
N901 CH4, NMHC, and THC:
-Clock was 14 seconds ahead and was updated at 16:18.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [x] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____
  (Criteria +/- 2.0 degrees Celsius)

- [x] Annual Maintenance

Site Observations

- SO2, NO, C3H8, and CH4 tank pressure 1740 psi and line pressure 30 psi.
- CH4 tank pressure 2000 psi and line pressure 36 psi.
- Nitrogen tank pressure 1730 psi and line pressure 65 psi.
- Hydrogen tank pressure 850 psi and line pressure 50 psi.
- Ambient temperature aspirator is working.
- Wind speed and direction sensors appear to be working normally.

KitimatRive... 2025-0425

Trinity Consultants

CALIBRATOR OZONE CHECK SHEET

AS FOUND

SITE NAME	Kitimat Riverlodge	**Date**	4/25/2025	**Start Time**	11:59
PROJECT	244501.0077			**Stop Time**	12:59
SITE OPERATOR	Trinity Consultants				

Analyzer Mfg	T-API	**Anal. Range 0-**	500 **PPB**
Analyzer Model	T700U		
Analyzer s/n	906		

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	T-API	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	T400	**Model:**	T701
Serial #:	906	**Serial #:**	5996	**Serial #:**	2556
Cert Date:	N/A	**Certification Date:**	2/28/2025	**Certification Date:**	5/16/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard

m:	1.001
b:	-0.8323
r:	1.0000
Calibration Date:	2/28/2025

Transfer **Calibrator**

INPUT (Txfr Standard) Raw Input (PPB)	INPUT (Txfr Standard) Corrected (X) (PPB)	RESPONSE (Y) (PPB)	RESPONSE % DIFF.	BEST-FIT DETERMINATION Predicted (Y)	BEST-FIT DETERMINATION Residual (PPB)	BEST-FIT DETERMINATION Residual (<2% Full Scale)
-0.9	-0.1	0.0	/	0.9	-0.86	-0.2%
39.1	39.9	40.4	1.07%	40.2	0.16	0.0%
89.0	89.7	90.4	0.73%	89.2	1.23	0.2%
150.2	150.9	150.1	-0.52%	149.3	0.82	0.2%
252.2	252.8	249.5	-1.30%	249.5	0.04	0.0%
404.8	405.23	399.2	-1.49%	399.3	-0.14	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	0.983	1.05 to 0.95
Intercept(b)	0.943	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	-0.30%	

COMMENTS

No adjustments made

Calibrated By Adrienne Kaul

= cell containing equations

KitimatRive...
2025-0425

Trinity Consultants

OZONE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME	LNG Kitimat Riverlodge	**Date**	4/25/2025	**Start Time**	11:59
PROJECT	244501.0077			**Stop Time**	12:59
SITE OPERATOR	Trinity				

Analyzer Mfg	Teledyne-API	**Anal. Range 0-**	500 **PPB**
Analyzer Model	T400		
Analyzer s/n	7487		

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	N/A	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	N/A	**Model:**	T701
Serial #:	906	**Serial #:**	N/A	**Serial #:**	2556
Cert Date:	4/25/2025	**Certification Date:**	N/A	**Certification Date:**	5/16/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard

m:	1
b:	0
r:	
Calibration Date:	

INPUT (Txfr Standard) Raw Input (PPB)	INPUT (Txfr Standard) Corrected (X) (PPB)	RESPONSE (Y) (PPB)	RESPONSE % DIFF.	BEST-FIT DETERMINATION Predicted (Y)	BEST-FIT DETERMINATION Residual (PPB)	BEST-FIT DETERMINATION Residual (<2% Full Scale)
0.0	0.0	0.1	/	0.1	0.05	0.0%
40.0	40.0	40.7	1.88%	40.4	0.25	0.1%
89.9	89.9	90.9	1.11%	90.9	-0.01	0.0%
150.0	150.0	151.7	1.13%	151.6	0.07	0.0%
249.6	249.6	252.9	1.32%	252.3	0.65	0.1%
399.5	399.50	403.6	1.03%	403.7	-0.10	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	1.010	1.05 to 0.95
Intercept(b)	0.085	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	1.29%	

COMMENTS

No adjustments made.

Calibrated By Adrienne Kaul

= cell containing equations

Riverlodge
2025-0425

MFC FLOW CHECK SHEET-AS FOUND

Date: 4/25/25 **Temp (C): 24.5**

Time: 9:01 **Pressure (mmHg): 762**

Location: Riverlodge MFC #: DIL1

Model: API T700U Serial Number: 906 Corr factor: n/a

Point #				BIOS lpm	Station lpm	percent difference
1				0.512	0.540	5.47%
2				1.068	1.089	1.97%
3				1.617	1.639	1.35%
4				2.166	2.182	0.75%
5				2.710	2.729	0.69%
6				3.255	3.277	0.69%
7				3.799	3.819	0.53%
8				4.347	4.360	0.31%
9				4.875	4.902	0.56%
10				5.416	5.431	0.27%
11				5.962	5.989	0.45%
12				6.478	6.532	0.84%
13				7.015	7.063	0.68%
14				7.536	7.583	0.62%
15				8.062	8.125	0.78%
16				8.587	8.651	0.74%
17				9.141	9.202	0.67%
18				9.670	9.738	0.71%
19				10.202	10.276	0.73%
20				10.724	10.784	0.56%
						0.97%

Comments: BIOS s/n 140792 Average % Diff

Definer 220-H

0 - 10 LPM STD temp 25

Technician: Adrienne Kaul

MFC FLOW CHECK SHEET-AFTER ADJUSTMENT

Date: 4/25/25 Temp (C): 24.6

Time: 9:01 Pressure (mmHg): 762

Location: Riverlodge MFC #: DIL1

Model: API T700U Serial Number: 906 Corr factor: n/a

Point #				BIOS lpm	Station lpm	percent difference
1				0.510	0.512	0.36%
2				1.057	1.068	1.01%
3				1.603	1.617	0.85%
4				2.147	2.166	0.88%
5				2.685	2.710	0.95%
6				3.224	3.255	0.96%
7				3.767	3.799	0.85%
8				4.309	4.347	0.88%
9				4.848	4.875	0.55%
10				5.373	5.416	0.81%
11				5.912	5.962	0.85%
12				6.458	6.478	0.32%

13				6.984	7.015	0.45%
14				7.511	7.536	0.33%
15				8.039	8.062	0.28%
16				8.564	8.587	0.27%
17				9.102	9.141	0.43%
18				9.632	9.670	0.39%
19				10.179	10.202	0.23%
20				10.680	10.724	0.41%
Comments:						0.60%
	BIOS s/n	140792				Average % Diff
	Definer 220-H					
	0 - 10 LPM			STD temp	25	
Technician:	Adrienne Kaul					

MFC FLOW CHECK SHEET-AS FOUND

Date:	4/25/25	Temp (C):	26.2	Correction Calculation:		Flow Calculation:
Time:	10:09	Pressure:	759 mmHg	(P-Pv) *	298	vol * corr factor
Location:	Riverlodge	MFC #:	CAL1	29.92	273 + T	time
Model:	API T700U	Serial Number:	906	Corr factor:	n/a	
Point #			Changed? *	BIOS (cc/min)	Station (cc/min)	percent difference
1				5.087	5.3	4.19%
2				10.617	10.8	1.72%
3				16.094	16.3	1.28%
4				21.487	21.7	0.99%
5				26.864	27.0	0.51%
6				32.158	32.2	0.13%
7				37.492	37.5	0.02%
8				42.611	42.7	0.21%
9				47.853	47.9	0.10%
10				52.974	53.2	0.43%
11				58.243	58.5	0.44%
12				63.430	63.7	0.43%
13				68.495	68.9	0.59%
14				73.810	74.2	0.53%
15				78.944	79.5	0.70%
16				84.519	85.9	1.63%
17				90.161	90.7	0.60%
18				95.607	96.1	0.52%
19				101.550	102.6	1.03%
20				107.310	107.6	0.27%
Comments:						0.82%
	BIOS s/n	140619				Average % Diff
	Definer 220-L					
	0 - 100 cc			STD Temp	25	
Technician:	Adrienne Kaul					

MFC FLOW CHECK SHEET-AFTER ADJUSTMENT

Date:	4/25/25	Temp (C):	24.8	Correction Calculation:		Flow Calculation:
Time:	10:09	Pressure:	759 mmHg	(P-Pv) *	298	vol * corr factor
Location:	Riverlodge	MFC #:	CAL1	29.92	273 + T	time
Model:	API T700U	Serial Number:	906	Corr factor:	n/a	

Point #			Changed? *	BIOS (cc/min)	Station (cc/min)	percent difference
1				5.052	5.1	0.96%
2				10.653	10.6	-0.50%
3				16.146	16.1	-0.28%
4				21.478	21.5	0.10%
5				26.795	26.9	0.39%
6				32.056	32.2	0.45%
7				37.375	37.5	0.33%
8				42.314	42.6	0.68%
9				47.732	47.9	0.35%
10				52.858	53.0	0.27%
11				58.131	58.2	0.12%
12				63.481	63.4	-0.13%
13				68.724	68.5	-0.33%
14				73.980	73.8	-0.24%
15				79.218	78.9	-0.40%
16				84.733	84.5	-0.27%
17				89.946	90.2	0.28%
18				95.739	95.6	-0.15%
19				101.510	101.6	0.09%
20				107.370	107.3	-0.07%

Comments:					0.08%
	BIOS s/n	140619			Average % Diff
	Definer 220-L				
	0 - 100 cc		STD Temp	25	
Technician:	Adrienne Kaul				

04/29/2025 - RT activities

Tuesday, April 29, 2025 12:50 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: April 29, 2025
Start Time: 12:50; 15:36
End Time: 15:46; 16:41
Technician: Adrienne Kaul

Reason for Visit

On site for weekly site check and RT activities

Description

Envidas:

-Clock was 1 second ahead and synced at 12:53.

T200 NOx:

-Clock was 43 seconds ahead and updated at 12:56. Clock was 1 second behind following update.

T400 O3:

-Clock was 44 seconds ahead and updated at 12:57. Clock was 1 second behind following update.

N901 CH4, NMHC, and THC:

-Clock was 45 seconds ahead and updated at 12:59.

T700U Calibrator:

-Clock was 44 seconds ahead and was updated at 13:05.

Analyzer data flagged 13:09-14:32 for RT activities

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter temperature 25.6 C, within spec.
- SO2, NO, C3H8, and CH4 tank pressure 1740 psi and line pressure 30 psi.
- CH4 tank pressure 2000 psi and line pressure 36 psi.
- Nitrogen tank pressure 1590 psi and line pressure 65 psi.
- Hydrogen tank pressure 1275 psi and line pressure 50 psi.
- Ambient temperature aspirator sounds to be working normally.
- Wind speed and direction sensors appear to be working normally.

05/09/2025 - NOx/THC As Found MPs

Monday, May 12, 2025 12:06 PM

Riverlodge

Author of Entry: Wyndam Lewis

Date of Activity: 5/9/25
Start Time: 750
End Time: 930
Technician: WL

Reason for Visit

Obtain the latest NO2 targets from the T700 calibrator.
Also perform THC as found MP verification
Also perform RT activities

Description

NOx/THC as found MP verifications

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

KitimatRive...
2025-0509

Trinity Consultants

NITROGEN OXIDES CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge | **Date** 5/9/2025 | **Start Time** 7:57
PROJECT 244501.0077 | **Stop Time** 9:27
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API | **Anal. Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8599

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 906
Cert Date: 10/21/2024

Audit Gas: Linde
Concentration: 10.42 ppm
Serial #: CC748570
Certification Date: 7/8/2024
Expiration Date: 7/8/2027

Zero Air Source: T-API
Model: T701
Serial #: 2556
Certification Date: 5/16/2024

INPUT (X)	RESPONSE (Y)			NO	NO BEST-FIT DETERMINATION		
NO (PPB)	NO (PPB)	NO_2 (PPB)	NO_X (PPB)	% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.0	0.0	0.0	/	-0.7	0.71	0.1%
40.1	39.5	0.0	39.4	-1.4%	39.4	0.03	0.0%
89.9	88.9	0.2	89.1	-1.1%	89.4	-0.51	-0.1%
140.0	139.1	-0.2	138.9	-0.6%	139.6	-0.53	-0.1%
200.1	199.6	-0.3	199.2	-0.2%	199.9	-0.28	-0.1%
300.1	300.7	0.6	301.2	0.2%	300.1	0.58	0.1%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: All points within ±2% of calibration range of best-fit straight line

NO_X	NO_X BEST-FIT DETERMINATION		
% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-0.8	0.78	0.2%
-1.5%	39.4	0.07	0.0%
-0.9%	89.4	-0.28	-0.1%
-0.8%	139.6	-0.75	-0.1%
-0.4%	199.9	-0.75	-0.1%
0.4%	300.3	0.92	0.2%

	NO	NO_x		NO	NO_x
Slope (m)	1.0024	1.0033	1.05 to 0.95	0.9976	0.9966
Intercept (b)	-0.7071	-0.8217	(≤ ± 10)	0.7084	0.8245
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	0.99999	0.99998
Average % Difference	-0.65%	-0.66%		0.73%	0.81%

Calibrated By Wyndam Lewis

= cell containing equations

Template Revised 7/10/23

Trinity Consultants

NITROGEN DIOXIDE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge | **Date** 5/9/2025 | **Start Time** 7:57

PROJECT 244501.0077 Stop Time 9:27

SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API Anal. Range 0- 500 PPB

Analyzer Model T200

Analyzer s/n 8599

CALIBRATION EQUIPMENT:

Calibrator:	T-API	Audit Gas:	Linde	Zero Air Source:	T-API
Model:	T700U	Concentration:	10.42 ppm	Model:	T701
Serial #:	906	Serial #:	CC748570	Serial #:	2556
Cert Date:	10/21/2024	Certification Date:	7/8/2024	Certification Date:	5/16/2024
		Expiration Date:	7/8/2027		

	CAL INPUT (X)		CALC ACTUAL	DAS RESPONSE (Y)			CALCULATED (Y) [ORIG]		[REM]		[CONV]	% DIFF
	NO (PPB)	O_3 (PPB)	$[NO_2]_A$ (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO (PPB)	NO_X (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO_2 (% OR PPB)
TITRATION	0.0	0.0	0.0	0.0	0.0	0.0	---	---	---	---	-0.04	0.0 ppb
	300.0	250.0	290.4	9.6	299.9	290.2	300.7	301.0	10.3	299.7	289.09	-0.1%
	300.0	150.0	175.5	124.8	297.7	173.0	300.7	301.0	125.2	297.5	171.98	-1.4%
	300.0	70.0	83.4	217.1	300.6	83.5	300.7	301.0	217.3	300.4	82.80	0.1%

NO TITRATION

300.1	0.0	---	300.7	301.2	0.6	

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9975 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 99.8% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION		
Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
-0.3	0.25	0.0%
289.3	0.87	0.2%
174.7	-1.72	-0.3%
82.9	0.61	0.1%

Criteria: All points within ±2% of calibration range of best-fit straight line

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	NO_2		NO	NO_x
Slope (m)	0.9974	1.05 to 0.95	0.9976	0.9966
Intercept (b)	-0.2871	(≤ ± 10)	0.7084	0.8245
Correlation Coefficent (r)	0.99996	(≥ 0.995)	1.0000	1.0000
Average % Difference	-0.45%		0.73%	0.81%

Calibrated By Wyndam Lewis = cell containing equations

KitimatRive... 2025-0509

Trinity Consultants

METHANE, NON-METHANE, TOTAL HYDROCARBON CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge | **Date** 5/9/2025 | **Start Time** 7:57
PROJECT 244501.0077 | **Stop Time** 9:27
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API | **Anal. Range 0-** 20 **PPM**
Analyzer Model N901
Analyzer s/n 80

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 906
Cert Date: 10/21/2024

Audit Gas: Linde
Concentration: 616 ppm
Serial #: CC748570
Certification Date: 7/8/2024
Expiration Date: 7/8/2027

Zero Air Source: T-API
Model: T701
Serial #: 2556
Certification Date: 5/16/2024

METHANE			NON-METHANE HYDROCARBON			TOTAL HYDROCARBON		
CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.
0.000	0.000	---	0.000	0.094	---	0.000	0.094	---
2.368	2.474	4.5%	2.296	2.441	6.3%	4.664	4.915	5.4%
5.317	5.529	4.0%	5.156	5.390	4.5%	10.470	10.920	4.3%
8.270	8.540	3.3%	8.020	8.410	4.9%	16.300	16.950	4.0%
11.830	12.170	2.9%	11.470	12.030	4.9%	23.300	24.210	3.9%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	CH_4	NMHC	THC	
Slope (m)	1.028	1.041	1.035	1.05 to 0.95
Intercept (b)	0.029	0.061	0.089	(≤ ± 10)
Correlation Coefficent (r)	1.0000	1.0000	1.0000	(≥ 0.995)
Average % Difference	3.65%	5.15%	4.39%	

Calibrated By Wyndam Lewis

= cell containing equations

05/14/2025 - Inlet filter changes

Wednesday, May 14, 2025 8:04 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: May 14, 2025
Start Time: 7:50
End Time: 15:20
Technician: Adrienne Kaul

Reason for Visit

On site to perform calibration

Description

Envidas:

-Clock 2 seconds ahead and synced at 9:31.

T700U Calibrator:

-Clock was 1 minute and 39 seconds ahead and updated at 9:35-9:36

T200 NOx:

-Clock is one minute and 47 seconds ahead and was updated at 9:45-9:46. T400 O3:

T400 O3:

-Clock is one minute and 40 seconds ahead and was updated at 9:47.

N901 CH4, NMHC, THC:

-Clock is 1 second ahead and was updated 9:48-9:49.

-Analyzer set to sync every two hours and no further clock adjustments should be necessary.

-Flame-out due to T701 and T700U maintenance activities.

-Exited standby mode at 11:31 and back sampling at 11:33.

T200, T400, and N901 data flagged 10:04-11:56

-All accessible connections to analyzers, calibrator and within manifold felt tight prior to filter change.

-New 1-2um filters installed on T400 and T200 analyzers

-All accessible connections to analyzers, calibrator and within manifold felt tight after filter change.

-Attempted to run 400 ppb O3 running at 11:01 but no ozone was generated due to low lamp voltage.

-O3 ran at 400 ppb at 11:34-11:45.

-Analyzer read 400.7 ppb with 399.5 ppb supplied by calibrator

-Washed, dried and re-installed bug screen on analyzer roof-top inlet.

T700U:

-Lamp bench voltage is too low.

-Dilutant in line disconnected.

-Bench voltage adjusted from ~2721.0 mV to 4619.6 mV and alerts resolved.

-Dilutant in line reconnected. No leaks detected at back of calibrator or at HF calibration system connection.

T701:

-Zero air generator powered off at 11:23 and back on at 11:30.

Site Visit Checklist

- ☑ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☑ Zero air system pressure at 30 PSI
- ☑ Calibration gas cylinder pressure at 30 PSI
- ☑ Calibration gas tank pressure > 500 PSI
- ☑ Check for analyzer warnings: _____
- ☑ Check for calibrator warnings: See below

- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [x] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- T700U alert: 05/06/2025 - 6:18:20 AM System Reset warning raised when system is reset.
- T200 alert: 05/06/2025 - 6:18:22 AM System Reset. Warning raised when system is reset.
- T400 alert: 05/06/2025 - 6:18:09 AM System Reset. Warning raised when system is reset.
- SO2, NO, CH4, C3H8 tank pressure 1700 psi and line pressure 30 psi.
- O2 10% tank pressure 1550 psi and line pressure 30+ psi.
- Inlet teflon inspected; teflon is in good condition with no noticeable build up of debris or dust.
- Two nitrogen and one hydrogen cylinder removed from site. Two new hydrogen and one new nitrogen brought into the station for LNGC use.
- Left rack slides at site for installation with sliding shelf for PM10 unit. Need to order General Devices part B-308 to adapt rack to work with the slides.

05/16/2025 - T701 annual servicing

Friday, May 16, 2025 8:29 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: May 16, 2025
Start Time: 8:52
End Time: 14:18
Technician: Adrienne Kaul

Reason for Visit

On site for T701 servicing.

Description

NMHC, THC, and CH4 N901:

-Flagged to maintain 8:58-13:22
-Unit put in standby mode at 8:59.
-Re-ignited flame at 13:08.
-Unit appeared to be reading accurately at 13:21; flag could potentially be removed a couple of minutes earlier.
-Unit in standby at 13:31 and restarted after T701 put in RH override mode.
-Data flagged 13:31-13:37.
-Clock was 1 second ahead and was synced at 13:59.

T701:

-Powered off at 8:59.
-Pressure 54.25 psi at 9:40. Pressure at 50.75 psi at 9:51.
-Leak tested unit and found a leak upstream of the hydrocarbon scrubber. Two bad ferrules (spinning on tubing) found on copper tubing. Replaced brass ferrule (cut copper pipe shorter to cut off bad piece) and tightened stainless steel ferrule. Both ferrules felt tight after maintenance; no leaks were detected with snoop solution. **This leak was outward, downstream of T701 pressurized internal tank, not inward and would not have affected any THC analyzer reading or with any calibrations performed on site.**
-Pressure 57.5 psi at 11:13 and 57.5 at 11:19 with tubing to charcoal and purafil scrubbers capped.
-Replaced charcoal and purafil scrubbers, retainer pads and o-rings. Replaced tubing between charcoal and purafil scrubbers.
-Leak tested entire T701 unit by capping the T701 outlet line and RH sensor outlets: pressure was 53.25 psi at 12:37 and 53.25 psi at 12:47; passing result.
-Repeat leak tested entire T701 unit with T701 outlet line and RH sensor outlet: pressure was 55.5 psi at 12:55 and 55.5 and 13:01.
-Reconnected outlet line and RH sensor line.
-Set T701 outlet pressure to 50 psi to supply N901 with required pressure.
-Unit appears to be cycling on less frequently and is quieter after maintenance activities.
-RH alarm started and unit put in RH override mode at approximately 13:34.
-No leak detected on outlet line of T701 and connection to t fitting.

Envidas:

-Clock was 1 second ahead and was synced at 13:55.

T200 NOx:

-Clock was 25 seconds ahead and was updated at 13:57.

T400 O3:

-Clock was 26 seconds ahead and was updated at 13:58.

T700U Calibrator:

-Clock was 25 seconds ahead at was updated at 14:00.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [x] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter temperature 26.7 C, within spec.
- SO2, NO, CH4, C3H8 tank pressure 1700 psi and line pressure 30 psi.
- CH4 tank pressure 2000 psi and line pressure 35 psi.
- Hydrogen tank pressure 475 psi and line pressure 50 psi.
- Nitrogen tank pressure aux 980 psi and line pressure increased from approximately 65 psi to 70 psi to meet manual requirements for N901 at 14:07.

05/21/2025 - N901 Air pressure alert investigation

Wednesday, May 21, 2025 8:49 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: May 21, 2025
Start Time: 8:44; 12:32; 14:24
End Time: 10:45; 12:34; 15:20
Technician: Adrienne Kaul

Reason for Visit

N901 air pressure alert investigation.

Description

T701 Zero air generator:

-Outlet pressure was found to be at 44 psi; this is below the required 50 psi for all analyzers and calibrator connected to the system.

-Leak test unit powered off 14:45-15:02

-Unit pressure 51.5 psi at 14:50 and 51.5 at 14:56 with RH line and outlet capped. Passing result no significant unit leaks.

-Leak tested RH sensor t-fitting and no leak was detected.

-No leaks detected in T-701 outlet line.

-Leak tested T701 outlet

-Unit powered on at 15:02.

-T701 outlet pressure 50.5 psi.

N901 CH4, THC, and NMHC:

-Unit restarted at 8:50 after zero air output increased.

-Unit appeared to be operating normally at 8:53 and invalid data flags for CH4, THC, and NMHC reset at 8:54.

-Clock was accurate within 1 second, no adjustment was made.

-Data flagged 14:45-15:05; data appeared to be dynamic around 15:11

-Unit re-ignition triggered at 15:02

Envidas:

-Clock was 2 seconds ahead and time was synced at 9:10.

-Windows updates downloaded at 9:10.

T200 NOx:

-Clock was 55 seconds ahead and was updated at 9:13.

T400 O3:

-Clock was 56 seconds ahead and was updated at 9:16.

T700U Calibrator:

-Clock was 56 seconds ahead and was updated at 9:18.

N901, T200 and T400 analyzer data flagged 10:09-10:12 for RT activities.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)

- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- N901: Air Pressure Alert. *This is for FID air input (zero air from T701).*
- SO2, NO, CH4, C3H8 tank pressure 1700 psi and line pressure 30 psi.
- CH4 tank pressure 2000 psi and line pressure 36 psi.
- Nitrogen tank pressure 800 psi and line pressure 70 psi.
- Hydrogen tank pressure 400 psi and line pressure 50 psi; new tank is on site but will be installed next week to use remaining gas in installed tank.

05/29/2025 - N901 outage check and new H2 tank install

Thursday, May 29, 2025 - 9:28 AM

Riverdale

Author of Entry: Adrienne Kaul

Date of Activity: 05/29/2025
Start Time: 9:22
End Time: 11:15
Technician: Adrienne Kaul

Reason for Visit

On site for weekly site check and N901 outage

Description

Envidas:

-Clock accurate.

-Windows updates downloaded.

N901 CH4/NMHC/THC:

-Hydrogen inlet pressure was increased at 9:52 from 50 to 60 psi.

-Flame restart procedure was run at 9:52 and was successful. Back in operation at 10:00 am

-Clock was accurate.

-Entered standby at 10:28.

-Old hydrogen tank 206 4309 02 removed

-New hydrogen tank 206 4082 02 installed. Regulator purged. All regulator and regulator outlet fittings tested and no leak was detected. Initial tank pressure was 2420 psi and line pressure was set to 55 psi.

-Exited standby mode at 10:41. Data should be flagged to maintain 10:28-~10:43 (whenever data became dynamic).

T700U Calibrator:

-Clock was 1 minute and 32 seconds ahead and was updated at 10:04.

T200 NOx:

-Clock was 91 seconds ahead and was updated at 10:06.

T400 O3:

-Clock was 1 minute and 33 seconds ahead and was updated at 10:07.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, C3H8, and CH4 tank pressure 1700 psi and line pressure increased from 25 to 30 psi.
- CH4 tank pressure 2000 and line pressure 35 psi.

- Nitrogen tank pressure 500 psi and line pressure 70 psi
- Hydrogen tank pressure 150 psi and line pressure increased from 50 to 60 psi.

06/06/2025 - Weekly station check

Friday, June 6, 2025 1:47 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: June 6, 2025
Start Time: 13:46
End Time: 15:11
Technician: Adrienne Kaul

Reason for Visit

On site for weekly site check

Description

Envidas logger:

-Clock was 2 seconds ahead and was updated at 13:56.

T200 NOx:

-Clock was 94 seconds ahead and was updated at 13:55-13:56

T400 O3:

-Clock was 94 seconds ahead and was updated at 13:58.

N901 CH4, NMHC, and THC:

-Clock accurate.

-Instrument put in standby mode at 14:13 and data flagged to maintain in Envidas 14:15-14:46.

-Old Nitrogen cylinder was uninstalled 133501506 final pressure 200 psi.

-New Nitrogen cylinder was installed SN: 133508503. Initial pressure 2600 psi and line pressure set to 70 psi.

-No leaks detected in fittings in regulator and outlet line.

T700U Calibrator:

-Clock was 95 seconds ahead and was updated at 14:01.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO C3H8, and CH4 tank pressure 1690 psi and line pressure 32 psi.
- CH4 tank pressure 2000 psi and line pressure 36 psi.
- Nitrogen tank pressure 200 psi and line pressure 72.5 psi
- Hydrogen tank pressure 2260 psi and line pressure 55 psi.

06/12/2025 - Weekly site check

Thursday, June 12, 2025 11:40 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: June 12, 2025
Start Time: 11:35
End Time: 12:37
Technician: Adrienne Kaul

Reason for Visit

Weekly site inspection

Description

Envidas:

-Clock accurate within 1 second.

T200 NOx:

-Clock was 67 seconds ahead and was updated at 12:03.

T400 O3:

-Clock was 69 seconds ahead and was updated at 12:05.

N901 CH4/NMHC/THC:

-Clock accurate.

T700U Calibrator:

-Clock was 67 seconds ahead and was updated at 12:07.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, CH4, C3H8 tank pressure 1700 psi and line pressure 33 psi.
- CH4 tank pressure 2000 psi and line pressure 35 psi.
- Nitrogen tank pressure 2290 psi and line pressure 71 psi.
- Hydrogen tank pressure 2150 psi and line pressure 55 psi.
- Need to create storage area for spare N2 and H2 cylinders for LNGC cylinders.

06/25/2025 - RT Activities and weekly site check

Thursday, June 19, 2025 1:11 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: Jun 25, 2025
Start Time: 6:43
End Time: 15:05
Technician: Adrienne Kaul, Kayeanna MacKenzie, and Sarah Peden

Reason for Visit

Meteorological sensor calibration

Description

Envidas logger:

-Clock was 1 second ahead and was synced at 14:43.

T200 NOx:

-Clock was 17 seconds ahead and was updated at 14:46.

T400 O3:

-Clock was 1 minute and 9 seconds ahead and was updated at 14:48.

N901 THC, CH4, and NMHC:

-Clock was 1 second behind and no adjustment was made.

T700U Calibrator:

-Clock was 1 minute and 7 seconds ahead and was updated at 14:52.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Ambient temperature aspirator is working.
- SO2, CH4, C3H8, and NO tank pressure: 1675 psi and line pressure:. 34 psi
- CH4 tank pressure: 2000psi and line pressure:. 35 psi
- Nitrogen UHP tank pressure 1725psi and line pressure: .72 psi
- Hydrogen UHP tank pressure 1890 psi and line pressure: 55 psi

06/27/2025 - RT Activities

Friday, June 27, 2025 1:12 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: June 27, 2025
Start Time: 13:02
End Time: 16:02
Technician: Adrienne Kaul

Reason for Visit

RT Activities

Description

Envidas:

-Clock was 2 seconds ahead and was synced at 13:17.

-Windows updates downloaded and installed.

-Computer restarted at 15:31 and was back online at 15:59. Data could be backfilled to Envidas from the data logger.

T200 NOx:

-Clock was 23 seconds ahead and updated at 13:21.

T400 O3:

-Clock was 22 seconds ahead and was updated at 13:23.

N901 THC, CH4, NMHC:

-Clock accurate.

T700 Calibrator:

-Clock was 21 seconds ahead and was updated at 13:25.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Daily ZPS checks appear to be running normally.
- SO2, C3H8, CH4, and NO tank pressure 1660 psi and line pressure 31 psi.
- CH4 tank pressure 2000 psi and line pressure 35 psi.
- Nitrogen UHP tank pressure 1690 psi and line pressure 71 psi.
- Hydrogen UHP tank pressure 1850 psi and line pressure 55 psi.
- Passive SO2 duplicate sample fell out of sampler head while on site.

TETRA TECH

TECHNICAL MEMO

ISSUED FOR USE

To:	Tauseef Zia Siddiqui	**Date:**	July 24, 2025
File:	704-ENW.GENV03699-03	**Memo No.:**	Q2 2025
From:	Tetra Tech Canada Inc.		
Subject:	PA-110588 - Passive NO_2 Monitoring Results for Q2 2025 Document Control #: L001-00000-HE-0702-1004 PA-110588		

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNGC facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQDMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region. The passive sampling results have been collected over a period of 30 days (+/- 4 days as per the B.C. Field Sampling Manual – Part B1 Ambient Air Quality Monitoring, Reference No: SOP-07, Standard Operating Procedure for the Passive/Diffusive Method of Air Sample Collection) and compiled into monthly reports. This memorandum provides a summary of the results for this past quarter that covers the April, May, and June 2025 sampling periods. The monthly reports are attached in Appendix B.

2.0 PASSIVE MONITORING RESULTS

The passively measured 30-day average NO_2 concentrations during each sample deployment over the quarterly period (April to June 2025) are summarized for each monitoring location in Table 1.

Tetra Tech Canada Inc.
Suite 1000 – 10th Floor, 885 Dunsmuir Street
Vancouver, BC V6C 1N5 CANADA
Tel 604.685.0275 Fax 604.684.6241

Table 1: Passive NO_2 Sampling Results (April – June 2025)

Passive Sampler Location	30-day Average NO_2 Concentration (ppb)		
	April 2025	May 2025	June 2025
Lakelse Lake A04	0.1	0.1	0.1
V01	0.1	0.1	0.3
KHV-2	0.1	0.1	0.1
KHV-1	0.2	0.2	0.2
V10B	0.9	0.9	0.7
**V12	0.2**	0.1	0.2
V08	0.3	0.2	0.4
V06	0.2	0.3	0.4
V05	0.2	0.2	0.4
Kitimat Industrial (V14)	0.8	0.8	1.3
*Predicted Maximum NO_2	1.1	0.7	0.1
Kitimat Riverlodge	1.1	0.9	0.3
Kitimat Whitesail	0.4	0.4	0.1

*Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum concentration of NO_2 inclusive of facility emissions within Kitimat.
** A duplicate sample for location V12 was unable to be collected during the April sampling event due to a damaged sampler casing.

The highest 30-day average NO_2 concentration measured over the quarterly period was 1.3 ppb at the Kitimat Industrial (V14) sample location, located north of the LNGC facility. While there is no 30-day Provincial Air Quality Objective for NO_2, the annual criterion is 17 ppb, which provides an indicator for the passively measured 30-day NO_2 concentrations.

The LNGC facility started routine flaring for commissioning work on the boil-off gas compressor. The flaring is suspected to have started in early June and is projected to continue through July 31. Tetra Tech understands that as of July 1, the LNGC facility has been in "operations" mode, and the flaring leading up the July was in preparation for this operational change.

3.0 SAMPLING COMPLETENESS

All passive samples were collected successfully over the quarterly period, except for V12 which did not have a duplicate sample collected for the month of April. During the pickups and deployment on March 31, the sampler to be deployed at station V12 fell apart due to failed sealing around the plastic casing on the sampler unit. As a result, only one passive sampler was deployed at station V12, meaning there is no redundant measurement at this location for April. On April 30 during the pickups and deployment, the single sampler was collected from station V12, and two samplers were redeployed for the May sampling period.

4.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

5.0 CLOSURE

We trust this technical memo meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

704-ENW.GENV03699-03
704-ENW.GENV03699-03
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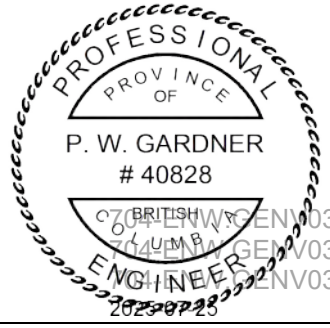

704-ENW.GENV03699-03
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704-ENW.GENV03699-03

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
PERMIT NUMBER: 1001972

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/sy

Attachments Appendix A – Limitations on the Use of this Document
Appendix B – Monthly Reports

REFERENCES

Bender, Q. (2025, June 6). *LNG Canada responds to flaring-smoke concerns at Kitimat Site*. Terrace Standard. https://www.terracestandard.com/local-news/lng-canada-responds-to-flaring-smoke-concerns-at-kitimat-site-8053354

APPENDIX A

LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

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APPENDIX B

MONTHLY REPORTS

APRIL 2025 REPORT

TETRA TECH

June 3, 2025

ISSUED FOR USE
FILE: 704-ENW.GENV03699-01

LNG Canada

Via Email: Tauseef-ZIA.Siddiqui@lngcanada.ca
KIT-Regulatory-Compliance@lngcanada.ca

Attention: Tauseef Zia Siddiqui

Subject: Passive Monitoring for Nitrogen Dioxide – LNG Canada – April 2025
Document Control #: L001-00000-HE-0702-0448

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNG facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQDMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region as described in Table 1. The spatial distribution of the passive monitoring station network through the Kitimat Valley is shown on the attached Figure 1.

Table 1: LNGC's Passive NO_2 Monitoring Network

Site	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Lakelse Lake A04	527457	6025573	2.2
V01	524757	6017435	2.1
KHV-2	523357	5980636	3.0
KHV-1	522919	5980606	3.0
V10B	519425	5984090	3.0
V12	517790	5977294	2.0
V08	521425	5994249	2.0
V06	520970	5996240	2.0
V05	520457	5999250	2.0
Kitimat Industrial	520424	5990356	3.0
Predicted Maximum NO_2	522463	5989506	3.0
Kitimat Riverlodge	521536	5989486	3.0
Kitimat Whitesail	523612	5990998	3.0

Tetra Tech Canada Inc.
Unit 2, 4065 Motz Road
Terrace, BC V8G 3N1
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The sampling methodology adheres to protocols described in the document '*Standard Operating Procedure (SOP) – Passive Monitoring for Nitrogen Dioxide (NO_2)*', dated March 2024. More information on the sampling methodology can be found in this document.

2.0 AMBIENT CONDITIONS DURING DEPLOYMENT PERIOD

Winds

Winds were predominantly inflows over the period March 31 through April 30, 2025 as the prevalent summer pattern began to establish through the valley and connected waterways. Figure 2 shows wind roses for hourly wind observations during the April sampler deployment period at ENV-AQN Kitimat Whitesail and Terrace Airport.

Precipitation

63.1 mm of precipitation was recorded between March 31 through April 30 at ECCC Kitimat Forest Avenue. 47.0 mm of precipitation was recorded at ECCC Terrace A. Comparing to precipitation normals, these totals are slightly below average for April for the region by 65 mm and 27 mm, respectively.

Air Quality – Nitrogen Dioxide

NO_2 is continuously measured and reported on an hourly basis at ENV-AQN station Kitimat Whitesail. Over the April deployment period (March 31– April 30), the maximum 1-hour NO_2 concentration was 8.5 ppb, or 14.2% of the British Columbia Air Quality Objective (BCAQO) of 60 ppb. The 30-day average NO_2 concentration, taken as the average of all available one-hour measurements during the sampling period, was 0.9 ppb. While there is no 30-day BCAQO, the annual criterion is 17 ppb, which provides another indicator of ambient air quality with respect to NO_2. There were 38 hours of missing data out of 706 hours, or 95% data completeness. Figure 2 plots the 1-hour NO_2 concentration over the sampling period.

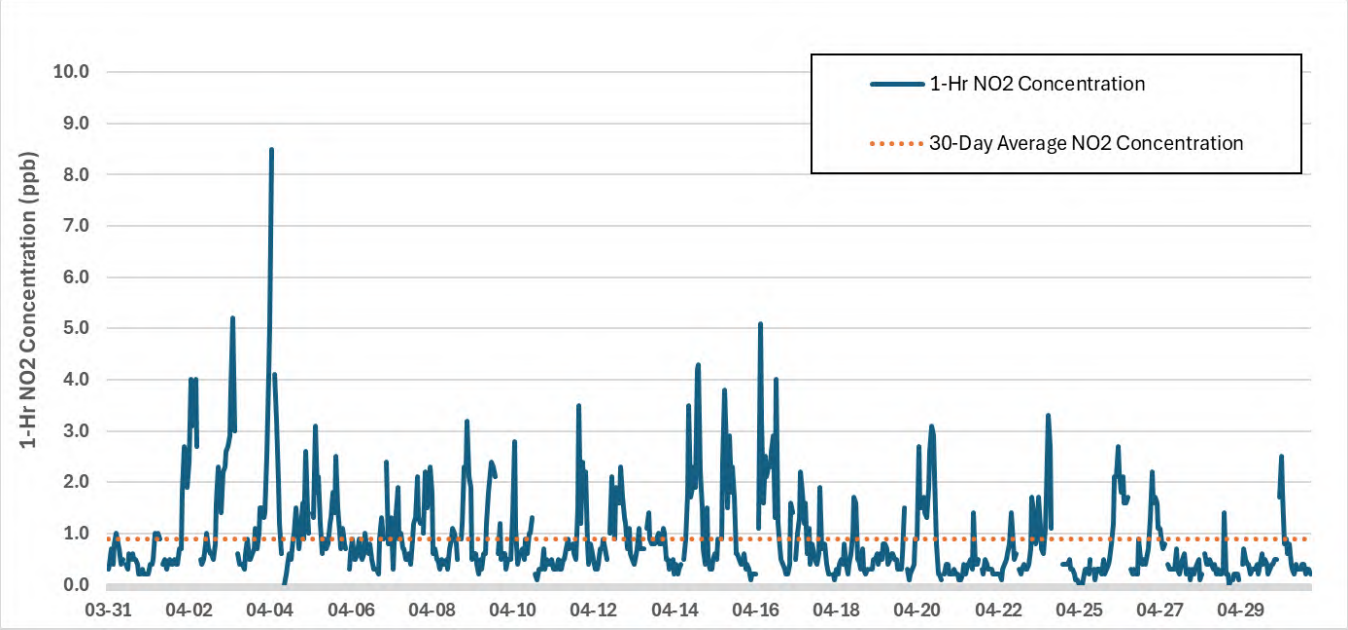

Figure 2: 1-Hr NO_2 Readings at ENV-AQN Kitimat Whitesail (March 31 – April 30)

3.0 PASSIVE MONITORING RESULTS

The passively measured 30-day NO_2 concentrations are listed for each site in Table 2. The 30-day NO_2 concentration based on continuous measurement is also listed for Kitimat Whitesail, as a measure of validation of the sampling results. Each site's housing utilizes two samplers for statistical redundancy, the mean of which is used as the overall measurement.

The measured 30-day NO_2 concentrations are shown through the study area on Figure 1. The highest readings occurred in town, where combustion sources of NOx are more plentiful, also located north of the LNGC facility. Specifically, the highest readings in April 2025 were along the west side of town at the Predicted Maximum NO_2 location[1] and the Kitimat Riverlodge location. Overall, March concentrations in Kitimat were slightly higher than the summer months of 2024, however, were slightly lower in comparison to the previous month of March. This follows the gradual decreasing trend from higher concentrations observed during the winter. Although the measured NO_2 concentrations have been well below any representative (e.g., annual) criteria, the higher concentrations observed during the winter months can likely be attributed to seasonality, which includes meteorological conditions associated with poorer atmospheric mixing as well as an increase in community-based sources of combustion such as heating. In contrast, the trend being observed currently is likely attributed to typical weather patterns in the spring, such as increased sunlight and wind, which help disperse pollutants and encourages atmospheric mixing.

Bureau Veritas Passive Sampling Laboratory Report is attached in Appendix B.

[1] Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum ground level concentration of NO_2 inclusive of facility emissions within Kitimat

Table 2: Passive NO_2 Sampling Results (April 2025)

Site	Start	End	Duration (Days)	30-day NO_2 Concentration (ppb)			St. Dev	30 Day NO_2
				Sample 1	Sample 2	Mean		
Lakelse Lake A04	03/31/2025 8:45	04/30/2025 8:50	30.0	0.1	< 0.1	0.1	0	
V01	03/31/2025 9:45	04/30/2025 9:40	30.0	0.1	0.1	0.1	0	
KHV-2	03/31/2025 10:40	04/30/2025 10:40	30.0	< 0.1	0.1	0.1	0	
KHV-1	03/31/2025 10:30	04/30/2025 10:30	30.0	0.2	0.2	0.2	0	
V10B	03/31/2025 11:10	04/30/2025 11:10	30.0	1.1	0.6	0.9	0.4	
V12**	03/31/2025 11:30	04/30/2025 11:30	30.0	0.2	-	0.2	-	
V08	03/31/2025 12:30	04/30/2025 12:20	30.0	0.3	0.3	0.3	0	
V06	03/31/2025 12:45	04/30/2025 12:35	30.0	0.2	0.2	0.2	0	
V05	03/31/2025 13:00	04/30/2025 12:45	30.0	0.2	0.2	0.2	0	
Kitimat Industrial (V14)	03/31/2025 12:00	04/30/2025 12:00	30.0	0.8	0.8	0.8	0	
*Predicted Maximum NO_2	03/31/2025 13:45	04/30/2025 13:35	30.0	1.2	1.0	1.1	0.1	
Kitimat Riverlodge	03/31/2025 13:35	04/30/2025 13:20	30.0	1.0	1.2	1.1	0.1	
Kitimat Whitesail	03/31/2025 14:00	04/30/2025 14:00	30.0	0.4	0.4	0.4	0	0.9

*Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum ground level concentration of NO_2 inclusive of facility emissions within Kitimat.
**A duplicate sample for location V12 was unable to be collected due to a damaged sampler casing.

4.0 SAMPLING PROGRAM ANOMOLIES

During the pickups and deployment on March 31, the sampler to be deployed at station V12 fell apart due to failed sealing around the plastic casing on the housing unit. As a result, only one passive sampler was deployed at station V12, meaning there is no redundant measurement at this location for April. On April 30 during the pickups and deployment, the single sampler was collected from station V12, and two samplers were redeployed for the May sampling period.

5.0 LIMITATIONS OF REPORT

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6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01

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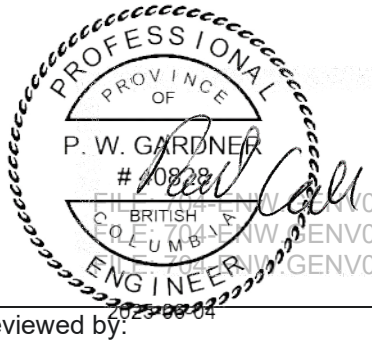

FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01

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Attachments Figure 1. Mean 30-day NO_2 Concentration April 2025
Appendix A – Limitations on the Use of this Document
Appendix B – Bureau Veritas Passive Sampling Laboratory Report

FIGURES

Figure 1 Mean 30-day NO_2 Concentration April 2025

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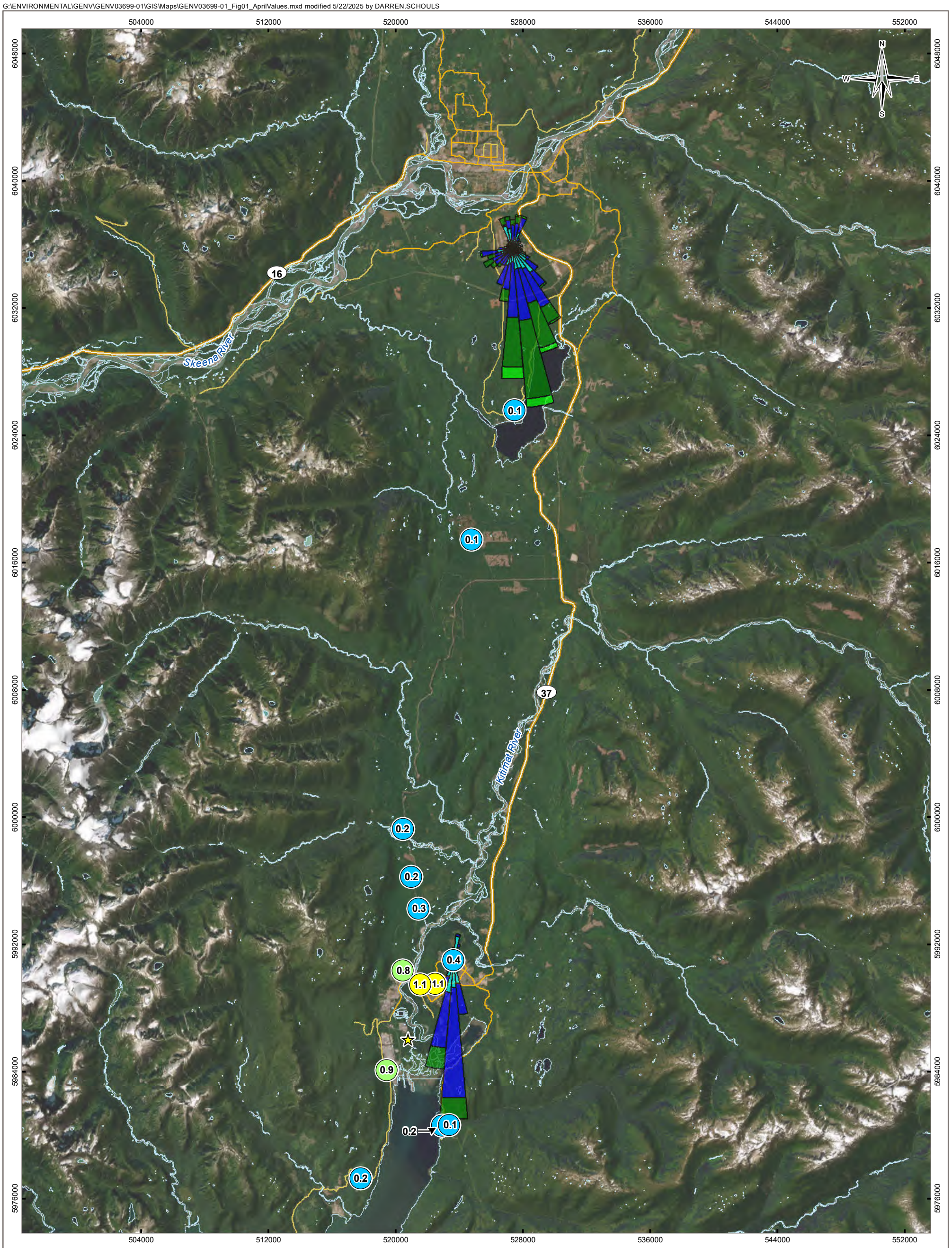

LEGEND

Mean 30-Day NO_2 Concentration (ppb)

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5

- LNGC Site
- Highway
- Main Road
- Local Road
- Watercourse/Waterbody

Rose Plot - Wind (m/s)

- 1 - 3
- 3 - 6
- 6 - 9
- 9 - 12

NOTES
Base data source:
Imagery from ESRI; Maxar
CanVec 1:250,000 (2019)

STATUS
ISSUED FOR USE

LNGC NO2 PASSIVE MONITORING

Mean 30-day NO2 Concentration April 2025

PROJECTION UTM Zone 9	**DATUM** NAD83	**CLIENT** Haisla Triton Ltd.
Scale: 1:225,000 (4 2 0 4 Kilometres)		TETRA TECH
FILE NO. GENV03699-01_Fig01_AprilValues.mxd		
OFFICE Tt-VANC	**DWN** DS / **CKD** MRB / **APVD** TM / **REV** 0	Figure 1
DATE May 22, 2025	**PROJECT NO.** ENW.GENV03699-01	

APPENDIX A

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APPENDIX B

BUREAU VERITAS PASSIVE SAMPLING LABORATORY REPORT

Your P.O. #: 704-ENW.GENV03699-01.002
Your Project #: NO2 MONITORING
Site Location: 2025/03/31-2025/04/30

Attention: Travis Miguez

Tetra Tech Canada Inc.
#2 4065 Motz Road
Terrace, BC
CANADA V8G 3N1

Report Date: 2025/05/14
Report #: R3659838
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C537719
Received: 2025/05/05, 08:00

Sample Matrix: Air
Samples Received: 25

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	6	2025/05/07	2025/05/13	PTC SOP-00148	Passive NO2 in ATM
NO2 Passive Analysis	19	2025/05/08	2025/05/13	PTC SOP-00148	Passive NO2 in ATM

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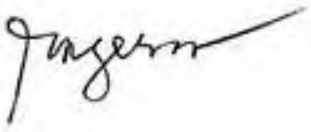
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key



Rowena Geron
Customer Service Associate
14 May 2025 14:52:47

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Email: PassiveAir@bureauveritas.com
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Bureau Veritas Job #: C537719
Report Date: 2025/05/14

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/03/31-2025/04/30
Your P.O. #: 704-ENW.GENV03699-01.002
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DJC119	DJC120	DJD066	DJD067	DJC121	DJC122		
Sampling Date		2025/03/31 08:45	2025/03/31 08:45	2025/03/31 09:45	2025/03/31 09:45	2025/03/31 10:30	2025/03/31 10:30		
	UNITS	#1 LAKELSE LAKE	#2 LAKELSE LAKE-DUP	#3 VO1	#4 VO1-DUP	#5 KHV-1	#6 KHV-1-DUP	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.1	<0.1	0.1	0.1	0.2	0.2	0.1	B945636
RDL = Reportable Detection Limit									

Bureau Veritas ID		DJC123	DJC124	DJC125	DJC126	DJC127	DJC129		
Sampling Date		2025/03/31 10:40	2025/03/31 10:40	2025/03/31 11:10	2025/03/31 11:10	2025/03/31 11:30	2025/03/31 12:00		
	UNITS	#7 KHV-2	#8 KHV-2-DUP	#9 V10B	#10 V10B-DUP	#11 V12	#13 Kitimat Industrial	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	<0.1	0.1	1.1	0.6	0.2	0.8	0.1	B945636
RDL = Reportable Detection Limit									

Bureau Veritas ID		DJC130	DJD082	DJD083	DJD092	DJD093	DJD094		
Sampling Date		2025/03/31 12:00	2025/03/31 12:30	2025/03/31 12:30	2025/03/31 12:45	2025/03/31 12:45	2025/03/31 13:00		
	UNITS	#14Kitimat Industrial-DUP	#15 V08	#16 V08-DUP	#17 V06	#18 V06-DUP	#19 V05	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.8	0.3	0.3	0.2	0.2	0.2	0.1	B945636
RDL = Reportable Detection Limit									

Bureau Veritas ID		DJD095	DJC131	DJC132	DJC133		
Sampling Date		2025/03/31 13:00	2025/03/31 13:35	2025/03/31 13:35	2025/03/31 13:45		
	UNITS	#20 V05-DUP	#21 Kitimat Riverlodge	#22Kitimat Riverlodge -DUP	#23 Predicted Max	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	0.2	1.0	1.2	1.2	0.1	B945636
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C537719
Report Date: 2025/05/14

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/03/31-2025/04/30
Your P.O. #: 704-ENW.GENV03699-01.002
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DJC134	DJC135	DJC136		
Sampling Date		2025/03/31 13:45	2025/03/31 14:00	2025/03/31 14:00		
	UNITS	#24 Predicted Max-DUP	#25 Kitimat Whitesail	#26 Kitimat Whitesail-DUP	RDL	QC Batch
Passive Monitoring						
Calculated NO2	ppb	1.0	0.4	0.4	0.1	B945636
RDL = Reportable Detection Limit						

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C537719
Report Date: 2025/05/14

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/03/31-2025/04/30
Your P.O. #: 704-ENW.GENV03699-01.002
Sampler Initials: ML

GENERAL COMMENTS

Sample DJC131 [#21 Kitimat Riverlodge] : DJC131 Sample labeled as "#12" but #12 was not sampled as per client. Suspected label swap - reported as "#21" - 2025/05/13 SDK

Results relate only to the items tested.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C537719
Report Date: 2025/05/14

QUALITY ASSURANCE REPORT

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/03/31-2025/04/30
Your P.O. #: 704-ENW.GENV03699-01.002
Sampler Initials: ML

			Spiked Blank		Method Blank	
QC Batch	**Parameter**	**Date**	**% Recovery**	**QC Limits**	**Value**	**UNITS**
B945636	Calculated NO2		98	90 - 110	<0.1	ppb

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

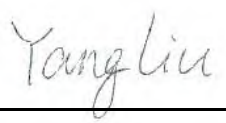
Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C537719
Report Date: 2025/05/14

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/03/31-2025/04/30
Your P.O. #: 704-ENW.GENV03699-01.002
Sampler Initials: ML

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Yang Liu, Laboratory Supervisor

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Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

MAY 2025 REPORT

TETRA TECH

June 25, 2025

ISSUED FOR USE
FILE: 704-ENW.GENV03699-01

LNG Canada

Via Email: Tauseef-ZIA.Siddiqui@lngcanada.ca
KIT-Regulatory-Compliance@lngcanada.ca

Attention: Tauseef Zia Siddiqui

Subject: Passive Monitoring for Nitrogen Dioxide – LNG Canada – May 2025
Document Control #: L001-00000-HE-0702-0449

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNG facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQDMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region as described in Table 1. The spatial distribution of the passive monitoring station network through the Kitimat Valley is shown on the attached Figure 1.

Table 1: LNGC's Passive NO_2 Monitoring Network

Site	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Lakelse Lake A04	527457	6025573	2.2
V01	524757	6017435	2.1
KHV-2	523357	5980636	3.0
KHV-1	522919	5980606	3.0
V10B	519425	5984090	3.0
V12	517790	5977294	2.0
V08	521425	5994249	2.0
V06	520970	5996240	2.0
V05	520457	5999250	2.0
Kitimat Industrial	520424	5990356	3.0
Predicted Maximum NO_2	522463	5989506	3.0
Kitimat Riverlodge	521536	5989486	3.0
Kitimat Whitesail	523612	5990998	3.0

Tetra Tech Canada Inc.
Unit 2, 4065 Motz Road
Terrace, BC V8G 3N1
Tel 778.309.1605

The sampling methodology adheres to protocols described in the document '*Standard Operating Procedure (SOP) – Passive Monitoring for Nitrogen Dioxide (NO_2)*', dated March 2024. More information on the sampling methodology can be found in this document.

2.0 AMBIENT CONDITIONS DURING DEPLOYMENT PERIOD

Winds

Winds were dominated by inflow conditions over the period April 30 through May 30, 2025 as the prevalent summer pattern has established through the valley and connected waterways. Figure 2 shows wind roses for hourly wind observations during the May sampler deployment period at ENV-AQN Kitimat Whitesail and Terrace Airport.

Precipitation

165.4 mm of precipitation was recorded between April 30 through May 30 at ECCC Kitimat Forest Avenue. 83.4 mm of precipitation was recorded at ECCC Terrace A. Comparing to precipitation normals, these totals are above average for May for the region by 76 mm and 27 mm, respectively.

Air Quality – Nitrogen Dioxide

NO_2 is continuously measured and reported on an hourly basis at ENV-AQN station Kitimat Whitesail. Over the May deployment period (April 30 – May 30), the maximum 1-hour NO_2 concentration was 5.4 ppb, or 9.0% of the British Columbia Air Quality Objective (BCAQO) of 60 ppb. The 30-day average NO_2 concentration, taken as the average of all available one-hour measurements during the sampling period, was 0.7 ppb. While there is no 30-day BCAQO, the annual criterion is 17 ppb, which provides another indicator of ambient air quality with respect to NO_2. There were 34 hours of missing data out of 710 hours, or 95% data completeness. Figure 2 plots the 1-hour NO_2 concentration over the sampling period.

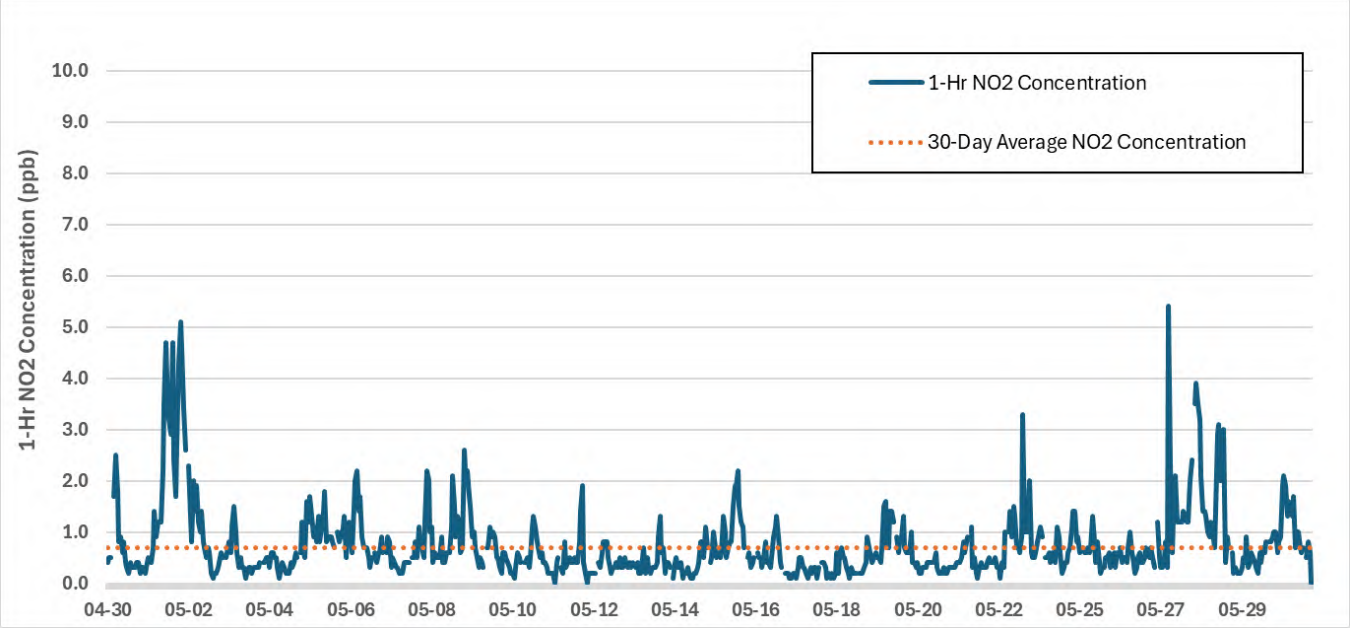

Figure 2: 1-Hr NO_2 Readings at ENV-AQN Kitimat Whitesail (April 30 – May 30)

3.0 PASSIVE MONITORING RESULTS

The passively measured 30-day NO_2 concentrations are listed for each site in Table 2. The 30-day NO_2 concentration based on continuous measurement is also listed for Kitimat Whitesail, as a measure of validation of the sampling results. Each site's housing utilizes two samplers for statistical redundancy, the mean of which is used as the overall measurement.

The measured 30-day NO_2 concentrations are shown through the study area on Figure 1. The highest readings occurred in town, where combustion sources of NOx are more plentiful. Specifically, the highest readings in May 2025 were along the west side of town at the Kitimat Riverlodge sample location and south of the LNGC facility at the V10B sample location. Overall, May concentrations in Kitimat were slightly higher than the summer months of 2024, however, were slightly lower in comparison to the previous month of April. This follows the gradual decreasing trend from higher concentrations observed during the winter.

Although the measured NO_2 concentrations have been well below any representative (e.g., annual) criteria, the higher concentrations observed during the winter months are likely attributed to seasonality, which includes meteorological conditions associated with poorer atmospheric mixing as well as an increase in community-based sources of combustion such as heating. In contrast, the lower concentrations being observed currently are most likely attributed to the improved atmospheric mixing conditions typical of summer and a reduction in community-based sources of combustion.

Bureau Veritas Passive Sampling Laboratory Report is attached in Appendix B.

Table 2: Passive NO_2 Sampling Results (May 2025)

Site	Start	End	Duration (Days)	30-day NO_2 Concentration (ppb)			St. Dev	30 Day NO_2
				Sample 1	Sample 2	Mean		
Lakelse Lake A04	04/30/2025 8:50	05/30/2025 8:40	30.0	0.1	< 0.1	0.1	0	
V01	04/30/2025 9:40	05/30/2025 9:35	30.0	< 0.1	0.1	0.1	0	
KHV-2	04/30/2025 10:40	05/30/2025 10:30	30.0	< 0.1	0.1	0.1	0	
KHV-1	04/30/2025 10:30	05/30/2025 10:20	30.0	0.2	0.1	0.2	0.1	
V10B	04/30/2025 11:10	05/30/2025 11:00	30.0	1.1	0.6	0.9	0.4	
V12	04/30/2025 11:30	05/30/2025 11:15	30.0	< 0.1	0.1	0.1	0	
V08	04/30/2025 12:20	05/30/2025 11:50	30.0	0.2	0.2	0.2	0	
V06	04/30/2025 12:35	05/30/2025 12:00	30.0	0.3	0.2	0.3	0.1	
V05	04/30/2025 12:45	05/30/2025 12:10	30.0	0.2	0.1	0.2	0.1	
Kitimat Industrial (V14)	04/30/2025 12:00	05/30/2025 12:50	30.0	0.9	0.7	0.8	0.1	
*Predicted Maximum NO_2	04/30/2025 13:35	05/30/2025 13:15	30.0	0.8	0.6	0.7	0.1	
Kitimat Riverlodge	04/30/2025 13:20	05/30/2025 13:05	30.0	0.9	0.9	0.9	0	
Kitimat Whitesail	04/30/2025 14:00	05/30/2025 13:30	30.0	0.4	0.4	0.4	0	0.7

*Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum ground level concentration of NO_2 inclusive of facility emissions within Kitimat.

4.0 SAMPLING PROGRAM ANOMOLIES

There were no sampling program anomalies to note during the May deployment period.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01

Prepared by:
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Environment & Water Practice
Direct Line: 604.238.3621
Eden.Hamilton@tetratech.com

FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01

Reviewed by:
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Travis.Miguez@tetratech.com

FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01
FILE: 704-ENW.GENV03699-01
2025-06-25

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
PERMIT NUMBER: 1001972

Reviewed by:
Paul Gardner, M.A.Sc., P.Eng.
Senior Contaminated Sites Specialist
Environment & Water Practice
Direct Line: 604.722.7944
Paul.Gardner@tetratech.com

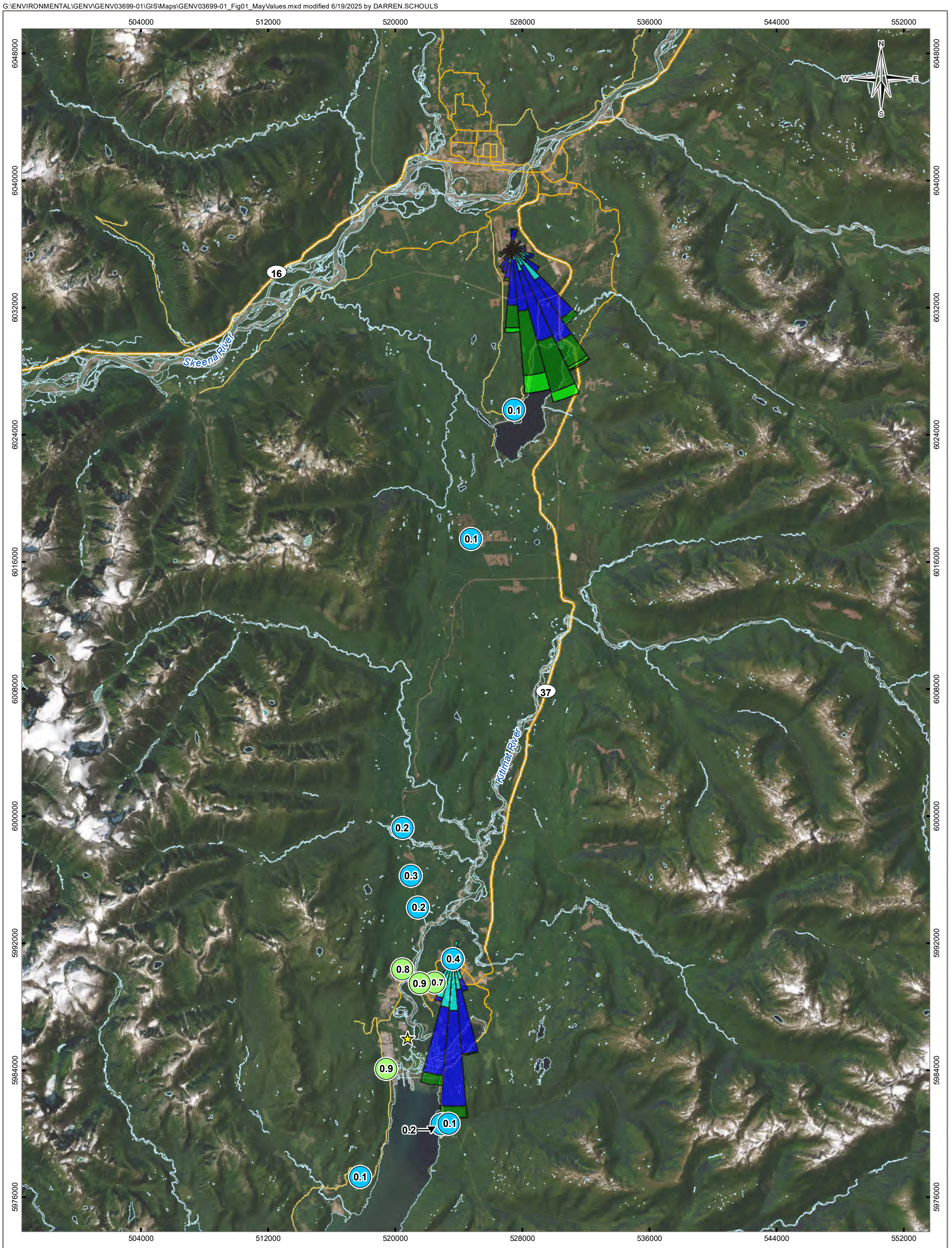
/sy

Attachments Figure 1. Mean 30-day NO_2 Concentration May 2025
Appendix A – Limitations on the Use of this Document
Appendix B – Bureau Veritas Passive Sampling Laboratory Report

FIGURES

Figure 1 Mean 30-day NO_2 Concentration May 2025

G:\ENVIRONMENTAL\GENV\GENV03699-01\GIS\Maps\GENV03699-01_Fig01_MayValues.mxd modified 6/19/2025 by DARREN.SCHOULS



LEGEND

Mean 30-Day NO_2 Concentration (ppb)

- 0 - 0.5
- 0.5 - 1.0

- LNGC Site
- Highway
- Main Road
- Local Road
- Watercourse/Waterbody

Rose Plot - Wind (m/s)

- 1 - 3
- 3 - 6
- 6 - 9
- 9 - 12
- 12 - 15

NOTES
Base data source:
Imagery from ESRI; Maxar
CanVec 1:250,000 (2019)

STATUS
ISSUED FOR USE

LNGC NO2 PASSIVE MONITORING

Mean 30-day NO2 Concentration May 2025

PROJECTION UTM Zone 9	**DATUM** NAD83	**CLIENT** Haisla Triton Ltd.
Scale: 1:225,000 (4 2 0 4 Kilometres)		TETRA TECH
FILE NO. GENV03699-01_Fig01_MayValues.mxd		
OFFICE Tt-VANC	**DWN** DS / **CKD** MRB / **APVD** TM / **REV** 0	Figure 1
DATE June 19, 2025	**PROJECT NO.** ENW.GENV03699-01	

APPENDIX A

LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

1.1 USE OF DOCUMENT AND OWNERSHIP

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If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

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The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

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In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

BUREAU VERITAS PASSIVE SAMPLING LABORATORY REPORT

Your P.O. #: 704-ENW.GENV03699-01.002
Your Project #: NO2 MONITORING
Site Location: 2025/04/30-2025/05/30

Attention: Travis Miguez

Tetra Tech Canada Inc.
#2 4065 Motz Road
Terrace, BC
CANADA V8G 3N1

Report Date: 2025/06/16
Report #: R3674364
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C550150
Received: 2025/06/04, 09:30

Sample Matrix: Air
Samples Received: 26

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	26	2025/06/09	2025/06/12	PTC SOP-00148	Passive NO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Rowena Geron
Customer Service Associate
16 Jun 2025 08:59:44

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500

==========

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Bureau Veritas Job #: C550150
Report Date: 2025/06/16

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/04/30-2025/05/30
Your P.O. #: 704-ENW.GENV03699-01.002
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DME568	DME569	DME570	DME571	DME572	DME573		
Sampling Date		2025/04/30 08:50	2025/04/30 08:50	2025/04/30 09:40	2025/04/30 09:40	2025/04/30 10:30	2025/04/30 10:30		
	UNITS	#1 LAKELSE LAKE	#2 LAKELSE LAKE-DUP	#3 VO1	#4 VO1-DUP	#5 KHV-1	#6 KHV-1-DUP	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.1	<0.1	<0.1	0.1	0.2	0.1	0.1	B982614
RDL = Reportable Detection Limit									

Bureau Veritas ID		DME574	DME575	DME576	DME577	DME578	DME579	DME580		
Sampling Date		2025/04/30 10:40	2025/04/30 10:40	2025/04/30 11:10	2025/04/30 11:10	2025/04/30 11:30	2025/04/30 11:30	2025/04/30 12:20		
	UNITS	#7 KHV-2	#8 KHV-2-DUP	#9 V10B	#10 V10B-DUP	#11 V12	#12 V12-DUP	#13 V08	RDL	QC Batch
Passive Monitoring										
Calculated NO2	ppb	<0.1	0.1	1.1	0.6	<0.1	0.1	0.2	0.1	B982614
RDL = Reportable Detection Limit										

Bureau Veritas ID		DME581	DME582	DME583	DME584	DME587	DME588		
Sampling Date		2025/04/30 12:20	2025/04/30 12:35	2025/04/30 12:35	2025/04/30 12:45	2025/04/30 12:45	2025/04/30 12:00		
	UNITS	#14 V08-DUP	#15 V06	#16 V06-DUP	#17 V05	#18 V05-DUP	#19 Kitimat Industrial	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.2	0.3	0.2	0.2	0.1	0.9	0.1	B982614
RDL = Reportable Detection Limit									

Bureau Veritas ID		DME589		DME590	DME591		
Sampling Date		2025/04/30 12:00		2025/04/30 13:20	2025/04/30 13:20		
	UNITS	#20Kitimat Industrial-DUP	QC Batch	#21 Kitimat Riverlodge	#22Kitimat Riverlodge -DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	0.7	B982614	0.9	0.9	0.1	B982618
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C550150
Report Date: 2025/06/16

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/04/30-2025/05/30
Your P.O. #: 704-ENW.GENV03699-01.002
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DME592	DME593	DME594	DME619		
Sampling Date		2025/04/30 13:35	2025/04/30 13:35	2025/04/30 14:00	2025/04/30 14:00		
	UNITS	#23 Predicted Max	#24 Predicted Max-DUP	#25 Kitimat Whitesail	#26 Kitimat Whitesail-DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	0.8	0.6	0.4	0.4	0.1	B982618
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C550150
Report Date: 2025/06/16

QUALITY ASSURANCE REPORT

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/04/30-2025/05/30
Your P.O. #: 704-ENW.GENV03699-01.002
Sampler Initials: ML

			Spiked Blank		Method Blank	
QC Batch	**Parameter**	**Date**	**% Recovery**	**QC Limits**	**Value**	**UNITS**
B982614	Calculated NO2		95	90 - 110	<0.1	ppb
B982618	Calculated NO2		98	90 - 110	<0.1	ppb

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

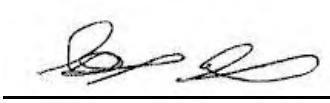
Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C550150
Report Date: 2025/06/16

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/04/30-2025/05/30
Your P.O. #: 704-ENW.GENV03699-01.002
Sampler Initials: ML

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Steven Gloux, Laboratory Supervisor

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Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

JUNE 2025 REPORT

TETRA TECH

July 24, 2025

ISSUED FOR USE
FILE: 704-ENW.GENV03699-03

LNG Canada

Via Email: Tauseef-ZIA.Siddiqui@lngcanada.ca
KIT-Regulatory-Compliance@lngcanada.ca

Attention: Tauseef Zia Siddiqui

Subject: Passive Monitoring for Nitrogen Dioxide – LNG Canada – June 2025
Document Control #: L001-00000-HE-0702-0450

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNG facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQDMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region as described in Table 1. The spatial distribution of the passive monitoring station network through the Kitimat Valley is shown on the attached Figure 1.

Table 1: LNGC's Passive NO_2 Monitoring Network

Site	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Lakelse Lake A04	527457	6025573	2.2
V01	524757	6017435	2.1
KHV-2	523357	5980636	3.0
KHV-1	522919	5980606	3.0
V10B	519425	5984090	3.0
V12	517790	5977294	2.0
V08	521425	5994249	2.0
V06	520970	5996240	2.0
V05	520457	5999250	2.0
Kitimat Industrial	520424	5990356	3.0
Predicted Maximum NO_2	522463	5989506	3.0
Kitimat Riverlodge	521536	5989486	3.0
Kitimat Whitesail	523612	5990998	3.0

Tetra Tech Canada Inc.
Unit 2, 4065 Motz Road
Terrace, BC V8G 3N1
Tel 778.309.1605

The sampling methodology adheres to protocols described in the document '*Standard Operating Procedure (SOP) – Passive Monitoring for Nitrogen Dioxide (NO_2)*', dated March 2024. More information on the sampling methodology can be found in this document.

2.0 AMBIENT CONDITIONS DURING DEPLOYMENT PERIOD

Winds

Winds were dominated by inflow conditions over the period May 30 through June 30, 2025 as the prevalent summer pattern has established through the valley and connected waterways. Figure 1 shows wind roses for hourly wind observations during the May sampler deployment period at ENV-AQN Kitimat Whitesail and Terrace Airport.

Precipitation

44.5 mm of precipitation was recorded between May 30 through June 30 at ECCC Kitimat Forest Avenue. 21.8 mm of precipitation was recorded at ECCC Terrace A. Comparing to precipitation normals, these totals are above average for June for the region by 29 mm.

Air Quality – Nitrogen Dioxide

NO_2 is continuously measured and reported on an hourly basis at ENV-AQN station Kitimat Whitesail. Over the May deployment period (May 30 – June 30), the maximum 1-hour NO_2 concentration was 3 ppb, or 5.0% of the British Columbia Air Quality Objective (BCAQO) of 60 ppb. The 30-day average NO_2 concentration, taken as the average of all available one-hour measurements during the sampling period, was 0.5 ppb. While there is no 30-day BCAQO, the annual criterion is 17 ppb, which provides another indicator of ambient air quality with respect to NO_2. There were 57 hours of missing data out of 711 hours, or 92% data completeness. Figure 2 plots the 1-hour NO_2 concentration over the sampling period.

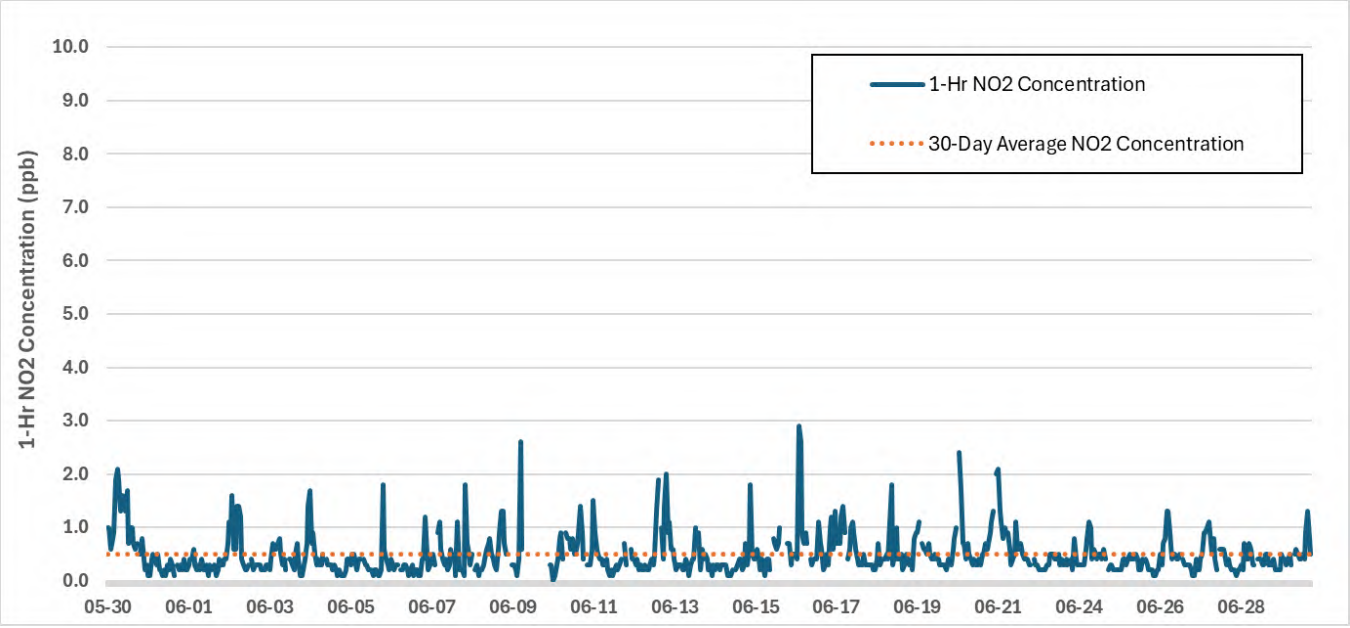

Figure 2: 1-Hr NO_2 Readings at ENV-AQN Kitimat Whitesail (May 30 – June 30)

Note: possible erroneous/non-representative data at 8:00AM, June 9 removed

3.0 PASSIVE MONITORING RESULTS

The passively measured 30-day NO_2 concentrations are listed for each site in Table 2. The 30-day NO_2 concentration based on continuous measurement is also listed for Kitimat Whitesail, as a measure of validation of the sampling results. Each site's housing utilizes two samplers for statistical redundancy, the mean of which is used as the overall measurement.

The measured 30-day NO_2 concentrations are shown through the study area on Figure 1. The highest reading in June 2025 occurred along the northwest side of town at the Kitimat Industrial (V14) sample location, north of the LNGC facility. This reading was higher than was measured in both April and May for V14, while concentrations at the other stations through Kitimat followed the noted seasonal downward trend from higher concentrations observed during the winter months. The second highest reading was at V10, directly south of the LNGC facility. Overall, June concentrations were slightly higher than the summer months of 2024, however, were slightly lower in comparison to the previous month of May.

Throughout the monitoring program, the measured NO_2 concentrations have been well below any representative (e.g., annual) criteria, with lower concentrations generally being observed in the summer and higher concentrations observed in the winter, likely attributed to the seasonality of atmospheric mixing conditions and seasonal differences in community-based sources of combustion. However, the spatial pattern observed in the network data in June 2025 should be noted, as it represents a pattern not previously observed, with the highest readings measured at the two stations nearest LNGC, the highest in the prevalent downwind direction (north of LNGC along the west side of the valley), while lower concentrations were measured at all other passive stations in Kitimat.

The LNGC facility began routine flaring for commissioning work on the boil-off gas compressor. The flaring is understood to have started in early June and is projected to continue through July 31. Tetra Tech understands that as of July 1, the LNGC facility has been in "operations" mode, and the flaring leading up to July was in preparation for this operational change.

Bureau Veritas Passive Sampling Laboratory Report is attached in Appendix B.

Table 2: Passive NO_2 Sampling Results (June 2025)

Site	Start	End	Duration (Days)	30-day NO_2 Concentration (ppb)			St. Dev	30 Day NO_2
				Sample 1	Sample 2	Mean		
Lakelse Lake A04	05/30/2025 8:40	2025/05/30 08:40	30.0	0.1	0.1	0.1	0	
V01	05/30/2025 9:35	2025/05/30 09:35	30.0	0.2	0.3	0.3	0.1	
KHV-2	05/30/2025 10:30	2025/05/30 10:30	30.0	0.1	0.1	0.1	0	
KHV-1	05/30/2025 10:20	2025/05/30 10:20	30.0	0.2	0.2	0.2	0	
V10B	05/30/2025 11:00	2025/05/30 11:00	30.0	0.7	0.6	0.7	0.1	
V12	05/30/2025 11:15	2025/05/30 11:15	30.0	0.2	0.2	0.2	0	
V08	05/30/2025 11:50	2025/05/30 11:50	30.0	0.3	0.4	0.4	0.1	
V06	05/30/2025 12:00	2025/05/30 12:00	30.0	0.4	0.4	0.4	0	
V05	05/30/2025 12:10	2025/05/30 12:10	30.0	0.4	0.4	0.4	0	
Kitimat Industrial (V14)	05/30/2025 12:50	2025/05/30 12:50	30.0	1.5	1.1	1.3	0.3	
*Predicted Maximum NO_2	05/30/2025 13:15	2025/05/30 13:15	30.0	0.4	0.4	0.4	0	
Kitimat Riverlodge	05/30/2025 13:05	2025/05/30 13:05	30.0	0.4	0.4	0.4	0	
Kitimat Whitesail	05/30/2025 13:30	2025/05/30 13:30	30.0	0.2	0.3	0.3	0.1	0.5

*Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum ground level concentration of NO_2 inclusive of facility emissions within Kitimat.

4.0 SAMPLING PROGRAM ANOMOLIES

There were no sampling program anomalies to note during the June deployment period.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

FILE: 704-ENW.GENV03699-03
FILE: 704-ENW.GENV03699-03
FILE: 704-ENW.GENV03699-03

Prepared by:
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Environment & Water Practice
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FILE: 704-ENW.GENV03699-03
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Reviewed by:
Travis Miguez, B.Sc., EP
Senior Meteorology and Air Quality Specialist
Air and Noise Assessment Group
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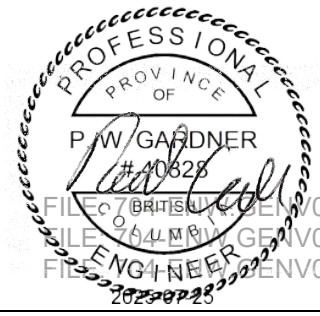

FILE: 704-ENW.GENV03699-03
FILE: 704-ENW.GENV03699-03
FILE: 704-ENW.GENV03699-03

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
PERMIT NUMBER: 1001972

Reviewed by:
Paul Gardner, M.A.Sc., P.Eng.
Senior Contaminated Sites Specialist
Environment & Water Practice
Direct Line: 604.722.7944
Paul.Gardner@tetratech.com

/sy

Attachments Figure 1. Mean 30-day NO_2 Concentration May 2025
Appendix A – Limitations on the Use of this Document
Appendix B – Bureau Veritas Passive Sampling Laboratory Report

REFERENCES

Bender, Q. (2025, June 6). *LNG Canada responds to flaring-smoke concerns at Kitimat Site*. Terrace Standard. https://www.terracestandard.com/local-news/lng-canada-responds-to-flaring-smoke-concerns-at-kitimat-site-8053354

FIGURES

Figure 1 Mean 30-day NO_2 Concentration June 2025

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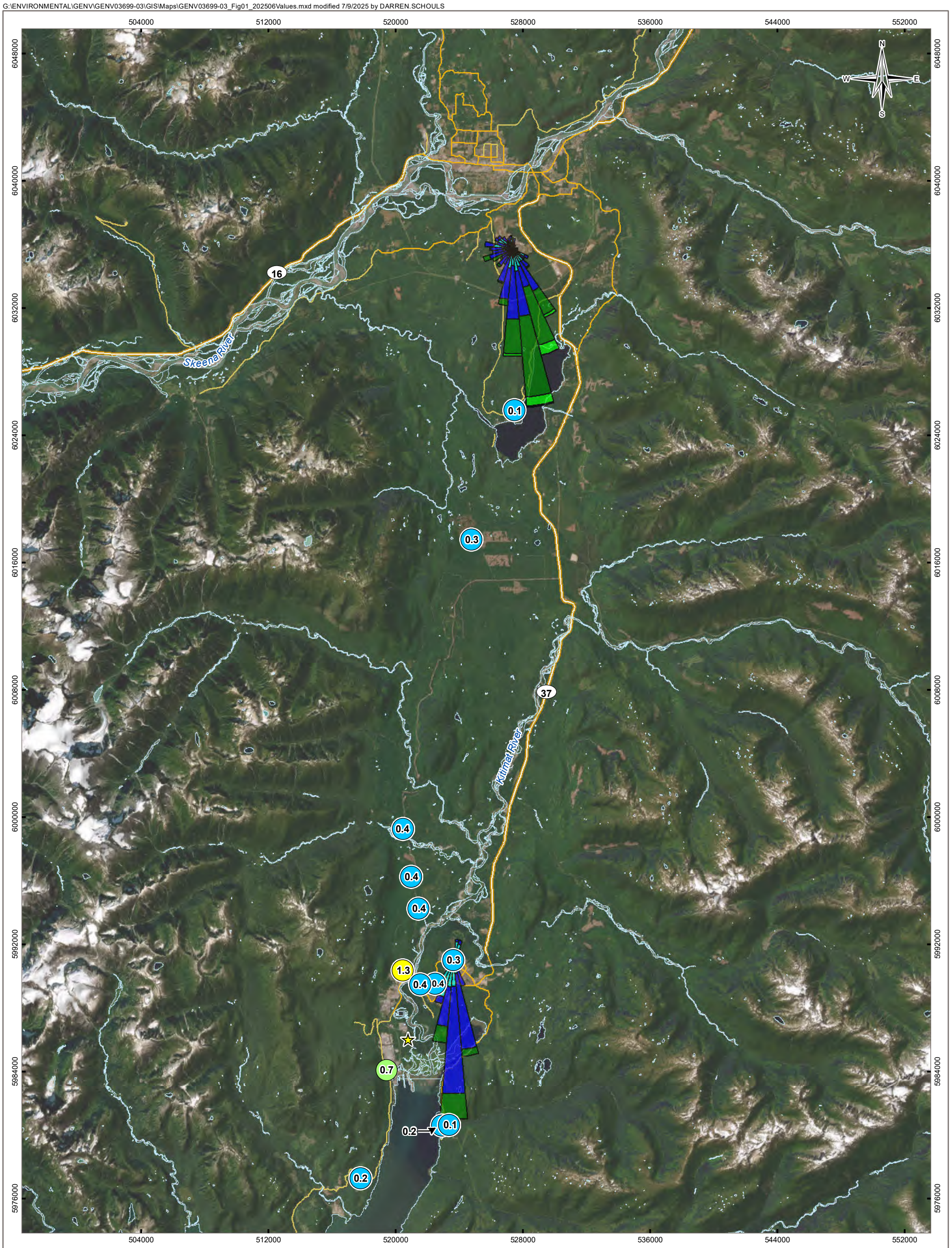

LEGEND

Mean 30-Day NO_2 Concentration (ppb)

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5

- LNGC Site
- Highway
- Main Road
- Local Road
- Watercourse/Waterbody

Rose Plot - Wind (m/s)

- 1 - 3
- 3 - 6
- 6 - 9
- 9 - 12
- 12 - 15

NOTES
Base data source:
Imagery from ESRI; Maxar
CanVec 1:250,000 (2019)

STATUS
ISSUED FOR USE

LNGC NO2 PASSIVE MONITORING

Mean 30-day NO2 Concentration June 2025

PROJECTION	DATUM	CLIENT
UTM Zone 9	NAD83	Haisla Triton Ltd.

Scale: 1:225,000
4 2 0 4
Kilometres

TETRA TECH

FILE NO.
GENV03699-03_Fig01_202506Values.mxd

OFFICE	DWN	CKD	APVD	REV
Tt-VANC	DS	MRB	TM	0

DATE	PROJECT NO.
July 9, 2025	ENW.GENV03699-03

Figure 1

APPENDIX A

LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

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In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

BUREAU VERITAS PASSIVE SAMPLING LABORATORY REPORT

Your P.O. #: 704-ENW.GENV03699-03.002
Your Project #: NO2 MONITORING
Site Location: 2025/05/30-2025/06/30

Attention: Travis Miguez

Tetra Tech Canada Inc.
#2 4065 Motz Road
Terrace, BC
CANADA V8G 3N1

Report Date: 2025/07/07
Report #: R3679656
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: G500714
Received: 2025/07/03, 10:45

Sample Matrix: Air
Samples Received: 26

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	26	2025/07/03	2025/07/07	PTC SOP-00148	Passive NO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Rowena Geron
Customer Service Associate
07 Jul 2025 16:56:23

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500

==========

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Bureau Veritas Job #: G500714
Report Date: 2025/07/07

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/05/30-2025/06/30
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DNU957	DNU958	DNU959	DNU960	DNU961	DNU962		
Sampling Date		2025/05/30 08:40	2025/05/30 08:40	2025/05/30 09:35	2025/05/30 09:35	2025/05/30 10:20	2025/05/30 10:20		
	UNITS	#1 LAKELSE LAKE	#2 LAKELSE LAKE-DUP	#3 VO1	#4 VO1-DUP	#5 KHV-1	#6 KHV-1-DUP	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.1	0.1	0.2	0.3	0.2	0.2	0.1	C003035
RDL = Reportable Detection Limit									

Bureau Veritas ID		DNU963	DNU964	DNU965	DNU966	DNU967	DNU968	DNU969		
Sampling Date		2025/05/30 10:30	2025/05/30 10:30	2025/05/30 11:00	2025/05/30 11:00	2025/05/30 11:15	2025/05/30 11:15	2025/05/30 11:50		
	UNITS	#7 KHV-2	#8 KHV-2-DUP	#9 V10B	#10 V10B-DUP	#11 V12	#12 V12-DUP	#13 V08	RDL	QC Batch
Passive Monitoring										
Calculated NO2	ppb	0.1	0.1	0.7	0.6	0.2	0.2	0.3	0.1	C003035
RDL = Reportable Detection Limit										

Bureau Veritas ID		DNU970	DNU971	DNU972	DNU973	DNU974	DNU975		
Sampling Date		2025/05/30 11:50	2025/05/30 12:00	2025/05/30 12:00	2025/05/30 12:10	2025/05/30 12:10	2025/05/30 12:50		
	UNITS	#14 V08-DUP	#15 V06	#16 V06-DUP	#17 V05	#18 V05-DUP	#19 Kitimat Industrial	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.4	0.4	0.4	0.4	0.4	1.5	0.1	C003035
RDL = Reportable Detection Limit									

Bureau Veritas ID		DNU976		DNU977	DNU978		
Sampling Date		2025/05/30 12:50		2025/05/30 13:05	2025/05/30 13:05		
	UNITS	#20Kitimat Industrial-DUP	QC Batch	#21 Kitimat Riverlodge	#22Kitimat Riverlodge -DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	1.1	C003035	0.4	0.4	0.1	C003036
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G500714
Report Date: 2025/07/07

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/05/30-2025/06/30
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DNU979	DNU980	DNU981	DNU982		
Sampling Date		2025/05/30 13:15	2025/05/30 13:15	2025/05/30 13:30	2025/05/30 13:30		
	UNITS	#23 Predicted Max	#24 Predicted Max-DUP	#25 Kitimat Whitesail	#26 Kitimat Whitesail-DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	0.4	0.4	0.2	0.3	0.1	C003036
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G500714
Report Date: 2025/07/07

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/05/30-2025/06/30
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G500714
Report Date: 2025/07/07

QUALITY ASSURANCE REPORT

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/05/30-2025/06/30
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

			Spiked Blank		Method Blank	
QC Batch	**Parameter**	**Date**	**% Recovery**	**QC Limits**	**Value**	**UNITS**
C003035	Calculated NO2		99	90 - 110	<0.1	ppb
C003036	Calculated NO2		101	90 - 110	<0.1	ppb

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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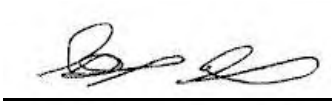
Bureau Veritas Job #: G500714
Report Date: 2025/07/07

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/05/30-2025/06/30
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Steven Gloux, Laboratory Supervisor

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Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Monthly Report (July 2025)

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REVISION CONTROL PAGE

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0	29-Aug-2025	Issued for Information	S. Sarfraz S. Adnan	K. Hart T. Siddiqui	K. Hart	N/A
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1. Executive Summary

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. The BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., for the discharge of air contaminants to the environment from the LNG Facility.

Permit PA-110588 requires a monthly report to be submitted to the BCER that includes data/information on:

- Gas Turbines (GT) and Acid Gas Incinerator (AGI) emissions
- Flaring Activities
- Facility sulphur dioxide (SO_2) Emissions

Herein is the monthly report for July 2025. A summary of the findings for this reporting period is as follows:

- A self-disclosure of non-compliance was submitted to BCER on August 8, 2025, regarding July flaring: continuous non-routine flaring at the warm/wet flare
- For periods in July, the acid gas incinerator operated below the permit-required minimum combustion temperature of 982°C.
- There were air emissions from eight authorised discharge sources defined in Sections 2.1 to 2.7 of Permit PA-110588: warm/wet flare, cold/dry flare, liquid burner, storage and loading flare, spare flare, gas turbine string 1, gas turbine string 2, and Train 1 acid gas incinerator.
- By volume, the storage and loading flare was the largest source of air emissions, primarily due to BOG compressor start-up after the first week and a two-day trip mid-month.

2. Overview

2.1. Project Background

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia, Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

2.2. Purpose

On July 15, 2024, the BCER issued WDA discharge permit PA-110588 to LNG Canada Development Inc., under the provisions of the BC *Environmental Management Act*, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Permit PA-110588 applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.2 of Permit PA-110588 (Monthly Reporting) for July 2025.

Refer to Appendix B for a list of all monthly reports that have been issued under Permit PA-110588.

2.3. LNG Facility Status

Fuel gas was first introduced to Unit 1000 (Inlet Facilities) on August 31, 2024. Fuel gas was introduced to the flare headers and the warm/wet flare pilot was first lit on September 1, 2024.

LNG production began on June 22, 2025. The first LNG cargo was loaded on June 30, 2025, marking the start of Operations in July 2025.

During this month, discharges of air contaminants occurred from the following authorized works:

- One (1) warm/wet flare
- One (1) cold/dry flare
- One (1) storage and loading flare
- One (1) spare flare
- One (1) Liquid burner
- Two (2) Gas turbine String 1 and String 2
- One (1) Train 1 acid gas incinerator

Under Permit PA-110588, the “Commissioning” phase is defined as “that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.” Operations is the period of time which follows Commissioning. Therefore, “Commissioning”, under Permit PA-110588, commenced on September 1, 2024.

The Initial Performance Period (IPP) did not commence during July 2025 (which is defined as the period that “*commences upon the completion of the initial performance test for LNG Train 1”*).

3. Fuel Gas Use (Commissioning Only) (Condition 10.2.1)

3.1. Permit Condition

Under Condition 10.2.1, the monthly report shall identify and provide a summary of fuel gas use at the facility during Commissioning. As the Facility is now in Operations, Condition 10.2.1 is not applicable for this month.

Appendix C contains the summary of daily mass emissions of NO_X, SO_X, CO, $PM_{2.5}$, VOCs, and HC-T from the gas turbines and AGI (which is Section 2.1 and 2.2 of Permit PA-110588 respectively) in July 2025.

The basis for this assessment is as follows:

- Emissions from AGI are estimated based on published emission factors for a flare, to represent a high temperature oxidation process to burn hydrocarbons (refer to Table 2). Similar to the gas turbine engines, the data from the CEMS associated with the AGI will be available after the RATA has been undertaken (which will be done when a stable, full plant load is achieved.)
- Emissions from the gas turbines are calculated using published emission factors from the US EPA AP-42, as detailed in Table 1. An engineering estimate based on the turbine's operating load is used for total hydrocarbons (HC-T), as a specific AP-42 factor is not available. This calculation methodology is used for the period, as the Continuous Emissions Monitoring System (CEMS) for the gas turbines has not yet completed its final certification. The data from the CEMS will be utilized for reporting following the successful completion of the Relative Accuracy Test Audit (RATA), which will be conducted after a stable, full plant load is achieved.
- US EPA AP-42 emission factors are being used for reporting from flaring. A comparison of emission factors provided by ZEECO with EPA AP-42 is provided in Appendix F.

Table 1 Natural Gas-Fired Turbine Emission Factors

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.099	lb/MMBtu	D	
SO_x	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.94S	lb/MMBtu	B	Where “S” is the percent sulphur in fuel. “S” to be informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014). If “S” is not available, the AP-42 states to use 3.4 E-03 lb/MMBtu for natural gas turbines (0.0034).
CO	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.015	lb/MMBtu	D	
PM2.5	USEPA AP-42: Table 3.1-2a (uncontrolled; condensable)	0.0047	lb/MMBtu	C	
VOC	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.0021	lb/MMBtu	D	AP-42 states that VOC emissions are assumed equal to the sum of organic emissions.

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
HC-T	Engineering Estimate	16.1 x % operating load	g/s	N/A	There is no AP-42 emissions factor for total hydrocarbons. The permit application used a basis of 16.1 g/s per gas turbine during Operations; therefore this value will be used and factored down based on the estimated operating load for the turbine.

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 3.1 is applicable for Stationary Gas Turbines.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.

Table 2: Emission Factors used for the AGI (Based on Flare)

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
SO_X	Engineering Estimate				There is no AP-42 emissions factor for SO_X; therefore it is based on fuel gas sulphur content informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014).The assumed destruction efficiency is 100%.
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.027	lb/MMBtu	B	Based on a lightly smoking flare (soot in concentration values: 40 µg/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from µg/L to lb/MMBtu is documented in the “Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015”, issued to USEPA by RTI International.

4. CEMS Zero and Span Reporting (Condition 10.2.2)

4.1. Permit Condition

Under Condition 10.2.2, during Operations, after the completion of the initial CEMS performance evaluation, the monthly report shall include a summary of all CEMS out of control calibration zero and span events that occurred during the month.

4.2. Data and Assessment

As CEMS certification and RATA has not yet been completed, there is no CEMS zero and span reporting for this month.

5. CEMS Reporting (Condition 10.2.3)

5.1. Permit Condition

Under Condition 10.2.3, during Operations, after the completion of the initial CEMS performance evaluation, the Permittee shall provide a summary of CEMS data collected during the month.

5.2. Data and Assessment

As CEMS certification and RATA has not yet been completed, there is no CEMS zero and span reporting for this month.

6. Flaring Activity Reporting (Condition 10.2.4)

6.1. Permit Condition

Under Condition 10.2.4, a summary of all flaring activity carried out during the month is to be included in the monthly report. The monthly report shall include the following information:

a. identification of the flare source;

b. description of the type of process gas sent to flare;

c. the volume of gas sent to the flare during each event;

d. the reason for the flaring event;

e. any external notifications sent out, if applicable;

f. the (i) daily and (ii) monthly volume of gas being flared for each source;

g. the (i) daily and (ii) monthly contaminant emission totals for each source, parameters include NO_x, CO, $PM_{2.5}$, SO_x, VOCs, and HC-T; and

h. the quantification method (under Section 9) and representative calculations.

6.2. Data and Assessment

In Permit PA-110588, flaring activities are described as either a routine flaring event (continuous) or a non-routine flaring event (intermittent). Routine flaring discharges include the continuous flare pilots, which are supplied by fuel gas to provide a continuous ignition source so that any gas sent to the flare as a result of upset conditions ("non-routine flaring") is immediately combusted. The permit application to support Permit PA-110588 also described the other small sources of process gas that are continuously sent to the flare, including compressor seal gas, analyzer sample returns and passing valves.

Process gas refers to the natural gas stream intended for LNG production; the incoming gas stream from Coastal Gas Link (CGL) that undergoes several treatment stages (acid gas removal, pre-cooling, and finally, liquefaction) prior to being exported as LNG.

Appendix D contains the flaring activities tables, as follows:

- Table D-1: Flaring Events Table
- Table D-2: Warm/Wet Flare Volume and Emissions Summary
- Table D-3: Cold/Dry Flare Volume and Emissions Summary
- Table D-4: Storage and Loading Flare Volume and Emissions Summary
- Table D-5: Spare Flare Volume and Emissions Summary
- Table D-6: Liquid Burner Volume and Emissions Summary

Sample calculations are also provided in Appendix D (Exhibit D-1). The basis for this assessment is as follows:

- The daily volume of gas flared is sourced from the flow meters upstream of the applicable flare. In cases where the flow is below the detection limit of the flow meters, the sum of flow from upstream flow meters is used.
- The daily mass emissions from each flare source reported herein are calculated based on published emission factors for industrial flares (refer to Table 3), except for SO_X, which is calculated based on a mass balance and assumed destruction efficiency.

Table 3: Emission Factors used for the Flare System

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
Nox	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.12	lb/MMBtu	B	Based on an average smoking flare (soot in concentration values: 177 µg/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from µg/L to lb/MMBtu is documented in the “Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015”, issued to USEPA by RTI International.

7. Permit Contravention (Condition 10.2.5)

7.1. Permit Condition

Under Condition 10.2.5, a summary of all instances of permit non-compliances are to be included in the monthly report, including a description of the event (date, time, circumstances), a summary of the investigation findings, the completed and ongoing actions taken in response to the non-compliance event, and the date of self-disclosure notifications to the BCER.

7.2. Assessment

Flaring above permitted flaring rates

- Permit references: PA-110588 Sections 2.3.2 (Warm/Wet Flare), and acid gas incinerator temperature PA-110588 section 2.2.5
- Period: 01–31 July 2025.
- Description:
    - Warm/Wet Flare (FWW): Non-routine flaring occurred continuously through July, contrary to Section 2.3.2 which limits non-routine flaring to intermittent/as required. Calculated monthly average non-routine flaring rate ≈ 138 m³/min (based on total flared mass with a daily gas density of around 0.751 kg/m³; 44,640 minutes in July). Primary driver was additional fuel gas to prevent back-burn at the warm/wet flare tip.
    - Storage and Loading (FLP) flare: Continuous non-routine flaring occurred during July, attributable to passing valves; the calculated monthly average non-routine flaring rate was approximately 394 m³/min (17,570,826 m³ over 44,640 minutes). While non-routine flaring is “as required for non-routine events” under PA-110588 Section 2.5.1 and the period for non-routine flaring is “intermittent as required” per Section 2.5.2, the continuous nature observed indicates a deviation from the permit intent for non-routine flaring.
    - Acid gas incinerator temperature: The acid gas incinerator temperature was below 982 C for periods in July.

- Notifications: Voluntary self-disclosure submitted to BCER Compliance and Enforcement on 08 Aug 2025 (via C&E@bc-er.ca), consistent with Chapter 3 of the BCER Compliance and Enforcement Manual.

- Immediate/short-term actions:
    - FWW: Conducted nitrogen substitution testing to mitigate back-burn risk; results shared with BCER.
    - FLP: LNG Canada is investigating if the continuous non-routine flaring is related to instrumentation or actual process events.
    - Acid gas incinerator: Increase floor temperature to match set-point to maintain above the permit incinerator temperature limit.

- Long-term corrective actions (in evaluation):
    - FWW (and Spare Flare): Engineering assessment and vendor engagement (JFJV/Zeeco) for flare tip redesign/replacement to eliminate back-burn while maintaining WDA limits; technical proposal received and under evaluation.

- Supporting data: Daily FWW flaring datasets are provided in Appendix D.

8. Pollution Control Technologies (Condition 10.2.6)

8.1. Permit Condition

Under Condition 10.2.6, a discussion of any operational or performance issues or significant maintenance activities with any pollution control technologies of the authorized works and equipment required by the permit is to be included in the monthly report.

The pollution control technologies identified in the permit application supporting Permit PA-110588 were the:

- Dry low emissions combustor optimization system in the gas turbines (dry low NOx burners); and
- Catalysts in the WHRUs, to convert CO in the exhaust gas to carbon dioxide.

8.2. Assessment

There were no instances of operational or performance issues, or significant maintenance activities with the pollution control technologies within the reporting period.

9. Ambient Air Monitoring (Commissioning Only) (Condition 10.2.7)

9.1. Permit Condition

Condition 10.2.7 requires, during Commissioning and where publicly available, reporting of NO_2, SO_2, and PM2.5 data from the Kitamaat Village (Site 1), Kitimat Riverlodge (Site 2), and Kitimat Whitesail monitoring stations, including comparisons to BCAAQO metrics, identification of any exceedances with contributing factors and actions, and plots of hourly O_3.

9.2. Data and Assessment

Operations commenced following the first LNG cargo on June 30, 2025. As Condition 10.2.7 applies only during Commissioning, this requirement is no longer applicable for July 2025. Accordingly, no ambient air monitoring evaluation is provided this month.

Note: Public ambient air data for the Kitimat network remain available from the BC Ministry of Environment and Climate Change Strategy:

Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

10. Facility SO_2 Emission Limit (Condition 10.2.8)

10.1. Permit Condition

Under Condition 10.2.8, for all authorized sources in Sections 2.1 to 2.7, for each day of the month, the maximum hourly cumulative SO_2 discharge rate is to be provided in the monthly report, including the percentage breakdown of the sources contributing to the maximum discharge rate of each day.

10.2. Data and Assessment

Appendix E contains the cumulative SO_2 discharge rate from the authorized sources in Permit PA-110588 Section 2.1 to 2.7 (refer to Section 2.2), including the percentage breakdown of the sources contributing to the maximum discharge rate shown for each day.

The representative calculations for SO_2 are provided in Appendix C for the gas turbine and AGI, and Appendix D for the flare system.

11. References

- BC Ministry of Environment and Parks, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca)

Appendix A Abbreviations

AGI	Acid Gas Incinerator
AGRU	Acid Gas Removal Unit
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
CGL	Coastal Gas Link (Pipeline)
CO	Carbon monoxide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
KMS	Kitimat Metering Station
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
VOC	Volatile Organic Compound
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit
$\mu g/m^3$	Micrograms per cubic meter

Appendix B Previous Monthly Reports Issued Under PA-110588

Month	Document #	Date Issued
August 2024	L001-09800-HE-7180-4611	04-Sep-2024
September 2024	L001-09800-HE-7180-4612	22-Oct-2024; Revised 03-Mar-2025 (Rev B)
October 2024	L001-09800-HE-7180-4613	26-Nov-2024; Revised 03-Mar-2025 (Rev B)
November 2024	L001-09800-HE-7180-4614	16-Dec-2025; Revised 03-Mar-2025 (Rev B)
December 2024	L001-09800-HE-7180-4684	23-Mar-2025
January 2025	L001-09800-HE-7180-4691	26-Mar-2025
February 2025	L001-09800-HE-7180-4692	27-Mar-2025
March 2025	L001-09800-HE-7180-4702	25-Apr-2025
April 2025	L001-00000-HE-7180-1553	30-May-2025
May 2025	L001-00000-HE-7180-1554	30-Jun-2025
June 2025	L001-00000-HE-7180-1555	31-Jul-2025
July 2025	L001-00000-HE-7180-1556	31-Aug-2025

Appendix C Fuel Gas Use (Condition 10.2.1)

This condition applies only during Commissioning. As Operations commenced following first cargo loading on June 30, 2025, Condition 10.2.1 is not applicable for July 2025. Accordingly, no Commissioning fuel gas use data are reported for this month.

Table C-2: Gas Turbines String 1 and String 2

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Jul-25	819,985	1,412	214	67	1	30	1,720
2-Jul-25	869,773	1,499	227	71	1	32	1,890
3-Jul-25	896,123	1,542	234	73	1	33	1,961
4-Jul-25	871,678	1,511	229	72	1	32	1,960
5-Jul-25	967,782	1,669	253	79	1	35	2,199
6-Jul-25	978,017	1,690	256	80	1	36	2,222
7-Jul-25	974,983	1,684	255	80	1	36	2,232
8-Jul-25	965,229	1,665	252	79	1	35	2,183
9-Jul-25	968,403	1,672	253	79	1	35	2,193
10-Jul-25	903,187	1,559	236	74	1	33	1,989
11-Jul-25	874,724	1,511	229	72	1	32	1,938
12-Jul-25	574,102	991	150	47	1	21	1,297
13-Jul-25	869,017	1,497	227	71	1	32	1,908
14-Jul-25	594,210	1,025	155	49	1	22	1,347
15-Jul-25	577,599	996	151	47	1	21	1,310
16-Jul-25	532,339	916	139	44	1	19	1,171
17-Jul-25	935,434	1,609	244	76	2	34	2,045
18-Jul-25	979,843	1,693	256.5	80.4	2	36	2,172
19-Jul-25	990,743	1,712	259	81.3	2	36	2,204
20-Jul-25	984,811	1,699.3	257.5	80.7	2	36	2,175
21-Jul-25	975,911	1,684.8	255.3	80.0	2	36	2,144
22-Jul-25	977,379	1,689.8	256.0	80.2	3	36	2,166
23-Jul-25	565,632	976.5	148.0	46.4	2	21	1,257
24-Jul-25	523,951	905.0	137.1	43.0	2	19	1,167
25-Jul-25	520,073	898.1	136.1	42.6	2	19	1,153
26-Jul-25	515,060	890.9	135.0	42.3	2	19	1,137
27-Jul-25	513,774	894.6	135.5	42.5	2	19	1,141
28-Jul-25	519,308	898.3	136.1	42.6	2	19	1,139
29-Jul-25	514,267	889.8	134.8	42.2	2	19	1,124
30-Jul-25	514,671	892.5	135.2	42.4	2	19	1,127
31-Jul-25	515,141	895.7	135.7	42.5	2	19	1,130
Total	**23,783,149**	**41,068**	**6,222**	**1,949**	**46**	**871**	**52,801**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Table C-3: Acid Gas Incinerator

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Jul-25	10,946	13	53.1	5	1,084.0	113	24
2-Jul-25	57,006	68	277	24	1,084.1	590	125
3-Jul-25	105,259	124	510	44	1,084.1	1,087	231
4-Jul-25	101,214	121	494	43	1,084.1	1,053	223
5-Jul-25	101,448	120	493	43	1,084.1	1,050	223
6-Jul-25	55,479	65.84	270.1	23.53	1,084.1	575.1	121.99
7-Jul-25	54,068	64	263	23	1,084.1	560	119
8-Jul-25	102,074	121	496	43	1,084.1	1,057	224
9-Jul-25	102,064	121.03	496.56	43.3	1,084.1	1,057.20	224.25
10-Jul-25	102,157	121	497	43	1,084.1	1,058	224
11-Jul-25	101,989	121	497	43	1,084.1	1,057	224
12-Jul-25	102,531	121.6	498.8	43.5	1,084.1	1,062.0	225.3
13-Jul-25	102,657	121.5	498.5	43.4	1,084.1	1,061.2	225.1
14-Jul-25	100,331	118.85	487.65	42.47	1,084.1	1,038.2	220.2
15-Jul-25	23,045	27.29	111.98	9.75	1,084.0	238.4	50.6
16-Jul-25	102,141	120.8	495.5	43.2	1,084.2	1,054.9	223.8
17-Jul-25	102,209	120.8	495.6	43.2	1,084.2	1,055.1	223.8
18-Jul-25	101,910	120.9	496.2	43.2	1,084.2	1,056.4	224.1
19-Jul-25	101,998	121.0	496.6	43.3	1,084.2	1,057.3	224.3
20-Jul-25	102,974	122.1	500.7	43.6	1,084.2	1,066.1	226.1
21-Jul-25	102,207	121.2	497.3	43.3	1,084.2	1,058.7	224.6
22-Jul-25	102,388	121.6	498.9	43.5	1,084.3	1,062.1	225.3
23-Jul-25	104,465	123.9	508.3	44.3	1,084.3	1,082.1	229.5
24-Jul-25	104,477	124.0	508.6	44.29	1,084.3	1,082.7	229.7
25-Jul-25	103,810	123.1	505.2	44.00	1,084.3	1,075.6	228.2
26-Jul-25	103,280	122.7	503.5	43.85	1,084.3	1,071.9	227.4
27-Jul-25	100,954	120.7	495.4	43.15	1,084.3	1,054.7	223.7
28-Jul-25	102,619	121.9	500.3	43.57	1,084.3	1,065.0	225.9
29-Jul-25	101,954	121.2	497.1	43.3	1,084.4	1,058.4	224.5
30-Jul-25	101,305	120.7	495.1	43.1	1,084.4	1,054.00	223.57
31-Jul-25	101,077	120.7	495.3	43.140	1,084.4	1,054.46	223.67
Total	**2,862,036**	**3,396**	**13,933**	**1,213**	**33,610**	**29,667**	**6,293**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Exhibit C-1: Sample Emission Calculations – Gas Turbine

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hour (h) to 1 day (d)
    - 10,000 parts per million (ppm) in one percent

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable sources of data from the meters include:
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - Tag CA:KIT:114FI1601.PV: LNG Train 1, String 1 (1KT-1460); fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:114FI2601.PV: LNG Train 1, String 2 (1KT-1470); fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:114BHS1423.PV, Tag CA:KIT:114BHS2423.PV: Gas Turbine Operating Load (MW)
    - Emission factors: Refer to Table 1 within the report.

The sample calcuation below is based on the data from July 01, 2025.

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:114FI2601.PV & CA:KIT:114FI2601.PV is converted to volume flow rate using the fluid density of 0.742726215 kg/m³.

- Mass flow rate = 609,024 kg/d

Volume flow rate (m³/d)

= (609,024 / 0.742726215) ≈ 819,985 m^3/d

Step 2: Emission Calculation – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow } \left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value } \left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}} \left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000} \left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478 \left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor } \left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535 \text{ kg}}{1 \text{ lb}}$$

Using NOx for the example; NOx Mass Emission (kg/d)

= 609,024 x 40.47 x 1/ 0.742726215x 1/1000 x 0.9478 x 0.099 x 0.4535

≈ 1,412 kg/d

For SO_2, 0.94S was used as the emission factor - where "S" is the percent sulphur in fuel (refer to Table 1). "S" is based on the total sulphur content of the fuel gas (from the laboratory analysis) given fuel gas was used to fuel the gas turbine this month (refer to Appendix D, Table D-7).

SOx Mass Emission (kg/d)

= 609,024 x 40.47 x 1/ 0.742726215 x 1/1000 x 0.9478 x 0.94*(0.000072) x 0.4535

≈ 1 kg

Emission Calculation Basis – when using Engineering Estimates (only applies to HC-T)

Formula: HC-T Mass Emission (kg/h)

$$= 16.1 \frac{\text{g}}{\text{s}} \times \frac{\text{Operating load (\%)}}{100} \times \frac{1 \text{ kg}}{1000 \text{ g}} \times \frac{3600 \text{ s}}{1 \text{ h}}$$

Using the same date, for the example, where the gas turbine operating load was obtained from CA:KIT:114BHS1423.PV. For the purposes of this calculation, the maximum operating load of the LMS100 is approximately 110 MW. This calculation is demonstrated for String 1:

Operating load (%)

= (97.26 MW / 110 MW) x 100 = 88.33 %

HC-T Mass Emission (kg/h)

= 16.1 x 88.98/100 x 1/1000 x 3600/1

= 51.196 kg/h

HC-T Mass Emission (kg/d)

= 51.57281 x 24

≈ 1,229 kg/d

Exhibit C-2: Sample Emission Calculations – Acid gas incinerator

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)

- 0.4535 kilograms (kg) to 1 pound (lb)
- 1000 grams (g) to 1 kg
- 3600 seconds (s) to 1 hour (h)
- 24 hours (h) to 1 day (d)
- 10,000 parts per million (ppm) in one percent

Input Values

The applicable sources of data from the meters include:

- Tag CA:KIT:119FI0302.PV: Fuel gas consumption by the acid gas incinerator
- Tag CA:KIT:119FI0001.PV: Acid gas to incinerator
- Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
- Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) multiplied by a reference air density of 1.225 kg/m³ (15°C, 1 atm) and corrected to standard conditions (20°C, 1 atm) to determine the actual natural gas density.
- Emission Factors: Refer to Table 1 within the report.

The sample calculation below is based on the data from July 01, 2025.

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:119FI0302.PV is converted to volume flow rate using the fluid density of 0.742726215 kg/m³.

Mass flow rate = 8,130 kg/d

Volume flow rate (m³/d):

= Mass flow rate / Fluid density

= 8,130 / 0.742726215 ≈ 10,946 m³/d

Step 2: Emission Calculation – Using Emission Factors

Formula: Mass Emission (kg/d) =

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Example: NOx Emissions

- NOx Emission Factor: 0.068 lb/MMBTU

NOx Mass Emission (kg/d):

= 8,130 × 40.47 × (1 / 0.742726215) × (1 / 1000) × 0.9478 × 0.068 × 0.4535 ≈ 13 kg/d

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

For fuel gas contribution to SO_2, total sulphur is based on the total sulphur content of the fuel gas for July 01, 2025 (from the laboratory analysis) given fuel gas was used to fuel the AGI this month (refer to Appendix D, Table D-7).

SO_2 Mass Emission (kg/d):

= 8,130 x 0.000072 x 0.01 x (64.066 / 32.065)

≈ 0.012 kg/d

Adding an average of 1,084 kg/d from H2S coming from the Acid Gas Removal Unit (AGRU) gives = 1,084.012 kg/d

C-2a. Design Calculation for SO2 from Sulfur Species coming from AGRU to AGI:

Context and basis

- Due to low pressure at the sampling cabinet, a representative sulfur sample could not be collected for the period. SO2 emissions are estimated by sulfur balance using design calculations (material mass balance).
- Assumption: complete oxidation of sulfur to SO2 in the combustion/incineration process.
- Stoichiometry: 1 mol S in fuel → 1 mol SO2 after complete oxidation.
- Species considered: H2S, C1–C3 mercaptans (R–SH). Carbonyl sulfide (COS) is 0; CS2 and other sulfur species are not present in the provided data.
- Molecular weights: H2S 34.08188 g/mol; SO2 64.066 g/mol. Each mercaptan molecule contains one sulfur atom.

Given molar flows (kgmol/h)

- H2S: 0.2207292
- Methanethiol (C1-mercaptan): 0.0591772
- Ethanethiol (C2-mercaptan): 0.0291496
- Propanethiol (C3-mercaptan): 0.3959780
- COS: 0
- Other sulfur species: none listed

Step 1: Add total moles of sulfur components per hour

- S mol/h = 0.2207292 + 0.0591772 + 0.0291496 + 0.3959780
- S mol/h = 0.7050340 kgmol/h

Step 2: Moles of SO2 produced per hour

- 1:1 with sulfur
- SO2 mol/h = 0.7050340 kgmol/h

Step 3: Mass of SO2 per hour

- MW(SO2) = 64.066 kg/kmol
- SO2 kg/h = 0.7050340 × 64.066 = 45.174 kg/h

Step 4: Mass of SO2 per day

- SO2 kg/day = 45.174 × 24 = 1,084.2 kg/day

Result

- Total SO2 ≈ 1,084 kg/day or 45.17 kg/h

Notes and clarifications

- This above estimate represents SO2 formed from sulfur in the acid gas removal unit to the incinerator (and any combustion where these sulfur-bearing components are fully oxidized). It excludes any additional SO2 that would arise from sulfur in other streams
- This design-calculation result aligns with the mass balance approach already described for AGI SO2 in Exhibit C-2 and Section 10.2.8 (Appendix E). When representative sampling resumes and CEMS data are

certified (post-RATA), measured data will supersede design estimates.

Cross-references in this report:

- Appendix C, Table C-3 (AGI): The daily SO2 value dominated by AGRU H2S conversion is consistent with the above sulfur-to-SO2 stoichiometry.
- Appendix E (Facility SO2 limit): Maximum hourly cumulative SO2 rates incorporate this design-calculation basis for AGI when sampling/CEMS are unavailable.

Appendix D Flaring Activity (Condition 10.2.4)

Table D-1: Flaring Event Overview

Flare	Event Type	Event Date & Time			Description	Volume of Gas to Flare Per Event (m^3/month)	External Notifications Undertaken
		Start	End	Duration			
Warm/Wet	Routine	01-Jul-2025	31-Jul-2025	Continuous	Pilot and purge gas	6,203	
Warm/Wet	Non-Routine	01-Jul-2025	31-Jul-2025	Continuous	Assist gas and Flaring to mitigate Back Burn issue.	6,152,696	YES
Cold/Dry	Routine	01-Jun-2025	31-Jul-2025	Continuous	Pilot, and fuel gas purges	18,369	
Cold/Dry	Non-Routine	01-Jul-2025	31-Jul-2025	Continuous	Flaring from start-up of Refrigerant Production Unit (RPU)	994,719	YES
Storage and Loading	Routine	01-Jul-2025	31-Jul-2025	Continuous	Pilot and purge gas	192,038	
Storage and Loading	Non-Routine	01-Jul-2025	31-Jul-2025	Continuous	Assist gas and Boil-off Gas (BOG) Compressor start-up.	17,570,826	YES
Spare	Routine	01-Jul-2025	31-Jul-2025	Continuous	Pilot and purge gas	5,799	
Spare	Non-Routine	01-Jul-2025	31-Jul-2025	Continuous	Repair of leak, upstream 062MOV-0003 on the FCD line-up which required diverting flow to spare flare	2,120,466	
Liquid Burner	Routine	01-Jul-2025	31-Jul-2025	Continuous	Pilot	13,976	
Liquid Burner	Non-Routine	01-Jul-2025	31-Jul-2025	Continuous	Assist Gas and emptying of one Blowcase vessel of off-spec refrigerant.	17,250	

The data for the warm/wet flare was derived from the main warm/wet flare flowmeter (CA:KIT:062FI0103.PV) including pilot and assist gas (CA:KIT:062FI0312.PV) and subtracting nitrogen purges.

The fuel volumes below were corrected to 20°C.

Table D-2: Flaring Event – Warm/Wet Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Jul-25	299,398	354	1,452	562	0.3	3,092	656
2-Jul-25	231,161	274	1,124	435	0.2	2,394	508
3-Jul-25	179,464	212	870	337	0.2	1,853	393
4-Jul-25	191,158	228	935	362	0.2	1,990	422
5-Jul-25	183,929	218	895	346	0.2	1,905	404
6-Jul-25	258,734	307	1,258	487	0.3	2,679	568
7-Jul-25	261,691	310	1,273	493	0.3	2,710	575
8-Jul-25	193,912	230	943	365	0.2	2,008	426
9-Jul-25	173,938	206	846	327	0.2	1,801	382
10-Jul-25	177,981	211	866	335	0.2	1,843	391
11-Jul-25	174,913	208	851	329	0.2	1,811	384
12-Jul-25	183,871	218	894	346	0.2	1,904	404
13-Jul-25	180,192	213	874	338	0.2	1,861	395
14-Jul-25	207,386	246	1,009	390	0.2	2,147	456
15-Jul-25	362,083	429	1,761	682	0.7	3,749	795
16-Jul-25	200,866	237	974	377	0.4	2,074	440
17-Jul-25	204,251	241	991	383	0.4	2,109	447
18-Jul-25	203,174	241	988	383	0.4	2,104	446
19-Jul-25	196,229	233	954	369	0.4	2,032	431
20-Jul-25	199,660	237	971	376	0.4	2,067	439
21-Jul-25	184,289	219	896	347	0.3	1,908	405
22-Jul-25	207,125	246	1,010	391	0.6	2,151	456
23-Jul-25	198,246	235	964	373	0.6	2,053	435
24-Jul-25	164,803	196	802	310	0.5	1,706	362
25-Jul-25	145,056	172	705	273	0.4	1,502	319
26-Jul-25	125,991	150	614	238	0.4	1,308	277
27-Jul-25	150,040	179	736	285	0.4	1,566	332
28-Jul-25	180,670	215	881	341	0.5	1,876	398
29-Jul-25	188,301	224	918	355	0.7	1,955	415
30-Jul-25	174,319	208	852	330	0.6	1,815	385
31-Jul-25	176,068	210	863	334	0.6	1,838	390

Monthly Total	**6,158,899**	**7,307**	**29,970**	**11,599**	**11**	**63,811**	**13,536**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

For this month, the reporting for the cold/dry flare is from the main flowmeter (CA:KIT:062FI0123.PV) and including pilot (CA:KIT:062FI0343.PV) and subtracting nitrogen purges.

Table D-3: Flaring Event – Cold/Dry Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Jul-25	2,371	4.1	17	6.4	-	35	7.5
2-Jul-25	601	0.7	3	1.1	-	6	1.3
3-Jul-25	45,750	86.3	354	137.1	-	754	160.0
4-Jul-25	85,899	162.5	667	258.1	-	1,419	301.2
5-Jul-25	32,451	61.1	251	97.1	-	534	113.3
6-Jul-25	37,241	70.2	288	111.5	-	613	130.1
7-Jul-25	34,441	64.9	266	103.0	-	567	120.3
8-Jul-25	58,127	109.7	451	174.1	-	959	203.5
9-Jul-25	68,559	129.7	532	206.1	-	1,132	240.2
10-Jul-25	94,153	177.7	731	283.1	-	1,556	330.1
11-Jul-25	601	0.7	3	1.1	-	6	1.3
12-Jul-25	601	0.7	3	1.1	-	6	1.3
13-Jul-25	604	0.7	3	1.1	-	6	1.3
14-Jul-25	602	0.7	3	1.1	-	6	1.3
15-Jul-25	601	0.7	3	1.1	-	6	1.3
16-Jul-25	603	0.7	3	1.1	-	6	1.3
17-Jul-25	605	0.7	3	1.1	-	6	1.3
18-Jul-25	604	0.7	3	1.1	-	6	1.3
19-Jul-25	604	0.7	3	1.1	-	6	1.3
20-Jul-25	603	0.7	3	1.1	-	6	1.3
21-Jul-25	603	0.7	3	1.1	-	6	1.3
22-Jul-25	602	0.7	3	1.1	-	6	1.3
23-Jul-25	604	0.7	3	1.1	-	6	1.3
24-Jul-25	604	0.7	3	1.1	-	6	1.3
25-Jul-25	50,117	94.7	388	150.1	-	826	175.4
26-Jul-25	63,060	118.7	489	189.1	-	1,041	220.9
27-Jul-25	71,477	134.7	555	215.1	-	1,180	250.5
28-Jul-25	50,938	95.7	395	153.1	-	840	178.3
29-Jul-25	133,690	253.0	1,039	402.0	-	2,211	469.1

30-Jul-25	86,919	165.0	675	261.0	-	1,436	304.7
31-Jul-25	88,853	168.0	690	268.0	-	1,470	311.9
Monthly Total	**1,013,088**	**1,907**	**7,833**	**3,031**	**-**	**16,663**	**3,537**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Flaring occurred from the storage and loading flare (FLP) during the warming of the LNG tank as the boil-off gas compressor had tripped on July 14 2025. Other sources of flaring from FLP were assist gas (CA:KIT:062FI0351.PV), and fuel gas purges (CA:KIT:062FI0131.PV; CA:KIT:062FI0133.PV; CA:KIT:062FI0041.PV).

Table D-4: Flaring Event – Storage and Loading Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		Nox	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Jul-25	1,666,504	1,804	7,401	2,865	0.2	15,757	3,343
2-Jul-25	1,602,016	1,733	7,115	2,754	0.2	15,148	3,213
3-Jul-25	1,552,349	1,680	6,895	2,669	0.2	14,678	3,114
4-Jul-25	1,646,100	1,782	7,311	2,830	0.2	15,564	3,302
5-Jul-25	1,802,468	1,951	8,004	3,099	0.2	17,043	3,615
6-Jul-25	2,007,383	2,173	8,915	3,451	0.2	18,980	4,026
7-Jul-25	1,641,489	1,777	7,290	2,822	0.2	15,520	3,292
8-Jul-25	1,623,184	1,757	7,208	2,791	0.2	15,348	3,256
9-Jul-25	260,360	282	1,156	448	0.1	2,461	522
10-Jul-25	77,849	84	346	134	-	736	156
11-Jul-25	82,924	90	368	142	-	784	166
12-Jul-25	87,378	94	388	150	-	826	175
13-Jul-25	119,842	130	532	206	-	1,134	240
14-Jul-25	1,197,620	1,296	5,319	2,059	-	11,324	2,402
15-Jul-25	1,134,722	1,228	5,040	1,951	0.3	10,729	2,276
16-Jul-25	159,647	172	709	275	0.2	1,509	321
17-Jul-25	54,471	59	241	93	-	515	109
18-Jul-25	51,990	56	231	89	-	491	104
19-Jul-25	45,640	49	202	78	-	431	91
20-Jul-25	46,852	51	208	80	-	443	94
21-Jul-25	85,559	92	380	147	-	809	171
22-Jul-25	122,037	132	542	209	-	1,154	244
23-Jul-25	197,163	213	875	339	-	1,864	396
24-Jul-25	76,645	83	340	131	-	725	153
25-Jul-25	57,051	62	253	98	-	540	114
26-Jul-25	69,637	75	309	119	-	658	139

27-Jul-25	61,533	67	273	106	-	582	123
28-Jul-25	71,997	78	319	123	-	680	144
29-Jul-25	49,208	53	218	84	-	466	98
30-Jul-25	57,373	62	255	98	-	542	115
31-Jul-25	53,873	58.0	240.0	92.0	-	509.0	108
Monthly Total	**17,762,864**	**19,223**	**78,883**	**30,532**	**2.2**	**167,950**	**35,622**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Table D-5: Flaring Event – Spare Flare Volume and Emissions Summary

The spare flare pilot was in operation between July 1 and 2, and from July 10 to 24. The volumes and emissions reported in the table below for these dates reflect intermittent, non-routine flaring and include the combustion of the associated pilot and assist gas.

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Jul-2025	24,452	46	190	73	-	404	85
2-Jul-2025	26,050	49	202	78	-	429	91
3-Jul-2025	204	-	1	-	-	2	-
4-Jul-2025	199	-	1	-	-	2	-
5-Jul-2025	200	-	1	-	-	2	-
6-Jul-2025	200	-	1	-	-	2	-
7-Jul-2025	200	-	1	-	-	2	-
8-Jul-2025	201	-	1	-	-	2	-
9-Jul-2025	205	-	1	-	-	2	-
10-Jul-2025	99,916	189	777	300	0.2	1,654	351
11-Jul-2025	34,057	64	265	103	0.1	562	120
12-Jul-2025	135,076	256	1,050	407	0.2	2,237	475
13-Jul-2025	69,000	130	536	208	0.1	1,141	242
14-Jul-2025	147,535	279	1,148	445	0.3	2,442	518
15-Jul-2025	746,891	1,416	5,812	2,250	2.3	12,374	2,625
16-Jul-2025	612,022	1,160	4,763	1,844	1.9	10,139	2,151
17-Jul-2025	38,173	72	296	115	0.1	631	134
18-Jul-2025	32,758	62	254	99	0.1	541	115
19-Jul-2025	23,823	45	184	72	0.1	393	84
20-Jul-2025	23,185	43	179	70	0.1	382	81
21-Jul-2025	32,376	61	251	98	0.1	535	114
22-Jul-2025	15,513	29	120	47	0.1	255	54
23-Jul-2025	23,251	43	180	70	0.1	384	82
24-Jul-2025	38,983	73	303	117	0.2	644	137
25-Jul-2025	338	-	2	1	-	4	1

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
26-Jul-2025	323	-	2	1	-	3	1
27-Jul-2025	315	-	2	1	-	3	1
28-Jul-2025	205	-	1	-	-	2	-
29-Jul-2025	205	-	1	-	-	2	-
30-Jul-2025	205	-	1	-	-	2	-
31-Jul-2025	204	-	1	-	-	2	-
Monthly Total	**2,126,265**	**4,017**	**16,527**	**6,399**	**6**	**35,179**	**7,462**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

In addition to the continuous pilot gas, the emissions reported for the liquid burner are primarily associated with non-routine flaring from blowcase vessel.

This testing involved the controlled combustion from the blowcase (114HCV-0003). The daily emissions data presented in Table D-6 below reflects the combination of these activities, assist gas (CA:KIT:062FI0361.PV, CA:KIT:062FI0381.PV, CA:KIT:062FI0400.PV) and the pilot.

Table D-6: Flaring Event – Liquid Burner Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Jul-25	453	1	2	1	-	5	1
2-Jul-25	12,295	22	90	35	0.02	192	41
3-Jul-25	452	0.5	2	1	-	5	1
4-Jul-25	448	0.5	2	1	-	5	1
5-Jul-25	451	0.5	2	1	-	5	1
6-Jul-25	450	0.5	2	1	-	5	1
7-Jul-25	5,879	7.0	29	11	-	61	13
8-Jul-25	451	0.5	2	1	-	5	1
9-Jul-25	450	0.5	2	1	-	5	1
10-Jul-25	451	0.5	2	1	-	5	1
11-Jul-25	450	0.5	2	1	-	5	1
12-Jul-25	450	0.5	2	1	-	5	1
13-Jul-25	451	0.5	2	1	-	5	1
14-Jul-25	451	0.5	2	1	-	5	1
15-Jul-25	451	0.5	2	1	-	5	1
16-Jul-25	452	0.5	2	1	-	5	1
17-Jul-25	452	0.5	2	1	-	5	1
18-Jul-25	450	0.5	2	1	-	5	1
19-Jul-25	450	0.5	2	1	-	5	1
20-Jul-25	451	0.5	2	1	-	5	1
21-Jul-25	450	0.5	2	1	-	5	1
22-Jul-25	450	0.5	2	1	-	5	1
23-Jul-25	450	0.5	2	1	-	5	1
24-Jul-25	450	0.5	2	1	-	5	1
25-Jul-25	450	0.5	2	1	-	5	1
26-Jul-25	449	0.5	2	1	-	5	1
27-Jul-25	446	0.5	2	1	-	5	1
28-Jul-25	449	0.5	2	1	-	5	1
29-Jul-25	449	0.5	2	0.9	-	5	1

30-Jul-25	448	0.5	2	0.9	-	5	1
31-Jul-25	447	0.5	2	0.9	-	4.7	1.0
Monthly Total	**31,226**	**43**	**178**	**74**	**0.02**	**397**	**83**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Exhibit D-1: Sample Emission Calculations – Warm/Wet Flare

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 h to 1 day (d)
    - 10,000 parts per million (ppm) in one percent.

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable meters include:
    - KITSL-V1P.curval (KMS): This tag provides the daily fuel gas volume data recorded at the KMS. These volumes, measured at atmospheric pressure, serve as the primary input for calculating flared gas volumes.
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density was obtained (daily values at 1 atm) This was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - CA:KIT:062FI0343.PV: This tag measures the total fuel gas consumption for all flare pilots. The portions attributable to the cold dry flare and the liquid burner were determined using flare tip allocations and subtracted from the total to determine the warm/wet flare pilot gas consumption.
    - CA:KIT:062FI0103.PV: This is the main flow meter for the warm/wet flare
    - Emission factors: Refer to Table 2 within the report.

Emission Calculation Basis – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right)$$
$$\times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using July 01, 2025, and NOx for the example:

Convert volumetric flow rate to mass flow rate:

Volumetric flow rate = 299,398 m^3/d – corrected to 20°C.

Mass flow rate = 299,398 m^3/d x 0.74272622 kg/m^3 = 222,371 kg/d

NOx Mass Emission (kg/d)

= 222,371 x 40.47 x (1 / 0.74272622) x (1 / 1000) x 0.9478 x 0.068 x 0.4535

≈ 354 kg/d

Similar calculations follow for CO, $PM_{2.5}$, VOC, and HC-T, however all HHV values in their calculations are converted to LHV.

Emission Calculation Basis – when using Engineering Estimates (only applies to SOx):

Total sulfur content (S) in feed gas samples was analyzed periodically by the LNG Canada laboratory. Table D-7 summarizes the laboratory results.

Table D-7: Total Sulphur Content Measured in the Feed Gas (Laboratory Results)

Date	Total Sulphur in Feed Gas (PPMW)	%
08-Jul-25	0.72	0.000072
15-Jul-25	1.25	0.000125
22-Jul-25	1.98	0.000198
29-Jul-25	2.32	0.000232

To bridge periods between measurements, the following approach was used:

- July 01 - 08: SO_2 emissions were calculated using the July 08, 2025 total sulphur measurement.
- July 09 - 15: The July 09, 2025 measurement was applied.
- July 16 - 22: The July 15, 2025 measurement was applied.
- July 23 - 29: The July 23, 2025 measurement was applied.

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

Using July 01, 2025, for the example, where the applied percent sulphur in the fuel gas is 0.18 PPMW.

SO_2 Mass Emission (kg/d)

= 222,371 x 0.000072 x (1 / 100) x (64.066 / 32.065) x 1

≈ 0.3 kg/d

The same calculation approach would follow for SO_2 (kg/h) numbers; with the flow rate in kg/h rather than kg/d.

Appendix E Facility SO_2 Emission Limit (Condition 10.2.8)

Table F-1 presents the maximum hourly cumulative SO_2 discharge rate per day. It does not imply that the maximum discharge rate occurred for the full 24 hours that day. The maximum hourly rate was based on the maximum hourly flow rate obtained for each of the contributing sources below on the respective dates. The total sulfur content was obtained from Table D-7.

As reporting from CEMS is currently not being undertaken, AGI SO2 emissions from H2S coming from the Acid Gas Removal Unit (AGRU) were estimated using design calculations.

Table E-1: Maximum Hourly SO_2 Discharge Rate for Each Day

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
01-Jul-25	45.233	0.09%	99.86%	0.03%	0.00%	0.02%	0.00%	0.00%
02-Jul-25	45.258	0.10%	99.82%	0.04%	0.00%	0.02%	0.00%	0.02%
03-Jul-25	45.243	0.10%	99.85%	0.03%	0.00%	0.02%	0.00%	0.00%
04-Jul-25	45.243	0.11%	99.85%	0.02%	0.00%	0.02%	0.00%	0.00%
05-Jul-25	45.244	0.12%	99.85%	0.01%	0.00%	0.02%	0.00%	0.00%
06-Jul-25	45.249	0.11%	99.84%	0.03%	0.00%	0.02%	0.00%	0.00%
07-Jul-25	45.260	0.12%	99.82%	0.02%	0.00%	0.02%	0.00%	0.02%
08-Jul-25	45.255	0.11%	99.82%	0.03%	0.00%	0.02%	0.00%	0.02%
09-Jul-25	45.241	0.11%	99.85%	0.02%	0.00%	0.02%	0.00%	0.00%
10-Jul-25	45.240	0.12%	99.86%	0.01%	0.00%	0.01%	0.00%	0.00%
11-Jul-25	45.238	0.12%	99.86%	0.02%	0.00%	0.00%	0.00%	0.00%
12-Jul-25	45.236	0.11%	99.86%	0.03%	0.00%	0.00%	0.00%	0.00%
13-Jul-25	45.234	0.11%	99.87%	0.02%	0.00%	0.00%	0.00%	0.00%
14-Jul-25	45.235	0.11%	99.87%	0.02%	0.00%	0.00%	0.00%	0.00%
15-Jul-25	45.302	0.18%	99.72%	0.07%	0.00%	0.03%	0.00%	0.00%
16-Jul-25	45.275	0.12%	99.78%	0.07%	0.00%	0.03%	0.00%	0.00%
17-Jul-25	45.283	0.19%	99.76%	0.05%	0.00%	0.00%	0.00%	0.00%
18-Jul-25	45.277	0.19%	99.77%	0.04%	0.00%	0.00%	0.00%	0.00%
19-Jul-25	45.282	0.19%	99.76%	0.05%	0.00%	0.00%	0.00%	0.00%
20-Jul-25	45.278	0.19%	99.77%	0.04%	0.00%	0.00%	0.00%	0.00%
21-Jul-25	45.276	0.19%	99.78%	0.03%	0.00%	0.00%	0.00%	0.00%
22-Jul-25	45.339	0.30%	99.64%	0.06%	0.00%	0.00%	0.00%	0.00%
23-Jul-25	45.337	0.30%	99.64%	0.06%	0.00%	0.00%	0.00%	0.00%
24-Jul-25	45.273	0.16%	99.78%	0.06%	0.00%	0.00%	0.00%	0.00%
25-Jul-25	45.270	0.16%	99.79%	0.05%	0.00%	0.00%	0.00%	0.00%
26-Jul-25	45.265	0.15%	99.80%	0.05%	0.00%	0.00%	0.00%	0.00%
27-Jul-25	45.267	0.16%	99.80%	0.04%	0.00%	0.00%	0.00%	0.00%

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage and Loading Flare	Spare Flare	Liquid Burner
28-Jul-25	45.274	0.16%	99.78%	0.06%	0.00%	0.00%	0.00%	0.00%
29-Jul-25	45.285	0.18%	99.76%	0.06%	0.00%	0.00%	0.00%	0.00%
30-Jul-25	45.286	0.18%	99.75%	0.07%	0.00%	0.00%	0.00%	0.00%
31-Jul-25	45.290	0.18%	99.74%	0.08%	0.00%	0.00%	0.00%	0.00%

* Individual values may be subject to rounding adjustments

Appendix F ZEECO vs EPA Emission Factors

As an example, comparison of using ZEECO flare-specific emission factors for the warm/wet flare leads to lower estimates for VOC compared to EPA AP-42, a reduction for NOx, and zero PM2.5. These differences reflect ZEECO's vendor-specific performance data, as opposed to the more conservative, generic AP-42 factors. SOx remains unchanged because it is calculated by sulfur mass balance, not by an emission factor.

Comparison table (Warm/Wet Flare, July 2025)

- Basis:
    - AP-42 factors (lb/MMBtu): NOx 0.068; CO 0.31; PM2.5 0.12; VOC 0.66; HC-T 0.14.
    - ZEECO factors (lb/MMBtu): NOx 0.0641; CO 0.5496; PM2.5 0; VOC 0.14; SOx 0 (SOx still from sulfur balance).

Comparison:

Pollutant	EPA AP-42 Total (kg)	ZEECO Total (kg)	Absolute Difference (kg)	Percent Difference (ZEECO vs EPA)
NOx	7,307	6,888	−419	−5.7%
CO	29,970	53,134	+23,164	+77.3%
PM2.5	11,599	0	−11,599	−100%
SOx	11	11	0	0%
VOC	63,811	13,536	−50,275	−78.8%
HC-T	13,536	N/A	N/A	N/A

Table F-1: ZEECO vs EPA AP-42 Emission factor comparison

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Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Monthly Report (August 2025)

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1. Executive Summary

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. The BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., for the discharge of air contaminants to the environment from the LNG Facility.

Permit PA-110588 requires a monthly report to be submitted to the BCER that includes data/information on:

- Gas Turbines (GT) and Acid Gas Incinerator (AGI) emissions
- Flaring Activities
- Facility sulphur dioxide (SO_2) Emissions

Herein is the monthly report for August 2025. A summary of the findings for this reporting period is as follows:

- A self-disclosure of non-compliance was submitted to BCER on August 8, 2025, regarding August flaring: continuous non-routine flaring at the warm/wet flare.
- For periods in August, the acid gas incinerator operated below the permit-required minimum combustion temperature of 982°C.
- There were air emissions from eight authorised discharge sources defined in Sections 2.1 to 2.7 of Permit PA-110588: warm/wet flare, cold/dry flare, liquid burner, storage and loading flare, spare flare, gas turbine string 1 WHRU, gas turbine string 2 WHRU, and Train 1 acid gas incinerator (AGI).
- By volume, the warm wet flare (FWW) was the largest source of air emissions, primarily due to the backburn issue.
- This report provides Zeeco emission factors for flaring - see Appendix F. LNG Canada has discussed and agreed with BCER to move to Zeeco emission factors for all future monthly reporting on flaring.

2. Overview

2.1. Project Background

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia, Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

2.2. Purpose

On August 15, 2024, the BCER issued WDA discharge permit PA-110588 to LNG Canada Development Inc., under the provisions of the BC *Environmental Management Act*, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Permit PA-110588 applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.2 of Permit PA-110588 (Monthly Reporting) for August 2025.

Refer to Appendix B for a list of all monthly reports that have been issued under Permit PA-110588.

2.3. LNG Facility Status

Fuel gas was first introduced to Unit 1000 (Inlet Facilities) on August 31, 2024. Fuel gas was introduced to the flare headers and the warm/wet flare pilot was first lit on September 1, 2024.

LNG production began on June 22, 2025. The first LNG cargo was loaded on June 30, 2025, marking the start of Operations on July 1, 2025.

During this month, discharges of air contaminants occurred from the following authorized works:

- One (1) warm/wet flare
- One (1) cold/dry flare
- One (1) storage and loading flare
- One (1) spare flare
- One (1) Liquid burner
- Two (2) Gas turbine’s: String 1 and String 2 Waste Heat Recovery Units (WHRUs)

- One (1) Train 1 acid gas incinerator (AGI)

The plant is currently in operations as defined by Permit PA-110588, as the “Commissioning” phase which is defined as “that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.” has been completed. Operations is the period of time which follows Commissioning.

The Initial Performance Period (IPP) did not commence during August 2025 (which is defined as the period that “*commences upon the completion of the initial performance test for LNG Train 1”*).

3. Fuel Gas Use (Commissioning Only) (Condition 10.2.1)

3.1. Permit Condition

Under Condition 10.2.1, the monthly report shall identify and provide a summary of fuel gas use at the facility during Commissioning. The monthly report shall include the following information:

a) the daily volume of fuel gas combusted and vented;

b) the daily mass emissions of NOx, SOx, CO, PM2.5, VOCs and HC-T, for the authorized works in Section 2.1 and 2.2; and

c) the quantification method (under Section 9) and representative calculations

As the Facility is now in Operations, Condition 10.2.1 is not applicable for this month, however, in discussions with BCER, it was agreed that until the CEMS becomes available, LNGC will continue reporting 10.2.1b – c.

Appendix C contains the summary of daily mass emissions of NO_X, SO_X, CO, $PM_{2.5}$, VOCs, and HC-T from the gas turbines and AGI (which is Section 2.1 and 2.2 of Permit PA-110588 respectively) in August 2025.

The basis for this assessment is as follows:

- Emissions from AGI are estimated based on published emission factors for a flare, to represent a high temperature oxidation process to burn hydrocarbons (refer to Table 2). Similar to the gas turbine engines, the data from the CEMS associated with the AGI will be available after the RATA has been undertaken (which will be done when a stable, full plant load is achieved). LNG Canada plans to do stack testing by Q3 of 2025 and will be developing emission factors to replace EPA AP-42. In future monthly reports, LNG Canda will utilize emission factors from stack testing.
- Emissions from the gas turbines are calculated using published emission factors from the US EPA AP-42, as detailed in Table 1. An engineering estimate based on the turbine's operating load is used for total hydrocarbons (HC-T), as a specific AP-42 factor is not available. This calculation methodology is used for the period, as the Continuous Emissions Monitoring System (CEMS) for the gas turbines has not yet completed its final certification. The data from the CEMS will be utilized for reporting following the successful completion of the Relative Accuracy Test Audit (RATA), which will be conducted after a stable, full plant load is achieved.
- LNG Canada is adopting Zeeco design emission factors for reporting from flaring instead of EPA AP-42. Emissions from flaring using Zeeco emission factors are provided in Appendix F.

Table 1 Natural Gas-Fired Turbine Emission Factors

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.099	lb/MMBtu	D	
SO_x	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.94S	lb/MMBtu	B	Where “S” is the percent sulphur in fuel. “S” to be informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014). If “S” is not available, the AP-42 states to use 3.4 E-03 lb/MMBtu for natural gas turbines (0.0034).
CO	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.015	lb/MMBtu	D	

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
PM2.5	USEPA AP-42: Table 3.1-2a (uncontrolled; condensable)	0.0047	lb/MMBtu	C	
VOC	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.0021	lb/MMBtu	D	AP-42 states that VOC emissions are assumed equal to the sum of organic emissions.
HC-T	Engineering Estimate	16.1 x % operating load	g/s	N/A	There is no AP-42 emissions factor for total hydrocarbons. The permit application used a basis of 16.1 g/s per gas turbine during Operations; therefore this value will be used and factored down based on the estimated operating load for the turbine.

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 3.1 is applicable for Stationary Gas Turbines.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.

Table 2: Emission Factors used for the AGI (Based on Flare)

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
SO_X	Engineering Estimate				There is no AP-42 emissions factor for SO_X; therefore it is based on fuel gas sulphur content informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014).The assumed destruction efficiency is 100%.
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.027	lb/MMBtu	B	Based on a lightly smoking flare (soot in concentration values: 40 µg/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from µg/L to lb/MMBtu is documented in the “Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015”, issued to USEPA by RTI International.

4. CEMS Zero and Span Reporting (Condition 10.2.2)

4.1. Permit Condition

Under Condition 10.2.2, during Operations, after the completion of the initial CEMS performance evaluation, the monthly report shall include a summary of all CEMS out of control calibration zero and span events that occurred during the month.

4.2. Data and Assessment

As CEMS certification and RATA has not yet been completed, there is no CEMS reporting for this month.

5. CEMS Reporting (Condition 10.2.3)

5.1. Permit Condition

Under Condition 10.2.3, during Operations, after the completion of the initial CEMS performance evaluation, the Permittee shall provide a summary of CEMS data collected during the month.

5.2. Data and Assessment

As CEMS certification and RATA has not yet been completed, there is no CEMS reporting for this month.

6. Flaring Activity Reporting (Condition 10.2.4)

6.1. Permit Condition

Under Condition 10.2.4, a summary of all flaring activity carried out during the month is to be included in the monthly report. The monthly report shall include the following information:

a. identification of the flare source;

b. description of the type of process gas sent to flare;

c. the volume of gas sent to the flare during each event;

d. the reason for the flaring event;

e. any external notifications sent out, if applicable;

f. the (i) daily and (ii) monthly volume of gas being flared for each source;

g. the (i) daily and (ii) monthly contaminant emission totals for each source, parameters include NO_x, CO, $PM_{2.5}$, SO_x, VOCs, and HC-T; and

h. the quantification method (under Section 9) and representative calculations.

6.2. Data and Assessment

In Permit PA-110588, flaring activities are described as either a routine flaring event (continuous) or a non-routine flaring event (intermittent). Routine flaring discharges include the continuous flare pilots, which are supplied by fuel gas to provide a continuous ignition source so that any gas sent to the flare as a result of upset conditions ("non-routine flaring") is immediately combusted. The permit application to support Permit PA-110588 also described the other small sources of process gas that are continuously sent to the flare, including compressor seal gas, analyzer sample returns and passing valves.

Process gas refers to the natural gas stream intended for LNG production; the incoming gas stream from Coastal Gas Link (CGL) that undergoes several treatment stages (acid gas removal, pre-cooling, and finally, liquefaction) prior to being exported as LNG.

Appendix D contains the flaring activities tables, as follows:

- Table D-1: Flaring Events Table
- Table D-2: Warm/Wet Flare Volume and Emissions Summary
- Table D-3: Cold/Dry Flare Volume and Emissions Summary
- Table D-4: Storage and Loading Flare Volume and Emissions Summary
- Table D-5: Spare Flare Volume and Emissions Summary
- Table D-6: Liquid Burner Volume and Emissions Summary

Sample calculations are also provided in Appendix D (Exhibit D-1). The basis for this assessment is as follows:

- The daily volume of gas flared is sourced from the flow meters upstream of the applicable flare. In cases where the flow is below the detection limit of the flow meters, the sum of flow from upstream flow meters is used.
- The daily mass emissions from each flare source reported herein are calculated based on published emission factors for industrial flares (refer to Table 3), except for SO_X, which is calculated based on a mass balance and assumed destruction efficiency.

Table 3: Emission Factors used for the Flare System

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
Nox	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.12	lb/MMBtu	B	Based on an average smoking flare (soot in concentration values: 177 µg/L in the exhaust).
VOC	USEPA AP-42: Table 13.5-2	0.66	lb/MMBtu	E	
HC-T	USEPA AP-42: Table 13.5-2	0.14	lb/MMBtu	B	

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from µg/L to lb/MMBtu is documented in the "Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015", issued to USEPA by RTI International.

LNG Canada has provided the results from the Zeeco emission factors in Appendix F. LNG Canada intends to use these emission factors for all future monthly reports. This report serves as a transition from EPA AP-42 to Zeeco emission factors on flaring hence, we have provided both results.

7. Permit Contravention (Condition 10.2.5)

7.1. Permit Condition

Under Condition 10.2.5, a summary of all instances of permit non-compliances are to be included in the monthly report, including a description of the event (date, time, circumstances), a summary of the investigation findings, the completed and ongoing actions taken in response to the non-compliance event, and the date of self-disclosure notifications to the BCER.

7.2. Assessment

Flaring above permitted flaring rates

- Permit references: PA-110588 Sections 2.3.2 (Warm/Wet Flare), and acid gas incinerator temperature PA-110588 section 2.2.5
- Period: 01–31 August 2025.
- Description:
    - Warm/Wet Flare (FWW): Non-routine flaring occurred continuously through August, contrary to Section 2.3.2 which limits non-routine flaring to intermittent/as required. Calculated monthly average non-routine flaring rate ≈ 150 m^3/min (based on total flared mass with a daily gas density of around 0.751 kg/m^3; 44,640 minutes in August). Primary driver was additional fuel gas to prevent back-burn at the warm/wet flare tip.
    - Acid gas incinerator (AGI) temperature: The AGI temperature was below 982ºC for periods in August. The unit tripped on 10-Aug 21:00, remained down through 12-Aug ~21:00 and again on 27-Aug 14:00, recovered by 28-Aug 18:00.

- Notifications: Voluntary self-disclosure submitted to BCER Compliance and Enforcement on 08 Aug 2025 (via C&E@bc-er.ca), consistent with Chapter 3 of the BCER Compliance and Enforcement Manual for the exceedance of flare volume for the FWW.

- Immediate/short-term actions:
    - FWW: Conducted nitrogen substitution testing to mitigate back-burn risk; results shared with BCER.
    - Testing carried out to reduce assist gas based on the assist gas curve provided by Zeeco. 30% reduction achieved overall by reducing assist gas to the FWW.
    - Acid gas incinerator: Set point increased on September 8, 2025 to 985ºC, and the unit appears to be operating above 982ºC on an hourly average basis.

- Long-term corrective actions (in evaluation):
    - FWW (and Spare Flare): Engineering assessment and vendor engagement (JFJV/Zeeco) for flare tip redesign/replacement to eliminate back-burn while maintaining WDA limits; technical proposal received and under evaluation.

- Supporting data: Daily FWW flaring datasets are provided in Appendix D.

8. Pollution Control Technologies (Condition 10.2.6)

8.1. Permit Condition

Under Condition 10.2.6, a discussion of any operational or performance issues or significant maintenance activities with any pollution control technologies of the authorized works and equipment required by the permit is to be included in the monthly report.

The pollution control technologies identified in the permit application supporting Permit PA-110588 were the:

- Dry low emissions combustor optimization system in the gas turbines (dry low NOx burners); and
- Catalysts in the WHRUs, to convert CO in the exhaust gas to carbon dioxide.

8.2. Assessment

There were no instances of operational or performance issues, or significant maintenance activities with the pollution control technologies within the reporting period.

9. Ambient Air Monitoring (Commissioning Only) (Condition 10.2.7)

9.1. Permit Condition

Condition 10.2.7 requires, during Commissioning and where publicly available, reporting of NO_2, SO_2, and PM2.5 data from the Kitamaat Village (Site 1), Kitimat Riverlodge (Site 2), and Kitimat Whitesail monitoring stations, including comparisons to BCAAQO metrics, identification of any exceedances with contributing factors and actions, and plots of hourly O_3.

9.2. Data and Assessment

Operations commenced following the first LNG cargo on June 30, 2025. As Condition 10.2.7 applies only during Commissioning, this requirement is no longer applicable for August 2025. Accordingly, no ambient air monitoring evaluation is provided this month.

Note: Public ambient air data for the Kitimat network remain available from the BC Ministry of Environment and Climate Change Strategy:

Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

10. Facility SO_2 Emission Limit (Condition 10.2.8)

10.1. Permit Condition

Under Condition 10.2.8, for all authorized sources in Sections 2.1 to 2.7, for each day of the month, the maximum hourly cumulative SO_2 discharge rate is to be provided in the monthly report, including the percentage breakdown of the sources contributing to the maximum discharge rate of each day.

10.2. Data and Assessment

Appendix E contains the cumulative SO_2 discharge rate from the authorized sources in Permit PA-110588 Section 2.1 to 2.7 (refer to Section 2.2), including the percentage breakdown of the sources contributing to the maximum discharge rate shown for each day.

The representative calculations for SO_2 are provided in Appendix C for the gas turbine and AGI, and Appendix D for the flare system.

11. References

- BC Ministry of Environment and Parks, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca)

Appendix A Abbreviations

AGI	Acid Gas Incinerator
AGRU	Acid Gas Removal Unit
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
CGL	Coastal Gas Link (Pipeline)
CO	Carbon monoxide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
KMS	Kitimat Metering Station
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
VOC	Volatile Organic Compound
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit
$\mu g/m^3$	Micrograms per cubic meter

Appendix B Previous Monthly Reports Issued Under PA-110588

Month	Document #	Date Issued
August 2024	L001-09800-HE-7180-4611	04-Sep-2024
September 2024	L001-09800-HE-7180-4612	22-Oct-2024; Revised 03-Mar-2025 (Rev B)
October 2024	L001-09800-HE-7180-4613	26-Nov-2024; Revised 03-Mar-2025 (Rev B)
November 2024	L001-09800-HE-7180-4614	16-Dec-2025; Revised 03-Mar-2025 (Rev B)
December 2024	L001-09800-HE-7180-4684	23-Mar-2025
January 2025	L001-09800-HE-7180-4691	26-Mar-2025
February 2025	L001-09800-HE-7180-4692	27-Mar-2025
March 2025	L001-09800-HE-7180-4702	25-Apr-2025
April 2025	L001-00000-HE-7180-1553	30-May-2025
May 2025	L001-00000-HE-7180-1554	30-Jun-2025
June 2025	L001-00000-HE-7180-1555	31-Jul-2025
July 2025	L001-00000-HE-7180-1556	31-Aug-2025; Revised 05-Sept-2025 (Rev B)
August 2025	L001-00000-HE-7180-1557	30-Sep-2025

Appendix C Fuel Gas Use (Condition 10.2.1)

This condition applies only during Commissioning. As Operations commenced following first cargo loading on June 30, 2025, Condition 10.2.1 is not applicable for this month. Accordingly, no Commissioning fuel gas use data are reported for this month.

Table C-2: Gas Turbines String 1 and String 2

String 1 experienced a trip on August 10 and 11, 2025 leading to reduced fuel gas

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Aug-25	516,931	896	136	43	-	19	1,148
2-Aug-25	747,800	1,293	196	61	1	27	1,567
3-Aug-25	945,657	1,635	248	78	1	35	2,083
4-Aug-25	733,573	1,267	192	60	1	27	1,647
5-Aug-25	751,021	1,295	196	62	1	27	1,625
6-Aug-25	863,969	1,491	226	71	-	32	1,837
7-Aug-25	796,813	1,380	209	66	-	29	1,747
8-Aug-25	978,262	1,687	256	80	-	36	2,191
9-Aug-25	996,974	1,719	261	82	-	36	2,245
10-Aug-25	564,851	974	148	46	-	21	1,230
11-Aug-25	406,047	700	106	33	-	15	846
12-Aug-25	696,276	1,199	182	57	-	25	1,504
13-Aug-25	941,530	1,624	246	77	-	34	2,110
14-Aug-25	948,538	1,633	247	78	-	35	2,144
15-Aug-25	942,359	1627	247	77	-	35	2,142
16-Aug-25	927,434	1604	243	76	-	34	2,093
17-Aug-25	933,901	1,610	244	76	-	34	2,098
18-Aug-25	945,437	1,626	246	77.2	-	34	2,124
19-Aug-25	942,241	1,622	246	77	1	34	2,111
20-Aug-25	954,312	1,645	249	78.1	1	35	2,144
21-Aug-25	979,950	1,690	256	80.2	1	36	2,223
22-Aug-25	992,379	1,710	259	81.2	1	36	2,246
23-Aug-25	994,187	1,713	260	81.3	1	36	2,239
24-Aug-25	999,772	1,723	261	81.8	1	37	2,248
25-Aug-25	990,997	1,710	259	81.2	1	36	2,227
26-Aug-25	989,565	1,704	258	80.9	-	36	2,216
27-Aug-25	988,173	1,705	258	81	-	36	2,220
28-Aug-25	988,180	1,707	259	81.1	-	36	2,224
29-Aug-25	994,700	1,713	260	81.4	-	36	2,228
30-Aug-25	991,778	1,710	259	81.2	-	36	2,231
31-Aug-25	968,666	1,671	253	79.4	-	35	2,152
Monthly Total	**27,412,273**	**47,288**	**7,167**	**2,246**	**11**	**1000**	**61,090**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Table C-3: Acid Gas Incinerator

The AGI tripped as a result of the String 1 trip experienced on August 10 and 11, 2025.

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	PM2.5	SOx	VOC	HC-T
01-Aug-25	46,829	26	106.9	9	56	228	48
02-Aug-25	46,802	26	106.9	9	56	228	48
03-Aug-25	47,530	27	110.2	10	56	235	50
04-Aug-25	48,272	28	113.9	10	56	242	51
05-Aug-25	48,504	28	115.1	10	56	245	52
06-Aug-25	46,938	26	107.5	9	56	229	49
07-Aug-25	49,237	29	118.7	10	56	253	54
08-Aug-25	51,414	31	129.0	11	56	275	58
09-Aug-25	52,540	33	134.6	12	56	286	61
10-Aug-25	28,562	18	72.1	6	31	154	33
11-Aug-25	729	1	3.5	-	-	8	2
12-Aug-25	37,526	30	124.5	11	27	265	56
13-Aug-25	49,156	29	118.1	10	56	251	53
14-Aug-25	46,979	26	107.3	9	56	228	48
15-Aug-25	46,912	26	107.1	9	56	228	48
16-Aug-25	47,028	26	107.8	9	56	230	49
17-Aug-25	46,953	26	107.3	9	56	228	48
18-Aug-25	46,977	26	107.3	9	56	228	48
19-Aug-25	46,969	26	107.3	9	56	228	48
20-Aug-25	46,994	26	107.4	9	56	229	48
21-Aug-25	46,948	26	107.2	9	56	228	48
22-Aug-25	46,807	26	106.9	9	56	227	48
23-Aug-25	46,795	26	106.8	9	56	227	48
24-Aug-25	46,800	26	106.8	9	56	227	48
25-Aug-25	46,846	26	106.9	9	56	228	48
26-Aug-25	46,823	26	106.8	9	56	227	48
27-Aug-25	16,928	12	47.2	4	16	101	21
28-Aug-25	40,774	27	109.0	9	41	232	49
29-Aug-25	46,913	26	107.0	9	56	228	48
30-Aug-25	47,016	26	107.3	9	56	228	48
31-Aug-25	47,479	27	109.9	10	56	234	50
Total	**1,362,980**	**788**	**3,234**	**275**	**1,571**	**6,885**	**1,456**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Exhibit C-1: Sample Emission Calculations – Gas Turbine

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hour (h) to 1 day (d)
    - 10,000 parts per million (ppm) in one percent

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable sources of data from the meters include:
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - Tag CA:KIT:114FI1601.PV: LNG Train 1, String 1 (1KT-1460); fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:114FI2601.PV: LNG Train 1, String 2 (1KT-1470); fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:114BHS1423.PV, Tag CA:KIT:114BHS2423.PV: Gas Turbine Operating Load (MW)
    - Emission factors: Refer to Table 1 within the report.

The sample calcuation below is based on the data from August 01, 2025.

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:114FI2601.PV & CA:KIT:114FI2601.PV is converted to volume flow rate using the fluid density of 0.748417544 kg/m^3.

- Mass flow rate = 386,880 kg/d

Volume flow rate (m^3/d)

= (386,880 / 0.748417544) ≈ 516,931 m^3/d

Step 2: Emission Calculation – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using NOx for the example; NOx Mass Emission (kg/d)

= 386,880 x 40.73 x 1/ 0.748417544 x 1/1000 x 0.9478 x 0.099 x 0.4535

≈ 896 kg/d

For SO_2, 0.94S was used as the emission factor - where "S" is the percent sulphur in fuel (refer to Table 1). "S" is based on the total sulphur content of the fuel gas (from the laboratory analysis) given fuel gas was used to fuel the gas turbine this month (refer to Appendix D, Table D-7).

SOx Mass Emission (kg/d)

= 386,880 x 40.73 x 1/ 0.748417544 x 1/1000 x 0.9478 x 0.94*(0.000053) x 0.4535

≈ 0.45 kg

Emission Calculation Basis – when using Engineering Estimates (only applies to HC-T)

Formula: HC-T Mass Emission (kg/h)

$$= 16.1\frac{\text{g}}{\text{s}} \times \frac{\text{Operating load (\%)}}{100} \times \frac{1\ \text{kg}}{1000\ \text{g}} \times \frac{3600\ \text{s}}{1\ \text{h}}$$

Using the same date, for the example, where the gas turbine operating load was obtained from CA:KIT:114BHS1423.PV. For the purposes of this calculation, the maximum operating load of the LMS100 is approximately 110 MW. This calculation is demonstrated for String 1, however Table C-2 shows the sum total between String 1 and String 2:

Operating load (%)

= (90.69 MW / 110 MW) x 100 = 82.45 %

HC-T Mass Emission (kg/h)

= 16.1 x 82.45/100 x 1/1000 x 3600/1

= 47.788 kg/h

HC-T Mass Emission (kg/d)

= 47.788 x 24

≈ 1,147 kg/d

Exhibit C-2: Sample Emission Calculations – Acid gas incinerator

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hours (h) to 1 day (d)
    - 10,000 parts per million (ppm) in one percent

Input Values

The applicable sources of data from the meters include:

- Tag CA:KIT:119FI0302.PV: Fuel gas consumption by the acid gas incinerator
- Tag CA:KIT:119FI0001.PV: Acid gas to incinerator
- Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
- Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) multiplied by a reference air density of 1.225 kg/m³ (15°C, 1 atm) and corrected to standard conditions (20°C, 1 atm) to determine the actual natural gas density.
- Emission Factors: Refer to Table 1 within the report.

The sample calculation below is based on the data from August 01, 2025.

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:119FI0302.PV is converted to volume flow rate using the fluid density of 0.748417544 kg/m³.

Mass flow rate = 1,396 kg/d

Volume flow rate (m³/d):

= Mass flow rate / Fluid density

= 1,396 / 0.748417544 ≈ 1,865 m³/d

Step 2: Emission Calculation – Using Emission Factors

Formula: Mass Emission (kg/d) =

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Example: NOx Emissions

- NOx Emission Factor: 0.068 lb/MMBTU

NOx Mass Emission (kg/d):

= 1,396 × 40.73 × (1 / 0.748417544) × (1 / 1000) × 0.9478 × 0.068 × 0.4535 ≈ 2.2 kg/d

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

For fuel gas contribution to SO_2, total sulphur is based on the total sulphur content of the fuel gas for August 01, 2025 (from the laboratory analysis) given fuel gas was used to fuel the AGI this month (refer to Appendix D, Table D-7).

SO_2 Mass Emission (kg/d):

= 1,396 x 0.000053 x 0.01 x (64.066 / 32.065)

≈ 0.001 kg/d

SO_2 from acid gas going to incinerator:

Previously LNG Canada using design numbers to report SO2 from the acid gas incinerator unit. A sample was taken and analyzed at the LNGC Laboratory on 8th September 2025. Sample ID: 2798169, where the total S concentration is 492.4 PPMV. Moving forward, LNG Canada will utilize sample values to estimate SO2 from the unit until reporting from CEMS becomes available.

Daily acid-gas mass flow (example): ṁgas = 74,612 kg/d (01-Aug-25) from CA:KIT:119FI0001.PV
Total Sulfur concentration: S = 492.4 ppmv = 0.0004924 mol S/mol gas

Molecular weights:
MWgas = 42.2 g/mol = 0.0422 kg/mol
Sulfur, MW = 0.032065 kg/mol
SO2, MW = 0.064066 kg/mol

Steps:

1. Moles of gas per day:
ṅgas = ṁgas / MWgas = 74,612 kg/d ÷ 0.0422 kg/mol = 1,767,296 mol/d

2. Moles of sulfur per day:
ṅS = xS × ṅgas = 492.4×10^-6 × 1,767,296 = 870.0 mol/d

3. Mass flow of total sulfur:
ṁS = ṅS × MS / 1000 = 870.0 × 32.065 / 1000 = 27.67 kg/d

4. Equivalent SO2 mass flow (full oxidation using 1 to 1 relationship between S and SO_2: S + O_2 --> SO_2):
ṁSO2 = ṅS × MSO2 / 1000 = 870.0 × 64.066 / 1000 = <u>55.74 kg/d ≈ 56 kg/d – this is added to the SO_2 contribution from fuel gas and reported as the total for the month.</u>

Appendix D Flaring Activity (Condition 10.2.4)

Table D-1: Flaring Event Overview

Flare	Event Type	Event Date & Time			Description	Volume of Gas to Flare Per Event (m^3/month)	External Notifications Undertaken
		Start	End	Duration			
Warm/Wet	Routine	01-Aug-2025	31-Aug-2025	Continuous	Pilot and purge gas	6,228	
Warm/Wet	Non-Routine	01-Aug-2025	31-Aug-2025	Continuous	Assist gas and Flaring to mitigate Back Burn issue.	6,425,850	YES
Cold/Dry	Routine	01-Aug-2025	31-Aug-2025	Continuous	Pilot, and fuel gas purges	18,510	
Cold/Dry	Non-Routine	01-Aug-2025	31-Aug-2025	Continuous	Flaring from MCHE cooldown from plant trip	2,432,380	YES
Storage and Loading	Routine	01-Aug-2025	31-Aug-2025	Continuous	Pilot and purge gas	13,114	
Storage and Loading	Non-Routine	01-Aug-2025	31-Aug-2025	Continuous	Assist gas and Boil-off Gas (BOG) compressor trip	1,448,138	YES
Spare	Routine	01-Aug-2025	31-Aug-2025	Continuous	Pilot and purge gas	6,846	
Liquid Burner	Routine	01-Aug-2025	31-Aug-2025	Continuous	Pilot	13,964	
Liquid Burner	Non-Routine	01-Aug-2025	31-Aug-2025	Continuous	Assist Gas and emptying of Blowcase vessel	5,198	

The data for the warm/wet flare was derived from the main warm/wet flare flowmeter (CA:KIT:062FI0103.PV) including pilot and assist gas (CA:KIT:062FI0312.PV) and subtracting nitrogen purges. The fuel volumes below were corrected to 20°C.

Table D-2: Flaring Event – Warm/Wet Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Aug-25	138,917	165	679	263	0.1	1,446	307
2-Aug-25	146,275	174	713	276	0.1	1,519	322
3-Aug-25	156,102	185	761	295	0.1	1,621	344
4-Aug-25	181,406	215	882	342	0.1	1,878	398
5-Aug-25	173,341	205	843	326	0.1	1,795	381
6-Aug-25	170,288	202	828	321	0.1	1,763	374
7-Aug-25	166,902	199	814	315	0.1	1,733	368
8-Aug-25	149,612	177	728	282	0.1	1,549	329
9-Aug-25	184,102	218	895	347	0.1	1,906	404
10-Aug-25	434,250	515	2,112	818	0.3	4,496	954
11-Aug-25	644,506	763	3,135	1,213	0.5	6,674	1,416
12-Aug-25	159,543	189	774	300	-	1,647	349
13-Aug-25	176,292	209	857	332	-	1,825	387
14-Aug-25	180,934	214	878	340	-	1,868	396
15-Aug-25	201,164	239	978	379	0.1	2,083	442
16-Aug-25	169,927	202	829	321	-	1,764	374
17-Aug-25	168,799	200	821	318	-	1,748	371
18-Aug-25	170,576	202	827	320	-	1,761	374
19-Aug-25	169,027	200	820	317	0.1	1,745	370
20-Aug-25	167,571	198	815	315	0.1	1,735	368
21-Aug-25	167,771	199	816	316	0.1	1,737	368
22-Aug-25	168,932	200	822	318	0.1	1,749	371
23-Aug-25	170,781	202	831	322	0.1	1,768	375
24-Aug-25	170,072	201	827	320	0.1	1,761	374
25-Aug-25	168,973	200	822	318	0.1	1,750	371
26-Aug-25	172,819	204	838	324	-	1,785	379
27-Aug-25	325,986	386	1,585	614	0.1	3,375	716
28-Aug-25	287,478	341	1,398	541	0.1	2,977	631
29-Aug-25	208,705	247	1,012	392	0.1	2,155	457
30-Aug-25	262,291	311	1,276	494	0.1	2,716	576
31-Aug-25	218,736	259	1,064	412	0.1	2,265	480
Monthly Total	**6,432,078**	**7,621**	**31,280**	**12,111**	**3**	**66,594**	**14,126**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

For this month, the reporting for the cold/dry flare is from the main flowmeter (CA:KIT:062FI0122.PV) and including pilot (CA:KIT:062FI0343.PV) and subtracting nitrogen purges.

Table D-3: Flaring Event – Cold/Dry Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Aug-25	79,970	151	621	240	-	1,321	280
2-Aug-25	74,838	142	581	225	-	1,236	262
3-Aug-25	22,615	42	174	67	-	371	79
4-Aug-25	36,254	68	281	109	-	597	127
5-Aug-25	28,005	53	216	84	-	460	98
6-Aug-25	68,402	129	531	205	-	1,129	240
7-Aug-25	34,015	64	263	102	-	560	119
8-Aug-25	43,691	83	338	131	-	720	153
9-Aug-25	149,206	283	1,160	449	-	2,468	524
10-Aug-25	120,184	228	934	361	-	1,987	422
11-Aug-25	1,221,574	2,317	9,506	3,679	-	20,238	4,293
12-Aug-25	66,966	127	519	201	-	1,106	235
13-Aug-25	64,900	123	503	195	-	1,071	227
14-Aug-25	63,922	121	496	192	-	1,055	224
15-Aug-25	26,169	49	202	78	-	430	91
16-Aug-25	23,411	44	180	70	-	384	81
17-Aug-25	22,556	43	174	67	-	370	78
18-Aug-25	26,621	50	205	79	-	437	93
19-Aug-25	26,489	50	204	79	-	435	92
20-Aug-25	21,397	40	165	64	-	350	74
21-Aug-25	24,473	46	189	73	-	401	85
22-Aug-25	21,317	40	164	63	-	349	74
23-Aug-25	25,165	48	194	75	-	413	88
24-Aug-25	16,692	32	128	49	-	273	58
25-Aug-25	20,509	39	158	61	-	336	71
26-Aug-25	17,484	33	134	52	-	286	61
27-Aug-25	21,400	40	165	64	-	351	74
28-Aug-25	18,356	35	141	54	-	300	64
29-Aug-25	21,012	40	162	62	-	344	73
30-Aug-25	17,889	34	137	53	-	292	62
31-Aug-25	25,408	48	196	77	-	419	89
Monthly Total	**2,450,890**	**4,642**	**19,021**	**7,360**	**-**	**40,489**	**8,591**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Flaring occurred from the storage and loading flare (FLP) (CA:KIT:062FI0301.PV) during the warming of the LNG tank and as the boil-off gas compressor had tripped on August 14, 2025. Other sources of flaring from FLP were assist gas (CA:KIT:062FI0351.PV), and fuel gas purges (CA:KIT:062FI0131.PV; CA:KIT:062FI0133.PV; CA:KIT:062FI0041.PV).

Table D-4: Flaring Event – Storage and Loading Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Aug-25	185,585	201	825	319	-	1,755	373
2-Aug-25	425	-	2	1	-	4	1
3-Aug-25	429	-	2	1	-	4	1
4-Aug-25	424	-	2	1	-	4	1
5-Aug-25	431	-	2	1	-	4	1
6-Aug-25	270,490	292	1,201	465	-	2,557	542
7-Aug-25	3,034	3	13	5	-	29	6
8-Aug-25	3,139	3	14	5	-	30	6
9-Aug-25	2,952	3	13	5	-	28	6
10-Aug-25	2,974	3	13	5	-	28	6
11-Aug-25	2,895	3	13	5	-	27	6
12-Aug-25	3,098	3	14	5	-	29	6
13-Aug-25	3,020	3	13	5	-	29	6
14-Aug-25	3,054	3	14	5	-	29	6
15-Aug-25	3,044	3	14	5	-	29	6
16-Aug-25	3,102	3	14	5	-	29	6
17-Aug-25	289,071	312	1,284	497	-	2,733	579
18-Aug-25	23,409	25	104	40	-	221	47
19-Aug-25	3,054	3	14	5	-	29	6
20-Aug-25	13,490	15	60	23	-	128	27
21-Aug-25	223,577	242	993	384	-	2,114	449
22-Aug-25	93,133	100	413	160	-	881	187
23-Aug-25	13,384	14	59	23	-	127	27
24-Aug-25	2,813	3	12	5	-	27	6
25-Aug-25	2,770	3	12	5	-	26	6
26-Aug-25	2,762	3	12	5	-	26	6
27-Aug-25	149,916	162	666	258	-	1,418	300
28-Aug-25	2,705	3	12	5	-	26	5
29-Aug-25	132,440	143	588	228	-	1,252	265
30-Aug-25	16,861	18	75	29	-	159	34
31-Aug-25	3,771	4.0	17.0	6.0	-	36.0	8
Monthly Total	**1,461,252**	**1,573**	**6,490**	**2,511**	**-**	**13,818**	**2,931**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Volumes and emissions reported in the table below reflect those associated with pilot and any purges (CA:KIT:062FI0143.PV).

Table D-5: Flaring Event – Spare Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Aug-25	199	-	1	-	-	2	-
2-Aug-25	205	-	1	-	-	2	-
3-Aug-25	205	-	1	-	-	2	-
4-Aug-25	200	-	1	-	-	2	-
5-Aug-25	206	-	1	-	-	2	-
6-Aug-25	206	-	1	-	-	2	-
7-Aug-25	205	-	1	-	-	2	-
8-Aug-25	206	-	1	-	-	2	-
9-Aug-25	206	-	1	-	-	2	-
10-Aug-25	206	-	1	-	-	2	-
11-Aug-25	206	-	1	-	-	2	-
12-Aug-25	206	-	1	-	-	2	-
13-Aug-25	206	-	1	-	-	2	-
14-Aug-25	206	-	1	-	-	2	-
15-Aug-25	206	-	1	-	-	2	-
16-Aug-25	205	-	1	-	-	2	-
17-Aug-25	206	-	1	-	-	2	-
18-Aug-25	207	-	1	-	-	2	-
19-Aug-25	206	-	1	-	-	2	-
20-Aug-25	206	-	1	-	-	2	-
21-Aug-25	206	-	1	-	-	2	-
22-Aug-25	206	-	1	-	-	2	-
23-Aug-25	206	-	1	-	-	2	-
24-Aug-25	215	-	1	-	-	2	-
25-Aug-25	320	-	2	1	-	3	1
26-Aug-25	289	-	1	1	-	3	1
27-Aug-25	290	-	1	1	-	3	1
28-Aug-25	224	-	1	-	-	2	-
29-Aug-25	291	-	1	1	-	3	1
30-Aug-25	254	-	1	-	-	3	1
31-Aug-25	241	-	1	-	-	2	1
Monthly Total	**6,846**	**-**	**32**	**4**	**-**	**67**	**6**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

In addition to the continuous pilot gas, the emissions reported for the liquid burner are primarily associated with non-routine flaring from blowcase vessel. This testing involved the controlled combustion from the blowcase (114HCV-0003) and occurred during 11th and 14th of Aug. 2025. Emissions data presented below reflects the combination of these activities, assist gas (CA:KIT:062FI0361.PV, CA:KIT:062FI0381.PV, CA:KIT:062FI0400.PV) and the pilot.

Table D-6: Flaring Event – Liquid Burner Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Aug-25	448	1	2	1	-	5	1
2-Aug-25	450	1	2	1	-	5	1
3-Aug-25	450	0.5	2	1	-	5	1
4-Aug-25	450	0.5	2	1	-	5	1
5-Aug-25	451	0.5	2	1	-	5	1
6-Aug-25	450	0.5	2	1	-	5	1
7-Aug-25	449	0.5	2	1	-	5	1
8-Aug-25	451	0.5	2	1	-	5	1
9-Aug-25	451	0.5	2	1	-	5	1
10-Aug-25	451	0.5	2	1	-	5	1
11-Aug-25	2,609	3.1	13	5	-	27	6
12-Aug-25	471	0.6	2	1	-	5	1
13-Aug-25	451	0.5	2	1	-	5	1
14-Aug-25	3,215	3.8	16	6	-	33	7
15-Aug-25	729	0.9	4	1	-	8	2
16-Aug-25	450	0.5	2	1	-	5	1
17-Aug-25	451	0.5	2	1	-	5	1
18-Aug-25	452	0.5	2	1	-	5	1
19-Aug-25	452	0.5	2	1	-	5	1
20-Aug-25	451	0.5	2	1	-	5	1
21-Aug-25	451	0.5	2	1	-	5	1
22-Aug-25	451	0.5	2	1	-	5	1
23-Aug-25	451	0.5	2	1	-	5	1
24-Aug-25	451	0.5	2	1	-	5	1
25-Aug-25	450	0.5	2	1	-	5	1
26-Aug-25	452	0.5	2	1	-	5	1
27-Aug-25	450	0.5	2	1	-	5	1
28-Aug-25	450	0.5	2	1	-	5	1
29-Aug-25	451	0.5	2	1	-	5	1
30-Aug-25	451	0.5	2	1	-	5	1
31-Aug-25	422	0.5	2	1	-	4	1
Monthly Total	**19,162**	**23**	**89**	**40**	**-**	**207**	**43**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Exhibit D-1: Sample Emission Calculations – Warm/Wet Flare

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 h to 1 day (d)
    - 10,000 parts per million (ppm) in one percent.

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable meters include:
    - KITSL-V1P.curval (KMS): This tag provides the daily fuel gas volume data recorded at the KMS. These volumes, measured at atmospheric pressure, serve as the primary input for calculating flared gas volumes.
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density was obtained (daily values at 1 atm) This was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - CA:KIT:062FI0343.PV: This tag measures the total fuel gas consumption for all flare pilots. The portions attributable to the cold dry flare and the liquid burner were determined using flare tip allocations and subtracted from the total to determine the warm/wet flare pilot gas consumption.
    - CA:KIT:062FI0103.PV: This is the main flow meter for the warm/wet flare
    - Emission factors: Refer to Table 2 within the report.

Emission Calculation Basis – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using August 01, 2025, and NOx for the example:

Convert volumetric flow rate to mass flow rate:

Volumetric flow rate = 138,917 m^3/d – corrected to 20°C.

Mass flow rate = 138,917 m^3/d x 0.74841754 kg/m^3 = 103,968 kg/d

NOx Mass Emission (kg/d)

= 103,968 x 40.73 x (1 / 0.74841754) x (1 / 1000) x 0.9478 x 0.068 x 0.4535

≈ 165 kg/d

Similar calculations follow for CO, $PM_{2.5}$, VOC, and HC-T, however all HHV values in their calculations are converted to LHV.

Emission Calculation Basis – when using Engineering Estimates (only applies to SOx):

Total sulfur content (S) in feed gas samples was analyzed periodically by the LNG Canada laboratory. Table D-7 summarizes the laboratory results.

Table D-7: Total Sulphur Content Measured in the Feed Gas (Laboratory Results)

Date	Total Sulphur in Feed Gas (PPMW)	%
05-Aug-25	0.53	0.000053
12-Aug-25	0.18	0.000018
19-Aug-25	0.36	0.000036
26-Aug-25	0.18	0.000018

To bridge periods between measurements, the following approach was used:

- August 01 - 05: SO_2 emissions were calculated using the August 05, 2025 total sulphur measurement.
- August 06 - 12: The August 12, 2025 measurement was applied.
- August 13 - 19: The August 19, 2025 measurement was applied.
- August 20 - 31: The August 26, 2025 measurement was applied.

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

Using August 01, 2025, for the example, where the applied percent sulphur in the fuel gas is 0.53 PPMW.

SO_2 Mass Emission (kg/d)

= 103,968 x 0.000053 x (1 / 100) x (64.066 / 32.065) x 1

≈ 0.1 kg/d

The same calculation approach would follow for SO_2 (kg/h) numbers; with the flow rate in kg/h rather than kg/d.

Appendix E Facility SO_2 Emission Limit (Condition 10.2.8)

Table E-1 presents the maximum hourly cumulative SO_2 discharge rate per day. It does not imply that the maximum discharge rate occurred for the full 24 hours that day. The maximum hourly rate was based on the maximum hourly flow rate obtained for each of the contributing sources below on the respective dates. The total sulfur content was obtained from Table D-7.

As reporting from CEMS is currently not being undertaken, AGI SO_2 emissions from H_2S coming from the Acid Gas Removal Unit (AGRU) were estimated using sample of the acid gas on September 8, 2025 .

Table E-1: Maximum Hourly SO_2 Discharge Rate for Each Day

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage & Loading Flare	Spare Flare	Liquid Burner
01-Aug-25	2.4	0.79%	98.98%	0.23%	0.00%	0.00%	0.00%	0.00%
02-Aug-25	2.4	0.88%	98.75%	0.37%	0.00%	0.00%	0.00%	0.00%
03-Aug-25	2.4	1.53%	98.23%	0.24%	0.00%	0.00%	0.00%	0.00%
04-Aug-25	2.5	1.45%	98.23%	0.32%	0.00%	0.00%	0.00%	0.00%
05-Aug-25	2.5	1.46%	98.13%	0.41%	0.00%	0.00%	0.00%	0.00%
06-Aug-25	2.5	1.27%	98.46%	0.27%	0.00%	0.00%	0.00%	0.00%
07-Aug-25	2.5	1.29%	98.39%	0.32%	0.00%	0.00%	0.00%	0.00%
08-Aug-25	2.5	1.42%	98.24%	0.34%	0.00%	0.00%	0.00%	0.00%
09-Aug-25	2.6	1.38%	97.95%	0.67%	0.00%	0.00%	0.00%	0.00%
10-Aug-25	2.6	1.42%	98.31%	0.27%	0.00%	0.00%	0.00%	0.00%
11-Aug-25	2.7	1.35%	96.38%	2.18%	0.00%	0.00%	0.00%	0.09%
12-Aug-25	0.6	3.55%	93.32%	1.92%	0.02%	0.02%	0.00%	1.17%
13-Aug-25	3.0	1.17%	98.57%	0.24%	0.00%	0.00%	0.00%	0.02%
14-Aug-25	2.4	1.47%	98.24%	0.29%	0.00%	0.00%	0.00%	0.00%
15-Aug-25	2.4	0.49%	99.19%	0.23%	0.00%	0.00%	0.00%	0.09%
16-Aug-25	2.4	0.48%	99.43%	0.09%	0.00%	0.00%	0.00%	0.00%
17-Aug-25	2.5	0.47%	99.37%	0.09%	0.00%	0.07%	0.00%	0.00%
18-Aug-25	2.4	0.49%	99.37%	0.09%	0.00%	0.05%	0.00%	0.00%
19-Aug-25	2.4	0.49%	99.42%	0.09%	0.00%	0.00%	0.00%	0.00%
20-Aug-25	2.4	0.50%	99.42%	0.08%	0.00%	0.00%	0.00%	0.00%
21-Aug-25	2.4	0.52%	99.39%	0.08%	0.00%	0.01%	0.00%	0.00%
22-Aug-25	2.4	1.05%	98.76%	0.18%	0.00%	0.01%	0.00%	0.00%
23-Aug-25	2.4	1.06%	98.76%	0.17%	0.00%	0.01%	0.00%	0.00%
24-Aug-25	2.4	1.04%	98.77%	0.19%	0.00%	0.00%	0.00%	0.00%
25-Aug-25	2.4	1.04%	98.78%	0.18%	0.00%	0.00%	0.00%	0.00%
26-Aug-25	2.4	1.03%	98.76%	0.21%	0.00%	0.00%	0.00%	0.00%
27-Aug-25	2.4	1.01%	98.63%	0.36%	0.00%	0.00%	0.00%	0.00%

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage & Loading Flare	Spare Flare	Liquid Burner
28-Aug-25	3.1	0.80%	98.68%	0.52%	0.00%	0.00%	0.00%	0.00%
29-Aug-25	2.4	0.52%	99.28%	0.20%	0.00%	0.00%	0.00%	0.00%
30-Aug-25	2.4	0.52%	99.31%	0.17%	0.00%	0.00%	0.00%	0.00%
31-Aug-25	2.4	0.51%	99.30%	0.15%	0.00%	0.04%	0.00%	0.00%

* Individual values may be subject to rounding adjustments

Appendix F Zeeco Emission Factors

As discussed with the BC Energy Regulator (BCER), LNG Canada proposes to use Zeeco vendor-specific flare emission factors for reporting of routine and non-routine flaring at the LNG Canada facility. These factors are derived from Zeeco's design, test data, and performance guarantees for the installed flare systems and are considered more representative of actual flare operation than generic AP-42 factors. Sulfur oxides (SOx) will continue to be quantified by sulfur mass balance (using measured total sulfur in the feed gas), not by emission factors.

For PM2.5 we have used the emission factor for Liquid Burner for the FWW, FCD and FLP as opposed to design number which was zero. Sample calculations in Exhibit D-1 will remain the same other changing the emission factor to Zeeco below.

Table F-1: Zeeco Emission factors. SOx remains unchanged because SOx is calculated by sulfur mass balance

Flare Source	Zeeco Emission Factors (lb/MMBtu)					
	NOx	CO	PM2.5	VOC	SOx	HC-T
Warm/Wet (FWW)	0.0641	0.5496	0.013	0.14	—	0.23
Cold/Dry (FCD)	0.1380	0.2755	0.013	0.14	—	0.23
Storage & Loading (FLP)	0.0641	0.5496	0.013	0.14	—	0.23
Spare	Matches the flare it is sparing (use FWW, FCD, Storage, or Liquid values as applicable). For purges and pilot we have used FWW emission factors					
Liquid Burner	0.1380	0.2755	0.013	0.14	—	0.23

Table F-2: Flaring Event – Warm/Wet Flare Volume and Emissions Summary (Zeeco)

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Aug-25	138,917	156	1,204	28	0.1	307	504
2-Aug-25	146,275	164	1,265	30	0.1	322	529
3-Aug-25	156,102	175	1,350	32	0.1	344	565
4-Aug-25	181,406	203	1,564	37	0.1	398	655
5-Aug-25	173,341	194	1,495	35	0.1	381	625
6-Aug-25	170,288	190	1,468	35	0.1	374	614
7-Aug-25	166,902	187	1,443	34	0.1	368	604
8-Aug-25	149,612	167	1,290	31	0.1	329	540
9-Aug-25	184,102	206	1,587	38	0.1	404	664
10-Aug-25	434,250	485	3,744	89	0.3	954	1,567
11-Aug-25	644,506	720	5,557	131	0.5	1,416	2,326
12-Aug-25	159,543	178	1,372	32	-	349	574
13-Aug-25	176,292	197	1,520	36	-	387	636
14-Aug-25	180,934	202	1,556	37	-	396	651
15-Aug-25	201,164	225	1,735	41	0.1	442	726
16-Aug-25	169,927	190	1,469	35	-	374	615
17-Aug-25	168,799	188	1,455	34	-	371	609
18-Aug-25	170,576	190	1,467	35	-	374	614
19-Aug-25	169,027	188	1,453	34	0.1	370	608
20-Aug-25	167,571	187	1,445	34	0.1	368	605
21-Aug-25	167,771	187	1,447	34	0.1	368	605
22-Aug-25	168,932	189	1,457	34	0.1	371	610
23-Aug-25	170,781	191	1,473	35	0.1	375	616
24-Aug-25	170,072	190	1,466	35	0.1	374	614
25-Aug-25	168,973	189	1,457	34	0.1	371	610
26-Aug-25	172,819	193	1,486	35	-	379	622
27-Aug-25	325,986	364	2,811	66	0.1	716	1,176
28-Aug-25	287,478	322	2,479	59	0.1	631	1,037
29-Aug-25	208,705	233	1,795	42	0.1	457	751
30-Aug-25	262,291	293	2,262	53	0.1	576	946
31-Aug-25	218,736	244	1,886	45	0.1	480	789
Monthly Total	**6,432,078**	**7,187**	**55,458**	**1,310**	**3**	**14,126**	**23,207**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Table F-3: Flaring Event – Cold/Dry Flare Volume and Emissions Summary (Zeeco)

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Aug-25	79,970	307	552	26	-	280	460
2-Aug-25	74,838	287	516	24	-	262	431
3-Aug-25	22,615	86	155	7	-	78	129
4-Aug-25	36,254	139	250	12	-	126	208
5-Aug-25	28,005	107	193	9	-	97	160
6-Aug-25	68,402	263	472	22	-	239	394
7-Aug-25	34,015	130	234	11	-	118	195
8-Aug-25	43,691	167	301	14	-	152	251
9-Aug-25	149,206	574	1,031	48	-	523	860
10-Aug-25	120,184	462	830	39	-	421	693
11-Aug-25	1,221,574	4,702	8,448	399	-	4,293	7,053
12-Aug-25	66,966	257	462	22	-	234	385
13-Aug-25	64,900	249	448	21	-	227	373
14-Aug-25	63,922	245	441	21	-	224	368
15-Aug-25	26,169	100	180	8	-	91	150
16-Aug-25	23,411	89	161	7	-	81	134
17-Aug-25	22,556	86	155	7	-	78	129
18-Aug-25	26,621	102	183	8	-	92	152
19-Aug-25	26,489	101	182	8	-	92	152
20-Aug-25	21,397	82	147	7	-	74	122
21-Aug-25	24,473	93	168	8	-	85	140
22-Aug-25	21,317	81	146	7	-	74	122
23-Aug-25	25,165	96	173	8	-	87	144
24-Aug-25	16,692	63	114	5	-	58	95
25-Aug-25	20,509	78	141	6	-	71	117
26-Aug-25	17,484	67	120	6	-	60	100
27-Aug-25	21,400	82	147	7	-	74	122
28-Aug-25	18,356	70	126	6	-	63	105
29-Aug-25	21,012	80	144	7	-	73	120
30-Aug-25	17,889	68	123	6	-	62	102
31-Aug-25	25,408	97	175	8	-	89	146
Monthly Total	**2,450,890**	**9,410**	**16,918**	**794**	**-**	**8,578**	**14,112**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Table F-4: Flaring Event – Storage and Loading Flare Volume and Emissions Summary (Zeeco)

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Aug-25	185,585	189	1,461	34	-	373	612
2-Aug-25	425	-	3	-	-	1	1
3-Aug-25	429	-	3	-	-	1	1
4-Aug-25	424	-	3	-	-	1	1
5-Aug-25	431	-	3	-	-	1	1
6-Aug-25	270,490	276	2,130	50	-	542	891
7-Aug-25	3,034	3	24	1	-	6	10
8-Aug-25	3,139	3	25	1	-	6	10
9-Aug-25	2,952	3	23	1	-	6	10
10-Aug-25	2,974	3	23	1	-	6	10
11-Aug-25	2,895	3	23	1	-	6	10
12-Aug-25	3,098	3	24	1	-	6	10
13-Aug-25	3,020	3	24	1	-	6	10
14-Aug-25	3,054	3	24	1	-	6	10
15-Aug-25	3,044	3	24	1	-	6	10
16-Aug-25	3,102	3	24	1	-	6	10
17-Aug-25	289,071	295	2,276	54	-	579	952
18-Aug-25	23,409	24	184	4	-	47	77
19-Aug-25	3,054	3	24	1	-	6	10
20-Aug-25	13,490	14	106	3	-	27	44
21-Aug-25	223,577	228	1,760	42	-	449	737
22-Aug-25	93,133	95	733	18	-	187	307
23-Aug-25	13,384	14	105	2	-	27	44
24-Aug-25	2,813	3	22	1	-	6	9
25-Aug-25	2,770	3	22	1	-	6	9
26-Aug-25	2,762	3	22	1	-	6	9
27-Aug-25	149,916	153	1,180	28	-	300	494
28-Aug-25	2,705	3	21	1	-	5	9
29-Aug-25	132,440	135	1,043	24	-	265	436
30-Aug-25	16,861	17	133	3	-	34	56
31-Aug-25	3,771	3.9	30.0	1.0	-	8.0	12
Monthly Total	**1,461,252**	**1,489**	**11,502**	**278**	**-**	**2,931**	**4,812**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Table F-5: Flaring Event – Spare Flare Volume and Emissions Summary (Zeeco)

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Aug-25	199	-	2	-	-	-	1
2-Aug-25	205	-	2	-	-	-	1
3-Aug-25	205	-	2	-	-	-	1
4-Aug-25	200	-	2	-	-	-	1
5-Aug-25	206	-	2	-	-	-	1
6-Aug-25	206	-	2	-	-	-	1
7-Aug-25	205	-	2	-	-	-	1
8-Aug-25	206	-	2	-	-	-	1
9-Aug-25	206	-	2	-	-	-	1
10-Aug-25	206	-	2	-	-	-	1
11-Aug-25	206	-	2	-	-	-	1
12-Aug-25	206	-	2	-	-	-	1
13-Aug-25	206	-	2	-	-	-	1
14-Aug-25	206	-	2	-	-	-	1
15-Aug-25	206	-	2	-	-	-	1
16-Aug-25	205	-	2	-	-	-	1
17-Aug-25	206	-	2	-	-	-	1
18-Aug-25	207	-	2	-	-	-	1
19-Aug-25	206	-	2	-	-	-	1
20-Aug-25	206	-	2	-	-	-	1
21-Aug-25	206	-	2	-	-	-	1
22-Aug-25	206	-	2	-	-	-	1
23-Aug-25	206	-	2	-	-	-	1
24-Aug-25	215	-	2	-	-	-	1
25-Aug-25	320	-	3	-	-	1	1
26-Aug-25	289	-	2	-	-	1	1
27-Aug-25	290	-	3	-	-	1	1
28-Aug-25	224	-	2	-	-	-	1
29-Aug-25	291	-	3	-	-	1	1
30-Aug-25	254	-	2	-	-	1	1
31-Aug-25	241	-	2	-	-	1	1
Monthly Total	**6,846**	**-**	**65**	**-**	**-**	**6**	**31**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Table F-6: Flaring Event – Liquid Burner Volume and Emissions Summary (Zeeco)

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Aug-25	448	1	2	-	-	1	2
2-Aug-25	450	1	2	-	-	1	2
3-Aug-25	450	1	2	-	-	1	2
4-Aug-25	450	1	2	-	-	1	2
5-Aug-25	451	1	2	-	-	1	2
6-Aug-25	450	1	2	-	-	1	2
7-Aug-25	449	1	2	-	-	1	2
8-Aug-25	451	1	2	-	-	1	2
9-Aug-25	451	1	2	-	-	1	2
10-Aug-25	451	1	2	-	-	1	2
11-Aug-25	2,609	6	11	1	-	6	9
12-Aug-25	991	2	4	-	-	6	3
13-Aug-25	503	1	2	-	-	2	2
14-Aug-25	3,372	8	15	1	-	9	12
15-Aug-25	2,116	5	9	-	-	15	5
16-Aug-25	450	1	2	-	-	1	2
17-Aug-25	451	1	2	-	-	1	2
18-Aug-25	452	1	2	-	-	1	2
19-Aug-25	452	1	2	-	-	1	2
20-Aug-25	451	1	2	-	-	1	2
21-Aug-25	451	1	2	-	-	1	2
22-Aug-25	451	1	2	-	-	1	2
23-Aug-25	451	1	2	-	-	1	2
24-Aug-25	451	1	2	-	-	1	2
25-Aug-25	450	1	2	-	-	1	2
26-Aug-25	452	1	2	-	-	1	2
27-Aug-25	450	1	2	-	-	1	2
28-Aug-25	450	1	2	-	-	1	2
29-Aug-25	451	1	2	-	-	1	2
30-Aug-25	451	1	2	-	-	1	2
31-Aug-25	422	1	2	-	-	1	2
Monthly Total	**21,278**	**48**	**93**	**2**	**-**	**64**	**83**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

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1. Executive Summary

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. The BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge Air WDA (PA-110588) to LNG Canada Development Inc., for the discharge of air contaminants to the environment from the LNG Facility.

Section 10.2 of the Air WDA (PA-110588) requires a monthly report to be submitted to the BCER that includes data/information on:

- Gas Turbines (GT) and Acid Gas Incinerator (AGI) emissions
- Pollution Control Technology operational or performance issues, including maintenance activities.
- Flaring Activities
- Facility sulphur dioxide (SO_2) Emissions
- Permit Contravention

Herein is the monthly report for September 2025. A summary of the findings for this reporting period is as follows:

- Stack testing was completed in September 2025 for gas turbines (String 1 on September 28, String 2 on September 27) and the AGI (September 26) in accordance with Air WDA (PA-110588) Section 5.1.2. Facility-specific emission factors derived from stack testing are now used for PM2.5, VOC, and HC-T emissions from the gas turbines, and for VOC and HC-T emissions from the AGI, replacing previously used EPA AP-42 factors.
- A self-disclosure of non-compliance was submitted to BCER on October 2nd, 2025, regarding September flaring: continuous non-routine flaring at the warm/wet flare.
- For early periods in September, the acid gas incinerator operated below the permit-required minimum combustion temperature of 982°C.
- There were air emissions from eight authorised discharge sources defined in Sections 2.1 to 2.7 of Air WDA (PA-110588): warm/wet flare, cold/dry flare, liquid burner, storage and loading flare, spare flare, gas turbine string 1 WHRU, gas turbine string 2 WHRU, and Train 1 acid gas incinerator (AGI).
- By volume, the warm wet flare (FWW) was the largest source of air emissions, primarily due to the backburn issue.
- This report provides Zeeco emission factors for flaring. LNG Canada has discussed and agreed with BCER to move to Zeeco emission factors for all future monthly reporting on flaring.

2. Overview

2.1. Project Background

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia, Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

2.2. Purpose

On September 15, 2024, the BCER issued Air WDA (PA-110588) to LNG Canada Development Inc., under the provisions of the BC *Environmental Management Act*, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Air WDA (PA-110588) applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.2 of Air WDA (PA-110588) (Monthly Reporting) for September 2025.

Refer to Appendix B for a list of all monthly reports that have been issued under Air WDA (PA-110588)

2.3. LNG Facility Status

Fuel gas was first introduced to Unit 1000 (Inlet Facilities) on August 31, 2024. Fuel gas was introduced to the flare headers and the warm/wet flare pilot was first lit on September 1, 2024.

LNG production began on June 22, 2025. The first LNG cargo was loaded on June 30, 2025, marking the start of Operations on July 1, 2025.

During this month, discharges of air contaminants occurred from the following authorized works:

- One (1) warm/wet flare
- One (1) cold/dry flare
- One (1) storage and loading flare
- One (1) spare flare
- One (1) Liquid burner
- Two (2) Gas turbines: String 1 and String 2 Waste Heat Recovery Units (WHRUs)
- One (1) Train 1 acid gas incinerator (AGI)

The plant is currently in operations as defined by Air WDA (PA-110588), as the “Commissioning” phase which is defined as “that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.” has been completed. Operations is the period of time which follows Commissioning starting July 1, 2025.

Train 2 commissioning is expected to commence in October 2025.

The Initial Performance Period (IPP) did not commence during September 2025 (which is defined as the period that “*commences upon the completion of the initial performance test for LNG Train 1”*).

3. Fuel Gas Use (Commissioning Only) (Condition 10.2.1)

3.1. Permit Condition

Under Condition 10.2.1, the monthly report shall identify and provide a summary of fuel gas use at the facility during Commissioning. The monthly report shall include the following information:

a) the daily volume of fuel gas combusted and vented;

b) the daily mass emissions of NOx, SOx, CO, PM2.5, VOCs and HC-T, for the authorized works in Section 2.1 and 2.2; and

c) the quantification method (under Section 9) and representative calculations

Train 1 is now in Operations, Condition 10.2.1 is not applicable to Train 1 for this month. Train 2 commissioning will commence in October, reporting for Train 2 commission will be made in the November 2025. In discussions with BCER, it was agreed that until the CEMS becomes available, LNGC will continue reporting 10.2.1b – c.
Appendix C contains the summary of daily mass emissions of NO_X, SO_X, CO, $PM_{2.5}$, VOCs, and HC-T from the gas turbines and AGI (which is Section 2.1 and 2.2 of Air WDA (PA-110588) respectively) in September 2025.

Stack Testing and Updated Emission Factors
Stack testing was conducted in September 2025 for the gas turbines (String 1 on September 28, String 2 on September 27) and the AGI (September 26) in accordance with Air WDA (PA-110588) Sections 5.1.2.

Based on the stack testing results, facility-specific emission factors have been developed and are now used for VOC and HC-T emissions calculations for the gas turbines and AGI, replacing previously used EPA AP-42 factors (Table 1, Table 2 and Table 3). For PM2.5 emissions, EPA AP-42 factors continue to be used as sampling at the AGI operating temperature of 982°C presents technical challenges that limit the reliability of measured data. LNG Canada will continue to evaluate options for developing site-specific PM2.5 emission factors. The stack testing report is issued in the Q3 2025 Air WDA report.

The basis for other factors is as follows:

- NOx, CO and PM2.5 emissions from AGI are estimated based on published emission factors (EPA AP-42) for a flare, to represent a high temperature oxidation process to burn hydrocarbons (refer to Table 3). The data from the CEMS associated with the AGI will be available after the RATA has been undertaken (which will be done when a stable, full plant load is achieved).
- NOx and CO emissions from the gas turbine are calculated using published emission factors from the US EPA AP-42, as detailed in Table 1 and 2. This calculation methodology is used for the period, as the CEMS for the gas turbines has not yet completed its final certification. The data from the CEMS will be utilized for reporting following the successful completion of the RATA, which will be conducted after a stable, full plant load is achieved.

Table 1 String 1: Natural Gas-Fired Turbine Emission Factors

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.099	lb/MMBtu	D	

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
SO_x	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.94S	lb/MMBtu	B	Where “S” is the percent sulphur in fuel. “S” to be informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014). If “S” is not available, the AP-42 states to use 3.4 E-03 lb/MMBtu for natural gas turbines (0.0034).
CO	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.015	lb/MMBtu	D	
PM2.5	Stack Testing	0.08780	g/kg of fuel		Based on September 28 stack testing
VOC	Stack Testing	0.00532	g/kg of fuel		Based on September 28 stack testing
HC-T	Stack Testing	25.839	g/kg of fuel		Based on September 28 stack testing

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 3.1 is applicable for Stationary Gas Turbines.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. Stack Testing emission factors were developed using emission rate divided by the equivalent fuel gas use at that period in time

Table 2 String 2: Natural Gas-Fired Turbine Emission Factors

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.099	lb/MMBtu	D	
SO_x	USEPA AP-42: Table 3.1-2a (uncontrolled)	0.94S	lb/MMBtu	B	Where “S” is the percent sulphur in fuel. “S” to be informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014). If “S” is not available, the AP-42 states to use 3.4 E-03 lb/MMBtu for natural gas turbines (0.0034).
CO	USEPA AP-42: Table 3.1-1 (Lean-Premix)	0.015	lb/MMBtu	D	
PM2.5	Stack Testing	0.07842	g/kg of fuel		Based on September 27 stack testing
VOC	Stack Testing	0.00291	g/kg of fuel		Based on September 27 stack testing
HC-T	Stack Testing	7.081	g/kg of fuel		Based on September 27 stack testing

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
Notes: 1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 3.1 is applicable for Stationary Gas Turbines. 2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor. 3. Stack Testing emission factors were developed using emission rate divided by the equivalent fuel gas use at that period in time					

Table 3: Emission Factors used for the AGI

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	USEPA AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
SO_X	Engineering Estimate				There is no AP-42 emissions factor for SO_X; therefore it is based on fuel gas sulphur content informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014).The assumed destruction efficiency is 100%.
CO	USEPA AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	USEPA AP-42: Table 13.5-2[3]	0.027	lb/MMBtu	B	Based on a lightly smoking flare (soot in concentration values: 40 µg/L in the exhaust).
VOC	Stack Testing	0.00089	g/kg of fuel and acid gas		Based on September 26 Stack Testing
HC-T	Stack Testing	0.00047	g/kg of fuel and acid gas		Based on September 26 Stack Testing
Notes: 1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares. 2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor. 3. The emission factor conversion from µg/L to lb/MMBtu is documented in the “Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015”, issued to USEPA by RTI International. 4. Stack Testing emission factors were developed using emission rate divided by the equivalent fuel gas use at that period in time					

4. CEMS Zero and Span Reporting (Condition 10.2.2)

4.1. Permit Condition

Under Condition 10.2.2, during Operations, after the completion of the initial CEMS performance evaluation, the monthly report shall include a summary of all CEMS out of control calibration zero and span events that occurred during the month.

4.2. Data and Assessment

As CEMS certification and RATA have not yet been completed, there is no CEMS reporting for this month.

5. CEMS Reporting (Condition 10.2.3)

5.1. Permit Condition

Under Condition 10.2.3, during Operations, after the completion of the initial CEMS performance evaluation, the Permittee shall provide a summary of CEMS data collected during the month.

5.2. Data and Assessment

As CEMS certification and RATA has not yet been completed, there is no CEMS reporting for this month.

6. Flaring Activity Reporting (Condition 10.2.4)

6.1. Permit Condition

Under Condition 10.2.4, a summary of all flaring activity carried out during the month is to be included in the monthly report. The monthly report shall include the following information:

a. identification of the flare source;

b. description of the type of process gas sent to flare;

c. the volume of gas sent to the flare during each event;

d. the reason for the flaring event;

e. any external notifications sent out, if applicable;

f. the (i) daily and (ii) monthly volume of gas being flared for each source;

g. the (i) daily and (ii) monthly contaminant emission totals for each source, parameters include NO_x, CO, $PM_{2.5}$, SO_x, VOCs, and HC-T; and

h. the quantification method (under Section 9) and representative calculations.

6.2. Data and Assessment

In Air WDA (PA-110588), flaring activities are described as either a routine flaring event (continuous) or a non-routine flaring event (intermittent). Routine flaring discharges include the continuous flare pilots, which are supplied by fuel gas to provide a continuous ignition source so that any gas sent to the flare as a result of upset conditions ("non-routine flaring") is immediately combusted. The permit application to support Air WDA (PA-110588) also described the other small sources of process gas that are continuously sent to the flare, including analyzer sample returns and passing valves.

Process gas refers to the natural gas stream intended for LNG production; the incoming gas stream from Coastal Gas Link (CGL) that undergoes several treatment stages (acid gas removal, pre-cooling, and finally, liquefaction) prior to being exported as LNG.

Appendix D contains the flaring activities tables, as follows:

- Table D-1: Flaring Events Table
- Table D-2: Warm/Wet Flare Volume and Emissions Summary
- Table D-3: Cold/Dry Flare Volume and Emissions Summary
- Table D-4: Storage and Loading Flare Volume and Emissions Summary
- Table D-5: Spare Flare Volume and Emissions Summary
- Table D-6: Liquid Burner Volume and Emissions Summary

Sample calculations are also provided in Appendix D (Exhibit D-1). The basis for this assessment is as follows:

- The daily volume of gas flared is sourced from the flow meters upstream of the applicable flare.
- The daily mass emissions from each flare source reported herein are calculated based on manufacturer emission factors for industrial flares (refer to Table 4), except for SO_X, which is calculated based on a mass balance and assumes full oxidation of S.

Table 4: Emission Factors used for the Flare System

Flare Source	Zeeco Emission Factors (lb/MMBtu)					
	NOx	CO	PM2.5	VOC	SOx	HC-T
Warm/Wet (FWW)	0.0641	0.5496	0.013	0.14	—	0.23
Cold/Dry (FCD)	0.1380	0.2755	0.013	0.14	—	0.23
Storage & Loading (FLP)	0.0641	0.5496	0.013	0.14	—	0.23
Spare	Matches the flare it is sparing (use FWW, FCD, Storage, or Liquid values as applicable). For any purges and pilot utilizing CGL feed gas, we have used FWW emission factors					
Liquid Burner	0.1380	0.2755	0.013	0.14	—	0.23

LNG Canada has transitioned to manufacturer-specific Zeeco emission factors for flare emissions reporting, as agreed upon with the BC Energy Regulator (BCER). This transition represents a shift from generic EPA AP-42 emission factors to equipment-specific design and performance data that more accurately reflects the actual operating characteristics of the installed flare systems at the facility.

7. Permit Contravention (Condition 10.2.5)

7.1. Permit Condition

Under Condition 10.2.5, a summary of all instances of permit non-compliances are to be included in the monthly report, including a description of the event (date, time, circumstances), a summary of the investigation findings, the completed and ongoing actions taken in response to the non-compliance event, and the date of self-disclosure notifications to the BCER.

7.2. Assessment

Flaring above permitted flaring rates

- **Permit References**: PA-110588 Sections 2.3.2 (Warm/Wet Flare), 2.4.2 (Cold/Dry Flare), 2.5.2 (Storage and Loading Flare), and 2.2.5 (Acid Gas Incinerator Temperature)
- **Period:** 01–30 September 2025.
- **Description**:
    - **Warm/Wet Flare (FWW):** Flaring occurred continuously through September at a calculated monthly average rate of 141 m^3/min. The driver was additional fuel gas to prevent back-burn at the warm/wet flare tip.
    - **Cold/Dry Flare (FCD):** Routine flaring occurred continuously through September at a calculated monthly average rate of 19.3 m^3/min against Air WDA permit limit of 9.6 m^3/min.
    - **Storage and Loading Flare (FLP):** Routine flaring occurred continuously through September at a calculated monthly average rate of 36.9 m^3/min against Air WDA permit limit of 6.0 m^3/min.
    - **Acid gas incinerator (AGI) temperature**: The AGI temperature was below 982 ^oC from September 1 to 8. The unit tripped on September 1, 10 and from September 28 to 30, and has remained offline since then. Following initial inspection and assessment, the unit is estimated to be out of service for approximately one month. During the AGI outage, acid gas containing H_2S from the Acid Gas Removal Unit (AGRU) is being routed to the warm/wet flare (FWW) for disposal. Additional medium-pressure (MP) fuel gas is being injected into the FWW to provide oxidation of H_2S. This interim measure will continue until the AGI is returned to service.

- **Notifications**: Voluntary self-disclosure submitted to BCER Compliance and Enforcement on October 2 2025 (via C&E@bc-er.ca), consistent with Chapter 3 of the BCER Compliance and Enforcement Manual for the exceedance of flare volume for the FWW.

- **Immediate/short-term actions**:
    - FWW: Conducted nitrogen substitution testing to mitigate back-burn risk; results shared with BCER. Testing carried out to reduce assist gas based on the assist gas curve provided by Zeeco. 30% reduction achieved overall by reducing assist gas to the FWW.
    - Acid gas incinerator: Set point increased on September 8, 2025 to 985 ^oC, and the unit appears to be operating above 982^oC on an hourly average basis. An investigation is underway to understand the cause of the frequent trips before the unit can be brought online.

- **Long-term corrective actions (in evaluation)**:
    - FWW (and Spare Flare): Engineering assessment and vendor engagement (JFJV/Zeeco) for flare tip redesign/replacement to eliminate back-burn while maintaining WDA limits; technical proposal received and under evaluation.
    - FCD and FLP: For the Cold/Dry Flare (FCD) and Storage and Loading Flare (FLP), a valve burn-in program will be initiated to identify and address passing valves that may be contributing to elevated routine flaring rates.

- Supporting data: Daily FWW, FCD and FLP flaring datasets are provided in Appendix D.

8. Pollution Control Technologies (Condition 10.2.6)

8.1. Permit Condition

Under Condition 10.2.6, a discussion of any operational or performance issues or significant maintenance activities with any pollution control technologies of the authorized works and equipment required by the permit is to be included in the monthly report.

The pollution control technologies identified in the permit application supporting Air WDA (PA-110588) were the:

- Dry low emissions combustor optimization system in the gas turbines (dry low NOx burners); and
- Catalysts in the WHRUs, to convert CO in the exhaust gas to carbon dioxide.

8.2. Assessment

There were no instances of operational or performance issues, or significant maintenance activities with the pollution control technologies within the reporting period.

9. Ambient Air Monitoring (Commissioning Only) (Condition 10.2.7)

9.1. Permit Condition

Condition 10.2.7 requires, during Commissioning and where publicly available, reporting of NO_2, SO_2, and PM2.5 data from the Kitamaat Village (Site 1), Kitimat Riverlodge (Site 2), and Kitimat Whitesail monitoring stations, including comparisons to BCAAQO metrics, identification of any exceedances with contributing factors and actions, and plots of hourly O_3.

9.2. Data and Assessment

Operations commenced following the first LNG cargo on June 30, 2025. As Condition 10.2.7 applies only during Commissioning, this requirement is no longer applicable for September 2025. Accordingly, no ambient air monitoring evaluation is provided this month.

Note: Public ambient air data for the Kitimat network remain available from the BC Ministry of Environment and Climate Change Strategy:

Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

10. Facility SO_2 Emission Limit (Condition 10.2.8)

10.1. Permit Condition

Under Condition 10.2.8, for all authorized sources in Sections 2.1 to 2.7, for each day of the month, the maximum hourly cumulative SO_2 discharge rate is to be provided in the monthly report, including the percentage breakdown of the sources contributing to the maximum discharge rate of each day.

10.2. Data and Assessment

Appendix E contains the cumulative SO_2 discharge rate from the authorized sources in Air WDA (PA-110588) Section 2.1 to 2.7 (refer to Section 2.2), including the percentage breakdown of the sources contributing to the maximum discharge rate shown for each day.

The representative calculations for SO_2 are provided in Appendix C for the gas turbine and AGI, and Appendix D for the flare system.

11. References

- BC Ministry of Environment and Parks, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca)

Appendix A Abbreviations

AGI	Acid Gas Incinerator
AGRU	Acid Gas Removal Unit
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
CGL	Coastal Gas Link (Pipeline)
CO	Carbon monoxide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
KMS	Kitimat Metering Station
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
VOC	Volatile Organic Compound
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit
$\mu g/m^3$	Micrograms per cubic meter

Appendix B Previous Monthly Reports Issued Under PA-110588

Month	Document #	Date Issued
September 2024	L001-09800-HE-7180-4611	04-Sep-2024
September 2024	L001-09800-HE-7180-4612	22-Oct-2024; Revised 03-Mar-2025 (Rev B)
October 2024	L001-09800-HE-7180-4613	26-Nov-2024; Revised 03-Mar-2025 (Rev B)
November 2024	L001-09800-HE-7180-4614	16-Dec-2024; Revised 03-Mar-2025 (Rev B)
December 2024	L001-09800-HE-7180-4684	23-Jan-2025
January 2025	L001-09800-HE-7180-4691	26-Feb-2025
February 2025	L001-09800-HE-7180-4692	27-Mar-2025
March 2025	L001-09800-HE-7180-4702	25-Apr-2025
April 2025	L001-00000-HE-7180-1553	30-May-2025
May 2025	L001-00000-HE-7180-1554	30-Jun-2025
June 2025	L001-00000-HE-7180-1555	31-Jul-2025
July 2025	L001-00000-HE-7180-1556	31-Aug-2025; Revised 05-Sept-2025 (Rev B)
August 2025	L001-00000-HE-7180-1557	30-Sep-2025
September 2025	L001-00000-HE-7180-1558	30-Oct-2025

Appendix C Fuel Gas Use (Condition 10.2.1)

This condition applies only during Commissioning. As Operations commenced following first cargo loading on June 30, 2025, Condition 10.2.1 is not applicable for this month. Accordingly, no Commissioning fuel gas use data are reported for this month.

Table C-2: Gas Turbines String 1 and String 2

Fuel gas volumes and emissions are reported cumulatively for Gas Turbine String 1 (1KT-1460) and String 2 (1KT-1470). String 1 underwent a planned maintenance activity from September 11-23, 2025, during which the facility operated on String 2 only. This resulted in approximately fifty percent reduction in gas turbine fuel consumption during the outage period, as reflected in the daily data below.

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Sep-25	542,007	934	142	34	-	2	5,748
2-Sep-25	386,740	666	101	23	-	1	2,036
3-Sep-25	773,425	1,335	202	47	-	2	8,017
4-Sep-25	989,620	1,706	259	61	-	3	12,152
5-Sep-25	992,694	1,710	259	62	-	3	12,174
6-Sep-25	997,849	1,720	261	62	-	3	12,245
7-Sep-25	996,943	1,717	260	62	-	3	12,227
8-Sep-25	1,013,309	1,744	264	62	-	3	12,433
9-Sep-25	785,936	1,356	205	48	-	2	8,107
10-Sep-25	951,208	1,639	248	58	-	3	11,499
11-Sep-25	446,442	768	116	27	-	1	4,109
12-Sep-25	498,690	859	130	29	-	1	2,624
13-Sep-25	500,635	861	130	29	-	1	2,631
14-Sep-25	501,066	862	131	29	-	1	2,636
15-Sep-25	502,396	863	131	29	-	1	2,637
16-Sep-25	502,645	868	132	29	1	1	2,654
17-Sep-25	502,620	869	132	29	1	1	2,656
18-Sep-25	502,470	869	131.7	29	1	1	2,656
19-Sep-25	520,974	897	136	30	1	1	2,739
20-Sep-25	517,325	893.5	135.4	30	1	1	2,731
21-Sep-25	520,330	900.3	136.4	30	1	1	2,752
22-Sep-25	513,816	888.1	134.6	30	1	1	2,715
23-Sep-25	513,690	889.0	134.7	30	1	1	2,718
24-Sep-25	647,639	1,125.2	170.5	39	1	2	5,349
25-Sep-25	811,759	1,409.7	213.6	50	1	2	8,581
26-Sep-25	885,867	1,538.0	233.0	55	1	3	10,073
27-Sep-25	873,781	1,511.8	229.1	54	1	2	9,438
28-Sep-25	885,334	1,540.5	233.4	55	1	2	9,767
29-Sep-25	927,307	1,611.5	244.2	57	1	3	11,175
30-Sep-25	971,330	1,686.4	255.5	60	1	3	11,875
Monthly Total	**20,975,847**	**36,237**	**5,491**	**1,269**	**15**	**55**	**199,154**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Table C-3: Acid Gas Incinerator

The unit experienced trips on September 1 and September 10, resulting in reduced or zero fuel gas consumption and acid gas processing during these events. Additionally, the AGI tripped on September 29 and has remained shut down. Following initial inspection and assessment of the fault, the unit is estimated to be out of service for approximately one month. During the AGI outage, acid gas containing H2S from the Acid Gas Removal Unit (AGRU) is being routed to the warm/wet flare (FWW) for disposal. Additional medium-pressure (MP) fuel gas is being injected into the FWW to ensure oxidation of H_2S. This interim measure will continue until the AGI is returned to service.

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	PM2.5	SOx	VOC	HC-T
01-Sep-25	29,452	20	82	7	28	0.04	0.02
02-Sep-25	29,757	32	130	11	7	0.02	0.01
03-Sep-25	29,987	36	146	13	-	0.02	0.01
04-Sep-25	30,083	36	146	13	-	0.02	0.01
05-Sep-25	32,795	34	140	12	9	0.03	0.01
06-Sep-25	47,073	26	108	9	56	0.07	0.04
07-Sep-25	47,088	26	108	9	56	0.07	0.04
08-Sep-25	47,195	26	108	9	56	0.07	0.04
09-Sep-25	25,247	15	62	5	28	0.04	0.02
10-Sep-25	33,325	27	109	9	25	0.04	0.02
11-Sep-25	36,741	32	130	11	22	0.04	0.02
12-Sep-25	47,394	27	110	10	56	0.07	0.04
13-Sep-25	47,130	26	108	9	56	0.07	0.04
14-Sep-25	46,781	26	107	9	56	0.07	0.04
15-Sep-25	46,899	26	107	9	56	0.07	0.04
16-Sep-25	46,767	26	107	9	56	0.07	0.04
17-Sep-25	46,773	26	107	9	56	0.07	0.04
18-Sep-25	47,112	26	108	9	56	0.07	0.04
19-Sep-25	46,838	26	107	9	56	0.07	0.04
20-Sep-25	46,834	26	107	9	56	0.07	0.04
21-Sep-25	46,844	26	107	9	56	0.07	0.04
22-Sep-25	46,814	26	107	9	56	0.07	0.04
23-Sep-25	46,848	26	107	9	56	0.07	0.04
24-Sep-25	46,804	26	107	9	56	0.07	0.04
25-Sep-25	46,813	26	107	9	56	0.07	0.04
26-Sep-25	46,794	26	107	9	56	0.07	0.04
27-Sep-25	46,793	26	107	9	56	0.07	0.04
28-Sep-25	29,205	22	90	8	24	0.04	0.02
29-Sep-25	25,686	28	114	10	5	0.02	0.01
30-Sep-25	17,426	20	82	7	2	0.01	0.01
Total	**1,211,298**	**797**	**3,272**	**278**	**1,214**	**2**	**1**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Exhibit C-1: Sample Emission Calculations – Gas Turbine

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hour (h) to 1 day (d)
    - 10,000 parts per million (ppm) in one percent

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable sources of data from the meters include:
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - Tag CA:KIT:114FI1601.PV: LNG Train 1, String 1 (1KT-1460); fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:114FI2601.PV: LNG Train 1, String 2 (1KT-1470); fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:114BHS1423.PV, Tag CA:KIT:114BHS2423.PV: Gas Turbine Operating Load (MW)
    - Emission factors: Refer to Table 1 and 2 within the report.

The sample calcuation below is based on the data from September 01, 2025.

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:114FI2601.PV & CA:KIT:114FI2601.PV is converted to volume flow rate using the fluid density of 0.748417544 kg/m³.

- Mass flow rate = 403,056 kg/d

Volume flow rate (m³/d)

= (403,056 / 0.74363652) ≈ 542,007 m^3/d

Step 2: Emission Calculation – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using NOx for the example; NOx Mass Emission (kg/d)

= 403,056 x 40.50 x 1/ 0.74363652 x 1/1000 x 0.9478 x 0.099 x 0.4535

≈ 934 kg/d

For SO_2, 0.94S was used as the emission factor - where "S" is the percent sulphur in fuel (refer to Table 1). "S" is based on the total sulphur content of the fuel gas (from the laboratory analysis) given fuel gas was used to fuel the gas turbine this month (refer to Appendix D, Table D-7).

SOx Mass Emission (kg/d)

= 403,056 x 40.50 x 1/ 0.74363652 x 1/1000 x 0.9478 x 0.94*(0.000018) x 0.4535

≈ 0.16 kg

Emission Calculation Basis – when using Stack Testing results – the same calculation applies for VOCs, HC-T derived from stack testing:

PM2.5 Mass Emission (kg/h) – similar calculation approach will be for VOC and HC-T:

PM2.5 Mass Emission (kg/h) = Emission Factor (g/kg fuel) × Fuel Flow Rate (kg/h) × (1 kg / 1000 g)

Using September 1, 2025, for the example, where the gas turbine fuel consumption was obtained from CA:KIT:114FI1601.PV:

Step 1: Fuel mass flow rate

Mass flow rate (String 1) = 154,272 kg/d

Step 2: Calculate PM2.5 emissions using stack testing emission factor

From Table 1: PM2.5 emission factor = 0.08780 g/kg of fuel (based on September 28 stack testing)

PM2.5 Mass Emission (kg/d) = 0.08780 × 154,272 × (1/1000) ≈ 14 kg/d

Note: This calculation approach applies to String 1. A similar methodology is used for String 2 using its respective stack testing emission factor of 0.07842 g/kg fuel and actual fuel consumption data from CA:KIT:114FI2601.PV. The total PM2.5 are added in the final total above from String 1 and String 2.

Exhibit C-2: Sample Emission Calculations – Acid gas incinerator

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hours (h) to 1 day (d)
    - 10,000 parts per million (ppm) in one percent

Input Values

The applicable sources of data from the meters include:

- Tag CA:KIT:119FI0302.PV: Fuel gas consumption by the acid gas incinerator
- Tag CA:KIT:119FI0001.PV: Acid gas to incinerator
- Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
- Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) multiplied by a reference air density of 1.225 kg/m³ (15°C, 1 atm) and corrected to standard conditions (20°C, 1 atm) to determine the actual natural gas density.
- Emission Factors: Refer to Table 3 within the report.

The sample calculation below is based on the data from September 01, 2025, for fuel gas tag:

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:119FI0302.PV is converted to volume flow rate using the fluid density of 0.748417544 kg/m³.

Mass flow rate = 4,915 kg/d

Volume flow rate (m³/d):

= Mass flow rate / Fluid density

= 4,915 / 0.743636519 ≈ 6,609 m³/d

Step 2: Emission Calculation – Using Emission Factors

Formula: Mass Emission (kg/d) =

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Example: NOx Emissions

- NOx Emission Factor: 0.068 lb/MMBTU

NOx Mass Emission (kg/d):

= 6,609 × 40.50 × (1 / 0.743636519) × (1 / 1000) × 0.9478 × 0.068 × 0.4535 ≈ 7.82 kg/d

Note: A similar calculation is done for NOx on acid gas using the heating value and density of acid gas, and the mass flow rate. It is then added to the NOx calculated number above to get the final number.

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

For fuel gas contribution to SO_2, total sulphur is based on the total sulphur content of the fuel gas for September 01, 2025 (from the laboratory analysis) given fuel gas was used to fuel the AGI this month (refer to Appendix D, Table D-7).

SO_2 Mass Emission (kg/d):

= 6,609 x 0.000018 x 0.01 x (64.066 / 32.065)

≈ 0.002 kg/d

SO_2 from acid gas going to incinerator:

A sample was taken and analyzed at the LNGC Laboratory on 8th September 2025. Sample ID: 2798169, where the total S concentration is 492.4 PPMV. Moving forward, LNG Canada will utilize sample values to estimate SO_2 from the unit until reporting from CEMS becomes available.

Daily acid-gas mass flow (example): ṁgas = 37,919 kg/d (01-Sep-25) from CA:KIT:119FI0001.PV
Total Sulphur concentration: S = 492.4 ppmv = 0.0004924 mol S/mol gas

Molecular weights:
MWgas = 42.2 g/mol = 0.0422 kg/mol
Sulphur, MW = 0.032065 kg/mol
SO2, MW = 0.064066 kg/mol

Steps:
1. Moles of gas per day:
ṅgas = ṁgas / MWgas = 37,919 kg/d ÷ 0.0422 kg/mol = 898,555 mol/d

2. Moles of sulphur per day:
ṅS = S × ṅgas = 492.4×10^{-6} × 898,555 = 442.45 mol/d

3. Mass flow of total sulphur:
ṁS = ṅS × MS / 1000 = 442.45 × 32.065 / 1000 = 14.18 kg/d

4. Equivalent SO2 mass flow (full oxidation using 1 to 1 relationship between S and SO_2: S + O_2 --> SO_2):
ṁSO2 = ṅS × MSO2 / 1000 = 442.45 × 64.066 / 1000 = 28.34 kg/d ≈ 28 kg/d – this is added to the SO_2 contribution from fuel gas and reported as the total for the month.

Appendix D Flaring Activity (Condition 10.2.4)

Table D-1: Flaring Event Overview

Flare	Event Type	Event Date & Time			Description	Volume of Gas to Flare Per Event (m^3/month)	External Notifications Undertaken
		Start	End	Duration			
Warm/Wet	Routine	01-Sep-2025	30-Sep-2025	Continuous	Pilot and purge gas	14,689	
Warm/Wet	Non-Routine	01-Sep-2025	30-Sep-2025	Continuous	Assist gas and flaring	484,640	
Warm/Wet	Back Burn	01-Sep-2025	30-Sep-2025	Continuous	Assist gas and flaring to mitigate Back Burn issue.	5,592,543	YES
Cold/Dry	Routine	01-Sep-2025	30-Sep-2025	Continuous	Pilot, and fuel gas purges	831,775	
Cold/Dry	Non-Routine	01-Sep-2025	30-Sep-2025	Continuous	Flaring from MCHE cooldown from plant trip	1,835,426	
Storage and Loading	Routine	01-Sep-2025	30-Sep-2025	Continuous	Pilot and purge gas	1,593,499	
Storage and Loading	Non-Routine	01-Sep-2025	30-Sep-2025	Continuous	Assist gas and Boil-off Gas	717,831	
Spare	Routine	01-Sep-2025	30-Sep-2025	Continuous	Pilot and purge gas	5,795	
Spare	Non-Routine	01-Sep-2025	30-Sep-2025	Continuous	Routing from FCD and FWW header	2,448,919	
Liquid Burner	Routine	01-Sep-2025	30-Sep-2025	Continuous	Pilot	13,523	
Liquid Burner	Non-Routine	01-Sep-2025	30-Sep-2025	Continuous	Assist Gas and emptying of blowcase vessel	7,084	

The data for the warm/wet flare was derived from the main warm/wet flare flowmeter (CA:KIT:062FI0103.PV) including pilot and assist gas (CA:KIT:062FI0312.PV) and subtracting nitrogen purges. The fuel volumes below were corrected to 20°C. From September 16 to 27, volume of flared gas is routed to the spare flare.

Table D-2: Flaring Event – Warm/Wet Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Sep-25	1,708,649	1,907	14,733	348	1	3,753	6,165
2-Sep-25	775,479	865	6,668	158	-	1,699	2,791
3-Sep-25	236,199	264	2,037	48	-	519	852
4-Sep-25	266,144	297	2,295	54	-	585	960
5-Sep-25	249,637	278	2,147	51	-	547	898
6-Sep-25	168,009	188	1,449	34	-	369	606
7-Sep-25	156,952	175	1,350	32	-	344	565
8-Sep-25	176,536	197	1,518	36	-	387	635
9-Sep-25	337,016	376	2,906	69	-	740	1,216
10-Sep-25	182,009	203	1,569	37	-	400	657
11-Sep-25	508,981	567	4,377	104	-	1,115	1,832
12-Sep-25	109,532	122	942	22	-	240	394
13-Sep-25	66,920	75	575	14	-	147	241
14-Sep-25	63,502	71	546	13	-	139	229
15-Sep-25	75,649	84	649	15	-	165	271
16-Sep-25	7,270	8	63	1	-	16	26
17-Sep-25	7,384	8	64	2	-	16	27
18-Sep-25	7,306	8	63	1	-	16	26
19-Sep-25	7,313	8	63	1	-	16	26
20-Sep-25	7,265	8	63	1	-	16	26
21-Sep-25	7,260	8	63	1	-	16	26
22-Sep-25	7,160	8	62	1	-	16	26
23-Sep-25	7,088	8	61	1	-	16	26
24-Sep-25	198	-	2	-	-	-	1
25-Sep-25	199	-	2	-	-	-	1
26-Sep-25	199	-	2	-	-	-	1
27-Sep-25	199	-	2	-	-	-	1
28-Sep-25	231,340	261	2,011	48	-	512	842
29-Sep-25	325,952	367	2,834	67	-	722	1,186
30-Sep-25	394,525	443	3,420	81	-	871	1,431
Monthly Total	**6,091,872**	**6,804**	**52,536**	**1240**	**1**	**13,382**	**21,984**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

For this month, the reporting for the cold/dry flare is from the main flowmeter (CA:KIT:062FI0123.PV) and including pilot (CA:KIT:062FI0343.PV) and subtracting nitrogen purges. From September 9 to 14, flared gas is routed to spare flare.

Table D-3: Flaring Event – Cold/Dry Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Sep-25	197,812	761	1,367	65	-	694	1,141
2-Sep-25	1,598,164	6,152	11,053	522	-	5,616	9,227
3-Sep-25	38,419	147	265	12	-	134	221
4-Sep-25	112,561	433	777	37	-	394	649
5-Sep-25	54,005	207	372	18	-	189	311
6-Sep-25	20,063	76	138	6	-	69	115
7-Sep-25	22,737	87	156	7	-	79	130
8-Sep-25	64,909	249	448	21	-	227	373
9-Sep-25	610	2	3	-	-	1	2
10-Sep-25	609	2	3	-	-	1	2
11-Sep-25	610	2	3	-	-	1	2
12-Sep-25	610	2	3	-	-	1	2
13-Sep-25	610	2	3	-	-	1	2
14-Sep-25	611	2	3	-	-	1	2
15-Sep-25	18,043	69	124	6	-	62	103
16-Sep-25	37,399	143	258	12	-	130	215
17-Sep-25	39,169	150	270	13	-	137	225
18-Sep-25	33,439	128	230	11	-	116	192
19-Sep-25	50,050	192	345	16	-	175	288
20-Sep-25	43,039	165	297	14	-	150	247
21-Sep-25	24,232	92	166	8	-	84	139
22-Sep-25	23,967	91	165	8	-	83	137
23-Sep-25	28,375	108	195	9	-	99	163
24-Sep-25	17,539	67	120	6	-	61	100
25-Sep-25	45,026	173	310	15	-	157	259
26-Sep-25	43,832	168	302	14	-	153	252
27-Sep-25	38,098	146	262	12	-	133	219
28-Sep-25	33,621	129	231	11	-	117	193
29-Sep-25	46,064	177	317	15	-	161	265
30-Sep-25	32,978	126	227	11	-	115	189
Monthly Total	**2,667,201**	**10,248**	**18,413**	**869**	**-**	**9,341**	**15,365**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Flaring occurred from the storage and loading flare (FLP) (CA:KIT:062FI0301.PV) during the warming of the LNG tank. Other sources of flaring from FLP were assist gas (CA:KIT:062FI0351.PV), and fuel gas purges (CA:KIT:062FI0131.PV; CA:KIT:062FI0133.PV; CA:KIT:062FI0041.PV).

Table D-4: Flaring Event – Storage and Loading Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Sep-25	59,346	60	467	11	-	119	196
2-Sep-25	357,738	365	2,817	67	-	717	1,179
3-Sep-25	24,744	25	195	4	-	49	81
4-Sep-25	90,149	92	709	17	-	181	297
5-Sep-25	88,141	90	694	16	-	177	290
6-Sep-25	90,770	92	714	17	-	182	299
7-Sep-25	90,735	92	714	17	-	182	299
8-Sep-25	84,854	86	668	16	-	170	280
9-Sep-25	65,700	67	517	12	-	132	217
10-Sep-25	65,415	67	515	13	-	131	216
11-Sep-25	62,934	65	496	11	-	126	207
12-Sep-25	61,226	63	482	11	-	123	201
13-Sep-25	82,753	85	652	16	-	166	273
14-Sep-25	47,777	49	376	8	-	96	158
15-Sep-25	68,390	70	538	13	-	137	225
16-Sep-25	64,324	66	507	12	-	129	212
17-Sep-25	41,839	43	329	7	-	84	138
18-Sep-25	46,773	48	368	8	-	94	154
19-Sep-25	101,087	103	796	18	-	202	333
20-Sep-25	41,928	43	330	7	-	84	139
21-Sep-25	72,681	75	572	13	-	146	240
22-Sep-25	41,108	42	323	7	-	82	136
23-Sep-25	19,697	21	155	3	-	39	65
24-Sep-25	65,206	66	513	12	-	131	215
25-Sep-25	95,510	97	752	17	-	192	315
26-Sep-25	79,222	80	624	14	-	159	261
27-Sep-25	59,628	60	470	11	-	120	197
28-Sep-25	48,153	49	379	9	-	97	159
29-Sep-25	58,083	59	458	10	-	117	192
30-Sep-25	135,419	138	1,067	25	-	272	446
Monthly Total	**2,311,330**	**2,358**	**18,197**	**422**	**-**	**4,636**	**7,620**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Volumes and emissions reported in the table below reflect those associated with pilot and any purges (CA:KIT:062FI0143.PV). Spare flare was used between 9th to 14th September in place of FCD, and from 16th to 27th September in place of FWW.

Table D-5: Flaring Event – Spare Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Sep-25	200	-	2	-	-	-	1
2-Sep-25	207	-	2	-	-	-	1
3-Sep-25	206	-	2	-	-	-	1.00
4-Sep-25	200	-	2	-	-	-	1.00
5-Sep-25	327	-	3	-	-	1	1
6-Sep-25	424	-	4	-	-	1	2
7-Sep-25	238	-	2	-	-	1	1
8-Sep-25	315	-	3	-	-	1	1
9-Sep-25	51,425	89	693	17	-	177	290
10-Sep-25	26,523	47	364	9	-	93	152
11-Sep-25	977,215	1,747	13,482	319	-	3,434	5,642
12-Sep-25	60,571	108	834	20	-	213	349
13-Sep-25	64,278	114	885	21	-	226	370
14-Sep-25	36,066	64	496	12	-	126	207
15-Sep-25	259	-	2	-	-	1	1
16-Sep-25	124,983	223	1,724	41	-	439	721
17-Sep-25	59,369	106	818	19	-	208	343
18-Sep-25	54,471	97	751	18	-	191	314
19-Sep-25	52,962	94	730	17	-	185	306
20-Sep-25	159,360	285	2,198	52	-	559	920
21-Sep-25	51,954	93	716	17	-	182	300
22-Sep-25	58,456	104	806	19	-	205	337
23-Sep-25	127,757	228	1,761	42	-	449	737
24-Sep-25	199,800	357	2,756	65	-	702	1,153
25-Sep-25	111,306	199	1,534	36	-	391	642
26-Sep-25	117,273	209	1,616	38	-	412	677
27-Sep-25	117,959	210	1,626	38	-	415	680
28-Sep-25	214	-	2	-	-	-	1
29-Sep-25	198	-	2	-	-	-	1
30-Sep-25	198	-	2	-	-	-	1
Monthly Total	**2,454,714**	**4,374**	**33,818**	**800**	**-**	**8,612**	**14,153**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

In addition to the continuous pilot gas, the emissions reported for the liquid burner are primarily associated with non-routine flaring from blowcase vessel. This testing involved the controlled combustion from the blowcase (114HCV-0003) and occurred during 2nd and 11th of Sep. 2025. Emissions data presented below reflects the combination of these activities, assist gas (CA:KIT:062FI0361.PV, CA:KIT:062FI0381.PV, CA:KIT:062FI0400.PV) and the pilot.

Table D-6: Flaring Event – Liquid Burner Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Sep-25	451	1	2	-	-	1	2
2-Sep-25	5,401	13	23	1	-	12	20
3-Sep-25	760	13	23	1	-	12	20
4-Sep-25	451	1	2	-	-	1	2
5-Sep-25	451	1	2	-	-	1	2
6-Sep-25	451	1	2	-	-	1	2
7-Sep-25	451	1	2	-	-	1	2
8-Sep-25	844	2	4	-	-	2	3
9-Sep-25	473	1	2	-	-	1	2
10-Sep-25	451	1	2	-	-	1	2
11-Sep-25	2,254	5	10	1	-	5	8
12-Sep-25	491	1	2	-	-	1	2
13-Sep-25	452	1	2	-	-	1	2
14-Sep-25	452	1	2	-	-	1	2
15-Sep-25	453	1	2	-	-	1	2
16-Sep-25	450	1	2	-	-	1	2
17-Sep-25	450	1	2	-	-	1	2
18-Sep-25	450	1	2	-	-	1	2
19-Sep-25	452	1	2	-	-	1	2
20-Sep-25	450	1	2	-	-	1	2
21-Sep-25	449	1	2	-	-	1	2
22-Sep-25	450	1	2	-	-	1	2
23-Sep-25	449	1	2	-	-	1	2
24-Sep-25	447	1	2	-	-	1	2
25-Sep-25	447	1	2	-	-	1	2
26-Sep-25	447	1	2	-	-	1	2
27-Sep-25	449	1	2	-	-	1	2
28-Sep-25	446	1	2	-	-	1	2
29-Sep-25	447	1	2	0.1	-	1	2
30-Sep-25	447	1	2	0.1	-	1	2
Monthly Total	**21,016**	**59**	**112**	**3**	**-**	**57**	**103**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Exhibit D-1: Sample Emission Calculations – Warm/Wet Flare

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 h to 1 day (d)
    - 10,000 parts per million (ppm) in one percent.

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable meters include:
    - KITSL-V1P.curval (KMS): This tag provides the daily fuel gas volume data recorded at the KMS. These volumes, measured at atmospheric pressure, serve as the primary input for calculating flared gas volumes.
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density was obtained (daily values at 1 atm) This was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - CA:KIT:062FI0343.PV: This tag measures the total fuel gas consumption for all flare pilots. The portions attributable to the cold dry flare and the liquid burner were determined using flare tip allocations and subtracted from the total to determine the warm/wet flare pilot gas consumption.
    - CA:KIT:062FI0103.PV: This is the main flow meter for the warm/wet flare
    - Emission factors: Refer to Table 4 within the report.

Emission Calculation Basis – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right)$$
$$\times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using September 01, 2025, and NOx for the example:

Convert volumetric flow rate to mass flow rate:

Volumetric flow rate = 1,708,649 m^3/d – corrected to 20°C.

Mass flow rate = 1,708,649 m^3/d x 0.74363652 kg/m^3 = 1,270,614 kg/d

NOx Mass Emission (kg/d)

= 1,270,614 x 40.50 x (1 / 0.74363652) x (1 / 1000) x 0.9478 x 0.0641 x 0.4535

≈ 1907 kg/d

Similar calculations follow for CO, $PM_{2.5}$, VOC, and HC-T, however all HHV values in their calculations are converted to LHV.

Emission Calculation Basis – when using Engineering Estimates (only applies to SOx):

Total sulphur content (S) in feed gas samples was analyzed periodically by the LNG Canada laboratory. Table D-7 summarizes the laboratory results.

Table D-7: Total Sulphur Content Measured in the Feed Gas (Laboratory Results)

Date	Total Sulphur in Feed Gas (PPMW)	%
02-Sep-25	0.18	0.000018
09-Sep-25	0.18	0.000018
16-Sep-25	0.71	0.000071
23-Sep-25	0.54	0.000054

To bridge periods between measurements, the following approach was used:

- September 01 - 08: SO_2 emissions were calculated using the September 02, 2025 total sulphur measurement.
- September 09 - 15: The September 09, 2025 measurement was applied.
- September 16 - 22: The September 16, 2025 measurement was applied.
- September 23 - 30: The September 23, 2025 measurement was applied.

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

Using September 01, 2025, for the example, where the applied percent sulphur in the fuel gas is 0.53 PPMW.

SO_2 Mass Emission (kg/d)

= 1,270,614 x 0.000018 x (1 / 100) x (64.066 / 32.065) x 1

≈ 1 kg/d

The same calculation approach would follow for SO_2 (kg/h) numbers; with the flow rate in kg/h rather than kg/d.

Appendix E Facility SO_2 Emission Limit (Condition 10.2.8)

Table E-1 presents the maximum hourly cumulative SO_2 discharge rate per day. It does not imply that the maximum discharge rate occurred for the full 24 hours that day. The maximum hourly rate was based on the maximum hourly flow rate obtained for each of the contributing sources below on the respective dates. The total sulphur content was obtained from Table D-7.

As reporting from CEMS is currently not being undertaken, AGI SO_2 emissions from H_2S coming from the Acid Gas Removal Unit (AGRU) were estimated using sample of the acid gas on September 8, 2025.

Table E-1: Maximum Hourly SO_2 Discharge Rate for Each Day

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage & Loading Flare	Spare Flare	Liquid Burner
01-Sep-25	2.380	0.49%	97.92%	1.58%	0.00%	0.01%	0.00%	0.00%
02-Sep-25	2.366	0.20%	98.06%	1.64%	0.00%	0.01%	0.00%	0.09%
03-Sep-25	0.155	7.87%	84.12%	6.48%	0.02%	0.11%	0.00%	1.40%
04-Sep-25	0.016	75.88%	2.09%	20.59%	0.22%	1.18%	0.01%	0.03%
05-Sep-25	0.016	75.55%	2.07%	20.95%	0.22%	1.17%	0.01%	0.03%
06-Sep-25	2.356	0.53%	99.34%	0.12%	0.00%	0.01%	0.00%	0.00%
07-Sep-25	2.355	0.53%	99.38%	0.08%	0.00%	0.01%	0.00%	0.00%
08-Sep-25	2.356	0.54%	99.33%	0.12%	0.00%	0.01%	0.00%	0.00%
09-Sep-25	2.447	0.52%	98.91%	0.49%	0.00%	0.01%	0.00%	0.07%
10-Sep-25	2.357	0.53%	99.29%	0.18%	0.00%	0.00%	0.00%	0.00%
11-Sep-25	2.892	0.42%	97.52%	2.06%	0.00%	0.00%	0.00%	0.00%
12-Sep-25	2.342	0.26%	99.48%	0.17%	0.00%	0.00%	0.00%	0.09%
13-Sep-25	2.327	0.27%	99.70%	0.03%	0.00%	0.00%	0.00%	0.00%
14-Sep-25	2.327	0.27%	99.69%	0.04%	0.00%	0.00%	0.00%	0.00%
15-Sep-25	2.339	0.27%	99.61%	0.12%	0.00%	0.00%	0.00%	0.00%
16-Sep-25	2.367	1.03%	98.43%	0.52%	0.01%	0.01%	0.00%	0.00%
17-Sep-25	2.355	1.04%	98.94%	0.00%	0.01%	0.01%	0.00%	0.00%
18-Sep-25	2.355	1.04%	98.94%	0.00%	0.01%	0.01%	0.00%	0.00%
19-Sep-25	2.356	1.09%	98.89%	0.00%	0.01%	0.01%	0.00%	0.00%
20-Sep-25	2.356	1.07%	98.91%	0.00%	0.01%	0.01%	0.00%	0.00%
21-Sep-25	2.356	1.08%	98.91%	0.00%	0.01%	0.01%	0.00%	0.00%
22-Sep-25	2.356	1.09%	98.90%	0.00%	0.01%	0.01%	0.00%	0.00%
23-Sep-25	2.350	0.83%	99.16%	0.01%	0.00%	0.00%	0.00%	0.00%
24-Sep-25	2.357	1.15%	98.84%	0.01%	0.00%	0.00%	0.00%	0.00%
25-Sep-25	2.362	1.33%	98.66%	0.01%	0.00%	0.00%	0.00%	0.00%
26-Sep-25	2.366	1.52%	98.47%	0.01%	0.00%	0.00%	0.00%	0.00%
27-Sep-25	2.369	1.64%	98.34%	0.02%	0.00%	0.00%	0.00%	0.00%

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage & Loading Flare	Spare Flare	Liquid Burner
28-Sep-25	2.363	0.85%	98.62%	0.53%	0.00%	0.00%	0.00%	0.00%
29-Sep-25	2.380	0.72%	98.77%	0.51%	0.00%	0.00%	0.00%	0.00%
30-Sep-25	0.873	2.06%	96.30%	1.62%	0.01%	0.01%	0.00%	0.00%

* Individual values may be subject to rounding adjustments

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Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Quarterly Report (Q3 2025)

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1. Overview

1.1. Project Background

The LNG Canada (LNGC) liquefied natural gas facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

1.2. Purpose

On July 15, 2024, the BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., under the provisions of the BC *Environmental Management* Act, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Permit PA-110588 applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.3 of Permit PA-110588 (Quarterly Reporting) for Q3 2025.

Refer to Appendix B for a list of all quarterly reports that have been issued under Permit PA-110588.

1.3. LNG Facility Status

On the afternoon of August 31, 2024, fuel gas was introduced into Unit 1000 (Inlet Facilities) for the first time from the Coastal Gas Link pipeline, commencing the pressurization of piping and the startup fuel gas heater. The introduction of fuel gas into the fuel gas headers down to the flare area, and the first supply of fuel gas to the pilot on the warm wet flare occurred on September 1, 2024. LNG Canada started producing liquified natural gas (LNG) on June 22nd, 2025, and successfully loaded the first cargo of LNG destined for global markets on June 30th, 2025, marking the start of operations at Canada’s first large-scale LNG export facility on July 1st, 2025.

Under Permit PA-110588, the “Commissioning” phase is defined as “*that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.”* Operations is the period of time which follows Commissioning. Therefore, “Commissioning”, under Permit PA-110588, commenced on September 1, 2024, and ended with the departure of 1st cargo.

The Initial Performance Period (IPP) did not commence during Q3 2025 (which is defined as the period that “*commences upon the completion of the initial performance test for LNG Train 1”*).

During Q3 2025, discharges of air contaminants occurred from the following authorized works:

- Two (2) gas turbine engine (LNG Train 1, String 1 & String 2)
- One (1) AGI (LNG Train 1)
- One (1) warm/wet flare
- One (1) cold/dry flare
- One (1) storage and loading flare
- One (1) spare flare
- Liquid burner

2. Ambient Air Monitoring Data issues (Condition 10.3.1)

2.1. Permit Condition

Under Condition 10.3.1, the quarterly report shall include the following information:

a. (i) identification of, (ii) description of, and (iii) reason(s) for any ambient air or meteorological monitoring data deletion or resubmission.

b. (i) identification of, (ii) description of, and (iii) reason(s) for any missed calibrations from ambient air analyzers that were required to be calibrated during the reporting period.

c. (i) identification and (ii) description of any other issues with the ambient air or meteorological monitoring data; and

d. if any passive monitor fails to collect a sample for one sample period, the Permittee shall include the reasons for the absence of data within the report.

This condition applies to the locations where LNG Canada is conducting continuous monitoring activities:

- Under Condition 6.2.2, LNG Canada is required to conduct continuous monitoring of ambient air concentrations of nitrogen dioxide (NO_2) and ozone (O_3) at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2). In addition, prior to commencement of Operations, LNG Canada is required to conduct continuous monitoring of total hydrocarbons (HC-T) at either Kitimat Riverlodge or Kitimat Whitesail.
- Under Condition 6.3, LNG Canada is required to obtain or collect continuous monitoring data for the following meteorological parameters, at stations where conducting the continuous monitoring of ambient air concentrations: temperature, wind speed, wind direction, and standard deviation of wind direction.
- Under Condition 6.4, LNG Canada is required to conduct passive monitoring of NO_2 concentrations at thirteen locations (defined within the permit).

2.2. Data and Assessment

LNG Canada engaged Trinity Consultants to oversee the ambient air quality monitoring for NO_2 and O_3 at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2). Trinity Consultants published a report that addresses the data issues in these locations, as required under Condition 10.3.1 (a) to (c)

There were no ambient air or meteorological monitoring data deletions or resubmissions made for any of the monitoring stations outlined in this report. No required calibrations of the ambient air quality analyzers were missed during the third quarter. There were no exceedances of the numerical metrics of the BCAAQO.

Refer to Appendix D, Attachment 1 for more details:

- Kitamaat Village (Site 1): Table 2-2 contains the data completeness; and Table 3-2 contains the percent data recovery. Section 3.3 outlines the data shortfall periods and known issues during the reporting period.
- Riverlodge (Site 2): Table 2-3 contains the data completeness; and Table 4-2 contains the percent data recovery. Section 4.3 outlines the data shortfall periods and known issues during the reporting period.
- General: Section 2.3 contains the details on ambient air or meteorological monitoring data deletion and resubmissions; and missed calibrations.

On September 5 2025, an elevated THC spike was observed on the Riverlodge monitoring station. Our data management team confirmed there were no calibration checks running at this time nor known issues with the analyzer, and this appears to be a real event of elevated THC values. Our investigation into this spike concluded that the source of this spike is not from LNG Canada.

LNG Canada engaged Tetra Tech to oversee the passive NO_2 monitoring program, who published a technical memorandum that addresses the data issues in these locations, as required under Condition 10.3.1(d) - Refer to Appendix D, Attachment 2 for additional details.

3. Ambient Air Monitoring Results (Condition 10.3.2)

3.1. Permit Condition

Under Condition 10.3.2, the quarterly report shall include the following information for each parameter monitored by the Permittee (per Section 6 of Permit PA-110588):

a. the percentage of valid hourly data at each continuous ambient air monitoring station;

b. (i) a time series plot of the hourly average ambient air concentrations at each continuous ambient air monitoring station, and (ii) a discussion of the context around any data anomalies in the time series plot;

c. i) minimum, (ii) average, (iii) median and (iv) maximum ambient air concentrations at each continuous ambient air monitoring station for the period;

d. a monthly wind rose for each continuous ambient air monitoring station for the months being monitored generated using meteorological data collected at the ambient air monitoring station;

e. a summary of passive NO_2 monitoring analysis for each monitored location (based on available laboratory analysis results for that reporting period and include results from the previous reporting period(s) that were not included in previous summaries); and

f. a summary of precipitation monitoring chemistry for each monitored location (based on available laboratory analysis results for that reporting period and include results from the previous reporting period(s) that were not included in previous summaries).

As noted in Section 2.1, Condition 10.3.2 (a) to (d) applies to NO_2, O_3, and meteorological data (temperature, wind speed, wind direction, and standard deviation of wind direction) monitored at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2); and HC-T at Kitimat Riverlodge (Site 2).

3.2. Data and Assessment

Ambient Air Monitoring Stations:

The report issued by Trinity Consultants includes the information required under Condition 10.3.2 (a) to (d) at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2) as follows (refer to Appendix D, Attachment 1):

During the third quarter, there were no exceedances of the BCAAQO for SO2, NO2, and PM2.5. The average and median hourly PM2.5, SO2, NO2, and O3 concentrations measured at the Kitamaat Village, Riverlodge, and Whitesail monitoring stations are summarized in Table 2-1 of Appendix D, Attachment 1. Tables 2-2 through 2-4 present the maximum PM2.5, SO2, NO2, and O3 concentrations, a comparison to the BCAAQOs, and data completeness for the third quarter of 2025. In Tables 2-2 through 2-4 it should be noted that, as applicable, SO_2 exceedance counts include BCAAQO and 2020 CAAQS.

Passive Monitoring:

The technical memorandum issued by Tetra Tech includes a summary of passive NO_2 monitoring analysis for each monitored location required under Condition 10.3.2 (e) (refer to Appendix D, Attachment 2). The passively measured 30-day average NO2 concentrations during each sample deployment over the quarterly period are summarized for each monitoring location in Attachment 2.

The highest 30-day average NO2 concentration measured over the quarterly period was 1.3 ppb in the month of August, at the Kitimat Industrial (V14) sample location, located north of the LNGC facility. While there is no 30-day Provincial Air Quality Objective for NO2, the annual criterion is 17 ppb, which provides an indicator for the passively measured 30-day NO2 concentrations.

Precipitation Monitoring:

LNG Canada engaged Stantec consultants to implement and execute the precipitation chemistry monitoring program to comply with the requirements of section 10.3.2(f). Precipitation monitoring is achieved with ion exchange resin (IER) column samplers. Precipitation monitoring is conducted twice per year as specified in the AQDMP. For the annual deposition, the first and second round of results have been added together. Going forward, annual deposition will be calculated as a rolling annual total, adding the new set of results to the previous set. Average deposition levels based on sampling and data analysis for precipitation chemistry data are summarized in table 3.5 below.

Table 3.5: Average Deposition Levels for the Sampling Period of Six to Seven Months

Sampling Location	Cl (kg/ha)	NO3-N (kg/ha)	NH4+-N (kg/ha)	PO4-P (kg/ha)	SO4-S (kg/ha)	Ca (kg/ha)	K (kg/ha)	Mg (kg/ha)	Na (kg/ha)
LNGC-Admin	2.75	0.20	0.20	-	3.90	0.70	0.77	0.27	3.43
B123a-LNGC	1.72	-	0.25	-	2.22	2.97	22.68 [1]	1.34	1.30
B108-alt-TF	1.29	-	0.12	-	4.47	1.64	3.48	0.96	0.80
B108-alt-BU	1.18	0.32	0.24	-	2.06	0.15	-	0.08	0.49

Note:
Average deposition levels for the LNGC-Admin and B123a-LNGC sets are based upon seven months of sample collection from October 25, 2024 to May 30, 2025.
Average deposition levels for the B108-alt-TF and B108-alt-BU sets are based upon six months of sample collection from October 25, 2024 to April 25, 2025.
[1] Levels in B123a-LNGC sets are unusually high, potentially indicating outliers or possible field disturbances or contamination. The expected concentration of K is due to expected leaching through the forest canopy, continued monitoring in Q4 2025 will further get investigated.

Table 3.6: Annual Nitrogen and Sulphur Deposition Levels (Based upon Period of Six to Seven Months)

Sampling Location	Total Nitrogen (Dissolved Inorganic Nitrogen) Deposition (kg/ha/y (N))	Total Sulphur Deposition (kg/ha/y (S))
LNGC-Admin	0.7	6.7
B123a-LNGC	1.0	5.5
B108-alt-TF	0.3	11.0
B108-alt-BU	1.1	4.3

Notes:

- Deposition rate for the LNGC-Admin sets is estimated based upon seven months of sample collection from October 25, 2024, to May 30, 2025.
- Deposition rate for the B123a-LNGC sets is estimated based upon ten months of sample collection from July 25, 2024, to May 30, 2025.
- Deposition rates for the B108-alt-TF and B108-alt-BU sets are estimated based upon nine months of sample collection from July 25, 2024, to April 25, 2025.

4. Ambient Air Monitoring Evaluation (Condition 10.3.3)

4.1. Permit Condition

Under Condition 10.3.3, the quarterly report shall include following information for NO_2, SO_2 and $PM_{2.5}$, continuously monitored at Kitamaat Village (Kitimat Haisla Village) (Site 1), Kitimat Riverlodge (Site 2) and Kitimat Whitesail:

a. a comparison of the measured ambient air concentrations at each ambient air monitoring stations to the applicable numerical metrics of the BCAAQO; and

b. (i) a description of any measured ambient air concentrations in excess of the numerical metrics of the BCAAQO, if applicable, (ii) a description of any known contributing factors from authorized works, and (iii) a description of action (if any) taken by the Permittee.

4.2. Data and Assessment

Data from continuous ambient air quality monitoring stations in Kitimat are publicly available via the BC Ministry of Environment and Climate Change Strategy, at: Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

The publicly available data for NO2, SO2 and PM2.5 at the three continuous ambient air quality monitoring stations are provided in graphs in the report presented in a time-series (refer to Appendix D, Attachment 1). During the third quarter of 2025, there were no exceedances of the numerical metrics of the BCAAQO.

Attachment 1 shows the comparison of hourly PM2.5, SO2, NO2, and O3 and 8-hour O3 Concentrations Kitamaat Village, Riverlodge, and Whitesail Monitoring Locations, Third Quarter 2025.

5. Source Testing Results (Condition 10.3.4)

5.1. Permit Condition

Under Condition 10.3.4, the quarterly report shall include the following information:

a. identification of the dates of any source sampling activities carried out during the reporting period.

b. identification of the testing company that carried out any source sampling activities during the reporting period;

c. a brief overview of any continuous emission monitoring system (CEMS) initial or re-certification tests carried out during the reporting period;

d. a brief overview of the results of any complete or incomplete (i) manual stack surveys, (ii) CEMS performance evaluation carried out during the period;

e. an explanation for stopping or aborting any incomplete (i) manual stack survey, (ii) CEMS performance evaluation;

f. a brief overview of any required corrective actions taken or planned in response to the source sampling activities; and

g. the manual stack source emissions survey reports and CEMS performance evaluation reports.

Conditions within Permit PA-110588 that inform the scope of this reporting include:

- Under Condition 5.1.2, LNG Canada shall undertake manual stack sampling every six months in the IPP on the gas turbine / WHRU stacks.
- Under Condition 5.2.2, LNG Canada shall undertake manual stack sampling for each AGI on a quarterly basis for one year.
- Under Condition 5.3, the CEMS performance evaluations or manual stack surveys shall be conducted while the equipment is operating at normal capacity while combusting the primary fuel for that unit.

5.2. Data and Assessment

CEMS Performance Evaluation:

The Continuous Emissions Monitoring System (CEMS) performance evaluation has not yet started. The first Relative Accuracy Test Audit (RATA) will be conducted once the gas turbines/WHRUs and the AGIs are operating at normal capacity.

Manual Stack Sampling:
Manual stack sampling for the gas turbines/WHRU String 1 and String 2, and Train 1 Acid Gas Incinerator was conducted on September 26-28 by AGAT Laboratories. Stack testing results are provided in Appendix D, Attachment 3.

6. Inlet Gas Sulphur Report (Condition 10.3.5)

6.1. Permit Condition

Under Condition 10.3.5, the quarterly report shall include the following information:

a. daily percentage of hydrogen sulphide of the facility inlet gas; and

b. total estimated sulphur in the facility inlet gas, based on the analysis of the monthly gas samples.

6.2. Data and Assessment

Appendix C contains the daily percentage of hydrogen sulphide (H_2S) and total estimated sulphur in the facility inlet gas (from Coastal Gas Link) in compliance to permit condition 10.3.5(a) and (b).

The daily percentage of H_2S is based on the data collected at the Kitimat Sales Meter Station where the natural gas flow is metered before it enters the LNG Canada Facility. The results are presented in Table C-1. The average quarterly H_2S measurement for the period is 1.76 ppmw, and the maximum quarterly H_2S measurement is 3.30 ppmw on September 2, 2025.

Total Sulphur in the feed inlet gas is verified through manual sampling and laboratory analysis. These manual samples are collected and analyzed by the LNG Canada Laboratory using ASTM D 5504-2012 test method. The results are presented in Table C-2. During the reporting period, there was more than one sample measured within the month, as indicated in Table C-2.

The methodology is outlined below:

1. **Sample Collection:** Grab samples of the inlet gas are collected from Unit-1000.
2. **Sample Analysis:** The samples are analyzed at the LNG Canada laboratory using a Total sulfur analyzer with UVF detection (refer to Figure C-1). The analysis provides the total sulphur concentration of various sulphur compounds.
3. **Data Verification:** The results of the laboratory analysis are reviewed for consistency and accuracy by the LNG Canada laboratory. Any discrepancies or outliers are investigated and, if necessary, the analysis is repeated. The LNG Canada laboratory also performs internal quality control checks, including the analysis of certified reference materials and method blanks with each batch of samples where applicable.

Product:	Total Sulfur in Condensate/Gas UVF detection
Methods:	ASTM D5453 /ASTM D6667
Model:	VF-210 NSX-2100
Tag:	A-10
Manufacturer:	Nittoseiko
Country of Origin:	Japan
Number of Systems:	1
Unit Price:	Quoted

Figure 1: UVF Sampling for Total Sulphur

7. References

- BC Ministry of Environment and Parks, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca), accessed April 2, 2025.

Appendix A Abbreviations

AGI	Acid Gas Incinerator
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
EPC	Engineering, Procurement, and Construction
H_2S	Hydrogen Sulphide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
JFJV	JGC Fluor BC LNG Joint Venture
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit
$\mu g/m^3$	micrograms per cubic meter

Appendix B Previous Quarterly Reports Issued Under PA-110588

Quarter / Year	Document #	Date Issued
Q3 2024	L001-09800-HE-7180-4676	Rev A 22-Oct-2024; Rev B issued 03-Feb-2025
Q4 2024	L001-09800-HE-7180-4685	23-Jan-2025
Q1 2025	L001-09800-HE-7180-4703	25-Jul-2025
Q2 2025	L001-09800-HE-7180-4710	25-Jul-2025
Q3 2025	L001-09800-HE-7180-1660	29-Oct-2025

Appendix C Inlet Gas Sulphur Report (Condition 10.3.5)

The daily percentage of hydrogen sulphide (H_2S) in the facility's inlet gas is based on the data collected at the Kitimat Sales Meter Station in parts per million volume (ppmv) (Tag no: CA: KITSL-H2SCN.curval) where the natural gas flow is metered before it enters the LNG Canada Facility; then converted to ppmw and then to a percentage value for reporting herein. During this reporting period, daily measurements of H_2S were conducted. The tables below present the average H_2S levels recorded each day.

Table C-1: Daily Average Percentage of Hydrogen Sulphide in Inlet Gas [Q3 2025]

Date	H_2S Concentration (%)	Date	H_2S Concentration (%)	Date	H_2S Concentration (%)
1-Jul-2025	0.000242	1-Aug-2025	0.000198	1-Sep-2025	0.000299
2-Jul-2025	0.000185	2-Aug-2025	0.000213	2-Sep-2025	0.000300
3-Jul-2025	0.000118	3-Aug-2025	0.000224	3-Sep-2025	0.000303
4-Jul-2025	0.000087	4-Aug-2025	0.000235	4-Sep-2025	0.000299
5-Jul-2025	0.000115	5-Aug-2025	0.000277	5-Sep-2025	0.000315
6-Jul-2025	0.000132	6-Aug-2025	0.000186	6-Sep-2025	0.000212
7-Jul-2025	0.000128	7-Aug-2025	0.000097	7-Sep-2025	0.000154
8-Jul-2025	0.000111	8-Aug-2025	0.000127	8-Sep-2025	0.000278
9-Jul-2025	0.000089	9-Aug-2025	0.000136	9-Sep-2025	0.000296
10-Jul-2025	0.000096	10-Aug-2025	0.000130	10-Sep-2025	0.000278
11-Jul-2025	0.000097	11-Aug-2025	0.000137	11-Sep-2025	0.000308
12-Jul-2025	0.000107	12-Aug-2025	0.000119	12-Sep-2025	0.000304
13-Jul-2025	0.000105	13-Aug-2025	0.000088	13-Sep-2025	0.000287
14-Jul-2025	0.000111	14-Aug-2025	0.000119	14-Sep-2025	0.000256
15-Jul-2025	0.000119	15-Aug-2025	0.000117	15-Sep-2025	0.000291
16-Jul-2025	0.000122	16-Aug-2025	0.000220	16-Sep-2025	0.000280
17-Jul-2025	0.000105	17-Aug-2025	0.000105	17-Sep-2025	0.000199
18-Jul-2025	0.000136	18-Aug-2025	0.000105	18-Sep-2025	0.000132
19-Jul-2025	0.000137	19-Aug-2025	0.000135	19-Sep-2025	0.000255
20-Jul-2025	0.000164	20-Aug-2025	0.000137	20-Sep-2025	0.000245
21-Jul-2025	0.000140	21-Aug-2025	0.000157	21-Sep-2025	0.000105
22-Jul-2025	0.000119	22-Aug-2025	0.000206	22-Sep-2025	0.000131
23-Jul-2025	0.000114	23-Aug-2025	0.000190	23-Sep-2025	0.000281
24-Jul-2025	0.000143	24-Aug-2025	0.000199	24-Sep-2025	0.000224
25-Jul-2025	0.000178	25-Aug-2025	0.000192	25-Sep-2025	0.000134
26-Jul-2025	0.000161	26-Aug-2025	0.000154	26-Sep-2025	0.000117
27-Jul-2025	0.000113	27-Aug-2025	0.000166	27-Sep-2025	0.000132
28-Jul-2025	0.000133	28-Aug-2025	0.000179	28-Sep-2025	0.000111
29-Jul-2025	0.000183	29-Aug-2025	0.000184	29-Sep-2025	0.000103
30-Jul-2025	0.000188	30-Aug-2025	0.000258	30-Sep-2025	0.000144
31-Jul-2025	0.000164	31-Aug-2025	0.000283		

Feed inlet gas is regularly verified through manual sampling and laboratory analysis. These manual samples are collected and analyzed by the LNG Canada Laboratory using ASTM D 5504-2012 test method. During the reporting period, there was more than one sample measured within the month, as indicated in Table C-2.

Table C-2: Total Measured Sulphur Content in Inlet Gas [Q3 2025]

Date	Total Measured Sulphur Content (PPMW)
8-Jul-25	0.72
15-Jul -25	1.25
22-Jul -25	1.97
29-Jul -25	2.32
5-Aug -25	0.53
12-Aug -25	0.18
19-Aug -25	0.36
26-Aug -25	0.18
2-Sep-25	0.18
9-Sep-25	0.18
16-Sep-25	0.72
23-Sep-25	0.53

Appendix D List of Attachments

Number	Title
1	Trinity Consultants, Ambient Air Quality Monitoring Report April – June 2025, LNG Canada (October 20th 2025)
2	Tetra Tech Technical Memo, PA-110588 – Passive NO_2 Monitoring Results for Q3 2025
3	AGAT Laboratories, September 2025 Stack Testing Results

Attachment 1 Trinity Consultants, Ambient Air Quality Monitoring Report July – September 2025, LNG Canada

Attachment 2 Tetra Tech Technical Memo, PA-110588 – Passive NO_2 Monitoring Results for Q3 2025

Attachment 3 AGAT Laboratories, September 2025 Stack Testing Results

AMBIENT AIR QUALITY MONITORING REPORT JULY - SEPTEMBER 2025

LNGCANADA

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1.0 INTRODUCTION

This report, prepared for LNG Canada by Trinity Consultants (Trinity), summarizes the LNG Canada's nitrogen dioxide (NO_2) and Ozone (O_3) monitoring network data collected at the Kitamaat Village and Riverlodge Stations for the third quarter (July 1 through September 30), 2025. In January 2025, a Total Hydrocarbon analyzer was installed and operated at the Riverlodge station. Sulfur dioxide (SO_2) and particulate matter 2.5 microns in size or less ($PM_{2.5}$) presented in this report for the Kitamaat Village and Riverlodge stations have been provided by Rio Tinto BC Works. Rio Tinto BC Works also provided the third quarter 2025 meteorological data for the Kitamaat Village, Riverlodge, and Whitesail stations as well as the NO_2, O_3, SO_2, and $PM_{2.5}$ data collected at the Whitesail station.

The monitoring performed by LNG Canada is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) and satisfies the requirement for collection of continuous air quality data as described under Sections 10.3, 10.3.1, 10.3.2 & 10.3.3 in LNGC's Air Discharge Permit PA-110588.

LNG Canada owns, operates, and maintains an ambient air monitoring network around the LNG Canada Kitimat LNG export facility. This ambient air quality monitoring network consists of two air quality monitoring stations that are strategically located in the Kitimat Valley of British Columbia (BC) at the Kitamaat Village (Village) and Riverlodge. The Kitamaat Village and Riverlodge stations are owned by Rio Tinto Alcan Inc. and are part of Rio Tinto's air quality monitoring network. LNG Canada's continuous monitoring equipment are housed in the Rio Tinto air quality shelters at Kitamaat Village and Riverlodge locations. The locations of these stations within the Kitimat Valley are presented in Figure 1.1.

Figure 1.1 Locations of LNG Canada and Rio Tinto BC Works Ambient Air Monitoring Stations in Kitimat Valley

1.1 Kitamaat Village

The Village Ambient Air Station is in the Haisla Nation community of Kitamaat Village. The site is located within the yard of the Kitamaat Village sewage treatment plant. Area land use is suburban with a mix of dwellings, commercial buildings, forest, ocean, and parkland. The ground cover immediately around the site is compacted gravel, natural ground cover, cut grass, and asphalt. An aerial view of the site is presented in Figure 1.2. A photograph of the Kitamaat Village Ambient Air Quality Monitoring Station is presented in Figure 1.3.

Figure 1.2 Aerial View of Kitamaat Village Ambient Air Quality Monitoring Station

Figure 1.3 Photograph of Kitamaat Village Ambient Air Quality Monitoring Station

1.2 Riverlodge

The Riverlodge Ambient Air Station is located on Columbia Avenue in Kitimat, BC across the street from the Riverlodge Community Centre. The monitoring station is an aged industrial trailer with a meteorological tower mounted to the frame and hitch of the trailer. Land use around the site is suburban low-density housing, park land and forest. Land cover immediately around the site is short grass, gravel and asphalt parking lot, buildings, and forested lands. An aerial view of the site is shown in Figure 1.4. A photograph of the Riverlodge ambient air station is presented in Figure 1.5.

Figure 1.4 Aerial View of Riverlodge Ambient Air Quality Monitoring Station

Figure 1.5 Photograph of Riverlodge Ambient Air Quality Monitoring Station

1.3 Whitesail

Rio Tinto BC Works operates and maintains the Whitesail monitoring station located in the Kitimat Valley. Like the Riverlodge monitoring station, the Whitesail monitoring station is considered a residential monitoring station. The Whitesail Ambient Air Station is in the Whitesail neighborhood of Kitimat, BC. and is situated on land owned by the Mountain View Alliance Church. Area land use is a suburban residential, forested, and park land. The ground cover around the site is grass, compacted gravel, asphalt, buildings, and forested land. An aerial view of the site is presented as Figure 1.6. A photograph of the station is presented as Figure 1.7.

Figure 1.6 Aerial View of Whitesail Ambient Air Quality Monitoring Station

Figure 1.7 Photograph of Whitesail Ambient Air Quality Monitoring Station

2.0 THIRD QUARTER 2025 REPORT SUMMARY

The LNG Canada and Rio Tinto BC Works air quality monitoring data collected during the third quarter (July 1 through September 30) 2025 at the Kitamaat Village, Riverlodge, and Whitesail stations are summarized in this section.

2.1 British Columbia Air Quality Objectives

British Columbia has adopted air quality objectives and standards for a number of contaminants, including $PM_{2.5}$, SO_2, O_3, and NO_2. The British Columbia Ambient Air Quality Objectives (BCAAQO) and the 2020 Canadian Ambient Air Quality Standard (for SO_2) that have been developed by the British Columbia Ministry of Environment are as follows:

Pollutant	Averaging Period	British Columbia Ambient Air Quality Objective (BCAAQO)	2020 Canadian Ambient Air Quality Standard (CAAQS)
SO_2	1-hour	75 (ppb)[a]	70 (ppb)[b]
	Annual	--	5 (ppb)[c]
NO_2	1-hour	60 (ppb)[d]	60 (ppb)[d]
	Annual	17 (ppb)[e]	17 (ppb)[e]
$PM_{2.5}$	24-hours	25 ($\mu g/m^3$)[f]	27 ($\mu g/m^3$)[g]
	Annual	8 ($\mu g/m^3$)[e]	8.8 ($\mu g/m^3$)[h]
O_3	1-hour	82 (ppb)	
	8-hour		62 (ppb)[i]

[a] Achievement based on annual 97th percentile of daily 1-hour maximum averaged over 2015-2017, annual 97.5th percentile of daily 1-hour maximum averaged over 2016-2018, and annual 98th percentile of daily 1-hour maximum averaged over 2017-2019, with one allowable excursion above 75 ppb to a maximum of 85 ppb over a three-year period prior to 2020.

[b] Achievement based on annual 99th percentile of daily 1-hour maximum, averaged over three consecutive years.

[c] Achievement based on annual average of 1-hour concentrations over one year.

[d] Achievement based on annual 98th percentile of daily 1-hour maximum averaged over three consecutive years

[e] Achievement based on annual average of 1-hour concentrations over one year

[f] Achievement based on annual 98th percentile of daily average, over one year

[g] Achievement based on annual 98th percentile of daily average, averaged over three consecutive years.

[h] Achievement based on annual average, averaged over three consecutive years.

[i] Achievement based on annual 4th highest daily 8-hour maximum, averaged over three consecutive years.

2.2 Pollutant Concentrations and Data Completeness

During the third quarter, there were no exceedances of the BCAAQO for SO_2, NO_2, and $PM_{2.5}$. The average and median hourly $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations measured during the third quarter at the Kitamaat Village, Riverlodge, and Whitesail monitoring stations are summarized in Table 2-1. Tables 2-2 through 2-4 present the maximum $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations, a comparison to the BCAAQOs, and data completeness for the third quarter of 2025. In Tables 2-2 through 2-4 it should be noted that, as applicable, SO_2 exceedance counts include BCAAQO and 2020 CAAQS.

Table 2-1 Average and Median Pollutant Statistics for Third Quarter 2025

Station	$PM_{2.5}$ ($\mu g/m^3$)		SO_2 (ppb)		NO_2 (ppb)		O_3 (ppb)	
	Average	Median	Average	Median	Average	Median	Average	Median
Kitamaat Village	5.4	5.0	0.3	0.1	0.3	0.2	14.4	14.0
Riverlodge	3.6	3.0	0.6	0.2	0.9	0.5	14.2	15.0
Whitesail	4.0	3.0	0.5	0.3	0.6	0.4	12.9	13.0

Table 2-2 Kitamaat Village Station Third Quarter 2025 Data Summary

Parameter	1-hour average						24-hour Average 8-hour Average						Data Completeness		
	Maximum Concentration			Exceedances of BCAAQO[1]			Maximum Concentration			Exceedances of BCAAQO[1]					
	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.
$PM_{2.5}$ ($\mu g/m^3$)[3]	18.0	18.0	29.0	--	--	--	9.8	9.8	21.1	0	0	0	99.1	99.1	99.8
SO_2 (ppb)	12.8	8.2	18.1	0	0	0	1.2	1.7	1.8	--	--	--	95.2	95.5	95.2
NO_2 (ppb)	3.0	5.4	5.1	0	0	0	0.5	0.9	0.8	--	--	--	95.2	95.5	95.2
O_3 (ppb)[2]	31.0	33.0	37.0	0	0	0	28.0	26.0	34.0	0	0	0	95.2	95.5	95.2

1 British Columbia Ambient Air Quality Objective (AAQO)
2 8-hour maximum
3 24-hour $PM_{2.5}$ concentrations were determined from midnight to midnight

Table 2-3 Riverlodge Station Third Quarter 2025 Data Summary

Parameter	1-hour average						24-hour Average 8-hour Average						Data Completeness		
	Maximum Concentration			Exceedances of BCAAQO[1]			Maximum Concentration			Exceedances of BCAAQO[1]					
	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.
$PM_{2.5}$ ($\mu g/m^3$)[3]	14.0	22.0	27.0	--	--	--	7.5	9.4	16.2	0	0	0	98.3	99.6	98.7
SO_2 (ppb)	22.7	12.8	34.4	0	0	0	3.6	1.7	4.1	--	--	--	82.0	95.3	95.0
NO_2 (ppb)	6.6	11.4	10.8	0	0	0	1.3	2.2	2.1	--	--	--	94.7	95.3	95.0
O_3 (ppb)[2]	32.0	33.0	37.0	0	0	0	27.0[2]	27.0[2]	34.0[2]	0	0	0	94.7	95.3	95.0
THC (ppm)	4.63	2.77	36.10	--[4]	--[4]	--[4]	2.35	2.23	6.56	--[4]	--[4]	--[4]	90.2	93.6	88.8

1 British Columbia Ambient Air Quality Objective (AAQO)
2 8-hour maximum
3 24-hour $PM_{2.5}$ concentrations were determined from midnight to midnight
4 There are no BCAAQO's for Total Hydrocarbon (THC). THC Analyzer was installed and calibrated on January 16, 2025.

Table 2-4 Whitesail Station Third Quarter 2025 Data Summary

Parameter	1-hour average						24-hour Average 8-hour Average								
	Maximum Concentration			Exceedances of BCAAQO[1]			Maximum Concentration			Exceedances of BCAAQO[1]			Data Completeness		
	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.
$PM_{2.5}$ ($\mu g/m^3$)[3]	12.0	15.0	29.0	--	--	--	7.9	8.8	16.6	0	0	0	98.7	98.7	99.5
SO_2 (ppb)	21.5	10.4	22.9	0	0	0	2.9	2.0	2.6	--	--	--	95.1	95.1	94.6
NO_2 (ppb)	5.9	4.1	8.2	0	0	0	0.8	1.0	1.3	--	--	--	95.1	95.1	94.6
O_3 (ppb)[2]	26.0	29.0	31.0	0	0	0	24.0	24.0	29.0	0	0	0	92.5	95.1	94.6

1 British Columbia Ambient Air Quality Objective (AAQO)
2 8-hour maximum
3 24-hour $PM_{2.5}$ concentrations were determined from midnight to midnight

2.3 Third Quarter 2025 Ambient Air Monitoring Issues

During the third quarter of 2025, there were no ambient air or meteorological monitoring data deletions or resubmissions made for any of the monitoring stations outlined in this report. No required calibrations of the ambient air quality analyzers were missing during the third quarter.

During the third quarter of 2025, there were no exceedances of the numerical metrics of the BCAAQO.

3.0 JULY - SEPTEMBER 2025 KITAMAAT VILLAGE AMBIENT AIR QUALITY STATION MONITORING ACTIVITIES

This section provides a summary of the monitoring activities conducted at the LNG Canada Kitamaat Village Ambient Air Quality Station for July through September 2025. Table 3-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Kitamaat Village monitoring station. Site visit notes for the third quarter, SO_2, $PM_{2.5}$, O_3, and NO_2 concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, and NO_2 trends for the third quarter 2025 are also presented in this section.

Table 3-1 LNG Canada Instrumentation at the Kitamaat Village Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Kitamaat Village			
NO_2	Teledyne-API T200	Chemiluminescence	8598
O_3	Teledyne-API T400	UV Absorption	7486
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	905
Zero Air Source	Teledyne API T701	Zero-Air Generator	2555

3.1 Site Visit Notes

The Kitamaat Village site visit notes for the third quarter are summarized here and in Appendix A.

- On July 1, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and Envidas logger to the correct time during the station visit.
- On July 8, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and Envidas logger to the correct time during the station visit.
- On July 10, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers and T700U calibrator to the correct time during the station visit.
- On July 15, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers and Envidas logger to the correct time during the station visit.
- On July 21, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700U calibrator, and Envidas data logger to the correct time. Windows updates were downloaded and installed on the Envidas logger.
- On July 22, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and Envidas data logger to the correct time.
- On July 29, 2025, the Ministry of Environment (MOE) was onsite to perform audits on the air quality equipment. The site technician adjusted the clocks on the O_3 and NO_x analyzers, and Envidas data logger to the correct time.

- On July 30, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers and T700U calibrator to the correct time during the station visit.

- On August 1, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and T700U calibrator to the correct time during the station visit.

- On August 6, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and Envidas logger to the correct time during the station visit.

- On August 12, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers and Envidas logger to the correct time during the station visit.

- On August 19, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700U calibrator, and Envidas logger to the correct time during the station visit. The inlet filers on the O_3 and NO_x analyzers were replaced.

- On August 22, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700U calibrator, and Envidas data logger to the correct time. Windows updates were downloaded and installed on the Envidas logger.

- On August 26, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700U calibrator, and Envidas data logger to the correct time. Cobwebs were cleared from the gas analyzer inlet.

- On September 2, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas logger, and T700 calibrator to the correct time during the station visit.

- On September 9, 2025, the site technician replaced the NO_x and O_3 inlet filters. The clocks on the O_3 and NO_x analyzers, and T700U calibrator were adjusted to the correct time during the station visit. Cobwebs near analyzer inlet were cleared.

- On September 11, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700 calibrator, and Envidas logger to the correct time during the station visit.

- On September 17, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700 calibrator, and Envidas logger to the correct time during the station visit.

- On September 23, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700 calibrator, and Envidas data logger to the correct time.

- On September 24, 2025, remote as found multipoint verifications were performed on the NO_x and O_3 analyzers.

- On September 25, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and T700 calibrator to the correct time.

- On September 26, 2025, the site technician was onsite to investigate the Envidas outage. Windows was installed on the Envidas logger, and the logger was restarted which resumed polling.

- On September 30, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas logger, and T700 calibrator to the correct time.

3.2 Monitoring Results and Trends

A summary of the $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations monitoring statistics for the third quarter 2025 for the Kitamaat Village Station is presented in Table 3-2.

Table 3-2 Summary of $PM_{2.5}$, SO_2, NO_2, and O_3 Concentrations for the Kitamaat Village Station, July - September 2025

Statistic	$PM_{2.5}$ ($\mu g/m^3$)[1]				SO_2 (ppb)[1]				NO_2 (ppb)				O_3 (ppb)			
	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3
1-hour Avg.	4.7	5.2	6.5	5.4	0.3	0.4	0.4	0.3	0.3	0.4	0.4	0.3	16.4	12.7	14.1	14.4
1-Hour Max.	18.0	18.0	29.0	29.0	12.8	8.2	18.1	18.1	3.0	5.4	5.1	5.4	31.0	33.0	37.0	37.0
1-Hour Min.[2]	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	2.0	2.0	1.0	1.0
Mean Daily Max.	9.9	10.0	21.4	21.4	1.3	1.8	1.9	1.9	0.5	1.0	0.9	1.0	24.0	17.6	27.8	27.8
Mean Daily Min.	2.0	2.3	2.8	2.0	0.0	0.1	0.1	0.0	0.2	0.2	0.2	0.2	11.7	7.5	5.5	5.5
Percent Data Recovery	99.1	99.1	99.8	99.3	95.2	95.5	95.2	95.3	95.2	95.5	95.2	95.3	95.2	95.5	95.2	95.3
24-hour Daily Max.[3]	9.8	9.8	21.1	21.1	1.2	1.7	1.8	1.8	0.5	0.9	0.8	0.9	--	--	--	--
8-hour Max.	--	--	--	--	--	--	--	--	--	--	--	--	28.0	26.0	34.0	34.0
24-hour Avg.	4.8	5.2	6.5	5.5	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.4	16.4	12.7	14.1	14.4
Median	4.0	4.0	5.0	4.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	17.0	12.0	13.0	14.0

[1] $PM_{2.5}$ and SO_2 third quarter 2025 data provided by Rio Tinto BC Works.

[2] Slightly negative concentrations are inherent with proper analyzer operation due to subtle levels of noise in the zero baseline setpoint. Negative values may be interpreted as zero and only occur when the air is very clean.

[3] 24-hour $PM_{2.5}$ daily maximum concentrations determined from midnight to midnight.

The average $PM_{2.5}$ concentration during the third quarter was 5.4 µg/m^3 and the median $PM_{2.5}$ concentration during the third quarter was 3.0 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration during the third quarter was 29.0 µg/m^3 which occurred in September. The maximum 24-hour $PM_{2.5}$ concentration for the third quarter was 21.1 µg/m^3 which also occurred in September. During the third quarter, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

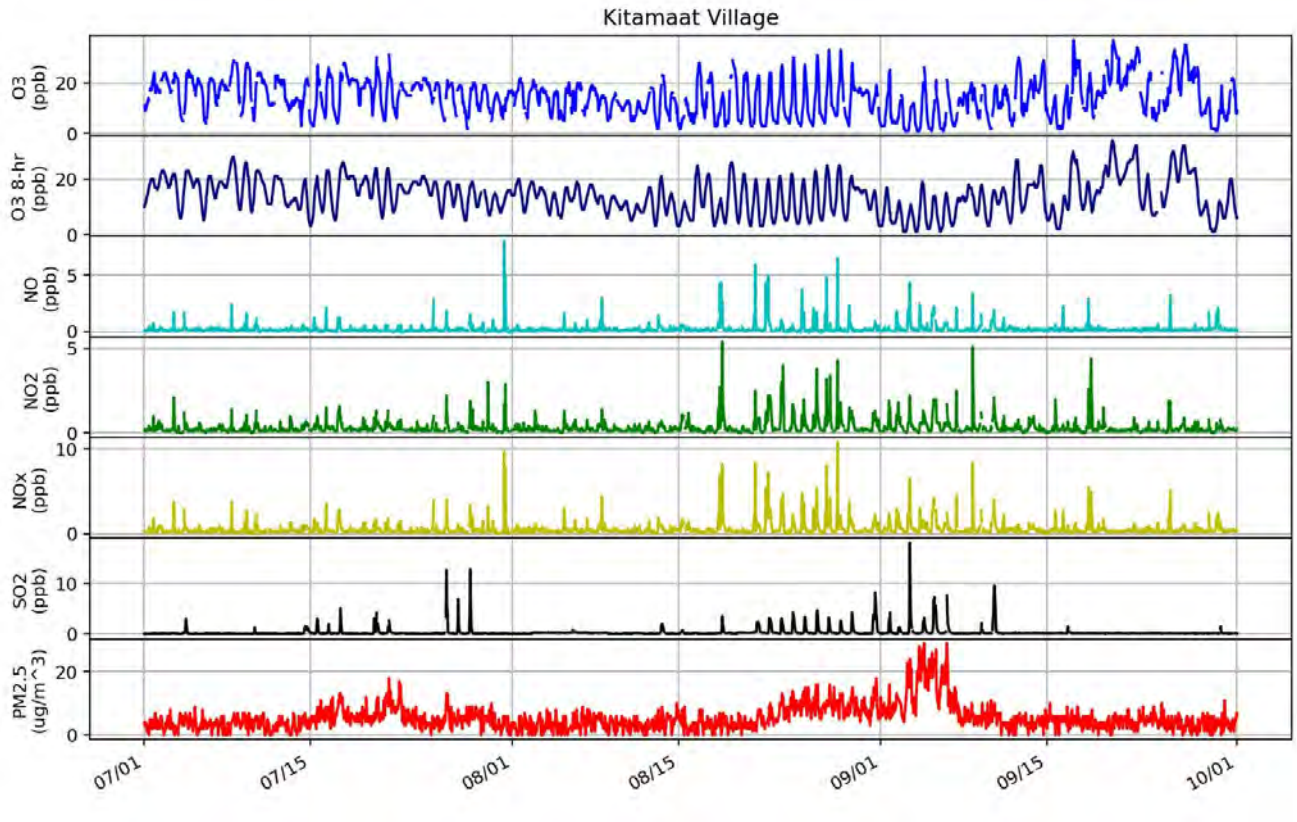
The average SO_2 concentration at the Kitamaat Village for the third quarter was 0.3 ppb with a median concentration of 0.1 ppb. The maximum hourly SO_2 concentration during the third quarter was 18.1 ppb which occurred in September. During the third quarter, there were no exceedances of the 1-hour SO_2 BCAAQO of 75 ppb or the 1-hour SO_2 CAAQS of 70 ppb at Kitamaat Village station.

The average NO_2 concentration at the Kitamaat Village for the third quarter was 0.3 ppb and the median NO_2 concentration was 0.2. The maximum hourly NO_2 concentration during the third quarter at Kitamaat Village was 5.4 ppb which occurred in August. During the third quarter, there were no exceedances of the 1-hour NO_2 BCAAQO of 60 ppb at the Kitamaat Village station.

The average O_3 concentration at the Kitamaat Village for the third quarter was 14.4 ppb and the median O_3 concentration was 14.0 ppb. The maximum hourly O_3 concentration of 37.0 ppb occurred in September. The maximum 8-hour O_3 concentration during the third quarter was 34.0 ppb which occurred in September. During the third quarter, there were no exceedances of the 1-hour O_3 BCAAQO advisory level of 82 ppb and the 8-hour CAAQS of 62 ppb at the Kitamaat Village station.

Time series plots of $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations for the third quarter are presented in Figure 3.1.

Figure 3.1 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, $NO/NO_2/NO_x$, and O_3/O_3 -8hr Concentration Data for the Kitamaat Village Station, Third Quarter 2025



Wind speed, wind direction, and temperature data are collected by Rio Tinto BC Works at the Kitamaat Village station. Figures 3.2 through 3.4 present the monthly Kitamaat Village station wind roses for July through September 2025. Figure 3.5 presents a time series plot of wind speed and direction, and temperature for the third quarter, 2025.

Figure 3.2 July 2025 Kitamaat Village Station Wind Rose

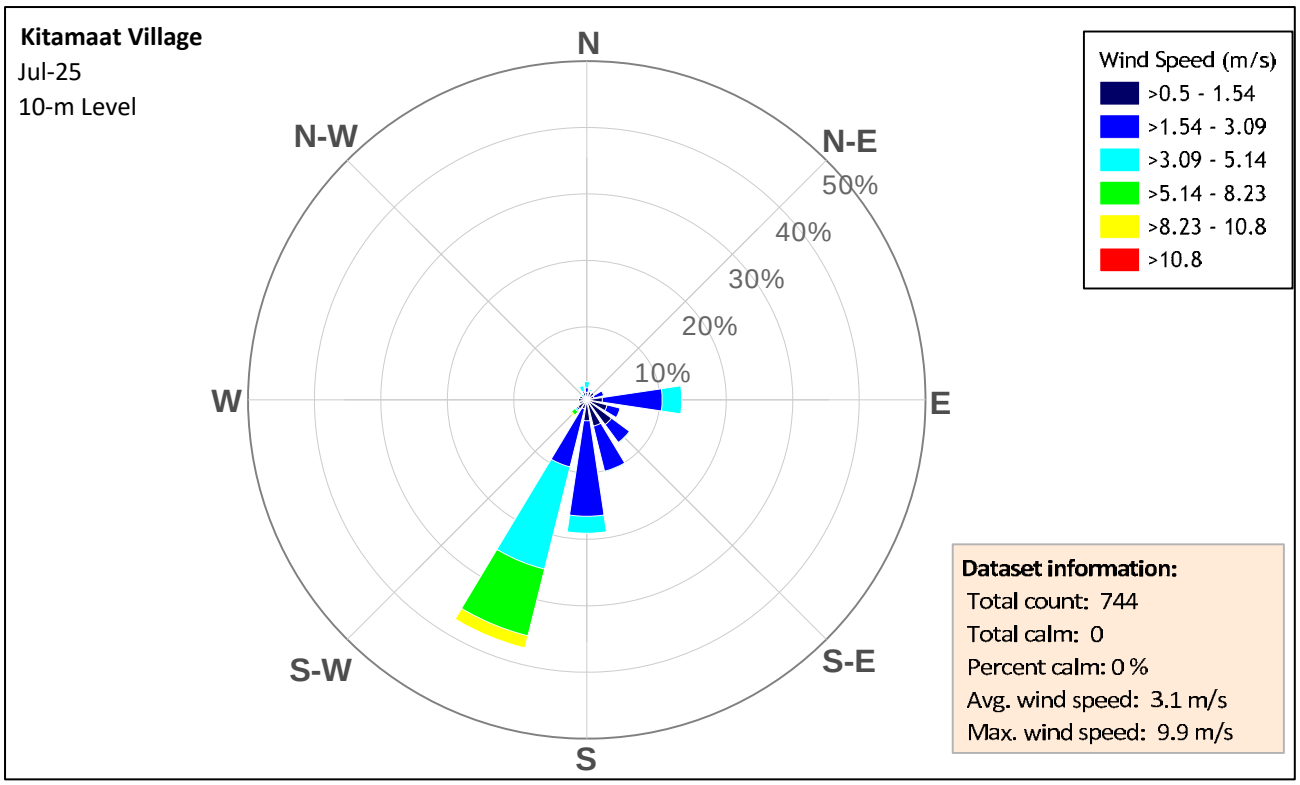


Figure 3.3 August 2025 Kitamaat Village Station Wind Rose

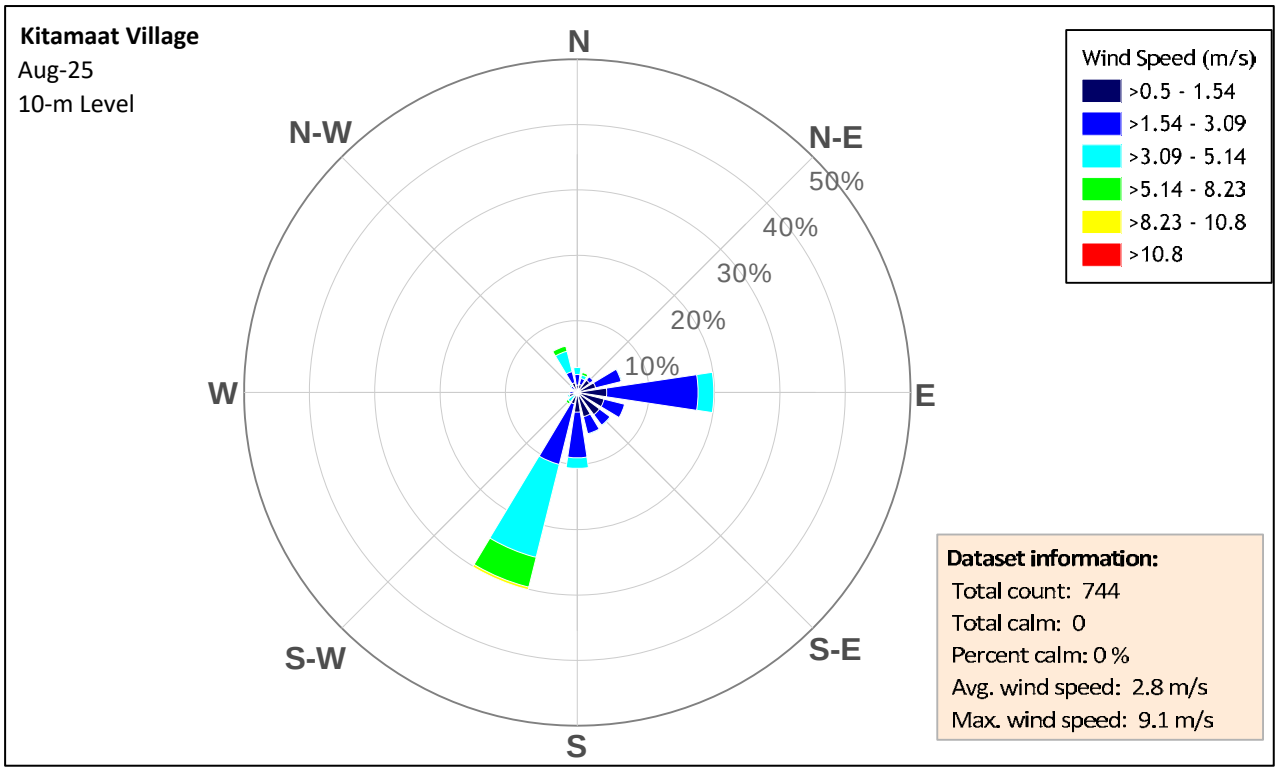


Figure 3.4 September 2025 Kitamaat Village Station Wind Rose

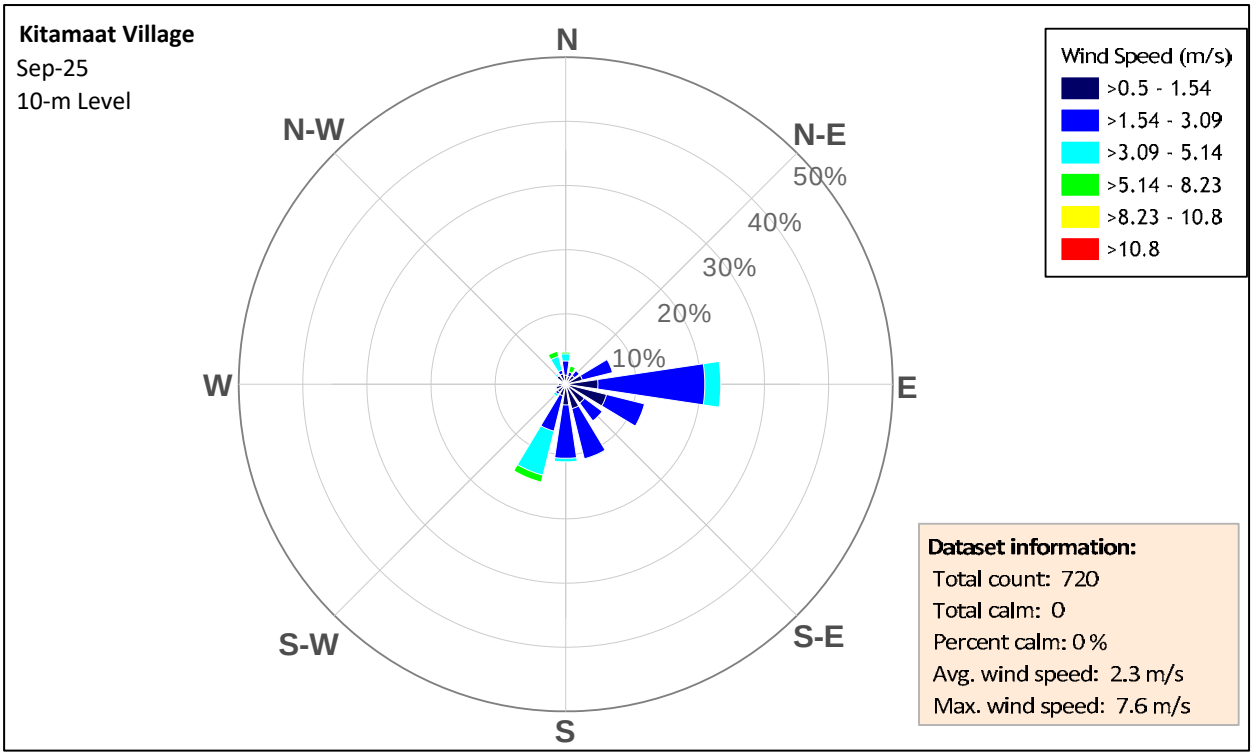
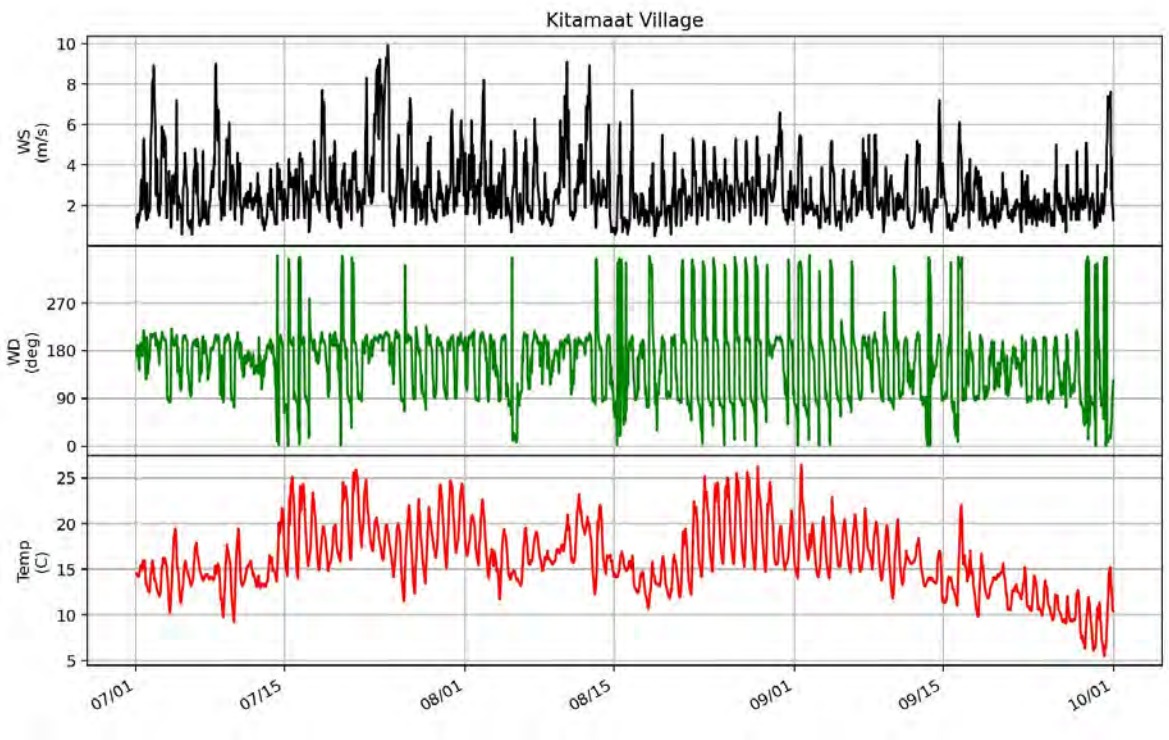


Figure 3.5 Time Series Plot of Wind Speed, Wind Direction, and Temperature Data at Kitimaat Village Station for Third Quarter 2025



3.3 Third Quarter 2025 Ambient Air Monitoring Data Issues

Table 3-3 presents the Kitamaat Village station data shortfall periods and known issues, during the third quarter, that led to pollutant concentration data loss.

Table 3-3 Data Shortfall Periods and Noted Issues During Third Quarter 2025 at Kitamaat Village Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
$O_3/NO_x/SO_2$	7/10/2025	12:00	7/10/2025	12:00	1	Filter Change
$PM_{2.5}$	7/21/2025	12:00	7/21/2025	13:00	2	Tape replaced; Leak check with no adjustment
$O_3/NO_x/SO_2$	7/29/2025	15:00	7/29/2025	17:00	3	MOE Audit
$PM_{2.5}$	7/29/2025	16:00	7/29/2025	18:00	3	MOE Audit
$PM_{2.5}$	7/30/2025	17:00	7/30/2025	18:00	2	Monthly flow rate, verification, and maintenance
$PM_{2.5}$	8/14/2025	06:00	08/14/2025	07:00	2	Power outage
$PM_{2.5}$	8/14/2025	17:00	08/14/2025	18:00	2	Power outage
$O_3/NO_x/SO_2$	8/19/2025	08:00	8/19/2025	08:00	1	Filter change
$PM_{2.5}$	8/22/2025	09:00	8/22/2025	11:00	3	Monthly flow rate, verification, and maintenance
$O_3/NO_x/SO_2$	9/09/2025	13:00	9/09/2025	13:00	1	Filter change
$O_3/NO_x/SO_2$	9/24/2025	12:00	9/24/2025	15:00	4	$SO_2/NO_x/O_3$ as found multipoint verification
$PM_{2.5}$	9/25/2025	10:00	9/25/2025	11:00	2	Monthly flow rate, verification, and maintenance

4.0 JULY - SEPTEMBER 2025 RIVERLODGE AMBIENT AIR QUALITY STATION MONITORING STATION

This section provides a summary of the monitoring activities conducted at the LNG Canada Riverlodge Ambient Air Quality Station for July through September 2025. Table 4-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Riverlodge monitoring station. Site visit notes, SO_2, $PM_{2.5}$, O_3, and NO_2 concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, and NO_2 trends for third quarter 2025 are also presented below.

Table 4-1 LNG Canada Instrumentation at the Riverlodge Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Riverlodge			
NO_2	Teledyne-API T200	Chemiluminescence	8599
O_3	Teledyne-API T400	UV Absorption	7487
THC	Teledyne-API N901	Flame Ionization Detector	80
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	906
Zero Air Source	Teledyne API T701	Zero-Air Generator	2556

4.1 Site Visit Notes

The Riverlodge site visit notes for the third quarter are summarized here and in Appendix A.

- On July 3, 2025, the site technician updated the clocks on the NO_2 and O_3 analyzers, T700U calibrator, and Envidas logger to the correct time.
- On July 8, 2025, the site technician updated the clocks on the NO_2, THC, and O_3 analyzers, and T700U calibrator to the correct time. The NO_2 and O_3 inlet filters were replaced.
- On July 10, 2025, the site technician updated the clocks on the NO_2 and O_3 analyzers, T700 calibrator, and Envidas to the correct time. Multipoint verifications were performed on the THC analyzer.
- On July 16, 2025, the clocks on the NO_2 and O_3 analyzers, T700U calibrator, and Envidas logger were updated to the correct time.
- On July 21, 2025, the site technician updated the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time. Windows updated were downloaded and installed on the Envidas logger.
- On July 29, 2025, the Ministry of Environment (MOE) was onsite to perform audits.
- On July 30, 2025, the nitrogen cylinder to the THC analyzer was replaced. The site technician updated the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time.
- On August 7, 2025, the site technician updated the clocks on the NO_2, THC, and O_3 analyzers, and T700 calibrator to the correct time.

- On August 14, 2025, the site technician updated the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time. The NO_2 and O_3 inlet filters were replaced.
- On August 19, 2025, the site technician updated the clocks on the NO_2 and O_3 analyzers, and T700 calibrator to the correct time. Multipoint verifications were performed on the THC analyzer.
- On August 27, 2025, the clocks on the NO_2 and O_3 analyzers, and T700U calibrator were updated to the correct time.
- On September 4, 2025, the site technician replaced the NO_x and O_3 inlet filters. The clocks on the NO_2 and O_3 analyzers, and T700 calibrator were updated to the correct time.
- On September 12, 2025, the site technician was onsite to troubleshoot the N901 CH_4/NMHC/THC analyzer. The clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time.
- On September 19, 2025, the site technician updated the clocks on the NO_2 and O_3 analyzers, and T700 calibrator to the correct time. The Envidas logger was restarted to allow updates to take effect.
- On September 23, 2025, the clocks on the NO_2 and O_3 analyzers, and T700U calibrator were updated to the correct time. The CH_4/NMHC/THC analyzer data were flagged during hydrogen tank replacement.
- On September 24, 2025, remote as found multipoint calibrations were performed on the NO_x, O_3, and THC analyzers.

4.2 Monitoring Results and Trends

A summary of the $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations monitoring statistics for the third quarter 2025 for the Riverlodge Station is presented in Table 4-2. Table 4-3 presents a summary of the THC monitoring statistics for the third quarter of 2025 at the Riverlodge station.

Table 4-2 Summary of $PM_{2.5}$, SO_2, NO_2, and O_3 Concentrations for the Riverlodge Station, July - September 2025

Statistic	$PM_{2.5}$ ($\mu g/m^3$)[1]				SO_2 (ppb)[1]				NO_2 (ppb)				O_3 (ppb)			
	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3
1-hour Avg.	2.8	3.8	4.6	3.6	0.7	0.6	0.7	0.6	0.7	1.0	1.0	0.9	16.5	12.0	14.4	14.2
1-Hour Max.	14.0	22.0	27.0	27.0	22.7	12.8	34.4	34.4	6.6	11.4	10.8	11.4	32.0	33.0	37.0	37.0
1-Hour Min.[2]	0.0	0.0	0.0	0.0	-0.4	-0.1	-0.1	-0.4	0.0	0.1	0.1	0.0	1.0	1.0	1.0	1.0
Mean Daily Max.	7.6	9.3	16.6	16.6	3.8	1.9	4.3	4.3	1.4	2.3	2.2	2.3	23.6	18.7	29.0	29.0
Mean Daily Min.[2]	0.7	1.0	0.9	0.7	-0.3	0.1	-0.1	-0.3	0.3	0.3	0.3	0.3	10.1	6.5	5.3	5.3
Percent Data Recovery	98.3	99.6	98.7	98.9	82.0	95.3	95.0	90.8	94.7	95.3	95.0	95.0	94.7	95.3	95.0	95.0
24-hour Daily Max.[3]	7.5	9.4	16.2	16.2	3.6	1.7	4.1	4.1	1.3	2.2	2.1	2.2	--	--	--	--
8-hour Max.	--	--	--	--	--	--	--	--	--	--	--	--	27.0	27.0	34.0	34.0
24-hour Avg.	2.8	3.8	4.6	3.7	0.7	0.6	0.7	0.7	0.7	1.0	1.0	0.9	16.5	11.9	14.4	14.3
Median	2.0	3.0	3.0	3.0	0.3	0.2	0.2	0.2	0.4	0.5	0.6	0.5	18.0	12.0	15.0	15.0

[1] $PM_{2.5}$ and SO_2 third quarter 2025 data provided by Rio Tinto BC Works.

[2] Slightly negative concentrations are inherent with proper analyzer operation due to subtle levels of noise in the zero baseline setpoint. Negative values may be interpreted as zero and only occur when the air is very clean.

[3] 24-hour $PM_{2.5}$ daily maximum concentrations determined from midnight to midnight.

Table 4-3 Summary of THC Concentrations for the Riverlodge Station, July - September 2025

Statistic	THC (ppb)			
	July	Aug.	Sept.	Q3
1-hour Avg.	2.18	2.15	2.45	2.25
1-Hour Max.	4.63	2.77	36.10	36.10
1-Hour Min.[2]	1.96	1.99	1.67	1.67
Mean Daily Max.	2.40	2.30	4.50	4.50
Mean Daily Min.[2]	2.10	2.10	2.20	2.10
Percent Data Recovery	90.2	93.6	88.9	90.9
24-hour Daily Max.[3]	2.35	2.23	6.56	6.56
8-hour Max.	--	--	--	--
24-hour Avg.	2.18	2.15	2.49	2.27
Median	2.16	2.13	2.29	2.19

The average $PM_{2.5}$ concentration at Riverlodge during the third quarter was 3.6 µg/m^3 and the median $PM_{2.5}$ concentration during the third quarter was 3.0 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration during the third quarter was 27.0 µg/m^3 which occurred in September. The maximum 24-hour $PM_{2.5}$ concentration for the third quarter was 16.2 µg/m^3 which also occurred in September. During the third quarter, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

The average SO_2 concentration at the Riverlodge for the third quarter was 0.6 ppb with a median concentration of 0.2 ppb. The maximum hourly SO_2 concentration during the third quarter was 34.4 ppb which occurred in September. During the third quarter, there were no exceedances of the 1-hour BCAAQO of 75 ppb or the 1-hour CAAQS of 70 ppb for SO_2 at the Riverlodge station.

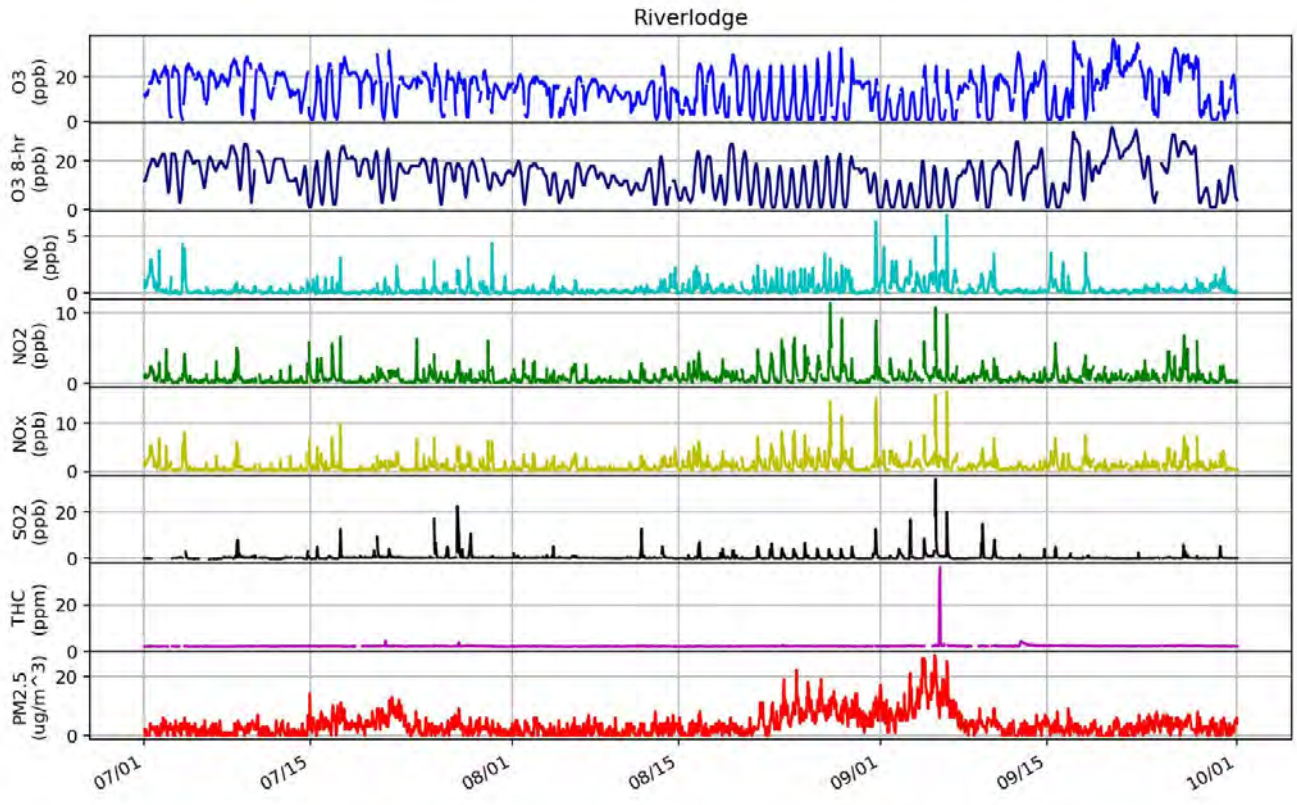
The average NO_2 concentration at the Riverlodge station for the third quarter was 0.9 ppb and the median NO_2 concentration was 0.5 ppb. The maximum hourly NO_2 concentration during the third quarter at Riverlodge was 11.4 ppb, which occurred in August. During the third quarter, there were no exceedances of the 1-hour NO_2 BCAAQO of 60 ppb at Riverlodge station.

The average O_3 concentration at Riverlodge station for the third quarter was 14.2 ppb and the median O_3 concentration was 15.0 ppb. The maximum hourly O_3 concentration of 37.0 ppb occurred in September. The maximum 8-hour O_3 concentration during the third quarter was 34.0 ppb which occurred in September. During the third quarter, there were no exceedances of the 1-hour O_3 BCAAQO advisory level of 82 ppb and the 8-hour CAAQS of 62 ppb at Riverlodge station.

The average THC concentration at Riverlodge station for the third quarter was 2.25 ppm with a median concentration of 2.19 ppb. The maximum hourly THC concentration during the third quarter was 36.10 ppm which occurred in September.

A time series plot of $PM_{2.5}$, SO_2, NO_2, O_3, and THC concentrations for the third quarter is presented in Figure 4.1.

Figure 4.1 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO/NO_2/NOx, O_3/O_3 -8hr, and THC Concentration Data for the Riverlodge Station, Third Quarter 2025



Wind speed and wind direction data are collected by Rio Tinto BC Works at the Riverlodge station. Figures 4.2 through 4.4 present the monthly Riverlodge station wind roses for July through September 2025. Figure 4.5 presents a time series plot of Riverlodge wind speed and direction, and temperature for the third quarter, 2025.

Figure 4.2 July 2025 Riverlodge Station Wind Rose

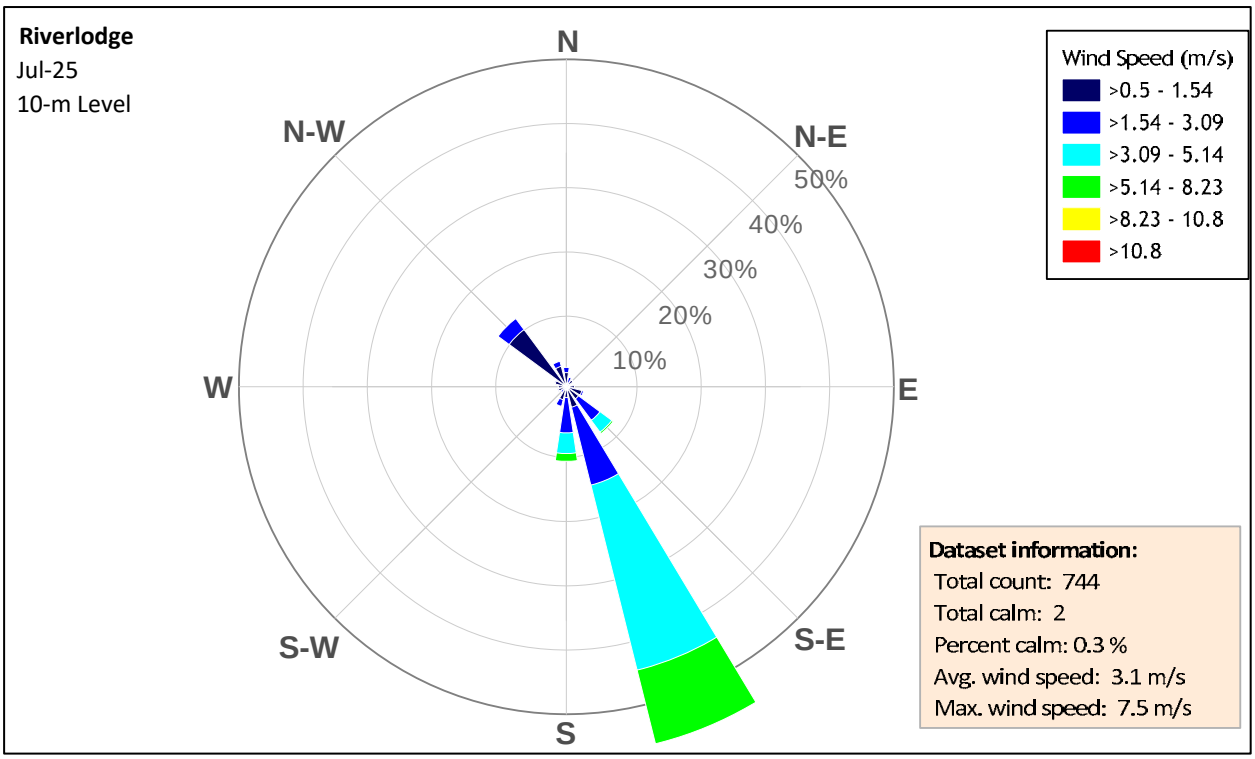


Figure 4.3 August 2025 Riverlodge Station Wind Rose

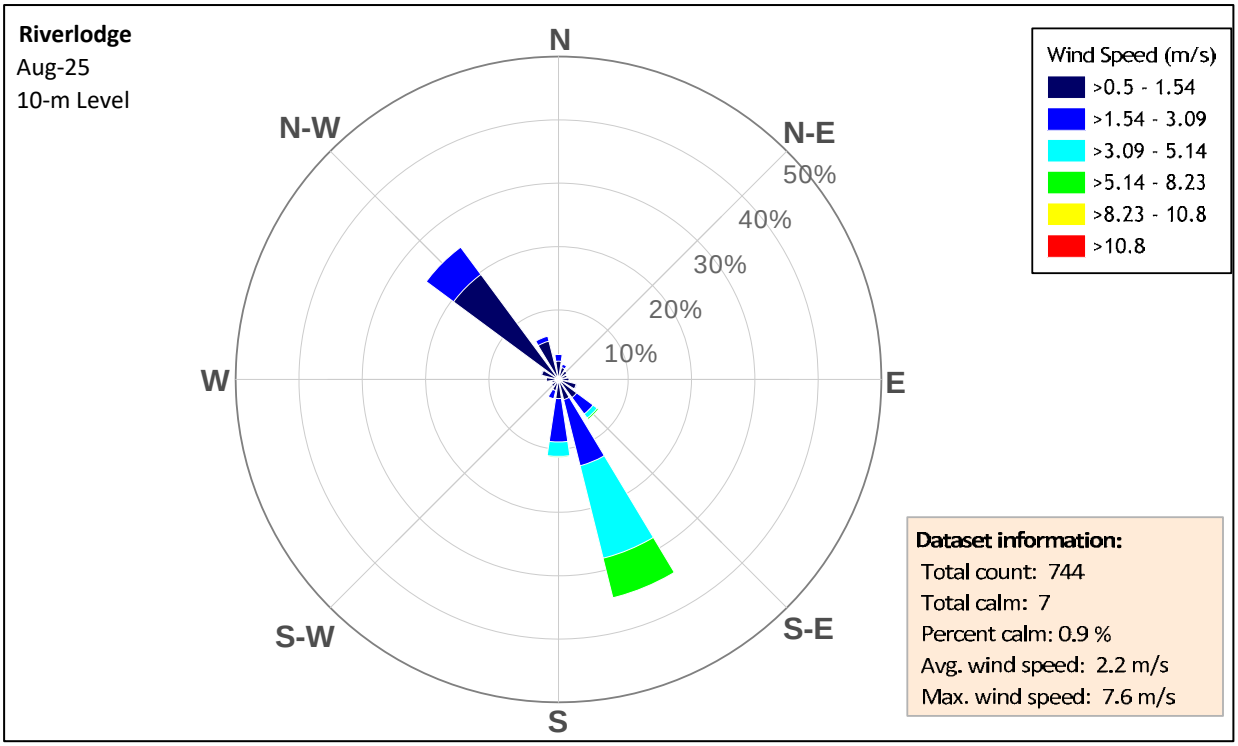


Figure 4.4 September 2025 Riverlodge Station Wind Rose

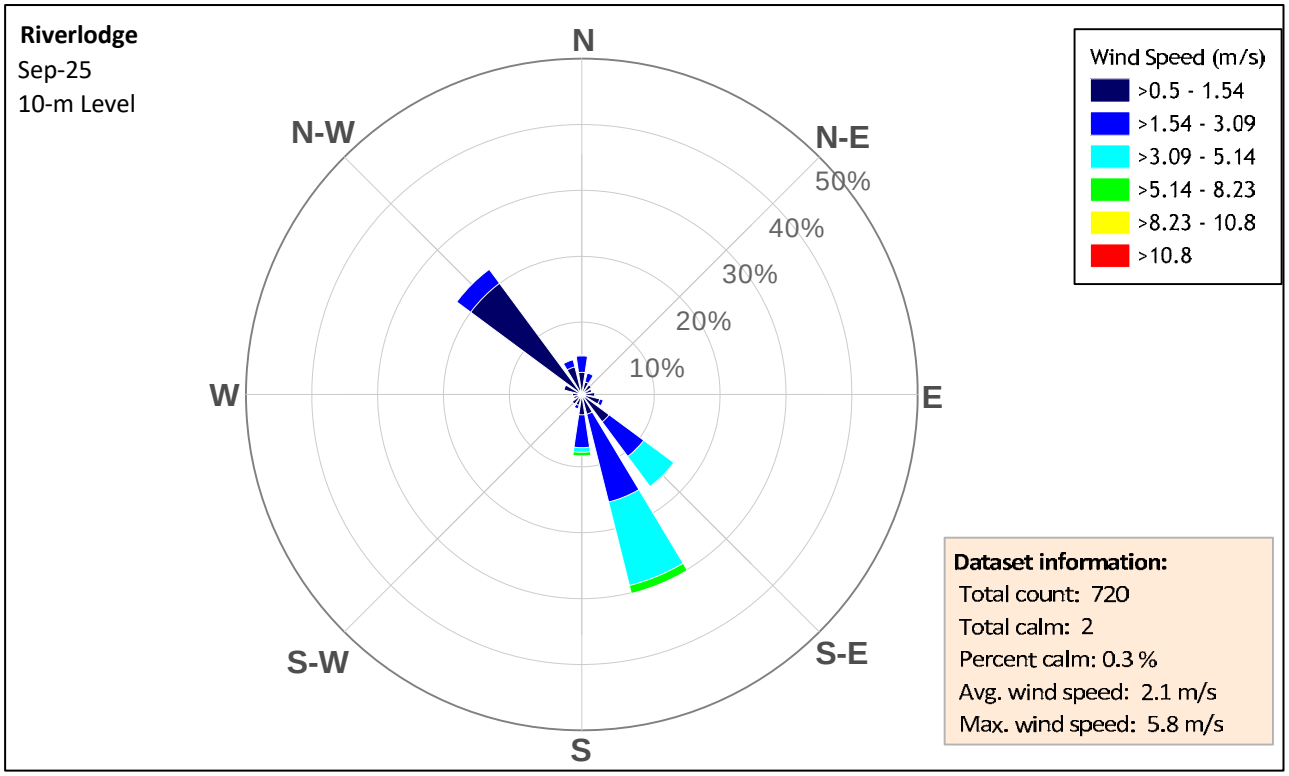
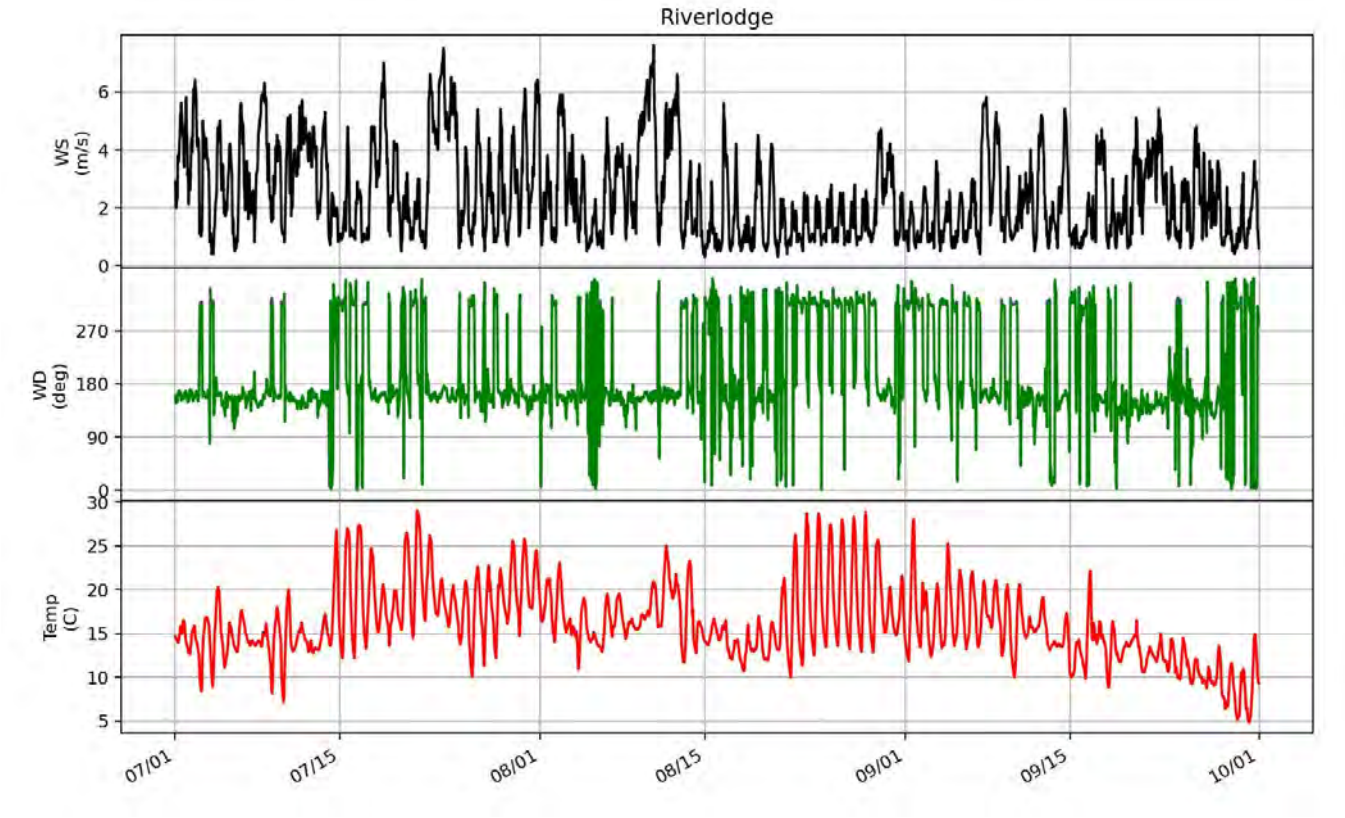


Figure 4.5 Time Series Plot of Wind Speed, Wind Direction, and Temperature Data at Riverlodge Station for Third Quarter 2025



4.3 Third Quarter 2025 Ambient Air Monitoring Data Issues

Table 4-4 presents the Riverlodge station data shortfall periods and known issues, during the third quarter, that led to pollutant concentration data loss.

Table 4-4 Data Shortfall Periods and Noted Issues During Third Quarter 2025 at Riverlodge Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
SO_2	7/01/2025	16:00	7/03/2025	07:00	40	Flatlined
THC	7/03/2025	01:00	7/03/2025	07:00	7	Flatlined
THC	7/04/2025	00:00	7/04/2025	09:00	10	Flatlined
SO_2	7/04/2025	09:00	7/04/2025	11:00	3	Flatlined
SO_2	7/05/2025	15:00	7/06/2025	11:00	21	Flatlined
SO_2	7/06/2025	15:00	7/06/2025	19:00	5	Flatlined
SO_2	7/07/2025	12:00	7/07/2025	14:00	3	Flatlined
$SO_2/NO_x/O_3$/THC	7/08/2025	09:00	7/08/2025	09:00	1	Filters changed
SO_2	7/08/2025	11:00	7/08/2025	11:00	1	Flatlined
SO_2	7/09/2025	08:00	7/09/2025	09:00	2	Flatlined
SO_2	7/10/2025	11:00	7/10/2025	11:00	1	Flatlined
$SO_2/NO_x/O_3$/THC	7/10/2025	12:00	7/10/2025	1600	5	SO_2 firmware update; THC As Found MP
SO_2	7/11/2025	11:00	7/11/2025	14:00	4	Flatlined
SO_2	7/12/2025	14:00	7/12/2025	15:00	2	Flatlined
SO_2	7/13/2025	11:00	7/13/2025	17:00	7	Flatlined
SO_2	7/14/2025	08:00	7/14/2025	10:00	3	Flatlined
SO_2	7/15/2025	12:00	7/15/2025	12:00	1	Flatlined
THC	7/16/2025	04:00	7/16/2025	05:00	2	Flatlined
$PM_{2.5}$	7/16/2025	09:00	7/16/2025	10:00	2	Power outage
SO_2	7/16/2025	13:00	7/16/2025	14:00	2	Flatlined
$PM_{2.5}$	7/17/2025	09:00	7/17/2025	10:00	2	Power outage
THC	7/18/2025	19:00	7/19/2025	08:00	14	Flatlined
$PM_{2.5}$	7/21/2025	18:00	7/21/2025	19:00	2	Tape replaced; Leak check with no adjustment
THC	7/23/2025	00:00	7/23/2025	05:00	6	Flatlined
$SO_2/NO_x/O_3$/THC	7/29/2025	10:00	7/29/2025	12:00	3	MOE Audit
$PM_{2.5}$	7/29/2025	11:00	7/29/2025	12:00	2	MOE Audit
THC	7/30/2025	10:00	7/30/2025	10:00	1	Nitrogen tank replaced
$PM_{2.5}$	7/30/2025	11:00	7/30/2025	13:00	3	Monthly flow rate verification and maintenance
THC	8/07/2025	12:00	8/07/2025	13:00	2	Flatlined
THC	8/10/2025	17:00	8/10/2025	17:00	1	Flatlined
$SO_2/NO_x/O_3$/THC	8/14/2025	13:00	8/14/2025	14:00	2	Filters changed
THC	8/14/2025	17:00	8/14/2025	18:00	2	Flatlined
$PM_{2.5}$	8/27/2025	16:00	8/27/2025	18:00	3	Monthly flow rate verification and maintenance
THC	8/29/2025	07:00	8/29/2025	08:00	2	Flatlined

Table 4-5 (Continued) Data Shortfall Periods and Noted Issues During Third Quarter 2025 at Riverlodge Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
THC	8/31/2025	08:00	8/31/2025	13:00	6	Flatlined
THC	9/04/2025	17:00	9/05/2025	08:00	16	Flatlined
THC	9/06/2025	10:00	9/06/2025	15:00	6	Flatlined
THC	9/08/2025	16:00	9/09/2025	05:00	14	Flatlined
THC	9/10/2025	02:00	9/10/2025	07:00	6	Flatlined
THC	9/10/2025	17:00	9/10/2025	19:00	3	Flatlined
THC	9/12/2025	16:00	9/12/2025	16:00	1	THC trouble-shooting
$PM_{2.5}$	9/12/2025	17:00	9/12/2025	18:00	2	Clock adjustment
$SO_2/NO_x/O_3$/THC	9/19/2025	10:00	9/19/2025	10:00	1	HF MP verification
$PM_{2.5}$	9/23/2025	14:00	9/23/2025	16:00	3	Monthly Flow Rate Verification and Maintenance
$SO_2/NO_x/O_3$/THC	9/24/2025	12:00	9/24/2025	15:00	4	NO_x/THC/O_3/SO_2 as found multipoint verification

5.0 JULY - SEPTEMBER 2025 WHITESAIL AMBIENT AIR QUALITY STATION MONITORING STATION

This section provides a summary of the monitoring data collected by Rio Tinto BC Works at their Whitesail monitoring station for July through September 2025. Table 5-1 presents a list of the Rio Tinto BC Works air quality monitoring equipment operating at the Whitesail monitoring station.

Table 5-1 Rio Tinto BC Works Instrumentation at the Whitesail Station

Parameter	Manufacturer/Model	Serial Number
SO_2	Thermo Scientific 43i	1161530005
$PM_{2.5}$	Met One BAM 1020	P15216
O_3	Teledyne-API T400	3830
NO_x	Teledyne-API T200	4271

5.1 Monitoring Results and Trends

A summary of the $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations monitoring statistics for the third quarter 2025 for the Whitesail Station is presented in Table 5-2.

Table 5-2 Summary of $PM_{2.5}$, SO_2, NO_2, and O_3 Concentrations for the Whitesail Station, July - September 2025

Statistic	$PM_{2.5}$ (µg/m³)[1]				SO_2 (ppb)[1]				NO_2 (ppb)				O_3 (ppb)			
	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3
1-hour Avg.	3.3	3.6	5.2	4.0	0.5	0.6	0.7	0.5	0.5	0.6	0.8	0.6	14.2	11.4	13.4	12.9
1-Hour Max.	12.0	15.0	29.0	29.0	21.5	10.4	22.9	22.9	5.9	4.1	8.2	8.2	26.0	29.0	31.0	31.0
1-Hour Min.[2]	0.0	0.0	0.0	0.0	-0.5	-0.2	-0.1	-0.5	0.0	0.0	0.1	0.0	1.0	0.0	0.0	0.0
Mean Daily Max.	7.9	8.8	16.6	16.6	2.9	2.0	2.6	2.9	0.8	1.0	1.3	1.3	19.1	17.2	24.9	24.9
Mean Daily Min.	1.0	0.5	1.6	0.5	0.1	0.2	0.3	0.1	0.2	0.3	0.3	0.2	9.3	6.7	5.2	5.2
Percent Data Recovery	98.7	98.7	99.5	99.0	95.1	95.1	94.6	94.9	95.1	95.1	94.6	94.9	92.5	95.1	94.6	94.1
24-hour Daily Max.[3]	7.8	8.6	16.3	16.3	2.7	1.9	2.4	2.7	0.8	1.0	1.3	1.3	--	--	--	--
8-hour Max.	--	--	--	--	--	--	--	--	--	--	--	--	24.0	24.0	29.0	29.0
24-hour Avg.	3.3	3.6	5.2	4.0	0.5	0.6	0.7	0.6	0.5	1.0	0.8	0.6	14.2	11.4	13.4	13.0
Median	3.0	3.0	4.0	3.0	0.1	0.3	0.3	0.3	0.3	0.4	0.5	0.4	15.0	11.0	13.0	13.0

[1] $PM_{2.5}$, SO_2, NO_2, and O_3 third quarter 2025 data for Whitesail provided by Rio Tinto BC Works.

[2] Slightly negative concentrations are inherent with proper analyzer operation due to subtle levels of noise in the zero baseline setpoint. Negative values may be interpreted as zero and only occur when the air is very clean.

[3] 24-hour $PM_{2.5}$ daily maximum concentrations determined from midnight to midnight.

The average $PM_{2.5}$ concentration at Whitesail during the third quarter was 4.0 µg/m^3 and the median $PM_{2.5}$ concentration during the third quarter was 3.0 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration during the third quarter was 29.0 µg/m^3 which occurred in September. The maximum 24-hour $PM_{2.5}$ concentration for the third quarter was 16.3 µg/m^3 which also occurred in September. During the third quarter, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

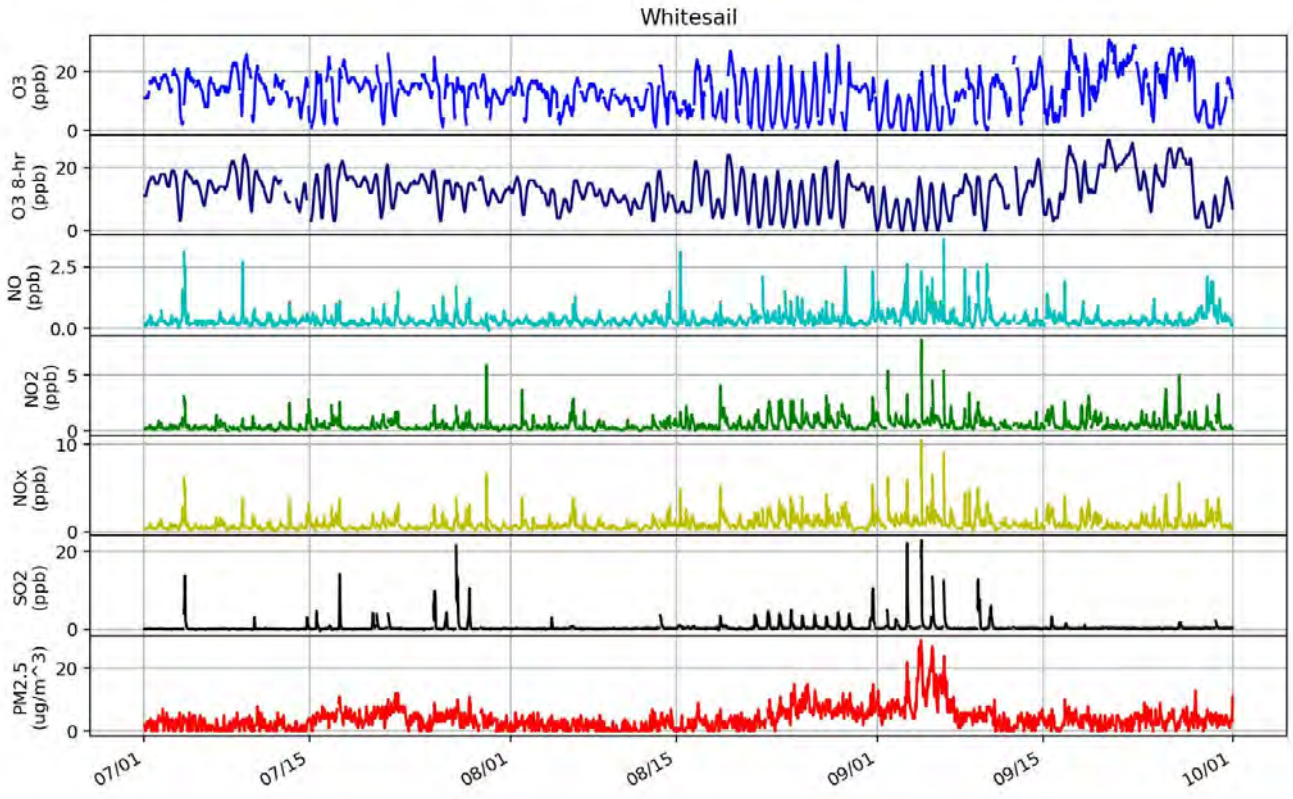
The average SO_2 concentration at the Whitesail for the third quarter was 0.5 ppb with a median concentration of 0.3 ppb. The maximum hourly SO_2 concentration during the third quarter was 22.9 ppb which occurred in September. During the third quarter, there were no exceedances of the 1-hour BCAAQO of 75 ppb or the 1-hour CAAQS of 70 ppb for SO_2 at the Whitesail station.

The average NO_2 concentration at the Whitesail station for the third quarter was 0.6 ppb and the median NO_2 concentration was 0.4 ppb. The maximum hourly NO_2 concentration during the third quarter at Whitesail was 8.2 ppb which occurred in September. During the third quarter, there were no exceedances of the 1-hour NO_2 BCAAQO of 60 ppb at Whitesail station.

The average O_3 concentration at the Whitesail station for the third quarter was 12.9 ppb and the median O_3 concentration was 13.0 ppb. The maximum hourly O_3 concentration of 31.0 ppb occurred in September. The maximum 8-hour O_3 concentration during the third quarter was 29.0 ppb which occurred in September. During the third quarter, there were no exceedances of the 1-hour O_3 BCAAQO advisory level of 82 ppb and the 8-hour CAAQS of 62 ppb at the Whitesail station.

A time series plot of $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations for the third quarter is presented in Figure 5.1.

Figure 5.1 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, $NO/NO_2/NO_x$, and O_3/O_3 -8hr Concentration Data for the Whitesail Station, Third Quarter 2025



Wind speed and wind direction data are collected by Rio Tinto BC Works at the Whitesail station. Figures 5.2 through 5.4 present the monthly Whitesail station wind roses for July through September 2025. Figure 5.5 presents a time series plot of Whitesail wind speed and direction, and temperature for the third quarter, 2025.

Figure 5.2 July 2025 Whitesail Station Wind Rose

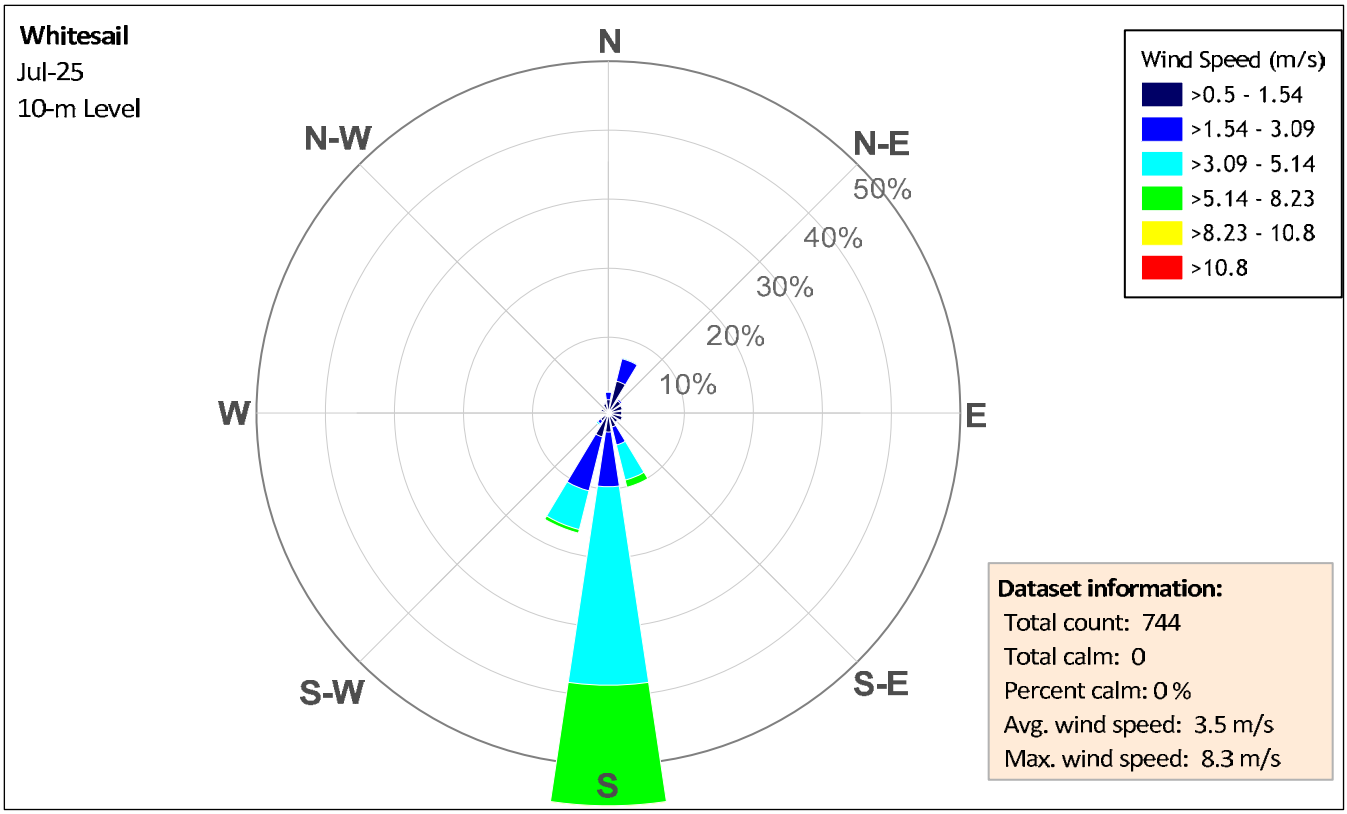


Figure 5.3 August 2025 Whitesail Station Wind Rose

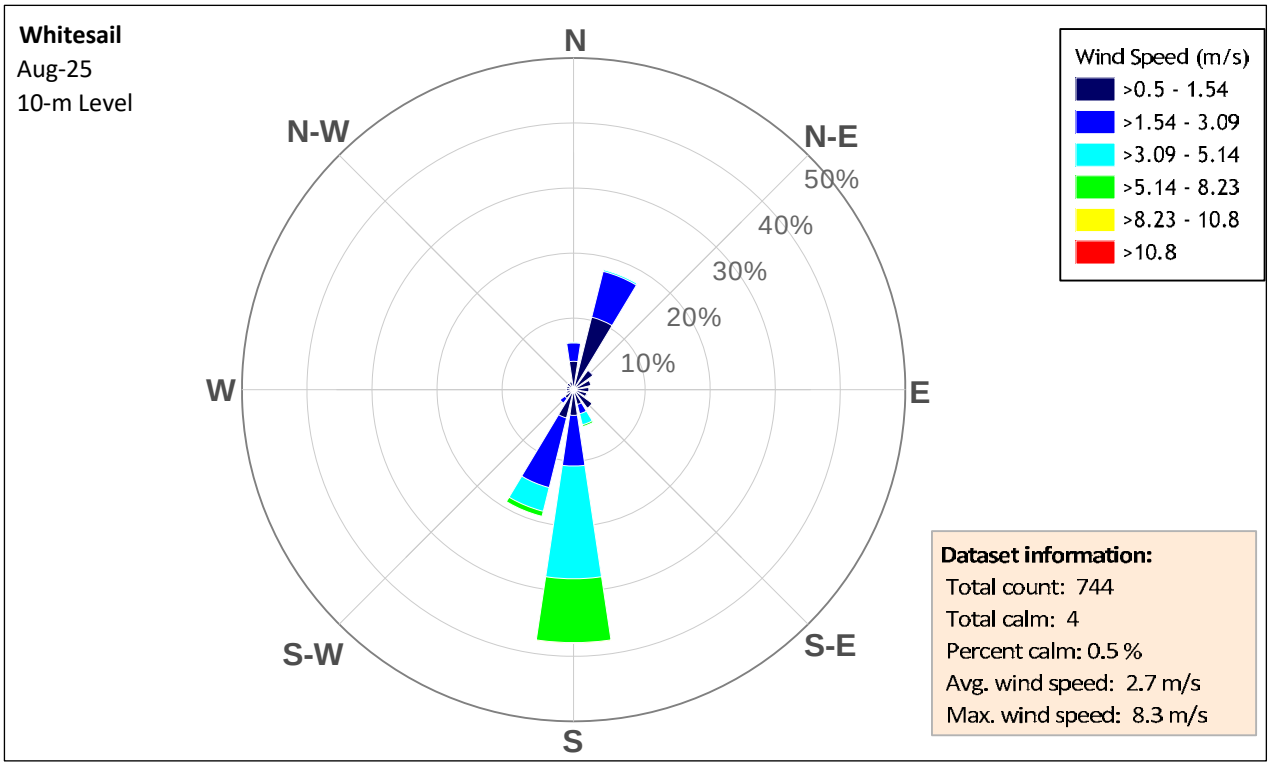


Figure 5.4 September 2025 Whitesail Station Wind Rose

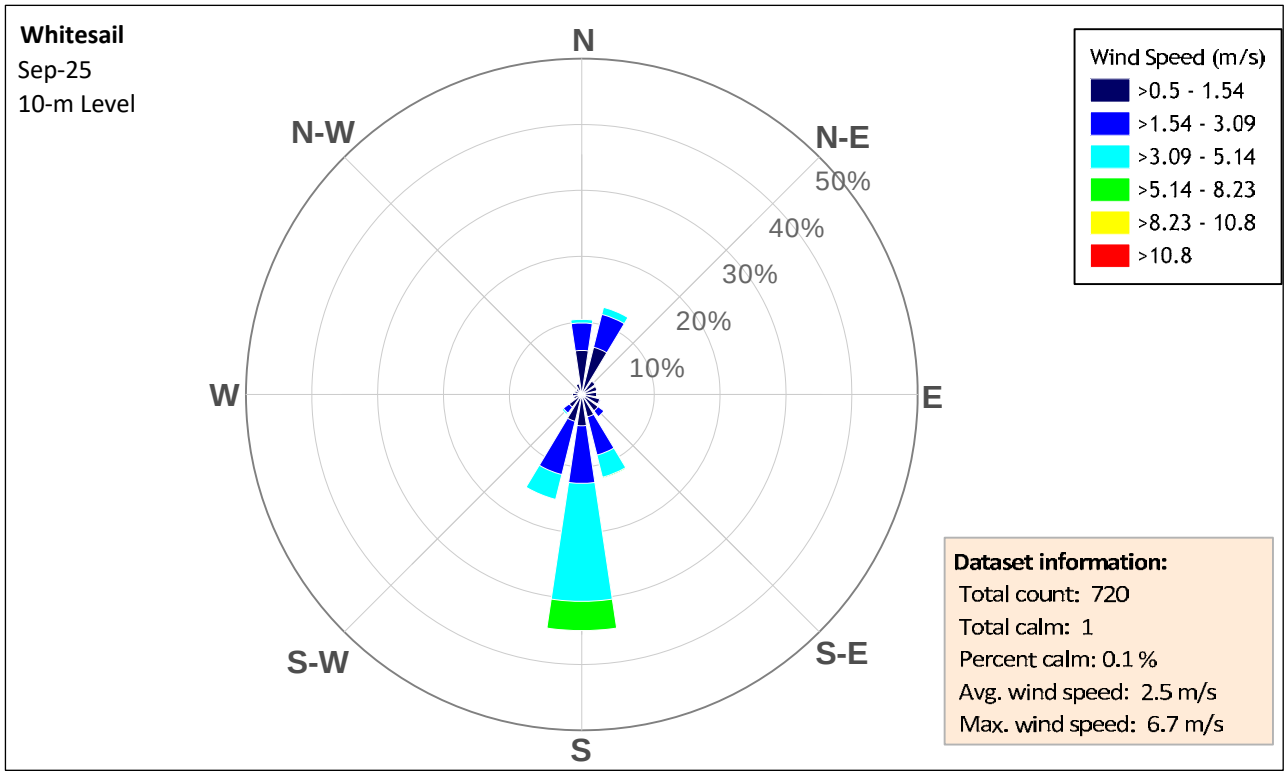
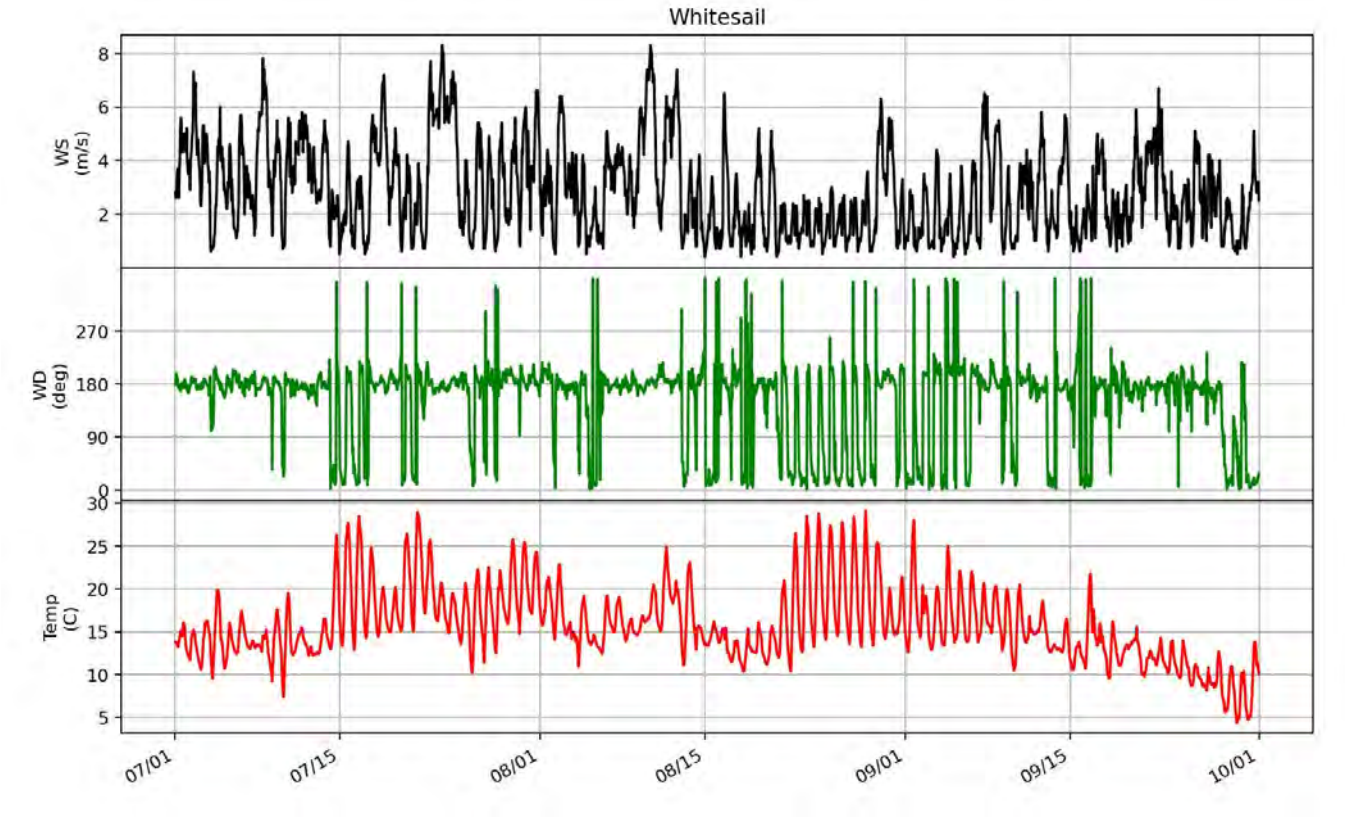


Figure 5.5 Time Series Plot of Wind Speed, Wind Direction, and Temperature Data at Whitesail Station for Third Quarter 2025



5.2 Third Quarter 2025 Ambient Air Monitoring Data Issues

Table 5-3 presents the Whitesail station data shortfall periods and known issues, during the third quarter, that led to pollutant concentration data loss.

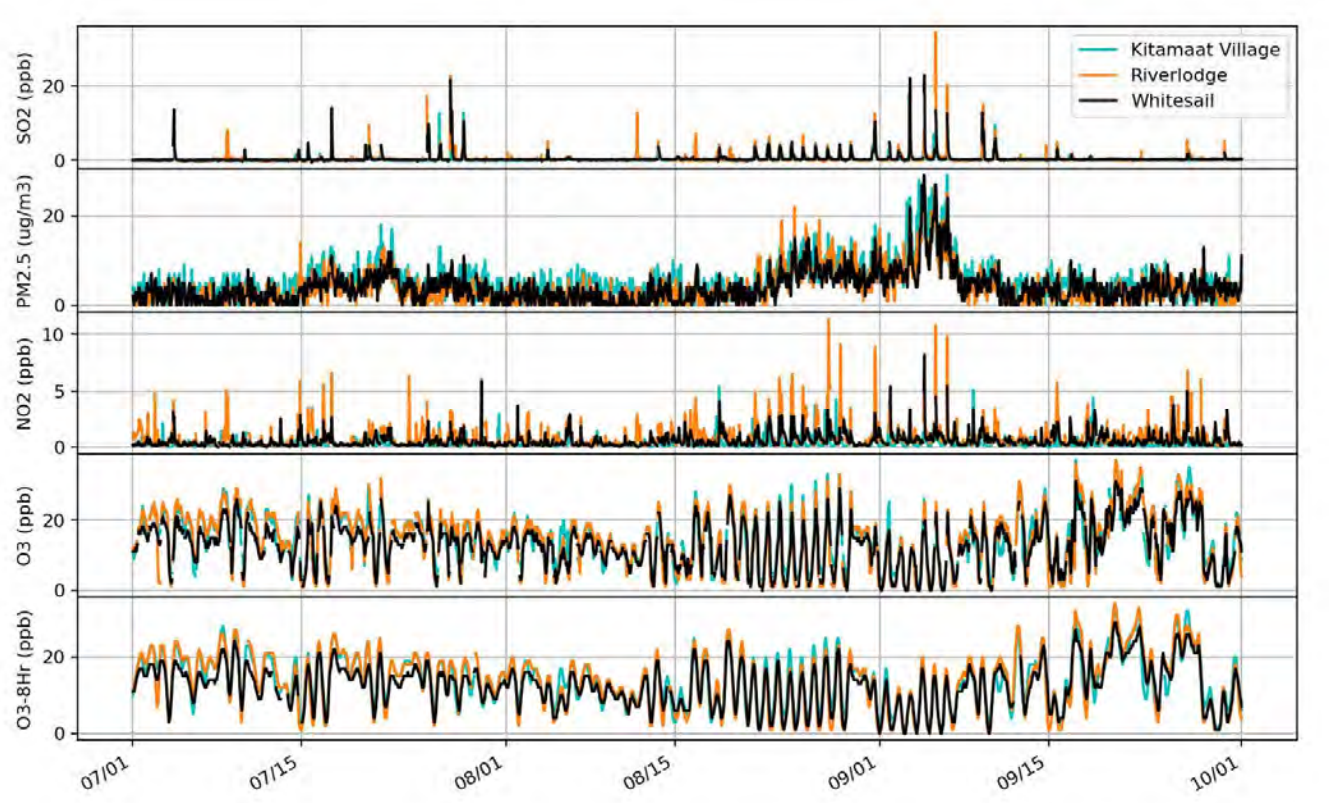
Table 5-3 Data Shortfall Periods and Noted Issues During Third Quarter 2025 at Whitesail Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
$SO_2/NO_x/O_3$	7/10/2025	16:00	7/10/2025	16:00	1	Filter change
$PM_{2.5}$	7/16/2025	09:00	7/16/2025	10:00	2	Power outage
$PM_{2.5}$	7/17/2025	09:00	7/17/2025	10:00	2	Power outage
O_3	7/12/2025	11:00	7/12/2025	12:00	2	Lamp instability
O_3	7/12/2025	20:00	7/12/2025	22:00	3	Lamp instability
O_3	7/13/2025	13:00	7/13/2025	16:00	4	Lamp instability
O_3	7/13/2025	18:00	7/13/2025	21:00	4	Lamp instability
O_3	7/15/2025	01:00	7/15/2025	03:00	3	Lamp instability
O_3	7/16/2025	09:00	7/16/2025	09:00	1	Lamp instability
O_3	7/17/2025	09:00	7/17/2025	10:00	2	Lamp instability
$PM_{2.5}$	7/21/2025	16:00	7/21/2025	17:00	2	Tape replaced; leak check with no adjustment
$SO_2/NO_x/O_3$	7/29/2025	07:00	7/29/2025	10:00	4	MOE Audit
$PM_{2.5}$	7/29/2025	09:00	7/29/2025	10:00	2	MOE Audit
$PM_{2.5}$	7/30/2025	16:00	7/30/2025	17:00	2	Monthly flow rate verification and maintenance
$SO_2/NO_x/O_3$	8/11/2025	10:00	8/11/2025	11:00	2	NO_x as found multipoint verification
$PM_{2.5}$	8/11/2025	17:00	8/11/2025	18:00	2	Power outage
$SO_2/NO_x/O_3$	8/14/2025	15:00	8/14/2025	16:00	2	Filter change
$PM_{2.5}$	8/22/2025	14:00	8/22/2025	16:00	3	Monthly flow rate verification and maintenance
$SO_2/NO_x/O_3$	9/12/2025	09:00	9/12/2025	11:00	3	$NO_x/SO_2/O_3$ as found multipoint verification
$PM_{2.5}$	9/12/2025	09:00	9/12/2025	11:00	3	Monthly flow rate verification and maintenance
$SO_2/NO_x/O_3$	9/12/2025	15:00	9/12/2025	16:00	2	NO_x/SO_2 multipoint verification after maintenance
$SO_2/NO_x/O_3$	9/12/2025	18:00	9/12/2025	18:00	1	O_3 multipoint verification after maintenance
$SO_2/NO_x/O_3$	9/16/2025	12:00	9/16/2025	13:00	2	NO_x as found multipoint verification

6.0 STATION COMPARISON

Figure 6.1 presents comparative time series plots of third quarter 2025 $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations from the Kitamaat Village, Riverlodge, and Whitesail monitoring stations. $PM_{2.5}$ and SO_2 data were obtained from Rio Tinto BC works for Kitamaat Village and Riverlodge stations. $PM_{2.5}$, SO_2, NO_2, and O_3 concentration data were obtained from Rio Tinto BC works for the Whitesail monitoring station. These graphs are useful for evaluating pollutant dispersion and for concentration comparison purposes.

Figure 6.1 Comparison of Hourly $PM_{2.5}$, SO_2, NO_2, and O_3 and 8-hour O_3 Concentrations Kitamaat Village, Riverlodge, and Whitesail Monitoring Locations, Third Quarter 2025



APPENDIX A. SITE NOTES FOR KITAMAAT VILLAGE AND RIVERLODGE

07/01/2025 - Station check and RT activities

Tuesday, July 1, 2025 12:11 PM

Village

Author of Entry: Nathan McMillan

Date of Activity: 07/01/2025
Start Time: 1132
End Time: 1220
Technician: Nathan McMillan

Reason for Visit

Station check and RT activities

Description

Envidas: Clock was 1 second ahead. Updated at 1141.
T200NOx:
Clock was 56 seconds ahead. Updated at 1156.
T400O3
Clock was 56 seconds ahead. Updated at 1157

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1480 psi and line pressure 30 psi.

07/08/2025 - Station check and RT activities

Tuesday, July 8, 2025 1:36 PM

Village

Author of Entry: Nathan McMillan

Date of Activity: 07/08/2025
Start Time: 1320
End Time: 1407
Technician: Nathan McMillan

Reason for Visit

Station check and RT activities.

Description

Envidas: Clock was 6 seconds ahead. Updated at 1328.
T200NOx:
Clock was 82 seconds ahead. Updated at 1344.
T400O3
Clock was 82 seconds ahead. Updated at 1345.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1460 psi and line pressure 30 psi.

07/10/2025 - Inlet filter change

Thursday, July 10, 2025 10:52 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: July 10, 2025
Start Time: 10:45
End Time: 11:57
Technician: Adrienne Kaul

Reason for Visit

Inlet filter change

Description

Envidas:

-Logger was 1 second ahead, no adjustment was made.

T400 O3:

-Clock was 23 seconds ahead and was updated at 11:43. Clock was 1 second ahead after update.

T200 NOx:

-Clock was 23 seconds ahead and was updated at 11:45. Clock was 1 second behind after update.

T700U Calibrator;

-Clock was 23 seconds ahead and was updated at 11:46. Clock was 1 second behind after update.

O3 and NOx:

-Data flagged from 11:20-11:52 for inlet filter change.

-All fittings were tight prior to and after filter change.

-Filter replaced with a 1-2 um filter.

-Ozone generated at 400 ppb from 11:37-11:49.

-Analyzer read 395.1 ppb with 399.8 ppb supplied for second last full minute of run.

-Clock was 1 second behind, no adjustment made.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1450 psi and line pressure 30 psi.

07/15/2025 - RT activities

Tuesday, July 15, 2025 9:36 AM

Village

Author of Entry: Nathan McMillan

Date of Activity: 07/15/2025
Start Time: 0934
End Time: 1016
Technician: Nathan McMillan

Reason for Visit

RT activities

Description

Envidas: Clock was 3 seconds ahead. Updated at 0939.
T200NOx:
Clock was 56 seconds ahead. Updated at 0942.
T400O3
Clock was 56 seconds ahead. Updated at 0954.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1450 psi and line pressure 30 psi.

07/21/2025 - RT Activities

Monday, July 21, 2025 7:17 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: July 21, 2025
Start Time: 7:11
End Time: 12:15
Technician: Adrienne Kaul

Reason for Visit

RT Activities

Description

Envidas:

-Clock was 2 seconds ahead and was updated at 7:24.

-Updates downloaded and installed.

T700U Calibrator:

-Clock was 69 seconds ahead and was updated at 7:29; clock was 1 second behind after update.

T400 O3:

-Clock was 68 seconds ahead and was updated at 7:32.

-Cleaned cobwebs from inlet at 12:15

T200 NOx:

-Clock was 69 seconds ahead was updated at 7:33; clock was 1 second behind after update.

-Cleaned cobwebs from inlet at 12:15

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- NOx RxCell: 4.3 inHg
- SO2 and NO tank pressure 1450 psi and line pressure 30 psi.
- Shelter temperature 31.5 C. Shelter door closed and lights turned off; shelter temperature slowly dropping and approaching spec on departure from site. AC is set to 76 F; no adjustment is likely necessary.

07/22/2025 - RT activities

Tuesday, July 22, 2025 12:20 PM

Village

Author of Entry: Nathan McMillan

Date of Activity: 07/22/2025
Start Time: 1207
End Time: 1245
Technician: Nathan McMillan

Reason for Visit

RT activities

Description

Envidas: Clock was 2 seconds ahead. Updated at 1216.
T200NOx:
Clock was 13 seconds ahead. Updated at 1224.
T400O3
Clock was 12 seconds ahead. Updated at 1225.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1450 psi and line pressure 29 psi.

07/29/2025 - RT activities

Tuesday, July 29, 2025 11:09 AM

Village

Author of Entry: Nathan McMillan

Date of Activity: 07/29/2025
Start Time: 1056
End Time: 1139
Technician: Nathan McMillan

Reason for Visit

RT activities

Description

Envidas: Clock was 1 second ahead. Updated at 1105.
T200NOx:
Clock was 81 seconds ahead. Updated at 1116.
T400O3
Clock was 80 seconds ahead. Updated at 1117.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1420 psi and line pressure 30 psi.

07/29/2025 - MOE audit

Tuesday, July 29, 2025 2:28 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: July 29, 2025
Start Time: 14:35
End Time: 16:45
Technician: Adrienne Kaul, Paul Williams, and Jonathan Lai

Reason for Visit

MOE audit of gas analyzers

Description

Data flagged 14:36-16:33 for audit activities of gas analyzers.
-All pneumatic connections felt tight after audit.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- Truck idling on site 15:45-16:01.
- SO2 and NO cylinder 1450 psi and line pressure 31 psi.

07/30/2025 - RT Activities

Wednesday, July 30, 2025 3:48 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: July 30, 2025
Start Time: 15:46
End Time: 16:53
Technician: Sarah Peden and Adrienne Kaul

Reason for Visit

On site for RT activities

Description

O3 Analyzer:

-Clock was 14 seconds ahead. Adjustment made at 1556. Clock is 1 second behind.

T700:

-Clock was 14 seconds ahead. Adjustment made at 1559. Clock is 1 second behind.

NOX:

-Clock was 14 seconds ahead. Adjustment made at 1601. Clock is 1 second behind.

Inlet:

-Cobwebs cleared from near inlet at 14:28.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO cylinder 1450 psi and line pressure 30 psi.

08/04/2025 - PUF sample change

Monday, August 4, 2025 3:30 PM

Village

Author of Entry: Nathan McMillan

Date of Activity: 08/04/2025
Start Time: 1526
End Time: 1550
Technician: Nathan McMillan

Reason for Visit

PUF sample change only. No station check

Description

PUF:

Deployment
Initial timer: 1391.25
Magnahelic reading: 60

Collection
Final Timer: 1391.25
Magnahelic Reading: 63
Total Run Time: 23.88

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

08/06/2025 - RT activities

Wednesday, August 6, 2025 10:52 AM

Village

Author of Entry: Nathan McMillan

Date of Activity: 08/06/2025
Start Time: 1047
End Time: 1126
Technician: Nathan McMillan

Reason for Visit

RT activities

Description

Envidas: Clock was 1 second ahead. Updated at 1056.
T700U Calibrator:
Clock was 78 seconds ahead and was updated at 1058.
43iSO2:
Clock was 11 seconds behind. Updated at 1058.
BAM1020:
Clock was 81 seconds ahead. No adjustments made.

PUF:

Deployment
Initial timer: 1415.16
Magnahelic reading: 61

Collection
Final Timer: 1415.16
Magnahelic Reading: 60
Total Run Time: 23.91

Notes: 7 day timer was 35 minutes behind.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Wind speed and direction sensors appear to be working normally.
- Ambient temperature aspirator is working.
- SO2 and NO tank pressure 1410 psi and line pressure 31 psi.
- Shelter temperature 25.7 C, within spec.

08/12/2025 - RT activities

Tuesday, August 12, 2025 4:09 PM

Village

Author of Entry: Nathan McMillan

Date of Activity: 08/12/2025
Start Time: 1603
End Time: 1645
Technician: Nathan McMillan

Reason for Visit

RT activities, station check.

Description

Envidas: Clock was 1 second ahead. Updated at 1613.
T700U Calibrator:
Clock was 72 seconds ahead and was updated at 1616.
43iSO2:
Clock was 9 seconds behind. Updated at 1618.
BAM1020:
Clock was 81 seconds ahead. No adjustments made.

PUF:

Deployment
Initial timer: 1439.07
Magnahelic reading: 60

Collection
Final Timer: 1439.07
Magnahelic Reading: 56
Total Run Time: 23.91

Notes: 7 day timer was 15 minutes behind.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____
  (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Wind speed and direction sensors appear to be working normally.
- Ambient temperature aspirator is working.
- SO2 and NO tank pressure 1410 psi and line pressure 31 psi.
- Shelter temperature 26.8 C, within spec.

08/19/2025 - Inlet filter changes and PUF

Tuesday, August 19, 2025 9:58 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: August 19, 2025
Start Time: 9:57
End Time: 12:37
Technician: Adrienne Kaul

Reason for Visit

On site for inlet filter changes

Description

T700U Calibrator:
- -Clock was 57 seconds ahead and was updated at 10:09. Clock was 1 second ahead after update.

Envidas logger:
- -Clock was 1 second ahead and no adjustment was made.

BAM 1020 PM2.5:
- -Clock was 81 seconds ahead and no adjustment was made.

SO2 43i:
- -Clock was 12 seconds behind and was updated at 10:12.
- -Data flagged 10:45-11:31 for inlet filter change.
  - -All manifold and analyzer connections were tight prior to filter change.
  - -Inlet filter replaced with a 1-2 um filter.
  - -Filter pre-conditioned with 400 ppb Ozone from 11:15-11:29.
  - -All connections felt tight after filter change.

Router:
- -Hard reset 10:14-10:15.
- -Password was updated and port forwarding was enabled.
- -Rebooted at 10:34.
- -List of port forwarding local IPs was added and port forwarding was enabled.
- -Rebooted at ~11:14.

PUF sampler:
- -Sample off ETI: 1463.045 hours, magnehelic reading: 50.5" water and 7 day timer ~0.25 hours behind.
  - -Sample top filter was black, magnehelic reading was low, and motor did not sound like it was working normally.
- -Sample on ETI: 1463.045, magnehelic reading: 52.25" water, and 7 day timer set to correct time.

Envidas logger:
- -Clock was 3 seconds ahead and was updated at 12:33.

HVAC:
- -AC filter cleaned.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings:
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)

- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- T200 alert: 08/14/2025 4:55:01 PM System Reset. Warning raised when the system is reset.
- T400 alert: 08/14/2025 4:54:57 PM System Reset. Warning raised when the system is reset.
- T700U alert: 08/14/2025 4:54:52 PM System Reset. Warning raised when the system is reset.
- SO2 and NO tank pressure 1400 psi and line pressure 32 psi.
- Ambient temperature aspirator is working.
- Station temperature 25.5 C, within spec.
- Wind speed and direction sensors appear to be working normally.

08/22/2025 - BAM 1020 and PUF maintenance

Friday, August 22, 2025 7:16 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: August 22, 2025
Start Time: 7:10
End Time: 12:26
Technician: Adrienne Kaul

Reason for Visit

On site to calibrate PUF sampler and change motor after odd PUF sample for 08/17/2025 and for monthly maintenance of PM2.5 monitor

Description

Envidas logger:

-Downloaded and installed windows updates.
-Clock was 2 seconds ahead and was updated at 7:20.
-Service manager frozen at 7:48; restarted computer at 7:48 and resolved issue. Some data may need to be backfilled from CSI logger to Envidas
-Computer restarted at 8:48 to allow windows updates to take effect.

SO2 43i:

-Clock was 4 seconds behind and was updated at 7:21.
-Cobwebs cleared from near inlet at 7:44.

T700U Calibrator:

-Clock was 35 seconds ahead and updated at 7:23.

BAM 1020 PM2.5:

-Clock was 81 seconds ahead and no adjustment was made.
-In maintenance mode 8:00-9:07.
-As found leak, pressure, temperature and flows within spec.
-No adjustments made.
-Collected tape to review for abnormalities on 08/17/2025 that could be related to abnormal PM capture on PUF sampler.
-Cleaned nozzle vane, capstan, pinch rollers and PM10 and PM2.5 heads. Replaced one large o-ring in PM10 head; it looked like it had previously been pinched but damage was minor and likely did not affect seal.
-Tape self-test passed.
-After maintenance leak check within spec.

Station maintenance:

-Swept station.

PUF:

-Removed sample deployed on 08/19/2025.
-Passing as found calibration performed. Motor had burning smell when running.
-Motor assembly removed and motor replaced; no burning smell was observed.
-Replaced magnehelic gauge and rubber tubing to gauge.
-Passing after maintenance calibration performed.
-New sample deployed ETI: 1463.88 hours, and magnehelic gauge reading 55.25" water. 7-day timer set to operate on 08/23/2025 starting at 00:00 PST.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI

- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure is 1390 psi and line pressure is 32 psi.
- Shelter temperature 25.4 C, within spec.
- Wind speed and direction sensors appear to be working normally.
- Ambient temperature aspirator is working.
- Cobwebs near passive samplers were cleared.

Kitimat - Kitamaat

Trinity Consultants

MET ONE BETA ATTENUATION MASS MONITOR - $PM_{2.5}$

CALIBRATION

SITE NAME	Kitamaat Village	**Date** 8/22/2025	**Start Time** 8:00
PROJECT	257201.0086		**Stop Time** 9:07
SITE OPERATOR	Trinity Consultants		

Analyzer Mfg	Met One Instruments
Analyzer Model	BAM 1020
Analyzer s/n	N15835

= Cell Containing Equations

CALIBRATION EQUIPMENT:

	Model	Serial Number
Temperature Standard	BGI Delta Cal DC1	179773
Pressure Standard	BGI Delta Cal DC1	179773
Flow Standard	BGI Delta Cal DC1	179773
Certification Date	12/2/2024	

LEAK CHECK

As Found	0.4	LPM
As Left	0.4	LPM

LEAK CHECK CRITERIA
LEAK < 1.0 LPM

TEMPERATURE SENSOR CALIBRATION

	BAM Temp.	Ref. Std. Temp.	DIFF.
As Found	17.0	16.2	0.8
As Left			

TEMPERATURE CRITERIA
DIFFERENCE < ±2.1°C

PRESSURE SENSOR CALIBRATION

	BAM Press.	Ref. Std. Press.	DIFF.
As Found	764	763.5	0.5
As Left			

PRESSURE CRITERIA
DIFFERENCE < ±10.1 mm Hg

FLOW CALIBRATION

BAM TARGET	*As Found (LPM)* BAM Flow	Ref. Std. Flow	% DIFFERENCE REFERENCE	% DIFFERENCE DESIGN
15.0	15.0	15.12	-0.8%	0.8%
18.4	18.4	18.60	-1.1%	1.1%
16.7	16.7	16.82	-0.7%	0.7%

BAM TARGET	*As Left (LPM)* BAM Flow	Ref. Std. Flow	% DIFFERENCE REFERENCE	% DIFFERENCE DESIGN
15.0				
18.4				
16.7				

FLOW CRITERIA
DIFFERENCE < ±10.1%

COMMENTS
Leak test fluctuation between -0.1 and 0.9 lpm for as found leak test. Flow rate prior to leak test was 16.2 lpm and 16.1 lpm after. No adjustment made to temperature or flows due to unstable conditions. After maintenance leak test fluctuation 0.5 to -0.1 lpm. Flow was 16.1 lpm prior to test

MONTHLY MAINTENANCE

- [x] Nozzle and vane cleaning
- [x] Leak Check
- [x] Flow Rate Verification
- [x] Clean Capstan & Pinch Rollers
- [x] Clean PM_{10} Head
- [x] Check Error Log
- [ ] Download Digital Data Log
- [ ] Replace Filter Tape
- [x] Other Tape self-test passed

Calibrated By Adrienne Kaul

TE-1000-PUF-

TE-1000 PUF Calibration Worksheet
As Found

Site Information

Location:	Kitimat	**Site ID:**	[illegible]	**Date:**	22-Aug-25
Sampler:	GPS1	**Serial No:**	14145	**Tech:**	Adrienne Kaul

Site Conditions

Barometric Pressure (in Hg):		**Corrected Pressure (mm Hg):**	763.5
Temperature (deg F):		**Temperature (deg K):**	292.1
Average Pressure (in Hg):		**Corrected Average Pressure (mm Hg):**	cal only
Average Temperature (deg F):		**Average Temperature (deg K):**	cal only

Calibration Orifice

Make:	Tisch	**Qstd Slope:**	6.02238
Model:	TE-5040A	**Qstd Intercept:**	-0.01469
Serial#:	4013	**Calibration Due Date:**	21-Apr-26

Calibration Information

Plate or Test #	Pressure (in H_2O)	Qstd (m3/min)	Flow (magn)	Flow (corrected)
70	7.20	0.278	70.00	5.17
60	6.35	0.261	60.50	4.81
50	5.75	0.249	51.50	4.44
40	4.55	0.221	40.50	3.94
30	3.50	0.195	30.25	3.40

Linear Regression

Slope: 21.1767
Intercept: -0.7471
Corr. Coeff: 0.9976
# of Observations: 5

Calculations

Qstd = 1/m[Sqrt((H20)(Pa/760)(298/Ta))-b]
Flow (corrected)=Sqrt((magn)(Pa/Pstd)(Tstd/Ta))

Qstd = standard flow rate
Flow (magn)= reading from magnehelic gauge
Flow (corrected)= corrected flow rate
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
Qstd = 1/m[Sqrt((H20)(Pa/760)(298/Ta))-b]

m = sampler slope
b = sampler intercept
(magn) = magnehelic reading
Tav = daily average temperature
Pav = daily average pressure

Average Flow (magn): cal only
Average Flow Over Sample (m3/min)
cal only
Enter Total Time (hrs):
Total Flow Over Sample (m3)
cal only
Total Flow Over Sample (liters)
cal only

NOTE: Ensure calibration orifice has been certified within 12 months of use

TE-1000-PUF-

TE-1000 PUF Calibration Worksheet
After Maintenance

Site Information

Location:	Kitimat	**Site ID:**	[illegible]	**Date:**	22-Aug-25
Sampler:	GPS1	**Serial No:**	14145	**Tech:**	Adrienne Kaul

Site Conditions

Barometric Pressure (in Hg):		**Corrected Pressure (mm Hg):**	763.0
Temperature (deg F):		**Temperature (deg K):**	295.4
Average Pressure (in Hg):		**Corrected Average Pressure (mm Hg):**	cal only
Average Temperature (deg F):		**Average Temperature (deg K):**	cal only

Calibration Orifice

Make:	Tisch	**Qstd Slope:**	6.02238
Model:	TE-5040A	**Qstd Intercept:**	-0.01469
Serial#:	4013	**Calibration Due Date:**	21-Apr-26

Calibration Information

Plate or Test #	Pressure (in H_2O)	Qstd (m3/min)	Flow (magn)	Flow (corrected)
70	6.70	0.270	69.50	5.19
60	6.00	0.255	60.25	4.83
50	5.20	0.238	50.25	4.41
40	4.40	0.219	40.00	3.93
30	3.50	0.196	29.75	3.39

Linear Regression

Slope:	24.2471
Intercept:	-1.3627
Corr. Coeff:	0.9999
# of Observations:	5

Calculations

Qstd = 1/m[Sqrt((H20)(Pa/760)(298/Ta))-b]
Flow (corrected)=Sqrt((magn)(Pa/Pstd)(Tstd/Ta))

Qstd = standard flow rate
Flow (magn)= reading from magnehelic gauge
Flow (corrected)= corrected flow rate
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
Qstd = 1/m[Sqrt((H20)(Pa/760)(298/Ta))-b]

m = sampler slope
b = sampler intercept
(magn) = magnehelic reading
Tav = daily average temperature
Pav = daily average pressure

Average Flow (magn):	cal only
Average Flow Over Sample (m3/min)	
cal only	
Enter Total Time (hrs):	
Total Flow Over Sample (m3)	
cal only	
Total Flow Over Sample (liters)	
cal only	

NOTE: Ensure calibration orifice has been certified within 12 months of use

08/26/2025 - RT PUF sample change

Tuesday, August 26, 2025 1:34 PM

Village

Author of Entry: Sarah Peden & Adrienne Kaul

Date of Activity: August 26, 2025
Start Time: 13:32
End Time: 14:35
Technician: Adrienne Kaul and Sarah Peden

Reason for Visit

PUF sample change and station check.

Description

Envidas logger:

-Clock was 2 seconds ahead and was updated at 13:38.

T700:

-Clock was 111 seconds ahead and was updated at 13:51

BAM 1020 PM2.5:

-Clock was 83 seconds ahead and no adjustment was made.

-Checked and wiped PM10 grit pot during measurement cycle 13:54-13:55; did not affect hourly measurement.

Gas analyzer inlet:

-Cleared cobwebs at 13:57.

43i SO2:

-Clock 6 seconds behind and updated at 14:00.

PUF:

-Sample collected ETI: 1487.88 hours, and magnehelic gauge reading 54.0" water. 7 day timer ~40 minutes behind

-Bird scat on exterior sampler

-Some scuffs (no holes) on the filter.

-Feather on sample.

-Damage appears to have happened after sampling.

-Chimes are working.

-New sample deployed ETI: 1487.88 hours, and magnehelic gauge reading 56.5" water. 7-day timer set to operate on 08/29/2025 starting at 00:00 PST.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: None
- [x] Check for calibrator warnings: None
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure is 1400 psi and line pressure is 30 psi.

- A lot of spiderwebs present around the gas analyzer inlet.
- Shelter temperature 30.4 C, above spec.

08/29/2025 - Passive SO2 sampling

Thursday, September 11, 2025 1:33 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: August 29, 2025
Start Time: 9:40
End Time: 10:00
Technician: Adrienne Kaul and Sarah Peden

Reason for Visit

On site to collect and deploy passive SO2 samples.

Description

Station was not opened during visit. Passive sampling media was exchanged on roof.

Site Visit Checklist

- ☐ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☐ Zero air system pressure at 30 PSI
- ☐ Calibration gas cylinder pressure at 30 PSI
- ☐ Calibration gas tank pressure > 500 PSI
- ☐ Check for analyzer warnings: _____
- ☐ Check for calibrator warnings: _____
- ☐ Analyzer filters exchanged
- ☐ MFC checks performed (semi-annual)
- ☐ Inlet Teflon exchanged (annual)
- ☐ Zero Air media replaced (annual)
- ☐ Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- ☐ Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

09/02/2025 - PUF Sampling

Tuesday, September 2, 2025 2:21 PM

Village

Author of Entry: Sarah Peden

Date of Activity: September 2, 2025
Start Time: 14:14
End Time: 15:25
Technician: Sarah Peden

Reason for Visit

Onsite for PUF Sampling.

Description

Envidas logger:

-Clock was 2 seconds ahead and was updated at 14:25.

T200 NOx:

-Clock was 100 seconds ahead and was updated at 14:36.

T400 O3:

-Clock was 80 seconds ahead and was updated at 14:35.

T700:

-Clock was 131 seconds ahead and was updated at 14:32

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure is 1400 psi and line pressure is 32 psi.

09/09/2025 - Inlet Filter Changes

Tuesday, September 9, 2025 11:50 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: September 9, 2025
Start Time: 11:50
End Time: 12:40
Technician: Adrienne Kaul

Reason for Visit

On site to change inlet filters

Description

Cobwebs near analyzer inlet line-Cobwebs were cleared at 12:24

NOx and O3 inlet filter changes:

-Data flagged 11:56-12:35
-All connections felt tight prior to filter change
-Filter assembly cleaned.
-Filters replaced with 1-2 um filter.
-400 ppb ozone running through system 12:13-12:32
-Analyzer read 401.6 ppb with 399.9 ppb supplied for the last full minute of the run.
-All connections felt tight after filter change

T700U Calibrator:

-Clock was 1 minute and 21 seconds ahead and was updated at 12:18.

T400 O3:

-Clock was 80 seconds ahead and was updated at 12:19.

T200 NOx:

-Clock was 79 second ahead and was updated at 12:20. Clock was 1 second ahead after update.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1380 psi and line pressure 32 psi.

09/11/2025 - PUF Sample Change

Thursday, September 11, 2025 3:48 PM

Village

Author of Entry: Sarah Peden

Date of Activity: September 11, 2025
Start Time: 15:41
End Time: 16:30
Technician: Sarah Peden

Reason for Visit

Onsite for PUF Sample change.

Description

Envidas logger:

-Clock was 1 seconds ahead and was updated at 15:51.

T200 NOx:

-Clock was 25 seconds ahead and was updated at 15:53.

T400 O3:

-Clock was 26 seconds ahead and was updated at 15:54.

T700:

-Clock was 23 seconds ahead and was updated at 15:56.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1380 psi and line pressure 32 psi.

09/17/2025 - PUF Sample Change

Wednesday, September 17, 2025 10:28 AM

Village

Author of Entry: Sarah Peden

Date of Activity: September 17, 2025
Start Time: 10:26
End Time: 11:00
Technician: Sarah Peden

Reason for Visit

Onsite for PUF sample change.

Description

Envidas logger:

-Clock was 1 seconds ahead and was updated at 10:31.

T200 NOx:

-Clock was 65 seconds ahead and was updated at 10:32.

T400 O3:

-Clock was 64 seconds ahead and was updated at 10:34.

T700:

-Clock was 67 seconds ahead and was updated at 10:34.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1350 psi and line pressure 31 psi.

09/23/2025 - PUF Sample Change

Tuesday, September 23, 2025 12:18 PM

Village

Author of Entry: Micah May

Date of Activity: Sept 23, 2025
Start Time: 12:09
End Time: 12:45
Technician: Micah May & Sarah Peden

Reason for Visit

Onsite PUF sample change.

Description

Envidas logger:

-Clock was 1 second ahead and was updated at 12:16

T200 NOx:

-Clock was 70 seconds ahead and was updated at 12:22.

T400 O3:

-Clock was 71 seconds ahead and was updated at 12:21.

T700:

-Clock was 70 seconds ahead and was updated at 12:17.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1350 psi and line pressure 31 psi.

09/24/2025 - NOx/O3 As Found MP

Wednesday, September 24, 2025 1:29 PM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 9/24/25
Start Time: 1120
End Time: 1430
Technician: WL

Reason for Visit

Perform routine quarterly multipoint verifications.

Description

NOx As found MP verification
O3 As found MP verification
Also performed RT activities

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

NITROGEN OXIDES CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Village
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 9/24/2025 **Start Time** 11:35
Stop Time 13:05

Analyzer Mfg Teledyne-API
Analyzer Model T200
Analyzer s/n 8598

Analyzer Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 905
Cert Date: 4/23/2025

Gas: Linde
Concentration: 10.0 ppm
Serial #: DT0046813
Certification Date: 4/4/2024
Expiration Date: 4/4/2027

Zero Air Source: T-API
Model: T701
Serial #: 2555
Certification Date: 5/20/2024

INPUT (X)	RESPONSE (Y)			NO	NO BEST-FIT DETERMINATION		
NO (PPB)	NO (PPB)	NO_2 (PPB)	NO_X (PPB)	% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.1	-0.1	0.0	/	-0.6	0.68	0.1%
40.1	38.8	-0.4	38.4	-3.1%	38.9	-0.08	0.0%
89.8	87.4	-0.3	87.1	-2.7%	87.8	-0.45	-0.1%
139.7	136.4	0.2	136.6	-2.4%	137.0	-0.58	-0.1%
199.2	195.6	0.2	195.7	-1.8%	195.6	0.04	0.0%
299.2	294.4	-0.1	294.4	-1.6%	294.0	0.39	0.1%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: *All points within ±2% of calibration range of best-fit straight line*

NO_X	NO_X BEST-FIT DETERMINATION		
% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-0.8	0.81	0.2%
-4.1%	38.7	-0.28	-0.1%
-3.0%	87.7	-0.63	-0.1%
-2.2%	136.9	-0.32	-0.1%
-1.8%	195.6	0.14	0.0%
-1.6%	294.1	0.28	0.1%

	NO	NO_x		NO	NO_x
Slope (m)	0.9845	0.9856	1.05 to 0.95	1.0157	1.0146
Intercept (b)	-0.5626	-0.7719	(≤ ± 10)	0.5739	0.7861
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	0.99999	0.99999
Average % Difference	-2.32%	-2.53%		2.32%	2.53%

Calibrated By Wyndam Lewis

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Template Revised 7/10/23

NITROGEN DIOXIDE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME	LNG Kitimat Village	**Date**	9/24/2025	**Start Time**	11:35
PROJECT	244501.0077			**Stop Time**	13:05
SITE OPERATOR	Trinity				

Analyzer Mfg	Teledyne-API	**Analyzer Range 0-**	500 **PPB**
Analyzer Model	T200		
Analyzer s/n	8598		

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.0 ppm	**Model:**	T701
Serial #:	905	**Serial #:**	DT0046813	**Serial #:**	2555
Cert Date:	4/23/2025	**Certification Date:**	4/4/2024	**Certification Date:**	5/20/2024
		Expiration Date:	4/4/2027		

	CAL INPUT (X)		CALC ACTUAL	DAS RESPONSE (Y)			CALCULATED (Y)					% DIFF
							[ORIG]		[REM]		[CONV]	
	NO	O_3	$[NO_2]_A$	NO	NO_X	NO_2	NO	NO_X	NO	NO_X	NO_2	NO_2
	(PPB)	(PPB)	(PPB)	(PPB)	(PPB)	(PPB)	(PPB)	(PPB)	(PPB)	(PPB)	(PPB)	(% OR PPB)
TITRATION	0.0	0.0	0.0	0.1	0.0	-0.1	---	---	---	---	-0.08	-0.1 ppb
	300.0	250.0	247.1	51.1	291.4	240.3	299.6	299.5	52.5	296.4	244.04	-2.7%
	300.0	150.0	141.3	155.3	291.7	136.4	299.6	299.5	158.3	296.7	138.54	-3.5%
	300.0	70.0	67.0	228.4	294.4	66.0	299.6	299.5	232.6	299.5	67.03	-1.5%

NO TITRATION

299.2	0.0	---	294.4	294.4	-0.1

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9840 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 98.4% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION		
Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.1	-0.20	0.0%
240.0	0.29	0.1%
137.3	-0.89	-0.2%
65.2	0.80	0.2%

Criteria: *All points within ±2% of calibration range of best-fit straight line*

Calibration Regression Analysis: *Corr. Analyzer Response (Y)=m(calib input(X))+b*

	NO_2		NO	NO_x
Slope (m)	0.9708	1.05 to 0.95	1.0157	1.0146
Intercept (b)	0.1274	(≤ ± 10)	0.5739	0.7861
Correlation Coefficent (r)	0.99998	(≥ 0.995)	1.0000	1.0000
Average % Difference	-2.58%		2.32%	2.53%

Calibrated By Wyndam Lewis

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OZONE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Village
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 9/24/2025 **Start Time** 13:20
Stop Time 14:20

Analyzer Mfg Teledyne-API
Analyzer Model T400
Analyzer s/n 7486

Analyzer Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	N/A	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	N/A	**Model:**	T701
Serial #:	905	**Serial #:**	N/A	**Serial #:**	2555
Cert Date:	N/A	**Certification Date:**	N/A	**Certification Date:**	5/20/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard
m: 1
b: 0
r:
Calibration Date:

INPUT (Txfr Standard) Raw Input (PPB)	Corrected (X) (PPB)	RESPONSE (Y) (PPB)	% DIFF.	BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.0	0.4	/	0.5	-0.10	0.0%
40.0	40.0	41.5	3.80%	41.4	0.12	0.0%
90.1	90.1	92.6	2.77%	92.6	0.03	0.0%
150.1	150.1	153.3	2.13%	153.9	-0.56	-0.1%
250.0	250.0	255.7	2.28%	255.9	-0.21	0.0%
399.9	399.90	409.1	2.30%	409.0	0.07	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	1.021	1.05 to 0.95
Intercept(b)	0.535	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	2.66%	

COMMENTS

Calibrated By Wyndam Lewis

= cell containing equations

09/25/2025 - RT Activities

Thursday, September 25, 2025 8:47 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: September 25, 2025
Start Time: 8:39
End Time: 10:30
Technician: Adrienne Kaul

Reason for Visit

On site for RT Activities

Description

T400 O3:

-Clock was 21 seconds ahead and was updated at 10:14. Clock was 1 second ahead after adjustment.

T700 Calibrator:

-Clock was 21 seconds ahead and was updated at 10:15.

T200 NOx:

-Clock was 22 seconds ahead and was updated at 10:16. Clock was 1 second behind after update.

Envidas:

-Clock was 1 second ahead and no adjustment was made.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1340 and line pressure 32 psi.

09/26/2025 - Envidas outage

Friday, September 26, 2025 9:05 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: September 26, 2025
Start Time: 7:55
End Time: 8:19
Technician: Adrienne Kaul

Reason for Visit

Investigate ministry polling interruption.

Description

Envidas logger:

-Attempted to restart service manager but was unable to do so.

-Installed windows updates and restarted logger and Envidas service manager. Polling resumed.

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

09/27/2025 - RT Activities

Sunday, September 28, 2025 1:08 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: September 27, 2025
Start Time: 13:12
End Time: 13:24
Technician: Adrienne Kaul and Sarah Peden

Reason for Visit

RT Activities

Description

[describe what activities were performed during the maintenance]

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

09/30/2025 - PUF Sample Change

Tuesday, September 30, 2025 1:36 PM

Village

Author of Entry: Sarah Peden

Date of Activity:
Start Time: 13:13
End Time: 14:05
Technician: Sarah Peden

Reason for Visit

On site for PUF sample change.

Description

T400 O3:

-Clock was 61 seconds ahead and was updated at 13:41

T700 Calibrator:

-Clock was 61 seconds ahead and was updated at 13:34.

T200 NOx:

-Clock was 59 seconds ahead and was updated at 13:40

Envidas:

-Clock was 2 second ahead and was updated at 13:31.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1350 and line pressure 31 psi.

07/03/2025 - Weekly Site Check

Thursday, July 3, 2025 1:36 PM

Riverlodge

Author of Entry: Kayeanna Mackenzie and Adrienne Kaul

Date of Activity: 07/03/2025
Start Time: 13:24
End Time: 14:03
Technician: Adrienne Kaul, Kayeanna Mackenzie

Reason for Visit

Weekly site check

Description

Envidas logger:

Clock was 2 seconds ahead

Clock time fixed at 13:53

G2205 Clock was 14 seconds behind - synced and updated at 13:53

T200 clock 48 seconds ahead - synced and updated at 13:55

T400 clock 48 seconds ahead - synced and updated at 13:56

N901 clock accurate

T700U clock 47 seconds ahead - synced and updated at 13:57 - 1 second behind after update

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: ___see below_____
- [x] Check for calibrator warnings: __see below_____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, C3H8, CH4, and NO 16.60 psi tank pressure and line pressure 33psi
- CH4 tank pressure 2000 psi and line pressure 35 psi.
- Nitrogen UHP tank pressure 1480 psi and line pressure 72 psi.
- Hydrogen UHP tank pressure 1750 psi and line pressure 55 psi.
- T200 alert 06/29/2025 5:05:47 PM system reset
- T400 alert 06/29/2025 5: 05:35 PM time sync failure
- T700U 06/29/2025 5:05:42 PM system reset
- HF inline heater 63C at 13:59

- Site is extremely dusty and needs to be vacuumed.

07/08/2025 - Inlet filter change

Tuesday, July 8, 2025 7:26 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: July 8, 2025
Start Time: 7:23
End Time: 8:26
Technician: Adrienne Kaul

Reason for Visit

On site to perform station check and change inlet filters

Description

Envidas:

-Clock accurate.

G2205 HF:

-Clock was 12 seconds behind and was updated at 7:28.

T700U Calibrator:

-Clock was 53 seconds ahead and was updated at 7:30. Clock was 1 second behind after update.

N901 CH4, NMHC, and THC:

-Clock was synced at 7:33. Clock was 1 second behind before and after adjustment.

T200 NOx:

-Clock was 53 seconds ahead and was updated at 7:36.

T400 O3:

-Clock was 44 seconds ahead and was updated at 7:38.

C3H8, CH4, THC, NOx and O3:

-Data flagged 7:45-8:21

-NOx and O3 filters replaced with new 1-2 um filters.

-SO2 running at 160 ppb from 8:07-8:15.

-All accessible connections felt secure after filter change.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- CH4, C3H8, NO, and SO2 tank pressure 1650 psi and line pressure 32 psi.

07/10/2025 - RT Activities and THC quarterly MP

Thursday, July 10, 2025 12:21 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: July 10, 2025
Start Time: 11:16; 13:17
End Time: 12:16; 14:25
Technician: Adrienne Kaul

Reason for Visit

RT Activities

Description

Envidas logger:

-Clock was 1 second ahead and no adjustment was made.

T700 Calibrator:

-Clock was 26 seconds ahead and was updated at 13:10.

N901 CH4, C3H8, and THC:

-Clock 1 second behind, no adjustment made.

-Initial MP calibration 8 ppm point analyzer response was low (<-13%); potential poor stabilization.

-Repeat MP calibration showed good analyzer response for all calibration points.

T400 O3:

-Clock was 26 seconds ahead and was updated at 14:14.

T200 NOx:

-Clock was 26 seconds ahead and was updated at 14:15.

T200 NOx, T400 O3 and N901 CH4, C3H8, and THC:

-Analyzers flagged 13:45-14:22 to maintain for RT activities and MP calibrations.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, C3H8, and CH4 tank pressure 1660 psi and line pressure 32 psi.
- CH4 tank pressure 2000 psi and line pressure 35 psi.
- UHP Nitrogen tank pressure 1210 psi and line pressure 72 psi.
- UHP Hydrogen tank pressure 1120 psi and line pressure 55 psi.
- Shelter temperature 27.2 C, within spec.

KitimatRive...
2025-0710

METHANE, NON-METHANE, TOTAL HYDROCARBON CALIBRATION SHEET

As Found Multi-point Verification

Trinity Consultants

SITE NAME LNG Kitimat Riverlodge
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 7/10/2025 **Start Time** 11:16 **Stop Time** 12:16

Analyzer Mfg Teledyne-API
Analyzer Model N901
Analyzer s/n 80

Anal. Range 0- 20 **PPM**

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 906
Cert Date: 4/25/2025

Audit Gas: Linde
Concentration: 616 ppm
Serial #: CC748570
Certification Date: 7/8/2024
Expiration Date: 7/8/2027

Zero Air Source: T-API
Model: T701
Serial #: 2556
Certification Date: 5/16/2025

METHANE			NON-METHANE HYDROCARBON			TOTAL HYDROCARBON		
CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.
0.000	0.000	---	0.000	0.018	---	0.000	0.018	---
2.441	2.536	3.9%	2.367	2.485	5.0%	4.808	5.021	4.4%
4.271	4.406	3.2%	4.141	4.251	2.7%	8.410	8.660	3.0%
6.094	6.278	3.0%	5.909	6.487	9.8%	12.000	12.760	6.3%
7.925	6.860	-13.4%	7.684	6.680	-13.1%	15.610	13.540	-13.3%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib Input(X))+b

	CH_4	NMHC	THC	
Slope (m)	0.900	0.921	0.910	1.05 to 0.95
Intercept (b)	0.284	0.282	0.567	(≤ ± 10)
Correlation Coefficent (r)	0.9884	0.9818	0.9855	(≥ 0.995)
Average % Difference	-0.84%	1.09%	0.12%	

Calibrated By Adrienne Kaul = cell containing equations

KitimatRive...
2025-0710

METHANE, NON-METHANE, TOTAL HYDROCARBON CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 7/10/2025 **Start Time** 14:31
Stop Time 15:31

Analyzer Mfg Teledyne-API
Analyzer Model N901
Analyzer s/n 80

Anal. Range 0- 20 **PPM**

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 906
Cert Date: 4/25/2025

Audit Gas: Linde
Concentration: 616 ppm
Serial #: CC748570
Certification Date: 7/8/2024
Expiration Date: 7/8/2027

Zero Air Source: T-API
Model: T701
Serial #: 2556
Certification Date: 5/16/2025

METHANE			NON-METHANE HYDROCARBON			TOTAL HYDROCARBON		
CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.
0.000	0.007	---	0.000	0.000	---	0.000	0.007	---
2.441	2.541	4.1%	2.367	2.478	4.7%	4.808	5.019	4.4%
4.271	4.393	2.9%	4.141	4.290	3.6%	8.410	8.680	3.2%
6.094	6.275	3.0%	5.909	6.144	4.0%	12.000	12.420	3.5%
7.925	8.150	2.8%	7.684	8.000	4.1%	15.610	16.150	3.5%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib Input(X))+b

	CH_4	NMHC	THC	
Slope (m)	1.027	1.040	1.033	1.05 to 0.95
Intercept (b)	0.016	0.001	0.018	(≤ ± 10)
Correlation Coefficent (r)	1.0000	1.0000	1.0000	(≥ 0.995)
Average % Difference	3.19%	4.09%	3.64%	

Calibrated By Adrienne Kaul

= cell containing equations

07/16/2025 - Weekly site visit

Wednesday, July 16, 2025 2:05 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: July 16, 2025
Start Time: 13:50
End Time: 14:35
Technician: Adrienne Kaul

Reason for Visit

On site for weekly site visit

Description

Envidas logger:

-Clock synced at 14:06.

T700 Calibrator:

-Clock was 7 seconds ahead and was updated at 14:12.

N901 CH4/THC analyzer:

-Clock was accurate no adjustment made.

T200 NOx:

-Clock was 13 seconds ahead and was updated at 14:21. Clock was 1 second behind after update.

T400 O3:

-Clock was 8 seconds ahead and was updated at 14:22

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Ambient temperature aspirator is working.
- Wind speed and direction sensors appear to be in good condition and working normally.
- T700 alert: 07/16/2025 -2:10:29 PM System Reset. Warning raised when the system is reset.
- T200 alert: 07/16/2025 8:10:16 AM System Reset. Warning raised when the system is reset.
- T400 alert: 07/16/2025 8:10:00 AM System Reset. Warning raised when the system is reset.
- CH4, C3H8, SO2 and NO tank pressure 1625 psi and line pressure 33 psi.
- CH4 tank pressure 2000 psi and line pressure 35 psi.
- Nitrogen tank pressure 950 psi and line pressure 72 psi; need spare tank on site.
- Hydrogen tank pressure 1500 psi and line pressure 55 psi.

07/21/2025 - RT activities and weekly site check

Monday, July 21, 2025 4:45 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: July 21, 2025
Start Time: 16:44
End Time: 17:37
Technician: Adrienne Kaul

Reason for Visit

On site for RT activities and weekly site check

Description

Envidas logger:

-Clock was 1 second ahead, no adjustment was made.

-Windows updates downloaded and installed.

T700U Calibrator:

-Clock was 51 seconds ahead and was updated at 16:52; clock was 1 second behind after update.

T200 NOx:

-Clock was 52 seconds ahead and was updated at 17:19; clock was one second behind after update.

T400 O3:

-Clock was 52 seconds ahead and was updated at 17:19; clock was one second behind after update.

N901 CH4/THC:

-Clock accurate; no adjustment made.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- CH4, C3H8, SO2 and NO tank pressure 1625 psi and line pressure 32.5 psi.
- Nitrogen tank pressure 775 psi and line pressure 32 psi.
- Hydrogen tank pressure 1425 psi and line pressure 55 psi.
- CH4 tank pressure 2020 psi and line pressure 35 psi.
- T700 alert: 07/17/2025 8:38:21 AM System Reset. Warning raised when the system is reset.
- T200 NOx alert: 07/17/2025 8:38:17 AM System Reset. Warning raised when the system is reset.
- T400 O3 alert: 07/17/2025 8:38:14 AM System Reset. Warning raised when the system is reset.

07/29/2025 - MOE audit

Tuesday, July 29, 2025 9:22 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: July 29, 2025
Start Time: 9:22
End Time: 11:47
Technician: Adrienne Kaul, Paul Williams, and Jonathan Lai

Reason for Visit

On site for MOE site audits.

Description

All gas analyzer data flagged 9:22-11:33

Resecured all connections after the audit.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Nitrogen tank pressure at 500 psi; needs to be replaced in upcoming couple of weeks

07/30/2025 - RT Activities and new nitrogen tank installation

Wednesday, July 30, 2025 10:38 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: July 30, 2025
Start Time: 8:36
End Time: 11:55
Technician: Adrienne Kaul and Sarah Peden

Reason for Visit

On site for RT activities and Nitrogen tank installation for N901

Description

THC and 8:54-9:48 data flagged in Envidas for cylinder replacement.

-UHP Nitrogen cylinder 133508503 removed and cylinder 133517802 installed.

-Regulator purged before installation.

T700 Calibrator:

-Clock was 1 minute and 43 seconds ahead and updated at 11:32. One second behind after update.

N901 CH4/THC:

-Clock accurate, no adjustment made.

T400 O3:

-Clock was 1 minute and 42 seconds ahead and was updated at 11:36.

T200 NOx:

-Clock was 1 minute and 44 seconds ahead and was updated at 11:37.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 NO tank pressure: 1650 the line pressure is 32
- CH4 tank pressure: 2000psi the line pressure is 32.5
- Nitrogen tank pressure: 2630psi the line pressure is 70
- Hydrogen tank pressure: 1250psi the line pressure is 54

08/07/2025- Weekly site check

Thursday, August 7, 2025 1:33 PM

Riverlodge

Author of Entry: Nathan McMillan

Date of Activity: 08/07/2025
Start Time: 1258
End Time: 1354
Technician: Nathan McMillan

Reason for Visit

Weekly site check.

Description

Envidas logger:

Clock was accurate.

G2205 Clock was 23 seconds behind - synced and updated at 13:11.

T200 clock 91 seconds ahead - synced and updated at 1348.

T400 clock 94 seconds ahead - synced and updated at 1351.

N901 clock accurate.

T700 Calibrator:

-Clock was 91 seconds ahead and was updated at 1317.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, C3H8, CH4, and NO 1620 psi tank pressure and line pressure 30psi
- CH4 tank pressure 2000 psi and line pressure 36 psi.
- Nitrogen UHP tank pressure 2300 psi and line pressure 70 psi.
- Hydrogen UHP tank pressure 1100 psi and line pressure 54 psi.
- HF inline heater 63C at 1339

08/14/2025 - Inlet filter changes

Thursday, August 14, 2025 10:36 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: August 14, 2025
Start Time: 10:34
End Time: 13:50
Technician: Adrienne Kaul

Reason for Visit

On site to change inlet filters

Description

Daily ZPS interrupted and put in standby mode at ~10:46 due to maintenance activities already being in process.

NOx, THC/CH4/NMHC, and O3 data flagged 10:45-13:37:
- -NOx and O3 inlet filters changed.
- -All connections felt tight after filter change.
- -Filter preconditioning with 160 ppb SO2 @ 4 lpm 10:59-11:10.
- -RT activities

Envidas logger:
- -Clock was 2 seconds ahead.
- -Logger restarted at 11:05 to allow updates to take effect.
- -Clock 1 second ahead after restart-no adjustments made.

T200 NOx:
- -Clock was 80 seconds ahead and was updated at 12:59.

T400 O3:
- -Clock was 89 seconds ahead and was updated at 13:00.

N901 CH4/NMHC/THC:
- -Clock accurate within 1 second.

T700U Calibrator:
- -Powered off calibrator 13:01-13:02.
- -Clock was 5 seconds ahead and was updated at 13:07.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO_2, CH_4, C_3H_8, and NO tank pressure 1620 psi and line pressure 29 psi.
- CH_4 tank pressure 2000 psi and line pressure 37.5 psi.
- Nitrogen tank pressure 2040 psi and line pressure 70 psi.
- Hydrogen tank pressure 1000 psi and line pressure 34 psi.

08/19/2025 - RT activities and weekly site check

Tuesday, August 19, 2025 3:26 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: August 19, 2025
Start Time: 15:23
End Time: 16:13
Technician: Adrienne Kaul

Reason for Visit

RT activities and weekly site check

Description

Envidas:

-Clock was 1 second ahead and no adjustment was made.

T200 NOx:

-Clock was 58 seconds ahead and updated at 15:55.

T400 O3:

-Clock was 59 seconds ahead and was updated at 15:56.

N901 CH4/NMHC/THC:

-Clock accurate no adjustments made.

T700U Calibrator:

-Clock was 58 seconds ahead and was updated at 15:58.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1640 psi and line pressure 28 psi; increased to 30 psi.
- Nitrogen tank pressure 1850 psi and line pressure 70 psi.
- Hydrogen tank pressure 900 psi and line pressure 54 psi.
- CH4 tank pressure 2000 psi and line pressure 37.5 psi.
- Shelter temperature 26.4 C, within spec.
- Wind speed and direction sensors appear to be working normally.
- Ambient temperature aspirator sounds like it is working.

08/27/2025 - RT Activities

Wednesday, August 27, 2025 1:47 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: August 27, 2025
Start Time: 13:45
End Time: 17:18
Technician: Adrienne Kaul

Reason for Visit

On site for PM10 and PM2.5 maintenance

Description

Envidas logger:

-Clock was 1 second ahead, no adjustment made.

T700 Calibrator:

-Clock was 93 seconds ahead and was updated at 14:52.

-All gas analyzer data flagged 14:05-14:20 to troubleshoot MFC warning and reduce calibration tank line pressure.

-Reduced line pressure of SO2 combo tank.

T200 NOx:

-Clock was 91 seconds ahead and was updated at 13:56. Clock was 1 second ahead after adjustment.

T400 O3:

-Clock was 93 seconds ahead and was updated at 13:57.

N901 MNMTHC:

-Clock accurate.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- T700 alert: 08/20/2025 5:29:33 AM MFC pressure warning. MFC pressure warning.
- CH4, C3H8, SO2 and NO tank pressure 1100 psi and line pressure 34 psi; outlet pressure was adjusted.
- Nitrogen tank pressure 1575 psi and line pressure 70 psi.
- Hydrogen tank pressure 750 psi and line pressure 34 psi.
- CH4 tank pressure 2000 psi and line pressure 34 psi; outlet pressure was adjusted.

08/28/2025 - RT activities

Thursday, September 11, 2025 1:15 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: 08/28/2025
Start Time: 16:36
End Time: 16:46
Technician: Adrienne Kaul

Reason for Visit

Passive sample collections

Description

Shelter was not opened work activities were on roof.

Site Visit Checklist

- ☐ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☐ Zero air system pressure at 30 PSI
- ☐ Calibration gas cylinder pressure at 30 PSI
- ☐ Calibration gas tank pressure > 500 PSI
- ☐ Check for analyzer warnings: _____
- ☐ Check for calibrator warnings: _____
- ☐ Analyzer filters exchanged
- ☐ MFC checks performed (semi-annual)
- ☐ Inlet Teflon exchanged (annual)
- ☐ Zero Air media replaced (annual)
- ☐ Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- ☐ Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

09/04/2025 - Inlet filter change

Thursday, September 4, 2025 12:25 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: September 4, 2025
Start Time: 12:20
End Time: 13:20
Technician: Adrienne Kaul

Reason for Visit

On site to change inlet filters

Description

Envidas logger:

-Clock 1 second ahead, no adjustment made.

-Downloaded updates.

T700 Calibrator:

-Clock was 92 seconds ahead and was updated at 12:30.

T200 NOx:

-Clock was 93 seconds ahead and was updated at 12:32.

T400 O3:

-Clock was 93 seconds ahead and was updated at 12:33.

N901 CH4/NMHC/THC:

-Clock accurate, no adjustment was made.

NOx, O3, THC/NMHC/CH4:

-Data flagged 12:45-13:14 for NOx and O3 inlet filter changes.

-All connections to calibrator and analyzers and in manifold felt tight before and after filter change.

-Filters replaced with 1-2 um filter.

-NO running through system at 165 ppb 12:59-13:10

-NOx analyzer read 160.8 ppb with 164.9 ppb supplied by calibrator. Zero was Oxygen 21% spec gas.

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, C3H8, and CH4 tank pressure 1600 psi and line pressure 29 psi; line pressure increased to 30 psi.

- CH4 tank pressure 2000 psi and line pressure 40 psi.
- Nitrogen tank pressure 1280 psi and line pressure 50 psi.
- Hydrogen tank pressure 600 psi and line pressure 72.5 psi.
- Daily ZPS interrupted due to ongoing maintenance.

09/12/2025 - CH4/NMHC/THC supply gas adjustment and weekly check

Friday, September 12, 2025 2:22 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: September 12, 2025
Start Time: 14:18
End Time: 16:33
Technician: Adrienne Kaul

Reason for Visit

On site for CH4/NMHC/THC troubleshooting.

Description

N901 NMHC, THC, and CH4:

-Should be flagged from 15:30-16:08.

-Attempted to install additional regulator on carrier line but there was persistent leaks in some fittings. Reconnected lines to as found conditions and leak tested connections; no leaks were detected.

T400 O3:

-Clock updated at 16:17. Clock was ~1 minute and 37 seconds ahead before update. Clock was 1 second behind after update.

T200 NOx:

-Clock updated at 16:19. Clock was 1 minute and 37 seconds ahead before update. Clock was 1 second behind after update.

T700U Calibrator:

-Clock was 1 minute and 25 seconds ahead and was updated at 16:21. Clock was 1 second behind after update.

N901 CH4, THC, NMHC:

-Clock was 1 second ahead, no adjustment made.

Envidas:

-Clock 2 seconds ahead, no adjustment made.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- UHP Nitrogen line pressure 1040 psi and line pressure 70 psi.
- Hydrogen tank pressure 490 psi and line pressure 52.5 psi.

- SO_2, NO, CH_4, and C_3H_8 tank pressure 1600 psi and line pressure 32.5 psi.
- CH_4 tank pressure 2000 psi and line pressure 42 psi.

09/19/2025 - Weekly station check

Friday, September 19, 2025 9:02 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: September 19, 2025
Start Time: 8:50
End Time: 9:57
Technician: Adrienne Kaul

Reason for Visit

On site for weekly station check and RT activities.

Description

Envidas:

-Downloaded windows updates.

-Clock accurate no adjustment made.

-Logger restarted at 9:20 to allow updates to take effect.

T700 Calibrator:

-Clock was 75 seconds ahead and adjusted at 9:14.

T200 NOx:

-Clock was 76 seconds ahead and adjusted at 9:15.

T400 O3:

-Clock was 77 seconds ahead and adjusted at 9:16.

N901 THC/NMHC/CH4:

-Clock was 1 second behind and no adjustment was made.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, C3H8, and CH4 tank pressure 1600 psi and line pressure 33 psi.
- Nitrogen UHP tank pressure 800 psi and line pressure 70 psi.
- Hydrogen tank pressure 380 psi and line pressure 53 psi; tank needs to be replaced next week. There is a new tank already on site.

09/23/2025 - RT activities and weekly station checks

Tuesday, September 23, 2025 8:06 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: September 23, 2025
Start Time: 7:55; 12:25
End Time: 9:20; 15:15
Technician: Adrienne Kaul

Reason for Visit

On site for weekly station check and RT activities.

Description

Envidas:

-Clock was 1 second ahead and no adjustment was made.

All analyzers:

-Data accidentally flagged at 8:46, immediately removed flag.

O3 data:

-accidentally flagged at 8:48.

THC/NMHC/CH4:

-Data flagged 8:48-9:05 for hydrogen tank replacement.

-Hydrogen cylinder removed 206408202

-Hydrogen cylinder installed 206509403. Tank pressure 2425 and line pressure 50 psi. No leaks detected. Tank pressure 2450 psi before departure and line pressure 50 psi.

-Analyzer in standby mode at 8:49 and back in sampling mode at 9:03

-Clock accurate

T200 NOx:

-Clock was 50 seconds ahead and was updated at 12:41.

T400 O3:

-Clock was 50 seconds ahead and was updated at 12:42.

T700U Calibrator:

-Clock was 49 seconds ahead and was updated at 12:44.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, C3H8, and CH4 tank pressure 1600 psi and line pressure 33 psi.
- CH4 tank pressure 2000 psi and line pressure 40 psi.
- Nitrogen tank pressure 690 psi and line pressure 70 psi.

- Hydrogen tank pressure 200 psi and line pressure 30 psi; tank needs to be replaced today.

09/24/2025 - NOx/THC/O3 As Found MP

Wednesday, September 24, 2025 1:29 PM

Riverlodge

Author of Entry: Wyndam Lewis

Date of Activity: 9/24/25
Start Time: 1120
End Time: 1430
Technician: WL

Reason for Visit

Perform routine quarterly multipoint verifications.

Description

NOx/THC As found MP verification
O3 As found MP verification
Also performed RT activities

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

NITROGEN DIOXIDE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge **Date** 9/24/2025 **Start Time** 11:36
PROJECT 244501.0077 **Stop Time** 13:06
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API **Analyzer Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8599

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.42 ppm	**Model:**	T701
Serial #:	906	**Serial #:**	CC748570	**Serial #:**	2556
Cert Date:	4/25/2025	**Certification Date:**	7/8/2024	**Certification Date:**	5/16/2024
		Expiration Date:	7/8/2027		

	CAL INPUT (X)		CALC ACTUAL	DAS RESPONSE (Y)			CALCULATED (Y)					% DIFF
							[ORIG]		[REM]		[CONV]	
	NO (PPB)	O_3 (PPB)	$[NO_2]_A$ (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO (PPB)	NO_X (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO_2 (% OR PPB)
TITRATION	0.0	0.0	0.0	0.1	-0.1	-0.2	---	---	---	---	-0.16	-0.2 ppb
	300.0	250.0	280.3	19.5	304.4	284.9	300.2	300.3	19.9	299.7	279.69	1.6%
	300.0	150.0	172.2	129.7	300.8	171.1	300.2	300.3	128.0	296.2	168.03	-0.6%
	300.0	70.0	78.8	224.8	305.3	80.5	300.2	300.3	221.3	300.6	79.11	2.1%

NO TITRATION

300	0.0	---	305.1	305.0	-0.1

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$
$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9966 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)
*(m * 100) =* 99.7% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION		
Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
-0.4	0.29	0.1%
283.5	1.43	0.3%
173.9	-2.84	-0.6%
79.4	1.11	0.2%

Criteria: *All points within ±2% of calibration range of best-fit straight line*

Calibration Regression Analysis: *Corr. Analyzer Response (Y)=m(calib input(X))+b*

	NO_2		NO	NO_x
Slope (m)	1.0130	1.05 to 0.95	0.9815	0.9822
Intercept (b)	-0.4493	(≤ ± 10)	0.7108	0.7325
Correlation Coefficent (r)	0.99987	(≥ 0.995)	1.0000	1.0000
Average % Difference	1.06%		1.34%	1.26%

Calibrated By Wyndam Lewis = cell containing equations

NITROGEN OXIDES CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 9/24/2025 **Start Time** 11:36
Stop Time 13:06

Analyzer Mfg Teledyne-API
Analyzer Model T200
Analyzer s/n 8599

Analyzer Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 906
Cert Date: 4/25/2025

Gas: Linde
Concentration: 10.42 ppm
Serial #: CC748570
Certification Date: 7/8/2024
Expiration Date: 7/8/2027

Zero Air Source: T-API
Model: T701
Serial #: 2556
Certification Date: 5/16/2024

INPUT (X)	RESPONSE (Y)			NO	NO BEST-FIT DETERMINATION		
NO (PPB)	NO (PPB)	NO_2 (PPB)	NO_X (PPB)	% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.1	-0.2	-0.1	/	-0.7	0.78	0.2%
40.1	39.5	0.1	39.6	-1.4%	40.1	-0.60	-0.1%
89.9	90.5	0.1	90.7	0.7%	90.9	-0.37	-0.1%
139.9	141.8	-0.3	141.5	1.4%	141.8	-0.02	0.0%
200.1	203.2	-0.3	202.8	1.5%	203.2	0.05	0.0%
300.0	305.1	-0.1	305.0	1.7%	304.9	0.17	0.0%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: *All points within ±2% of calibration range of best-fit straight line*

NO_X	NO_X BEST-FIT DETERMINATION		
% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-0.7	0.64	0.1%
-1.2%	40.1	-0.48	-0.1%
0.9%	90.8	-0.09	0.0%
1.1%	141.7	-0.19	0.0%
1.3%	203.0	-0.18	0.0%
1.7%	304.7	0.30	0.1%

	NO	NO_x		NO	NO_x
Slope (m)	1.0189	1.0181	1.05 to 0.95	0.9815	0.9822
Intercept (b)	-0.7219	-0.7441	(≤ ± 10)	0.7108	0.7325
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	0.99999	0.99999
Average % Difference	0.77%	0.76%		1.34%	1.26%

Calibrated By Wyndam Lewis

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Template Revised 7/10/23

OZONE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 9/24/2025 **Start Time** 13:21
Stop Time 14:21

Analyzer Mfg Teledyne-API
Analyzer Model T400
Analyzer s/n 7487

Analyzer Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	N/A	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	N/A	**Model:**	T701
Serial #:	906	**Serial #:**	N/A	**Serial #:**	2556
Cert Date:	N/A	**Certification Date:**	N/A	**Certification Date:**	5/16/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard
m: 1
b: 0
r:
Calibration Date:

INPUT (Txfr Standard) Raw Input (PPB)	Corrected (X) (PPB)	RESPONSE (Y) (PPB)	% DIFF.	BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.0	0.4	/	0.4	0.03	0.0%
40.2	40.2	40.8	1.49%	40.9	-0.19	0.0%
89.9	89.9	91.6	1.89%	91.2	0.43	0.1%
150.5	150.5	152.7	1.46%	152.4	0.34	0.1%
249.6	249.6	252.8	1.28%	252.4	0.37	0.1%
399.8	399.80	404	1.05%	404.1	-0.09	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	1.010	1.05 to 0.95
Intercept(b)	0.399	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	1.44%	

COMMENTS

Calibrated By Wyndam Lewis

= cell containing equations

METHANE, NON-METHANE, TOTAL HYDROCARBON CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 9/24/2025 **Start Time** 11:36
Stop Time 13:06

Analyzer Mfg Teledyne-API
Analyzer Model N901
Analyzer s/n 80

Analyzer Range 0- 20 **PPM**

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 906
Cert Date: 4/25/2025

Audit Gas: Linde
Concentration: 616 ppm
Serial #: CC748570
Certification Date: 7/8/2024
Expiration Date: 7/8/2027

Zero Air Source: T-API
Model: T701
Serial #: 2556
Certification Date: 5/16/2024

METHANE			NON-METHANE HYDROCARBON			TOTAL HYDROCARBON		
CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.
0.000	0.000	---	0.000	0.061	---	0.000	0.061	---
2.370	2.409	1.6%	2.298	2.431	5.8%	4.667	4.840	3.7%
5.317	5.371	1.0%	5.156	5.446	5.6%	10.470	10.820	3.3%
8.270	8.310	0.5%	8.020	8.310	3.6%	16.290	16.610	2.0%
11.830	11.890	0.5%	11.470	11.820	3.1%	23.300	23.710	1.8%
17.740	17.780	0.2%	17.200	17.800	3.5%	34.930	35.580	1.9%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	CH_4	NMHC	THC	
Slope (m)	1.002	1.029	1.015	1.05 to 0.95
Intercept (b)	0.026	0.074	0.098	(≤ ± 10)
Correlation Coefficent (r)	1.0000	1.0000	1.0000	(≥ 0.995)
Average % Difference	0.78%	4.31%	2.53%	

Calibrated By Wyndam Lewis

= cell containing equations

09/27/2025 - RT Activities

Sunday, September 28, 2025 1:08 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: September 27, 2025
Start Time: 12:42
End Time: 12:53
Technician: Adrienne Kaul and Sarah Peden

Reason for Visit

RT Activities

Description

[describe what activities were performed during the maintenance]

Site Visit Checklist

- ☐ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☐ Zero air system pressure at 30 PSI
- ☐ Calibration gas cylinder pressure at 30 PSI
- ☐ Calibration gas tank pressure > 500 PSI
- ☐ Check for analyzer warnings: _____
- ☐ Check for calibrator warnings: _____
- ☐ Analyzer filters exchanged
- ☐ MFC checks performed (semi-annual)
- ☐ Inlet Teflon exchanged (annual)
- ☐ Zero Air media replaced (annual)
- ☐ Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- ☐ Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

TETRA TECH

TECHNICAL MEMO

ISSUED FOR REVIEW

To:	Tauseef Zia Siddiqui	**Date:**	October 16, 2025
File:	704-ENW.GENV03699-03	**Memo No.:**	Q3 2025
From:	Tetra Tech Canada Inc.		
Subject:	PA-110588 - Passive NO_2 Monitoring Results for Q3 2025 Document Control #: L001-00000-HE-0702-1006		

This 'Issued for Review' document is provided solely for the purpose of client review and presents our interim findings and recommendations to date. Our usable findings and recommendations are provided only through an 'Issued for Use' document, which will be issued subsequent to this review. Final design should not be undertaken based on the interim recommendations made herein. Once our report is issued for use, the 'Issued for Review' document should be either returned to Tetra Tech Canada Inc. (Tetra Tech) or destroyed.

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNGC facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQDMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region. The passive sampling results have been collected over a period of 30 days (+/- 4 days as per the B.C. Field Sampling Manual – Part B1 Ambient Air Quality Monitoring, Reference No: SOP-07, Standard Operating Procedure for the Passive/Diffusive Method of Air Sample Collection) and compiled into monthly reports. The passive sampling This memorandum provides a summary of the results for this past quarter that covers the July, August, and September 2025 sampling periods of Monitoring Year 2 (MY2). The monthly reports are attached in Appendix B.

2.0 PASSIVE MONITORING RESULTS

The passively measured 30-day average NO_2 concentrations during each sample deployment over the quarterly period (July to September 2025) are summarized for each monitoring location in Table 1.

Tetra Tech Canada Inc.
Suite 1000 – 10th Floor, 885 Dunsmuir Street
Vancouver, BC V6C 1N5 CANADA
Tel 604.685.0275 Fax 604.684.6241

Table 1: Passive NO_2 Sampling Results (July – September 2025)

Passive Sampler Location	30-day Average NO_2 Concentration (ppb)		
	July 2025	August 2025	September 2025
Lakelse Lake A04	0.1	0.2	0.2
V01	0.2	0.2	0.3
KHV-2	0.2	0.2	0.2
KHV-1	0.1*	0.2*	0.3*
V10B	0.8	1.2	1.1
V12	0.3	0.6	0.4
V08	0.6	0.4	0.5
V06	0.6	0.5	0.5**
V05	0.6	0.5	0.5
Kitimat Industrial (V14)	1.6	1.3	1.6
***Predicted Maximum NO_2	0.4	0.5	0.8****
Kitimat Riverlodge	0.5	1.0	0.9
Kitimat Whitesail	0.2	0.3	0.4

* Sampling station 'KHV-1' was found knocked over on July 31, it was assumed to have been displaced by a vehicle at some unknown date during the July deployment period. The temporary placement of the station is located 2-3 m east and 0.7 m lower than its original location during the August sampling period.

** A duplicate sample for location V06 was unable to be analyzed due to a damaged sampler

*** Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum concentration of NO_2 inclusive of facility emissions within Kitimat.

**** A duplicate sample concentration for location 'Predicted Maximum NO_2' was removed due to suspected analytical error or sampler contamination.

The highest 30-day average NO_2 concentration measured over the quarterly period was 1.6 ppb at the Kitimat Industrial (V14) sample location, located north of the LNGC facility. While there is no 30-day Provincial Air Quality Objective for NO_2, the annual criterion is 17 ppb, which provides an indicator for the passively measured 30-day NO_2 concentrations.

2.1 Cumulative Summary of Monitoring

Figure 1 plots the passively measured 30-day NO_2 concentration by month at several stations through the network.

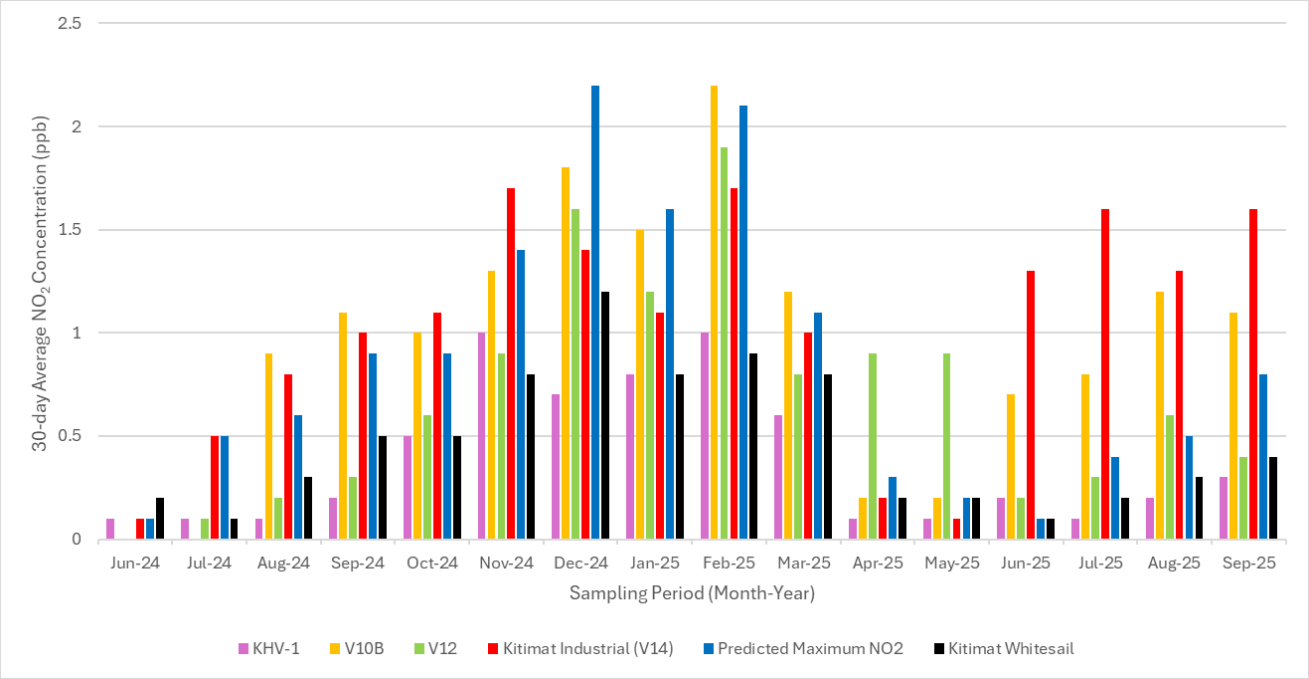

Figure 1: Passive NO_2 Concentrations – June 2024 to September 2025

Figure 2 shows a time series plot of passively measured 30-day NO_2 concentrations at Kitimat Industrial (V14) and the Predicted Maximum NO_2 station over the duration of the survey.

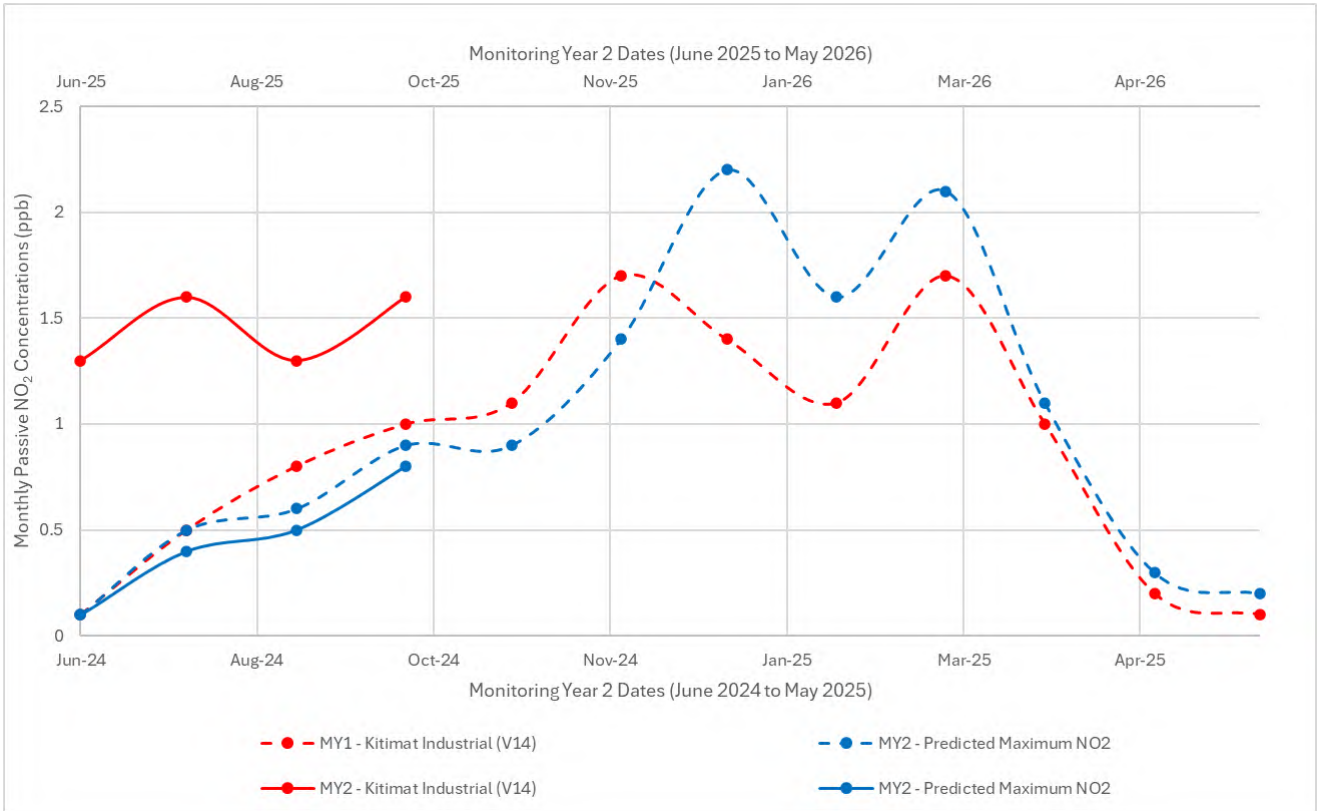

Figure 2: Passive NO_2 Concentrations – Monitoring Year 1 (MY1) vs. Monitoring Year 2 (MY2)

3.0 SAMPLING COMPLETENESS

All passive samples were collected successfully over the quarterly period, except for KHV-1 and V06.

- July 31 during the sampler retrievals, the pole from which station KHV-1 was mounted was discovered lying on the ground. It was assumed to have been knocked down by a vehicle at an unknown date during the July deployment period. The housing was still attached with samplers inside. The samplers were retrieved, the housing removed and then placed on a nearby fence post temporarily until the damaged post can be repaired and the housing mounted at its original location. The temporary placement for the KHV-1 housing is located approximately 2-3 m to the east of its original location, at approximately 2.3 m above ground.
- During sampler retrievals, a duplicate sampler at location V06 was observed with a damaged membrane. As a result, only one passive sampler was able to analyzed, meaning there is no redundant measurement at this location for September.
- One of the samples from location 'Predicted Maximum NO_2' was reported by the lab as <0.1 ppb, or below the laboratory detection limit, while the other sample measured 0.8 ppb, similar to what was measured in September 2024. The below detection sample was assumed by Tetra Tech as invalid due to suspected analytical error or sampler contamination and the single measurement was assumed for September.

4.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

5.0 CLOSURE

We trust this technical memo meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

ISSUED FOR REVIEW

704-ENW.GENV03699-03
704-ENW.GENV03699-03
704-ENW.GENV03699-03

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ISSUED FOR REVIEW

704-ENW.GENV03699-03
704-ENW.GENV03699-03
704-ENW.GENV03699-03

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ISSUED FOR REVIEW

704-ENW.GENV03699-03
704-ENW.GENV03699-03
704-ENW.GENV03699-03

Reviewed by:
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/sy

Attachments Appendix A – Limitations on the Use of this Document
Appendix B – Monthly Reports

REFERENCES

Bender, Q. (2025, June 6). *LNG Canada responds to flaring-smoke concerns at Kitimat Site*. Terrace Standard. https://www.terracestandard.com/local-news/lng-canada-responds-to-flaring-smoke-concerns-at-kitimat-site-8053354

LNG Canada Development Inc. (2025a, July 30). *Community Notification: Flaring Activity.* LNG Canada. https://www.lngcanada.ca/news/community-notification-flaring-activity-3/

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APPENDIX A

LIMITATIONS ON THE USE OF THIS DOCUMENT

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GEOENVIRONMENTAL

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APPENDIX B

MONTHLY REPORTS

JULY 2025 REPORT

TETRA TECH

ISSUED FOR USE
September 5, 2025 FILE: 704-ENW.GENV03699-03

LNG Canada

Via Email: Tauseef-ZIA.Siddiqui@lngcanada.ca
KIT-Regulatory-Compliance@lngcanada.ca

Attention: Tauseef Zia Siddiqui

Subject: Passive Monitoring for Nitrogen Dioxide – LNG Canada – July 2025
Document Control #: L001-00000-HE-0702-1009 – Rev 0

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNG facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQDMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region as described in Table 1. The spatial distribution of the passive monitoring station network through the Kitimat Valley is shown on the attached Figure 1.

Table 1: LNGC's Passive NO_2 Monitoring Network

Site	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Lakelse Lake A04	527457	6025573	2.2
V01	524757	6017435	2.1
KHV-2	523357	5980636	3.0
KHV-1*	522919	5980606	3.0
V10B	519425	5984090	3.0
V12	517790	5977294	2.0
V08	521425	5994249	2.0
V06	520970	5996240	2.0
V05	520457	5999250	2.0
Kitimat Industrial	520424	5990356	3.0
Predicted Maximum NO_2	522463	5989506	3.0
Kitimat Riverlodge	521536	5989486	3.0
Kitimat Whitesail	523612	5990998	3.0

*Sampling station 'KHV-1' was found knocked over on July 31, it was assumed to have been displaced by a vehicle at some unknown date during the July deployment period.

Tetra Tech Canada Inc.
Unit 2, 4065 Motz Road
Terrace, BC V8G 3N1
Tel 778.309.1605

The sampling methodology adheres to protocols described in the document '*Standard Operating Procedure (SOP) – Passive Monitoring for Nitrogen Dioxide (NO_2)*', dated March 2024. More information on the sampling methodology can be found in this document.

2.0 AMBIENT CONDITIONS DURING DEPLOYMENT PERIOD

Winds

Winds were dominated by inflow conditions over the period June 30 through July 31, 2025 as the prevalent summer pattern has established through the valley and connected waterways. Figure 1 shows wind roses for hourly wind observations during the July sampler deployment period at ENV-AQN Kitimat Whitesail and Terrace Airport.

Precipitation

57.4 mm of precipitation was recorded between June 30 through July 31 at ECCC Kitimat Forest Avenue. 25.9 mm of precipitation was recorded at ECCC Terrace A. Comparing to precipitation normals, these totals are slightly below average for July in Kitimat by 5 mm, and below average for July in Terrace by 26.9 mm.

Air Quality – Nitrogen Dioxide

NO_2 is continuously measured and reported on an hourly basis at ENV-AQN station Kitimat Whitesail. Over the June deployment period (June 30 – July 31), the maximum 1-hour NO_2 concentration was 5.9 ppb, or 9.8 % of the British Columbia Air Quality Objective (BCAQO) of 60 ppb. The 30-day average NO_2 concentration, taken as the average of all available one-hour measurements during the sampling period, was 0.4 ppb. While there is no 30-day BCAQO, the annual criterion is 17 ppb, which provides another indicator of ambient air quality with respect to NO_2. There were 37 hours of missing data out of 730 hours, or 95% data completeness. Figure 2 plots the 1-hour NO_2 concentration over the sampling period.

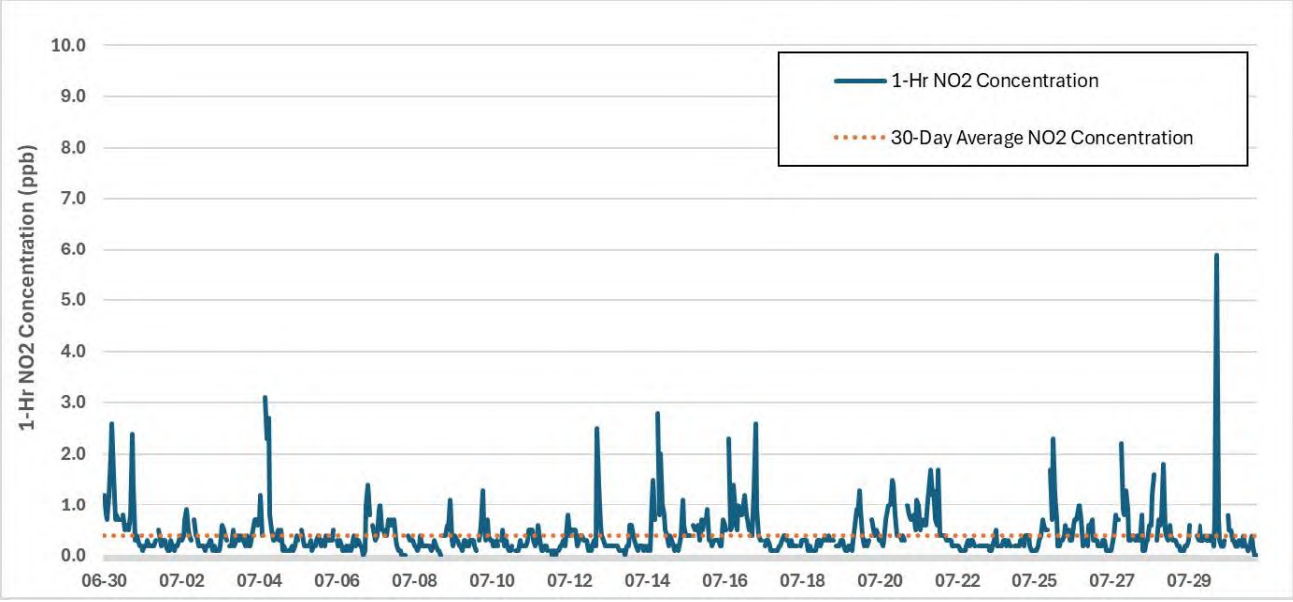

Figure 2: 1-Hr NO_2 Readings at ENV-AQN Kitimat Whitesail (June 30 – July 31)

3.0 PASSIVE MONITORING RESULTS

The passively measured 30-day NO_2 concentrations are listed for each site in Table 2. The 30-day NO_2 concentration based on continuous measurement is also listed for Kitimat Whitesail, as a measure of validation of the sampling results. Each site's housing utilizes two samplers for statistical redundancy, the mean of which is used as the overall measurement.

The measured 30-day NO_2 concentrations are shown through the study area on Figure 1. The highest reading in July 2025 occurred along the northwest side of town at the Kitimat Industrial (V14) sample location, north of the LNGC facility. This reading was higher than was measured between March and June for V14, while concentrations at the other stations through Kitimat followed the noted seasonal downward trend from higher concentrations observed during the winter months. The second highest reading was at V10B, directly south of the LNGC facility. Overall, July concentrations were slightly higher than the summer months of 2024, however, were slightly lower in comparison to the previous month of June.

Throughout the monitoring program, the measured NO_2 concentrations have been well below any representative (e.g., annual) criteria, with lower concentrations generally being observed in the summer and higher concentrations observed in the winter, likely attributed to the seasonality of atmospheric mixing conditions and seasonal differences in community-based sources of combustion.

However, the spatial pattern observed in the network data in July 2025 should be noted, as it represents a pattern not previously observed, with the highest readings measured at the two stations nearest LNGC, the highest in the prevalent downwind direction (north of LNGC along the west side of the valley), while lower concentrations were measured at all other passive stations in Kitimat.

The LNGC facility began routine flaring for commissioning work on the boil-off gas compressor. The flaring is understood to have started in early June and is projected to continue through July 31. Tetra Tech understands that as of June 1, the LNGC facility has been in "operations" mode, and the flaring leading up to July was in preparation for this operational change.

Bureau Veritas Passive Sampling Laboratory Report is attached in Appendix B.

Table 2: Passive NO_2 Sampling Results (July 2025)

Site	Start	End	Duration (Days)	30-day NO_2 Concentration (ppb)			St. Dev	30 Day NO_2
				Sample 1	Sample 2	Mean		
Lakelse Lake A04	2025/06/30 08:30	2025/07/31 08:35	30.0	0.1	<0.1	0.1	0	
V01	2025/06/30 09:15	2025/07/31 09:30	30.0	0.2	0.2	0.2	0	
KHV-2	2025/06/30 10:15	2025/07/31 10:20	30.0	0.2	0.2	0.2	0	
KHV-1*	2025/06/30 10:10	2025/07/31 10:15	30.0	0.1	0.1	0.1	0	
V10B	2025/06/30 10:40	2025/07/31 11:00	30.0	0.8	0.8	0.8	0	
V12	2025/06/30 10:55	2025/07/31 11:15	30.0	0.3	0.2	0.3	0.1	
V08	2025/06/30 11:25	2025/07/31 11:50	30.0	0.6	0.6	0.6	0	
V06	2025/06/30 11:35	2025/07/31 11:55	30.0	0.6	0.5	0.6	0.1	
V05	2025/06/30 11:45	2025/07/31 12:05	30.0	0.6	0.5	0.6	0.1	
Kitimat Industrial (V14)	2025/06/30 12:05	2025/07/31 12:35	30.0	1.6	1.5	1.6	0.1	
**Predicted Maximum NO_2	2025/06/30 12:30	2025/07/31 13:00	30.0	0.4	0.4	0.4	0	
Kitimat Riverlodge	2025/06/30 12:20	2025/07/31 12:45	30.0	0.4	0.5	0.5	0.1	
Kitimat Whitesail	2025/06/30 12:45	2025/07/31 13:15	30.0	0.2	0.2	0.2	0	0.4

*Sampling station 'KHV-1' was found knocked over on July 31, it was assumed to have been displaced by a vehicle at some unknown date during the July deployment period.
**Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum ground level concentration of NO_2 inclusive of facility emissions within Kitimat.

4.0 SAMPLING PROGRAM ANOMOLIES

There was one sampling program anomaly to note during the July deployment period, as follows. On July 31 during the sampler retrievals, the pole from which station KHV-1 was mounted was discovered lying on the ground. It was assumed to have been knocked down by a vehicle at an unknown date during the July deployment period. The housing was still attached with samplers inside. The samplers were retrieved, the housing removed and then placed on a nearby fence post temporarily until the damaged post can be repaired and the housing mounted at its original location. The temporary placement for the KHV-1 housing is located approximately 2-3 m to the east of its original location, at approximately 2.3 m above ground.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

FILE: 704-ENW.GENV03699-03
FILE: 704-ENW.GENV03699-03
FILE: 704-ENW.GENV03699-03

Prepared by:
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/sy

Attachments Figure 1. Mean 30-day NO_2 Concentration July 2025
Appendix A – Limitations on the Use of this Document
Appendix B – Bureau Veritas Passive Sampling Laboratory Report

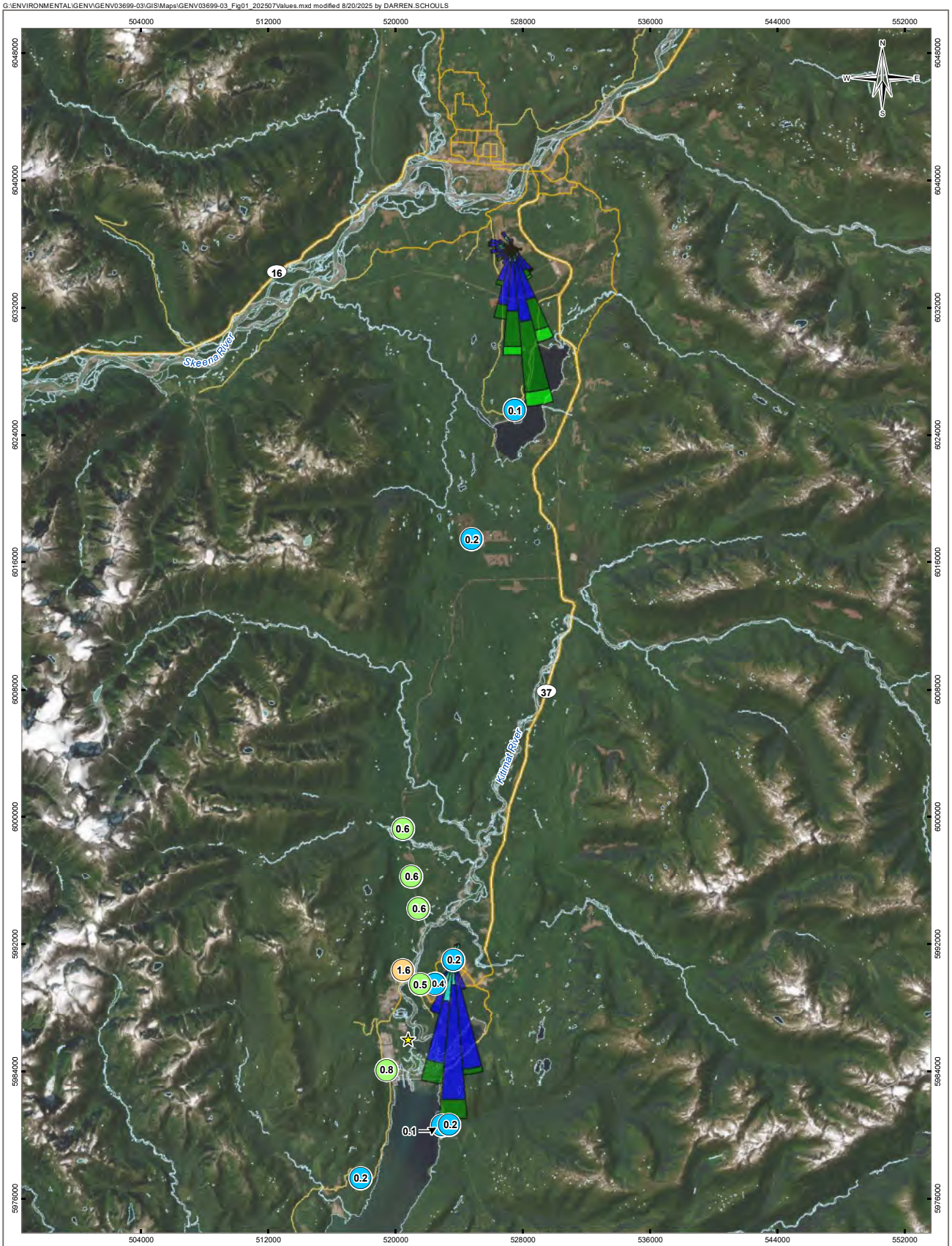
REFERENCES

Bender, Q. (2025, July 6). *LNG Canada responds to flaring-smoke concerns at Kitimat Site*. Terrace Standard. https://www.terracestandard.com/local-news/lng-canada-responds-to-flaring-smoke-concerns-at-kitimat-site-8053354

FIGURES

Figure 1 Mean 30-day NO_2 Concentration July 2025

G:\ENVIRONMENTAL\GENV\GENV03699-03\GIS\Maps\GENV03699-03_Fig01_202507Values.mxd modified 8/20/2025 by DARREN.SCHOULS



LEGEND

Mean 30-Day NO_2 Concentration (ppb)

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0

- LNGC Site
- Highway
- Main Road
- Local Road
- Watercourse/Waterbody

Rose Plot - Wind (m/s)

- 1 - 3
- 3 - 6
- 6 - 9
- 9 - 12

NOTES
Base data source:
Imagery from ESRI; Maxar
CanVec 1:250,000 (2019)

STATUS
ISSUED FOR USE

LNGC NO2 PASSIVE MONITORING

Mean 30-day NO2 Concentration July 2025

PROJECTION UTM Zone 9	**DATUM** NAD83	**CLIENT** Haisla Triton Ltd.
Scale: 1:225,000 (4 2 0 4 Kilometres)		
FILE NO. GENV03699-03_Fig01_202507Values.mxd		TETRA TECH
OFFICE Tt-VANC	**DWN** DS / **CKD** MRB / **APVD** TM / **REV** 0	Figure 1
DATE August 20, 2025	**PROJECT NO.** ENW.GENV03699-03	

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APPENDIX B

BUREAU VERITAS PASSIVE SAMPLING LABORATORY REPORT

Your P.O. #: 704-ENW.GENV03699-03.002
Your Project #: NO2 MONITORING
Site Location: 2025/06/30-2025/07/31

Attention: Travis Miguez

Tetra Tech Canada Inc.
#2 4065 Motz Road
Terrace, BC
CANADA V8G 3N1

Report Date: 2025/08/18
Report #: R3684869
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: G503663
Received: 2025/08/07, 09:30

Sample Matrix: Air
Samples Received: 26

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	25	2025/08/11	2025/08/14	PTC SOP-00148	Passive NO2 in ATM
NO2 Passive Analysis	1	2025/08/08	2025/08/14	PTC SOP-00148	Passive NO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Rowena Geron
Customer Service Associate
18 Aug 2025 08:09:26

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Branko Banjac, General Manager responsible for Alberta Petroleum laboratory operations.

Bureau Veritas Job #: G503663
Report Date: 2025/08/18

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/06/30-2025/07/31
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DOF750	DOF751	DOF752	DOF753	DOF754	DOF755		
Sampling Date		2025/06/30 08:30	2025/06/30 08:30	2025/06/30 09:15	2025/06/30 09:15	2025/06/30 10:10	2025/06/30 10:10		
	UNITS	#1 LAKELSE LAKE	#2 LAKELSE LAKE-DUP	#3 VO1	#4 VO1-DUP	#5 KHV-1	#6 KHV-1-DUP	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.1	<0.1	0.2	0.2	0.1	0.1	0.1	C019947
RDL = Reportable Detection Limit									

Bureau Veritas ID		DOF756	DOF757	DOF758	DOF759	DOF760	DOF761	DOF762		
Sampling Date		2025/06/30 10:15	2025/06/30 10:15	2025/06/30 10:40	2025/06/30 10:40	2025/06/30 10:55	2025/06/30 10:55	2025/06/30 11:25		
	UNITS	#7 KHV-2	#8 KHV-2-DUP	#9 V10B	#10 V10B-DUP	#11 V12	#12 V12-DUP	#13 V08	RDL	QC Batch
Passive Monitoring										
Calculated NO2	ppb	0.2	0.2	0.8	0.8	0.3	0.2	0.6	0.1	C019947
RDL = Reportable Detection Limit										

Bureau Veritas ID		DOF763	DOF764	DOF765	DOF766	DOF767	DOF768		
Sampling Date		2025/06/30 11:25	2025/06/30 11:35	2025/06/30 11:35	2025/06/30 11:45	2025/06/30 11:45	2025/06/30 12:05		
	UNITS	#14 V08-DUP	#15 V06	#16 V06-DUP	#17 V05	#18 V05-DUP	#19 Kitimat Industrial	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.6	0.6	0.5	0.6	0.5	1.6	0.1	C019947
RDL = Reportable Detection Limit									

Bureau Veritas ID		DOF769		DOF770	DOF771		
Sampling Date		2025/06/30 12:05		2025/06/30 12:20	2025/06/30 12:20		
	UNITS	#20Kitimat Industrial-DUP	QC Batch	#21 Kitimat Riverlodge	#22Kitimat Riverlodge -DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	1.5	C019947	0.4	0.5	0.1	C019946
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G503663
Report Date: 2025/08/18

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/06/30-2025/07/31
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DOF772	DOF773	DOF774	DOF775		
Sampling Date		2025/06/30 12:30	2025/06/30 12:30	2025/06/30 12:45	2025/06/30 12:45		
	UNITS	#23 Predicted Max	#24 Predicted Max-DUP	#25 Kitimat Whitesail	#26 Kitimat Whitesail-DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	0.4	0.4	0.2	0.2	0.1	C019946
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G503663
Report Date: 2025/08/18

QUALITY ASSURANCE REPORT

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/06/30-2025/07/31
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

			Spiked Blank		Method Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	UNITS
C019946	Calculated NO2		98	90 - 110	<0.1	ppb
C019947	Calculated NO2		98	90 - 110	<0.1	ppb

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

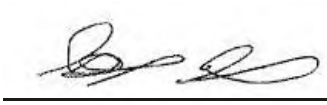
Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G503663
Report Date: 2025/08/18

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/06/30-2025/07/31
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Steven Gloux, Laboratory Supervisor

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Branko Banjac, General Manager responsible for Alberta Petroleum laboratory operations.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

AUGUST 2025 REPORT

TETRA TECH

ISSUED FOR USE

October 8, 2025

FILE: 704-ENW.GENV03699-03

LNG Canada Development Inc.

Via Email: Tauseef-ZIA.Siddiqui@lngcanada.ca
KIT-Regulatory-Compliance@lngcanada.ca

Attention: Tauseef Zia Siddiqui

Subject: Passive Monitoring for Nitrogen Dioxide – LNG Canada – August 2025
Document Control #: L001-00000-HE-0702-1009 - Rev 1

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada Development Inc. (LNGC). The monitoring is part of the LNGC Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNGC receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNGC facility emissions, particularly the contribution of nitrogen to the environment. LNGC's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQDMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region as described in Table 1. The spatial distribution of the passive monitoring station network through the Kitimat Valley is shown on the attached Figure 1.

Tetra Tech Canada Inc.
Unit 2, 4065 Motz Road
Terrace, BC V8G 3N1
Tel 778.309.1605

Table 1: LNGC's Passive NO_2 Monitoring Network

Site	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Lakelse Lake A04	527457	6025573	2.2
V01	524757	6017435	2.1
KHV-2	523357	5980636	3.0
KHV-1*	522922	5980606	2.3
V10B	519425	5984090	3.0
V12	517790	5977294	2.0
V08	521425	5994249	2.0
V06	520970	5996240	2.0
V05	520457	5999250	2.0
Kitimat Industrial	520424	5990356	3.0
Predicted Maximum NO_2	522463	5989506	3.0
Kitimat Riverlodge	521536	5989486	3.0
Kitimat Whitesail	523612	5990998	3.0

*Sampling station 'KHV-1' was found knocked over on July 31, it was assumed to have been displaced by a vehicle at some unknown date during the July deployment period. Sampler coordinates and height listed are approximate location of temporary placement until the station can be repaired.

The sampling methodology adheres to protocols described in the document '*Standard Operating Procedure (SOP) – Passive Monitoring for Nitrogen Dioxide (NO_2)*', dated March 2024. More information on the sampling methodology can be found in this document.

2.0 AMBIENT CONDITIONS DURING DEPLOYMENT PERIOD

Winds

Winds were dominated by inflow conditions over the period July 31 through August 29, 2025, the prevalent summer pattern, however outflows were observed with higher occurrence than during the summer months as the autumn/winter pattern is beginning to establish itself through the region. Figure 1 shows wind roses for hourly wind observations during the August sampler deployment period at ENV-AQN Kitimat Whitesail and Terrace Airport.

Precipitation

86.0 mm of precipitation was recorded between July 31 through August 29 at ECCC Kitimat Forest Avenue. 55.1 mm of precipitation was recorded at ECCC Terrace A. Comparing to precipitation normals, these totals are slightly below average for August in Kitimat by 9.7 mm and Terrace by 6.1 mm.

Air Quality – Nitrogen Dioxide

NO_2 is continuously measured and reported on an hourly basis at ENV-AQN station Kitimat Whitesail. Over the August deployment period (July 31 – August 29), the maximum 1-hour NO_2 concentration was 4.1 ppb, or 6.8 % of the British Columbia Air Quality Objective (BCAQO) of 60 ppb. The 30-day average NO_2 concentration, taken as the average of all available one-hour measurements during the sampling period, was 0.6 ppb. While there is no 30-day BCAQO, the annual criterion is 17 ppb, which provides another indicator of ambient air quality with respect to NO_2. There were 36 hours of missing data out of 683 hours, or 95% data completeness. Figure 2 plots the 1-hour NO_2 concentration over the sampling period.

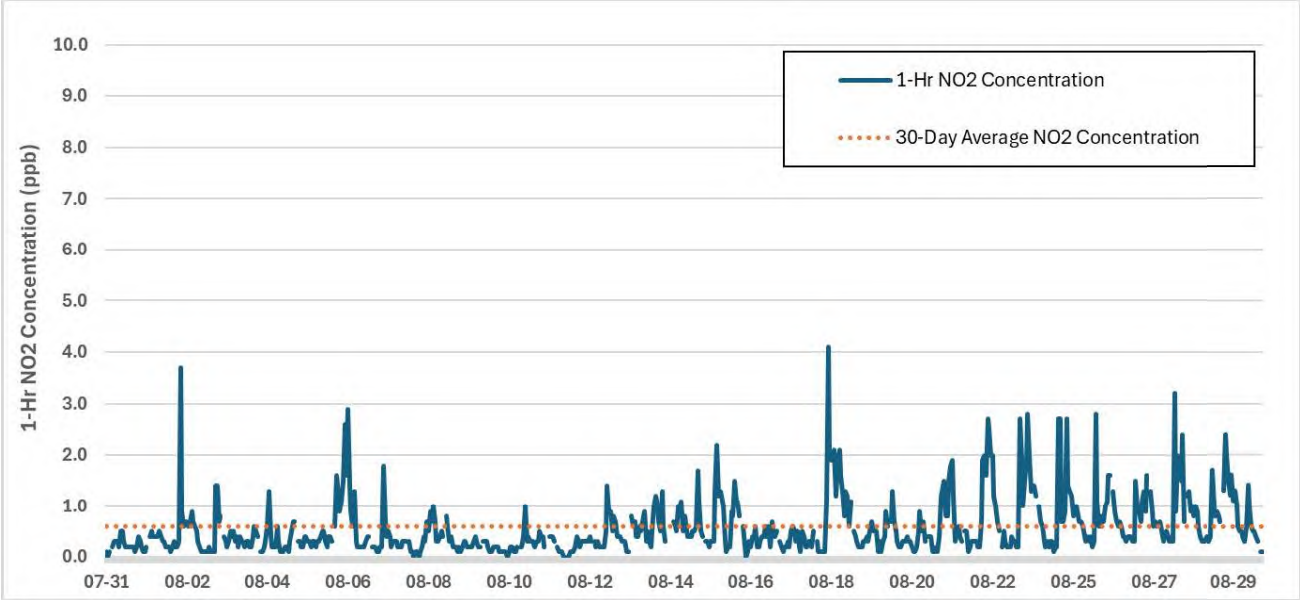


Figure 2: 1-Hr NO_2 Readings at ENV-AQN Kitimat Whitesail (July 31 – August 29)

3.0 PASSIVE MONITORING RESULTS

The passively measured 30-day NO_2 concentrations are listed for each site in Table 2. The 30-day NO_2 concentration based on continuous measurement is also listed for Kitimat Whitesail, as a measure of validation of the sampling results. Each site's housing utilizes two samplers for statistical redundancy, the mean of which is used as the overall measurement.

The measured 30-day NO_2 concentrations are shown through the study area on Figure 1. The highest reading in August 2025 occurred along the northwest side of town at the Kitimat Industrial (V14) sample location, north of the LNGC facility. This reading was lower than was measured in July, equal to the concentration measured in June, and higher than concentrations measured between March and May for V14.

The second highest 30-day NO_2 concentration measured in August was directly south of the LNGC facility at the V10B sample location. V10B has been the second highest reading since June 2025 and has seen consecutively higher concentrations each month following. The August 2025 concentration measured at V10B is higher than concentrations in April and May, and equal to the concentration measured in March of 2025.

The other stations through Kitimat followed the noted seasonal downward trend from higher concentrations observed during the winter months. Overall, August concentrations were slightly higher than the summer months of 2024, however, were slightly lower in comparison to the previous month of July.

Throughout the monitoring program, the measured NO_2 concentrations have been well below any representative (e.g., annual) criteria, with lower concentrations generally being observed in the summer and higher concentrations observed in the winter, likely attributed to the seasonality of atmospheric mixing conditions and seasonal differences in community-based sources of combustion.

The LNGC facility began routine flaring for commissioning work on the boil-off gas compressor. The flaring is understood to have occurred from early June through July 31 (Bender 2025). Tetra Tech understands from August 1 through 31, a new flaring activity occurred as art of the start-up of “Train 1, String 2.” LNGC reported that the flaring activities are a safety measure for specific operation phases and is not expected to be routine during regular operations (LNGC 2025a). Additional notifications by LNGC included a new flaring activity between August 7 and 12 associated with the scheduled inline inspection of the Coastal GasLink pipeline (LNGC 2024b); a planned flaring activity between August 11 and 13 associated with the restart of Train 1 (LNGC 2025c); and an unplanned flaring event that occurred on August 22 (LNGC 2025d).

Bureau Veritas Passive Sampling Laboratory Report is attached in Appendix B.

Table 2: Passive NO_2 Sampling Results (August 2025)

Site	Start	End	Duration (Days)	30-day NO_2 Concentration (ppb)			St. Dev	30 Day NO_2
				Sample 1	Sample 2	Mean		
Lakelse Lake A04	2025/07/31 08:35	2025/08/29 09:00	29.0	0.2	0.2	0.2	0	
V01	2025/07/31 09:30	2025/08/29 09:50	29.0	0.2	0.2	0.2	0	
KHV-2	2025/07/31 10:20	2025/08/29 10:50	29.0	0.2	0.2	0.2	0	
KHV-1*	2025/07/31 10:15	2025/08/29 10:45	29.0	0.2	0.2	0.2	0	
V10B	2025/07/31 11:00	2025/08/29 11:25	29.0	1.2	1.2	1.2	0	
V12	2025/07/31 11:15	2025/08/29 11:45	29.0	0.5	0.6	0.6	0.1	
V08	2025/07/31 11:50	2025/08/29 12:15	29.0	0.4	0.4	0.4	0	
V06	2025/07/31 11:55	2025/08/29 12:20	29.0	0.5	0.5	0.5	0	
V05	2025/07/31 12:05	2025/08/29 12:30	29.0	0.5	0.5	0.5	0	
Kitimat Industrial (V14)	2025/07/31 12:35	2025/08/29 13:00	29.0	1.2	1.4	1.3	0.1	
**Predicted Maximum NO_2	2025/07/31 13:00	2025/08/29 13:25	29.0	0.5	0.5	0.5	0	
Kitimat Riverlodge	2025/07/31 12:45	2025/08/29 13:15	29.0	0.9	1.1	1.0	0.1	
Kitimat Whitesail	2025/07/31 13:15	2025/08/29 13:35	29.0	0.2	0.3	0.3	0.1	0.6

*Sampling station 'KHV-1' was found knocked over on July 31, it was assumed to have been displaced by a vehicle at some unknown date during the July deployment period. The temporary placement of the station is located 2-3 m east and 0.7 m lower than its original location during the August sampling period.

**Sampling station 'Predicted Maximum NO2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum ground level concentration of NO2 inclusive of facility emissions within Kitimat.

4.0 SAMPLING PROGRAM ANOMALIES

There was one sampling program anomaly to note during the August deployment period, as follows. On July 31 during the sampler retrievals, the pole from which station KHV-1 was mounted was discovered lying on the ground. It was assumed to have been knocked down by a vehicle at an unknown date during the July deployment period. The housing was still attached with samplers inside. The samplers were retrieved, the housing removed and then placed on a nearby fence post temporarily until the damaged post can be repaired and the housing mounted at its original location. The temporary placement for the KHV-1 housing is located approximately 2-3 m to the east of its original location, at approximately 2.3 m above ground.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada Development Inc. and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada Development Inc., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in Appendix A or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

Prepared by:
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Junior Environmental Engineer-in-Training
Environment & Water Practice
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PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
P. W. GARDNER
40828
2025-10-09

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
PERMIT NUMBER: 1001972

Reviewed by:
Paul Gardner, M.A.Sc., P.Eng.
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/ces:sy

Attachments Figure 1: Mean 30-day NO_2 Concentration August 2025
Appendix A: Tetra Tech's Limitations on the Use of this Document
Appendix B: Bureau Veritas Passive Sampling Laboratory Report

REFERENCES

Bender, Q. (2025, June 6). *LNG Canada responds to flaring-smoke concerns at Kitimat Site*. Terrace Standard. https://www.terracestandard.com/local-news/lng-canada-responds-to-flaring-smoke-concerns-at-kitimat-site-8053354

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LNG Canada Development Inc. (2025b, August 7). *Community Notification: Flaring Activity.* LNG Canada. https://www.lngcanada.ca/news/community-notification-flaring-activity-4/

LNG Canada Development Inc. (2025c, August 11). *Community Notification: Flaring Activity.* LNG Canada. https://www.lngcanada.ca/news/community-notification-flaring/

LNG Canada Development Inc. (2025d, August 23). *Community Notification: Flaring Activity.* LNG Canada. https://www.lngcanada.ca/news/community-notification-flaring-2/

FIGURE

Figure 1 Mean 30-day NO_2 Concentration August 2025

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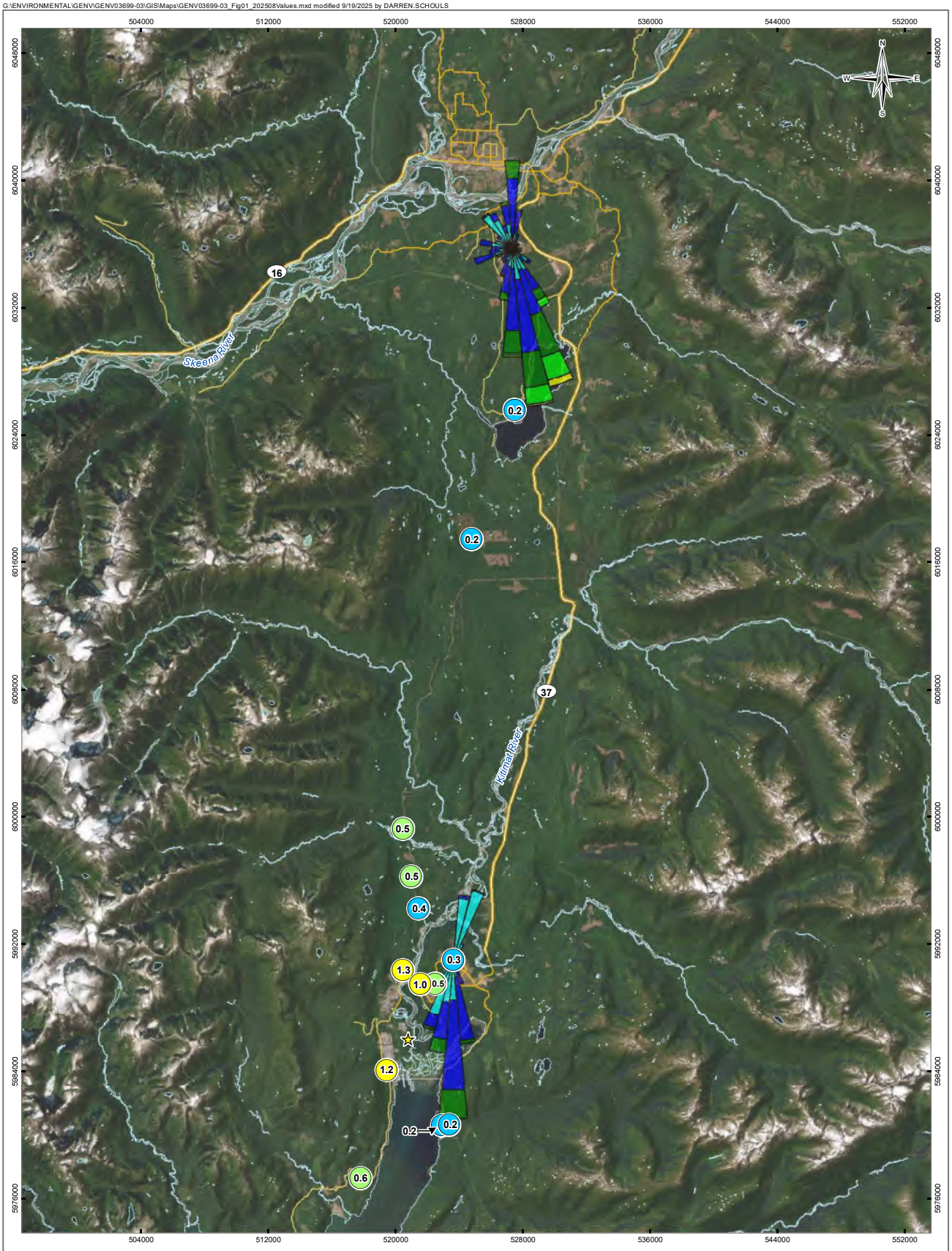

LEGEND

Mean 30-Day NO_2 Concentration (ppb)

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5

- LNGC Site
- Highway
- Main Road
- Local Road
- Watercourse/Waterbody

Rose Plot - Wind (m/s)

- 1 - 3
- 3 - 6
- 6 - 9
- 9 - 12
- 12 - 15

NOTES
Base data source:
Imagery from ESRI; Maxar
CanVec 1:250,000 (2019)

STATUS
ISSUED FOR USE

LNGC NO2 PASSIVE MONITORING

Mean 30-day NO2 Concentration August 2025

PROJECTION	DATUM	CLIENT
UTM Zone 9	NAD83	Haisla Triton Ltd.

Scale: 1:225,000
4 2 0 4
Kilometres

TETRA TECH

FILE NO.
GENV03699-03_Fig01_202508Values.mxd

OFFICE	DWN	CKD	APVD	REV
Tt-VANC	DS	MRB	TM	0

DATE	PROJECT NO.
September 19, 2025	ENW.GENV03699-03

Figure 1

APPENDIX A

TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

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While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

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This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

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TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

BUREAU VERITAS PASSIVE SAMPLING LABORATORY REPORT

Your P.O. #: 704-ENW.GENV03699-03.002
Your Project #: NO2 MONITORING
Site Location: 2025/07/31-2025/08/29

Attention: Travis Miguez

Tetra Tech Canada Inc.
#2 4065 Motz Road
Terrace, BC
CANADA V8G 3N1

Report Date: 2025/09/12
Report #: R3688729
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: G506338
Received: 2025/09/04, 12:00

Sample Matrix: Air
Samples Received: 26

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	26	2025/09/05	2025/09/08	PTC SOP-00148	Passive NO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Rowena Geron
Customer Service Associate
12 Sep 2025 14:55:35

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500

==========

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Bureau Veritas Job #: G506338
Report Date: 2025/09/12

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/07/31-2025/08/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DOP910	DOP911	DOP912	DOP913	DOP914	DOP915		
Sampling Date		2025/07/31 08:35	2025/07/31 08:35	2025/07/31 09:30	2025/07/31 09:30	2025/07/31 10:15	2025/07/31 10:15		
	UNITS	#1 LAKELSE LAKE	#2 LAKELSE LAKE-DUP	#3 VO1	#4 VO1-DUP	#5 KHV-1	#6 KHV-1-DUP	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.2	0.2	0.2	0.2	0.2	0.2	0.1	C031408
RDL = Reportable Detection Limit									

Bureau Veritas ID		DOP916	DOP917	DOP918	DOP919	DOP920	DOP921	DOP922		
Sampling Date		2025/07/31 10:20	2025/07/31 10:20	2025/07/31 11:00	2025/07/31 11:00	2025/07/31 11:15	2025/07/31 11:15	2025/07/31 11:50		
	UNITS	#7 KHV-2	#8 KHV-2-DUP	#9 V10B	#10 V10B-DUP	#11 V12	#12 V12-DUP	#13 V08	RDL	QC Batch
Passive Monitoring										
Calculated NO2	ppb	0.2	0.2	1.2	1.2	0.5	0.6	0.4	0.1	C031408
RDL = Reportable Detection Limit										

Bureau Veritas ID		DOP923	DOP924	DOP925	DOP926	DOP927	DOP928		
Sampling Date		2025/07/31 11:50	2025/07/31 11:55	2025/07/31 11:55	2025/07/31 12:05	2025/07/31 12:05	2025/07/31 12:35		
	UNITS	#14 V08-DUP	#15 V06	#16 V06-DUP	#17 V05	#18 V05-DUP	#19 Kitimat Industrial	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.4	0.5	0.5	0.5	0.5	1.2	0.1	C031408
RDL = Reportable Detection Limit									

Bureau Veritas ID		DOP929		DOP930	DOP931		
Sampling Date		2025/07/31 12:35		2025/07/31 12:45	2025/07/31 12:45		
	UNITS	#20Kitimat Industrial-DUP	QC Batch	#21 Kitimat Riverlodge	#22Kitimat Riverlodge -DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	1.4	C031408	0.9	1.1	0.1	C031546
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G506338
Report Date: 2025/09/12

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/07/31-2025/08/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DOP932	DOP933	DOP934	DOP935		
Sampling Date		2025/07/31 13:00	2025/07/31 13:00	2025/07/31 13:15	2025/07/31 13:15		
	UNITS	#23 Predicted Max	#24 Predicted Max-DUP	#25 Kitimat Whitesail	#26 Kitimat Whitesail-DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	0.5	0.5	0.2	0.3	0.1	C031546
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G506338
Report Date: 2025/09/12

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/07/31-2025/08/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G506338
Report Date: 2025/09/12

QUALITY ASSURANCE REPORT

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/07/31-2025/08/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

			Spiked Blank		Method Blank	
QC Batch	**Parameter**	**Date**	**% Recovery**	**QC Limits**	**Value**	**UNITS**
C031408	Calculated NO2		98	90 - 110	<0.1	ppb
C031546	Calculated NO2		98	90 - 110	<0.1	ppb

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G506338
Report Date: 2025/09/12

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/07/31-2025/08/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Steven Gloux, Laboratory Supervisor

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Branko Banjac, General Manager responsible for Alberta Petroleum laboratory operations.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

SEPTEMBER 2025 REPORT

TETRA TECH

ISSUED FOR REVIEW

October 7, 2025

FILE: 704-ENW.GENV03699-03

LNG Canada Development Inc.

Via Email: Tauseef-ZIA.Siddiqui@lngcanada.ca
KIT-Regulatory-Compliance@lngcanada.ca

Attention: Tauseef Zia Siddiqui

Subject: Passive Monitoring for Nitrogen Dioxide – LNG Canada – September 2025
Document Control #: L001-00000-HE-0702-1009 - Rev 2

This 'Issued for Review' document is provided solely for the purpose of client review and presents our interim findings and recommendations to date. Our usable findings and recommendations are provided only through an 'Issued for Use' document, which will be issued subsequent to this review. Final design should not be undertaken based on the interim recommendations made herein. Once our report is issued for use, the 'Issued for Review' document should be either returned to Tetra Tech Canada Inc. (Tetra Tech) or destroyed.

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada Development Inc. (LNGC). The monitoring is part of the LNGC Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNGC receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNGC facility emissions, particularly the contribution of nitrogen to the environment. LNGC's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQDMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region as described in Table 1. The spatial distribution of the passive monitoring station network through the Kitimat Valley is shown on the attached Figure 1.

Tetra Tech Canada Inc.
Unit 2, 4065 Motz Road
Terrace, BC V8G 3N1
Tel 778.309.1605

Table 1: LNGC's Passive NO_2 Monitoring Network

Site	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Lakelse Lake A04	527457	6025573	2.2
V01	524757	6017435	2.1
KHV-2	523357	5980636	3.0
KHV-1*	522922	5980606	2.3
V10B	519425	5984090	3.0
V12	517790	5977294	2.0
V08	521425	5994249	2.0
V06	520970	5996240	2.0
V05	520457	5999250	2.0
Kitimat Industrial	520424	5990356	3.0
Predicted Maximum NO_2	522463	5989506	3.0
Kitimat Riverlodge	521536	5989486	3.0
Kitimat Whitesail	523612	5990998	3.0

* Sampling station 'KHV-1' was found knocked over on July 31, it was assumed to have been displaced by a vehicle at some unknown date during the July deployment period. Sampler coordinates and height listed are approximate location of temporary placement until the station can be repaired.

The sampling methodology adheres to protocols described in the document '*Standard Operating Procedure (SOP) – Passive Monitoring for Nitrogen Dioxide (NO_2)*', dated March 2024. More information on the sampling methodology can be found in this document.

2.0 AMBIENT CONDITIONS DURING DEPLOYMENT PERIOD

Winds

Winds were dominated by inflow conditions over the period August 29 through September 29, 2025, the prevalent summer pattern, however outflows were observed with higher occurrence than during the summer months as the autumn/winter pattern is beginning to establish itself through the region. Figure 1 shows wind roses for hourly wind observations during the September sampler deployment period at ENV-AQN Kitimat Whitesail and Terrace Airport.

Precipitation

279.5 mm of precipitation was recorded between August 29 through September 29 at ECCC Kitimat Forest Avenue. 136.1 mm of precipitation was recorded at ECCC Terrace A. These totals are 89 mm above the precipitation normal for Kitimat and 25 mm above for Terrace, respectively.

Air Quality – Nitrogen Dioxide

NO_2 is continuously measured and reported on an hourly basis at ENV-AQN station Kitimat Whitesail. Over the September deployment period (August 29 – September 29), the maximum 1-hour NO_2 concentration was 8.2 ppb, or 13.7% of the British Columbia Air Quality Objective (BCAQO) of 60 ppb. The 30-day average NO_2 concentration, taken as the average of all available one-hour measurements during the sampling period, was 0.7 ppb. While there is no 30-day BCAQO, the annual criterion is 17 ppb, which provides another indicator of ambient air quality with

respect to NO_2. There were 42 hours of missing data out of 725 hours, or 94% data completeness. Figure 2 plots the 1-hour NO_2 concentration measured by the continuous monitor at Kitimat Whitesail over the sampling period.

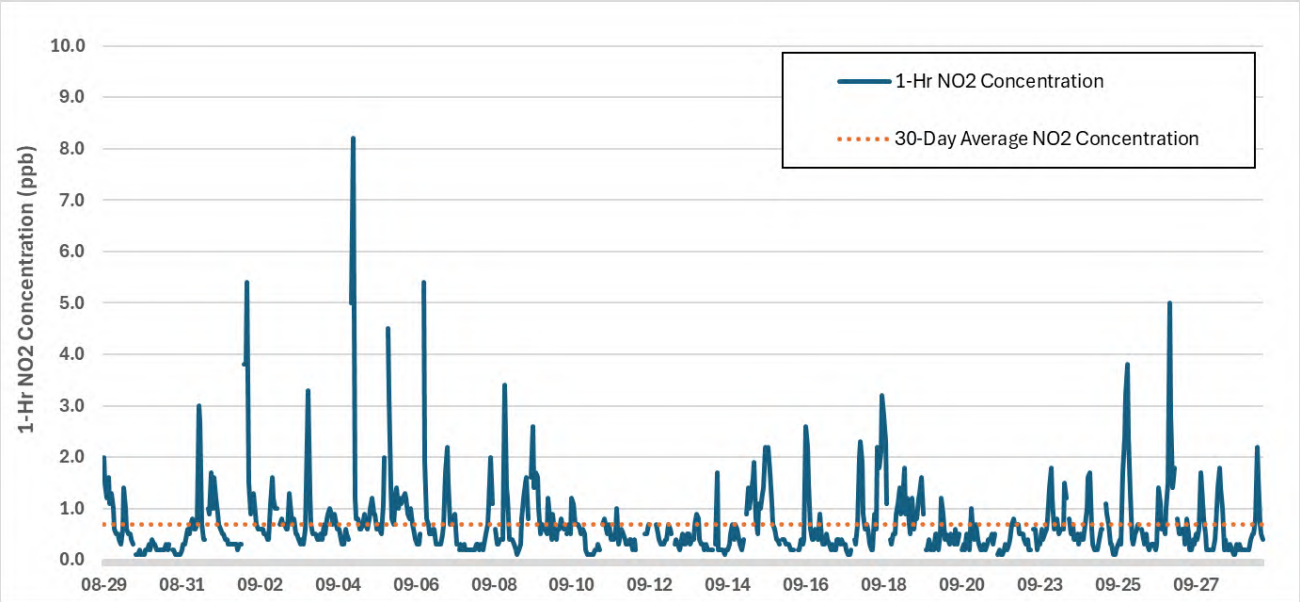

Figure 2: 1-Hr NO_2 Readings at ENV-AQN Kitimat Whitesail (August 29 – September 29)

3.0 PASSIVE MONITORING RESULTS

The passively measured 30-day NO_2 concentrations are listed for each site in Table 2. The 30-day NO_2 concentration based on continuous measurement is also listed for Kitimat Whitesail, as a measure of validation of the sampling results. Each site's housing utilizes two samplers for statistical redundancy, the mean of which is used as the overall measurement.

The measured 30-day NO_2 concentrations are shown through the study area on Figure 1. The highest reading in September 2025 occurred along the northwest side of town at the Kitimat Industrial (V14) sample location, north of the LNGC facility. This reading was higher than was measured in August, equal to the concentration measured in July, and higher than concentrations measured between March and June for V14.

The second highest 30-day NO_2 concentration measured in September was directly south of the LNGC facility at the V10B sample location. V10B has been the second highest reading since June 2025 and has seen consecutively higher concentrations each month from June to August, with August's value being slightly higher than September's. The other stations through Kitimat followed the seasonal trend towards higher NO_2 concentrations observed during the winter months.

Table 2: Passive NO_2 Sampling Results (September 2025)

Site	Start	End	Duration (Days)	30-day NO_2 Concentration (ppb)			St. Dev	30 Day NO_2
				Sample 1	Sample 2	Mean		
Lakelse Lake A04	2025/08/29 09:00	2025/09/29 08:40	31.0	0.2	0.1	0.2	0.1	
V01	2025/08/29 09:50	2025/09/29 09:30	31.0	0.2	0.3	0.3	0.1	
KHV-2	2025/08/29 10:50	2025/09/29 10:20	31.0	0.2	0.1	0.2	0.1	
KHV-1*	2025/08/29 10:45	2025/09/29 10:15	31.0	0.2	0.3	0.3	0.1	
V10B	2025/08/29 11:25	2025/09/29 10:50	31.0	1.1	1.1	1.1	0	
V12	2025/08/29 11:45	2025/09/29 11:10	31.0	0.4	0.4	0.4	0	
V08	2025/08/29 12:15	2025/09/29 11:50	31.0	0.4	0.5	0.5	0.1	
V06	2025/08/29 12:20	2025/09/29 12:00	31.0	0.5	N/A**	0.5	N/A	
V05	2025/08/29 12:30	2025/09/29 12:15	31.0	0.5	0.4	0.5	0.1	
Kitimat Industrial (V14)	2025/08/29 13:00	2025/09/29 12:40	31.0	1.7	1.5	1.6	0.1	
***Predicted Maximum NO_2	2025/08/29 13:25	2025/09/29 13:00	31.0	0.8	N/A****	0.8	N/A	
Kitimat Riverlodge	2025/08/29 13:15	2025/09/29 12:50	31.0	0.9	0.8	0.9	0.1	
Kitimat Whitesail	2025/08/29 13:35	2025/09/29 13:20	31.0	0.3	0.5	0.4	0.1	0.7

* Sampling station 'KHV-1' was found knocked over on July 31, it was assumed to have been displaced by a vehicle at some unknown date during the July deployment period. The temporary placement of the station is located 2-3 m east and 0.7 m lower than its original location during the September sampling period.

** A duplicate sample for location V06 was unable to be analyzed due to a damaged sampler.

*** Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum ground level concentration of NO_2 inclusive of facility emissions within Kitimat.

**** A duplicate sample concentration for location 'Predicted Maximum NO_2' was removed due to suspected analytical error or sampler contamination.

Figure 3 plots the passively measured 30-day NO_2 concentration by month at several stations through the network. A seasonal pattern is quite evident with higher concentrations measured across all stations from late summer through early spring. This observed winter trend can likely be attributed to meteorological conditions associated with poorer atmospheric mixing as well as an increase in community-based sources of combustion such as heating. It should be noted that the highest measured NO_2 concentrations are well below representative (e.g. annual) criteria.

Figure 3 also illustrates passively measured 30-day concentrations above the regional seasonal pattern at station V12, located immediately north of the LNGC facility. The LNGC facility began flaring in early June related to operational phases and has posted several community notices regarding each flaring event since. Specific to the September monitoring period, Tetra Tech understands that on September 1, an unplanned flaring event occurred, resulting in a flare height of approximately 60 metres, with associated visible emissions (LNGC 2025a). Additionally, LNGC posted a community notification of increased flaring between September 11 and 13 associated with the "restart of Train 1". In the same notification, LNGC also noted an unplanned flaring event on September 11 resulting in a flare height of approximately 60 metres. LNGC reported that the flaring activities are a safety measure for specific operation phases and is not expected to be routine during regular operations (LNGC 2025b).

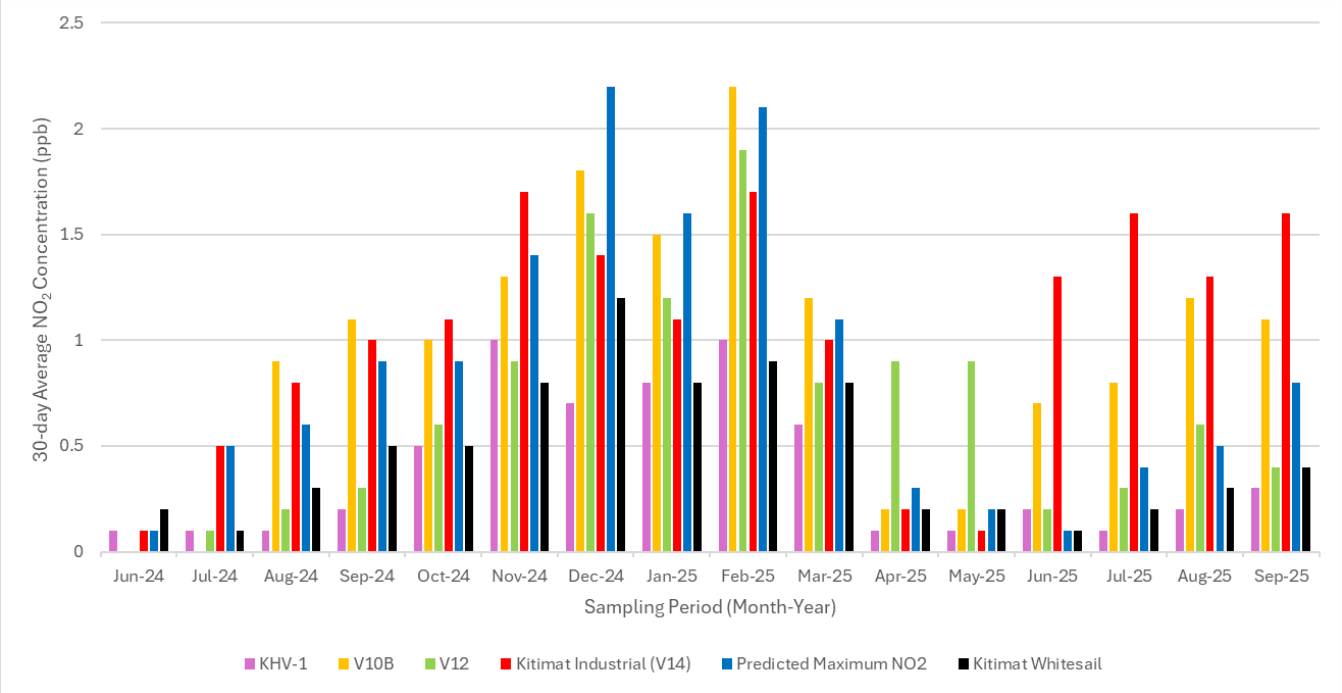

Figure 3: Passive NO_2 Concentrations – June 2024 to September 2025

Figure 4 shows a time series plot of passively measured 30-day NO_2 concentrations at Kitimat Industrial (V14) and the Predicted Maximum NO_2 station over the duration of the survey. The period June 2024 through May2025 (MY1), indicative of the concentrations pre-flaring events, is plotted as a dashed line, with measurements June 2025 through September 2025 (MY2) as a solid line, indicative of measurements occurring since flaring-events started.

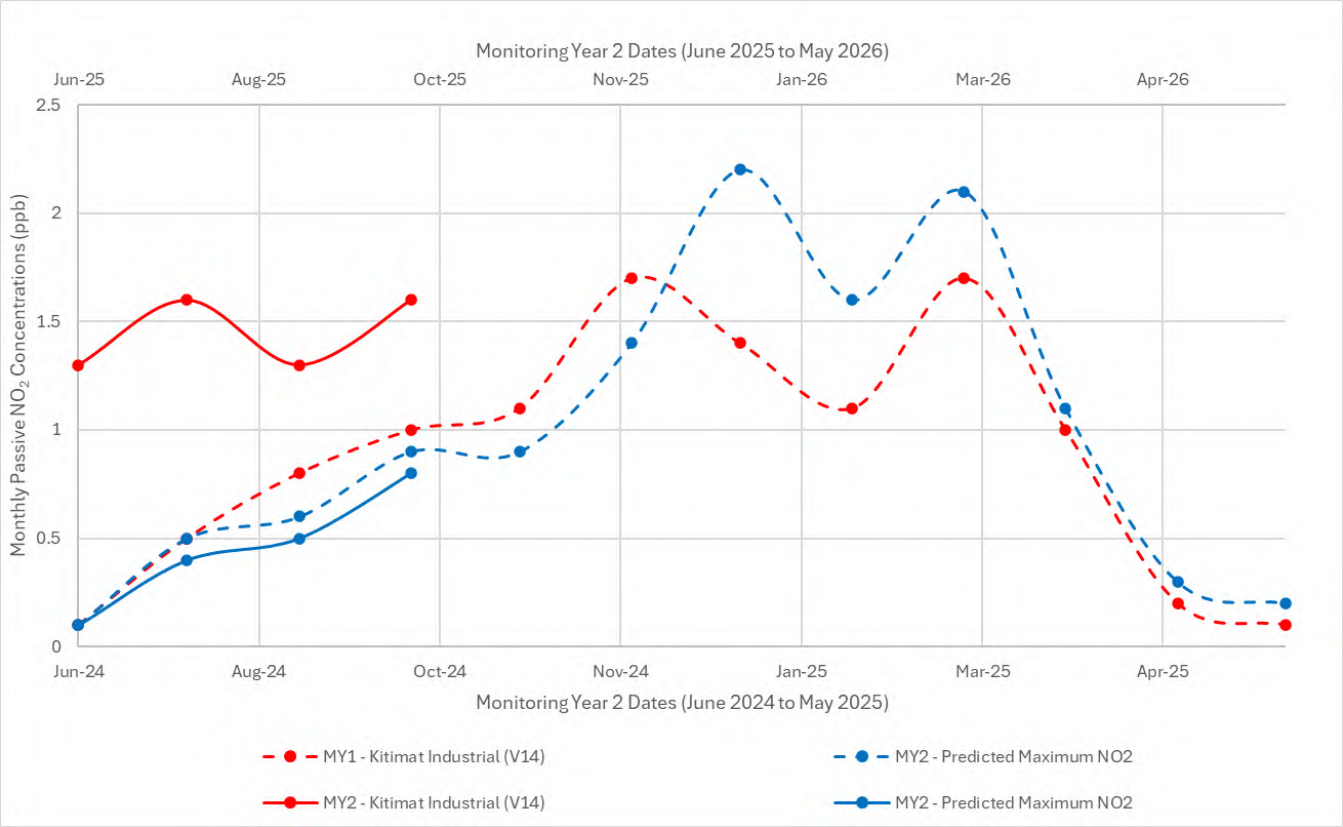

Figure 4: Passive NO_2 Concentrations – Monitoring Year 1 (MY1) vs. Monitoring Year 2 (MY2)

Bureau Veritas Passive Sampling Laboratory Report is attached in Appendix B.

4.0 SAMPLING PROGRAM ANOMALIES

There were several sampling program anomalies to note during the September deployment period, as follows.

On July 31 during the sampler retrievals, the pole from which station KHV-1 was mounted was discovered lying on the ground. It was assumed to have been knocked down by a vehicle at an unknown date during the July deployment period. The housing was placed on a nearby fence post temporarily until the damaged post can be repaired and the housing mounted at its original location. Sampling at KHV-1 during the September deployment period occurred at the temporary placement located approximately 2-3 m to the east of its original location, at approximately 2.3 m above ground.

During sampler retrievals, a duplicate sampler at location V06 was observed with a damaged membrane and the sample was not able to be analyzed. As a result, there is no redundant measurement at this location for September.

One of the samples from location 'Predicted Maximum NO_2' was reported by the lab as <0.1 ppb, or below the laboratory detection limit, while the other sample measured 0.8 ppb, similar to what was measured in September 2024. The below detection sample was assumed by Tetra Tech as invalid due to suspected analytical error or sampler contamination and the single measurement was assumed for September.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada Development Inc. and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada Development Inc., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in Appendix A or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

ISSUED FOR REVIEW

FILE: 704-ENW.GENV03699-03
FILE: 704-ENW.GENV03699-03
FILE: 704-ENW.GENV03699-03

Prepared by:
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ISSUED FOR REVIEW

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Environment & Water Practice
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/sy

Attachments Figure 1: Mean 30-day NO_2 Concentration September 2025
Appendix A: tetra Tech's Limitations on the Use of this Document
Appendix B: Bureau Veritas Passive Sampling Laboratory Report

REFERENCES

LNG Canada Development Inc. (2025a, September 2). *Community Notification: Flaring.* LNG Canada. https://www.lngcanada.ca/news/community-notification-flaring-3/

LNG Canada Development Inc. (2025b, September 11). *Community Notification: Flaring Activity.* LNG Canada. https://www.lngcanada.ca/news/community-notification-flaring-4/

FIGURE

Figure 1 Mean 30-day NO_2 Concentration September 2025

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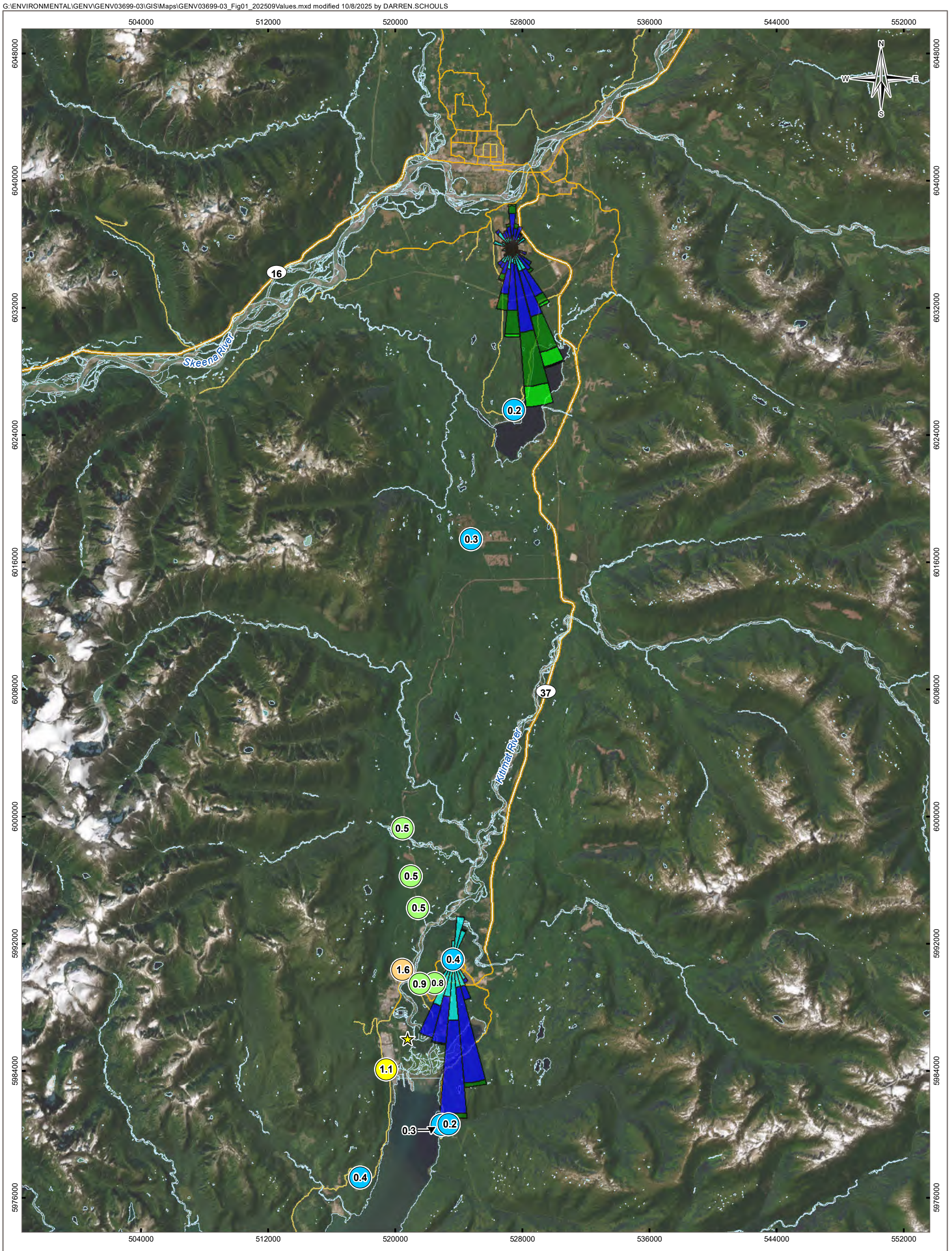

LEGEND

Mean 30-Day NO_2 Concentration (ppb)

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0

- LNGC Site
- Highway
- Main Road
- Local Road
- Watercourse/Waterbody

Rose Plot - Wind (m/s)

- 1 - 3
- 3 - 6
- 6 - 9
- 9 - 12
- 12 - 15

NOTES
Base data source:
Imagery from ESRI; Maxar
CanVec 1:250,000 (2019)

STATUS
ISSUED FOR USE

LNGC NO2 PASSIVE MONITORING

Mean 30-day NO2 Concentration September 2025

PROJECTION	DATUM	CLIENT
UTM Zone 9	NAD83	Haisla Triton Ltd.

Scale: 1:225,000
4 2 0 4
Kilometres

FILE NO.
GENV03699-03_Fig01_202509Values.mxd

OFFICE	DWN	CKD	APVD	REV
Tt-VANC	DS	MRB	TM	0

DATE	PROJECT NO.
October 8, 2025	ENW.GENV03699-03

TETRA TECH

Figure 1

APPENDIX A

TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

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If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

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The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

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APPENDIX B

BUREAU VERITAS PASSIVE SAMPLING LABORATORY REPORT

Your P.O. #: 704-ENW.GENV03699-03.002
Your Project #: NO2 MONITORING
Site Location: 2025/08/29-2025/09/29

Attention: Travis Miguez

Tetra Tech Canada Inc.
#2 4065 Motz Road
Terrace, BC
CANADA V8G 3N1

Report Date: 2025/10/07
Report #: R3692401
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: G508966
Received: 2025/10/03, 08:00

Sample Matrix: Air
Samples Received: 26

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	26	2025/10/03	2025/10/07	PTC SOP-00148	Passive NO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Rowena Geron
Customer Service Associate
07 Oct 2025 13:19:19

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500

==========

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Bureau Veritas Job #: G508966
Report Date: 2025/10/07

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/08/29-2025/09/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: TZ

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DOZ856	DOZ857	DOZ858	DOZ859	DOZ860	DOZ861		
Sampling Date		2025/08/29 09:00	2025/08/29 09:00	2025/08/29 09:50	2025/08/29 09:50	2025/08/29 10:45	2025/08/29 10:45		
	UNITS	#1 LAKELSE LAKE	#2 LAKELSE LAKE-DUP	#3 VO1	#4 VO1-DUP	#5 KHV-1	#6 KHV-1-DUP	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.2	0.1	0.2	0.3	0.2	0.3	0.1	C041687
RDL = Reportable Detection Limit									

Bureau Veritas ID		DOZ862	DOZ863	DOZ864	DOZ865	DOZ866	DOZ867	DOZ868		
Sampling Date		2025/08/29 10:50	2025/08/29 10:50	2025/08/29 11:25	2025/08/29 11:25	2025/08/29 11:45	2025/08/29 11:45	2025/08/29 12:15		
	UNITS	#7 KHV-2	#8 KHV-2-DUP	#9 V10B	#10 V10B-DUP	#11 V12	#12 V12-DUP	#13 V08	RDL	QC Batch
Passive Monitoring										
Calculated NO2	ppb	0.2	0.1	1.1	1.1	0.4	0.4	0.4	0.1	C041687
RDL = Reportable Detection Limit										

Bureau Veritas ID		DOZ869	DOZ870	DOZ871	DOZ872	DOZ873	DOZ874		
Sampling Date		2025/08/29 12:15	2025/08/29 12:20	2025/08/29 12:20	2025/08/29 12:30	2025/08/29 12:30	2025/08/29 13:00		
	UNITS	#14 V08-DUP	#15 V06	#16 V06-DUP	#17 V05	#18 V05-DUP	#19 Kitimat Industrial	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.5	0.5	DAMAGED	0.5	0.4	1.7	0.1	C041687
RDL = Reportable Detection Limit									

Bureau Veritas ID		DOZ875		DOZ876	DOZ877		
Sampling Date		2025/08/29 13:00		2025/08/29 13:15	2025/08/29 13:15		
	UNITS	#20Kitimat Industrial-DUP	QC Batch	#21 Kitimat Riverlodge	#22Kitimat Riverlodge -DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	1.5	C041687	0.9	0.8	0.1	C041695
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G508966
Report Date: 2025/10/07

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/08/29-2025/09/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: TZ

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DOZ878	DOZ879	DOZ880	DOZ881		
Sampling Date		2025/08/29 13:25	2025/08/29 13:25	2025/08/29 13:35	2025/08/29 13:35		
	UNITS	#23 Predicted Max	#24 Predicted Max-DUP	#25 Kitimat Whitesail	#26 Kitimat Whitesail-DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	0.8	<0.1	0.3	0.5	0.1	C041695
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G508966
Report Date: 2025/10/07

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/08/29-2025/09/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: TZ

GENERAL COMMENTS

Sample DOZ870 [#15 V06] : Noted by Sampler TZ - The white membrane was damaged on one of the “V06” samples.

Sample DOZ871 [#16 V06-DUP] : NO2 Sample DOZ871 was received with a damaged barrier. S1T (2025/10/03)

Sample DOZ880 [#25 Kitimat Whitesail] : Noted by Sampler TZ - The housing came apart on one of the “Kitimat Whitesail” samples.

Results relate only to the items tested.

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Bureau Veritas Job #: G508966
Report Date: 2025/10/07

QUALITY ASSURANCE REPORT

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/08/29-2025/09/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: TZ

			Spiked Blank		Method Blank	
QC Batch	**Parameter**	**Date**	**% Recovery**	**QC Limits**	**Value**	**UNITS**
C041687	Calculated NO2		97	90 - 110	<0.1	ppb
C041695	Calculated NO2		97	90 - 110	<0.1	ppb

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

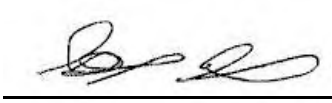
Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G508966
Report Date: 2025/10/07

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/08/29-2025/09/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: TZ

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Steven Gloux, Laboratory Supervisor

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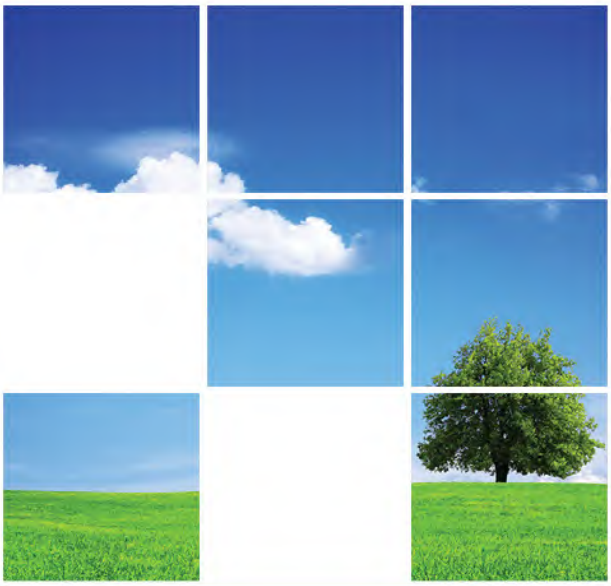
Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699



SOURCE EMISSION SURVEY

LNG Canada Development Inc.

LNG Canada Kitimat Liquified Natural (LNG) Gas Facility
Train 1 Acid Gas Incinerator Stack (AGI)
September 26, 2025

Prepared for:
LNG Canada Development Inc.
Suite # 4000 – 500 Centre Street, S.E.
Calgary, Alberta
T2G 1A6

Attention:
Mr. Tauseef Zia Siddiqui

Prepared By:
Hina Jahangir
AGAT Laboratories Ltd.
3700 - 21st Street, N.E.
Calgary, Alberta
T2E 6V6
Phone: 403.299.2158

Project No.: 25C338707
Permit No.: PA-110588
October 27, 2025

AGAT Laboratories

Cover Letter

October 27, 2025

LNG Canada Development Inc.
LNG Canada Kitimat Liquified Natural Gas (LNG) Facility

Attention:	Mr. Tauseef Zia Siddiqui
Subject:	LNG Canada Kitimat Liquified Natural Gas (LNG) Facility – September 2025 Source Emission Survey

AGAT Laboratories' Source Testing Services Group is pleased to submit the following Source Emission Survey report. The test program conducted at the LNG Canada Development Inc. – LNG Canada Kitimat Liquified Natural Gas (LNG) Facility on September 26, 2025 was performed on the Train 1 Acid Gas Incinerator Stack (AGI). The parameters tested were Volatile Organic Compounds (VOCs), BTEX (C_6H_6), Hydrogen Sulphide (H_2S), Total Hydrocarbons (THCs), Volumetric Flow and Sample Level Temperature. Cyclonic Flow testing was also conducted. This report was completed in accordance with Environment Canada EPS 1/PG/7 requirements.

If you have any questions or concerns regarding this report, please contact Mr. Shaun Hayward at (403) 299-2179, or via E-mail at **hayward@agatlabs.com**. Alternatively, please contact Mr. Richard Kenney at (403) 299-2184, or via E-mail at **rkenney@agatlabs.com.** Thank you for your patronage, and we look forward to being of service to you in the future.

Yours truly,

AGAT Laboratories Ltd.

Report Author: **Reviewed by:**

Hina Jahangir
Report Writer

Shaun Hayward, A. B.Sc.
Manager, Source Testing

Richard Kenney
Technical Services Liaison

Summary

AGAT Laboratories' Source Testing Services Group was retained by LNG Canada Development Inc. to perform a Source Emission Survey on the Train 1 Acid Gas Incinerator Stack (AGI) located at the LNG Canada Kitimat Liquified Natural Gas (LNG) Facility. The parameters tested were Volatile Organic Compounds (VOCs), BTEX (C_6H_6), Hydrogen Sulphide (H_2S), Total Hydrocarbons (THCs), Volumetric Flow and Sample Level Temperature.

The Train 1 Acid Gas Incinerator Stack (AGI) at the LNG Canada Kitimat Liquified Natural Gas (LNG) Facility was operating under normal conditions at the time of the sampling program. These tests were conducted on September 26, 2025.

Stratification testing was not conducted at this time. Cyclonic Flow testing was conducted at this time; data results obtained from the source emission testing indicated that no cyclonic flow conditions were observed.

The Effluent Flow Measuring device was tested using a calibrated standard S-type Pitot tube fixed with a standardized K-Type thermocouple.

The protocols of US EPA 18 were followed to test for Volatile Organic Compounds (VOCs), Total Hydrocarbons (THCs), Hydrogen Sulphide, and BTEX (C_6H_6). The protocols of US EPA Method 1, 2, 3, and 4 and the British Columbia Field Sampling Manual Method 1, 2, 3 of part B-2 were used to test the Volumetric Flow and Temperature. The protocols of Environment Canada Report EPS 1/PG/7 (EC-PG7) were followed in order to complete the Source Emission Survey report.

Table 1: Summary of Source Emission Survey Results – VOC & THC

Train 1 Acid Gas Incinerator Stack (AGI)					
Compliance Parameter	**Units**	**Test 1 2025/09/26 11:40 – 12:40**	**Test 2 2025/09/26 12:50 – 13:50**	**Test 3 2025/09/26 14:00 – 15:00**	**Average**
Stack Gas Measurements					
Volumetric Flow*	**m^3/sec - wet**	14.1	13.3	13.0	**13.5**
	e^3m^3/day - wet	1,220	1,152	1,121	**1,164**
Stack Gas Velocity	**m/s**	6.64	6.29	6.11	**6.35**
Stack Temperature	**℃**	939	943	943	**942**
Water Content	**%**	9.00	6.43	6.80	**7.41**
Volatile Organic Compounds (VOCs)**					
Concentration	**ppm - dry**	0.0300	0.0277	0.00514	**0.0210**
	ppm - wet	0.0273	0.0259	0.00479	**0.0193**
	mg/m^3 - dry	0.0850	0.0861	0.0151	**0.0620**
	mg/m^3 - wet	0.0773	0.0806	0.0141	**0.0573**
Emission Rate	**kg/hr**	0.00392	0.00386	0.000658	**0.00281**
Total Hydrocarbon (THC)***					
Concentration	**ppm - dry**	0.0500	0.0500	0.0500	**0.0500**
	ppm - wet	0.0455	0.0468	0.0466	**0.0463**
	mg/m^3 - dry	0.0333	0.0333	0.0333	**0.0333**
	mg/m^3 - wet	0.0303	0.0312	0.0311	**0.0309**
Emission Rate	**kg/hr**	0.00154	0.00149	0.00145	**0.00150**

Notes: *Reported at 760 mm Hg and 20°C.

**Minimum Detection Limits (MDL), along with full speciation breakdown can be found in Appendix I.

*** MDL values were used to calculate final average.

Table 2: Summary of Source Emission Survey Results – H_2S & BTEX

Train 1 Acid Gas Incinerator Stack (AGI)					
Compliance Parameter	**Units**	**Test 1 2025/09/26 11:40 – 12:40**	**Test 2 2025/09/26 12:50 – 13:50**	**Test 3 2025/09/26 14:00 – 15:00**	**Average**
Stack Gas Measurements					
Volumetric	**m^3/sec - wet**	14.1	13.3	13.0	**13.5**
	e^3m^3/day - wet	1,220	1,152	1,121	**1,164**
Stack Gas Velocity	**m/s**	6.64	6.29	6.11	**6.35**
Stack Temperature	**℃**	939	943	943	**942**
Water Content	**%**	9.00	6.43	6.80	**7.41**
Hydrogen Sulphide (H_2S)					
Concentration**	**ppm - dry**	0.000300	0.000300	0.000300	**0.000300**
	ppm - wet	-0.00240	-0.00163	-0.00174	**-0.00192**
	mg/m^3 - dry	0.00425	0.00425	0.00425	**0.00425**
	mg/m^3 - wet	-0.00340	-0.00231	-0.00247	**-0.00273**
Emission Rate	**kg/hr**	-0.000173	-0.000111	-0.000115	**-0.000133**
BTEX (C_6H_6)					
Concentration	**ppm - dry**	0.00263	0.00104	0.000760	**0.00148**
	ppm - wet	0.00239	0.000973	0.000708	**0.00136**
	mg/m^3 - dry	0.0102	0.00404	0.00292	**0.00571**
	mg/m^3 - wet	0.00926	0.00378	0.00272	**0.00526**
Emission Rate	**kg/hr**	0.000470	0.000181	0.000128	**0.000260**

Notes: *Reported at 760 mm Hg and 20°C.
** MDL values were used to calculate final average.

Table 3: Cyclonic Flow Results

Train 1 Acid Gas Incinerator Stack (AGI)												
	Port 1 - West			Port 2 - South			Port 3 - East			Port 4 - North		
	Test 1	Test 2	Difference	Test 1	Test 2	Difference	Test 1	Test 2	Difference	Test 1	Test 2	Difference
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	***Absolute Average**		**0.00**	***Absolute Average**		**0.00**	***Absolute Average**		**0.00**	***Absolute Average**		**0.00**

Note: *Average of the absolute rotation angle values.

According to US EPA Method 1 Section 11.4, cyclonic flow occurs when the average of the absolute values of the null angles is greater than 20^{o}. Additionally, the difference between the angles in tests 1 and 2 cannot be greater than 5^{o}. Applying US EPA, cyclonic flow was found to be within approved limits.

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Part 1 – Introduction

1.1 Background Information

AGAT Laboratories' Source Testing Services Group was retained by Mr. Tauseef Zia Siddiqui of LNG Canada Development Inc. to perform a Source Emission Survey on the Train 1 Acid Gas Incinerator Stack (AGI) at the LNG Canada Kitimat Liquified Natural Gas (LNG) Facility. These tests were conducted on September 26, 2025.

1.2 Key Personnel

Mr. Marlon Soriano was the AGAT project manager and Mr. Tauseef Zia Siddiqui was the client contact and coordinator. Mr. Marlon Soriano and Mr. Vipul Katariya performed the on-site sampling program. Mrs. Hina Jahangir performed the data reduction and produced the final report.

1.3 Project Scope

Project scope included the evaluation of the following parameters from Train 1 Acid Gas Incinerator Stack (AGI):

i) Volatile Organic Compounds (VOCs)
ii) Total Hydrocarbon (THC)
iii) Hydrogen Sulphide (H_2S)
iv) BTEX (C_6H_6)
v) Cyclonic Flow
vi) Volumetric Flow
vii) Sample Level Temperature

Part 2 – Test Procedure

2.1 Standard Methods

The protocols of US EPA 18 were followed to test for Volatile Organic Compounds (VOCs), Total Hydrocarbons (THCs) and BTEX (C_6H_6). The protocols of US EPA 25 were followed to test for Hydrogen Sulphide (H_2S). Both Method 18 and 25 were modified for the use of an evacuated coated canister for sample extraction, while the analysis was conducted by an accredited lab. The protocols of US EPA Method 1, 2, 3, and 4 and the British Columbia Field Sampling Manual Method 1, 2, 3 of part B-2 were used to test the Volumetric Flow and Temperature. The protocols of Environment Canada Report EPS 1/PG/7 (EC-PG7) were followed in order to complete the Source Emission Survey report.

Stack Gas Velocity, Temperature & Volumetric Flow Rates

Stack gas velocities, temperature and volumetric flow rates determined following the procedures as outlined in the *British Columbia Field Sampling Manual Method #2 – Determination of Stack Gas Velocity and Volumetric Flow Rates*. Stack gas velocity was determined from the moisture content of the stack gas as well as differential pressure and temperature measurements taken at six points through the centroid of the stack cross-section. Pressure differentials are measured by calibrated S-type Pitot tube and inclined oil manometer, with a range of 0-10”. Temperature measurements are made with a calibrated K-type thermocouple. Velocity, when multiplied by the cross-sectional area of the stack equates to the volumetric flow.

Stack Gas Moisture Content

Stack gas moisture content was determined following the procedures as outlined in *British Columbia Field Sampling Manual Method #4 – Determination of Moisture Content in Stack Gases*. Samples were collected from the centroid of the stack cross section and the moisture fraction was condensed in an impinger train maintained in an ice bath. Moisture content was then measured onsite using the gravimetric method for each impinger, results from the individual impinger weights and exit temperature of the final impinger are recorded in Appendix IV. Moisture measurements were carried out simultaneously with each test run.

Oxygen & Carbon Dioxide

Oxygen and carbon dioxide samples were collected and analyzed following the procedure as outlined in the *British Columbia Field Sampling Manual Method #3 – Gas Analysis for the Determination of Dry Molecular Weight*. An integrated sample was taken over the test period using an evacuated cannister with a flow controller to sample over the test period

Total Hydrocarbons, Hydrogen Sulphide, Volatile Organic Compounds and BTEX

Total hydrocarbons, Hydrogen Sulphide, Volatile Organic Compounds and BTEX samples were collected and analyzed following the procedures as outlined in the *US EPA Method #18 - Measurement of Gaseous Organic Compound Emissions by Gas Chromatography.* Samples were withdrawn from the source and collected in evacuated canisters. The major organic components of the collected gas mixture were then separated by gas chromatography (GC) and individually quantified by flame ionization and thermal conductivity detection principles. The retention times of each separated component are used to identify the organic component and its concentration by comparing the observed values to those of known compounds. All samples were analyzed at an ISO/IEC 17025 accredited lab (Certificate of Accreditation can be found in Appendix III).

Cyclonic Flow

Cyclonic Flow was determined following the procedures outlined in the *US EPA Method #1 Section 11.4 – Verification of Absence of Cyclonic Flow.* Pressure differentials are measured by calibrated S-type Pitot tube and inclined oil manometer that has been levelled and zeroed at each traverse point. The measurement system is leak checked to 2” to 4” of W.C. prior to conducting the test. When levelled, the pitot tube is at “0^{o} reference”. The pitot tube is then rotated away from the 0^{o} reference angle until a null (zero) pitot reading is obtained. If the average of the absolute values of the rotation angles is greater than 20^{o}, cyclonic flow is present.

2.2 Quality Assurance/Quality Control

AGAT Laboratories Ltd. Source Testing department QA/QC protocols include, but are not limited to the following:

i) Regular maintenance and calibration of all field-sampling equipment as per applicable sampling protocols.

ii) On-site leak checks of sample system and pitot tubes.

iii) Proper sealing, labeling, storing, transport and chain of custody/log in procedures upon return of the laboratory, when applicable.

iv) Use of EPA Protocol 1 and RATA grade calibration gases, where applicable.

v) Linearity and response time checks are conducted on all analyzers prior to use.

vi) Calibration drift is checked during testing to assure instruments are performing within allowable limits.

vii) Technical review on all final lab analysis and final written source emission survey reports.

viii) Collected samples requiring laboratory analysis are performed by a ISO/IEC 17025 accredited lab.

Part 3- Discussion

3.1 Stack Characteristics

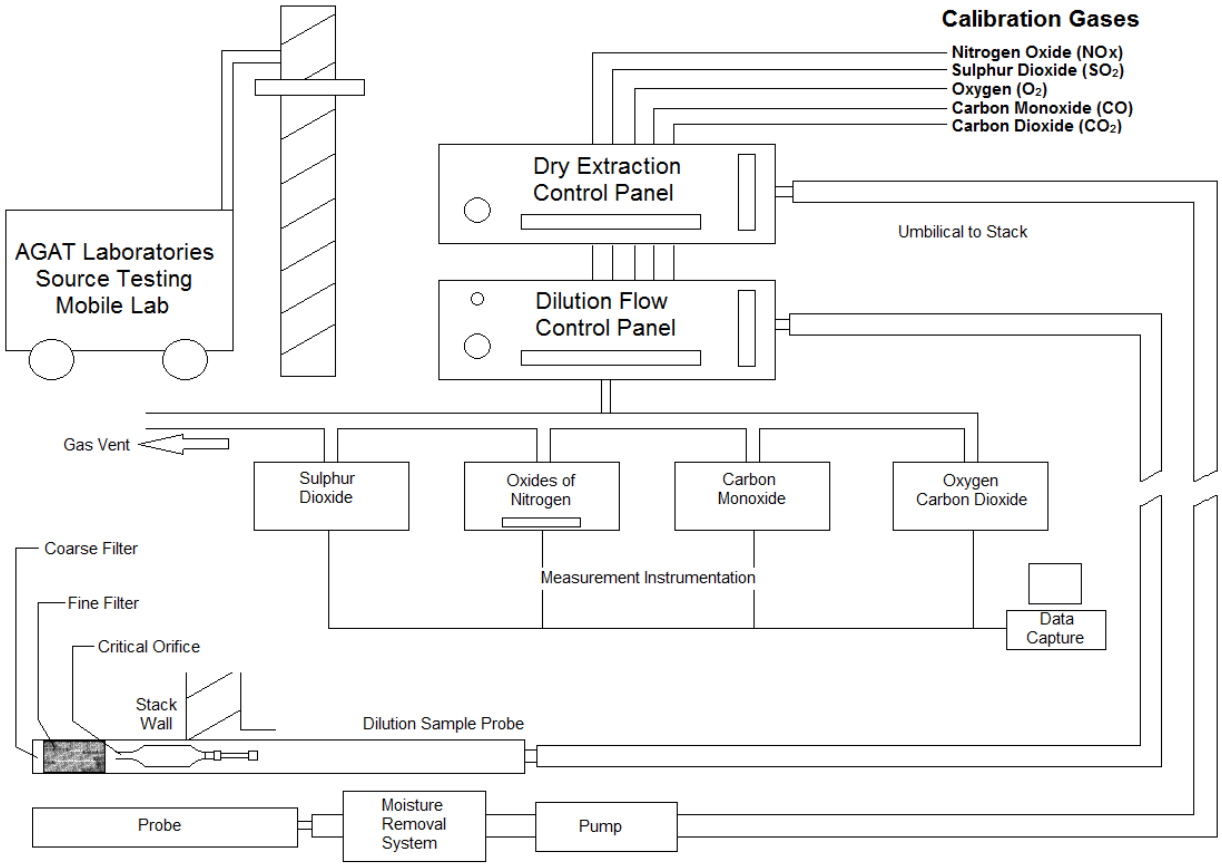
The Train 1 Acid Gas Incinerator Stack (AGI) at the LNG Canada Development Inc. - LNG Canada Kitimat Liquified Natural Gas (LNG) Facility has an internal stack diameter of 3.35m and a height of 50.0m. The sample points are located at an elevation of 43.8m, with a taper in the stack as last disturbance upstream at 25.2m (5.55 diameters), and the stack exit downstream at 50.0m (1.85 diameters).

3.2 Test Results

Stratification testing was not conducted at this time. Cyclonic Flow testing was conducted at this time; data results obtained from the source emission testing indicated that no cyclonic flow conditions were observed.

No problems were encountered during the sampling period that required corrective action. The test results obtained are an accurate representation of emission characteristics for the process conditions maintained at the LNG Canada Development Inc. - Train 1 Acid Gas Incinerator Stack (AGI) at LNG Canada Kitimat Liquified Natural Gas (LNG) Facility on the test date of September 26, 2025.

Figure 1: Schematic of the Mobile CEMS Instrumentation System



Appendix I – Emission Data & Calculations

Total Hydrocarbons (THC)

Parameter	THC as Methane	Test 1	Test 2	Test 3
	9/26/2025	11:40 - 12:40	12:50 - 13:50	14:00 - 15:00
Baro. Press.	(in. Hg)	29.38	29.38	29.38
DGM Factor	(Y)	0.9987	0.9987	0.9987
Meter Type	(**M**etric/**E**nglish)	English	English	English
Moisture	%	9.00	6.43	6.80
Gas Volume	(m^3 std.)	0.347	0.347	0.334
THC	(ppm dry sample)	0.0500	0.0500	0.0500
	(ppm wet sample)	0.0455	0.0468	0.0466
Flow Rate	(m^3/sec) - dry	12.9	12.5	12.1
	(m^3/sec) - wet	14.1	13.3	13.0

					Average
THC	**ppm - dry**	**0.0500**	**0.0500**	**0.0500**	**0.0500**
	ppm - wet	**0.0455**	**0.0468**	**0.0466**	**0.0463**
	mg/m^3 - dry	**0.0333**	**0.0333**	**0.0333**	**0.0333**
	mg/m^3 - wet	**0.0303**	**0.0312**	**0.0311**	**0.0309**
	kg/hr - dry	**0.00155**	**0.00150**	**0.00145**	**0.00150**
	kg/hr - wet	**0.00154**	**0.00149**	**0.00145**	**0.00150**

Minimum detection limit of THC is <1 ppm; in calculation of total average measurements, 1 ppm was used as <MDL.

Tstd. (oF)	77
Pstd. (in. Hg)	29.92

Company: LNG Canada Development Inc. - Train 1
Acid Gas Incinerator Stack (AGI)

Date: 9/26/2025

Hydrogen Sulfide (H_2S)

MSS Test #	1	2	3	Average
H2S Dry to Wet	**-0.00240**	**-0.00163**	**-0.00174**	-0.00192
Reference ppm - Dry	0.000300	0.000300	0.000300	0.000300
mg/m3 - Wet	-0.00340	-0.00231	-0.00247	-0.00273
mg/m3 - Dry	0.000425	0.000425	0.000425	0.000425
Reference Flow (e^3m^3/day) - Wet	1220	1152	1121	1164
H_2S kg/hr	-0.000173	-0.000111	-0.000115	-0.000133
H_2S t/day	-0.00000415	-0.00000266	-0.00000276	-0.00000319
Stack Moisture	9.00	6.43	6.80	7.41

Note: MDL values were used to calculate final average results for test runs that has <MDL results.

Train 1 Acid Gas Incinerator Stack (AGI) - Total VOC					
Compliance Parameter	**Units**	**Test 1 9/26/2025 11:40 – 12:40**	**Test 2 9/26/2025 12:50 – 13:50**	**Test 3 9/26/2025 14:00 – 15:00**	**Average**
Total VOC	**ppm - dry**	0.0300	0.0277	0.00514	**0.0210**
Concentration	**ppm - wet**	0.0273	0.0259	0.00479	**0.0193**
	mg/m^3 - dry	0.0850	0.0861	0.0151	**0.0620**
	mg/m^3 - wet	0.0773	0.0806	0.0141	**0.0573**
Emission Rate	**kg/hr**	0.00392	0.00386	0.000658	**0.00281**

Water Content	**%**	9.00	6.43	6.80	**7.41**
Flow	**m^3/sec - wet**	14.1	13.3	13.0	**13.5**
	m^3/sec - dry	12.8	12.4	12.1	**12.5**

BTEX	T1	T2	T3	AVG
Dry ppm	0.00263	0.00104	0.00076	0.00148
Wet ppm	0.00239	0.000973	0.000708	0.00136
mg/m3 Dry	0.0102	0.00404	0.00292	0.00571
mg/m3 Wet	0.00926	0.00378	0.00272	0.00526
kg/hr	0.000470	0.000181	0.000128	0.000260

Train 1 Acid Gas Incinerator Stack (AGI) - Total VOC

Test 1
9/26/2025
11:40 – 12:40

Standard pressure:	mmHg	760
Standard Temperature:	deg C	20
Dry Flow Rate:	m3/s	12.8

$$mg/m3 = \frac{ppbv/1000 \times Molecular\ Weight}{Molar\ volume\ (24.05)}$$

$$kg/hr = \frac{mg/m3 \times Flow(m3/hr)}{1.00E+06}$$

			mg/m3	kg/hr
Total VOC	**ppbv**	**30.02**	**0.0849684**	**3.92E-03**

BTEX			**ppbv**	**2.63**	**0.01018111**	**0.000470282**
Benzene	C6H6	78.114	ppbv	0.17	0.000552157	2.5505E-05
Toluene	C7H8	92.141	ppbv	2.11	0.008083888	0.000373408
Ethylbenzene	C8H10	106.168	ppbv	0.08	0.000353158	1.63129E-05
m,p-Xylene	C8H10	106.168	ppbv	0.27	0.001191907	5.50561E-05

Compound	Formula	Molecular Weight (g/mol)	units	test 1	mg/m3	kg/hr
1,1,1-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1,2,2-Tetrachloroethane	C2H2Cl4	167.838	ppbv	< 0.02	0	0
1,1,2-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.02	0	0
1,1-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
1,2,3-Trimethylbenzene	C9H12	120.195	ppbv	< 0.05	0	0
1,2,4-Trichlorobenzene	C6H3Cl3	181.44	ppbv	< 0.3	0	0
1,2,4-Trimethylbenzene	C9H12	120.195	ppbv	0.05	0.000249886	1.15426E-05
1,2-Dibromoethane	C2H4Br2	187.862	ppbv	< 0.02	0	0
1,2-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.03	0	0
1,2-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.03	0	0
1,2-Dichloropropane	C3H6Cl2	112.981	ppbv	< 0.03	0	0
1,3,5-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,3-Butadiene	C4H6	54.092	ppbv	< 0.03	0	0
1,3-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dioxane	C4H8O2	88.106	ppbv	< 0.5	0	0
1-Butene/Isobutylene	C4H8	56.108	ppbv	0.3	0.000699892	3.23291E-05
1-Hexene/2-Methyl-1-pentene	C6H12	84.162	ppbv	< 0.07	0	0
1-Pentene	C5H10	70.135	ppbv	0.05	0.000145811	6.73523E-06
2,2,4-Trimethylpentane	C8H18	114.232	ppbv	0.03	0.000142493	6.58199E-06
2,2-Dimethylbutane	C6H14	86.178	ppbv	< 0.02	0	0
2,3,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,3-Dimethylbutane	C6H14	86.178	ppbv	< 0.09	0	0
2,3-Dimethylpentane	C7H16	100.205	ppbv	0.03	0.000124996	5.77376E-06
2,4-Dimethylpentane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylheptane	C8H18	114.232	ppbv	< 0.02	0	0
2-Methylhexane	C7H16	100.205	ppbv	0.06	0.000249992	1.15475E-05
2-Methylpentane	C6H14	86.178	ppbv	0.08	0.000286663	1.32414E-05
3-Methylheptane	C8H18	114.232	ppbv	< 0.03	0	0
3-Methylhexane	C7H16	100.205	ppbv	0.13	0.000541649	2.50196E-05
3-Methylpentane	C6H14	86.178	ppbv	0.11	0.000394161	1.82069E-05
Acetone	C3H6O	58.08	ppbv	14.6	0.035258545	0.001628649
Acrolein	C3H4O	56.064	ppbv	0.3	0.000699343	3.23038E-05
Benzene	C6H6	78.114	ppbv	0.17	0.000552157	2.5505E-05
Benzyl chloride	C7H7Cl	126.583	ppbv	0.3	0.001578998	7.29364E-05
Bromodichloromethane	CHBrCl2	163.823	ppbv	< 0.03	0	0
Bromoform	CHBr3	252.731	ppbv	< 0.02	0	0
Bromomethane	CH3Br	94.939	ppbv	< 0.02	0	0

Carbon disulfide	CS2	76.131	ppbv	0.33	0.001044625	4.82529E-05
Carbon tetrachloride	CCl4	153.811	ppbv	< 0.02	0	0
Chlorobenzene	C6H5Cl	112.556	ppbv	< 0.02	0	0
Chloroethane	C2H5Cl	64.512	ppbv	< 0.02	0	0
Chloroform	CHCl3	119.369	ppbv	0.05	0.000248168	1.14633E-05
Chloromethane	CH3Cl	50.485	ppbv	0.08	0.000167933	7.75712E-06
cis-1,2-Dichloroethene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
cis-1,3-Dichloropropene	C3H4Cl2	110.965	ppbv	< 0.03	0	0
cis-2-Butene	C4H8	56.108	ppbv	0.18	0.000419935	1.93975E-05
cis-2-Pentene	C5H10	70.135	ppbv	0.08	0.000233297	1.07764E-05
Cyclohexane	C6H12	84.162	ppbv	0.06	0.000209968	9.69874E-06
Cyclopentane	C5H10	70.135	ppbv	0.08	0.000233297	1.07764E-05
Dibromochloromethane	CHBr2Cl	208.277	ppbv	< 0.02	0	0
Ethanol	C2H6O	46.069	ppbv	< 0.5	0	0
Ethyl acetate	C4H8O2	88.106	ppbv	0.4	0.00146538	6.76883E-05
Ethylbenzene	C8H10	106.168	ppbv	0.08	0.000353158	1.63129E-05
Freon-11	CCl3F	137.359	ppbv	< 0.02	0	0
Freon-113	C2Cl3F3	187.366	ppbv	< 0.02	0	0
Freon-114	C2Cl2F4	170.914	ppbv	< 0.03	0	0
Freon-12	CCl2F2	120.907	ppbv	< 0.03	0	0
Hexachloro-1,3-butadiene	C4Cl6	260.744	ppbv	< 0.3	0	0
Isobutane	C4H10	58.124	ppbv	0.21	0.000507528	2.34435E-05
Isopentane	C5H12	72.151	ppbv	0.93	0.002790039	0.000128876
Isoprene	C5H8	68.119	ppbv	< 0.02	0	0
Isopropyl alcohol	C3H8O	60.096	ppbv	0.9	0.002248915	0.000103881
Isopropylbenzene	C9H12	120.195	ppbv	< 0.04	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.27	0.001191907	5.50561E-05
m-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
m-Ethyltoluene	C9H12	120.195	ppbv	< 0.03	0	0
Methyl butyl ketone	C5H10O	86.134	ppbv	< 0.4	0	0
Methyl ethyl ketone	C4H8O	72.107	ppbv	0.7	0.002098748	9.69445E-05
Methyl isobutyl ketone	C6H12O	100.161	ppbv	< 0.3	0	0
Methyl methacrylate	C5H8O2	100.117	ppbv	< 0.08	0	0
Methyl tert butyl ether	C5H12O	88.15	ppbv	< 0.03	0	0
Methylcyclohexane	C7H14	98.189	ppbv	0.04	0.000163308	7.54346E-06
Methylcyclopentane	C6H12	84.162	ppbv	0.11	0.000384941	1.7781E-05
Methylene chloride	CH2Cl2	84.927	ppbv	0.6	0.002118761	9.7869E-05
n-Butane	C4H10	58.124	ppbv	0.85	0.002054279	9.48904E-05
n-Decane	C10H22	142.286	ppbv	< 0.06	0	0
n-Dodecane	C12H26	170.34	ppbv	< 0.3	0	0
n-Heptane	C7H16	100.205	ppbv	0.23	0.000958301	4.42655E-05
n-Hexane	C6H14	86.178	ppbv	0.35	0.00125415	5.79312E-05
n-Nonane	C9H20	128.259	ppbv	0.04	0.000213321	9.85362E-06
n-Octane	C8H18	114.232	ppbv	0.11	0.000522475	2.41339E-05
n-Pentane	C5H12	72.151	ppbv	4.27	0.012810178	0.000591723
n-Propylbenzene	C9H12	120.195	ppbv	< 0.06	0	0
n-Undecane	C11H24	156.313	ppbv	< 0.5	0	0
Naphthalene	C10H8	128.174	ppbv	< 0.3	0	0
o-Ethyltoluene	C9H12	120.195	ppbv	< 0.02	0	0
o-Xylene	C8H10	106.168	ppbv	0.09	0.000397302	1.8352E-05
p-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
p-Ethyltoluene	C9H12	120.195	ppbv	< 0.04	0	0
Styrene	C8H8	104.152	ppbv	< 0.04	0	0
Tetrachloroethylene	C2Cl4	165.822	ppbv	< 0.02	0	0
Tetrahydrofuran	C4H8O	72.107	ppbv	0.4	0.001199285	5.53969E-05
Toluene	C7H8	92.141	ppbv	2.11	0.008083888	0.000373408
trans-1,2-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.06	0	0
trans-1,3-Dichloropropylene	C3H4Cl2	110.965	ppbv	< 0.02	0	0
trans-2-Butene	C4H8	56.108	ppbv	0.15	0.000349946	1.61646E-05
trans-2-Pentene	C5H10	70.135	ppbv	0.11	0.000320784	1.48175E-05
Trichloroethylene	C2HCl3	131.38	ppbv	< 0.02	0	0
Vinyl acetate	C4H6O2	86.09	ppbv	< 0.3	0	0
Vinyl chloride	C2H3Cl	62.496	ppbv	< 0.02	0	0

Train 1 Acid Gas Incinerator Stack (AGI) - Total VOC

Standard pressure: mmHg 760

Standard Temperature: deg C 20

Test 2

9/26/2025

12:50 – 13:50

Dry Flow Rate: m3/s 12.4

			mg/m3	kg/hr
Total VOC	ppbv	27.71	**0.086087319**	**3.86E-03**

BTEX			**ppbv**	**1.04**	**0.004036968**	**0.000180861**
Benzene	C6H6	78.114	ppbv	0.1	0.000324798	1.45514E-05
Toluene	C7H8	92.141	ppbv	0.75	0.00287342	0.000128733
Ethylbenzene	C8H10	106.168	ppbv	0.04	0.000176579	7.91096E-06
m,p-Xylene	C8H10	106.168	ppbv	0.15	0.00066217	2.96661E-05

Compound	Formula	Molecular Weight (g/mol)	units	test 2	mg/m3	kg/hr
1,1,1-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1,2,2-Tetrachloroethane	C2H2Cl4	167.838	ppbv	< 0.02	0	0
1,1,2-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.02	0	0
1,1-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
1,2,3-Trimethylbenzene	C9H12	120.195	ppbv	< 0.05	0	0
1,2,4-Trichlorobenzene	C6H3Cl3	181.44	ppbv	< 0.3	0	0
1,2,4-Trimethylbenzene	C9H12	120.195	ppbv	0.04	0.000199909	8.95616E-06
1,2-Dibromoethane	C2H4Br2	187.862	ppbv	< 0.02	0	0
1,2-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.03	0	0
1,2-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.03	0	0
1,2-Dichloropropane	C3H6Cl2	112.981	ppbv	< 0.03	0	0
1,3,5-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,3-Butadiene	C4H6	54.092	ppbv	< 0.03	0	0
1,3-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dioxane	C4H8O2	88.106	ppbv	< 0.5	0	0
1-Butene/Isobutylene	C4H8	56.108	ppbv	< 0.06	0	0
1-Hexene/2-Methyl-1-pentene	C6H12	84.162	ppbv	< 0.07	0	0
1-Pentene	C5H10	70.135	ppbv	< 0.03	0	0
2,2,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,2-Dimethylbutane	C6H14	86.178	ppbv	< 0.02	0	0
2,3,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,3-Dimethylbutane	C6H14	86.178	ppbv	< 0.09	0	0
2,3-Dimethylpentane	C7H16	100.205	ppbv	0.03	0.000124996	5.59998E-06
2,4-Dimethylpentane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylheptane	C8H18	114.232	ppbv	< 0.02	0	0
2-Methylhexane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
3-Methylheptane	C8H18	114.232	ppbv	< 0.03	0	0
3-Methylhexane	C7H16	100.205	ppbv	< 0.02	0	0
3-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
Acetone	C3H6O	58.08	ppbv	4.2	0.010142869	0.000454414
Acrolein	C3H4O	56.064	ppbv	< 0.3	0	0
Benzene	C6H6	78.114	ppbv	0.1	0.000324798	1.45514E-05
Benzyl chloride	C7H7Cl	126.583	ppbv	0.3	0.001578998	7.07412E-05
Bromodichloromethane	CHBrCl2	163.823	ppbv	< 0.03	0	0
Bromoform	CHBr3	252.731	ppbv	< 0.02	0	0
Bromomethane	CH3Br	94.939	ppbv	< 0.02	0	0

Carbon disulfide	CS2	76.131	ppbv	20.7	0.065526474	0.002935672
Carbon tetrachloride	CCl4	153.811	ppbv	< 0.02	0	0
Chlorobenzene	C6H5Cl	112.556	ppbv	< 0.02	0	0
Chloroethane	C2H5Cl	64.512	ppbv	< 0.02	0	0
Chloroform	CHCl3	119.369	ppbv	0.03	0.000148901	6.67096E-06
Chloromethane	CH3Cl	50.485	ppbv	0.05	0.000104958	4.70228E-06
cis-1,2-Dichloroethene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
cis-1,3-Dichloropropene	C3H4Cl2	110.965	ppbv	< 0.03	0	0
cis-2-Butene	C4H8	56.108	ppbv	< 0.03	0	0
cis-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Cyclohexane	C6H12	84.162	ppbv	< 0.04	0	0
Cyclopentane	C5H10	70.135	ppbv	< 0.02	0	0
Dibromochloromethane	CHBr2Cl	208.277	ppbv	< 0.02	0	0
Ethanol	C2H6O	46.069	ppbv	< 0.5	0	0
Ethyl acetate	C4H8O2	88.106	ppbv	< 0.3	0	0
Ethylbenzene	C8H10	106.168	ppbv	0.04	0.000176579	7.91096E-06
Freon-11	CCl3F	137.359	ppbv	< 0.02	0	0
Freon-113	C2Cl3F3	187.366	ppbv	< 0.02	0	0
Freon-114	C2Cl2F4	170.914	ppbv	< 0.03	0	0
Freon-12	CCl2F2	120.907	ppbv	< 0.03	0	0
Hexachloro-1,3-butadiene	C4Cl6	260.744	ppbv	< 0.3	0	0
Isobutane	C4H10	58.124	ppbv	< 0.03	0	0
Isopentane	C5H12	72.151	ppbv	0.99	0.002970041	0.000133062
Isoprene	C5H8	68.119	ppbv	< 0.02	0	0
Isopropyl alcohol	C3H8O	60.096	ppbv	< 0.3	0	0
Isopropylbenzene	C9H12	120.195	ppbv	< 0.04	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.15	0.00066217	2.96661E-05
m-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
m-Ethyltoluene	C9H12	120.195	ppbv	< 0.03	0	0
Methyl butyl ketone	C5H10O	86.134	ppbv	< 0.4	0	0
Methyl ethyl ketone	C4H8O	72.107	ppbv	< 0.3	0	0
Methyl isobutyl ketone	C6H12O	100.161	ppbv	< 0.3	0	0
Methyl methacrylate	C5H8O2	100.117	ppbv	< 0.08	0	0
Methyl tert butyl ether	C5H12O	88.15	ppbv	< 0.03	0	0
Methylcyclohexane	C7H14	98.189	ppbv	< 0.02	0	0
Methylcyclopentane	C6H12	84.162	ppbv	< 0.05	0	0
Methylene chloride	CH2Cl2	84.927	ppbv	< 0.3	0	0
n-Butane	C4H10	58.124	ppbv	0.04	9.66719E-05	4.33103E-06
n-Decane	C10H22	142.286	ppbv	< 0.06	0	0
n-Dodecane	C12H26	170.34	ppbv	< 0.3	0	0
n-Heptane	C7H16	100.205	ppbv	0.06	0.000249992	1.12E-05
n-Hexane	C6H14	86.178	ppbv	0.04	0.000143331	6.42144E-06
n-Nonane	C9H20	128.259	ppbv	< 0.04	0	0
n-Octane	C8H18	114.232	ppbv	0.07	0.000332484	1.48957E-05
n-Pentane	C5H12	72.151	ppbv	0.07	0.000210003	9.40841E-06
n-Propylbenzene	C9H12	120.195	ppbv	< 0.06	0	0
n-Undecane	C11H24	156.313	ppbv	< 0.5	0	0
Naphthalene	C10H8	128.174	ppbv	< 0.3	0	0
o-Ethyltoluene	C9H12	120.195	ppbv	< 0.02	0	0
o-Xylene	C8H10	106.168	ppbv	0.05	0.000220723	9.8887E-06
p-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
p-Ethyltoluene	C9H12	120.195	ppbv	< 0.04	0	0
Styrene	C8H8	104.152	ppbv	< 0.04	0	0
Tetrachloroethylene	C2Cl4	165.822	ppbv	< 0.02	0	0
Tetrahydrofuran	C4H8O	72.107	ppbv	< 0.3	0	0
Toluene	C7H8	92.141	ppbv	0.75	0.00287342	0.000128733
trans-1,2-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.06	0	0
trans-1,3-Dichloropropylene	C3H4Cl2	110.965	ppbv	< 0.02	0	0
trans-2-Butene	C4H8	56.108	ppbv	< 0.03	0	0
trans-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Trichloroethylene	C2HCl3	131.38	ppbv	< 0.02	0	0
Vinyl acetate	C4H6O2	86.09	ppbv	< 0.3	0	0
Vinyl chloride	C2H3Cl	62.496	ppbv	< 0.02	0	0

Train 1 Acid Gas Incinerator Stack (AGI) - Total VOC

Standard pressure: mmHg 760

Standard Temperature: deg C 20

Test 3

9/26/2025

14:00 – 15:00

Dry Flow Rate: m3/s 12.1

			mg/m3	kg/hr
Total VOC	ppbv	5.14	**0.015077252**	**6.58E-04**

BTEX			**ppbv**	**0.76**	**0.002923397**	**0.000127512**
Benzene	C6H6	78.114	ppbv	0.09	0.000292319	1.27502E-05
Toluene	C7H8	92.141	ppbv	0.56	0.002145487	9.3581E-05
Ethylbenzene	C8H10	106.168	ppbv	0	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.11	0.000485592	2.11803E-05

Compound	Formula	Molecular Weight (g/mol)	units	test 3	mg/m3	kg/hr
1,1,1-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1,2,2-Tetrachloroethane	C2H2Cl4	167.838	ppbv	< 0.02	0	0
1,1,2-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.02	0	0
1,1-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
1,2,3-Trimethylbenzene	C9H12	120.195	ppbv	< 0.05	0	0
1,2,4-Trichlorobenzene	C6H3Cl3	181.44	ppbv	< 0.3	0	0
1,2,4-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,2-Dibromoethane	C2H4Br2	187.862	ppbv	< 0.02	0	0
1,2-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.03	0	0
1,2-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.03	0	0
1,2-Dichloropropane	C3H6Cl2	112.981	ppbv	< 0.03	0	0
1,3,5-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,3-Butadiene	C4H6	54.092	ppbv	< 0.03	0	0
1,3-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dioxane	C4H8O2	88.106	ppbv	< 0.5	0	0
1-Butene/Isobutylene	C4H8	56.108	ppbv	< 0.06	0	0
1-Hexene/2-Methyl-1-pentene	C6H12	84.162	ppbv	< 0.07	0	0
1-Pentene	C5H10	70.135	ppbv	< 0.03	0	0
2,2,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,2-Dimethylbutane	C6H14	86.178	ppbv	< 0.02	0	0
2,3,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,3-Dimethylbutane	C6H14	86.178	ppbv	< 0.09	0	0
2,3-Dimethylpentane	C7H16	100.205	ppbv	< 0.02	0	0
2,4-Dimethylpentane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylheptane	C8H18	114.232	ppbv	< 0.02	0	0
2-Methylhexane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
3-Methylheptane	C8H18	114.232	ppbv	< 0.03	0	0
3-Methylhexane	C7H16	100.205	ppbv	< 0.02	0	0
3-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
Acetone	C3H6O	58.08	ppbv	3.4	0.008210894	0.000358139
Acrolein	C3H4O	56.064	ppbv	< 0.3	0	0
Benzene	C6H6	78.114	ppbv	0.09	0.000292319	1.27502E-05
Benzyl chloride	C7H7Cl	126.583	ppbv	0.3	0.001578998	6.88721E-05
Bromodichloromethane	CHBrCl2	163.823	ppbv	< 0.03	0	0
Bromoform	CHBr3	252.731	ppbv	< 0.02	0	0
Bromomethane	CH3Br	94.939	ppbv	< 0.02	0	0

Carbon disulfide	CS2	76.131	ppbv	0.18	0.000569795	2.48531E-05
Carbon tetrachloride	CCl4	153.811	ppbv	< 0.02	0	0
Chlorobenzene	C6H5Cl	112.556	ppbv	< 0.02	0	0
Chloroethane	C2H5Cl	64.512	ppbv	< 0.02	0	0
Chloroform	CHCl3	119.369	ppbv	0.02	9.92674E-05	4.3298E-06
Chloromethane	CH3Cl	50.485	ppbv	< 0.04	0	0
cis-1,2-Dichloroethene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
cis-1,3-Dichloropropene	C3H4Cl2	110.965	ppbv	< 0.03	0	0
cis-2-Butene	C4H8	56.108	ppbv	< 0.03	0	0
cis-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Cyclohexane	C6H12	84.162	ppbv	< 0.04	0	0
Cyclopentane	C5H10	70.135	ppbv	< 0.02	0	0
Dibromochloromethane	CHBr2Cl	208.277	ppbv	< 0.02	0	0
Ethanol	C2H6O	46.069	ppbv	< 0.5	0	0
Ethyl acetate	C4H8O2	88.106	ppbv	< 0.3	0	0
Ethylbenzene	C8H10	106.168	ppbv	< 0.03	0	0
Freon-11	CCl3F	137.359	ppbv	< 0.02	0	0
Freon-113	C2Cl3F3	187.366	ppbv	< 0.02	0	0
Freon-114	C2Cl2F4	170.914	ppbv	< 0.03	0	0
Freon-12	CCl2F2	120.907	ppbv	< 0.03	0	0
Hexachloro-1,3-butadiene	C4Cl6	260.744	ppbv	< 0.3	0	0
Isobutane	C4H10	58.124	ppbv	< 0.03	0	0
Isopentane	C5H12	72.151	ppbv	0.11	0.000330005	1.4394E-05
Isoprene	C5H8	68.119	ppbv	< 0.02	0	0
Isopropyl alcohol	C3H8O	60.096	ppbv	< 0.3	0	0
Isopropylbenzene	C9H12	120.195	ppbv	< 0.04	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.11	0.000485592	2.11803E-05
m-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
m-Ethyltoluene	C9H12	120.195	ppbv	< 0.03	0	0
Methyl butyl ketone	C5H10O	86.134	ppbv	< 0.4	0	0
Methyl ethyl ketone	C4H8O	72.107	ppbv	< 0.3	0	0
Methyl isobutyl ketone	C6H12O	100.161	ppbv	< 0.3	0	0
Methyl methacrylate	C5H8O2	100.117	ppbv	< 0.08	0	0
Methyl tert butyl ether	C5H12O	88.15	ppbv	< 0.03	0	0
Methylcyclohexane	C7H14	98.189	ppbv	< 0.02	0	0
Methylcyclopentane	C6H12	84.162	ppbv	< 0.05	0	0
Methylene chloride	CH2Cl2	84.927	ppbv	< 0.3	0	0
n-Butane	C4H10	58.124	ppbv	0.04	9.66719E-05	4.2166E-06
n-Decane	C10H22	142.286	ppbv	< 0.06	0	0
n-Dodecane	C12H26	170.34	ppbv	< 0.3	0	0
n-Heptane	C7H16	100.205	ppbv	0.05	0.000208326	9.0867E-06
n-Hexane	C6H14	86.178	ppbv	0.04	0.000143331	6.25177E-06
n-Nonane	C9H20	128.259	ppbv	< 0.04	0	0
n-Octane	C8H18	114.232	ppbv	0.08	0.000379982	1.65739E-05
n-Pentane	C5H12	72.151	ppbv	0.12	0.000360005	1.57026E-05
n-Propylbenzene	C9H12	120.195	ppbv	< 0.06	0	0
n-Undecane	C11H24	156.313	ppbv	< 0.5	0	0
Naphthalene	C10H8	128.174	ppbv	< 0.3	0	0
o-Ethyltoluene	C9H12	120.195	ppbv	< 0.02	0	0
o-Xylene	C8H10	106.168	ppbv	0.04	0.000176579	7.70194E-06
p-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
p-Ethyltoluene	C9H12	120.195	ppbv	< 0.04	0	0
Styrene	C8H8	104.152	ppbv	< 0.04	0	0
Tetrachloroethylene	C2Cl4	165.822	ppbv	< 0.02	0	0
Tetrahydrofuran	C4H8O	72.107	ppbv	< 0.3	0	0
Toluene	C7H8	92.141	ppbv	0.56	0.002145487	9.3581E-05
trans-1,2-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.06	0	0
trans-1,3-Dichloropropylene	C3H4Cl2	110.965	ppbv	< 0.02	0	0
trans-2-Butene	C4H8	56.108	ppbv	< 0.03	0	0
trans-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Trichloroethylene	C2HCl3	131.38	ppbv	< 0.02	0	0
Vinyl acetate	C4H6O2	86.09	ppbv	< 0.3	0	0
Vinyl chloride	C2H3Cl	62.496	ppbv	< 0.02	0	0

Source AGI-INCIN **Test #** 1 **Date** 25/09/26

Start Time 12:10 **End Time** 12:20

Summary

Average Stack Gas Velocity		6.64	m/s
Average Stack Gas Volumetric Flow Rate	Dry	46300	std m3/hour
	Wet	50800	std m3/hour
	Dry	12.9	std m3/sec
	Wet	14.1	std m3/sec
Average Stack Gas Mass Flow Rate	Dry	53500	kg/hour
	Wet	58700	kg/hour
Stack Cross Sectional Area		8.81	m2
Average Stack Gas Temperature		939	Celsius
Dry Molecular Weight		29.3	kg/kg-mol
Wet Molecular Weight		28.3	kg/kg-mol
Molar Fraction Water Vapor		0.09	

Fixed Gas

	%O2	%CO2	%N2	CO ppm
Dry	12.0	5.0	83.0	#N/A
Wet	10.9	4.5	75.5	#N/A

Data and Calculations

Source AGI-INCIN **Test #** 1 **Date** 25/09/26

Start Time 12:10 **End Time** 12:20

Average Stack Gas Velocity. **6.640 m/s**

Vs = Kp Cp (Avg.dp)^.5 (Ts / Ps Ms)^.5

Average Stack Gas Wet Volumetric Flow Rate. **14.12 std m3/sec**

50847.72 std m3/hour

Qsw = 3600 Vs A (Tstd Ps/Ts Pstd) 1220.35 E3M3/day

QswKg = Qsw(Ms)/ 24.465437 58743.76 kg/hour

Dry Molecular Wt. **29.28 kg/kg-mol**

Md = 0.44(%CO2) + 0.32(%O2) + 0.28(%N2)

Wet Molecular Wt. **28.26 kg/kg-mol**

Ms = Md (1 - %H2O/100) + 18.0 * %H2O/100

_H2O 9.0015519 Molar Percent Water

Molar Fraction Water Vapor. **0.0900**

Vw(std) = K (Wf - Wi) Volume Water vapor at s.t.p. M^3 0 _Vw(st

Vm(std) = Vm Y Pm Tstd / (Pstd Tm) Volume meter gas at s.t.p. M^3 0.6211 _Vm(st

Vsg(std) = K2(sg) (Wf -Wi) Water Water in silica s.t.p. M^3 0.0614 _Vsg(st

%H2O = Vw(std) + Vsg(std) / (Vw(std) + Vm(std) + Vsg(std))

_Kp	34.9219	Pitot tube constant
_Cp	0.809	Pitot tube coefficient
_NP	16	Number of traverse points
_Dts	939.1	Temperature Stack C
_Ts	1212.2	Absolute stack temperature K
_Bp	746.3	Barometric Pressure mmHg
_Pst	-6.858	Static Pressure mmH20
_Ps	745.75	Absolute stack pressure mm Hg
_Ms	28.26	Molecular weight of stack gas, wet basis g/g-mole
_A	8.8142	Area Square Meters 3.350006 Diameter Meters
_Tstd	298.15	Standard absolute temperature K
_Pstd	760	Standard absolute pressure

_K	0.0013552	Constant = Density R Tstd / (P(std) Mw)
_K2(sg)	0.0013592	Constant = R Tstd / (P(std) Mw)
_Wi	0.0	Initial Weight of Water in grams
_Wf	0.0	Final Weight of water in grams
_V	0.59538	Volume of gas metered cubic meters
_Y	0.999	Meter factor
_Tmc	7.50	Temperature meter Celsius
_Tm	280.7	Temperature Meter Kelvin
_Vac	-127.00	Impinger Vacuum mmHg
_Vp	11.47	Vapor Pressure mmHg
_CO2	5	Molar Percent Carbon Dioxide
_O2	12	Molar Percent Oxygen
_N2	83.0	Molar Percent Nitrogen
_CO	#N/A	ppm

Source AGI-INCIN **Test #** 2 **Date** 25/09/26

Start Time 13:10 **End Time** 13:20

Summary

Average Stack Gas Velocity		6.29	m/s
Average Stack Gas Volumetric Flow Rate	Dry	44900	std m3/hour
	Wet	48000	std m3/hour
	Dry	12.5	std m3/sec
	Wet	13.3	std m3/sec
Average Stack Gas Mass Flow Rate	Dry	52400	kg/hour
	Wet	56000	kg/hour
Stack Cross Sectional Area		8.81	m2
Average Stack Gas Temperature		943	Celsius
Dry Molecular Weight		29.3	kg/kg-mol
Wet Molecular Weight		28.6	kg/kg-mol
Molar Fraction Water Vapor		0.0643	

Fixed Gas

	%O2	%CO2	%N2	CO ppm
Dry	12.0	5.0	83.0	#N/A
Wet	11.2	4.7	77.7	#N/A

Data and Calculations

Source AGI-INCIN **Test #** 2 **Date** 25/09/26

Start Time 13:10 **End Time** 13:20

Average Stack Gas Velocity. **6.290 m/s**

Vs = Kp Cp (Avg.dp)^.5 (Ts / Ps Ms)^.5

Average Stack Gas Wet Volumetric Flow Rate. **13.34 std m3/sec**

48010.96 std m3/hour

Qsw = 3600 Vs A (Tstd Ps/Ts Pstd) 1152.26 E3M3/day

QswKg = Qsw(Ms)/ 24.465437 56035.40 kg/hour

Dry Molecular Wt. **29.28 kg/kg-mol**

Md = 0.44(%CO2) + 0.32(%O2) + 0.28(%N2)

Wet Molecular Wt. **28.55 kg/kg-mol**

Ms = Md (1 - %H2O/100) + 18.0 * %H2O/100

_H2O 6.431433 Molar Percent Water

Molar Fraction Water Vapor. **0.0643**

Vw(std) = K (Wf - Wi) Volume Water vapor at s.t.p. M^3 0 _Vw(st

Vm(std) = Vm Y Pm Tstd / (Pstd Tm) Volume meter gas at s.t.p. M^3 0.6209 _Vm(st

Vsg(std) = K2(sg) (Wf -Wi) Water Water in silica s.t.p. M^3 0.0427 _Vsg(st

%H2O = Vw(std) + Vsg(std) / (Vw(std) + Vm(std) + Vsg(std))

_Kp	34.9219	Pitot tube constant
_Cp	0.809	Pitot tube coefficient
_NP	16	Number of traverse points
_Dts	943.1	Temperature Stack C
_Ts	1216.2	Absolute stack temperature K
_Bp	746.3	Barometric Pressure mmHg
_Pst	-6.858	Static Pressure mmH20
_Ps	745.75	Absolute stack pressure mm Hg
_Ms	28.55	Molecular weight of stack gas, wet basis g/g-mole
_A	8.8142	Area Square Meters 3.350006 Diameter Meters
_Tstd	298.15	Standard absolute temperature K
_Pstd	760	Standard absolute pressure

_K	0.0013552	Constant = Density R Tstd / (P(std) Mw)
_K2(sg)	0.0013592	Constant = R Tstd / (P(std) Mw)
_Wi	0.0	Initial Weight of Water in grams
_Wf	0.0	Final Weight of water in grams
_V	0.59524	Volume of gas metered cubic meters
_Y	0.999	Meter factor
_Tmc	7.50	Temperature meter Celsius
_Tm	280.7	Temperature Meter Kelvin
_Vac	-127.00	Impinger Vacuum mmHg
_Vp	13.24	Vapor Pressure mmHg
_CO2	5	Molar Percent Carbon Dioxide
_O2	12	Molar Percent Oxygen
_N2	83.0	Molar Percent Nitrogen
_CO	#N/A	ppm

Source AGI-INCIN **Test #** 3 **Date** 25/09/06

Start Time 14:30 **End Time** 14:40

Summary

Average Stack Gas Velocity		6.11	m/s
Average Stack Gas Volumetric Flow Rate	Dry	43500	std m3/hour
	Wet	46700	std m3/hour
	Dry	12.1	std m3/sec
	Wet	13	std m3/sec
Average Stack Gas Mass Flow Rate	Dry	50700	kg/hour
	Wet	54400	kg/hour
Stack Cross Sectional Area		8.81	m2
Average Stack Gas Temperature		943	Celsius
Dry Molecular Weight		29.3	kg/kg-mol
Wet Molecular Weight		28.5	kg/kg-mol
Molar Fraction Water Vapor		0.068	

Fixed Gas

	%O2	%CO2	%N2	CO ppm
Dry	12.0	5.0	83.0	#N/A
Wet	11.2	4.7	77.4	#N/A

Data and Calculations

Source AGI-INCIN **Test #** 3 **Date** 25/09/06

Start Time 14:30 **End Time** 14:40

Average Stack Gas Velocity. **6.115 m/s**

Vs = Kp Cp (Avg.dp)^.5 (Ts / Ps Ms)^.5

Average Stack Gas Wet Volumetric Flow Rate. **12.97 std m3/sec**

46690.98 std m3/hour

Qsw = 3600 Vs A (Tstd Ps/Ts Pstd) 1120.58 E3M3/day

QswKg = Qsw(Ms)/ 24.465437 54415.36 kg/hour

Dry Molecular Wt. **29.28 kg/kg-mol**

Md = 0.44(%CO2) + 0.32(%O2) + 0.28(%N2)

Wet Molecular Wt. **28.51 kg/kg-mol**

Ms = Md (1 - %H2O/100) + 18.0 * %H2O/100

_H2O 6.8004798 Molar Percent Water

Molar Fraction Water Vapor. **0.0680**

Vw(std) = K (Wf - Wi) Volume Water vapor at s.t.p. M^3 0 _Vw(st

Vm(std) = Vm Y Pm Tstd / (Pstd Tm) Volume meter gas at s.t.p. M^3 0.6203 _Vm(st

Vsg(std) = K2(sg) (Wf -Wi) Water Water in silica s.t.p. M^3 0.0453 _Vsg(st

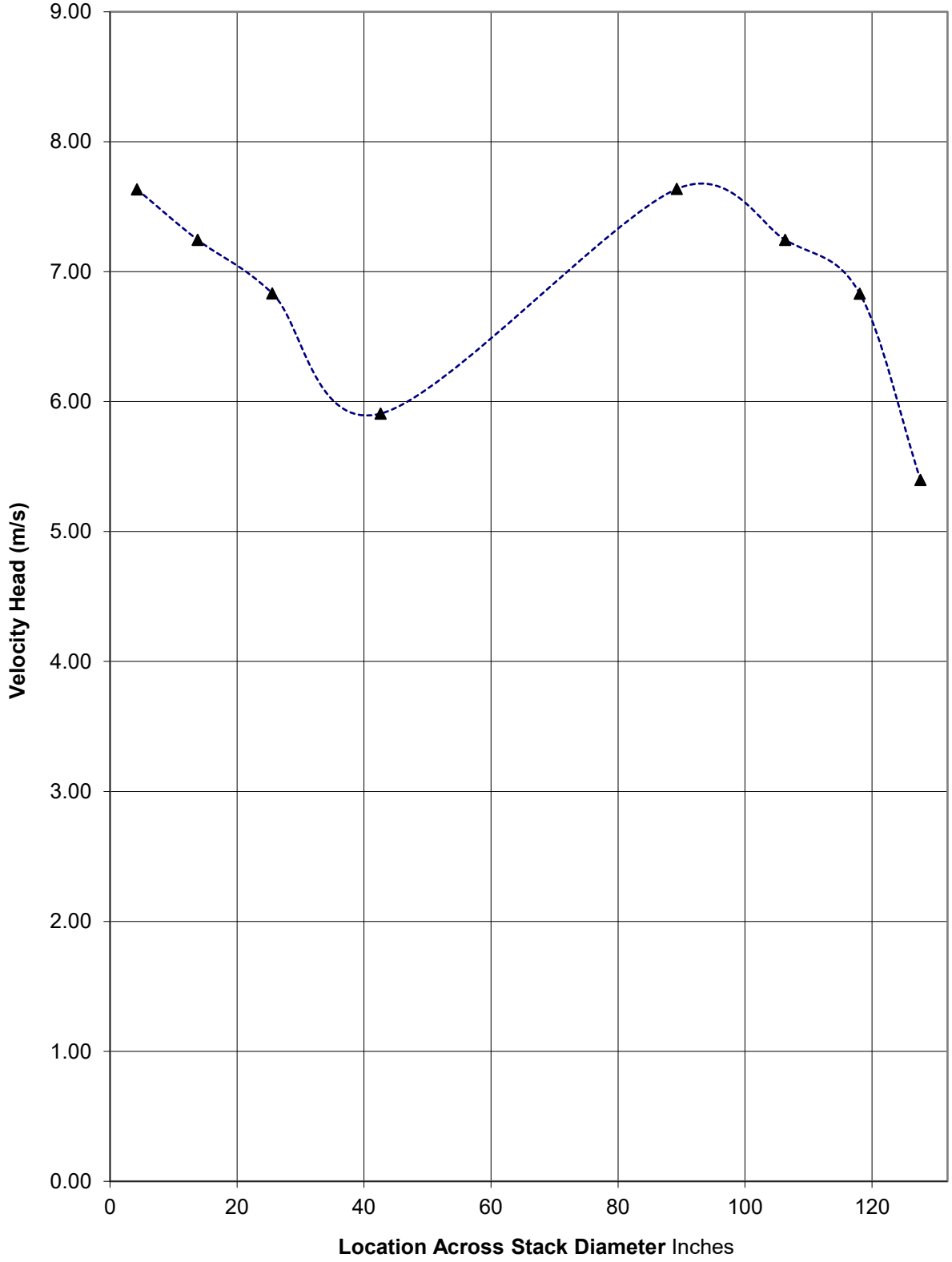
%H2O = Vw(std) + Vsg(std) / (Vw(std) + Vm(std) + Vsg(std))

_Kp	34.9219	Pitot tube constant
_Cp	0.809	Pitot tube coefficient
_NP	16	Number of traverse points
_Dts	942.6	Temperature Stack C
_Ts	1215.7	Absolute stack temperature K
_Bp	746.3	Barometric Pressure mmHg
_Pst	-6.858	Static Pressure mmH20
_Ps	745.75	Absolute stack pressure mm Hg
_Ms	28.51	Molecular weight of stack gas, wet basis g/g-mole
_A	8.8142	Area Square Meters 3.350006 Diameter Meters
_Tstd	298.15	Standard absolute temperature K
_Pstd	760	Standard absolute pressure

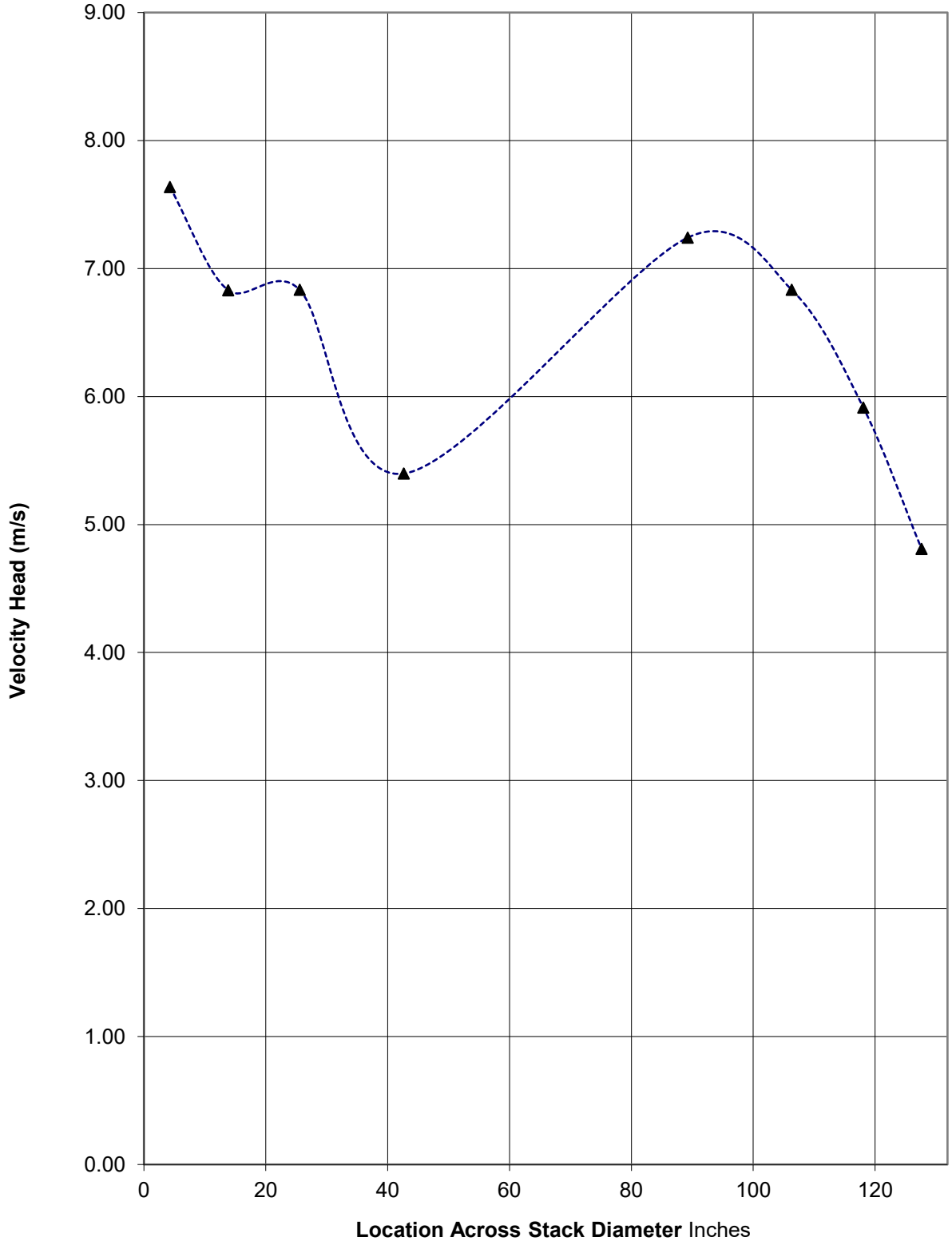
_K	0.0013552	Constant = Density R Tstd / (P(std) Mw)
_K2(sg)	0.0013592	Constant = R Tstd / (P(std) Mw)
_Wi	0.0	Initial Weight of Water in grams
_Wf	0.0	Final Weight of water in grams
_V	0.59464	Volume of gas metered cubic meters
_Y	0.999	Meter factor
_Tmc	7.50	Temperature meter Celsius
_Tm	280.7	Temperature Meter Kelvin
_Vac	-127.00	Impinger Vacuum mmHg
_Vp	13.72	Vapor Pressure mmHg
_CO2	5	Molar Percent Carbon Dioxide
_O2	12	Molar Percent Oxygen
_N2	83.0	Molar Percent Nitrogen
_CO	#N/A	ppm

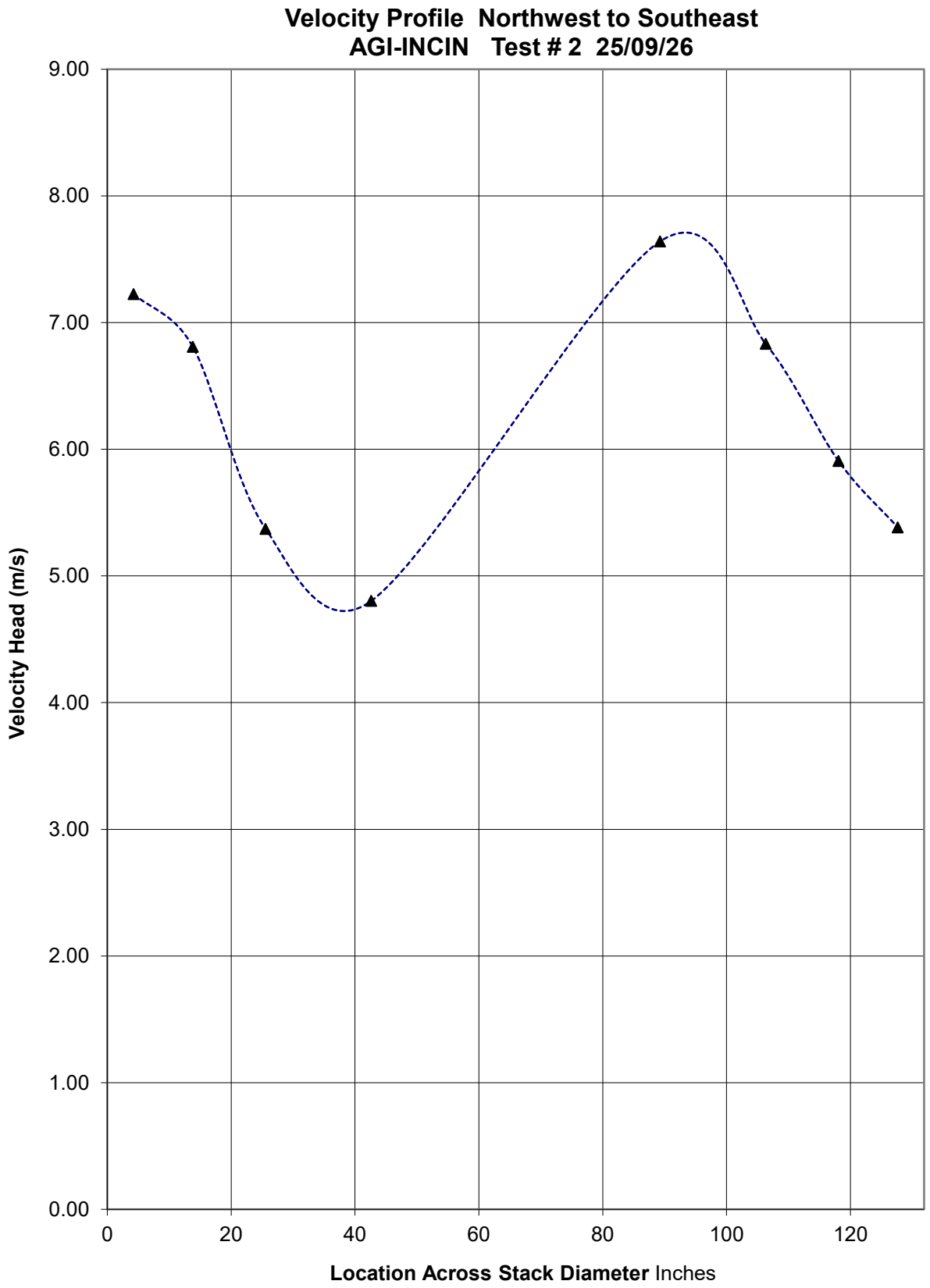
Appendix II – Velocity Profiles

Velocity Profile Northwest to Southeast
AGI-INCIN Test # 1 25/09/26

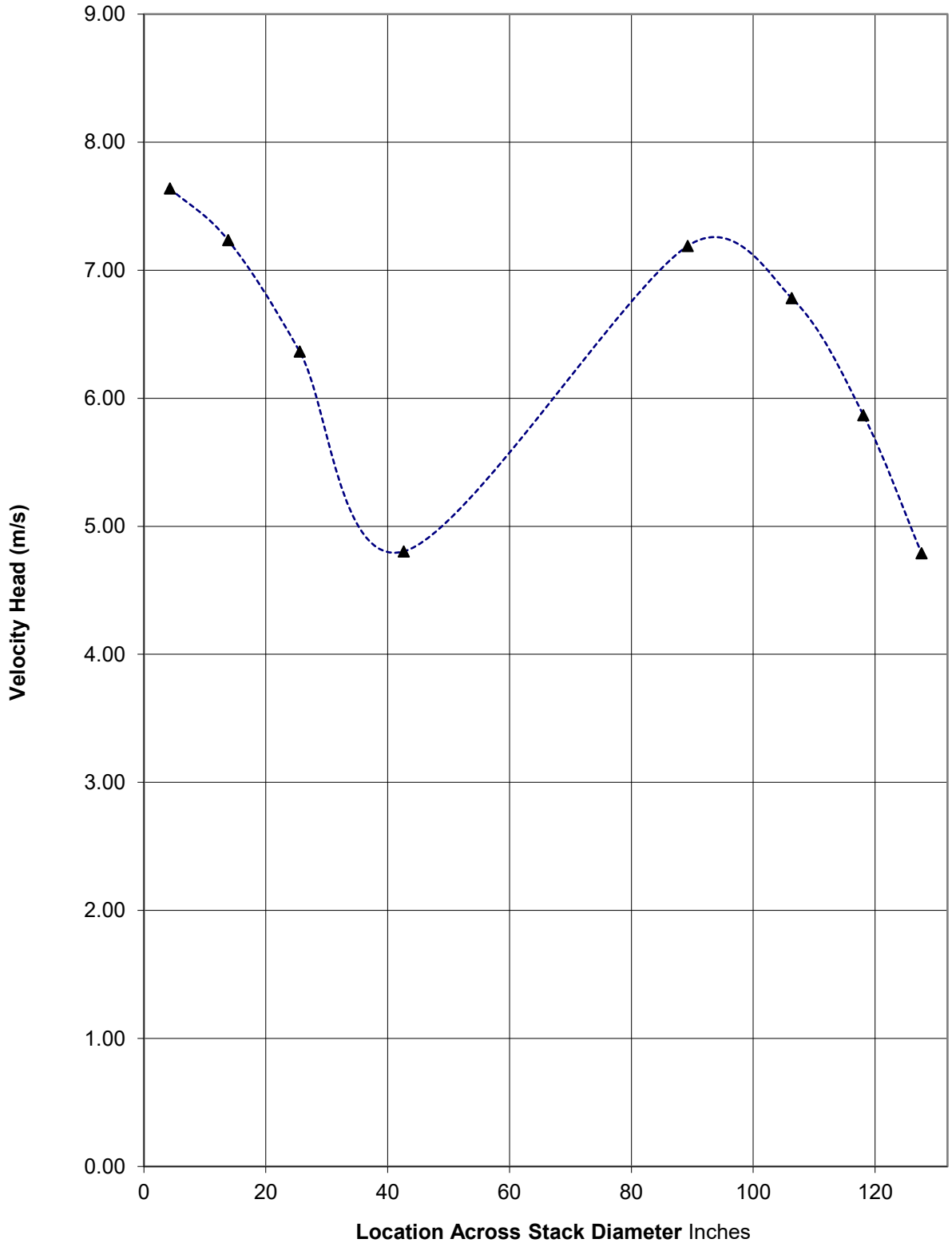


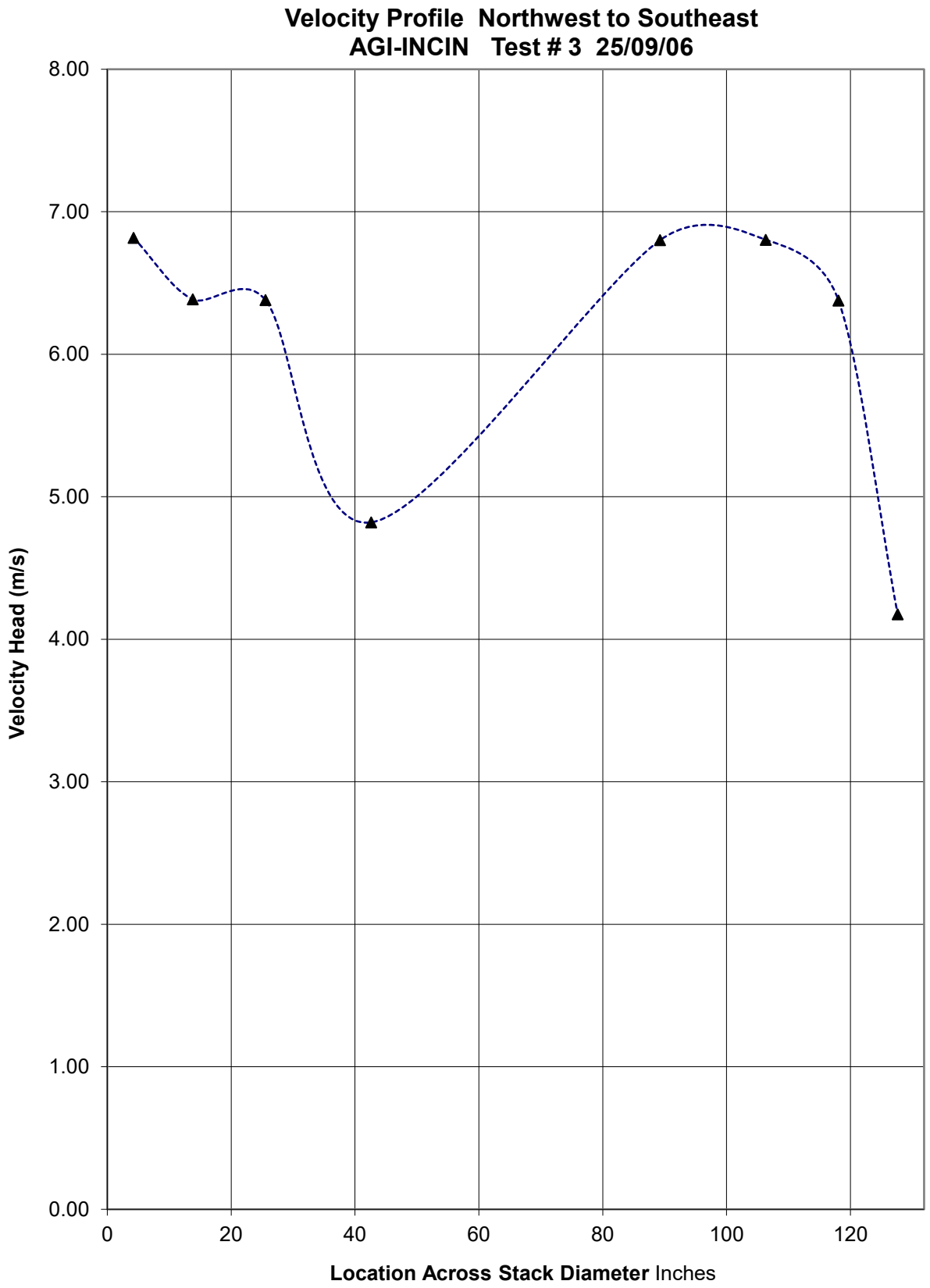
Velocity Profile Northeast to Southwest
AGI-INCIN Test # 1 25/09/26



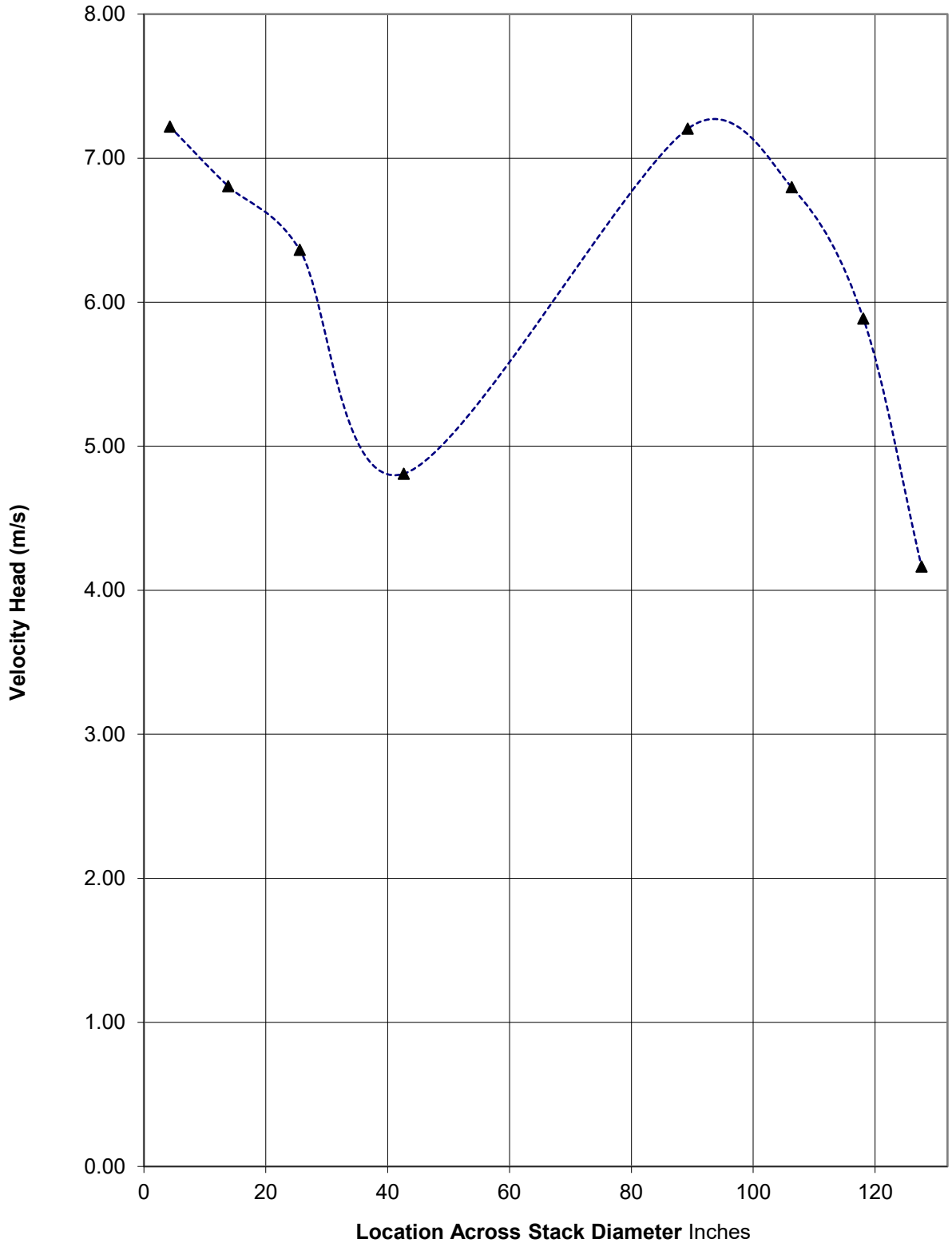

Velocity Profile Northwest to Southeast
AGI-INCIN Test # 2 25/09/26
Velocity Head (m/s)
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0
20
40
60
80
100
120
Location Across Stack Diameter Inches

Velocity Profile Northeast to Southwest
AGI-INCIN Test # 2 25/09/26




Velocity Profile Northwest to Southeast
AGI-INCIN Test # 3 25/09/06
Velocity Head (m/s)
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0
20
40
60
80
100
120
Location Across Stack Diameter Inches

Velocity Profile Northeast to Southwest
AGI-INCIN Test # 3 25/09/06



Appendix III – Analytical Data

InnoTech ALBERTA
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APPLIED CHEMISTRY SERVICES

TEST REPORT

RESULTS: Shaun Hayward 403-369-4749
AGAT Laboratories Ltd.
3700 21 St NE
Calgary
AB T2E 6V6

INVOICE: Accounts Payable
2905 12 St NE
Calgary
AB T2E 7J2

CLIENT SAMPLE ID: LNG - Canada/Kitmat, BC - Can # 1 - Test # 1
Matrix: Ambient Air
CANISTER ID: 23820
PRIORITY: Normal
DESCRIPTION: Acid Gas Incinerator
DATE SAMPLED: 26-Sep-25 11:40
DATE RECEIVED: 02-Oct-25
REPORT CREATED: 17-Oct-25
REPORT NUMBER: 25100010
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-001	Carbon dioxide		80400	ppmv	20	NA-026	02-Oct-25
25100010-001	Oxygen		135000	ppmv	26900	NA-026	02-Oct-25
25100010-001	Hydrocarbons, Total (as Methane)	K, T, U	< 0.05	ppmv	0.05	NA-025	02-Oct-25
25100010-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100010-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-001	1,2,4-Trimethylbenzene	I	0.05	ppbv	0.03	AC-058	04-Oct-25
25100010-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing
Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	23820	Ambient Air	26-Sep-25 11:40

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100010-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100010-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100010-001	1-Butene/Isobutylene		0.30	ppbv	0.06	AC-058	04-Oct-25
25100010-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	04-Oct-25
25100010-001	1-Pentene	I	0.05	ppbv	0.03	AC-058	04-Oct-25
25100010-001	2,2,4-Trimethylpentane	I	0.03	ppbv	0.02	AC-058	04-Oct-25
25100010-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	04-Oct-25
25100010-001	2,3-Dimethylpentane	I	0.03	ppbv	0.02	AC-058	04-Oct-25
25100010-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	2-Methylhexane	I	0.06	ppbv	0.03	AC-058	04-Oct-25
25100010-001	2-Methylpentane	I	0.08	ppbv	0.02	AC-058	04-Oct-25
25100010-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	3-Methylhexane		0.13	ppbv	0.02	AC-058	04-Oct-25
25100010-001	3-Methylpentane		0.11	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Acetone		14.6	ppbv	0.4	AC-058	04-Oct-25
25100010-001	Acrolein	I	0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-001	Benzene	I	0.17	ppbv	0.03	AC-058	04-Oct-25
25100010-001	Benzyl chloride	I	0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	23820	Ambient Air	26-Sep-25 11:40

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-001	Carbon disulfide		0.33	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Chloroform	I	0.05	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Chloromethane	I	0.08	ppbv	0.04	AC-058	04-Oct-25
25100010-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	cis-2-Butene		0.18	ppbv	0.03	AC-058	04-Oct-25
25100010-001	cis-2-Pentene	I	0.08	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Cyclohexane	I	0.06	ppbv	0.04	AC-058	04-Oct-25
25100010-001	Cyclopentane	I	0.08	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100010-001	Ethyl acetate		0.4	ppbv	0.3	AC-058	04-Oct-25
25100010-001	Ethylbenzene	I	0.08	ppbv	0.03	AC-058	04-Oct-25
25100010-001	Freon-11	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	Freon-12	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-001	Isobutane		0.21	ppbv	0.03	AC-058	04-Oct-25
25100010-001	Isopentane		0.93	ppbv	0.04	AC-058	04-Oct-25
25100010-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Isopropyl alcohol		0.9	ppbv	0.3	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	23820	Ambient Air	26-Sep-25 11:40

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-001	m,p-Xylene	I	0.27	ppbv	0.04	AC-058	04-Oct-25
25100010-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100010-001	Methyl ethyl ketone		0.7	ppbv	0.3	AC-058	04-Oct-25
25100010-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	04-Oct-25
25100010-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	Methylcyclohexane	I	0.04	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Methylcyclopentane		0.11	ppbv	0.05	AC-058	04-Oct-25
25100010-001	Methylene chloride		0.6	ppbv	0.3	AC-058	04-Oct-25
25100010-001	n-Butane		0.85	ppbv	0.02	AC-058	04-Oct-25
25100010-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-001	n-Heptane		0.23	ppbv	0.04	AC-058	04-Oct-25
25100010-001	n-Hexane		0.35	ppbv	0.03	AC-058	04-Oct-25
25100010-001	n-Octane		0.11	ppbv	0.02	AC-058	04-Oct-25
25100010-001	n-Pentane		4.27	ppbv	0.04	AC-058	04-Oct-25
25100010-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100010-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-001	n-Nonane	I	0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	o-Xylene	I	0.09	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	23820	Ambient Air	26-Sep-25 11:40

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Tetrahydrofuran	I	0.4	ppbv	0.3	AC-058	04-Oct-25
25100010-001	Toluene		2.11	ppbv	0.03	AC-058	04-Oct-25
25100010-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	trans-2-Butene		0.15	ppbv	0.03	AC-058	04-Oct-25
25100010-001	trans-2-Pentene		0.11	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	15758	Ambient Air	26-Sep-25 12:50

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-002	Carbon dioxide		88200	ppmv	20	NA-026	02-Oct-25
25100010-002	Oxygen		126000	ppmv	26900	NA-026	02-Oct-25
25100010-002	Hydrocarbons, Total (as Methane)	K, T, U	< 0.05	ppmv	0.05	NA-025	02-Oct-25
25100010-002	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100010-002	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	1,2,4-Trimethylbenzene	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100010-002	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100010-002	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100010-002	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100010-002	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-002	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	04-Oct-25
25100010-002	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	15758	Ambient Air	26-Sep-25 12:50

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-002	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	04-Oct-25
25100010-002	2,3-Dimethylpentane	I	0.03	ppbv	0.02	AC-058	04-Oct-25
25100010-002	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Acetone		4.2	ppbv	0.4	AC-058	04-Oct-25
25100010-002	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	Benzene	I	0.10	ppbv	0.03	AC-058	04-Oct-25
25100010-002	Benzyl chloride	I	0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Carbon disulfide		20.7	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Chloroform	I	0.03	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Chloromethane	I	0.05	ppbv	0.04	AC-058	04-Oct-25
25100010-002	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	15758	Ambient Air	26-Sep-25 12:50

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-002	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-002	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100010-002	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	Ethylbenzene	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100010-002	Freon-11	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	Freon-12	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	Isobutane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	Isopentane		0.99	ppbv	0.04	AC-058	04-Oct-25
25100010-002	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-002	m,p-Xylene	I	0.15	ppbv	0.04	AC-058	04-Oct-25
25100010-002	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100010-002	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	15758	Ambient Air	26-Sep-25 12:50

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-002	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100010-002	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	n-Butane	I	0.04	ppbv	0.02	AC-058	04-Oct-25
25100010-002	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-002	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	n-Heptane	I	0.06	ppbv	0.04	AC-058	04-Oct-25
25100010-002	n-Hexane	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100010-002	n-Octane	I	0.07	ppbv	0.02	AC-058	04-Oct-25
25100010-002	n-Pentane	I	0.07	ppbv	0.04	AC-058	04-Oct-25
25100010-002	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-002	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100010-002	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-002	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	o-Xylene	I	0.05	ppbv	0.03	AC-058	04-Oct-25
25100010-002	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-002	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-002	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	Toluene		0.75	ppbv	0.03	AC-058	04-Oct-25
25100010-002	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-002	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	15758	Ambient Air	26-Sep-25 12:50

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-002	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025

Inquiries: (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	29023	Ambient Air	26-Sep-25 14:00

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-003	Carbon dioxide		87300	ppmv	20	NA-026	02-Oct-25
25100010-003	Oxygen		126000	ppmv	26900	NA-026	02-Oct-25
25100010-003	Hydrocarbons, Total (as Methane)	K, T, U	< 0.05	ppmv	0.05	NA-025	02-Oct-25
25100010-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100010-003	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100010-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100010-003	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100010-003	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-003	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	04-Oct-25
25100010-003	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	29023	Ambient Air	26-Sep-25 14:00

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-003	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	04-Oct-25
25100010-003	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Acetone		3.4	ppbv	0.4	AC-058	04-Oct-25
25100010-003	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	Benzene	I	0.09	ppbv	0.03	AC-058	04-Oct-25
25100010-003	Benzyl chloride	I	0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Carbon disulfide		0.18	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Chloroform	I	0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Chloromethane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-003	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	29023	Ambient Air	26-Sep-25 14:00

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-003	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-003	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100010-003	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	Freon-11	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	Freon-12	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	Isobutane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	Isopentane		0.11	ppbv	0.04	AC-058	04-Oct-25
25100010-003	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-003	m,p-Xylene	I	0.11	ppbv	0.04	AC-058	04-Oct-25
25100010-003	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100010-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	29023	Ambient Air	26-Sep-25 14:00

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100010-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	n-Butane	I	0.04	ppbv	0.02	AC-058	04-Oct-25
25100010-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-003	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	n-Heptane	I	0.05	ppbv	0.04	AC-058	04-Oct-25
25100010-003	n-Hexane	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100010-003	n-Octane	I	0.08	ppbv	0.02	AC-058	04-Oct-25
25100010-003	n-Pentane		0.12	ppbv	0.04	AC-058	04-Oct-25
25100010-003	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100010-003	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-003	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	o-Xylene	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100010-003	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-003	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	Toluene		0.56	ppbv	0.03	AC-058	04-Oct-25
25100010-003	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-003	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	29023	Ambient Air	26-Sep-25 14:00

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-003	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025

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Revision History

Order ID	Ver	Date	Reason
25100010	01	17-Oct-25	Report created

Methods

Method	Description
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-025	Determination of Light Hydrocarbons (C1C4) in Ambient Air by Gas Chromatography Flame Ionization Detector
NA-026	Inert - GC/TCD Gas Analysis - Nitrogen, Oxygen, CO2, CO and Methane

List of Analytical Method IDs within InnoTech's ISO/IEC 17025:2017 CALA Scope of Accreditation

Method ID	Description
AC-020	Chlorophyll-a Phytoplankton (Fluorometric Analysis)
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-035	Analysis of Glyphosate, Aminomethylphosphonic Acid and Glufosinate in Water
AC-038	Trace Metal Analysis of Water Samples by ICP-MS
AC-048	Specific Conductance (Conductivity Meter Method)
AC-049	pH (Meter Method)
AC-054	Alkalinity Total and Phenolphthalein
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-060	Trace Metal Analysis of Soil Sediment and Industrial Waste Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-061	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-065	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-074	Pesticides in Water
AC-080	Alkylated PAH in Water (SPE Extraction)
NA-006	Determination of BTEX, F1 Hydrocarbons and F2, F3 and F4 Hydrocarbons in Water
NA-024	Analysis of Reduced Sulfur Compounds in Air

Qualifiers

Data Qualifier	Translation
B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

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Order Comments

25100010

Project # 25C338707

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(780) 632-8211

Sample Comments

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(780) 632-8211

Result Comments

Note:

1. Results relate only to items tested and apply to the sample as received.

2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.

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(780) 632-8211

APPLIED CHEMISTRY SERVICES

TEST REPORT

RESULTS: Shaun Hayward 403-369-4749
AGAT Laboratories Ltd.
3700 21 St NE
Calgary
AB T2E 6V6

INVOICE: Accounts Payable
2905 12 St NE
Calgary
AB T2E 7J2

CLIENT SAMPLE ID	Matrix
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	Ambient Air

CANISTER ID: S5637
PRIORITY: Normal
DESCRIPTION: Acid Gas Incinerator
DATE SAMPLED: 26-Sep-25 11:40
DATE RECEIVED: 02-Oct-25
REPORT CREATED: 07-Oct-25
REPORT NUMBER: 25100009
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100009-001	Hydrogen sulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	02-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing
Date: October 7, 2025
Inquiries: (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	29405	Ambient Air	26-Sep-25 12:50

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100009 **REPORT CREATED:** 07-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100009-002	Hydrogen sulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	02-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 7, 2025

Inquiries: (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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Canada T9C 1T4
(780) 632-8211

APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	29011	Ambient Air	26-Sep-25 14:00

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100009 **REPORT CREATED:** 07-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100009-003	Hydrogen sulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	02-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 7, 2025

Inquiries: (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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Revision History

Order ID	Ver	Date	Reason
25100009	01	07-Oct-25	Report created

PO Bag 4000
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Methods

Method	Description
NA-024	Analysis for Reduced Sulfur Compounds in Air Samples

List of Analytical Method IDs within InnoTech's ISO/IEC 17025:2017 CALA Scope of Accreditation

Method ID	Description
AC-020	Chlorophyll-a Phytoplankton (Fluorometric Analysis)
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
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AC-060	Trace Metal Analysis of Soil Sediment and Industrial Waste Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-061	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-065	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-074	Pesticides in Water
AC-080	Alkylated PAH in Water (SPE Extraction)
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J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

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Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Order Comments

25100009

Project # 25C338707

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Sample Comments

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Result Comments

Note:

1. Results relate only to items tested and apply to the sample as received.

2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.

InnoTech ALBERTA
A SUBSIDIARY OF ALBERTA INNOVATES

Environmental Analytical Services
Highway 16A & 75 Street
Vegreville, AB T9C 1T4

Phone: 780-632-8403
Email: EAS.Reception@innotechalberta.ca
www.innotechalberta.ca

Sample ID: 25100010-001 **Priority:** Normal

Customer ID: AGAT
Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 1 - Te

Client Reporting Information

Company: AGAT LABS
Address: 3700 21 St. NE
Calgary AB, T2E 6V6
Contact: Sharon Haywood
Phone: 403-369-4749
Email: haywood@agatlabs.com

Client Billing Information

Contact: Sharon Haywood
Phone: 403.369.4749
Email: haywood@agatlabs.com
Project ID: 25C338707
PO #:

Turnaround Time (TAT)

- [x] Normal (10 business days)
- [ ] Rush (5 business days) (50% surcharge)
- [ ] Emergency (3 business day) (100% surcharge)

NOTE: Rush and Emergency TAT is not available for all tests.
Confirm all rush and Emergency requests with the Laboratory before submitting samples.

SAMPLE TYPE SOURCE* / AMBIENT (indicate as applicable)

Date Received – Lab Use Only

RECEIVED
OCT 0 2 2025

Special Instructions/Comments

* For source samples, please Indicate possible high-level parameters which may be present.

Lab Sample Number	Client Sample ID	Sample Source/ Description	Canister Number/ Sampler ID	Date Sampled (mm/dd/yy) From / To	Time Sampled (24 hour) From / To	Analysis Requested
1	LNG-Canada / Kitimat-BC canister #1, Test-1	Acid Gas Incinerator	23820	09-26-2025	11:40	Full VOC, HC-T, ~~BTEX~~, O2, CO2
					12:10	
2	LNG-Canada / Kitimat-BC canister #2, Test-2	Acid Gas Incinerator	15758	09-26-2025	13:50	Full VOC, HC-T, ~~BTEX~~, O2, CO2
					13:20	
3	LNG-Canada / Kitimat-BC canister #3, Test-3	Acid Gas Incinerator	29023	09-26-2025	14:00	Full VOC, HC-T, ~~BTEX~~, O2, CO2
					14:30	

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

This "Chain of Custody" form is subject to InnoTech Alberta standard terms and conditions.

InnoTech ALBERTA

Canister ID: 23820

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: 1523 on: AUG 2 0 2025

Evacuated: SEP 0 8 2025 Recertified:

Sample ID: 25100010-001 Priority: Normal

Sta

Customer ID: AGAT

Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 1 - Te "Hg/psig

Sample ID: CANISTER 1 TEST 1

Sampled By: MS-VK

AG INCINERATOR / LNG CANADA

START: 1140

END: 1210

Affix label here

VOC - HC - T - BTEX - O2 Cox

26- SEPT 2025

InnoTech ALBERTA

Canister ID: 15758

This cleaned canister meets or exceeds TO-15 Method Specifications

Pror

Sample ID: 25100010-002 Priority: Normal

Eva

Customer ID: AGAT

Star Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 2 - Te

-27.8 "Hg | -4 "Hg/psig

Sample ID: CANISTER 2 T2

Sampled By: MS-VK- START: 1250 END: 1320

AG INCINERATOR STACK / LNG CANADA

Affix label here

VOC - HC - T - BTEX - O2 - Cox

26- SEPT 2025

InnoTech

Canister ID: 29023

This cleaned canister meets or exceeds TO-15 Method Specifications

P

Sample ID: 25100010-003 Priority: Normal 25

E

e)

Customer ID: AGAT

S Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 3 - Te

-27.5 "Hg | -5 "Hg/psig

Sample ID: CANISTER 3 TEST 3

Sampled By: MS-VK START: 1400 END: 1430

AG INCINERATOR STACK / LNG CANADA

Affix label here

VOC - HC - T - BTEX - O2 - Cox

26- SEPT- 2025

{00004818;6}

TERMS AND CONDITIONS

The attached document entitled "**Chain of Custody Form**" is subject to the following Terms and Conditions, unless otherwise specified on the Quotation. InnoTech Alberta's commencement of the Services shall be deemed acceptance of the terms and conditions by the Client.

1. Any proposal contained herein is prepared for the consideration of the Client only. Its contents may not be used or disclosed to any other party without prior written consent of the INNOTECH ALBERTA INC. (hereinafter referred to as "InnoTech Alberta").

2. InnoTech Alberta will perform the Services in accordance with normal professional standards.

3. The delivery time for performance of the Services (as set out on the front page of this Quotation) is approximate and may be changed by InnoTech Alberta giving written notice to the Client.

4. InnoTech Alberta will exercise due care and proficiency in testing items submitted by a Client. InnoTech Alberta shall not, however, be liable to the Client for any damage or loss caused to the item being tested or for any damage, loss or expense caused by any delay in carrying out the test, including any damage, loss or expense resulting from InnoTech Alberta's negligence. InnoTech Alberta shall not be responsible for any damage, which is a natural or necessary result of any testing procedure.

5. For the purposes of this Quotation, Intellectual Property means all information, data, artistic and literary works, concepts, designs, processes, software, algorithms and inventions, including, without limitation, those that could be the subject of patent, copyright, industrial design, trade secret or other forms of protection. Intellectual Property which was owned by either InnoTech Alberta or the Client prior to the signing of this Agreement remains the property of that party. Nothing in this Agreement shall operate as a license, permission or grant of any other rights to either InnoTech Alberta's or the Client's Intellectual Property.

6. All data, reports and other information relating to the Services shall be treated by InnoTech Alberta as the confidential property of the Client, and InnoTech Alberta will use reasonable efforts to ensure that its employees, contractors and agents will not disclose the same to any other person, firm or corporation during the term of this Agreement and for a period of five (5) years after the date of termination of the Agreement. The obligation of confidentiality set out herein shall not apply to any information that was in InnoTech Alberta's possession prior to receipt from the Client or which is or becomes part of the public domain through no act or failure on the part of InnoTech Alberta. The obligation of confidentiality set out in this Section shall not prevent the disclosure of information to any level of government having jurisdiction to make lawful demand therefor, or required to be disclosed by any applicable law. Any records required to be maintained by InnoTech Alberta pursuant to this Agreement are subject to the protection and access provisions of the Freedom of Information and Protection of Privacy Act (Alberta).

7. The reported results of any InnoTech Alberta tests or evaluations performed on samples or items provided by the Client shall be interpreted as being specific to the sample or item tested. InnoTech Alberta makes no representation that any similar or related untested samples or items would produce the same results.

8. The Client shall not use InnoTech Alberta's name in any advertising material, sale offer, news releases, public statements or announcements, whether written or oral relating to the Services or the results thereof, without the prior written consent of InnoTech Alberta.

9. Records, test data, reports and samples, except where shipped to the Client after completion of the work shall be retained by InnoTech Alberta according to InnoTech Alberta's approved Records Retention and Disposition Schedule.

10. Prices quoted are in Canadian Dollars unless otherwise stated in writing and are exclusive of any provincial, municipal, sales, use or goods and services tax.

11. Prices quoted do not include shipping, insurance or cost of consumables. The Client shall be responsible for all costs incurred by InnoTech Alberta in collecting any item for testing and returning the item to the Client after testing and shall be responsible for all necessary incidental costs incurred by InnoTech Alberta in providing the Services. InnoTech Alberta will not be responsible for any damage or loss to items during shipping and it is the responsibility of the Client to arrange and pay for any insurance it deems necessary.

12. Any test samples or other materials supplied by the Client to InnoTech Alberta may, at InnoTech Alberta's option, be returned by InnoTech Alberta to the Client. The Client shall:

(a) be responsible for all costs associated with the handling, transportation and disposal of such materials;

(b) reimburse InnoTech Alberta for any costs incurred by InnoTech Alberta associated with the handling, transportation and disposal of such materials; and

(c) indemnify and hold InnoTech Alberta harmless from any and all claims, damages or actions associated with the handling, transportation and disposal of such materials.

13. The Client shall pay all invoices rendered by InnoTech Alberta to the Client within thirty (30) days from the date of invoice, without deduction or set-off.

14. If the Client fails to pay any amount under this Agreement, such unpaid amount shall bear interest at a rate per month equal to one (1%) percent (or 12.6825% per annum) with interest on overdue interest at the same rate.

15. InnoTech Alberta makes no representation, warranties or conditions, either expressed or implied, statutory or otherwise and does not warrant the quality, state, merchantability or fitness for any purpose of any goods or products to be delivered pursuant to this Agreement. The Client accepts the results of these Services or items tested as is, and acknowledges that any use or interpretation of the information contained is at the Client's own risk.

16. In no event shall InnoTech Alberta be liable for any indirect or consequential damage or loss suffered by the Client, including loss of anticipated profits.

17. The Client shall indemnify and hold harmless InnoTech Alberta from any and all claims, demands, actions and costs (including legal costs on a solicitor-client basis) that may arise out of:

(a) any dangerous defect or content in the item being tested, whether apparent or not, which dangerous defect or content was not disclosed in writing to InnoTech Alberta by the Client at the time the item was submitted for testing;

(b) differences between those items actually tested and items previously or subsequently produced which are purported to be identical to the item tested; or

(c) any use of the tested item or any item incorporating the tested item, whether by the Client or a third party following its return to the Client.

The hold harmless shall survive this Agreement.

18. The Client shall, at its own expense and without limiting its liabilities herein, be responsible for insuring its operation in an amount not less than $2,000,000 inclusive per occurrence, insuring against bodily injury, and property damage including loss of use thereof. Further, the Client is responsible for insuring all owned property directly or indirectly related to this Agreement and InnoTech Alberta shall have no liability for any loss or damage to such property.

19. InnoTech Alberta shall maintain the following insurance: (i) commercial general liability insurance (including cross liability, severability of interests, non-owned automobile liability) in the amount of two million dollars ($2,000,000.00) per occurrence, and; (ii) professional liability and errors and omissions insurance in the amount of one million dollars ($1,000,000.00) per claim, and two million dollars ($2,000,000.00) in the aggregate. In addition, InnoTech Alberta shall maintain all workers' compensation coverage required by applicable laws. Notwithstanding the foregoing, InnoTech Alberta reserves the right to supplement or add insurance coverage from time to time as may be required in its sole discretion. InnoTech Alberta may provide certificates of insurance for coverages outlined in (i) and (ii) above.

20. The Client agrees to comply with all InnoTech Alberta Safety & Security regulations in effect while on InnoTech Alberta premises.

21. This Agreement represents the entire agreement between the parties and shall supersede all prior agreements relative to this transaction.

22. If a party's performance of any of its obligations under this Agreement (excepting only an obligation to pay) is delayed, rendered impossible or impractical, or prevented in whole or in part due to circumstances beyond its reasonable control, including but not limited to acts of God, war, terrorism, labour disputes, pandemics or epidemics, global health emergencies, or governmental action, that party will not be in breach of this Agreement due to the delay or failure in performance occasioned by such event..

23. InnoTech Alberta may assign this Quotation to an "affiliated" (as that term is defined at Section 2 of the Business Corporations Act (Alberta)) or successor entity on written notice to the Client.

24. This Quotation and rights and parties thereto shall be governed by and construed according to the laws of the Province of Alberta. The parties hereby submit to the jurisdiction of the Courts of Alberta.

Canadian Association for Laboratory Accreditation Inc.

Certificate of Accreditation

InnoTech Alberta Inc - Environmental Analytical Services (Vegreville)
InnoTech Alberta Inc.
Highway 16A and 75th Street
Vegreville, Alberta

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

Accreditation No.: 1002789
Issued On: 4/11/2025
Accreditation Date: 1/3/2005
Expiry Date: 10/11/2027

President and CEO

This certificate is the property of the Canadian Association for Laboratory Accreditation Inc. and must be returned on request; reproduction must follow policy in place at date of issue.
For the specific tests to which this accreditation applies, please refer to the laboratory's scope of accreditation at www.cala.ca.

Appendix IV – Field Data Sheets

AGAT VELOCITY/ ABSORPTION DATA SHEET

Company: LNG-CANADA	Location: KITIMAT-BC	Stack Static Pressure:	-0.270
Contact Name: TAWEEF. S	Source: AGI- INCINERATOR STACK	Absorbing Solution:	6% H_2O_2
Date(Y/M/D): 2025. SEPT-26	Test #: ONE	Imp.I vol (g)	Imp.f vol (g)
Sampled by: VK	Team Leader: MS	1) 289.8	1) 314.0
Fluke Temp. Meter ID #: CG4-		2) 256.4	2) 301.6
Cyclonic Flow ? Yes/No	Average Null Angle from Vertical=	3) 189.9	3) 192.2
B.P. (in. Hg): 29.38	Ambient Temperature (c/f): 7	4) 310.4	4) 315.9
Pitot ID#: CP-10	Pitot Factor: 0.869	1042.5	1123.7
Meter #: MS-5	Meter Factor: 0.9987		
Comments:		Rinse Volume (ml):	

Point	Time	Port #1	(E-W)	Port #2	(N-S)	Port #3	(W-E)	Port #4	(S-N)
#	(24 Hrs)	Temp(c/f)	ΔP	Temp(c/f)	ΔP	Temp(c/f)	ΔP	Temp(c/f)	ΔP
4	1210	939	0.050	940	0.050	940	0.050	939	0.045
3		940	0.045	940	0.045	940	0.040	941	0.040
2		941	0.040	940	0.040	941	0.040	939	0.030
1	1220	937	0.030	939	0.025	939	0.025	930	0.020

ABSORPTION DATA

Min.	Time (24Hrs)	Volume ($ft^3/m^3/L$)	Vacuum (in. Hg)	Meter Temp(c/f)	Impinger Temp(c/f)
0	1140	0.000	-5	53	9
10					
20					
30					
40					
50					
60	1240	21.053	-5	59	6

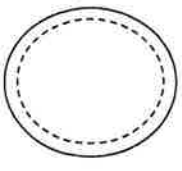
Leak Check Data

Initial: 0.000 $ft^3/m^3/L$ 15.000 in Hg.

Final: 0.000 $ft^3/m^3/L$ 15.00 in Hg.

FYRITE TESTS

Time	%O2	%CO2	(%/ppm) CO
1145	12	5	



Show Stack Features: Ladder/Ports/Power/Lights/CEM

Sample Level(m/ft): 150

Port Diameter(in.): 4

Annulus Length(in.): 16

Stack Diameter(in.): 131.89

AGAT VELOCITY/ ABSORPTION DATA SHEET

Company: LNG - CANADA	Location: KITIMAT - BC	Stack Static Pressure:	-9.270
Contact Name:	Source: AGI - INCINERATOR STACK	Absorbing Solution:	6% H_2O_2
Date(Y/M/D): 2025-SEPT-26	Test #: TWO	Imp.I vol (g)	Imp.f vol (g)
Sampled by: VK	Team Leader: MC	1) 290.5	1) 309.5
Fluke Temp. Meter ID #: CGY-		2) 285.7	2) 289.6
Cyclonic Flow ? Yes/No	Average Null Angle from Vertical=	3) 189.9	3) 193.1
B.P. (in. Hg): 29.36	Ambient Temperature (c/f):	4) 310.4	4) 317.5 ← Silica
Pitot ID#: GP-10	Pitot Factor: 0.809	1,076.5	1,109.9 H2o Final (g): 31.4
Meter #: M5-5	Meter Factor: 0.9987		
Comments:		Rinse Volume (ml):	

Point	Time	Port #1	(E-W)	Port #2	(N-S)	Port #3	(W-E)	Port #4	(S-N)
#	(24 Hrs)	Temp(c/f)	ΔP	Temp(c/f)	ΔP	Temp(c/f)	ΔP	Temp(c/f)	ΔP
4	310	946	0.045	954	0.050	953	0.050	934	0.045
3		945	0.040	953	0.040	949	0.045	935	0.040
2		940	0.025	949	0.030	943	0.035	933	0.030
1	320	929	0.020	948	0.025	939	0.020	932	0.020

ABSORPTION DATA

Min.	Time (24Hrs)	Volume ft³/m³/L	Vacuum (in. Hg)	Meter Temp(c/f)	Impinger Temp (c/f)
0	250	0.000	5	59	9
10					
20					
30					
40					
50					
60	350	2.046	5	61	6

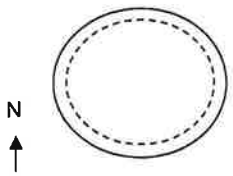
Leak Check Data

Initial: 0.000 ft³/m³/L 5.000 in Hg.

Final: 0.000 ft³/m³/L 5.000 in Hg.

FYRITE TESTS

Time	%O2	%CO2	(%/ppm) CO
255	12	5	



Show Stack Features: Ladder/Ports/Power/Lights/CEM

Sample Level(m/ft): 50

Port Diameter(in.): 4

Annulus Length(in.): 16

Stack Diameter(in.): 31.89

AGAT VELOCITY/ ABSORPTION DATA SHEET

Company: LNG-CANADA	Location: KITIMAT - BC	Stack Static Pressure:	-0.270
Contact Name: TAUSEEF S.	Source: AGI- INCINERATOR STACK	Absorbing Solution:	6% H2O2
Date(Y/M/D): 2025-SEPT-26	Test #: THREE		
Sampled by: VK	Team Leader: MS		
Fluke Temp. Meter ID #:	CG9-1		
Cyclonic Flow ? Yes/No	Average Null Angle from Vertical=		
B.P. (in. Hg): 29.38	Ambient Temperature (c/f):		
Pitot ID#: GP-10	Pitot Factor: 0.809		
Meter #: MS-5	Meter Factor: 0.9967		
Comments:		Rinse Volume (ml):	

Imp.I vol (g)	Imp.f vol (g)		
1) 289.8	1) 310.5		
2) 288.4	2) 291.3		
3) 189.9	3) 194.5		
4) 317.5	4) 322.6	←Silica	H2o Final (g)
1,085.6	1,118.9		33.3

Point	Time	Port #1	(E-W)	Port #2	(N-S)	Port #3	(W-E)	Port #4	(S-N)
#	(24 Hrs)	Temp(c/f)	ΔP	Temp(c/f)	ΔP	Temp(c/f)	ΔP	Temp(c/f)	ΔP
4	1430	946	0.040	940	0.040	942	0.045	939	0.045
3		949	0.035	941	0.040	941	0.040	939	0.040
2		947	0.020	946	0.035	940	0.035	940	0.030
1	1440	946	0.020	946	0.015	937	0.020	940	0.015

ABSORPTION DATA

Min.	Time (24Hrs)	Volume ft³/m³/L	Vacuum (in. Hg)	Meter Temp(c/f)	Impinger Temp (c/f)
0	1400	0.000	-5	60	9
10					
20					
30					
40					
50					
60	1500	21.027	-5	62	6

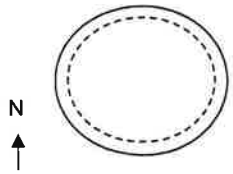
Leak Check Data

Initial: 0.000 ft³/m³/L 5.00 in Hg.

Final: 0.000 ft³/m³/L 5.00 in Hg.

FYRITE TESTS

Time	%O2	%CO2	(%/ppm) CO



Show Stack Features: Ladder/Ports/Power/Lights/CEM

Sample Level(m/ft): 50

Port Diameter(in.): 4

Annulus Length(in.): 16

Stack Diameter(in.): 131.89

AGAT CYCLONIC FLOW CHECK DATA SHEET

Client: LNG - CANADA	Contact: TAUSEEF SIDDIQUI
Plant Name: LNG - CANADA	Location: KITIMAT - BC
Stack ID (in.): 35.89	Length of Annulus (in.): 16
Date (Y/M/D): 2025- SEPT- 26	Comments:
Sampled by: MS - VK	
Team Leader: MS	

AGI - INCINERATOR STACK N - S

		E-W Traverse Data Test 1		W-E	S-N
Point #	Time (24 Hrs)	Port #1 null angle	Port #2 null angle	Port #3 null angle	Port #4 null angle
4	140	0°	0°	0°	0°
3		0°	0°	0°	0°
2		0°	0°	0°	0°
1	200	0°	0°	0°	0°

Traverse Data Test 2					
Point #	Time (24 Hrs)	Port 1 null angle	Port 2 null angle	Port 3 null angle	Port 4 null angle
4	320	0°	0°	0°	0°
3		0°	0°	0°	0°
2		0°	0°	0°	0°
1	340	0°	0°	0°	0°

Note: 1 hour must pass between test 1 and 2

Note: The average of the absolute values of the null angles cannot be greater than 20°

Note: The difference between the angles in test 1 and 2 cannot be greater than 5°

Appendix V – Calibration Data

AGAT Laboratories

Barometer Calibration 2025

Calibration Date	Cal Times	Standard		Monometer
Month/Day/Year	hh:mm	hPa	in. Hg	in. Hg
CGY 1		hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.56
4-Feb-25	8:50	886	26.55	26.55
5-Feb-25	8:05	882	26.16	26.17
CGY 3	hh:mm	hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.57
4-Feb-25	8:50	886	26.55	26.57
5-Feb-25	8:05	882	26.16	26.19
EDM 1	hh:mm	hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.57
4-Feb-25	8:50	886	26.55	26.57
5-Feb-25	8:05	882	26.16	26.19
EDM 2		hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.57
4-Feb-25	8:50	886	26.55	26.56
5-Feb-25	8:05	882	26.16	26.18
EDM 3	hh:mm	hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.58
4-Feb-25	8:50	886	26.55	26.58
5-Feb-25	8:05	882	26.16	26.19

Notes:	Barometers were calibrated to Fisherbrand Tracible Barometer - Serial Number: 240466177 Barometers must be capable of measuring atmospheric pressure to within 2.5mm (0.1 in.) Hg
Calibrated By:	Raymond Dreaver
Date:	Feb 03-05, 2025

AGAT Labs Scales Calibration - 2025

Calibrated by: JS

Calibration date: 5-Feb-25

ID - EDBL#104 +/-0. 1gram'

Actual	Scale	Difference
1000	1000	0
500	500	0
200	200	0
50	50.1	0.1
20	20	0

EDBL#110 +/-0. 1gram'

Actual	Scale	Difference
1000	1000	0
500	500	0.0
200	200	0
50	50	0
20	20	0

EDBL#108 +/-0. 1gram'

Actual	Scale	Difference
1000	1000	0
500	499.9	0.1
200	200	0
50	50	0
20	20	0

EDBL#111 +/-0. 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500.1	0.1
200	200	0
50	50	0
20	20	0

CALBL#115 +/- 1gram'

Actual	Scale	Difference
1000	1000	0.0
500	500	0
200	200	0
50	50	0
51		

EDBL#112 +/- 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500.1	0.1
200	200	0
50	50	0
51		

CALBL#117 +/- 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500.1	0.1
200	200.1	0.1
50	50	0
51		

CALBL#118 +/- 1gram'

Actual	Scale	Difference
1000	999.9	0.1
500	500.1	0.1
200	200.1	0
50	50	0
20	20	0

CALBL #107 +/- 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500	0
200	200.1	0.1
50	50	0
51		

CALBL#133

Actual	Scale	Difference
1000	1000	0.0
500	500.1	0.1
200	200	0
50	50	0
51		

CALBL# 109 +/- 1gram'

Actual	Scale	Difference
1000	999.9	0.1
500	500	0
200	200	0
50	50	0
51		

Notes: EDBL# 107, EDBL# 106, EDBL# 109, are all out of service

EPA Method 5
Meter Box Calibration
English Meter Box Units, English K' Factor

Model #: Sensus
Serial #: 1

Date: 7-Jan-25
Barometric Pressure: 26.63 (in. Hg)
Theoretical Critical Va 12.56 (in. Hg)

!!!!!!!!!
IMPORTAI For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.
IMPORTAI The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).
!!!!!!!!!

---------- DRY GAS METER READINGS ----------									-CRITICAL ORIFICE READINGS-					
		Volume	Volume	Volume	Initial Temps.		Final Temps.		Orifice	K' Orifice	Actual	-- Ambient Temperature --		
dH	Time	Initial	Final	Total	Inlet	Outlet	Inlet	Outlet	Serial#	Coefficient	Vacuum	Initial	Final	Average
(in H2O)	(min)	(cu ft)	(cu ft)	(cu ft)	(deg F)	(deg F)	(deg F)	(deg F)	(number)	(see above	(in Hg)	(deg F)	(deg F)	(deg F)
0.01	17.00	984.790	990.005	5.215	73.7	74.1	76.9	74.3	40	0.2333	22.0	74.3	75.3	74.8
0.03	12.00	990.005	995.533	5.528	75.8	73.9	81.1	74.5	48	0.3505	21.5	75.1	76.2	75.7
0.04	10.00	995.533	1001.398	5.865	78.9	74.2	87.1	75.0	55	0.4446	21.0	76.1	76.6	76.4
0.08	7.00	1.398	6.945	5.547	82.6	74.9	93.5	75.6	63	0.5991	20.5	76.5	77.0	76.8
0.16	5.00	6.945	12.295	5.350	82.5	76.1	94.5	76.7	73	0.8029	19.0	76.9	77.3	77.1

********** RESULTS **********

-- DRY GAS METER --		--------- ORIFICE ---------			-- DRY GAS METER --		--------- ORIFICE ---------			
VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	:ALIBRATION FACTOI		CALIBRATION FACTOR			
ORRECTE	ORRECTED	CORRECTE	ORRECTE	NOMINAL	Y		dH@			
Vm(std)	Vm(std)	Vcr(std)	Vcr(std)	Vcr	Value	Variation	Value	Value	Variation	
(cu ft)	(liters)	(cu ft)	(liters)	(cu ft)	(number)	(number)	(in H2O)	(mm H2O)	(in H2O)	
4.581	129.7	4.567	129.3	5.199	0.997	-0.002	0.069	1.74	-0.014	
4.842	137.1	4.839	137.1	5.518	0.999	0.001	0.091	2.32	0.009	
5.114	144.8	5.112	144.8	5.837	1.000	0.001	0.076	1.92	-0.007	
4.812	136.3	4.820	136.5	5.508	1.002	0.003	0.083	2.12	0.001	
4.635	131.3	4.613	130.6	5.274	0.995	-0.003	0.093	2.35	0.010	
					0.9986	**<----- Average Y**	**0.0823**	**2.09**	**<----- Average dH@**	

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.
For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the avera

SIGNED: MS

Date: Jan 07, 2025

AGAT Laboratories

S-TYPE PITOT TUBE CALIBRATION

Calibration Device/Location: SAIT

Pitot Tube Number: GP 10

Technician: MS-AS JS-RP

Calibration Date (D/M/Y): 4-Feb-25

Date Last Calibrated (D/M/Y): 6-Feb-24

Previous Factor: 0.809

Approx. Velocity	Reference	S-Type		Pitot Factor	
ft/sec	ΔPr	ΔPs	$(Ref/S\text{-}type)^{0.5}$		±Difference from the new factor
30	1.50	2.20	0.826	0.817	0.00858
30	1.50	2.20	0.826	0.817	0.00858
50	4.50	6.80	0.813	0.805	-0.00353
50	4.50	6.80	0.813	0.805	-0.00353
70	8.90	13.50	0.812	0.804	-0.00505
70	8.90	13.50	0.812	0.804	-0.00505

Standard Pitot Tube Factor: 0.990 **New Factor:** **0.809**

Calibration Notes: Pitot Tube tips are in good shape, clean, with no deformations or damage.
Calibrated with thermocouples in place.

AGAT Laboratories

Thermocouple Calibration: 2025

Thermocouple Calibration: Fluke S/N: 24450030 & 111108577 Thermometer Standard: VWR61016-208, QL Quincy Lab Inc. 76mm 1mm, C15, C4 Calibrated according to ASSC Method 2 Sec 4.3

	Ice					Boiling Water					Oven				
I.D	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff
Standalone Thermocouples															
C1	1.100	274.25	0.00	273.15	0.403	96.7	369.85	97.0	370.15	0.081	376.9	650.05	377.0	650.15	0.0154
C2	1.000	274.15	1.00	274.15	0.000	97.3	370.45	98.0	371.15	0.189	362.1	635.25	362.0	635.15	0.0157
C3	0.800	273.95	0.50	273.65	0.110	97.5	370.65	98.0	371.15	0.135	398.0	671.15	400.0	673.15	0.2971
C4	1.000	274.15	0.00	273.15	0.3661	96.8	369.95	98.0	371.15	0.323	387.0	660.15	388.0	661.15	0.1513
C5	1.000	274.15	0.00	273.15	0.366	97.0	370.15	97.0	370.15	0.000	375.0	648.15	375.0	648.15	0.0000
C6	0.700	273.85	1.00	274.15	0.109	96.4	369.55	97.0	370.15	0.162	369.2	642.35	371.0	644.15	0.2794
C7	1.400	274.55	1.00	274.15	0.1459	96.1	369.25	97.0	370.15	0.243	391.6	664.75	391.0	664.15	0.0903
C8	1.000	274.15	0.00	273.15	0.366	96.6	369.75	98.0	371.15	0.377	405.0	678.15	406.0	679.15	0.1472
C9	1.100	274.25	1.00	274.15	0.036	97.0	370.15	98.0	371.15	0.269	383.0	656.15	384.0	657.15	0.1522
C10	0.900	274.05	1.00	274.15	0.036	97.2	370.35	98.0	371.15	0.216	351.6	624.75	352.0	625.15	0.0640
C21	1.100	274.25	1.00	274.15	0.036	96.4	369.55	97.0	370.15	0.162	443.6	716.75	444.0	717.15	0.0558
E1	0.600	273.75	0.00	273.15	0.220	94.8	367.95	96.0	369.15	0.325	353.2	626.35	354.0	627.15	0.1276
E2	0.300	273.45	0.00	273.15	0.110	97.1	370.25	98.0	371.15	0.242	335.4	608.55	337.0	610.15	0.2622
E3	0.500	273.65	0.00	273.15	0.183	96.6	369.75	98.0	371.15	0.377	384.2	657.35	385.0	658.15	0.1216
E4	0.700	273.85	0.50	273.65	0.073	96.7	369.85	98.0	371.15	0.350	365.4	638.55	367.0	640.15	0.2499
E6	0.600	273.75	0.00	273.15	0.220	94.5	367.65	96.0	369.15	0.406	320.2	593.35	322.0	595.15	0.3024
E7	0.600	273.75	0.00	273.15	0.220	95.9	369.05	97.0	370.15	0.297	362.0	635.15	364.0	637.15	0.3139
Flex 1	0.900	274.05	1.00	274.15	0.036	97.3	370.45	98.0	371.15	0.189	401.0	674.15	402.0	675.15	0.1481
Flex 2	0.900	274.05	1.00	274.15	0.036	97.2	370.35	97.0	370.15	0.054	377.4	650.55	379.0	652.15	0.2453
Flex 3	1.200	274.35	1.00	274.15	0.073	96.7	369.85	98.0	371.15	0.350	386.0	659.15	387.0	660.15	0.1515
Filter 1	0.200	273.35	0.00	273.15	0.073	96.2	369.35	97.0	370.15	0.216	381.5	654.65	380.0	653.15	0.2297
Filter 3	0.900	274.05	1.00	274.15	0.036	96.6	369.75	97.0	370.15	0.108	388.9	662.05	388.0	661.15	0.1361
Exit1	1.300	274.45	1.00	274.15	0.109	96	369.15	97.0	370.15	0.270	384.0	657.15	385.0	658.15	0.1519
CGY5A - Spare	0.900	274.05	0.50	273.65	0.146	97.9	371.05	98.0	371.15	0.027	420.0	693.15	420.0	693.15	0.0000
CGY5B - Spare	0.600	273.75	0.50	273.65	0.037	97.8	370.95	98.0	371.15	0.054	452.8	725.95	454.0	727.15	0.1650
CGY5C - Spare	0.700	273.85	0.50	273.65	0.073	98.1	371.25	98.0	371.15	0.027	423.5	696.65	423.0	696.15	0.0718
DGM RATA 01	0.800	273.95	0.50	273.65	0.110	97.3	370.45	98.0	371.15	0.189	394.5	667.65	394.0	667.15	0.0749
SRC 5 Spare 2	1.100	274.25	2.00	275.15	0.327	97.0	370.15	97.0	370.15	0.000	431.7	704.85	433.0	706.15	0.1841
C24	1.400	274.55	2.00	275.15	0.218	96.4	369.55	98.0	371.15	0.431	463.2	736.35	464.0	737.15	0.1085
E5	0.200	273.35	0.00	273.15	0.073	96.5	369.65	98.0	371.15	0.404	357.4	630.55	359.0	632.15	0.2531
EDGM 2	1.000	274.15	0.00	273.15	0.366	96.6	369.75	98.0	371.15	0.377	338.1	611.25	339.0	612.15	0.1470
E8	1.000	274.15	0.50	273.65	0.183	96.8	369.95	98.0	371.15	0.323	347.6	620.75	349.0	622.15	0.2250
EDGM1	0.500	273.65	0.00	273.15	0.183	96.0	369.15	98.0	371.15	0.539	317.1	590.25	318.0	591.15	0.1522
E31	0.500	273.65	0.00	273.15	0.183	97.1	370.25	98.0	371.15	0.242	304.1	577.25	304.0	577.15	0.0173

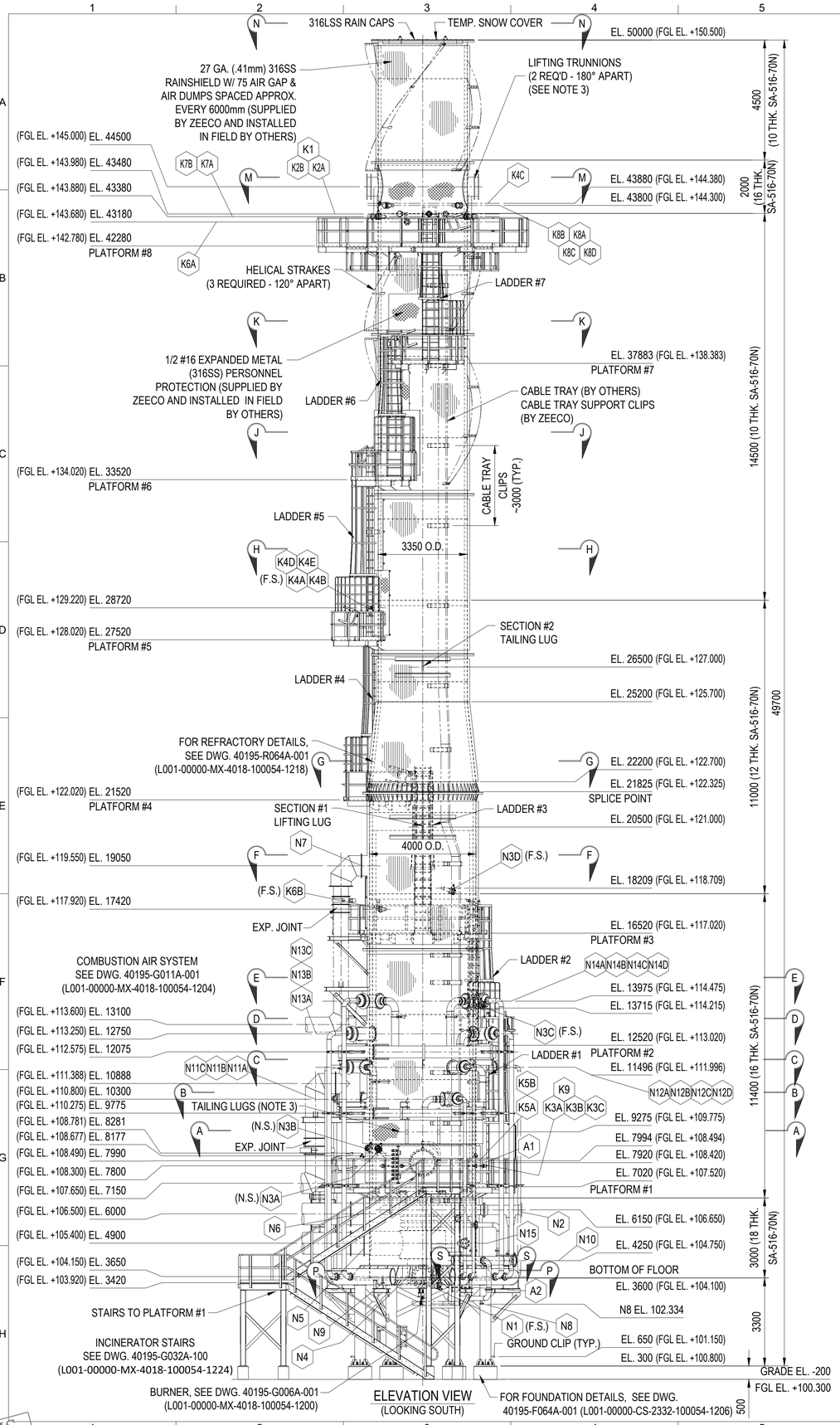
AGAT Laboratories

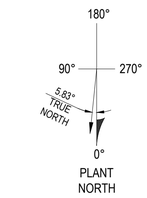
Thermocouple Calibration: 2025

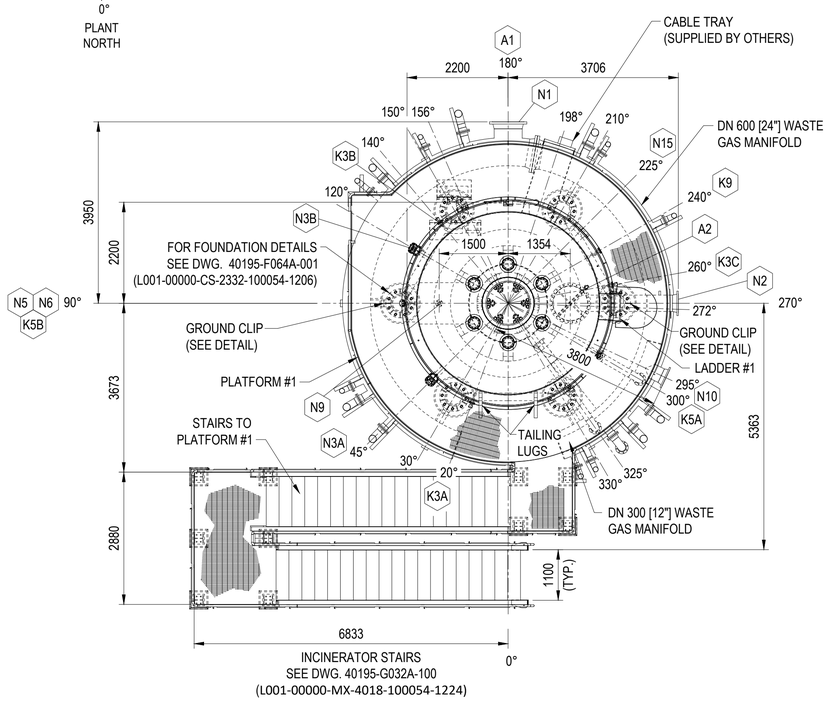
Thermocouple Calibration: Fluke S/N: 24450030 & 111108577 Thermometer Standard: VWR61016-208, QL Quincy Lab Inc. 76mm 1mm, C15, C4 Calibrated according to ASSC Method 2 Sec 4.3

	Ice					Boiling Water					Oven				
I.D	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff
Pitot Tube Thermocouples															
CGY5D	0.80	273.95	0.50	273.65	0.110	97.8	370.95	98.0	371.15	0.054	459.40	732.55	459.0	732.15	0.0546
CGY5A	1.00	274.15	0.50	273.65	0.183	97.1	370.25	98.0	371.15	0.242	449.00	722.15	448.0	721.15	0.1387
CGY8A	1.10	274.25	1.00	274.15	0.036	96.7	369.85	98.0	371.15	0.350	440.00	713.15	441.0	714.15	0.1400
CGY10 (New)	0.80	273.95	0.50	273.65	0.110	97.4	370.55	98.0	371.15	0.162	457.10	730.25	458.0	731.15	0.1231
CGY10A	1.20	274.35	1.00	274.15	0.073	96.8	369.95	98.0	371.15	0.323	429.00	702.15	430.0	703.15	0.1422
CGY12	1.00	274.15	1.00	274.15	0.000	97.6	370.75	98.0	371.15	0.108	459.00	732.15	460.0	733.15	0.1364
CGY12B	0.90	274.05	1.00	274.15	0.036	97.8	370.95	98.0	371.15	0.054	418.20	691.35	418.0	691.15	0.0289
CGY13	0.90	274.05	1.00	274.15	0.036	97	370.15	98.0	371.15	0.269	456.70	729.85	458.0	731.15	0.1778
EDM3	0.60	273.75	0.00	273.15	0.220	96.3	369.45	98.0	371.15	0.458	345.40	618.55	347.0	620.15	0.2580
EDM5 A (New)	0.50	273.65	0.00	273.15	0.183	96.4	369.55	98.0	371.15	0.431	327.40	600.55	327.0	600.15	0.0667
EDM5 B (New)	0.70	273.85	0.00	273.15	0.256	95.1	368.25	97.0	370.15	0.513	323.00	596.15	323.0	596.15	0.0000
EDM7	0.60	273.75	0.00	273.15	0.220	96.6	369.75	98.0	371.15	0.377	324.00	597.15	324.0	597.15	0.0000
EDM7 A (New)	1.10	274.25	0.00	273.15	0.403	95.0	368.15	97.0	370.15	0.540	324.00	597.15	324.0	597.15	0.0000
EDM8 A (New)	0.60	273.75	0.00	273.15	0.220	94.1	367.25	96.0	369.15	0.515	322.00	595.15	323.0	596.15	0.1677
EDM9 A (New)	0.60	273.75	0.00	273.15	0.220	94.2	367.35	96.0	369.15	0.488	331.00	604.15	331.0	604.15	0.0000
EDM9 B (New)	0.70	273.85	0.00	273.15	0.256	96.6	369.75	98.0	371.15	0.377	318.30	591.45	319.0	592.15	0.1182
EDM10A	0.60	273.75	0.00	273.15	0.220	94.4	367.55	96.0	369.15	0.433	329.10	602.25	329.0	602.15	0.0166
EDM15B	0.80	273.95	1.00	274.15	0.073	95	368.15	97.0	370.15	0.540	392.00	665.15	392.0	665.15	0.0000
EDM18	0.50	273.65	0.00	273.15	0.183	96.3	369.45	98.0	371.15	0.458	340.10	613.25	940.0	1213.15	49.45
GP 8	1.40	274.55	1.00	274.15	0.146	97	370.15	98.0	371.15	0.269	449.20	722.35	448.0	721.15	0.1664
GP10	1.10	274.25	1.00	274.15	0.036	96.9	370.05	98.0	371.15	0.296	441.00	714.15	440.0	713.15	0.1402
GP12	1.30	274.45	1.00	274.15	0.109	96.6	369.75	98.0	371.15	0.377	443.10	716.25	443.0	716.15	0.0140
GP13	1.00	274.15	1.10	274.25	0.036	97.3	370.45	98.0	371.15	0.189	467.30	740.45	468.0	741.15	0.0944
SRC5 A	2.10	275.25	1.00	274.15	0.401	96	369.15	97.0	370.15	0.270	380.00	653.15	381.0	654.15	0.1529
SRC5 B	1.50	274.65	1.00	274.15	0.182	95	368.15	97.0	370.15	0.540	407.10	680.25	409.0	682.15	0.2785
SRC5 - Spare	2.20	275.35	1.50	274.65	0.255	96.2	369.35	97.0	370.15	0.216	426.00	699.15	427.0	700.15	0.1428
SRC6	1.70	274.85	1.00	274.15	0.255	95.8	368.95	97.0	370.15	0.324	421.00	694.15	422.0	695.15	0.1439
SRC9B	1.70	274.85	1.00	274.15	0.255	96.4	369.55	97.0	370.15	0.162	432.20	705.35	431.0	704.15	0.1704
SRC9C	1.30	274.45	1.00	274.15	0.109	96.2	369.35	97.0	370.15	0.216	442.00	715.15	441.0	714.15	0.1400
SRC12B	1.50	274.65	1.00	274.15	0.182	96.6	369.75	97.0	370.15	0.108	446.60	719.75	445.0	718.15	0.2228
SRC13	0.90	274.05	1.00	274.15	0.036	96.2	369.35	97.0	370.15	0.216	416.10	689.25	415.0	688.15	0.1598
SRC-HT-5	1.70	274.85	1.00	274.15	0.255	96.8	369.95	97.0	370.15	0.054	411.50	684.65	411.0	684.15	0.0731

Appendix VI – Stack Diagram

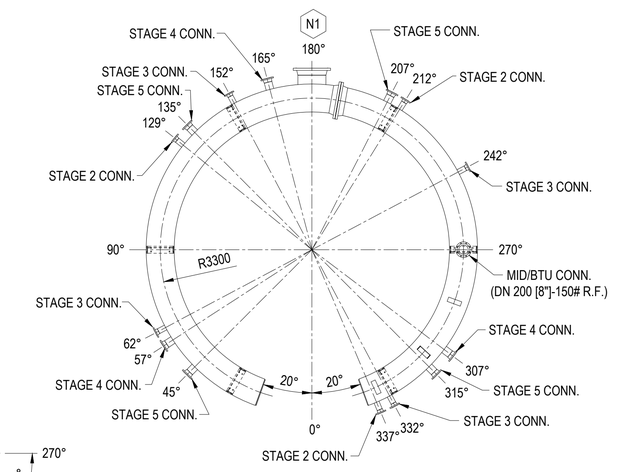


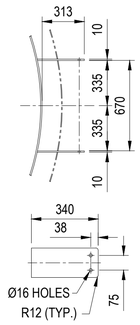




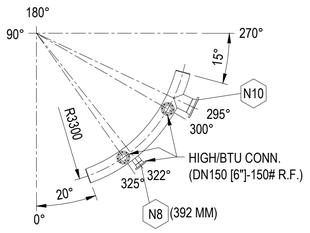
SECTION A-A

(PLATFORM #1 EL. 7020) (FGL EL. +107.520)





CABLE TRAY CLIP DETAIL



SECTION S-S

(DN 300 [12"] MANIFOLD EL. 4250) (FGL EL. +104.750)

SECTION P-P

(DN 600 [24"] MANIFOLD EL. 3650) (FGL EL. +104.150)
(STAGE 2 CONN. = DN 100 [4"]-150# R.F.)
(STAGE 3 CONN. = DN 100 [4"]-150# R.F.)
(STAGE 4 CONN. = DN 150 [6"]-150# R.F.)
(STAGE 5 CONN. = DN 150 [6"]-150# R.F.)

- GENERAL NOTES -

1. TWO UNITS REQUIRED.
2. FOR NOTES AND REFERENCE DRAWINGS SEE DRAWING 40195-G064A-001 (L001-00000-MX-4018-100054-1215.)
3. LIFTING TRUNNIONS AND TAILING LUGS TO BE REMOVED AFTER EQUIPMENT INSTALLATION IS COMPLETE.

CUSTOMER: JGC / FLUOR (JFJV) JOINT VENTURE
JOBSITE: KITIMAT, BRITISH COLUMBIA, CANADA
END USER: LNG CANADA
P.O. NO.: 0-7960-2-PJ2157-002-AK-L9GC100054

ZEECO, INC.
22151 EAST 91st STREET
BROKEN ARROW, OK 74014
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FAX: (918) 251-5519
www.zeeco.com
sales@zeeco.com

ACID GAS INCINERATOR GENERAL ARRANGEMENT SHEET 2

DRAWN	DATE
DAK	08AUG19
CHK	APP
JGH	AD
SCALE	APP
NONE	JM

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S.O. NO.	DWG., SUB. CAT. & SYSTEM NO.	DWG. NO.	REV. NO.
40195	G064A	002	4

REV. NO.	DESCRIPTION	BY	CHKD	APVD	DATE
4	AS BUILT	EG	CWK	CLK	13/FEB/2025
3	APPROVED FOR CONSTRUCTION	CAW	CWK	CLK	21/OCT/2024
2	APPROVED FOR CONSTRUCTION	IND	VOU	A.D	18/AUG/2021
1	APPROVED FOR CONSTRUCTION	J.H	D.K	A.D	10/SEP/2020
0	APPROVED FOR CONSTRUCTION	J.H	D.K	A.D	30/MAR/2020
B	REVISED PER COMMENTS	J.H	D.K	A.D	02/OCT/2019
A	ISSUED FOR REVIEW	D.K	J.H	A.D	08/AUG/2019

REVISIONS

JGC | FLUOR BC LNG JV
PRIME CONTRACTOR TO LNG CANADA

LNG CANADA
Opportunity for British Columbia. Energy for the world

LNG CANADA PROJECT

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TITLE:

ACID GAS INCINERATOR GENERAL ARRANGEMENT SHEET 2

UNIT: U0000

LOCATION: KITIMAT, BRITISH COLUMBIA, CANADA

PLANT: LNG CANADA

DWG No.: L001-00000-MX-4018-100054-1216

SIZE: A1

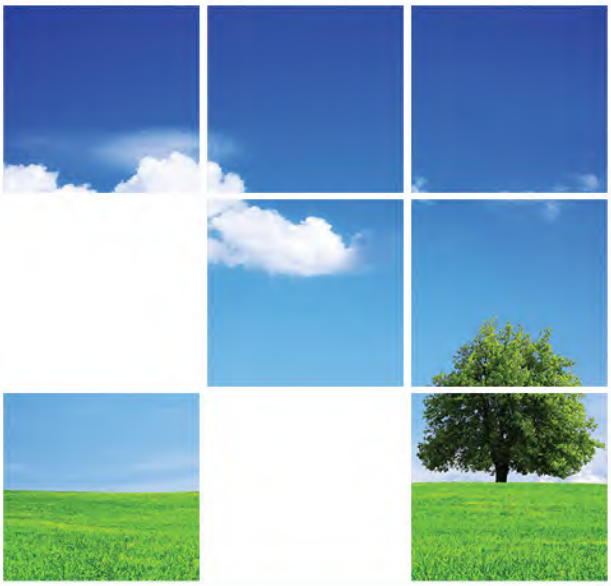
REV.: 4

FILE NAME: L001-00000-MX-4018-100054-1216_R4

J-DMS 25-Mar-2025 UNCONTROLLED WHEN PRINTED

1 NO COMMENTS. APPROVED
Authorization to proceed does not relieve Contractor/Supplier of its responsibility or liability under the Contract and or Purchase Order.
Next Issue Purpose :

END OF DOCUMENT



SOURCE EMISSION SURVEY

LNG Canada Development Inc.

LNG Canada Kitimat Liquified Natural (LNG) Gas Facility
Train 1 Natural Gas Turbine Engine (1E-4101A)
September 28, 2025

Prepared for:
LNG Canada Development Inc.
Suite # 4000 – 500 Centre Street, S.E.
Calgary, Alberta
T2G 1A6

Attention:
Mr. Tauseef Zia Siddiqui

Prepared By:
Hina Jahangir
AGAT Laboratories Ltd.
3700 - 21st Street, N.E.
Calgary, Alberta
T2E 6V6
Phone: 403.299.2158

Project No.: 25C338707
Permit No.: PA-110588
October 27, 2025

AGAT Laboratories

Cover Letter

October 27, 2025

LNG Canada Development Inc.
LNG Canada Kitimat Liquified Natural Gas (LNG) Facility

Attention:	Mr. Tauseef Zia Siddiqui
Subject:	LNG Canada Kitimat Liquified Natural Gas (LNG) Facility – September 2025 Source Emission Survey

AGAT Laboratories' Source Testing Services Group is pleased to submit the following Source Emission Survey report. The test program conducted at the LNG Canada Development Inc. – LNG Canada Kitimat Liquified Natural Gas (LNG) Facility on September 28, 2025 was performed on the Train 1 Natural Gas Turbine Engine (1E-4101A). The parameters tested were Particulate Matter 2.5 ($PM_{2.5}$), Volatile Organic Compounds (VOCs), Total Hydrocarbons (THCs), Volumetric Flow and Sample Level Temperature. Cyclonic Flow testing was also conducted. This report was completed in accordance with Environment Canada EPS 1/PG/7 requirements.

If you have any questions or concerns regarding this report, please contact Mr. Shaun Hayward at (403) 299-2179, or via E-mail at **hayward@agatlabs.com**. Alternatively, please contact Mr. Richard Kenney at (403) 299-2184, or via E-mail at **rkenney@agatlabs.com.** Thank you for your patronage, and we look forward to being of service to you in the future.

Yours truly,

AGAT Laboratories Ltd.

Report Author: **Reviewed by:**

Hina Jahangir
Report Writer

Shaun Hayward, A. B.Sc.
Manager, Source Testing

Richard Kenney
Technical Services Liaison

Summary

AGAT Laboratories' Source Testing Services Group was retained by LNG Canada Development Inc. to perform a Source Emission Survey on the Train 1 Natural Gas Turbine Engine (1E-4101A) located at the LNG Canada Kitimat Liquified Natural Gas (LNG) Facility. The parameters tested were Particulate Matter 2.5 ($PM_{2.5}$), Volatile Organic Compounds (VOCs), Total Hydrocarbons (THCs), Volumetric Flow and Sample Level Temperature.

The Train 1 Natural Gas Turbine Engine (1E-4101A) at the LNG Canada Kitimat Liquified Natural Gas (LNG) Facility was operating under normal conditions at the time of the sampling program. These tests were conducted on September 28, 2025.

Stratification testing was not conducted at this time. Cyclonic Flow testing was conducted at this time; data results obtained from the source emission testing indicated that no cyclonic flow conditions were observed.

The Effluent Flow Measuring device was tested using a calibrated standard S-type Pitot tube fixed with a standardized K-Type thermocouple.

The protocols of US EPA 201A were followed to test for Total Particulate Matter and Particulate Matter 2.5. The protocols of US EPA 18 were followed to test for Volatile Organic Compounds (VOCs) and Total Hydrocarbons (THCs). The protocols of US EPA Method 1, 2, 3, and 4 and the British Columbia Field Sampling Manual Method 1, 2, 3 of part B-2 were used to test the Volumetric Flow and Temperature. The protocols of Environment Canada Report EPS 1/PG/7 (EC-PG7) were followed in order to complete the Source Emission Survey report.

Table 1: Summary of Source Emission Survey Results

Compliance Parameter	Units	Test 1 2025/09/28 10:00 – 10:59	Test 2 2025/09/28 11:30 – 12:31	Test 3 2025/09/28 13:00 – 14:00	Average
Stack Gas Measurements					
Volumetric Flow	**m^3/sec - wet**	118	118	122	**119**
	e^3m^3/day - wet	10,187	10,229	10,587	**10,334**
Stack Gas Velocity	**m/s**	14.4	14.5	15.2	**14.7**
Stack Temperature	**℃**	165	165	172	**167**
Water Content	**%**	7.52	7.30	7.76	**7.53**
Particulate Matter ($PM_{2.5}$)					
Concentration	**mg/dscm - dry**	1.98	2.51	1.38	**1.96**
	g/kg - dry	0.00167	0.00211	0.00116	**0.00165**
	g/kg - wet	0.00159	0.00201	0.00110	**0.00157**
Emission Rate	**kg/hr**	0.778	0.992	0.561	**0.777**
Volatile Organic Compounds (VOCs)**					
Concentration	**ppm - dry**	0.101	0.0238	0.0164	**0.0471**
	ppm - wet	0.0934	0.0221	0.0151	**0.0435**
	mg/m^3 - dry	0.252	0.0620	0.0437	**0.119**
	mg/m^3 - wet	0.233	0.0575	0.0403	**0.110**
Emission Rate	**kg/hr**	0.0988	0.0244	0.0177	**0.0470**
Total Hydrocarbon (THC)					
Concentration	**ppm - dry**	403	1280	898	**860**
	ppm - wet	373	1187	828	**796**
	mg/m^3 - dry	269	854	599	**574**
	mg/m^3 - wet	249	791	552	**531**
Emission Rate	**kg/hr**	106	337	243	**228**

Notes: *Reported at 760 mm Hg and 20°C.
**Minimum Detection Limits (MDL), along with full speciation breakdown can be found in Appendix I.

Table 2: Cyclonic Flow Results

Train 1 Natural Gas Turbine Engine (1E-4101A)												
	Port 1 - West			Port 2 - South			Port 3 - East			Port 4 - North		
	Test 1	Test 2	Difference	Test 1	Test 2	Difference	Test 1	Test 2	Difference	Test 1	Test 2	Difference
1	4	3	1.00	3	2	1.00	0	0	0.00	0	0	0.00
2	0	0	0.00	3	3	0.00	0	0	0.00	8	7	1.00
3	0	0	0.00	1	1	0.00	3	2	1.00	9	8	1.00
4	5	4	1.00	1	1	0.00	0	0	0.00	0	0	0.00
	***Absolute Average**		**0.500**	***Absolute Average**		**0.250**	***Absolute Average**		**0.250**	***Absolute Average**		**0.500**

Note: *Average of the absolute rotation angle values.

According to US EPA Method 1 Section 11.4, cyclonic flow occurs when the average of the absolute values of the null angles is greater than 20^{o}. Additionally, the difference between the angles in tests 1 and 2 cannot be greater than 5^{o}. Applying US EPA, cyclonic flow was found to be within approved limits.

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Part 1 – Introduction

1.1 Background Information

AGAT Laboratories' Source Testing Services Group was retained by Mr. Tauseef Zia Siddiqui of LNG Canada Development Inc. to perform a Source Emission Survey on the Train 1 Natural Gas Turbine Engine (1E-4101A) at the LNG Canada Kitimat Liquified Natural Gas (LNG) Facility. These tests were conducted on September 28, 2025.

1.2 Key Personnel

Mr. Marlon Soriano was the AGAT project manager and Mr. Tauseef Zia Siddiqui was the client contact and coordinator. Mr. Marlon Soriano and Mr. Vipul Katariya performed the on-site sampling program. Mrs. Hina Jahangir performed the data reduction and produced the final report.

1.3 Project Scope

Project scope included the evaluation of the following parameters from Train 1 Natural Gas Turbine Engine (1E-4101A):

i) Particulate Matter 2.5 ($PM_{2.5}$)
ii) Volatile Organic Compounds (VOCs)
iii) Total Hydrocarbon (THC)
iv) Cyclonic Flow
v) Volumetric Flow
vi) Sample Level Temperature

Part 2 – Test Procedure

2.1 Standard Methods

The protocols of US EPA 201A were followed to test for Total Particulate Matter and Particulate Matter 2.5. The protocols of US EPA 18 were followed to test for Volatile Organic Compounds (VOCs) and Total Hydrocarbons (THCs). The protocols of US EPA Method 1, 2, 3, and 4 and the British Columbia Field Sampling Manual Method 1, 2, 3 of part B-2 were used to test the Volumetric Flow and Temperature. The protocols of Environment Canada Report EPS 1/PG/7 (EC-PG7) were followed in order to complete the Source Emission Survey report.

Stack Gas Velocity, Temperature & Volumetric Flow Rates

Stack gas velocities, temperature and volumetric flow rates determined following the procedures as outlined in the *British Columbia Field Sampling Manual Method #2 – Determination of Stack Gas Velocity and Volumetric Flow Rates*. Stack gas velocity was determined from the moisture content of the stack gas as well as differential pressure and temperature measurements taken at six points at the centroid of the stack cross-section. Pressure differentials are measured by calibrated S-type Pitot tube and inclined oil manometer. Temperature measurements are made with a calibrated K-type thermocouple. Velocity, when multiplied by the cross-sectional area of the stack equates to the volumetric flow.

Stack Gas Moisture Content

Stack gas moisture content was determined following the procedures as outlined in *British Columbia Field Sampling Manual Method #4 – Determination of Moisture Content in Stack Gases*. Samples were collected from the centroid of the stack cross section, and the moisture fraction was condensed in an impinger train maintained in an ice bath. Moisture content was then measured onsite using the gravimetric method for each impinger, results from the individual impinger weights and exit temperature of the final impinger are recorded in Appendix IV. Moisture measurements were carried out simultaneously with each test run.

Oxygen & Carbon Dioxide

Oxygen and carbon dioxide samples were collected and analyzed following the procedure as outlined in the *British Columbia Field Sampling Manual Method #3 – Gas Analysis for the Determination of Dry Molecular Weight*. An integrated sample was taken over the test period using an evacuated cannister with a flow controller to sample over the test period.

Total Particulate Matter and Particulate Matter 2.5

Total Particulate Matter and Particulate 2.5 samples were collected and analyzed following the procedures outlined in the *US Environmental Protection Agency Method #201A – Determination of Particulate Matter and PM2.5 Emissions from Stationary Sources*. Samples were withdrawn from the stack through a sizing device, which separates particles with nominal aerodynamic diameters of 2.5 micrometers. Samples were also withdrawn isokinetically to determine *Total Particulate* emissions using additional analysis of the impinger catch. Particulate samples collected were analyzed gravimetrically. All samples were analyzed at an ISO/IEC 17025 accredited lab (Certificate of Accreditation can be found in Appendix II).

Total Hydrocarbons and Volatile Organic Compounds

Total hydrocarbon and Volatile Organic Compounds samples were collected and analyzed following the procedures as outlined in the *US EPA Method #18 - Measurement of Gaseous Organic Compound Emissions by Gas Chromatography.* Samples were withdrawn from the source and collected in evacuated canisters. The major organic components of the collected gas mixture were then separated by gas chromatography (GC) and individually quantified by flame ionization and thermal conductivity detection principles. The retention times of each separated component are used to identify the organic component and its concentration by comparing the observed values to those of known compounds. All samples were analyzed at an ISO/IEC 17025 accredited lab (Certificate of Accreditation can be found in Appendix III).

Cyclonic Flow

Cyclonic Flow was determined following the procedures outlined in the *US EPA Method #1 Section 11.4 – Verification of Absence of Cyclonic Flow.* Pressure differentials are measured by calibrated S-type Pitot tube and inclined oil manometer that has been levelled and zeroed at each traverse point. The measurement system is leak checked to 2” to 4” of W.C. prior to conducting the test. When levelled, the pitot tube is at “0^{o} reference”. The pitot tube is then rotated away from the 0^{o} reference angle until a null (zero) pitot reading is obtained. If the average of the absolute values of the rotation angles is greater than 20^{o}, cyclonic flow is present.

2.2 Quality Assurance/Quality Control

AGAT Laboratories Ltd. Source Testing department QA/QC protocols include, but are not limited to the following:

i) Regular maintenance and calibration of all field-sampling equipment as per applicable sampling protocols.

ii) On-site leak checks of sample system and pitot tubes.

iii) Proper sealing, labeling, storing, transport and chain of custody/log in procedures upon return of the laboratory, when applicable.

iv) Use of EPA Protocol 1 and RATA grade calibration gases, where applicable.

v) Linearity and response time checks are conducted on all analyzers prior to use.

vi) Calibration drift is checked during testing to assure instruments are performing within allowable limits.

vii) Technical review on all final lab analysis and final written source emission survey reports.

viii) Collected samples requiring laboratory analysis are performed by a ISO/IEC 17025 accredited lab.

Part 3- Discussion

3.1 Stack Characteristics

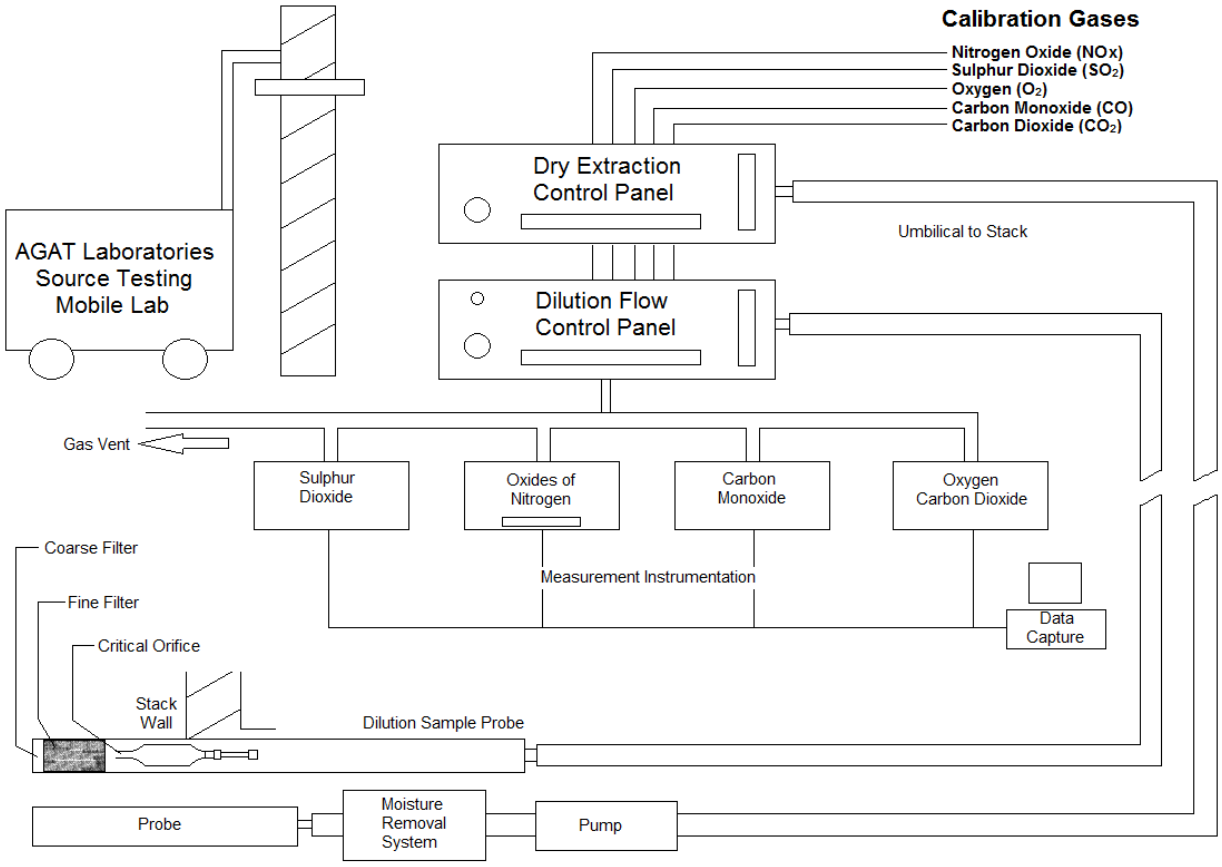
The Train 1 Natural Gas Turbine Engine (1E-4101A) at the LNG Canada Development Inc. - LNG Canada Kitimat Liquified Natural Gas (LNG) Facility has an internal stack diameter of 3.85m and a height of 60.0m. The sample points are located at an elevation of 51.03m, with the top of the transition section as last disturbance upstream at 34.56m (4.28 diameters), and the stack exit downstream at 60m (2.59 diameters).

3.2 Test Results

Stratification testing was not conducted at this time. Cyclonic Flow testing was conducted at this time; data results obtained from the source emission testing indicated that no cyclonic flow conditions were observed.

No problems were encountered during the sampling period that required corrective action. The test results obtained are an accurate representation of emission characteristics for the process conditions maintained at the LNG Canada Development Inc. - Train 1 Natural Gas Turbine Engine (1E-4101A) at LNG Canada Kitimat Liquified Natural Gas (LNG) Facility on the test date of September 28, 2025.

Figure 1: Schematic of the Mobile CEMS Instrumentation System



Appendix I – Emission Data & Calculations

Particulate Calculation for PM 2.5 **Turbine-1E-4101A** **9/28/2025**

LNG-CANADA **LNG-Kitimat**

Symbols	Variables	Units	Test 1 10:00 - 10:59	Test 2 11:30 - 12:31	Test 3 13:00 - 14:00	Average
Cs	PM 2.5 Concentration	gr/dscf	0.000866	0.001097	0.000602	0.000855
		mg/dscm dry	1.98	2.51	1.38	1.96
		g/kg dry	0.00167	0.00211	0.00116	0.00165
		g/kg wet	0.00159	0.00201	0.00110	0.00157
E	PM 2.5 Emission Rate	kg/hr	0.778	0.992	0.561	0.777
Qsd	Flow Rate	E3M3/Day wet	10,187	10,229	10,587	10,334
Vs	Stack Gas Velocity	ft/s	47.3	47.5	49.9	48.2
		m/s	14.4	14.5	15.2	14.7
Tsavg	Stack Gas Temp	Deg F	329	329	341	333
		Deg C	165	165	172	167
BwsCalc	Stack Moisture	%	7.52	7.30	7.76	7.53
Vmstd	Standard Dry Meter Volume	dscf	23.2	23.9	30.8	25.9
		dscm	0.656	0.677	0.871	0.735
mp	Mass of PM2.5	mg	1.30	1.70	1.20	1.40
Mwd	Dry Molecular Weight	lb/lb-mole	29.1	29.1	29.1	29.1
Msw	Wet Molecular Weight	lb/lb-mole	28.3	28.3	28.2	28.3
Vwstd	Total Water Vapour	scf	1.88	1.88	2.59	2.12
		scm	0.0533	0.0533	0.0733	0.0600

Formulas

kg/1000 kg (std) dry =	0.0244654	*(mp /(Vmstd*Mwd))
kg/1000 kg (std) wet =	0.0244654	*(mp/(Vmstd + Vwstd)*Mw)

Total Hydrocarbons (THC)

Parameter	THC as Methane	Test 1	Test 2	Test 3
	9/28/2025	**10:00 - 10:59**	**11:30 - 12:31**	**13:00 - 14:00**
Baro. Press.	(in. Hg)	29.57	29.57	29.57
DGM Factor	(Y)	0.9986	0.9986	0.9986
Meter Type	(**M**etric/**E**nglish)	English	English	English
Moisture	%	7.52	7.30	7.76
Gas Volume	(m^3 std.)	0.349	0.349	0.337
THC	(ppm dry sample)	403	1280	898
	(ppm wet sample)	372.7	1186.5	828.3
Flow Rate	(m^3/sec) - dry	109	110	113
	(m^3/sec) - wet	118	118	122

					Average
THC	**ppm - dry**	**403**	**1280**	**898**	**860**
	ppm - wet	**373**	**1187**	**828**	**796**
	mg/m^3 - dry	**269**	**854**	**599**	**574**
	mg/m^3 - wet	**249**	**791**	**552**	**531**
	kg/hr - dry	**105**	**338**	**244**	**229**
	kg/hr - wet	**106**	**337**	**243**	**228**

Minimum detection limit of THC is <1 ppm; in calculation of total average measurements, 1 ppm was used as <MDL.

Tstd. (oF) 77

Pstd. (in. Hg) 29.92

Train 1 Natural Gas Turbine Engine (1E-4101A) - Total VOC					
Compliance Parameter	**Units**	**Test 1 9/28/2025 10:00 – 10:59**	**Test 2 9/28/2025 11:30 – 12:31**	**Test 3 9/28/2025 13:00 – 14:00**	**Average**
Total VOC	**ppm - dry**	0.101	0.0238	0.0164	**0.0471**
Concentration	**ppm - wet**	0.0934	0.0221	0.0151	**0.0435**
	mg/m^3 - dry	0.252	0.0620	0.0437	**0.119**
	mg/m^3 - wet	0.233	0.0575	0.0403	**0.110**
Emission Rate	**kg/hr**	0.0988	0.0244	0.0177	**0.0470**

Water Content	**%**	7.52	7.30	7.76	**7.53**
Flow	**m^3/sec - wet**	118	118	122	**119**
	m^3/sec - dry	109	109	113	**110**

Train 1 Natural Gas Turbine Engine (1E-4101A) - Total VOC

Test 1
9/28/2025
10:00 – 10:59

Standard pressure:	mmHg	760
Standard Temperature:	deg C	20
Dry Flow Rate:	m3/s	109

$$mg/m3 = \frac{ppbv/1000 \times Molecular\ Weight}{Molar\ volume\ (24.05)}$$

$$kg/hr = \frac{mg/m3 \times Flow(m3/hr)}{1.00E+06}$$

			mg/m3	kg/hr
Total VOC	**ppbv**	**100.96**	**0.251524396**	**0.098812627**

BTEX			**ppbv**	**4.13**	**0.015758809**	**0.006190928**
Benzene	C6H6	78.114	ppbv	0.21	0.000682077	0.000267957
Toluene	C7H8	92.141	ppbv	3.82	0.014635286	0.005749546
Ethylbenzene	C8H10	106.168	ppbv	0	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.1	0.000441447	0.000173425

Compound	Formula	Molecular Weight (g/mol)	units	test 1	mg/m3	kg/hr
1,1,1-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1,2,2-Tetrachloroethane	C2H2Cl4	167.838	ppbv	< 0.02	0	0
1,1,2-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.02	0	0
1,1-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
1,2,3-Trimethylbenzene	C9H12	120.195	ppbv	< 0.05	0	0
1,2,4-Trichlorobenzene	C6H3Cl3	181.44	ppbv	< 0.3	0	0
1,2,4-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,2-Dibromoethane	C2H4Br2	187.862	ppbv	< 0.02	0	0
1,2-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.03	0	0
1,2-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.03	0	0
1,2-Dichloropropane	C3H6Cl2	112.981	ppbv	< 0.03	0	0
1,3,5-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,3-Butadiene	C4H6	54.092	ppbv	< 0.03	0	0
1,3-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dioxane	C4H8O2	88.106	ppbv	< 0.5	0	0
1-Butene/Isobutylene	C4H8	56.108	ppbv	0.46	0.001073168	0.000421599
1-Hexene/2-Methyl-1-pentene	C6H12	84.162	ppbv	< 0.07	0	0
1-Pentene	C5H10	70.135	ppbv	0.06	0.000174973	6.8739E-05
2,2,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,2-Dimethylbutane	C6H14	86.178	ppbv	< 0.02	0	0
2,3,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,3-Dimethylbutane	C6H14	86.178	ppbv	< 0.09	0	0
2,3-Dimethylpentane	C7H16	100.205	ppbv	< 0.02	0	0
2,4-Dimethylpentane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylheptane	C8H18	114.232	ppbv	< 0.02	0	0
2-Methylhexane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylpentane	C6H14	86.178	ppbv	0.02	7.16657E-05	2.81542E-05
3-Methylheptane	C8H18	114.232	ppbv	< 0.03	0	0
3-Methylhexane	C7H16	100.205	ppbv	< 0.02	0	0
3-Methylpentane	C6H14	86.178	ppbv	0.03	0.000107499	4.22313E-05
Acetone	C3H6O	58.08	ppbv	91.8	0.221694137	0.087093659
Acrolein	C3H4O	56.064	ppbv	1.2	0.002797372	0.001098962
Benzene	C6H6	78.114	ppbv	0.21	0.000682077	0.000267957
Benzyl chloride	C7H7Cl	126.583	ppbv	< 0.3	0	0
Bromodichloromethane	CHBrCl2	163.823	ppbv	< 0.03	0	0
Bromoform	CHBr3	252.731	ppbv	< 0.02	0	0
Bromomethane	CH3Br	94.939	ppbv	< 0.02	0	0

Carbon disulfide	CS2	76.131	ppbv	0.07	0.000221587	8.70516E-05
Carbon tetrachloride	CCl4	153.811	ppbv	< 0.02	0	0
Chlorobenzene	C6H5Cl	112.556	ppbv	< 0.02	0	0
Chloroethane	C2H5Cl	64.512	ppbv	0.03	8.04723E-05	3.1614E-05
Chloroform	CHCl3	119.369	ppbv	0.02	9.92674E-05	3.89977E-05
Chloromethane	CH3Cl	50.485	ppbv	0.19	0.000398842	0.000156687
cis-1,2-Dichloroethene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
cis-1,3-Dichloropropene	C3H4Cl2	110.965	ppbv	< 0.03	0	0
cis-2-Butene	C4H8	56.108	ppbv	0.03	6.99892E-05	2.74956E-05
cis-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Cyclohexane	C6H12	84.162	ppbv	< 0.04	0	0
Cyclopentane	C5H10	70.135	ppbv	0.02	5.83243E-05	2.2913E-05
Dibromochloromethane	CHBr2Cl	208.277	ppbv	< 0.02	0	0
Ethanol	C2H6O	46.069	ppbv	< 0.5	0	0
Ethyl acetate	C4H8O2	88.106	ppbv	< 0.3	0	0
Ethylbenzene	C8H10	106.168	ppbv	< 0.03	0	0
Freon-11	CCl3F	137.359	ppbv	0.05	0.00028557	0.000112187
Freon-113	C2Cl3F3	187.366	ppbv	< 0.02	0	0
Freon-114	C2Cl2F4	170.914	ppbv	< 0.03	0	0
Freon-12	CCl2F2	120.907	ppbv	0.1	0.000502732	0.000197501
Hexachloro-1,3-butadiene	C4Cl6	260.744	ppbv	< 0.3	0	0
Isobutane	C4H10	58.124	ppbv	< 0.03	0	0
Isopentane	C5H12	72.151	ppbv	0.44	0.001320018	0.000518576
Isoprene	C5H8	68.119	ppbv	< 0.02	0	0
Isopropyl alcohol	C3H8O	60.096	ppbv	0.6	0.001499277	0.000588998
Isopropylbenzene	C9H12	120.195	ppbv	< 0.04	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.1	0.000441447	0.000173425
m-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
m-Ethyltoluene	C9H12	120.195	ppbv	< 0.03	0	0
Methyl butyl ketone	C5H10O	86.134	ppbv	< 0.4	0	0
Methyl ethyl ketone	C4H8O	72.107	ppbv	0.5	0.001499106	0.000588931
Methyl isobutyl ketone	C6H12O	100.161	ppbv	< 0.3	0	0
Methyl methacrylate	C5H8O2	100.117	ppbv	< 0.08	0	0
Methyl tert butyl ether	C5H12O	88.15	ppbv	< 0.03	0	0
Methylcyclohexane	C7H14	98.189	ppbv	< 0.02	0	0
Methylcyclopentane	C6H12	84.162	ppbv	< 0.05	0	0
Methylene chloride	CH2Cl2	84.927	ppbv	< 0.3	0	0
n-Butane	C4H10	58.124	ppbv	0.22	0.000531696	0.000208879
n-Decane	C10H22	142.286	ppbv	< 0.06	0	0
n-Dodecane	C12H26	170.34	ppbv	< 0.3	0	0
n-Heptane	C7H16	100.205	ppbv	0.08	0.000333322	0.000130947
n-Hexane	C6H14	86.178	ppbv	0.08	0.000286663	0.000112617
n-Nonane	C9H20	128.259	ppbv	< 0.04	0	0
n-Octane	C8H18	114.232	ppbv	0.08	0.000379982	0.000149278
n-Pentane	C5H12	72.151	ppbv	0.67	0.002010028	0.00078965
n-Propylbenzene	C9H12	120.195	ppbv	< 0.06	0	0
n-Undecane	C11H24	156.313	ppbv	< 0.5	0	0
Naphthalene	C10H8	128.174	ppbv	< 0.3	0	0
o-Ethyltoluene	C9H12	120.195	ppbv	< 0.02	0	0
o-Xylene	C8H10	106.168	ppbv	0.04	0.000176579	6.93699E-05
p-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
p-Ethyltoluene	C9H12	120.195	ppbv	< 0.04	0	0
Styrene	C8H8	104.152	ppbv	< 0.04	0	0
Tetrachloroethylene	C2Cl4	165.822	ppbv	< 0.02	0	0
Tetrahydrofuran	C4H8O	72.107	ppbv	< 0.3	0	0
Toluene	C7H8	92.141	ppbv	3.82	0.014635286	0.005749546
trans-1,2-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.06	0	0
trans-1,3-Dichloropropylene	C3H4Cl2	110.965	ppbv	< 0.02	0	0
trans-2-Butene	C4H8	56.108	ppbv	0.04	9.33189E-05	3.66608E-05
trans-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Trichloroethylene	C2HCl3	131.38	ppbv	< 0.02	0	0
Vinyl acetate	C4H6O2	86.09	ppbv	< 0.3	0	0
Vinyl chloride	C2H3Cl	62.496	ppbv	< 0.02	0	0

Train 1 Natural Gas Turbine Engine (1E-4101A) - Total VOC

Test 2
9/28/2025
11:30 – 12:31

Standard pressure:	mmHg	760
Standard Temperature:	deg C	20
Dry Flow Rate:	m3/s	109

			mg/m3	kg/hr
Total VOC	ppbv	23.79	**0.062019383**	**0.024422588**

BTEX			**ppbv**	**2.51**	**0.009517227**	**0.003747785**
Benzene	C6H6	78.114	ppbv	0.24	0.000779516	0.000306965
Toluene	C7H8	92.141	ppbv	2.2	0.008428699	0.003319134
Ethylbenzene	C8H10	106.168	ppbv	0	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.07	0.000309013	0.000121686

Compound	Formula	Molecular Weight (g/mol)	units	test 2	mg/m3	kg/hr
1,1,1-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1,2,2-Tetrachloroethane	C2H2Cl4	167.838	ppbv	< 0.02	0	0
1,1,2-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.02	0	0
1,1-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
1,2,3-Trimethylbenzene	C9H12	120.195	ppbv	< 0.05	0	0
1,2,4-Trichlorobenzene	C6H3Cl3	181.44	ppbv	< 0.3	0	0
1,2,4-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,2-Dibromoethane	C2H4Br2	187.862	ppbv	< 0.02	0	0
1,2-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.03	0	0
1,2-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.03	0	0
1,2-Dichloropropane	C3H6Cl2	112.981	ppbv	< 0.03	0	0
1,3,5-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,3-Butadiene	C4H6	54.092	ppbv	< 0.03	0	0
1,3-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dioxane	C4H8O2	88.106	ppbv	< 0.5	0	0
1-Butene/Isobutylene	C4H8	56.108	ppbv	0.65	0.001516432	0.000597155
1-Hexene/2-Methyl-1-pentene	C6H12	84.162	ppbv	< 0.07	0	0
1-Pentene	C5H10	70.135	ppbv	0.03	8.74865E-05	3.44513E-05
2,2,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,2-Dimethylbutane	C6H14	86.178	ppbv	< 0.02	0	0
2,3,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,3-Dimethylbutane	C6H14	86.178	ppbv	< 0.09	0	0
2,3-Dimethylpentane	C7H16	100.205	ppbv	< 0.02	0	0
2,4-Dimethylpentane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylheptane	C8H18	114.232	ppbv	< 0.02	0	0
2-Methylhexane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
3-Methylheptane	C8H18	114.232	ppbv	< 0.03	0	0
3-Methylhexane	C7H16	100.205	ppbv	< 0.02	0	0
3-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
Acetone	C3H6O	58.08	ppbv	15.3	0.036949023	0.014550141
Acrolein	C3H4O	56.064	ppbv	2.5	0.005827859	0.00229495
Benzene	C6H6	78.114	ppbv	0.24	0.000779516	0.000306965
Benzyl chloride	C7H7Cl	126.583	ppbv	< 0.3	0	0
Bromodichloromethane	CHBrCl2	163.823	ppbv	< 0.03	0	0
Bromoform	CHBr3	252.731	ppbv	< 0.02	0	0
Bromomethane	CH3Br	94.939	ppbv	< 0.02	0	0

Carbon disulfide	CS2	76.131	ppbv	0.28	0.000886348	0.000349035
Carbon tetrachloride	CCl4	153.811	ppbv	< 0.02	0	0
Chlorobenzene	C6H5Cl	112.556	ppbv	< 0.02	0	0
Chloroethane	C2H5Cl	64.512	ppbv	< 0.02	0	0
Chloroform	CHCl3	119.369	ppbv	< 0.02	0	0
Chloromethane	CH3Cl	50.485	ppbv	0.18	0.00037785	0.000148794
cis-1,2-Dichloroethene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
cis-1,3-Dichloropropene	C3H4Cl2	110.965	ppbv	< 0.03	0	0
cis-2-Butene	C4H8	56.108	ppbv	0.05	0.000116649	4.5935E-05
cis-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Cyclohexane	C6H12	84.162	ppbv	< 0.04	0	0
Cyclopentane	C5H10	70.135	ppbv	< 0.02	0	0
Dibromochloromethane	CHBr2Cl	208.277	ppbv	< 0.02	0	0
Ethanol	C2H6O	46.069	ppbv	< 0.5	0	0
Ethyl acetate	C4H8O2	88.106	ppbv	< 0.3	0	0
Ethylbenzene	C8H10	106.168	ppbv	< 0.03	0	0
Freon-11	CCl3F	137.359	ppbv	0.04	0.000228456	8.99635E-05
Freon-113	C2Cl3F3	187.366	ppbv	< 0.02	0	0
Freon-114	C2Cl2F4	170.914	ppbv	< 0.03	0	0
Freon-12	CCl2F2	120.907	ppbv	0.08	0.000402185	0.000158376
Hexachloro-1,3-butadiene	C4Cl6	260.744	ppbv	< 0.3	0	0
Isobutane	C4H10	58.124	ppbv	0.22	0.000531696	0.000209376
Isopentane	C5H12	72.151	ppbv	0.47	0.00141002	0.000555251
Isoprene	C5H8	68.119	ppbv	< 0.02	0	0
Isopropyl alcohol	C3H8O	60.096	ppbv	0.4	0.000999518	0.0003936
Isopropylbenzene	C9H12	120.195	ppbv	< 0.04	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.07	0.000309013	0.000121686
m-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
m-Ethyltoluene	C9H12	120.195	ppbv	< 0.03	0	0
Methyl butyl ketone	C5H10O	86.134	ppbv	< 0.4	0	0
Methyl ethyl ketone	C4H8O	72.107	ppbv	0.3	0.000899464	0.000354199
Methyl isobutyl ketone	C6H12O	100.161	ppbv	< 0.3	0	0
Methyl methacrylate	C5H8O2	100.117	ppbv	< 0.08	0	0
Methyl tert butyl ether	C5H12O	88.15	ppbv	< 0.03	0	0
Methylcyclohexane	C7H14	98.189	ppbv	< 0.02	0	0
Methylcyclopentane	C6H12	84.162	ppbv	< 0.05	0	0
Methylene chloride	CH2Cl2	84.927	ppbv	< 0.3	0	0
n-Butane	C4H10	58.124	ppbv	0.35	0.000845879	0.000333099
n-Decane	C10H22	142.286	ppbv	< 0.06	0	0
n-Dodecane	C12H26	170.34	ppbv	< 0.3	0	0
n-Heptane	C7H16	100.205	ppbv	0.04	0.000166661	6.56294E-05
n-Hexane	C6H14	86.178	ppbv	0.03	0.000107499	4.23318E-05
n-Nonane	C9H20	128.259	ppbv	< 0.04	0	0
n-Octane	C8H18	114.232	ppbv	0.07	0.000332484	0.000130929
n-Pentane	C5H12	72.151	ppbv	0.21	0.000630009	0.000248091
n-Propylbenzene	C9H12	120.195	ppbv	< 0.06	0	0
n-Undecane	C11H24	156.313	ppbv	< 0.5	0	0
Naphthalene	C10H8	128.174	ppbv	< 0.3	0	0
o-Ethyltoluene	C9H12	120.195	ppbv	< 0.02	0	0
o-Xylene	C8H10	106.168	ppbv	< 0.03	0	0
p-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
p-Ethyltoluene	C9H12	120.195	ppbv	< 0.04	0	0
Styrene	C8H8	104.152	ppbv	< 0.04	0	0
Tetrachloroethylene	C2Cl4	165.822	ppbv	< 0.02	0	0
Tetrahydrofuran	C4H8O	72.107	ppbv	< 0.3	0	0
Toluene	C7H8	92.141	ppbv	2.2	0.008428699	0.003319134
trans-1,2-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.06	0	0
trans-1,3-Dichloropropylene	C3H4Cl2	110.965	ppbv	< 0.02	0	0
trans-2-Butene	C4H8	56.108	ppbv	0.08	0.000186638	7.3496E-05
trans-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Trichloroethylene	C2HCl3	131.38	ppbv	< 0.02	0	0
Vinyl acetate	C4H6O2	86.09	ppbv	< 0.3	0	0
Vinyl chloride	C2H3Cl	62.496	ppbv	< 0.02	0	0

Train 1 Natural Gas Turbine Engine (1E-4101A) - Total VOC

Standard pressure: mmHg 760
Standard Temperature: deg C 20

Test 3
9/28/2025
13:00 – 14:00

Dry Flow Rate: m3/s 113

					mg/m3	kg/hr
Total VOC			ppbv	16.42	**0.04367321**	**0.017692807**

BTEX			**ppbv**	**2.16**	**0.008042152**	**0.003258021**
Benzene	C6H6	78.114	ppbv	0.46	0.001494072	0.000605276
Toluene	C7H8	92.141	ppbv	1.64	0.006283212	0.002545443
Ethylbenzene	C8H10	106.168	ppbv	0	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.06	0.000264868	0.000107303

Compound	Formula	Molecular Weight (g/mol)	units	test 3	mg/m3	kg/hr
1,1,1-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1,2,2-Tetrachloroethane	C2H2Cl4	167.838	ppbv	< 0.02	0	0
1,1,2-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.02	0	0
1,1-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
1,2,3-Trimethylbenzene	C9H12	120.195	ppbv	< 0.05	0	0
1,2,4-Trichlorobenzene	C6H3Cl3	181.44	ppbv	< 0.3	0	0
1,2,4-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,2-Dibromoethane	C2H4Br2	187.862	ppbv	< 0.02	0	0
1,2-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.03	0	0
1,2-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.03	0	0
1,2-Dichloropropane	C3H6Cl2	112.981	ppbv	< 0.03	0	0
1,3,5-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,3-Butadiene	C4H6	54.092	ppbv	< 0.03	0	0
1,3-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dioxane	C4H8O2	88.106	ppbv	< 0.5	0	0
1-Butene/Isobutylene	C4H8	56.108	ppbv	0.69	0.001609751	0.000652139
1-Hexene/2-Methyl-1-pentene	C6H12	84.162	ppbv	< 0.07	0	0
1-Pentene	C5H10	70.135	ppbv	0.03	8.74865E-05	3.54424E-05
2,2,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,2-Dimethylbutane	C6H14	86.178	ppbv	< 0.02	0	0
2,3,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,3-Dimethylbutane	C6H14	86.178	ppbv	< 0.09	0	0
2,3-Dimethylpentane	C7H16	100.205	ppbv	< 0.02	0	0
2,4-Dimethylpentane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylheptane	C8H18	114.232	ppbv	< 0.02	0	0
2-Methylhexane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
3-Methylheptane	C8H18	114.232	ppbv	< 0.03	0	0
3-Methylhexane	C7H16	100.205	ppbv	< 0.02	0	0
3-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
Acetone	C3H6O	58.08	ppbv	8.7	0.021010229	0.008511624
Acrolein	C3H4O	56.064	ppbv	2.6	0.006060973	0.00245541
Benzene	C6H6	78.114	ppbv	0.46	0.001494072	0.000605276
Benzyl chloride	C7H7Cl	126.583	ppbv	< 0.3	0	0
Bromodichloromethane	CHBrCl2	163.823	ppbv	< 0.03	0	0
Bromoform	CHBr3	252.731	ppbv	< 0.02	0	0
Bromomethane	CH3Br	94.939	ppbv	< 0.02	0	0

Carbon disulfide	CS2	76.131	ppbv	0.37	0.001171246	0.000474493
Carbon tetrachloride	CCl4	153.811	ppbv	< 0.02	0	0
Chlorobenzene	C6H5Cl	112.556	ppbv	< 0.02	0	0
Chloroethane	C2H5Cl	64.512	ppbv	< 0.02	0	0
Chloroform	CHCl3	119.369	ppbv	< 0.02	0	0
Chloromethane	CH3Cl	50.485	ppbv	0.22	0.000461817	0.00018709
cis-1,2-Dichloroethene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
cis-1,3-Dichloropropene	C3H4Cl2	110.965	ppbv	< 0.03	0	0
cis-2-Butene	C4H8	56.108	ppbv	0.08	0.000186638	7.56104E-05
cis-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Cyclohexane	C6H12	84.162	ppbv	< 0.04	0	0
Cyclopentane	C5H10	70.135	ppbv	< 0.02	0	0
Dibromochloromethane	CHBr2Cl	208.277	ppbv	< 0.02	0	0
Ethanol	C2H6O	46.069	ppbv	< 0.5	0	0
Ethyl acetate	C4H8O2	88.106	ppbv	< 0.3	0	0
Ethylbenzene	C8H10	106.168	ppbv	< 0.03	0	0
Freon-11	CCl3F	137.359	ppbv	0.06	0.000342684	0.000138827
Freon-113	C2Cl3F3	187.366	ppbv	0.02	0.000155814	6.3123E-05
Freon-114	C2Cl2F4	170.914	ppbv	< 0.03	0	0
Freon-12	CCl2F2	120.907	ppbv	0.13	0.000653551	0.000264765
Hexachloro-1,3-butadiene	C4Cl6	260.744	ppbv	< 0.3	0	0
Isobutane	C4H10	58.124	ppbv	0.18	0.000435024	0.000176236
Isopentane	C5H12	72.151	ppbv	0.5	0.001500021	0.000607686
Isoprene	C5H8	68.119	ppbv	< 0.02	0	0
Isopropyl alcohol	C3H8O	60.096	ppbv	< 0.3	0	0
Isopropylbenzene	C9H12	120.195	ppbv	< 0.04	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.06	0.000264868	0.000107303
m-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
m-Ethyltoluene	C9H12	120.195	ppbv	< 0.03	0	0
Methyl butyl ketone	C5H10O	86.134	ppbv	< 0.4	0	0
Methyl ethyl ketone	C4H8O	72.107	ppbv	< 0.3	0	0
Methyl isobutyl ketone	C6H12O	100.161	ppbv	< 0.3	0	0
Methyl methacrylate	C5H8O2	100.117	ppbv	< 0.08	0	0
Methyl tert butyl ether	C5H12O	88.15	ppbv	< 0.03	0	0
Methylcyclohexane	C7H14	98.189	ppbv	< 0.02	0	0
Methylcyclopentane	C6H12	84.162	ppbv	< 0.05	0	0
Methylene chloride	CH2Cl2	84.927	ppbv	< 0.3	0	0
n-Butane	C4H10	58.124	ppbv	0.27	0.000652536	0.000264354
n-Decane	C10H22	142.286	ppbv	< 0.06	0	0
n-Dodecane	C12H26	170.34	ppbv	< 0.3	0	0
n-Heptane	C7H16	100.205	ppbv	< 0.04	0	0
n-Hexane	C6H14	86.178	ppbv	0.03	0.000107499	4.35496E-05
n-Nonane	C9H20	128.259	ppbv	< 0.04	0	0
n-Octane	C8H18	114.232	ppbv	0.07	0.000332484	0.000134695
n-Pentane	C5H12	72.151	ppbv	0.21	0.000630009	0.000255228
n-Propylbenzene	C9H12	120.195	ppbv	< 0.06	0	0
n-Undecane	C11H24	156.313	ppbv	< 0.5	0	0
Naphthalene	C10H8	128.174	ppbv	< 0.3	0	0
o-Ethyltoluene	C9H12	120.195	ppbv	< 0.02	0	0
o-Xylene	C8H10	106.168	ppbv	< 0.03	0	0
p-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
p-Ethyltoluene	C9H12	120.195	ppbv	< 0.04	0	0
Styrene	C8H8	104.152	ppbv	< 0.04	0	0
Tetrachloroethylene	C2Cl4	165.822	ppbv	< 0.02	0	0
Tetrahydrofuran	C4H8O	72.107	ppbv	< 0.3	0	0
Toluene	C7H8	92.141	ppbv	1.64	0.006283212	0.002545443
trans-1,2-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.06	0	0
trans-1,3-Dichloropropylene	C3H4Cl2	110.965	ppbv	< 0.02	0	0
trans-2-Butene	C4H8	56.108	ppbv	0.1	0.000233297	9.4513E-05
trans-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Trichloroethylene	C2HCl3	131.38	ppbv	< 0.02	0	0
Vinyl acetate	C4H6O2	86.09	ppbv	< 0.3	0	0
Vinyl chloride	C2H3Cl	62.496	ppbv	< 0.02	0	0

METHOD 201A - PM10/2.5 SAMPLING TITLE PAGE

Source Information				
Plant Name	LNG-CANADA			
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)			
Fuel or Source Type				
Fuel F-Factor				

Test Information			
Starting Test Date		09/28/25	
Project #		25C338707	
Operator		MS-VK	
Standard Temperature		68	^{o}F
Standard Pressure		30	in Hg
Run Duration		60	Minutes
Base Run Number		1	
# of Ports Available		4	
# of Ports Used		4	
Port Inside Diameter		4	in
Circular Stack?		☑	
Rectangular Stack?		☐	

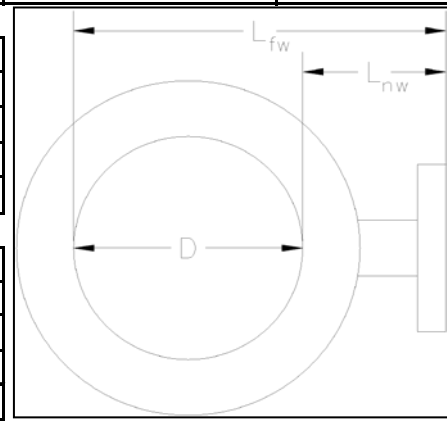
Test Equipment Information			
Orifice Meter Coefficient	($\Delta H_{@}$)	1.965	in H_2O
Meterbox Calibration Factor	(Y)	0.999	
Pitot Identification		PB9C	
Pitot Tube Coefficient	(C_p)	0.819	
Method 201A Pitot Coefficient	(C'_p)	0.819	
Sample Case/Oven Number		1	
Impinger Case Number		1.0000	in
Probe Number		PB9C	
Probe Length		100.00	in
(SS, Glass ....) **Liner Material**		SS	
PM10 Cyclone		☐	
PM2.5 Cyclone		☑	
Combination Cyclone		☐	

Testing Company Information	
Company Name	AGAT Laboratories Ltd
Address	3700, 21 Street NE
City, State Country Zip	Calgary,Alberta, T2E 6V6
Project Manager	Shaun Hayward
Phone Number	403-299-2179
Fax Number	

METHOD 1 - SAMPLE AND VELOCITY TRAVERSES FOR CIRCULAR SOURCES

Plant Name	LNG-CANADA	**Date**	09/28/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)	**Project #**	25C338707
Operator	MS-VK	**# of Ports Available**	4
Stack Type	Circular	**# of Ports Used**	4
Stack Size	Large	**Port Inside Diameter**	4

Circular Stack or Duct Diameter			
Distance to Far Wall of Stack	(L_{fw})	165.30	in
Distance to Near Wall of Stack	(L_{nw})	9.00	in
(=Lfw - Lnw) **Diameter of Stack**	(D)	156.30	in
(=3.14(D/2/Cunits)2) **Area of Stack**	(A_s)	133.24	ft^2

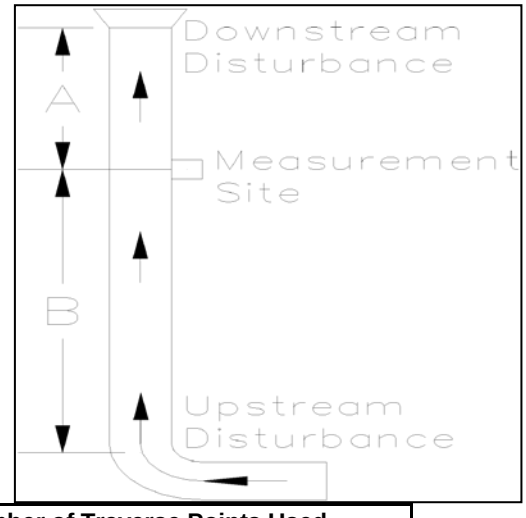


Distance from Port to Disturbances			
Distance Upstream	(B)	655.31	in
(=B/D) **Diameters Upstream**	(B_D)	4.19	diameters
Distance Downstream	(A)	353.19	in
(=A/D) **Diameters Downstream**	(A_D)	2.26	diameters

Number of Traverse Points Required			
Diameters to Flow Disturbance		**Minimum Number of[1] Traverse Points**	
Up Stream	**Down Stream**	**Particulate Points**	**Velocity Points**
2.00-4.99	0.50-1.24	24	16
5.00-5.99	1.25-1.49	20	16
6.00-6.99	1.50-1.74	16	12
7.00-7.99	1.75-1.99	12	12
>= 8.00	>=2.00	8 or 12[2]	8 or 12[2]
Upstream Spec		24	16
Downstream Spec		12	12
Traverse Pts Required		24	16

[1] Check Minimum Number of Points for the Upstream and Downstream conditions, then use the largest.

[2] 8 for Circular Stacks 12 to 24 inches
12 for Circular Stacks over 24 inches



Number of Traverse Points Used			
4	**Ports by**	4	**Across**
16	**Pts Used**	16	**Required**
☑	**Particulate**	☐	**Velocity**

Location of Traverse Points in Circular Stacks

Traverse Point Number	(Fraction of Stack Diameter from Inside Wall to Traverse Point) Number of Traverse Points on a Diameter					
	2	4	6	8	10	12
1	.146	.067	.044	.032	.026	.021
2	.854	.250	.146	.105	.082	.067
3		.750	.296	.194	.146	.118
4		.933	.704	.323	.226	.177
5			.854	.677	.342	.250
6			.956	.806	.658	.356
7				.895	.774	.644
8				.968	.854	.750
9					.918	.823
10					.974	.882
11						.933
12						.979

Traverse Point Locations			
Traverse Point Number	**Fraction of Stack Diameter**	**Distance from Inside Wall**	**Distance Including Nipple Length**
		in	in
1	0.032	5	14
2	0.105	16 3/8	25 3/8
3	0.194	30 3/8	39 3/8
4	0.323	50 4/8	59 4/8
5			
6			
7			
8			
9			
10			
11			
12			

DETERMINATION OF STACK GAS VELOCITY AND DWELL TIMES

Plant Name	LNG-CANADA				**Date**	09/28/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)				**Project #**	25C338707
Operator	MS-VK				**# of Ports Used**	4
Stack Type	Circular				**Pitot Identification**	PB9C
Pitot Leak Check	☑	**PreTest**	☑	**PostTest**	**Pitot Coefficient (C_p)**	0.819

Stack Dimensions			
Diameter or Length of Stack	(D)	156.30	in
Width of Stack	(W)		in
Area of Stack	(A_s)	133.24	ft^2

Pressures			
Barometric Pressure	(P_b)	29.57	in Hg
Static Pressure	(P_{static})	-0.42	in H_2O
Absolute Stack Pressure	(P_s)	29.54	in Hg

Stack Gas Composition				
Composition Data:	**Actual**	☐	**Estimate**	☑
Carbon Dioxide Concentration	($\%CO_2$)	3.0	%	
Oxygen Concentration	($\%O_2$)	16.0	%	
Carbon Monoxide Concentration	(%CO)	0.0	%	
Nitrogen Concentration	($\%N_2$)	81.0	%	
Stack Moisture Content	(B_{ws})	7.000		
Stack Dry Molecular Weight	(M_d)	29.12	lb/lb-mole	
Stack Wet Molecular Weight	(M_s)	28.34	lb/lb-mole	

Results			
Avg Stack Gas Velocity	(v_s)	46.5	ft/sec
Avg Stack Dry Std Flow Rate	(Q_{sd})	13718277	dscf/hr
Avg Stack Dry Std Flow Rate	(Q_{sd})	228638	dscf/min
Avg Stack Wet Flow Rate	(Q_{aw})	371610	acf/min

Stack Cross Section Schematic

Velocity Traverse and Dwell Times

Total Number of Points		16	
Run Time		60.00	

Traverse Point	**Velocity Head** (Δp)	**Stack Temp** (t_s)	**Local Velocity** $(v_s)_l$	**Dwell Times** (t_d)
	in H_2O	^oF	ft/sec	min
A-1	0.43	328	44.5	3.6
A-2	0.46	328	46.1	3.7
A-3	0.49	328	47.5	3.8
A-4	0.51	328	48.5	3.9
B-1	0.43	328	44.5	3.6
B-2	0.48	328	47.1	3.8
B-3	0.51	328	48.5	3.9
B-4	0.49	328	47.5	3.8
C-1	0.43	328	44.5	3.6
C-2	0.46	328	46.1	3.7
C-3	0.49	328	47.5	3.8
C-4	0.51	328	48.5	3.9
D-1	0.42	328	44.0	3.6
D-2	0.46	328	46.1	3.7
D-3	0.47	328	46.6	3.8
D-4	0.46	327	46.0	3.7
Average[1]	0.68	328	46	

[1] Please report the average of the square roots of Δp, or, $(\Delta p)^{1/2}_{avg} = {}^1/_n\Sigma(\Delta p^{1/2})$

Formulas Used

$A_s = DW/K_u$ for Rectangular Stacks

$A_s = (\pi(D/2)^2)/K_u$ for Circular Stacks

where $K_u = 1$ for metric units

where $K_u = 144$ (in^2/ft^2) for English units

$P_s = P_{bar} + P_{static}/13.6$

$\%N_2 = 100 - \%CO_2 - \%O_2 - \%CO$

$M_d = .44(\%CO_2) + .32(\%O_2) + .28(\%N_2 + \%CO)$

$M_s = M_d(1 - B_{ws}) + 18B_{ws}$

$(\Delta p)^{1/2}_{avg} = {}^1/_n\Sigma(\Delta p^{1/2})$

$T_{s(avg)} = {}^1/_n\Sigma t_s + T_u$

where $T_u = 273\ ^oK$ for metric units

where $T_u = 460\ ^oR$ for English units

$v_s = K_pC_p(\Delta p)^{1/2}_{avg}\ (T_{s(avg)}/(P_sM_s))^{1/2}$

where $K_p = 34.97$ for metric units

where $K_p = 85.49$ for English units

$Q_{sd} = 3600(1 - B_{ws})v_sA_s(T_{std}/T_{s(avg)})(P_s/P_{std})$

where $T_{std} = 293\ ^oK$, $P_{std} = 760$ mm Hg, for metric units

where $T_{std} = 528\ ^oR$, $P_{std} = 29.92$ in Hg, for English units

METHOD 3 - GAS ANALYSIS FOR THE DETERMINATION OF DRY MOLECULAR WEIGHT

Plant Name	LNG-CANADA			**Date**	09/28/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)			**Project #**	25C338707
Operator	MS-VK			**# of Ports Used**	4
Fuel Type		**Minimum Fuel Factor**		**Maximum Fuel Factor**	
Orsat Leak Check	☑ PreTest	☑ PostTest		**Orsat Identification**	

Gas Analysis Data

Run Number	1			**Run Start Time**	10:00		**Run Stop Time**	10:59
Sample Analysis Time	**Carbon Dioxide Volume** (V_{CO2})	**Oxygen Volume** (V_{O2})	**Carbon Monoxide Volume** (V_{CO})	**Carbon Dioxide Conc.** (%CO_2)	**Oxygen Conc.** (%O_2)	**Carbon Monoxide Conc.** (%CO)	**Nitrogen Conc.** (%N_2)	**Dry Molecular Weight** (M_d)	**Molecular Weight Deviation** (ΔM_d)
hh:mm	ml	ml	ml	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole
	3.0	19.0	19.0	3.0	16.0	0.0	81.0	29.12	0.00
	3.0	19.0	19.0	3.0	16.0	0.0	81.0	29.12	0.00
	3.0	19.0	19.0	3.0	16.0	0.0	81.0	29.12	0.00
Results			**Averages**	3.0	16.0	0.0	81.0	29.12	
Average Calculated Fuel Factor			$(F_o)_{avg}$	1.633		**Molecular Wt Deviation < 0.3?**			☑
Average Excess Air			$(\%EA)_{avg}$	297.2	percent	**Fuel Factor in Handbook Range?**			☑

Gas Analysis Data

Run Number	2			**Run Start Time**	11:30		**Run Stop Time**	12:31
Sample Analysis Time	**Carbon Dioxide Volume** (V_{CO2})	**Oxygen Volume** (V_{O2})	**Carbon Monoxide Volume** (V_{CO})	**Carbon Dioxide Conc.** (%CO_2)	**Oxygen Conc.** (%O_2)	**Carbon Monoxide Conc.** (%CO)	**Nitrogen Conc.** (%N_2)	**Dry Molecular Weight** (M_d)	**Molecular Weight Deviation** (ΔM_d)
hh:mm	ml	ml	ml	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole
	3.0	18.0	18.0	3.0	15.0	0.0	82.0	29.08	0.00
	3.0	18.0	18.0	3.0	15.0	0.0	82.0	29.08	0.00
	3.0	18.0	18.0	3.0	15.0	0.0	82.0	29.08	0.00
Results			**Averages**	3.0	15.0	0.0	82.0	29.08	
Average Calculated Fuel Factor			$(F_o)_{avg}$	1.967		**Molecular Wt Deviation < 0.3?**			☐
Average Excess Air			$(\%EA)_{avg}$	225.6	percent	**Fuel Factor in Handbook Range?**			☐

Gas Analysis Data

Run Number	3			**Run Start Time**	13:00		**Run Stop Time**	14:02
Sample Analysis Time	**Carbon Dioxide Volume** (V_{CO2})	**Oxygen Volume** (V_{O2})	**Carbon Monoxide Volume** (V_{CO})	**Carbon Dioxide Conc.** (%CO_2)	**Oxygen Conc.** (%O_2)	**Carbon Monoxide Conc.** (%CO)	**Nitrogen Conc.** (%N_2)	**Dry Molecular Weight** (M_d)	**Molecular Weight Deviation** (ΔM_d)
hh:mm	ml	ml	ml	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole
	3.0	18.0	18.0	3.0	15.0	0.0	82.0	29.08	0.00
	3.0	18.0	18.0	3.0	15.0	0.0	82.0	29.08	0.00
	3.0	18.0	18.0	3.0	15.0	0.0	82.0	29.08	0.00
Results			**Averages**	3.0	15.0	0.0	82.0	29.08	
Average Calculated Fuel Factor			$(F_o)_{avg}$	1.967		**Molecular Wt Deviation < 0.3?**			☐
Average Excess Air			$(\%EA)_{avg}$	225.6	percent	**Fuel Factor in Handbook Range?**			☐

Fuel Factor Fo

Fuel Type	**Minimum**	**Maximum**
Coal, Anthracite	1.016	1.130
Coal, Lignite	1.016	1.130
Coal, Bituminous	1.083	1.230
Oil, Distillate	1.260	1.413
Oil, Residual	1.210	1.370
Gas, Natural	1.600	1.836
Gas, Propane	1.434	1.586
Gas, Butane	1.405	1.553
Wood	1.000	1.120
Wood Bark	1.003	1.130

Formulas Used

$\%CO_2 = V_{CO2}$

$\%O_2 = V_{O2} - V_{CO2}$

$\%CO = V_{CO} - V_{O2}$

$\%N_2 = 100 - \%CO_2 - \%O_2 - \%CO$

$M_d = .44(\%CO_2) + .32(\%O_2) + .28(\%N_2 + \%CO)$

$\Delta M_d = M_d - M_{davg}$

$F_o = (20.9 - \%O_2 - .5\%CO)/(\%CO_2 + \%CO)$

$\%EA = 100(\%O_2 - .5\%CO)/(.264\%NO_2 - (\%O_2 - .5\%CO))$

METHOD 4 - DETERMINATION OF MOISTURE CONTENT IN STACK GASES

Plant Name	LNG-CANADA	**Date**	09/28/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)	**Project #**	25C338707
Operator	MS-VK	**# of Ports Used**	4
Stack Type	Circular	**Meter Box Number**	M5-5
Train Leak Check	☑ PreTest ☑ PostTest	**Meter Cal Factor (Y)**	0.9986

Moisture Content Data								
Run Number	1		**Run Start Time**	10:00		**Run Stop Time**		10:59
Total Meter Volume	(V_m)	22.640	dcf	**Barometric Press.**		(P_b)	29.57	in Hg
Avg Meter Temp	$(t_m)_{avg}$	50	°F	**Stack Static Press.**		(P_{static})	-0.42	in H_2O
Avg Stack Temp	$(t_s)_{avg}$	329	°F	**Avg Orifice Press.**		$(\Delta H)_{avg}$	0.49	in H_2O
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**
		ml	ml	ml	g	ml	ml	ml
Contents								
Final Value	$(V_f),(W_f)$	135.00	100.00	0.00	690.00			
Initial Value	$(V_i),(W_i)$	100.00	100.00	0.00	685.00			
Net Value	$(V_n),(W_n)$	35.0	0.0	0.0	5.0			
Results								
Total Volume	(V_t)	35.00	ml	**Water Vol Condensed**		$(V_{wc(std)})$	1.647	scf
Total Weight	(W_t)	5.00	g	**Water Vol Weighed**		$(V_{wsg(std)})$	0.236	scf
Std Meter Volume	$(V_{m(std)})$	23.157	dscf	**Sat. Moisture Content**		$(B_{ws(svp)})$	100.0	%
Calc Moisture Content	$(B_{ws(calc)})$	7.5	%	**Final Moisture Content**		(B_{ws})	7.5	%

Moisture Content Data								
Run Number	2		**Run Start Time**	11:30		**Run Stop Time**		12:31
Total Meter Volume	(V_m)	23.564	dcf	**Barometric Press.**		(P_b)	29.57	in Hg
Avg Meter Temp	$(t_m)_{avg}$	54	°F	**Stack Static Press.**		(P_{static})	-0.42	in H_2O
Avg Stack Temp	$(t_s)_{avg}$	329	°F	**Avg Orifice Press.**		$(\Delta H)_{avg}$	0.49	in H_2O
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**
		ml	ml	ml	g	ml	ml	ml
Contents								
Final Value	$(V_f),(W_f)$	135.00	100.00	0.00	697.00			
Initial Value	$(V_i),(W_i)$	100.00	100.00	0.00	692.00			
Net Value	$(V_n),(W_n)$	35.0	0.0	0.0	5.0			
Results								
Total Volume	(V_t)	35.00	ml	**Water Vol Condensed**		$(V_{wc(std)})$	1.647	scf
Total Weight	(W_t)	5.00	g	**Water Vol Weighed**		$(V_{wsg(std)})$	0.236	scf
Std Meter Volume	$(V_{m(std)})$	23.906	dscf	**Sat. Moisture Content**		$(B_{ws(svp)})$	100.0	%
Calc Moisture Content	(B_{ws})	7.3	%	**Final Moisture Content**		(B_{ws})	7.3	%

Moisture Content Data								
Run Number	3		**Run Start Time**	13:00		**Run Stop Time**		14:02
Total Meter Volume	(V_m)	30.567	dcf	**Barometric Press.**		(P_b)	29.57	in Hg
Avg Meter Temp	$(t_m)_{avg}$	58	°F	**Stack Static Press.**		(P_{static})	-0.42	in H_2O
Avg Stack Temp	$(t_s)_{avg}$	341	°F	**Avg Orifice Press.**		$(\Delta H)_{avg}$	0.50	in H_2O
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**
		ml	ml	ml	g	ml	ml	ml
Contents								
Final Value	$(V_f),(W_f)$	150.00	100.00	0.00	702.00			
Initial Value	$(V_i),(W_i)$	100.00	100.00	0.00	697.00			
Net Value	$(V_n),(W_n)$	50.0	0.0	0.0	5.0			
Results								
Total Volume	(V_t)	50.00	ml	**Water Vol Condensed**		$(V_{wc(std)})$	2.354	scf
Total Weight	(W_t)	5.00	g	**Water Vol Weighed**		$(V_{wsg(std)})$	0.236	scf
Std Meter Volume	$(V_{m(std)})$	30.761	dscf	**Sat. Moisture Content**		$(B_{ws(svp)})$	100.0	%
Calc Moisture Content	(B_{ws})	7.8	%	**Final Moisture Content**		(B_{ws})	7.8	%

SAMPLE RECOVERY AND INTEGRITY DATA SHEET

Plant Name	LNG-CANADA	**Date**	09/28/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)	**Project #**	25C338707
Operator	MS-VK	**Cyclone Type**	PM2.5 Cyclone

Run History Data				
Run Number	1	2	3	
Run Start Time	10:00	11:30	13:00	(hh:mm)
Run Stop Time	10:59	12:31	14:02	(hh:mm)
Train Prepared By	MS-VK	MS-VK	MS-VK	
Train Recovered By	MS-VK	MS-VK	MS-VK	
Recovery Date	09/28/25	09/28/25	09/28/25	(mm/dd/yy)
Relinquished By	CA	CA	CA	
Received By				
Relinquished Date				(mm/dd/yy)
Relinquished Time				(hh:mm)

Equipment Identification Numbers			
Filter	1	1	1
Acetone Wash	1	1	1
Silica Gel	1	1	1
Impinger Case	1	1	1
Sample Box	1	1	1
Oven	1	1	1

Moisture Content Data					
Impingers 1, 2, and 3 - Water Volume					
Final Volume	(V_f)	235.0	235.0	250.0	ml
Initial Volume	(V_i)	200.0	200.0	200.0	ml
Net Volume	(V_n)	35.0	35.0	50.0	ml
Comments					
Impinger 4 - Silica Gel Weight					
Final Weight	(W_f)	690.0	697.0	702.0	g
Initial Weight	(W_i)	685.0	692.0	697.0	g
Net Weight	(W_n)	5.0	5.0	5.0	g
Comments					
Total Water Collected					
Total Volume	(V_{lc})	40.0	40.0	55.0	g

Formulas Used
$V_n = V_f - V_i$ $W_n = W_f - W_i$ $V_{lc} = V_n + W_n/\rho_w$ where ρ_w = .9982 g/ml

SAMPLE ANALYTICAL DATA SHEET

Plant Name	LNG-CANADA	**Date**	09/28/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)	**Project #**	25C338707
Operator	MS-VK	**Cyclone Type**	PM2.5 Cyclone

Analytical Data

Placed in Desiccator — **Run Number** 1

		Number	Date	Time				**Run Start Time**	10:00
Filter								**Leakage Evident?**	☐
Acetone Wash I(Exit Tube)	**(Dp<2.5)**							**Estimated Volume**	
Acetone Nozzle Wash III	**(Dp>2.5)**								
PM2.5 Cup Catch	**(Dp>2.5)**								

		Filter	Acetone I	Acetone III	PM2.5 Cup Catch	Date	Time	Humidity	Temp	Cal Audit
		g	g	g	g	mm/dd/yy	hh:mm	%RH	°F	g
Measurement 1	(m_{1f}),(m_{1a})	0.0010	0.0003	0.0020	0.0000					
Measurement 2	(m_{2f}),(m_{2a})	0.0010	0.0003	0.0020	0.0000					
Measurement 3	(m_{3f}),(m_{3a})	0.0010	0.0003	0.0020	0.0000					
Measurement 4	(m_{4f}),(m_{4a})	0.0010	0.0003	0.0020	0.0000					

Results							**Acetone Wash**		**Beaker I**	**Beaker III**	
Final Weight	(m_{ff}),(m_{fa}')	0.0010	0.0003	0.0020	0.0000	g	**Bottle Wt with Wash**	(m_{bw})	0.0001	0.0001	g
Tare Weight	(m_{tf}),(m_{ta}')	0.0000	0.0000	0.0000	0.0000	g	**Additional Rinse Wt**	(m_{ar})	0.0001	0.0001	g
Weight Gain	(m_f),(m_a')	1.0	0.3	2.0	0.0	mg	**Bottle Tare Weight**	(m_{tb})	0.0001	0.0001	g
Blank Adjustment	(W_a)		0.0	0.0	N/A	mg	**Net Wash Weight**	(m_{nw})	0.0001	0.0001	g
Total Particulates	(m_n)				3.3	mg	**Blank Concentration**	(C_a)	0.0001	0.0001	mg/g

Analytical Data

Placed in Desiccator — **Run Number** 2

		Number	Date	Time				**Run Start Time**	11:30
Filter								**Leakage Evident?**	☐
Acetone Wash Beaker I	**(Dp<2.5)**							**Estimated Volume**	
Acetone Nozzle Wash III	**(Dp>2.5)**								
PM2.5 Cup Catch	**(Dp>2.5)**								

		Filter	Acetone I	Acetone III	PM2.5 Cup Catch	Date	Time	Humidity	Temp	Cal Audit
		g	g	g	g	mm/dd/yy	hh:mm	%RH	°F	g
Measurement 1	(m_{1f}),(m_{1a})	0.0010	0.0007	0.0033	0.0000					
Measurement 2	(m_{2f}),(m_{2a})	0.0010	0.0007	0.0033	0.0000					
Measurement 3	(m_{3f}),(m_{3a})	0.0010	0.0007	0.0033	0.0000					
Measurement 4	(m_{4f}),(m_{4a})	0.0010	0.0007	0.0033	0.0000					

Results							**Acetone Wash**		**Beaker I**	**Beaker III**	
Final Weight	(m_{ff}),(m_{fa}')	0.0010	0.0007	0.0033	0.0000	g	**Bottle Wt with Wash**	(m_{bw})	0.0001	0.0001	g
Tare Weight	(m_{tf}),(m_{ta}')	0.0000	0.0000	0.0000	0.0000	g	**Additional Rinse Wt**	(m_{ar})	0.0001	0.0001	g
Weight Gain	(m_f),(m_a')	1.0	0.7	3.3	0.0	mg	**Bottle Tare Weight**	(m_{tb})	0.0001	0.0001	g
Blank Adjustment	(W_a)		0.0	0.0	N/A	mg	**Net Wash Weight**	(m_{nw})	0.0001	0.0001	g
Total Particulates	(m_n)				5.0	mg	**Blank Concentration**	(C_a)	0.0001	0.0001	mg/g

Analytical Data

Placed in Desiccator — **Run Number** 3

		Number	Date	Time				**Run Start Time**	13:00
Filter								**Leakage Evident?**	☐
Acetone Wash Beaker I	**(Dp<2.5)**							**Estimated Volume**	
Acetone Nozzle Wash III	**(Dp>2.5)**								
PM2.5 Cup Catch	**(Dp>2.5)**								

		Filter	Acetone I	Acetone II	PM2.5 Cup Catch	Date	Time	Humidity	Temp	Cal Audit
		g	g	g	g	mm/dd/yy	hh:mm	%RH	°F	g
Measurement 1	(m_{1f}),(m_{1a})	0.0010	0.0002	0.0032	0.0000					
Measurement 2	(m_{2f}),(m_{2a})	0.0010	0.0002	0.0032	0.0000					
Measurement 3	(m_{3f}),(m_{3a})	0.0010	0.0002	0.0032	0.0000					
Measurement 4	(m_{4f}),(m_{4a})	0.0010	0.0002	0.0032	0.0000					

Results							**Acetone Wash**		**Beaker I**	**Beaker III**	
Final Weight	(m_{ff}),(m_{fa}')	0.0010	0.0002	0.0032	0.0000	g	**Bottle Wt with Wash**	(m_{bw})	0.0001	0.0001	g
Tare Weight	(m_{tf}),(m_{ta}')	0.0000	0.0000	0.0000	0.0000	g	**Additional Rinse Wt**	(m_{ar})	0.0001	0.0001	g
Weight Gain	(m_f),(m_a')	1.0	0.2	3.2	0.0	mg	**Bottle Tare Weight**	(m_{tb})	0.0001	0.0001	g
Blank Adjustment	(W_a)		0.0	0.0	N/A	mg	**Net Wash Weight**	(m_{nw})	0.0001	0.0001	g
Total Particulates	(m_n)				4.4	mg	**Blank Concentration**	(C_a)	0.0001	0.0001	mg/g

Formulas Used

m_{ff} = average of last two filter measurements

m_{fa}' = average of last two acetone measurements

$m_f = m_{ff} - m_{tf}$

$m_a' = m_{fa}' - m_{ta}'$

$W_a = C_a m_{nw}$

$m_{nw} = m_{bw} + m_{ar} - m_{tb}$

$m_n = m_f + m_a' - W_a$

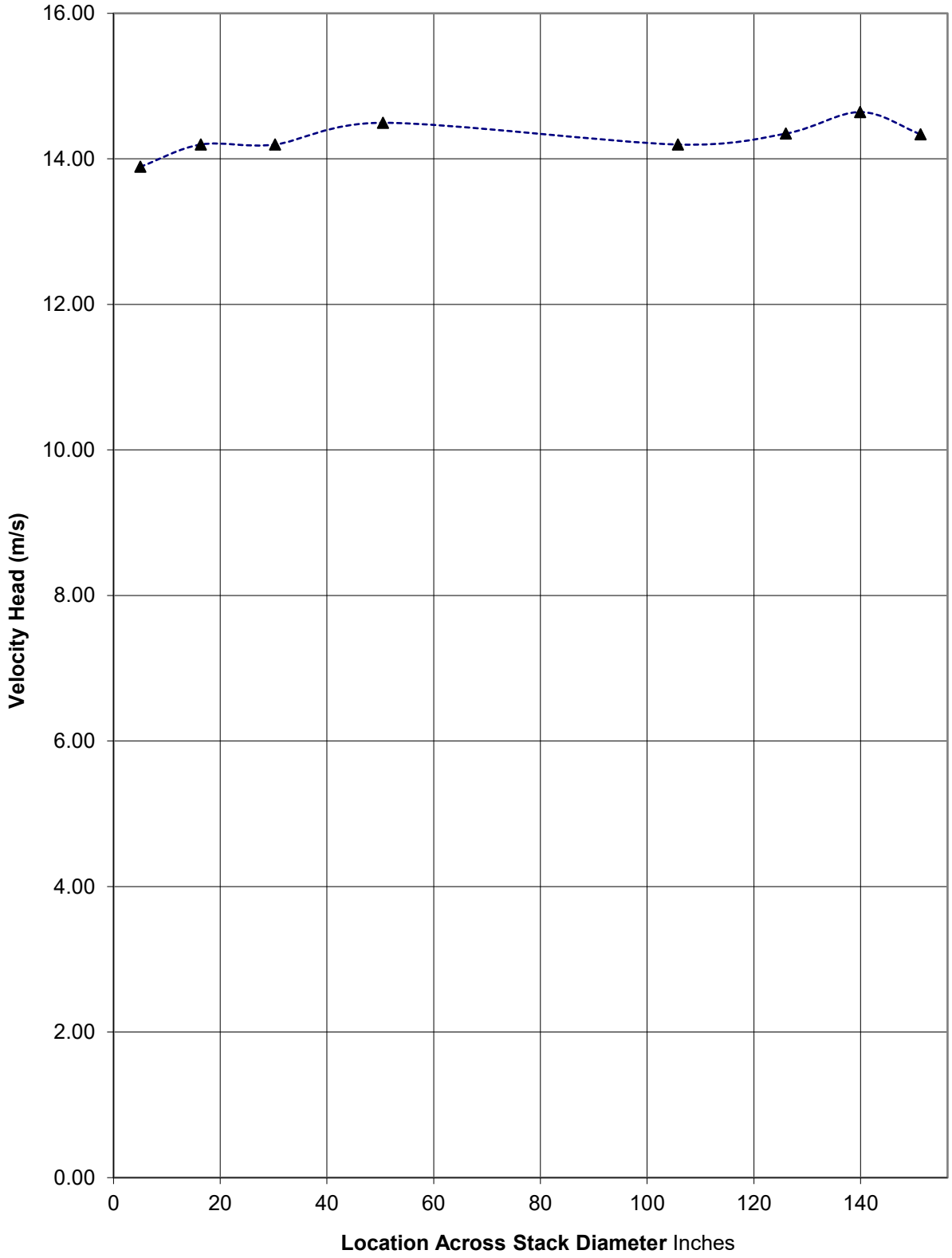
DETERMINATION OF PARTICULATE EMISSIONS - RESULTS

Plant Name	LNG-CANADA	**Date**	09/28/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)	**Project #**	25C338707
Operator	MS-VK	**Stack Type**	PM2.5 Cyclone

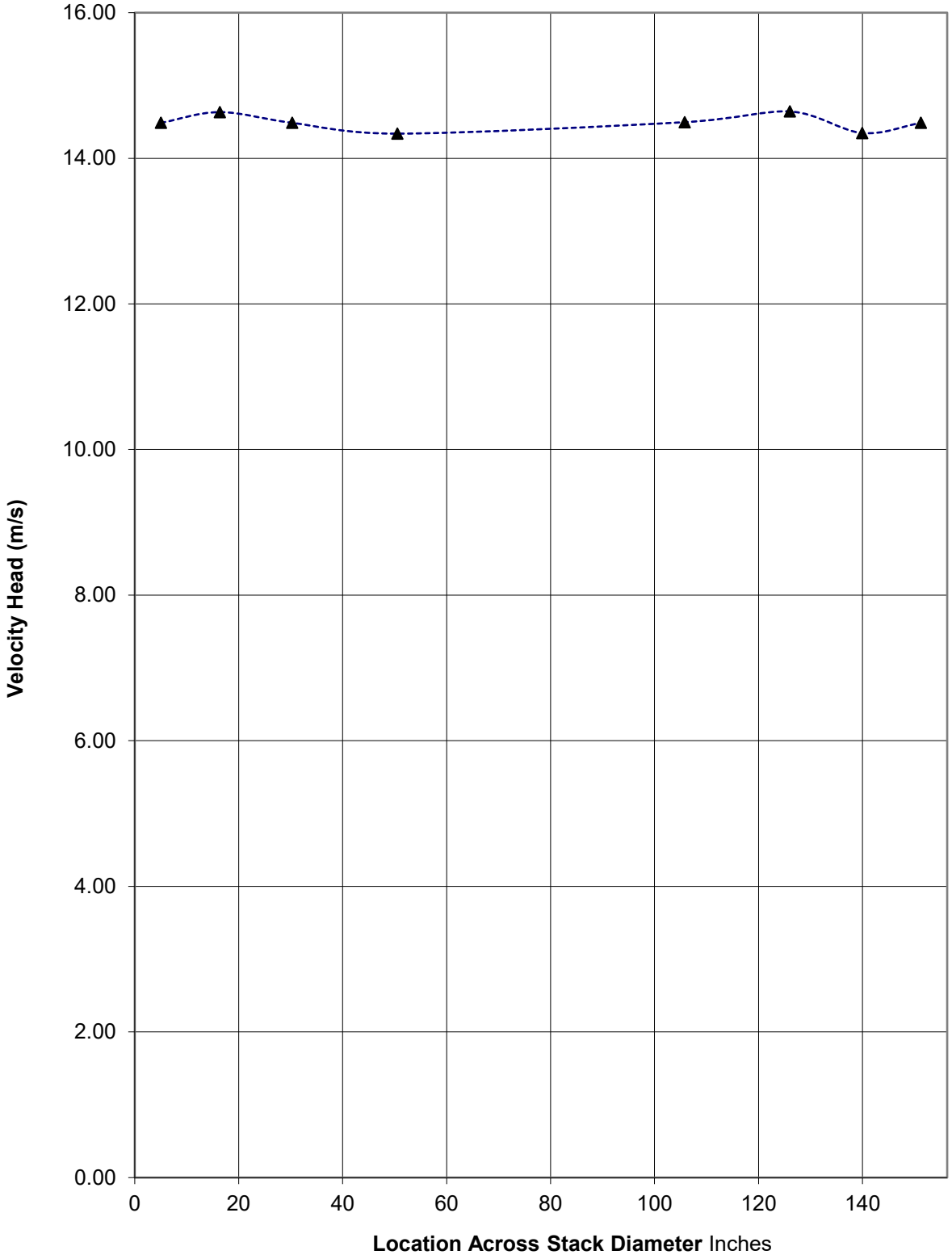
Historical Data						
Run Number		1	2	3	**Average**	
Run Start Time		10:00	11:30	13:00		hh:mm
Run Stop Time		10:59	12:31	14:02		hh:mm
Meter Calibration Factor	(Y)	0.999	0.999	0.999		
Actual Nozzle Diameter	(D_{na})	0.20	0.20	0.20		in
Stack Test Data						
Initial Meter Volume	$(V_m)_i$	0.000	0.000	0.000		ft^3
Final Meter Volume	$(V_m)_f$	22.640	23.564	30.567		ft^3
Total Meter Volume	(V_m)	22.640	23.564	30.567	25.590	ft^3
Total Sampling Time	(Θ)	59.6	61.2	62.3	61.0	min
Average Meter Temperature	$(t_m)_{avg}$	49.9	54.1	58.3	54.1	^oF
Average Stack Temperature	$(t_s)_{avg}$	328.6	328.9	341.4	333.0	^oF
Barometric Pressure	(P_b)	29.57	29.57	29.57	29.57	in Hg
Stack Static Pressure	(P_{static})	-0.42	-0.42	-0.42	-0.42	in H_2O
Absolute Stack Pressure	(P_s)	29.54	29.54	29.54	29.54	in Hg
Average Orifice Pressure Drop	$(\Delta H)_{avg}$	0.49	0.49	0.50	0.50	in H_2O
Absolute Meter Pressure	(P_m)	29.61	29.61	29.61	29.61	in Hg
Avg Square Root Pitot Pressure	$(\Delta p^{1/2})_{avg}$	0.70	0.70	0.73	0.71	$(in\ H_2O)^{1/2}$
Moisture Content Data						
Impingers 1-3 Water Volume Gain	(V_n)	35.0	35.0	50.0	40.0	ml
Impinger 4 Silica Gel Weight Gain	(W_n)	5.0	5.0	5.0	5.0	g
Total Water Volume Collected	(V_{lc})	40.0	40.0	55.0	45.0	ml
Standard Water Vapor Volume	$(V_w)_{std}$	1.883	1.883	2.589	2.119	scf
Standard Meter Volume	$(V_m)_{std}$	23.157	23.906	30.761	25.941	dscf
Calculated Stack Moisture	$(B_{ws(calc)})$	7.5	7.3	7.8	7.5	%
Saturated Stack Moisture	$(B_{ws(svp)})$	100.00	100.0	100.0	100.0	%
Reported Stack Moisture Content	(B_{ws})	7.5	7.3	7.8	7.5	%
Gas Analysis Data						
Carbon Dioxide Percentage	($\%CO_2$)	3.0	3.0	3.0	3.0	%
Oxygen Percentage	($\%O_2$)	16.0	15.0	15.0	15.3	%
Carbon Monoxide Percentage	(%CO)	0.0	0.0	0.0	0.0	%
Nitrogen Percentage	($\%N_2$)	81.0	82.0	82.0	81.7	%
Dry Gas Molecular Weight	(M_d)	29.12	29.08	29.08	29.09	lb/lb-mole
Wet Stack Gas Molecular Weight	(M_s)	28.28	28.27	28.22	28.26	lb/lb-mole
Calculated Fuel Factor	(F_o)	1.633	1.967	1.967	1.856	
Percent Excess Air	(%EA)	3.0	2.3	2.3	2.5	%
Volumetric Flow Rate Data						
Average Stack Gas Velocity	(v_s)	47.28	47.48	49.93	48.23	ft/sec
Stack Cross-Sectional Area	(A_s)	133.24	133.24	133.24	133.24	ft^2
Actual Stack Flow Rate	(Q_a)	377967	379617	399134	385572	acfm
Wet Standard Stack Flow Rate	(Qsw)	14990	15051	15578	15206	wkscfh
Dry Standard Stack Flow Rate	(Q_{sd})	231045	232528	239471	234348	dscfm
Emission Rate Data						
Mass of Particulate on Filter	(m_f)	1.0	1.0	1.0	1.0	mg
Mass of PM2.5 in Acetone I	(m_a')	0.3	0.7	0.2	0.4	mg
Mass due to Acetone Blank I	(W_a)	0.0	0.0	0.0	0.0	mg
Total Mass of Particulates	(m_n)	3.3	5.0	4.4	4.2	mg
Total Mass of PM2.5 Particulates	(m_n)	1.3	1.7	1.2	1.4	mg
PM2.5 Concentration	(c_s)	0.000	0.000	0.000	0.000	g/dscf
	(c_s)	0.001	0.001	0.001	0.001	gr/dscf
PM2.5 Emission Rate	(E)	0.78	0.99	0.56	0.8	kg/hr
	(E)	1.72	2.19	1.24	1.71	lbs/hr
	(E)	0.00	0.00	0.00	0.00	lbs/mmBtu

Appendix II – Velocity Profiles

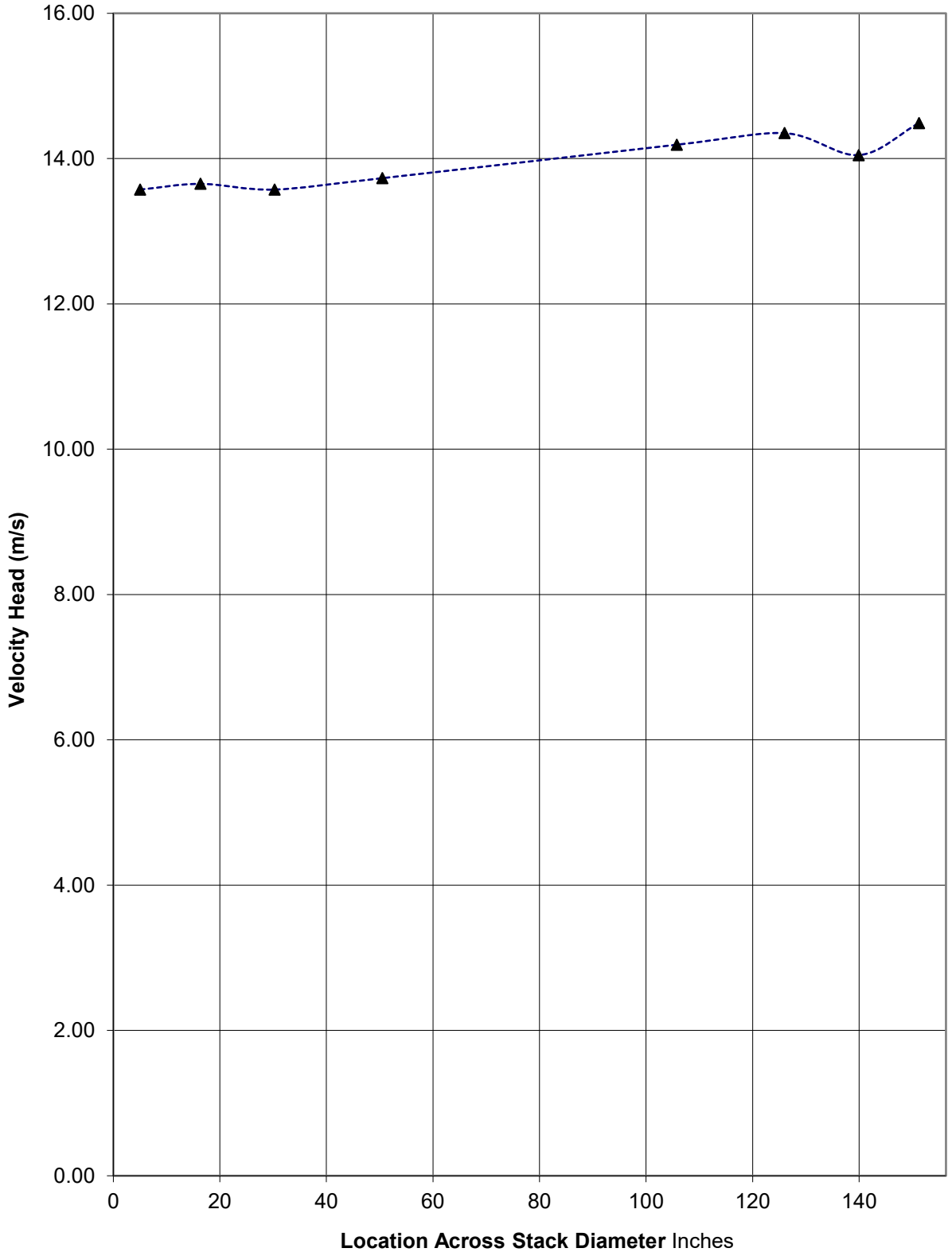
Velocity Profile Northwest to Southeast
Turbine 1E-4101A Test # 1 25/09/28



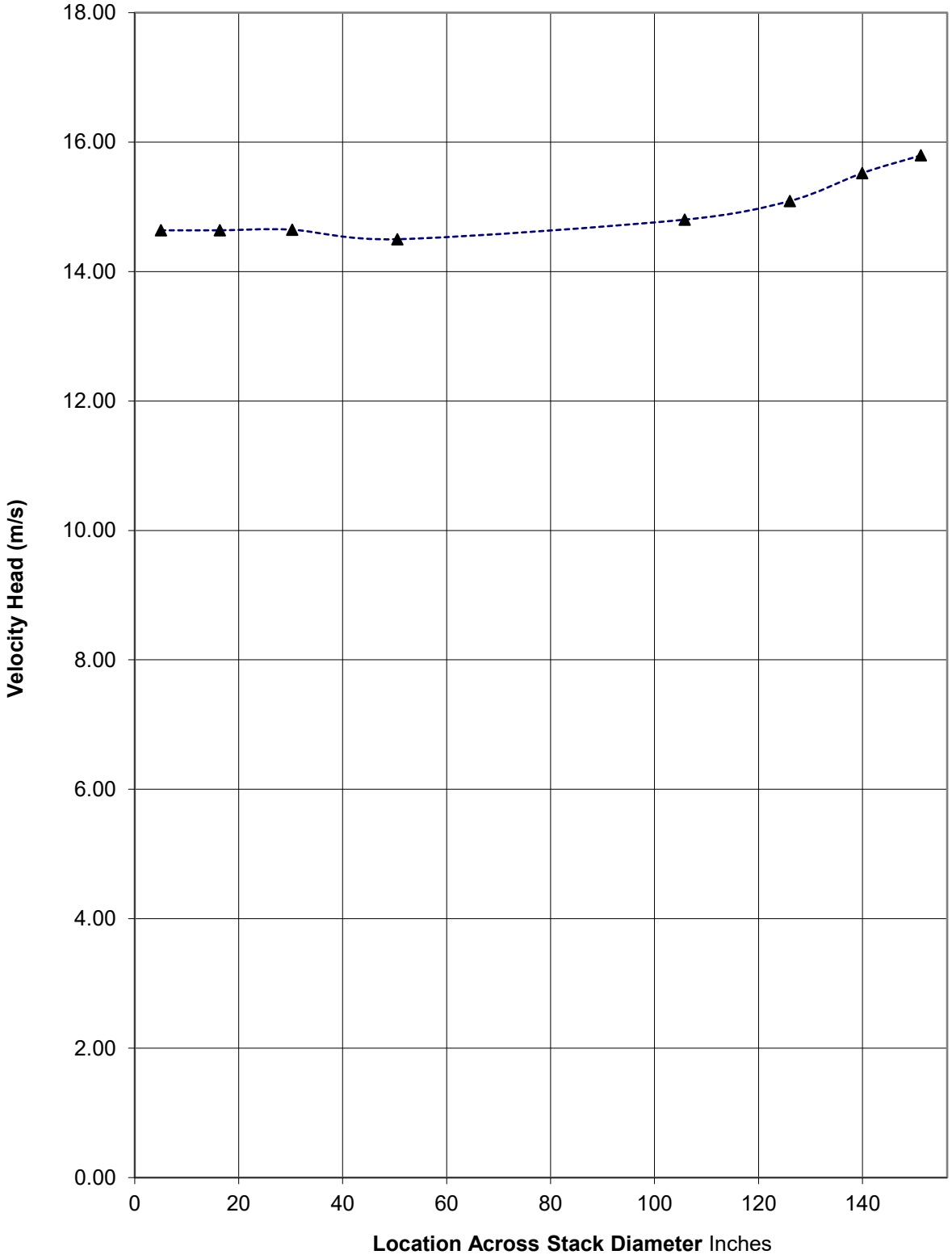
Velocity Profile Northeast to Southwest
Turbine 1E-4101A Test # 1 25/09/28



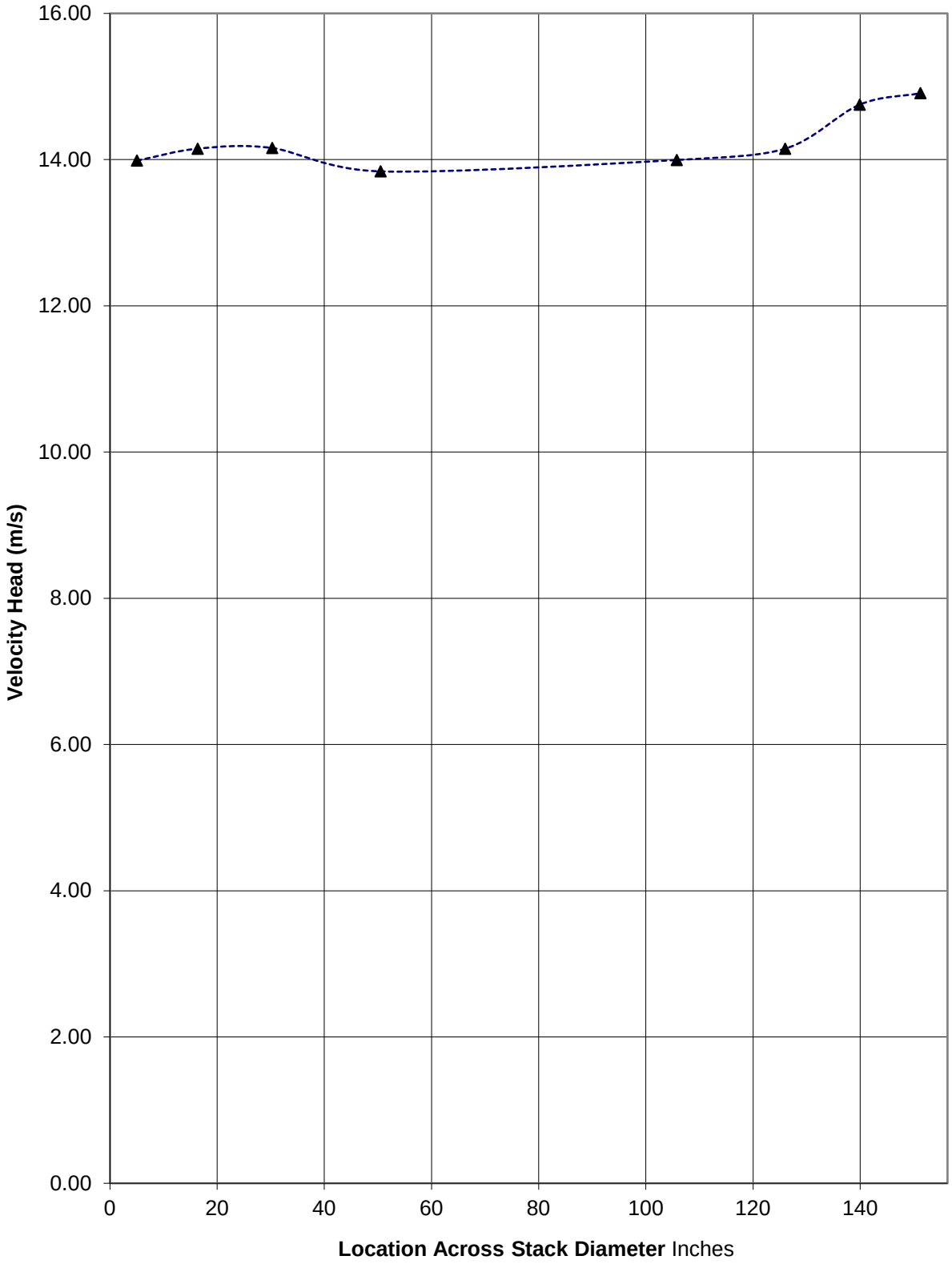
Velocity Profile Northwest to Southeast
Turbine 1E-4101A Test # 2 25/09/28



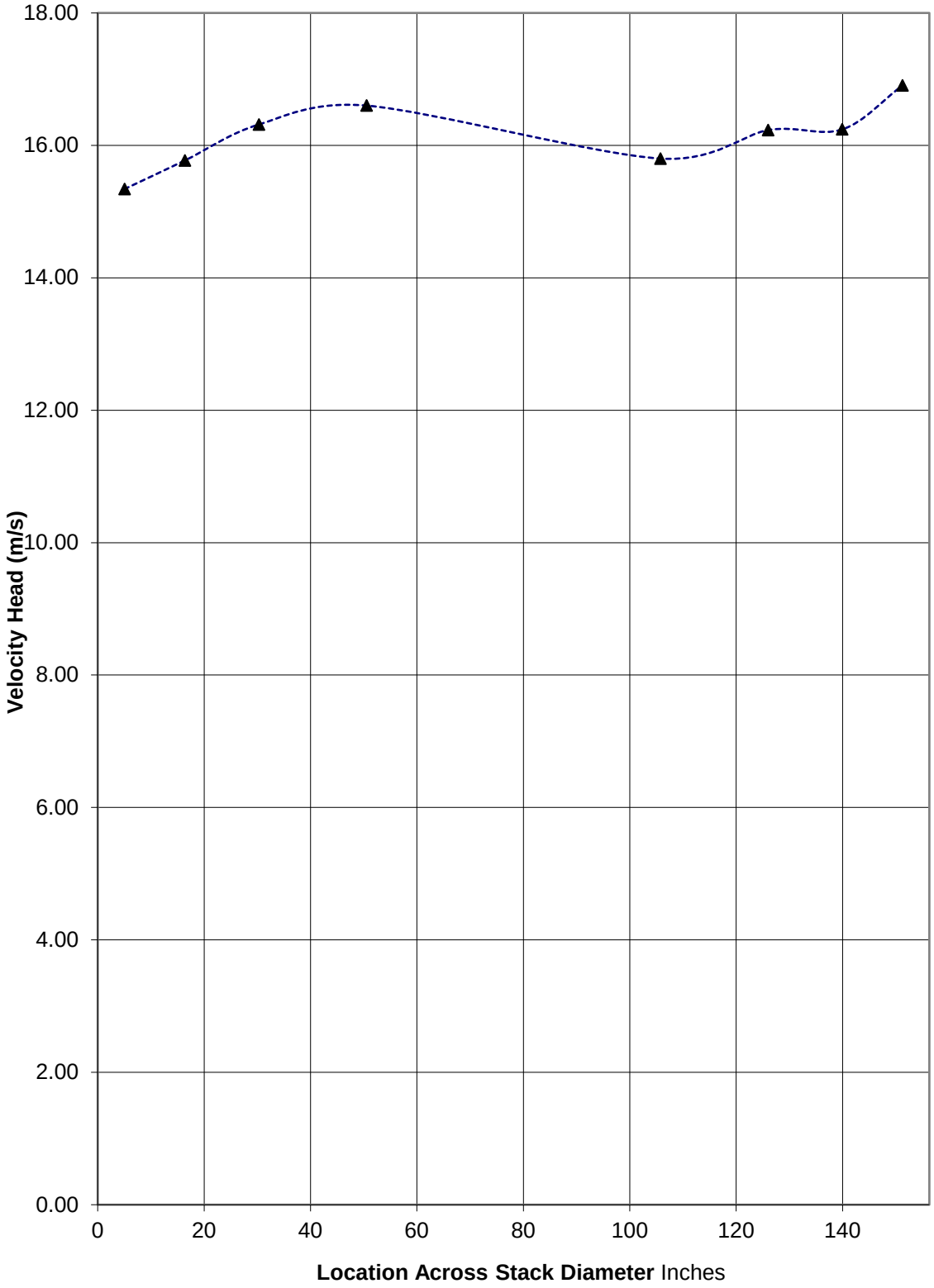
Velocity Profile Northeast to Southwest
Turbine 1E-4101A Test # 2 25/09/28



Velocity Profile Northwest to Southeast
Turbine 1E-4101A Test # 3 25/09/28



Velocity Profile Northeast to Southwest
Turbine 1E-4101A Test # 3 25/09/28



Appendix III – Analytical Data

LNG - Kitimat - Turbine (1E-4101A)

Date / time	sec Runtime	% O_2	ppm CO	ppm NOx	ppm NO	ppm NO_2	% CO_2	ppm SO_2	l/min Pump	°C Tamb	Test 1
9-28-2025 11:01:56 AM	0	16.2	21.0	45.3	25.0	20.3	2.66	-2.00	0.990	9.7	
9-28-2025 11:02:26 AM	30	16.1	21.0	46.9	26.0	20.9	2.70	-2.00	0.980	9.6	
9-28-2025 11:02:56 AM	60	16.1	21.0	48.3	27.0	21.3	2.73	-2.00	0.980	9.5	
9-28-2025 11:03:26 AM	90	16.0	22.0	48.6	27.0	21.6	2.74	-2.00	0.980	9.7	
9-28-2025 11:03:56 AM	120	16.1	22.0	48.7	27.0	21.7	2.72	-2.00	0.980	9.7	
9-28-2025 11:04:26 AM	150	16.1	22.0	48.8	27.0	21.8	2.74	-2.00	0.980	9.7	
9-28-2025 11:04:56 AM	180	16.0	22.0	49.0	27.0	22.0	2.75	-2.00	0.980	9.7	
9-28-2025 11:05:26 AM	210	16.0	22.0	49.1	27.0	22.1	2.75	-2.00	0.990	9.7	
9-28-2025 11:05:56 AM	240	16.0	22.0	49.1	27.0	22.1	2.75	-3.00	0.980	9.7	
9-28-2025 11:06:26 AM	270	15.9	21.0	49.2	27.0	22.2	2.81	-2.00	0.980	9.8	
9-28-2025 11:06:56 AM	300	15.9	21.0	49.3	27.0	22.3	2.81	-2.00	0.980	9.8	
9-28-2025 11:07:26 AM	330	15.8	21.0	49.3	27.0	22.3	2.86	-2.00	0.980	9.8	
9-28-2025 11:07:56 AM	360	16.0	22.0	50.4	28.0	22.4	2.77	-2.00	0.980	9.7	
9-28-2025 11:08:26 AM	390	15.8	22.0	50.3	28.0	22.3	2.86	-2.00	0.980	9.8	
9-28-2025 11:08:56 AM	420	15.9	22.0	50.3	28.0	22.3	2.85	-2.00	0.980	9.5	
9-28-2025 11:09:26 AM	450	15.9	22.0	50.4	28.0	22.4	2.80	-2.00	0.980	9.5	
9-28-2025 11:09:56 AM	480	15.8	22.0	50.4	28.0	22.4	2.88	-2.00	0.990	9.5	
9-28-2025 11:10:26 AM	510	15.8	22.0	50.4	28.0	22.4	2.88	-2.00	0.990	9.5	
9-28-2025 11:10:56 AM	540	15.8	22.0	50.4	28.0	22.4	2.86	-2.00	0.980	9.5	
9-28-2025 11:11:26 AM	570	15.9	22.0	50.4	28.0	22.4	2.82	-2.00	0.980	9.8	
9-28-2025 11:11:56 AM	600	15.9	22.0	50.4	28.0	22.4	2.83	-2.00	0.980	9.8	
9-28-2025 11:12:26 AM	630	15.9	22.0	50.4	28.0	22.4	2.85	-2.00	0.980	9.9	
9-28-2025 11:12:56 AM	660	15.9	22.0	50.5	28.0	22.5	2.83	-2.00	0.980	9.8	
9-28-2025 11:13:26 AM	690	15.8	22.0	50.5	28.0	22.5	2.86	-2.00	0.980	9.9	
9-28-2025 11:13:56 AM	720	15.8	22.0	50.5	28.0	22.5	2.91	-2.00	0.980	10.0	
9-28-2025 11:14:26 AM	750	15.8	22.0	50.4	28.0	22.4	2.86	-2.00	0.980	9.9	
9-28-2025 11:14:56 AM	780	15.9	22.0	50.6	28.0	22.6	2.85	-2.00	0.980	9.8	
9-28-2025 11:15:26 AM	810	15.8	22.0	50.5	28.0	22.5	2.87	-2.00	0.990	10.0	
9-28-2025 11:15:56 AM	840	15.9	22.0	50.6	28.0	22.6	2.85	-2.00	0.990	9.8	
9-28-2025 11:16:26 AM	870	15.8	22.0	51.7	29.0	22.7	2.88	-2.00	0.990	9.6	
9-28-2025 11:16:56 AM	900	15.7	22.0	50.6	28.0	22.6	2.94	-2.00	0.990	9.7	
9-28-2025 11:17:26 AM	930	15.8	22.0	50.6	28.0	22.6	2.90	-2.00	0.980	9.8	
9-28-2025 11:17:56 AM	960	15.8	22.0	50.7	28.0	22.7	2.90	-1.00	0.980	9.7	
9-28-2025 11:18:26 AM	990	15.8	22.0	50.7	28.0	22.7	2.88	-1.00	0.980	9.9	
9-28-2025 11:18:56 AM	1020	15.7	22.0	50.8	28.0	22.8	2.96	-2.00	0.980	10.0	
9-28-2025 11:19:26 AM	1050	15.7	22.0	50.8	28.0	22.8	2.95	-2.00	0.980	10.0	
9-28-2025 11:19:56 AM	1080	15.7	21.0	51.8	29.0	22.8	2.91	-1.00	0.980	9.9	
9-28-2025 11:20:26 AM	1110	15.8	21.0	51.8	29.0	22.8	2.89	-2.00	0.980	9.9	
9-28-2025 11:20:56 AM	1140	15.6	22.0	51.9	29.0	22.9	2.97	-2.00	0.980	9.9	
9-28-2025 11:21:26 AM	1170	15.7	21.0	52.0	29.0	23.0	2.94	-2.00	0.980	10.0	
9-28-2025 11:21:56 AM	1200	15.8	21.0	52.0	29.0	23.0	2.89	-1.00	0.980	10.1	
9-28-2025 11:22:26 AM	1230	15.6	21.0	52.0	29.0	23.0	2.97	-2.00	0.980	10.1	
9-28-2025 11:22:56 AM	1260	15.7	22.0	52.0	29.0	23.0	2.92	-1.00	0.980	10.0	
9-28-2025 11:23:26 AM	1290	15.6	21.0	52.0	29.0	23.0	3.01	-2.00	0.990	10.1	
9-28-2025 11:23:56 AM	1320	15.7	21.0	51.9	29.0	22.9	2.96	-2.00	0.990	10.0	
9-28-2025 11:24:26 AM	1350	15.7	21.0	52.0	29.0	23.0	2.93	-1.00	0.980	9.7	
9-28-2025 11:24:56 AM	1380	15.6	22.0	52.0	29.0	23.0	3.00	-1.00	0.980	9.6	
9-28-2025 11:25:26 AM	1410	15.7	21.0	52.0	29.0	23.0	2.95	-2.00	0.980	9.9	
9-28-2025 11:25:56 AM	1440	15.5	21.0	52.0	29.0	23.0	3.03	-1.00	0.980	10.0	
9-28-2025 11:26:26 AM	1470	15.6	21.0	52.0	29.0	23.0	2.97	-2.00	0.990	9.9	
9-28-2025 11:26:56 AM	1500	15.5	21.0	52.0	29.0	23.0	3.05	-1.00	0.990	10.0	
9-28-2025 11:27:26 AM	1530	15.6	21.0	52.1	29.0	23.1	2.99	-1.00	0.990	10.1	
9-28-2025 11:27:56 AM	1560	15.5	21.0	52.1	29.0	23.1	3.03	-2.00	0.980	10.2	
9-28-2025 11:28:26 AM	1590	15.6	21.0	52.1	29.0	23.1	3.00	-1.00	0.980	10.2	
9-28-2025 11:28:56 AM	1620	15.6	21.0	52.0	29.0	23.0	2.97	-2.00	0.980	10.2	
9-28-2025 11:29:26 AM	1650	15.6	21.0	52.1	29.0	23.1	3.02	-1.00	0.980	10.1	
9-28-2025 11:29:56 AM	1680	15.6	21.0	52.1	29.0	23.1	2.98	-1.00	0.980	10.2	
9-28-2025 11:30:26 AM	1710	15.5	21.0	52.1	29.0	23.1	3.03	-1.00	0.980	10.2	
9-28-2025 11:30:56 AM	1740	15.7	21.0	52.2	29.0	23.2	2.96	-1.00	0.990	10.2	
9-28-2025 11:31:26 AM	1770	15.6	21.0	52.1	29.0	23.1	3.02	-1.00	0.980	10.2	
		15.8	21.6	50.7	28.2	22.6	2.89	-1.75			

LNG - Kitimat - Turbine (1E-4101A)

Date / time	sec Runtime	% O_2	ppm CO	ppm NOx	ppm NO	ppm NO_2	% CO_2	ppm SO_2	l/min Pump	°C Tamb	Test 2
9-28-2025 12:31:45 PM	0	15.3	39.0	42.1	28.0	14.1	3.19	-3.00	0.980	11.8	
9-28-2025 12:32:15 PM	30	15.2	39.0	43.6	29.0	14.6	3.19	-3.00	0.980	11.8	
9-28-2025 12:32:45 PM	60	15.2	40.0	43.9	29.0	14.9	3.19	-3.00	0.980	11.9	
9-28-2025 12:33:15 PM	90	15.2	40.0	44.0	29.0	15.0	3.19	-3.00	0.980	11.9	
9-28-2025 12:33:45 PM	120	15.2	40.0	44.1	29.0	15.1	3.19	-3.00	0.980	12.1	
9-28-2025 12:34:15 PM	150	15.2	40.0	44.3	29.0	15.3	3.20	-3.00	0.970	12.2	
9-28-2025 12:34:45 PM	180	15.2	40.0	44.3	29.0	15.3	3.19	-3.00	0.970	12.1	
9-28-2025 12:35:15 PM	210	15.2	40.0	44.5	29.0	15.5	3.19	-3.00	0.980	12.1	
9-28-2025 12:35:45 PM	240	15.2	40.0	44.6	29.0	15.6	3.19	-3.00	0.980	11.9	
9-28-2025 12:36:15 PM	270	15.2	40.0	44.7	29.0	15.7	3.20	-3.00	0.980	11.7	
9-28-2025 12:36:45 PM	300	15.2	40.0	44.7	29.0	15.7	3.20	-3.00	0.970	12.0	
9-28-2025 12:37:15 PM	330	15.2	40.0	44.6	29.0	15.6	3.20	-3.00	0.970	12.1	
9-28-2025 12:37:45 PM	360	15.2	40.0	44.7	29.0	15.7	3.20	-3.00	0.980	12.2	
9-28-2025 12:38:15 PM	390	15.2	40.0	44.8	29.0	15.8	3.20	-3.00	0.980	12.1	
9-28-2025 12:38:45 PM	420	15.2	40.0	44.7	29.0	15.7	3.20	-3.00	0.980	12.2	
9-28-2025 12:39:15 PM	450	15.2	40.0	44.7	29.0	15.7	3.20	-3.00	0.980	12.2	
9-28-2025 12:39:45 PM	480	15.2	40.0	44.7	29.0	15.7	3.20	-3.00	0.980	12.2	
9-28-2025 12:40:15 PM	510	15.2	40.0	44.7	29.0	15.7	3.20	-3.00	0.980	12.4	
9-28-2025 12:40:45 PM	540	15.2	41.0	44.8	29.0	15.8	3.20	-2.00	0.980	12.2	
9-28-2025 12:41:15 PM	570	15.2	40.0	44.9	29.0	15.9	3.20	-3.00	0.970	12.3	
9-28-2025 12:41:45 PM	600	15.2	40.0	44.9	29.0	15.9	3.19	-3.00	0.980	12.4	
9-28-2025 12:42:15 PM	630	15.2	40.0	44.9	29.0	15.9	3.19	-2.00	0.980	12.5	
9-28-2025 12:42:45 PM	660	15.2	40.0	44.9	29.0	15.9	3.19	-3.00	0.980	12.4	
9-28-2025 12:43:15 PM	690	15.2	40.0	44.8	29.0	15.8	3.20	-3.00	0.970	12.5	
9-28-2025 12:43:45 PM	720	15.2	41.0	44.9	29.0	15.9	3.20	-2.00	0.980	12.4	
9-28-2025 12:44:15 PM	750	15.2	40.0	45.0	29.0	16.0	3.20	-2.00	0.970	12.5	
9-28-2025 12:44:45 PM	780	15.2	40.0	44.9	29.0	15.9	3.20	-2.00	0.980	12.5	
9-28-2025 12:45:15 PM	810	15.2	40.0	46.0	30.0	16.0	3.20	-2.00	0.980	12.6	
9-28-2025 12:45:45 PM	840	15.2	40.0	46.1	30.0	16.1	3.20	-2.00	0.970	12.7	
9-28-2025 12:46:15 PM	870	15.2	41.0	46.1	30.0	16.1	3.20	-2.00	0.970	12.6	
9-28-2025 12:46:45 PM	900	15.2	41.0	46.1	30.0	16.1	3.20	-3.00	0.980	12.6	
9-28-2025 12:47:15 PM	930	15.2	41.0	46.3	30.0	16.3	3.21	-2.00	0.980	12.8	
9-28-2025 12:47:45 PM	960	15.2	41.0	46.3	30.0	16.3	3.21	-2.00	0.980	12.8	
9-28-2025 12:48:15 PM	990	15.2	41.0	46.4	30.0	16.4	3.21	-2.00	0.970	12.8	
9-28-2025 12:48:45 PM	1020	15.2	41.0	46.5	30.0	16.5	3.22	-2.00	0.970	12.8	
9-28-2025 12:49:15 PM	1050	15.2	41.0	47.7	31.0	16.7	3.22	-2.00	0.980	12.8	
9-28-2025 12:49:45 PM	1080	15.2	42.0	47.7	31.0	16.7	3.23	-3.00	0.970	12.9	
9-28-2025 12:50:15 PM	1110	15.2	42.0	48.0	31.0	17.0	3.23	-3.00	0.980	12.9	
9-28-2025 12:50:45 PM	1140	15.2	42.0	48.1	31.0	17.1	3.24	-3.00	0.970	13.0	
9-28-2025 12:51:15 PM	1170	15.2	41.0	48.2	31.0	17.2	3.24	-3.00	0.980	13.1	
9-28-2025 12:51:45 PM	1200	15.2	42.0	49.3	32.0	17.3	3.24	-3.00	0.980	13.2	
9-28-2025 12:52:15 PM	1230	15.1	42.0	49.4	32.0	17.4	3.25	-2.00	0.970	13.0	
9-28-2025 12:52:45 PM	1260	15.1	42.0	49.5	32.0	17.5	3.25	-3.00	0.980	12.8	
9-28-2025 12:53:15 PM	1290	15.1	43.0	49.6	32.0	17.6	3.26	-3.00	0.970	12.8	
9-28-2025 12:53:45 PM	1320	15.1	42.0	49.7	32.0	17.7	3.26	-3.00	0.980	12.9	
9-28-2025 12:54:15 PM	1350	15.1	43.0	50.7	33.0	17.7	3.26	-3.00	0.980	12.8	
9-28-2025 12:54:45 PM	1380	15.1	43.0	49.8	32.0	17.8	3.26	-3.00	0.980	12.7	
9-28-2025 12:55:15 PM	1410	15.1	42.0	49.7	32.0	17.7	3.26	-2.00	0.980	12.9	
9-28-2025 12:55:45 PM	1440	15.1	42.0	49.7	32.0	17.7	3.26	-3.00	0.980	12.9	
9-28-2025 12:56:15 PM	1470	15.1	42.0	50.8	33.0	17.8	3.26	-3.00	0.980	13.0	
9-28-2025 12:56:45 PM	1500	15.1	43.0	49.7	32.0	17.7	3.26	-3.00	0.980	12.9	
9-28-2025 12:57:15 PM	1530	15.1	42.0	49.7	32.0	17.7	3.26	-3.00	0.980	12.9	
9-28-2025 12:57:45 PM	1560	15.1	43.0	50.7	33.0	17.7	3.26	-3.00	0.980	13.0	
9-28-2025 12:58:15 PM	1590	15.1	43.0	50.6	33.0	17.6	3.26	-3.00	0.970	13.1	
9-28-2025 12:58:45 PM	1620	15.1	43.0	49.6	32.0	17.6	3.26	-3.00	0.980	13.1	
9-28-2025 12:59:15 PM	1650	15.1	42.0	50.5	33.0	17.5	3.26	-3.00	0.980	12.8	
9-28-2025 12:59:45 PM	1680	15.1	43.0	49.6	32.0	17.6	3.26	-3.00	0.980	12.7	
9-28-2025 1:00:15 PM	1710	15.1	43.0	49.5	32.0	17.5	3.25	-3.00	0.980	12.8	
9-28-2025 1:00:45 PM	1740	15.1	43.0	50.6	33.0	17.6	3.26	-2.00	0.980	12.9	
9-28-2025 1:01:15 PM	1770	15.1	43.0	49.5	32.0	17.5	3.26	-2.00	0.970	13.0	
		15.2	41.1	46.8	30.4	16.4	3.22	-2.72			

LNG - Kitimat - Turbine (1E-4101A)

Date / time	sec Runtime	% O_2	ppm CO	ppm NOx	ppm NO	ppm NO_2	% CO_2	ppm SO_2	l/min Pump	°C Tamb	Test 3
9-28-2025 1:48:23 PM	0	14.8	54.0	35.0	24.0	11.0	3.46	-3.00	0.970	13.1	
9-28-2025 1:48:53 PM	30	14.7	55.0	34.0	23.0	11.0	3.47	-3.00	0.970	12.7	
9-28-2025 1:49:23 PM	60	14.7	54.0	34.0	23.0	11.0	3.48	-3.00	0.980	13.0	
9-28-2025 1:49:53 PM	90	14.7	55.0	34.0	23.0	11.0	3.49	-3.00	0.980	12.8	
9-28-2025 1:50:23 PM	120	14.7	54.0	34.0	23.0	11.0	3.49	-3.00	0.980	13.0	
9-28-2025 1:50:53 PM	150	14.7	55.0	33.9	23.0	10.9	3.49	-3.00	0.980	13.3	
9-28-2025 1:51:23 PM	180	14.7	55.0	33.8	23.0	10.8	3.49	-3.00	0.970	13.4	
9-28-2025 1:51:53 PM	210	14.7	56.0	33.8	23.0	10.8	3.49	-3.00	0.980	13.6	
9-28-2025 1:52:23 PM	240	14.7	56.0	33.7	23.0	10.7	3.49	-3.00	0.980	13.7	
9-28-2025 1:52:53 PM	270	14.7	57.0	33.7	23.0	10.7	3.49	-3.00	0.970	13.7	
9-28-2025 1:53:23 PM	300	14.7	57.0	33.5	23.0	10.5	3.48	-3.00	0.970	13.6	
9-28-2025 1:53:53 PM	330	14.7	58.0	33.2	23.0	10.2	3.47	-3.00	0.970	13.7	
9-28-2025 1:54:23 PM	360	14.8	59.0	32.9	23.0	990%	3.45	-3.00	0.980	13.7	
9-28-2025 1:54:53 PM	390	14.8	60.0	31.6	22.0	960%	3.43	-3.00	0.980	13.4	
9-28-2025 1:55:23 PM	420	14.8	60.0	31.3	22.0	930%	3.42	-3.00	0.980	13.2	
9-28-2025 1:55:53 PM	450	14.9	60.0	31.1	22.0	910%	3.41	-2.00	0.980	13.6	
9-28-2025 1:56:23 PM	480	14.9	61.0	29.9	21.0	890%	3.40	-3.00	0.970	13.4	
9-28-2025 1:56:53 PM	510	14.9	61.0	29.6	21.0	860%	3.39	-2.00	0.980	13.1	
9-28-2025 1:57:23 PM	540	14.9	61.0	28.6	20.0	860%	3.38	-2.00	0.980	13.2	
9-28-2025 1:57:53 PM	570	14.9	61.0	28.5	20.0	850%	3.37	-2.00	0.980	13.0	
9-28-2025 1:58:23 PM	600	14.9	60.0	28.4	20.0	840%	3.36	-2.00	0.980	13.2	
9-28-2025 1:58:53 PM	630	15.0	60.0	28.3	20.0	830%	3.36	-2.00	0.980	13.4	
9-28-2025 1:59:23 PM	660	15.0	59.0	28.1	20.0	810%	3.35	-2.00	0.980	13.4	
9-28-2025 1:59:53 PM	690	15.0	59.0	28.0	20.0	800%	3.34	-2.00	0.980	13.3	
9-28-2025 2:00:23 PM	720	15.0	58.0	28.0	20.0	800%	3.34	-2.00	0.980	13.6	
9-28-2025 2:00:53 PM	750	15.0	56.0	27.0	19.0	800%	3.34	-2.00	0.980	13.9	
9-28-2025 2:01:23 PM	780	15.0	55.0	27.1	19.0	810%	3.34	-2.00	0.980	13.8	
9-28-2025 2:01:53 PM	810	15.0	54.0	27.1	19.0	810%	3.34	-2.00	0.980	13.4	
9-28-2025 2:02:23 PM	840	15.0	53.0	27.3	19.0	830%	3.34	-2.00	0.980	13.4	
9-28-2025 2:02:53 PM	870	15.0	52.0	27.5	19.0	850%	3.34	-2.00	0.980	13.2	
9-28-2025 2:03:23 PM	900	15.0	50.0	28.8	20.0	880%	3.35	-2.00	0.980	13.1	
9-28-2025 2:03:53 PM	930	15.0	50.0	28.8	20.0	880%	3.36	-2.00	0.980	13.2	
9-28-2025 2:04:23 PM	960	14.9	49.0	29.0	20.0	900%	3.36	-2.00	0.970	13.4	
9-28-2025 2:04:53 PM	990	14.9	48.0	29.0	20.0	900%	3.36	-2.00	0.980	13.4	
9-28-2025 2:05:23 PM	1020	14.9	48.0	29.0	20.0	900%	3.37	-2.00	0.980	13.3	
9-28-2025 2:05:53 PM	1050	14.9	48.0	29.0	20.0	900%	3.37	-2.00	0.980	13.4	
9-28-2025 2:06:23 PM	1080	14.9	48.0	29.1	20.0	910%	3.37	-2.00	0.980	13.7	
9-28-2025 2:06:53 PM	1110	14.9	48.0	29.1	20.0	910%	3.37	-2.00	0.980	13.8	
9-28-2025 2:07:23 PM	1140	14.9	48.0	29.1	20.0	910%	3.38	-2.00	0.970	13.9	
9-28-2025 2:07:53 PM	1170	14.9	49.0	29.1	20.0	910%	3.37	-2.00	0.980	14.1	
9-28-2025 2:08:23 PM	1200	14.9	49.0	29.1	20.0	910%	3.37	-2.00	0.980	14.1	
9-28-2025 2:08:53 PM	1230	14.9	50.0	29.1	20.0	910%	3.37	-2.00	0.970	14.2	
9-28-2025 2:09:23 PM	1260	14.9	51.0	29.1	20.0	910%	3.37	-2.00	0.970	14.2	
9-28-2025 2:09:53 PM	1290	14.9	51.0	29.0	20.0	900%	3.37	-2.00	0.980	13.9	
9-28-2025 2:10:23 PM	1320	14.9	52.0	29.1	20.0	910%	3.37	-2.00	0.980	13.8	
9-28-2025 2:10:53 PM	1350	14.9	53.0	30.1	21.0	910%	3.38	-2.00	0.980	13.9	
9-28-2025 2:11:23 PM	1380	14.9	53.0	30.0	21.0	900%	3.38	-2.00	0.970	14.2	
9-28-2025 2:11:53 PM	1410	14.9	54.0	30.1	21.0	910%	3.38	-2.00	0.970	13.5	
9-28-2025 2:12:23 PM	1440	14.9	54.0	30.1	21.0	910%	3.39	-2.00	0.970	13.8	
9-28-2025 2:12:53 PM	1470	14.9	55.0	30.3	21.0	930%	3.39	-2.00	0.980	14.0	
9-28-2025 2:13:23 PM	1500	14.9	54.0	30.4	21.0	940%	3.39	-2.00	0.970	13.9	
9-28-2025 2:13:53 PM	1530	14.9	54.0	30.5	21.0	950%	3.39	-2.00	0.970	13.7	
9-28-2025 2:14:23 PM	1560	14.9	53.0	30.5	21.0	950%	3.40	-2.00	0.970	13.5	
9-28-2025 2:14:53 PM	1590	14.9	54.0	30.7	21.0	970%	3.41	-2.00	0.980	13.4	
9-28-2025 2:15:23 PM	1620	14.9	54.0	30.7	21.0	970%	3.41	-2.00	0.980	13.6	
9-28-2025 2:15:53 PM	1650	14.9	54.0	30.8	21.0	980%	3.41	-2.00	0.980	13.6	
9-28-2025 2:16:23 PM	1680	14.8	53.0	31.8	22.0	980%	3.42	-2.00	0.970	13.9	
9-28-2025 2:16:53 PM	1710	14.8	54.0	31.8	22.0	980%	3.42	-2.00	0.970	13.6	
9-28-2025 2:17:23 PM	1740	14.8	54.0	31.9	22.0	990%	3.43	-2.00	0.980	14.0	
9-28-2025 2:17:53 PM	1770	14.8	54.0	31.9	22.0	990%	3.43	-2.00	0.980	14.0	
		14.9	54.4	30.4	21.0	937%	3.40	-2.27			

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

http://www.agatlabs.com

CLIENT NAME: LNG CANADA DEVELOPMENT INC.
SHELL CENTRE-32 FLR 400-4 AVE SW BX 100
Calgary, AB T2P2H5
ATTENTION TO: Tauseef Zia Siddiqui
PROJECT:
AGAT WORK ORDER: 25C338707
AIR QUALITY MONITORING REVIEWED BY: Carmen Andrei, AQM Lab Supervisor
DATE REPORTED: Oct 10, 2025
PAGES (INCLUDING COVER): 4
VERSION*: 1

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

*Notes

Disclaimer:

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Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Certificate of Analysis

AGAT WORK ORDER: 25C338707

PROJECT:

CLIENT NAME: LNG CANADA DEVELOPMENT INC.

ATTENTION TO: Tauseef Zia Siddiqui

SAMPLING SITE:

SAMPLED BY:Marlon.S

PM 2.5 – Method 201A

DATE RECEIVED: 2025-09-30

DATE REPORTED: 2025-10-10

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Turbine-IE-4011B Stack-Imp.Catch-T1	Turbine-IE-4011B Stack-Imp.Catch-T2	Turbine-IE-4011B Stack-Imp.Catch-T3	Turbine-IE-4011B Stack-ProbeWash-T1	Turbine-IE-4011B Stack-ProbeWash-T2	Turbine-IE-4011B Stack-ProbeWash-T3	Turbine-IE-4011B Stack-NozzleWash-T1	Turbine-IE-4011B Stack-NozzleWash-T2
SAMPLE TYPE:				Water	Water	Water	Acetone	Acetone	Acetone	Acetone	Acetone
DATE SAMPLED:				2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-27
				7108343	7108344	7108345	7108346	7108347	7108348	7108349	7108350
Particulate - Impinger Catch	mg		0.1	1.8	1.3	1.6	-	-	-	-	-
Particulate - Probe Wash	mg		0.1	-	-	-	0.1	0.2	0.8	0.9	0.8
Particulate - Filter	mg		0.01	-	-	-	-	-	-	-	-

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Turbine-IE-4011B Stack-NozzleWash-T3	Turbine-IE-4011B Stack-Filter-T1	Turbine-IE-4011B Stack-Filter-T2	Turbine-IE-4011B Stack-Filter-T3	Turbine-IE-4011A Stack-Imp.Catch-T1	Turbine-IE-4011A Stack-Imp.Catch-T2	Turbine-IE-4011A Stack-Imp.Catch-T3	Turbine-IE-4011A Stack-ProbeWash-T1
SAMPLE TYPE:				Acetone	FILTER	FILTER	FILTER	Water	Water	Water	Acetone
DATE SAMPLED:				2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-28	2025-09-28	2025-09-28	2025-09-28
				7108351	7108352	7108353	7108354	7108355	7108356	7108357	7108358
Particulate - Impinger Catch	mg		0.1	-	-	-	-	1.5	2.4	2.3	-
Particulate - Probe Wash	mg		0.1	0.6	-	-	-	-	-	-	0.3
Particulate - Filter	mg		0.01	-	<0.01	<0.01	<0.01	-	-	-	-

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Turbine-IE-4011A Stack-ProbeWash-T2	Turbine-IE-4011A Stack-ProbeWash-T3	Turbine-IE-4011A Stack-NozzleWash-T1	Turbine-IE-4011A Stack-NozzleWash-T2	Turbine-IE-4011A Stack-NozzleWash-T3	Turbine-IE-4011A Stack-Filter-T1	Turbine-IE-4011A Stack-Filter-T2	Turbine-IE-4011A Stack-Filter-T3
SAMPLE TYPE:				Acetone	Acetone	Acetone	Acetone	Acetone	FILTER	FILTER	FILTER
DATE SAMPLED:				2025-09-28	2025-09-28	2025-09-28	2025-09-28	2025-09-28	2025-09-28	2025-09-28	2025-09-28
				7108359	7108360	7108361	7108362	7108363	7108364	7108365	7108366
Particulate - Impinger Catch	mg		0.1	-	-	-	-	-	-	-	-
Particulate - Probe Wash	mg		0.1	0.7	0.2	0.5	0.3	0.9	-	-	-
Particulate - Filter	mg		0.01	-	-	-	-	-	<0.01	<0.01	<0.01

Certified By:

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 25C338707

PROJECT:

CLIENT NAME: LNG CANADA DEVELOPMENT INC.

ATTENTION TO: Tauseef Zia Siddiqui

SAMPLING SITE:

SAMPLED BY:Marlon.S

PM 2.5 – Method 201A

DATE RECEIVED: 2025-09-30

DATE REPORTED: 2025-10-10

		SAMPLE DESCRIPTION:		DI-H2O Blank	Acetone Blank
		SAMPLE TYPE:		Water	Acetone
		DATE SAMPLED:			
Parameter	Unit	G / S	RDL	7108367	7108368
Particulate - Impinger Catch	mg		0.1	<0.1	-
Particulate - Probe Wash	mg		0.1	-	<0.1
Particulate - Filter	mg		0.01	-	-

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

7108343-7108368 The condition of samples was satisfactory at the time of arrival in laboratory.
All results have been field blank corrected.
The Reported Detection Limit RDL is based on the detection limit of the analytical balance used: 0.1mg for the Impinger Catch and Probe Wash, and 0.01mg for filters.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

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CANADA T2E 6V6
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Method Summary

CLIENT NAME: LNG CANADA DEVELOPMENT INC.

AGAT WORK ORDER: 25C338707

PROJECT:

ATTENTION TO: Tauseef Zia Siddiqui

SAMPLING SITE:

SAMPLED BY:Marlon.S

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Air Quality Monitoring			
Particulate - Impinger Catch	AQM-43-16002	NIOSH 0500	Gravimetric
Particulate - Probe Wash	AQM-43-16002	NIOSH 0500	Gravimetric
Particulate - Filter	AQM-43-16002	NIOSH 0500	Gravimetric

Results relate only to the items tested. Results apply to samples as received.

InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

APPLIED CHEMISTRY SERVICES

TEST REPORT

RESULTS: Shaun Hayward 403-369-4749
AGAT Laboratories Ltd.
3700 21 St NE
Calgary
AB T2E 6V6

INVOICE: Accounts Payable
2905 12 St NE
Calgary
AB T2E 7J2

CLIENT SAMPLE ID: LNG - Canada/Kitmat, BC - Can # 1 - Test # 1
Matrix: Ambient Air
CANISTER ID: 2652
PRIORITY: Normal
DESCRIPTION: Turbine - 1E - 4101A
DATE SAMPLED: 28-Sep-25 10:00
DATE RECEIVED: 02-Oct-25
REPORT CREATED: 17-Oct-25
REPORT NUMBER: 25100012
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-001	Carbon dioxide		34500	ppmv	20	NA-026	02-Oct-25
25100012-001	Oxygen		167000	ppmv	26900	NA-026	02-Oct-25
25100012-001	Hydrocarbons, Total (as Methane)		403	ppmv	0.05	NA-025	03-Oct-25
25100012-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Oct-25
25100012-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing
Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	2652	Ambient Air	28-Sep-25 10:00

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Oct-25
25100012-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Oct-25
25100012-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Oct-25
25100012-001	1-Butene/Isobutylene		0.46	ppbv	0.06	AC-058	06-Oct-25
25100012-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	06-Oct-25
25100012-001	1-Pentene	I	0.06	ppbv	0.03	AC-058	06-Oct-25
25100012-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	06-Oct-25
25100012-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	2-Methylpentane	I	0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	3-Methylpentane	I	0.03	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Acetone		91.8	ppbv	2.4	AC-058	06-Oct-25
25100012-001	Acrolein		1.2	ppbv	0.3	AC-058	06-Oct-25
25100012-001	Benzene		0.21	ppbv	0.03	AC-058	06-Oct-25
25100012-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	2652	Ambient Air	28-Sep-25 10:00

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-001	Carbon disulfide	I	0.07	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Chloroethane	I	0.03	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Chloroform	I	0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Chloromethane		0.19	ppbv	0.04	AC-058	06-Oct-25
25100012-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	cis-2-Butene	I	0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Oct-25
25100012-001	Cyclopentane	I	0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Oct-25
25100012-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	Freon-11	I	0.05	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	Freon-12		0.10	ppbv	0.03	AC-058	06-Oct-25
25100012-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	Isobutane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	Isopentane		0.44	ppbv	0.04	AC-058	06-Oct-25
25100012-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Isopropyl alcohol		0.6	ppbv	0.3	AC-058	06-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	2652	Ambient Air	28-Sep-25 10:00

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Oct-25
25100012-001	m,p-Xylene	I	0.10	ppbv	0.04	AC-058	06-Oct-25
25100012-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Oct-25
25100012-001	Methyl ethyl ketone	I	0.5	ppbv	0.3	AC-058	06-Oct-25
25100012-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	06-Oct-25
25100012-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Oct-25
25100012-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	n-Butane		0.22	ppbv	0.02	AC-058	06-Oct-25
25100012-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Oct-25
25100012-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	n-Heptane	I	0.08	ppbv	0.04	AC-058	06-Oct-25
25100012-001	n-Hexane	I	0.08	ppbv	0.03	AC-058	06-Oct-25
25100012-001	n-Octane	I	0.08	ppbv	0.02	AC-058	06-Oct-25
25100012-001	n-Pentane		0.67	ppbv	0.04	AC-058	06-Oct-25
25100012-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Oct-25
25100012-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Oct-25
25100012-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Oct-25
25100012-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	o-Xylene	I	0.04	ppbv	0.03	AC-058	06-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	2652	Ambient Air	28-Sep-25 10:00

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Oct-25
25100012-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Oct-25
25100012-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	Toluene		3.82	ppbv	0.03	AC-058	06-Oct-25
25100012-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Oct-25
25100012-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	trans-2-Butene	I	0.04	ppbv	0.03	AC-058	06-Oct-25
25100012-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	2502	Ambient Air	28-Sep-25 11:30

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-002	Carbon dioxide		38900	ppmv	20	NA-026	02-Oct-25
25100012-002	Oxygen		156000	ppmv	26900	NA-026	02-Oct-25
25100012-002	Hydrocarbons, Total (as Methane)		1280	ppmv	0.05	NA-025	03-Oct-25
25100012-002	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100012-002	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100012-002	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100012-002	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100012-002	1-Butene/Isobutylene		0.65	ppbv	0.06	AC-058	04-Oct-25
25100012-002	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	04-Oct-25
25100012-002	1-Pentene	I	0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	2502	Ambient Air	28-Sep-25 11:30

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-002	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	04-Oct-25
25100012-002	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Acetone		15.3	ppbv	0.4	AC-058	04-Oct-25
25100012-002	Acrolein		2.5	ppbv	0.3	AC-058	04-Oct-25
25100012-002	Benzene		0.24	ppbv	0.03	AC-058	04-Oct-25
25100012-002	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Carbon disulfide		0.28	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Chloromethane		0.18	ppbv	0.04	AC-058	04-Oct-25
25100012-002	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	2502	Ambient Air	28-Sep-25 11:30

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-002	cis-2-Butene	I	0.05	ppbv	0.03	AC-058	04-Oct-25
25100012-002	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-002	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100012-002	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	Freon-11	I	0.04	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	Freon-12	I	0.08	ppbv	0.03	AC-058	04-Oct-25
25100012-002	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	Isobutane		0.22	ppbv	0.03	AC-058	04-Oct-25
25100012-002	Isopentane		0.47	ppbv	0.04	AC-058	04-Oct-25
25100012-002	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Isopropyl alcohol	I	0.4	ppbv	0.3	AC-058	04-Oct-25
25100012-002	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-002	m,p-Xylene	I	0.07	ppbv	0.04	AC-058	04-Oct-25
25100012-002	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100012-002	Methyl ethyl ketone	I	0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	2502	Ambient Air	28-Sep-25 11:30

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-002	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100012-002	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	n-Butane		0.35	ppbv	0.02	AC-058	04-Oct-25
25100012-002	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100012-002	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	n-Heptane	I	0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-002	n-Hexane	I	0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	n-Octane	I	0.07	ppbv	0.02	AC-058	04-Oct-25
25100012-002	n-Pentane		0.21	ppbv	0.04	AC-058	04-Oct-25
25100012-002	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100012-002	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100012-002	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-002	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-002	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-002	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	Toluene		2.20	ppbv	0.03	AC-058	04-Oct-25
25100012-002	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100012-002	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	2502	Ambient Air	28-Sep-25 11:30

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-002	trans-2-Butene	I	0.08	ppbv	0.03	AC-058	04-Oct-25
25100012-002	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

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Date: October 17, 2025

Inquiries: (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1359	Ambient Air	28-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-003	Carbon dioxide		31700	ppmv	20	NA-026	02-Oct-25
25100012-003	Oxygen		164000	ppmv	26900	NA-026	02-Oct-25
25100012-003	Hydrocarbons, Total (as Methane)		898	ppmv	0.05	NA-025	03-Oct-25
25100012-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100012-003	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100012-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100012-003	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100012-003	1-Butene/Isobutylene		0.69	ppbv	0.06	AC-058	04-Oct-25
25100012-003	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	04-Oct-25
25100012-003	1-Pentene	I	0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1359	Ambient Air	28-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-003	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	04-Oct-25
25100012-003	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Acetone		8.7	ppbv	0.4	AC-058	04-Oct-25
25100012-003	Acrolein		2.6	ppbv	0.3	AC-058	04-Oct-25
25100012-003	Benzene		0.46	ppbv	0.03	AC-058	04-Oct-25
25100012-003	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Carbon disulfide		0.37	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Chloromethane		0.22	ppbv	0.04	AC-058	04-Oct-25
25100012-003	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1359	Ambient Air	28-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-003	cis-2-Butene	I	0.08	ppbv	0.03	AC-058	04-Oct-25
25100012-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-003	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100012-003	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	Freon-11	I	0.06	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Freon-113	I	0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	Freon-12		0.13	ppbv	0.03	AC-058	04-Oct-25
25100012-003	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	Isobutane		0.18	ppbv	0.03	AC-058	04-Oct-25
25100012-003	Isopentane		0.50	ppbv	0.04	AC-058	04-Oct-25
25100012-003	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-003	m,p-Xylene	I	0.06	ppbv	0.04	AC-058	04-Oct-25
25100012-003	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100012-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	04-Oct-25

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1359	Ambient Air	28-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100012-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	n-Butane		0.27	ppbv	0.02	AC-058	04-Oct-25
25100012-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100012-003	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-003	n-Hexane	I	0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	n-Octane	I	0.07	ppbv	0.02	AC-058	04-Oct-25
25100012-003	n-Pentane		0.21	ppbv	0.04	AC-058	04-Oct-25
25100012-003	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100012-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100012-003	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-003	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-003	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	Toluene		1.64	ppbv	0.03	AC-058	04-Oct-25
25100012-003	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100012-003	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1359	Ambient Air	28-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-003	trans-2-Butene		0.10	ppbv	0.03	AC-058	04-Oct-25
25100012-003	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

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Revision History

Order ID	Ver	Date	Reason
25100012	01	17-Oct-25	Report created

Methods

Method	Description
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-025	Determination of Light Hydrocarbons (C1C4) in Ambient Air by Gas Chromatography Flame Ionization Detector
NA-026	Inert - GC/TCD Gas Analysis - Nitrogen, Oxygen, CO2, CO and Methane

List of Analytical Method IDs within InnoTech's ISO/IEC 17025:2017 CALA Scope of Accreditation

Method ID	Description
AC-020	Chlorophyll-a Phytoplankton (Fluorometric Analysis)
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-035	Analysis of Glyphosate, Aminomethylphosphonic Acid and Glufosinate in Water
AC-038	Trace Metal Analysis of Water Samples by ICP-MS
AC-048	Specific Conductance (Conductivity Meter Method)
AC-049	pH (Meter Method)
AC-054	Alkalinity Total and Phenolphthalein
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-060	Trace Metal Analysis of Soil Sediment and Industrial Waste Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-061	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-065	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-074	Pesticides in Water
AC-080	Alkylated PAH in Water (SPE Extraction)
NA-006	Determination of BTEX, F1 Hydrocarbons and F2, F3 and F4 Hydrocarbons in Water
NA-024	Analysis of Reduced Sulfur Compounds in Air

Qualifiers

Data Qualifier	Translation
B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

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Order Comments

25100012

Project # 25C338707

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(780) 632-8211

Sample Comments

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Result Comments

Note:

1. Results relate only to items tested and apply to the sample as received.

2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.

AGAT Laboratories

2420, 42 Avenue NE
Calgary, AB
T2E 7T6
webair.agatlabs.com
P: 403.736.5300

Chain of Custody Record

Laboratory Use Only

AGAT Job Number: 25C338707

Notes:

Report Information

Company: AGAT Labs
Contact: Shaun Hayward
Address: 3700 21st NE Calgary T2E 6V6
Phone: 403-369-4749 Fax:
LSD:
Client Project #:

Invoice To Same Yes ☑ / No ☐

Company: LNG-CANADA
Contact:
Address:
Phone: Fax:
PO/AFE#:

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	DATE/TIME INSTALLED	DATE/TIME EXTRACTED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	# OF CONTAINERS	H2S Passive	SO2 Passive	NO2 Passive	O3 Passive	Sulphation	Dustfall	PM-2.5			DUPLICATE	BLANK
	LNG-CANADA			LNG-Canada,Kitimat,BC												
	PM 2.5 @-Turbine-1E-4011B Stack															
	Imp.Catch-T1		27-Sept-2025									☑				
	Imp. Catch-T2		27-Sept-2025									☑				
	Imp.Catch-T3		27-Sept-2025									☑				
	Probe Wash -T1		27-Sept-2025									☑				
	Probe Wash -T2		27-Sept-2025									☑				
	Probe Wash-T3		27-Sept-2025									☑				
	Nozzle Wash-T1		27-Sept-2025									☑				
	Nozzle Wash-T2		27-Sept-2025									☑				
	Nozzle Wash-T3		27-Sept-2025									☑				
	Filter-T1		27-Sept-2025									☑				
	Filter-T2		27-Scpt-2025									☑				
	Filter-T3		27-Scpt-2025									☑				
	PM 2.5 @-Turbine-1E-4011A Stack															
	Imp.Catch-T1		28-Sept-2025									☑				
	Imp.Catch-T2		28-Scpt-2025									☑				
	Imp.Catch-T3		28-Sept-2025									☑				

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Marlon Soriano	30-09-2025	Austin Bowles-Post	Sept 30, 2025
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°:

AGAT Laboratories

2420, 42 Avenue NE
Calgary, AB
T2E 7T6
webair.agatlabs.com
P: 403.736.5300

Chain of Custody Record

Laboratory Use Only

AGAT Job Number: 25C338707

Notes:

Report Information

Company: AGAT Labs
Contact: Shaun Hayward
Address: 3700 21st NE Calgary T2E 6V6
Phone: 403-369-4749 Fax:
LSD:
Client Project #:

Invoice To Same Yes ☑ / No ☐

Company: LNG-CANADA
Contact:
Address:
Phone: Fax:
PO/AFE#:

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	DATE/TIME INSTALLED	DATE/TIME EXTRACTED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	# OF CONTAINERS	H2S Passive	SO2 Passive	NO2 Passive	O3 Passive	Sulphation	Dustfall	PM-2.5			DUPLICATE	BLANK
	LNG-CANADA			LNG-Canada,Kitimat,BC												
	PM 2.5 @-Turbine-1E-401A Stack															
	Probe Wash -T1		28-Sept-2025									☑				
	Probe Wash -T2		28-Sept-2025									☑				
	Probe Wash-T3		28-Sept-2025									☑				
	Nozzle Wash-T1		28-Sept-2025									☑				
	Nozzle Wash-T2		28-Sept-2025									☑				
	Nozzle Wash-T3		28-Sept-2025									☑				
	Filter-T1		28-Sept-2025									☑				
	Filter-T2		28-Sept-2025									☑				
	Filter-T3		28-Sept-2025									☑				
	DI-H20 Blank															☑
	Acetone Blank															☑

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Marlon Soriano	30-09-2025	Austin Bowles Post	Sept 30, 2025
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°:

InnoTech ALBERTA
A SUBSIDIARY OF ALBERTA INNOVATES

Sample ID: 25100012-001 **Priority:** Normal

Customer ID: AGAT
Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 1 - Te

Environmental Analytical Services
Highway 16A & 75 Street
Vegreville, AB T9C 1T4

Phone: 780-632-8403
Email: EAS.Reception@innotechalberta.ca
www.innotechalberta.ca

Client Reporting Information

Company: AGAT LABS
Address: 3700 21 St. NE
Calgary AB, T2E, 6V6
Contact: Sherzm Haywood
Phone: 403-369-4749
Email: haywood@agatlabs.com

Client Billing Information

Contact: Sherzm Haywood
Phone: 403-369-4749
Email: haywood@agatlabs.com
Project ID: 25C338707
PO #:

Turnaround Time (TAT)

- (✓) Normal (10 business days)
- ( ) Rush (5 business days) (50% surcharge)
- ( ) Emergency (3 business day) (100% surcharge)

NOTE: Rush and Emergency TAT is not available for all tests.
Confirm all rush and Emergency requests with the Laboratory before submitting samples.

SAMPLE TYPE SOURCE* / AMBIENT (indicate as applicable)

Date Received - Lab Use Only
RECEIVED
OCT 0 2 2025

Special Instructions/Comments

* For source samples, please Indicate possible high-level parameters which may be present.

Lab Sample Number	Client Sample ID	Sample Source/ Description	Canister Number/ Sampler ID	Date Sampled (mm/dd/yy) From / To	Time Sampled (24 hour) From / To	Analysis Requested
1	LNG- Canada/Kitimat-BC Canister #1, Test-1	Turbine - 1E -4101A	2652	09/28/2025	10:00 10:30	VOC, HC-T, O_2, CO_2
2	LNG- Canada/Kitimat-BC Canister #2, Test-2	Turbine - 1E -4101- A	2502	09/28/2025	11:30 12:00	VOC, HC-T, O_2, CO_2
3	LNG-Canada/Kitimat-BC Canister #3, Test-3	Turbine - 1E -4101 - A	1359	09/28/2025	13:00 13:30	VOC, HC-T, O_2, CO_2

Client Authorization: _____ (Signature)

Laboratory Personnel: _____ (Signature)

This "Chain of Custody" form is subject to InnoTech Alberta standard terms and conditions.

InnoTech ALBERTA

Canister ID: 2652

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: 1503 on: AUG 2 1 2025

Evac Sample ID: 25100012-001 Priority: Normal

Start Customer ID: AGAT

Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 1 - Te

-a.1 "Hg | 3.8 "Hg/psig

Sample ID: Canister-1 Test-1

Sampled By: VK-MS

Stack:- Turbine-1E-4101-A
Date:- 28 Sept. 2025
Affix label here
Start: 10:00
End: 10:30

Parameters:
VOC, HC-T, O_2, CO_2

InnoTech

Canister ID: 2502

This cleaned canister meets or exceeds TO-15 Method

Proof Sample ID: 25100012-002 Priority: Normal

Evacu

Customer ID: AGAT

Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 2 - Te

Starting Vacuum: -27.7 "Hg

End Vacuum: -5.0 "Hg/ psig

Sample ID: Canister-2 Test-2

Sampled By: VK-MS

Stack: Turbine-1E-4101-A
Date: 28 Sep. 2025
Affix label here
Start 11:30
End 12:00

Parameters
VOC, HC-T, O_2, CO_2

InnoTech ALBERTA

Canister ID: 1359

This cleaned canister meets or exceeds TO-15 Method Specifications

Proc 1503 on: AUG 13 2025

Eva Sample ID: 25100012-003 Priority: Normal

Sta Customer ID: AGAT

Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 3 - Te

-a.1 "Hg | "Hg/ psig

Sample ID: Canister-3 Test-3

Sampled By: VK-MS

Stack: Turbine-1E-4101-A
Date:- 28 Sep. 2025
Affix label here
Start: 1300
End: 1330

Parameters:-
VOC, HC-T, O_2, CO_2

{00004818;6}

TERMS AND CONDITIONS

The attached document entitled "**Chain of Custody Form**" is subject to the following Terms and Conditions, unless otherwise specified on the Quotation. InnoTech Alberta's commencement of the Services shall be deemed acceptance of the terms and conditions by the Client.

1. Any proposal contained herein is prepared for the consideration of the Client only. Its contents may not be used or disclosed to any other party without prior written consent of the INNOTECH ALBERTA INC. (hereinafter referred to as "InnoTech Alberta").

2. InnoTech Alberta will perform the Services in accordance with normal professional standards.

3. The delivery time for performance of the Services (as set out on the front page of this Quotation) is approximate and may be changed by InnoTech Alberta giving written notice to the Client.

4. InnoTech Alberta will exercise due care and proficiency in testing items submitted by a Client. InnoTech Alberta shall not, however, be liable to the Client for any damage or loss caused to the item being tested or for any damage, loss or expense caused by any delay in carrying out the test, including any damage, loss or expense resulting from InnoTech Alberta's negligence. InnoTech Alberta shall not be responsible for any damage, which is a natural or necessary result of any testing procedure.

5. For the purposes of this Quotation, Intellectual Property means all information, data, artistic and literary works, concepts, designs, processes, software, algorithms and inventions, including, without limitation, those that could be the subject of patent, copyright, industrial design, trade secret or other forms of protection. Intellectual Property which was owned by either InnoTech Alberta or the Client prior to the signing of this Agreement remains the property of that party. Nothing in this Agreement shall operate as a license, permission or grant of any other rights to either InnoTech Alberta's or the Client's Intellectual Property.

6. All data, reports and other information relating to the Services shall be treated by InnoTech Alberta as the confidential property of the Client, and InnoTech Alberta will use reasonable efforts to ensure that its employees, contractors and agents will not disclose the same to any other person, firm or corporation during the term of this Agreement and for a period of five (5) years after the date of termination of the Agreement. The obligation of confidentiality set out herein shall not apply to any information that was in InnoTech Alberta's possession prior to receipt from the Client or which is or becomes part of the public domain through no act or failure on the part of InnoTech Alberta. The obligation of confidentiality set out in this Section shall not prevent the disclosure of information to any level of government having jurisdiction to make lawful demand therefor, or required to be disclosed by any applicable law. Any records required to be maintained by InnoTech Alberta pursuant to this Agreement are subject to the protection and access provisions of the Freedom of Information and Protection of Privacy Act (Alberta).

7. The reported results of any InnoTech Alberta tests or evaluations performed on samples or items provided by the Client shall be interpreted as being specific to the sample or item tested. InnoTech Alberta makes no representation that any similar or related untested samples or items would produce the same results.

8. The Client shall not use InnoTech Alberta's name in any advertising material, sale offer, news releases, public statements or announcements, whether written or oral relating to the Services or the results thereof, without the prior written consent of InnoTech Alberta.

9. Records, test data, reports and samples, except where shipped to the Client after completion of the work shall be retained by InnoTech Alberta according to InnoTech Alberta's approved Records Retention and Disposition Schedule.

10. Prices quoted are in Canadian Dollars unless otherwise stated in writing and are exclusive of any provincial, municipal, sales, use or goods and services tax.

11. Prices quoted do not include shipping, insurance or cost of consumables. The Client shall be responsible for all costs incurred by InnoTech Alberta in collecting any item for testing and returning the item to the Client after testing and shall be responsible for all necessary incidental costs incurred by InnoTech Alberta in providing the Services. InnoTech Alberta will not be responsible for any damage or loss to items during shipping and it is the responsibility of the Client to arrange and pay for any insurance it deems necessary.

12. Any test samples or other materials supplied by the Client to InnoTech Alberta may, at InnoTech Alberta's option, be returned by InnoTech Alberta to the Client. The Client shall:

(a) be responsible for all costs associated with the handling, transportation and disposal of such materials;

(b) reimburse InnoTech Alberta for any costs incurred by InnoTech Alberta associated with the handling, transportation and disposal of such materials; and

(c) indemnify and hold InnoTech Alberta harmless from any and all claims, damages or actions associated with the handling, transportation and disposal of such materials.

13. The Client shall pay all invoices rendered by InnoTech Alberta to the Client within thirty (30) days from the date of invoice, without deduction or set-off.

14. If the Client fails to pay any amount under this Agreement, such unpaid amount shall bear interest at a rate per month equal to one (1%) percent (or 12.6825% per annum) with interest on overdue interest at the same rate.

15. InnoTech Alberta makes no representation, warranties or conditions, either expressed or implied, statutory or otherwise and does not warrant the quality, state, merchantability or fitness for any purpose of any goods or products to be delivered pursuant to this Agreement. The Client accepts the results of these Services or items tested as is, and acknowledges that any use or interpretation of the information contained is at the Client's own risk.

16. In no event shall InnoTech Alberta be liable for any indirect or consequential damage or loss suffered by the Client, including loss of anticipated profits.

17. The Client shall indemnify and hold harmless InnoTech Alberta from any and all claims, demands, actions and costs (including legal costs on a solicitor-client basis) that may arise out of:

(a) any dangerous defect or content in the item being tested, whether apparent or not, which dangerous defect or content was not disclosed in writing to InnoTech Alberta by the Client at the time the item was submitted for testing;

(b) differences between those items actually tested and items previously or subsequently produced which are purported to be identical to the item tested; or

(c) any use of the tested item or any item incorporating the tested item, whether by the Client or a third party following its return to the Client.

The hold harmless shall survive this Agreement.

18. The Client shall, at its own expense and without limiting its liabilities herein, be responsible for insuring its operation in an amount not less than $2,000,000 inclusive per occurrence, insuring against bodily injury, and property damage including loss of use thereof. Further, the Client is responsible for insuring all owned property directly or indirectly related to this Agreement and InnoTech Alberta shall have no liability for any loss or damage to such property.

19. InnoTech Alberta shall maintain the following insurance: (i) commercial general liability insurance (including cross liability, severability of interests, non-owned automobile liability) in the amount of two million dollars ($2,000,000.00) per occurrence, and; (ii) professional liability and errors and omissions insurance in the amount of one million dollars ($1,000,000.00) per claim, and two million dollars ($2,000,000.00) in the aggregate. In addition, InnoTech Alberta shall maintain all workers' compensation coverage required by applicable laws. Notwithstanding the foregoing, InnoTech Alberta reserves the right to supplement or add insurance coverage from time to time as may be required in its sole discretion. InnoTech Alberta may provide certificates of insurance for coverages outlined in (i) and (ii) above.

20. The Client agrees to comply with all InnoTech Alberta Safety & Security regulations in effect while on InnoTech Alberta premises.

21. This Agreement represents the entire agreement between the parties and shall supersede all prior agreements relative to this transaction.

22. If a party's performance of any of its obligations under this Agreement (excepting only an obligation to pay) is delayed, rendered impossible or impractical, or prevented in whole or in part due to circumstances beyond its reasonable control, including but not limited to acts of God, war, terrorism, labour disputes, pandemics or epidemics, global health emergencies, or governmental action, that party will not be in breach of this Agreement due to the delay or failure in performance occasioned by such event..

23. InnoTech Alberta may assign this Quotation to an "affiliated" (as that term is defined at Section 2 of the Business Corporations Act (Alberta)) or successor entity on written notice to the Client.

24. This Quotation and rights and parties thereto shall be governed by and construed according to the laws of the Province of Alberta. The parties hereby submit to the jurisdiction of the Courts of Alberta.

CERTIFICATE OF ACCREDITATION

Standards Council of Canada
Conseil canadien des normes

CERTIFICAT D'ACCRÉDITATION

AGAT LABORATORIES LTD. OIL AND GAS CHEMISTRY DIVISION WESTERN CANADA

3650 – 21st Street, N.E., Calgary, AB T2E 6V6

having been assessed by the Standards Council of Canada (SCC) and found to conform with the requirements of ISO/IEC 17025:2005 and the conditions for accreditation established by SCC is hereby recognized as an

ayant fait l'objet d'une évaluation du Conseil canadien des normes (CCN), et ayant été trouvé conforme aux exigences énoncées dans ISO/IEC 17025:2005 et aux conditions d'accréditation établies par le CCN, est de ce fait reconnu comme étant un

ACCREDITED TESTING LABORATORY

LABORATOIRE D'ESSAIS ACCRÉDITÉ

for the specific tests or types of tests listed in the scope of accreditation approved by SCC and found on the SCC website at www.scc.ca.

pour les essais ou types d'essais énumérés dans la portée d'accréditation approuvée par le CCN et figurant dans le site Web du CCN au www.ccn.ca.

Accredited laboratory number: / Numéro de laboratoire accrédité : 672

SCC file number: / Dossier du CCN n° : 15827

Initial accreditation date: / Date de la première accréditation : 2010-04-27

.....

Vice-President – Accreditation Services / Vice-présidente – Services d'accréditation

Issued on: / Délivré le : 2017-07-04

The validity of this certificate, including the date of last re-accreditation and its expiry can be confirmed by the accompanying Scope of Accreditation document in the Directory of Accredited Laboratories on the SCC website at www.scc.ca.

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. The accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF communiqué dated April 2017).

Pour vérifier la validité du présent certificat, y compris la date de la dernière réaccréditation et la date d'expiration du certificat, consulter la portée d'accréditation qui se trouve dans le répertoire des laboratoires accrédités dans le site Web du CCN au www.ccn.ca.

Ce laboratoire est accrédité conformément à la Norme internationale reconnue ISO/IEC 17025:2005. Cette accréditation démontre la compétence technique d'un organisme pour une portée définie et l'exploitation d'un système de management de la qualité de laboratoire (cf. communiqué conjoint ISO-ILAC-IAF date de avril 2017).

This certificate is the property of the Standards Council of Canada (SCC) and must be returned on request; reproduction is prohibited except on written approval of SCC.
Ce certificat est la propriété du Conseil canadien des normes (CCN) et doit lui être remis sur demande; toute reproduction est interdite sans l'autorisation écrite du CCN.

Canada

ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND SAFETY

Environmental:

Air

AQM-43-16000	Determination of Anions by Ion Chromatography (Modified APHA Method 4110B; EPA 6, EPA 8, ASSC Method 8, EPA 26, MMCAAP Method 47071, NIOSH 7906, NIOSH 7907, NIOSH 7908, NIOSH 6004, OSHA ID-200, OSHA ID-182, OSHA ID-214) Fluoride (F^-) Chloride (Cl^-) Bromide (Br^-) Phosphate (PO_4^{3-}) Nitrite (NO_2^-) Nitrate (NO_3^-) Sulphate (SO_4^{2-}) Sulfite (SO_3^{2-}) Sulfur Dioxide (SO_2) Sulfuric Acid mist (H_2SO_4)
AQM-43-16002	Gravimetric Determination of Particulate Matter from Stationary and Other Sources (Modified Alberta Stacks Sampling Code Method 5,AENV, US EPA Method 5, US EPA Method 201A and US EPA 17)
AQM-43-16004	Determination of Nitrogen Dioxide (NO_2) in the Air by Ion Chromatography (in-house)
AQM-43-16005	Determination of Nitrogen Oxide (NOx), from Stationary Sources (Alberta Stack Sampling Code, Method 7A, and Method 7D AENV; US EPA Method 7A; US EPA Method 7D)
AQM-43-16006	Determination of Hydrogen Sulfide (H_2S) in Air by Spectrofluorophotometery (in-house)
AQM-43-16007	Determination of Sulfur Dioxide (SO_2) in Air by Ion Chromatography (in-house)
AQM-43-16008	Determination of Ozone (O_3) in Air by Ion Chromatography (in-house)
AQM-43-16009	Determination of Dustfall (Total, Fixed, Soluble, Insoluble and Total Suspended Solids) by Gravimetric Analysis (Modified ASTM D1739, “Methods Manual for Chemical Analysis of Atmospheric Pollutants”, Method No. 32020, EPHA 2540B, 2540E, 2540D)
AQM-43-16010	Determination of Total Particulate and Dew Point in Air and Other Sources (Modified ASTM D1142, NIOSH 0500, Colorimetry)
AQM-43-16011	Determination of Ammonia (as N) and Hydrogen Sulfide in Aqueous Samples by Colorimetry (Modified Methods Manual for Chemical Analysis of Atmospheric Pollutants Method #41515, Method #43535)
AQM-43-16012	Determination of Ammonia (NH_3) in Air by Spectrofluorophotometry (in-house)

IHF-60-25002	Determination of Fixed Gases and Volatile Hydrocarbons in Air by Gas Chromatography (Modified ASTM D1946, EPA TO-14A,TO-15, NIOSH 6602, EPA 10B, ASSC Method 18, EPA 18, ASSC Method 3C, EPA 3C) Oxygen — Nitrogen Methane — Ethane Carbon Monoxide — Carbon Dioxide Non Methane Volatile Hydrocarbons — Volatile Halogenated Hydrocarbons Nitrous Oxide — Sulfur Hexafluoride C3-C12 — Dimethyl Ether 1,1,1-Trichloroethane — 1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane — 1,1-Dichloroethane 1,1-Dichloroethene — 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene — 1,2-Dibromoethane (EDB) 1,2-Dichlorobenzene — 1,2-Dichloroethane 1,2-Dichloropropane — 1,3,5-Trimethylbenzene 1,3-Dichlorobenzene — 1,4-Dichlorobenzene Benzene — Bromomethane Carbon tetrachloride — Chlorobenzene Chloroethane — Chloroform Chloromethane — cis-1,2-Dichloroethene cis-1,3-Dichloropropene — Dichlorodifluoromethane Dichlorotetrafluoroethane (R114) — Ethylbenzene Hexachlorobutadiene — Methylene chloride m-Xylene — o-Xylene p-Xylene — Styrene Tetrachloroethene — Toluene trans-1,3-Dichloropropene — Trichloroethene Trichlorofluoromethane — Trichlorotrifluoroethane (R113) Vinyl chloride

Canadian Association for Laboratory Accreditation Inc.

Certificate of Accreditation

InnoTech Alberta Inc - Environmental Analytical Services (Vegreville)
InnoTech Alberta Inc.
Highway 16A and 75th Street
Vegreville, Alberta

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

Accreditation No.: 1002789
Issued On: 4/11/2025
Accreditation Date: 1/3/2005
Expiry Date: 10/11/2027

President and CEO

This certificate is the property of the Canadian Association for Laboratory Accreditation Inc. and must be returned on request; reproduction must follow policy in place at date of issue.
For the specific tests to which this accreditation applies, please refer to the laboratory's scope of accreditation at www.cala.ca.

Appendix IV – Field Data Sheets

CYCLONE RUN 1 DATA

Plant Name	LNG-CANADA	**Date**	9/28/2025
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)	**Cyclone**	PM2.5 Cyclone
Operator	MS-VK	**Run #**	1
# of Points Across	4	**# of Ports Used**	4

Temperatures and Pressures			
Avg Stack Temp	(t_s)	329	^oF
Avg Gas Meter Temp	(t_m)	50	^oF
DH @ 0.75 SCFM	($\Delta H@$)	1.96	in H_2O
Barometric Pressure	(P_b)	29.6	in Hg
Stack Static Pressure	(P_{static})	-0.42	in H_2O
Absolute Stack Pressure	(P_s)	29.54	in Hg
Absolute Meter Pressure	(P_m)	29.71	in Hg

Gas Composition			
Carbon Dioxide Concentration	(%CO_2)	3.000	%
Oxygen Concentration	(%O_2)	16	%
Carbon Monoxide Concentration	(%CO)	0.0000	%
Nitogen Concentration	(%N_2)	81.00	%
Stack Moisture Content	(B_{ws})	8	%
Stack Dry Molecular Weight	(M_d)	29.12	lb/lb-mole
Stack Wet Molecular Weight	(M_s)	28.29	lb/lb-mole
Method 201A Pitot Coefficient	(C'_p)	0.819	
Probe Blockage Factor	(b_f)	0.00	
Viscosity of Stack Gas		237.236	micropoise

Flow Rate Calculations			
Cyclone Flow Rate		0.62	acfm
Orifice Pressure Head		0.50	in H_2O
Average Stack Velocity		46.48	ft/sec
Nozzle Diameter Desired		0.20	in
Nozzle Diameter Used		0.20	in
Nozzle Velocity		46.14	ft/sec
Minimum Velocity Head		0.19	in H_2O
Maximum Velocity Head		0.77	in H_2O

ΔQ_m Leak Checks					
Pre	0	ft^3/min	@	15	in Hg
Mid	0	ft^3/min	@	15	in Hg
Post	0	ft^3/min	@	15	in Hg
ΔQ_m <	0.020	ft^3/min	☑	**Ok?**	
Pitot OK?	☑		**Orsat OK?**		☑

Traverse Point #	Dwell Time (Θ)	Clock Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Desired Orifice ΔH (ΔH)	Actual Orifice ΔH (ΔH)	Stack Temp (t_s)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Filter Temp	Impinger Exit Temp	Pump Vacuum	Square Root ΔP ($\Delta p^{1/2}$)	Local Stack Velocity (v_s)$_l$	Cumulative Meter Volume (V_m)$_{std}$	Cumulative Percent IsoKinetic (I)	Estimated Cut Diameter PM2.5
	min	hh:mm:ss	ft^3	in H_2O	in H_2O	in H_2O	^oF	^oF	^oF	^oF	^oF	in Hg	(in H_2O)$^{1/2}$	ft/sec	scf	%	microns
A-1	3.6	10:00:00	0.000	0.45	0.496	0.493	329	49	49	250	45	-3.0	0.67	45.64	1.354	100.2	2.47
A-2	3.7	10:03:36	1.321	0.47	0.496	0.493	329	49	49	250	45	-3.0	0.69	46.64	2.788	101.0	2.47
A-3	3.7	10:07:16	2.721	0.47	0.496	0.493	329	49	49	250	45	-3.0	0.69	46.64	4.195	100.5	2.47
A-4	3.7	10:10:56	4.094	0.49	0.496	0.493	329	49	49	250	45	-3.0	0.70	47.63	5.657	100.3	2.47
B-1	3.7	10:14:41	5.521	0.47	0.496	0.493	329	49	49	250	45	-3.0	0.69	46.64	7.128	101.1	2.47
B-2	3.7	10:18:22	6.957	0.48	0.496	0.493	329	49	49	250	45	-3.0	0.69	47.14	8.555	100.7	2.47
B-3	3.8	10:22:04	8.350	0.50	0.496	0.493	329	49	49	250	45	-3.0	0.71	48.11	10.055	100.6	2.47
B-4	3.7	10:25:52	9.814	0.48	0.496	0.493	328	49	49	250	45	-3.0	0.69	47.11	11.542	100.9	2.47
C-1	3.7	10:29:34	11.265	0.49	0.496	0.493	328	49	49	250	46	-3.0	0.70	47.60	12.923	100.1	2.47
C-2	3.8	10:33:19	12.613	0.50	0.496	0.493	328	51	51	250	46	-3.0	0.71	48.08	14.331	99.5	2.48
C-3	3.7	10:37:06	13.992	0.49	0.496	0.493	328	51	51	250	46	-3.0	0.70	47.60	15.798	99.5	2.48
C-4	3.7	10:40:51	15.430	0.48	0.496	0.493	328	51	51	250	46	-3.0	0.69	47.11	17.375	100.3	2.48
D-1	3.7	10:44:34	16.974	0.49	0.496	0.493	329	51	51	250	46	-3.0	0.70	47.63	18.748	99.8	2.48
D-2	3.8	10:48:19	18.320	0.50	0.496	0.493	329	51	51	250	46	-3.0	0.71	48.11	20.284	100.0	2.48
D-3	3.7	10:52:06	19.825	0.48	0.496	0.493	329	51	51	250	46	-3.0	0.69	47.14	21.660	99.7	2.48
D-4	3.7	10:55:49	21.173	0.49	0.496	0.493	328	51	51	250	46	-3.0	0.70	47.60	23.157	99.8	2.48
Last Pt		10:59:34	22.640														
Final Values	59.6	10:59:34	22.640						**Maximum Vacuum**			-3.0	**Final Values**		23.157	99.8	
Average Values				0.48		0.49	329	50	50	250	46		0.70	47.28			
								50									

CYCLONE RUN 2 DATA

Plant Name	LNG-CANADA	**Date**	9/28/2025
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)	**Cyclone**	PM2.5 Cyclone
Operator	MS-VK	**Run #**	2
# of Points Across	4	**# of Ports Used**	4

Temperatures and Pressures			
Avg Stack Temp	(t_s)	329	^oF
Avg Gas Meter Temp	(t_m)	54	^oF
DH @ 0.75 SCFM	($\Delta H@$)	1.96	in H_2O
Barometric Pressure	(P_b)	29.6	in Hg
Stack Static Pressure	(P_{static})	-0.42	in H_2O
Absolute Stack Pressure	(P_s)	29.54	in Hg
Absolute Meter Pressure	(P_m)	29.71	in Hg

Gas Composition			
Carbon Dioxide Concentration	(%CO_2)	3.000	%
Oxygen Concentration	(%O_2)	15	%
Carbon Monoxide Concentration	(%CO)	0.0000	%
Nitogen Concentration	(%N_2)	82.00	%
Stack Moisture Content	(B_{ws})	8	%
Stack Dry Molecular Weight	(M_d)	29.08	lb/lb-mole
Stack Wet Molecular Weight	(M_s)	28.25	lb/lb-mole
Method 201A Pitot Coefficient	(C'_p)	0.819	
Probe Blockage Factor	(b_f)	0.00	
Viscosity of Stack Gas		236.608	micropoise

Flow Rate Calculations			
Cyclone Flow Rate		0.62	acfm
Orifice Pressure Head		0.50	in H_2O
Average Stack Velocity		46.48	ft/sec
Nozzle Diameter Desired		0.20	in
Nozzle Diameter Used		0.20	in
Nozzle Velocity		46.04	ft/sec
Minimum Velocity Head		0.18	in H_2O
Maximum Velocity Head		0.77	in H_2O

ΔQ_m	Leak Checks				
Pre	0	ft^3/min	@	15	in Hg
Mid	0	ft^3/min	@	15	in Hg
Post	0	ft^3/min	@	15	in Hg
ΔQ_m <	0.020	ft^3/min	☑	**Ok?**	
Pitot OK?	☑		**Orsat OK?**		☑

Traverse Point #	Dwell Time (Θ)	Clock Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Desired Orifice ΔH (ΔH)	Actual Orifice ΔH (ΔH)	Stack Temp (t_s)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Filter Temp	Impinger Exit Temp	Pump Vacuum	Square Root ΔP ($\Delta p^{1/2}$)	Local Stack Velocity (v_s)$_l$	Cumulative Meter Volume (V_m)$_{std}$	Cumulative Percent IsoKinetic (I)	Estimated Cut Diameter PM2.5
	min	hh:mm:ss	ft^3	in H_2O	in H_2O	in H_2O	^oF	^oF	^oF	^oF	^oF	in Hg	(in H_2O)$^{1/2}$	ft/sec	scf	%	microns
A-1	3.6	11:30:00	0.000	0.43	0.497	0.493	328	53	53	250	46	-3.0	0.66	44.62	1.337	101.1	2.48
A-2	3.6	11:33:36	1.315	0.44	0.497	0.493	328	53	53	250	46	-3.0	0.66	44.88	2.688	101.1	2.48
A-3	3.6	11:37:12	2.644	0.43	0.497	0.493	328	53	53	250	46	-3.0	0.66	44.62	4.026	101.1	2.48
A-4	3.6	11:40:48	3.960	0.44	0.497	0.493	328	53	53	250	46	-3.0	0.66	45.13	5.403	101.3	2.48
B-1	3.8	11:44:26	5.315	0.47	0.497	0.493	328	53	53	250	46	-3.0	0.69	46.65	6.812	100.5	2.48
B-2	3.8	11:48:12	6.701	0.48	0.497	0.493	329	53	53	250	46	-3.0	0.69	47.17	8.336	101.0	2.47
B-3	3.7	11:51:59	8.200	0.46	0.497	0.493	329	53	53	250	46	-3.0	0.68	46.18	9.739	100.8	2.47
B-4	3.8	11:55:42	9.580	0.49	0.497	0.493	328	53	53	250	46	-3.0	0.70	47.63	11.264	100.9	2.48
C-1	3.9	11:59:33	11.080	0.50	0.497	0.493	328	54	54	250	47	-3.0	0.71	48.11	12.766	100.5	2.48
C-2	3.9	12:03:25	12.560	0.50	0.497	0.493	328	54	54	250	47	-3.0	0.71	48.11	14.334	100.7	2.48
C-3	3.9	12:07:18	14.105	0.50	0.497	0.493	329	55	55	250	47	-3.0	0.71	48.14	15.844	100.4	2.48
C-4	3.8	12:11:10	15.596	0.49	0.497	0.493	329	55	55	250	47	-3.0	0.70	47.66	17.418	100.8	2.48
D-1	3.9	12:15:00	17.150	0.51	0.497	0.493	330	55	55	250	47	-3.0	0.71	48.65	18.963	100.6	2.48
D-2	4.0	12:18:55	18.675	0.53	0.497	0.493	330	56	56	250	47	-3.0	0.73	49.60	20.392	99.6	2.48
D-3	4.1	12:22:54	20.089	0.56	0.497	0.493	331	56	56	250	47	-3.0	0.75	51.01	22.107	99.7	2.48
D-4	4.2	12:27:00	21.785	0.58	0.497	0.493	331	56	56	250	47	-3.0	0.76	51.92	23.906	99.9	2.48
Last Pt		12:31:11	23.564														
Final Values	61.2	12:31:11	23.564						**Maximum Vacuum**			-3.0	**Final Values**		23.906	99.9	
Average Values				0.49		0.49	329	54	54	250	47		0.70	47.50			
								54									

CYCLONE RUN 3 DATA

Plant Name	LNG-CANADA	**Date**	9/28/2025
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)	**Cyclone**	PM2.5 Cyclone
Operator	MS-VK	**Run #**	3
# of Points Across	4	**# of Ports Used**	4

Temperatures and Pressures				
Avg Stack Temp	(t_s)	341	°F	1.10
Avg Gas Meter Temp	(t_m)	58	°F	9.86
DH @ 0.75 SCFM	($\Delta H@$)	1.96	in H_2O	10.43
Barometric Pressure	(P_b)	29.6	in Hg	0.63
Stack Static Pressure	(P_{static})	-0.42	in H_2O	2375.95
Absolute Stack Pressure	(P_s)	29.54	in Hg	2.42
Absolute Meter Pressure	(P_m)	29.71	in Hg	1.10
				9.87
				10.43

Flow Rate Calculations				
Cyclone Flow Rate		0.63	acfm	0.63
Orifice Pressure Head		0.50	in H_2O	2374.57
Average Stack Velocity		46.48	ft/sec	2.42
Nozzle Diameter Desired		0.20	in	
Nozzle Diameter Used		0.20	in	
Nozzle Velocity		46.93	ft/sec	
Minimum Velocity Head		0.19	in H_2O	
Maximum Velocity Head		0.79	in H_2O	

Gas Composition			
Carbon Dioxide Concentration	($\%CO_2$)	3.000	%
Oxygen Concentration	($\%O_2$)	15	%
Carbon Monoxide Concentration	(%CO)	0.0000	%
Nitogen Concentration	($\%N_2$)	82.00	%
Stack Moisture Content	(B_{ws})	8	%
Stack Dry Molecular Weight	(M_d)	29.08	lb/lb-mole
Stack Wet Molecular Weight	(M_s)	28.22	lb/lb-mole
Method 201A Pitot Coefficient	(C'_p)	0.819	
Probe Blockage Factor	(b_f)	0.00	
Viscosity of Stack Gas		239.577	micropoise

ΔQ_m	Leak Checks				
Pre	0	ft^3/min	@	15	in Hg
Mid	0	ft^3/min	@	15	in Hg
Post	0	ft^3/min	@	15	in Hg
ΔQ_m <	0.020	ft^3/min	☑	**Ok?**	
Pitot OK?	☑		**Orsat OK?**		☑

Traverse Point #	Dwell Time (Θ)	Clock Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Desired Orifice ΔH (ΔH)	Adjusted Velocity Head ($\Delta p)_s$	Actual Orifice ΔH (ΔH)	Stack Temp (t_s)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Filter Temp	Impinger Exit Temp	Pump Vacuum	Square Root ΔP ($\Delta p^{1/2}$)	Local Stack Velocity $(v_s)_l$	Cumulative Meter Volume $(V_m)_{std}$	Cumulative Percent IsoKinetic (I)
	min	hh:mm:ss	ft^3	in H_2O	in H_2O		in H_2O	°F	°F	°F	°F	°F	in Hg	(in $H_2O)^{1/2}$	ft/sec	scf	%
A-1	3.6	13:00:00	0.000	0.45	0.502	0.450	0.505	338	57	57	250	46	-3.0	0.67	45.96	1.729	129.0
A-2	3.6	13:03:36	1.714	0.46	0.502	0.460	0.505	339	57	57	250	46	-3.0	0.68	46.50	3.491	128.8
A-3	3.6	13:07:14	3.461	0.46	0.502	0.460	0.505	340	57	57	250	46	-3.0	0.68	46.52	5.261	129.0
A-4	3.6	13:10:52	5.215	0.44	0.502	0.440	0.502	339	57	57	250	46	-3.0	0.66	45.47	6.957	129.1
B-1	3.6	13:14:25	6.896	0.45	0.502	0.450	0.502	339	57	57	250	46	-3.0	0.67	45.99	8.461	125.8
B-2	3.6	13:18:00	8.387	0.46	0.502	0.460	0.505	339	57	57	250	46	-3.0	0.68	46.50	9.936	122.7
B-3	3.8	13:21:38	9.850	0.50	0.502	0.500	0.500	339	57	57	250	46	-3.0	0.71	48.47	11.756	122.7
B-4	3.8	13:25:26	11.654	0.51	0.502	0.510	0.505	340	57	57	250	46	-3.0	0.71	48.99	13.679	123.3
C-1	3.9	13:29:15	13.560	0.54	0.502	0.540	0.502	340	58	58	250	47	-3.0	0.73	50.41	15.545	122.4
C-2	4.0	13:33:11	15.413	0.57	0.502	0.570	0.502	341	58	58	250	47	-3.0	0.75	51.82	17.501	121.7
C-3	4.2	13:37:14	17.355	0.61	0.502	0.610	0.505	341	59	59	250	47	-3.0	0.78	53.61	19.545	120.8
C-4	4.3	13:41:25	19.389	0.63	0.502	0.630	0.510	343	59	59	250	47	-3.0	0.79	54.55	21.805	121.0
D-1	4.0	13:45:40	21.636	0.57	0.502	0.570	0.505	344	60	60	250	47	-3.0	0.75	51.92	23.846	121.0
D-2	4.1	13:49:43	23.670	0.60	0.502	0.600	0.510	346	60	60	250	47	-3.0	0.77	53.33	26.099	121.5
D-3	4.1	13:53:52	25.915	0.60	0.502	0.600	0.505	347	61	61	250	47	-3.0	0.77	53.37	28.342	121.9
D-4	4.3	13:58:01	28.153	0.65	0.502	0.650	0.500	347	61	61	250	47	-3.0	0.81	55.55	30.761	122.3
Last Pt		14:02:20	30.567														
Final Values	62.3	14:02:20	30.567							**Maximum Vacuum**			-3.0	**Final Values**		30.761	122.3
Average Values				0.53			0.50	341	58	58	250	47		0.73	49.93		
									58								

AGAT CYCLONIC FLOW CHECK DATA SHEET

Client: LNG - ~~CANADA~~	Contact: ~~TAUSEEF~~ Siddiqui
Plant Name: LNG- ~~CANADA~~	Location: KITIMAT - BC
Stack ID (in.): 156.300	Length of Annulus (in.): 9
Date (Y/M/D): 2025- SEPT- 05	Comments:
Sampled by: MS-VK	
Team Leader: MS	

TURBINE-IE-4101A

E-W Traverse Data Test 1 W-E S-N

Point #	Time (24 Hrs)	Port #1 null angle	Port #2 null angle	Port #3 null angle	Port #4 null angle
4	1020	4° CCW	3° CCW	0°	0°
3		0°	3° CCW	0°	8° CCW
2		0°	1° CCW	3° CCW	9° CW
1	1035	5° CW	1° CCW	0°	0

N-S

E-W Traverse Data Test 2 W-E S-N

Point #	Time (24 Hrs)	Port 1 null angle	Port 2 null angle	Port 3 null angle	Port 4 null angle
4	1140	3° CCW	2° CCW	0°	0°
3		0°	3° CCW	0°	7° CW
2		0°	1° CCW	2° CCW	8° CW
1	1155	4° CW	1° CCW	0°	0°

Note: 1 hour must pass between test 1 and 2

Note: The average of the absolute values of the null angles cannot be greater than 20°

Note: The difference between the angles in test 1 and 2 cannot be greater than 5°

Appendix V – Calibration Data

AGAT Laboratories

Barometer Calibration 2025

Calibration Date	Cal Times	Standard		Monometer
Month/Day/Year	hh:mm	hPa	in. Hg	in. Hg
CGY 1		hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.56
4-Feb-25	8:50	886	26.55	26.55
5-Feb-25	8:05	882	26.16	26.17
CGY 3	hh:mm	hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.57
4-Feb-25	8:50	886	26.55	26.57
5-Feb-25	8:05	882	26.16	26.19
EDM 1	hh:mm	hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.57
4-Feb-25	8:50	886	26.55	26.57
5-Feb-25	8:05	882	26.16	26.19
EDM 2		hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.57
4-Feb-25	8:50	886	26.55	26.56
5-Feb-25	8:05	882	26.16	26.18
EDM 3	hh:mm	hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.58
4-Feb-25	8:50	886	26.55	26.58
5-Feb-25	8:05	882	26.16	26.19

Notes:	Barometers were calibrated to Fisherbrand Tracible Barometer - Serial Number: 240466177 Barometers must be capable of measuring atmospheric pressure to within 2.5mm (0.1 in.) Hg
Calibrated By:	Raymond Dreaver
Date:	Feb 03-05, 2025

AGAT Laboratories

CTM 040 PM2.5 Nozzle Calibration Form 2025

Calibrated: ***20-Jan-25***

Calibrated by: ***Alexander Sanguino***

PM 2.5 Nozzles

Nozzle	Diameter Measurements (inches)				Nozzle	(inches)	Error
ID#	1st	2nd	3rd	Average	Diameter		±0.004 difference (Max-Min)
2a	0.1210	0.1210	0.1210	0.1210	9/64"	0.1210	0.000
2b	0.1500	0.1500	0.1500	0.1500	9/64"	0.1500	0.000
3	0.1490	0.1500	0.1500	0.1497	5/32"	0.1497	0.001
4	0.1650	0.1650	0.1640	0.1647	5/32"	0.1647	0.001
5	0.1820	0.1830	0.1830	0.1827	11/64"	0.1827	0.001
6	0.1900	0.1900	0.1900	0.1900	3/16"	0.1900	0.000
7	0.2030	0.2030	0.2030	0.2030	13/64"	0.2030	0.000
8	0.2430	0.2430	0.2430	0.2430	15/64"	0.2430	0.000

AGAT Laboratories calibrates it's nozzles using a Mastercraft 6" Slide caliper # 58-6800-4

III - *vertical measurement*
----- - *horizontal measurement*

Authorizing Signature: Alexander Sanguino

AGAT Labs Scales Calibration - 2025

Calibrated by: JS

Calibration date: 5-Feb-25

ID - EDBL#104 +/-0. 1gram'

Actual	Scale	Difference
1000	1000	0
500	500	0
200	200	0
50	50.1	0.1
20	20	0

EDBL#110 +/-0. 1gram'

Actual	Scale	Difference
1000	1000	0
500	500	0.0
200	200	0
50	50	0
20	20	0

EDBL#108 +/-0. 1gram'

Actual	Scale	Difference
1000	1000	0
500	499.9	0.1
200	200	0
50	50	0
20	20	0

EDBL#111 +/-0. 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500.1	0.1
200	200	0
50	50	0
20	20	0

CALBL#115 +/- 1gram'

Actual	Scale	Difference
1000	1000	0.0
500	500	0
200	200	0
50	50	0
51		

EDBL#112 +/- 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500.1	0.1
200	200	0
50	50	0
51		

CALBL#117 +/- 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500.1	0.1
200	200.1	0.1
50	50	0
51		

CALBL#118 +/- 1gram'

Actual	Scale	Difference
1000	999.9	0.1
500	500.1	0.1
200	200.1	0
50	50	0
20	20	0

CALBL #107 +/- 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500	0
200	200.1	0.1
50	50	0
51		

CALBL#133

Actual	Scale	Difference
1000	1000	0.0
500	500.1	0.1
200	200	0
50	50	0
51		

CALBL# 109 +/- 1gram'

Actual	Scale	Difference
1000	999.9	0.1
500	500	0
200	200	0
50	50	0
51		

Notes: EDBL# 107, EDBL# 106, EDBL# 109, are all out of service

EPA Method 5
Meter Box Calibration
English Meter Box Units, English K' Factor

Model #: Sensus
Serial #: 1

Date: 7-Jan-25
Barometric Pressure: 26.63 (in. Hg)
Theoretical Critical Va 12.56 (in. Hg)

!!!!!!!!!
IMPORTAI For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.
IMPORTAI The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).
!!!!!!!!!

---------- DRY GAS METER READINGS ----------									-CRITICAL ORIFICE READINGS-					
		Volume	Volume	Volume	Initial Temps.		Final Temps.		Orifice	K' Orifice	Actual	-- Ambient Temperature --		
dH	Time	Initial	Final	Total	Inlet	Outlet	Inlet	Outlet	Serial#	Coefficient	Vacuum	Initial	Final	Average
(in H2O)	(min)	(cu ft)	(cu ft)	(cu ft)	(deg F)	(deg F)	(deg F)	(deg F)	(number)	(see above	(in Hg)	(deg F)	(deg F)	(deg F)
0.01	17.00	984.790	990.005	5.215	73.7	74.1	76.9	74.3	40	0.2333	22.0	74.3	75.3	74.8
0.03	12.00	990.005	995.533	5.528	75.8	73.9	81.1	74.5	48	0.3505	21.5	75.1	76.2	75.7
0.04	10.00	995.533	1001.398	5.865	78.9	74.2	87.1	75.0	55	0.4446	21.0	76.1	76.6	76.4
0.08	7.00	1.398	6.945	5.547	82.6	74.9	93.5	75.6	63	0.5991	20.5	76.5	77.0	76.8
0.16	5.00	6.945	12.295	5.350	82.5	76.1	94.5	76.7	73	0.8029	19.0	76.9	77.3	77.1

********** RESULTS **********

-- DRY GAS METER --		--------- ORIFICE ---------			-- DRY GAS METER --		--------- ORIFICE ---------			
VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	:ALIBRATION FACTOI		CALIBRATION FACTOR			
ORRECTE	ORRECTED	CORRECTE	ORRECTE	NOMINAL	Y		dH@			
Vm(std)	Vm(std)	Vcr(std)	Vcr(std)	Vcr	Value	Variation	Value	Value	Variation	
(cu ft)	(liters)	(cu ft)	(liters)	(cu ft)	(number)	(number)	(in H2O)	(mm H2O)	(in H2O)	
4.581	129.7	4.567	129.3	5.199	0.997	-0.002	0.069	1.74	-0.014	
4.842	137.1	4.839	137.1	5.518	0.999	0.001	0.091	2.32	0.009	
5.114	144.8	5.112	144.8	5.837	1.000	0.001	0.076	1.92	-0.007	
4.812	136.3	4.820	136.5	5.508	1.002	0.003	0.083	2.12	0.001	
4.635	131.3	4.613	130.6	5.274	0.995	-0.003	0.093	2.35	0.010	
					0.9986	**<----- Average Y**	**0.0823**	**2.09**	**<----- Average dH@**	

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.
For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the avera

SIGNED: MS

Date: Jan 07, 2025

AGAT Laboratories

S-TYPE PITOT TUBE CALIBRATION

Calibration Device/Location: SAIT

Pitot Tube Number: SRC 9C Probe

Technician: MS-AS JS-RP

Calibration Date (D/M/Y): 4-Feb-25

Date Last Calibrated (D/M/Y): 6-Feb-24

Previous Factor: 0.818

Approx. Velocity	Reference	S-Type		Pitot Factor	
m/sec	ΔPr	ΔPs	$(Ref/S\text{-}type)^{0.5}$		±Difference from the new factor
30	1.50	2.10	0.845	0.837	0.0174
30	1.50	2.10	0.845	0.837	0.0174
50	4.50	6.60	0.826	0.817	-0.00183
50	4.50	6.60	0.826	0.817	-0.00183
70	8.70	13.20	0.812	0.804	-0.0156
70	8.70	13.20	0.812	0.804	-0.0156

Standard Pitot Tube Factor: 0.990 **New Factor:** **0.819**

Calibration Notes: Pitot Tube tips are in good shape, clean, with no deformations or damage. Calibrated with thermocouples in place.

AGAT Laboratories

Thermocouple Calibration: 2025

Thermocouple Calibration: Fluke S/N: 24450030 & 111108577 Thermometer Standard: VWR61016-208, QL Quincy Lab Inc. 76mm 1mm, C15, C4 Calibrated according to ASSC Method 2 Sec 4.3

	Ice					Boiling Water					Oven				
I.D	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff
Standalone Thermocouples															
C1	1.100	274.25	0.00	273.15	0.403	96.7	369.85	97.0	370.15	0.081	376.9	650.05	377.0	650.15	0.0154
C2	1.000	274.15	1.00	274.15	0.000	97.3	370.45	98.0	371.15	0.189	362.1	635.25	362.0	635.15	0.0157
C3	0.800	273.95	0.50	273.65	0.110	97.5	370.65	98.0	371.15	0.135	398.0	671.15	400.0	673.15	0.2971
C4	1.000	274.15	0.00	273.15	0.3661	96.8	369.95	98.0	371.15	0.323	387.0	660.15	388.0	661.15	0.1513
C5	1.000	274.15	0.00	273.15	0.366	97.0	370.15	97.0	370.15	0.000	375.0	648.15	375.0	648.15	0.0000
C6	0.700	273.85	1.00	274.15	0.109	96.4	369.55	97.0	370.15	0.162	369.2	642.35	371.0	644.15	0.2794
C7	1.400	274.55	1.00	274.15	0.1459	96.1	369.25	97.0	370.15	0.243	391.6	664.75	391.0	664.15	0.0903
C8	1.000	274.15	0.00	273.15	0.366	96.6	369.75	98.0	371.15	0.377	405.0	678.15	406.0	679.15	0.1472
C9	1.100	274.25	1.00	274.15	0.036	97.0	370.15	98.0	371.15	0.269	383.0	656.15	384.0	657.15	0.1522
C10	0.900	274.05	1.00	274.15	0.036	97.2	370.35	98.0	371.15	0.216	351.6	624.75	352.0	625.15	0.0640
C21	1.100	274.25	1.00	274.15	0.036	96.4	369.55	97.0	370.15	0.162	443.6	716.75	444.0	717.15	0.0558
E1	0.600	273.75	0.00	273.15	0.220	94.8	367.95	96.0	369.15	0.325	353.2	626.35	354.0	627.15	0.1276
E2	0.300	273.45	0.00	273.15	0.110	97.1	370.25	98.0	371.15	0.242	335.4	608.55	337.0	610.15	0.2622
E3	0.500	273.65	0.00	273.15	0.183	96.6	369.75	98.0	371.15	0.377	384.2	657.35	385.0	658.15	0.1216
E4	0.700	273.85	0.50	273.65	0.073	96.7	369.85	98.0	371.15	0.350	365.4	638.55	367.0	640.15	0.2499
E6	0.600	273.75	0.00	273.15	0.220	94.5	367.65	96.0	369.15	0.406	320.2	593.35	322.0	595.15	0.3024
E7	0.600	273.75	0.00	273.15	0.220	95.9	369.05	97.0	370.15	0.297	362.0	635.15	364.0	637.15	0.3139
Flex 1	0.900	274.05	1.00	274.15	0.036	97.3	370.45	98.0	371.15	0.189	401.0	674.15	402.0	675.15	0.1481
Flex 2	0.900	274.05	1.00	274.15	0.036	97.2	370.35	97.0	370.15	0.054	377.4	650.55	379.0	652.15	0.2453
Flex 3	1.200	274.35	1.00	274.15	0.073	96.7	369.85	98.0	371.15	0.350	386.0	659.15	387.0	660.15	0.1515
Filter 1	0.200	273.35	0.00	273.15	0.073	96.2	369.35	97.0	370.15	0.216	381.5	654.65	380.0	653.15	0.2297
Filter 3	0.900	274.05	1.00	274.15	0.036	96.6	369.75	97.0	370.15	0.108	388.9	662.05	388.0	661.15	0.1361
Exit1	1.300	274.45	1.00	274.15	0.109	96	369.15	97.0	370.15	0.270	384.0	657.15	385.0	658.15	0.1519
CGY5A - Spare	0.900	274.05	0.50	273.65	0.146	97.9	371.05	98.0	371.15	0.027	420.0	693.15	420.0	693.15	0.0000
CGY5B - Spare	0.600	273.75	0.50	273.65	0.037	97.8	370.95	98.0	371.15	0.054	452.8	725.95	454.0	727.15	0.1650
CGY5C - Spare	0.700	273.85	0.50	273.65	0.073	98.1	371.25	98.0	371.15	0.027	423.5	696.65	423.0	696.15	0.0718
DGM RATA 01	0.800	273.95	0.50	273.65	0.110	97.3	370.45	98.0	371.15	0.189	394.5	667.65	394.0	667.15	0.0749
SRC 5 Spare 2	1.100	274.25	2.00	275.15	0.327	97.0	370.15	97.0	370.15	0.000	431.7	704.85	433.0	706.15	0.1841
C24	1.400	274.55	2.00	275.15	0.218	96.4	369.55	98.0	371.15	0.431	463.2	736.35	464.0	737.15	0.1085
E5	0.200	273.35	0.00	273.15	0.073	96.5	369.65	98.0	371.15	0.404	357.4	630.55	359.0	632.15	0.2531
EDGM 2	1.000	274.15	0.00	273.15	0.366	96.6	369.75	98.0	371.15	0.377	338.1	611.25	339.0	612.15	0.1470
E8	1.000	274.15	0.50	273.65	0.183	96.8	369.95	98.0	371.15	0.323	347.6	620.75	349.0	622.15	0.2250
EDGM1	0.500	273.65	0.00	273.15	0.183	96.0	369.15	98.0	371.15	0.539	317.1	590.25	318.0	591.15	0.1522
E31	0.500	273.65	0.00	273.15	0.183	97.1	370.25	98.0	371.15	0.242	304.1	577.25	304.0	577.15	0.0173

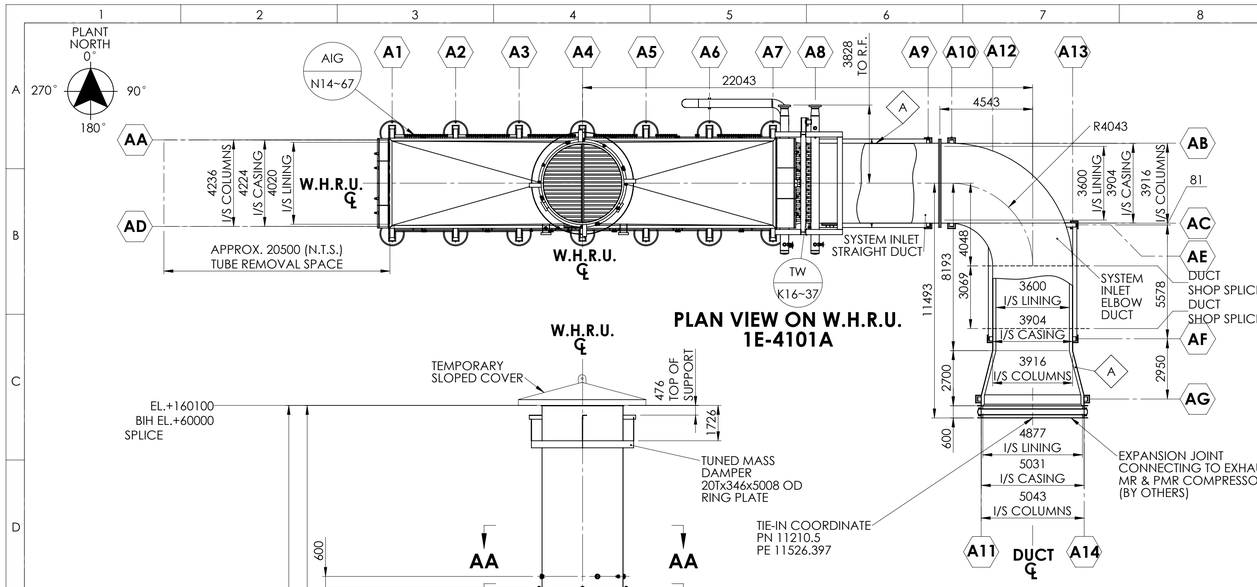
AGAT Laboratories

Thermocouple Calibration: 2025

Thermocouple Calibration: Fluke S/N: 24450030 & 111108577 Thermometer Standard: VWR61016-208, QL Quincy Lab Inc. 76mm 1mm, C15, C4 Calibrated according to ASSC Method 2 Sec 4.3

	Ice					Boiling Water					Oven				
I.D	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff
Pitot Tube Thermocouples															
CGY5D	0.80	273.95	0.50	273.65	0.110	97.8	370.95	98.0	371.15	0.054	459.40	732.55	459.0	732.15	0.0546
CGY5A	1.00	274.15	0.50	273.65	0.183	97.1	370.25	98.0	371.15	0.242	449.00	722.15	448.0	721.15	0.1387
CGY8A	1.10	274.25	1.00	274.15	0.036	96.7	369.85	98.0	371.15	0.350	440.00	713.15	441.0	714.15	0.1400
CGY10 (New)	0.80	273.95	0.50	273.65	0.110	97.4	370.55	98.0	371.15	0.162	457.10	730.25	458.0	731.15	0.1231
CGY10A	1.20	274.35	1.00	274.15	0.073	96.8	369.95	98.0	371.15	0.323	429.00	702.15	430.0	703.15	0.1422
CGY12	1.00	274.15	1.00	274.15	0.000	97.6	370.75	98.0	371.15	0.108	459.00	732.15	460.0	733.15	0.1364
CGY12B	0.90	274.05	1.00	274.15	0.036	97.8	370.95	98.0	371.15	0.054	418.20	691.35	418.0	691.15	0.0289
CGY13	0.90	274.05	1.00	274.15	0.036	97	370.15	98.0	371.15	0.269	456.70	729.85	458.0	731.15	0.1778
EDM3	0.60	273.75	0.00	273.15	0.220	96.3	369.45	98.0	371.15	0.458	345.40	618.55	347.0	620.15	0.2580
EDM5 A (New)	0.50	273.65	0.00	273.15	0.183	96.4	369.55	98.0	371.15	0.431	327.40	600.55	327.0	600.15	0.0667
EDM5 B (New)	0.70	273.85	0.00	273.15	0.256	95.1	368.25	97.0	370.15	0.513	323.00	596.15	323.0	596.15	0.0000
EDM7	0.60	273.75	0.00	273.15	0.220	96.6	369.75	98.0	371.15	0.377	324.00	597.15	324.0	597.15	0.0000
EDM7 A (New)	1.10	274.25	0.00	273.15	0.403	95.0	368.15	97.0	370.15	0.540	324.00	597.15	324.0	597.15	0.0000
EDM8 A (New)	0.60	273.75	0.00	273.15	0.220	94.1	367.25	96.0	369.15	0.515	322.00	595.15	323.0	596.15	0.1677
EDM9 A (New)	0.60	273.75	0.00	273.15	0.220	94.2	367.35	96.0	369.15	0.488	331.00	604.15	331.0	604.15	0.0000
EDM9 B (New)	0.70	273.85	0.00	273.15	0.256	96.6	369.75	98.0	371.15	0.377	318.30	591.45	319.0	592.15	0.1182
EDM10A	0.60	273.75	0.00	273.15	0.220	94.4	367.55	96.0	369.15	0.433	329.10	602.25	329.0	602.15	0.0166
EDM15B	0.80	273.95	1.00	274.15	0.073	95	368.15	97.0	370.15	0.540	392.00	665.15	392.0	665.15	0.0000
EDM18	0.50	273.65	0.00	273.15	0.183	96.3	369.45	98.0	371.15	0.458	340.10	613.25	940.0	1213.15	49.45
GP 8	1.40	274.55	1.00	274.15	0.146	97	370.15	98.0	371.15	0.269	449.20	722.35	448.0	721.15	0.1664
GP10	1.10	274.25	1.00	274.15	0.036	96.9	370.05	98.0	371.15	0.296	441.00	714.15	440.0	713.15	0.1402
GP12	1.30	274.45	1.00	274.15	0.109	96.6	369.75	98.0	371.15	0.377	443.10	716.25	443.0	716.15	0.0140
GP13	1.00	274.15	1.10	274.25	0.036	97.3	370.45	98.0	371.15	0.189	467.30	740.45	468.0	741.15	0.0944
SRC5 A	2.10	275.25	1.00	274.15	0.401	96	369.15	97.0	370.15	0.270	380.00	653.15	381.0	654.15	0.1529
SRC5 B	1.50	274.65	1.00	274.15	0.182	95	368.15	97.0	370.15	0.540	407.10	680.25	409.0	682.15	0.2785
SRC5 - Spare	2.20	275.35	1.50	274.65	0.255	96.2	369.35	97.0	370.15	0.216	426.00	699.15	427.0	700.15	0.1428
SRC6	1.70	274.85	1.00	274.15	0.255	95.8	368.95	97.0	370.15	0.324	421.00	694.15	422.0	695.15	0.1439
SRC9B	1.70	274.85	1.00	274.15	0.255	96.4	369.55	97.0	370.15	0.162	432.20	705.35	431.0	704.15	0.1704
SRC9C	1.30	274.45	1.00	274.15	0.109	96.2	369.35	97.0	370.15	0.216	442.00	715.15	441.0	714.15	0.1400
SRC12B	1.50	274.65	1.00	274.15	0.182	96.6	369.75	97.0	370.15	0.108	446.60	719.75	445.0	718.15	0.2228
SRC13	0.90	274.05	1.00	274.15	0.036	96.2	369.35	97.0	370.15	0.216	416.10	689.25	415.0	688.15	0.1598
SRC-HT-5	1.70	274.85	1.00	274.15	0.255	96.8	369.95	97.0	370.15	0.054	411.50	684.65	411.0	684.15	0.0731

Appendix VI – Stack Diagram



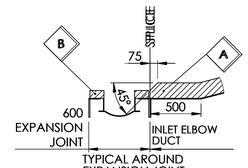
PLAN VIEW ON W.H.R.U. 1E-4101A

NOTES

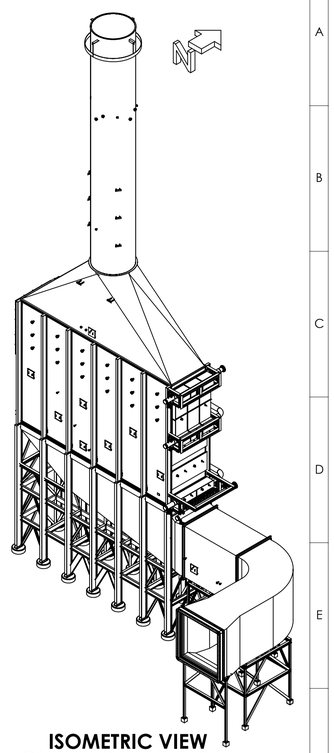
1. ALL PRIMARY DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. SPLICES ARE TO BE INTERNALLY SEAL WELDED AT SITE. UNLESS OTHERWISE SPECIFIED.
3. ALL DIMENSIONS SHALL BE VERIFIED AND ANY DISCREPANCIES SHALL BE REFERRED TO BIH FOR RESOLUTION.
4. HEADERBOX COVERS & MAN WAYS (ACCESS DOORS)SHALL REQUIRED SEALANT COMPOUND & LADDER TAPE. (NOT TO BE APPLIED TO ANY STRUCTURAL JOINTS AS THESE SHALL BE SEAL WELDED.
5. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH DRAWING(S):
   - 743-1E4101A-03 SERIES (FOUNDATION LOADING PLAN). L001-14100-CS-2332-100053-1200 ~ 1203
   - 743-1E4101A-09 SERIES (LADDERS & PLATFORMS). L001-14100-MX-4018-100053-1204 ~ 1207
   - 743-1E4101A-02B,02C & 02D. L001-14100-MX-4018-100053-1201~ 1203
6. REFER TYPICAL LINING DETAIL FOR SEAL WELDING AND LINING BETWEEN SPLICES
   - 743-BIHS-321 (L001-14100-MX-2321-100053-1327)
   - 743-BIHS-322 (L001-14100-MX-2321-100053-1377)
   - 743-BIHS-323 (L001-14100-MX-2321-100053-1411)
7. INTERNAL ID LEGEND BELOW:

INTERNAL ID	ITEM DESCRIPTION
IID-1E-4101A-STA-001	STACK MODULE
IID-1E-4101A-CMB-001	CONVECTION MODULE
IID-1E-4101A-ES-001	SUPPORT STRUCTURE-1
IID-1E-4101A-ES-002	SUPPORT STRUCTURE-2
IID-1E-4101A-ES-003	SUPPORT STRUCTURE-3
IID-1E-4101A-ES-004	SUPPORT STRUCTURE-4
IID-1E-4101A-ES-005	SUPPORT STRUCTURE-5
IID-1E-4101A-DT-001	INLET DUCT-1
IID-1E-4101A-DT-002	INLET DUCT-2

8. SEPARATE DOCUMENTS (GENERAL ARRANGEMENT) WILL BE PREPARED FOR 1E-4101B,2E-4101A AND 2E-4101B



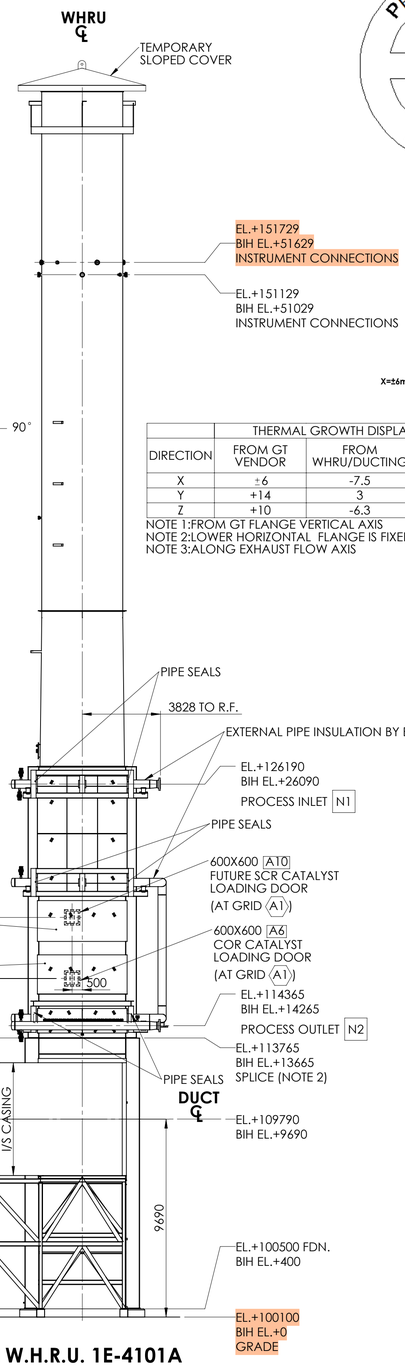
SECTION AD-AD SCALE 1 : 30



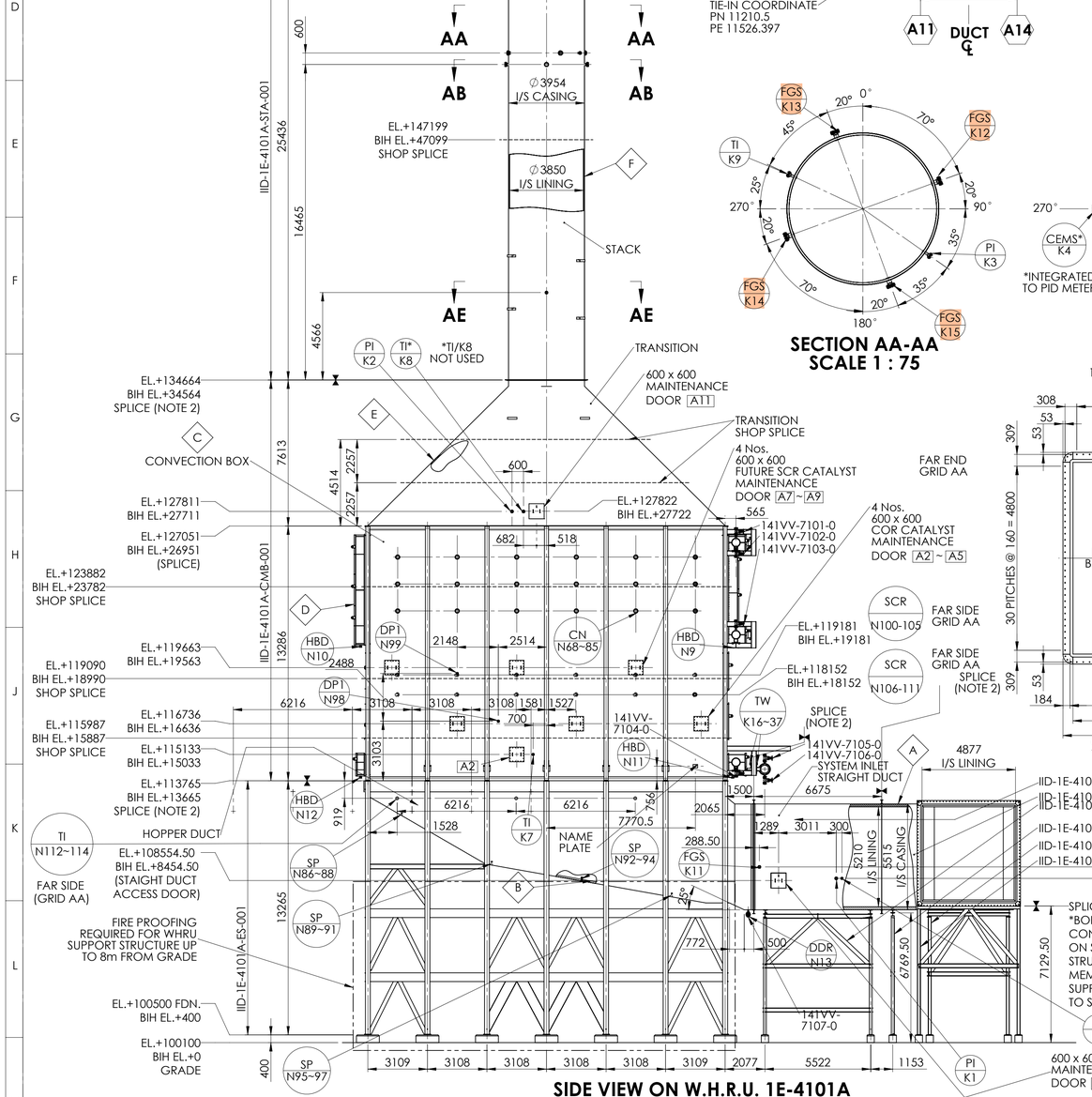
ISOMETRIC VIEW ON W.H.R.U. 1E-4101A

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — B.J.H. SMIT

2022-04-05
P#: 20987

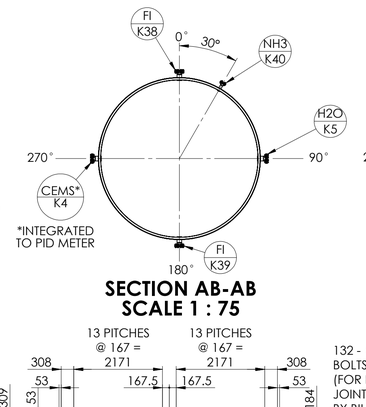


FRONT VIEW ON W.H.R.U. 1E-4101A

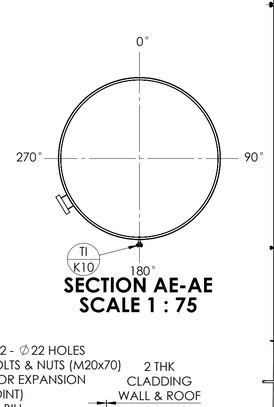


SIDE VIEW ON W.H.R.U. 1E-4101A

SECTION AA-AA SCALE 1 : 75



SECTION AB-AB SCALE 1 : 75



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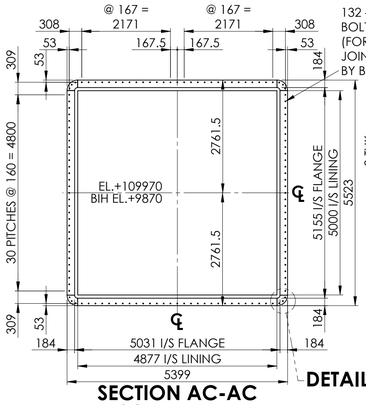

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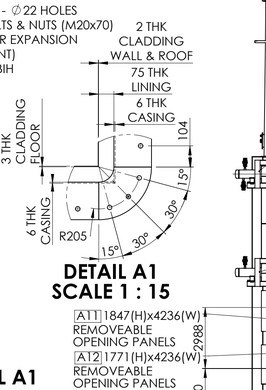
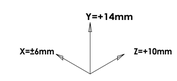


DETAIL A1 SCALE 1 : 15

DETAIL A1



DIRECTION	THERMAL GROWTH DISPLACEMENT (mm) FROM GT VENDOR	FROM WHRU/DUCTING	REMARKS
X	±6	-7.5	SEE NOTE 1
Y	+14	3	SEE NOTE 2
Z	+10	-6.3	SEE NOTE 3

NOTE 1:FROM GT FLANGE VERTICAL AXIS
NOTE 2:LOWER HORIZONTAL FLANGE IS FIXED
NOTE 3:ALONG EXHAUST FLOW AXIS

B.I.H BOUSTEAD INTERNATIONAL HEATERS Ltd. BIH

DRAWING TITLE
WASTE HEAT RECOVERY UNIT 1E-4101A GENERAL ARRANGEMENT SHEET 1 OF 4

SERVICE **HTF 1E-4101A**

FOR **JFJV / LNG CANADA**

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
ZUW	27.05.19	GLP	13.06.19	KL	13.06.19

PROCESS DESIGN REVIEW (IF APPLICABLE)	DATE	STRUCTURAL DESIGN REVIEW (IF APPLICABLE)	DATE
AK	28.05.19	LCS	28.05.19

JOB NUMBER **743** DRAWING NO. **743-1E4101A-02A** REV. **5**

REV. NO.	DESCRIPTION	BY	CHKD	APVD	DATE
2	AS BUILT	LCW	KL	KL	10.02.22
1	APPROVED FOR CONSTRUCTION	GKS	KL	ANZ	31.03.21
0	APPROVED FOR CONSTRUCTION	MIKEL	ANZ	KL	07.08.20
C	ISSUED FOR REVIEW	GKS	FA	KL	20.01.20
B	ISSUED FOR REVIEW	JLO	FA	KL	08.08.19
A	ISSUED FOR REVIEW	ZUW	GLP	KL	13.06.19

REVISIONS

JGC|FLUOR BC LNG JV

LNG CANADA Opportunity for British Columbia. Energy for the world — **LNG CANADA PROJECT**

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TITLE:
WASTE HEAT RECOVERY UNIT 1E-4101A GENERAL ARRANGEMENT SHEET 1 OF 4

UNIT: 4100
LOCATION: KITIMAT, BRITISH COLUMBIA, CANADA
PLANT: LNG CANADA

DWG No.: L001-14100-MX-4018-100053-1200 SIZE: A1 REV.: 2
FILE NAME: L001-14100-MX-4018-100053-1200_R2

NOTE: THIS DRAWING IS THE PROPERTY OF BOUSTEAD INTERNATIONAL HEATERS LTD, BURGESS HILL, SUSSEX, U.K. AND SHALL NOT BE TRACED, PHOTOGRAPHED, PHOTOSTATED OR REPRODUCED IN ANY MANNER NOR USED FOR ANY PURPOSE WHATSOEVER EXCEPT BY WRITTEN PERMISSION OF BOUSTEAD INTERNATIONAL HEATERS LTD.

DO NOT SCALE

FILENAME: K:\CAD\743 LNG Canada\GA\743-1E4101A-02A
SHEET SCALE: 1:150 ORIGINAL SIZE: A1

REV. 3 BY	DATE	CHECKED	DATE	APPROVED	DATE	REV. 5 BY	DATE	CHECKED	DATE	DESIGN REVIEW	DATE	APPROVED	DATE	REV. 4 BY	DATE	CHECKED	DATE	DESIGN REVIEW	DATE	APPROVED	DATE
MIKEL	07.08.20	ANZ	07.08.20	KL	07.08.20	LCW	10.02.22	INT	10.02.22	N/A	N/A	KL	10.02.22	GKS	03.03.21	KL	31.03.21	N/A	N/A	ANZ	31.03.21

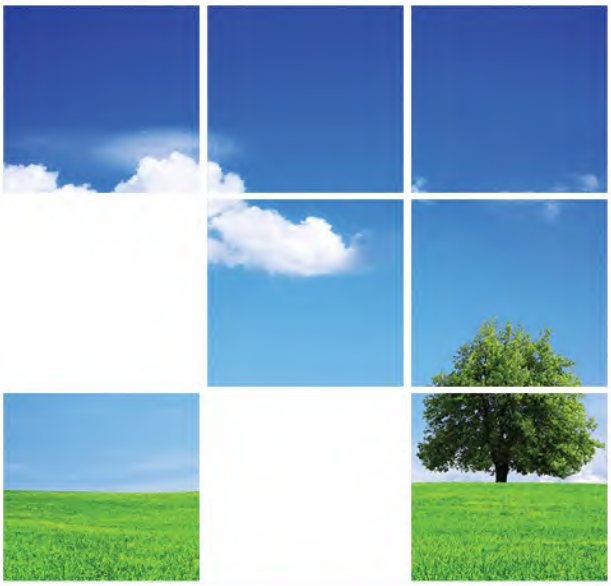
-UPDATED AS PER CLIENT COMMENTS
-AS BUILT
-UPDATED AS PER CLIENT COMMENTS

L-DMS 2/10/2022 10:01:20am UNCONTROLLED WHEN PRINTED

1 NO COMMENTS. APPROVED
Authorization to proceed does not relieve Contractor/Supplier of its responsibility or liability under the Contract and or Purchase Order
JGC FLUOR BC LNG JV
Next Issue Purpose

1 / 1

END OF DOCUMENT



SOURCE EMISSION SURVEY

LNG Canada Development Inc.

LNG Canada Kitimat Liquified Natural (LNG) Gas Facility
Train 1 Natural Gas Turbine Engine (1E-4101B)
September 27, 2025

Prepared for:
LNG Canada Development Inc.
Suite # 4000 – 500 Centre Street, S.E.
Calgary, Alberta
T2G 1A6

Attention:
Mr. Tauseef Zia Siddiqui

Prepared By:
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AGAT Laboratories Ltd.
3700 - 21st Street, N.E.
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AGAT Laboratories

Cover Letter

October 27, 2025

LNG Canada Development Inc.
LNG Canada Kitimat Liquified Natural Gas (LNG) Facility

Attention:	Mr. Tauseef Zia Siddiqui
Subject:	LNG Canada Kitimat Liquified Natural Gas (LNG) Facility – September 2025 Source Emission Survey

AGAT Laboratories' Source Testing Services Group is pleased to submit the following Source Emission Survey report. The test program conducted at the LNG Canada Development Inc. – LNG Canada Kitimat Liquified Natural Gas (LNG) Facility on September 27, 2025 was performed on the Train 1 Natural Gas Turbine Engine (1E-4101B). The parameters tested were Particulate Matter 2.5 ($PM_{2.5}$), Volatile Organic Compounds (VOCs), Total Hydrocarbons (THCs), Volumetric Flow and Sample Level Temperature. Cyclonic Flow testing was also conducted. This report was completed in accordance with Environment Canada EPS 1/PG/7 requirements.

If you have any questions or concerns regarding this report, please contact Mr. Shaun Hayward at (403) 299-2179, or via E-mail at **hayward@agatlabs.com**. Alternatively, please contact Mr. Richard Kenney at (403) 299-2184, or via E-mail at **rkenney@agatlabs.com.** Thank you for your patronage, and we look forward to being of service to you in the future.

Yours truly,

AGAT Laboratories Ltd.

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Summary

AGAT Laboratories' Source Testing Services Group was retained by LNG Canada Development Inc. to perform a Source Emission Survey on the Train 1 Natural Gas Turbine Engine (1E-4101B) located at the LNG Canada Kitimat Liquified Natural Gas (LNG) Facility. The parameters tested were Particulate Matter 2.5 ($PM_{2.5}$), Volatile Organic Compounds (VOCs), Total Hydrocarbons (THCs), Volumetric Flow and Sample Level Temperature.

The Train 1 Natural Gas Turbine Engine (1E-4101B) at the LNG Canada Kitimat Liquified Natural Gas (LNG) Facility was operating under normal conditions at the time of the sampling program. These tests were conducted on September 27, 2025.

Stratification testing was not conducted at this time. Cyclonic Flow testing was conducted at this time; data results obtained from the source emission testing indicated that no cyclonic flow conditions were observed.

The Effluent Flow Measuring device was tested using a calibrated standard S-type Pitot tube fixed with a standardized K-Type thermocouple.

The protocols of US EPA 201A were followed to test for Total Particulate Matter and Particulate Matter 2.5. The protocols of US EPA 18 were followed to test for Volatile Organic Compounds (VOCs) and Total Hydrocarbons (THCs). The protocols of US EPA Method 1, 2, 3, and 4 and the British Columbia Field Sampling Manual Method 1, 2, 3 of part B-2 were used to test the Volumetric Flow and Temperature. The protocols of Environment Canada Report EPS 1/PG/7 (EC-PG7) were followed in order to complete the Source Emission Survey report.

Table 1: Summary of Source Emission Survey Results

Compliance Parameter	Units	Test 1 2025/09/27 11:25 – 12:28	Test 2 2025/09/27 13:00 – 14:03	Test 3 2025/09/27 14:30 – 15:32	Average
Stack Gas Measurements					
Volumetric Flow	**m^3/sec - wet**	191	199	203	**198**
	e^3m^3/day - wet	16,522	17,164	17,553	**17,080**
Stack Gas Velocity	**m/s**	24.4	25.3	25.8	**25.1**
Stack Temperature	**℃**	183	182	180	**182**
Water Content	**%**	7.29	7.19	7.20	**7.23**
Particulate Matter ($PM_{2.5}$)					
Concentration	**mg/dscm - dry**	1.62	1.70	2.55	**1.96**
	g/kg - dry	0.00136	0.00142	0.00214	**0.00164**
	g/kg - wet	0.00130	0.00136	0.00204	**0.00157**
Emission Rate	**kg/hr**	1.04	1.13	1.73	**1.30**
Volatile Organic Compounds (VOCs)**					
Concentration	**ppm - dry**	0.0300	0.0104	0.0402	**0.0269**
	ppm - wet	0.0278	0.00966	0.0373	**0.0249**
	mg/m^3 - dry	0.0822	0.0285	0.108	**0.0728**
	mg/m^3 - wet	0.0762	0.0264	0.100	**0.0676**
Emission Rate	**kg/hr**	0.0524	0.0189	0.0731	**0.0482**
Total Hydrocarbon (THC)					
Concentration	**ppm - dry**	283	256	259	**266**
	ppm - wet	262	238	240	**247**
	mg/m^3 - dry	189	171	173	**177**
	mg/m^3 - wet	175	158	160	**165**
Emission Rate	**kg/hr**	120	113	117	**117**

Notes: *Reported at 760 mm Hg and 20°C.
**Minimum Detection Limits (MDL), along with full speciation breakdown can be found in Appendix I.

Table 2: Cyclonic Flow Results

Train 1 Natural Gas Turbine Engine (1E-4101B)												
	Port 1 - West			Port 2 - South			Port 3 - East			Port 4 - North		
	Test 1	Test 2	Difference	Test 1	Test 2	Difference	Test 1	Test 2	Difference	Test 1	Test 2	Difference
1	2	2	0.00	2	2	0.00	5	4	1.00	8	7	1.00
2	0	0	0.00	0	0	0.00	5	5	0.00	9	8	1.00
3	3	3	0.00	5	5	0.00	8	7	1.00	9	8	1.00
4	0	0	0.00	0	0	0.00	13	12	1.00	10	9	1.00
	***Absolute Average**		**0.00**	***Absolute Average**		**0.00**	***Absolute Average**		**0.750**	***Absolute Average**		**1.00**

Note: *Average of the absolute rotation angle values.

According to US EPA Method 1 Section 11.4, cyclonic flow occurs when the average of the absolute values of the null angles is greater than 20^{o}. Additionally, the difference between the angles in tests 1 and 2 cannot be greater than 5^{o}. Applying US EPA, cyclonic flow was found to be within approved limits.

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Part 1 – Introduction

1.1 Background Information

AGAT Laboratories' Source Testing Services Group was retained by Mr. Tauseef Zia Siddiqui of LNG Canada Development Inc. to perform a Source Emission Survey on the Train 1 Natural Gas Turbine Engine (1E-4101B) at the LNG Canada Kitimat Liquified Natural Gas (LNG) Facility. These tests were conducted on September 27, 2025.

1.2 Key Personnel

Mr. Marlon Soriano was the AGAT project manager and Mr. Tauseef Zia Siddiqui was the client contact and coordinator. Mr. Marlon Soriano and Mr. Vipul Katariya performed the on-site sampling program. Mrs. Hina Jahangir performed the data reduction and produced the final report.

1.3 Project Scope

Project scope included the evaluation of the following parameters from Train 1 Natural Gas Turbine Engine (1E-4101B):

i) Particulate Matter 2.5 ($PM_{2.5}$)
ii) Volatile Organic Compounds (VOCs)
iii) Total Hydrocarbon (THC)
iv) Cyclonic Flow
v) Volumetric Flow
vi) Sample Level Temperature

Part 2 – Test Procedure

2.1 Standard Methods

The protocols of US EPA 201A were followed to test for Total Particulate Matter and Particulate Matter 2.5. The protocols of US EPA 18 were followed to test for Volatile Organic Compounds (VOCs) and Total Hydrocarbons (THCs). The protocols of US EPA Method 1, 2, 3, and 4 and the British Columbia Field Sampling Manual Method 1, 2, 3 of part B-2 were used to test the Volumetric Flow and Temperature. The protocols of Environment Canada Report EPS 1/PG/7 (EC-PG7) were followed in order to complete the Source Emission Survey report.

Stack Gas Velocity, Temperature & Volumetric Flow Rates

Stack gas velocities, temperature and volumetric flow rates determined following the procedures as outlined in the *British Columbia Field Sampling Manual Method #2 – Determination of Stack Gas Velocity and Volumetric Flow Rates*. Stack gas velocity was determined from the moisture content of the stack gas as well as differential pressure and temperature measurements taken at six points at the centroid of the stack cross-section. Pressure differentials are measured by calibrated S-type Pitot tube and inclined oil manometer. Temperature measurements are made with a calibrated K-type thermocouple. Velocity, when multiplied by the cross-sectional area of the stack equates to the volumetric flow.

Stack Gas Moisture Content

Stack gas moisture content was determined following the procedures as outlined in *British Columbia Field Sampling Manual Method #4 – Determination of Moisture Content in Stack Gases*. Samples were collected from the centroid of the stack cross section, and the moisture fraction was condensed in an impinger train maintained in an ice bath. Moisture content was then measured onsite using the gravimetric method for each impinger, results from the individual impinger weights and exit temperature of the final impinger are recorded in Appendix IV. Moisture measurements were carried out simultaneously with each test run.

Oxygen & Carbon Dioxide

Oxygen and carbon dioxide samples were collected and analyzed following the procedure as outlined in the *British Columbia Field Sampling Manual Method #3 – Gas Analysis for the Determination of Dry Molecular Weight*. An integrated sample was taken over the test period using an evacuated cannister with a flow controller to sample over the test period.

Total Particulate Matter and Particulate Matter 2.5

Total Particulate Matter and Particulate 2.5 samples were collected and analyzed following the procedures outlined in the *US Environmental Protection Agency Method #201A – Determination of Particulate Matter and PM2.5 Emissions from Stationary Sources*. Samples were withdrawn from the stack through a sizing device, which separates particles with nominal aerodynamic diameters of 2.5 micrometers. Samples were also withdrawn isokinetically to determine *Total Particulate* emissions using additional analysis of the impinger catch. Particulate samples collected were analyzed gravimetrically. All samples were analyzed at an ISO/IEC 17025 accredited lab (Certificate of Accreditation can be found in Appendix II).

Total Hydrocarbons and Volatile Organic Compounds

Total hydrocarbon and Volatile Organic Compounds samples were collected and analyzed following the procedures as outlined in the *US EPA Method #18 - Measurement of Gaseous Organic Compound Emissions by Gas Chromatography.* Samples were withdrawn from the source and collected in evacuated canisters and tedlar bags. The major organic components of the collected gas mixture were then separated by gas chromatography (GC) and individually quantified by flame ionization and thermal conductivity detection principles. The retention times of each separated component are used to identify the organic component and its concentration by comparing the observed values to those of known compounds. All samples were analyzed at an ISO/IEC 17025 accredited lab (Certificate of Accreditation can be found in Appendix III).

Cyclonic Flow

Cyclonic Flow was determined following the procedures outlined in the *US EPA Method #1 Section 11.4 – Verification of Absence of Cyclonic Flow.* Pressure differentials are measured by calibrated S-type Pitot tube and inclined oil manometer that has been levelled and zeroed at each traverse point. The measurement system is leak checked to 2” to 4” of W.C. prior to conducting the test. When levelled, the pitot tube is at “0^{o} reference”. The pitot tube is then rotated away from the 0^{o} reference angle until a null (zero) pitot reading is obtained. If the average of the absolute values of the rotation angles is greater than 20^{o}, cyclonic flow is present.

2.2 Quality Assurance/Quality Control

AGAT Laboratories Ltd. Source Testing department QA/QC protocols include, but are not limited to the following:

i) Regular maintenance and calibration of all field-sampling equipment as per applicable sampling protocols.

ii) On-site leak checks of sample system and pitot tubes.

iii) Proper sealing, labeling, storing, transport and chain of custody/log in procedures upon return of the laboratory, when applicable.

iv) Use of EPA Protocol 1 and RATA grade calibration gases, where applicable.

v) Linearity and response time checks are conducted on all analyzers prior to use.

vi) Calibration drift is checked during testing to assure instruments are performing within allowable limits.

vii) Technical review on all final lab analysis and final written source emission survey reports.

viii) Collected samples requiring laboratory analysis are performed by a ISO/IEC 17025 accredited lab.

Part 3- Discussion

3.1 Stack Characteristics

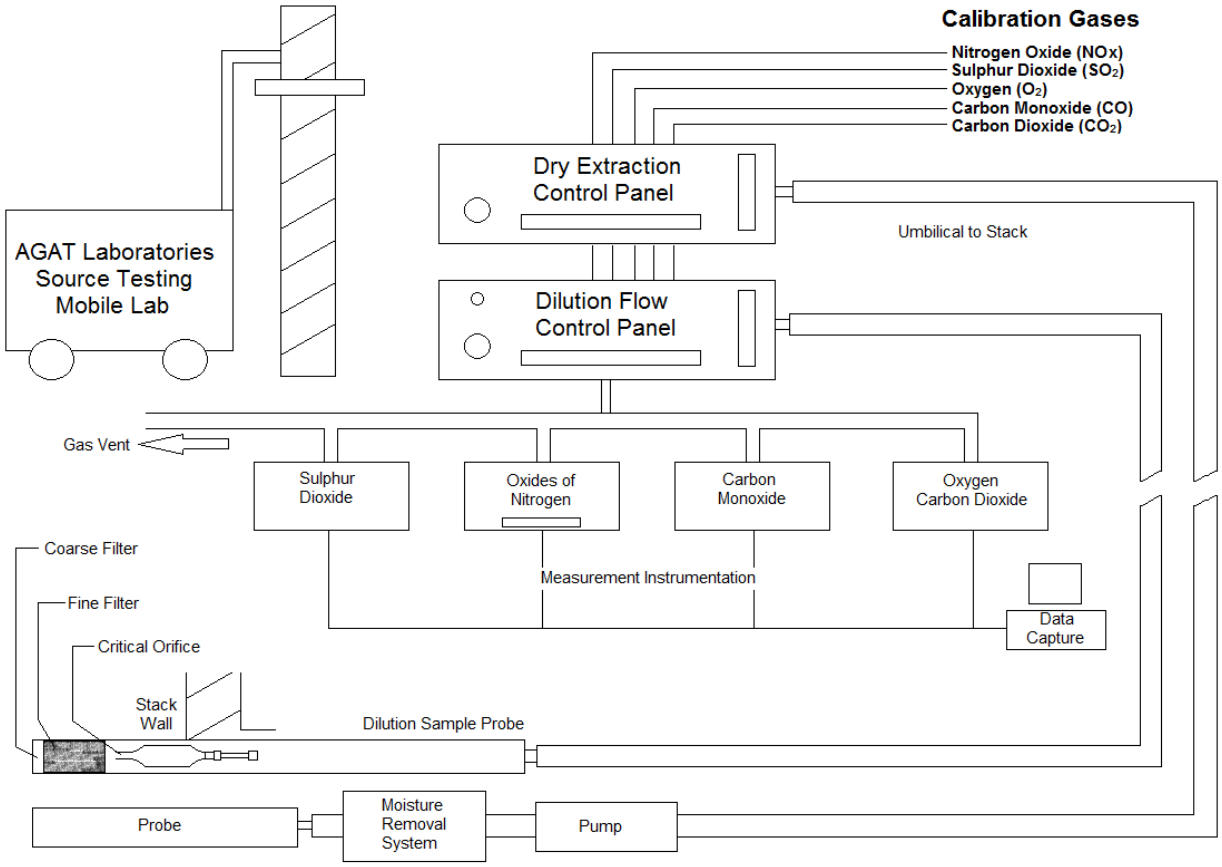
The Train 1 Natural Gas Turbine Engine (1E-4101A) at the LNG Canada Development Inc. - LNG Canada Kitimat Liquified Natural Gas (LNG) Facility has an internal stack diameter of 3.85m and a height of 60.0m. The sample points are located at an elevation of 51.03m, with the top of the transition section as last disturbance upstream at 34.56m (4.28 diameters), and the stack exit downstream at 60m (2.59 diameters).

3.2 Test Results

Stratification testing was not conducted at this time. Cyclonic Flow testing was conducted at this time; data results obtained from the source emission testing indicated that no cyclonic flow conditions were observed.

No problems were encountered during the sampling period that required corrective action. The test results obtained are an accurate representation of emission characteristics for the process conditions maintained at the LNG Canada Development Inc. - Train 1 Natural Gas Turbine Engine (1E-4101B) at LNG Canada Kitimat Liquified Natural Gas (LNG) Facility on the test date of September 27, 2025.

Figure 1: Schematic of the Mobile CEMS Instrumentation System



Appendix I – Emission Data & Calculations

Particulate Calculation for PM 2.5 **Turbine-1E-4101B** **2025-09-27**

LNG-CANADA **LNG-Kitimat**

Symbols	Variables	Units	Test 1 11:25 - 12:28	Test 2 13:00 - 14:03	Test 3 14:30 - 15:32	Average
Cs	PM 2.5 Concentration	gr/dscf	0.000709	0.000743	0.001116	0.000856
		mg/dscm dry	1.62	1.70	2.55	1.96
		g/kg dry	0.00136	0.00142	0.00214	0.00164
		g/kg wet	0.00130	0.00136	0.00204	0.00157
E	PM 2.5 Emission Rate	kg/hr	1.04	1.13	1.73	1.30
Qsd	Flow Rate	E3M3/Day wet	16,522	17,164	17,553	17,080
Vs	Stack Gas Velocity	ft/s	80.0	83.0	84.5	82.5
		m/s	24.4	25.3	25.8	25.1
Tsavg	Stack Gas Temp	Deg F	362	360	357	359
		Deg C	183	182	180	182
BwsCalc	Stack Moisture	%	7.29	7.19	7.20	7.23
Vmstd	Standard Dry Meter Volume	dscf	23.9	24.9	24.9	24.6
		dscm	0.678	0.706	0.705	0.696
mp	Mass of PM2.5	mg	1	1	2	1
Mwd	Dry Molecular Weight	lb/lb-mole	29.2	29.2	29.2	29.2
Msw	Wet Molecular Weight	lb/lb-mole	28.4	28.4	28.4	28.4
Vwstd	Total Water Vapour	scf	1.88	1.93	1.93	1.91
		scm	0.0533	0.0547	0.0547	0.0542

Formulas

kg/1000 kg (std) dry =	0.0244654	*(mp /(Vmstd*Mwd))
kg/1000 kg (std) wet =	0.0244654	*(mp/(Vmstd + Vwstd)*Mw)

Total Hydrocarbons (THC)

Parameter	THC as Methane	Test 1	Test 2	Test 3
	9/27/2025	**11:25 - 12:28**	**13:00 - 14:03**	**14:30 - 15:32**
Baro. Press.	(in. Hg)	29.56	29.56	29.56
DGM Factor	(Y)	0.9986	0.9986	0.9986
Meter Type	(**M**etric/**E**nglish)	English	English	English
Moisture	%	7.29	7.19	7.20
Gas Volume	(m^3 std.)	0.349	0.349	0.336
THC	(ppm dry sample)	283	256	259
	(ppm wet sample)	262	238	240
Flow Rate	(m^3/sec) - dry	177	184	188
	(m^3/sec) - wet	191	199	203

					Average
THC	**ppm - dry**	**283**	**256**	**259**	**266**
	ppm - wet	**262**	**238**	**240**	**247**
	mg/m^3 - dry	**189**	**171**	**173**	**177**
	mg/m^3 - wet	**175**	**158**	**160**	**165**
	kg/hr - dry	**120**	**113**	**117**	**117**
	kg/hr - wet	**120**	**113**	**117**	**117**

Minimum detection limit of THC is <1 ppm; in calculation of total average measurements, 1 ppm was used as <MDL.

Tstd. (oF) 77

Pstd. (in. Hg) 29.92

Train 1 Natural Gas Turbine Engine (1E-4101B) - Total VOC					
Compliance Parameter	**Units**	**Test 1 9/27/2025 11:25 – 12:28**	**Test 2 9/27/2025 13:00 – 14:03**	**Test 3 9/27/2025 14:30 – 15:32**	**Average**
Total VOC	**ppm - dry**	0.0300	0.0104	0.0402	**0.0269**
Concentration	**ppm - wet**	0.0278	0.00966	0.0373	**0.0249**
	mg/m^3 - dry	0.0822	0.0285	0.108	**0.0728**
	mg/m^3 - wet	0.0762	0.0264	0.100	**0.0676**
Emission Rate	**kg/hr**	0.0524	0.0189	0.0731	**0.0482**

Water Content	**%**	7.29	7.19	7.2	**7.23**
Flow	**m^3/sec - wet**	191	199	203	**198**
	m^3/sec - dry	177	185	188	**183**

Train 1 Natural Gas Turbine Engine (1E-4101B) - Total VOC

Test 1
9/27/2025
11:25 – 12:28

Standard pressure:	mmHg	760
Standard Temperature:	deg C	20
Dry Flow Rate:	m3/s	177

$$mg/m3 = \frac{ppbv/1000 \times Molecular\ Weight}{Molar\ volume\ (24.05)}$$

$$kg/hr = \frac{mg/m3 \times Flow(m3/hr)}{1.00E+06}$$

			mg/m3	kg/hr
Total VOC	**ppbv**	**30.01**	**0.082198951**	**0.05239969**

BTEX			**ppbv**	**3.63**	**0.01392485**	**0.008876729**
Benzene	C6H6	78.114	ppbv	0.19	0.000617117	0.000393396
Toluene	C7H8	92.141	ppbv	3.22	0.01233655	0.007864229
Ethylbenzene	C8H10	106.168	ppbv	0.05	0.000220723	0.000140705
m,p-Xylene	C8H10	106.168	ppbv	0.17	0.00075046	0.000478399

Compound	Formula	Molecular Weight (g/mol)	units	test 1	mg/m3	kg/hr
1,1,1-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1,2,2-Tetrachloroethane	C2H2Cl4	167.838	ppbv	< 0.02	0	0
1,1,2-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.02	0	0
1,1-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
1,2,3-Trimethylbenzene	C9H12	120.195	ppbv	< 0.05	0	0
1,2,4-Trichlorobenzene	C6H3Cl3	181.44	ppbv	< 0.3	0	0
1,2,4-Trimethylbenzene	C9H12	120.195	ppbv	0.04	0.000199909	0.000127436
1,2-Dibromoethane	C2H4Br2	187.862	ppbv	< 0.02	0	0
1,2-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.03	0	0
1,2-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.03	0	0
1,2-Dichloropropane	C3H6Cl2	112.981	ppbv	< 0.03	0	0
1,3,5-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,3-Butadiene	C4H6	54.092	ppbv	0.04	8.99659E-05	5.73509E-05
1,3-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dioxane	C4H8O2	88.106	ppbv	< 0.5	0	0
1-Butene/Isobutylene	C4H8	56.108	ppbv	0.68	0.001586422	0.001011302
1-Hexene/2-Methyl-1-pentene	C6H12	84.162	ppbv	< 0.07	0	0
1-Pentene	C5H10	70.135	ppbv	0.04	0.000116649	7.43605E-05
2,2,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,2-Dimethylbutane	C6H14	86.178	ppbv	< 0.02	0	0
2,3,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,3-Dimethylbutane	C6H14	86.178	ppbv	< 0.09	0	0
2,3-Dimethylpentane	C7H16	100.205	ppbv	0.04	0.000166661	0.000106242
2,4-Dimethylpentane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylheptane	C8H18	114.232	ppbv	< 0.02	0	0
2-Methylhexane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
3-Methylheptane	C8H18	114.232	ppbv	< 0.03	0	0
3-Methylhexane	C7H16	100.205	ppbv	< 0.02	0	0
3-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
Acetone	C3H6O	58.08	ppbv	16.3	0.039363992	0.02509352
Acrolein	C3H4O	56.064	ppbv	1.6	0.00372983	0.002377669
Benzene	C6H6	78.114	ppbv	0.19	0.000617117	0.000393396
Benzyl chloride	C7H7Cl	126.583	ppbv	< 0.3	0	0
Bromodichloromethane	CHBrCl2	163.823	ppbv	< 0.03	0	0
Bromoform	CHBr3	252.731	ppbv	< 0.02	0	0
Bromomethane	CH3Br	94.939	ppbv	0.06	0.000236854	0.000150988

Carbon disulfide	CS2	76.131	ppbv	3.72	0.011775772	0.007506748
Carbon tetrachloride	CCl4	153.811	ppbv	< 0.02	0	0
Chlorobenzene	C6H5Cl	112.556	ppbv	< 0.02	0	0
Chloroethane	C2H5Cl	64.512	ppbv	0.02	5.36482E-05	3.41994E-05
Chloroform	CHCl3	119.369	ppbv	0.03	0.000148901	9.49205E-05
Chloromethane	CH3Cl	50.485	ppbv	0.11	0.000230909	0.000147198
cis-1,2-Dichloroethene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
cis-1,3-Dichloropropene	C3H4Cl2	110.965	ppbv	< 0.03	0	0
cis-2-Butene	C4H8	56.108	ppbv	0.1	0.000233297	0.000148721
cis-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Cyclohexane	C6H12	84.162	ppbv	< 0.04	0	0
Cyclopentane	C5H10	70.135	ppbv	< 0.02	0	0
Dibromochloromethane	CHBr2Cl	208.277	ppbv	< 0.02	0	0
Ethanol	C2H6O	46.069	ppbv	< 0.5	0	0
Ethyl acetate	C4H8O2	88.106	ppbv	< 0.3	0	0
Ethylbenzene	C8H10	106.168	ppbv	0.05	0.000220723	0.000140705
Freon-11	CCl3F	137.359	ppbv	0.02	0.000114228	7.28173E-05
Freon-113	C2Cl3F3	187.366	ppbv	< 0.02	0	0
Freon-114	C2Cl2F4	170.914	ppbv	< 0.03	0	0
Freon-12	CCl2F2	120.907	ppbv	0.05	0.000251366	0.000160239
Hexachloro-1,3-butadiene	C4Cl6	260.744	ppbv	< 0.3	0	0
Isobutane	C4H10	58.124	ppbv	< 0.03	0	0
Isopentane	C5H12	72.151	ppbv	0.44	0.001320018	0.000841477
Isoprene	C5H8	68.119	ppbv	< 0.02	0	0
Isopropyl alcohol	C3H8O	60.096	ppbv	1.7	0.00424795	0.002707958
Isopropylbenzene	C9H12	120.195	ppbv	< 0.04	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.17	0.00075046	0.000478399
m-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
m-Ethyltoluene	C9H12	120.195	ppbv	< 0.03	0	0
Methyl butyl ketone	C5H10O	86.134	ppbv	< 0.4	0	0
Methyl ethyl ketone	C4H8O	72.107	ppbv	0.7	0.002098748	0.001337897
Methyl isobutyl ketone	C6H12O	100.161	ppbv	< 0.3	0	0
Methyl methacrylate	C5H8O2	100.117	ppbv	< 0.08	0	0
Methyl tert butyl ether	C5H12O	88.15	ppbv	< 0.03	0	0
Methylcyclohexane	C7H14	98.189	ppbv	< 0.02	0	0
Methylcyclopentane	C6H12	84.162	ppbv	< 0.05	0	0
Methylene chloride	CH2Cl2	84.927	ppbv	< 0.3	0	0
n-Butane	C4H10	58.124	ppbv	0.11	0.000265848	0.000169471
n-Decane	C10H22	142.286	ppbv	< 0.06	0	0
n-Dodecane	C12H26	170.34	ppbv	< 0.3	0	0
n-Heptane	C7H16	100.205	ppbv	0.08	0.000333322	0.000212484
n-Hexane	C6H14	86.178	ppbv	0.13	0.000465827	0.000296953
n-Nonane	C9H20	128.259	ppbv	< 0.04	0	0
n-Octane	C8H18	114.232	ppbv	0.07	0.000332484	0.00021195
n-Pentane	C5H12	72.151	ppbv	0.13	0.000390005	0.000248618
n-Propylbenzene	C9H12	120.195	ppbv	< 0.06	0	0
n-Undecane	C11H24	156.313	ppbv	< 0.5	0	0
Naphthalene	C10H8	128.174	ppbv	< 0.3	0	0
o-Ethyltoluene	C9H12	120.195	ppbv	< 0.02	0	0
o-Xylene	C8H10	106.168	ppbv	0.06	0.000264868	0.000168847
p-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
p-Ethyltoluene	C9H12	120.195	ppbv	< 0.04	0	0
Styrene	C8H8	104.152	ppbv	< 0.04	0	0
Tetrachloroethylene	C2Cl4	165.822	ppbv	< 0.02	0	0
Tetrahydrofuran	C4H8O	72.107	ppbv	< 0.3	0	0
Toluene	C7H8	92.141	ppbv	3.22	0.01233655	0.007864229
trans-1,2-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.06	0	0
trans-1,3-Dichloropropylene	C3H4Cl2	110.965	ppbv	< 0.02	0	0
trans-2-Butene	C4H8	56.108	ppbv	0.11	0.000256627	0.000163593
trans-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Trichloroethylene	C2HCl3	131.38	ppbv	< 0.02	0	0
Vinyl acetate	C4H6O2	86.09	ppbv	< 0.3	0	0
Vinyl chloride	C2H3Cl	62.496	ppbv	< 0.02	0	0

Train 1 Natural Gas Turbine Engine (1E-4101B) - Total VOC

Standard pressure: mmHg 760

Standard Temperature: deg C 20

Test 2

9/27/2025

13:00 – 14:03

Dry Flow Rate: m3/s 185

			mg/m3	kg/hr
Total VOC	ppbv	10.41	**0.028496605**	**0.01894713**

BTEX			**ppbv**	**1.93**	**0.007365105**	**0.004896991**
Benzene	C6H6	78.114	ppbv	0.19	0.000617117	0.000410315
Toluene	C7H8	92.141	ppbv	1.6	0.006129963	0.004075756
Ethylbenzene	C8H10	106.168	ppbv	0.03	0.000132434	8.80542E-05
m,p-Xylene	C8H10	106.168	ppbv	0.11	0.000485592	0.000322865

Compound	Formula	Molecular Weight (g/mol)	units	test 2	mg/m3	kg/hr
1,1,1-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1,2,2-Tetrachloroethane	C2H2Cl4	167.838	ppbv	< 0.02	0	0
1,1,2-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.02	0	0
1,1-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
1,2,3-Trimethylbenzene	C9H12	120.195	ppbv	< 0.05	0	0
1,2,4-Trichlorobenzene	C6H3Cl3	181.44	ppbv	< 0.3	0	0
1,2,4-Trimethylbenzene	C9H12	120.195	ppbv	0.03	0.000149931	9.9688E-05
1,2-Dibromoethane	C2H4Br2	187.862	ppbv	< 0.02	0	0
1,2-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.03	0	0
1,2-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.03	0	0
1,2-Dichloropropane	C3H6Cl2	112.981	ppbv	< 0.03	0	0
1,3,5-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,3-Butadiene	C4H6	54.092	ppbv	< 0.03	0	0
1,3-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dioxane	C4H8O2	88.106	ppbv	< 0.5	0	0
1-Butene/Isobutylene	C4H8	56.108	ppbv	0.27	0.000629903	0.000418817
1-Hexene/2-Methyl-1-pentene	C6H12	84.162	ppbv	< 0.07	0	0
1-Pentene	C5H10	70.135	ppbv	< 0.03	0	0
2,2,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,2-Dimethylbutane	C6H14	86.178	ppbv	< 0.02	0	0
2,3,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,3-Dimethylbutane	C6H14	86.178	ppbv	< 0.09	0	0
2,3-Dimethylpentane	C7H16	100.205	ppbv	< 0.02	0	0
2,4-Dimethylpentane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylheptane	C8H18	114.232	ppbv	< 0.02	0	0
2-Methylhexane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
3-Methylheptane	C8H18	114.232	ppbv	< 0.03	0	0
3-Methylhexane	C7H16	100.205	ppbv	< 0.02	0	0
3-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
Acetone	C3H6O	58.08	ppbv	6.1	0.01473131	0.009794713
Acrolein	C3H4O	56.064	ppbv	1.3	0.003030486	0.002014943
Benzene	C6H6	78.114	ppbv	0.19	0.000617117	0.000410315
Benzyl chloride	C7H7Cl	126.583	ppbv	< 0.3	0	0
Bromodichloromethane	CHBrCl2	163.823	ppbv	< 0.03	0	0
Bromoform	CHBr3	252.731	ppbv	< 0.02	0	0
Bromomethane	CH3Br	94.939	ppbv	0.02	7.89514E-05	5.2494E-05

Carbon disulfide	CS2	76.131	ppbv	0.12	0.000379864	0.000252568
Carbon tetrachloride	CCl4	153.811	ppbv	< 0.02	0	0
Chlorobenzene	C6H5Cl	112.556	ppbv	< 0.02	0	0
Chloroethane	C2H5Cl	64.512	ppbv	< 0.02	0	0
Chloroform	CHCl3	119.369	ppbv	0.02	9.92674E-05	6.6002E-05
Chloromethane	CH3Cl	50.485	ppbv	0.1	0.000209917	0.000139572
cis-1,2-Dichloroethene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
cis-1,3-Dichloropropene	C3H4Cl2	110.965	ppbv	< 0.03	0	0
cis-2-Butene	C4H8	56.108	ppbv	0.03	6.99892E-05	4.65352E-05
cis-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Cyclohexane	C6H12	84.162	ppbv	< 0.04	0	0
Cyclopentane	C5H10	70.135	ppbv	< 0.02	0	0
Dibromochloromethane	CHBr2Cl	208.277	ppbv	< 0.02	0	0
Ethanol	C2H6O	46.069	ppbv	< 0.5	0	0
Ethyl acetate	C4H8O2	88.106	ppbv	< 0.3	0	0
Ethylbenzene	C8H10	106.168	ppbv	0.03	0.000132434	8.80542E-05
Freon-11	CCl3F	137.359	ppbv	0.02	0.000114228	7.59491E-05
Freon-113	C2Cl3F3	187.366	ppbv	< 0.02	0	0
Freon-114	C2Cl2F4	170.914	ppbv	< 0.03	0	0
Freon-12	CCl2F2	120.907	ppbv	0.04	0.000201093	0.000133705
Hexachloro-1,3-butadiene	C4Cl6	260.744	ppbv	< 0.3	0	0
Isobutane	C4H10	58.124	ppbv	< 0.03	0	0
Isopentane	C5H12	72.151	ppbv	0.16	0.000480007	0.000319152
Isoprene	C5H8	68.119	ppbv	< 0.02	0	0
Isopropyl alcohol	C3H8O	60.096	ppbv	< 0.3	0	0
Isopropylbenzene	C9H12	120.195	ppbv	< 0.04	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.11	0.000485592	0.000322865
m-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
m-Ethyltoluene	C9H12	120.195	ppbv	< 0.03	0	0
Methyl butyl ketone	C5H10O	86.134	ppbv	< 0.4	0	0
Methyl ethyl ketone	C4H8O	72.107	ppbv	< 0.3	0	0
Methyl isobutyl ketone	C6H12O	100.161	ppbv	< 0.3	0	0
Methyl methacrylate	C5H8O2	100.117	ppbv	< 0.08	0	0
Methyl tert butyl ether	C5H12O	88.15	ppbv	< 0.03	0	0
Methylcyclohexane	C7H14	98.189	ppbv	< 0.02	0	0
Methylcyclopentane	C6H12	84.162	ppbv	< 0.05	0	0
Methylene chloride	CH2Cl2	84.927	ppbv	< 0.3	0	0
n-Butane	C4H10	58.124	ppbv	0.08	0.000193344	0.000128553
n-Decane	C10H22	142.286	ppbv	< 0.06	0	0
n-Dodecane	C12H26	170.34	ppbv	< 0.3	0	0
n-Heptane	C7H16	100.205	ppbv	0.05	0.000208326	0.000138514
n-Hexane	C6H14	86.178	ppbv	< 0.03	0	0
n-Nonane	C9H20	128.259	ppbv	< 0.04	0	0
n-Octane	C8H18	114.232	ppbv	0.06	0.000284986	0.000189485
n-Pentane	C5H12	72.151	ppbv	< 0.04	0	0
n-Propylbenzene	C9H12	120.195	ppbv	< 0.06	0	0
n-Undecane	C11H24	156.313	ppbv	< 0.5	0	0
Naphthalene	C10H8	128.174	ppbv	< 0.3	0	0
o-Ethyltoluene	C9H12	120.195	ppbv	< 0.02	0	0
o-Xylene	C8H10	106.168	ppbv	0.04	0.000176579	0.000117406
p-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
p-Ethyltoluene	C9H12	120.195	ppbv	< 0.04	0	0
Styrene	C8H8	104.152	ppbv	< 0.04	0	0
Tetrachloroethylene	C2Cl4	165.822	ppbv	< 0.02	0	0
Tetrahydrofuran	C4H8O	72.107	ppbv	< 0.3	0	0
Toluene	C7H8	92.141	ppbv	1.6	0.006129963	0.004075756
trans-1,2-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.06	0	0
trans-1,3-Dichloropropylene	C3H4Cl2	110.965	ppbv	< 0.02	0	0
trans-2-Butene	C4H8	56.108	ppbv	0.04	9.33189E-05	6.20469E-05
trans-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Trichloroethylene	C2HCl3	131.38	ppbv	< 0.02	0	0
Vinyl acetate	C4H6O2	86.09	ppbv	< 0.3	0	0
Vinyl chloride	C2H3Cl	62.496	ppbv	< 0.02	0	0

Train 1 Natural Gas Turbine Engine (1E-4101B) - Total VOC

Test 3
9/27/2025
14:30 – 15:32

Standard pressure:	mmHg	760
Standard Temperature:	deg C	20
Dry Flow Rate:	m3/s	188

			mg/m3	kg/hr
Total VOC	ppbv	40.19	**0.107852923**	**0.073143955**

BTEX			**ppbv**	**1.9**	**0.007238504**	**0.004909026**
Benzene	C6H6	78.114	ppbv	0.25	0.000811996	0.000550681
Toluene	C7H8	92.141	ppbv	1.47	0.005631903	0.003819458
Ethylbenzene	C8H10	106.168	ppbv	0.04	0.000176579	0.000119753
m,p-Xylene	C8H10	106.168	ppbv	0.14	0.000618026	0.000419134

Compound	Formula	Molecular Weight (g/mol)	units	test 3	mg/m3	kg/hr
1,1,1-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1,2,2-Tetrachloroethane	C2H2Cl4	167.838	ppbv	< 0.02	0	0
1,1,2-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.02	0	0
1,1-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
1,2,3-Trimethylbenzene	C9H12	120.195	ppbv	< 0.05	0	0
1,2,4-Trichlorobenzene	C6H3Cl3	181.44	ppbv	< 0.3	0	0
1,2,4-Trimethylbenzene	C9H12	120.195	ppbv	0.05	0.000249886	0.000169468
1,2-Dibromoethane	C2H4Br2	187.862	ppbv	< 0.02	0	0
1,2-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.03	0	0
1,2-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.03	0	0
1,2-Dichloropropane	C3H6Cl2	112.981	ppbv	< 0.03	0	0
1,3,5-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,3-Butadiene	C4H6	54.092	ppbv	< 0.03	0	0
1,3-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dioxane	C4H8O2	88.106	ppbv	< 0.5	0	0
1-Butene/Isobutylene	C4H8	56.108	ppbv	1.64	0.003826076	0.002594777
1-Hexene/2-Methyl-1-pentene	C6H12	84.162	ppbv	< 0.07	0	0
1-Pentene	C5H10	70.135	ppbv	0.04	0.000116649	7.91091E-05
2,2,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,2-Dimethylbutane	C6H14	86.178	ppbv	< 0.02	0	0
2,3,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,3-Dimethylbutane	C6H14	86.178	ppbv	< 0.09	0	0
2,3-Dimethylpentane	C7H16	100.205	ppbv	< 0.02	0	0
2,4-Dimethylpentane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylheptane	C8H18	114.232	ppbv	< 0.02	0	0
2-Methylhexane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
3-Methylheptane	C8H18	114.232	ppbv	< 0.03	0	0
3-Methylhexane	C7H16	100.205	ppbv	< 0.02	0	0
3-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
Acetone	C3H6O	58.08	ppbv	25.4	0.061340208	0.041599849
Acrolein	C3H4O	56.064	ppbv	2.2	0.005128516	0.003478069
Benzene	C6H6	78.114	ppbv	0.25	0.000811996	0.000550681
Benzyl chloride	C7H7Cl	126.583	ppbv	0.3	0.001578998	0.001070849
Bromodichloromethane	CHBrCl2	163.823	ppbv	< 0.03	0	0
Bromoform	CHBr3	252.731	ppbv	< 0.02	0	0
Bromomethane	CH3Br	94.939	ppbv	< 0.02	0	0

Carbon disulfide	CS2	76.131	ppbv	4.1	0.012978674	0.008801908
Carbon tetrachloride	CCl4	153.811	ppbv	< 0.02	0	0
Chlorobenzene	C6H5Cl	112.556	ppbv	< 0.02	0	0
Chloroethane	C2H5Cl	64.512	ppbv	< 0.02	0	0
Chloroform	CHCl3	119.369	ppbv	< 0.02	0	0
Chloromethane	CH3Cl	50.485	ppbv	0.11	0.000230909	0.000156598
cis-1,2-Dichloroethene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
cis-1,3-Dichloropropene	C3H4Cl2	110.965	ppbv	< 0.03	0	0
cis-2-Butene	C4H8	56.108	ppbv	0.07	0.000163308	0.000110753
cis-2-Pentene	C5H10	70.135	ppbv	0.03	8.74865E-05	5.93318E-05
Cyclohexane	C6H12	84.162	ppbv	< 0.04	0	0
Cyclopentane	C5H10	70.135	ppbv	< 0.02	0	0
Dibromochloromethane	CHBr2Cl	208.277	ppbv	< 0.02	0	0
Ethanol	C2H6O	46.069	ppbv	< 0.5	0	0
Ethyl acetate	C4H8O2	88.106	ppbv	< 0.3	0	0
Ethylbenzene	C8H10	106.168	ppbv	0.04	0.000176579	0.000119753
Freon-11	CCl3F	137.359	ppbv	0.02	0.000114228	7.74673E-05
Freon-113	C2Cl3F3	187.366	ppbv	< 0.02	0	0
Freon-114	C2Cl2F4	170.914	ppbv	< 0.03	0	0
Freon-12	CCl2F2	120.907	ppbv	0.04	0.000201093	0.000136378
Hexachloro-1,3-butadiene	C4Cl6	260.744	ppbv	< 0.3	0	0
Isobutane	C4H10	58.124	ppbv	< 0.03	0	0
Isopentane	C5H12	72.151	ppbv	0.65	0.001950027	0.001322474
Isoprene	C5H8	68.119	ppbv	< 0.02	0	0
Isopropyl alcohol	C3H8O	60.096	ppbv	0.4	0.000999518	0.000677855
Isopropylbenzene	C9H12	120.195	ppbv	< 0.04	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.14	0.000618026	0.000419134
m-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
m-Ethyltoluene	C9H12	120.195	ppbv	< 0.03	0	0
Methyl butyl ketone	C5H10O	86.134	ppbv	< 0.4	0	0
Methyl ethyl ketone	C4H8O	72.107	ppbv	1.8	0.005396782	0.003660002
Methyl isobutyl ketone	C6H12O	100.161	ppbv	< 0.3	0	0
Methyl methacrylate	C5H8O2	100.117	ppbv	< 0.08	0	0
Methyl tert butyl ether	C5H12O	88.15	ppbv	< 0.03	0	0
Methylcyclohexane	C7H14	98.189	ppbv	< 0.02	0	0
Methylcyclopentane	C6H12	84.162	ppbv	0.08	0.000279957	0.000189862
Methylene chloride	CH2Cl2	84.927	ppbv	< 0.3	0	0
n-Butane	C4H10	58.124	ppbv	0.11	0.000265848	0.000180293
n-Decane	C10H22	142.286	ppbv	< 0.06	0	0
n-Dodecane	C12H26	170.34	ppbv	< 0.3	0	0
n-Heptane	C7H16	100.205	ppbv	0.06	0.000249992	0.00016954
n-Hexane	C6H14	86.178	ppbv	0.19	0.000680824	0.000461723
n-Nonane	C9H20	128.259	ppbv	< 0.04	0	0
n-Octane	C8H18	114.232	ppbv	0.07	0.000332484	0.000225485
n-Pentane	C5H12	72.151	ppbv	0.05	0.000150002	0.000101729
n-Propylbenzene	C9H12	120.195	ppbv	< 0.06	0	0
n-Undecane	C11H24	156.313	ppbv	< 0.5	0	0
Naphthalene	C10H8	128.174	ppbv	0.7	0.003730636	0.002530052
o-Ethyltoluene	C9H12	120.195	ppbv	< 0.02	0	0
o-Xylene	C8H10	106.168	ppbv	0.06	0.000264868	0.000179629
p-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
p-Ethyltoluene	C9H12	120.195	ppbv	< 0.04	0	0
Styrene	C8H8	104.152	ppbv	< 0.04	0	0
Tetrachloroethylene	C2Cl4	165.822	ppbv	< 0.02	0	0
Tetrahydrofuran	C4H8O	72.107	ppbv	< 0.3	0	0
Toluene	C7H8	92.141	ppbv	1.47	0.005631903	0.003819458
trans-1,2-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.06	0	0
trans-1,3-Dichloropropylene	C3H4Cl2	110.965	ppbv	< 0.02	0	0
trans-2-Butene	C4H8	56.108	ppbv	0.09	0.000209968	0.000142396
trans-2-Pentene	C5H10	70.135	ppbv	0.03	8.74865E-05	5.93318E-05
Trichloroethylene	C2HCl3	131.38	ppbv	< 0.02	0	0
Vinyl acetate	C4H6O2	86.09	ppbv	< 0.3	0	0
Vinyl chloride	C2H3Cl	62.496	ppbv	< 0.02	0	0

METHOD 201A - PM10/2.5 SAMPLING TITLE PAGE

Source Information				
Plant Name	LNG-CANADA			
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)			
Fuel or Source Type				
Fuel F-Factor				

Test Information			
Starting Test Date		09/27/25	
Project #		25C338707	
Operator		MS-VK	
Standard Temperature		68	^{o}F
Standard Pressure		30	in Hg
Run Duration		60	Minutes
Base Run Number		1	
# of Ports Available		4	
# of Ports Used		4	
Port Inside Diameter		4	in
Circular Stack?		☑	
Rectangular Stack?		☐	

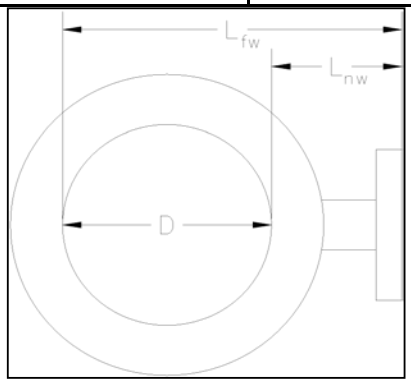
Test Equipment Information			
Orifice Meter Coefficient	($\Delta H_{@}$)	1.965	in H_2O
Meterbox Calibration Factor	(Y)	0.999	
Pitot Identification		PB9C	
Pitot Tube Coefficient	(C_p)	0.819	
Method 201A Pitot Coefficient	(C'_p)	0.819	
Sample Case/Oven Number		1	
Impinger Case Number		1.0000	in
Probe Number		PB9C	
Probe Length		100.00	in
(SS, Glass ....) **Liner Material**		SS	
PM10 Cyclone		☐	
PM2.5 Cyclone		☑	
Combination Cyclone		☐	

Testing Company Information	
Company Name	AGAT Laboratories Ltd
Address	3700, 21 Street NE
City, State Country Zip	Calgary,Alberta, T2E 6V6
Project Manager	Shaun Hayward
Phone Number	403-299-2179
Fax Number	

METHOD 1 - SAMPLE AND VELOCITY TRAVERSES FOR CIRCULAR SOURCES

Plant Name	LNG-CANADA	**Date**	09/27/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)	**Project #**	25C338707
Operator	MS-VK	**# of Ports Available**	4
Stack Type	Circular	**# of Ports Used**	4
Stack Size	Large	**Port Inside Diameter**	4

Circular Stack or Duct Diameter			
Distance to Far Wall of Stack	(L_{fw})	165.30	in
Distance to Near Wall of Stack	(L_{nw})	9.00	in
(=Lfw - Lnw) **Diameter of Stack**	(D)	156.30	in
(=3.14(D/2/Cunits)2) **Area of Stack**	(A_s)	133.24	ft^2

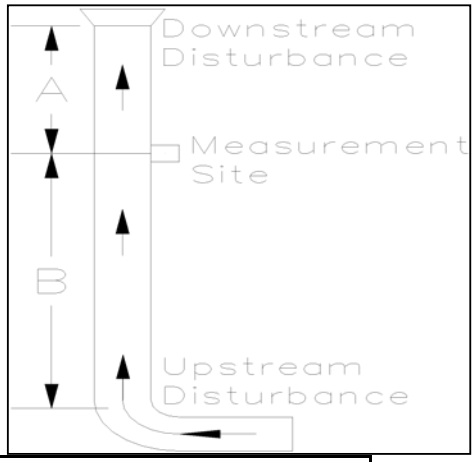


Distance from Port to Disturbances			
Distance Upstream	(B)	655.31	in
(=B/D) **Diameters Upstream**	(B_D)	4.19	diameters
Distance Downstream	(A)	353.19	in
(=A/D) **Diameters Downstream**	(A_D)	2.26	diameters

Number of Traverse Points Required			
Diameters to Flow Disturbance		**Minimum Number of[1] Traverse Points**	
Up Stream	**Down Stream**	**Particulate Points**	**Velocity Points**
2.00-4.99	0.50-1.24	24	16
5.00-5.99	1.25-1.49	20	16
6.00-6.99	1.50-1.74	16	12
7.00-7.99	1.75-1.99	12	12
>= 8.00	>=2.00	8 or 12[2]	8 or 12[2]
Upstream Spec		24	16
Downstream Spec		12	12
Traverse Pts Required		24	16

[1] Check Minimum Number of Points for the Upstream and Downstream conditions, then use the largest.

[2] 8 for Circular Stacks 12 to 24 inches
12 for Circular Stacks over 24 inches



Number of Traverse Points Used			
4	**Ports by**	4	**Across**
16	**Pts Used**	16	**Required**
☑	**Particulate**	☐	**Velocity**

Location of Traverse Points in Circular Stacks

Traverse Point Number	(Fraction of Stack Diameter from Inside Wall to Traverse Point) Number of Traverse Points on a Diameter					
	2	4	6	8	10	12
1	.146	.067	.044	.032	.026	.021
2	.854	.250	.146	.105	.082	.067
3		.750	.296	.194	.146	.118
4		.933	.704	.323	.226	.177
5			.854	.677	.342	.250
6			.956	.806	.658	.356
7				.895	.774	.644
8				.968	.854	.750
9					.918	.823
10					.974	.882
11						.933
12						.979

Traverse Point Locations			
Traverse Point Number	**Fraction of Stack Diameter**	**Distance from Inside Wall**	**Distance Including Nipple Length**
		in	in
1	0.032	5	14
2	0.105	16 3/8	25 3/8
3	0.194	30 3/8	39 3/8
4	0.323	50 4/8	59 4/8
5			
6			
7			
8			
9			
10			
11			
12			

DETERMINATION OF STACK GAS VELOCITY AND DWELL TIMES

Plant Name	LNG-CANADA				**Date**	09/27/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)				**Project #**	25C338707
Operator	MS-VK				**# of Ports Used**	4
Stack Type	Circular				**Pitot Identification**	PB9C
Pitot Leak Check	☑	**PreTest**	☑	**PostTest**	**Pitot Coefficient (C_p)**	0.819

Stack Dimensions			
Diameter or Length of Stack	(D)	156.30	in
Width of Stack	(W)		in
Area of Stack	(A_s)	133.24	ft^2

Pressures			
Barometric Pressure	(P_b)	29.56	in Hg
Static Pressure	(P_{static})	-1.10	in H_2O
Absolute Stack Pressure	(P_s)	29.48	in Hg

Stack Gas Composition				
Composition Data:	**Actual**	☐	**Estimate**	☑
Carbon Dioxide Concentration	($\%CO_2$)	4.0	%	
Oxygen Concentration	($\%O_2$)	14.0	%	
Carbon Monoxide Concentration	(%CO)	0.0	%	
Nitrogen Concentration	($\%N_2$)	82.0	%	
Stack Moisture Content	(B_{ws})	7		
Stack Dry Molecular Weight	(M_d)	29.20	lb/lb-mole	
Stack Wet Molecular Weight	(M_s)	28.38	lb/lb-mole	

Results			
Avg Stack Gas Velocity	(v_s)	75.9	ft/sec
Avg Stack Dry Std Flow Rate	(Q_{sd})	21208219	dscf/hr
Avg Stack Dry Std Flow Rate	(Q_{sd})	353470	dscf/min
Avg Stack Wet Flow Rate	(Q_{aw})	606899	acf/min

Stack Cross Section Schematic

Velocity Traverse and Dwell Times

Total Number of Points	16			
Run Time	60.00			
Traverse Point	**Velocity Head** (Δp)	**Stack Temp** (t_s)	**Local Velocity** (v_s)$_l$	**Dwell Times** (t_d)
	in H_2O	^oF	ft/sec	min
A-1	1.30	364	79.2	3.9
A-2	1.30	365	79.3	3.9
A-3	1.20	367	76.3	3.8
A-4	0.99	367	69.1	3.4
B-1	1.40	369	82.5	4.1
B-2	1.45	369	83.9	4.1
B-3	1.30	369	79.5	3.9
B-4	0.98	369	69.0	3.4
C-1	1.40	370	82.5	4.1
C-2	1.30	369	79.5	3.9
C-3	0.89	367	65.7	3.2
C-4	0.89	367	65.7	3.2
D-1	1.30	367	79.4	3.9
D-2	1.30	367	79.4	3.9
D-3	1.30	370	79.5	3.9
D-4	0.85	372	64.4	3.2
Average[1]	1.09	368	76	

[1] Please report the average of the square roots of Δp, or, $(\Delta p)^{1/2}_{avg} = {}^1/_n\Sigma(\Delta p^{1/2})$

Formulas Used

$A_s = DW/K_u$ for Rectangular Stacks

$A_s = (\pi(D/2)^2)/K_u$ for Circular Stacks

where $K_u = 1$ for metric units

where $K_u = 144$ (in^2/ft^2) for English units

$P_s = P_{bar} + P_{static}/13.6$

$\%N_2 = 100 - \%CO_2 - \%O_2 - \%CO$

$M_d = .44(\%CO_2) + .32(\%O_2) + .28(\%N_2 + \%CO)$

$M_s = M_d(1 - B_{ws}) + 18B_{ws}$

$(\Delta p)^{1/2}_{avg} = {}^1/_n\Sigma(\Delta p^{1/2})$

$T_{s(avg)} = {}^1/_n\Sigma t_s + T_u$

where $T_u = 273\ ^oK$ for metric units

where $T_u = 460\ ^oR$ for English units

$v_s = K_pC_p(\Delta p)^{1/2}_{avg}\ (T_{s(avg)}/(P_sM_s))^{1/2}$

where $K_p = 34.97$ for metric units

where $K_p = 85.49$ for English units

$Q_{sd} = 3600(1 - B_{ws})v_sA_s(T_{std}/T_{s(avg)})(P_s/P_{std})$

where $T_{std} = 293\ ^oK$, $P_{std} = 760$ mm Hg, for metric units

where $T_{std} = 528\ ^oR$, $P_{std} = 29.92$ in Hg, for English units

METHOD 3 - GAS ANALYSIS FOR THE DETERMINATION OF DRY MOLECULAR WEIGHT

Plant Name	LNG-CANADA	**Date**	09/27/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)	**Project #**	25C338707
Operator	MS-VK	**# of Ports Used**	4
Fuel Type		**Minimum Fuel Factor**	**Maximum Fuel Factor**
Orsat Leak Check	☑ PreTest ☑ PostTest	**Orsat Identification**	

Gas Analysis Data

Run Number	1			**Run Start Time**	11:25		**Run Stop Time**	12:28
Sample Analysis Time	**Carbon Dioxide Volume** (V_{CO2})	**Oxygen Volume** (V_{O2})	**Carbon Monoxide Volume** (V_{CO})	**Carbon Dioxide Conc.** ($\%CO_2$)	**Oxygen Conc.** ($\%O_2$)	**Carbon Monoxide Conc.** (%CO)	**Nitrogen Conc.** ($\%N_2$)	**Dry Molecular Weight** (M_d)	**Molecular Weight Deviation** (ΔM_d)
hh:mm	ml	ml	ml	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole
	4.0	18.0	18.0	4.0	14.0	0.0	82.0	29.20	0.00
	4.0	18.0	18.0	4.0	14.0	0.0	82.0	29.20	0.00
	4.0	18.0	18.0	4.0	14.0	0.0	82.0	29.20	0.00
Results			**Averages**	4.0	14.0	0.0	82.0	29.20	
Average Calculated Fuel Factor			$(F_o)_{avg}$	1.725		**Molecular Wt Deviation < 0.3?**			☑
Average Excess Air			$(\%EA)_{avg}$	183.1	percent	**Fuel Factor in Handbook Range?**			☑

Gas Analysis Data

Run Number	2			**Run Start Time**	13:00		**Run Stop Time**	14:03
Sample Analysis Time	**Carbon Dioxide Volume** (V_{CO2})	**Oxygen Volume** (V_{O2})	**Carbon Monoxide Volume** (V_{CO})	**Carbon Dioxide Conc.** ($\%CO_2$)	**Oxygen Conc.** ($\%O_2$)	**Carbon Monoxide Conc.** (%CO)	**Nitrogen Conc.** ($\%N_2$)	**Dry Molecular Weight** (M_d)	**Molecular Weight Deviation** (ΔM_d)
hh:mm	ml	ml	ml	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole
	4.0	18.0	18.0	4.0	14.0	0.0	82.0	29.20	0.00
	4.0	18.0	18.0	4.0	14.0	0.0	82.0	29.20	0.00
	4.0	18.0	18.0	4.0	14.0	0.0	82.0	29.20	0.00
Results			**Averages**	4.0	14.0	0.0	82.0	29.20	
Average Calculated Fuel Factor			$(F_o)_{avg}$	1.725		**Molecular Wt Deviation < 0.3?**			☐
Average Excess Air			$(\%EA)_{avg}$	183.1	percent	**Fuel Factor in Handbook Range?**			☐

Gas Analysis Data

Run Number	3			**Run Start Time**	14:30		**Run Stop Time**	15:32
Sample Analysis Time	**Carbon Dioxide Volume** (V_{CO2})	**Oxygen Volume** (V_{O2})	**Carbon Monoxide Volume** (V_{CO})	**Carbon Dioxide Conc.** ($\%CO_2$)	**Oxygen Conc.** ($\%O_2$)	**Carbon Monoxide Conc.** (%CO)	**Nitrogen Conc.** ($\%N_2$)	**Dry Molecular Weight** (M_d)	**Molecular Weight Deviation** (ΔM_d)
hh:mm	ml	ml	ml	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole
	4.0	18.0	18.0	4.0	14.0	0.0	82.0	29.20	0.00
	4.0	18.0	18.0	4.0	14.0	0.0	82.0	29.20	0.00
	4.0	18.0	18.0	4.0	14.0	0.0	82.0	29.20	0.00
Results			**Averages**	4.0	14.0	0.0	82.0	29.20	
Average Calculated Fuel Factor			$(F_o)_{avg}$	1.725		**Molecular Wt Deviation < 0.3?**			☐
Average Excess Air			$(\%EA)_{avg}$	183.1	percent	**Fuel Factor in Handbook Range?**			☐

Fuel Factor Fo

Fuel Type	**Minimum**	**Maximum**
Coal, Anthracite	1.016	1.130
Coal, Lignite	1.016	1.130
Coal, Bituminous	1.083	1.230
Oil, Distillate	1.260	1.413
Oil, Residual	1.210	1.370
Gas, Natural	1.600	1.836
Gas, Propane	1.434	1.586
Gas, Butane	1.405	1.553
Wood	1.000	1.120
Wood Bark	1.003	1.130

Formulas Used

$\%CO_2 = V_{CO2}$

$\%O_2 = V_{O2} - V_{CO2}$

$\%CO = V_{CO} - V_{O2}$

$\%N_2 = 100 - \%CO_2 - \%O_2 - \%CO$

$M_d = .44(\%CO_2) + .32(\%O_2) + .28(\%N_2 + \%CO)$

$\Delta M_d = M_d - M_{davg}$

$F_o = (20.9 - \%O_2 - .5\%CO)/(\%CO_2 + \%CO)$

$\%EA = 100(\%O_2 - .5\%CO)/(.264\%NO_2 - (\%O_2 - .5\%CO))$

METHOD 4 - DETERMINATION OF MOISTURE CONTENT IN STACK GASES

Plant Name	LNG-CANADA	**Date**	09/27/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)	**Project #**	25C338707
Operator	MS-VK	**# of Ports Used**	4
Stack Type	Circular	**Meter Box Number**	M5-%
Train Leak Check	☑ PreTest ☑ PostTest	**Meter Cal Factor (Y)**	0.9986

Moisture Content Data								
Run Number	1		**Run Start Time**	11:25		**Run Stop Time**	12:28	
Total Meter Volume	(V_m)	23.658	dcf	**Barometric Press.**	(P_b)	29.56	in Hg	
Avg Meter Temp	$(t_m)_{avg}$	55	°F	**Stack Static Press.**	(P_{static})	-1.10	in H_2O	
Avg Stack Temp	$(t_s)_{avg}$	362	°F	**Avg Orifice Press.**	$(\Delta H)_{avg}$	0.51	in H_2O	
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**
		ml	ml	ml	g	ml	ml	ml
Contents								
Final Value	$(V_f),(W_f)$	135.00	100.00	0.00	710.00			
Initial Value	$(V_i),(W_i)$	100.00	100.00	0.00	705.00			
Net Value	$(V_n),(W_n)$	35.0	0.0	0.0	5.0			
Results								
Total Volume	(V_t)	35.00	ml	**Water Vol Condensed**	$(V_{wc(std)})$	1.647	scf	
Total Weight	(W_t)	5.00	g	**Water Vol Weighed**	$(V_{wsg(std)})$	0.236	scf	
Std Meter Volume	$(V_{m(std)})$	23.939	dscf	**Sat. Moisture Content**	$(B_{ws(svp)})$	100.0	%	
Calc Moisture Content	$(B_{ws(calc)})$	7.3	%	**Final Moisture Content**	(B_{ws})	7.3	%	

Moisture Content Data								
Run Number	2		**Run Start Time**	13:00		**Run Stop Time**	14:03	
Total Meter Volume	(V_m)	24.915	dcf	**Barometric Press.**	(P_b)	29.56	in Hg	
Avg Meter Temp	$(t_m)_{avg}$	61	°F	**Stack Static Press.**	(P_{static})	-1.10	in H_2O	
Avg Stack Temp	$(t_s)_{avg}$	360	°F	**Avg Orifice Press.**	$(\Delta H)_{avg}$	0.51	in H_2O	
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**
		ml	ml	ml	g	g	ml	ml
Contents								
Final Value	$(V_f),(W_f)$	135.00	100.00	0.00	716.00			
Initial Value	$(V_i),(W_i)$	100.00	100.00	0.00	710.00			
Net Value	$(V_n),(W_n)$	35.0	0.0	0.0	6.0			
Results								
Total Volume	(V_t)	35.00	ml	**Water Vol Condensed**	$(V_{wc(std)})$	1.647	scf	
Total Weight	(W_t)	6.00	g	**Water Vol Weighed**	$(V_{wsg(std)})$	0.283	scf	
Std Meter Volume	$(V_{m(std)})$	24.921	dscf	**Sat. Moisture Content**	$(B_{ws(svp)})$	100.0	%	
Calc Moisture Content	(B_{ws})	7.2	%	**Final Moisture Content**	(B_{ws})	7.2	%	

Moisture Content Data								
Run Number	3		**Run Start Time**	14:30		**Run Stop Time**	15:32	
Total Meter Volume	(V_m)	24.997	dcf	**Barometric Press.**	(P_b)	29.56	in Hg	
Avg Meter Temp	$(t_m)_{avg}$	64	°F	**Stack Static Press.**	(P_{static})	-1.10	in H_2O	
Avg Stack Temp	$(t_s)_{avg}$	357	°F	**Avg Orifice Press.**	$(\Delta H)_{avg}$	0.52	in H_2O	
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**
		ml	ml	ml	g	ml	ml	ml
Contents								
Final Value	$(V_f),(W_f)$	135.00	100.00	0.00	722.00			
Initial Value	$(V_i),(W_i)$	100.00	100.00	0.00	716.00			
Net Value	$(V_n),(W_n)$	35.0	0.0	0.0	6.0			
Results								
Total Volume	(V_t)	35.00	ml	**Water Vol Condensed**	$(V_{wc(std)})$	1.647	scf	
Total Weight	(W_t)	6.00	g	**Water Vol Weighed**	$(V_{wsg(std)})$	0.283	scf	
Std Meter Volume	$(V_{m(std)})$	24.884	dscf	**Sat. Moisture Content**	$(B_{ws(svp)})$	100.0	%	
Calc Moisture Content	(B_{ws})	7.2	%	**Final Moisture Content**	(B_{ws})	7.2	%	

SAMPLE RECOVERY AND INTEGRITY DATA SHEET

Plant Name	LNG-CANADA	**Date**	09/27/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)	**Project #**	25C338707
Operator	MS-VK	**Cyclone Type**	PM2.5 Cyclone

Run History Data				
Run Number	1	2	3	
Run Start Time	11:25	13:00	14:30	(hh:mm)
Run Stop Time	12:28	14:03	15:32	(hh:mm)
Train Prepared By	MS-VK	MS-VK	MS-VK	
Train Recovered By	MS-VK	MS-VK	MS-VK	
Recovery Date	09/27/25	09/27/25	09/27/25	(mm/dd/yy)
Relinquished By	CA	CA	CA	
Received By				
Relinquished Date				(mm/dd/yy)
Relinquished Time				(hh:mm)

Equipment Identification Numbers			
Filter	1	1	1
Acetone Wash	1	1	1
Silica Gel	1	1	1
Impinger Case	1	1	1
Sample Box	1	1	1
Oven	1	1	1

Moisture Content Data					
Impingers 1, 2, and 3 - Water Volume					
Final Volume	(V_f)	235.0	235.0	235.0	ml
Initial Volume	(V_i)	200.0	200.0	200.0	ml
Net Volume	(V_n)	35.0	35.0	35.0	ml
Comments					
Impinger 4 - Silica Gel Weight					
Final Weight	(W_f)	710.0	716.0	722.0	g
Initial Weight	(W_i)	705.0	710.0	716.0	g
Net Weight	(W_n)	5.0	6.0	6.0	g
Comments					
Total Water Collected					
Total Volume	(V_{lc})	40.0	41.0	41.0	g

Formulas Used		
$V_n = V_f - V_i$	$W_n = W_f - W_i$	$V_{lc} = V_n + W_n/\rho_w$ where ρ_w = .9982 g/ml

SAMPLE ANALYTICAL DATA SHEET

Plant Name	LNG-CANADA	**Date**	09/27/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)	**Project #**	25C338707
Operator	MS-VK	**Cyclone Type**	PM2.5 Cyclone

Analytical Data

Placed in Desiccator — **Run Number** 1

		Number	Date	Time			Run Start Time	11:25		
Filter							**Leakage Evident?**	☐		
Acetone Wash I(Exit Tube)	**(Dp<2.5)**						**Estimated Volume**			
Acetone Nozzle Wash III	**(Dp>2.5)**									
PM2.5 Cup Catch	**(Dp>2.5)**									

		Filter	Acetone I	Acetone III	PM2.5 Cup Catch	Date	Time	Humidity	Temp	Cal Audit
		g	g	g	g	mm/dd/yy	hh:mm	%RH	°F	g
Measurement 1	(m_{1f}),(m_{1a})	0.0010	0.0001	0.0027	0.0000					
Measurement 2	(m_{2f}),(m_{2a})	0.0010	0.0001	0.0027	0.0000					
Measurement 3	(m_{3f}),(m_{3a})	0.0010	0.0001	0.0027	0.0000					
Measurement 4	(m_{4f}),(m_{4a})	0.0010	0.0001	0.0027	0.0000					

Results							**Acetone Wash**		**Beaker I**	**Beaker III**	
Final Weight	(m_{ff}),(m_{fa}')	0.0010	0.0001	0.0027	0.0000	g	**Bottle Wt with Wash**	(m_{bw})	0.0001	0.0001	g
Tare Weight	(m_{tf}),(m_{ta}')	0.0000	0.0000	0.0000	0.0000	g	**Additional Rinse Wt**	(m_{ar})	0.0001	0.0001	g
Weight Gain	(m_f),(m_a')	1.0	0.1	2.7	0.0	mg	**Bottle Tare Weight**	(m_{tb})	0.0001	0.0001	g
Blank Adjustment	(W_a)		0.0	0.0	N/A	mg	**Net Wash Weight**	(m_{nw})	0.0001	0.0001	g
Total Particulates	(m_n)				3.8	mg	**Blank Concentration**	(C_a)	0.0001	0.0001	mg/g

Analytical Data

Placed in Desiccator — **Run Number** 2

		Number	Date	Time			Run Start Time	13:00		
Filter							**Leakage Evident?**	☐		
Acetone Wash Beaker I	**(Dp<2.5)**						**Estimated Volume**			
Acetone Nozzle Wash III	**(Dp>2.5)**									
PM2.5 Cup Catch	**(Dp>2.5)**									

		Filter	Acetone I	Acetone III	PM2.5 Cup Catch	Date	Time	Humidity	Temp	Cal Audit
		g	g	g	g	mm/dd/yy	hh:mm	%RH	°F	g
Measurement 1	(m_{1f}),(m_{1a})	0.0010	0.0002	0.0021	0.0000					
Measurement 2	(m_{2f}),(m_{2a})	0.0010	0.0002	0.0021	0.0000					
Measurement 3	(m_{3f}),(m_{3a})	0.0010	0.0002	0.0021	0.0000					
Measurement 4	(m_{4f}),(m_{4a})	0.0010	0.0002	0.0021	0.0000					

Results							**Acetone Wash**		**Beaker I**	**Beaker III**	
Final Weight	(m_{ff}),(m_{fa}')	0.0010	0.0002	0.0021	0.0000	g	**Bottle Wt with Wash**	(m_{bw})	0.0001	0.0001	g
Tare Weight	(m_{tf}),(m_{ta}')	0.0000	0.0000	0.0000	0.0000	g	**Additional Rinse Wt**	(m_{ar})	0.0001	0.0001	g
Weight Gain	(m_f),(m_a')	1.0	0.2	2.1	0.0	mg	**Bottle Tare Weight**	(m_{tb})	0.0001	0.0001	g
Blank Adjustment	(W_a)		0.0	0.0	N/A	mg	**Net Wash Weight**	(m_{nw})	0.0001	0.0001	g
Total Particulates	(m_n)				3.3	mg	**Blank Concentration**	(C_a)	0.0001	0.0001	mg/g

Analytical Data

Placed in Desiccator — **Run Number** 3

		Number	Date	Time			Run Start Time	14:30		
Filter							**Leakage Evident?**	☐		
Acetone Wash Beaker I	**(Dp<2.5)**						**Estimated Volume**			
Acetone Nozzle Wash III	**(Dp>2.5)**									
PM2.5 Cup Catch	**(Dp>2.5)**									

		Filter	Acetone I	Acetone II	PM2.5 Cup Catch	Date	Time	Humidity	Temp	Cal Audit
		g	g	g	g	mm/dd/yy	hh:mm	%RH	°F	g
Measurement 1	(m_{1f}),(m_{1a})	0.0010	0.0008	0.0022	0.0000					
Measurement 2	(m_{2f}),(m_{2a})	0.0010	0.0008	0.0022	0.0000					
Measurement 3	(m_{3f}),(m_{3a})	0.0010	0.0008	0.0022	0.0000					
Measurement 4	(m_{4f}),(m_{4a})	0.0010	0.0008	0.0022	0.0000					

Results							**Acetone Wash**		**Beaker I**	**Beaker III**	
Final Weight	(m_{ff}),(m_{fa}')	0.0010	0.0008	0.0022	0.0000	g	**Bottle Wt with Wash**	(m_{bw})	0.0001	0.0001	g
Tare Weight	(m_{tf}),(m_{ta}')	0.0000	0.0000	0.0000	0.0000	g	**Additional Rinse Wt**	(m_{ar})	0.0001	0.0001	g
Weight Gain	(m_f),(m_a')	1.0	0.8	2.2	0.0	mg	**Bottle Tare Weight**	(m_{tb})	0.0001	0.0001	g
Blank Adjustment	(W_a)		0.0	0.0	N/A	mg	**Net Wash Weight**	(m_{nw})	0.0001	0.0001	g
Total Particulates	(m_n)				4.0	mg	**Blank Concentration**	(C_a)	0.0001	0.0001	mg/g

Formulas Used

m_{ff} = average of last two filter measurements

m_{fa}' = average of last two acetone measurements

$m_f = m_{ff} - m_{tf}$

$m_a' = m_{fa}' - m_{ta}'$

$W_a = C_a m_{nw}$

$m_{nw} = m_{bw} + m_{ar} - m_{tb}$

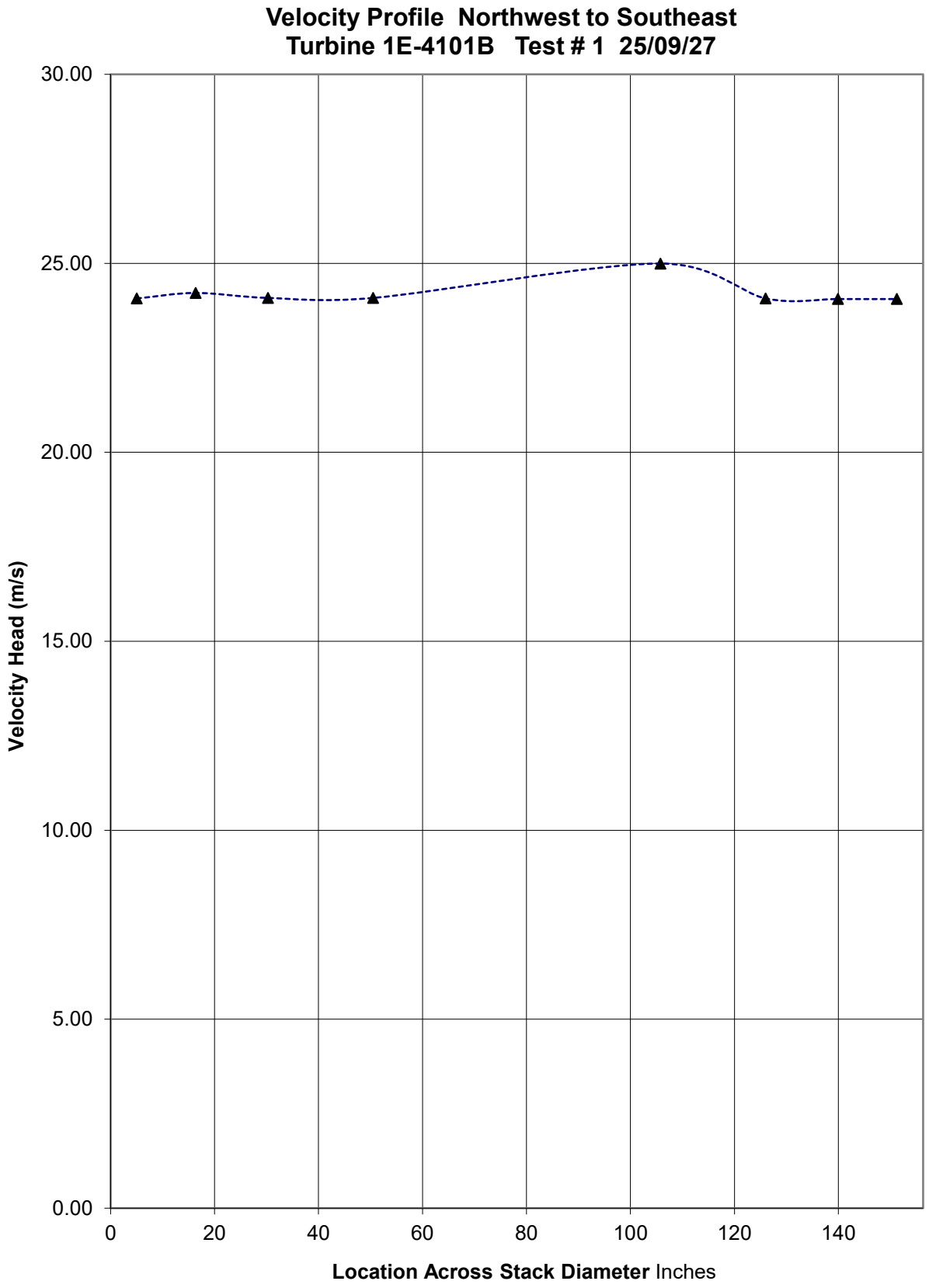
$m_n = m_f + m_a' - W_a$

DETERMINATION OF PARTICULATE EMISSIONS - RESULTS

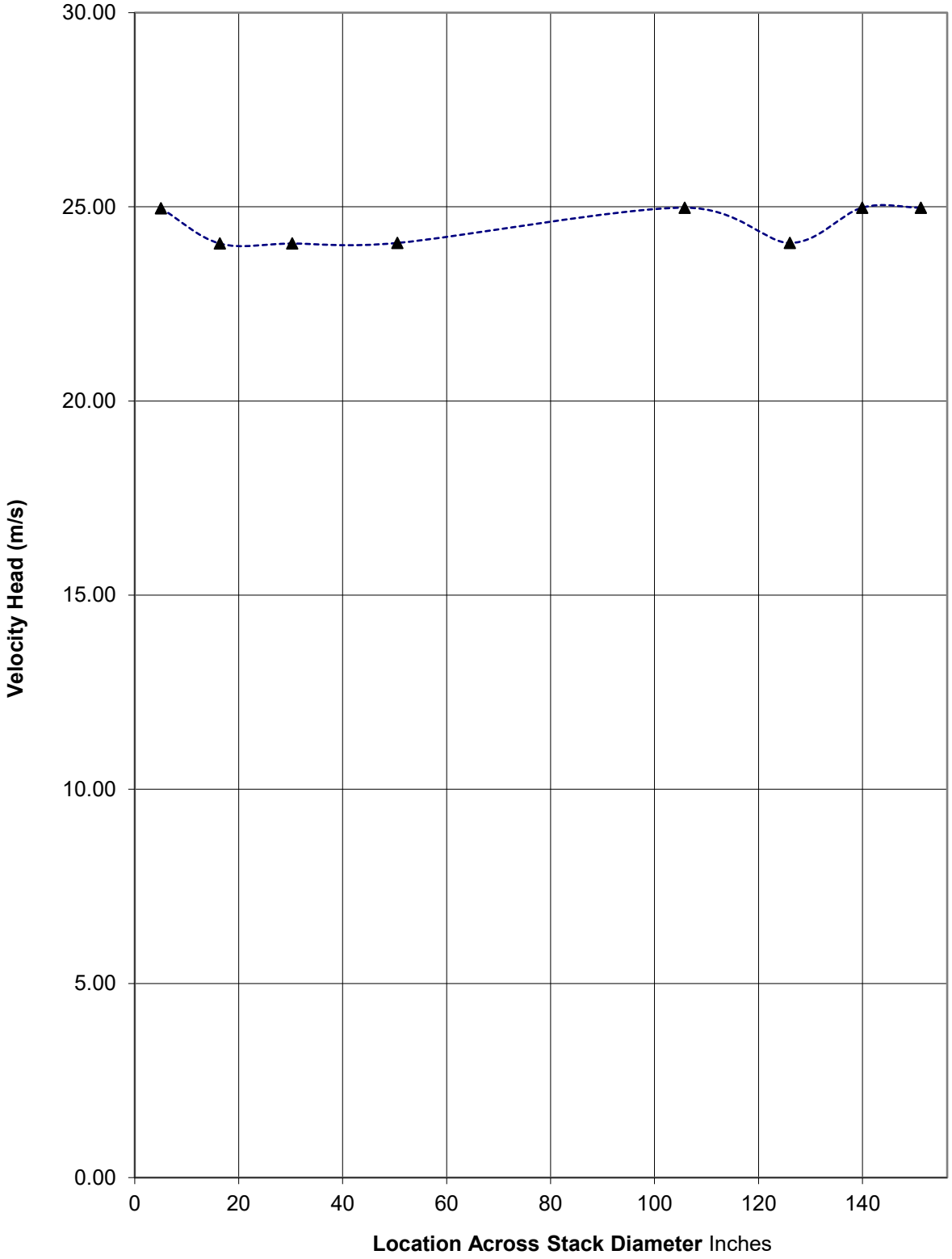
Plant Name	LNG-CANADA	**Date**	09/27/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)	**Project #**	25C338707
Operator	MS-VK	**Stack Type**	PM2.5 Cyclone

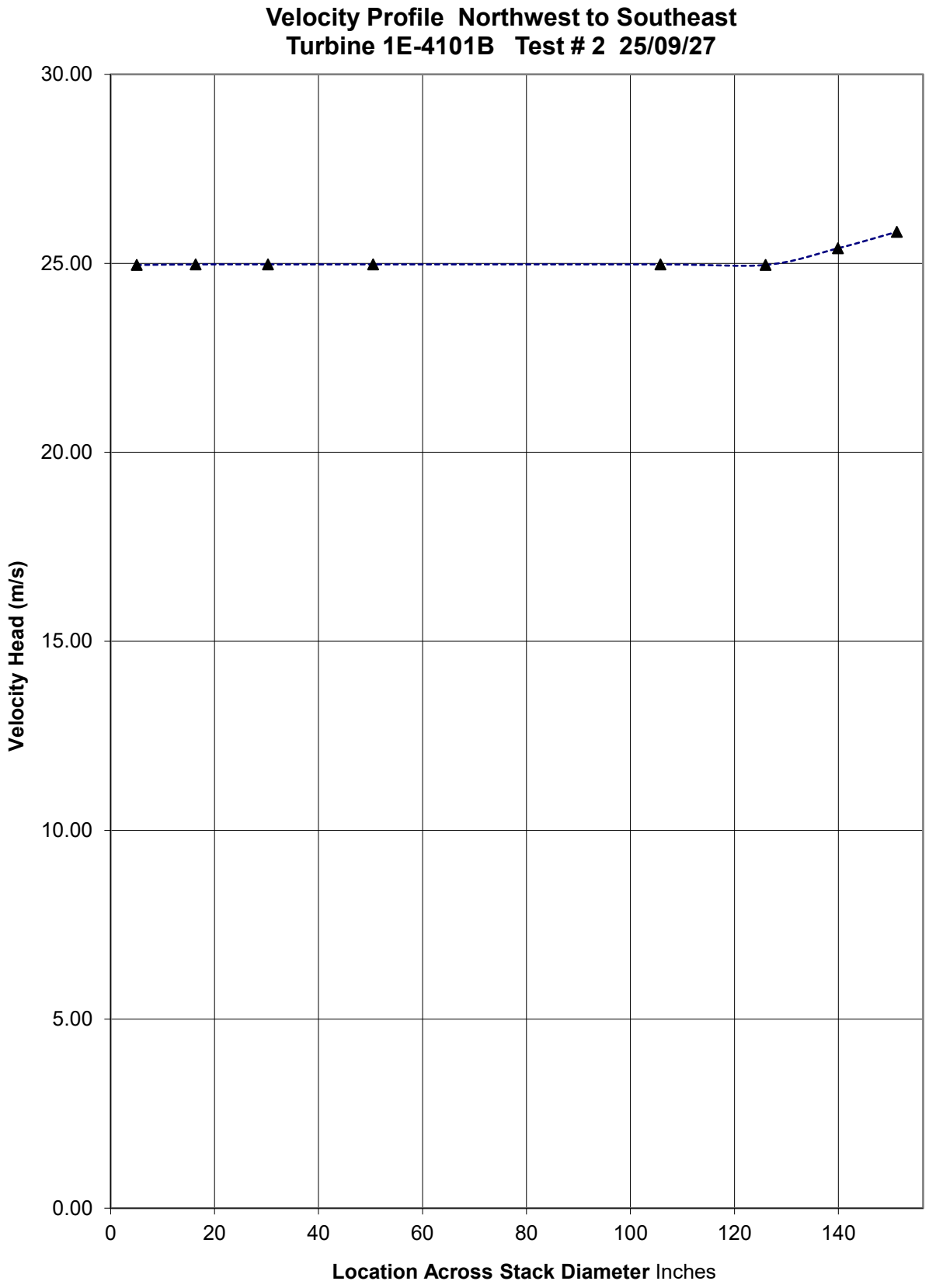
Historical Data						
Run Number		1	2	3	**Average**	
Run Start Time		11:25	13:00	14:30		hh:mm
Run Stop Time		12:28	14:03	15:32		hh:mm
Meter Calibration Factor	(Y)	0.999	0.999	0.999		
Actual Nozzle Diameter	(D_{na})	0.15	0.15	0.15		in
Stack Test Data						
Initial Meter Volume	($V_m)_i$	0.000	0.000	0.000		ft^3
Final Meter Volume	($V_m)_f$	23.658	24.915	24.997		ft^3
Total Meter Volume	(V_m)	23.658	24.915	24.997	24.523	ft^3
Total Sampling Time	(Θ)	63.5	63.5	62.6	63.2	min
Average Meter Temperature	($t_m)_{avg}$	55.3	61.3	63.8	60.1	°F
Average Stack Temperature	($t_s)_{avg}$	361.5	359.9	356.5	359.3	°F
Barometric Pressure	(P_b)	29.56	29.56	29.56	29.56	in Hg
Stack Static Pressure	(P_{static})	-1.10	-1.10	-1.10	-1.10	in H_2O
Absolute Stack Pressure	(P_s)	29.48	29.48	29.48	29.48	in Hg
Average Orifice Pressure Drop	($\Delta H)_{avg}$	0.51	0.51	0.52	0.51	in H_2O
Absolute Meter Pressure	(P_m)	29.60	29.60	29.60	29.60	in Hg
Avg Square Root Pitot Pressure	($\Delta p^{1/2})_{avg}$	1.15	1.20	1.22	1.19	$(in\ H_2O)^{1/2}$
Moisture Content Data						
Impingers 1-3 Water Volume Gain	(V_n)	35.0	35.0	35.0	35.0	ml
Impinger 4 Silica Gel Weight Gain	(W_n)	5.0	6.0	6.0	5.7	g
Total Water Volume Collected	(V_{lc})	40.0	41.0	41.0	40.7	ml
Standard Water Vapor Volume	($V_w)_{std}$	1.883	1.930	1.930	1.915	scf
Standard Meter Volume	($V_m)_{std}$	23.939	24.921	24.884	24.581	dscf
Calculated Stack Moisture	($B_{ws(calc)}$)	7.3	7.2	7.2	7.2	%
Saturated Stack Moisture	($B_{ws(svp)}$)	100.00	100.0	100.0	100.0	%
Reported Stack Moisture Content	(B_{ws})	7.3	7.2	7.2	7.2	%
Gas Analysis Data						
Carbon Dioxide Percentage	(%CO_2)	4.0	4.0	4.0	4.0	%
Oxygen Percentage	(%O_2)	14.0	14.0	14.0	14.0	%
Carbon Monoxide Percentage	(%CO)	0.0	0.0	0.0	0.0	%
Nitrogen Percentage	(%N_2)	82.0	82.0	82.0	82.0	%
Dry Gas Molecular Weight	(M_d)	29.20	29.20	29.20	29.20	lb/lb-mole
Wet Stack Gas Molecular Weight	(M_s)	28.38	28.39	28.39	28.39	lb/lb-mole
Calculated Fuel Factor	(F_o)	1.725	1.725	1.725	1.725	
Percent Excess Air	(%EA)	1.8	1.8	1.8	1.8	%
Volumetric Flow Rate Data						
Average Stack Gas Velocity	(v_s)	80.04	82.99	84.51	82.51	ft/sec
Stack Cross-Sectional Area	(A_s)	133.24	133.24	133.24	133.24	ft^2
Actual Stack Flow Rate	(Q_a)	639848	663441	675640	659643	acfm
Wet Standard Stack Flow Rate	(Qsw)	24311	25256	25828	25132	wkscfh
Dry Standard Stack Flow Rate	(Q_{sd})	375637	390667	399483	388596	dscfm
Emission Rate Data						
Mass of Particulate on Filter	(m_f)	1.0	1.0	1.0	1.0	mg
Mass of PM2.5 in Acetone I	(m_a')	0.1	0.2	0.8	0.4	mg
Mass due to Acetone Blank I	(W_a)	0.0	0.0	0.0	0.0	mg
Total Mass of Particulates	(m_n)	3.8	3.3	4.0	3.7	mg
Total Mass of PM2.5 Particulates	(m_n)	1.1	1.2	1.8	1.4	mg
PM2.5 Concentration	(c_s)	0.000	0.000	0.000	0.000	g/dscf
	(c_s)	0.001	0.001	0.001	0.001	gr/dscf
PM2.5 Emission Rate	(E)	1.04	1.13	1.73	1.3	kg/hr
	(E)	2.28	2.49	3.82	2.86	lbs/hr
	(E)	0.00	0.00	0.00	0.00	lbs/mmBtu

Appendix II – Velocity Profiles

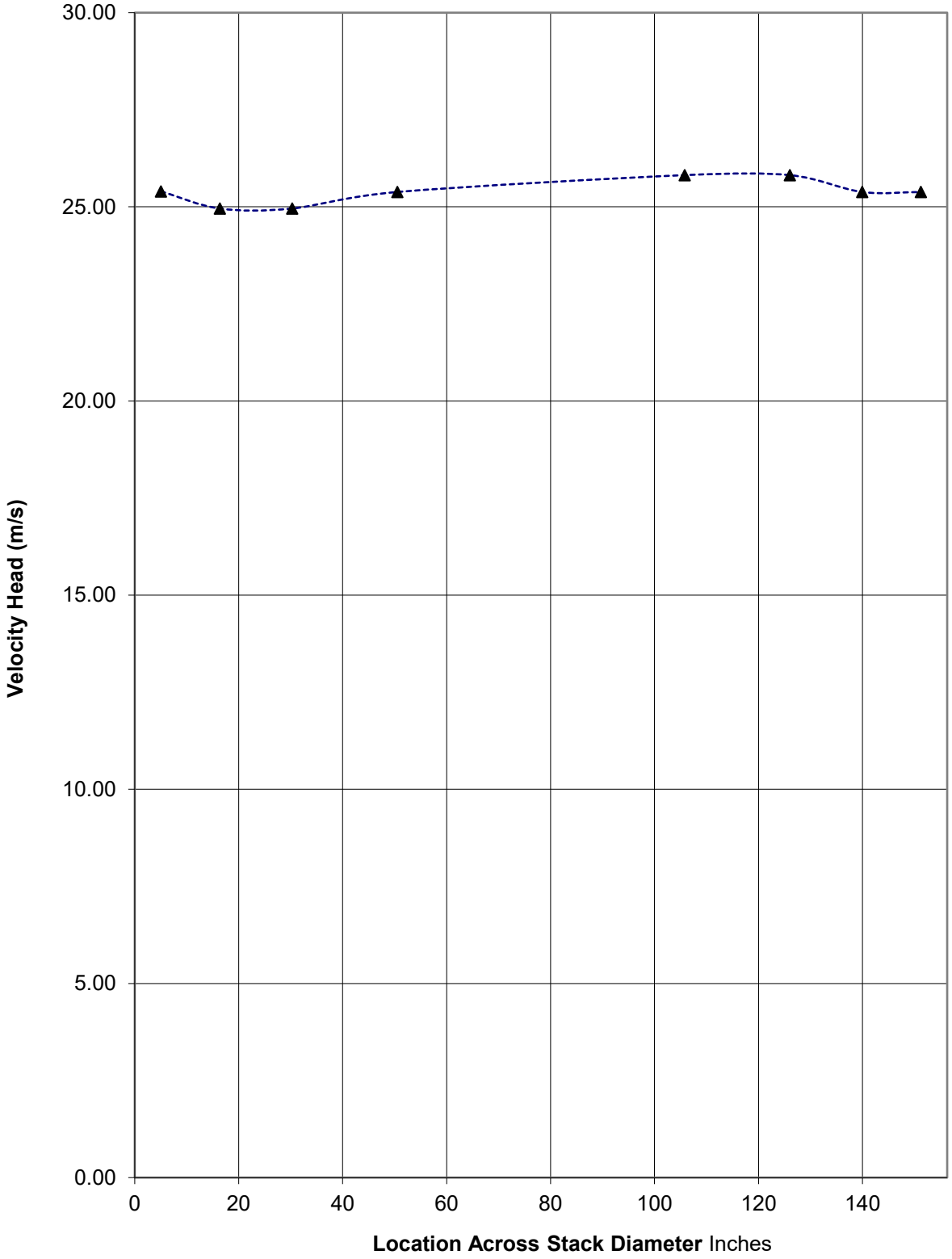

Velocity Profile Northwest to Southeast
Turbine 1E-4101B Test # 1 25/09/27
30.00
25.00
20.00
15.00
10.00
5.00
0.00
Velocity Head (m/s)
0
20
40
60
80
100
120
140
Location Across Stack Diameter Inches

Velocity Profile Northeast to Southwest
Turbine 1E-4101B Test # 1 25/09/27

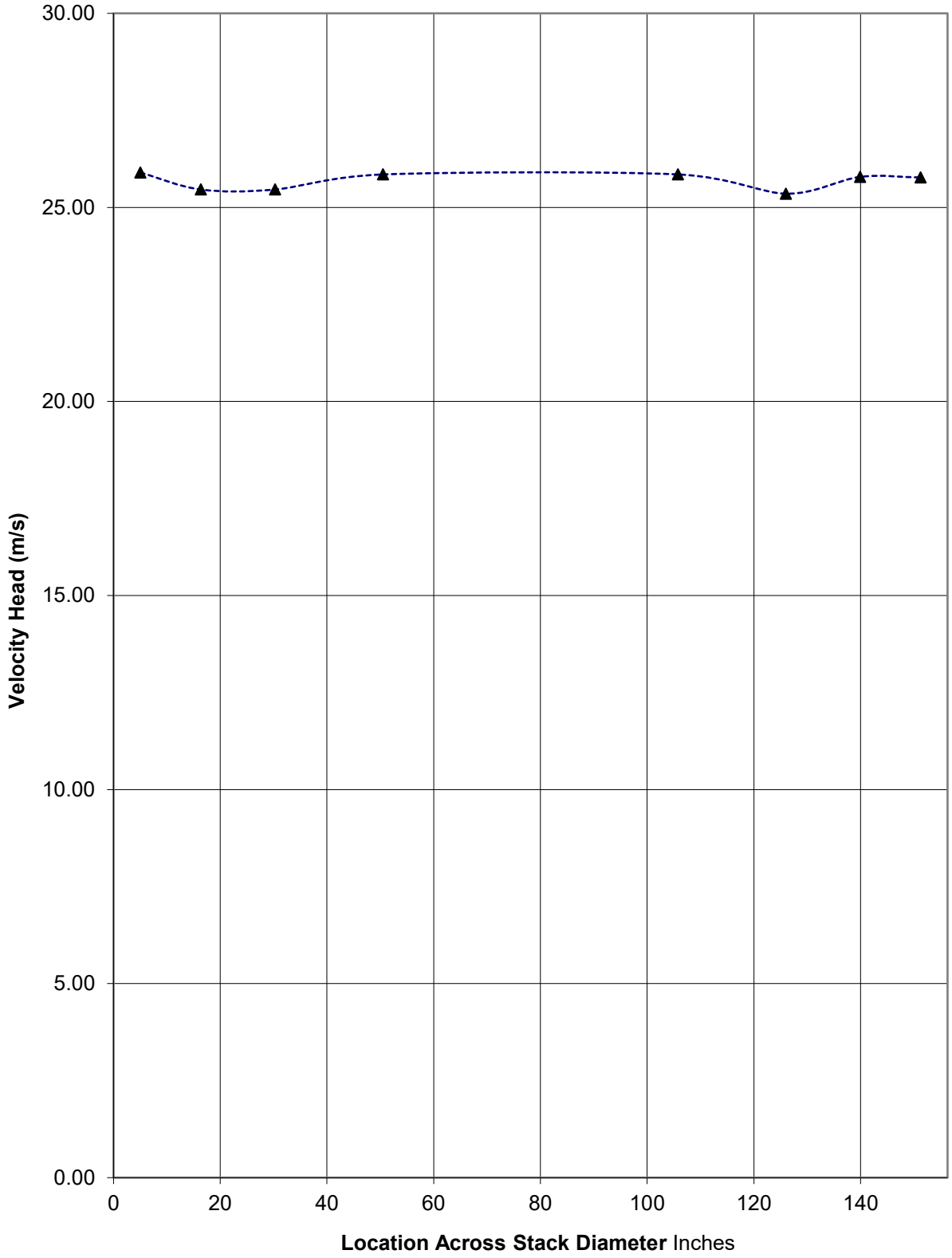



Velocity Profile Northwest to Southeast
Turbine 1E-4101B Test # 2 25/09/27
30.00
25.00
20.00
15.00
10.00
5.00
0.00
Velocity Head (m/s)
0
20
40
60
80
100
120
140
Location Across Stack Diameter Inches

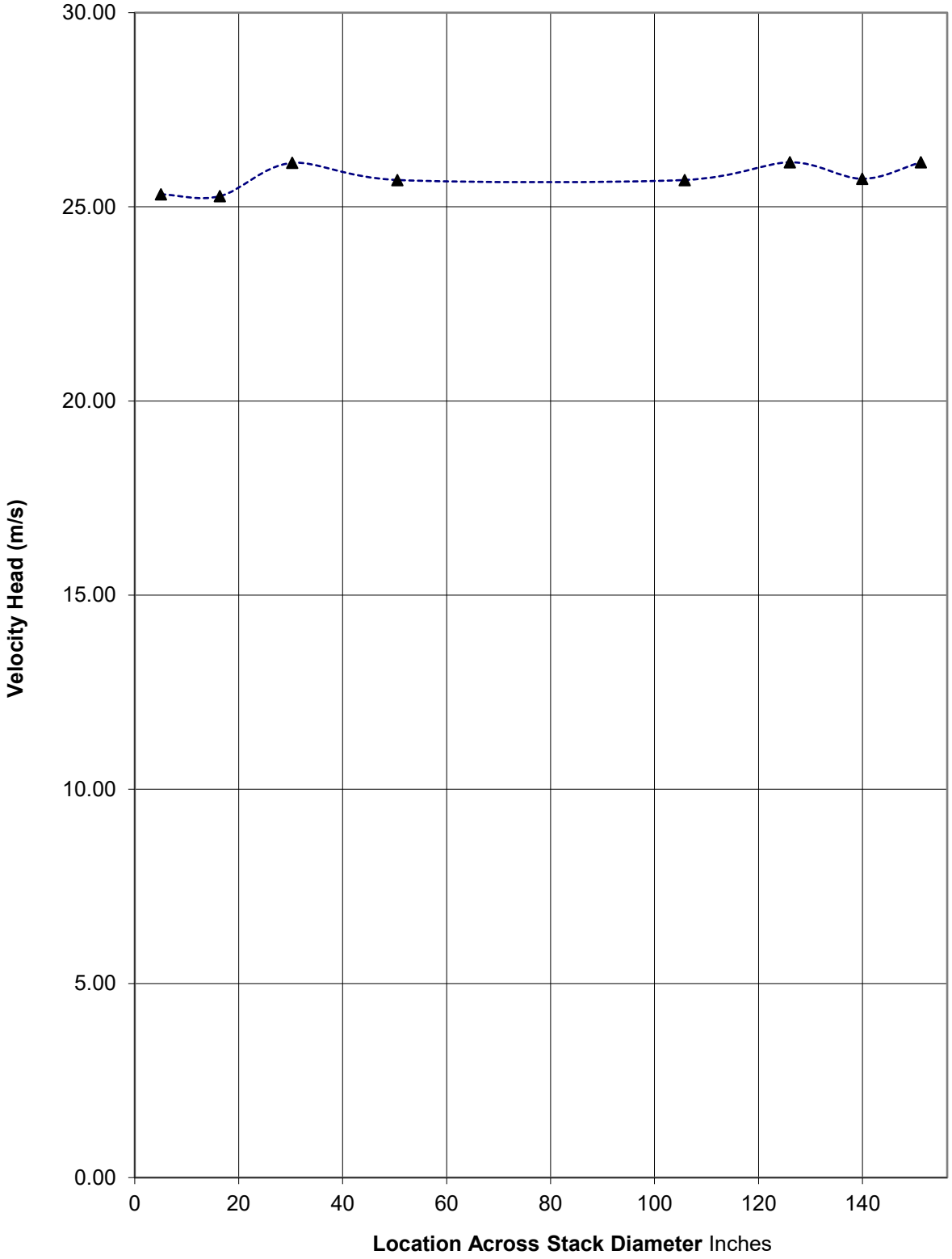
Velocity Profile Northeast to Southwest
Turbine 1E-4101B Test # 2 25/09/27



Velocity Profile Northwest to Southeast
Turbine 1E-4101B Test # 3 25/09/27



Velocity Profile Northeast to Southwest
Turbine 1E-4101B Test # 3 25/09/27



Appendix III – Analytical Data

LNG - Canada - Turbine (1E-4101B)

Date / time	sec Runtime	% O_2	ppm CO	ppm NOx	ppm NO	ppm NO_2	% CO_2	ppm SO_2	l/min Pump	°C Tamb	Test 1
9-27-2025 12:23:06 PM	0.0	13.9	37.0	20.9	17.0	3.90	3.94	-1.00	0.980	13.7	
9-27-2025 12:23:36 PM	30.0	13.8	38.0	22.3	18.0	4.30	4.01	-1.00	0.980	13.9	
9-27-2025 12:24:06 PM	60.0	13.8	38.0	22.5	18.0	4.50	4.03	-1.00	0.980	14.2	
9-27-2025 12:24:36 PM	90.0	13.7	38.0	22.7	18.0	4.70	4.04	-1.00	0.980	14.1	
9-27-2025 12:25:06 PM	120.0	13.7	38.0	22.7	18.0	4.70	4.05	-1.00	0.980	14.3	
9-27-2025 12:25:36 PM	150.0	13.7	39.0	22.9	18.0	4.90	4.05	-1.00	0.980	14.1	
9-27-2025 12:26:06 PM	180.0	13.7	38.0	23.1	18.0	5.10	4.06	-1.00	0.980	14.3	
9-27-2025 12:26:36 PM	210.0	13.7	38.0	23.3	18.0	5.30	4.06	-2.00	0.980	14.3	
9-27-2025 12:27:06 PM	240.0	13.7	38.0	23.4	18.0	5.40	4.06	-1.00	0.980	14.1	
9-27-2025 12:27:36 PM	270.0	13.7	37.0	23.6	18.0	5.60	4.06	-2.00	0.980	13.9	
9-27-2025 12:28:06 PM	300.0	13.7	37.0	23.7	18.0	5.70	4.07	-1.00	0.980	13.9	
9-27-2025 12:28:36 PM	330.0	13.7	37.0	23.8	18.0	5.80	4.06	-2.00	0.980	13.9	
9-27-2025 12:29:06 PM	360.0	13.7	37.0	23.8	18.0	5.80	4.07	-2.00	0.980	13.2	
9-27-2025 12:29:36 PM	390.0	13.7	38.0	23.9	18.0	5.90	4.05	-1.00	0.980	13.2	
9-27-2025 12:30:06 PM	420.0	13.7	38.0	25.0	19.0	6.00	4.07	-1.00	0.980	13.1	
9-27-2025 12:30:36 PM	450.0	13.7	38.0	24.0	18.0	6.00	4.06	-1.00	0.980	12.4	
9-27-2025 12:31:06 PM	480.0	13.7	38.0	24.1	18.0	6.10	4.07	-2.00	0.980	12.7	
9-27-2025 12:31:36 PM	510.0	13.7	37.0	24.2	18.0	6.20	4.07	-2.00	0.980	13.1	
9-27-2025 12:32:06 PM	540.0	13.7	37.0	24.3	18.0	6.30	4.07	-2.00	0.980	13.1	
9-27-2025 12:32:36 PM	570.0	13.7	38.0	24.2	18.0	6.20	4.06	-2.00	0.980	13.4	
9-27-2025 12:33:06 PM	600.0	13.7	38.0	24.2	18.0	6.20	4.06	-2.00	0.980	13.0	
9-27-2025 12:33:36 PM	630.0	13.7	38.0	24.4	18.0	6.40	4.06	-2.00	0.980	13.3	
9-27-2025 12:34:06 PM	660.0	13.7	37.0	24.4	18.0	6.40	4.06	-2.00	0.980	13.2	
9-27-2025 12:34:36 PM	690.0	13.7	37.0	25.5	19.0	6.50	4.07	-2.00	0.980	13.4	
9-27-2025 12:35:06 PM	720.0	13.7	37.0	25.5	19.0	6.50	4.07	-1.00	0.980	13.2	
9-27-2025 12:35:36 PM	750.0	13.7	37.0	25.4	19.0	6.40	4.06	-1.00	0.980	13.3	
9-27-2025 12:36:06 PM	780.0	13.7	37.0	25.4	19.0	6.40	4.07	-2.00	0.980	13.4	
9-27-2025 12:36:36 PM	810.0	13.7	37.0	25.5	19.0	6.50	4.07	-1.00	0.980	13.4	
9-27-2025 12:37:06 PM	840.0	13.7	37.0	25.5	19.0	6.50	4.07	-1.00	0.980	13.6	
9-27-2025 12:37:36 PM	870.0	13.7	37.0	24.6	18.0	6.60	4.07	-1.00	0.980	13.6	
9-27-2025 12:38:06 PM	900.0	13.7	38.0	25.5	19.0	6.50	4.06	-2.00	0.980	13.7	
9-27-2025 12:38:36 PM	930.0	13.7	37.0	24.5	18.0	6.50	4.06	-2.00	0.980	13.5	
9-27-2025 12:39:06 PM	960.0	13.7	37.0	25.6	19.0	6.60	4.06	-1.00	0.980	13.5	
9-27-2025 12:39:36 PM	990.0	13.7	37.0	25.6	19.0	6.60	4.06	-1.00	0.980	13.6	
9-27-2025 12:40:06 PM	1020.0	13.7	38.0	25.7	19.0	6.70	4.06	-1.00	0.980	13.6	
9-27-2025 12:40:36 PM	1050.0	13.7	37.0	25.7	19.0	6.70	4.06	-2.00	0.980	13.8	
9-27-2025 12:41:06 PM	1080.0	13.7	37.0	25.8	19.0	6.80	4.06	-1.00	0.980	13.8	
9-27-2025 12:41:36 PM	1110.0	13.7	37.0	25.8	19.0	6.80	4.07	-1.00	0.980	13.8	
9-27-2025 12:42:06 PM	1140.0	13.7	37.0	25.8	19.0	6.80	4.07	-1.00	0.980	13.9	
9-27-2025 12:42:36 PM	1170.0	13.7	37.0	25.9	19.0	6.90	4.07	-2.00	0.980	14.0	
9-27-2025 12:43:06 PM	1200.0	13.7	36.0	25.9	19.0	6.90	4.07	-2.00	0.980	14.1	
9-27-2025 12:43:36 PM	1230.0	13.7	37.0	25.9	19.0	6.90	4.07	-1.00	0.980	14.2	
9-27-2025 12:44:06 PM	1260.0	13.7	37.0	26.0	19.0	7.00	4.06	-1.00	0.980	14.0	
9-27-2025 12:44:36 PM	1290.0	13.7	37.0	25.9	19.0	6.90	4.07	-2.00	0.980	13.9	
9-27-2025 12:45:06 PM	1320.0	13.7	37.0	26.0	19.0	7.00	4.07	-1.00	0.970	13.4	
9-27-2025 12:45:36 PM	1350.0	13.7	37.0	24.9	18.0	6.90	4.06	-2.00	0.980	13.1	
9-27-2025 12:46:06 PM	1380.0	13.7	37.0	25.9	19.0	6.90	4.07	-2.00	0.980	13.5	
9-27-2025 12:46:36 PM	1410.0	13.7	37.0	25.9	19.0	6.90	4.06	-1.00	0.980	13.3	
9-27-2025 12:47:06 PM	1440.0	13.7	37.0	25.9	19.0	6.90	4.07	-1.00	0.980	13.4	
9-27-2025 12:47:36 PM	1470.0	13.7	37.0	25.9	19.0	6.90	4.06	-2.00	0.980	13.3	
9-27-2025 12:48:06 PM	1500.0	13.7	37.0	26.0	19.0	7.00	4.07	-1.00	0.980	13.5	
9-27-2025 12:48:36 PM	1530.0	13.7	37.0	25.9	19.0	6.90	4.07	-2.00	0.980	13.7	
9-27-2025 12:49:06 PM	1560.0	13.7	37.0	26.0	19.0	7.00	4.07	-1.00	0.980	13.5	
9-27-2025 12:49:36 PM	1590.0	13.7	37.0	25.9	19.0	6.90	4.07	-2.00	0.980	13.5	
9-27-2025 12:50:06 PM	1620.0	13.7	37.0	26.0	19.0	7.00	4.07	-1.00	0.980	13.5	
9-27-2025 12:50:36 PM	1650.0	13.7	37.0	26.0	19.0	7.00	4.07	-2.00	0.980	13.6	
9-27-2025 12:51:06 PM	1680.0	13.7	37.0	26.0	19.0	7.00	4.07	-1.00	0.980	13.6	
9-27-2025 12:51:36 PM	1710.0	13.7	37.0	26.0	19.0	7.00	4.07	-2.00	0.980	13.4	
9-27-2025 12:52:06 PM	1740.0	13.7	37.0	26.0	19.0	7.00	4.06	-1.00	0.980	13.2	
9-27-2025 12:52:36 PM	1770.0	13.7	37.0	26.1	19.0	7.10	4.07	-1.00	0.980	13.4	
9-27-2025 1:00:36 PM	2250.0	13.7	38.0	24.8	18.0	6.80	4.04	-1.00	0.980	15.5	
9-27-2025 1:01:06 PM	2280.0	13.7	38.0	25.9	19.0	6.90	4.04	-2.00	0.980	15.5	
9-27-2025 1:01:36 PM	2310.0	13.7	37.0	26.1	19.0	7.10	4.04	-2.00	0.980	15.6	
9-27-2025 1:02:06 PM	2340.0	13.7	37.0	26.2	19.0	7.20	4.04	-1.00	0.980	15.6	
9-27-2025 1:02:36 PM	2370.0	13.7	36.0	25.3	18.0	7.30	4.04	-1.00	0.970	15.2	
9-27-2025 1:03:06 PM	2400.0	13.7	36.0	25.2	18.0	7.20	4.04	-2.00	0.980	15.6	
9-27-2025 1:03:36 PM	2430.0	13.8	37.0	25.1	18.0	7.10	4.04	-2.00	0.980	15.4	
		13.7	37.3	24.9	18.6	6.39	4.06	-1.45			

LNG - Canada - Turbine (1E-4101B)

Date / time	sec Runtime	% O_2	ppm CO	ppm NOx	ppm NO	ppm NO_2	% CO_2	ppm SO_2	l/min Pump	°C Tamb	Test 2
9-27-2025 1:41:35 PM	0.0	13.8	35.0	24.0	18.0	6.00	4.03	-1.00	0.980	14.4	
9-27-2025 1:42:05 PM	30.0	13.7	35.0	24.2	18.0	6.20	4.04	-1.00	0.970	13.8	
9-27-2025 1:42:35 PM	60.0	13.7	35.0	24.5	18.0	6.50	4.04	-1.00	0.980	13.9	
9-27-2025 1:43:05 PM	90.0	13.7	36.0	24.6	18.0	6.60	4.04	-1.00	0.980	14.3	
9-27-2025 1:43:35 PM	120.0	13.7	35.0	24.7	18.0	6.70	4.04	-1.00	0.980	14.5	
9-27-2025 1:44:05 PM	150.0	13.8	35.0	24.8	18.0	6.80	4.03	-1.00	0.970	14.4	
9-27-2025 1:44:35 PM	180.0	13.8	35.0	24.8	18.0	6.80	4.03	-2.00	0.980	14.6	
9-27-2025 1:45:05 PM	210.0	13.8	35.0	24.9	18.0	6.90	4.04	-1.00	0.970	14.7	
9-27-2025 1:45:35 PM	240.0	13.8	35.0	25.0	18.0	7.00	4.03	-2.00	0.980	14.8	
9-27-2025 1:46:05 PM	270.0	13.8	35.0	25.2	18.0	7.20	4.03	-1.00	0.970	14.5	
9-27-2025 1:46:35 PM	300.0	13.8	35.0	26.1	19.0	7.10	4.03	-1.00	0.980	14.8	
9-27-2025 1:47:05 PM	330.0	13.8	35.0	26.2	19.0	7.20	4.04	-2.00	0.970	14.7	
9-27-2025 1:47:35 PM	360.0	13.8	35.0	25.2	18.0	7.20	4.03	-2.00	0.970	14.7	
9-27-2025 1:48:05 PM	390.0	13.8	35.0	25.2	18.0	7.20	4.03	-1.00	0.970	14.5	
9-27-2025 1:48:35 PM	420.0	13.8	35.0	25.2	18.0	7.20	4.03	-2.00	0.980	14.5	
9-27-2025 1:49:05 PM	450.0	13.8	35.0	25.2	18.0	7.20	4.03	-2.00	0.970	14.5	
9-27-2025 1:49:35 PM	480.0	13.8	35.0	25.2	18.0	7.20	4.03	-1.00	0.970	14.6	
9-27-2025 1:50:05 PM	510.0	13.8	35.0	25.4	18.0	7.40	4.04	-1.00	0.970	14.8	
9-27-2025 1:50:35 PM	540.0	13.8	35.0	26.4	19.0	7.40	4.03	-1.00	0.980	14.6	
9-27-2025 1:51:05 PM	570.0	13.7	35.0	26.4	19.0	7.40	4.04	-1.00	0.970	14.6	
9-27-2025 1:51:35 PM	600.0	13.8	35.0	26.3	19.0	7.30	4.03	-1.00	0.970	14.5	
9-27-2025 1:52:05 PM	630.0	13.8	35.0	26.4	19.0	7.40	4.04	-1.00	0.980	14.6	
9-27-2025 1:52:35 PM	660.0	13.8	35.0	26.4	19.0	7.40	4.03	-1.00	0.980	14.5	
9-27-2025 1:53:05 PM	690.0	13.8	35.0	26.5	19.0	7.50	4.03	-1.00	0.980	14.5	
9-27-2025 1:53:35 PM	720.0	13.8	35.0	26.5	19.0	7.50	4.03	-1.00	0.970	14.6	
9-27-2025 1:54:05 PM	750.0	13.8	36.0	26.4	19.0	7.40	4.03	-2.00	0.980	14.8	
9-27-2025 1:54:35 PM	780.0	13.8	35.0	26.5	19.0	7.50	4.03	-1.00	0.980	14.6	
9-27-2025 1:55:05 PM	810.0	13.8	35.0	26.5	19.0	7.50	4.03	-1.00	0.970	14.7	
9-27-2025 1:55:35 PM	840.0	13.8	35.0	26.5	19.0	7.50	4.03	-1.00	0.980	14.7	
9-27-2025 1:56:05 PM	870.0	13.8	35.0	26.6	19.0	7.60	4.03	-1.00	0.970	15.0	
9-27-2025 1:56:35 PM	900.0	13.8	35.0	26.6	19.0	7.60	4.04	-1.00	0.970	14.8	
9-27-2025 1:57:05 PM	930.0	13.8	35.0	26.6	19.0	7.60	4.03	-1.00	0.970	14.6	
9-27-2025 1:57:35 PM	960.0	13.8	35.0	26.6	19.0	7.60	4.03	-1.00	0.980	14.6	
9-27-2025 1:58:05 PM	990.0	13.8	35.0	26.5	19.0	7.50	4.02	-1.00	0.970	14.7	
9-27-2025 1:58:35 PM	1020.0	13.8	35.0	26.6	19.0	7.60	4.03	-1.00	0.980	14.9	
9-27-2025 1:59:05 PM	1050.0	13.8	35.0	26.6	19.0	7.60	4.03	-1.00	0.980	14.9	
9-27-2025 1:59:35 PM	1080.0	13.8	35.0	26.6	19.0	7.60	4.03	-1.00	0.970	14.9	
9-27-2025 2:00:05 PM	1110.0	13.8	35.0	26.6	19.0	7.60	4.03	-1.00	0.980	14.7	
9-27-2025 2:00:35 PM	1140.0	13.8	36.0	25.6	18.0	7.60	4.03	-1.00	0.970	14.7	
9-27-2025 2:01:05 PM	1170.0	13.8	36.0	25.5	18.0	7.50	4.02	-1.00	0.970	14.8	
9-27-2025 2:01:35 PM	1200.0	13.8	36.0	26.6	19.0	7.60	4.02	-1.00	0.970	14.8	
9-27-2025 2:02:05 PM	1230.0	13.8	36.0	26.5	19.0	7.50	4.02	-1.00	0.980	15.0	
9-27-2025 2:02:35 PM	1260.0	13.8	36.0	26.6	19.0	7.60	4.02	-1.00	0.970	15.1	
9-27-2025 2:03:05 PM	1290.0	13.8	36.0	25.6	18.0	7.60	4.03	-1.00	0.970	14.8	
9-27-2025 2:03:35 PM	1320.0	13.8	35.0	26.7	19.0	7.70	4.03	-1.00	0.970	14.9	
9-27-2025 2:04:05 PM	1350.0	13.8	36.0	26.6	19.0	7.60	4.02	-1.00	0.980	15.1	
9-27-2025 2:04:35 PM	1380.0	13.8	36.0	25.7	18.0	7.70	4.02	-1.00	0.980	15.0	
9-27-2025 2:05:05 PM	1410.0	13.8	35.0	26.7	19.0	7.70	4.02	-1.00	0.970	15.1	
9-27-2025 2:05:35 PM	1440.0	13.8	35.0	26.7	19.0	7.70	4.02	-1.00	0.970	15.1	
9-27-2025 2:06:05 PM	1470.0	13.8	35.0	26.7	19.0	7.70	4.01	-1.00	0.980	14.9	
9-27-2025 2:06:35 PM	1500.0	13.8	36.0	26.8	19.0	7.80	4.02	-1.00	0.980	15.1	
9-27-2025 2:07:05 PM	1530.0	13.8	36.0	26.7	19.0	7.70	4.02	-1.00	0.980	15.2	
9-27-2025 2:07:35 PM	1560.0	13.8	36.0	26.7	19.0	7.70	4.02	-1.00	0.980	14.9	
9-27-2025 2:08:05 PM	1590.0	13.8	36.0	26.7	19.0	7.70	4.01	-1.00	0.980	15.3	
9-27-2025 2:08:35 PM	1620.0	13.8	35.0	25.8	18.0	7.80	4.02	-1.00	0.980	15.3	
9-27-2025 2:09:05 PM	1650.0	13.8	35.0	26.8	19.0	7.80	4.02	-1.00	0.980	15.1	
9-27-2025 2:09:35 PM	1680.0	13.8	35.0	26.8	19.0	7.80	4.02	-1.00	0.970	15.4	
9-27-2025 2:10:05 PM	1710.0	13.8	35.0	25.8	18.0	7.80	4.03	-1.00	0.980	15.4	
9-27-2025 2:10:35 PM	1740.0	13.8	35.0	25.9	18.0	7.90	4.02	-1.00	0.970	15.2	
9-27-2025 2:11:05 PM	1770.0	13.8	36.0	25.9	18.0	7.90	4.02	-1.00	0.980	14.4	
		13.8	35.3	26.0	18.6	7.40	4.03	-1.12			

LNG - Canada - Turbine (1E-4101B)

Date / time	sec Runtime	% O_2	ppm CO	ppm NOx	ppm NO	ppm NO_2	% CO_2	ppm SO_2	l/min Pump	°C Tamb	Test 3
9-27-2025 3:21:13 PM	0.0	13.7	37.0	25.2	18.0	7.20	4.04	-2.00	0.970	16.2	
9-27-2025 3:21:43 PM	30.0	13.7	36.0	25.5	18.0	7.50	4.04	-2.00	0.980	16.1	
9-27-2025 3:22:13 PM	60.0	13.7	36.0	25.6	18.0	7.60	4.04	-2.00	0.970	16.0	
9-27-2025 3:22:43 PM	90.0	13.7	36.0	25.8	18.0	7.80	4.05	-2.00	0.980	16.0	
9-27-2025 3:23:13 PM	120.0	13.7	36.0	25.8	18.0	7.80	4.05	-2.00	0.980	16.2	
9-27-2025 3:23:43 PM	150.0	13.7	36.0	25.9	18.0	7.90	4.05	-2.00	0.970	16.4	
9-27-2025 3:24:13 PM	180.0	13.7	36.0	25.9	18.0	7.90	4.05	-2.00	0.980	16.4	
9-27-2025 3:24:43 PM	210.0	13.7	37.0	25.9	18.0	7.90	4.05	-2.00	0.970	16.5	
9-27-2025 3:25:13 PM	240.0	13.7	37.0	27.0	19.0	8.00	4.05	-2.00	0.980	16.6	
9-27-2025 3:25:43 PM	270.0	13.7	37.0	27.1	19.0	8.10	4.05	-2.00	0.970	16.6	
9-27-2025 3:26:13 PM	300.0	13.7	37.0	27.1	19.0	8.10	4.05	-2.00	0.970	16.5	
9-27-2025 3:26:43 PM	330.0	13.7	37.0	27.1	19.0	8.10	4.05	-2.00	0.970	16.5	
9-27-2025 3:27:13 PM	360.0	13.7	37.0	27.1	19.0	8.10	4.06	-2.00	0.980	16.7	
9-27-2025 3:27:43 PM	390.0	13.7	37.0	27.2	19.0	8.20	4.06	-2.00	0.980	16.6	
9-27-2025 3:28:13 PM	420.0	13.7	37.0	27.2	19.0	8.20	4.05	-2.00	0.970	16.5	
9-27-2025 3:28:43 PM	450.0	13.7	36.0	27.2	19.0	8.20	4.05	-2.00	0.970	16.7	
9-27-2025 3:29:13 PM	480.0	13.7	36.0	27.2	19.0	8.20	4.05	-2.00	0.970	16.8	
9-27-2025 3:29:43 PM	510.0	13.7	36.0	27.3	19.0	8.30	4.06	-2.00	0.970	16.8	
9-27-2025 3:30:13 PM	540.0	13.7	35.0	27.4	19.0	8.40	4.05	-2.00	0.970	16.5	
9-27-2025 3:30:43 PM	570.0	13.7	35.0	27.5	19.0	8.50	4.06	-2.00	0.970	16.0	
9-27-2025 3:31:13 PM	600.0	13.7	35.0	27.5	19.0	8.50	4.06	-2.00	0.970	16.0	
9-27-2025 3:31:43 PM	630.0	13.7	35.0	27.5	19.0	8.50	4.07	-2.00	0.970	16.0	
9-27-2025 3:32:13 PM	660.0	13.7	35.0	27.4	19.0	8.40	4.06	-2.00	0.980	15.9	
9-27-2025 3:32:43 PM	690.0	13.7	35.0	27.5	19.0	8.50	4.05	-2.00	0.970	16.2	
9-27-2025 3:33:13 PM	720.0	13.7	36.0	27.5	19.0	8.50	4.06	-2.00	0.970	16.1	
9-27-2025 3:33:43 PM	750.0	13.7	35.0	27.4	19.0	8.40	4.06	-2.00	0.980	16.3	
9-27-2025 3:34:13 PM	780.0	13.7	35.0	27.5	19.0	8.50	4.05	-2.00	0.970	16.3	
9-27-2025 3:34:43 PM	810.0	13.7	35.0	27.4	19.0	8.40	4.05	-2.00	0.970	16.5	
9-27-2025 3:35:13 PM	840.0	13.7	36.0	27.4	19.0	8.40	4.05	-2.00	0.970	16.4	
9-27-2025 3:35:43 PM	870.0	13.7	36.0	27.5	19.0	8.50	4.05	-2.00	0.970	16.5	
9-27-2025 3:36:13 PM	900.0	13.7	36.0	27.6	19.0	8.60	4.06	-2.00	0.970	16.6	
9-27-2025 3:36:43 PM	930.0	13.7	36.0	27.5	19.0	8.50	4.06	-2.00	0.970	16.6	
9-27-2025 3:37:13 PM	960.0	13.7	36.0	27.6	19.0	8.60	4.05	-2.00	0.970	16.5	
9-27-2025 3:37:43 PM	990.0	13.7	36.0	27.6	19.0	8.60	4.06	-2.00	0.980	16.6	
9-27-2025 3:38:13 PM	1020.0	13.7	36.0	27.6	19.0	8.60	4.06	-2.00	0.970	16.7	
9-27-2025 3:38:43 PM	1050.0	13.7	36.0	27.7	19.0	8.70	4.06	-2.00	0.980	16.7	
9-27-2025 3:39:13 PM	1080.0	13.7	36.0	27.7	19.0	8.70	4.05	-2.00	0.980	16.8	
9-27-2025 3:39:43 PM	1110.0	13.7	35.0	27.7	19.0	8.70	4.05	-2.00	0.970	16.8	
9-27-2025 3:40:13 PM	1140.0	13.7	35.0	27.8	19.0	8.80	4.06	-2.00	0.980	16.9	
9-27-2025 3:40:43 PM	1170.0	13.7	35.0	27.7	19.0	8.70	4.06	-2.00	0.980	16.9	
9-27-2025 3:41:13 PM	1200.0	13.7	35.0	27.8	19.0	8.80	4.06	-2.00	0.970	17.0	
9-27-2025 3:41:43 PM	1230.0	13.7	35.0	29.0	20.0	9.00	4.07	-2.00	0.970	16.0	
9-27-2025 3:42:13 PM	1260.0	13.7	35.0	28.0	19.0	9.00	4.06	-2.00	0.970	16.7	
9-27-2025 3:42:43 PM	1290.0	13.7	35.0	27.9	19.0	8.90	4.07	-2.00	0.970	16.6	
9-27-2025 3:43:13 PM	1320.0	13.7	35.0	28.0	19.0	9.00	4.06	-2.00	0.970	16.7	
9-27-2025 3:43:43 PM	1350.0	13.7	34.0	28.0	19.0	9.00	4.07	-2.00	0.970	16.8	
9-27-2025 3:44:13 PM	1380.0	13.7	34.0	28.1	19.0	9.10	4.08	-2.00	0.980	16.9	
9-27-2025 3:44:43 PM	1410.0	13.7	34.0	28.1	19.0	9.10	4.07	-2.00	0.980	17.0	
9-27-2025 3:45:13 PM	1440.0	13.7	34.0	28.1	19.0	9.10	4.06	-2.00	0.970	17.0	
9-27-2025 3:45:43 PM	1470.0	13.7	35.0	28.0	19.0	9.00	4.07	-2.00	0.980	17.1	
9-27-2025 3:46:13 PM	1500.0	13.7	35.0	28.0	19.0	9.00	4.06	-2.00	0.970	17.1	
9-27-2025 3:46:43 PM	1530.0	13.7	35.0	28.0	19.0	9.00	4.06	-2.00	0.970	17.1	
9-27-2025 3:47:13 PM	1560.0	13.7	36.0	27.8	19.0	8.80	4.06	-2.00	0.970	17.2	
9-27-2025 3:47:43 PM	1590.0	13.7	35.0	27.8	19.0	8.80	4.06	-2.00	0.970	17.2	
9-27-2025 3:48:13 PM	1620.0	13.7	35.0	27.8	19.0	8.80	4.06	-2.00	0.970	17.4	
9-27-2025 3:48:43 PM	1650.0	13.7	35.0	27.8	19.0	8.80	4.06	-2.00	0.980	17.0	
9-27-2025 3:49:13 PM	1680.0	13.7	35.0	27.9	19.0	8.90	4.06	-2.00	0.970	16.9	
9-27-2025 3:49:43 PM	1710.0	13.7	35.0	27.9	19.0	8.90	4.07	-2.00	0.970	17.2	
9-27-2025 3:50:13 PM	1740.0	13.7	35.0	27.9	19.0	8.90	4.07	-2.00	0.970	16.9	
9-27-2025 3:50:43 PM	1770.0	13.7	35.0	28.0	19.0	9.00	4.07	-2.00	0.980	16.9	
		13.7	35.6	27.4	18.9	8.50	4.06	-2.00			

AGAT Laboratories

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

http://www.agatlabs.com

CLIENT NAME: LNG CANADA DEVELOPMENT INC.
SHELL CENTRE-32 FLR 400-4 AVE SW BX 100
Calgary, AB T2P2H5

ATTENTION TO: Tauseef Zia Siddiqui

PROJECT:

AGAT WORK ORDER: 25C338707

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

DATE REPORTED: Oct 10, 2025

PAGES (INCLUDING COVER): 4

VERSION*: 1

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

*Notes

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Western Enviro-Agricultural Laboratory Association (WEALA)
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AGAT Laboratories

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

http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 25C338707

PROJECT:

CLIENT NAME: LNG CANADA DEVELOPMENT INC.

ATTENTION TO: Tauseef Zia Siddiqui

SAMPLING SITE:

SAMPLED BY:Marlon.S

PM 2.5 – Method 201A

DATE RECEIVED: 2025-09-30

DATE REPORTED: 2025-10-10

SAMPLE DESCRIPTION:				Turbine-IE-4011B Stack-Imp.Catch-T1	Turbine-IE-4011B Stack-Imp.Catch-T2	Turbine-IE-4011B Stack-Imp.Catch-T3	Turbine-IE-4011B Stack-ProbeWash-T1	Turbine-IE-4011B Stack-ProbeWash-T2	Turbine-IE-4011B Stack-ProbeWash-T3	Turbine-IE-4011B Stack-NozzleWash-T1	Turbine-IE-4011B Stack-NozzleWash-T2
SAMPLE TYPE:				Water	Water	Water	Acetone	Acetone	Acetone	Acetone	Acetone
DATE SAMPLED:				2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-27
Parameter	Unit	G / S	RDL	7108343	7108344	7108345	7108346	7108347	7108348	7108349	7108350
Particulate - Impinger Catch	mg		0.1	1.8	1.3	1.6	-	-	-	-	-
Particulate - Probe Wash	mg		0.1	-	-	-	0.1	0.2	0.8	0.9	0.8
Particulate - Filter	mg		0.01	-	-	-	-	-	-	-	-

SAMPLE DESCRIPTION:				Turbine-IE-4011B Stack-NozzleWash-T3	Turbine-IE-4011B Stack-Filter-T1	Turbine-IE-4011B Stack-Filter-T2	Turbine-IE-4011B Stack-Filter-T3	Turbine-IE-4011A Stack-Imp.Catch-T1	Turbine-IE-4011A Stack-Imp.Catch-T2	Turbine-IE-4011A Stack-Imp.Catch-T3	Turbine-IE-4011A Stack-ProbeWash-T1
SAMPLE TYPE:				Acetone	FILTER	FILTER	FILTER	Water	Water	Water	Acetone
DATE SAMPLED:				2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-28	2025-09-28	2025-09-28	2025-09-28
Parameter	Unit	G / S	RDL	7108351	7108352	7108353	7108354	7108355	7108356	7108357	7108358
Particulate - Impinger Catch	mg		0.1	-	-	-	-	1.5	2.4	2.3	-
Particulate - Probe Wash	mg		0.1	0.6	-	-	-	-	-	-	0.3
Particulate - Filter	mg		0.01	-	<0.01	<0.01	<0.01	-	-	-	-

SAMPLE DESCRIPTION:				Turbine-IE-4011A Stack-ProbeWash-T2	Turbine-IE-4011A Stack-ProbeWash-T3	Turbine-IE-4011A Stack-NozzleWash-T1	Turbine-IE-4011A Stack-NozzleWash-T2	Turbine-IE-4011A Stack-NozzleWash-T3	Turbine-IE-4011A Stack-Filter-T1	Turbine-IE-4011A Stack-Filter-T2	Turbine-IE-4011A Stack-Filter-T3
SAMPLE TYPE:				Acetone	Acetone	Acetone	Acetone	Acetone	FILTER	FILTER	FILTER
DATE SAMPLED:				2025-09-28	2025-09-28	2025-09-28	2025-09-28	2025-09-28	2025-09-28	2025-09-28	2025-09-28
Parameter	Unit	G / S	RDL	7108359	7108360	7108361	7108362	7108363	7108364	7108365	7108366
Particulate - Impinger Catch	mg		0.1	-	-	-	-	-	-	-	-
Particulate - Probe Wash	mg		0.1	0.7	0.2	0.5	0.3	0.9	-	-	-
Particulate - Filter	mg		0.01	-	-	-	-	-	<0.01	<0.01	<0.01

Certified By:

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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

http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 25C338707

PROJECT:

CLIENT NAME: LNG CANADA DEVELOPMENT INC.

ATTENTION TO: Tauseef Zia Siddiqui

SAMPLING SITE:

SAMPLED BY:Marlon.S

PM 2.5 – Method 201A

DATE RECEIVED: 2025-09-30

DATE REPORTED: 2025-10-10

		SAMPLE DESCRIPTION:		DI-H2O Blank	Acetone Blank
		SAMPLE TYPE:		Water	Acetone
		DATE SAMPLED:			
Parameter	Unit	G / S	RDL	7108367	7108368
Particulate - Impinger Catch	mg		0.1	<0.1	-
Particulate - Probe Wash	mg		0.1	-	<0.1
Particulate - Filter	mg		0.01	-	-

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

7108343-7108368 The condition of samples was satisfactory at the time of arrival in laboratory.
All results have been field blank corrected.
The Reported Detection Limit RDL is based on the detection limit of the analytical balance used: 0.1mg for the Impinger Catch and Probe Wash, and 0.01mg for filters.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

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

http://www.agatlabs.com

Method Summary

CLIENT NAME: LNG CANADA DEVELOPMENT INC.

AGAT WORK ORDER: 25C338707

PROJECT:

ATTENTION TO: Tauseef Zia Siddiqui

SAMPLING SITE:

SAMPLED BY:Marlon.S

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Air Quality Monitoring			
Particulate - Impinger Catch	AQM-43-16002	NIOSH 0500	Gravimetric
Particulate - Probe Wash	AQM-43-16002	NIOSH 0500	Gravimetric
Particulate - Filter	AQM-43-16002	NIOSH 0500	Gravimetric

Results relate only to the items tested. Results apply to samples as received.

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Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

APPLIED CHEMISTRY SERVICES

TEST REPORT

RESULTS: Shaun Hayward 403-369-4749
AGAT Laboratories Ltd.
3700 21 St NE
Calgary
AB T2E 6V6

INVOICE: Accounts Payable
2905 12 St NE
Calgary
AB T2E 7J2

CLIENT SAMPLE ID: LNG - Canada/Kitmat, BC - Can # 1 - Test # 1
Matrix: Ambient Air
CANISTER ID: 28894
PRIORITY: Normal
DESCRIPTION: Turbine - 1E - 4101 B
DATE SAMPLED: 27-Sep-25 11:25
DATE RECEIVED: 02-Oct-25
REPORT CREATED: 17-Oct-25
REPORT NUMBER: 25100011
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-001	Carbon dioxide		46300	ppmv	20	NA-026	02-Oct-25
25100011-001	Oxygen		142000	ppmv	26900	NA-026	02-Oct-25
25100011-001	Hydrocarbons, Total (as Methane)		283	ppmv	0.05	NA-025	02-Oct-25
25100011-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100011-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	1,2,4-Trimethylbenzene	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100011-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	1,3-Butadiene	I	0.04	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing
Date: October 17, 2025

Inquiries: (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	28894	Ambient Air	27-Sep-25 11:25

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100011-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100011-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100011-001	1-Butene/Isobutylene		0.68	ppbv	0.06	AC-058	04-Oct-25
25100011-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	04-Oct-25
25100011-001	1-Pentene	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100011-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	04-Oct-25
25100011-001	2,3-Dimethylpentane	I	0.04	ppbv	0.02	AC-058	04-Oct-25
25100011-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Acetone		16.3	ppbv	0.4	AC-058	04-Oct-25
25100011-001	Acrolein		1.6	ppbv	0.3	AC-058	04-Oct-25
25100011-001	Benzene	I	0.19	ppbv	0.03	AC-058	04-Oct-25
25100011-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Bromomethane	I	0.06	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	28894	Ambient Air	27-Sep-25 11:25

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-001	Carbon disulfide		3.72	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Chloroethane	I	0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Chloroform	I	0.03	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Chloromethane		0.11	ppbv	0.04	AC-058	04-Oct-25
25100011-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	cis-2-Butene	I	0.10	ppbv	0.03	AC-058	04-Oct-25
25100011-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100011-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	Ethylbenzene	I	0.05	ppbv	0.03	AC-058	04-Oct-25
25100011-001	Freon-11	I	0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	Freon-12	I	0.05	ppbv	0.03	AC-058	04-Oct-25
25100011-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	Isobutane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	Isopentane		0.44	ppbv	0.04	AC-058	04-Oct-25
25100011-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Isopropyl alcohol		1.7	ppbv	0.3	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	28894	Ambient Air	27-Sep-25 11:25

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-001	m,p-Xylene	I	0.17	ppbv	0.04	AC-058	04-Oct-25
25100011-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100011-001	Methyl ethyl ketone		0.7	ppbv	0.3	AC-058	04-Oct-25
25100011-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	04-Oct-25
25100011-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100011-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	n-Butane		0.11	ppbv	0.02	AC-058	04-Oct-25
25100011-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100011-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	n-Heptane	I	0.08	ppbv	0.04	AC-058	04-Oct-25
25100011-001	n-Hexane	I	0.13	ppbv	0.03	AC-058	04-Oct-25
25100011-001	n-Octane	I	0.07	ppbv	0.02	AC-058	04-Oct-25
25100011-001	n-Pentane		0.13	ppbv	0.04	AC-058	04-Oct-25
25100011-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100011-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100011-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	o-Xylene	I	0.06	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	28894	Ambient Air	27-Sep-25 11:25

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	Toluene		3.22	ppbv	0.03	AC-058	04-Oct-25
25100011-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100011-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	trans-2-Butene		0.11	ppbv	0.03	AC-058	04-Oct-25
25100011-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	28934	Ambient Air	27-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-002	Carbon dioxide		47000	ppmv	20	NA-026	02-Oct-25
25100011-002	Oxygen		141000	ppmv	26900	NA-026	02-Oct-25
25100011-002	Hydrocarbons, Total (as Methane)		256	ppmv	0.05	NA-025	02-Oct-25
25100011-002	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100011-002	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	1,2,4-Trimethylbenzene	I	0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100011-002	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100011-002	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100011-002	1-Butene/Isobutylene		0.27	ppbv	0.06	AC-058	04-Oct-25
25100011-002	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	04-Oct-25
25100011-002	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	28934	Ambient Air	27-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-002	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	04-Oct-25
25100011-002	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Acetone		6.1	ppbv	0.4	AC-058	04-Oct-25
25100011-002	Acrolein		1.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	Benzene	I	0.19	ppbv	0.03	AC-058	04-Oct-25
25100011-002	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Bromomethane	I	0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Carbon disulfide		0.12	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Chloroform	I	0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Chloromethane	I	0.10	ppbv	0.04	AC-058	04-Oct-25
25100011-002	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	28934	Ambient Air	27-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-002	cis-2-Butene	I	0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-002	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100011-002	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	Ethylbenzene	I	0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	Freon-11	I	0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	Freon-12	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100011-002	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	Isobutane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	Isopentane		0.16	ppbv	0.04	AC-058	04-Oct-25
25100011-002	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-002	m,p-Xylene	I	0.11	ppbv	0.04	AC-058	04-Oct-25
25100011-002	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100011-002	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	28934	Ambient Air	27-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-002	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100011-002	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	n-Butane	I	0.08	ppbv	0.02	AC-058	04-Oct-25
25100011-002	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100011-002	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	n-Heptane	I	0.05	ppbv	0.04	AC-058	04-Oct-25
25100011-002	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	n-Octane	I	0.06	ppbv	0.02	AC-058	04-Oct-25
25100011-002	n-Pentane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-002	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100011-002	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100011-002	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-002	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	o-Xylene	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100011-002	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-002	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-002	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	Toluene		1.60	ppbv	0.03	AC-058	04-Oct-25
25100011-002	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100011-002	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	28934	Ambient Air	27-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-002	trans-2-Butene	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100011-002	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1098	Ambient Air	27-Sep-25 14:30

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-003	Carbon dioxide		47000	ppmv	20	NA-026	02-Oct-25
25100011-003	Oxygen		144000	ppmv	26900	NA-026	02-Oct-25
25100011-003	Hydrocarbons, Total (as Methane)		259	ppmv	0.05	NA-025	02-Oct-25
25100011-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100011-003	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-003	1,2,4-Trimethylbenzene	I	0.05	ppbv	0.03	AC-058	04-Oct-25
25100011-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100011-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100011-003	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100011-003	1-Butene/Isobutylene		1.64	ppbv	0.06	AC-058	04-Oct-25
25100011-003	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	04-Oct-25
25100011-003	1-Pentene	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100011-003	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1098	Ambient Air	27-Sep-25 14:30

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-003	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	04-Oct-25
25100011-003	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Acetone		25.4	ppbv	0.4	AC-058	04-Oct-25
25100011-003	Acrolein		2.2	ppbv	0.3	AC-058	04-Oct-25
25100011-003	Benzene		0.25	ppbv	0.03	AC-058	04-Oct-25
25100011-003	Benzyl chloride	I	0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-003	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Carbon disulfide		4.10	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Chloromethane		0.11	ppbv	0.04	AC-058	04-Oct-25
25100011-003	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1098	Ambient Air	27-Sep-25 14:30

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-003	cis-2-Butene	I	0.07	ppbv	0.03	AC-058	04-Oct-25
25100011-003	cis-2-Pentene	I	0.03	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-003	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100011-003	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-003	Ethylbenzene	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100011-003	Freon-11	I	0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	Freon-12	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100011-003	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-003	Isobutane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	Isopentane		0.65	ppbv	0.04	AC-058	04-Oct-25
25100011-003	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Isopropyl alcohol	I	0.4	ppbv	0.3	AC-058	04-Oct-25
25100011-003	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-003	m,p-Xylene	I	0.14	ppbv	0.04	AC-058	04-Oct-25
25100011-003	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100011-003	Methyl ethyl ketone		1.8	ppbv	0.3	AC-058	04-Oct-25
25100011-003	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-003	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1098	Ambient Air	27-Sep-25 14:30

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Methylcyclopentane	I	0.08	ppbv	0.05	AC-058	04-Oct-25
25100011-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-003	n-Butane		0.11	ppbv	0.02	AC-058	04-Oct-25
25100011-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100011-003	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-003	n-Heptane	I	0.06	ppbv	0.04	AC-058	04-Oct-25
25100011-003	n-Hexane	I	0.19	ppbv	0.03	AC-058	04-Oct-25
25100011-003	n-Octane	I	0.07	ppbv	0.02	AC-058	04-Oct-25
25100011-003	n-Pentane	I	0.05	ppbv	0.04	AC-058	04-Oct-25
25100011-003	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100011-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100011-003	Naphthalene		0.7	ppbv	0.3	AC-058	04-Oct-25
25100011-003	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-003	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	o-Xylene	I	0.06	ppbv	0.03	AC-058	04-Oct-25
25100011-003	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-003	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-003	Toluene		1.47	ppbv	0.03	AC-058	04-Oct-25
25100011-003	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100011-003	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1098	Ambient Air	27-Sep-25 14:30

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-003	trans-2-Butene	I	0.09	ppbv	0.03	AC-058	04-Oct-25
25100011-003	trans-2-Pentene	I	0.03	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025

Inquiries: (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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Revision History

Order ID	Ver	Date	Reason
25100011	01	17-Oct-25	Report created

Methods

Method	Description
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-025	Determination of Light Hydrocarbons (C1C4) in Ambient Air by Gas Chromatography Flame Ionization Detector
NA-026	Inert - GC/TCD Gas Analysis - Nitrogen, Oxygen, CO2, CO and Methane

List of Analytical Method IDs within InnoTech's ISO/IEC 17025:2017 CALA Scope of Accreditation

Method ID	Description
AC-020	Chlorophyll-a Phytoplankton (Fluorometric Analysis)
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-035	Analysis of Glyphosate, Aminomethylphosphonic Acid and Glufosinate in Water
AC-038	Trace Metal Analysis of Water Samples by ICP-MS
AC-048	Specific Conductance (Conductivity Meter Method)
AC-049	pH (Meter Method)
AC-054	Alkalinity Total and Phenolphthalein
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-060	Trace Metal Analysis of Soil Sediment and Industrial Waste Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-061	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-065	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-074	Pesticides in Water
AC-080	Alkylated PAH in Water (SPE Extraction)
NA-006	Determination of BTEX, F1 Hydrocarbons and F2, F3 and F4 Hydrocarbons in Water
NA-024	Analysis of Reduced Sulfur Compounds in Air

Qualifiers

Data Qualifier	Translation
B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Order Comments

25100011

Project # 25C338707

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Sample Comments

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Result Comments

Note:

1. Results relate only to items tested and apply to the sample as received.

2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.

AGAT Laboratories

2420, 42 Avenue NE
Calgary, AB
T2E 7T6
webair.agatlabs.com
P: 403.736.5300

Chain of Custody Record

Laboratory Use Only

AGAT Job Number: 25C338707

Notes:

Report Information

Company: AGAT Labs
Contact: Shaun Hayward
Address: 3700 21st NE Calgary T2E 6V6
Phone: 403-369-4749 Fax:
LSD:
Client Project #:

Invoice To Same Yes ☑ / No ☐

Company: LNG-CANADA
Contact:
Address:
Phone: Fax:
PO/AFE#:

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	DATE/TIME INSTALLED	DATE/TIME EXTRACTED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	# OF CONTAINERS	H2S Passive	SO2 Passive	NO2 Passive	O3 Passive	Sulphation	Dustfall	PM-2.5			DUPLICATE	BLANK
	LNG-CANADA			LNG-Canada,Kitimat,BC												
	PM 2.5 @-Turbine-1E-4011B Stack															
	Imp.Catch-T1		27-Sept-2025									☑				
	Imp. Catch-T2		27-Sept-2025									☑				
	Imp.Catch-T3		27-Sept-2025									☑				
	Probe Wash -T1		27-Sept-2025									☑				
	Probe Wash -T2		27-Sept-2025									☑				
	Probe Wash-T3		27-Sept-2025									☑				
	Nozzle Wash-T1		27-Sept-2025									☑				
	Nozzle Wash-T2		27-Sept-2025									☑				
	Nozzle Wash-T3		27-Sept-2025									☑				
	Filter-T1		27-Sept-2025									☑				
	Filter-T2		27-Scpt-2025									☑				
	Filter-T3		27-Scpt-2025									☑				
	PM 2.5 @-Turbine-1E-4011A Stack															
	Imp.Catch-T1		28-Sept-2025									☑				
	Imp.Catch-T2		28-Scpt-2025									☑				
	Imp.Catch-T3		28-Sept-2025									☑				

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Marlon Soriano	30-09-2025	Austin Bowles-Post	Sept 30, 2025
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°:

AGAT Laboratories

2420, 42 Avenue NE
Calgary, AB
T2E 7T6
webair.agatlabs.com
P: 403.736.5300

Chain of Custody Record

Laboratory Use Only

AGAT Job Number: 25C338707

Notes:

Report Information

Company: AGAT Labs
Contact: Shaun Hayward
Address: 3700 21st NE Calgary T2E 6V6
Phone: 403-369-4749 Fax:
LSD:
Client Project #:

Invoice To Same Yes ☑ / No ☐

Company: LNG-CANADA
Contact:
Address:
Phone: Fax:
PO/AFE#:

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	DATE/TIME INSTALLED	DATE/TIME EXTRACTED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	# OF CONTAINERS	H2S Passive	SO2 Passive	NO2 Passive	O3 Passive	Sulphation	Dustfall	PM-2.5			DUPLICATE	BLANK
	LNG-CANADA			LNG-Canada,Kitimat,BC												
	PM 2.5 @-Turbine-1E-401A Stack															
	Probe Wash -T1		28-Sept-2025									☑				
	Probe Wash -T2		28-Sept-2025									☑				
	Probe Wash-T3		28-Sept-2025									☑				
	Nozzle Wash-T1		28-Sept-2025									☑				
	Nozzle Wash-T2		28-Sept-2025									☑				
	Nozzle Wash-T3		28-Sept-2025									☑				
	Filter-T1		28-Sept-2025									☑				
	Filter-T2		28-Sept-2025									☑				
	Filter-T3		28-Sept-2025									☑				
	DI-H20 Blank															☑
	Acetone Blank															☑

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Marlon Soriano	30-09-2025	Austin Bowles Post	Sept 30, 2025
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°:

InnoTech ALBERTA
A SUBSIDIARY OF ALBERTA INNOVATES

Environmental Analytical Services
Highway 16A & 75 Street
Vegreville, AB T9C 1T4

Phone: 780-632-8403
Email: EAS.Reception@innotechalberta.ca
www.innotechalberta.ca

Sample ID: 25100011-001 **Priority:** Normal

Customer ID: AGAT
Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 1 - Te

Client Reporting Information

Company: AGAT LABS
Address: 3700 21 St. NE
Calgary AB, T2E 6V6
Contact: Sharon Hayward
Phone: 403.369.4749
Email: hayward@agatlabs.com

Contact: Sharon Hayward
Phone: 403.369.4749
Email: hayward@agatlabs.com
Project ID: 25C338707
PO #:

Turnaround Time (TAT)

- [x] Normal (10 business days)
- [ ] Rush (5 business days) (50% surcharge)
- [ ] Emergency (3 business day) (100% surcharge)

NOTE: Rush and Emergency TAT is not available for all tests.
Confirm all rush and Emergency requests with the Laboratory before submitting samples.

SAMPLE TYPE SOURCE* / AMBIENT (indicate as applicable)

Date Received – Lab Use Only

RECEIVED
OCT 0 2 2025

Special Instructions/Comments

* For source samples, please Indicate possible high-level parameters which may be present.

Lab Sample Number	Client Sample ID	Sample Source/ Description	Canister Number/ Sampler ID	Date Sampled (mm/dd/yy) From / To	Time Sampled (24 hour) From / To	Analysis Requested
1	LNG-Canada/Kitimat-BC Canister#1, Test-1	Turbine - 1E - 4101 B	28894	09-27-2025	11:25 11:55	VOC, HC-T, O2, CO2
2	LNG-Canada/Kitimat-BC Canister#2, Test-2	Turbine - 1E - 4101 B	28934	09-27-2025	13:00 13:30	VOC, HC-T, O2, CO2
3	LNG-Canada/Kitimat-BC Canister#3, Test-3	Turbine - 1E - 4101 B	1098	09-27-2025	1430 1500	VOC, HC-T, O2, CO2

Client Authorization: _____ (Signature)

Laboratory Personnel: _____ (Signature)

This "Chain of Custody" form is subject to InnoTech Alberta standard terms and conditions.

InnoTech ALBERTA

Canister ID: 28894

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: 1503 on: AUG 2 1 2025

Evac Sample ID: 25100011-001 Priority: Normal

Customer ID: AGAT

Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 1 - Te

Star -27.6 "Hg | "Hg/ psig

Sample ID: CANISTER-1 TEST-1

Sampled By: VK-MS START: 11:25 END: 11:55

Stack:- Turbine - 1E - 4101B

Date:- 27th September 2025

Affix label here

Parameters :- VOC, ~~BTEX~~, HC-T

O_2, CO_2

LNG Canister

InnoTech

Canister ID: 28934

This cleaned canister meets or exceeds TO-15 Method Specifications

Sample ID: 25100011-002 Priority: Normal 25

Customer ID: AGAT

Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 2 - Te

-27.6 "Hg | -3.0 "Hg/psig

Sample ID: CANISTER - 2 Test-2

Sampled By: VK-MS Start: 1300 End: 1330

Stack: Turbine - 1E - 4101B

Date - 27th Sept. 2025

Affix label here

Parameters :- VOC, ~~BTEX~~, HC-T

O_2, CO_2

LNG Canister

InnoTech ALBERTA

Canister ID: 1098

This cleaned canister meets or exceeds TO-15 Method Specifications

1503 AUG 2 0 2025

Sample ID: 25100011-003 Priority: Normal

Customer ID: AGAT

Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 3 - Te

-27.9 "Hg | "Hg/ psig

Sample ID: Canister - 3 Test-3

Sampled By: VK-MS Start 1430 End 1500

Stack:- Turbine - 1E - 4101B

Date:- 27th Sept. 2025

Affix label here

Parameters :- VOC, ~~BTEX~~, HC-T

O_2, CO_2

LNG Canister

InnoTech ALBERTA

Canister ID: 47756

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: 1503 on: AUG 2 0 2025

Evacuated: SEP 0 8 2025 Recertified:

(Use within: 3 months from evacuation or recertification date)

Laboratory Contact Number: 780-632-8403

Starting Vacuum: -27.5 "Hg

End Vacuum: "Hg/ psig

Sample ID:

Sampled By:

Affix label here

{00004818;6}

TERMS AND CONDITIONS

The attached document entitled "**Chain of Custody Form**" is subject to the following Terms and Conditions, unless otherwise specified on the Quotation. InnoTech Alberta's commencement of the Services shall be deemed acceptance of the terms and conditions by the Client.

1. Any proposal contained herein is prepared for the consideration of the Client only. Its contents may not be used or disclosed to any other party without prior written consent of the INNOTECH ALBERTA INC. (hereinafter referred to as "InnoTech Alberta").

2. InnoTech Alberta will perform the Services in accordance with normal professional standards.

3. The delivery time for performance of the Services (as set out on the front page of this Quotation) is approximate and may be changed by InnoTech Alberta giving written notice to the Client.

4. InnoTech Alberta will exercise due care and proficiency in testing items submitted by a Client. InnoTech Alberta shall not, however, be liable to the Client for any damage or loss caused to the item being tested or for any damage, loss or expense caused by any delay in carrying out the test, including any damage, loss or expense resulting from InnoTech Alberta's negligence. InnoTech Alberta shall not be responsible for any damage, which is a natural or necessary result of any testing procedure.

5. For the purposes of this Quotation, Intellectual Property means all information, data, artistic and literary works, concepts, designs, processes, software, algorithms and inventions, including, without limitation, those that could be the subject of patent, copyright, industrial design, trade secret or other forms of protection. Intellectual Property which was owned by either InnoTech Alberta or the Client prior to the signing of this Agreement remains the property of that party. Nothing in this Agreement shall operate as a license, permission or grant of any other rights to either InnoTech Alberta's or the Client's Intellectual Property.

6. All data, reports and other information relating to the Services shall be treated by InnoTech Alberta as the confidential property of the Client, and InnoTech Alberta will use reasonable efforts to ensure that its employees, contractors and agents will not disclose the same to any other person, firm or corporation during the term of this Agreement and for a period of five (5) years after the date of termination of the Agreement. The obligation of confidentiality set out herein shall not apply to any information that was in InnoTech Alberta's possession prior to receipt from the Client or which is or becomes part of the public domain through no act or failure on the part of InnoTech Alberta. The obligation of confidentiality set out in this Section shall not prevent the disclosure of information to any level of government having jurisdiction to make lawful demand therefor, or required to be disclosed by any applicable law. Any records required to be maintained by InnoTech Alberta pursuant to this Agreement are subject to the protection and access provisions of the Freedom of Information and Protection of Privacy Act (Alberta).

7. The reported results of any InnoTech Alberta tests or evaluations performed on samples or items provided by the Client shall be interpreted as being specific to the sample or item tested. InnoTech Alberta makes no representation that any similar or related untested samples or items would produce the same results.

8. The Client shall not use InnoTech Alberta's name in any advertising material, sale offer, news releases, public statements or announcements, whether written or oral relating to the Services or the results thereof, without the prior written consent of InnoTech Alberta.

9. Records, test data, reports and samples, except where shipped to the Client after completion of the work shall be retained by InnoTech Alberta according to InnoTech Alberta's approved Records Retention and Disposition Schedule.

10. Prices quoted are in Canadian Dollars unless otherwise stated in writing and are exclusive of any provincial, municipal, sales, use or goods and services tax.

11. Prices quoted do not include shipping, insurance or cost of consumables. The Client shall be responsible for all costs incurred by InnoTech Alberta in collecting any item for testing and returning the item to the Client after testing and shall be responsible for all necessary incidental costs incurred by InnoTech Alberta in providing the Services. InnoTech Alberta will not be responsible for any damage or loss to items during shipping and it is the responsibility of the Client to arrange and pay for any insurance it deems necessary.

12. Any test samples or other materials supplied by the Client to InnoTech Alberta may, at InnoTech Alberta's option, be returned by InnoTech Alberta to the Client. The Client shall:

(a) be responsible for all costs associated with the handling, transportation and disposal of such materials;

(b) reimburse InnoTech Alberta for any costs incurred by InnoTech Alberta associated with the handling, transportation and disposal of such materials; and

(c) indemnify and hold InnoTech Alberta harmless from any and all claims, damages or actions associated with the handling, transportation and disposal of such materials.

13. The Client shall pay all invoices rendered by InnoTech Alberta to the Client within thirty (30) days from the date of invoice, without deduction or set-off.

14. If the Client fails to pay any amount under this Agreement, such unpaid amount shall bear interest at a rate per month equal to one (1%) percent (or 12.6825% per annum) with interest on overdue interest at the same rate.

15. InnoTech Alberta makes no representation, warranties or conditions, either expressed or implied, statutory or otherwise and does not warrant the quality, state, merchantability or fitness for any purpose of any goods or products to be delivered pursuant to this Agreement. The Client accepts the results of these Services or items tested as is, and acknowledges that any use or interpretation of the information contained is at the Client's own risk.

16. In no event shall InnoTech Alberta be liable for any indirect or consequential damage or loss suffered by the Client, including loss of anticipated profits.

17. The Client shall indemnify and hold harmless InnoTech Alberta from any and all claims, demands, actions and costs (including legal costs on a solicitor-client basis) that may arise out of:

(a) any dangerous defect or content in the item being tested, whether apparent or not, which dangerous defect or content was not disclosed in writing to InnoTech Alberta by the Client at the time the item was submitted for testing;

(b) differences between those items actually tested and items previously or subsequently produced which are purported to be identical to the item tested; or

(c) any use of the tested item or any item incorporating the tested item, whether by the Client or a third party following its return to the Client.

The hold harmless shall survive this Agreement.

18. The Client shall, at its own expense and without limiting its liabilities herein, be responsible for insuring its operation in an amount not less than $2,000,000 inclusive per occurrence, insuring against bodily injury, and property damage including loss of use thereof. Further, the Client is responsible for insuring all owned property directly or indirectly related to this Agreement and InnoTech Alberta shall have no liability for any loss or damage to such property.

19. InnoTech Alberta shall maintain the following insurance: (i) commercial general liability insurance (including cross liability, severability of interests, non-owned automobile liability) in the amount of two million dollars ($2,000,000.00) per occurrence, and; (ii) professional liability and errors and omissions insurance in the amount of one million dollars ($1,000,000.00) per claim, and two million dollars ($2,000,000.00) in the aggregate. In addition, InnoTech Alberta shall maintain all workers' compensation coverage required by applicable laws. Notwithstanding the foregoing, InnoTech Alberta reserves the right to supplement or add insurance coverage from time to time as may be required in its sole discretion. InnoTech Alberta may provide certificates of insurance for coverages outlined in (i) and (ii) above.

20. The Client agrees to comply with all InnoTech Alberta Safety & Security regulations in effect while on InnoTech Alberta premises.

21. This Agreement represents the entire agreement between the parties and shall supersede all prior agreements relative to this transaction.

22. If a party's performance of any of its obligations under this Agreement (excepting only an obligation to pay) is delayed, rendered impossible or impractical, or prevented in whole or in part due to circumstances beyond its reasonable control, including but not limited to acts of God, war, terrorism, labour disputes, pandemics or epidemics, global health emergencies, or governmental action, that party will not be in breach of this Agreement due to the delay or failure in performance occasioned by such event..

23. InnoTech Alberta may assign this Quotation to an "affiliated" (as that term is defined at Section 2 of the Business Corporations Act (Alberta)) or successor entity on written notice to the Client.

24. This Quotation and rights and parties thereto shall be governed by and construed according to the laws of the Province of Alberta. The parties hereby submit to the jurisdiction of the Courts of Alberta.

CERTIFICATE OF ACCREDITATION

Standards Council of Canada
Conseil canadien des normes

CERTIFICAT D'ACCRÉDITATION

AGAT LABORATORIES LTD. OIL AND GAS CHEMISTRY DIVISION WESTERN CANADA

3650 – 21st Street, N.E., Calgary, AB T2E 6V6

having been assessed by the Standards Council of Canada (SCC) and found to conform with the requirements of ISO/IEC 17025:2005 and the conditions for accreditation established by SCC is hereby recognized as an

ayant fait l'objet d'une évaluation du Conseil canadien des normes (CCN), et ayant été trouvé conforme aux exigences énoncées dans ISO/IEC 17025:2005 et aux conditions d'accréditation établies par le CCN, est de ce fait reconnu comme étant un

ACCREDITED TESTING LABORATORY

LABORATOIRE D'ESSAIS ACCRÉDITÉ

for the specific tests or types of tests listed in the scope of accreditation approved by SCC and found on the SCC website at www.scc.ca.

pour les essais ou types d'essais énumérés dans la portée d'accréditation approuvée par le CCN et figurant dans le site Web du CCN au www.ccn.ca.

Accredited laboratory number: / Numéro de laboratoire accrédité : 672

SCC file number: / Dossier du CCN n° : 15827

Initial accreditation date: / Date de la première accréditation : 2010-04-27

.....

Vice-President – Accreditation Services / Vice-présidente – Services d'accréditation

Issued on: / Délivré le : 2017-07-04

The validity of this certificate, including the date of last re-accreditation and its expiry can be confirmed by the accompanying Scope of Accreditation document in the Directory of Accredited Laboratories on the SCC website at www.scc.ca.

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. The accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF communiqué dated April 2017).

Pour vérifier la validité du présent certificat, y compris la date de la dernière réaccréditation et la date d'expiration du certificat, consulter la portée d'accréditation qui se trouve dans le répertoire des laboratoires accrédités dans le site Web du CCN au www.ccn.ca.

Ce laboratoire est accrédité conformément à la Norme internationale reconnue ISO/IEC 17025:2005. Cette accréditation démontre la compétence technique d'un organisme pour une portée définie et l'exploitation d'un système de management de la qualité de laboratoire (cf. communiqué conjoint ISO-ILAC-IAF date de avril 2017).

This certificate is the property of the Standards Council of Canada (SCC) and must be returned on request; reproduction is prohibited except on written approval of SCC.
Ce certificat est la propriété du Conseil canadien des normes (CCN) et doit lui être remis sur demande; toute reproduction est interdite sans l'autorisation écrite du CCN.

Canada

ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND SAFETY

Environmental:

Air

AQM-43-16000	Determination of Anions by Ion Chromatography (Modified APHA Method 4110B; EPA 6, EPA 8, ASSC Method 8, EPA 26, MMCAAP Method 47071, NIOSH 7906, NIOSH 7907, NIOSH 7908, NIOSH 6004, OSHA ID-200, OSHA ID-182, OSHA ID-214) Fluoride (F^-) Chloride (Cl^-) Bromide (Br^-) Phosphate (PO_4^{3-}) Nitrite (NO_2^-) Nitrate (NO_3^-) Sulphate (SO_4^{2-}) Sulfite (SO_3^{2-}) Sulfur Dioxide (SO_2) Sulfuric Acid mist (H_2SO_4)
AQM-43-16002	Gravimetric Determination of Particulate Matter from Stationary and Other Sources (Modified Alberta Stacks Sampling Code Method 5,AENV, US EPA Method 5, US EPA Method 201A and US EPA 17)
AQM-43-16004	Determination of Nitrogen Dioxide (NO_2) in the Air by Ion Chromatography (in-house)
AQM-43-16005	Determination of Nitrogen Oxide (NOx), from Stationary Sources (Alberta Stack Sampling Code, Method 7A, and Method 7D AENV; US EPA Method 7A; US EPA Method 7D)
AQM-43-16006	Determination of Hydrogen Sulfide (H_2S) in Air by Spectrofluorophotometery (in-house)
AQM-43-16007	Determination of Sulfur Dioxide (SO_2) in Air by Ion Chromatography (in-house)
AQM-43-16008	Determination of Ozone (O_3) in Air by Ion Chromatography (in-house)
AQM-43-16009	Determination of Dustfall (Total, Fixed, Soluble, Insoluble and Total Suspended Solids) by Gravimetric Analysis (Modified ASTM D1739, “Methods Manual for Chemical Analysis of Atmospheric Pollutants”, Method No. 32020, EPHA 2540B, 2540E, 2540D)
AQM-43-16010	Determination of Total Particulate and Dew Point in Air and Other Sources (Modified ASTM D1142, NIOSH 0500, Colorimetry)
AQM-43-16011	Determination of Ammonia (as N) and Hydrogen Sulfide in Aqueous Samples by Colorimetry (Modified Methods Manual for Chemical Analysis of Atmospheric Pollutants Method #41515, Method #43535)
AQM-43-16012	Determination of Ammonia (NH_3) in Air by Spectrofluorophotometry (in-house)

IHF-60-25002	Determination of Fixed Gases and Volatile Hydrocarbons in Air by Gas Chromatography (Modified ASTM D1946, EPA TO-14A,TO-15, NIOSH 6602, EPA 10B, ASSC Method 18, EPA 18, ASSC Method 3C, EPA 3C) Oxygen — Nitrogen Methane — Ethane Carbon Monoxide — Carbon Dioxide Non Methane Volatile Hydrocarbons — Volatile Halogenated Hydrocarbons Nitrous Oxide — Sulfur Hexafluoride C3-C12 — Dimethyl Ether 1,1,1-Trichloroethane — 1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane — 1,1-Dichloroethane 1,1-Dichloroethene — 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene — 1,2-Dibromoethane (EDB) 1,2-Dichlorobenzene — 1,2-Dichloroethane 1,2-Dichloropropane — 1,3,5-Trimethylbenzene 1,3-Dichlorobenzene — 1,4-Dichlorobenzene Benzene — Bromomethane Carbon tetrachloride — Chlorobenzene Chloroethane — Chloroform Chloromethane — cis-1,2-Dichloroethene cis-1,3-Dichloropropene — Dichlorodifluoromethane Dichlorotetrafluoroethane (R114) — Ethylbenzene Hexachlorobutadiene — Methylene chloride m-Xylene — o-Xylene p-Xylene — Styrene Tetrachloroethene — Toluene trans-1,3-Dichloropropene — Trichloroethene Trichlorofluoromethane — Trichlorotrifluoroethane (R113) Vinyl chloride

Canadian Association for Laboratory Accreditation Inc.

Certificate of Accreditation

InnoTech Alberta Inc - Environmental Analytical Services (Vegreville)
InnoTech Alberta Inc.
Highway 16A and 75th Street
Vegreville, Alberta

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

Accreditation No.: 1002789
Issued On: 4/11/2025
Accreditation Date: 1/3/2005
Expiry Date: 10/11/2027

President and CEO

This certificate is the property of the Canadian Association for Laboratory Accreditation Inc. and must be returned on request; reproduction must follow policy in place at date of issue.
For the specific tests to which this accreditation applies, please refer to the laboratory's scope of accreditation at www.cala.ca.

Appendix IV – Field Data Sheets

CYCLONE RUN 1 DATA

Plant Name	LNG-CANADA	**Date**	9/27/2025
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)	**Cyclone**	PM2.5 Cyclone
Operator	MS-VK	**Run #**	1
# of Points Across	4	**# of Ports Used**	4

Temperatures and Pressures			
Avg Stack Temp	(t_s)	362	°F
Avg Gas Meter Temp	(t_m)	56	°F
DH @ 0.75 SCFM	($\Delta H@$)	1.96	in H_2O
Barometric Pressure	(P_b)	29.6	in Hg
Stack Static Pressure	(P_{static})	-1.10	in H_2O
Absolute Stack Pressure	(P_s)	29.48	in Hg
Absolute Meter Pressure	(P_m)	29.70	in Hg

Gas Composition			
Carbon Dioxide Concentration	(%CO_2)	4.000	%
Oxygen Concentration	(%O_2)	14	%
Carbon Monoxide Concentration	(%CO)	0.0000	%
Nitogen Concentration	(%N_2)	82.00	%
Stack Moisture Content	(B_{ws})	7	%
Stack Dry Molecular Weight	(M_d)	29.20	lb/lb-mole
Stack Wet Molecular Weight	(M_s)	28.38	lb/lb-mole
Method 201A Pitot Coefficient	(C'_p)	0.819	
Probe Blockage Factor	(b_l)	0.00	
Viscosity of Stack Gas		244.854	micropoise

Flow Rate Calculations			
Cyclone Flow Rate		0.65	acfm
Orifice Pressure Head		0.51	in H_2O
Average Stack Velocity		75.91	ft/sec
Nozzle Diameter Desired		0.16	in
Nozzle Diameter Used		0.15	in
Nozzle Velocity		88.63	ft/sec
Minimum Velocity Head		0.90	in H_2O
Maximum Velocity Head		2.51	in H_2O

ΔQ_m Leak Checks					
Pre	0	ft^3/min	@	15	in Hg
Mid	0	ft^3/min	@	15	in Hg
Post	0	ft^3/min	@	15	in Hg
ΔQ_m <	0.020	ft^3/min	☑	**Ok?**	
Pitot OK?	☑		**Orsat OK?**	☑	

Traverse Point #	Dwell Time (Θ)	Clock Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Desired Orifice ΔH (ΔH)	Actual Orifice ΔH (ΔH)	Stack Temp (t_s)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Filter Temp	Impinger Exit Temp	Pump Vacuum	Square Root ΔP ($\Delta p^{1/2}$)	Local Stack Velocity (v_s)$_l$	Cumulative Meter Volume (V_m)$_{std}$	Cumulative Percent IsoKinetic (I)	Estimated Cut Diameter PM2.5
	min	hh:mm:ss	ft^3	in H_2O	in H_2O	in H_2O	°F	°F	°F	°F	°F	in Hg	(in H_2O)$^{1/2}$	ft/sec	scf	%	microns
A-1	3.9	11:25:00	0.000	1.30	0.510	0.508	361	53	60	250	44	-3.0	1.14	79.08	1.468	109.5	2.49
A-2	3.9	11:28:55	1.454	1.30	0.510	0.508	371	53	60	250	44	-3.0	1.14	79.56	2.922	109.3	2.47
A-3	3.9	11:32:51	2.895	1.30	0.510	0.508	362	53	60	250	44	-3.0	1.14	79.13	4.377	109.0	2.49
A-4	3.9	11:36:46	4.336	1.30	0.510	0.508	362	53	60	250	44	-3.0	1.14	79.13	5.846	109.2	2.49
B-1	4.1	11:40:42	5.791	1.40	0.510	0.508	362	54	60	250	44	-3.0	1.18	82.11	7.433	109.4	2.49
B-2	3.9	11:44:46	7.365	1.30	0.510	0.508	361	54	54	250	44	-3.0	1.14	79.08	8.899	109.4	2.48
B-3	3.9	11:48:41	8.810	1.30	0.510	0.508	360	54	54	250	44	-3.0	1.14	79.03	10.323	108.9	2.48
B-4	3.9	11:52:37	10.214	1.30	0.510	0.508	360	54	54	250	45	-3.0	1.14	79.03	11.817	109.2	2.48
C-1	4.1	11:56:32	11.687	1.40	0.510	0.508	360	54	54	250	45	-3.0	1.18	82.01	13.357	108.9	2.48
C-2	3.9	12:00:36	13.205	1.30	0.510	0.508	360	55	55	250	45	-3.0	1.14	79.03	14.891	109.5	2.49
C-3	3.9	12:04:32	14.721	1.30	0.510	0.508	360	55	55	250	45	-3.0	1.14	79.03	16.291	109.0	2.49
C-4	3.9	12:08:27	16.103	1.30	0.510	0.508	361	55	55	250	45	-3.0	1.14	79.08	17.769	109.1	2.48
D-1	4.1	12:12:22	17.563	1.40	0.510	0.508	361	55	55	250	45	-3.0	1.18	82.06	19.332	109.0	2.48
D-2	3.9	12:16:27	19.107	1.30	0.510	0.508	361	55	55	250	45	-3.0	1.14	79.08	20.855	109.4	2.48
D-3	4.1	12:20:22	20.612	1.40	0.510	0.508	361	55	55	250	45	-3.0	1.18	82.06	22.340	108.9	2.48
D-4	4.1	12:24:26	22.079	1.40	0.510	0.508	361	55	55	250	45	-3.0	1.18	82.06	23.939	109.0	2.48
Last Pt		12:28:30	23.658														
Final Values	63.5	12:28:30	23.658						**Maximum Vacuum**			-3.0	**Final Values**		23.939	109.0	
Average Values				1.33		0.51	362	54	56	250	45		1.15	80.04			
								55									

CYCLONE RUN 2 DATA

Plant Name	LNG-CANADA	**Date**	9/27/2025
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)	**Cyclone**	PM2.5 Cyclone
Operator	MS-VK	**Run #**	2
# of Points Across	4	**# of Ports Used**	4

Temperatures and Pressures			
Avg Stack Temp	(t_s)	360	°F
Avg Gas Meter Temp	(t_m)	61	°F
DH @ 0.75 SCFM	($\Delta H@$)	1.96	in H_2O
Barometric Pressure	(P_b)	29.6	in Hg
Stack Static Pressure	(P_{static})	-1.10	in H_2O
Absolute Stack Pressure	(P_s)	29.48	in Hg
Absolute Meter Pressure	(P_m)	29.70	in Hg

Gas Composition			
Carbon Dioxide Concentration	(%CO_2)	4.000	%
Oxygen Concentration	(%O_2)	14	%
Carbon Monoxide Concentration	(%CO)	0.0000	%
Nitogen Concentration	(%N_2)	82.00	%
Stack Moisture Content	(B_{ws})	7	%
Stack Dry Molecular Weight	(M_d)	29.20	lb/lb-mole
Stack Wet Molecular Weight	(M_s)	28.39	lb/lb-mole
Method 201A Pitot Coefficient	(C'_p)	0.819	
Probe Blockage Factor	(b_l)	0.00	
Viscosity of Stack Gas		244.409	micropoise

Flow Rate Calculations			
Cyclone Flow Rate		0.65	acfm
Orifice Pressure Head		0.52	in H_2O
Average Stack Velocity		75.91	ft/sec
Nozzle Diameter Desired		0.16	in
Nozzle Diameter Used		0.15	in
Nozzle Velocity		88.37	ft/sec
Minimum Velocity Head		0.89	in H_2O
Maximum Velocity Head		2.50	in H_2O

ΔQ_m	Leak Checks				
Pre	0	ft^3/min	@	15	in Hg
Mid	0	ft^3/min	@	15	in Hg
Post	0	ft^3/min	@	15	in Hg
ΔQ_m <	0.020	ft^3/min	☑	**Ok?**	
Pitot OK?	☑		**Orsat OK?**	☑	

Traverse Point #	Dwell Time (Θ)	Clock Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Desired Orifice ΔH (ΔH)	Actual Orifice ΔH (ΔH)	Stack Temp (t_s)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Filter Temp	Impinger Exit Temp	Pump Vacuum	Square Root ΔP ($\Delta p^{1/2}$)	Local Stack Velocity (v_s)l	Cumulative Meter Volume (V_m)std	Cumulative Percent IsoKinetic (I)	Estimated Cut Diameter PM2.5
	min	hh:mm:ss	ft^3	in H_2O	in H_2O	in H_2O	°F	°F	°F	°F	°F	in Hg	(in H_2O)$^{1/2}$	ft/sec	scf	%	microns
A-1	3.9	13:00:00	0.000	1.40	0.516	0.511	360	60	60	250	46	-3.0	1.18	82.00	1.530	109.8	2.49
A-2	3.9	13:03:55	1.526	1.40	0.516	0.511	361	60	60	250	46	-3.0	1.18	82.05	3.043	109.2	2.49
A-3	3.9	13:07:51	3.035	1.40	0.516	0.511	361	60	60	250	46	-3.0	1.18	82.05	4.560	109.1	2.49
A-4	3.9	13:11:46	4.548	1.40	0.516	0.511	361	60	60	250	46	-3.0	1.18	82.05	6.113	109.7	2.49
B-1	3.9	13:15:42	6.097	1.40	0.516	0.511	361	61	61	250	46	-3.0	1.18	82.05	7.649	109.8	2.49
B-2	3.9	13:19:37	7.632	1.40	0.516	0.511	360	61	61	250	46	-3.0	1.18	82.00	9.168	109.7	2.49
B-3	4.0	13:23:32	9.150	1.45	0.516	0.511	360	61	61	250	47	-3.0	1.20	83.45	10.634	108.5	2.49
B-4	4.1	13:27:32	10.615	1.50	0.516	0.511	360	61	61	250	47	-3.0	1.22	84.88	12.306	109.0	2.49
C-1	4.0	13:31:35	12.285	1.45	0.516	0.511	360	62	62	250	47	-3.0	1.20	83.45	13.914	109.2	2.49
C-2	3.9	13:35:35	13.895	1.40	0.516	0.511	360	62	62	250	47	-3.0	1.18	82.00	15.432	109.2	2.49
C-3	3.9	13:39:30	15.415	1.40	0.516	0.511	360	62	62	250	47	-3.0	1.18	82.00	16.940	109.1	2.49
C-4	4.0	13:43:26	16.925	1.45	0.516	0.511	359	62	62	250	47	-3.0	1.20	83.40	18.469	108.8	2.50
D-1	4.1	13:47:25	18.456	1.50	0.516	0.511	359	62	62	250	47	-3.0	1.22	84.82	20.080	108.8	2.50
D-2	4.1	13:51:29	20.069	1.50	0.516	0.511	359	62	62	250	47	-3.0	1.22	84.82	21.684	108.7	2.50
D-3	4.0	13:55:33	21.675	1.45	0.516	0.511	359	62	62	250	47	-3.0	1.20	83.40	23.363	109.2	2.50
D-4	4.0	13:59:32	23.355	1.45	0.516	0.511	359	62	62	250	47	-3.0	1.20	83.40	24.921	109.1	2.50
Last Pt		14:03:32	24.915														
Final Values	63.5	14:03:32	24.915						**Maximum Vacuum**			-3.0	**Final Values**		24.921	109.1	
Average Values				1.43		0.51	360	61	61	250	47		1.20	82.99			
								61									

CYCLONE RUN 3 DATA

Plant Name	LNG-CANADA	**Date**	9/27/2025
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)	**Cyclone**	PM2.5 Cyclone
Operator	MS-VK	**Run #**	3
# of Points Across	4	**# of Ports Used**	4

Temperatures and Pressures				
Avg Stack Temp	(t_s)	357	°F	9.83
Avg Gas Meter Temp	(t_m)	64	°F	10.42
DH @ 0.75 SCFM	(ΔH@)	1.96	in H_2O	0.65
Barometric Pressure	(P_b)	29.6	in Hg	2353.83
Stack Static Pressure	(P_{static})	-1.10	in H_2O	2.43
Absolute Stack Pressure	(P_s)	29.48	in Hg	1.10
Absolute Meter Pressure	(P_m)	29.70	in Hg	9.84
				10.42

Flow Rate Calculations				
Cyclone Flow Rate		0.65	acfm	2352.60
Orifice Pressure Head		0.52	in H_2O	2.43
Average Stack Velocity		75.91	ft/sec	
Nozzle Diameter Desired		0.16	in	
Nozzle Diameter Used		0.15	in	
Nozzle Velocity		87.96	ft/sec	
Minimum Velocity Head		0.89	in H_2O	
Maximum Velocity Head		2.49	in H_2O	

Gas Composition			
Carbon Dioxide Concentration	(%CO_2)	4.000	%
Oxygen Concentration	(%O_2)	14	%
Carbon Monoxide Concentration	(%CO)	0.0000	%
Nitogen Concentration	(%N_2)	82.00	%
Stack Moisture Content	(B_{ws})	7.2	%
Stack Dry Molecular Weight	(M_d)	29.20	lb/lb-mole
Stack Wet Molecular Weight	(M_s)	28.39	lb/lb-mole
Method 201A Pitot Coefficient	(C'_p)	0.819	
Probe Blockage Factor	(b_l)	0.00	
Viscosity of Stack Gas		243.632	micropoise

ΔQ_m	Leak Checks				
Pre	0	ft^3/min	@	15	in Hg
Mid	0	ft^3/min	@	15	in Hg
Post	0	ft^3/min	@	15	in Hg
ΔQ_m <	0.020	ft^3/min	☑	**Ok?**	
Pitot OK?	☑		**Orsat OK?**	☑	

Traverse Point #	Dwell Time (Θ)	Clock Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Desired Orifice ΔH (ΔH)	Adjusted Velocity Head ($\Delta p)_s$	Actual Orifice ΔH (ΔH)	Stack Temp (t_s)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Filter Temp	Impinger Exit Temp	Pump Vacuum	Square Root ΔP ($\Delta p^{1/2}$)	Local Stack Velocity (v_s)$_l$	Cumulative Meter Volume (V_m)$_{std}$	Cumulative Percent IsoKinetic (I)	Estimated Cut Diameter PM2.5
	min	hh:mm:ss	ft^3	in H_2O	in H_2O		in H_2O	°F	°F	°F	°F	°F	in Hg	(in $H_2O)^{1/2}$	ft/sec	scf	%	microns
A-1	3.9	14:30:00	0.000	1.50	0.518	1.500	0.520	364	62	62	250	47	-3.0	1.22	85.08	1.573	109.3	2.45
A-2	3.9	14:33:55	1.575	1.45	0.518	1.450	0.520	364	62	62	250	47	-3.0	1.20	83.65	3.101	109.6	2.45
A-3	3.9	14:37:47	3.105	1.45	0.518	1.450	0.520	364	62	62	250	47	-3.0	1.20	83.65	4.622	109.5	2.45
A-4	3.9	14:41:38	4.627	1.50	0.518	1.500	0.520	361	62	62	250	47	-3.0	1.22	84.93	6.206	109.6	2.46
B-1	3.9	14:45:34	6.213	1.50	0.518	1.500	0.520	361	62	62	250	47	-3.0	1.22	84.93	7.745	109.0	2.46
B-2	3.9	14:49:29	7.754	1.45	0.518	1.450	0.520	357	63	63	250	47	-3.0	1.20	83.30	9.276	109.1	2.47
B-3	3.9	14:53:20	9.290	1.50	0.518	1.500	0.520	357	62	62	250	47	-3.0	1.22	84.72	10.887	109.5	2.46
B-4	3.9	14:57:16	10.903	1.50	0.518	1.500	0.520	356	63	63	250	47	-3.0	1.22	84.67	12.484	109.6	2.47
C-1	3.9	15:01:11	12.505	1.45	0.518	1.450	0.520	355	63	63	250	48	-3.0	1.20	83.19	13.967	109.2	2.47
C-2	3.9	15:05:03	13.992	1.45	0.518	1.450	0.520	352	64	64	250	48	-3.0	1.20	83.04	15.554	109.6	2.48
C-3	4.0	15:08:54	15.587	1.55	0.518	1.550	0.520	352	64	64	250	48	-3.0	1.24	85.86	17.124	109.1	2.48
C-4	3.9	15:12:53	17.165	1.50	0.518	1.500	0.520	351	65	65	250	48	-3.0	1.22	84.41	18.744	109.4	2.48
D-1	3.9	15:16:49	18.796	1.50	0.518	1.500	0.520	351	66	66	250	48	-3.0	1.22	84.41	20.359	109.5	2.48
D-2	4.0	15:20:44	20.425	1.55	0.518	1.550	0.520	353	66	66	250	48	-3.0	1.24	85.91	21.955	109.3	2.48
D-3	3.9	15:24:43	22.035	1.50	0.518	1.500	0.520	353	67	67	250	48	-3.0	1.22	84.51	23.528	109.3	2.48
D-4	4.0	15:28:39	23.625	1.55	0.518	1.550	0.520	353	67	67	250	48	-3.0	1.24	85.91	24.884	108.0	2.48
Last Pt		15:32:38	24.997															
Final Values	62.6	15:32:38	24.997							**Maximum Vacuum**			-3.0	**Final Values**		24.884	108.0	
Average Values				1.49			0.52	357	64	64	250	48		1.22	84.51			
									64									

TURBINE - E-4101B

AGAT CYCLONIC FLOW CHECK DATA SHEET

Client:	LNG-CANADA	Contact:	TAUSEEF SIDDIQUI
Plant Name:	LNG-CANADA	Location:	KITIMAT - BC
Stack ID (in.):	50.300	Length of Annulus (in.):	9
Date (Y/M/D):	2025-SEPT-	Comments:	
Sampled by:	NS-VK		
Team Leader:	NS		

N-S

		E-W Traverse Data Test 1		W-E	S-N
Point #	Time (24 Hrs)	Port #1 null angle	Port #2 null angle	Port #3 null angle	Port #4 null angle
4	1200	7° CW	2° CW	5° CCW	4° CCW
3		0° CW	0°	6° CCW	9° CCW
2		3° CW	5 CCW	8° CCW	9° CCW
1	1215	0°	0°	13° CCW	10° CCW

N-S

		E-W Traverse Data Test 2		W-E	S-N
Point #	Time (24 Hrs)	Port 1 null angle	Port 2 null angle	Port 3 null angle	Port 4 null angle
4	1310	2° CW	2° CW	4° CCW	7° CCW
3		6° CW	0°	5° CCW	4° CCW
2		7° CW	5° CCW	7° CCW	8° CCW
1	1325	0°	0°	12° CCW	9° CCW

Note: 1 hour must pass between test 1 and 2

Note: The average of the absolute values of the null angles cannot be greater than 20°

Note: The difference between the angles in test 1 and 2 cannot be greater than 5°

Appendix V – Calibration Data

AGAT Laboratories

Barometer Calibration 2025

Calibration Date	Cal Times	Standard		Monometer
Month/Day/Year	hh:mm	hPa	in. Hg	in. Hg
CGY 1		hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.56
4-Feb-25	8:50	886	26.55	26.55
5-Feb-25	8:05	882	26.16	26.17
CGY 3	hh:mm	hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.57
4-Feb-25	8:50	886	26.55	26.57
5-Feb-25	8:05	882	26.16	26.19
EDM 1	hh:mm	hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.57
4-Feb-25	8:50	886	26.55	26.57
5-Feb-25	8:05	882	26.16	26.19
EDM 2		hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.57
4-Feb-25	8:50	886	26.55	26.56
5-Feb-25	8:05	882	26.16	26.18
EDM 3	hh:mm	hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.58
4-Feb-25	8:50	886	26.55	26.58
5-Feb-25	8:05	882	26.16	26.19

Notes:	Barometers were calibrated to Fisherbrand Tracible Barometer - Serial Number: 240466177 Barometers must be capable of measuring atmospheric pressure to within 2.5mm (0.1 in.) Hg
Calibrated By:	Raymond Dreaver
Date:	Feb 03-05, 2025

AGAT Laboratories

CTM 040 PM2.5 Nozzle Calibration Form 2025

Calibrated: ***20-Jan-25***

Calibrated by: ***Alexander Sanguino***

PM 2.5 Nozzles

Nozzle	Diameter Measurements (inches)				Nozzle	(inches)	Error
ID#	1st	2nd	3rd	Average	Diameter		±0.004 difference (Max-Min)
2a	0.1210	0.1210	0.1210	0.1210	9/64"	0.1210	0.000
2b	0.1500	0.1500	0.1500	0.1500	9/64"	0.1500	0.000
3	0.1490	0.1500	0.1500	0.1497	5/32"	0.1497	0.001
4	0.1650	0.1650	0.1640	0.1647	5/32"	0.1647	0.001
5	0.1820	0.1830	0.1830	0.1827	11/64"	0.1827	0.001
6	0.1900	0.1900	0.1900	0.1900	3/16"	0.1900	0.000
7	0.2030	0.2030	0.2030	0.2030	13/64"	0.2030	0.000
8	0.2430	0.2430	0.2430	0.2430	15/64"	0.2430	0.000

AGAT Laboratories calibrates it's nozzles using a Mastercraft 6" Slide caliper # 58-6800-4

III - *vertical measurement*
----- - *horizontal measurement*

Authorizing Signature: Alexander Sanguino

AGAT Labs Scales Calibration - 2025

Calibrated by: JS

Calibration date: 5-Feb-25

ID - EDBL#104 +/-0. 1gram'

Actual	Scale	Difference
1000	1000	0
500	500	0
200	200	0
50	50.1	0.1
20	20	0

EDBL#110 +/-0. 1gram'

Actual	Scale	Difference
1000	1000	0
500	500	0.0
200	200	0
50	50	0
20	20	0

EDBL#108 +/-0. 1gram'

Actual	Scale	Difference
1000	1000	0
500	499.9	0.1
200	200	0
50	50	0
20	20	0

EDBL#111 +/-0. 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500.1	0.1
200	200	0
50	50	0
20	20	0

CALBL#115 +/- 1gram'

Actual	Scale	Difference
1000	1000	0.0
500	500	0
200	200	0
50	50	0
51		

EDBL#112 +/- 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500.1	0.1
200	200	0
50	50	0
51		

CALBL#117 +/- 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500.1	0.1
200	200.1	0.1
50	50	0
51		

CALBL#118 +/- 1gram'

Actual	Scale	Difference
1000	999.9	0.1
500	500.1	0.1
200	200.1	0
50	50	0
20	20	0

CALBL #107 +/- 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500	0
200	200.1	0.1
50	50	0
51		

CALBL#133

Actual	Scale	Difference
1000	1000	0.0
500	500.1	0.1
200	200	0
50	50	0
51		

CALBL# 109 +/- 1gram'

Actual	Scale	Difference
1000	999.9	0.1
500	500	0
200	200	0
50	50	0
51		

Notes: EDBL# 107, EDBL# 106, EDBL# 109, are all out of service

EPA Method 5
Meter Box Calibration
English Meter Box Units, English K' Factor

Model #: Sensus
Serial #: 1

Date: 7-Jan-25
Barometric Pressure: 26.63 (in. Hg)
Theoretical Critical Va 12.56 (in. Hg)

!!!!!!!!!
IMPORTAI For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.
IMPORTAI The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).
!!!!!!!!!

---------- DRY GAS METER READINGS ----------									-CRITICAL ORIFICE READINGS-					
		Volume	Volume	Volume	Initial Temps.		Final Temps.		Orifice	K' Orifice	Actual	-- Ambient Temperature --		
dH	Time	Initial	Final	Total	Inlet	Outlet	Inlet	Outlet	Serial#	Coefficient	Vacuum	Initial	Final	Average
(in H2O)	(min)	(cu ft)	(cu ft)	(cu ft)	(deg F)	(deg F)	(deg F)	(deg F)	(number)	(see above	(in Hg)	(deg F)	(deg F)	(deg F)
0.01	17.00	984.790	990.005	5.215	73.7	74.1	76.9	74.3	40	0.2333	22.0	74.3	75.3	74.8
0.03	12.00	990.005	995.533	5.528	75.8	73.9	81.1	74.5	48	0.3505	21.5	75.1	76.2	75.7
0.04	10.00	995.533	1001.398	5.865	78.9	74.2	87.1	75.0	55	0.4446	21.0	76.1	76.6	76.4
0.08	7.00	1.398	6.945	5.547	82.6	74.9	93.5	75.6	63	0.5991	20.5	76.5	77.0	76.8
0.16	5.00	6.945	12.295	5.350	82.5	76.1	94.5	76.7	73	0.8029	19.0	76.9	77.3	77.1

********** RESULTS **********

-- DRY GAS METER --		--------- ORIFICE ---------			-- DRY GAS METER --		--------- ORIFICE ---------			
VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	:ALIBRATION FACTOI		CALIBRATION FACTOR			
ORRECTE	ORRECTED	CORRECTE	ORRECTE	NOMINAL	Y		dH@			
Vm(std)	Vm(std)	Vcr(std)	Vcr(std)	Vcr	Value	Variation	Value	Value	Variation	
(cu ft)	(liters)	(cu ft)	(liters)	(cu ft)	(number)	(number)	(in H2O)	(mm H2O)	(in H2O)	
4.581	129.7	4.567	129.3	5.199	0.997	-0.002	0.069	1.74	-0.014	
4.842	137.1	4.839	137.1	5.518	0.999	0.001	0.091	2.32	0.009	
5.114	144.8	5.112	144.8	5.837	1.000	0.001	0.076	1.92	-0.007	
4.812	136.3	4.820	136.5	5.508	1.002	0.003	0.083	2.12	0.001	
4.635	131.3	4.613	130.6	5.274	0.995	-0.003	0.093	2.35	0.010	
					0.9986	**<----- Average Y**	**0.0823**	**2.09**	**<----- Average dH@**	

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.
For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the avera

SIGNED: MS

Date: Jan 07, 2025

AGAT Laboratories

S-TYPE PITOT TUBE CALIBRATION

Calibration Device/Location: SAIT

Pitot Tube Number: SRC 9C Probe

Technician: MS-AS JS-RP

Calibration Date (D/M/Y): 4-Feb-25

Date Last Calibrated (D/M/Y): 6-Feb-24

Previous Factor: 0.818

Approx. Velocity	Reference	S-Type		Pitot Factor	
m/sec	ΔPr	ΔPs	$(Ref/S\text{-}type)^{0.5}$		±Difference from the new factor
30	1.50	2.10	0.845	0.837	0.0174
30	1.50	2.10	0.845	0.837	0.0174
50	4.50	6.60	0.826	0.817	-0.00183
50	4.50	6.60	0.826	0.817	-0.00183
70	8.70	13.20	0.812	0.804	-0.0156
70	8.70	13.20	0.812	0.804	-0.0156

Standard Pitot Tube Factor: 0.990 **New Factor:** **0.819**

Calibration Notes: Pitot Tube tips are in good shape, clean, with no deformations or damage. Calibrated with thermocouples in place.

AGAT Laboratories

Thermocouple Calibration: 2025

Thermocouple Calibration: Fluke S/N: 24450030 & 111108577 Thermometer Standard: VWR61016-208, QL Quincy Lab Inc. 76mm 1mm, C15, C4 Calibrated according to ASSC Method 2 Sec 4.3

	Ice					Boiling Water					Oven				
I.D	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff
Standalone Thermocouples															
C1	1.100	274.25	0.00	273.15	0.403	96.7	369.85	97.0	370.15	0.081	376.9	650.05	377.0	650.15	0.0154
C2	1.000	274.15	1.00	274.15	0.000	97.3	370.45	98.0	371.15	0.189	362.1	635.25	362.0	635.15	0.0157
C3	0.800	273.95	0.50	273.65	0.110	97.5	370.65	98.0	371.15	0.135	398.0	671.15	400.0	673.15	0.2971
C4	1.000	274.15	0.00	273.15	0.3661	96.8	369.95	98.0	371.15	0.323	387.0	660.15	388.0	661.15	0.1513
C5	1.000	274.15	0.00	273.15	0.366	97.0	370.15	97.0	370.15	0.000	375.0	648.15	375.0	648.15	0.0000
C6	0.700	273.85	1.00	274.15	0.109	96.4	369.55	97.0	370.15	0.162	369.2	642.35	371.0	644.15	0.2794
C7	1.400	274.55	1.00	274.15	0.1459	96.1	369.25	97.0	370.15	0.243	391.6	664.75	391.0	664.15	0.0903
C8	1.000	274.15	0.00	273.15	0.366	96.6	369.75	98.0	371.15	0.377	405.0	678.15	406.0	679.15	0.1472
C9	1.100	274.25	1.00	274.15	0.036	97.0	370.15	98.0	371.15	0.269	383.0	656.15	384.0	657.15	0.1522
C10	0.900	274.05	1.00	274.15	0.036	97.2	370.35	98.0	371.15	0.216	351.6	624.75	352.0	625.15	0.0640
C21	1.100	274.25	1.00	274.15	0.036	96.4	369.55	97.0	370.15	0.162	443.6	716.75	444.0	717.15	0.0558
E1	0.600	273.75	0.00	273.15	0.220	94.8	367.95	96.0	369.15	0.325	353.2	626.35	354.0	627.15	0.1276
E2	0.300	273.45	0.00	273.15	0.110	97.1	370.25	98.0	371.15	0.242	335.4	608.55	337.0	610.15	0.2622
E3	0.500	273.65	0.00	273.15	0.183	96.6	369.75	98.0	371.15	0.377	384.2	657.35	385.0	658.15	0.1216
E4	0.700	273.85	0.50	273.65	0.073	96.7	369.85	98.0	371.15	0.350	365.4	638.55	367.0	640.15	0.2499
E6	0.600	273.75	0.00	273.15	0.220	94.5	367.65	96.0	369.15	0.406	320.2	593.35	322.0	595.15	0.3024
E7	0.600	273.75	0.00	273.15	0.220	95.9	369.05	97.0	370.15	0.297	362.0	635.15	364.0	637.15	0.3139
Flex 1	0.900	274.05	1.00	274.15	0.036	97.3	370.45	98.0	371.15	0.189	401.0	674.15	402.0	675.15	0.1481
Flex 2	0.900	274.05	1.00	274.15	0.036	97.2	370.35	97.0	370.15	0.054	377.4	650.55	379.0	652.15	0.2453
Flex 3	1.200	274.35	1.00	274.15	0.073	96.7	369.85	98.0	371.15	0.350	386.0	659.15	387.0	660.15	0.1515
Filter 1	0.200	273.35	0.00	273.15	0.073	96.2	369.35	97.0	370.15	0.216	381.5	654.65	380.0	653.15	0.2297
Filter 3	0.900	274.05	1.00	274.15	0.036	96.6	369.75	97.0	370.15	0.108	388.9	662.05	388.0	661.15	0.1361
Exit1	1.300	274.45	1.00	274.15	0.109	96	369.15	97.0	370.15	0.270	384.0	657.15	385.0	658.15	0.1519
CGY5A - Spare	0.900	274.05	0.50	273.65	0.146	97.9	371.05	98.0	371.15	0.027	420.0	693.15	420.0	693.15	0.0000
CGY5B - Spare	0.600	273.75	0.50	273.65	0.037	97.8	370.95	98.0	371.15	0.054	452.8	725.95	454.0	727.15	0.1650
CGY5C - Spare	0.700	273.85	0.50	273.65	0.073	98.1	371.25	98.0	371.15	0.027	423.5	696.65	423.0	696.15	0.0718
DGM RATA 01	0.800	273.95	0.50	273.65	0.110	97.3	370.45	98.0	371.15	0.189	394.5	667.65	394.0	667.15	0.0749
SRC 5 Spare 2	1.100	274.25	2.00	275.15	0.327	97.0	370.15	97.0	370.15	0.000	431.7	704.85	433.0	706.15	0.1841
C24	1.400	274.55	2.00	275.15	0.218	96.4	369.55	98.0	371.15	0.431	463.2	736.35	464.0	737.15	0.1085
E5	0.200	273.35	0.00	273.15	0.073	96.5	369.65	98.0	371.15	0.404	357.4	630.55	359.0	632.15	0.2531
EDGM 2	1.000	274.15	0.00	273.15	0.366	96.6	369.75	98.0	371.15	0.377	338.1	611.25	339.0	612.15	0.1470
E8	1.000	274.15	0.50	273.65	0.183	96.8	369.95	98.0	371.15	0.323	347.6	620.75	349.0	622.15	0.2250
EDGM1	0.500	273.65	0.00	273.15	0.183	96.0	369.15	98.0	371.15	0.539	317.1	590.25	318.0	591.15	0.1522
E31	0.500	273.65	0.00	273.15	0.183	97.1	370.25	98.0	371.15	0.242	304.1	577.25	304.0	577.15	0.0173

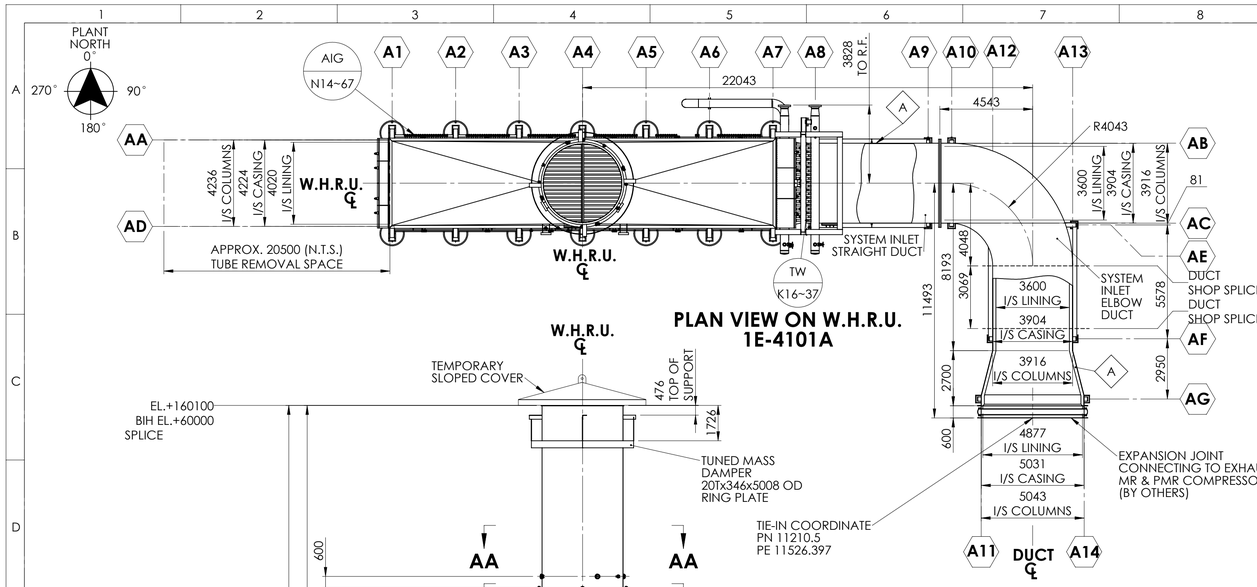
AGAT Laboratories

Thermocouple Calibration: 2025

Thermocouple Calibration: Fluke S/N: 24450030 & 111108577 Thermometer Standard: VWR61016-208, QL Quincy Lab Inc. 76mm 1mm, C15, C4 Calibrated according to ASSC Method 2 Sec 4.3

	Ice					Boiling Water					Oven				
I.D	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff
Pitot Tube Thermocouples															
CGY5D	0.80	273.95	0.50	273.65	0.110	97.8	370.95	98.0	371.15	0.054	459.40	732.55	459.0	732.15	0.0546
CGY5A	1.00	274.15	0.50	273.65	0.183	97.1	370.25	98.0	371.15	0.242	449.00	722.15	448.0	721.15	0.1387
CGY8A	1.10	274.25	1.00	274.15	0.036	96.7	369.85	98.0	371.15	0.350	440.00	713.15	441.0	714.15	0.1400
CGY10 (New)	0.80	273.95	0.50	273.65	0.110	97.4	370.55	98.0	371.15	0.162	457.10	730.25	458.0	731.15	0.1231
CGY10A	1.20	274.35	1.00	274.15	0.073	96.8	369.95	98.0	371.15	0.323	429.00	702.15	430.0	703.15	0.1422
CGY12	1.00	274.15	1.00	274.15	0.000	97.6	370.75	98.0	371.15	0.108	459.00	732.15	460.0	733.15	0.1364
CGY12B	0.90	274.05	1.00	274.15	0.036	97.8	370.95	98.0	371.15	0.054	418.20	691.35	418.0	691.15	0.0289
CGY13	0.90	274.05	1.00	274.15	0.036	97	370.15	98.0	371.15	0.269	456.70	729.85	458.0	731.15	0.1778
EDM3	0.60	273.75	0.00	273.15	0.220	96.3	369.45	98.0	371.15	0.458	345.40	618.55	347.0	620.15	0.2580
EDM5 A (New)	0.50	273.65	0.00	273.15	0.183	96.4	369.55	98.0	371.15	0.431	327.40	600.55	327.0	600.15	0.0667
EDM5 B (New)	0.70	273.85	0.00	273.15	0.256	95.1	368.25	97.0	370.15	0.513	323.00	596.15	323.0	596.15	0.0000
EDM7	0.60	273.75	0.00	273.15	0.220	96.6	369.75	98.0	371.15	0.377	324.00	597.15	324.0	597.15	0.0000
EDM7 A (New)	1.10	274.25	0.00	273.15	0.403	95.0	368.15	97.0	370.15	0.540	324.00	597.15	324.0	597.15	0.0000
EDM8 A (New)	0.60	273.75	0.00	273.15	0.220	94.1	367.25	96.0	369.15	0.515	322.00	595.15	323.0	596.15	0.1677
EDM9 A (New)	0.60	273.75	0.00	273.15	0.220	94.2	367.35	96.0	369.15	0.488	331.00	604.15	331.0	604.15	0.0000
EDM9 B (New)	0.70	273.85	0.00	273.15	0.256	96.6	369.75	98.0	371.15	0.377	318.30	591.45	319.0	592.15	0.1182
EDM10A	0.60	273.75	0.00	273.15	0.220	94.4	367.55	96.0	369.15	0.433	329.10	602.25	329.0	602.15	0.0166
EDM15B	0.80	273.95	1.00	274.15	0.073	95	368.15	97.0	370.15	0.540	392.00	665.15	392.0	665.15	0.0000
EDM18	0.50	273.65	0.00	273.15	0.183	96.3	369.45	98.0	371.15	0.458	340.10	613.25	940.0	1213.15	49.45
GP 8	1.40	274.55	1.00	274.15	0.146	97	370.15	98.0	371.15	0.269	449.20	722.35	448.0	721.15	0.1664
GP10	1.10	274.25	1.00	274.15	0.036	96.9	370.05	98.0	371.15	0.296	441.00	714.15	440.0	713.15	0.1402
GP12	1.30	274.45	1.00	274.15	0.109	96.6	369.75	98.0	371.15	0.377	443.10	716.25	443.0	716.15	0.0140
GP13	1.00	274.15	1.10	274.25	0.036	97.3	370.45	98.0	371.15	0.189	467.30	740.45	468.0	741.15	0.0944
SRC5 A	2.10	275.25	1.00	274.15	0.401	96	369.15	97.0	370.15	0.270	380.00	653.15	381.0	654.15	0.1529
SRC5 B	1.50	274.65	1.00	274.15	0.182	95	368.15	97.0	370.15	0.540	407.10	680.25	409.0	682.15	0.2785
SRC5 - Spare	2.20	275.35	1.50	274.65	0.255	96.2	369.35	97.0	370.15	0.216	426.00	699.15	427.0	700.15	0.1428
SRC6	1.70	274.85	1.00	274.15	0.255	95.8	368.95	97.0	370.15	0.324	421.00	694.15	422.0	695.15	0.1439
SRC9B	1.70	274.85	1.00	274.15	0.255	96.4	369.55	97.0	370.15	0.162	432.20	705.35	431.0	704.15	0.1704
SRC9C	1.30	274.45	1.00	274.15	0.109	96.2	369.35	97.0	370.15	0.216	442.00	715.15	441.0	714.15	0.1400
SRC12B	1.50	274.65	1.00	274.15	0.182	96.6	369.75	97.0	370.15	0.108	446.60	719.75	445.0	718.15	0.2228
SRC13	0.90	274.05	1.00	274.15	0.036	96.2	369.35	97.0	370.15	0.216	416.10	689.25	415.0	688.15	0.1598
SRC-HT-5	1.70	274.85	1.00	274.15	0.255	96.8	369.95	97.0	370.15	0.054	411.50	684.65	411.0	684.15	0.0731

Appendix VI – Stack Diagram



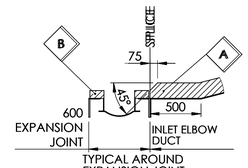
PLAN VIEW ON W.H.R.U. 1E-4101A

NOTES

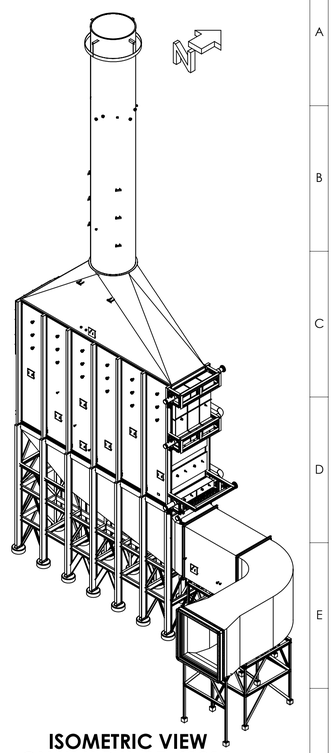
1. ALL PRIMARY DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. SPLICES ARE TO BE INTERNALLY SEAL WELDED AT SITE. UNLESS OTHERWISE SPECIFIED.
3. ALL DIMENSIONS SHALL BE VERIFIED AND ANY DISCREPANCIES SHALL BE REFERRED TO BIH FOR RESOLUTION.
4. HEADERBOX COVERS & MAN WAYS (ACCESS DOORS)SHALL REQUIRED SEALANT COMPOUND & LADDER TAPE. (NOT TO BE APPLIED TO ANY STRUCTURAL JOINTS AS THESE SHALL BE SEAL WELDED.
5. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH DRAWING(S):
   - 743-1E4101A-03 SERIES (FOUNDATION LOADING PLAN). L001-14100-CS-2332-100053-1200 ~ 1203
   - 743-1E4101A-09 SERIES (LADDERS & PLATFORMS). L001-14100-MX-4018-100053-1204 ~ 1207
   - 743-1E4101A-02B,02C & 02D. L001-14100-MX-4018-100053-1201~ 1203
6. REFER TYPICAL LINING DETAIL FOR SEAL WELDING AND LINING BETWEEN SPLICES
   - 743-BIHS-321 (L001-14100-MX-2321-100053-1327)
   - 743-BIHS-322 (L001-14100-MX-2321-100053-1377)
   - 743-BIHS-323 (L001-14100-MX-2321-100053-1411)
7. INTERNAL ID LEGEND BELOW:

INTERNAL ID	ITEM DESCRIPTION
IID-1E-4101A-STA-001	STACK MODULE
IID-1E-4101A-CMB-001	CONVECTION MODULE
IID-1E-4101A-ES-001	SUPPORT STRUCTURE-1
IID-1E-4101A-ES-002	SUPPORT STRUCTURE-2
IID-1E-4101A-ES-003	SUPPORT STRUCTURE-3
IID-1E-4101A-ES-004	SUPPORT STRUCTURE-4
IID-1E-4101A-ES-005	SUPPORT STRUCTURE-5
IID-1E-4101A-DT-001	INLET DUCT-1
IID-1E-4101A-DT-002	INLET DUCT-2

8. SEPARATE DOCUMENTS (GENERAL ARRANGEMENT) WILL BE PREPARED FOR 1E-4101B,2E-4101A AND 2E-4101B



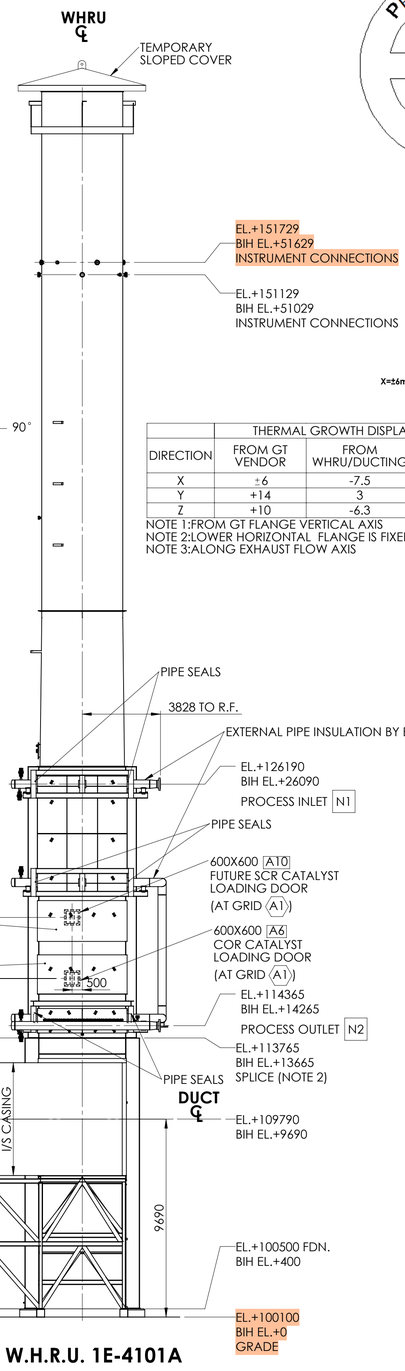
SECTION AD-AD SCALE 1 : 30



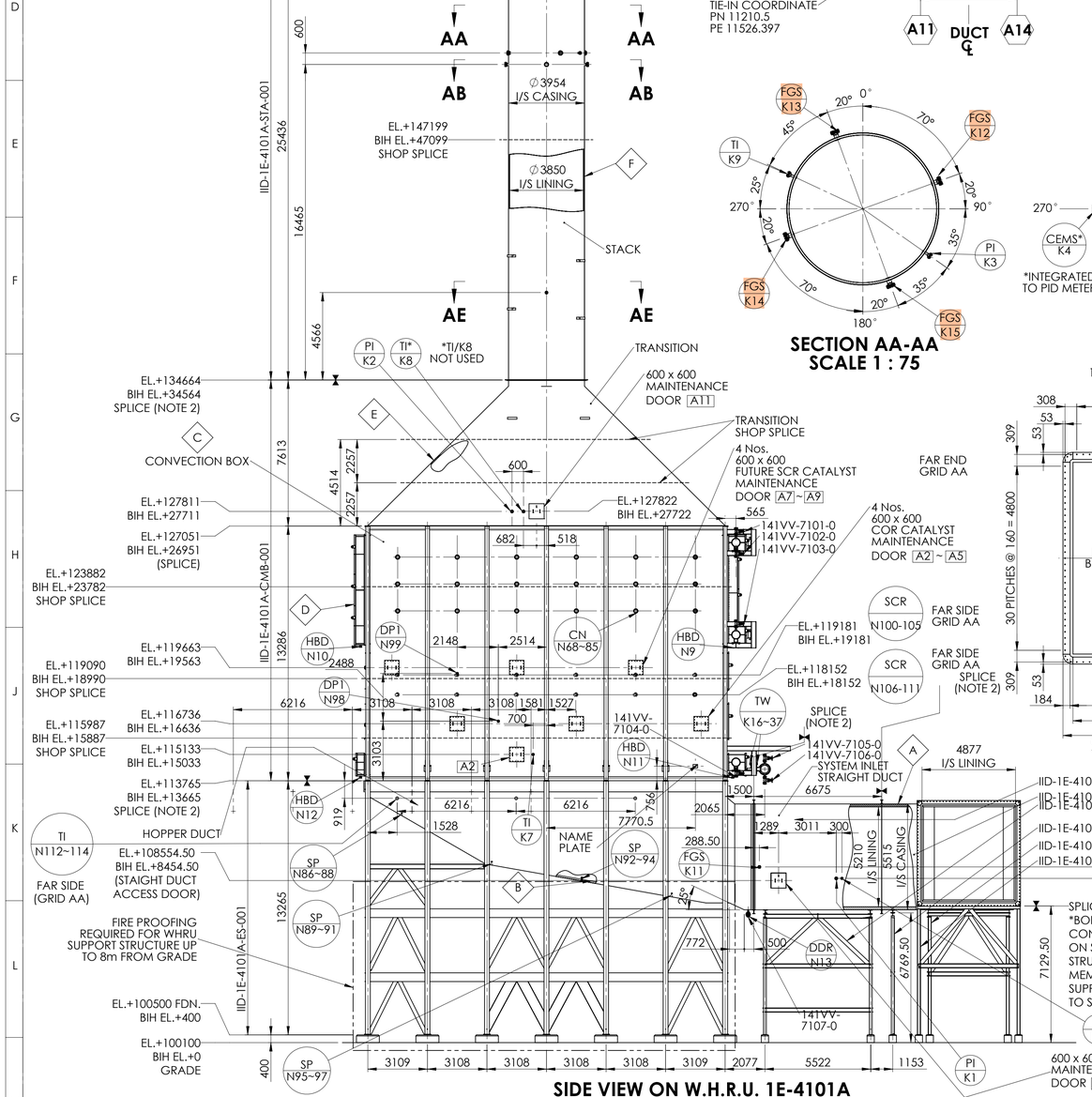
ISOMETRIC VIEW ON W.H.R.U. 1E-4101A

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — B.J.H. SMIT

2022-04-05
P#: 20987



FRONT VIEW ON W.H.R.U. 1E-4101A



SIDE VIEW ON W.H.R.U. 1E-4101A

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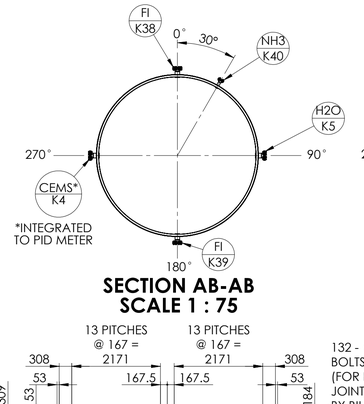
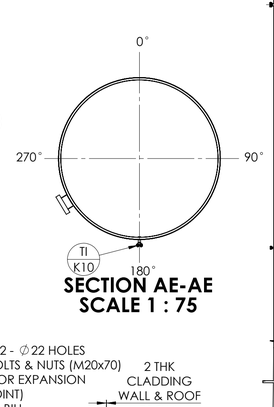


*INTEGRATED TO PID METER

SECTION AB-AB SCALE 1 : 75



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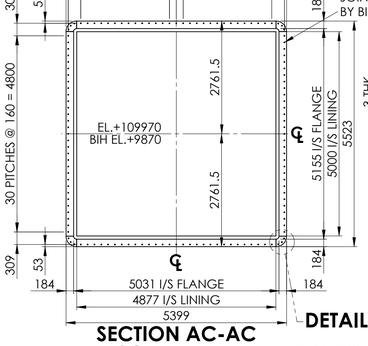

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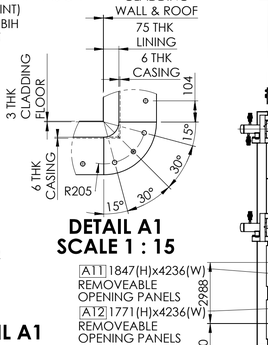
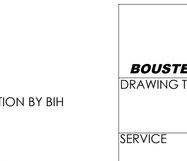


DETAIL A1 SCALE 1 : 15

DETAIL A1



DIRECTION	THERMAL GROWTH DISPLACEMENT (mm) FROM GT VENDOR	FROM WHRU/DUCTING	REMARKS
X	±6	-7.5	SEE NOTE 1
Y	+14	3	SEE NOTE 2
Z	+10	-6.3	SEE NOTE 3

NOTE 1:FROM GT FLANGE VERTICAL AXIS
NOTE 2:LOWER HORIZONTAL FLANGE IS FIXED
NOTE 3:ALONG EXHAUST FLOW AXIS

B.I.H BOUSTEAD INTERNATIONAL HEATERS Ltd. BIH

DRAWING TITLE
WASTE HEAT RECOVERY UNIT 1E-4101A GENERAL ARRANGEMENT SHEET 1 OF 4

SERVICE **HTF 1E-4101A**

FOR **JFJV / LNG CANADA**

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
ZUW	27.05.19	GLP	13.06.19	KL	13.06.19

PROCESS DESIGN REVIEW (IF APPLICABLE)	DATE	STRUCTURAL DESIGN REVIEW (IF APPLICABLE)	DATE
AK	28.05.19	LCS	28.05.19

JOB NUMBER **743** DRAWING NO. **743-1E4101A-02A** REV. **5**

REV. NO.	DESCRIPTION	BY	CHKD	APVD	DATE
2	AS BUILT	LCW	KL	KL	10.02.22
1	APPROVED FOR CONSTRUCTION	GKS	KL	ANZ	31.03.21
0	APPROVED FOR CONSTRUCTION	MIKEL	ANZ	KL	07.08.20
C	ISSUED FOR REVIEW	GKS	FA	KL	20.01.20
B	ISSUED FOR REVIEW	JLO	FA	KL	08.08.19
A	ISSUED FOR REVIEW	ZUW	GLP	KL	13.06.19

REVISIONS

JGC|FLUOR BC LNG JV

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TITLE:
WASTE HEAT RECOVERY UNIT 1E-4101A GENERAL ARRANGEMENT SHEET 1 OF 4

UNIT: 4100
LOCATION: KITIMAT, BRITISH COLUMBIA, CANADA
PLANT: LNG CANADA

DWG No.: L001-14100-MX-4018-100053-1200 SIZE: A1 REV.: 2
FILE NAME: L001-14100-MX-4018-100053-1200_R2

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DO NOT SCALE

FILENAME: K:\CAD\743 LNG Canada\GA\743-1E4101A-02A
SHEET SCALE: 1:150 ORIGINAL SIZE: A1

REV. 3 BY	DATE	CHECKED	DATE	APPROVED	DATE	REV. 5 BY	DATE	CHECKED	DATE	DESIGN REVIEW	DATE	APPROVED	DATE	REV. 4 BY	DATE	CHECKED	DATE	DESIGN REVIEW	DATE	APPROVED	DATE
MIKEL	07.08.20	ANZ	07.08.20	KL	07.08.20	LCW	10.02.22	INT	10.02.22	N/A	N/A	KL	10.02.22	GKS	03.03.21	KL	31.03.21	N/A	N/A	ANZ	31.03.21

-UPDATED AS PER CLIENT COMMENTS
-AS BUILT
-UPDATED AS PER CLIENT COMMENTS

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1 NO COMMENTS. APPROVED
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Next Issue Purpose

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Joint venture companies

Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Monthly Report (October 2025)

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REVISION CONTROL PAGE

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Rev	**Date**	**Document Status**	**Author**	**Reviewer**	**Approver**	**Review Code**
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1. Executive Summary

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. The BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge Air WDA (PA-110588) to LNG Canada Development Inc., for the discharge of air contaminants to the environment from the LNG Facility.

Section 10.2 of the Air WDA (PA-110588) requires a monthly report to be submitted to the BCER that includes data/information on:

- Gas Turbines (GT) and Acid Gas Incinerator (AGI) emissions
- Pollution Control Technology operational or performance issues, including maintenance activities.
- Flaring Activities
- Facility sulphur dioxide (SO_2) Emissions
- Permit Contravention

Herein is the monthly report for October 2025. A summary of the findings for this reporting period is as follows:

- Stack testing was completed in September 2025 for gas turbines (String 1 on September 28, String 2 on September 27) and the AGI (September 26) in accordance with Air WDA (PA-110588) Section 5.1.2. Facility-specific emission factors derived from stack testing are now used for PM2.5, VOC, and HC-T emissions from the gas turbines, and for VOC and HC-T emissions from the AGI, replacing previously used EPA AP-42 factors. These results are also used for Train 2 AGI, String 3 and 4 reporting as well for PM2.5, VOC, and HC-T.
- Self-disclosure was submitted to BCER on November 3rd for October, 2025, regarding October flaring: continuous non-routine flaring at the warm/wet flare, cold/dry flaring and storage and loading flare.
- Throughout October, the Train 1 acid gas incinerator remained offline, with acid gas routed to the warm/wet flare.
- There were air emissions from eleven authorised discharge sources defined in Sections 2.1 to 2.7 of Air WDA (PA-110588): warm/wet flare, cold/dry flare, liquid burner, storage and loading flare, spare flare, gas turbine string 1, string 2, string 3 and string 4 WHRU, Train 1 acid gas incinerator (AGI), and Train 2 acid gas incinerator.
- LNG Canada has requested AGAT to conduct RATA for Train 1 in November 2025.
- By volume, the warm wet flare (FWW) was the largest source of air emissions, primarily due to the backburn issue.
- This report provides Zeeco emission factors for flaring. LNG Canada has discussed and agreed with BCER to move to Zeeco emission factors for all future monthly reporting.

2. Overview

2.1. Project Background

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia, Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

2.2. Purpose

On October 15, 2024, the BCER issued Air WDA (PA-110588) to LNG Canada Development Inc., under the provisions of the BC *Environmental Management Act*, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Air WDA (PA-110588) applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.2 of Air WDA (PA-110588) (Monthly Reporting) for October 2025.

Refer to Appendix B for a list of all monthly reports that have been issued under Air WDA (PA-110588)

2.3. LNG Facility Status

Fuel gas was first introduced to Unit 1000 (Inlet Facilities) on August 31, 2024. Fuel gas was introduced to the flare headers and the warm/wet flare pilot was first lit on October 1, 2024.

LNG production began on June 22, 2025. The first LNG cargo was loaded on June 30, 2025, marking the start of Operations on July 1, 2025.

During this month, discharges of air contaminants occurred from the following authorized works:

- One (1) warm/wet flare
- One (1) cold/dry flare
- One (1) storage and loading flare
- One (1) spare flare
- One (1) Liquid burner
- Two (2) Gas turbines: String 1 and String 2 Waste Heat Recovery Units (WHRUs)
- Two (2) Gas turbines: String 3 and String 4 Waste Heat Recovery Units (WHRUs)

- One (1) Train 1 acid gas incinerator (AGI)
- One (1) Train 2 acid gas incinerator (AGI)

The facility is currently in the "Operations" phase as defined by Air WDA (PA-110588). The "Commissioning" phase—defined as the period starting when discharge commences and ending when the first cargo is shipped from LNG Train 1—concluded on June 30, 2025. Consequently, Operations officially began on July 1, 2025. While Train 1 is in operations, Train 2 commissioning commenced in October 2025.

The Initial Performance Period (IPP) did not commence during October 2025 (which is defined as the period that "*commences upon the completion of the initial performance test for LNG Train 1"*).

3. Fuel Gas Use (Commissioning Only) (Condition 10.2.1)

3.1. Permit Condition

Under Condition 10.2.1, the monthly report shall identify and provide a summary of fuel gas use at the facility during Commissioning. The monthly report shall include the following information:

a) the daily volume of fuel gas combusted and vented;

b) the daily mass emissions of NOx, SOx, CO, PM2.5, VOCs and HC-T, for the authorized works in Section 2.1 and 2.2; and

c) the quantification method (under Section 9) and representative calculations

With the commencement of Train 2 commissioning in October, the daily volume of fuel gas introduced to the facility is detailed in Appendix C. In discussions with BCER, it was agreed that until the CEMS becomes available, LNGC will continue reporting 10.2.1 b and c above.

Appendix C contains the summary of daily mass emissions of NO_X, SO_X, CO, $PM_{2.5}$, VOCs, and HC-T from the gas turbines and AGI in October 2025.

Stack Testing and Updated Emission Factors
Stack testing was conducted in September 2025 for the gas turbines (String 1 on September 28, String 2 on September 27) and the AGI (September 26) in accordance with Air WDA (PA-110588) Sections 5.1.2.

Based on the stack testing results, facility-specific emission factors have been developed and are now used for VOC and HC-T emissions calculations for the gas turbines and AGI, replacing previously used EPA AP-42 factors (Table 1, Table 2 and Table 3). For PM2.5 emissions, EPA AP-42 factors continue to be used as sampling at the AGI operating temperature of 982°C presents technical challenges that limit the reliability of measured data. LNG Canada will continue to evaluate options for developing site-specific PM2.5 emission factors. The stack testing report is issued in the Q3 2025 Air WDA report.

The basis for other factors is as follows:

- NOx, CO and PM2.5 emissions from AGI are estimated based on published emission factors (EPA AP-42) for a flare, to represent a high temperature oxidation process to burn hydrocarbons (refer to Table 3). The data from the CEMS associated with the AGI will be available after the RATA has been undertaken (which will be done when a stable, full plant load is achieved).
- NOx and CO emissions from the gas turbine are calculated using published emission factors from the US EPA AP-42, as detailed in Table 1 and 2. This calculation methodology is used for the period, as the CEMS for the gas turbines has not yet completed its final certification. The data from the CEMS will be utilized for reporting following the successful completion of the RATA.

Table 1 String 1: Natural Gas-Fired Turbine Emission Factors

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	US AP-42: Table 3.1-1 (Lean-Premix)	0.099	lb/MMBtu	D	

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
SO_x	US AP-42: Table 3.1-2a (uncontrolled)	0.94S	lb/MMBtu	B	Where “S” is the percent sulphur in fuel. “S” to be informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014). If “S” is not available, the AP-42 states to use 3.4 E-03 lb/MMBtu for natural gas turbines (0.0034).
CO	US AP-42: Table 3.1-1 (Lean-Premix)	0.015	lb/MMBtu	D	
PM2.5	Stack Testing	0.08780	g/kg of fuel		Based on September 28 stack testing (when gas turbine was running at ~40 MW load)
VOC	Stack Testing	0.00532	g/kg of fuel		Based on September 28 stack testing (when gas turbine was running at ~40 MW load)
HC-T	Stack Testing	25.839	g/kg of fuel		Based on September 28 stack testing (when gas turbine was running at ~40 MW load) – inclusive of VOCs

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 3.1 is applicable for Stationary Gas Turbines.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. Stack Testing emission factors were developed using emission rate divided by the equivalent fuel gas use at that period in time

Table 2 String 2: Natural Gas-Fired Turbine Emission Factors

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	US AP-42: Table 3.1-1 (Lean-Premix)	0.099	lb/MMBtu	D	
SO_x	US AP-42: Table 3.1-2a (uncontrolled)	0.94S	lb/MMBtu	B	Where “S” is the percent sulphur in fuel. “S” to be informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014). If “S” is not available, the AP-42 states to use 3.4 E-03 lb/MMBtu for natural gas turbines (0.0034).
CO	US AP-42: Table 3.1-1 (Lean-Premix)	0.015	lb/MMBtu	D	
PM2.5	Stack Testing	0.07842	g/kg of fuel		Based on September 27 stack testing (when gas turbine was running at ~92 MW load)
VOC	Stack Testing	0.00291	g/kg of fuel		Based on September 27 stack testing (when gas turbine was running at ~92 MW load)

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
HC-T	Stack Testing	7.081	g/kg of fuel		Based on September 27 stack testing (when gas turbine was running at ~92 MW load) – inclusive of VOCs

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 3.1 is applicable for Stationary Gas Turbines.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. Stack Testing emission factors were developed using emission rate divided by the equivalent fuel gas use at that period in time

Table 3: Train 1 - Emission Factors used for the AGI

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	US AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
SO_X	Engineering Estimate				There is no AP-42 emissions factor for SO_X; therefore it is based on fuel gas sulphur content informed by the total S composition measured at the LNG Canada lab. The assumed destruction efficiency is 100%.
CO	US AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	US AP-42: Table 13.5-2[3]	0.027	lb/MMBtu	B	Based on a lightly smoking flare (soot in concentration values: 40 µg/L in the exhaust).
VOC	Stack Testing	0.00089	g/kg of fuel and acid gas		Based on September 26 Stack Testing
HC-T	Stack Testing	0.00127	g/kg of fuel and acid gas		Based on September 26 Stack Testing (inclusive of VOCs)

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from µg/L to lb/MMBtu is documented in the “Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015”, issued to US EPA by RTI International.
4. Stack Testing emission factors were developed using emission rate divided by the equivalent fuel gas use at that period in time

4. CEMS Zero and Span Reporting (Condition 10.2.2)

4.1. Permit Condition

Under Condition 10.2.2, during Operations, after the completion of the initial CEMS performance evaluation, the monthly report shall include a summary of all CEMS out of control calibration zero and span events that occurred during the month.

4.2. Data and Assessment

As CEMS certification and RATA have not yet been completed, there is no CEMS reporting for this month. LNG Canada has requested AGAT to conduct RATA for Train 1 in November 2025.

5. CEMS Reporting (Condition 10.2.3)

5.1. Permit Condition

Under Condition 10.2.3, during Operations, after the completion of the initial CEMS performance evaluation, the Permittee shall provide a summary of CEMS data collected during the month.

5.2. Data and Assessment

As CEMS certification and RATA has not yet been completed, there is no CEMS reporting for this month.

6. Flaring Activity Reporting (Condition 10.2.4)

6.1. Permit Condition

Under Condition 10.2.4, a summary of all flaring activity carried out during the month is to be included in the monthly report. The monthly report shall include the following information:

a. identification of the flare source;

b. description of the type of process gas sent to flare;

c. the volume of gas sent to the flare during each event;

d. the reason for the flaring event;

e. any external notifications sent out, if applicable;

f. the (i) daily and (ii) monthly volume of gas being flared for each source;

g. the (i) daily and (ii) monthly contaminant emission totals for each source, parameters include NO_x, CO, $PM_{2.5}$, SO_x, VOCs, and HC-T; and

h. the quantification method (under Section 9) and representative calculations.

6.2. Data and Assessment

In Air WDA (PA-110588), flaring activities are described as either a routine flaring event (continuous) or a non-routine flaring event (intermittent). Routine flaring discharges include the continuous flare pilots, which are supplied by fuel gas to provide a continuous ignition source so that any gas sent to the flare as a result of upset conditions ("non-routine flaring") is immediately combusted. The permit application to support Air WDA (PA-110588) also described the other small sources of process gas that are continuously sent to the flare, including analyzer sample returns and passing valves.

Process gas refers to the natural gas stream intended for LNG production; the incoming gas stream from Coastal Gas Link (CGL) that undergoes several treatment stages (acid gas removal, pre-cooling, and finally, liquefaction) prior to being exported as LNG.

Appendix D contains the flaring activities tables, as follows:

- Table D-1: Flaring Events Table
- Table D-2: Warm/Wet Flare Volume and Emissions Summary
- Table D-3: Cold/Dry Flare Volume and Emissions Summary
- Table D-4: Storage and Loading Flare Volume and Emissions Summary
- Table D-5: Spare Flare Volume and Emissions Summary
- Table D-6: Liquid Burner Volume and Emissions Summary

Sample calculations are also provided in Appendix D (Exhibit D-1). The basis for this assessment is as follows:

- The daily volume of gas flared is sourced from the flow meters upstream of the applicable flare.
- The daily mass emissions from each flare source reported herein are calculated based on manufacturer emission factors for industrial flares (refer to Table 4), except for SO_X, which is calculated based on a mass balance and assumes full oxidation of S.

Table 4: Emission Factors used for the Flare System

Flare Source	Zeeco Emission Factors (lb/MMBtu)					
	NOx	CO	PM2.5	VOC	SOx	HC-T
Warm/Wet (FWW)	0.0641	0.5496	0.013	0.14	—	0.23
Cold/Dry (FCD)	0.1380	0.2755	0.013	0.14	—	0.23
Storage & Loading (FLP)	0.0641	0.5496	0.013	0.14	—	0.23
Spare	Matches the flare it is sparing (use FWW, FCD, Storage, or Liquid values as applicable). For any purges and pilot utilizing CGL feed gas, we have used FWW emission factors					
Liquid Burner	0.1380	0.2755	0.013	0.14	—	0.23

LNG Canada has transitioned to manufacturer-specific Zeeco emission factors for flare emissions reporting, as agreed upon with the BC Energy Regulator (BCER). This transition represents a shift from generic EPA AP-42 emission factors to equipment-specific design and performance data that more accurately reflects the actual operating characteristics of the installed flare systems at the facility.

7. Permit Contravention (Condition 10.2.5)

7.1. Permit Condition

Under Condition 10.2.5, a summary of all instances of permit non-compliances are to be included in the monthly report, including a description of the event (date, time, circumstances), a summary of the investigation findings, the completed and ongoing actions taken in response to the non-compliance event, and the date of self-disclosure notifications to the BCER.

7.2. Assessment

Flaring above permitted flaring rates

- **Permit References**: PA-110588 Sections 2.3.2 (Warm/Wet Flare), 2.4.2 (Cold/Dry Flare), 2.5.2 (Storage and Loading Flare), and 2.2.5 (Acid Gas Incinerator Temperature)
- **Period:** 01–31 October 2025.
- **Description**:
    - **Warm/Wet Flare (FWW):** Flaring occurred continuously through October at a calculated monthly average rate of 129 m^3/min. The driver was additional fuel gas to prevent back-burn at the warm/wet flare tip.
    - **Cold/Dry Flare (FCD):** Routine flaring occurred continuously through October at a calculated monthly average rate of 33.6 m^3/min against Air WDA permit limit of 9.6 m^3/min.
    - **Storage and Loading Flare (FLP):** Routine flaring occurred continuously through October at a calculated monthly average rate of 27.1 m^3/min against Air WDA permit limit of 6.0 m^3/min.

- **Notifications**: Voluntary self-disclosure submitted to BCER Compliance and Enforcement (via C&E@bc-er.ca), consistent with Chapter 3 of the BCER Compliance and Enforcement Manual for the exceedance of flare volume for the FWW.

- **Immediate/short-term actions**:
    - FWW: Conducted nitrogen substitution testing to mitigate back-burn risk; results shared with BCER. Additional testing was carried out to reduce assist gas based on the assist gas curve provided by Zeeco. 30% reduction achieved overall by reducing assist gas to the warm/wet flare.

- **Long-term corrective actions (in evaluation)**:
    - FWW (and Spare Flare): Engineering assessment and vendor engagement (JFJV/Zeeco) for flare tip redesign/replacement to eliminate back-burn while maintaining WDA limits; technical proposal received and under evaluation.
    - FCD and FLP: For the Cold/Dry Flare (FCD) and Storage and Loading Flare (FLP), a valve burn-in program will be initiated to identify and address passing valves that may be contributing to elevated routine flaring rates.

- Supporting data: Daily FWW, FCD and FLP flaring datasets are provided in Appendix D.

8. Pollution Control Technologies (Condition 10.2.6)

8.1. Permit Condition

Under Condition 10.2.6, a discussion of any operational or performance issues or significant maintenance activities with any pollution control technologies of the authorized works and equipment required by the permit is to be included in the monthly report.

The pollution control technologies identified in the permit application supporting Air WDA (PA-110588) were the:

- Dry low emissions combustor optimization system in the gas turbines (dry low NOx burners); and
- Catalysts in the WHRUs, to convert CO in the exhaust gas to carbon dioxide.

8.2. Assessment

There were no instances of operational or performance issues, or significant maintenance activities with the pollution control technologies within the reporting period.

9. Ambient Air Monitoring (Commissioning Only) (Condition 10.2.7)

9.1. Permit Condition

Under Condition 10.2.7, the following information for nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and $PM_{2.5}$ from three continuous ambient air quality monitoring stations (Kitamaat Village (Kitimat Haisla Village) (Site 1); Kitimat Riverlodge (Site 2) and Kitimat Whitesail) are to be included in the monthly report during Commissioning where information is publicly available:

a. a comparison of the measured ambient air concentrations at each ambient air monitoring stations to the applicable numerical metrics of the BC ambient air quality objectives (BCAAQO);

b. (i) a description of any measured ambient air concentrations in excess of the numerical metrics of the BCAAQO, if applicable, (ii) a description of any known contributing factors from authorized works, and (iii) a description of action (if any) taken by the Permittee.

The monthly report shall also include the time series plot of the hourly average ambient air concentration of ozone (O_3) data from these stations.

9.2. Data and Assessment

Data from continuous ambient air quality monitoring stations in Kitimat are publicly available via the BC Ministry of Environment and Climate Change Strategy, at: Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

The publicly available data for NO_2, SO_2 and $PM_{2.5}$ at the three continuous ambient air quality monitoring stations are provided as an attachment; the graphs also contain the applicable BCAAQO. This data is reported for Train 2 commissioning.

There were no ambient air quality concentrations of NO_2, SO_2 and $PM_{2.5}$ measured in excess of the BCAAQO metrics in the reporting period.

10. Facility SO_2 Emission Limit (Condition 10.2.8)

10.1. Permit Condition

Under Condition 10.2.8, for all authorized sources in Sections 2.1 to 2.7, for each day of the month, the maximum hourly cumulative SO_2 discharge rate is to be provided in the monthly report, including the percentage breakdown of the sources contributing to the maximum discharge rate of each day.

10.2. Data and Assessment

Appendix E contains the cumulative SO_2 discharge rate from the authorized sources in Air WDA (PA-110588) Section 2.1 to 2.7 (refer to Section 2.2), including the percentage breakdown of the sources contributing to the maximum discharge rate shown for each day.

The representative calculations for SO_2 are provided in Appendix C for the gas turbines and AGIs, and Appendix D for the flare system. There were no SO_2 exceedances that were observed in this reporting period.

11. References

- BC Ministry of Environment and Parks, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca)

Appendix A Abbreviations

AGI	Acid Gas Incinerator
AGRU	Acid Gas Removal Unit
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
CGL	Coastal Gas Link (Pipeline)
CO	Carbon monoxide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
KMS	Kitimat Metering Station
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
VOC	Volatile Organic Compound
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit
$\mu g/m^3$	Micrograms per cubic meter

Appendix B Previous Monthly Reports Issued Under PA-110588

Month	Document #	Date Issued
October 2024	L001-09800-HE-7180-4611	04-Oct-2024
October 2024	L001-09800-HE-7180-4612	22-Oct-2024; Revised 03-Mar-2025 (Rev B)
October 2024	L001-09800-HE-7180-4613	26-Nov-2024; Revised 03-Mar-2025 (Rev B)
November 2024	L001-09800-HE-7180-4614	16-Dec-2024; Revised 03-Mar-2025 (Rev B)
December 2024	L001-09800-HE-7180-4684	23-Jan-2025
January 2025	L001-09800-HE-7180-4691	26-Feb-2025
February 2025	L001-09800-HE-7180-4692	27-Mar-2025
March 2025	L001-09800-HE-7180-4702	25-Apr-2025
April 2025	L001-00000-HE-7180-1553	30-May-2025
May 2025	L001-00000-HE-7180-1554	30-Jun-2025
June 2025	L001-00000-HE-7180-1555	31-Jul-2025
July 2025	L001-00000-HE-7180-1556	31-Aug-2025; Revised 05-Oct-2025 (Rev B)
August 2025	L001-00000-HE-7180-1557	30-Sept-2025
September 2025	L001-00000-HE-7180-1558	30-Oct-2025
October 2025	L001-00000-HE-7180-1559	28-Nov-2025

Appendix C Fuel Gas Use (Condition 10.2.1)

For this month, all daily fuel gas volumes were obtained from the KMS (Tag: KITSL-V1P.curval) under atmospheric pressure (Pressure = 1 atm) (refer to Table C-1). The fuel volumes below were corrected to 20°C.

The increase in fuel gas towards is due to the commencement of hydrocarbons for Train 2 startup.

Table C-1: Fuel Gas Use During Commissioning

Date	Volume of Fuel Gas Introduced to LNG Facility (Sm^3/d)
01-Oct-25	25,797,816
02-Oct-25	26,811,010
03-Oct-25	21,532,230
04-Oct-25	17,169,013
05-Oct-25	26,255,076
06-Oct-25	26,032,393
07-Oct-25	26,128,341
08-Oct-25	26,170,262
09-Oct-25	27,402,092
10-Oct-25	27,629,001
11-Oct-25	27,633,223
12-Oct-25	27,508,380
13-Oct-25	27,681,693
14-Oct-25	26,844,227
15-Oct-25	12,663,054
16-Oct-25	11,579,010
17-Oct-25	16,945,323
18-Oct-25	24,688,744
19-Oct-25	25,936,627
20-Oct-25	27,153,660
21-Oct-25	27,339,711
22-Oct-25	27,327,149
23-Oct-25	27,942,502

24-Oct-25	28,007,486
25-Oct-25	28,411,897
26-Oct-25	28,593,625
27-Oct-25	28,571,384
28-Oct-25	30,359,448
29-Oct-25	30,145,145
30-Oct-25	29,987,336
31-Oct-25	21,520,038
Monthly Total	**787,766,896**

Table C-2: Gas Turbines String 1, String 2, String 3 and String 4

Fuel gas volumes and emissions are reported cumulatively for Gas Turbine String 1 (1KT-1460) and String 2 (1KT-1470), String 3 and String 4. String 1 tripped on October 15 which resulted in less fuel gas consumption and came back online on October 18. String 3 (2KT-1460) and 4 (2KT-1470) came online at 16 and 20th October respectively for Train 2 startup.

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Oct-25	2,092,977	3,628	550	64	6	3	11,106
2-Oct-25	2,110,950	3,653	554	64	6	3	11,177
3-Oct-25	1,711,190	2,972	450	53	5	3	10,092
4-Oct-25	1,514,930	2,633	399	47	4	3	9,427
5-Oct-25	2,094,894	3,641	552	64	6	3	11,145
6-Oct-25	2,094,847	3,636	551	64	6	3	11,133
7-Oct-25	2,041,454	3,543	537	62	5	3	10,851
8-Oct-25	2,061,139	3,569	541	62	5	3	10,925
9-Oct-25	2,102,506	3,650	553	64	6	3	11,175
10-Oct-25	2,115,485	3,672	556	64	6	3	11,245
11-Oct-25	2,103,670	3,648	553	64	6	3	11,175
12-Oct-25	2,096,054	3,630	550	64	6	3	11,135
13-Oct-25	2,103,710	3,651	553	64	6	3	11,196
14-Oct-25	2,079,624	3,599	545	64	5	3	11,110
15-Oct-25	1,419,883	2,465	373	45	4	3	8,387
16-Oct-25	1,401,680	2,429	368	43	4	2	6,387
17-Oct-25	1,436,370	2,479	376	43	4	2	6,346
18-Oct-25	1,929,191	3,333	505	60	5	3	10,476
19-Oct-25	1,961,435	3,395	514	62	5	3	10,729
20-Oct-25	1,991,798	3,454	523	62	5	3	10,916
21-Oct-25	1,981,634	3,431	520	62	1	3	10,877
22-Oct-25	1,976,658	3,426	519	62	1	3	10,841
23-Oct-25	1,998,218	3,463	525	62	1	3	10,953
24-Oct-25	2,035,144	3,515	533	64	1	3	11,083
25-Oct-25	2,042,028	3,529	535	64	1	3	11,133
26-Oct-25	2,040,376	3,534	535	64	1	3	11,167
27-Oct-25	2,042,327	3,532	535	63	1	3	11,164
28-Oct-25	2,036,629	3,525	534	63	1	3	11,137
29-Oct-25	2,043,803	3,535	536	64	1	3	11,175
30-Oct-25	2,031,690	3,513	532	63	1	3	11,100
31-Oct-25	1,944,557	3,360	509	159.5	1	71	10,543
Total	**60,636,851**	**105,043**	**15,916**	**1,970**	**116**	**159**	**327,306**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Table C-3: Acid Gas Incinerator – Train 1 and Train 2

The Train 1 Acid Gas Incinerator (AGI) remained offline throughout October 2025 pending investigation and diagnosis of operational issues. The unit is estimated to be out of service for approximately one month while corrective actions are identified and implemented. During the Train 1 AGI outage, acid gas containing acid gas from the Acid Gas Removal Unit (AGRU) is being routed to the warm/wet flare (FWW) for disposal. Additional medium-pressure (MP) fuel gas is being injected into the FWW to ensure oxidation of acid gas. This interim measure will continue until the AGI is returned to service.

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	PM2.5	SOx	VOC	HC-T
01-Oct-25	20,256	16	66	6	15	0.02	0.03
02-Oct-25	17,770	21	87	8	-	0.01	0.02
03-Oct-25	13,620	10	39	3	13	0.02	0.02
04-Oct-25	312	-	2	-	-	-	-
05-Oct-25	324	-	2	-	-	-	-
06-Oct-25	289	-	1	-	-	-	-
07-Oct-25	248	-	1	-	-	-	-
08-Oct-25	262	-	1	-	-	-	-
09-Oct-25	-	-	-	-	-	-	-
10-Oct-25	-	-	-	-	-	-	-
11-Oct-25	1,713	2	8	1	-	-	-
12-Oct-25	3,799	5	19	2	-	-	-
13-Oct-25	9,188	11	45	4	-	0.01	0.01
14-Oct-25	14,354	17	70	6	-	0.01	0.01
15-Oct-25	8,081	10	40	3	-	0.01	0.01
16-Oct-25	12,475	15	61	5	-	0.01	0.01
17-Oct-25	27,899	33	136	12	-	0.02	0.03
18-Oct-25	12,132	14	59	5	-	0.01	0.01
19-Oct-25	6,914	8	34	3	-	-	0.01
20-Oct-25	390	-	2	-	-	-	-
21-Oct-25	1,885	2	9	1	-	-	-
22-Oct-25	6,780	8	33	3	-	-	0.01
23-Oct-25	488	1	2	-	-	-	-
24-Oct-25	264	-	1	-	-	-	-
25-Oct-25	244	-	1	-	-	-	-
26-Oct-25	238	-	1	-	-	-	-
27-Oct-25	2,970	4	14	1	-	-	-
28-Oct-25	9,152	11	45	4	-	0.01	0.01
29-Oct-25	299	-	1	-	-	-	-
30-Oct-25	228	-	1	-	-	-	-
31-Oct-25	249	-	1.2	-	-	-	-
Total	**172,823**	**188**	**782**	**67**	**28**	**-**	**-**

* Individual and final totals are subject to rounding adjustments

**Values absent are outside the range of significant figures

Exhibit C-1: Sample Emission Calculations – Gas Turbine

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hour (h) to 1 day (d)
    - 10,000 parts per million (ppm) in one percent

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable sources of data from the meters include:
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - Tag CA:KIT:114FI1601.PV: LNG Train 1, String 1 (1KT-1460); fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:114FI2601.PV: LNG Train 1, String 2 (1KT-1470); fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:214FI1281.PV: LNG Train 2, String 3 (2KT-1460) fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:214FI2281.PV: LNG Train 2, String 4 (2KT-1470) fuel gas consumption by the LMS100 gas turbine.
    - Emission factors: Refer to Table 1 and 2 within the report.

This results in the table above includes the fuel gas contributions from String 1, String 2, String 3 and 4.

The sample calcuation below is based on the data from October 01, 2025.

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:114FI2601.PV & CA:KIT:114FI2601.PV is converted to volume flow rate using the fluid density of 0.748701592 kg/m^3.

- Mass flow rate = 1,567,015 kg/d

Step 2: Emission Calculation – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{Sm}^3}{\text{d}}\right) \times \frac{1}{\text{Density}\left(\frac{\text{kg}}{\text{Sm}^3}\right)} \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using NOx for the example; NOx Mass Emission (kg/d)

= 1,567,015 x 40.74 x 1/ 0.748701592 x 1/1000 x 0.9478 x 0.099 x 0.4535

≈ 3,628 kg/d

For SO_2, 0.94S was used as the emission factor - where "S" is the percent sulphur in fuel (refer to Table 1). "S" is based on the total sulphur content of the fuel gas (from the laboratory analysis) given fuel gas was used to fuel the gas turbine this month (refer to Appendix D, Table D-7).

SOx Mass Emission (kg/d)

= 1,567,015 x 40.50 x 1/ 0.748701592 x 1/1000 x 0.9478 x 0.94*(0.00016) x 0.4535

≈ 6 kg

Emission Calculation Basis – when using Stack Testing results – the same calculation applies for VOCs, HC-T derived from stack testing:

PM2.5 Mass Emission (kg/h) – similar calculation approach is applied for VOC and HC-T:

PM2.5 Mass Emission (kg/h) = Emission Factor (g/kg fuel) × Fuel Flow Rate (kg/h) × (1 kg / 1000 g)

Using October 1, 2025, for the example, where the gas turbine fuel consumption was obtained from CA:KIT:114FI1601.PV:

Step 1: Fuel mass flow rate

Mass flow rate (String 1) = 154,272 kg/d

Step 2: Calculate PM2.5 emissions using stack testing emission factor

From Table 1: PM2.5 emission factor = 0.08780 g/kg of fuel (based on October 28 stack testing)

PM2.5 Mass Emission (kg/d) = 0.08780 × 154,272 × (1/1000) ≈ 14 kg/d

Note: This calculation approach applies to String 1. A similar methodology is used for String 2, 3 and 4 using its respective stack testing emission factor and actual fuel consumption data from CA:KIT:114FI2601.PV. The total PM2.5 are added in the final total above from all Strings.

Exhibit C-2: Sample Emission Calculations – Acid gas incinerator

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hours (h) to 1 day (d)
    - 10,000 parts per million (ppm) in one percent

Input Values

The applicable sources of data from the meters include:

- Tag CA:KIT:119FI0302.PV: Train 1 Fuel gas consumption by the acid gas incinerator
- Tag CA:KIT:119FI0001.PV: Train 1 Acid gas to incinerator
- Tag CA:KIT:219FI0302.PV: Train 2 Fuel gas consumption by the acid gas incinerator
- Tag CA:KIT:219FI0001.PV: Train 2 Acid gas to incinerator
- Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
- Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) multiplied by a reference air density of 1.225 kg/m³ (15°C, 1 atm) and corrected to standard conditions (20°C, 1 atm) to determine the actual natural gas density.
- Emission Factors: Refer to Table 3 within the report.

This results in the table above includes the fuel and acid gas contributions from both Train 1 and 2.

The sample calculation below is based on the data from October 01, 2025, for fuel gas tag:

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:119FI0302.PV is converted to volume flow rate using the fluid density of 0.748701592 kg/m³.

Mass flow rate = 6,000 kg/d

Volume flow rate (m³/d):

= Mass flow rate / Fluid density

= 6,000 / 0.748701592 ≈ 8,014 m³/d

Step 2: Emission Calculation – Using Emission Factors

Formula: Mass Emission (kg/d) =

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Example: NOx Emissions

- NOx Emission Factor: 0.068 lb/MMBTU

NOx Mass Emission (kg/d) – for pilot which is low pressure feed gas:

= 6,000 × 40.74 × (1 / 0.748701592) × (1 / 1000) × 0.9478 × 0.068 × 0.4535 ≈ 9.54 kg/d

Note: A similar calculation is done for NOx on acid gas using the heating value and density of acid gas, and the mass flow rate. It is then added to the NOx calculated number above to get the final number.

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

For fuel gas contribution to SO_2, total sulphur is based on the total sulphur content of the fuel gas for October 01, 2025 (from the laboratory analysis) given fuel gas was used to fuel the AGI this month (refer to Appendix D, Table D-7).

SO_2 Mass Emission (kg/d):

= 6,000 x 0.00016 x 0.01 x (64.066 / 32.065)

≈ 0.019 kg/d

SO_2 from acid gas going to incinerator:

A sample was taken and analyzed at the LNGC Laboratory on 8th October 2025. Sample ID: 2798169, where the total S concentration is 492.4 PPMV. Moving forward, LNG Canada will utilize sample values to estimate SO_2 from the unit until reporting from CEMS becomes available.

Daily acid-gas mass flow (example): ṁgas = 19,977 kg/d (01-Oct-25) from CA:KIT:119FI0001.PV
Total Sulphur concentration: S = 492.4 ppmv = 0.0004924 mol S/mol gas

Molecular weights:
MWgas = 42.2 g/mol = 0.0422 kg/mol
Sulphur, MW = 0.032065 kg/mol
SO2, MW = 0.064066 kg/mol

Steps:
1. Moles of gas per day:
ṅgas = ṁgas / MWgas = 19,977 kg/d ÷ 0.0422 kg/mol = 473,388 mol/d

2. Moles of sulphur per day:
ṅS = S × ṅgas = 492.4×10^{-6} × 473,388 = 233.09 mol/d

3. Mass flow of total sulphur:
ṁS = ṅS × MS / 1000 = 233.09 × 32.065 / 1000 = 7.47 kg/d

4. Equivalent SO2 mass flow (full oxidation using 1 to 1 relationship between S and SO_2: S + O_2 --> SO_2):
ṁSO2 = ṅS × MSO2 / 1000 = 233.09 × 64.066 / 1000 = 14.93 kg/d ≈ 15 kg/d – this is added to the SO_2 contribution from fuel gas and reported as the total for the month. Similar calculation is applied for Train 2 AGI

Appendix D Flaring Activity (Condition 10.2.4)

Table D-1: Flaring Event Overview

Flare	Event Type	Event Date & Time			Description	Volume of Gas to Flare Per Event (m^3/month)	External Notifications Undertaken
		Start	End	Duration			
Warm/Wet	Routine	01-Oct-2025	31-Oct-2025	Continuous	Pilot and purge gas	13,740	
Warm/Wet	Non-Routine	01-Oct-2025	31-Oct-2025	Continuous	Assist gas and flaring for warm-end startup of Train 2	16,355,408	
Warm/Wet	Back Burn	01-Oct-2025	31-Oct-2025	Continuous	Assist gas and flaring to mitigate Back Burn issue.	5,592,543	YES
Cold/Dry	Routine	01-Oct-2025	31-Oct-2025	Continuous	Pilot, and fuel gas purges	1,502,160	
Cold/Dry	Non-Routine	01-Oct-2025	31-Oct-2025	Continuous	Flaring from Train 2 startup and MCHE trip in Train 1	5,242,846	YES
Storage and Loading	Routine	01-Oct-2025	31-Oct-2025	Continuous	Pilot and purge gas	1,211,925	
Storage and Loading	Non-Routine	01-Oct-2025	31-Oct-2025	Continuous	Assist gas, boil-off Gas and ship de-inerting	63,418	
Spare	Routine	01-Oct-2025	31-Oct-2025	Continuous	Pilot and purge gas	5,776	
Spare	Non-Routine	01-Oct-2025	31-Oct-2025	Continuous	From 062MOV0003	451	
Liquid Burner	Routine	01-Oct-2025	31-Oct-2025	Continuous	Pilot	13,914	
Liquid Burner	Non-Routine	01-Oct-2025	31-Oct-2025	Continuous	Assist Gas and emptying of blowcase vessel	9,987	

The data for the warm/wet flare was derived from the main warm/wet flare flowmeter (CA:KIT:062FI0103.PV) including pilot and assist gas (CA:KIT:062FI0312.PV) and subtracting nitrogen purges. The fuel volumes below were corrected to 20°C. Higher volumes are seen from October 15 and onwards commencing with the startup of Train 2.

Table D-2: Flaring Event – Warm/Wet Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Oct-25	249,775	280	2,165	51	1	552	906
2-Oct-25	278,376	312	2,407	57	1	613	1,007
3-Oct-25	233,897	263	2,028	48	1	517	849
4-Oct-25	291,420	328	2,533	60	1	645	1,060
5-Oct-25	294,230	331	2,558	61	1	652	1,070
6-Oct-25	278,515	313	2,415	57	1	615	1,011
7-Oct-25	400,112	450	3,469	82	1	884	1,452
8-Oct-25	423,625	475	3,663	87	1	933	1,533
9-Oct-25	869,498	977	7,538	178	3	1,920	3,155
10-Oct-25	936,891	1,053	8,123	192	3	2,069	3,399
11-Oct-25	853,666	958	7,401	175	3	1,885	3,097
12-Oct-25	845,355	948	7,309	173	2	1,862	3,059
13-Oct-25	954,963	1,073	8,279	196	3	2,109	3,465
14-Oct-25	391,537	439	3,385	80	1	862	1,417
15-Oct-25	702,323	789	6,089	144	2	1,551	2,548
16-Oct-25	348,302	391	3,011	71	1	767	1,260
17-Oct-25	1,445,130	1,615	12,461	295	4	3,174	5,215
18-Oct-25	1,364,800	1,527	11,768	278	4	2,998	4,925
19-Oct-25	1,102,571	1,236	9,533	225	3	2,428	3,989
20-Oct-25	1,036,559	1,164	8,987	213	3	2,289	3,761
21-Oct-25	701,320	786	6,064	143	1	1,545	2,538
22-Oct-25	386,541	434	3,351	79	-	854	1,402
23-Oct-25	330,872	371	2,869	68	-	731	1,200
24-Oct-25	310,550	347	2,678	63	-	682	1,121
25-Oct-25	306,063	342	2,639	62	-	672	1,104
26-Oct-25	302,524	339	2,616	62	-	666	1,095
27-Oct-25	301,285	337	2,605	62	-	664	1,090
28-Oct-25	1,621,602	1,817	14,021	332	1	3,571	5,867
29-Oct-25	1,644,359	1,842	14,217	336	1	3,622	5,950
30-Oct-25	1,685,017	1,886	14,569	345	1	3,711	6,097
31-Oct-25	1,070,013	1,197	9,226	218	0.7	2,350	3,861
Total	**21,961,691**	**24,620**	**189,977**	**4,493**	**45**	**48,393**	**79,503**

* Individual and final totals are subject to rounding adjustments

**Values absent are outside the range of significant figures

For this month, cold/dry flare reporting is based on readings from the main flowmeter (CA:KIT:062FI0123.PV), including the pilot flowmeter (CA:KIT:062FI0343.PV), with nitrogen purge volumes subtracted. On October 15 and 16, Train 1 experienced a trip, resulting in significant flaring.

Table D-3: Flaring Event – Cold/Dry Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Oct-25	58,542	225	405	19	-	205	338
2-Oct-25	136,029	523	941	44	-	477	785
3-Oct-25	112,703	434	779	37	-	395	650
4-Oct-25	102,677	395	710	33	-	360	592
5-Oct-25	133,740	515	925	44	-	469	772
6-Oct-25	42,391	163	293	14	-	148	244
7-Oct-25	99,501	383	688	32	-	349	574
8-Oct-25	40,225	155	278	13	-	141	232
9-Oct-25	75,945	292	525	25	-	266	438
10-Oct-25	140,614	541	972	46	-	494	812
11-Oct-25	446,199	1,717	3,086	146	-	1,568	2,576
12-Oct-25	47,283	182	327	15	-	165	273
13-Oct-25	47,630	183	329	16	-	167	275
14-Oct-25	47,045	181	325	15	-	165	271
15-Oct-25	2,123,943	8,176	14,690	693	-	7,465	12,264
16-Oct-25	2,068,215	7,962	14,305	675	-	7,269	11,942
17-Oct-25	48,670	187	336	16	-	170	281
18-Oct-25	71,892	277	497	23	-	252	415
19-Oct-25	55,754	214	385	18	-	195	322
20-Oct-25	60,395	232	417	20	-	212	348
21-Oct-25	65,195	251	451	21	-	228	376
22-Oct-25	58,665	226	405	19	-	206	338
23-Oct-25	37,489	144	259	12	-	131	216
24-Oct-25	100,482	387	695	33	-	352	580
25-Oct-25	96,480	371	667	31	-	338	557
26-Oct-25	56,122	216	388	18	-	197	324
27-Oct-25	38,257	147	264	12	-	134	220
28-Oct-25	77,929	300	539	25	-	273	450
29-Oct-25	35,358	136	244	12	-	124	204
30-Oct-25	36,284	139	251	12	-	127	209
31-Oct-25	183,352	705.6	1,268	59.8	-	644	1,058.3
Total	**6,745,006**	**25,960**	**46,644**	**2,199**	**-**	**23,686**	**38,936**

* Individual and final totals are subject to rounding adjustments

**Values absent are outside the range of significant figures

Flaring occurred from the storage and loading flare (FLP) (CA:KIT:062FI0301.PV) during the warming of the LNG tank. Other sources of flaring from FLP were assist gas (CA:KIT:062FI0351.PV), fuel gas purges (CA:KIT:062FI0131.PV; CA:KIT:062FI0133.PV; CA:KIT:062FI0041.PV), and those from ship de inerting (CA:KIT:062FI0306.PV).

Table D-4: Flaring Event – Storage and Loading Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Oct-25	15,743	16	124	3	-	31	52
2-Oct-25	44,906	46	354	8	-	90	148
3-Oct-25	44,543	45	351	8	-	89	147
4-Oct-25	32,893	34	259	6	-	66	109
5-Oct-25	58,087	59	457	10	-	116	192
6-Oct-25	97,288	99	766	18	-	195	321
7-Oct-25	47,796	49	376	9	-	96	158
8-Oct-25	63,936	65	504	12	-	128	211
9-Oct-25	32,942	34	259	6	-	66	108
10-Oct-25	34,670	35	273	6	-	70	114
11-Oct-25	31,742	32	250	6	-	64	104
12-Oct-25	55,274	56	435	10	-	111	182
13-Oct-25	1,913	2	15	-	-	4	6
14-Oct-25	23,256	24	183	4	-	47	76
15-Oct-25	37,640	38	296	7	-	76	124
16-Oct-25	24,767	25	195	4	-	50	82
17-Oct-25	17,895	18	141	3	-	36	59
18-Oct-25	41,156	42	324	7	-	83	136
19-Oct-25	18,574	19	147	3	-	37	62
20-Oct-25	34,420	35	271	6	-	69	113
21-Oct-25	39,612	40	312	7	-	80	130
22-Oct-25	147,839	151	1,164	27	-	297	487
23-Oct-25	55,125	56	434	10	-	111	181
24-Oct-25	32,159	33	253	6	-	65	106
25-Oct-25	55,032	56	434	10	-	111	181
26-Oct-25	107,707	110	849	20	-	216	355
27-Oct-25	11,138	12	87	2	-	23	37
28-Oct-25	7,038	7	55	1	-	14	23
29-Oct-25	32,367	33	254	6	-	65	107
30-Oct-25	10,997	11	86	2	-	22	36
31-Oct-25	16,888	16.8	133.0	3.3	-	34.0	56
Total	**1,275,343**	**1,299**	**10,041**	**230**	**-**	**2,562**	**4,203**

* Individual and final totals are subject to rounding adjustments

**Values absent are outside the range of significant figures

Volumes and emissions reported in the table below reflect those associated with pilot and any purges (CA:KIT:062FI0143.PV).

Table D-5: Flaring Event – Spare Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Oct-25	199	-	2	-	-	-	1
2-Oct-25	199	-	2	-	-	-	1
3-Oct-25	199	-	2	-	-	-	1
4-Oct-25	198	-	2	-	-	-	1
5-Oct-25	197	-	2	-	-	-	1
6-Oct-25	198	-	2	-	-	-	1
7-Oct-25	199	-	2	-	-	-	1
8-Oct-25	199	-	2	-	-	-	1
9-Oct-25	199	-	2	-	-	-	1
10-Oct-25	199	-	2	-	-	-	1
11-Oct-25	199	-	2	-	-	-	1
12-Oct-25	199	-	2	-	-	-	1
13-Oct-25	199	-	2	-	-	-	1
14-Oct-25	199	-	2	-	-	-	1
15-Oct-25	199	-	2	-	-	-	1
16-Oct-25	200	-	2	-	-	-	1
17-Oct-25	200	-	2	-	-	-	1
18-Oct-25	200	-	2	-	-	-	1
19-Oct-25	199	-	2	-	-	-	1
20-Oct-25	199	-	2	-	-	-	1
21-Oct-25	203	-	2	-	-	-	1
22-Oct-25	205	-	2	-	-	-	1
23-Oct-25	203	-	2	-	-	-	1
24-Oct-25	204	-	2	-	-	-	1
25-Oct-25	205	-	2	-	-	-	1
26-Oct-25	205	-	2	-	-	-	1
27-Oct-25	205	-	2	-	-	-	1
28-Oct-25	205	-	2	-	-	-	1
29-Oct-25	205	-	2	-	-	-	1
30-Oct-25	205	-	2	-	-	-	1
31-Oct-25	203	-	2	-	-	-	1
Total	**6,227**	**-**	**62**	**-**	**-**	**-**	**31**

* Individual and final totals are subject to rounding adjustments

**Values absent are outside the range of significant figures

In addition to the continuous pilot gas, the emissions reported for the liquid burner are primarily associated with non-routine flaring from blowcase vessel. This testing involved the controlled combustion from the blowcase (062LI0211 and 062LI0221) and occurred during October 13 and 16, 2025 and from HCV0009 on October 15 and 16 from the MCHE trip in Train 1. Emissions data presented below reflects the combination of these activities, assist gas (CA:KIT:062FI0361.PV, CA:KIT:062FI0381.PV, CA:KIT:062FI0400.PV) and the pilot.

Table D-6: Flaring Event – Liquid Burner Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Oct-25	448	1	2	-	-	1	2
2-Oct-25	449	1	2	-	-	1	2
3-Oct-25	447	1	2	-	-	1	2
4-Oct-25	447	1	2	-	-	1	2
5-Oct-25	447	1	2	-	-	1	2
6-Oct-25	447	1	2	-	-	1	2
7-Oct-25	448	1	2	-	-	1	2
8-Oct-25	449	1	2	-	-	1	2
9-Oct-25	448	1	2	-	-	1	2
10-Oct-25	507	1	2	-	-	1	2
11-Oct-25	1,084	3	5	1	-	2	4
12-Oct-25	2,732	7	12	1	-	6	10
13-Oct-25	489	1	2	-	-	1	2
14-Oct-25	525	1	2	-	-	1	2
15-Oct-25	1,348	3	6	-	-	3	5
16-Oct-25	6,149	15	27	1	-	14	22
17-Oct-25	647	2	3	-	-	1	2
18-Oct-25	489	1	2	-	-	1	2
19-Oct-25	476	1	2	-	-	1	2
20-Oct-25	471	1	2	-	-	1	2
21-Oct-25	460	1	2	-	-	1	2
22-Oct-25	455	1	2	-	-	1	2
23-Oct-25	452	1	2	-	-	1	2
24-Oct-25	450	1	2	-	-	1	2
25-Oct-25	450	1	2	-	-	1	2
26-Oct-25	449	1	2	-	-	1	2
27-Oct-25	449	1	2	-	-	1	2
28-Oct-25	449	1	2	-	-	1	2
29-Oct-25	449	1	2	-	-	1	2
30-Oct-25	449	1	2	-	-	1	2
31-Oct-25	442	1.1	2	-	-	1.0	1.6
Total	**23,901**	**56**	**105**	**3**	**-**	**52**	**95**

* Individual and final totals are subject to rounding adjustments
**Values absent are outside the range of significant figures

Exhibit D-1: Sample Emission Calculations – Warm/Wet Flare

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 h to 1 day (d)
    - 10,000 parts per million (ppm) in one percent.

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable meters include:
    - KITSL-V1P.curval (KMS): This tag provides the daily fuel gas volume data recorded at the KMS. These volumes, measured at atmospheric pressure, serve as the primary input for calculating flared gas volumes.
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density was obtained (daily values at 1 atm) This was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - CA:KIT:062FI0343.PV: This tag measures the total fuel gas consumption for all flare pilots. The portions attributable to the cold dry flare and the liquid burner were determined using flare tip allocations and subtracted from the total to determine the warm/wet flare pilot gas consumption.
    - CA:KIT:062FI0103.PV: This is the main flow meter for the warm/wet flare
    - Emission factors: Refer to Table 4 within the report.

Emission Calculation Basis – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{kg}}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{\text{Natural Gas Density}}\left(\frac{\text{Sm3}}{\text{kg}}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right)$$
$$\times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using October 01, 2025, and NOx for the example:

Volumetric flow rate = 249,775 m^3/d – corrected to 20°C.

NOx Mass Emission (kg/d)

= 249,775 x 40.74 x (1 / 1000) x 0.9478 x 0.0641 x 0.4535

≈ 280 kg/d

Similar calculations follow for CO, $PM_{2.5}$, VOC, and HC-T, however all HHV values in their calculations are converted to LHV.

Emission Calculation Basis – when using Engineering Estimates (only applies to SOx):

Total sulphur content (S) in feed gas samples was analyzed periodically by the LNG Canada laboratory. Table D-7 summarizes the laboratory results.

Table D-7: Total Sulphur Content Measured in the Feed Gas (Laboratory Results)

Date	Total Sulphur in Feed Gas (PPMW)	%
07-Oct-25	0.18	0.000018
14-Oct-25	0.18	0.000018
21-Oct-25	0.71	0.000071
28-Oct-25	0.54	0.000054

To bridge periods between measurements, the following approach was used:

- October 01 - 13: SO_2 emissions were calculated using the October 07, 2025 total sulphur measurement.
- October 14 - 20: The October 14, 2025 measurement was applied.
- October 21 - 27: The October 21, 2025 measurement was applied.
- October 28 - 31: The October 28, 2025 measurement was applied.

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

Using October 01, 2025, for the example, where the applied percent sulphur in the fuel gas is 0.53 PPMW.

SO_2 Mass Emission (kg/d)

= 1,270,614 x 0.000018 x (1 / 100) x (64.066 / 32.065) x 1

≈ 1 kg/d

The same calculation approach would follow for SO_2 (kg/h) numbers; with the flow rate in kg/h rather than kg/d.

Appendix E Facility SO_2 Emission Limit (Condition 10.2.8)

Table E-1 presents the maximum hourly cumulative SO_2 discharge rate per day. It does not imply that the maximum discharge rate occurred for the full 24 hours that day. The maximum hourly rate was based on the maximum hourly flow rate obtained for each of the contributing sources below on the respective dates. The total sulphur content was obtained from Table D-7.

As reporting from CEMS is currently not being undertaken, AGI SO_2 emissions from H_2S coming from the Acid Gas Removal Unit (AGRU) were estimated using sample of the acid gas on October 8, 2025.

Table E-1: Maximum Hourly SO_2 Discharge Rate for Each Day

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage & Loading Flare	Spare Flare	Liquid Burner
01-Oct-25	2.512	3.99%	94.47%	1.52%	0.01%	0.01%	0.00%	0.00%
02-Oct-25	0.201	77.87%	1.23%	20.60%	0.15%	0.12%	0.01%	0.02%
03-Oct-25	2.614	6.12%	92.32%	1.54%	0.01%	0.01%	0.00%	0.00%
04-Oct-25	0.160	68.68%	0.04%	30.90%	0.19%	0.15%	0.01%	0.03%
05-Oct-25	0.199	68.87%	0.03%	30.79%	0.16%	0.12%	0.01%	0.02%
06-Oct-25	0.153	74.33%	0.03%	25.25%	0.20%	0.15%	0.01%	0.03%
07-Oct-25	0.168	67.50%	0.03%	32.06%	0.18%	0.14%	0.01%	0.08%
08-Oct-25	0.165	67.43%	0.04%	32.17%	0.19%	0.13%	0.01%	0.03%
09-Oct-25	0.225	50.61%	0.03%	49.08%	0.14%	0.10%	0.01%	0.03%
10-Oct-25	0.230	49.62%	0.01%	50.04%	0.13%	0.10%	0.01%	0.09%
11-Oct-25	0.229	49.58%	0.14%	49.69%	0.14%	0.10%	0.01%	0.34%
12-Oct-25	0.238	47.73%	0.16%	43.78%	0.13%	0.09%	0.01%	8.10%
13-Oct-25	0.253	44.80%	0.37%	54.32%	0.12%	0.08%	0.01%	0.30%
14-Oct-25	0.223	50.44%	0.65%	47.91%	0.14%	0.10%	0.01%	0.75%
15-Oct-25	0.454	31.44%	0.36%	67.99%	0.07%	0.05%	0.00%	0.09%
16-Oct-25	0.466	29.24%	0.33%	66.17%	0.07%	0.05%	0.00%	4.14%
17-Oct-25	0.362	39.86%	0.82%	53.84%	0.09%	0.06%	0.01%	5.32%
18-Oct-25	0.400	39.46%	0.69%	59.66%	0.08%	0.06%	0.01%	0.04%
19-Oct-25	0.356	47.38%	0.27%	52.15%	0.09%	0.06%	0.01%	0.04%
20-Oct-25	0.316	55.46%	0.72%	43.60%	0.10%	0.07%	0.01%	0.04%
21-Oct-25	0.073	61.74%	0.11%	37.94%	0.10%	0.07%	0.01%	0.03%
22-Oct-25	0.058	79.08%	0.83%	19.83%	0.13%	0.08%	0.01%	0.04%
23-Oct-25	0.052	75.66%	0.14%	23.92%	0.14%	0.09%	0.01%	0.04%
24-Oct-25	0.041	76.14%	0.02%	23.51%	0.18%	0.11%	0.01%	0.03%
25-Oct-25	0.041	76.98%	0.02%	22.65%	0.19%	0.12%	0.01%	0.03%
26-Oct-25	0.041	77.07%	0.02%	22.56%	0.19%	0.12%	0.01%	0.03%
27-Oct-25	0.041	77.11%	0.07%	22.48%	0.19%	0.11%	0.01%	0.03%

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage & Loading Flare	Spare Flare	Liquid Burner
28-Oct-25	0.085	40.21%	0.59%	59.03%	0.09%	0.06%	0.01%	0.01%
29-Oct-25	0.080	42.43%	0.62%	56.77%	0.10%	0.06%	0.01%	0.01%
30-Oct-25	0.097	51.94%	0.01%	47.91%	0.08%	0.05%	0.00%	0.01%
31-Oct-25	0.102	54.34%	0.01%	45.52%	0.07%	0.05%	0.00%	0.01%

* Individual values are subject to rounding adjustments

AMBIENT AIR QUALITY MONITORING REPORT OCTOBER 2025

LNG CANADA

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1.0 INTRODUCTION

This report, prepared for LNG Canada by Trinity Consultants (Trinity), summarizes the LNG Canada's nitrogen dioxide (NO_2) and Ozone (O_3) monitoring network data collected at the Kitamaat Village and Riverlodge Stations for October 1 through October 31, 2025.

Sulfur dioxide (SO_2) and particulate matter 2.5 microns in size or less ($PM_{2.5}$) data presented in this report have been provided by Rio Tinto BC Works. In addition, in January 2025, a Total Hydrocarbon (THC) analyzer was installed and operated at the Riverlodge station. The monitoring performed by LNG Canada is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) and satisfies the requirement for collection of continuous air quality data as described under Sections 6.2, 6.2.1, 6.2.2 & 6.3 in LNGC's Air Discharge Permit PA-110588.

LNG Canada owns, operates, and maintains an ambient air monitoring network around the LNG Canada Kitimat LNG export facility. This ambient air quality monitoring network consists of two air quality monitoring stations that are strategically located in the Kitimat Valley of British Columbia (BC) at the Kitamaat Village (Village) and Riverlodge. The Kitamaat Village and Riverlodge stations are owned by Rio Tinto Alcan Inc. and are part of Rio Tinto's air quality monitoring network. LNG Canada's continuous monitoring equipment are housed in the Rio Tinto air quality shelters at Kitamaat Village and Riverlodge locations. The locations of these stations within the Kitimat Valley are presented in Figure 1.1.

Figure 1.1 Locations of LNG Canada Ambient Air Monitoring Stations in Kitimat Valley

1.1 Kitamaat Village

The Village Ambient Air Station is in the Haisla Nation community of Kitamaat Village. The site is located within the yard of the Kitamaat Village sewage treatment plant. Area land use is suburban with a mix of dwellings, commercial buildings, forest, ocean, and parkland. The ground cover immediately around the site is compacted gravel, natural ground cover, cut grass, and asphalt. An aerial view of the site is presented in Figure 1.2. A photograph of the Kitamaat Village Ambient Air Quality Monitoring Station is presented in Figure 1.3.

Figure 1.2 Aerial View of Kitamaat Village Ambient Air Quality Monitoring Station

Figure 1.3 Photograph of Kitamaat Village Ambient Air Quality Monitoring Station

1.2 Riverlodge

The Riverlodge Ambient Air Station is located on Columbia Avenue in Kitimat, BC across the street from the Riverlodge Community Centre. The monitoring station is an aged industrial trailer with a meteorological tower mounted to the frame and hitch of the trailer. Land use around the site is suburban low-density housing, park land and forest. Land cover immediately around the site is short grass, gravel and asphalt parking lot, buildings, and forested lands. An aerial view of the site is shown in Figure 1.4. A photograph of the Riverlodge ambient air station is presented in Figure 1.5.

Figure 1.4 Aerial View of Riverlodge Ambient Air Quality Monitoring Station

Figure 1.5 Photograph of Riverlodge Ambient Air Quality Monitoring Station

2.0 OCTOBER 2025 REPORT SUMMARY

The LNG Canada air quality monitoring data collected for October 2025 at the Kitamaat Village and Riverlodge stations are summarized in this section.

British Columbia has adopted air quality objectives and standards for a number of contaminants, including $PM_{2.5}$, SO_2, O_3, and NO_2. The British Columbia Ambient Air Quality Objectives (BCAAQO) that have been developed by the British Columbia Ministry of Environment are as follows:

Pollutant	Averaging Period	British Columbia Ambient Air Quality Objective (BCAAQO)
SO_2	1-hour	75 (ppb)[a]
	Annual	--
NO_2	1-hour	60 (ppb)[b]
	Annual	17 (ppb)[c]
$PM_{2.5}$	24-hours	25 (µg/m^3)[d]
	Annual	8 (µg/m^3)[c]
O_3	1-hour	82 (ppb)
	8-hour	

[a] Achievement based on annual 97th percentile of daily 1-hour maximum averaged over 2015-2017, annual 97.5th percentile of daily 1-hour maximum averaged over 2016-2018, and annual 98th percentile of daily 1-hour maximum averaged over 2017-2019, with one allowable excursion above 75 ppb to a maximum of 85 ppb over a three-year period prior to 2020.

[b] Achievement based on annual 98th percentile of daily 1-hour maximum averaged over three consecutive years

[c] Achievement based on annual average of 1-hour concentrations over one year

[d] Achievement based on annual 98th percentile of daily average, over one year

2.1 Kitamaat Village

Table 2-1 summarizes the data completeness and maximum pollutant concentrations observed at the Kitamaat Village monitoring station for October 1 through October 31, 2025.

Table 2-1 Kitamaat Village Station October 2025 Data Summary

		1-Hour Average		24-Hour Average 8-hour Average[2]	
Parameter	Data Completeness	Maximum Concentration	Exceedances of BCAAQO[1]	Maximum Concentration	Exceedances of BCAAQO[1]
$PM_{2.5}$ (µg/m^3)	85.9	56.0	-	10.4	0.0
SO_2 (ppb)	95.1	12.0	0.0	1.1	-
NO_2 (ppb)	95.1	12.9	0.0	1.7	-
O_3 (ppb)[2]	95.1	39.0	0.0	36.0	0.0

[1] BCAAQO

[2] 8-hour maximum

2.1.1 Data Quality Notes

- The annual 72-hour PM background zero test was conducted on the $PM_{2.5}$ sampler from October 24 through October 28. During this time, no $PM_{2.5}$ concentration data were measured. Therefore, data recovery was 85.9% for $PM_{2.5}$ for the month of October 2025.

2.1.2 Calibration / Maintenance Notes

- On October 7, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas logger, and T700 calibrator to the correct time during the station visit.

- On October 14, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas logger, and T700U calibrator were adjusted to the correct time during the station visit. Cobwebs near analyzer inlet were cleared. Baseboard heater was turned to winter position.

- On October 21, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700 calibrator, and Envidas logger to the correct time during the station visit.

- On October 23, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700 calibrator, and Envidas data logger to the correct time.

- On October 24, 2025, the site technician replaced the O_3 and NO_x inlet filters. Also, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and T700U calibrator to the correct time during the station visit. The shelter heater was turned down.

- On October 28, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas logger, and T700 calibrator to the correct time. Windows was updated on the Envidas logger. The air conditioner was found to be iced up. The unit was unplugged to dry out while the site technician was on-site. The unit was blown out with compressed air and put back into service.

2.2 Riverlodge Station

Table 2-2 summarizes data completeness and maximum pollutant concentrations observed at the Riverlodge monitoring station for October 1 through October 31, 2025.

Table 2-2 Riverlodge Station October 2025 Data Summary

Parameter	Data Completeness	1-Hour Average		24-Hour Average 8-Hour Average[2]	
		Maximum Concentration	Exceedances of BCAAQO[1]	Maximum Concentration	Exceedances of BCAAQO[1]
$PM_{2.5}$ (µg/m³)	99.4	13.0	-	5.9	0.0
SO_2 (ppb)	93.9	11.9	0.0	1.8	--
NO_2 (ppb)	93.9	8.2	0.0	2.2	--
O_3 (ppb)[2]	93.9	38.0	0.0	35.0	0.0
THC (ppm)	64.3	3.32	--[3]	2.26	--[3]

[1] BCAAQO
[2] 8-hour maximum
[3] There are no BCAAQO's for Total Hydrocarbon (THC).

2.2.1 Data Quality Notes

- The total hydrocarbon analyzer (THC) experienced several long periods of downtime during the beginning of October. Therefore, data recovery was 64.2% for THC for October 2025. Diagnostics and maintenance activities ultimately pointed to an issue with the site 701 zero air generator, which was repaired on October 14 and October 16.

2.2.2 Calibration / Maintenance Notes

- On October 2, 2025, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700 calibrator to the correct time. The flame on the CH_4/NMHC/THC analyzer data was reignited.
- On October 3, 2025, the site technician conducted maintenance on the N901 CH_4/NMHC/THC analyzer. The clocks on the NO_2 and O_3 analyzers, Envidas logger, and T700U calibrator were set to the correct time.
- On October 7, 2025, the site technician was onsite to troubleshoot the N901 CH_4/NMHC/THC analyzer. The clocks on the NO_2 and O_3 analyzers, and T700 calibrator were updated to the correct time.
- On October 8, 2025, remote troubleshooting was performed on the N901 CH_4/NMHC/THC analyzer. The site technician later replaced the N901 ultra high-purity nitrogen supply gas.
- On October 9, 2025, vegetation was cleared from around the station. The clocks on the NO_2 and O_3 analyzers, Envidas logger, and T700U calibrator were set to the correct time. A remote calibration was performed on the N901 CH_4/NMHC/THC analyzer.
- On October 14, 2025, the site technician was onsite to repair the T701 zero air generator.

- On October 16, 2025, the site technician replaced the 4-way valve on the zero-air generator and performed a leak test. The O_3 and NO_2 analyzers inlet filters were changed and replaced. The clocks on the NO_2 and O_3 analyzers, and T700U calibrator were set to the correct time.

- On October 21, 2025, remote "as found" and "as left" multi-point verifications were performed on the N901 CH_4/NMHC/THC analyzer. The clocks on the NO_2 and O_3 analyzers, and T700U calibrator were set to the correct time.

- On October 28, 2025, the site technician updated the clocks on the NO_2 and O_3 analyzers, Envidas logger, and T700U calibrator to the correct time.

3.0 OCTOBER 2025 KITAMAAT VILLAGE AMBIENT AIR QUALITY STATION MONITORING ACTIVITIES

This section provides a summary of the monitoring activities conducted at the LNG Canada Kitamaat Village Ambient Air Quality Station for October 2025. Table 3-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Kitamaat Village monitoring station. Site visit notes, SO_2, $PM_{2.5}$, O_3, and NO_2 concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, and NO_2 trends for October 2025 are also presented below.

Table 3-1 LNG Canada Instrumentation at the Kitamaat Village Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Kitamaat Village			
NO_2	Teledyne-API T200	Chemiluminescence	8598
O_3	Teledyne-API T400	UV Absorption	7486
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	905
Zero Air Source	Teledyne API T701	Zero-Air Generator	2555

3.1 Site Visit Notes

Site visit notes are summarized in Appendix A.

3.2 Monitoring Results and Trends

There were no exceedances of the BCAAQO for SO_2 at the Kitamaat Village station in October 2025. The mean SO_2 concentration at the Kitamaat Village for October was 0.4 ppb with a maximum hourly concentration of 12.0 ppb.

The mean 1-hour $PM_{2.5}$ concentration in October was 5.4 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration was 56.0 µg/m^3. The maximum 24-hour $PM_{2.5}$ concentration for October was 10.4 µg/m^3. In October, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

The mean O_3 concentration at the Kitamaat Village for October was 15.2 ppb with a maximum hourly O_3 concentration of 39.0 ppb. The maximum 8-hour O_3 concentration was 36.0 ppb. There were no exceedances of the one-hour BCAAQO for O_3 at the Kitamaat Village station in October 2025.

The mean NO_2 concentration at the Kitamaat Village for October was 0.5 ppb with a maximum hourly NO_2 concentration of 12.9 ppb. There were no exceedances of the one-hour 60 ppb BCAAQO for NO_2 at the Kitamaat Village station in October 2025.

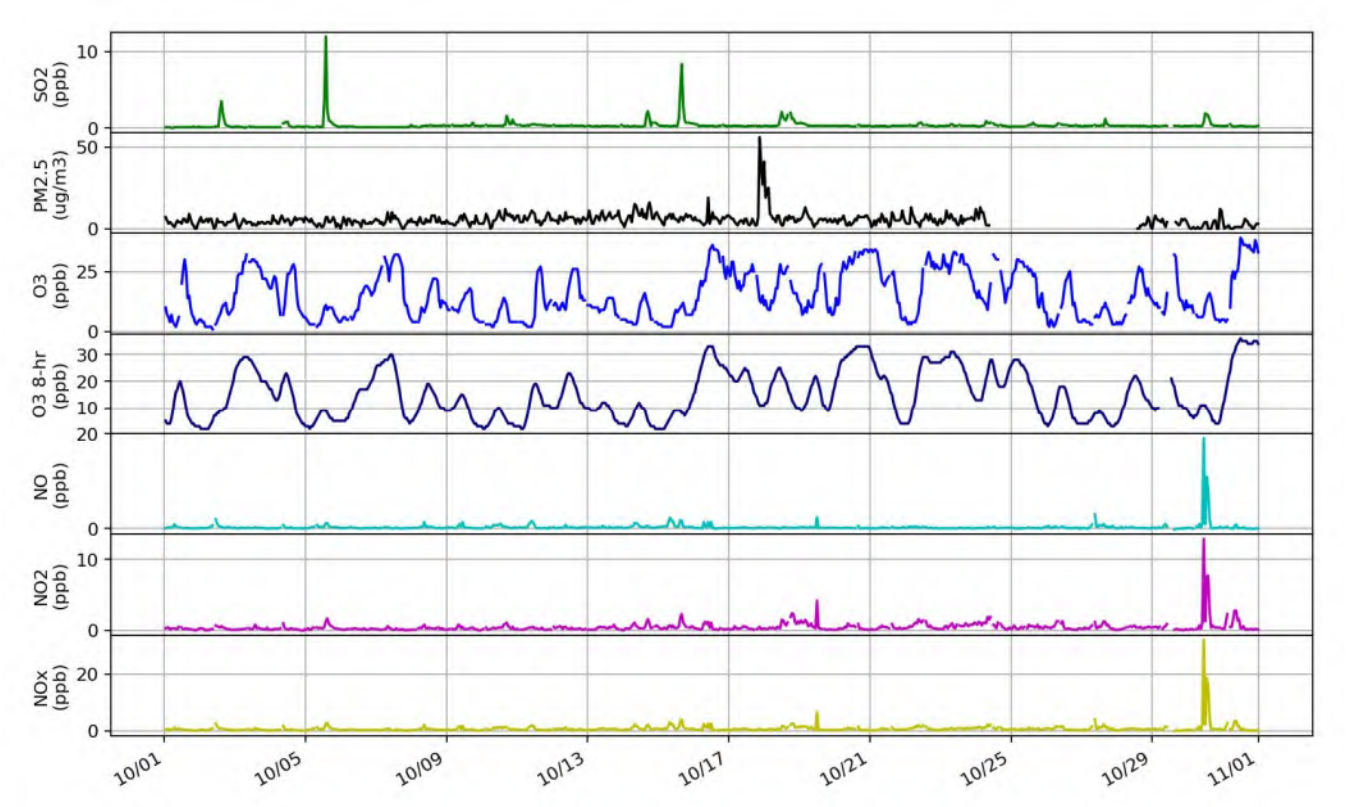
Table 3-2 tabulates the extreme and mean daily maximum readings, mean readings, and extreme and mean daily minimum readings for the 1-hour average SO_2, $PM_{2.5}$, NO_2 and O_3 concentrations for October 2025. Figure 3.1 graphically illustrates the time series for the month for the pollutants described in Table 3-2.

Table 3-2 Summary of SO_2, $PM_{2.5}$, O_3, and NO_2, Concentrations for the Kitamaat Village Station, October 2025

Statistic	SO_2 (ppb)[1]	$PM_{2.5}$[1] (µg/m³)	NO_2 (ppb)	O_3 (ppb)
1-Hour Mean	0.4	5.4	0.5	15.2
1-Hour Maximum	12.0	56.0	12.9	39.0
1-Hour Minimum	0.0	0.0	0.0	1.0
Mean Daily Maximum	1.2	9.1	1.8	27.9
Mean Daily Minimum	0.1	1.7	0.2	5.8
Data Recovery	95.1	85.9	95.1	95.1
24-hour Daily Maximum	1.1	10.4	1.7	--
8-Hour Maximum	--	--	--	36.0
24-Hour Average	0.4	5.4	0.5	15.1
Median	0.3	5.0	0.3	12.0

[1] SO_2 and $PM_{2.5}$ October 2025 data provided by Rio Tinto BC Works.

Figure 3.1 Time Series of 1-Hour Averaged SO_2, $PM_{2.5}$, O_3, and NO_2 Concentration Data for the Kitamaat Village Station, October 2025



4.0 OCTOBER 2025 RIVERLODGE AMBIENT AIR QUALITY STATION MONITORING STATION

This section provides a summary of the monitoring activities conducted at the LNG Canada Riverlodge Ambient Air Quality Station for October 2025. Table 4-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Riverlodge monitoring station. Site visit notes, SO_2, $PM_{2.5}$, O_3, NO_2, and THC concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, NO_2, and THC trends for October 2025 are also presented below.

Table 4-1 LNG Canada Instrumentation at the Riverlodge Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Riverlodge			
NO_2	Teledyne-API T200	Chemiluminescence	8599
O_3	Teledyne-API T400	UV Absorption	7487
THC	Teledyne-API N901	Flame Ionization Detector	80
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	906
Zero Air Source	Teledyne API T701	Zero-Air Generator	2556

4.1 Site Visit Notes

Site visit notes are summarized in Appendix A.

4.2 Monitoring Results and Trends

The mean SO_2 concentration at the Riverlodge for October was 0.9 ppb with a maximum hourly concentration of 11.9 ppb. There were no exceedances of the BCAAQO for SO_2 at the Riverlodge station in October 2025.

The mean 1-hour $PM_{2.5}$ concentration at the Riverlodge station for October was 3.4 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration was 13.0 µg/m^3. The maximum 24-hour $PM_{2.5}$ concentration for October was 5.9 µg/m^3. In October, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

The mean NO_2 concentration at the Riverlodge station for October was 1.2 ppb with a maximum hourly NO_2 concentration of 8.2 ppb. There were no exceedances of the one-hour BCAAQO for NO_2 at the Riverlodge station in October 2025.

The mean O_3 concentration at the Riverlodge station for October was 14.0 ppb with a maximum hourly O_3 concentration of 38.0 ppb. The maximum 8-hour O_3 concentration was 35.0 ppb. There were no exceedances of the one-hour BCAAQO for O_3 at Riverlodge station in October 2025.

The mean THC concentration at Riverlodge station for October was 2.13 ppm with a maximum hourly THC concentration of 3.32 ppm.

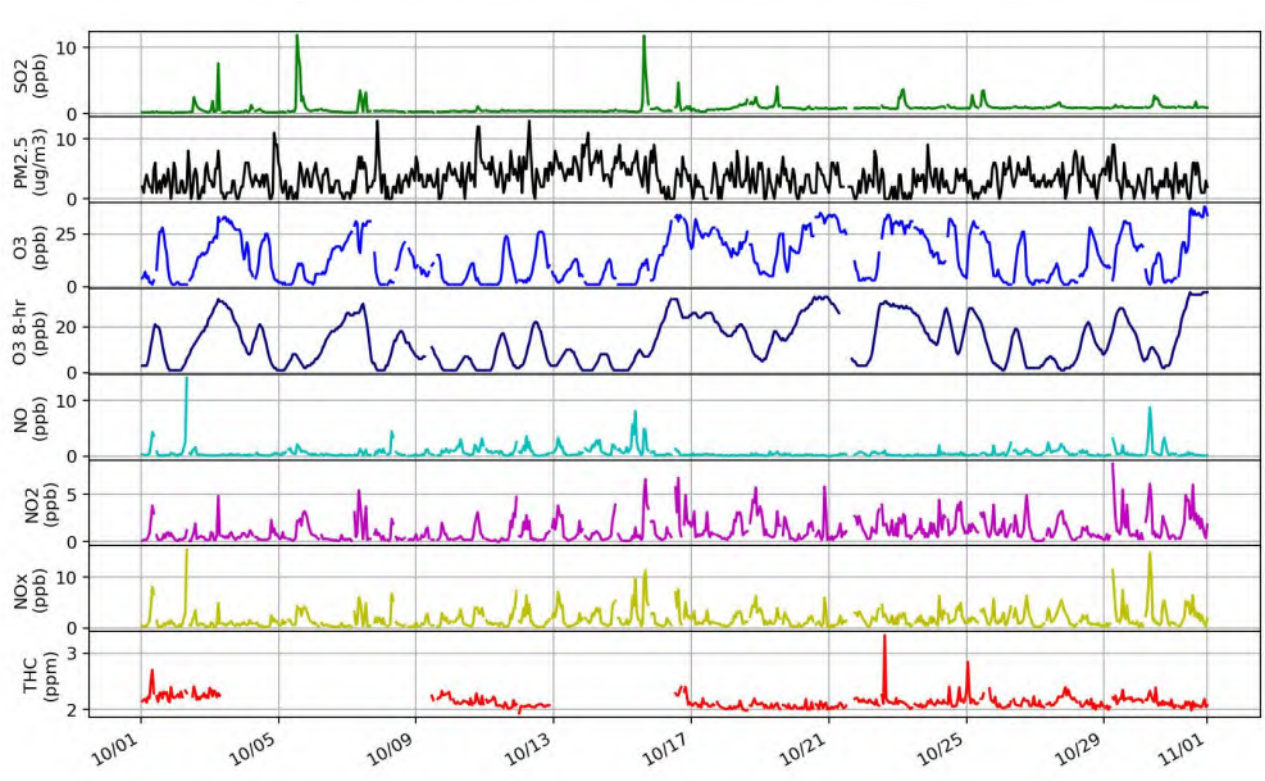
Table 4-2 tabulates the extreme and mean daily maximum readings, mean readings, and extreme and mean daily minimum readings for the 1-hour average SO_2, $PM_{2.5}$, NO_2, O_3, and THC concentrations for October 2025 at Riverlodge station. Figure 4.1 graphically illustrates the time series for the month for the pollutants described in Table 4-2.

Table 4-2 Summary of SO_2, $PM_{2.5}$, O_3, NO_2, and THC Concentrations for the Riverlodge Station, October 2025

Statistic	SO_2 (ppb)[1]	$PM_{2.5}$ ($\mu g/m^3$)[1]	NO_2 (ppb)	O_3 (ppb)	THC (ppm)
1-Hour Mean	0.9	3.4	1.2	14.0	2.13
1-Hour Maximum	11.9	13.0	8.2	38.0	3.32
1-Hour Minimum	0.1	0.0	0.0	1.0	1.93
Mean Daily Maximum	1.9	5.7	2.2	27.6	2.30
Mean Daily Minimum	0.2	2.0	0.4	3.7	2.10
Data Recovery	93.9	99.4	93.9	93.9	64.3
24-hour Daily Maximum	1.8	5.9	2.2	--	2.26
8-hour Maximum	--	--	--	35.0	---
24-Hour Average	0.9	3.4	1.2	14.1	2.13
Median	0.7	3.0	0.7	12.0	2.11

[1] SO_2 and $PM_{2.5}$ October 2025 data provided by Rio Tinto BC Works.

Figure 4.1 Time Series of 1-Hour Averaged SO_2, $PM_{2.5}$, O_3, NO_2, and THC Concentrations for the Riverlodge Station, October 2025



5.0 STATION COMPARISON

Figures 5.1 through 5.5 present comparative time series plots of October 2025 SO_2, $PM_{2.5}$, O_3, and NO_2 concentrations from the Kitamaat Village and Riverlodge monitoring stations. $PM_{2.5}$ and SO_2 data were obtained from Rio Tinto BC works for these stations. These graphs are useful for evaluating pollutant dispersion and for concentration comparison purposes.

Figure 5.1 Comparison of Hourly SO_2 Concentrations in Parts per Billion from Kitamaat Village and Riverlodge Monitoring Locations for October 2025

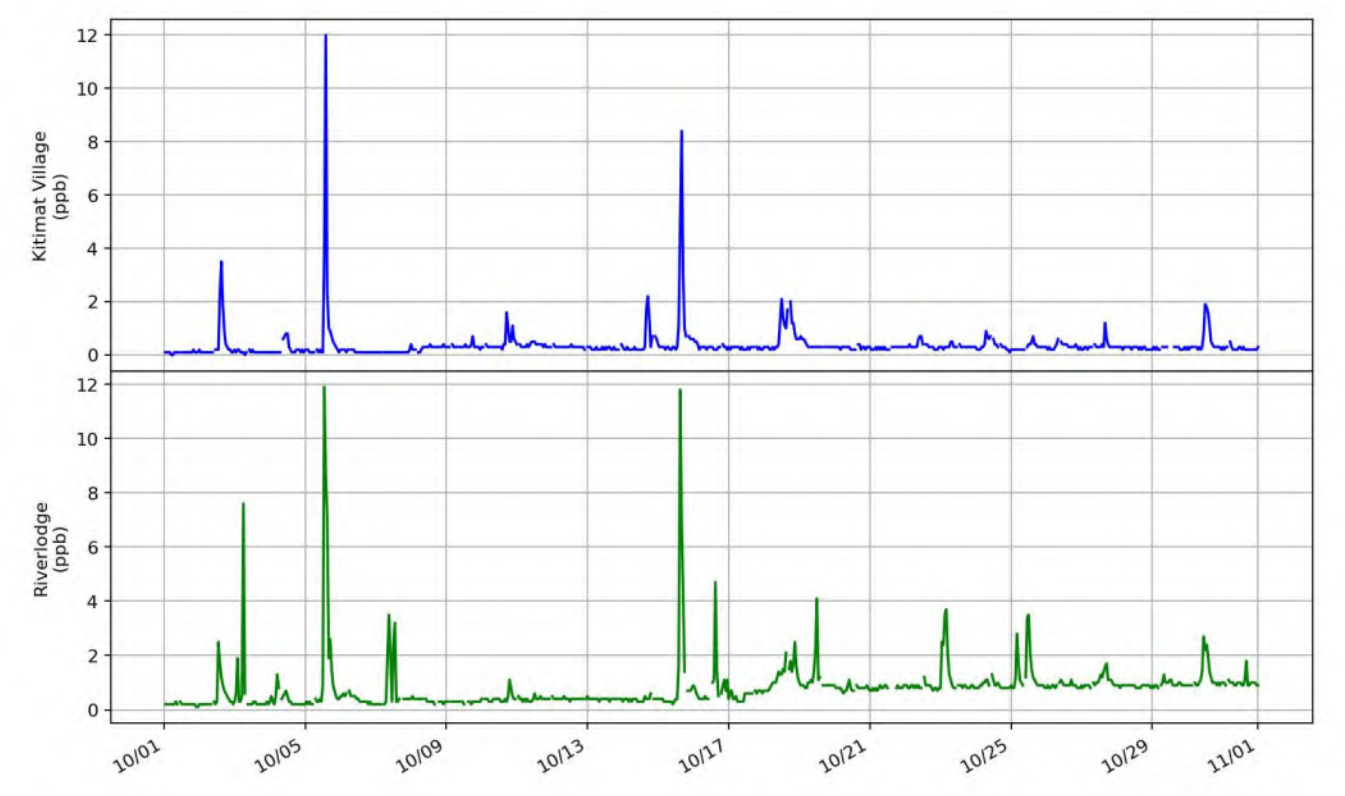


Figure 5.2 Comparison of Hourly $PM_{2.5}$ Concentrations in Micrograms per Cubic Meter Kitamaat Village and Riverlodge Monitoring Locations for October 2025

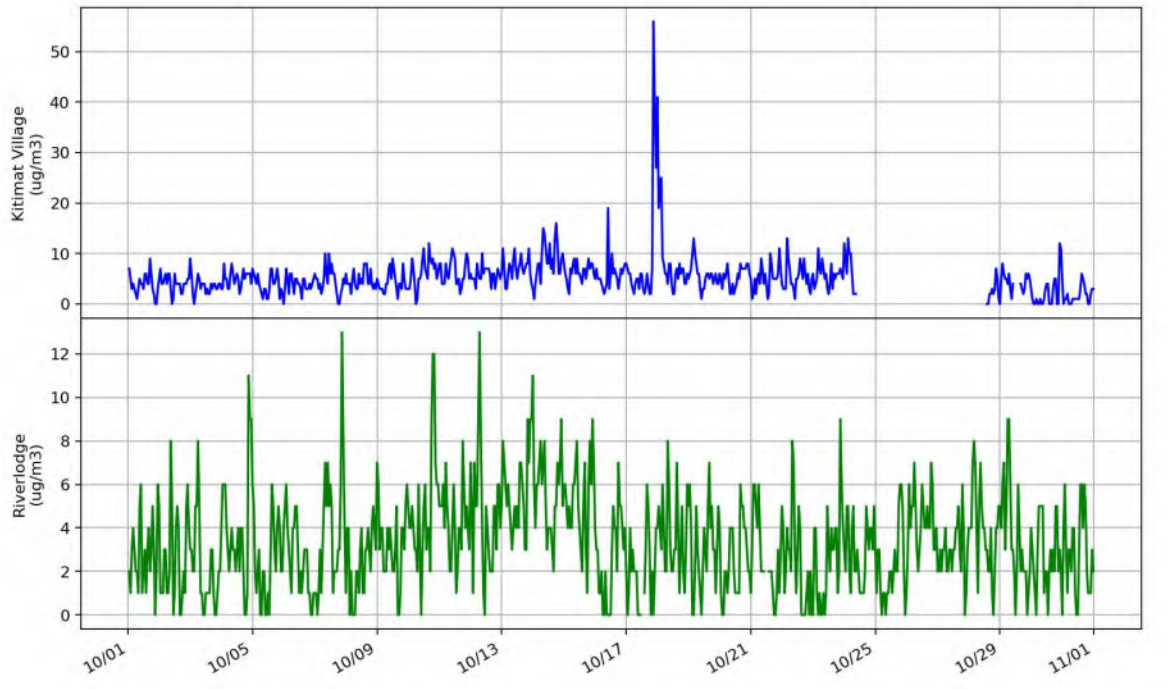


Figure 5.3 Comparison of Hourly NO_2 Concentrations in Parts per Billion from Kitamaat Village and Riverlodge Monitoring Locations for October 2025

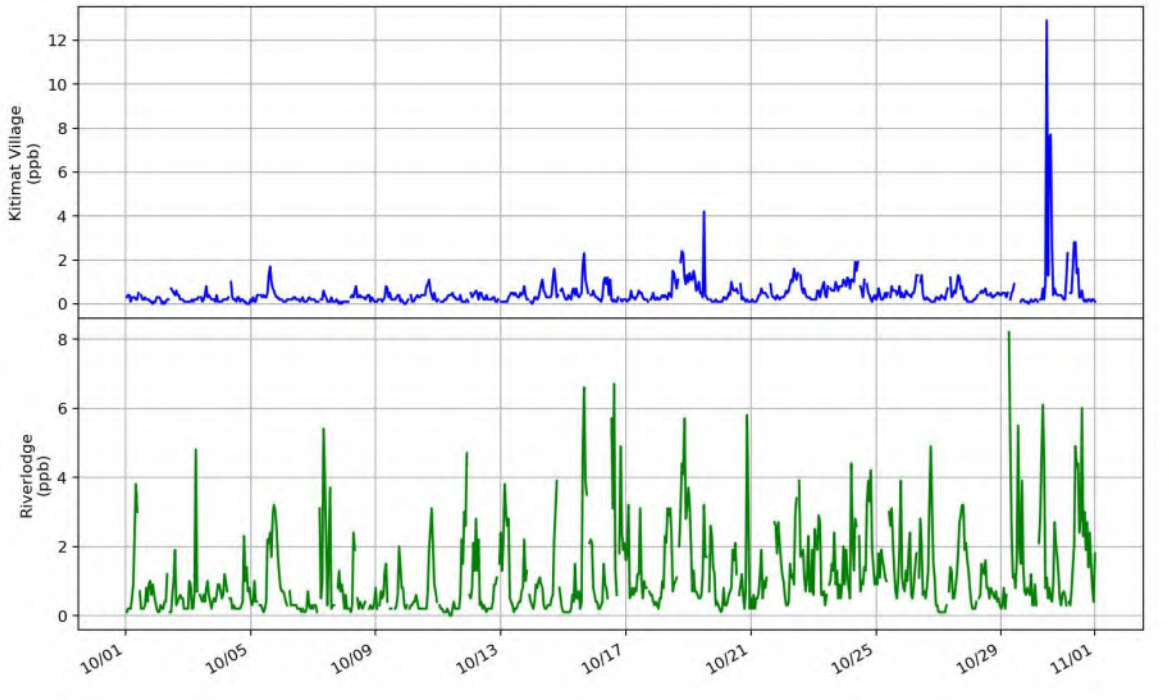


Figure 5.4 Comparison of Hourly O_3 Concentrations in Parts per Billion from Kitamaat Village and Riverlodge Monitoring Locations for October 2025

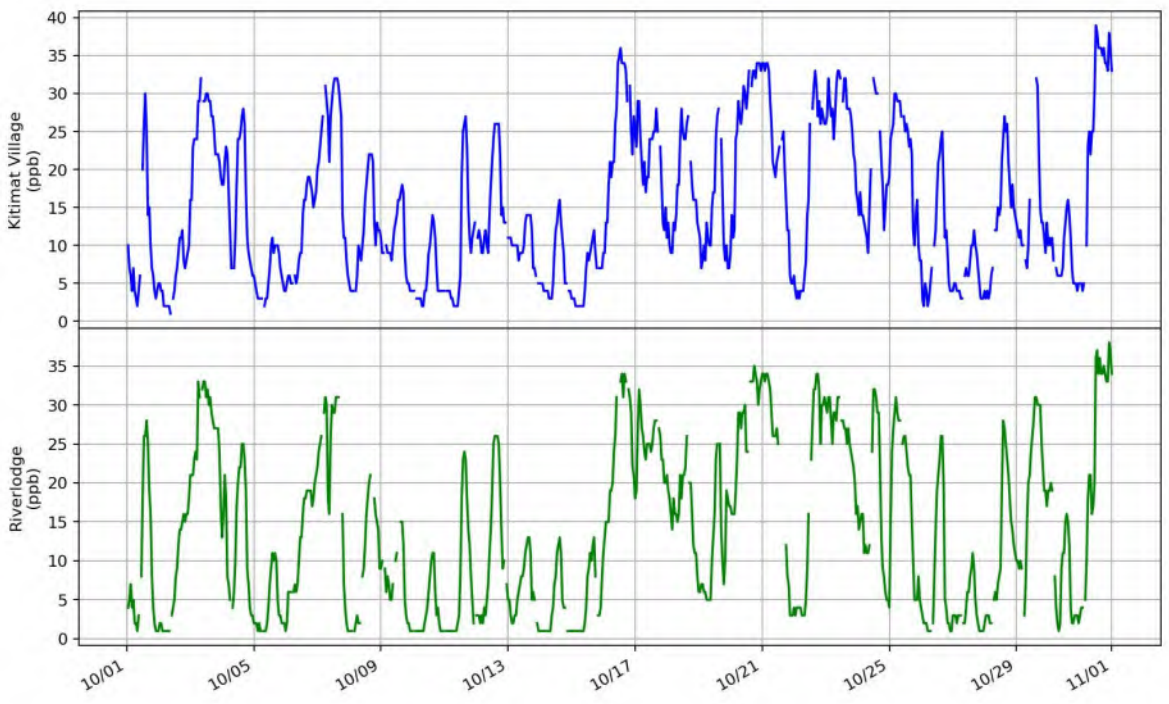
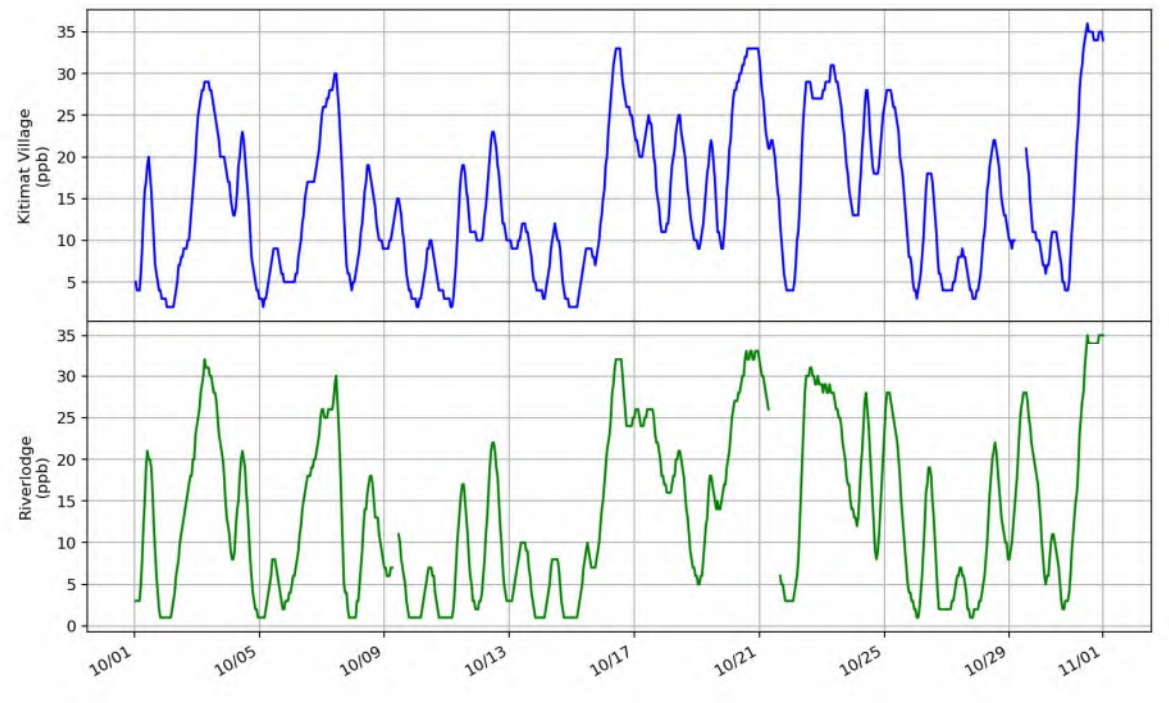


Figure 5.5 Comparison of Eight-Hour O_3 Concentrations in Parts per Billion from Kitamaat Village and Riverlodge Monitoring Locations for October 2025



APPENDIX A. SITE NOTES

10/07/2025 - PUF Sample Change

Tuesday, October 7, 2025 2:30 PM

Village

Author of Entry: Sarah Peden

Date of Activity: October 7, 2025
Start Time: 14:24
End Time: 15:10
Technician: Sarah Peden

Reason for Visit
On site for PUF Sample Change.

Description

T400 O3:
-Clock was 69 seconds ahead and was updated at 14:33
T700 Calibrator:
-Clock was 75 seconds ahead and was updated at 14:34.
T200 NOx:
-Clock was 89 seconds ahead and was updated at 14:29.
Envidas:
-Clock was 2 second ahead and was updated at 14:28.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1350 and line pressure 32 psi.

10/14/2025 - RT activities and weekly site check.

Tuesday, October 14, 2025 11:52 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: October 14, 2025
Start Time: 11:35
End Time: 12:35
Technician: Adrienne Kaul

Reason for Visit

RT activities and weekly site check

Description

Envidas:

-Clock was 2 seconds ahead and was synced at 11:55.

T700U Calibrator:

-Clock was 80 seconds ahead and was updated at 11:58.

T400 O3:

-Clock was 79 seconds ahead and was updated at 11:59.

T200 NOx:

-Clock was 81 seconds ahead and was updated at 12:00.

HVAC:

-Baseboard heater turned to winter position.

Analyzer inlet:

-Cobwebs cleared from near inlet.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Envidas logger needs new version of one note.
- Shelter door knob is extremely stiff and took 5-10 minutes to open the door.
- Shelter temperature 23.4 C on arrival, baseboard heater was off.
- SO2 and NO tank pressure 1300 psi and line pressure 32 psi.

10/21/2025 - PUF sample change

Tuesday, October 21, 2025 2:14 PM

Village

Author of Entry: Micah May

Date of Activity: 10/21/2025
Start Time: 2:50
End Time: 3:45
Technician: Micah May

Reason for Visit

On site for PUF Sample Change.

Description

T400 O3:
-Clock was 81 seconds ahead and was updated at 3:18
T700 Calibrator:
-Clock was 82 seconds ahead and was updated at 3:11.
T200 NOx:
-Clock was 81 seconds ahead and was updated at 3:21.
-4 alerts
-#1, #2, #3, and #4 analog outputs have not been calibrated.
-alert date was 08/14/2025 at 4:54 PM.
Envidas:
-Clock was 2 seconds ahead and was synced at 2:55.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____4 alerts on the T200_____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1300 and line pressure 31 psi.

10/23/2025 - PUF Sample Change

Thursday, October 23, 2025 11:52 AM

Village

Author of Entry: Micah May

Date of Activity: 10/23/2025
Start Time: 11:38
End Time: 12:28
Technician: Micah May

Reason for Visit

On site for PUF Sample Change.

Description

T400 O3:
-Clock was 20 seconds ahead and was updated at 11:56
T700 Calibrator:
-Clock was 20 seconds ahead and was updated at 11:45.
-Diluent press is at 27.0 psig.
T200 NOx:
-Clock was 21 seconds ahead and was updated at 11:57.
-4 alerts
-#1, #2, #3, and #4 analog outputs have not been calibrated.
-alert date was 08/14/2025 at 4:54 PM.
Envidas:
-Clock was 1 second ahead and was synced at 11:42.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1300 and line pressure 31 psi.

10/24/2025 - Inlet filter changes and RT activities

Friday, October 24, 2025 7:53 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: October 24, 2025
Start Time: 7:47
End Time: 16:28
Technician: Adrienne Kaul

Reason for Visit

Inlet filter changes and RT activities

Description

Envidas:
-Clock was 1 second ahead and no adjustment was made.
-Downloaded new version of OneNote.
-Downloaded windows updates and installed.
T700U Calibrator:
-Clock was 7 seconds ahead and was updated at 8:04.
T400 O3:
-Clock was 11 seconds ahead and was updated at 8:05. Clock was 1 second behind after update.
T200 NOx:
-Clock was 8 seconds ahead and was updated at 8:07.
HVAC:
-Shelter heater turned down.
-AC unit is iced up filter is frozen to fins and temperature sensor is embedded in ice.
-AC unit was powered down at approximately 15:00 to allow ice to melt out of the unit.
-AC unit back online at 16:11 and set to 78F for winter operational conditions.
O3 and NOx Filter changes:
-Data flagged 15:31-16:12.
-NOx and O3 filters changed with 1-2 um inlet filters.
-O3 running at 400 ppb from 15:49-16:02.
-Analyzer read 397.8 ppb with 399.6 ppb supplied for the last full minute of the run.
-All connections felt tight before and after filter change.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1300 psi and 32 psi.

10/28/2025 - RT activities and weekly site check

Tuesday, October 28, 2025 9:21 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: October 28, 2025
Start Time: 8:04
End Time: 13:11
Technician: Adrienne Kaul

Reason for Visit

On site for weekly site check and RT activities

Description

HVAC:

-Air conditioner is iced up. Unit was unplugged at 8:18 to allow to dry out while working on site.
-Unit blown out with compressed air.
-Unit was put back in operational mode and set to 79 F.

T400 O3:

-Clock was 48 seconds ahead and was adjusted at 11:44.

T200 NOx:

-Clock was 49 seconds ahead and was adjusted at 11:45. Clock was 1 second behind after adjustment.

T700U Calibrator:

-Clock was 48 seconds ahead and was adjusted at 11:46.

Envidas:

-Clock was 2 seconds ahead and was synced at 11:47.
-Downloaded windows updates.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1300 psi and line pressure 32 psi.

10/02/2025 - Weekly Station Check

Thursday, October 2, 2025 10:22 AM

Riverlodge

Author of Entry: Sarah Peden

Date of Activity: October 2, 2025
Start Time: 10:04
End Time: 10:58
Technician: Sarah Peden and Adrienne Kaul

Reason for Visit

Weekly station check

Description

Envidas logger:

Clock was accurate.

G2205 Clock was 23 seconds behind - synced and updated at 10:23.

T200 clock 102 seconds ahead - synced and updated at 10:33.

T400 clock 137 seconds ahead - synced and updated at 10:35.

N901 clock accurate:

-Flame was reignited at 10:23 and measuring resumed at 10:25.

T700 Calibrator:

-Clock was 103 seconds ahead and was updated at 10:26.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See Below
- [x] Check for calibrator warnings: See Below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- CH4, C3H8, SO2 and NO tank pressure 1575 psi and line pressure 30 psi.
- CH4 tank pressure 2000 psi and line pressure 40 psi.
- Nitrogen UHP tank pressure 210 psi and line pressure 72 psi. Will replace as soon as possible.
- Hydrogen UHP tank pressure 2250 psi and line pressure 50 psi.
- HF inline heater 61C at 10:38
- N901: 10/02/2025 9:06:52 AM FIP Flame out warning

- N901: 10/02/2025 9:06:54 AM Measurement aborted warning

10/03/2025 -CH4/NMHC/THC maintenance

Friday, October 3, 2025 8:33 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: October 3, 2025
Start Time: 8:23
End Time: 11:59
Technician: Adrienne Kaul

Reason for Visit

On site to do CH4/NMHC/THC maintenance

Description

Envidas logger:

-Clock was 1 second ahead and synced at 8:41.

T700U Calibrator:

-Clock was 12 seconds ahead and was updated at 8:44. Clock was 1 second ahead after update.

T200 NOx:

-Clock was 10 seconds ahead and in daylight savings mode. Updated clock at 8:47 and changed out of daylight savings mode.

T400 O3:

-Clock was 11 seconds ahead and was updated at 8:49. Clock was 1 second behind after update.

N901 THC/CH4/C3H8:

-Clock accurate, no adjustment was made.

All data flagged accidentally 9:18-9:19

THC/CH4/NMHC:

-Data flagged 9:20-9:59 (Flag should have started at 9:18).

-Installed new UHP Nitrogen tank. Regulator purged 9:42-9:45. Additional regulator installed on carrier gas input to better stabilize pressures.

-Back in operational mode at 9:52 for leak tests.

-In standby mode 10:09-11:14 (Originally flagged until 11:16 but flag was corrected in Envidas data base).

-No leaks detected on input UHP Nitrogen.

-Carrier in set to 50 psi.

-Aux in pressure set to 72 psi.

-Continuous results button pressed at 11:55

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- HF inlet heater 62 C at 8:35.
- Uninstalled tank Nitrogen 133517802. Tank pressure 200 psi and line pressure was 70 psi.
- Installed new Nitrogen tank 133524802 tank pressure 2620 psi and line pressure 72 psi.
- Hydrogen tank pressure 2240 psi and line pressure 50 psi.
- CH4 tank pressure 2000 psi and line pressure 42 psi.
- C3H8, CH4, NO, and SO2 tank pressure 1575 psi and line pressure increased from 20 psi to 30 psi.
- Oxygen 21% tank pressure 450 psi and line pressure 30 psi; New tank Is on order
- Oxygen 10% tank pressure 1600 psi and line pressure 30+ psi.
- UHP nitrogen tank pressure 610 psi and line pressure 32 psi.
- Shelter temperature 27.2 C, within spec.
- Wind speed and direction sensors appear to be working normally.
- Ambient temperature aspirator is working.

10/07/2025 - CH4/NMHC/THC troubleshooting

Tuesday, October 7, 2025 8:27 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: October 7, 2025
Start Time: 8:15
End Time: 16:26
Technician: Adrienne Kaul

Reason for Visit

On site to clean station and to troubleshoot N901 analyzer

Description

Cleaned shelter and installed new shelf in equipment rack.

N901 CH4/NMHC/THC:

-Increased carrier gas input from 50 psi to 60 psi.
-Data flagged 9:47-10:13
-Manual span 9:50-10:07
-Logger targets were 9.74965 ppm CH4/ 9.45368 ppm NMHC/19.2033 ppm THC
-Results 9.71 ppm CH4 /8.09 ppm NMHC/ 17.80 ppm THC; failing test.
-Standby mode entered at 10:36.
-Analyzer data flagged 10:37-13:14
-Analyzer powered off at 10:38.
-Analyzer powered back on at 10:44.
-Methane readings were low with extra pressure regulator in line.
-NMHC high with new cylinder in line, 1000-2000 ppb.

-Removed Nitrogen tank 133524802 and installed Nitrogen tank 133517802 (previously removed October 7, 2025) and purged regulator for 2 minutes.
-All data flagged 12:45-13:11.
-Manual span 12:45-1256
-Logger targets 9.74893 ppm CH4/ 9.45298 ppm NMHC/19.2019 ppm THC.
-Results 9.56457893 ppm CH4 /9.65966 ppm NMHC/ 19.2242 ppm THC-All results within spec.
-Test zero 12:56-13:08
-Logger target 0.0000 ppm CH4/ 0.00000 ppm NMHC/0.00000 ppm THC.
-Results 0.02096 ppm CH4/ 0.00000 ppm NMHC/0.02096 ppm THC-All within spec. This indicates that contamination in zero lines is unlikely.
-Standby entered at 14:02-16:14 and data flagged to maintain.
-Inlet filter replaced.
-Analyzer measuring Nitrogen zero air 14:52-14:57 supplied at 15 psi. Results were 0.0 ppb CH4, NMHC, and THC.
-Analyzer measuring Nitrogen zero air 14:57-15:04 supplied at 10 psi. Results were 0.0 ppb CH4, NMHC, and THC. This indicates no major leak within analyzer as supplied air is lower than ambient pressure.
-Cleaned exterior of sample inlet line and replaced ferrule on inlet line. Readings were trending downward when I left site.
-Leak tested Nitrogen (HF system outlet fittings) and no leaks were detected.
-Leak test Nitrogen (N901 system) and no leaks were detected.
-Data flagged to check inlet filter 15:50-16:04.
-MP started for CH4/NMHC/THC at 16:05

Envidas:

-Clock was 1 second ahead and no adjustment was made.

T400 O3:

-Clock was 48 seconds ahead and was updated at 13:30. Clock was 1-2 seconds behind after update.

T200 NOx:

-Clock was 49 seconds ahead and was updated at 13:32.

N901 CH4/NMHC/THC:

-Clock accurate.

T700U Calibrator:

-Clock was 50 seconds ahead and updated at 13:34.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- UHP nitrogen tank 133524802 pressure 2500 psi and line pressure 70 psi.
- UHP nitrogen tank 133517802 pressure 200 psi and line pressure 70 psi.
- Hydrogen tank pressure 2170 psi and line pressure 40 psi-was increased to 50 psi.
- CH4 tank pressure 2000 psi and line pressure 40 psi.
- SO2, NO, C3H8, and CH4 tank pressure 1550 psi and line pressure 27.5 psi.

10/08/2025 - CH4/NMHC/THC

Wednesday, October 8, 2025 12:34 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: October 8, 2025
Start Time: 12:25
End Time: 16:18
Technician: Adrienne Kaul

Reason for Visit

On site to replace N901 UHP Nitrogen supply gas.

Description

N901 CH4/NMHC/THC:

-Analyzer was put in standby mode at 12:45.

-Analyzer put in standby mode and flagged to maintain in Envidas at 12:49-16:03

-Sample line through to manifold was traced and appeared to be in good condition. No cuts or loose fittings were observed.

-UHP Nitrogen tank 133517802 removed and UHP Nitrogen tank 133526701. Starting pressure 2500 psi.

All gas analyzers flagged from 13:45-14:08.

-Zero air running from 13:46-14:05.

-Entered standby mode at 14:44.

-EPA Oxygen connected to "air in" at 15:05 and analyzer sampled ambient air 15:08-15:23 to test if zero supply was the issue. NMHC remained elevated at ~758.4 ppb. Indicating the issue is not with the T701 with added hydrocarbon scrubber unit.

-No leaks detected on adjusted lines on fittings on regulator.

-Data flagged 15:47-15:59 to adjust regulator output pressures.

-MP triggered at 16:03. Preliminary zero results look really promising but then results jumped from 16 ppb to 209.1 ppb for NMHC potentially in line with pump cycling on and off on T701.

T701H:

-Zero air pressure supply to analyzer increased from 29 psi to 33 psi.

-Powered off at 14:44.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- UHP Nitrogen cylinder pressure 175 psi and line pressure 70 psi.

- New UHP Nitrogen cylinder pressure 2550 psi and line pressure 70 psi.
- Hydrogen tank pressure 2150 psi and line pressure 50 psi.
- CH4 tank pressure 2000 psi and line pressure 42 psi.
- SO2, C3H8, CH4, and NO tank pressure 1550 psi and line pressure increased from under 30 psi to 30 psi.
- O2 21% tank pressure 390 psi and line pressure 30 psi.
- UHP Nitrogen pressure 560 psi and line pressure 32 psi.
- Oxygen 10% tank pressure 1500 psi and line pressure 30+ psi.
- Shelter temperature 28.1 C, within spec.
- Ambient temperature aspirator is working.
- Wind speed and direction sensors appear to be working normally.
- HF inlet heater 60 C at 15:56.

10/08/2025 - THC Troubleshooting

Wednesday, October 8, 2025 10:06 AM

Riverlodge

Author of Entry: Wyndam Lewis

Date of Activity: 10/8/25
Start Time: 745
End Time: 900
Technician: WL

Reason for Visit

Troubleshoot THC analyzer response.

Description

Generate 3 lpm of UHP nitrogen. CH4 and NMHC concentrations dropped to 0.0.
Put T700 in standby to purge UHPN out of the line.
Generate 5 lpm of zero air. CH4 and NMHC concentrations

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

10/09/2025 - Site maintenance

Thursday, October 9, 2025 1:32 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: 10/09/2025
Start Time: 12:20
End Time: 14:00
Technician: Adrienne Kaul

Reason for Visit

On site for site maintenance and tour

Description

Vegetation cleared from 14:00-14:24 around station.

Envidas:

-Clock 2 seconds ahead and was synced at 13:36.

T700U Calibrator:

-Clock was 23 seconds ahead and was updated at 13:42.

T200 NOx:

-Clock was 24 seconds ahead and was updated at 13:48.

T400 O3:

-Clock was 22 seconds ahead and was updated at 13:50.

N901 CH4/NMHC/THC:

-Clock was 1 second behind and no adjustment was made.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, CH4, and C3H8 tank pressure 1540 psi and line pressure 30 psi.
- CH4 tank pressure 2000 psi and line pressure 40 psi.
- UHP Nitrogen tank pressure 2550 psi and line pressure 71 psi.
- Hydrogen tank pressure 2130 psi and line pressure 50 psi.

10/09/2025 - THC O2 Cal and MP

Thursday, October 9, 2025 11:37 AM

Riverlodge

Author of Entry: Wyndam Lewis

Date of Activity: 10/9/25
Start Time: 850
End Time: 1315
Technician: WL

Reason for Visit

Calibrate THC analyzer zero

Description

21% oxygen generated at 3 lpm
O2 Offset changes from 62,386 to 116,067
NMHC was 0.1-0.15 ppm at the time of the change
Resolved the elevated baseline issue

1200-1315 - THC MP after adjustment

Site Visit Checklist

- ☐ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☐ Zero air system pressure at 30 PSI
- ☐ Calibration gas cylinder pressure at 30 PSI
- ☐ Calibration gas tank pressure > 500 PSI
- ☐ Check for analyzer warnings: _____
- ☐ Check for calibrator warnings: _____
- ☐ Analyzer filters exchanged
- ☐ MFC checks performed (semi-annual)
- ☐ Inlet Teflon exchanged (annual)
- ☐ Zero Air media replaced (annual)
- ☐ Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- ☐ Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

10/14/2025 - T701 zero air generator repair

Tuesday, October 14, 2025 3:33 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: October 14, 2025
Start Time: 15:35
End Time: 17:12
Technician: Adrienne Kaul

Reason for Visit

On site for T701 zero air generator repair

Description

T701 zero air unit output pressure at 15 psi. Pump does not sound like it is running.

-Pump in unit replaced.

-Unit powered off for troubleshooting will return on Thursday to rebuild unit.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

10/16/2025 - T701 zero air generator repair

Thursday, October 16, 2025 8:58 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: October 16, 2025
Start Time: 8:55
End Time: 11:36
Technician: Adrienne Kaul

Reason for Visit

On site to repair zero air generator.

Description

T701:

-4 way valve replaced and cables and lines resecured.
-Zero air pressure could reach above 60 psi.
-Leak test start at 9:33 T701 zero air output pressure @ 52.25 psi and 52.5 psi at 9:40; passing result.
-Output pressure set to 50 psi.
-Light orange light illuminated for dewpoint sensor and then disappeared.

Gas analyzers:

-All data flagged 9:50-10:41
-Manual span of CH4/NMHC/THC and NO ran 9:51-10:12
-NO analyzer read 163.0 ppb with 164.9 ppb supplied
-THC response elevated; analyzer needs time to settle.
-O3 and NOx inlet filters changed and replaced with 1-2 um filters. All filter connections felt tight before and after filter changes.
-O3 running at 4 lpm from 10:31-10:40.
O3 analyzer read 395.4 ppb with 399.6 ppb supplied.

THC/NMHC/CH4 MP triggered at 10:41.

Envidas logger:

-Clock was 1 second ahead, no adjustment made.

T700U Calibrator:

-Clock was 81 seconds ahead and was updated at 11:16. Clock was 1 second behind after update.

G2205 HF:

-Clock was 20 seconds behind and was updated at 11:18.

T200 NOx:

-Clock was 79 seconds ahead and was updated at 11:20.

T400 O3:

-Clock was 81 seconds ahead and was updated at 11:21.

N901 CH4/NMHC/THC:

-Clock accurate no adjustment made.

HVAC:

-Energy saver switched off at 11:35.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI

- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: See below
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- T700U Calibrator alert:
  - 10/13/2025 7:57:26 PM MFC Press Warn. MFC Pressure Warning.
  - 10/14/2025 3:37:29 PM O3 Reg Pressure Warning. Trigger O3 Gen Pressure value outside specified range [5-11] psig.
- N901 alert: 10/13/2025 7:59:05 AM air pressure warning. Air Pressure Warning.
- SO2, NO, CH4, C3H8 tank pressure 1550 psi and line pressure increased from 28 to 30 psi.
- CH4 tank pressure 2000 psi and line pressure 42 psi
- UHP nitrogen tank pressure 2350 psi and line pressure 71 psi.
- Hydrogen tank pressure 2060 psi and line pressure 50 psi.

10/21/2025 - THC Calibration

Tuesday, October 21, 2025 3:20 PM

Riverlodge

Author of Entry: Wyndam Lewis

Date of Activity: 10/21/25
Start Time: 1320
End Time: 1655
Technician: WL

Reason for Visit

NMHC precision is slightly low, indicating the zero could be improved.

Description

THC As found MP verification
THC O2 calibration (zero)
THC MP After adjustment

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

KitimatRive...
2025-1021

METHANE NON-METHANE TOTAL

METHANE, NON-METHANE, TOTAL HYDROCARBON CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 10/21/2025 **Start Time** 13:30
Stop Time 14:30

Analyzer Mfg Teledyne-API
Analyzer Model N901
Analyzer s/n 80

Analyzer Range 0- 20 **PPM**

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 906
Cert Date: 4/25/2025

Audit Gas: Linde
Concentration: 616 ppm
Serial #: CC748570
Certification Date: 7/8/2024
Expiration Date: 7/8/2027

Zero Air Source: T-API
Model: T701
Serial #: 2556
Certification Date: 5/16/2024

METHANE			NON-METHANE HYDROCARBON			TOTAL HYDROCARBON		
CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.
0.000	0.000	---	0.000	0.000	---	0.000	0.000	---
2.442	2.480	1.6%	2.368	2.160	-8.8%	4.809	4.640	-3.5%
4.271	4.261	-0.2%	4.142	3.975	-4.0%	8.410	8.240	-2.0%
6.094	6.087	-0.1%	5.909	5.861	-0.8%	12.000	11.950	-0.4%
7.925	7.917	-0.1%	7.684	7.671	-0.2%	15.610	15.590	-0.1%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	CH_4	NMHC	THC	
Slope (m)	0.997	1.005	1.001	1.05 to 0.95
Intercept (b)	0.015	-0.108	-0.092	(≤ ± 10)
Correlation Coefficent (r)	1.0000	0.9995	0.9999	(≥ 0.995)
Average % Difference	0.28%	-3.45%	-1.52%	

Calibrated By Wyndam Lewis

= cell containing equations

KitimatRive...
2025-1021

METHANE, NON-METHANE, TOTAL

Trinity Consultants

METHANE/ NON-METHANE/ TOTAL HYDROCARBON CALIBRATION SHEET

Multi-point After Calibration Adjustment

SITE NAME LNG Kitimat Riverlodge
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 10/21/2025 **Start Time** 15:48
Stop Time 16:48

Analyzer Mfg Teledyne-API
Analyzer Model N901
Analyzer s/n 80

Analyzer Range 0- 20 **PPM**

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 906
Cert Date: 4/25/2025

Audit Gas: Linde
Concentration: 616 ppm
Serial #: CC748570
Certification Date: 7/8/2024
Expiration Date: 7/8/2027

Zero Air Source: T-API
Model: T701
Serial #: 2556
Certification Date: 5/16/2024

METHANE			NON-METHANE HYDROCARBON			TOTAL HYDROCARBON		
CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.
0.000	0.000	---	0.000	0.000	---	0.000	0.000	---
2.442	2.481	1.6%	2.367	2.469	4.3%	4.809	4.949	2.9%
4.272	4.268	-0.1%	4.142	4.152	0.2%	8.410	8.420	0.1%
6.095	6.103	0.1%	5.910	5.992	1.4%	12.000	12.090	0.7%
7.925	7.924	0.0%	7.684	7.792	1.4%	15.610	15.720	0.7%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	CH_4	NMHC	THC	
Slope (m)	0.999	1.011	1.005	1.05 to 0.95
Intercept (b)	0.014	0.017	0.032	(≤ ± 10)
Correlation Coefficent (r)	1.0000	0.9999	1.0000	(≥ 0.995)
Average % Difference	0.41%	1.84%	1.12%	

Calibrated By Wyndam Lewis

= cell containing equations

10/21/2025 - Weekly station check and RT activities

Tuesday, October 21, 2025 9:14 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: October 21, 2025
Start Time: 7:38
End Time:
Technician: Adrienne Kaul

Reason for Visit

On site for weekly station check and RT activities

Description

Envidas:

-Computer restarted at 8:06 to attempt to install new version of one note on station computer.

-Clock was 1 second ahead and no adjustment was made.

T700U calibrator:

-Clock was 47 seconds ahead and was updated at 8:27. Clock was 1 second behind after update.

T200 NOx:

-Clock was 46 seconds ahead and was updated 8:29-8:30.

T400 O3:

-Clock was 47 seconds ahead and was updated at 8:32. Clock was 1 second behind after update.

N901 CH4/NMHC/THC:

-Clock was 1 second ahead and no adjustment was made.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- C3H8, CH4, SO2, and NO tank pressure 1500 psi and line pressure 33 psi.
- CH4 tank pressure 2000 psi and line pressure 40 psi.
- Nitrogen tank pressure 2150 psi and line pressure 71 psi.
- Hydrogen tank pressure 1950 psi and line pressure 50 psi.
- T700U alert: 10/17/2025 - 11:30:19 AM System Reset. Warning raised when the system is reset.
- T200 alert: 10/17/2025 - 11:30:14 AM System Reset. Warning raised when the system is reset.

10/28/2025 - Weekly station check

Tuesday, October 28, 2025 12:51 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: October 28, 2025
Start Time: 12:40
End Time: 13:16
Technician: Adrienne Kaul

Reason for Visit

On site for weekly station check.

Description

Envidas:

-Clock was 2 seconds ahead and was synced at 12:53.

-Downloaded windows updates

T700U Calibrator:

-Clock was 80 seconds ahead and was updated at 13:00.

N901 CH4/NMHC/THC:

-Clock was 1 second behind and no adjustment was made.

T200 NOx:

-Clock was 82 seconds ahead and updated at 13:02.

T400 O3:

-Clock was 83 seconds ahead and was updated at 13:03. Clock was 1 second behind after update.

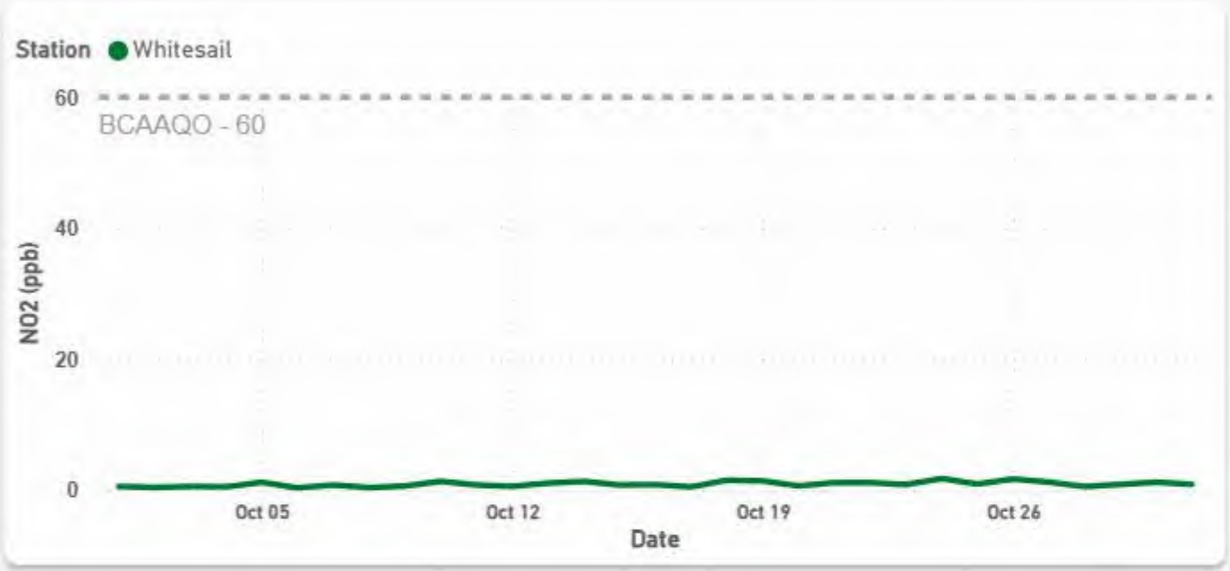
-

Site Visit Checklist

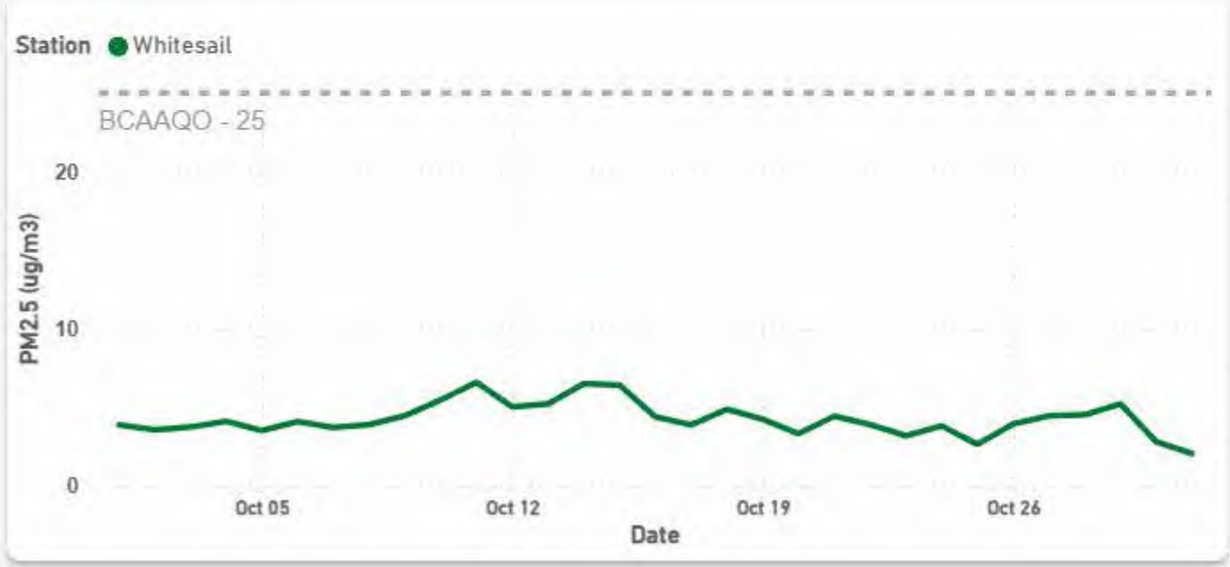
- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Hydrogen tank pressure 1820 psi and line pressure 50 psi.
- Nitrogen tank pressure 1890 psi and line pressure 72 psi.
- CH4 tank pressure 2000 psi and line pressure 40 psi.
- CH4, C3H8, SO2 and NO tank pressure 1500 psi and line pressure 32 psi.


Station
Whitesail
BCAAQO - 60
NO2 (ppb)
60
40
20
0
Oct 05
Oct 12
Oct 19
Oct 26
Date

Station
Whitesail
BCAAQO - 70
SO2 (ppb)
60
40
20
0
Oct 05
Oct 12
Oct 19
Oct 26
Date


Station
Whitesail
BCAAQO - 25
PM2.5 (ug/m3)
20
10
0
Oct 05
Oct 12
Oct 19
Oct 26
Date

Station
Whitesail
BCAAQO - 62
O3 (ppb)
60
40
20
0
Oct 05
Oct 12
Oct 19
Oct 26
Date

LNG CANADA
Opportunity for British Columbia. Energy for the world

joint venture companies

Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Monthly Report (November 2025)

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REVISION CONTROL PAGE

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1. Executive Summary

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. The BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) (PA-110588) to LNG Canada Development Inc., for the discharge of air contaminants to the environment from the LNG Facility.

Section 10.2 of the Air WDA (PA-110588) requires a monthly report to be submitted to the BCER that includes data/information on:

- Gas Turbines (GT) and Acid Gas Incinerator (AGI) emissions
- Pollution Control Technology operational or performance issues, including maintenance activities.
- Flaring Activities
- Facility sulphur dioxide (SO_2) Emissions
- Permit Contravention

Herein is the monthly report for November 2025. A summary of the findings for this reporting period is as follows:

- Train 2 commissioning was completed with First drop on November 6th.
- First stack testing was completed on September 2025 for gas turbines (String 1 on September 28, String 2 on September 27) and the AGI (September 26) in accordance with Air WDA (PA-110588) Section 5.1.2. Facility-specific emission factors derived from stack testing are now used for PM2.5, VOC, and HC-T emissions from the gas turbines, and for VOC and HC-T emissions from the AGI, replacing previously used EPA AP-42 factors. These results are also used for Train 2 AGI, String 3 and 4 reporting as well for PM2.5, VOC, and HC-T.
- Self-disclosure was submitted to BCER on December 3rd for November, 2025, regarding November flaring: routine flaring at the warm/wet flare, cold/dry flaring and storage and loading flare exceeding the routine flaring limits.
- Throughout November, the Train 1 acid gas incinerator remained offline, with acid gas routed to the warm/wet flare, only the pilot was occasionally active during this time. Train 2 incinerator was being commissioned.
- There were air emissions from eleven authorised discharge sources defined in Sections 2.1 to 2.7 of Air WDA (PA-110588): warm/wet flare, cold/dry flare, liquid burner, storage and loading flare, spare flare, gas turbine string 1, string 2, string 3 and string 4 WHRU, Train 1 acid gas incinerator (AGI), and Train 2 acid gas incinerator.
- LNG Canada requested AGAT to conduct RATA for Train 1 String 1 and 2 from November 29th to December 1st 2025 pending results.
- By volume, the cold-dry flare (FCD) was the largest source of air emissions, primarily due to Train 2 startup.
- This report provides Zeeco emission factors for flaring. LNG Canada has discussed and agreed with BCER to move to Zeeco emission factors for all future monthly reporting.

2. Overview

2.1. Project Background

The LNG Canada liquefied natural gas (LNG) facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia, Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

2.2. Purpose

On July 15, 2024, the BCER issued Air WDA (PA-110588) to LNG Canada Development Inc., under the provisions of the BC *Environmental Management Act*, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Air WDA (PA-110588) applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.2 of Air WDA (PA-110588) (Monthly Reporting) for November 2025.

Refer to Appendix B for a list of all monthly reports that have been issued under Air WDA (PA-110588)

2.3. LNG Facility Status

Fuel gas was first introduced to Unit 1000 (Inlet Facilities) on August 31, 2024. Fuel gas was introduced to the flare headers and the warm/wet flare pilot was first lit on October 1, 2024.

LNG production began on June 22, 2025. The first LNG cargo was loaded on June 30, 2025, marking the start of Operations on July 1, 2025.

During this month, discharges of air contaminants occurred from the following authorized works:

- One (1) warm/wet flare
- One (1) cold/dry flare
- One (1) storage and loading flare
- One (1) spare flare
- One (1) Liquid burner
- Two (2) Gas turbines: String 1 and String 2 Waste Heat Recovery Units (WHRUs)
- Two (2) Gas turbines: String 3 and String 4 Waste Heat Recovery Units (WHRUs)

- One (1) Train 1 acid gas incinerator (AGI)
- One (1) Train 2 acid gas incinerator (AGI)

The facility is currently in the "Operations" phase as defined by Air WDA (PA-110588). The "Commissioning" phase—defined as the period starting when discharge commences and ending when the first cargo is shipped from LNG Train 1—concluded on June 30, 2025. Consequently, Operations officially began on July 1, 2025. While Train 1 is in operations, Train 2 commissioning commenced in October 2025 and was completed in November with first drop achieved on November 6th 2025.

The Initial Performance Period (IPP) did not commence during November 2025 (which is defined as the period that "*commences upon the completion of the initial performance test for LNG Train 1"*).

3. Fuel Gas Use (Commissioning Only) (Condition 10.2.1)

3.1. Permit Condition

Under Condition 10.2.1, the monthly report shall identify and provide a summary of fuel gas use at the facility during Commissioning. The monthly report shall include the following information:

a) the daily volume of fuel gas combusted and vented;

b) the daily mass emissions of NOx, SOx, CO, PM2.5, VOCs and HC-T, for the authorized works in Section 2.1 and 2.2; and

c) the quantification method (under Section 9) and representative calculations

With the commencement of Train 2 commissioning in November, the daily volume of fuel gas introduced to the facility is detailed in Appendix C. In discussions with BCER, it was agreed that until the CEMS becomes available, LNGC will continue reporting 10.2.1 b and c above.

Appendix C contains the summary of daily mass emissions of NO_X, SO_X, CO, $PM_{2.5}$, VOCs, and HC-T from the gas turbines and AGI in November 2025.

Stack Testing and Updated Emission Factors
Stack testing was previously conducted in September 2025 for the gas turbines (String 1 on September 28, String 2 on September 27) and the AGI (September 26) in accordance with Air WDA (PA-110588) Sections 5.1.2.

Based on the previous stack testing results, facility-specific emission factors have been developed and are now used for VOC and HC-T emissions calculations for the gas turbines and AGI, replacing previously used EPA AP-42 factors (Table 1, Table 2 and Table 3). For PM2.5 emissions, EPA AP-42 factors continue to be used as sampling at the AGI operating temperature of 982°C presents technical challenges that limit the reliability of measured data. LNG Canada will continue to evaluate options for developing site-specific PM2.5 emission factors. The stack testing report is issued in the Q3 2025 Air WDA report.

The basis for other factors is as follows:

- NOx, CO and PM2.5 emissions from AGI are estimated based on published emission factors (EPA AP-42) for a flare, to represent a high temperature oxidation process to burn hydrocarbons (refer to Table 3). The data from the CEMS associated with the AGI will be available after the RATA has been undertaken (which will be done when a stable, full plant load is achieved).
- NOx and CO emissions from the gas turbine are calculated using published emission factors from the US EPA AP-42, as detailed in Table 1 and 2. This calculation methodology is used for the period, as the CEMS for the gas turbines has not yet completed its final certification. The data from the CEMS will be utilized for reporting following the successful completion of the RATA.
- While stack testing for String 3 and 4 remain, emission factors for String 2 are used for String 3 and 4.

Table 1 String 1: Natural Gas-Fired Turbine Emission Factors

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	US AP-42: Table 3.1-1 (Lean-Premix)	0.099	lb/MMBtu	D	

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
SO_x	US AP-42: Table 3.1-2a (uncontrolled)	0.94S	lb/MMBtu	B	Where “S” is the percent sulphur in fuel. “S” to be informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014). If “S” is not available, the AP-42 states to use 3.4 E-03 lb/MMBtu for natural gas turbines (0.0034).
CO	US AP-42: Table 3.1-1 (Lean-Premix)	0.015	lb/MMBtu	D	
PM2.5	Stack Testing	0.08780	g/kg of fuel		Based on September 28 stack testing (when gas turbine was running at ~40 MW load)
VOC	Stack Testing	0.00532	g/kg of fuel		Based on September 28 stack testing (when gas turbine was running at ~40 MW load)
HC-T	Stack Testing	25.839	g/kg of fuel		Based on September 28 stack testing (when gas turbine was running at ~40 MW load) – inclusive of VOCs

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 3.1 is applicable for Stationary Gas Turbines.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. Stack Testing emission factors were developed using emission rate divided by the equivalent fuel gas use at that period in time

Table 2 String 2, 3 and 4: Natural Gas-Fired Turbine Emission Factors

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	US AP-42: Table 3.1-1 (Lean-Premix)	0.099	lb/MMBtu	D	
SO_x	US AP-42: Table 3.1-2a (uncontrolled)	0.94S	lb/MMBtu	B	Where “S” is the percent sulphur in fuel. “S” to be informed by the H_2S composition measured at the interface with CGL Kitimat Sales Meter Station (010QI-0014). If “S” is not available, the AP-42 states to use 3.4 E-03 lb/MMBtu for natural gas turbines (0.0034).
CO	US AP-42: Table 3.1-1 (Lean-Premix)	0.015	lb/MMBtu	D	
PM2.5	Stack Testing	0.07842	g/kg of fuel		Based on September 27 stack testing (when gas turbine was running at ~92 MW load)
VOC	Stack Testing	0.00291	g/kg of fuel		Based on September 27 stack testing (when gas turbine was running at ~92 MW load)

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
HC-T	Stack Testing	7.081	g/kg of fuel		Based on September 27 stack testing (when gas turbine was running at ~92 MW load) – inclusive of VOCs

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 3.1 is applicable for Stationary Gas Turbines.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. Stack Testing emission factors were developed using emission rate divided by the equivalent fuel gas use at that period in time

Table 3: Train 1 and Train 2 - Emission Factors used for the AGI

Emission	Methodology[1]	Value	Unit	Factor[2]	Comment
NOx	US AP-42: Table 13.5-1	0.068	lb/MMBtu	B	
SO_X	Engineering Estimate				There is no AP-42 emissions factor for SO_X; therefore it is based on fuel gas sulphur content informed by the total S composition measured at the LNG Canada lab. The assumed destruction efficiency is 100%.
CO	US AP-42: Table 13.5-2	0.31	lb/MMBtu	E	
PM2.5	US AP-42: Table 13.5-2[3]	0.027	lb/MMBtu	B	Based on a lightly smoking flare (soot in concentration values: 40 µg/L in the exhaust).
VOC	Stack Testing	0.00089	g/kg of fuel and acid gas		Based on September 26 Stack Testing
HC-T	Stack Testing	0.00127	g/kg of fuel and acid gas		Based on September 26 Stack Testing (inclusive of VOCs)

Notes:

1. US EPA AP-42, Compilation of Air Pollutant Emissions from Stationary Sources. Section 13.5 is applicable for Industrial Flares.
2. US EPA AP-42 Emission Factors indicate the reliability or quality of each emission factor: A = Excellent, B = Above Average, C = Average, D = Below Average, E = Poor.
3. The emission factor conversion from µg/L to lb/MMBtu is documented in the “Emissions Estimate Protocol for Petroleum Refineries, Version 3, April 2015”, issued to US EPA by RTI International.
4. Stack Testing emission factors were developed using emission rate divided by the equivalent fuel gas use at that period in time

4. CEMS Zero and Span Reporting (Condition 10.2.2)

4.1. Permit Condition

Under Condition 10.2.2, during Operations, after the completion of the initial CEMS performance evaluation, the monthly report shall include a summary of all CEMS out of control calibration zero and span events that occurred during the month.

4.2. Data and Assessment

Train 1 string 1 and string 2 RATA was initiated on November 29th, 2025, with results pending in December. RATA was not completed for Train 1 AGI as the unit was offline during this time. As such, there is no CEMS reporting for this month.

5. CEMS Reporting (Condition 10.2.3)

5.1. Permit Condition

Under Condition 10.2.3, during Operations, after the completion of the initial CEMS performance evaluation, the Permittee shall provide a summary of CEMS data collected during the month.

5.2. Data and Assessment

As CEMS certification and RATA has not yet been completed, there is no CEMS reporting for this month.

6. Flaring Activity Reporting (Condition 10.2.4)

6.1. Permit Condition

Under Condition 10.2.4, a summary of all flaring activity carried out during the month is to be included in the monthly report. The monthly report shall include the following information:

a. identification of the flare source;

b. description of the type of process gas sent to flare;

c. the volume of gas sent to the flare during each event;

d. the reason for the flaring event;

e. any external notifications sent out, if applicable;

f. the (i) daily and (ii) monthly volume of gas being flared for each source;

g. the (i) daily and (ii) monthly contaminant emission totals for each source, parameters include NO_x, CO, $PM_{2.5}$, SO_x, VOCs, and HC-T; and

h. the quantification method (under Section 9) and representative calculations.

6.2. Data and Assessment

In Air WDA (PA-110588), flaring activities are described as either routine flaring (continuous) or non-routine flaring (as required for non-routine events). The authorized discharge period is continuous for routine flaring and intermittent as required for non-routine flaring (PA-110588 2.3.2–2.6.2). Routine flaring discharges include the continuous flare pilots, which are supplied by fuel gas to provide a continuous ignition source so that any gas sent to the flare as a result of upset conditions ("non-routine flaring") is immediately combusted. The permit application to support Air WDA (PA-110588) also described the other small sources of process gas that are continuously sent to the flare, including analyzer sample returns and passing valves.

Process gas refers to the natural gas stream intended for LNG production; the incoming gas stream from Coastal Gas Link (CGL) that undergoes several treatment stages (acid gas removal, pre-cooling, and finally, liquefaction) prior to being exported as LNG.

Appendix D contains the flaring activities tables, as follows:

- Table D-1: Flaring Events Table
- Table D-2: Warm/Wet Flare Volume and Emissions Summary
- Table D-3: Cold/Dry Flare Volume and Emissions Summary
- Table D-4: Storage and Loading Flare Volume and Emissions Summary
- Table D-5: Spare Flare Volume and Emissions Summary
- Table D-6: Liquid Burner Volume and Emissions Summary

Sample calculations are also provided in Appendix D (Exhibit D-1). The basis for this assessment is as follows:

- The daily volume of gas flared is sourced from the flow meters upstream of the applicable flare.
- The daily mass emissions from each flare source reported herein are calculated based on manufacturer emission factors for industrial flares (refer to Table 4), except for SO_X, which is calculated based on a mass balance and assumes full oxidation of S.

Table 4: Emission Factors used for the Flare System

Flare Source	Zeeco Emission Factors (lb/MMBtu)					
	NOx	CO	PM2.5	VOC	SOx	HC-T
Warm/Wet (FWW)	0.0641	0.5496	0.013	0.14	—	0.23
Cold/Dry (FCD)	0.1380	0.2755	0.013	0.14	—	0.23
Storage & Loading (FLP)	0.0641	0.5496	0.013	0.14	—	0.23
Spare	Matches the flare it is sparing (use FWW, FCD, Storage, or Liquid values as applicable). For any purges and pilot utilizing CGL feed gas, we have used FWW emission factors					
Liquid Burner	0.1380	0.2755	0.013	0.14	—	0.23

LNG Canada has transitioned to manufacturer-specific Zeeco emission factors for flare emissions reporting, as agreed upon with the BC Energy Regulator (BCER). This transition represents a shift from generic EPA AP-42 emission factors to equipment-specific design and performance data that more accurately reflects the actual operating characteristics of the installed flare systems at the facility.

7. Permit Contravention (Condition 10.2.5)

7.1. Permit Condition

Under Condition 10.2.5, a summary of all instances of permit non-compliances are to be included in the monthly report, including a description of the event (date, time, circumstances), a summary of the investigation findings, the completed and ongoing actions taken in response to the non-compliance event, and the date of self-disclosure notifications to the BCER.

7.2. Assessment

- **Permit References**: PA-110588 Sections 2.3.1 (Warm/Wet Flare), 2.4.1 (Cold/Dry Flare), 2.5.1 (Storage and Loading Flare)
- **Period:** 01–30 November 2025.
- **Description**:
    - **Warm/Wet Flare (FWW):** Routine flaring occurred continuously through this month at a calculated monthly average rate of 129 m^3/min that exceeded the authorized limit of 7.8 m^3/min. Additional flaring volume required to prevent backburn.
    - **Cold/Dry Flare (FCD):** Routine flaring occurred continuously through this month at a calculated monthly average rate of 22.6 m^3/min against Air WDA permit limit of 9.6 m^3/min. Primary contributor is likely passing valves (plus pilot/purges as applicable).
    - **Storage and Loading Flare (FLP):** Routine flaring occurred continuously through this month at a calculated monthly average rate of 25.3 m^3/min against Air WDA permit limit of 6.0 m^3/min. Primary contributor is likely passing valves (plus pilot/purges as applicable).

- **Notifications**: Voluntary self-disclosure submitted to BCER Compliance and Enforcement (via C&E@bc-er.ca), consistent with Chapter 3 of the BCER Compliance and Enforcement Manual.

- **Immediate/short-term actions**:
    - FWW: Test have been conducted by substituting hydrocarbons with Nitrogen (N_2) in the flare. The results have been shared with BCER. The plan is to implement this substitution with N_2 post start up activities when there is stable N_2 availability.

- **Long-term corrective actions (in evaluation)**:
    - FWW: LNGC exploring a possible flare tip redesign / replacement to resolve the backburn issue. Technical proposal has been received from JFJV/Zeeco (Flare Vendor) for solutions that are considered technically viable.
    - FCD and FLP: For the Cold/Dry Flare (FCD) and Storage and Loading Flare (FLP), a valve burn-in program will be initiated to identify and address passing valves that may be contributing to elevated routine flaring rates.

- Supporting data: Daily FWW, FCD and FLP flaring datasets are provided in Appendix D.

8. Pollution Control Technologies (Condition 10.2.6)

8.1. Permit Condition

Under Condition 10.2.6, a discussion of any operational or performance issues or significant maintenance activities with any pollution control technologies of the authorized works and equipment required by the permit is to be included in the monthly report.

The pollution control technologies identified in the permit application supporting Air WDA (PA-110588) were the:

- Dry low emissions combustor optimization system in the gas turbines (dry low NOx burners); and
- Catalysts in the WHRUs, to convert CO in the exhaust gas to carbon dioxide.

8.2. Assessment

There were no instances of operational or performance issues, or significant maintenance activities with the pollution control technologies within the reporting period.

9. Ambient Air Monitoring (Commissioning Only) (Condition 10.2.7)

9.1. Permit Condition

Under Condition 10.2.7, the following information for nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and $PM_{2.5}$ from three continuous ambient air quality monitoring stations (Kitamaat Village (Kitimat Haisla Village) (Site 1); Kitimat Riverlodge (Site 2) and Kitimat Whitesail) are to be included in the monthly report during Commissioning where information is publicly available:

a. a comparison of the measured ambient air concentrations at each ambient air monitoring stations to the applicable numerical metrics of the BC ambient air quality objectives (BCAAQO);

b. (i) a description of any measured ambient air concentrations in excess of the numerical metrics of the BCAAQO, if applicable, (ii) a description of any known contributing factors from authorized works, and (iii) a description of action (if any) taken by the Permittee.

The monthly report shall also include the time series plot of the hourly average ambient air concentration of ozone (O_3) data from these stations.

9.2. Data and Assessment

Data from continuous ambient air quality monitoring stations in Kitimat are publicly available via the BC Ministry of Environment and Climate Change Strategy, at: Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

The publicly available data for NO_2, SO_2 and $PM_{2.5}$ at the three continuous ambient air quality monitoring stations are provided as an attachment; the graphs also contain the applicable BCAAQO. This data is reported for Train 2 commissioning.

There were no ambient air quality concentrations of NO_2, SO_2 and $PM_{2.5}$ measured in excess of the BCAAQO metrics in the reporting period.

10. Facility SO_2 Emission Limit (Condition 10.2.8)

10.1. Permit Condition

Under Condition 10.2.8, for all authorized sources in Sections 2.1 to 2.7, for each day of the month, the maximum hourly cumulative SO_2 discharge rate is to be provided in the monthly report, including the percentage breakdown of the sources contributing to the maximum discharge rate of each day.

10.2. Data and Assessment

Appendix E contains the cumulative SO_2 discharge rate from the authorized sources in Air WDA (PA-110588) Section 2.1 to 2.7 (refer to Section 2.2), including the percentage breakdown of the sources contributing to the maximum discharge rate shown for each day.

The representative calculations for SO_2 are provided in Appendix C for the gas turbines and AGIs, and Appendix D for the flare system. There were no SO_2 exceedances that were observed in this reporting period.

11. References

- BC Ministry of Environment and Parks, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca)

Appendix A Abbreviations

AGI	Acid Gas Incinerator
AGRU	Acid Gas Removal Unit
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
CGL	Coastal Gas Link (Pipeline)
CO	Carbon monoxide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
KMS	Kitimat Metering Station
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
VOC	Volatile Organic Compound
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit
$\mu g/m^3$	Micrograms per cubic meter

Appendix B Previous Monthly Reports Issued Under PA-110588

Month	Document #	Date Issued
October 2024	L001-09800-HE-7180-4611	04-Oct-2024
October 2024	L001-09800-HE-7180-4612	22-Oct-2024; Revised 03-Mar-2025 (Rev B)
October 2024	L001-09800-HE-7180-4613	26-Nov-2024; Revised 03-Mar-2025 (Rev B)
November 2024	L001-09800-HE-7180-4614	16-Dec-2024; Revised 03-Mar-2025 (Rev B)
December 2024	L001-09800-HE-7180-4684	23-Jan-2025
January 2025	L001-09800-HE-7180-4691	26-Feb-2025
February 2025	L001-09800-HE-7180-4692	27-Mar-2025
March 2025	L001-09800-HE-7180-4702	25-Apr-2025
April 2025	L001-00000-HE-7180-1553	30-May-2025
May 2025	L001-00000-HE-7180-1554	30-Jun-2025
June 2025	L001-00000-HE-7180-1555	31-Jul-2025
July 2025	L001-00000-HE-7180-1556	31-Aug-2025; Revised 05-Oct-2025 (Rev B)
August 2025	L001-00000-HE-7180-1557	30-Sept-2025
September 2025	L001-00000-HE-7180-1558	30-Oct-2025
October 2025	L001-00000-HE-7180-1559	28-Nov-2025
November 2025	L001-00000-HE-7180-1560	22-Dec-2025

Appendix C Fuel Gas Use (Condition 10.2.1)

Fuel gas use is being provided as Train 2 was being commissioned in this month. All daily fuel gas volumes were obtained from the KMS (Tag: KITSL-V1P.curval) under atmospheric pressure (Pressure = 1 atm) (refer to Table C-1). The fuel volumes below were corrected to 20°C.

The increase in fuel gas is due to the commencement of hydrocarbons for Train 2 startup.

Table C-1: Fuel Gas Use During Commissioning

Date	Volume of Fuel Gas Introduced to LNG Facility (Sm^3/d)
01-Nov-25	18,259,198
02-Nov-25	17,152,711
03-Nov-25	16,065,835
04-Nov-25	14,840,851
05-Nov-25	24,747,298
06-Nov-25	23,555,361
07-Nov-25	24,989,721
08-Nov-25	31,132,462
09-Nov-25	34,220,591
10-Nov-25	35,126,089
11-Nov-25	35,570,180
12-Nov-25	32,952,412
13-Nov-25	21,892,867
14-Nov-25	21,870,528
15-Nov-25	22,549,031
16-Nov-25	22,527,968
17-Nov-25	21,919,055
18-Nov-25	22,463,272
19-Nov-25	23,296,805
20-Nov-25	23,476,465
21-Nov-25	23,494,154
22-Nov-25	23,534,362
23-Nov-25	23,355,868

24-Nov-25	22,878,635
25-Nov-25	22,807,430
26-Nov-25	23,472,108
27-Nov-25	22,655,508
28-Nov-25	22,615,052
29-Nov-25	22,569,016
30-Nov-25	22,425,769
Monthly Total	**718,416,602**

Table C-2: Gas Turbines String 1, String 2, String 3 and String 4

Fuel gas volumes and emissions are reported cumulatively for Gas Turbine String 1 (1KT-1460) and String 2 (1KT-1470), String 3 (2KT-1460) and 4 (2KT-1470).

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
01-Nov-25	1,427,193	2,468	374	107	9	4	14,641
02-Nov-25	1,111,121	1,921	291	73	7	3	11,532
03-Nov-25	908,503	1,568	238	60	6	3	6,836
04-Nov-25	1,084,338	1,868	283	86	7	4	7,798
05-Nov-25	1,437,450	2,480	376	110	9	5	12,226
06-Nov-25	1,235,349	2,130	323	71	8	4	11,305
07-Nov-25	1,217,160	2,098	318	71	8	4	11,269
08-Nov-25	1,409,497	2,435	369	83	9	4	12,291
09-Nov-25	1,709,995	2,957	448	122	11	5	15,761
10-Nov-25	1,599,123	2,762	419	103	10	5	14,006
11-Nov-25	1,456,768	2,513	381	86	-	4	12,468
12-Nov-25	1,429,049	2,468	374	84	-	4	12,308
13-Nov-25	1,351,626	2,338	354	79	-	4	11,891
14-Nov-25	1,341,770	2,318	351	79	-	4	11,805
15-Nov-25	1,345,148	2,323	352	79	-	4	11,825
16-Nov-25	1,340,903	2,317	351	78	-	4	11,801
17-Nov-25	1,339,187	2,313	350	78	-	4	11,793
18-Nov-25	1,351,931	2,329	353	80	1	4	11,914
19-Nov-25	1,339,671	2,308	350	79	1	4	11,820
20-Nov-25	1,337,887	2,304	349	79	1	4	11,851
21-Nov-25	1,333,746	2,300	348	79	1	4	11,875
22-Nov-25	1,310,935	2,262	343	78	1	4	11,732
23-Nov-25	1,293,077	2,232	338	77	1	4	11,599
24-Nov-25	1,251,660	2,163	328	73	1	4	11,346
25-Nov-25	1,198,076	2,071	314	71	2	4	11,091
26-Nov-25	1,189,563	2,058	312	70	2	4	11,060
27-Nov-25	1,178,651	2,039	309	70	2	4	11,000
28-Nov-25	1,169,705	2,024	307	70	2	4	10,948
29-Nov-25	1,162,540	2,013	305	69	2	4	10,906
30-Nov-25	1,157,472	2,005	304	69	2	4	10,870
Total	**39,019,094**	**67,385**	**10,212**	**2,413**	**103**	**121**	**349,568**

* Individual and final totals may be subject to rounding adjustments

**Values absent are outside the range of significant figures

Table C-3: Acid Gas Incinerator – Train 1 and Train 2

The Train 1 Acid Gas Incinerator (AGI) remained offline throughout November 2025 pending investigation and diagnosis of operational issues. Corrective actions are being identified and will be implemented in future. During the Train 1 AGI outage, acid gas containing acid gas from the Acid Gas Removal Unit (AGRU) is being routed to the warm/wet flare (FWW) for disposal. Additional medium-pressure (MP) fuel gas is being injected into the FWW to ensure oxidation of acid gas. This interim measure will continue until the AGI is returned to service. Train 2 AGI experienced a trip post startup and was restarted on November 18 with only pilot in operation.

Date	Volume of Fuel Gas Used (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	PM2.5	SOx	VOC	HC-T
01-Nov-25	188	-	1	-	-	-	-
02-Nov-25	123	-	1	-	-	-	-
03-Nov-25	113	-	1	-	-	-	-
04-Nov-25	155	-	1	-	-	-	-
05-Nov-25	171	-	1	-	-	-	-
06-Nov-25	192	-	1	-	-	-	-
07-Nov-25	204	-	1	-	-	-	-
08-Nov-25	114	-	1	-	-	-	-
09-Nov-25	197	-	1	-	-	-	-
10-Nov-25	185	-	1	-	-	-	-
11-Nov-25	157	-	1	-	-	-	-
12-Nov-25	5	-	-	-	-	-	-
13-Nov-25	20	-	-	-	-	-	-
14-Nov-25	13	-	-	-	-	-	-
15-Nov-25	16	-	-	-	-	-	-
16-Nov-25	40	-	-	-	-	-	-
17-Nov-25	-	-	-	-	-	-	-
18-Nov-25	1,529	2	7	1	-	-	-
19-Nov-25	9,941	12	48	4	-	0.01	0.01
20-Nov-25	20,997	25	102	9	-	0.01	0.02
21-Nov-25	14,364	17	70	6	-	0.01	0.01
22-Nov-25	26,968	32	131	11	-	0.02	0.03
23-Nov-25	27,341	32	133	12	-	0.02	0.03
24-Nov-25	26,516	31	129	11	-	0.02	0.03
25-Nov-25	16,146	19	79	7	-	0.01	0.02
26-Nov-25	13,809	16	67	6	-	0.01	0.01
27-Nov-25	13,789	16	67	6	-	0.01	0.01
28-Nov-25	13,862	16	68	6	-	0.01	0.01
29-Nov-25	13,877	17	68	6	-	0.01	0.01
30-Nov-25	13,818	16	67	6	-	0.01	0.01
Total	**214,850**	**251**	**1,047**	**91**	**-**	**-**	**-**

* Individual and final totals are subject to rounding adjustments

**Values absent are outside the range of significant figures

Exhibit C-1: Sample Emission Calculations – Gas Turbine

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hour (h) to 1 day (d)
    - 10,000 parts per million (ppm) in one percent

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable sources of data from the meters include:
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - Tag CA:KIT:114FI1601.PV: LNG Train 1, String 1 (1KT-1460); fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:114FI2601.PV: LNG Train 1, String 2 (1KT-1470); fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:214FI1281.PV: LNG Train 2, String 3 (2KT-1460) fuel gas consumption by the LMS100 gas turbine.
    - Tag CA:KIT:214FI2281.PV: LNG Train 2, String 4 (2KT-1470) fuel gas consumption by the LMS100 gas turbine.
    - Emission factors: Refer to Table 1 and 2 within the report.

This results in the table above includes the fuel gas contributions from String 1, String 2, String 3 and 4.

The sample calcuation below is based on the data from November 01, 2025.

Step 1: Mass Flow to Volume Flow Conversion

Mass flow rate obtained from CA:KIT:114FI1601.PV, CA:KIT:114FI2601.PV, CA:KIT:214FI1601.PV & CA:KIT:214FI2601.PV is converted to volume flow rate using the fluid density of 0.746338413 kg/m^3.

- Mass flow rate = 1,065,169 kg/d

Step 2: Emission Calculation – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow } \left(\frac{\text{kg}}{\text{d}}\right) \times \frac{1}{\text{Density } \left(\frac{\text{kg}}{\text{Sm}^3}\right)} \times \text{High Heating Value } \left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478 \left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor } \left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535 \text{ kg}}{1 \text{ lb}}$$

Using NOx for the example; NOx Mass Emission (kg/d)

= 1,065,169 x 40.63 x 1/ 0.746338413 x 1/1000 x 0.9478 x 0.099 x 0.4535

≈ 2,468 kg/d

For SO_2, 0.94S was used as the emission factor - where "S" is the percent sulphur in fuel (refer to Table 1). "S" is based on the total sulphur content of the fuel gas (from the laboratory analysis) given fuel gas was used to fuel the gas turbine this month (refer to Appendix D, Table D-7).

SOx Mass Emission (kg/d)

= 1,065,169 x 40.63 x 1/ 0.746338413 x 1/1000 x 0.9478 x 0.94*(0.000393) x 0.4535

≈ 9 kg

Emission Calculation Basis – when using Stack Testing results – the same calculation applies for VOCs, HC-T derived from stack testing:

PM2.5 Mass Emission (kg/h) – similar calculation approach is applied for VOC and HC-T:

PM2.5 Mass Emission (kg/h) = Emission Factor (g/kg fuel) × Fuel Flow Rate (kg/h) × (1 kg / 1000 g)

Using November 1, 2025, for the example, where the gas turbine fuel consumption was obtained from CA:KIT:114FI1601.PV:

Step 1: Fuel mass flow rate

Mass flow rate (String 1) = 364,680 kg/d

Step 2: Calculate PM2.5 emissions using stack testing emission factor

From Table 1: PM2.5 emission factor = 0.08780 g/kg of fuel (based on September 28 stack testing)

PM2.5 Mass Emission (kg/d) = 0.08780 × 364,680 × (1/1000) ≈ 32 kg/d

Note: This calculation approach applies to String 1. A similar methodology is used for String 2, 3 and 4 using its respective stack testing emission factor and actual fuel consumption data from CA:KIT:114FI2601.PV, CA:KIT:214FI1281.PV, and CA:KIT:214FI2281.PV. The total PM2.5 are added in the final total above from all Strings.

Exhibit C-2: Sample Emission Calculations – Acid gas incinerator

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 hours (h) to 1 day (d)
    - 10,000 parts per million (ppm) in one percent

Input Values

The applicable sources of data from the meters include:

- Tag CA:KIT:119FI0302.PV: Train 1 Fuel gas consumption by the acid gas incinerator
- Tag CA:KIT:119FI0001.PV: Train 1 Acid gas to incinerator
- Tag CA:KIT:219FI0302.PV: Train 2 Fuel gas consumption by the acid gas incinerator
- Tag CA:KIT:219FI0001.PV: Train 2 Acid gas to incinerator
- Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
- Tag KITSL-SG.CURVAL (KMS): Natural gas relative density (daily values at 1 atm) multiplied by a reference air density of 1.225 kg/m³ (15°C, 1 atm) and corrected to standard conditions (20°C, 1 atm) to determine the actual natural gas density.
- Emission Factors: Refer to Table 3 within the report.

This results in the table above includes the fuel and acid gas contributions from both Train 1 and 2.

The sample calculation below is based on the data from November 19, 2025, for fuel gas tag:

Step 1: Volume Flow

Volume flow rate (m³/d):

= 9,941 Sm^3/d

Step 2: Emission Calculation – Using Emission Factors

Formula: Mass Emission (kg/d) =

$$= \text{Fuel Gas Flow}\left(\frac{Sm^3}{d}\right) \times \text{High Heating Value}\left(\frac{MJ}{Sm^3}\right) \times \frac{1}{1000}\left(\frac{GJ}{MJ}\right) \times 0.9478\left(\frac{MMBTU}{GJ}\right) \times \text{Emission Factor}\left(\frac{lb}{MMBTU}\right) \times \frac{0.4535\ kg}{1\ lb}$$

Example: NOx Emissions

- NOx Emission Factor: 0.068 lb/MMBTU

NOx Mass Emission (kg/d) – for pilot which is low pressure feed gas:

= 9,941×40.63×10001×0.9478×0.068×0.4535≈11.9≈12 kg/d

Note: A similar calculation is done for NOx on acid gas using the heating value and density of acid gas, and the mass flow rate. It is then added to the NOx calculated number above to get the final number.

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

For fuel gas contribution to SO_2, total sulphur is based on the total sulphur content of the fuel gas for November 19, 2025 (from the laboratory analysis) given fuel gas was used to fuel the AGI this month (refer to Appendix D, Table D-7).

SO_2 Mass Emission (kg/d):

= 7,387 x 0.000037 x 0.01 x (64.066 / 32.065)

≈ 0.0054 kg/d

SO_2 from acid gas going to incinerator:

There was no acid gas going to the AGI during the reporting period. All acid gas was routed to the warm/wet flare.

Appendix D Flaring Activity (Condition 10.2.4)

Table D-1: Flaring Event Overview

Flare	Event Type	Event Date & Time			Description	Volume of Gas to Flare Per Event (m^3/month)	External Notifications Undertaken
		Start	End	Duration			
Warm/Wet	Routine	1-Nov-25	30-Nov-25	Continuous	Pilot and purge gas	13,389	
Warm/Wet	Non-Routine	1-Nov-25	30-Nov-25	Continuous	Assist gas and flaring to mitigate backburn issue and Train 2 startup.	7,241,741	
Warm/Wet	Routine	1-Nov-25	30-Nov-25	Continuous	Backburn	5,592,543	YES
Cold/Dry	Routine	1-Nov-25	30-Nov-25	Continuous	Pilot, and fuel gas purges	927,059	
Cold/Dry	Non-Routine	1-Nov-25	30-Nov-25	Continuous	Flaring from Train 2 startup	25,099,332	YES
Storage and Loading	Routine	1-Nov-25	30-Nov-25	Continuous	Pilot and purge gas	1,104,001	YES
Storage and Loading	Non-Routine	1-Nov-25	30-Nov-25	Continuous	Assist gas and Boil-off Gas (BOG) compressor trip	26,190	
Spare	Routine	1-Nov-25	30-Nov-25	Continuous	Pilot and purge gas	5,797	
Spare	Non-Routine	1-Nov-25	30-Nov-25	Continuous	Minor use associated with commissioning activities	202	
Liquid Burner	Routine	1-Nov-25	30-Nov-25	Continuous	Pilot	13,524	
Liquid Burner	Non-Routine	1-Nov-25	30-Nov-25	Continuous	Assist Gas and emptying of Blowcase vessel	18,408	

The data for the warm/wet flare was derived from the main warm/wet flare flowmeter (CA:KIT:062FI0103.PV) including pilot and assist gas (CA:KIT:062FI0312.PV) and subtracting nitrogen purges. The fuel volumes below were corrected to 20°C.

Table D-2: Flaring Event – Warm/Wet Flare Volume and Emissions Summary

Date	Volume of Gas Flared (Sm^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Nov-2025	1,387,199	1,553	11,994	284	10	3,055	5,019
2-Nov-2025	682,068	764	5,897	139	5	1,502	2,468
3-Nov-2025	519,473	581	4,479	106	4	1,141	1,874
4-Nov-2025	885,947	988	7,618	180	6	1,941	3,188
5-Nov-2025	266,838	298	2,301	54	2	586	963
6-Nov-2025	911,855	1,018	7,862	186	6	2,003	3,290
7-Nov-2025	638,008	712	5,501	130	5	1,401	2,302
8-Nov-2025	539,073	603	4,648	110	4	1,184	1,945
9-Nov-2025	283,272	317	2,449	58	2	624	1,025
10-Nov-2025	293,325	328	2,529	60	2	644	1,058
11-Nov-2025	394,139	440	3,398	80	-	866	1,422
12-Nov-2025	352,220	394	3,037	72	-	774	1,271
13-Nov-2025	401,463	450	3,471	82	-	884	1,453
14-Nov-2025	362,523	406	3,126	74	-	796	1,308
15-Nov-2025	374,802	419	3,232	76	-	823	1,352
16-Nov-2025	380,161	425	3,278	78	-	835	1,372
17-Nov-2025	390,667	437	3,369	80	-	858	1,410
18-Nov-2025	351,660	392	3,024	72	-	770	1,265
19-Nov-2025	342,096	382	2,942	70	-	749	1,231
20-Nov-2025	324,247	362	2,788	66	-	710	1,167
21-Nov-2025	316,073	353	2,725	64	-	694	1,141
22-Nov-2025	304,481	340	2,625	62	-	669	1,099
23-Nov-2025	312,252	349	2,692	64	-	686	1,127
24-Nov-2025	273,661	306	2,360	56	-	601	987
25-Nov-2025	263,978	295	2,282	54	1	581	955
26-Nov-2025	272,765	306	2,358	56	1	601	987
27-Nov-2025	249,587	280	2,158	51	-	550	903
28-Nov-2025	257,255	288	2,224	53	-	567	931
29-Nov-2025	254,602	286	2,201	52	-	561	921
30-Nov-2025	261,983	294	2,265	54	1	577	948
Total	**12,847,673**	**14,366**	**110,833**	**2,623**	**49**	**28,233**	**46,382**

* Individual and final totals are subject to rounding adjustments

**Values absent are outside the range of significant figures

For this month, cold/dry flare reporting is based on readings from the main flowmeter (CA:KIT:062FI0123.PV), including the pilot flowmeter (CA:KIT:062FI0343.PV), with nitrogen purge volumes subtracted. Excess flaring for cold/dry flare is associated with startup of Train 2.

Table D-3: Flaring Event – Cold/Dry Flare Volume and Emissions Summary

Date	Volume of Gas Flared (Sm^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Nov-2025	87,072	335	602	28	-	305	502
2-Nov-2025	286,337	1,102	1,980	93	-	1,006	1,653
3-Nov-2025	1,373,993	5,289	9,503	448	-	4,829	7,934
4-Nov-2025	6,509,409	25,059	45,024	2,125	-	22,879	37,588
5-Nov-2025	9,316,917	35,866	64,443	3,041	-	32,747	53,799
6-Nov-2025	1,547,347	5,956	10,702	505	-	5,438	8,935
7-Nov-2025	938,385	3,612	6,490	306	-	3,298	5,418
8-Nov-2025	1,538,336	5,922	10,640	502	-	5,406	8,883
9-Nov-2025	69,286	267	479	23	-	243	400
10-Nov-2025	102,886	396	711	34	-	361	594
11-Nov-2025	86,503	333	598	28	-	303	499
12-Nov-2025	91,631	353	633	30	-	321	529
13-Nov-2025	151,555	583	1,048	49	-	532	875
14-Nov-2025	349,592	1,346	2,418	114	-	1,228	2,018
15-Nov-2025	1,022,942	3,938	7,075	334	-	3,595	5,906
16-Nov-2025	946,544	3,644	6,547	309	-	3,326	5,465
17-Nov-2025	169,081	651	1,169	55	-	594	976
18-Nov-2025	141,365	544	977	46	-	496	816
19-Nov-2025	117,126	451	810	38	-	411	676
20-Nov-2025	74,328	286	514	24	-	261	429
21-Nov-2025	78,295	301	541	26	-	274	452
22-Nov-2025	83,285	320	576	27	-	292	480
23-Nov-2025	106,344	409	735	35	-	373	614
24-Nov-2025	58,533	225	405	19	-	205	338
25-Nov-2025	65,535	252	453	21	-	230	378
26-Nov-2025	590,157	2,272	4,082	193	-	2,074	3,407
27-Nov-2025	30,188	116	208	10	-	105	174
28-Nov-2025	37,535	144	259	12	-	131	216
29-Nov-2025	27,266	105	188	9	-	95	157
30-Nov-2025	28,618	110	198	9	-	100	165
Total	**26,026,391**	**100,187**	**180,008**	**8,493**	**-**	**91,458**	**150,276**

* Individual and final totals are subject to rounding adjustments

**Values absent are outside the range of significant figures

Flaring occurred from the storage and loading flare (FLP) (CA:KIT:062FI0301.PV) during the warming of the LNG tank. Other sources of flaring from FLP were assist gas (CA:KIT:062FI0351.PV), fuel gas purges (CA:KIT:062FI0131.PV; CA:KIT:062FI0133.PV; CA:KIT:062FI0041.PV), and from CA:KIT:062FI0306.PV from warm-up of loading arms.

Table D-4: Flaring Event – Storage and Loading Flare Volume and Emissions Summary

Date	Volume of Gas Flared (Sm^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Nov-2025	14,219	15	112	3	0.1	29	47
2-Nov-2025	37,496	38	295	7	0.3	75	124
3-Nov-2025	38,761	40	305	7	0.3	78	128
4-Nov-2025	31,211	32	246	6	0.2	63	103
5-Nov-2025	33,281	34	262	6	0.2	67	110
6-Nov-2025	3,351	3	26	1	-	7	11
7-Nov-2025	30,714	31	242	6	0.2	62	101
8-Nov-2025	35,161	36	277	7	0.2	71	116
9-Nov-2025	60,907	62	480	11	0.4	122	201
10-Nov-2025	35,571	36	280	7	0.2	71	117
11-Nov-2025	47,974	49	378	9	-	96	158
12-Nov-2025	50,183	51	395	9	-	101	165
13-Nov-2025	35,415	36	279	7	-	71	117
14-Nov-2025	24,232	25	191	5	-	49	80
15-Nov-2025	54,893	56	432	10	-	110	181
16-Nov-2025	46,277	47	364	9	-	93	152
17-Nov-2025	62,166	63	489	12	-	125	205
18-Nov-2025	13,213	13	104	2	-	27	44
19-Nov-2025	15,225	16	120	3	-	31	50
20-Nov-2025	56,841	58	448	11	-	114	187
21-Nov-2025	47,182	48	371	9	-	95	155
22-Nov-2025	92,902	95	731	17	0.1	186	306
23-Nov-2025	8,067	8	64	2	-	16	27
24-Nov-2025	23,021	23	181	4	-	46	76
25-Nov-2025	53,504	55	421	10	0.1	107	176
26-Nov-2025	36,987	38	291	7	0.1	74	122
27-Nov-2025	27,655	28	218	5	-	55	91
28-Nov-2025	10,331	11	81	2	-	21	34
29-Nov-2025	33,404	34	263	6	0.1	67	110
30-Nov-2025	70,047	71	552	13	0.1	140	231
Total	**1,130,191**	**1,152**	**8,898**	**213**	**2.6**	**2,269**	**3,725**

* Individual and final totals are subject to rounding adjustments

**Values absent are outside the range of significant figures

Volumes and emissions reported in the table below reflect those associated with pilot and any purges (CA:KIT:062FI0143.PV).

Table D-5: Flaring Event – Spare Flare Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Nov-2025	200	-	2	-	-	-	1
2-Nov-2025	200	-	2	-	-	-	1
3-Nov-2025	200	-	2	-	-	-	1
4-Nov-2025	200	-	2	-	-	-	1
5-Nov-2025	200	-	2	-	-	-	1
6-Nov-2025	200	-	2	-	-	-	1
7-Nov-2025	200	-	2	-	-	-	1
8-Nov-2025	200	-	2	-	-	-	1
9-Nov-2025	200	-	2	-	-	-	1
10-Nov-2025	200	-	2	-	-	-	1
11-Nov-2025	200	-	2	-	-	-	1
12-Nov-2025	200	-	2	-	-	-	1
13-Nov-2025	200	-	2	-	-	-	1
14-Nov-2025	200	-	2	-	-	-	1
15-Nov-2025	200	-	2	-	-	-	1
16-Nov-2025	200	-	2	-	-	-	1
17-Nov-2025	200	-	2	-	-	-	1
18-Nov-2025	200	-	2	-	-	-	1
19-Nov-2025	201	-	2	-	-	-	1
20-Nov-2025	201	-	2	-	-	-	1
21-Nov-2025	200	-	2	-	-	-	1
22-Nov-2025	200	-	2	-	-	-	1
23-Nov-2025	200	-	2	-	-	-	1
24-Nov-2025	200	-	2	-	-	-	1
25-Nov-2025	200	-	2	-	-	-	1
26-Nov-2025	200	-	2	-	-	-	1
27-Nov-2025	200	-	2	-	-	-	1
28-Nov-2025	199	-	2	-	-	-	1
29-Nov-2025	199	-	2	-	-	-	1
30-Nov-2025	199	-	2	-	-	-	1
Total	**5,999**	**-**	**60**	**-**	**-**	**-**	**30**

* Individual and final totals are subject to rounding adjustments

**Values absent are outside the range of significant figures

In addition to the continuous pilot gas, the emissions reported for the liquid burner are primarily associated with non-routine flaring from the blowcase (062LI0211 and 062LI0221) and from HCV0009 on November 4th, 5th ,7th, 8th, 14th and 17th. Emissions data presented below reflects the combination of these activities, assist gas (CA:KIT:062FI0361.PV, CA:KIT:062FI0381.PV, CA:KIT:062FI0400.PV) and the pilot.

Table D-6: Flaring Event – Liquid Burner Volume and Emissions Summary

Date	Volume of Gas Flared (m^3/d)	Mass Emissions (kg/d)					
		NOx	CO	$PM_{2.5}$	SOx	VOC	HC-T
1-Nov-2025	450	1	2	-	-	1	2
2-Nov-2025	449	1	2	-	0.00	1	2
3-Nov-2025	533	1	3	-	0.00	1	2
4-Nov-2025	4,909	12	21	1	-	11	18
5-Nov-2025	6,494	16	28	1	-	14	23
6-Nov-2025	978	2	4	-	-	2	4
7-Nov-2025	2,133	5	9	-	-	5	8
8-Nov-2025	3,381	8	15	1	-	7	12
9-Nov-2025	449	1	2	-	-	1	2
10-Nov-2025	458	1	2	-	-	1	2
11-Nov-2025	481	1	2	1	-	1	2
12-Nov-2025	491	1	2	-	0.00	1	2
13-Nov-2025	530	1	2	-	-	1	2
14-Nov-2025	1,005	2	4	-	-	2	4
15-Nov-2025	569	1	3	-	-	1	2
16-Nov-2025	580	1	3	-	-	1	2
17-Nov-2025	1,166	3	5	-	-	3	4
18-Nov-2025	575	1	3	-	-	1	2
19-Nov-2025	590	1	3	-	-	1	2
20-Nov-2025	578	1	3	-	-	1	2
21-Nov-2025	528	1	2	-	-	1	2
22-Nov-2025	506	1	2	-	-	1	2
23-Nov-2025	499	1	2	-	-	1	2
24-Nov-2025	499	1	2	-	-	1	2
25-Nov-2025	520	1	2	-	-	1	2
26-Nov-2025	555	1	2	-	-	1	2
27-Nov-2025	486	1	2	-	-	1	2
28-Nov-2025	504	1	2	-	-	1	2
29-Nov-2025	522	1	2	0.1	-	1	2
30-Nov-2025	514	1	2	0.1	-	1	2
Total	**31,932**	**71**	**138**	**4**	**-**	**67**	**119**

* Individual and final totals are subject to rounding adjustments

**Values absent are outside the range of significant figures

Exhibit D-1: Sample Emission Calculations – Warm/Wet Flare

General Assumptions

- Standard Conditions: Temperature = 293.15 K (20 °C), Pressure = 101.325 kPa, Water vapour = zero.
- Unit Conversions:
    - 0.9478 Million BTU (MMBtu) to 1 Gigajoule (GJ)
    - 1000 Megajoules (MJ) to 1 Gigajoule (GJ)
    - 0.4535 kilograms (kg) to 1 pound (lb)
    - 1000 grams (g) to 1 kg
    - 3600 seconds (s) to 1 hour (h)
    - 24 h to 1 day (d)
    - 10,000 parts per million (ppm) in one percent.

Input Values

- Low Heating Value (LHV) is typically about 10% lower than the High Heating Value (HHV). Emission factors for CO, VOC, PM2.5, and HC-T are on an LHV basis.
- The applicable meters include:
    - KITSL-V1P.curval (KMS): This tag provides the daily fuel gas volume data recorded at the KMS. These volumes, measured at atmospheric pressure, serve as the primary input for calculating flared gas volumes.
    - Tag KITSL-HVG.CURVAL (KMS): Higher heating value (HHV) of fuel gas at 15°C, corrected to 20°C.
    - Tag KITSL-SG.CURVAL (KMS): Natural gas relative density was obtained (daily values at 1 atm) This was multiplied by a reference air density of 1.225 kg/m^3 (15°C, 1 atm) and temperature-corrected to standard conditions (20°C and 1 atm) to determine the actual natural gas density.
    - CA:KIT:062FI0343.PV: This tag measures the total fuel gas consumption for all flare pilots. The portions attributable to the cold dry flare and the liquid burner were determined using flare tip allocations and subtracted from the total to determine the warm/wet flare pilot gas consumption.
    - CA:KIT:062FI0103.PV: This is the main flow meter for the warm/wet flare
    - Emission factors: Refer to Table 4 within the report.

Emission Calculation Basis – when using Emission Factors

Formula: Mass Emission (kg/d)

$$= \text{Fuel Gas Flow}\left(\frac{\text{Sm}^3}{\text{d}}\right) \times \text{High Heating Value}\left(\frac{\text{MJ}}{\text{Sm}^3}\right) \times \frac{1}{1000}\left(\frac{\text{GJ}}{\text{MJ}}\right) \times 0.9478\left(\frac{\text{MMBTU}}{\text{GJ}}\right) \times \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBTU}}\right) \times \frac{0.4535\ \text{kg}}{1\ \text{lb}}$$

Using November 01, 2025, and NOx for the example:

Volumetric flow rate = 1,387,199 Sm^3/d – corrected to 20°C.

NOx Mass Emission (kg/d)

= 1,387,199 x 40.63 x (1 / 1000) x 0.9478 x 0.0641 x 0.4535

≈ 1,553 kg/d

Similar calculations follow for CO, $PM_{2.5}$, VOC, and HC-T, however all HHV values in their calculations are converted to LHV.

Emission Calculation Basis – when using Engineering Estimates (only applies to SOx):

Total sulphur content (S) in feed gas samples was analyzed periodically by the LNG Canada laboratory. Table D-7 summarizes the laboratory results.

Table D-7: Total Sulphur Content Measured in the Feed Gas (Laboratory Results)

Date	Total Sulphur in Feed Gas (PPMW)	%
04-Nov-25	3.93	0.000393
11-Nov-25	0.18	0.000018
18-Nov-25	0.37	0.000037
25-Nov-25	0.89	0.000089

To bridge periods between measurements, the following approach was used:

- November 01 - 04: SO_2 emissions were calculated using the November 04, 2025 total sulphur measurement.
- November 11 - 17: The November 11, 2025 measurement was applied.
- November 18 - 24: The November 18, 2025 measurement was applied.
- November 25 - 30: The November 25, 2025 measurement was applied.

Formula: SOx Mass Emission (kg/d):

$$= Fuel\ Gas\ Flow\ Rate\ \left(\frac{kg}{d}\right) \times \frac{\%\ \text{Total Sulphur}}{100} \times \frac{64.066\ gSO2}{32.065\ gS} \times 1$$

Using November 01, 2025, for the example:

SO_2 Mass Emission (kg/d)

= 1,220,181 x 0.000393 x (1 / 100) x (64.066 / 32.065) x 1

≈ 10 kg/d

The same calculation approach would follow for SO_2 (kg/h) numbers; with the flow rate in kg/h rather than kg/d.

Appendix E Facility SO_2 Emission Limit (Condition 10.2.8)

Table E-1 presents the maximum hourly cumulative SO_2 discharge rate per day. It does not imply that the maximum discharge rate occurred for the full 24 hours that day. The maximum hourly rate was based on the maximum hourly flow rate obtained for each of the contributing sources below on the respective dates. The total sulphur content was obtained from Table D-7.

As reporting from CEMS is currently not being undertaken, AGI SO_2 emissions from H_2S coming from the Acid Gas Removal Unit (AGRU) were estimated using sample of the acid gas on November 8, 2025.

Table E-1: Maximum Hourly SO_2 Discharge Rate for Each Day

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage & Loading Flare	Spare Flare	Liquid Burner
01-Nov-25	0.982	57.38%	0.01%	42.49%	0.08%	0.04%	0.00%	0.00%
02-Nov-25	0.838	52.52%	0.01%	47.28%	0.10%	0.06%	0.01%	0.02%
03-Nov-25	0.646	71.81%	0.01%	27.94%	0.13%	0.08%	0.01%	0.02%
04-Nov-25	1.134	38.68%	0.01%	57.01%	0.07%	0.05%	0.01%	4.17%
05-Nov-25	0.879	66.31%	0.01%	29.48%	0.09%	0.06%	0.01%	4.04%
06-Nov-25	1.080	57.12%	0.01%	39.44%	0.08%	0.05%	0.01%	3.29%
07-Nov-25	0.858	44.13%	0.01%	51.55%	0.10%	0.06%	0.01%	4.14%
08-Nov-25	0.959	40.20%	0.01%	54.71%	0.09%	0.05%	0.01%	4.93%
09-Nov-25	0.742	85.95%	0.01%	13.83%	0.11%	0.07%	0.01%	0.02%
10-Nov-25	0.715	85.38%	0.01%	14.37%	0.12%	0.07%	0.01%	0.04%
11-Nov-25	0.693	55.19%	0.01%	44.53%	0.12%	0.07%	0.01%	0.07%
12-Nov-25	0.694	55.06%	0.01%	44.65%	0.12%	0.07%	0.01%	0.08%
13-Nov-25	0.579	64.48%	0.01%	35.16%	0.14%	0.08%	0.01%	0.12%
14-Nov-25	0.539	64.90%	0.01%	28.18%	0.15%	0.09%	0.01%	6.66%
15-Nov-25	0.023	70.33%	0.01%	29.20%	0.17%	0.09%	0.01%	0.19%
16-Nov-25	0.022	74.28%	0.01%	25.22%	0.18%	0.10%	0.01%	0.20%
17-Nov-25	0.025	63.45%	0.01%	27.66%	0.15%	0.08%	0.01%	8.64%
18-Nov-25	0.022	74.81%	0.13%	24.57%	0.18%	0.10%	0.01%	0.20%
19-Nov-25	0.022	71.68%	0.65%	27.18%	0.17%	0.09%	0.01%	0.22%
20-Nov-25	0.021	75.80%	1.22%	22.47%	0.18%	0.09%	0.01%	0.23%
21-Nov-25	0.023	70.83%	1.45%	27.28%	0.17%	0.09%	0.01%	0.17%
22-Nov-25	0.043	76.15%	1.50%	21.92%	0.18%	0.10%	0.01%	0.14%
23-Nov-25	0.045	71.18%	1.39%	27.04%	0.17%	0.10%	0.01%	0.11%
24-Nov-25	0.041	77.04%	1.53%	21.01%	0.19%	0.10%	0.02%	0.11%
25-Nov-25	0.039	76.11%	1.56%	21.84%	0.20%	0.11%	0.02%	0.16%
26-Nov-25	0.039	75.93%	0.82%	22.73%	0.20%	0.11%	0.02%	0.19%
27-Nov-25	0.039	75.57%	0.83%	21.44%	0.20%	0.11%	0.02%	1.83%

Date	Max Hourly SO_2 Discharge Rate (kg/h)	Breakdown of Sources Contributing (%)						
		Gas Turbine/ WHRU	AGI	Warm/ Wet Flare	Cold/ Dry Flare	Storage & Loading Flare	Spare Flare	Liquid Burner
28-Nov-25	0.038	77.29%	0.86%	21.36%	0.21%	0.11%	0.02%	0.15%
29-Nov-25	0.090	77.05%	0.87%	21.56%	0.21%	0.12%	0.02%	0.17%
30-Nov-25	0.090	76.52%	0.87%	22.11%	0.21%	0.11%	0.02%	0.16%

* Individual values are subject to rounding adjustments

AMBIENT AIR QUALITY MONITORING REPORT NOVEMBER 2025

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1.0 INTRODUCTION

This report, prepared for LNG Canada by Trinity Consultants (Trinity), summarizes the LNG Canada's nitrogen dioxide (NO_2) and Ozone (O_3) monitoring network data collected at the Kitamaat Village and Riverlodge Stations for November 1 through November 30, 2025.

Sulfur dioxide (SO_2) and particulate matter 2.5 microns in size or less ($PM_{2.5}$) data presented in this report have been provided by Rio Tinto BC Works. Air quality data from the Whitesail monitoring station has also been provided by Rio Tinto BC Works. In addition, in January 2025, a Total Hydrocarbon (THC) analyzer was installed and operated at the Riverlodge station. The monitoring performed by LNG Canada is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) and satisfies the requirement for collection of continuous air quality data as described under Sections 6.2, 6.2.1, 6.2.2 & 6.3 in LNGC's Air Discharge Permit PA-110588.

LNG Canada owns, operates, and maintains an ambient air monitoring network around the LNG Canada Kitimat LNG export facility. This ambient air quality monitoring network consists of two air quality monitoring stations that are strategically located in the Kitimat Valley of British Columbia (BC) at the Kitamaat Village (Village) and Riverlodge. The Kitamaat Village and Riverlodge stations are owned by Rio Tinto Alcan Inc. and are part of Rio Tinto's air quality monitoring network. LNG Canada's continuous monitoring equipment are housed in the Rio Tinto air quality shelters at Kitamaat Village and Riverlodge locations. The locations of these stations within the Kitimat Valley are presented in Figure 1.1.

Figure 1.1 Locations of LNG Canada Ambient Air Monitoring Stations in Kitimat Valley

1.1 Kitamaat Village

The Village Ambient Air Station is in the Haisla Nation community of Kitamaat Village. The site is located within the yard of the Kitamaat Village sewage treatment plant. Area land use is suburban with a mix of dwellings, commercial buildings, forest, ocean, and parkland. The ground cover immediately around the site is compacted gravel, natural ground cover, cut grass, and asphalt. An aerial view of the site is presented in Figure 1.2. A photograph of the Kitamaat Village Ambient Air Quality Monitoring Station is presented in Figure 1.3.

Figure 1.2 Aerial View of Kitamaat Village Ambient Air Quality Monitoring Station

Figure 1.3 Photograph of Kitamaat Village Ambient Air Quality Monitoring Station

1.2 Riverlodge

The Riverlodge Ambient Air Station is located on Columbia Avenue in Kitimat, BC across the street from the Riverlodge Community Centre. The monitoring station is an aged industrial trailer with a meteorological tower mounted to the frame and hitch of the trailer. Land use around the site is suburban low-density housing, park land and forest. Land cover immediately around the site is short grass, gravel and asphalt parking lot, buildings, and forested lands. An aerial view of the site is shown in Figure 1.4. A photograph of the Riverlodge ambient air station is presented in Figure 1.5.

Figure 1.4 Aerial View of Riverlodge Ambient Air Quality Monitoring Station

Figure 1.5 Photograph of Riverlodge Ambient Air Quality Monitoring Station

1.3 Whitesail

Rio Tinto BC Works operates and maintains the Whitesail monitoring station located in the Kitimat Valley. Like the Riverlodge monitoring station, the Whitesail monitoring station is considered a residential monitoring station. The Whitesail Ambient Air Station is in the Whitesail neighborhood of Kitimat, BC. and is situated on land owned by the Mountain View Alliance Church. Area land use is a suburban residential, forested, and park land. The ground cover around the site is grass, compacted gravel, asphalt, buildings, and forested land. An aerial view of the site is presented as Figure 1.6. A photograph of the station is presented as Figure 1.7.

Figure 1.6 Aerial View of Whitesail Ambient Air Quality Monitoring Station

Figure 1.7 Photograph of Whitesail Ambient Air Quality Monitoring Station

2.0 NOVEMBER 2025 REPORT SUMMARY

The LNG Canada air quality monitoring data collected for November 2025 at the Kitamaat Village and Riverlodge stations are summarized in this section.

British Columbia has adopted air quality objectives and standards for a number of contaminants, including $PM_{2.5}$, SO_2, O_3, and NO_2. The British Columbia Ambient Air Quality Objectives (BCAAQO) that have been developed by the British Columbia Ministry of Environment are as follows:

Pollutant	Averaging Period	British Columbia Ambient Air Quality Objective (BCAAQO)
SO_2	1-hour	75 (ppb)[a]
	Annual	--
NO_2	1-hour	60 (ppb)[b]
	Annual	17 (ppb)[c]
$PM_{2.5}$	24-hours	25 (µg/m^3)[d]
	Annual	8 (µg/m^3)[c]
O_3	1-hour	82 (ppb)
	8-hour	

[a] Achievement based on annual 97th percentile of daily 1-hour maximum averaged over 2015-2017, annual 97.5th percentile of daily 1-hour maximum averaged over 2016-2018, and annual 98th percentile of daily 1-hour maximum averaged over 2017-2019, with one allowable excursion above 75 ppb to a maximum of 85 ppb over a three-year period prior to 2020.

[b] Achievement based on annual 98th percentile of daily 1-hour maximum averaged over three consecutive years

[c] Achievement based on annual average of 1-hour concentrations over one year

[d] Achievement based on annual 98th percentile of daily average, over one year

2.1 Kitamaat Village

Table 2-1 summarizes the data completeness and maximum pollutant concentrations observed at the Kitamaat Village monitoring station for November 1 through November 30, 2025.

Table 2-1 Kitamaat Village Station November 2025 Data Summary

Parameter	Data Completeness	1-Hour Average		24-Hour Average 8-hour Average[2]	
		Maximum Concentration	Exceedances of BCAAQO[1]	Maximum Concentration	Exceedances of BCAAQO[1]
$PM_{2.5}$ (µg/m^3)	98.8	19.0	-	7.3	0
SO_2 (ppb)	94.9	2.4	0	0.7	-
NO_2 (ppb)	94.9	3.0	0	1.2	-
O_3 (ppb)[2]	94.9	39.0	0	35.0	0

[1] BCAAQO

[2] 8-hour maximum

2.1.1 Data Quality Notes

- None.

2.1.2 Calibration / Maintenance Notes

- On November 4, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas logger, and T700U calibrator to the correct time during the station visit.

- On November 12, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas logger, and T700U calibrator were adjusted to the correct time during the station visit.

- On November 19, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700 calibrator, and Envidas logger to the correct time during the station visit.

- On November 21, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700U calibrator, and Envidas data logger to the correct time. The sample filters were replaced on all gas analyzers.

2.2 Riverlodge Station

Table 2-2 summarizes data completeness and maximum pollutant concentrations observed at the Riverlodge monitoring station for November 1 through November 30, 2025.

Table 2-2 Riverlodge Station November 2025 Data Summary

Parameter	Data Completeness	1-Hour Average		24-Hour Average 8-Hour Average[2]	
		Maximum Concentration	Exceedances of BCAAQO[1]	Maximum Concentration	Exceedances of BCAAQO[1]
$PM_{2.5}$ (µg/m³)	99.5	18.0	-	5.7	0
SO_2 (ppb)	95.5	19.5	0	3.8	-
NO_2 (ppb)	95.5	12.1	0	3.4	-
O_3 (ppb)[2]	95.5	38.0	0	35.0	0
THC (ppm)	87.0	2.57	--[3]	2.19	--[3]

[1] BCAAQO
[2] 8-hour maximum
[3] There are no BCAAQO's for Total Hydrocarbon (THC).

2.2.1 Data Quality Notes

- The hydrocarbon analyzer (THC) data recovery was less than 90% for the month due to several instances where the analyzer went offline and required a reboot to resume proper sampling.

2.2.2 Calibration / Maintenance Notes

- On November 7, 2025, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, and T700 calibrator to the correct time.
- On November 14, 2025, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, Envidas logger and T700 calibrator to the correct time.
- On November 19, 2025, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, Envidas logger, and T700 calibrator to the correct time.
- On November 26, 2025, the site technician adjusted the clocks on the NO_2 and O_3 analyzers, Envidas logger, and T700 calibrator to the correct time.

2.3 Whitesail Station

Table 2-3 summarizes data completeness and maximum pollutant concentrations observed at the Whitesail monitoring station for November 1 through November 30, 2025.

Table 2-3 Whitesail Station November 2025 Data Summary

Parameter	Data Completeness	1-Hour Average		24-Hour Average 8-Hour Average[2]	
		Maximum Concentration	Exceedances of BCAAQO[1]	Maximum Concentration	Exceedances of BCAAQO[1]
$PM_{2.5}$ (µg/m³)	77.4	13.0	-	7.6	0
SO_2 (ppb)	95.2	2.5	0	0.7	-
NO_2 (ppb)	95.2	10.0	0	2.8	-
O_3 (ppb)[2]	95.2	31.0	0	28.0	0

[1] BCAAQO

[2] 8-hour maximum

The data recovery for $PM_{2.5}$ was less than 90% for the month due to the zero filter background checks that were conducted and are required annually for the particulate sampler.

3.0 NOVEMBER 2025 KITAMAAT VILLAGE AMBIENT AIR QUALITY STATION MONITORING ACTIVITIES

This section provides a summary of the monitoring activities conducted at the LNG Canada Kitamaat Village Ambient Air Quality Station for November 2025. Table 3-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Kitamaat Village monitoring station. Site visit notes, SO_2, $PM_{2.5}$, O_3, and NO_2 concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, and NO_2 trends for November 2025 are also presented below.

Table 3-1 LNG Canada Instrumentation at the Kitamaat Village Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Kitamaat Village			
NO_2	Teledyne-API T200	Chemiluminescence	8598
O_3	Teledyne-API T400	UV Absorption	7486
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	905
Zero Air Source	Teledyne API T701	Zero-Air Generator	2555

3.1 Site Visit Notes

Site visit notes are summarized in Appendix A.

3.2 Monitoring Results and Trends

There were no exceedances of the BCAAQO for SO_2 at the Kitamaat Village station in November 2025. The mean SO_2 concentration at the Kitamaat Village for November was 0.4 ppb with a maximum hourly concentration of 2.4 ppb.

The mean 1-hour $PM_{2.5}$ concentration in November was 3.5 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration was 19.0 µg/m^3. The maximum 24-hour $PM_{2.5}$ concentration for November was 7.3 µg/m^3. In November, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

The mean O_3 concentration at the Kitamaat Village for November was 15.5 ppb with a maximum hourly O_3 concentration of 39.0 ppb. The maximum 8-hour O_3 concentration was 35.0 ppb. There were no exceedances of the one-hour BCAAQO for O_3 at the Kitamaat Village station in November 2025.

The mean NO_2 concentration at the Kitamaat Village for November was 0.6 ppb with a maximum hourly NO_2 concentration of 3.0 ppb. There were no exceedances of the one-hour 60 ppb BCAAQO for NO_2 at the Kitamaat Village station in November 2025.

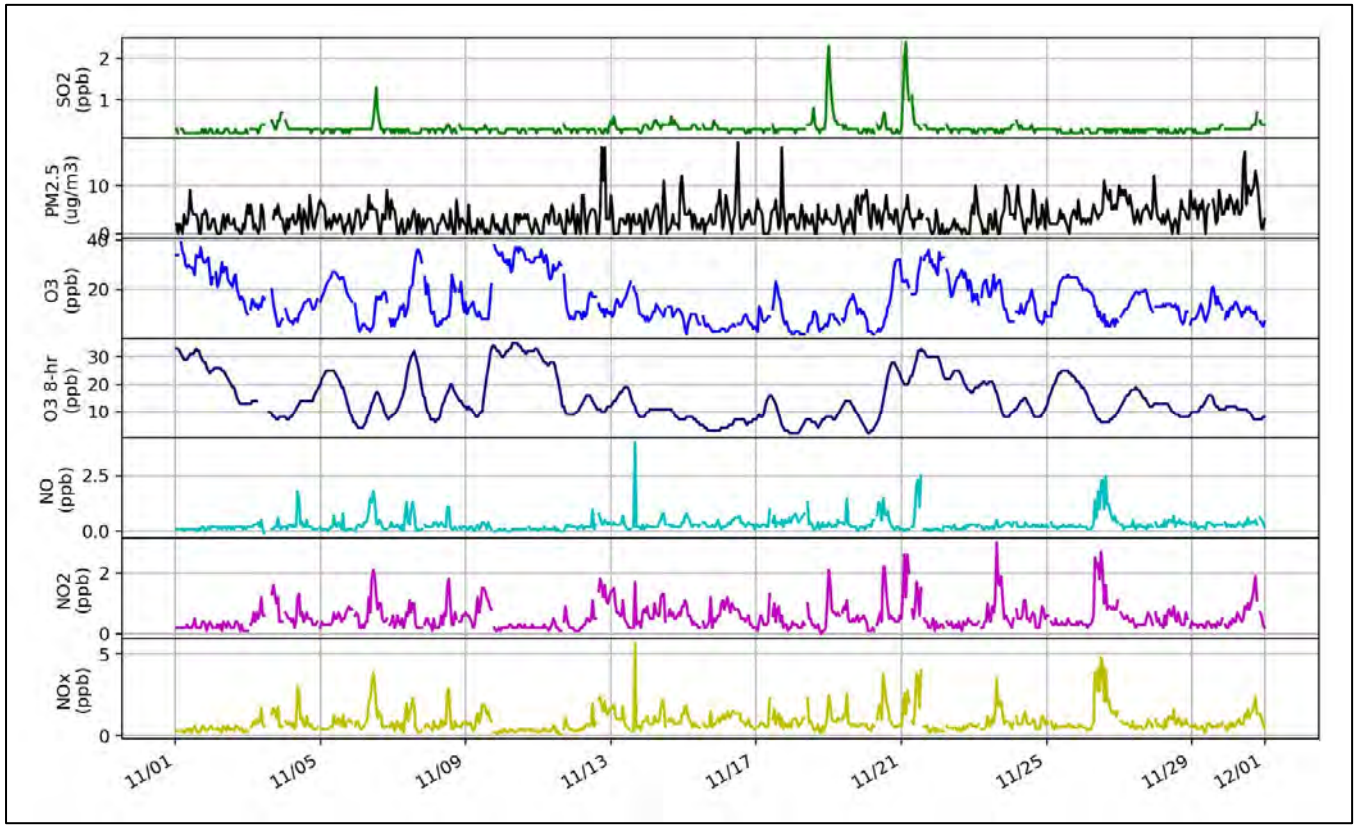
Table 3-2 tabulates the extreme and mean daily maximum readings, mean readings, and extreme and mean daily minimum readings for the 1-hour average SO_2, $PM_{2.5}$, NO_2 and O_3 concentrations for November 2025. Figure 3.1 graphically illustrates the time series for the month for the pollutants described in Table 3-2.

Table 3-2 Summary of SO_2, $PM_{2.5}$, O_3, and NO_2, Concentrations for the Kitamaat Village Station, November 2025

Statistic	SO_2 (ppb)[1]	$PM_{2.5}$[1] ($\mu g/m^3$)	NO_2 (ppb)	O_3 (ppb)
1-Hour Mean	0.4	3.5	0.6	15.5
1-Hour Maximum	2.4	19.0	3.0	39.0
1-Hour Minimum	0.2	0.0	0.0	2.0
Mean Daily Maximum	0.7	7.6	1.2	32.8
Mean Daily Minimum	0.3	1.2	0.3	4.8
Data Recovery	94.9	98.8	94.9	94.9
24-hour Daily Maximum	0.7	7.3	1.2	--
8-Hour Maximum	--	--	--	35.0
24-Hour Average	0.4	3.5	0.6	15.5
Median	0.3	3.0	0.4	13.0

[1] SO_2 and $PM_{2.5}$ November 2025 data provided by Rio Tinto BC Works.

Figure 3.1 Time Series of 1-Hour Averaged SO_2, $PM_{2.5}$, O_3, and NO_2 Concentration Data for the Kitamaat Village Station, November 2025



4.0 NOVEMBER 2025 RIVERLODGE AMBIENT AIR QUALITY STATION MONITORING STATION

This section provides a summary of the monitoring activities conducted at the LNG Canada Riverlodge Ambient Air Quality Station for November 2025. Table 4-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Riverlodge monitoring station. Site visit notes, SO_2, $PM_{2.5}$, O_3, NO_2, and THC concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, NO_2, and THC trends for November 2025 are also presented below.

Table 4-1 LNG Canada Instrumentation at the Riverlodge Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Riverlodge			
NO_2	Teledyne-API T200	Chemiluminescence	8599
O_3	Teledyne-API T400	UV Absorption	7487
THC	Teledyne-API N901	Flame Ionization Detector	80
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	906
Zero Air Source	Teledyne API T701	Zero-Air Generator	2556

4.1 Site Visit Notes

Site visit notes are summarized in Appendix A.

4.2 Monitoring Results and Trends

The mean SO_2 concentration at the Riverlodge for November was 1.2 ppb with a maximum hourly concentration of 19.5 ppb. There were no exceedances of the BCAAQO for SO_2 at the Riverlodge station in November 2025.

The mean 1-hour $PM_{2.5}$ concentration at the Riverlodge station for November was 3.7 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration was 18.0 µg/m^3. The maximum 24-hour $PM_{2.5}$ concentration for November was 5.7 µg/m^3. In November, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

The mean NO_2 concentration at the Riverlodge station for November was 1.7 ppb with a maximum hourly NO_2 concentration of 12.1 ppb. There were no exceedances of the one-hour BCAAQO for NO_2 at the Riverlodge station in November 2025.

The mean O_3 concentration at the Riverlodge station for November was 13.9 ppb with a maximum hourly O_3 concentration of 38.0 ppb. The maximum 8-hour O_3 concentration was 35.0 ppb. There were no exceedances of the one-hour BCAAQO for O_3 at Riverlodge station in November 2025.

The mean THC concentration at Riverlodge station for November was 2.09 ppm with a maximum hourly THC concentration of 2.57 ppm.

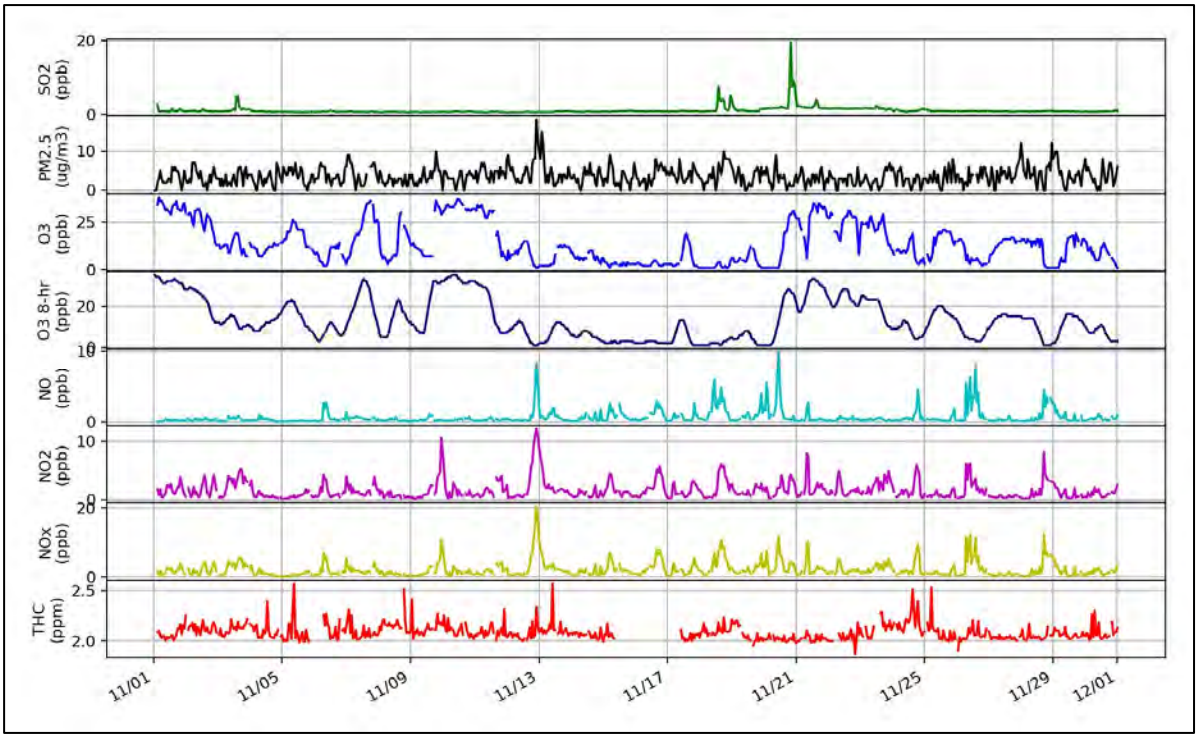
Table 4-2 tabulates the extreme and mean daily maximum readings, mean readings, and extreme and mean daily minimum readings for the 1-hour average SO_2, $PM_{2.5}$, NO_2, O_3, and THC concentrations for November 2025 at Riverlodge station. Figure 4.1 graphically illustrates the time series for the month for the pollutants described in Table 4-2.

Table 4-2 Summary of SO_2, $PM_{2.5}$, O_3, NO_2, and THC Concentrations for the Riverlodge Station, November 2025

Statistic	SO_2 (ppb)[1]	$PM_{2.5}$ ($\mu g/m^3$)[1]	NO_2 (ppb)	O_3 (ppb)	THC (ppm)
1-Hour Mean	1.2	3.7	1.7	13.9	2.09
1-Hour Maximum	19.5	18.0	12.1	38.0	2.57
1-Hour Minimum	0.5	0.0	0.1	1.0	1.87
Mean Daily Maximum	3.8	5.5	3.2	33.3	2.20
Mean Daily Minimum	0.7	2.6	0.6	1.8	2.10
Data Recovery	95.5	99.5	95.5	95.5	87.0
24-hour Daily Maximum	3.8	5.7	3.4	--	2.19
8-hour Maximum	--	--	--	35.0	--
24-Hour Average	1.2	3.7	1.7	13.9	2.09
Median	0.9	3.0	1.1	12.0	2.07

[1] SO_2 and $PM_{2.5}$ November 2025 data provided by Rio Tinto BC Works.

Figure 4.1 Time Series of 1-Hour Averaged SO_2, $PM_{2.5}$, O_3, NO_2, and THC Concentrations for the Riverlodge Station, November 2025



5.0 NOVEMBER 2025 WHITESAIL AMBIENT AIR QUALITY STATION MONITORING STATION

This section provides a summary of the monitoring activities conducted at the LNG Canada Whitesail Ambient Air Quality Station operated by Rio Tinto BC Works for November 2025. Table 5-1 presents a list of the Rio Tinto BC Works air quality monitoring equipment operating at the Whitesail monitoring station. SO_2, $PM_{2.5}$, O_3, and NO_2, concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, and NO_2 trends for November 2025 are also presented below.

Table 5-1 Rio Tinto BC Works Instrumentation at the Whitesail Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Whitesail			
SO_2	Teledyne-API T100	UV Fluorescence	6696
$PM_{2.5}$	Met One BAM 1020	Beta Attenuation	P15216
O_3	Teledyne-API T400	UV Absorption	3830
NO_2	Teledyne-API T200	Chemiluminescence	4271
Calibrator	Teledyne-API T700	Multigas Calibrator	5227
Zero Air Source	Teledyne API T701	Zero-Air Generator	2143

5.1 Monitoring Results and Trends

The mean SO_2 concentration at the Whitesail for November was 0.4 ppb with a maximum hourly concentration of 2.5 ppb. There were no exceedances of the BCAAQO for SO_2 at the Whitesail station in November 2025.

The mean 1-hour $PM_{2.5}$ concentration at the Whitesail station for November was 4.5 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration was 13.0 µg/m^3. The maximum 24-hour $PM_{2.5}$ concentration for November was 7.5 µg/m^3. In November, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

The mean NO_2 concentration at the Whitesail station for November was 1.4 ppb with a maximum hourly NO_2 concentration of 10.0 ppb. There were no exceedances of the one-hour BCAAQO for NO_2 at the Whitesail station in November 2025.

The mean O_3 concentration at the Whitetail station for November was 12.3 ppb with a maximum hourly O_3 concentration of 31.0 ppb. The maximum 8-hour O_3 concentration was 28.0 ppb. There were no exceedances of the one-hour BCAAQO for O_3 at Whitesail station in November 2025.

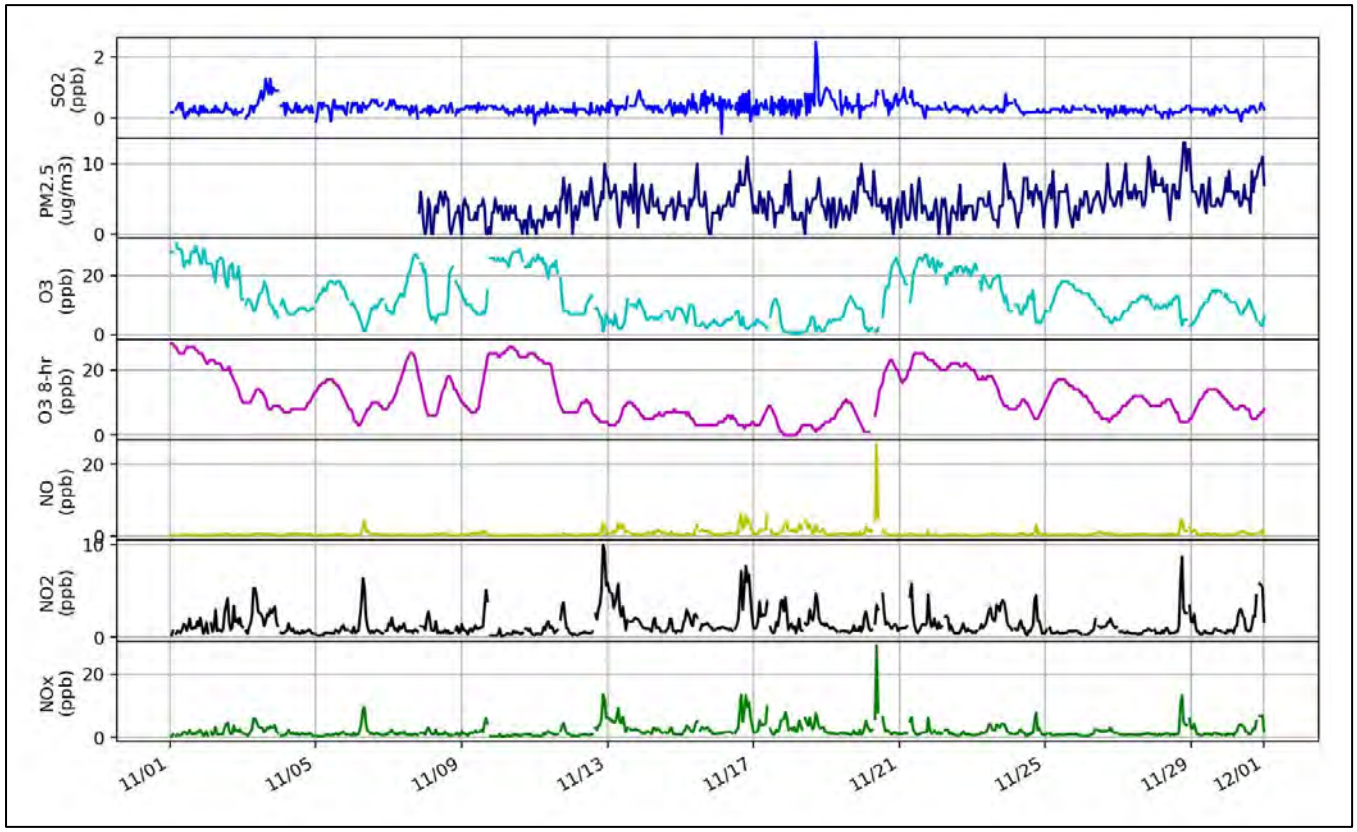
Table 5-2 tabulates the extreme and mean daily maximum readings, mean readings, and extreme and mean daily minimum readings for the 1-hour average SO_2, $PM_{2.5}$, NO_2, and O_3 concentrations for November 2025 at the Whitesail station. Figure 5.1 graphically illustrates the time series for the month for the pollutants described in Table 5-2.

Table 5-2 Summary of SO_2, $PM_{2.5}$, O_3, and NO_2 Concentrations for the Whitesail Station, November 2025

Statistic	SO_2 (ppb)[1]	$PM_{2.5}$ ($\mu g/m^3$)[1]	NO_2 (ppb)	O_3 (ppb)
1-Hour Mean	0.4	4.5	1.4	12.3
1-Hour Maximum	2.5	13.0	10.0	31.0
1-Hour Minimum	-0.5	0.0	0.1	0.0
Mean Daily Maximum	0.7	7.6	2.8	26.0
Mean Daily Minimum	0.3	2.5	0.5	2.0
Data Recovery	95.2	77.4	95.2	95.2
24-hour Daily Maximum	0.7	7.5	2.7	--
8-hour Maximum	--	--	--	28.0
24-Hour Average	0.4	4.5	1.4	12.3
Median	0.3	4.0	0.9	10.0

[1] SO_2, $PM_{2.5}$, NO_2, and O_3 November 2025 data provided by Rio Tinto BC Works.

Figure 5.1 Time Series of 1-Hour Averaged SO_2, $PM_{2.5}$, O_3, and NO_2 Concentrations for the Whitesail Station, November 2025



6.0 STATION COMPARISON

Figures 6.1 through 6.5 present comparative time series plots of November 2025 SO_2, $PM_{2.5}$, O_3, and NO_2 concentrations from the Kitamaat Village, Riverlodge, and Whitesail monitoring stations. $PM_{2.5}$ and SO_2 data were obtained from Rio Tinto BC works for the Kitamaat Village and Riverlodge stations. In addition, SO_2, $PM_{2.5}$, O_3, and NO_2 data were obtained from Rio Tinto BC works for the Whitesail station. These graphs are useful for evaluating pollutant dispersion and for concentration comparison purposes.

Figure 6.1 Comparison of Hourly SO_2 Concentrations in Parts per Billion from Kitamaat Village, Riverlodge, and Whitesail Monitoring Locations for November 2025

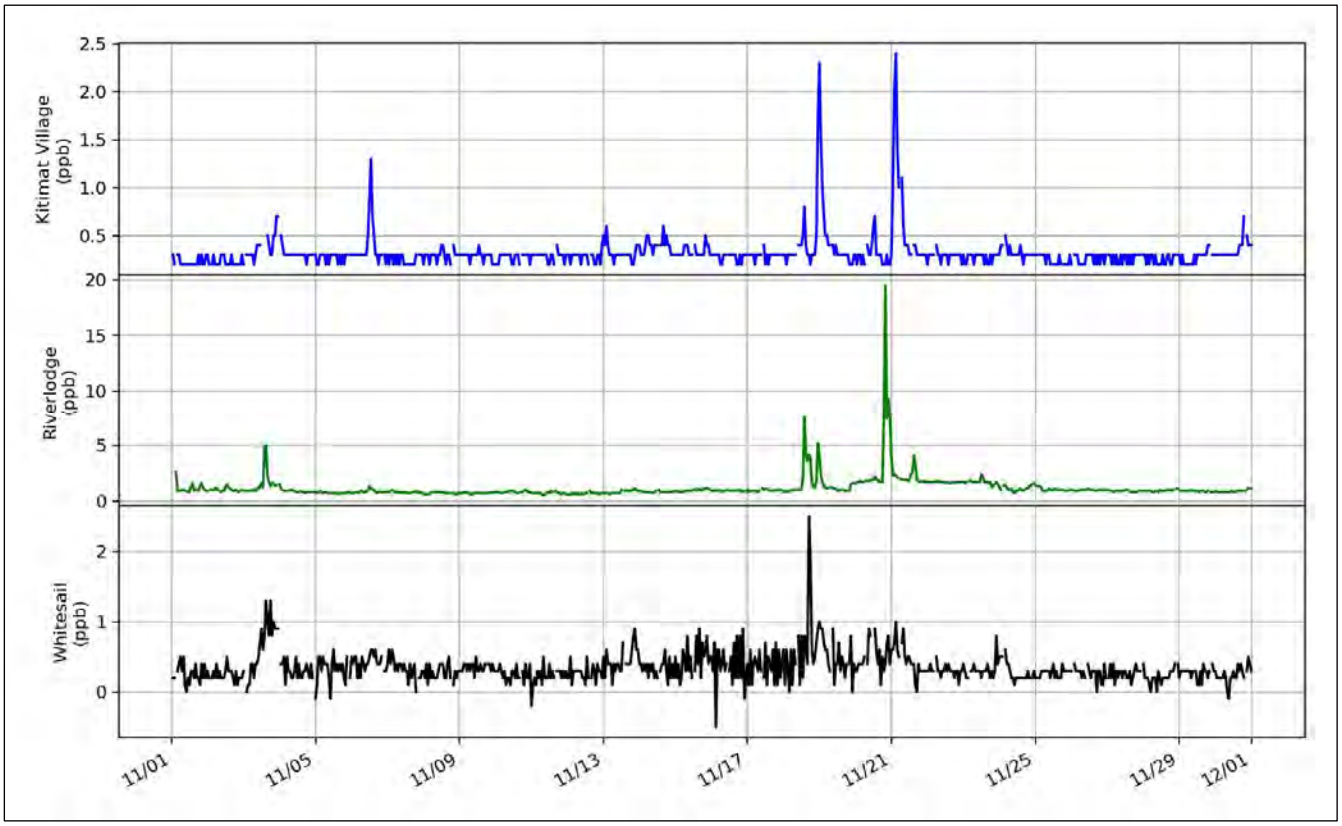


Figure 6.2 Comparison of Hourly $PM_{2.5}$ Concentrations in Micrograms per Cubic Meter Kitamaat Village, Riverlodge, and Whitesail Monitoring Locations for November 2025

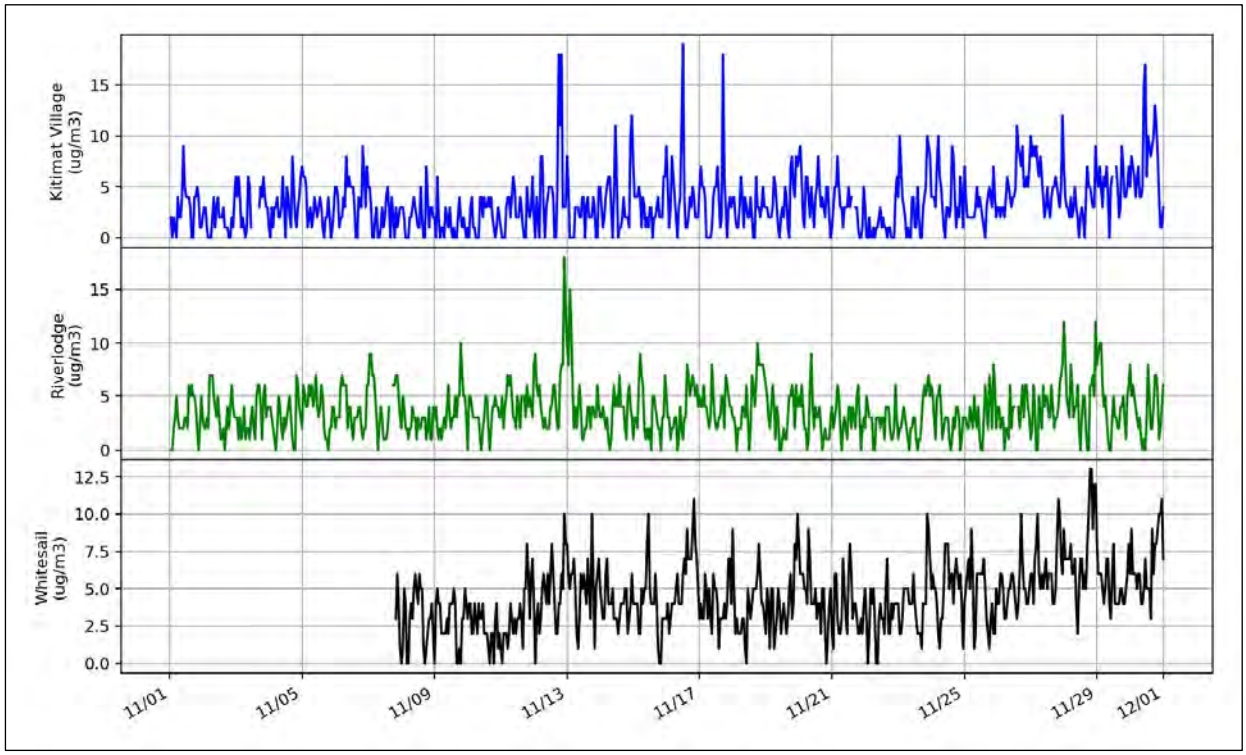


Figure 6.3 Comparison of Hourly NO_2 Concentrations in Parts per Billion from Kitamaat Village, Riverlodge, and Whitesail Monitoring Locations for November 2025

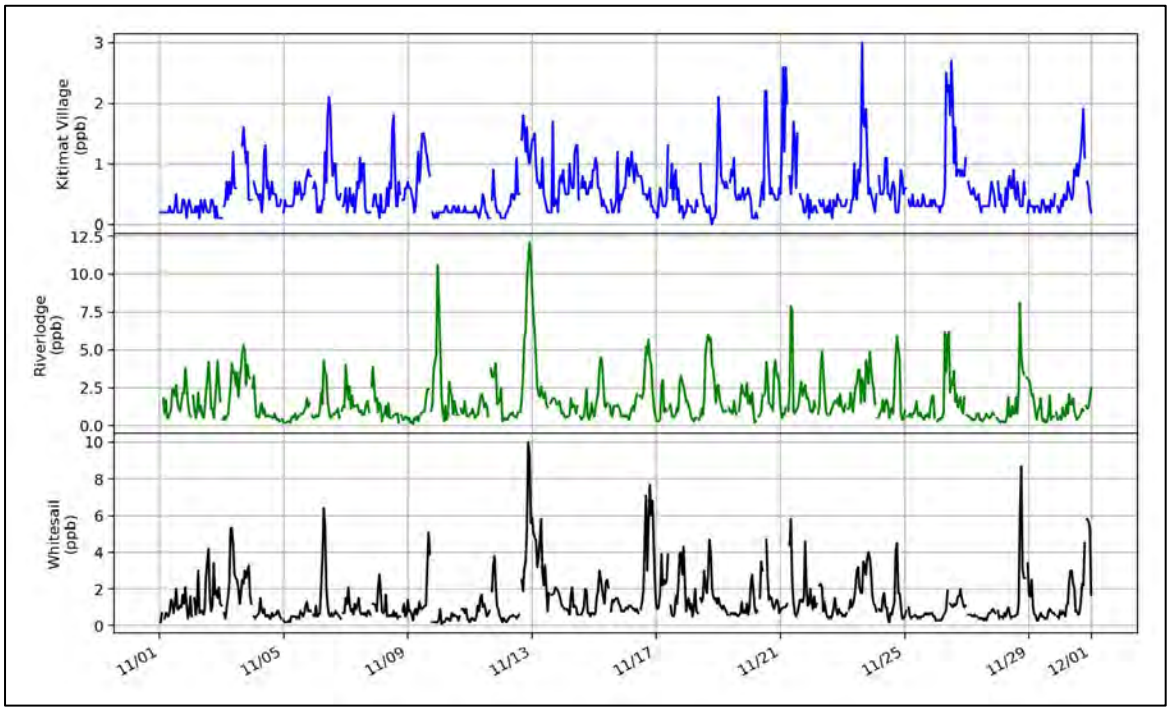


Figure 6.4 Comparison of Hourly O_3 Concentrations in Parts per Billion from Kitamaat Village, Riverlodge, and Whitesail Monitoring Locations for November 2025

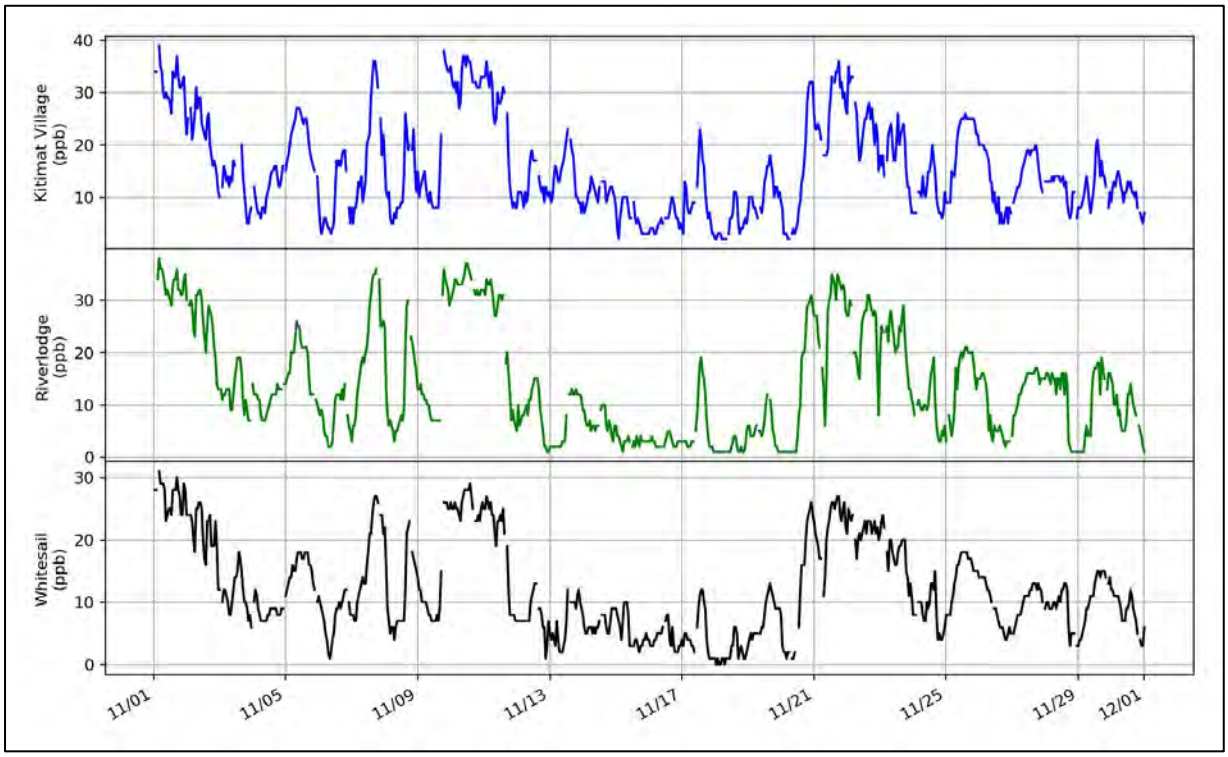
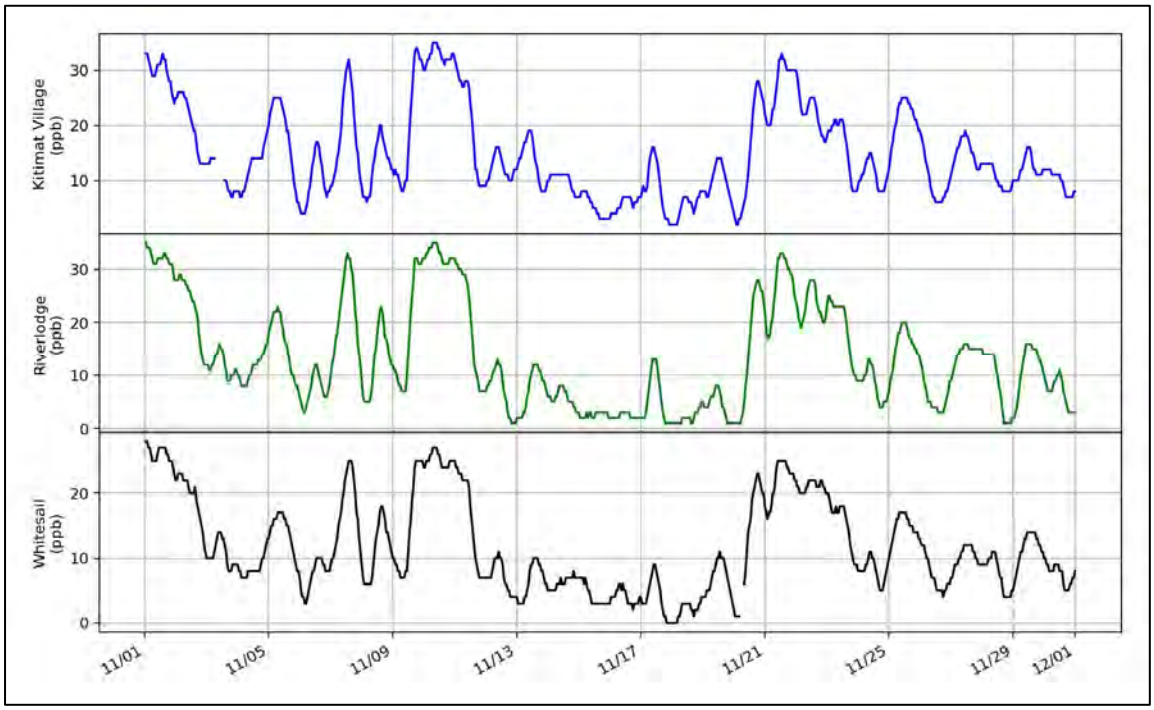


Figure 6.5 Comparison of Eight-Hour O_3 Concentrations in Parts per Billion from Kitamaat Village, Riverlodge, and Whitesail Monitoring Locations for November 2025



APPENDIX A. SITE NOTES

11/04/2025 - PUF sample change

Tuesday, November 4, 2025
2:03 PM

Village

Author of Entry:
Micah May

Date of Activity: 11/04/2025
Start Time: 14:03
End Time: 14:50
Technician: Micah May

Reason for Visit

Onsite for PUF sample change

Description

Envidas:

-Clock was 1 second ahead and was reset at 14:07

SO2 43i:

-Clock was 10 seconds behind and was updated at 14:08.

T700U Calibrator:

-Clock was 12 seconds ahead and was updated at 14:09.

BAM 1020 PM2.5:

-Clock was 79 seconds ahead and no adjustment was made.

PUF:

-Sample off ETI: 1775.04 hours, magnehelic reading: 57.0" water, and 7 day timer: ~3.5 hrs behind.

-Sample on ETI: 1775.05 hours, magnehelic reading 54.0" water, and 7 day timer set to correct time.

-Chimes need batteries replaced.

T200:
Clock was 13 seconds ahead and was updated at 14:17

T400:
Clock was 15 seconds ahead and was updated at 14:18

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Shelter door knob is extremely stiff and took a few minutes to open the door.

- Shelter temperature 28.6 C.
- SO2 and NO tank pressure 1300 psi and line pressure 31 psi.
- Ambient temperature aspirator sounds like it is working.
- Wind speed and direction sensors appear to be working normally.
- Chimes in PUF shelter no longer working.

11/12/2025 - RT Activities

Wednesday, November 12, 2025 1:04 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: November 12, 2025
Start Time: 12:54
End Time:
Technician: Adrienne Kaul

Reason for Visit

On site for RT activities

Description

Envidas:

-Clock was 2 seconds ahead and was updated at 13:07.

T200 NOx:

-Clock was 91 seconds ahead and was updated at 13:08.

T400 O3:

-Clock was 91 seconds ahead and was updated at 13:09.

T700U Calibrator:

-Clock was 91 seconds ahead and was updated at 13:10. Clock was 1 second ahead after update.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1300 psi and line pressure 31 psi.
- Truck idling at site on arrival.

11/19/2025 - PUF Sample Change and Door Knob Replacement

Wednesday, November 19, 2025 3:57 PM

Village

Author of Entry: Micah May

Date of Activity: 11/19/2025
Start Time: 14:50
End Time: 16:35
Technician: Micah May

Reason for Visit

Onsite for PUF sample change

Description

T400 O3:

-Clock was 70 seconds ahead and was updated at 16:00.

T700 Calibrator:

-Clock was 82 seconds ahead and was updated at 15:52.

T200 NOx:

-Clock was 80 seconds ahead and was updated at 16:02.

-#1, #2, #3, and #4 analog outputs have not been calibrated.

Envidas:

-Clock was 2 seconds ahead and was synced at 15:47.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

SO2 and NO tank pressure 1300 and line pressure 32 psi.

11/21/2025 - On site for RT Activities

Friday, November 21, 2025 8:24 AM

Village

Author of Entry: Micah May and Adrienne Kaul

Date of Activity: 11/21/2025
Start Time: 07:43
End Time: 15:15
Technician: Adrienne Kaul, Micah May, and Sarah Peden

Reason for Visit

On site for RT Activities

Description

T400 O3:
-Clock was 17 seconds ahead and was updated at 08:27.
T700U Calibrator:
-Clock was 19 seconds ahead and was updated at 8:22.
T200 NOx:
-Clock was 18 seconds ahead and was updated at 08:28.
-#1, #2, #3, and #4 analog outputs have not been calibrated.
Envidas:
-Clock was 1 second behind and was updated at 8:07.

All gas analyzers:
-Flagged 13:17- 14:02
-Inlet filters replaced with 1-2 um filters.
-All fittings tight and secure before and after filter change.
-160 ppb SO2 span test point 13:45-13:54 to precondition filters

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)

- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

SO2 and NO tank pressure 1300 and line pressure 32 psi.

11/07/2025 - Weekly station check

Friday, November 7, 2025 3:13 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: November 7, 2025
Start Time: 15:12
End Time: 15:34
Technician: Adrienne Kaul

Reason for Visit

Weekly station check

Description

Envidas:

-Clock was 1 second ahead and no adjustment was made.

T700 Calibrator:

-Clock was 1 minute and 56 seconds ahead and was updated at 15:22. Clock was 1 second behind.

N901 CH4, NMHC, and THC:

-Clock was 1 second behind and no adjustment was made.

T200 NOx:

-Clock was 1 minute and 56 seconds ahead and was updated at 15:29. Clock was 1 second behind after update.

T400 O3:

-Clock was 1 minute and 57 seconds ahead and was updated at 15:30.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, CH4, and C3H8 tank pressure 1475 psi and line pressure 32 psi.
- Nitrogen tank pressure 1530 psi and line pressure 32 psi.
- Hydrogen tank pressure 1625 psi and line pressure 50 psi.
- CH4 tank pressure 2000 psi and line pressure 40 psi.
- T400 alert: 11/03/2025 2:21:26 PM System Reset. Warning raised when the system is reset.
- T700U calibrator: 11/03/2025 2:21:24 PM System Reset. Warning raised when the system is reset.

11/14/2025 - Weekly site check

Friday, November 14, 2025 4:11 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: November 14, 2025
Start Time: 16:07
End Time: 16:32
Technician: Adrienne Kaul and William Greene

Reason for Visit

On site to performweekly site check

Description

Envidas logger:

-Clock was 2 seconds ahead and was synced at 16:14.

T700 Calibrator:

-Clock was 83 seconds ahead and was updated at 16:22.

N901 CH4, NMHC, THC:

-Clock accurate.

T400 O3:

-Clock was 83 seconds ahead and was updated at 16:26.

T200 NOx:

-Clock was 81 seconds ahead and was updated at 16:27. Clock was 1 second behind after update

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, CH4, C3H8 tank pressure 1500 psi and line pressure 30 psi.
- CH4 tank pressure 2000 psi and line pressure 40 psi.
- Nitrogen tank pressure 1275 psi and line pressure 72 psi.
- Hydrogen tank pressure 1490 psi and line pressure 50 psi.

11/19/2025 - MET Tower work

Wednesday, November 19, 2025 8:01 AM

Riverlodge

Author of Entry: Sarah Peden

Date of Activity: November 19, 2025
Start Time: 7:59
End Time:
Technician: Sarah Peden, Adrienne Kaul, Micah May

Reason for Visit

On site to perform MET Tower work.

Description

Envidas logger:

-Clock was 1 seconds ahead and was synced at 8:04.

T700 Calibrator:

-Clock was 74 seconds ahead and was updated at 8:06.

N901 CH4, NMHC, THC:

-Clock was 1 second behind and was left to auto sync.

T400 O3:

-Clock was 66 seconds ahead and was updated at 8:18.

T200 NOx:

-Clock was 50 seconds ahead and was updated at 8:18.

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, CH4, C3H8 tank pressure 1450 psi and line pressure 32 psi.
- CH4 tank pressure 2000 psi and line pressure 40 psi.
- Nitrogen tank pressure 1150 psi and line pressure 72 psi.
- Hydrogen tank pressure 1450 psi and line pressure 50 psi.

11/26/2025 - RT Activities

Wednesday, November 26, 2025 9:56 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: November 26, 2025
Start Time: 9:47
End Time: 13:10
Technician: Adrienne Kaul

Reason for Visit

On for RT Activities

Description

T700U Calibrator:

-Clock was 82 seconds ahead and was updated at 10:05.

T200 NOx:

-Clock was 82 seconds ahead and was updated at 10:07.

T400 O3:

-Clock was ~83 seconds ahead and was updated at 10:08

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, CH4, C3H8 tank pressure 1430 psi and line pressure 30 psi

Site Observations

- SO2, NO, CH4, C3H8 tank pressure 1430 psi and line pressure 30 psi.
- Nitrogen tank pressure 910 psi and line pressure 70 psi.
- Hydrogen tank pressure 1310 psi and line pressure 35 psi-increased to 50 psi at 1000.
- CH4 tank pressure 2000 psi and line pressure 40 psi.

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Controlled Document

Waste Discharge Authorization – Air Emissions Permit (PA-110588) – Quarterly Report (Q3 2025)

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1. Overview

1.1. Project Background

The LNG Canada (LNGC) liquefied natural gas facility (Facility Identification No. 00018315) is located in Kitimat, British Columbia (BC), Canada, in the traditional territory of the Haisla Nation. LNG Canada is a joint venture comprised of Shell Canada Energy (Shell), North Montney LNG Limited Partnership, PetroChina Kitimat LNG Partnership (CNPC), Diamond LNG Canada Partnership (Diamond), and KOGAS Canada LNG Partnership (KOGAS).

A list of acronyms is provided in Appendix A.

1.2. Purpose

On July 15, 2024, the BC Energy Regulator (BCER) issued Waste Discharge Authorization (WDA) discharge permit PA-110588 to LNG Canada Development Inc., under the provisions of the BC *Environmental Management* Act, for the discharge of air contaminants to the environment from:

- Four (4) gas turbine engines with waste heat recovery units (WHRU) (Section 2.1 of PA-110588).
- Two (2) acid gas incinerators (AGI) (Section 2.2 of PA-110588).
- One (1) warm/wet flare (Section 2.3 of PA-110588).
- One (1) cold/dry flare (Section 2.4 of PA-110588).
- One (1) storage and loading flare (Section 2.5 of PA-110588).
- One (1) spare flare (Section 2.6 of PA-110588).
- One (1) liquid burner (structure) (Section 2.7 of PA-110588).
- Five (5) emergency power generators (Section 2.8 of PA-110588).
- Two (2) fire water diesel engines (Section 2.9 of PA-110588).
- Vents (Section 2.10 of PA-110588).
- One (1) condensate storage tank vent stack (Section 2.11 of PA-110588).

Permit PA-110588 applies to Phase 1 of the LNG facility, which is the first two liquefaction trains (known as “Train 1” and “Train 2”), with their supporting utility systems.

The purpose of this document is to compile the information required under Section 10.3 of Permit PA-110588 (Quarterly Reporting) for Q3 2025.

Refer to Appendix B for a list of all quarterly reports that have been issued under Permit PA-110588.

1.3. LNG Facility Status

On the afternoon of August 31, 2024, fuel gas was introduced into Unit 1000 (Inlet Facilities) for the first time from the Coastal Gas Link pipeline, commencing the pressurization of piping and the startup fuel gas heater. The introduction of fuel gas into the fuel gas headers down to the flare area, and the first supply of fuel gas to the pilot on the warm wet flare occurred on September 1, 2024. LNG Canada started producing liquified natural gas (LNG) on June 22nd, 2025, and successfully loaded the first cargo of LNG destined for global markets on June 30th, 2025, marking the start of operations at Canada’s first large-scale LNG export facility on July 1st, 2025.

Under Permit PA-110588, the “Commissioning” phase is defined as “*that period of time when Discharge from the authorized works commences and ending when the first cargo is shipped from LNG Train 1.”* Operations is the period of time which follows Commissioning. Therefore, “Commissioning”, under Permit PA-110588, commenced on September 1, 2024, and ended with the departure of 1st cargo.

The Initial Performance Period (IPP) did not commence during Q3 2025 (which is defined as the period that “*commences upon the completion of the initial performance test for LNG Train 1”*).

During Q3 2025, discharges of air contaminants occurred from the following authorized works:

- Two (2) gas turbine engine (LNG Train 1, String 1 & String 2)
- One (1) AGI (LNG Train 1)
- One (1) warm/wet flare
- One (1) cold/dry flare
- One (1) storage and loading flare
- One (1) spare flare
- Liquid burner

2. Ambient Air Monitoring Data issues (Condition 10.3.1)

2.1. Permit Condition

Under Condition 10.3.1, the quarterly report shall include the following information:

a. (i) identification of, (ii) description of, and (iii) reason(s) for any ambient air or meteorological monitoring data deletion or resubmission.

b. (i) identification of, (ii) description of, and (iii) reason(s) for any missed calibrations from ambient air analyzers that were required to be calibrated during the reporting period.

c. (i) identification and (ii) description of any other issues with the ambient air or meteorological monitoring data; and

d. if any passive monitor fails to collect a sample for one sample period, the Permittee shall include the reasons for the absence of data within the report.

This condition applies to the locations where LNG Canada is conducting continuous monitoring activities:

- Under Condition 6.2.2, LNG Canada is required to conduct continuous monitoring of ambient air concentrations of nitrogen dioxide (NO_2) and ozone (O_3) at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2). In addition, prior to commencement of Operations, LNG Canada is required to conduct continuous monitoring of total hydrocarbons (HC-T) at either Kitimat Riverlodge or Kitimat Whitesail.
- Under Condition 6.3, LNG Canada is required to obtain or collect continuous monitoring data for the following meteorological parameters, at stations where conducting the continuous monitoring of ambient air concentrations: temperature, wind speed, wind direction, and standard deviation of wind direction.
- Under Condition 6.4, LNG Canada is required to conduct passive monitoring of NO_2 concentrations at thirteen locations (defined within the permit).

2.2. Data and Assessment

LNG Canada engaged Trinity Consultants to oversee the ambient air quality monitoring for NO_2 and O_3 at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2). Trinity Consultants published a report that addresses the data issues in these locations, as required under Condition 10.3.1 (a) to (c)

There were no ambient air or meteorological monitoring data deletions or resubmissions made for any of the monitoring stations outlined in this report. No required calibrations of the ambient air quality analyzers were missed during the third quarter. There were no exceedances of the numerical metrics of the BCAAQO.

Refer to Appendix D, Attachment 1 for more details:

- Kitamaat Village (Site 1): Table 2-2 contains the data completeness; and Table 3-2 contains the percent data recovery. Section 3.3 outlines the data shortfall periods and known issues during the reporting period.
- Riverlodge (Site 2): Table 2-3 contains the data completeness; and Table 4-2 contains the percent data recovery. Section 4.3 outlines the data shortfall periods and known issues during the reporting period.
- General: Section 2.3 contains the details on ambient air or meteorological monitoring data deletion and resubmissions; and missed calibrations.

On September 5 2025, an elevated THC spike was observed on the Riverlodge monitoring station. Our data management team confirmed there were no calibration checks running at this time nor known issues with the analyzer, and this appears to be a real event of elevated THC values. Our investigation into this spike concluded that the source of this spike is not from LNG Canada.

LNG Canada engaged Tetra Tech to oversee the passive NO_2 monitoring program, who published a technical memorandum that addresses the data issues in these locations, as required under Condition 10.3.1(d) - Refer to Appendix D, Attachment 2 for additional details.

3. Ambient Air Monitoring Results (Condition 10.3.2)

3.1. Permit Condition

Under Condition 10.3.2, the quarterly report shall include the following information for each parameter monitored by the Permittee (per Section 6 of Permit PA-110588):

a. the percentage of valid hourly data at each continuous ambient air monitoring station;

b. (i) a time series plot of the hourly average ambient air concentrations at each continuous ambient air monitoring station, and (ii) a discussion of the context around any data anomalies in the time series plot;

c. i) minimum, (ii) average, (iii) median and (iv) maximum ambient air concentrations at each continuous ambient air monitoring station for the period;

d. a monthly wind rose for each continuous ambient air monitoring station for the months being monitored generated using meteorological data collected at the ambient air monitoring station;

e. a summary of passive NO_2 monitoring analysis for each monitored location (based on available laboratory analysis results for that reporting period and include results from the previous reporting period(s) that were not included in previous summaries); and

f. a summary of precipitation monitoring chemistry for each monitored location (based on available laboratory analysis results for that reporting period and include results from the previous reporting period(s) that were not included in previous summaries).

As noted in Section 2.1, Condition 10.3.2 (a) to (d) applies to NO_2, O_3, and meteorological data (temperature, wind speed, wind direction, and standard deviation of wind direction) monitored at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2); and HC-T at Kitimat Riverlodge (Site 2).

3.2. Data and Assessment

Ambient Air Monitoring Stations:

The report issued by Trinity Consultants includes the information required under Condition 10.3.2 (a) to (d) at Kitamaat Village (Kitimat Haisla Village) (Site 1) and Kitimat Riverlodge (Site 2) as follows (refer to Appendix D, Attachment 1):

During the third quarter, there were no exceedances of the BCAAQO for SO2, NO2, and PM2.5. The average and median hourly PM2.5, SO2, NO2, and O3 concentrations measured at the Kitamaat Village, Riverlodge, and Whitesail monitoring stations are summarized in Table 2-1 of Appendix D, Attachment 1. Tables 2-2 through 2-4 present the maximum PM2.5, SO2, NO2, and O3 concentrations, a comparison to the BCAAQOs, and data completeness for the third quarter of 2025. In Tables 2-2 through 2-4 it should be noted that, as applicable, SO_2 exceedance counts include BCAAQO and 2020 CAAQS.

Passive Monitoring:

The technical memorandum issued by Tetra Tech includes a summary of passive NO_2 monitoring analysis for each monitored location required under Condition 10.3.2 (e) (refer to Appendix D, Attachment 2). The passively measured 30-day average NO2 concentrations during each sample deployment over the quarterly period are summarized for each monitoring location in Attachment 2.

The highest 30-day average NO2 concentration measured over the quarterly period was 1.3 ppb in the month of August, at the Kitimat Industrial (V14) sample location, located north of the LNGC facility. While there is no 30-day Provincial Air Quality Objective for NO2, the annual criterion is 17 ppb, which provides an indicator for the passively measured 30-day NO2 concentrations.

Precipitation Monitoring:

LNG Canada engaged Stantec consultants to implement and execute the precipitation chemistry monitoring program to comply with the requirements of section 10.3.2(f). Precipitation monitoring is achieved with ion exchange resin (IER) column samplers. Precipitation monitoring is conducted twice per year as specified in the AQDMP. For the annual deposition, the first and second round of results have been added together. Going forward, annual deposition will be calculated as a rolling annual total, adding the new set of results to the previous set. Average deposition levels based on sampling and data analysis for precipitation chemistry data are summarized in table 3.5 below.

Table 3.5: Average Deposition Levels for the Sampling Period of Six to Seven Months

Sampling Location	Cl (kg/ha)	NO3-N (kg/ha)	NH4+-N (kg/ha)	PO4-P (kg/ha)	SO4-S (kg/ha)	Ca (kg/ha)	K (kg/ha)	Mg (kg/ha)	Na (kg/ha)
LNGC-Admin	2.75	0.20	0.20	-	3.90	0.70	0.77	0.27	3.43
B123a-LNGC	1.72	-	0.25	-	2.22	2.97	22.68 [1]	1.34	1.30
B108-alt-TF	1.29	-	0.12	-	4.47	1.64	3.48	0.96	0.80
B108-alt-BU	1.18	0.32	0.24	-	2.06	0.15	-	0.08	0.49

Note:
Average deposition levels for the LNGC-Admin and B123a-LNGC sets are based upon seven months of sample collection from October 25, 2024 to May 30, 2025.
Average deposition levels for the B108-alt-TF and B108-alt-BU sets are based upon six months of sample collection from October 25, 2024 to April 25, 2025.
[1] Levels in B123a-LNGC sets are unusually high, potentially indicating outliers or possible field disturbances or contamination. The expected concentration of K is due to expected leaching through the forest canopy, continued monitoring in Q4 2025 will further get investigated.

Table 3.6: Annual Nitrogen and Sulphur Deposition Levels (Based upon Period of Six to Seven Months)

Sampling Location	Total Nitrogen (Dissolved Inorganic Nitrogen) Deposition (kg/ha/y (N))	Total Sulphur Deposition (kg/ha/y (S))
LNGC-Admin	0.7	6.7
B123a-LNGC	1.0	5.5
B108-alt-TF	0.3	11.0
B108-alt-BU	1.1	4.3

Notes:

- Deposition rate for the LNGC-Admin sets is estimated based upon seven months of sample collection from October 25, 2024, to May 30, 2025.
- Deposition rate for the B123a-LNGC sets is estimated based upon ten months of sample collection from July 25, 2024, to May 30, 2025.
- Deposition rates for the B108-alt-TF and B108-alt-BU sets are estimated based upon nine months of sample collection from July 25, 2024, to April 25, 2025.

4. Ambient Air Monitoring Evaluation (Condition 10.3.3)

4.1. Permit Condition

Under Condition 10.3.3, the quarterly report shall include following information for NO_2, SO_2 and $PM_{2.5}$, continuously monitored at Kitamaat Village (Kitimat Haisla Village) (Site 1), Kitimat Riverlodge (Site 2) and Kitimat Whitesail:

a. a comparison of the measured ambient air concentrations at each ambient air monitoring stations to the applicable numerical metrics of the BCAAQO; and

b. (i) a description of any measured ambient air concentrations in excess of the numerical metrics of the BCAAQO, if applicable, (ii) a description of any known contributing factors from authorized works, and (iii) a description of action (if any) taken by the Permittee.

4.2. Data and Assessment

Data from continuous ambient air quality monitoring stations in Kitimat are publicly available via the BC Ministry of Environment and Climate Change Strategy, at: Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca).

The publicly available data for NO2, SO2 and PM2.5 at the three continuous ambient air quality monitoring stations are provided in graphs in the report presented in a time-series (refer to Appendix D, Attachment 1). During the third quarter of 2025, there were no exceedances of the numerical metrics of the BCAAQO.

Attachment 1 shows the comparison of hourly PM2.5, SO2, NO2, and O3 and 8-hour O3 Concentrations Kitamaat Village, Riverlodge, and Whitesail Monitoring Locations, Third Quarter 2025.

5. Source Testing Results (Condition 10.3.4)

5.1. Permit Condition

Under Condition 10.3.4, the quarterly report shall include the following information:

a. identification of the dates of any source sampling activities carried out during the reporting period.

b. identification of the testing company that carried out any source sampling activities during the reporting period;

c. a brief overview of any continuous emission monitoring system (CEMS) initial or re-certification tests carried out during the reporting period;

d. a brief overview of the results of any complete or incomplete (i) manual stack surveys, (ii) CEMS performance evaluation carried out during the period;

e. an explanation for stopping or aborting any incomplete (i) manual stack survey, (ii) CEMS performance evaluation;

f. a brief overview of any required corrective actions taken or planned in response to the source sampling activities; and

g. the manual stack source emissions survey reports and CEMS performance evaluation reports.

Conditions within Permit PA-110588 that inform the scope of this reporting include:

- Under Condition 5.1.2, LNG Canada shall undertake manual stack sampling every six months in the IPP on the gas turbine / WHRU stacks.
- Under Condition 5.2.2, LNG Canada shall undertake manual stack sampling for each AGI on a quarterly basis for one year.
- Under Condition 5.3, the CEMS performance evaluations or manual stack surveys shall be conducted while the equipment is operating at normal capacity while combusting the primary fuel for that unit.

5.2. Data and Assessment

CEMS Performance Evaluation:

The Continuous Emissions Monitoring System (CEMS) performance evaluation has not yet started. The first Relative Accuracy Test Audit (RATA) will be conducted once the gas turbines/WHRUs and the AGIs are operating at normal capacity.

Manual Stack Sampling:
Manual stack sampling for the gas turbines/WHRU String 1 and String 2, and Train 1 Acid Gas Incinerator was conducted on September 26-28 by AGAT Laboratories. Stack testing results are provided in Appendix D, Attachment 3.

6. Inlet Gas Sulphur Report (Condition 10.3.5)

6.1. Permit Condition

Under Condition 10.3.5, the quarterly report shall include the following information:

a. daily percentage of hydrogen sulphide of the facility inlet gas; and

b. total estimated sulphur in the facility inlet gas, based on the analysis of the monthly gas samples.

6.2. Data and Assessment

Appendix C contains the daily percentage of hydrogen sulphide (H_2S) and total estimated sulphur in the facility inlet gas (from Coastal Gas Link) in compliance to permit condition 10.3.5(a) and (b).

The daily percentage of H_2S is based on the data collected at the Kitimat Sales Meter Station where the natural gas flow is metered before it enters the LNG Canada Facility. The results are presented in Table C-1. The average quarterly H_2S measurement for the period is 1.76 ppmw, and the maximum quarterly H_2S measurement is 3.30 ppmw on September 2, 2025.

Total Sulphur in the feed inlet gas is verified through manual sampling and laboratory analysis. These manual samples are collected and analyzed by the LNG Canada Laboratory using ASTM D 5504-2012 test method. The results are presented in Table C-2. During the reporting period, there was more than one sample measured within the month, as indicated in Table C-2.

The methodology is outlined below:

1. **Sample Collection:** Grab samples of the inlet gas are collected from Unit-1000.
2. **Sample Analysis:** The samples are analyzed at the LNG Canada laboratory using a Total sulfur analyzer with UVF detection (refer to Figure C-1). The analysis provides the total sulphur concentration of various sulphur compounds.
3. **Data Verification:** The results of the laboratory analysis are reviewed for consistency and accuracy by the LNG Canada laboratory. Any discrepancies or outliers are investigated and, if necessary, the analysis is repeated. The LNG Canada laboratory also performs internal quality control checks, including the analysis of certified reference materials and method blanks with each batch of samples where applicable.

Product:	Total Sulfur in Condensate/Gas UVF detection
Methods:	ASTM D5453 /ASTM D6667
Model:	VF-210 NSX-2100
Tag:	A-10
Manufacturer:	Nittoseiko
Country of Origin:	Japan
Number of Systems:	1
Unit Price:	Quoted

Figure 1: UVF Sampling for Total Sulphur

7. References

- BC Ministry of Environment and Parks, Latest Air Monitoring Data Map - BC Air Quality - Province of British Columbia (gov.bc.ca), accessed April 2, 2025.

Appendix A Abbreviations

AGI	Acid Gas Incinerator
BC	British Columbia
BCAAQO	BC Ambient Air Quality Objectives
BCER	BC Energy Regulator
CEMS	Continuous Emissions Monitoring System
EPC	Engineering, Procurement, and Construction
H_2S	Hydrogen Sulphide
HC-T	Total hydrocarbons
IPP	Initial Performance Period
JFJV	JGC Fluor BC LNG Joint Venture
LNG	Liquefied Natural Gas
LNG Canada	LNG Canada Development Inc.
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter (aerodynamic diameter smaller than 2.5 micrometers)
ppb	Parts per billion
RATA	Relative Accuracy Test Audit
SO_x	Oxides of sulphur
SO_2	Sulphur Dioxide
WDA	Waste Discharge Authorization
WHRU	Waste Heat Recovery Unit
$\mu g/m^3$	micrograms per cubic meter

Appendix B Previous Quarterly Reports Issued Under PA-110588

Quarter / Year	Document #	Date Issued
Q3 2024	L001-09800-HE-7180-4676	Rev A 22-Oct-2024; Rev B issued 03-Feb-2025
Q4 2024	L001-09800-HE-7180-4685	23-Jan-2025
Q1 2025	L001-09800-HE-7180-4703	25-Jul-2025
Q2 2025	L001-09800-HE-7180-4710	25-Jul-2025
Q3 2025	L001-09800-HE-7180-1660	29-Oct-2025

Appendix C Inlet Gas Sulphur Report (Condition 10.3.5)

The daily percentage of hydrogen sulphide (H_2S) in the facility's inlet gas is based on the data collected at the Kitimat Sales Meter Station in parts per million volume (ppmv) (Tag no: CA: KITSL-H2SCN.curval) where the natural gas flow is metered before it enters the LNG Canada Facility; then converted to ppmw and then to a percentage value for reporting herein. During this reporting period, daily measurements of H_2S were conducted. The tables below present the average H_2S levels recorded each day.

Table C-1: Daily Average Percentage of Hydrogen Sulphide in Inlet Gas [Q3 2025]

Date	H_2S Concentration (%)	Date	H_2S Concentration (%)	Date	H_2S Concentration (%)
1-Jul-2025	0.000242	1-Aug-2025	0.000198	1-Sep-2025	0.000299
2-Jul-2025	0.000185	2-Aug-2025	0.000213	2-Sep-2025	0.000300
3-Jul-2025	0.000118	3-Aug-2025	0.000224	3-Sep-2025	0.000303
4-Jul-2025	0.000087	4-Aug-2025	0.000235	4-Sep-2025	0.000299
5-Jul-2025	0.000115	5-Aug-2025	0.000277	5-Sep-2025	0.000315
6-Jul-2025	0.000132	6-Aug-2025	0.000186	6-Sep-2025	0.000212
7-Jul-2025	0.000128	7-Aug-2025	0.000097	7-Sep-2025	0.000154
8-Jul-2025	0.000111	8-Aug-2025	0.000127	8-Sep-2025	0.000278
9-Jul-2025	0.000089	9-Aug-2025	0.000136	9-Sep-2025	0.000296
10-Jul-2025	0.000096	10-Aug-2025	0.000130	10-Sep-2025	0.000278
11-Jul-2025	0.000097	11-Aug-2025	0.000137	11-Sep-2025	0.000308
12-Jul-2025	0.000107	12-Aug-2025	0.000119	12-Sep-2025	0.000304
13-Jul-2025	0.000105	13-Aug-2025	0.000088	13-Sep-2025	0.000287
14-Jul-2025	0.000111	14-Aug-2025	0.000119	14-Sep-2025	0.000256
15-Jul-2025	0.000119	15-Aug-2025	0.000117	15-Sep-2025	0.000291
16-Jul-2025	0.000122	16-Aug-2025	0.000220	16-Sep-2025	0.000280
17-Jul-2025	0.000105	17-Aug-2025	0.000105	17-Sep-2025	0.000199
18-Jul-2025	0.000136	18-Aug-2025	0.000105	18-Sep-2025	0.000132
19-Jul-2025	0.000137	19-Aug-2025	0.000135	19-Sep-2025	0.000255
20-Jul-2025	0.000164	20-Aug-2025	0.000137	20-Sep-2025	0.000245
21-Jul-2025	0.000140	21-Aug-2025	0.000157	21-Sep-2025	0.000105
22-Jul-2025	0.000119	22-Aug-2025	0.000206	22-Sep-2025	0.000131
23-Jul-2025	0.000114	23-Aug-2025	0.000190	23-Sep-2025	0.000281
24-Jul-2025	0.000143	24-Aug-2025	0.000199	24-Sep-2025	0.000224
25-Jul-2025	0.000178	25-Aug-2025	0.000192	25-Sep-2025	0.000134
26-Jul-2025	0.000161	26-Aug-2025	0.000154	26-Sep-2025	0.000117
27-Jul-2025	0.000113	27-Aug-2025	0.000166	27-Sep-2025	0.000132
28-Jul-2025	0.000133	28-Aug-2025	0.000179	28-Sep-2025	0.000111
29-Jul-2025	0.000183	29-Aug-2025	0.000184	29-Sep-2025	0.000103
30-Jul-2025	0.000188	30-Aug-2025	0.000258	30-Sep-2025	0.000144
31-Jul-2025	0.000164	31-Aug-2025	0.000283		

Feed inlet gas is regularly verified through manual sampling and laboratory analysis. These manual samples are collected and analyzed by the LNG Canada Laboratory using ASTM D 5504-2012 test method. During the reporting period, there was more than one sample measured within the month, as indicated in Table C-2.

Table C-2: Total Measured Sulphur Content in Inlet Gas [Q3 2025]

Date	Total Measured Sulphur Content (PPMW)
8-Jul-25	0.72
15-Jul -25	1.25
22-Jul -25	1.97
29-Jul -25	2.32
5-Aug -25	0.53
12-Aug -25	0.18
19-Aug -25	0.36
26-Aug -25	0.18
2-Sep-25	0.18
9-Sep-25	0.18
16-Sep-25	0.72
23-Sep-25	0.53

Appendix D List of Attachments

Number	Title
1	Trinity Consultants, Ambient Air Quality Monitoring Report April – June 2025, LNG Canada (October 20th 2025)
2	Tetra Tech Technical Memo, PA-110588 – Passive NO_2 Monitoring Results for Q3 2025
3	AGAT Laboratories, September 2025 Stack Testing Results

Attachment 1 Trinity Consultants, Ambient Air Quality Monitoring Report July – September 2025, LNG Canada

Attachment 2 Tetra Tech Technical Memo, PA-110588 – Passive NO_2 Monitoring Results for Q3 2025

Attachment 3 AGAT Laboratories, September 2025 Stack Testing Results

AMBIENT AIR QUALITY MONITORING REPORT JULY - SEPTEMBER 2025

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Trinity Consultants

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1.0 INTRODUCTION

This report, prepared for LNG Canada by Trinity Consultants (Trinity), summarizes the LNG Canada's nitrogen dioxide (NO_2) and Ozone (O_3) monitoring network data collected at the Kitamaat Village and Riverlodge Stations for the third quarter (July 1 through September 30), 2025. In January 2025, a Total Hydrocarbon analyzer was installed and operated at the Riverlodge station. Sulfur dioxide (SO_2) and particulate matter 2.5 microns in size or less ($PM_{2.5}$) presented in this report for the Kitamaat Village and Riverlodge stations have been provided by Rio Tinto BC Works. Rio Tinto BC Works also provided the third quarter 2025 meteorological data for the Kitamaat Village, Riverlodge, and Whitesail stations as well as the NO_2, O_3, SO_2, and $PM_{2.5}$ data collected at the Whitesail station.

The monitoring performed by LNG Canada is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) and satisfies the requirement for collection of continuous air quality data as described under Sections 10.3, 10.3.1, 10.3.2 & 10.3.3 in LNGC's Air Discharge Permit PA-110588.

LNG Canada owns, operates, and maintains an ambient air monitoring network around the LNG Canada Kitimat LNG export facility. This ambient air quality monitoring network consists of two air quality monitoring stations that are strategically located in the Kitimat Valley of British Columbia (BC) at the Kitamaat Village (Village) and Riverlodge. The Kitamaat Village and Riverlodge stations are owned by Rio Tinto Alcan Inc. and are part of Rio Tinto's air quality monitoring network. LNG Canada's continuous monitoring equipment are housed in the Rio Tinto air quality shelters at Kitamaat Village and Riverlodge locations. The locations of these stations within the Kitimat Valley are presented in Figure 1.1.

Figure 1.1 Locations of LNG Canada and Rio Tinto BC Works Ambient Air Monitoring Stations in Kitimat Valley

1.1 Kitamaat Village

The Village Ambient Air Station is in the Haisla Nation community of Kitamaat Village. The site is located within the yard of the Kitamaat Village sewage treatment plant. Area land use is suburban with a mix of dwellings, commercial buildings, forest, ocean, and parkland. The ground cover immediately around the site is compacted gravel, natural ground cover, cut grass, and asphalt. An aerial view of the site is presented in Figure 1.2. A photograph of the Kitamaat Village Ambient Air Quality Monitoring Station is presented in Figure 1.3.

Figure 1.2 Aerial View of Kitamaat Village Ambient Air Quality Monitoring Station

Figure 1.3 Photograph of Kitamaat Village Ambient Air Quality Monitoring Station

1.2 Riverlodge

The Riverlodge Ambient Air Station is located on Columbia Avenue in Kitimat, BC across the street from the Riverlodge Community Centre. The monitoring station is an aged industrial trailer with a meteorological tower mounted to the frame and hitch of the trailer. Land use around the site is suburban low-density housing, park land and forest. Land cover immediately around the site is short grass, gravel and asphalt parking lot, buildings, and forested lands. An aerial view of the site is shown in Figure 1.4. A photograph of the Riverlodge ambient air station is presented in Figure 1.5.

Figure 1.4 Aerial View of Riverlodge Ambient Air Quality Monitoring Station

Figure 1.5 Photograph of Riverlodge Ambient Air Quality Monitoring Station

1.3 Whitesail

Rio Tinto BC Works operates and maintains the Whitesail monitoring station located in the Kitimat Valley. Like the Riverlodge monitoring station, the Whitesail monitoring station is considered a residential monitoring station. The Whitesail Ambient Air Station is in the Whitesail neighborhood of Kitimat, BC. and is situated on land owned by the Mountain View Alliance Church. Area land use is a suburban residential, forested, and park land. The ground cover around the site is grass, compacted gravel, asphalt, buildings, and forested land. An aerial view of the site is presented as Figure 1.6. A photograph of the station is presented as Figure 1.7.

Figure 1.6 Aerial View of Whitesail Ambient Air Quality Monitoring Station

Figure 1.7 Photograph of Whitesail Ambient Air Quality Monitoring Station

2.0 THIRD QUARTER 2025 REPORT SUMMARY

The LNG Canada and Rio Tinto BC Works air quality monitoring data collected during the third quarter (July 1 through September 30) 2025 at the Kitamaat Village, Riverlodge, and Whitesail stations are summarized in this section.

2.1 British Columbia Air Quality Objectives

British Columbia has adopted air quality objectives and standards for a number of contaminants, including $PM_{2.5}$, SO_2, O_3, and NO_2. The British Columbia Ambient Air Quality Objectives (BCAAQO) and the 2020 Canadian Ambient Air Quality Standard (for SO_2) that have been developed by the British Columbia Ministry of Environment are as follows:

Pollutant	Averaging Period	British Columbia Ambient Air Quality Objective (BCAAQO)	2020 Canadian Ambient Air Quality Standard (CAAQS)
SO_2	1-hour	75 (ppb)[a]	70 (ppb)[b]
	Annual	--	5 (ppb)[c]
NO_2	1-hour	60 (ppb)[d]	60 (ppb)[d]
	Annual	17 (ppb)[e]	17 (ppb)[e]
$PM_{2.5}$	24-hours	25 ($\mu g/m^3$)[f]	27 ($\mu g/m^3$)[g]
	Annual	8 ($\mu g/m^3$)[e]	8.8 ($\mu g/m^3$)[h]
O_3	1-hour	82 (ppb)	
	8-hour		62 (ppb)[i]

[a] Achievement based on annual 97th percentile of daily 1-hour maximum averaged over 2015-2017, annual 97.5th percentile of daily 1-hour maximum averaged over 2016-2018, and annual 98th percentile of daily 1-hour maximum averaged over 2017-2019, with one allowable excursion above 75 ppb to a maximum of 85 ppb over a three-year period prior to 2020.

[b] Achievement based on annual 99th percentile of daily 1-hour maximum, averaged over three consecutive years.

[c] Achievement based on annual average of 1-hour concentrations over one year.

[d] Achievement based on annual 98th percentile of daily 1-hour maximum averaged over three consecutive years

[e] Achievement based on annual average of 1-hour concentrations over one year

[f] Achievement based on annual 98th percentile of daily average, over one year

[g] Achievement based on annual 98th percentile of daily average, averaged over three consecutive years.

[h] Achievement based on annual average, averaged over three consecutive years.

[i] Achievement based on annual 4th highest daily 8-hour maximum, averaged over three consecutive years.

2.2 Pollutant Concentrations and Data Completeness

During the third quarter, there were no exceedances of the BCAAQO for SO_2, NO_2, and $PM_{2.5}$. The average and median hourly $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations measured during the third quarter at the Kitamaat Village, Riverlodge, and Whitesail monitoring stations are summarized in Table 2-1. Tables 2-2 through 2-4 present the maximum $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations, a comparison to the BCAAQOs, and data completeness for the third quarter of 2025. In Tables 2-2 through 2-4 it should be noted that, as applicable, SO_2 exceedance counts include BCAAQO and 2020 CAAQS.

Table 2-1 Average and Median Pollutant Statistics for Third Quarter 2025

Station	$PM_{2.5}$ ($\mu g/m^3$)		SO_2 (ppb)		NO_2 (ppb)		O_3 (ppb)	
	Average	Median	Average	Median	Average	Median	Average	Median
Kitamaat Village	5.4	5.0	0.3	0.1	0.3	0.2	14.4	14.0
Riverlodge	3.6	3.0	0.6	0.2	0.9	0.5	14.2	15.0
Whitesail	4.0	3.0	0.5	0.3	0.6	0.4	12.9	13.0

Table 2-2 Kitamaat Village Station Third Quarter 2025 Data Summary

Parameter	1-hour average						24-hour Average 8-hour Average						Data Completeness		
	Maximum Concentration			Exceedances of BCAAQO[1]			Maximum Concentration			Exceedances of BCAAQO[1]					
	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.
$PM_{2.5}$ ($\mu g/m^3$)[3]	18.0	18.0	29.0	--	--	--	9.8	9.8	21.1	0	0	0	99.1	99.1	99.8
SO_2 (ppb)	12.8	8.2	18.1	0	0	0	1.2	1.7	1.8	--	--	--	95.2	95.5	95.2
NO_2 (ppb)	3.0	5.4	5.1	0	0	0	0.5	0.9	0.8	--	--	--	95.2	95.5	95.2
O_3 (ppb)[2]	31.0	33.0	37.0	0	0	0	28.0	26.0	34.0	0	0	0	95.2	95.5	95.2

1 British Columbia Ambient Air Quality Objective (AAQO)
2 8-hour maximum
3 24-hour $PM_{2.5}$ concentrations were determined from midnight to midnight

Table 2-3 Riverlodge Station Third Quarter 2025 Data Summary

Parameter	1-hour average						24-hour Average 8-hour Average						Data Completeness		
	Maximum Concentration			Exceedances of BCAAQO[1]			Maximum Concentration			Exceedances of BCAAQO[1]					
	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.
$PM_{2.5}$ ($\mu g/m^3$)[3]	14.0	22.0	27.0	--	--	--	7.5	9.4	16.2	0	0	0	98.3	99.6	98.7
SO_2 (ppb)	22.7	12.8	34.4	0	0	0	3.6	1.7	4.1	--	--	--	82.0	95.3	95.0
NO_2 (ppb)	6.6	11.4	10.8	0	0	0	1.3	2.2	2.1	--	--	--	94.7	95.3	95.0
O_3 (ppb)[2]	32.0	33.0	37.0	0	0	0	27.0[2]	27.0[2]	34.0[2]	0	0	0	94.7	95.3	95.0
THC (ppm)	4.63	2.77	36.10	--[4]	--[4]	--[4]	2.35	2.23	6.56	--[4]	--[4]	--[4]	90.2	93.6	88.8

1 British Columbia Ambient Air Quality Objective (AAQO)
2 8-hour maximum
3 24-hour $PM_{2.5}$ concentrations were determined from midnight to midnight
4 There are no BCAAQO's for Total Hydrocarbon (THC). THC Analyzer was installed and calibrated on January 16, 2025.

Table 2-4 Whitesail Station Third Quarter 2025 Data Summary

Parameter	1-hour average						24-hour Average 8-hour Average								
	Maximum Concentration			Exceedances of BCAAQO[1]			Maximum Concentration			Exceedances of BCAAQO[1]			Data Completeness		
	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.	Sept.
$PM_{2.5}$ ($\mu g/m^3$)[3]	12.0	15.0	29.0	--	--	--	7.9	8.8	16.6	0	0	0	98.7	98.7	99.5
SO_2 (ppb)	21.5	10.4	22.9	0	0	0	2.9	2.0	2.6	--	--	--	95.1	95.1	94.6
NO_2 (ppb)	5.9	4.1	8.2	0	0	0	0.8	1.0	1.3	--	--	--	95.1	95.1	94.6
O_3 (ppb)[2]	26.0	29.0	31.0	0	0	0	24.0	24.0	29.0	0	0	0	92.5	95.1	94.6

1 British Columbia Ambient Air Quality Objective (AAQO)
2 8-hour maximum
3 24-hour $PM_{2.5}$ concentrations were determined from midnight to midnight

2.3 Third Quarter 2025 Ambient Air Monitoring Issues

During the third quarter of 2025, there were no ambient air or meteorological monitoring data deletions or resubmissions made for any of the monitoring stations outlined in this report. No required calibrations of the ambient air quality analyzers were missing during the third quarter.

During the third quarter of 2025, there were no exceedances of the numerical metrics of the BCAAQO.

3.0 JULY - SEPTEMBER 2025 KITAMAAT VILLAGE AMBIENT AIR QUALITY STATION MONITORING ACTIVITIES

This section provides a summary of the monitoring activities conducted at the LNG Canada Kitamaat Village Ambient Air Quality Station for July through September 2025. Table 3-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Kitamaat Village monitoring station. Site visit notes for the third quarter, SO_2, $PM_{2.5}$, O_3, and NO_2 concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, and NO_2 trends for the third quarter 2025 are also presented in this section.

Table 3-1 LNG Canada Instrumentation at the Kitamaat Village Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Kitamaat Village			
NO_2	Teledyne-API T200	Chemiluminescence	8598
O_3	Teledyne-API T400	UV Absorption	7486
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	905
Zero Air Source	Teledyne API T701	Zero-Air Generator	2555

3.1 Site Visit Notes

The Kitamaat Village site visit notes for the third quarter are summarized here and in Appendix A.

- On July 1, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and Envidas logger to the correct time during the station visit.
- On July 8, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and Envidas logger to the correct time during the station visit.
- On July 10, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers and T700U calibrator to the correct time during the station visit.
- On July 15, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers and Envidas logger to the correct time during the station visit.
- On July 21, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700U calibrator, and Envidas data logger to the correct time. Windows updates were downloaded and installed on the Envidas logger.
- On July 22, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and Envidas data logger to the correct time.
- On July 29, 2025, the Ministry of Environment (MOE) was onsite to perform audits on the air quality equipment. The site technician adjusted the clocks on the O_3 and NO_x analyzers, and Envidas data logger to the correct time.

- On July 30, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers and T700U calibrator to the correct time during the station visit.

- On August 1, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and T700U calibrator to the correct time during the station visit.

- On August 6, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and Envidas logger to the correct time during the station visit.

- On August 12, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers and Envidas logger to the correct time during the station visit.

- On August 19, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700U calibrator, and Envidas logger to the correct time during the station visit. The inlet filers on the O_3 and NO_x analyzers were replaced.

- On August 22, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700U calibrator, and Envidas data logger to the correct time. Windows updates were downloaded and installed on the Envidas logger.

- On August 26, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700U calibrator, and Envidas data logger to the correct time. Cobwebs were cleared from the gas analyzer inlet.

- On September 2, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas logger, and T700 calibrator to the correct time during the station visit.

- On September 9, 2025, the site technician replaced the NO_x and O_3 inlet filters. The clocks on the O_3 and NO_x analyzers, and T700U calibrator were adjusted to the correct time during the station visit. Cobwebs near analyzer inlet were cleared.

- On September 11, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700 calibrator, and Envidas logger to the correct time during the station visit.

- On September 17, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700 calibrator, and Envidas logger to the correct time during the station visit.

- On September 23, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, T700 calibrator, and Envidas data logger to the correct time.

- On September 24, 2025, remote as found multipoint verifications were performed on the NO_x and O_3 analyzers.

- On September 25, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, and T700 calibrator to the correct time.

- On September 26, 2025, the site technician was onsite to investigate the Envidas outage. Windows was installed on the Envidas logger, and the logger was restarted which resumed polling.

- On September 30, 2025, the site technician adjusted the clocks on the O_3 and NO_x analyzers, Envidas logger, and T700 calibrator to the correct time.

3.2 Monitoring Results and Trends

A summary of the $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations monitoring statistics for the third quarter 2025 for the Kitamaat Village Station is presented in Table 3-2.

Table 3-2 Summary of $PM_{2.5}$, SO_2, NO_2, and O_3 Concentrations for the Kitamaat Village Station, July - September 2025

Statistic	$PM_{2.5}$ ($\mu g/m^3$)[1]				SO_2 (ppb)[1]				NO_2 (ppb)				O_3 (ppb)			
	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3
1-hour Avg.	4.7	5.2	6.5	5.4	0.3	0.4	0.4	0.3	0.3	0.4	0.4	0.3	16.4	12.7	14.1	14.4
1-Hour Max.	18.0	18.0	29.0	29.0	12.8	8.2	18.1	18.1	3.0	5.4	5.1	5.4	31.0	33.0	37.0	37.0
1-Hour Min.[2]	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	2.0	2.0	1.0	1.0
Mean Daily Max.	9.9	10.0	21.4	21.4	1.3	1.8	1.9	1.9	0.5	1.0	0.9	1.0	24.0	17.6	27.8	27.8
Mean Daily Min.	2.0	2.3	2.8	2.0	0.0	0.1	0.1	0.0	0.2	0.2	0.2	0.2	11.7	7.5	5.5	5.5
Percent Data Recovery	99.1	99.1	99.8	99.3	95.2	95.5	95.2	95.3	95.2	95.5	95.2	95.3	95.2	95.5	95.2	95.3
24-hour Daily Max.[3]	9.8	9.8	21.1	21.1	1.2	1.7	1.8	1.8	0.5	0.9	0.8	0.9	--	--	--	--
8-hour Max.	--	--	--	--	--	--	--	--	--	--	--	--	28.0	26.0	34.0	34.0
24-hour Avg.	4.8	5.2	6.5	5.5	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.4	16.4	12.7	14.1	14.4
Median	4.0	4.0	5.0	4.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	17.0	12.0	13.0	14.0

[1] $PM_{2.5}$ and SO_2 third quarter 2025 data provided by Rio Tinto BC Works.

[2] Slightly negative concentrations are inherent with proper analyzer operation due to subtle levels of noise in the zero baseline setpoint. Negative values may be interpreted as zero and only occur when the air is very clean.

[3] 24-hour $PM_{2.5}$ daily maximum concentrations determined from midnight to midnight.

The average $PM_{2.5}$ concentration during the third quarter was 5.4 µg/m^3 and the median $PM_{2.5}$ concentration during the third quarter was 3.0 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration during the third quarter was 29.0 µg/m^3 which occurred in September. The maximum 24-hour $PM_{2.5}$ concentration for the third quarter was 21.1 µg/m^3 which also occurred in September. During the third quarter, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

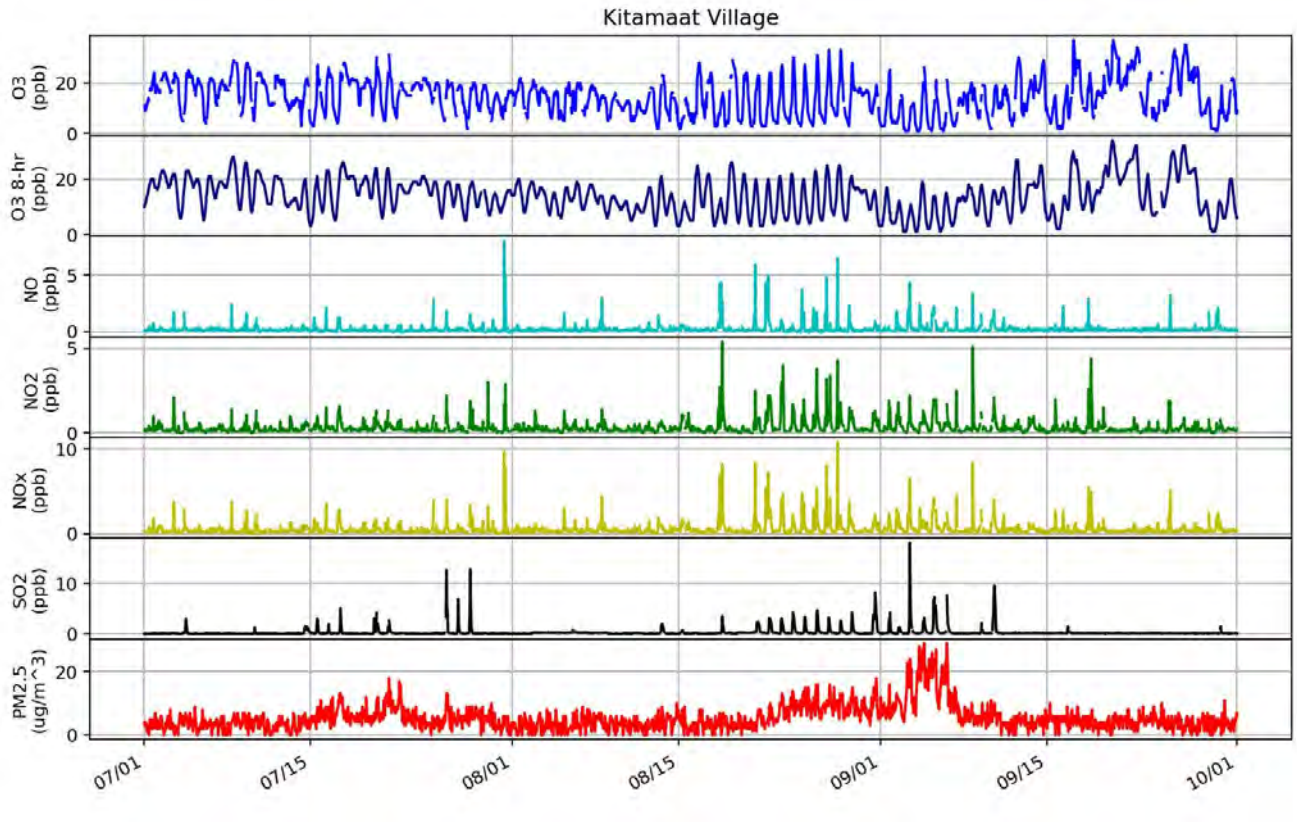
The average SO_2 concentration at the Kitamaat Village for the third quarter was 0.3 ppb with a median concentration of 0.1 ppb. The maximum hourly SO_2 concentration during the third quarter was 18.1 ppb which occurred in September. During the third quarter, there were no exceedances of the 1-hour SO_2 BCAAQO of 75 ppb or the 1-hour SO_2 CAAQS of 70 ppb at Kitamaat Village station.

The average NO_2 concentration at the Kitamaat Village for the third quarter was 0.3 ppb and the median NO_2 concentration was 0.2. The maximum hourly NO_2 concentration during the third quarter at Kitamaat Village was 5.4 ppb which occurred in August. During the third quarter, there were no exceedances of the 1-hour NO_2 BCAAQO of 60 ppb at the Kitamaat Village station.

The average O_3 concentration at the Kitamaat Village for the third quarter was 14.4 ppb and the median O_3 concentration was 14.0 ppb. The maximum hourly O_3 concentration of 37.0 ppb occurred in September. The maximum 8-hour O_3 concentration during the third quarter was 34.0 ppb which occurred in September. During the third quarter, there were no exceedances of the 1-hour O_3 BCAAQO advisory level of 82 ppb and the 8-hour CAAQS of 62 ppb at the Kitamaat Village station.

Time series plots of $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations for the third quarter are presented in Figure 3.1.

Figure 3.1 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, $NO/NO_2/NO_x$, and O_3/O_3 -8hr Concentration Data for the Kitamaat Village Station, Third Quarter 2025



Wind speed, wind direction, and temperature data are collected by Rio Tinto BC Works at the Kitamaat Village station. Figures 3.2 through 3.4 present the monthly Kitamaat Village station wind roses for July through September 2025. Figure 3.5 presents a time series plot of wind speed and direction, and temperature for the third quarter, 2025.

Figure 3.2 July 2025 Kitamaat Village Station Wind Rose

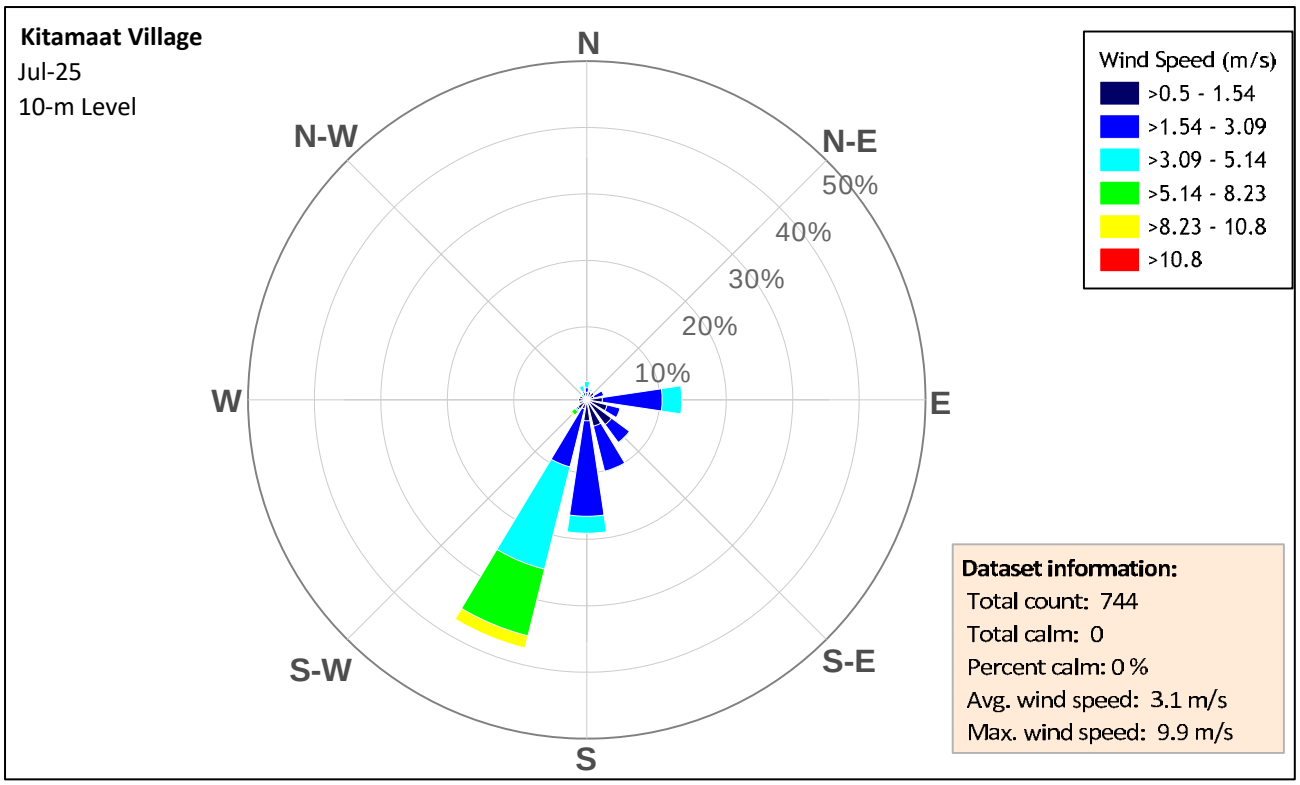


Figure 3.3 August 2025 Kitamaat Village Station Wind Rose

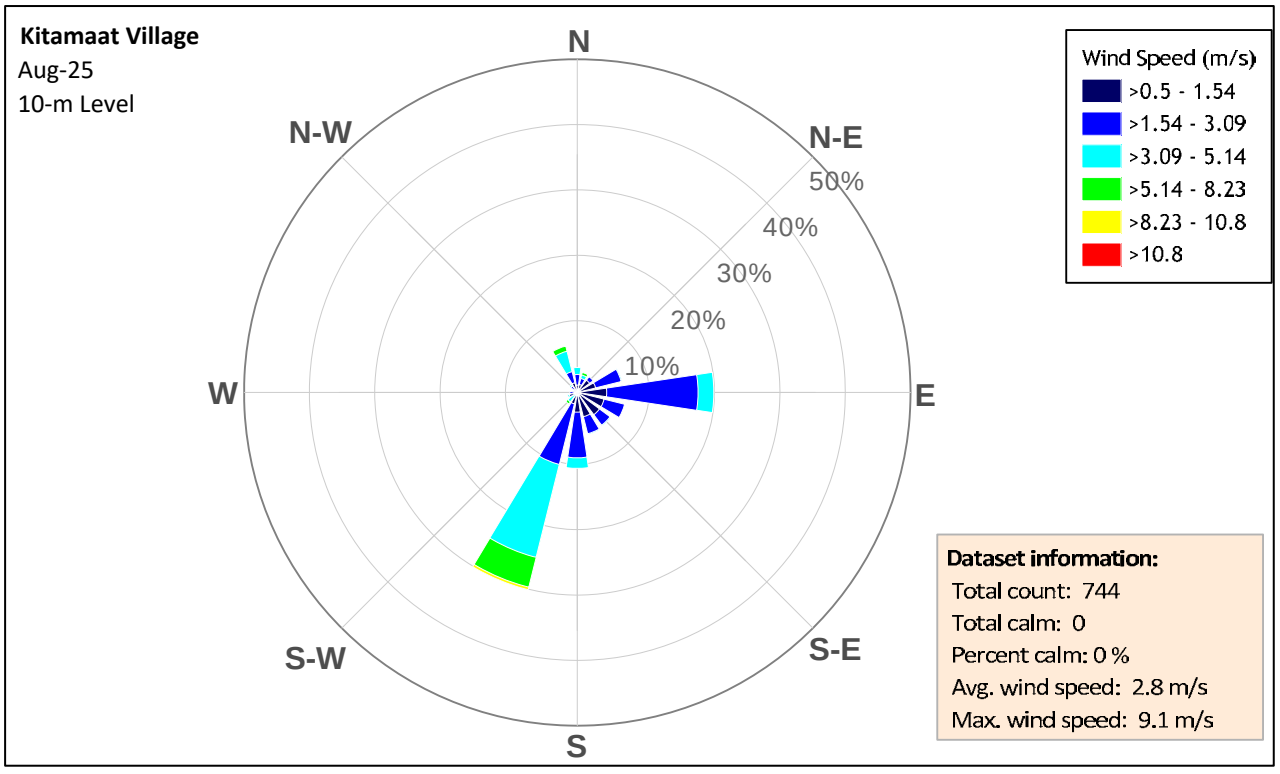


Figure 3.4 September 2025 Kitamaat Village Station Wind Rose

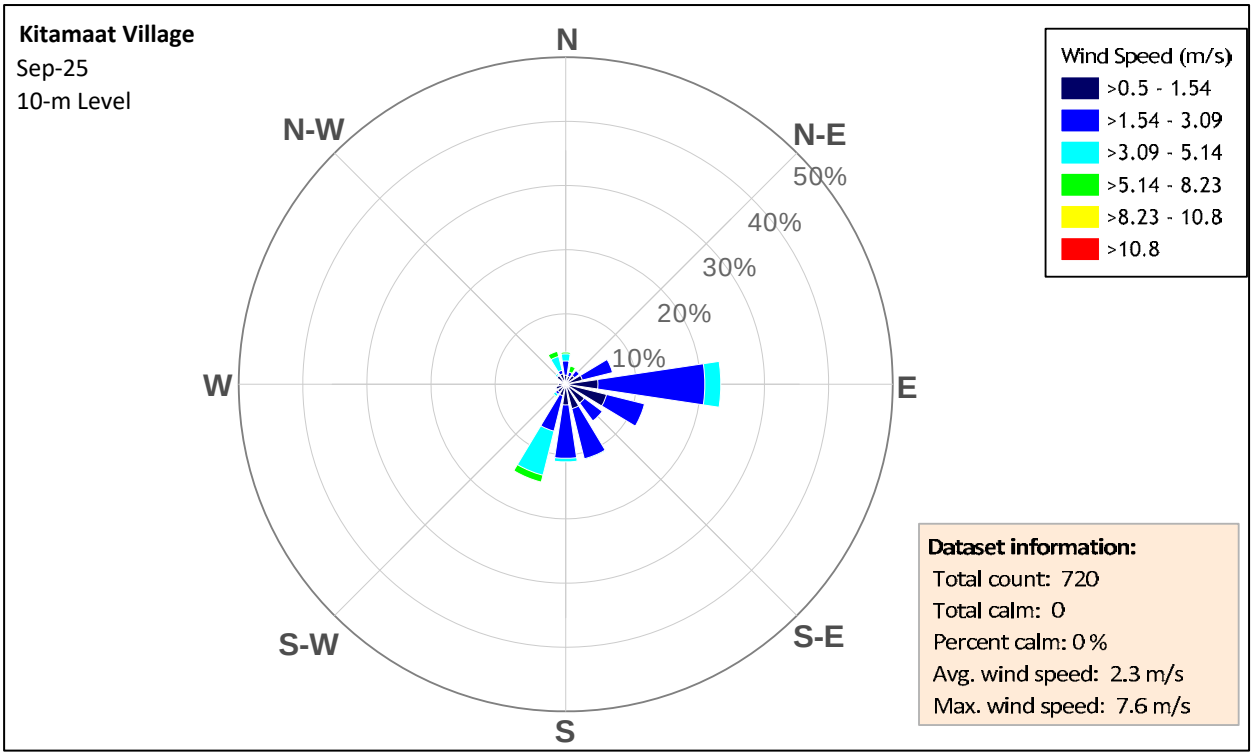
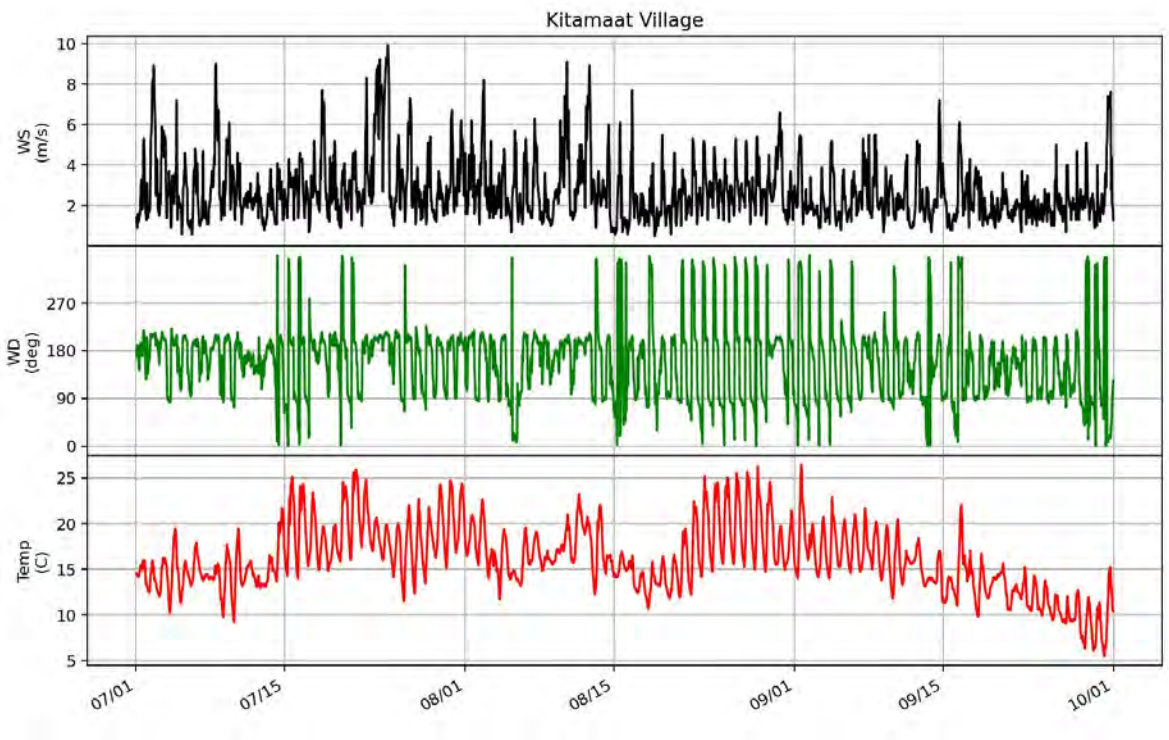


Figure 3.5 Time Series Plot of Wind Speed, Wind Direction, and Temperature Data at Kitimaat Village Station for Third Quarter 2025



3.3 Third Quarter 2025 Ambient Air Monitoring Data Issues

Table 3-3 presents the Kitamaat Village station data shortfall periods and known issues, during the third quarter, that led to pollutant concentration data loss.

Table 3-3 Data Shortfall Periods and Noted Issues During Third Quarter 2025 at Kitamaat Village Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
$O_3/NO_x/SO_2$	7/10/2025	12:00	7/10/2025	12:00	1	Filter Change
$PM_{2.5}$	7/21/2025	12:00	7/21/2025	13:00	2	Tape replaced; Leak check with no adjustment
$O_3/NO_x/SO_2$	7/29/2025	15:00	7/29/2025	17:00	3	MOE Audit
$PM_{2.5}$	7/29/2025	16:00	7/29/2025	18:00	3	MOE Audit
$PM_{2.5}$	7/30/2025	17:00	7/30/2025	18:00	2	Monthly flow rate, verification, and maintenance
$PM_{2.5}$	8/14/2025	06:00	08/14/2025	07:00	2	Power outage
$PM_{2.5}$	8/14/2025	17:00	08/14/2025	18:00	2	Power outage
$O_3/NO_x/SO_2$	8/19/2025	08:00	8/19/2025	08:00	1	Filter change
$PM_{2.5}$	8/22/2025	09:00	8/22/2025	11:00	3	Monthly flow rate, verification, and maintenance
$O_3/NO_x/SO_2$	9/09/2025	13:00	9/09/2025	13:00	1	Filter change
$O_3/NO_x/SO_2$	9/24/2025	12:00	9/24/2025	15:00	4	$SO_2/NO_x/O_3$ as found multipoint verification
$PM_{2.5}$	9/25/2025	10:00	9/25/2025	11:00	2	Monthly flow rate, verification, and maintenance

4.0 JULY - SEPTEMBER 2025 RIVERLODGE AMBIENT AIR QUALITY STATION MONITORING STATION

This section provides a summary of the monitoring activities conducted at the LNG Canada Riverlodge Ambient Air Quality Station for July through September 2025. Table 4-1 presents a list of the LNG Canada air quality monitoring equipment operating at the Riverlodge monitoring station. Site visit notes, SO_2, $PM_{2.5}$, O_3, and NO_2 concentration results, and time series of the 1-hour average SO_2, $PM_{2.5}$, O_3, and NO_2 trends for third quarter 2025 are also presented below.

Table 4-1 LNG Canada Instrumentation at the Riverlodge Station

Parameter Purpose Function	Manufacturer / Model	Type	Serial Number
Riverlodge			
NO_2	Teledyne-API T200	Chemiluminescence	8599
O_3	Teledyne-API T400	UV Absorption	7487
THC	Teledyne-API N901	Flame Ionization Detector	80
Calibrator	Teledyne-API T700U	Trace Level Multigas Calibrator	906
Zero Air Source	Teledyne API T701	Zero-Air Generator	2556

4.1 Site Visit Notes

The Riverlodge site visit notes for the third quarter are summarized here and in Appendix A.

- On July 3, 2025, the site technician updated the clocks on the NO_2 and O_3 analyzers, T700U calibrator, and Envidas logger to the correct time.
- On July 8, 2025, the site technician updated the clocks on the NO_2, THC, and O_3 analyzers, and T700U calibrator to the correct time. The NO_2 and O_3 inlet filters were replaced.
- On July 10, 2025, the site technician updated the clocks on the NO_2 and O_3 analyzers, T700 calibrator, and Envidas to the correct time. Multipoint verifications were performed on the THC analyzer.
- On July 16, 2025, the clocks on the NO_2 and O_3 analyzers, T700U calibrator, and Envidas logger were updated to the correct time.
- On July 21, 2025, the site technician updated the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time. Windows updated were downloaded and installed on the Envidas logger.
- On July 29, 2025, the Ministry of Environment (MOE) was onsite to perform audits.
- On July 30, 2025, the nitrogen cylinder to the THC analyzer was replaced. The site technician updated the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time.
- On August 7, 2025, the site technician updated the clocks on the NO_2, THC, and O_3 analyzers, and T700 calibrator to the correct time.

- On August 14, 2025, the site technician updated the clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time. The NO_2 and O_3 inlet filters were replaced.
- On August 19, 2025, the site technician updated the clocks on the NO_2 and O_3 analyzers, and T700 calibrator to the correct time. Multipoint verifications were performed on the THC analyzer.
- On August 27, 2025, the clocks on the NO_2 and O_3 analyzers, and T700U calibrator were updated to the correct time.
- On September 4, 2025, the site technician replaced the NO_x and O_3 inlet filters. The clocks on the NO_2 and O_3 analyzers, and T700 calibrator were updated to the correct time.
- On September 12, 2025, the site technician was onsite to troubleshoot the N901 CH_4/NMHC/THC analyzer. The clocks on the NO_2 and O_3 analyzers, and T700U calibrator to the correct time.
- On September 19, 2025, the site technician updated the clocks on the NO_2 and O_3 analyzers, and T700 calibrator to the correct time. The Envidas logger was restarted to allow updates to take effect.
- On September 23, 2025, the clocks on the NO_2 and O_3 analyzers, and T700U calibrator were updated to the correct time. The CH_4/NMHC/THC analyzer data were flagged during hydrogen tank replacement.
- On September 24, 2025, remote as found multipoint calibrations were performed on the NO_x, O_3, and THC analyzers.

4.2 Monitoring Results and Trends

A summary of the $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations monitoring statistics for the third quarter 2025 for the Riverlodge Station is presented in Table 4-2. Table 4-3 presents a summary of the THC monitoring statistics for the third quarter of 2025 at the Riverlodge station.

Table 4-2 Summary of $PM_{2.5}$, SO_2, NO_2, and O_3 Concentrations for the Riverlodge Station, July - September 2025

Statistic	$PM_{2.5}$ ($\mu g/m^3$)[1]				SO_2 (ppb)[1]				NO_2 (ppb)				O_3 (ppb)			
	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3
1-hour Avg.	2.8	3.8	4.6	3.6	0.7	0.6	0.7	0.6	0.7	1.0	1.0	0.9	16.5	12.0	14.4	14.2
1-Hour Max.	14.0	22.0	27.0	27.0	22.7	12.8	34.4	34.4	6.6	11.4	10.8	11.4	32.0	33.0	37.0	37.0
1-Hour Min.[2]	0.0	0.0	0.0	0.0	-0.4	-0.1	-0.1	-0.4	0.0	0.1	0.1	0.0	1.0	1.0	1.0	1.0
Mean Daily Max.	7.6	9.3	16.6	16.6	3.8	1.9	4.3	4.3	1.4	2.3	2.2	2.3	23.6	18.7	29.0	29.0
Mean Daily Min.[2]	0.7	1.0	0.9	0.7	-0.3	0.1	-0.1	-0.3	0.3	0.3	0.3	0.3	10.1	6.5	5.3	5.3
Percent Data Recovery	98.3	99.6	98.7	98.9	82.0	95.3	95.0	90.8	94.7	95.3	95.0	95.0	94.7	95.3	95.0	95.0
24-hour Daily Max.[3]	7.5	9.4	16.2	16.2	3.6	1.7	4.1	4.1	1.3	2.2	2.1	2.2	--	--	--	--
8-hour Max.	--	--	--	--	--	--	--	--	--	--	--	--	27.0	27.0	34.0	34.0
24-hour Avg.	2.8	3.8	4.6	3.7	0.7	0.6	0.7	0.7	0.7	1.0	1.0	0.9	16.5	11.9	14.4	14.3
Median	2.0	3.0	3.0	3.0	0.3	0.2	0.2	0.2	0.4	0.5	0.6	0.5	18.0	12.0	15.0	15.0

[1] $PM_{2.5}$ and SO_2 third quarter 2025 data provided by Rio Tinto BC Works.

[2] Slightly negative concentrations are inherent with proper analyzer operation due to subtle levels of noise in the zero baseline setpoint. Negative values may be interpreted as zero and only occur when the air is very clean.

[3] 24-hour $PM_{2.5}$ daily maximum concentrations determined from midnight to midnight.

Table 4-3 Summary of THC Concentrations for the Riverlodge Station, July - September 2025

Statistic	THC (ppb)			
	July	Aug.	Sept.	Q3
1-hour Avg.	2.18	2.15	2.45	2.25
1-Hour Max.	4.63	2.77	36.10	36.10
1-Hour Min.[2]	1.96	1.99	1.67	1.67
Mean Daily Max.	2.40	2.30	4.50	4.50
Mean Daily Min.[2]	2.10	2.10	2.20	2.10
Percent Data Recovery	90.2	93.6	88.9	90.9
24-hour Daily Max.[3]	2.35	2.23	6.56	6.56
8-hour Max.	--	--	--	--
24-hour Avg.	2.18	2.15	2.49	2.27
Median	2.16	2.13	2.29	2.19

The average $PM_{2.5}$ concentration at Riverlodge during the third quarter was 3.6 µg/m^3 and the median $PM_{2.5}$ concentration during the third quarter was 3.0 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration during the third quarter was 27.0 µg/m^3 which occurred in September. The maximum 24-hour $PM_{2.5}$ concentration for the third quarter was 16.2 µg/m^3 which also occurred in September. During the third quarter, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

The average SO_2 concentration at the Riverlodge for the third quarter was 0.6 ppb with a median concentration of 0.2 ppb. The maximum hourly SO_2 concentration during the third quarter was 34.4 ppb which occurred in September. During the third quarter, there were no exceedances of the 1-hour BCAAQO of 75 ppb or the 1-hour CAAQS of 70 ppb for SO_2 at the Riverlodge station.

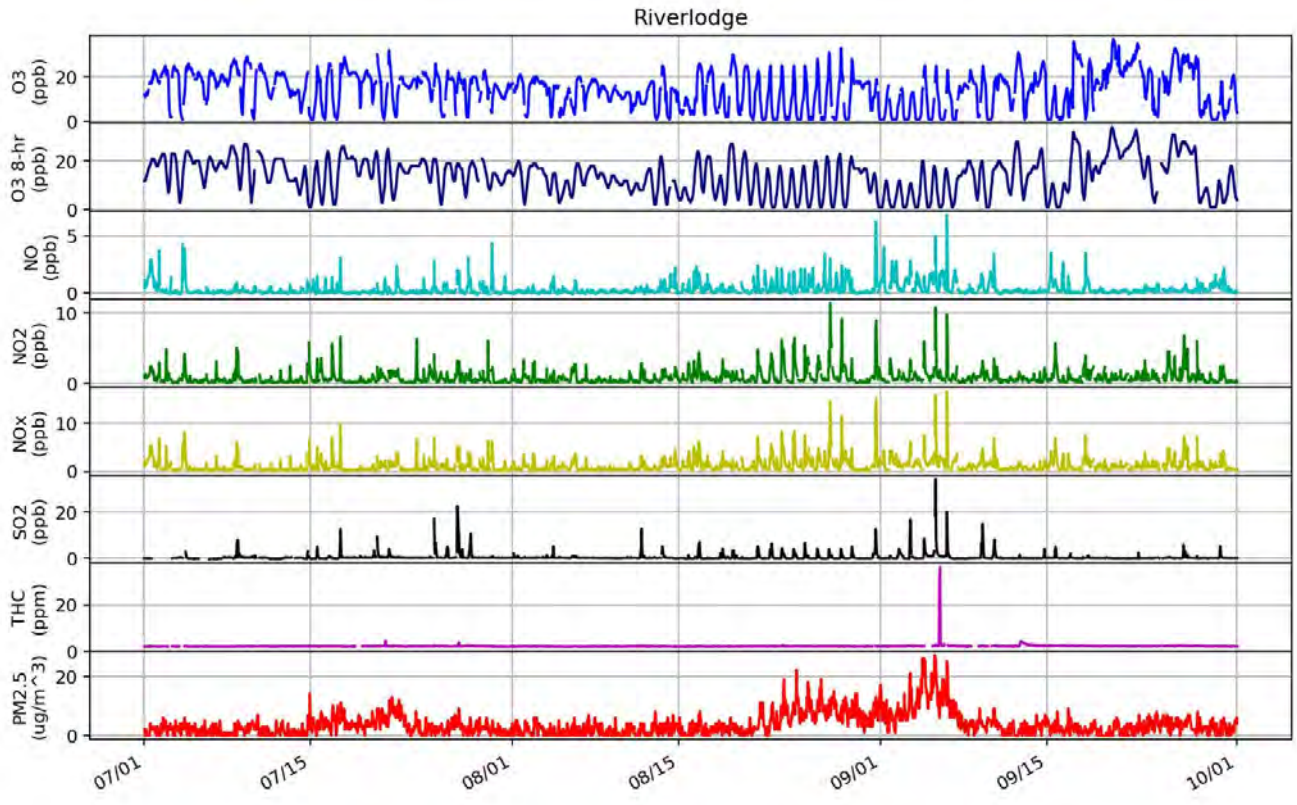
The average NO_2 concentration at the Riverlodge station for the third quarter was 0.9 ppb and the median NO_2 concentration was 0.5 ppb. The maximum hourly NO_2 concentration during the third quarter at Riverlodge was 11.4 ppb, which occurred in August. During the third quarter, there were no exceedances of the 1-hour NO_2 BCAAQO of 60 ppb at Riverlodge station.

The average O_3 concentration at Riverlodge station for the third quarter was 14.2 ppb and the median O_3 concentration was 15.0 ppb. The maximum hourly O_3 concentration of 37.0 ppb occurred in September. The maximum 8-hour O_3 concentration during the third quarter was 34.0 ppb which occurred in September. During the third quarter, there were no exceedances of the 1-hour O_3 BCAAQO advisory level of 82 ppb and the 8-hour CAAQS of 62 ppb at Riverlodge station.

The average THC concentration at Riverlodge station for the third quarter was 2.25 ppm with a median concentration of 2.19 ppb. The maximum hourly THC concentration during the third quarter was 36.10 ppm which occurred in September.

A time series plot of $PM_{2.5}$, SO_2, NO_2, O_3, and THC concentrations for the third quarter is presented in Figure 4.1.

Figure 4.1 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, NO/NO_2/NOx, O_3/O_3 -8hr, and THC Concentration Data for the Riverlodge Station, Third Quarter 2025



Wind speed and wind direction data are collected by Rio Tinto BC Works at the Riverlodge station. Figures 4.2 through 4.4 present the monthly Riverlodge station wind roses for July through September 2025. Figure 4.5 presents a time series plot of Riverlodge wind speed and direction, and temperature for the third quarter, 2025.

Figure 4.2 July 2025 Riverlodge Station Wind Rose

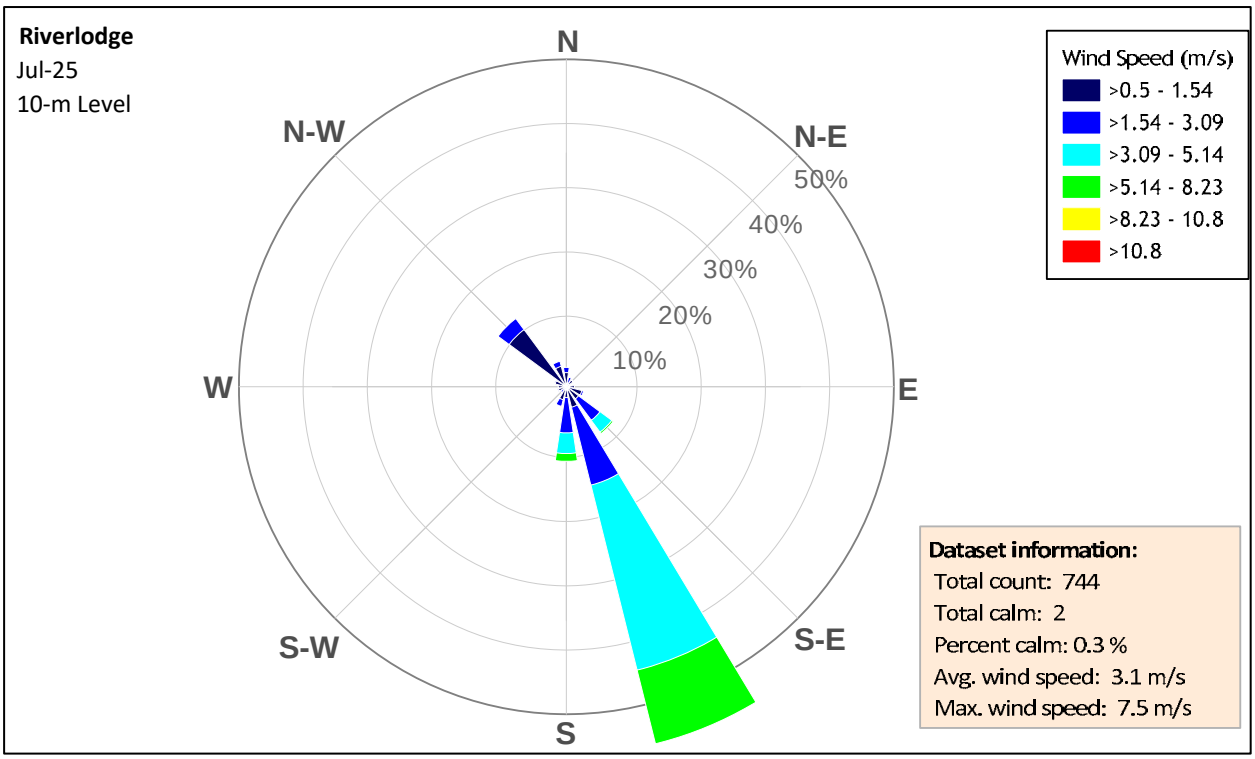


Figure 4.3 August 2025 Riverlodge Station Wind Rose

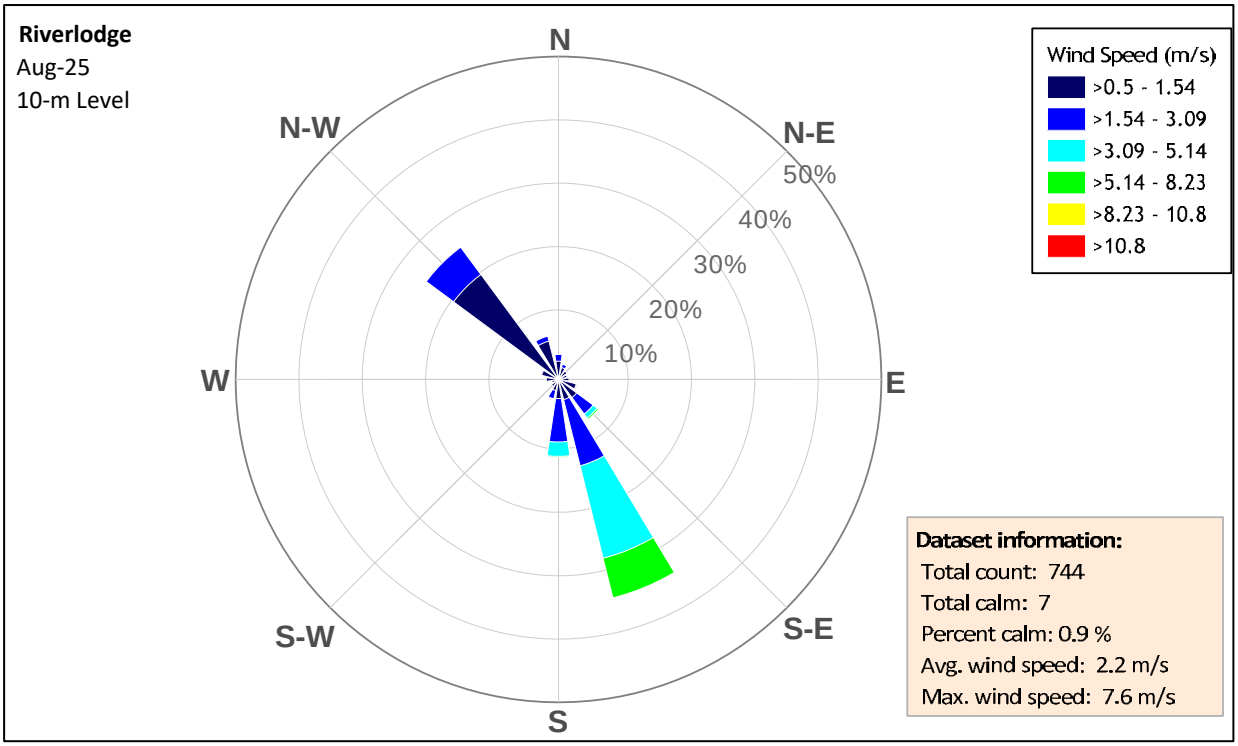


Figure 4.4 September 2025 Riverlodge Station Wind Rose

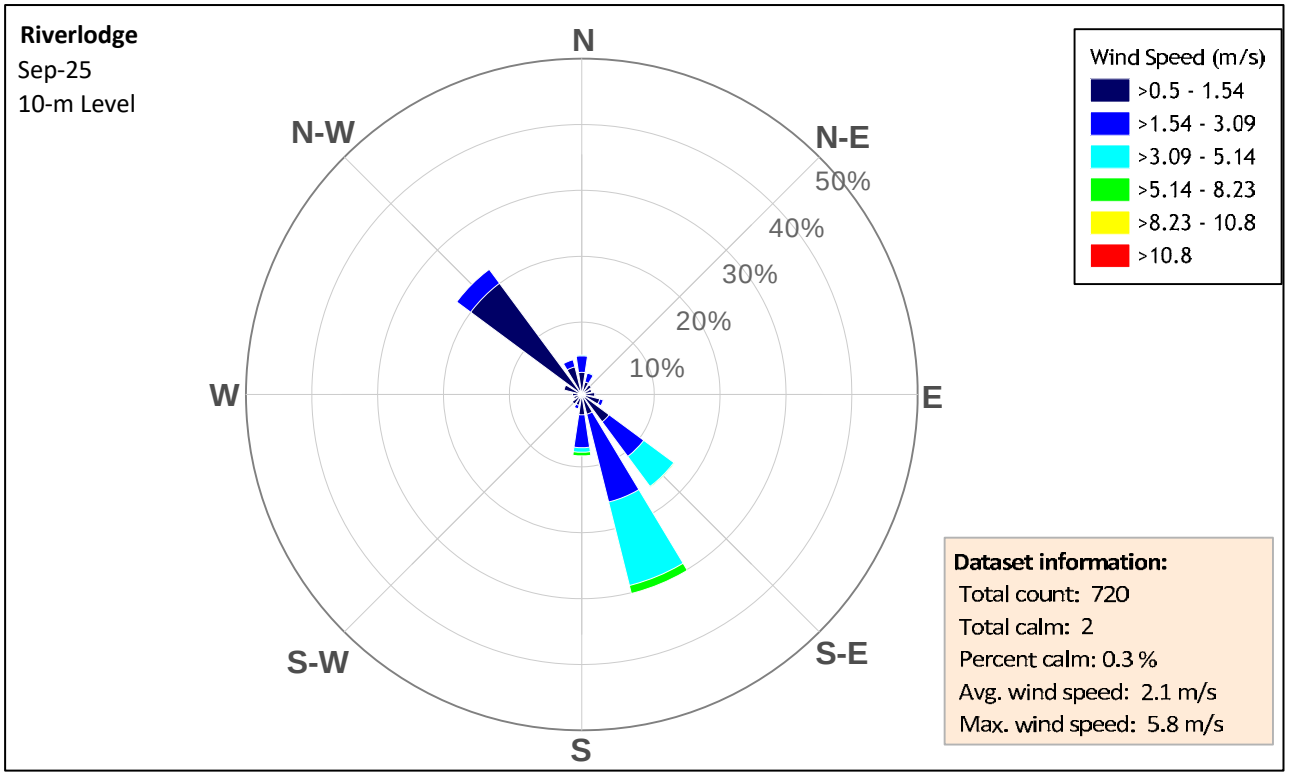
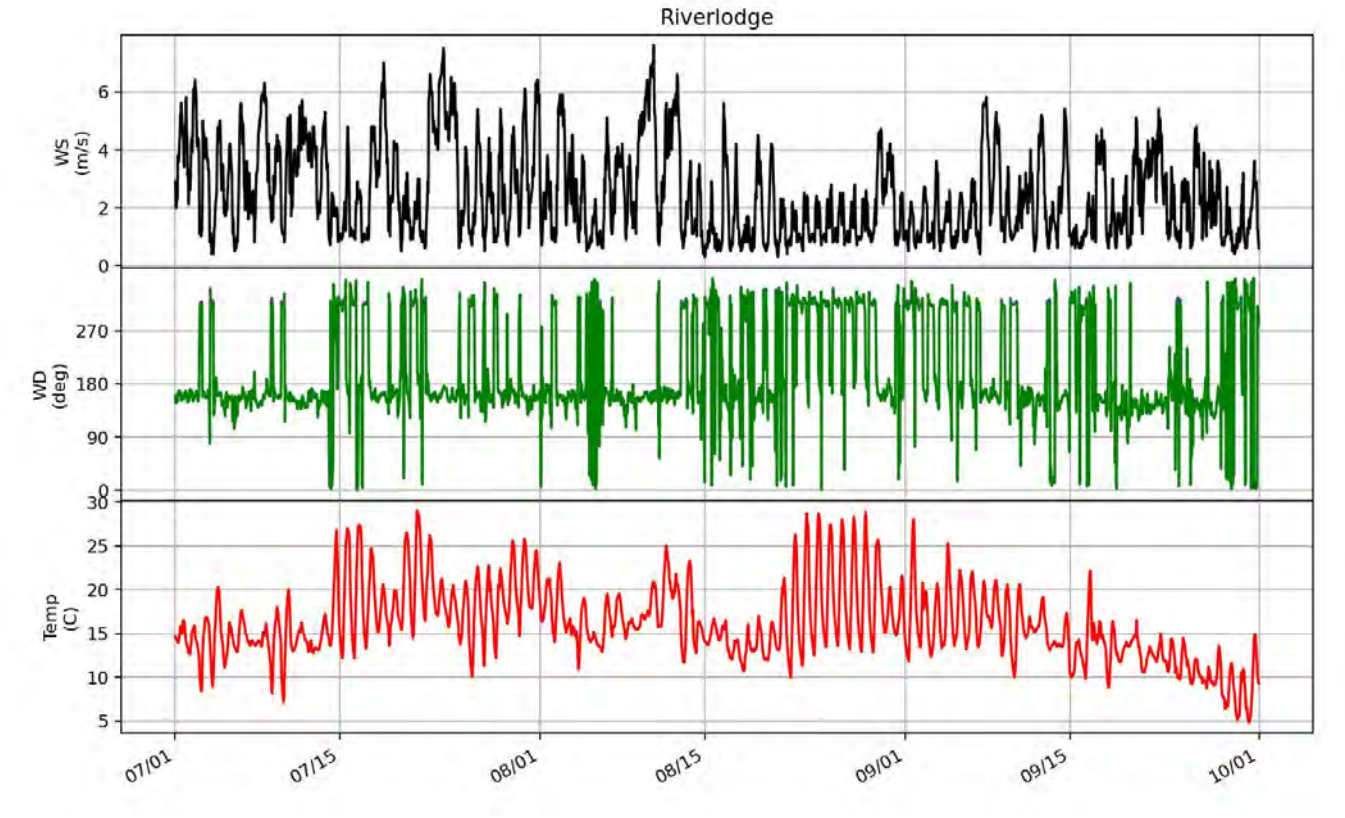


Figure 4.5 Time Series Plot of Wind Speed, Wind Direction, and Temperature Data at Riverlodge Station for Third Quarter 2025



4.3 Third Quarter 2025 Ambient Air Monitoring Data Issues

Table 4-4 presents the Riverlodge station data shortfall periods and known issues, during the third quarter, that led to pollutant concentration data loss.

Table 4-4 Data Shortfall Periods and Noted Issues During Third Quarter 2025 at Riverlodge Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
SO_2	7/01/2025	16:00	7/03/2025	07:00	40	Flatlined
THC	7/03/2025	01:00	7/03/2025	07:00	7	Flatlined
THC	7/04/2025	00:00	7/04/2025	09:00	10	Flatlined
SO_2	7/04/2025	09:00	7/04/2025	11:00	3	Flatlined
SO_2	7/05/2025	15:00	7/06/2025	11:00	21	Flatlined
SO_2	7/06/2025	15:00	7/06/2025	19:00	5	Flatlined
SO_2	7/07/2025	12:00	7/07/2025	14:00	3	Flatlined
$SO_2/NO_x/O_3$/THC	7/08/2025	09:00	7/08/2025	09:00	1	Filters changed
SO_2	7/08/2025	11:00	7/08/2025	11:00	1	Flatlined
SO_2	7/09/2025	08:00	7/09/2025	09:00	2	Flatlined
SO_2	7/10/2025	11:00	7/10/2025	11:00	1	Flatlined
$SO_2/NO_x/O_3$/THC	7/10/2025	12:00	7/10/2025	1600	5	SO_2 firmware update; THC As Found MP
SO_2	7/11/2025	11:00	7/11/2025	14:00	4	Flatlined
SO_2	7/12/2025	14:00	7/12/2025	15:00	2	Flatlined
SO_2	7/13/2025	11:00	7/13/2025	17:00	7	Flatlined
SO_2	7/14/2025	08:00	7/14/2025	10:00	3	Flatlined
SO_2	7/15/2025	12:00	7/15/2025	12:00	1	Flatlined
THC	7/16/2025	04:00	7/16/2025	05:00	2	Flatlined
$PM_{2.5}$	7/16/2025	09:00	7/16/2025	10:00	2	Power outage
SO_2	7/16/2025	13:00	7/16/2025	14:00	2	Flatlined
$PM_{2.5}$	7/17/2025	09:00	7/17/2025	10:00	2	Power outage
THC	7/18/2025	19:00	7/19/2025	08:00	14	Flatlined
$PM_{2.5}$	7/21/2025	18:00	7/21/2025	19:00	2	Tape replaced; Leak check with no adjustment
THC	7/23/2025	00:00	7/23/2025	05:00	6	Flatlined
$SO_2/NO_x/O_3$/THC	7/29/2025	10:00	7/29/2025	12:00	3	MOE Audit
$PM_{2.5}$	7/29/2025	11:00	7/29/2025	12:00	2	MOE Audit
THC	7/30/2025	10:00	7/30/2025	10:00	1	Nitrogen tank replaced
$PM_{2.5}$	7/30/2025	11:00	7/30/2025	13:00	3	Monthly flow rate verification and maintenance
THC	8/07/2025	12:00	8/07/2025	13:00	2	Flatlined
THC	8/10/2025	17:00	8/10/2025	17:00	1	Flatlined
$SO_2/NO_x/O_3$/THC	8/14/2025	13:00	8/14/2025	14:00	2	Filters changed
THC	8/14/2025	17:00	8/14/2025	18:00	2	Flatlined
$PM_{2.5}$	8/27/2025	16:00	8/27/2025	18:00	3	Monthly flow rate verification and maintenance
THC	8/29/2025	07:00	8/29/2025	08:00	2	Flatlined

Table 4-5 (Continued) Data Shortfall Periods and Noted Issues During Third Quarter 2025 at Riverlodge Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
THC	8/31/2025	08:00	8/31/2025	13:00	6	Flatlined
THC	9/04/2025	17:00	9/05/2025	08:00	16	Flatlined
THC	9/06/2025	10:00	9/06/2025	15:00	6	Flatlined
THC	9/08/2025	16:00	9/09/2025	05:00	14	Flatlined
THC	9/10/2025	02:00	9/10/2025	07:00	6	Flatlined
THC	9/10/2025	17:00	9/10/2025	19:00	3	Flatlined
THC	9/12/2025	16:00	9/12/2025	16:00	1	THC trouble-shooting
$PM_{2.5}$	9/12/2025	17:00	9/12/2025	18:00	2	Clock adjustment
$SO_2/NO_x/O_3$/THC	9/19/2025	10:00	9/19/2025	10:00	1	HF MP verification
$PM_{2.5}$	9/23/2025	14:00	9/23/2025	16:00	3	Monthly Flow Rate Verification and Maintenance
$SO_2/NO_x/O_3$/THC	9/24/2025	12:00	9/24/2025	15:00	4	NO_x/THC/O_3/SO_2 as found multipoint verification

5.0 JULY - SEPTEMBER 2025 WHITESAIL AMBIENT AIR QUALITY STATION MONITORING STATION

This section provides a summary of the monitoring data collected by Rio Tinto BC Works at their Whitesail monitoring station for July through September 2025. Table 5-1 presents a list of the Rio Tinto BC Works air quality monitoring equipment operating at the Whitesail monitoring station.

Table 5-1 Rio Tinto BC Works Instrumentation at the Whitesail Station

Parameter	Manufacturer/Model	Serial Number
SO_2	Thermo Scientific 43i	1161530005
$PM_{2.5}$	Met One BAM 1020	P15216
O_3	Teledyne-API T400	3830
NO_x	Teledyne-API T200	4271

5.1 Monitoring Results and Trends

A summary of the $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations monitoring statistics for the third quarter 2025 for the Whitesail Station is presented in Table 5-2.

Table 5-2 Summary of $PM_{2.5}$, SO_2, NO_2, and O_3 Concentrations for the Whitesail Station, July - September 2025

Statistic	$PM_{2.5}$ (µg/m³)[1]				SO_2 (ppb)[1]				NO_2 (ppb)				O_3 (ppb)			
	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3	July	Aug.	Sept.	Q3
1-hour Avg.	3.3	3.6	5.2	4.0	0.5	0.6	0.7	0.5	0.5	0.6	0.8	0.6	14.2	11.4	13.4	12.9
1-Hour Max.	12.0	15.0	29.0	29.0	21.5	10.4	22.9	22.9	5.9	4.1	8.2	8.2	26.0	29.0	31.0	31.0
1-Hour Min.[2]	0.0	0.0	0.0	0.0	-0.5	-0.2	-0.1	-0.5	0.0	0.0	0.1	0.0	1.0	0.0	0.0	0.0
Mean Daily Max.	7.9	8.8	16.6	16.6	2.9	2.0	2.6	2.9	0.8	1.0	1.3	1.3	19.1	17.2	24.9	24.9
Mean Daily Min.	1.0	0.5	1.6	0.5	0.1	0.2	0.3	0.1	0.2	0.3	0.3	0.2	9.3	6.7	5.2	5.2
Percent Data Recovery	98.7	98.7	99.5	99.0	95.1	95.1	94.6	94.9	95.1	95.1	94.6	94.9	92.5	95.1	94.6	94.1
24-hour Daily Max.[3]	7.8	8.6	16.3	16.3	2.7	1.9	2.4	2.7	0.8	1.0	1.3	1.3	--	--	--	--
8-hour Max.	--	--	--	--	--	--	--	--	--	--	--	--	24.0	24.0	29.0	29.0
24-hour Avg.	3.3	3.6	5.2	4.0	0.5	0.6	0.7	0.6	0.5	1.0	0.8	0.6	14.2	11.4	13.4	13.0
Median	3.0	3.0	4.0	3.0	0.1	0.3	0.3	0.3	0.3	0.4	0.5	0.4	15.0	11.0	13.0	13.0

[1] $PM_{2.5}$, SO_2, NO_2, and O_3 third quarter 2025 data for Whitesail provided by Rio Tinto BC Works.

[2] Slightly negative concentrations are inherent with proper analyzer operation due to subtle levels of noise in the zero baseline setpoint. Negative values may be interpreted as zero and only occur when the air is very clean.

[3] 24-hour $PM_{2.5}$ daily maximum concentrations determined from midnight to midnight.

The average $PM_{2.5}$ concentration at Whitesail during the third quarter was 4.0 µg/m^3 and the median $PM_{2.5}$ concentration during the third quarter was 3.0 µg/m^3. The maximum 1-hour $PM_{2.5}$ concentration during the third quarter was 29.0 µg/m^3 which occurred in September. The maximum 24-hour $PM_{2.5}$ concentration for the third quarter was 16.3 µg/m^3 which also occurred in September. During the third quarter, there were no exceedances of the BC 24-hour $PM_{2.5}$ BCAAQO level of 25 µg/m^3.

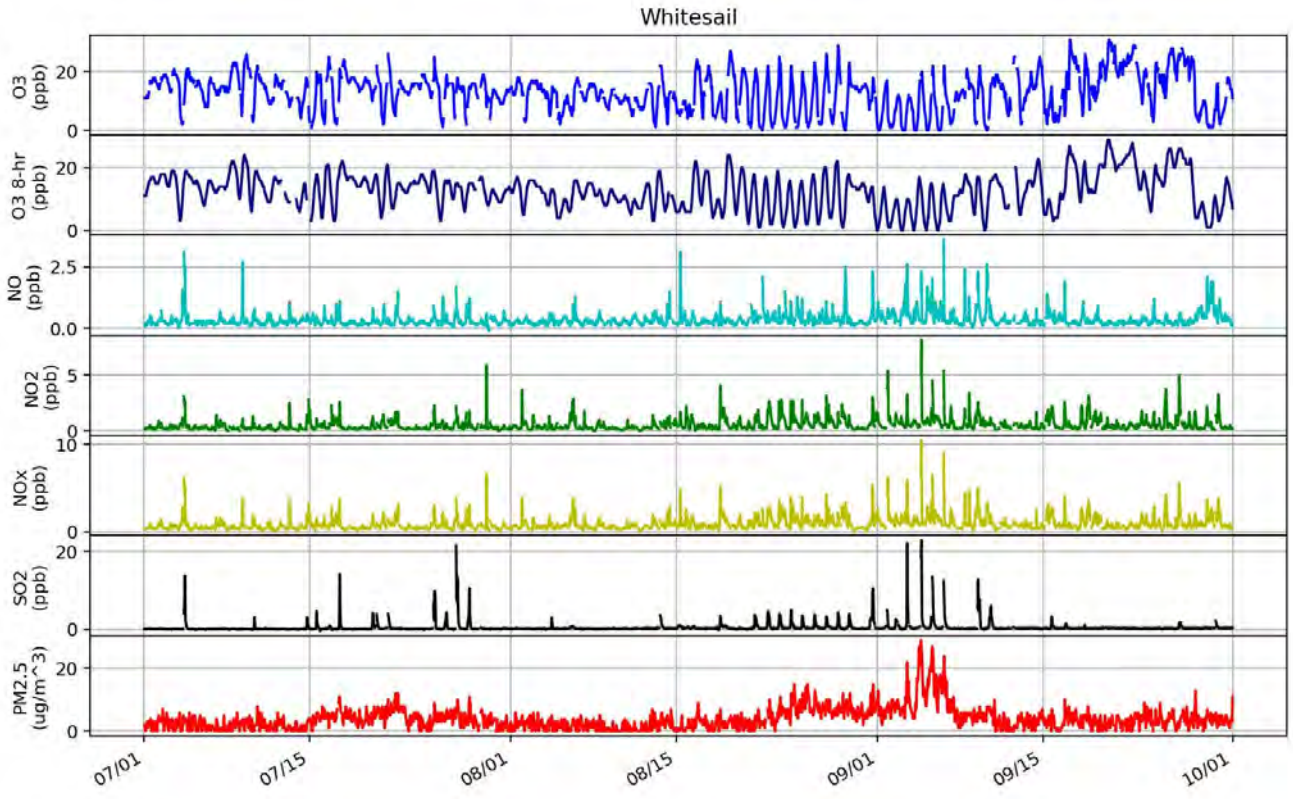
The average SO_2 concentration at the Whitesail for the third quarter was 0.5 ppb with a median concentration of 0.3 ppb. The maximum hourly SO_2 concentration during the third quarter was 22.9 ppb which occurred in September. During the third quarter, there were no exceedances of the 1-hour BCAAQO of 75 ppb or the 1-hour CAAQS of 70 ppb for SO_2 at the Whitesail station.

The average NO_2 concentration at the Whitesail station for the third quarter was 0.6 ppb and the median NO_2 concentration was 0.4 ppb. The maximum hourly NO_2 concentration during the third quarter at Whitesail was 8.2 ppb which occurred in September. During the third quarter, there were no exceedances of the 1-hour NO_2 BCAAQO of 60 ppb at Whitesail station.

The average O_3 concentration at the Whitesail station for the third quarter was 12.9 ppb and the median O_3 concentration was 13.0 ppb. The maximum hourly O_3 concentration of 31.0 ppb occurred in September. The maximum 8-hour O_3 concentration during the third quarter was 29.0 ppb which occurred in September. During the third quarter, there were no exceedances of the 1-hour O_3 BCAAQO advisory level of 82 ppb and the 8-hour CAAQS of 62 ppb at the Whitesail station.

A time series plot of $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations for the third quarter is presented in Figure 5.1.

Figure 5.1 Time Series of 1-Hour Averaged $PM_{2.5}$, SO_2, $NO/NO_2/NO_x$, and O_3/O_3 -8hr Concentration Data for the Whitesail Station, Third Quarter 2025



Wind speed and wind direction data are collected by Rio Tinto BC Works at the Whitesail station. Figures 5.2 through 5.4 present the monthly Whitesail station wind roses for July through September 2025. Figure 5.5 presents a time series plot of Whitesail wind speed and direction, and temperature for the third quarter, 2025.

Figure 5.2 July 2025 Whitesail Station Wind Rose

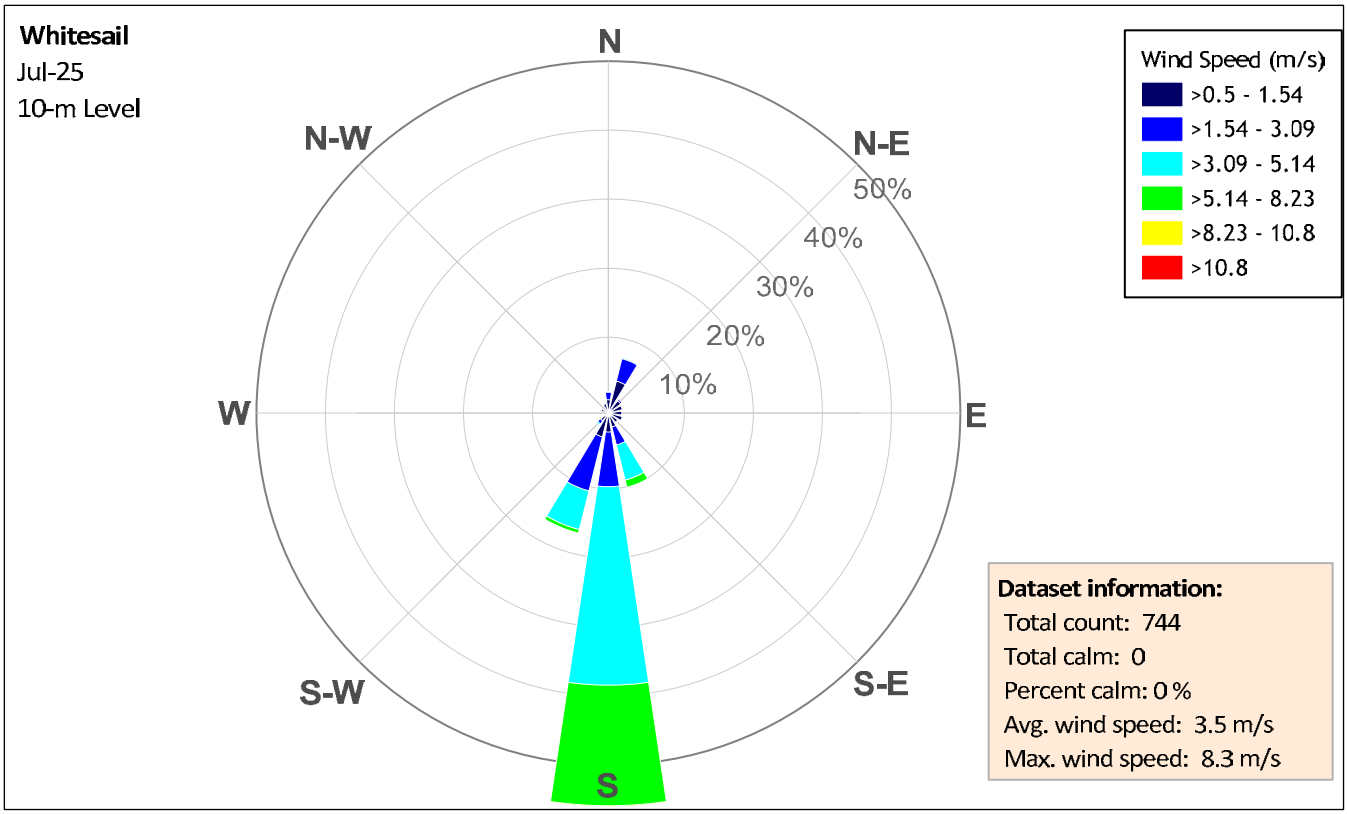


Figure 5.3 August 2025 Whitesail Station Wind Rose

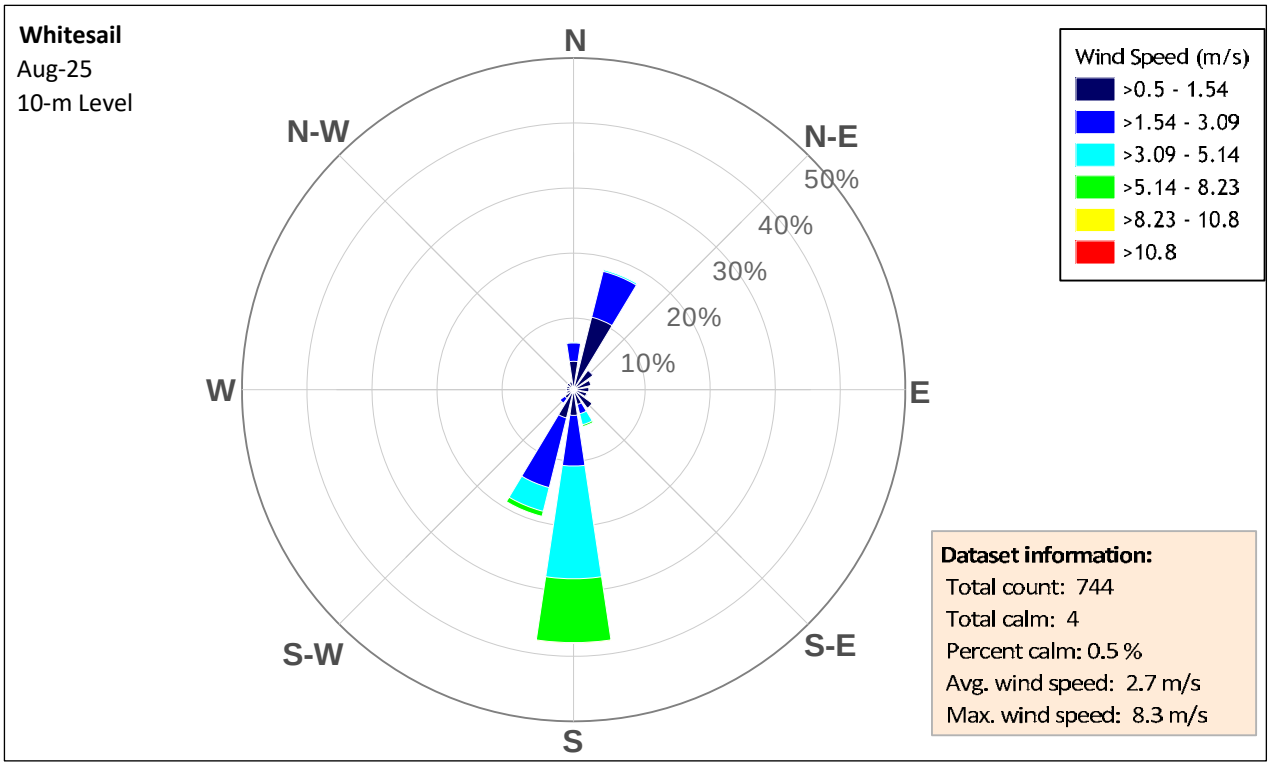


Figure 5.4 September 2025 Whitesail Station Wind Rose

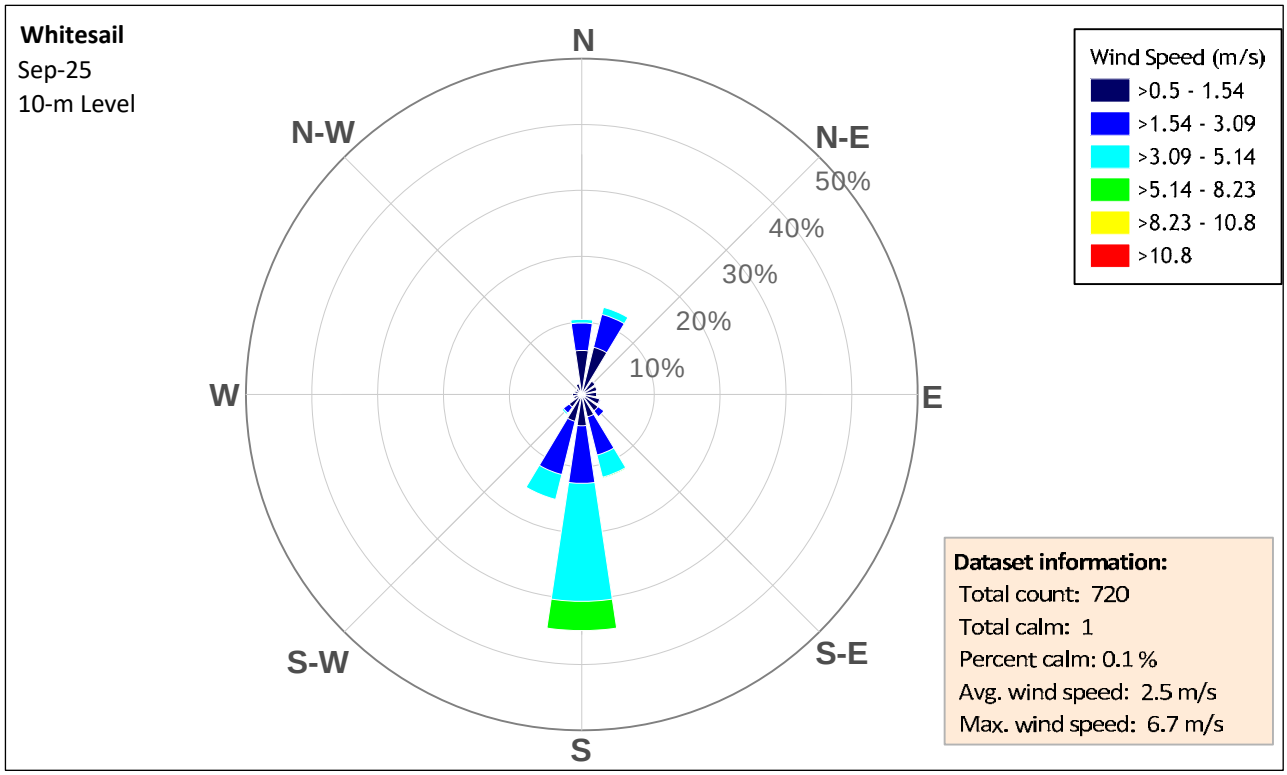
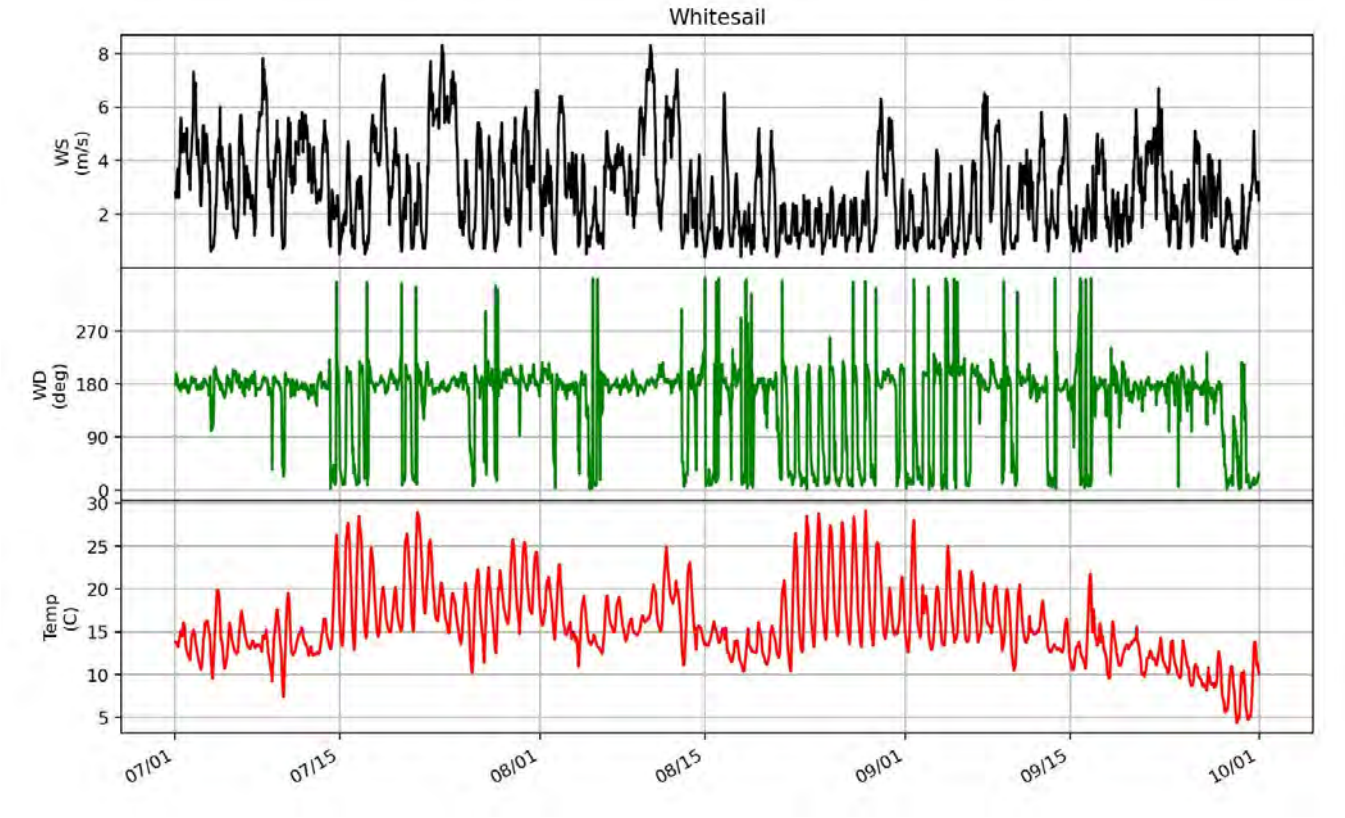


Figure 5.5 Time Series Plot of Wind Speed, Wind Direction, and Temperature Data at Whitesail Station for Third Quarter 2025



5.2 Third Quarter 2025 Ambient Air Monitoring Data Issues

Table 5-3 presents the Whitesail station data shortfall periods and known issues, during the third quarter, that led to pollutant concentration data loss.

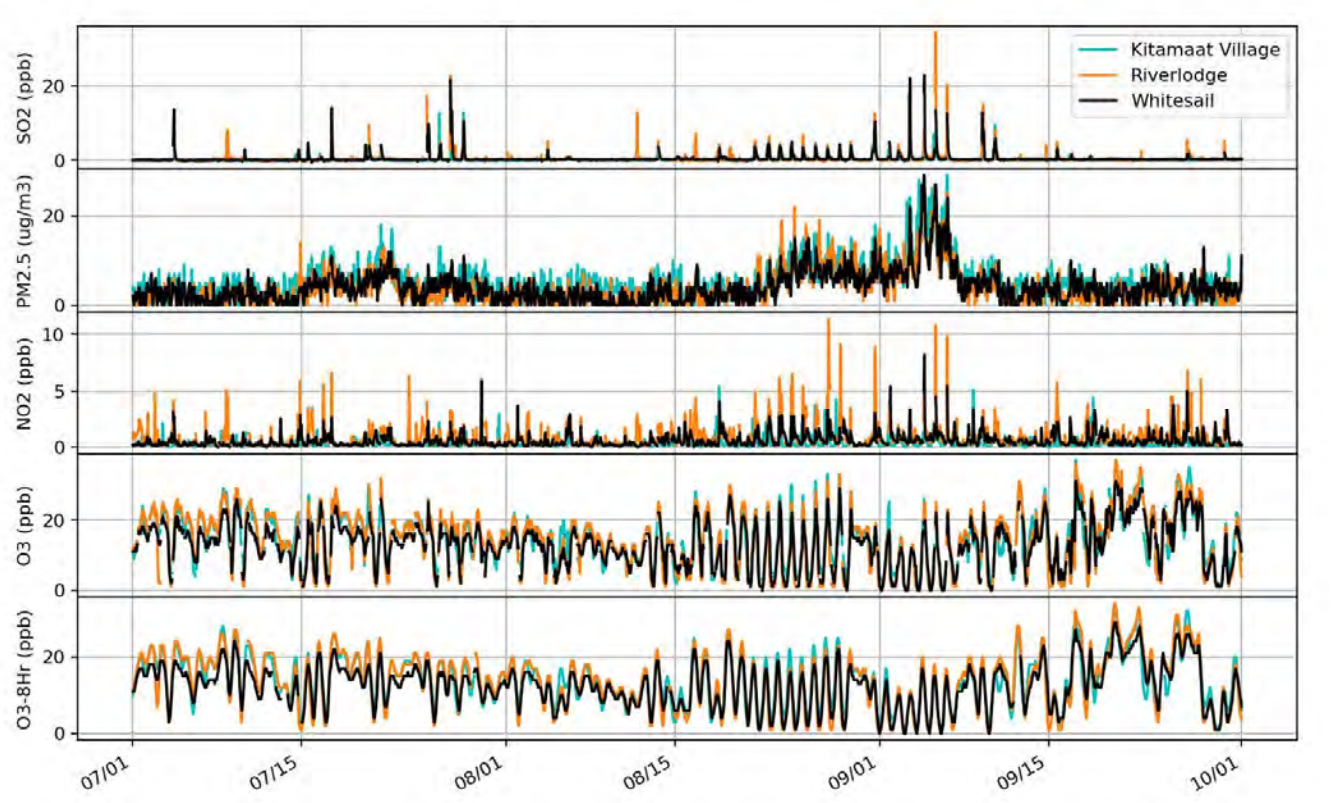
Table 5-3 Data Shortfall Periods and Noted Issues During Third Quarter 2025 at Whitesail Station

Parameter	Date	Time	Date	Time	Total Hours	Reason
$SO_2/NO_x/O_3$	7/10/2025	16:00	7/10/2025	16:00	1	Filter change
$PM_{2.5}$	7/16/2025	09:00	7/16/2025	10:00	2	Power outage
$PM_{2.5}$	7/17/2025	09:00	7/17/2025	10:00	2	Power outage
O_3	7/12/2025	11:00	7/12/2025	12:00	2	Lamp instability
O_3	7/12/2025	20:00	7/12/2025	22:00	3	Lamp instability
O_3	7/13/2025	13:00	7/13/2025	16:00	4	Lamp instability
O_3	7/13/2025	18:00	7/13/2025	21:00	4	Lamp instability
O_3	7/15/2025	01:00	7/15/2025	03:00	3	Lamp instability
O_3	7/16/2025	09:00	7/16/2025	09:00	1	Lamp instability
O_3	7/17/2025	09:00	7/17/2025	10:00	2	Lamp instability
$PM_{2.5}$	7/21/2025	16:00	7/21/2025	17:00	2	Tape replaced; leak check with no adjustment
$SO_2/NO_x/O_3$	7/29/2025	07:00	7/29/2025	10:00	4	MOE Audit
$PM_{2.5}$	7/29/2025	09:00	7/29/2025	10:00	2	MOE Audit
$PM_{2.5}$	7/30/2025	16:00	7/30/2025	17:00	2	Monthly flow rate verification and maintenance
$SO_2/NO_x/O_3$	8/11/2025	10:00	8/11/2025	11:00	2	NO_x as found multipoint verification
$PM_{2.5}$	8/11/2025	17:00	8/11/2025	18:00	2	Power outage
$SO_2/NO_x/O_3$	8/14/2025	15:00	8/14/2025	16:00	2	Filter change
$PM_{2.5}$	8/22/2025	14:00	8/22/2025	16:00	3	Monthly flow rate verification and maintenance
$SO_2/NO_x/O_3$	9/12/2025	09:00	9/12/2025	11:00	3	$NO_x/SO_2/O_3$ as found multipoint verification
$PM_{2.5}$	9/12/2025	09:00	9/12/2025	11:00	3	Monthly flow rate verification and maintenance
$SO_2/NO_x/O_3$	9/12/2025	15:00	9/12/2025	16:00	2	NO_x/SO_2 multipoint verification after maintenance
$SO_2/NO_x/O_3$	9/12/2025	18:00	9/12/2025	18:00	1	O_3 multipoint verification after maintenance
$SO_2/NO_x/O_3$	9/16/2025	12:00	9/16/2025	13:00	2	NO_x as found multipoint verification

6.0 STATION COMPARISON

Figure 6.1 presents comparative time series plots of third quarter 2025 $PM_{2.5}$, SO_2, NO_2, and O_3 concentrations from the Kitamaat Village, Riverlodge, and Whitesail monitoring stations. $PM_{2.5}$ and SO_2 data were obtained from Rio Tinto BC works for Kitamaat Village and Riverlodge stations. $PM_{2.5}$, SO_2, NO_2, and O_3 concentration data were obtained from Rio Tinto BC works for the Whitesail monitoring station. These graphs are useful for evaluating pollutant dispersion and for concentration comparison purposes.

Figure 6.1 Comparison of Hourly $PM_{2.5}$, SO_2, NO_2, and O_3 and 8-hour O_3 Concentrations Kitamaat Village, Riverlodge, and Whitesail Monitoring Locations, Third Quarter 2025



APPENDIX A. SITE NOTES FOR KITAMAAT VILLAGE AND RIVERLODGE

07/01/2025 - Station check and RT activities

Tuesday, July 1, 2025 12:11 PM

Village

Author of Entry: Nathan McMillan

Date of Activity: 07/01/2025
Start Time: 1132
End Time: 1220
Technician: Nathan McMillan

Reason for Visit

Station check and RT activities

Description

Envidas: Clock was 1 second ahead. Updated at 1141.
T200NOx:
Clock was 56 seconds ahead. Updated at 1156.
T400O3
Clock was 56 seconds ahead. Updated at 1157

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1480 psi and line pressure 30 psi.

07/08/2025 - Station check and RT activities

Tuesday, July 8, 2025 1:36 PM

Village

Author of Entry: Nathan McMillan

Date of Activity: 07/08/2025
Start Time: 1320
End Time: 1407
Technician: Nathan McMillan

Reason for Visit

Station check and RT activities.

Description

Envidas: Clock was 6 seconds ahead. Updated at 1328.
T200NOx:
Clock was 82 seconds ahead. Updated at 1344.
T400O3
Clock was 82 seconds ahead. Updated at 1345.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1460 psi and line pressure 30 psi.

07/10/2025 - Inlet filter change

Thursday, July 10, 2025 10:52 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: July 10, 2025
Start Time: 10:45
End Time: 11:57
Technician: Adrienne Kaul

Reason for Visit

Inlet filter change

Description

Envidas:

-Logger was 1 second ahead, no adjustment was made.

T400 O3:

-Clock was 23 seconds ahead and was updated at 11:43. Clock was 1 second ahead after update.

T200 NOx:

-Clock was 23 seconds ahead and was updated at 11:45. Clock was 1 second behind after update.

T700U Calibrator;

-Clock was 23 seconds ahead and was updated at 11:46. Clock was 1 second behind after update.

O3 and NOx:

-Data flagged from 11:20-11:52 for inlet filter change.

-All fittings were tight prior to and after filter change.

-Filter replaced with a 1-2 um filter.

-Ozone generated at 400 ppb from 11:37-11:49.

-Analyzer read 395.1 ppb with 399.8 ppb supplied for second last full minute of run.

-Clock was 1 second behind, no adjustment made.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1450 psi and line pressure 30 psi.

07/15/2025 - RT activities

Tuesday, July 15, 2025 9:36 AM

Village

Author of Entry: Nathan McMillan

Date of Activity: 07/15/2025
Start Time: 0934
End Time: 1016
Technician: Nathan McMillan

Reason for Visit

RT activities

Description

Envidas: Clock was 3 seconds ahead. Updated at 0939.
T200NOx:
Clock was 56 seconds ahead. Updated at 0942.
T400O3
Clock was 56 seconds ahead. Updated at 0954.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1450 psi and line pressure 30 psi.

07/21/2025 - RT Activities

Monday, July 21, 2025 7:17 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: July 21, 2025
Start Time: 7:11
End Time: 12:15
Technician: Adrienne Kaul

Reason for Visit

RT Activities

Description

Envidas:

-Clock was 2 seconds ahead and was updated at 7:24.

-Updates downloaded and installed.

T700U Calibrator:

-Clock was 69 seconds ahead and was updated at 7:29; clock was 1 second behind after update.

T400 O3:

-Clock was 68 seconds ahead and was updated at 7:32.

-Cleaned cobwebs from inlet at 12:15

T200 NOx:

-Clock was 69 seconds ahead was updated at 7:33; clock was 1 second behind after update.

-Cleaned cobwebs from inlet at 12:15

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- NOx RxCell: 4.3 inHg
- SO2 and NO tank pressure 1450 psi and line pressure 30 psi.
- Shelter temperature 31.5 C. Shelter door closed and lights turned off; shelter temperature slowly dropping and approaching spec on departure from site. AC is set to 76 F; no adjustment is likely necessary.

07/22/2025 - RT activities

Tuesday, July 22, 2025 12:20 PM

Village

Author of Entry: Nathan McMillan

Date of Activity: 07/22/2025
Start Time: 1207
End Time: 1245
Technician: Nathan McMillan

Reason for Visit

RT activities

Description

Envidas: Clock was 2 seconds ahead. Updated at 1216.
T200NOx:
Clock was 13 seconds ahead. Updated at 1224.
T400O3
Clock was 12 seconds ahead. Updated at 1225.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1450 psi and line pressure 29 psi.

07/29/2025 - RT activities

Tuesday, July 29, 2025 11:09 AM

Village

Author of Entry: Nathan McMillan

Date of Activity: 07/29/2025
Start Time: 1056
End Time: 1139
Technician: Nathan McMillan

Reason for Visit

RT activities

Description

Envidas: Clock was 1 second ahead. Updated at 1105.
T200NOx:
Clock was 81 seconds ahead. Updated at 1116.
T400O3
Clock was 80 seconds ahead. Updated at 1117.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1420 psi and line pressure 30 psi.

07/29/2025 - MOE audit

Tuesday, July 29, 2025 2:28 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: July 29, 2025
Start Time: 14:35
End Time: 16:45
Technician: Adrienne Kaul, Paul Williams, and Jonathan Lai

Reason for Visit

MOE audit of gas analyzers

Description

Data flagged 14:36-16:33 for audit activities of gas analyzers.
-All pneumatic connections felt tight after audit.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- Truck idling on site 15:45-16:01.
- SO2 and NO cylinder 1450 psi and line pressure 31 psi.

07/30/2025 - RT Activities

Wednesday, July 30, 2025 3:48 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: July 30, 2025
Start Time: 15:46
End Time: 16:53
Technician: Sarah Peden and Adrienne Kaul

Reason for Visit

On site for RT activities

Description

O3 Analyzer:

-Clock was 14 seconds ahead. Adjustment made at 1556. Clock is 1 second behind.

T700:

-Clock was 14 seconds ahead. Adjustment made at 1559. Clock is 1 second behind.

NOX:

-Clock was 14 seconds ahead. Adjustment made at 1601. Clock is 1 second behind.

Inlet:

-Cobwebs cleared from near inlet at 14:28.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO cylinder 1450 psi and line pressure 30 psi.

08/04/2025 - PUF sample change

Monday, August 4, 2025 3:30 PM

Village

Author of Entry: Nathan McMillan

Date of Activity: 08/04/2025
Start Time: 1526
End Time: 1550
Technician: Nathan McMillan

Reason for Visit

PUF sample change only. No station check

Description

PUF:

Deployment
Initial timer: 1391.25
Magnahelic reading: 60

Collection
Final Timer: 1391.25
Magnahelic Reading: 63
Total Run Time: 23.88

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

08/06/2025 - RT activities

Wednesday, August 6, 2025 10:52 AM

Village

Author of Entry: Nathan McMillan

Date of Activity: 08/06/2025
Start Time: 1047
End Time: 1126
Technician: Nathan McMillan

Reason for Visit

RT activities

Description

Envidas: Clock was 1 second ahead. Updated at 1056.
T700U Calibrator:
Clock was 78 seconds ahead and was updated at 1058.
43iSO2:
Clock was 11 seconds behind. Updated at 1058.
BAM1020:
Clock was 81 seconds ahead. No adjustments made.

PUF:

Deployment
Initial timer: 1415.16
Magnahelic reading: 61

Collection
Final Timer: 1415.16
Magnahelic Reading: 60
Total Run Time: 23.91

Notes: 7 day timer was 35 minutes behind.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Wind speed and direction sensors appear to be working normally.
- Ambient temperature aspirator is working.
- SO2 and NO tank pressure 1410 psi and line pressure 31 psi.
- Shelter temperature 25.7 C, within spec.

08/12/2025 - RT activities

Tuesday, August 12, 2025 4:09 PM

Village

Author of Entry: Nathan McMillan

Date of Activity: 08/12/2025
Start Time: 1603
End Time: 1645
Technician: Nathan McMillan

Reason for Visit

RT activities, station check.

Description

Envidas: Clock was 1 second ahead. Updated at 1613.
T700U Calibrator:
Clock was 72 seconds ahead and was updated at 1616.
43iSO2:
Clock was 9 seconds behind. Updated at 1618.
BAM1020:
Clock was 81 seconds ahead. No adjustments made.

PUF:

Deployment
Initial timer: 1439.07
Magnahelic reading: 60

Collection
Final Timer: 1439.07
Magnahelic Reading: 56
Total Run Time: 23.91

Notes: 7 day timer was 15 minutes behind.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____
  (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Wind speed and direction sensors appear to be working normally.
- Ambient temperature aspirator is working.
- SO2 and NO tank pressure 1410 psi and line pressure 31 psi.
- Shelter temperature 26.8 C, within spec.

08/19/2025 - Inlet filter changes and PUF

Tuesday, August 19, 2025 9:58 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: August 19, 2025
Start Time: 9:57
End Time: 12:37
Technician: Adrienne Kaul

Reason for Visit

On site for inlet filter changes

Description

T700U Calibrator:
- -Clock was 57 seconds ahead and was updated at 10:09. Clock was 1 second ahead after update.

Envidas logger:
- -Clock was 1 second ahead and no adjustment was made.

BAM 1020 PM2.5:
- -Clock was 81 seconds ahead and no adjustment was made.

SO2 43i:
- -Clock was 12 seconds behind and was updated at 10:12.
- -Data flagged 10:45-11:31 for inlet filter change.
  - -All manifold and analyzer connections were tight prior to filter change.
  - -Inlet filter replaced with a 1-2 um filter.
  - -Filter pre-conditioned with 400 ppb Ozone from 11:15-11:29.
  - -All connections felt tight after filter change.

Router:
- -Hard reset 10:14-10:15.
- -Password was updated and port forwarding was enabled.
- -Rebooted at 10:34.
- -List of port forwarding local IPs was added and port forwarding was enabled.
- -Rebooted at ~11:14.

PUF sampler:
- -Sample off ETI: 1463.045 hours, magnehelic reading: 50.5" water and 7 day timer ~0.25 hours behind.
  - -Sample top filter was black, magnehelic reading was low, and motor did not sound like it was working normally.
- -Sample on ETI: 1463.045, magnehelic reading: 52.25" water, and 7 day timer set to correct time.

Envidas logger:
- -Clock was 3 seconds ahead and was updated at 12:33.

HVAC:
- -AC filter cleaned.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings:
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)

- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- T200 alert: 08/14/2025 4:55:01 PM System Reset. Warning raised when the system is reset.
- T400 alert: 08/14/2025 4:54:57 PM System Reset. Warning raised when the system is reset.
- T700U alert: 08/14/2025 4:54:52 PM System Reset. Warning raised when the system is reset.
- SO2 and NO tank pressure 1400 psi and line pressure 32 psi.
- Ambient temperature aspirator is working.
- Station temperature 25.5 C, within spec.
- Wind speed and direction sensors appear to be working normally.

08/22/2025 - BAM 1020 and PUF maintenance

Friday, August 22, 2025 7:16 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: August 22, 2025
Start Time: 7:10
End Time: 12:26
Technician: Adrienne Kaul

Reason for Visit

On site to calibrate PUF sampler and change motor after odd PUF sample for 08/17/2025 and for monthly maintenance of PM2.5 monitor

Description

Envidas logger:

-Downloaded and installed windows updates.
-Clock was 2 seconds ahead and was updated at 7:20.
-Service manager frozen at 7:48; restarted computer at 7:48 and resolved issue. Some data may need to be backfilled from CSI logger to Envidas
-Computer restarted at 8:48 to allow windows updates to take effect.

SO2 43i:

-Clock was 4 seconds behind and was updated at 7:21.
-Cobwebs cleared from near inlet at 7:44.

T700U Calibrator:

-Clock was 35 seconds ahead and updated at 7:23.

BAM 1020 PM2.5:

-Clock was 81 seconds ahead and no adjustment was made.
-In maintenance mode 8:00-9:07.
-As found leak, pressure, temperature and flows within spec.
-No adjustments made.
-Collected tape to review for abnormalities on 08/17/2025 that could be related to abnormal PM capture on PUF sampler.
-Cleaned nozzle vane, capstan, pinch rollers and PM10 and PM2.5 heads. Replaced one large o-ring in PM10 head; it looked like it had previously been pinched but damage was minor and likely did not affect seal.
-Tape self-test passed.
-After maintenance leak check within spec.

Station maintenance:

-Swept station.

PUF:

-Removed sample deployed on 08/19/2025.
-Passing as found calibration performed. Motor had burning smell when running.
-Motor assembly removed and motor replaced; no burning smell was observed.
-Replaced magnehelic gauge and rubber tubing to gauge.
-Passing after maintenance calibration performed.
-New sample deployed ETI: 1463.88 hours, and magnehelic gauge reading 55.25" water. 7-day timer set to operate on 08/23/2025 starting at 00:00 PST.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI

- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure is 1390 psi and line pressure is 32 psi.
- Shelter temperature 25.4 C, within spec.
- Wind speed and direction sensors appear to be working normally.
- Ambient temperature aspirator is working.
- Cobwebs near passive samplers were cleared.

PDF

Kitimat - Kitamaat

Trinity Consultants

MET ONE BETA ATTENUATION MASS MONITOR - $PM_{2.5}$

CALIBRATION

SITE NAME	Kitamaat Village	**Date** 8/22/2025	**Start Time** 8:00
PROJECT	257201.0086		**Stop Time** 9:07
SITE OPERATOR	Trinity Consultants		

Analyzer Mfg	Met One Instruments
Analyzer Model	BAM 1020
Analyzer s/n	N15835

= Cell Containing Equations

CALIBRATION EQUIPMENT:

	Model	Serial Number
Temperature Standard	BGI Delta Cal DC1	179773
Pressure Standard	BGI Delta Cal DC1	179773
Flow Standard	BGI Delta Cal DC1	179773
Certification Date	12/2/2024	

LEAK CHECK

As Found	0.4	LPM
As Left	0.4	LPM

LEAK CHECK CRITERIA
LEAK < 1.0 LPM

TEMPERATURE SENSOR CALIBRATION

	BAM Temp.	Ref. Std. Temp.	DIFF.
As Found	17.0	16.2	0.8
As Left			

TEMPERATURE CRITERIA
DIFFERENCE < ±2.1°C

PRESSURE SENSOR CALIBRATION

	BAM Press.	Ref. Std. Press.	DIFF.
As Found	764	763.5	0.5
As Left			

PRESSURE CRITERIA
DIFFERENCE < ±10.1 mm Hg

FLOW CALIBRATION

BAM TARGET	*As Found (LPM)* BAM Flow	Ref. Std. Flow	% DIFFERENCE REFERENCE	% DIFFERENCE DESIGN
15.0	15.0	15.12	-0.8%	0.8%
18.4	18.4	18.60	-1.1%	1.1%
16.7	16.7	16.82	-0.7%	0.7%

BAM TARGET	*As Left (LPM)* BAM Flow	Ref. Std. Flow	% DIFFERENCE REFERENCE	% DIFFERENCE DESIGN
15.0				
18.4				
16.7				

FLOW CRITERIA
DIFFERENCE < ±10.1%

COMMENTS
Leak test fluctuation between -0.1 and 0.9 lpm for as found leak test. Flow rate prior to leak test was 16.2 lpm and 16.1 lpm after. No adjustment made to temperature or flows due to unstable conditions. After maintenance leak test fluctuation 0.5 to -0.1 lpm. Flow was 16.1 lpm prior to test

MONTHLY MAINTENANCE

- [x] Nozzle and vane cleaning
- [x] Leak Check
- [x] Flow Rate Verification
- [x] Clean Capstan & Pinch Rollers
- [x] Clean PM_{10} Head
- [x] Check Error Log
- [ ] Download Digital Data Log
- [ ] Replace Filter Tape
- [x] Other Tape self-test passed

Calibrated By Adrienne Kaul

TE-1000-PUF-

TE-1000 PUF Calibration Worksheet
As Found

Site Information

Location:	Kitimat	**Site ID:**	[illegible]	**Date:**	22-Aug-25
Sampler:	GPS1	**Serial No:**	14145	**Tech:**	Adrienne Kaul

Site Conditions

Barometric Pressure (in Hg):		**Corrected Pressure (mm Hg):**	763.5
Temperature (deg F):		**Temperature (deg K):**	292.1
Average Pressure (in Hg):		**Corrected Average Pressure (mm Hg):**	cal only
Average Temperature (deg F):		**Average Temperature (deg K):**	cal only

Calibration Orifice

Make:	Tisch	**Qstd Slope:**	6.02238
Model:	TE-5040A	**Qstd Intercept:**	-0.01469
Serial#:	4013	**Calibration Due Date:**	21-Apr-26

Calibration Information

Plate or Test #	Pressure (in H_2O)	Qstd (m3/min)	Flow (magn)	Flow (corrected)
70	7.20	0.278	70.00	5.17
60	6.35	0.261	60.50	4.81
50	5.75	0.249	51.50	4.44
40	4.55	0.221	40.50	3.94
30	3.50	0.195	30.25	3.40

Linear Regression

Slope: 21.1767
Intercept: -0.7471
Corr. Coeff: 0.9976
# of Observations: 5

Calculations

Qstd = 1/m[Sqrt((H20)(Pa/760)(298/Ta))-b]
Flow (corrected)=Sqrt((magn)(Pa/Pstd)(Tstd/Ta))

Qstd = standard flow rate
Flow (magn)= reading from magnehelic gauge
Flow (corrected)= corrected flow rate
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
Qstd = 1/m[Sqrt((H20)(Pa/760)(298/Ta))-b]

m = sampler slope
b = sampler intercept
(magn) = magnehelic reading
Tav = daily average temperature
Pav = daily average pressure

Average Flow (magn): cal only
Average Flow Over Sample (m3/min)
cal only
Enter Total Time (hrs):
Total Flow Over Sample (m3)
cal only
Total Flow Over Sample (liters)
cal only

NOTE: Ensure calibration orifice has been certified within 12 months of use

TE-1000-PUF-

TE-1000 PUF Calibration Worksheet
After Maintenance

Site Information

Location:	Kitimat	**Site ID:**	[illegible]	**Date:**	22-Aug-25
Sampler:	GPS1	**Serial No:**	14145	**Tech:**	Adrienne Kaul

Site Conditions

Barometric Pressure (in Hg):		**Corrected Pressure (mm Hg):**	763.0
Temperature (deg F):		**Temperature (deg K):**	295.4
Average Pressure (in Hg):		**Corrected Average Pressure (mm Hg):**	cal only
Average Temperature (deg F):		**Average Temperature (deg K):**	cal only

Calibration Orifice

Make:	Tisch	**Qstd Slope:**	6.02238
Model:	TE-5040A	**Qstd Intercept:**	-0.01469
Serial#:	4013	**Calibration Due Date:**	21-Apr-26

Calibration Information

Plate or Test #	Pressure (in H_2O)	Qstd (m3/min)	Flow (magn)	Flow (corrected)
70	6.70	0.270	69.50	5.19
60	6.00	0.255	60.25	4.83
50	5.20	0.238	50.25	4.41
40	4.40	0.219	40.00	3.93
30	3.50	0.196	29.75	3.39

Linear Regression

Slope:	24.2471
Intercept:	-1.3627
Corr. Coeff:	0.9999
# of Observations:	5

Calculations

Qstd = 1/m[Sqrt((H20)(Pa/760)(298/Ta))-b]
Flow (corrected)=Sqrt((magn)(Pa/Pstd)(Tstd/Ta))

Qstd = standard flow rate
Flow (magn)= reading from magnehelic gauge
Flow (corrected)= corrected flow rate
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
Qstd = 1/m[Sqrt((H20)(Pa/760)(298/Ta))-b]

m = sampler slope
b = sampler intercept
(magn) = magnehelic reading
Tav = daily average temperature
Pav = daily average pressure

Average Flow (magn):	cal only
Average Flow Over Sample (m3/min)	
cal only	
Enter Total Time (hrs):	
Total Flow Over Sample (m3)	
cal only	
Total Flow Over Sample (liters)	
cal only	

NOTE: Ensure calibration orifice has been certified within 12 months of use

08/26/2025 - RT PUF sample change

Tuesday, August 26, 2025 1:34 PM

Village

Author of Entry: Sarah Peden & Adrienne Kaul

Date of Activity: August 26, 2025
Start Time: 13:32
End Time: 14:35
Technician: Adrienne Kaul and Sarah Peden

Reason for Visit

PUF sample change and station check.

Description

Envidas logger:

-Clock was 2 seconds ahead and was updated at 13:38.

T700:

-Clock was 111 seconds ahead and was updated at 13:51

BAM 1020 PM2.5:

-Clock was 83 seconds ahead and no adjustment was made.

-Checked and wiped PM10 grit pot during measurement cycle 13:54-13:55; did not affect hourly measurement.

Gas analyzer inlet:

-Cleared cobwebs at 13:57.

43i SO2:

-Clock 6 seconds behind and updated at 14:00.

PUF:

-Sample collected ETI: 1487.88 hours, and magnehelic gauge reading 54.0" water. 7 day timer ~40 minutes behind

-Bird scat on exterior sampler

-Some scuffs (no holes) on the filter.

-Feather on sample.

-Damage appears to have happened after sampling.

-Chimes are working.

-New sample deployed ETI: 1487.88 hours, and magnehelic gauge reading 56.5" water. 7-day timer set to operate on 08/29/2025 starting at 00:00 PST.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: None
- [x] Check for calibrator warnings: None
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure is 1400 psi and line pressure is 30 psi.

- A lot of spiderwebs present around the gas analyzer inlet.
- Shelter temperature 30.4 C, above spec.

08/29/2025 - Passive SO2 sampling

Thursday, September 11, 2025 1:33 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: August 29, 2025
Start Time: 9:40
End Time: 10:00
Technician: Adrienne Kaul and Sarah Peden

Reason for Visit

On site to collect and deploy passive SO2 samples.

Description

Station was not opened during visit. Passive sampling media was exchanged on roof.

Site Visit Checklist

- ☐ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☐ Zero air system pressure at 30 PSI
- ☐ Calibration gas cylinder pressure at 30 PSI
- ☐ Calibration gas tank pressure > 500 PSI
- ☐ Check for analyzer warnings: _____
- ☐ Check for calibrator warnings: _____
- ☐ Analyzer filters exchanged
- ☐ MFC checks performed (semi-annual)
- ☐ Inlet Teflon exchanged (annual)
- ☐ Zero Air media replaced (annual)
- ☐ Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- ☐ Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

09/02/2025 - PUF Sampling

Tuesday, September 2, 2025 2:21 PM

Village

Author of Entry: Sarah Peden

Date of Activity: September 2, 2025
Start Time: 14:14
End Time: 15:25
Technician: Sarah Peden

Reason for Visit

Onsite for PUF Sampling.

Description

Envidas logger:

-Clock was 2 seconds ahead and was updated at 14:25.

T200 NOx:

-Clock was 100 seconds ahead and was updated at 14:36.

T400 O3:

-Clock was 80 seconds ahead and was updated at 14:35.

T700:

-Clock was 131 seconds ahead and was updated at 14:32

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure is 1400 psi and line pressure is 32 psi.

09/09/2025 - Inlet Filter Changes

Tuesday, September 9, 2025 11:50 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: September 9, 2025
Start Time: 11:50
End Time: 12:40
Technician: Adrienne Kaul

Reason for Visit

On site to change inlet filters

Description

Cobwebs near analyzer inlet line-Cobwebs were cleared at 12:24

NOx and O3 inlet filter changes:

-Data flagged 11:56-12:35
-All connections felt tight prior to filter change
-Filter assembly cleaned.
-Filters replaced with 1-2 um filter.
-400 ppb ozone running through system 12:13-12:32
-Analyzer read 401.6 ppb with 399.9 ppb supplied for the last full minute of the run.
-All connections felt tight after filter change

T700U Calibrator:

-Clock was 1 minute and 21 seconds ahead and was updated at 12:18.

T400 O3:

-Clock was 80 seconds ahead and was updated at 12:19.

T200 NOx:

-Clock was 79 second ahead and was updated at 12:20. Clock was 1 second ahead after update.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1380 psi and line pressure 32 psi.

09/11/2025 - PUF Sample Change

Thursday, September 11, 2025 3:48 PM

Village

Author of Entry: Sarah Peden

Date of Activity: September 11, 2025
Start Time: 15:41
End Time: 16:30
Technician: Sarah Peden

Reason for Visit

Onsite for PUF Sample change.

Description

Envidas logger:

-Clock was 1 seconds ahead and was updated at 15:51.

T200 NOx:

-Clock was 25 seconds ahead and was updated at 15:53.

T400 O3:

-Clock was 26 seconds ahead and was updated at 15:54.

T700:

-Clock was 23 seconds ahead and was updated at 15:56.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1380 psi and line pressure 32 psi.

09/17/2025 - PUF Sample Change

Wednesday, September 17, 2025 10:28 AM

Village

Author of Entry: Sarah Peden

Date of Activity: September 17, 2025
Start Time: 10:26
End Time: 11:00
Technician: Sarah Peden

Reason for Visit

Onsite for PUF sample change.

Description

Envidas logger:

-Clock was 1 seconds ahead and was updated at 10:31.

T200 NOx:

-Clock was 65 seconds ahead and was updated at 10:32.

T400 O3:

-Clock was 64 seconds ahead and was updated at 10:34.

T700:

-Clock was 67 seconds ahead and was updated at 10:34.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1350 psi and line pressure 31 psi.

09/23/2025 - PUF Sample Change

Tuesday, September 23, 2025 12:18 PM

Village

Author of Entry: Micah May

Date of Activity: Sept 23, 2025
Start Time: 12:09
End Time: 12:45
Technician: Micah May & Sarah Peden

Reason for Visit

Onsite PUF sample change.

Description

Envidas logger:

-Clock was 1 second ahead and was updated at 12:16

T200 NOx:

-Clock was 70 seconds ahead and was updated at 12:22.

T400 O3:

-Clock was 71 seconds ahead and was updated at 12:21.

T700:

-Clock was 70 seconds ahead and was updated at 12:17.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1350 psi and line pressure 31 psi.

09/24/2025 - NOx/O3 As Found MP

Wednesday, September 24, 2025 1:29 PM

Village

Author of Entry: Wyndam Lewis

Date of Activity: 9/24/25
Start Time: 1120
End Time: 1430
Technician: WL

Reason for Visit

Perform routine quarterly multipoint verifications.

Description

NOx As found MP verification
O3 As found MP verification
Also performed RT activities

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

NITROGEN OXIDES CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Village
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 9/24/2025 **Start Time** 11:35
Stop Time 13:05

Analyzer Mfg Teledyne-API
Analyzer Model T200
Analyzer s/n 8598

Analyzer Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 905
Cert Date: 4/23/2025

Gas: Linde
Concentration: 10.0 ppm
Serial #: DT0046813
Certification Date: 4/4/2024
Expiration Date: 4/4/2027

Zero Air Source: T-API
Model: T701
Serial #: 2555
Certification Date: 5/20/2024

INPUT (X)	RESPONSE (Y)			NO	NO BEST-FIT DETERMINATION		
NO (PPB)	NO (PPB)	NO_2 (PPB)	NO_X (PPB)	% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.1	-0.1	0.0	/	-0.6	0.68	0.1%
40.1	38.8	-0.4	38.4	-3.1%	38.9	-0.08	0.0%
89.8	87.4	-0.3	87.1	-2.7%	87.8	-0.45	-0.1%
139.7	136.4	0.2	136.6	-2.4%	137.0	-0.58	-0.1%
199.2	195.6	0.2	195.7	-1.8%	195.6	0.04	0.0%
299.2	294.4	-0.1	294.4	-1.6%	294.0	0.39	0.1%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: *All points within ±2% of calibration range of best-fit straight line*

NO_X	NO_X BEST-FIT DETERMINATION		
% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-0.8	0.81	0.2%
-4.1%	38.7	-0.28	-0.1%
-3.0%	87.7	-0.63	-0.1%
-2.2%	136.9	-0.32	-0.1%
-1.8%	195.6	0.14	0.0%
-1.6%	294.1	0.28	0.1%

	NO	NO_x		NO	NO_x
Slope (m)	0.9845	0.9856	1.05 to 0.95	1.0157	1.0146
Intercept (b)	-0.5626	-0.7719	(≤ ± 10)	0.5739	0.7861
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	0.99999	0.99999
Average % Difference	-2.32%	-2.53%		2.32%	2.53%

Calibrated By Wyndam Lewis

= cell containing equations

Template Revised 7/10/23

NITROGEN DIOXIDE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME	LNG Kitimat Village	**Date**	9/24/2025	**Start Time**	11:35
PROJECT	244501.0077			**Stop Time**	13:05
SITE OPERATOR	Trinity				

Analyzer Mfg	Teledyne-API	**Analyzer Range 0-**	500 **PPB**
Analyzer Model	T200		
Analyzer s/n	8598		

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.0 ppm	**Model:**	T701
Serial #:	905	**Serial #:**	DT0046813	**Serial #:**	2555
Cert Date:	4/23/2025	**Certification Date:**	4/4/2024	**Certification Date:**	5/20/2024
		Expiration Date:	4/4/2027		

	CAL INPUT (X)		CALC ACTUAL	DAS RESPONSE (Y)			CALCULATED (Y)					% DIFF
							[ORIG]		[REM]		[CONV]	
	NO	O_3	$[NO_2]_A$	NO	NO_X	NO_2	NO	NO_X	NO	NO_X	NO_2	NO_2
	(PPB)	(PPB)	(PPB)	(PPB)	(PPB)	(PPB)	(PPB)	(PPB)	(PPB)	(PPB)	(PPB)	(% OR PPB)
TITRATION	0.0	0.0	0.0	0.1	0.0	-0.1	---	---	---	---	-0.08	-0.1 ppb
	300.0	250.0	247.1	51.1	291.4	240.3	299.6	299.5	52.5	296.4	244.04	-2.7%
	300.0	150.0	141.3	155.3	291.7	136.4	299.6	299.5	158.3	296.7	138.54	-3.5%
	300.0	70.0	67.0	228.4	294.4	66.0	299.6	299.5	232.6	299.5	67.03	-1.5%

NO TITRATION

299.2	0.0	---	294.4	294.4	-0.1

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$

$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9840 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)

*(m * 100) =* 98.4% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION		
Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.1	-0.20	0.0%
240.0	0.29	0.1%
137.3	-0.89	-0.2%
65.2	0.80	0.2%

Criteria: *All points within ±2% of calibration range of best-fit straight line*

Calibration Regression Analysis: *Corr. Analyzer Response (Y)=m(calib input(X))+b*

	NO_2		NO	NO_x
Slope (m)	0.9708	1.05 to 0.95	1.0157	1.0146
Intercept (b)	0.1274	(≤ ± 10)	0.5739	0.7861
Correlation Coefficent (r)	0.99998	(≥ 0.995)	1.0000	1.0000
Average % Difference	-2.58%		2.32%	2.53%

Calibrated By Wyndam Lewis

= cell containing equations

OZONE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Village
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 9/24/2025 **Start Time** 13:20
Stop Time 14:20

Analyzer Mfg Teledyne-API
Analyzer Model T400
Analyzer s/n 7486

Analyzer Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	N/A	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	N/A	**Model:**	T701
Serial #:	905	**Serial #:**	N/A	**Serial #:**	2555
Cert Date:	N/A	**Certification Date:**	N/A	**Certification Date:**	5/20/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard
m: 1
b: 0
r:
Calibration Date:

INPUT (Txfr Standard) Raw Input (PPB)	Corrected (X) (PPB)	RESPONSE (Y) (PPB)	% DIFF.	BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.0	0.4	/	0.5	-0.10	0.0%
40.0	40.0	41.5	3.80%	41.4	0.12	0.0%
90.1	90.1	92.6	2.77%	92.6	0.03	0.0%
150.1	150.1	153.3	2.13%	153.9	-0.56	-0.1%
250.0	250.0	255.7	2.28%	255.9	-0.21	0.0%
399.9	399.90	409.1	2.30%	409.0	0.07	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	1.021	1.05 to 0.95
Intercept(b)	0.535	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	2.66%	

COMMENTS

Calibrated By Wyndam Lewis

= cell containing equations

09/25/2025 - RT Activities

Thursday, September 25, 2025 8:47 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: September 25, 2025
Start Time: 8:39
End Time: 10:30
Technician: Adrienne Kaul

Reason for Visit

On site for RT Activities

Description

T400 O3:

-Clock was 21 seconds ahead and was updated at 10:14. Clock was 1 second ahead after adjustment.

T700 Calibrator:

-Clock was 21 seconds ahead and was updated at 10:15.

T200 NOx:

-Clock was 22 seconds ahead and was updated at 10:16. Clock was 1 second behind after update.

Envidas:

-Clock was 1 second ahead and no adjustment was made.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1340 and line pressure 32 psi.

09/26/2025 - Envidas outage

Friday, September 26, 2025 9:05 AM

Village

Author of Entry: Adrienne Kaul

Date of Activity: September 26, 2025
Start Time: 7:55
End Time: 8:19
Technician: Adrienne Kaul

Reason for Visit

Investigate ministry polling interruption.

Description

Envidas logger:

-Attempted to restart service manager but was unable to do so.

-Installed windows updates and restarted logger and Envidas service manager. Polling resumed.

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

09/27/2025 - RT Activities

Sunday, September 28, 2025 1:08 PM

Village

Author of Entry: Adrienne Kaul

Date of Activity: September 27, 2025
Start Time: 13:12
End Time: 13:24
Technician: Adrienne Kaul and Sarah Peden

Reason for Visit

RT Activities

Description

[describe what activities were performed during the maintenance]

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

09/30/2025 - PUF Sample Change

Tuesday, September 30, 2025 1:36 PM

Village

Author of Entry: Sarah Peden

Date of Activity:
Start Time: 13:13
End Time: 14:05
Technician: Sarah Peden

Reason for Visit

On site for PUF sample change.

Description

T400 O3:

-Clock was 61 seconds ahead and was updated at 13:41

T700 Calibrator:

-Clock was 61 seconds ahead and was updated at 13:34.

T200 NOx:

-Clock was 59 seconds ahead and was updated at 13:40

Envidas:

-Clock was 2 second ahead and was updated at 13:31.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance *(Second Quarter)*

Site Observations

- SO2 and NO tank pressure 1350 and line pressure 31 psi.

07/03/2025 - Weekly Site Check

Thursday, July 3, 2025 1:36 PM

Riverlodge

Author of Entry: Kayeanna Mackenzie and Adrienne Kaul

Date of Activity: 07/03/2025
Start Time: 13:24
End Time: 14:03
Technician: Adrienne Kaul, Kayeanna Mackenzie

Reason for Visit

Weekly site check

Description

Envidas logger:

Clock was 2 seconds ahead

Clock time fixed at 13:53

G2205 Clock was 14 seconds behind - synced and updated at 13:53

T200 clock 48 seconds ahead - synced and updated at 13:55

T400 clock 48 seconds ahead - synced and updated at 13:56

N901 clock accurate

T700U clock 47 seconds ahead - synced and updated at 13:57 - 1 second behind after update

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: ___see below_____
- [x] Check for calibrator warnings: __see below_____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, C3H8, CH4, and NO 16.60 psi tank pressure and line pressure 33psi
- CH4 tank pressure 2000 psi and line pressure 35 psi.
- Nitrogen UHP tank pressure 1480 psi and line pressure 72 psi.
- Hydrogen UHP tank pressure 1750 psi and line pressure 55 psi.
- T200 alert 06/29/2025 5:05:47 PM system reset
- T400 alert 06/29/2025 5: 05:35 PM time sync failure
- T700U 06/29/2025 5:05:42 PM system reset
- HF inline heater 63C at 13:59

- Site is extremely dusty and needs to be vacuumed.

07/08/2025 - Inlet filter change

Tuesday, July 8, 2025 7:26 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: July 8, 2025
Start Time: 7:23
End Time: 8:26
Technician: Adrienne Kaul

Reason for Visit

On site to perform station check and change inlet filters

Description

Envidas:

-Clock accurate.

G2205 HF:

-Clock was 12 seconds behind and was updated at 7:28.

T700U Calibrator:

-Clock was 53 seconds ahead and was updated at 7:30. Clock was 1 second behind after update.

N901 CH4, NMHC, and THC:

-Clock was synced at 7:33. Clock was 1 second behind before and after adjustment.

T200 NOx:

-Clock was 53 seconds ahead and was updated at 7:36.

T400 O3:

-Clock was 44 seconds ahead and was updated at 7:38.

C3H8, CH4, THC, NOx and O3:

-Data flagged 7:45-8:21

-NOx and O3 filters replaced with new 1-2 um filters.

-SO2 running at 160 ppb from 8:07-8:15.

-All accessible connections felt secure after filter change.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- CH4, C3H8, NO, and SO2 tank pressure 1650 psi and line pressure 32 psi.

07/10/2025 - RT Activities and THC quarterly MP

Thursday, July 10, 2025 12:21 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: July 10, 2025
Start Time: 11:16; 13:17
End Time: 12:16; 14:25
Technician: Adrienne Kaul

Reason for Visit

RT Activities

Description

Envidas logger:

-Clock was 1 second ahead and no adjustment was made.

T700 Calibrator:

-Clock was 26 seconds ahead and was updated at 13:10.

N901 CH4, C3H8, and THC:

-Clock 1 second behind, no adjustment made.

-Initial MP calibration 8 ppm point analyzer response was low (<-13%); potential poor stabilization.

-Repeat MP calibration showed good analyzer response for all calibration points.

T400 O3:

-Clock was 26 seconds ahead and was updated at 14:14.

T200 NOx:

-Clock was 26 seconds ahead and was updated at 14:15.

T200 NOx, T400 O3 and N901 CH4, C3H8, and THC:

-Analyzers flagged 13:45-14:22 to maintain for RT activities and MP calibrations.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, C3H8, and CH4 tank pressure 1660 psi and line pressure 32 psi.
- CH4 tank pressure 2000 psi and line pressure 35 psi.
- UHP Nitrogen tank pressure 1210 psi and line pressure 72 psi.
- UHP Hydrogen tank pressure 1120 psi and line pressure 55 psi.
- Shelter temperature 27.2 C, within spec.

KitimatRive...
2025-0710

METHANE, NON-METHANE, TOTAL HYDROCARBON CALIBRATION SHEET

As Found Multi-point Verification

Trinity Consultants

SITE NAME LNG Kitimat Riverlodge
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 7/10/2025 **Start Time** 11:16 **Stop Time** 12:16

Analyzer Mfg Teledyne-API
Analyzer Model N901
Analyzer s/n 80

Anal. Range 0- 20 **PPM**

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 906
Cert Date: 4/25/2025

Audit Gas: Linde
Concentration: 616 ppm
Serial #: CC748570
Certification Date: 7/8/2024
Expiration Date: 7/8/2027

Zero Air Source: T-API
Model: T701
Serial #: 2556
Certification Date: 5/16/2025

METHANE			NON-METHANE HYDROCARBON			TOTAL HYDROCARBON		
CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.
0.000	0.000	---	0.000	0.018	---	0.000	0.018	---
2.441	2.536	3.9%	2.367	2.485	5.0%	4.808	5.021	4.4%
4.271	4.406	3.2%	4.141	4.251	2.7%	8.410	8.660	3.0%
6.094	6.278	3.0%	5.909	6.487	9.8%	12.000	12.760	6.3%
7.925	6.860	-13.4%	7.684	6.680	-13.1%	15.610	13.540	-13.3%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib Input(X))+b

	CH_4	NMHC	THC	
Slope (m)	0.900	0.921	0.910	1.05 to 0.95
Intercept (b)	0.284	0.282	0.567	(≤ ± 10)
Correlation Coefficent (r)	0.9884	0.9818	0.9855	(≥ 0.995)
Average % Difference	-0.84%	1.09%	0.12%	

Calibrated By Adrienne Kaul = cell containing equations

KitimatRive...
2025-0710

METHANE, NON-METHANE, TOTAL HYDROCARBON CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 7/10/2025 **Start Time** 14:31
Stop Time 15:31

Analyzer Mfg Teledyne-API
Analyzer Model N901
Analyzer s/n 80

Anal. Range 0- 20 **PPM**

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 906
Cert Date: 4/25/2025

Audit Gas: Linde
Concentration: 616 ppm
Serial #: CC748570
Certification Date: 7/8/2024
Expiration Date: 7/8/2027

Zero Air Source: T-API
Model: T701
Serial #: 2556
Certification Date: 5/16/2025

METHANE			NON-METHANE HYDROCARBON			TOTAL HYDROCARBON		
CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.
0.000	0.007	---	0.000	0.000	---	0.000	0.007	---
2.441	2.541	4.1%	2.367	2.478	4.7%	4.808	5.019	4.4%
4.271	4.393	2.9%	4.141	4.290	3.6%	8.410	8.680	3.2%
6.094	6.275	3.0%	5.909	6.144	4.0%	12.000	12.420	3.5%
7.925	8.150	2.8%	7.684	8.000	4.1%	15.610	16.150	3.5%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib Input(X))+b

	CH_4	NMHC	THC	
Slope (m)	1.027	1.040	1.033	1.05 to 0.95
Intercept (b)	0.016	0.001	0.018	(≤ ± 10)
Correlation Coefficent (r)	1.0000	1.0000	1.0000	(≥ 0.995)
Average % Difference	3.19%	4.09%	3.64%	

Calibrated By Adrienne Kaul

= cell containing equations

07/16/2025 - Weekly site visit

Wednesday, July 16, 2025 2:05 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: July 16, 2025
Start Time: 13:50
End Time: 14:35
Technician: Adrienne Kaul

Reason for Visit

On site for weekly site visit

Description

Envidas logger:

-Clock synced at 14:06.

T700 Calibrator:

-Clock was 7 seconds ahead and was updated at 14:12.

N901 CH4/THC analyzer:

-Clock was accurate no adjustment made.

T200 NOx:

-Clock was 13 seconds ahead and was updated at 14:21. Clock was 1 second behind after update.

T400 O3:

-Clock was 8 seconds ahead and was updated at 14:22

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Ambient temperature aspirator is working.
- Wind speed and direction sensors appear to be in good condition and working normally.
- T700 alert: 07/16/2025 -2:10:29 PM System Reset. Warning raised when the system is reset.
- T200 alert: 07/16/2025 8:10:16 AM System Reset. Warning raised when the system is reset.
- T400 alert: 07/16/2025 8:10:00 AM System Reset. Warning raised when the system is reset.
- CH4, C3H8, SO2 and NO tank pressure 1625 psi and line pressure 33 psi.
- CH4 tank pressure 2000 psi and line pressure 35 psi.
- Nitrogen tank pressure 950 psi and line pressure 72 psi; need spare tank on site.
- Hydrogen tank pressure 1500 psi and line pressure 55 psi.

07/21/2025 - RT activities and weekly site check

Monday, July 21, 2025 4:45 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: July 21, 2025
Start Time: 16:44
End Time: 17:37
Technician: Adrienne Kaul

Reason for Visit

On site for RT activities and weekly site check

Description

Envidas logger:

-Clock was 1 second ahead, no adjustment was made.

-Windows updates downloaded and installed.

T700U Calibrator:

-Clock was 51 seconds ahead and was updated at 16:52; clock was 1 second behind after update.

T200 NOx:

-Clock was 52 seconds ahead and was updated at 17:19; clock was one second behind after update.

T400 O3:

-Clock was 52 seconds ahead and was updated at 17:19; clock was one second behind after update.

N901 CH4/THC:

-Clock accurate; no adjustment made.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- CH4, C3H8, SO2 and NO tank pressure 1625 psi and line pressure 32.5 psi.
- Nitrogen tank pressure 775 psi and line pressure 32 psi.
- Hydrogen tank pressure 1425 psi and line pressure 55 psi.
- CH4 tank pressure 2020 psi and line pressure 35 psi.
- T700 alert: 07/17/2025 8:38:21 AM System Reset. Warning raised when the system is reset.
- T200 NOx alert: 07/17/2025 8:38:17 AM System Reset. Warning raised when the system is reset.
- T400 O3 alert: 07/17/2025 8:38:14 AM System Reset. Warning raised when the system is reset.

07/29/2025 - MOE audit

Tuesday, July 29, 2025 9:22 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: July 29, 2025
Start Time: 9:22
End Time: 11:47
Technician: Adrienne Kaul, Paul Williams, and Jonathan Lai

Reason for Visit

On site for MOE site audits.

Description

All gas analyzer data flagged 9:22-11:33

Resecured all connections after the audit.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- Nitrogen tank pressure at 500 psi; needs to be replaced in upcoming couple of weeks

07/30/2025 - RT Activities and new nitrogen tank installation

Wednesday, July 30, 2025 10:38 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: July 30, 2025
Start Time: 8:36
End Time: 11:55
Technician: Adrienne Kaul and Sarah Peden

Reason for Visit

On site for RT activities and Nitrogen tank installation for N901

Description

THC and 8:54-9:48 data flagged in Envidas for cylinder replacement.

-UHP Nitrogen cylinder 133508503 removed and cylinder 133517802 installed.

-Regulator purged before installation.

T700 Calibrator:

-Clock was 1 minute and 43 seconds ahead and updated at 11:32. One second behind after update.

N901 CH4/THC:

-Clock accurate, no adjustment made.

T400 O3:

-Clock was 1 minute and 42 seconds ahead and was updated at 11:36.

T200 NOx:

-Clock was 1 minute and 44 seconds ahead and was updated at 11:37.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: See below
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 NO tank pressure: 1650 the line pressure is 32
- CH4 tank pressure: 2000psi the line pressure is 32.5
- Nitrogen tank pressure: 2630psi the line pressure is 70
- Hydrogen tank pressure: 1250psi the line pressure is 54

08/07/2025- Weekly site check

Thursday, August 7, 2025 1:33 PM

Riverlodge

Author of Entry: Nathan McMillan

Date of Activity: 08/07/2025
Start Time: 1258
End Time: 1354
Technician: Nathan McMillan

Reason for Visit

Weekly site check.

Description

Envidas logger:

Clock was accurate.

G2205 Clock was 23 seconds behind - synced and updated at 13:11.

T200 clock 91 seconds ahead - synced and updated at 1348.

T400 clock 94 seconds ahead - synced and updated at 1351.

N901 clock accurate.

T700 Calibrator:

-Clock was 91 seconds ahead and was updated at 1317.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, C3H8, CH4, and NO 1620 psi tank pressure and line pressure 30psi
- CH4 tank pressure 2000 psi and line pressure 36 psi.
- Nitrogen UHP tank pressure 2300 psi and line pressure 70 psi.
- Hydrogen UHP tank pressure 1100 psi and line pressure 54 psi.
- HF inline heater 63C at 1339

08/14/2025 - Inlet filter changes

Thursday, August 14, 2025 10:36 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: August 14, 2025
Start Time: 10:34
End Time: 13:50
Technician: Adrienne Kaul

Reason for Visit

On site to change inlet filters

Description

Daily ZPS interrupted and put in standby mode at ~10:46 due to maintenance activities already being in process.

NOx, THC/CH4/NMHC, and O3 data flagged 10:45-13:37:
- -NOx and O3 inlet filters changed.
- -All connections felt tight after filter change.
- -Filter preconditioning with 160 ppb SO2 @ 4 lpm 10:59-11:10.
- -RT activities

Envidas logger:
- -Clock was 2 seconds ahead.
- -Logger restarted at 11:05 to allow updates to take effect.
- -Clock 1 second ahead after restart-no adjustments made.

T200 NOx:
- -Clock was 80 seconds ahead and was updated at 12:59.

T400 O3:
- -Clock was 89 seconds ahead and was updated at 13:00.

N901 CH4/NMHC/THC:
- -Clock accurate within 1 second.

T700U Calibrator:
- -Powered off calibrator 13:01-13:02.
- -Clock was 5 seconds ahead and was updated at 13:07.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [x] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO_2, CH_4, C_3H_8, and NO tank pressure 1620 psi and line pressure 29 psi.
- CH_4 tank pressure 2000 psi and line pressure 37.5 psi.
- Nitrogen tank pressure 2040 psi and line pressure 70 psi.
- Hydrogen tank pressure 1000 psi and line pressure 34 psi.

08/19/2025 - RT activities and weekly site check

Tuesday, August 19, 2025 3:26 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: August 19, 2025
Start Time: 15:23
End Time: 16:13
Technician: Adrienne Kaul

Reason for Visit

RT activities and weekly site check

Description

Envidas:

-Clock was 1 second ahead and no adjustment was made.

T200 NOx:

-Clock was 58 seconds ahead and updated at 15:55.

T400 O3:

-Clock was 59 seconds ahead and was updated at 15:56.

N901 CH4/NMHC/THC:

-Clock accurate no adjustments made.

T700U Calibrator:

-Clock was 58 seconds ahead and was updated at 15:58.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2 and NO tank pressure 1640 psi and line pressure 28 psi; increased to 30 psi.
- Nitrogen tank pressure 1850 psi and line pressure 70 psi.
- Hydrogen tank pressure 900 psi and line pressure 54 psi.
- CH4 tank pressure 2000 psi and line pressure 37.5 psi.
- Shelter temperature 26.4 C, within spec.
- Wind speed and direction sensors appear to be working normally.
- Ambient temperature aspirator sounds like it is working.

08/27/2025 - RT Activities

Wednesday, August 27, 2025 1:47 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: August 27, 2025
Start Time: 13:45
End Time: 17:18
Technician: Adrienne Kaul

Reason for Visit

On site for PM10 and PM2.5 maintenance

Description

Envidas logger:

-Clock was 1 second ahead, no adjustment made.

T700 Calibrator:

-Clock was 93 seconds ahead and was updated at 14:52.

-All gas analyzer data flagged 14:05-14:20 to troubleshoot MFC warning and reduce calibration tank line pressure.

-Reduced line pressure of SO2 combo tank.

T200 NOx:

-Clock was 91 seconds ahead and was updated at 13:56. Clock was 1 second ahead after adjustment.

T400 O3:

-Clock was 93 seconds ahead and was updated at 13:57.

N901 MNMTHC:

-Clock accurate.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: See below
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- T700 alert: 08/20/2025 5:29:33 AM MFC pressure warning. MFC pressure warning.
- CH4, C3H8, SO2 and NO tank pressure 1100 psi and line pressure 34 psi; outlet pressure was adjusted.
- Nitrogen tank pressure 1575 psi and line pressure 70 psi.
- Hydrogen tank pressure 750 psi and line pressure 34 psi.
- CH4 tank pressure 2000 psi and line pressure 34 psi; outlet pressure was adjusted.

08/28/2025 - RT activities

Thursday, September 11, 2025 1:15 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: 08/28/2025
Start Time: 16:36
End Time: 16:46
Technician: Adrienne Kaul

Reason for Visit

Passive sample collections

Description

Shelter was not opened work activities were on roof.

Site Visit Checklist

- ☐ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☐ Zero air system pressure at 30 PSI
- ☐ Calibration gas cylinder pressure at 30 PSI
- ☐ Calibration gas tank pressure > 500 PSI
- ☐ Check for analyzer warnings: _____
- ☐ Check for calibrator warnings: _____
- ☐ Analyzer filters exchanged
- ☐ MFC checks performed (semi-annual)
- ☐ Inlet Teflon exchanged (annual)
- ☐ Zero Air media replaced (annual)
- ☐ Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- ☐ Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

09/04/2025 - Inlet filter change

Thursday, September 4, 2025 12:25 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: September 4, 2025
Start Time: 12:20
End Time: 13:20
Technician: Adrienne Kaul

Reason for Visit

On site to change inlet filters

Description

Envidas logger:

-Clock 1 second ahead, no adjustment made.

-Downloaded updates.

T700 Calibrator:

-Clock was 92 seconds ahead and was updated at 12:30.

T200 NOx:

-Clock was 93 seconds ahead and was updated at 12:32.

T400 O3:

-Clock was 93 seconds ahead and was updated at 12:33.

N901 CH4/NMHC/THC:

-Clock accurate, no adjustment was made.

NOx, O3, THC/NMHC/CH4:

-Data flagged 12:45-13:14 for NOx and O3 inlet filter changes.

-All connections to calibrator and analyzers and in manifold felt tight before and after filter change.

-Filters replaced with 1-2 um filter.

-NO running through system at 165 ppb 12:59-13:10

-NOx analyzer read 160.8 ppb with 164.9 ppb supplied by calibrator. Zero was Oxygen 21% spec gas.

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, C3H8, and CH4 tank pressure 1600 psi and line pressure 29 psi; line pressure increased to 30 psi.

- CH4 tank pressure 2000 psi and line pressure 40 psi.
- Nitrogen tank pressure 1280 psi and line pressure 50 psi.
- Hydrogen tank pressure 600 psi and line pressure 72.5 psi.
- Daily ZPS interrupted due to ongoing maintenance.

09/12/2025 - CH4/NMHC/THC supply gas adjustment and weekly check

Friday, September 12, 2025 2:22 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: September 12, 2025
Start Time: 14:18
End Time: 16:33
Technician: Adrienne Kaul

Reason for Visit

On site for CH4/NMHC/THC troubleshooting.

Description

N901 NMHC, THC, and CH4:

-Should be flagged from 15:30-16:08.

-Attempted to install additional regulator on carrier line but there was persistent leaks in some fittings. Reconnected lines to as found conditions and leak tested connections; no leaks were detected.

T400 O3:

-Clock updated at 16:17. Clock was ~1 minute and 37 seconds ahead before update. Clock was 1 second behind after update.

T200 NOx:

-Clock updated at 16:19. Clock was 1 minute and 37 seconds ahead before update. Clock was 1 second behind after update.

T700U Calibrator:

-Clock was 1 minute and 25 seconds ahead and was updated at 16:21. Clock was 1 second behind after update.

N901 CH4, THC, NMHC:

-Clock was 1 second ahead, no adjustment made.

Envidas:

-Clock 2 seconds ahead, no adjustment made.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- UHP Nitrogen line pressure 1040 psi and line pressure 70 psi.
- Hydrogen tank pressure 490 psi and line pressure 52.5 psi.

- SO_2, NO, CH_4, and C_3H_8 tank pressure 1600 psi and line pressure 32.5 psi.
- CH_4 tank pressure 2000 psi and line pressure 42 psi.

09/19/2025 - Weekly station check

Friday, September 19, 2025 9:02 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: September 19, 2025
Start Time: 8:50
End Time: 9:57
Technician: Adrienne Kaul

Reason for Visit

On site for weekly station check and RT activities.

Description

Envidas:

-Downloaded windows updates.

-Clock accurate no adjustment made.

-Logger restarted at 9:20 to allow updates to take effect.

T700 Calibrator:

-Clock was 75 seconds ahead and adjusted at 9:14.

T200 NOx:

-Clock was 76 seconds ahead and adjusted at 9:15.

T400 O3:

-Clock was 77 seconds ahead and adjusted at 9:16.

N901 THC/NMHC/CH4:

-Clock was 1 second behind and no adjustment was made.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, C3H8, and CH4 tank pressure 1600 psi and line pressure 33 psi.
- Nitrogen UHP tank pressure 800 psi and line pressure 70 psi.
- Hydrogen tank pressure 380 psi and line pressure 53 psi; tank needs to be replaced next week. There is a new tank already on site.

09/23/2025 - RT activities and weekly station checks

Tuesday, September 23, 2025 8:06 AM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: September 23, 2025
Start Time: 7:55; 12:25
End Time: 9:20; 15:15
Technician: Adrienne Kaul

Reason for Visit

On site for weekly station check and RT activities.

Description

Envidas:

-Clock was 1 second ahead and no adjustment was made.

All analyzers:

-Data accidentally flagged at 8:46, immediately removed flag.

O3 data:

-accidentally flagged at 8:48.

THC/NMHC/CH4:

-Data flagged 8:48-9:05 for hydrogen tank replacement.

-Hydrogen cylinder removed 206408202

-Hydrogen cylinder installed 206509403. Tank pressure 2425 and line pressure 50 psi. No leaks detected. Tank pressure 2450 psi before departure and line pressure 50 psi.

-Analyzer in standby mode at 8:49 and back in sampling mode at 9:03

-Clock accurate

T200 NOx:

-Clock was 50 seconds ahead and was updated at 12:41.

T400 O3:

-Clock was 50 seconds ahead and was updated at 12:42.

T700U Calibrator:

-Clock was 49 seconds ahead and was updated at 12:44.

Site Visit Checklist

- [x] Analyzer intake tubing unobstructed (ice, water, bugs)
- [x] Zero air system pressure at 30 PSI
- [x] Calibration gas cylinder pressure at 30 PSI
- [x] Calibration gas tank pressure > 500 PSI
- [x] Check for analyzer warnings: _____
- [x] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- SO2, NO, C3H8, and CH4 tank pressure 1600 psi and line pressure 33 psi.
- CH4 tank pressure 2000 psi and line pressure 40 psi.
- Nitrogen tank pressure 690 psi and line pressure 70 psi.

- Hydrogen tank pressure 200 psi and line pressure 30 psi; tank needs to be replaced today.

09/24/2025 - NOx/THC/O3 As Found MP

Wednesday, September 24, 2025 1:29 PM

Riverlodge

Author of Entry: Wyndam Lewis

Date of Activity: 9/24/25
Start Time: 1120
End Time: 1430
Technician: WL

Reason for Visit

Perform routine quarterly multipoint verifications.

Description

NOx/THC As found MP verification
O3 As found MP verification
Also performed RT activities

Site Visit Checklist

- [ ] Analyzer intake tubing unobstructed (ice, water, bugs)
- [ ] Zero air system pressure at 30 PSI
- [ ] Calibration gas cylinder pressure at 30 PSI
- [ ] Calibration gas tank pressure > 500 PSI
- [ ] Check for analyzer warnings: _____
- [ ] Check for calibrator warnings: _____
- [ ] Analyzer filters exchanged
- [ ] MFC checks performed (semi-annual)
- [ ] Inlet Teflon exchanged (annual)
- [ ] Zero Air media replaced (annual)
- [ ] Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- [ ] Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

NITROGEN DIOXIDE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge **Date** 9/24/2025 **Start Time** 11:36
PROJECT 244501.0077 **Stop Time** 13:06
SITE OPERATOR Trinity

Analyzer Mfg Teledyne-API **Analyzer Range 0-** 500 **PPB**
Analyzer Model T200
Analyzer s/n 8599

CALIBRATION EQUIPMENT:

Calibrator:	T-API	**Gas:**	Linde	**Zero Air Source:**	T-API
Model:	T700U	**Concentration:**	10.42 ppm	**Model:**	T701
Serial #:	906	**Serial #:**	CC748570	**Serial #:**	2556
Cert Date:	4/25/2025	**Certification Date:**	7/8/2024	**Certification Date:**	5/16/2024
		Expiration Date:	7/8/2027		

	CAL INPUT (X)		CALC ACTUAL	DAS RESPONSE (Y)			CALCULATED (Y)					% DIFF
							[ORIG]		[REM]		[CONV]	
	NO (PPB)	O_3 (PPB)	$[NO_2]_A$ (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO (PPB)	NO_X (PPB)	NO (PPB)	NO_X (PPB)	NO_2 (PPB)	NO_2 (% OR PPB)
TITRATION	0.0	0.0	0.0	0.1	-0.1	-0.2	---	---	---	---	-0.16	-0.2 ppb
	300.0	250.0	280.3	19.5	304.4	284.9	300.2	300.3	19.9	299.7	279.69	1.6%
	300.0	150.0	172.2	129.7	300.8	171.1	300.2	300.3	128.0	296.2	168.03	-0.6%
	300.0	70.0	78.8	224.8	305.3	80.5	300.2	300.3	221.3	300.6	79.11	2.1%

NO TITRATION

300	0.0	---	305.1	305.0	-0.1

$[NO_2]_A = [NO]_{ORIG} - [NO]_{REM}$
$[NO_2]_{CONV} = [NO_2]_A - ([NO_x]_{ORIG} - [NO_x]_{REM})$

Slope (m) 0.9966 x-axis: $[NO_2]_A$ y-axis: $[NO_2]_{CONV}$

Converter Efficiency (%)
*(m * 100) =* 99.7% *(96% - 104%)*

NO_2 BEST-FIT DETERMINATION		
Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
-0.4	0.29	0.1%
283.5	1.43	0.3%
173.9	-2.84	-0.6%
79.4	1.11	0.2%

Criteria: *All points within ±2% of calibration range of best-fit straight line*

Calibration Regression Analysis: *Corr. Analyzer Response (Y)=m(calib input(X))+b*

	NO_2		NO	NO_x
Slope (m)	1.0130	1.05 to 0.95	0.9815	0.9822
Intercept (b)	-0.4493	(≤ ± 10)	0.7108	0.7325
Correlation Coefficent (r)	0.99987	(≥ 0.995)	1.0000	1.0000
Average % Difference	1.06%		1.34%	1.26%

Calibrated By Wyndam Lewis = cell containing equations

NITROGEN OXIDES CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 9/24/2025 **Start Time** 11:36
Stop Time 13:06

Analyzer Mfg Teledyne-API
Analyzer Model T200
Analyzer s/n 8599

Analyzer Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 906
Cert Date: 4/25/2025

Gas: Linde
Concentration: 10.42 ppm
Serial #: CC748570
Certification Date: 7/8/2024
Expiration Date: 7/8/2027

Zero Air Source: T-API
Model: T701
Serial #: 2556
Certification Date: 5/16/2024

INPUT (X)	RESPONSE (Y)			NO	NO BEST-FIT DETERMINATION		
NO (PPB)	NO (PPB)	NO_2 (PPB)	NO_X (PPB)	% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.1	-0.2	-0.1	/	-0.7	0.78	0.2%
40.1	39.5	0.1	39.6	-1.4%	40.1	-0.60	-0.1%
89.9	90.5	0.1	90.7	0.7%	90.9	-0.37	-0.1%
139.9	141.8	-0.3	141.5	1.4%	141.8	-0.02	0.0%
200.1	203.2	-0.3	202.8	1.5%	203.2	0.05	0.0%
300.0	305.1	-0.1	305.0	1.7%	304.9	0.17	0.0%

Calibration Regression Analysis:
Corr. Analyzer Response (Y)=m(calib input(X))+b

Criteria: *All points within ±2% of calibration range of best-fit straight line*

NO_X	NO_X BEST-FIT DETERMINATION		
% DIFF	Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
/	-0.7	0.64	0.1%
-1.2%	40.1	-0.48	-0.1%
0.9%	90.8	-0.09	0.0%
1.1%	141.7	-0.19	0.0%
1.3%	203.0	-0.18	0.0%
1.7%	304.7	0.30	0.1%

	NO	NO_x		NO	NO_x
Slope (m)	1.0189	1.0181	1.05 to 0.95	0.9815	0.9822
Intercept (b)	-0.7219	-0.7441	(≤ ± 10)	0.7108	0.7325
Correlation Coefficent (r)	1.0000	1.0000	(≥ 0.995)	0.99999	0.99999
Average % Difference	0.77%	0.76%		1.34%	1.26%

Calibrated By Wyndam Lewis

= cell containing equations

Template Revised 7/10/23

OZONE CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 9/24/2025 **Start Time** 13:21
Stop Time 14:21

Analyzer Mfg Teledyne-API
Analyzer Model T400
Analyzer s/n 7487

Analyzer Range 0- 500 **PPB**

CALIBRATION EQUIPMENT:

Ozone Source:	T-API	**Transfer Standard:**	N/A	**Zero Air Source:**	T-API
Model:	T700U	**Model:**	N/A	**Model:**	T701
Serial #:	906	**Serial #:**	N/A	**Serial #:**	2556
Cert Date:	N/A	**Certification Date:**	N/A	**Certification Date:**	5/16/2024

Calibration Factors: Corrected Data = (Indicated Response *m + b)

Transfer Standard
m: 1
b: 0
r:
Calibration Date:

INPUT (Txfr Standard) Raw Input (PPB)	Corrected (X) (PPB)	RESPONSE (Y) (PPB)	% DIFF.	BEST-FIT DETERMINATION Predicted (Y)	Residual (PPB)	Residual (<2% Full Scale)
0.0	0.0	0.4	/	0.4	0.03	0.0%
40.2	40.2	40.8	1.49%	40.9	-0.19	0.0%
89.9	89.9	91.6	1.89%	91.2	0.43	0.1%
150.5	150.5	152.7	1.46%	152.4	0.34	0.1%
249.6	249.6	252.8	1.28%	252.4	0.37	0.1%
399.8	399.80	404	1.05%	404.1	-0.09	0.0%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b
Criteria: All points within ±2% of calibration range of best-fit straight line

Slope(m)	1.010	1.05 to 0.95
Intercept(b)	0.399	(≤ ± 10)
Correlation Coefficent(r)	1.0000	(>0.995)
Average % Difference	1.44%	

COMMENTS

Calibrated By Wyndam Lewis

= cell containing equations

METHANE, NON-METHANE, TOTAL HYDROCARBON CALIBRATION SHEET

As Found Multi-point Verification

SITE NAME LNG Kitimat Riverlodge
PROJECT 244501.0077
SITE OPERATOR Trinity

Date 9/24/2025 **Start Time** 11:36
Stop Time 13:06

Analyzer Mfg Teledyne-API
Analyzer Model N901
Analyzer s/n 80

Analyzer Range 0- 20 **PPM**

CALIBRATION EQUIPMENT:

Calibrator: T-API
Model: T700U
Serial #: 906
Cert Date: 4/25/2025

Audit Gas: Linde
Concentration: 616 ppm
Serial #: CC748570
Certification Date: 7/8/2024
Expiration Date: 7/8/2027

Zero Air Source: T-API
Model: T701
Serial #: 2556
Certification Date: 5/16/2024

METHANE			NON-METHANE HYDROCARBON			TOTAL HYDROCARBON		
CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.	CAL INPUT (X) (PPM)	RESPONSE (Y) (PPM)	% DIFF.
0.000	0.000	---	0.000	0.061	---	0.000	0.061	---
2.370	2.409	1.6%	2.298	2.431	5.8%	4.667	4.840	3.7%
5.317	5.371	1.0%	5.156	5.446	5.6%	10.470	10.820	3.3%
8.270	8.310	0.5%	8.020	8.310	3.6%	16.290	16.610	2.0%
11.830	11.890	0.5%	11.470	11.820	3.1%	23.300	23.710	1.8%
17.740	17.780	0.2%	17.200	17.800	3.5%	34.930	35.580	1.9%

Calibration Regression Analysis: Corr. Analyzer Response (Y)=m(calib input(X))+b

	CH_4	NMHC	THC	
Slope (m)	1.002	1.029	1.015	1.05 to 0.95
Intercept (b)	0.026	0.074	0.098	(≤ ± 10)
Correlation Coefficent (r)	1.0000	1.0000	1.0000	(≥ 0.995)
Average % Difference	0.78%	4.31%	2.53%	

Calibrated By Wyndam Lewis

= cell containing equations

09/27/2025 - RT Activities

Sunday, September 28, 2025 1:08 PM

Riverlodge

Author of Entry: Adrienne Kaul

Date of Activity: September 27, 2025
Start Time: 12:42
End Time: 12:53
Technician: Adrienne Kaul and Sarah Peden

Reason for Visit

RT Activities

Description

[describe what activities were performed during the maintenance]

Site Visit Checklist

- ☐ Analyzer intake tubing unobstructed (ice, water, bugs)
- ☐ Zero air system pressure at 30 PSI
- ☐ Calibration gas cylinder pressure at 30 PSI
- ☐ Calibration gas tank pressure > 500 PSI
- ☐ Check for analyzer warnings: _____
- ☐ Check for calibrator warnings: _____
- ☐ Analyzer filters exchanged
- ☐ MFC checks performed (semi-annual)
- ☐ Inlet Teflon exchanged (annual)
- ☐ Zero Air media replaced (annual)
- ☐ Shelter temp reference check: Datalogger temp _____ Ref temp _____(ref s/n)_____ (Criteria +/- 2.0 degrees Celsius)
- ☐ Annual Maintenance

Site Observations

- [i.e. gas standard expiration dates and remaining quantity]

TETRA TECH

TECHNICAL MEMO

ISSUED FOR REVIEW

To:	Tauseef Zia Siddiqui	**Date:**	October 16, 2025
File:	704-ENW.GENV03699-03	**Memo No.:**	Q3 2025
From:	Tetra Tech Canada Inc.		
Subject:	PA-110588 - Passive NO_2 Monitoring Results for Q3 2025 Document Control #: L001-00000-HE-0702-1006		

This 'Issued for Review' document is provided solely for the purpose of client review and presents our interim findings and recommendations to date. Our usable findings and recommendations are provided only through an 'Issued for Use' document, which will be issued subsequent to this review. Final design should not be undertaken based on the interim recommendations made herein. Once our report is issued for use, the 'Issued for Review' document should be either returned to Tetra Tech Canada Inc. (Tetra Tech) or destroyed.

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNGC facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQDMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region. The passive sampling results have been collected over a period of 30 days (+/- 4 days as per the B.C. Field Sampling Manual – Part B1 Ambient Air Quality Monitoring, Reference No: SOP-07, Standard Operating Procedure for the Passive/Diffusive Method of Air Sample Collection) and compiled into monthly reports. The passive sampling This memorandum provides a summary of the results for this past quarter that covers the July, August, and September 2025 sampling periods of Monitoring Year 2 (MY2). The monthly reports are attached in Appendix B.

2.0 PASSIVE MONITORING RESULTS

The passively measured 30-day average NO_2 concentrations during each sample deployment over the quarterly period (July to September 2025) are summarized for each monitoring location in Table 1.

Tetra Tech Canada Inc.
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Vancouver, BC V6C 1N5 CANADA
Tel 604.685.0275 Fax 604.684.6241

Table 1: Passive NO_2 Sampling Results (July – September 2025)

Passive Sampler Location	30-day Average NO_2 Concentration (ppb)		
	July 2025	August 2025	September 2025
Lakelse Lake A04	0.1	0.2	0.2
V01	0.2	0.2	0.3
KHV-2	0.2	0.2	0.2
KHV-1	0.1*	0.2*	0.3*
V10B	0.8	1.2	1.1
V12	0.3	0.6	0.4
V08	0.6	0.4	0.5
V06	0.6	0.5	0.5**
V05	0.6	0.5	0.5
Kitimat Industrial (V14)	1.6	1.3	1.6
***Predicted Maximum NO_2	0.4	0.5	0.8****
Kitimat Riverlodge	0.5	1.0	0.9
Kitimat Whitesail	0.2	0.3	0.4

* Sampling station 'KHV-1' was found knocked over on July 31, it was assumed to have been displaced by a vehicle at some unknown date during the July deployment period. The temporary placement of the station is located 2-3 m east and 0.7 m lower than its original location during the August sampling period.

** A duplicate sample for location V06 was unable to be analyzed due to a damaged sampler

*** Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum concentration of NO_2 inclusive of facility emissions within Kitimat.

**** A duplicate sample concentration for location 'Predicted Maximum NO_2' was removed due to suspected analytical error or sampler contamination.

The highest 30-day average NO_2 concentration measured over the quarterly period was 1.6 ppb at the Kitimat Industrial (V14) sample location, located north of the LNGC facility. While there is no 30-day Provincial Air Quality Objective for NO_2, the annual criterion is 17 ppb, which provides an indicator for the passively measured 30-day NO_2 concentrations.

2.1 Cumulative Summary of Monitoring

Figure 1 plots the passively measured 30-day NO_2 concentration by month at several stations through the network.

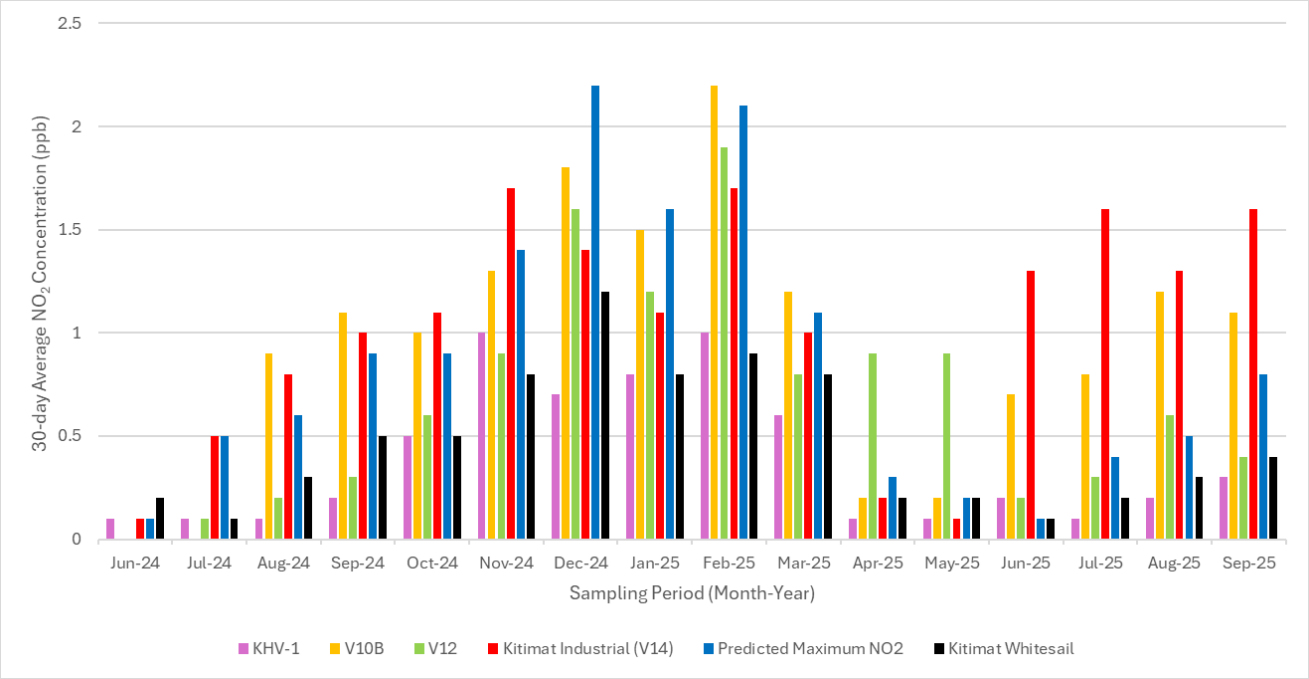

Figure 1: Passive NO_2 Concentrations – June 2024 to September 2025

Figure 2 shows a time series plot of passively measured 30-day NO_2 concentrations at Kitimat Industrial (V14) and the Predicted Maximum NO_2 station over the duration of the survey.

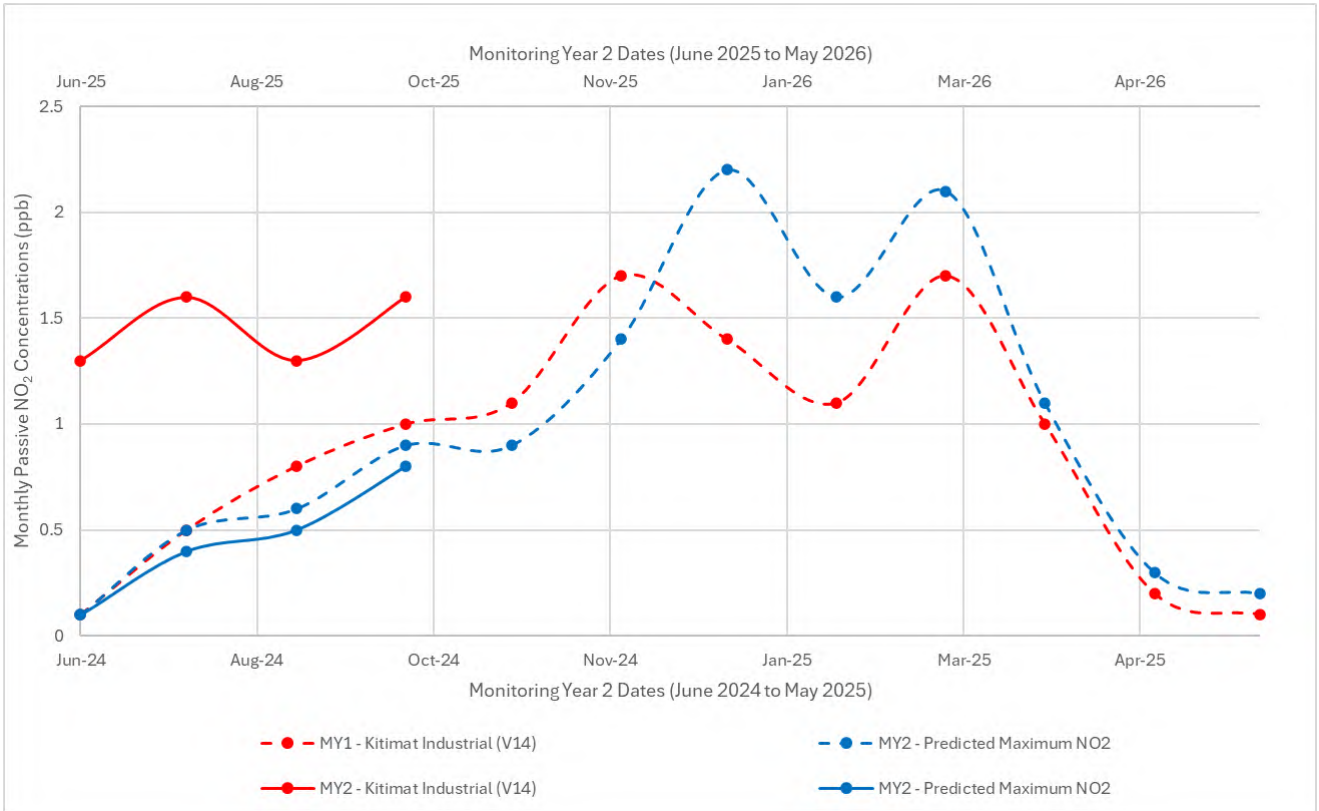

Figure 2: Passive NO_2 Concentrations – Monitoring Year 1 (MY1) vs. Monitoring Year 2 (MY2)

3.0 SAMPLING COMPLETENESS

All passive samples were collected successfully over the quarterly period, except for KHV-1 and V06.

- July 31 during the sampler retrievals, the pole from which station KHV-1 was mounted was discovered lying on the ground. It was assumed to have been knocked down by a vehicle at an unknown date during the July deployment period. The housing was still attached with samplers inside. The samplers were retrieved, the housing removed and then placed on a nearby fence post temporarily until the damaged post can be repaired and the housing mounted at its original location. The temporary placement for the KHV-1 housing is located approximately 2-3 m to the east of its original location, at approximately 2.3 m above ground.
- During sampler retrievals, a duplicate sampler at location V06 was observed with a damaged membrane. As a result, only one passive sampler was able to analyzed, meaning there is no redundant measurement at this location for September.
- One of the samples from location 'Predicted Maximum NO_2' was reported by the lab as <0.1 ppb, or below the laboratory detection limit, while the other sample measured 0.8 ppb, similar to what was measured in September 2024. The below detection sample was assumed by Tetra Tech as invalid due to suspected analytical error or sampler contamination and the single measurement was assumed for September.

4.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

5.0 CLOSURE

We trust this technical memo meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

ISSUED FOR REVIEW

704-ENW.GENV03699-03
704-ENW.GENV03699-03
704-ENW.GENV03699-03

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/sy

Attachments Appendix A – Limitations on the Use of this Document
Appendix B – Monthly Reports

REFERENCES

Bender, Q. (2025, June 6). *LNG Canada responds to flaring-smoke concerns at Kitimat Site*. Terrace Standard. https://www.terracestandard.com/local-news/lng-canada-responds-to-flaring-smoke-concerns-at-kitimat-site-8053354

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LNG Canada Development Inc. (2025e, September 2). *Community Notification: Flaring.* LNG Canada. https://www.lngcanada.ca/news/community-notification-flaring-3/

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APPENDIX A

LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

1.1 USE OF DOCUMENT AND OWNERSHIP

This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

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Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

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If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

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During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by third parties other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

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This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary exploration, investigation, and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

MONTHLY REPORTS

JULY 2025 REPORT

TETRA TECH

ISSUED FOR USE
September 5, 2025 FILE: 704-ENW.GENV03699-03

LNG Canada

Via Email: Tauseef-ZIA.Siddiqui@lngcanada.ca
KIT-Regulatory-Compliance@lngcanada.ca

Attention: Tauseef Zia Siddiqui

Subject: Passive Monitoring for Nitrogen Dioxide – LNG Canada – July 2025
Document Control #: L001-00000-HE-0702-1009 – Rev 0

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada. The monitoring is part of the LNG Canada Development Inc. (LNGC) Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNG Canada receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNG facility emissions, particularly the contribution of nitrogen to the environment. LNG Canada's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQDMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region as described in Table 1. The spatial distribution of the passive monitoring station network through the Kitimat Valley is shown on the attached Figure 1.

Table 1: LNGC's Passive NO_2 Monitoring Network

Site	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Lakelse Lake A04	527457	6025573	2.2
V01	524757	6017435	2.1
KHV-2	523357	5980636	3.0
KHV-1*	522919	5980606	3.0
V10B	519425	5984090	3.0
V12	517790	5977294	2.0
V08	521425	5994249	2.0
V06	520970	5996240	2.0
V05	520457	5999250	2.0
Kitimat Industrial	520424	5990356	3.0
Predicted Maximum NO_2	522463	5989506	3.0
Kitimat Riverlodge	521536	5989486	3.0
Kitimat Whitesail	523612	5990998	3.0

*Sampling station 'KHV-1' was found knocked over on July 31, it was assumed to have been displaced by a vehicle at some unknown date during the July deployment period.

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The sampling methodology adheres to protocols described in the document '*Standard Operating Procedure (SOP) – Passive Monitoring for Nitrogen Dioxide (NO_2)*', dated March 2024. More information on the sampling methodology can be found in this document.

2.0 AMBIENT CONDITIONS DURING DEPLOYMENT PERIOD

Winds

Winds were dominated by inflow conditions over the period June 30 through July 31, 2025 as the prevalent summer pattern has established through the valley and connected waterways. Figure 1 shows wind roses for hourly wind observations during the July sampler deployment period at ENV-AQN Kitimat Whitesail and Terrace Airport.

Precipitation

57.4 mm of precipitation was recorded between June 30 through July 31 at ECCC Kitimat Forest Avenue. 25.9 mm of precipitation was recorded at ECCC Terrace A. Comparing to precipitation normals, these totals are slightly below average for July in Kitimat by 5 mm, and below average for July in Terrace by 26.9 mm.

Air Quality – Nitrogen Dioxide

NO_2 is continuously measured and reported on an hourly basis at ENV-AQN station Kitimat Whitesail. Over the June deployment period (June 30 – July 31), the maximum 1-hour NO_2 concentration was 5.9 ppb, or 9.8 % of the British Columbia Air Quality Objective (BCAQO) of 60 ppb. The 30-day average NO_2 concentration, taken as the average of all available one-hour measurements during the sampling period, was 0.4 ppb. While there is no 30-day BCAQO, the annual criterion is 17 ppb, which provides another indicator of ambient air quality with respect to NO_2. There were 37 hours of missing data out of 730 hours, or 95% data completeness. Figure 2 plots the 1-hour NO_2 concentration over the sampling period.

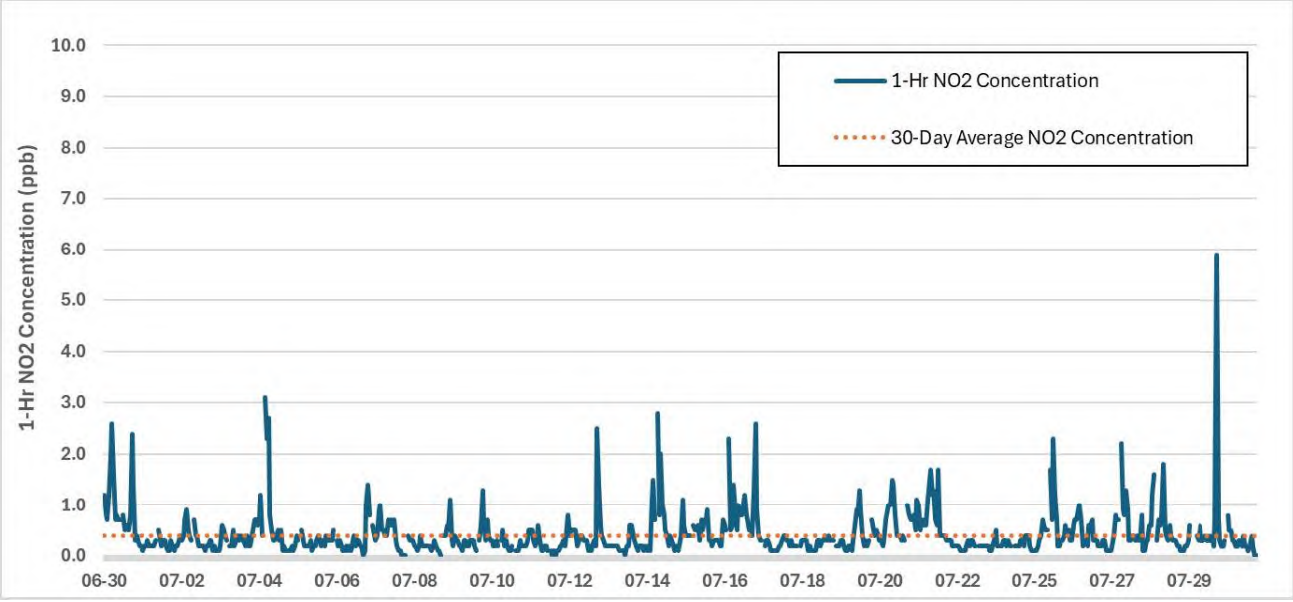

Figure 2: 1-Hr NO_2 Readings at ENV-AQN Kitimat Whitesail (June 30 – July 31)

3.0 PASSIVE MONITORING RESULTS

The passively measured 30-day NO_2 concentrations are listed for each site in Table 2. The 30-day NO_2 concentration based on continuous measurement is also listed for Kitimat Whitesail, as a measure of validation of the sampling results. Each site's housing utilizes two samplers for statistical redundancy, the mean of which is used as the overall measurement.

The measured 30-day NO_2 concentrations are shown through the study area on Figure 1. The highest reading in July 2025 occurred along the northwest side of town at the Kitimat Industrial (V14) sample location, north of the LNGC facility. This reading was higher than was measured between March and June for V14, while concentrations at the other stations through Kitimat followed the noted seasonal downward trend from higher concentrations observed during the winter months. The second highest reading was at V10B, directly south of the LNGC facility. Overall, July concentrations were slightly higher than the summer months of 2024, however, were slightly lower in comparison to the previous month of June.

Throughout the monitoring program, the measured NO_2 concentrations have been well below any representative (e.g., annual) criteria, with lower concentrations generally being observed in the summer and higher concentrations observed in the winter, likely attributed to the seasonality of atmospheric mixing conditions and seasonal differences in community-based sources of combustion.

However, the spatial pattern observed in the network data in July 2025 should be noted, as it represents a pattern not previously observed, with the highest readings measured at the two stations nearest LNGC, the highest in the prevalent downwind direction (north of LNGC along the west side of the valley), while lower concentrations were measured at all other passive stations in Kitimat.

The LNGC facility began routine flaring for commissioning work on the boil-off gas compressor. The flaring is understood to have started in early June and is projected to continue through July 31. Tetra Tech understands that as of June 1, the LNGC facility has been in "operations" mode, and the flaring leading up to July was in preparation for this operational change.

Bureau Veritas Passive Sampling Laboratory Report is attached in Appendix B.

Table 2: Passive NO_2 Sampling Results (July 2025)

Site	Start	End	Duration (Days)	30-day NO_2 Concentration (ppb)			St. Dev	30 Day NO_2
				Sample 1	Sample 2	Mean		
Lakelse Lake A04	2025/06/30 08:30	2025/07/31 08:35	30.0	0.1	<0.1	0.1	0	
V01	2025/06/30 09:15	2025/07/31 09:30	30.0	0.2	0.2	0.2	0	
KHV-2	2025/06/30 10:15	2025/07/31 10:20	30.0	0.2	0.2	0.2	0	
KHV-1*	2025/06/30 10:10	2025/07/31 10:15	30.0	0.1	0.1	0.1	0	
V10B	2025/06/30 10:40	2025/07/31 11:00	30.0	0.8	0.8	0.8	0	
V12	2025/06/30 10:55	2025/07/31 11:15	30.0	0.3	0.2	0.3	0.1	
V08	2025/06/30 11:25	2025/07/31 11:50	30.0	0.6	0.6	0.6	0	
V06	2025/06/30 11:35	2025/07/31 11:55	30.0	0.6	0.5	0.6	0.1	
V05	2025/06/30 11:45	2025/07/31 12:05	30.0	0.6	0.5	0.6	0.1	
Kitimat Industrial (V14)	2025/06/30 12:05	2025/07/31 12:35	30.0	1.6	1.5	1.6	0.1	
**Predicted Maximum NO_2	2025/06/30 12:30	2025/07/31 13:00	30.0	0.4	0.4	0.4	0	
Kitimat Riverlodge	2025/06/30 12:20	2025/07/31 12:45	30.0	0.4	0.5	0.5	0.1	
Kitimat Whitesail	2025/06/30 12:45	2025/07/31 13:15	30.0	0.2	0.2	0.2	0	0.4

*Sampling station 'KHV-1' was found knocked over on July 31, it was assumed to have been displaced by a vehicle at some unknown date during the July deployment period.
**Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum ground level concentration of NO_2 inclusive of facility emissions within Kitimat.

4.0 SAMPLING PROGRAM ANOMOLIES

There was one sampling program anomaly to note during the July deployment period, as follows. On July 31 during the sampler retrievals, the pole from which station KHV-1 was mounted was discovered lying on the ground. It was assumed to have been knocked down by a vehicle at an unknown date during the July deployment period. The housing was still attached with samplers inside. The samplers were retrieved, the housing removed and then placed on a nearby fence post temporarily until the damaged post can be repaired and the housing mounted at its original location. The temporary placement for the KHV-1 housing is located approximately 2-3 m to the east of its original location, at approximately 2.3 m above ground.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

FILE: 704-ENW.GENV03699-03
FILE: 704-ENW.GENV03699-03
FILE: 704-ENW.GENV03699-03

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/sy

Attachments Figure 1. Mean 30-day NO_2 Concentration July 2025
Appendix A – Limitations on the Use of this Document
Appendix B – Bureau Veritas Passive Sampling Laboratory Report

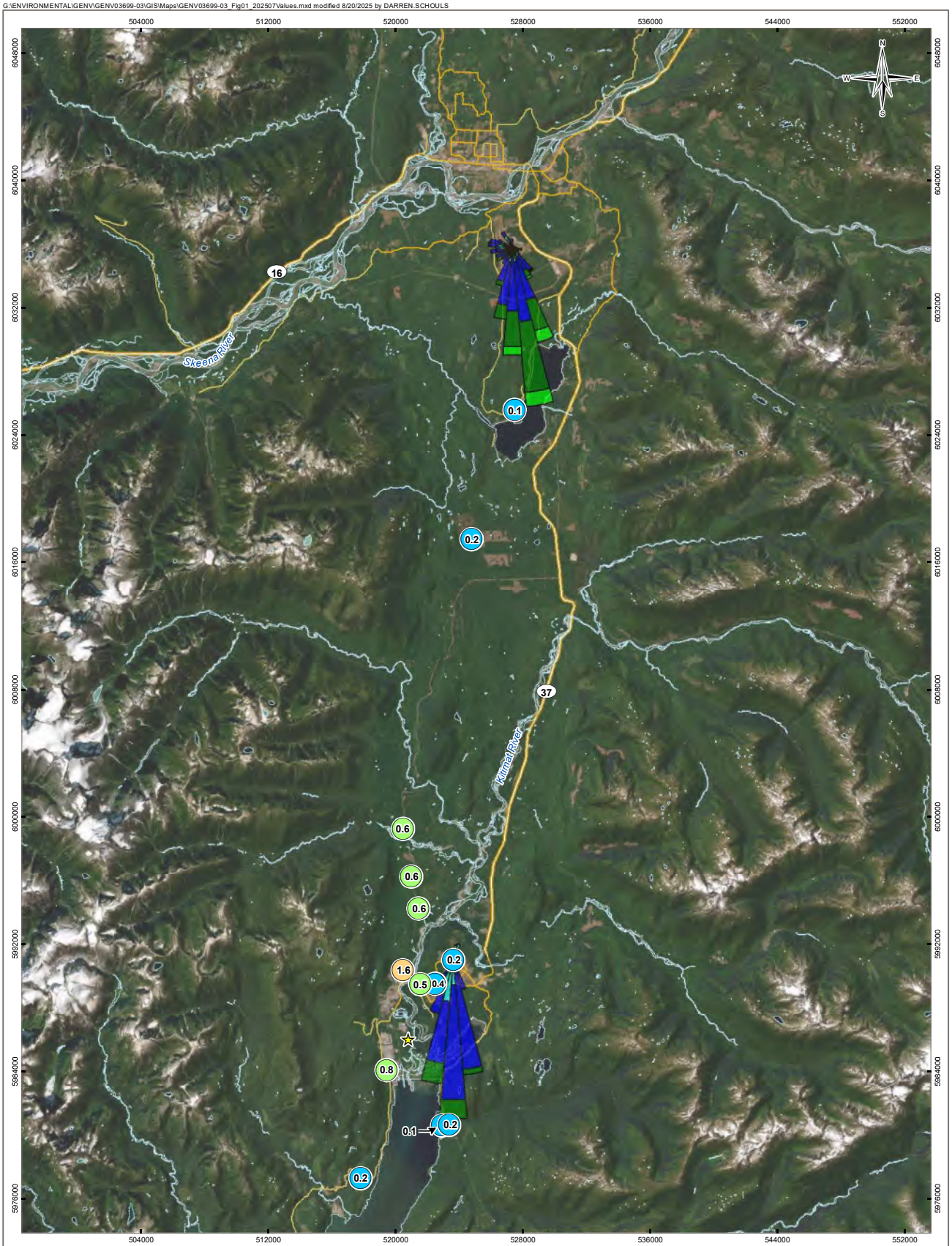
REFERENCES

Bender, Q. (2025, July 6). *LNG Canada responds to flaring-smoke concerns at Kitimat Site*. Terrace Standard. https://www.terracestandard.com/local-news/lng-canada-responds-to-flaring-smoke-concerns-at-kitimat-site-8053354

FIGURES

Figure 1 Mean 30-day NO_2 Concentration July 2025

G:\ENVIRONMENTAL\GENV\GENV03699-03\GIS\Maps\GENV03699-03_Fig01_202507Values.mxd modified 8/20/2025 by DARREN.SCHOULS



LEGEND

Mean 30-Day NO_2 Concentration (ppb)

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0

- LNGC Site
- Highway
- Main Road
- Local Road
- Watercourse/Waterbody

Rose Plot - Wind (m/s)

- 1 - 3
- 3 - 6
- 6 - 9
- 9 - 12

NOTES
Base data source:
Imagery from ESRI; Maxar
CanVec 1:250,000 (2019)

STATUS
ISSUED FOR USE

LNGC NO2 PASSIVE MONITORING

Mean 30-day NO2 Concentration July 2025

PROJECTION UTM Zone 9	**DATUM** NAD83	**CLIENT** Haisla Triton Ltd.
Scale: 1:225,000 (4 2 0 4 Kilometres)		
FILE NO. GENV03699-03_Fig01_202507Values.mxd		TETRA TECH
OFFICE Tt-VANC	**DWN** DS / **CKD** MRB / **APVD** TM / **REV** 0	Figure 1
DATE August 20, 2025	**PROJECT NO.** ENW.GENV03699-03	

APPENDIX A

LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

1.1 USE OF DOCUMENT AND OWNERSHIP

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Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

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1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

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The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

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In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

BUREAU VERITAS PASSIVE SAMPLING LABORATORY REPORT

Your P.O. #: 704-ENW.GENV03699-03.002
Your Project #: NO2 MONITORING
Site Location: 2025/06/30-2025/07/31

Attention: Travis Miguez

Tetra Tech Canada Inc.
#2 4065 Motz Road
Terrace, BC
CANADA V8G 3N1

Report Date: 2025/08/18
Report #: R3684869
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: G503663
Received: 2025/08/07, 09:30

Sample Matrix: Air
Samples Received: 26

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	25	2025/08/11	2025/08/14	PTC SOP-00148	Passive NO2 in ATM
NO2 Passive Analysis	1	2025/08/08	2025/08/14	PTC SOP-00148	Passive NO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Rowena Geron
Customer Service Associate
18 Aug 2025 08:09:26

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500

==========

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Bureau Veritas Job #: G503663
Report Date: 2025/08/18

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/06/30-2025/07/31
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DOF750	DOF751	DOF752	DOF753	DOF754	DOF755		
Sampling Date		2025/06/30 08:30	2025/06/30 08:30	2025/06/30 09:15	2025/06/30 09:15	2025/06/30 10:10	2025/06/30 10:10		
	UNITS	#1 LAKELSE LAKE	#2 LAKELSE LAKE-DUP	#3 VO1	#4 VO1-DUP	#5 KHV-1	#6 KHV-1-DUP	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.1	<0.1	0.2	0.2	0.1	0.1	0.1	C019947
RDL = Reportable Detection Limit									

Bureau Veritas ID		DOF756	DOF757	DOF758	DOF759	DOF760	DOF761	DOF762		
Sampling Date		2025/06/30 10:15	2025/06/30 10:15	2025/06/30 10:40	2025/06/30 10:40	2025/06/30 10:55	2025/06/30 10:55	2025/06/30 11:25		
	UNITS	#7 KHV-2	#8 KHV-2-DUP	#9 V10B	#10 V10B-DUP	#11 V12	#12 V12-DUP	#13 V08	RDL	QC Batch
Passive Monitoring										
Calculated NO2	ppb	0.2	0.2	0.8	0.8	0.3	0.2	0.6	0.1	C019947
RDL = Reportable Detection Limit										

Bureau Veritas ID		DOF763	DOF764	DOF765	DOF766	DOF767	DOF768		
Sampling Date		2025/06/30 11:25	2025/06/30 11:35	2025/06/30 11:35	2025/06/30 11:45	2025/06/30 11:45	2025/06/30 12:05		
	UNITS	#14 V08-DUP	#15 V06	#16 V06-DUP	#17 V05	#18 V05-DUP	#19 Kitimat Industrial	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.6	0.6	0.5	0.6	0.5	1.6	0.1	C019947
RDL = Reportable Detection Limit									

Bureau Veritas ID		DOF769		DOF770	DOF771		
Sampling Date		2025/06/30 12:05		2025/06/30 12:20	2025/06/30 12:20		
	UNITS	#20Kitimat Industrial-DUP	QC Batch	#21 Kitimat Riverlodge	#22Kitimat Riverlodge -DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	1.5	C019947	0.4	0.5	0.1	C019946
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G503663
Report Date: 2025/08/18

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/06/30-2025/07/31
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DOF772	DOF773	DOF774	DOF775		
Sampling Date		2025/06/30 12:30	2025/06/30 12:30	2025/06/30 12:45	2025/06/30 12:45		
	UNITS	#23 Predicted Max	#24 Predicted Max-DUP	#25 Kitimat Whitesail	#26 Kitimat Whitesail-DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	0.4	0.4	0.2	0.2	0.1	C019946
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G503663
Report Date: 2025/08/18

QUALITY ASSURANCE REPORT

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/06/30-2025/07/31
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

			Spiked Blank		Method Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	UNITS
C019946	Calculated NO2		98	90 - 110	<0.1	ppb
C019947	Calculated NO2		98	90 - 110	<0.1	ppb

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

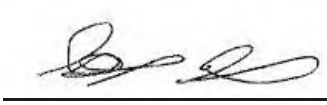
Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G503663
Report Date: 2025/08/18

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/06/30-2025/07/31
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Steven Gloux, Laboratory Supervisor

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Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

AUGUST 2025 REPORT

TETRA TECH

ISSUED FOR USE

October 8, 2025

FILE: 704-ENW.GENV03699-03

LNG Canada Development Inc.

Via Email: Tauseef-ZIA.Siddiqui@lngcanada.ca
KIT-Regulatory-Compliance@lngcanada.ca

Attention: Tauseef Zia Siddiqui

Subject: Passive Monitoring for Nitrogen Dioxide – LNG Canada – August 2025
Document Control #: L001-00000-HE-0702-1009 - Rev 1

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada Development Inc. (LNGC). The monitoring is part of the LNGC Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNGC receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNGC facility emissions, particularly the contribution of nitrogen to the environment. LNGC's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQDMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region as described in Table 1. The spatial distribution of the passive monitoring station network through the Kitimat Valley is shown on the attached Figure 1.

Tetra Tech Canada Inc.
Unit 2, 4065 Motz Road
Terrace, BC V8G 3N1
Tel 778.309.1605

Table 1: LNGC's Passive NO_2 Monitoring Network

Site	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Lakelse Lake A04	527457	6025573	2.2
V01	524757	6017435	2.1
KHV-2	523357	5980636	3.0
KHV-1*	522922	5980606	2.3
V10B	519425	5984090	3.0
V12	517790	5977294	2.0
V08	521425	5994249	2.0
V06	520970	5996240	2.0
V05	520457	5999250	2.0
Kitimat Industrial	520424	5990356	3.0
Predicted Maximum NO_2	522463	5989506	3.0
Kitimat Riverlodge	521536	5989486	3.0
Kitimat Whitesail	523612	5990998	3.0

*Sampling station 'KHV-1' was found knocked over on July 31, it was assumed to have been displaced by a vehicle at some unknown date during the July deployment period. Sampler coordinates and height listed are approximate location of temporary placement until the station can be repaired.

The sampling methodology adheres to protocols described in the document '*Standard Operating Procedure (SOP) – Passive Monitoring for Nitrogen Dioxide (NO_2)*', dated March 2024. More information on the sampling methodology can be found in this document.

2.0 AMBIENT CONDITIONS DURING DEPLOYMENT PERIOD

Winds

Winds were dominated by inflow conditions over the period July 31 through August 29, 2025, the prevalent summer pattern, however outflows were observed with higher occurrence than during the summer months as the autumn/winter pattern is beginning to establish itself through the region. Figure 1 shows wind roses for hourly wind observations during the August sampler deployment period at ENV-AQN Kitimat Whitesail and Terrace Airport.

Precipitation

86.0 mm of precipitation was recorded between July 31 through August 29 at ECCC Kitimat Forest Avenue. 55.1 mm of precipitation was recorded at ECCC Terrace A. Comparing to precipitation normals, these totals are slightly below average for August in Kitimat by 9.7 mm and Terrace by 6.1 mm.

Air Quality – Nitrogen Dioxide

NO_2 is continuously measured and reported on an hourly basis at ENV-AQN station Kitimat Whitesail. Over the August deployment period (July 31 – August 29), the maximum 1-hour NO_2 concentration was 4.1 ppb, or 6.8 % of the British Columbia Air Quality Objective (BCAQO) of 60 ppb. The 30-day average NO_2 concentration, taken as the average of all available one-hour measurements during the sampling period, was 0.6 ppb. While there is no 30-day BCAQO, the annual criterion is 17 ppb, which provides another indicator of ambient air quality with respect to NO_2. There were 36 hours of missing data out of 683 hours, or 95% data completeness. Figure 2 plots the 1-hour NO_2 concentration over the sampling period.

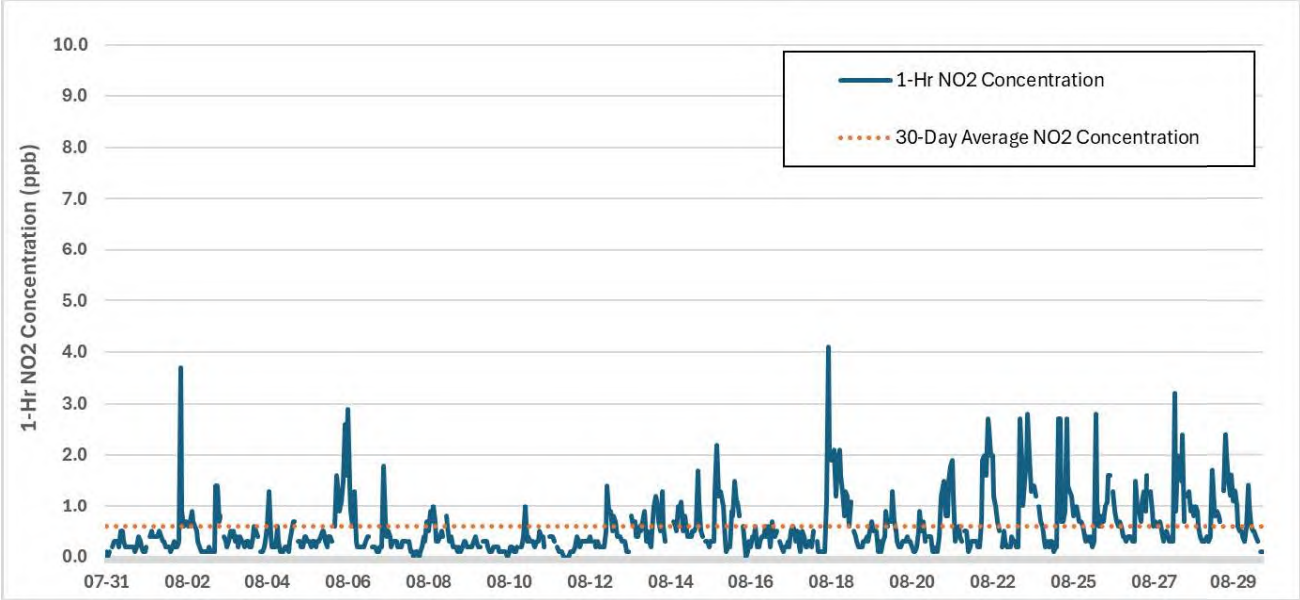

Figure 2: 1-Hr NO_2 Readings at ENV-AQN Kitimat Whitesail (July 31 – August 29)

3.0 PASSIVE MONITORING RESULTS

The passively measured 30-day NO_2 concentrations are listed for each site in Table 2. The 30-day NO_2 concentration based on continuous measurement is also listed for Kitimat Whitesail, as a measure of validation of the sampling results. Each site's housing utilizes two samplers for statistical redundancy, the mean of which is used as the overall measurement.

The measured 30-day NO_2 concentrations are shown through the study area on Figure 1. The highest reading in August 2025 occurred along the northwest side of town at the Kitimat Industrial (V14) sample location, north of the LNGC facility. This reading was lower than was measured in July, equal to the concentration measured in June, and higher than concentrations measured between March and May for V14.

The second highest 30-day NO_2 concentration measured in August was directly south of the LNGC facility at the V10B sample location. V10B has been the second highest reading since June 2025 and has seen consecutively higher concentrations each month following. The August 2025 concentration measured at V10B is higher than concentrations in April and May, and equal to the concentration measured in March of 2025.

The other stations through Kitimat followed the noted seasonal downward trend from higher concentrations observed during the winter months. Overall, August concentrations were slightly higher than the summer months of 2024, however, were slightly lower in comparison to the previous month of July.

Throughout the monitoring program, the measured NO_2 concentrations have been well below any representative (e.g., annual) criteria, with lower concentrations generally being observed in the summer and higher concentrations observed in the winter, likely attributed to the seasonality of atmospheric mixing conditions and seasonal differences in community-based sources of combustion.

The LNGC facility began routine flaring for commissioning work on the boil-off gas compressor. The flaring is understood to have occurred from early June through July 31 (Bender 2025). Tetra Tech understands from August 1 through 31, a new flaring activity occurred as art of the start-up of “Train 1, String 2.” LNGC reported that the flaring activities are a safety measure for specific operation phases and is not expected to be routine during regular operations (LNGC 2025a). Additional notifications by LNGC included a new flaring activity between August 7 and 12 associated with the scheduled inline inspection of the Coastal GasLink pipeline (LNGC 2024b); a planned flaring activity between August 11 and 13 associated with the restart of Train 1 (LNGC 2025c); and an unplanned flaring event that occurred on August 22 (LNGC 2025d).

Bureau Veritas Passive Sampling Laboratory Report is attached in Appendix B.

Table 2: Passive NO_2 Sampling Results (August 2025)

Site	Start	End	Duration (Days)	30-day NO_2 Concentration (ppb)			St. Dev	30 Day NO_2
				Sample 1	Sample 2	Mean		
Lakelse Lake A04	2025/07/31 08:35	2025/08/29 09:00	29.0	0.2	0.2	0.2	0	
V01	2025/07/31 09:30	2025/08/29 09:50	29.0	0.2	0.2	0.2	0	
KHV-2	2025/07/31 10:20	2025/08/29 10:50	29.0	0.2	0.2	0.2	0	
KHV-1*	2025/07/31 10:15	2025/08/29 10:45	29.0	0.2	0.2	0.2	0	
V10B	2025/07/31 11:00	2025/08/29 11:25	29.0	1.2	1.2	1.2	0	
V12	2025/07/31 11:15	2025/08/29 11:45	29.0	0.5	0.6	0.6	0.1	
V08	2025/07/31 11:50	2025/08/29 12:15	29.0	0.4	0.4	0.4	0	
V06	2025/07/31 11:55	2025/08/29 12:20	29.0	0.5	0.5	0.5	0	
V05	2025/07/31 12:05	2025/08/29 12:30	29.0	0.5	0.5	0.5	0	
Kitimat Industrial (V14)	2025/07/31 12:35	2025/08/29 13:00	29.0	1.2	1.4	1.3	0.1	
**Predicted Maximum NO_2	2025/07/31 13:00	2025/08/29 13:25	29.0	0.5	0.5	0.5	0	
Kitimat Riverlodge	2025/07/31 12:45	2025/08/29 13:15	29.0	0.9	1.1	1.0	0.1	
Kitimat Whitesail	2025/07/31 13:15	2025/08/29 13:35	29.0	0.2	0.3	0.3	0.1	0.6

*Sampling station 'KHV-1' was found knocked over on July 31, it was assumed to have been displaced by a vehicle at some unknown date during the July deployment period. The temporary placement of the station is located 2-3 m east and 0.7 m lower than its original location during the August sampling period.

**Sampling station 'Predicted Maximum NO2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum ground level concentration of NO2 inclusive of facility emissions within Kitimat.

4.0 SAMPLING PROGRAM ANOMALIES

There was one sampling program anomaly to note during the August deployment period, as follows. On July 31 during the sampler retrievals, the pole from which station KHV-1 was mounted was discovered lying on the ground. It was assumed to have been knocked down by a vehicle at an unknown date during the July deployment period. The housing was still attached with samplers inside. The samplers were retrieved, the housing removed and then placed on a nearby fence post temporarily until the damaged post can be repaired and the housing mounted at its original location. The temporary placement for the KHV-1 housing is located approximately 2-3 m to the east of its original location, at approximately 2.3 m above ground.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada Development Inc. and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada Development Inc., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in Appendix A or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

Prepared by:
Eden Hamilton, BASc., EIT
Junior Environmental Engineer-in-Training
Environment & Water Practice
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PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
P. W. GARDNER
40828
2025-10-09

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
PERMIT NUMBER: 1001972

Reviewed by:
Paul Gardner, M.A.Sc., P.Eng.
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/ces:sy

Attachments Figure 1: Mean 30-day NO_2 Concentration August 2025
Appendix A: Tetra Tech's Limitations on the Use of this Document
Appendix B: Bureau Veritas Passive Sampling Laboratory Report

REFERENCES

Bender, Q. (2025, June 6). *LNG Canada responds to flaring-smoke concerns at Kitimat Site*. Terrace Standard. https://www.terracestandard.com/local-news/lng-canada-responds-to-flaring-smoke-concerns-at-kitimat-site-8053354

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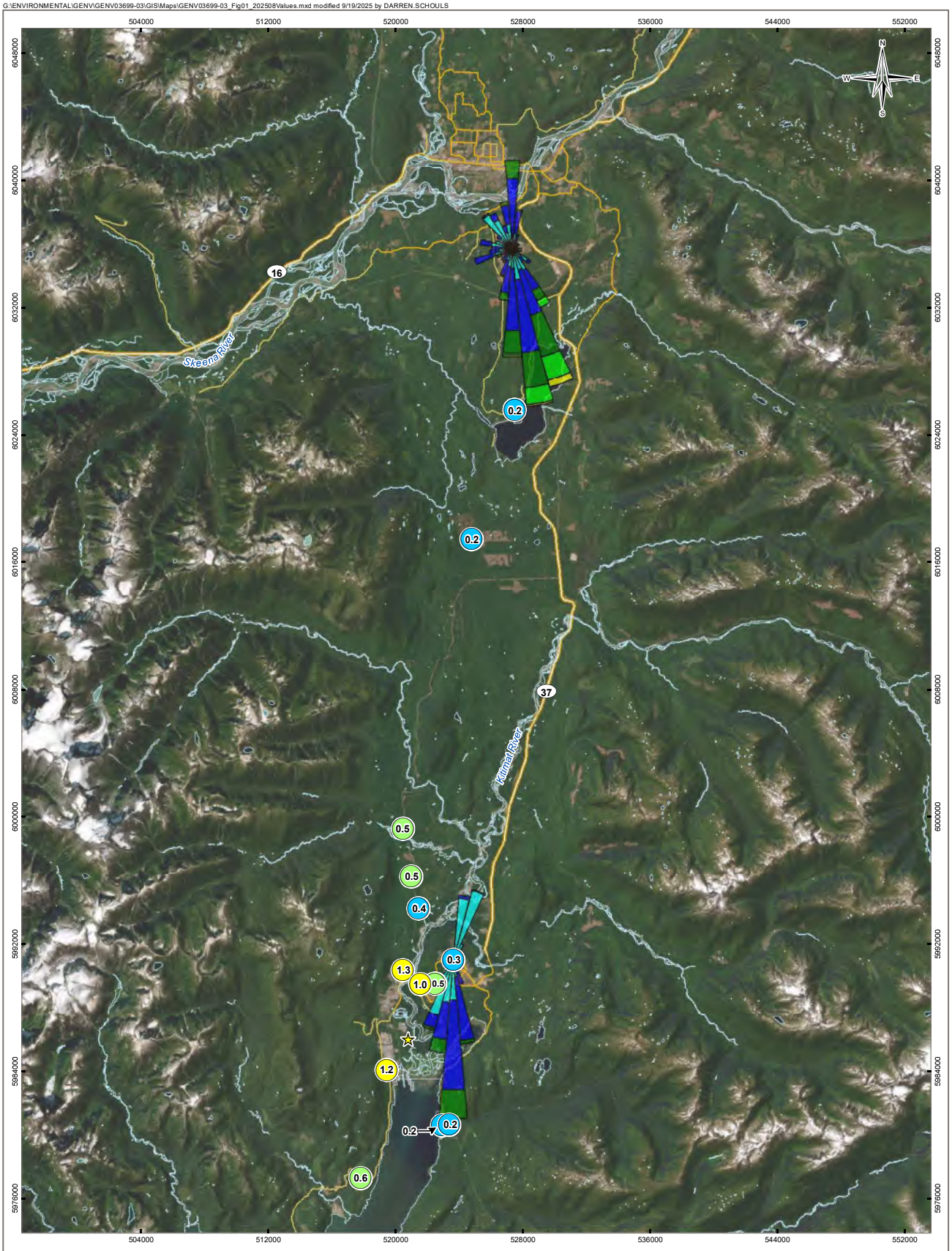
FIGURE

Figure 1 Mean 30-day NO_2 Concentration August 2025

G:\ENVIRONMENTAL\GENV\GENV03699-03\GIS\Maps\GENV03699-03_Fig01_202508Values.mxd modified 9/19/2025 by DARREN.SCHOULS



LEGEND

Mean 30-Day NO_2 Concentration (ppb)

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5

- LNGC Site
- Highway
- Main Road
- Local Road
- Watercourse/Waterbody

Rose Plot - Wind (m/s)

- 1 - 3
- 3 - 6
- 6 - 9
- 9 - 12
- 12 - 15

NOTES
Base data source:
Imagery from ESRI; Maxar
CanVec 1:250,000 (2019)

STATUS
ISSUED FOR USE

LNGC NO2 PASSIVE MONITORING

Mean 30-day NO2 Concentration August 2025

PROJECTION	DATUM	CLIENT
UTM Zone 9	NAD83	Haisla Triton Ltd.

Scale: 1:225,000
4 2 0 4
Kilometres

TETRA TECH

FILE NO.
GENV03699-03_Fig01_202508Values.mxd

OFFICE	DWN	CKD	APVD	REV
Tt-VANC	DS	MRB	TM	0

DATE	PROJECT NO.
September 19, 2025	ENW.GENV03699-03

Figure 1

APPENDIX A

TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

1.1 USE OF DOCUMENT AND OWNERSHIP

This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

The Professional Document is intended for the sole use of TETRA TECH's Client (the "Client") as specifically identified in the TETRA TECH Services Agreement or other Contractual Agreement entered into with the Client (either of which is termed the "Contract" herein). TETRA TECH does not accept any responsibility for the accuracy of any of the data, analyses, recommendations or other contents of the Professional Document when it is used or relied upon by any party other than the Client, unless authorized in writing by TETRA TECH.

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Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed TETRA TECH's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

1.3 STANDARD OF CARE

Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by third parties other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary exploration, investigation, and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

BUREAU VERITAS PASSIVE SAMPLING LABORATORY REPORT

Your P.O. #: 704-ENW.GENV03699-03.002
Your Project #: NO2 MONITORING
Site Location: 2025/07/31-2025/08/29

Attention: Travis Miguez

Tetra Tech Canada Inc.
#2 4065 Motz Road
Terrace, BC
CANADA V8G 3N1

Report Date: 2025/09/12
Report #: R3688729
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: G506338
Received: 2025/09/04, 12:00

Sample Matrix: Air
Samples Received: 26

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	26	2025/09/05	2025/09/08	PTC SOP-00148	Passive NO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Rowena Geron
Customer Service Associate
12 Sep 2025 14:55:35

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Branko Banjac, General Manager responsible for Alberta Petroleum laboratory operations.

Bureau Veritas Job #: G506338
Report Date: 2025/09/12

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/07/31-2025/08/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DOP910	DOP911	DOP912	DOP913	DOP914	DOP915		
Sampling Date		2025/07/31 08:35	2025/07/31 08:35	2025/07/31 09:30	2025/07/31 09:30	2025/07/31 10:15	2025/07/31 10:15		
	UNITS	#1 LAKELSE LAKE	#2 LAKELSE LAKE-DUP	#3 VO1	#4 VO1-DUP	#5 KHV-1	#6 KHV-1-DUP	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.2	0.2	0.2	0.2	0.2	0.2	0.1	C031408
RDL = Reportable Detection Limit									

Bureau Veritas ID		DOP916	DOP917	DOP918	DOP919	DOP920	DOP921	DOP922		
Sampling Date		2025/07/31 10:20	2025/07/31 10:20	2025/07/31 11:00	2025/07/31 11:00	2025/07/31 11:15	2025/07/31 11:15	2025/07/31 11:50		
	UNITS	#7 KHV-2	#8 KHV-2-DUP	#9 V10B	#10 V10B-DUP	#11 V12	#12 V12-DUP	#13 V08	RDL	QC Batch
Passive Monitoring										
Calculated NO2	ppb	0.2	0.2	1.2	1.2	0.5	0.6	0.4	0.1	C031408
RDL = Reportable Detection Limit										

Bureau Veritas ID		DOP923	DOP924	DOP925	DOP926	DOP927	DOP928		
Sampling Date		2025/07/31 11:50	2025/07/31 11:55	2025/07/31 11:55	2025/07/31 12:05	2025/07/31 12:05	2025/07/31 12:35		
	UNITS	#14 V08-DUP	#15 V06	#16 V06-DUP	#17 V05	#18 V05-DUP	#19 Kitimat Industrial	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.4	0.5	0.5	0.5	0.5	1.2	0.1	C031408
RDL = Reportable Detection Limit									

Bureau Veritas ID		DOP929		DOP930	DOP931		
Sampling Date		2025/07/31 12:35		2025/07/31 12:45	2025/07/31 12:45		
	UNITS	#20Kitimat Industrial-DUP	QC Batch	#21 Kitimat Riverlodge	#22Kitimat Riverlodge -DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	1.4	C031408	0.9	1.1	0.1	C031546
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G506338
Report Date: 2025/09/12

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/07/31-2025/08/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DOP932	DOP933	DOP934	DOP935		
Sampling Date		2025/07/31 13:00	2025/07/31 13:00	2025/07/31 13:15	2025/07/31 13:15		
	UNITS	#23 Predicted Max	#24 Predicted Max-DUP	#25 Kitimat Whitesail	#26 Kitimat Whitesail-DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	0.5	0.5	0.2	0.3	0.1	C031546
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G506338
Report Date: 2025/09/12

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/07/31-2025/08/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G506338
Report Date: 2025/09/12

QUALITY ASSURANCE REPORT

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/07/31-2025/08/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

			Spiked Blank		Method Blank	
QC Batch	**Parameter**	**Date**	**% Recovery**	**QC Limits**	**Value**	**UNITS**
C031408	Calculated NO2		98	90 - 110	<0.1	ppb
C031546	Calculated NO2		98	90 - 110	<0.1	ppb

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G506338
Report Date: 2025/09/12

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/07/31-2025/08/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: ML

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Steven Gloux, Laboratory Supervisor

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Branko Banjac, General Manager responsible for Alberta Petroleum laboratory operations.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

SEPTEMBER 2025 REPORT

TETRA TECH

ISSUED FOR REVIEW

October 7, 2025

FILE: 704-ENW.GENV03699-03

LNG Canada Development Inc.

Via Email: Tauseef-ZIA.Siddiqui@lngcanada.ca
KIT-Regulatory-Compliance@lngcanada.ca

Attention: Tauseef Zia Siddiqui

Subject: Passive Monitoring for Nitrogen Dioxide – LNG Canada – September 2025
Document Control #: L001-00000-HE-0702-1009 - Rev 2

This 'Issued for Review' document is provided solely for the purpose of client review and presents our interim findings and recommendations to date. Our usable findings and recommendations are provided only through an 'Issued for Use' document, which will be issued subsequent to this review. Final design should not be undertaken based on the interim recommendations made herein. Once our report is issued for use, the 'Issued for Review' document should be either returned to Tetra Tech Canada Inc. (Tetra Tech) or destroyed.

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained to conduct passive monitoring for nitrogen dioxide (NO_2) on behalf of Haisla Triton Limited Partnership and its client, LNG Canada Development Inc. (LNGC). The monitoring is part of the LNGC Air Quality Detailed Monitoring Plan (AQDMP) (Document # C000-000-HX-9150-0043) and satisfies the requirement for collection of passive air quality data for NO_2 as described in LNGC's Air Discharge Permit PA-110588. Specific to PA 110588, the passive NO_2 monitoring program satisfies the conditions of Section 6.4 – Collection of Passive Air Quality Data.

The LNGC receiving environment monitoring approach is to understand the existing environmental effects through monitoring programs (e.g., air quality) in the Kitimat region, with a focus on effects attributable to the LNGC facility emissions, particularly the contribution of nitrogen to the environment. LNGC's approach for the longer term airshed monitoring program is to focus on oxides of nitrogen (NOx), in particular, the criteria air contaminant, NO_2.

As described in the AQDMP, LNGC's monitoring commitment for NO_2 is to place passive samplers at 13 locations through the urban and valley region as described in Table 1. The spatial distribution of the passive monitoring station network through the Kitimat Valley is shown on the attached Figure 1.

Tetra Tech Canada Inc.
Unit 2, 4065 Motz Road
Terrace, BC V8G 3N1
Tel 778.309.1605

Table 1: LNGC's Passive NO_2 Monitoring Network

Site	UTM Coordinates Zone 9		Sampler Height (m)
	Easting (m)	Northing (m)	
Lakelse Lake A04	527457	6025573	2.2
V01	524757	6017435	2.1
KHV-2	523357	5980636	3.0
KHV-1*	522922	5980606	2.3
V10B	519425	5984090	3.0
V12	517790	5977294	2.0
V08	521425	5994249	2.0
V06	520970	5996240	2.0
V05	520457	5999250	2.0
Kitimat Industrial	520424	5990356	3.0
Predicted Maximum NO_2	522463	5989506	3.0
Kitimat Riverlodge	521536	5989486	3.0
Kitimat Whitesail	523612	5990998	3.0

* Sampling station 'KHV-1' was found knocked over on July 31, it was assumed to have been displaced by a vehicle at some unknown date during the July deployment period. Sampler coordinates and height listed are approximate location of temporary placement until the station can be repaired.

The sampling methodology adheres to protocols described in the document '*Standard Operating Procedure (SOP) – Passive Monitoring for Nitrogen Dioxide (NO_2)*', dated March 2024. More information on the sampling methodology can be found in this document.

2.0 AMBIENT CONDITIONS DURING DEPLOYMENT PERIOD

Winds

Winds were dominated by inflow conditions over the period August 29 through September 29, 2025, the prevalent summer pattern, however outflows were observed with higher occurrence than during the summer months as the autumn/winter pattern is beginning to establish itself through the region. Figure 1 shows wind roses for hourly wind observations during the September sampler deployment period at ENV-AQN Kitimat Whitesail and Terrace Airport.

Precipitation

279.5 mm of precipitation was recorded between August 29 through September 29 at ECCC Kitimat Forest Avenue. 136.1 mm of precipitation was recorded at ECCC Terrace A. These totals are 89 mm above the precipitation normal for Kitimat and 25 mm above for Terrace, respectively.

Air Quality – Nitrogen Dioxide

NO_2 is continuously measured and reported on an hourly basis at ENV-AQN station Kitimat Whitesail. Over the September deployment period (August 29 – September 29), the maximum 1-hour NO_2 concentration was 8.2 ppb, or 13.7% of the British Columbia Air Quality Objective (BCAQO) of 60 ppb. The 30-day average NO_2 concentration, taken as the average of all available one-hour measurements during the sampling period, was 0.7 ppb. While there is no 30-day BCAQO, the annual criterion is 17 ppb, which provides another indicator of ambient air quality with

respect to NO_2. There were 42 hours of missing data out of 725 hours, or 94% data completeness. Figure 2 plots the 1-hour NO_2 concentration measured by the continuous monitor at Kitimat Whitesail over the sampling period.

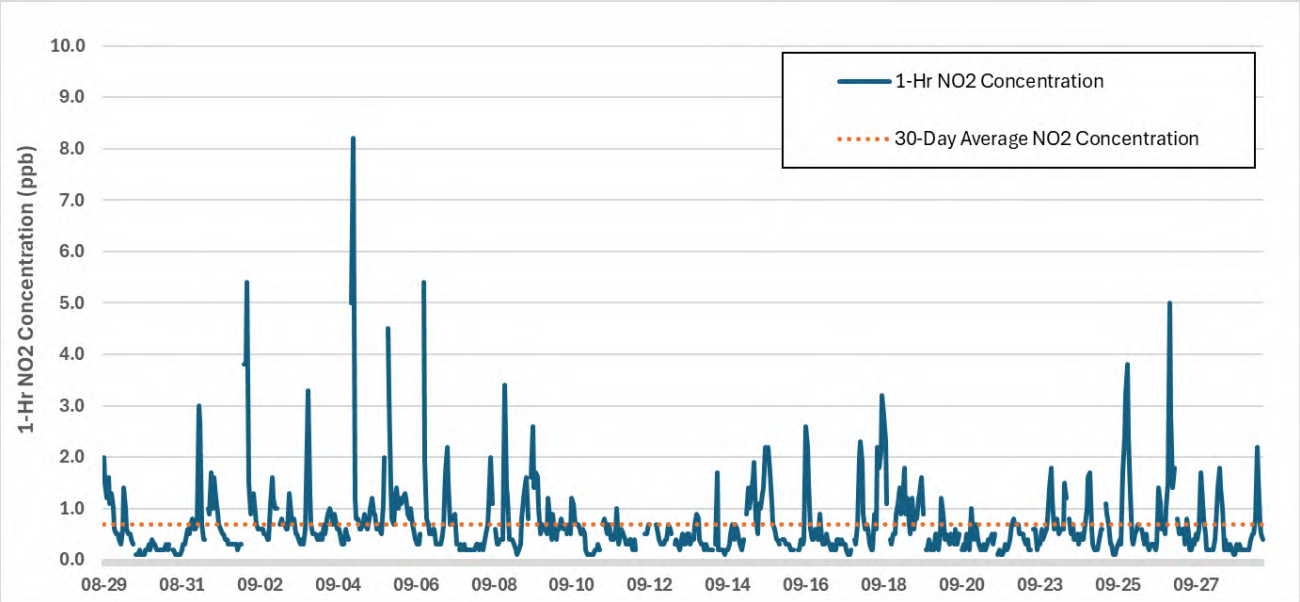


Figure 2: 1-Hr NO_2 Readings at ENV-AQN Kitimat Whitesail (August 29 – September 29)

3.0 PASSIVE MONITORING RESULTS

The passively measured 30-day NO_2 concentrations are listed for each site in Table 2. The 30-day NO_2 concentration based on continuous measurement is also listed for Kitimat Whitesail, as a measure of validation of the sampling results. Each site's housing utilizes two samplers for statistical redundancy, the mean of which is used as the overall measurement.

The measured 30-day NO_2 concentrations are shown through the study area on Figure 1. The highest reading in September 2025 occurred along the northwest side of town at the Kitimat Industrial (V14) sample location, north of the LNGC facility. This reading was higher than was measured in August, equal to the concentration measured in July, and higher than concentrations measured between March and June for V14.

The second highest 30-day NO_2 concentration measured in September was directly south of the LNGC facility at the V10B sample location. V10B has been the second highest reading since June 2025 and has seen consecutively higher concentrations each month from June to August, with August's value being slightly higher than September's. The other stations through Kitimat followed the seasonal trend towards higher NO_2 concentrations observed during the winter months.

Table 2: Passive NO_2 Sampling Results (September 2025)

Site	Start	End	Duration (Days)	30-day NO_2 Concentration (ppb)			St. Dev	30 Day NO_2
				Sample 1	Sample 2	Mean		
Lakelse Lake A04	2025/08/29 09:00	2025/09/29 08:40	31.0	0.2	0.1	0.2	0.1	
V01	2025/08/29 09:50	2025/09/29 09:30	31.0	0.2	0.3	0.3	0.1	
KHV-2	2025/08/29 10:50	2025/09/29 10:20	31.0	0.2	0.1	0.2	0.1	
KHV-1*	2025/08/29 10:45	2025/09/29 10:15	31.0	0.2	0.3	0.3	0.1	
V10B	2025/08/29 11:25	2025/09/29 10:50	31.0	1.1	1.1	1.1	0	
V12	2025/08/29 11:45	2025/09/29 11:10	31.0	0.4	0.4	0.4	0	
V08	2025/08/29 12:15	2025/09/29 11:50	31.0	0.4	0.5	0.5	0.1	
V06	2025/08/29 12:20	2025/09/29 12:00	31.0	0.5	N/A**	0.5	N/A	
V05	2025/08/29 12:30	2025/09/29 12:15	31.0	0.5	0.4	0.5	0.1	
Kitimat Industrial (V14)	2025/08/29 13:00	2025/09/29 12:40	31.0	1.7	1.5	1.6	0.1	
***Predicted Maximum NO_2	2025/08/29 13:25	2025/09/29 13:00	31.0	0.8	N/A****	0.8	N/A	
Kitimat Riverlodge	2025/08/29 13:15	2025/09/29 12:50	31.0	0.9	0.8	0.9	0.1	
Kitimat Whitesail	2025/08/29 13:35	2025/09/29 13:20	31.0	0.3	0.5	0.4	0.1	0.7

* Sampling station 'KHV-1' was found knocked over on July 31, it was assumed to have been displaced by a vehicle at some unknown date during the July deployment period. The temporary placement of the station is located 2-3 m east and 0.7 m lower than its original location during the September sampling period.

** A duplicate sample for location V06 was unable to be analyzed due to a damaged sampler.

*** Sampling station 'Predicted Maximum NO_2' is the location that was predicted, through dispersion modelling completed by Stantec (2023), to have the maximum ground level concentration of NO_2 inclusive of facility emissions within Kitimat.

**** A duplicate sample concentration for location 'Predicted Maximum NO_2' was removed due to suspected analytical error or sampler contamination.

Figure 3 plots the passively measured 30-day NO_2 concentration by month at several stations through the network. A seasonal pattern is quite evident with higher concentrations measured across all stations from late summer through early spring. This observed winter trend can likely be attributed to meteorological conditions associated with poorer atmospheric mixing as well as an increase in community-based sources of combustion such as heating. It should be noted that the highest measured NO_2 concentrations are well below representative (e.g. annual) criteria.

Figure 3 also illustrates passively measured 30-day concentrations above the regional seasonal pattern at station V12, located immediately north of the LNGC facility. The LNGC facility began flaring in early June related to operational phases and has posted several community notices regarding each flaring event since. Specific to the September monitoring period, Tetra Tech understands that on September 1, an unplanned flaring event occurred, resulting in a flare height of approximately 60 metres, with associated visible emissions (LNGC 2025a). Additionally, LNGC posted a community notification of increased flaring between September 11 and 13 associated with the "restart of Train 1". In the same notification, LNGC also noted an unplanned flaring event on September 11 resulting in a flare height of approximately 60 metres. LNGC reported that the flaring activities are a safety measure for specific operation phases and is not expected to be routine during regular operations (LNGC 2025b).

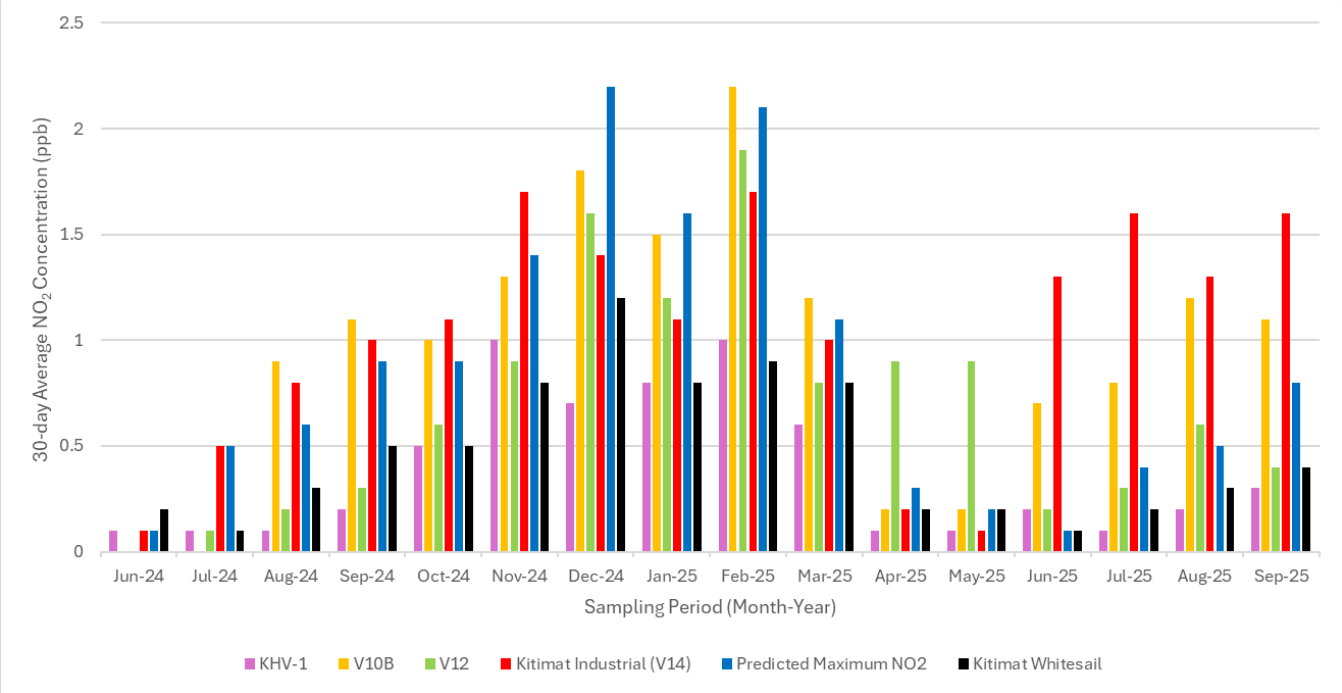


Figure 3: Passive NO_2 Concentrations – June 2024 to September 2025

Figure 4 shows a time series plot of passively measured 30-day NO_2 concentrations at Kitimat Industrial (V14) and the Predicted Maximum NO_2 station over the duration of the survey. The period June 2024 through May2025 (MY1), indicative of the concentrations pre-flaring events, is plotted as a dashed line, with measurements June 2025 through September 2025 (MY2) as a solid line, indicative of measurements occurring since flaring-events started.

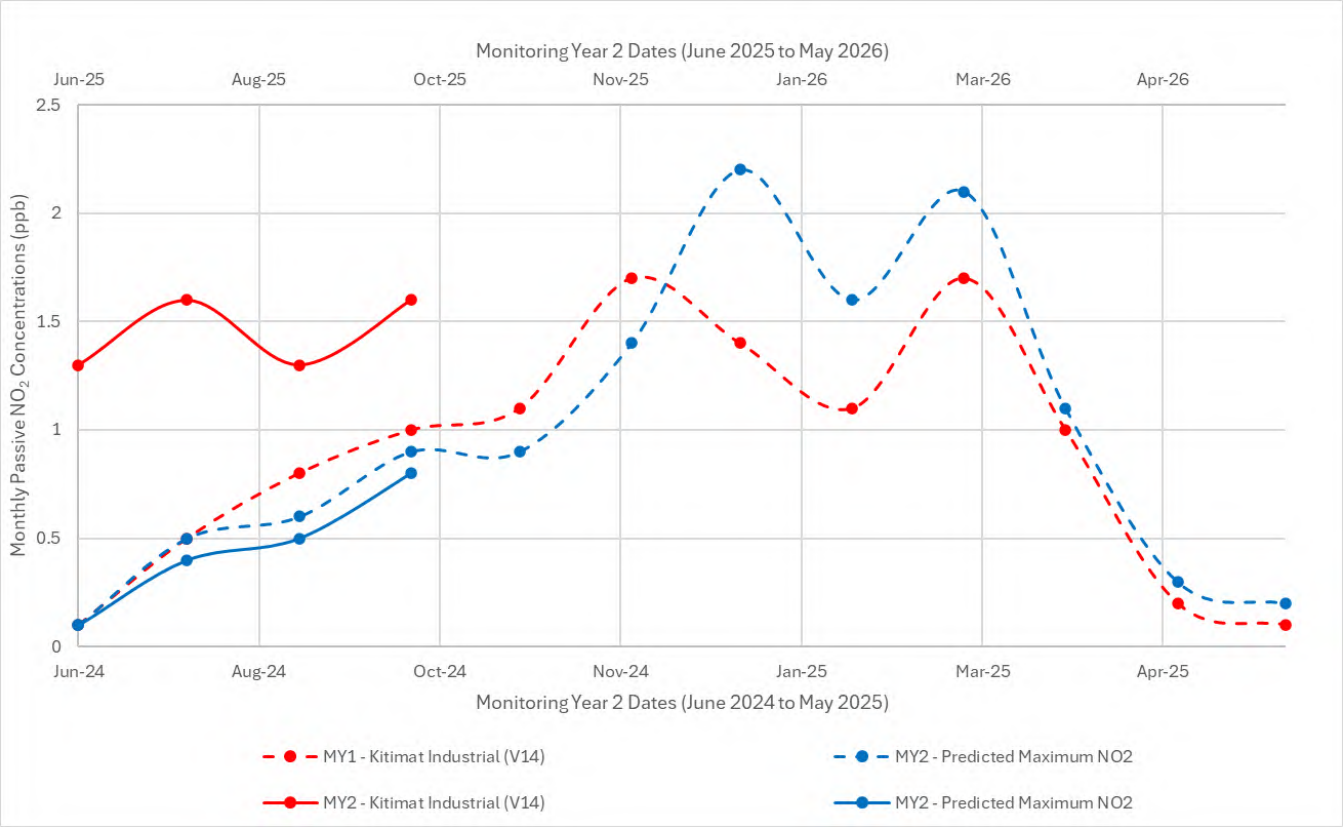


Figure 4: Passive NO_2 Concentrations – Monitoring Year 1 (MY1) vs. Monitoring Year 2 (MY2)

Bureau Veritas Passive Sampling Laboratory Report is attached in Appendix B.

4.0 SAMPLING PROGRAM ANOMALIES

There were several sampling program anomalies to note during the September deployment period, as follows.

On July 31 during the sampler retrievals, the pole from which station KHV-1 was mounted was discovered lying on the ground. It was assumed to have been knocked down by a vehicle at an unknown date during the July deployment period. The housing was placed on a nearby fence post temporarily until the damaged post can be repaired and the housing mounted at its original location. Sampling at KHV-1 during the September deployment period occurred at the temporary placement located approximately 2-3 m to the east of its original location, at approximately 2.3 m above ground.

During sampler retrievals, a duplicate sampler at location V06 was observed with a damaged membrane and the sample was not able to be analyzed. As a result, there is no redundant measurement at this location for September.

One of the samples from location 'Predicted Maximum NO_2' was reported by the lab as <0.1 ppb, or below the laboratory detection limit, while the other sample measured 0.8 ppb, similar to what was measured in September 2024. The below detection sample was assumed by Tetra Tech as invalid due to suspected analytical error or sampler contamination and the single measurement was assumed for September.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of LNG Canada Development Inc. and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than LNG Canada Development Inc., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in Appendix A or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

ISSUED FOR REVIEW

FILE: 704-ENW.GENV03699-03
FILE: 704-ENW.GENV03699-03
FILE: 704-ENW.GENV03699-03

Prepared by:
Eden Hamilton, BASc., EIT
Junior Environmental Engineer-in-Training
Environment & Water Practice
Direct Line: 604.238.3621
Eden.Hamilton@tetratech.com

ISSUED FOR REVIEW

FILE: 704-ENW.GENV03699-03
FILE: 704-ENW.GENV03699-03
FILE: 704-ENW.GENV03699-03

Reviewed by:
Travis Miguez, B.Sc., EP
Senior Meteorology and Air Quality Specialist
Air and Noise Assessment Group
Direct Line: 604.608.8640
Travis.Miguez@tetratech.com

ISSUED FOR REVIEW

FILE: 704-ENW.GENV03699-03
FILE: 704-ENW.GENV03699-03
FILE: 704-ENW.GENV03699-03

Reviewed by:
Paul Gardner, M.A.Sc., P.Eng.
Senior Contaminated Sites Specialist
Environment & Water Practice
Direct Line: 604.722.7944
Paul.Gardner@tetratech.com

/sy

Attachments Figure 1: Mean 30-day NO_2 Concentration September 2025
Appendix A: tetra Tech's Limitations on the Use of this Document
Appendix B: Bureau Veritas Passive Sampling Laboratory Report

REFERENCES

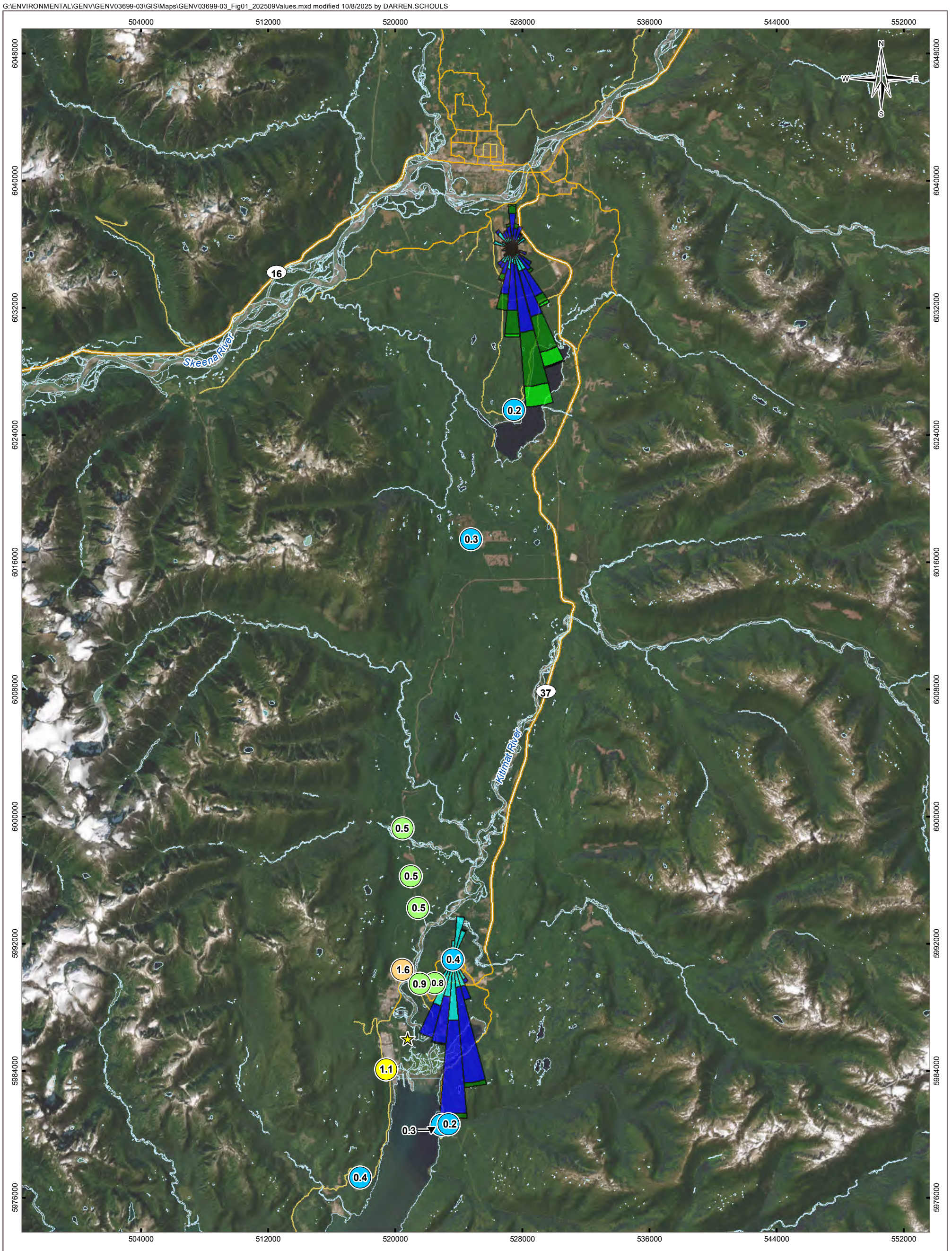
LNG Canada Development Inc. (2025a, September 2). *Community Notification: Flaring.* LNG Canada. https://www.lngcanada.ca/news/community-notification-flaring-3/

LNG Canada Development Inc. (2025b, September 11). *Community Notification: Flaring Activity.* LNG Canada. https://www.lngcanada.ca/news/community-notification-flaring-4/

FIGURE

Figure 1 Mean 30-day NO_2 Concentration September 2025

G:\ENVIRONMENTAL\GENV\GENV03699-03\GIS\Maps\GENV03699-03_Fig01_202509Values.mxd modified 10/8/2025 by DARREN.SCHOULS



LEGEND

Mean 30-Day NO_2 Concentration (ppb)

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0

- LNGC Site
- Highway
- Main Road
- Local Road
- Watercourse/Waterbody

Rose Plot - Wind (m/s)

- 1 - 3
- 3 - 6
- 6 - 9
- 9 - 12
- 12 - 15

NOTES
Base data source:
Imagery from ESRI; Maxar
CanVec 1:250,000 (2019)

STATUS
ISSUED FOR USE

LNGC NO2 PASSIVE MONITORING

Mean 30-day NO2 Concentration September 2025

PROJECTION	DATUM	CLIENT
UTM Zone 9	NAD83	Haisla Triton Ltd.

Scale: 1:225,000
4 2 0 4
Kilometres

FILE NO.
GENV03699-03_Fig01_202509Values.mxd

OFFICE	DWN	CKD	APVD	REV
Tt-VANC	DS	MRB	TM	0

DATE	PROJECT NO.
October 8, 2025	ENW.GENV03699-03

TETRA TECH

Figure 1

APPENDIX A

TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

1.1 USE OF DOCUMENT AND OWNERSHIP

This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

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Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed TETRA TECH's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

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Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by third parties other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

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The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary exploration, investigation, and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

BUREAU VERITAS PASSIVE SAMPLING LABORATORY REPORT

Your P.O. #: 704-ENW.GENV03699-03.002
Your Project #: NO2 MONITORING
Site Location: 2025/08/29-2025/09/29

Attention: Travis Miguez

Tetra Tech Canada Inc.
#2 4065 Motz Road
Terrace, BC
CANADA V8G 3N1

Report Date: 2025/10/07
Report #: R3692401
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: G508966
Received: 2025/10/03, 08:00

Sample Matrix: Air
Samples Received: 26

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	26	2025/10/03	2025/10/07	PTC SOP-00148	Passive NO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Rowena Geron
Customer Service Associate
07 Oct 2025 13:19:19

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Branko Banjac, General Manager responsible for Alberta Petroleum laboratory operations.

Bureau Veritas Job #: G508966
Report Date: 2025/10/07

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/08/29-2025/09/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: TZ

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DOZ856	DOZ857	DOZ858	DOZ859	DOZ860	DOZ861		
Sampling Date		2025/08/29 09:00	2025/08/29 09:00	2025/08/29 09:50	2025/08/29 09:50	2025/08/29 10:45	2025/08/29 10:45		
	UNITS	#1 LAKELSE LAKE	#2 LAKELSE LAKE-DUP	#3 VO1	#4 VO1-DUP	#5 KHV-1	#6 KHV-1-DUP	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.2	0.1	0.2	0.3	0.2	0.3	0.1	C041687
RDL = Reportable Detection Limit									

Bureau Veritas ID		DOZ862	DOZ863	DOZ864	DOZ865	DOZ866	DOZ867	DOZ868		
Sampling Date		2025/08/29 10:50	2025/08/29 10:50	2025/08/29 11:25	2025/08/29 11:25	2025/08/29 11:45	2025/08/29 11:45	2025/08/29 12:15		
	UNITS	#7 KHV-2	#8 KHV-2-DUP	#9 V10B	#10 V10B-DUP	#11 V12	#12 V12-DUP	#13 V08	RDL	QC Batch
Passive Monitoring										
Calculated NO2	ppb	0.2	0.1	1.1	1.1	0.4	0.4	0.4	0.1	C041687
RDL = Reportable Detection Limit										

Bureau Veritas ID		DOZ869	DOZ870	DOZ871	DOZ872	DOZ873	DOZ874		
Sampling Date		2025/08/29 12:15	2025/08/29 12:20	2025/08/29 12:20	2025/08/29 12:30	2025/08/29 12:30	2025/08/29 13:00		
	UNITS	#14 V08-DUP	#15 V06	#16 V06-DUP	#17 V05	#18 V05-DUP	#19 Kitimat Industrial	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.5	0.5	DAMAGED	0.5	0.4	1.7	0.1	C041687
RDL = Reportable Detection Limit									

Bureau Veritas ID		DOZ875		DOZ876	DOZ877		
Sampling Date		2025/08/29 13:00		2025/08/29 13:15	2025/08/29 13:15		
	UNITS	#20Kitimat Industrial-DUP	QC Batch	#21 Kitimat Riverlodge	#22Kitimat Riverlodge -DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	1.5	C041687	0.9	0.8	0.1	C041695
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G508966
Report Date: 2025/10/07

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/08/29-2025/09/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: TZ

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		DOZ878	DOZ879	DOZ880	DOZ881		
Sampling Date		2025/08/29 13:25	2025/08/29 13:25	2025/08/29 13:35	2025/08/29 13:35		
	UNITS	#23 Predicted Max	#24 Predicted Max-DUP	#25 Kitimat Whitesail	#26 Kitimat Whitesail-DUP	RDL	QC Batch
Passive Monitoring							
Calculated NO2	ppb	0.8	<0.1	0.3	0.5	0.1	C041695
RDL = Reportable Detection Limit							

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G508966
Report Date: 2025/10/07

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/08/29-2025/09/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: TZ

GENERAL COMMENTS

Sample DOZ870 [#15 V06] : Noted by Sampler TZ - The white membrane was damaged on one of the “V06” samples.

Sample DOZ871 [#16 V06-DUP] : NO2 Sample DOZ871 was received with a damaged barrier. S1T (2025/10/03)

Sample DOZ880 [#25 Kitimat Whitesail] : Noted by Sampler TZ - The housing came apart on one of the “Kitimat Whitesail” samples.

Results relate only to the items tested.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G508966
Report Date: 2025/10/07

QUALITY ASSURANCE REPORT

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/08/29-2025/09/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: TZ

			Spiked Blank		Method Blank	
QC Batch	**Parameter**	**Date**	**% Recovery**	**QC Limits**	**Value**	**UNITS**
C041687	Calculated NO2		97	90 - 110	<0.1	ppb
C041695	Calculated NO2		97	90 - 110	<0.1	ppb

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

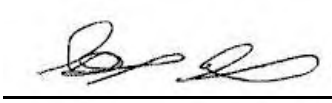
Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: G508966
Report Date: 2025/10/07

Tetra Tech Canada Inc.
Client Project #: NO2 MONITORING
Site Location: 2025/08/29-2025/09/29
Your P.O. #: 704-ENW.GENV03699-03.002
Sampler Initials: TZ

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Steven Gloux, Laboratory Supervisor

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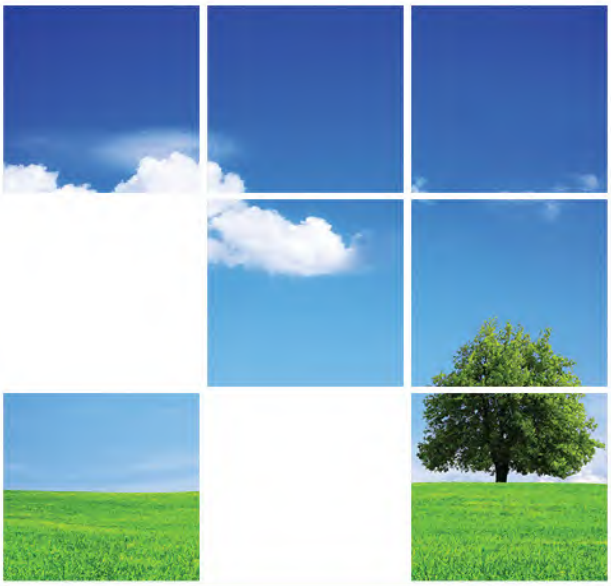
Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699



SOURCE EMISSION SURVEY

LNG Canada Development Inc.

LNG Canada Kitimat Liquified Natural (LNG) Gas Facility
Train 1 Acid Gas Incinerator Stack (AGI)
September 26, 2025

Prepared for:
LNG Canada Development Inc.
Suite # 4000 – 500 Centre Street, S.E.
Calgary, Alberta
T2G 1A6

Attention:
Mr. Tauseef Zia Siddiqui

Prepared By:
Hina Jahangir
AGAT Laboratories Ltd.
3700 - 21st Street, N.E.
Calgary, Alberta
T2E 6V6
Phone: 403.299.2158

Project No.: 25C338707
Permit No.: PA-110588
October 27, 2025

AGAT Laboratories

Cover Letter

October 27, 2025

LNG Canada Development Inc.
LNG Canada Kitimat Liquified Natural Gas (LNG) Facility

Attention:	Mr. Tauseef Zia Siddiqui
Subject:	LNG Canada Kitimat Liquified Natural Gas (LNG) Facility – September 2025 Source Emission Survey

AGAT Laboratories' Source Testing Services Group is pleased to submit the following Source Emission Survey report. The test program conducted at the LNG Canada Development Inc. – LNG Canada Kitimat Liquified Natural Gas (LNG) Facility on September 26, 2025 was performed on the Train 1 Acid Gas Incinerator Stack (AGI). The parameters tested were Volatile Organic Compounds (VOCs), BTEX (C_6H_6), Hydrogen Sulphide (H_2S), Total Hydrocarbons (THCs), Volumetric Flow and Sample Level Temperature. Cyclonic Flow testing was also conducted. This report was completed in accordance with Environment Canada EPS 1/PG/7 requirements.

If you have any questions or concerns regarding this report, please contact Mr. Shaun Hayward at (403) 299-2179, or via E-mail at **hayward@agatlabs.com**. Alternatively, please contact Mr. Richard Kenney at (403) 299-2184, or via E-mail at **rkenney@agatlabs.com.** Thank you for your patronage, and we look forward to being of service to you in the future.

Yours truly,

AGAT Laboratories Ltd.

Report Author: **Reviewed by:**

Hina Jahangir
Report Writer

Shaun Hayward, A. B.Sc.
Manager, Source Testing

Richard Kenney
Technical Services Liaison

Summary

AGAT Laboratories' Source Testing Services Group was retained by LNG Canada Development Inc. to perform a Source Emission Survey on the Train 1 Acid Gas Incinerator Stack (AGI) located at the LNG Canada Kitimat Liquified Natural Gas (LNG) Facility. The parameters tested were Volatile Organic Compounds (VOCs), BTEX (C_6H_6), Hydrogen Sulphide (H_2S), Total Hydrocarbons (THCs), Volumetric Flow and Sample Level Temperature.

The Train 1 Acid Gas Incinerator Stack (AGI) at the LNG Canada Kitimat Liquified Natural Gas (LNG) Facility was operating under normal conditions at the time of the sampling program. These tests were conducted on September 26, 2025.

Stratification testing was not conducted at this time. Cyclonic Flow testing was conducted at this time; data results obtained from the source emission testing indicated that no cyclonic flow conditions were observed.

The Effluent Flow Measuring device was tested using a calibrated standard S-type Pitot tube fixed with a standardized K-Type thermocouple.

The protocols of US EPA 18 were followed to test for Volatile Organic Compounds (VOCs), Total Hydrocarbons (THCs), Hydrogen Sulphide, and BTEX (C_6H_6). The protocols of US EPA Method 1, 2, 3, and 4 and the British Columbia Field Sampling Manual Method 1, 2, 3 of part B-2 were used to test the Volumetric Flow and Temperature. The protocols of Environment Canada Report EPS 1/PG/7 (EC-PG7) were followed in order to complete the Source Emission Survey report.

Table 1: Summary of Source Emission Survey Results – VOC & THC

Train 1 Acid Gas Incinerator Stack (AGI)					
Compliance Parameter	**Units**	**Test 1 2025/09/26 11:40 – 12:40**	**Test 2 2025/09/26 12:50 – 13:50**	**Test 3 2025/09/26 14:00 – 15:00**	**Average**
Stack Gas Measurements					
Volumetric Flow*	**m^3/sec - wet**	14.1	13.3	13.0	**13.5**
	e^3m^3/day - wet	1,220	1,152	1,121	**1,164**
Stack Gas Velocity	**m/s**	6.64	6.29	6.11	**6.35**
Stack Temperature	**℃**	939	943	943	**942**
Water Content	**%**	9.00	6.43	6.80	**7.41**
Volatile Organic Compounds (VOCs)**					
Concentration	**ppm - dry**	0.0300	0.0277	0.00514	**0.0210**
	ppm - wet	0.0273	0.0259	0.00479	**0.0193**
	mg/m^3 - dry	0.0850	0.0861	0.0151	**0.0620**
	mg/m^3 - wet	0.0773	0.0806	0.0141	**0.0573**
Emission Rate	**kg/hr**	0.00392	0.00386	0.000658	**0.00281**
Total Hydrocarbon (THC)***					
Concentration	**ppm - dry**	0.0500	0.0500	0.0500	**0.0500**
	ppm - wet	0.0455	0.0468	0.0466	**0.0463**
	mg/m^3 - dry	0.0333	0.0333	0.0333	**0.0333**
	mg/m^3 - wet	0.0303	0.0312	0.0311	**0.0309**
Emission Rate	**kg/hr**	0.00154	0.00149	0.00145	**0.00150**

Notes: *Reported at 760 mm Hg and 20°C.

**Minimum Detection Limits (MDL), along with full speciation breakdown can be found in Appendix I.

*** MDL values were used to calculate final average.

Table 2: Summary of Source Emission Survey Results – H_2S & BTEX

Train 1 Acid Gas Incinerator Stack (AGI)					
Compliance Parameter	**Units**	**Test 1 2025/09/26 11:40 – 12:40**	**Test 2 2025/09/26 12:50 – 13:50**	**Test 3 2025/09/26 14:00 – 15:00**	**Average**
Stack Gas Measurements					
Volumetric	**m^3/sec - wet**	14.1	13.3	13.0	**13.5**
	e^3m^3/day - wet	1,220	1,152	1,121	**1,164**
Stack Gas Velocity	**m/s**	6.64	6.29	6.11	**6.35**
Stack Temperature	**℃**	939	943	943	**942**
Water Content	**%**	9.00	6.43	6.80	**7.41**
Hydrogen Sulphide (H_2S)					
Concentration**	**ppm - dry**	0.000300	0.000300	0.000300	**0.000300**
	ppm - wet	-0.00240	-0.00163	-0.00174	**-0.00192**
	mg/m^3 - dry	0.00425	0.00425	0.00425	**0.00425**
	mg/m^3 - wet	-0.00340	-0.00231	-0.00247	**-0.00273**
Emission Rate	**kg/hr**	-0.000173	-0.000111	-0.000115	**-0.000133**
BTEX (C_6H_6)					
Concentration	**ppm - dry**	0.00263	0.00104	0.000760	**0.00148**
	ppm - wet	0.00239	0.000973	0.000708	**0.00136**
	mg/m^3 - dry	0.0102	0.00404	0.00292	**0.00571**
	mg/m^3 - wet	0.00926	0.00378	0.00272	**0.00526**
Emission Rate	**kg/hr**	0.000470	0.000181	0.000128	**0.000260**

Notes: *Reported at 760 mm Hg and 20°C.
** MDL values were used to calculate final average.

Table 3: Cyclonic Flow Results

Train 1 Acid Gas Incinerator Stack (AGI)												
	Port 1 - West			Port 2 - South			Port 3 - East			Port 4 - North		
	Test 1	Test 2	Difference	Test 1	Test 2	Difference	Test 1	Test 2	Difference	Test 1	Test 2	Difference
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	***Absolute Average**		**0.00**	***Absolute Average**		**0.00**	***Absolute Average**		**0.00**	***Absolute Average**		**0.00**

Note: *Average of the absolute rotation angle values.

According to US EPA Method 1 Section 11.4, cyclonic flow occurs when the average of the absolute values of the null angles is greater than 20^{o}. Additionally, the difference between the angles in tests 1 and 2 cannot be greater than 5^{o}. Applying US EPA, cyclonic flow was found to be within approved limits.

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Part 1 – Introduction

1.1 Background Information

AGAT Laboratories' Source Testing Services Group was retained by Mr. Tauseef Zia Siddiqui of LNG Canada Development Inc. to perform a Source Emission Survey on the Train 1 Acid Gas Incinerator Stack (AGI) at the LNG Canada Kitimat Liquified Natural Gas (LNG) Facility. These tests were conducted on September 26, 2025.

1.2 Key Personnel

Mr. Marlon Soriano was the AGAT project manager and Mr. Tauseef Zia Siddiqui was the client contact and coordinator. Mr. Marlon Soriano and Mr. Vipul Katariya performed the on-site sampling program. Mrs. Hina Jahangir performed the data reduction and produced the final report.

1.3 Project Scope

Project scope included the evaluation of the following parameters from Train 1 Acid Gas Incinerator Stack (AGI):

i) Volatile Organic Compounds (VOCs)
ii) Total Hydrocarbon (THC)
iii) Hydrogen Sulphide (H_2S)
iv) BTEX (C_6H_6)
v) Cyclonic Flow
vi) Volumetric Flow
vii) Sample Level Temperature

Part 2 – Test Procedure

2.1 Standard Methods

The protocols of US EPA 18 were followed to test for Volatile Organic Compounds (VOCs), Total Hydrocarbons (THCs) and BTEX (C_6H_6). The protocols of US EPA 25 were followed to test for Hydrogen Sulphide (H_2S). Both Method 18 and 25 were modified for the use of an evacuated coated canister for sample extraction, while the analysis was conducted by an accredited lab. The protocols of US EPA Method 1, 2, 3, and 4 and the British Columbia Field Sampling Manual Method 1, 2, 3 of part B-2 were used to test the Volumetric Flow and Temperature. The protocols of Environment Canada Report EPS 1/PG/7 (EC-PG7) were followed in order to complete the Source Emission Survey report.

Stack Gas Velocity, Temperature & Volumetric Flow Rates

Stack gas velocities, temperature and volumetric flow rates determined following the procedures as outlined in the *British Columbia Field Sampling Manual Method #2 – Determination of Stack Gas Velocity and Volumetric Flow Rates*. Stack gas velocity was determined from the moisture content of the stack gas as well as differential pressure and temperature measurements taken at six points through the centroid of the stack cross-section. Pressure differentials are measured by calibrated S-type Pitot tube and inclined oil manometer, with a range of 0-10”. Temperature measurements are made with a calibrated K-type thermocouple. Velocity, when multiplied by the cross-sectional area of the stack equates to the volumetric flow.

Stack Gas Moisture Content

Stack gas moisture content was determined following the procedures as outlined in *British Columbia Field Sampling Manual Method #4 – Determination of Moisture Content in Stack Gases*. Samples were collected from the centroid of the stack cross section and the moisture fraction was condensed in an impinger train maintained in an ice bath. Moisture content was then measured onsite using the gravimetric method for each impinger, results from the individual impinger weights and exit temperature of the final impinger are recorded in Appendix IV. Moisture measurements were carried out simultaneously with each test run.

Oxygen & Carbon Dioxide

Oxygen and carbon dioxide samples were collected and analyzed following the procedure as outlined in the *British Columbia Field Sampling Manual Method #3 – Gas Analysis for the Determination of Dry Molecular Weight*. An integrated sample was taken over the test period using an evacuated cannister with a flow controller to sample over the test period

Total Hydrocarbons, Hydrogen Sulphide, Volatile Organic Compounds and BTEX

Total hydrocarbons, Hydrogen Sulphide, Volatile Organic Compounds and BTEX samples were collected and analyzed following the procedures as outlined in the *US EPA Method #18 - Measurement of Gaseous Organic Compound Emissions by Gas Chromatography.* Samples were withdrawn from the source and collected in evacuated canisters. The major organic components of the collected gas mixture were then separated by gas chromatography (GC) and individually quantified by flame ionization and thermal conductivity detection principles. The retention times of each separated component are used to identify the organic component and its concentration by comparing the observed values to those of known compounds. All samples were analyzed at an ISO/IEC 17025 accredited lab (Certificate of Accreditation can be found in Appendix III).

Cyclonic Flow

Cyclonic Flow was determined following the procedures outlined in the *US EPA Method #1 Section 11.4 – Verification of Absence of Cyclonic Flow.* Pressure differentials are measured by calibrated S-type Pitot tube and inclined oil manometer that has been levelled and zeroed at each traverse point. The measurement system is leak checked to 2” to 4” of W.C. prior to conducting the test. When levelled, the pitot tube is at “0^{o} reference”. The pitot tube is then rotated away from the 0^{o} reference angle until a null (zero) pitot reading is obtained. If the average of the absolute values of the rotation angles is greater than 20^{o}, cyclonic flow is present.

2.2 Quality Assurance/Quality Control

AGAT Laboratories Ltd. Source Testing department QA/QC protocols include, but are not limited to the following:

i) Regular maintenance and calibration of all field-sampling equipment as per applicable sampling protocols.

ii) On-site leak checks of sample system and pitot tubes.

iii) Proper sealing, labeling, storing, transport and chain of custody/log in procedures upon return of the laboratory, when applicable.

iv) Use of EPA Protocol 1 and RATA grade calibration gases, where applicable.

v) Linearity and response time checks are conducted on all analyzers prior to use.

vi) Calibration drift is checked during testing to assure instruments are performing within allowable limits.

vii) Technical review on all final lab analysis and final written source emission survey reports.

viii) Collected samples requiring laboratory analysis are performed by a ISO/IEC 17025 accredited lab.

Part 3- Discussion

3.1 Stack Characteristics

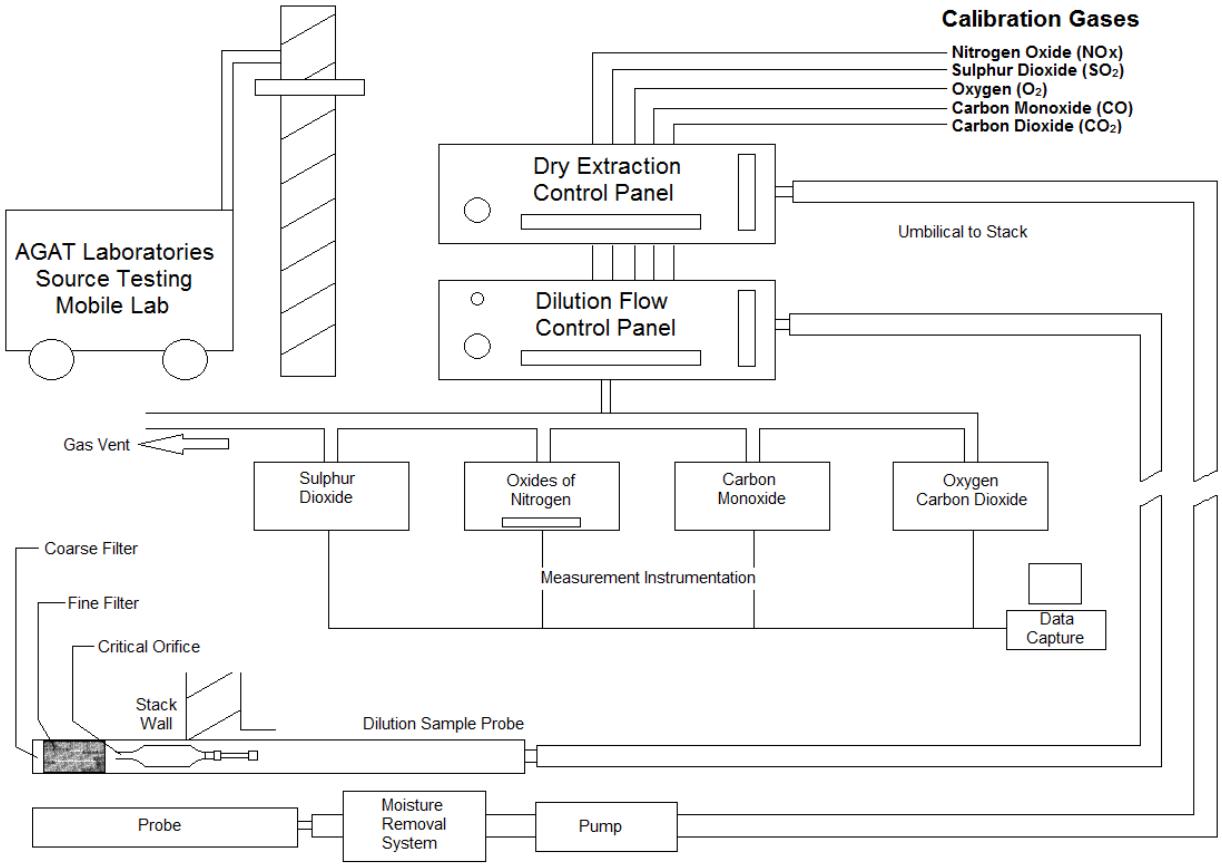
The Train 1 Acid Gas Incinerator Stack (AGI) at the LNG Canada Development Inc. - LNG Canada Kitimat Liquified Natural Gas (LNG) Facility has an internal stack diameter of 3.35m and a height of 50.0m. The sample points are located at an elevation of 43.8m, with a taper in the stack as last disturbance upstream at 25.2m (5.55 diameters), and the stack exit downstream at 50.0m (1.85 diameters).

3.2 Test Results

Stratification testing was not conducted at this time. Cyclonic Flow testing was conducted at this time; data results obtained from the source emission testing indicated that no cyclonic flow conditions were observed.

No problems were encountered during the sampling period that required corrective action. The test results obtained are an accurate representation of emission characteristics for the process conditions maintained at the LNG Canada Development Inc. - Train 1 Acid Gas Incinerator Stack (AGI) at LNG Canada Kitimat Liquified Natural Gas (LNG) Facility on the test date of September 26, 2025.

Figure 1: Schematic of the Mobile CEMS Instrumentation System



Appendix I – Emission Data & Calculations

Total Hydrocarbons (THC)

Parameter	THC as Methane	Test 1	Test 2	Test 3
	9/26/2025	11:40 - 12:40	12:50 - 13:50	14:00 - 15:00
Baro. Press.	(in. Hg)	29.38	29.38	29.38
DGM Factor	(Y)	0.9987	0.9987	0.9987
Meter Type	(**M**etric/**E**nglish)	English	English	English
Moisture	%	9.00	6.43	6.80
Gas Volume	(m^3 std.)	0.347	0.347	0.334
THC	(ppm dry sample)	0.0500	0.0500	0.0500
	(ppm wet sample)	0.0455	0.0468	0.0466
Flow Rate	(m^3/sec) - dry	12.9	12.5	12.1
	(m^3/sec) - wet	14.1	13.3	13.0

					Average
THC	**ppm - dry**	**0.0500**	**0.0500**	**0.0500**	**0.0500**
	ppm - wet	**0.0455**	**0.0468**	**0.0466**	**0.0463**
	mg/m^3 - dry	**0.0333**	**0.0333**	**0.0333**	**0.0333**
	mg/m^3 - wet	**0.0303**	**0.0312**	**0.0311**	**0.0309**
	kg/hr - dry	**0.00155**	**0.00150**	**0.00145**	**0.00150**
	kg/hr - wet	**0.00154**	**0.00149**	**0.00145**	**0.00150**

Minimum detection limit of THC is <1 ppm; in calculation of total average measurements, 1 ppm was used as <MDL.

Tstd. (oF)	77
Pstd. (in. Hg)	29.92

Company: LNG Canada Development Inc. - Train 1
Acid Gas Incinerator Stack (AGI)

Date: 9/26/2025

Hydrogen Sulfide (H_2S)

MSS Test #	1	2	3	Average
H2S Dry to Wet	**-0.00240**	**-0.00163**	**-0.00174**	-0.00192
Reference ppm - Dry	0.000300	0.000300	0.000300	0.000300
mg/m3 - Wet	-0.00340	-0.00231	-0.00247	-0.00273
mg/m3 - Dry	0.000425	0.000425	0.000425	0.000425
Reference Flow (e^3m^3/day) - Wet	1220	1152	1121	1164
H_2S kg/hr	-0.000173	-0.000111	-0.000115	-0.000133
H_2S t/day	-0.00000415	-0.00000266	-0.00000276	-0.00000319
Stack Moisture	9.00	6.43	6.80	7.41

Note: MDL values were used to calculate final average results for test runs that has <MDL results.

Train 1 Acid Gas Incinerator Stack (AGI) - Total VOC					
Compliance Parameter	**Units**	**Test 1 9/26/2025 11:40 – 12:40**	**Test 2 9/26/2025 12:50 – 13:50**	**Test 3 9/26/2025 14:00 – 15:00**	**Average**
Total VOC	**ppm - dry**	0.0300	0.0277	0.00514	**0.0210**
Concentration	**ppm - wet**	0.0273	0.0259	0.00479	**0.0193**
	mg/m^3 - dry	0.0850	0.0861	0.0151	**0.0620**
	mg/m^3 - wet	0.0773	0.0806	0.0141	**0.0573**
Emission Rate	**kg/hr**	0.00392	0.00386	0.000658	**0.00281**

Water Content	**%**	9.00	6.43	6.80	**7.41**
Flow	**m^3/sec - wet**	14.1	13.3	13.0	**13.5**
	m^3/sec - dry	12.8	12.4	12.1	**12.5**

BTEX	T1	T2	T3	AVG
Dry ppm	0.00263	0.00104	0.00076	0.00148
Wet ppm	0.00239	0.000973	0.000708	0.00136
mg/m3 Dry	0.0102	0.00404	0.00292	0.00571
mg/m3 Wet	0.00926	0.00378	0.00272	0.00526
kg/hr	0.000470	0.000181	0.000128	0.000260

Train 1 Acid Gas Incinerator Stack (AGI) - Total VOC

Test 1
9/26/2025
11:40 – 12:40

Standard pressure:	mmHg	760
Standard Temperature:	deg C	20
Dry Flow Rate:	m3/s	12.8

$$mg/m3 = \frac{ppbv/1000 \times Molecular\ Weight}{Molar\ volume\ (24.05)}$$

$$kg/hr = \frac{mg/m3 \times Flow(m3/hr)}{1.00E+06}$$

			mg/m3	kg/hr
Total VOC	**ppbv**	**30.02**	**0.0849684**	**3.92E-03**

BTEX			**ppbv**	**2.63**	**0.01018111**	**0.000470282**
Benzene	C6H6	78.114	ppbv	0.17	0.000552157	2.5505E-05
Toluene	C7H8	92.141	ppbv	2.11	0.008083888	0.000373408
Ethylbenzene	C8H10	106.168	ppbv	0.08	0.000353158	1.63129E-05
m,p-Xylene	C8H10	106.168	ppbv	0.27	0.001191907	5.50561E-05

Compound	Formula	Molecular Weight (g/mol)	units	test 1	mg/m3	kg/hr
1,1,1-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1,2,2-Tetrachloroethane	C2H2Cl4	167.838	ppbv	< 0.02	0	0
1,1,2-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.02	0	0
1,1-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
1,2,3-Trimethylbenzene	C9H12	120.195	ppbv	< 0.05	0	0
1,2,4-Trichlorobenzene	C6H3Cl3	181.44	ppbv	< 0.3	0	0
1,2,4-Trimethylbenzene	C9H12	120.195	ppbv	0.05	0.000249886	1.15426E-05
1,2-Dibromoethane	C2H4Br2	187.862	ppbv	< 0.02	0	0
1,2-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.03	0	0
1,2-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.03	0	0
1,2-Dichloropropane	C3H6Cl2	112.981	ppbv	< 0.03	0	0
1,3,5-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,3-Butadiene	C4H6	54.092	ppbv	< 0.03	0	0
1,3-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dioxane	C4H8O2	88.106	ppbv	< 0.5	0	0
1-Butene/Isobutylene	C4H8	56.108	ppbv	0.3	0.000699892	3.23291E-05
1-Hexene/2-Methyl-1-pentene	C6H12	84.162	ppbv	< 0.07	0	0
1-Pentene	C5H10	70.135	ppbv	0.05	0.000145811	6.73523E-06
2,2,4-Trimethylpentane	C8H18	114.232	ppbv	0.03	0.000142493	6.58199E-06
2,2-Dimethylbutane	C6H14	86.178	ppbv	< 0.02	0	0
2,3,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,3-Dimethylbutane	C6H14	86.178	ppbv	< 0.09	0	0
2,3-Dimethylpentane	C7H16	100.205	ppbv	0.03	0.000124996	5.77376E-06
2,4-Dimethylpentane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylheptane	C8H18	114.232	ppbv	< 0.02	0	0
2-Methylhexane	C7H16	100.205	ppbv	0.06	0.000249992	1.15475E-05
2-Methylpentane	C6H14	86.178	ppbv	0.08	0.000286663	1.32414E-05
3-Methylheptane	C8H18	114.232	ppbv	< 0.03	0	0
3-Methylhexane	C7H16	100.205	ppbv	0.13	0.000541649	2.50196E-05
3-Methylpentane	C6H14	86.178	ppbv	0.11	0.000394161	1.82069E-05
Acetone	C3H6O	58.08	ppbv	14.6	0.035258545	0.001628649
Acrolein	C3H4O	56.064	ppbv	0.3	0.000699343	3.23038E-05
Benzene	C6H6	78.114	ppbv	0.17	0.000552157	2.5505E-05
Benzyl chloride	C7H7Cl	126.583	ppbv	0.3	0.001578998	7.29364E-05
Bromodichloromethane	CHBrCl2	163.823	ppbv	< 0.03	0	0
Bromoform	CHBr3	252.731	ppbv	< 0.02	0	0
Bromomethane	CH3Br	94.939	ppbv	< 0.02	0	0

Carbon disulfide	CS2	76.131	ppbv	0.33	0.001044625	4.82529E-05
Carbon tetrachloride	CCl4	153.811	ppbv	< 0.02	0	0
Chlorobenzene	C6H5Cl	112.556	ppbv	< 0.02	0	0
Chloroethane	C2H5Cl	64.512	ppbv	< 0.02	0	0
Chloroform	CHCl3	119.369	ppbv	0.05	0.000248168	1.14633E-05
Chloromethane	CH3Cl	50.485	ppbv	0.08	0.000167933	7.75712E-06
cis-1,2-Dichloroethene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
cis-1,3-Dichloropropene	C3H4Cl2	110.965	ppbv	< 0.03	0	0
cis-2-Butene	C4H8	56.108	ppbv	0.18	0.000419935	1.93975E-05
cis-2-Pentene	C5H10	70.135	ppbv	0.08	0.000233297	1.07764E-05
Cyclohexane	C6H12	84.162	ppbv	0.06	0.000209968	9.69874E-06
Cyclopentane	C5H10	70.135	ppbv	0.08	0.000233297	1.07764E-05
Dibromochloromethane	CHBr2Cl	208.277	ppbv	< 0.02	0	0
Ethanol	C2H6O	46.069	ppbv	< 0.5	0	0
Ethyl acetate	C4H8O2	88.106	ppbv	0.4	0.00146538	6.76883E-05
Ethylbenzene	C8H10	106.168	ppbv	0.08	0.000353158	1.63129E-05
Freon-11	CCl3F	137.359	ppbv	< 0.02	0	0
Freon-113	C2Cl3F3	187.366	ppbv	< 0.02	0	0
Freon-114	C2Cl2F4	170.914	ppbv	< 0.03	0	0
Freon-12	CCl2F2	120.907	ppbv	< 0.03	0	0
Hexachloro-1,3-butadiene	C4Cl6	260.744	ppbv	< 0.3	0	0
Isobutane	C4H10	58.124	ppbv	0.21	0.000507528	2.34435E-05
Isopentane	C5H12	72.151	ppbv	0.93	0.002790039	0.000128876
Isoprene	C5H8	68.119	ppbv	< 0.02	0	0
Isopropyl alcohol	C3H8O	60.096	ppbv	0.9	0.002248915	0.000103881
Isopropylbenzene	C9H12	120.195	ppbv	< 0.04	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.27	0.001191907	5.50561E-05
m-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
m-Ethyltoluene	C9H12	120.195	ppbv	< 0.03	0	0
Methyl butyl ketone	C5H10O	86.134	ppbv	< 0.4	0	0
Methyl ethyl ketone	C4H8O	72.107	ppbv	0.7	0.002098748	9.69445E-05
Methyl isobutyl ketone	C6H12O	100.161	ppbv	< 0.3	0	0
Methyl methacrylate	C5H8O2	100.117	ppbv	< 0.08	0	0
Methyl tert butyl ether	C5H12O	88.15	ppbv	< 0.03	0	0
Methylcyclohexane	C7H14	98.189	ppbv	0.04	0.000163308	7.54346E-06
Methylcyclopentane	C6H12	84.162	ppbv	0.11	0.000384941	1.7781E-05
Methylene chloride	CH2Cl2	84.927	ppbv	0.6	0.002118761	9.7869E-05
n-Butane	C4H10	58.124	ppbv	0.85	0.002054279	9.48904E-05
n-Decane	C10H22	142.286	ppbv	< 0.06	0	0
n-Dodecane	C12H26	170.34	ppbv	< 0.3	0	0
n-Heptane	C7H16	100.205	ppbv	0.23	0.000958301	4.42655E-05
n-Hexane	C6H14	86.178	ppbv	0.35	0.00125415	5.79312E-05
n-Nonane	C9H20	128.259	ppbv	0.04	0.000213321	9.85362E-06
n-Octane	C8H18	114.232	ppbv	0.11	0.000522475	2.41339E-05
n-Pentane	C5H12	72.151	ppbv	4.27	0.012810178	0.000591723
n-Propylbenzene	C9H12	120.195	ppbv	< 0.06	0	0
n-Undecane	C11H24	156.313	ppbv	< 0.5	0	0
Naphthalene	C10H8	128.174	ppbv	< 0.3	0	0
o-Ethyltoluene	C9H12	120.195	ppbv	< 0.02	0	0
o-Xylene	C8H10	106.168	ppbv	0.09	0.000397302	1.8352E-05
p-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
p-Ethyltoluene	C9H12	120.195	ppbv	< 0.04	0	0
Styrene	C8H8	104.152	ppbv	< 0.04	0	0
Tetrachloroethylene	C2Cl4	165.822	ppbv	< 0.02	0	0
Tetrahydrofuran	C4H8O	72.107	ppbv	0.4	0.001199285	5.53969E-05
Toluene	C7H8	92.141	ppbv	2.11	0.008083888	0.000373408
trans-1,2-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.06	0	0
trans-1,3-Dichloropropylene	C3H4Cl2	110.965	ppbv	< 0.02	0	0
trans-2-Butene	C4H8	56.108	ppbv	0.15	0.000349946	1.61646E-05
trans-2-Pentene	C5H10	70.135	ppbv	0.11	0.000320784	1.48175E-05
Trichloroethylene	C2HCl3	131.38	ppbv	< 0.02	0	0
Vinyl acetate	C4H6O2	86.09	ppbv	< 0.3	0	0
Vinyl chloride	C2H3Cl	62.496	ppbv	< 0.02	0	0

Train 1 Acid Gas Incinerator Stack (AGI) - Total VOC

Standard pressure: mmHg 760

Standard Temperature: deg C 20

Test 2

9/26/2025

12:50 – 13:50

Dry Flow Rate: m3/s 12.4

			mg/m3	kg/hr
Total VOC	ppbv	27.71	**0.086087319**	**3.86E-03**

BTEX			**ppbv**	**1.04**	**0.004036968**	**0.000180861**
Benzene	C6H6	78.114	ppbv	0.1	0.000324798	1.45514E-05
Toluene	C7H8	92.141	ppbv	0.75	0.00287342	0.000128733
Ethylbenzene	C8H10	106.168	ppbv	0.04	0.000176579	7.91096E-06
m,p-Xylene	C8H10	106.168	ppbv	0.15	0.00066217	2.96661E-05

Compound	Formula	Molecular Weight (g/mol)	units	test 2	mg/m3	kg/hr
1,1,1-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1,2,2-Tetrachloroethane	C2H2Cl4	167.838	ppbv	< 0.02	0	0
1,1,2-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.02	0	0
1,1-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
1,2,3-Trimethylbenzene	C9H12	120.195	ppbv	< 0.05	0	0
1,2,4-Trichlorobenzene	C6H3Cl3	181.44	ppbv	< 0.3	0	0
1,2,4-Trimethylbenzene	C9H12	120.195	ppbv	0.04	0.000199909	8.95616E-06
1,2-Dibromoethane	C2H4Br2	187.862	ppbv	< 0.02	0	0
1,2-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.03	0	0
1,2-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.03	0	0
1,2-Dichloropropane	C3H6Cl2	112.981	ppbv	< 0.03	0	0
1,3,5-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,3-Butadiene	C4H6	54.092	ppbv	< 0.03	0	0
1,3-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dioxane	C4H8O2	88.106	ppbv	< 0.5	0	0
1-Butene/Isobutylene	C4H8	56.108	ppbv	< 0.06	0	0
1-Hexene/2-Methyl-1-pentene	C6H12	84.162	ppbv	< 0.07	0	0
1-Pentene	C5H10	70.135	ppbv	< 0.03	0	0
2,2,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,2-Dimethylbutane	C6H14	86.178	ppbv	< 0.02	0	0
2,3,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,3-Dimethylbutane	C6H14	86.178	ppbv	< 0.09	0	0
2,3-Dimethylpentane	C7H16	100.205	ppbv	0.03	0.000124996	5.59998E-06
2,4-Dimethylpentane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylheptane	C8H18	114.232	ppbv	< 0.02	0	0
2-Methylhexane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
3-Methylheptane	C8H18	114.232	ppbv	< 0.03	0	0
3-Methylhexane	C7H16	100.205	ppbv	< 0.02	0	0
3-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
Acetone	C3H6O	58.08	ppbv	4.2	0.010142869	0.000454414
Acrolein	C3H4O	56.064	ppbv	< 0.3	0	0
Benzene	C6H6	78.114	ppbv	0.1	0.000324798	1.45514E-05
Benzyl chloride	C7H7Cl	126.583	ppbv	0.3	0.001578998	7.07412E-05
Bromodichloromethane	CHBrCl2	163.823	ppbv	< 0.03	0	0
Bromoform	CHBr3	252.731	ppbv	< 0.02	0	0
Bromomethane	CH3Br	94.939	ppbv	< 0.02	0	0

Carbon disulfide	CS2	76.131	ppbv	20.7	0.065526474	0.002935672
Carbon tetrachloride	CCl4	153.811	ppbv	< 0.02	0	0
Chlorobenzene	C6H5Cl	112.556	ppbv	< 0.02	0	0
Chloroethane	C2H5Cl	64.512	ppbv	< 0.02	0	0
Chloroform	CHCl3	119.369	ppbv	0.03	0.000148901	6.67096E-06
Chloromethane	CH3Cl	50.485	ppbv	0.05	0.000104958	4.70228E-06
cis-1,2-Dichloroethene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
cis-1,3-Dichloropropene	C3H4Cl2	110.965	ppbv	< 0.03	0	0
cis-2-Butene	C4H8	56.108	ppbv	< 0.03	0	0
cis-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Cyclohexane	C6H12	84.162	ppbv	< 0.04	0	0
Cyclopentane	C5H10	70.135	ppbv	< 0.02	0	0
Dibromochloromethane	CHBr2Cl	208.277	ppbv	< 0.02	0	0
Ethanol	C2H6O	46.069	ppbv	< 0.5	0	0
Ethyl acetate	C4H8O2	88.106	ppbv	< 0.3	0	0
Ethylbenzene	C8H10	106.168	ppbv	0.04	0.000176579	7.91096E-06
Freon-11	CCl3F	137.359	ppbv	< 0.02	0	0
Freon-113	C2Cl3F3	187.366	ppbv	< 0.02	0	0
Freon-114	C2Cl2F4	170.914	ppbv	< 0.03	0	0
Freon-12	CCl2F2	120.907	ppbv	< 0.03	0	0
Hexachloro-1,3-butadiene	C4Cl6	260.744	ppbv	< 0.3	0	0
Isobutane	C4H10	58.124	ppbv	< 0.03	0	0
Isopentane	C5H12	72.151	ppbv	0.99	0.002970041	0.000133062
Isoprene	C5H8	68.119	ppbv	< 0.02	0	0
Isopropyl alcohol	C3H8O	60.096	ppbv	< 0.3	0	0
Isopropylbenzene	C9H12	120.195	ppbv	< 0.04	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.15	0.00066217	2.96661E-05
m-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
m-Ethyltoluene	C9H12	120.195	ppbv	< 0.03	0	0
Methyl butyl ketone	C5H10O	86.134	ppbv	< 0.4	0	0
Methyl ethyl ketone	C4H8O	72.107	ppbv	< 0.3	0	0
Methyl isobutyl ketone	C6H12O	100.161	ppbv	< 0.3	0	0
Methyl methacrylate	C5H8O2	100.117	ppbv	< 0.08	0	0
Methyl tert butyl ether	C5H12O	88.15	ppbv	< 0.03	0	0
Methylcyclohexane	C7H14	98.189	ppbv	< 0.02	0	0
Methylcyclopentane	C6H12	84.162	ppbv	< 0.05	0	0
Methylene chloride	CH2Cl2	84.927	ppbv	< 0.3	0	0
n-Butane	C4H10	58.124	ppbv	0.04	9.66719E-05	4.33103E-06
n-Decane	C10H22	142.286	ppbv	< 0.06	0	0
n-Dodecane	C12H26	170.34	ppbv	< 0.3	0	0
n-Heptane	C7H16	100.205	ppbv	0.06	0.000249992	1.12E-05
n-Hexane	C6H14	86.178	ppbv	0.04	0.000143331	6.42144E-06
n-Nonane	C9H20	128.259	ppbv	< 0.04	0	0
n-Octane	C8H18	114.232	ppbv	0.07	0.000332484	1.48957E-05
n-Pentane	C5H12	72.151	ppbv	0.07	0.000210003	9.40841E-06
n-Propylbenzene	C9H12	120.195	ppbv	< 0.06	0	0
n-Undecane	C11H24	156.313	ppbv	< 0.5	0	0
Naphthalene	C10H8	128.174	ppbv	< 0.3	0	0
o-Ethyltoluene	C9H12	120.195	ppbv	< 0.02	0	0
o-Xylene	C8H10	106.168	ppbv	0.05	0.000220723	9.8887E-06
p-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
p-Ethyltoluene	C9H12	120.195	ppbv	< 0.04	0	0
Styrene	C8H8	104.152	ppbv	< 0.04	0	0
Tetrachloroethylene	C2Cl4	165.822	ppbv	< 0.02	0	0
Tetrahydrofuran	C4H8O	72.107	ppbv	< 0.3	0	0
Toluene	C7H8	92.141	ppbv	0.75	0.00287342	0.000128733
trans-1,2-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.06	0	0
trans-1,3-Dichloropropylene	C3H4Cl2	110.965	ppbv	< 0.02	0	0
trans-2-Butene	C4H8	56.108	ppbv	< 0.03	0	0
trans-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Trichloroethylene	C2HCl3	131.38	ppbv	< 0.02	0	0
Vinyl acetate	C4H6O2	86.09	ppbv	< 0.3	0	0
Vinyl chloride	C2H3Cl	62.496	ppbv	< 0.02	0	0

Train 1 Acid Gas Incinerator Stack (AGI) - Total VOC

Standard pressure: mmHg 760

Standard Temperature: deg C 20

Test 3

9/26/2025

14:00 – 15:00

Dry Flow Rate: m3/s 12.1

			mg/m3	kg/hr
Total VOC	ppbv	5.14	**0.015077252**	**6.58E-04**

BTEX			**ppbv**	**0.76**	**0.002923397**	**0.000127512**
Benzene	C6H6	78.114	ppbv	0.09	0.000292319	1.27502E-05
Toluene	C7H8	92.141	ppbv	0.56	0.002145487	9.3581E-05
Ethylbenzene	C8H10	106.168	ppbv	0	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.11	0.000485592	2.11803E-05

Compound	Formula	Molecular Weight (g/mol)	units	test 3	mg/m3	kg/hr
1,1,1-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1,2,2-Tetrachloroethane	C2H2Cl4	167.838	ppbv	< 0.02	0	0
1,1,2-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.02	0	0
1,1-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
1,2,3-Trimethylbenzene	C9H12	120.195	ppbv	< 0.05	0	0
1,2,4-Trichlorobenzene	C6H3Cl3	181.44	ppbv	< 0.3	0	0
1,2,4-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,2-Dibromoethane	C2H4Br2	187.862	ppbv	< 0.02	0	0
1,2-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.03	0	0
1,2-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.03	0	0
1,2-Dichloropropane	C3H6Cl2	112.981	ppbv	< 0.03	0	0
1,3,5-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,3-Butadiene	C4H6	54.092	ppbv	< 0.03	0	0
1,3-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dioxane	C4H8O2	88.106	ppbv	< 0.5	0	0
1-Butene/Isobutylene	C4H8	56.108	ppbv	< 0.06	0	0
1-Hexene/2-Methyl-1-pentene	C6H12	84.162	ppbv	< 0.07	0	0
1-Pentene	C5H10	70.135	ppbv	< 0.03	0	0
2,2,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,2-Dimethylbutane	C6H14	86.178	ppbv	< 0.02	0	0
2,3,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,3-Dimethylbutane	C6H14	86.178	ppbv	< 0.09	0	0
2,3-Dimethylpentane	C7H16	100.205	ppbv	< 0.02	0	0
2,4-Dimethylpentane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylheptane	C8H18	114.232	ppbv	< 0.02	0	0
2-Methylhexane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
3-Methylheptane	C8H18	114.232	ppbv	< 0.03	0	0
3-Methylhexane	C7H16	100.205	ppbv	< 0.02	0	0
3-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
Acetone	C3H6O	58.08	ppbv	3.4	0.008210894	0.000358139
Acrolein	C3H4O	56.064	ppbv	< 0.3	0	0
Benzene	C6H6	78.114	ppbv	0.09	0.000292319	1.27502E-05
Benzyl chloride	C7H7Cl	126.583	ppbv	0.3	0.001578998	6.88721E-05
Bromodichloromethane	CHBrCl2	163.823	ppbv	< 0.03	0	0
Bromoform	CHBr3	252.731	ppbv	< 0.02	0	0
Bromomethane	CH3Br	94.939	ppbv	< 0.02	0	0

Carbon disulfide	CS2	76.131	ppbv	0.18	0.000569795	2.48531E-05
Carbon tetrachloride	CCl4	153.811	ppbv	< 0.02	0	0
Chlorobenzene	C6H5Cl	112.556	ppbv	< 0.02	0	0
Chloroethane	C2H5Cl	64.512	ppbv	< 0.02	0	0
Chloroform	CHCl3	119.369	ppbv	0.02	9.92674E-05	4.3298E-06
Chloromethane	CH3Cl	50.485	ppbv	< 0.04	0	0
cis-1,2-Dichloroethene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
cis-1,3-Dichloropropene	C3H4Cl2	110.965	ppbv	< 0.03	0	0
cis-2-Butene	C4H8	56.108	ppbv	< 0.03	0	0
cis-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Cyclohexane	C6H12	84.162	ppbv	< 0.04	0	0
Cyclopentane	C5H10	70.135	ppbv	< 0.02	0	0
Dibromochloromethane	CHBr2Cl	208.277	ppbv	< 0.02	0	0
Ethanol	C2H6O	46.069	ppbv	< 0.5	0	0
Ethyl acetate	C4H8O2	88.106	ppbv	< 0.3	0	0
Ethylbenzene	C8H10	106.168	ppbv	< 0.03	0	0
Freon-11	CCl3F	137.359	ppbv	< 0.02	0	0
Freon-113	C2Cl3F3	187.366	ppbv	< 0.02	0	0
Freon-114	C2Cl2F4	170.914	ppbv	< 0.03	0	0
Freon-12	CCl2F2	120.907	ppbv	< 0.03	0	0
Hexachloro-1,3-butadiene	C4Cl6	260.744	ppbv	< 0.3	0	0
Isobutane	C4H10	58.124	ppbv	< 0.03	0	0
Isopentane	C5H12	72.151	ppbv	0.11	0.000330005	1.4394E-05
Isoprene	C5H8	68.119	ppbv	< 0.02	0	0
Isopropyl alcohol	C3H8O	60.096	ppbv	< 0.3	0	0
Isopropylbenzene	C9H12	120.195	ppbv	< 0.04	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.11	0.000485592	2.11803E-05
m-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
m-Ethyltoluene	C9H12	120.195	ppbv	< 0.03	0	0
Methyl butyl ketone	C5H10O	86.134	ppbv	< 0.4	0	0
Methyl ethyl ketone	C4H8O	72.107	ppbv	< 0.3	0	0
Methyl isobutyl ketone	C6H12O	100.161	ppbv	< 0.3	0	0
Methyl methacrylate	C5H8O2	100.117	ppbv	< 0.08	0	0
Methyl tert butyl ether	C5H12O	88.15	ppbv	< 0.03	0	0
Methylcyclohexane	C7H14	98.189	ppbv	< 0.02	0	0
Methylcyclopentane	C6H12	84.162	ppbv	< 0.05	0	0
Methylene chloride	CH2Cl2	84.927	ppbv	< 0.3	0	0
n-Butane	C4H10	58.124	ppbv	0.04	9.66719E-05	4.2166E-06
n-Decane	C10H22	142.286	ppbv	< 0.06	0	0
n-Dodecane	C12H26	170.34	ppbv	< 0.3	0	0
n-Heptane	C7H16	100.205	ppbv	0.05	0.000208326	9.0867E-06
n-Hexane	C6H14	86.178	ppbv	0.04	0.000143331	6.25177E-06
n-Nonane	C9H20	128.259	ppbv	< 0.04	0	0
n-Octane	C8H18	114.232	ppbv	0.08	0.000379982	1.65739E-05
n-Pentane	C5H12	72.151	ppbv	0.12	0.000360005	1.57026E-05
n-Propylbenzene	C9H12	120.195	ppbv	< 0.06	0	0
n-Undecane	C11H24	156.313	ppbv	< 0.5	0	0
Naphthalene	C10H8	128.174	ppbv	< 0.3	0	0
o-Ethyltoluene	C9H12	120.195	ppbv	< 0.02	0	0
o-Xylene	C8H10	106.168	ppbv	0.04	0.000176579	7.70194E-06
p-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
p-Ethyltoluene	C9H12	120.195	ppbv	< 0.04	0	0
Styrene	C8H8	104.152	ppbv	< 0.04	0	0
Tetrachloroethylene	C2Cl4	165.822	ppbv	< 0.02	0	0
Tetrahydrofuran	C4H8O	72.107	ppbv	< 0.3	0	0
Toluene	C7H8	92.141	ppbv	0.56	0.002145487	9.3581E-05
trans-1,2-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.06	0	0
trans-1,3-Dichloropropylene	C3H4Cl2	110.965	ppbv	< 0.02	0	0
trans-2-Butene	C4H8	56.108	ppbv	< 0.03	0	0
trans-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Trichloroethylene	C2HCl3	131.38	ppbv	< 0.02	0	0
Vinyl acetate	C4H6O2	86.09	ppbv	< 0.3	0	0
Vinyl chloride	C2H3Cl	62.496	ppbv	< 0.02	0	0

Source AGI-INCIN **Test #** 1 **Date** 25/09/26

Start Time 12:10 **End Time** 12:20

Summary

Average Stack Gas Velocity		6.64	m/s
Average Stack Gas Volumetric Flow Rate	Dry	46300	std m3/hour
	Wet	50800	std m3/hour
	Dry	12.9	std m3/sec
	Wet	14.1	std m3/sec
Average Stack Gas Mass Flow Rate	Dry	53500	kg/hour
	Wet	58700	kg/hour
Stack Cross Sectional Area		8.81	m2
Average Stack Gas Temperature		939	Celsius
Dry Molecular Weight		29.3	kg/kg-mol
Wet Molecular Weight		28.3	kg/kg-mol
Molar Fraction Water Vapor		0.09	

Fixed Gas

	%O2	%CO2	%N2	CO ppm
Dry	12.0	5.0	83.0	#N/A
Wet	10.9	4.5	75.5	#N/A

Data and Calculations

Source AGI-INCIN **Test #** 1 **Date** 25/09/26

Start Time 12:10 **End Time** 12:20

Average Stack Gas Velocity. **6.640 m/s**

Vs = Kp Cp (Avg.dp)^.5 (Ts / Ps Ms)^.5

Average Stack Gas Wet Volumetric Flow Rate. **14.12 std m3/sec**

50847.72 std m3/hour

Qsw = 3600 Vs A (Tstd Ps/Ts Pstd) 1220.35 E3M3/day

QswKg = Qsw(Ms)/ 24.465437 58743.76 kg/hour

Dry Molecular Wt. **29.28 kg/kg-mol**

Md = 0.44(%CO2) + 0.32(%O2) + 0.28(%N2)

Wet Molecular Wt. **28.26 kg/kg-mol**

Ms = Md (1 - %H2O/100) + 18.0 * %H2O/100

_H2O 9.0015519 Molar Percent Water

Molar Fraction Water Vapor. **0.0900**

Vw(std) = K (Wf - Wi) Volume Water vapor at s.t.p. M^3 0 _Vw(st

Vm(std) = Vm Y Pm Tstd / (Pstd Tm) Volume meter gas at s.t.p. M^3 0.6211 _Vm(st

Vsg(std) = K2(sg) (Wf -Wi) Water Water in silica s.t.p. M^3 0.0614 _Vsg(st

%H2O = Vw(std) + Vsg(std) / (Vw(std) + Vm(std) + Vsg(std))

_Kp	34.9219	Pitot tube constant
_Cp	0.809	Pitot tube coefficient
_NP	16	Number of traverse points
_Dts	939.1	Temperature Stack C
_Ts	1212.2	Absolute stack temperature K
_Bp	746.3	Barometric Pressure mmHg
_Pst	-6.858	Static Pressure mmH20
_Ps	745.75	Absolute stack pressure mm Hg
_Ms	28.26	Molecular weight of stack gas, wet basis g/g-mole
_A	8.8142	Area Square Meters 3.350006 Diameter Meters
_Tstd	298.15	Standard absolute temperature K
_Pstd	760	Standard absolute pressure

_K	0.0013552	Constant = Density R Tstd / (P(std) Mw)
_K2(sg)	0.0013592	Constant = R Tstd / (P(std) Mw)
_Wi	0.0	Initial Weight of Water in grams
_Wf	0.0	Final Weight of water in grams
_V	0.59538	Volume of gas metered cubic meters
_Y	0.999	Meter factor
_Tmc	7.50	Temperature meter Celsius
_Tm	280.7	Temperature Meter Kelvin
_Vac	-127.00	Impinger Vacuum mmHg
_Vp	11.47	Vapor Pressure mmHg
_CO2	5	Molar Percent Carbon Dioxide
_O2	12	Molar Percent Oxygen
_N2	83.0	Molar Percent Nitrogen
_CO	#N/A	ppm

Source AGI-INCIN **Test #** 2 **Date** 25/09/26

Start Time 13:10 **End Time** 13:20

Summary

Average Stack Gas Velocity		6.29	m/s
Average Stack Gas Volumetric Flow Rate	Dry	44900	std m3/hour
	Wet	48000	std m3/hour
	Dry	12.5	std m3/sec
	Wet	13.3	std m3/sec
Average Stack Gas Mass Flow Rate	Dry	52400	kg/hour
	Wet	56000	kg/hour
Stack Cross Sectional Area		8.81	m2
Average Stack Gas Temperature		943	Celsius
Dry Molecular Weight		29.3	kg/kg-mol
Wet Molecular Weight		28.6	kg/kg-mol
Molar Fraction Water Vapor		0.0643	

Fixed Gas

	%O2	%CO2	%N2	CO ppm
Dry	12.0	5.0	83.0	#N/A
Wet	11.2	4.7	77.7	#N/A

Data and Calculations

Source AGI-INCIN **Test #** 2 **Date** 25/09/26

Start Time 13:10 **End Time** 13:20

Average Stack Gas Velocity. **6.290 m/s**

Vs = Kp Cp (Avg.dp)^.5 (Ts / Ps Ms)^.5

Average Stack Gas Wet Volumetric Flow Rate. **13.34 std m3/sec**

48010.96 std m3/hour

Qsw = 3600 Vs A (Tstd Ps/Ts Pstd) 1152.26 E3M3/day

QswKg = Qsw(Ms)/ 24.465437 56035.40 kg/hour

Dry Molecular Wt. **29.28 kg/kg-mol**

Md = 0.44(%CO2) + 0.32(%O2) + 0.28(%N2)

Wet Molecular Wt. **28.55 kg/kg-mol**

Ms = Md (1 - %H2O/100) + 18.0 * %H2O/100

_H2O 6.431433 Molar Percent Water

Molar Fraction Water Vapor. **0.0643**

Vw(std) = K (Wf - Wi) Volume Water vapor at s.t.p. M^3 0 _Vw(st

Vm(std) = Vm Y Pm Tstd / (Pstd Tm) Volume meter gas at s.t.p. M^3 0.6209 _Vm(st

Vsg(std) = K2(sg) (Wf -Wi) Water Water in silica s.t.p. M^3 0.0427 _Vsg(st

%H2O = Vw(std) + Vsg(std) / (Vw(std) + Vm(std) + Vsg(std))

_Kp	34.9219	Pitot tube constant
_Cp	0.809	Pitot tube coefficient
_NP	16	Number of traverse points
_Dts	943.1	Temperature Stack C
_Ts	1216.2	Absolute stack temperature K
_Bp	746.3	Barometric Pressure mmHg
_Pst	-6.858	Static Pressure mmH20
_Ps	745.75	Absolute stack pressure mm Hg
_Ms	28.55	Molecular weight of stack gas, wet basis g/g-mole
_A	8.8142	Area Square Meters 3.350006 Diameter Meters
_Tstd	298.15	Standard absolute temperature K
_Pstd	760	Standard absolute pressure

_K	0.0013552	Constant = Density R Tstd / (P(std) Mw)
_K2(sg)	0.0013592	Constant = R Tstd / (P(std) Mw)
_Wi	0.0	Initial Weight of Water in grams
_Wf	0.0	Final Weight of water in grams
_V	0.59524	Volume of gas metered cubic meters
_Y	0.999	Meter factor
_Tmc	7.50	Temperature meter Celsius
_Tm	280.7	Temperature Meter Kelvin
_Vac	-127.00	Impinger Vacuum mmHg
_Vp	13.24	Vapor Pressure mmHg
_CO2	5	Molar Percent Carbon Dioxide
_O2	12	Molar Percent Oxygen
_N2	83.0	Molar Percent Nitrogen
_CO	#N/A	ppm

Source AGI-INCIN **Test #** 3 **Date** 25/09/06

Start Time 14:30 **End Time** 14:40

Summary

Average Stack Gas Velocity		6.11	m/s
Average Stack Gas Volumetric Flow Rate	Dry	43500	std m3/hour
	Wet	46700	std m3/hour
	Dry	12.1	std m3/sec
	Wet	13	std m3/sec
Average Stack Gas Mass Flow Rate	Dry	50700	kg/hour
	Wet	54400	kg/hour
Stack Cross Sectional Area		8.81	m2
Average Stack Gas Temperature		943	Celsius
Dry Molecular Weight		29.3	kg/kg-mol
Wet Molecular Weight		28.5	kg/kg-mol
Molar Fraction Water Vapor		0.068	

Fixed Gas

	%O2	%CO2	%N2	CO ppm
Dry	12.0	5.0	83.0	#N/A
Wet	11.2	4.7	77.4	#N/A

Data and Calculations

Source AGI-INCIN **Test #** 3 **Date** 25/09/06

Start Time 14:30 **End Time** 14:40

Average Stack Gas Velocity. **6.115 m/s**

Vs = Kp Cp (Avg.dp)^.5 (Ts / Ps Ms)^.5

Average Stack Gas Wet Volumetric Flow Rate. **12.97 std m3/sec**

46690.98 std m3/hour

Qsw = 3600 Vs A (Tstd Ps/Ts Pstd) 1120.58 E3M3/day

QswKg = Qsw(Ms)/ 24.465437 54415.36 kg/hour

Dry Molecular Wt. **29.28 kg/kg-mol**

Md = 0.44(%CO2) + 0.32(%O2) + 0.28(%N2)

Wet Molecular Wt. **28.51 kg/kg-mol**

Ms = Md (1 - %H2O/100) + 18.0 * %H2O/100

_H2O 6.8004798 Molar Percent Water

Molar Fraction Water Vapor. **0.0680**

Vw(std) = K (Wf - Wi) Volume Water vapor at s.t.p. M^3 0 _Vw(st

Vm(std) = Vm Y Pm Tstd / (Pstd Tm) Volume meter gas at s.t.p. M^3 0.6203 _Vm(st

Vsg(std) = K2(sg) (Wf -Wi) Water Water in silica s.t.p. M^3 0.0453 _Vsg(st

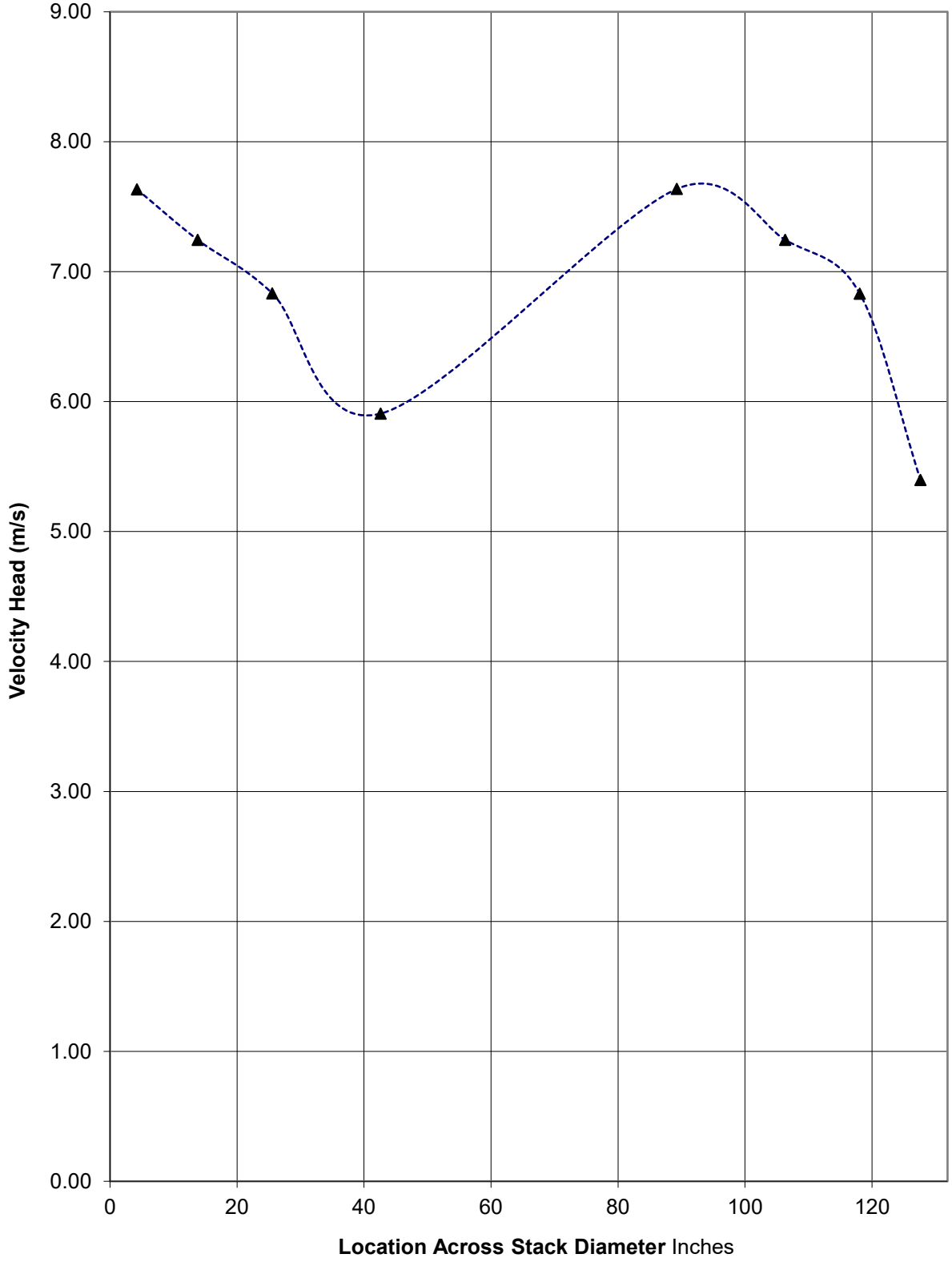
%H2O = Vw(std) + Vsg(std) / (Vw(std) + Vm(std) + Vsg(std))

_Kp	34.9219	Pitot tube constant
_Cp	0.809	Pitot tube coefficient
_NP	16	Number of traverse points
_Dts	942.6	Temperature Stack C
_Ts	1215.7	Absolute stack temperature K
_Bp	746.3	Barometric Pressure mmHg
_Pst	-6.858	Static Pressure mmH20
_Ps	745.75	Absolute stack pressure mm Hg
_Ms	28.51	Molecular weight of stack gas, wet basis g/g-mole
_A	8.8142	Area Square Meters 3.350006 Diameter Meters
_Tstd	298.15	Standard absolute temperature K
_Pstd	760	Standard absolute pressure

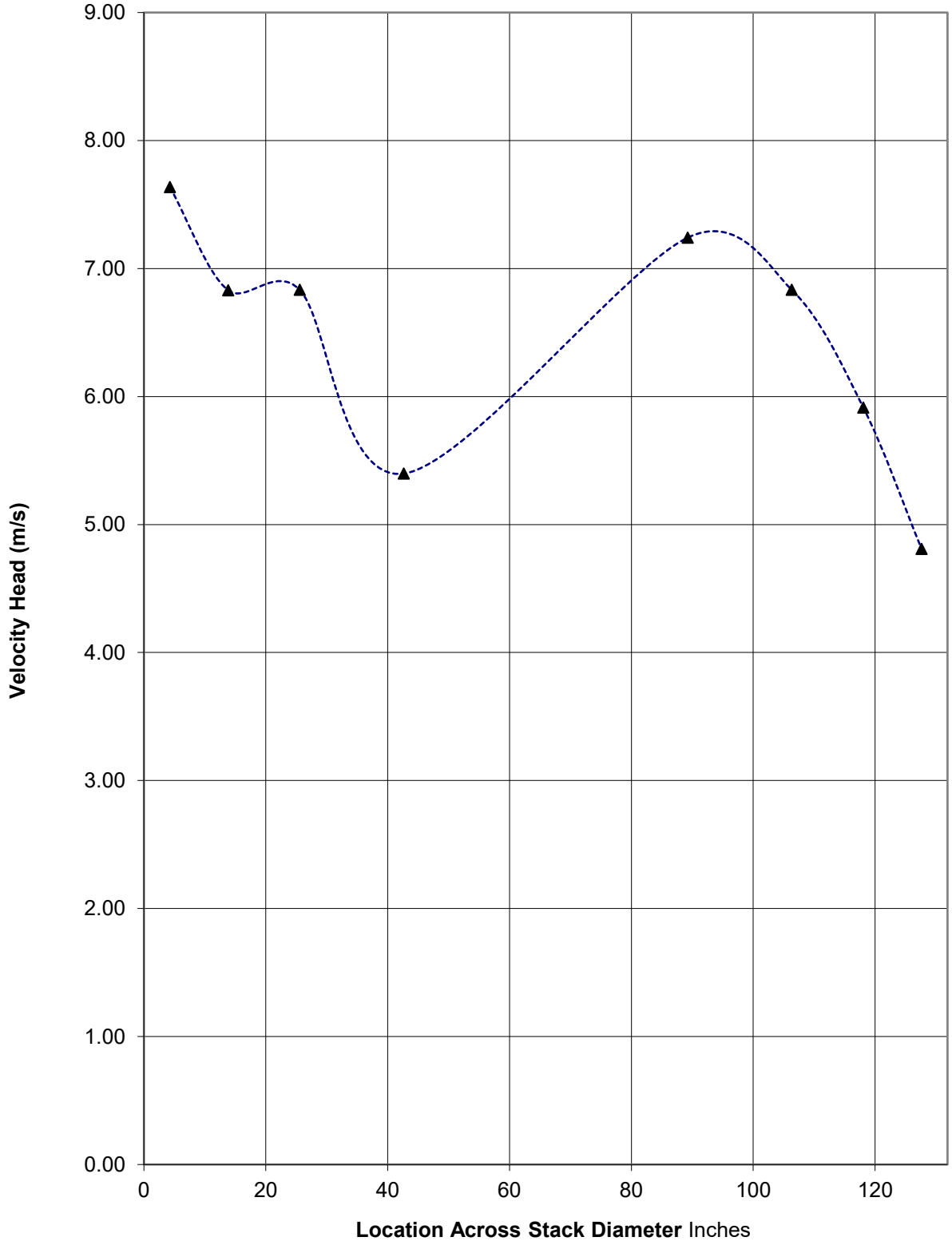
_K	0.0013552	Constant = Density R Tstd / (P(std) Mw)
_K2(sg)	0.0013592	Constant = R Tstd / (P(std) Mw)
_Wi	0.0	Initial Weight of Water in grams
_Wf	0.0	Final Weight of water in grams
_V	0.59464	Volume of gas metered cubic meters
_Y	0.999	Meter factor
_Tmc	7.50	Temperature meter Celsius
_Tm	280.7	Temperature Meter Kelvin
_Vac	-127.00	Impinger Vacuum mmHg
_Vp	13.72	Vapor Pressure mmHg
_CO2	5	Molar Percent Carbon Dioxide
_O2	12	Molar Percent Oxygen
_N2	83.0	Molar Percent Nitrogen
_CO	#N/A	ppm

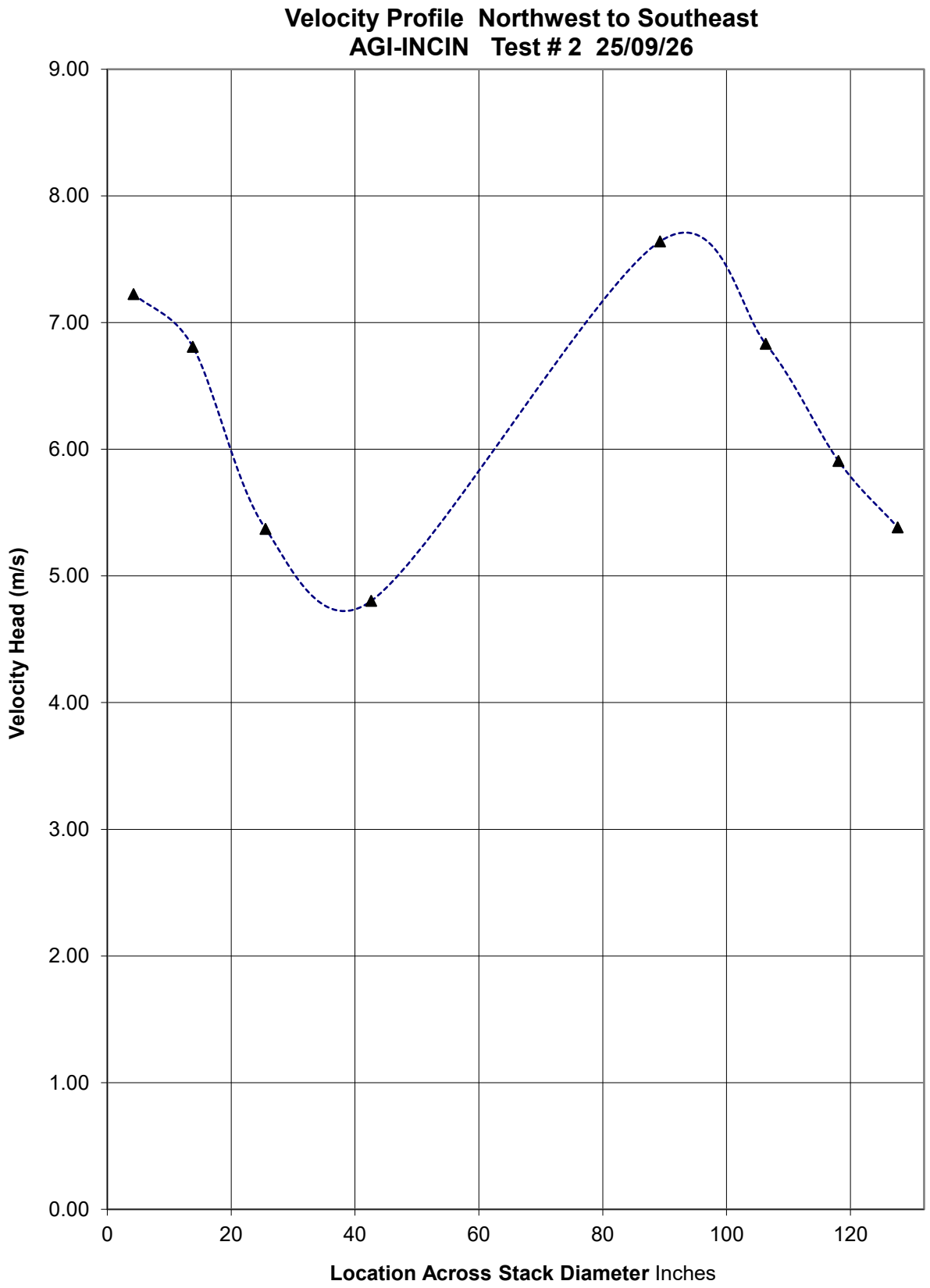
Appendix II – Velocity Profiles

Velocity Profile Northwest to Southeast
AGI-INCIN Test # 1 25/09/26

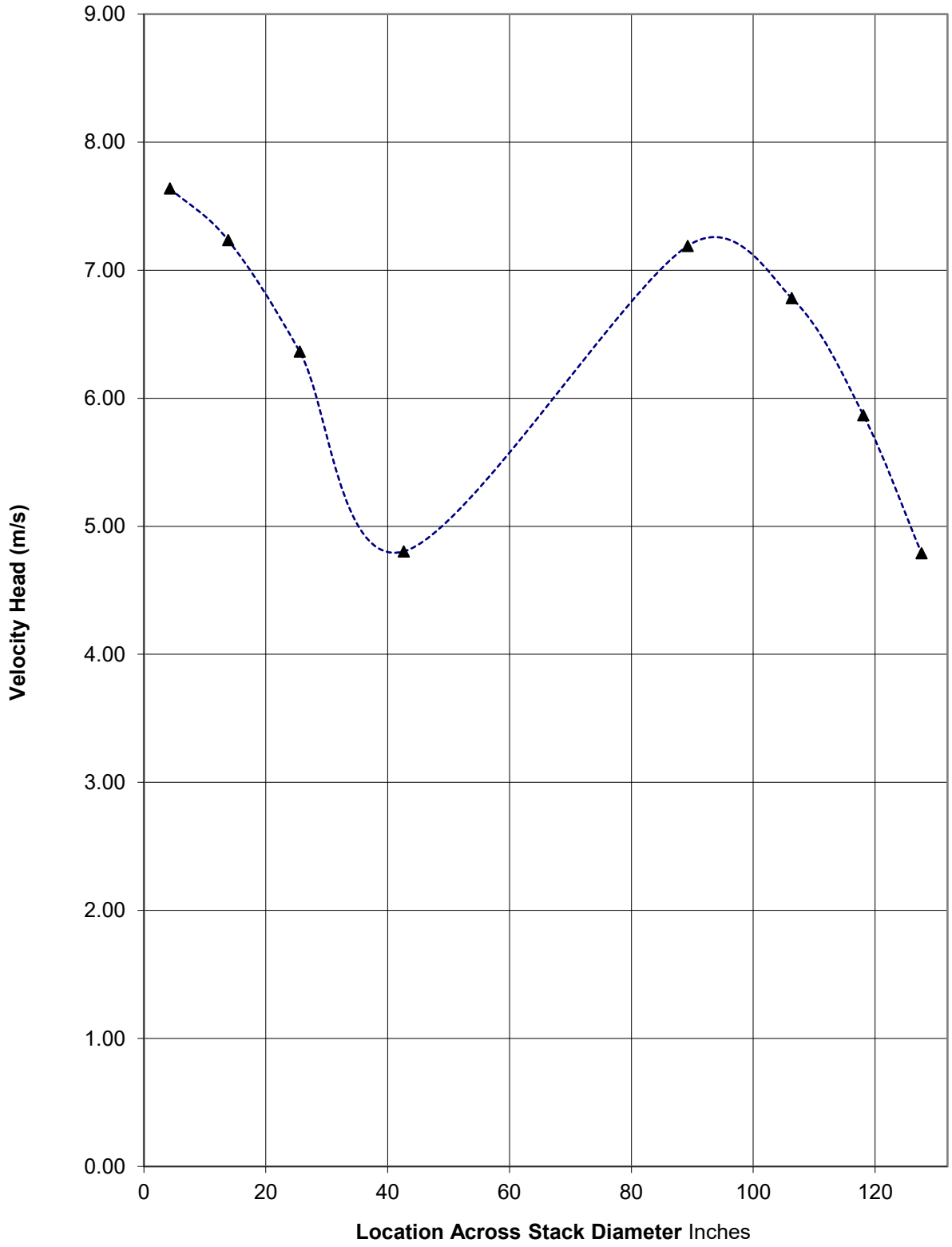


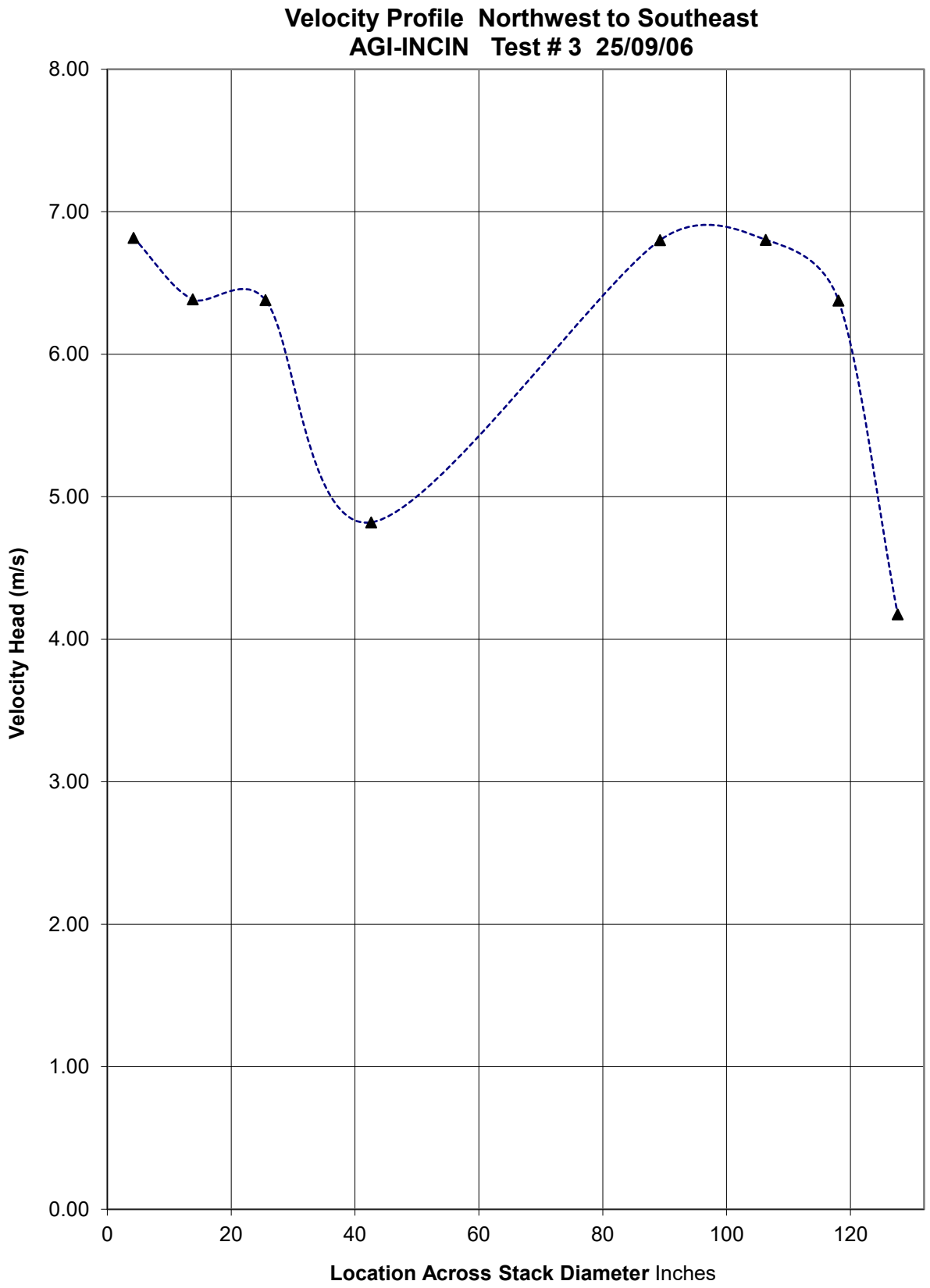
Velocity Profile Northeast to Southwest
AGI-INCIN Test # 1 25/09/26



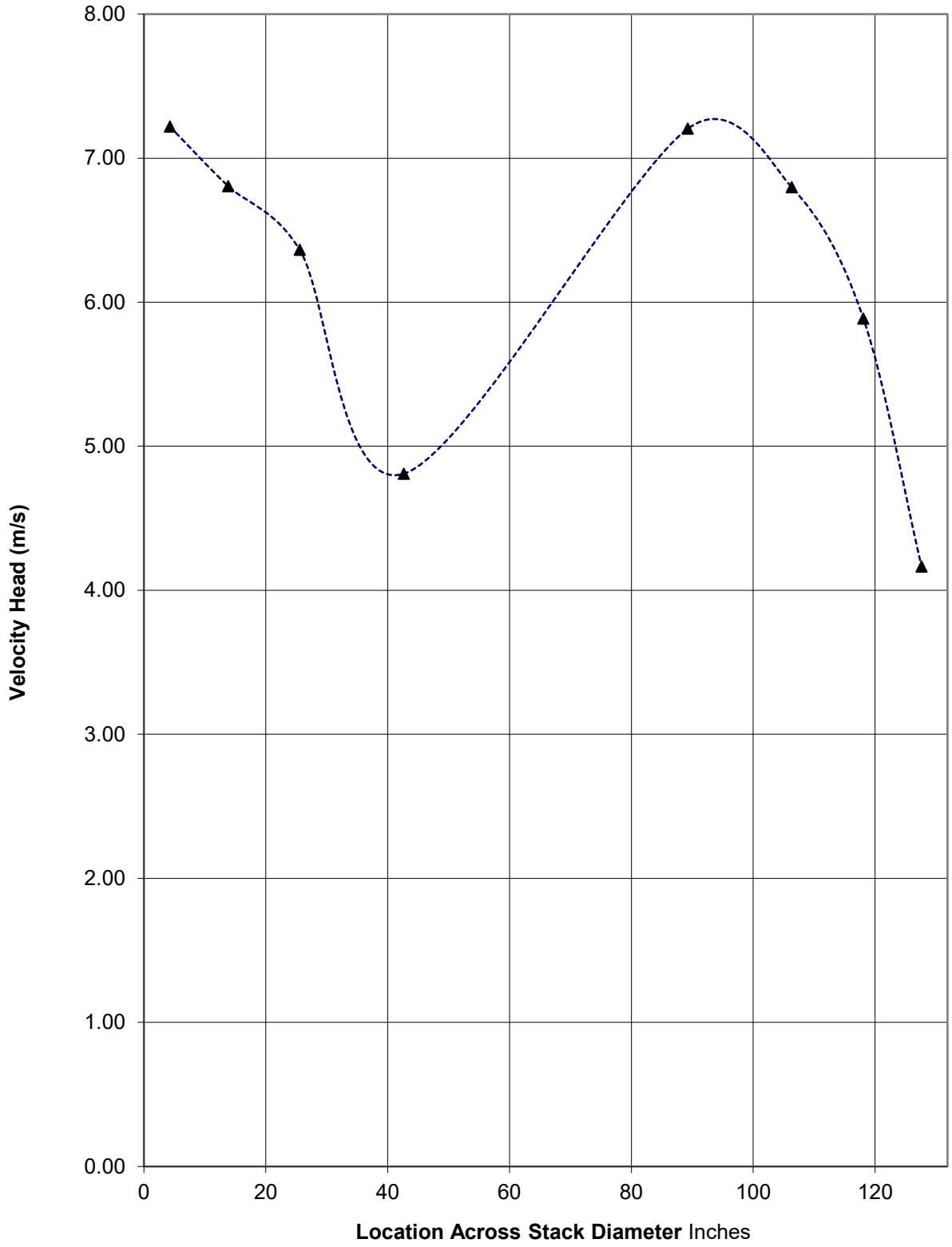

Velocity Profile Northwest to Southeast
AGI-INCIN Test # 2 25/09/26
Velocity Head (m/s)
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0
20
40
60
80
100
120
Location Across Stack Diameter Inches

Velocity Profile Northeast to Southwest
AGI-INCIN Test # 2 25/09/26




Velocity Profile Northwest to Southeast
AGI-INCIN Test # 3 25/09/06
Velocity Head (m/s)
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0
20
40
60
80
100
120
Location Across Stack Diameter Inches

Velocity Profile Northeast to Southwest
AGI-INCIN Test # 3 25/09/06



Appendix III – Analytical Data

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APPLIED CHEMISTRY SERVICES

TEST REPORT

RESULTS: Shaun Hayward 403-369-4749
AGAT Laboratories Ltd.
3700 21 St NE
Calgary
AB T2E 6V6

INVOICE: Accounts Payable
2905 12 St NE
Calgary
AB T2E 7J2

CLIENT SAMPLE ID: LNG - Canada/Kitmat, BC - Can # 1 - Test # 1
Matrix: Ambient Air
CANISTER ID: 23820
PRIORITY: Normal
DESCRIPTION: Acid Gas Incinerator
DATE SAMPLED: 26-Sep-25 11:40
DATE RECEIVED: 02-Oct-25
REPORT CREATED: 17-Oct-25
REPORT NUMBER: 25100010
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-001	Carbon dioxide		80400	ppmv	20	NA-026	02-Oct-25
25100010-001	Oxygen		135000	ppmv	26900	NA-026	02-Oct-25
25100010-001	Hydrocarbons, Total (as Methane)	K, T, U	< 0.05	ppmv	0.05	NA-025	02-Oct-25
25100010-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100010-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-001	1,2,4-Trimethylbenzene	I	0.05	ppbv	0.03	AC-058	04-Oct-25
25100010-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing
Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	23820	Ambient Air	26-Sep-25 11:40

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100010-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100010-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100010-001	1-Butene/Isobutylene		0.30	ppbv	0.06	AC-058	04-Oct-25
25100010-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	04-Oct-25
25100010-001	1-Pentene	I	0.05	ppbv	0.03	AC-058	04-Oct-25
25100010-001	2,2,4-Trimethylpentane	I	0.03	ppbv	0.02	AC-058	04-Oct-25
25100010-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	04-Oct-25
25100010-001	2,3-Dimethylpentane	I	0.03	ppbv	0.02	AC-058	04-Oct-25
25100010-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	2-Methylhexane	I	0.06	ppbv	0.03	AC-058	04-Oct-25
25100010-001	2-Methylpentane	I	0.08	ppbv	0.02	AC-058	04-Oct-25
25100010-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	3-Methylhexane		0.13	ppbv	0.02	AC-058	04-Oct-25
25100010-001	3-Methylpentane		0.11	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Acetone		14.6	ppbv	0.4	AC-058	04-Oct-25
25100010-001	Acrolein	I	0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-001	Benzene	I	0.17	ppbv	0.03	AC-058	04-Oct-25
25100010-001	Benzyl chloride	I	0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	23820	Ambient Air	26-Sep-25 11:40

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-001	Carbon disulfide		0.33	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Chloroform	I	0.05	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Chloromethane	I	0.08	ppbv	0.04	AC-058	04-Oct-25
25100010-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	cis-2-Butene		0.18	ppbv	0.03	AC-058	04-Oct-25
25100010-001	cis-2-Pentene	I	0.08	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Cyclohexane	I	0.06	ppbv	0.04	AC-058	04-Oct-25
25100010-001	Cyclopentane	I	0.08	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100010-001	Ethyl acetate		0.4	ppbv	0.3	AC-058	04-Oct-25
25100010-001	Ethylbenzene	I	0.08	ppbv	0.03	AC-058	04-Oct-25
25100010-001	Freon-11	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	Freon-12	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-001	Isobutane		0.21	ppbv	0.03	AC-058	04-Oct-25
25100010-001	Isopentane		0.93	ppbv	0.04	AC-058	04-Oct-25
25100010-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Isopropyl alcohol		0.9	ppbv	0.3	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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Canada T9C 1T4
(780) 632-8211

APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	23820	Ambient Air	26-Sep-25 11:40

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-001	m,p-Xylene	I	0.27	ppbv	0.04	AC-058	04-Oct-25
25100010-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100010-001	Methyl ethyl ketone		0.7	ppbv	0.3	AC-058	04-Oct-25
25100010-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	04-Oct-25
25100010-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-001	Methylcyclohexane	I	0.04	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Methylcyclopentane		0.11	ppbv	0.05	AC-058	04-Oct-25
25100010-001	Methylene chloride		0.6	ppbv	0.3	AC-058	04-Oct-25
25100010-001	n-Butane		0.85	ppbv	0.02	AC-058	04-Oct-25
25100010-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-001	n-Heptane		0.23	ppbv	0.04	AC-058	04-Oct-25
25100010-001	n-Hexane		0.35	ppbv	0.03	AC-058	04-Oct-25
25100010-001	n-Octane		0.11	ppbv	0.02	AC-058	04-Oct-25
25100010-001	n-Pentane		4.27	ppbv	0.04	AC-058	04-Oct-25
25100010-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100010-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-001	n-Nonane	I	0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	o-Xylene	I	0.09	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	23820	Ambient Air	26-Sep-25 11:40

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Tetrahydrofuran	I	0.4	ppbv	0.3	AC-058	04-Oct-25
25100010-001	Toluene		2.11	ppbv	0.03	AC-058	04-Oct-25
25100010-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	trans-2-Butene		0.15	ppbv	0.03	AC-058	04-Oct-25
25100010-001	trans-2-Pentene		0.11	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	15758	Ambient Air	26-Sep-25 12:50

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-002	Carbon dioxide		88200	ppmv	20	NA-026	02-Oct-25
25100010-002	Oxygen		126000	ppmv	26900	NA-026	02-Oct-25
25100010-002	Hydrocarbons, Total (as Methane)	K, T, U	< 0.05	ppmv	0.05	NA-025	02-Oct-25
25100010-002	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100010-002	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	1,2,4-Trimethylbenzene	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100010-002	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100010-002	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100010-002	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100010-002	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-002	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	04-Oct-25
25100010-002	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	15758	Ambient Air	26-Sep-25 12:50

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-002	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	04-Oct-25
25100010-002	2,3-Dimethylpentane	I	0.03	ppbv	0.02	AC-058	04-Oct-25
25100010-002	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Acetone		4.2	ppbv	0.4	AC-058	04-Oct-25
25100010-002	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	Benzene	I	0.10	ppbv	0.03	AC-058	04-Oct-25
25100010-002	Benzyl chloride	I	0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Carbon disulfide		20.7	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Chloroform	I	0.03	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Chloromethane	I	0.05	ppbv	0.04	AC-058	04-Oct-25
25100010-002	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	15758	Ambient Air	26-Sep-25 12:50

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-002	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-002	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100010-002	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	Ethylbenzene	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100010-002	Freon-11	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	Freon-12	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	Isobutane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	Isopentane		0.99	ppbv	0.04	AC-058	04-Oct-25
25100010-002	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-002	m,p-Xylene	I	0.15	ppbv	0.04	AC-058	04-Oct-25
25100010-002	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100010-002	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	15758	Ambient Air	26-Sep-25 12:50

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-002	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100010-002	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	n-Butane	I	0.04	ppbv	0.02	AC-058	04-Oct-25
25100010-002	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-002	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	n-Heptane	I	0.06	ppbv	0.04	AC-058	04-Oct-25
25100010-002	n-Hexane	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100010-002	n-Octane	I	0.07	ppbv	0.02	AC-058	04-Oct-25
25100010-002	n-Pentane	I	0.07	ppbv	0.04	AC-058	04-Oct-25
25100010-002	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-002	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100010-002	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-002	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	o-Xylene	I	0.05	ppbv	0.03	AC-058	04-Oct-25
25100010-002	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-002	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-002	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	Toluene		0.75	ppbv	0.03	AC-058	04-Oct-25
25100010-002	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-002	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	15758	Ambient Air	26-Sep-25 12:50

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-002	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-002	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-002	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-002	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	29023	Ambient Air	26-Sep-25 14:00

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-003	Carbon dioxide		87300	ppmv	20	NA-026	02-Oct-25
25100010-003	Oxygen		126000	ppmv	26900	NA-026	02-Oct-25
25100010-003	Hydrocarbons, Total (as Methane)	K, T, U	< 0.05	ppmv	0.05	NA-025	02-Oct-25
25100010-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100010-003	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100010-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100010-003	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100010-003	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-003	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	04-Oct-25
25100010-003	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

InnoTech ALBERTA
PO Bag 4000
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Canada T9C 1T4
(780) 632-8211

APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	29023	Ambient Air	26-Sep-25 14:00

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-003	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	04-Oct-25
25100010-003	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Acetone		3.4	ppbv	0.4	AC-058	04-Oct-25
25100010-003	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	Benzene	I	0.09	ppbv	0.03	AC-058	04-Oct-25
25100010-003	Benzyl chloride	I	0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Carbon disulfide		0.18	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Chloroform	I	0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Chloromethane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-003	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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(780) 632-8211

APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	29023	Ambient Air	26-Sep-25 14:00

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-003	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-003	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100010-003	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	Freon-11	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	Freon-12	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	Isobutane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	Isopentane		0.11	ppbv	0.04	AC-058	04-Oct-25
25100010-003	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-003	m,p-Xylene	I	0.11	ppbv	0.04	AC-058	04-Oct-25
25100010-003	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100010-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	29023	Ambient Air	26-Sep-25 14:00

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100010-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	n-Butane	I	0.04	ppbv	0.02	AC-058	04-Oct-25
25100010-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-003	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	n-Heptane	I	0.05	ppbv	0.04	AC-058	04-Oct-25
25100010-003	n-Hexane	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100010-003	n-Octane	I	0.08	ppbv	0.02	AC-058	04-Oct-25
25100010-003	n-Pentane		0.12	ppbv	0.04	AC-058	04-Oct-25
25100010-003	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100010-003	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-003	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	o-Xylene	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100010-003	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100010-003	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	Toluene		0.56	ppbv	0.03	AC-058	04-Oct-25
25100010-003	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100010-003	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	29023	Ambient Air	26-Sep-25 14:00

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100010 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100010-003	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100010-003	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100010-003	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100010-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025

Inquiries: (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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Revision History

Order ID	Ver	Date	Reason
25100010	01	17-Oct-25	Report created

Methods

Method	Description
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-025	Determination of Light Hydrocarbons (C1C4) in Ambient Air by Gas Chromatography Flame Ionization Detector
NA-026	Inert - GC/TCD Gas Analysis - Nitrogen, Oxygen, CO2, CO and Methane

List of Analytical Method IDs within InnoTech's ISO/IEC 17025:2017 CALA Scope of Accreditation

Method ID	Description
AC-020	Chlorophyll-a Phytoplankton (Fluorometric Analysis)
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-035	Analysis of Glyphosate, Aminomethylphosphonic Acid and Glufosinate in Water
AC-038	Trace Metal Analysis of Water Samples by ICP-MS
AC-048	Specific Conductance (Conductivity Meter Method)
AC-049	pH (Meter Method)
AC-054	Alkalinity Total and Phenolphthalein
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-060	Trace Metal Analysis of Soil Sediment and Industrial Waste Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-061	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-065	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-074	Pesticides in Water
AC-080	Alkylated PAH in Water (SPE Extraction)
NA-006	Determination of BTEX, F1 Hydrocarbons and F2, F3 and F4 Hydrocarbons in Water
NA-024	Analysis of Reduced Sulfur Compounds in Air

Qualifiers

Data Qualifier	Translation
B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

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Order Comments

25100010

Project # 25C338707

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Sample Comments

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(780) 632-8211

Result Comments

Note:

1. Results relate only to items tested and apply to the sample as received.

2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.

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APPLIED CHEMISTRY SERVICES

TEST REPORT

RESULTS: Shaun Hayward 403-369-4749
AGAT Laboratories Ltd.
3700 21 St NE
Calgary
AB T2E 6V6

INVOICE: Accounts Payable
2905 12 St NE
Calgary
AB T2E 7J2

CLIENT SAMPLE ID	Matrix
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	Ambient Air

CANISTER ID: S5637
PRIORITY: Normal
DESCRIPTION: Acid Gas Incinerator
DATE SAMPLED: 26-Sep-25 11:40
DATE RECEIVED: 02-Oct-25
REPORT CREATED: 07-Oct-25
REPORT NUMBER: 25100009
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100009-001	Hydrogen sulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	02-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing
Date: October 7, 2025
Inquiries: (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	29405	Ambient Air	26-Sep-25 12:50

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100009 **REPORT CREATED:** 07-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100009-002	Hydrogen sulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	02-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 7, 2025

Inquiries: (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	29011	Ambient Air	26-Sep-25 14:00

DESCRIPTION: Acid Gas Incinerator

REPORT NUMBER: 25100009 **REPORT CREATED:** 07-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100009-003	Hydrogen sulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	02-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 7, 2025

Inquiries: (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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Revision History

Order ID	Ver	Date	Reason
25100009	01	07-Oct-25	Report created

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Methods

Method	Description
NA-024	Analysis for Reduced Sulfur Compounds in Air Samples

List of Analytical Method IDs within InnoTech's ISO/IEC 17025:2017 CALA Scope of Accreditation

Method ID	Description
AC-020	Chlorophyll-a Phytoplankton (Fluorometric Analysis)
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-035	Analysis of Glyphosate, Aminomethylphosphonic Acid and Glufosinate in Water
AC-038	Trace Metal Analysis of Water Samples by ICP-MS
AC-048	Specific Conductance (Conductivity Meter Method)
AC-049	pH (Meter Method)
AC-054	Alkalinity Total and Phenolphthalein
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-060	Trace Metal Analysis of Soil Sediment and Industrial Waste Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-061	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-065	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-074	Pesticides in Water
AC-080	Alkylated PAH in Water (SPE Extraction)
NA-006	Determination of BTEX, F1 Hydrocarbons and F2, F3 and F4 Hydrocarbons in Water
NA-024	Analysis of Reduced Sulfur Compounds in Air

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Qualifiers

Data Qualifier	Translation
B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

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Order Comments

25100009

Project # 25C338707

PO Bag 4000
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Canada T9C 1T4
(780) 632-8211

Sample Comments

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Canada T9C 1T4
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Result Comments

Note:

1. Results relate only to items tested and apply to the sample as received.

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Phone: 780-632-8403
Email: EAS.Reception@innotechalberta.ca
www.innotechalberta.ca

Sample ID: 25100010-001 **Priority:** Normal

Customer ID: AGAT
Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 1 - Te

Client Reporting Information

Company: AGAT LABS
Address: 3700 21 St. NE
Calgary AB, T2E 6V6
Contact: Sharon Haywood
Phone: 403-369-4749
Email: haywood@agatlabs.com

Client Billing Information

Contact: Sharon Haywood
Phone: 403.369.4749
Email: haywood@agatlabs.com
Project ID: 25C338707
PO #:

Turnaround Time (TAT)

- [x] Normal (10 business days)
- [ ] Rush (5 business days) (50% surcharge)
- [ ] Emergency (3 business day) (100% surcharge)

NOTE: Rush and Emergency TAT is not available for all tests.
Confirm all rush and Emergency requests with the Laboratory before submitting samples.

SAMPLE TYPE SOURCE* / AMBIENT (indicate as applicable)

Date Received – Lab Use Only

RECEIVED
OCT 0 2 2025

Special Instructions/Comments

* For source samples, please Indicate possible high-level parameters which may be present.

Lab Sample Number	Client Sample ID	Sample Source/ Description	Canister Number/ Sampler ID	Date Sampled (mm/dd/yy) From / To	Time Sampled (24 hour) From / To	Analysis Requested
1	LNG-Canada / Kitimat-BC canister #1, Test-1	Acid Gas Incinerator	23820	09-26-2025	11:40	Full VOC, HC-T, ~~BTEX~~, O2, CO2
					12:10	
2	LNG-Canada / Kitimat-BC canister #2, Test-2	Acid Gas Incinerator	15758	09-26-2025	13:50	Full VOC, HC-T, ~~BTEX~~, O2, CO2
					13:20	
3	LNG-Canada / Kitimat-BC canister #3, Test-3	Acid Gas Incinerator	29023	09-26-2025	14:00	Full VOC, HC-T, ~~BTEX~~, O2, CO2
					14:30	

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

This "Chain of Custody" form is subject to InnoTech Alberta standard terms and conditions.

InnoTech ALBERTA

Canister ID: 23820

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: 1523 on: AUG 2 0 2025

Evacuated: SEP 0 8 2025 Recertified:

Sample ID: 25100010-001 Priority: Normal

Sta

Customer ID: AGAT

Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 1 - Te "Hg/psig

Sample ID: CANISTER 1 TEST 1

Sampled By: MS-VK

AG INCINERATOR / LNG CANADA

START: 1140

END: 1210

Affix label here

VOC - HC - T - BTEX - O2 Cox

26- SEPT 2025

InnoTech ALBERTA

Canister ID: 15758

This cleaned canister meets or exceeds TO-15 Method Specifications

Pror

Sample ID: 25100010-002 Priority: Normal

Eva

Customer ID: AGAT

Star Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 2 - Te

-27.8 "Hg | -4 "Hg/psig

Sample ID: CANISTER 2 T2

Sampled By: MS-VK- START: 1250 END: 1320

AG INCINERATOR STACK / LNG CANADA

Affix label here

VOC - HC - T - BTEX - O2 - Cox

26- SEPT 2025

InnoTech

Canister ID: 29023

This cleaned canister meets or exceeds TO-15 Method Specifications

P

Sample ID: 25100010-003 Priority: Normal 25

E

e)

Customer ID: AGAT

S Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 3 - Te

-27.5 "Hg | -5 "Hg/psig

Sample ID: CANISTER 3 TEST 3

Sampled By: MS-VK START: 1400 END: 1430

AG INCINERATOR STACK / LNG CANADA

Affix label here

VOC - HC - T - BTEX - O2 - Cox

26- SEPT- 2025

{00004818;6}

TERMS AND CONDITIONS

The attached document entitled "**Chain of Custody Form**" is subject to the following Terms and Conditions, unless otherwise specified on the Quotation. InnoTech Alberta's commencement of the Services shall be deemed acceptance of the terms and conditions by the Client.

1. Any proposal contained herein is prepared for the consideration of the Client only. Its contents may not be used or disclosed to any other party without prior written consent of the INNOTECH ALBERTA INC. (hereinafter referred to as "InnoTech Alberta").

2. InnoTech Alberta will perform the Services in accordance with normal professional standards.

3. The delivery time for performance of the Services (as set out on the front page of this Quotation) is approximate and may be changed by InnoTech Alberta giving written notice to the Client.

4. InnoTech Alberta will exercise due care and proficiency in testing items submitted by a Client. InnoTech Alberta shall not, however, be liable to the Client for any damage or loss caused to the item being tested or for any damage, loss or expense caused by any delay in carrying out the test, including any damage, loss or expense resulting from InnoTech Alberta's negligence. InnoTech Alberta shall not be responsible for any damage, which is a natural or necessary result of any testing procedure.

5. For the purposes of this Quotation, Intellectual Property means all information, data, artistic and literary works, concepts, designs, processes, software, algorithms and inventions, including, without limitation, those that could be the subject of patent, copyright, industrial design, trade secret or other forms of protection. Intellectual Property which was owned by either InnoTech Alberta or the Client prior to the signing of this Agreement remains the property of that party. Nothing in this Agreement shall operate as a license, permission or grant of any other rights to either InnoTech Alberta's or the Client's Intellectual Property.

6. All data, reports and other information relating to the Services shall be treated by InnoTech Alberta as the confidential property of the Client, and InnoTech Alberta will use reasonable efforts to ensure that its employees, contractors and agents will not disclose the same to any other person, firm or corporation during the term of this Agreement and for a period of five (5) years after the date of termination of the Agreement. The obligation of confidentiality set out herein shall not apply to any information that was in InnoTech Alberta's possession prior to receipt from the Client or which is or becomes part of the public domain through no act or failure on the part of InnoTech Alberta. The obligation of confidentiality set out in this Section shall not prevent the disclosure of information to any level of government having jurisdiction to make lawful demand therefor, or required to be disclosed by any applicable law. Any records required to be maintained by InnoTech Alberta pursuant to this Agreement are subject to the protection and access provisions of the Freedom of Information and Protection of Privacy Act (Alberta).

7. The reported results of any InnoTech Alberta tests or evaluations performed on samples or items provided by the Client shall be interpreted as being specific to the sample or item tested. InnoTech Alberta makes no representation that any similar or related untested samples or items would produce the same results.

8. The Client shall not use InnoTech Alberta's name in any advertising material, sale offer, news releases, public statements or announcements, whether written or oral relating to the Services or the results thereof, without the prior written consent of InnoTech Alberta.

9. Records, test data, reports and samples, except where shipped to the Client after completion of the work shall be retained by InnoTech Alberta according to InnoTech Alberta's approved Records Retention and Disposition Schedule.

10. Prices quoted are in Canadian Dollars unless otherwise stated in writing and are exclusive of any provincial, municipal, sales, use or goods and services tax.

11. Prices quoted do not include shipping, insurance or cost of consumables. The Client shall be responsible for all costs incurred by InnoTech Alberta in collecting any item for testing and returning the item to the Client after testing and shall be responsible for all necessary incidental costs incurred by InnoTech Alberta in providing the Services. InnoTech Alberta will not be responsible for any damage or loss to items during shipping and it is the responsibility of the Client to arrange and pay for any insurance it deems necessary.

12. Any test samples or other materials supplied by the Client to InnoTech Alberta may, at InnoTech Alberta's option, be returned by InnoTech Alberta to the Client. The Client shall:

(a) be responsible for all costs associated with the handling, transportation and disposal of such materials;

(b) reimburse InnoTech Alberta for any costs incurred by InnoTech Alberta associated with the handling, transportation and disposal of such materials; and

(c) indemnify and hold InnoTech Alberta harmless from any and all claims, damages or actions associated with the handling, transportation and disposal of such materials.

13. The Client shall pay all invoices rendered by InnoTech Alberta to the Client within thirty (30) days from the date of invoice, without deduction or set-off.

14. If the Client fails to pay any amount under this Agreement, such unpaid amount shall bear interest at a rate per month equal to one (1%) percent (or 12.6825% per annum) with interest on overdue interest at the same rate.

15. InnoTech Alberta makes no representation, warranties or conditions, either expressed or implied, statutory or otherwise and does not warrant the quality, state, merchantability or fitness for any purpose of any goods or products to be delivered pursuant to this Agreement. The Client accepts the results of these Services or items tested as is, and acknowledges that any use or interpretation of the information contained is at the Client's own risk.

16. In no event shall InnoTech Alberta be liable for any indirect or consequential damage or loss suffered by the Client, including loss of anticipated profits.

17. The Client shall indemnify and hold harmless InnoTech Alberta from any and all claims, demands, actions and costs (including legal costs on a solicitor-client basis) that may arise out of:

(a) any dangerous defect or content in the item being tested, whether apparent or not, which dangerous defect or content was not disclosed in writing to InnoTech Alberta by the Client at the time the item was submitted for testing;

(b) differences between those items actually tested and items previously or subsequently produced which are purported to be identical to the item tested; or

(c) any use of the tested item or any item incorporating the tested item, whether by the Client or a third party following its return to the Client.

The hold harmless shall survive this Agreement.

18. The Client shall, at its own expense and without limiting its liabilities herein, be responsible for insuring its operation in an amount not less than $2,000,000 inclusive per occurrence, insuring against bodily injury, and property damage including loss of use thereof. Further, the Client is responsible for insuring all owned property directly or indirectly related to this Agreement and InnoTech Alberta shall have no liability for any loss or damage to such property.

19. InnoTech Alberta shall maintain the following insurance: (i) commercial general liability insurance (including cross liability, severability of interests, non-owned automobile liability) in the amount of two million dollars ($2,000,000.00) per occurrence, and; (ii) professional liability and errors and omissions insurance in the amount of one million dollars ($1,000,000.00) per claim, and two million dollars ($2,000,000.00) in the aggregate. In addition, InnoTech Alberta shall maintain all workers' compensation coverage required by applicable laws. Notwithstanding the foregoing, InnoTech Alberta reserves the right to supplement or add insurance coverage from time to time as may be required in its sole discretion. InnoTech Alberta may provide certificates of insurance for coverages outlined in (i) and (ii) above.

20. The Client agrees to comply with all InnoTech Alberta Safety & Security regulations in effect while on InnoTech Alberta premises.

21. This Agreement represents the entire agreement between the parties and shall supersede all prior agreements relative to this transaction.

22. If a party's performance of any of its obligations under this Agreement (excepting only an obligation to pay) is delayed, rendered impossible or impractical, or prevented in whole or in part due to circumstances beyond its reasonable control, including but not limited to acts of God, war, terrorism, labour disputes, pandemics or epidemics, global health emergencies, or governmental action, that party will not be in breach of this Agreement due to the delay or failure in performance occasioned by such event..

23. InnoTech Alberta may assign this Quotation to an "affiliated" (as that term is defined at Section 2 of the Business Corporations Act (Alberta)) or successor entity on written notice to the Client.

24. This Quotation and rights and parties thereto shall be governed by and construed according to the laws of the Province of Alberta. The parties hereby submit to the jurisdiction of the Courts of Alberta.

Canadian Association for Laboratory Accreditation Inc.

Certificate of Accreditation

InnoTech Alberta Inc - Environmental Analytical Services (Vegreville)
InnoTech Alberta Inc.
Highway 16A and 75th Street
Vegreville, Alberta

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

Accreditation No.: 1002789
Issued On: 4/11/2025
Accreditation Date: 1/3/2005
Expiry Date: 10/11/2027

President and CEO

This certificate is the property of the Canadian Association for Laboratory Accreditation Inc. and must be returned on request; reproduction must follow policy in place at date of issue.
For the specific tests to which this accreditation applies, please refer to the laboratory's scope of accreditation at www.cala.ca.

Appendix IV – Field Data Sheets

AGAT VELOCITY/ ABSORPTION DATA SHEET

Company: LNG-CANADA	Location: KITIMAT-BC	Stack Static Pressure:	-0.270
Contact Name: TAWEEF. S	Source: AGI- INCINERATOR STACK	Absorbing Solution:	6% H_2O_2
Date(Y/M/D): 2025. SEPT-26	Test #: ONE	Imp.I vol (g)	Imp.f vol (g)
Sampled by: VK	Team Leader: MS	1) 289.8	1) 314.0
Fluke Temp. Meter ID #: CG4-		2) 256.4	2) 301.6
Cyclonic Flow ? Yes/No	Average Null Angle from Vertical=	3) 189.9	3) 192.2
B.P. (in. Hg): 29.38	Ambient Temperature (c/f): 7	4) 310.4	4) 315.9
Pitot ID#: CP-10	Pitot Factor: 0.869	1042.5	1123.7
Meter #: MS-5	Meter Factor: 0.9987		
Comments:		Rinse Volume (ml):	

Point	Time	Port #1	(E-W)	Port #2	(N-S)	Port #3	(W-E)	Port #4	(S-N)
#	(24 Hrs)	Temp(c/f)	ΔP	Temp(c/f)	ΔP	Temp(c/f)	ΔP	Temp(c/f)	ΔP
4	1210	939	0.050	940	0.050	940	0.050	939	0.045
3		940	0.045	940	0.045	940	0.040	941	0.040
2		941	0.040	940	0.040	941	0.040	939	0.030
1	1220	937	0.030	939	0.025	939	0.025	930	0.020

ABSORPTION DATA

Min.	Time (24Hrs)	Volume ($ft^3/m^3/L$)	Vacuum (in. Hg)	Meter Temp(c/f)	Impinger Temp(c/f)
0	1140	0.000	-5	53	9
10					
20					
30					
40					
50					
60	1240	21.053	-5	59	6

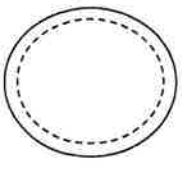
Leak Check Data

Initial: 0.000 $ft^3/m^3/L$ 15.000 in Hg.

Final: 0.000 $ft^3/m^3/L$ 15.00 in Hg.

FYRITE TESTS

Time	%O2	%CO2	(%/ppm) CO
1145	12	5	



Show Stack Features: Ladder/Ports/Power/Lights/CEM

Sample Level(m/ft): 150

Port Diameter(in.): 4

Annulus Length(in.): 16

Stack Diameter(in.): 131.89

AGAT VELOCITY/ ABSORPTION DATA SHEET

Company: LNG - CANADA	Location: KITIMAT - BC	Stack Static Pressure:	-9.270
Contact Name:	Source: AGI - INCINERATOR STACK	Absorbing Solution:	6% H_2O_2
Date(Y/M/D): 2025-SEPT-26	Test #: TWO	Imp.I vol (g)	Imp.f vol (g)
Sampled by: VK	Team Leader: MC	1) 290.5	1) 309.5
Fluke Temp. Meter ID #: CGY-		2) 285.7	2) 289.6
Cyclonic Flow ? Yes/No	Average Null Angle from Vertical=	3) 189.9	3) 193.1
B.P. (in. Hg): 29.36	Ambient Temperature (c/f):	4) 310.4	4) 317.5 ← Silica
Pitot ID#: GP-10	Pitot Factor: 0.809	1,076.5	1,109.9 H2o Final (g): 31.4
Meter #: M5-5	Meter Factor: 0.9987		
Comments:		Rinse Volume (ml):	

Point	Time	Port #1	(E-W)	Port #2	(N-S)	Port #3	(W-E)	Port #4	(S-N)
#	(24 Hrs)	Temp(c/f)	ΔP	Temp(c/f)	ΔP	Temp(c/f)	ΔP	Temp(c/f)	ΔP
4	310	946	0.045	954	0.050	953	0.050	934	0.045
3		945	0.040	953	0.040	949	0.045	935	0.040
2		940	0.025	949	0.030	943	0.035	933	0.030
1	320	929	0.020	948	0.025	939	0.020	932	0.020

ABSORPTION DATA

Min.	Time (24Hrs)	Volume ft³/m³/L	Vacuum (in. Hg)	Meter Temp(c/f)	Impinger Temp (c/f)
0	250	0.000	5	59	9
10					
20					
30					
40					
50					
60	350	2.046	5	61	6

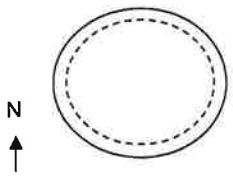
Leak Check Data

Initial: 0.000 ft³/m³/L 5.000 in Hg.

Final: 0.000 ft³/m³/L 5.000 in Hg.

FYRITE TESTS

Time	%O2	%CO2	(%/ppm) CO
255	12	5	



Show Stack Features: Ladder/Ports/Power/Lights/CEM

Sample Level(m/ft): 50

Port Diameter(in.): 4

Annulus Length(in.): 16

Stack Diameter(in.): 31.89

AGAT VELOCITY/ ABSORPTION DATA SHEET

Company: LNG-CANADA	Location: KITIMAT - BC	Stack Static Pressure:	-0.270
Contact Name: TAUSEEF S.	Source: AGI- INCINERATOR STACK	Absorbing Solution:	6% H2O2
Date(Y/M/D): 2025-SEPT-26	Test #: THREE		
Sampled by: VK	Team Leader: MS		
Fluke Temp. Meter ID #:	CG9-1		
Cyclonic Flow ? Yes/No	Average Null Angle from Vertical=		
B.P. (in. Hg): 29.38	Ambient Temperature (c/f):		
Pitot ID#: GP-10	Pitot Factor: 0.809		
Meter #: MS-5	Meter Factor: 0.9967		
Comments:		Rinse Volume (ml):	

Imp.I vol (g)	Imp.f vol (g)		
1) 289.8	1) 310.5		
2) 288.4	2) 291.3		
3) 189.9	3) 194.5		
4) 317.5	4) 322.6	←Silica	H2o Final (g)
1,085.6	1,118.9		33.3

Point	Time	Port #1	(E-W)	Port #2	(N-S)	Port #3	(W-E)	Port #4	(S-N)
#	(24 Hrs)	Temp(c/f)	ΔP	Temp(c/f)	ΔP	Temp(c/f)	ΔP	Temp(c/f)	ΔP
4	1430	946	0.040	940	0.040	942	0.045	939	0.045
3		949	0.035	941	0.040	941	0.040	939	0.040
2		947	0.020	946	0.035	940	0.035	940	0.030
1	1440	946	0.020	946	0.015	937	0.020	940	0.015

ABSORPTION DATA

Min.	Time (24Hrs)	Volume ft³/m³/L	Vacuum (in. Hg)	Meter Temp(c/f)	Impinger Temp (c/f)
0	1400	0.000	-5	60	9
10					
20					
30					
40					
50					
60	1500	21.027	-5	62	6

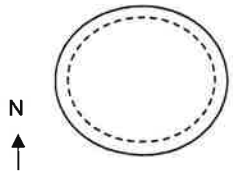
Leak Check Data

Initial: 0.000 ft³/m³/L 5.00 in Hg.

Final: 0.000 ft³/m³/L 5.00 in Hg.

FYRITE TESTS

Time	%O2	%CO2	(%/ppm) CO



Show Stack Features: Ladder/Ports/Power/Lights/CEM

Sample Level(m/ft): 50

Port Diameter(in.): 4

Annulus Length(in.): 16

Stack Diameter(in.): 131.89

AGAT CYCLONIC FLOW CHECK DATA SHEET

Client: LNG - CANADA	Contact: TAUSEEF SIDDIQUI
Plant Name: LNG - CANADA	Location: KITIMAT - BC
Stack ID (in.): 35.89	Length of Annulus (in.): 16
Date (Y/M/D): 2025- SEPT- 26	Comments:
Sampled by: MS - VK	
Team Leader: MS	

AGI - INCINERATOR STACK N - S

		E-W Traverse Data Test 1		W-E	S-N
Point #	Time (24 Hrs)	Port #1 null angle	Port #2 null angle	Port #3 null angle	Port #4 null angle
4	140	0°	0°	0°	0°
3		0°	0°	0°	0°
2		0°	0°	0°	0°
1	200	0°	0°	0°	0°

Traverse Data Test 2					
Point #	Time (24 Hrs)	Port 1 null angle	Port 2 null angle	Port 3 null angle	Port 4 null angle
4	320	0°	0°	0°	0°
3		0°	0°	0°	0°
2		0°	0°	0°	0°
1	340	0°	0°	0°	0°

Note: 1 hour must pass between test 1 and 2

Note: The average of the absolute values of the null angles cannot be greater than 20°

Note: The difference between the angles in test 1 and 2 cannot be greater than 5°

Appendix V – Calibration Data

AGAT Laboratories

Barometer Calibration 2025

Calibration Date	Cal Times	Standard		Monometer
Month/Day/Year	hh:mm	hPa	in. Hg	in. Hg
CGY 1		hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.56
4-Feb-25	8:50	886	26.55	26.55
5-Feb-25	8:05	882	26.16	26.17
CGY 3	hh:mm	hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.57
4-Feb-25	8:50	886	26.55	26.57
5-Feb-25	8:05	882	26.16	26.19
EDM 1	hh:mm	hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.57
4-Feb-25	8:50	886	26.55	26.57
5-Feb-25	8:05	882	26.16	26.19
EDM 2		hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.57
4-Feb-25	8:50	886	26.55	26.56
5-Feb-25	8:05	882	26.16	26.18
EDM 3	hh:mm	hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.58
4-Feb-25	8:50	886	26.55	26.58
5-Feb-25	8:05	882	26.16	26.19

Notes:	Barometers were calibrated to Fisherbrand Tracible Barometer - Serial Number: 240466177 Barometers must be capable of measuring atmospheric pressure to within 2.5mm (0.1 in.) Hg
Calibrated By:	Raymond Dreaver
Date:	Feb 03-05, 2025

AGAT Labs Scales Calibration - 2025

Calibrated by: JS

Calibration date: 5-Feb-25

ID - EDBL#104 +/-0. 1gram'

Actual	Scale	Difference
1000	1000	0
500	500	0
200	200	0
50	50.1	0.1
20	20	0

EDBL#110 +/-0. 1gram'

Actual	Scale	Difference
1000	1000	0
500	500	0.0
200	200	0
50	50	0
20	20	0

EDBL#108 +/-0. 1gram'

Actual	Scale	Difference
1000	1000	0
500	499.9	0.1
200	200	0
50	50	0
20	20	0

EDBL#111 +/-0. 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500.1	0.1
200	200	0
50	50	0
20	20	0

CALBL#115 +/- 1gram'

Actual	Scale	Difference
1000	1000	0.0
500	500	0
200	200	0
50	50	0
51		

EDBL#112 +/- 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500.1	0.1
200	200	0
50	50	0
51		

CALBL#117 +/- 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500.1	0.1
200	200.1	0.1
50	50	0
51		

CALBL#118 +/- 1gram'

Actual	Scale	Difference
1000	999.9	0.1
500	500.1	0.1
200	200.1	0
50	50	0
20	20	0

CALBL #107 +/- 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500	0
200	200.1	0.1
50	50	0
51		

CALBL#133

Actual	Scale	Difference
1000	1000	0.0
500	500.1	0.1
200	200	0
50	50	0
51		

CALBL# 109 +/- 1gram'

Actual	Scale	Difference
1000	999.9	0.1
500	500	0
200	200	0
50	50	0
51		

Notes: EDBL# 107, EDBL# 106, EDBL# 109, are all out of service

EPA Method 5
Meter Box Calibration
English Meter Box Units, English K' Factor

Model #: Sensus
Serial #: 1

Date: 7-Jan-25
Barometric Pressure: 26.63 (in. Hg)
Theoretical Critical Va 12.56 (in. Hg)

!!!!!!!!!
IMPORTAI For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.
IMPORTAI The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).
!!!!!!!!!

---------- DRY GAS METER READINGS ----------									-CRITICAL ORIFICE READINGS-					
		Volume	Volume	Volume	Initial Temps.		Final Temps.		Orifice	K' Orifice	Actual	-- Ambient Temperature --		
dH	Time	Initial	Final	Total	Inlet	Outlet	Inlet	Outlet	Serial#	Coefficient	Vacuum	Initial	Final	Average
(in H2O)	(min)	(cu ft)	(cu ft)	(cu ft)	(deg F)	(deg F)	(deg F)	(deg F)	(number)	(see above	(in Hg)	(deg F)	(deg F)	(deg F)
0.01	17.00	984.790	990.005	5.215	73.7	74.1	76.9	74.3	40	0.2333	22.0	74.3	75.3	74.8
0.03	12.00	990.005	995.533	5.528	75.8	73.9	81.1	74.5	48	0.3505	21.5	75.1	76.2	75.7
0.04	10.00	995.533	1001.398	5.865	78.9	74.2	87.1	75.0	55	0.4446	21.0	76.1	76.6	76.4
0.08	7.00	1.398	6.945	5.547	82.6	74.9	93.5	75.6	63	0.5991	20.5	76.5	77.0	76.8
0.16	5.00	6.945	12.295	5.350	82.5	76.1	94.5	76.7	73	0.8029	19.0	76.9	77.3	77.1

********** RESULTS **********

-- DRY GAS METER --		--------- ORIFICE ---------			-- DRY GAS METER --		--------- ORIFICE ---------			
VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	:ALIBRATION FACTOI		CALIBRATION FACTOR			
ORRECTE	ORRECTED	CORRECTE	ORRECTE	NOMINAL	Y		dH@			
Vm(std)	Vm(std)	Vcr(std)	Vcr(std)	Vcr	Value	Variation	Value	Value	Variation	
(cu ft)	(liters)	(cu ft)	(liters)	(cu ft)	(number)	(number)	(in H2O)	(mm H2O)	(in H2O)	
4.581	129.7	4.567	129.3	5.199	0.997	-0.002	0.069	1.74	-0.014	
4.842	137.1	4.839	137.1	5.518	0.999	0.001	0.091	2.32	0.009	
5.114	144.8	5.112	144.8	5.837	1.000	0.001	0.076	1.92	-0.007	
4.812	136.3	4.820	136.5	5.508	1.002	0.003	0.083	2.12	0.001	
4.635	131.3	4.613	130.6	5.274	0.995	-0.003	0.093	2.35	0.010	
					0.9986	**<----- Average Y**	**0.0823**	**2.09**	**<----- Average dH@**	

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.
For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the avera

SIGNED: MS

Date: Jan 07, 2025

AGAT Laboratories

S-TYPE PITOT TUBE CALIBRATION

Calibration Device/Location: SAIT

Pitot Tube Number: GP 10

Technician: MS-AS JS-RP

Calibration Date (D/M/Y): 4-Feb-25

Date Last Calibrated (D/M/Y): 6-Feb-24

Previous Factor: 0.809

Approx. Velocity	Reference	S-Type		Pitot Factor	
ft/sec	ΔPr	ΔPs	$(Ref/S\text{-}type)^{0.5}$		±Difference from the new factor
30	1.50	2.20	0.826	0.817	0.00858
30	1.50	2.20	0.826	0.817	0.00858
50	4.50	6.80	0.813	0.805	-0.00353
50	4.50	6.80	0.813	0.805	-0.00353
70	8.90	13.50	0.812	0.804	-0.00505
70	8.90	13.50	0.812	0.804	-0.00505

Standard Pitot Tube Factor: 0.990 **New Factor:** **0.809**

Calibration Notes: Pitot Tube tips are in good shape, clean, with no deformations or damage.
Calibrated with thermocouples in place.

AGAT Laboratories

Thermocouple Calibration: 2025

Thermocouple Calibration: Fluke S/N: 24450030 & 111108577 Thermometer Standard: VWR61016-208, QL Quincy Lab Inc. 76mm 1mm, C15, C4 Calibrated according to ASSC Method 2 Sec 4.3

	Ice					Boiling Water					Oven				
I.D	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff
Standalone Thermocouples															
C1	1.100	274.25	0.00	273.15	0.403	96.7	369.85	97.0	370.15	0.081	376.9	650.05	377.0	650.15	0.0154
C2	1.000	274.15	1.00	274.15	0.000	97.3	370.45	98.0	371.15	0.189	362.1	635.25	362.0	635.15	0.0157
C3	0.800	273.95	0.50	273.65	0.110	97.5	370.65	98.0	371.15	0.135	398.0	671.15	400.0	673.15	0.2971
C4	1.000	274.15	0.00	273.15	0.3661	96.8	369.95	98.0	371.15	0.323	387.0	660.15	388.0	661.15	0.1513
C5	1.000	274.15	0.00	273.15	0.366	97.0	370.15	97.0	370.15	0.000	375.0	648.15	375.0	648.15	0.0000
C6	0.700	273.85	1.00	274.15	0.109	96.4	369.55	97.0	370.15	0.162	369.2	642.35	371.0	644.15	0.2794
C7	1.400	274.55	1.00	274.15	0.1459	96.1	369.25	97.0	370.15	0.243	391.6	664.75	391.0	664.15	0.0903
C8	1.000	274.15	0.00	273.15	0.366	96.6	369.75	98.0	371.15	0.377	405.0	678.15	406.0	679.15	0.1472
C9	1.100	274.25	1.00	274.15	0.036	97.0	370.15	98.0	371.15	0.269	383.0	656.15	384.0	657.15	0.1522
C10	0.900	274.05	1.00	274.15	0.036	97.2	370.35	98.0	371.15	0.216	351.6	624.75	352.0	625.15	0.0640
C21	1.100	274.25	1.00	274.15	0.036	96.4	369.55	97.0	370.15	0.162	443.6	716.75	444.0	717.15	0.0558
E1	0.600	273.75	0.00	273.15	0.220	94.8	367.95	96.0	369.15	0.325	353.2	626.35	354.0	627.15	0.1276
E2	0.300	273.45	0.00	273.15	0.110	97.1	370.25	98.0	371.15	0.242	335.4	608.55	337.0	610.15	0.2622
E3	0.500	273.65	0.00	273.15	0.183	96.6	369.75	98.0	371.15	0.377	384.2	657.35	385.0	658.15	0.1216
E4	0.700	273.85	0.50	273.65	0.073	96.7	369.85	98.0	371.15	0.350	365.4	638.55	367.0	640.15	0.2499
E6	0.600	273.75	0.00	273.15	0.220	94.5	367.65	96.0	369.15	0.406	320.2	593.35	322.0	595.15	0.3024
E7	0.600	273.75	0.00	273.15	0.220	95.9	369.05	97.0	370.15	0.297	362.0	635.15	364.0	637.15	0.3139
Flex 1	0.900	274.05	1.00	274.15	0.036	97.3	370.45	98.0	371.15	0.189	401.0	674.15	402.0	675.15	0.1481
Flex 2	0.900	274.05	1.00	274.15	0.036	97.2	370.35	97.0	370.15	0.054	377.4	650.55	379.0	652.15	0.2453
Flex 3	1.200	274.35	1.00	274.15	0.073	96.7	369.85	98.0	371.15	0.350	386.0	659.15	387.0	660.15	0.1515
Filter 1	0.200	273.35	0.00	273.15	0.073	96.2	369.35	97.0	370.15	0.216	381.5	654.65	380.0	653.15	0.2297
Filter 3	0.900	274.05	1.00	274.15	0.036	96.6	369.75	97.0	370.15	0.108	388.9	662.05	388.0	661.15	0.1361
Exit1	1.300	274.45	1.00	274.15	0.109	96	369.15	97.0	370.15	0.270	384.0	657.15	385.0	658.15	0.1519
CGY5A - Spare	0.900	274.05	0.50	273.65	0.146	97.9	371.05	98.0	371.15	0.027	420.0	693.15	420.0	693.15	0.0000
CGY5B - Spare	0.600	273.75	0.50	273.65	0.037	97.8	370.95	98.0	371.15	0.054	452.8	725.95	454.0	727.15	0.1650
CGY5C - Spare	0.700	273.85	0.50	273.65	0.073	98.1	371.25	98.0	371.15	0.027	423.5	696.65	423.0	696.15	0.0718
DGM RATA 01	0.800	273.95	0.50	273.65	0.110	97.3	370.45	98.0	371.15	0.189	394.5	667.65	394.0	667.15	0.0749
SRC 5 Spare 2	1.100	274.25	2.00	275.15	0.327	97.0	370.15	97.0	370.15	0.000	431.7	704.85	433.0	706.15	0.1841
C24	1.400	274.55	2.00	275.15	0.218	96.4	369.55	98.0	371.15	0.431	463.2	736.35	464.0	737.15	0.1085
E5	0.200	273.35	0.00	273.15	0.073	96.5	369.65	98.0	371.15	0.404	357.4	630.55	359.0	632.15	0.2531
EDGM 2	1.000	274.15	0.00	273.15	0.366	96.6	369.75	98.0	371.15	0.377	338.1	611.25	339.0	612.15	0.1470
E8	1.000	274.15	0.50	273.65	0.183	96.8	369.95	98.0	371.15	0.323	347.6	620.75	349.0	622.15	0.2250
EDGM1	0.500	273.65	0.00	273.15	0.183	96.0	369.15	98.0	371.15	0.539	317.1	590.25	318.0	591.15	0.1522
E31	0.500	273.65	0.00	273.15	0.183	97.1	370.25	98.0	371.15	0.242	304.1	577.25	304.0	577.15	0.0173

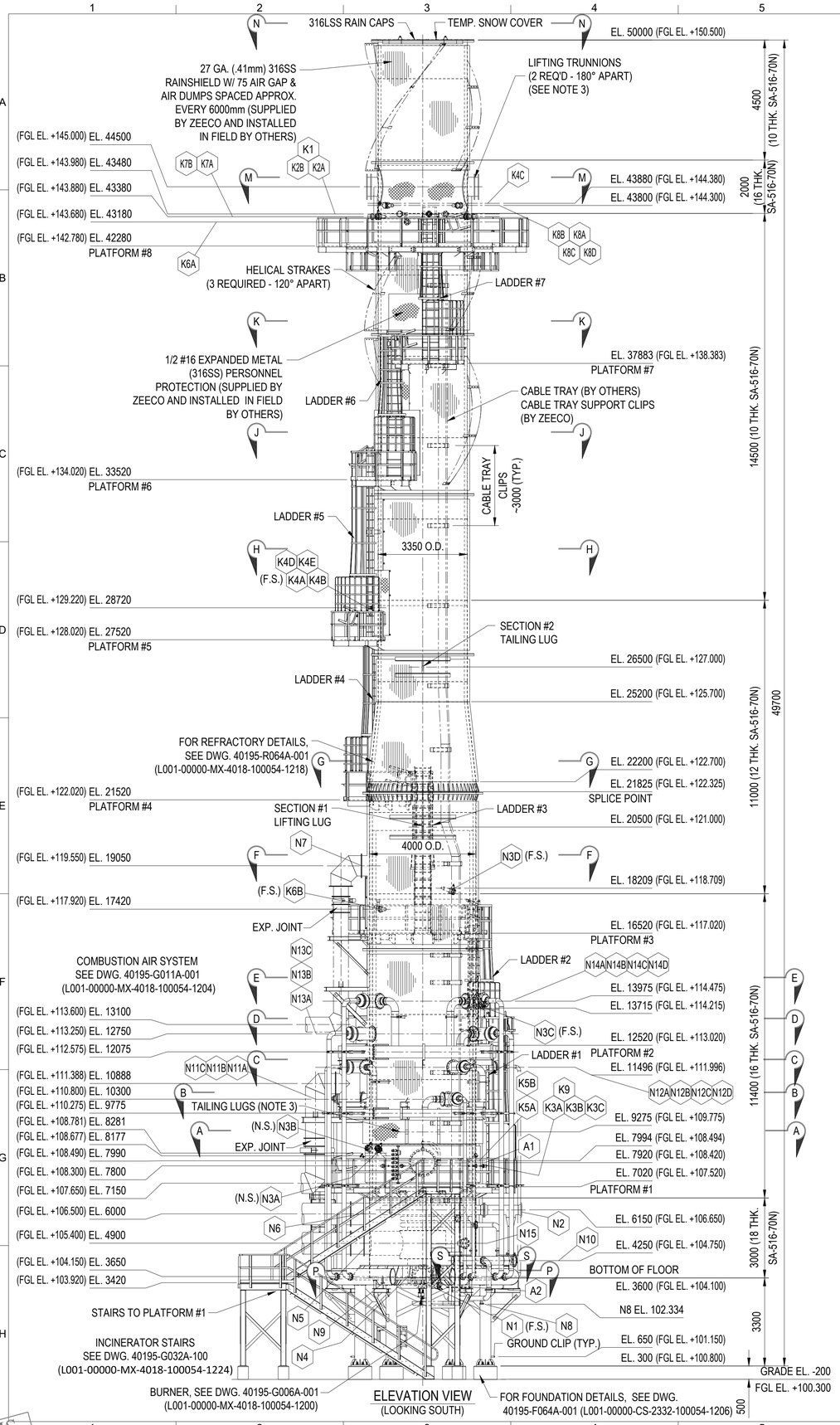
AGAT Laboratories

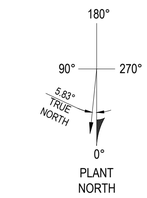
Thermocouple Calibration: 2025

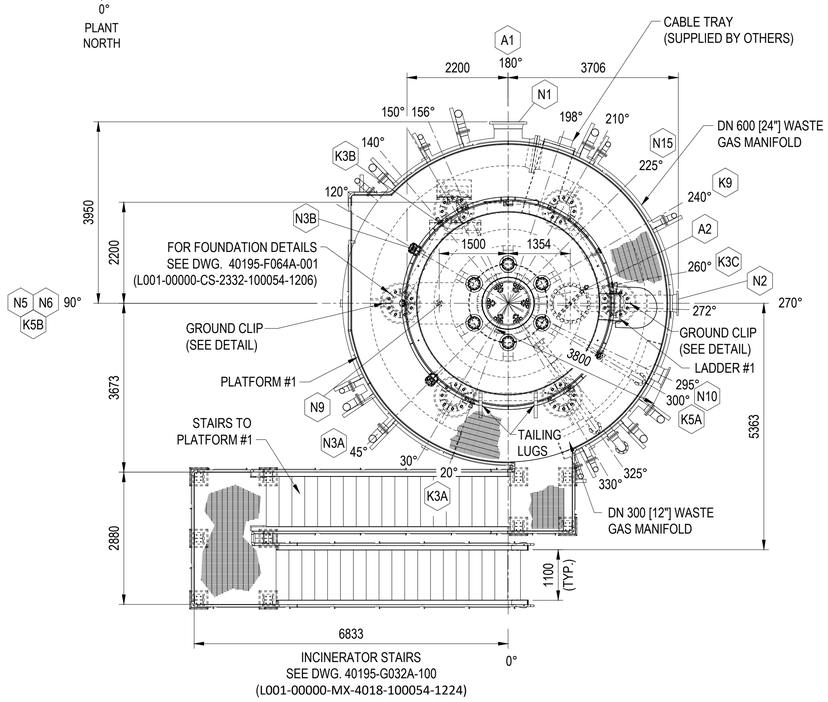
Thermocouple Calibration: Fluke S/N: 24450030 & 111108577 Thermometer Standard: VWR61016-208, QL Quincy Lab Inc. 76mm 1mm, C15, C4 Calibrated according to ASSC Method 2 Sec 4.3

	Ice					Boiling Water					Oven				
I.D	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff
Pitot Tube Thermocouples															
CGY5D	0.80	273.95	0.50	273.65	0.110	97.8	370.95	98.0	371.15	0.054	459.40	732.55	459.0	732.15	0.0546
CGY5A	1.00	274.15	0.50	273.65	0.183	97.1	370.25	98.0	371.15	0.242	449.00	722.15	448.0	721.15	0.1387
CGY8A	1.10	274.25	1.00	274.15	0.036	96.7	369.85	98.0	371.15	0.350	440.00	713.15	441.0	714.15	0.1400
CGY10 (New)	0.80	273.95	0.50	273.65	0.110	97.4	370.55	98.0	371.15	0.162	457.10	730.25	458.0	731.15	0.1231
CGY10A	1.20	274.35	1.00	274.15	0.073	96.8	369.95	98.0	371.15	0.323	429.00	702.15	430.0	703.15	0.1422
CGY12	1.00	274.15	1.00	274.15	0.000	97.6	370.75	98.0	371.15	0.108	459.00	732.15	460.0	733.15	0.1364
CGY12B	0.90	274.05	1.00	274.15	0.036	97.8	370.95	98.0	371.15	0.054	418.20	691.35	418.0	691.15	0.0289
CGY13	0.90	274.05	1.00	274.15	0.036	97	370.15	98.0	371.15	0.269	456.70	729.85	458.0	731.15	0.1778
EDM3	0.60	273.75	0.00	273.15	0.220	96.3	369.45	98.0	371.15	0.458	345.40	618.55	347.0	620.15	0.2580
EDM5 A (New)	0.50	273.65	0.00	273.15	0.183	96.4	369.55	98.0	371.15	0.431	327.40	600.55	327.0	600.15	0.0667
EDM5 B (New)	0.70	273.85	0.00	273.15	0.256	95.1	368.25	97.0	370.15	0.513	323.00	596.15	323.0	596.15	0.0000
EDM7	0.60	273.75	0.00	273.15	0.220	96.6	369.75	98.0	371.15	0.377	324.00	597.15	324.0	597.15	0.0000
EDM7 A (New)	1.10	274.25	0.00	273.15	0.403	95.0	368.15	97.0	370.15	0.540	324.00	597.15	324.0	597.15	0.0000
EDM8 A (New)	0.60	273.75	0.00	273.15	0.220	94.1	367.25	96.0	369.15	0.515	322.00	595.15	323.0	596.15	0.1677
EDM9 A (New)	0.60	273.75	0.00	273.15	0.220	94.2	367.35	96.0	369.15	0.488	331.00	604.15	331.0	604.15	0.0000
EDM9 B (New)	0.70	273.85	0.00	273.15	0.256	96.6	369.75	98.0	371.15	0.377	318.30	591.45	319.0	592.15	0.1182
EDM10A	0.60	273.75	0.00	273.15	0.220	94.4	367.55	96.0	369.15	0.433	329.10	602.25	329.0	602.15	0.0166
EDM15B	0.80	273.95	1.00	274.15	0.073	95	368.15	97.0	370.15	0.540	392.00	665.15	392.0	665.15	0.0000
EDM18	0.50	273.65	0.00	273.15	0.183	96.3	369.45	98.0	371.15	0.458	340.10	613.25	940.0	1213.15	49.45
GP 8	1.40	274.55	1.00	274.15	0.146	97	370.15	98.0	371.15	0.269	449.20	722.35	448.0	721.15	0.1664
GP10	1.10	274.25	1.00	274.15	0.036	96.9	370.05	98.0	371.15	0.296	441.00	714.15	440.0	713.15	0.1402
GP12	1.30	274.45	1.00	274.15	0.109	96.6	369.75	98.0	371.15	0.377	443.10	716.25	443.0	716.15	0.0140
GP13	1.00	274.15	1.10	274.25	0.036	97.3	370.45	98.0	371.15	0.189	467.30	740.45	468.0	741.15	0.0944
SRC5 A	2.10	275.25	1.00	274.15	0.401	96	369.15	97.0	370.15	0.270	380.00	653.15	381.0	654.15	0.1529
SRC5 B	1.50	274.65	1.00	274.15	0.182	95	368.15	97.0	370.15	0.540	407.10	680.25	409.0	682.15	0.2785
SRC5 - Spare	2.20	275.35	1.50	274.65	0.255	96.2	369.35	97.0	370.15	0.216	426.00	699.15	427.0	700.15	0.1428
SRC6	1.70	274.85	1.00	274.15	0.255	95.8	368.95	97.0	370.15	0.324	421.00	694.15	422.0	695.15	0.1439
SRC9B	1.70	274.85	1.00	274.15	0.255	96.4	369.55	97.0	370.15	0.162	432.20	705.35	431.0	704.15	0.1704
SRC9C	1.30	274.45	1.00	274.15	0.109	96.2	369.35	97.0	370.15	0.216	442.00	715.15	441.0	714.15	0.1400
SRC12B	1.50	274.65	1.00	274.15	0.182	96.6	369.75	97.0	370.15	0.108	446.60	719.75	445.0	718.15	0.2228
SRC13	0.90	274.05	1.00	274.15	0.036	96.2	369.35	97.0	370.15	0.216	416.10	689.25	415.0	688.15	0.1598
SRC-HT-5	1.70	274.85	1.00	274.15	0.255	96.8	369.95	97.0	370.15	0.054	411.50	684.65	411.0	684.15	0.0731

Appendix VI – Stack Diagram

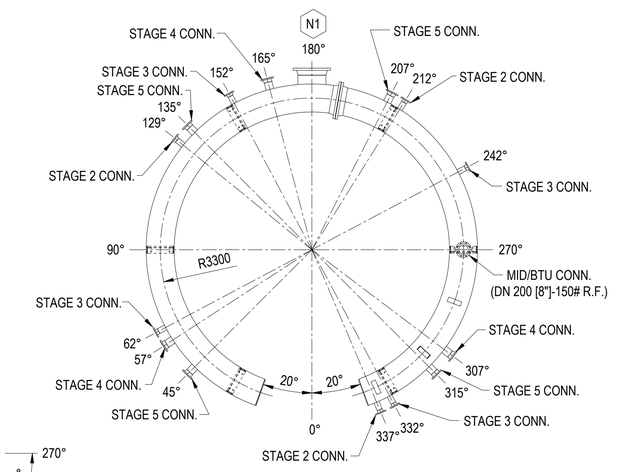


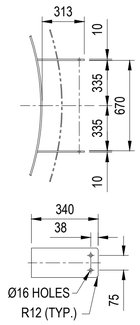




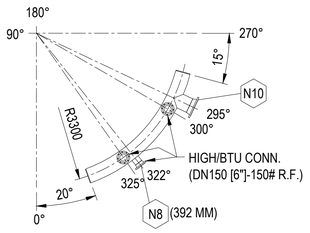
SECTION A-A

(PLATFORM #1 EL. 7020) (FGL EL. +107.520)





CABLE TRAY CLIP DETAIL



SECTION S-S

(DN 300 [12"] MANIFOLD EL. 4250) (FGL EL. +104.750)

SECTION P-P

(DN 600 [24"] MANIFOLD EL. 3650) (FGL EL. +104.150)
(STAGE 2 CONN. = DN 100 [4"]-150# R.F.)
(STAGE 3 CONN. = DN 100 [4"]-150# R.F.)
(STAGE 4 CONN. = DN 150 [6"]-150# R.F.)
(STAGE 5 CONN. = DN 150 [6"]-150# R.F.)

- GENERAL NOTES -

1. TWO UNITS REQUIRED.
2. FOR NOTES AND REFERENCE DRAWINGS SEE DRAWING 40195-G064A-001 (L001-00000-MX-4018-100054-1215.)
3. LIFTING TRUNNIONS AND TAILING LUGS TO BE REMOVED AFTER EQUIPMENT INSTALLATION IS COMPLETE.

CUSTOMER: JGC / FLUOR (JFJV) JOINT VENTURE
JOBSITE: KITIMAT, BRITISH COLUMBIA, CANADA
END USER: LNG CANADA
P.O. NO.: 0-7960-2-PJ2157-002-AK-L9GC100054

ZEECO, INC.
22151 EAST 91st STREET
BROKEN ARROW, OK 74014
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FAX: (918) 251-5519
www.zeeco.com
sales@zeeco.com

ACID GAS INCINERATOR GENERAL ARRANGEMENT SHEET 2

DRAWN	DATE
DAK	08AUG19
CHK	APP
JGH	AD
SCALE	APP
NONE	JM

PROPRIETARY DATA IS INCLUDED IN THE INFORMATION DISCLOSED HEREIN AND IS THE PROPERTY OF ZEECO,INC. THIS INFORMATION IS SUBMITTED IN CONFIDENCE AND MUST BE USED IN CONNECTION WITH WORK DONE FOR ZEECO, INC. OR ITS AGENTS. NO PART OF SUCH DATA MAY BE USED, REVEALED, UNAUTHORIZED DISCLOSURE OR USE IS PROHIBITED BY LAW.

S.O. NO.	DWG., SUB. CAT. & SYSTEM NO.	DWG. NO.	REV. NO.
40195	G064A	002	4

REV. NO.	DESCRIPTION	BY	CHKD	APVD	DATE
4	AS BUILT	EG	CWK	CLK	13/FEB/2025
3	APPROVED FOR CONSTRUCTION	CAW	CWK	CLK	21/OCT/2024
2	APPROVED FOR CONSTRUCTION	IND	VOU	A.D	18/AUG/2021
1	APPROVED FOR CONSTRUCTION	J.H	D.K	A.D	10/SEP/2020
0	APPROVED FOR CONSTRUCTION	J.H	D.K	A.D	30/MAR/2020
B	REVISED PER COMMENTS	J.H	D.K	A.D	02/OCT/2019
A	ISSUED FOR REVIEW	D.K	J.H	A.D	08/AUG/2019

REVISIONS

JGC | FLUOR BC LNG JV
PRIME CONTRACTOR TO LNG CANADA

LNG CANADA
Opportunity for British Columbia. Energy for the world

LNG CANADA PROJECT

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TITLE:

ACID GAS INCINERATOR GENERAL ARRANGEMENT SHEET 2

UNIT: U0000

LOCATION: KITIMAT, BRITISH COLUMBIA, CANADA

PLANT: LNG CANADA

DWG No.: L001-00000-MX-4018-100054-1216

SIZE: A1

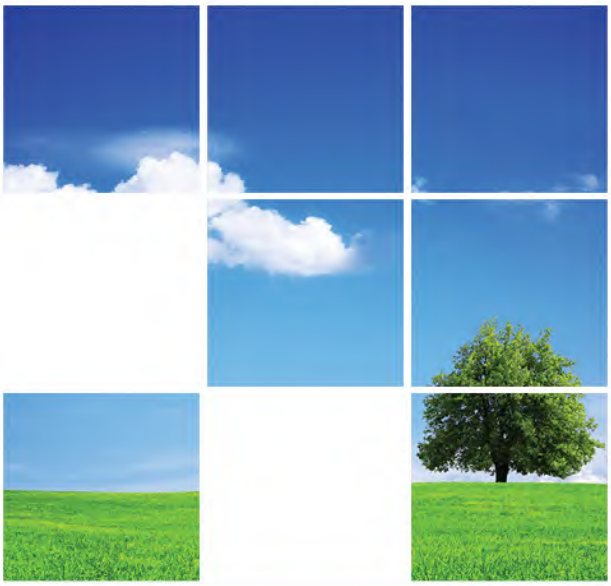
REV.: 4

FILE NAME: L001-00000-MX-4018-100054-1216_R4

J-DMS 25-Mar-2025 UNCONTROLLED WHEN PRINTED

1 NO COMMENTS. APPROVED
Authorization to proceed does not relieve Contractor/Supplier of its responsibility or liability under the Contract and or Purchase Order.
Next Issue Purpose :

END OF DOCUMENT



SOURCE EMISSION SURVEY

LNG Canada Development Inc.

LNG Canada Kitimat Liquified Natural (LNG) Gas Facility
Train 1 Natural Gas Turbine Engine (1E-4101A)
September 28, 2025

Prepared for:
LNG Canada Development Inc.
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Attention:
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AGAT Laboratories

Cover Letter

October 27, 2025

LNG Canada Development Inc.
LNG Canada Kitimat Liquified Natural Gas (LNG) Facility

Attention:	Mr. Tauseef Zia Siddiqui
Subject:	LNG Canada Kitimat Liquified Natural Gas (LNG) Facility – September 2025 Source Emission Survey

AGAT Laboratories' Source Testing Services Group is pleased to submit the following Source Emission Survey report. The test program conducted at the LNG Canada Development Inc. – LNG Canada Kitimat Liquified Natural Gas (LNG) Facility on September 28, 2025 was performed on the Train 1 Natural Gas Turbine Engine (1E-4101A). The parameters tested were Particulate Matter 2.5 ($PM_{2.5}$), Volatile Organic Compounds (VOCs), Total Hydrocarbons (THCs), Volumetric Flow and Sample Level Temperature. Cyclonic Flow testing was also conducted. This report was completed in accordance with Environment Canada EPS 1/PG/7 requirements.

If you have any questions or concerns regarding this report, please contact Mr. Shaun Hayward at (403) 299-2179, or via E-mail at **hayward@agatlabs.com**. Alternatively, please contact Mr. Richard Kenney at (403) 299-2184, or via E-mail at **rkenney@agatlabs.com.** Thank you for your patronage, and we look forward to being of service to you in the future.

Yours truly,

AGAT Laboratories Ltd.

Report Author: **Reviewed by:**

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Summary

AGAT Laboratories' Source Testing Services Group was retained by LNG Canada Development Inc. to perform a Source Emission Survey on the Train 1 Natural Gas Turbine Engine (1E-4101A) located at the LNG Canada Kitimat Liquified Natural Gas (LNG) Facility. The parameters tested were Particulate Matter 2.5 ($PM_{2.5}$), Volatile Organic Compounds (VOCs), Total Hydrocarbons (THCs), Volumetric Flow and Sample Level Temperature.

The Train 1 Natural Gas Turbine Engine (1E-4101A) at the LNG Canada Kitimat Liquified Natural Gas (LNG) Facility was operating under normal conditions at the time of the sampling program. These tests were conducted on September 28, 2025.

Stratification testing was not conducted at this time. Cyclonic Flow testing was conducted at this time; data results obtained from the source emission testing indicated that no cyclonic flow conditions were observed.

The Effluent Flow Measuring device was tested using a calibrated standard S-type Pitot tube fixed with a standardized K-Type thermocouple.

The protocols of US EPA 201A were followed to test for Total Particulate Matter and Particulate Matter 2.5. The protocols of US EPA 18 were followed to test for Volatile Organic Compounds (VOCs) and Total Hydrocarbons (THCs). The protocols of US EPA Method 1, 2, 3, and 4 and the British Columbia Field Sampling Manual Method 1, 2, 3 of part B-2 were used to test the Volumetric Flow and Temperature. The protocols of Environment Canada Report EPS 1/PG/7 (EC-PG7) were followed in order to complete the Source Emission Survey report.

Table 1: Summary of Source Emission Survey Results

Compliance Parameter	Units	Test 1 2025/09/28 10:00 – 10:59	Test 2 2025/09/28 11:30 – 12:31	Test 3 2025/09/28 13:00 – 14:00	Average
Stack Gas Measurements					
Volumetric Flow	**m^3/sec - wet**	118	118	122	**119**
	e^3m^3/day - wet	10,187	10,229	10,587	**10,334**
Stack Gas Velocity	**m/s**	14.4	14.5	15.2	**14.7**
Stack Temperature	**℃**	165	165	172	**167**
Water Content	**%**	7.52	7.30	7.76	**7.53**
Particulate Matter ($PM_{2.5}$)					
Concentration	**mg/dscm - dry**	1.98	2.51	1.38	**1.96**
	g/kg - dry	0.00167	0.00211	0.00116	**0.00165**
	g/kg - wet	0.00159	0.00201	0.00110	**0.00157**
Emission Rate	**kg/hr**	0.778	0.992	0.561	**0.777**
Volatile Organic Compounds (VOCs)**					
Concentration	**ppm - dry**	0.101	0.0238	0.0164	**0.0471**
	ppm - wet	0.0934	0.0221	0.0151	**0.0435**
	mg/m^3 - dry	0.252	0.0620	0.0437	**0.119**
	mg/m^3 - wet	0.233	0.0575	0.0403	**0.110**
Emission Rate	**kg/hr**	0.0988	0.0244	0.0177	**0.0470**
Total Hydrocarbon (THC)					
Concentration	**ppm - dry**	403	1280	898	**860**
	ppm - wet	373	1187	828	**796**
	mg/m^3 - dry	269	854	599	**574**
	mg/m^3 - wet	249	791	552	**531**
Emission Rate	**kg/hr**	106	337	243	**228**

Notes: *Reported at 760 mm Hg and 20°C.
**Minimum Detection Limits (MDL), along with full speciation breakdown can be found in Appendix I.

Table 2: Cyclonic Flow Results

Train 1 Natural Gas Turbine Engine (1E-4101A)												
	Port 1 - West			Port 2 - South			Port 3 - East			Port 4 - North		
	Test 1	Test 2	Difference	Test 1	Test 2	Difference	Test 1	Test 2	Difference	Test 1	Test 2	Difference
1	4	3	1.00	3	2	1.00	0	0	0.00	0	0	0.00
2	0	0	0.00	3	3	0.00	0	0	0.00	8	7	1.00
3	0	0	0.00	1	1	0.00	3	2	1.00	9	8	1.00
4	5	4	1.00	1	1	0.00	0	0	0.00	0	0	0.00
	***Absolute Average**		**0.500**	***Absolute Average**		**0.250**	***Absolute Average**		**0.250**	***Absolute Average**		**0.500**

Note: *Average of the absolute rotation angle values.

According to US EPA Method 1 Section 11.4, cyclonic flow occurs when the average of the absolute values of the null angles is greater than 20^{o}. Additionally, the difference between the angles in tests 1 and 2 cannot be greater than 5^{o}. Applying US EPA, cyclonic flow was found to be within approved limits.

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Part 1 – Introduction

1.1 Background Information

AGAT Laboratories' Source Testing Services Group was retained by Mr. Tauseef Zia Siddiqui of LNG Canada Development Inc. to perform a Source Emission Survey on the Train 1 Natural Gas Turbine Engine (1E-4101A) at the LNG Canada Kitimat Liquified Natural Gas (LNG) Facility. These tests were conducted on September 28, 2025.

1.2 Key Personnel

Mr. Marlon Soriano was the AGAT project manager and Mr. Tauseef Zia Siddiqui was the client contact and coordinator. Mr. Marlon Soriano and Mr. Vipul Katariya performed the on-site sampling program. Mrs. Hina Jahangir performed the data reduction and produced the final report.

1.3 Project Scope

Project scope included the evaluation of the following parameters from Train 1 Natural Gas Turbine Engine (1E-4101A):

i) Particulate Matter 2.5 ($PM_{2.5}$)
ii) Volatile Organic Compounds (VOCs)
iii) Total Hydrocarbon (THC)
iv) Cyclonic Flow
v) Volumetric Flow
vi) Sample Level Temperature

Part 2 – Test Procedure

2.1 Standard Methods

The protocols of US EPA 201A were followed to test for Total Particulate Matter and Particulate Matter 2.5. The protocols of US EPA 18 were followed to test for Volatile Organic Compounds (VOCs) and Total Hydrocarbons (THCs). The protocols of US EPA Method 1, 2, 3, and 4 and the British Columbia Field Sampling Manual Method 1, 2, 3 of part B-2 were used to test the Volumetric Flow and Temperature. The protocols of Environment Canada Report EPS 1/PG/7 (EC-PG7) were followed in order to complete the Source Emission Survey report.

Stack Gas Velocity, Temperature & Volumetric Flow Rates

Stack gas velocities, temperature and volumetric flow rates determined following the procedures as outlined in the *British Columbia Field Sampling Manual Method #2 – Determination of Stack Gas Velocity and Volumetric Flow Rates*. Stack gas velocity was determined from the moisture content of the stack gas as well as differential pressure and temperature measurements taken at six points at the centroid of the stack cross-section. Pressure differentials are measured by calibrated S-type Pitot tube and inclined oil manometer. Temperature measurements are made with a calibrated K-type thermocouple. Velocity, when multiplied by the cross-sectional area of the stack equates to the volumetric flow.

Stack Gas Moisture Content

Stack gas moisture content was determined following the procedures as outlined in *British Columbia Field Sampling Manual Method #4 – Determination of Moisture Content in Stack Gases*. Samples were collected from the centroid of the stack cross section, and the moisture fraction was condensed in an impinger train maintained in an ice bath. Moisture content was then measured onsite using the gravimetric method for each impinger, results from the individual impinger weights and exit temperature of the final impinger are recorded in Appendix IV. Moisture measurements were carried out simultaneously with each test run.

Oxygen & Carbon Dioxide

Oxygen and carbon dioxide samples were collected and analyzed following the procedure as outlined in the *British Columbia Field Sampling Manual Method #3 – Gas Analysis for the Determination of Dry Molecular Weight*. An integrated sample was taken over the test period using an evacuated cannister with a flow controller to sample over the test period.

Total Particulate Matter and Particulate Matter 2.5

Total Particulate Matter and Particulate 2.5 samples were collected and analyzed following the procedures outlined in the *US Environmental Protection Agency Method #201A – Determination of Particulate Matter and PM2.5 Emissions from Stationary Sources*. Samples were withdrawn from the stack through a sizing device, which separates particles with nominal aerodynamic diameters of 2.5 micrometers. Samples were also withdrawn isokinetically to determine *Total Particulate* emissions using additional analysis of the impinger catch. Particulate samples collected were analyzed gravimetrically. All samples were analyzed at an ISO/IEC 17025 accredited lab (Certificate of Accreditation can be found in Appendix II).

Total Hydrocarbons and Volatile Organic Compounds

Total hydrocarbon and Volatile Organic Compounds samples were collected and analyzed following the procedures as outlined in the *US EPA Method #18 - Measurement of Gaseous Organic Compound Emissions by Gas Chromatography.* Samples were withdrawn from the source and collected in evacuated canisters. The major organic components of the collected gas mixture were then separated by gas chromatography (GC) and individually quantified by flame ionization and thermal conductivity detection principles. The retention times of each separated component are used to identify the organic component and its concentration by comparing the observed values to those of known compounds. All samples were analyzed at an ISO/IEC 17025 accredited lab (Certificate of Accreditation can be found in Appendix III).

Cyclonic Flow

Cyclonic Flow was determined following the procedures outlined in the *US EPA Method #1 Section 11.4 – Verification of Absence of Cyclonic Flow.* Pressure differentials are measured by calibrated S-type Pitot tube and inclined oil manometer that has been levelled and zeroed at each traverse point. The measurement system is leak checked to 2” to 4” of W.C. prior to conducting the test. When levelled, the pitot tube is at “0^{o} reference”. The pitot tube is then rotated away from the 0^{o} reference angle until a null (zero) pitot reading is obtained. If the average of the absolute values of the rotation angles is greater than 20^{o}, cyclonic flow is present.

2.2 Quality Assurance/Quality Control

AGAT Laboratories Ltd. Source Testing department QA/QC protocols include, but are not limited to the following:

i) Regular maintenance and calibration of all field-sampling equipment as per applicable sampling protocols.

ii) On-site leak checks of sample system and pitot tubes.

iii) Proper sealing, labeling, storing, transport and chain of custody/log in procedures upon return of the laboratory, when applicable.

iv) Use of EPA Protocol 1 and RATA grade calibration gases, where applicable.

v) Linearity and response time checks are conducted on all analyzers prior to use.

vi) Calibration drift is checked during testing to assure instruments are performing within allowable limits.

vii) Technical review on all final lab analysis and final written source emission survey reports.

viii) Collected samples requiring laboratory analysis are performed by a ISO/IEC 17025 accredited lab.

Part 3- Discussion

3.1 Stack Characteristics

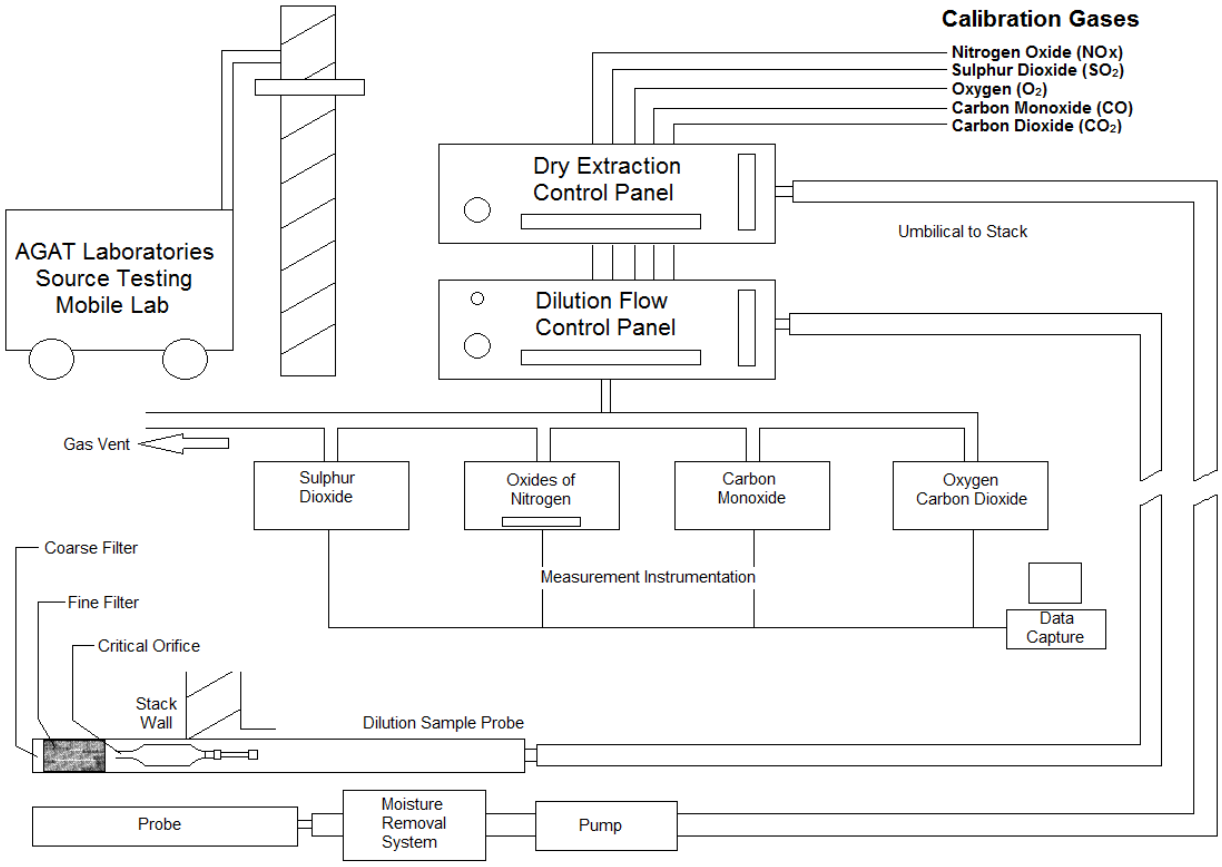
The Train 1 Natural Gas Turbine Engine (1E-4101A) at the LNG Canada Development Inc. - LNG Canada Kitimat Liquified Natural Gas (LNG) Facility has an internal stack diameter of 3.85m and a height of 60.0m. The sample points are located at an elevation of 51.03m, with the top of the transition section as last disturbance upstream at 34.56m (4.28 diameters), and the stack exit downstream at 60m (2.59 diameters).

3.2 Test Results

Stratification testing was not conducted at this time. Cyclonic Flow testing was conducted at this time; data results obtained from the source emission testing indicated that no cyclonic flow conditions were observed.

No problems were encountered during the sampling period that required corrective action. The test results obtained are an accurate representation of emission characteristics for the process conditions maintained at the LNG Canada Development Inc. - Train 1 Natural Gas Turbine Engine (1E-4101A) at LNG Canada Kitimat Liquified Natural Gas (LNG) Facility on the test date of September 28, 2025.

Figure 1: Schematic of the Mobile CEMS Instrumentation System



Appendix I – Emission Data & Calculations

Particulate Calculation for PM 2.5 **Turbine-1E-4101A** **9/28/2025**

LNG-CANADA **LNG-Kitimat**

Symbols	Variables	Units	Test 1 10:00 - 10:59	Test 2 11:30 - 12:31	Test 3 13:00 - 14:00	Average
Cs	PM 2.5 Concentration	gr/dscf	0.000866	0.001097	0.000602	0.000855
		mg/dscm dry	1.98	2.51	1.38	1.96
		g/kg dry	0.00167	0.00211	0.00116	0.00165
		g/kg wet	0.00159	0.00201	0.00110	0.00157
E	PM 2.5 Emission Rate	kg/hr	0.778	0.992	0.561	0.777
Qsd	Flow Rate	E3M3/Day wet	10,187	10,229	10,587	10,334
Vs	Stack Gas Velocity	ft/s	47.3	47.5	49.9	48.2
		m/s	14.4	14.5	15.2	14.7
Tsavg	Stack Gas Temp	Deg F	329	329	341	333
		Deg C	165	165	172	167
BwsCalc	Stack Moisture	%	7.52	7.30	7.76	7.53
Vmstd	Standard Dry Meter Volume	dscf	23.2	23.9	30.8	25.9
		dscm	0.656	0.677	0.871	0.735
mp	Mass of PM2.5	mg	1.30	1.70	1.20	1.40
Mwd	Dry Molecular Weight	lb/lb-mole	29.1	29.1	29.1	29.1
Msw	Wet Molecular Weight	lb/lb-mole	28.3	28.3	28.2	28.3
Vwstd	Total Water Vapour	scf	1.88	1.88	2.59	2.12
		scm	0.0533	0.0533	0.0733	0.0600

Formulas

kg/1000 kg (std) dry =	0.0244654	*(mp /(Vmstd*Mwd))
kg/1000 kg (std) wet =	0.0244654	*(mp/(Vmstd + Vwstd)*Mw)

Total Hydrocarbons (THC)

Parameter	THC as Methane	Test 1	Test 2	Test 3
	9/28/2025	**10:00 - 10:59**	**11:30 - 12:31**	**13:00 - 14:00**
Baro. Press.	(in. Hg)	29.57	29.57	29.57
DGM Factor	(Y)	0.9986	0.9986	0.9986
Meter Type	(**M**etric/**E**nglish)	English	English	English
Moisture	%	7.52	7.30	7.76
Gas Volume	(m^3 std.)	0.349	0.349	0.337
THC	(ppm dry sample)	403	1280	898
	(ppm wet sample)	372.7	1186.5	828.3
Flow Rate	(m^3/sec) - dry	109	110	113
	(m^3/sec) - wet	118	118	122

					Average
THC	**ppm - dry**	**403**	**1280**	**898**	**860**
	ppm - wet	**373**	**1187**	**828**	**796**
	mg/m^3 - dry	**269**	**854**	**599**	**574**
	mg/m^3 - wet	**249**	**791**	**552**	**531**
	kg/hr - dry	**105**	**338**	**244**	**229**
	kg/hr - wet	**106**	**337**	**243**	**228**

Minimum detection limit of THC is <1 ppm; in calculation of total average measurements, 1 ppm was used as <MDL.

Tstd. (oF) 77

Pstd. (in. Hg) 29.92

Train 1 Natural Gas Turbine Engine (1E-4101A) - Total VOC					
Compliance Parameter	**Units**	**Test 1 9/28/2025 10:00 – 10:59**	**Test 2 9/28/2025 11:30 – 12:31**	**Test 3 9/28/2025 13:00 – 14:00**	**Average**
Total VOC	**ppm - dry**	0.101	0.0238	0.0164	**0.0471**
Concentration	**ppm - wet**	0.0934	0.0221	0.0151	**0.0435**
	mg/m^3 - dry	0.252	0.0620	0.0437	**0.119**
	mg/m^3 - wet	0.233	0.0575	0.0403	**0.110**
Emission Rate	**kg/hr**	0.0988	0.0244	0.0177	**0.0470**

Water Content	**%**	7.52	7.30	7.76	**7.53**
Flow	**m^3/sec - wet**	118	118	122	**119**
	m^3/sec - dry	109	109	113	**110**

Train 1 Natural Gas Turbine Engine (1E-4101A) - Total VOC

Test 1
9/28/2025
10:00 – 10:59

Standard pressure:	mmHg	760
Standard Temperature:	deg C	20
Dry Flow Rate:	m3/s	109

$$mg/m3 = \frac{ppbv/1000 \times Molecular\ Weight}{Molar\ volume\ (24.05)}$$

$$kg/hr = \frac{mg/m3 \times Flow(m3/hr)}{1.00E+06}$$

			mg/m3	kg/hr
Total VOC	**ppbv**	**100.96**	**0.251524396**	**0.098812627**

BTEX			**ppbv**	**4.13**	**0.015758809**	**0.006190928**
Benzene	C6H6	78.114	ppbv	0.21	0.000682077	0.000267957
Toluene	C7H8	92.141	ppbv	3.82	0.014635286	0.005749546
Ethylbenzene	C8H10	106.168	ppbv	0	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.1	0.000441447	0.000173425

Compound	Formula	Molecular Weight (g/mol)	units	test 1	mg/m3	kg/hr
1,1,1-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1,2,2-Tetrachloroethane	C2H2Cl4	167.838	ppbv	< 0.02	0	0
1,1,2-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.02	0	0
1,1-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
1,2,3-Trimethylbenzene	C9H12	120.195	ppbv	< 0.05	0	0
1,2,4-Trichlorobenzene	C6H3Cl3	181.44	ppbv	< 0.3	0	0
1,2,4-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,2-Dibromoethane	C2H4Br2	187.862	ppbv	< 0.02	0	0
1,2-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.03	0	0
1,2-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.03	0	0
1,2-Dichloropropane	C3H6Cl2	112.981	ppbv	< 0.03	0	0
1,3,5-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,3-Butadiene	C4H6	54.092	ppbv	< 0.03	0	0
1,3-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dioxane	C4H8O2	88.106	ppbv	< 0.5	0	0
1-Butene/Isobutylene	C4H8	56.108	ppbv	0.46	0.001073168	0.000421599
1-Hexene/2-Methyl-1-pentene	C6H12	84.162	ppbv	< 0.07	0	0
1-Pentene	C5H10	70.135	ppbv	0.06	0.000174973	6.8739E-05
2,2,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,2-Dimethylbutane	C6H14	86.178	ppbv	< 0.02	0	0
2,3,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,3-Dimethylbutane	C6H14	86.178	ppbv	< 0.09	0	0
2,3-Dimethylpentane	C7H16	100.205	ppbv	< 0.02	0	0
2,4-Dimethylpentane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylheptane	C8H18	114.232	ppbv	< 0.02	0	0
2-Methylhexane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylpentane	C6H14	86.178	ppbv	0.02	7.16657E-05	2.81542E-05
3-Methylheptane	C8H18	114.232	ppbv	< 0.03	0	0
3-Methylhexane	C7H16	100.205	ppbv	< 0.02	0	0
3-Methylpentane	C6H14	86.178	ppbv	0.03	0.000107499	4.22313E-05
Acetone	C3H6O	58.08	ppbv	91.8	0.221694137	0.087093659
Acrolein	C3H4O	56.064	ppbv	1.2	0.002797372	0.001098962
Benzene	C6H6	78.114	ppbv	0.21	0.000682077	0.000267957
Benzyl chloride	C7H7Cl	126.583	ppbv	< 0.3	0	0
Bromodichloromethane	CHBrCl2	163.823	ppbv	< 0.03	0	0
Bromoform	CHBr3	252.731	ppbv	< 0.02	0	0
Bromomethane	CH3Br	94.939	ppbv	< 0.02	0	0

Carbon disulfide	CS2	76.131	ppbv	0.07	0.000221587	8.70516E-05
Carbon tetrachloride	CCl4	153.811	ppbv	< 0.02	0	0
Chlorobenzene	C6H5Cl	112.556	ppbv	< 0.02	0	0
Chloroethane	C2H5Cl	64.512	ppbv	0.03	8.04723E-05	3.1614E-05
Chloroform	CHCl3	119.369	ppbv	0.02	9.92674E-05	3.89977E-05
Chloromethane	CH3Cl	50.485	ppbv	0.19	0.000398842	0.000156687
cis-1,2-Dichloroethene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
cis-1,3-Dichloropropene	C3H4Cl2	110.965	ppbv	< 0.03	0	0
cis-2-Butene	C4H8	56.108	ppbv	0.03	6.99892E-05	2.74956E-05
cis-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Cyclohexane	C6H12	84.162	ppbv	< 0.04	0	0
Cyclopentane	C5H10	70.135	ppbv	0.02	5.83243E-05	2.2913E-05
Dibromochloromethane	CHBr2Cl	208.277	ppbv	< 0.02	0	0
Ethanol	C2H6O	46.069	ppbv	< 0.5	0	0
Ethyl acetate	C4H8O2	88.106	ppbv	< 0.3	0	0
Ethylbenzene	C8H10	106.168	ppbv	< 0.03	0	0
Freon-11	CCl3F	137.359	ppbv	0.05	0.00028557	0.000112187
Freon-113	C2Cl3F3	187.366	ppbv	< 0.02	0	0
Freon-114	C2Cl2F4	170.914	ppbv	< 0.03	0	0
Freon-12	CCl2F2	120.907	ppbv	0.1	0.000502732	0.000197501
Hexachloro-1,3-butadiene	C4Cl6	260.744	ppbv	< 0.3	0	0
Isobutane	C4H10	58.124	ppbv	< 0.03	0	0
Isopentane	C5H12	72.151	ppbv	0.44	0.001320018	0.000518576
Isoprene	C5H8	68.119	ppbv	< 0.02	0	0
Isopropyl alcohol	C3H8O	60.096	ppbv	0.6	0.001499277	0.000588998
Isopropylbenzene	C9H12	120.195	ppbv	< 0.04	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.1	0.000441447	0.000173425
m-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
m-Ethyltoluene	C9H12	120.195	ppbv	< 0.03	0	0
Methyl butyl ketone	C5H10O	86.134	ppbv	< 0.4	0	0
Methyl ethyl ketone	C4H8O	72.107	ppbv	0.5	0.001499106	0.000588931
Methyl isobutyl ketone	C6H12O	100.161	ppbv	< 0.3	0	0
Methyl methacrylate	C5H8O2	100.117	ppbv	< 0.08	0	0
Methyl tert butyl ether	C5H12O	88.15	ppbv	< 0.03	0	0
Methylcyclohexane	C7H14	98.189	ppbv	< 0.02	0	0
Methylcyclopentane	C6H12	84.162	ppbv	< 0.05	0	0
Methylene chloride	CH2Cl2	84.927	ppbv	< 0.3	0	0
n-Butane	C4H10	58.124	ppbv	0.22	0.000531696	0.000208879
n-Decane	C10H22	142.286	ppbv	< 0.06	0	0
n-Dodecane	C12H26	170.34	ppbv	< 0.3	0	0
n-Heptane	C7H16	100.205	ppbv	0.08	0.000333322	0.000130947
n-Hexane	C6H14	86.178	ppbv	0.08	0.000286663	0.000112617
n-Nonane	C9H20	128.259	ppbv	< 0.04	0	0
n-Octane	C8H18	114.232	ppbv	0.08	0.000379982	0.000149278
n-Pentane	C5H12	72.151	ppbv	0.67	0.002010028	0.00078965
n-Propylbenzene	C9H12	120.195	ppbv	< 0.06	0	0
n-Undecane	C11H24	156.313	ppbv	< 0.5	0	0
Naphthalene	C10H8	128.174	ppbv	< 0.3	0	0
o-Ethyltoluene	C9H12	120.195	ppbv	< 0.02	0	0
o-Xylene	C8H10	106.168	ppbv	0.04	0.000176579	6.93699E-05
p-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
p-Ethyltoluene	C9H12	120.195	ppbv	< 0.04	0	0
Styrene	C8H8	104.152	ppbv	< 0.04	0	0
Tetrachloroethylene	C2Cl4	165.822	ppbv	< 0.02	0	0
Tetrahydrofuran	C4H8O	72.107	ppbv	< 0.3	0	0
Toluene	C7H8	92.141	ppbv	3.82	0.014635286	0.005749546
trans-1,2-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.06	0	0
trans-1,3-Dichloropropylene	C3H4Cl2	110.965	ppbv	< 0.02	0	0
trans-2-Butene	C4H8	56.108	ppbv	0.04	9.33189E-05	3.66608E-05
trans-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Trichloroethylene	C2HCl3	131.38	ppbv	< 0.02	0	0
Vinyl acetate	C4H6O2	86.09	ppbv	< 0.3	0	0
Vinyl chloride	C2H3Cl	62.496	ppbv	< 0.02	0	0

Train 1 Natural Gas Turbine Engine (1E-4101A) - Total VOC

Test 2
9/28/2025
11:30 – 12:31

Standard pressure:	mmHg	760
Standard Temperature:	deg C	20
Dry Flow Rate:	m3/s	109

			mg/m3	kg/hr
Total VOC	ppbv	23.79	**0.062019383**	**0.024422588**

BTEX			**ppbv**	**2.51**	**0.009517227**	**0.003747785**
Benzene	C6H6	78.114	ppbv	0.24	0.000779516	0.000306965
Toluene	C7H8	92.141	ppbv	2.2	0.008428699	0.003319134
Ethylbenzene	C8H10	106.168	ppbv	0	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.07	0.000309013	0.000121686

Compound	Formula	Molecular Weight (g/mol)	units	test 2	mg/m3	kg/hr
1,1,1-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1,2,2-Tetrachloroethane	C2H2Cl4	167.838	ppbv	< 0.02	0	0
1,1,2-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.02	0	0
1,1-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
1,2,3-Trimethylbenzene	C9H12	120.195	ppbv	< 0.05	0	0
1,2,4-Trichlorobenzene	C6H3Cl3	181.44	ppbv	< 0.3	0	0
1,2,4-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,2-Dibromoethane	C2H4Br2	187.862	ppbv	< 0.02	0	0
1,2-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.03	0	0
1,2-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.03	0	0
1,2-Dichloropropane	C3H6Cl2	112.981	ppbv	< 0.03	0	0
1,3,5-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,3-Butadiene	C4H6	54.092	ppbv	< 0.03	0	0
1,3-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dioxane	C4H8O2	88.106	ppbv	< 0.5	0	0
1-Butene/Isobutylene	C4H8	56.108	ppbv	0.65	0.001516432	0.000597155
1-Hexene/2-Methyl-1-pentene	C6H12	84.162	ppbv	< 0.07	0	0
1-Pentene	C5H10	70.135	ppbv	0.03	8.74865E-05	3.44513E-05
2,2,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,2-Dimethylbutane	C6H14	86.178	ppbv	< 0.02	0	0
2,3,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,3-Dimethylbutane	C6H14	86.178	ppbv	< 0.09	0	0
2,3-Dimethylpentane	C7H16	100.205	ppbv	< 0.02	0	0
2,4-Dimethylpentane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylheptane	C8H18	114.232	ppbv	< 0.02	0	0
2-Methylhexane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
3-Methylheptane	C8H18	114.232	ppbv	< 0.03	0	0
3-Methylhexane	C7H16	100.205	ppbv	< 0.02	0	0
3-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
Acetone	C3H6O	58.08	ppbv	15.3	0.036949023	0.014550141
Acrolein	C3H4O	56.064	ppbv	2.5	0.005827859	0.00229495
Benzene	C6H6	78.114	ppbv	0.24	0.000779516	0.000306965
Benzyl chloride	C7H7Cl	126.583	ppbv	< 0.3	0	0
Bromodichloromethane	CHBrCl2	163.823	ppbv	< 0.03	0	0
Bromoform	CHBr3	252.731	ppbv	< 0.02	0	0
Bromomethane	CH3Br	94.939	ppbv	< 0.02	0	0

Carbon disulfide	CS2	76.131	ppbv	0.28	0.000886348	0.000349035
Carbon tetrachloride	CCl4	153.811	ppbv	< 0.02	0	0
Chlorobenzene	C6H5Cl	112.556	ppbv	< 0.02	0	0
Chloroethane	C2H5Cl	64.512	ppbv	< 0.02	0	0
Chloroform	CHCl3	119.369	ppbv	< 0.02	0	0
Chloromethane	CH3Cl	50.485	ppbv	0.18	0.00037785	0.000148794
cis-1,2-Dichloroethene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
cis-1,3-Dichloropropene	C3H4Cl2	110.965	ppbv	< 0.03	0	0
cis-2-Butene	C4H8	56.108	ppbv	0.05	0.000116649	4.5935E-05
cis-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Cyclohexane	C6H12	84.162	ppbv	< 0.04	0	0
Cyclopentane	C5H10	70.135	ppbv	< 0.02	0	0
Dibromochloromethane	CHBr2Cl	208.277	ppbv	< 0.02	0	0
Ethanol	C2H6O	46.069	ppbv	< 0.5	0	0
Ethyl acetate	C4H8O2	88.106	ppbv	< 0.3	0	0
Ethylbenzene	C8H10	106.168	ppbv	< 0.03	0	0
Freon-11	CCl3F	137.359	ppbv	0.04	0.000228456	8.99635E-05
Freon-113	C2Cl3F3	187.366	ppbv	< 0.02	0	0
Freon-114	C2Cl2F4	170.914	ppbv	< 0.03	0	0
Freon-12	CCl2F2	120.907	ppbv	0.08	0.000402185	0.000158376
Hexachloro-1,3-butadiene	C4Cl6	260.744	ppbv	< 0.3	0	0
Isobutane	C4H10	58.124	ppbv	0.22	0.000531696	0.000209376
Isopentane	C5H12	72.151	ppbv	0.47	0.00141002	0.000555251
Isoprene	C5H8	68.119	ppbv	< 0.02	0	0
Isopropyl alcohol	C3H8O	60.096	ppbv	0.4	0.000999518	0.0003936
Isopropylbenzene	C9H12	120.195	ppbv	< 0.04	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.07	0.000309013	0.000121686
m-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
m-Ethyltoluene	C9H12	120.195	ppbv	< 0.03	0	0
Methyl butyl ketone	C5H10O	86.134	ppbv	< 0.4	0	0
Methyl ethyl ketone	C4H8O	72.107	ppbv	0.3	0.000899464	0.000354199
Methyl isobutyl ketone	C6H12O	100.161	ppbv	< 0.3	0	0
Methyl methacrylate	C5H8O2	100.117	ppbv	< 0.08	0	0
Methyl tert butyl ether	C5H12O	88.15	ppbv	< 0.03	0	0
Methylcyclohexane	C7H14	98.189	ppbv	< 0.02	0	0
Methylcyclopentane	C6H12	84.162	ppbv	< 0.05	0	0
Methylene chloride	CH2Cl2	84.927	ppbv	< 0.3	0	0
n-Butane	C4H10	58.124	ppbv	0.35	0.000845879	0.000333099
n-Decane	C10H22	142.286	ppbv	< 0.06	0	0
n-Dodecane	C12H26	170.34	ppbv	< 0.3	0	0
n-Heptane	C7H16	100.205	ppbv	0.04	0.000166661	6.56294E-05
n-Hexane	C6H14	86.178	ppbv	0.03	0.000107499	4.23318E-05
n-Nonane	C9H20	128.259	ppbv	< 0.04	0	0
n-Octane	C8H18	114.232	ppbv	0.07	0.000332484	0.000130929
n-Pentane	C5H12	72.151	ppbv	0.21	0.000630009	0.000248091
n-Propylbenzene	C9H12	120.195	ppbv	< 0.06	0	0
n-Undecane	C11H24	156.313	ppbv	< 0.5	0	0
Naphthalene	C10H8	128.174	ppbv	< 0.3	0	0
o-Ethyltoluene	C9H12	120.195	ppbv	< 0.02	0	0
o-Xylene	C8H10	106.168	ppbv	< 0.03	0	0
p-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
p-Ethyltoluene	C9H12	120.195	ppbv	< 0.04	0	0
Styrene	C8H8	104.152	ppbv	< 0.04	0	0
Tetrachloroethylene	C2Cl4	165.822	ppbv	< 0.02	0	0
Tetrahydrofuran	C4H8O	72.107	ppbv	< 0.3	0	0
Toluene	C7H8	92.141	ppbv	2.2	0.008428699	0.003319134
trans-1,2-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.06	0	0
trans-1,3-Dichloropropylene	C3H4Cl2	110.965	ppbv	< 0.02	0	0
trans-2-Butene	C4H8	56.108	ppbv	0.08	0.000186638	7.3496E-05
trans-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Trichloroethylene	C2HCl3	131.38	ppbv	< 0.02	0	0
Vinyl acetate	C4H6O2	86.09	ppbv	< 0.3	0	0
Vinyl chloride	C2H3Cl	62.496	ppbv	< 0.02	0	0

Train 1 Natural Gas Turbine Engine (1E-4101A) - Total VOC

Standard pressure: mmHg 760
Standard Temperature: deg C 20

Test 3
9/28/2025
13:00 – 14:00

Dry Flow Rate: m3/s 113

					mg/m3	kg/hr
Total VOC			ppbv	16.42	**0.04367321**	**0.017692807**

BTEX			**ppbv**	**2.16**	**0.008042152**	**0.003258021**
Benzene	C6H6	78.114	ppbv	0.46	0.001494072	0.000605276
Toluene	C7H8	92.141	ppbv	1.64	0.006283212	0.002545443
Ethylbenzene	C8H10	106.168	ppbv	0	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.06	0.000264868	0.000107303

Compound	Formula	Molecular Weight (g/mol)	units	test 3	mg/m3	kg/hr
1,1,1-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1,2,2-Tetrachloroethane	C2H2Cl4	167.838	ppbv	< 0.02	0	0
1,1,2-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.02	0	0
1,1-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
1,2,3-Trimethylbenzene	C9H12	120.195	ppbv	< 0.05	0	0
1,2,4-Trichlorobenzene	C6H3Cl3	181.44	ppbv	< 0.3	0	0
1,2,4-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,2-Dibromoethane	C2H4Br2	187.862	ppbv	< 0.02	0	0
1,2-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.03	0	0
1,2-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.03	0	0
1,2-Dichloropropane	C3H6Cl2	112.981	ppbv	< 0.03	0	0
1,3,5-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,3-Butadiene	C4H6	54.092	ppbv	< 0.03	0	0
1,3-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dioxane	C4H8O2	88.106	ppbv	< 0.5	0	0
1-Butene/Isobutylene	C4H8	56.108	ppbv	0.69	0.001609751	0.000652139
1-Hexene/2-Methyl-1-pentene	C6H12	84.162	ppbv	< 0.07	0	0
1-Pentene	C5H10	70.135	ppbv	0.03	8.74865E-05	3.54424E-05
2,2,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,2-Dimethylbutane	C6H14	86.178	ppbv	< 0.02	0	0
2,3,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,3-Dimethylbutane	C6H14	86.178	ppbv	< 0.09	0	0
2,3-Dimethylpentane	C7H16	100.205	ppbv	< 0.02	0	0
2,4-Dimethylpentane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylheptane	C8H18	114.232	ppbv	< 0.02	0	0
2-Methylhexane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
3-Methylheptane	C8H18	114.232	ppbv	< 0.03	0	0
3-Methylhexane	C7H16	100.205	ppbv	< 0.02	0	0
3-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
Acetone	C3H6O	58.08	ppbv	8.7	0.021010229	0.008511624
Acrolein	C3H4O	56.064	ppbv	2.6	0.006060973	0.00245541
Benzene	C6H6	78.114	ppbv	0.46	0.001494072	0.000605276
Benzyl chloride	C7H7Cl	126.583	ppbv	< 0.3	0	0
Bromodichloromethane	CHBrCl2	163.823	ppbv	< 0.03	0	0
Bromoform	CHBr3	252.731	ppbv	< 0.02	0	0
Bromomethane	CH3Br	94.939	ppbv	< 0.02	0	0

Carbon disulfide	CS2	76.131	ppbv	0.37	0.001171246	0.000474493
Carbon tetrachloride	CCl4	153.811	ppbv	< 0.02	0	0
Chlorobenzene	C6H5Cl	112.556	ppbv	< 0.02	0	0
Chloroethane	C2H5Cl	64.512	ppbv	< 0.02	0	0
Chloroform	CHCl3	119.369	ppbv	< 0.02	0	0
Chloromethane	CH3Cl	50.485	ppbv	0.22	0.000461817	0.00018709
cis-1,2-Dichloroethene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
cis-1,3-Dichloropropene	C3H4Cl2	110.965	ppbv	< 0.03	0	0
cis-2-Butene	C4H8	56.108	ppbv	0.08	0.000186638	7.56104E-05
cis-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Cyclohexane	C6H12	84.162	ppbv	< 0.04	0	0
Cyclopentane	C5H10	70.135	ppbv	< 0.02	0	0
Dibromochloromethane	CHBr2Cl	208.277	ppbv	< 0.02	0	0
Ethanol	C2H6O	46.069	ppbv	< 0.5	0	0
Ethyl acetate	C4H8O2	88.106	ppbv	< 0.3	0	0
Ethylbenzene	C8H10	106.168	ppbv	< 0.03	0	0
Freon-11	CCl3F	137.359	ppbv	0.06	0.000342684	0.000138827
Freon-113	C2Cl3F3	187.366	ppbv	0.02	0.000155814	6.3123E-05
Freon-114	C2Cl2F4	170.914	ppbv	< 0.03	0	0
Freon-12	CCl2F2	120.907	ppbv	0.13	0.000653551	0.000264765
Hexachloro-1,3-butadiene	C4Cl6	260.744	ppbv	< 0.3	0	0
Isobutane	C4H10	58.124	ppbv	0.18	0.000435024	0.000176236
Isopentane	C5H12	72.151	ppbv	0.5	0.001500021	0.000607686
Isoprene	C5H8	68.119	ppbv	< 0.02	0	0
Isopropyl alcohol	C3H8O	60.096	ppbv	< 0.3	0	0
Isopropylbenzene	C9H12	120.195	ppbv	< 0.04	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.06	0.000264868	0.000107303
m-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
m-Ethyltoluene	C9H12	120.195	ppbv	< 0.03	0	0
Methyl butyl ketone	C5H10O	86.134	ppbv	< 0.4	0	0
Methyl ethyl ketone	C4H8O	72.107	ppbv	< 0.3	0	0
Methyl isobutyl ketone	C6H12O	100.161	ppbv	< 0.3	0	0
Methyl methacrylate	C5H8O2	100.117	ppbv	< 0.08	0	0
Methyl tert butyl ether	C5H12O	88.15	ppbv	< 0.03	0	0
Methylcyclohexane	C7H14	98.189	ppbv	< 0.02	0	0
Methylcyclopentane	C6H12	84.162	ppbv	< 0.05	0	0
Methylene chloride	CH2Cl2	84.927	ppbv	< 0.3	0	0
n-Butane	C4H10	58.124	ppbv	0.27	0.000652536	0.000264354
n-Decane	C10H22	142.286	ppbv	< 0.06	0	0
n-Dodecane	C12H26	170.34	ppbv	< 0.3	0	0
n-Heptane	C7H16	100.205	ppbv	< 0.04	0	0
n-Hexane	C6H14	86.178	ppbv	0.03	0.000107499	4.35496E-05
n-Nonane	C9H20	128.259	ppbv	< 0.04	0	0
n-Octane	C8H18	114.232	ppbv	0.07	0.000332484	0.000134695
n-Pentane	C5H12	72.151	ppbv	0.21	0.000630009	0.000255228
n-Propylbenzene	C9H12	120.195	ppbv	< 0.06	0	0
n-Undecane	C11H24	156.313	ppbv	< 0.5	0	0
Naphthalene	C10H8	128.174	ppbv	< 0.3	0	0
o-Ethyltoluene	C9H12	120.195	ppbv	< 0.02	0	0
o-Xylene	C8H10	106.168	ppbv	< 0.03	0	0
p-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
p-Ethyltoluene	C9H12	120.195	ppbv	< 0.04	0	0
Styrene	C8H8	104.152	ppbv	< 0.04	0	0
Tetrachloroethylene	C2Cl4	165.822	ppbv	< 0.02	0	0
Tetrahydrofuran	C4H8O	72.107	ppbv	< 0.3	0	0
Toluene	C7H8	92.141	ppbv	1.64	0.006283212	0.002545443
trans-1,2-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.06	0	0
trans-1,3-Dichloropropylene	C3H4Cl2	110.965	ppbv	< 0.02	0	0
trans-2-Butene	C4H8	56.108	ppbv	0.1	0.000233297	9.4513E-05
trans-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Trichloroethylene	C2HCl3	131.38	ppbv	< 0.02	0	0
Vinyl acetate	C4H6O2	86.09	ppbv	< 0.3	0	0
Vinyl chloride	C2H3Cl	62.496	ppbv	< 0.02	0	0

METHOD 201A - PM10/2.5 SAMPLING TITLE PAGE

Source Information				
Plant Name	LNG-CANADA			
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)			
Fuel or Source Type				
Fuel F-Factor				

Test Information			
Starting Test Date		09/28/25	
Project #		25C338707	
Operator		MS-VK	
Standard Temperature		68	^{o}F
Standard Pressure		30	in Hg
Run Duration		60	Minutes
Base Run Number		1	
# of Ports Available		4	
# of Ports Used		4	
Port Inside Diameter		4	in
Circular Stack?		☑	
Rectangular Stack?		☐	

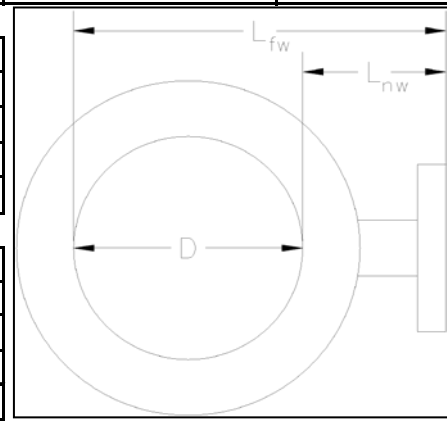
Test Equipment Information			
Orifice Meter Coefficient	($\Delta H_{@}$)	1.965	in H_2O
Meterbox Calibration Factor	(Y)	0.999	
Pitot Identification		PB9C	
Pitot Tube Coefficient	(C_p)	0.819	
Method 201A Pitot Coefficient	(C'_p)	0.819	
Sample Case/Oven Number		1	
Impinger Case Number		1.0000	in
Probe Number		PB9C	
Probe Length		100.00	in
(SS, Glass ....) **Liner Material**		SS	
PM10 Cyclone		☐	
PM2.5 Cyclone		☑	
Combination Cyclone		☐	

Testing Company Information	
Company Name	AGAT Laboratories Ltd
Address	3700, 21 Street NE
City, State Country Zip	Calgary,Alberta, T2E 6V6
Project Manager	Shaun Hayward
Phone Number	403-299-2179
Fax Number	

METHOD 1 - SAMPLE AND VELOCITY TRAVERSES FOR CIRCULAR SOURCES

Plant Name	LNG-CANADA	**Date**	09/28/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)	**Project #**	25C338707
Operator	MS-VK	**# of Ports Available**	4
Stack Type	Circular	**# of Ports Used**	4
Stack Size	Large	**Port Inside Diameter**	4

Circular Stack or Duct Diameter			
Distance to Far Wall of Stack	(L_{fw})	165.30	in
Distance to Near Wall of Stack	(L_{nw})	9.00	in
(=Lfw - Lnw) **Diameter of Stack**	(D)	156.30	in
(=3.14(D/2/Cunits)2) **Area of Stack**	(A_s)	133.24	ft^2

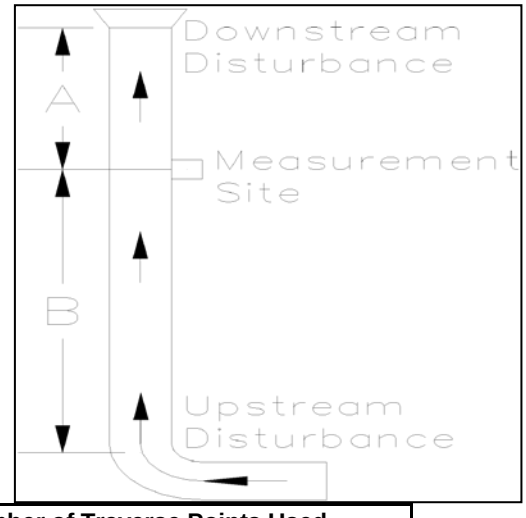


Distance from Port to Disturbances			
Distance Upstream	(B)	655.31	in
(=B/D) **Diameters Upstream**	(B_D)	4.19	diameters
Distance Downstream	(A)	353.19	in
(=A/D) **Diameters Downstream**	(A_D)	2.26	diameters

Number of Traverse Points Required			
Diameters to Flow Disturbance		**Minimum Number of[1] Traverse Points**	
Up Stream	**Down Stream**	**Particulate Points**	**Velocity Points**
2.00-4.99	0.50-1.24	24	16
5.00-5.99	1.25-1.49	20	16
6.00-6.99	1.50-1.74	16	12
7.00-7.99	1.75-1.99	12	12
>= 8.00	>=2.00	8 or 12[2]	8 or 12[2]
Upstream Spec		24	16
Downstream Spec		12	12
Traverse Pts Required		24	16

[1] Check Minimum Number of Points for the Upstream and Downstream conditions, then use the largest.

[2] 8 for Circular Stacks 12 to 24 inches
12 for Circular Stacks over 24 inches



Number of Traverse Points Used			
4	**Ports by**	4	**Across**
16	**Pts Used**	16	**Required**
☑	**Particulate**	☐	**Velocity**

Location of Traverse Points in Circular Stacks

Traverse Point Number	(Fraction of Stack Diameter from Inside Wall to Traverse Point) Number of Traverse Points on a Diameter					
	2	4	6	8	10	12
1	.146	.067	.044	.032	.026	.021
2	.854	.250	.146	.105	.082	.067
3		.750	.296	.194	.146	.118
4		.933	.704	.323	.226	.177
5			.854	.677	.342	.250
6			.956	.806	.658	.356
7				.895	.774	.644
8				.968	.854	.750
9					.918	.823
10					.974	.882
11						.933
12						.979

Traverse Point Locations			
Traverse Point Number	**Fraction of Stack Diameter**	**Distance from Inside Wall**	**Distance Including Nipple Length**
		in	in
1	0.032	5	14
2	0.105	16 3/8	25 3/8
3	0.194	30 3/8	39 3/8
4	0.323	50 4/8	59 4/8
5			
6			
7			
8			
9			
10			
11			
12			

DETERMINATION OF STACK GAS VELOCITY AND DWELL TIMES

Plant Name	LNG-CANADA				**Date**	09/28/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)				**Project #**	25C338707
Operator	MS-VK				**# of Ports Used**	4
Stack Type	Circular				**Pitot Identification**	PB9C
Pitot Leak Check	☑	**PreTest**	☑	**PostTest**	**Pitot Coefficient (C_p)**	0.819

Stack Dimensions			
Diameter or Length of Stack	(D)	156.30	in
Width of Stack	(W)		in
Area of Stack	(A_s)	133.24	ft^2

Pressures			
Barometric Pressure	(P_b)	29.57	in Hg
Static Pressure	(P_{static})	-0.42	in H_2O
Absolute Stack Pressure	(P_s)	29.54	in Hg

Stack Gas Composition				
Composition Data:	**Actual**	☐	**Estimate**	☑
Carbon Dioxide Concentration	($\%CO_2$)	3.0	%	
Oxygen Concentration	($\%O_2$)	16.0	%	
Carbon Monoxide Concentration	(%CO)	0.0	%	
Nitrogen Concentration	($\%N_2$)	81.0	%	
Stack Moisture Content	(B_{ws})	7.000		
Stack Dry Molecular Weight	(M_d)	29.12	lb/lb-mole	
Stack Wet Molecular Weight	(M_s)	28.34	lb/lb-mole	

Results			
Avg Stack Gas Velocity	(v_s)	46.5	ft/sec
Avg Stack Dry Std Flow Rate	(Q_{sd})	13718277	dscf/hr
Avg Stack Dry Std Flow Rate	(Q_{sd})	228638	dscf/min
Avg Stack Wet Flow Rate	(Q_{aw})	371610	acf/min

Stack Cross Section Schematic

Velocity Traverse and Dwell Times

Total Number of Points		16	
Run Time		60.00	

Traverse Point	**Velocity Head** (Δp)	**Stack Temp** (t_s)	**Local Velocity** $(v_s)_l$	**Dwell Times** (t_d)
	in H_2O	^oF	ft/sec	min
A-1	0.43	328	44.5	3.6
A-2	0.46	328	46.1	3.7
A-3	0.49	328	47.5	3.8
A-4	0.51	328	48.5	3.9
B-1	0.43	328	44.5	3.6
B-2	0.48	328	47.1	3.8
B-3	0.51	328	48.5	3.9
B-4	0.49	328	47.5	3.8
C-1	0.43	328	44.5	3.6
C-2	0.46	328	46.1	3.7
C-3	0.49	328	47.5	3.8
C-4	0.51	328	48.5	3.9
D-1	0.42	328	44.0	3.6
D-2	0.46	328	46.1	3.7
D-3	0.47	328	46.6	3.8
D-4	0.46	327	46.0	3.7
Average[1]	0.68	328	46	

[1] Please report the average of the square roots of Δp, or, $(\Delta p)^{1/2}_{avg} = {}^1/_n\Sigma(\Delta p^{1/2})$

Formulas Used

$A_s = DW/K_u$ for Rectangular Stacks

$A_s = (\pi(D/2)^2)/K_u$ for Circular Stacks

where $K_u = 1$ for metric units

where $K_u = 144$ (in^2/ft^2) for English units

$P_s = P_{bar} + P_{static}/13.6$

$\%N_2 = 100 - \%CO_2 - \%O_2 - \%CO$

$M_d = .44(\%CO_2) + .32(\%O_2) + .28(\%N_2 + \%CO)$

$M_s = M_d(1 - B_{ws}) + 18B_{ws}$

$(\Delta p)^{1/2}_{avg} = {}^1/_n\Sigma(\Delta p^{1/2})$

$T_{s(avg)} = {}^1/_n\Sigma t_s + T_u$

where $T_u = 273\ ^oK$ for metric units

where $T_u = 460\ ^oR$ for English units

$v_s = K_pC_p(\Delta p)^{1/2}_{avg}\ (T_{s(avg)}/(P_sM_s))^{1/2}$

where $K_p = 34.97$ for metric units

where $K_p = 85.49$ for English units

$Q_{sd} = 3600(1 - B_{ws})v_sA_s(T_{std}/T_{s(avg)})(P_s/P_{std})$

where $T_{std} = 293\ ^oK$, $P_{std} = 760$ mm Hg, for metric units

where $T_{std} = 528\ ^oR$, $P_{std} = 29.92$ in Hg, for English units

METHOD 3 - GAS ANALYSIS FOR THE DETERMINATION OF DRY MOLECULAR WEIGHT

Plant Name	LNG-CANADA			**Date**	09/28/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)			**Project #**	25C338707
Operator	MS-VK			**# of Ports Used**	4
Fuel Type		**Minimum Fuel Factor**		**Maximum Fuel Factor**	
Orsat Leak Check	☑ PreTest	☑ PostTest		**Orsat Identification**	

Gas Analysis Data

Run Number	1			**Run Start Time**	10:00		**Run Stop Time**	10:59
Sample Analysis Time	**Carbon Dioxide Volume** (V_{CO2})	**Oxygen Volume** (V_{O2})	**Carbon Monoxide Volume** (V_{CO})	**Carbon Dioxide Conc.** (%CO_2)	**Oxygen Conc.** (%O_2)	**Carbon Monoxide Conc.** (%CO)	**Nitrogen Conc.** (%N_2)	**Dry Molecular Weight** (M_d)	**Molecular Weight Deviation** (ΔM_d)
hh:mm	ml	ml	ml	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole
	3.0	19.0	19.0	3.0	16.0	0.0	81.0	29.12	0.00
	3.0	19.0	19.0	3.0	16.0	0.0	81.0	29.12	0.00
	3.0	19.0	19.0	3.0	16.0	0.0	81.0	29.12	0.00
Results			**Averages**	3.0	16.0	0.0	81.0	29.12	
Average Calculated Fuel Factor			$(F_o)_{avg}$	1.633		**Molecular Wt Deviation < 0.3?**			☑
Average Excess Air			$(\%EA)_{avg}$	297.2	percent	**Fuel Factor in Handbook Range?**			☑

Gas Analysis Data

Run Number	2			**Run Start Time**	11:30		**Run Stop Time**	12:31
Sample Analysis Time	**Carbon Dioxide Volume** (V_{CO2})	**Oxygen Volume** (V_{O2})	**Carbon Monoxide Volume** (V_{CO})	**Carbon Dioxide Conc.** (%CO_2)	**Oxygen Conc.** (%O_2)	**Carbon Monoxide Conc.** (%CO)	**Nitrogen Conc.** (%N_2)	**Dry Molecular Weight** (M_d)	**Molecular Weight Deviation** (ΔM_d)
hh:mm	ml	ml	ml	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole
	3.0	18.0	18.0	3.0	15.0	0.0	82.0	29.08	0.00
	3.0	18.0	18.0	3.0	15.0	0.0	82.0	29.08	0.00
	3.0	18.0	18.0	3.0	15.0	0.0	82.0	29.08	0.00
Results			**Averages**	3.0	15.0	0.0	82.0	29.08	
Average Calculated Fuel Factor			$(F_o)_{avg}$	1.967		**Molecular Wt Deviation < 0.3?**			☐
Average Excess Air			$(\%EA)_{avg}$	225.6	percent	**Fuel Factor in Handbook Range?**			☐

Gas Analysis Data

Run Number	3			**Run Start Time**	13:00		**Run Stop Time**	14:02
Sample Analysis Time	**Carbon Dioxide Volume** (V_{CO2})	**Oxygen Volume** (V_{O2})	**Carbon Monoxide Volume** (V_{CO})	**Carbon Dioxide Conc.** (%CO_2)	**Oxygen Conc.** (%O_2)	**Carbon Monoxide Conc.** (%CO)	**Nitrogen Conc.** (%N_2)	**Dry Molecular Weight** (M_d)	**Molecular Weight Deviation** (ΔM_d)
hh:mm	ml	ml	ml	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole
	3.0	18.0	18.0	3.0	15.0	0.0	82.0	29.08	0.00
	3.0	18.0	18.0	3.0	15.0	0.0	82.0	29.08	0.00
	3.0	18.0	18.0	3.0	15.0	0.0	82.0	29.08	0.00
Results			**Averages**	3.0	15.0	0.0	82.0	29.08	
Average Calculated Fuel Factor			$(F_o)_{avg}$	1.967		**Molecular Wt Deviation < 0.3?**			☐
Average Excess Air			$(\%EA)_{avg}$	225.6	percent	**Fuel Factor in Handbook Range?**			☐

Fuel Factor Fo

Fuel Type	**Minimum**	**Maximum**
Coal, Anthracite	1.016	1.130
Coal, Lignite	1.016	1.130
Coal, Bituminous	1.083	1.230
Oil, Distillate	1.260	1.413
Oil, Residual	1.210	1.370
Gas, Natural	1.600	1.836
Gas, Propane	1.434	1.586
Gas, Butane	1.405	1.553
Wood	1.000	1.120
Wood Bark	1.003	1.130

Formulas Used

$\%CO_2 = V_{CO2}$

$\%O_2 = V_{O2} - V_{CO2}$

$\%CO = V_{CO} - V_{O2}$

$\%N_2 = 100 - \%CO_2 - \%O_2 - \%CO$

$M_d = .44(\%CO_2) + .32(\%O_2) + .28(\%N_2 + \%CO)$

$\Delta M_d = M_d - M_{davg}$

$F_o = (20.9 - \%O_2 - .5\%CO)/(\%CO_2 + \%CO)$

$\%EA = 100(\%O_2 - .5\%CO)/(.264\%NO_2 - (\%O_2 - .5\%CO))$

METHOD 4 - DETERMINATION OF MOISTURE CONTENT IN STACK GASES

Plant Name	LNG-CANADA	**Date**	09/28/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)	**Project #**	25C338707
Operator	MS-VK	**# of Ports Used**	4
Stack Type	Circular	**Meter Box Number**	M5-5
Train Leak Check	☑ PreTest ☑ PostTest	**Meter Cal Factor (Y)**	0.9986

Moisture Content Data								
Run Number	1		**Run Start Time**	10:00		**Run Stop Time**		10:59
Total Meter Volume	(V_m)	22.640	dcf	**Barometric Press.**		(P_b)	29.57	in Hg
Avg Meter Temp	$(t_m)_{avg}$	50	°F	**Stack Static Press.**		(P_{static})	-0.42	in H_2O
Avg Stack Temp	$(t_s)_{avg}$	329	°F	**Avg Orifice Press.**		$(\Delta H)_{avg}$	0.49	in H_2O
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**
		ml	ml	ml	g	ml	ml	ml
Contents								
Final Value	$(V_f),(W_f)$	135.00	100.00	0.00	690.00			
Initial Value	$(V_i),(W_i)$	100.00	100.00	0.00	685.00			
Net Value	$(V_n),(W_n)$	35.0	0.0	0.0	5.0			
Results								
Total Volume	(V_t)	35.00	ml	**Water Vol Condensed**		$(V_{wc(std)})$	1.647	scf
Total Weight	(W_t)	5.00	g	**Water Vol Weighed**		$(V_{wsg(std)})$	0.236	scf
Std Meter Volume	$(V_{m(std)})$	23.157	dscf	**Sat. Moisture Content**		$(B_{ws(svp)})$	100.0	%
Calc Moisture Content	$(B_{ws(calc)})$	7.5	%	**Final Moisture Content**		(B_{ws})	7.5	%

Moisture Content Data								
Run Number	2		**Run Start Time**	11:30		**Run Stop Time**		12:31
Total Meter Volume	(V_m)	23.564	dcf	**Barometric Press.**		(P_b)	29.57	in Hg
Avg Meter Temp	$(t_m)_{avg}$	54	°F	**Stack Static Press.**		(P_{static})	-0.42	in H_2O
Avg Stack Temp	$(t_s)_{avg}$	329	°F	**Avg Orifice Press.**		$(\Delta H)_{avg}$	0.49	in H_2O
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**
		ml	ml	ml	g	ml	ml	ml
Contents								
Final Value	$(V_f),(W_f)$	135.00	100.00	0.00	697.00			
Initial Value	$(V_i),(W_i)$	100.00	100.00	0.00	692.00			
Net Value	$(V_n),(W_n)$	35.0	0.0	0.0	5.0			
Results								
Total Volume	(V_t)	35.00	ml	**Water Vol Condensed**		$(V_{wc(std)})$	1.647	scf
Total Weight	(W_t)	5.00	g	**Water Vol Weighed**		$(V_{wsg(std)})$	0.236	scf
Std Meter Volume	$(V_{m(std)})$	23.906	dscf	**Sat. Moisture Content**		$(B_{ws(svp)})$	100.0	%
Calc Moisture Content	(B_{ws})	7.3	%	**Final Moisture Content**		(B_{ws})	7.3	%

Moisture Content Data								
Run Number	3		**Run Start Time**	13:00		**Run Stop Time**		14:02
Total Meter Volume	(V_m)	30.567	dcf	**Barometric Press.**		(P_b)	29.57	in Hg
Avg Meter Temp	$(t_m)_{avg}$	58	°F	**Stack Static Press.**		(P_{static})	-0.42	in H_2O
Avg Stack Temp	$(t_s)_{avg}$	341	°F	**Avg Orifice Press.**		$(\Delta H)_{avg}$	0.50	in H_2O
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**
		ml	ml	ml	g	ml	ml	ml
Contents								
Final Value	$(V_f),(W_f)$	150.00	100.00	0.00	702.00			
Initial Value	$(V_i),(W_i)$	100.00	100.00	0.00	697.00			
Net Value	$(V_n),(W_n)$	50.0	0.0	0.0	5.0			
Results								
Total Volume	(V_t)	50.00	ml	**Water Vol Condensed**		$(V_{wc(std)})$	2.354	scf
Total Weight	(W_t)	5.00	g	**Water Vol Weighed**		$(V_{wsg(std)})$	0.236	scf
Std Meter Volume	$(V_{m(std)})$	30.761	dscf	**Sat. Moisture Content**		$(B_{ws(svp)})$	100.0	%
Calc Moisture Content	(B_{ws})	7.8	%	**Final Moisture Content**		(B_{ws})	7.8	%

SAMPLE RECOVERY AND INTEGRITY DATA SHEET

Plant Name	LNG-CANADA	**Date**	09/28/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)	**Project #**	25C338707
Operator	MS-VK	**Cyclone Type**	PM2.5 Cyclone

Run History Data				
Run Number	1	2	3	
Run Start Time	10:00	11:30	13:00	(hh:mm)
Run Stop Time	10:59	12:31	14:02	(hh:mm)
Train Prepared By	MS-VK	MS-VK	MS-VK	
Train Recovered By	MS-VK	MS-VK	MS-VK	
Recovery Date	09/28/25	09/28/25	09/28/25	(mm/dd/yy)
Relinquished By	CA	CA	CA	
Received By				
Relinquished Date				(mm/dd/yy)
Relinquished Time				(hh:mm)

Equipment Identification Numbers			
Filter	1	1	1
Acetone Wash	1	1	1
Silica Gel	1	1	1
Impinger Case	1	1	1
Sample Box	1	1	1
Oven	1	1	1

Moisture Content Data					
Impingers 1, 2, and 3 - Water Volume					
Final Volume	(V_f)	235.0	235.0	250.0	ml
Initial Volume	(V_i)	200.0	200.0	200.0	ml
Net Volume	(V_n)	35.0	35.0	50.0	ml
Comments					
Impinger 4 - Silica Gel Weight					
Final Weight	(W_f)	690.0	697.0	702.0	g
Initial Weight	(W_i)	685.0	692.0	697.0	g
Net Weight	(W_n)	5.0	5.0	5.0	g
Comments					
Total Water Collected					
Total Volume	(V_{lc})	40.0	40.0	55.0	g

Formulas Used
$V_n = V_f - V_i$ $W_n = W_f - W_i$ $V_{lc} = V_n + W_n/\rho_w$ where ρ_w = .9982 g/ml

SAMPLE ANALYTICAL DATA SHEET

Plant Name	LNG-CANADA	**Date**	09/28/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)	**Project #**	25C338707
Operator	MS-VK	**Cyclone Type**	PM2.5 Cyclone

Analytical Data

Placed in Desiccator — **Run Number** 1

		Number	Date	Time				**Run Start Time**	10:00
Filter								**Leakage Evident?**	☐
Acetone Wash I(Exit Tube)	**(Dp<2.5)**							**Estimated Volume**	
Acetone Nozzle Wash III	**(Dp>2.5)**								
PM2.5 Cup Catch	**(Dp>2.5)**								

		Filter	Acetone I	Acetone III	PM2.5 Cup Catch	Date	Time	Humidity	Temp	Cal Audit
		g	g	g	g	mm/dd/yy	hh:mm	%RH	°F	g
Measurement 1	(m_{1f}),(m_{1a})	0.0010	0.0003	0.0020	0.0000					
Measurement 2	(m_{2f}),(m_{2a})	0.0010	0.0003	0.0020	0.0000					
Measurement 3	(m_{3f}),(m_{3a})	0.0010	0.0003	0.0020	0.0000					
Measurement 4	(m_{4f}),(m_{4a})	0.0010	0.0003	0.0020	0.0000					

Results							**Acetone Wash**		**Beaker I**	**Beaker III**	
Final Weight	(m_{ff}),(m_{fa}')	0.0010	0.0003	0.0020	0.0000	g	**Bottle Wt with Wash**	(m_{bw})	0.0001	0.0001	g
Tare Weight	(m_{tf}),(m_{ta}')	0.0000	0.0000	0.0000	0.0000	g	**Additional Rinse Wt**	(m_{ar})	0.0001	0.0001	g
Weight Gain	(m_f),(m_a')	1.0	0.3	2.0	0.0	mg	**Bottle Tare Weight**	(m_{tb})	0.0001	0.0001	g
Blank Adjustment	(W_a)		0.0	0.0	N/A	mg	**Net Wash Weight**	(m_{nw})	0.0001	0.0001	g
Total Particulates	(m_n)				3.3	mg	**Blank Concentration**	(C_a)	0.0001	0.0001	mg/g

Analytical Data

Placed in Desiccator — **Run Number** 2

		Number	Date	Time				**Run Start Time**	11:30
Filter								**Leakage Evident?**	☐
Acetone Wash Beaker I	**(Dp<2.5)**							**Estimated Volume**	
Acetone Nozzle Wash III	**(Dp>2.5)**								
PM2.5 Cup Catch	**(Dp>2.5)**								

		Filter	Acetone I	Acetone III	PM2.5 Cup Catch	Date	Time	Humidity	Temp	Cal Audit
		g	g	g	g	mm/dd/yy	hh:mm	%RH	°F	g
Measurement 1	(m_{1f}),(m_{1a})	0.0010	0.0007	0.0033	0.0000					
Measurement 2	(m_{2f}),(m_{2a})	0.0010	0.0007	0.0033	0.0000					
Measurement 3	(m_{3f}),(m_{3a})	0.0010	0.0007	0.0033	0.0000					
Measurement 4	(m_{4f}),(m_{4a})	0.0010	0.0007	0.0033	0.0000					

Results							**Acetone Wash**		**Beaker I**	**Beaker III**	
Final Weight	(m_{ff}),(m_{fa}')	0.0010	0.0007	0.0033	0.0000	g	**Bottle Wt with Wash**	(m_{bw})	0.0001	0.0001	g
Tare Weight	(m_{tf}),(m_{ta}')	0.0000	0.0000	0.0000	0.0000	g	**Additional Rinse Wt**	(m_{ar})	0.0001	0.0001	g
Weight Gain	(m_f),(m_a')	1.0	0.7	3.3	0.0	mg	**Bottle Tare Weight**	(m_{tb})	0.0001	0.0001	g
Blank Adjustment	(W_a)		0.0	0.0	N/A	mg	**Net Wash Weight**	(m_{nw})	0.0001	0.0001	g
Total Particulates	(m_n)				5.0	mg	**Blank Concentration**	(C_a)	0.0001	0.0001	mg/g

Analytical Data

Placed in Desiccator — **Run Number** 3

		Number	Date	Time				**Run Start Time**	13:00
Filter								**Leakage Evident?**	☐
Acetone Wash Beaker I	**(Dp<2.5)**							**Estimated Volume**	
Acetone Nozzle Wash III	**(Dp>2.5)**								
PM2.5 Cup Catch	**(Dp>2.5)**								

		Filter	Acetone I	Acetone II	PM2.5 Cup Catch	Date	Time	Humidity	Temp	Cal Audit
		g	g	g	g	mm/dd/yy	hh:mm	%RH	°F	g
Measurement 1	(m_{1f}),(m_{1a})	0.0010	0.0002	0.0032	0.0000					
Measurement 2	(m_{2f}),(m_{2a})	0.0010	0.0002	0.0032	0.0000					
Measurement 3	(m_{3f}),(m_{3a})	0.0010	0.0002	0.0032	0.0000					
Measurement 4	(m_{4f}),(m_{4a})	0.0010	0.0002	0.0032	0.0000					

Results							**Acetone Wash**		**Beaker I**	**Beaker III**	
Final Weight	(m_{ff}),(m_{fa}')	0.0010	0.0002	0.0032	0.0000	g	**Bottle Wt with Wash**	(m_{bw})	0.0001	0.0001	g
Tare Weight	(m_{tf}),(m_{ta}')	0.0000	0.0000	0.0000	0.0000	g	**Additional Rinse Wt**	(m_{ar})	0.0001	0.0001	g
Weight Gain	(m_f),(m_a')	1.0	0.2	3.2	0.0	mg	**Bottle Tare Weight**	(m_{tb})	0.0001	0.0001	g
Blank Adjustment	(W_a)		0.0	0.0	N/A	mg	**Net Wash Weight**	(m_{nw})	0.0001	0.0001	g
Total Particulates	(m_n)				4.4	mg	**Blank Concentration**	(C_a)	0.0001	0.0001	mg/g

Formulas Used

m_{ff} = average of last two filter measurements

m_{fa}' = average of last two acetone measurements

$m_f = m_{ff} - m_{tf}$

$m_a' = m_{fa}' - m_{ta}'$

$W_a = C_a m_{nw}$

$m_{nw} = m_{bw} + m_{ar} - m_{tb}$

$m_n = m_f + m_a' - W_a$

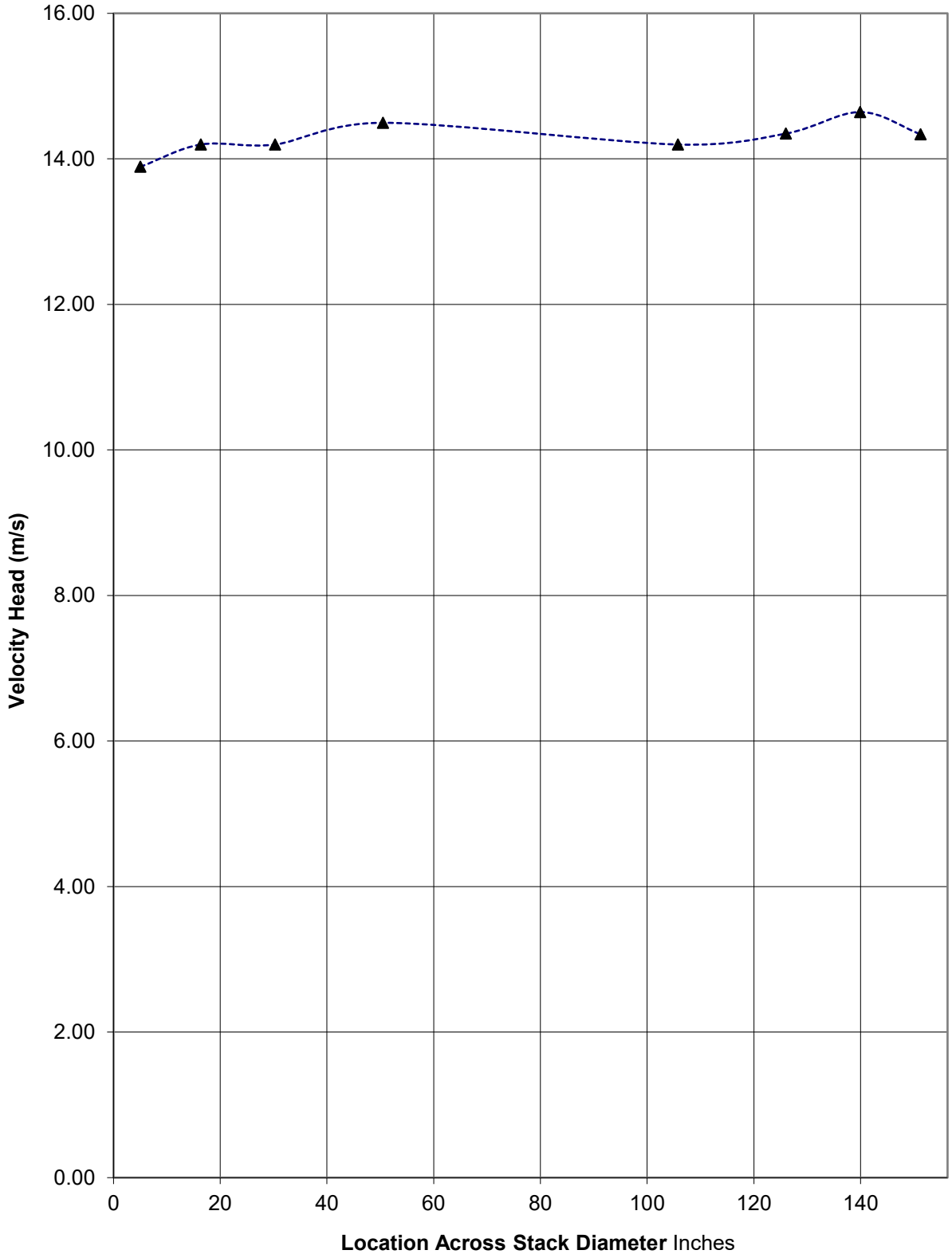
DETERMINATION OF PARTICULATE EMISSIONS - RESULTS

Plant Name	LNG-CANADA	**Date**	09/28/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)	**Project #**	25C338707
Operator	MS-VK	**Stack Type**	PM2.5 Cyclone

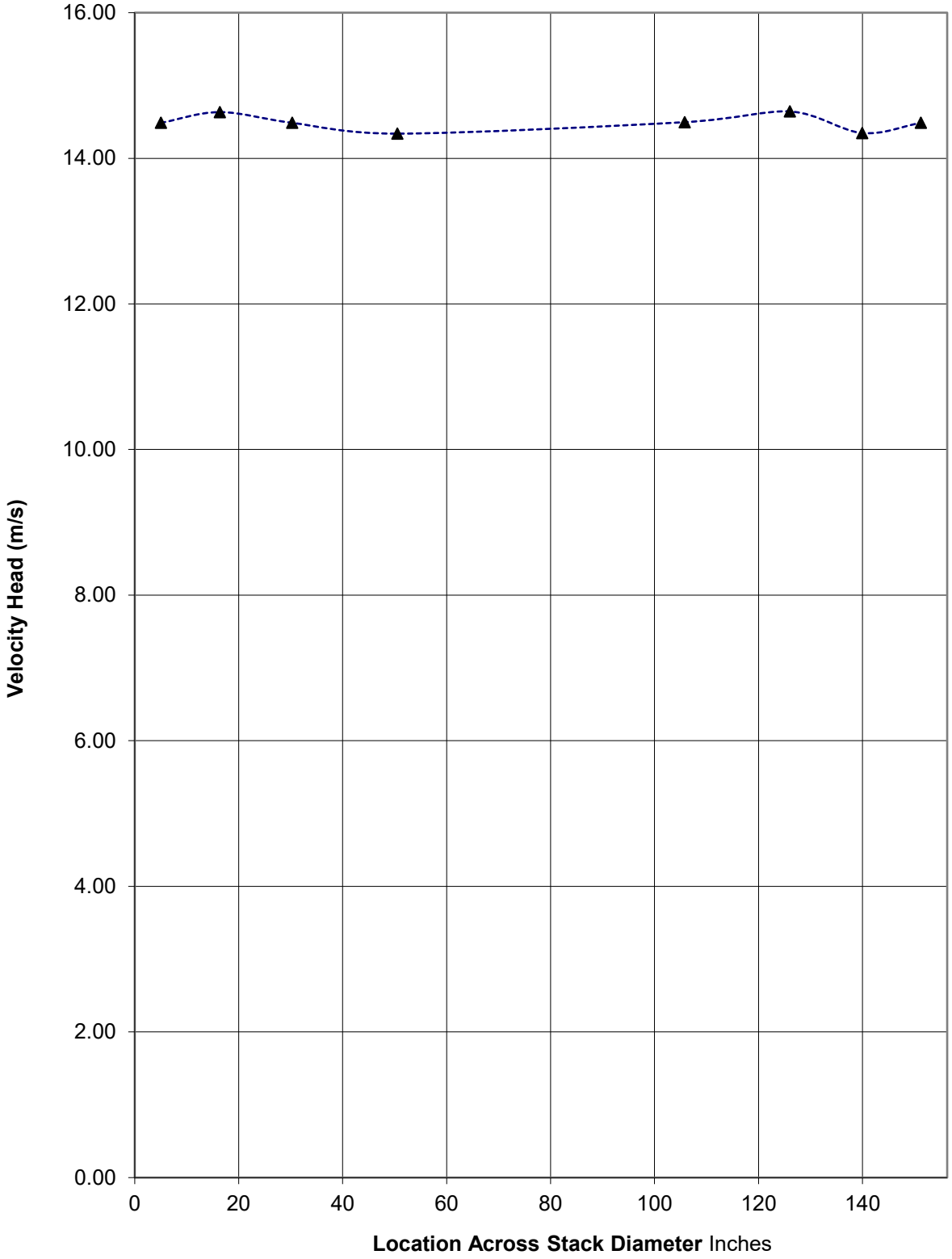
Historical Data						
Run Number		1	2	3	**Average**	
Run Start Time		10:00	11:30	13:00		hh:mm
Run Stop Time		10:59	12:31	14:02		hh:mm
Meter Calibration Factor	(Y)	0.999	0.999	0.999		
Actual Nozzle Diameter	(D_{na})	0.20	0.20	0.20		in
Stack Test Data						
Initial Meter Volume	$(V_m)_i$	0.000	0.000	0.000		ft^3
Final Meter Volume	$(V_m)_f$	22.640	23.564	30.567		ft^3
Total Meter Volume	(V_m)	22.640	23.564	30.567	25.590	ft^3
Total Sampling Time	(Θ)	59.6	61.2	62.3	61.0	min
Average Meter Temperature	$(t_m)_{avg}$	49.9	54.1	58.3	54.1	^oF
Average Stack Temperature	$(t_s)_{avg}$	328.6	328.9	341.4	333.0	^oF
Barometric Pressure	(P_b)	29.57	29.57	29.57	29.57	in Hg
Stack Static Pressure	(P_{static})	-0.42	-0.42	-0.42	-0.42	in H_2O
Absolute Stack Pressure	(P_s)	29.54	29.54	29.54	29.54	in Hg
Average Orifice Pressure Drop	$(\Delta H)_{avg}$	0.49	0.49	0.50	0.50	in H_2O
Absolute Meter Pressure	(P_m)	29.61	29.61	29.61	29.61	in Hg
Avg Square Root Pitot Pressure	$(\Delta p^{1/2})_{avg}$	0.70	0.70	0.73	0.71	$(in\ H_2O)^{1/2}$
Moisture Content Data						
Impingers 1-3 Water Volume Gain	(V_n)	35.0	35.0	50.0	40.0	ml
Impinger 4 Silica Gel Weight Gain	(W_n)	5.0	5.0	5.0	5.0	g
Total Water Volume Collected	(V_{lc})	40.0	40.0	55.0	45.0	ml
Standard Water Vapor Volume	$(V_w)_{std}$	1.883	1.883	2.589	2.119	scf
Standard Meter Volume	$(V_m)_{std}$	23.157	23.906	30.761	25.941	dscf
Calculated Stack Moisture	$(B_{ws(calc)})$	7.5	7.3	7.8	7.5	%
Saturated Stack Moisture	$(B_{ws(svp)})$	100.00	100.0	100.0	100.0	%
Reported Stack Moisture Content	(B_{ws})	7.5	7.3	7.8	7.5	%
Gas Analysis Data						
Carbon Dioxide Percentage	($\%CO_2$)	3.0	3.0	3.0	3.0	%
Oxygen Percentage	($\%O_2$)	16.0	15.0	15.0	15.3	%
Carbon Monoxide Percentage	(%CO)	0.0	0.0	0.0	0.0	%
Nitrogen Percentage	($\%N_2$)	81.0	82.0	82.0	81.7	%
Dry Gas Molecular Weight	(M_d)	29.12	29.08	29.08	29.09	lb/lb-mole
Wet Stack Gas Molecular Weight	(M_s)	28.28	28.27	28.22	28.26	lb/lb-mole
Calculated Fuel Factor	(F_o)	1.633	1.967	1.967	1.856	
Percent Excess Air	(%EA)	3.0	2.3	2.3	2.5	%
Volumetric Flow Rate Data						
Average Stack Gas Velocity	(v_s)	47.28	47.48	49.93	48.23	ft/sec
Stack Cross-Sectional Area	(A_s)	133.24	133.24	133.24	133.24	ft^2
Actual Stack Flow Rate	(Q_a)	377967	379617	399134	385572	acfm
Wet Standard Stack Flow Rate	(Qsw)	14990	15051	15578	15206	wkscfh
Dry Standard Stack Flow Rate	(Q_{sd})	231045	232528	239471	234348	dscfm
Emission Rate Data						
Mass of Particulate on Filter	(m_f)	1.0	1.0	1.0	1.0	mg
Mass of PM2.5 in Acetone I	(m_a')	0.3	0.7	0.2	0.4	mg
Mass due to Acetone Blank I	(W_a)	0.0	0.0	0.0	0.0	mg
Total Mass of Particulates	(m_n)	3.3	5.0	4.4	4.2	mg
Total Mass of PM2.5 Particulates	(m_n)	1.3	1.7	1.2	1.4	mg
PM2.5 Concentration	(c_s)	0.000	0.000	0.000	0.000	g/dscf
	(c_s)	0.001	0.001	0.001	0.001	gr/dscf
PM2.5 Emission Rate	(E)	0.78	0.99	0.56	0.8	kg/hr
	(E)	1.72	2.19	1.24	1.71	lbs/hr
	(E)	0.00	0.00	0.00	0.00	lbs/mmBtu

Appendix II – Velocity Profiles

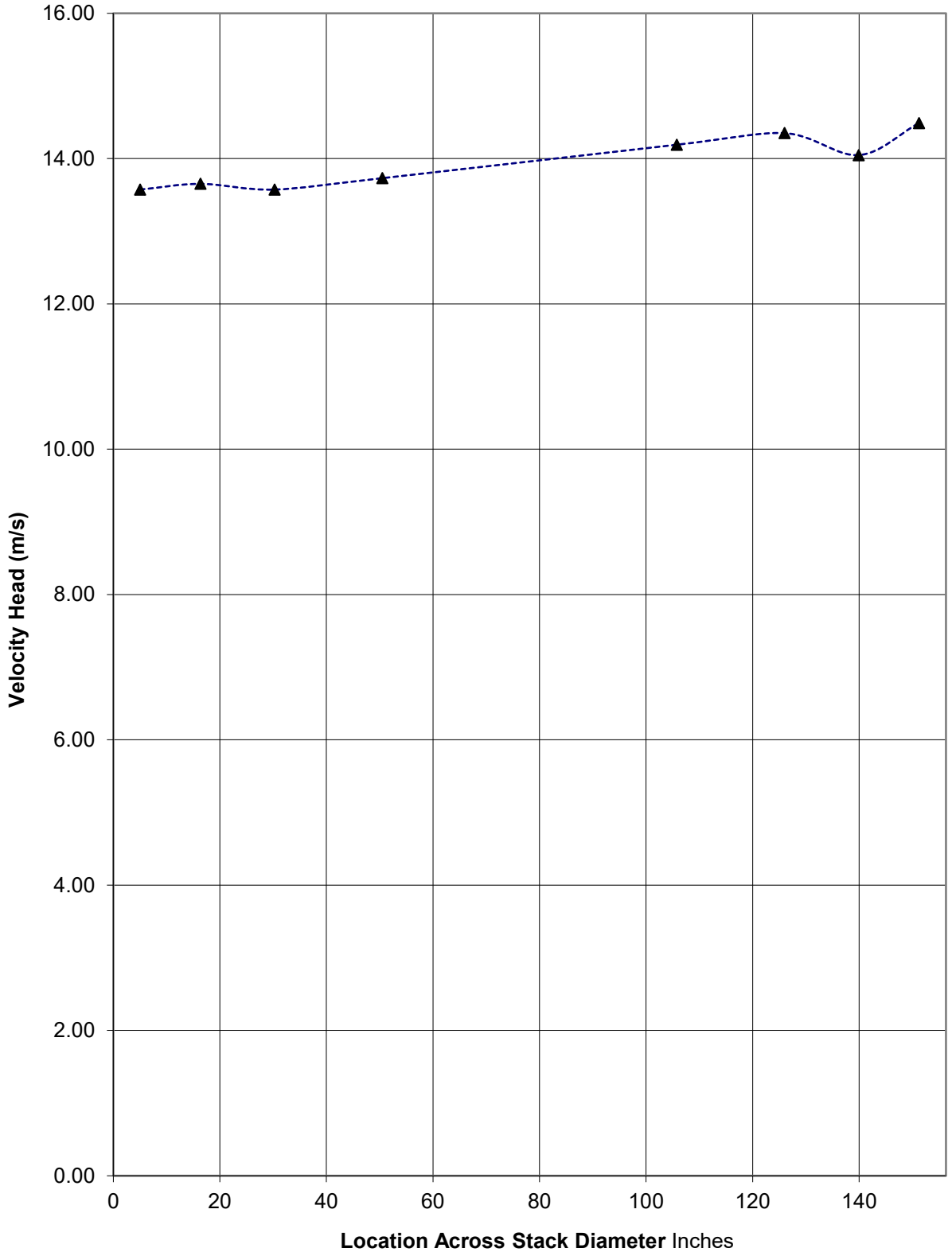
Velocity Profile Northwest to Southeast
Turbine 1E-4101A Test # 1 25/09/28



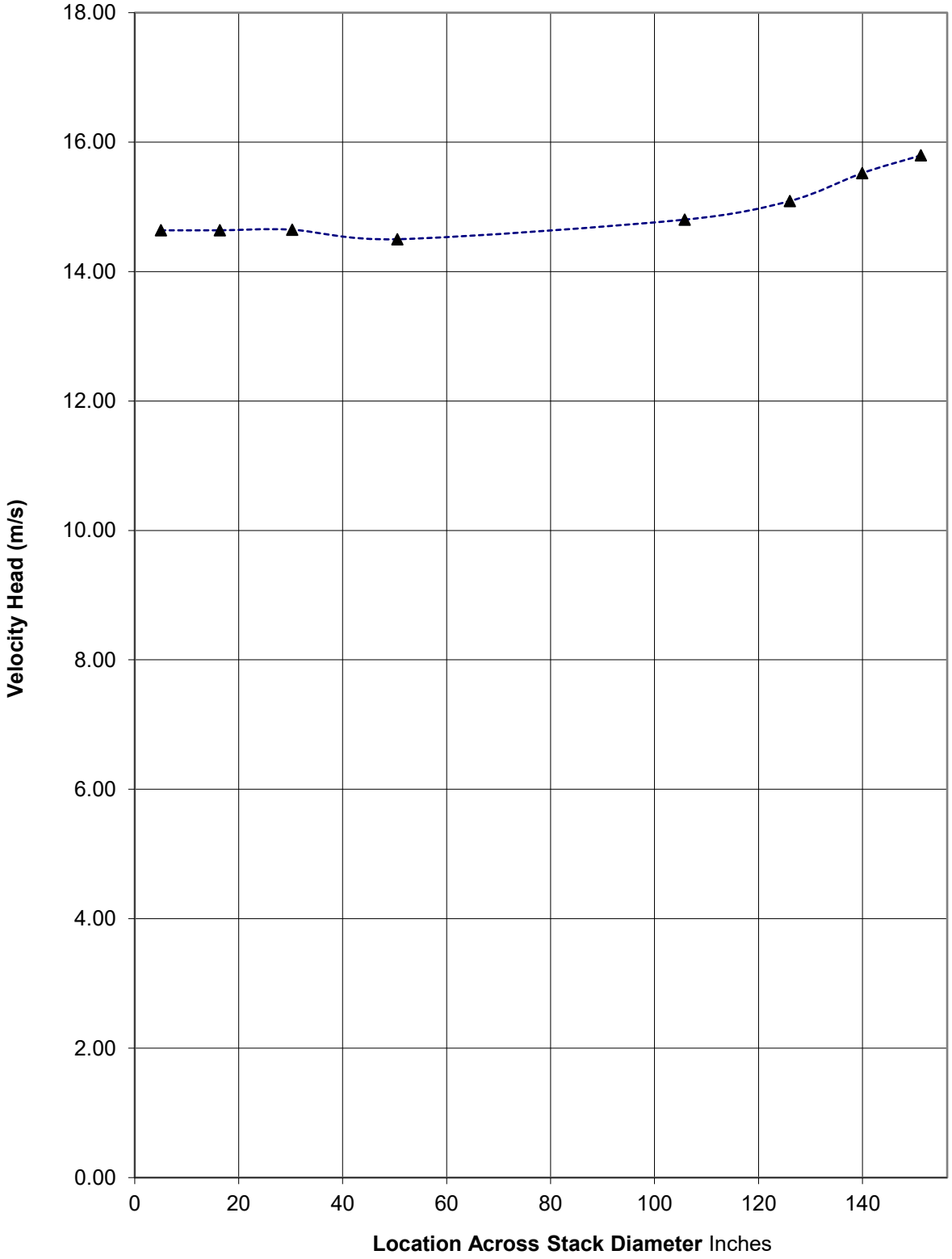
Velocity Profile Northeast to Southwest
Turbine 1E-4101A Test # 1 25/09/28



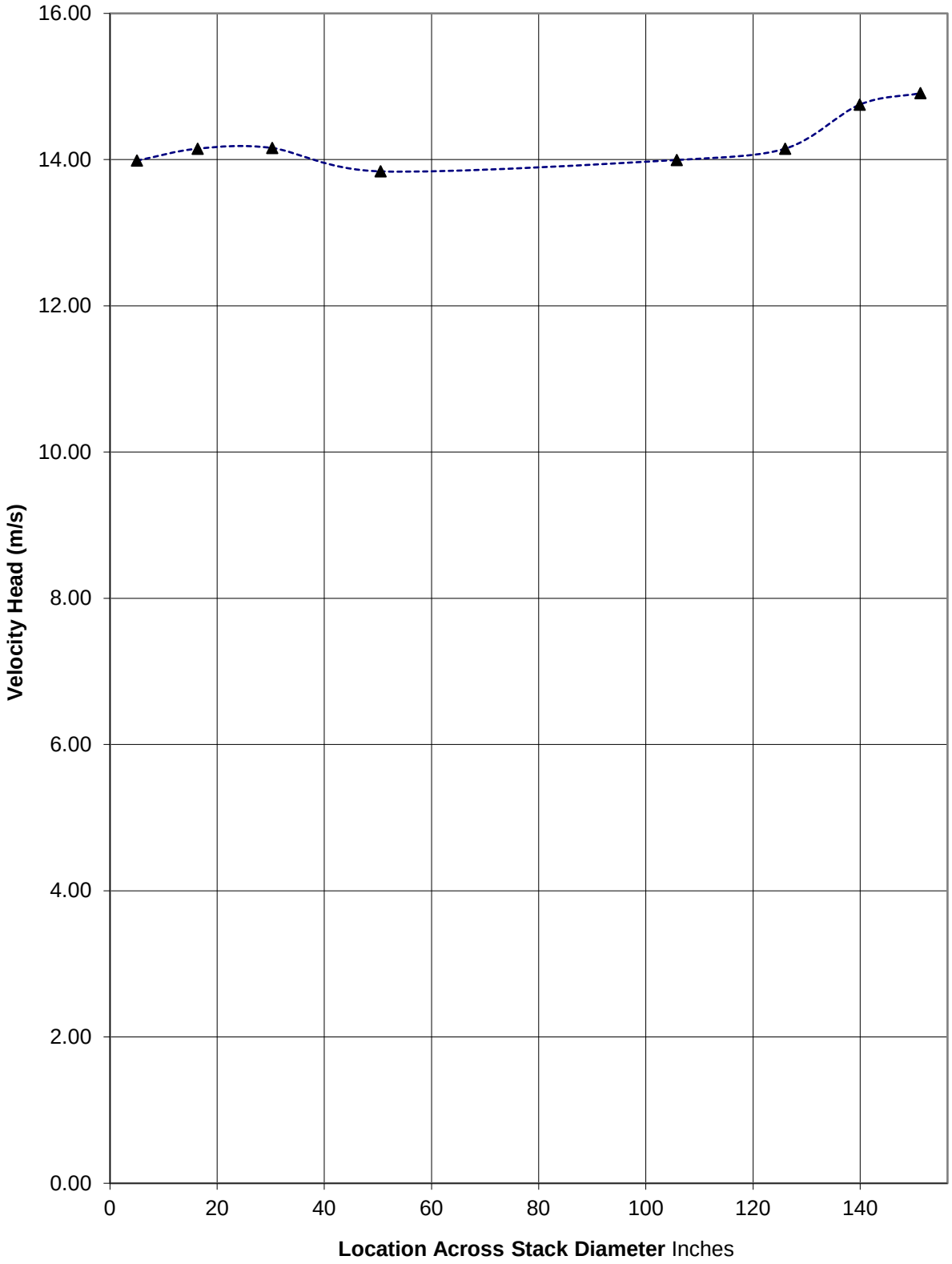
Velocity Profile Northwest to Southeast
Turbine 1E-4101A Test # 2 25/09/28



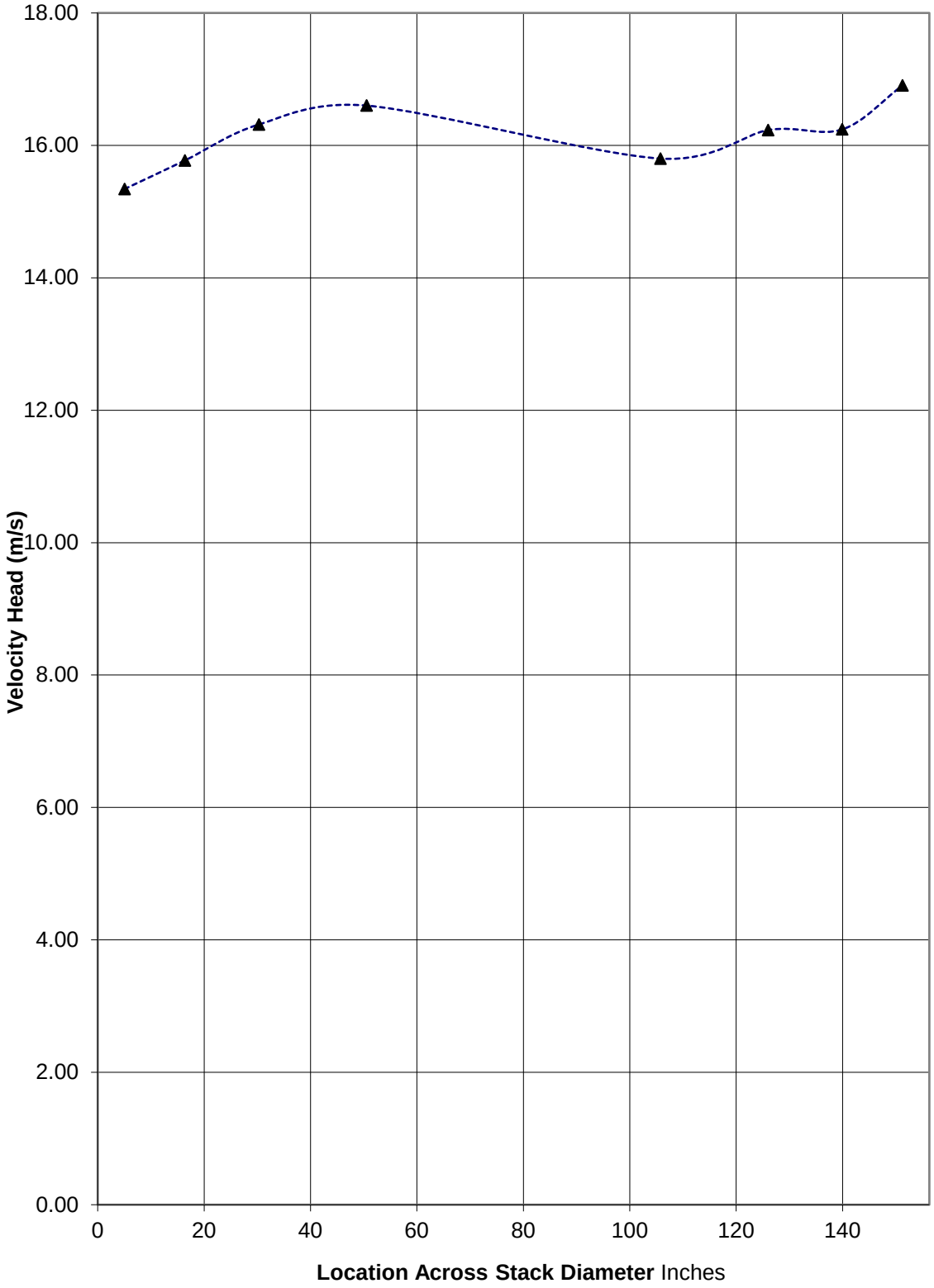
Velocity Profile Northeast to Southwest
Turbine 1E-4101A Test # 2 25/09/28



Velocity Profile Northwest to Southeast
Turbine 1E-4101A Test # 3 25/09/28



Velocity Profile Northeast to Southwest
Turbine 1E-4101A Test # 3 25/09/28



Appendix III – Analytical Data

LNG - Kitimat - Turbine (1E-4101A)

Date / time	sec Runtime	% O_2	ppm CO	ppm NOx	ppm NO	ppm NO_2	% CO_2	ppm SO_2	l/min Pump	°C Tamb	Test 1
9-28-2025 11:01:56 AM	0	16.2	21.0	45.3	25.0	20.3	2.66	-2.00	0.990	9.7	
9-28-2025 11:02:26 AM	30	16.1	21.0	46.9	26.0	20.9	2.70	-2.00	0.980	9.6	
9-28-2025 11:02:56 AM	60	16.1	21.0	48.3	27.0	21.3	2.73	-2.00	0.980	9.5	
9-28-2025 11:03:26 AM	90	16.0	22.0	48.6	27.0	21.6	2.74	-2.00	0.980	9.7	
9-28-2025 11:03:56 AM	120	16.1	22.0	48.7	27.0	21.7	2.72	-2.00	0.980	9.7	
9-28-2025 11:04:26 AM	150	16.1	22.0	48.8	27.0	21.8	2.74	-2.00	0.980	9.7	
9-28-2025 11:04:56 AM	180	16.0	22.0	49.0	27.0	22.0	2.75	-2.00	0.980	9.7	
9-28-2025 11:05:26 AM	210	16.0	22.0	49.1	27.0	22.1	2.75	-2.00	0.990	9.7	
9-28-2025 11:05:56 AM	240	16.0	22.0	49.1	27.0	22.1	2.75	-3.00	0.980	9.7	
9-28-2025 11:06:26 AM	270	15.9	21.0	49.2	27.0	22.2	2.81	-2.00	0.980	9.8	
9-28-2025 11:06:56 AM	300	15.9	21.0	49.3	27.0	22.3	2.81	-2.00	0.980	9.8	
9-28-2025 11:07:26 AM	330	15.8	21.0	49.3	27.0	22.3	2.86	-2.00	0.980	9.8	
9-28-2025 11:07:56 AM	360	16.0	22.0	50.4	28.0	22.4	2.77	-2.00	0.980	9.7	
9-28-2025 11:08:26 AM	390	15.8	22.0	50.3	28.0	22.3	2.86	-2.00	0.980	9.8	
9-28-2025 11:08:56 AM	420	15.9	22.0	50.3	28.0	22.3	2.85	-2.00	0.980	9.5	
9-28-2025 11:09:26 AM	450	15.9	22.0	50.4	28.0	22.4	2.80	-2.00	0.980	9.5	
9-28-2025 11:09:56 AM	480	15.8	22.0	50.4	28.0	22.4	2.88	-2.00	0.990	9.5	
9-28-2025 11:10:26 AM	510	15.8	22.0	50.4	28.0	22.4	2.88	-2.00	0.990	9.5	
9-28-2025 11:10:56 AM	540	15.8	22.0	50.4	28.0	22.4	2.86	-2.00	0.980	9.5	
9-28-2025 11:11:26 AM	570	15.9	22.0	50.4	28.0	22.4	2.82	-2.00	0.980	9.8	
9-28-2025 11:11:56 AM	600	15.9	22.0	50.4	28.0	22.4	2.83	-2.00	0.980	9.8	
9-28-2025 11:12:26 AM	630	15.9	22.0	50.4	28.0	22.4	2.85	-2.00	0.980	9.9	
9-28-2025 11:12:56 AM	660	15.9	22.0	50.5	28.0	22.5	2.83	-2.00	0.980	9.8	
9-28-2025 11:13:26 AM	690	15.8	22.0	50.5	28.0	22.5	2.86	-2.00	0.980	9.9	
9-28-2025 11:13:56 AM	720	15.8	22.0	50.5	28.0	22.5	2.91	-2.00	0.980	10.0	
9-28-2025 11:14:26 AM	750	15.8	22.0	50.4	28.0	22.4	2.86	-2.00	0.980	9.9	
9-28-2025 11:14:56 AM	780	15.9	22.0	50.6	28.0	22.6	2.85	-2.00	0.980	9.8	
9-28-2025 11:15:26 AM	810	15.8	22.0	50.5	28.0	22.5	2.87	-2.00	0.990	10.0	
9-28-2025 11:15:56 AM	840	15.9	22.0	50.6	28.0	22.6	2.85	-2.00	0.990	9.8	
9-28-2025 11:16:26 AM	870	15.8	22.0	51.7	29.0	22.7	2.88	-2.00	0.990	9.6	
9-28-2025 11:16:56 AM	900	15.7	22.0	50.6	28.0	22.6	2.94	-2.00	0.990	9.7	
9-28-2025 11:17:26 AM	930	15.8	22.0	50.6	28.0	22.6	2.90	-2.00	0.980	9.8	
9-28-2025 11:17:56 AM	960	15.8	22.0	50.7	28.0	22.7	2.90	-1.00	0.980	9.7	
9-28-2025 11:18:26 AM	990	15.8	22.0	50.7	28.0	22.7	2.88	-1.00	0.980	9.9	
9-28-2025 11:18:56 AM	1020	15.7	22.0	50.8	28.0	22.8	2.96	-2.00	0.980	10.0	
9-28-2025 11:19:26 AM	1050	15.7	22.0	50.8	28.0	22.8	2.95	-2.00	0.980	10.0	
9-28-2025 11:19:56 AM	1080	15.7	21.0	51.8	29.0	22.8	2.91	-1.00	0.980	9.9	
9-28-2025 11:20:26 AM	1110	15.8	21.0	51.8	29.0	22.8	2.89	-2.00	0.980	9.9	
9-28-2025 11:20:56 AM	1140	15.6	22.0	51.9	29.0	22.9	2.97	-2.00	0.980	9.9	
9-28-2025 11:21:26 AM	1170	15.7	21.0	52.0	29.0	23.0	2.94	-2.00	0.980	10.0	
9-28-2025 11:21:56 AM	1200	15.8	21.0	52.0	29.0	23.0	2.89	-1.00	0.980	10.1	
9-28-2025 11:22:26 AM	1230	15.6	21.0	52.0	29.0	23.0	2.97	-2.00	0.980	10.1	
9-28-2025 11:22:56 AM	1260	15.7	22.0	52.0	29.0	23.0	2.92	-1.00	0.980	10.0	
9-28-2025 11:23:26 AM	1290	15.6	21.0	52.0	29.0	23.0	3.01	-2.00	0.990	10.1	
9-28-2025 11:23:56 AM	1320	15.7	21.0	51.9	29.0	22.9	2.96	-2.00	0.990	10.0	
9-28-2025 11:24:26 AM	1350	15.7	21.0	52.0	29.0	23.0	2.93	-1.00	0.980	9.7	
9-28-2025 11:24:56 AM	1380	15.6	22.0	52.0	29.0	23.0	3.00	-1.00	0.980	9.6	
9-28-2025 11:25:26 AM	1410	15.7	21.0	52.0	29.0	23.0	2.95	-2.00	0.980	9.9	
9-28-2025 11:25:56 AM	1440	15.5	21.0	52.0	29.0	23.0	3.03	-1.00	0.980	10.0	
9-28-2025 11:26:26 AM	1470	15.6	21.0	52.0	29.0	23.0	2.97	-2.00	0.990	9.9	
9-28-2025 11:26:56 AM	1500	15.5	21.0	52.0	29.0	23.0	3.05	-1.00	0.990	10.0	
9-28-2025 11:27:26 AM	1530	15.6	21.0	52.1	29.0	23.1	2.99	-1.00	0.990	10.1	
9-28-2025 11:27:56 AM	1560	15.5	21.0	52.1	29.0	23.1	3.03	-2.00	0.980	10.2	
9-28-2025 11:28:26 AM	1590	15.6	21.0	52.1	29.0	23.1	3.00	-1.00	0.980	10.2	
9-28-2025 11:28:56 AM	1620	15.6	21.0	52.0	29.0	23.0	2.97	-2.00	0.980	10.2	
9-28-2025 11:29:26 AM	1650	15.6	21.0	52.1	29.0	23.1	3.02	-1.00	0.980	10.1	
9-28-2025 11:29:56 AM	1680	15.6	21.0	52.1	29.0	23.1	2.98	-1.00	0.980	10.2	
9-28-2025 11:30:26 AM	1710	15.5	21.0	52.1	29.0	23.1	3.03	-1.00	0.980	10.2	
9-28-2025 11:30:56 AM	1740	15.7	21.0	52.2	29.0	23.2	2.96	-1.00	0.990	10.2	
9-28-2025 11:31:26 AM	1770	15.6	21.0	52.1	29.0	23.1	3.02	-1.00	0.980	10.2	
		15.8	21.6	50.7	28.2	22.6	2.89	-1.75			

LNG - Kitimat - Turbine (1E-4101A)

Date / time	sec Runtime	% O_2	ppm CO	ppm NOx	ppm NO	ppm NO_2	% CO_2	ppm SO_2	l/min Pump	°C Tamb	Test 2
9-28-2025 12:31:45 PM	0	15.3	39.0	42.1	28.0	14.1	3.19	-3.00	0.980	11.8	
9-28-2025 12:32:15 PM	30	15.2	39.0	43.6	29.0	14.6	3.19	-3.00	0.980	11.8	
9-28-2025 12:32:45 PM	60	15.2	40.0	43.9	29.0	14.9	3.19	-3.00	0.980	11.9	
9-28-2025 12:33:15 PM	90	15.2	40.0	44.0	29.0	15.0	3.19	-3.00	0.980	11.9	
9-28-2025 12:33:45 PM	120	15.2	40.0	44.1	29.0	15.1	3.19	-3.00	0.980	12.1	
9-28-2025 12:34:15 PM	150	15.2	40.0	44.3	29.0	15.3	3.20	-3.00	0.970	12.2	
9-28-2025 12:34:45 PM	180	15.2	40.0	44.3	29.0	15.3	3.19	-3.00	0.970	12.1	
9-28-2025 12:35:15 PM	210	15.2	40.0	44.5	29.0	15.5	3.19	-3.00	0.980	12.1	
9-28-2025 12:35:45 PM	240	15.2	40.0	44.6	29.0	15.6	3.19	-3.00	0.980	11.9	
9-28-2025 12:36:15 PM	270	15.2	40.0	44.7	29.0	15.7	3.20	-3.00	0.980	11.7	
9-28-2025 12:36:45 PM	300	15.2	40.0	44.7	29.0	15.7	3.20	-3.00	0.970	12.0	
9-28-2025 12:37:15 PM	330	15.2	40.0	44.6	29.0	15.6	3.20	-3.00	0.970	12.1	
9-28-2025 12:37:45 PM	360	15.2	40.0	44.7	29.0	15.7	3.20	-3.00	0.980	12.2	
9-28-2025 12:38:15 PM	390	15.2	40.0	44.8	29.0	15.8	3.20	-3.00	0.980	12.1	
9-28-2025 12:38:45 PM	420	15.2	40.0	44.7	29.0	15.7	3.20	-3.00	0.980	12.2	
9-28-2025 12:39:15 PM	450	15.2	40.0	44.7	29.0	15.7	3.20	-3.00	0.980	12.2	
9-28-2025 12:39:45 PM	480	15.2	40.0	44.7	29.0	15.7	3.20	-3.00	0.980	12.2	
9-28-2025 12:40:15 PM	510	15.2	40.0	44.7	29.0	15.7	3.20	-3.00	0.980	12.4	
9-28-2025 12:40:45 PM	540	15.2	41.0	44.8	29.0	15.8	3.20	-2.00	0.980	12.2	
9-28-2025 12:41:15 PM	570	15.2	40.0	44.9	29.0	15.9	3.20	-3.00	0.970	12.3	
9-28-2025 12:41:45 PM	600	15.2	40.0	44.9	29.0	15.9	3.19	-3.00	0.980	12.4	
9-28-2025 12:42:15 PM	630	15.2	40.0	44.9	29.0	15.9	3.19	-2.00	0.980	12.5	
9-28-2025 12:42:45 PM	660	15.2	40.0	44.9	29.0	15.9	3.19	-3.00	0.980	12.4	
9-28-2025 12:43:15 PM	690	15.2	40.0	44.8	29.0	15.8	3.20	-3.00	0.970	12.5	
9-28-2025 12:43:45 PM	720	15.2	41.0	44.9	29.0	15.9	3.20	-2.00	0.980	12.4	
9-28-2025 12:44:15 PM	750	15.2	40.0	45.0	29.0	16.0	3.20	-2.00	0.970	12.5	
9-28-2025 12:44:45 PM	780	15.2	40.0	44.9	29.0	15.9	3.20	-2.00	0.980	12.5	
9-28-2025 12:45:15 PM	810	15.2	40.0	46.0	30.0	16.0	3.20	-2.00	0.980	12.6	
9-28-2025 12:45:45 PM	840	15.2	40.0	46.1	30.0	16.1	3.20	-2.00	0.970	12.7	
9-28-2025 12:46:15 PM	870	15.2	41.0	46.1	30.0	16.1	3.20	-2.00	0.970	12.6	
9-28-2025 12:46:45 PM	900	15.2	41.0	46.1	30.0	16.1	3.20	-3.00	0.980	12.6	
9-28-2025 12:47:15 PM	930	15.2	41.0	46.3	30.0	16.3	3.21	-2.00	0.980	12.8	
9-28-2025 12:47:45 PM	960	15.2	41.0	46.3	30.0	16.3	3.21	-2.00	0.980	12.8	
9-28-2025 12:48:15 PM	990	15.2	41.0	46.4	30.0	16.4	3.21	-2.00	0.970	12.8	
9-28-2025 12:48:45 PM	1020	15.2	41.0	46.5	30.0	16.5	3.22	-2.00	0.970	12.8	
9-28-2025 12:49:15 PM	1050	15.2	41.0	47.7	31.0	16.7	3.22	-2.00	0.980	12.8	
9-28-2025 12:49:45 PM	1080	15.2	42.0	47.7	31.0	16.7	3.23	-3.00	0.970	12.9	
9-28-2025 12:50:15 PM	1110	15.2	42.0	48.0	31.0	17.0	3.23	-3.00	0.980	12.9	
9-28-2025 12:50:45 PM	1140	15.2	42.0	48.1	31.0	17.1	3.24	-3.00	0.970	13.0	
9-28-2025 12:51:15 PM	1170	15.2	41.0	48.2	31.0	17.2	3.24	-3.00	0.980	13.1	
9-28-2025 12:51:45 PM	1200	15.2	42.0	49.3	32.0	17.3	3.24	-3.00	0.980	13.2	
9-28-2025 12:52:15 PM	1230	15.1	42.0	49.4	32.0	17.4	3.25	-2.00	0.970	13.0	
9-28-2025 12:52:45 PM	1260	15.1	42.0	49.5	32.0	17.5	3.25	-3.00	0.980	12.8	
9-28-2025 12:53:15 PM	1290	15.1	43.0	49.6	32.0	17.6	3.26	-3.00	0.970	12.8	
9-28-2025 12:53:45 PM	1320	15.1	42.0	49.7	32.0	17.7	3.26	-3.00	0.980	12.9	
9-28-2025 12:54:15 PM	1350	15.1	43.0	50.7	33.0	17.7	3.26	-3.00	0.980	12.8	
9-28-2025 12:54:45 PM	1380	15.1	43.0	49.8	32.0	17.8	3.26	-3.00	0.980	12.7	
9-28-2025 12:55:15 PM	1410	15.1	42.0	49.7	32.0	17.7	3.26	-2.00	0.980	12.9	
9-28-2025 12:55:45 PM	1440	15.1	42.0	49.7	32.0	17.7	3.26	-3.00	0.980	12.9	
9-28-2025 12:56:15 PM	1470	15.1	42.0	50.8	33.0	17.8	3.26	-3.00	0.980	13.0	
9-28-2025 12:56:45 PM	1500	15.1	43.0	49.7	32.0	17.7	3.26	-3.00	0.980	12.9	
9-28-2025 12:57:15 PM	1530	15.1	42.0	49.7	32.0	17.7	3.26	-3.00	0.980	12.9	
9-28-2025 12:57:45 PM	1560	15.1	43.0	50.7	33.0	17.7	3.26	-3.00	0.980	13.0	
9-28-2025 12:58:15 PM	1590	15.1	43.0	50.6	33.0	17.6	3.26	-3.00	0.970	13.1	
9-28-2025 12:58:45 PM	1620	15.1	43.0	49.6	32.0	17.6	3.26	-3.00	0.980	13.1	
9-28-2025 12:59:15 PM	1650	15.1	42.0	50.5	33.0	17.5	3.26	-3.00	0.980	12.8	
9-28-2025 12:59:45 PM	1680	15.1	43.0	49.6	32.0	17.6	3.26	-3.00	0.980	12.7	
9-28-2025 1:00:15 PM	1710	15.1	43.0	49.5	32.0	17.5	3.25	-3.00	0.980	12.8	
9-28-2025 1:00:45 PM	1740	15.1	43.0	50.6	33.0	17.6	3.26	-2.00	0.980	12.9	
9-28-2025 1:01:15 PM	1770	15.1	43.0	49.5	32.0	17.5	3.26	-2.00	0.970	13.0	
		15.2	41.1	46.8	30.4	16.4	3.22	-2.72			

LNG - Kitimat - Turbine (1E-4101A)

Date / time	sec Runtime	% O_2	ppm CO	ppm NOx	ppm NO	ppm NO_2	% CO_2	ppm SO_2	l/min Pump	°C Tamb	Test 3
9-28-2025 1:48:23 PM	0	14.8	54.0	35.0	24.0	11.0	3.46	-3.00	0.970	13.1	
9-28-2025 1:48:53 PM	30	14.7	55.0	34.0	23.0	11.0	3.47	-3.00	0.970	12.7	
9-28-2025 1:49:23 PM	60	14.7	54.0	34.0	23.0	11.0	3.48	-3.00	0.980	13.0	
9-28-2025 1:49:53 PM	90	14.7	55.0	34.0	23.0	11.0	3.49	-3.00	0.980	12.8	
9-28-2025 1:50:23 PM	120	14.7	54.0	34.0	23.0	11.0	3.49	-3.00	0.980	13.0	
9-28-2025 1:50:53 PM	150	14.7	55.0	33.9	23.0	10.9	3.49	-3.00	0.980	13.3	
9-28-2025 1:51:23 PM	180	14.7	55.0	33.8	23.0	10.8	3.49	-3.00	0.970	13.4	
9-28-2025 1:51:53 PM	210	14.7	56.0	33.8	23.0	10.8	3.49	-3.00	0.980	13.6	
9-28-2025 1:52:23 PM	240	14.7	56.0	33.7	23.0	10.7	3.49	-3.00	0.980	13.7	
9-28-2025 1:52:53 PM	270	14.7	57.0	33.7	23.0	10.7	3.49	-3.00	0.970	13.7	
9-28-2025 1:53:23 PM	300	14.7	57.0	33.5	23.0	10.5	3.48	-3.00	0.970	13.6	
9-28-2025 1:53:53 PM	330	14.7	58.0	33.2	23.0	10.2	3.47	-3.00	0.970	13.7	
9-28-2025 1:54:23 PM	360	14.8	59.0	32.9	23.0	990%	3.45	-3.00	0.980	13.7	
9-28-2025 1:54:53 PM	390	14.8	60.0	31.6	22.0	960%	3.43	-3.00	0.980	13.4	
9-28-2025 1:55:23 PM	420	14.8	60.0	31.3	22.0	930%	3.42	-3.00	0.980	13.2	
9-28-2025 1:55:53 PM	450	14.9	60.0	31.1	22.0	910%	3.41	-2.00	0.980	13.6	
9-28-2025 1:56:23 PM	480	14.9	61.0	29.9	21.0	890%	3.40	-3.00	0.970	13.4	
9-28-2025 1:56:53 PM	510	14.9	61.0	29.6	21.0	860%	3.39	-2.00	0.980	13.1	
9-28-2025 1:57:23 PM	540	14.9	61.0	28.6	20.0	860%	3.38	-2.00	0.980	13.2	
9-28-2025 1:57:53 PM	570	14.9	61.0	28.5	20.0	850%	3.37	-2.00	0.980	13.0	
9-28-2025 1:58:23 PM	600	14.9	60.0	28.4	20.0	840%	3.36	-2.00	0.980	13.2	
9-28-2025 1:58:53 PM	630	15.0	60.0	28.3	20.0	830%	3.36	-2.00	0.980	13.4	
9-28-2025 1:59:23 PM	660	15.0	59.0	28.1	20.0	810%	3.35	-2.00	0.980	13.4	
9-28-2025 1:59:53 PM	690	15.0	59.0	28.0	20.0	800%	3.34	-2.00	0.980	13.3	
9-28-2025 2:00:23 PM	720	15.0	58.0	28.0	20.0	800%	3.34	-2.00	0.980	13.6	
9-28-2025 2:00:53 PM	750	15.0	56.0	27.0	19.0	800%	3.34	-2.00	0.980	13.9	
9-28-2025 2:01:23 PM	780	15.0	55.0	27.1	19.0	810%	3.34	-2.00	0.980	13.8	
9-28-2025 2:01:53 PM	810	15.0	54.0	27.1	19.0	810%	3.34	-2.00	0.980	13.4	
9-28-2025 2:02:23 PM	840	15.0	53.0	27.3	19.0	830%	3.34	-2.00	0.980	13.4	
9-28-2025 2:02:53 PM	870	15.0	52.0	27.5	19.0	850%	3.34	-2.00	0.980	13.2	
9-28-2025 2:03:23 PM	900	15.0	50.0	28.8	20.0	880%	3.35	-2.00	0.980	13.1	
9-28-2025 2:03:53 PM	930	15.0	50.0	28.8	20.0	880%	3.36	-2.00	0.980	13.2	
9-28-2025 2:04:23 PM	960	14.9	49.0	29.0	20.0	900%	3.36	-2.00	0.970	13.4	
9-28-2025 2:04:53 PM	990	14.9	48.0	29.0	20.0	900%	3.36	-2.00	0.980	13.4	
9-28-2025 2:05:23 PM	1020	14.9	48.0	29.0	20.0	900%	3.37	-2.00	0.980	13.3	
9-28-2025 2:05:53 PM	1050	14.9	48.0	29.0	20.0	900%	3.37	-2.00	0.980	13.4	
9-28-2025 2:06:23 PM	1080	14.9	48.0	29.1	20.0	910%	3.37	-2.00	0.980	13.7	
9-28-2025 2:06:53 PM	1110	14.9	48.0	29.1	20.0	910%	3.37	-2.00	0.980	13.8	
9-28-2025 2:07:23 PM	1140	14.9	48.0	29.1	20.0	910%	3.38	-2.00	0.970	13.9	
9-28-2025 2:07:53 PM	1170	14.9	49.0	29.1	20.0	910%	3.37	-2.00	0.980	14.1	
9-28-2025 2:08:23 PM	1200	14.9	49.0	29.1	20.0	910%	3.37	-2.00	0.980	14.1	
9-28-2025 2:08:53 PM	1230	14.9	50.0	29.1	20.0	910%	3.37	-2.00	0.970	14.2	
9-28-2025 2:09:23 PM	1260	14.9	51.0	29.1	20.0	910%	3.37	-2.00	0.970	14.2	
9-28-2025 2:09:53 PM	1290	14.9	51.0	29.0	20.0	900%	3.37	-2.00	0.980	13.9	
9-28-2025 2:10:23 PM	1320	14.9	52.0	29.1	20.0	910%	3.37	-2.00	0.980	13.8	
9-28-2025 2:10:53 PM	1350	14.9	53.0	30.1	21.0	910%	3.38	-2.00	0.980	13.9	
9-28-2025 2:11:23 PM	1380	14.9	53.0	30.0	21.0	900%	3.38	-2.00	0.970	14.2	
9-28-2025 2:11:53 PM	1410	14.9	54.0	30.1	21.0	910%	3.38	-2.00	0.970	13.5	
9-28-2025 2:12:23 PM	1440	14.9	54.0	30.1	21.0	910%	3.39	-2.00	0.970	13.8	
9-28-2025 2:12:53 PM	1470	14.9	55.0	30.3	21.0	930%	3.39	-2.00	0.980	14.0	
9-28-2025 2:13:23 PM	1500	14.9	54.0	30.4	21.0	940%	3.39	-2.00	0.970	13.9	
9-28-2025 2:13:53 PM	1530	14.9	54.0	30.5	21.0	950%	3.39	-2.00	0.970	13.7	
9-28-2025 2:14:23 PM	1560	14.9	53.0	30.5	21.0	950%	3.40	-2.00	0.970	13.5	
9-28-2025 2:14:53 PM	1590	14.9	54.0	30.7	21.0	970%	3.41	-2.00	0.980	13.4	
9-28-2025 2:15:23 PM	1620	14.9	54.0	30.7	21.0	970%	3.41	-2.00	0.980	13.6	
9-28-2025 2:15:53 PM	1650	14.9	54.0	30.8	21.0	980%	3.41	-2.00	0.980	13.6	
9-28-2025 2:16:23 PM	1680	14.8	53.0	31.8	22.0	980%	3.42	-2.00	0.970	13.9	
9-28-2025 2:16:53 PM	1710	14.8	54.0	31.8	22.0	980%	3.42	-2.00	0.970	13.6	
9-28-2025 2:17:23 PM	1740	14.8	54.0	31.9	22.0	990%	3.43	-2.00	0.980	14.0	
9-28-2025 2:17:53 PM	1770	14.8	54.0	31.9	22.0	990%	3.43	-2.00	0.980	14.0	
		14.9	54.4	30.4	21.0	937%	3.40	-2.27			

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

http://www.agatlabs.com

CLIENT NAME: LNG CANADA DEVELOPMENT INC.
SHELL CENTRE-32 FLR 400-4 AVE SW BX 100
Calgary, AB T2P2H5
ATTENTION TO: Tauseef Zia Siddiqui
PROJECT:
AGAT WORK ORDER: 25C338707
AIR QUALITY MONITORING REVIEWED BY: Carmen Andrei, AQM Lab Supervisor
DATE REPORTED: Oct 10, 2025
PAGES (INCLUDING COVER): 4
VERSION*: 1

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

*Notes

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AGAT Laboratories

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

http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 25C338707

PROJECT:

CLIENT NAME: LNG CANADA DEVELOPMENT INC.

ATTENTION TO: Tauseef Zia Siddiqui

SAMPLING SITE:

SAMPLED BY:Marlon.S

PM 2.5 – Method 201A

DATE RECEIVED: 2025-09-30

DATE REPORTED: 2025-10-10

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Turbine-IE-4011B Stack-Imp.Catch-T1	Turbine-IE-4011B Stack-Imp.Catch-T2	Turbine-IE-4011B Stack-Imp.Catch-T3	Turbine-IE-4011B Stack-ProbeWash-T1	Turbine-IE-4011B Stack-ProbeWash-T2	Turbine-IE-4011B Stack-ProbeWash-T3	Turbine-IE-4011B Stack-NozzleWash-T1	Turbine-IE-4011B Stack-NozzleWash-T2
SAMPLE TYPE:				Water	Water	Water	Acetone	Acetone	Acetone	Acetone	Acetone
DATE SAMPLED:				2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-27
				7108343	7108344	7108345	7108346	7108347	7108348	7108349	7108350
Particulate - Impinger Catch	mg		0.1	1.8	1.3	1.6	-	-	-	-	-
Particulate - Probe Wash	mg		0.1	-	-	-	0.1	0.2	0.8	0.9	0.8
Particulate - Filter	mg		0.01	-	-	-	-	-	-	-	-

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Turbine-IE-4011B Stack-NozzleWash-T3	Turbine-IE-4011B Stack-Filter-T1	Turbine-IE-4011B Stack-Filter-T2	Turbine-IE-4011B Stack-Filter-T3	Turbine-IE-4011A Stack-Imp.Catch-T1	Turbine-IE-4011A Stack-Imp.Catch-T2	Turbine-IE-4011A Stack-Imp.Catch-T3	Turbine-IE-4011A Stack-ProbeWash-T1
SAMPLE TYPE:				Acetone	FILTER	FILTER	FILTER	Water	Water	Water	Acetone
DATE SAMPLED:				2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-28	2025-09-28	2025-09-28	2025-09-28
				7108351	7108352	7108353	7108354	7108355	7108356	7108357	7108358
Particulate - Impinger Catch	mg		0.1	-	-	-	-	1.5	2.4	2.3	-
Particulate - Probe Wash	mg		0.1	0.6	-	-	-	-	-	-	0.3
Particulate - Filter	mg		0.01	-	<0.01	<0.01	<0.01	-	-	-	-

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Turbine-IE-4011A Stack-ProbeWash-T2	Turbine-IE-4011A Stack-ProbeWash-T3	Turbine-IE-4011A Stack-NozzleWash-T1	Turbine-IE-4011A Stack-NozzleWash-T2	Turbine-IE-4011A Stack-NozzleWash-T3	Turbine-IE-4011A Stack-Filter-T1	Turbine-IE-4011A Stack-Filter-T2	Turbine-IE-4011A Stack-Filter-T3
SAMPLE TYPE:				Acetone	Acetone	Acetone	Acetone	Acetone	FILTER	FILTER	FILTER
DATE SAMPLED:				2025-09-28	2025-09-28	2025-09-28	2025-09-28	2025-09-28	2025-09-28	2025-09-28	2025-09-28
				7108359	7108360	7108361	7108362	7108363	7108364	7108365	7108366
Particulate - Impinger Catch	mg		0.1	-	-	-	-	-	-	-	-
Particulate - Probe Wash	mg		0.1	0.7	0.2	0.5	0.3	0.9	-	-	-
Particulate - Filter	mg		0.01	-	-	-	-	-	<0.01	<0.01	<0.01

Certified By:

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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

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Certificate of Analysis

AGAT WORK ORDER: 25C338707

PROJECT:

CLIENT NAME: LNG CANADA DEVELOPMENT INC.

ATTENTION TO: Tauseef Zia Siddiqui

SAMPLING SITE:

SAMPLED BY:Marlon.S

PM 2.5 – Method 201A

DATE RECEIVED: 2025-09-30

DATE REPORTED: 2025-10-10

		SAMPLE DESCRIPTION:		DI-H2O Blank	Acetone Blank
		SAMPLE TYPE:		Water	Acetone
		DATE SAMPLED:			
Parameter	Unit	G / S	RDL	7108367	7108368
Particulate - Impinger Catch	mg		0.1	<0.1	-
Particulate - Probe Wash	mg		0.1	-	<0.1
Particulate - Filter	mg		0.01	-	-

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

7108343-7108368 The condition of samples was satisfactory at the time of arrival in laboratory.
All results have been field blank corrected.
The Reported Detection Limit RDL is based on the detection limit of the analytical balance used: 0.1mg for the Impinger Catch and Probe Wash, and 0.01mg for filters.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

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

http://www.agatlabs.com

Method Summary

CLIENT NAME: LNG CANADA DEVELOPMENT INC.

AGAT WORK ORDER: 25C338707

PROJECT:

ATTENTION TO: Tauseef Zia Siddiqui

SAMPLING SITE:

SAMPLED BY:Marlon.S

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Air Quality Monitoring			
Particulate - Impinger Catch	AQM-43-16002	NIOSH 0500	Gravimetric
Particulate - Probe Wash	AQM-43-16002	NIOSH 0500	Gravimetric
Particulate - Filter	AQM-43-16002	NIOSH 0500	Gravimetric

Results relate only to the items tested. Results apply to samples as received.

InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

APPLIED CHEMISTRY SERVICES

TEST REPORT

RESULTS: Shaun Hayward 403-369-4749
AGAT Laboratories Ltd.
3700 21 St NE
Calgary
AB T2E 6V6

INVOICE: Accounts Payable
2905 12 St NE
Calgary
AB T2E 7J2

CLIENT SAMPLE ID: LNG - Canada/Kitmat, BC - Can # 1 - Test # 1
Matrix: Ambient Air
CANISTER ID: 2652
PRIORITY: Normal
DESCRIPTION: Turbine - 1E - 4101A
DATE SAMPLED: 28-Sep-25 10:00
DATE RECEIVED: 02-Oct-25
REPORT CREATED: 17-Oct-25
REPORT NUMBER: 25100012
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-001	Carbon dioxide		34500	ppmv	20	NA-026	02-Oct-25
25100012-001	Oxygen		167000	ppmv	26900	NA-026	02-Oct-25
25100012-001	Hydrocarbons, Total (as Methane)		403	ppmv	0.05	NA-025	03-Oct-25
25100012-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Oct-25
25100012-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing
Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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Canada T9C 1T4
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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	2652	Ambient Air	28-Sep-25 10:00

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Oct-25
25100012-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Oct-25
25100012-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Oct-25
25100012-001	1-Butene/Isobutylene		0.46	ppbv	0.06	AC-058	06-Oct-25
25100012-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	06-Oct-25
25100012-001	1-Pentene	I	0.06	ppbv	0.03	AC-058	06-Oct-25
25100012-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	06-Oct-25
25100012-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	2-Methylpentane	I	0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	3-Methylpentane	I	0.03	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Acetone		91.8	ppbv	2.4	AC-058	06-Oct-25
25100012-001	Acrolein		1.2	ppbv	0.3	AC-058	06-Oct-25
25100012-001	Benzene		0.21	ppbv	0.03	AC-058	06-Oct-25
25100012-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	2652	Ambient Air	28-Sep-25 10:00

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-001	Carbon disulfide	I	0.07	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Chloroethane	I	0.03	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Chloroform	I	0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Chloromethane		0.19	ppbv	0.04	AC-058	06-Oct-25
25100012-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	cis-2-Butene	I	0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Oct-25
25100012-001	Cyclopentane	I	0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Oct-25
25100012-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	Freon-11	I	0.05	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	Freon-12		0.10	ppbv	0.03	AC-058	06-Oct-25
25100012-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	Isobutane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	Isopentane		0.44	ppbv	0.04	AC-058	06-Oct-25
25100012-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Isopropyl alcohol		0.6	ppbv	0.3	AC-058	06-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	2652	Ambient Air	28-Sep-25 10:00

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Oct-25
25100012-001	m,p-Xylene	I	0.10	ppbv	0.04	AC-058	06-Oct-25
25100012-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Oct-25
25100012-001	Methyl ethyl ketone	I	0.5	ppbv	0.3	AC-058	06-Oct-25
25100012-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	06-Oct-25
25100012-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Oct-25
25100012-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Oct-25
25100012-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	n-Butane		0.22	ppbv	0.02	AC-058	06-Oct-25
25100012-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Oct-25
25100012-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	n-Heptane	I	0.08	ppbv	0.04	AC-058	06-Oct-25
25100012-001	n-Hexane	I	0.08	ppbv	0.03	AC-058	06-Oct-25
25100012-001	n-Octane	I	0.08	ppbv	0.02	AC-058	06-Oct-25
25100012-001	n-Pentane		0.67	ppbv	0.04	AC-058	06-Oct-25
25100012-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Oct-25
25100012-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Oct-25
25100012-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Oct-25
25100012-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	o-Xylene	I	0.04	ppbv	0.03	AC-058	06-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	2652	Ambient Air	28-Sep-25 10:00

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Oct-25
25100012-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Oct-25
25100012-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	Toluene		3.82	ppbv	0.03	AC-058	06-Oct-25
25100012-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Oct-25
25100012-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	trans-2-Butene	I	0.04	ppbv	0.03	AC-058	06-Oct-25
25100012-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25
25100012-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Oct-25
25100012-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	2502	Ambient Air	28-Sep-25 11:30

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-002	Carbon dioxide		38900	ppmv	20	NA-026	02-Oct-25
25100012-002	Oxygen		156000	ppmv	26900	NA-026	02-Oct-25
25100012-002	Hydrocarbons, Total (as Methane)		1280	ppmv	0.05	NA-025	03-Oct-25
25100012-002	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100012-002	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100012-002	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100012-002	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100012-002	1-Butene/Isobutylene		0.65	ppbv	0.06	AC-058	04-Oct-25
25100012-002	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	04-Oct-25
25100012-002	1-Pentene	I	0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	2502	Ambient Air	28-Sep-25 11:30

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-002	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	04-Oct-25
25100012-002	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Acetone		15.3	ppbv	0.4	AC-058	04-Oct-25
25100012-002	Acrolein		2.5	ppbv	0.3	AC-058	04-Oct-25
25100012-002	Benzene		0.24	ppbv	0.03	AC-058	04-Oct-25
25100012-002	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Carbon disulfide		0.28	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Chloromethane		0.18	ppbv	0.04	AC-058	04-Oct-25
25100012-002	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	2502	Ambient Air	28-Sep-25 11:30

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-002	cis-2-Butene	I	0.05	ppbv	0.03	AC-058	04-Oct-25
25100012-002	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-002	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100012-002	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	Freon-11	I	0.04	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	Freon-12	I	0.08	ppbv	0.03	AC-058	04-Oct-25
25100012-002	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	Isobutane		0.22	ppbv	0.03	AC-058	04-Oct-25
25100012-002	Isopentane		0.47	ppbv	0.04	AC-058	04-Oct-25
25100012-002	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Isopropyl alcohol	I	0.4	ppbv	0.3	AC-058	04-Oct-25
25100012-002	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-002	m,p-Xylene	I	0.07	ppbv	0.04	AC-058	04-Oct-25
25100012-002	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100012-002	Methyl ethyl ketone	I	0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	2502	Ambient Air	28-Sep-25 11:30

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-002	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100012-002	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	n-Butane		0.35	ppbv	0.02	AC-058	04-Oct-25
25100012-002	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100012-002	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	n-Heptane	I	0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-002	n-Hexane	I	0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	n-Octane	I	0.07	ppbv	0.02	AC-058	04-Oct-25
25100012-002	n-Pentane		0.21	ppbv	0.04	AC-058	04-Oct-25
25100012-002	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100012-002	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100012-002	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-002	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-002	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-002	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-002	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	Toluene		2.20	ppbv	0.03	AC-058	04-Oct-25
25100012-002	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100012-002	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	2502	Ambient Air	28-Sep-25 11:30

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-002	trans-2-Butene	I	0.08	ppbv	0.03	AC-058	04-Oct-25
25100012-002	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-002	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-002	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1359	Ambient Air	28-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-003	Carbon dioxide		31700	ppmv	20	NA-026	02-Oct-25
25100012-003	Oxygen		164000	ppmv	26900	NA-026	02-Oct-25
25100012-003	Hydrocarbons, Total (as Methane)		898	ppmv	0.05	NA-025	03-Oct-25
25100012-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100012-003	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100012-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100012-003	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100012-003	1-Butene/Isobutylene		0.69	ppbv	0.06	AC-058	04-Oct-25
25100012-003	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	04-Oct-25
25100012-003	1-Pentene	I	0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1359	Ambient Air	28-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-003	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	04-Oct-25
25100012-003	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Acetone		8.7	ppbv	0.4	AC-058	04-Oct-25
25100012-003	Acrolein		2.6	ppbv	0.3	AC-058	04-Oct-25
25100012-003	Benzene		0.46	ppbv	0.03	AC-058	04-Oct-25
25100012-003	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Carbon disulfide		0.37	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Chloromethane		0.22	ppbv	0.04	AC-058	04-Oct-25
25100012-003	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1359	Ambient Air	28-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-003	cis-2-Butene	I	0.08	ppbv	0.03	AC-058	04-Oct-25
25100012-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-003	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100012-003	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	Freon-11	I	0.06	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Freon-113	I	0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	Freon-12		0.13	ppbv	0.03	AC-058	04-Oct-25
25100012-003	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	Isobutane		0.18	ppbv	0.03	AC-058	04-Oct-25
25100012-003	Isopentane		0.50	ppbv	0.04	AC-058	04-Oct-25
25100012-003	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-003	m,p-Xylene	I	0.06	ppbv	0.04	AC-058	04-Oct-25
25100012-003	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100012-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1359	Ambient Air	28-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100012-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	n-Butane		0.27	ppbv	0.02	AC-058	04-Oct-25
25100012-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100012-003	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-003	n-Hexane	I	0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	n-Octane	I	0.07	ppbv	0.02	AC-058	04-Oct-25
25100012-003	n-Pentane		0.21	ppbv	0.04	AC-058	04-Oct-25
25100012-003	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100012-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100012-003	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-003	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100012-003	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100012-003	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	Toluene		1.64	ppbv	0.03	AC-058	04-Oct-25
25100012-003	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100012-003	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1359	Ambient Air	28-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101A

REPORT NUMBER: 25100012 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100012-003	trans-2-Butene		0.10	ppbv	0.03	AC-058	04-Oct-25
25100012-003	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100012-003	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100012-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025

Inquiries: (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

Revision History

Order ID	Ver	Date	Reason
25100012	01	17-Oct-25	Report created

Methods

Method	Description
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-025	Determination of Light Hydrocarbons (C1C4) in Ambient Air by Gas Chromatography Flame Ionization Detector
NA-026	Inert - GC/TCD Gas Analysis - Nitrogen, Oxygen, CO2, CO and Methane

List of Analytical Method IDs within InnoTech's ISO/IEC 17025:2017 CALA Scope of Accreditation

Method ID	Description
AC-020	Chlorophyll-a Phytoplankton (Fluorometric Analysis)
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-035	Analysis of Glyphosate, Aminomethylphosphonic Acid and Glufosinate in Water
AC-038	Trace Metal Analysis of Water Samples by ICP-MS
AC-048	Specific Conductance (Conductivity Meter Method)
AC-049	pH (Meter Method)
AC-054	Alkalinity Total and Phenolphthalein
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-060	Trace Metal Analysis of Soil Sediment and Industrial Waste Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-061	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-065	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-074	Pesticides in Water
AC-080	Alkylated PAH in Water (SPE Extraction)
NA-006	Determination of BTEX, F1 Hydrocarbons and F2, F3 and F4 Hydrocarbons in Water
NA-024	Analysis of Reduced Sulfur Compounds in Air

Qualifiers

Data Qualifier	Translation
B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Order Comments

25100012

Project # 25C338707

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Sample Comments

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Result Comments

Note:

1. Results relate only to items tested and apply to the sample as received.

2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.

AGAT Laboratories

2420, 42 Avenue NE
Calgary, AB
T2E 7T6
webair.agatlabs.com
P: 403.736.5300

Chain of Custody Record

Laboratory Use Only

AGAT Job Number: 25C338707

Notes:

Report Information

Company: AGAT Labs
Contact: Shaun Hayward
Address: 3700 21st NE Calgary T2E 6V6
Phone: 403-369-4749 Fax:
LSD:
Client Project #:

Invoice To Same Yes ☑ / No ☐

Company: LNG-CANADA
Contact:
Address:
Phone: Fax:
PO/AFE#:

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	DATE/TIME INSTALLED	DATE/TIME EXTRACTED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	# OF CONTAINERS	H2S Passive	SO2 Passive	NO2 Passive	O3 Passive	Sulphation	Dustfall	PM-2.5			DUPLICATE	BLANK
	LNG-CANADA			LNG-Canada,Kitimat,BC												
	PM 2.5 @-Turbine-1E-4011B Stack															
	Imp.Catch-T1		27-Sept-2025									☑				
	Imp. Catch-T2		27-Sept-2025									☑				
	Imp.Catch-T3		27-Sept-2025									☑				
	Probe Wash -T1		27-Sept-2025									☑				
	Probe Wash -T2		27-Sept-2025									☑				
	Probe Wash-T3		27-Sept-2025									☑				
	Nozzle Wash-T1		27-Sept-2025									☑				
	Nozzle Wash-T2		27-Sept-2025									☑				
	Nozzle Wash-T3		27-Sept-2025									☑				
	Filter-T1		27-Sept-2025									☑				
	Filter-T2		27-Scpt-2025									☑				
	Filter-T3		27-Scpt-2025									☑				
	PM 2.5 @-Turbine-1E-4011A Stack															
	Imp.Catch-T1		28-Sept-2025									☑				
	Imp.Catch-T2		28-Scpt-2025									☑				
	Imp.Catch-T3		28-Sept-2025									☑				

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Marlon Soriano	30-09-2025	Austin Bowles-Post	Sept 30, 2025
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°:

AGAT Laboratories

2420, 42 Avenue NE
Calgary, AB
T2E 7T6
webair.agatlabs.com
P: 403.736.5300

Chain of Custody Record

Laboratory Use Only

AGAT Job Number: 25C338707

Notes:

Report Information

Company: AGAT Labs
Contact: Shaun Hayward
Address: 3700 21st NE Calgary T2E 6V6
Phone: 403-369-4749 Fax:
LSD:
Client Project #:

Invoice To Same Yes ☑ / No ☐

Company: LNG-CANADA
Contact:
Address:
Phone: Fax:
PO/AFE#:

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	DATE/TIME INSTALLED	DATE/TIME EXTRACTED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	# OF CONTAINERS	H2S Passive	SO2 Passive	NO2 Passive	O3 Passive	Sulphation	Dustfall	PM-2.5			DUPLICATE	BLANK
	LNG-CANADA			LNG-Canada,Kitimat,BC												
	PM 2.5 @-Turbine-1E-401A Stack															
	Probe Wash -T1		28-Sept-2025									☑				
	Probe Wash -T2		28-Sept-2025									☑				
	Probe Wash-T3		28-Sept-2025									☑				
	Nozzle Wash-T1		28-Sept-2025									☑				
	Nozzle Wash-T2		28-Sept-2025									☑				
	Nozzle Wash-T3		28-Sept-2025									☑				
	Filter-T1		28-Sept-2025									☑				
	Filter-T2		28-Sept-2025									☑				
	Filter-T3		28-Sept-2025									☑				
	DI-H20 Blank															☑
	Acetone Blank															☑

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Marlon Soriano	30-09-2025	Austin Bowles Post	Sept 30, 2025
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°:

InnoTech ALBERTA
A SUBSIDIARY OF ALBERTA INNOVATES

Sample ID: 25100012-001 **Priority:** Normal

Customer ID: AGAT
Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 1 - Te

Environmental Analytical Services
Highway 16A & 75 Street
Vegreville, AB T9C 1T4

Phone: 780-632-8403
Email: EAS.Reception@innotechalberta.ca
www.innotechalberta.ca

Client Reporting Information

Company: AGAT LABS
Address: 3700 21 St. NE
Calgary AB, T2E, 6V6
Contact: Sherzm Haywood
Phone: 403-369-4749
Email: haywood@agatlabs.com

Client Billing Information

Contact: Sherzm Haywood
Phone: 403-369-4749
Email: haywood@agatlabs.com
Project ID: 25C338707
PO #:

Turnaround Time (TAT)

- (✓) Normal (10 business days)
- ( ) Rush (5 business days) (50% surcharge)
- ( ) Emergency (3 business day) (100% surcharge)

NOTE: Rush and Emergency TAT is not available for all tests.
Confirm all rush and Emergency requests with the Laboratory before submitting samples.

SAMPLE TYPE SOURCE* / AMBIENT (indicate as applicable)

Date Received - Lab Use Only
RECEIVED
OCT 0 2 2025

Special Instructions/Comments

* For source samples, please Indicate possible high-level parameters which may be present.

Lab Sample Number	Client Sample ID	Sample Source/ Description	Canister Number/ Sampler ID	Date Sampled (mm/dd/yy) From / To	Time Sampled (24 hour) From / To	Analysis Requested
1	LNG- Canada/Kitimat-BC Canister #1, Test-1	Turbine - 1E -4101A	2652	09/28/2025	10:00 10:30	VOC, HC-T, O_2, CO_2
2	LNG- Canada/Kitimat-BC Canister #2, Test-2	Turbine - 1E -4101- A	2502	09/28/2025	11:30 12:00	VOC, HC-T, O_2, CO_2
3	LNG-Canada/Kitimat-BC Canister #3, Test-3	Turbine - 1E -4101 - A	1359	09/28/2025	13:00 13:30	VOC, HC-T, O_2, CO_2

Client Authorization: _____ (Signature)

Laboratory Personnel: _____ (Signature)

This "Chain of Custody" form is subject to InnoTech Alberta standard terms and conditions.

InnoTech ALBERTA

Canister ID: 2652

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: 1503 on: AUG 2 1 2025

Evac Sample ID: 25100012-001 Priority: Normal

Start Customer ID: AGAT

Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 1 - Te

-a.1 "Hg | 3.8 "Hg/psig

Sample ID: Canister-1 Test-1

Sampled By: VK-MS

Stack:- Turbine-1E-4101-A
Date:- 28 Sept. 2025
Affix label here
Start: 10:00
End: 10:30

Parameters:
VOC, HC-T, O_2, CO_2

InnoTech

Canister ID: 2502

This cleaned canister meets or exceeds TO-15 Method

Proof Sample ID: 25100012-002 Priority: Normal

Evacu

Customer ID: AGAT

Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 2 - Te

Starting Vacuum: -27.7 "Hg

End Vacuum: -5.0 "Hg/ psig

Sample ID: Canister-2 Test-2

Sampled By: VK-MS

Stack: Turbine-1E-4101-A
Date: 28 Sep. 2025
Affix label here
Start 11:30
End 12:00

Parameters
VOC, HC-T, O_2, CO_2

InnoTech ALBERTA

Canister ID: 1359

This cleaned canister meets or exceeds TO-15 Method Specifications

Proc 1503 on: AUG 13 2025

Eva Sample ID: 25100012-003 Priority: Normal

Sta Customer ID: AGAT

Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 3 - Te

-a.1 "Hg | "Hg/ psig

Sample ID: Canister-3 Test-3

Sampled By: VK-MS

Stack: Turbine-1E-4101-A
Date:- 28 Sep. 2025
Affix label here
Start: 1300
End: 1330

Parameters:-
VOC, HC-T, O_2, CO_2

{00004818;6}

TERMS AND CONDITIONS

The attached document entitled "**Chain of Custody Form**" is subject to the following Terms and Conditions, unless otherwise specified on the Quotation. InnoTech Alberta's commencement of the Services shall be deemed acceptance of the terms and conditions by the Client.

1. Any proposal contained herein is prepared for the consideration of the Client only. Its contents may not be used or disclosed to any other party without prior written consent of the INNOTECH ALBERTA INC. (hereinafter referred to as "InnoTech Alberta").

2. InnoTech Alberta will perform the Services in accordance with normal professional standards.

3. The delivery time for performance of the Services (as set out on the front page of this Quotation) is approximate and may be changed by InnoTech Alberta giving written notice to the Client.

4. InnoTech Alberta will exercise due care and proficiency in testing items submitted by a Client. InnoTech Alberta shall not, however, be liable to the Client for any damage or loss caused to the item being tested or for any damage, loss or expense caused by any delay in carrying out the test, including any damage, loss or expense resulting from InnoTech Alberta's negligence. InnoTech Alberta shall not be responsible for any damage, which is a natural or necessary result of any testing procedure.

5. For the purposes of this Quotation, Intellectual Property means all information, data, artistic and literary works, concepts, designs, processes, software, algorithms and inventions, including, without limitation, those that could be the subject of patent, copyright, industrial design, trade secret or other forms of protection. Intellectual Property which was owned by either InnoTech Alberta or the Client prior to the signing of this Agreement remains the property of that party. Nothing in this Agreement shall operate as a license, permission or grant of any other rights to either InnoTech Alberta's or the Client's Intellectual Property.

6. All data, reports and other information relating to the Services shall be treated by InnoTech Alberta as the confidential property of the Client, and InnoTech Alberta will use reasonable efforts to ensure that its employees, contractors and agents will not disclose the same to any other person, firm or corporation during the term of this Agreement and for a period of five (5) years after the date of termination of the Agreement. The obligation of confidentiality set out herein shall not apply to any information that was in InnoTech Alberta's possession prior to receipt from the Client or which is or becomes part of the public domain through no act or failure on the part of InnoTech Alberta. The obligation of confidentiality set out in this Section shall not prevent the disclosure of information to any level of government having jurisdiction to make lawful demand therefor, or required to be disclosed by any applicable law. Any records required to be maintained by InnoTech Alberta pursuant to this Agreement are subject to the protection and access provisions of the Freedom of Information and Protection of Privacy Act (Alberta).

7. The reported results of any InnoTech Alberta tests or evaluations performed on samples or items provided by the Client shall be interpreted as being specific to the sample or item tested. InnoTech Alberta makes no representation that any similar or related untested samples or items would produce the same results.

8. The Client shall not use InnoTech Alberta's name in any advertising material, sale offer, news releases, public statements or announcements, whether written or oral relating to the Services or the results thereof, without the prior written consent of InnoTech Alberta.

9. Records, test data, reports and samples, except where shipped to the Client after completion of the work shall be retained by InnoTech Alberta according to InnoTech Alberta's approved Records Retention and Disposition Schedule.

10. Prices quoted are in Canadian Dollars unless otherwise stated in writing and are exclusive of any provincial, municipal, sales, use or goods and services tax.

11. Prices quoted do not include shipping, insurance or cost of consumables. The Client shall be responsible for all costs incurred by InnoTech Alberta in collecting any item for testing and returning the item to the Client after testing and shall be responsible for all necessary incidental costs incurred by InnoTech Alberta in providing the Services. InnoTech Alberta will not be responsible for any damage or loss to items during shipping and it is the responsibility of the Client to arrange and pay for any insurance it deems necessary.

12. Any test samples or other materials supplied by the Client to InnoTech Alberta may, at InnoTech Alberta's option, be returned by InnoTech Alberta to the Client. The Client shall:

(a) be responsible for all costs associated with the handling, transportation and disposal of such materials;

(b) reimburse InnoTech Alberta for any costs incurred by InnoTech Alberta associated with the handling, transportation and disposal of such materials; and

(c) indemnify and hold InnoTech Alberta harmless from any and all claims, damages or actions associated with the handling, transportation and disposal of such materials.

13. The Client shall pay all invoices rendered by InnoTech Alberta to the Client within thirty (30) days from the date of invoice, without deduction or set-off.

14. If the Client fails to pay any amount under this Agreement, such unpaid amount shall bear interest at a rate per month equal to one (1%) percent (or 12.6825% per annum) with interest on overdue interest at the same rate.

15. InnoTech Alberta makes no representation, warranties or conditions, either expressed or implied, statutory or otherwise and does not warrant the quality, state, merchantability or fitness for any purpose of any goods or products to be delivered pursuant to this Agreement. The Client accepts the results of these Services or items tested as is, and acknowledges that any use or interpretation of the information contained is at the Client's own risk.

16. In no event shall InnoTech Alberta be liable for any indirect or consequential damage or loss suffered by the Client, including loss of anticipated profits.

17. The Client shall indemnify and hold harmless InnoTech Alberta from any and all claims, demands, actions and costs (including legal costs on a solicitor-client basis) that may arise out of:

(a) any dangerous defect or content in the item being tested, whether apparent or not, which dangerous defect or content was not disclosed in writing to InnoTech Alberta by the Client at the time the item was submitted for testing;

(b) differences between those items actually tested and items previously or subsequently produced which are purported to be identical to the item tested; or

(c) any use of the tested item or any item incorporating the tested item, whether by the Client or a third party following its return to the Client.

The hold harmless shall survive this Agreement.

18. The Client shall, at its own expense and without limiting its liabilities herein, be responsible for insuring its operation in an amount not less than $2,000,000 inclusive per occurrence, insuring against bodily injury, and property damage including loss of use thereof. Further, the Client is responsible for insuring all owned property directly or indirectly related to this Agreement and InnoTech Alberta shall have no liability for any loss or damage to such property.

19. InnoTech Alberta shall maintain the following insurance: (i) commercial general liability insurance (including cross liability, severability of interests, non-owned automobile liability) in the amount of two million dollars ($2,000,000.00) per occurrence, and; (ii) professional liability and errors and omissions insurance in the amount of one million dollars ($1,000,000.00) per claim, and two million dollars ($2,000,000.00) in the aggregate. In addition, InnoTech Alberta shall maintain all workers' compensation coverage required by applicable laws. Notwithstanding the foregoing, InnoTech Alberta reserves the right to supplement or add insurance coverage from time to time as may be required in its sole discretion. InnoTech Alberta may provide certificates of insurance for coverages outlined in (i) and (ii) above.

20. The Client agrees to comply with all InnoTech Alberta Safety & Security regulations in effect while on InnoTech Alberta premises.

21. This Agreement represents the entire agreement between the parties and shall supersede all prior agreements relative to this transaction.

22. If a party's performance of any of its obligations under this Agreement (excepting only an obligation to pay) is delayed, rendered impossible or impractical, or prevented in whole or in part due to circumstances beyond its reasonable control, including but not limited to acts of God, war, terrorism, labour disputes, pandemics or epidemics, global health emergencies, or governmental action, that party will not be in breach of this Agreement due to the delay or failure in performance occasioned by such event..

23. InnoTech Alberta may assign this Quotation to an "affiliated" (as that term is defined at Section 2 of the Business Corporations Act (Alberta)) or successor entity on written notice to the Client.

24. This Quotation and rights and parties thereto shall be governed by and construed according to the laws of the Province of Alberta. The parties hereby submit to the jurisdiction of the Courts of Alberta.

CERTIFICATE OF ACCREDITATION

Standards Council of Canada
Conseil canadien des normes

CERTIFICAT D'ACCRÉDITATION

AGAT LABORATORIES LTD. OIL AND GAS CHEMISTRY DIVISION WESTERN CANADA

3650 – 21st Street, N.E., Calgary, AB T2E 6V6

having been assessed by the Standards Council of Canada (SCC) and found to conform with the requirements of ISO/IEC 17025:2005 and the conditions for accreditation established by SCC is hereby recognized as an

ayant fait l'objet d'une évaluation du Conseil canadien des normes (CCN), et ayant été trouvé conforme aux exigences énoncées dans ISO/IEC 17025:2005 et aux conditions d'accréditation établies par le CCN, est de ce fait reconnu comme étant un

ACCREDITED TESTING LABORATORY

LABORATOIRE D'ESSAIS ACCRÉDITÉ

for the specific tests or types of tests listed in the scope of accreditation approved by SCC and found on the SCC website at www.scc.ca.

pour les essais ou types d'essais énumérés dans la portée d'accréditation approuvée par le CCN et figurant dans le site Web du CCN au www.ccn.ca.

Accredited laboratory number: / Numéro de laboratoire accrédité : 672

SCC file number: / Dossier du CCN n° : 15827

Initial accreditation date: / Date de la première accréditation : 2010-04-27

.....

Vice-President – Accreditation Services / Vice-présidente – Services d'accréditation

Issued on: / Délivré le : 2017-07-04

The validity of this certificate, including the date of last re-accreditation and its expiry can be confirmed by the accompanying Scope of Accreditation document in the Directory of Accredited Laboratories on the SCC website at www.scc.ca.

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. The accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF communiqué dated April 2017).

Pour vérifier la validité du présent certificat, y compris la date de la dernière réaccréditation et la date d'expiration du certificat, consulter la portée d'accréditation qui se trouve dans le répertoire des laboratoires accrédités dans le site Web du CCN au www.ccn.ca.

Ce laboratoire est accrédité conformément à la Norme internationale reconnue ISO/IEC 17025:2005. Cette accréditation démontre la compétence technique d'un organisme pour une portée définie et l'exploitation d'un système de management de la qualité de laboratoire (cf. communiqué conjoint ISO-ILAC-IAF date de avril 2017).

This certificate is the property of the Standards Council of Canada (SCC) and must be returned on request; reproduction is prohibited except on written approval of SCC.
Ce certificat est la propriété du Conseil canadien des normes (CCN) et doit lui être remis sur demande; toute reproduction est interdite sans l'autorisation écrite du CCN.

Canada

ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND SAFETY

Environmental:

Air

AQM-43-16000	Determination of Anions by Ion Chromatography (Modified APHA Method 4110B; EPA 6, EPA 8, ASSC Method 8, EPA 26, MMCAAP Method 47071, NIOSH 7906, NIOSH 7907, NIOSH 7908, NIOSH 6004, OSHA ID-200, OSHA ID-182, OSHA ID-214) Fluoride (F^-) Chloride (Cl^-) Bromide (Br^-) Phosphate (PO_4^{3-}) Nitrite (NO_2^-) Nitrate (NO_3^-) Sulphate (SO_4^{2-}) Sulfite (SO_3^{2-}) Sulfur Dioxide (SO_2) Sulfuric Acid mist (H_2SO_4)
AQM-43-16002	Gravimetric Determination of Particulate Matter from Stationary and Other Sources (Modified Alberta Stacks Sampling Code Method 5,AENV, US EPA Method 5, US EPA Method 201A and US EPA 17)
AQM-43-16004	Determination of Nitrogen Dioxide (NO_2) in the Air by Ion Chromatography (in-house)
AQM-43-16005	Determination of Nitrogen Oxide (NOx), from Stationary Sources (Alberta Stack Sampling Code, Method 7A, and Method 7D AENV; US EPA Method 7A; US EPA Method 7D)
AQM-43-16006	Determination of Hydrogen Sulfide (H_2S) in Air by Spectrofluorophotometery (in-house)
AQM-43-16007	Determination of Sulfur Dioxide (SO_2) in Air by Ion Chromatography (in-house)
AQM-43-16008	Determination of Ozone (O_3) in Air by Ion Chromatography (in-house)
AQM-43-16009	Determination of Dustfall (Total, Fixed, Soluble, Insoluble and Total Suspended Solids) by Gravimetric Analysis (Modified ASTM D1739, “Methods Manual for Chemical Analysis of Atmospheric Pollutants”, Method No. 32020, EPHA 2540B, 2540E, 2540D)
AQM-43-16010	Determination of Total Particulate and Dew Point in Air and Other Sources (Modified ASTM D1142, NIOSH 0500, Colorimetry)
AQM-43-16011	Determination of Ammonia (as N) and Hydrogen Sulfide in Aqueous Samples by Colorimetry (Modified Methods Manual for Chemical Analysis of Atmospheric Pollutants Method #41515, Method #43535)
AQM-43-16012	Determination of Ammonia (NH_3) in Air by Spectrofluorophotometry (in-house)

IHF-60-25002	Determination of Fixed Gases and Volatile Hydrocarbons in Air by Gas Chromatography (Modified ASTM D1946, EPA TO-14A,TO-15, NIOSH 6602, EPA 10B, ASSC Method 18, EPA 18, ASSC Method 3C, EPA 3C) Oxygen — Nitrogen Methane — Ethane Carbon Monoxide — Carbon Dioxide Non Methane Volatile Hydrocarbons — Volatile Halogenated Hydrocarbons Nitrous Oxide — Sulfur Hexafluoride C3-C12 — Dimethyl Ether 1,1,1-Trichloroethane — 1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane — 1,1-Dichloroethane 1,1-Dichloroethene — 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene — 1,2-Dibromoethane (EDB) 1,2-Dichlorobenzene — 1,2-Dichloroethane 1,2-Dichloropropane — 1,3,5-Trimethylbenzene 1,3-Dichlorobenzene — 1,4-Dichlorobenzene Benzene — Bromomethane Carbon tetrachloride — Chlorobenzene Chloroethane — Chloroform Chloromethane — cis-1,2-Dichloroethene cis-1,3-Dichloropropene — Dichlorodifluoromethane Dichlorotetrafluoroethane (R114) — Ethylbenzene Hexachlorobutadiene — Methylene chloride m-Xylene — o-Xylene p-Xylene — Styrene Tetrachloroethene — Toluene trans-1,3-Dichloropropene — Trichloroethene Trichlorofluoromethane — Trichlorotrifluoroethane (R113) Vinyl chloride

Canadian Association for Laboratory Accreditation Inc.

Certificate of Accreditation

InnoTech Alberta Inc - Environmental Analytical Services (Vegreville)
InnoTech Alberta Inc.
Highway 16A and 75th Street
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This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

Accreditation No.: 1002789
Issued On: 4/11/2025
Accreditation Date: 1/3/2005
Expiry Date: 10/11/2027

President and CEO

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Appendix IV – Field Data Sheets

CYCLONE RUN 1 DATA

Plant Name	LNG-CANADA	**Date**	9/28/2025
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)	**Cyclone**	PM2.5 Cyclone
Operator	MS-VK	**Run #**	1
# of Points Across	4	**# of Ports Used**	4

Temperatures and Pressures			
Avg Stack Temp	(t_s)	329	^oF
Avg Gas Meter Temp	(t_m)	50	^oF
DH @ 0.75 SCFM	($\Delta H@$)	1.96	in H_2O
Barometric Pressure	(P_b)	29.6	in Hg
Stack Static Pressure	(P_{static})	-0.42	in H_2O
Absolute Stack Pressure	(P_s)	29.54	in Hg
Absolute Meter Pressure	(P_m)	29.71	in Hg

Gas Composition			
Carbon Dioxide Concentration	(%CO_2)	3.000	%
Oxygen Concentration	(%O_2)	16	%
Carbon Monoxide Concentration	(%CO)	0.0000	%
Nitogen Concentration	(%N_2)	81.00	%
Stack Moisture Content	(B_{ws})	8	%
Stack Dry Molecular Weight	(M_d)	29.12	lb/lb-mole
Stack Wet Molecular Weight	(M_s)	28.29	lb/lb-mole
Method 201A Pitot Coefficient	(C'_p)	0.819	
Probe Blockage Factor	(b_f)	0.00	
Viscosity of Stack Gas		237.236	micropoise

Flow Rate Calculations			
Cyclone Flow Rate		0.62	acfm
Orifice Pressure Head		0.50	in H_2O
Average Stack Velocity		46.48	ft/sec
Nozzle Diameter Desired		0.20	in
Nozzle Diameter Used		0.20	in
Nozzle Velocity		46.14	ft/sec
Minimum Velocity Head		0.19	in H_2O
Maximum Velocity Head		0.77	in H_2O

ΔQ_m Leak Checks					
Pre	0	ft^3/min	@	15	in Hg
Mid	0	ft^3/min	@	15	in Hg
Post	0	ft^3/min	@	15	in Hg
ΔQ_m <	0.020	ft^3/min	☑	**Ok?**	
Pitot OK?	☑		**Orsat OK?**		☑

Traverse Point #	Dwell Time (Θ)	Clock Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Desired Orifice ΔH (ΔH)	Actual Orifice ΔH (ΔH)	Stack Temp (t_s)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Filter Temp	Impinger Exit Temp	Pump Vacuum	Square Root ΔP ($\Delta p^{1/2}$)	Local Stack Velocity (v_s)$_l$	Cumulative Meter Volume (V_m)$_{std}$	Cumulative Percent IsoKinetic (I)	Estimated Cut Diameter PM2.5
	min	hh:mm:ss	ft^3	in H_2O	in H_2O	in H_2O	^oF	^oF	^oF	^oF	^oF	in Hg	(in H_2O)$^{1/2}$	ft/sec	scf	%	microns
A-1	3.6	10:00:00	0.000	0.45	0.496	0.493	329	49	49	250	45	-3.0	0.67	45.64	1.354	100.2	2.47
A-2	3.7	10:03:36	1.321	0.47	0.496	0.493	329	49	49	250	45	-3.0	0.69	46.64	2.788	101.0	2.47
A-3	3.7	10:07:16	2.721	0.47	0.496	0.493	329	49	49	250	45	-3.0	0.69	46.64	4.195	100.5	2.47
A-4	3.7	10:10:56	4.094	0.49	0.496	0.493	329	49	49	250	45	-3.0	0.70	47.63	5.657	100.3	2.47
B-1	3.7	10:14:41	5.521	0.47	0.496	0.493	329	49	49	250	45	-3.0	0.69	46.64	7.128	101.1	2.47
B-2	3.7	10:18:22	6.957	0.48	0.496	0.493	329	49	49	250	45	-3.0	0.69	47.14	8.555	100.7	2.47
B-3	3.8	10:22:04	8.350	0.50	0.496	0.493	329	49	49	250	45	-3.0	0.71	48.11	10.055	100.6	2.47
B-4	3.7	10:25:52	9.814	0.48	0.496	0.493	328	49	49	250	45	-3.0	0.69	47.11	11.542	100.9	2.47
C-1	3.7	10:29:34	11.265	0.49	0.496	0.493	328	49	49	250	46	-3.0	0.70	47.60	12.923	100.1	2.47
C-2	3.8	10:33:19	12.613	0.50	0.496	0.493	328	51	51	250	46	-3.0	0.71	48.08	14.331	99.5	2.48
C-3	3.7	10:37:06	13.992	0.49	0.496	0.493	328	51	51	250	46	-3.0	0.70	47.60	15.798	99.5	2.48
C-4	3.7	10:40:51	15.430	0.48	0.496	0.493	328	51	51	250	46	-3.0	0.69	47.11	17.375	100.3	2.48
D-1	3.7	10:44:34	16.974	0.49	0.496	0.493	329	51	51	250	46	-3.0	0.70	47.63	18.748	99.8	2.48
D-2	3.8	10:48:19	18.320	0.50	0.496	0.493	329	51	51	250	46	-3.0	0.71	48.11	20.284	100.0	2.48
D-3	3.7	10:52:06	19.825	0.48	0.496	0.493	329	51	51	250	46	-3.0	0.69	47.14	21.660	99.7	2.48
D-4	3.7	10:55:49	21.173	0.49	0.496	0.493	328	51	51	250	46	-3.0	0.70	47.60	23.157	99.8	2.48
Last Pt		10:59:34	22.640														
Final Values	59.6	10:59:34	22.640						**Maximum Vacuum**			-3.0	**Final Values**		23.157	99.8	
Average Values				0.48		0.49	329	50	50	250	46		0.70	47.28			
								50									

CYCLONE RUN 2 DATA

Plant Name	LNG-CANADA	**Date**	9/28/2025
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)	**Cyclone**	PM2.5 Cyclone
Operator	MS-VK	**Run #**	2
# of Points Across	4	**# of Ports Used**	4

Temperatures and Pressures			
Avg Stack Temp	(t_s)	329	^oF
Avg Gas Meter Temp	(t_m)	54	^oF
DH @ 0.75 SCFM	($\Delta H@$)	1.96	in H_2O
Barometric Pressure	(P_b)	29.6	in Hg
Stack Static Pressure	(P_{static})	-0.42	in H_2O
Absolute Stack Pressure	(P_s)	29.54	in Hg
Absolute Meter Pressure	(P_m)	29.71	in Hg

Gas Composition			
Carbon Dioxide Concentration	(%CO_2)	3.000	%
Oxygen Concentration	(%O_2)	15	%
Carbon Monoxide Concentration	(%CO)	0.0000	%
Nitogen Concentration	(%N_2)	82.00	%
Stack Moisture Content	(B_{ws})	8	%
Stack Dry Molecular Weight	(M_d)	29.08	lb/lb-mole
Stack Wet Molecular Weight	(M_s)	28.25	lb/lb-mole
Method 201A Pitot Coefficient	(C'_p)	0.819	
Probe Blockage Factor	(b_f)	0.00	
Viscosity of Stack Gas		236.608	micropoise

Flow Rate Calculations			
Cyclone Flow Rate		0.62	acfm
Orifice Pressure Head		0.50	in H_2O
Average Stack Velocity		46.48	ft/sec
Nozzle Diameter Desired		0.20	in
Nozzle Diameter Used		0.20	in
Nozzle Velocity		46.04	ft/sec
Minimum Velocity Head		0.18	in H_2O
Maximum Velocity Head		0.77	in H_2O

ΔQ_m	Leak Checks				
Pre	0	ft^3/min	@	15	in Hg
Mid	0	ft^3/min	@	15	in Hg
Post	0	ft^3/min	@	15	in Hg
ΔQ_m <	0.020	ft^3/min	☑	**Ok?**	
Pitot OK?	☑		**Orsat OK?**		☑

Traverse Point #	Dwell Time (Θ)	Clock Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Desired Orifice ΔH (ΔH)	Actual Orifice ΔH (ΔH)	Stack Temp (t_s)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Filter Temp	Impinger Exit Temp	Pump Vacuum	Square Root ΔP ($\Delta p^{1/2}$)	Local Stack Velocity (v_s)$_l$	Cumulative Meter Volume (V_m)$_{std}$	Cumulative Percent IsoKinetic (I)	Estimated Cut Diameter PM2.5
	min	hh:mm:ss	ft^3	in H_2O	in H_2O	in H_2O	^oF	^oF	^oF	^oF	^oF	in Hg	(in H_2O)$^{1/2}$	ft/sec	scf	%	microns
A-1	3.6	11:30:00	0.000	0.43	0.497	0.493	328	53	53	250	46	-3.0	0.66	44.62	1.337	101.1	2.48
A-2	3.6	11:33:36	1.315	0.44	0.497	0.493	328	53	53	250	46	-3.0	0.66	44.88	2.688	101.1	2.48
A-3	3.6	11:37:12	2.644	0.43	0.497	0.493	328	53	53	250	46	-3.0	0.66	44.62	4.026	101.1	2.48
A-4	3.6	11:40:48	3.960	0.44	0.497	0.493	328	53	53	250	46	-3.0	0.66	45.13	5.403	101.3	2.48
B-1	3.8	11:44:26	5.315	0.47	0.497	0.493	328	53	53	250	46	-3.0	0.69	46.65	6.812	100.5	2.48
B-2	3.8	11:48:12	6.701	0.48	0.497	0.493	329	53	53	250	46	-3.0	0.69	47.17	8.336	101.0	2.47
B-3	3.7	11:51:59	8.200	0.46	0.497	0.493	329	53	53	250	46	-3.0	0.68	46.18	9.739	100.8	2.47
B-4	3.8	11:55:42	9.580	0.49	0.497	0.493	328	53	53	250	46	-3.0	0.70	47.63	11.264	100.9	2.48
C-1	3.9	11:59:33	11.080	0.50	0.497	0.493	328	54	54	250	47	-3.0	0.71	48.11	12.766	100.5	2.48
C-2	3.9	12:03:25	12.560	0.50	0.497	0.493	328	54	54	250	47	-3.0	0.71	48.11	14.334	100.7	2.48
C-3	3.9	12:07:18	14.105	0.50	0.497	0.493	329	55	55	250	47	-3.0	0.71	48.14	15.844	100.4	2.48
C-4	3.8	12:11:10	15.596	0.49	0.497	0.493	329	55	55	250	47	-3.0	0.70	47.66	17.418	100.8	2.48
D-1	3.9	12:15:00	17.150	0.51	0.497	0.493	330	55	55	250	47	-3.0	0.71	48.65	18.963	100.6	2.48
D-2	4.0	12:18:55	18.675	0.53	0.497	0.493	330	56	56	250	47	-3.0	0.73	49.60	20.392	99.6	2.48
D-3	4.1	12:22:54	20.089	0.56	0.497	0.493	331	56	56	250	47	-3.0	0.75	51.01	22.107	99.7	2.48
D-4	4.2	12:27:00	21.785	0.58	0.497	0.493	331	56	56	250	47	-3.0	0.76	51.92	23.906	99.9	2.48
Last Pt		12:31:11	23.564														
Final Values	61.2	12:31:11	23.564						**Maximum Vacuum**			-3.0	**Final Values**		23.906	99.9	
Average Values				0.49		0.49	329	54	54	250	47		0.70	47.50			
								54									

CYCLONE RUN 3 DATA

Plant Name	LNG-CANADA	**Date**	9/28/2025
Sampling Location	LNG - Kitimat (Turbine-1E-4101A)	**Cyclone**	PM2.5 Cyclone
Operator	MS-VK	**Run #**	3
# of Points Across	4	**# of Ports Used**	4

Temperatures and Pressures				
Avg Stack Temp	(t_s)	341	°F	1.10
Avg Gas Meter Temp	(t_m)	58	°F	9.86
DH @ 0.75 SCFM	($\Delta H@$)	1.96	in H_2O	10.43
Barometric Pressure	(P_b)	29.6	in Hg	0.63
Stack Static Pressure	(P_{static})	-0.42	in H_2O	2375.95
Absolute Stack Pressure	(P_s)	29.54	in Hg	2.42
Absolute Meter Pressure	(P_m)	29.71	in Hg	1.10
				9.87
				10.43

Flow Rate Calculations				
Cyclone Flow Rate		0.63	acfm	0.63
Orifice Pressure Head		0.50	in H_2O	2374.57
Average Stack Velocity		46.48	ft/sec	2.42
Nozzle Diameter Desired		0.20	in	
Nozzle Diameter Used		0.20	in	
Nozzle Velocity		46.93	ft/sec	
Minimum Velocity Head		0.19	in H_2O	
Maximum Velocity Head		0.79	in H_2O	

Gas Composition			
Carbon Dioxide Concentration	($\%CO_2$)	3.000	%
Oxygen Concentration	($\%O_2$)	15	%
Carbon Monoxide Concentration	(%CO)	0.0000	%
Nitogen Concentration	($\%N_2$)	82.00	%
Stack Moisture Content	(B_{ws})	8	%
Stack Dry Molecular Weight	(M_d)	29.08	lb/lb-mole
Stack Wet Molecular Weight	(M_s)	28.22	lb/lb-mole
Method 201A Pitot Coefficient	(C'_p)	0.819	
Probe Blockage Factor	(b_f)	0.00	
Viscosity of Stack Gas		239.577	micropoise

ΔQ_m	Leak Checks				
Pre	0	ft^3/min	@	15	in Hg
Mid	0	ft^3/min	@	15	in Hg
Post	0	ft^3/min	@	15	in Hg
ΔQ_m <	0.020	ft^3/min	☑	**Ok?**	
Pitot OK?	☑		**Orsat OK?**		☑

Traverse Point #	Dwell Time (Θ)	Clock Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Desired Orifice ΔH (ΔH)	Adjusted Velocity Head ($\Delta p)_s$	Actual Orifice ΔH (ΔH)	Stack Temp (t_s)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Filter Temp	Impinger Exit Temp	Pump Vacuum	Square Root ΔP ($\Delta p^{1/2}$)	Local Stack Velocity $(v_s)_l$	Cumulative Meter Volume $(V_m)_{std}$	Cumulative Percent IsoKinetic (I)
	min	hh:mm:ss	ft^3	in H_2O	in H_2O		in H_2O	°F	°F	°F	°F	°F	in Hg	(in $H_2O)^{1/2}$	ft/sec	scf	%
A-1	3.6	13:00:00	0.000	0.45	0.502	0.450	0.505	338	57	57	250	46	-3.0	0.67	45.96	1.729	129.0
A-2	3.6	13:03:36	1.714	0.46	0.502	0.460	0.505	339	57	57	250	46	-3.0	0.68	46.50	3.491	128.8
A-3	3.6	13:07:14	3.461	0.46	0.502	0.460	0.505	340	57	57	250	46	-3.0	0.68	46.52	5.261	129.0
A-4	3.6	13:10:52	5.215	0.44	0.502	0.440	0.502	339	57	57	250	46	-3.0	0.66	45.47	6.957	129.1
B-1	3.6	13:14:25	6.896	0.45	0.502	0.450	0.502	339	57	57	250	46	-3.0	0.67	45.99	8.461	125.8
B-2	3.6	13:18:00	8.387	0.46	0.502	0.460	0.505	339	57	57	250	46	-3.0	0.68	46.50	9.936	122.7
B-3	3.8	13:21:38	9.850	0.50	0.502	0.500	0.500	339	57	57	250	46	-3.0	0.71	48.47	11.756	122.7
B-4	3.8	13:25:26	11.654	0.51	0.502	0.510	0.505	340	57	57	250	46	-3.0	0.71	48.99	13.679	123.3
C-1	3.9	13:29:15	13.560	0.54	0.502	0.540	0.502	340	58	58	250	47	-3.0	0.73	50.41	15.545	122.4
C-2	4.0	13:33:11	15.413	0.57	0.502	0.570	0.502	341	58	58	250	47	-3.0	0.75	51.82	17.501	121.7
C-3	4.2	13:37:14	17.355	0.61	0.502	0.610	0.505	341	59	59	250	47	-3.0	0.78	53.61	19.545	120.8
C-4	4.3	13:41:25	19.389	0.63	0.502	0.630	0.510	343	59	59	250	47	-3.0	0.79	54.55	21.805	121.0
D-1	4.0	13:45:40	21.636	0.57	0.502	0.570	0.505	344	60	60	250	47	-3.0	0.75	51.92	23.846	121.0
D-2	4.1	13:49:43	23.670	0.60	0.502	0.600	0.510	346	60	60	250	47	-3.0	0.77	53.33	26.099	121.5
D-3	4.1	13:53:52	25.915	0.60	0.502	0.600	0.505	347	61	61	250	47	-3.0	0.77	53.37	28.342	121.9
D-4	4.3	13:58:01	28.153	0.65	0.502	0.650	0.500	347	61	61	250	47	-3.0	0.81	55.55	30.761	122.3
Last Pt		14:02:20	30.567														
Final Values	62.3	14:02:20	30.567							**Maximum Vacuum**			-3.0	**Final Values**		30.761	122.3
Average Values				0.53			0.50	341	58	58	250	47		0.73	49.93		
									58								

AGAT CYCLONIC FLOW CHECK DATA SHEET

Client: LNG - ~~CANADA~~	Contact: ~~TAUSEEF~~ Siddiqui
Plant Name: LNG- ~~CANADA~~	Location: KITIMAT - BC
Stack ID (in.): 156.300	Length of Annulus (in.): 9
Date (Y/M/D): 2025- SEPT- 05	Comments:
Sampled by: MS-VK	
Team Leader: MS	

TURBINE-IE-4101A

E-W Traverse Data Test 1 W-E S-N

Point #	Time (24 Hrs)	Port #1 null angle	Port #2 null angle	Port #3 null angle	Port #4 null angle
4	1020	4° CCW	3° CCW	0°	0°
3		0°	3° CCW	0°	8° CCW
2		0°	1° CCW	3° CCW	9° CW
1	1035	5° CW	1° CCW	0°	0

N-S

E-W Traverse Data Test 2 W-E S-N

Point #	Time (24 Hrs)	Port 1 null angle	Port 2 null angle	Port 3 null angle	Port 4 null angle
4	1140	3° CCW	2° CCW	0°	0°
3		0°	3° CCW	0°	7° CW
2		0°	1° CCW	2° CCW	8° CW
1	1155	4° CW	1° CCW	0°	0°

Note: 1 hour must pass between test 1 and 2

Note: The average of the absolute values of the null angles cannot be greater than 20°

Note: The difference between the angles in test 1 and 2 cannot be greater than 5°

Appendix V – Calibration Data

AGAT Laboratories

Barometer Calibration 2025

Calibration Date	Cal Times	Standard		Monometer
Month/Day/Year	hh:mm	hPa	in. Hg	in. Hg
CGY 1		hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.56
4-Feb-25	8:50	886	26.55	26.55
5-Feb-25	8:05	882	26.16	26.17
CGY 3	hh:mm	hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.57
4-Feb-25	8:50	886	26.55	26.57
5-Feb-25	8:05	882	26.16	26.19
EDM 1	hh:mm	hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.57
4-Feb-25	8:50	886	26.55	26.57
5-Feb-25	8:05	882	26.16	26.19
EDM 2		hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.57
4-Feb-25	8:50	886	26.55	26.56
5-Feb-25	8:05	882	26.16	26.18
EDM 3	hh:mm	hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.58
4-Feb-25	8:50	886	26.55	26.58
5-Feb-25	8:05	882	26.16	26.19

Notes:	Barometers were calibrated to Fisherbrand Tracible Barometer - Serial Number: 240466177 Barometers must be capable of measuring atmospheric pressure to within 2.5mm (0.1 in.) Hg
Calibrated By:	Raymond Dreaver
Date:	Feb 03-05, 2025

AGAT Laboratories

CTM 040 PM2.5 Nozzle Calibration Form 2025

Calibrated: ***20-Jan-25***

Calibrated by: ***Alexander Sanguino***

PM 2.5 Nozzles

Nozzle	Diameter Measurements (inches)				Nozzle	(inches)	Error
ID#	1st	2nd	3rd	Average	Diameter		±0.004 difference (Max-Min)
2a	0.1210	0.1210	0.1210	0.1210	9/64"	0.1210	0.000
2b	0.1500	0.1500	0.1500	0.1500	9/64"	0.1500	0.000
3	0.1490	0.1500	0.1500	0.1497	5/32"	0.1497	0.001
4	0.1650	0.1650	0.1640	0.1647	5/32"	0.1647	0.001
5	0.1820	0.1830	0.1830	0.1827	11/64"	0.1827	0.001
6	0.1900	0.1900	0.1900	0.1900	3/16"	0.1900	0.000
7	0.2030	0.2030	0.2030	0.2030	13/64"	0.2030	0.000
8	0.2430	0.2430	0.2430	0.2430	15/64"	0.2430	0.000

AGAT Laboratories calibrates it's nozzles using a Mastercraft 6" Slide caliper # 58-6800-4

III - *vertical measurement*
----- - *horizontal measurement*

Authorizing Signature: Alexander Sanguino

AGAT Labs Scales Calibration - 2025

Calibrated by: JS

Calibration date: 5-Feb-25

ID - EDBL#104 +/-0. 1gram'

Actual	Scale	Difference
1000	1000	0
500	500	0
200	200	0
50	50.1	0.1
20	20	0

EDBL#110 +/-0. 1gram'

Actual	Scale	Difference
1000	1000	0
500	500	0.0
200	200	0
50	50	0
20	20	0

EDBL#108 +/-0. 1gram'

Actual	Scale	Difference
1000	1000	0
500	499.9	0.1
200	200	0
50	50	0
20	20	0

EDBL#111 +/-0. 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500.1	0.1
200	200	0
50	50	0
20	20	0

CALBL#115 +/- 1gram'

Actual	Scale	Difference
1000	1000	0.0
500	500	0
200	200	0
50	50	0
51		

EDBL#112 +/- 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500.1	0.1
200	200	0
50	50	0
51		

CALBL#117 +/- 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500.1	0.1
200	200.1	0.1
50	50	0
51		

CALBL#118 +/- 1gram'

Actual	Scale	Difference
1000	999.9	0.1
500	500.1	0.1
200	200.1	0
50	50	0
20	20	0

CALBL #107 +/- 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500	0
200	200.1	0.1
50	50	0
51		

CALBL#133

Actual	Scale	Difference
1000	1000	0.0
500	500.1	0.1
200	200	0
50	50	0
51		

CALBL# 109 +/- 1gram'

Actual	Scale	Difference
1000	999.9	0.1
500	500	0
200	200	0
50	50	0
51		

Notes: EDBL# 107, EDBL# 106, EDBL# 109, are all out of service

EPA Method 5
Meter Box Calibration
English Meter Box Units, English K' Factor

Model #: Sensus
Serial #: 1

Date: 7-Jan-25
Barometric Pressure: 26.63 (in. Hg)
Theoretical Critical Va 12.56 (in. Hg)

!!!!!!!!!
IMPORTAI For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.
IMPORTAI The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).
!!!!!!!!!

---------- DRY GAS METER READINGS ----------									-CRITICAL ORIFICE READINGS-					
		Volume	Volume	Volume	Initial Temps.		Final Temps.		Orifice	K' Orifice	Actual	-- Ambient Temperature --		
dH	Time	Initial	Final	Total	Inlet	Outlet	Inlet	Outlet	Serial#	Coefficient	Vacuum	Initial	Final	Average
(in H2O)	(min)	(cu ft)	(cu ft)	(cu ft)	(deg F)	(deg F)	(deg F)	(deg F)	(number)	(see above	(in Hg)	(deg F)	(deg F)	(deg F)
0.01	17.00	984.790	990.005	5.215	73.7	74.1	76.9	74.3	40	0.2333	22.0	74.3	75.3	74.8
0.03	12.00	990.005	995.533	5.528	75.8	73.9	81.1	74.5	48	0.3505	21.5	75.1	76.2	75.7
0.04	10.00	995.533	1001.398	5.865	78.9	74.2	87.1	75.0	55	0.4446	21.0	76.1	76.6	76.4
0.08	7.00	1.398	6.945	5.547	82.6	74.9	93.5	75.6	63	0.5991	20.5	76.5	77.0	76.8
0.16	5.00	6.945	12.295	5.350	82.5	76.1	94.5	76.7	73	0.8029	19.0	76.9	77.3	77.1

********** RESULTS **********

-- DRY GAS METER --		--------- ORIFICE ---------			-- DRY GAS METER --		--------- ORIFICE ---------			
VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	:ALIBRATION FACTOI		CALIBRATION FACTOR			
ORRECTE	ORRECTED	CORRECTE	ORRECTE	NOMINAL	Y		dH@			
Vm(std)	Vm(std)	Vcr(std)	Vcr(std)	Vcr	Value	Variation	Value	Value	Variation	
(cu ft)	(liters)	(cu ft)	(liters)	(cu ft)	(number)	(number)	(in H2O)	(mm H2O)	(in H2O)	
4.581	129.7	4.567	129.3	5.199	0.997	-0.002	0.069	1.74	-0.014	
4.842	137.1	4.839	137.1	5.518	0.999	0.001	0.091	2.32	0.009	
5.114	144.8	5.112	144.8	5.837	1.000	0.001	0.076	1.92	-0.007	
4.812	136.3	4.820	136.5	5.508	1.002	0.003	0.083	2.12	0.001	
4.635	131.3	4.613	130.6	5.274	0.995	-0.003	0.093	2.35	0.010	
					0.9986	**<----- Average Y**	**0.0823**	**2.09**	**<----- Average dH@**	

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.
For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the avera

SIGNED: MS

Date: Jan 07, 2025

AGAT Laboratories

S-TYPE PITOT TUBE CALIBRATION

Calibration Device/Location: SAIT

Pitot Tube Number: SRC 9C Probe

Technician: MS-AS JS-RP

Calibration Date (D/M/Y): 4-Feb-25

Date Last Calibrated (D/M/Y): 6-Feb-24

Previous Factor: 0.818

Approx. Velocity	Reference	S-Type		Pitot Factor	
m/sec	ΔPr	ΔPs	$(Ref/S\text{-}type)^{0.5}$		±Difference from the new factor
30	1.50	2.10	0.845	0.837	0.0174
30	1.50	2.10	0.845	0.837	0.0174
50	4.50	6.60	0.826	0.817	-0.00183
50	4.50	6.60	0.826	0.817	-0.00183
70	8.70	13.20	0.812	0.804	-0.0156
70	8.70	13.20	0.812	0.804	-0.0156

Standard Pitot Tube Factor: 0.990 **New Factor:** **0.819**

Calibration Notes: Pitot Tube tips are in good shape, clean, with no deformations or damage. Calibrated with thermocouples in place.

AGAT Laboratories

Thermocouple Calibration: 2025

Thermocouple Calibration: Fluke S/N: 24450030 & 111108577 Thermometer Standard: VWR61016-208, QL Quincy Lab Inc. 76mm 1mm, C15, C4 Calibrated according to ASSC Method 2 Sec 4.3

	Ice					Boiling Water					Oven				
I.D	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff
Standalone Thermocouples															
C1	1.100	274.25	0.00	273.15	0.403	96.7	369.85	97.0	370.15	0.081	376.9	650.05	377.0	650.15	0.0154
C2	1.000	274.15	1.00	274.15	0.000	97.3	370.45	98.0	371.15	0.189	362.1	635.25	362.0	635.15	0.0157
C3	0.800	273.95	0.50	273.65	0.110	97.5	370.65	98.0	371.15	0.135	398.0	671.15	400.0	673.15	0.2971
C4	1.000	274.15	0.00	273.15	0.3661	96.8	369.95	98.0	371.15	0.323	387.0	660.15	388.0	661.15	0.1513
C5	1.000	274.15	0.00	273.15	0.366	97.0	370.15	97.0	370.15	0.000	375.0	648.15	375.0	648.15	0.0000
C6	0.700	273.85	1.00	274.15	0.109	96.4	369.55	97.0	370.15	0.162	369.2	642.35	371.0	644.15	0.2794
C7	1.400	274.55	1.00	274.15	0.1459	96.1	369.25	97.0	370.15	0.243	391.6	664.75	391.0	664.15	0.0903
C8	1.000	274.15	0.00	273.15	0.366	96.6	369.75	98.0	371.15	0.377	405.0	678.15	406.0	679.15	0.1472
C9	1.100	274.25	1.00	274.15	0.036	97.0	370.15	98.0	371.15	0.269	383.0	656.15	384.0	657.15	0.1522
C10	0.900	274.05	1.00	274.15	0.036	97.2	370.35	98.0	371.15	0.216	351.6	624.75	352.0	625.15	0.0640
C21	1.100	274.25	1.00	274.15	0.036	96.4	369.55	97.0	370.15	0.162	443.6	716.75	444.0	717.15	0.0558
E1	0.600	273.75	0.00	273.15	0.220	94.8	367.95	96.0	369.15	0.325	353.2	626.35	354.0	627.15	0.1276
E2	0.300	273.45	0.00	273.15	0.110	97.1	370.25	98.0	371.15	0.242	335.4	608.55	337.0	610.15	0.2622
E3	0.500	273.65	0.00	273.15	0.183	96.6	369.75	98.0	371.15	0.377	384.2	657.35	385.0	658.15	0.1216
E4	0.700	273.85	0.50	273.65	0.073	96.7	369.85	98.0	371.15	0.350	365.4	638.55	367.0	640.15	0.2499
E6	0.600	273.75	0.00	273.15	0.220	94.5	367.65	96.0	369.15	0.406	320.2	593.35	322.0	595.15	0.3024
E7	0.600	273.75	0.00	273.15	0.220	95.9	369.05	97.0	370.15	0.297	362.0	635.15	364.0	637.15	0.3139
Flex 1	0.900	274.05	1.00	274.15	0.036	97.3	370.45	98.0	371.15	0.189	401.0	674.15	402.0	675.15	0.1481
Flex 2	0.900	274.05	1.00	274.15	0.036	97.2	370.35	97.0	370.15	0.054	377.4	650.55	379.0	652.15	0.2453
Flex 3	1.200	274.35	1.00	274.15	0.073	96.7	369.85	98.0	371.15	0.350	386.0	659.15	387.0	660.15	0.1515
Filter 1	0.200	273.35	0.00	273.15	0.073	96.2	369.35	97.0	370.15	0.216	381.5	654.65	380.0	653.15	0.2297
Filter 3	0.900	274.05	1.00	274.15	0.036	96.6	369.75	97.0	370.15	0.108	388.9	662.05	388.0	661.15	0.1361
Exit1	1.300	274.45	1.00	274.15	0.109	96	369.15	97.0	370.15	0.270	384.0	657.15	385.0	658.15	0.1519
CGY5A - Spare	0.900	274.05	0.50	273.65	0.146	97.9	371.05	98.0	371.15	0.027	420.0	693.15	420.0	693.15	0.0000
CGY5B - Spare	0.600	273.75	0.50	273.65	0.037	97.8	370.95	98.0	371.15	0.054	452.8	725.95	454.0	727.15	0.1650
CGY5C - Spare	0.700	273.85	0.50	273.65	0.073	98.1	371.25	98.0	371.15	0.027	423.5	696.65	423.0	696.15	0.0718
DGM RATA 01	0.800	273.95	0.50	273.65	0.110	97.3	370.45	98.0	371.15	0.189	394.5	667.65	394.0	667.15	0.0749
SRC 5 Spare 2	1.100	274.25	2.00	275.15	0.327	97.0	370.15	97.0	370.15	0.000	431.7	704.85	433.0	706.15	0.1841
C24	1.400	274.55	2.00	275.15	0.218	96.4	369.55	98.0	371.15	0.431	463.2	736.35	464.0	737.15	0.1085
E5	0.200	273.35	0.00	273.15	0.073	96.5	369.65	98.0	371.15	0.404	357.4	630.55	359.0	632.15	0.2531
EDGM 2	1.000	274.15	0.00	273.15	0.366	96.6	369.75	98.0	371.15	0.377	338.1	611.25	339.0	612.15	0.1470
E8	1.000	274.15	0.50	273.65	0.183	96.8	369.95	98.0	371.15	0.323	347.6	620.75	349.0	622.15	0.2250
EDGM1	0.500	273.65	0.00	273.15	0.183	96.0	369.15	98.0	371.15	0.539	317.1	590.25	318.0	591.15	0.1522
E31	0.500	273.65	0.00	273.15	0.183	97.1	370.25	98.0	371.15	0.242	304.1	577.25	304.0	577.15	0.0173

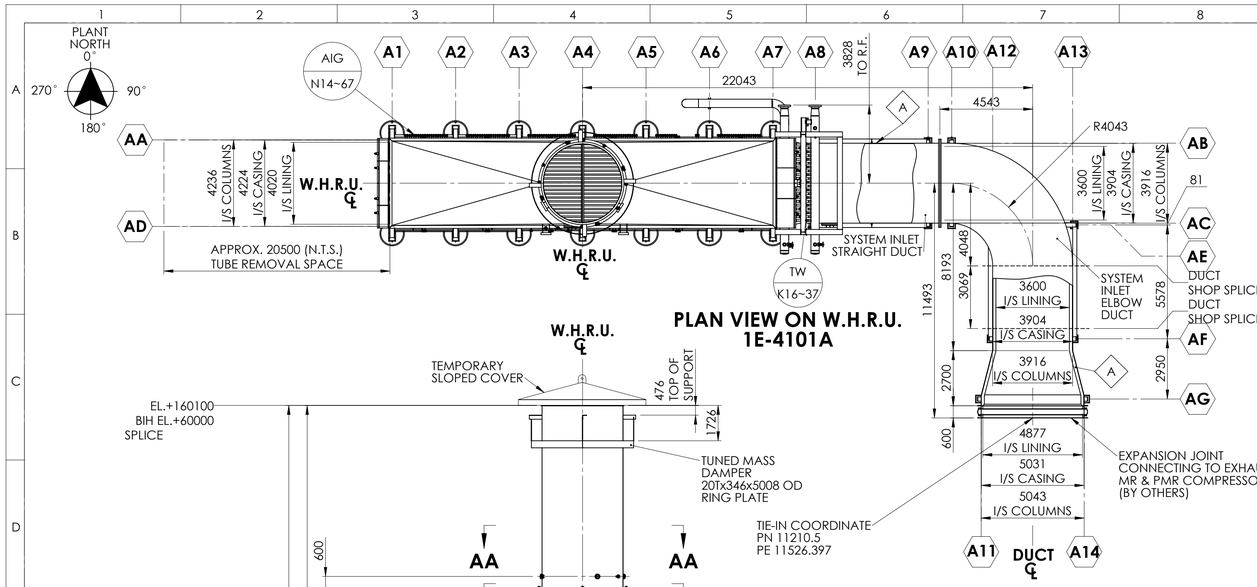
AGAT Laboratories

Thermocouple Calibration: 2025

Thermocouple Calibration: Fluke S/N: 24450030 & 111108577 Thermometer Standard: VWR61016-208, QL Quincy Lab Inc. 76mm 1mm, C15, C4 Calibrated according to ASSC Method 2 Sec 4.3

	Ice					Boiling Water					Oven				
I.D	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff
Pitot Tube Thermocouples															
CGY5D	0.80	273.95	0.50	273.65	0.110	97.8	370.95	98.0	371.15	0.054	459.40	732.55	459.0	732.15	0.0546
CGY5A	1.00	274.15	0.50	273.65	0.183	97.1	370.25	98.0	371.15	0.242	449.00	722.15	448.0	721.15	0.1387
CGY8A	1.10	274.25	1.00	274.15	0.036	96.7	369.85	98.0	371.15	0.350	440.00	713.15	441.0	714.15	0.1400
CGY10 (New)	0.80	273.95	0.50	273.65	0.110	97.4	370.55	98.0	371.15	0.162	457.10	730.25	458.0	731.15	0.1231
CGY10A	1.20	274.35	1.00	274.15	0.073	96.8	369.95	98.0	371.15	0.323	429.00	702.15	430.0	703.15	0.1422
CGY12	1.00	274.15	1.00	274.15	0.000	97.6	370.75	98.0	371.15	0.108	459.00	732.15	460.0	733.15	0.1364
CGY12B	0.90	274.05	1.00	274.15	0.036	97.8	370.95	98.0	371.15	0.054	418.20	691.35	418.0	691.15	0.0289
CGY13	0.90	274.05	1.00	274.15	0.036	97	370.15	98.0	371.15	0.269	456.70	729.85	458.0	731.15	0.1778
EDM3	0.60	273.75	0.00	273.15	0.220	96.3	369.45	98.0	371.15	0.458	345.40	618.55	347.0	620.15	0.2580
EDM5 A (New)	0.50	273.65	0.00	273.15	0.183	96.4	369.55	98.0	371.15	0.431	327.40	600.55	327.0	600.15	0.0667
EDM5 B (New)	0.70	273.85	0.00	273.15	0.256	95.1	368.25	97.0	370.15	0.513	323.00	596.15	323.0	596.15	0.0000
EDM7	0.60	273.75	0.00	273.15	0.220	96.6	369.75	98.0	371.15	0.377	324.00	597.15	324.0	597.15	0.0000
EDM7 A (New)	1.10	274.25	0.00	273.15	0.403	95.0	368.15	97.0	370.15	0.540	324.00	597.15	324.0	597.15	0.0000
EDM8 A (New)	0.60	273.75	0.00	273.15	0.220	94.1	367.25	96.0	369.15	0.515	322.00	595.15	323.0	596.15	0.1677
EDM9 A (New)	0.60	273.75	0.00	273.15	0.220	94.2	367.35	96.0	369.15	0.488	331.00	604.15	331.0	604.15	0.0000
EDM9 B (New)	0.70	273.85	0.00	273.15	0.256	96.6	369.75	98.0	371.15	0.377	318.30	591.45	319.0	592.15	0.1182
EDM10A	0.60	273.75	0.00	273.15	0.220	94.4	367.55	96.0	369.15	0.433	329.10	602.25	329.0	602.15	0.0166
EDM15B	0.80	273.95	1.00	274.15	0.073	95	368.15	97.0	370.15	0.540	392.00	665.15	392.0	665.15	0.0000
EDM18	0.50	273.65	0.00	273.15	0.183	96.3	369.45	98.0	371.15	0.458	340.10	613.25	940.0	1213.15	49.45
GP 8	1.40	274.55	1.00	274.15	0.146	97	370.15	98.0	371.15	0.269	449.20	722.35	448.0	721.15	0.1664
GP10	1.10	274.25	1.00	274.15	0.036	96.9	370.05	98.0	371.15	0.296	441.00	714.15	440.0	713.15	0.1402
GP12	1.30	274.45	1.00	274.15	0.109	96.6	369.75	98.0	371.15	0.377	443.10	716.25	443.0	716.15	0.0140
GP13	1.00	274.15	1.10	274.25	0.036	97.3	370.45	98.0	371.15	0.189	467.30	740.45	468.0	741.15	0.0944
SRC5 A	2.10	275.25	1.00	274.15	0.401	96	369.15	97.0	370.15	0.270	380.00	653.15	381.0	654.15	0.1529
SRC5 B	1.50	274.65	1.00	274.15	0.182	95	368.15	97.0	370.15	0.540	407.10	680.25	409.0	682.15	0.2785
SRC5 - Spare	2.20	275.35	1.50	274.65	0.255	96.2	369.35	97.0	370.15	0.216	426.00	699.15	427.0	700.15	0.1428
SRC6	1.70	274.85	1.00	274.15	0.255	95.8	368.95	97.0	370.15	0.324	421.00	694.15	422.0	695.15	0.1439
SRC9B	1.70	274.85	1.00	274.15	0.255	96.4	369.55	97.0	370.15	0.162	432.20	705.35	431.0	704.15	0.1704
SRC9C	1.30	274.45	1.00	274.15	0.109	96.2	369.35	97.0	370.15	0.216	442.00	715.15	441.0	714.15	0.1400
SRC12B	1.50	274.65	1.00	274.15	0.182	96.6	369.75	97.0	370.15	0.108	446.60	719.75	445.0	718.15	0.2228
SRC13	0.90	274.05	1.00	274.15	0.036	96.2	369.35	97.0	370.15	0.216	416.10	689.25	415.0	688.15	0.1598
SRC-HT-5	1.70	274.85	1.00	274.15	0.255	96.8	369.95	97.0	370.15	0.054	411.50	684.65	411.0	684.15	0.0731

Appendix VI – Stack Diagram



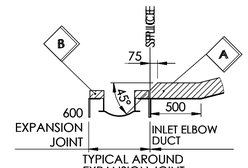
PLAN VIEW ON W.H.R.U. 1E-4101A

NOTES

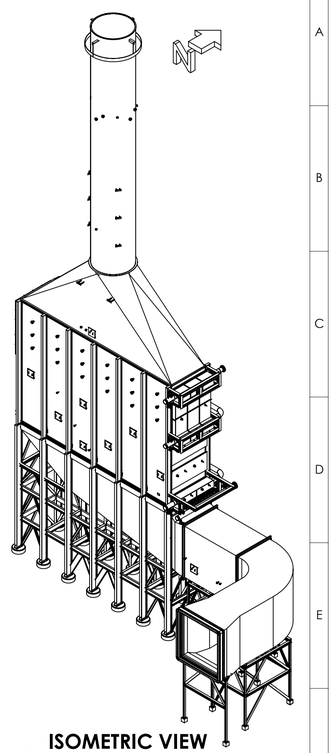
1. ALL PRIMARY DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. SPLICES ARE TO BE INTERNALLY SEAL WELDED AT SITE. UNLESS OTHERWISE SPECIFIED.
3. ALL DIMENSIONS SHALL BE VERIFIED AND ANY DISCREPANCIES SHALL BE REFERRED TO BIH FOR RESOLUTION.
4. HEADERBOX COVERS & MAN WAYS (ACCESS DOORS)SHALL REQUIRED SEALANT COMPOUND & LADDER TAPE. (NOT TO BE APPLIED TO ANY STRUCTURAL JOINTS AS THESE SHALL BE SEAL WELDED.
5. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH DRAWING(S):
   - 743-1E4101A-03 SERIES (FOUNDATION LOADING PLAN). L001-14100-CS-2332-100053-1200 ~ 1203
   - 743-1E4101A-09 SERIES (LADDERS & PLATFORMS). L001-14100-MX-4018-100053-1204 ~ 1207
   - 743-1E4101A-02B,02C & 02D. L001-14100-MX-4018-100053-1201~ 1203
6. REFER TYPICAL LINING DETAIL FOR SEAL WELDING AND LINING BETWEEN SPLICES
   - 743-BIHS-321 (L001-14100-MX-2321-100053-1327)
   - 743-BIHS-322 (L001-14100-MX-2321-100053-1377)
   - 743-BIHS-323 (L001-14100-MX-2321-100053-1411)
7. INTERNAL ID LEGEND BELOW:

INTERNAL ID	ITEM DESCRIPTION
IID-1E-4101A-STA-001	STACK MODULE
IID-1E-4101A-CMB-001	CONVECTION MODULE
IID-1E-4101A-ES-001	SUPPORT STRUCTURE-1
IID-1E-4101A-ES-002	SUPPORT STRUCTURE-2
IID-1E-4101A-ES-003	SUPPORT STRUCTURE-3
IID-1E-4101A-ES-004	SUPPORT STRUCTURE-4
IID-1E-4101A-ES-005	SUPPORT STRUCTURE-5
IID-1E-4101A-DT-001	INLET DUCT-1
IID-1E-4101A-DT-002	INLET DUCT-2

8. SEPARATE DOCUMENTS (GENERAL ARRANGEMENT) WILL BE PREPARED FOR 1E-4101B,2E-4101A AND 2E-4101B



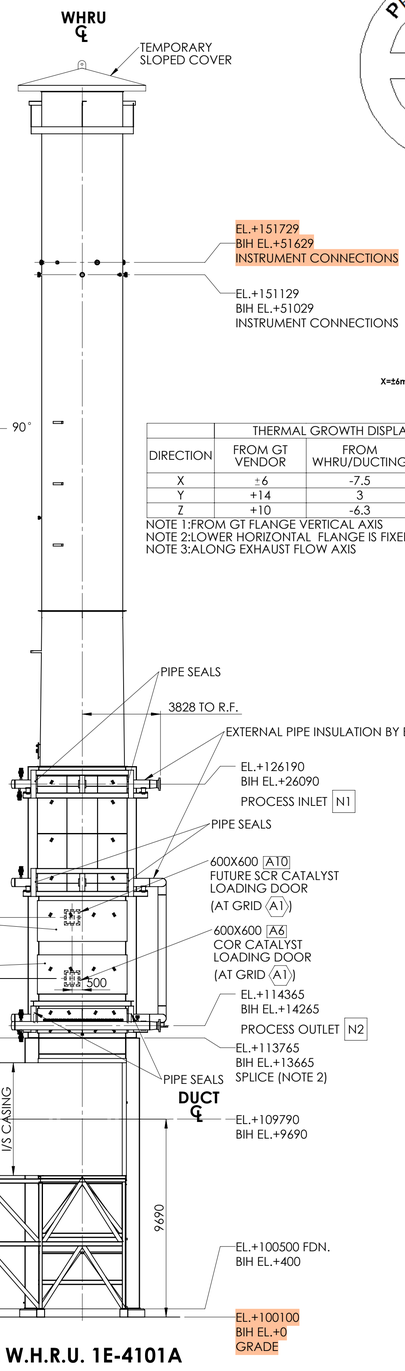
SECTION AD-AD SCALE 1 : 30



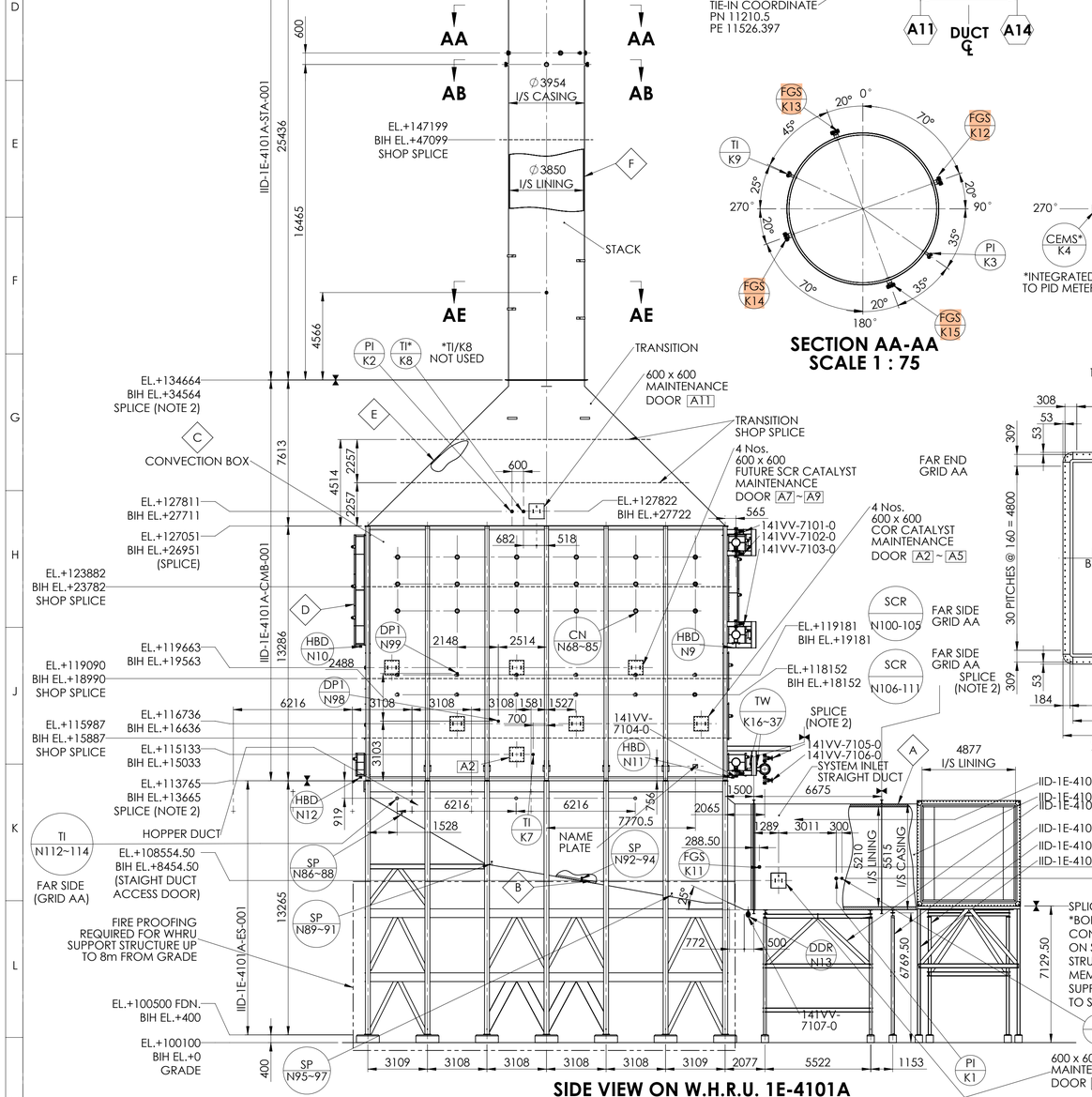
ISOMETRIC VIEW ON W.H.R.U. 1E-4101A

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — B.J.H. SMIT

2022-04-05
P#: 20987

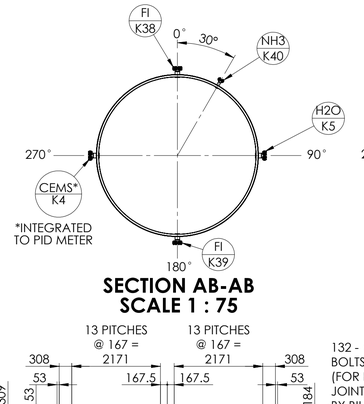


FRONT VIEW ON W.H.R.U. 1E-4101A



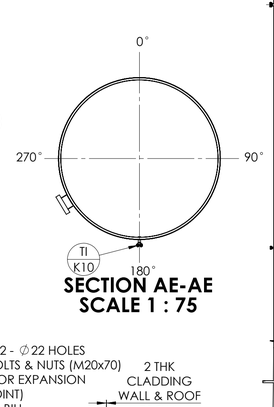
SIDE VIEW ON W.H.R.U. 1E-4101A

SECTION AA-AA SCALE 1 : 75



*INTEGRATED TO PID METER

SECTION AB-AB SCALE 1 : 75



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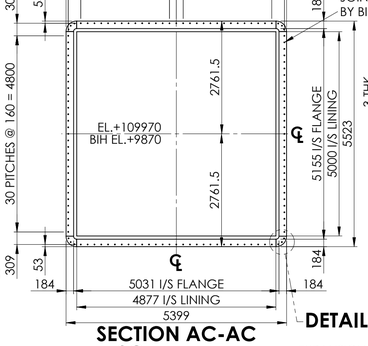

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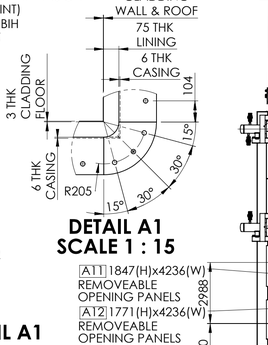
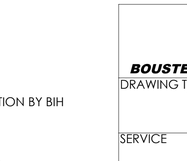


DETAIL A1 SCALE 1 : 15

DETAIL A1



DIRECTION	THERMAL GROWTH DISPLACEMENT (mm) FROM GT VENDOR	FROM WHRU/DUCTING	REMARKS
X	±6	-7.5	SEE NOTE 1
Y	+14	3	SEE NOTE 2
Z	+10	-6.3	SEE NOTE 3

NOTE 1:FROM GT FLANGE VERTICAL AXIS
NOTE 2:LOWER HORIZONTAL FLANGE IS FIXED
NOTE 3:ALONG EXHAUST FLOW AXIS

B.I.H BOUSTEAD INTERNATIONAL HEATERS Ltd. BIH

DRAWING TITLE
WASTE HEAT RECOVERY UNIT 1E-4101A GENERAL ARRANGEMENT SHEET 1 OF 4

SERVICE **HTF 1E-4101A**

FOR **JFJV / LNG CANADA**

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
ZUW	27.05.19	GLP	13.06.19	KL	13.06.19

PROCESS DESIGN REVIEW (IF APPLICABLE)	DATE	STRUCTURAL DESIGN REVIEW (IF APPLICABLE)	DATE
AK	28.05.19	LCS	28.05.19

JOB NUMBER **743** DRAWING NO. **743-1E4101A-02A** REV. **5**

REV. NO.	DESCRIPTION	BY	CHKD	APVD	DATE
2	AS BUILT	LCW	KL	KL	10.02.22
1	APPROVED FOR CONSTRUCTION	GKS	KL	ANZ	31.03.21
0	APPROVED FOR CONSTRUCTION	MIKEL	ANZ	KL	07.08.20
C	ISSUED FOR REVIEW	GKS	FA	KL	20.01.20
B	ISSUED FOR REVIEW	JLO	FA	KL	08.08.19
A	ISSUED FOR REVIEW	ZUW	GLP	KL	13.06.19

REVISIONS

JGC|FLUOR BC LNG JV

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TITLE:
WASTE HEAT RECOVERY UNIT 1E-4101A GENERAL ARRANGEMENT SHEET 1 OF 4

UNIT: 4100
LOCATION: KITIMAT, BRITISH COLUMBIA, CANADA
PLANT: LNG CANADA

DWG No.: L001-14100-MX-4018-100053-1200 SIZE: A1 REV.: 2
FILE NAME: L001-14100-MX-4018-100053-1200_R2

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DO NOT SCALE

FILENAME: K:\CAD\743 LNG Canada\GA\743-1E4101A-02A
SHEET SCALE: 1:150 ORIGINAL SIZE: A1

REV. 3 BY	DATE	CHECKED	DATE	APPROVED	DATE	REV. 5 BY	DATE	CHECKED	DATE	DESIGN REVIEW	DATE	APPROVED	DATE	REV. 4 BY	DATE	CHECKED	DATE	DESIGN REVIEW	DATE	APPROVED	DATE
MIKEL	07.08.20	ANZ	07.08.20	KL	07.08.20	LCW	10.02.22	INT	10.02.22	N/A	N/A	KL	10.02.22	GKS	03.03.21	KL	31.03.21	N/A	N/A	ANZ	31.03.21

-UPDATED AS PER CLIENT COMMENTS
-AS BUILT
-UPDATED AS PER CLIENT COMMENTS

L-DMS 2/10/2022 11:01:20am 2024 UNCONTROLLED WHEN PRINTED

1 NO COMMENTS. APPROVED
Authorization to proceed does not relieve Contractor/Supplier of its responsibility or liability under the Contract and or Purchase Order
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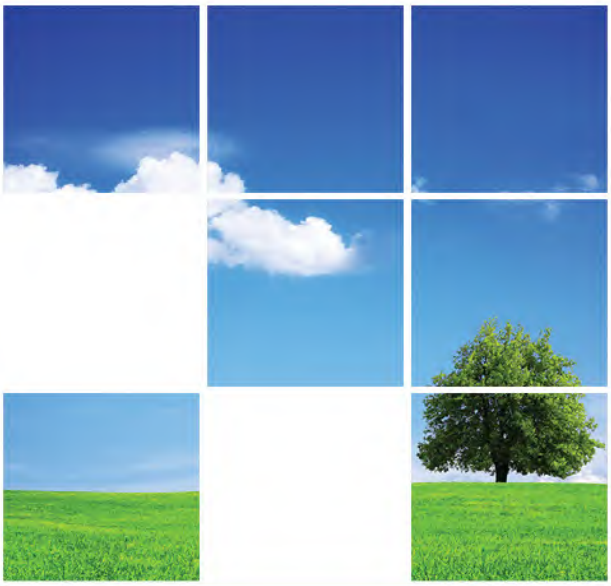
Next Issue Purpose

END OF DOCUMENT



SOURCE EMISSION SURVEY

LNG Canada Development Inc.

LNG Canada Kitimat Liquified Natural (LNG) Gas Facility
Train 1 Natural Gas Turbine Engine (1E-4101B)
September 27, 2025

Prepared for:
LNG Canada Development Inc.
Suite # 4000 – 500 Centre Street, S.E.
Calgary, Alberta
T2G 1A6

Attention:
Mr. Tauseef Zia Siddiqui

Prepared By:
Hina Jahangir
AGAT Laboratories Ltd.
3700 - 21st Street, N.E.
Calgary, Alberta
T2E 6V6
Phone: 403.299.2158

Project No.: 25C338707
Permit No.: PA-110588
October 27, 2025

AGAT Laboratories

Cover Letter

October 27, 2025

LNG Canada Development Inc.
LNG Canada Kitimat Liquified Natural Gas (LNG) Facility

Attention:	Mr. Tauseef Zia Siddiqui
Subject:	LNG Canada Kitimat Liquified Natural Gas (LNG) Facility – September 2025 Source Emission Survey

AGAT Laboratories' Source Testing Services Group is pleased to submit the following Source Emission Survey report. The test program conducted at the LNG Canada Development Inc. – LNG Canada Kitimat Liquified Natural Gas (LNG) Facility on September 27, 2025 was performed on the Train 1 Natural Gas Turbine Engine (1E-4101B). The parameters tested were Particulate Matter 2.5 ($PM_{2.5}$), Volatile Organic Compounds (VOCs), Total Hydrocarbons (THCs), Volumetric Flow and Sample Level Temperature. Cyclonic Flow testing was also conducted. This report was completed in accordance with Environment Canada EPS 1/PG/7 requirements.

If you have any questions or concerns regarding this report, please contact Mr. Shaun Hayward at (403) 299-2179, or via E-mail at **hayward@agatlabs.com**. Alternatively, please contact Mr. Richard Kenney at (403) 299-2184, or via E-mail at **rkenney@agatlabs.com.** Thank you for your patronage, and we look forward to being of service to you in the future.

Yours truly,

AGAT Laboratories Ltd.

Report Author: **Reviewed by:**

Hina Jahangir
Report Writer

Shaun Hayward, A. B.Sc.
Manager, Source Testing

Richard Kenney
Technical Services Liaison

Summary

AGAT Laboratories' Source Testing Services Group was retained by LNG Canada Development Inc. to perform a Source Emission Survey on the Train 1 Natural Gas Turbine Engine (1E-4101B) located at the LNG Canada Kitimat Liquified Natural Gas (LNG) Facility. The parameters tested were Particulate Matter 2.5 ($PM_{2.5}$), Volatile Organic Compounds (VOCs), Total Hydrocarbons (THCs), Volumetric Flow and Sample Level Temperature.

The Train 1 Natural Gas Turbine Engine (1E-4101B) at the LNG Canada Kitimat Liquified Natural Gas (LNG) Facility was operating under normal conditions at the time of the sampling program. These tests were conducted on September 27, 2025.

Stratification testing was not conducted at this time. Cyclonic Flow testing was conducted at this time; data results obtained from the source emission testing indicated that no cyclonic flow conditions were observed.

The Effluent Flow Measuring device was tested using a calibrated standard S-type Pitot tube fixed with a standardized K-Type thermocouple.

The protocols of US EPA 201A were followed to test for Total Particulate Matter and Particulate Matter 2.5. The protocols of US EPA 18 were followed to test for Volatile Organic Compounds (VOCs) and Total Hydrocarbons (THCs). The protocols of US EPA Method 1, 2, 3, and 4 and the British Columbia Field Sampling Manual Method 1, 2, 3 of part B-2 were used to test the Volumetric Flow and Temperature. The protocols of Environment Canada Report EPS 1/PG/7 (EC-PG7) were followed in order to complete the Source Emission Survey report.

Table 1: Summary of Source Emission Survey Results

Compliance Parameter	Units	Test 1 2025/09/27 11:25 – 12:28	Test 2 2025/09/27 13:00 – 14:03	Test 3 2025/09/27 14:30 – 15:32	Average
Stack Gas Measurements					
Volumetric Flow	**m^3/sec - wet**	191	199	203	**198**
	e^3m^3/day - wet	16,522	17,164	17,553	**17,080**
Stack Gas Velocity	**m/s**	24.4	25.3	25.8	**25.1**
Stack Temperature	**℃**	183	182	180	**182**
Water Content	**%**	7.29	7.19	7.20	**7.23**
Particulate Matter ($PM_{2.5}$)					
Concentration	**mg/dscm - dry**	1.62	1.70	2.55	**1.96**
	g/kg - dry	0.00136	0.00142	0.00214	**0.00164**
	g/kg - wet	0.00130	0.00136	0.00204	**0.00157**
Emission Rate	**kg/hr**	1.04	1.13	1.73	**1.30**
Volatile Organic Compounds (VOCs)**					
Concentration	**ppm - dry**	0.0300	0.0104	0.0402	**0.0269**
	ppm - wet	0.0278	0.00966	0.0373	**0.0249**
	mg/m^3 - dry	0.0822	0.0285	0.108	**0.0728**
	mg/m^3 - wet	0.0762	0.0264	0.100	**0.0676**
Emission Rate	**kg/hr**	0.0524	0.0189	0.0731	**0.0482**
Total Hydrocarbon (THC)					
Concentration	**ppm - dry**	283	256	259	**266**
	ppm - wet	262	238	240	**247**
	mg/m^3 - dry	189	171	173	**177**
	mg/m^3 - wet	175	158	160	**165**
Emission Rate	**kg/hr**	120	113	117	**117**

Notes: *Reported at 760 mm Hg and 20°C.
**Minimum Detection Limits (MDL), along with full speciation breakdown can be found in Appendix I.

Table 2: Cyclonic Flow Results

Train 1 Natural Gas Turbine Engine (1E-4101B)												
	Port 1 - West			Port 2 - South			Port 3 - East			Port 4 - North		
	Test 1	Test 2	Difference	Test 1	Test 2	Difference	Test 1	Test 2	Difference	Test 1	Test 2	Difference
1	2	2	0.00	2	2	0.00	5	4	1.00	8	7	1.00
2	0	0	0.00	0	0	0.00	5	5	0.00	9	8	1.00
3	3	3	0.00	5	5	0.00	8	7	1.00	9	8	1.00
4	0	0	0.00	0	0	0.00	13	12	1.00	10	9	1.00
	***Absolute Average**		**0.00**	***Absolute Average**		**0.00**	***Absolute Average**		**0.750**	***Absolute Average**		**1.00**

Note: *Average of the absolute rotation angle values.

According to US EPA Method 1 Section 11.4, cyclonic flow occurs when the average of the absolute values of the null angles is greater than 20^{o}. Additionally, the difference between the angles in tests 1 and 2 cannot be greater than 5^{o}. Applying US EPA, cyclonic flow was found to be within approved limits.

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Part 1 – Introduction

1.1 Background Information

AGAT Laboratories' Source Testing Services Group was retained by Mr. Tauseef Zia Siddiqui of LNG Canada Development Inc. to perform a Source Emission Survey on the Train 1 Natural Gas Turbine Engine (1E-4101B) at the LNG Canada Kitimat Liquified Natural Gas (LNG) Facility. These tests were conducted on September 27, 2025.

1.2 Key Personnel

Mr. Marlon Soriano was the AGAT project manager and Mr. Tauseef Zia Siddiqui was the client contact and coordinator. Mr. Marlon Soriano and Mr. Vipul Katariya performed the on-site sampling program. Mrs. Hina Jahangir performed the data reduction and produced the final report.

1.3 Project Scope

Project scope included the evaluation of the following parameters from Train 1 Natural Gas Turbine Engine (1E-4101B):

i) Particulate Matter 2.5 ($PM_{2.5}$)
ii) Volatile Organic Compounds (VOCs)
iii) Total Hydrocarbon (THC)
iv) Cyclonic Flow
v) Volumetric Flow
vi) Sample Level Temperature

Part 2 – Test Procedure

2.1 Standard Methods

The protocols of US EPA 201A were followed to test for Total Particulate Matter and Particulate Matter 2.5. The protocols of US EPA 18 were followed to test for Volatile Organic Compounds (VOCs) and Total Hydrocarbons (THCs). The protocols of US EPA Method 1, 2, 3, and 4 and the British Columbia Field Sampling Manual Method 1, 2, 3 of part B-2 were used to test the Volumetric Flow and Temperature. The protocols of Environment Canada Report EPS 1/PG/7 (EC-PG7) were followed in order to complete the Source Emission Survey report.

Stack Gas Velocity, Temperature & Volumetric Flow Rates

Stack gas velocities, temperature and volumetric flow rates determined following the procedures as outlined in the *British Columbia Field Sampling Manual Method #2 – Determination of Stack Gas Velocity and Volumetric Flow Rates*. Stack gas velocity was determined from the moisture content of the stack gas as well as differential pressure and temperature measurements taken at six points at the centroid of the stack cross-section. Pressure differentials are measured by calibrated S-type Pitot tube and inclined oil manometer. Temperature measurements are made with a calibrated K-type thermocouple. Velocity, when multiplied by the cross-sectional area of the stack equates to the volumetric flow.

Stack Gas Moisture Content

Stack gas moisture content was determined following the procedures as outlined in *British Columbia Field Sampling Manual Method #4 – Determination of Moisture Content in Stack Gases*. Samples were collected from the centroid of the stack cross section, and the moisture fraction was condensed in an impinger train maintained in an ice bath. Moisture content was then measured onsite using the gravimetric method for each impinger, results from the individual impinger weights and exit temperature of the final impinger are recorded in Appendix IV. Moisture measurements were carried out simultaneously with each test run.

Oxygen & Carbon Dioxide

Oxygen and carbon dioxide samples were collected and analyzed following the procedure as outlined in the *British Columbia Field Sampling Manual Method #3 – Gas Analysis for the Determination of Dry Molecular Weight*. An integrated sample was taken over the test period using an evacuated cannister with a flow controller to sample over the test period.

Total Particulate Matter and Particulate Matter 2.5

Total Particulate Matter and Particulate 2.5 samples were collected and analyzed following the procedures outlined in the *US Environmental Protection Agency Method #201A – Determination of Particulate Matter and PM2.5 Emissions from Stationary Sources*. Samples were withdrawn from the stack through a sizing device, which separates particles with nominal aerodynamic diameters of 2.5 micrometers. Samples were also withdrawn isokinetically to determine *Total Particulate* emissions using additional analysis of the impinger catch. Particulate samples collected were analyzed gravimetrically. All samples were analyzed at an ISO/IEC 17025 accredited lab (Certificate of Accreditation can be found in Appendix II).

Total Hydrocarbons and Volatile Organic Compounds

Total hydrocarbon and Volatile Organic Compounds samples were collected and analyzed following the procedures as outlined in the *US EPA Method #18 - Measurement of Gaseous Organic Compound Emissions by Gas Chromatography.* Samples were withdrawn from the source and collected in evacuated canisters and tedlar bags. The major organic components of the collected gas mixture were then separated by gas chromatography (GC) and individually quantified by flame ionization and thermal conductivity detection principles. The retention times of each separated component are used to identify the organic component and its concentration by comparing the observed values to those of known compounds. All samples were analyzed at an ISO/IEC 17025 accredited lab (Certificate of Accreditation can be found in Appendix III).

Cyclonic Flow

Cyclonic Flow was determined following the procedures outlined in the *US EPA Method #1 Section 11.4 – Verification of Absence of Cyclonic Flow.* Pressure differentials are measured by calibrated S-type Pitot tube and inclined oil manometer that has been levelled and zeroed at each traverse point. The measurement system is leak checked to 2” to 4” of W.C. prior to conducting the test. When levelled, the pitot tube is at “0^{o} reference”. The pitot tube is then rotated away from the 0^{o} reference angle until a null (zero) pitot reading is obtained. If the average of the absolute values of the rotation angles is greater than 20^{o}, cyclonic flow is present.

2.2 Quality Assurance/Quality Control

AGAT Laboratories Ltd. Source Testing department QA/QC protocols include, but are not limited to the following:

i) Regular maintenance and calibration of all field-sampling equipment as per applicable sampling protocols.

ii) On-site leak checks of sample system and pitot tubes.

iii) Proper sealing, labeling, storing, transport and chain of custody/log in procedures upon return of the laboratory, when applicable.

iv) Use of EPA Protocol 1 and RATA grade calibration gases, where applicable.

v) Linearity and response time checks are conducted on all analyzers prior to use.

vi) Calibration drift is checked during testing to assure instruments are performing within allowable limits.

vii) Technical review on all final lab analysis and final written source emission survey reports.

viii) Collected samples requiring laboratory analysis are performed by a ISO/IEC 17025 accredited lab.

Part 3- Discussion

3.1 Stack Characteristics

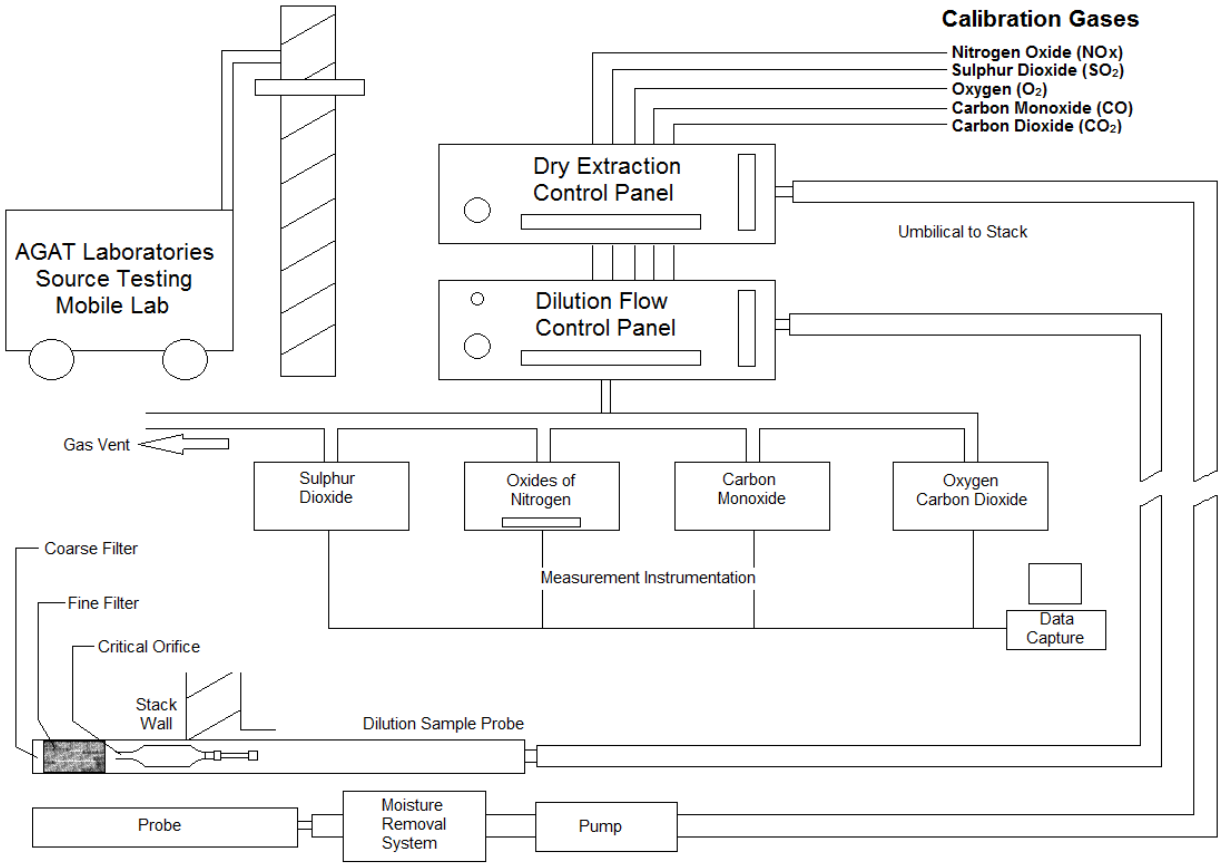
The Train 1 Natural Gas Turbine Engine (1E-4101A) at the LNG Canada Development Inc. - LNG Canada Kitimat Liquified Natural Gas (LNG) Facility has an internal stack diameter of 3.85m and a height of 60.0m. The sample points are located at an elevation of 51.03m, with the top of the transition section as last disturbance upstream at 34.56m (4.28 diameters), and the stack exit downstream at 60m (2.59 diameters).

3.2 Test Results

Stratification testing was not conducted at this time. Cyclonic Flow testing was conducted at this time; data results obtained from the source emission testing indicated that no cyclonic flow conditions were observed.

No problems were encountered during the sampling period that required corrective action. The test results obtained are an accurate representation of emission characteristics for the process conditions maintained at the LNG Canada Development Inc. - Train 1 Natural Gas Turbine Engine (1E-4101B) at LNG Canada Kitimat Liquified Natural Gas (LNG) Facility on the test date of September 27, 2025.

Figure 1: Schematic of the Mobile CEMS Instrumentation System



Appendix I – Emission Data & Calculations

Particulate Calculation for PM 2.5 **Turbine-1E-4101B** **2025-09-27**

LNG-CANADA **LNG-Kitimat**

Symbols	Variables	Units	Test 1 11:25 - 12:28	Test 2 13:00 - 14:03	Test 3 14:30 - 15:32	Average
Cs	PM 2.5 Concentration	gr/dscf	0.000709	0.000743	0.001116	0.000856
		mg/dscm dry	1.62	1.70	2.55	1.96
		g/kg dry	0.00136	0.00142	0.00214	0.00164
		g/kg wet	0.00130	0.00136	0.00204	0.00157
E	PM 2.5 Emission Rate	kg/hr	1.04	1.13	1.73	1.30
Qsd	Flow Rate	E3M3/Day wet	16,522	17,164	17,553	17,080
Vs	Stack Gas Velocity	ft/s	80.0	83.0	84.5	82.5
		m/s	24.4	25.3	25.8	25.1
Tsavg	Stack Gas Temp	Deg F	362	360	357	359
		Deg C	183	182	180	182
BwsCalc	Stack Moisture	%	7.29	7.19	7.20	7.23
Vmstd	Standard Dry Meter Volume	dscf	23.9	24.9	24.9	24.6
		dscm	0.678	0.706	0.705	0.696
mp	Mass of PM2.5	mg	1	1	2	1
Mwd	Dry Molecular Weight	lb/lb-mole	29.2	29.2	29.2	29.2
Msw	Wet Molecular Weight	lb/lb-mole	28.4	28.4	28.4	28.4
Vwstd	Total Water Vapour	scf	1.88	1.93	1.93	1.91
		scm	0.0533	0.0547	0.0547	0.0542

Formulas

kg/1000 kg (std) dry =	0.0244654	*(mp /(Vmstd*Mwd))
kg/1000 kg (std) wet =	0.0244654	*(mp/(Vmstd + Vwstd)*Mw)

Total Hydrocarbons (THC)

Parameter	THC as Methane	Test 1	Test 2	Test 3
	9/27/2025	**11:25 - 12:28**	**13:00 - 14:03**	**14:30 - 15:32**
Baro. Press.	(in. Hg)	29.56	29.56	29.56
DGM Factor	(Y)	0.9986	0.9986	0.9986
Meter Type	(**M**etric/**E**nglish)	English	English	English
Moisture	%	7.29	7.19	7.20
Gas Volume	(m^3 std.)	0.349	0.349	0.336
THC	(ppm dry sample)	283	256	259
	(ppm wet sample)	262	238	240
Flow Rate	(m^3/sec) - dry	177	184	188
	(m^3/sec) - wet	191	199	203

					Average
THC	**ppm - dry**	**283**	**256**	**259**	**266**
	ppm - wet	**262**	**238**	**240**	**247**
	mg/m^3 - dry	**189**	**171**	**173**	**177**
	mg/m^3 - wet	**175**	**158**	**160**	**165**
	kg/hr - dry	**120**	**113**	**117**	**117**
	kg/hr - wet	**120**	**113**	**117**	**117**

Minimum detection limit of THC is <1 ppm; in calculation of total average measurements, 1 ppm was used as <MDL.

Tstd. (oF) 77

Pstd. (in. Hg) 29.92

Train 1 Natural Gas Turbine Engine (1E-4101B) - Total VOC					
Compliance Parameter	**Units**	**Test 1 9/27/2025 11:25 – 12:28**	**Test 2 9/27/2025 13:00 – 14:03**	**Test 3 9/27/2025 14:30 – 15:32**	**Average**
Total VOC	**ppm - dry**	0.0300	0.0104	0.0402	**0.0269**
Concentration	**ppm - wet**	0.0278	0.00966	0.0373	**0.0249**
	mg/m^3 - dry	0.0822	0.0285	0.108	**0.0728**
	mg/m^3 - wet	0.0762	0.0264	0.100	**0.0676**
Emission Rate	**kg/hr**	0.0524	0.0189	0.0731	**0.0482**

Water Content	**%**	7.29	7.19	7.2	**7.23**
Flow	**m^3/sec - wet**	191	199	203	**198**
	m^3/sec - dry	177	185	188	**183**

Train 1 Natural Gas Turbine Engine (1E-4101B) - Total VOC

Test 1
9/27/2025
11:25 – 12:28

Standard pressure:	mmHg	760
Standard Temperature:	deg C	20
Dry Flow Rate:	m3/s	177

$$mg/m3 = \frac{ppbv/1000 \times Molecular\ Weight}{Molar\ volume\ (24.05)}$$

$$kg/hr = \frac{mg/m3 \times Flow(m3/hr)}{1.00E+06}$$

			mg/m3	kg/hr
Total VOC	**ppbv**	**30.01**	**0.082198951**	**0.05239969**

BTEX			**ppbv**	**3.63**	**0.01392485**	**0.008876729**
Benzene	C6H6	78.114	ppbv	0.19	0.000617117	0.000393396
Toluene	C7H8	92.141	ppbv	3.22	0.01233655	0.007864229
Ethylbenzene	C8H10	106.168	ppbv	0.05	0.000220723	0.000140705
m,p-Xylene	C8H10	106.168	ppbv	0.17	0.00075046	0.000478399

Compound	Formula	Molecular Weight (g/mol)	units	test 1	mg/m3	kg/hr
1,1,1-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1,2,2-Tetrachloroethane	C2H2Cl4	167.838	ppbv	< 0.02	0	0
1,1,2-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.02	0	0
1,1-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
1,2,3-Trimethylbenzene	C9H12	120.195	ppbv	< 0.05	0	0
1,2,4-Trichlorobenzene	C6H3Cl3	181.44	ppbv	< 0.3	0	0
1,2,4-Trimethylbenzene	C9H12	120.195	ppbv	0.04	0.000199909	0.000127436
1,2-Dibromoethane	C2H4Br2	187.862	ppbv	< 0.02	0	0
1,2-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.03	0	0
1,2-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.03	0	0
1,2-Dichloropropane	C3H6Cl2	112.981	ppbv	< 0.03	0	0
1,3,5-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,3-Butadiene	C4H6	54.092	ppbv	0.04	8.99659E-05	5.73509E-05
1,3-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dioxane	C4H8O2	88.106	ppbv	< 0.5	0	0
1-Butene/Isobutylene	C4H8	56.108	ppbv	0.68	0.001586422	0.001011302
1-Hexene/2-Methyl-1-pentene	C6H12	84.162	ppbv	< 0.07	0	0
1-Pentene	C5H10	70.135	ppbv	0.04	0.000116649	7.43605E-05
2,2,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,2-Dimethylbutane	C6H14	86.178	ppbv	< 0.02	0	0
2,3,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,3-Dimethylbutane	C6H14	86.178	ppbv	< 0.09	0	0
2,3-Dimethylpentane	C7H16	100.205	ppbv	0.04	0.000166661	0.000106242
2,4-Dimethylpentane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylheptane	C8H18	114.232	ppbv	< 0.02	0	0
2-Methylhexane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
3-Methylheptane	C8H18	114.232	ppbv	< 0.03	0	0
3-Methylhexane	C7H16	100.205	ppbv	< 0.02	0	0
3-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
Acetone	C3H6O	58.08	ppbv	16.3	0.039363992	0.02509352
Acrolein	C3H4O	56.064	ppbv	1.6	0.00372983	0.002377669
Benzene	C6H6	78.114	ppbv	0.19	0.000617117	0.000393396
Benzyl chloride	C7H7Cl	126.583	ppbv	< 0.3	0	0
Bromodichloromethane	CHBrCl2	163.823	ppbv	< 0.03	0	0
Bromoform	CHBr3	252.731	ppbv	< 0.02	0	0
Bromomethane	CH3Br	94.939	ppbv	0.06	0.000236854	0.000150988

Carbon disulfide	CS2	76.131	ppbv	3.72	0.011775772	0.007506748
Carbon tetrachloride	CCl4	153.811	ppbv	< 0.02	0	0
Chlorobenzene	C6H5Cl	112.556	ppbv	< 0.02	0	0
Chloroethane	C2H5Cl	64.512	ppbv	0.02	5.36482E-05	3.41994E-05
Chloroform	CHCl3	119.369	ppbv	0.03	0.000148901	9.49205E-05
Chloromethane	CH3Cl	50.485	ppbv	0.11	0.000230909	0.000147198
cis-1,2-Dichloroethene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
cis-1,3-Dichloropropene	C3H4Cl2	110.965	ppbv	< 0.03	0	0
cis-2-Butene	C4H8	56.108	ppbv	0.1	0.000233297	0.000148721
cis-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Cyclohexane	C6H12	84.162	ppbv	< 0.04	0	0
Cyclopentane	C5H10	70.135	ppbv	< 0.02	0	0
Dibromochloromethane	CHBr2Cl	208.277	ppbv	< 0.02	0	0
Ethanol	C2H6O	46.069	ppbv	< 0.5	0	0
Ethyl acetate	C4H8O2	88.106	ppbv	< 0.3	0	0
Ethylbenzene	C8H10	106.168	ppbv	0.05	0.000220723	0.000140705
Freon-11	CCl3F	137.359	ppbv	0.02	0.000114228	7.28173E-05
Freon-113	C2Cl3F3	187.366	ppbv	< 0.02	0	0
Freon-114	C2Cl2F4	170.914	ppbv	< 0.03	0	0
Freon-12	CCl2F2	120.907	ppbv	0.05	0.000251366	0.000160239
Hexachloro-1,3-butadiene	C4Cl6	260.744	ppbv	< 0.3	0	0
Isobutane	C4H10	58.124	ppbv	< 0.03	0	0
Isopentane	C5H12	72.151	ppbv	0.44	0.001320018	0.000841477
Isoprene	C5H8	68.119	ppbv	< 0.02	0	0
Isopropyl alcohol	C3H8O	60.096	ppbv	1.7	0.00424795	0.002707958
Isopropylbenzene	C9H12	120.195	ppbv	< 0.04	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.17	0.00075046	0.000478399
m-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
m-Ethyltoluene	C9H12	120.195	ppbv	< 0.03	0	0
Methyl butyl ketone	C5H10O	86.134	ppbv	< 0.4	0	0
Methyl ethyl ketone	C4H8O	72.107	ppbv	0.7	0.002098748	0.001337897
Methyl isobutyl ketone	C6H12O	100.161	ppbv	< 0.3	0	0
Methyl methacrylate	C5H8O2	100.117	ppbv	< 0.08	0	0
Methyl tert butyl ether	C5H12O	88.15	ppbv	< 0.03	0	0
Methylcyclohexane	C7H14	98.189	ppbv	< 0.02	0	0
Methylcyclopentane	C6H12	84.162	ppbv	< 0.05	0	0
Methylene chloride	CH2Cl2	84.927	ppbv	< 0.3	0	0
n-Butane	C4H10	58.124	ppbv	0.11	0.000265848	0.000169471
n-Decane	C10H22	142.286	ppbv	< 0.06	0	0
n-Dodecane	C12H26	170.34	ppbv	< 0.3	0	0
n-Heptane	C7H16	100.205	ppbv	0.08	0.000333322	0.000212484
n-Hexane	C6H14	86.178	ppbv	0.13	0.000465827	0.000296953
n-Nonane	C9H20	128.259	ppbv	< 0.04	0	0
n-Octane	C8H18	114.232	ppbv	0.07	0.000332484	0.00021195
n-Pentane	C5H12	72.151	ppbv	0.13	0.000390005	0.000248618
n-Propylbenzene	C9H12	120.195	ppbv	< 0.06	0	0
n-Undecane	C11H24	156.313	ppbv	< 0.5	0	0
Naphthalene	C10H8	128.174	ppbv	< 0.3	0	0
o-Ethyltoluene	C9H12	120.195	ppbv	< 0.02	0	0
o-Xylene	C8H10	106.168	ppbv	0.06	0.000264868	0.000168847
p-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
p-Ethyltoluene	C9H12	120.195	ppbv	< 0.04	0	0
Styrene	C8H8	104.152	ppbv	< 0.04	0	0
Tetrachloroethylene	C2Cl4	165.822	ppbv	< 0.02	0	0
Tetrahydrofuran	C4H8O	72.107	ppbv	< 0.3	0	0
Toluene	C7H8	92.141	ppbv	3.22	0.01233655	0.007864229
trans-1,2-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.06	0	0
trans-1,3-Dichloropropylene	C3H4Cl2	110.965	ppbv	< 0.02	0	0
trans-2-Butene	C4H8	56.108	ppbv	0.11	0.000256627	0.000163593
trans-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Trichloroethylene	C2HCl3	131.38	ppbv	< 0.02	0	0
Vinyl acetate	C4H6O2	86.09	ppbv	< 0.3	0	0
Vinyl chloride	C2H3Cl	62.496	ppbv	< 0.02	0	0

Train 1 Natural Gas Turbine Engine (1E-4101B) - Total VOC

Standard pressure: mmHg 760

Standard Temperature: deg C 20

Test 2

9/27/2025

13:00 – 14:03

Dry Flow Rate: m3/s 185

			mg/m3	kg/hr
Total VOC	ppbv	10.41	**0.028496605**	**0.01894713**

BTEX			**ppbv**	**1.93**	**0.007365105**	**0.004896991**
Benzene	C6H6	78.114	ppbv	0.19	0.000617117	0.000410315
Toluene	C7H8	92.141	ppbv	1.6	0.006129963	0.004075756
Ethylbenzene	C8H10	106.168	ppbv	0.03	0.000132434	8.80542E-05
m,p-Xylene	C8H10	106.168	ppbv	0.11	0.000485592	0.000322865

Compound	Formula	Molecular Weight (g/mol)	units	test 2	mg/m3	kg/hr
1,1,1-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1,2,2-Tetrachloroethane	C2H2Cl4	167.838	ppbv	< 0.02	0	0
1,1,2-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.02	0	0
1,1-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
1,2,3-Trimethylbenzene	C9H12	120.195	ppbv	< 0.05	0	0
1,2,4-Trichlorobenzene	C6H3Cl3	181.44	ppbv	< 0.3	0	0
1,2,4-Trimethylbenzene	C9H12	120.195	ppbv	0.03	0.000149931	9.9688E-05
1,2-Dibromoethane	C2H4Br2	187.862	ppbv	< 0.02	0	0
1,2-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.03	0	0
1,2-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.03	0	0
1,2-Dichloropropane	C3H6Cl2	112.981	ppbv	< 0.03	0	0
1,3,5-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,3-Butadiene	C4H6	54.092	ppbv	< 0.03	0	0
1,3-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dioxane	C4H8O2	88.106	ppbv	< 0.5	0	0
1-Butene/Isobutylene	C4H8	56.108	ppbv	0.27	0.000629903	0.000418817
1-Hexene/2-Methyl-1-pentene	C6H12	84.162	ppbv	< 0.07	0	0
1-Pentene	C5H10	70.135	ppbv	< 0.03	0	0
2,2,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,2-Dimethylbutane	C6H14	86.178	ppbv	< 0.02	0	0
2,3,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,3-Dimethylbutane	C6H14	86.178	ppbv	< 0.09	0	0
2,3-Dimethylpentane	C7H16	100.205	ppbv	< 0.02	0	0
2,4-Dimethylpentane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylheptane	C8H18	114.232	ppbv	< 0.02	0	0
2-Methylhexane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
3-Methylheptane	C8H18	114.232	ppbv	< 0.03	0	0
3-Methylhexane	C7H16	100.205	ppbv	< 0.02	0	0
3-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
Acetone	C3H6O	58.08	ppbv	6.1	0.01473131	0.009794713
Acrolein	C3H4O	56.064	ppbv	1.3	0.003030486	0.002014943
Benzene	C6H6	78.114	ppbv	0.19	0.000617117	0.000410315
Benzyl chloride	C7H7Cl	126.583	ppbv	< 0.3	0	0
Bromodichloromethane	CHBrCl2	163.823	ppbv	< 0.03	0	0
Bromoform	CHBr3	252.731	ppbv	< 0.02	0	0
Bromomethane	CH3Br	94.939	ppbv	0.02	7.89514E-05	5.2494E-05

Carbon disulfide	CS2	76.131	ppbv	0.12	0.000379864	0.000252568
Carbon tetrachloride	CCl4	153.811	ppbv	< 0.02	0	0
Chlorobenzene	C6H5Cl	112.556	ppbv	< 0.02	0	0
Chloroethane	C2H5Cl	64.512	ppbv	< 0.02	0	0
Chloroform	CHCl3	119.369	ppbv	0.02	9.92674E-05	6.6002E-05
Chloromethane	CH3Cl	50.485	ppbv	0.1	0.000209917	0.000139572
cis-1,2-Dichloroethene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
cis-1,3-Dichloropropene	C3H4Cl2	110.965	ppbv	< 0.03	0	0
cis-2-Butene	C4H8	56.108	ppbv	0.03	6.99892E-05	4.65352E-05
cis-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Cyclohexane	C6H12	84.162	ppbv	< 0.04	0	0
Cyclopentane	C5H10	70.135	ppbv	< 0.02	0	0
Dibromochloromethane	CHBr2Cl	208.277	ppbv	< 0.02	0	0
Ethanol	C2H6O	46.069	ppbv	< 0.5	0	0
Ethyl acetate	C4H8O2	88.106	ppbv	< 0.3	0	0
Ethylbenzene	C8H10	106.168	ppbv	0.03	0.000132434	8.80542E-05
Freon-11	CCl3F	137.359	ppbv	0.02	0.000114228	7.59491E-05
Freon-113	C2Cl3F3	187.366	ppbv	< 0.02	0	0
Freon-114	C2Cl2F4	170.914	ppbv	< 0.03	0	0
Freon-12	CCl2F2	120.907	ppbv	0.04	0.000201093	0.000133705
Hexachloro-1,3-butadiene	C4Cl6	260.744	ppbv	< 0.3	0	0
Isobutane	C4H10	58.124	ppbv	< 0.03	0	0
Isopentane	C5H12	72.151	ppbv	0.16	0.000480007	0.000319152
Isoprene	C5H8	68.119	ppbv	< 0.02	0	0
Isopropyl alcohol	C3H8O	60.096	ppbv	< 0.3	0	0
Isopropylbenzene	C9H12	120.195	ppbv	< 0.04	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.11	0.000485592	0.000322865
m-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
m-Ethyltoluene	C9H12	120.195	ppbv	< 0.03	0	0
Methyl butyl ketone	C5H10O	86.134	ppbv	< 0.4	0	0
Methyl ethyl ketone	C4H8O	72.107	ppbv	< 0.3	0	0
Methyl isobutyl ketone	C6H12O	100.161	ppbv	< 0.3	0	0
Methyl methacrylate	C5H8O2	100.117	ppbv	< 0.08	0	0
Methyl tert butyl ether	C5H12O	88.15	ppbv	< 0.03	0	0
Methylcyclohexane	C7H14	98.189	ppbv	< 0.02	0	0
Methylcyclopentane	C6H12	84.162	ppbv	< 0.05	0	0
Methylene chloride	CH2Cl2	84.927	ppbv	< 0.3	0	0
n-Butane	C4H10	58.124	ppbv	0.08	0.000193344	0.000128553
n-Decane	C10H22	142.286	ppbv	< 0.06	0	0
n-Dodecane	C12H26	170.34	ppbv	< 0.3	0	0
n-Heptane	C7H16	100.205	ppbv	0.05	0.000208326	0.000138514
n-Hexane	C6H14	86.178	ppbv	< 0.03	0	0
n-Nonane	C9H20	128.259	ppbv	< 0.04	0	0
n-Octane	C8H18	114.232	ppbv	0.06	0.000284986	0.000189485
n-Pentane	C5H12	72.151	ppbv	< 0.04	0	0
n-Propylbenzene	C9H12	120.195	ppbv	< 0.06	0	0
n-Undecane	C11H24	156.313	ppbv	< 0.5	0	0
Naphthalene	C10H8	128.174	ppbv	< 0.3	0	0
o-Ethyltoluene	C9H12	120.195	ppbv	< 0.02	0	0
o-Xylene	C8H10	106.168	ppbv	0.04	0.000176579	0.000117406
p-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
p-Ethyltoluene	C9H12	120.195	ppbv	< 0.04	0	0
Styrene	C8H8	104.152	ppbv	< 0.04	0	0
Tetrachloroethylene	C2Cl4	165.822	ppbv	< 0.02	0	0
Tetrahydrofuran	C4H8O	72.107	ppbv	< 0.3	0	0
Toluene	C7H8	92.141	ppbv	1.6	0.006129963	0.004075756
trans-1,2-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.06	0	0
trans-1,3-Dichloropropylene	C3H4Cl2	110.965	ppbv	< 0.02	0	0
trans-2-Butene	C4H8	56.108	ppbv	0.04	9.33189E-05	6.20469E-05
trans-2-Pentene	C5H10	70.135	ppbv	< 0.02	0	0
Trichloroethylene	C2HCl3	131.38	ppbv	< 0.02	0	0
Vinyl acetate	C4H6O2	86.09	ppbv	< 0.3	0	0
Vinyl chloride	C2H3Cl	62.496	ppbv	< 0.02	0	0

Train 1 Natural Gas Turbine Engine (1E-4101B) - Total VOC

Test 3
9/27/2025
14:30 – 15:32

Standard pressure:	mmHg	760
Standard Temperature:	deg C	20
Dry Flow Rate:	m3/s	188

			mg/m3	kg/hr
Total VOC	ppbv	40.19	**0.107852923**	**0.073143955**

BTEX			**ppbv**	**1.9**	**0.007238504**	**0.004909026**
Benzene	C6H6	78.114	ppbv	0.25	0.000811996	0.000550681
Toluene	C7H8	92.141	ppbv	1.47	0.005631903	0.003819458
Ethylbenzene	C8H10	106.168	ppbv	0.04	0.000176579	0.000119753
m,p-Xylene	C8H10	106.168	ppbv	0.14	0.000618026	0.000419134

Compound	Formula	Molecular Weight (g/mol)	units	test 3	mg/m3	kg/hr
1,1,1-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1,2,2-Tetrachloroethane	C2H2Cl4	167.838	ppbv	< 0.02	0	0
1,1,2-Trichloroethane	C2H3Cl3	133.396	ppbv	< 0.02	0	0
1,1-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.02	0	0
1,1-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
1,2,3-Trimethylbenzene	C9H12	120.195	ppbv	< 0.05	0	0
1,2,4-Trichlorobenzene	C6H3Cl3	181.44	ppbv	< 0.3	0	0
1,2,4-Trimethylbenzene	C9H12	120.195	ppbv	0.05	0.000249886	0.000169468
1,2-Dibromoethane	C2H4Br2	187.862	ppbv	< 0.02	0	0
1,2-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.03	0	0
1,2-Dichloroethane	C2H4Cl2	98.954	ppbv	< 0.03	0	0
1,2-Dichloropropane	C3H6Cl2	112.981	ppbv	< 0.03	0	0
1,3,5-Trimethylbenzene	C9H12	120.195	ppbv	< 0.03	0	0
1,3-Butadiene	C4H6	54.092	ppbv	< 0.03	0	0
1,3-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dichlorobenzene	C6H4Cl2	146.998	ppbv	< 0.4	0	0
1,4-Dioxane	C4H8O2	88.106	ppbv	< 0.5	0	0
1-Butene/Isobutylene	C4H8	56.108	ppbv	1.64	0.003826076	0.002594777
1-Hexene/2-Methyl-1-pentene	C6H12	84.162	ppbv	< 0.07	0	0
1-Pentene	C5H10	70.135	ppbv	0.04	0.000116649	7.91091E-05
2,2,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,2-Dimethylbutane	C6H14	86.178	ppbv	< 0.02	0	0
2,3,4-Trimethylpentane	C8H18	114.232	ppbv	< 0.02	0	0
2,3-Dimethylbutane	C6H14	86.178	ppbv	< 0.09	0	0
2,3-Dimethylpentane	C7H16	100.205	ppbv	< 0.02	0	0
2,4-Dimethylpentane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylheptane	C8H18	114.232	ppbv	< 0.02	0	0
2-Methylhexane	C7H16	100.205	ppbv	< 0.03	0	0
2-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
3-Methylheptane	C8H18	114.232	ppbv	< 0.03	0	0
3-Methylhexane	C7H16	100.205	ppbv	< 0.02	0	0
3-Methylpentane	C6H14	86.178	ppbv	< 0.02	0	0
Acetone	C3H6O	58.08	ppbv	25.4	0.061340208	0.041599849
Acrolein	C3H4O	56.064	ppbv	2.2	0.005128516	0.003478069
Benzene	C6H6	78.114	ppbv	0.25	0.000811996	0.000550681
Benzyl chloride	C7H7Cl	126.583	ppbv	0.3	0.001578998	0.001070849
Bromodichloromethane	CHBrCl2	163.823	ppbv	< 0.03	0	0
Bromoform	CHBr3	252.731	ppbv	< 0.02	0	0
Bromomethane	CH3Br	94.939	ppbv	< 0.02	0	0

Carbon disulfide	CS2	76.131	ppbv	4.1	0.012978674	0.008801908
Carbon tetrachloride	CCl4	153.811	ppbv	< 0.02	0	0
Chlorobenzene	C6H5Cl	112.556	ppbv	< 0.02	0	0
Chloroethane	C2H5Cl	64.512	ppbv	< 0.02	0	0
Chloroform	CHCl3	119.369	ppbv	< 0.02	0	0
Chloromethane	CH3Cl	50.485	ppbv	0.11	0.000230909	0.000156598
cis-1,2-Dichloroethene	C2H2Cl2	96.938	ppbv	< 0.02	0	0
cis-1,3-Dichloropropene	C3H4Cl2	110.965	ppbv	< 0.03	0	0
cis-2-Butene	C4H8	56.108	ppbv	0.07	0.000163308	0.000110753
cis-2-Pentene	C5H10	70.135	ppbv	0.03	8.74865E-05	5.93318E-05
Cyclohexane	C6H12	84.162	ppbv	< 0.04	0	0
Cyclopentane	C5H10	70.135	ppbv	< 0.02	0	0
Dibromochloromethane	CHBr2Cl	208.277	ppbv	< 0.02	0	0
Ethanol	C2H6O	46.069	ppbv	< 0.5	0	0
Ethyl acetate	C4H8O2	88.106	ppbv	< 0.3	0	0
Ethylbenzene	C8H10	106.168	ppbv	0.04	0.000176579	0.000119753
Freon-11	CCl3F	137.359	ppbv	0.02	0.000114228	7.74673E-05
Freon-113	C2Cl3F3	187.366	ppbv	< 0.02	0	0
Freon-114	C2Cl2F4	170.914	ppbv	< 0.03	0	0
Freon-12	CCl2F2	120.907	ppbv	0.04	0.000201093	0.000136378
Hexachloro-1,3-butadiene	C4Cl6	260.744	ppbv	< 0.3	0	0
Isobutane	C4H10	58.124	ppbv	< 0.03	0	0
Isopentane	C5H12	72.151	ppbv	0.65	0.001950027	0.001322474
Isoprene	C5H8	68.119	ppbv	< 0.02	0	0
Isopropyl alcohol	C3H8O	60.096	ppbv	0.4	0.000999518	0.000677855
Isopropylbenzene	C9H12	120.195	ppbv	< 0.04	0	0
m,p-Xylene	C8H10	106.168	ppbv	0.14	0.000618026	0.000419134
m-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
m-Ethyltoluene	C9H12	120.195	ppbv	< 0.03	0	0
Methyl butyl ketone	C5H10O	86.134	ppbv	< 0.4	0	0
Methyl ethyl ketone	C4H8O	72.107	ppbv	1.8	0.005396782	0.003660002
Methyl isobutyl ketone	C6H12O	100.161	ppbv	< 0.3	0	0
Methyl methacrylate	C5H8O2	100.117	ppbv	< 0.08	0	0
Methyl tert butyl ether	C5H12O	88.15	ppbv	< 0.03	0	0
Methylcyclohexane	C7H14	98.189	ppbv	< 0.02	0	0
Methylcyclopentane	C6H12	84.162	ppbv	0.08	0.000279957	0.000189862
Methylene chloride	CH2Cl2	84.927	ppbv	< 0.3	0	0
n-Butane	C4H10	58.124	ppbv	0.11	0.000265848	0.000180293
n-Decane	C10H22	142.286	ppbv	< 0.06	0	0
n-Dodecane	C12H26	170.34	ppbv	< 0.3	0	0
n-Heptane	C7H16	100.205	ppbv	0.06	0.000249992	0.00016954
n-Hexane	C6H14	86.178	ppbv	0.19	0.000680824	0.000461723
n-Nonane	C9H20	128.259	ppbv	< 0.04	0	0
n-Octane	C8H18	114.232	ppbv	0.07	0.000332484	0.000225485
n-Pentane	C5H12	72.151	ppbv	0.05	0.000150002	0.000101729
n-Propylbenzene	C9H12	120.195	ppbv	< 0.06	0	0
n-Undecane	C11H24	156.313	ppbv	< 0.5	0	0
Naphthalene	C10H8	128.174	ppbv	0.7	0.003730636	0.002530052
o-Ethyltoluene	C9H12	120.195	ppbv	< 0.02	0	0
o-Xylene	C8H10	106.168	ppbv	0.06	0.000264868	0.000179629
p-Diethylbenzene	C10H14	134.222	ppbv	< 0.02	0	0
p-Ethyltoluene	C9H12	120.195	ppbv	< 0.04	0	0
Styrene	C8H8	104.152	ppbv	< 0.04	0	0
Tetrachloroethylene	C2Cl4	165.822	ppbv	< 0.02	0	0
Tetrahydrofuran	C4H8O	72.107	ppbv	< 0.3	0	0
Toluene	C7H8	92.141	ppbv	1.47	0.005631903	0.003819458
trans-1,2-Dichloroethylene	C2H2Cl2	96.938	ppbv	< 0.06	0	0
trans-1,3-Dichloropropylene	C3H4Cl2	110.965	ppbv	< 0.02	0	0
trans-2-Butene	C4H8	56.108	ppbv	0.09	0.000209968	0.000142396
trans-2-Pentene	C5H10	70.135	ppbv	0.03	8.74865E-05	5.93318E-05
Trichloroethylene	C2HCl3	131.38	ppbv	< 0.02	0	0
Vinyl acetate	C4H6O2	86.09	ppbv	< 0.3	0	0
Vinyl chloride	C2H3Cl	62.496	ppbv	< 0.02	0	0

METHOD 201A - PM10/2.5 SAMPLING TITLE PAGE

Source Information				
Plant Name	LNG-CANADA			
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)			
Fuel or Source Type				
Fuel F-Factor				

Test Information			
Starting Test Date		09/27/25	
Project #		25C338707	
Operator		MS-VK	
Standard Temperature		68	^{o}F
Standard Pressure		30	in Hg
Run Duration		60	Minutes
Base Run Number		1	
# of Ports Available		4	
# of Ports Used		4	
Port Inside Diameter		4	in
Circular Stack?		☑	
Rectangular Stack?		☐	

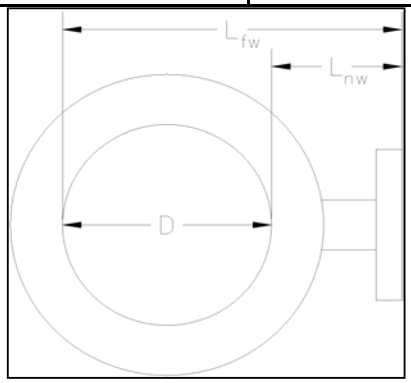
Test Equipment Information			
Orifice Meter Coefficient	($\Delta H_{@}$)	1.965	in H_2O
Meterbox Calibration Factor	(Y)	0.999	
Pitot Identification		PB9C	
Pitot Tube Coefficient	(C_p)	0.819	
Method 201A Pitot Coefficient	(C'_p)	0.819	
Sample Case/Oven Number		1	
Impinger Case Number		1.0000	in
Probe Number		PB9C	
Probe Length		100.00	in
(SS, Glass ....) **Liner Material**		SS	
PM10 Cyclone		☐	
PM2.5 Cyclone		☑	
Combination Cyclone		☐	

Testing Company Information	
Company Name	AGAT Laboratories Ltd
Address	3700, 21 Street NE
City, State Country Zip	Calgary,Alberta, T2E 6V6
Project Manager	Shaun Hayward
Phone Number	403-299-2179
Fax Number	

METHOD 1 - SAMPLE AND VELOCITY TRAVERSES FOR CIRCULAR SOURCES

Plant Name	LNG-CANADA	**Date**	09/27/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)	**Project #**	25C338707
Operator	MS-VK	**# of Ports Available**	4
Stack Type	Circular	**# of Ports Used**	4
Stack Size	Large	**Port Inside Diameter**	4

Circular Stack or Duct Diameter			
Distance to Far Wall of Stack	(L_{fw})	165.30	in
Distance to Near Wall of Stack	(L_{nw})	9.00	in
(=Lfw - Lnw) **Diameter of Stack**	(D)	156.30	in
(=3.14(D/2/Cunits)2) **Area of Stack**	(A_s)	133.24	ft^2

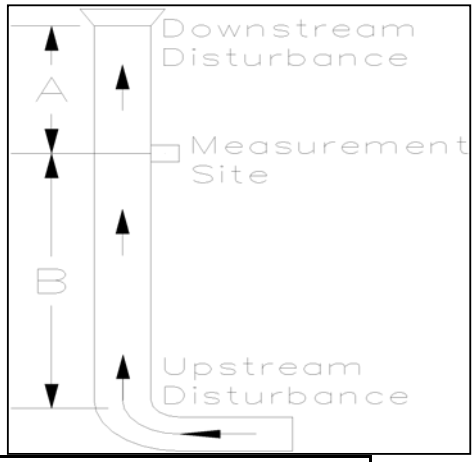


Distance from Port to Disturbances			
Distance Upstream	(B)	655.31	in
(=B/D) **Diameters Upstream**	(B_D)	4.19	diameters
Distance Downstream	(A)	353.19	in
(=A/D) **Diameters Downstream**	(A_D)	2.26	diameters

Number of Traverse Points Required			
Diameters to Flow Disturbance		**Minimum Number of[1] Traverse Points**	
Up Stream	**Down Stream**	**Particulate Points**	**Velocity Points**
2.00-4.99	0.50-1.24	24	16
5.00-5.99	1.25-1.49	20	16
6.00-6.99	1.50-1.74	16	12
7.00-7.99	1.75-1.99	12	12
>= 8.00	>=2.00	8 or 12[2]	8 or 12[2]
Upstream Spec		24	16
Downstream Spec		12	12
Traverse Pts Required		24	16

[1] Check Minimum Number of Points for the Upstream and Downstream conditions, then use the largest.

[2] 8 for Circular Stacks 12 to 24 inches
12 for Circular Stacks over 24 inches



Number of Traverse Points Used			
4	**Ports by**	4	**Across**
16	**Pts Used**	16	**Required**
☑	**Particulate**	☐	**Velocity**

Location of Traverse Points in Circular Stacks

Traverse Point Number	(Fraction of Stack Diameter from Inside Wall to Traverse Point) Number of Traverse Points on a Diameter					
	2	4	6	8	10	12
1	.146	.067	.044	.032	.026	.021
2	.854	.250	.146	.105	.082	.067
3		.750	.296	.194	.146	.118
4		.933	.704	.323	.226	.177
5			.854	.677	.342	.250
6			.956	.806	.658	.356
7				.895	.774	.644
8				.968	.854	.750
9					.918	.823
10					.974	.882
11						.933
12						.979

Traverse Point Locations			
Traverse Point Number	**Fraction of Stack Diameter**	**Distance from Inside Wall**	**Distance Including Nipple Length**
		in	in
1	0.032	5	14
2	0.105	16 3/8	25 3/8
3	0.194	30 3/8	39 3/8
4	0.323	50 4/8	59 4/8
5			
6			
7			
8			
9			
10			
11			
12			

DETERMINATION OF STACK GAS VELOCITY AND DWELL TIMES

Plant Name	LNG-CANADA				**Date**	09/27/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)				**Project #**	25C338707
Operator	MS-VK				**# of Ports Used**	4
Stack Type	Circular				**Pitot Identification**	PB9C
Pitot Leak Check	☑	**PreTest**	☑	**PostTest**	**Pitot Coefficient (C_p)**	0.819

Stack Dimensions			
Diameter or Length of Stack	(D)	156.30	in
Width of Stack	(W)		in
Area of Stack	(A_s)	133.24	ft^2

Pressures			
Barometric Pressure	(P_b)	29.56	in Hg
Static Pressure	(P_{static})	-1.10	in H_2O
Absolute Stack Pressure	(P_s)	29.48	in Hg

Stack Gas Composition				
Composition Data:	**Actual**	☐	**Estimate**	☑
Carbon Dioxide Concentration	($\%CO_2$)	4.0	%	
Oxygen Concentration	($\%O_2$)	14.0	%	
Carbon Monoxide Concentration	(%CO)	0.0	%	
Nitrogen Concentration	($\%N_2$)	82.0	%	
Stack Moisture Content	(B_{ws})	7		
Stack Dry Molecular Weight	(M_d)	29.20	lb/lb-mole	
Stack Wet Molecular Weight	(M_s)	28.38	lb/lb-mole	

Results			
Avg Stack Gas Velocity	(v_s)	75.9	ft/sec
Avg Stack Dry Std Flow Rate	(Q_{sd})	21208219	dscf/hr
Avg Stack Dry Std Flow Rate	(Q_{sd})	353470	dscf/min
Avg Stack Wet Flow Rate	(Q_{aw})	606899	acf/min

Stack Cross Section Schematic

Velocity Traverse and Dwell Times

Total Number of Points	16			
Run Time	60.00			
Traverse Point	**Velocity Head** (Δp)	**Stack Temp** (t_s)	**Local Velocity** (v_s)$_l$	**Dwell Times** (t_d)
	in H_2O	^oF	ft/sec	min
A-1	1.30	364	79.2	3.9
A-2	1.30	365	79.3	3.9
A-3	1.20	367	76.3	3.8
A-4	0.99	367	69.1	3.4
B-1	1.40	369	82.5	4.1
B-2	1.45	369	83.9	4.1
B-3	1.30	369	79.5	3.9
B-4	0.98	369	69.0	3.4
C-1	1.40	370	82.5	4.1
C-2	1.30	369	79.5	3.9
C-3	0.89	367	65.7	3.2
C-4	0.89	367	65.7	3.2
D-1	1.30	367	79.4	3.9
D-2	1.30	367	79.4	3.9
D-3	1.30	370	79.5	3.9
D-4	0.85	372	64.4	3.2
Average[1]	1.09	368	76	

[1] Please report the average of the square roots of Δp, or, $(\Delta p)^{1/2}_{avg} = {}^1/_n\Sigma(\Delta p^{1/2})$

Formulas Used

$A_s = DW/K_u$ for Rectangular Stacks

$A_s = (\pi(D/2)^2)/K_u$ for Circular Stacks

where $K_u = 1$ for metric units

where $K_u = 144$ (in^2/ft^2) for English units

$P_s = P_{bar} + P_{static}/13.6$

$\%N_2 = 100 - \%CO_2 - \%O_2 - \%CO$

$M_d = .44(\%CO_2) + .32(\%O_2) + .28(\%N_2 + \%CO)$

$M_s = M_d(1 - B_{ws}) + 18B_{ws}$

$(\Delta p)^{1/2}_{avg} = {}^1/_n\Sigma(\Delta p^{1/2})$

$T_{s(avg)} = {}^1/_n\Sigma t_s + T_u$

where $T_u = 273\ ^oK$ for metric units

where $T_u = 460\ ^oR$ for English units

$v_s = K_pC_p(\Delta p)^{1/2}_{avg}\ (T_{s(avg)}/(P_sM_s))^{1/2}$

where $K_p = 34.97$ for metric units

where $K_p = 85.49$ for English units

$Q_{sd} = 3600(1 - B_{ws})v_sA_s(T_{std}/T_{s(avg)})(P_s/P_{std})$

where $T_{std} = 293\ ^oK$, $P_{std} = 760$ mm Hg, for metric units

where $T_{std} = 528\ ^oR$, $P_{std} = 29.92$ in Hg, for English units

METHOD 3 - GAS ANALYSIS FOR THE DETERMINATION OF DRY MOLECULAR WEIGHT

Plant Name	LNG-CANADA	**Date**	09/27/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)	**Project #**	25C338707
Operator	MS-VK	**# of Ports Used**	4
Fuel Type		**Minimum Fuel Factor**	**Maximum Fuel Factor**
Orsat Leak Check	☑ PreTest ☑ PostTest	**Orsat Identification**	

Gas Analysis Data

Run Number	1			**Run Start Time**	11:25		**Run Stop Time**	12:28
Sample Analysis Time	**Carbon Dioxide Volume** (V_{CO2})	**Oxygen Volume** (V_{O2})	**Carbon Monoxide Volume** (V_{CO})	**Carbon Dioxide Conc.** ($\%CO_2$)	**Oxygen Conc.** ($\%O_2$)	**Carbon Monoxide Conc.** (%CO)	**Nitrogen Conc.** ($\%N_2$)	**Dry Molecular Weight** (M_d)	**Molecular Weight Deviation** (ΔM_d)
hh:mm	ml	ml	ml	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole
	4.0	18.0	18.0	4.0	14.0	0.0	82.0	29.20	0.00
	4.0	18.0	18.0	4.0	14.0	0.0	82.0	29.20	0.00
	4.0	18.0	18.0	4.0	14.0	0.0	82.0	29.20	0.00
Results			**Averages**	4.0	14.0	0.0	82.0	29.20	
Average Calculated Fuel Factor			$(F_o)_{avg}$	1.725		**Molecular Wt Deviation < 0.3?**			☑
Average Excess Air			$(\%EA)_{avg}$	183.1	percent	**Fuel Factor in Handbook Range?**			☑

Gas Analysis Data

Run Number	2			**Run Start Time**	13:00		**Run Stop Time**	14:03
Sample Analysis Time	**Carbon Dioxide Volume** (V_{CO2})	**Oxygen Volume** (V_{O2})	**Carbon Monoxide Volume** (V_{CO})	**Carbon Dioxide Conc.** ($\%CO_2$)	**Oxygen Conc.** ($\%O_2$)	**Carbon Monoxide Conc.** (%CO)	**Nitrogen Conc.** ($\%N_2$)	**Dry Molecular Weight** (M_d)	**Molecular Weight Deviation** (ΔM_d)
hh:mm	ml	ml	ml	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole
	4.0	18.0	18.0	4.0	14.0	0.0	82.0	29.20	0.00
	4.0	18.0	18.0	4.0	14.0	0.0	82.0	29.20	0.00
	4.0	18.0	18.0	4.0	14.0	0.0	82.0	29.20	0.00
Results			**Averages**	4.0	14.0	0.0	82.0	29.20	
Average Calculated Fuel Factor			$(F_o)_{avg}$	1.725		**Molecular Wt Deviation < 0.3?**			☐
Average Excess Air			$(\%EA)_{avg}$	183.1	percent	**Fuel Factor in Handbook Range?**			☐

Gas Analysis Data

Run Number	3			**Run Start Time**	14:30		**Run Stop Time**	15:32
Sample Analysis Time	**Carbon Dioxide Volume** (V_{CO2})	**Oxygen Volume** (V_{O2})	**Carbon Monoxide Volume** (V_{CO})	**Carbon Dioxide Conc.** ($\%CO_2$)	**Oxygen Conc.** ($\%O_2$)	**Carbon Monoxide Conc.** (%CO)	**Nitrogen Conc.** ($\%N_2$)	**Dry Molecular Weight** (M_d)	**Molecular Weight Deviation** (ΔM_d)
hh:mm	ml	ml	ml	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole
	4.0	18.0	18.0	4.0	14.0	0.0	82.0	29.20	0.00
	4.0	18.0	18.0	4.0	14.0	0.0	82.0	29.20	0.00
	4.0	18.0	18.0	4.0	14.0	0.0	82.0	29.20	0.00
Results			**Averages**	4.0	14.0	0.0	82.0	29.20	
Average Calculated Fuel Factor			$(F_o)_{avg}$	1.725		**Molecular Wt Deviation < 0.3?**			☐
Average Excess Air			$(\%EA)_{avg}$	183.1	percent	**Fuel Factor in Handbook Range?**			☐

Fuel Factor Fo

Fuel Type	**Minimum**	**Maximum**
Coal, Anthracite	1.016	1.130
Coal, Lignite	1.016	1.130
Coal, Bituminous	1.083	1.230
Oil, Distillate	1.260	1.413
Oil, Residual	1.210	1.370
Gas, Natural	1.600	1.836
Gas, Propane	1.434	1.586
Gas, Butane	1.405	1.553
Wood	1.000	1.120
Wood Bark	1.003	1.130

Formulas Used

$\%CO_2 = V_{CO2}$

$\%O_2 = V_{O2} - V_{CO2}$

$\%CO = V_{CO} - V_{O2}$

$\%N_2 = 100 - \%CO_2 - \%O_2 - \%CO$

$M_d = .44(\%CO_2) + .32(\%O_2) + .28(\%N_2 + \%CO)$

$\Delta M_d = M_d - M_{davg}$

$F_o = (20.9 - \%O_2 - .5\%CO)/(\%CO_2 + \%CO)$

$\%EA = 100(\%O_2 - .5\%CO)/(.264\%NO_2 - (\%O_2 - .5\%CO))$

METHOD 4 - DETERMINATION OF MOISTURE CONTENT IN STACK GASES

Plant Name	LNG-CANADA	**Date**	09/27/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)	**Project #**	25C338707
Operator	MS-VK	**# of Ports Used**	4
Stack Type	Circular	**Meter Box Number**	M5-%
Train Leak Check	☑ PreTest ☑ PostTest	**Meter Cal Factor (Y)**	0.9986

Moisture Content Data								
Run Number	1		**Run Start Time**	11:25		**Run Stop Time**	12:28	
Total Meter Volume	(V_m)	23.658	dcf	**Barometric Press.**	(P_b)	29.56	in Hg	
Avg Meter Temp	$(t_m)_{avg}$	55	°F	**Stack Static Press.**	(P_{static})	-1.10	in H_2O	
Avg Stack Temp	$(t_s)_{avg}$	362	°F	**Avg Orifice Press.**	$(\Delta H)_{avg}$	0.51	in H_2O	
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**
		ml	ml	ml	g	ml	ml	ml
Contents								
Final Value	$(V_f),(W_f)$	135.00	100.00	0.00	710.00			
Initial Value	$(V_i),(W_i)$	100.00	100.00	0.00	705.00			
Net Value	$(V_n),(W_n)$	35.0	0.0	0.0	5.0			
Results								
Total Volume	(V_t)	35.00	ml	**Water Vol Condensed**	$(V_{wc(std)})$	1.647	scf	
Total Weight	(W_t)	5.00	g	**Water Vol Weighed**	$(V_{wsg(std)})$	0.236	scf	
Std Meter Volume	$(V_{m(std)})$	23.939	dscf	**Sat. Moisture Content**	$(B_{ws(svp)})$	100.0	%	
Calc Moisture Content	$(B_{ws(calc)})$	7.3	%	**Final Moisture Content**	(B_{ws})	7.3	%	

Moisture Content Data								
Run Number	2		**Run Start Time**	13:00		**Run Stop Time**	14:03	
Total Meter Volume	(V_m)	24.915	dcf	**Barometric Press.**	(P_b)	29.56	in Hg	
Avg Meter Temp	$(t_m)_{avg}$	61	°F	**Stack Static Press.**	(P_{static})	-1.10	in H_2O	
Avg Stack Temp	$(t_s)_{avg}$	360	°F	**Avg Orifice Press.**	$(\Delta H)_{avg}$	0.51	in H_2O	
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**
		ml	ml	ml	g	g	ml	ml
Contents								
Final Value	$(V_f),(W_f)$	135.00	100.00	0.00	716.00			
Initial Value	$(V_i),(W_i)$	100.00	100.00	0.00	710.00			
Net Value	$(V_n),(W_n)$	35.0	0.0	0.0	6.0			
Results								
Total Volume	(V_t)	35.00	ml	**Water Vol Condensed**	$(V_{wc(std)})$	1.647	scf	
Total Weight	(W_t)	6.00	g	**Water Vol Weighed**	$(V_{wsg(std)})$	0.283	scf	
Std Meter Volume	$(V_{m(std)})$	24.921	dscf	**Sat. Moisture Content**	$(B_{ws(svp)})$	100.0	%	
Calc Moisture Content	(B_{ws})	7.2	%	**Final Moisture Content**	(B_{ws})	7.2	%	

Moisture Content Data								
Run Number	3		**Run Start Time**	14:30		**Run Stop Time**	15:32	
Total Meter Volume	(V_m)	24.997	dcf	**Barometric Press.**	(P_b)	29.56	in Hg	
Avg Meter Temp	$(t_m)_{avg}$	64	°F	**Stack Static Press.**	(P_{static})	-1.10	in H_2O	
Avg Stack Temp	$(t_s)_{avg}$	357	°F	**Avg Orifice Press.**	$(\Delta H)_{avg}$	0.52	in H_2O	
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**
		ml	ml	ml	g	ml	ml	ml
Contents								
Final Value	$(V_f),(W_f)$	135.00	100.00	0.00	722.00			
Initial Value	$(V_i),(W_i)$	100.00	100.00	0.00	716.00			
Net Value	$(V_n),(W_n)$	35.0	0.0	0.0	6.0			
Results								
Total Volume	(V_t)	35.00	ml	**Water Vol Condensed**	$(V_{wc(std)})$	1.647	scf	
Total Weight	(W_t)	6.00	g	**Water Vol Weighed**	$(V_{wsg(std)})$	0.283	scf	
Std Meter Volume	$(V_{m(std)})$	24.884	dscf	**Sat. Moisture Content**	$(B_{ws(svp)})$	100.0	%	
Calc Moisture Content	(B_{ws})	7.2	%	**Final Moisture Content**	(B_{ws})	7.2	%	

SAMPLE RECOVERY AND INTEGRITY DATA SHEET

Plant Name	LNG-CANADA	**Date**	09/27/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)	**Project #**	25C338707
Operator	MS-VK	**Cyclone Type**	PM2.5 Cyclone

Run History Data				
Run Number	1	2	3	
Run Start Time	11:25	13:00	14:30	(hh:mm)
Run Stop Time	12:28	14:03	15:32	(hh:mm)
Train Prepared By	MS-VK	MS-VK	MS-VK	
Train Recovered By	MS-VK	MS-VK	MS-VK	
Recovery Date	09/27/25	09/27/25	09/27/25	(mm/dd/yy)
Relinquished By	CA	CA	CA	
Received By				
Relinquished Date				(mm/dd/yy)
Relinquished Time				(hh:mm)

Equipment Identification Numbers			
Filter	1	1	1
Acetone Wash	1	1	1
Silica Gel	1	1	1
Impinger Case	1	1	1
Sample Box	1	1	1
Oven	1	1	1

Moisture Content Data					
Impingers 1, 2, and 3 - Water Volume					
Final Volume	(V_f)	235.0	235.0	235.0	ml
Initial Volume	(V_i)	200.0	200.0	200.0	ml
Net Volume	(V_n)	35.0	35.0	35.0	ml
Comments					
Impinger 4 - Silica Gel Weight					
Final Weight	(W_f)	710.0	716.0	722.0	g
Initial Weight	(W_i)	705.0	710.0	716.0	g
Net Weight	(W_n)	5.0	6.0	6.0	g
Comments					
Total Water Collected					
Total Volume	(V_{lc})	40.0	41.0	41.0	g

Formulas Used		
$V_n = V_f - V_i$	$W_n = W_f - W_i$	$V_{lc} = V_n + W_n/\rho_w$ where ρ_w = .9982 g/ml

SAMPLE ANALYTICAL DATA SHEET

Plant Name	LNG-CANADA	**Date**	09/27/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)	**Project #**	25C338707
Operator	MS-VK	**Cyclone Type**	PM2.5 Cyclone

Analytical Data

Placed in Desiccator — **Run Number** 1

		Number	Date	Time			Run Start Time	11:25		
Filter							**Leakage Evident?**	☐		
Acetone Wash I(Exit Tube)	**(Dp<2.5)**						**Estimated Volume**			
Acetone Nozzle Wash III	**(Dp>2.5)**									
PM2.5 Cup Catch	**(Dp>2.5)**									

		Filter	Acetone I	Acetone III	PM2.5 Cup Catch	Date	Time	Humidity	Temp	Cal Audit
		g	g	g	g	mm/dd/yy	hh:mm	%RH	°F	g
Measurement 1	(m_{1f}),(m_{1a})	0.0010	0.0001	0.0027	0.0000					
Measurement 2	(m_{2f}),(m_{2a})	0.0010	0.0001	0.0027	0.0000					
Measurement 3	(m_{3f}),(m_{3a})	0.0010	0.0001	0.0027	0.0000					
Measurement 4	(m_{4f}),(m_{4a})	0.0010	0.0001	0.0027	0.0000					

Results							**Acetone Wash**		**Beaker I**	**Beaker III**	
Final Weight	(m_{ff}),(m_{fa}')	0.0010	0.0001	0.0027	0.0000	g	**Bottle Wt with Wash**	(m_{bw})	0.0001	0.0001	g
Tare Weight	(m_{tf}),(m_{ta}')	0.0000	0.0000	0.0000	0.0000	g	**Additional Rinse Wt**	(m_{ar})	0.0001	0.0001	g
Weight Gain	(m_f),(m_a')	1.0	0.1	2.7	0.0	mg	**Bottle Tare Weight**	(m_{tb})	0.0001	0.0001	g
Blank Adjustment	(W_a)		0.0	0.0	N/A	mg	**Net Wash Weight**	(m_{nw})	0.0001	0.0001	g
Total Particulates	(m_n)				3.8	mg	**Blank Concentration**	(C_a)	0.0001	0.0001	mg/g

Analytical Data

Placed in Desiccator — **Run Number** 2

		Number	Date	Time			Run Start Time	13:00		
Filter							**Leakage Evident?**	☐		
Acetone Wash Beaker I	**(Dp<2.5)**						**Estimated Volume**			
Acetone Nozzle Wash III	**(Dp>2.5)**									
PM2.5 Cup Catch	**(Dp>2.5)**									

		Filter	Acetone I	Acetone III	PM2.5 Cup Catch	Date	Time	Humidity	Temp	Cal Audit
		g	g	g	g	mm/dd/yy	hh:mm	%RH	°F	g
Measurement 1	(m_{1f}),(m_{1a})	0.0010	0.0002	0.0021	0.0000					
Measurement 2	(m_{2f}),(m_{2a})	0.0010	0.0002	0.0021	0.0000					
Measurement 3	(m_{3f}),(m_{3a})	0.0010	0.0002	0.0021	0.0000					
Measurement 4	(m_{4f}),(m_{4a})	0.0010	0.0002	0.0021	0.0000					

Results							**Acetone Wash**		**Beaker I**	**Beaker III**	
Final Weight	(m_{ff}),(m_{fa}')	0.0010	0.0002	0.0021	0.0000	g	**Bottle Wt with Wash**	(m_{bw})	0.0001	0.0001	g
Tare Weight	(m_{tf}),(m_{ta}')	0.0000	0.0000	0.0000	0.0000	g	**Additional Rinse Wt**	(m_{ar})	0.0001	0.0001	g
Weight Gain	(m_f),(m_a')	1.0	0.2	2.1	0.0	mg	**Bottle Tare Weight**	(m_{tb})	0.0001	0.0001	g
Blank Adjustment	(W_a)		0.0	0.0	N/A	mg	**Net Wash Weight**	(m_{nw})	0.0001	0.0001	g
Total Particulates	(m_n)				3.3	mg	**Blank Concentration**	(C_a)	0.0001	0.0001	mg/g

Analytical Data

Placed in Desiccator — **Run Number** 3

		Number	Date	Time			Run Start Time	14:30		
Filter							**Leakage Evident?**	☐		
Acetone Wash Beaker I	**(Dp<2.5)**						**Estimated Volume**			
Acetone Nozzle Wash III	**(Dp>2.5)**									
PM2.5 Cup Catch	**(Dp>2.5)**									

		Filter	Acetone I	Acetone II	PM2.5 Cup Catch	Date	Time	Humidity	Temp	Cal Audit
		g	g	g	g	mm/dd/yy	hh:mm	%RH	°F	g
Measurement 1	(m_{1f}),(m_{1a})	0.0010	0.0008	0.0022	0.0000					
Measurement 2	(m_{2f}),(m_{2a})	0.0010	0.0008	0.0022	0.0000					
Measurement 3	(m_{3f}),(m_{3a})	0.0010	0.0008	0.0022	0.0000					
Measurement 4	(m_{4f}),(m_{4a})	0.0010	0.0008	0.0022	0.0000					

Results							**Acetone Wash**		**Beaker I**	**Beaker III**	
Final Weight	(m_{ff}),(m_{fa}')	0.0010	0.0008	0.0022	0.0000	g	**Bottle Wt with Wash**	(m_{bw})	0.0001	0.0001	g
Tare Weight	(m_{tf}),(m_{ta}')	0.0000	0.0000	0.0000	0.0000	g	**Additional Rinse Wt**	(m_{ar})	0.0001	0.0001	g
Weight Gain	(m_f),(m_a')	1.0	0.8	2.2	0.0	mg	**Bottle Tare Weight**	(m_{tb})	0.0001	0.0001	g
Blank Adjustment	(W_a)		0.0	0.0	N/A	mg	**Net Wash Weight**	(m_{nw})	0.0001	0.0001	g
Total Particulates	(m_n)				4.0	mg	**Blank Concentration**	(C_a)	0.0001	0.0001	mg/g

Formulas Used

m_{ff} = average of last two filter measurements

m_{fa}' = average of last two acetone measurements

$m_f = m_{ff} - m_{tf}$

$m_a' = m_{fa}' - m_{ta}'$

$W_a = C_a m_{nw}$

$m_{nw} = m_{bw} + m_{ar} - m_{tb}$

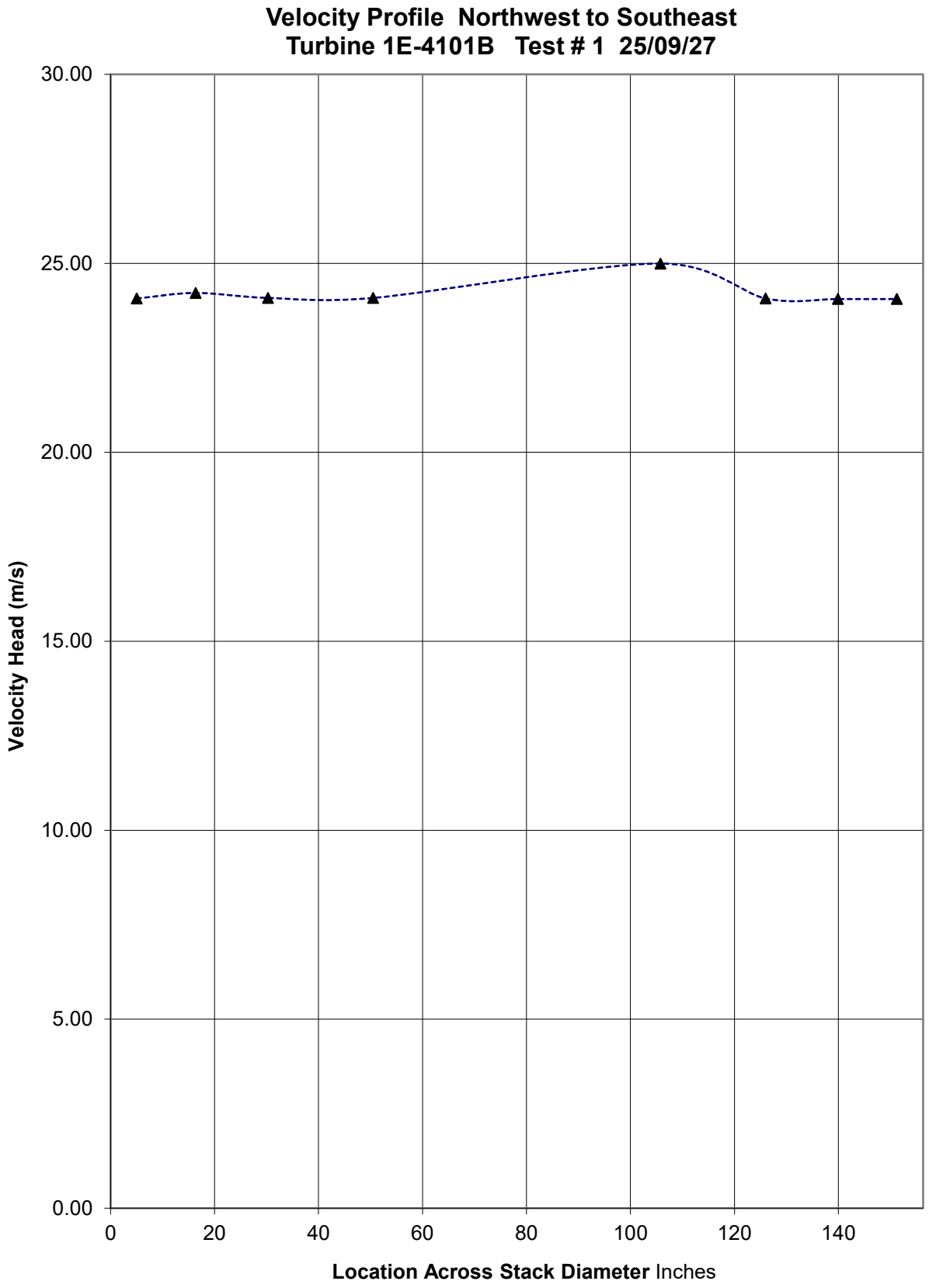
$m_n = m_f + m_a' - W_a$

DETERMINATION OF PARTICULATE EMISSIONS - RESULTS

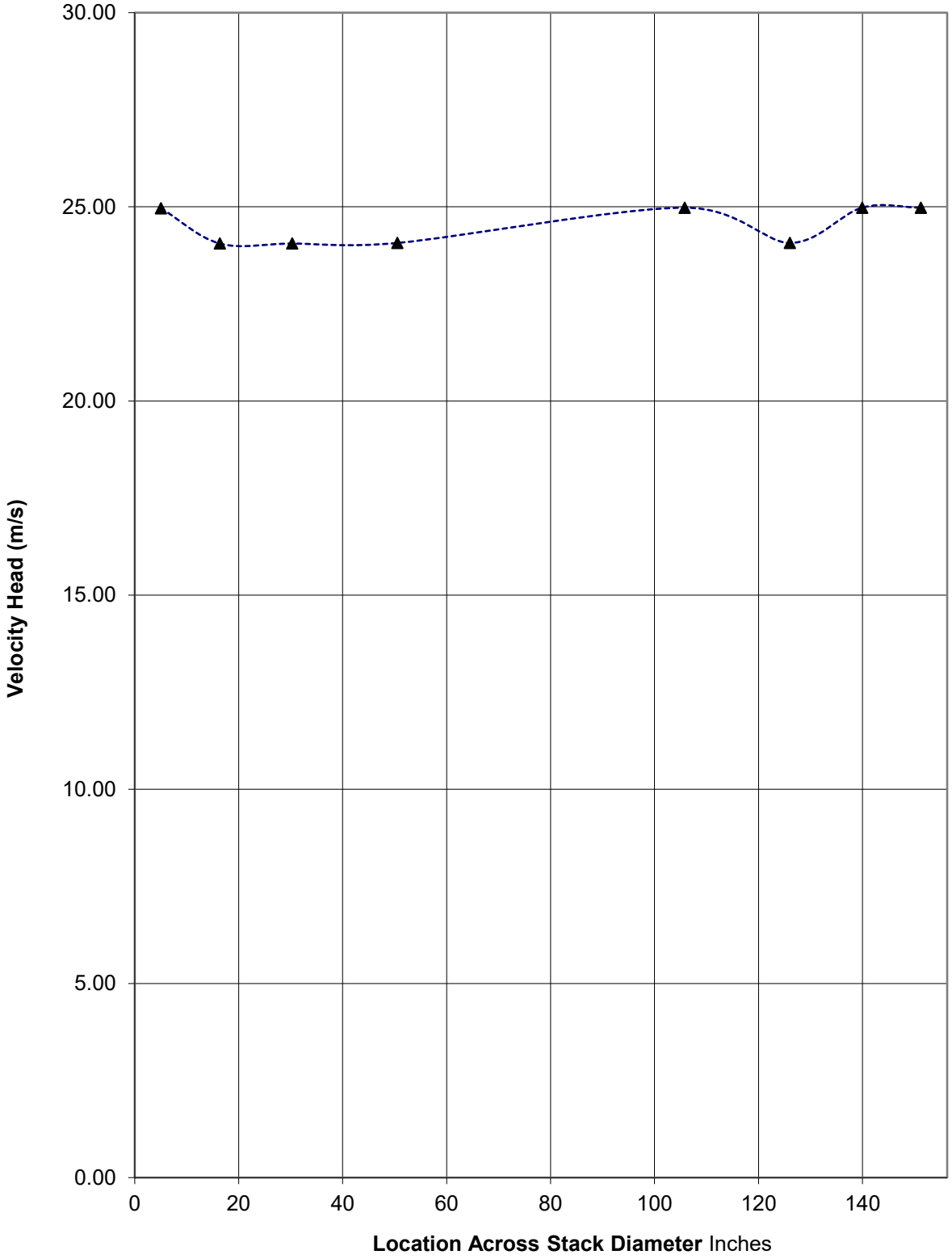
Plant Name	LNG-CANADA	**Date**	09/27/25
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)	**Project #**	25C338707
Operator	MS-VK	**Stack Type**	PM2.5 Cyclone

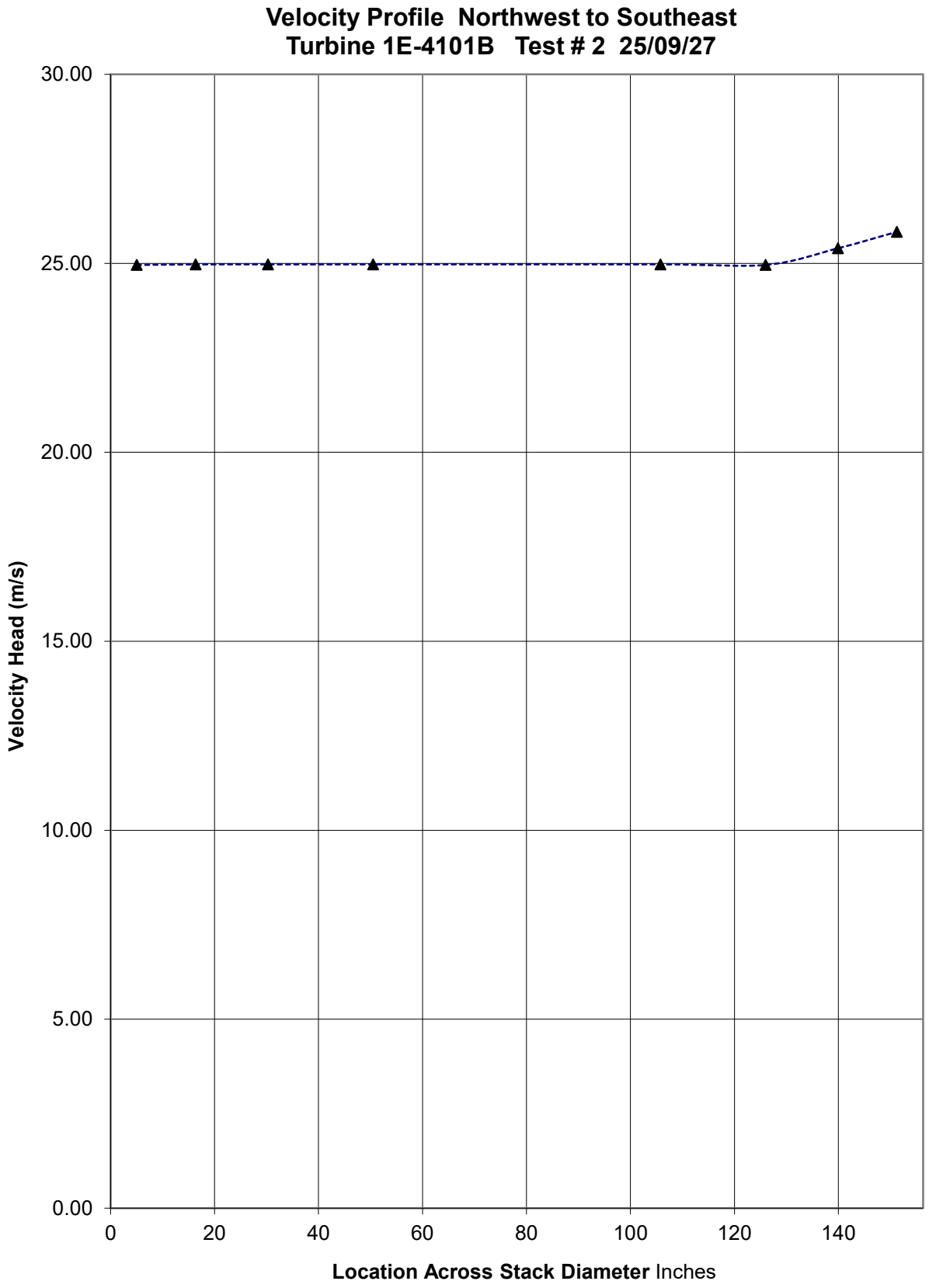
Historical Data						
Run Number		1	2	3	**Average**	
Run Start Time		11:25	13:00	14:30		hh:mm
Run Stop Time		12:28	14:03	15:32		hh:mm
Meter Calibration Factor	(Y)	0.999	0.999	0.999		
Actual Nozzle Diameter	(D_{na})	0.15	0.15	0.15		in
Stack Test Data						
Initial Meter Volume	($V_m)_i$	0.000	0.000	0.000		ft^3
Final Meter Volume	($V_m)_f$	23.658	24.915	24.997		ft^3
Total Meter Volume	(V_m)	23.658	24.915	24.997	24.523	ft^3
Total Sampling Time	(Θ)	63.5	63.5	62.6	63.2	min
Average Meter Temperature	($t_m)_{avg}$	55.3	61.3	63.8	60.1	°F
Average Stack Temperature	($t_s)_{avg}$	361.5	359.9	356.5	359.3	°F
Barometric Pressure	(P_b)	29.56	29.56	29.56	29.56	in Hg
Stack Static Pressure	(P_{static})	-1.10	-1.10	-1.10	-1.10	in H_2O
Absolute Stack Pressure	(P_s)	29.48	29.48	29.48	29.48	in Hg
Average Orifice Pressure Drop	($\Delta H)_{avg}$	0.51	0.51	0.52	0.51	in H_2O
Absolute Meter Pressure	(P_m)	29.60	29.60	29.60	29.60	in Hg
Avg Square Root Pitot Pressure	($\Delta p^{1/2})_{avg}$	1.15	1.20	1.22	1.19	$(in\ H_2O)^{1/2}$
Moisture Content Data						
Impingers 1-3 Water Volume Gain	(V_n)	35.0	35.0	35.0	35.0	ml
Impinger 4 Silica Gel Weight Gain	(W_n)	5.0	6.0	6.0	5.7	g
Total Water Volume Collected	(V_{lc})	40.0	41.0	41.0	40.7	ml
Standard Water Vapor Volume	($V_w)_{std}$	1.883	1.930	1.930	1.915	scf
Standard Meter Volume	($V_m)_{std}$	23.939	24.921	24.884	24.581	dscf
Calculated Stack Moisture	($B_{ws(calc)}$)	7.3	7.2	7.2	7.2	%
Saturated Stack Moisture	($B_{ws(svp)}$)	100.00	100.0	100.0	100.0	%
Reported Stack Moisture Content	(B_{ws})	7.3	7.2	7.2	7.2	%
Gas Analysis Data						
Carbon Dioxide Percentage	(%CO_2)	4.0	4.0	4.0	4.0	%
Oxygen Percentage	(%O_2)	14.0	14.0	14.0	14.0	%
Carbon Monoxide Percentage	(%CO)	0.0	0.0	0.0	0.0	%
Nitrogen Percentage	(%N_2)	82.0	82.0	82.0	82.0	%
Dry Gas Molecular Weight	(M_d)	29.20	29.20	29.20	29.20	lb/lb-mole
Wet Stack Gas Molecular Weight	(M_s)	28.38	28.39	28.39	28.39	lb/lb-mole
Calculated Fuel Factor	(F_o)	1.725	1.725	1.725	1.725	
Percent Excess Air	(%EA)	1.8	1.8	1.8	1.8	%
Volumetric Flow Rate Data						
Average Stack Gas Velocity	(v_s)	80.04	82.99	84.51	82.51	ft/sec
Stack Cross-Sectional Area	(A_s)	133.24	133.24	133.24	133.24	ft^2
Actual Stack Flow Rate	(Q_a)	639848	663441	675640	659643	acfm
Wet Standard Stack Flow Rate	(Qsw)	24311	25256	25828	25132	wkscfh
Dry Standard Stack Flow Rate	(Q_{sd})	375637	390667	399483	388596	dscfm
Emission Rate Data						
Mass of Particulate on Filter	(m_f)	1.0	1.0	1.0	1.0	mg
Mass of PM2.5 in Acetone I	(m_a')	0.1	0.2	0.8	0.4	mg
Mass due to Acetone Blank I	(W_a)	0.0	0.0	0.0	0.0	mg
Total Mass of Particulates	(m_n)	3.8	3.3	4.0	3.7	mg
Total Mass of PM2.5 Particulates	(m_n)	1.1	1.2	1.8	1.4	mg
PM2.5 Concentration	(c_s)	0.000	0.000	0.000	0.000	g/dscf
	(c_s)	0.001	0.001	0.001	0.001	gr/dscf
PM2.5 Emission Rate	(E)	1.04	1.13	1.73	1.3	kg/hr
	(E)	2.28	2.49	3.82	2.86	lbs/hr
	(E)	0.00	0.00	0.00	0.00	lbs/mmBtu

Appendix II – Velocity Profiles

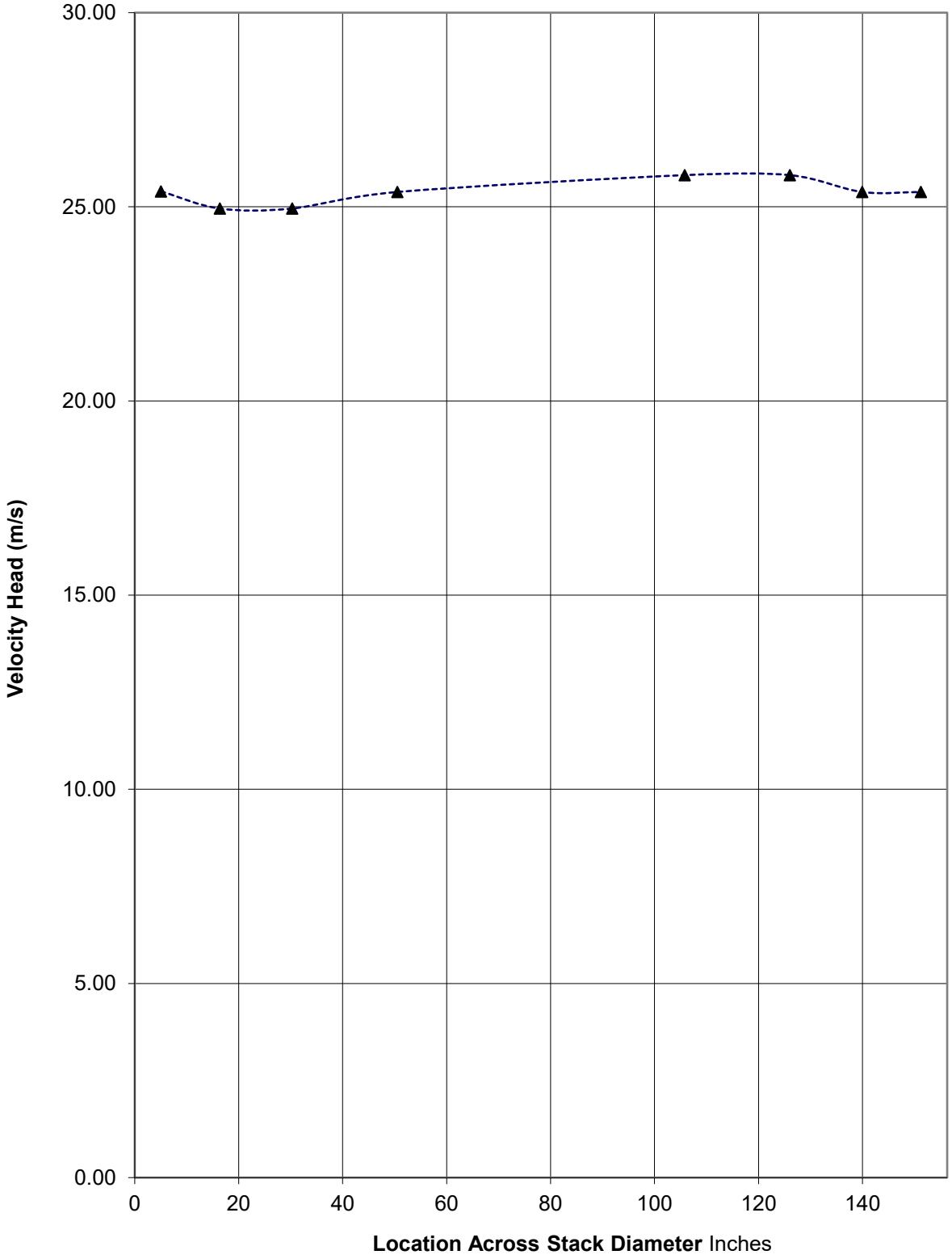

Velocity Profile Northwest to Southeast
Turbine 1E-4101B Test # 1 25/09/27
30.00
25.00
20.00
15.00
10.00
5.00
0.00
Velocity Head (m/s)
0
20
40
60
80
100
120
140
Location Across Stack Diameter Inches

Velocity Profile Northeast to Southwest
Turbine 1E-4101B Test # 1 25/09/27

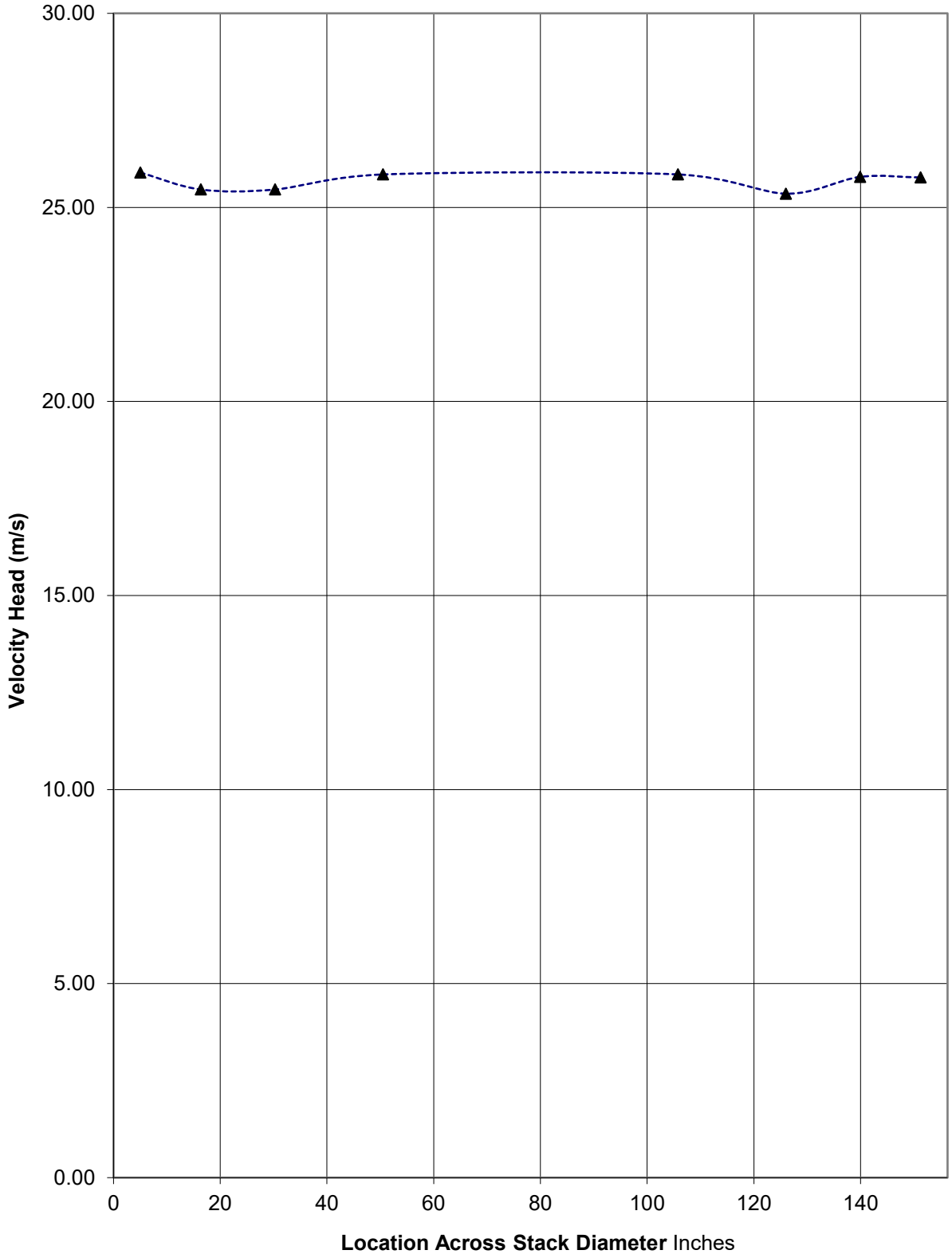



Velocity Profile Northwest to Southeast
Turbine 1E-4101B Test # 2 25/09/27
30.00
25.00
20.00
15.00
10.00
5.00
0.00
Velocity Head (m/s)
0
20
40
60
80
100
120
140
Location Across Stack Diameter Inches

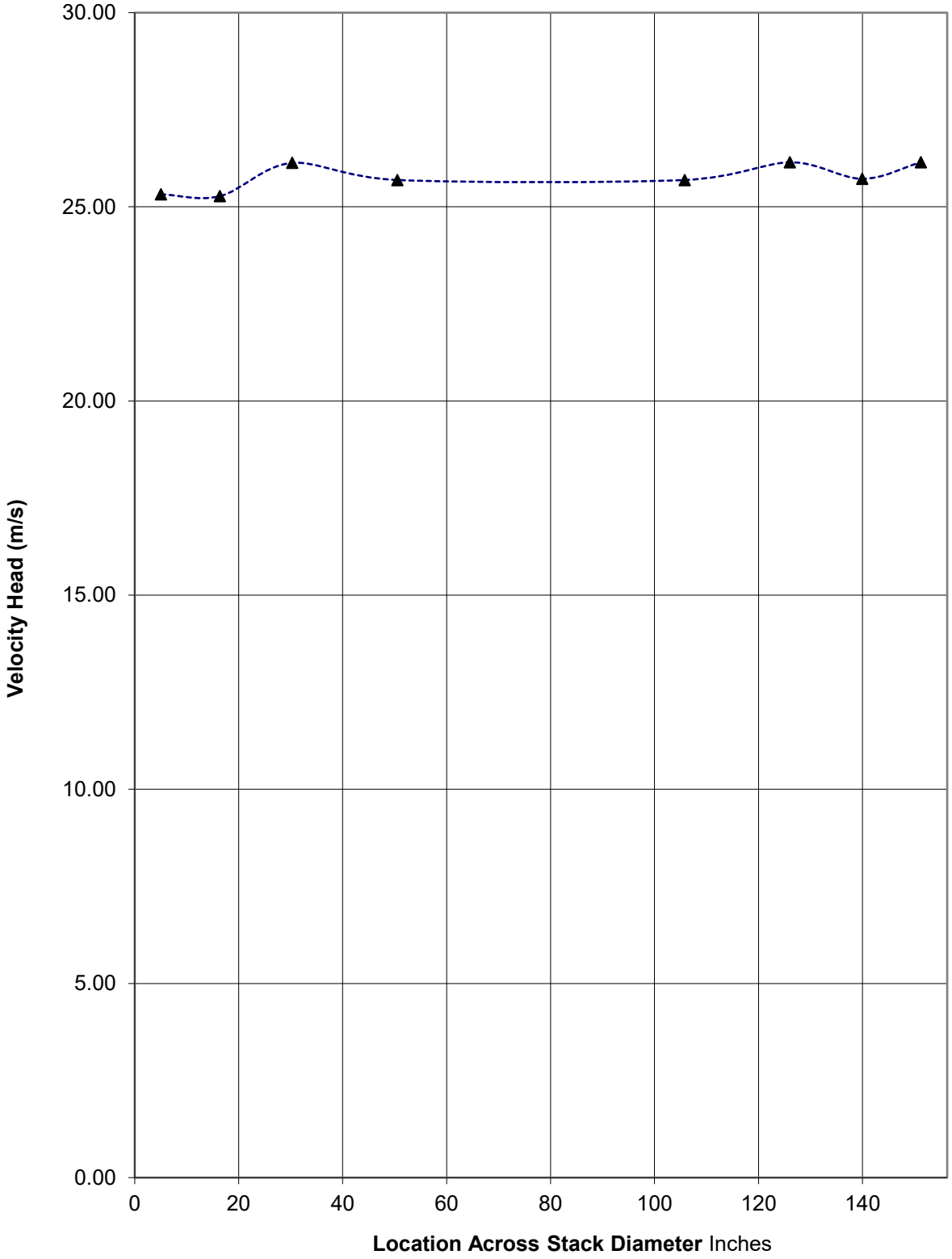
Velocity Profile Northeast to Southwest
Turbine 1E-4101B Test # 2 25/09/27



Velocity Profile Northwest to Southeast
Turbine 1E-4101B Test # 3 25/09/27



Velocity Profile Northeast to Southwest
Turbine 1E-4101B Test # 3 25/09/27



Appendix III – Analytical Data

LNG - Canada - Turbine (1E-4101B)

Date / time	sec Runtime	% O_2	ppm CO	ppm NOx	ppm NO	ppm NO_2	% CO_2	ppm SO_2	l/min Pump	°C Tamb	Test 1
9-27-2025 12:23:06 PM	0.0	13.9	37.0	20.9	17.0	3.90	3.94	-1.00	0.980	13.7	
9-27-2025 12:23:36 PM	30.0	13.8	38.0	22.3	18.0	4.30	4.01	-1.00	0.980	13.9	
9-27-2025 12:24:06 PM	60.0	13.8	38.0	22.5	18.0	4.50	4.03	-1.00	0.980	14.2	
9-27-2025 12:24:36 PM	90.0	13.7	38.0	22.7	18.0	4.70	4.04	-1.00	0.980	14.1	
9-27-2025 12:25:06 PM	120.0	13.7	38.0	22.7	18.0	4.70	4.05	-1.00	0.980	14.3	
9-27-2025 12:25:36 PM	150.0	13.7	39.0	22.9	18.0	4.90	4.05	-1.00	0.980	14.1	
9-27-2025 12:26:06 PM	180.0	13.7	38.0	23.1	18.0	5.10	4.06	-1.00	0.980	14.3	
9-27-2025 12:26:36 PM	210.0	13.7	38.0	23.3	18.0	5.30	4.06	-2.00	0.980	14.3	
9-27-2025 12:27:06 PM	240.0	13.7	38.0	23.4	18.0	5.40	4.06	-1.00	0.980	14.1	
9-27-2025 12:27:36 PM	270.0	13.7	37.0	23.6	18.0	5.60	4.06	-2.00	0.980	13.9	
9-27-2025 12:28:06 PM	300.0	13.7	37.0	23.7	18.0	5.70	4.07	-1.00	0.980	13.9	
9-27-2025 12:28:36 PM	330.0	13.7	37.0	23.8	18.0	5.80	4.06	-2.00	0.980	13.9	
9-27-2025 12:29:06 PM	360.0	13.7	37.0	23.8	18.0	5.80	4.07	-2.00	0.980	13.2	
9-27-2025 12:29:36 PM	390.0	13.7	38.0	23.9	18.0	5.90	4.05	-1.00	0.980	13.2	
9-27-2025 12:30:06 PM	420.0	13.7	38.0	25.0	19.0	6.00	4.07	-1.00	0.980	13.1	
9-27-2025 12:30:36 PM	450.0	13.7	38.0	24.0	18.0	6.00	4.06	-1.00	0.980	12.4	
9-27-2025 12:31:06 PM	480.0	13.7	38.0	24.1	18.0	6.10	4.07	-2.00	0.980	12.7	
9-27-2025 12:31:36 PM	510.0	13.7	37.0	24.2	18.0	6.20	4.07	-2.00	0.980	13.1	
9-27-2025 12:32:06 PM	540.0	13.7	37.0	24.3	18.0	6.30	4.07	-2.00	0.980	13.1	
9-27-2025 12:32:36 PM	570.0	13.7	38.0	24.2	18.0	6.20	4.06	-2.00	0.980	13.4	
9-27-2025 12:33:06 PM	600.0	13.7	38.0	24.2	18.0	6.20	4.06	-2.00	0.980	13.0	
9-27-2025 12:33:36 PM	630.0	13.7	38.0	24.4	18.0	6.40	4.06	-2.00	0.980	13.3	
9-27-2025 12:34:06 PM	660.0	13.7	37.0	24.4	18.0	6.40	4.06	-2.00	0.980	13.2	
9-27-2025 12:34:36 PM	690.0	13.7	37.0	25.5	19.0	6.50	4.07	-2.00	0.980	13.4	
9-27-2025 12:35:06 PM	720.0	13.7	37.0	25.5	19.0	6.50	4.07	-1.00	0.980	13.2	
9-27-2025 12:35:36 PM	750.0	13.7	37.0	25.4	19.0	6.40	4.06	-1.00	0.980	13.3	
9-27-2025 12:36:06 PM	780.0	13.7	37.0	25.4	19.0	6.40	4.07	-2.00	0.980	13.4	
9-27-2025 12:36:36 PM	810.0	13.7	37.0	25.5	19.0	6.50	4.07	-1.00	0.980	13.4	
9-27-2025 12:37:06 PM	840.0	13.7	37.0	25.5	19.0	6.50	4.07	-1.00	0.980	13.6	
9-27-2025 12:37:36 PM	870.0	13.7	37.0	24.6	18.0	6.60	4.07	-1.00	0.980	13.6	
9-27-2025 12:38:06 PM	900.0	13.7	38.0	25.5	19.0	6.50	4.06	-2.00	0.980	13.7	
9-27-2025 12:38:36 PM	930.0	13.7	37.0	24.5	18.0	6.50	4.06	-2.00	0.980	13.5	
9-27-2025 12:39:06 PM	960.0	13.7	37.0	25.6	19.0	6.60	4.06	-1.00	0.980	13.5	
9-27-2025 12:39:36 PM	990.0	13.7	37.0	25.6	19.0	6.60	4.06	-1.00	0.980	13.6	
9-27-2025 12:40:06 PM	1020.0	13.7	38.0	25.7	19.0	6.70	4.06	-1.00	0.980	13.6	
9-27-2025 12:40:36 PM	1050.0	13.7	37.0	25.7	19.0	6.70	4.06	-2.00	0.980	13.8	
9-27-2025 12:41:06 PM	1080.0	13.7	37.0	25.8	19.0	6.80	4.06	-1.00	0.980	13.8	
9-27-2025 12:41:36 PM	1110.0	13.7	37.0	25.8	19.0	6.80	4.07	-1.00	0.980	13.8	
9-27-2025 12:42:06 PM	1140.0	13.7	37.0	25.8	19.0	6.80	4.07	-1.00	0.980	13.9	
9-27-2025 12:42:36 PM	1170.0	13.7	37.0	25.9	19.0	6.90	4.07	-2.00	0.980	14.0	
9-27-2025 12:43:06 PM	1200.0	13.7	36.0	25.9	19.0	6.90	4.07	-2.00	0.980	14.1	
9-27-2025 12:43:36 PM	1230.0	13.7	37.0	25.9	19.0	6.90	4.07	-1.00	0.980	14.2	
9-27-2025 12:44:06 PM	1260.0	13.7	37.0	26.0	19.0	7.00	4.06	-1.00	0.980	14.0	
9-27-2025 12:44:36 PM	1290.0	13.7	37.0	25.9	19.0	6.90	4.07	-2.00	0.980	13.9	
9-27-2025 12:45:06 PM	1320.0	13.7	37.0	26.0	19.0	7.00	4.07	-1.00	0.970	13.4	
9-27-2025 12:45:36 PM	1350.0	13.7	37.0	24.9	18.0	6.90	4.06	-2.00	0.980	13.1	
9-27-2025 12:46:06 PM	1380.0	13.7	37.0	25.9	19.0	6.90	4.07	-2.00	0.980	13.5	
9-27-2025 12:46:36 PM	1410.0	13.7	37.0	25.9	19.0	6.90	4.06	-1.00	0.980	13.3	
9-27-2025 12:47:06 PM	1440.0	13.7	37.0	25.9	19.0	6.90	4.07	-1.00	0.980	13.4	
9-27-2025 12:47:36 PM	1470.0	13.7	37.0	25.9	19.0	6.90	4.06	-2.00	0.980	13.3	
9-27-2025 12:48:06 PM	1500.0	13.7	37.0	26.0	19.0	7.00	4.07	-1.00	0.980	13.5	
9-27-2025 12:48:36 PM	1530.0	13.7	37.0	25.9	19.0	6.90	4.07	-2.00	0.980	13.7	
9-27-2025 12:49:06 PM	1560.0	13.7	37.0	26.0	19.0	7.00	4.07	-1.00	0.980	13.5	
9-27-2025 12:49:36 PM	1590.0	13.7	37.0	25.9	19.0	6.90	4.07	-2.00	0.980	13.5	
9-27-2025 12:50:06 PM	1620.0	13.7	37.0	26.0	19.0	7.00	4.07	-1.00	0.980	13.5	
9-27-2025 12:50:36 PM	1650.0	13.7	37.0	26.0	19.0	7.00	4.07	-2.00	0.980	13.6	
9-27-2025 12:51:06 PM	1680.0	13.7	37.0	26.0	19.0	7.00	4.07	-1.00	0.980	13.6	
9-27-2025 12:51:36 PM	1710.0	13.7	37.0	26.0	19.0	7.00	4.07	-2.00	0.980	13.4	
9-27-2025 12:52:06 PM	1740.0	13.7	37.0	26.0	19.0	7.00	4.06	-1.00	0.980	13.2	
9-27-2025 12:52:36 PM	1770.0	13.7	37.0	26.1	19.0	7.10	4.07	-1.00	0.980	13.4	
9-27-2025 1:00:36 PM	2250.0	13.7	38.0	24.8	18.0	6.80	4.04	-1.00	0.980	15.5	
9-27-2025 1:01:06 PM	2280.0	13.7	38.0	25.9	19.0	6.90	4.04	-2.00	0.980	15.5	
9-27-2025 1:01:36 PM	2310.0	13.7	37.0	26.1	19.0	7.10	4.04	-2.00	0.980	15.6	
9-27-2025 1:02:06 PM	2340.0	13.7	37.0	26.2	19.0	7.20	4.04	-1.00	0.980	15.6	
9-27-2025 1:02:36 PM	2370.0	13.7	36.0	25.3	18.0	7.30	4.04	-1.00	0.970	15.2	
9-27-2025 1:03:06 PM	2400.0	13.7	36.0	25.2	18.0	7.20	4.04	-2.00	0.980	15.6	
9-27-2025 1:03:36 PM	2430.0	13.8	37.0	25.1	18.0	7.10	4.04	-2.00	0.980	15.4	
		13.7	37.3	24.9	18.6	6.39	4.06	-1.45			

LNG - Canada - Turbine (1E-4101B)

Date / time	sec Runtime	% O_2	ppm CO	ppm NOx	ppm NO	ppm NO_2	% CO_2	ppm SO_2	l/min Pump	°C Tamb	Test 2
9-27-2025 1:41:35 PM	0.0	13.8	35.0	24.0	18.0	6.00	4.03	-1.00	0.980	14.4	
9-27-2025 1:42:05 PM	30.0	13.7	35.0	24.2	18.0	6.20	4.04	-1.00	0.970	13.8	
9-27-2025 1:42:35 PM	60.0	13.7	35.0	24.5	18.0	6.50	4.04	-1.00	0.980	13.9	
9-27-2025 1:43:05 PM	90.0	13.7	36.0	24.6	18.0	6.60	4.04	-1.00	0.980	14.3	
9-27-2025 1:43:35 PM	120.0	13.7	35.0	24.7	18.0	6.70	4.04	-1.00	0.980	14.5	
9-27-2025 1:44:05 PM	150.0	13.8	35.0	24.8	18.0	6.80	4.03	-1.00	0.970	14.4	
9-27-2025 1:44:35 PM	180.0	13.8	35.0	24.8	18.0	6.80	4.03	-2.00	0.980	14.6	
9-27-2025 1:45:05 PM	210.0	13.8	35.0	24.9	18.0	6.90	4.04	-1.00	0.970	14.7	
9-27-2025 1:45:35 PM	240.0	13.8	35.0	25.0	18.0	7.00	4.03	-2.00	0.980	14.8	
9-27-2025 1:46:05 PM	270.0	13.8	35.0	25.2	18.0	7.20	4.03	-1.00	0.970	14.5	
9-27-2025 1:46:35 PM	300.0	13.8	35.0	26.1	19.0	7.10	4.03	-1.00	0.980	14.8	
9-27-2025 1:47:05 PM	330.0	13.8	35.0	26.2	19.0	7.20	4.04	-2.00	0.970	14.7	
9-27-2025 1:47:35 PM	360.0	13.8	35.0	25.2	18.0	7.20	4.03	-2.00	0.970	14.7	
9-27-2025 1:48:05 PM	390.0	13.8	35.0	25.2	18.0	7.20	4.03	-1.00	0.970	14.5	
9-27-2025 1:48:35 PM	420.0	13.8	35.0	25.2	18.0	7.20	4.03	-2.00	0.980	14.5	
9-27-2025 1:49:05 PM	450.0	13.8	35.0	25.2	18.0	7.20	4.03	-2.00	0.970	14.5	
9-27-2025 1:49:35 PM	480.0	13.8	35.0	25.2	18.0	7.20	4.03	-1.00	0.970	14.6	
9-27-2025 1:50:05 PM	510.0	13.8	35.0	25.4	18.0	7.40	4.04	-1.00	0.970	14.8	
9-27-2025 1:50:35 PM	540.0	13.8	35.0	26.4	19.0	7.40	4.03	-1.00	0.980	14.6	
9-27-2025 1:51:05 PM	570.0	13.7	35.0	26.4	19.0	7.40	4.04	-1.00	0.970	14.6	
9-27-2025 1:51:35 PM	600.0	13.8	35.0	26.3	19.0	7.30	4.03	-1.00	0.970	14.5	
9-27-2025 1:52:05 PM	630.0	13.8	35.0	26.4	19.0	7.40	4.04	-1.00	0.980	14.6	
9-27-2025 1:52:35 PM	660.0	13.8	35.0	26.4	19.0	7.40	4.03	-1.00	0.980	14.5	
9-27-2025 1:53:05 PM	690.0	13.8	35.0	26.5	19.0	7.50	4.03	-1.00	0.980	14.5	
9-27-2025 1:53:35 PM	720.0	13.8	35.0	26.5	19.0	7.50	4.03	-1.00	0.970	14.6	
9-27-2025 1:54:05 PM	750.0	13.8	36.0	26.4	19.0	7.40	4.03	-2.00	0.980	14.8	
9-27-2025 1:54:35 PM	780.0	13.8	35.0	26.5	19.0	7.50	4.03	-1.00	0.980	14.6	
9-27-2025 1:55:05 PM	810.0	13.8	35.0	26.5	19.0	7.50	4.03	-1.00	0.970	14.7	
9-27-2025 1:55:35 PM	840.0	13.8	35.0	26.5	19.0	7.50	4.03	-1.00	0.980	14.7	
9-27-2025 1:56:05 PM	870.0	13.8	35.0	26.6	19.0	7.60	4.03	-1.00	0.970	15.0	
9-27-2025 1:56:35 PM	900.0	13.8	35.0	26.6	19.0	7.60	4.04	-1.00	0.970	14.8	
9-27-2025 1:57:05 PM	930.0	13.8	35.0	26.6	19.0	7.60	4.03	-1.00	0.970	14.6	
9-27-2025 1:57:35 PM	960.0	13.8	35.0	26.6	19.0	7.60	4.03	-1.00	0.980	14.6	
9-27-2025 1:58:05 PM	990.0	13.8	35.0	26.5	19.0	7.50	4.02	-1.00	0.970	14.7	
9-27-2025 1:58:35 PM	1020.0	13.8	35.0	26.6	19.0	7.60	4.03	-1.00	0.980	14.9	
9-27-2025 1:59:05 PM	1050.0	13.8	35.0	26.6	19.0	7.60	4.03	-1.00	0.980	14.9	
9-27-2025 1:59:35 PM	1080.0	13.8	35.0	26.6	19.0	7.60	4.03	-1.00	0.970	14.9	
9-27-2025 2:00:05 PM	1110.0	13.8	35.0	26.6	19.0	7.60	4.03	-1.00	0.980	14.7	
9-27-2025 2:00:35 PM	1140.0	13.8	36.0	25.6	18.0	7.60	4.03	-1.00	0.970	14.7	
9-27-2025 2:01:05 PM	1170.0	13.8	36.0	25.5	18.0	7.50	4.02	-1.00	0.970	14.8	
9-27-2025 2:01:35 PM	1200.0	13.8	36.0	26.6	19.0	7.60	4.02	-1.00	0.970	14.8	
9-27-2025 2:02:05 PM	1230.0	13.8	36.0	26.5	19.0	7.50	4.02	-1.00	0.980	15.0	
9-27-2025 2:02:35 PM	1260.0	13.8	36.0	26.6	19.0	7.60	4.02	-1.00	0.970	15.1	
9-27-2025 2:03:05 PM	1290.0	13.8	36.0	25.6	18.0	7.60	4.03	-1.00	0.970	14.8	
9-27-2025 2:03:35 PM	1320.0	13.8	35.0	26.7	19.0	7.70	4.03	-1.00	0.970	14.9	
9-27-2025 2:04:05 PM	1350.0	13.8	36.0	26.6	19.0	7.60	4.02	-1.00	0.980	15.1	
9-27-2025 2:04:35 PM	1380.0	13.8	36.0	25.7	18.0	7.70	4.02	-1.00	0.980	15.0	
9-27-2025 2:05:05 PM	1410.0	13.8	35.0	26.7	19.0	7.70	4.02	-1.00	0.970	15.1	
9-27-2025 2:05:35 PM	1440.0	13.8	35.0	26.7	19.0	7.70	4.02	-1.00	0.970	15.1	
9-27-2025 2:06:05 PM	1470.0	13.8	35.0	26.7	19.0	7.70	4.01	-1.00	0.980	14.9	
9-27-2025 2:06:35 PM	1500.0	13.8	36.0	26.8	19.0	7.80	4.02	-1.00	0.980	15.1	
9-27-2025 2:07:05 PM	1530.0	13.8	36.0	26.7	19.0	7.70	4.02	-1.00	0.980	15.2	
9-27-2025 2:07:35 PM	1560.0	13.8	36.0	26.7	19.0	7.70	4.02	-1.00	0.980	14.9	
9-27-2025 2:08:05 PM	1590.0	13.8	36.0	26.7	19.0	7.70	4.01	-1.00	0.980	15.3	
9-27-2025 2:08:35 PM	1620.0	13.8	35.0	25.8	18.0	7.80	4.02	-1.00	0.980	15.3	
9-27-2025 2:09:05 PM	1650.0	13.8	35.0	26.8	19.0	7.80	4.02	-1.00	0.980	15.1	
9-27-2025 2:09:35 PM	1680.0	13.8	35.0	26.8	19.0	7.80	4.02	-1.00	0.970	15.4	
9-27-2025 2:10:05 PM	1710.0	13.8	35.0	25.8	18.0	7.80	4.03	-1.00	0.980	15.4	
9-27-2025 2:10:35 PM	1740.0	13.8	35.0	25.9	18.0	7.90	4.02	-1.00	0.970	15.2	
9-27-2025 2:11:05 PM	1770.0	13.8	36.0	25.9	18.0	7.90	4.02	-1.00	0.980	14.4	
		13.8	35.3	26.0	18.6	7.40	4.03	-1.12			

LNG - Canada - Turbine (1E-4101B)

Date / time	sec Runtime	% O_2	ppm CO	ppm NOx	ppm NO	ppm NO_2	% CO_2	ppm SO_2	l/min Pump	°C Tamb	Test 3
9-27-2025 3:21:13 PM	0.0	13.7	37.0	25.2	18.0	7.20	4.04	-2.00	0.970	16.2	
9-27-2025 3:21:43 PM	30.0	13.7	36.0	25.5	18.0	7.50	4.04	-2.00	0.980	16.1	
9-27-2025 3:22:13 PM	60.0	13.7	36.0	25.6	18.0	7.60	4.04	-2.00	0.970	16.0	
9-27-2025 3:22:43 PM	90.0	13.7	36.0	25.8	18.0	7.80	4.05	-2.00	0.980	16.0	
9-27-2025 3:23:13 PM	120.0	13.7	36.0	25.8	18.0	7.80	4.05	-2.00	0.980	16.2	
9-27-2025 3:23:43 PM	150.0	13.7	36.0	25.9	18.0	7.90	4.05	-2.00	0.970	16.4	
9-27-2025 3:24:13 PM	180.0	13.7	36.0	25.9	18.0	7.90	4.05	-2.00	0.980	16.4	
9-27-2025 3:24:43 PM	210.0	13.7	37.0	25.9	18.0	7.90	4.05	-2.00	0.970	16.5	
9-27-2025 3:25:13 PM	240.0	13.7	37.0	27.0	19.0	8.00	4.05	-2.00	0.980	16.6	
9-27-2025 3:25:43 PM	270.0	13.7	37.0	27.1	19.0	8.10	4.05	-2.00	0.970	16.6	
9-27-2025 3:26:13 PM	300.0	13.7	37.0	27.1	19.0	8.10	4.05	-2.00	0.970	16.5	
9-27-2025 3:26:43 PM	330.0	13.7	37.0	27.1	19.0	8.10	4.05	-2.00	0.970	16.5	
9-27-2025 3:27:13 PM	360.0	13.7	37.0	27.1	19.0	8.10	4.06	-2.00	0.980	16.7	
9-27-2025 3:27:43 PM	390.0	13.7	37.0	27.2	19.0	8.20	4.06	-2.00	0.980	16.6	
9-27-2025 3:28:13 PM	420.0	13.7	37.0	27.2	19.0	8.20	4.05	-2.00	0.970	16.5	
9-27-2025 3:28:43 PM	450.0	13.7	36.0	27.2	19.0	8.20	4.05	-2.00	0.970	16.7	
9-27-2025 3:29:13 PM	480.0	13.7	36.0	27.2	19.0	8.20	4.05	-2.00	0.970	16.8	
9-27-2025 3:29:43 PM	510.0	13.7	36.0	27.3	19.0	8.30	4.06	-2.00	0.970	16.8	
9-27-2025 3:30:13 PM	540.0	13.7	35.0	27.4	19.0	8.40	4.05	-2.00	0.970	16.5	
9-27-2025 3:30:43 PM	570.0	13.7	35.0	27.5	19.0	8.50	4.06	-2.00	0.970	16.0	
9-27-2025 3:31:13 PM	600.0	13.7	35.0	27.5	19.0	8.50	4.06	-2.00	0.970	16.0	
9-27-2025 3:31:43 PM	630.0	13.7	35.0	27.5	19.0	8.50	4.07	-2.00	0.970	16.0	
9-27-2025 3:32:13 PM	660.0	13.7	35.0	27.4	19.0	8.40	4.06	-2.00	0.980	15.9	
9-27-2025 3:32:43 PM	690.0	13.7	35.0	27.5	19.0	8.50	4.05	-2.00	0.970	16.2	
9-27-2025 3:33:13 PM	720.0	13.7	36.0	27.5	19.0	8.50	4.06	-2.00	0.970	16.1	
9-27-2025 3:33:43 PM	750.0	13.7	35.0	27.4	19.0	8.40	4.06	-2.00	0.980	16.3	
9-27-2025 3:34:13 PM	780.0	13.7	35.0	27.5	19.0	8.50	4.05	-2.00	0.970	16.3	
9-27-2025 3:34:43 PM	810.0	13.7	35.0	27.4	19.0	8.40	4.05	-2.00	0.970	16.5	
9-27-2025 3:35:13 PM	840.0	13.7	36.0	27.4	19.0	8.40	4.05	-2.00	0.970	16.4	
9-27-2025 3:35:43 PM	870.0	13.7	36.0	27.5	19.0	8.50	4.05	-2.00	0.970	16.5	
9-27-2025 3:36:13 PM	900.0	13.7	36.0	27.6	19.0	8.60	4.06	-2.00	0.970	16.6	
9-27-2025 3:36:43 PM	930.0	13.7	36.0	27.5	19.0	8.50	4.06	-2.00	0.970	16.6	
9-27-2025 3:37:13 PM	960.0	13.7	36.0	27.6	19.0	8.60	4.05	-2.00	0.970	16.5	
9-27-2025 3:37:43 PM	990.0	13.7	36.0	27.6	19.0	8.60	4.06	-2.00	0.980	16.6	
9-27-2025 3:38:13 PM	1020.0	13.7	36.0	27.6	19.0	8.60	4.06	-2.00	0.970	16.7	
9-27-2025 3:38:43 PM	1050.0	13.7	36.0	27.7	19.0	8.70	4.06	-2.00	0.980	16.7	
9-27-2025 3:39:13 PM	1080.0	13.7	36.0	27.7	19.0	8.70	4.05	-2.00	0.980	16.8	
9-27-2025 3:39:43 PM	1110.0	13.7	35.0	27.7	19.0	8.70	4.05	-2.00	0.970	16.8	
9-27-2025 3:40:13 PM	1140.0	13.7	35.0	27.8	19.0	8.80	4.06	-2.00	0.980	16.9	
9-27-2025 3:40:43 PM	1170.0	13.7	35.0	27.7	19.0	8.70	4.06	-2.00	0.980	16.9	
9-27-2025 3:41:13 PM	1200.0	13.7	35.0	27.8	19.0	8.80	4.06	-2.00	0.970	17.0	
9-27-2025 3:41:43 PM	1230.0	13.7	35.0	29.0	20.0	9.00	4.07	-2.00	0.970	16.0	
9-27-2025 3:42:13 PM	1260.0	13.7	35.0	28.0	19.0	9.00	4.06	-2.00	0.970	16.7	
9-27-2025 3:42:43 PM	1290.0	13.7	35.0	27.9	19.0	8.90	4.07	-2.00	0.970	16.6	
9-27-2025 3:43:13 PM	1320.0	13.7	35.0	28.0	19.0	9.00	4.06	-2.00	0.970	16.7	
9-27-2025 3:43:43 PM	1350.0	13.7	34.0	28.0	19.0	9.00	4.07	-2.00	0.970	16.8	
9-27-2025 3:44:13 PM	1380.0	13.7	34.0	28.1	19.0	9.10	4.08	-2.00	0.980	16.9	
9-27-2025 3:44:43 PM	1410.0	13.7	34.0	28.1	19.0	9.10	4.07	-2.00	0.980	17.0	
9-27-2025 3:45:13 PM	1440.0	13.7	34.0	28.1	19.0	9.10	4.06	-2.00	0.970	17.0	
9-27-2025 3:45:43 PM	1470.0	13.7	35.0	28.0	19.0	9.00	4.07	-2.00	0.980	17.1	
9-27-2025 3:46:13 PM	1500.0	13.7	35.0	28.0	19.0	9.00	4.06	-2.00	0.970	17.1	
9-27-2025 3:46:43 PM	1530.0	13.7	35.0	28.0	19.0	9.00	4.06	-2.00	0.970	17.1	
9-27-2025 3:47:13 PM	1560.0	13.7	36.0	27.8	19.0	8.80	4.06	-2.00	0.970	17.2	
9-27-2025 3:47:43 PM	1590.0	13.7	35.0	27.8	19.0	8.80	4.06	-2.00	0.970	17.2	
9-27-2025 3:48:13 PM	1620.0	13.7	35.0	27.8	19.0	8.80	4.06	-2.00	0.970	17.4	
9-27-2025 3:48:43 PM	1650.0	13.7	35.0	27.8	19.0	8.80	4.06	-2.00	0.980	17.0	
9-27-2025 3:49:13 PM	1680.0	13.7	35.0	27.9	19.0	8.90	4.06	-2.00	0.970	16.9	
9-27-2025 3:49:43 PM	1710.0	13.7	35.0	27.9	19.0	8.90	4.07	-2.00	0.970	17.2	
9-27-2025 3:50:13 PM	1740.0	13.7	35.0	27.9	19.0	8.90	4.07	-2.00	0.970	16.9	
9-27-2025 3:50:43 PM	1770.0	13.7	35.0	28.0	19.0	9.00	4.07	-2.00	0.980	16.9	
		13.7	35.6	27.4	18.9	8.50	4.06	-2.00			

AGAT Laboratories

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http://www.agatlabs.com

CLIENT NAME: LNG CANADA DEVELOPMENT INC.
SHELL CENTRE-32 FLR 400-4 AVE SW BX 100
Calgary, AB T2P2H5

ATTENTION TO: Tauseef Zia Siddiqui

PROJECT:

AGAT WORK ORDER: 25C338707

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

DATE REPORTED: Oct 10, 2025

PAGES (INCLUDING COVER): 4

VERSION*: 1

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

*Notes

Disclaimer:

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Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Certificate of Analysis

AGAT WORK ORDER: 25C338707

PROJECT:

CLIENT NAME: LNG CANADA DEVELOPMENT INC.

ATTENTION TO: Tauseef Zia Siddiqui

SAMPLING SITE:

SAMPLED BY:Marlon.S

PM 2.5 – Method 201A

DATE RECEIVED: 2025-09-30

DATE REPORTED: 2025-10-10

SAMPLE DESCRIPTION:				Turbine-IE-4011B Stack-Imp.Catch-T1	Turbine-IE-4011B Stack-Imp.Catch-T2	Turbine-IE-4011B Stack-Imp.Catch-T3	Turbine-IE-4011B Stack-ProbeWash-T1	Turbine-IE-4011B Stack-ProbeWash-T2	Turbine-IE-4011B Stack-ProbeWash-T3	Turbine-IE-4011B Stack-NozzleWash-T1	Turbine-IE-4011B Stack-NozzleWash-T2
SAMPLE TYPE:				Water	Water	Water	Acetone	Acetone	Acetone	Acetone	Acetone
DATE SAMPLED:				2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-27
Parameter	Unit	G / S	RDL	7108343	7108344	7108345	7108346	7108347	7108348	7108349	7108350
Particulate - Impinger Catch	mg		0.1	1.8	1.3	1.6	-	-	-	-	-
Particulate - Probe Wash	mg		0.1	-	-	-	0.1	0.2	0.8	0.9	0.8
Particulate - Filter	mg		0.01	-	-	-	-	-	-	-	-

SAMPLE DESCRIPTION:				Turbine-IE-4011B Stack-NozzleWash-T3	Turbine-IE-4011B Stack-Filter-T1	Turbine-IE-4011B Stack-Filter-T2	Turbine-IE-4011B Stack-Filter-T3	Turbine-IE-4011A Stack-Imp.Catch-T1	Turbine-IE-4011A Stack-Imp.Catch-T2	Turbine-IE-4011A Stack-Imp.Catch-T3	Turbine-IE-4011A Stack-ProbeWash-T1
SAMPLE TYPE:				Acetone	FILTER	FILTER	FILTER	Water	Water	Water	Acetone
DATE SAMPLED:				2025-09-27	2025-09-27	2025-09-27	2025-09-27	2025-09-28	2025-09-28	2025-09-28	2025-09-28
Parameter	Unit	G / S	RDL	7108351	7108352	7108353	7108354	7108355	7108356	7108357	7108358
Particulate - Impinger Catch	mg		0.1	-	-	-	-	1.5	2.4	2.3	-
Particulate - Probe Wash	mg		0.1	0.6	-	-	-	-	-	-	0.3
Particulate - Filter	mg		0.01	-	<0.01	<0.01	<0.01	-	-	-	-

SAMPLE DESCRIPTION:				Turbine-IE-4011A Stack-ProbeWash-T2	Turbine-IE-4011A Stack-ProbeWash-T3	Turbine-IE-4011A Stack-NozzleWash-T1	Turbine-IE-4011A Stack-NozzleWash-T2	Turbine-IE-4011A Stack-NozzleWash-T3	Turbine-IE-4011A Stack-Filter-T1	Turbine-IE-4011A Stack-Filter-T2	Turbine-IE-4011A Stack-Filter-T3
SAMPLE TYPE:				Acetone	Acetone	Acetone	Acetone	Acetone	FILTER	FILTER	FILTER
DATE SAMPLED:				2025-09-28	2025-09-28	2025-09-28	2025-09-28	2025-09-28	2025-09-28	2025-09-28	2025-09-28
Parameter	Unit	G / S	RDL	7108359	7108360	7108361	7108362	7108363	7108364	7108365	7108366
Particulate - Impinger Catch	mg		0.1	-	-	-	-	-	-	-	-
Particulate - Probe Wash	mg		0.1	0.7	0.2	0.5	0.3	0.9	-	-	-
Particulate - Filter	mg		0.01	-	-	-	-	-	<0.01	<0.01	<0.01

Certified By:

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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CANADA T2E 6V6
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Certificate of Analysis

AGAT WORK ORDER: 25C338707

PROJECT:

CLIENT NAME: LNG CANADA DEVELOPMENT INC.

ATTENTION TO: Tauseef Zia Siddiqui

SAMPLING SITE:

SAMPLED BY:Marlon.S

PM 2.5 – Method 201A

DATE RECEIVED: 2025-09-30

DATE REPORTED: 2025-10-10

		SAMPLE DESCRIPTION:		DI-H2O Blank	Acetone Blank
		SAMPLE TYPE:		Water	Acetone
		DATE SAMPLED:			
Parameter	Unit	G / S	RDL	7108367	7108368
Particulate - Impinger Catch	mg		0.1	<0.1	-
Particulate - Probe Wash	mg		0.1	-	<0.1
Particulate - Filter	mg		0.01	-	-

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

7108343-7108368 The condition of samples was satisfactory at the time of arrival in laboratory.
All results have been field blank corrected.
The Reported Detection Limit RDL is based on the detection limit of the analytical balance used: 0.1mg for the Impinger Catch and Probe Wash, and 0.01mg for filters.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

3650 – 21 Street NE
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CANADA T2E 6V6
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Method Summary

CLIENT NAME: LNG CANADA DEVELOPMENT INC.

AGAT WORK ORDER: 25C338707

PROJECT:

ATTENTION TO: Tauseef Zia Siddiqui

SAMPLING SITE:

SAMPLED BY:Marlon.S

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Air Quality Monitoring			
Particulate - Impinger Catch	AQM-43-16002	NIOSH 0500	Gravimetric
Particulate - Probe Wash	AQM-43-16002	NIOSH 0500	Gravimetric
Particulate - Filter	AQM-43-16002	NIOSH 0500	Gravimetric

Results relate only to the items tested. Results apply to samples as received.

InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

APPLIED CHEMISTRY SERVICES

TEST REPORT

RESULTS: Shaun Hayward 403-369-4749
AGAT Laboratories Ltd.
3700 21 St NE
Calgary
AB T2E 6V6

INVOICE: Accounts Payable
2905 12 St NE
Calgary
AB T2E 7J2

CLIENT SAMPLE ID: LNG - Canada/Kitmat, BC - Can # 1 - Test # 1
Matrix: Ambient Air
CANISTER ID: 28894
PRIORITY: Normal
DESCRIPTION: Turbine - 1E - 4101 B
DATE SAMPLED: 27-Sep-25 11:25
DATE RECEIVED: 02-Oct-25
REPORT CREATED: 17-Oct-25
REPORT NUMBER: 25100011
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-001	Carbon dioxide		46300	ppmv	20	NA-026	02-Oct-25
25100011-001	Oxygen		142000	ppmv	26900	NA-026	02-Oct-25
25100011-001	Hydrocarbons, Total (as Methane)		283	ppmv	0.05	NA-025	02-Oct-25
25100011-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100011-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	1,2,4-Trimethylbenzene	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100011-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	1,3-Butadiene	I	0.04	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing
Date: October 17, 2025

Inquiries: (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

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(780) 632-8211

APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	28894	Ambient Air	27-Sep-25 11:25

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100011-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100011-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100011-001	1-Butene/Isobutylene		0.68	ppbv	0.06	AC-058	04-Oct-25
25100011-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	04-Oct-25
25100011-001	1-Pentene	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100011-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	04-Oct-25
25100011-001	2,3-Dimethylpentane	I	0.04	ppbv	0.02	AC-058	04-Oct-25
25100011-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Acetone		16.3	ppbv	0.4	AC-058	04-Oct-25
25100011-001	Acrolein		1.6	ppbv	0.3	AC-058	04-Oct-25
25100011-001	Benzene	I	0.19	ppbv	0.03	AC-058	04-Oct-25
25100011-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Bromomethane	I	0.06	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	28894	Ambient Air	27-Sep-25 11:25

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-001	Carbon disulfide		3.72	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Chloroethane	I	0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Chloroform	I	0.03	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Chloromethane		0.11	ppbv	0.04	AC-058	04-Oct-25
25100011-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	cis-2-Butene	I	0.10	ppbv	0.03	AC-058	04-Oct-25
25100011-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100011-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	Ethylbenzene	I	0.05	ppbv	0.03	AC-058	04-Oct-25
25100011-001	Freon-11	I	0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	Freon-12	I	0.05	ppbv	0.03	AC-058	04-Oct-25
25100011-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	Isobutane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	Isopentane		0.44	ppbv	0.04	AC-058	04-Oct-25
25100011-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Isopropyl alcohol		1.7	ppbv	0.3	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	28894	Ambient Air	27-Sep-25 11:25

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-001	m,p-Xylene	I	0.17	ppbv	0.04	AC-058	04-Oct-25
25100011-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100011-001	Methyl ethyl ketone		0.7	ppbv	0.3	AC-058	04-Oct-25
25100011-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	04-Oct-25
25100011-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100011-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	n-Butane		0.11	ppbv	0.02	AC-058	04-Oct-25
25100011-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100011-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	n-Heptane	I	0.08	ppbv	0.04	AC-058	04-Oct-25
25100011-001	n-Hexane	I	0.13	ppbv	0.03	AC-058	04-Oct-25
25100011-001	n-Octane	I	0.07	ppbv	0.02	AC-058	04-Oct-25
25100011-001	n-Pentane		0.13	ppbv	0.04	AC-058	04-Oct-25
25100011-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100011-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100011-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	o-Xylene	I	0.06	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 1 - Test # 1	28894	Ambient Air	27-Sep-25 11:25

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	Toluene		3.22	ppbv	0.03	AC-058	04-Oct-25
25100011-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100011-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	trans-2-Butene		0.11	ppbv	0.03	AC-058	04-Oct-25
25100011-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	28934	Ambient Air	27-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-002	Carbon dioxide		47000	ppmv	20	NA-026	02-Oct-25
25100011-002	Oxygen		141000	ppmv	26900	NA-026	02-Oct-25
25100011-002	Hydrocarbons, Total (as Methane)		256	ppmv	0.05	NA-025	02-Oct-25
25100011-002	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100011-002	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	1,2,4-Trimethylbenzene	I	0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100011-002	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100011-002	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100011-002	1-Butene/Isobutylene		0.27	ppbv	0.06	AC-058	04-Oct-25
25100011-002	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	04-Oct-25
25100011-002	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	28934	Ambient Air	27-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-002	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	04-Oct-25
25100011-002	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Acetone		6.1	ppbv	0.4	AC-058	04-Oct-25
25100011-002	Acrolein		1.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	Benzene	I	0.19	ppbv	0.03	AC-058	04-Oct-25
25100011-002	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Bromomethane	I	0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Carbon disulfide		0.12	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Chloroform	I	0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Chloromethane	I	0.10	ppbv	0.04	AC-058	04-Oct-25
25100011-002	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	28934	Ambient Air	27-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-002	cis-2-Butene	I	0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-002	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100011-002	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	Ethylbenzene	I	0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	Freon-11	I	0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	Freon-12	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100011-002	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	Isobutane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	Isopentane		0.16	ppbv	0.04	AC-058	04-Oct-25
25100011-002	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-002	m,p-Xylene	I	0.11	ppbv	0.04	AC-058	04-Oct-25
25100011-002	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100011-002	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	04-Oct-25

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	28934	Ambient Air	27-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-002	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100011-002	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	n-Butane	I	0.08	ppbv	0.02	AC-058	04-Oct-25
25100011-002	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100011-002	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	n-Heptane	I	0.05	ppbv	0.04	AC-058	04-Oct-25
25100011-002	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-002	n-Octane	I	0.06	ppbv	0.02	AC-058	04-Oct-25
25100011-002	n-Pentane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-002	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100011-002	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100011-002	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-002	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	o-Xylene	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100011-002	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-002	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-002	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	Toluene		1.60	ppbv	0.03	AC-058	04-Oct-25
25100011-002	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100011-002	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 2 - Test # 2	28934	Ambient Air	27-Sep-25 13:00

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-002	trans-2-Butene	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100011-002	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-002	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-002	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025

Inquiries: (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1098	Ambient Air	27-Sep-25 14:30

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-003	Carbon dioxide		47000	ppmv	20	NA-026	02-Oct-25
25100011-003	Oxygen		144000	ppmv	26900	NA-026	02-Oct-25
25100011-003	Hydrocarbons, Total (as Methane)		259	ppmv	0.05	NA-025	02-Oct-25
25100011-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Oct-25
25100011-003	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-003	1,2,4-Trimethylbenzene	I	0.05	ppbv	0.03	AC-058	04-Oct-25
25100011-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100011-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100011-003	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100011-003	1-Butene/Isobutylene		1.64	ppbv	0.06	AC-058	04-Oct-25
25100011-003	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	04-Oct-25
25100011-003	1-Pentene	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100011-003	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1098	Ambient Air	27-Sep-25 14:30

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-003	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	04-Oct-25
25100011-003	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Acetone		25.4	ppbv	0.4	AC-058	04-Oct-25
25100011-003	Acrolein		2.2	ppbv	0.3	AC-058	04-Oct-25
25100011-003	Benzene		0.25	ppbv	0.03	AC-058	04-Oct-25
25100011-003	Benzyl chloride	I	0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-003	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Carbon disulfide		4.10	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Chloromethane		0.11	ppbv	0.04	AC-058	04-Oct-25
25100011-003	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025

Inquiries: (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1098	Ambient Air	27-Sep-25 14:30

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-003	cis-2-Butene	I	0.07	ppbv	0.03	AC-058	04-Oct-25
25100011-003	cis-2-Pentene	I	0.03	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-003	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100011-003	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-003	Ethylbenzene	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100011-003	Freon-11	I	0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	Freon-12	I	0.04	ppbv	0.03	AC-058	04-Oct-25
25100011-003	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-003	Isobutane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	Isopentane		0.65	ppbv	0.04	AC-058	04-Oct-25
25100011-003	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Isopropyl alcohol	I	0.4	ppbv	0.3	AC-058	04-Oct-25
25100011-003	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-003	m,p-Xylene	I	0.14	ppbv	0.04	AC-058	04-Oct-25
25100011-003	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Oct-25
25100011-003	Methyl ethyl ketone		1.8	ppbv	0.3	AC-058	04-Oct-25
25100011-003	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-003	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	04-Oct-25

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Date: October 17, 2025 **Inquiries:** (780) 632 8403 **E-mail:** EAS.Results@innotechalberta.ca

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1098	Ambient Air	27-Sep-25 14:30

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Oct-25
25100011-003	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Methylcyclopentane	I	0.08	ppbv	0.05	AC-058	04-Oct-25
25100011-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-003	n-Butane		0.11	ppbv	0.02	AC-058	04-Oct-25
25100011-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100011-003	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-003	n-Heptane	I	0.06	ppbv	0.04	AC-058	04-Oct-25
25100011-003	n-Hexane	I	0.19	ppbv	0.03	AC-058	04-Oct-25
25100011-003	n-Octane	I	0.07	ppbv	0.02	AC-058	04-Oct-25
25100011-003	n-Pentane	I	0.05	ppbv	0.04	AC-058	04-Oct-25
25100011-003	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100011-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Oct-25
25100011-003	Naphthalene		0.7	ppbv	0.3	AC-058	04-Oct-25
25100011-003	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-003	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	o-Xylene	I	0.06	ppbv	0.03	AC-058	04-Oct-25
25100011-003	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Oct-25
25100011-003	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-003	Toluene		1.47	ppbv	0.03	AC-058	04-Oct-25
25100011-003	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Oct-25
25100011-003	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

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APPLIED CHEMISTRY SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LNG - Canada/Kitmat, BC - Can # 3 - Test # 3	1098	Ambient Air	27-Sep-25 14:30

DESCRIPTION: Turbine - 1E - 4101 B

REPORT NUMBER: 25100011 **REPORT CREATED:** 17-Oct-25 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
25100011-003	trans-2-Butene	I	0.09	ppbv	0.03	AC-058	04-Oct-25
25100011-003	trans-2-Pentene	I	0.03	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25
25100011-003	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Oct-25
25100011-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Oct-25

Report certified by: Andrea Conner, Admin Assistant **On behalf of:** Adam Malcolm, Manager, Chemical Testing

Date: October 17, 2025

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Revision History

Order ID	Ver	Date	Reason
25100011	01	17-Oct-25	Report created

Methods

Method	Description
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-025	Determination of Light Hydrocarbons (C1C4) in Ambient Air by Gas Chromatography Flame Ionization Detector
NA-026	Inert - GC/TCD Gas Analysis - Nitrogen, Oxygen, CO2, CO and Methane

List of Analytical Method IDs within InnoTech's ISO/IEC 17025:2017 CALA Scope of Accreditation

Method ID	Description
AC-020	Chlorophyll-a Phytoplankton (Fluorometric Analysis)
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-035	Analysis of Glyphosate, Aminomethylphosphonic Acid and Glufosinate in Water
AC-038	Trace Metal Analysis of Water Samples by ICP-MS
AC-048	Specific Conductance (Conductivity Meter Method)
AC-049	pH (Meter Method)
AC-054	Alkalinity Total and Phenolphthalein
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-060	Trace Metal Analysis of Soil Sediment and Industrial Waste Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-061	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-065	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-074	Pesticides in Water
AC-080	Alkylated PAH in Water (SPE Extraction)
NA-006	Determination of BTEX, F1 Hydrocarbons and F2, F3 and F4 Hydrocarbons in Water
NA-024	Analysis of Reduced Sulfur Compounds in Air

Qualifiers

Data Qualifier	Translation
B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

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Order Comments

25100011

Project # 25C338707

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Sample Comments

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
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Result Comments

Note:

1. Results relate only to items tested and apply to the sample as received.

2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.

AGAT Laboratories

2420, 42 Avenue NE
Calgary, AB
T2E 7T6
webair.agatlabs.com
P: 403.736.5300

Chain of Custody Record

Laboratory Use Only

AGAT Job Number: 25C338707

Notes:

Report Information

Company: AGAT Labs
Contact: Shaun Hayward
Address: 3700 21st NE Calgary T2E 6V6
Phone: 403-369-4749 Fax:
LSD:
Client Project #:

Invoice To Same Yes ☑ / No ☐

Company: LNG-CANADA
Contact:
Address:
Phone: Fax:
PO/AFE#:

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	DATE/TIME INSTALLED	DATE/TIME EXTRACTED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	# OF CONTAINERS	H2S Passive	SO2 Passive	NO2 Passive	O3 Passive	Sulphation	Dustfall	PM-2.5			DUPLICATE	BLANK
	LNG-CANADA			LNG-Canada,Kitimat,BC												
	PM 2.5 @-Turbine-1E-4011B Stack															
	Imp.Catch-T1		27-Sept-2025									☑				
	Imp. Catch-T2		27-Sept-2025									☑				
	Imp.Catch-T3		27-Sept-2025									☑				
	Probe Wash -T1		27-Sept-2025									☑				
	Probe Wash -T2		27-Sept-2025									☑				
	Probe Wash-T3		27-Sept-2025									☑				
	Nozzle Wash-T1		27-Sept-2025									☑				
	Nozzle Wash-T2		27-Sept-2025									☑				
	Nozzle Wash-T3		27-Sept-2025									☑				
	Filter-T1		27-Sept-2025									☑				
	Filter-T2		27-Scpt-2025									☑				
	Filter-T3		27-Scpt-2025									☑				
	PM 2.5 @-Turbine-1E-4011A Stack															
	Imp.Catch-T1		28-Sept-2025									☑				
	Imp.Catch-T2		28-Scpt-2025									☑				
	Imp.Catch-T3		28-Sept-2025									☑				

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Marlon Soriano	30-09-2025	Austin Bowles-Post	Sept 30, 2025
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°:

AGAT Laboratories

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Calgary, AB
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P: 403.736.5300

Chain of Custody Record

Laboratory Use Only

AGAT Job Number: 25C338707

Notes:

Report Information

Company: AGAT Labs
Contact: Shaun Hayward
Address: 3700 21st NE Calgary T2E 6V6
Phone: 403-369-4749 Fax:
LSD:
Client Project #:

Invoice To Same Yes ☑ / No ☐

Company: LNG-CANADA
Contact:
Address:
Phone: Fax:
PO/AFE#:

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	DATE/TIME INSTALLED	DATE/TIME EXTRACTED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	# OF CONTAINERS	H2S Passive	SO2 Passive	NO2 Passive	O3 Passive	Sulphation	Dustfall	PM-2.5			DUPLICATE	BLANK
	LNG-CANADA			LNG-Canada,Kitimat,BC												
	PM 2.5 @-Turbine-1E-401A Stack															
	Probe Wash -T1		28-Sept-2025									☑				
	Probe Wash -T2		28-Sept-2025									☑				
	Probe Wash-T3		28-Sept-2025									☑				
	Nozzle Wash-T1		28-Sept-2025									☑				
	Nozzle Wash-T2		28-Sept-2025									☑				
	Nozzle Wash-T3		28-Sept-2025									☑				
	Filter-T1		28-Sept-2025									☑				
	Filter-T2		28-Sept-2025									☑				
	Filter-T3		28-Sept-2025									☑				
	DI-H20 Blank															☑
	Acetone Blank															☑

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Marlon Soriano	30-09-2025	Austin Bowles Post	Sept 30, 2025
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°:

InnoTech ALBERTA
A SUBSIDIARY OF ALBERTA INNOVATES

Environmental Analytical Services
Highway 16A & 75 Street
Vegreville, AB T9C 1T4

Phone: 780-632-8403
Email: EAS.Reception@innotechalberta.ca
www.innotechalberta.ca

Sample ID: 25100011-001 **Priority:** Normal

Customer ID: AGAT
Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 1 - Te

Client Reporting Information

Company: AGAT LABS
Address: 3700 21 St. NE
Calgary AB, T2E 6V6
Contact: Sharon Hayward
Phone: 403.369.4749
Email: hayward@agatlabs.com

Contact: Sharon Hayward
Phone: 403.369.4749
Email: hayward@agatlabs.com
Project ID: 25C338707
PO #:

Turnaround Time (TAT)

- [x] Normal (10 business days)
- [ ] Rush (5 business days) (50% surcharge)
- [ ] Emergency (3 business day) (100% surcharge)

NOTE: Rush and Emergency TAT is not available for all tests.
Confirm all rush and Emergency requests with the Laboratory before submitting samples.

SAMPLE TYPE SOURCE* / AMBIENT (indicate as applicable)

Date Received – Lab Use Only

RECEIVED
OCT 0 2 2025

Special Instructions/Comments

* For source samples, please Indicate possible high-level parameters which may be present.

Lab Sample Number	Client Sample ID	Sample Source/ Description	Canister Number/ Sampler ID	Date Sampled (mm/dd/yy) From / To	Time Sampled (24 hour) From / To	Analysis Requested
1	LNG-Canada/Kitimat-BC Canister#1, Test-1	Turbine - 1E - 4101 B	28894	09-27-2025	11:25 11:55	VOC, HC-T, O2, CO2
2	LNG-Canada/Kitimat-BC Canister#2, Test-2	Turbine - 1E - 4101 B	28934	09-27-2025	13:00 13:30	VOC, HC-T, O2, CO2
3	LNG-Canada/Kitimat-BC Canister#3, Test-3	Turbine - 1E - 4101 B	1098	09-27-2025	1430 1500	VOC, HC-T, O2, CO2

Client Authorization: _____ (Signature)

Laboratory Personnel: _____ (Signature)

This "Chain of Custody" form is subject to InnoTech Alberta standard terms and conditions.

InnoTech ALBERTA

Canister ID: 28894

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: 1503 on: AUG 2 1 2025

Evac Sample ID: 25100011-001 Priority: Normal

Customer ID: AGAT

Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 1 - Te

Star -27.6 "Hg | "Hg/ psig

Sample ID: CANISTER-1 TEST-1

Sampled By: VK-MS START: 11:25 END: 11:55

Stack:- Turbine - 1E - 4101B

Date:- 27th September 2025

Affix label here

Parameters :- VOC, ~~BTEX~~, HC-T

O_2, CO_2

LNG Canister

InnoTech

Canister ID: 28934

This cleaned canister meets or exceeds TO-15 Method Specifications

Sample ID: 25100011-002 Priority: Normal 25

Customer ID: AGAT

Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 2 - Te

-27.6 "Hg | -3.0 "Hg/psig

Sample ID: CANISTER - 2 Test-2

Sampled By: VK-MS Start: 1300 End: 1330

Stack: Turbine - 1E - 4101B

Date - 27th Sept. 2025

Affix label here

Parameters :- VOC, ~~BTEX~~, HC-T

O_2, CO_2

LNG Canister

InnoTech ALBERTA

Canister ID: 1098

This cleaned canister meets or exceeds TO-15 Method Specifications

1503 AUG 2 0 2025

Sample ID: 25100011-003 Priority: Normal

Customer ID: AGAT

Cust Samp ID: LNG - Canada/Kitmat, BC - Can # 3 - Te

-27.9 "Hg | "Hg/ psig

Sample ID: Canister - 3 Test-3

Sampled By: VK-MS Start 1430 End 1500

Stack:- Turbine - 1E - 4101B

Date:- 27th Sept. 2025

Affix label here

Parameters :- VOC, ~~BTEX~~, HC-T

O_2, CO_2

LNG Canister

InnoTech ALBERTA

Canister ID: 47756

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: 1503 on: AUG 2 0 2025

Evacuated: SEP 0 8 2025 Recertified:

(Use within: 3 months from evacuation or recertification date)

Laboratory Contact Number: 780-632-8403

Starting Vacuum: -27.5 "Hg

End Vacuum: "Hg/ psig

Sample ID:

Sampled By:

Affix label here

{00004818;6}

TERMS AND CONDITIONS

The attached document entitled "**Chain of Custody Form**" is subject to the following Terms and Conditions, unless otherwise specified on the Quotation. InnoTech Alberta's commencement of the Services shall be deemed acceptance of the terms and conditions by the Client.

1. Any proposal contained herein is prepared for the consideration of the Client only. Its contents may not be used or disclosed to any other party without prior written consent of the INNOTECH ALBERTA INC. (hereinafter referred to as "InnoTech Alberta").

2. InnoTech Alberta will perform the Services in accordance with normal professional standards.

3. The delivery time for performance of the Services (as set out on the front page of this Quotation) is approximate and may be changed by InnoTech Alberta giving written notice to the Client.

4. InnoTech Alberta will exercise due care and proficiency in testing items submitted by a Client. InnoTech Alberta shall not, however, be liable to the Client for any damage or loss caused to the item being tested or for any damage, loss or expense caused by any delay in carrying out the test, including any damage, loss or expense resulting from InnoTech Alberta's negligence. InnoTech Alberta shall not be responsible for any damage, which is a natural or necessary result of any testing procedure.

5. For the purposes of this Quotation, Intellectual Property means all information, data, artistic and literary works, concepts, designs, processes, software, algorithms and inventions, including, without limitation, those that could be the subject of patent, copyright, industrial design, trade secret or other forms of protection. Intellectual Property which was owned by either InnoTech Alberta or the Client prior to the signing of this Agreement remains the property of that party. Nothing in this Agreement shall operate as a license, permission or grant of any other rights to either InnoTech Alberta's or the Client's Intellectual Property.

6. All data, reports and other information relating to the Services shall be treated by InnoTech Alberta as the confidential property of the Client, and InnoTech Alberta will use reasonable efforts to ensure that its employees, contractors and agents will not disclose the same to any other person, firm or corporation during the term of this Agreement and for a period of five (5) years after the date of termination of the Agreement. The obligation of confidentiality set out herein shall not apply to any information that was in InnoTech Alberta's possession prior to receipt from the Client or which is or becomes part of the public domain through no act or failure on the part of InnoTech Alberta. The obligation of confidentiality set out in this Section shall not prevent the disclosure of information to any level of government having jurisdiction to make lawful demand therefor, or required to be disclosed by any applicable law. Any records required to be maintained by InnoTech Alberta pursuant to this Agreement are subject to the protection and access provisions of the Freedom of Information and Protection of Privacy Act (Alberta).

7. The reported results of any InnoTech Alberta tests or evaluations performed on samples or items provided by the Client shall be interpreted as being specific to the sample or item tested. InnoTech Alberta makes no representation that any similar or related untested samples or items would produce the same results.

8. The Client shall not use InnoTech Alberta's name in any advertising material, sale offer, news releases, public statements or announcements, whether written or oral relating to the Services or the results thereof, without the prior written consent of InnoTech Alberta.

9. Records, test data, reports and samples, except where shipped to the Client after completion of the work shall be retained by InnoTech Alberta according to InnoTech Alberta's approved Records Retention and Disposition Schedule.

10. Prices quoted are in Canadian Dollars unless otherwise stated in writing and are exclusive of any provincial, municipal, sales, use or goods and services tax.

11. Prices quoted do not include shipping, insurance or cost of consumables. The Client shall be responsible for all costs incurred by InnoTech Alberta in collecting any item for testing and returning the item to the Client after testing and shall be responsible for all necessary incidental costs incurred by InnoTech Alberta in providing the Services. InnoTech Alberta will not be responsible for any damage or loss to items during shipping and it is the responsibility of the Client to arrange and pay for any insurance it deems necessary.

12. Any test samples or other materials supplied by the Client to InnoTech Alberta may, at InnoTech Alberta's option, be returned by InnoTech Alberta to the Client. The Client shall:

(a) be responsible for all costs associated with the handling, transportation and disposal of such materials;

(b) reimburse InnoTech Alberta for any costs incurred by InnoTech Alberta associated with the handling, transportation and disposal of such materials; and

(c) indemnify and hold InnoTech Alberta harmless from any and all claims, damages or actions associated with the handling, transportation and disposal of such materials.

13. The Client shall pay all invoices rendered by InnoTech Alberta to the Client within thirty (30) days from the date of invoice, without deduction or set-off.

14. If the Client fails to pay any amount under this Agreement, such unpaid amount shall bear interest at a rate per month equal to one (1%) percent (or 12.6825% per annum) with interest on overdue interest at the same rate.

15. InnoTech Alberta makes no representation, warranties or conditions, either expressed or implied, statutory or otherwise and does not warrant the quality, state, merchantability or fitness for any purpose of any goods or products to be delivered pursuant to this Agreement. The Client accepts the results of these Services or items tested as is, and acknowledges that any use or interpretation of the information contained is at the Client's own risk.

16. In no event shall InnoTech Alberta be liable for any indirect or consequential damage or loss suffered by the Client, including loss of anticipated profits.

17. The Client shall indemnify and hold harmless InnoTech Alberta from any and all claims, demands, actions and costs (including legal costs on a solicitor-client basis) that may arise out of:

(a) any dangerous defect or content in the item being tested, whether apparent or not, which dangerous defect or content was not disclosed in writing to InnoTech Alberta by the Client at the time the item was submitted for testing;

(b) differences between those items actually tested and items previously or subsequently produced which are purported to be identical to the item tested; or

(c) any use of the tested item or any item incorporating the tested item, whether by the Client or a third party following its return to the Client.

The hold harmless shall survive this Agreement.

18. The Client shall, at its own expense and without limiting its liabilities herein, be responsible for insuring its operation in an amount not less than $2,000,000 inclusive per occurrence, insuring against bodily injury, and property damage including loss of use thereof. Further, the Client is responsible for insuring all owned property directly or indirectly related to this Agreement and InnoTech Alberta shall have no liability for any loss or damage to such property.

19. InnoTech Alberta shall maintain the following insurance: (i) commercial general liability insurance (including cross liability, severability of interests, non-owned automobile liability) in the amount of two million dollars ($2,000,000.00) per occurrence, and; (ii) professional liability and errors and omissions insurance in the amount of one million dollars ($1,000,000.00) per claim, and two million dollars ($2,000,000.00) in the aggregate. In addition, InnoTech Alberta shall maintain all workers' compensation coverage required by applicable laws. Notwithstanding the foregoing, InnoTech Alberta reserves the right to supplement or add insurance coverage from time to time as may be required in its sole discretion. InnoTech Alberta may provide certificates of insurance for coverages outlined in (i) and (ii) above.

20. The Client agrees to comply with all InnoTech Alberta Safety & Security regulations in effect while on InnoTech Alberta premises.

21. This Agreement represents the entire agreement between the parties and shall supersede all prior agreements relative to this transaction.

22. If a party's performance of any of its obligations under this Agreement (excepting only an obligation to pay) is delayed, rendered impossible or impractical, or prevented in whole or in part due to circumstances beyond its reasonable control, including but not limited to acts of God, war, terrorism, labour disputes, pandemics or epidemics, global health emergencies, or governmental action, that party will not be in breach of this Agreement due to the delay or failure in performance occasioned by such event..

23. InnoTech Alberta may assign this Quotation to an "affiliated" (as that term is defined at Section 2 of the Business Corporations Act (Alberta)) or successor entity on written notice to the Client.

24. This Quotation and rights and parties thereto shall be governed by and construed according to the laws of the Province of Alberta. The parties hereby submit to the jurisdiction of the Courts of Alberta.

CERTIFICATE OF ACCREDITATION

Standards Council of Canada
Conseil canadien des normes

CERTIFICAT D'ACCRÉDITATION

AGAT LABORATORIES LTD. OIL AND GAS CHEMISTRY DIVISION WESTERN CANADA

3650 – 21st Street, N.E., Calgary, AB T2E 6V6

having been assessed by the Standards Council of Canada (SCC) and found to conform with the requirements of ISO/IEC 17025:2005 and the conditions for accreditation established by SCC is hereby recognized as an

ayant fait l'objet d'une évaluation du Conseil canadien des normes (CCN), et ayant été trouvé conforme aux exigences énoncées dans ISO/IEC 17025:2005 et aux conditions d'accréditation établies par le CCN, est de ce fait reconnu comme étant un

ACCREDITED TESTING LABORATORY

LABORATOIRE D'ESSAIS ACCRÉDITÉ

for the specific tests or types of tests listed in the scope of accreditation approved by SCC and found on the SCC website at www.scc.ca.

pour les essais ou types d'essais énumérés dans la portée d'accréditation approuvée par le CCN et figurant dans le site Web du CCN au www.ccn.ca.

Accredited laboratory number: / Numéro de laboratoire accrédité : 672

SCC file number: / Dossier du CCN n° : 15827

Initial accreditation date: / Date de la première accréditation : 2010-04-27

.....

Vice-President – Accreditation Services / Vice-présidente – Services d'accréditation

Issued on: / Délivré le : 2017-07-04

The validity of this certificate, including the date of last re-accreditation and its expiry can be confirmed by the accompanying Scope of Accreditation document in the Directory of Accredited Laboratories on the SCC website at www.scc.ca.

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. The accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF communiqué dated April 2017).

Pour vérifier la validité du présent certificat, y compris la date de la dernière réaccréditation et la date d'expiration du certificat, consulter la portée d'accréditation qui se trouve dans le répertoire des laboratoires accrédités dans le site Web du CCN au www.ccn.ca.

Ce laboratoire est accrédité conformément à la Norme internationale reconnue ISO/IEC 17025:2005. Cette accréditation démontre la compétence technique d'un organisme pour une portée définie et l'exploitation d'un système de management de la qualité de laboratoire (cf. communiqué conjoint ISO-ILAC-IAF date de avril 2017).

This certificate is the property of the Standards Council of Canada (SCC) and must be returned on request; reproduction is prohibited except on written approval of SCC.
Ce certificat est la propriété du Conseil canadien des normes (CCN) et doit lui être remis sur demande; toute reproduction est interdite sans l'autorisation écrite du CCN.

Canada

ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND SAFETY

Environmental:

Air

AQM-43-16000	Determination of Anions by Ion Chromatography (Modified APHA Method 4110B; EPA 6, EPA 8, ASSC Method 8, EPA 26, MMCAAP Method 47071, NIOSH 7906, NIOSH 7907, NIOSH 7908, NIOSH 6004, OSHA ID-200, OSHA ID-182, OSHA ID-214) Fluoride (F^-) Chloride (Cl^-) Bromide (Br^-) Phosphate (PO_4^{3-}) Nitrite (NO_2^-) Nitrate (NO_3^-) Sulphate (SO_4^{2-}) Sulfite (SO_3^{2-}) Sulfur Dioxide (SO_2) Sulfuric Acid mist (H_2SO_4)
AQM-43-16002	Gravimetric Determination of Particulate Matter from Stationary and Other Sources (Modified Alberta Stacks Sampling Code Method 5,AENV, US EPA Method 5, US EPA Method 201A and US EPA 17)
AQM-43-16004	Determination of Nitrogen Dioxide (NO_2) in the Air by Ion Chromatography (in-house)
AQM-43-16005	Determination of Nitrogen Oxide (NOx), from Stationary Sources (Alberta Stack Sampling Code, Method 7A, and Method 7D AENV; US EPA Method 7A; US EPA Method 7D)
AQM-43-16006	Determination of Hydrogen Sulfide (H_2S) in Air by Spectrofluorophotometery (in-house)
AQM-43-16007	Determination of Sulfur Dioxide (SO_2) in Air by Ion Chromatography (in-house)
AQM-43-16008	Determination of Ozone (O_3) in Air by Ion Chromatography (in-house)
AQM-43-16009	Determination of Dustfall (Total, Fixed, Soluble, Insoluble and Total Suspended Solids) by Gravimetric Analysis (Modified ASTM D1739, “Methods Manual for Chemical Analysis of Atmospheric Pollutants”, Method No. 32020, EPHA 2540B, 2540E, 2540D)
AQM-43-16010	Determination of Total Particulate and Dew Point in Air and Other Sources (Modified ASTM D1142, NIOSH 0500, Colorimetry)
AQM-43-16011	Determination of Ammonia (as N) and Hydrogen Sulfide in Aqueous Samples by Colorimetry (Modified Methods Manual for Chemical Analysis of Atmospheric Pollutants Method #41515, Method #43535)
AQM-43-16012	Determination of Ammonia (NH_3) in Air by Spectrofluorophotometry (in-house)

IHF-60-25002	Determination of Fixed Gases and Volatile Hydrocarbons in Air by Gas Chromatography (Modified ASTM D1946, EPA TO-14A,TO-15, NIOSH 6602, EPA 10B, ASSC Method 18, EPA 18, ASSC Method 3C, EPA 3C) Oxygen — Nitrogen Methane — Ethane Carbon Monoxide — Carbon Dioxide Non Methane Volatile Hydrocarbons — Volatile Halogenated Hydrocarbons Nitrous Oxide — Sulfur Hexafluoride C3-C12 — Dimethyl Ether 1,1,1-Trichloroethane — 1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane — 1,1-Dichloroethane 1,1-Dichloroethene — 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene — 1,2-Dibromoethane (EDB) 1,2-Dichlorobenzene — 1,2-Dichloroethane 1,2-Dichloropropane — 1,3,5-Trimethylbenzene 1,3-Dichlorobenzene — 1,4-Dichlorobenzene Benzene — Bromomethane Carbon tetrachloride — Chlorobenzene Chloroethane — Chloroform Chloromethane — cis-1,2-Dichloroethene cis-1,3-Dichloropropene — Dichlorodifluoromethane Dichlorotetrafluoroethane (R114) — Ethylbenzene Hexachlorobutadiene — Methylene chloride m-Xylene — o-Xylene p-Xylene — Styrene Tetrachloroethene — Toluene trans-1,3-Dichloropropene — Trichloroethene Trichlorofluoromethane — Trichlorotrifluoroethane (R113) Vinyl chloride

Canadian Association for Laboratory Accreditation Inc.

Certificate of Accreditation

InnoTech Alberta Inc - Environmental Analytical Services (Vegreville)
InnoTech Alberta Inc.
Highway 16A and 75th Street
Vegreville, Alberta

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

Accreditation No.: 1002789
Issued On: 4/11/2025
Accreditation Date: 1/3/2005
Expiry Date: 10/11/2027

President and CEO

This certificate is the property of the Canadian Association for Laboratory Accreditation Inc. and must be returned on request; reproduction must follow policy in place at date of issue.
For the specific tests to which this accreditation applies, please refer to the laboratory's scope of accreditation at www.cala.ca.

Appendix IV – Field Data Sheets

CYCLONE RUN 1 DATA

Plant Name	LNG-CANADA	**Date**	9/27/2025
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)	**Cyclone**	PM2.5 Cyclone
Operator	MS-VK	**Run #**	1
# of Points Across	4	**# of Ports Used**	4

Temperatures and Pressures			
Avg Stack Temp	(t_s)	362	°F
Avg Gas Meter Temp	(t_m)	56	°F
DH @ 0.75 SCFM	($\Delta H@$)	1.96	in H_2O
Barometric Pressure	(P_b)	29.6	in Hg
Stack Static Pressure	(P_{static})	-1.10	in H_2O
Absolute Stack Pressure	(P_s)	29.48	in Hg
Absolute Meter Pressure	(P_m)	29.70	in Hg

Gas Composition			
Carbon Dioxide Concentration	(%CO_2)	4.000	%
Oxygen Concentration	(%O_2)	14	%
Carbon Monoxide Concentration	(%CO)	0.0000	%
Nitogen Concentration	(%N_2)	82.00	%
Stack Moisture Content	(B_{ws})	7	%
Stack Dry Molecular Weight	(M_d)	29.20	lb/lb-mole
Stack Wet Molecular Weight	(M_s)	28.38	lb/lb-mole
Method 201A Pitot Coefficient	(C'_p)	0.819	
Probe Blockage Factor	(b_l)	0.00	
Viscosity of Stack Gas		244.854	micropoise

Flow Rate Calculations			
Cyclone Flow Rate		0.65	acfm
Orifice Pressure Head		0.51	in H_2O
Average Stack Velocity		75.91	ft/sec
Nozzle Diameter Desired		0.16	in
Nozzle Diameter Used		0.15	in
Nozzle Velocity		88.63	ft/sec
Minimum Velocity Head		0.90	in H_2O
Maximum Velocity Head		2.51	in H_2O

ΔQ_m Leak Checks					
Pre	0	ft^3/min	@	15	in Hg
Mid	0	ft^3/min	@	15	in Hg
Post	0	ft^3/min	@	15	in Hg
ΔQ_m <	0.020	ft^3/min	☑	**Ok?**	
Pitot OK?	☑		**Orsat OK?**	☑	

Traverse Point #	Dwell Time (Θ)	Clock Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Desired Orifice ΔH (ΔH)	Actual Orifice ΔH (ΔH)	Stack Temp (t_s)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Filter Temp	Impinger Exit Temp	Pump Vacuum	Square Root ΔP ($\Delta p^{1/2}$)	Local Stack Velocity (v_s)$_l$	Cumulative Meter Volume (V_m)$_{std}$	Cumulative Percent IsoKinetic (I)	Estimated Cut Diameter PM2.5
	min	hh:mm:ss	ft^3	in H_2O	in H_2O	in H_2O	°F	°F	°F	°F	°F	in Hg	(in H_2O)$^{1/2}$	ft/sec	scf	%	microns
A-1	3.9	11:25:00	0.000	1.30	0.510	0.508	361	53	60	250	44	-3.0	1.14	79.08	1.468	109.5	2.49
A-2	3.9	11:28:55	1.454	1.30	0.510	0.508	371	53	60	250	44	-3.0	1.14	79.56	2.922	109.3	2.47
A-3	3.9	11:32:51	2.895	1.30	0.510	0.508	362	53	60	250	44	-3.0	1.14	79.13	4.377	109.0	2.49
A-4	3.9	11:36:46	4.336	1.30	0.510	0.508	362	53	60	250	44	-3.0	1.14	79.13	5.846	109.2	2.49
B-1	4.1	11:40:42	5.791	1.40	0.510	0.508	362	54	60	250	44	-3.0	1.18	82.11	7.433	109.4	2.49
B-2	3.9	11:44:46	7.365	1.30	0.510	0.508	361	54	54	250	44	-3.0	1.14	79.08	8.899	109.4	2.48
B-3	3.9	11:48:41	8.810	1.30	0.510	0.508	360	54	54	250	44	-3.0	1.14	79.03	10.323	108.9	2.48
B-4	3.9	11:52:37	10.214	1.30	0.510	0.508	360	54	54	250	45	-3.0	1.14	79.03	11.817	109.2	2.48
C-1	4.1	11:56:32	11.687	1.40	0.510	0.508	360	54	54	250	45	-3.0	1.18	82.01	13.357	108.9	2.48
C-2	3.9	12:00:36	13.205	1.30	0.510	0.508	360	55	55	250	45	-3.0	1.14	79.03	14.891	109.5	2.49
C-3	3.9	12:04:32	14.721	1.30	0.510	0.508	360	55	55	250	45	-3.0	1.14	79.03	16.291	109.0	2.49
C-4	3.9	12:08:27	16.103	1.30	0.510	0.508	361	55	55	250	45	-3.0	1.14	79.08	17.769	109.1	2.48
D-1	4.1	12:12:22	17.563	1.40	0.510	0.508	361	55	55	250	45	-3.0	1.18	82.06	19.332	109.0	2.48
D-2	3.9	12:16:27	19.107	1.30	0.510	0.508	361	55	55	250	45	-3.0	1.14	79.08	20.855	109.4	2.48
D-3	4.1	12:20:22	20.612	1.40	0.510	0.508	361	55	55	250	45	-3.0	1.18	82.06	22.340	108.9	2.48
D-4	4.1	12:24:26	22.079	1.40	0.510	0.508	361	55	55	250	45	-3.0	1.18	82.06	23.939	109.0	2.48
Last Pt		12:28:30	23.658														
Final Values	63.5	12:28:30	23.658						**Maximum Vacuum**			-3.0	**Final Values**		23.939	109.0	
Average Values				1.33		0.51	362	54	56	250	45		1.15	80.04			
								55									

CYCLONE RUN 2 DATA

Plant Name	LNG-CANADA	**Date**	9/27/2025
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)	**Cyclone**	PM2.5 Cyclone
Operator	MS-VK	**Run #**	2
# of Points Across	4	**# of Ports Used**	4

Temperatures and Pressures			
Avg Stack Temp	(t_s)	360	°F
Avg Gas Meter Temp	(t_m)	61	°F
DH @ 0.75 SCFM	($\Delta H@$)	1.96	in H_2O
Barometric Pressure	(P_b)	29.6	in Hg
Stack Static Pressure	(P_{static})	-1.10	in H_2O
Absolute Stack Pressure	(P_s)	29.48	in Hg
Absolute Meter Pressure	(P_m)	29.70	in Hg

Gas Composition			
Carbon Dioxide Concentration	(%CO_2)	4.000	%
Oxygen Concentration	(%O_2)	14	%
Carbon Monoxide Concentration	(%CO)	0.0000	%
Nitogen Concentration	(%N_2)	82.00	%
Stack Moisture Content	(B_{ws})	7	%
Stack Dry Molecular Weight	(M_d)	29.20	lb/lb-mole
Stack Wet Molecular Weight	(M_s)	28.39	lb/lb-mole
Method 201A Pitot Coefficient	(C'_p)	0.819	
Probe Blockage Factor	(b_l)	0.00	
Viscosity of Stack Gas		244.409	micropoise

Flow Rate Calculations			
Cyclone Flow Rate		0.65	acfm
Orifice Pressure Head		0.52	in H_2O
Average Stack Velocity		75.91	ft/sec
Nozzle Diameter Desired		0.16	in
Nozzle Diameter Used		0.15	in
Nozzle Velocity		88.37	ft/sec
Minimum Velocity Head		0.89	in H_2O
Maximum Velocity Head		2.50	in H_2O

ΔQ_m	Leak Checks				
Pre	0	ft^3/min	@	15	in Hg
Mid	0	ft^3/min	@	15	in Hg
Post	0	ft^3/min	@	15	in Hg
ΔQ_m <	0.020	ft^3/min	☑	**Ok?**	
Pitot OK?	☑		**Orsat OK?**	☑	

Traverse Point #	Dwell Time (Θ)	Clock Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Desired Orifice ΔH (ΔH)	Actual Orifice ΔH (ΔH)	Stack Temp (t_s)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Filter Temp	Impinger Exit Temp	Pump Vacuum	Square Root ΔP ($\Delta p^{1/2}$)	Local Stack Velocity (v_s)l	Cumulative Meter Volume (V_m)std	Cumulative Percent IsoKinetic (I)	Estimated Cut Diameter PM2.5
	min	hh:mm:ss	ft^3	in H_2O	in H_2O	in H_2O	°F	°F	°F	°F	°F	in Hg	(in H_2O)$^{1/2}$	ft/sec	scf	%	microns
A-1	3.9	13:00:00	0.000	1.40	0.516	0.511	360	60	60	250	46	-3.0	1.18	82.00	1.530	109.8	2.49
A-2	3.9	13:03:55	1.526	1.40	0.516	0.511	361	60	60	250	46	-3.0	1.18	82.05	3.043	109.2	2.49
A-3	3.9	13:07:51	3.035	1.40	0.516	0.511	361	60	60	250	46	-3.0	1.18	82.05	4.560	109.1	2.49
A-4	3.9	13:11:46	4.548	1.40	0.516	0.511	361	60	60	250	46	-3.0	1.18	82.05	6.113	109.7	2.49
B-1	3.9	13:15:42	6.097	1.40	0.516	0.511	361	61	61	250	46	-3.0	1.18	82.05	7.649	109.8	2.49
B-2	3.9	13:19:37	7.632	1.40	0.516	0.511	360	61	61	250	46	-3.0	1.18	82.00	9.168	109.7	2.49
B-3	4.0	13:23:32	9.150	1.45	0.516	0.511	360	61	61	250	47	-3.0	1.20	83.45	10.634	108.5	2.49
B-4	4.1	13:27:32	10.615	1.50	0.516	0.511	360	61	61	250	47	-3.0	1.22	84.88	12.306	109.0	2.49
C-1	4.0	13:31:35	12.285	1.45	0.516	0.511	360	62	62	250	47	-3.0	1.20	83.45	13.914	109.2	2.49
C-2	3.9	13:35:35	13.895	1.40	0.516	0.511	360	62	62	250	47	-3.0	1.18	82.00	15.432	109.2	2.49
C-3	3.9	13:39:30	15.415	1.40	0.516	0.511	360	62	62	250	47	-3.0	1.18	82.00	16.940	109.1	2.49
C-4	4.0	13:43:26	16.925	1.45	0.516	0.511	359	62	62	250	47	-3.0	1.20	83.40	18.469	108.8	2.50
D-1	4.1	13:47:25	18.456	1.50	0.516	0.511	359	62	62	250	47	-3.0	1.22	84.82	20.080	108.8	2.50
D-2	4.1	13:51:29	20.069	1.50	0.516	0.511	359	62	62	250	47	-3.0	1.22	84.82	21.684	108.7	2.50
D-3	4.0	13:55:33	21.675	1.45	0.516	0.511	359	62	62	250	47	-3.0	1.20	83.40	23.363	109.2	2.50
D-4	4.0	13:59:32	23.355	1.45	0.516	0.511	359	62	62	250	47	-3.0	1.20	83.40	24.921	109.1	2.50
Last Pt		14:03:32	24.915														
Final Values	63.5	14:03:32	24.915						**Maximum Vacuum**			-3.0	**Final Values**		24.921	109.1	
Average Values				1.43		0.51	360	61	61	250	47		1.20	82.99			
								61									

CYCLONE RUN 3 DATA

Plant Name	LNG-CANADA	**Date**	9/27/2025
Sampling Location	LNG - Kitimat (Turbine-1E-4101B)	**Cyclone**	PM2.5 Cyclone
Operator	MS-VK	**Run #**	3
# of Points Across	4	**# of Ports Used**	4

Temperatures and Pressures				
Avg Stack Temp	(t_s)	357	°F	9.83
Avg Gas Meter Temp	(t_m)	64	°F	10.42
DH @ 0.75 SCFM	(ΔH@)	1.96	in H_2O	0.65
Barometric Pressure	(P_b)	29.6	in Hg	2353.83
Stack Static Pressure	(P_{static})	-1.10	in H_2O	2.43
Absolute Stack Pressure	(P_s)	29.48	in Hg	1.10
Absolute Meter Pressure	(P_m)	29.70	in Hg	9.84
				10.42

Flow Rate Calculations				
Cyclone Flow Rate		0.65	acfm	2352.60
Orifice Pressure Head		0.52	in H_2O	2.43
Average Stack Velocity		75.91	ft/sec	
Nozzle Diameter Desired		0.16	in	
Nozzle Diameter Used		0.15	in	
Nozzle Velocity		87.96	ft/sec	
Minimum Velocity Head		0.89	in H_2O	
Maximum Velocity Head		2.49	in H_2O	

Gas Composition			
Carbon Dioxide Concentration	(%CO_2)	4.000	%
Oxygen Concentration	(%O_2)	14	%
Carbon Monoxide Concentration	(%CO)	0.0000	%
Nitogen Concentration	(%N_2)	82.00	%
Stack Moisture Content	(B_{ws})	7.2	%
Stack Dry Molecular Weight	(M_d)	29.20	lb/lb-mole
Stack Wet Molecular Weight	(M_s)	28.39	lb/lb-mole
Method 201A Pitot Coefficient	(C'_p)	0.819	
Probe Blockage Factor	(b_l)	0.00	
Viscosity of Stack Gas		243.632	micropoise

ΔQ_m	Leak Checks				
Pre	0	ft^3/min	@	15	in Hg
Mid	0	ft^3/min	@	15	in Hg
Post	0	ft^3/min	@	15	in Hg
ΔQ_m <	0.020	ft^3/min	☑	**Ok?**	
Pitot OK?	☑		**Orsat OK?**	☑	

Traverse Point #	Dwell Time (Θ)	Clock Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Desired Orifice ΔH (ΔH)	Adjusted Velocity Head ($\Delta p)_s$	Actual Orifice ΔH (ΔH)	Stack Temp (t_s)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Filter Temp	Impinger Exit Temp	Pump Vacuum	Square Root ΔP ($\Delta p^{1/2}$)	Local Stack Velocity (v_s)$_l$	Cumulative Meter Volume (V_m)$_{std}$	Cumulative Percent IsoKinetic (I)	Estimated Cut Diameter PM2.5
	min	hh:mm:ss	ft^3	in H_2O	in H_2O		in H_2O	°F	°F	°F	°F	°F	in Hg	(in $H_2O)^{1/2}$	ft/sec	scf	%	microns
A-1	3.9	14:30:00	0.000	1.50	0.518	1.500	0.520	364	62	62	250	47	-3.0	1.22	85.08	1.573	109.3	2.45
A-2	3.9	14:33:55	1.575	1.45	0.518	1.450	0.520	364	62	62	250	47	-3.0	1.20	83.65	3.101	109.6	2.45
A-3	3.9	14:37:47	3.105	1.45	0.518	1.450	0.520	364	62	62	250	47	-3.0	1.20	83.65	4.622	109.5	2.45
A-4	3.9	14:41:38	4.627	1.50	0.518	1.500	0.520	361	62	62	250	47	-3.0	1.22	84.93	6.206	109.6	2.46
B-1	3.9	14:45:34	6.213	1.50	0.518	1.500	0.520	361	62	62	250	47	-3.0	1.22	84.93	7.745	109.0	2.46
B-2	3.9	14:49:29	7.754	1.45	0.518	1.450	0.520	357	63	63	250	47	-3.0	1.20	83.30	9.276	109.1	2.47
B-3	3.9	14:53:20	9.290	1.50	0.518	1.500	0.520	357	62	62	250	47	-3.0	1.22	84.72	10.887	109.5	2.46
B-4	3.9	14:57:16	10.903	1.50	0.518	1.500	0.520	356	63	63	250	47	-3.0	1.22	84.67	12.484	109.6	2.47
C-1	3.9	15:01:11	12.505	1.45	0.518	1.450	0.520	355	63	63	250	48	-3.0	1.20	83.19	13.967	109.2	2.47
C-2	3.9	15:05:03	13.992	1.45	0.518	1.450	0.520	352	64	64	250	48	-3.0	1.20	83.04	15.554	109.6	2.48
C-3	4.0	15:08:54	15.587	1.55	0.518	1.550	0.520	352	64	64	250	48	-3.0	1.24	85.86	17.124	109.1	2.48
C-4	3.9	15:12:53	17.165	1.50	0.518	1.500	0.520	351	65	65	250	48	-3.0	1.22	84.41	18.744	109.4	2.48
D-1	3.9	15:16:49	18.796	1.50	0.518	1.500	0.520	351	66	66	250	48	-3.0	1.22	84.41	20.359	109.5	2.48
D-2	4.0	15:20:44	20.425	1.55	0.518	1.550	0.520	353	66	66	250	48	-3.0	1.24	85.91	21.955	109.3	2.48
D-3	3.9	15:24:43	22.035	1.50	0.518	1.500	0.520	353	67	67	250	48	-3.0	1.22	84.51	23.528	109.3	2.48
D-4	4.0	15:28:39	23.625	1.55	0.518	1.550	0.520	353	67	67	250	48	-3.0	1.24	85.91	24.884	108.0	2.48
Last Pt		15:32:38	24.997															
Final Values	62.6	15:32:38	24.997							**Maximum Vacuum**			-3.0	**Final Values**		24.884	108.0	
Average Values				1.49			0.52	357	64	64	250	48		1.22	84.51			
									64									

TURBINE - E-4101B

AGAT CYCLONIC FLOW CHECK DATA SHEET

Client:	LNG-CANADA	Contact:	TAUSEEF SIDDIQUI
Plant Name:	LNG-CANADA	Location:	KITIMAT - BC
Stack ID (in.):	50.300	Length of Annulus (in.):	9
Date (Y/M/D):	2025-SEPT-	Comments:	
Sampled by:	NS-VK		
Team Leader:	NS		

N-S

		E-W Traverse Data Test 1		W-E	S-N
Point #	Time (24 Hrs)	Port #1 null angle	Port #2 null angle	Port #3 null angle	Port #4 null angle
4	1200	7° CW	2° CW	5° CCW	4° CCW
3		0° CW	0°	6° CCW	9° CCW
2		3° CW	5 CCW	8° CCW	9° CCW
1	1215	0°	0°	13° CCW	10° CCW

N-S

		E-W Traverse Data Test 2		W-E	S-N
Point #	Time (24 Hrs)	Port 1 null angle	Port 2 null angle	Port 3 null angle	Port 4 null angle
4	1310	2° CW	2° CW	4° CCW	7° CCW
3		6° CW	0°	5° CCW	4° CCW
2		7° CW	5° CCW	7° CCW	8° CCW
1	1325	0°	0°	12° CCW	9° CCW

Note: 1 hour must pass between test 1 and 2

Note: The average of the absolute values of the null angles cannot be greater than 20°

Note: The difference between the angles in test 1 and 2 cannot be greater than 5°

Appendix V – Calibration Data

AGAT Laboratories

Barometer Calibration 2025

Calibration Date	Cal Times	Standard		Monometer
Month/Day/Year	hh:mm	hPa	in. Hg	in. Hg
CGY 1		hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.56
4-Feb-25	8:50	886	26.55	26.55
5-Feb-25	8:05	882	26.16	26.17
CGY 3	hh:mm	hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.57
4-Feb-25	8:50	886	26.55	26.57
5-Feb-25	8:05	882	26.16	26.19
EDM 1	hh:mm	hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.57
4-Feb-25	8:50	886	26.55	26.57
5-Feb-25	8:05	882	26.16	26.19
EDM 2		hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.57
4-Feb-25	8:50	886	26.55	26.56
5-Feb-25	8:05	882	26.16	26.18
EDM 3	hh:mm	hPa	in. Hg	in. Hg
3-Feb-25	15:34	886	26.55	26.58
4-Feb-25	8:50	886	26.55	26.58
5-Feb-25	8:05	882	26.16	26.19

Notes:	Barometers were calibrated to Fisherbrand Tracible Barometer - Serial Number: 240466177 Barometers must be capable of measuring atmospheric pressure to within 2.5mm (0.1 in.) Hg
Calibrated By:	Raymond Dreaver
Date:	Feb 03-05, 2025

AGAT Laboratories

CTM 040 PM2.5 Nozzle Calibration Form 2025

Calibrated: ***20-Jan-25***

Calibrated by: ***Alexander Sanguino***

PM 2.5 Nozzles

Nozzle	Diameter Measurements (inches)				Nozzle	(inches)	Error
ID#	1st	2nd	3rd	Average	Diameter		±0.004 difference (Max-Min)
2a	0.1210	0.1210	0.1210	0.1210	9/64"	0.1210	0.000
2b	0.1500	0.1500	0.1500	0.1500	9/64"	0.1500	0.000
3	0.1490	0.1500	0.1500	0.1497	5/32"	0.1497	0.001
4	0.1650	0.1650	0.1640	0.1647	5/32"	0.1647	0.001
5	0.1820	0.1830	0.1830	0.1827	11/64"	0.1827	0.001
6	0.1900	0.1900	0.1900	0.1900	3/16"	0.1900	0.000
7	0.2030	0.2030	0.2030	0.2030	13/64"	0.2030	0.000
8	0.2430	0.2430	0.2430	0.2430	15/64"	0.2430	0.000

AGAT Laboratories calibrates it's nozzles using a Mastercraft 6" Slide caliper # 58-6800-4

III - *vertical measurement*
----- - *horizontal measurement*

Authorizing Signature: Alexander Sanguino

AGAT Labs Scales Calibration - 2025

Calibrated by: JS

Calibration date: 5-Feb-25

ID - EDBL#104 +/-0. 1gram'

Actual	Scale	Difference
1000	1000	0
500	500	0
200	200	0
50	50.1	0.1
20	20	0

EDBL#110 +/-0. 1gram'

Actual	Scale	Difference
1000	1000	0
500	500	0.0
200	200	0
50	50	0
20	20	0

EDBL#108 +/-0. 1gram'

Actual	Scale	Difference
1000	1000	0
500	499.9	0.1
200	200	0
50	50	0
20	20	0

EDBL#111 +/-0. 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500.1	0.1
200	200	0
50	50	0
20	20	0

CALBL#115 +/- 1gram'

Actual	Scale	Difference
1000	1000	0.0
500	500	0
200	200	0
50	50	0
51		

EDBL#112 +/- 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500.1	0.1
200	200	0
50	50	0
51		

CALBL#117 +/- 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500.1	0.1
200	200.1	0.1
50	50	0
51		

CALBL#118 +/- 1gram'

Actual	Scale	Difference
1000	999.9	0.1
500	500.1	0.1
200	200.1	0
50	50	0
20	20	0

CALBL #107 +/- 1gram'

Actual	Scale	Difference
1000	1000.1	0.1
500	500	0
200	200.1	0.1
50	50	0
51		

CALBL#133

Actual	Scale	Difference
1000	1000	0.0
500	500.1	0.1
200	200	0
50	50	0
51		

CALBL# 109 +/- 1gram'

Actual	Scale	Difference
1000	999.9	0.1
500	500	0
200	200	0
50	50	0
51		

Notes: EDBL# 107, EDBL# 106, EDBL# 109, are all out of service

EPA Method 5
Meter Box Calibration
English Meter Box Units, English K' Factor

Model #: Sensus
Serial #: 1

Date: 7-Jan-25
Barometric Pressure: 26.63 (in. Hg)
Theoretical Critical Va 12.56 (in. Hg)

!!!!!!!!!
IMPORTAI For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.
IMPORTAI The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).
!!!!!!!!!

---------- DRY GAS METER READINGS ----------									-CRITICAL ORIFICE READINGS-					
		Volume	Volume	Volume	Initial Temps.		Final Temps.		Orifice	K' Orifice	Actual	-- Ambient Temperature --		
dH	Time	Initial	Final	Total	Inlet	Outlet	Inlet	Outlet	Serial#	Coefficient	Vacuum	Initial	Final	Average
(in H2O)	(min)	(cu ft)	(cu ft)	(cu ft)	(deg F)	(deg F)	(deg F)	(deg F)	(number)	(see above	(in Hg)	(deg F)	(deg F)	(deg F)
0.01	17.00	984.790	990.005	5.215	73.7	74.1	76.9	74.3	40	0.2333	22.0	74.3	75.3	74.8
0.03	12.00	990.005	995.533	5.528	75.8	73.9	81.1	74.5	48	0.3505	21.5	75.1	76.2	75.7
0.04	10.00	995.533	1001.398	5.865	78.9	74.2	87.1	75.0	55	0.4446	21.0	76.1	76.6	76.4
0.08	7.00	1.398	6.945	5.547	82.6	74.9	93.5	75.6	63	0.5991	20.5	76.5	77.0	76.8
0.16	5.00	6.945	12.295	5.350	82.5	76.1	94.5	76.7	73	0.8029	19.0	76.9	77.3	77.1

********** RESULTS **********

-- DRY GAS METER --		--------- ORIFICE ---------			-- DRY GAS METER --		--------- ORIFICE ---------			
VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	:ALIBRATION FACTOI		CALIBRATION FACTOR			
ORRECTE	ORRECTED	CORRECTE	ORRECTE	NOMINAL	Y		dH@			
Vm(std)	Vm(std)	Vcr(std)	Vcr(std)	Vcr	Value	Variation	Value	Value	Variation	
(cu ft)	(liters)	(cu ft)	(liters)	(cu ft)	(number)	(number)	(in H2O)	(mm H2O)	(in H2O)	
4.581	129.7	4.567	129.3	5.199	0.997	-0.002	0.069	1.74	-0.014	
4.842	137.1	4.839	137.1	5.518	0.999	0.001	0.091	2.32	0.009	
5.114	144.8	5.112	144.8	5.837	1.000	0.001	0.076	1.92	-0.007	
4.812	136.3	4.820	136.5	5.508	1.002	0.003	0.083	2.12	0.001	
4.635	131.3	4.613	130.6	5.274	0.995	-0.003	0.093	2.35	0.010	
					0.9986	**<----- Average Y**	**0.0823**	**2.09**	**<----- Average dH@**	

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.
For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the avera

SIGNED: MS

Date: Jan 07, 2025

AGAT Laboratories

S-TYPE PITOT TUBE CALIBRATION

Calibration Device/Location: SAIT

Pitot Tube Number: SRC 9C Probe

Technician: MS-AS JS-RP

Calibration Date (D/M/Y): 4-Feb-25

Date Last Calibrated (D/M/Y): 6-Feb-24

Previous Factor: 0.818

Approx. Velocity	Reference	S-Type		Pitot Factor	
m/sec	ΔPr	ΔPs	$(Ref/S\text{-}type)^{0.5}$		±Difference from the new factor
30	1.50	2.10	0.845	0.837	0.0174
30	1.50	2.10	0.845	0.837	0.0174
50	4.50	6.60	0.826	0.817	-0.00183
50	4.50	6.60	0.826	0.817	-0.00183
70	8.70	13.20	0.812	0.804	-0.0156
70	8.70	13.20	0.812	0.804	-0.0156

Standard Pitot Tube Factor: 0.990 **New Factor:** **0.819**

Calibration Notes: Pitot Tube tips are in good shape, clean, with no deformations or damage. Calibrated with thermocouples in place.

AGAT Laboratories

Thermocouple Calibration: 2025

Thermocouple Calibration: Fluke S/N: 24450030 & 111108577 Thermometer Standard: VWR61016-208, QL Quincy Lab Inc. 76mm 1mm, C15, C4 Calibrated according to ASSC Method 2 Sec 4.3

	Ice					Boiling Water					Oven				
I.D	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff
Standalone Thermocouples															
C1	1.100	274.25	0.00	273.15	0.403	96.7	369.85	97.0	370.15	0.081	376.9	650.05	377.0	650.15	0.0154
C2	1.000	274.15	1.00	274.15	0.000	97.3	370.45	98.0	371.15	0.189	362.1	635.25	362.0	635.15	0.0157
C3	0.800	273.95	0.50	273.65	0.110	97.5	370.65	98.0	371.15	0.135	398.0	671.15	400.0	673.15	0.2971
C4	1.000	274.15	0.00	273.15	0.3661	96.8	369.95	98.0	371.15	0.323	387.0	660.15	388.0	661.15	0.1513
C5	1.000	274.15	0.00	273.15	0.366	97.0	370.15	97.0	370.15	0.000	375.0	648.15	375.0	648.15	0.0000
C6	0.700	273.85	1.00	274.15	0.109	96.4	369.55	97.0	370.15	0.162	369.2	642.35	371.0	644.15	0.2794
C7	1.400	274.55	1.00	274.15	0.1459	96.1	369.25	97.0	370.15	0.243	391.6	664.75	391.0	664.15	0.0903
C8	1.000	274.15	0.00	273.15	0.366	96.6	369.75	98.0	371.15	0.377	405.0	678.15	406.0	679.15	0.1472
C9	1.100	274.25	1.00	274.15	0.036	97.0	370.15	98.0	371.15	0.269	383.0	656.15	384.0	657.15	0.1522
C10	0.900	274.05	1.00	274.15	0.036	97.2	370.35	98.0	371.15	0.216	351.6	624.75	352.0	625.15	0.0640
C21	1.100	274.25	1.00	274.15	0.036	96.4	369.55	97.0	370.15	0.162	443.6	716.75	444.0	717.15	0.0558
E1	0.600	273.75	0.00	273.15	0.220	94.8	367.95	96.0	369.15	0.325	353.2	626.35	354.0	627.15	0.1276
E2	0.300	273.45	0.00	273.15	0.110	97.1	370.25	98.0	371.15	0.242	335.4	608.55	337.0	610.15	0.2622
E3	0.500	273.65	0.00	273.15	0.183	96.6	369.75	98.0	371.15	0.377	384.2	657.35	385.0	658.15	0.1216
E4	0.700	273.85	0.50	273.65	0.073	96.7	369.85	98.0	371.15	0.350	365.4	638.55	367.0	640.15	0.2499
E6	0.600	273.75	0.00	273.15	0.220	94.5	367.65	96.0	369.15	0.406	320.2	593.35	322.0	595.15	0.3024
E7	0.600	273.75	0.00	273.15	0.220	95.9	369.05	97.0	370.15	0.297	362.0	635.15	364.0	637.15	0.3139
Flex 1	0.900	274.05	1.00	274.15	0.036	97.3	370.45	98.0	371.15	0.189	401.0	674.15	402.0	675.15	0.1481
Flex 2	0.900	274.05	1.00	274.15	0.036	97.2	370.35	97.0	370.15	0.054	377.4	650.55	379.0	652.15	0.2453
Flex 3	1.200	274.35	1.00	274.15	0.073	96.7	369.85	98.0	371.15	0.350	386.0	659.15	387.0	660.15	0.1515
Filter 1	0.200	273.35	0.00	273.15	0.073	96.2	369.35	97.0	370.15	0.216	381.5	654.65	380.0	653.15	0.2297
Filter 3	0.900	274.05	1.00	274.15	0.036	96.6	369.75	97.0	370.15	0.108	388.9	662.05	388.0	661.15	0.1361
Exit1	1.300	274.45	1.00	274.15	0.109	96	369.15	97.0	370.15	0.270	384.0	657.15	385.0	658.15	0.1519
CGY5A - Spare	0.900	274.05	0.50	273.65	0.146	97.9	371.05	98.0	371.15	0.027	420.0	693.15	420.0	693.15	0.0000
CGY5B - Spare	0.600	273.75	0.50	273.65	0.037	97.8	370.95	98.0	371.15	0.054	452.8	725.95	454.0	727.15	0.1650
CGY5C - Spare	0.700	273.85	0.50	273.65	0.073	98.1	371.25	98.0	371.15	0.027	423.5	696.65	423.0	696.15	0.0718
DGM RATA 01	0.800	273.95	0.50	273.65	0.110	97.3	370.45	98.0	371.15	0.189	394.5	667.65	394.0	667.15	0.0749
SRC 5 Spare 2	1.100	274.25	2.00	275.15	0.327	97.0	370.15	97.0	370.15	0.000	431.7	704.85	433.0	706.15	0.1841
C24	1.400	274.55	2.00	275.15	0.218	96.4	369.55	98.0	371.15	0.431	463.2	736.35	464.0	737.15	0.1085
E5	0.200	273.35	0.00	273.15	0.073	96.5	369.65	98.0	371.15	0.404	357.4	630.55	359.0	632.15	0.2531
EDGM 2	1.000	274.15	0.00	273.15	0.366	96.6	369.75	98.0	371.15	0.377	338.1	611.25	339.0	612.15	0.1470
E8	1.000	274.15	0.50	273.65	0.183	96.8	369.95	98.0	371.15	0.323	347.6	620.75	349.0	622.15	0.2250
EDGM1	0.500	273.65	0.00	273.15	0.183	96.0	369.15	98.0	371.15	0.539	317.1	590.25	318.0	591.15	0.1522
E31	0.500	273.65	0.00	273.15	0.183	97.1	370.25	98.0	371.15	0.242	304.1	577.25	304.0	577.15	0.0173

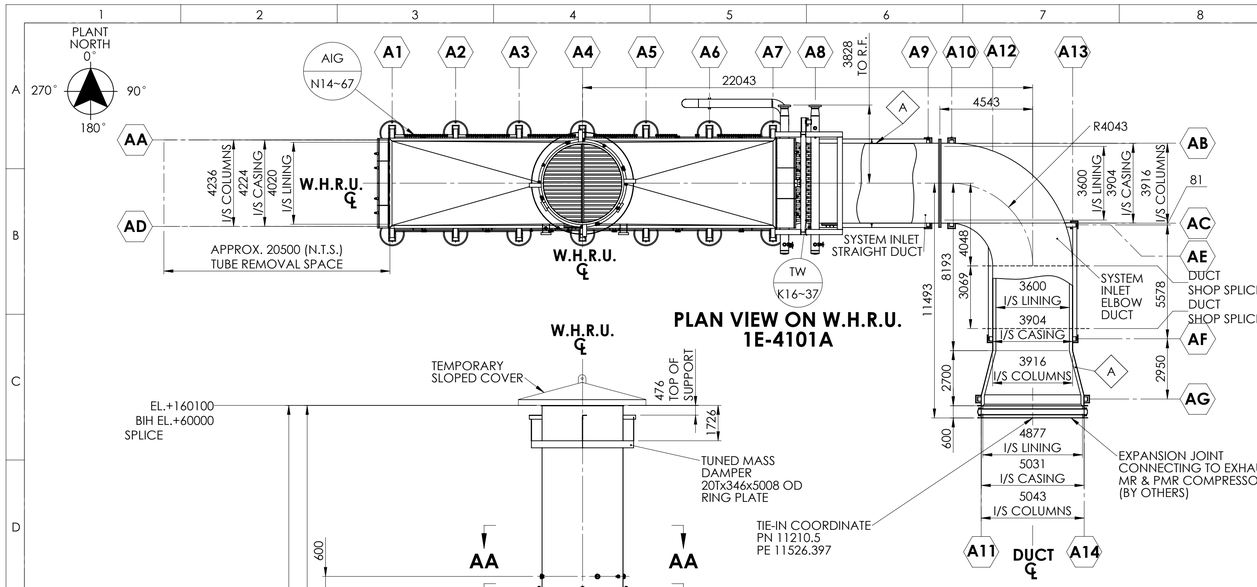
AGAT Laboratories

Thermocouple Calibration: 2025

Thermocouple Calibration: Fluke S/N: 24450030 & 111108577 Thermometer Standard: VWR61016-208, QL Quincy Lab Inc. 76mm 1mm, C15, C4 Calibrated according to ASSC Method 2 Sec 4.3

	Ice					Boiling Water					Oven				
I.D	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff	Temp(degC)	Temp(kelvin)	Standard(degC)	Standard (Kelvin)	% Diff
Pitot Tube Thermocouples															
CGY5D	0.80	273.95	0.50	273.65	0.110	97.8	370.95	98.0	371.15	0.054	459.40	732.55	459.0	732.15	0.0546
CGY5A	1.00	274.15	0.50	273.65	0.183	97.1	370.25	98.0	371.15	0.242	449.00	722.15	448.0	721.15	0.1387
CGY8A	1.10	274.25	1.00	274.15	0.036	96.7	369.85	98.0	371.15	0.350	440.00	713.15	441.0	714.15	0.1400
CGY10 (New)	0.80	273.95	0.50	273.65	0.110	97.4	370.55	98.0	371.15	0.162	457.10	730.25	458.0	731.15	0.1231
CGY10A	1.20	274.35	1.00	274.15	0.073	96.8	369.95	98.0	371.15	0.323	429.00	702.15	430.0	703.15	0.1422
CGY12	1.00	274.15	1.00	274.15	0.000	97.6	370.75	98.0	371.15	0.108	459.00	732.15	460.0	733.15	0.1364
CGY12B	0.90	274.05	1.00	274.15	0.036	97.8	370.95	98.0	371.15	0.054	418.20	691.35	418.0	691.15	0.0289
CGY13	0.90	274.05	1.00	274.15	0.036	97	370.15	98.0	371.15	0.269	456.70	729.85	458.0	731.15	0.1778
EDM3	0.60	273.75	0.00	273.15	0.220	96.3	369.45	98.0	371.15	0.458	345.40	618.55	347.0	620.15	0.2580
EDM5 A (New)	0.50	273.65	0.00	273.15	0.183	96.4	369.55	98.0	371.15	0.431	327.40	600.55	327.0	600.15	0.0667
EDM5 B (New)	0.70	273.85	0.00	273.15	0.256	95.1	368.25	97.0	370.15	0.513	323.00	596.15	323.0	596.15	0.0000
EDM7	0.60	273.75	0.00	273.15	0.220	96.6	369.75	98.0	371.15	0.377	324.00	597.15	324.0	597.15	0.0000
EDM7 A (New)	1.10	274.25	0.00	273.15	0.403	95.0	368.15	97.0	370.15	0.540	324.00	597.15	324.0	597.15	0.0000
EDM8 A (New)	0.60	273.75	0.00	273.15	0.220	94.1	367.25	96.0	369.15	0.515	322.00	595.15	323.0	596.15	0.1677
EDM9 A (New)	0.60	273.75	0.00	273.15	0.220	94.2	367.35	96.0	369.15	0.488	331.00	604.15	331.0	604.15	0.0000
EDM9 B (New)	0.70	273.85	0.00	273.15	0.256	96.6	369.75	98.0	371.15	0.377	318.30	591.45	319.0	592.15	0.1182
EDM10A	0.60	273.75	0.00	273.15	0.220	94.4	367.55	96.0	369.15	0.433	329.10	602.25	329.0	602.15	0.0166
EDM15B	0.80	273.95	1.00	274.15	0.073	95	368.15	97.0	370.15	0.540	392.00	665.15	392.0	665.15	0.0000
EDM18	0.50	273.65	0.00	273.15	0.183	96.3	369.45	98.0	371.15	0.458	340.10	613.25	940.0	1213.15	49.45
GP 8	1.40	274.55	1.00	274.15	0.146	97	370.15	98.0	371.15	0.269	449.20	722.35	448.0	721.15	0.1664
GP10	1.10	274.25	1.00	274.15	0.036	96.9	370.05	98.0	371.15	0.296	441.00	714.15	440.0	713.15	0.1402
GP12	1.30	274.45	1.00	274.15	0.109	96.6	369.75	98.0	371.15	0.377	443.10	716.25	443.0	716.15	0.0140
GP13	1.00	274.15	1.10	274.25	0.036	97.3	370.45	98.0	371.15	0.189	467.30	740.45	468.0	741.15	0.0944
SRC5 A	2.10	275.25	1.00	274.15	0.401	96	369.15	97.0	370.15	0.270	380.00	653.15	381.0	654.15	0.1529
SRC5 B	1.50	274.65	1.00	274.15	0.182	95	368.15	97.0	370.15	0.540	407.10	680.25	409.0	682.15	0.2785
SRC5 - Spare	2.20	275.35	1.50	274.65	0.255	96.2	369.35	97.0	370.15	0.216	426.00	699.15	427.0	700.15	0.1428
SRC6	1.70	274.85	1.00	274.15	0.255	95.8	368.95	97.0	370.15	0.324	421.00	694.15	422.0	695.15	0.1439
SRC9B	1.70	274.85	1.00	274.15	0.255	96.4	369.55	97.0	370.15	0.162	432.20	705.35	431.0	704.15	0.1704
SRC9C	1.30	274.45	1.00	274.15	0.109	96.2	369.35	97.0	370.15	0.216	442.00	715.15	441.0	714.15	0.1400
SRC12B	1.50	274.65	1.00	274.15	0.182	96.6	369.75	97.0	370.15	0.108	446.60	719.75	445.0	718.15	0.2228
SRC13	0.90	274.05	1.00	274.15	0.036	96.2	369.35	97.0	370.15	0.216	416.10	689.25	415.0	688.15	0.1598
SRC-HT-5	1.70	274.85	1.00	274.15	0.255	96.8	369.95	97.0	370.15	0.054	411.50	684.65	411.0	684.15	0.0731

Appendix VI – Stack Diagram



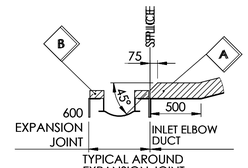
PLAN VIEW ON W.H.R.U. 1E-4101A

NOTES

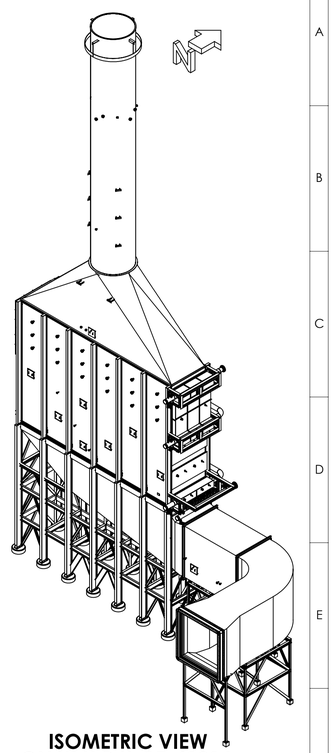
1. ALL PRIMARY DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. SPLICES ARE TO BE INTERNALLY SEAL WELDED AT SITE. UNLESS OTHERWISE SPECIFIED.
3. ALL DIMENSIONS SHALL BE VERIFIED AND ANY DISCREPANCIES SHALL BE REFERRED TO BIH FOR RESOLUTION.
4. HEADERBOX COVERS & MAN WAYS (ACCESS DOORS)SHALL REQUIRED SEALANT COMPOUND & LADDER TAPE. (NOT TO BE APPLIED TO ANY STRUCTURAL JOINTS AS THESE SHALL BE SEAL WELDED.
5. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH DRAWING(S):
   - 743-1E4101A-03 SERIES (FOUNDATION LOADING PLAN). L001-14100-CS-2332-100053-1200 ~ 1203
   - 743-1E4101A-09 SERIES (LADDERS & PLATFORMS). L001-14100-MX-4018-100053-1204 ~ 1207
   - 743-1E4101A-02B,02C & 02D. L001-14100-MX-4018-100053-1201~ 1203
6. REFER TYPICAL LINING DETAIL FOR SEAL WELDING AND LINING BETWEEN SPLICES
   - 743-BIHS-321 (L001-14100-MX-2321-100053-1327)
   - 743-BIHS-322 (L001-14100-MX-2321-100053-1377)
   - 743-BIHS-323 (L001-14100-MX-2321-100053-1411)
7. INTERNAL ID LEGEND BELOW:

INTERNAL ID	ITEM DESCRIPTION
IID-1E-4101A-STA-001	STACK MODULE
IID-1E-4101A-CMB-001	CONVECTION MODULE
IID-1E-4101A-ES-001	SUPPORT STRUCTURE-1
IID-1E-4101A-ES-002	SUPPORT STRUCTURE-2
IID-1E-4101A-ES-003	SUPPORT STRUCTURE-3
IID-1E-4101A-ES-004	SUPPORT STRUCTURE-4
IID-1E-4101A-ES-005	SUPPORT STRUCTURE-5
IID-1E-4101A-DT-001	INLET DUCT-1
IID-1E-4101A-DT-002	INLET DUCT-2

8. SEPARATE DOCUMENTS (GENERAL ARRANGEMENT) WILL BE PREPARED FOR 1E-4101B,2E-4101A AND 2E-4101B



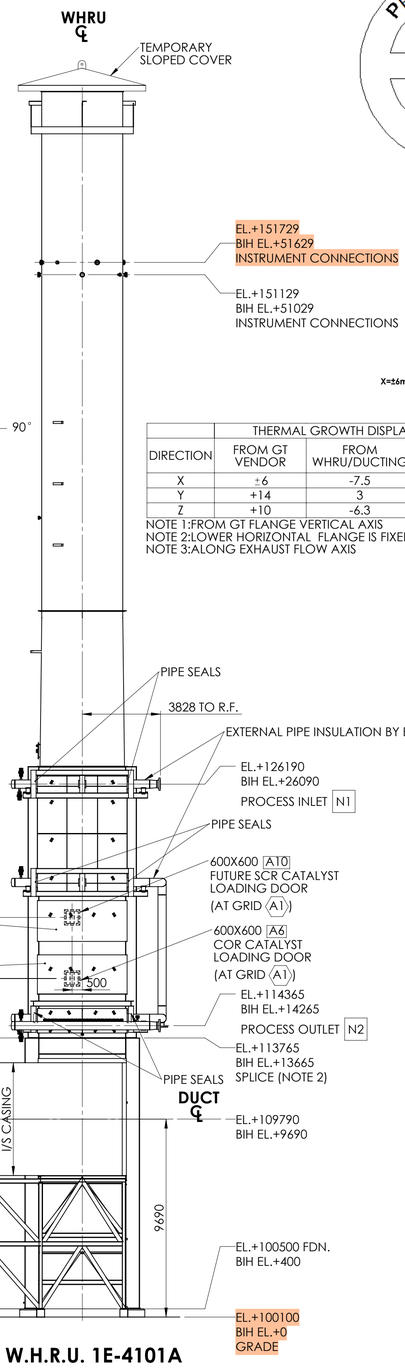
SECTION AD-AD SCALE 1 : 30



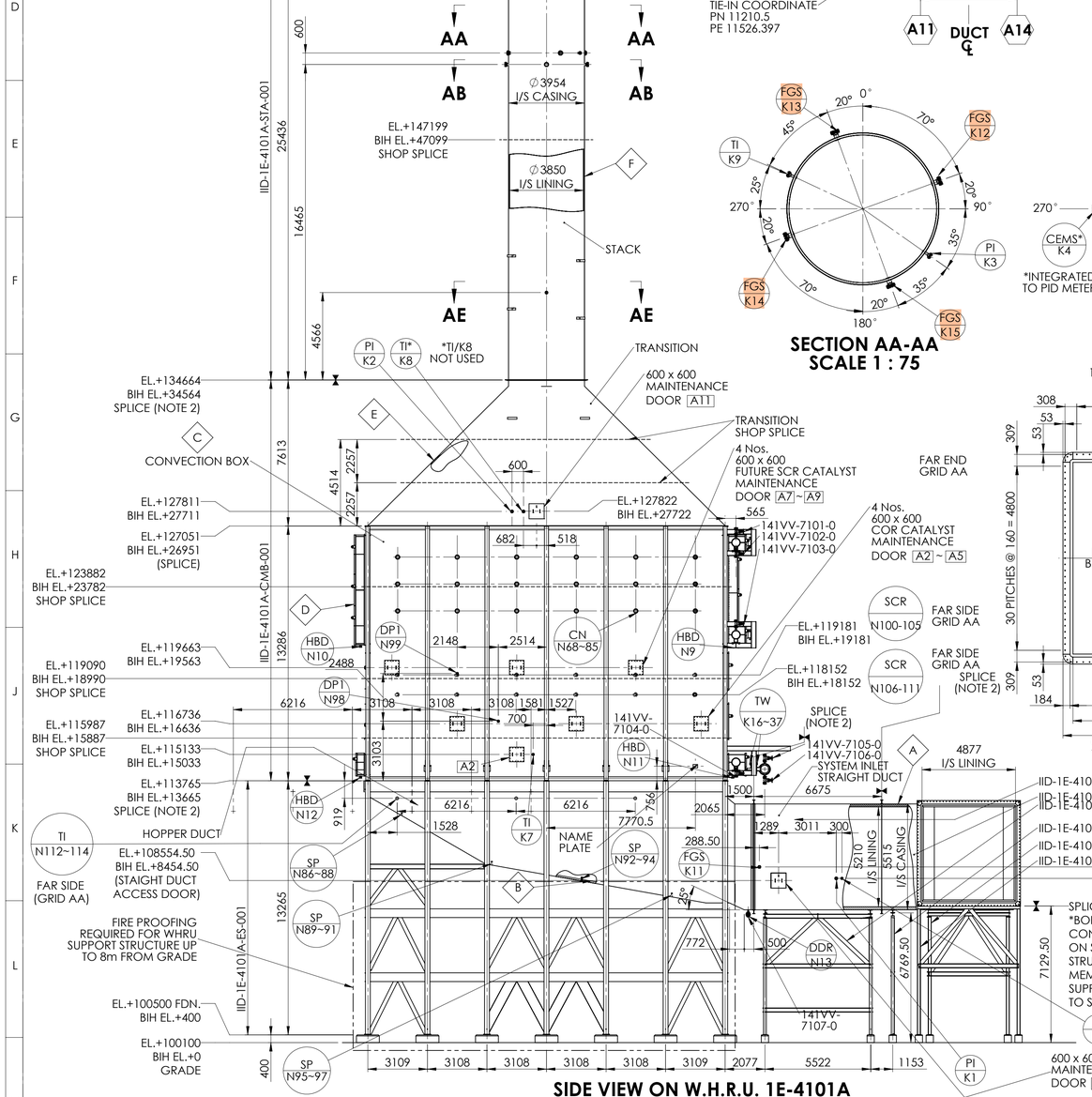
ISOMETRIC VIEW ON W.H.R.U. 1E-4101A

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — B.J.H. SMIT

2022-04-05
P#: 20987

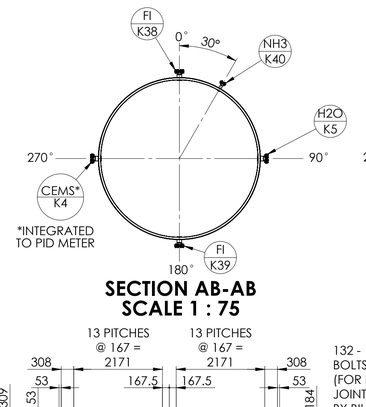


FRONT VIEW ON W.H.R.U. 1E-4101A



SIDE VIEW ON W.H.R.U. 1E-4101A

SECTION AA-AA SCALE 1 : 75



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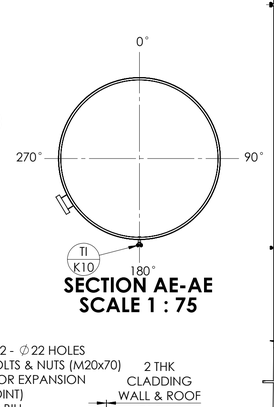

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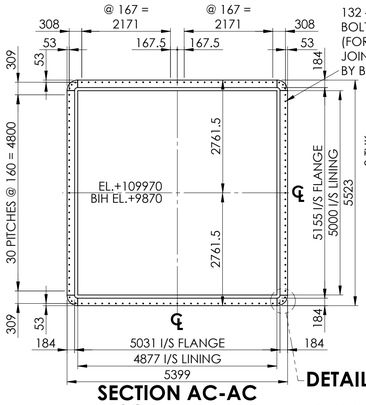

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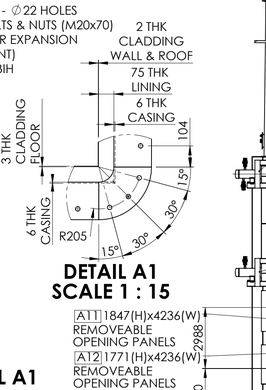
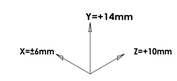


DETAIL A1 SCALE 1 : 15

DETAIL A1



DIRECTION	THERMAL GROWTH DISPLACEMENT (mm) FROM GT VENDOR	FROM WHRU/DUCTING	REMARKS
X	±6	-7.5	SEE NOTE 1
Y	+14	3	SEE NOTE 2
Z	+10	-6.3	SEE NOTE 3

NOTE 1:FROM GT FLANGE VERTICAL AXIS
NOTE 2:LOWER HORIZONTAL FLANGE IS FIXED
NOTE 3:ALONG EXHAUST FLOW AXIS

B.I.H BOUSTEAD INTERNATIONAL HEATERS Ltd. BIH

DRAWING TITLE
WASTE HEAT RECOVERY UNIT 1E-4101A GENERAL ARRANGEMENT SHEET 1 OF 4

SERVICE **HTF 1E-4101A**

FOR **JFJV / LNG CANADA**

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
ZUW	27.05.19	GLP	13.06.19	KL	13.06.19

PROCESS DESIGN REVIEW (IF APPLICABLE)	DATE	STRUCTURAL DESIGN REVIEW (IF APPLICABLE)	DATE
AK	28.05.19	LCS	28.05.19

JOB NUMBER **743** DRAWING NO. **743-1E4101A-02A** REV. **5**

REV. NO.	DESCRIPTION	BY	CHKD	APVD	DATE
2	AS BUILT	LCW	KL	KL	10.02.22
1	APPROVED FOR CONSTRUCTION	GKS	KL	ANZ	31.03.21
0	APPROVED FOR CONSTRUCTION	MIKEL	ANZ	KL	07.08.20
C	ISSUED FOR REVIEW	GKS	FA	KL	20.01.20
B	ISSUED FOR REVIEW	JLO	FA	KL	08.08.19
A	ISSUED FOR REVIEW	ZUW	GLP	KL	13.06.19

REVISIONS

JGC|FLUOR BC LNG JV

LNG CANADA Opportunity for British Columbia. Energy for the world — **LNG CANADA PROJECT**

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TITLE:
WASTE HEAT RECOVERY UNIT 1E-4101A GENERAL ARRANGEMENT SHEET 1 OF 4

UNIT: 4100
LOCATION: KITIMAT, BRITISH COLUMBIA, CANADA
PLANT: LNG CANADA

DWG No.: L001-14100-MX-4018-100053-1200 SIZE: A1 REV.: 2
FILE NAME: L001-14100-MX-4018-100053-1200_R2

NOTE: THIS DRAWING IS THE PROPERTY OF BOUSTEAD INTERNATIONAL HEATERS LTD, BURGESS HILL, SUSSEX, U.K. AND SHALL NOT BE TRACED, PHOTOGRAPHED, PHOTOSTATED OR REPRODUCED IN ANY MANNER NOR USED FOR ANY PURPOSE WHATSOEVER EXCEPT BY WRITTEN PERMISSION OF BOUSTEAD INTERNATIONAL HEATERS LTD.

DO NOT SCALE

FILENAME: K:\CAD\743 LNG Canada\GA\743-1E4101A-02A
SHEET SCALE: 1:150 ORIGINAL SIZE: A1

REV. 3 BY	DATE	CHECKED	DATE	APPROVED	DATE	REV. 5 BY	DATE	CHECKED	DATE	DESIGN REVIEW	DATE	APPROVED	DATE	REV. 4 BY	DATE	CHECKED	DATE	DESIGN REVIEW	DATE	APPROVED	DATE
MIKEL	07.08.20	ANZ	07.08.20	KL	07.08.20	LCW	10.02.22	INT	10.02.22	N/A	N/A	KL	10.02.22	GKS	03.03.21	KL	31.03.21	N/A	N/A	ANZ	31.03.21

-UPDATED AS PER CLIENT COMMENTS
-AS BUILT
-UPDATED AS PER CLIENT COMMENTS

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1 NO COMMENTS. APPROVED
Authorization to proceed does not relieve Contractor/Supplier of its responsibility or liability under the Contract and or Purchase Order
JGC FLUOR BC LNG JV
Next Issue Purpose

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END OF DOCUMENT