



**Lakeland Industry & Community Association**

**JANUARY 2024**

**Monthly Ambient Air Quality Monitoring Report**

**LICA-202401**

**Operation and Maintenance:**

Bureau Veritas Canada

**Data Validation and Report:**

Lakeland Industry & Community Association

February 26, 2024

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**February 26, 2024**

Alberta Environment and Protected Areas (EPA)

11th Floor, Oxbridge Place

9820 106 Street

Edmonton, AB, T5K 2J6

**RE: LICA – January 2024 Monthly Ambient Air Quality Monitoring Report**

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Enclosed is the January 2024 Monthly Ambient Air Quality Monitoring Report for the continuous ambient air quality monitoring stations of the Lakeland Industry & Community Association (LICA) regional air quality monitoring network.

The representative of the Person Responsible for this monitoring program is

LICA Airshed

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This report has been reviewed by Michael Bisaga of the LICA Airshed.

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## LIST OF ACRONYMS

AAAQOs	Alberta Ambient Air Quality Objectives
AEP	Alberta Environment and Parks
AMD	Air Monitoring Directive
AT	Ambient Temperature
BP	Barometric Pressure
CH <sub>4</sub>	Methane
EPEA	Environmental Protection and Enhancement Act
H <sub>2</sub> S	Hydrogen Sulphide
kph	kilometers per hour
LICA	Lakeland Industry & Community Association
mb	millibar
mm	millimeter
NMHC	Non-Methane Hydrocarbons
NO	Nitric Oxide
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Oxide of Nitrogen
PAC	Polycyclic Aromatic Compounds
ppb	parts per billion
ppm	parts per million
RH	Relative Humidity
SO <sub>2</sub>	Sulphur Dioxide
ST	Station Temperature
STDWD	Standard Deviation Wind Direction
THC	Total Hydrocarbons
TRS	Total Reduced Sulphur
VWD	Vector Wind Direction
VWS	Vector Wind Speed
WD	Wind Direction
WS	Wind Speed
°C	Degrees Celsius

NETWORK STATION SUMMARY

**Listing of Continuous Monitoring Stations and Integrated Sampling Stations**

Station Name		Cold Lake South	Tamarack	St. Lina	Lac La Biche
Station ID		1174	1248	1250	1690
Coordinates		54.41402	54.604935	54.215961	54.76516
		-110.23316	-110.452637	-111.503304	-111.9714490
Continuous Monitoring Parameter	SO2	√	√	√	√
	H2S		√	√	√
	TRS	√			
	NOX	√	√	√	√
	NOX	√	√	√	√
	NO2	√	√	√	√
	O3	√	√	√	√
	THC	√	√	√	√
	CH4	√	√	√	√
	NMHC	√	√	√	√
	RH	√	√	√	√
	BP	√	√	√	√
	AT	√	√	√	√
	ST	√	√	√	√
	PRECEIPITATION		√	√	
	WS	√	√	√	√
	WD	√	√	√	√
STDWD	√	√	√	√	
Integrated Sampling	VOCs	√			
	PAHs	√			
	Partisol	√			
	Passive	√			√
	NMHC Canister				√
	PAC			√	

**List of Contractors performing air monitoring activities**

Sampling Program	Monitoring Activities Conducted By	Sample Analysis Conducted By	Data/Report Prepared By	Electronic Submission Conducted By
Continuous Monitoring Station	Bureau Veritas Canada	Bureau Veritas Canada	LICA / Bureau Veritas Canada	LICA
Intermittent (VOCs/PAHs)	Bureau Veritas Canada	InnoTech Alberta Inc	InnoTech Alberta Inc	LICA
Partisol	Bureau Veritas Canada	InnoTech Alberta Inc	InnoTech Alberta Inc	LICA
Passive	Bureau Veritas Canada	Bureau Veritas Canada	Bureau Veritas Canada	LICA
PAC	Bureau Veritas Canada	ECCC	AEP	Not Applicable
NMHC Canister	Bureau Veritas Canada	InnoTech Alberta Inc	InnoTech Alberta Inc	Not Applicable

**Monitoring Notes during the Month of January 2024**

**All stations**

- **TRS/H2S:** Low ambient temperatures, particularly in the middle of the month, had a marked effect on TRS/H2S span results. This is a perennial problem when the moisture levels in sample air drop very low, causing TRS/H2S analyzer to respond more slowly due to the SO2 scrubber requiring a certain humidity to function optimally. Although daily span check results were often below the requirements, and the daily zero check results were occasionally close to or outside the allowable drift range (while low temperatures were occurring), experience indicates the analyzer’s performance remains in compliance with AMD performance criteria, and collected data remain valid.
- **AT:** Ambient temperatures were below the sensor recordable range (minimum= -40 °C) on January 12-14. As a result, real ambient temperatures may be lower than the readings in this report.

**Cold Lake South**

- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) where applicable.
- All parameters met the 90% operational uptime requirement, except O3 (16.1%) and THC/CH4/NMHC (57.8%). **DINC0005054**
- **O3:** A successful multi-point calibration was completed on January 4. During January 30’s repeat calibration, a leak was found in the calibrator. As a result, January 4’s calibration was deemed

invalid. Data collected between January 4 and January 30 were invalidated as a result. Six hundred twenty-four hours of downtime were recorded due to this event.

- **THC/CH4/NMHC:**
  - The analyzer failed the as-found points check on January 4. In the absence of a clear point of failure, data were invalidated back to the last multi-point calibration check, which was December 7, 2023. Five hundred eighty-two hours and eighty-three hours of downtime were recorded in December 2023 and January 2024, respectively.
  - The analyzer failed January 11's daily span check and January 12's as-found points check on January 12. Data were invalidated back to the last valid calibration check, which was January 10. A repeat calibration was completed to correct the drift on January 12. Fifty-four hours of downtime were recorded due to this event.
  - On January 18, the analyzer failed the January 15's daily span check and the January 18's shut-down calibration check. The Thermo 55i analyzer, s/n: 1180930025, was removed, and the Thermo 55i analyzer, s/n: 1433563261, was installed. The analyzer was allowed time to stabilize overnight for column conditioning. A successful installation calibration was completed on January 19. Data were invalidated back to the last valid calibration check, which was January 14. One hundred twenty-eight hours of downtime were recorded.
  - Bad injections were noted after the Thermo 55i analyzer, s/n: 1433563261, was installed. A shut-down calibration was attempted but failed on January 23. Maintenance was performed, and a successful post-repair calibration was completed afterwards on January 23. Data were invalidated back to the last valid calibration check, which was January 22. Seventeen hours of downtime were recorded.
  - As frequent bad injections continued after January 23's maintenance, the Thermo 55i analyzer, s/n: 1433563261, was removed following a successful shut-down calibration on January 29. The Thermo 55i analyzer, s/n: 1180030034, was installed. The analyzer was allowed time to stabilize overnight.
  - The Thermo 55i analyzer, s/n: 1180030034, was found noisy on January 30. It was removed and replaced by the Thermo 55i analyzer, s/n: 1236656107. A successful installation calibration was completed after the analyzer installation. Twenty-five hours of downtime were recorded.
  - 1-minute data collected between January 19 and January 30 were reviewed and discarded if data quality was affected by injection issues. Hourly data were recalculated based on the revised 1-minute data set. Seven hours of data were invalidated as hourly data completeness requirement was not met.
- **AQHI values:** During the monthly data validation, O<sub>3</sub> data collected between January 4 and January 30 were invalidated. As NO<sub>2</sub>, O<sub>3</sub> and PM<sub>2.5</sub> are the parameters used to calculate the AQHI values, the AQHI values during this period were affected; AQH values were calculated using the raw data, which means data did not go through data validation. As a result, AQHI values presented in this report were kept for *reference use. AQHI values should be used with cautions.*

## Tamarack

- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- All parameters met the 90% operational uptime requirement.
- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) where applicable.
- No major operational issues were identified this month.



### St. Lina Station

- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) where applicable.
- All parameters met the 90% operational uptime, except precipitation (85.8%).
- **Precipitation:** The precipitation gauge was found to be blocked by ice on January 25. Maintenance was completed on the gauge, and a successful gauge audit was completed. Data were invalidated back to the point the last valid reading was recorded, which was January 21 hour 20. Eighty hours of downtime were recorded.

### Lac La Biche Station

- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) where applicable.
- All parameters met the 90% operational uptime requirement, except H2S (48.8%). **DINCO005055**
- **H2S:** The analyzer failed the as-found points check on January 10. The probable cause was low ambient humidity due to extreme cold temperatures; this is known to have a detrimental effect on the analyzer's SO2 scrubber beads. A successful multi-point calibration was completed on January 11 to correct the drift. The analyzer failed each day's daily zero-span check after January 10's calibration and January 26's shut-down calibration. It was concluded that January 10's calibration was not valid; adjustments that were made during extreme cold weather conditions became inaccurate after ambient temperatures improved. The SO2 scrubber material was replaced, and a post-repair calibration was completed on January 26. Data collected between January 10 and January 26 were deemed invalid and were discarded. Three hundred eighty-one hours of downtime were recorded as a result.

### Integrated Sampling

All the integrated sampling analytical results are included in the January 2024 Integrated Sampling Report.

- **VOCs Sampling System:**
  - The VOC sampler is programmed to collect a 24-hour sample of air every sixth day as per the National Air Pollution Surveillance schedule (NAPS).
  - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
  - Six samples were collected this month: on January 1, 7, 13, 19, 25 and 31.
- **PAHs Sampling System:**
  - The PUF sampler is programmed to collect a 24-hour sample of air every sixth day as per the National Air Pollution Surveillance schedule (NAPS).
  - Six samples were collected this month: on January 1, 7, 13, 19, 25 and 31.
- **Partisol Sampling System:**
  - The Partisol sampler is programmed to collect a 24-hour sample of air every sixth day as per National Air Pollution Surveillance schedule (NAPS).
  - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
  - Six samples were collected this month: on January 1, 7, 13, 19, 25 and 31.

- **Passive Sampling System:**
  - There were no exceedances of the AAAQOs for all monitored parameters at any of the passive stations during this month.
  - The passive sample filters were installed at the stations between December 30, 2023 and January 3, and were removed between January 30 and February 2.
  - A total of 13 duplicate samples were collected: 2 for H<sub>2</sub>S, 3 for SO<sub>2</sub>, 2 for NO<sub>2</sub>, 2 for O<sub>3</sub>, 2 for HNO<sub>3</sub> and 2 for NH<sub>3</sub>.
  - Station 3: NO<sub>2</sub> membrane was found damaged and could not be analyzed.
- **PAC Sampling System:**
  - The PAC sampling program began in November 2019, and is designed to collect a 2-month integrated sample.
  - The media for the January/February monitoring period were installed January 30 and February 2. The media are scheduled to be removed by the end February.
- **NMHC canister Sampling System:**
  - The canister sampling program collects a 1-hour sample of air when the continuously non-methane hydrocarbon (NMHC) concentration reaches a specified trigger point. The current trigger point is 0.3 ppm and is based on real-time monitoring data that are averaged over a 5-minute period.
  - One canister event was recorded this month; the canister system was triggered on January 4 at 11:20 when the NMHC concentration was 0.43ppm at 11:15.

## **Revisions to Alberta's Ambient Air Quality Data Warehouse**

**Cold Lake South:** THC/CH<sub>4</sub>/NMHC data collected between December 7 hour 18 and December 31 hour 23 were deemed invalid after an analyzer check on January 4. The analyzer failed the as-found points check on January 4. In the absence of a clear point of failure, data were invalidated back to the last multi-point calibration check, which was December 7, 2023. Five hundred eighty-two hours of downtime were recorded in December 2023. Data resubmission was completed on February 27, 2024. **ETS Request #: 4647252.**

**Cold Lake South:** The PM<sub>2.5</sub> data collected in April 2020 was resubmitted. The Sharp 5030 was removed, and the Teledyne T640 analyzer was installed on April 24, 2020. The VVC code, VVC 153, should be used for data collected between April 24 and April 30, 2020, instead of VVC142. This issue only affected data information on ETS. This correction is required in preparation for AEPA's T640 data adjustment later in the year. Data resubmission was completed on February 27, 2024. **ETS request #: 4647251.**

## **Deviations from Authorized Monitoring Methods**

No deviations from authorized monitoring methods were recorded this month.

## **Disclaimer**

Baseline correction were performed on the 1-minute data. 5-minute and hourly data were calculated based on the post-baseline correction 1-minute data set. Data verification/validation were then performed on the 5-minute and hourly data. Hourly data that are included in this report are the post-validation hourly data set.

Equipment calibration / maintenance records were provided by Bureau Veritas Canada.

## Certification

This report was prepared and submitted by Lily Lin in accordance with Chapter 9 of the Air Monitoring Directive (AMD 2016).



Lily Lin, Data & Reporting Specialist, LICA Airshed

This report was reviewed by Michael Bisaga in accordance with Chapter 9 of the Air Monitoring Directive (AMD 2016).

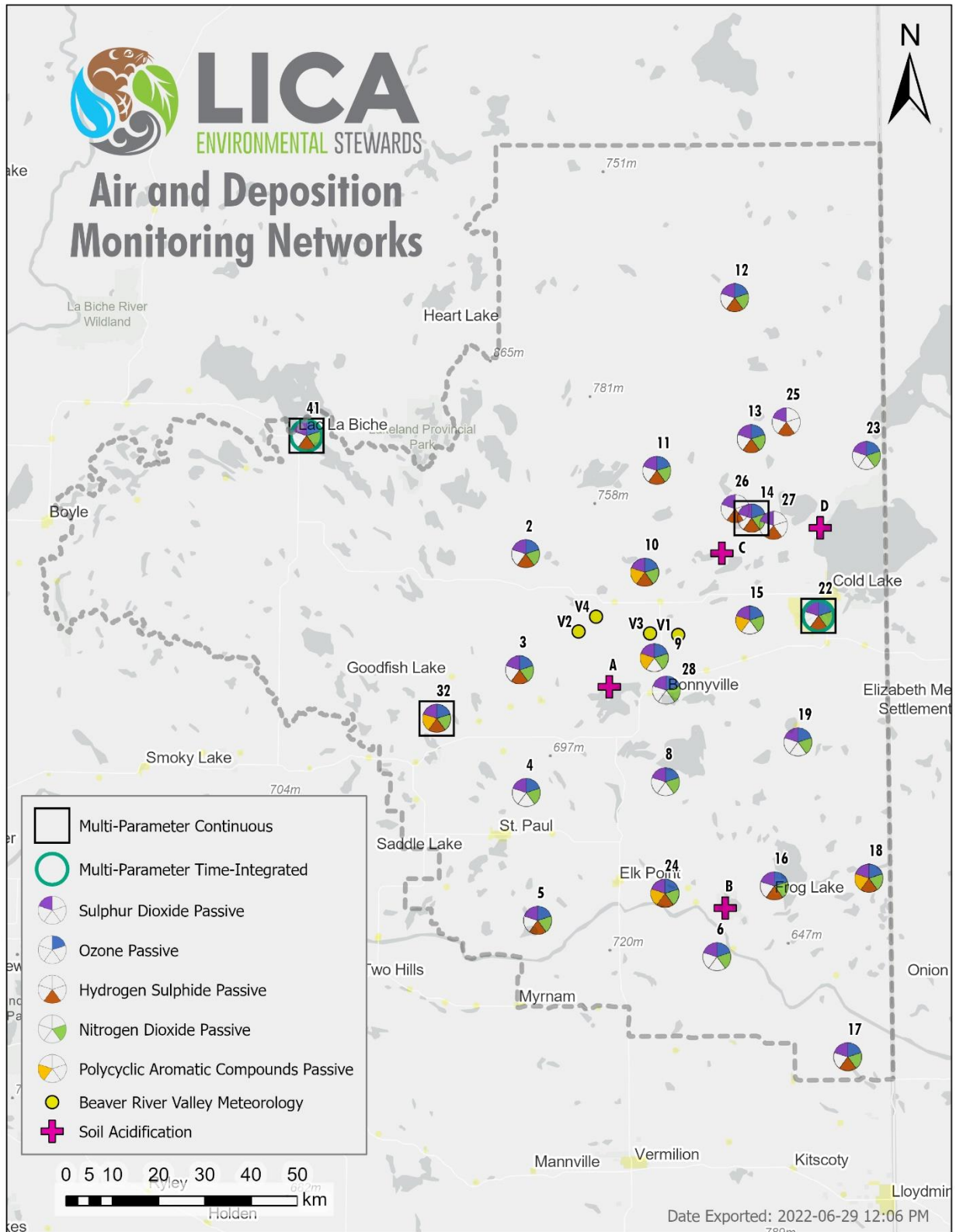
I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements. I also certify that at the time of this report's submission, all air data have been electronically uploaded to Alberta's Ambient Air Quality Data Warehouse as required by the AMD. Uploading of VOC data from the canister sampling program was not required at the time of completing this report.



Michael Bisaga, Monitoring Programs Manager, LICA Airshed

February 26, 2024

# Map of LICA Continuous Monitoring Network



## CONTINUOUS NETWORK EQUIPMENT AND MONITORING RESULTS SUMMARY

### Cold Lake South Station

#### Equipment Operation Summary

Parameter	Calibration Date	Equipment Operational Summary
<b>SO2</b>  Thermo 43i-TLE #1180260018	January 28, 2024	<ul style="list-style-type: none"> <li>A successful monthly calibration was completed on January 5.</li> <li>The sample pump failed on January 26. The pump was repaired on January 28, and a post-repair calibration was completed afterwards. Forty-three hours of downtime were recorded due to this event.</li> </ul>
<b>TRS</b>  Thermo 450i #812728560  <b>TRS convertor</b> CD Nova CDN-101 #501	January 7, 2024	<ul style="list-style-type: none"> <li>A successful monthly calibration was completed on January 5.</li> <li>The analyzer failed the daily span checks, starting January 14 due to a weak sample pump. Following a successful shut-down calibration on January 18, the sample pump was repaired. A successful post-repair calibration was completed afterwards. As the analyzer passed the January 18's shut down calibration, data collected between January 14 and January 18 were considered valid. However, seven hours of downtime were recorded due to the maintenance activities.</li> </ul>
<b>NOx/NO/NO2</b>  Thermo 42i #1505664393	January 6, 2024	<ul style="list-style-type: none"> <li>Hourly data collected on January 12 hour 10 was discarded as data quality was affected by a random analyzer issue (high PMT temperature). The problem corrected itself spontaneously.</li> </ul>
<b>O3</b>  Thermo 49iQ #12208316585	January 30, 2024	<ul style="list-style-type: none"> <li>A successful multi-point calibration was completed on January 4.</li> <li>During January 30's repeat calibration, a leak was found in the calibrator. As a result, January 4's calibration was deemed invalid. Data collected between January 4 and January 30 were invalidated as a result. Six hundred twenty-four hours of downtime were recorded due to this event.</li> </ul>
<b>PM2.5</b>  Teledyne T640 #575	January 4, 2024	<ul style="list-style-type: none"> <li>No operational issues were identified.</li> </ul>

Parameter	Calibration Date	Equipment Operational Summary
<p><b>THC/CH4/NMHC</b></p> <p>Thermo 55i  #1180930025  #1433563261  #1180030034  #1236656107</p> <p><b>H2 Generator</b>  HG300  #210567071</p>	<p>January 30, 2024</p>	<ul style="list-style-type: none"> <li>• The analyzer failed the as-found points check on January 4. In the absence of a clear point of failure, data were invalidated back to the last multi-point calibration check, which was December 7, 2023. Five hundred eighty-two hours and eighty-three hours of downtime were recorded in December 2023 and January 2024, respectively.</li> <li>• The analyzer failed January 11’s daily span check and January 12’s as-found points check on January 12. Data were invalidated back to the last valid calibration check, which was January 10. A repeat calibration was completed to correct the drift on January 12. Fifty-four hours of downtime were recorded due to this event.</li> <li>• On January 18, the analyzer failed the January 15’s daily span check and the January 18’s shut-down calibration check. The Thermo 55i analyzer, s/n: 1180930025, was removed, and the Thermo 55i analyzer, s/n: 1433563261, was installed. The analyzer was allowed time to stabilize overnight for column conditioning. A successful installation calibration was completed on January 19. Data were invalidated back to the last valid calibration check, which was January 14. One hundred twenty-eight hours of downtime were recorded.</li> <li>• Bad injections were noted after the Thermo 55i analyzer, s/n: 1433563261, was installed. A shut-down calibration was attempted but failed on January 23. Maintenance was performed, and a successful post-repair calibration was completed afterwards on January 23. Data were invalidated back to the last valid calibration check, which was January 22. Seventeen hours of downtime were recorded.</li> <li>• As frequent bad injections continued after January 23’s maintenance, the Thermo 55i analyzer, s/n: 1433563261, was removed following a successful shut-down calibration on January 29. As frequent bad injections continued after January 23’s maintenance, the Thermo 55i analyzer, s/n: 1433563261, was removed following a successful shut-down calibration on January 29. The Thermo 55i analyzer, s/n: 1180030034, was installed. The analyzer was allowed time to stabilize overnight.</li> <li>• The Thermo 55i analyzer, s/n: 1180030034, was found noisy on January 30. It was removed and replaced by the Thermo 55i analyzer, s/n: 1236656107. A successful installation calibration was</li> </ul>

		<p>completed after the analyzer installation. Twenty-five hours of downtime were recorded.</p> <ul style="list-style-type: none"> <li>1-minute data collected between January 19 and January 30 were reviewed and discarded if data quality was affected by injection issues. Hourly data were recalculated based on the revised 1-minute data set. Seven hours of data were invalidated as hourly data completeness requirement was not met.</li> </ul>
<b>Parameter</b>	<b>Verification Date</b>	<b>Equipment Operational Summary</b>
<b>RH</b>  Rotronic HC2A-S3 #20257103	January 5, 2024	<ul style="list-style-type: none"> <li>No operational issues were identified.</li> </ul>
<b>BP</b>  Met One 092 #Y23368	January 5, 2024	<ul style="list-style-type: none"> <li>No operational issues were identified.</li> </ul>
<b>AT</b>  Rotronic HC2A-S3 #20257103	January 5, 2024	<ul style="list-style-type: none"> <li>No operational issues were identified.</li> </ul>
<b>ST</b>  COMET #NA	January 5, 2024	<ul style="list-style-type: none"> <li>No operational issues were identified.</li> </ul>
<b>WS/WD/STDWD</b>  RM Young 05305AQ #177354	January 5, 2024	<ul style="list-style-type: none"> <li>Wind direction data contained in this report represents where the wind is coming from.</li> <li>An annual wind system calibration was completed on December 27, 2023.</li> <li>No operational issues were identified.</li> </ul>



**Monitored Data Summary for Cold Lake South Station**

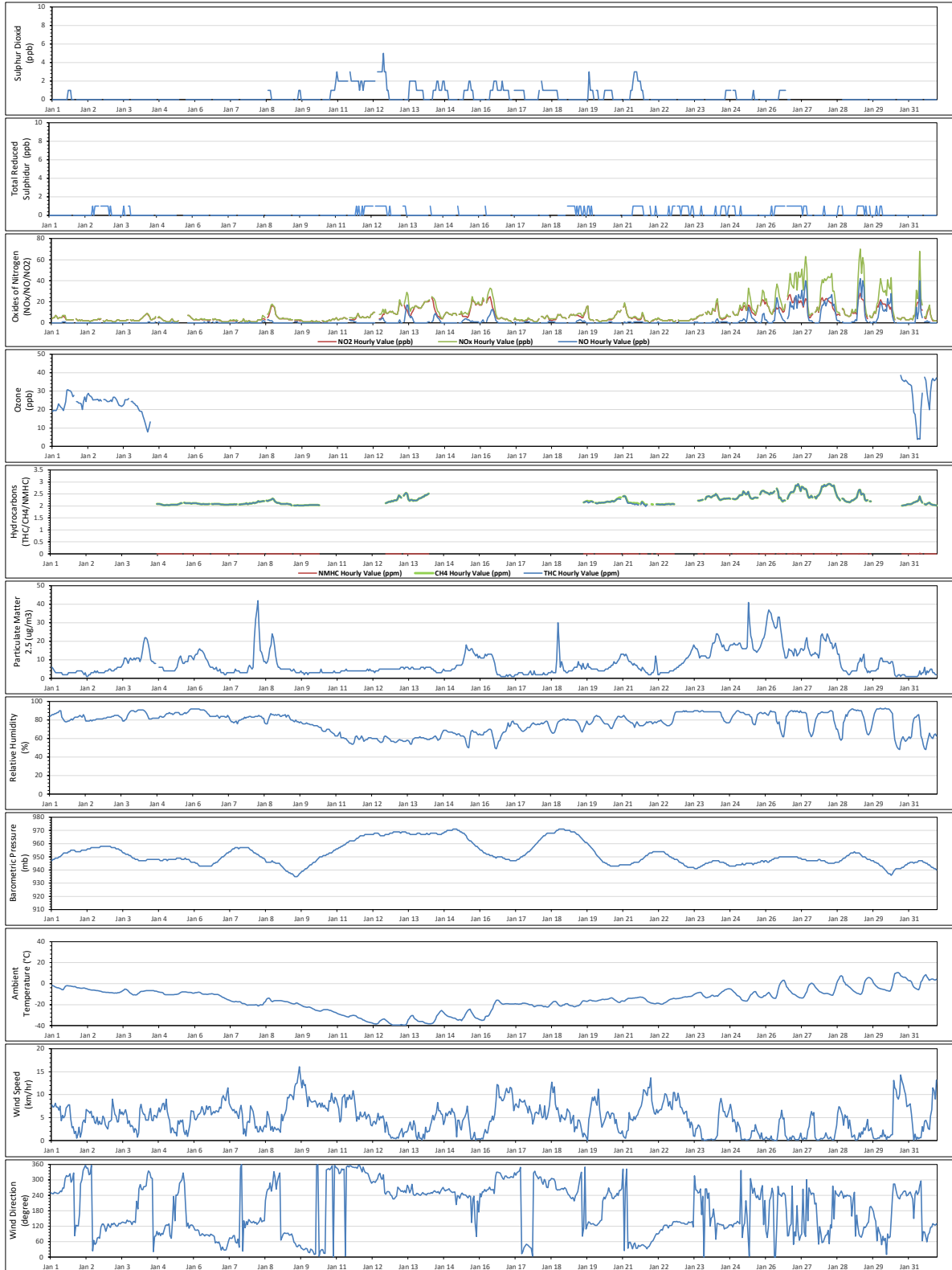
Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.4	0	5	Jan 12 at hr 14	5.4	WNW	2.0	Jan 11	94.2	89.6
TRS (ppb)	-	-	-	-	-	-	0.2	0	1	Jan 2 at hr 12	3.9	ENE	0.8	Jan 12	99.1	94.2
NOx (ppb)	-	-	-	-	-	-	9.6	1	70	Jan 29 at hr 7	0.7	E	30.3	Jan 27	99.9	94.7
NO (ppb)	-	-	-	-	-	-	2.4	0	42	Jan 29 at hr 7	0.7	E	14.4	Jan 27	99.9	94.7
NO2 (ppb)	159	-	-	0	-	-	7.2	1	28	Jan 29 at hr 7	0.7	E	15.8	Jan 27	99.9	94.7
O3 (ppb)	76	-	-	0	-	-	NA	3.8	38.6	Jan 30 at hr 17	14.3	WSW	25.8	Jan 31	16.1	14.8
THC (ppm)	-	-	-	-	-	-	NA	1.98	2.92	Jan 27 at hr 3	0.1	E	2.60	Jan 27	57.8	54.3
CH4 (ppm)	-	-	-	-	-	-	NA	2.01	2.92	Jan 28 at hr 5	0.4	NE	2.60	Jan 27	57.8	54.3
NMHC (ppm)	-	-	-	-	-	-	NA	0.00	0.02	Jan 28 at hr 7	0.2	ESE	0.00	Jan 26	57.8	54.3
PM2.5 (µg/m3)	80	29	-	0	0	-	8.1	1	42	Jan 8 at hr 5	1.9	SE	23.7	Jan 26	100.0	99.7
RH (%)	-	-	-	-	-	-	76.8	48	93	Jan 30 at hr 0	1.1	E	89.3	Jan 23	100.0	100.0
BP (millibar)	-	-	-	-	-	-	952	935	971	Jan 15 at hr 1	6.2	WSW	968	Jan 13	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-15.3	-39.5	10.6	Jan 30 at hr 15	9	SW	1.8	Jan 31	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	23.0	18.5	25.4	Jan 30 at hr 13	11.1	WSW	23.9	Jan 30	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	0.6	0.0	16.1	Jan 9 at hr 16	16.1	NE	9.7	Jan 9	100.0	100.0
WDV (sector)	-	-	-	-	-	-	16 (NNE)	-	-	-	-	-	-	-	100.0	100.0

1- Date/ Time given is the first minimum and maximum value that was recorded

**Alberta Ambient Air Quality Objectives (AAQOs) and/or Alberta Ambient Air Quality Guidelines (AAQGs) Exceedances**

The measured ambient air quality was within the AAQOs and/or AAQGs for all monitored parameters.

Timeseries Chart of Hourly Average for the month of Jan 2024 - Cold Lake South Station



## Tamarack Station

### Equipment Operation Summary

Parameter	Calibration Date	Equipment Operational Summary
<b>SO2</b>  Thermo 43i-TLE #1180930031	January 24, 2024	<ul style="list-style-type: none"> <li>The January 13's scheduled zero-span check (hour 4) were interrupted and did not complete. A successful repeat zero-span check was completed at hour 7.</li> <li>Fifteen hours of downtime were recorded due to intermittent polling errors this month. A zero-span check was completed after the datalogger reset.</li> </ul>
<b>H2S</b>  Thermo 450i #CM17360005	January 24, 2024	<ul style="list-style-type: none"> <li>The January 13's scheduled zero-span check (hour 4) were interrupted and did not complete. A successful repeat zero-span check was completed at hour 7.</li> <li>Fifteen hours of downtime were recorded due to intermittent polling errors this month. A zero-span check was completed after the datalogger reset.</li> </ul>
<b>NOx/NO/NO2</b>  Thermo 42i #1180930028	January 24, 2024	<ul style="list-style-type: none"> <li>Hourly data collected on January 9 hour 3 was invalidated due to bad injections. One hour of downtime was recorded.</li> <li>The January 13's scheduled zero-span check (hour 4) were interrupted and did not complete. A successful repeat zero-span check was completed at hour 7.</li> <li>Maintenance was performed on the H2 generator on January 24. One hour of downtime was recorded.</li> <li>Fifteen hours of downtime were recorded due to intermittent polling errors this month. A zero-span check was completed after the datalogger reset.</li> </ul>
<b>THC/CH4/NMHC</b>  Thermo 55i #1505664392	January 25, 2024	<ul style="list-style-type: none"> <li>The January 13's scheduled zero-span check (hour 4) were interrupted and did not complete. A successful repeat zero-span check was completed at hour 7.</li> <li>Fifteen hours of downtime were recorded due to intermittent polling errors this month. A zero-span check was completed after the datalogger reset.</li> </ul>
<b>O3</b>  Thermo 49i #1002240371	January 25, 2024	<ul style="list-style-type: none"> <li>The January 13's scheduled zero-span check (hour 4) were interrupted and did not complete. A successful repeat zero-span check was completed at hour 7.</li> <li>Fifteen hours of downtime were recorded due to intermittent polling errors this month. A zero-span check was completed after the datalogger reset.</li> </ul>
<b>PM2.5</b>  Thermo Sharp 5030 #CM2209	January 25, 2024	<ul style="list-style-type: none"> <li>No major operational issues were identified.</li> <li>Fifteen hours of downtime were recorded due to intermittent polling errors this month.</li> </ul>

Parameter	Verification Date	Equipment Operational Summary
<b>RH</b> Rotronic HC2A-S3 #20433166	January 25, 2024	<ul style="list-style-type: none"> <li>Fifteen hours of downtime were recorded due to intermittent polling errors this month.</li> </ul>
<b>BP</b> Met One 090D #F4497	January 25, 2024	<ul style="list-style-type: none"> <li>Fifteen hours of downtime were recorded due to intermittent polling errors this month.</li> </ul>
<b>AT</b> Rotronic HC2A-S3 #20433166	January 25, 2024	<ul style="list-style-type: none"> <li>Fifteen hours of downtime were recorded due to intermittent polling errors this month.</li> </ul>
<b>ST</b> COMET #NA	January 25, 2024	<ul style="list-style-type: none"> <li>Fifteen hours of downtime were recorded due to intermittent polling errors this month.</li> </ul>
<b>Precipitation</b> MetOne 387 #C13580	January 25, 2024	<ul style="list-style-type: none"> <li>Fifteen hours of downtime were recorded due to intermittent polling errors this month.</li> </ul>
<b>WS/WD/STDWD</b> RM Young 05305VK #161465	January 25, 2024	<ul style="list-style-type: none"> <li>Wind direction data contained in this report represents where the wind is coming from.</li> <li>An annual wind system calibration was completed on September 17, 2023.</li> <li>An internal station audit was conducted by BV on</li> <li>Fifteen hours of downtime were recorded due to intermittent polling errors this month.</li> </ul>

**Monitored Data Summary for Tamarack Site**

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.9	0	10	Jan 14 at hr 12	5.3	NW	3.4	Jan 18	98.0	93.1
H2S (ppb)	10	3	-	0	0	-	0.0	0	1	Jan 18 at hr 17	6.7	WNW	0.0	Jan 1	98.0	93.1
NOx (ppb)	-	-	-	-	-	-	6.9	0	54	Jan 25 at hr 9	1	SE	20.3	Jan 25	98.0	92.8
NO (ppb)	-	-	-	-	-	-	1.0	0	34	Jan 25 at hr 9	1	SE	5.6	Jan 25	98.0	92.8
NO2 (ppb)	159	-	-	0	-	-	5.9	0	26	Jan 25 at hr 21	2.7	SW	17.3	Jan 26	98.0	92.8
O3 (ppb)	76	-	-	0	-	-	23.8	1.8	47.7	Jan 30 at hr 15	9.8	WSW	36.3	Jan 31	98.0	93.0
THC (ppm)	-	-	-	-	-	-	2.08	1.93	2.87	Jan 18 at hr 17	6.7	WNW	2.51	Jan 26	97.7	92.7
CH4 (ppm)	-	-	-	-	-	-	2.08	1.92	2.78	Jan 26 at hr 5	5.9	SSW	2.51	Jan 26	97.7	92.7
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.36	Jan 13 at hr 10	0.5	WNW	0.03	Jan 13	97.7	92.7
PM2.5 (µg/m3)	80	29	-	0	0	-	6.3	0	49	Jan 26 at hr 4	5.5	SSW	23.0	Jan 26	98.0	97.8
RH (%)	-	-	-	-	-	-	81.8	36	100	Jan 4 at hr 1	4.2	SW	96.7	Jan 23	98.0	98.0
BP (millibar)	-	-	-	-	-	-	936	919	955	Jan 13 at hr 3	0	N	952	Jan 13	98.0	98.0
Ext. Temp. (°C)	-	-	-	-	-	-	-14.9	-39.9	11.2	Jan 30 at hr 14	12.3	W	3.8	Jan 31	98.0	98.0
Stn. Temp. (°C)	-	-	-	-	-	-	20.2	18.1	23.2	Jan 25 at hr 12	0.6	WNW	21.9	Jan 24	98.0	98.0
Precipitation (mm)*	-	-	-	-	-	-	1.9	0.0	0.3	Jan 4 at hr 23	7.8	SE	1.0	Jan 5	98.0	97.8
WSV (km/hr)	-	-	-	-	-	-	0.7	0.0	16.3	Jan 30 at hr 11	16.3	WNW	8.6	Jan 9	98.0	98.0
WDV (sector)	-	-	-	-	-	-	8 (N)	-	-	-	-	-	-	-	98.0	98.0

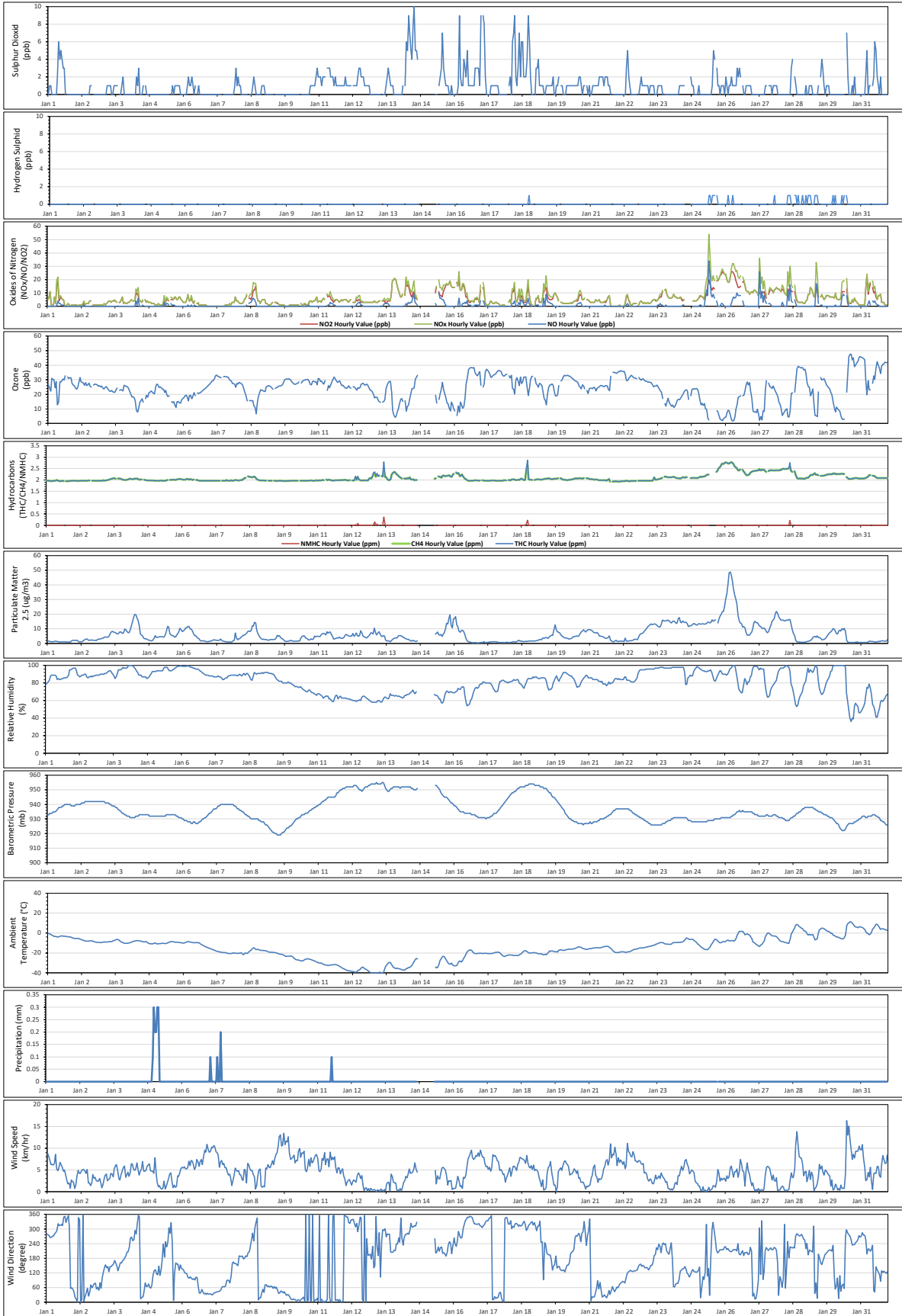
1- Date/ Time given is the first minimum and maximum value that was recorded

\* Data represents the total (sum) for the indicated time frame

**Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) Exceedances**

The measured ambient air quality was within the AAAQOs and/or AAAQGs for all monitored parameters.

Timeseries Chart of Hourly Average for the month of Jan 2024 - Tamarack Site



**St. Lina Station**

**Equipment Operation Summary**

Parameter	Calibration Date	Equipment Operational Summary
<p><b>SO2</b></p> <p>Thermo 43i #1226154720</p>	<p>January 25, 2024</p>	<ul style="list-style-type: none"> <li>• Five hours of downtime were recorded on January 7 due to a power failure.</li> <li>• The January 10's scheduled zero-span check (hour 15) were interrupted and did not complete. A successful repeat zero-span check was completed on January 11 at hour 8. One hour of downtime was recorded.</li> <li>• Data collected between January 13 hour 17 and January 14 hour 6 were lost due to a datalogger issue. Data logger was reset, and a repeat zero-span check was completed on January 14 hour 7. Fifteen hours of downtime were recorded due to this event.</li> </ul>
<p><b>H2S</b></p> <p>Teledyne T100 #1014</p>	<p>January 25, 2024</p>	<ul style="list-style-type: none"> <li>• The analyzer spanned low between January 1 and January 10. This was due to the change in oven setpoint at the December calibration (and a subsequently high expected span value) rather than an issue with the analyzer drift.</li> <li>• Five hours of downtime were recorded on January 7 due to a power failure.</li> <li>• The January 10's scheduled zero-span check (hour 15) were interrupted and did not complete. A successful repeat zero-span check was completed on January 11 at hour 8. One hour of downtime was recorded.</li> <li>• Data collected between January 13 hour 17 and January 14 hour 6 were lost due to a datalogger issue. Data logger was reset, and a repeat zero-span check was completed on January 14 hour 7. Fifteen hours of downtime were recorded due to this event.</li> </ul>
<p><b>NOx/NO/NO2</b></p> <p>Thermo 42i #1180930029</p>	<p>January 24, 2024</p>	<ul style="list-style-type: none"> <li>• Five hours of downtime were recorded on January 7 due to a power failure.</li> <li>• The January 10's scheduled zero-span check (hour 15) were interrupted and did not complete. A successful repeat zero-span check was completed on January 11 at hour 8. One hour of downtime was recorded.</li> <li>• Data collected between January 13 hour 17 and January 14 hour 6 were lost due to a datalogger issue. Data logger was reset, and a repeat zero-span check was completed on January 14 hour 7. Fifteen hours of downtime were recorded due to this event.</li> </ul>

Parameter	Calibration Date	Equipment Operational Summary
<b>PM2.5</b>  Thermo Sharp 5030i #CM17091001	January 25, 2024	<ul style="list-style-type: none"> <li>• Five hours of downtime were recorded on January 7 due to a power failure.</li> <li>• Data collected between January 13 hour 17 and January 14 hour 6 were lost due to a datalogger issue. Data logger was reset on January 14 hour 7. Fourteen hours of downtime were recorded due to this event.</li> </ul>
<b>O3</b>  Thermo 49iQ #12208316586	January 25, 2024	<ul style="list-style-type: none"> <li>• Five hours of downtime were recorded on January 7 due to a power failure.</li> <li>• The January 10's scheduled zero-span check (hour 15) were interrupted and did not complete. A successful repeat zero-span check was completed on January 11 at hour 8. One hour of downtime was recorded.</li> <li>• Data collected between January 13 hour 17 and January 14 hour 6 were lost due to a datalogger issue. Data logger was reset, and a repeat zero-span check was completed on January 14 hour 7. Fifteen hours of downtime were recorded due to this event.</li> </ul>
<b>THC/CH4/NMHC</b>  Thermo 55i # 1180930026	January 24, 2024	<ul style="list-style-type: none"> <li>• Five hours of downtime were recorded on January 7 due to a power failure.</li> <li>• The January 10's scheduled zero-span check (hour 15) were interrupted and did not complete. A successful repeat zero-span check was completed on January 11 at hour 8. One hour of downtime was recorded.</li> <li>• Data collected between January 13 hour 17 and January 14 hour 6 were lost due to a datalogger issue. Data logger was reset, and a repeat zero-span check was completed on January 14 hour 7. Fifteen hours of downtime were recorded due to this event.</li> </ul>
Parameter	Verification Date	Equipment Operational Summary
<b>RH</b>  Rotronic HC2A-S3 #20404750	January 25, 2024	<ul style="list-style-type: none"> <li>• Five hours of downtime were recorded on January 7 due to a power failure.</li> <li>• Data collected between January 13 hour 17 and January 14 hour 6 were lost due to a datalogger issue. Data logger was reset on January 14 hour 7. Fourteen hours of downtime were recorded due to this event.</li> </ul>
<b>BP</b>  Met One 090D #F4498	January 25, 2024	<ul style="list-style-type: none"> <li>• Five hours of downtime were recorded on January 7 due to a power failure.</li> <li>• Data collected between January 13 hour 17 and January 14 hour 6 were lost due to a datalogger issue. Data logger was reset on January 14 hour 7. Fourteen hours of downtime were recorded due to this event.</li> </ul>



Parameter	Verification Date	Equipment Operational Summary
<b>AT</b>  Rotronic HC2A-S3 #20404750	January 25, 2024	<ul style="list-style-type: none"> <li>• Five hours of downtime were recorded on January 7 due to a power failure.</li> <li>• Data collected between January 13 hour 17 and January 14 hour 6 were lost due to a datalogger issue. Data logger was reset on January 14 hour 7. Fourteen hours of downtime were recorded due to this event.</li> </ul>
<b>ST</b>  COMET #NA	January 25, 2024	<ul style="list-style-type: none"> <li>• Five hours of downtime were recorded on January 7 due to a power failure.</li> <li>• Data collected between January 13 hour 17 and January 14 hour 6 were lost due to a datalogger issue. Data logger was reset on January 14 hour 7. Fourteen hours of downtime were recorded due to this event.</li> </ul>
<b>Precipitation</b>  MetOne 387D #A23775	January 25, 2024	<ul style="list-style-type: none"> <li>• Five hours of downtime were recorded on January 7 due to a power failure.</li> <li>• Data collected between January 13 hour 17 and January 14 hour 6 were lost due to a datalogger issue. Data logger was reset on January 14 hour 7. Fourteen hours of downtime were recorded due to this event.</li> <li>• The precipitation gauge was found to be blocked by ice on January 25. Maintenance was completed on the gauge, and a successful gauge audit was completed. Data were invalidated back to the point the last valid reading was recorded, which was January 21 hour 20. Eighty hours of downtime were recorded.</li> </ul>
<b>WS/WD/STDWD</b>  RM Young 05305VK #161466	January 25, 2024	<ul style="list-style-type: none"> <li>• Wind direction data contained in this report represents where the wind is coming from.</li> <li>• An annual wind system calibration was completed on December 20, 2023.</li> <li>• Five hours of downtime were recorded on January 7 due to a power failure.</li> <li>• Data collected between January 13 hour 17 and January 14 hour 6 were lost due to a datalogger issue. Data logger was reset on January 14 hour 7. Fourteen hours of downtime were recorded due to this event.</li> </ul>

**Monitored Data Summary for St. Lina Site**

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.2	0	3	Jan 24 at hr 10	10.8	SSE	1.2	Jan 24	97.2	92.2
H2S (ppb)	10	3	-	0	0	-	0.0	0	1	Jan 24 at hr 13	9.9	ESE	0.0	Jan 1	97.2	92.2
NOx (ppb)	-	-	-	-	-	-	4.5	0	34	Jan 26 at hr 5	13.3	WSW	18.3	Jan 26	97.2	92.0
NO (ppb)	-	-	-	-	-	-	0.2	0	9	Jan 15 at hr 11	7.6	SW	1.8	Jan 26	97.2	92.0
NO2 (ppb)	159	-	-	0	-	-	4.3	0	32	Jan 26 at hr 5	13.3	WSW	16.5	Jan 26	97.2	92.0
O3 (ppb)	76	-	-	0	-	-	25.4	0.2	49.0	Jan 30 at hr 13	21.5	WNW	38.5	Jan 31	97.2	92.2
THC (ppm)	-	-	-	-	-	-	2.03	1.91	2.41	Jan 25 at hr 20	11.3	SW	2.32	Jan 25	97.2	92.3
CH4 (ppm)	-	-	-	-	-	-	2.03	1.91	2.41	Jan 25 at hr 20	11.3	SW	2.32	Jan 25	97.2	92.3
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.01	Jan 13 at hr 16	3.4	E	0.00	Jan 26	97.2	92.3
PM2.5 (µg/m3)	80	29	-	0	0	-	7.9	0	40	Jan 26 at hr 1	12.3	SW	27.4	Jan 24	97.4	97.3
RH (%)	-	-	-	-	-	-	79.9	30	96	Jan 1 at hr 21	3.7	WSW	93.5	Jan 4	97.4	97.4
BP (millibar)	-	-	-	-	-	-	919	901	938	Jan 15 at hr 1	7.3	W	935	Jan 18	97.4	97.4
Ext. Temp. (°C)	-	-	-	-	-	-	-14.2	-39.6	12.7	Jan 30 at hr 13	21.5	WNW	6.3	Jan 30	97.4	97.4
Stn. Temp. (°C)	-	-	-	-	-	-	20.8	19.0	22.9	Jan 3 at hr 4	8.4	SE	22.6	Jan 5	97.4	97.4
Precipitation (mm)*	-	-	-	-	-	-	2.6	0.0	0.3	Jan 12 at hr 23	2.4	NW	1.7	Jan 21	85.8	85.6
WSV (km/hr)	-	-	-	-	-	-	1.8	0.1	27.3	Jan 30 at hr 10	27.3	WNW	17.9	Jan 30	97.4	97.4
WDV (sector)	-	-	-	-	-	-	253 (WSW)	-	-	-	-	-	-	-	97.4	97.4

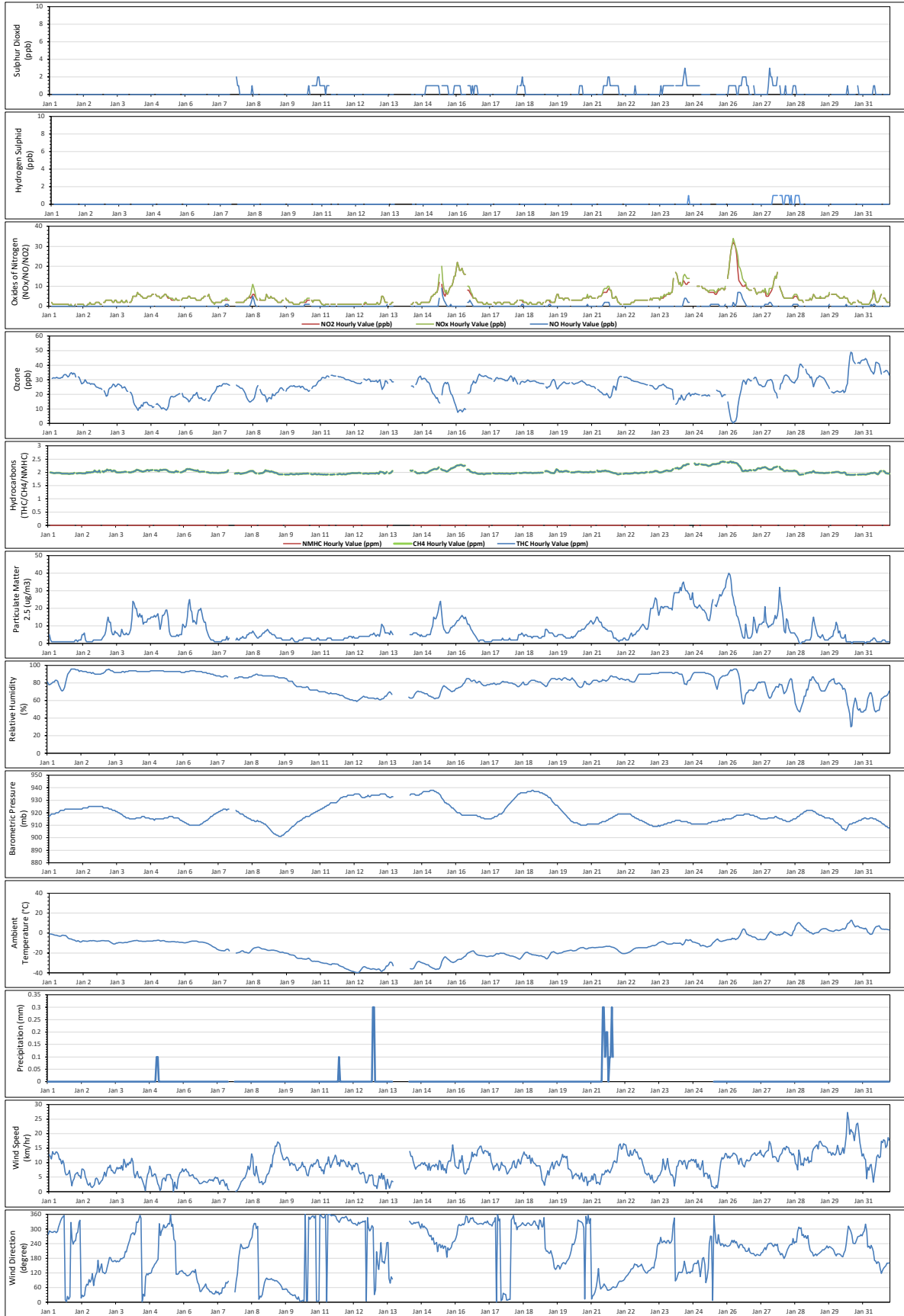
1- Date/ Time given is the first minimum and maximum value that was recorded

\* Data represents the total (sum) for the indicated time frame

**Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) Exceedances**

The measured ambient air quality was within the AAAQOs and/or AAAQGs for all monitored parameters.

Timeseries Chart of Hourly Average for the month of Jan 2024 - St. Lina Site



## Lac La Biche Station

### Equipment Operation Summary

Parameter	Calibration Date	Equipment Operational Summary
<b>SO2</b>  Thermo 43i-TLE #1180320043	January 10, 2024	<ul style="list-style-type: none"> <li>No operational issues were identified this month.</li> </ul>
<b>H2S</b>  Thermo 450i #CM17360002	January 26, 2024	<ul style="list-style-type: none"> <li>The analyzer failed the as-found points check on January 10. The probable cause was low ambient humidity due to extreme cold temperatures; this is known to have a detrimental effect on the analyzer's SO2 scrubber beads. A successful multi-point calibration was completed on January 11 to correct the drift.</li> <li>The analyzer failed each day's daily zero-span check after January 10's calibration and January 26's shut-down calibration. It was concluded that January 10's calibration was not valid; adjustments that were made during extreme cold weather conditions became inaccurate after ambient temperatures improved. The SO2 scrubber material was replaced, and a post-repair calibration was completed on January 26. Data collected between January 10 and January 26 were deemed invalid and were discarded. Three hundred eighty-one hours of downtime were recorded as a result.</li> </ul>
<b>NOx/NO/NO2</b>  Thermo 42i #1180930027	January 10, 2024	<ul style="list-style-type: none"> <li>No operational issues were identified this month.</li> </ul>
<b>O3</b>  Thermo 49i #1002240372	January 09, 2024	<ul style="list-style-type: none"> <li>The analyzer failed the daily zero-span checks from December 21, 2023 onwards. The problem was traced to the failed zero-span pump. The zero-span pump was replaced on January 3 following by a successful zero-span check. The issue did not affect the analyzer's performance. One hour of downtime was recorded due to the additional quality check.</li> <li>The January 10's scheduled zero-span check (hour 15) were interrupted and did not complete. A successful repeat zero-span check was completed at hour 21 and hour 22. Two hours of downtime were recorded due to this additional quality check.</li> </ul>

Parameter	Calibration Date	Equipment Operational Summary
<b>THC/CH4/NMHC</b>  Thermo 55i #1180030044	January 11, 2024	<ul style="list-style-type: none"> <li>The analyzer failed on January 8 due to the carrier (N2) gas depletion. The N2 gas cylinder was replaced on January 9. Nineteen hours of downtime were recorded.</li> <li>The January 10's scheduled zero-span check (hour 15) were interrupted and did not complete. A successful repeat zero-span check was completed at hour 21 and hour 18. One hour of downtime was recorded due to this additional quality check.</li> </ul>
<b>PM2.5</b>  Thermo Sharp 5030i #CM17071016	January 11, 2024	<ul style="list-style-type: none"> <li>No operational issues were identified this month.</li> </ul>
Parameter	Verification Date	Equipment Operational Summary
<b>RH</b>  Rotronic HC2A-S3 #0020357518	January 11, 2024	<ul style="list-style-type: none"> <li>No operational issues were recorded this month.</li> </ul>
<b>BP</b>  Met One 092 #Y23360	January 11, 2024	<ul style="list-style-type: none"> <li>No operational issues were recorded this month.</li> </ul>
<b>AT</b>  Rotronic HC2A-S3 #0020357518	January 11, 2024	<ul style="list-style-type: none"> <li>No operational issues were recorded this month.</li> </ul>
<b>ST</b>  COMET #NA	January 11, 2024	<ul style="list-style-type: none"> <li>No operational issues were recorded this month.</li> </ul>
<b>WS/WD/STDWD</b>  RM Young 05305VK #56778	January 11, 2024	<ul style="list-style-type: none"> <li>Wind direction data contained in this report represents where the wind is coming from.</li> <li>The last annual wind system calibration was completed on September 15, 2023.</li> <li>No operational issues were recorded this month.</li> </ul>

**Monitored Data Summary for Lac La Biche Station**

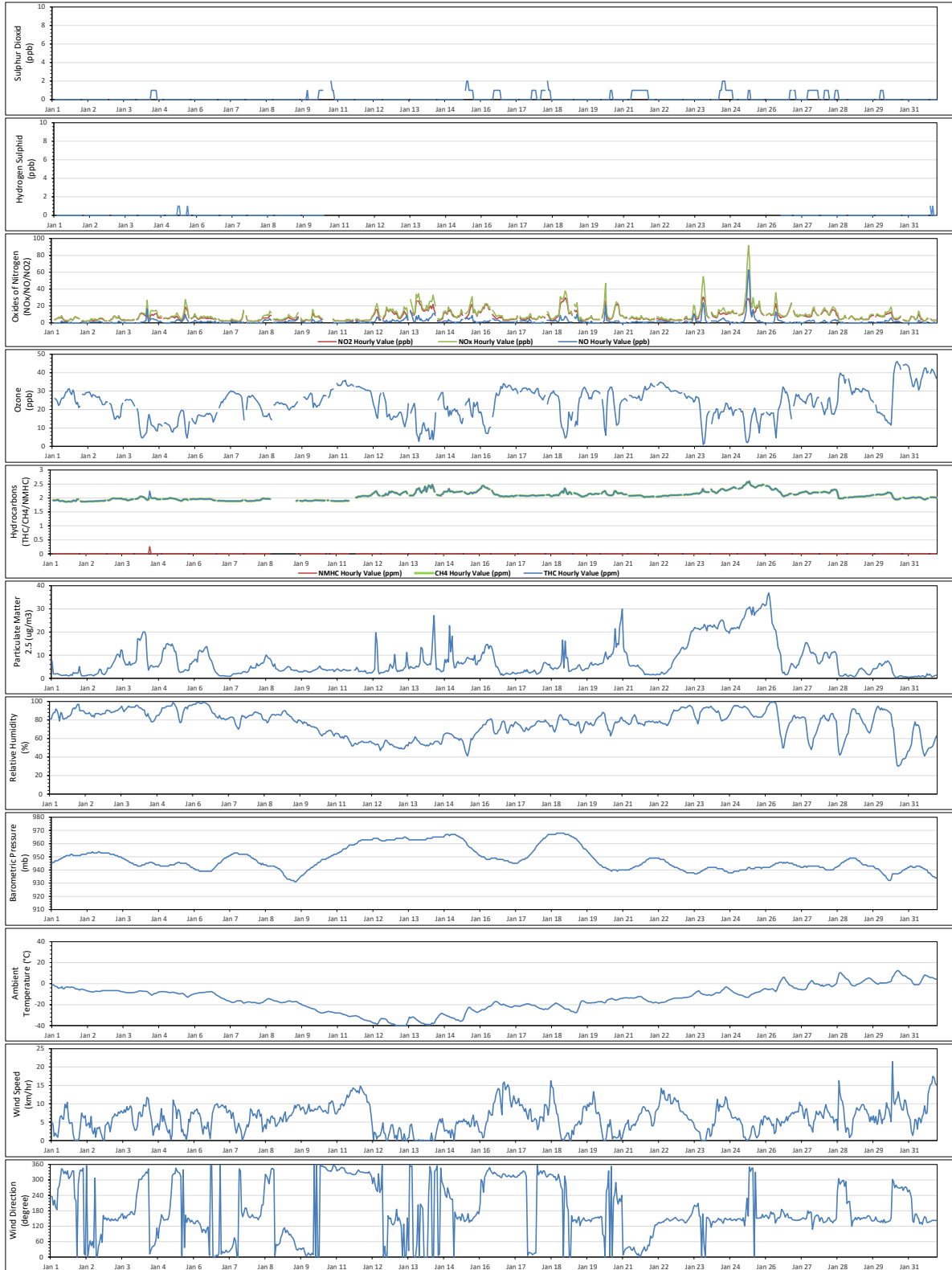
Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.1	0	2	Jan 10 at hr 18	10.1	NNW	0.6	Jan 21	100.0	94.9
H2S (ppb)	10	3	-	0	0	-	NA	0	1	Jan 5 at hr 8	9	NW	0.0	Jan 1	48.8	46.2
NOx (ppb)	-	-	-	-	-	-	9.5	1	92	Jan 25 at hr 9	0.2	SSE	26.4	Jan 25	100.0	94.6
NO (ppb)	-	-	-	-	-	-	1.9	0	63	Jan 25 at hr 9	0.2	SSE	10.6	Jan 25	100.0	94.6
NO2 (ppb)	159	-	-	0	-	-	7.5	1	31	Jan 23 at hr 19	0	SSE	15.7	Jan 25	100.0	94.6
O3 (ppb)	76	-	-	0	-	-	23.4	1.0	46.1	Jan 30 at hr 14	11.5	W	37.9	Jan 31	99.6	94.7
THC (ppm)	-	-	-	-	-	-	2.08	1.86	2.60	Jan 25 at hr 10	0.6	N	2.44	Jan 25	97.3	92.3
CH4 (ppm)	-	-	-	-	-	-	2.08	1.86	2.60	Jan 25 at hr 10	0.6	N	2.44	Jan 25	97.3	92.3
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.26	Jan 4 at hr 11	7.1	NNE	0.01	Jan 4	97.3	92.3
PM2.5 (µg/m3)	80	29	-	0	0	-	7.5	0	37	Jan 26 at hr 2	6.3	SSE	28.3	Jan 25	100.0	99.7
RH (%)	-	-	-	-	-	-	76.4	30	100	Jan 26 at hr 4	4.9	S	93.1	Jan 6	100.0	100.0
BP (millibar)	-	-	-	-	-	-	948	931	968	Jan 18 at hr 16	7.4	WNW	966	Jan 18	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-14.3	-39.9	12.4	Jan 30 at hr 15	13.3	W	5.5	Jan 30	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	23.8	18.0	25.0	Jan 24 at hr 18	7.8	SSE	24.4	Jan 22	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	0.5	0.0	21.5	Jan 30 at hr 10	21.5	WNW	12.1	Jan 11	100.0	100.0
WDV (sector)	-	-	-	-	-	-	93 (E)	-	-	-	-	-	-	-	100.0	100.0

1- Date/ Time given is the first minimum and maximum value that was recorded

**Alberta Ambient Air Quality Objectives (AAQOs) and/or Alberta Ambient Air Quality Guidelines (AAQGs) Exceedances**

The measured ambient air quality was within the AAQOs and/or AAQGs for all monitored parameters.

Timeseries Chart of Hourly Average for the month of Jan 2024 - Lac La Biche Station



## TABLES AND CHARTS

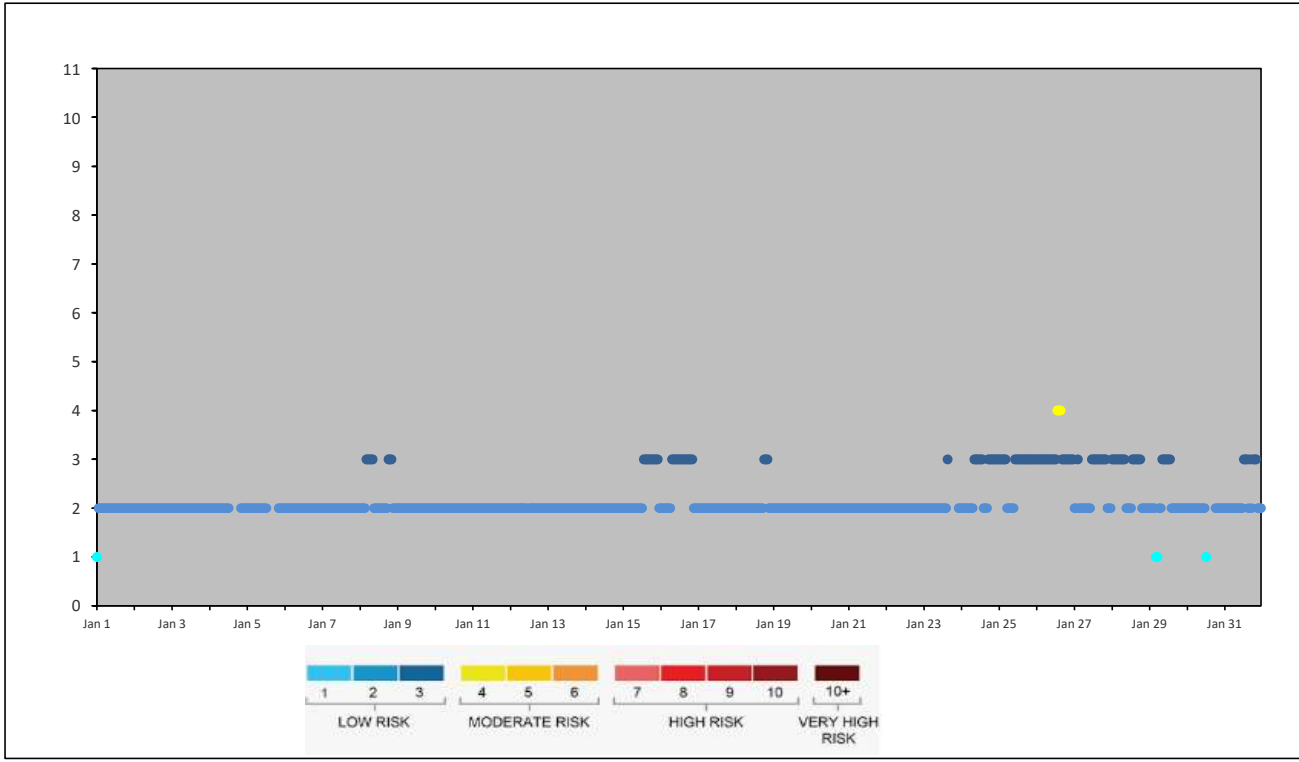


**COLD LAKE SOUTH STATION**

**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION**  
**Cold Lake South Station - January 2024**

**AIR QUALITY HEALTH INDEX**

Day	Hourly Period Starting at (MST)																							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan 1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 8	2	2	2	2	3	3	3	3	3	2	2	2	2	2	2	2	2	2	3	3	3	2	2	2
Jan 9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 15	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3
Jan 16	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2
Jan 17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	2
Jan 19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 24	2	2	2	2	2	2	2	2	3	3	3	3	3	3	2	2	2	2	3	3	3	3	3	3
Jan 25	3	3	3	3	3	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Jan 26	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	3	3	3	3	3	3	3	3
Jan 27	2	2	3	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	2	2	2
Jan 28	3	3	3	3	3	3	3	3	3	2	2	2	2	3	3	3	3	3	3	2	2	2	2	2
Jan 29	2	2	2	2	1	1	2	2	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2
Jan 30	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	2	2	2	2	2	2
Jan 31	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	3	2	3	3	3	2	2	2



**Notes:** During the monthly data validation, O3 data collected between January 4 and January 30 were invalidated. As NO2, O3 and PM2.5 are the parameters used to calculate the AQHI value, the AQHI values during this period were affected; AQH values were calculated using the raw data, which means data did not go through data validation. As a result, AQHI values presented in this report were kept for *reference use*. *Data should be used with cautions*.

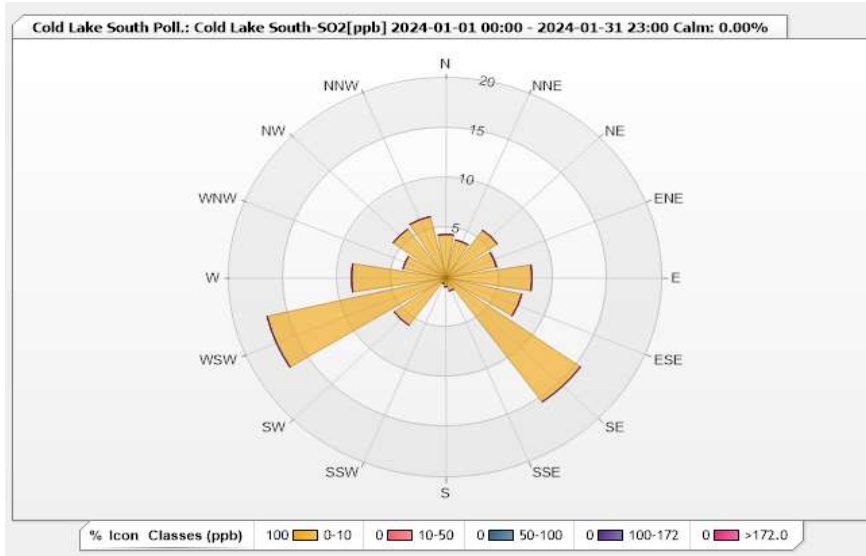


**Station: Cold Lake South Poll.: Cold Lake South-SO2[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 89.65%      Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	4.35	0	0	0	0	4.35
NNE	3.9	0	0	0	0	3.9
NE	5.85	0	0	0	0	5.85
ENE	4.8	0	0	0	0	4.8
E	7.95	0	0	0	0	7.95
ESE	7.2	0	0	0	0	7.2
SE	15.29	0	0	0	0	15.29
SSE	1.35	0	0	0	0	1.35
S	0.9	0	0	0	0	0.9
SSW	0.6	0	0	0	0	0.6
SW	5.85	0	0	0	0	5.85
WSW	16.94	0	0	0	0	16.94
W	8.7	0	0	0	0	8.7
WNW	4.05	0	0	0	0	4.05
NW	6	0	0	0	0	6
NNW	6.3	0	0	0	0	6.3
Summary	100	0	0	0	0	100



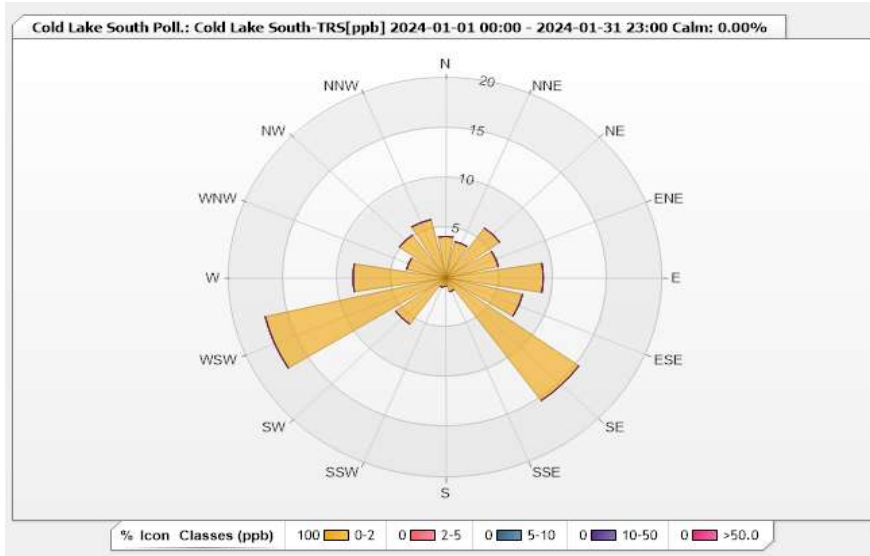


**Station: Cold Lake South Poll.: Cold Lake South-TRS[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 94.22%      Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	4.14	0	0	0	0	4.14
NNE	3.71	0	0	0	0	3.71
NE	6.13	0	0	0	0	6.13
ENE	4.99	0	0	0	0	4.99
E	8.99	0	0	0	0	8.99
ESE	7.28	0	0	0	0	7.28
SE	15.12	0	0	0	0	15.12
SSE	1.43	0	0	0	0	1.43
S	0.86	0	0	0	0	0.86
SSW	1	0	0	0	0	1
SW	5.71	0	0	0	0	5.71
WSW	17.12	0	0	0	0	17.12
W	8.56	0	0	0	0	8.56
WNW	3.71	0	0	0	0	3.71
NW	5.28	0	0	0	0	5.28
NNW	5.99	0	0	0	0	5.99
Summary	100	0	0	0	0	100



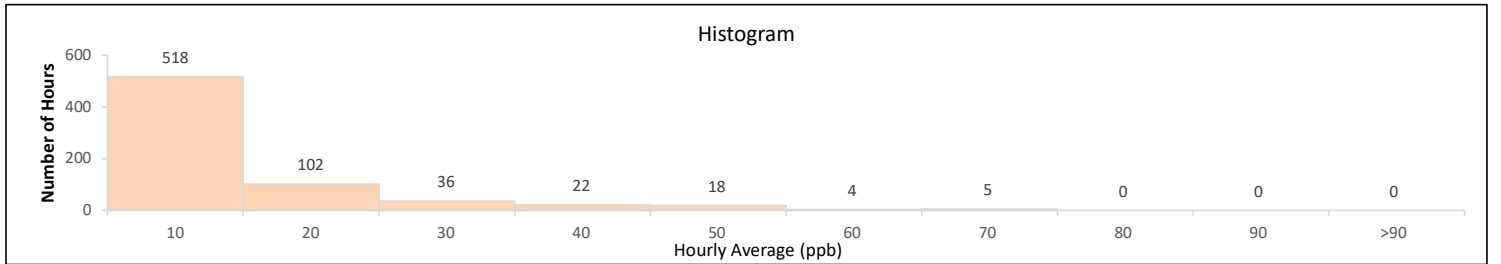
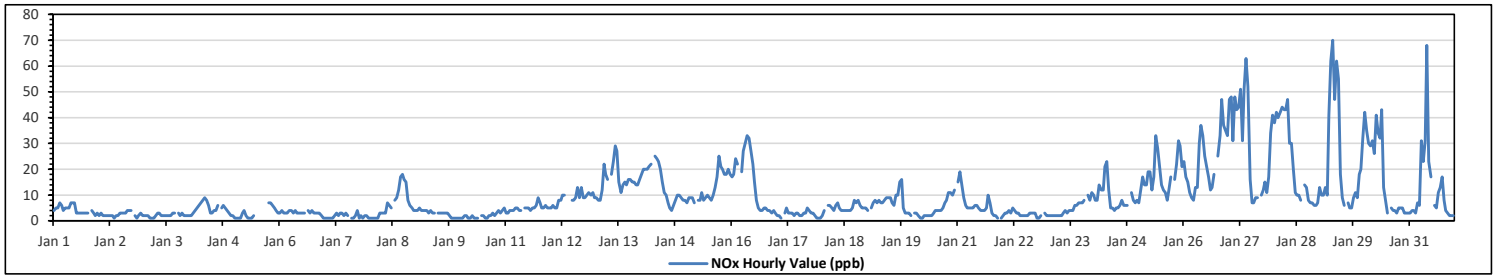
**Lakeland Industry & Community Association**  
**Cold Lake South Station - January 2024**  
**Summary of Hourly Averages**  
**OXIDES OF NITROGEN (NOx) in ppb**

Maximum Hourly Value:	70	ppb	on Jan 29 at hr 7	Hours in Service:	744
Maximum Daily Value:	30.3	ppb	on Jan 27	Hours of Data:	705
Minimum Hourly Value:	1	ppb	on Jan 2 at hr 8	Hours of Missing Data:	1
Minimum Daily Value:	1.8	ppb	on Jan 7	Hours of Calibration:	38
Monthly Average:	9.6	ppb		Operational Uptime:	99.9

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23		
Jan 1	4	5	5	7	6	4	5	5	5	7	7	7	3	3	3	3	3	3	3	3	3	4	3	2	3	2	7	4.3	
Jan 2	2	3	2	2	2	2	2	2	2	1	2	2	3	3	3	3	4	4	4	4	S	2	1	2	3	2	1	4	2.4
Jan 3	2	2	2	1	1	1	2	3	3	2	2	2	2	2	2	3	3	S	S	3	2	3	2	2	2	2	1	3	2.1
Jan 4	2	2	3	4	5	6	7	8	9	8	6	3	3	4	4	6	S	S	5	6	5	4	3	2	2	2	2	9	4.7
Jan 5	1	1	1	1	3	4	2	1	1	1	2	C	C	C	C	C	C	C	C	7	7	6	5	4	3	1	7	NA	
Jan 6	3	4	3	3	3	4	4	3	4	3	3	3	3	3	S	S	4	3	4	3	3	3	3	2	1	1	4	3.1	
Jan 7	1	1	1	1	1	2	3	2	3	3	2	3	2	S	S	1	1	2	4	1	2	1	2	2	1	1	4	1.8	
Jan 8	1	1	1	1	1	3	3	3	3	3	7	6	5	S	S	8	9	12	17	18	16	15	8	6	5	4	1	18	6.7
Jan 9	4	4	5	4	4	4	4	3	4	3	3	3	S	S	3	3	3	3	3	2	1	1	1	1	1	1	5	2.9	
Jan 10	1	1	2	2	1	1	2	1	1	1	S	S	2	2	1	1	2	2	3	2	3	4	3	4	5	1	5	2.0	
Jan 11	3	3	4	4	4	5	5	4	4	S	S	5	5	4	5	5	6	9	7	5	5	6	5	5	3	3	9	4.9	
Jan 12	5	6	5	5	8	8	10	10	S	S	13	X	8	8	9	13	9	13	9	9	10	11	10	11	9	5	13	9.0	
Jan 13	9	8	8	12	22	18	16	S	S	18	23	29	27	15	11	14	15	14	16	16	15	15	14	14	16	8	29	15.9	
Jan 14	18	20	20	20	21	22	S	S	25	24	23	20	15	11	10	7	5	4	6	8	10	10	9	8	8	4	25	14.1	
Jan 15	7	9	9	9	7	S	S	8	8	11	8	9	10	9	8	10	13	17	25	21	20	18	18	20	18	7	25	12.7	
Jan 16	17	18	24	22	S	S	19	27	30	33	32	27	22	15	8	5	4	4	5	5	4	4	3	4	3	3	33	14.6	
Jan 17	2	2	1	S	S	3	5	3	3	3	2	3	2	2	3	3	3	5	4	3	3	2	1	1	1	1	5	2.6	
Jan 18	2	4	S	S	6	6	5	4	6	7	5	4	4	4	4	4	5	8	7	8	6	5	5	5	5	2	8	5.1	
Jan 19	4	S	5	7	8	7	8	7	7	8	9	9	9	9	7	6	10	10	15	16	5	3	3	3	2	2	16	7.3	
Jan 20	S	3	3	2	1	1	2	2	2	2	2	3	4	4	4	4	5	7	8	11	11	10	12	S	1	1	12	4.7	
Jan 21	15	19	14	9	6	5	5	5	5	6	6	5	4	4	4	5	10	7	3	2	2	1	S	1	1	1	19	6.2	
Jan 22	2	3	3	4	3	5	4	3	3	2	2	2	2	2	2	3	3	3	3	1	1	2	S	3	2	1	5	2.7	
Jan 23	2	2	2	2	2	2	2	2	2	3	4	3	4	4	4	6	6	7	7	7	8	S	10	8	11	2	11	4.7	
Jan 24	10	8	8	14	12	12	21	23	12	5	5	4	5	5	6	8	6	6	6	6	S	11	8	7	8	4	23	9.1	
Jan 25	7	12	17	14	14	19	19	12	17	33	28	21	14	12	11	8	12	17	S	S	16	22	31	29	21	7	33	17.7	
Jan 26	23	17	15	11	9	8	13	13	30	37	33	25	21	17	12	13	18	S	S	25	33	47	37	35	33	8	47	22.8	
Jan 27	47	48	31	48	43	44	51	31	51	63	52	16	7	7	9	9	S	S	10	12	15	11	17	34	41	7	63	30.3	
Jan 28	38	42	40	42	44	43	43	47	30	30	20	11	10	10	8	S	14	13	8	7	7	6	6	7	6	47	22.9		
Jan 29	13	10	10	13	10	41	62	70	47	62	55	18	9	6	S	7	5	5	9	11	9	18	20	32	5	70	23.6		
Jan 30	42	35	30	29	31	26	41	34	32	43	13	8	3	S	5	4	4	3	5	5	5	3	3	3	3	3	43	17.7	
Jan 31	3	4	4	3	7	6	31	23	31	68	23	17	S	6	5	11	13	17	8	4	3	2	2	2	2	2	68	12.7	
Diurnal Maximum	47	48	40	48	44	44	62	70	51	68	55	27	21	17	14	15	18	25	33	47	37	35	41						
Diurnal Average	9.7	9.9	9.3	10.1	9.6	11.1	13.6	13.0	13.5	16.9	13.1	9.1	6.5	6.0	5.9	6.3	7.6	8.4	7.8	8.0	8.0	8.1	8.6	8.4					

<b>C</b> Month Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>ND</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b> Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

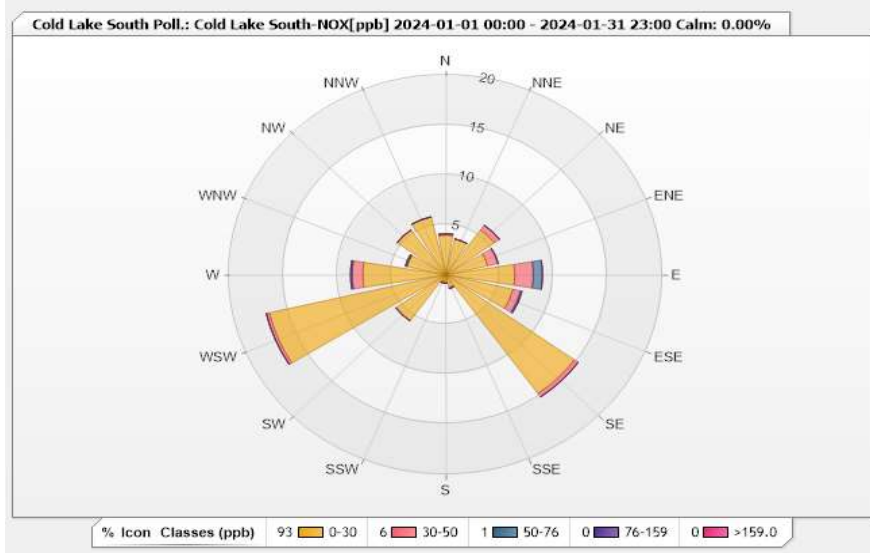


**Station: Cold Lake South Poll.: Cold Lake South-NOX[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 94.76%      Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	3.97	0.14	0	0	0	4.11
NNE	3.69	0	0	0	0	3.69
NE	5.53	0.57	0	0	0	6.1
ENE	3.97	0.99	0	0	0	4.96
E	6.38	1.7	0.85	0	0	8.93
ESE	6.38	0.71	0.14	0	0	7.23
SE	14.61	0.43	0	0	0	15.04
SSE	1.28	0.14	0	0	0	1.42
S	0.85	0	0	0	0	0.85
SSW	0.71	0.14	0	0	0	0.85
SW	5.67	0	0	0	0	5.67
WSW	16.74	0.28	0	0	0	17.02
W	7.66	0.99	0.14	0	0	8.79
WNW	3.69	0	0.14	0	0	3.83
NW	5.53	0	0	0	0	5.53
NNW	5.96	0	0	0	0	5.96
Summary	92.62	6.09	1.27	0	0	100





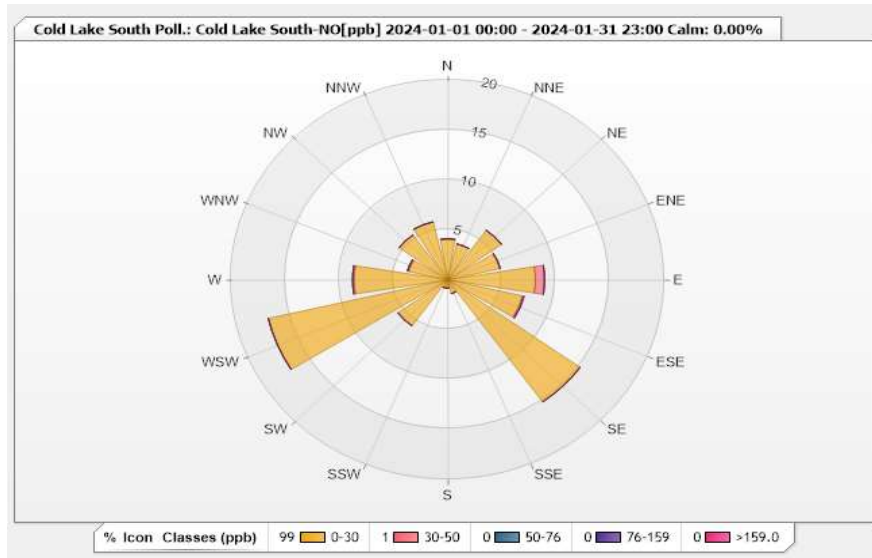


**Station: Cold Lake South Poll.: Cold Lake South-NO[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 94.76%      Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	4.11	0	0	0	0	4.11
NNE	3.69	0	0	0	0	3.69
NE	6.1	0	0	0	0	6.1
ENE	4.96	0	0	0	0	4.96
E	8.09	0.85	0	0	0	8.94
ESE	7.09	0.14	0	0	0	7.23
SE	15.04	0	0	0	0	15.04
SSE	1.42	0	0	0	0	1.42
S	0.85	0	0	0	0	0.85
SSW	0.85	0	0	0	0	0.85
SW	5.67	0	0	0	0	5.67
WSW	17.02	0	0	0	0	17.02
W	8.65	0.14	0	0	0	8.79
WNW	3.69	0.14	0	0	0	3.83
NW	5.53	0	0	0	0	5.53
NNW	5.96	0	0	0	0	5.96
Summary	98.72	1.27	0	0	0	100

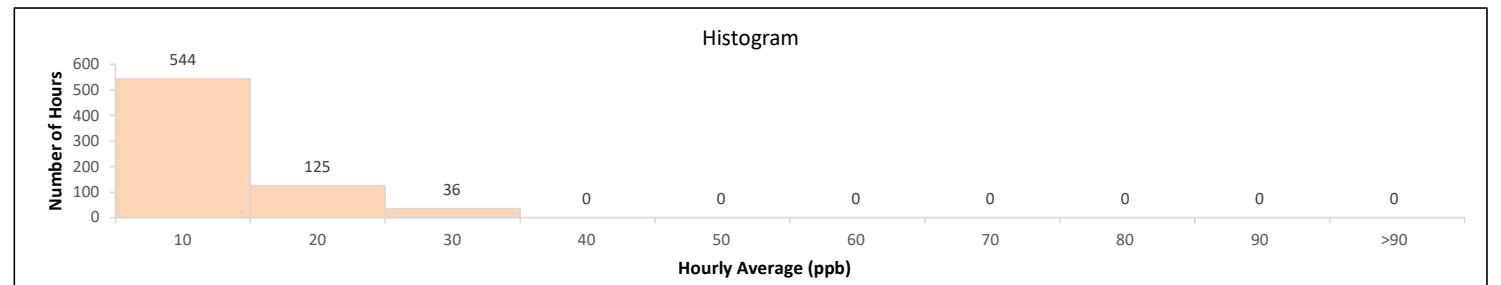
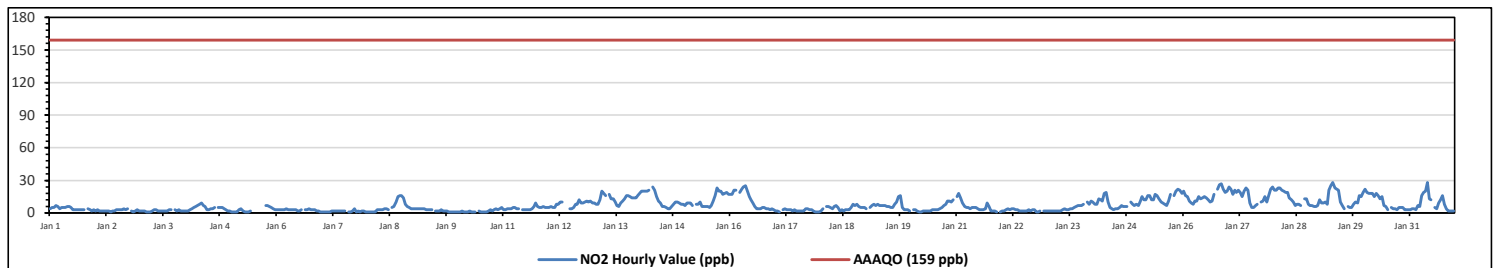


**Lakeland Industry & Community Association**  
**Cold Lake South Station - January 2024**  
**Summary of Hourly Averages**  
**NITROGEN DIOXIDE (NO<sub>2</sub>) in ppb**

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb																												
Number of 1-Hour Exceedances: 0																												
Maximum Hourly Value: 28 ppb on Jan 29 at hr 7												Hours in Service: 744																
Maximum Daily Value: 15.8 ppb on Jan 27												Hours of Data: 705																
Minimum Hourly Value: 1 ppb on Jan 2 at hr 8												Hours of Missing Data: 1																
Minimum Daily Value: 1.7 ppb on Jan 7												Hours of Calibration: 38																
Monthly Average: 7.2 ppb												Operational Uptime: 99.9																
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Jan 1	4	5	5	7	6	4	5	5	5	6	6	5	3	3	3	3	3	3	3	S	4	3	2	3	2	7	4.2	
Jan 2	2	3	2	2	2	2	2	2	1	2	2	3	3	3	4	3	4	S	2	1	2	3	2	2	1	4	2.4	
Jan 3	2	2	2	1	1	1	2	3	3	2	2	2	2	2	3	3	S	3	2	3	2	2	2	2	1	3	2.1	
Jan 4	2	2	3	4	5	6	7	8	9	7	6	3	4	4	5	S	5	5	5	4	3	2	2	2	2	9	4.5	
Jan 5	1	1	1	1	3	4	2	1	1	1	2	C	C	C	C	C	C	7	7	6	5	4	3	2	1	7	NA	
Jan 6	3	3	3	3	3	4	3	3	3	3	3	2	2	3	S	3	3	4	3	3	3	2	2	1	1	4	2.8	
Jan 7	1	1	1	1	1	2	2	2	2	2	2	2	2	S	1	1	2	4	1	2	1	2	2	1	1	4	1.7	
Jan 8	1	1	1	1	1	3	3	3	3	4	4	3	S	5	6	10	15	16	16	14	8	6	5	4	1	16	5.8	
Jan 9	4	4	4	4	4	4	4	3	3	3	S	S	2	2	2	3	2	2	2	1	1	1	1	1	1	4	2.6	
Jan 10	1	1	2	1	1	1	2	1	1	1	S	2	1	1	1	2	2	3	2	3	4	3	4	5	1	5	1.9	
Jan 11	3	3	4	4	4	5	5	4	4	S	3	3	3	3	3	4	6	9	6	5	5	6	5	5	3	9	4.4	
Jan 12	5	6	5	5	8	8	10	10	S	10	X	4	4	4	5	8	8	12	9	9	10	11	10	11	9	4	12	8.0
Jan 13	9	8	8	12	20	18	16	S	17	13	13	10	7	6	9	11	13	16	16	15	14	14	14	16	6	20	12.8	
Jan 14	18	20	20	20	20	21	S	24	21	15	11	9	6	6	5	4	6	8	10	10	9	8	8	4	4	24	12.3	
Jan 15	7	9	9	9	7	S	8	8	10	6	6	6	6	5	7	11	16	23	20	20	17	18	19	17	5	23	11.5	
Jan 16	17	17	21	21	S	19	22	24	25	20	15	12	9	6	4	4	5	5	4	4	3	4	3	3	3	25	11.7	
Jan 17	2	2	1	S	3	4	3	3	3	2	3	2	2	2	2	2	4	4	3	3	2	1	1	1	1	4	2.4	
Jan 18	2	4	S	S	6	6	5	4	6	7	5	2	3	2	3	3	5	8	7	8	6	5	5	5	2	8	4.8	
Jan 19	4	S	5	7	8	7	8	7	7	7	6	6	5	5	8	10	15	16	5	3	3	3	2	2	2	16	6.7	
Jan 20	S	3	3	3	2	1	1	2	2	2	2	2	3	3	3	4	5	7	8	11	11	10	12	S	1	12	4.5	
Jan 21	15	18	14	9	6	5	5	4	5	5	4	3	3	3	4	9	6	2	2	2	1	S	1	1	1	18	5.7	
Jan 22	2	2	3	4	3	4	4	3	3	2	2	2	2	2	3	2	3	3	1	1	2	S	2	2	1	4	2.5	
Jan 23	2	2	2	2	2	2	2	2	3	4	3	3	4	4	5	6	7	7	7	8	S	10	8	11	2	11	4.6	
Jan 24	10	8	8	13	12	11	18	19	10	5	4	3	4	4	5	7	6	6	6	S	10	8	7	8	3	19	8.3	
Jan 25	7	11	15	12	12	16	16	12	12	17	16	13	10	9	8	7	11	17	S	16	20	22	21	18	7	22	13.8	
Jan 26	20	16	15	11	9	8	11	11	15	13	14	15	14	12	10	11	17	S	22	26	27	22	19	20	8	27	15.6	
Jan 27	24	22	17	21	19	21	19	15	20	23	21	9	5	5	7	8	S	10	11	15	10	15	22	24	5	24	15.8	
Jan 28	21	21	23	23	21	20	19	14	12	10	7	8	8	7	S	13	13	8	7	7	6	6	7	6	6	23	13.0	
Jan 29	12	9	9	10	8	21	25	28	23	22	21	10	7	4	S	6	5	5	8	10	9	16	15	19	4	28	13.1	
Jan 30	22	19	18	18	18	15	18	16	13	15	7	6	3	S	5	4	4	3	5	5	5	3	3	3	3	22	9.9	
Jan 31	3	4	4	3	7	6	16	19	20	28	13	12	S	5	4	9	12	16	8	4	2	2	2	2	2	28	8.7	
Diurnal Maximum	24	22	23	23	21	21	25	28	25	28	21	15	14	12	10	11	17	23	22	26	27	22	22	24	24			
Diurnal Average	7.5	7.6	7.6	7.9	7.4	8.3	8.8	8.9	8.8	8.6	7.2	5.7	4.5	4.4	4.6	5.4	7.1	8.2	7.5	7.7	7.1	7.1	7.1	6.8				

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

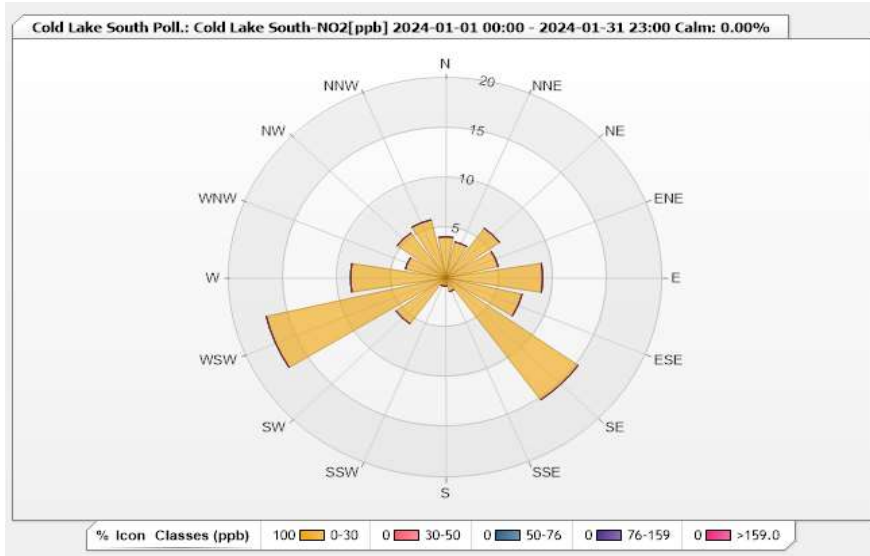


**Station: Cold Lake South Poll.: Cold Lake South-NO2[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 94.76%      Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	4.11	0	0	0	0	4.11
NNE	3.69	0	0	0	0	3.69
NE	6.1	0	0	0	0	6.1
ENE	4.96	0	0	0	0	4.96
E	8.94	0	0	0	0	8.94
ESE	7.23	0	0	0	0	7.23
SE	15.04	0	0	0	0	15.04
SSE	1.42	0	0	0	0	1.42
S	0.85	0	0	0	0	0.85
SSW	0.85	0	0	0	0	0.85
SW	5.67	0	0	0	0	5.67
WSW	17.02	0	0	0	0	17.02
W	8.79	0	0	0	0	8.79
WNW	3.83	0	0	0	0	3.83
NW	5.53	0	0	0	0	5.53
NNW	5.96	0	0	0	0	5.96
Summary	100	0	0	0	0	100

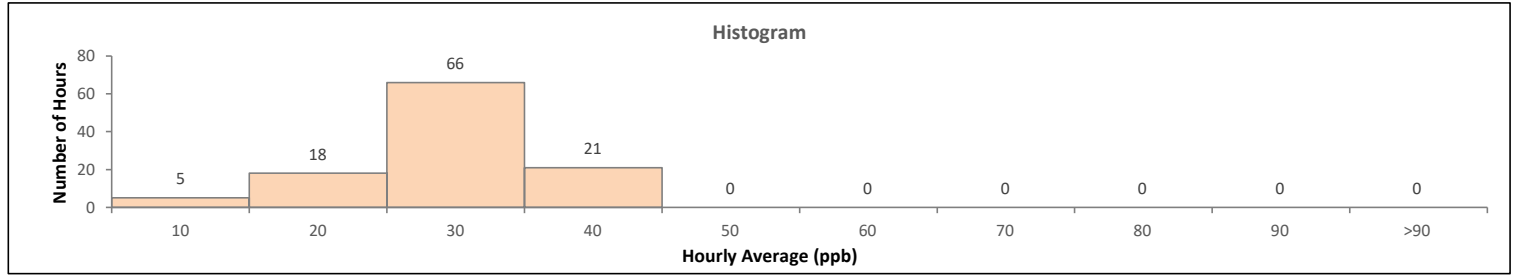
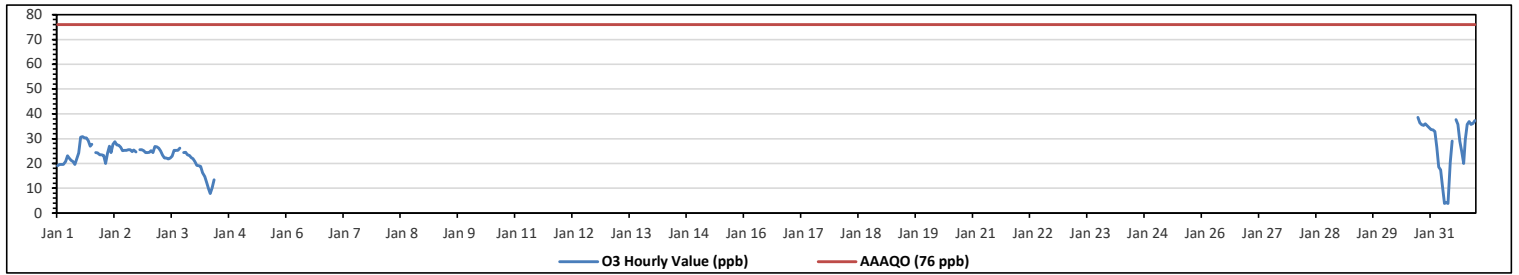


**Lakeland Industry & Community Association**  
**Cold Lake South Station - January 2024**  
**Summary of Hourly Averages**  
**OZONE (O<sub>3</sub>) in ppb**

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb																												
Number of 1-Hour Exceedances: 0																												
Maximum Hourly Value: 38.6 ppb on Jan 30 at hr 17												Hours in Service: 744																
Maximum Daily Value: 25.8 ppb on Jan 31												Hours of Data: 110																
Minimum Hourly Value: 3.8 ppb on Jan 31 at hr 7												Hours of Missing Data: 624																
Minimum Daily Value: 24.0 ppb on Jan 1												Hours of Calibration: 10																
Monthly Average: NA ppb												Operational Uptime: 16.1																
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Jan 1	19.1	19.6	19.5	19.5	20.8	23.1	22.1	21.3	20.7	19.5	21.9	24.2	30.6	30.8	30.2	30.2	29.2	27	27.7	S	24.3	24.2	23.5	23.5	19.1	30.8	24.0	
Jan 2	23.2	20	24.1	26.9	24.4	27.7	28.8	27.5	27.3	26.6	25.2	25.3	25.3	25.5	25.6	24.7	25.4	24.6	S	25.5	25.5	25.1	24.3	24.4	20.0	28.8	25.3	
Jan 3	24.5	25.2	24.3	26.8	26.7	26.2	25	23.3	22.2	22.1	21.7	22.1	23	25.3	25.3	25.3	26.1	S	24.4	24.5	23.5	23.2	22.3	21.9	21.7	26.8	24.1	
Jan 4	20.7	19.3	19.1	18.9	16.3	14.7	12.3	9.6	7.9	10.2	13.3	NRM	NRM	NRM	NRM	NRM	X	X	X	X	X	X	X	X	7.9	20.7	NA	
Jan 5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 29	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 30	X	X	X	X	X	X	X	X	X	X	X	C	C	C	C	C	C	38.6	36.4	35.6	35.3	36	35.2	34.4	34.4	34.4	38.6	NA
Jan 31	33.7	33.6	32.9	26.5	18.5	17.4	10.5	3.8	4.2	3.9	20.3	29	S	37.6	35.8	28.9	24.8	19.9	29.5	35.7	36.9	35.7	36.1	37.2	34.4	38.6	25.8	
Diurnal Maximum	33.7	33.6	32.9	26.9	26.7	27.7	28.8	27.5	27.3	26.6	25.2	29.0	30.6	37.6	35.8	30.2	29.2	38.6	36.4	35.7	36.9	36.0	36.1	37.2	34.4	38.6	25.8	
Diurnal Average	24.2	23.5	24.0	23.7	21.3	21.8	19.7	17.1	16.5	16.5	20.5	25.2	26.3	29.8	29.2	27.3	26.4	27.5	29.5	30.3	29.1	28.8	28.3	28.3	34.4	38.6	25.8	

**C** Monthly Calibration      **S** Daily Zero-Span Check      **Q** Quality Assurance  
**K** Collection Error      **ND** No Data (Machine Not in Service)      **Y** Routine Maintenance  
**X** InValid Data (Equipment Malfunction /Recovery)      **NRM** UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)      **P** Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

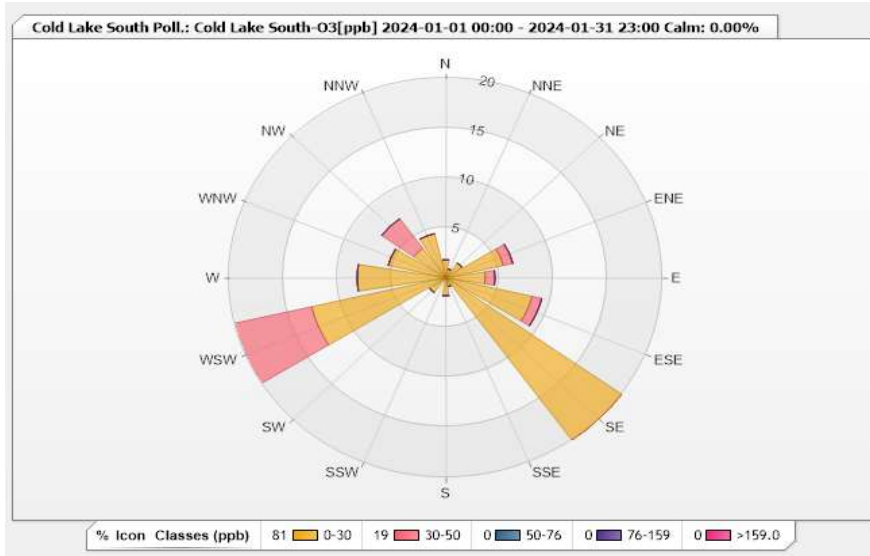


Station: Cold Lake South Poll.: Cold Lake South-O3[ppb] Monthly: 01-2024

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 14.78%      Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	1.82	0	0	0	0	1.82
NNE	0.91	0	0	0	0	0.91
NE	1.82	0	0	0	0	1.82
ENE	5.45	0.91	0	0	0	6.36
E	3.64	0.91	0	0	0	4.55
ESE	8.18	0.91	0	0	0	9.09
SE	20	3.64	0	0	0	23.64
SSE	0.91	0	0	0	0	0.91
S	1.82	0	0	0	0	1.82
SSW	0	0	0	0	0	0
SW	1.82	0	0	0	0	1.82
WSW	12.73	9.09	0	0	0	21.82
W	8.18	0	0	0	0	8.18
WNW	5.45	0	0	0	0	5.45
NW	3.64	3.64	0	0	0	7.28
NNW	4.55	0	0	0	0	4.55
Summary	80.92	19.1	0	0	0	100



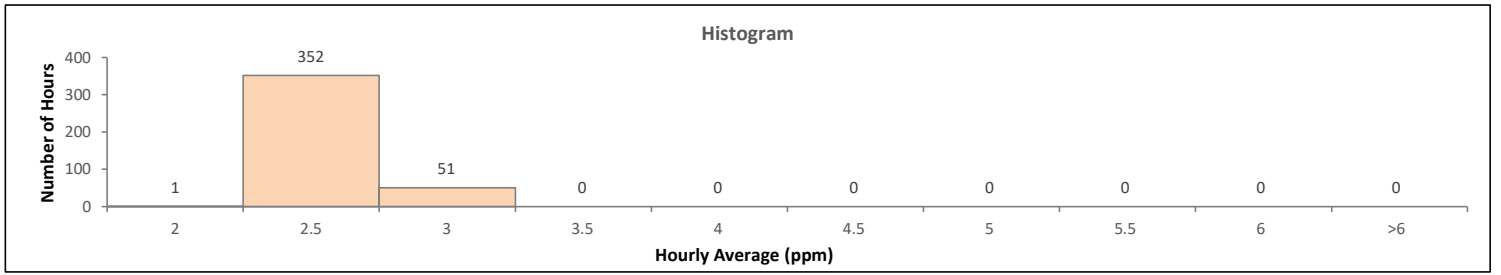
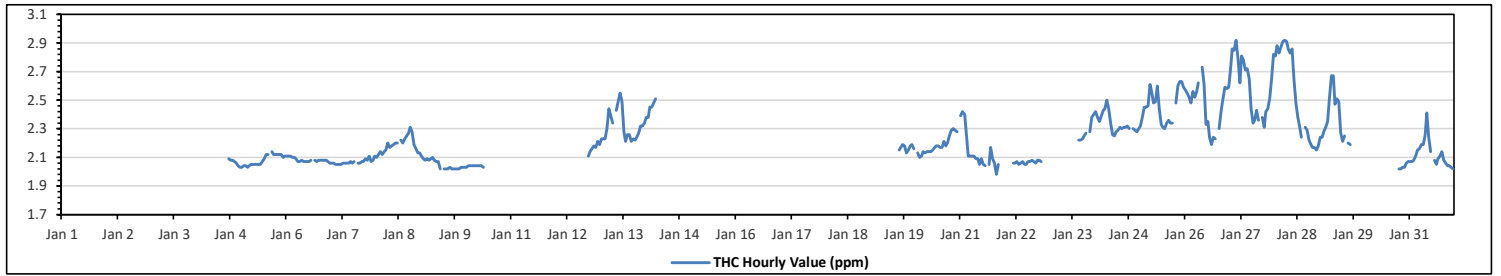
**Lakeland Industry & Community Association**  
**Cold Lake South Station - January 2024**  
**Summary of Hourly Averages**  
**TOTAL HYDROCARBONS (THC) in ppm**

Maximum Hourly Value:	2.92 ppm	on Jan 27 at hr 3	Hours in Service:	744
Maximum Daily Value:	2.60 ppm	on Jan 27	Hours of Data:	404
Minimum Hourly Value:	1.98 ppm	on Jan 21 at hr 19	Hours of Missing Data:	314
Minimum Daily Value:	2.05 ppm	on Jan 9	Hours of Calibration:	26
Monthly Average:	NA ppm		Operational Uptime:	57.8

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
Jan 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	
Jan 2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	
Jan 3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	
Jan 4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	
Jan 5	2.03	2.04	2.04	2.03	2.04	2.05	2.05	2.05	2.05	2.05	2.07	2.09	2.12	2.12	S	2.14	2.12	2.12	2.12	2.12	2.12	2.10	2.11	2.03	2.14	2.08	2.03	
Jan 6	2.11	2.11	2.11	2.10	2.10	2.09	2.07	2.07	2.08	2.07	2.07	2.07	2.07	2.08	S	2.08	2.07	2.08	2.08	2.08	2.08	2.08	2.07	2.06	2.06	2.11	2.08	
Jan 7	2.06	2.06	2.05	2.05	2.05	2.06	2.06	2.06	2.06	2.07	2.07	2.20	2.20	S	2.22	2.20	2.23	2.25	2.27	2.31	2.28	2.19	2.16	2.13	2.13	2.10	2.31	
Jan 8	2.10	2.12	2.14	2.12	2.14	2.15	2.20	2.17	2.18	2.19	2.20	2.20	S	2.22	2.20	2.03	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.02	2.11	2.05	2.02	
Jan 9	2.11	2.09	2.08	2.09	2.08	2.09	2.10	2.08	2.07	2.07	2.02	S	2.02	2.02	2.02	2.03	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.03	2.02	2.11	2.05	
Jan 10	2.03	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.03	S	X	X	X	X	X	X	X	X	X	X	X	X	2.03	2.04	NA		
Jan 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-		
Jan 12	X	X	X	X	X	X	X	X	X	X	X	X	X	NRM	NRM	NRM	NRM	2.11	2.14	2.16	2.18	2.17	2.21	2.19	2.11	2.21	NA	
Jan 13	2.23	2.23	2.23	2.30	2.44	2.39	2.34	S	2.43	2.49	2.55	2.49	2.28	2.21	2.26	2.26	2.21	2.23	2.22	2.24	2.27	2.32	2.32	2.34	2.21	2.55	2.32	
Jan 14	2.38	2.38	2.45	2.45	2.48	2.51	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.38	2.51	NA		
Jan 15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-		
Jan 16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-		
Jan 17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-		
Jan 18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-		
Jan 19	X	X	X	X	X	X	X	X	X	X	X	NRM	NRM	NRM	NRM	2.15	2.17	2.19	2.18	2.13	2.15	2.18	2.19	2.16	2.13	2.19	NA	
Jan 20	S	2.13	2.10	2.11	2.14	2.13	2.14	2.14	2.14	2.15	2.17	2.18	2.17	2.17	2.21	2.18	2.20	2.25	2.29	2.30	2.29	2.28	S	2.10	2.30	2.18		
Jan 21	2.39	2.42	2.40	2.24	2.11	2.11	2.11	2.09	2.09	2.05	2.09	2.05	2.04	X	2.05	2.17	2.09	2.06	1.98	2.05	X	S	X	1.98	2.42	2.14		
Jan 22	2.07	2.06	X	X	2.06	2.06	2.07	2.05	2.06	2.07	2.05	2.05	2.07	2.07	2.08	2.07	2.06	2.08	2.08	2.07	X	S	X	X	2.05	2.08	NA	
Jan 23	X	X	X	X	X	X	X	X	X	X	X	NRM	NRM	NRM	NRM	2.22	2.22	2.23	2.25	2.27	S	2.28	2.38	2.40	2.22	2.40	NA	
Jan 24	2.42	2.38	2.35	2.39	2.43	2.44	2.50	2.44	2.34	2.26	2.25	2.28	2.29	2.31	2.30	2.31	2.31	2.32	2.30	S	2.30	2.29	2.28	2.30	2.25	2.50	2.34	
Jan 25	2.32	2.38	2.45	2.45	2.46	2.61	2.56	2.48	2.49	2.60	2.44	2.33	2.31	2.30	2.34	2.36	2.34	2.34	S	2.48	2.60	2.63	2.63	2.59	2.30	2.63	2.46	
Jan 26	2.57	2.55	2.52	2.48	2.56	2.52	2.56	2.62	X	2.73	2.61	2.33	2.35	2.24	2.19	2.24	2.23	S	2.30	2.42	2.51	2.59	2.58	2.59	2.19	2.73	2.47	
Jan 27	2.70	2.86	2.85	2.92	2.79	2.62	2.81	2.78	2.71	2.72	2.65	2.44	2.34	2.36	2.43	2.36	S	2.38	2.31	2.42	2.44	2.51	2.65	2.82	2.31	2.92	2.60	
Jan 28	2.81	2.88	2.83	2.87	2.91	2.92	2.91	2.86	2.83	2.86	2.64	2.48	2.38	2.31	2.24	S	2.31	2.29	2.22	2.19	2.17	2.17	2.15	2.18	2.15	2.92	2.54	
Jan 29	2.24	2.24	2.28	2.31	2.35	2.52	2.67	2.67	2.47	2.51	2.49	2.27	2.21	2.25	S	2.20	2.19	NRM	NRM	NRM	NRM	NRM	NRM	NRM	2.19	2.67	NA	
Jan 30	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	2.02	2.02	2.03	2.03	2.06	2.07	2.02	2.07	NA
Jan 31	2.07	2.07	2.08	2.11	2.15	2.16	2.19	2.19	2.26	2.41	2.24	2.14	S	2.08	2.05	2.09	2.11	2.14	2.08	2.06	2.04	2.04	2.03	2.02	2.02	2.41	2.12	
Diurnal Maximum	2.81	2.88	2.85	2.92	2.91	2.92	2.91	2.86	2.83	2.86	2.65	2.49	2.38	2.36	2.43	2.36	2.34	2.38	2.31	2.48	2.60	2.63	2.65	2.82				
Diurnal Average	2.27	2.28	2.29	2.30	2.30	2.32	2.30	2.27	2.32	2.28	2.23	2.19	2.19	2.19	2.18	2.18	2.18	2.18	2.16	2.18	2.20	2.22	2.23	2.24				

**C** Monthly Calibration      **S** Daily Zero-Span Check      **Q** Quality Assurance  
**K** Collection Error      **ND** No Data (Machine Not in Service)      **Y** Routine Maintenance  
**X** InValid Data (Equipment Malfunction/Recovery)      **NRM** UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)      **P** Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

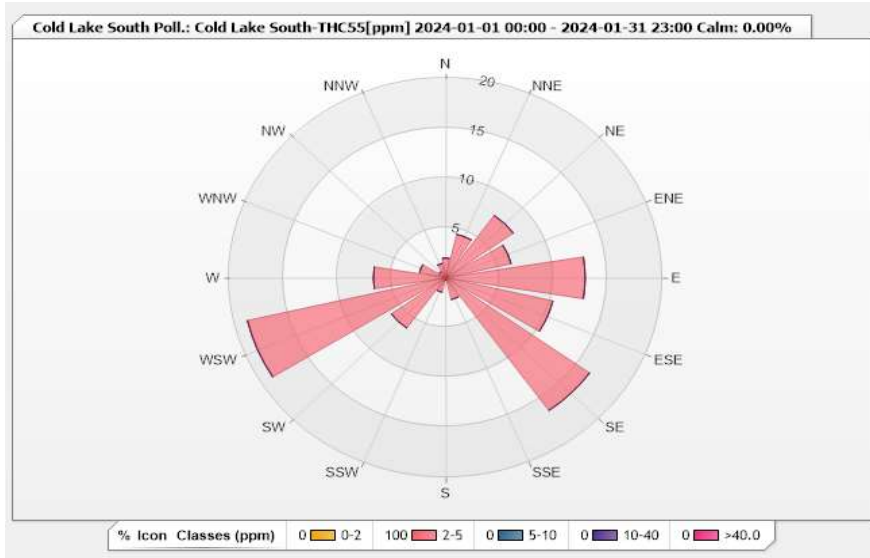


Station: Cold Lake South Poll.: Cold Lake South-THC55[ppm] Monthly: 01-2024

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 54.30%      Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	0	1.98	0	0	0	1.98
NNE	0	4.46	0	0	0	4.46
NE	0.25	7.43	0	0	0	7.68
ENE	0	6.19	0	0	0	6.19
E	0	12.87	0	0	0	12.87
ESE	0	10.15	0	0	0	10.15
SE	0	16.34	0	0	0	16.34
SSE	0	2.23	0	0	0	2.23
S	0	0.25	0	0	0	0.25
SSW	0	1.49	0	0	0	1.49
SW	0	6.19	0	0	0	6.19
WSW	0	18.81	0	0	0	18.81
W	0	6.68	0	0	0	6.68
WNW	0	2.48	0	0	0	2.48
NW	0	0.74	0	0	0	0.74
NNW	0	1.49	0	0	0	1.49
Summary	0.25	100	0	0	0	100





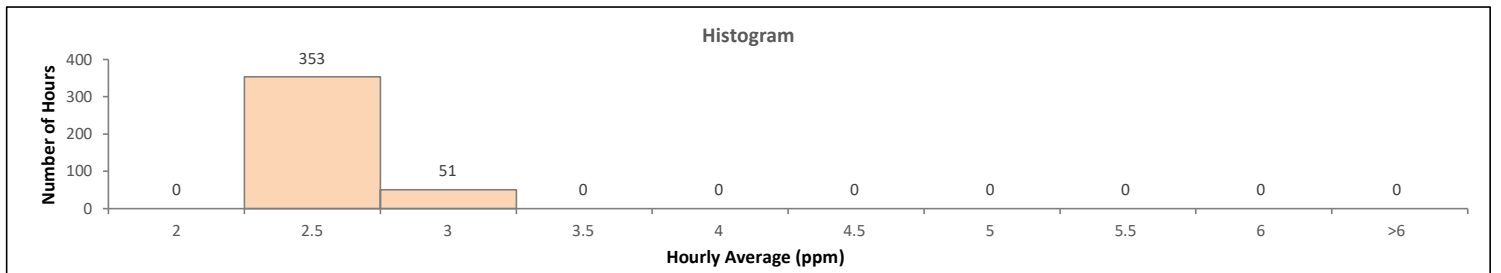
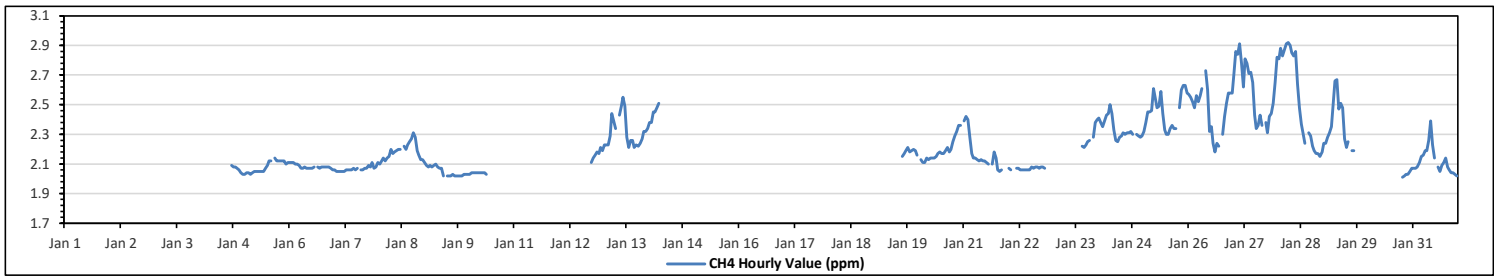
**Lakeland Industry & Community Association**  
**Cold Lake South Station - January 2024**  
**Summary of Hourly Averages**  
**METHANE (CH4) in ppm**

Maximum Hourly Value:	2.92 ppm	on Jan 28 at hr 5	Hours in Service:	744
Maximum Daily Value:	2.60 ppm	on Jan 27	Hours of Data:	404
Minimum Hourly Value:	2.01 ppm	on Jan 30 at hr 18	Hours of Missing Data:	314
Minimum Daily Value:	2.05 ppm	on Jan 9	Hours of Calibration:	26
Monthly Average:	NA ppm		Operational Uptime:	57.8

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23		
Jan 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-			
Jan 2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-		
Jan 3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-			
Jan 4	X	X	X	X	X	X	X	X	X	X	X	C	C	C	C	C	C	2.09	2.08	2.08	2.07	2.06	2.04	2.03	2.03	2.09	NA		
Jan 5	2.03	2.04	2.04	2.03	2.04	2.05	2.05	2.05	2.05	2.05	2.07	2.09	2.12	2.12	S	2.14	2.12	2.12	2.12	2.12	2.12	2.10	2.11	2.03	2.14	2.08			
Jan 6	2.11	2.11	2.11	2.10	2.10	2.09	2.07	2.07	2.08	2.07	2.07	2.07	2.07	2.08	S	2.08	2.07	2.08	2.08	2.08	2.08	2.08	2.07	2.06	2.06	2.11	2.08		
Jan 7	2.06	2.05	2.05	2.05	2.05	2.05	2.06	2.06	2.06	2.07	2.06	2.07	2.06	2.07	S	2.22	2.20	2.23	2.25	2.27	2.31	2.28	2.19	2.16	2.13	2.13	2.10	2.31	2.19
Jan 8	2.10	2.12	2.14	2.12	2.14	2.15	2.20	2.17	2.18	2.19	2.20	2.20	S	2.22	2.02	2.02	2.03	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.02	2.11	2.05		
Jan 9	2.11	2.09	2.08	2.09	2.08	2.09	2.10	2.08	2.07	2.07	2.02	S	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.02	2.11	2.05		
Jan 10	2.03	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.03	S	X	X	X	X	X	X	X	X	X	X	X	X	X	2.03	2.04	NA		
Jan 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-		
Jan 12	X	X	X	X	X	X	X	X	X	X	X	X	X	NRM	NRM	NRM	NRM	2.11	2.14	2.16	2.18	2.17	2.21	2.19	2.11	2.21	NA		
Jan 13	2.23	2.23	2.23	2.29	2.44	2.39	2.34	S	2.43	2.49	2.55	2.49	2.28	2.21	2.26	2.26	2.21	2.23	2.22	2.24	2.27	2.32	2.32	2.34	2.21	2.55	2.32		
Jan 14	2.38	2.38	2.45	2.45	2.48	2.51	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.38	2.51	NA		
Jan 15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-		
Jan 16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-		
Jan 17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-		
Jan 18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-		
Jan 19	X	X	X	X	X	X	X	X	X	X	X	NRM	NRM	NRM	NRM	2.15	2.17	2.19	2.21	2.18	2.19	2.20	2.19	2.16	2.15	2.21	NA		
Jan 20	S	2.13	2.11	2.11	2.14	2.13	2.14	2.14	2.14	2.15	2.17	2.18	2.17	2.17	2.19	2.21	2.18	2.20	2.25	2.29	2.32	2.36	2.36	S	2.11	2.36	2.19		
Jan 21	2.39	2.42	2.40	2.28	2.17	2.14	2.14	2.13	2.12	2.13	2.12	2.12	2.11	2.10	X	2.10	2.18	2.14	2.06	2.05	2.06	X	S	X	2.05	2.42	2.17		
Jan 22	2.07	2.06	X	X	2.07	2.07	2.06	2.06	2.06	2.06	2.06	2.06	2.08	2.07	2.08	2.08	2.07	2.08	2.08	2.07	X	S	X	X	2.06	2.08	2.07		
Jan 23	X	X	X	X	X	X	X	X	X	X	X	NRM	NRM	NRM	NRM	2.22	2.21	2.23	2.25	2.26	S	2.28	2.38	2.40	2.21	2.40	NA		
Jan 24	2.41	2.38	2.35	2.39	2.43	2.44	2.50	2.44	2.33	2.26	2.25	2.28	2.29	2.31	2.30	2.31	2.31	2.32	2.30	S	2.30	2.29	2.28	2.29	2.25	2.50	2.34		
Jan 25	2.32	2.38	2.45	2.45	2.46	2.61	2.55	2.48	2.49	2.59	2.44	2.33	2.30	2.30	2.34	2.36	2.34	2.34	S	2.48	2.60	2.63	2.63	2.58	2.30	2.63	2.45		
Jan 26	2.57	2.55	2.52	2.48	2.56	2.52	2.56	2.61	X	2.73	2.60	2.32	2.35	2.24	2.18	2.24	2.22	S	2.30	2.42	2.51	2.58	2.58	2.58	2.18	2.73	2.46		
Jan 27	2.70	2.86	2.84	2.91	2.78	2.62	2.81	2.78	2.71	2.72	2.65	2.43	2.34	2.36	2.43	2.36	S	2.38	2.31	2.42	2.44	2.51	2.65	2.82	2.31	2.91	2.60		
Jan 28	2.81	2.88	2.83	2.87	2.91	2.92	2.90	2.85	2.83	2.86	2.64	2.48	2.37	2.31	2.24	S	2.31	2.29	2.22	2.19	2.17	2.15	2.18	2.15	2.92	2.54	2.54		
Jan 29	2.24	2.24	2.28	2.31	2.35	2.52	2.66	2.67	2.47	2.51	2.48	2.27	2.21	2.25	S	2.19	2.19	NRM	NRM	NRM	NRM	NRM	NRM	NRM	2.19	2.67	NA		
Jan 30	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	2.01	2.02	2.03	2.03	2.05	2.07	2.01	2.07	NA		
Jan 31	2.07	2.07	2.08	2.11	2.15	2.16	2.19	2.19	2.26	2.39	2.23	2.14	S	2.08	2.05	2.09	2.11	2.14	2.08	2.06	2.04	2.04	2.03	2.02	2.02	2.39	2.12		
Diurnal Maximum	2.81	2.88	2.84	2.91	2.91	2.92	2.90	2.85	2.83	2.86	2.65	2.49	2.37	2.36	2.43	2.36	2.34	2.38	2.31	2.48	2.60	2.63	2.65	2.82					
Diurnal Average	2.27	2.28	2.29	2.30	2.30	2.31	2.32	2.30	2.27	2.32	2.29	2.23	2.20	2.19	2.19	2.19	2.19	2.18	2.16	2.18	2.21	2.23	2.24	2.24					

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

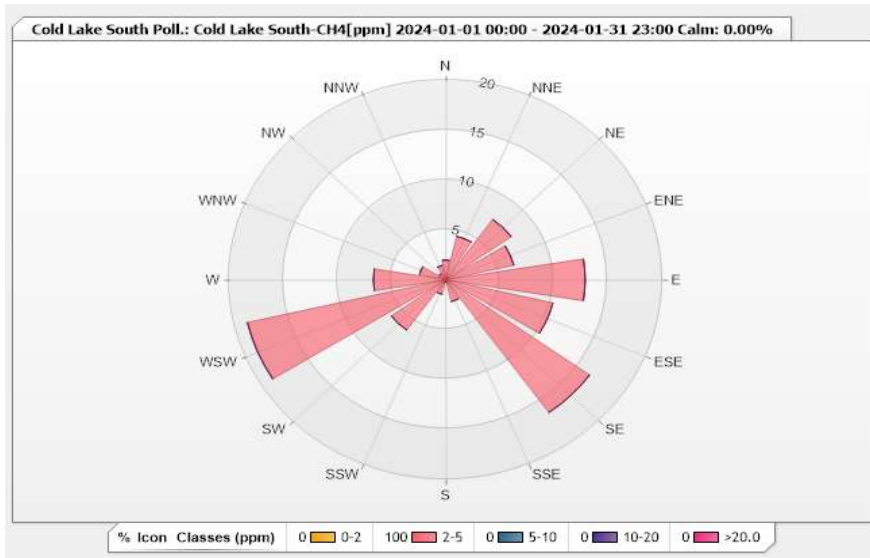


Station: Cold Lake South Poll.: Cold Lake South-CH4[ppm] Monthly: 01-2024

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 54.30%      Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	0	1.98	0	0	0	1.98
NNE	0	4.46	0	0	0	4.46
NE	0	7.43	0	0	0	7.43
ENE	0	6.44	0	0	0	6.44
E	0	12.87	0	0	0	12.87
ESE	0	10.15	0	0	0	10.15
SE	0	16.34	0	0	0	16.34
SSE	0	2.23	0	0	0	2.23
S	0	0.25	0	0	0	0.25
SSW	0	1.49	0	0	0	1.49
SW	0	6.19	0	0	0	6.19
WSW	0	18.81	0	0	0	18.81
W	0	6.68	0	0	0	6.68
WNW	0	2.48	0	0	0	2.48
NW	0	0.74	0	0	0	0.74
NNW	0	1.49	0	0	0	1.49
Summary	0	100	0	0	0	100



Lakeland Industry & Community Association

Cold Lake South Station - January 2024

Summary of Hourly Averages

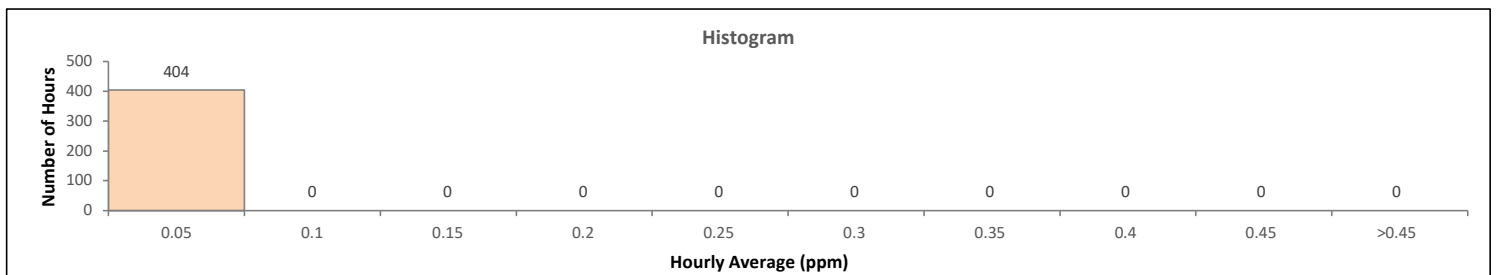
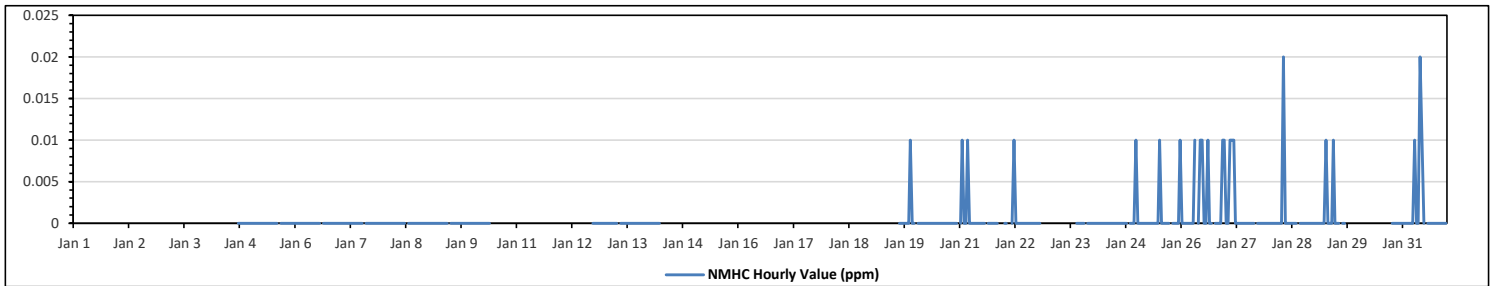
NON-METHANE HYDROCARBONS (NMHC) in ppm

Maximum Hourly Value:	0.02 ppm	on Jan 28 at hr 7	Hours in Service:	744
Maximum Daily Value:	0.00 ppm	on Jan 26	Hours of Data:	404
Minimum Hourly Value:	0.00 ppm	on Jan 4 at hr 17	Hours of Missing Data:	314
Minimum Daily Value:	0.00 ppm	on Jan 5	Hours of Calibration:	26
Monthly Average:	NA ppm		Operational Uptime:	57.8

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
Jan 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	
Jan 2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	
Jan 3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	
Jan 4	X	X	X	X	X	X	X	X	X	X	X	C	C	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.00	0.00	NA	
Jan 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	
Jan 12	X	X	X	X	X	X	X	X	X	X	X	X	X	NRM	NRM	NRM	NRM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 14	0.00	0.00	0.00	0.00	0.00	0.00	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.00	0.00	0.00	
Jan 15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	
Jan 16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	
Jan 17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	
Jan 18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	
Jan 19	X	X	X	X	X	X	X	X	X	X	X	NRM	NRM	NRM	NRM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	NA	
Jan 20	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 21	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	
Jan 22	0.00	0.00	X	X	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	S	X	0.00	0.01	0.00	
Jan 23	X	X	X	X	X	X	X	X	X	X	X	NRM	NRM	NRM	NRM	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	
Jan 24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.01	0.00	
Jan 25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.01	0.00	
Jan 26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	X	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	
Jan 27	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	
Jan 28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	
Jan 29	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	S	0.00	0.00	NRM	NRM	NRM	NRM	NRM	NRM	NRM	0.00	0.01	NA	
Jan 30	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	0.00	0.00	0.00	NA
Jan 31	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.01	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	
Diurnal Maximum	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.00	0.02	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	
Diurnal Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

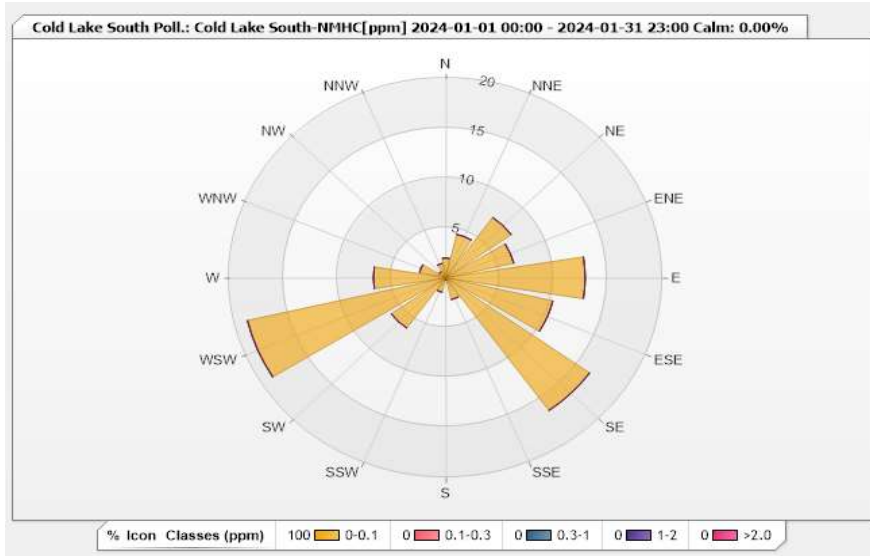


Station: Cold Lake South Poll.: Cold Lake South-NMHC[ppm] Monthly: 01-2024

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 54.30%      Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	1.98	0	0	0	0	1.98
NNE	4.46	0	0	0	0	4.46
NE	7.43	0	0	0	0	7.43
ENE	6.44	0	0	0	0	6.44
E	12.87	0	0	0	0	12.87
ESE	10.15	0	0	0	0	10.15
SE	16.34	0	0	0	0	16.34
SSE	2.23	0	0	0	0	2.23
S	0.25	0	0	0	0	0.25
SSW	1.49	0	0	0	0	1.49
SW	6.19	0	0	0	0	6.19
WSW	18.81	0	0	0	0	18.81
W	6.68	0	0	0	0	6.68
WNW	2.48	0	0	0	0	2.48
NW	0.74	0	0	0	0	0.74
NNW	1.49	0	0	0	0	1.49
Summary	100	0	0	0	0	100



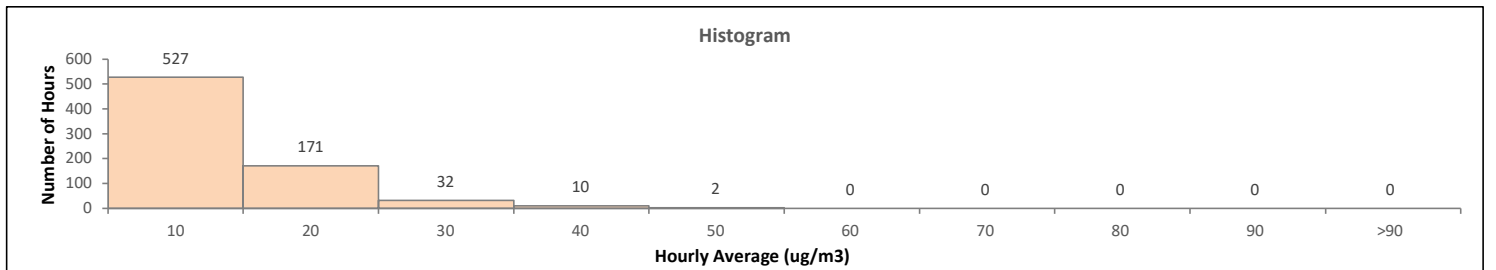
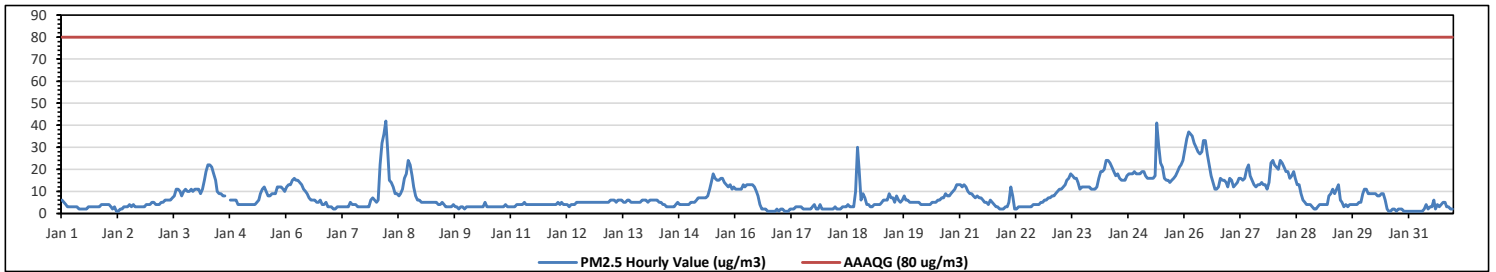
**Lakeland Industry & Community Association**  
**Cold Lake South Station - January 2024**  
**Summary of Hourly Averages**

**PARTICULATE MATTER 2.5 (PM<sub>2.5</sub>) in µg/m<sup>3</sup>**

Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m <sup>3</sup> , Alberta Ambient Air Quality Objective (AAAQO): 24-Hour 29 µg/m <sup>3</sup>																																															
Number of 1-Hour Exceedances: 0												Number of 24-Hour Exceedances: 0																																			
Maximum Hourly Value: 42 µg/m <sup>3</sup> on Jan 8 at hr 5												Hours in Service: 744																																			
Maximum Daily Value: 23.7 µg/m <sup>3</sup> on Jan 26												Hours of Data: 742																																			
Minimum Hourly Value: 1 µg/m <sup>3</sup> on Jan 2 at hr 5												Hours of Missing Data: 0																																			
Minimum Daily Value: 2 µg/m <sup>3</sup> on Jan 17												Hours of Calibration: 2																																			
Monthly Average: 8.1 µg/m <sup>3</sup>												Operational Uptime: 100.0																																			
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average																					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23																				
Jan 1	6	5	4	3	3	3	3	3	3	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4	2	6	3.2																				
Jan 2	4	4	3	2	3	1	1	2	2	3	3	3	4	3	4	3	3	3	3	3	3	4	4	4	1	4	3.0																				
Jan 3	5	5	4	4	4	5	5	6	6	6	6	7	8	11	11	10	8	10	11	10	10	11	10	11	4	11	7.7																				
Jan 4	11	11	9	11	15	19	22	22	21	18	15	10	9	9	8	8	C	C	6	6	6	6	4	4	4	22	11.4																				
Jan 5	4	4	4	4	4	4	4	4	5	6	9	11	12	10	8	8	9	9	9	12	12	12	11	10	4	12	7.7																				
Jan 6	12	13	13	15	16	15	15	14	13	11	10	9	7	6	6	5	5	6	4	4	5	3	3	3	3	16	9.0																				
Jan 7	3	2	2	3	3	3	3	3	3	5	4	4	4	3	3	3	3	3	3	3	6	7	6	2	2	7	3.5																				
Jan 8	5	6	22	32	36	42	28	15	14	12	9	9	8	9	11	16	18	24	22	17	12	8	6	6	5	42	16.1																				
Jan 9	5	5	5	5	5	5	5	5	5	4	4	5	4	3	3	3	3	4	3	3	2	3	3	2	2	5	3.9																				
Jan 10	3	3	3	3	3	3	3	3	3	5	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3	5	3.1																				
Jan 11	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	5	3.9																				
Jan 12	4	5	4	5	4	4	4	3	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	4.6																				
Jan 13	5	5	5	5	5	6	6	6	5	6	6	5	5	6	6	5	5	5	5	5	5	6	6	5	5	6	5.4																				
Jan 14	6	5	6	6	6	6	6	5	5	4	4	3	3	3	3	4	5	4	4	4	4	4	4	3	6	6	4.5																				
Jan 15	5	5	5	6	7	7	7	7	7	8	11	14	18	16	15	15	16	16	14	13	12	13	11	12	5	18	10.8																				
Jan 16	11	11	11	11	13	12	13	13	13	13	12	10	8	4	2	2	2	1	1	1	1	1	2	1	1	13	7.0																				
Jan 17	2	2	1	1	1	2	2	2	3	3	3	3	2	2	2	2	3	4	2	2	4	2	2	2	1	4	2.3																				
Jan 18	2	2	2	2	2	3	2	2	2	3	3	3	4	3	3	10	30	20	6	9	7	4	4	2	2	30	5.5																				
Jan 19	3	3	4	4	4	4	5	6	6	6	9	7	7	5	8	6	5	6	8	6	6	5	5	3	3	9	5.5																				
Jan 20	5	5	5	4	4	4	4	4	4	5	5	6	6	7	7	9	8	8	8	9	10	11	13	13	4	13	6.7																				
Jan 21	13	12	13	12	10	9	9	8	7	8	7	7	6	5	5	4	6	5	4	3	3	2	2	2	2	13	6.8																				
Jan 22	3	3	5	12	8	2	2	3	3	3	3	3	3	3	4	4	4	4	4	5	5	6	6	7	2	12	4.3																				
Jan 23	7	8	8	9	10	11	11	12	13	15	16	18	17	16	16	14	11	12	12	12	12	11	11	7	7	18	12.3																				
Jan 24	11	12	16	19	19	20	24	24	23	21	19	17	18	16	15	15	15	17	18	18	18	19	18	18	11	24	17.9																				
Jan 25	18	19	19	17	16	16	16	16	17	41	31	23	21	16	15	15	14	15	16	17	19	21	22	24	14	41	19.3																				
Jan 26	29	34	37	36	35	32	30	28	27	28	33	33	27	22	17	14	11	11	12	16	15	15	14	12	11	37	23.7																				
Jan 27	16	15	12	13	14	16	16	15	16	20	22	17	15	13	12	13	13	14	13	13	11	14	23	24	11	24	15.4																				
Jan 28	22	21	20	24	23	21	19	19	16	17	19	16	13	13	9	6	5	4	4	4	3	2	2	3	2	24	12.7																				
Jan 29	4	4	4	4	4	8	9	11	9	11	13	6	5	3	4	3	4	4	4	4	4	5	9	3	3	13	5.9																				
Jan 30	11	11	9	9	9	9	8	8	8	9	9	6	2	1	1	2	2	1	2	2	2	1	1	1	1	11	5.2																				
Jan 31	1	1	1	1	1	1	1	1	2	4	2	3	3	6	2	4	3	4	5	5	3	3	2	2	1	6	2.5																				
Diurnal Maximum	29	34	37	36	36	42	30	28	27	41	33	33	27	22	17	16	18	30	22	18	19	21	23	24																							
Diurnal Average	7.7	7.9	8.4	9.2	9.4	9.6	9.3	8.9	8.7	9.7	9.8	8.8	8.2	7.3	6.9	6.8	7.9	7.6	7.0	6.8	7.2	7.0	7.2																								
C	Monthly Calibration											S	Daily Zero-Span Check											Q	Quality Assurance																						
K	Collection Error											ND	No Data (Machine Not in Service)											Y	Routine Maintenance											P	Power Failure										
X	Invalid Data (Equipment Malfunction /Recovery)											NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																																		

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



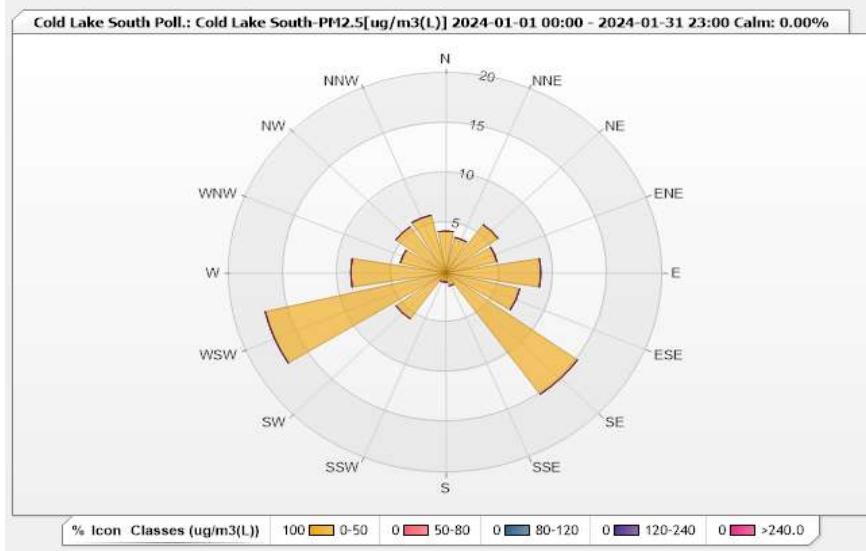
Station: Cold Lake South Poll.: Cold Lake South-PM2.5[ug/m3(L)] Monthly: 01-2024

)

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 99.73%      Calm Avg: 0.00 [ug/m3(L)]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	4.18	0	0	0	0	4.18
NNE	3.64	0	0	0	0	3.64
NE	5.93	0	0	0	0	5.93
ENE	4.85	0	0	0	0	4.85
E	8.76	0	0	0	0	8.76
ESE	7.01	0	0	0	0	7.01
SE	14.96	0	0	0	0	14.96
SSE	1.35	0	0	0	0	1.35
S	0.94	0	0	0	0	0.94
SSW	0.94	0	0	0	0	0.94
SW	5.66	0	0	0	0	5.66
WSW	17.12	0	0	0	0	17.12
W	8.76	0	0	0	0	8.76
WNW	4.31	0	0	0	0	4.31
NW	5.66	0	0	0	0	5.66
NNW	5.93	0	0	0	0	5.93
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Cold Lake South Station - January 2024

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	93	%	on Jan 30 at hr 0	Hours in Service:	744
Maximum Daily Value:	89.3	%	on Jan 23	Hours of Data:	744
Minimum Hourly Value:	48	%	on Jan 30 at hr 16	Hours of Missing Data:	0
Minimum Daily Value:	58.2	%	on Jan 13	Hours of Calibration:	0
Monthly Average:	76.8	%		Operational Uptime:	100.0

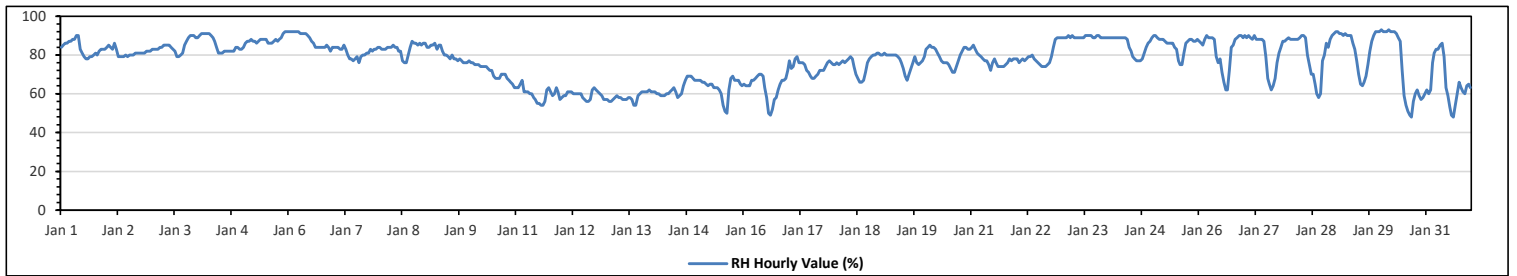
  

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Jan 1	84	85	86	86	87	87	88	88	90	90	83	81	79	78	78	79	79	80	81	81	80	82	83	83	83	78	90	83.3
Jan 2	84	85	84	83	86	83	79	79	79	80	79	80	80	80	80	81	81	81	81	81	81	82	82	82	82	79	86	81.3
Jan 3	83	83	83	83	84	84	85	85	85	85	84	83	82	79	79	80	81	85	87	89	90	90	90	89	79	90	84.5	
Jan 4	89	90	91	91	91	91	91	90	89	87	84	81	81	81	82	82	82	82	82	82	84	84	83	83	81	91	85.5	
Jan 5	84	86	87	87	88	87	87	86	87	88	88	88	88	86	86	86	87	88	87	88	89	91	92	92	84	92	87.6	
Jan 6	92	92	92	92	92	91	91	91	91	90	89	87	86	84	84	84	84	84	84	85	84	82	84	82	82	92	87.8	
Jan 7	84	84	84	83	83	85	83	80	78	78	77	78	79	76	79	80	80	81	81	83	82	83	83	84	76	85	81.2	
Jan 8	84	83	83	83	84	84	84	85	84	84	82	82	77	76	76	80	84	87	86	86	85	86	85	86	76	87	83.2	
Jan 9	86	84	84	85	85	86	83	85	85	82	80	79	78	80	78	78	77	78	77	76	76	76	76	77	76	86	80.6	
Jan 10	76	76	75	75	75	74	74	74	74	73	72	72	69	68	68	70	70	70	68	67	66	65	63	63	76	70.9		
Jan 11	63	63	65	67	61	61	61	60	60	58	57	55	55	54	54	56	62	63	61	59	60	63	61	57	54	67	59.8	
Jan 12	58	59	59	61	61	61	60	60	60	60	60	58	57	56	56	57	62	63	62	61	60	59	57	57	56	63	59.3	
Jan 13	57	56	56	57	58	59	58	58	57	57	57	58	58	57	54	54	59	60	61	61	61	61	62	61	54	62	58.2	
Jan 14	61	61	60	60	59	59	59	60	60	61	62	63	61	58	59	60	64	67	69	69	68	67	67	67	58	69	62.6	
Jan 15	67	67	66	66	65	64	65	65	63	63	63	62	60	54	51	50	62	68	69	67	67	67	65	64	50	69	63.3	
Jan 16	65	64	64	64	67	67	68	69	70	69	63	58	50	49	52	57	58	62	65	67	67	68	72	49	72	63.5		
Jan 17	77	73	74	78	79	76	76	76	75	72	71	69	68	68	69	70	72	72	72	74	76	77	76	75	68	79	73.5	
Jan 18	75	76	75	76	77	76	77	78	79	78	74	70	68	66	66	67	71	76	78	79	80	80	81	81	66	81	75.2	
Jan 19	80	80	81	80	80	80	80	80	80	79	78	76	73	69	67	70	73	76	79	76	75	76	77	79	67	81	76.8	
Jan 20	83	84	85	84	84	83	81	79	77	76	76	76	75	73	71	71	74	77	80	82	84	84	83	83	71	85	79.4	
Jan 21	84	85	83	81	80	79	78	77	77	75	72	76	78	76	74	74	74	74	75	76	78	77	78	78	72	85	77.5	
Jan 22	78	76	77	78	77	78	79	79	80	78	77	76	75	74	74	74	75	76	79	84	88	89	89	89	74	89	79.1	
Jan 23	89	89	89	90	89	90	89	89	89	89	89	89	90	90	90	89	89	90	90	89	89	89	89	89	89	90	89.3	
Jan 24	89	89	89	89	89	89	89	89	89	89	88	84	82	79	78	77	77	77	78	81	84	86	87	89	77	89	84.9	
Jan 25	90	90	89	88	88	88	87	86	86	86	86	84	83	77	75	75	81	86	87	88	88	87	87	88	75	90	85.4	
Jan 26	87	86	85	88	90	89	89	89	88	79	76	78	71	66	62	62	72	84	85	88	89	90	90	89	62	90	82.2	
Jan 27	90	89	90	89	88	90	88	88	88	88	87	79	68	65	62	64	68	76	81	84	87	87	88	89	62	90	82.2	
Jan 28	88	88	88	88	88	89	90	90	89	80	75	70	70	65	60	58	60	77	80	86	84	88	90	91	58	91	80.5	
Jan 29	92	92	91	91	90	91	90	90	90	86	83	77	70	65	64	66	69	75	82	87	90	92	92	92	64	92	83.6	
Jan 30	93	92	92	92	93	92	92	92	91	89	87	72	59	54	51	49	48	56	60	62	59	57	58	60	48	93	72.9	
Jan 31	62	60	62	76	81	83	83	85	86	79	63	59	53	49	48	54	60	66	63	61	60	64	65	63	48	86	66.0	
Diurnal Maximum	93	92	92	92	93	92	92	91	91	90	89	90	90	90	90	89	89	90	90	90	92	92	92	92	92	92	92	
Diurnal Average	79.8	79.6	79.6	80.4	80.6	80.5	80.1	80.1	79.9	78.4	76.5	74.4	72.0	69.5	68.6	69.3	72.1	75.2	76.5	77.4	77.9	78.5	78.4	78.6	78.4	78.6		

<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>ND</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b> Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Lakeland Industry & Community Association

Cold Lake South Station - January 2024

Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	971	mb	on Jan 15 at hr 1	Hours in Service:	744
Maximum Daily Value:	968	mb	on Jan 13	Hours of Data:	744
Minimum Hourly Value:	935	mb	on Jan 9 at hr 12	Hours of Missing Data:	0
Minimum Daily Value:	939	mb	on Jan 9	Hours of Calibration:	0
Monthly Average:	952	mb		Operational Uptime:	100.0

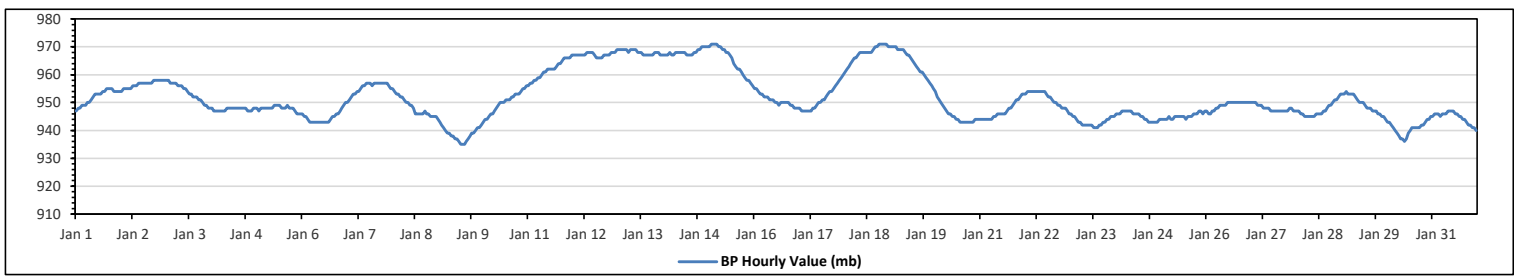
  

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Jan 1	947	948	948	949	949	949	950	950	951	952	953	953	953	954	954	955	955	955	955	954	954	954	954	947	955	952	
Jan 2	954	955	955	955	955	955	956	956	956	957	957	957	957	957	957	957	958	958	958	958	958	958	958	954	958	957	
Jan 3	958	958	957	957	957	957	956	956	956	955	955	954	953	953	952	952	952	951	951	950	949	949	948	948	948	954	
Jan 4	948	947	947	947	947	947	947	947	948	948	948	948	948	948	948	948	948	948	948	947	947	947	948	947	948	948	
Jan 5	948	947	948	948	948	948	948	948	949	949	949	949	948	948	948	949	948	948	948	948	947	946	946	946	949	948	
Jan 6	946	945	945	944	943	943	943	943	943	943	943	943	943	943	944	945	945	946	946	947	948	949	950	943	950	945	
Jan 7	950	951	952	953	953	954	954	955	956	956	957	957	956	957	957	957	957	957	957	957	957	957	956	955	950	957	
Jan 8	955	954	953	953	952	952	951	950	950	949	949	948	946	946	946	946	946	947	946	946	945	945	945	945	945	949	
Jan 9	944	943	942	941	940	939	939	938	938	937	937	936	935	935	936	937	938	939	939	940	941	941	942	935	944	939	
Jan 10	943	944	944	945	946	946	947	948	949	950	950	950	951	951	951	952	952	953	953	953	954	955	955	956	943	956	
Jan 11	956	957	957	958	958	959	959	960	961	961	962	962	962	962	962	963	964	964	965	966	966	966	966	967	956	967	
Jan 12	967	967	967	967	967	967	967	968	968	968	968	968	967	966	966	966	966	967	967	967	968	968	968	969	966	969	
Jan 13	969	969	969	969	969	968	969	969	969	969	968	968	968	967	967	967	967	967	967	968	968	968	967	967	967	968	
Jan 14	967	967	967	968	967	967	968	968	968	968	968	968	967	967	967	967	968	968	969	969	970	970	970	967	970	968	
Jan 15	970	971	971	971	971	970	970	969	969	968	968	967	966	964	963	962	962	961	960	959	958	958	957	956	956	971	
Jan 16	955	955	954	953	953	952	952	952	951	951	951	950	949	950	950	950	950	950	949	949	948	948	948	948	948	955	
Jan 17	948	947	947	947	947	947	947	948	948	949	950	950	951	951	952	953	954	954	955	956	957	958	959	960	947	960	
Jan 18	961	962	963	964	965	966	966	967	968	968	968	968	968	968	968	969	970	970	971	971	971	971	970	961	971	968	
Jan 19	970	970	970	970	969	969	969	968	967	967	966	965	964	963	962	961	961	960	959	958	957	956	955	955	955	970	964
Jan 20	954	952	951	950	949	948	947	946	946	945	945	944	944	943	943	943	943	943	943	943	944	944	944	943	954	946	
Jan 21	944	944	944	944	944	944	944	945	945	946	946	946	946	947	948	948	949	950	951	951	952	953	953	944	953	947	
Jan 22	953	954	954	954	954	954	954	954	954	954	954	953	952	952	951	950	950	949	949	948	948	948	947	946	946	952	
Jan 23	946	945	945	944	943	943	942	942	942	942	942	941	941	941	942	942	943	943	944	944	945	945	945	941	946	943	
Jan 24	946	946	946	947	947	947	947	947	946	946	946	946	945	945	944	944	943	943	943	943	943	943	944	943	943	945	
Jan 25	944	944	944	944	945	944	944	945	945	945	945	945	944	944	945	945	946	946	946	947	947	946	947	944	947	945	
Jan 26	947	946	946	947	947	948	948	949	949	949	949	950	950	950	950	950	950	950	950	950	950	950	950	946	950	949	
Jan 27	950	950	950	949	949	949	948	948	948	948	947	947	947	947	947	947	947	947	947	948	948	948	947	947	947	950	
Jan 28	947	947	946	946	945	945	945	945	945	946	946	946	946	947	947	948	949	949	950	951	951	952	953	945	953	947	
Jan 29	953	953	954	953	953	953	953	952	951	950	950	949	948	948	948	947	947	947	946	946	945	945	944	944	944	945	949
Jan 30	943	943	942	941	940	939	938	937	937	936	937	939	940	941	941	941	941	942	942	943	944	944	944	945	936	945	941
Jan 31	945	946	946	946	945	946	946	946	947	947	947	946	946	945	945	944	944	943	942	942	941	941	940	940	940	945	
Diurnal Maximum	970	971	971	971	971	970	970	969	969	969	968	968	968	968	968	969	970	970	971	971	971	971	970	967	970	968	
Diurnal Average	953	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	

<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>ND</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b> Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per days is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.





**Lakeland Industry & Community Association**  
**Cold Lake South Station - January 2024**  
**Summary of Hourly Averages**  
**AMBIENT TEMPERATURE (AT) in Degree Celsius**

Maximum Hourly Value:	10.6 °C	on Jan 30 at hr 15	Hours in Service:	744
Maximum Daily Value:	1.8 °C	on Jan 31	Hours of Data:	744
Minimum Hourly Value:	-39.5 °C	on Jan 12 at hr 22	Hours of Missing Data:	0
Minimum Daily Value:	-36.9 °C	on Jan 12	Hours of Calibration:	0
Monthly Average:	-15.3 °C		Operational Uptime:	100.0

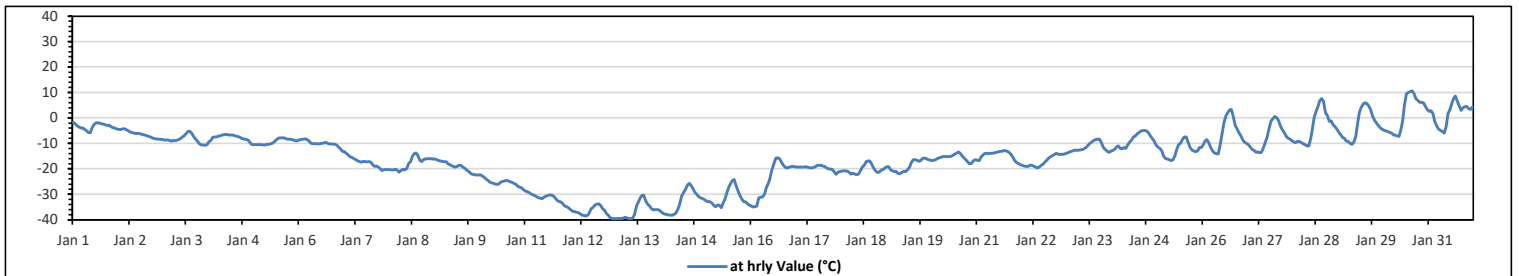
  

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Jan 1	-1.7	-2.3	-3	-3.5	-4	-4	-4.5	-4.9	-5.6	-5.8	-3.8	-2.6	-1.9	-1.9	-2.1	-2.3	-2.4	-2.7	-2.9	-2.8	-3.4	-3.8	-4	-4.3	-5.8	-1.7	-3.3
Jan 2	-4.4	-4.5	-4.3	-4.2	-4.6	-5	-5.5	-5.7	-6	-6.1	-6.1	-6.3	-6.6	-6.8	-6.9	-7.2	-7.4	-7.8	-8.1	-8.2	-8.3	-8.3	-8.4	-8.4	-8.4	-4.2	-6.4
Jan 3	-8.6	-8.7	-8.6	-8.9	-9.1	-8.9	-9	-8.7	-8.5	-8.1	-7.5	-6.9	-6.1	-5.2	-5.4	-6.2	-7.4	-8.5	-9.3	-10.1	-10.7	-10.6	-10.8	-10.5	-10.8	-5.2	-8.4
Jan 4	-9.4	-8.8	-7.6	-7.4	-7.4	-7.1	-7	-6.8	-6.6	-6.6	-6.7	-6.8	-6.7	-7.1	-7.2	-7.4	-7.8	-8.2	-8.3	-8.4	-8.8	-10	-10.5	-10.5	-10.5	-6.5	-7.7
Jan 5	-10.5	-10.5	-10.5	-10.5	-10.5	-10.6	-10.6	-10.6	-10.4	-10.3	-10.1	-9.8	-9.1	-8.4	-7.9	-7.9	-7.9	-8.2	-8.3	-8.3	-8.4	-8.7	-9	-9	-10.6	-7.9	-9.3
Jan 6	-8.6	-8.5	-8.3	-8.2	-8.4	-9	-9.8	-10.1	-10.1	-10.1	-10.2	-10.1	-9.9	-9.8	-9.6	-9.9	-10.2	-10.2	-10.2	-10.4	-10.8	-11.6	-12.1	-13.1	-13.1	-8.2	-10.0
Jan 7	-13.3	-13.9	-14.5	-15.2	-15.5	-16	-16.4	-16.9	-17.2	-17.4	-17	-17.1	-17.3	-17.2	-17.4	-18.4	-19	-18.9	-19.3	-20	-20.6	-20.3	-20.3	-20.3	-20.6	-13.3	-17.5
Jan 8	-20.3	-20.4	-20.4	-20.2	-20.4	-21.3	-20.6	-20.2	-20.4	-20	-17.9	-17.1	-14.9	-14	-13.7	-14.8	-16.6	-17.2	-16.4	-16.2	-16.1	-16.1	-16.1	-16.2	-21.3	-13.7	-17.8
Jan 9	-16.2	-16.3	-16.8	-16.9	-17.1	-17.1	-17.3	-18	-18.4	-18.8	-19.1	-19.2	-19	-18.5	-18.7	-19.4	-19.8	-20.5	-21.1	-21.8	-22.2	-22.3	-22.5	-22.4	-22.5	-16.2	-19.1
Jan 10	-22.3	-22.7	-23.2	-24	-24.4	-25.2	-25.5	-25.7	-25.9	-26.1	-25.9	-25.2	-24.9	-24.7	-24.6	-24.7	-25.1	-25.4	-25.6	-26.1	-26.8	-27.2	-27.5	-28.2	-28.2	-22.3	-25.3
Jan 11	-28.7	-29	-29.4	-29.8	-30.2	-30.5	-30.9	-31.3	-31.5	-31.7	-31	-30.7	-30.5	-30.2	-30.3	-30.7	-31.6	-32.5	-32.8	-33	-33.7	-34.6	-34.9	-35.4	-35.4	-28.7	-31.5
Jan 12	-36	-36.6	-36.8	-37	-37.1	-37.6	-38.1	-38.3	-38.5	-38.2	-37.4	-35.8	-35.1	-34.3	-33.8	-33.7	-34.4	-35.6	-36.3	-37.5	-38.3	-39.1	<b>-39.5</b>	<b>-39.5</b>	<b>-39.5</b>	<b>-39.5</b>	<b>-36.9</b>
Jan 13	<b>-39.5</b>	<b>-39.5</b>	<b>-39.5</b>	<b>-39.5</b>	-39.4	-39	-39.3	<b>-39.5</b>	<b>-39.5</b>	-39.4	-37.9	-34.6	-33	-31.3	-30.3	-30.5	-32.6	-33.8	-34.7	-35.6	-36.1	-36	-36	-36.1	<b>-39.5</b>	-30.3	-36.4
Jan 14	-36.7	-37.4	-37.7	-37.9	-38.1	-38.1	-38.2	-37.9	-37.4	-36	-33.9	-30.8	-29.4	-28.1	-26.5	-25.6	-26.6	-27.7	-29.1	-29.9	-30.9	-31.3	-31.6	-32	-38.2	-25.6	-32.9
Jan 15	-32.4	-32.8	-32.9	-33.4	-34.2	-34.9	-34.2	-34.3	-35.2	-33.4	-31.8	-29.6	-27.3	-25.8	-24.7	-24.2	-26.4	-28.5	-30.3	-31.9	-32.8	-33	-33.7	-34.3	-35.2	-24.2	-31.3
Jan 16	-34.6	-35	-34.9	-34.6	-31.4	-31	-31.1	-29.9	-27.3	-25.6	-23.8	-20.4	-18.1	-15.9	-15.6	-16	-17.4	-18.5	-19.2	-19.6	-19.4	-19.1	-19	-19.1	-35.0	-15.6	-24.0
Jan 17	-19.2	-19.3	-19.2	-19.2	-19.3	-19.1	-19.4	-19.5	-19.6	-19.4	-19.3	-18.7	-18.7	-18.6	-18.9	-19	-19.6	-20	-20.2	-20.2	-21.2	-22.2	-21.5	-21.1	-22.2	-18.6	-19.7
Jan 18	-20.9	-20.8	-20.8	-20.9	-21.3	-22	-21.6	-22	-22.3	-22	-20.6	-19.3	-18.5	-17.2	-16.9	-16.9	-18.1	-19.7	-20.8	-21.4	-21.3	-20.4	-20.3	-19.5	-22.3	-16.9	-20.2
Jan 19	-19.1	-19.1	-20.3	-20.8	-21.1	-21.1	-21.8	-21.9	-21.5	-21.1	-21.1	-20.4	-19.4	-17.5	-16.3	-16.3	-16.6	-17	-16.8	-15.9	-15.8	-16	-16.3	-16.5	-21.9	-15.8	-18.7
Jan 20	-16.7	-16.6	-16.3	-15.9	-15.7	-15.4	-15.1	-15.1	-15.2	-15.1	-15.1	-14.8	-14.3	-13.8	-13.4	-13.9	-14.9	-15.8	-16.5	-17.3	-18	-17.9	-16.7	-16.3	-18.0	-13.4	-15.7
Jan 21	-16.6	-16.7	-15.5	-14.7	-14	-13.9	-14	-13.9	-13.8	-13.7	-13.5	-13.4	-13.2	-13.1	-12.8	-12.9	-13.1	-13.6	-14.3	-15.4	-16.7	-17.5	-17.9	-18.4	-18.4	-12.8	-14.7
Jan 22	-18.7	-18.9	-19	-19	-18.6	-18.7	-18.9	-19.3	-19.6	-19.2	-18.5	-18.1	-17.4	-16.6	-15.8	-15.2	-14.8	-14.4	-13.9	-14.2	-14.4	-14.3	-14.2	-14	-19.6	-13.9	-16.9
Jan 23	-13.7	-13.4	-13.1	-12.8	-12.6	-12.7	-12.6	-12.4	-12.3	-12	-11.5	-10.6	-9.8	-9.4	-8.9	-8.5	-8.3	-8.3	-9.7	-11.6	-12.3	-13.2	-13.5	-13	-13.7	-8.3	-11.5
Jan 24	-12.7	-12.2	-11.4	-11	-12	-12.1	-11.6	-12	-10.7	-9.5	-8.7	-7.5	-7.1	-6.2	-5.7	-5.1	-4.9	-4.9	-5.1	-5.8	-7.1	-8.1	-9.1	-10.8	-12.7	-4.9	-8.8
Jan 25	-11.5	-12	-13	-14.9	-15.9	-16.2	-16.3	-16.7	-16.4	-14.8	-12.4	-10.5	-9.9	-8.4	-7.5	-7.5	-9.6	-11.6	-12.6	-13	-13.3	-12.8	-11.6	-11.6	-16.7	-7.5	-12.5
Jan 26	-10.6	-9.2	-8.4	-9.6	-11.5	-12.9	-13.7	-14	-14.1	-10.7	-6.2	-1.8	0.8	2.1	3.1	3.3	0.6	-2.9	-4.3	-5.8	-7	-8.4	-9.5	-10	-14.1	3.3	-6.7
Jan 27	-10.5	-11.4	-12.3	-12.7	-13.5	-13.4	-13.6	-13.5	-11.7	-9.6	-7.5	-4.1	-1.2	-0.2	0.6	0	-1.2	-3	-4.5	-5.7	-7	-7.8	-8.2	-8.8	-13.6	0.6	-7.5
Jan 28	-9.4	-9.7	-9.2	-9.3	-9.6	-10.1	-10.5	-10.9	-10.9	-8.1	-4.4	0.3	2.6	4.6	6.7	7.6	6.5	2.1	1	-1.3	-1.2	-2.7	-3.4	-4.4	-10.9	7.6	-3.5
Jan 29	-5.6	-6.6	-7.6	-8	-9.1	-9.3	-9.9	-10.3	-9.5	-7.1	-1.6	2.1	4.2	5.4	6	5.6	4.6	3.3	0.8	-0.8	-1.9	-2.9	-3.8	-4.4	-10.3	6.0	-2.8
Jan 30	-4.8	-5.1	-5.3	-5.6	-6	-6.8	-6.8	-7.1	-7.2	-5.1	-1.4	5.2	9.5	10	10.5	<b>10.6</b>	9.5	7.5	6.8	6.1	6.2	5.9	4.6	3.4	-7.2	<b>10.6</b>	1.4
Jan 31	2.6	2.8	1.7	-1.5	-3.2	-4.3	-4.8	-5.4	-6	-3.6	1.7	3.2	5.7	7.5	8.6	6.6	4.8	3	3.9	4.5	4.5	3.6	3.4	4.2	-6.0	8.6	<b>1.8</b>
Diurnal Maximum	2.6	2.8	1.7	-1.5	-3.2	-4.0	-4.5	-4.9	-5.6	-3.6	1.7	5.2	9.5	10.0	10.5	10.6	9.5	7.5	6.8	6.1	6.2	5.9	4.6	4.2			
Diurnal Average	-16.5	-16.6	-16.7	-17.0	-17.3	-17.5	-17.7	-17.8	-17.7	-16.9	-15.5	-13.9	-12.8	-11.9	-11.5	-11.6	-12.5	-13.5	-14.1	-14.8	-15.3	-15.7	-15.9	-16.1			

<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>ND</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b>	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per days is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



**Lakeland Industry & Community Association**  
**Cold Lake South Station - January 2024**  
**Summary of Hourly Averages**  
**STATION TEMPERATURE (ST) in Degree Celsius**

Maximum Hourly Value:	25.4 °C	on Jan 30 at hr 13	Hours in Service:	744
Maximum Daily Value:	23.9 °C	on Jan 30	Hours of Data:	744
Minimum Hourly Value:	18.5 °C	on Jan 12 at hr 10	Hours of Missing Data:	0
Minimum Daily Value:	22.1 °C	on Jan 12	Hours of Calibration:	0
Monthly Average:	23.0 °C		Operational Uptime:	100.0

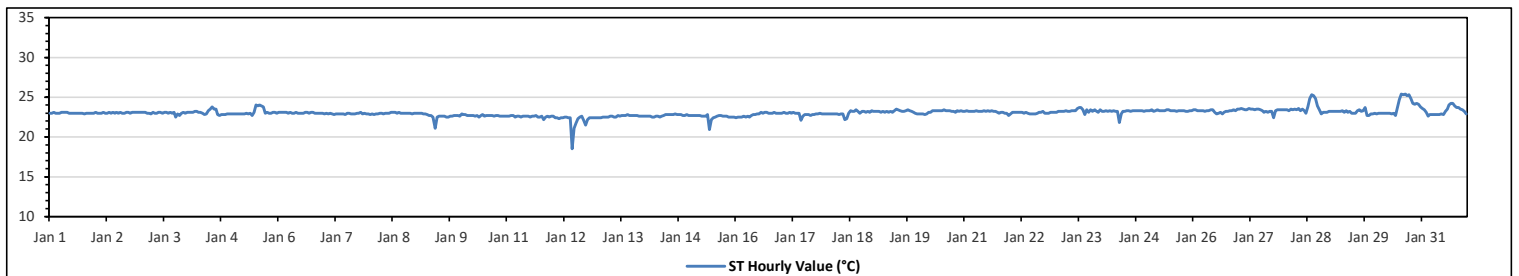
  

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Jan 1	23.0	23.0	23.1	23.0	23.0	23.0	23.1	23.1	23.1	23.1	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	22.9	23.0	23.0	23.0	23.0	22.9	23.1	23.0	
Jan 2	23.1	23.0	23.0	23.0	23.1	23.0	23.0	23.1	23.0	23.1	23.0	23.1	23.0	23.1	23.0	23.0	23.1	23.1	23.0	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.0
Jan 3	23.1	23.1	23.1	23.0	23.0	22.9	23.1	23.0	23.0	23.1	23.1	23.0	23.1	23.1	23.0	23.1	23.0	23.1	22.5	22.9	22.7	23.0	23.1	23.0	22.5	23.1	23.0
Jan 4	23.1	23.1	23.1	23.1	23.2	23.2	23.1	23.1	23.0	22.8	22.9	23.3	23.5	23.8	23.5	23.5	22.8	22.7	22.8	22.8	22.8	22.9	22.9	22.9	22.7	23.8	23.1
Jan 5	22.9	22.9	22.9	22.9	22.9	22.9	22.9	23.0	22.9	23.0	22.7	23.1	24.0	23.9	24.0	23.9	23.8	23.0	23.1	23.0	23.0	23.1	23.1	23.1	22.7	24.0	23.2
Jan 6	23.1	23.1	23.1	23.1	23.1	23.0	23.1	23.0	23.0	23.1	23.0	23.0	23.0	23.0	23.1	23.1	23.0	23.1	23.1	23.0	23.0	23.0	23.0	23.0	23.0	23.1	23.0
Jan 7	22.9	23.0	22.9	23.0	22.9	22.8	22.9	22.9	22.9	22.9	22.9	22.8	23.0	23.0	22.9	22.9	22.9	23.0	23.0	23.1	22.9	23.0	22.9	22.9	22.8	23.1	22.9
Jan 8	22.8	22.9	22.8	22.9	22.9	23.0	23.0	22.9	23.0	23.0	23.0	23.1	23.1	23.1	23.0	23.1	23.0	23.0	23.0	23.0	23.0	23.0	22.9	23.0	22.8	23.1	23.0
Jan 9	23.0	23.0	23.0	23.0	22.9	22.9	22.8	22.7	22.7	22.5	21.1	22.5	22.6	22.6	22.6	22.6	22.5	22.5	22.6	22.6	22.7	22.7	22.7	22.6	21.1	23.0	22.6
Jan 10	22.9	22.8	22.8	22.7	22.7	22.7	22.7	22.6	22.7	22.5	22.7	22.8	22.6	22.7	22.7	22.7	22.7	22.6	22.7	22.7	22.6	22.6	22.6	22.6	22.5	22.9	22.7
Jan 11	22.6	22.6	22.7	22.7	22.5	22.6	22.6	22.5	22.6	22.6	22.6	22.6	22.5	22.6	22.6	22.7	22.5	22.5	22.6	22.2	22.2	22.5	22.6	22.5	22.6	22.7	22.6
Jan 12	22.6	22.4	22.4	22.3	22.4	22.4	22.5	22.5	22.4	22.4	18.5	21.1	21.7	22.3	22.5	22.6	22.1	21.5	22.2	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.1
Jan 13	22.4	22.4	22.5	22.5	22.5	22.5	22.6	22.6	22.5	22.5	22.7	22.6	22.7	22.7	22.7	22.8	22.7	22.7	22.7	22.7	22.7	22.6	22.6	22.4	22.8	22.6	22.6
Jan 14	22.6	22.6	22.6	22.6	22.5	22.5	22.6	22.6	22.5	22.6	22.7	22.8	22.8	22.8	22.8	22.8	22.9	22.8	22.8	22.8	22.7	22.7	22.8	22.7	22.5	22.9	22.7
Jan 15	22.7	22.7	22.7	22.7	22.7	22.6	22.6	22.6	22.8	20.9	22.2	22.4	22.5	22.6	22.7	22.7	22.6	22.6	22.6	22.6	22.5	22.5	22.5	22.5	20.9	22.8	22.5
Jan 16	22.4	22.5	22.5	22.5	22.6	22.5	22.6	22.5	22.7	22.8	22.8	22.9	22.9	23.1	23.0	23.1	23.1	23.0	23.0	23.0	23.1	23.0	23.0	22.4	23.1	22.8	22.8
Jan 17	23.0	23.1	23.0	23.0	23.1	23.0	23.1	23.0	23.0	23.0	22.1	22.6	22.8	22.8	22.8	22.7	22.8	22.8	22.9	22.9	23.0	22.9	22.9	22.1	23.1	22.9	22.9
Jan 18	22.9	22.9	22.9	22.9	22.9	22.9	22.8	22.9	22.9	22.2	22.3	23.0	23.3	23.2	23.2	23.4	23.2	23.0	23.2	23.2	23.1	23.2	23.1	23.3	22.2	23.4	23.0
Jan 19	23.2	23.2	23.2	23.2	23.1	23.2	23.1	23.2	23.1	23.2	23.1	23.3	23.5	23.4	23.3	23.2	23.2	23.3	23.4	23.3	23.2	23.1	23.0	22.9	22.9	23.5	23.2
Jan 20	22.9	22.9	22.9	22.8	22.9	23.1	23.1	23.3	23.3	23.3	23.3	23.3	23.3	23.4	23.3	23.3	23.3	23.2	23.2	23.1	23.3	23.2	23.3	22.8	23.4	23.2	
Jan 21	23.2	23.3	23.2	23.2	23.2	23.2	23.3	23.2	23.2	23.2	23.3	23.2	23.3	23.2	23.3	23.2	23.2	23.1	23.0	23.1	23.1	23.0	23.0	22.7	22.7	23.3	23.2
Jan 22	22.9	23.1	23.1	23.1	23.1	23.1	23.1	23.0	23.1	23.0	22.9	22.9	22.9	23.0	23.0	23.1	23.1	23.2	23.0	23.0	23.0	23.1	23.1	22.9	23.2	23.0	23.0
Jan 23	23.1	23.2	23.2	23.2	23.2	23.3	23.2	23.2	23.3	23.3	23.3	23.6	23.7	23.7	23.4	22.8	23.4	23.1	23.4	23.2	23.4	23.2	23.1	23.4	22.8	23.7	23.3
Jan 24	23.2	23.2	23.3	23.2	23.3	23.2	23.3	23.2	23.2	21.8	22.9	23.2	23.2	23.3	23.3	23.2	23.3	23.3	23.3	23.3	23.3	23.3	23.2	23.3	21.8	23.3	23.2
Jan 25	23.3	23.3	23.4	23.2	23.3	23.4	23.3	23.3	23.3	23.3	23.4	23.4	23.3	23.3	23.3	23.2	23.3	23.3	23.3	23.3	23.2	23.2	23.3	23.2	23.4	23.3	23.3
Jan 26	23.4	23.4	23.3	23.3	23.3	23.3	23.2	23.3	23.3	23.4	23.4	23.1	22.9	23.0	23.1	22.9	23.1	23.2	23.2	23.3	23.3	23.3	23.4	22.9	23.5	23.2	23.2
Jan 27	23.5	23.6	23.5	23.4	23.4	23.6	23.5	23.5	23.4	23.5	23.5	23.4	23.3	23.1	23.2	23.1	23.2	23.2	22.4	23.3	23.4	23.4	23.4	22.4	23.6	23.3	23.3
Jan 28	23.4	23.4	23.3	23.5	23.4	23.5	23.4	23.6	23.3	23.5	23.3	23.0	23.8	24.8	25.3	25.2	24.8	23.9	23.4	22.9	23.1	23.1	23.1	22.9	25.3	23.6	23.6
Jan 29	23.2	23.2	23.2	23.2	23.2	23.3	23.1	23.3	23.1	23.2	23.0	23.0	23.0	23.3	23.4	23.2	23.3	23.3	23.7	22.7	22.7	22.9	22.9	22.7	22.7	23.1	23.1
Jan 30	22.9	23.0	23.0	23.0	23.0	23.0	23.0	23.0	22.9	23.0	22.7	23.7	24.7	25.4	25.3	25.4	25.2	25.3	24.8	24.2	24.1	24.2	24.1	23.8	22.7	25.4	23.9
Jan 31	23.6	23.4	23.1	22.6	22.8	22.8	22.8	22.8	22.8	22.9	22.8	23.2	23.5	24.0	24.2	24.2	23.9	23.7	23.7	23.5	23.4	23.2	22.9	22.6	24.2	23.3	23.3
Diurnal Maximum	23.6	23.6	23.5	23.5	23.4	23.6	23.5	23.6	23.4	23.5	23.5	23.7	24.7	25.4	25.3	25.4	25.2	25.3	24.8	24.2	24.1	24.2	24.1	23.8	22.6	24.2	23.8
Diurnal Average	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	22.9	22.7	22.9	23.1	23.2	23.2	23.2	23.2	23.1	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0

<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>ND</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b> Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per days is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



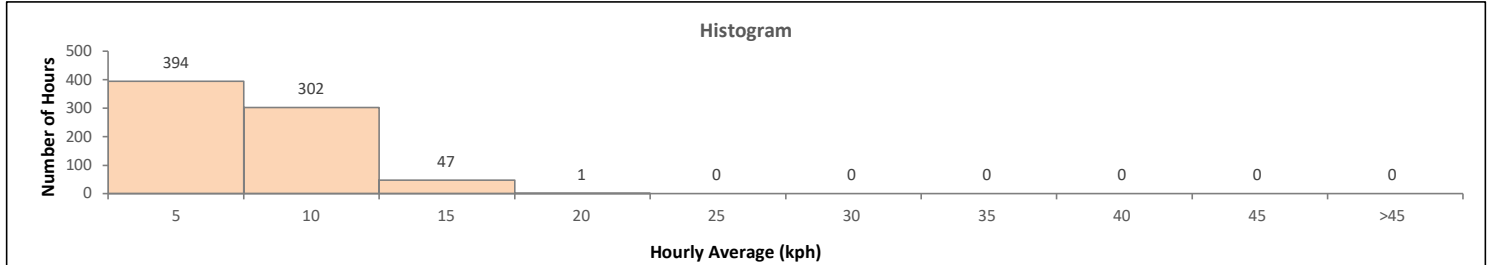
**Lakeland Industry & Community Association**  
**Cold Lake South Station - January 2024**  
**Summary of Hourly Averages**  
**VECTOR WIND SPEED (VWS) in km/hr**

Maximum Hourly Value:	16.1 kph	on Jan 9 at hr 16	Hours in Service:	744
Maximum Daily Value:	9.7 kph	on Jan 9	Hours of Data:	744
Minimum Hourly Value:	0.0 kph	on Jan 19 at hr 18	Hours of Missing Data:	0
Minimum Daily Value:	1.3 kph	on Jan 25	Hours of Calibration:	0
Monthly Average:	0.6 kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Jan 1	7.8	7.3	7.4	8.1	7.3	7.3	6.6	7.5	4.3	5.5	4.9	5.4	7.1	7.4	7.8	7.8	4.6	2.8	3.0	1.5	2.0	0.5	1.4	2.9	0.5	8.1	5.3
Jan 2	0.7	1.9	3.9	4.5	3.9	6.8	6.5	6.3	5.9	6.4	5.0	5.3	3.9	3.7	5.1	3.5	4.2	3.6	3.6	5.3	4.8	3.5	2.9	2.5	0.7	6.8	4.3
Jan 3	4.1	4.2	4.5	9.0	7.1	5.8	5.3	4.0	4.1	6.8	5.8	6.2	5.6	6.1	6.7	5.5	3.7	4.3	3.0	3.3	3.0	1.8	2.6	2.2	1.8	9.0	4.8
Jan 4	0.7	1.7	7.0	7.9	6.4	5.7	5.7	4.4	4.5	4.4	6.1	7.0	4.4	4.3	5.5	5.4	4.9	5.9	7.1	6.2	6.9	8.0	8.1	6.7	0.7	8.1	5.6
Jan 5	9.0	6.4	5.1	4.4	1.7	2.8	2.5	1.7	1.8	1.0	4.3	3.6	4.4	4.0	4.5	2.0	1.3	2.2	0.9	2.3	3.5	6.5	6.4	6.4	0.9	9.0	3.7
Jan 6	4.7	4.5	5.0	5.7	5.8	6.2	7.4	6.8	5.6	6.0	7.6	6.7	7.4	7.4	5.6	5.9	6.3	6.0	6.5	6.3	6.2	7.3	7.0	9.2	4.5	9.2	6.4
Jan 7	9.8	9.0	8.7	10.4	11.5	8.1	7.4	7.0	6.5	6.8	6.0	6.4	5.6	4.8	6.8	7.7	5.8	1.4	2.5	1.0	3.9	4.2	3.9	7.6	1.0	11.5	6.4
Jan 8	7.0	6.3	5.0	2.7	3.1	1.9	1.9	3.1	2.3	1.9	2.8	3.3	2.9	6.3	5.6	4.1	2.2	3.1	2.0	2.9	2.5	2.3	2.6	2.2	1.9	7.0	3.3
Jan 9	1.8	5.7	4.3	5.4	6.0	6.8	9.4	9.3	10.0	9.9	9.6	8.9	11.7	12.4	12.5	14.4	<b>16.1</b>	13.6	11.5	13.2	12.0	12.2	9.8	7.4	1.8	<b>16.1</b>	<b>9.7</b>
Jan 10	9.6	8.8	8.4	8.4	8.5	8.7	8.3	7.3	7.9	8.2	7.3	8.2	7.3	7.7	7.0	7.0	6.4	8.7	8.5	10.3	8.8	8.1	9.4	8.9	6.4	10.3	8.2
Jan 11	7.8	7.0	4.0	4.5	9.3	9.7	10.0	7.2	9.4	8.9	9.9	9.0	9.1	10.9	9.7	7.1	4.2	5.2	4.6	6.2	5.3	5.2	5.5	6.2	4.0	10.9	7.3
Jan 12	4.7	5.2	5.7	5.1	3.4	3.2	4.1	4.2	3.6	4.3	5.9	4.5	5.2	4.9	5.4	4.5	1.8	4.0	3.0	1.3	1.2	0.5	0.7	0.5	0.5	5.9	3.6
Jan 13	0.5	0.4	0.7	0.5	1.4	2.0	2.6	0.8	1.7	1.9	1.8	2.2	3.2	4.0	2.6	2.3	4.3	3.3	1.0	0.2	1.8	0.5	0.5	0.1	0.1	4.3	1.7
Jan 14	1.4	0.4	2.9	1.8	2.0	2.0	3.3	4.1	5.5	4.5	5.4	6.1	8.3	6.5	6.5	5.8	5.7	3.5	4.2	6.0	5.4	5.9	6.4	5.7	0.4	8.3	4.6
Jan 15	7.0	6.2	6.1	4.6	0.8	4.4	4.4	2.8	2.3	4.3	4.8	5.2	6.0	7.5	4.9	2.6	0.4	0.2	0.9	1.8	0.1	0.3	0.3	0.4	0.1	7.5	3.3
Jan 16	0.2	0.5	0.3	1.4	2.4	1.7	1.6	3.2	4.2	4.2	5.3	4.5	5.7	8.6	12.2	12.0	9.3	9.5	8.7	8.7	9.3	10.6	11.4	10.5	0.2	12.2	6.1
Jan 17	10.4	11.6	11.4	9.9	6.5	7.7	8.0	7.4	7.2	9.0	8.6	8.4	8.4	8.8	7.8	7.3	6.0	7.5	6.5	5.6	3.6	4.7	6.0	6.2	3.6	11.6	7.7
Jan 18	5.9	5.8	7.8	5.9	4.9	5.2	7.6	4.6	5.0	6.1	7.7	11.0	12.7	10.4	11.7	7.9	6.7	7.2	5.5	4.1	5.6	5.0	4.8	4.5	4.1	12.7	6.8
Jan 19	5.3	6.9	6.5	6.0	3.7	4.6	5.5	1.9	3.0	2.6	4.5	4.4	3.7	2.2	0.8	1.6	1.2	0.6	<b>0.0</b>	4.6	5.7	7.8	9.4	8.7	<b>0.0</b>	9.4	4.2
Jan 20	9.6	8.3	7.7	11.2	6.7	4.9	2.9	3.5	4.2	5.0	6.0	6.3	5.6	4.8	5.9	6.0	5.8	3.7	4.6	2.8	1.8	1.6	1.5	2.1	1.5	11.2	5.1
Jan 21	1.0	0.6	0.5	2.0	2.2	6.1	4.6	4.6	4.3	5.2	4.6	5.3	5.6	6.4	7.0	7.6	8.7	11.1	10.9	10.3	9.8	11.6	11.5	13.7	0.5	13.7	6.5
Jan 22	8.6	7.2	5.9	5.7	6.8	6.0	6.5	6.7	6.7	7.9	8.8	10.2	10.0	9.0	7.5	8.5	7.3	6.7	10.5	10.5	8.7	8.8	10.3	9.0	5.7	10.5	8.1
Jan 23	7.3	7.2	6.3	5.8	6.2	6.4	4.2	4.7	2.8	4.0	3.3	1.0	0.9	2.6	2.6	3.4	3.1	2.3	0.1	0.4	<b>0.0</b>	0.1	0.1	0.2	<b>0.0</b>	7.3	3.1
Jan 24	0.2	0.2	0.3	0.1	0.2	0.2	0.6	1.1	5.6	8.0	9.2	7.8	6.3	6.3	5.3	5.1	5.9	6.7	7.9	6.3	4.1	4.6	3.8	1.9	0.1	9.2	4.1
Jan 25	4.0	3.4	2.7	0.2	0.2	0.2	0.3	0.1	0.1	0.2	0.2	0.7	2.1	2.1	2.0	3.5	2.3	1.6	1.2	0.4	1.7	0.3	0.2	0.4	0.1	4.0	<b>1.3</b>
Jan 26	0.8	0.3	0.4	0.2	1.0	0.1	0.2	<b>0.0</b>	<b>0.0</b>	0.1	1.8	4.6	5.0	6.6	4.7	4.9	1.1	0.7	0.1	0.1	0.7	0.2	1.0	0.9	<b>0.0</b>	6.6	1.5
Jan 27	0.3	0.1	0.2	0.1	0.7	1.6	0.3	0.2	0.6	0.4	0.3	2.2	3.1	5.0	6.3	5.5	6.1	0.7	0.2	0.1	0.1	0.2	0.5	0.3	0.1	6.3	1.5
Jan 28	0.5	0.7	1.7	1.0	0.4	0.4	0.8	0.2	0.1	0.2	1.8	3.3	6.0	7.4	7.1	6.2	5.5	3.3	5.6	5.0	5.3	2.6	4.5	2.5	0.1	7.4	3.0
Jan 29	0.7	0.9	1.2	0.1	0.1	0.3	1.7	0.7	1.9	1.4	2.8	2.2	3.1	4.6	2.1	2.3	2.8	1.7	0.5	0.4	0.4	0.4	0.6	0.5	0.1	4.6	1.4
Jan 30	1.1	0.8	2.3	0.9	1.2	0.2	0.9	0.6	0.9	1.2	1.3	13.1	11.5	11.1	9.5	9.0	10.1	14.3	13.0	12.1	10.8	10.0	7.4	7.5	0.2	14.3	6.3
Jan 31	7.8	8.0	5.7	2.8	0.1	1.4	0.2	0.7	0.4	0.6	0.6	3.0	2.0	4.2	4.4	3.7	2.6	2.4	5.3	6.7	11.5	10.9	9.0	13.2	0.1	13.2	4.5
Diurnal Maximum	10.4	11.6	11.4	11.2	11.5	9.7	10.0	9.3	10.0	9.9	9.9	13.1	12.7	12.4	12.5	14.4	16.1	14.3	13.0	13.2	12.0	12.2	11.5	13.7			
Diurnal Average	4.5	4.4	4.5	4.4	3.9	4.1	4.2	3.8	3.9	4.4	5.0	5.7	5.9	6.4	6.2	5.8	5.0	4.8	4.6	4.7	4.7	4.8	4.9				

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction/Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

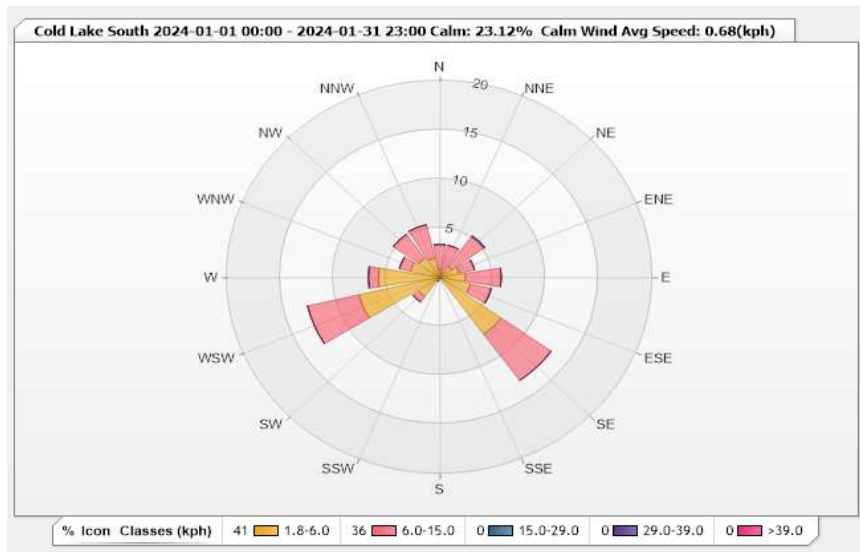


**Station: Cold Lake South Monitor: WDS [kph] Monthly: 01-2024**

Type: Wind Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm (WS<1.8kph): 23.12%      Valid Data: 100.00%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	0.81	2.55	0	0	0	3.36
NNE	0.4	2.96	0	0	0	3.36
NE	1.34	3.76	0.13	0	0	5.23
ENE	1.88	1.48	0	0	0	3.36
E	2.42	3.36	0	0	0	5.78
ESE	2.96	2.02	0	0	0	4.98
SE	7.12	5.78	0	0	0	12.9
SSE	0.13	0	0	0	0	0.13
S	0	0	0	0	0	0
SSW	0.4	0	0	0	0	0.4
SW	2.42	0.67	0	0	0	3.09
WSW	7.8	4.97	0	0	0	12.77
W	5.78	0.94	0	0	0	6.72
WNW	2.82	1.08	0	0	0	3.9
NW	2.42	2.96	0	0	0	5.38
NNW	2.02	3.49	0	0	0	5.51
Summary	40.72	36.02	0.13	0	0	76.87



Lakeland Industry & Community Association

Cold Lake South Station - January 2024

Summary of Hourly Averages

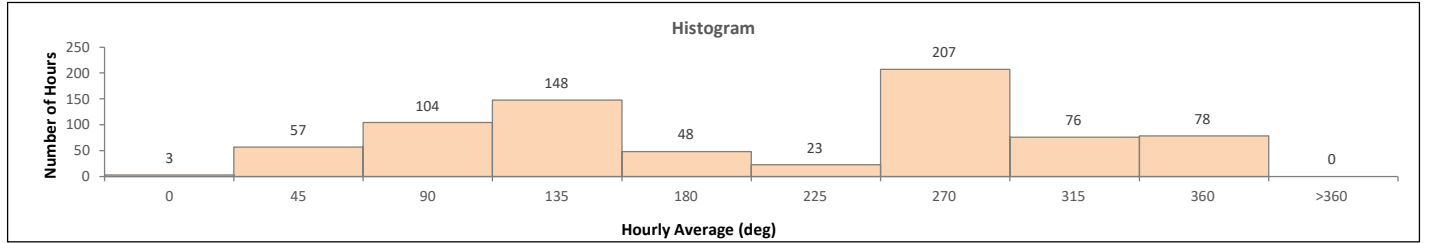
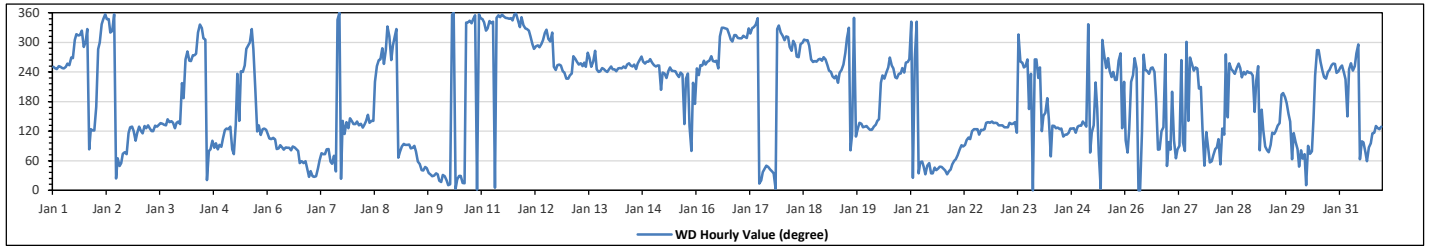
WIND DIRECTION (VWD) in sector

Monthly Average:	16 (NNE) degree	Hours of Service:	744
		Hours of Data:	744
		Hours of Missing Data:	0
		Hours of Calibration:	0
		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant
Jan 1	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	WNW	NW	NW	NW	NW	WNW	WNW	NW	E	ESE	ESE	ESE	271	W
Jan 2	SSE	WNW	WNW	NNW	NNW	N	NNW	NNW	NW	NW	N	NNE	ENE	NE	NE	ENE	ENE	ENE	ESE	SE	SE	ESE	E	ESE	27	NNE
Jan 3	SE	ESE	ESE	SE	SE	SE	SE	ESE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	130	SE
Jan 4	SW	S	W	W	W	W	W	W	W	NW	NNW	NNW	NW	NW	NNE	E	E	E	E	E	E	E	E	ESE	7	N
Jan 5	ESE	SE	ESE	SE	E	ENE	SE	SW	SE	WSW	WSW	WSW	WNW	WNW	WNW	NW	WNW	SSW	ESE	SE	ESE	ESE	SE	140	SE	
Jan 6	ESE	ESE	ESE	ESE	ESE	E	E	E	E	E	E	E	E	E	E	E	E	E	NE	ENE	NE	ENE	NE	NNE	79	ENE
Jan 7	NE	NNE	NNE	NNE	NE	ENE	ENE	ENE	ENE	E	E	ENE	NE	ENE	NE	NNW	N	NNE	SE	ESE	SE	SE	SE	58	ENE	
Jan 8	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SE	SE	SE	SW	WSW	W	WNW	WSW	WNW	NNW	NW	W	WNW	NW	192	S	
Jan 9	NW	ENE	ENE	E	E	E	E	E	E	E	E	ENE	ENE	NE	NE	NE	NE	NE	NNE	NNE	NNE	NE	NNE	56	NE	
Jan 10	NNW	NNE	NNE	NNE	NNE	N	NNE	N	N	NNE	NNE	NNE	NNE	NNE	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	NNW	6	N
Jan 11	NNW	NNW	NW	NNW	NNW	NNW	NNW	N	N	N	N	N	N	N	NNW	NNW	NNW	NNW	NNW	NNW	N	N	NNW	NNW	347	NNW
Jan 12	NNW	NW	NW	NW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	NW	NW	NW	WNW	NW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	301	WNW
Jan 13	SW	SW	SW	W	W	WSW	WSW	WSW	WSW	WSW	W	WSW	W	WSW	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	255	WSW
Jan 14	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	WSW	W	256	WSW
Jan 15	WSW	WSW	WSW	WSW	SSW	WSW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SE	SW	SE	SW	242	WSW
Jan 16	WSW	SW	WSW	WSW	W	WSW	W	W	W	W	W	W	WSW	NW	NNW	NNW	NNW	NW	NW	NW	WNW	NW	NW	305	WNW	
Jan 17	NW	NW	NW	NW	NW	NNW	NW	NNW	NNW	NNW	NNW	NNW	NNE	NE	NE	NE	NE	NE	NE	NE	NW	NW	NNW	NW	348	NNW
Jan 18	NW	WNW	NW	NW	WNW	W	WNW	WNW	W	WNW	WNW	NW	WNW	WNW	WNW	W	WSW	W	W	W	W	W	W	290	WNW	
Jan 19	W	WSW	WSW	WSW	SW	SW	SW	SW	WSW	WSW	W	NW	NNW	E	ESE	N	ESE	SE	SE	SE	SE	SE	SE	208	SSW	
Jan 20	SE	ESE	ESE	SE	SE	SE	SE	SE	SW	SW	SW	WSW	WSW	W	WSW	WSW	SW	SW	SW	SW	WSW	WSW	WSW	W	198	SSW
Jan 21	NNW	NNE	W	NNW	NNE	ENE	ENE	NE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	43	NE	
Jan 22	ENE	ENE	ENE	E	E	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	SE	114	ESE	
Jan 23	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ENE	NW	W	WSW	WSW	WSW	W	SSE	SW	N	W	WSW	146	SE
Jan 24	WSW	ESE	SSE	SSE	S	SE	ENE	SE	SE	SE	SE	ESE	SE	ESE	ESE	ESE	ESE	SE	SE	SE	ESE	SE	SE	123	ESE	
Jan 25	SE	SE	SE	NNW	ENE	ESE	SE	SW	SSE	ENE	N	WNW	W	WSW	W	WSW	SW	WSW	SW	SW	W	W	SE	SW	212	SSW
Jan 26	E	ENE	ESE	SW	SW	W	WSW	N	N	ESE	W	WSW	WSW	SW	WSW	WSW	WSW	S	E	E	ESE	SE	W	NE	241	WSW
Jan 27	E	E	SSW	E	ENE	E	E	W	E	E	WNW	SE	W	WSW	WSW	WSW	WSW	SSW	SSW	SE	NE	ESE	E	NE	241	WSW
Jan 28	ENE	ENE	E	E	ESE	NE	SE	ESE	W	SE	WSW	WSW	WSW	SW	WSW	WSW	WSW	SW	WSW	SW	WSW	SW	WSW	SW	240	WSW
Jan 29	SSE	SW	WSW	E	SSE	ESE	E	E	ENE	E	ESE	ESE	ESE	SE	SSW	SSW	S	S	SSE	SE	ENE	ESE	E	137	SE	
Jan 30	E	NE	E	ENE	ENE	N	E	ENE	ENE	SE	SW	WNW	WNW	WSW	WSW	SW	SW	WSW	WSW	WSW	WSW	SW	WSW	SW	251	WSW
Jan 31	WSW	WSW	WSW	SW	SSE	WSW	WSW	WSW	WSW	W	WNW	ENE	E	E	ENE	ENE	E	ESE	ESE	SE	SE	ESE	SE	134	SE	

<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>ND</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> Invalid Data (Machine Malfunction/Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b> Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Lakeland Industry & Community Association

Cold Lake South Station - January 2024

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr & WIND DIRECTION (VWD) in sector

WIND SPEED	
Maximum Hourly Value:	16.1 kph on Jan 9 at hr 16
Maximum Daily Value:	9.7 kph on Jan 9
Minimum Hourly Value:	0.0 kph on Jan 19 at hr 18
Minimum Daily Value:	1.3 kph on Jan 25
Monthly Average:	0.6 kph
Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Hours of Calibration:	0
Operational Uptime:	100.0

WIND DIRECTION	
Monthly Average:	16 degree (NNE)

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Jan 1	7.8	7.3	7.4	8.1	7.3	7.3	6.6	7.5	4.3	5.5	4.9	5.4	7.1	7.4	7.8	7.8	4.6	2.8	3.0	1.5	2.0	0.5	1.4	2.9	0.5	8.1	5.3
Jan 2	0.7	1.9	3.9	4.5	3.9	6.8	6.5	6.3	5.9	6.4	5.0	5.3	3.9	3.7	5.1	3.5	4.2	3.6	3.6	5.3	4.8	3.5	2.9	2.5	0.7	6.8	4.3
Jan 3	4.1	4.2	4.5	9.0	7.1	5.8	5.3	4.0	4.1	6.8	5.8	6.2	5.6	6.1	6.7	5.5	3.7	4.3	3.0	3.3	3.0	1.8	2.6	2.2	1.8	9.0	4.8
Jan 4	0.7	1.7	7.0	7.9	6.4	5.7	4.4	4.5	4.4	6.1	7.0	4.4	4.3	5.5	5.4	4.9	5.9	7.1	6.2	6.9	8.0	8.1	6.7	0.7	8.1	5.6	
Jan 5	9.0	6.4	5.1	4.4	1.7	2.8	2.5	1.7	1.8	1.0	4.3	3.6	4.4	4.0	4.5	2.0	1.3	2.2	0.9	2.3	3.5	6.5	6.4	6.4	0.9	9.0	3.7
Jan 6	4.7	4.5	5.0	5.7	5.8	6.2	7.4	6.8	5.6	6.0	7.6	6.7	7.4	7.4	5.6	5.9	6.3	6.0	6.5	6.3	6.2	7.3	7.0	9.2	4.5	9.2	6.4
Jan 7	9.8	9.0	8.7	10.4	11.5	8.1	7.4	7.0	6.5	6.8	6.0	6.4	5.6	4.8	6.8	7.7	5.8	1.4	2.5	1.0	3.9	4.2	3.9	7.6	1.0	11.5	6.4
Jan 8	7.0	6.3	5.0	2.7	3.1	1.9	1.9	3.1	2.3	1.9	2.8	3.3	2.9	6.3	5.6	4.1	2.2	3.1	2.0	2.9	2.5	2.3	2.6	2.2	1.9	7.0	3.3
Jan 9	1.8	5.7	4.3	5.4	6.0	6.8	9.4	9.3	10.0	9.9	9.6	8.9	11.7	12.4	12.5	14.4	16.1	13.6	11.5	13.2	12.0	12.2	9.8	7.4	1.8	16.1	9.7
Jan 10	9.6	8.8	8.4	8.4	8.5	8.7	8.3	7.3	7.9	8.2	7.3	8.2	7.3	7.7	7.0	7.0	6.4	8.7	8.5	10.3	8.8	8.1	9.4	8.9	6.4	10.3	8.2
Jan 11	7.8	7.0	4.0	4.5	9.3	9.7	10.0	7.2	9.4	8.9	9.9	9.0	9.1	10.9	9.7	7.1	4.2	5.2	4.6	6.2	5.3	5.2	5.5	6.2	4.0	10.9	7.3
Jan 12	4.7	5.2	5.7	5.1	3.4	3.2	4.1	4.2	3.6	4.3	5.9	4.5	5.2	4.9	5.4	4.5	1.8	4.0	3.0	1.3	1.2	0.5	0.7	0.5	0.5	5.9	3.6
Jan 13	0.5	0.4	0.7	0.5	1.4	2.0	2.6	0.8	1.7	1.9	1.8	2.2	3.2	4.0	2.6	2.3	4.3	3.3	1.0	0.2	1.8	0.5	0.5	0.1	0.1	4.3	1.7
Jan 14	1.4	0.4	2.9	1.8	2.0	2.0	3.3	4.1	5.5	4.5	5.4	6.1	8.3	6.5	6.5	5.8	5.7	3.5	4.2	6.0	5.4	5.9	6.4	5.7	0.4	8.3	4.6
Jan 15	7.0	6.2	6.1	4.6	0.8	4.4	4.4	2.8	2.3	4.3	4.8	5.2	6.0	7.5	4.9	2.6	0.4	0.2	0.9	1.8	0.1	0.3	0.3	0.4	0.1	7.5	3.3
Jan 16	0.2	0.5	0.3	1.4	2.4	1.7	1.6	3.2	4.2	4.2	5.3	4.5	5.7	8.6	12.2	10.0	9.3	9.5	8.7	9.3	10.6	11.4	10.5	10.5	0.2	12.2	6.1
Jan 17	10.4	11.6	11.4	9.9	6.5	7.7	8.0	7.4	7.2	9.0	8.6	8.4	8.8	7.8	7.3	6.0	7.5	6.5	5.6	3.6	4.7	6.0	6.2	6.2	3.6	11.6	7.7
Jan 18	5.9	5.8	7.8	5.9	4.9	5.2	7.6	4.6	5.0	6.1	7.7	11.0	12.7	10.4	11.7	7.9	6.7	7.2	5.5	4.1	5.6	5.0	4.8	4.5	4.1	12.7	6.8
Jan 19	5.3	6.9	6.5	6.0	3.7	4.6	5.5	1.9	3.0	2.6	4.5	4.4	3.7	2.2	0.8	1.6	1.2	0.6	0.0	4.6	5.7	7.8	9.4	8.7	0.0	9.4	4.2
Jan 20	9.6	8.3	7.7	11.2	6.7	4.9	2.9	3.5	4.2	5.0	6.0	6.3	5.6	4.8	5.9	6.0	5.8	3.7	4.6	2.8	1.8	1.6	1.5	2.1	1.5	11.2	5.1
Jan 21	1.0	0.6	0.5	2.0	2.2	6.1	4.6	4.6	4.3	5.2	4.6	5.3	5.6	6.4	7.0	7.6	8.7	11.1	10.9	10.3	9.8	11.6	11.5	13.7	0.5	13.7	6.5
Jan 22	8.6	7.2	5.9	5.7	6.8	6.0	6.5	6.7	6.7	7.9	8.8	10.2	10.0	9.0	7.5	8.5	7.3	6.7	10.5	10.5	8.7	8.8	10.3	9.0	5.7	10.5	8.1
Jan 23	7.3	7.2	6.3	5.8	6.2	6.4	4.2	4.7	2.8	4.0	3.3	1.0	0.9	2.6	2.6	3.4	3.1	2.3	0.1	0.4	0.0	0.1	0.1	0.2	0.0	7.3	3.1
Jan 24	0.2	0.2	0.3	0.1	0.2	0.2	0.6	1.1	5.6	8.0	9.2	7.8	6.3	6.3	5.3	5.1	5.9	6.7	7.9	6.3	4.1	4.6	3.8	1.9	0.1	9.2	4.1
Jan 25	4.0	3.4	2.7	0.2	0.2	0.2	0.3	0.1	0.1	0.2	0.2	0.7	2.1	2.1	2.0	3.5	2.3	1.6	1.2	0.4	1.7	0.3	0.2	0.4	0.1	4.0	1.3
Jan 26	0.8	0.3	0.4	0.2	1.0	0.1	0.2	0.0	0.0	0.1	1.8	4.6	5.0	6.6	4.7	4.9	1.1	0.7	0.1	0.1	0.7	0.2	1.0	0.9	0.0	6.6	1.5
Jan 27	0.3	0.1	0.2	0.1	0.7	1.6	0.3	0.2	0.6	0.4	0.3	2.2	3.1	5.0	6.3	5.5	6.1	0.7	0.2	0.1	0.1	0.2	0.5	0.3	0.1	6.3	1.5
Jan 28	0.5	0.7	1.7	1.0	0.4	0.4	0.8	0.2	0.1	0.2	1.8	3.3	6.0	7.4	7.1	6.2	5.5	3.3	5.6	5.0	5.3	2.6	4.5	2.5	0.1	7.4	3.0
Jan 29	0.7	0.9	1.2	0.1	0.1	0.3	1.7	0.7	1.9	1.4	2.8	2.2	3.1	4.6	2.1	2.3	2.8	1.7	0.5	0.4	0.4	0.4	0.6	0.5	0.1	4.6	1.4
Jan 30	1.1	0.8	2.3	0.9	1.2	0.2	0.9	0.6	0.9	1.2	1.3	13.1	11.5	11.1	9.5	9.0	10.1	14.3	13.0	12.1	10.8	10.0	7.4	7.5	0.2	14.3	6.3
Jan 31	7.8	8.0	5.7	2.8	0.1	1.4	0.2	0.7	0.4	0.6	0.6	3.0	2.0	4.2	4.4	3.7	2.6	2.4	5.3	6.7	11.5	10.9	9.0	13.2	0.1	13.2	4.5
	WSW	WSW	WSW	SW	SSE	WSW	WSW	WSW	WSW	W	WNW	ENE	E	E	ENE	ENE	E	E	E	E	E	E	E	E			134(SE)

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

**Lakeland Industry & Community Association**  
**Cold Lake South Station - January 2024**  
**Summary of Hour Standard Deviations**

**STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree**

Maximum Hourly Value: 80 degree on Jan 19 at hr 18		Hours in Service: 744	
Minimum Hourly Value: 0 degree on Jan 23 at hr 20		Hours of Data: 744	
		Hours of Missing Data: 0	
		Hours of Calibration: 0	
		Operational Uptime: 100.0	

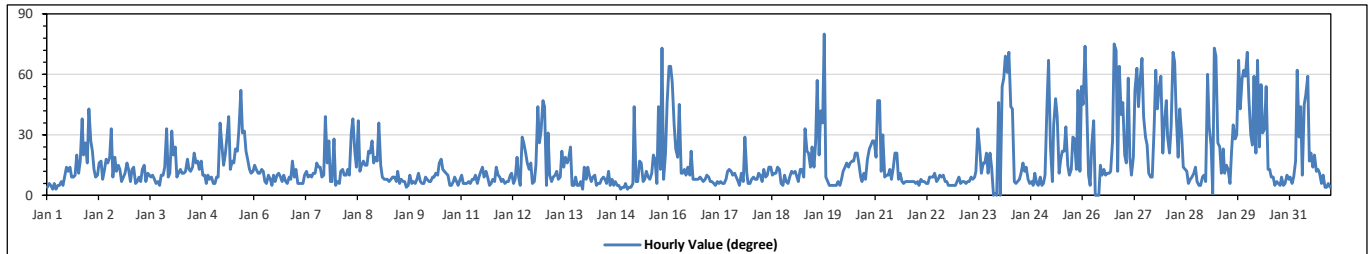
  

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			23
Jan 1	4	6	5	3	6	3	5	5	7	5	9	14	12	14	9	9	10	20	11	17	38	20	26	16	3	38
Jan 2	43	27	22	13	9	10	16	17	8	12	18	16	19	33	9	19	12	15	13	7	9	11	16	13	7	43
Jan 3	7	13	14	6	7	9	7	13	15	7	11	10	9	10	8	6	7	5	10	10	14	33	9	11	5	33
Jan 4	32	20	24	9	11	13	11	11	12	18	13	12	14	21	16	17	13	17	10	10	6	10	8	9	6	32
Jan 5	6	6	9	9	36	26	15	20	28	39	13	17	16	23	22	33	52	31	32	22	18	13	11	12	6	52
Jan 6	15	13	11	11	13	12	7	6	10	8	5	10	7	10	11	9	7	10	7	6	9	8	17	9	5	17
Jan 7	13	6	6	6	6	10	12	9	10	9	11	11	16	14	14	9	10	39	16	27	7	7	28	5	5	39
Jan 8	7	6	12	13	10	10	13	10	31	38	22	14	37	12	15	17	15	15	22	21	27	16	19	17	6	38
Jan 9	36	15	9	8	8	8	7	8	9	9	7	12	6	8	7	7	4	5	10	6	7	6	8	11	4	36
Jan 10	7	6	6	9	8	7	7	9	9	11	10	16	18	13	12	11	10	5	5	7	9	7	5	8	5	18
Jan 11	10	6	6	6	7	6	8	8	10	6	9	12	14	9	12	9	5	6	8	7	14	10	9	7	5	14
Jan 12	8	6	7	7	10	11	6	8	19	9	5	29	26	21	16	13	16	6	7	15	44	26	32	47	5	47
Jan 13	44	5	31	10	7	9	10	12	8	9	22	14	19	16	18	24	5	5	9	5	5	7	3	14	3	44
Jan 14	8	14	10	7	9	10	5	6	6	8	9	8	6	12	5	8	5	7	5	5	3	4	4	6	3	14
Jan 15	3	4	4	6	44	7	7	17	16	7	8	12	9	8	11	20	18	6	44	13	73	8	21	46	3	73
Jan 16	64	64	56	35	23	19	45	11	11	13	10	14	10	22	8	8	8	8	9	8	7	8	10	9	7	64
Jan 17	7	7	6	5	7	6	7	6	6	8	12	13	12	10	11	9	7	5	11	7	29	11	6	6	5	29
Jan 18	8	9	8	8	11	10	7	13	9	10	14	14	10	11	11	14	13	6	5	10	7	6	9	12	5	14
Jan 19	11	12	10	7	13	13	9	33	22	21	14	24	14	26	57	20	42	36	80	9	7	5	5	5	5	80
Jan 20	5	5	7	5	8	12	14	16	14	16	17	17	21	21	16	9	7	11	8	18	23	25	27	27	5	27
Jan 21	19	47	47	12	30	9	10	10	13	8	14	21	21	8	11	7	6	7	7	7	7	7	7	6	6	47
Jan 22	7	5	8	7	7	6	6	9	9	9	11	7	8	10	9	10	7	7	5	5	5	5	7	5	11	7
Jan 23	9	6	7	7	6	7	7	9	8	9	12	33	23	11	16	16	21	11	21	14	0	1	0	46	0	46
Jan 24	0	54	58	69	61	71	44	43	7	6	7	8	11	16	12	14	8	6	7	5	11	6	5	9	0	71
Jan 25	5	6	10	44	67	24	7	35	48	39	11	18	22	22	34	15	10	13	29	28	13	52	12	54	5	67
Jan 26	45	74	46	10	5	25	37	0	0	0	15	10	13	10	11	11	12	27	75	72	12	64	40	46	0	75
Jan 27	20	16	58	19	10	19	52	63	44	57	68	39	29	25	11	9	9	34	62	43	53	59	21	36	9	68
Jan 28	47	29	21	34	71	66	40	19	43	30	14	13	12	6	8	9	11	14	7	5	5	9	10	7	5	71
Jan 29	60	34	25	1	73	69	26	24	11	23	11	15	13	6	22	35	28	30	67	43	58	62	59	71	1	73
Jan 30	48	30	25	59	21	67	24	55	31	33	54	13	13	9	9	5	7	6	5	9	5	6	10	8	5	67
Jan 31	9	6	9	17	62	29	44	10	45	50	59	17	21	14	20	12	13	11	6	10	4	4	6	4	4	62
Diurnal Minimum	0	4	4	1	5	3	5	0	0	0	5	7	6	6	5	5	4	5	5	5	0	1	0	4		
Diurnal Maximum	64	74	58	69	73	71	52	63	48	57	68	39	37	33	57	35	52	39	80	72	73	64	59	71		

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Machine Malfunction/Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



**TAMARACK STATION**

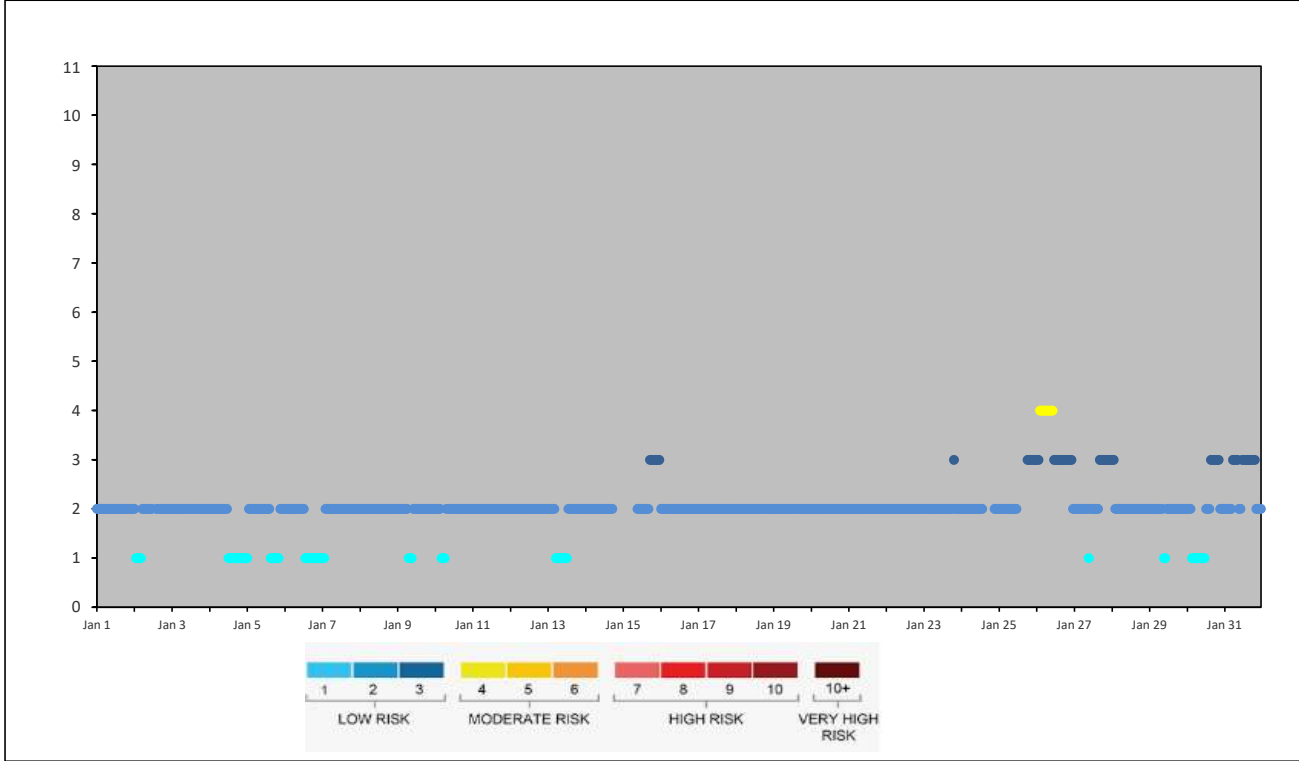


## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - January 2024

### AIR QUALITY HEALTH INDEX

Day	Hourly Period Starting at (MST)																							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan 1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 2	2	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 4	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1
Jan 5	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2	2
Jan 6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	2
Jan 7	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 9	2	2	2	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 10	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 13	2	2	2	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
Jan 14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3
Jan 16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2
Jan 24	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 25	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3
Jan 26	3	3	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	2
Jan 27	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3
Jan 28	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 29	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 30	2	2	2	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	2	2	2
Jan 31	2	2	2	2	2	3	3	3	3	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2



Lakeland Industry & Community Association

Tamarack Site - January 2024

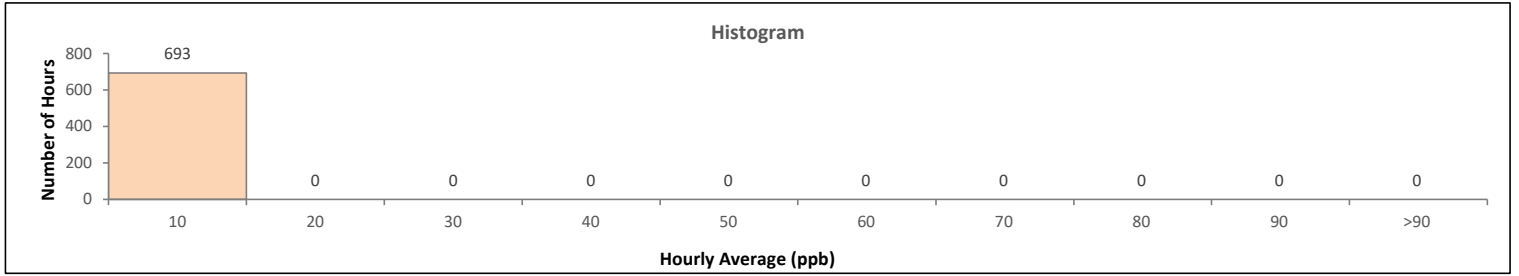
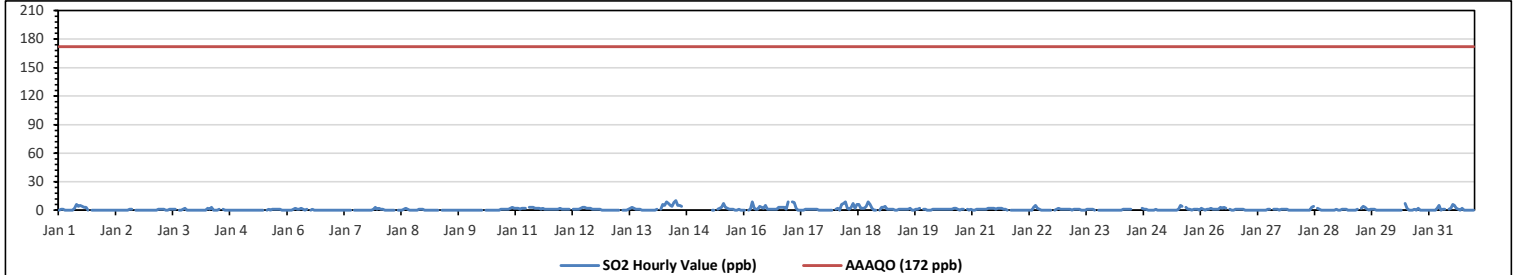
Summary of Hourly Averages

SULPHUR DIOXIDE (SO<sub>2</sub>) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																													
Number of 1-Hour Exceedances: 0					Number of 24-Hour Exceedances: 0					30-Day Exceedence: 0																			
Maximum Hourly Value: 10 ppb on Jan 14 at hr 12					Hours in Service: 744																								
Maximum Daily Value: 3.4 ppb on Jan 18					Hours of Data: 693																								
Minimum Hourly Value: 0 ppb on Jan 1 at hr 0					Hours of Missing Data: 15																								
Minimum Daily Value: 0.0 ppb on Jan 9					Hours of Calibration: 36																								
Monthly Average: 0.9 ppb					Operational Uptime: 98.0																								
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
Jan 1	0	1	1	0	0	0	0	0	2	6	4	5	4	3	3	0	S	0	0	0	0	0	0	0	0	0	0	6	1.3
Jan 2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	S	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Jan 3	0	0	0	0	1	1	1	1	0	0	1	1	1	1	S	0	0	1	2	0	0	0	0	0	0	0	0	2	0.5
Jan 4	0	0	0	0	0	0	2	1	3	0	0	0	1	S	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0.3
Jan 5	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	0	1	1	1	1	1	0	0	0	0	0	0	1	0.3
Jan 6	0	0	0	1	2	1	1	2	1	0	1	S	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4
Jan 7	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	3	1	0	3	0.2	
Jan 8	2	1	1	0	0	0	0	0	0	S	0	0	0	1	2	1	0	0	0	0	0	1	1	1	1	0	2	0.5	
Jan 9	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 10	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	1	1	1	2	3	2	0	0	3	0.5	
Jan 11	2	2	1	2	2	2	S	3	3	3	2	2	2	1	2	1	1	1	1	1	1	1	1	2	1	3	1.7		
Jan 12	1	1	1	1	1	S	1	1	1	2	3	3	2	2	2	1	1	1	1	1	1	0	0	0	0	0	3	1.2	
Jan 13	0	0	0	0	0	0	0	S	0	0	0	1	2	3	2	1	1	1	0	0	0	0	0	0	0	0	3	0.5	
Jan 14	0	0	1	S	1	6	5	9	7	5	4	8	10	5	5	4	K	K	K	K	K	K	K	K	10	NA			
Jan 15	K	K	K	K	K	K	K	0	0	S	1	2	3	7	3	2	1	1	1	0	0	1	0	0	0	0	7	NA	
Jan 16	0	S	0	1	9	2	1	1	4	3	2	5	1	1	1	1	1	1	3	3	3	3	1	9	0	9	2.4		
Jan 17	S	9	8	2	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	S	0	9	1.2		
Jan 18	1	2	0	6	7	9	2	1	3	7	2	6	6	2	2	2	4	9	6	2	0	0	0	0	0	9	3.4		
Jan 19	3	3	4	1	1	1	1	0	0	1	1	1	1	1	1	2	0	0	1	1	1	2	S	1	1	0	4	1.2	
Jan 20	0	0	0	1	1	1	1	1	1	1	1	1	1	1	2	2	1	0	1	1	S	1	0	1	0	2	0.9		
Jan 21	0	0	1	1	1	1	1	1	2	2	2	2	1	2	2	2	1	1	0	S	0	0	0	0	0	0	2	1.0	
Jan 22	0	0	0	0	0	0	0	0	3	5	2	1	0	0	0	0	0	0	S	S	0	1	2	1	1	0	5	0.7	
Jan 23	1	1	1	1	0	1	1	1	1	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.5	
Jan 24	0	0	0	0	0	0	0	1	1	1	1	1	C	C	C	C	C	2	1	1	0	0	0	0	0	0	2	0.5	
Jan 25	1	0	0	0	0	0	0	0	0	0	0	0	1	5	4	S	3	1	1	0	1	1	1	1	0	0	5	0.8	
Jan 26	2	1	0	1	1	2	1	1	1	1	3	2	3	2	S	1	0	0	1	1	1	1	1	0	0	0	3	1.2	
Jan 27	0	0	0	0	0	0	0	0	0	0	0	1	1	S	1	1	1	0	1	1	1	1	0	0	0	0	1	0.4	
Jan 28	0	0	0	0	0	0	0	0	0	0	3	4	S	2	1	0	0	0	0	0	0	0	0	0	1	0	4	0.5	
Jan 29	0	0	1	1	1	0	0	0	0	0	0	0	S	2	4	3	1	0	1	1	1	0	0	0	0	0	4	0.7	
Jan 30	0	0	0	0	0	0	0	0	0	0	0	S	7	2	0	0	0	1	0	2	0	0	0	0	0	0	7	0.5	
Jan 31	0	0	0	0	2	5	0	1	1	S	1	2	6	5	2	1	0	2	0	0	0	0	0	0	0	0	6	1.2	
Diurnal Maximum	3	9	8	6	9	9	5	9	7	7	4	8	10	7	5	4	4	9	6	3	3	3	3	9					
Diurnal Average	0.4	0.7	0.7	0.7	1.0	1.1	0.6	0.9	1.2	1.3	1.2	1.9	1.9	1.9	1.5	0.9	0.6	0.8	0.9	0.5	0.4	0.5	0.4	0.7					

**C** Monthly Calibration      **S** Daily Zero-Span Check      **Q** Quality Assurance  
**K** Collection Error      **ND** No Data (Machine Not in Service)      **Y** Routine Maintenance  
**X** InValid Data (Equipment Malfunction /Recovery)      **NRM** UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)      **P** Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

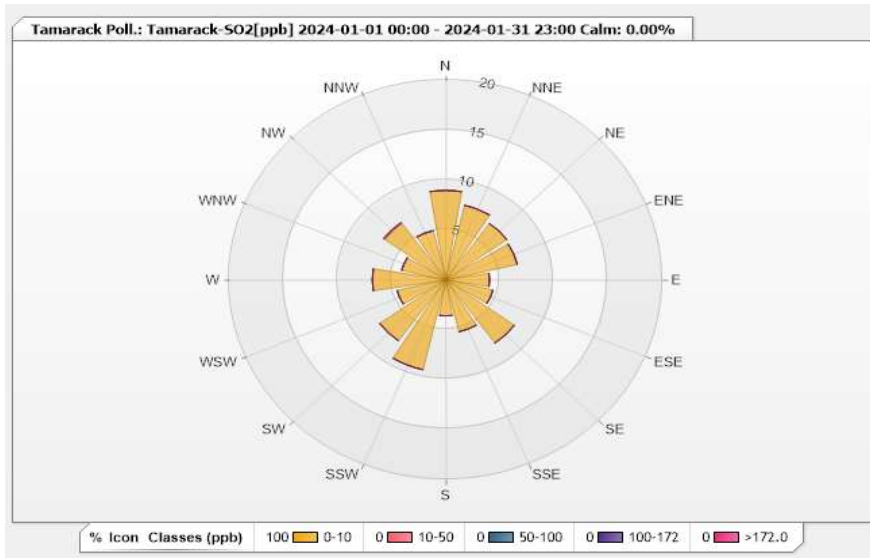


**Station: Tamarack Poll.: Tamarack-SO2[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 93.15%      Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	8.95	0	0	0	0	8.95
NNE	7.65	0	0	0	0	7.65
NE	6.93	0	0	0	0	6.93
ENE	6.78	0	0	0	0	6.78
E	4.04	0	0	0	0	4.04
ESE	4.47	0	0	0	0	4.47
SE	7.79	0	0	0	0	7.79
SSE	5.34	0	0	0	0	5.34
S	3.61	0	0	0	0	3.61
SSW	9.24	0	0	0	0	9.24
SW	7.5	0	0	0	0	7.5
WSW	4.62	0	0	0	0	4.62
W	6.78	0	0	0	0	6.78
WNW	4.18	0	0	0	0	4.18
NW	6.93	0.14	0	0	0	7.07
NNW	5.05	0	0	0	0	5.05
Summary	100	0.14	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - January 2024

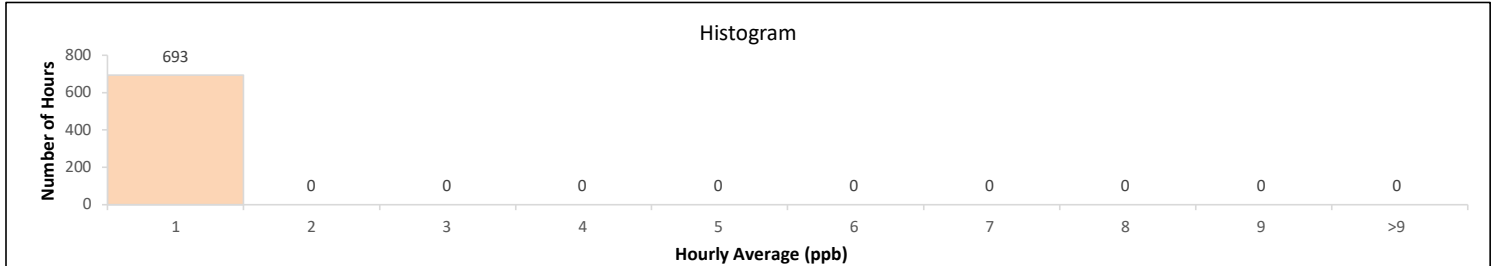
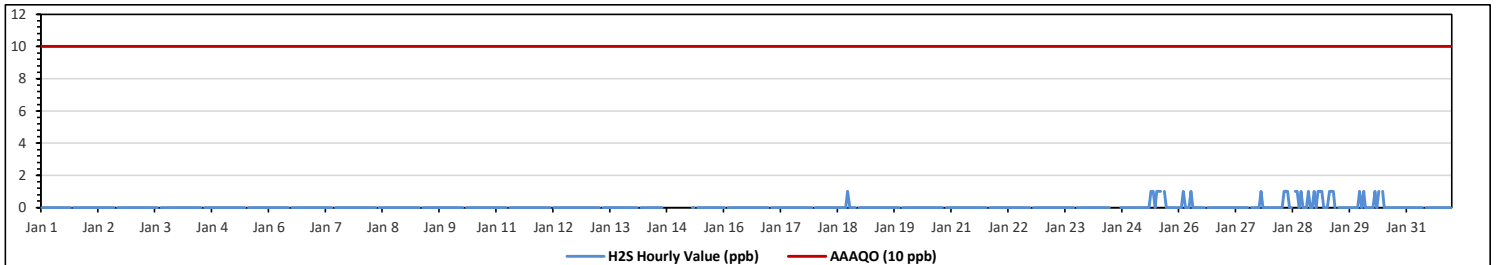
Summary of Hourly Averages

HYDROGEN SULPHIDE (H<sub>2</sub>S) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 10 ppb, 24-Hour 3 ppb																												
Number of 1-Hour Exceedances: 0												Number of 24-Hour Exceedances: 0																
Maximum Hourly Value: 1 ppb on Jan 18 at hr 17												Hours in Service: 744																
Maximum Daily Value: 0.0 ppb on Jan 1												Hours of Data: 693																
Minimum Hourly Value: 0 ppb on Jan 1 at hr 0												Hours of Missing Data: 15																
Minimum Daily Value: 0.0 ppb on Jan 1												Hours of Calibration: 36																
Monthly Average: 0.0 ppb												Operational Uptime: 98.0																
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
Jan 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 15	K	K	K	K	K	K	K	K	K	K	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 16	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 17	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1.0
Jan 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 26	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0
Jan 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Diurnal Maximum	0	1	1	1	0	0	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	0	0	1	1	0	0	1
Diurnal Average	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	

**C** Monthly Calibration      **S** Daily Zero-Span Check      **Q** Quality Assurance  
**K** Collection Error      **ND** No Data (Machine Not in Service)      **Y** Routine Maintenance  
**X** InValid Data (Equipment Malfunction /Recovery)      **NRM** UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)      **P** Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

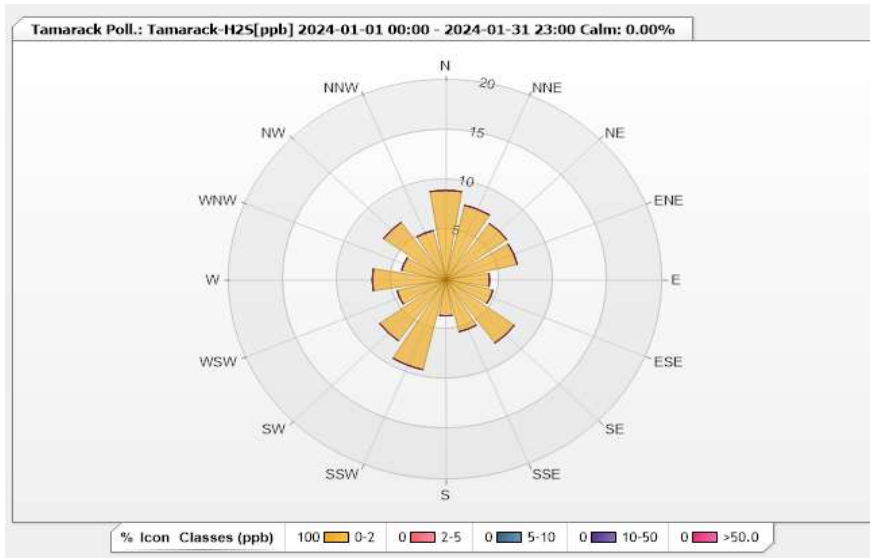


**Station: Tamarack Poll.: Tamarack-H2S[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 93.15%      Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	8.95	0	0	0	0	8.95
NNE	7.65	0	0	0	0	7.65
NE	6.93	0	0	0	0	6.93
ENE	6.78	0	0	0	0	6.78
E	4.04	0	0	0	0	4.04
ESE	4.47	0	0	0	0	4.47
SE	7.79	0	0	0	0	7.79
SSE	5.34	0	0	0	0	5.34
S	3.61	0	0	0	0	3.61
SSW	9.24	0	0	0	0	9.24
SW	7.5	0	0	0	0	7.5
WSW	4.62	0	0	0	0	4.62
W	6.78	0	0	0	0	6.78
WNW	4.18	0	0	0	0	4.18
NW	7.07	0	0	0	0	7.07
NNW	5.05	0	0	0	0	5.05
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - January 2024

Summary of Hourly Averages

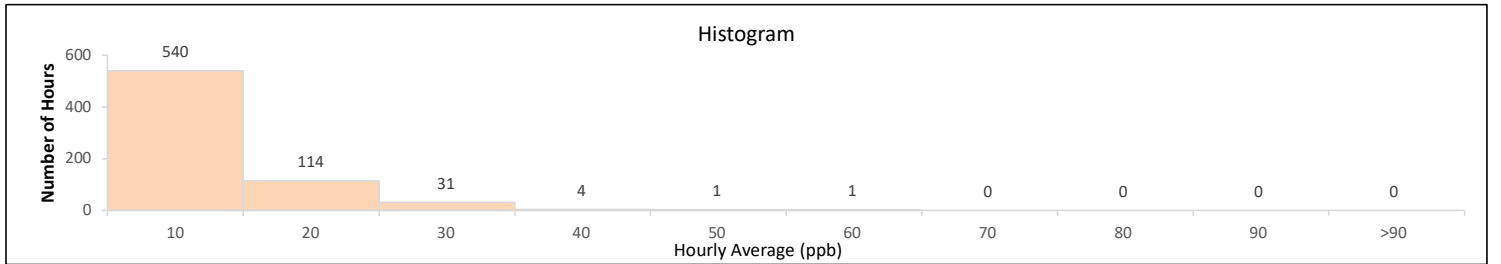
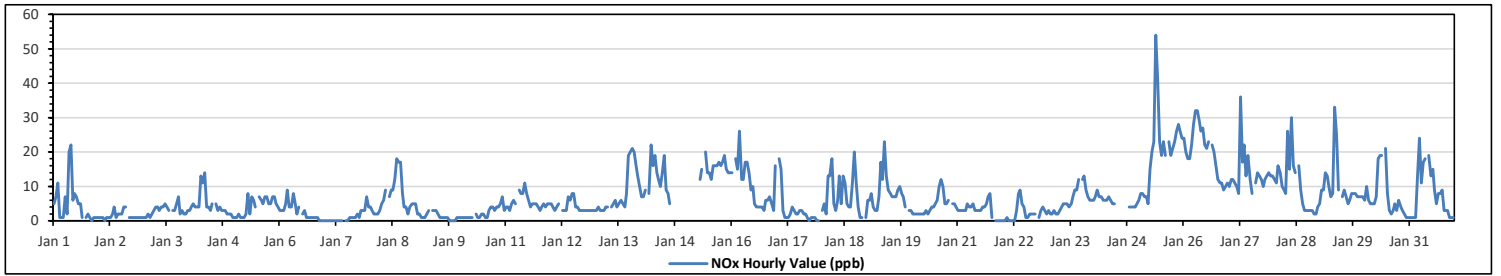
OXIDES OF NITROGEN (NOx) in ppb

Maximum Hourly Value:	54 ppb	on Jan 25 at hr 9	Hours in Service:	744
Maximum Daily Value:	20.3 ppb	on Jan 25	Hours of Data:	691
Minimum Hourly Value:	0 ppb	on Jan 1 at hr 20	Hours of Missing Data:	15
Minimum Daily Value:	1.2 ppb	on Jan 7	Hours of Calibration:	38
Monthly Average:	6.9 ppb		Operational Uptime:	98.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Jan 1	5	7	11	1	1	1	7	2	20	22	6	8	7	5	5	1	S	1	2	1	0	1	1	1	0	22	5.0	
Jan 2	1	1	1	0	1	1	1	2	4	1	2	2	2	4	4	S	1	1	1	1	1	1	1	1	1	0	4	1.5
Jan 3	1	1	2	1	2	3	4	4	4	5	4	3	S	3	3	3	5	7	2	3	2	2	3	1	7	3.1		
Jan 4	3	4	5	4	4	4	13	11	14	4	4	3	5	S	5	3	4	3	3	3	2	2	2	1	1	14	4.6	
Jan 5	1	1	2	1	1	1	2	8	2	7	6	4	S	7	6	5	7	7	5	5	7	7	5	4	1	8	4.4	
Jan 6	3	3	3	5	9	4	4	8	5	2	4	S	2	3	1	1	1	1	1	1	1	0	0	0	0	9	2.7	
Jan 7	0	0	0	0	0	0	0	0	0	0	S	0	0	1	1	1	1	2	1	3	3	3	7	4	0	7	1.2	
Jan 8	4	3	2	2	2	3	5	6	9	S	7	9	9	12	18	17	17	8	4	4	2	4	5	5	2	18	6.8	
Jan 9	5	2	2	1	1	1	2	3	S	3	3	3	2	1	1	1	1	1	0	0	0	0	1	1	0	5	1.5	
Jan 10	1	1	1	1	1	1	1	S	2	1	1	2	2	1	1	3	4	4	3	4	4	5	7	3	1	7	2.3	
Jan 11	4	4	3	5	6	5	S	9	8	8	11	8	6	4	5	5	4	3	4	4	5	4	5	5	3	11	5.5	
Jan 12	5	4	3	4	5	S	3	3	3	7	6	8	8	4	4	3	3	3	3	3	3	3	3	3	3	8	4.1	
Jan 13	3	4	3	3	3	4	4	S	4	5	6	4	5	6	5	4	8	19	20	21	20	16	13	10	3	21	8.3	
Jan 14	7	7	9	S	8	22	16	19	14	12	10	14	19	9	8	5	K	K	K	K	K	K	K	K	5	22	NA	
Jan 15	K	K	K	K	K	K	K	K	12	15	S	20	14	14	12	16	16	17	16	17	19	15	14	14	12	20	NA	
Jan 16	14	S	18	15	26	12	12	17	17	14	9	10	5	4	4	4	3	6	6	7	5	3	16	3	26	10.0		
Jan 17	S	18	15	3	1	1	1	2	4	3	2	2	3	3	2	2	1	0	1	1	1	0	0	S	0	18	3.0	
Jan 18	3	5	2	13	13	18	5	3	6	13	5	13	11	5	4	4	11	20	11	4	1	1	S	1	1	20	7.5	
Jan 19	6	6	8	4	3	3	7	17	12	23	13	9	8	7	7	7	9	10	8	7	4	S	3	3	3	23	8.0	
Jan 20	2	2	2	2	2	2	2	3	2	3	4	4	5	6	10	12	10	5	5	6	S	5	5	4	2	12	4.5	
Jan 21	3	3	3	3	3	5	4	4	5	3	3	3	3	4	4	5	7	8	1	S	0	0	0	0	0	8	3.2	
Jan 22	0	0	1	0	0	0	0	3	8	9	5	4	1	1	2	2	2	2	S	1	3	4	3	2	0	9	2.3	
Jan 23	3	2	2	3	2	2	3	4	5	5	4	5	7	9	9	12	S	12	13	9	7	6	6	2	2	13	5.9	
Jan 24	6	7	9	7	7	6	6	6	7	6	5	5	C	C	C	C	C	C	C	4	4	4	4	5	4	9	NA	
Jan 25	6	8	8	7	7	5	15	20	23	54	41	23	19	23	19	S	23	19	21	23	26	28	26	24	5	54	20.3	
Jan 26	24	20	18	18	22	28	32	32	29	26	27	22	21	23	S	22	20	16	12	11	11	9	10	11	9	32	20.2	
Jan 27	10	12	12	11	10	8	36	17	22	13	19	12	8	S	11	14	13	12	10	12	13	14	13	13	8	36	13.7	
Jan 28	12	11	16	14	10	9	8	26	15	30	16	14	S	16	9	5	3	3	3	3	3	2	2	4	2	30	10.2	
Jan 29	5	9	9	14	13	10	7	8	33	25	9	S	7	9	7	5	6	8	8	8	7	7	7	7	5	33	9.9	
Jan 30	6	10	6	5	5	7	18	19	19	S	21	8	3	2	3	5	3	6	4	3	2	1	1	1	1	21	7.0	
Jan 31	1	1	1	1	13	24	11	17	18	S	19	13	15	9	5	8	8	9	3	3	3	1	1	1	1	24	8.0	
Diurnal Maximum	24	20	18	18	26	28	36	33	54	41	23	21	23	19	22	23	20	21	23	26	28	26	24	24	5	54	20.3	
Diurnal Average	5.0	5.4	5.9	5.1	6.0	6.5	7.5	9.8	10.9	11.5	9.4	8.4	7.3	6.9	6.3	6.1	7.3	6.9	6.3	6.0	5.7	5.2	5.2	5.3	5.3	5.3	5.3	

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

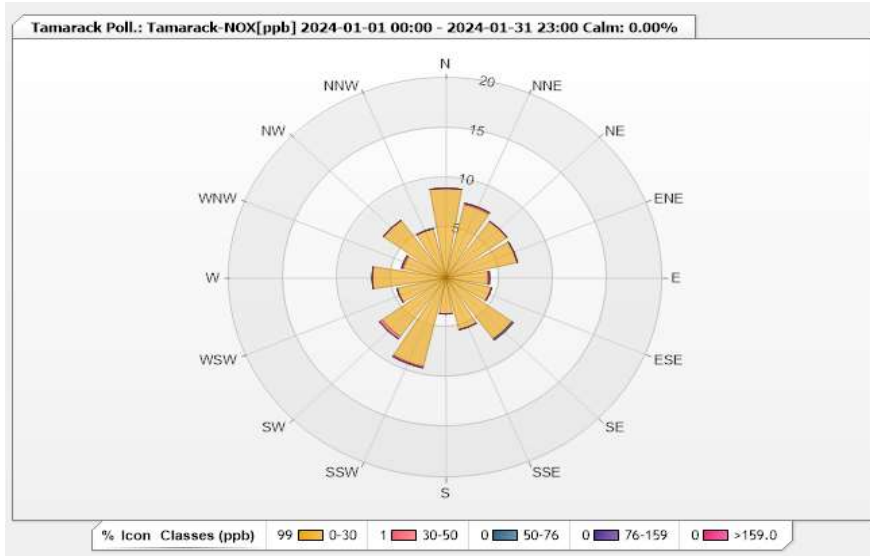


**Station: Tamarack Poll.: Tamarack-NOX[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 92.88%      Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	8.97	0	0	0	0	8.97
NNE	7.53	0.14	0	0	0	7.67
NE	6.95	0	0	0	0	6.95
ENE	6.8	0	0	0	0	6.8
E	3.91	0.14	0	0	0	4.05
ESE	4.34	0	0	0	0	4.34
SE	7.53	0	0.14	0	0	7.67
SSE	5.35	0	0	0	0	5.35
S	3.62	0	0	0	0	3.62
SSW	9.12	0.14	0	0	0	9.26
SW	7.24	0.29	0	0	0	7.53
WSW	4.63	0	0	0	0	4.63
W	6.8	0	0	0	0	6.8
WNW	4.05	0.14	0	0	0	4.19
NW	7.09	0	0	0	0	7.09
NNW	5.07	0	0	0	0	5.07
Summary	99	0.85	0.14	0	0	100





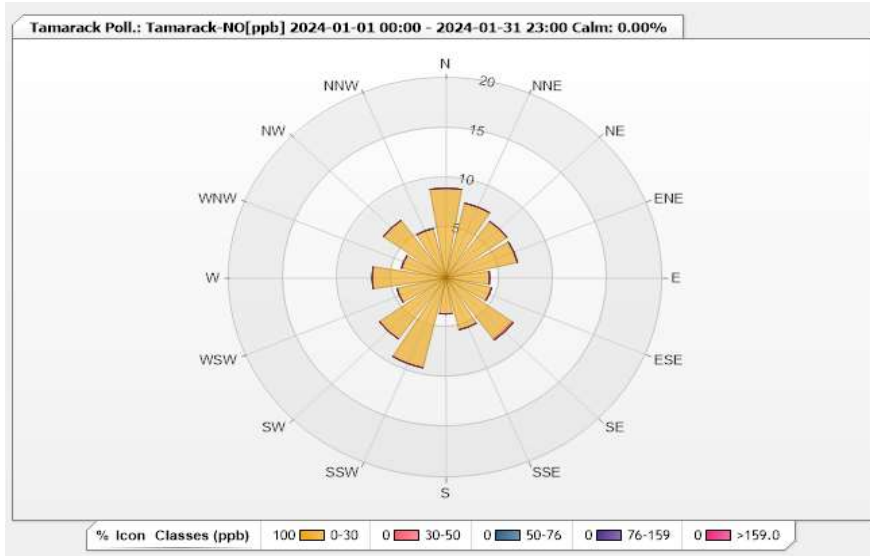


**Station: Tamarack Poll.: Tamarack-NO[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 92.88%      Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	8.97	0	0	0	0	8.97
NNE	7.67	0	0	0	0	7.67
NE	6.95	0	0	0	0	6.95
ENE	6.8	0	0	0	0	6.8
E	4.05	0	0	0	0	4.05
ESE	4.34	0	0	0	0	4.34
SE	7.53	0.14	0	0	0	7.67
SSE	5.35	0	0	0	0	5.35
S	3.62	0	0	0	0	3.62
SSW	9.26	0	0	0	0	9.26
SW	7.53	0	0	0	0	7.53
WSW	4.63	0	0	0	0	4.63
W	6.8	0	0	0	0	6.8
WNW	4.2	0	0	0	0	4.2
NW	7.09	0	0	0	0	7.09
NNW	5.07	0	0	0	0	5.07
Summary	100	0.14	0	0	0	100

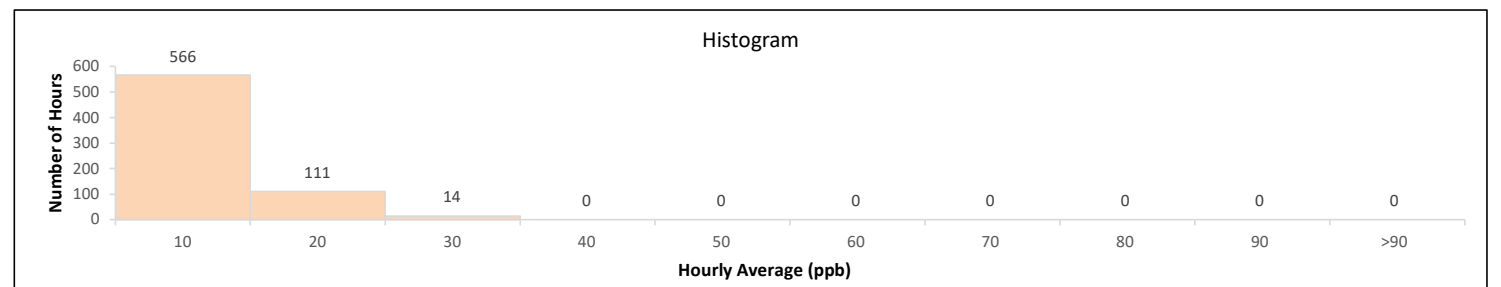
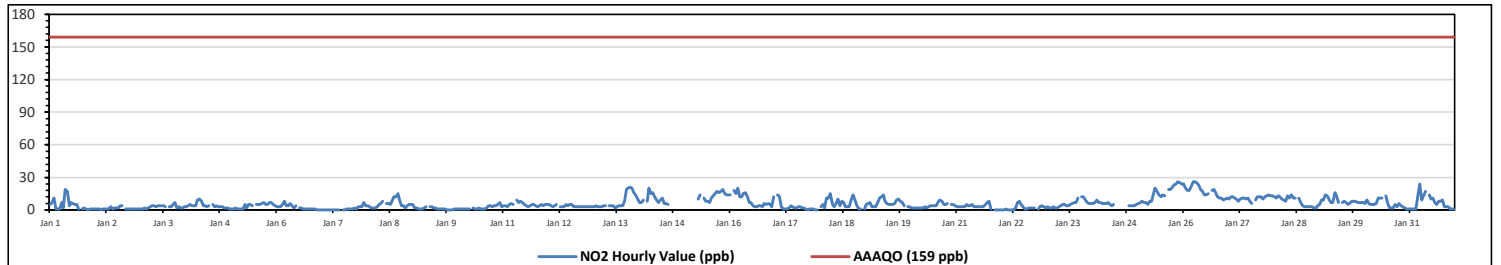


**Lakeland Industry & Community Association**  
**Tamarack Site - January 2024**  
**Summary of Hourly Averages**  
**NITROGEN DIOXIDE (NO<sub>2</sub>) in ppb**

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb																												
Number of 1-Hour Exceedances: 0																												
Maximum Hourly Value: 26 ppb on Jan 25 at hr 21										Hours in Service: 744																		
Maximum Daily Value: 17.3 ppb on Jan 26										Hours of Data: 691																		
Minimum Hourly Value: 0 ppb on Jan 1 at hr 20										Hours of Missing Data: 15																		
Minimum Daily Value: 1.2 ppb on Jan 7										Hours of Calibration: 38																		
Monthly Average: 5.9 ppb										Operational Uptime: 98.0																		
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
Jan 1	5	7	11	1	1	1	7	2	19	17	4	7	6	5	5	1	S	1	2	1	0	1	1	1	0	19	4.6	
Jan 2	1	1	1	0	1	1	1	1	3	1	2	2	2	4	4	S	1	1	1	1	1	1	1	1	0	4	1.4	
Jan 3	1	1	2	1	2	3	4	4	3	4	4	4	4	3	S	3	3	5	7	2	3	2	2	3	1	7	3.0	
Jan 4	3	4	5	4	4	4	9	10	8	4	4	3	4	S	5	3	4	3	3	3	2	2	2	1	1	10	4.1	
Jan 5	1	1	2	1	1	1	1	5	2	5	5	4	S	5	5	6	7	5	5	7	7	5	4	1	7	3.9		
Jan 6	3	3	3	5	8	4	4	6	4	2	4	S	2	2	1	1	1	1	1	1	1	0	0	0	0	8	2.5	
Jan 7	0	0	0	0	0	0	0	0	0	0	S	0	0	1	1	1	1	2	1	3	3	7	4	0	7	1.2		
Jan 8	4	3	2	2	2	3	5	6	8	S	6	6	5	8	12	12	15	8	4	4	2	4	5	5	2	15	5.7	
Jan 9	5	2	2	1	1	1	2	3	S	3	3	2	2	1	1	1	1	1	0	0	0	0	1	1	0	5	1.5	
Jan 10	1	1	1	1	1	1	1	S	2	1	1	2	1	1	1	2	4	4	3	4	4	5	7	3	1	7	2.3	
Jan 11	4	4	3	5	6	5	S	9	7	8	7	5	4	3	4	5	5	4	3	4	5	4	5	5	3	9	5.0	
Jan 12	5	4	3	4	5	S	3	3	3	5	4	5	5	3	3	3	3	3	3	3	3	3	3	3	3	5	3.6	
Jan 13	3	4	3	3	3	4	4	S	4	4	4	2	3	4	4	4	8	19	20	21	20	16	13	10	2	21	7.8	
Jan 14	7	7	9	S	8	20	15	16	12	9	7	9	11	6	6	5	K	K	K	K	K	K	K	K	5	20	NA	
Jan 15	K	K	K	K	K	K	K	K	S	11	8	8	7	11	13	15	17	16	17	19	15	14	14	7	19	NA	NA	
Jan 16	14	S	18	15	20	12	12	15	16	12	7	7	4	3	3	4	4	3	6	5	6	5	3	12	3	20	9.0	
Jan 17	S	14	12	3	1	1	1	2	4	3	2	2	3	3	2	2	1	0	1	1	0	0	S	0	14	2.7		
Jan 18	3	5	2	11	11	15	5	3	6	10	4	8	7	3	3	3	9	14	9	4	1	1	S	1	1	15	6.0	
Jan 19	5	6	7	3	3	3	7	11	12	14	8	6	5	5	6	9	10	8	7	4	S	3	3	3	3	14	6.5	
Jan 20	2	2	2	2	2	2	2	3	2	3	4	4	4	4	7	9	8	5	5	6	S	5	5	4	2	9	4.0	
Jan 21	3	3	3	3	3	5	4	4	5	3	3	3	3	3	3	5	7	8	1	S	0	0	0	0	0	8	3.1	
Jan 22	0	0	1	0	0	0	0	2	7	8	5	3	1	1	2	2	2	S	12	1	3	4	3	2	0	8	2.1	
Jan 23	3	2	2	3	2	2	3	4	5	4	4	5	6	7	7	11	S	12	12	9	7	6	6	2	12	5.5		
Jan 24	6	7	9	7	7	6	6	6	7	5	4	5	C	C	C	C	C	C	C	C	4	4	4	5	4	9	NA	
Jan 25	6	7	8	7	7	5	8	8	15	20	17	14	12	14	13	S	19	19	21	23	24	26	25	24	5	26	14.9	
Jan 26	24	20	18	18	22	26	26	25	23	19	17	14	14	14	15	S	18	19	16	12	11	11	9	10	11	9	26	17.3
Jan 27	10	12	12	11	10	8	10	11	11	10	11	8	6	S	9	12	12	12	10	12	13	14	13	13	6	14	10.9	
Jan 28	12	11	13	12	10	9	8	13	11	14	11	11	S	11	7	4	3	3	3	3	3	2	2	4	2	14	7.8	
Jan 29	5	9	9	14	13	10	7	7	16	12	7	S	7	8	7	5	6	8	8	8	7	7	7	7	5	16	8.4	
Jan 30	6	9	6	5	5	5	6	11	11	11	S	13	6	2	2	2	5	3	6	4	3	2	1	1	1	13	5.4	
Jan 31	1	1	1	1	13	24	9	13	17	S	14	10	11	7	5	8	8	9	3	3	1	1	1	1	1	24	7.1	
Diurnal Maximum	24	20	18	18	22	26	26	25	23	20	17	14	14	15	13	18	19	19	21	23	24	26	25	24				
Diurnal Average	4.9	5.2	5.7	4.9	5.7	6.2	5.9	7.3	8.6	7.6	6.3	5.9	5.2	4.9	4.9	5.2	6.8	6.7	6.2	6.0	5.6	5.2	5.1	5.1				

**C** Monthly Calibration      **S** Daily Zero-Span Check      **Q** Quality Assurance  
**K** Collection Error      **ND** No Data (Machine Not in Service)      **Y** Routine Maintenance  
**X** InValid Data (Equipment Malfunction/Recovery)      **NRM** UnitMaint (Repeat Calibration / Non-Routine Maintenance)      **P** Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

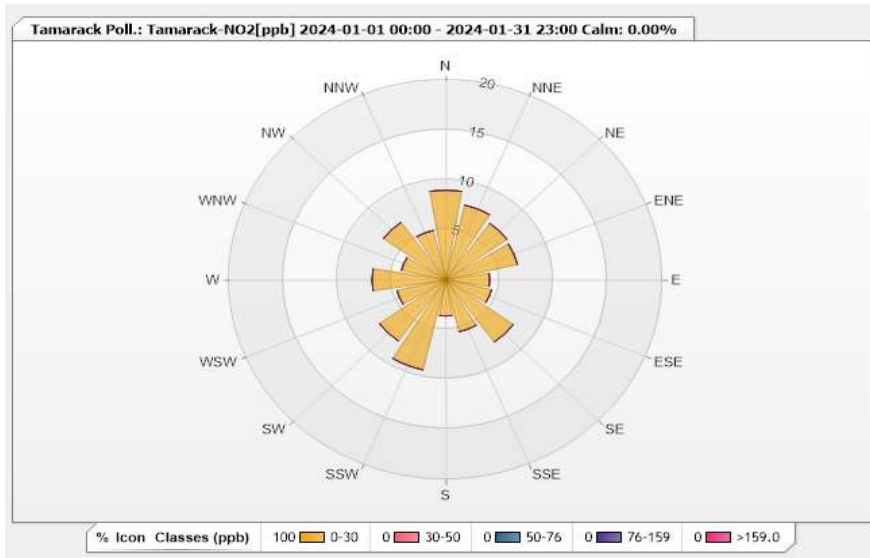


**Station: Tamarack Poll.: Tamarack-NO2[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 92.88%      Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	8.97	0	0	0	0	8.97
NNE	7.67	0	0	0	0	7.67
NE	6.95	0	0	0	0	6.95
ENE	6.8	0	0	0	0	6.8
E	4.05	0	0	0	0	4.05
ESE	4.34	0	0	0	0	4.34
SE	7.67	0	0	0	0	7.67
SSE	5.35	0	0	0	0	5.35
S	3.62	0	0	0	0	3.62
SSW	9.26	0	0	0	0	9.26
SW	7.53	0	0	0	0	7.53
WSW	4.63	0	0	0	0	4.63
W	6.8	0	0	0	0	6.8
WNW	4.2	0	0	0	0	4.2
NW	7.09	0	0	0	0	7.09
NNW	5.07	0	0	0	0	5.07
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - January 2024

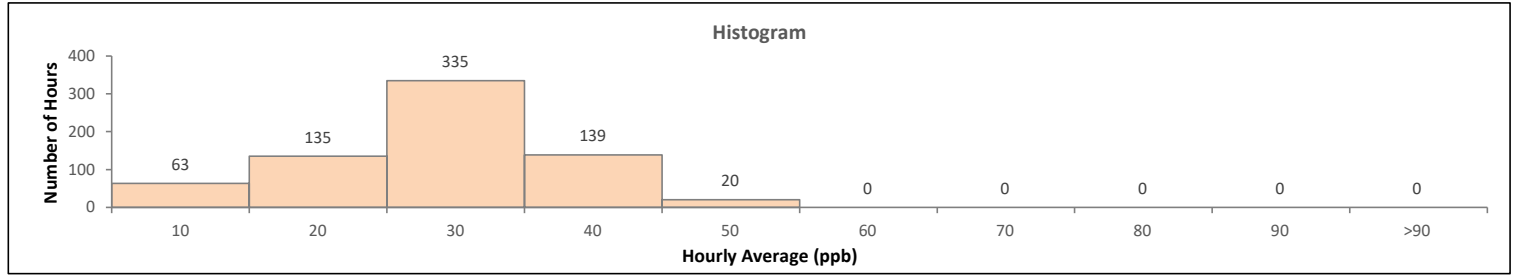
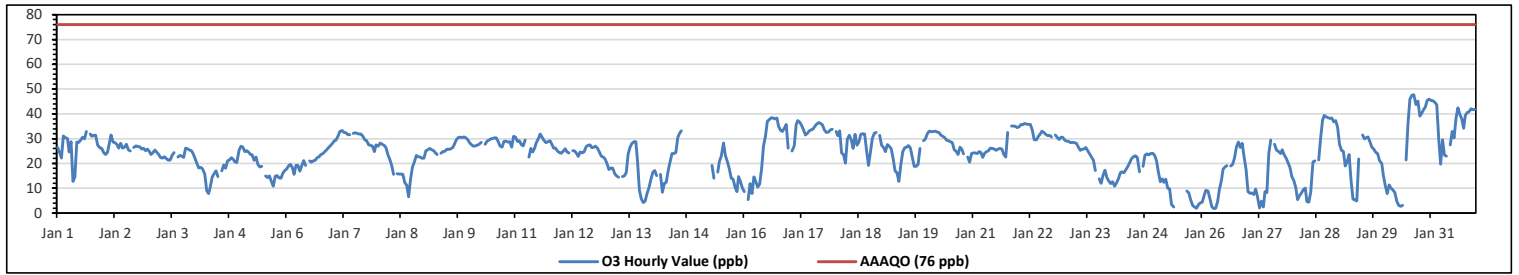
Summary of Hourly Averages

OZONE (O<sub>3</sub>) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb																											
Number of 1-Hour Exceedances: 0																											
Maximum Hourly Value: 47.7 ppb on Jan 30 at hr 15												Hours in Service: 744															
Maximum Daily Value: 36.3 ppb on Jan 31												Hours of Data: 692															
Minimum Hourly Value: 1.8 ppb on Jan 26 at hr 6												Hours of Missing Data: 15															
Minimum Daily Value: 8.5 ppb on Jan 25												Hours of Calibration: 37															
Monthly Average: 23.8 ppb												Operational Uptime: 98.0															
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Jan 1	26.4	24.5	22.2	31.1	30.3	30.1	24.6	28.7	12.8	14.6	28.6	28.5	29.4	30.5	29.9	32.8	S	31.9	30.9	31.4	31.3	27.5	26.3	26	12.8	32.8	27.4
Jan 2	24.3	23.6	24.5	28.3	31.5	28.6	28.3	27.7	26.2	28.1	26.1	26.6	27.7	25.5	25	S	26.4	27.1	26.8	26.7	25.8	26	25.2	25.8	23.6	31.5	26.6
Jan 3	24.7	23.7	24.3	25.4	24.5	23.6	22.3	22.1	22.7	21.9	21.3	21.4	23.4	24.4	S	22.6	23.2	23	22.4	26.2	25.9	25.4	25.1	24.1	21.3	26.2	23.6
Jan 4	22.2	20.1	18.1	18.4	17.7	15.5	8.9	7.8	10.5	14.5	15.8	17	14.7	S	17	19.4	18	21.1	21.5	22.3	21.6	20.6	20.4	25.3	7.8	25.3	17.8
Jan 5	27	26.5	24.7	25.2	24.5	23.6	23.5	21.3	22.6	19.5	18.5	18.9	S	15	14.3	15	12.8	10.9	14.9	15.1	14.2	14	16.1	17.2	10.9	27.0	18.9
Jan 6	17.8	19.1	19.5	18.1	15.5	19.2	19.3	16.9	19.1	21.2	19.2	S	21.1	20.5	21	21.3	22.3	22.7	23.6	24	24.8	25.5	26.4	27.2	15.5	27.2	21.1
Jan 7	28	29.2	29.4	30.9	32.8	33.3	32.4	32.3	31.6	31.6	S	32.1	32.3	32.2	31.9	31.9	30.9	29.6	29.2	27.5	27.3	26.9	24.8	27.5	24.8	33.3	30.2
Jan 8	27	28.2	27.8	27.3	26.4	23.7	21.6	19.2	15.5	S	15.8	15.7	15.7	15.6	12.2	11.2	6.6	13.6	18.6	20.6	23.2	22.7	22.6	22	6.6	28.2	19.7
Jan 9	22.1	25.1	25.5	26	25.6	25.1	24.3	23.6	S	24.1	24.7	24.9	25.8	25.7	25.9	26.4	27.7	29.6	30.4	30.5	30.4	30.7	30.2	29.5	22.1	30.7	26.7
Jan 10	28.2	27.5	26.9	27.1	27.3	27.7	28.5	S	27.8	29	29.4	29.9	30.1	30.2	30.3	28.8	26.9	26.6	28.9	29	28.6	28.7	26.5	30.9	26.5	30.9	28.5
Jan 11	30.6	28.9	29.1	27.6	27.1	29.4	S	22.6	26	24.6	26.3	28.3	30	31.9	30.5	29.3	28.3	28.7	29.2	27.6	26.1	26.2	25	24.4	22.6	31.9	27.7
Jan 12	24.1	24.9	25.9	24.6	24.2	S	25.1	25	24	22.8	24.6	24.2	24.6	26.8	27.3	27.5	26.3	26.5	27	26.1	24.6	22.9	22.6	21.7	21.7	27.5	24.9
Jan 13	19.8	17.5	18.1	18	15.8	15	14.4	S	14.7	15	16.3	23.8	26.5	28	28.8	28.8	21.4	9.2	5.8	4.2	4.7	7.9	10.2	13.5	4.2	28.8	16.4
Jan 14	16.4	17.2	15.1	S	15.6	8.4	12	12.4	17	20.6	23.9	24	24.3	30.4	32	33.1	K	K	K	K	K	K	K	K	8.4	33.1	NA
Jan 15	K	K	K	K	K	K	K	K	K	S	16.5	20.7	23	28.2	23.1	20.7	17.9	14	13.6	10.5	8.6	14.7	12.7	10.1	8.6	28.2	NA
Jan 16	8.6	S	5.4	11.9	7.8	14.6	12.6	10.4	11.7	17.8	27.1	31	37	37.7	38.5	38.3	38	38.4	34.9	33.4	32.8	34.2	35.7	26.2	5.4	38.5	25.4
Jan 17	S	25	27.1	35.6	37.3	36.6	35.4	33.5	31.5	32.2	33.1	33.6	33.9	35	36	36.5	36.1	35.6	33.6	32.5	32.6	33.6	33.8	S	25.0	37.3	33.6
Jan 18	32.8	31.2	33.1	24.2	23.6	20.1	29.8	31.4	29.5	26	31.8	27.4	28.6	31.7	32	31.9	25.3	19.2	24.3	30.1	32.2	32.4	S	31.4	19.2	33.1	28.7
Jan 19	27.4	26.4	24.8	27.6	27	25.9	22	17.1	16.2	12.8	19.4	24.6	26.3	26.5	27.2	26.2	22.4	18.9	18.8	19.5	26	S	29.2	30	12.8	30.0	23.6
Jan 20	32	33	32.7	32.9	33	32.6	32.4	31.5	31	30.4	29.4	29.2	28.7	28.3	25.6	24.9	23.7	26.5	25.7	23.8	S	22.6	20.5	23.9	20.5	33.0	28.4
Jan 21	24.2	24.2	23.9	24.8	24.5	22.4	24.1	24.8	25.1	26.1	26	25.8	25.3	25.8	26	25.8	23.6	22.5	32.4	S	35.1	35.1	34.9	34.4	22.4	35.1	26.8
Jan 22	34.8	35.8	35.6	36.2	35.9	35.7	35.8	33.4	29.6	29.5	31	31.7	33	32.5	31.7	31.2	31.3	30.7	S	31.5	30.4	29.7	30.6	30.6	29.5	36.2	32.5
Jan 23	29.4	29	28.9	28.4	28.5	28.3	28	26.6	25.3	25.7	25.8	26.4	25.1	23.8	22.5	21.3	17.2	S	13.7	12	15.2	17.3	14.3	12.9	12.0	29.4	22.9
Jan 24	11.8	12.6	10.9	12.1	13.7	16.2	16.6	16.3	17.4	18.7	20.2	21.9	22.7	23.1	22.4	16.6	S	18.9	23.3	23.8	23.5	23.9	24.1	23.4	10.9	24.1	18.9
Jan 25	21.2	16.5	12.7	13.8	12.4	13.6	10.1	9.8	3.5	2.4	C	C	C	C	C	C	8.8	8.1	5.3	3.1	2.4	1.9	3.3	4.1	1.9	21.2	8.5
Jan 26	4.4	7.1	9.1	8.8	5.8	2.5	1.8	1.9	4.6	9.8	13.1	17.6	18.5	19.1	S	19	19.5	22.3	26.7	28.6	26.4	28.1	22.4	17.5	1.8	28.6	14.5
Jan 27	8.7	8	8.1	7.4	9.7	6.3	2.1	4.7	2.4	8.7	8.2	23.9	29.4	S	27.2	25.4	24.8	24	25.6	23.5	22.1	30.3	18.4	14.7	2.1	29.4	15.4
Jan 28	13.1	10.5	5.4	6.9	8.1	9.4	10.1	4.6	4.4	8.4	20.6	21	S	21.4	30.2	37.4	39.3	38.8	38.5	38.2	38.4	36.7	37.2	34.5	4.4	39.3	22.3
Jan 29	27.8	25.3	24.9	19	20.8	23.7	13.1	5.6	5.2	4.8	21.7	S	31.5	29.9	30.3	30.7	28.8	26.6	25.8	24.5	23.9	21.2	20	15.2	4.8	31.5	21.8
Jan 30	11	7.9	11.3	10	9.2	8.3	4.7	3	2.7	3	S	21.5	36.1	45.9	47.5	47.7	43.7	45.1	39	40.3	41.8	42.7	45.4	45.9	2.7	47.7	26.7
Jan 31	45.4	45.2	44.7	43.6	30	19.7	29.5	23.3	23	S	27.5	32.8	30.3	38.2	42.5	39.8	37.9	34.2	39.3	40.6	40.8	42.1	41.7	41.8	19.7	45.4	36.3
Diurnal Maximum	45.4	45.2	44.7	43.6	37.3	36.6	35.8	33.5	31.6	32.2	33.1	33.6	37.0	45.9	47.5	47.7	43.7	45.1	39.3	40.6	41.8	42.7	45.4	45.9			
Diurnal Average	23.1	23.2	22.3	23.1	22.2	21.3	20.5	19.2	18.3	19.4	22.9	25.2	27.0	28.0	28.2	27.6	25.3	25.0	25.2	25.1	25.5	25.6	25.0	24.5			

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction/Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "S" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "S" if minimum data completeness criteria of 75% of days per month is not met.

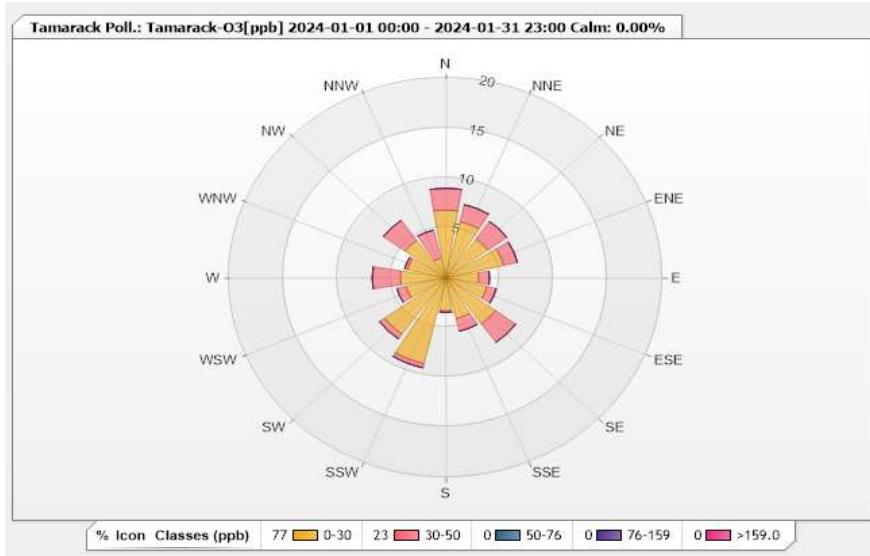


**Station: Tamarack Poll.: Tamarack-O3[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 93.01%      Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	6.79	2.17	0	0	0	8.96
NNE	5.78	1.73	0	0	0	7.51
NE	4.77	2.17	0	0	0	6.94
ENE	5.49	1.3	0	0	0	6.79
E	3.03	1.01	0	0	0	4.04
ESE	3.9	0.87	0	0	0	4.77
SE	5.64	2.31	0	0	0	7.95
SSE	4.19	1.3	0	0	0	5.49
S	3.32	0.14	0	0	0	3.46
SSW	8.82	0.43	0	0	0	9.25
SW	6.94	0.58	0	0	0	7.52
WSW	3.76	0.87	0	0	0	4.63
W	4.19	2.6	0	0	0	6.79
WNW	3.61	0.29	0	0	0	3.9
NW	4.62	2.46	0	0	0	7.08
NNW	2.02	2.89	0	0	0	4.91
Summary	76.87	23.12	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - January 2024

Summary of Hourly Averages

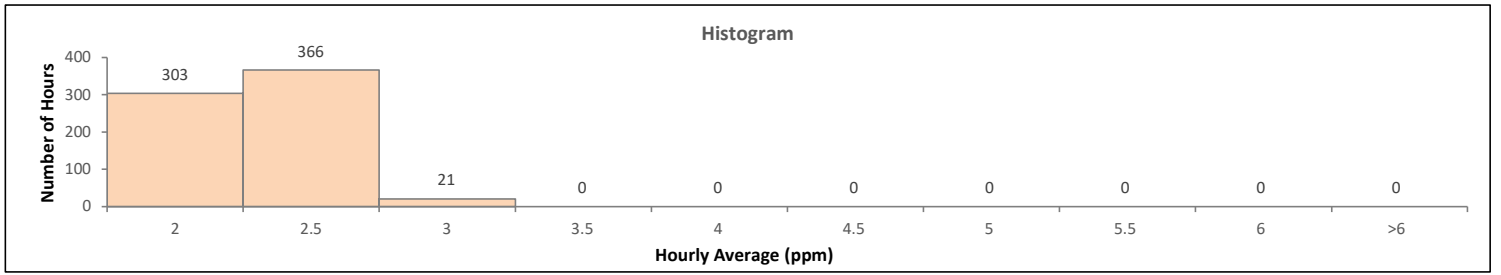
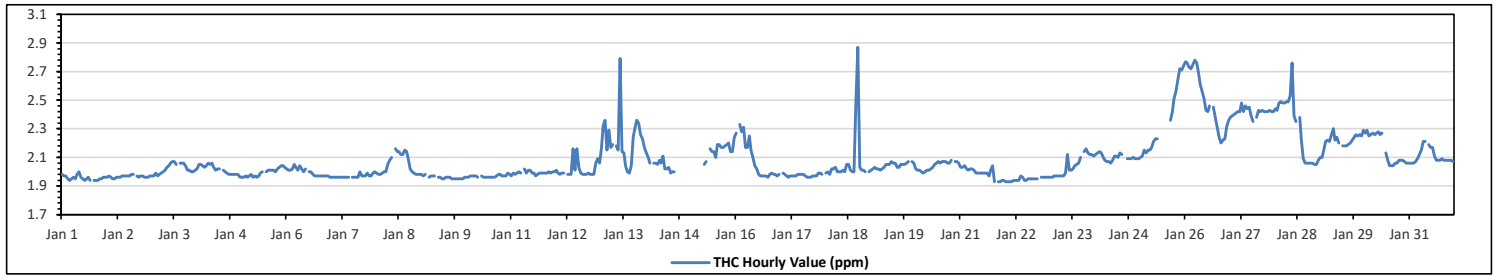
TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	2.87	ppm	on Jan 18 at hr 17	Hours in Service:	744
Maximum Daily Value:	2.51	ppm	on Jan 26	Hours of Data:	690
Minimum Hourly Value:	1.93	ppm	on Jan 21 at hr 18	Hours of Missing Data:	17
Minimum Daily Value:	1.95	ppm	on Jan 22	Hours of Calibration:	37
Monthly Average:	2.08	ppm		Operational Uptime:	97.7

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23		
Jan 1	1.98	1.97	1.97	1.95	1.94	1.95	1.96	1.95	1.98	2.00	1.96	1.95	1.94	1.95	1.96	1.94	1.95	S	1.94	1.94	1.94	1.95	1.95	1.96	1.96	1.94	2.00	1.96	
Jan 2	1.96	1.97	1.96	1.95	1.95	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.98	1.98	S	1.97	1.96	1.97	1.97	1.96	1.96	1.96	1.96	1.96	1.97	1.95	1.98	1.97	
Jan 3	1.97	1.97	1.99	1.97	1.98	1.99	2.00	2.01	2.03	2.04	2.06	2.07	2.07	2.05	S	2.06	2.06	2.06	2.04	2.01	2.01	2.00	2.00	2.01	1.97	2.07	2.02	2.02	
Jan 4	2.02	2.05	2.05	2.04	2.03	2.04	2.06	2.05	2.06	2.03	2.01	2.02	2.02	S	2.01	2.00	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.96	2.06	2.01	1.96	
Jan 5	1.96	1.96	1.97	1.96	1.97	1.98	1.96	1.97	1.96	1.97	1.99	2.00	S	2.00	2.01	2.01	2.01	2.01	2.00	2.02	2.03	2.04	2.04	2.03	1.96	2.04	1.99	1.99	
Jan 6	2.02	2.01	2.01	2.02	2.05	2.03	2.01	2.04	2.02	2.00	2.02	S	2.00	2.00	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.96	2.05	2.00	2.00	
Jan 7	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	S	1.96	1.96	1.96	2.00	1.97	1.97	1.97	1.99	1.97	1.97	1.99	2.00	1.96	2.00	1.97	1.97	
Jan 8	1.99	1.98	1.98	1.99	2.00	2.00	2.05	2.08	2.10	S	2.16	2.14	2.14	2.12	2.12	2.15	2.14	2.08	2.02	2.00	1.99	1.98	1.98	1.98	1.98	2.16	2.05	2.05	
Jan 9	1.98	1.97	1.98	X	1.96	1.97	1.97	S	1.96	1.96	1.95	1.95	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.98	1.96	1.96	1.96	
Jan 10	1.96	1.96	1.97	1.97	1.97	1.97	1.96	S	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.98	1.98	1.97	1.97	1.97	1.99	1.98	1.99	1.97	1.97	
Jan 11	1.97	1.99	1.98	1.99	2.00	1.99	S	2.02	1.99	2.01	1.99	1.99	1.97	1.98	1.99	1.99	1.99	1.99	1.99	1.99	2.00	1.99	2.00	2.00	1.97	2.02	1.99	1.98	
Jan 12	2.01	1.99	1.98	1.99	1.99	S	1.98	1.98	1.98	2.16	2.01	2.16	2.03	1.99	1.98	1.98	1.98	1.98	1.99	1.98	1.98	1.98	2.06	2.09	2.06	1.98	2.16	2.01	
Jan 13	2.17	2.32	2.36	2.15	2.29	2.17	2.19	S	2.18	2.15	2.79	2.14	2.13	2.04	2.00	1.99	2.04	2.24	2.31	2.36	2.34	2.26	2.23	2.17	1.99	2.79	2.22	2.17	
Jan 14	2.13	2.10	2.06	S	2.06	2.06	2.05	2.08	2.11	2.02	2.02	2.03	1.99	2.00	2.00	K	K	K	K	K	K	K	K	K	1.99	2.13	NA	2.22	
Jan 15	K	K	K	K	K	K	K	K	2.05	2.07	S	2.16	2.14	2.14	2.10	2.19	2.19	2.17	2.17	2.18	2.19	2.20	2.14	2.14	2.24	2.05	2.24	NA	
Jan 16	2.27	S	2.33	2.28	2.31	2.17	2.17	2.25	2.15	2.10	2.04	2.02	1.98	1.97	1.97	1.97	1.97	1.96	1.98	1.99	1.98	1.98	1.97	1.98	1.96	2.33	2.08	2.08	
Jan 17	S	1.99	1.98	1.97	1.96	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.97	1.96	1.96	1.96	1.97	1.97	1.97	1.99	1.99	1.98	S	1.96	1.99	1.97	1.97	
Jan 18	1.99	2.00	1.98	2.02	2.02	2.03	2.00	2.00	2.00	2.01	2.00	2.05	2.05	2.01	2.00	2.00	2.49	2.87	2.03	2.01	2.01	2.00	S	2.00	1.98	2.87	2.07	2.07	
Jan 19	2.01	2.02	2.03	2.02	2.02	2.01	2.02	2.03	2.05	2.05	2.05	2.07	2.06	2.06	2.03	2.03	2.45	2.05	2.05	2.06	2.07	S	2.07	2.06	2.01	2.07	2.04	2.04	
Jan 20	2.02	2.01	2.01	2.00	1.99	2.00	2.01	2.01	2.02	2.03	2.05	2.06	2.07	2.06	2.07	2.07	2.07	2.06	2.06	2.08	S	2.07	2.07	2.06	1.99	2.08	2.04	2.04	
Jan 21	2.03	2.03	2.04	2.02	2.01	2.02	2.02	2.01	1.99	1.99	1.99	1.99	1.99	1.99	1.97	2.01	2.04	1.93	S	1.93	1.93	1.94	1.94	1.94	1.93	2.04	1.99	1.99	
Jan 22	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.97	1.96	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.95	S	1.96	1.96	1.96	1.96	1.96	1.93	1.97	1.95	1.95	
Jan 23	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.99	2.12	2.01	2.01	2.02	2.04	2.05	2.06	2.10	S	2.14	2.16	2.13	2.12	2.12	2.11	1.96	2.16	2.04	2.04	
Jan 24	2.12	2.13	2.14	2.13	2.10	2.08	2.07	2.07	2.06	2.08	2.11	2.11	2.10	2.13	2.12	Y	S	2.09	2.09	2.09	2.10	2.09	2.09	2.09	2.06	2.14	2.10	2.10	
Jan 25	2.10	2.11	2.15	2.13	2.15	2.15	2.17	2.21	2.23	2.23	C	C	C	C	C	C	C	2.36	2.42	2.51	2.56	2.64	2.72	2.71	2.74	2.10	2.74	2.35	
Jan 26	2.77	2.76	2.73	2.72	2.75	2.78	2.76	2.70	2.61	2.56	2.51	2.43	2.42	2.46	S	2.45	2.38	2.31	2.24	2.20	2.22	2.23	2.32	2.36	2.20	2.78	2.51	2.36	
Jan 27	2.38	2.39	2.40	2.41	2.42	2.42	2.48	2.42	2.46	2.44	2.45	2.39	2.35	S	2.38	2.43	2.42	2.43	2.42	2.42	2.42	2.43	2.42	2.42	2.35	2.48	2.42	2.42	
Jan 28	2.44	2.43	2.48	2.49	2.48	2.48	2.49	2.49	2.53	2.76	2.76	2.39	2.35	S	2.38	2.22	2.09	2.06	2.06	2.06	2.06	2.05	2.05	2.08	2.05	2.76	2.30	2.30	
Jan 29	2.10	2.10	2.15	2.21	2.22	2.21	2.26	2.30	2.22	2.24	2.20	S	2.18	2.18	2.18	2.19	2.20	2.22	2.24	2.26	2.25	2.26	2.25	2.29	2.10	2.30	2.21	2.21	
Jan 30	2.27	2.29	2.25	2.26	2.27	2.26	2.27	2.28	2.26	2.27	S	2.13	2.08	2.04	2.04	2.04	2.06	2.06	2.08	2.08	2.08	2.08	2.07	2.06	2.06	2.04	2.29	2.15	2.15
Jan 31	2.06	2.06	2.06	2.07	2.09	2.12	2.15	2.21	2.21	S	2.19	2.17	2.17	2.11	2.08	2.08	2.08	2.08	2.09	2.08	2.08	2.08	2.08	2.07	2.06	2.21	2.11	2.11	
Diurnal Maximum	2.77	2.76	2.73	2.72	2.75	2.78	2.76	2.70	2.61	2.76	2.79	2.43	2.42	2.46	2.38	2.45	2.49	2.87	2.51	2.56	2.64	2.72	2.71	2.74					
Diurnal Average	2.09	2.08	2.10	2.09	2.10	2.09	2.10	2.10	2.10	2.11	2.11	2.08	2.06	2.05	2.04	2.05	2.08	2.10	2.07	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.09

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

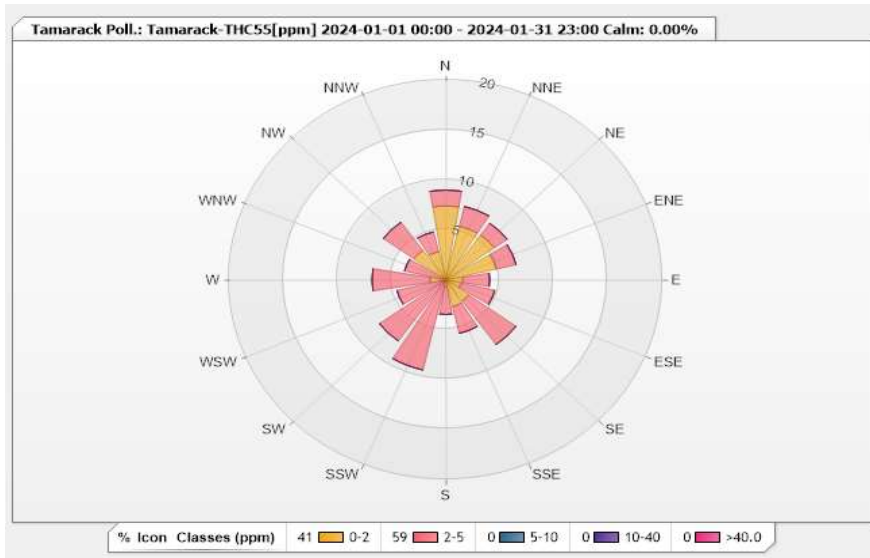


**Station: Tamarack Poll.: Tamarack-THC55[ppm] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 92.74%      Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	7.39	1.59	0	0	0	8.98
NNE	5.51	2.03	0	0	0	7.54
NE	5.51	1.45	0	0	0	6.96
ENE	4.78	1.88	0	0	0	6.66
E	1.59	2.46	0	0	0	4.05
ESE	1.45	3.19	0	0	0	4.64
SE	2.61	5.36	0	0	0	7.97
SSE	2.75	2.75	0	0	0	5.5
S	0.72	2.75	0	0	0	3.47
SSW	0.14	9.13	0	0	0	9.27
SW	0.14	7.39	0	0	0	7.53
WSW	0.43	4.2	0	0	0	4.63
W	1.45	5.36	0	0	0	6.81
WNW	0.29	3.62	0	0	0	3.91
NW	3.62	3.48	0	0	0	7.1
NNW	2.9	2.03	0	0	0	4.93
Summary	41.28	58.67	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - January 2024

Summary of Hourly Averages

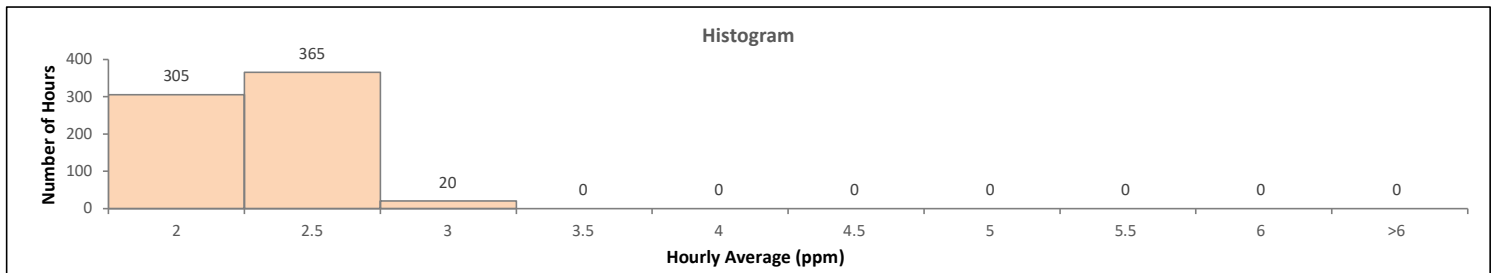
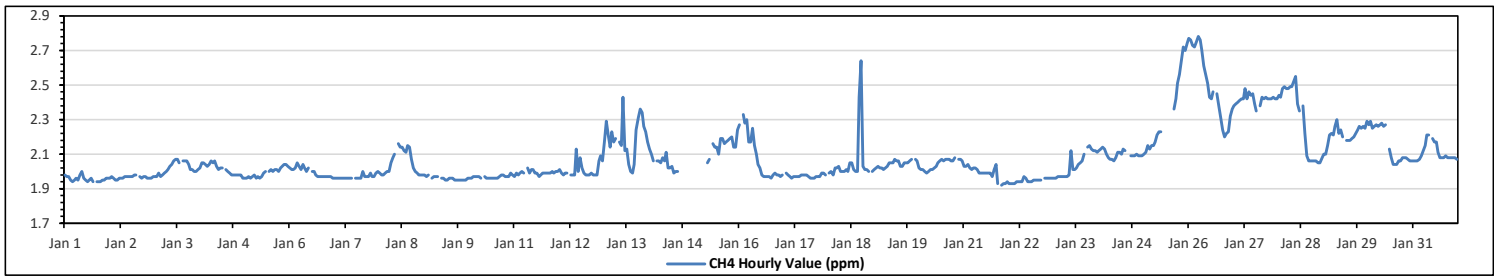
METHANE (CH4) in ppm

Maximum Hourly Value:	2.78	ppm	on Jan 26 at hr 5	Hours in Service:	744
Maximum Daily Value:	2.51	ppm	on Jan 26	Hours of Data:	690
Minimum Hourly Value:	1.92	ppm	on Jan 21 at hr 20	Hours of Missing Data:	17
Minimum Daily Value:	1.95	ppm	on Jan 22	Hours of Calibration:	37
Monthly Average:	2.08	ppm		Operational Uptime:	97.7

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Jan 1	1.98	1.97	1.97	1.95	1.94	1.95	1.96	1.95	1.98	2.00	1.96	1.95	1.94	1.95	1.96	1.94	S	1.94	1.94	1.94	1.95	1.95	1.96	1.96	1.94	2.00	1.96	
Jan 2	1.96	1.97	1.96	1.95	1.95	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.98	1.98	S	1.97	1.96	1.97	1.97	1.96	1.96	1.96	1.96	1.97	1.95	1.98	1.97	
Jan 3	1.97	1.97	1.99	1.97	1.98	1.99	2.00	2.01	2.03	2.04	2.06	2.07	2.07	2.05	S	2.06	2.06	2.06	2.04	2.01	2.01	2.00	2.00	2.01	1.97	2.07	2.02	
Jan 4	2.02	2.05	2.05	2.04	2.03	2.04	2.06	2.05	2.06	2.03	2.01	2.02	2.02	S	2.01	2.00	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.96	1.96	2.06	2.01	
Jan 5	1.96	1.96	1.97	1.96	1.97	1.98	1.96	1.97	1.96	1.97	1.99	2.00	S	2.00	2.01	2.00	2.01	2.01	2.00	2.02	2.03	2.04	2.04	2.03	1.96	2.04	1.99	
Jan 6	2.02	2.01	2.01	2.02	2.05	2.03	2.01	2.04	2.02	2.00	2.02	S	2.00	2.00	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.96	2.05	2.00	
Jan 7	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	S	1.96	1.96	1.96	2.00	1.97	1.97	1.97	1.99	1.97	1.99	2.00	1.96	2.00	2.00	1.97	
Jan 8	1.99	1.98	1.98	1.99	2.00	2.00	2.05	2.08	2.10	S	2.16	2.14	2.14	2.12	2.11	2.15	2.14	2.07	2.02	2.00	1.99	1.98	1.98	1.98	1.98	2.16	2.05	
Jan 9	1.98	1.97	1.98	X	1.96	1.97	1.97	S	1.96	1.96	1.95	1.95	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.98	1.96	
Jan 10	1.96	1.96	1.97	1.97	1.97	1.97	1.96	S	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.98	1.98	1.97	1.97	1.97	1.99	1.98	1.99	1.97	
Jan 11	1.97	1.99	1.98	1.99	2.00	1.99	S	2.02	1.99	2.01	1.99	1.99	1.97	1.98	1.99	1.99	1.99	1.99	1.99	1.99	2.00	1.99	2.00	2.00	1.97	2.02	1.99	
Jan 12	2.01	1.99	1.98	1.99	1.99	S	1.98	1.98	1.98	2.13	2.00	2.08	2.02	1.99	1.98	1.98	1.98	1.99	1.98	1.98	1.98	1.98	2.06	2.09	2.06	1.98	2.13	2.01
Jan 13	2.17	2.29	2.21	2.14	2.23	2.17	2.19	S	2.17	2.15	2.43	2.12	2.13	2.04	2.00	1.99	2.04	2.24	2.31	2.36	2.34	2.26	2.23	2.17	1.99	2.43	2.19	
Jan 14	2.13	2.10	2.06	S	2.06	2.06	2.05	2.08	2.06	2.11	2.02	2.02	2.03	1.99	2.00	2.00	K	K	K	K	K	K	K	K	1.99	2.13	NA	
Jan 15	K	K	K	K	K	K	K	K	2.05	2.07	S	2.16	2.14	2.14	2.10	2.19	2.19	2.16	2.17	2.18	2.19	2.20	2.14	2.14	2.24	2.05	2.24	NA
Jan 16	2.27	S	2.33	2.28	2.30	2.17	2.17	2.25	2.15	2.10	2.04	2.02	1.98	1.97	1.97	1.97	1.97	1.96	1.98	1.99	1.98	1.98	1.97	1.98	1.96	2.33	2.08	
Jan 17	S	1.99	1.98	1.97	1.96	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.97	1.96	1.96	1.96	1.97	1.97	1.97	1.99	1.99	1.98	S	1.96	1.99	1.97	
Jan 18	1.99	2.00	1.98	2.02	2.02	2.03	2.00	2.00	2.00	2.01	2.00	2.05	2.05	2.01	2.00	2.00	2.43	2.64	2.03	2.01	2.01	2.00	S	2.00	1.98	2.64	2.06	
Jan 19	2.01	2.02	2.03	2.02	2.02	2.01	2.02	2.03	2.05	2.05	2.05	2.07	2.06	2.06	2.03	2.03	2.05	2.05	2.05	2.06	2.07	S	2.07	2.06	2.01	2.07	2.04	
Jan 20	2.02	2.01	2.01	2.00	1.99	2.00	2.01	2.01	2.02	2.03	2.05	2.06	2.07	2.06	2.07	2.07	2.07	2.06	2.06	2.08	S	2.07	2.07	2.06	1.99	2.08	2.04	
Jan 21	2.03	2.03	2.04	2.02	2.01	2.02	2.02	2.01	1.99	1.99	1.99	1.99	1.99	1.99	1.97	2.01	2.04	1.93	S	1.92	1.93	1.93	1.94	1.92	2.04	1.99	1.99	
Jan 22	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.97	1.96	1.94	1.94	1.94	1.95	1.95	1.95	1.95	1.95	S	1.96	1.96	1.96	1.96	1.96	1.93	1.97	1.95	
Jan 23	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.98	2.12	2.01	2.01	2.02	2.04	2.05	2.06	2.10	S	2.14	2.15	2.13	2.12	2.12	2.11	1.96	2.15	2.04	
Jan 24	2.12	2.13	2.14	2.13	2.10	2.08	2.07	2.07	2.06	2.08	2.11	2.11	2.10	2.13	2.12	Y	S	2.09	2.09	2.09	2.10	2.09	2.09	2.09	2.06	2.14	2.10	
Jan 25	2.10	2.11	2.15	2.13	2.15	2.15	2.17	2.21	2.23	2.23	C	C	C	C	C	C	C	2.36	2.42	2.51	2.56	2.64	2.72	2.70	2.74	2.35	2.35	
Jan 26	2.77	2.76	2.73	2.72	2.75	2.78	2.76	2.70	2.61	2.56	2.51	2.43	2.42	2.46	S	2.45	2.38	2.31	2.24	2.20	2.22	2.23	2.32	2.36	2.20	2.78	2.51	
Jan 27	2.38	2.39	2.40	2.41	2.42	2.42	2.48	2.42	2.46	2.44	2.45	2.39	2.35	S	2.38	2.43	2.42	2.43	2.42	2.42	2.42	2.43	2.42	2.42	2.35	2.48	2.42	
Jan 28	2.44	2.43	2.48	2.49	2.48	2.48	2.49	2.49	2.52	2.55	2.39	2.35	S	2.38	2.22	2.09	2.06	2.06	2.06	2.06	2.06	2.05	2.05	2.08	2.05	2.55	2.29	
Jan 29	2.10	2.10	2.15	2.21	2.22	2.21	2.26	2.30	2.22	2.24	2.20	S	2.18	2.18	2.18	2.19	2.20	2.22	2.24	2.26	2.25	2.26	2.25	2.29	2.10	2.30	2.21	
Jan 30	2.27	2.29	2.25	2.26	2.27	2.26	2.27	2.28	2.26	2.27	S	2.13	2.08	2.04	2.04	2.04	2.06	2.06	2.08	2.08	2.08	2.08	2.07	2.06	2.04	2.29	2.15	
Jan 31	2.06	2.06	2.06	2.07	2.09	2.12	2.15	2.21	2.21	S	2.19	2.17	2.17	2.11	2.08	2.08	2.08	2.09	2.08	2.08	2.08	2.08	2.08	2.07	2.06	2.21	2.11	
Diurnal Maximum	2.77	2.76	2.73	2.72	2.75	2.78	2.76	2.70	2.61	2.56	2.51	2.43	2.42	2.46	2.38	2.45	2.43	2.64	2.51	2.56	2.64	2.72	2.70	2.74				
Diurnal Average	2.09	2.08	2.09	2.09	2.09	2.09	2.10	2.10	2.10	2.10	2.09	2.07	2.06	2.05	2.04	2.05	2.08	2.09	2.07	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.09

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



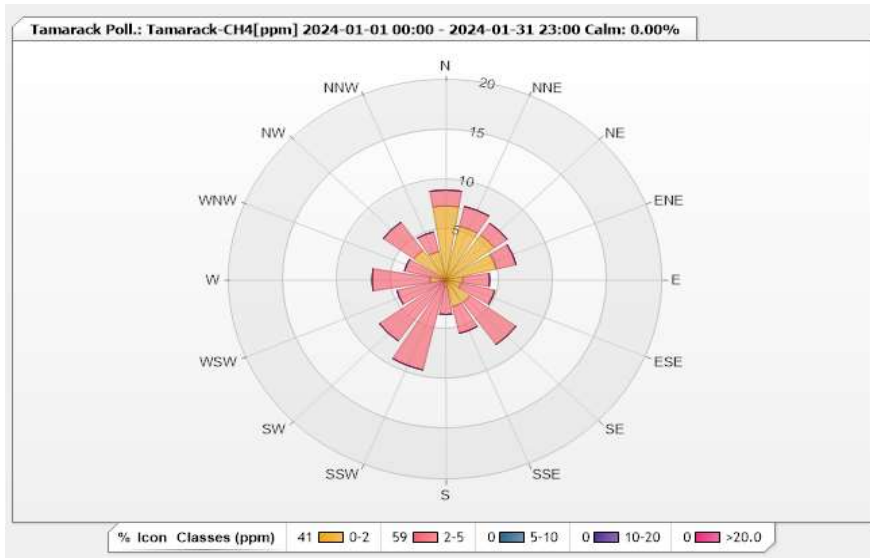


**Station: Tamarack Poll.: Tamarack-CH4[ppm] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 92.74%      Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	7.39	1.59	0	0	0	8.98
NNE	5.51	2.03	0	0	0	7.54
NE	5.51	1.45	0	0	0	6.96
ENE	4.78	1.88	0	0	0	6.66
E	1.59	2.46	0	0	0	4.05
ESE	1.45	3.19	0	0	0	4.64
SE	2.75	5.22	0	0	0	7.97
SSE	2.75	2.75	0	0	0	5.5
S	0.72	2.75	0	0	0	3.47
SSW	0.14	9.13	0	0	0	9.27
SW	0.14	7.39	0	0	0	7.53
WSW	0.43	4.2	0	0	0	4.63
W	1.45	5.36	0	0	0	6.81
WNW	0.29	3.62	0	0	0	3.91
NW	3.62	3.48	0	0	0	7.1
NNW	2.9	2.03	0	0	0	4.93
Summary	41.42	58.53	0	0	0	100



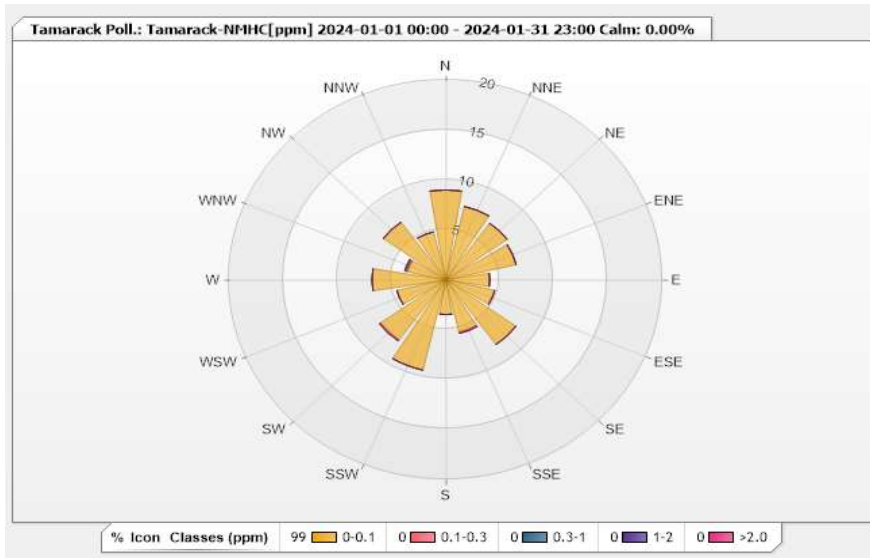


**Station: Tamarack Poll.: Tamarack-NMHC[ppm] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 92.74%      Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	8.99	0	0	0	0	8.99
NNE	7.54	0	0	0	0	7.54
NE	6.96	0	0	0	0	6.96
ENE	6.67	0	0	0	0	6.67
E	4.06	0	0	0	0	4.06
ESE	4.64	0	0	0	0	4.64
SE	7.97	0	0	0	0	7.97
SSE	5.36	0.14	0	0	0	5.5
S	3.48	0	0	0	0	3.48
SSW	9.28	0	0	0	0	9.28
SW	7.39	0.14	0	0	0	7.53
WSW	4.64	0	0	0	0	4.64
W	6.81	0	0	0	0	6.81
WNW	3.62	0.14	0.14	0	0	3.9
NW	7.1	0	0	0	0	7.1
NNW	4.93	0	0	0	0	4.93
Summary	99.44	0.42	0.14	0	0	100



**Lakeland Industry & Community Association**  
**Tamarack Site - January 2024**  
**Summary of Hourly Averages**

**PARTICULATE MATTER 2.5 (PM<sub>2.5</sub>) in µg/m<sup>3</sup>**

Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m <sup>3</sup> , Alberta Ambient Air Quality Objective (AAAO): 24-Hour 29 µg/m <sup>3</sup>	
Number of 1-Hour Exceedances: 0	Number of 24-Hour Exceedances: 0
Maximum Hourly Value: 49 µg/m <sup>3</sup> on Jan 26 at hr 4	Hours in Service: 744
Maximum Daily Value: 23.0 µg/m <sup>3</sup> on Jan 26	Hours of Data: 728
Minimum Hourly Value: 0 µg/m <sup>3</sup> on Jan 16 at hr 21	Hours of Missing Data: 15
Minimum Daily Value: 1 µg/m <sup>3</sup> on Jan 17	Hours of Calibration: 1
Monthly Average: 6.3 µg/m <sup>3</sup>	Operational Uptime: 98.0

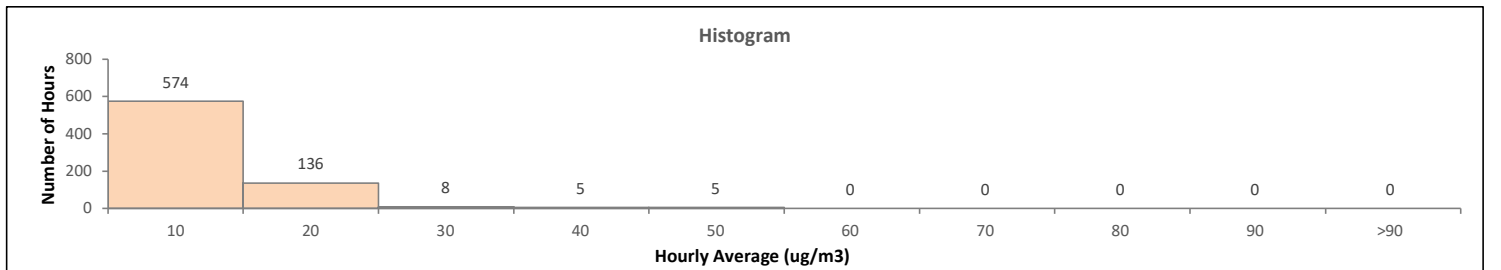
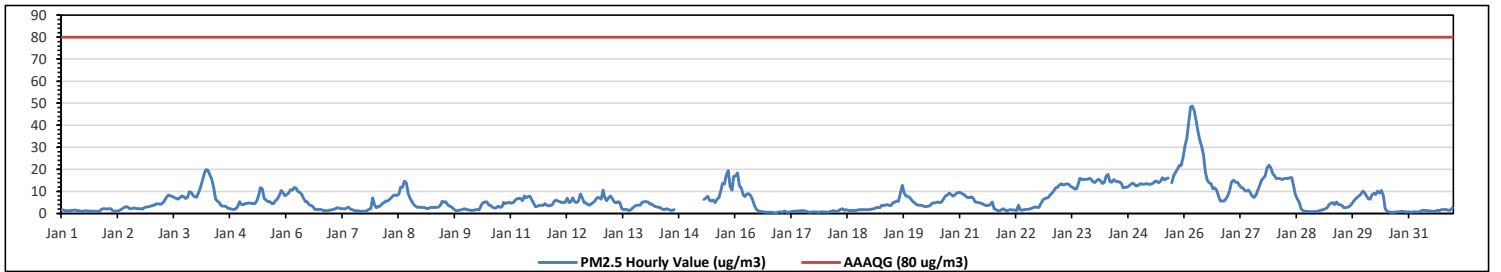
  

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Jan 1	2	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1.3	
Jan 2	2	2	2	1	1	1	1	2	2	3	3	3	2	2	2	2	2	2	2	2	3	3	3	3	3	1	3	2.2
Jan 3	4	4	4	4	4	4	5	6	8	8	8	8	7	6	7	8	8	7	7	10	10	8	8	3	4	10	6.6	
Jan 4	7	10	12	15	18	20	20	18	16	12	6	6	5	4	3	3	3	2	2	2	2	3	5	2	20	8.1		
Jan 5	4	4	4	5	5	5	4	5	6	8	12	11	7	6	5	5	4	6	6	8	10	9	8	4	12	6.4		
Jan 6	9	9	11	11	12	12	10	10	9	7	5	5	4	4	3	2	2	2	2	1	1	1	2	1	12	5.5		
Jan 7	2	2	2	3	2	2	2	2	2	3	2	2	1	1	1	1	1	1	1	1	2	7	4	1	7	2.0		
Jan 8	3	3	3	4	5	6	6	6	7	8	8	8	9	12	12	15	14	9	7	5	4	3	3	3	15	6.7		
Jan 9	3	3	3	2	2	3	3	3	3	3	4	6	5	5	4	3	3	2	1	1	1	2	2	1	6	2.8		
Jan 10	2	2	1	1	1	2	2	2	4	5	5	4	4	3	2	3	3	3	3	5	5	5	5	1	5	3.1		
Jan 11	5	5	6	7	7	7	6	8	7	8	8	6	5	3	3	4	4	4	4	3	4	4	6	3	8	5.2		
Jan 12	6	6	5	5	5	7	5	6	7	5	5	6	9	7	5	5	4	4	5	5	6	7	7	4	9	5.6		
Jan 13	6	11	7	6	7	8	7	5	5	5	2	2	2	2	1	2	3	3	4	4	4	5	5	1	11	4.6		
Jan 14	5	5	4	4	4	3	3	3	2	2	2	2	1	1	2	K	K	K	K	K	K	K	K	1	5	NA		
Jan 15	K	K	K	K	K	K	K	6	7	8	6	6	5	6	7	10	14	13	17	20	12	11	17	5	20	NA		
Jan 16	17	18	13	11	8	8	9	9	8	6	4	2	1	1	1	1	1	1	1	0	0	0	1	0	18	5.0		
Jan 17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8		
Jan 18	1	1	1	1	1	1	1	1	2	2	1	2	1	1	1	1	2	2	2	2	2	2	2	1	2	1.3		
Jan 19	2	2	2	3	3	3	4	4	4	4	4	5	5	5	6	6	9	13	9	8	8	7	6	5	2	13	5.1	
Jan 20	5	4	4	4	3	3	3	3	4	5	5	5	5	5	7	8	8	9	9	8	8	9	10	3	10	5.7		
Jan 21	9	9	9	8	7	7	8	7	5	5	5	4	4	4	4	4	5	2	2	1	1	2	2	1	9	4.9		
Jan 22	1	1	2	2	2	2	1	4	2	1	2	2	2	2	2	3	3	3	4	6	7	7	7	1	7	2.9		
Jan 23	8	9	10	12	12	13	13	13	13	13	12	12	11	11	13	16	16	15	16	16	16	15	14	8	16	13.1		
Jan 24	14	15	15	15	14	14	17	18	14	14	15	15	14	14	13	12	12	13	13	14	13	13	13	12	18	14.0		
Jan 25	14	13	13	13	14	13	13	14	15	15	14	15	16	15	16	16	C	14	17	19	20	22	25	13	25	15.9		
Jan 26	30	34	41	48	49	47	42	37	33	30	27	19	15	14	14	11	12	11	8	6	6	7	8	6	49	23.0		
Jan 27	10	14	15	14	14	13	12	12	10	10	11	10	8	7	8	11	13	15	16	17	21	22	21	18	7	22	13.4	
Jan 28	17	16	16	16	15	16	16	16	16	16	12	9	7	5	2	1	1	1	1	1	1	1	1	1	1	17	8.5	
Jan 29	1	2	2	2	3	4	5	4	5	4	4	4	3	3	3	4	5	6	7	8	9	10	1	10	4.3			
Jan 30	10	8	7	7	9	9	10	9	10	8	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	4.4	
Jan 31	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	2	3	1	3	1.2		
Diurnal Maximum	30	34	41	48	49	47	42	37	33	30	27	19	16	15	16	16	16	17	19	21	22	25	25					
Diurnal Average	6.6	7.1	7.3	7.5	7.6	7.7	7.7	7.6	7.3	6.7	5.8	5.2	5.0	4.8	4.9	5.0	5.5	5.3	5.5	6.0	6.0	6.2	6.5					

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



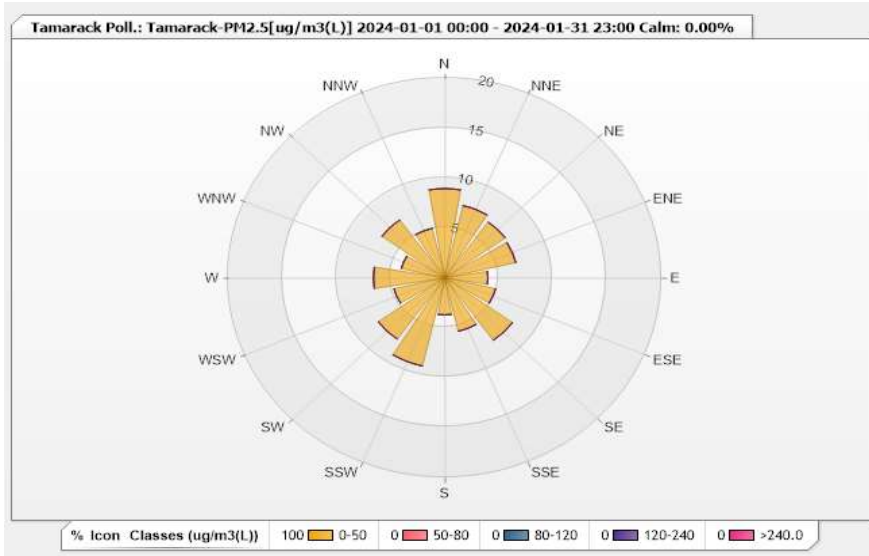
Station: Tamarack Poll.: Tamarack-PM2.5[ug/m3(L)] Monthly: 01-2024

)

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 97.85%      Calm Avg: 0.00 [ug/m3(L)]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	8.93	0	0	0	0	8.93
NNE	7.42	0	0	0	0	7.42
NE	6.87	0	0	0	0	6.87
ENE	6.73	0	0	0	0	6.73
E	3.98	0	0	0	0	3.98
ESE	4.81	0	0	0	0	4.81
SE	7.69	0	0	0	0	7.69
SSE	5.49	0	0	0	0	5.49
S	3.71	0	0	0	0	3.71
SSW	9.07	0	0	0	0	9.07
SW	7.55	0	0	0	0	7.55
WSW	4.81	0	0	0	0	4.81
W	6.59	0	0	0	0	6.59
WNW	4.12	0	0	0	0	4.12
NW	7.14	0	0	0	0	7.14
NNW	5.08	0	0	0	0	5.08
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - January 2024

Summary of Hourly Averages

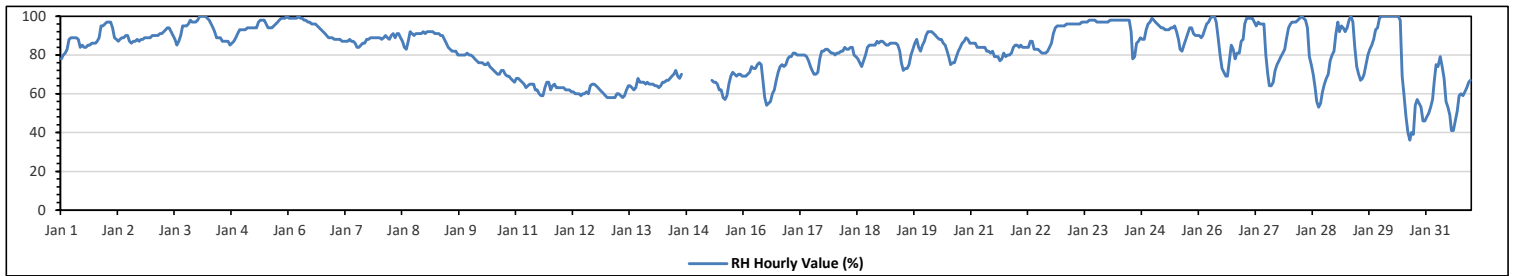
RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	100 %	on Jan 4 at hr 1	Hours in Service:	744
Maximum Daily Value:	96.7 %	on Jan 23	Hours of Data:	729
Minimum Hourly Value:	36 %	on Jan 30 at hr 15	Hours of Missing Data:	15
Minimum Daily Value:	59.0 %	on Jan 31	Hours of Calibration:	0
Monthly Average:	81.8 %		Operational Uptime:	98.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average									
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23								
Jan 1	78	80	81	83	88	89	89	89	89	88	84	85	84	84	85	85	86	86	86	87	89	95	95	96	78	96	86.7								
Jan 2	97	97	97	94	89	88	87	88	89	89	90	90	87	86	87	87	88	87	88	88	89	89	89	89	86	97	89.5								
Jan 3	90	90	90	90	91	91	92	93	94	94	92	90	88	85	87	90	95	95	95	96	98	97	97	97	85	98	92.4								
Jan 4	98	100	100	100	100	99	98	96	94	92	89	89	89	87	87	87	85	86	87	89	91	93	93	93	85	100	92.3								
Jan 5	93	93	94	94	94	94	94	94	94	97	98	98	96	94	94	94	95	96	97	98	99	99	99	100	93	100	95.9								
Jan 6	99	99	99	99	99	100	99	99	98	98	97	97	96	96	96	94	93	92	91	90	89	89	89	89	89	100	95.5								
Jan 7	88	88	88	88	87	87	87	87	88	87	87	86	84	84	85	86	86	88	88	89	89	89	89	89	84	89	87.3								
Jan 8	89	88	89	90	89	88	90	91	89	91	89	87	84	83	87	82	92	91	90	91	91	91	91	92	83	92	89.3								
Jan 9	91	92	92	92	91	91	91	91	90	88	86	84	83	82	82	82	80	80	80	80	81	80	81	80	80	92	85.8								
Jan 10	80	79	78	77	76	76	76	75	75	76	74	73	72	71	70	70	72	72	70	69	69	68	67	66	66	80	73.0								
Jan 11	68	68	67	66	65	63	64	65	65	65	62	62	60	59	59	63	66	66	62	64	65	63	63	63	59	68	63.9								
Jan 12	63	63	62	62	62	61	61	60	60	60	59	60	60	61	60	64	65	65	64	63	62	61	60	59	59	65	61.5								
Jan 13	58	58	58	58	58	60	60	59	58	59	62	64	64	63	62	63	68	66	66	65	66	65	65	65	58	68	62.1								
Jan 14	65	64	64	63	64	66	66	67	67	68	69	70	72	69	68	70	K	K	K	K	K	K	K	K	63	72	NA								
Jan 15	K	K	K	K	K	K	K	K	67	66	66	65	62	62	58	57	59	65	69	71	70	69	70	69	57	71	NA								
Jan 16	69	69	70	71	74	73	73	75	76	75	66	58	54	55	56	60	62	67	71	74	75	74	75	78	54	78	68.8								
Jan 17	79	79	81	81	80	80	80	80	80	79	77	74	72	70	70	71	78	82	82	83	83	82	81	81	70	83	78.5								
Jan 18	80	81	81	82	82	84	83	83	84	84	80	79	78	76	74	77	80	84	85	85	85	85	87	86	74	87	81.9								
Jan 19	87	87	86	85	85	86	86	86	86	85	82	76	72	73	73	75	80	83	86	88	84	82	85	87	72	88	82.7								
Jan 20	90	92	92	92	91	90	89	88	88	86	85	82	79	75	76	76	79	82	84	86	87	89	88	86	75	92	85.5								
Jan 21	86	86	86	84	84	84	84	84	84	82	82	81	82	79	79	77	78	81	79	80	80	81	84	85	77	86	82.0								
Jan 22	85	84	85	84	84	84	84	87	87	83	83	83	82	81	81	81	82	84	86	91	94	95	95	95	81	95	85.8								
Jan 23	95	95	96	96	96	96	96	96	96	96	97	97	97	97	97	98	98	98	97	97	97	97	97	97	95	98	96.7								
Jan 24	97	98	98	98	98	98	98	98	98	98	98	98	98	92	78	79	86	87	89	88	88	93	96	97	99	78	99	93.6							
Jan 25	98	97	96	95	94	94	93	93	93	94	94	95	92	88	83	82	85	88	91	94	94	91	90	90	82	98	91.8								
Jan 26	90	89	90	93	96	97	99	100	100	97	89	80	73	71	69	69	77	85	83	78	81	81	87	88	69	100	85.9								
Jan 27	96	99	99	99	99	97	95	97	96	96	96	80	70	64	64	66	72	75	77	79	81	83	89	94	64	99	86.0								
Jan 28	96	97	97	97	98	99	100	99	98	94	79	75	70	63	56	53	55	61	65	68	70	77	80	82	53	100	80.4								
Jan 29	91	97	92	95	94	92	94	98	100	97	84	74	70	67	68	70	75	80	83	85	88	93	94	99	67	100	86.7								
Jan 30	100	100	100	100	100	100	100	100	100	98	69	59	48	40	36	40	39	54	57	55	53	46	46	46	36	100	72.5								
Jan 31	48	50	53	57	66	75	74	79	74	68	56	53	49	41	41	46	51	59	60	59	61	63	66	67	41	79	59.0								
Diurnal Maximum	100	100	100	100	100	100	100	100	100	98	98	97	97	98	98	98	98	97	98	99	99	99	100	100											
Diurnal Average	84.8	85.3	85.4	85.5	85.8	86.1	86.1	85.9	85.7	85.0	82.3	79.2	76.5	73.9	73.2	74.4	77.3	79.2	80.2	81.0	81.7	82.3	83.0	83.6											
C	Monthly Calibration																							S	Daily Zero-Span Check		Q	Quality Assurance							
K	Collection Error																							ND	No Data (Machine Not in Service)		Y	Routine Maintenance		P	Power Failure				
X	Invalid Data (Equipment Malfunction /Recovery)																							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)										

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per days is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Lakeland Industry & Community Association

Tamarack Site - January 2024  
Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	955	mb	on Jan 13 at hr 3	Hours in Service:	744
Maximum Daily Value:	952	mb	on Jan 13	Hours of Data:	729
Minimum Hourly Value:	919	mb	on Jan 9 at hr 11	Hours of Missing Data:	15
Minimum Daily Value:	922	mb	on Jan 9	Hours of Calibration:	0
Monthly Average:	936	mb		Operational Uptime:	98.0

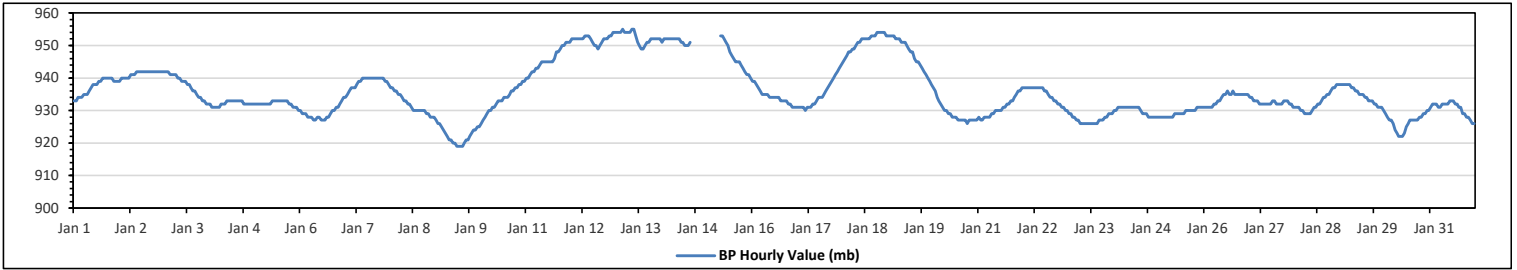
  

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Jan 1	933	933	934	934	934	935	935	935	936	937	938	938	938	939	939	940	940	940	940	940	939	939	939	939	933	940	937
Jan 2	939	940	940	940	940	940	941	941	941	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	939	942	941
Jan 3	942	942	942	941	941	941	941	940	940	939	939	939	938	938	937	936	936	935	934	934	933	933	932	932	932	942	941
Jan 4	932	931	931	931	931	931	932	932	932	933	933	933	933	933	933	933	933	933	932	932	932	932	932	931	931	933	932
Jan 5	932	932	932	932	932	932	932	932	932	933	933	933	933	933	933	933	933	933	932	932	931	931	931	930	930	933	932
Jan 6	930	929	929	929	928	928	928	927	927	928	928	927	927	927	928	928	929	930	930	931	931	932	933	934	927	934	929
Jan 7	934	935	936	937	937	937	938	939	939	940	940	940	940	940	940	940	940	940	940	940	939	939	938	938	934	940	939
Jan 8	937	937	936	936	935	935	934	933	933	932	932	931	930	930	930	930	930	930	930	929	929	928	928	928	928	937	932
Jan 9	927	926	926	925	924	923	922	921	921	920	920	919	919	919	919	920	921	921	922	923	924	924	925	925	919	927	922
Jan 10	926	927	928	929	930	930	931	931	932	933	933	933	934	934	934	935	936	936	937	937	938	938	939	939	926	939	933
Jan 11	940	940	941	942	942	943	943	944	945	945	945	945	945	945	945	946	948	948	949	950	950	951	951	940	951	946	
Jan 12	952	952	952	952	952	952	952	953	953	953	952	951	950	950	949	950	951	952	952	952	953	953	954	954	949	954	952
Jan 13	954	954	954	955	954	954	954	954	955	955	953	951	950	949	949	950	951	951	952	952	952	952	952	949	955	952	
Jan 14	951	952	952	952	952	952	952	952	952	951	951	950	950	950	950	951	K	K	K	K	K	K	K	950	952	NA	
Jan 15	K	K	K	K	K	K	K	953	953	952	951	950	948	947	946	945	945	944	943	942	941	941	940	940	953	NA	
Jan 16	939	939	938	937	936	935	935	935	935	934	934	934	934	934	934	933	933	933	932	932	931	931	931	931	931	939	934
Jan 17	931	931	931	931	930	931	931	931	932	932	933	934	934	934	935	936	937	938	939	940	941	942	943	944	930	944	935
Jan 18	945	946	947	948	948	949	949	950	951	951	952	952	952	952	952	953	953	954	954	954	954	954	953	945	954	951	
Jan 19	953	953	953	953	952	952	952	951	951	951	950	949	948	948	946	945	945	944	943	942	941	940	939	938	938	953	947
Jan 20	937	936	934	933	932	931	930	930	929	929	928	928	928	927	927	927	927	926	927	927	927	927	927	926	926	937	929
Jan 21	928	927	927	928	928	928	928	929	929	930	930	930	931	931	932	932	933	933	933	934	935	936	936	937	927	937	931
Jan 22	937	937	937	937	937	937	937	937	937	937	937	936	936	935	934	934	933	933	932	932	931	931	930	930	930	937	935
Jan 23	929	929	928	928	927	927	926	926	926	926	926	926	926	926	926	926	927	927	927	928	928	929	929	929	926	929	927
Jan 24	930	930	931	931	931	931	931	931	931	931	931	931	931	931	930	929	929	929	928	928	928	928	928	928	928	928	930
Jan 25	928	928	928	928	928	928	928	928	929	929	929	929	929	929	930	930	930	930	930	930	931	931	931	931	928	931	929
Jan 26	931	931	931	931	931	932	932	933	933	934	935	935	936	935	935	936	935	935	935	935	935	935	935	935	931	936	934
Jan 27	934	934	933	933	933	932	932	932	932	932	932	932	933	933	932	932	932	933	933	933	932	932	931	931	931	934	932
Jan 28	931	931	931	930	930	929	929	929	929	930	931	931	932	932	933	934	934	935	935	936	937	937	938	938	929	938	933
Jan 29	938	938	938	938	938	938	937	937	936	936	935	935	935	934	934	933	933	933	932	932	931	931	931	930	930	938	935
Jan 30	929	928	927	927	926	924	923	922	922	922	923	925	926	927	927	927	927	928	928	929	929	930	930	922	930	926	
Jan 31	931	932	932	932	931	931	932	932	932	932	933	933	933	932	932	931	931	929	929	928	928	927	926	926	926	933	931
Diurnal Maximum	954	954	954	955	954	954	954	954	955	955	953	952	952	952	952	953	953	953	954	954	954	954	954	954	954	954	954
Diurnal Average	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



**Lakeland Industry & Community Association**  
**Tamarack Site - January 2024**  
**Summary of Hourly Averages**  
**AMBIENT TEMPERATURE (AT) in Degree Celsius**

Maximum Hourly Value:	11.2 °C	on Jan 30 at hr 14	Hours in Service:	744
Maximum Daily Value:	3.8 °C	on Jan 31	Hours of Data:	729
Minimum Hourly Value:	-39.9 °C	on Jan 12 at hr 23	Hours of Missing Data:	15
Minimum Daily Value:	-37.6 °C	on Jan 12	Hours of Calibration:	0
Monthly Average:	-14.9 °C		Operational Uptime:	98.0

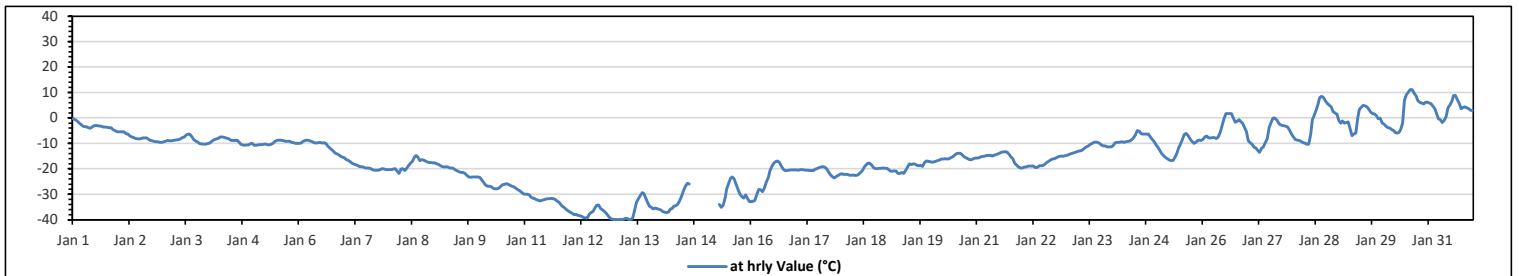
  

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Jan 1	-0.2	-0.7	-1.2	-1.9	-2.6	-3.1	-3.4	-3.4	-3.9	-4.1	-3.5	-3	-2.9	-3	-3.2	-3.3	-3.5	-3.6	-3.7	-3.8	-3.8	-4.6	-5	-5.4	-5.4	-0.2	-3.2	
Jan 2	-5.5	-5.5	-5.5	-5.5	-6.2	-6.4	-7	-7.4	-7.7	-8.1	-8.2	-8.2	-8.1	-7.8	-7.9	-7.8	-8.3	-8.8	-9	-9.3	-9.4	-9.4	-9.6	-9.6	-9.6	-5.5	-7.8	
Jan 3	-9.4	-9.1	-8.9	-9	-9	-8.9	-8.7	-8.6	-8.5	-8.2	-7.7	-7.4	-6.8	-6.3	-6.5	-7.4	-8.6	-9.1	-9.5	-10	-10.2	-10.2	-10.3	-10.1	-10.3	-6.3	-8.7	
Jan 4	-9.9	-9.5	-8.9	-8.5	-8.2	-8	-7.5	-7.5	-7.6	-7.8	-8.1	-8.3	-8.8	-8.9	-8.8	-8.7	-9.5	-10.3	-10.7	-10.8	-10.7	-10.7	-10.1	-10	-10.8	-7.5	-9.1	
Jan 5	-10.8	-10.8	-10.7	-10.5	-10.5	-10.3	-10.2	-10.5	-10.6	-10.3	-9.9	-9.3	-8.9	-8.7	-8.7	-8.8	-9	-9.2	-9.1	-9.3	-9.6	-9.7	-9.9	-10	-10.8	-8.7	-9.8	
Jan 6	-10	-9.8	-9.2	-8.9	-8.7	-8.9	-9.1	-9.4	-9.7	-9.8	-9.7	-9.6	-9.8	-9.7	-10	-10.9	-11.7	-12.3	-13.1	-13.7	-14.1	-14.5	-15	-15.4	-15.4	-8.7	-11.0	
Jan 7	-15.7	-16.3	-16.6	-17.1	-17.7	-18.1	-18.4	-18.7	-19.1	-19.1	-19.2	-19.6	-19.6	-19.7	-20	-20.4	-20.5	-20.5	-20.5	-20.3	-19.9	-20.1	-20.3	-20.3	-20.5	-15.7	-19.1	
Jan 8	-20.3	-20.3	-20.1	-19.9	-20.9	-21.7	-20.1	-20	-20.7	-19.8	-18.7	-17.7	-17	-15.4	-14.8	-15.4	-16.7	-16.3	-16.5	-16.9	-17.3	-17.5	-17.5	-17.6	-21.7	-14.8	-18.3	
Jan 9	-17.6	-18	-18.3	-18.8	-19.1	-19.2	-19.1	-19.3	-19.6	-19.7	-19.9	-20.4	-20.8	-21.2	-21.4	-21.4	-21.8	-22.6	-23.2	-23.3	-23.2	-23.2	-23.1	-23.1	-23.3	-17.6	-20.7	
Jan 10	-23.4	-24.4	-25.5	-26.4	-26.9	-26.9	-27.1	-27.7	-27.9	-27.6	-26.8	-26.2	-26	-25.8	-26.1	-26.5	-26.8	-27.1	-27.6	-28.2	-28.6	-29.2	-29.8	-29.8	-29.8	-23.4	-26.9	
Jan 11	-29.9	-30	-30.2	-31	-31.5	-31.8	-32.1	-32.3	-32.6	-32.3	-32.1	-31.9	-31.7	-31.7	-31.6	-31.7	-32.2	-32.7	-33.3	-34.1	-34.9	-35.4	-36.1	-36.6	-36.6	-29.9	-32.5	
Jan 12	-37.1	-37.5	-38	-37.9	-38.2	-38.4	-38.7	-39.1	-39.3	-39.2	-37.8	-37.1	-36.7	-35.3	-34.2	-34.2	-35.6	-36.2	-36.7	-37.6	-38.6	-39.4	-39.8	-39.9	-39.9	-34.2	-37.6	
Jan 13	-39.9	-39.9	-39.9	-39.9	-39.9	-39.5	-39.4	-39.9	-39.9	-39.4	-36.4	-33.1	-31.8	-30.5	-29.4	-29.7	-31.4	-33.2	-34.8	-35.1	-35.7	-35.3	-35.6	-35.9	-39.9	-29.4	-36.1	
Jan 14	-36.2	-36.8	-37	-37.2	-37	-35.8	-35.6	-34.7	-34.5	-33.8	-32.5	-30.7	-28.6	-26.9	-25.6	-25.9	K	K	K	K	K	K	K	K	-37.2	-25.6	NA	
Jan 15	K	K	K	K	K	K	K	K	-34	-35.1	-34.2	-31.4	-27.8	-25.7	-23.7	-23.2	-24	-25.9	-28	-29.8	-30.9	-31.4	-30.2	-31.6	-32.8	-35.1	-23.2	NA
Jan 16	-32.8	-32.7	-32.3	-30.1	-28.1	-28.2	-29	-27.4	-25.1	-23.4	-20.8	-19	-17.7	-17.1	-16.9	-17.5	-19	-20.2	-20.6	-20.7	-20.5	-20.4	-20.4	-20.4	-32.8	-16.9	-23.3	
Jan 17	-20.4	-20.5	-20.3	-20.3	-20.4	-20.5	-20.5	-20.6	-20.7	-20.6	-20.2	-19.9	-19.5	-19.3	-19.1	-19.2	-19.9	-21.2	-22.3	-23	-23.5	-23	-22.7	-22.1	-23.5	-19.1	-20.8	
Jan 18	-21.9	-22.1	-22.2	-22.1	-22.5	-22.6	-22.5	-22.6	-22.2	-22.2	-21.4	-20.7	-19.2	-18.4	-17.7	-17.8	-18.6	-19.5	-20	-20	-19.8	-19.8	-19.7	-19.8	-22.6	-17.7	-20.7	
Jan 19	-19.8	-20.3	-20.9	-20.9	-20.8	-20.9	-21.7	-21.7	-21.4	-21.8	-20.6	-19.3	-18	-18.3	-18	-18.1	-18.7	-18.8	-18.7	-19	-17.5	-16.9	-17	-17.2	-21.8	-16.9	-19.4	
Jan 20	-17.4	-17.3	-17	-16.7	-16.5	-16.2	-16.2	-16.1	-16.2	-16	-15.7	-15.3	-14.7	-14	-13.9	-13.9	-14.5	-15.2	-15.6	-16	-16.4	-16.4	-16.1	-15.8	-17.4	-13.9	-15.8	
Jan 21	-15.8	-15.6	-15.3	-15.1	-15	-14.8	-14.8	-14.7	-14.9	-14.7	-14.4	-14.1	-13.7	-13.4	-13.4	-13.3	-13.5	-14.4	-15.3	-16.1	-17.7	-18.6	-19.2	-19.7	-19.7	-13.3	-15.3	
Jan 22	-19.6	-19.3	-19.3	-18.9	-18.9	-18.9	-18.9	-19.5	-19.4	-18.8	-18.8	-18.7	-18.1	-17.5	-17	-16.5	-16.2	-16.1	-15.6	-15.2	-15	-15	-15	-14.8	-19.6	-14.8	-17.5	
Jan 23	-14.6	-14.3	-14	-13.7	-13.5	-13.3	-13	-12.8	-12.4	-11.9	-11.4	-10.9	-10.4	-10	-9.6	-9.5	-9.6	-10	-10.7	-11	-10.9	-11.3	-11.3	-11.3	-14.6	-9.5	-11.7	
Jan 24	-10.9	-9.8	-9.6	-9.6	-9.5	-9.4	-9.6	-9.4	-9.2	-9.1	-8.6	-7.8	-6.7	-5	-5.2	-6.2	-6.3	-6.4	-6.3	-6.4	-7.5	-8.4	-9.4	-10.7	-10.9	-5.0	-8.2	
Jan 25	-11.6	-12.8	-14.1	-14.8	-15.5	-16.1	-16.5	-16.8	-16.6	-15.4	-14.1	-11.9	-10.2	-8.4	-6.5	-6.1	-6.9	-8.2	-9.2	-9.9	-9.6	-8.9	-8.7	-8.9	-16.8	-6.1	-11.6	
Jan 26	-8.3	-7.4	-7.1	-7.8	-7.8	-7.7	-7.7	-8.1	-7.5	-5.7	-3	-0.2	1.7	1.7	1.7	1.7	0	-1.7	-1.4	-0.7	-1.5	-2	-3.7	-5.3	-8.3	1.7	-3.7	
Jan 27	-9	-9.7	-10.4	-11.5	-11.9	-12.9	-13.5	-12	-11.4	-9.7	-8.2	-3.9	-1.8	-0.1	-0.1	-0.8	-2	-2.7	-2.9	-3	-3.3	-3.6	-4.8	-6.4	-13.5	-0.1	-6.5	
Jan 28	-7.5	-8.4	-8.7	-8.9	-9.3	-9.7	-9.8	-10.3	-10.2	-6.3	-0.8	1.1	3.1	5.4	8	8.5	7.9	6.6	5.7	5	4.4	2.5	2	1.4	-10.3	8.5	-1.2	
Jan 29	-1	-2	-1.2	-2	-1.8	-1.5	-4.2	-6.9	-6.4	-5.9	0.1	3.3	4.2	5	4.8	4.4	3.4	2.4	1.7	1.6	1	-0.2	-0.1	-1.9	-6.9	5.0	-0.1	
Jan 30	-2.5	-3.2	-3.8	-4	-4.5	-5	-5.6	-5.9	-5.6	-4.6	-2.1	7	9.2	10.2	11.2	11.2	9.7	8.8	6.7	6.2	5.9	5.4	6.2	6.3	-5.9	11.2	2.4	
Jan 31	5.9	5.6	4.6	3.6	1.5	-0.2	-0.6	-1.8	-0.9	0.5	3.9	5.2	6.5	8.8	8.9	7.3	5.8	3.6	4.1	4.4	3.9	3.6	2.9	2.9	-1.8	8.9	3.8	
Diurnal Maximum	5.9	5.6	4.6	3.6	1.5	-0.2	-0.6	-1.8	-0.9	0.5	3.9	7.0	9.2	10.2	11.2	11.2	9.7	8.8	6.7	6.2	5.9	5.4	6.2	6.3				
Diurnal Average	-15.8	-15.9	-16.1	-16.2	-16.4	-16.5	-16.7	-17.4	-17.3	-16.8	-15.4	-14.1	-13.2	-12.4	-12.1	-12.3	-12.7	-13.4	-13.9	-14.2	-14.5	-14.7	-15.0	-15.3				

<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>ND</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b>	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per days is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.





**Lakeland Industry & Community Association**  
**Tamarack Site - January 2024**  
**Summary of Hourly Averages**  
**STATION TEMPERATURE (ST) in Degree Celsius**

Maximum Hourly Value:	23.2 °C	on Jan 25 at hr 12	Hours in Service:	744
Maximum Daily Value:	21.9 °C	on Jan 24	Hours of Data:	729
Minimum Hourly Value:	18.1 °C	on Jan 7 at hr 15	Hours of Missing Data:	15
Minimum Daily Value:	18.4 °C	on Jan 8	Hours of Calibration:	0
Monthly Average:	20.2 °C		Operational Uptime:	98.0

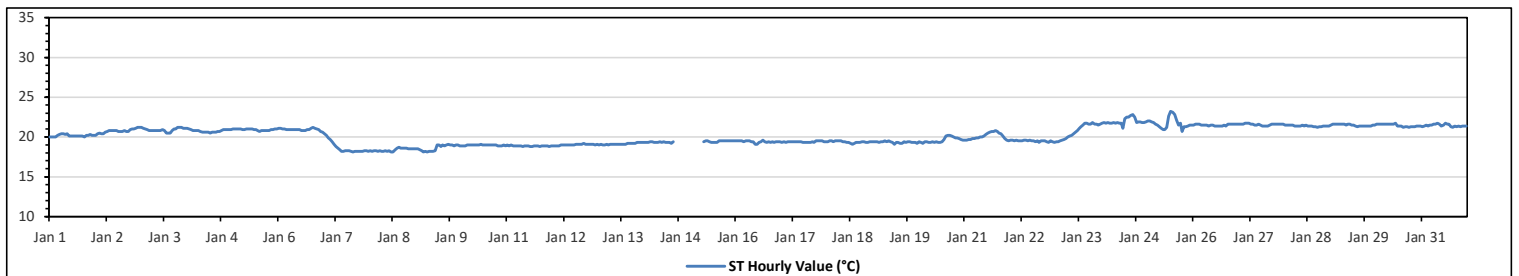
  

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Jan 1	20.0	20.0	20.0	20.0	20.2	20.3	20.4	20.4	20.3	20.4	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.0	20.2	20.2	20.3	20.2	20.2	20.0	20.4	20.2	
Jan 2	20.2	20.4	20.5	20.4	20.4	20.6	20.7	20.8	20.8	20.8	20.8	20.8	20.7	20.7	20.7	20.8	20.7	20.7	20.9	21.0	21.0	21.1	21.2	21.2	20.2	21.2	20.7	
Jan 3	21.2	21.1	21.0	20.9	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.9	20.8	20.5	20.5	20.5	20.8	21.0	21.0	21.2	21.2	21.2	21.1	21.1	20.5	21.2	20.9	
Jan 4	21.1	21.0	20.9	20.8	20.8	20.8	20.8	20.7	20.6	20.6	20.6	20.5	20.6	20.6	20.6	20.7	20.7	20.8	20.8	20.9	20.9	20.9	20.9	20.9	20.5	21.1	20.8	
Jan 5	21.0	21.0	21.0	21.0	21.0	20.9	20.9	21.0	21.0	21.0	21.0	20.9	20.9	20.8	20.7	20.8	20.8	20.8	20.8	20.9	20.9	20.9	21.0	21.0	20.7	21.0	20.9	
Jan 6	21.1	21.1	21.0	21.0	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.8	20.8	20.8	20.8	20.9	20.9	21.1	21.2	21.1	21.0	20.9	20.7	20.6	20.6	21.2	20.9
Jan 7	20.4	20.2	19.9	19.7	19.4	19.1	18.8	18.6	18.4	18.2	18.2	18.3	18.3	18.3	18.2	18.1	18.2	18.2	18.2	18.2	18.2	18.2	18.3	18.3	18.2	18.1	20.4	18.7
Jan 8	18.3	18.2	18.3	18.3	18.2	18.3	18.2	18.2	18.3	18.2	18.3	18.1	18.1	18.4	18.6	18.7	18.6	18.6	18.6	18.6	18.6	18.5	18.5	18.5	18.5	18.1	18.7	18.4
Jan 9	18.5	18.5	18.4	18.3	18.1	18.2	18.1	18.2	18.2	18.2	18.3	19.0	19.0	18.8	19.0	18.9	19.0	19.1	19.0	19.0	18.9	19.0	18.9	19.0	18.9	18.1	19.1	18.7
Jan 10	18.9	18.9	18.9	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.1	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	18.9	18.9	18.9	19.0	18.9	18.9	19.1	19.0
Jan 11	19.0	18.9	19.0	18.9	18.9	18.9	18.9	18.9	18.8	18.9	18.9	18.9	18.8	18.8	18.9	18.9	18.9	18.8	18.9	18.9	18.9	18.9	18.8	18.9	18.8	19.0	18.9	18.9
Jan 12	18.9	18.9	18.9	18.9	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.1	19.1	19.1	19.1	19.1	19.1	19.2	19.1	19.1	19.1	19.1	19.0	19.1	18.9	19.2	19.0
Jan 13	19.0	19.1	19.0	19.0	19.1	19.0	19.1	19.1	19.1	19.1	19.1	19.1	19.1	19.1	19.1	19.2	19.2	19.2	19.2	19.2	19.2	19.3	19.3	19.3	19.0	19.3	19.1	
Jan 14	19.3	19.3	19.3	19.4	19.4	19.3	19.3	19.3	19.4	19.3	19.4	19.3	19.3	19.3	19.2	19.4	K	K	K	K	K	K	K	K	19.2	19.4	NA	
Jan 15	K	K	K	K	K	K	K	K	19.4	19.5	19.5	19.4	19.3	19.3	19.3	19.3	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.3	19.5	NA	
Jan 16	19.5	19.5	19.5	19.5	19.4	19.5	19.5	19.5	19.4	19.4	19.4	19.1	19.1	19.3	19.4	19.6	19.4	19.3	19.4	19.3	19.4	19.3	19.4	19.4	19.4	19.1	19.6	19.4
Jan 17	19.3	19.4	19.3	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.3	19.3	19.3	19.3	19.3	19.3	19.4	19.3	19.5	19.5	19.5	19.5	19.4	19.4	19.3	19.5	19.4
Jan 18	19.4	19.5	19.5	19.4	19.5	19.5	19.5	19.5	19.4	19.4	19.3	19.3	19.2	19.1	19.2	19.3	19.3	19.3	19.4	19.4	19.3	19.3	19.4	19.4	19.1	19.5	19.4	
Jan 19	19.4	19.4	19.4	19.3	19.4	19.4	19.5	19.4	19.5	19.4	19.3	19.1	19.3	19.3	19.2	19.2	19.2	19.4	19.3	19.4	19.4	19.3	19.3	19.3	19.2	19.1	19.5	19.3
Jan 20	19.4	19.3	19.2	19.4	19.4	19.3	19.3	19.4	19.3	19.4	19.3	19.3	19.4	19.7	20.1	20.2	20.2	20.1	20.0	19.9	19.9	19.8	19.7	19.6	19.2	20.2	19.6	
Jan 21	19.6	19.6	19.7	19.7	19.8	19.8	19.9	19.9	20.0	20.0	20.1	20.3	20.5	20.6	20.7	20.7	20.8	20.7	20.5	20.4	20.1	19.8	19.6	19.5	19.5	20.8	20.1	
Jan 22	19.6	19.6	19.5	19.6	19.5	19.5	19.5	19.6	19.6	19.5	19.6	19.5	19.5	19.4	19.5	19.3	19.5	19.5	19.5	19.4	19.3	19.5	19.4	19.3	19.3	19.6	19.5	
Jan 23	19.4	19.4	19.5	19.6	19.7	19.8	20.0	20.1	20.2	20.4	20.6	20.8	21.1	21.3	21.5	21.7	21.7	21.6	21.6	21.8	21.6	21.6	21.5	21.6	19.4	21.8	20.8	
Jan 24	21.7	21.8	21.7	21.8	21.7	21.7	21.8	21.7	21.8	21.7	21.7	21.7	21.1	22.3	22.5	22.5	22.7	22.8	22.5	21.8	21.9	21.9	21.8	21.9	21.1	22.8	21.9	
Jan 25	22.0	22.0	21.9	21.8	21.6	21.5	21.3	21.1	20.9	20.9	21.2	22.6	23.2	23.1	22.8	22.1	21.5	21.7	20.7	21.3	21.3	21.4	21.5	21.5	20.7	23.2	21.7	
Jan 26	21.5	21.6	21.6	21.6	21.5	21.5	21.5	21.4	21.5	21.5	21.5	21.4	21.4	21.4	21.4	21.4	21.5	21.4	21.6	21.6	21.6	21.6	21.6	21.4	21.6	21.6	21.5	
Jan 27	21.6	21.6	21.6	21.7	21.7	21.7	21.6	21.6	21.5	21.5	21.6	21.5	21.4	21.4	21.4	21.4	21.4	21.5	21.6	21.6	21.6	21.6	21.6	21.6	21.4	21.7	21.6	
Jan 28	21.5	21.5	21.5	21.5	21.5	21.4	21.4	21.4	21.4	21.5	21.4	21.5	21.4	21.4	21.4	21.3	21.3	21.2	21.3	21.3	21.4	21.4	21.4	21.4	21.2	21.5	21.4	
Jan 29	21.5	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.5	21.6	21.6	21.5	21.5	21.4	21.3	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.5	21.5	21.3	21.6	21.5
Jan 30	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.7	21.4	21.4	21.4	21.4	21.2	21.3	21.3	21.2	21.3	21.3	21.4	21.4	21.4	21.2	21.7	21.5	
Jan 31	21.3	21.4	21.5	21.4	21.5	21.5	21.6	21.6	21.7	21.6	21.6	21.4	21.5	21.7	21.6	21.6	21.3	21.2	21.4	21.3	21.4	21.3	21.4	21.4	21.2	21.7	21.5	
Diurnal Maximum	22.0	22.0	21.9	21.8	21.7	21.7	21.8	21.7	21.8	21.7	21.7	22.6	23.2	23.1	22.8	22.7	22.8	22.5	21.8	21.9	21.9	21.8	21.8	21.9	21.1	21.7	21.5	
Diurnal Average	20.2	20.2	20.2	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.2	20.2	20.2	20.2	20.3	20.3	20.2	20.3	20.2	20.2	20.2	20.2	20.2	20.2	20.2	

<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>ND</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b> Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per days is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Lakeland Industry & Community Association

Tamarack Site - January 2024

Summary of Hourly Averages

PRECIPITATION in mm

Maximum Hourly Value:	0.3 mm	on Jan 4 at hr 23	Hours in Service:	744
Maximum Daily Value:	1.0 mm	on Jan 5	Hours of Data:	728
Minimum Hourly Value:	0.0 mm	on Jan 1 at hr 0	Hours of Missing Data:	15
Minimum Daily Value:	0.0 mm	on Jan 1	Hours of Calibration:	1
Monthly Total:	1.9 mm		Operational Uptime:	98.0

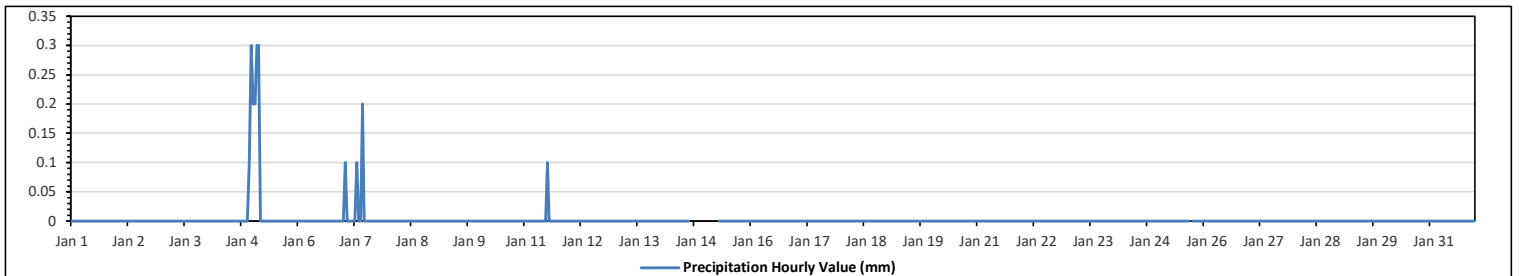
  

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Total	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Jan 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3	0.4	
Jan 5	0.2	0.2	0.3	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.3	1.0
Jan 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 7	0	0.1	0	0	0	0	0	0.1	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.2	0.4
Jan 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 11	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.1
Jan 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 15	K	K	K	K	K	K	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	NA
Jan 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Diurnal Maximum	0.2	0.2	0.3	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3			
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>ND</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b> Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Lakeland Industry & Community Association

Tamarack Site - January 2024

Summary of Hourly Averages

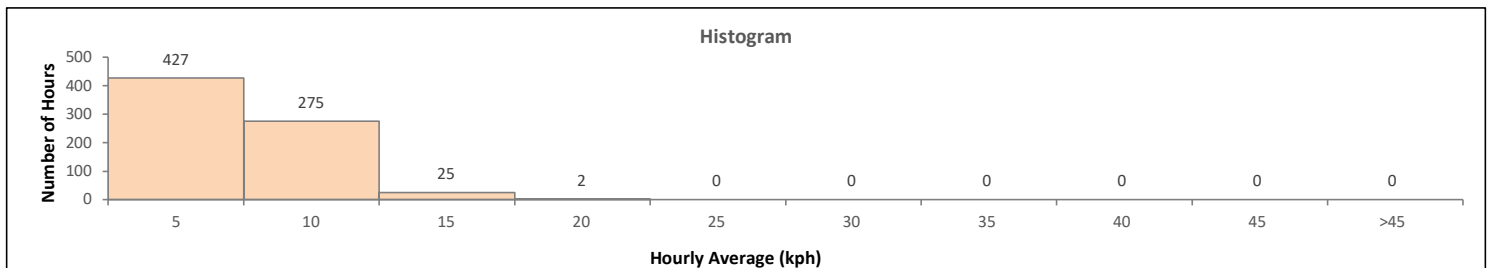
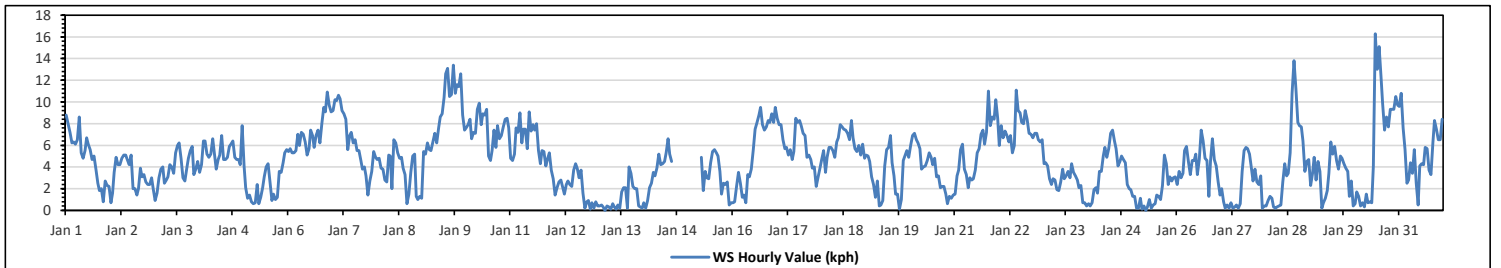
VECTOR WIND SPEED (VWS) in km/hr

Maximum Hourly Value:	16.3 kph	on Jan 30 at hr 11	Hours in Service:	744
Maximum Daily Value:	8.6 kph	on Jan 9	Hours of Data:	729
Minimum Hourly Value:	0.0 kph	on Jan 13 at hr 3	Hours of Missing Data:	15
Minimum Daily Value:	1.0 kph	on Jan 13	Hours of Calibration:	0
Monthly Average:	0.7 kph		Operational Uptime:	98.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Jan 1	8.8	8.0	7.2	6.2	6.3	6.1	6.5	8.6	5.3	4.8	5.5	6.7	6.1	5.6	4.7	5.0	3.8	2.5	1.8	2.0	0.8	2.7	2.3	2.2	0.8	8.8	5.0	
Jan 2	0.7	1.6	3.5	4.9	4.2	4.2	4.8	5.1	5.1	4.7	4.2	5.1	2.0	2.0	1.4	2.0	3.9	3.1	3.3	2.6	2.4	2.4	3.0	2.0	0.7	5.1	3.3	
Jan 3	0.9	1.6	3.0	3.8	4.0	2.5	2.8	3.1	4.2	4.0	3.4	5.3	6.0	6.2	4.8	3.0	2.7	3.9	4.8	5.5	5.9	3.3	3.8	4.5	0.9	6.2	3.9	
Jan 4	3.5	4.2	6.4	6.4	5.2	4.9	5.2	6.6	5.3	3.8	4.7	5.1	6.9	4.7	4.7	4.9	5.9	6.1	6.4	4.9	4.7	4.7	4.2	7.8	3.5	7.8	5.3	
Jan 5	4.1	2.1	1.1	1.4	0.8	0.6	0.7	2.4	0.6	1.2	2.1	3.1	4.0	4.3	2.6	0.9	1.5	1.0	1.2	3.6	3.5	4.4	5.3	5.6	0.6	5.6	2.4	
Jan 6	5.4	5.7	5.3	5.3	5.5	7.0	6.0	7.2	7.0	6.3	5.1	5.7	7.4	6.9	5.8	6.9	7.4	6.2	8.0	9.5	9.1	10.9	9.7	9.1	5.1	10.9	7.0	
Jan 7	9.2	10.2	10.1	10.6	10.3	9.2	8.9	8.4	5.6	6.9	7.2	6.2	6.5	5.5	4.6	3.8	4.0	3.2	1.4	2.7	3.6	5.4	4.9	1.4	10.6	6.4		
Jan 8	4.7	4.8	3.9	3.8	2.8	2.6	5.1	5.0	2.0	6.5	6.2	5.3	4.8	4.9	3.9	3.3	0.6	1.5	3.5	5.0	5.2	1.3	1.0	1.3	0.6	6.5	3.7	
Jan 9	1.1	5.4	5.2	6.2	5.6	5.5	6.3	7.1	6.2	7.6	8.6	8.9	10.4	12.6	13.1	10.5	10.7	13.4	10.8	11.6	11.4	12.6	8.8	7.4	1.1	13.4	8.6	
Jan 10	7.6	7.9	8.4	6.6	7.2	7.1	9.3	9.9	7.9	8.9	8.8	9.3	5.0	4.6	5.5	7.4	5.8	7.8	6.6	6.9	7.7	8.4	8.5	7.6	4.6	9.9	7.5	
Jan 11	4.8	4.6	5.2	7.6	7.2	9.0	6.2	7.5	7.5	5.7	9.1	7.3	7.9	7.4	8.0	5.5	4.3	5.5	5.4	4.1	4.8	5.3	3.7	2.9	2.9	9.1	6.1	
Jan 12	1.4	2.1	2.6	2.8	2.2	1.5	2.4	2.7	2.4	2.2	3.7	4.3	3.9	3.0	3.7	1.6	0.2	0.8	0.9	0.1	0.7	0.2	0.8	0.4	0.1	4.3	1.9	
Jan 13	0.4	0.5	0.3	0.0	0.4	0.3	0.1	0.6	0.3	0.1	0.5	0.2	1.7	2.1	2.1	0.2	4.0	3.4	2.2	2.0	2.0	0.4	0.3	0.2	0.0	4.0	1.0	
Jan 14	0.7	0.2	0.9	2.1	2.5	3.5	3.2	3.9	5.2	4.2	4.3	4.5	5.3	6.6	5.2	4.5	K	K	K	K	K	K	K	K	0.2	6.6	NA	
Jan 15	K	K	K	K	K	K	K	K	4.9	1.8	3.6	3.0	2.9	4.4	5.4	5.6	5.3	5.0	3.6	1.5	2.5	2.4	2.6	0.5	0.7	0.5	5.6	NA
Jan 16	0.7	0.8	2.2	3.5	2.5	1.2	1.4	0.7	3.3	3.1	3.8	5.5	7.5	8.1	8.8	9.5	7.9	7.4	7.7	8.3	8.1	8.9	8.1	9.5	0.7	9.5	5.4	
Jan 17	8.5	7.9	7.9	6.5	5.7	5.8	5.1	5.6	4.7	5.4	8.5	8.1	8.3	7.8	7.1	6.9	4.9	5.1	4.7	3.9	4.0	2.2	3.1	3.8	2.2	8.5	5.9	
Jan 18	4.7	5.5	3.5	4.9	5.8	5.8	5.5	4.9	6.3	6.7	7.9	7.7	7.5	7.4	7.1	6.5	8.3	6.7	5.7	5.4	6.0	5.1	6.1	4.8	3.5	8.3	6.1	
Jan 19	5.1	5.0	4.5	3.1	2.4	1.2	2.7	0.4	0.5	0.9	4.1	5.6	5.8	6.9	4.4	3.2	1.5	1.5	0.1	1.0	4.6	5.1	5.5	4.9	0.1	6.9	3.3	
Jan 20	6.0	6.9	7.1	6.5	6.2	5.7	3.8	4.0	4.1	4.6	5.3	4.9	4.2	4.8	3.1	3.2	2.1	2.2	2.2	1.5	0.6	1.3	1.1	1.4	0.6	7.1	3.9	
Jan 21	1.5	3.2	3.7	5.6	6.1	3.8	3.3	2.1	3.0	2.8	2.9	3.7	5.3	5.7	7.0	7.4	6.1	7.2	11.0	7.8	8.6	8.4	10.2	8.5	1.5	11.0	5.6	
Jan 22	6.0	7.8	6.7	7.3	6.9	6.3	6.9	5.3	6.0	11.1	9.2	9.0	8.1	8.0	9.2	8.4	7.1	7.0	6.7	7.1	7.1	6.5	6.3	6.5	5.3	11.1	7.4	
Jan 23	4.3	4.4	4.1	2.9	2.4	2.9	2.8	1.9	1.8	2.6	3.8	2.9	3.2	3.6	3.0	4.3	3.5	3.2	2.8	2.1	2.3	0.7	0.7	0.4	0.4	4.4	2.8	
Jan 24	0.6	0.4	0.7	1.9	2.1	1.6	3.6	3.6	5.0	5.8	4.9	5.7	7.1	7.4	6.4	5.7	4.1	4.5	5.0	4.7	4.4	2.4	2.0	1.9	0.4	7.4	3.8	
Jan 25	1.3	1.3	0.2	0.2	1.1	0.1	0.4	0.0	0.3	1.0	0.2	0.5	0.6	1.4	1.3	1.0	2.3	5.1	4.3	2.4	3.1	2.7	3.0	3.1	0.0	5.1	1.5	
Jan 26	2.4	3.6	3.0	3.4	5.5	5.9	4.5	3.3	4.6	4.6	5.2	3.3	4.7	7.4	6.4	4.8	4.6	1.3	4.5	6.6	4.7	4.1	2.6	1.4	1.3	7.4	4.3	
Jan 27	2.0	0.8	0.2	0.5	0.2	0.7	0.2	0.3	0.5	0.2	0.6	3.6	5.5	5.8	5.7	5.2	4.1	2.7	3.8	2.6	2.4	3.2	0.2	0.4	0.2	5.8	2.1	
Jan 28	0.4	0.9	1.3	1.1	0.3	0.2	0.3	0.4	0.5	2.6	4.3	3.2	3.4	5.3	10.8	13.8	11.2	8.1	7.8	7.7	6.4	3.6	4.5	4.7	0.2	13.8	4.3	
Jan 29	2.3	3.4	4.9	2.8	4.5	3.6	0.2	0.7	1.1	1.8	3.4	6.3	5.2	5.9	4.6	3.8	5.0	4.8	4.3	3.9	3.6	1.3	2.7	0.4	0.2	6.3	3.4	
Jan 30	0.6	1.7	1.3	0.4	0.7	0.3	1.5	0.7	0.8	0.7	4.1	16.3	13.0	15.1	12.3	9.8	7.4	8.6	7.7	9.3	9.3	10.5	9.7	0.3	16.3	6.3		
Jan 31	9.6	10.8	7.6	5.6	2.5	2.8	4.4	3.4	5.6	2.5	0.5	4.1	4.3	4.2	5.8	5.7	3.7	3.3	6.2	8.3	7.5	6.5	6.5	8.4	0.5	10.8	5.4	
Diurnal Maximum	9.6	10.8	10.1	10.6	10.3	9.2	9.3	9.9	7.9	11.1	9.2	16.3	13.0	15.1	13.1	13.8	11.2	13.4	11.0	11.6	11.4	12.6	10.5	9.7				
Diurnal Average	3.6	4.1	4.1	4.1	4.0	3.7	3.8	3.9	3.7	4.1	4.7	5.5	5.7	6.0	5.8	5.3	4.8	4.7	4.8	4.8	4.9	4.5	4.3	4.2				

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	In/Valid Data (Equipment Malfunction/Recovery)	NRM	Unit/Maint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

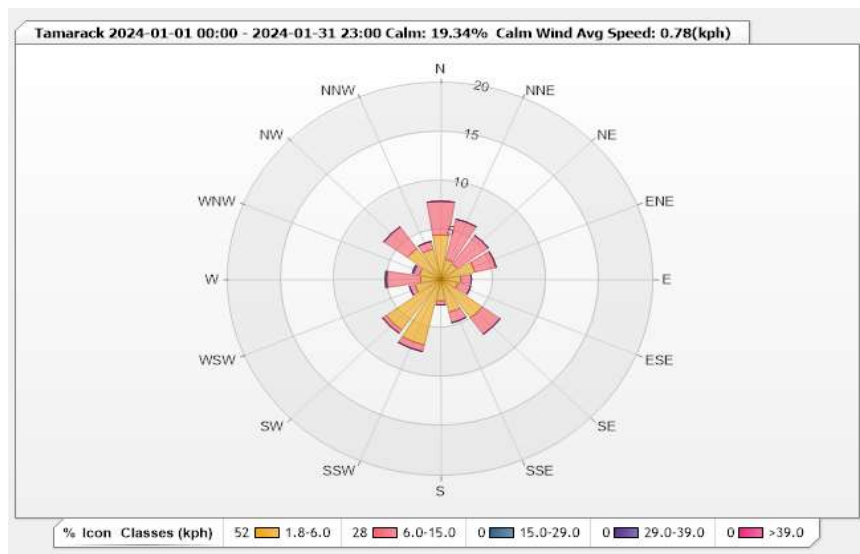


**Station: Tamarack Monitor: WDS [kph] Monthly: 01-2024**

Type: Wind Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm (WS<1.8kph): 19.34%      Valid Data: 97.98%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	4.53	3.43	0	0	0	7.96
NNE	2.06	4.25	0	0	0	6.31
NE	1.92	3.57	0	0	0	5.49
ENE	3.29	2.06	0	0	0	5.35
E	1.92	0.96	0	0	0	2.88
ESE	1.65	1.23	0	0	0	2.88
SE	4.8	2.06	0	0	0	6.86
SSE	3.43	1.1	0	0	0	4.53
S	2.19	0.41	0	0	0	2.6
SSW	6.86	0.69	0	0	0	7.55
SW	6.31	0.41	0	0	0	6.72
WSW	2.47	0.55	0	0	0	3.02
W	1.92	3.16	0.14	0	0	5.22
WNW	2.06	0.55	0.14	0	0	2.75
NW	3.84	2.74	0	0	0	6.58
NNW	3.16	0.82	0	0	0	3.98
Summary	52.41	27.99	0.28	0	0	80.68



Lakeland Industry & Community Association

Tamarack Site - January 2024

Summary of Hourly Averages

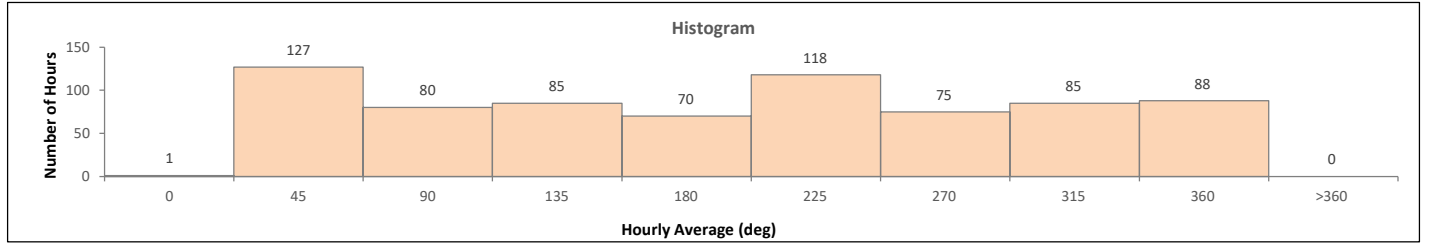
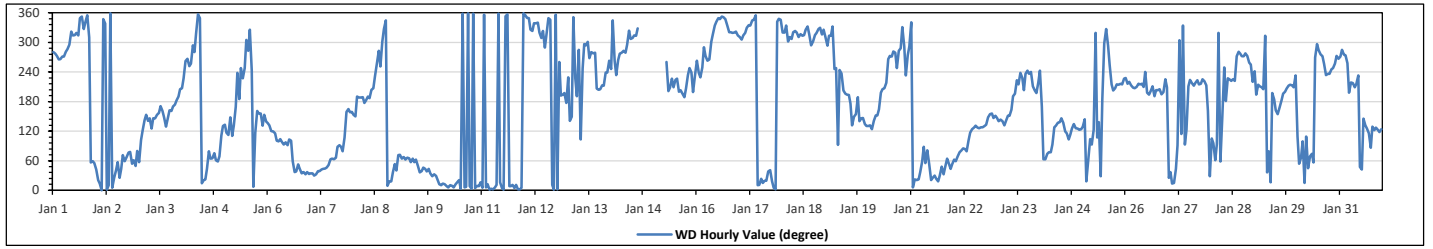
WIND DIRECTION (VWD) in sector

Monthly Average:	8 (N) degree	Hours in Service:	744
		Hours of Data:	729
		Hours of Missing Data:	15
		Hours of Calibration:	0
		Operational Uptime:	98.0

Day	Hourly Period Starting at (MST)																							Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant
Jan 1	W	W	W	W	W	W	W	W	WNW	WNW	NW	NW	NW	NW	NNW	N	NW	NNW	N	NW	NE	ENE	NE	299	WNW	
Jan 2	NE	NNE	NNE	N	NNW	NNW	N	N	N	NNE	NE	ENE	NNE	NE	ENE	ENE	ENE	ENE	ENE	ENE	NE	ENE	NE	E	28	NNE
Jan 3	ENE	E	ESE	SE	SSE	SE	SE	SE	SE	SSE	SSE	S	SSE	SE	SE	SE	SSE	SSE	SSE	S	S	S	SSW	157	SSE	
Jan 4	SSW	SW	W	W	WSW	WSW	WNW	W	NW	N	NNW	NNE	NNE	NNE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ESE	SE	17	NNE	
Jan 5	SE	ESE	ESE	SE	ESE	SE	SSE	SW	S	WSW	SW	WSW	WNW	W	NW	WSW	N	ESE	SSE	SSE	SSE	SE	SSE	SE	170	SSE
Jan 6	SE	SE	ESE	ESE	ESE	E	E	ESE	E	E	ESE	E	E	ENE	NE	NE	NE	NE	NE	NE	NE	NNE	NE	NNE	73	ENE
Jan 7	NE	NE	NNE	NNE	NE	NE	NE	NE	NE	NE	NE	ENE	ENE	ENE	ENE	E	E	E	ENE	ESE	SSE	SSE	SSE	SSE	56	NE
Jan 8	SSE	SSE	S	S	S	S	S	S	S	S	SSW	SSW	SW	WSW	W	WSW	WNW	NW	NNW	N	NNE	NNE	NE	NE	205	SSW
Jan 9	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NNE	NNE	NNE	NNE	46	NE
Jan 10	NNE	N	NNE	NNE	N	N	N	N	N	NNE	NNE	N	N	N	N	N	N	N	N	N	N	N	N	NNE	9	N
Jan 11	N	N	N	NNE	N	N	N	N	NNE	N	NNE	N	N	N	N	N	N	NNE	N	NNE	N	N	N	N	4	N
Jan 12	N	N	NNW	NW	NW	NNW	NNW	NNW	NW	NW	NW	NNW	NW	NNW	NNE	N	N	WSW	S	SSW	SSW	S	SSW	SSW	330	NNW
Jan 13	SW	SE	SSE	N	SW	S	WNW	ESE	WSW	WNW	WNW	WNW	W	W	W	W	SSW	SSW	SSW	SSW	SSW	SSW	WSW	W	226	SW
Jan 14	WSW	NNW	W	SW	W	W	W	W	WNW	NW	NW	NW	NW	NW	NNW										NA	NA
Jan 15	K	K	K	K	K	K	K	K	WSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	SW	WSW	WSW	SSW	SW	NA	NA
Jan 16	W	SW	SW	WSW	WNW	W	W	W	WNW	NW	NNW	NNW	NNW	N	N	NNW	NNW	NW	NW	NW	NW	NW	NW	NW	326	NW
Jan 17	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	N	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	NNW	NNW	353	N
Jan 18	NW	NW	NNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	NW	NNW	NW	WNW	WNW	NW	NW	NNW	NW	NW	317	NW
Jan 19	NW	WNW	NW	NW	NNW	WSW	WSW	E	WSW	SW	SSW	SSW	SSW	S	S	SE	SSE	SSE	S	SE	SE	SE	SE	SE	192	S
Jan 20	SE	SE	ESE	SE	SSE	SSE	SSE	SSW	SSW	SSW	SW	W	W	W	W	W	WSW	W	WNW	NNW	WNW	SW	W	WNW	196	SSW
Jan 21	NNW	N	NNE	NNE	NNE	NE	ENE	E	NE	E	NE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NE	ENE	NE	NE	NE	38	NE
Jan 22	ENE	ENE	ENE	ENE	E	E	E	ENE	E	ESE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SSE	SE	115	ESE
Jan 23	SE	SE	SE	SE	SE	SE	SSE	SSE	S	SSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	189	S
Jan 24	WSW	SSE	ENE	ENE	ENE	ENE	ENE	E	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	122	ESE
Jan 25	SE	SE	NNE	ENE	ESE	E	ESE	NW	ESE	SE	NNE	S	WNW	NW	WNW	WSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	209	SSW
Jan 26	SW	SW	SW	SSW	SSW	SSW	SSW	SW	SSW	SW	SSW	WSW	SSW	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	208	SSW
Jan 27	NNE	NE	NNE	NNE	NE	E	WNW	ESE	NNW	E	ESE	SSW	SW	SW	SSW	SW	SW	SSW	SW	SW	SW	SW	SSW	SSE	217	SW
Jan 28	ESE	E	ENE	E	NW	ENE	SSE	WSW	S	SW	SW	SW	SW	SW	W	W	W	W	W	W	W	W	WSW	WSW	262	W
Jan 29	WSW	SSW	SSW	SSW	SSW	NW	NE	ENE	NNE	SSW	S	SSE	SSE	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	194	SSW
Jan 30	ESE	NE	ENE	E	NNE	ESE	NE	ENE	ENE	NE	W	WNW	WNW	W	W	WSW	SW	SW	WSW	WSW	WSW	WSW	W	W	266	W
Jan 31	W	WNW	W	W	WSW	SSW	SW	SW	SSW	SW	SW	NE	NE	SE	SE	SE	SE	E	SE	ESE	SE	ESE	ESE	ESE	162	SSE

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	Invalid Data (Machine Malfunction/Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Lakeland Industry & Community Association

Tamarack Site - January 2024

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr & WIND DIRECTION (VWD) in sector

WIND SPEED			
Maximum Hourly Value:	16.3	kph	on Jan 30 at hr 11
Maximum Daily Value:	8.6	kph	on Jan 9
Minimum Hourly Value:	0.0	kph	on Jan 13 at hr 3
Minimum Daily Value:	1.0	kph	on Jan 13
Monthly Average:	0.7	kph	

Hours in Service:	744
Hours of Data:	729
Hours of Missing Data:	15
Hours of Calibration:	0
Operational Uptime:	98.0

WIND DIRECTION			
Monthly Average:	8 degree (N)		

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Jan 1	8.8	8.0	7.2	6.2	6.3	6.1	6.5	8.6	5.3	4.8	5.5	6.7	6.1	5.6	4.7	5.0	3.8	2.5	1.8	2.0	0.8	2.7	2.3	2.2	0.8	8.8	5.0	
Jan 2	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	0.7	5.1	3.3	
Jan 3	0.9	1.6	3.0	3.8	4.0	2.5	2.8	3.1	4.2	4.0	3.4	5.3	6.0	6.2	4.8	3.0	2.7	3.9	4.8	5.5	5.9	3.3	3.8	4.5	0.9	6.2	3.9	
Jan 4	3.5	4.2	6.4	6.4	5.2	4.9	5.2	6.6	5.3	3.8	4.7	5.1	6.9	4.7	4.7	4.9	5.9	6.1	6.4	4.9	4.7	4.7	4.2	7.8	3.5	7.8	5.3	
Jan 5	4.1	2.1	1.1	1.4	0.8	0.6	0.7	2.4	0.6	1.2	2.1	3.1	4.0	4.3	2.6	0.9	1.5	1.0	1.2	3.6	3.5	4.4	5.3	5.6	0.6	5.6	2.4	
Jan 6	5.4	5.7	5.3	5.3	5.5	7.0	6.0	7.2	7.0	6.3	5.1	5.7	7.4	6.9	5.8	6.9	7.4	6.2	8.0	9.5	9.1	10.9	9.7	9.1	5.1	10.9	7.0	
Jan 7	9.2	10.2	10.1	10.6	10.3	9.2	8.9	8.4	5.6	6.9	7.2	6.2	6.5	5.5	4.6	3.8	4.0	3.2	1.4	2.7	3.6	5.4	4.9	1.4	10.6	6.4		
Jan 8	4.7	4.8	3.9	3.8	2.8	2.6	5.1	5.0	2.0	6.5	6.2	5.3	4.8	4.9	3.9	3.3	0.6	1.5	3.5	5.0	5.2	1.3	1.0	1.3	0.6	6.5	3.7	
Jan 9	1.1	5.4	5.2	6.2	5.6	5.5	6.3	7.1	6.2	7.6	8.6	8.9	10.4	12.6	13.1	10.5	10.7	13.4	10.8	11.6	11.4	12.6	8.8	7.4	1.1	13.4	8.6	
Jan 10	7.6	7.9	8.4	6.6	7.2	7.1	9.3	9.9	7.9	8.9	8.8	9.3	5.0	4.6	5.5	7.4	5.8	7.8	6.6	6.9	7.7	8.4	8.5	7.6	4.6	9.9	7.5	
Jan 11	4.8	4.6	5.2	7.6	7.2	9.0	6.2	7.5	7.5	5.7	9.1	7.3	7.9	7.4	8.0	5.5	4.3	5.5	5.4	4.1	4.8	5.3	3.7	2.9	2.9	9.1	6.1	
Jan 12	1.4	2.1	2.6	2.8	2.2	1.5	2.4	2.7	2.4	2.2	3.7	4.3	3.9	3.0	3.7	1.6	0.2	0.8	0.9	0.1	0.7	0.2	0.8	0.4	0.1	4.3	1.9	
Jan 13	0.4	0.5	0.3	0.0	0.4	0.3	0.1	0.6	0.3	0.1	0.5	0.2	1.7	2.1	2.1	0.2	4.0	3.4	2.2	2.0	2.0	0.4	0.3	0.2	0.0	4.0	1.0	
Jan 14	0.7	0.2	0.9	2.1	2.5	3.5	3.2	3.9	5.2	4.2	4.3	4.5	5.3	6.6	5.2	4.5	K	K	K	K	K	K	K	K	0.2	6.6	NA	
Jan 15	K	K	K	K	K	K	K	K	4.9	1.8	3.6	3.0	2.9	4.4	5.4	5.6	5.3	5.0	3.6	1.5	2.5	2.4	2.6	0.5	0.7	0.5	5.6	NA
Jan 16	0.7	0.8	2.2	3.5	2.5	1.2	1.4	0.7	3.3	3.1	3.8	5.5	7.5	8.1	8.8	9.5	7.9	7.4	7.7	8.3	8.1	8.9	8.1	9.5	0.7	9.5	5.4	
Jan 17	8.5	7.9	7.9	6.5	5.7	5.8	5.1	5.6	4.7	5.4	8.5	8.1	8.3	7.8	7.1	6.9	4.9	5.1	4.7	3.9	4.0	2.2	3.1	3.8	2.2	8.5	5.9	
Jan 18	4.7	5.5	3.5	4.9	5.8	5.8	5.5	4.9	6.3	6.7	7.9	7.7	7.5	7.4	7.1	6.5	8.3	6.7	5.7	5.4	6.0	5.1	6.1	4.8	3.5	8.3	6.1	
Jan 19	5.1	5.0	4.5	3.1	2.4	1.2	2.7	0.4	0.5	0.9	4.1	5.6	5.8	6.9	4.4	3.2	1.5	1.5	0.1	1.0	4.6	5.1	5.5	4.9	0.1	6.9	3.3	
Jan 20	6.0	6.9	7.1	6.5	6.2	5.7	3.8	4.0	4.1	4.6	5.3	4.9	4.2	4.8	3.1	3.2	2.1	2.2	2.2	1.5	0.6	1.3	1.1	1.4	0.6	7.1	3.9	
Jan 21	1.5	3.2	3.7	5.6	6.1	3.8	3.3	2.1	3.0	2.8	2.9	3.7	5.3	5.7	7.0	7.4	6.1	7.2	11.0	7.8	8.6	8.4	10.2	8.5	1.5	11.0	5.6	
Jan 22	6.0	7.8	6.7	7.3	6.9	6.3	6.9	5.3	6.0	11.1	9.2	9.0	8.1	8.0	9.2	8.4	7.1	7.0	6.7	7.1	7.1	6.5	6.3	6.5	5.3	11.1	7.4	
Jan 23	4.3	4.4	4.1	2.9	2.4	2.9	2.8	1.9	1.8	2.6	3.8	2.9	3.2	3.6	3.0	4.3	3.5	3.2	2.8	2.1	2.3	0.7	0.7	0.4	0.4	4.4	2.8	
Jan 24	0.6	0.4	0.7	1.9	2.1	1.6	3.6	3.6	5.0	5.8	4.9	5.7	7.1	7.4	6.4	5.7	4.1	4.5	5.0	4.7	4.4	2.4	2.0	1.9	0.4	7.4	3.8	
Jan 25	1.3	1.3	0.2	0.2	1.1	0.1	0.4	0.0	0.3	1.0	0.2	0.5	0.6	1.4	1.3	1.0	2.3	5.1	4.3	2.4	3.1	2.7	3.0	3.1	0.0	5.1	1.5	
Jan 26	2.4	3.6	3.0	3.4	5.5	5.9	4.5	3.3	4.6	4.6	5.2	3.3	4.7	7.4	6.4	4.8	4.6	1.3	4.5	6.6	4.7	4.1	2.6	1.4	1.3	7.4	4.3	
Jan 27	2.0	0.8	0.2	0.5	0.2	0.7	0.2	0.3	0.5	0.2	0.6	3.6	5.5	5.8	5.7	5.2	4.1	2.7	3.8	2.6	2.4	3.2	0.2	0.4	0.2	5.8	2.1	
Jan 28	0.4	0.9	1.3	1.1	0.3	0.2	0.3	0.4	0.5	2.6	4.3	3.2	3.4	5.3	10.8	13.8	11.2	8.1	7.8	7.7	6.4	3.6	4.5	4.7	0.2	13.8	4.3	
Jan 29	2.3	3.4	4.9	2.8	4.5	3.6	0.2	0.7	1.1	1.8	3.4	6.3	5.2	5.9	4.6	3.8	5.0	4.8	4.3	3.9	3.6	1.3	2.7	0.4	0.2	6.3	3.4	
Jan 30	0.6	1.7	1.3	0.4	0.7	0.3	1.5	0.7	0.8	0.7	4.1	16.3	13.0	15.1	12.3	9.8	7.4	8.6	7.7	9.3	9.3	9.3	10.5	9.7	0.3	16.3	6.3	
Jan 31	9.6	10.8	7.6	5.6	2.5	2.8	4.4	3.4	5.6	2.5	0.5	4.1	4.3	4.2	5.8	5.7	3.7	3.3	6.2	8.3	7.5	6.5	6.5	8.4	0.5	10.8	5.4	
	W	W	W	W	WSW	SSW	SW	SW	SSW	SW	SW	NE	NE	SE	SE	SE	SE	E	SE	ESE	SE	ESE	ESE	ESE			162(SSE)	

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

**Lakeland Industry & Community Association**  
**Tamarack Site - January 2024**  
**Summary of Hour Standard Deviations**

**STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree**

Maximum Hourly Value: 77 degree on Jan 27 at hr 22		Hours in Service: 744	
Minimum Hourly Value: 4 degree on Jan 9 at hr 21		Hours of Data: 729	
		Hours of Missing Data: 15	
		Hours of Calibration: 0	
		Operational Uptime: 98.0	

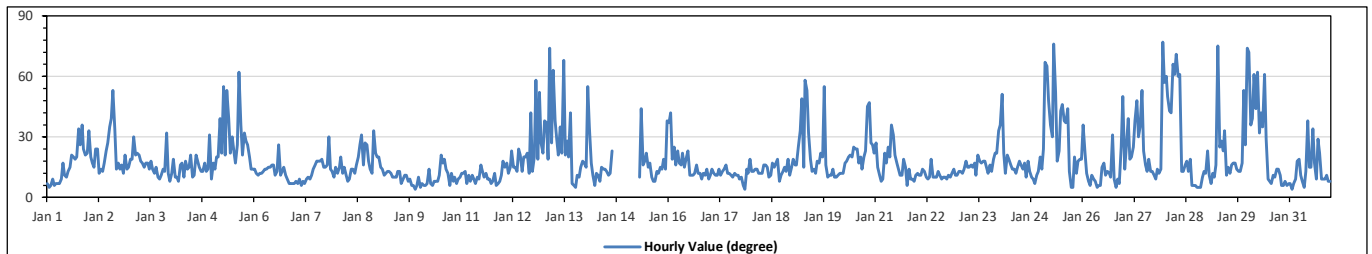
  

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
Jan 1	7	5	6	9	6	7	7	7	9	17	11	10	13	15	21	20	19	20	34	26	36	24	21	22	5	36
Jan 2	33	20	17	15	24	24	12	14	13	17	23	27	35	39	53	34	14	17	14	16	12	21	14	15	12	53
Jan 3	19	19	30	21	22	21	18	17	15	17	17	14	18	14	12	15	10	9	11	14	13	32	12	8	8	32
Jan 4	12	19	10	10	8	16	17	10	18	14	15	21	10	11	21	18	15	13	13	17	13	14	31	9	8	31
Jan 5	17	14	20	20	39	22	55	21	53	39	22	30	23	17	26	62	36	21	32	28	26	20	14	14	14	62
Jan 6	14	12	11	12	12	13	14	14	15	15	16	16	11	13	26	11	13	15	11	9	7	7	7	7	7	30
Jan 7	8	7	9	6	8	7	9	10	9	11	14	16	18	18	18	19	15	15	16	30	14	13	10	15	6	36
Jan 8	12	15	20	12	15	11	8	9	14	14	12	16	20	26	31	16	27	26	18	14	12	33	22	20	8	33
Jan 9	20	15	14	11	12	13	13	12	10	10	10	13	13	7	9	11	11	8	9	6	6	4	6	10	4	20
Jan 10	5	7	6	6	7	14	7	6	8	8	8	11	21	17	19	14	12	6	12	8	10	7	9	10	5	21
Jan 11	12	12	13	7	11	8	11	9	7	10	9	16	13	10	12	9	9	7	8	12	6	7	8	11	6	16
Jan 12	18	15	17	12	15	23	15	15	13	24	21	13	20	20	22	12	42	13	20	58	19	52	27	22	12	58
Jan 13	38	37	19	74	27	63	38	29	21	35	22	68	21	28	20	42	7	6	5	11	10	15	18	17	5	74
Jan 14	15	55	35	17	11	6	12	11	8	15	14	14	13	11	12	23	K	K	K	K	K	K	K	K	6	55
Jan 15	K	K	K	K	K	K	K	K	10	44	16	18	22	15	17	10	8	13	12	15	14	19	14	38	8	44
Jan 16	37	42	19	25	16	23	17	16	22	15	19	23	11	11	11	12	16	12	9	12	11	14	9	9	4	42
Jan 17	11	14	12	11	11	14	11	13	14	16	12	12	11	10	12	11	11	9	10	6	4	14	12	19	4	19
Jan 18	13	13	14	14	12	12	12	16	16	15	10	11	17	15	17	19	8	11	13	15	13	19	11	15	8	19
Jan 19	19	16	16	25	33	49	15	58	53	32	19	13	14	12	18	17	22	20	55	16	10	11	11	14	10	58
Jan 20	10	10	11	12	12	12	17	18	20	21	20	25	24	24	17	20	14	20	23	45	47	27	26	22	10	47
Jan 21	27	15	11	8	9	22	17	25	20	36	31	21	17	14	11	11	19	15	6	14	9	9	8	11	6	36
Jan 22	12	11	11	14	13	10	9	10	19	10	10	13	11	9	10	10	9	11	10	12	14	11	11	9	19	19
Jan 23	13	13	12	14	18	15	15	16	15	17	11	21	18	17	18	18	15	12	16	13	19	22	22	33	11	33
Jan 24	36	51	22	12	21	19	16	14	14	12	15	18	16	14	17	10	18	13	10	9	7	11	13	20	7	51
Jan 25	14	24	67	65	48	36	30	76	52	18	23	43	46	38	37	44	13	5	20	12	18	19	19	5	76	
Jan 26	36	22	12	8	6	11	9	8	5	6	6	15	17	11	13	12	10	31	9	5	9	7	25	50	5	50
Jan 27	14	25	39	19	20	25	38	48	30	35	53	23	16	13	19	13	13	11	9	14	12	14	77	57	9	77
Jan 28	60	50	43	42	66	61	71	60	61	13	13	16	18	13	19	6	6	6	5	5	5	10	13	12	5	71
Jan 29	23	11	7	12	10	16	75	25	28	23	33	11	15	12	16	17	17	14	13	13	17	53	26	74	7	75
Jan 30	72	36	39	61	44	62	32	42	35	61	29	9	8	7	11	10	14	14	11	6	6	8	6	7	6	72
Jan 31	7	4	7	9	18	19	11	8	5	13	38	15	15	34	17	9	29	22	9	9	11	8	8	8	4	38
Diurnal Minimum	5	4	6	6	6	6	7	6	5	6	6	9	8	7	9	6	6	5	5	4	4	4	6	7		
Diurnal Maximum	72	55	67	74	66	63	75	76	61	61	53	68	46	39	53	62	42	31	55	58	47	53	77	74		

<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>ND</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> InValid Data (Machine Malfunction/Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b> Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



**ST. LINA STATION**

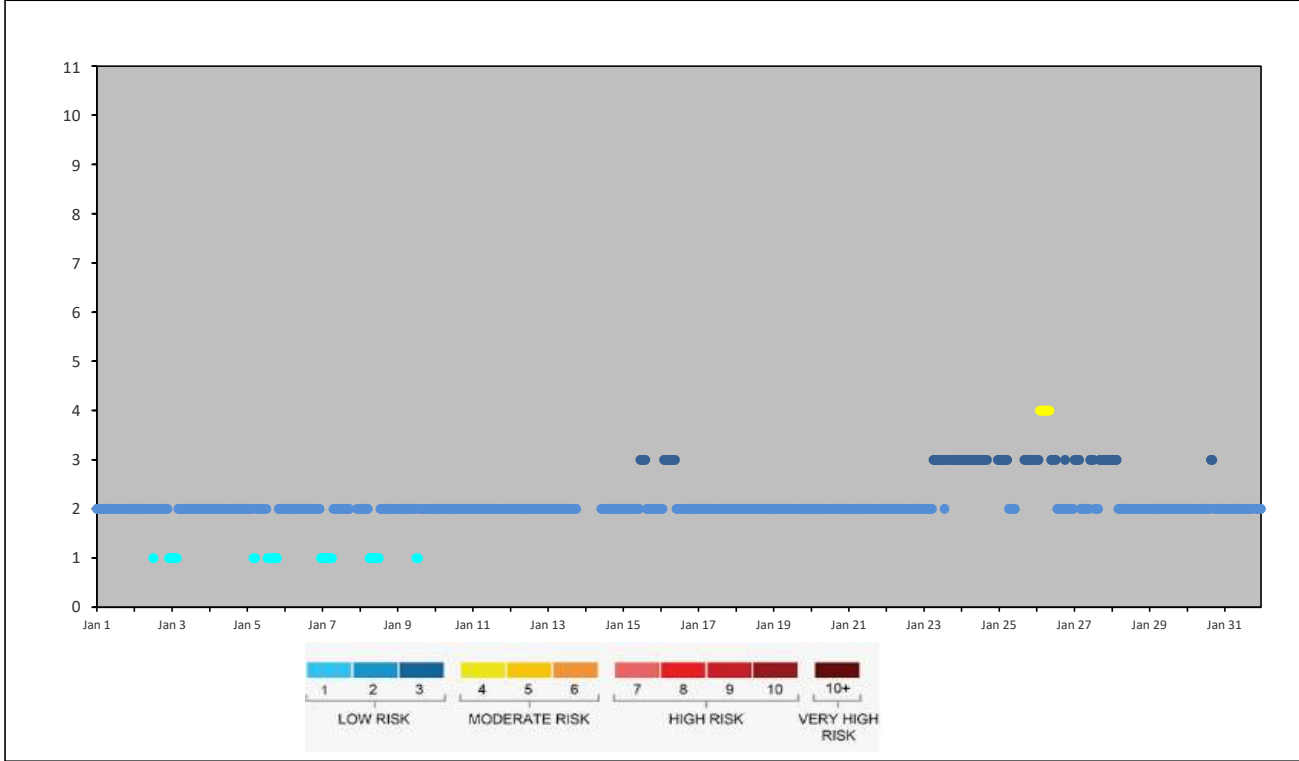


## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - January 2024

### AIR QUALITY HEALTH INDEX

Day	Hourly Period Starting at (MST)																								
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
Jan 1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	1
Jan 3	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 5	2	2	2	2	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2	2	2	2	
Jan 6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 7	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 8	2	2	2	2	2	2	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	
Jan 9	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	
Jan 10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 15	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	2	2	2	2	2	2	2	2	2	
Jan 16	2	2	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 23	2	2	2	2	2	2	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	
Jan 24	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Jan 25	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 26	3	3	4	4	4	4	4	4	4	3	3	3	3	2	2	2	2	2	2	3	2	2	2	2	
Jan 27	3	3	3	3	2	2	2	2	2	2	3	3	3	2	2	2	2	3	3	3	3	3	3	3	
Jan 28	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 29	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Jan 30	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2	2	
Jan 31	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	



Lakeland Industry & Community Association

St. Lina Site - January 2024

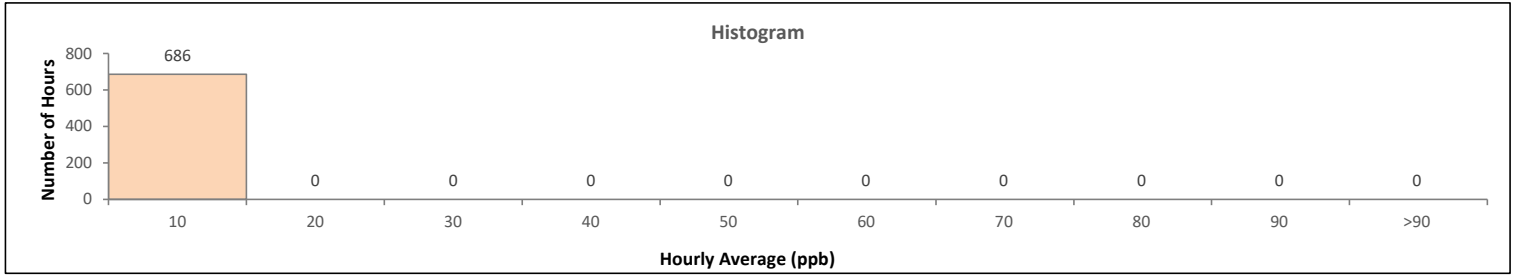
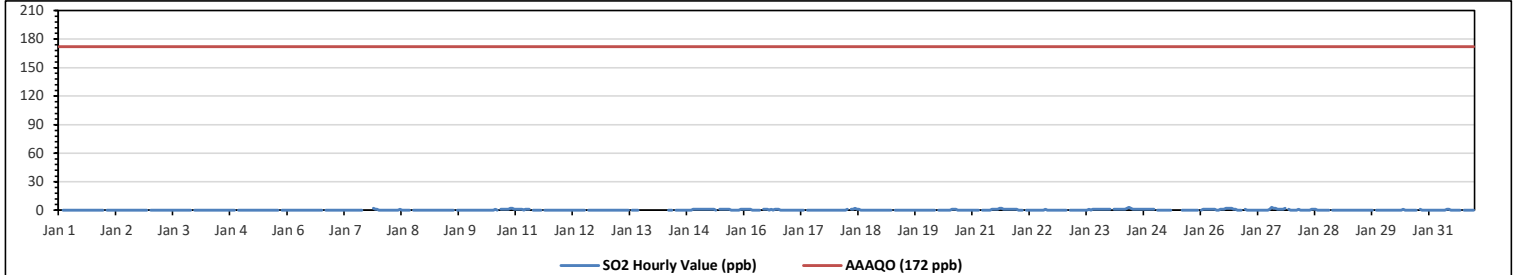
Summary of Hourly Averages

SULPHUR DIOXIDE (SO<sub>2</sub>) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																														
Number of 1-Hour Exceedances: 0					Number of 24-Hour Exceedances: 0					30-Day Exceedence: 0																				
Maximum Hourly Value: 3 ppb on Jan 24 at hr 10					Hours in Service: 744																									
Maximum Daily Value: 1.2 ppb on Jan 24					Hours of Data: 686																									
Minimum Hourly Value: 0 ppb on Jan 1 at hr 0					Hours of Missing Data: 21																									
Minimum Daily Value: 0.0 ppb on Jan 1					Hours of Calibration: 37																									
Monthly Average: 0.2 ppb					Operational Uptime: 97.2																									
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
Jan 1	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0		
Jan 2	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0	
Jan 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0.0	
Jan 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0.0	
Jan 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0	
Jan 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.0	
Jan 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	P	P	P	P	P	2	1	1	0	0	2	0.2	
Jan 8	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0.0
Jan 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	S	0	0	0	0	0	1	1	2	2	1	0	2	0.5	
Jan 11	1	1	1	1	0	1	1	1	NRM	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	
Jan 12	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Jan 13	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	K	K	K	K	K	K	K	0	0	NA	
Jan 14	K	K	K	K	K	K	K	NRM	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	NA	
Jan 15	1	1	1	1	1	1	1	1	0	0	S	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.7	
Jan 16	1	1	1	1	0	0	0	0	0	S	1	1	1	0	1	0	1	1	1	0	0	0	0	0	0	0	0	1	0.5	
Jan 17	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Jan 18	0	0	0	0	0	0	0	1	S	1	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	
Jan 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Jan 20	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.1	
Jan 21	0	0	0	0	0	0	S	0	0	0	0	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	0	2	0.7	
Jan 22	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	
Jan 23	0	0	S	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	0.4	
Jan 24	0	S	1	1	1	1	1	1	1	1	2	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.2	
Jan 25	S	0	0	0	0	0	0	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	S	0	0	NA	
Jan 26	0	1	1	1	1	1	1	1	0	0	1	1	1	2	2	2	2	1	1	0	0	0	0	S	1	0	2	0.9		
Jan 27	0	0	0	0	0	0	0	0	0	0	0	0	1	3	2	2	1	1	1	1	0	0	S	1	0	0	3	0.7		
Jan 28	0	0	0	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0.2	
Jan 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0	
Jan 30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	S	1	0	0	0	0	0	1	0.1	
Jan 31	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	0.1	
Diurnal Maximum	1	1	1	1	1	1	1	1	1	2	3	2	1	3	2	2	2	2	1	1	1	2	2	2	1	0	0	0	0.0	
Diurnal Average	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.4	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	

**C** Monthly Calibration      **S** Daily Zero-Span Check      **Q** Quality Assurance  
**K** Collection Error      **ND** No Data (Machine Not in Service)      **Y** Routine Maintenance  
**X** InValid Data (Equipment Malfunction /Recovery)      **NRM** UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)      **P** Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

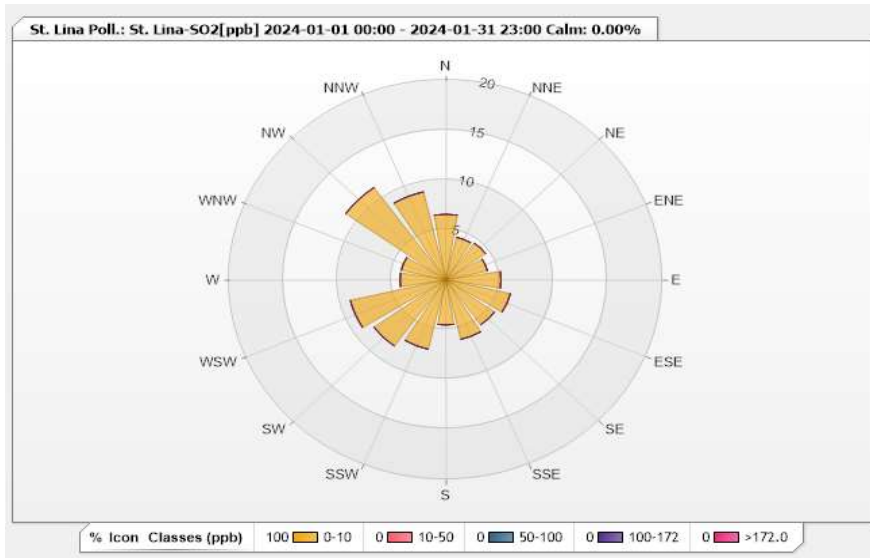


**Station: St. Lina Poll.: St. Lina-SO2[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 92.20%      Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	6.56	0	0	0	0	6.56
NNE	4.37	0	0	0	0	4.37
NE	4.52	0	0	0	0	4.52
ENE	3.94	0	0	0	0	3.94
E	5.1	0	0	0	0	5.1
ESE	6.12	0	0	0	0	6.12
SE	5.54	0	0	0	0	5.54
SSE	6.12	0	0	0	0	6.12
S	4.52	0	0	0	0	4.52
SSW	7.14	0	0	0	0	7.14
SW	8.16	0	0	0	0	8.16
WSW	9.04	0	0	0	0	9.04
W	4.23	0	0	0	0	4.23
WNW	4.23	0	0	0	0	4.23
NW	11.37	0	0	0	0	11.37
NNW	9.04	0	0	0	0	9.04
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - January 2024

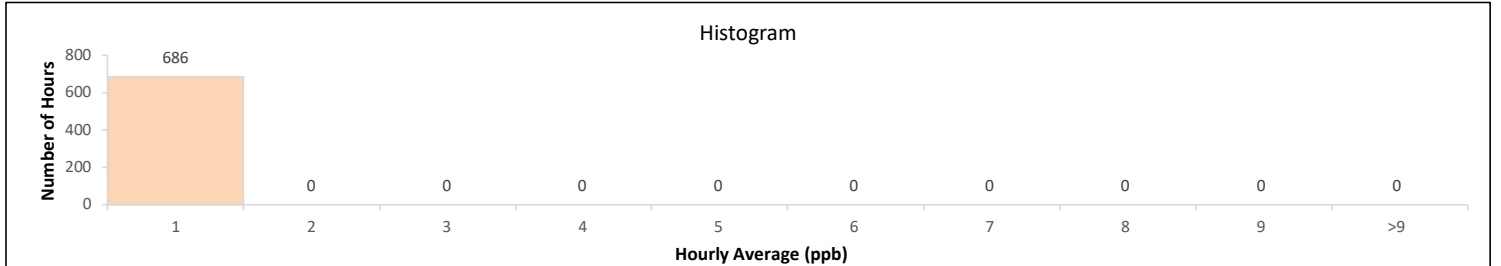
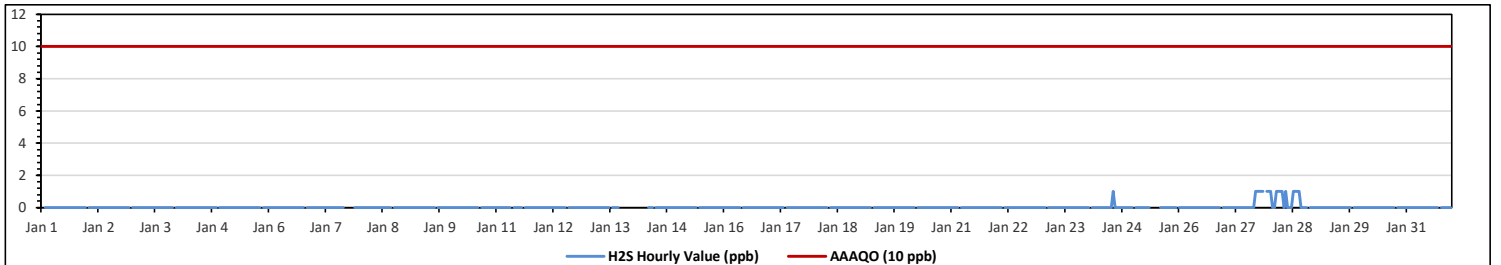
Summary of Hourly Averages

HYDROGEN SULPHIDE (H<sub>2</sub>S) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 10 ppb, 24-Hour 3 ppb																												
Number of 1-Hour Exceedances: 0												Number of 24-Hour Exceedances: 0																
Maximum Hourly Value:	1	ppb	on Jan 24 at hr 13												Hours in Service:	744												
Maximum Daily Value:	0.0	ppb	on Jan 1												Hours of Data:	686												
Minimum Hourly Value:	0	ppb	on Jan 1 at hr 0												Hours of Missing Data:	21												
Minimum Daily Value:	0.0	ppb	on Jan 1												Hours of Calibration:	37												
Monthly Average:	0.0	ppb													Operational Uptime:	97.2												
Day	Hourly Period Starting at (MST)																							Daily	Daily	Daily		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average	
Jan 1	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Jan 2	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Jan 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Jan 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Jan 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0	
Jan 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0	
Jan 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	P	P	P	P	P	0	0	0	0	0	0.0	
Jan 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0.0	
Jan 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0.0	
Jan 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0.0	
Jan 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0.0	
Jan 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0.0	
Jan 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0.0	
Jan 14	K	K	K	K	K	K	K	NRM	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	
Jan 15	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Jan 16	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Jan 17	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Jan 18	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Jan 19	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Jan 20	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Jan 21	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Jan 22	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Jan 23	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Jan 24	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	
Jan 25	S	0	0	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	-	
Jan 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Jan 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	S	1	1	0	1	0.0	
Jan 28	1	0	0	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	0.0	
Jan 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0	
Jan 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0	
Jan 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Diurnal Maximum	1	0	0	1	1	1	1	0	1	0	0	0	1	1	1	1	1	1	1	1	1	0	1	1				
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

**C** Monthly Calibration      **S** Daily Zero-Span Check      **Q** Quality Assurance  
**K** Collection Error      **ND** No Data (Machine Not in Service)      **Y** Routine Maintenance  
**X** InValid Data (Equipment Malfunction /Recovery)      **NRM** UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)      **P** Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

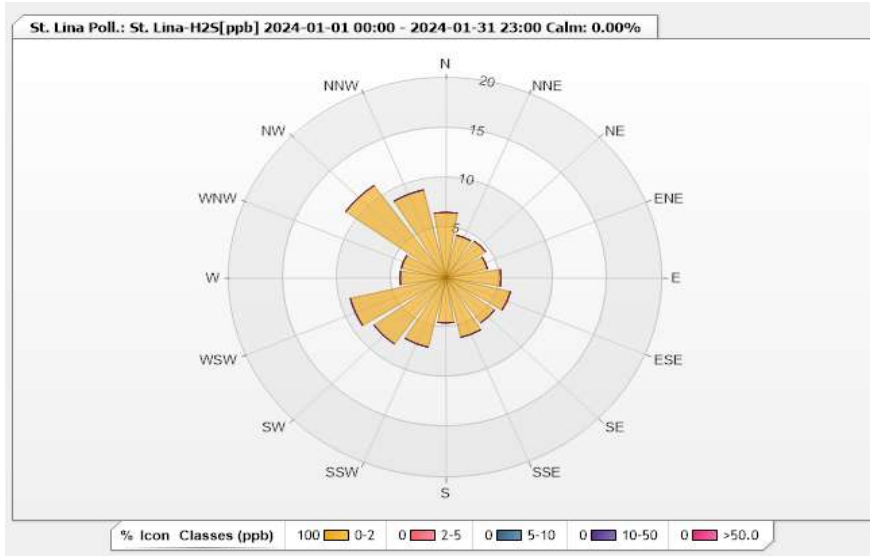


**Station: St. Lina Poll.: St. Lina-H2S[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 92.20%      Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	6.56	0	0	0	0	6.56
NNE	4.37	0	0	0	0	4.37
NE	4.52	0	0	0	0	4.52
ENE	3.94	0	0	0	0	3.94
E	5.1	0	0	0	0	5.1
ESE	6.12	0	0	0	0	6.12
SE	5.54	0	0	0	0	5.54
SSE	6.12	0	0	0	0	6.12
S	4.52	0	0	0	0	4.52
SSW	7.14	0	0	0	0	7.14
SW	8.16	0	0	0	0	8.16
WSW	9.04	0	0	0	0	9.04
W	4.23	0	0	0	0	4.23
WNW	4.23	0	0	0	0	4.23
NW	11.37	0	0	0	0	11.37
NNW	9.04	0	0	0	0	9.04
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - January 2024  
Summary of Hourly Averages

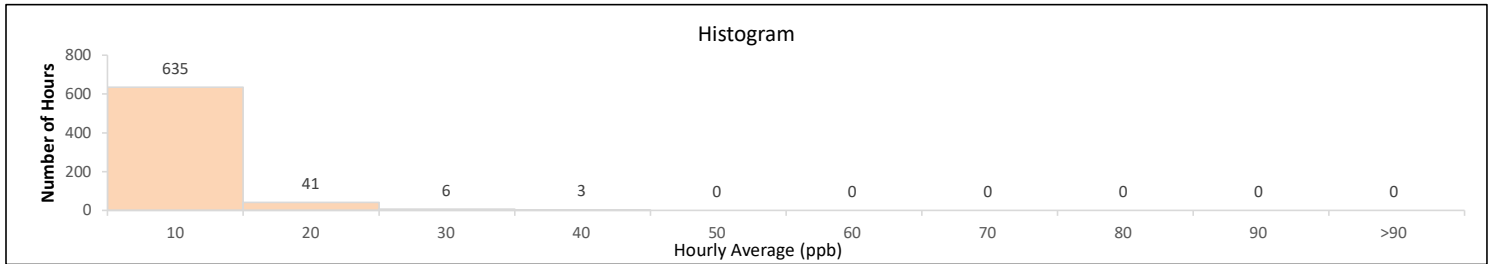
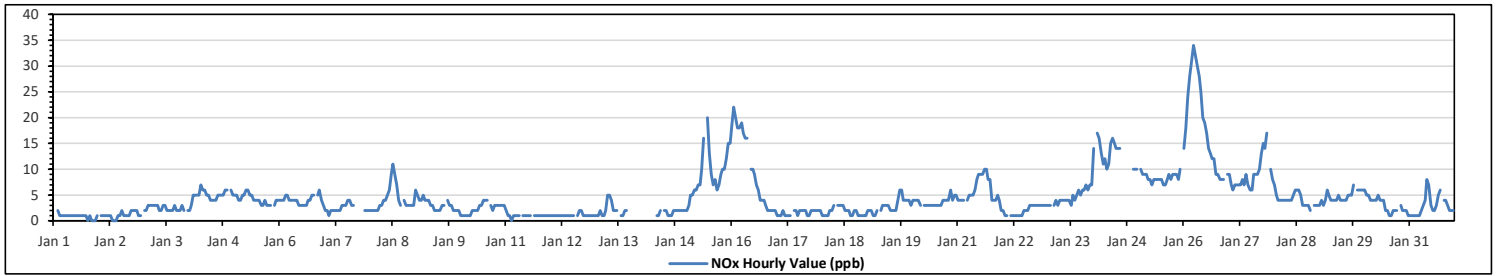
OXIDES OF NITROGEN (NOx) in ppb

Maximum Hourly Value:	34	ppb	on Jan 26 at hr 5	Hours in Service:	744
Maximum Daily Value:	18.3	ppb	on Jan 26	Hours of Data:	685
Minimum Hourly Value:	0	ppb	on Jan 1 at hr 18	Hours of Missing Data:	21
Minimum Daily Value:	1.0	ppb	on Jan 1	Hours of Calibration:	38
Monthly Average:	4.5	ppb		Operational Uptime:	97.2

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23		
Jan 1	3	S	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	0	3	1.0		
Jan 2	S	1	1	1	1	1	1	1	0	0	0	1	1	2	1	1	1	1	2	2	2	1	1	S	2	2	1.1		
Jan 3	2	2	3	3	3	3	3	3	2	2	3	3	2	2	2	2	3	2	2	2	3	2	S	2	2	3	2.4		
Jan 4	2	3	5	5	5	5	7	6	6	5	4	4	4	4	4	5	5	5	5	6	6	S	6	5	2	7	4.9		
Jan 5	5	5	4	4	5	5	6	6	5	5	4	4	4	4	3	3	4	3	3	3	3	S	3	4	4	3	4.2		
Jan 6	4	4	4	5	5	4	4	4	4	4	3	3	3	3	3	4	4	5	5	S	5	6	4	3	3	6	4.0		
Jan 7	2	2	1	2	2	2	2	2	2	3	3	3	3	4	4	3	3	P	P	P	P	P	2	2	2	1	4	2.4	
Jan 8	2	2	2	2	2	3	3	4	4	5	6	9	11	9	7	4	3	S	S	4	3	3	3	3	3	2	11	4.2	
Jan 9	6	5	4	4	5	4	4	4	4	3	3	2	2	2	3	3	S	4	3	3	2	2	2	2	2	2	6	3.2	
Jan 10	1	1	1	1	1	1	2	2	2	2	3	3	4	4	4	S	S	3	2	3	3	3	3	3	3	1	4	2.4	
Jan 11	2	1	1	0	1	1	1	1	1	NRM	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	0	2	1.0
Jan 12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	2	2	1	1	1	1	1	1	1	1	1	2	1.1
Jan 13	1	1	2	1	1	2	5	5	4	2	2	2	S	S	2	1	2	2	K	K	K	K	K	K	K	1	5	NA	
Jan 14	K	K	K	K	K	K	K	NRM	1	1	2	S	2	2	1	1	1	2	2	2	2	2	2	2	2	2	1	2	NA
Jan 15	2	3	5	5	6	6	7	7	10	16	S	20	13	9	7	8	6	7	9	10	10	12	15	15	2	20	9.0		
Jan 16	19	22	20	18	18	19	17	16	16	S	10	10	10	9	7	6	4	4	3	2	2	2	2	2	2	2	2	22	10.1
Jan 17	1	1	1	2	1	1	1	1	S	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	1	2	1.6	
Jan 18	1	1	1	1	2	2	3	S	3	3	3	3	2	2	2	1	1	2	2	1	1	1	1	1	1	1	3	1.7	
Jan 19	2	2	2	1	1	2	S	2	3	3	3	3	2	2	2	2	4	6	6	4	4	4	4	4	3	1	6	2.9	
Jan 20	4	4	4	4	3	S	3	3	3	3	3	3	3	3	3	4	4	4	4	4	6	4	5	5	3	6	3.7		
Jan 21	4	4	4	4	4	S	4	5	5	6	8	9	9	9	10	10	8	8	4	4	4	5	4	2	2	2	10	5.9	
Jan 22	2	1	1	S	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	1	3	2.0	
Jan 23	3	3	S	3	4	3	4	4	4	4	4	4	3	5	4	5	6	5	6	6	6	7	6	7	7	3	7	4.7	
Jan 24	14	S	17	16	13	11	12	10	11	15	16	15	14	14	14	C	C	C	C	C	C	C	10	10	10	10	17	NA	
Jan 25	S	10	9	9	9	8	8	7	8	8	8	8	7	7	8	9	8	9	9	9	9	8	10	S	7	10	8.4		
Jan 26	14	18	24	28	31	34	32	30	28	25	20	19	17	14	13	12	12	9	9	8	8	8	S	9	8	34	18.3		
Jan 27	9	7	6	7	7	7	7	8	7	9	7	6	6	9	9	10	13	15	14	17	S	10	8	6	17	9.0			
Jan 28	7	5	4	4	4	4	4	4	4	4	5	6	6	6	5	3	3	3	3	2	S	3	3	3	2	7	4.1		
Jan 29	3	4	3	4	6	5	4	4	4	4	5	4	4	4	4	5	5	5	7	S	6	6	6	6	3	7	4.7		
Jan 30	6	5	5	4	4	4	4	5	4	4	4	2	2	1	1	2	2	2	S	3	2	2	2	1	1	6	3.1		
Jan 31	1	1	1	1	1	1	2	3	4	8	7	3	2	2	3	5	6	S	4	4	3	2	2	2	1	8	3.0		
Diurnal Maximum	19	22	24	28	31	34	32	30	28	25	20	20	17	14	14	12	12	13	15	14	17	12	15	15	2	20	9.0		
Diurnal Average	4.4	4.3	4.8	4.9	5.0	5.0	5.3	5.1	5.2	5.0	4.8	5.2	4.8	4.5	4.3	3.9	4.1	4.2	4.3	4.0	4.3	3.7	4.1	3.9	1	8	3.0		

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

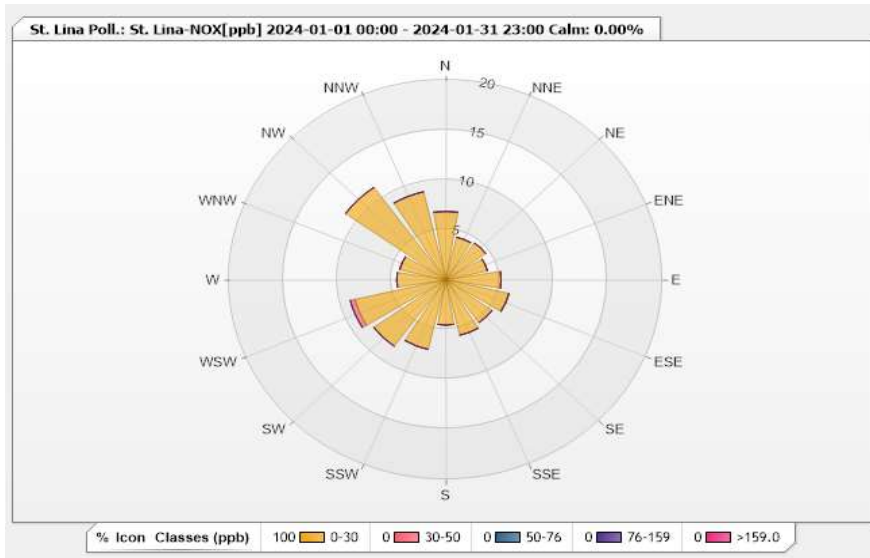


**Station: St. Lina Poll.: St. Lina-NOX[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 92.07%      Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	6.86	0	0	0	0	6.86
NNE	4.38	0	0	0	0	4.38
NE	4.53	0	0	0	0	4.53
ENE	3.94	0	0	0	0	3.94
E	5.11	0	0	0	0	5.11
ESE	5.99	0	0	0	0	5.99
SE	5.26	0	0	0	0	5.26
SSE	5.69	0	0	0	0	5.69
S	4.53	0	0	0	0	4.53
SSW	7.15	0	0	0	0	7.15
SW	8.18	0	0	0	0	8.18
WSW	8.61	0.44	0	0	0	9.05
W	4.53	0	0	0	0	4.53
WNW	4.38	0	0	0	0	4.38
NW	11.39	0	0	0	0	11.39
NNW	9.05	0	0	0	0	9.05
Summary	100	0.44	0	0	0	100





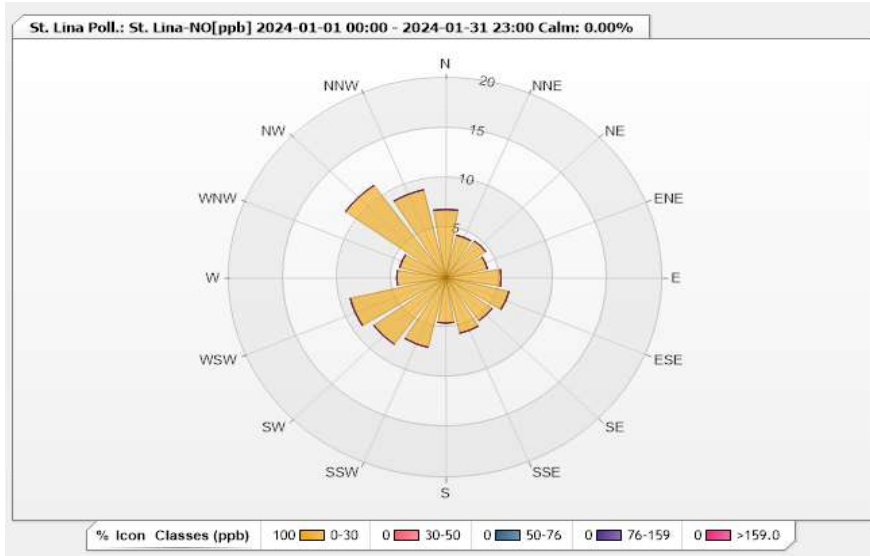


**Station: St. Lina Poll.: St. Lina-NO[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 92.07%      Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	6.86	0	0	0	0	6.86
NNE	4.38	0	0	0	0	4.38
NE	4.53	0	0	0	0	4.53
ENE	3.94	0	0	0	0	3.94
E	5.11	0	0	0	0	5.11
ESE	5.99	0	0	0	0	5.99
SE	5.26	0	0	0	0	5.26
SSE	5.69	0	0	0	0	5.69
S	4.53	0	0	0	0	4.53
SSW	7.15	0	0	0	0	7.15
SW	8.18	0	0	0	0	8.18
WSW	9.05	0	0	0	0	9.05
W	4.53	0	0	0	0	4.53
WNW	4.38	0	0	0	0	4.38
NW	11.39	0	0	0	0	11.39
NNW	9.05	0	0	0	0	9.05
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - January 2024

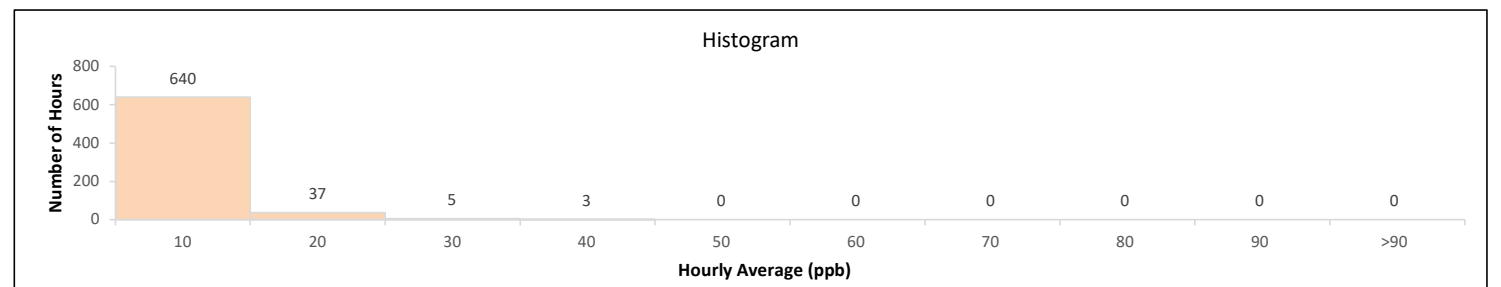
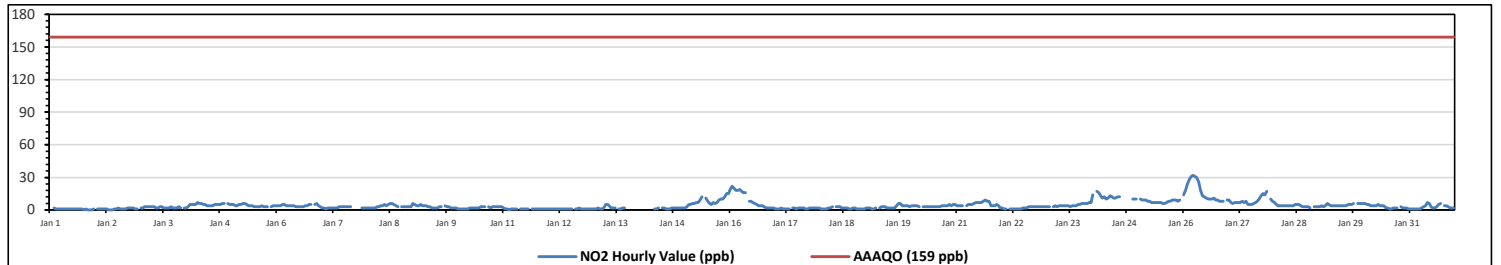
Summary of Hourly Averages

NITROGEN DIOXIDE (NO<sub>2</sub>) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb																												
Number of 1-Hour Exceedances: 0																												
Maximum Hourly Value: 32 ppb on Jan 26 at hr 5												Hours in Service: 744																
Maximum Daily Value: 16.5 ppb on Jan 26												Hours of Data: 685																
Minimum Hourly Value: 0 ppb on Jan 1 at hr 18												Hours of Missing Data: 21																
Minimum Daily Value: 1.0 ppb on Jan 1												Hours of Calibration: 38																
Monthly Average: 4.3 ppb												Operational Uptime: 97.2																
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
Jan 1	3	S	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	0	3	1.0	
Jan 2	S	1	1	1	1	1	1	0	0	0	1	1	2	1	1	1	2	2	2	2	2	1	1	S	0	2	1.1	
Jan 3	2	2	3	3	3	3	3	3	2	2	3	2	2	2	2	3	2	2	2	2	3	2	S	2	2	3	2.4	
Jan 4	2	3	5	5	5	5	7	6	6	5	5	4	4	4	4	5	5	5	5	6	6	S	6	5	2	7	4.9	
Jan 5	5	5	4	4	5	5	6	6	5	4	4	4	3	3	3	4	3	3	3	3	S	3	4	4	3	6	4.0	
Jan 6	4	4	4	5	5	4	4	4	4	4	3	3	3	3	3	4	4	5	5	S	5	6	4	3	3	6	4.0	
Jan 7	2	2	1	2	2	2	2	2	2	3	3	3	3	3	3	3	P	P	P	P	P	P	2	2	2	1	3	2.3
Jan 8	2	2	2	2	2	3	3	4	4	5	4	5	6	6	5	4	3	S	3	3	3	2	3	3	3	2	6	3.5
Jan 9	6	5	4	4	5	4	4	4	3	3	2	2	2	2	3	3	S	S	4	3	3	2	2	2	2	2	6	3.2
Jan 10	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	S	3	2	3	3	3	3	3	3	3	1	3	2.2
Jan 11	2	1	1	0	1	1	1	1	1	NRM	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	0	2	1.0
Jan 12	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	2	1	1	1	1	1	1	1	1	1	2	1.0
Jan 13	1	1	2	1	1	2	5	5	4	2	2	2	S	1	1	2	2	K	K	K	K	K	K	K	K	1	5	NA
Jan 14	K	K	K	K	K	K	K	NRM	1	1	2	S	2	2	1	1	1	2	2	2	2	2	2	2	2	1	2	NA
Jan 15	2	3	5	5	6	6	7	7	9	12	S	11	8	6	5	7	6	7	9	10	10	12	15	15	2	15	8.0	
Jan 16	19	22	20	18	18	19	17	16	16	S	8	8	7	6	5	4	4	4	3	2	2	2	2	2	2	2	22	9.7
Jan 17	1	1	1	2	1	1	1	1	1	S	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	1	2	1.6
Jan 18	1	1	1	1	2	2	3	S	3	3	3	2	2	2	2	1	1	2	2	1	1	1	1	1	1	1	3	1.7
Jan 19	2	2	2	1	1	2	S	2	3	3	3	2	2	2	2	2	4	6	6	4	4	4	4	3	1	6	2.9	
Jan 20	4	4	4	4	3	S	3	3	3	3	3	3	3	3	3	4	4	4	4	4	5	4	5	5	3	5	3.7	
Jan 21	4	4	4	4	S	4	5	5	5	6	7	7	7	8	9	8	8	4	4	4	5	4	2	2	2	9	5.4	
Jan 22	2	1	1	S	1	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3	3	3	3	3	1	3	2.0	
Jan 23	3	3	S	3	4	3	4	4	4	4	4	4	3	4	4	5	5	6	6	6	6	7	7	7	3	7	4.5	
Jan 24	14	S	17	16	13	11	12	10	11	13	12	11	11	12	12	C	C	C	C	C	C	10	10	10	10	17	NA	
Jan 25	S	10	9	9	9	8	8	7	7	7	7	7	6	6	7	8	8	8	9	9	9	8	9	S	6	10	7.9	
Jan 26	14	18	24	28	31	32	31	30	26	18	13	12	11	10	10	10	11	9	9	8	8	S	9	8	8	32	16.5	
Jan 27	9	7	6	7	7	7	7	8	7	8	5	5	5	6	7	8	10	13	15	14	17	S	10	8	5	17	8.5	
Jan 28	7	5	4	4	4	4	4	4	4	4	4	5	5	5	4	3	3	3	3	2	S	3	3	3	2	7	3.9	
Jan 29	3	4	3	4	6	5	4	4	4	4	4	4	4	4	4	5	5	6	S	6	6	6	6	3	6	6	4.6	
Jan 30	6	5	5	4	4	4	4	5	4	4	4	2	2	1	1	2	2	2	S	3	2	2	2	1	1	6	3.1	
Jan 31	1	1	1	1	1	1	2	3	4	7	6	3	2	2	3	5	6	S	4	4	3	2	2	2	1	1	7	2.9
Diurnal Maximum	19	22	24	28	31	32	31	30	26	18	13	12	11	12	12	10	11	13	15	14	17	12	15	15				
Diurnal Average	4.4	4.3	4.8	4.9	5.0	4.9	5.3	5.1	5.0	4.4	4.0	4.0	3.9	3.7	3.7	3.7	4.0	4.2	4.3	4.0	4.2	3.7	4.1	3.9				

**C** Monthly Calibration      **S** Daily Zero-Span Check      **Q** Quality Assurance  
**K** Collection Error      **ND** No Data (Machine Not in Service)      **Y** Routine Maintenance  
**X** InValid Data (Equipment Malfunction /Recovery)      **NRM** UnitMaint (Repeat Calibration / Non-Routine Maintenance)      **P** Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

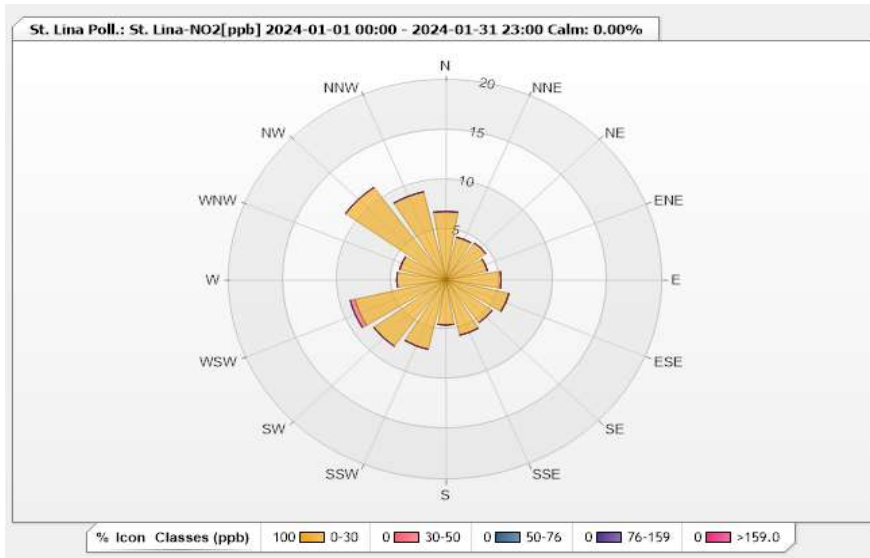


**Station: St. Lina Poll.: St. Lina-NO2[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 92.07%      Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	6.86	0	0	0	0	6.86
NNE	4.38	0	0	0	0	4.38
NE	4.53	0	0	0	0	4.53
ENE	3.94	0	0	0	0	3.94
E	5.11	0	0	0	0	5.11
ESE	5.99	0	0	0	0	5.99
SE	5.26	0	0	0	0	5.26
SSE	5.69	0	0	0	0	5.69
S	4.53	0	0	0	0	4.53
SSW	7.15	0	0	0	0	7.15
SW	8.18	0	0	0	0	8.18
WSW	8.61	0.44	0	0	0	9.05
W	4.53	0	0	0	0	4.53
WNW	4.38	0	0	0	0	4.38
NW	11.39	0	0	0	0	11.39
NNW	9.05	0	0	0	0	9.05
Summary	100	0.44	0	0	0	100



Lakeland Industry & Community Association

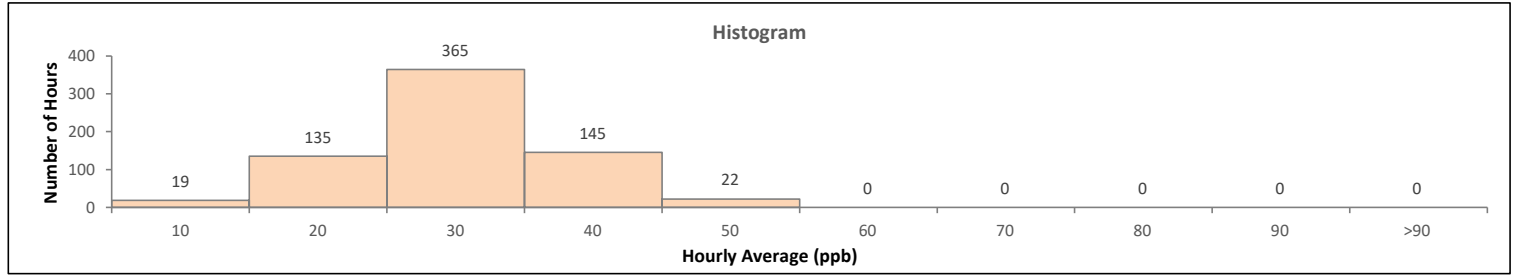
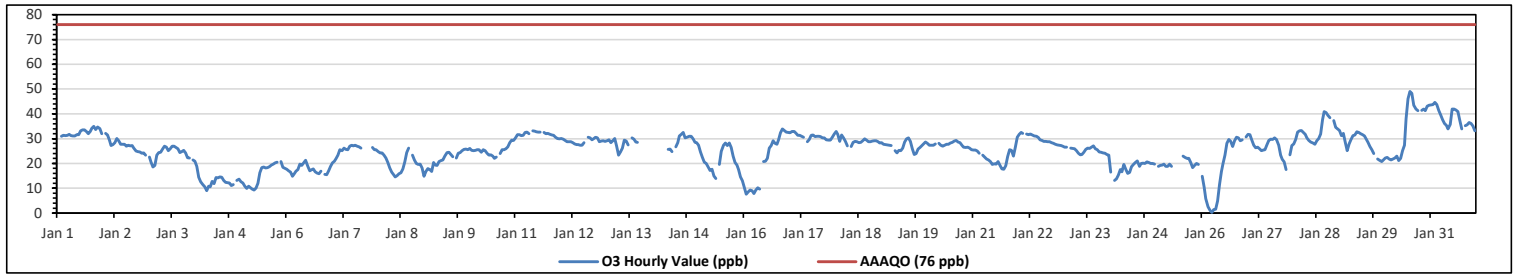
St. Lina Site - January 2024  
Summary of Hourly Averages

OZONE (O<sub>3</sub>) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb																											
Number of 1-Hour Exceedances: 0																											
Maximum Hourly Value: 49.0 ppb on Jan 30 at hr 13												Hours in Service: 744															
Maximum Daily Value: 38.5 ppb on Jan 31												Hours of Data: 686															
Minimum Hourly Value: 0.2 ppb on Jan 26 at hr 5												Hours of Missing Data: 21															
Minimum Daily Value: 13.1 ppb on Jan 4												Hours of Calibration: 37															
Monthly Average: 25.4 ppb												Operational Uptime: 97.2															
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Jan 1	23.4	S	30.9	31.4	31.2	31.3	31.7	31.2	31.1	31.1	31.6	31.6	33.1	33.6	33.5	32.9	32	32.8	34.2	34.9	33.7	34.6	34.1	32	23.4	34.9	32.1
Jan 2	S	32.1	31.5	29.4	27.2	27.6	28.3	30.1	29.1	27.8	27.8	27.8	26.9	27.4	27.1	27.2	26.2	25	24.8	24.6	24.1	24.2	23.4	S	23.4	32.1	27.3
Jan 3	22.5	20.5	18.6	19.3	23.4	24.4	24.5	25.8	27	26.5	25.2	25.9	27	27	26.4	25.9	24.4	24.7	25.3	24.2	22.3	22.1	S	21.5	18.6	27.0	24.1
Jan 4	20.9	18.8	14.4	12.7	11.6	10.6	8.9	10.9	10.6	12.8	11.8	14.3	14.2	14.6	14.4	13.1	12.4	12.3	12.1	11	11.4	S	13.1	13.6	8.9	20.9	13.1
Jan 5	12.7	12.1	10.9	9.9	10.8	10.2	9.7	9.2	10	12	16.2	18.3	18.6	18.2	18.3	18.7	19.4	19.7	20.2	20.5	S	20.7	18.4	18	9.2	20.7	15.3
Jan 6	17.6	17	16.5	14.9	15.7	16.9	17.5	19.7	19.3	20.2	21.3	18.8	17.1	17.4	17.7	16.6	16.1	15.8	16.9	S	15.6	15.4	17	18.9	14.9	21.3	17.4
Jan 7	20.2	20.9	21.9	23.4	25.5	25.1	26.1	25.7	25.6	27	27.3	27.1	27.3	27	26.7	26.2	P	P	P	P	P	26.4	25.6	25.5	20.2	27.3	25.3
Jan 8	24.7	24.2	24.2	23.4	22.1	20.3	18.1	16.5	15.4	14.6	15.1	15.8	16.3	17.8	20.6	24.3	26.1	S	23.4	21.5	20	19.5	19.7	18.2	14.6	26.1	20.1
Jan 9	14.9	16.8	17.9	17.5	16.8	20.3	19.4	19.2	20.7	21.2	21.5	23	24.3	24.5	23.7	22.7	S	22.2	24.1	24.3	25.2	25.7	25.8	25.5	14.9	25.8	21.6
Jan 10	26	25.3	25.2	25.3	25.5	25.6	24.5	25.5	24.1	24.1	23.4	23.5	23	22	22.6	S	24	25.5	25.6	25.9	26.7	28.4	29.4	29.3	22.0	29.4	25.3
Jan 11	30.3	31.6	31.6	31.2	31.3	32.5	32.6	32	NRM	33.1	33	32.7	32.6	32.6	S	32.4	32	32.1	31.7	31.5	31.4	30.6	30.1	30	30.0	33.1	31.8
Jan 12	30.1	29.8	29.3	28.8	28.8	28.7	28.3	27.9	27.6	27.4	27.4	27.4	28.3	S	30.5	30.2	29.6	30.1	30.5	30.2	28.7	29	29.1	28.9	27.4	30.5	29.0
Jan 13	29.1	29.6	28.3	29.2	30.1	26.9	23.3	24.6	26.1	29.4	29	27.5	S	30.2	29.8	28.6	28.5	K	K	K	K	K	K	K	23.3	30.2	NA
Jan 14	K	K	K	K	K	K	K	NRM	25.7	25.8	24.8	S	26.7	28.4	31.1	31.8	32.5	30.2	30.5	31	30.9	30	28.5	28.4	24.8	32.5	NA
Jan 15	27.4	24.6	22.4	20.5	20	18.6	17.2	17.6	15	13.9	S	19.6	24.9	27.3	28.2	27.2	28.2	26.4	22.9	20.4	19.4	17.5	14.6	13	13.0	28.2	21.2
Jan 16	10.3	7.6	8.5	9.3	8.9	7.9	9.2	10.2	9.6	S	20.8	20.9	22	26.2	27.2	29.2	28	27.7	29.6	32.3	33.9	33.3	32.6	32.4	7.6	33.9	20.8
Jan 17	32.3	32.8	32.8	32.1	31.4	31.3	31	30.5	S	28.8	29.7	31.3	31.5	30.8	30.9	30.9	30.8	30.3	30.2	29.5	29.4	29.4	30.6	31.9	28.8	32.8	30.9
Jan 18	32.8	31.7	28.9	31.5	30.2	28.9	27.1	S	26.8	28.5	28.9	28.7	28.3	28.5	29.2	29.9	29.4	28.7	28.8	29	29.2	29.2	28.8	28.2	26.8	32.8	29.2
Jan 19	28.3	27.8	27.6	27.5	27.4	27.2	S	25.1	24.2	25.3	25.2	26.2	28.6	29.9	30.2	28.9	25.9	23.7	24	25.8	26.4	27.1	27.9	28.6	23.7	30.2	26.9
Jan 20	28.1	27.3	27.4	27.4	27.9	S	28.1	27.4	26.9	27.4	27.7	27.8	28.2	28.5	29	29.3	28.6	28.3	27.3	26.5	26.4	26.6	26.2	25.5	25.5	29.3	27.6
Jan 21	25.4	25.4	25	24.1	S	23.3	22.6	21.7	21.4	20.7	19.6	19.8	19.7	20.7	19.3	17.7	17.6	19.1	22.8	25.6	25.3	22.9	26.5	30.6	17.6	30.6	22.5
Jan 22	31.8	32.4	32.2	S	31.9	31.6	31.9	31.5	31.1	30.9	30.4	29.5	29.3	28.9	28.9	28.7	28.7	28.4	28	27.7	27.5	27.4	27.2	26.9	26.9	32.4	29.7
Jan 23	26.6	26.6	S	26.2	26	25.9	25.1	24.1	23.5	23.7	24.5	25.7	26.1	26	26.5	27.1	25.9	25.6	24.6	24.5	24.2	24.1	23.7	23.4	23.4	27.1	25.2
Jan 24	16.5	S	13.1	13.8	15.3	17.5	16.6	19.5	17.6	16	16.4	18.7	19.6	20.3	21	18.8	19.9	20.1	19.9	20.6	20.4	20	19.9	19.7	13.1	21.0	18.3
Jan 25	S	18.9	19.3	19.4	19.7	18.9	18.8	19.7	18.8	C	C	C	C	C	22.9	22.4	22	22	20.4	18.3	19.2	19.9	19.6	S	18.3	22.9	NA
Jan 26	14.9	10.4	5.8	2.5	1.1	0.2	1.4	1.5	4.8	11.4	16.8	19.9	23.4	28.1	29.7	28.9	26.8	29.2	30.6	30.3	29.2	29.5	S	30.7	0.2	30.7	17.7
Jan 27	31.7	31.6	29.4	27.3	26.3	26.6	25.9	25.2	25.4	25.5	27.5	29.3	29.8	29.7	30.2	29.7	27.3	23.3	21.6	20.6	17.5	S	23.5	27.2	17.5	31.7	26.6
Jan 28	27.9	29.7	32.6	33.2	33.3	32.5	31.7	30.2	29.3	28.6	28.2	27.8	29.2	30.1	31.9	37.7	40.8	40.6	39.3	38.5	S	37.3	34.5	34	27.8	40.8	33.0
Jan 29	33.3	31.2	32.1	28.5	25.1	27.9	29.7	31.2	31.5	32.7	32.4	32	31.6	31.1	30	28.5	26.8	25.5	24	S	21.7	21.3	20.8	21.4	20.8	33.3	28.3
Jan 30	22.1	22.4	21.8	21.5	21.7	22.2	22.9	21.2	22	25.2	27.4	38.1	46	49	48.3	43.5	41.9	41.2	S	41.4	41.9	41.2	43	43.5	21.2	49.0	33.5
Jan 31	43.6	43.7	44.7	43.7	41.4	39.6	37.7	36.1	35.3	34	35.7	41.9	41.9	41.5	40.8	37.3	33.9	S	35.2	35.6	36.5	36.2	35.1	33.2	33.2	44.7	38.5
Diurnal Maximum	43.6	43.7	44.7	43.7	41.4	39.6	37.7	36.1	35.3	34.0	35.7	41.9	41.9	41.5	40.8	37.3	33.9	S	35.2	35.6	36.5	36.2	35.1	33.2	33.2	44.7	38.5
Diurnal Average	25.2	25.1	24.3	23.6	23.7	23.5	23.1	23.1	22.6	24.3	25.1	25.9	26.7	27.5	27.6	27.5	27.1	26.3	26.0	26.9	25.9	26.8	26.0	26.4			

**C** Monthly Calibration      **S** Daily Zero-Span Check      **Q** Quality Assurance  
**K** Collection Error      **ND** No Data (Machine Not in Service)      **Y** Routine Maintenance  
**X** InValid Data (Equipment Malfunction/Recovery)      **NRM** UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)      **P** Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

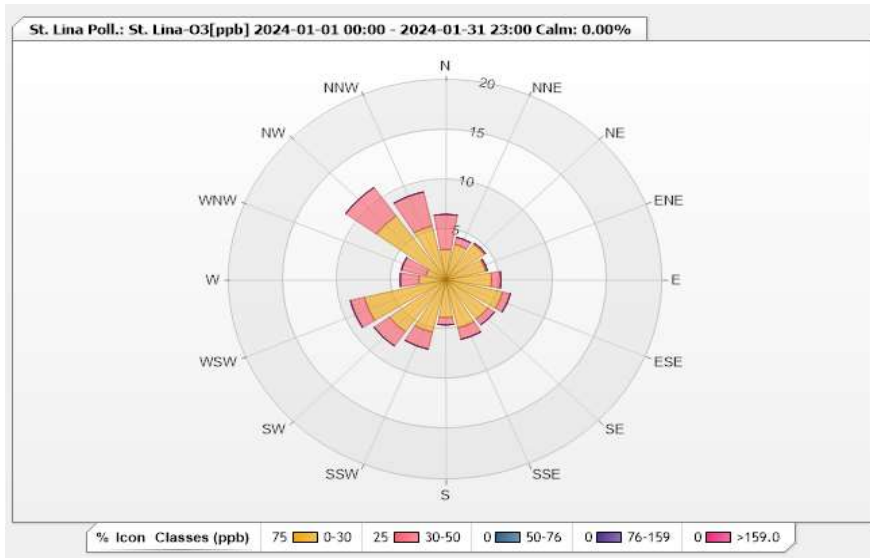


**Station: St. Lina Poll.: St. Lina-O3[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 92.20%      Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	3.06	3.5	0	0	0	6.56
NNE	3.64	0.73	0	0	0	4.37
NE	4.37	0.15	0	0	0	4.52
ENE	3.79	0.15	0	0	0	3.94
E	4.23	0.87	0	0	0	5.1
ESE	5.39	0.73	0	0	0	6.12
SE	4.81	0.73	0	0	0	5.54
SSE	4.96	1.17	0	0	0	6.13
S	3.79	0.73	0	0	0	4.52
SSW	5.39	1.75	0	0	0	7.14
SW	6.41	1.75	0	0	0	8.16
WSW	7.73	1.31	0	0	0	9.04
W	2.48	1.75	0	0	0	4.23
WNW	1.9	2.33	0	0	0	4.23
NW	7.87	3.5	0	0	0	11.37
NNW	5.54	3.5	0	0	0	9.04
Summary	75.36	24.65	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - January 2024

Summary of Hourly Averages

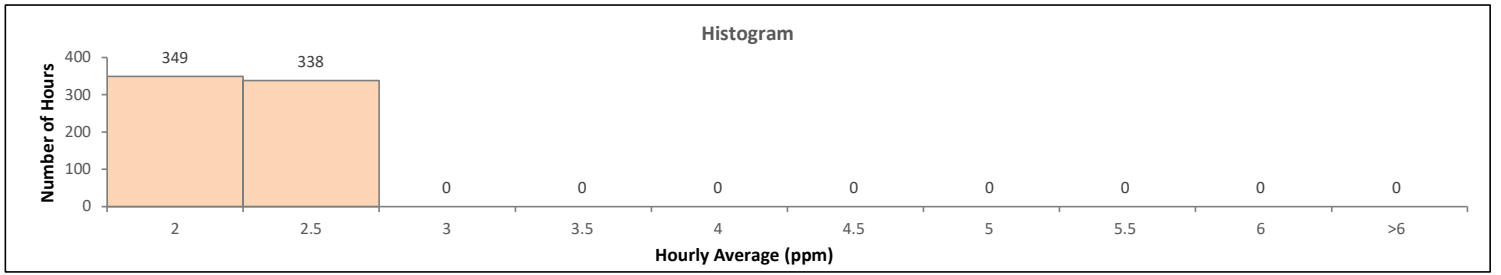
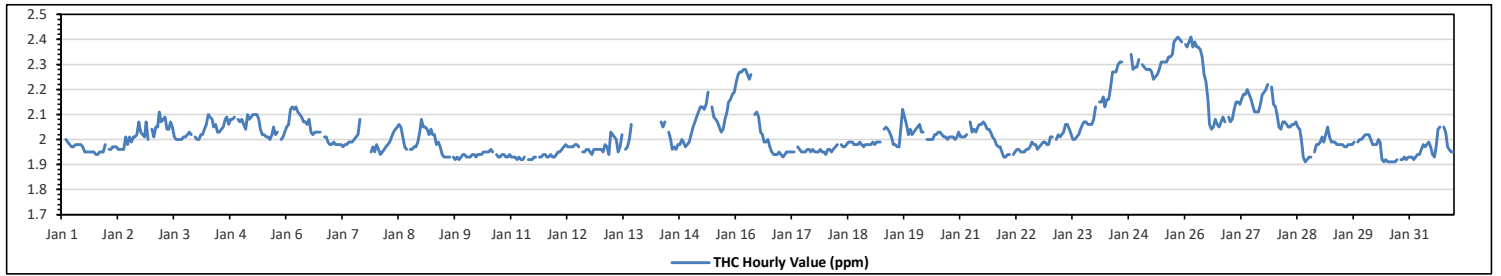
TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	2.41 ppm	on Jan 25 at hr 20	Hours in Service:	744
Maximum Daily Value:	2.32 ppm	on Jan 25	Hours of Data:	687
Minimum Hourly Value:	1.91 ppm	on Jan 28 at hr 16	Hours of Missing Data:	21
Minimum Daily Value:	1.93 ppm	on Jan 11	Hours of Calibration:	36
Monthly Average:	2.03 ppm		Operational Uptime:	97.2

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Jan 1	2.07	S	2.00	1.99	1.98	1.97	1.97	1.98	1.98	1.98	1.98	1.97	1.95	1.95	1.95	1.95	1.95	1.95	1.94	1.94	1.95	1.95	1.95	1.95	1.98	1.94	2.07	1.97
Jan 2	S	1.96	1.96	1.97	1.97	1.97	1.96	1.96	1.96	1.96	2.01	1.98	2.01	1.99	2.01	2.01	2.02	2.07	2.03	2.02	2.01	2.07	2.00	S	1.98	1.96	2.07	2.00
Jan 3	2.04	2.01	2.05	2.05	2.11	2.07	2.08	2.09	2.04	2.04	2.07	2.05	2.01	2.00	2.00	2.00	2.00	2.01	2.01	2.02	2.03	2.02	S	2.01	2.00	2.11	2.04	2.04
Jan 4	2.00	2.00	2.02	2.02	2.04	2.02	2.04	2.06	2.10	2.09	2.08	2.05	2.06	2.03	2.03	2.04	2.05	2.08	2.09	2.08	2.08	2.09	S	2.08	2.07	2.00	2.10	2.06
Jan 5	2.08	2.06	2.04	2.10	2.08	2.09	2.10	2.10	2.10	2.08	2.04	2.02	2.02	2.01	2.01	2.00	2.02	2.05	2.02	2.03	S	2.00	2.01	2.03	2.00	2.10	2.05	2.05
Jan 6	2.05	2.06	2.12	2.13	2.12	2.13	2.11	2.10	2.09	2.07	2.07	2.06	2.08	2.03	2.02	2.03	2.03	2.03	S	2.01	2.01	1.99	1.98	1.98	1.98	1.98	2.13	2.06
Jan 7	1.98	1.99	1.98	1.98	1.98	1.98	1.97	1.98	1.98	1.99	1.99	1.99	2.00	2.01	2.02	2.08	P	P	P	P	P	1.95	1.97	1.95	1.95	2.08	1.99	
Jan 8	1.98	1.96	1.94	1.95	1.96	1.97	1.98	1.99	2.01	2.03	2.04	2.05	2.06	2.05	2.01	1.97	1.96	S	1.96	1.96	1.97	1.97	1.99	2.03	1.94	2.06	1.99	
Jan 9	2.08	2.05	2.05	2.04	2.02	2.04	2.02	2.02	1.98	1.99	1.97	1.94	1.93	1.93	1.93	1.93	S	1.93	1.92	1.93	1.92	1.93	1.94	1.94	1.94	1.92	2.08	1.98
Jan 10	1.93	1.93	1.93	1.94	1.94	1.93	1.94	1.94	1.94	1.95	1.95	1.95	1.95	1.96	1.95	S	1.94	1.93	1.93	1.94	1.94	1.93	1.93	1.94	1.93	1.96	1.94	1.94
Jan 11	1.93	1.93	1.93	1.92	1.93	1.92	1.92	1.93	NRM	1.92	1.92	1.92	1.93	1.93	S	1.93	1.93	1.94	1.94	1.93	1.93	1.94	1.93	1.93	1.94	1.92	1.94	1.93
Jan 12	1.94	1.95	1.95	1.96	1.97	1.98	1.97	1.97	1.97	1.97	1.98	1.98	1.97	S	1.95	1.95	1.96	1.96	1.96	1.95	1.94	1.96	1.96	1.96	1.96	1.94	1.98	1.96
Jan 13	1.96	1.95	1.98	1.97	1.94	2.03	2.02	2.01	2.00	1.95	1.97	2.02	S	1.96	1.97	2.00	2.06	K	K	K	K	K	K	K	K	1.94	2.06	NA
Jan 14	K	K	K	K	K	K	K	NRM	2.07	2.05	2.07	S	2.03	2.00	1.96	1.97	1.96	1.98	1.98	2.00	1.99	1.97	1.98	1.99	1.98	1.96	2.07	NA
Jan 15	2.02	2.05	2.07	2.09	2.11	2.13	2.13	2.12	2.14	2.19	S	2.13	2.09	2.08	2.07	2.05	2.03	2.04	2.08	2.11	2.15	2.16	2.18	2.19	2.02	2.19	2.10	
Jan 16	2.23	2.26	2.27	2.27	2.28	2.28	2.26	2.24	2.26	S	2.10	2.11	2.09	2.03	2.02	1.99	1.99	2.00	1.97	1.95	1.94	1.94	1.95	1.94	1.95	1.94	2.28	2.10
Jan 17	1.94	1.93	1.94	1.95	1.95	1.95	1.95	1.95	S	1.97	1.96	1.95	1.95	1.95	1.96	1.96	1.95	1.96	1.95	1.95	1.95	1.96	1.95	1.95	1.93	1.97	1.95	
Jan 18	1.94	1.96	1.96	1.95	1.96	1.97	1.98	S	1.98	1.97	1.97	1.98	1.99	1.99	1.99	1.98	1.98	1.98	1.99	1.98	1.97	1.98	1.98	1.98	1.94	1.99	1.97	
Jan 19	1.98	1.99	1.98	1.99	1.99	1.99	S	2.04	2.05	2.04	2.03	2.01	1.98	1.98	1.97	1.97	1.94	2.12	2.09	2.06	2.02	2.04	2.02	2.03	1.97	2.12	2.02	
Jan 20	2.04	2.05	2.06	2.03	2.03	S	2.00	2.00	2.00	2.00	2.02	2.02	2.03	2.03	2.02	2.01	2.01	2.00	2.01	2.01	2.01	2.01	2.00	2.01	2.00	2.06	2.02	
Jan 21	2.01	2.01	2.01	2.02	S	2.07	2.03	2.04	2.03	2.05	2.06	2.06	2.07	2.06	2.04	2.04	2.03	2.01	2.00	1.98	1.97	1.97	1.95	1.93	1.93	2.07	2.02	
Jan 22	1.93	1.94	1.94	S	1.94	1.95	1.96	1.96	1.95	1.95	1.95	1.96	1.96	1.97	1.99	1.98	1.98	1.96	1.97	1.98	1.99	1.99	1.98	1.98	1.93	1.99	1.96	
Jan 23	2.01	2.01	S	2.00	2.02	2.01	2.02	2.03	2.06	2.06	2.04	2.02	2.00	2.00	2.01	2.02	2.04	2.06	2.07	2.07	2.06	2.06	2.06	2.08	2.00	2.08	2.04	
Jan 24	2.13	S	2.15	2.15	2.17	2.13	2.16	2.16	2.21	2.27	2.27	2.27	2.30	2.31	2.31	C	C	C	C	2.34	2.28	2.29	2.29	2.32	2.13	2.34	2.24	
Jan 25	S	2.30	2.29	2.28	2.28	2.28	2.27	2.24	2.25	2.26	2.28	2.31	2.31	2.31	2.31	2.33	2.33	2.34	2.39	2.40	2.41	2.40	2.39	S	2.24	2.41	2.32	
Jan 26	2.38	2.37	2.39	2.41	2.37	2.39	2.37	2.37	2.36	2.33	2.26	2.23	2.16	2.06	2.04	2.05	2.08	2.06	2.05	2.07	2.09	2.07	S	2.09	2.04	2.41	2.22	
Jan 27	2.07	2.08	2.12	2.15	2.15	2.14	2.16	2.18	2.18	2.20	2.18	2.16	2.13	2.11	2.11	2.11	2.14	2.18	2.19	2.20	2.22	S	2.21	2.14	2.07	2.22	2.15	
Jan 28	2.13	2.10	2.05	2.04	2.07	2.07	2.06	2.05	2.05	2.06	2.06	2.07	2.05	2.04	2.00	1.93	1.91	1.92	1.93	1.93	S	1.95	1.98	1.98	1.91	2.13	2.02	
Jan 29	1.99	2.01	1.99	2.02	2.05	2.01	1.99	1.99	1.99	1.98	1.98	1.98	1.98	1.97	1.97	1.98	1.98	1.98	1.99	S	1.99	2.00	2.00	2.01	1.97	2.05	1.99	
Jan 30	2.02	2.02	2.02	2.00	1.98	1.98	1.98	2.00	1.99	1.92	1.91	1.92	1.91	1.91	1.91	1.91	1.92	S	1.92	1.92	1.92	1.93	1.92	1.93	1.91	2.02	1.95	
Jan 31	1.93	1.93	1.92	1.93	1.94	1.94	1.96	1.98	1.97	1.98	1.99	1.97	1.94	1.93	1.98	2.04	2.05	S	2.05	2.03	1.97	1.96	1.95	1.95	1.92	2.05	1.97	
Diurnal Maximum	2.38	2.37	2.39	2.41	2.37	2.39	2.37	2.37	2.36	2.33	2.28	2.31	2.31	2.31	2.33	2.33	2.34	2.39	2.40	2.41	2.40	2.39	2.32	2.24	2.41	2.32	2.24	
Diurnal Average	2.03	2.03	2.04	2.04	2.05	2.05	2.05	2.05	2.06	2.04	2.04	2.04	2.03	2.02	2.02	2.01	2.01	2.02	2.02	2.03	2.03	2.01	2.02	2.01	2.02	2.01	2.01	

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

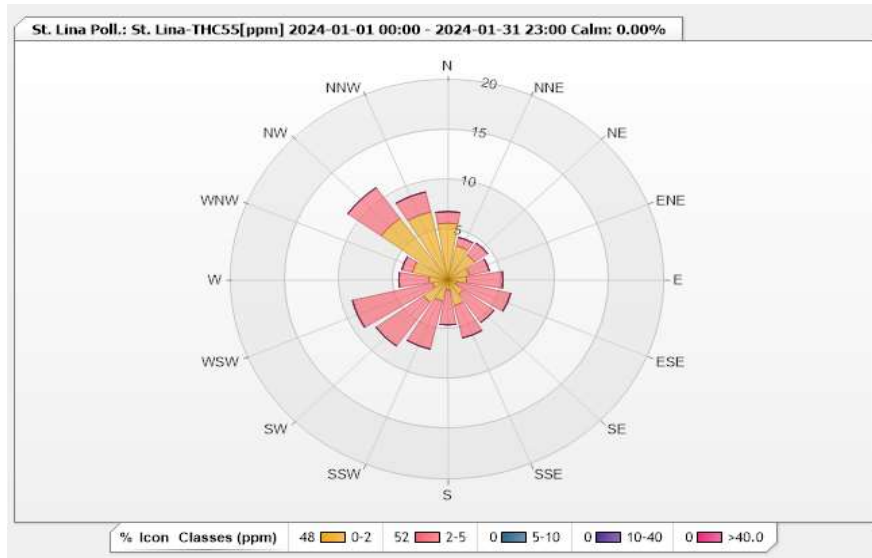


**Station: St. Lina Poll.: St. Lina-THC55[ppm] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 92.34%      Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	5.68	1.16	0	0	0	6.84
NNE	3.49	0.87	0	0	0	4.36
NE	3.06	1.46	0	0	0	4.52
ENE	2.04	1.89	0	0	0	3.93
E	1.75	3.35	0	0	0	5.1
ESE	0.87	5.09	0	0	0	5.96
SE	1.75	3.49	0	0	0	5.24
SSE	2.62	3.35	0	0	0	5.97
S	1.02	3.49	0	0	0	4.51
SSW	2.18	4.95	0	0	0	7.13
SW	2.77	5.39	0	0	0	8.16
WSW	1.46	7.57	0	0	0	9.03
W	1.75	2.77	0	0	0	4.52
WNW	3.35	1.02	0	0	0	4.37
NW	7.57	3.78	0	0	0	11.35
NNW	6.99	2.04	0	0	0	9.03
Summary	48.35	51.67	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - January 2024

Summary of Hourly Averages

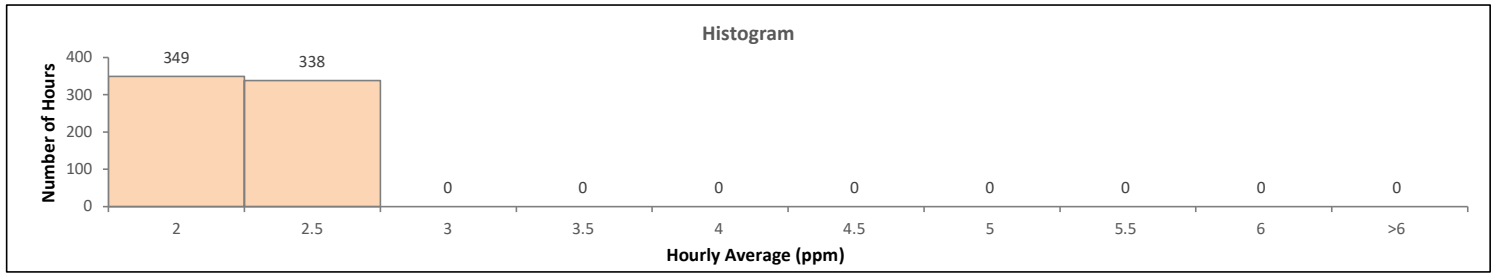
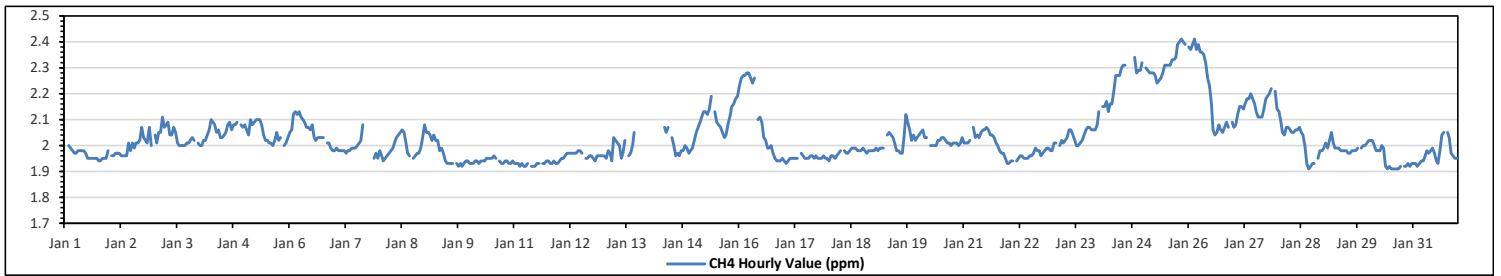
METHANE (CH4) in ppm

Maximum Hourly Value:	2.41 ppm	on Jan 25 at hr 20	Hours in Service:	744
Maximum Daily Value:	2.32 ppm	on Jan 25	Hours of Data:	687
Minimum Hourly Value:	1.91 ppm	on Jan 28 at hr 16	Hours of Missing Data:	21
Minimum Daily Value:	1.93 ppm	on Jan 11	Hours of Calibration:	36
Monthly Average:	2.03 ppm		Operational Uptime:	97.2

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Jan 1	2.07	S	2.00	1.99	1.98	1.97	1.97	1.98	1.98	1.98	1.98	1.97	1.95	1.95	1.95	1.95	1.95	1.95	1.94	1.94	1.95	1.95	1.95	1.95	1.98	1.94	2.07	1.97
Jan 2	S	1.96	1.96	1.97	1.97	1.97	1.96	1.96	1.96	1.96	2.01	1.98	2.01	1.99	2.01	2.01	2.02	2.07	2.03	2.02	2.01	2.07	2.00	S	1.98	1.96	2.07	2.00
Jan 3	2.04	2.01	2.05	2.05	2.11	2.07	2.08	2.09	2.04	2.04	2.07	2.05	2.01	2.00	2.00	2.00	2.00	2.01	2.01	2.02	2.03	2.02	S	2.01	2.00	2.11	2.04	
Jan 4	2.00	2.00	2.02	2.02	2.04	2.02	2.04	2.06	2.10	2.09	2.08	2.05	2.06	2.03	2.03	2.04	2.05	2.08	2.06	2.08	2.08	2.09	S	2.08	2.07	2.00	2.10	2.06
Jan 5	2.08	2.06	2.04	2.10	2.08	2.09	2.10	2.10	2.10	2.08	2.04	2.02	2.02	2.01	2.01	2.00	2.02	2.05	2.02	2.03	S	2.00	2.01	2.03	2.00	2.10	2.05	
Jan 6	2.05	2.06	2.12	2.13	2.12	2.13	2.11	2.10	2.09	2.07	2.07	2.06	2.08	2.03	2.02	2.03	2.02	2.03	2.03	S	2.01	2.01	1.99	1.98	1.98	2.13	2.06	
Jan 7	1.98	1.99	1.98	1.98	1.98	1.98	1.97	1.98	1.98	1.99	1.99	1.99	2.00	2.01	2.02	2.08	P	P	P	P	P	1.95	1.97	1.95	1.95	2.08	1.99	
Jan 8	1.98	1.96	1.94	1.95	1.96	1.97	1.98	1.99	2.01	2.03	2.04	2.05	2.06	2.05	2.01	1.97	1.96	S	1.95	1.96	1.97	1.97	1.99	2.03	1.94	2.06	1.99	
Jan 9	2.08	2.05	2.05	2.04	2.02	2.04	2.02	2.02	1.98	1.99	1.97	1.94	1.93	1.93	1.93	1.93	S	1.93	1.92	1.93	1.92	1.93	1.94	1.94	1.94	1.92	2.08	1.98
Jan 10	1.93	1.93	1.93	1.94	1.94	1.93	1.94	1.94	1.94	1.95	1.95	1.95	1.95	1.96	1.95	S	1.94	1.93	1.93	1.94	1.94	1.93	1.93	1.94	1.93	1.96	1.94	
Jan 11	1.93	1.93	1.93	1.92	1.93	1.92	1.92	1.93	NRM	1.92	1.92	1.92	1.93	1.93	S	1.93	1.93	1.94	1.94	1.93	1.93	1.94	1.93	1.93	1.93	1.92	1.94	1.93
Jan 12	1.94	1.95	1.95	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.97	S	1.95	1.95	1.96	1.96	1.96	1.95	1.94	1.96	1.96	1.96	1.96	1.94	1.98	1.96
Jan 13	1.96	1.95	1.98	1.97	1.94	2.03	2.02	2.01	2.00	1.95	1.97	2.02	S	1.96	1.97	2.00	2.05	K	K	K	K	K	K	K	K	1.94	2.05	NA
Jan 14	K	K	K	K	K	K	K	NRM	2.07	2.05	2.07	S	2.03	2.00	1.96	1.97	1.96	1.98	1.98	2.00	1.99	1.97	1.98	1.99	1.96	1.96	2.07	NA
Jan 15	2.02	2.05	2.07	2.09	2.11	2.13	2.13	2.12	2.14	2.19	S	2.13	2.09	2.08	2.07	2.05	2.03	2.04	2.08	2.11	2.15	2.16	2.18	2.19	2.02	2.19	2.10	
Jan 16	2.23	2.26	2.27	2.27	2.28	2.28	2.26	2.24	2.26	S	2.10	2.11	2.09	2.03	2.02	1.99	1.99	2.00	1.97	1.95	1.94	1.94	1.95	1.94	2.28	2.10		
Jan 17	1.94	1.93	1.94	1.95	1.95	1.95	1.95	1.95	S	1.97	1.96	1.95	1.95	1.95	1.96	1.96	1.95	1.96	1.95	1.95	1.95	1.96	1.95	1.95	1.93	1.97	1.95	
Jan 18	1.94	1.96	1.96	1.95	1.96	1.97	1.98	S	1.98	1.97	1.97	1.98	1.99	1.99	1.99	1.98	1.98	1.98	1.99	1.98	1.97	1.98	1.98	1.98	1.94	1.99	1.97	
Jan 19	1.98	1.99	1.98	1.99	1.99	1.99	S	2.04	2.05	2.04	2.03	2.01	1.98	1.98	1.97	1.97	2.04	2.12	2.09	2.06	2.02	2.04	2.02	2.03	1.97	2.12	2.02	
Jan 20	2.04	2.05	2.06	2.03	2.03	S	2.00	2.00	2.00	2.00	2.02	2.02	2.03	2.03	2.02	2.01	2.01	2.00	2.01	2.01	2.01	2.01	2.00	2.01	2.00	2.06	2.02	
Jan 21	2.01	2.01	2.01	2.02	S	2.07	2.03	2.04	2.03	2.05	2.06	2.06	2.07	2.06	2.04	2.04	2.03	2.01	2.00	1.98	1.97	1.97	1.95	1.93	2.00	2.07	2.02	
Jan 22	1.93	1.94	1.94	S	1.94	1.95	1.96	1.96	1.95	1.95	1.95	1.96	1.96	1.97	1.99	1.98	1.98	1.96	1.97	1.98	1.99	1.99	1.98	1.98	1.93	1.99	1.96	
Jan 23	2.01	2.01	S	2.00	2.02	2.01	2.02	2.03	2.06	2.06	2.04	2.02	2.00	2.00	2.01	2.02	2.04	2.06	2.07	2.07	2.06	2.06	2.06	2.08	2.00	2.08	2.04	
Jan 24	2.13	S	2.15	2.15	2.17	2.13	2.16	2.16	2.21	2.27	2.27	2.27	2.30	2.31	2.31	C	C	C	C	2.34	2.28	2.29	2.29	2.32	2.13	2.34	2.24	
Jan 25	S	2.30	2.29	2.28	2.28	2.28	2.27	2.24	2.25	2.26	2.28	2.31	2.31	2.31	2.31	2.33	2.33	2.34	2.39	2.40	2.41	2.40	2.39	S	2.24	2.41	2.32	
Jan 26	2.38	2.37	2.39	2.41	2.37	2.39	2.36	2.36	2.35	2.32	2.26	2.23	2.16	2.06	2.04	2.05	2.08	2.06	2.05	2.07	2.09	2.07	S	2.09	2.04	2.41	2.22	
Jan 27	2.07	2.08	2.12	2.15	2.15	2.14	2.16	2.18	2.20	2.18	2.16	2.13	2.11	2.11	2.11	2.14	2.18	2.19	2.20	2.22	S	2.21	2.14	2.07	2.22	2.15		
Jan 28	2.13	2.10	2.05	2.04	2.07	2.07	2.06	2.05	2.05	2.06	2.06	2.07	2.05	2.04	2.00	1.93	1.91	1.92	1.93	1.93	S	1.95	1.98	1.98	1.91	2.13	2.02	
Jan 29	1.99	2.01	1.99	2.02	2.05	2.01	1.99	1.99	1.99	1.98	1.98	1.98	1.98	1.97	1.97	1.98	1.98	1.98	1.99	S	1.99	2.00	2.00	2.01	1.97	2.05	1.99	
Jan 30	2.02	2.02	2.02	2.00	1.98	1.98	1.98	2.00	1.99	1.92	1.91	1.92	1.91	1.91	1.91	1.91	1.92	S	1.92	1.92	1.92	1.93	1.92	1.93	1.91	2.02	1.95	
Jan 31	1.93	1.93	1.92	1.93	1.94	1.94	1.96	1.98	1.97	1.98	1.99	1.97	1.94	1.93	1.98	2.04	2.05	S	2.05	2.03	1.97	1.96	1.95	1.95	1.92	2.05	1.97	
Diurnal Maximum	2.38	2.37	2.39	2.41	2.37	2.39	2.36	2.36	2.35	2.32	2.28	2.31	2.31	2.31	2.33	2.33	2.34	2.39	2.40	2.41	2.40	2.39	2.32					
Diurnal Average	2.03	2.03	2.04	2.04	2.05	2.05	2.05	2.05	2.06	2.04	2.04	2.04	2.03	2.03	2.02	2.02	2.01	2.01	2.02	2.02	2.03	2.03	2.01	2.02				

**C** Monthly Calibration      **S** Daily Zero-Span Check      **Q** Quality Assurance  
**K** Collection Error      **ND** No Data (Machine Not in Service)      **Y** Routine Maintenance  
**X** InValid Data (Equipment Malfunction /Recovery)      **NRM** UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)      **P** Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



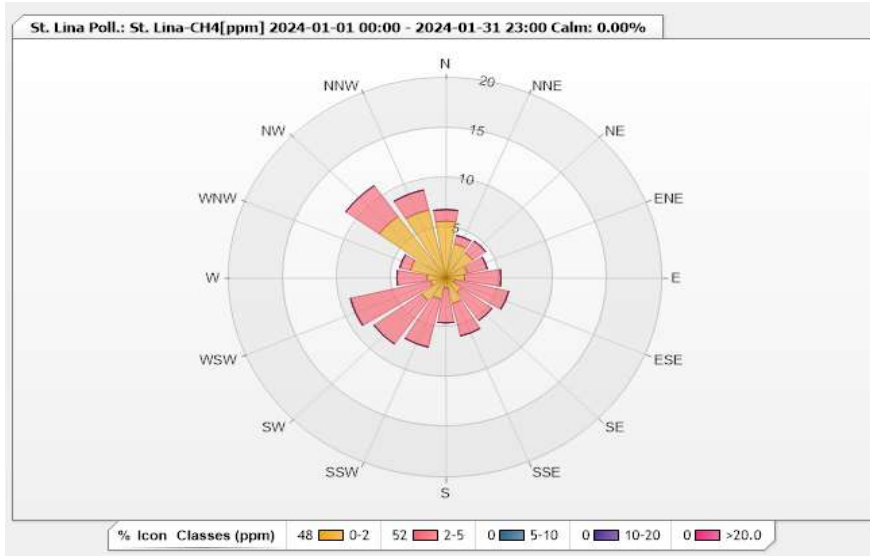


**Station: St. Lina Poll.: St. Lina-CH4[ppm] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 92.34%      Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	5.68	1.16	0	0	0	6.84
NNE	3.49	0.87	0	0	0	4.36
NE	3.06	1.46	0	0	0	4.52
ENE	2.04	1.89	0	0	0	3.93
E	1.75	3.35	0	0	0	5.1
ESE	0.87	5.09	0	0	0	5.96
SE	1.75	3.49	0	0	0	5.24
SSE	2.62	3.35	0	0	0	5.97
S	1.02	3.49	0	0	0	4.51
SSW	2.18	4.95	0	0	0	7.13
SW	2.77	5.39	0	0	0	8.16
WSW	1.46	7.57	0	0	0	9.03
W	1.75	2.77	0	0	0	4.52
WNW	3.35	1.02	0	0	0	4.37
NW	7.57	3.78	0	0	0	11.35
NNW	6.99	2.04	0	0	0	9.03
Summary	48.35	51.67	0	0	0	100



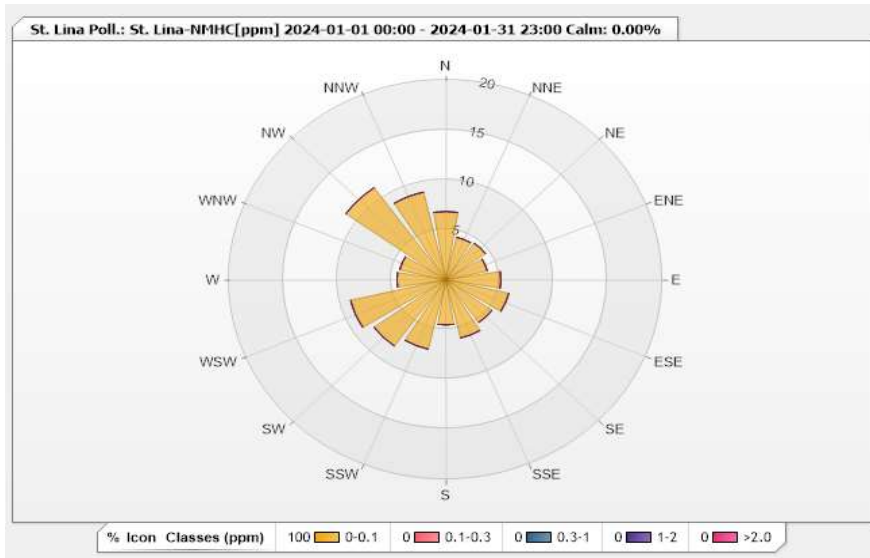


Station: St. Lina Poll.: St. Lina-NMHC[ppm] Monthly: 01-2024

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 92.34%      Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	6.84	0	0	0	0	6.84
NNE	4.37	0	0	0	0	4.37
NE	4.51	0	0	0	0	4.51
ENE	3.93	0	0	0	0	3.93
E	5.09	0	0	0	0	5.09
ESE	5.97	0	0	0	0	5.97
SE	5.24	0	0	0	0	5.24
SSE	5.97	0	0	0	0	5.97
S	4.51	0	0	0	0	4.51
SSW	7.13	0	0	0	0	7.13
SW	8.15	0	0	0	0	8.15
WSW	9.02	0	0	0	0	9.02
W	4.51	0	0	0	0	4.51
WNW	4.37	0	0	0	0	4.37
NW	11.35	0	0	0	0	11.35
NNW	9.02	0	0	0	0	9.02
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - January 2024

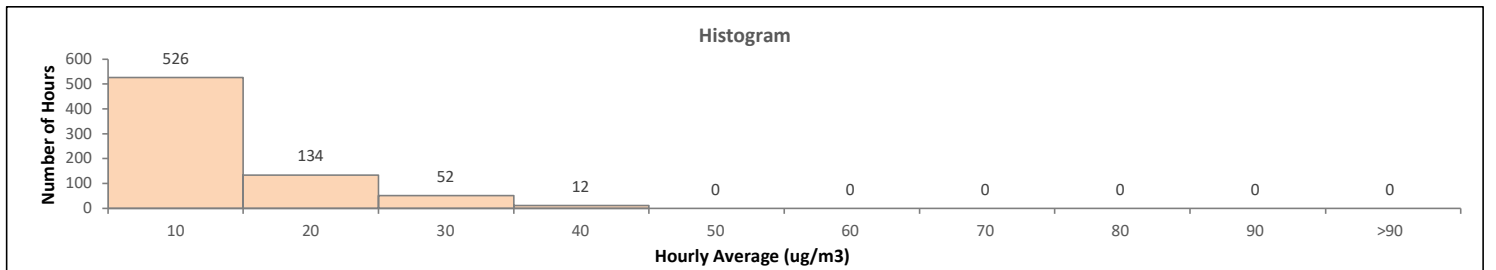
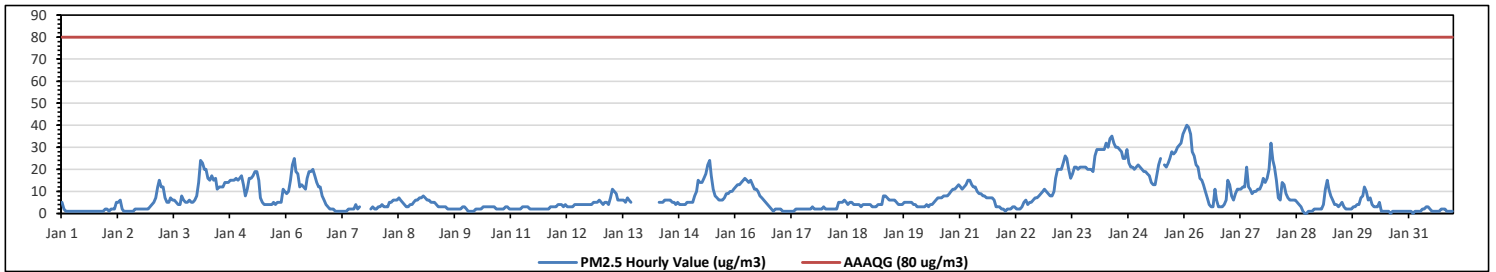
Summary of Hourly Averages

PARTICULATE MATTER 2.5 (PM<sub>2.5</sub>) in µg/m<sup>3</sup>

Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m <sup>3</sup> , Alberta Ambient Air Quality Objective (AAAQO): 24-Hour 29 µg/m <sup>3</sup>																																															
Number of 1-Hour Exceedances: 0												Number of 24-Hour Exceedances: 0																																			
Maximum Hourly Value: 40 µg/m <sup>3</sup> on Jan 26 at hr 1												Hours in Service: 744																																			
Maximum Daily Value: 27.4 µg/m <sup>3</sup> on Jan 24												Hours of Data: 724																																			
Minimum Hourly Value: 0 µg/m <sup>3</sup> on Jan 28 at hr 16												Hours of Missing Data: 19																																			
Minimum Daily Value: 1 µg/m <sup>3</sup> on Jan 1												Hours of Calibration: 1																																			
Monthly Average: 7.9 µg/m <sup>3</sup>												Operational Uptime: 97.4																																			
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average																					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23																							
Jan 1	5	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	5	1.3																				
Jan 2	2	1	2	2	2	5	5	6	2	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	1	6	2.2																				
Jan 3	4	5	7	12	15	12	12	7	5	5	7	6	6	5	4	8	6	5	5	6	5	5	6	6	4	15	6.8																				
Jan 4	8	14	24	23	20	20	16	15	17	15	16	11	12	12	12	14	14	14	15	15	15	16	15	16	8	24	15.4																				
Jan 5	17	13	8	11	16	16	17	19	19	15	7	5	4	4	4	4	5	4	5	5	5	11	10	4	19	9.5																					
Jan 6	9	10	15	22	25	19	18	12	13	12	11	16	19	19	20	17	14	12	12	8	6	4	3	2	2	25	13.3																				
Jan 7	2	2	1	1	1	1	1	1	1	2	2	2	2	2	4	2	3	P	P	P	P	P	2	2	1	4	1.8																				
Jan 8	2	3	3	4	3	3	3	5	5	6	6	6	7	6	5	4	3	3	4	4	5	6	6	7	2	7	4.5																				
Jan 9	7	8	7	6	6	5	5	5	4	3	3	3	3	3	2	2	2	2	2	2	2	2	3	3	2	8	3.8																				
Jan 10	2	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	2	2	2	2	2	3	3	2	1	3	2.2																				
Jan 11	2	2	2	2	2	2	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	3	2.3																				
Jan 12	3	4	4	4	3	4	3	3	3	4	4	4	4	4	4	4	4	4	4	4	5	5	6	3	6	4.0																					
Jan 13	5	4	5	5	4	7	11	10	9	6	6	6	6	5	7	6	5	K	K	K	K	K	K	K	4	11	NA																				
Jan 14	K	K	K	K	K	K	K	5	5	5	6	6	6	6	5	5	4	5	4	4	4	5	5	4	6	6	NA																				
Jan 15	5	5	8	10	15	14	14	16	18	22	24	17	11	8	7	6	6	6	7	9	9	10	10	11	5	24	11.2																				
Jan 16	12	13	13	14	15	16	15	14	15	13	11	11	10	8	7	6	5	4	3	2	1	2	2	2	1	16	8.9																				
Jan 17	2	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	2	2	2	2	2	3	1	3	1.8																					
Jan 18	2	2	2	2	2	2	2	5	5	5	6	5	4	5	5	4	4	4	3	4	4	4	4	4	2	6	3.7																				
Jan 19	4	3	3	3	4	4	4	8	8	7	6	6	6	6	5	4	4	4	5	5	5	5	5	4	3	8	4.9																				
Jan 20	4	3	3	3	3	3	4	3	4	5	6	7	7	7	8	8	8	8	9	10	11	11	12	13	3	13	6.5																				
Jan 21	12	11	12	13	15	15	13	12	12	10	9	9	8	8	7	7	7	7	6	3	3	3	2	2	2	15	8.6																				
Jan 22	1	2	2	2	3	3	2	2	2	3	5	6	4	5	5	6	7	7	7	8	9	10	11	10	9	11	5.2																				
Jan 23	8	8	10	16	20	20	20	23	26	25	20	16	18	21	21	20	21	21	21	21	20	20	19	8	26	19.0																					
Jan 24	26	29	29	29	29	32	30	34	35	32	30	30	29	28	25	25	29	23	21	21	20	21	22	20	35	27.4																					
Jan 25	21	20	19	19	18	17	14	13	13	17	22	25	C	22	21	23	25	28	27	28	30	31	32	36	13	36	22.7																				
Jan 26	38	40	39	36	28	26	22	21	16	15	13	10	7	4	3	3	11	6	3	3	3	4	6	15	3	40	15.5																				
Jan 27	13	8	6	9	11	11	11	12	12	21	12	11	9	10	10	11	11	13	16	14	16	20	32	24	6	32	13.5																				
Jan 28	21	15	7	6	14	13	9	7	6	6	6	5	4	3	1	0	0	1	1	1	2	2	2	0	21	5.8																					
Jan 29	2	2	4	11	15	11	8	6	4	4	3	4	5	3	2	2	2	3	3	4	4	7	8	2	15	5.0																					
Jan 30	12	10	6	7	4	3	3	3	5	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	12	2.8																				
Jan 31	1	1	0	1	1	1	1	2	2	3	3	2	1	1	1	1	2	2	2	1	1	1	1	0	3	1.4																					
Diurnal Maximum	38	40	39	36	29	32	30	34	35	32	30	30	29	28	25	25	29	27	28	30	31	32	36																								
Diurnal Average	8.4	8.1	8.1	9.2	9.9	9.5	9.1	8.8	8.8	8.2	7.7	6.8	7.1	6.6	6.5	6.8	7.0	6.8	6.6	6.8	7.0	7.8	8.1																								
C	Monthly Calibration											S	Daily Zero-Span Check											Q	Quality Assurance																						
K	Collection Error											ND	No Data (Machine Not in Service)											Y	Routine Maintenance											P	Power Failure										
X	Invalid Data (Equipment Malfunction /Recovery)											NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																																		

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



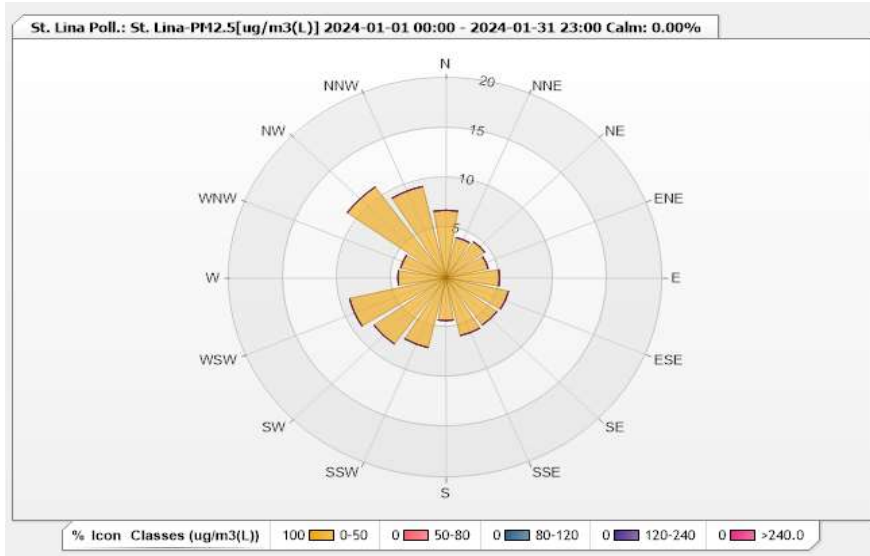
Station: St. Lina Poll.: St. Lina-PM2.5[ug/m3(L)] Monthly: 01-2024

)

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 97.31%      Calm Avg: 0.00 [ug/m3(L)]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	6.77	0	0	0	0	6.77
NNE	4.14	0	0	0	0	4.14
NE	4.42	0	0	0	0	4.42
ENE	4.01	0	0	0	0	4.01
E	4.97	0	0	0	0	4.97
ESE	5.94	0	0	0	0	5.94
SE	5.8	0	0	0	0	5.8
SSE	5.94	0	0	0	0	5.94
S	4.28	0	0	0	0	4.28
SSW	7.18	0	0	0	0	7.18
SW	8.15	0	0	0	0	8.15
WSW	9.12	0	0	0	0	9.12
W	4.42	0	0	0	0	4.42
WNW	4.28	0	0	0	0	4.28
NW	11.19	0	0	0	0	11.19
NNW	9.39	0	0	0	0	9.39
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - January 2024

Summary of Hourly Averages

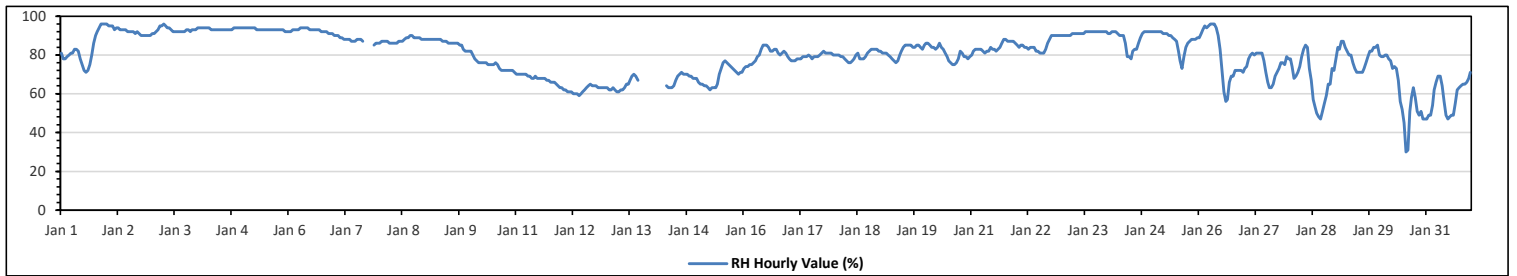
RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	96 %	on Jan 1 at hr 21	Hours in Service:	744
Maximum Daily Value:	93.5 %	on Jan 4	Hours of Data:	725
Minimum Hourly Value:	30	on Jan 30 at hr 13	Hours of Missing Data:	19
Minimum Daily Value:	58.6 %	on Jan 31	Hours of Calibration:	0
Monthly Average:	79.9 %		Operational Uptime:	97.4

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average																																																																					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23																																																																				
Jan 1	81	78	78	79	80	81	81	83	83	82	78	75	72	71	72	75	80	86	90	92	94	96	96	96	71	96	82.5																																																																				
Jan 2	96	95	95	95	93	94	94	93	93	93	92	92	92	92	92	91	92	91	90	90	90	90	90	90	90	90	92.3																																																																				
Jan 3	91	91	92	93	95	95	96	95	94	94	93	92	92	92	92	92	92	92	93	93	92	93	93	93	91	96	92.9																																																																				
Jan 4	94	94	94	94	94	94	94	93	93	93	93	93	93	93	93	93	93	93	93	93	94	94	94	94	93	94	93.2																																																																				
Jan 5	94	94	94	94	94	94	94	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	92	92	94	92.7																																																																				
Jan 6	92	92	93	93	93	93	94	94	94	94	94	93	93	93	93	93	93	93	92	92	92	92	91	91	91	91	92.7																																																																				
Jan 7	90	90	90	89	88	88	88	88	88	87	87	87	88	88	87	88	88	87	P	P	P	P	P	85	86	86	85	90	87.8																																																																		
Jan 8	86	87	87	87	87	86	86	86	86	86	87	87	87	87	88	89	89	90	90	89	89	89	89	88	88	86	90	87.6																																																																			
Jan 9	88	88	88	88	88	88	88	88	88	88	87	87	87	86	86	86	86	86	86	85	85	83	82	82	82	82	82	88	86.2																																																																		
Jan 10	82	80	78	77	76	76	76	76	76	75	75	75	75	75	76	75	73	72	72	72	72	72	72	71	71	71	82	74.8																																																																			
Jan 11	70	70	70	70	70	70	69	69	68	68	69	68	68	68	68	68	68	67	67	66	66	66	65	64	63	63	70	67.8																																																																			
Jan 12	63	62	62	61	61	61	60	60	60	59	60	61	62	63	64	65	64	64	64	63	63	63	63	63	63	59	65	62.1																																																																			
Jan 13	63	62	62	63	62	61	61	62	62	63	65	65	67	69	70	69	67	K	K	K	K	K	K	K	61	70	NA																																																																				
Jan 14	K	K	K	K	K	K	K	64	63	63	63	64	67	69	70	71	70	70	70	69	68	68	68	68	63	71	NA																																																																				
Jan 15	66	65	65	64	64	63	62	63	63	63	65	70	73	76	77	76	75	74	73	72	71	70	71	71	62	77	68.8																																																																				
Jan 16	73	74	74	75	75	76	77	79	80	83	85	85	85	84	82	82	83	83	81	80	81	82	81	79	73	85	80.0																																																																				
Jan 17	78	77	77	77	78	78	78	79	79	79	80	79	78	79	79	79	80	81	82	81	81	81	81	80	77	82	79.2																																																																				
Jan 18	80	80	80	79	79	78	77	76	76	77	78	80	81	78	78	78	79	81	82	83	83	83	83	82	76	83	79.6																																																																				
Jan 19	82	81	81	81	80	79	78	77	76	77	80	82	84	85	85	85	84	84	84	85	85	84	83	82	76	85	82.0																																																																				
Jan 20	86	86	85	84	84	83	84	86	84	83	81	79	77	76	75	75	76	78	82	81	79	79	78	79	75	86	80.8																																																																				
Jan 21	80	82	83	83	83	83	82	81	82	82	84	83	83	82	83	84	86	88	88	87	87	87	87	86	80	88	84.0																																																																				
Jan 22	85	84	85	85	84	84	83	84	84	84	82	82	81	81	81	83	86	88	90	90	90	90	90	90	81	90	85.3																																																																				
Jan 23	90	90	90	90	90	91	91	91	91	91	91	91	92	92	92	92	92	92	92	92	92	92	92	92	90	92	91.3																																																																				
Jan 24	91	91	92	92	91	90	90	90	86	79	79	78	82	83	83	86	89	91	92	92	92	92	92	92	78	92	88.1																																																																				
Jan 25	92	92	92	92	91	91	91	91	90	89	88	87	82	77	73	79	84	86	87	88	88	88	88	89	73	92	87.4																																																																				
Jan 26	89	91	93	95	94	95	96	96	96	94	90	83	72	61	56	57	66	69	69	72	72	72	72	71	56	96	80.0																																																																				
Jan 27	73	74	78	80	81	80	81	81	81	81	77	71	66	63	63	65	69	71	73	76	76	75	79	78	63	81	74.7																																																																				
Jan 28	78	74	68	69	71	74	79	83	85	84	73	67	57	53	50	48	47	51	55	59	65	65	73	72	47	85	66.7																																																																				
Jan 29	78	84	83	87	87	84	82	80	80	76	73	71	71	71	71	73	76	79	82	82	84	84	85	80	71	87	79.3																																																																				
Jan 30	79	79	80	80	78	77	73	74	73	67	56	52	45	30	31	51	58	63	58	51	49	51	47	47	30	80	60.4																																																																				
Jan 31	47	49	49	54	62	66	69	69	64	56	49	47	48	49	49	55	62	63	64	65	65	66	68	71	47	71	58.6																																																																				
Diurnal Maximum	96	95	95	95	95	95	96	96	96	94	94	93	93	93	93	93	93	93	93	94	94	96	96	96																																																																							
Diurnal Average	81.2	81.2	81.3	81.7	81.9	81.8	81.4	81.1	80.3	79.0	78.1	77.2	76.3	76.0	76.9	78.1	79.8	80.3	80.4	80.6	80.7	81.0	80.7																																																																								
C	Monthly Calibration																							S	Daily Zero-Span Check																							Q	Quality Assurance																																														
K	Collection Error																							ND	No Data (Machine Not in Service)																							Y	Routine Maintenance																							P	Power Failure																						
X	Invalid Data (Equipment Malfunction /Recovery)																							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																																																																						

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per days is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Lakeland Industry & Community Association

St. Lina Site - January 2024

Summary of Hourly Averages

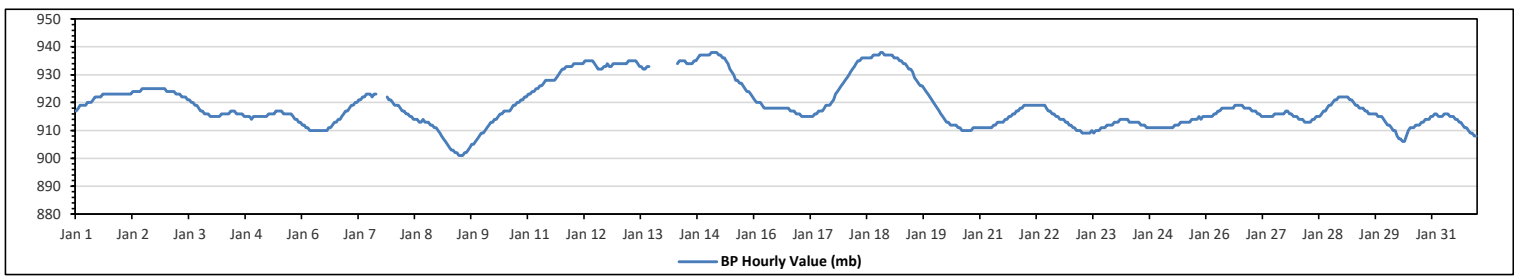
BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	938	mb	on Jan 15 at hr 1	Hours in Service:	744
Maximum Daily Value:	935	mb	on Jan 18	Hours of Data:	725
Minimum Hourly Value:	901	mb	on Jan 9 at hr 11	Hours of Missing Data:	19
Minimum Daily Value:	905	mb	on Jan 9	Hours of Calibration:	0
Monthly Average:	919	mb		Operational Uptime:	97.4

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Jan 1	917	918	919	919	919	919	920	920	920	921	922	922	922	923	923	923	923	923	923	923	923	923	923	923	917	923	921
Jan 2	923	923	923	923	923	923	924	924	924	924	924	925	925	925	925	925	925	925	925	925	925	925	925	925	923	925	924
Jan 3	924	924	924	924	924	923	923	923	922	922	922	921	921	920	920	919	919	918	917	917	916	916	915	915	915	924	920
Jan 4	915	915	915	915	915	916	916	916	916	916	917	917	917	916	916	916	916	915	915	915	915	914	915	915	914	917	916
Jan 5	915	915	915	915	915	915	916	916	916	916	917	917	917	917	916	916	916	916	916	915	914	914	913	913	913	917	915
Jan 6	912	912	911	911	910	910	910	910	910	910	910	910	910	911	911	911	P	P	P	P	P	915	916	917	910	917	912
Jan 7	917	918	919	919	920	920	921	921	922	922	923	923	922	923	923	923	923	923	923	923	922	921	921	911	911	912	921
Jan 8	920	919	919	919	918	917	917	916	916	915	915	914	914	914	913	913	914	913	913	913	912	912	911	911	911	910	915
Jan 9	910	909	908	907	906	905	904	903	902	902	901	901	901	902	902	903	904	905	905	906	906	907	908	909	901	910	905
Jan 10	909	910	911	912	913	913	914	914	915	916	916	917	917	917	917	918	919	919	920	920	921	921	922	922	909	922	916
Jan 11	923	923	924	924	925	925	926	926	927	928	928	928	928	928	929	930	931	932	932	933	933	933	933	933	923	933	928
Jan 12	934	934	934	934	934	934	935	935	935	935	935	934	933	932	932	932	933	933	933	933	934	934	934	934	932	935	934
Jan 13	934	934	934	934	934	935	935	935	935	935	934	933	933	932	932	933	933	K	K	K	K	K	K	K	932	935	NA
Jan 14	K	K	K	K	K	K	K	K	934	935	935	935	935	934	934	934	935	935	936	937	937	937	937	937	934	937	NA
Jan 15	937	938	938	938	938	937	937	936	936	936	936	936	936	936	937	937	937	937	937	937	938	938	937	937	922	938	931
Jan 16	921	920	920	920	919	918	918	918	918	918	918	918	918	918	918	918	918	918	918	917	917	917	916	916	916	921	918
Jan 17	916	915	915	915	915	915	915	916	916	916	917	917	917	918	919	919	920	921	923	924	925	926	927	915	927	919	
Jan 18	928	929	930	931	932	933	934	935	935	936	936	936	936	936	937	937	937	937	938	938	937	937	937	928	938	935	
Jan 19	937	937	936	936	936	935	935	934	934	933	932	932	931	929	928	927	926	926	925	924	923	922	921	920	920	937	930
Jan 20	919	918	917	916	915	914	913	913	912	912	912	912	911	911	910	910	910	910	910	911	911	911	911	910	919	912	912
Jan 21	911	911	911	911	911	911	911	912	912	913	913	913	914	914	915	915	916	916	917	917	918	918	919	911	919	914	914
Jan 22	919	919	919	919	919	919	919	919	919	919	919	918	917	917	916	916	915	915	914	914	914	913	913	912	912	919	917
Jan 23	912	911	911	910	910	909	909	909	909	909	909	910	910	910	910	911	911	911	911	912	912	912	912	913	909	913	911
Jan 24	913	913	914	914	914	914	914	913	913	913	913	913	912	912	912	911	911	911	911	911	911	911	911	911	911	914	912
Jan 25	911	911	911	911	911	911	911	912	912	912	913	913	913	913	913	913	914	914	914	914	915	914	915	915	911	915	913
Jan 26	915	915	915	916	916	916	917	917	918	918	918	918	918	918	919	919	919	919	919	919	918	918	918	918	915	919	917
Jan 27	917	917	917	916	916	915	915	915	915	915	915	915	916	916	916	916	916	916	917	917	916	916	915	915	915	917	916
Jan 28	915	914	914	914	913	913	913	914	914	915	915	915	916	917	917	918	919	919	920	921	921	922	922	913	922	916	
Jan 29	922	922	922	922	921	920	919	919	918	918	918	918	917	917	916	916	916	916	916	915	915	915	914	913	913	922	918
Jan 30	912	912	911	910	910	908	907	907	906	906	908	910	911	911	911	912	912	912	913	913	914	914	915	906	915	911	911
Jan 31	915	916	916	915	915	915	916	916	916	915	915	915	914	914	913	913	912	911	911	910	909	908	908	908	908	916	913
Diurnal Maximum	937	938	938	938	938	937	937	936	936	936	936	936	936	936	937	937	937	937	937	937	938	938	937	937	937	937	937
Diurnal Average	919	919	919	919	919	919	919	919	919	919	920	919	919	919	919	919	919	919	919	919	919	919	919	919	919	919	919

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



**Lakeland Industry & Community Association**  
**St. Lina Site - January 2024**  
**Summary of Hourly Averages**  
**AMBIENT TEMPERATURE (AT) in Degree Celsius**

Maximum Hourly Value:	12.7 °C	on Jan 30 at hr 13	Hours in Service:	744
Maximum Daily Value:	6.3 °C	on Jan 30	Hours of Data:	725
Minimum Hourly Value:	-39.6 °C	on Jan 12 at hr 8	Hours of Missing Data:	19
Minimum Daily Value:	-36.9 °C	on Jan 12	Hours of Calibration:	0
Monthly Average:	-14.2 °C		Operational Uptime:	97.4

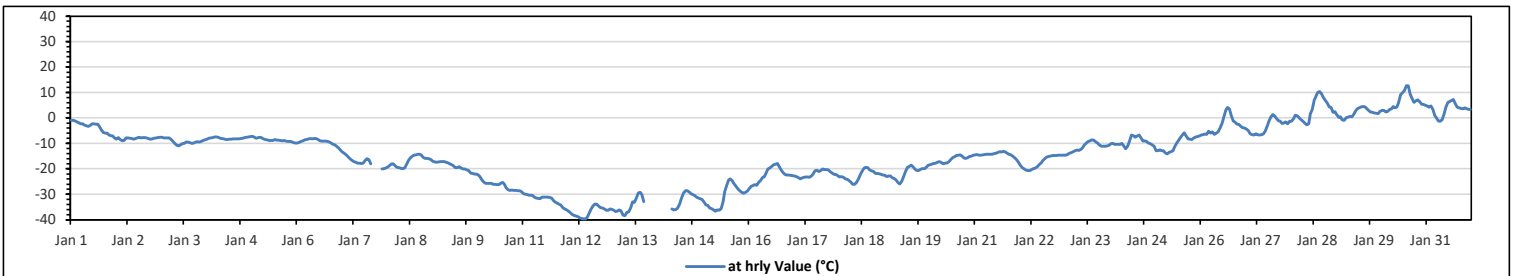
  

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23		
Jan 1	-0.9	-0.9	-1.2	-1.5	-1.9	-2.3	-2.3	-2.8	-3	-3.3	-2.9	-2.3	-2.3	-2.4	-2.5	-3.5	-4.7	-5.7	-6	-6	-6.8	-6.9	-7.1	-7.9	-7.9	-7.9	-0.9	-0.9	-3.6
Jan 2	-8.3	-7.7	-8.4	-9	-8.8	-7.9	-7.8	-8	-8.1	-8.3	-8.1	-7.8	-7.6	-7.8	-7.7	-7.7	-7.8	-8.1	-8.3	-8.2	-8	-7.8	-7.7	-7.6	-7.6	-7.6	-9.0	-7.6	-8.0
Jan 3	-7.6	-7.8	-7.8	-7.8	-7.9	-8.5	-9.3	-10.1	-10.8	-11	-10.7	-10.1	-10	-9.5	-9.5	-9.7	-9.9	-9.8	-9.5	-9.4	-9.5	-9.2	-8.9	-8.6	-8.6	-8.6	-11.0	-7.6	-9.3
Jan 4	-8.3	-8	-7.9	-7.7	-7.5	-7.4	-7.6	-8	-8.1	-8.2	-8.4	-8.4	-8.3	-8.3	-8.2	-8.2	-8.2	-8.2	-8.1	-8	-7.7	-7.6	-7.5	-7.3	-7.3	-8.4	-7.3	-8.0	
Jan 5	-7.2	-7.4	-8	-7.8	-7.6	-7.7	-8.2	-8.5	-8.6	-8.8	-8.8	-8.8	-8.5	-8.7	-8.7	-8.8	-9	-8.8	-9.1	-9.2	-9.2	-9.4	-9.7	-9.8	-9.8	-9.8	-7.2	-8.6	
Jan 6	-9.8	-9.6	-9.2	-9	-8.6	-8.4	-8.2	-8.1	-8.2	-8.1	-8.1	-8.5	-9	-9.1	-9.1	-9.1	-9.2	-9.5	-9.9	-10.3	-10.6	-11.2	-11.8	-12.6	-12.6	-12.6	-8.1	-9.4	
Jan 7	-13.4	-13.9	-14.5	-15.2	-16.1	-16.6	-17.2	-17.4	-17.7	-17.7	-17.9	-17.7	-16.7	-16.1	-16.4	-18	<b>P</b>	<b>P</b>	<b>P</b>	<b>P</b>	<b>P</b>	-20.1	-19.9	-19.7	-20.1	-13.4	-17.0		
Jan 8	-19.3	-18.7	-18	-18	-18.8	-19.4	-19.5	-19.8	-20	-19.7	-18.1	-16.6	-15.7	-14.9	-14.7	-14.5	-14.3	-14.3	-14.7	-15.5	-15.9	-15.9	-16.1	-16.3	-20.0	-14.3	-17.0		
Jan 9	-17	-17.3	-17.4	-17.3	-17.2	-17.1	-17.2	-17.4	-17.6	-18	-18.4	-18.8	-19.5	-19.5	-19.1	-19.7	-20.1	-20.1	-20.4	-20.6	-21.6	-21.8	-22	-22	-22.0	-17.0	-19.0		
Jan 10	-22.3	-23	-24.3	-25.2	-25.6	-25.6	-25.6	-26	-26	-26.2	-26.2	-25.7	-25.3	-25.9	-27.4	-28.2	-28.4	-28.3	-28.4	-28.4	-28.4	-28.6	-28.6	-29	-29.0	-22.3	-26.4		
Jan 11	-29.7	-29.9	-30.1	-30.4	-30.3	-30.5	-31	-31.4	-31.6	-31.7	-31	-31	-31	-31.1	-31.2	-31.4	-32.5	-33.1	-33.5	-33.8	-34.2	-35.2	-35.7	-36.2	-36.2	-29.7	-32.0		
Jan 12	-36.6	-37.3	-37.8	-38.2	-38.5	-38.8	-39.3	-39.5	<b>-39.6</b>	<b>-39.6</b>	-39.1	-37.5	-35.9	-34.7	-33.8	-33.8	-34.6	-35.2	-35.3	-35.7	-36.3	-36.3	-35.8	-35.9	<b>-39.6</b>	-33.8	<b>-36.9</b>		
Jan 13	-36.3	-36.7	-36.6	-36.1	-36.5	-38.1	-38.4	-37.1	-36.9	-35.3	-33	-33.1	-31.5	-29.5	-29.2	-30.1	-32.8	<b>K</b>	<b>K</b>	<b>K</b>	<b>K</b>	<b>K</b>	<b>K</b>	<b>K</b>	<b>K</b>	-38.4	-29.2	NA	
Jan 14	<b>K</b>	<b>K</b>	<b>K</b>	<b>K</b>	<b>K</b>	<b>K</b>	<b>K</b>	-35.7	-36.1	-36	-35.4	-33.9	-31.4	-29.6	-28.6	-28.5	-29.1	-29.7	-30.1	-30.5	-31	-31.5	-31.7	-32	-36.1	-28.5	NA		
Jan 15	-33	-34.1	-34.4	-35.3	-35.6	-36.2	-36.6	-36.1	-36.3	-35.6	-32.9	-28.9	-26.6	-24.4	-23.9	-24.6	-25.8	-26.8	-27.8	-28.6	-29.3	-29.6	-29.2	-28.7	-36.6	-23.9	-30.8		
Jan 16	-27.7	-26.8	-26.6	-26.2	-26.4	-25.3	-24.6	-23.4	-23	-21.4	-20.1	-19.6	-19	-18.4	-18.1	-17.9	-19.2	-20.5	-21.5	-22.1	-22.4	-22.5	-22.6	-22.7	-27.7	-17.9	-22.4		
Jan 17	-22.9	-23	-23.4	-23.9	-23.6	-23.3	-23.1	-23.3	-23.3	-22.9	-22	-20.8	-20.5	-21	-20.6	-20.1	-20.3	-20.3	-20.4	-21.2	-21.6	-22.1	-22.1	-22.7	-23.9	-20.1	-22.0		
Jan 18	-23.1	-23	-23.3	-23.9	-24.1	-24.6	-25.2	-26	-26.1	-25.3	-23.9	-22.2	-20.8	-19.7	-19.4	-19.5	-20.4	-20.8	-21.1	-21.7	-21.7	-21.9	-22.2	-22.5	-26.1	-19.4	-22.6		
Jan 19	-22.6	-23	-22.9	-22.9	-23.5	-23.8	-24.3	-25.4	-25.9	-24.9	-23	-21	-19.4	-19	-18.6	-19.2	-20.2	-20.6	-20.7	-20.7	-20	-19.9	-19.5	-18.7	-25.9	-18.6	-21.6		
Jan 20	-18.4	-18.1	-17.9	-17.7	-17.4	-17.2	-17.5	-18	-17.8	-17.6	-17.3	-16.4	-15.7	-15.2	-14.8	-14.6	-14.5	-14.9	-15.8	-15.9	-15.6	-15.1	-14.9	-14.6	-18.4	-14.5	-16.4		
Jan 21	-14.5	-14.4	-14.6	-14.7	-14.5	-14.4	-14.3	-14.3	-14.2	-14.2	-14	-13.8	-13.5	-13.3	-13.4	-13.2	-13.4	-13.9	-14.2	-14.5	-15	-15.7	-16.3	-17.4	-17.4	-13.2	-14.4		
Jan 22	-18.7	-19.5	-20.1	-20.5	-20.7	-20.7	-20.3	-20	-19.6	-19.1	-18.3	-17.6	-16.8	-16	-15.4	-15.1	-14.9	-14.8	-14.8	-14.8	-14.6	-14.6	-14.7	-14.7	-20.7	-14.6	-17.3		
Jan 23	-14.7	-14.4	-13.8	-13.6	-13.3	-12.8	-12.6	-12.7	-12.3	-11.7	-10.7	-9.8	-9.2	-9	-8.6	-8.7	-9.4	-9.8	-10.6	-11.1	-11.1	-11.1	-11	-10.8	-14.7	-8.6	-11.4		
Jan 24	-10.1	-10	-10.4	-10.3	-10.4	-10.4	-10	-10.9	-12.1	-11.1	-9.1	-6.7	-6.9	-7.6	-7.1	-6.8	-7.8	-9.1	-9	-9.2	-9.8	-10.1	-10.6	-11.1	-12.1	-6.7	-9.4		
Jan 25	-12.9	-12.8	-12.4	-12.8	-12.9	-13.7	-14.1	-13.5	-13.3	-12.8	-11.3	-9.9	-8.8	-7.7	-6.7	-5.8	-7.1	-8.2	-8.3	-8.4	-7.9	-7.5	-7.3	-7	-14.1	-5.8	-10.1		
Jan 26	-6.7	-6.6	-6.3	-6.5	-5.2	-6	-5.5	-6.5	-5.9	-5.5	-4	-2.2	0.5	3.1	4.1	3.7	1	-1.2	-1.6	-2.4	-2.6	-3.2	-3.9	-4	-6.7	4.1	-3.1		
Jan 27	-4.3	-4.9	-6.2	-6.6	-6.7	-6.2	-6.6	-6.8	-6.6	-6.3	-5.2	-3.3	-1.2	0.4	1.3	0.7	-0.2	-1	-1.3	-2.2	-1.9	-1.5	-2.3	-1.3	-6.8	1.3	-3.3		
Jan 28	-1.3	-0.4	1.1	0.8	0.1	-0.6	-1.4	-2	-2.7	-2.3	1.6	3.3	6.8	8.7	10	10.5	9.5	8	6.8	5.9	4.3	4.1	2.2	2.5	-2.7	10.5	3.1		
Jan 29	1.2	0.2	0.4	-0.8	-0.9	0	0.3	0.6	0.4	1.4	2.8	3.6	4	4.4	4.5	4.3	3.6	2.9	2.4	2.3	2	1.8	1.7	2.6	-0.9	4.5	1.9		
Jan 30	3	2.9	2.4	2.6	3.3	3.6	4.5	3.9	4.4	6.1	9.2	9.9	10.7	<b>12.7</b>	12.6	9.4	7.7	6.1	6.7	7.1	6.4	5.3	5.3	5	2.4	<b>12.7</b>	<b>6.3</b>		
Jan 31	4.7	4.2	4.8	3.4	1	0	-1.2	-1.4	-0.7	1.6	4.3	6.2	6.5	6.8	7.2	5.6	4.2	3.9	3.8	3.7	3.9	3.6	3.4	3.3	-1.4	7.2	3.5		
Diurnal Maximum	4.7	4.2	4.8	3.4	3.3	3.6	4.5	3.9	4.4	6.1	9.2	9.9	10.7	12.7	12.6	10.5	9.5	8.0	6.8	7.1	6.4	5.3	5.3	5.0					
Diurnal Average	-14.6	-14.7	-14.8	-15.1	-15.2	-15.3	-15.5	-16.3	-16.4	-15.9	-14.8	-13.9	-13.0	-12.3	-12.0	-12.3	-12.9	-12.8	-13.1	-13.4	-13.7	-14.0	-14.2	-14.3					

<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>ND</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b>	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per days is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.





**Lakeland Industry & Community Association**  
**St. Lina Site - January 2024**  
**Summary of Hourly Averages**  
**STATION TEMPERATURE (ST) in Degree Celsius**

Maximum Hourly Value:	22.9 °C	on Jan 3 at hr 4	Hours in Service:	744
Maximum Daily Value:	22.6 °C	on Jan 5	Hours of Data:	725
Minimum Hourly Value:	19.0 °C	on Jan 27 at hr 13	Hours of Missing Data:	19
Minimum Daily Value:	19.6 °C	on Jan 31	Hours of Calibration:	0
Monthly Average:	20.8 °C		Operational Uptime:	97.4

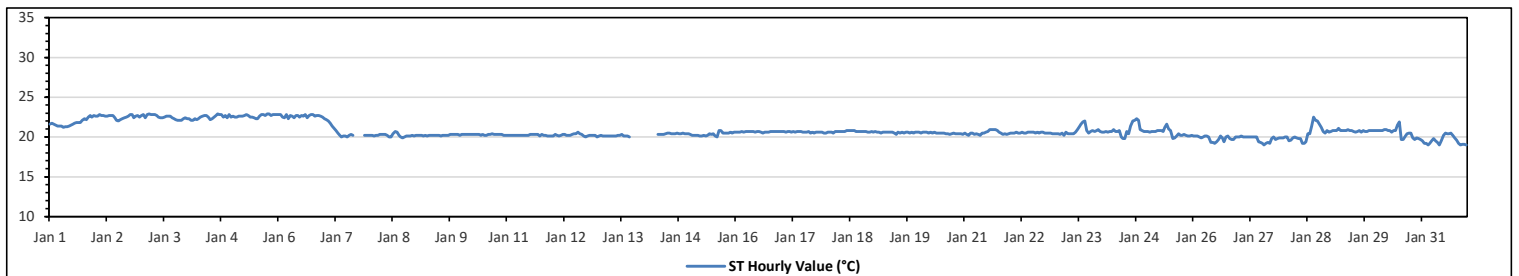
  

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Jan 1	21.6	21.7	21.6	21.5	21.4	21.4	21.4	21.2	21.3	21.3	21.4	21.5	21.6	21.7	21.8	21.8	21.8	22.1	22.3	22.2	22.5	22.7	22.5	22.7	21.2	22.7	21.8
Jan 2	22.6	22.6	22.8	22.7	22.7	22.6	22.6	22.7	22.7	22.7	22.4	22.1	22.0	22.2	22.3	22.4	22.5	22.6	22.8	22.8	22.4	22.6	22.7	22.5	22.0	22.8	22.5
Jan 3	22.7	22.8	22.4	22.8	22.9	22.8	22.8	22.8	22.7	22.5	22.4	22.4	22.5	22.6	22.6	22.6	22.4	22.3	22.2	22.1	22.1	22.1	22.3	22.4	22.1	22.9	22.5
Jan 4	22.3	22.3	22.1	22.1	22.3	22.2	22.3	22.5	22.6	22.7	22.7	22.5	22.2	22.3	22.5	22.7	22.9	22.8	22.8	22.5	22.7	22.4	22.8	22.5	22.1	22.9	22.5
Jan 5	22.6	22.5	22.5	22.6	22.6	22.6	22.7	22.8	22.7	22.5	22.5	22.4	22.3	22.3	22.6	22.8	22.8	22.7	22.9	22.9	22.7	22.8	22.8	22.8	22.3	22.9	22.6
Jan 6	22.8	22.8	22.5	22.4	22.8	22.3	22.7	22.6	22.4	22.7	22.7	22.5	22.7	22.6	22.8	22.4	22.7	22.8	22.8	22.6	22.7	22.7	22.6	22.5	22.3	22.8	22.6
Jan 7	22.3	22.2	22.0	21.7	21.4	21.1	20.8	20.5	20.2	20.0	20.1	20.1	20.0	20.2	20.3	20.2	P	P	P	P	P	20.2	20.2	20.0	20.3	20.7	
Jan 8	20.2	20.2	20.1	20.2	20.2	20.3	20.3	20.3	20.3	20.2	20.0	20.0	20.4	20.7	20.6	20.2	20.0	19.9	20.0	20.1	20.1	20.1	20.2	20.1	19.9	20.7	20.2
Jan 9	20.2	20.2	20.2	20.2	20.1	20.2	20.1	20.2	20.2	20.2	20.2	20.2	20.2	20.1	20.2	20.2	20.2	20.2	20.3	20.3	20.3	20.3	20.3	20.2	20.1	20.3	20.2
Jan 10	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.2	20.3	20.2	20.2	20.3	20.3	20.4	20.3	20.3	20.3	20.3	20.3	20.3	20.2	20.2	20.4	20.3
Jan 11	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.3	20.3	20.3	20.3	20.3	20.3	20.1	20.3	20.2	20.2	20.1	20.1	20.1	20.3	20.2
Jan 12	20.1	20.3	20.2	20.1	20.2	20.3	20.2	20.2	20.2	20.2	20.3	20.4	20.4	20.6	20.4	20.3	20.1	20.0	20.1	20.2	20.2	20.2	20.1	20.2	20.0	20.6	20.2
Jan 13	20.1	20.2	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.2	20.2	20.3	20.1	20.1	20.1	20.0	K	K	K	K	K	K	K	20.0	20.3	NA
Jan 14	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	20.0	20.3	NA
Jan 15	20.3	20.2	20.2	20.2	20.2	20.1	20.1	20.2	20.1	20.2	20.4	20.3	20.4	20.1	20.0	20.8	20.8	20.5	20.5	20.5	20.5	20.6	20.5	20.6	20.0	20.8	20.3
Jan 16	20.6	20.6	20.6	20.7	20.6	20.7	20.7	20.7	20.7	20.7	20.6	20.7	20.7	20.6	20.5	20.6	20.6	20.6	20.6	20.7	20.7	20.7	20.7	20.7	20.5	20.7	20.7
Jan 17	20.7	20.7	20.6	20.7	20.7	20.6	20.7	20.6	20.7	20.7	20.7	20.7	20.6	20.6	20.7	20.5	20.6	20.5	20.6	20.6	20.6	20.6	20.6	20.5	20.5	20.7	20.6
Jan 18	20.6	20.6	20.6	20.5	20.7	20.7	20.7	20.7	20.7	20.7	20.8	20.8	20.8	20.8	20.8	20.7	20.7	20.7	20.7	20.7	20.7	20.6	20.6	20.7	20.5	20.8	20.7
Jan 19	20.6	20.7	20.6	20.6	20.5	20.6	20.6	20.6	20.6	20.6	20.6	20.5	20.3	20.6	20.5	20.6	20.5	20.6	20.5	20.6	20.5	20.6	20.6	20.6	20.3	20.7	20.6
Jan 20	20.6	20.5	20.6	20.6	20.6	20.5	20.6	20.5	20.6	20.5	20.5	20.5	20.5	20.5	20.4	20.4	20.3	20.4	20.5	20.4	20.4	20.4	20.4	20.3	20.3	20.6	20.5
Jan 21	20.5	20.3	20.2	20.5	20.5	20.3	20.4	20.3	20.2	20.5	20.5	20.6	20.7	20.9	20.9	20.9	20.8	20.6	20.5	20.3	20.4	20.4	20.3	20.4	20.2	20.9	20.5
Jan 22	20.5	20.5	20.5	20.6	20.5	20.5	20.6	20.5	20.5	20.6	20.6	20.6	20.6	20.5	20.6	20.5	20.6	20.6	20.5	20.5	20.5	20.5	20.4	20.4	20.4	20.6	20.5
Jan 23	20.4	20.4	20.3	20.5	20.2	20.6	20.4	20.4	20.4	20.4	20.6	20.9	21.3	21.6	21.9	22.0	20.8	20.5	20.7	20.8	20.7	20.8	20.9	20.7	20.2	22.0	20.8
Jan 24	20.6	20.6	20.7	20.6	20.7	20.7	20.9	20.7	20.7	20.8	20.0	19.8	19.8	20.7	20.4	21.4	22.0	22.1	22.3	22.1	20.9	20.8	20.7	20.7	19.8	22.3	20.9
Jan 25	20.7	20.6	20.7	20.7	20.7	20.8	20.8	20.8	20.7	21.2	21.6	21.0	20.8	19.8	19.9	20.1	20.4	20.2	20.2	20.3	20.2	20.1	20.1	20.2	19.8	21.6	20.5
Jan 26	20.1	20.1	20.1	20.0	19.9	20.0	20.1	20.1	20.0	19.3	19.3	19.2	19.4	19.7	20.1	19.9	19.4	20.0	20.1	19.8	19.7	19.7	20.0	20.0	19.2	20.1	19.8
Jan 27	20.0	20.1	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	19.4	19.3	19.2	19.0	19.2	19.3	19.2	19.8	20.0	19.7	19.8	19.9	19.9	19.9	19.0	20.1	19.7
Jan 28	20.0	20.0	19.5	19.6	19.9	20.0	19.9	19.8	19.8	19.2	19.2	19.4	20.4	20.4	21.4	22.5	22.1	22.0	21.6	21.2	20.7	20.5	20.8	20.6	19.2	22.5	20.4
Jan 29	20.7	20.8	20.8	20.8	21.1	20.8	20.8	20.8	20.8	20.9	20.8	20.8	20.7	20.6	20.7	20.8	20.6	20.8	20.7	20.7	20.8	20.8	20.8	20.8	20.6	21.1	20.8
Jan 30	20.8	20.8	20.8	20.8	20.9	20.9	20.8	20.8	20.8	20.6	20.8	20.8	21.5	21.9	19.7	19.7	20.1	20.4	20.5	20.5	19.9	19.7	19.9	19.8	19.7	21.9	20.5
Jan 31	19.5	19.2	19.2	19.0	19.2	19.5	19.8	19.5	19.3	19.0	19.5	20.2	20.5	20.4	20.4	20.5	20.2	19.9	19.6	19.2	19.0	19.1	19.1	19.0	19.0	20.5	19.6
Diurnal Maximum	22.8	22.8	22.8	22.8	22.9	22.8	22.8	22.8	22.7	22.7	22.7	22.5	22.7	22.6	22.8	22.8	22.9	22.8	22.9	22.9	22.7	22.8	22.8	22.8	22.8	22.8	22.8
Diurnal Average	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.7	20.7	20.7	20.7	20.8	20.7	20.8	20.9	20.9	20.9	21.0	20.9	20.8	20.8	20.8	20.8	20.8	20.5	19.6

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per days is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Lakeland Industry & Community Association

St. Lina Site - January 2024  
Summary of Hourly Averages

PRECIPITATION in mm

Maximum Hourly Value:	0.3 mm	on Jan 12 at hr 23	Hours in Service:	744
Maximum Daily Value:	1.7 mm	on Jan 21	Hours of Data:	637
Minimum Hourly Value:	0.0 mm	on Jan 1 at hr 0	Hours of Missing Data:	106
Minimum Daily Value:	0.0 mm	on Jan 1	Hours of Calibration:	1
Monthly Total:	2.6 mm		Operational Uptime:	85.8

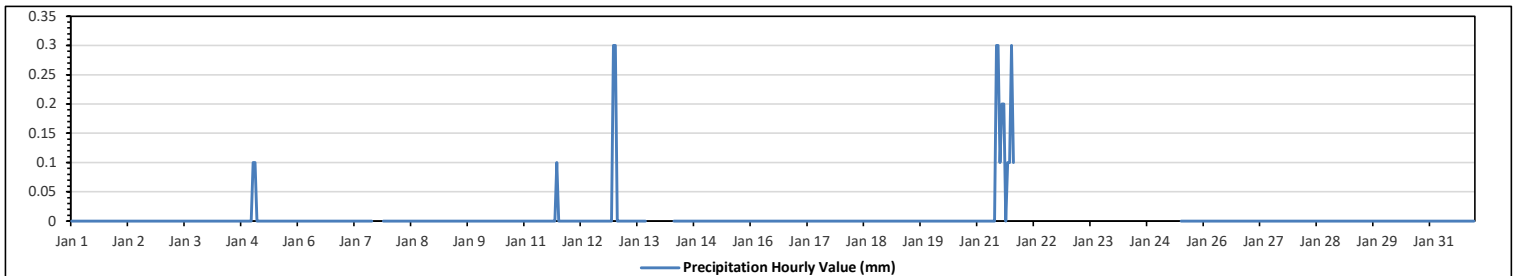
  

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Total	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Jan 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 5	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.2
Jan 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	P	P	P	P	P	0	0	0.0	0.0	0.0
Jan 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0.0	0.1	0.1
Jan 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.0	0.3	0.3
Jan 13	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.3	NA
Jan 14	K	K	K	K	K	K	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	NA
Jan 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 21	0	0	0	0	0	0	0	0	0	0	0.3	0.3	0.1	0.2	0.2	0	0.1	0.1	0.3	0.1	X	X	X	X	0.0	0.3	1.7
Jan 22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 25	X	X	X	X	X	X	X	X	X	X	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	NA
Jan 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Diurnal Maximum	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.1	0.2	0.2	0.0	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.3		
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Lakeland Industry & Community Association

St. Lina Site - January 2024

Summary of Hourly Averages

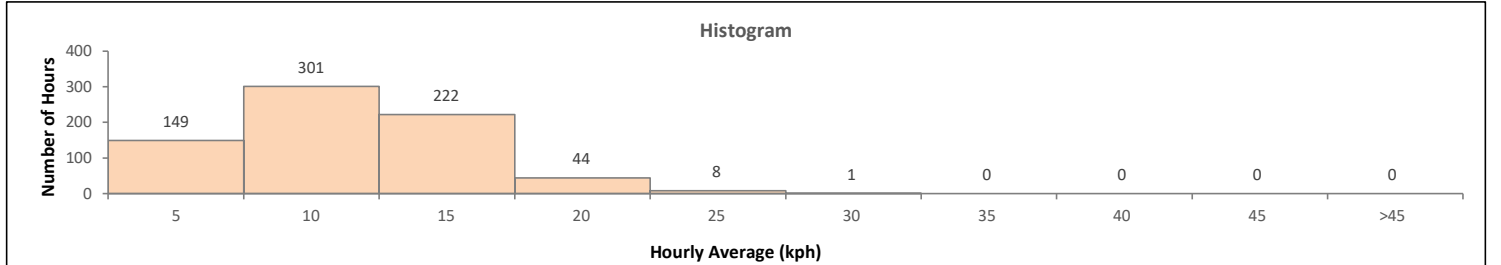
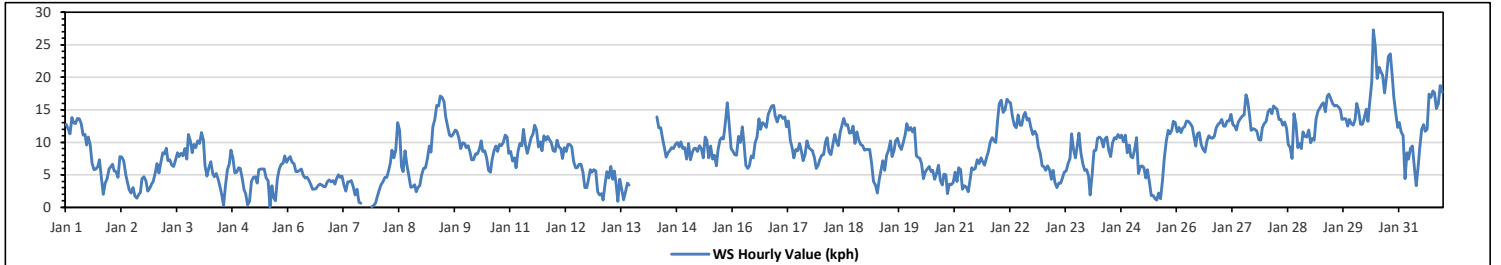
VECTOR WIND SPEED (VWS) in km/hr

Maximum Hourly Value:	27.3 kph	on Jan 30 at hr 10	Hours in Service:	744
Maximum Daily Value:	17.9 kph	on Jan 30	Hours of Data:	725
Minimum Hourly Value:	0.1 kph	on Jan 5 at hr 14	Hours of Missing Data:	19
Minimum Daily Value:	2.9 kph	on Jan 7	Hours of Calibration:	0
Monthly Average:	1.8 kph		Operational Uptime:	97.4

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23			
Jan 1	12.8	12.1	11.3	13.8	13.0	12.9	13.7	13.6	12.9	11.1	11.2	9.6	10.8	9.7	6.8	5.8	5.9	6.3	7.3	4.6	2.0	3.7	4.4	5.9	2.0	13.8	9.2			
Jan 2	6.3	6.6	5.6	5.5	4.6	7.8	7.7	7.1	5.1	4.0	2.7	2.2	3.0	1.7	1.4	1.9	2.3	4.4	4.7	4.1	2.5	2.9	3.6	4.0	1.4	7.8	4.2			
Jan 3	5.2	6.7	5.3	6.9	8.4	8.2	9.1	7.2	7.3	6.5	6.3	7.3	8.4	7.8	8.3	7.9	9.0	7.4	11.2	10.2	8.4	9.7	9.2	10.2	5.2	11.2	8.0			
Jan 4	9.8	11.5	10.3	6.4	4.8	6.1	7.0	5.2	4.7	5.2	4.3	3.3	2.0	0.3	3.4	5.8	6.7	8.8	7.6	5.3	5.4	6.1	6.0	4.5	0.3	11.5	5.9			
Jan 5	2.7	2.1	0.4	0.9	4.0	4.6	4.7	3.7	5.8	5.9	5.9	5.9	4.5	4.1	0.1	3.3	1.5	1.0	4.4	5.9	6.6	6.8	7.9	6.9	0.1	7.9	4.2			
Jan 6	7.5	7.8	6.9	6.7	5.5	5.5	5.7	5.9	4.9	4.5	4.6	4.1	3.6	2.8	2.8	2.9	3.3	3.6	3.4	3.2	3.2	3.9	4.2	3.9	2.8	7.8	4.6			
Jan 7	4.1	3.6	4.4	5.0	4.6	4.8	3.4	2.5	3.9	3.9	4.1	3.2	1.9	2.8	0.8	0.6		P	P	P	P	0.1	0.3	0.7	0.1	5.0	2.9			
Jan 8	1.6	2.6	3.5	3.9	4.6	4.6	5.7	6.8	8.8	7.6	8.8	13.0	11.8	6.2	5.5	8.7	6.5	4.8	3.1	3.2	3.5	2.4	3.0	3.3	1.6	13.0	5.6			
Jan 9	5.0	6.0	6.1	7.5	9.4	8.5	12.4	13.5	15.7	15.6	17.1	16.9	16.2	13.9	12.5	11.1	10.9	11.3	11.9	11.7	10.7	9.0	9.9	9.8	5.0	17.1	11.4			
Jan 10	9.2	9.5	8.5	7.3	7.3	8.2	8.2	8.9	10.2	8.6	8.7	7.6	5.7	5.4	7.3	8.7	9.4	8.6	9.7	9.5	10.0	11.1	10.8	8.3	5.4	11.1	8.6			
Jan 11	8.6	7.1	7.6	6.1	8.6	9.8	9.5	12.0	9.7	8.3	9.5	10.7	11.3	12.6	11.9	9.3	10.1	8.7	11.0	10.3	10.9	10.4	10.0	8.7	6.1	12.6	9.7			
Jan 12	8.6	10.3	9.3	9.0	7.5	9.2	8.6	9.7	9.7	9.3	7.0	6.1	6.1	6.6	6.6	5.4	3.0	3.0	4.2	5.8	5.4	5.8	5.6	2.4	2.4	10.3	6.8			
Jan 13	1.9	2.1	1.1	3.6	5.5	4.5	6.3	4.3	5.6	3.5	0.9	4.3	2.8	1.2	2.4	3.7	3.4		K	K	K	K	K	K	K	0.9	6.3	NA		
Jan 14	K	K	K	K	K	K	K	K	K	K	13.9	12.2	12.2	12.2	10.5	9.0	7.7	8.4	8.7	9.2	9.0	9.7	10.0	9.3	10.1	9.0	9.2	7.4	13.9	NA
Jan 15	9.8	7.3	8.5	9.0	9.1	8.6	9.5	9.0	7.6	10.8	10.3	7.6	9.4	7.4	8.0	6.4	8.8	10.3	10.7	10.5	13.0	16.1	12.8	9.0	6.4	16.1	9.6	6.6		
Jan 16	8.6	8.1	8.0	10.9	10.0	12.4	10.0	6.5	6.0	6.4	7.9	7.6	9.9	10.8	13.6	12.0	13.0	12.8	12.3	14.3	14.9	15.6	15.7	14.0	6.0	15.7	10.9	10.9		
Jan 17	13.1	14.1	14.1	13.7	13.9	12.4	13.3	10.3	9.1	7.6	8.9	8.7	9.8	8.8	7.2	8.1	10.2	9.2	8.9	8.7	7.7	6.0	6.5	7.3	6.0	14.1	9.9	9.9		
Jan 18	8.0	8.1	10.1	10.7	8.5	8.1	9.7	11.2	10.0	9.5	11.6	12.7	13.7	12.6	12.7	11.4	11.5	12.5	9.8	11.6	10.3	9.7	9.5	8.8	8.0	13.7	10.5	10.5		
Jan 19	8.9	8.9	8.9	6.8	4.0	3.4	2.2	4.3	5.6	7.2	5.7	8.0	8.8	10.2	7.8	8.7	10.2	10.6	9.4	8.9	10.0	11.2	12.9	11.8	2.2	12.9	8.1	8.1		
Jan 20	12.3	11.6	12.2	7.9	7.7	7.5	6.7	4.4	5.5	5.9	6.3	5.5	5.7	4.3	5.2	6.5	4.1	3.4	5.1	5.0	2.1	3.6	3.5	3.8	2.1	12.3	6.1	6.1		
Jan 21	5.4	4.0	6.1	5.8	2.8	3.3	3.1	2.4	4.0	6.1	5.8	6.0	7.3	6.7	7.6	6.9	6.5	7.6	8.6	10.1	10.7	10.2	10.0	13.5	2.4	13.5	6.7	6.7		
Jan 22	15.9	16.5	14.6	15.0	16.6	16.2	16.1	14.0	12.6	12.2	14.2	12.6	12.6	14.1	14.6	13.4	13.7	12.2	11.2	11.7	11.1	9.3	8.3	6.4	6.4	16.6	13.1	13.1		
Jan 23	6.2	5.7	6.4	5.8	4.3	5.7	3.8	3.0	3.7	3.7	4.6	5.4	5.6	6.7	7.5	11.3	8.9	7.6	9.6	11.4	8.4	6.7	5.7	5.8	3.0	11.4	6.4	6.4		
Jan 24	4.8	1.9	4.9	8.7	8.8	10.6	10.8	10.5	9.3	10.5	10.8	8.8	7.8	9.9	10.7	10.5	11.2	10.7	11.1	10.1	11.1	8.4	9.6	7.8	1.9	11.2	9.1	9.1		
Jan 25	7.6	8.9	10.7	5.2	6.3	6.4	6.1	4.5	5.8	3.9	1.8	1.8	1.3	1.1	2.2	1.3	4.1	7.7	10.2	11.8	11.3	11.8	13.2	13.0	1.1	13.2	6.6	6.6		
Jan 26	11.6	12.3	11.5	12.2	12.4	13.3	13.2	12.9	12.4	10.7	9.4	11.3	11.5	9.7	8.9	8.5	10.2	11.0	10.7	10.6	10.9	12.2	12.8	13.0	8.5	13.3	11.4	11.4		
Jan 27	13.5	12.5	12.5	13.3	13.3	14.3	12.7	12.5	11.9	13.1	13.6	14.0	14.2	17.3	16.5	14.2	11.8	12.1	12.0	11.7	10.4	10.3	12.2	12.9	10.3	17.3	13.0	13.0		
Jan 28	13.2	14.7	15.1	14.4	15.6	15.3	15.1	13.5	13.5	12.6	13.1	12.1	9.7	9.2	7.5	14.4	12.9	9.2	9.8	9.0	11.6	10.9	10.8	11.9	7.5	15.6	12.3	12.3		
Jan 29	9.9	10.6	10.3	13.6	14.8	15.3	15.8	16.1	14.7	17.1	17.4	16.7	15.9	15.6	15.7	15.4	15.0	13.5	13.6	13.6	12.5	13.5	12.9	12.6	9.9	17.4	14.3	14.3		
Jan 30	13.5	16.0	14.8	12.8	12.8	13.8	15.1	13.2	16.3	19.3	27.3	24.7	19.8	21.5	20.8	20.3	17.6	20.1	23.2	23.6	20.2	16.9	14.5	12.3	12.3	27.3	17.9	17.9		
Jan 31	13.0	11.6	11.0	4.4	8.4	7.4	9.1	9.4	6.2	3.3	6.3	9.2	12.0	12.7	11.7	12.0	17.4	16.9	17.9	17.6	15.2	15.9	18.7	17.7	3.3	18.7	11.9	11.9		
Diurnal Maximum	15.9	16.5	15.1	15.0	16.6	16.2	16.1	16.1	16.3	19.3	27.3	24.7	19.8	21.5	20.8	20.3	17.6	20.1	23.2	23.6	20.2	16.9	14.5	12.3	12.3	27.3	17.9	17.9		
Diurnal Average	8.6	8.7	8.7	8.4	8.6	9.0	9.1	8.8	8.7	8.6	8.9	8.9	8.9	8.7	8.5	8.3	8.6	8.9	9.1	9.7	9.8	9.3	9.0	9.1	8.6	8.6	8.6	8.6		

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
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Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

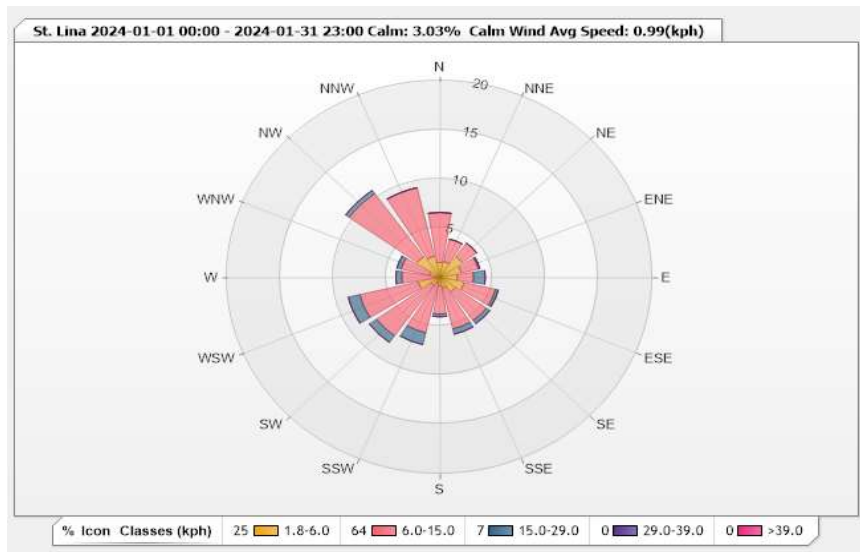


**Station: St. Lina Monitor: WDS [kph] Monthly: 01-2024**

Type: Wind Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm (WS<1.8kph): 3.03%      Valid Data: 97.45%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	1.52	5.1	0	0	0	6.62
NNE	1.66	2.34	0	0	0	4
NE	2.62	1.66	0	0	0	4.28
ENE	2.07	1.66	0.14	0	0	3.87
E	1.66	1.52	1.1	0	0	4.28
ESE	2.34	3.03	0.28	0	0	5.65
SE	1.79	3.59	0.41	0	0	5.79
SSE	1.1	4.28	0.55	0	0	5.93
S	0.83	2.9	0.28	0	0	4.01
SSW	0.55	5.24	1.24	0	0	7.03
SW	0.97	6.34	0.83	0	0	8.14
WSW	2.07	5.66	1.1	0	0	8.83
W	0.41	3.17	0.55	0	0	4.13
WNW	0.97	2.76	0.41	0	0	4.14
NW	2.62	7.86	0.41	0	0	10.89
NNW	2.21	7.17	0	0	0	9.38
Summary	25.39	64.28	7.3	0	0	96.97



Lakeland Industry & Community Association

St. Lina Site - January 2024

Summary of Hourly Averages

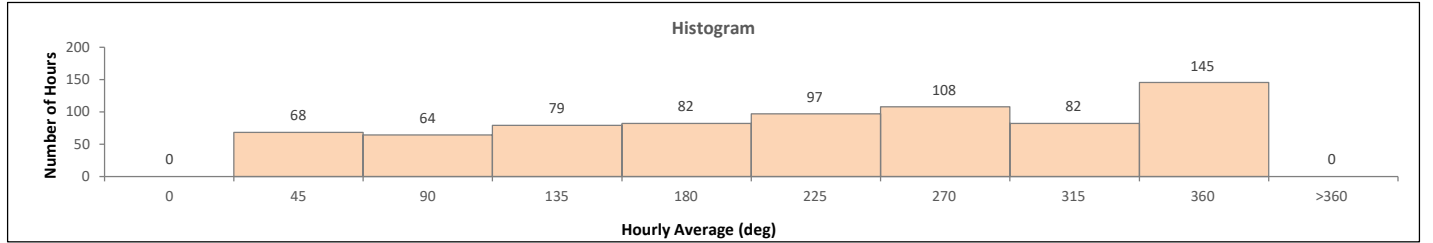
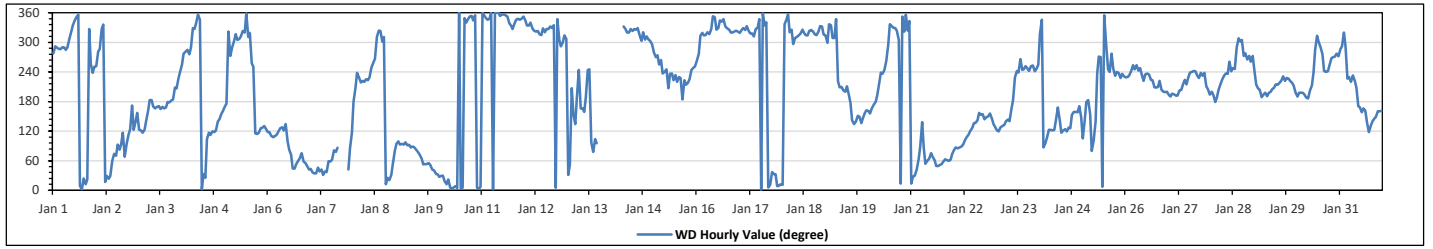
WIND DIRECTION (VWD) in sector

Monthly Average:	253 (WSW) degree	Hours in Service:	744
		Hours of Data:	725
		Hours of Missing Data:	19
		Hours of Calibration:	0
		Operational Uptime:	97.4

Day	Hourly Period Starting at (MST)																							Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant
Jan 1	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	NW	NW	NNW	NNW	N	N	N	NNE	NNE	NNE	NW	WSW	SW	WSW	308	NW	
Jan 2	WSW	W	WNW	NW	NNW	NNE	NNE	NNE	NNE	ENE	ENE	ENE	E	E	E	ESE	ENE	E	ESE	ESE	S	ESE	SE	SSE	47	NE
Jan 3	ESE	ESE	ESE	ESE	SE	SSE	S	S	SSE	SSE	SSE	S	SSE	SSE	SSE	S	S	S	S	SSW	SSW	SW	WSW	175	S	
Jan 4	WSW	W	W	WNW	W	WNW	NNW	NW	NNW	N	NNW	N	NNE	NNE	ESE	ESE	ESE	ESE	ESE	SE	SE	SSE	SSE	265	W	
Jan 5	SSE	S	NW	W	WNW	WNW	NW	WNW	NW	NW	NW	NW	N	NW	NW	WSW	WSW	ESE	ESE	ESE	SE	SE	ESE	314	NW	
Jan 6	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	ESE	SE	E	E	ENE	NE	NE	NE	ENE	ENE	ENE	NE	NE	NE	96	E	
Jan 7	NE	NE	NE	NE	NE	NE	NE	NNE	NE	NE	ENE	ENE	ENE	E	ENE	E	P	P	P	P	P	NE	E	ESE	46	NE
Jan 8	S	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	W	NW	NW	NW	NNW	NNW	NNE	NNE	NE	E	265	W
Jan 9	E	E	E	E	E	E	E	E	E	E	E	E	ENE	ENE	ENE	NE	NE	NE	NE	NE	NE	NNE	NNE	72	ENE	
Jan 10	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	N	N	N	N	N	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	4	N
Jan 11	N	N	NNW	NNW	NNW	N	N	N	N	N	N	N	N	N	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	351	N
Jan 12	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NW	NNW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	325	NW
Jan 13	NNE	NE	SSW	SSE	SE	S	WSW	SSE	SSE	S	WSW	WSW	E	ENE	ESE	E	K	K	K	K	K	K	K	K	NA	NA
Jan 14	K	K	K	K	K	K	K	NNW	NW	NW	NW	NW	NW	NW	NNW	NW	WNW	NW	NW	NW	NW	WNW	WNW	NA	NA	NA
Jan 15	W	W	W	WSW	W	WSW	WSW	SSW	SW	SW	SW	SW	SW	SW	SW	S	SW	SSW	SW	SW	WSW	WSW	WSW	237	SW	
Jan 16	W	W	NW	NW	NW	NW	NW	NW	NW	N	N	NW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NW	324	NW	
Jan 17	NW	NW	NNW	NW	NNW	NW	NW	NW	NW	NNW	NNW	N	N	NNW	NNW	N	NNE	NE	NNE	NNE	N	N	NNE	343	NNW	
Jan 18	NNE	NNW	NNW	N	NW	NW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	NNW	NW	323	NW	
Jan 19	NW	WNW	NNW	NNW	NW	NNW	SW	SSW	SSW	SSW	SSW	S	S	SE	SE	SE	SSE	SSE	SE	SE	SSE	SSE	178	S		
Jan 20	SSE	SSE	SSE	S	S	SSW	SSW	WSW	WSW	WSW	W	WNW	NNW	NNW	NNW	NNW	NW	WNW	NNE	N	NW	N	NW	239	WSW	
Jan 21	NNE	NNE	NNE	NE	ENE	E	SE	E	NE	ENE	ENE	ENE	ENE	NE	NE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	59	ENE	
Jan 22	E	E	E	E	E	E	E	ESE	ESE	ESE	SE	SE	SE	SE	SSE	SSE	SE	SE	SSE	SSE	SE	SE	SE	121	ESE	
Jan 23	ESE	ESE	SE	SE	SE	SE	SE	SSE	S	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	221	SW	
Jan 24	NW	NNW	E	E	ESE	ESE	ESE	ESE	ESE	SE	SSE	SE	ESE	ESE	ESE	SE	SE	SSE	SSE	SSE	SSE	S	SE	134	SE	
Jan 25	ESE	SE	S	S	SSE	E	E	SE	SW	W	W	N	WNW	WSW	WSW	W	WSW	SW	WSW	SW	SW	SW	SW	213	SSW	
Jan 26	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	SSW	SSW	SSW	SW	SSW	SSW	SSW	SSW	227	SW	
Jan 27	S	S	SSW	SSW	S	S	SSW	SSW	SSW	SW	SSW	SW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SSW	SSW	217	SW	
Jan 28	SSW	S	S	S	SSW	SW	SW	SW	SW	W	WSW	WSW	WSW	WSW	WNW	NW	WNW	W	W	W	W	W	W	243	WSW	
Jan 29	WSW	SSW	SSW	SSW	S	S	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	SW	SW	SSW	SSW	210	SSW	
Jan 30	S	SSW	SSW	SSW	S	S	SSW	SSW	WSW	WNW	NW	WNW	WNW	W	WSW	WSW	WSW	WSW	W	W	W	W	W	249	WSW	
Jan 31	WNW	WNW	NW	WNW	SW	SW	SW	SW	SW	SSW	S	SSE	SSE	SSE	SE	ESE	SE	SE	SSE	SSE	SSE	SSE	SSE	170	SSE	

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	Invalid Data (Machine Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Lakeland Industry & Community Association

St. Lina Site - January 2024

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr & WIND DIRECTION (VWD) in sector

WIND SPEED		WIND DIRECTION																																										
Maximum Hourly Value:	27.3 kph on Jan 30 at hr 10	Hours in Service:	744																																									
Maximum Daily Value:	17.9 kph on Jan 30	Hours of Data:	725																																									
Minimum Hourly Value:	0.1 kph on Jan 5 at hr 14	Hours of Missing Data:	19																																									
Minimum Daily Value:	2.9 kph on Jan 7	Hours of Calibration:	0																																									
Monthly Average:	1.8 kph	Operational Uptime:	97.4																																									
WIND DIRECTION		WIND DIRECTION																																										
Monthly Average:	253 degree (WSW)																																											
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average																		
Jan 1	12.8	12.1	11.3	13.8	13.0	12.9	13.7	13.6	12.9	11.1	11.2	9.6	10.8	9.7	6.8	5.8	5.9	6.3	7.3	4.6	2.0	3.7	4.4	5.9	2.0	13.8	9.2																	
Jan 2	6.3	6.6	5.6	5.5	4.6	7.8	7.7	7.1	5.1	4.0	2.7	2.2	3.0	1.7	1.4	1.9	2.3	4.4	4.7	4.1	2.5	2.9	3.6	4.0	1.4	7.8	4.2																	
Jan 3	5.2	6.7	5.3	6.9	8.4	8.2	9.1	7.2	7.3	6.5	6.3	7.3	8.4	7.8	8.3	7.9	9.0	7.4	11.2	10.2	8.4	9.7	9.2	10.2	5.2	11.2	8.0																	
Jan 4	9.8	11.5	10.3	6.4	4.8	6.1	7.0	5.2	4.7	5.2	4.3	3.3	2.0	0.3	3.4	5.8	6.7	8.8	7.6	5.3	5.4	6.1	6.0	4.5	0.3	11.5	5.9																	
Jan 5	2.7	2.1	0.4	0.9	4.0	4.6	4.7	3.7	5.8	5.9	5.9	4.5	4.1	0.1	3.3	1.5	1.0	4.4	5.9	6.6	6.8	7.9	6.9	0.1	7.9	4.2																		
Jan 6	5.2	5.7	5.3	6.9	8.4	8.2	9.1	7.2	7.3	6.5	6.3	7.3	8.4	7.8	8.3	7.9	9.0	7.4	11.2	10.2	8.4	9.7	9.2	10.2	2.8	7.8	4.6																	
Jan 7	4.1	3.6	4.4	5.0	4.6	4.8	3.4	2.5	3.9	3.9	4.1	3.2	1.9	2.8	0.8	0.6	P	P	P	P	P	0.1	0.3	0.7	0.1	5.0	2.9																	
Jan 8	1.6	2.6	3.5	3.9	4.6	4.6	5.7	6.8	8.8	7.6	8.8	13.0	11.8	6.2	5.5	8.7	6.5	4.8	3.1	3.2	3.5	2.4	3.0	3.3	1.6	13.0	5.6																	
Jan 9	5.0	6.0	6.1	7.5	9.4	8.5	12.4	13.5	15.7	15.6	17.1	16.9	16.2	13.9	12.5	11.1	10.9	11.3	11.9	11.7	10.7	9.0	9.9	9.8	5.0	17.1	11.4																	
Jan 10	9.2	9.5	8.5	7.3	7.3	8.2	8.2	8.9	10.2	8.6	8.7	7.6	5.7	5.4	7.3	8.7	9.4	8.6	9.7	9.5	10.0	11.1	10.8	8.3	5.4	11.1	8.6																	
Jan 11	8.6	7.1	7.6	6.1	8.6	9.8	9.5	12.0	9.7	8.3	9.5	10.7	11.3	12.6	11.9	9.3	10.1	8.7	11.0	10.3	10.9	10.4	10.0	8.7	6.1	12.6	9.7																	
Jan 12	8.6	10.3	9.3	9.0	7.5	9.2	8.6	9.7	9.7	9.3	7.0	6.1	6.1	6.6	6.6	5.4	3.0	3.0	4.2	5.8	5.4	5.8	5.6	2.4	2.4	10.3	6.8																	
Jan 13	1.9	2.1	1.1	3.6	5.5	4.5	6.3	4.3	5.6	3.5	0.9	4.3	2.8	1.2	2.4	3.7	3.4	K	K	K	K	K	K	K	0.9	6.3	NA																	
Jan 14	K	K	K	K	K	K	K	K	13.9	12.2	12.2	10.5	9.0	7.7	8.4	8.7	9.2	9.0	9.7	10.0	9.3	10.1	9.0	9.2	7.4	7.4	13.9	NA																
Jan 15	9.8	7.3	8.5	9.0	9.1	8.6	9.5	9.0	7.6	10.8	10.3	7.6	9.4	7.4	8.0	6.4	8.8	10.3	10.7	10.5	13.0	16.1	12.8	9.0	6.4	16.1	9.6																	
Jan 16	8.6	8.1	8.0	10.9	10.0	12.4	10.0	6.5	6.0	6.4	7.9	7.6	9.9	10.8	13.6	12.0	13.0	12.8	12.3	14.3	14.9	15.6	15.7	14.0	6.0	15.7	10.9																	
Jan 17	13.1	14.1	14.1	13.7	13.9	12.4	13.3	10.3	9.1	7.6	8.9	8.7	9.8	8.8	7.2	8.1	10.2	9.2	8.9	8.7	7.7	6.0	6.5	7.3	6.0	14.1	9.9																	
Jan 18	8.0	8.1	10.1	10.7	8.5	8.1	9.7	11.2	10.0	9.5	11.6	12.7	13.7	12.6	12.7	11.4	11.5	12.5	9.8	11.6	10.3	9.7	9.5	8.8	8.0	13.7	10.5																	
Jan 19	8.9	8.9	8.9	6.8	4.0	3.4	2.2	4.3	5.6	7.2	5.7	8.0	8.8	10.2	7.8	8.7	10.2	10.6	9.4	8.9	10.0	11.2	12.9	11.8	2.2	12.9	8.1																	
Jan 20	12.3	11.6	12.2	7.9	7.7	7.5	6.7	4.4	5.5	5.9	6.3	5.5	5.7	4.3	5.2	6.5	4.1	3.4	5.1	5.0	2.1	3.6	3.5	3.8	2.1	12.3	6.1																	
Jan 21	SSE	SSE	SSE	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	2.1	12.3	6.1																	
Jan 22	15.9	16.5	14.6	15.0	16.6	16.2	16.1	14.0	12.6	12.2	14.2	12.6	12.6	14.1	14.6	13.4	13.7	12.2	11.2	11.7	11.1	9.3	8.3	6.4	6.4	16.6	13.1																	
Jan 23	6.2	5.7	6.4	5.8	4.3	5.7	3.8	3.0	3.7	3.7	4.6	5.4	5.6	6.7	7.5	11.3	8.9	7.6	9.6	11.4	8.4	6.7	5.7	5.8	3.0	11.4	6.4																	
Jan 24	4.8	1.9	4.9	8.7	8.8	10.6	10.8	10.5	9.3	10.5	10.8	8.8	7.8	9.9	10.7	10.5	11.2	10.7	11.1	10.1	11.1	8.4	9.6	7.8	1.9	11.2	9.1																	
Jan 25	7.6	8.9	10.7	5.2	6.3	6.4	6.1	4.5	5.8	3.9	1.8	1.8	1.3	1.1	2.2	1.3	4.1	7.7	10.2	11.8	11.3	11.8	13.2	13.0	1.1	13.2	6.6																	
Jan 26	11.6	12.3	11.5	12.2	12.4	13.3	13.2	12.9	12.4	10.7	9.4	11.3	11.5	9.7	8.9	8.5	10.2	11.0	10.7	10.6	10.9	12.2	12.8	13.0	8.5	13.3	11.4																	
Jan 27	13.5	12.5	12.5	13.3	13.3	14.3	12.7	12.5	11.9	13.1	13.6	14.0	14.2	17.3	16.5	14.2	11.8	12.1	12.0	11.7	10.4	10.3	12.2	12.9	10.3	17.3	13.0																	
Jan 28	13.2	14.7	15.1	14.4	15.6	15.3	15.1	13.5	13.5	12.6	13.1	12.1	9.7	9.2	7.5	14.4	12.9	9.2	9.8	9.0	11.6	10.9	10.8	11.9	7.5	15.6	12.3																	
Jan 29	9.9	10.6	10.3	13.6	14.8	15.3	15.8	16.1	14.7	17.1	17.4	16.7	15.9	15.6	15.7	15.4	15.0	13.5	13.6	13.6	12.5	13.5	12.9	12.6	9.9	17.4	14.3																	
Jan 30	13.5	16.0	14.8	12.8	12.8	13.8	15.1	13.2	16.3	19.3	27.3	24.7	19.8	21.5	20.8	20.3	17.6	20.1	23.2	23.6	20.2	16.9	14.5	12.3	12.3	27.3	17.9																	
Jan 31	13.0	11.6	11.0	4.4	8.4	7.4	9.1	9.4	6.2	3.3	6.3	9.2	12.0	12.7	11.7	12.0	17.4	16.9	17.9	17.6	15.2	15.9	18.7	17.7	3.3	18.7	11.9																	
	WNW	WNW	NW	WNW	SW	SW	SW	SW	SW	SSW	S	SSE	SSE	SSE	SSE	SE	ESE	SE	SE	SSE	SSE	SSE	SSE	SSE			170(SSE)																	
C	Monthly Calibration											S Daily Zero-Span Check											Q Quality Assurance																					
K	Collection Error											ND No Data (Machine Not in Service)											Y Routine Maintenance											P Power Failure										
X	InValid Data (Equipment Malfunction /Recovery)											NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																																

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

**Lakeland Industry & Community Association**  
**St. Lina Site - January 2024**  
**Summary of Hour Standard Deviations**

**STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree**

Maximum Hourly Value: 61 degree on Jan 4 at hr 13		Hours in Service: 744	
Minimum Hourly Value: 2 degree on Jan 1 at hr 3		Hours of Data: 725	
		Hours of Missing Data: 19	
		Hours of Calibration: 0	
		Operational Uptime: 97.4	

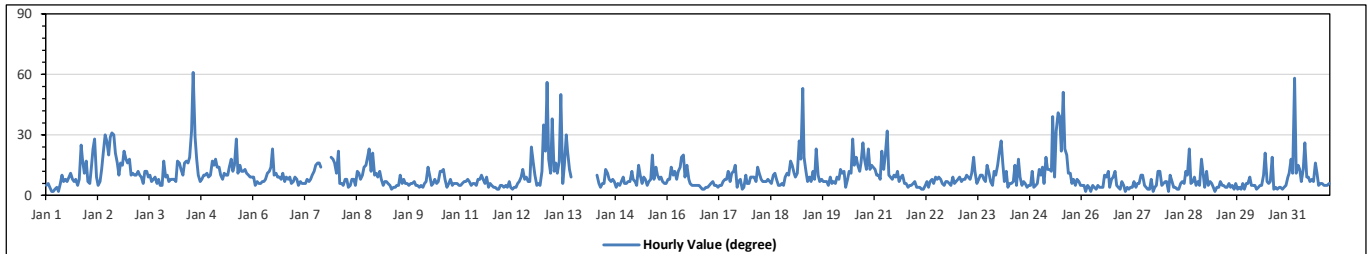
  

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			23	
Jan 1	5	6	4	2	2	3	4	2	6	10	7	8	7	9	11	8	7	8	5	8	25	18	11	17	2	25	
Jan 2	7	6	14	23	28	9	5	7	13	21	30	27	20	29	31	30	21	16	10	16	15	22	18	16	5	31	
Jan 3	18	10	11	10	10	12	10	9	6	12	12	9	10	7	8	9	6	8	5	5	17	9	10	7	5	18	
Jan 4	8	8	8	7	17	16	13	10	16	17	16	19	32	61	29	18	10	7	8	10	10	11	9	10	7	61	
Jan 5	17	15	18	14	14	10	8	11	10	10	14	18	12	15	28	11	15	12	12	13	11	10	9	9	8	28	
Jan 6	9	5	7	6	6	7	7	8	11	12	14	23	10	11	9	9	8	11	7	9	8	9	6	7	5	23	
Jan 7	9	8	5	7	6	6	6	8	7	8	10	12	15	16	16	14	P	P	P	P	P	19	18	16	5	19	
Jan 8	11	22	6	6	5	8	8	4	5	8	8	5	12	11	8	10	14	15	19	23	12	21	10	11	4	23	
Jan 9	9	12	8	5	7	7	6	5	3	4	4	5	5	10	6	8	6	6	5	6	6	7	5	5	3	12	
Jan 10	4	5	4	6	7	14	10	5	6	8	6	7	12	12	13	8	4	6	8	5	6	6	6	5	4	14	
Jan 11	5	6	7	7	8	7	5	6	6	5	8	8	10	8	6	9	4	6	5	4	4	3	3	5	3	10	
Jan 12	5	4	5	4	7	4	3	4	4	6	7	9	13	8	9	7	7	24	16	10	5	6	5	12	3	24	
Jan 13	35	22	56	18	11	38	12	16	11	17	50	6	15	30	22	13	9	K	K	K	K	K	K	K	K	6	56
Jan 14	K	K	K	K	K	K	K	K	10	6	4	6	6	13	11	8	7	8	7	4	6	5	7	9	6	4	13
Jan 15	6	7	7	12	8	7	5	15	10	6	9	8	5	7	8	20	8	14	10	8	9	7	6	6	5	20	
Jan 16	8	8	14	10	12	8	12	14	19	20	9	15	8	6	5	5	5	5	4	3	3	4	4	4	3	20	
Jan 17	5	6	7	5	5	4	5	5	7	8	8	12	7	11	12	15	4	7	8	3	4	10	6	6	3	15	
Jan 18	9	9	9	7	14	11	8	7	7	7	8	7	6	10	11	8	5	5	6	5	9	11	10	17	5	17	
Jan 19	15	11	9	11	27	18	53	19	12	7	9	7	12	8	23	10	7	8	7	7	7	5	9	6	5	53	
Jan 20	7	6	9	8	13	11	12	4	8	12	11	28	15	19	15	12	16	26	18	13	23	13	15	14	4	28	
Jan 21	13	10	10	8	22	13	20	32	10	9	8	10	9	12	7	9	10	6	6	4	5	5	6	7	4	32	
Jan 22	4	4	4	3	3	5	7	4	7	8	6	9	8	9	8	6	5	7	7	6	5	9	6	7	3	9	
Jan 23	8	9	7	8	8	10	9	8	11	19	12	6	8	10	10	8	7	15	11	7	5	12	10	15	5	19	
Jan 24	21	27	16	7	12	4	6	6	7	15	5	18	9	5	7	6	4	5	5	12	4	5	6	13	4	27	
Jan 25	10	14	6	19	13	13	12	39	9	32	41	39	22	51	23	20	11	11	6	8	5	8	7	5	5	51	
Jan 26	5	5	2	5	4	2	5	4	3	5	4	4	4	10	9	12	4	8	9	12	5	4	3	7	2	12	
Jan 27	5	2	4	3	4	4	7	4	6	6	10	10	5	4	3	3	8	2	4	5	12	12	5	6	2	12	
Jan 28	7	7	2	10	7	4	4	3	3	6	7	6	12	10	23	6	7	9	5	7	5	18	11	4	2	23	
Jan 29	12	5	7	6	4	2	4	4	7	5	5	4	4	6	4	5	3	6	3	4	3	6	3	6	2	12	
Jan 30	6	9	5	5	5	3	4	5	5	10	21	7	6	7	19	3	4	3	4	4	3	4	5	9	3	21	
Jan 31	11	18	11	58	11	15	13	7	13	26	9	9	7	8	7	16	11	5	6	6	5	5	5	6	5	58	
Diurnal Minimum	4	2	2	2	2	2	3	2	3	4	4	4	4	4	3	3	3	2	3	3	3	3	3	3	3	4	
Diurnal Maximum	35	27	56	58	28	38	53	39	19	32	50	39	32	61	31	30	21	26	19	23	25	22	18	17			

C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	ND No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Machine Malfunction/Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



**LAC LA BICHE STATION**

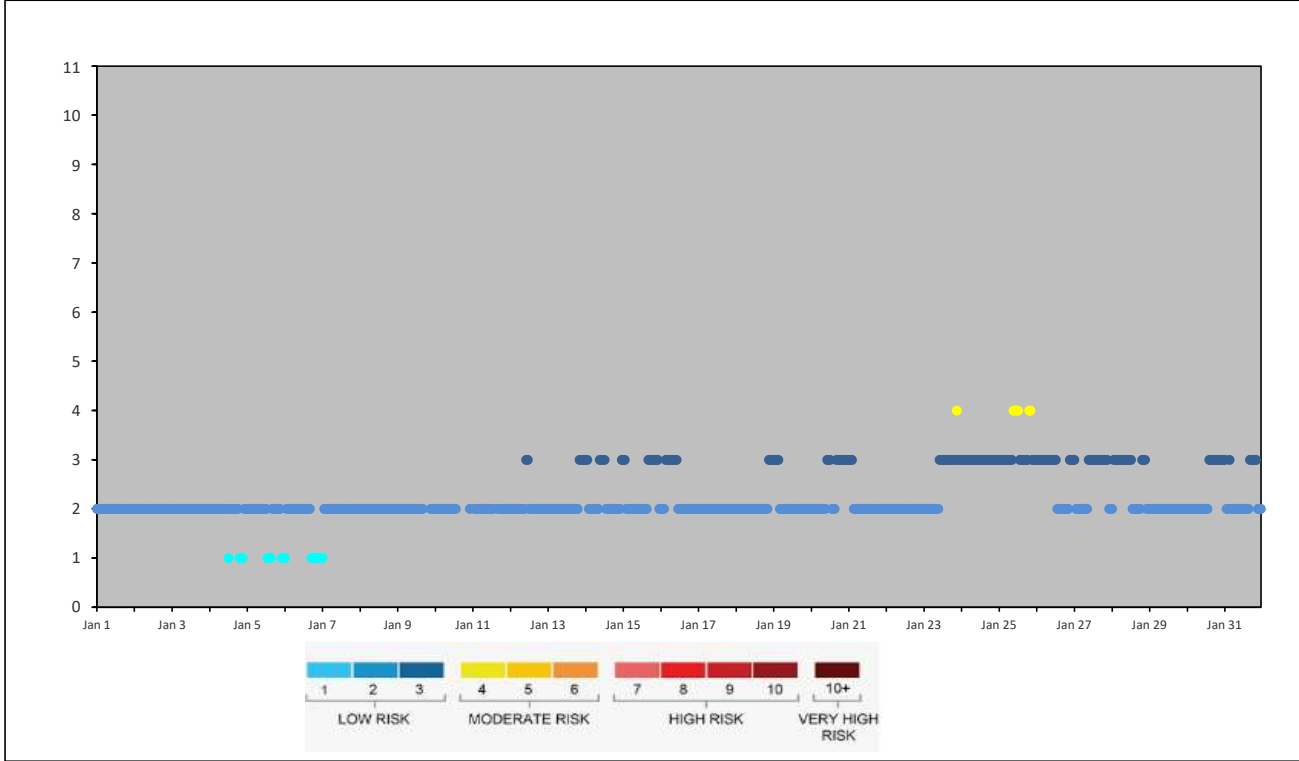


# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - January 2024

## AIR QUALITY HEALTH INDEX

Day	Hourly Period Starting at (MST)																							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan 1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 4	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	1	1	1	2	2
Jan 5	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2	2	2	2	2	2	1	1
Jan 6	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2
Jan 7	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 12	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2
Jan 13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
Jan 14	3	3	2	2	2	2	2	2	2	3	3	3	3	2	2	2	2	2	2	2	2	2	2	3
Jan 15	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	2
Jan 16	2	2	2	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3
Jan 19	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 20	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	2	3	3	3	3	3	3	3	3
Jan 21	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 23	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	4	3	3
Jan 24	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Jan 25	3	3	3	3	3	3	3	3	3	4	4	4	4	3	3	3	3	3	3	4	4	3	3	3
Jan 26	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	3	3	3
Jan 27	3	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2
Jan 28	2	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	3	3	2	2
Jan 29	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Jan 30	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Jan 31	3	2	2	3	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	2	2	2



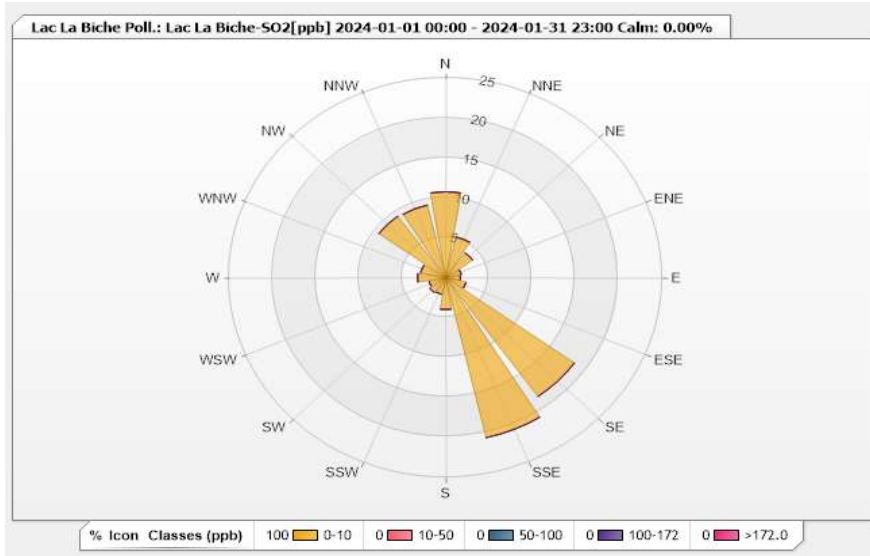


Station: Lac La Biche Poll.: Lac La Biche-SO2[ppb] Monthly: 01-2024

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 94.89%      Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	10.76	0	0	0	0	10.76
NNE	5.24	0	0	0	0	5.24
NE	3.82	0	0	0	0	3.82
ENE	1.84	0	0	0	0	1.84
E	1.7	0	0	0	0	1.7
ESE	2.41	0	0	0	0	2.41
SE	18.27	0	0	0	0	18.27
SSE	20.54	0	0	0	0	20.54
S	3.97	0	0	0	0	3.97
SSW	2.12	0	0	0	0	2.12
SW	2.27	0	0	0	0	2.27
WSW	1.98	0	0	0	0	1.98
W	3.26	0	0	0	0	3.26
WNW	2.97	0	0	0	0	2.97
NW	9.49	0	0	0	0	9.49
NNW	9.35	0	0	0	0	9.35
Summary	100	0	0	0	0	100

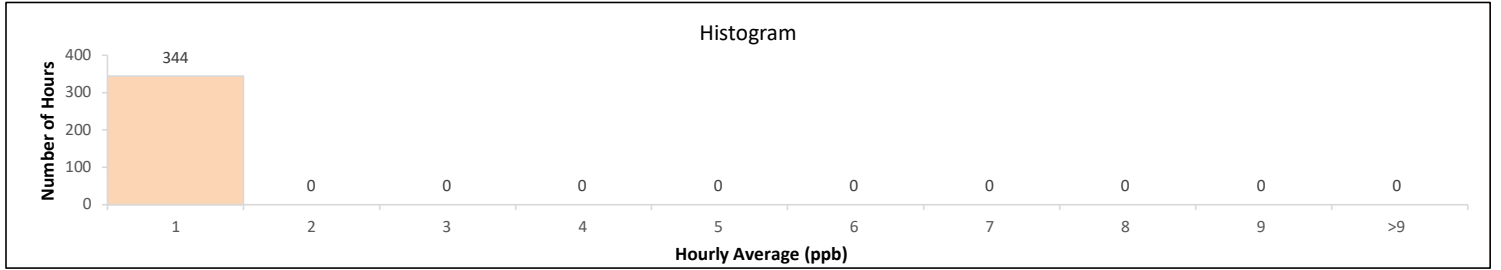
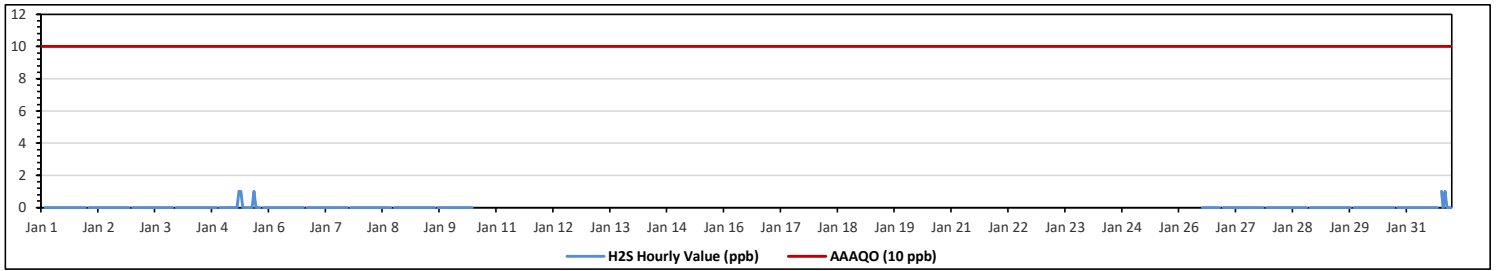


**Lakeland Industry & Community Association**  
**Lac La Biche Station - January 2024**  
**Summary of Hourly Averages**  
**HYDROGEN SULPHIDE (H<sub>2</sub>S) in ppb**

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 10 ppb, 24-Hour 3 ppb																												
Number of 1-Hour Exceedances: 0												Number of 24-Hour Exceedances: 0																
Maximum Hourly Value: 1 ppb on Jan 5 at hr 8												Hours in Service: 744																
Maximum Daily Value: 0.0 ppb on Jan 1												Hours of Data: 344																
Minimum Hourly Value: 0 ppb on Jan 1 at hr 0												Hours of Missing Data: 381																
Minimum Daily Value: 0.0 ppb on Jan 1												Hours of Calibration: 19																
Monthly Average: NA ppb												Operational Uptime: 48.8																
Day	Hourly Period Starting at (MST)																							Daily	Daily	Daily		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average	
Jan 1	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 2	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0.0
Jan 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0.0
Jan 5	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	S	0	0	0	1	0.0	
Jan 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0	
Jan 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0	
Jan 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0	
Jan 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Jan 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0	
Jan 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	NRM	NRM	NRM	NRM	NRM	X	X	X	0.0
Jan 12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Jan 13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Jan 14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Jan 15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Jan 16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Jan 17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Jan 18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Jan 19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Jan 20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Jan 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Jan 22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Jan 23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Jan 24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Jan 25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Jan 26	X	X	X	X	X	X	X	X	X	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	-
Jan 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0.0
Jan 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Diurnal Maximum	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	-

**C** Monthly Calibration      **S** Daily Zero-Span Check      **Q** Quality Assurance  
**K** Collection Error      **ND** No Data (Machine Not in Service)      **Y** Routine Maintenance  
**X** InValid Data (Equipment Malfunction /Recovery)      **NRM** UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)      **P** Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

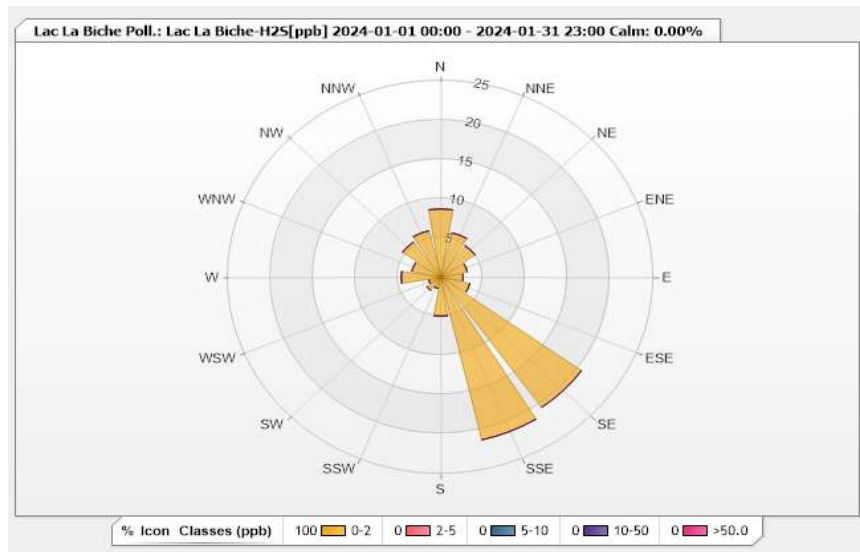


**Station: Lac La Biche Poll.: Lac La Biche-H2S[ppb] Monthly: 01-2024**

Type: Wind Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm (WS<1.8kph): 0.00%      Valid Data: 46.24%

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	8.72	0	0	0	0	8.72
NNE	5.81	0	0	0	0	5.81
NE	4.94	0	0	0	0	4.94
ENE	3.2	0	0	0	0	3.2
E	2.62	0	0	0	0	2.62
ESE	3.49	0	0	0	0	3.49
SE	20.35	0	0	0	0	20.35
SSE	21.22	0	0	0	0	21.22
S	4.94	0	0	0	0	4.94
SSW	1.45	0	0	0	0	1.45
SW	2.03	0	0	0	0	2.03
WSW	1.45	0	0	0	0	1.45
W	4.65	0	0	0	0	4.65
WNW	3.49	0	0	0	0	3.49
NW	5.52	0	0	0	0	5.52
NNW	6.1	0	0	0	0	6.1
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - January 2024

Summary of Hourly Averages

OXIDES OF NITROGEN (NOx) in ppb

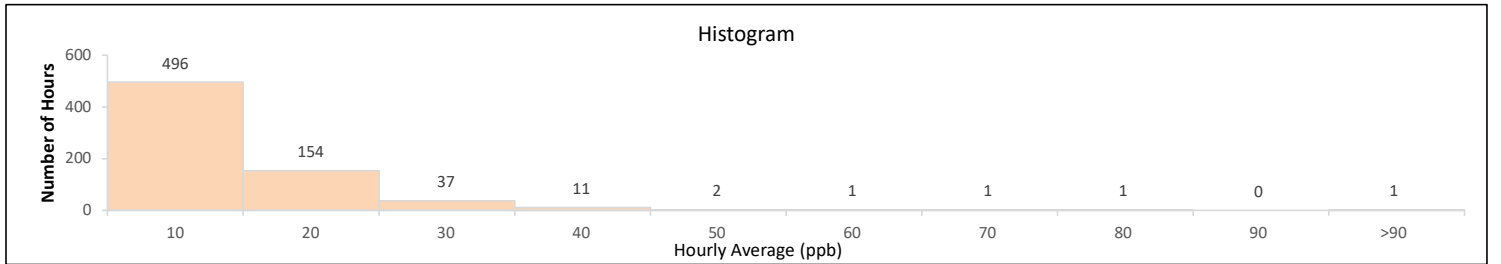
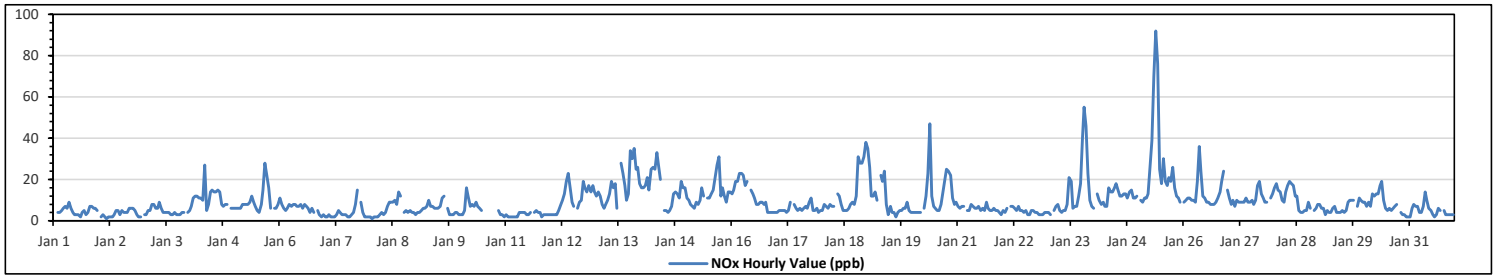
Maximum Hourly Value:	92 ppb	on Jan 25 at hr 9	Hours in Service:	744
Maximum Daily Value:	26.4 ppb	on Jan 25	Hours of Data:	704
Minimum Hourly Value:	1 ppb	on Jan 2 at hr 4	Hours of Missing Data:	0
Minimum Daily Value:	3.1 ppb	on Jan 11	Hours of Calibration:	40
Monthly Average:	9.5 ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
Jan 1	4	S	4	4	5	6	7	6	9	6	4	3	3	3	2	4	5	3	4	7	7	6	6	5	2	9	4.9		
Jan 2	S	2	3	2	1	2	2	2	3	5	5	3	5	4	4	4	6	6	6	5	3	2	2	S	1	6	3.5		
Jan 3	3	3	5	5	8	8	6	6	9	6	4	4	4	4	3	4	3	3	4	3	4	4	S	4	3	9	4.6		
Jan 4	5	7	11	12	12	11	11	10	27	5	8	14	14	15	14	15	14	8	7	8	8	S	6	6	5	27	10.8		
Jan 5	6	6	6	6	8	8	8	8	9	12	9	7	5	4	8	15	28	22	16	6	S	6	6	6	4	28	9.4		
Jan 6	11	8	6	5	6	8	7	8	8	7	7	8	6	8	7	6	4	6	4	S	5	3	2	3	2	11	6.2		
Jan 7	2	2	3	2	2	2	3	5	4	3	3	2	2	3	4	8	15	S	9	4	2	2	2	2	2	15	3.8		
Jan 8	2	1	2	2	2	3	4	3	4	7	9	9	9	10	8	14	12	S	4	5	4	5	4	4	1	14	5.5		
Jan 9	3	4	4	5	6	6	7	10	7	7	6	6	7	11	12	S	6	3	3	3	4	4	3	3	3	12	5.8		
Jan 10	3	3	5	16	12	7	8	7	9	7	6	5	C	C	C	C	C	C	C	C	5	3	3	2	2	16	NA		
Jan 11	3	2	2	2	2	2	4	4	4	4	3	3	4	S	4	5	4	4	2	3	3	3	3	2	5	3.1			
Jan 12	3	3	3	3	5	8	10	13	19	23	16	9	7	S	6	9	10	19	16	14	17	14	17	14	3	23	11.2		
Jan 13	12	14	12	8	6	8	10	13	19	16	18	6	S	S	28	23	17	10	13	34	30	35	25	26	18	6	35	17.4	
Jan 14	16	16	17	21	15	25	26	25	33	27	20	S	S	5	5	4	5	7	13	14	13	11	19	16	16	4	33	16.0	
Jan 15	11	10	8	7	6	9	8	10	16	12	S	S	11	11	13	15	21	27	31	12	16	12	9	14	14	6	31	13.2	
Jan 16	13	15	19	19	23	23	22	17	19	S	15	13	11	8	8	9	9	8	9	4	4	4	4	4	4	4	6	23	12.2
Jan 17	4	5	5	5	5	4	5	9	S	8	6	5	6	5	6	7	6	9	11	5	5	6	4	5	4	4	11	5.9	
Jan 18	5	8	7	6	8	7	7	S	13	12	8	5	5	5	6	8	9	8	12	31	28	28	31	38	5	38	12.8		
Jan 19	35	26	12	12	14	10	S	22	19	24	8	3	7	4	4	2	4	5	5	6	6	9	5	4	2	35	10.7		
Jan 20	4	4	4	4	4	S	6	12	23	47	12	7	6	5	5	8	14	20	25	24	22	11	8	9	4	47	12.3		
Jan 21	7	6	7	7	S	5	5	8	7	6	6	7	5	6	5	9	6	5	5	6	5	5	4	3	3	3	9	5.9	
Jan 22	5	4	6	S	7	7	6	5	7	5	5	4	5	3	3	5	5	4	4	3	3	3	4	4	3	7	4.7		
Jan 23	4	3	S	5	7	8	5	4	5	5	8	21	19	6	7	12	18	40	55	46	23	10	7	3	55	14.1			
Jan 24	6	S	13	10	8	9	7	7	16	14	14	16	18	15	12	12	13	13	11	14	15	11	11	12	6	18	12.0		
Jan 25	S	10	9	11	11	13	26	39	70	92	76	25	18	30	19	17	21	19	26	16	12	11	9	S	9	92	26.4		
Jan 26	9	10	11	11	10	10	9	19	36	24	12	11	9	9	8	8	9	11	14	19	24	S	15	8	36	13.3			
Jan 27	11	8	10	7	10	9	9	9	11	9	9	10	8	10	17	19	13	11	9	9	S	11	13	7	19	10.5			
Jan 28	16	18	15	14	10	9	14	17	19	18	17	12	12	5	4	4	5	9	6	S	5	6	8	4	19	10.8			
Jan 29	8	6	6	3	5	4	4	6	7	4	4	4	5	4	5	9	10	10	10	S	7	11	10	9	3	11	6.6		
Jan 30	9	7	9	7	13	12	13	13	17	19	10	6	5	6	5	6	7	8	S	4	3	3	2	2	2	19	8.1		
Jan 31	2	6	8	7	7	4	4	7	14	10	6	5	3	2	3	6	5	S	5	3	3	3	3	3	2	14	5.2		
Diurnal Maximum	35	26	19	21	23	25	26	39	70	92	76	25	19	30	23	21	28	31	40	55	46	28	31	38					
Diurnal Average	7.7	7.5	7.7	7.6	7.9	8.2	8.7	10.8	15.4	14.9	11.2	8.1	7.8	7.8	7.5	8.9	10.1	10.8	11.5	11.5	10.6	9.0	8.0	8.2					

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction/Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

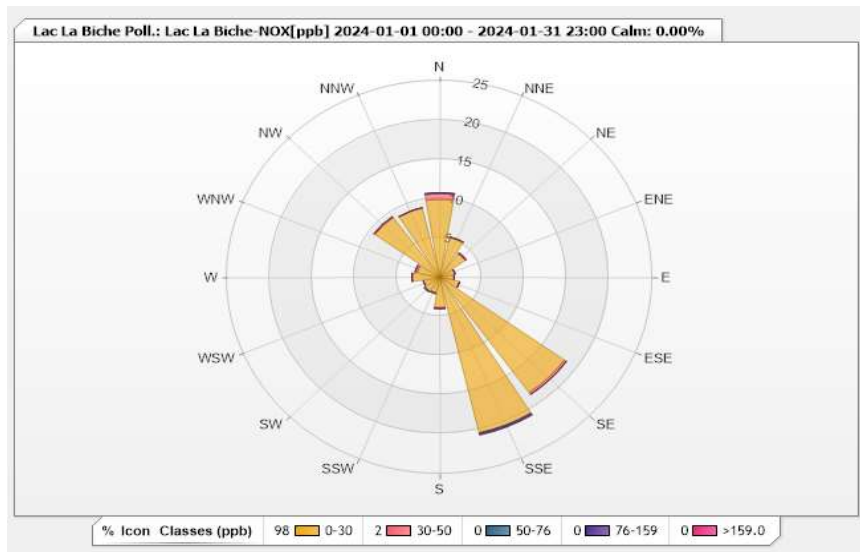


**Station: Lac La Biche Poll.: Lac La Biche-NOX[ppb] Monthly: 01-2024**

Type: Wind Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm (WS<1.8kph): 0.00%      Valid Data: 94.62%

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	9.94	0.71	0.14	0	0	10.79
NNE	5.26	0	0	0	0	5.26
NE	3.69	0.14	0	0	0	3.83
ENE	1.85	0	0	0	0	1.85
E	1.7	0	0	0	0	1.7
ESE	2.41	0	0	0	0	2.41
SE	18.04	0.28	0	0	0	18.32
SSE	20.31	0	0.14	0.14	0	20.59
S	3.84	0.14	0	0	0	3.98
SSW	1.99	0.14	0	0	0	2.13
SW	2.13	0	0.14	0	0	2.27
WSW	1.99	0	0	0	0	1.99
W	3.27	0	0	0	0	3.27
WNW	2.7	0.28	0	0	0	2.98
NW	9.38	0.14	0	0	0	9.52
NNW	9.09	0	0	0	0	9.09
Summary	97.59	1.83	0.42	0.14	0	100





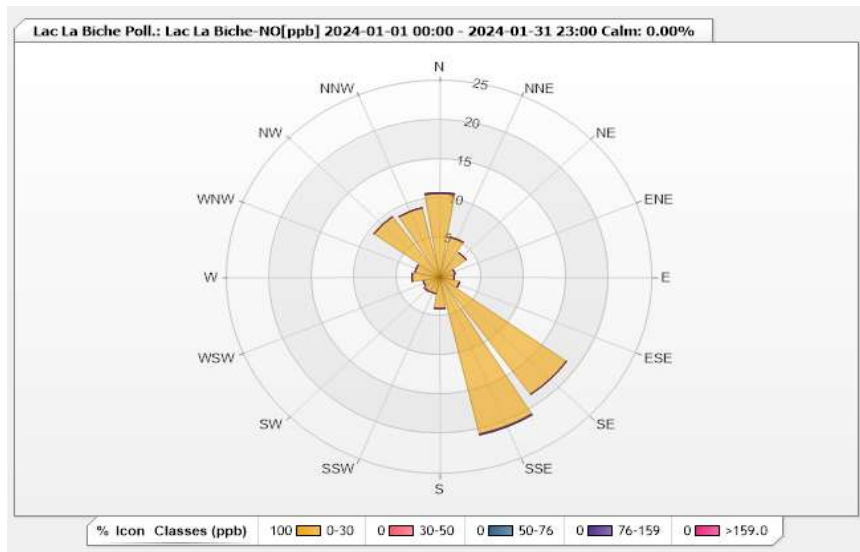


**Station: Lac La Biche Poll.: Lac La Biche-NO[ppb] Monthly: 01-2024**

Type: Wind Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm (WS<1.8kph): 0.00%      Valid Data: 94.62%

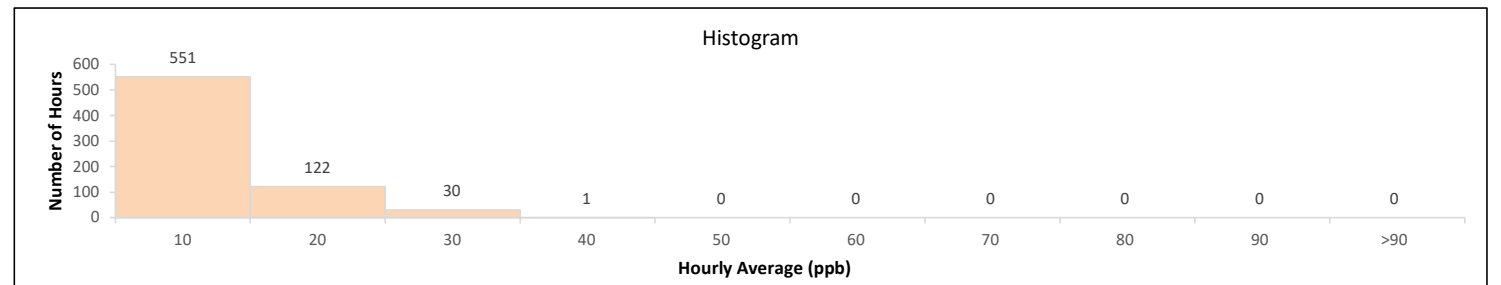
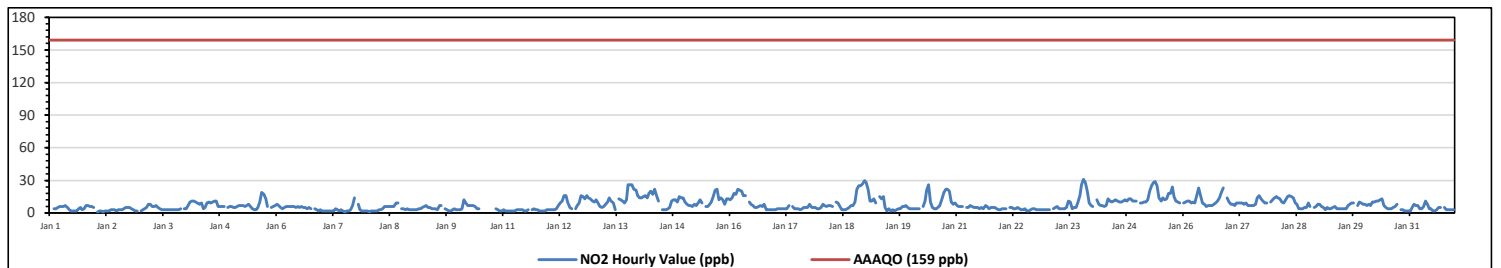
Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	10.65	0	0.14	0	0	10.79
NNE	5.26	0	0	0	0	5.26
NE	3.84	0	0	0	0	3.84
ENE	1.85	0	0	0	0	1.85
E	1.7	0	0	0	0	1.7
ESE	2.41	0	0	0	0	2.41
SE	18.32	0	0	0	0	18.32
SSE	20.45	0	0.14	0	0	20.59
S	3.98	0	0	0	0	3.98
SSW	2.13	0	0	0	0	2.13
SW	2.13	0.14	0	0	0	2.27
WSW	1.99	0	0	0	0	1.99
W	3.27	0	0	0	0	3.27
WNW	2.98	0	0	0	0	2.98
NW	9.52	0	0	0	0	9.52
NNW	9.09	0	0	0	0	9.09
Summary	100	0.14	0.28	0	0	100



**Lakeland Industry & Community Association**  
**Lac La Biche Station - January 2024**  
**Summary of Hourly Averages**  
**NITROGEN DIOXIDE (NO<sub>2</sub>) in ppb**

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb																													
Number of 1-Hour Exceedances: 0																													
Maximum Hourly Value: 31 ppb on Jan 23 at hr 19														Hours in Service: 744															
Maximum Daily Value: 15.7 ppb on Jan 25														Hours of Data: 704															
Minimum Hourly Value: 1 ppb on Jan 2 at hr 1														Hours of Missing Data: 0															
Minimum Daily Value: 2.5 ppb on Jan 11														Hours of Calibration: 40															
Monthly Average: 7.5 ppb														Operational Uptime: 100.0															
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
Jan 1	4	S	4	4	5	6	6	6	7	5	3	2	2	2	2	4	5	3	4	7	7	6	6	5	2	7	4.6		
Jan 2	S	1	2	2	1	2	2	2	3	3	3	3	3	3	3	4	5	5	5	4	3	2	2	S	1	5	2.8		
Jan 3	2	3	4	5	8	8	6	6	7	5	4	3	3	3	3	3	3	3	3	3	3	4	S	4	2	8	4.2		
Jan 4	4	7	10	11	11	10	9	8	9	4	5	9	10	9	10	11	6	6	6	6	6	S	5	6	4	11	8.0		
Jan 5	6	5	5	6	7	7	7	6	7	8	6	4	3	3	5	10	19	17	13	6	S	6	5	6	7	3	19	7.3	
Jan 6	8	7	5	4	5	6	6	6	6	6	5	6	5	6	5	5	4	5	4	S	4	3	2	3	2	8	5.0		
Jan 7	2	2	2	2	2	2	2	4	3	2	3	2	1	2	2	3	7	14	S	8	3	2	2	2	1	14	3.2		
Jan 8	2	1	2	2	2	2	3	3	4	6	6	6	6	6	9	9	S	4	4	3	4	3	3	3	1	9	4.2		
Jan 9	3	3	3	4	4	5	6	7	5	5	4	4	4	3	7	7	S	4	3	2	2	3	4	3	2	7	4.1		
Jan 10	3	3	4	12	9	7	7	7	6	4	4	C	C	C	C	C	C	C	C	C	C	4	3	2	2	12	NA		
Jan 11	3	2	2	2	2	2	2	3	3	3	2	2	3	S	3	4	3	3	2	2	2	2	2	3	2	4	2.5		
Jan 12	3	3	3	3	4	7	9	11	16	16	10	5	4	S	4	7	9	16	15	13	16	14	13	11	3	16	9.2		
Jan 13	10	12	9	6	5	6	8	10	14	11	9	3	S	13	12	11	9	12	26	26	26	22	21	16	3	26	12.9		
Jan 14	14	14	15	16	14	18	20	17	22	16	11	S	3	3	3	4	5	11	12	12	10	15	14	14	3	22	12.3		
Jan 15	10	8	7	7	6	8	7	9	12	9	S	6	6	8	10	15	21	22	12	14	12	8	13	13	6	22	10.6		
Jan 16	12	14	18	17	22	21	20	16	16	S	10	8	7	5	5	6	7	6	8	3	3	3	3	3	3	3	22	10.1	
Jan 17	3	4	4	4	4	4	4	4	7	S	6	4	4	4	3	4	5	5	8	5	5	5	4	4	3	8	4.6		
Jan 18	5	8	7	6	7	7	6	S	10	9	6	3	3	3	4	5	7	7	10	22	25	25	27	30	3	30	10.5		
Jan 19	28	22	11	11	13	9	9	S	15	13	5	2	4	2	3	2	3	4	4	6	6	7	5	4	2	28	8.4		
Jan 20	4	4	4	4	4	S	6	11	21	26	10	5	4	4	5	7	13	19	22	22	20	10	8	9	4	26	10.5		
Jan 21	7	6	6	6	S	5	5	7	6	5	5	4	5	4	7	6	4	5	5	5	5	4	3	3	3	7	5.1		
Jan 22	4	4	4	S	5	5	4	4	5	4	3	4	2	2	3	4	4	3	3	3	3	3	3	3	2	5	3.6		
Jan 23	3	3	S	4	5	6	4	4	4	5	11	10	4	5	5	10	16	26	31	28	20	9	7	3	31	9.7			
Jan 24	6	S	12	8	7	7	6	7	13	11	10	11	12	11	10	11	12	11	12	11	13	11	11	11	6	13	10.2		
Jan 25	S	9	9	10	10	12	20	25	28	29	25	14	11	14	12	13	18	18	24	15	11	10	9	S	9	29	15.7		
Jan 26	9	10	11	11	9	10	9	16	23	16	9	8	6	7	7	7	8	9	11	14	19	23	S	14	6	23	11.6		
Jan 27	10	8	8	7	9	9	9	9	8	9	7	7	7	7	8	14	16	13	11	9	6	S	10	12	7	16	9.4		
Jan 28	14	15	14	13	10	9	12	15	16	15	14	9	8	4	4	4	5	5	9	6	S	5	6	8	4	16	9.6		
Jan 29	8	6	5	3	5	4	4	5	6	4	4	4	4	4	4	7	8	9	9	S	7	10	9	8	3	10	6.0		
Jan 30	8	7	8	7	10	10	11	11	12	13	7	5	4	4	4	5	6	8	S	3	3	2	2	2	2	2	13	6.6	
Jan 31	2	5	8	7	7	4	4	6	11	8	4	4	2	2	3	5	5	S	5	3	3	3	3	3	2	11	4.7		
Diurnal Maximum	28	22	18	17	22	21	20	25	28	29	25	14	12	14	12	15	21	22	26	31	28	25	27	30					
Diurnal Average	6.8	6.8	6.9	6.8	7.1	7.3	7.5	8.8	10.6	9.3	6.8	5.4	5.0	5.0	5.4	6.7	8.4	9.3	9.9	9.5	9.0	8.1	7.1	7.3					
<b>C</b> Monthly Calibration											<b>S</b> Daily Zero-Span Check											<b>Q</b> Quality Assurance							
<b>K</b> Collection Error											<b>ND</b> No Data (Machine Not in Service)											<b>Y</b> Routine Maintenance							
<b>X</b> InValid Data (Equipment Malfunction/Recovery)											<b>NRM</b> UnitMaint (Repeat Calibration / Non-Routine Maintenance)											<b>P</b> Power Failure							

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

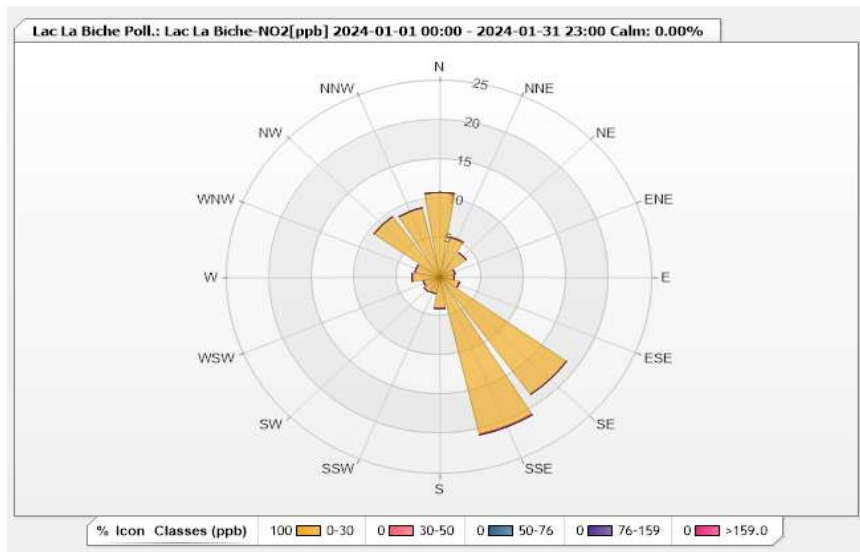


Station: Lac La Biche Poll.: Lac La Biche-NO2[ppb] Monthly: 01-2024

Type: Wind Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm (WS<1.8kph): 0.00%      Valid Data: 94.62%

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	10.8	0	0	0	0	10.8
NNE	5.26	0	0	0	0	5.26
NE	3.84	0	0	0	0	3.84
ENE	1.85	0	0	0	0	1.85
E	1.7	0	0	0	0	1.7
ESE	2.41	0	0	0	0	2.41
SE	18.32	0	0	0	0	18.32
SSE	20.45	0.14	0	0	0	20.59
S	3.98	0	0	0	0	3.98
SSW	2.13	0	0	0	0	2.13
SW	2.27	0	0	0	0	2.27
WSW	1.99	0	0	0	0	1.99
W	3.27	0	0	0	0	3.27
WNW	2.98	0	0	0	0	2.98
NW	9.52	0	0	0	0	9.52
NNW	9.09	0	0	0	0	9.09
Summary	100	0.14	0	0	0	100



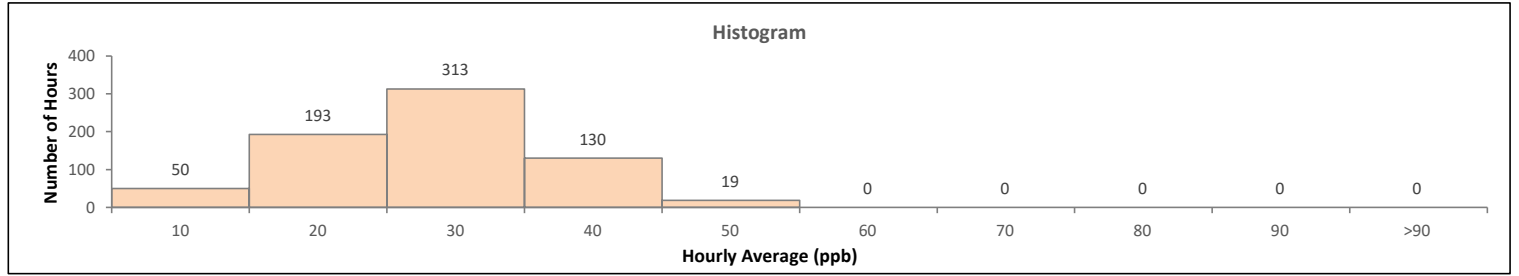
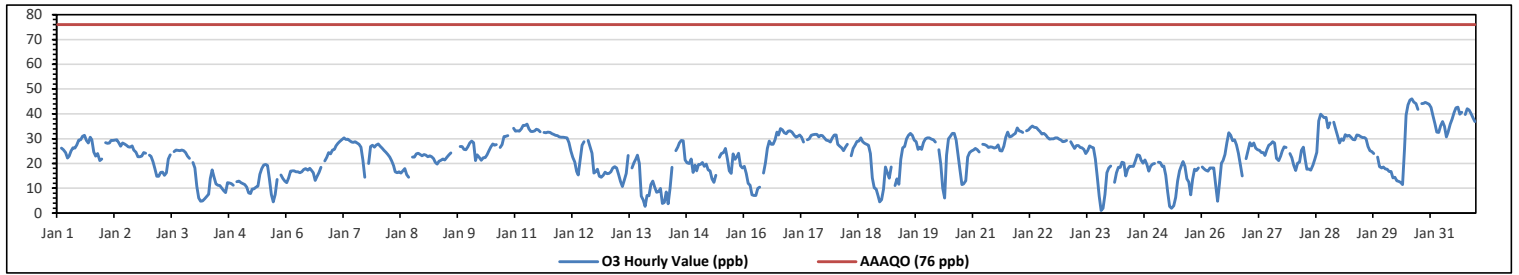
Lakeland Industry & Community Association

Lac La Biche Station - January 2024

Summary of Hourly Averages

OZONE (O<sub>3</sub>) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb																												
Number of 1-Hour Exceedances: 0																												
Maximum Hourly Value: 46.1 ppb on Jan 30 at hr 14										Hours in Service: 744																		
Maximum Daily Value: 37.9 ppb on Jan 31										Hours of Data: 705																		
Minimum Hourly Value: 1.0 ppb on Jan 23 at hr 19										Hours of Missing Data: 3																		
Minimum Daily Value: 10.6 ppb on Jan 4										Hours of Calibration: 36																		
Monthly Average: 23.4 ppb										Operational Uptime: 99.6																		
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
Jan 1	27.2	S	26.1	25.5	24.4	22.2	22.9	25	26.3	26.2	27.5	29.4	29.5	31	31.3	29.3	28.2	30.6	29.5	24.6	22.9	23.9	21.2	21.7	21.2	31.3	26.4	
Jan 2	S	28.4	28.1	28.2	29.3	29.3	29.4	29.5	28.3	26.9	28.2	27.9	27.4	26.7	26.6	27.1	25.4	24.5	22.7	22.7	22.9	24.3	24.1	S	22.7	29.5	26.7	
Jan 3	23.4	22.8	20.7	17.9	14.8	14.8	16.4	16.5	15.2	16.2	21.7	23.5	NRM	24.8	25.4	25.3	25.2	25.4	25.2	24.3	23	22	S	20.4	14.8	25.4	21.1	
Jan 4	18.2	10.9	6.1	4.7	4.8	5.8	6.7	7.6	13.8	17.4	14.4	11.7	11.1	11	10	8.9	8.3	12.2	12.1	11.8	11.1	S	12.6	12.9	4.7	18.2	10.6	
Jan 5	12.2	11.9	11.5	10.4	8.1	7.8	9.7	9.8	10.4	10.9	15.5	17.9	19.4	19.6	19.3	13.6	7.4	4.5	7.5	13.5	S	15.3	13.9	12.9	4.5	19.6	12.3	
Jan 6	12.2	14.2	16.9	17.1	17	16.6	16.6	16.3	16.6	17.5	17.9	17.3	18	17.3	16.3	13.1	14.9	16.4	18.4	S	21	22.4	24.4	23.8	12.2	24.4	17.5	
Jan 7	25.4	25.7	27.1	28.1	28.9	29.7	30.3	29.7	29.8	29.2	28.6	28.5	28.7	28.2	27.8	26.6	21.5	14.4	S	20	26.8	27.4	26.6	27.3	14.4	30.3	26.8	
Jan 8	27.9	27	26.1	25.3	24.5	23.6	22.6	21	19.1	16.6	16.2	16.6	16.1	17.1	17.9	15.4	14.4	S	22.6	22.5	23.8	24.1	23.7	23.1	14.4	27.9	21.2	
Jan 9	23.7	23.4	22.7	23.1	22.7	21.9	20.5	19.7	20.9	21.3	21.8	21.4	22.5	23.5	24.2	C	C	C	C	S	26.8	26.8	25.7	25.5	26.7	19.7	26.8	23.2
Jan 10	28.2	29	28.4	21.2	23.5	22.5	21.3	22.3	22.3	23.5	25.2	26.7	27.9	27.4	27.6	S	26.4	27.6	30.8	30.9	31.2	NRM	NRM	34.2	21.2	34.2	26.6	
Jan 11	33	33.2	33	34	35.4	35.4	35.9	33.9	32.8	32.8	33.1	33.8	33.5	32.7	S	32.5	32.3	32.6	32.5	32	31.7	31.4	31.2	30.7	30.7	35.9	33.0	
Jan 12	30.5	30.5	30.4	30.2	28.4	25	22.4	20.6	16.8	15.3	21.4	27.4	28.8	S	29.3	26.7	24.1	16.1	16.6	17.6	14.8	14.4	15.2	16.5	14.4	30.5	22.6	
Jan 13	15.8	16	16.6	18.1	18.7	18.2	15.5	12.8	10.7	13.2	15.9	23.2	S	18.1	20.2	21.7	23.4	19.9	6.8	5.3	2.7	7	6.9	11.4	2.7	23.4	14.7	
Jan 14	12.9	10.4	8.4	8.7	9.9	3.9	4.2	8.5	3.7	10.1	18.4	S	25.2	26.5	28.2	29.3	29.2	21.4	20.2	20	21.8	16.4	19.4	17.1	3.7	29.3	16.3	
Jan 15	19.5	19.6	20.4	18.9	19.7	17.4	17	13.8	12.4	15.2	S	22.4	23.9	24.4	26	21.9	17	15.9	23.8	21.6	22.8	24.1	19.1	18.2	12.4	26.0	19.8	
Jan 16	18.8	15.9	12	11.1	7.3	7	7	9.9	10.5	S	16.1	20.2	26	29	27.7	27.7	29.6	32.6	31.5	34.1	33.6	32.3	32	33	7.0	34.1	22.0	
Jan 17	33.2	32.6	31.4	30.5	31	31.5	30.6	28.6	S	29.6	29.9	31.3	31.6	31.8	31.7	30.7	31.3	31.2	30.2	29.4	29.1	28.6	30.3	31.5	28.6	33.2	30.8	
Jan 18	31.5	27.7	27	26.3	25.2	26.5	27.7	S	23.1	26	27.4	28.9	29	30.2	28.7	28.1	27.7	27.3	24	14.2	10.2	9.6	6.9	4.5	4.5	31.5	23.4	
Jan 19	5.4	9.6	18.6	16.2	14.1	18.6	S	11	13.8	11.6	21.6	26.3	26.8	29.9	31.4	32.1	31.4	29.4	28.8	25.7	26.5	25.7	28.5	29.9	5.4	32.1	22.3	
Jan 20	30.2	30.3	29.8	29.6	28.6	S	25.5	19.5	10	6	23.3	29.9	31	32.2	32.1	29.4	23.4	17.3	11.5	11.7	13	22.5	24.4	25	6.0	32.2	23.3	
Jan 21	25.4	26	25.5	24.6	S	27.7	27.6	27.2	26.4	26.7	26.5	26.1	26.4	27.5	25.2	25	27	30.5	32.6	30.7	31	31.6	32.1	34.3	24.6	34.3	28.0	
Jan 22	33.2	32.8	32.4	S	33.2	33.6	34.4	35	34.5	34.4	33.6	32.9	31.9	32.2	31.5	30.4	29.8	30	30.3	30.2	29.8	29.4	28.8	28.8	28.8	35.0	31.9	
Jan 23	28.9	29.3	S	28.7	27.3	26	27.2	27.2	26.4	26.3	25.7	24	25.1	27.1	26.5	26.3	21.7	14.6	6.8	1	2	7.4	16.2	18.2	1.0	29.3	21.3	
Jan 24	19	S	12.4	16.2	18.4	18.4	20.5	20.2	15	17.6	18.9	18.8	18.9	21	23.5	23.2	21.3	20.1	21.4	19.5	16.9	19	19.7	19.9	12.4	23.5	19.1	
Jan 25	S	20.5	20.3	18.8	19	15.2	8.5	2.7	2	2.9	6.3	12.9	17	18.8	20.8	18.8	13.7	12.5	7.3	13.6	17.6	17.2	18.1	S	2.0	20.8	13.8	
Jan 26	18.6	17.8	17.3	16.9	18.2	18.1	18.1	11.3	4.7	12.1	20.1	21.2	23.6	28.3	32.3	31.3	29.1	29.5	27.5	24.1	19.5	15	S	21.9	4.7	32.3	20.7	
Jan 27	25.2	28.3	27.1	28.2	26.2	25.6	25.3	24.3	24.3	23.2	25.6	27.4	27.9	28.8	28.2	22	21.2	22.9	25	26.7	26.4	S	23.9	22.3	21.2	28.8	25.5	
Jan 28	19.2	17.2	20.1	20.5	25.3	26.5	21.5	17.6	17.7	17.3	19.4	21.8	24.5	37.1	39.8	39.1	38.5	38.6	34.3	36.4	S	36.6	33.8	31.1	17.2	39.8	27.6	
Jan 29	28.2	29.9	29.3	31.6	31	31.3	30.5	29.7	29.5	31.5	31.4	30.8	30.4	30.4	29.9	26.8	25.2	24.8	23.9	S	22.6	18.7	18.2	18.6	18.2	31.6	27.6	
Jan 30	17.8	17.6	16.8	16.8	14.2	14.5	13	12.8	12.4	11.5	25.5	39.5	43.6	45.5	46.1	44.8	44.1	41.8	S	44.1	44.3	44.6	44.3	43.9	11.5	46.1	30.4	
Jan 31	42.6	39.2	36.1	32.6	32.5	35.2	36.9	34.9	30.7	32.4	35.9	37.9	40.5	42.5	42.7	39.9	40.7	S	39.7	42	41.5	40.2	38.5	36.9	30.7	42.7	37.9	
Diurnal Maximum	42.6	39.2	36.1	34.0	35.4	35.4	36.9	35.0	34.5	34.4	35.9	39.5	43.6	45.5	46.1	44.8	44.1	41.8	39.7	44.1	44.3	44.6	44.3	43.9	30.7	42.7	37.9	
Diurnal Average	23.7	23.4	22.6	22.0	22.1	21.7	21.5	20.0	18.7	20.0	23.1	25.3	26.4	27.4	27.6	26.4	25.1	23.7	23.0	23.3	23.0	23.5	23.6	24.0				

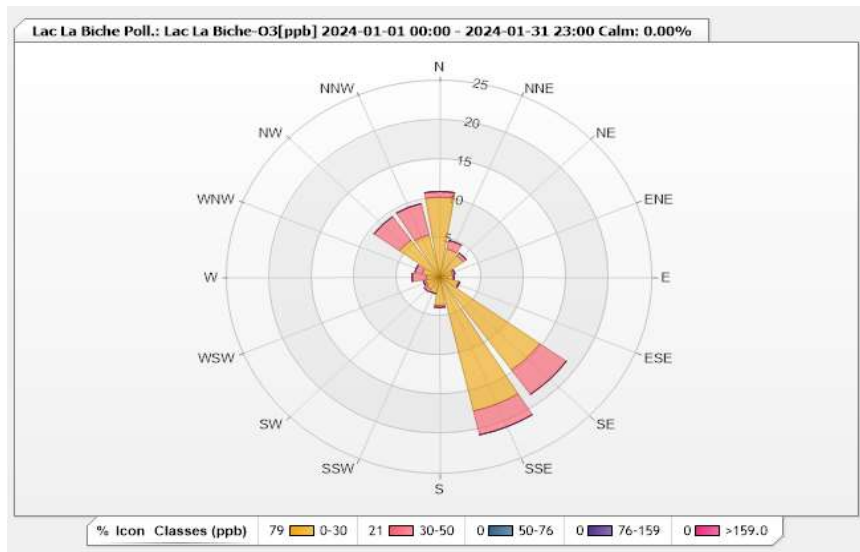


**Station: Lac La Biche Poll.: Lac La Biche-O3[ppb] Monthly: 01-2024**

Type: Wind Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm (WS<1.8kph): 0.00%      Valid Data: 94.76%

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	10.21	0.71	0	0	0	10.92
NNE	3.69	1.13	0	0	0	4.82
NE	3.4	0.43	0	0	0	3.83
ENE	1.56	0.28	0	0	0	1.84
E	1.56	0.14	0	0	0	1.7
ESE	2.27	0.14	0	0	0	2.41
SE	14.47	3.83	0	0	0	18.3
SSE	17.45	3.12	0	0	0	20.57
S	3.55	0.28	0	0	0	3.83
SSW	2.13	0	0	0	0	2.13
SW	1.84	0.43	0	0	0	2.27
WSW	1.7	0.28	0	0	0	1.98
W	1.56	1.7	0	0	0	3.26
WNW	2.13	0.85	0	0	0	2.98
NW	5.82	3.69	0	0	0	9.51
NNW	5.53	4.11	0	0	0	9.64
Summary	78.87	21.12	0	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - January 2024

Summary of Hourly Averages

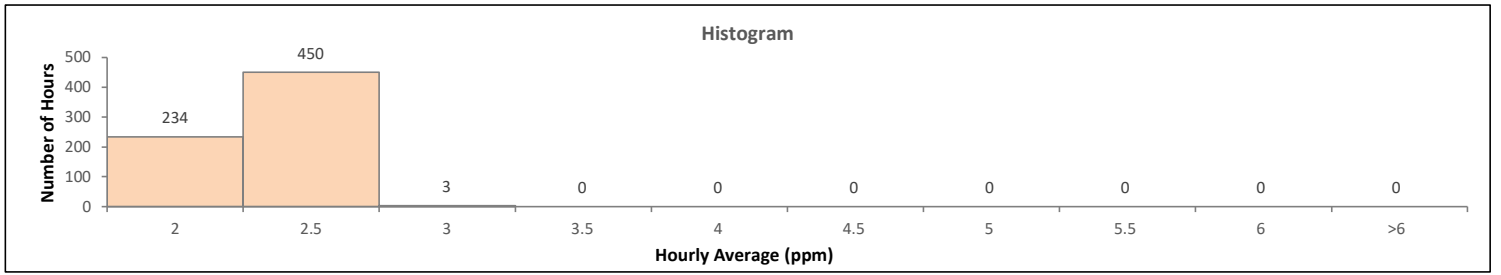
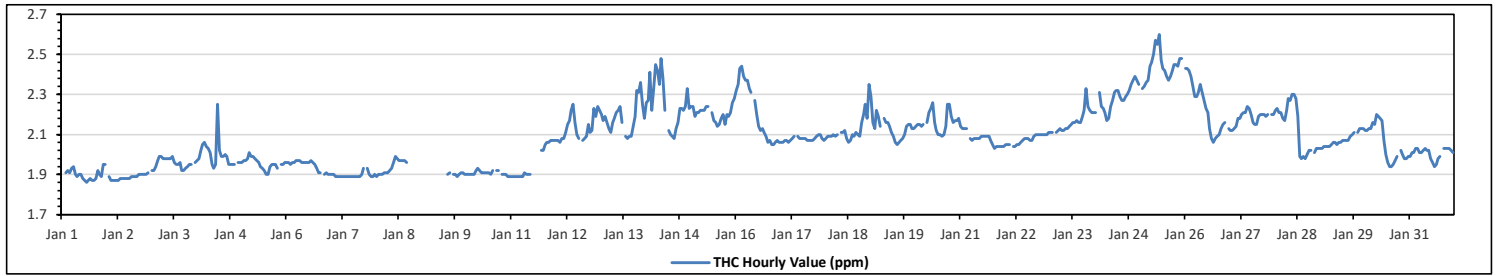
TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	2.60 ppm	on Jan 25 at hr 10	Hours in Service:	744
Maximum Daily Value:	2.44 ppm	on Jan 25	Hours of Data:	687
Minimum Hourly Value:	1.86 ppm	on Jan 1 at hr 13	Hours of Missing Data:	20
Minimum Daily Value:	1.89 ppm	on Jan 2	Hours of Calibration:	37
Monthly Average:	2.08 ppm		Operational Uptime:	97.3

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Jan 1	1.94	S	1.91	1.92	1.91	1.93	1.94	1.90	1.89	1.90	1.90	1.88	1.87	1.86	1.87	1.88	1.87	1.87	1.88	1.92	1.90	1.89	1.95	1.95	1.86	1.86	1.95	1.90
Jan 2	S	1.89	1.87	1.87	1.87	1.87	1.87	1.88	1.88	1.88	1.88	1.88	1.88	1.89	1.89	1.89	1.90	1.90	1.90	1.90	1.90	1.90	1.91	S	1.87	1.91	1.89	
Jan 3	1.92	1.92	1.94	1.97	1.99	1.99	1.98	1.98	1.98	1.98	1.98	1.99	1.96	1.95	1.95	1.96	1.92	1.92	1.93	1.94	1.95	1.95	S	1.96	1.92	1.99	1.96	
Jan 4	1.97	1.98	2.02	2.05	2.06	2.04	2.03	2.01	1.95	1.93	1.95	2.25	2.02	1.99	1.99	2.00	1.99	1.95	1.95	1.95	1.95	S	1.96	1.96	1.93	2.25	2.00	
Jan 5	1.96	1.97	1.97	1.98	2.01	1.99	1.99	1.98	1.97	1.96	1.94	1.93	1.92	1.90	1.90	1.94	1.95	1.95	1.95	1.93	S	1.95	1.95	1.96	1.90	2.01	1.95	
Jan 6	1.96	1.96	1.95	1.96	1.96	1.97	1.97	1.97	1.96	1.96	1.96	1.96	1.96	1.97	1.96	1.95	1.93	1.91	1.91	S	1.90	1.91	1.90	1.90	1.90	1.97	1.95	
Jan 7	1.90	1.90	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.90	1.93	S	1.93	1.90	1.89	1.89	1.90	1.89	1.93	1.90	
Jan 8	1.89	1.90	1.90	1.90	1.91	1.91	1.91	1.92	1.93	1.96	1.99	1.98	1.97	1.97	1.97	1.97	1.96	S	1.91	X	X	X	X	X	1.89	1.99	1.94	
Jan 9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1.90	1.91	S	1.90	1.90	1.89	1.90	1.91	1.91	1.90	1.89	1.91	NA	
Jan 10	1.90	1.90	1.90	1.90	1.90	1.92	1.93	1.92	1.91	1.91	1.91	1.91	1.91	1.90	1.92	S	1.92	1.92	NRM	1.90	1.90	1.90	1.89	1.89	1.89	1.93	1.91	
Jan 11	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.91	1.90	1.90	1.90	C	C	C	C	C	2.02	2.02	2.05	2.06	2.06	2.07	2.07	2.07	1.89	2.07	1.96	
Jan 12	2.07	2.07	2.06	2.08	2.08	2.11	2.15	2.17	2.22	2.25	2.16	2.10	2.08	S	2.07	2.08	2.09	2.15	2.11	2.12	2.23	2.19	2.24	2.22	2.06	2.25	2.13	
Jan 13	2.20	2.17	2.19	2.16	2.13	2.11	2.16	2.18	2.21	2.22	2.24	2.16	S	2.09	2.08	2.09	2.09	2.14	2.19	2.32	2.31	2.36	2.25	2.18	2.08	2.36	2.18	
Jan 14	2.26	2.27	2.41	2.22	2.33	2.45	2.42	2.35	2.48	2.38	2.22	S	2.12	2.10	2.09	2.08	2.13	2.16	2.23	2.23	2.22	2.24	2.33	2.23	2.08	2.48	2.26	
Jan 15	2.24	2.24	2.19	2.21	2.21	2.22	2.22	2.22	2.24	2.24	S	2.21	2.17	2.16	2.14	2.15	2.18	2.20	2.15	2.20	2.19	2.21	2.26	2.28	2.14	2.28	2.21	
Jan 16	2.32	2.35	2.43	2.44	2.39	2.37	2.37	2.33	2.31	S	2.27	2.20	2.14	2.12	2.13	2.11	2.09	2.06	2.07	2.05	2.05	2.06	2.07	2.06	2.05	2.44	2.21	
Jan 17	2.06	2.06	2.07	2.07	2.06	2.07	2.08	2.09	S	2.09	2.08	2.08	2.08	2.08	2.07	2.07	2.07	2.07	2.08	2.09	2.10	2.10	2.08	2.07	2.06	2.10	2.08	
Jan 18	2.08	2.09	2.09	2.09	2.10	2.09	2.10	S	2.11	2.11	2.12	2.08	2.06	2.07	2.10	2.09	2.11	2.10	2.09	2.16	2.20	2.25	2.18	2.35	2.06	2.35	2.12	
Jan 19	2.29	2.16	2.13	2.22	2.19	2.14	S	2.18	2.16	2.16	2.14	2.11	2.09	2.06	2.05	2.06	2.07	2.08	2.10	2.14	2.15	2.15	2.13	2.13	2.05	2.29	2.13	
Jan 20	2.14	2.15	2.15	2.14	2.15	S	2.16	2.21	2.23	2.26	2.16	2.12	2.10	2.10	2.09	2.10	2.14	2.25	2.25	2.19	2.16	2.17	2.18	2.18	2.09	2.26	2.16	
Jan 21	2.14	2.13	2.13	2.13	S	2.08	2.07	2.08	2.08	2.08	2.08	2.09	2.09	2.09	2.09	2.07	2.05	2.03	2.04	2.04	2.04	2.04	2.04	2.04	2.03	2.14	2.08	
Jan 22	2.05	2.05	2.05	S	2.04	2.04	2.05	2.05	2.06	2.07	2.08	2.08	2.08	2.07	2.07	2.09	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.11	2.04	2.11	2.08	
Jan 23	2.11	2.11	S	2.11	2.12	2.13	2.12	2.12	2.13	2.13	2.14	2.15	2.16	2.16	2.17	2.16	2.16	2.19	2.22	2.33	2.24	2.22	2.21	2.21	2.11	2.33	2.17	
Jan 24	2.21	S	2.31	2.24	2.23	2.21	2.17	2.18	2.24	2.27	2.31	2.32	2.32	2.29	2.27	2.27	2.29	2.30	2.32	2.35	2.37	2.39	2.37	2.35	2.17	2.39	2.29	
Jan 25	S	2.33	2.34	2.36	2.37	2.44	2.46	2.50	2.57	2.55	2.60	2.47	2.43	2.42	2.39	2.37	2.39	2.42	2.45	2.45	2.44	2.48	2.48	S	2.33	2.60	2.44	
Jan 26	2.43	2.43	2.42	2.39	2.34	2.29	2.29	2.31	2.35	2.31	2.27	2.23	2.21	2.13	2.08	2.06	2.08	2.09	2.10	2.13	2.15	2.16	S	2.13	2.06	2.43	2.23	
Jan 27	2.12	2.12	2.13	2.14	2.18	2.18	2.20	2.21	2.21	2.24	2.23	2.20	2.16	2.15	2.15	2.19	2.20	2.20	2.20	2.19	2.20	S	2.20	2.20	2.12	2.24	2.18	
Jan 28	2.22	2.23	2.21	2.21	2.18	2.17	2.22	2.28	2.27	2.30	2.30	2.28	2.19	1.99	1.98	1.99	1.98	2.00	2.02	2.02	S	2.01	2.03	2.03	1.98	2.30	2.14	
Jan 29	2.03	2.03	2.04	2.04	2.04	2.04	2.05	2.06	2.06	2.05	2.06	2.06	2.07	2.07	2.07	2.07	2.09	2.10	2.11	S	2.11	2.13	2.13	2.13	2.03	2.13	2.07	
Jan 30	2.12	2.12	2.13	2.13	2.16	2.15	2.20	2.19	2.18	2.17	2.07	2.00	1.96	1.94	1.94	1.95	1.97	1.99	S	2.02	2.00	1.98	1.98	1.99	1.94	2.20	2.06	
Jan 31	1.99	2.01	2.01	2.03	2.03	2.01	2.01	2.02	2.03	2.02	2.02	1.98	1.96	1.94	1.95	1.98	1.99	S	2.03	2.03	2.03	2.03	2.02	2.01	1.94	2.03	2.01	
Diurnal Maximum	2.43	2.43	2.43	2.44	2.39	2.45	2.46	2.50	2.57	2.55	2.60	2.47	2.43	2.42	2.39	2.37	2.39	2.42	2.45	2.45	2.44	2.48	2.48	2.48	2.48	2.48	2.35	
Diurnal Average	2.09	2.09	2.09	2.09	2.09	2.09	2.10	2.11	2.12	2.11	2.10	2.09	2.07	2.05	2.04	2.05	2.05	2.07	2.08	2.09	2.09	2.09	2.09	2.10	2.09	2.09	2.09	

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

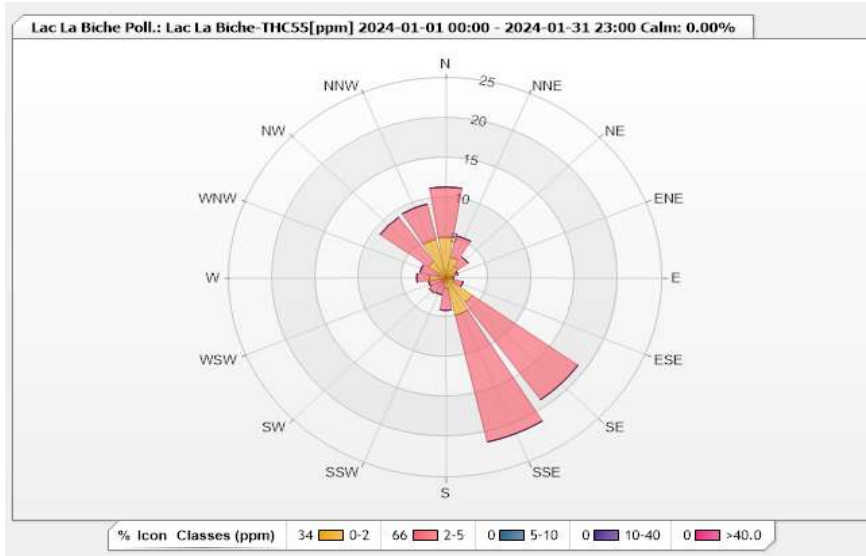


Station: Lac La Biche Poll.: Lac La Biche-THC55[ppm] Monthly: 01-2024

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 92.34%      Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	5.09	6.26	0	0	0	11.35
NNE	2.62	2.77	0	0	0	5.39
NE	1.75	1.46	0	0	0	3.21
ENE	1.16	0.29	0	0	0	1.45
E	0.44	0.44	0	0	0	0.88
ESE	1.02	1.02	0	0	0	2.04
SE	3.78	14.99	0	0	0	18.77
SSE	4.8	16.3	0	0	0	21.1
S	1.31	2.77	0	0	0	4.08
SSW	0.58	1.6	0	0	0	2.18
SW	0.58	1.75	0	0	0	2.33
WSW	0.44	1.6	0	0	0	2.04
W	1.89	1.46	0	0	0	3.35
WNW	0.87	2.18	0	0	0	3.05
NW	2.47	6.84	0	0	0	9.31
NNW	4.95	4.51	0	0	0	9.46
Summary	33.75	66.24	0	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - January 2024

Summary of Hourly Averages

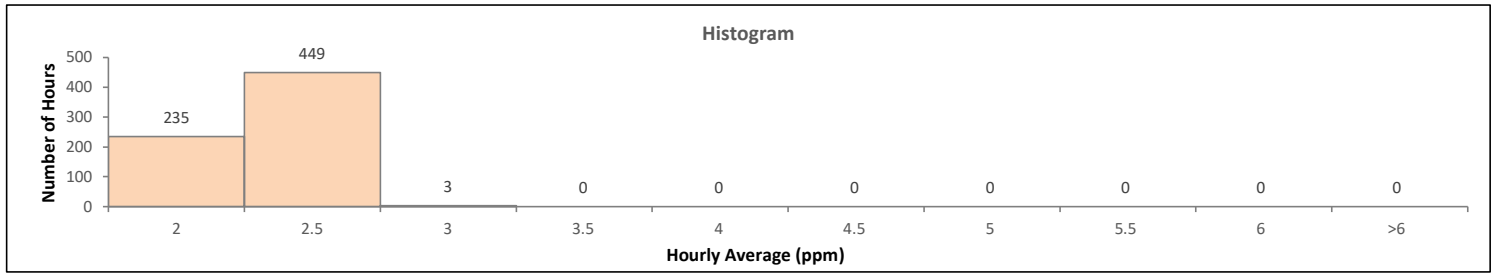
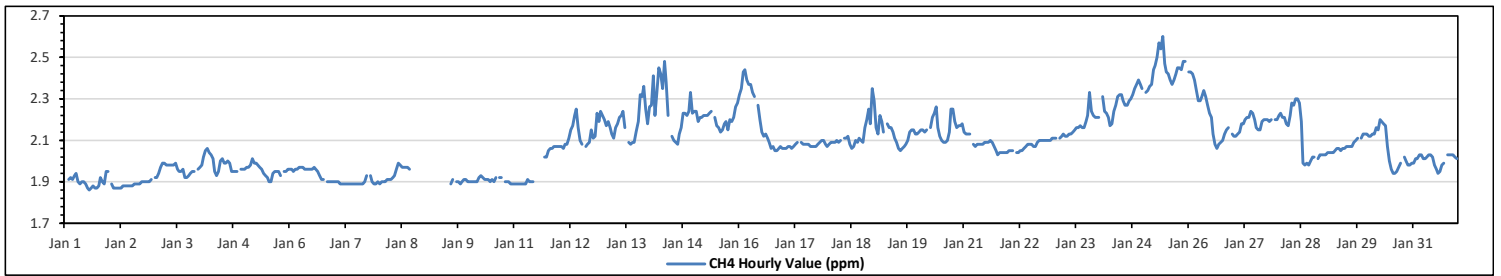
METHANE (CH4) in ppm

Maximum Hourly Value:	2.60 ppm	on Jan 25 at hr 10	Hours in Service:	744
Maximum Daily Value:	2.44 ppm	on Jan 25	Hours of Data:	687
Minimum Hourly Value:	1.86 ppm	on Jan 1 at hr 13	Hours of Missing Data:	20
Minimum Daily Value:	1.89 ppm	on Jan 2	Hours of Calibration:	37
Monthly Average:	2.08 ppm		Operational Uptime:	97.3

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Jan 1	1.94	S	1.91	1.92	1.91	1.93	1.94	1.90	1.89	1.90	1.90	1.89	1.87	1.86	1.87	1.88	1.87	1.87	1.88	1.92	1.90	1.89	1.95	1.95	1.86	1.95	1.90
Jan 2	S	1.89	1.87	1.87	1.87	1.87	1.87	1.88	1.88	1.88	1.88	1.88	1.88	1.89	1.89	1.89	1.89	1.90	1.90	1.90	1.90	1.90	1.91	S	1.87	1.91	1.89
Jan 3	1.92	1.92	1.94	1.97	1.99	1.99	1.98	1.98	1.98	1.98	1.98	1.99	1.96	1.95	1.95	1.96	1.92	1.92	1.93	1.94	1.95	1.95	S	1.96	1.92	1.99	1.96
Jan 4	1.97	1.98	2.02	2.05	2.06	2.04	2.03	2.01	1.95	1.93	1.95	2.00	2.01	1.99	1.99	2.00	1.99	1.95	1.95	1.95	1.95	S	1.96	1.96	1.93	2.06	1.99
Jan 5	1.96	1.97	1.97	1.98	2.01	1.99	1.99	1.98	1.97	1.96	1.94	1.93	1.92	1.90	1.90	1.94	1.95	1.95	1.95	1.93	S	1.95	1.95	1.96	1.90	2.01	1.95
Jan 6	1.96	1.96	1.95	1.96	1.96	1.97	1.97	1.97	1.96	1.96	1.96	1.96	1.96	1.97	1.96	1.95	1.93	1.91	1.91	S	1.90	1.90	1.90	1.90	1.90	1.97	1.94
Jan 7	1.90	1.90	1.90	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.90	1.93	S	1.93	1.90	1.89	1.89	1.90	1.89	1.93	1.90
Jan 8	1.89	1.90	1.90	1.90	1.91	1.91	1.91	1.92	1.93	1.96	1.99	1.98	1.97	1.97	1.97	1.97	1.96	S	1.91	X	X	X	X	X	1.89	1.99	1.94
Jan 9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1.89	1.91	S	1.90	1.90	1.89	1.90	1.91	1.91	1.90	1.94
Jan 10	1.90	1.90	1.90	1.90	1.90	1.92	1.93	1.92	1.91	1.91	1.91	1.91	1.91	1.90	1.92	S	1.92	1.92	NRM	1.90	1.90	1.90	1.89	1.89	1.89	1.93	1.91
Jan 11	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.91	1.90	1.90	1.90	1.90	C	C	C	C	C	2.02	2.02	2.05	2.06	2.06	2.07	2.07	2.07	2.07	1.96
Jan 12	2.07	2.07	2.06	2.08	2.08	2.11	2.15	2.17	2.22	2.25	2.16	2.10	2.08	S	2.07	2.08	2.09	2.15	2.11	2.12	2.23	2.19	2.24	2.22	2.06	2.25	2.13
Jan 13	2.20	2.17	2.19	2.16	2.13	2.11	2.16	2.18	2.21	2.22	2.24	2.16	S	2.09	2.08	2.09	2.09	2.14	2.19	2.32	2.31	2.36	2.25	2.18	2.08	2.36	2.18
Jan 14	2.26	2.27	2.41	2.22	2.33	2.45	2.42	2.35	2.48	2.38	2.22	S	2.12	2.10	2.09	2.08	2.13	2.16	2.23	2.23	2.22	2.24	2.33	2.23	2.08	2.48	2.26
Jan 15	2.24	2.24	2.19	2.21	2.21	2.22	2.22	2.22	2.23	2.24	S	2.21	2.17	2.16	2.14	2.15	2.18	2.19	2.15	2.20	2.19	2.21	2.26	2.28	2.14	2.28	2.20
Jan 16	2.32	2.35	2.43	2.44	2.39	2.37	2.37	2.33	2.31	S	2.27	2.20	2.14	2.12	2.13	2.11	2.09	2.06	2.07	2.05	2.05	2.06	2.07	2.06	2.05	2.44	2.21
Jan 17	2.06	2.06	2.07	2.07	2.06	2.07	2.08	2.09	S	2.09	2.08	2.08	2.08	2.08	2.07	2.07	2.07	2.07	2.08	2.09	2.10	2.10	2.08	2.07	2.06	2.10	2.08
Jan 18	2.08	2.09	2.09	2.09	2.10	2.09	2.10	S	2.11	2.11	2.12	2.08	2.06	2.07	2.10	2.09	2.11	2.10	2.09	2.16	2.20	2.25	2.18	2.35	2.06	2.35	2.12
Jan 19	2.29	2.16	2.13	2.22	2.19	2.14	S	2.18	2.16	2.16	2.14	2.11	2.09	2.06	2.05	2.06	2.07	2.08	2.10	2.14	2.15	2.15	2.13	2.13	2.05	2.29	2.13
Jan 20	2.14	2.15	2.15	2.14	2.15	S	2.16	2.21	2.23	2.26	2.16	2.12	2.10	2.09	2.09	2.10	2.14	2.25	2.25	2.19	2.16	2.17	2.18	2.18	2.09	2.26	2.16
Jan 21	2.14	2.13	2.13	2.13	S	2.08	2.07	2.08	2.08	2.08	2.08	2.09	2.09	2.09	2.10	2.09	2.07	2.05	2.03	2.04	2.04	2.04	2.04	2.04	2.03	2.14	2.08
Jan 22	2.05	2.05	2.05	S	2.04	2.04	2.05	2.05	2.06	2.07	2.08	2.08	2.08	2.07	2.07	2.09	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.11	2.04	2.11	2.08
Jan 23	2.11	2.11	S	2.11	2.12	2.13	2.12	2.12	2.13	2.13	2.14	2.15	2.16	2.16	2.17	2.16	2.16	2.19	2.22	2.33	2.24	2.22	2.21	2.21	2.11	2.33	2.17
Jan 24	2.21	S	2.31	2.24	2.23	2.21	2.17	2.18	2.24	2.27	2.31	2.32	2.32	2.29	2.27	2.27	2.29	2.30	2.32	2.35	2.37	2.39	2.37	2.35	2.17	2.39	2.29
Jan 25	S	2.33	2.34	2.36	2.37	2.44	2.46	2.50	2.57	2.54	2.60	2.47	2.43	2.42	2.39	2.37	2.39	2.42	2.45	2.45	2.44	2.48	2.48	S	2.33	2.60	2.44
Jan 26	2.43	2.43	2.42	2.39	2.34	2.29	2.29	2.31	2.34	2.31	2.27	2.23	2.21	2.13	2.08	2.06	2.08	2.09	2.10	2.13	2.15	2.16	S	2.13	2.06	2.43	2.23
Jan 27	2.12	2.12	2.13	2.14	2.18	2.18	2.20	2.21	2.21	2.24	2.23	2.20	2.16	2.15	2.15	2.19	2.20	2.20	2.20	2.19	2.20	S	2.20	2.20	2.12	2.24	2.18
Jan 28	2.22	2.23	2.21	2.21	2.18	2.17	2.22	2.28	2.27	2.30	2.30	2.28	2.19	1.99	1.98	1.99	1.98	2.00	2.02	2.02	S	2.01	2.03	2.03	1.98	2.30	2.14
Jan 29	2.03	2.03	2.04	2.04	2.04	2.05	2.06	2.06	2.05	2.06	2.06	2.06	2.07	2.07	2.07	2.07	2.09	2.10	2.11	S	2.11	2.13	2.13	2.13	2.03	2.13	2.07
Jan 30	2.12	2.12	2.13	2.13	2.16	2.15	2.20	2.19	2.18	2.17	2.07	2.07	2.00	1.96	1.94	1.95	1.97	1.99	S	2.02	2.00	1.98	1.98	1.99	1.94	2.20	2.06
Jan 31	1.99	2.01	2.01	2.03	2.03	2.01	2.01	2.02	2.03	2.03	2.02	1.98	1.96	1.94	1.95	1.98	1.99	S	2.03	2.03	2.03	2.03	2.02	2.01	1.94	2.03	2.01
Diurnal Maximum	2.43	2.43	2.43	2.44	2.39	2.45	2.46	2.50	2.57	2.54	2.60	2.47	2.43	2.42	2.39	2.37	2.39	2.42	2.45	2.45	2.44	2.48	2.48	2.48	2.48	2.48	2.35
Diurnal Average	2.09	2.09	2.09	2.09	2.09	2.09	2.10	2.11	2.12	2.11	2.10	2.08	2.07	2.05	2.04	2.05	2.05	2.07	2.08	2.09	2.09	2.09	2.09	2.10	2.09	2.10	2.09

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



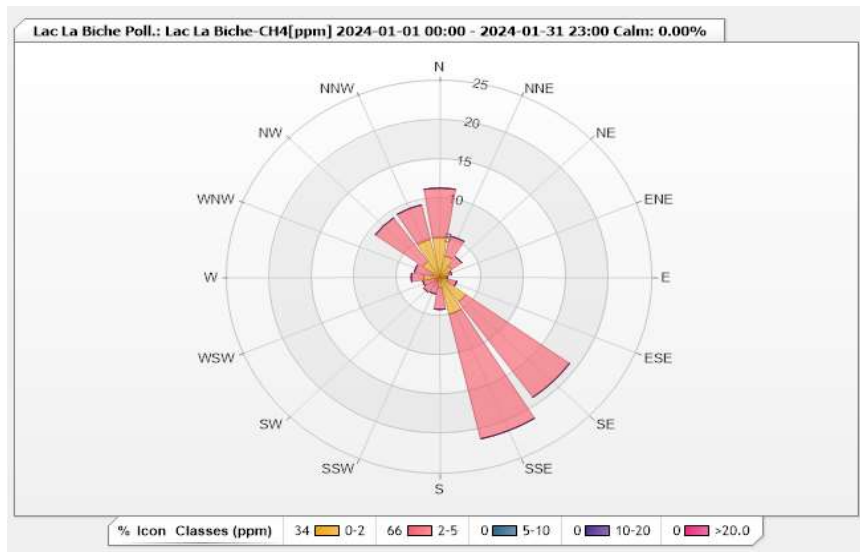


**Station: Lac La Biche Poll.: Lac La Biche-CH4[ppm] Monthly: 01-2024**

Type: Wind Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm (WS<1.8kph): 0.00%      Valid Data: 92.34%

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	5.09	6.26	0	0	0	11.35
NNE	2.77	2.62	0	0	0	5.39
NE	1.75	1.46	0	0	0	3.21
ENE	1.16	0.29	0	0	0	1.45
E	0.44	0.44	0	0	0	0.88
ESE	1.02	1.02	0	0	0	2.04
SE	3.78	14.99	0	0	0	18.77
SSE	4.8	16.3	0	0	0	21.1
S	1.31	2.77	0	0	0	4.08
SSW	0.58	1.6	0	0	0	2.18
SW	0.58	1.75	0	0	0	2.33
WSW	0.44	1.6	0	0	0	2.04
W	1.89	1.46	0	0	0	3.35
WNW	0.87	2.18	0	0	0	3.05
NW	2.47	6.84	0	0	0	9.31
NNW	4.95	4.51	0	0	0	9.46
Summary	33.9	66.09	0	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - January 2024

Summary of Hourly Averages

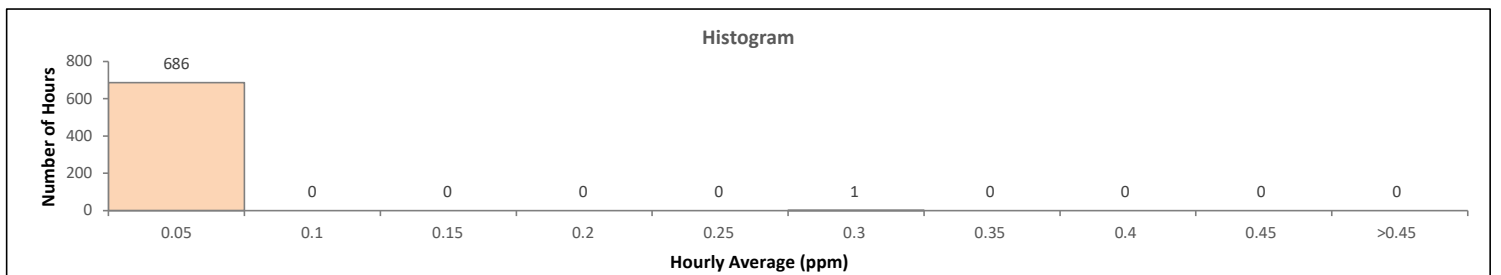
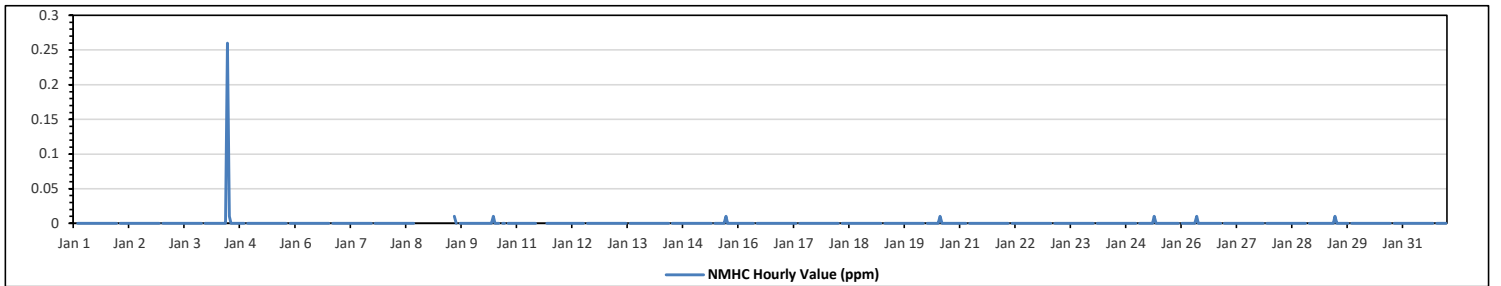
NON-METHANE HYDROCARBONS (NMHC) in ppm

Maximum Hourly Value:	0.26 ppm	on Jan 4 at hr 11	Hours in Service:	744
Maximum Daily Value:	0.01 ppm	on Jan 4	Hours of Data:	687
Minimum Hourly Value:	0.00 ppm	on Jan 1 at hr 0	Hours of Missing Data:	20
Minimum Daily Value:	0.00 ppm	on Jan 1	Hours of Calibration:	37
Monthly Average:	0.00 ppm		Operational Uptime:	97.3

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23						
Jan 1	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 2	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.01	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 19	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 20	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 21	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 22	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 23	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 24	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 25	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jan 31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Diurnal Maximum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.26	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Diurnal Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

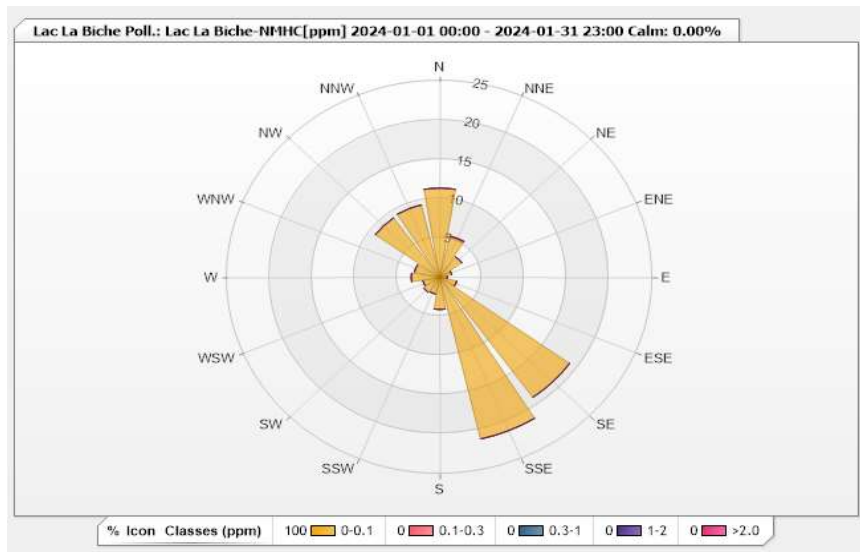


Station: Lac La Biche Poll.: Lac La Biche-NMHC[ppm] Monthly: 01-2024

Type: Wind Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm (WS<1.8kph): 0.00%      Valid Data: 92.34%

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	11.35	0	0	0	0	11.35
NNE	5.24	0.15	0	0	0	5.39
NE	3.2	0	0	0	0	3.2
ENE	1.46	0	0	0	0	1.46
E	0.87	0	0	0	0	0.87
ESE	2.04	0	0	0	0	2.04
SE	18.78	0	0	0	0	18.78
SSE	21.11	0	0	0	0	21.11
S	4.08	0	0	0	0	4.08
SSW	2.18	0	0	0	0	2.18
SW	2.33	0	0	0	0	2.33
WSW	2.04	0	0	0	0	2.04
W	3.35	0	0	0	0	3.35
WNW	3.06	0	0	0	0	3.06
NW	9.32	0	0	0	0	9.32
NNW	9.46	0	0	0	0	9.46
Summary	100	0.15	0	0	0	100

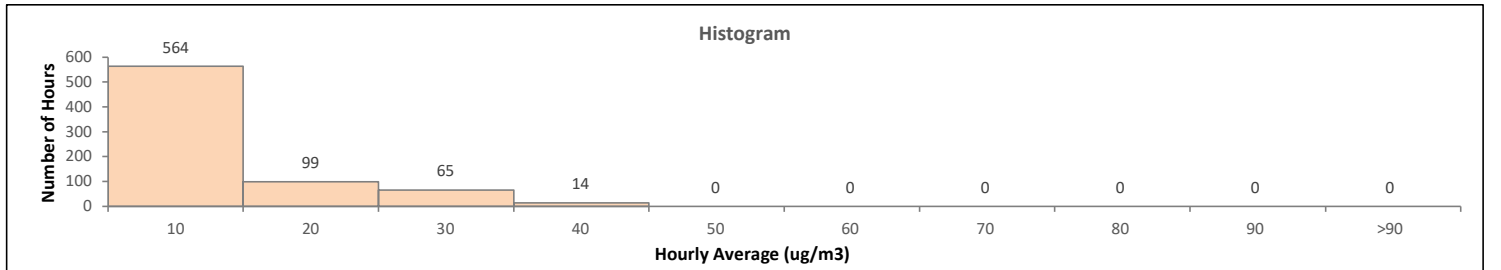
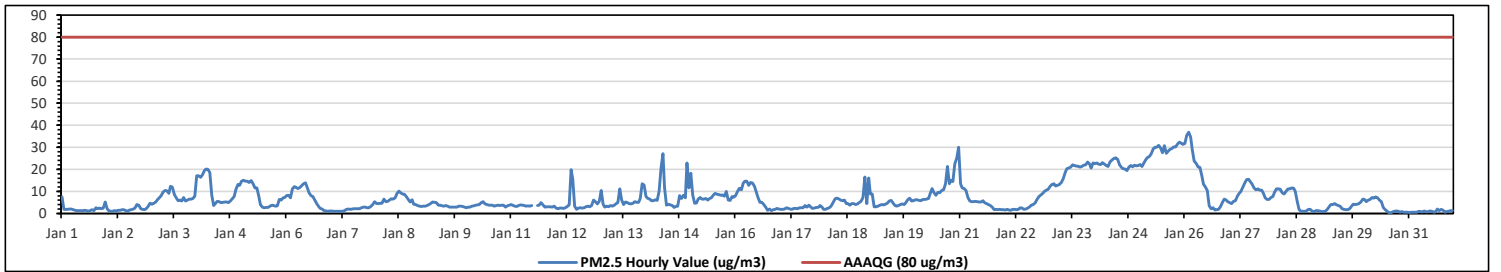


**Lakeland Industry & Community Association**  
**Lac La Biche Station - January 2024**  
**Summary of Hourly Averages**

**PARTICULATE MATTER 2.5 (PM<sub>2.5</sub>) in µg/m<sup>3</sup>**

Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m <sup>3</sup> , Alberta Ambient Air Quality Objective (AAAQO): 24-Hour 29 µg/m <sup>3</sup>																																															
Number of 1-Hour Exceedances: 0												Number of 24-Hour Exceedances: 0																																			
Maximum Hourly Value: 37 µg/m <sup>3</sup> on Jan 26 at hr 2												Hours in Service: 744																																			
Maximum Daily Value: 28.3 µg/m <sup>3</sup> on Jan 25												Hours of Data: 742																																			
Minimum Hourly Value: 0 µg/m <sup>3</sup> on Jan 30 at hr 14												Hours of Missing Data: 0																																			
Minimum Daily Value: 1 µg/m <sup>3</sup> on Jan 31												Hours of Calibration: 2																																			
Monthly Average: 7.5 µg/m <sup>3</sup>												Operational Uptime: 100.0																																			
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average																					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23																				
Jan 1	8	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	1	3	2	2	2	2	5	1	8	2.1																					
Jan 2	2	1	1	1	1	1	1	1	2	2	1	1	2	2	2	4	4	2	2	2	2	3	5	1	5	1.9																					
Jan 3	4	5	5	6	7	8	10	10	10	12	12	9	7	6	6	6	7	6	6	7	7	7	8	4	12	7.4																					
Jan 4	17	17	16	18	20	20	20	19	8	4	5	6	5	5	5	5	5	6	7	8	11	13	13	4	20	10.6																					
Jan 5	15	15	15	15	14	15	14	12	12	8	4	3	3	3	3	4	4	3	3	6	6	7	7	3	15	8.0																					
Jan 6	8	8	7	11	12	12	11	12	13	14	14	12	9	8	8	6	5	3	2	2	1	1	1	1	1	14	7.5																				
Jan 7	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	5	1	5	2.1																				
Jan 8	5	4	5	5	7	5	6	6	7	7	7	9	10	9	9	8	6	5	6	4	4	4	3	3	10	6.2																					
Jan 9	3	3	3	4	4	5	5	5	5	4	4	3	3	4	3	3	3	3	3	3	3	3	3	3	5	3.5																					
Jan 10	3	3	3	3	3	4	4	4	5	5	4	4	4	4	4	4	4	4	4	4	4	3	3	4	3	5	3.7																				
Jan 11	4	4	3	3	4	4	4	4	3	3	3	4	C	C	4	4	5	4	3	3	3	3	3	3	5	3.5																					
Jan 12	2	2	2	2	2	3	3	4	20	16	3	2	2	3	2	3	3	3	4	6	5	4	6	2	20	4.4																					
Jan 13	10	4	3	3	3	4	3	4	5	5	11	6	4	5	5	4	4	5	5	5	7	13	13	3	13	5.7																					
Jan 14	8	7	7	6	6	6	6	10	21	27	12	4	4	4	4	3	3	3	8	7	8	7	23	12	3	27	8.5																				
Jan 15	18	8	5	5	6	7	7	6	7	6	7	7	8	9	9	8	8	8	10	6	6	8	7	5	18	7.7																					
Jan 16	8	10	11	11	14	15	15	13	14	14	12	10	7	5	5	4	3	1	2	1	2	2	2	2	1	15	7.6																				
Jan 17	2	2	2	3	2	2	2	2	2	3	3	3	4	3	4	3	2	2	3	3	4	3	2	2	4	2.5																					
Jan 18	2	2	3	3	5	7	7	7	6	6	5	4	4	4	5	4	4	5	6	7	17	5	16	2	17	5.8																					
Jan 19	9	9	3	3	3	4	4	4	4	5	6	6	5	4	3	4	4	4	5	6	7	6	6	3	9	4.8																					
Jan 20	6	6	6	6	6	6	7	7	9	11	9	8	10	9	10	11	13	21	14	15	15	23	25	30	6	30	11.8																				
Jan 21	14	12	11	10	7	6	5	5	6	5	5	6	5	4	4	4	3	2	2	2	2	2	2	2	2	14	5.3																				
Jan 22	2	2	2	1	2	2	2	2	3	2	2	2	2	3	4	4	5	6	8	8	9	10	11	11	1	11	4.3																				
Jan 23	12	13	14	13	13	13	14	16	19	20	21	21	22	22	22	22	21	21	22	22	23	22	21	23	12	23	18.7																				
Jan 24	23	23	22	22	23	22	22	21	23	24	25	25	22	21	20	20	19	21	22	21	22	22	22	22	19	25	22.2																				
Jan 25	22	21	23	24	25	26	27	29	30	30	31	30	28	31	27	28	29	29	30	30	31	32	32	31	21	32	28.3																				
Jan 26	32	36	37	35	29	24	23	21	21	17	13	12	10	3	2	3	2	2	3	5	7	6	5	2	37	14.5																					
Jan 27	5	4	6	6	8	9	10	12	14	15	16	15	13	12	11	11	11	9	7	6	6	7	8	4	16	9.6																					
Jan 28	10	11	11	11	9	9	10	11	11	12	11	10	6	2	1	1	1	1	2	2	1	1	1	1	1	12	6.1																				
Jan 29	1	1	1	1	2	3	4	4	5	4	4	3	2	2	2	3	4	4	4	4	5	7	1	7	3.0																						
Jan 30	6	5	6	6	7	7	8	7	6	5	3	2	1	0	0	1	1	1	1	1	1	1	1	0	8	3.2																					
Jan 31	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	0	2	0.9																					
Diurnal Maximum	32	36	37	35	29	26	27	29	30	31	30	28	31	27	28	29	29	30	30	31	32	32	31																								
Diurnal Average	8.4	7.8	7.6	7.7	8.0	8.1	8.2	8.4	9.4	9.2	8.3	7.5	7.0	6.4	6.0	6.0	6.1	6.3	6.2	6.3	6.6	7.4	8.0	8.4																							
C	Monthly Calibration											S	Daily Zero-Span Check											Q	Quality Assurance																						
K	Collection Error											ND	No Data (Machine Not in Service)											Y	Routine Maintenance											P	Power Failure										
X	Invalid Data (Equipment Malfunction /Recovery)											NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																																		

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



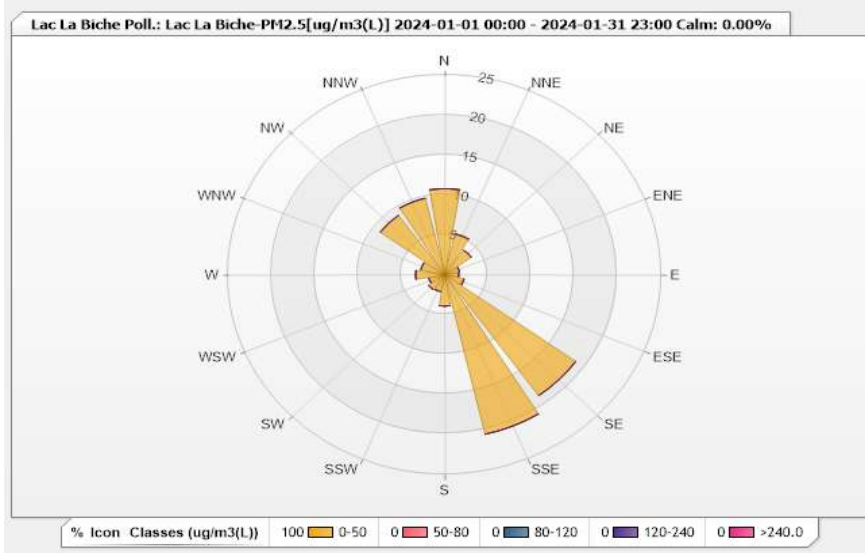
Station: Lac La Biche Poll.: Lac La Biche-PM2.5[ug/m3(L)] Monthly: 01-2024

)

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 99.73%      Calm Avg: 0.00 [ug/m3(L)]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	10.78	0	0	0	0	10.78
NNE	5.26	0	0	0	0	5.26
NE	3.77	0	0	0	0	3.77
ENE	1.75	0	0	0	0	1.75
E	1.62	0	0	0	0	1.62
ESE	2.29	0	0	0	0	2.29
SE	18.6	0	0	0	0	18.6
SSE	20.49	0	0	0	0	20.49
S	3.91	0	0	0	0	3.91
SSW	2.16	0	0	0	0	2.16
SW	2.29	0	0	0	0	2.29
WSW	1.89	0	0	0	0	1.89
W	3.37	0	0	0	0	3.37
WNW	2.83	0	0	0	0	2.83
NW	9.16	0	0	0	0	9.16
NNW	9.84	0	0	0	0	9.84
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - January 2024

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	100	%	on Jan 26 at hr 4	Hours in Service:	744
Maximum Daily Value:	93.1	%	on Jan 6	Hours of Data:	744
Minimum Hourly Value:	30	%	on Jan 30 at hr 15	Hours of Missing Data:	0
Minimum Daily Value:	53.5	%	on Jan 13	Hours of Calibration:	0
Monthly Average:	76.4	%		Operational Uptime:	100.0

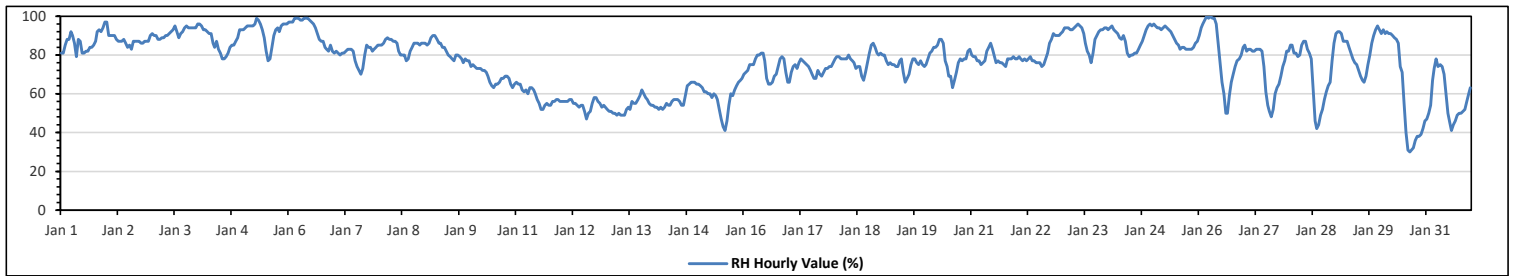
  

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Jan 1	81	81	85	88	88	92	90	86	79	88	87	81	81	82	82	84	84	85	87	92	93	92	94	97	79	97	86.6
Jan 2	97	90	90	90	90	88	87	87	87	88	86	84	85	83	87	87	87	86	86	87	87	87	90	83	97	87.6	
Jan 3	91	90	90	88	88	89	89	90	90	91	92	93	95	92	89	91	92	94	95	94	94	94	94	88	95	91.6	
Jan 4	96	96	95	93	93	92	91	91	86	84	87	83	81	78	78	79	81	84	85	85	87	89	93	78	96	87.5	
Jan 5	93	94	95	95	95	95	96	99	98	96	93	89	82	77	78	84	90	93	94	92	95	96	96	77	99	92.1	
Jan 6	97	97	97	99	99	99	98	98	99	99	99	98	97	96	94	91	88	87	87	84	83	82	85	82	82	99	93.1
Jan 7	81	82	81	80	81	81	82	83	83	83	82	77	74	72	70	73	80	85	84	82	83	84	85	70	85	80.5	
Jan 8	85	85	86	88	89	88	88	87	87	86	82	80	80	80	77	78	82	84	86	86	85	86	86	77	89	84.5	
Jan 9	86	85	86	89	90	90	88	86	86	84	84	82	80	79	78	77	80	80	79	76	78	77	77	76	90	82.3	
Jan 10	74	75	74	73	73	72	72	71	69	66	64	63	65	65	66	68	68	69	69	68	65	63	65	63	75	68.8	
Jan 11	66	65	65	62	61	62	60	63	63	62	60	57	55	52	52	54	55	54	54	56	56	57	56	52	66	58.5	
Jan 12	56	56	56	56	57	57	55	55	54	53	54	54	51	47	50	51	55	58	58	56	55	53	54	47	58	54.3	
Jan 13	52	51	51	50	50	49	50	49	49	49	52	53	52	56	55	55	57	59	62	60	58	57	55	49	62	53.5	
Jan 14	54	53	53	52	53	52	53	55	54	54	56	57	57	57	56	54	54	59	64	65	66	66	65	52	66	57.3	
Jan 15	65	64	63	61	61	60	60	58	60	59	57	52	47	43	41	46	54	60	59	62	64	66	67	68	41	68	58.2
Jan 16	70	71	72	75	75	75	78	80	80	81	81	77	68	65	65	66	69	70	74	78	79	78	71	66	65	81	73.5
Jan 17	66	71	74	75	73	76	78	77	76	75	74	72	70	68	68	72	70	69	71	73	73	74	74	76	66	78	72.7
Jan 18	78	79	79	78	78	78	80	78	77	76	73	74	74	69	67	71	76	81	85	86	84	81	80	67	86	77.5	
Jan 19	81	80	80	77	75	76	75	75	74	74	77	78	71	66	68	70	75	78	78	76	75	77	75	74	66	81	75.2
Jan 20	75	78	81	82	84	84	85	88	88	86	77	74	69	69	63	67	71	76	78	77	78	78	82	83	63	88	78.0
Jan 21	80	79	79	77	77	75	76	77	82	84	86	83	79	76	77	76	75	74	78	78	78	78	79	78	74	86	78.3
Jan 22	78	79	78	77	78	77	78	79	77	77	76	76	76	74	75	78	81	86	88	91	90	90	91	74	91	80.8	
Jan 23	92	94	94	94	93	93	94	95	96	95	94	91	86	82	80	76	81	88	90	92	93	93	94	94	76	96	90.6
Jan 24	93	94	95	93	92	91	89	88	90	87	81	79	80	80	81	81	83	85	87	90	93	95	96	95	79	96	88.3
Jan 25	96	95	94	94	93	94	95	94	93	92	90	88	86	85	83	84	84	83	83	83	83	84	86	87	83	96	88.7
Jan 26	90	94	96	98	100	99	100	99	99	96	86	76	66	60	50	59	66	70	74	77	78	80	84	50	100	81.1	
Jan 27	85	82	83	83	82	82	83	83	83	82	74	61	54	51	48	52	60	63	65	69	74	77	82	82	48	85	72.5
Jan 28	85	85	81	81	79	80	85	87	87	83	81	78	62	46	42	44	49	52	57	61	64	66	77	86	42	87	70.8
Jan 29	91	92	92	91	87	87	87	84	81	78	76	75	72	69	67	66	69	75	80	86	90	93	95	93	66	95	82.3
Jan 30	91	93	91	92	91	91	90	89	88	86	74	71	55	40	31	30	31	32	36	38	38	39	42	46	30	93	62.7
Jan 31	47	50	54	67	73	78	74	75	74	70	60	50	45	41	44	46	49	50	50	51	52	56	60	63	41	78	57.5
Diurnal Maximum	97	97	97	99	100	99	100	99	99	99	98	97	96	94	91	92	94	95	94	95	96	96	97				
Diurnal Average	79.7	80.0	80.3	80.6	80.6	80.7	80.8	80.9	80.4	79.6	77.4	74.4	70.7	67.9	66.5	67.6	70.5	72.9	74.5	75.8	76.5	77.1	78.1	78.7			

<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>ND</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b> Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per days is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



**Lakeland Industry & Community Association**  
**Lac La Biche Station - January 2024**  
**Summary of Hourly Averages**  
**BAROMETRIC PRESSURE (BP) in millibar**

Maximum Hourly Value:	968	mb	on Jan 18 at hr 16	Hours in Service:	744
Maximum Daily Value:	966	mb	on Jan 18	Hours of Data:	744
Minimum Hourly Value:	931	mb	on Jan 9 at hr 12	Hours of Missing Data:	0
Minimum Daily Value:	935	mb	on Jan 9	Hours of Calibration:	0
Monthly Average:	948	mb		Operational Uptime:	100.0

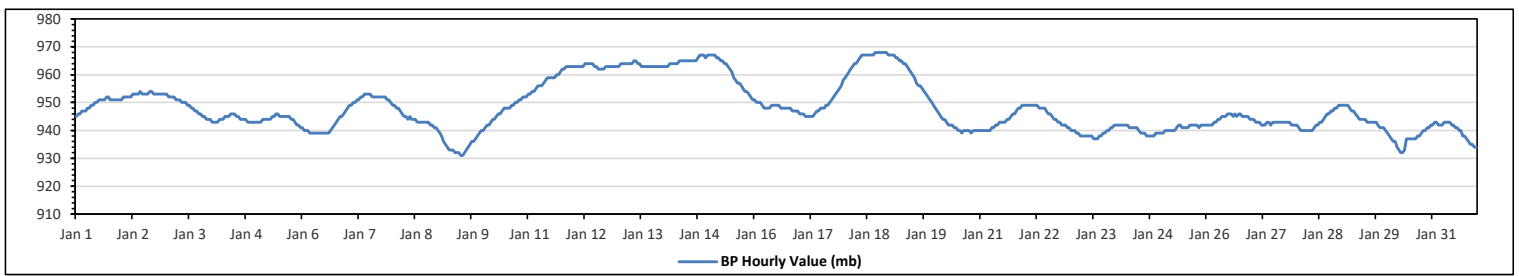
  

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Jan 1	945	946	946	947	947	947	948	948	949	949	950	950	951	951	951	951	952	952	951	951	951	951	951	951	945	952	949
Jan 2	951	952	952	952	952	952	953	953	953	953	954	953	953	953	953	954	954	953	953	953	953	953	953	953	951	954	953
Jan 3	953	952	952	952	952	951	951	951	950	950	950	949	949	948	948	947	947	946	946	945	945	944	944	944	944	944	949
Jan 4	943	943	943	943	944	944	944	945	945	945	946	946	946	945	945	944	944	944	944	943	943	943	943	943	943	946	944
Jan 5	943	943	943	944	944	944	944	945	945	945	946	946	945	945	945	945	945	944	944	943	943	942	942	941	941	946	944
Jan 6	941	940	940	940	939	939	939	939	939	939	939	939	939	939	939	940	941	942	943	944	945	945	946	947	939	947	941
Jan 7	948	949	949	950	950	951	951	952	952	953	953	953	952	952	952	952	952	952	952	951	951	950	950	948	948	953	951
Jan 8	949	949	948	948	947	946	945	945	944	945	944	944	943	943	943	943	943	943	943	942	942	941	941	941	949	949	944
Jan 9	940	939	938	936	935	934	933	933	933	932	932	932	931	931	932	933	934	935	936	936	937	938	939	940	931	940	935
Jan 10	940	941	942	942	943	944	944	945	946	946	947	948	948	948	948	949	949	950	950	951	951	952	952	952	940	952	947
Jan 11	953	953	954	954	955	956	956	956	957	958	959	959	959	959	959	960	960	961	962	962	963	963	963	963	953	963	959
Jan 12	963	963	963	963	963	963	964	964	964	964	964	963	963	962	962	962	962	963	963	963	963	963	963	963	962	964	963
Jan 13	963	964	964	964	964	964	964	964	965	965	965	964	964	963	963	963	963	963	963	963	963	963	963	963	963	965	964
Jan 14	963	963	963	964	964	964	964	964	965	965	965	965	965	965	965	965	965	965	965	966	967	967	967	966	967	967	965
Jan 15	967	967	967	967	966	966	965	965	964	964	963	962	961	959	958	957	957	956	955	954	954	953	952	951	951	967	960
Jan 16	951	950	950	950	949	948	948	948	948	949	949	949	949	949	948	948	948	948	948	948	947	947	947	947	947	951	948
Jan 17	946	946	946	945	945	945	945	946	947	947	948	948	948	948	949	949	950	951	952	953	954	955	956	958	945	958	949
Jan 18	959	960	961	962	963	964	964	965	966	967	967	967	967	967	967	967	968	968	968	968	968	968	968	967	959	968	966
Jan 19	967	967	967	966	966	965	965	964	964	963	962	961	960	959	957	956	956	955	954	953	952	951	950	949	949	967	960
Jan 20	948	947	946	945	944	944	943	942	942	942	941	941	940	940	939	940	940	940	940	939	940	940	940	939	948	942	942
Jan 21	940	940	940	940	940	940	941	941	942	942	943	943	943	943	944	944	945	946	946	946	947	948	948	949	940	949	944
Jan 22	949	949	949	949	949	949	949	948	948	948	948	947	946	946	945	944	944	943	943	942	942	942	941	941	941	949	946
Jan 23	940	940	940	939	939	938	938	938	938	938	938	937	937	937	937	938	938	939	939	940	940	941	941	942	937	942	939
Jan 24	942	942	942	942	942	942	941	941	941	941	941	940	939	939	939	938	938	938	938	938	939	939	939	938	938	942	940
Jan 25	939	939	940	940	940	940	940	941	942	942	941	941	941	941	941	942	942	942	942	942	941	942	942	942	939	942	941
Jan 26	942	942	942	942	943	943	944	944	945	945	945	946	946	946	945	946	946	946	946	945	945	945	945	944	942	946	944
Jan 27	944	944	943	943	943	942	942	942	943	943	942	943	943	943	943	943	943	943	943	943	943	942	942	942	942	942	943
Jan 28	942	941	940	940	940	940	940	940	941	942	942	943	943	944	945	946	946	947	947	948	948	949	949	940	949	943	943
Jan 29	949	949	949	949	948	947	947	946	945	944	944	944	943	943	943	943	943	943	943	942	941	941	941	940	940	949	945
Jan 30	939	938	937	936	936	934	933	932	932	933	937	937	937	937	937	937	938	938	939	940	940	941	941	942	932	942	937
Jan 31	942	943	943	942	942	942	943	943	943	943	942	942	941	941	940	940	938	938	937	936	935	935	934	934	932	943	940
Diurnal Maximum	967	967	967	967	966	966	965	965	966	967	967	967	967	967	967	968	968	968	968	968	968	968	968	967	967	967	967
Diurnal Average	948	948	948	948	948	948	948	948	948	949	949	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948

<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>ND</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b> Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per days is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



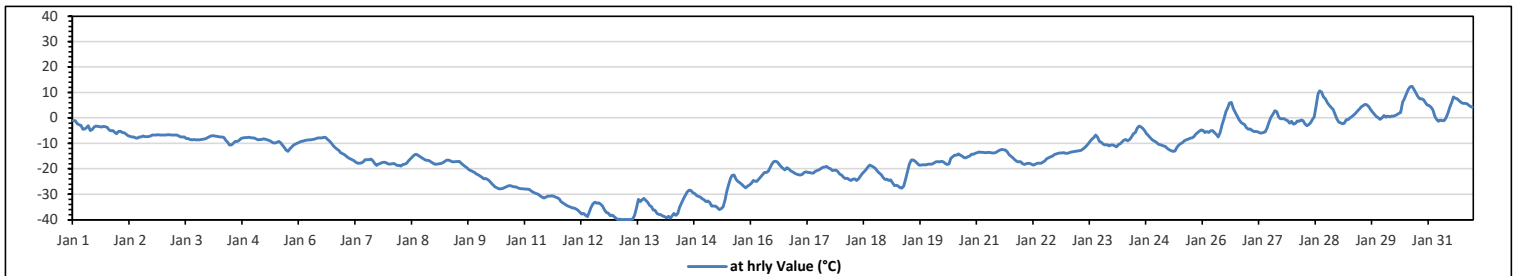
**Lakeland Industry & Community Association**  
**Lac La Biche Station - January 2024**  
**Summary of Hourly Averages**  
**AMBIENT TEMPERATURE (AT) in Degree Celsius**

Maximum Hourly Value:	12.4 °C	on Jan 30 at hr 15	Hours in Service:	744
Maximum Daily Value:	5.5 °C	on Jan 30	Hours of Data:	744
Minimum Hourly Value:	-39.9 °C	on Jan 13 at hr 1	Hours of Missing Data:	0
Minimum Daily Value:	-36.8 °C	on Jan 13	Hours of Calibration:	0
Monthly Average:	-14.3 °C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average						
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23					
Jan 1	-1	-1.1	-2.2	-2.7	-2.9	-4.4	-4.3	-3.8	-3	-5	-4.6	-3.5	-3.2	-3.3	-3.4	-3.6	-3.3	-3.4	-3.7	-4.7	-5.1	-5	-5.7	-6.2	-6.2	-1.0	-3.7					
Jan 2	-5.4	-5.2	-5.6	-5.8	-6.4	-6.9	-7.2	-7.4	-7.5	-7.9	-8	-7.5	-7.4	-7.1	-7.3	-7.3	-7.3	-7.1	-6.8	-6.8	-6.8	-6.6	-6.7	-6.7	-8.0	-5.2	-6.9					
Jan 3	-6.7	-6.7	-6.6	-6.6	-6.7	-6.7	-6.8	-6.8	-7	-7.4	-7.5	-7.5	-8.1	-8.1	-8.5	-8.6	-8.5	-8.6	-8.6	-8.6	-8.5	-8.3	-8.2	-7.9	-8.6	-6.6	-7.6					
Jan 4	-7.4	-7	-6.9	-7.1	-7.2	-7.3	-7.4	-7.4	-7.7	-8.9	-9.6	-10.7	-10.7	-9.9	-9.3	-9.3	-8.8	-8.1	-7.9	-7.7	-7.7	-7.6	-7.7	-7.9	-10.7	-6.9	-8.2					
Jan 5	-7.9	-8.2	-8.6	-8.5	-8.4	-8.2	-8.3	-8.6	-8.8	-9.2	-9.7	-9.8	-9.6	-9.2	-9.7	-10.6	-11.5	-12.6	-13.1	-12.1	-11.3	-10.6	-10.2	-9.8	-13.1	-7.9	-9.8					
Jan 6	-9.6	-9.3	-9.1	-8.9	-8.7	-8.6	-8.6	-8.4	-8.3	-8.1	-7.8	-7.9	-7.8	-7.6	-7.7	-8.4	-9.1	-9.9	-10.9	-11.6	-12.2	-12.7	-13.6	-14	-14.0	-7.6	-9.5					
Jan 7	-14.4	-14.9	-15.7	-16.1	-16.4	-16.8	-17.4	-17.8	-18.3	-18.8	-17.6	-17.2	-16.3	-16.4	-16.3	-16.2	-16.7	-17.9	-18.7	-18.1	-17.9	-17.5	-17.4	-17.5	-18	-18.7	-14.4	-17.0				
Jan 8	-18.1	-18	-17.9	-18.2	-18.7	-18.7	-18.9	-18.3	-18.1	-17.8	-16.7	-16	-15.2	-14.5	-14.3	-14.7	-15.1	-15.6	-16.1	-16.5	-16.6	-16.7	-17.3	-17.7	-18.9	-14.3	-16.9					
Jan 9	-18.2	-18.2	-18	-17.9	-17.6	-17.1	-16.6	-16.5	-16.7	-17.2	-17.3	-17.2	-17.2	-17	-17.7	-18.4	-19	-19.5	-20.3	-20.6	-21	-21.4	-22	-22.3	-22.3	-16.5	-18.5					
Jan 10	-22.8	-23.3	-23.9	-23.8	-24.2	-24.8	-25.7	-26.5	-27.1	-27.5	-27.9	-27.9	-27.7	-27.3	-27	-26.7	-26.6	-26.8	-27	-27	-27.4	-27.7	-27.9	-27.9	-27.9	-22.8	-26.4					
Jan 11	-28	-28	-28.1	-28.5	-29.1	-29.5	-29.7	-30	-30.6	-31.1	-31.4	-31.1	-30.8	-30.8	-30.6	-30.7	-31	-31.3	-31.9	-32.8	-33.4	-33.9	-34.4	-34.8	-34.8	-28.0	-30.9					
Jan 12	-35	-35.3	-35.4	-35.8	-36.3	-37	-37.7	-37.6	-38.2	-38.8	-37.2	-35.1	-33.7	-33.1	-33.5	-33.4	-33.9	-34.7	-36.2	-37.1	-37.4	-38.4	-38.1	-38.7	-38.8	-33.1	-36.2					
Jan 13	-39.3	-39.9	-39.8	-39.9	-39.9	-39.9	-39.9	-39.9	-39.9	-39.8	-38.3	-35.3	-32	-32.8	-32.1	-31.6	-32.3	-33.1	-34.4	-34.9	-36.2	-36.3	-37.5	-37.8	-39.9	-31.6	-36.8					
Jan 14	-38	-38.6	-38.8	-39.3	-38.7	-39.4	-38.6	-37.5	-38.2	-37.5	-35	-33.4	-31.8	-30.4	-29	-28.3	-28.5	-29.4	-29.7	-30.5	-30.9	-31.1	-31.7	-32.1	-39.4	-28.3	-34.0					
Jan 15	-32.9	-32.6	-33.2	-34.6	-34.6	-34.6	-35.2	-36	-35.6	-34.9	-32.1	-28.9	-26.2	-23.7	-22.6	-22.5	-24.1	-25	-25.5	-26.1	-26.9	-27.5	-26.9	-26.3	-36.0	-22.5	-29.5					
Jan 16	-25.7	-24.6	-24.8	-25	-24.1	-23.2	-22.3	-21.5	-21.5	-20.9	-19.7	-18.2	-17.2	-17	-17.4	-18.4	-19.3	-20	-20.4	-19.5	-20.1	-20.8	-21.2	-21.6	-25.7	-17.0	-21.0					
Jan 17	-22	-22.3	-22.5	-22.1	-21.4	-21.2	-21.4	-21.4	-21.6	-21.6	-21.1	-20.6	-20.4	-19.9	-19.4	-19.3	-19	-19.6	-20	-20.7	-20.5	-20.5	-21	-22	-22.5	-19.0	-20.9					
Jan 18	-22.5	-23.3	-23.8	-23.7	-24.2	-24.6	-24.1	-24	-24.5	-24	-22.8	-21.8	-21.1	-20.2	-19.3	-18.5	-18.9	-19.3	-20	-20.9	-21.6	-22.3	-23.4	-24.2	-24.6	-18.5	-22.2					
Jan 19	-24.1	-24.5	-24.3	-25.5	-26.6	-26.4	-26.7	-27.3	-27.6	-26.8	-24.1	-21	-18	-16.5	-16.5	-17	-17.7	-18.5	-18.5	-18.4	-18.4	-18.2	-18.2	-17.6	-16.5	-21.6	-21.6					
Jan 20	-18.1	-17.8	-17.3	-17.2	-17.3	-17	-17.3	-17.9	-18.3	-18	-15.9	-15.3	-14.7	-14.7	-14.1	-14.6	-15	-15.6	-15.6	-15.3	-14.9	-14.3	-14.2	-13.9	-18.3	-13.9	-16.0					
Jan 21	-13.6	-13.4	-13.5	-13.5	-13.6	-13.6	-13.5	-13.6	-13.7	-13.7	-13.5	-13	-12.6	-12.3	-12.4	-12.6	-13.4	-14.5	-15	-15.7	-16.3	-17	-17.3	-17.2	-17.3	-12.3	-14.1					
Jan 22	-17.9	-18.3	-18	-17.7	-17.9	-18.3	-18.6	-18.1	-17.8	-17.8	-17.7	-17.3	-16.9	-16	-15.6	-15.2	-14.9	-14.4	-14.1	-13.9	-13.7	-13.7	-13.6	-13.8	-18.6	-13.6	-16.3					
Jan 23	-13.8	-13.6	-13.4	-13.3	-13.2	-13	-12.9	-12.7	-12.2	-11.7	-10.9	-10.1	-9.1	-8.2	-7.7	-6.8	-7.6	-9.3	-9.6	-10.4	-10.6	-10.5	-10.9	-10.7	-13.8	-6.8	-10.9					
Jan 24	-10.6	-10.9	-11.4	-10.5	-10.1	-9.4	-8.7	-8.5	-9	-8.5	-7.4	-6.2	-5.6	-4	-3.2	-3.5	-4.2	-5.2	-6.2	-6.9	-7.9	-8.6	-9.1	-9.5	-11.4	-3.2	-7.7					
Jan 25	-10.2	-10.5	-10.8	-10.9	-11.2	-12	-12.5	-12.9	-13.1	-13	-11.7	-10.8	-10.1	-9.7	-9	-8.6	-8.3	-8	-7.9	-7.3	-6.4	-5.7	-5.2	-4.7	-13.1	-4.7	-9.6					
Jan 26	-4.9	-5.6	-5.4	-5.6	-5.1	-5	-5.7	-6.5	-7.5	-7.5	-7.7	-7.2	-6.3	2.5	4.1	5.9	6.1	3.8	2.2	0.9	-0.7	-1.6	-2.2	-2.6	-3.8	-7.5	6.1	-1.9				
Jan 27	-4.4	-4.3	-4.9	-5.4	-5.4	-5.5	-5.8	-5.9	-5.7	-5.5	-3.9	-1.5	0.3	1.4	2.8	2.5	0.3	-0.3	-0.3	-0.3	-0.8	-1.1	-2.1	-1.4	-5.9	2.8	-2.4					
Jan 28	-2.4	-2.2	-1.2	-1.3	-0.8	-1	-2.3	-3	-2.6	-1.8	-0.7	0.5	4.9	9.5	10.6	10.1	8.3	7.5	6	5	4.1	3.4	1.4	-0.4	-3.0	10.6	2.2					
Jan 29	-1.7	-1.9	-2.3	-2	-0.7	-0.6	0	0.6	1.2	2	2.8	3.5	4.3	4.9	5.3	4.4	3.3	2.4	1.4	0.6	0	-0.5	0.1	-1.4	-2.3	5.3	1.3					
Jan 30	1	0.3	0.7	0.4	0.7	0.7	1	1.3	1.8	2.1	6.2	7.7	9.5	11.3	12.3	12.4	11.2	9.7	8.4	7.5	7.5	7.1	6.2	5.2	0.3	12.4	5.5					
Jan 31	4.9	4.2	3.1	0.6	-0.6	-1.4	-0.8	-1	-1	0	2	4.3	6.3	8.2	7.8	7.5	6.7	6.1	5.8	5.7	5.6	5	4.5	4.2	-1.4	8.2	3.7					
Diurnal Maximum	4.9	4.2	3.1	0.6	0.7	0.7	1.0	1.3	1.8	2.1	6.2	7.7	9.5	11.3	12.3	12.4	11.2	9.7	8.4	7.5	7.5	7.1	6.2	5.2								
Diurnal Average	-15.2	-15.3	-15.5	-15.7	-15.9	-15.9	-16.0	-16.1	-15.9	-14.9	-13.8	-12.8	-11.9	-11.6	-11.7	-12.3	-12.9	-13.4	-13.7	-14.0	-14.2	-14.6	-14.8									
<b>C</b>	Monthly Calibration																							<b>S</b>	Daily Zero-Span Check		<b>Q</b>	Quality Assurance				
<b>K</b>	Collection Error																							<b>ND</b>	No Data (Machine Not in Service)		<b>Y</b>	Routine Maintenance		<b>P</b>	Power Failure	
<b>X</b>	Invalid Data (Equipment Malfunction /Recovery)																							<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)							

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per days is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.





**Lakeland Industry & Community Association**  
**Lac La Biche Station - January 2024**  
**Summary of Hourly Averages**  
**STATION TEMPERATURE (ST) in Degree Celsius**

Maximum Hourly Value:	25.0 °C	on Jan 24 at hr 18	Hours in Service:	744
Maximum Daily Value:	24.4 °C	on Jan 22	Hours of Data:	744
Minimum Hourly Value:	18.0 °C	on Jan 11 at hr 16	Hours of Missing Data:	0
Minimum Daily Value:	22.3 °C	on Jan 30	Hours of Calibration:	0
Monthly Average:	23.8 °C		Operational Uptime:	100.0

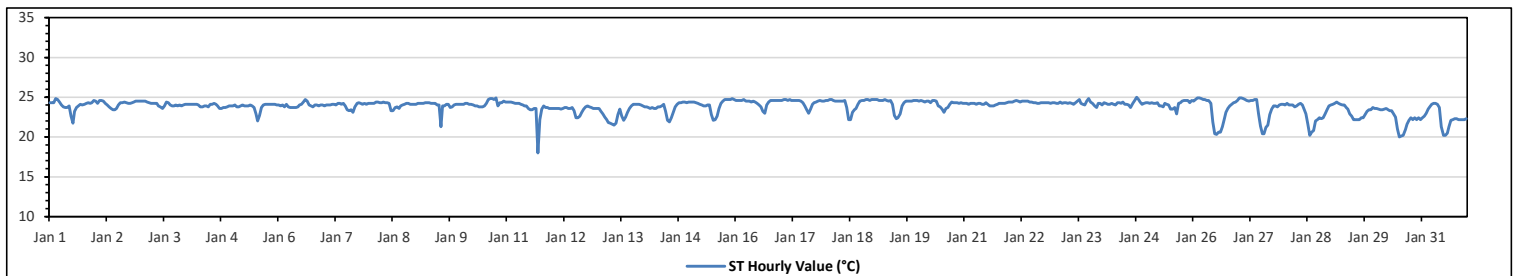
  

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Jan 1	24.3	24.3	24.3	24.8	24.7	24.4	24.0	23.8	23.7	23.7	23.9	22.6	21.7	23.2	23.7	23.9	24.1	24.0	24.1	24.2	24.3	24.2	24.3	24.6	21.7	24.8	24.0
Jan 2	24.5	24.2	24.6	24.6	24.5	24.2	24.0	23.8	23.6	23.4	23.4	23.6	24.0	24.3	24.3	24.4	24.3	24.2	24.2	24.3	24.4	24.5	24.5	24.5	23.4	24.6	24.2
Jan 3	24.5	24.5	24.5	24.4	24.3	24.2	24.2	24.2	24.2	23.9	23.8	23.6	23.9	24.4	24.3	24.0	23.9	23.9	24.0	23.9	24.0	23.9	24.0	24.1	23.6	24.5	24.1
Jan 4	24.1	24.1	24.1	24.1	24.1	24.1	24.0	23.8	23.8	23.9	23.9	23.8	24.1	24.1	24.2	24.1	23.9	23.6	23.6	23.7	23.7	23.8	23.9	23.9	23.6	24.2	23.9
Jan 5	23.9	24.0	23.8	23.8	23.9	24.0	23.9	23.9	23.9	24.0	23.9	23.7	22.9	22.0	22.7	23.7	24.0	24.1	24.1	24.1	24.1	24.1	24.1	24.0	22.0	24.1	23.8
Jan 6	24.0	23.9	24.0	23.8	24.1	23.8	23.7	23.7	23.7	23.7	23.8	24.0	24.1	24.4	24.7	24.5	24.0	23.9	23.8	24.0	24.0	23.9	24.0	24.0	23.7	24.7	24.0
Jan 7	23.9	24.0	24.0	24.0	24.1	24.1	24.0	24.2	24.2	24.1	24.2	23.9	23.4	23.3	23.4	23.1	23.8	24.2	24.3	24.2	24.1	24.2	24.1	24.2	23.1	24.3	24.0
Jan 8	24.2	24.2	24.2	24.4	24.4	24.3	24.3	24.4	24.3	24.3	24.2	23.3	23.3	23.7	23.8	23.6	23.9	24.0	24.1	24.2	24.2	24.1	24.1	24.1	23.3	24.4	24.1
Jan 9	24.1	24.2	24.2	24.2	24.2	24.3	24.3	24.3	24.2	24.2	24.0	24.0	21.3	23.9	23.9	24.1	24.1	23.7	23.8	24.0	24.1	24.1	24.1	24.1	21.3	24.3	24.0
Jan 10	24.1	24.1	24.2	24.2	24.1	24.1	24.0	23.9	23.9	23.8	23.8	23.8	23.9	24.2	24.7	24.8	24.8	24.7	24.9	23.9	24.3	24.3	24.5	24.4	23.8	24.9	24.2
Jan 11	24.4	24.4	24.4	24.3	24.2	24.2	24.1	24.0	23.9	23.9	23.9	23.6	23.4	23.4	23.6	23.6	18.0	22.2	23.5	23.9	23.7	23.7	23.6	23.6	18.0	24.4	23.6
Jan 12	23.6	23.6	23.6	23.6	23.5	23.6	23.7	23.7	23.6	23.6	23.7	23.3	22.4	22.4	22.6	23.1	23.5	23.8	23.9	23.8	23.7	23.6	23.6	23.6	22.4	23.9	23.5
Jan 13	23.6	23.2	22.9	22.5	22.2	21.8	21.7	21.6	21.5	21.7	22.8	23.5	22.6	22.1	22.5	23.1	23.6	23.9	24.1	24.1	24.1	24.1	24.0	23.9	21.5	24.1	23.0
Jan 14	23.8	23.8	23.7	23.6	23.7	23.6	23.6	23.8	23.8	23.9	24.1	23.2	22.1	21.9	22.4	23.1	23.8	24.1	24.3	24.3	24.4	24.4	24.3	24.4	21.9	24.4	23.7
Jan 15	24.4	24.4	24.4	24.3	24.2	24.1	24.0	23.9	23.9	24.0	24.0	22.8	22.1	22.2	22.6	23.6	24.2	24.5	24.7	24.7	24.7	24.7	24.7	24.8	22.1	24.8	24.0
Jan 16	24.6	24.6	24.6	24.6	24.7	24.5	24.5	24.5	24.4	24.5	24.4	24.5	24.4	24.2	24.0	23.8	23.2	23.0	24.0	24.4	24.6	24.6	24.6	24.6	23.0	24.7	24.3
Jan 17	24.6	24.7	24.7	24.6	24.7	24.6	24.6	24.6	24.6	24.6	24.5	24.3	23.9	23.4	23.0	23.5	24.1	24.3	24.4	24.5	24.6	24.5	24.5	24.6	23.0	24.7	24.4
Jan 18	24.6	24.7	24.7	24.6	24.5	24.5	24.5	24.5	24.6	24.6	23.7	22.2	22.2	23.1	23.4	23.6	24.1	24.5	24.6	24.6	24.7	24.7	24.6	24.7	22.2	24.7	24.2
Jan 19	24.7	24.7	24.7	24.6	24.6	24.6	24.7	24.6	24.5	24.6	24.1	22.7	22.3	22.4	22.9	23.9	24.3	24.5	24.5	24.5	24.5	24.6	24.6	24.6	22.3	24.7	24.2
Jan 20	24.5	24.6	24.5	24.4	24.5	24.5	24.3	24.6	24.6	24.5	23.9	23.8	23.5	23.1	23.6	23.7	24.1	24.4	24.3	24.3	24.3	24.2	24.3	24.2	23.1	24.6	24.2
Jan 21	24.2	24.2	24.1	24.2	24.2	24.2	24.1	24.2	24.2	24.1	24.1	24.3	24.1	23.9	23.9	23.9	24.0	24.1	24.2	24.2	24.2	24.2	24.3	24.4	23.9	24.4	24.1
Jan 22	24.4	24.4	24.5	24.6	24.5	24.4	24.5	24.5	24.5	24.5	24.4	24.4	24.3	24.3	24.2	24.2	24.3	24.3	24.3	24.3	24.2	24.2	24.3	24.3	24.2	24.6	24.4
Jan 23	24.2	24.2	24.4	24.2	24.3	24.3	24.2	24.3	24.2	24.1	24.3	24.5	24.7	24.2	24.1	24.0	24.5	24.8	24.4	24.2	23.9	23.7	24.2	24.2	23.7	24.8	24.3
Jan 24	24.0	24.3	24.2	24.1	24.1	24.2	24.1	24.0	24.3	24.3	24.2	24.4	24.1	24.1	24.0	23.7	24.2	24.6	25.0	24.7	24.4	24.1	24.2	24.3	23.7	25.0	24.2
Jan 25	24.3	24.2	24.3	24.2	24.2	24.3	23.9	23.9	23.8	24.2	24.1	24.0	23.5	23.5	23.7	22.9	24.2	24.3	24.5	24.6	24.6	24.6	24.6	24.6	22.9	24.6	24.1
Jan 26	24.5	24.7	24.9	24.9	24.8	24.7	24.7	24.6	24.6	24.2	21.9	20.4	20.3	20.6	20.6	21.3	22.1	23.1	23.6	23.9	24.1	24.3	24.4	24.6	20.3	24.9	23.4
Jan 27	24.9	24.9	24.8	24.7	24.6	24.5	24.6	24.6	24.7	24.7	22.9	21.4	20.4	20.4	21.2	21.5	22.8	23.5	23.9	23.9	23.8	24.0	24.1	24.1	20.4	24.9	23.5
Jan 28	24.0	24.2	24.0	24.0	24.0	23.8	23.9	24.1	24.2	24.0	23.4	22.9	21.6	20.2	20.6	20.8	22.0	22.2	22.4	22.3	22.4	22.9	23.4	23.9	20.2	24.2	23.0
Jan 29	24.0	24.1	24.2	24.4	24.2	24.1	24.0	24.0	23.7	23.5	22.9	22.6	22.2	22.2	22.2	22.2	22.4	22.4	22.8	23.2	23.4	23.4	23.7	23.6	22.2	24.4	23.3
Jan 30	23.6	23.5	23.4	23.4	23.5	23.6	23.4	23.3	23.3	22.9	22.5	21.0	20.0	20.1	20.2	20.9	21.6	22.1	22.4	22.2	22.4	22.2	22.4	22.2	20.0	23.6	22.3
Jan 31	22.4	22.6	23.0	23.5	23.8	24.1	24.2	24.2	24.1	23.7	21.3	20.2	20.2	20.5	21.3	22.1	22.2	22.3	22.3	22.2	22.2	22.2	22.2	22.2	20.2	24.2	22.5
Diurnal Maximum	24.9	24.9	24.9	24.9	24.8	24.7	24.7	24.6	24.7	24.7	24.5	24.5	24.7	24.4	24.7	24.8	24.8	24.8	25.0	24.7	24.7	24.7	24.8	24.7			
Diurnal Average	24.2	24.2	24.2	24.2	24.2	24.1	24.1	24.1	24.0	24.0	23.7	23.2	22.9	22.8	23.1	23.3	23.5	23.8	24.0	24.0	24.0	24.0	24.1	24.1			

<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>ND</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b> Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per days is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Lakeland Industry & Community Association

Lac La Biche Station - January 2024

Summary of Hourly Averages

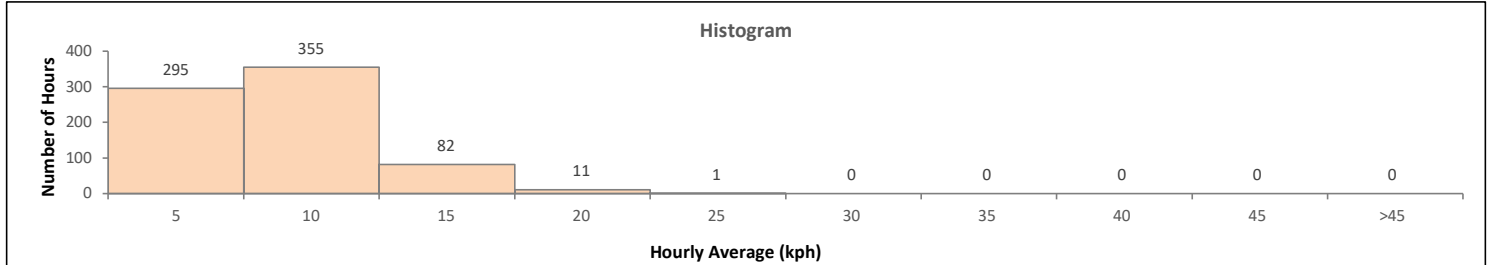
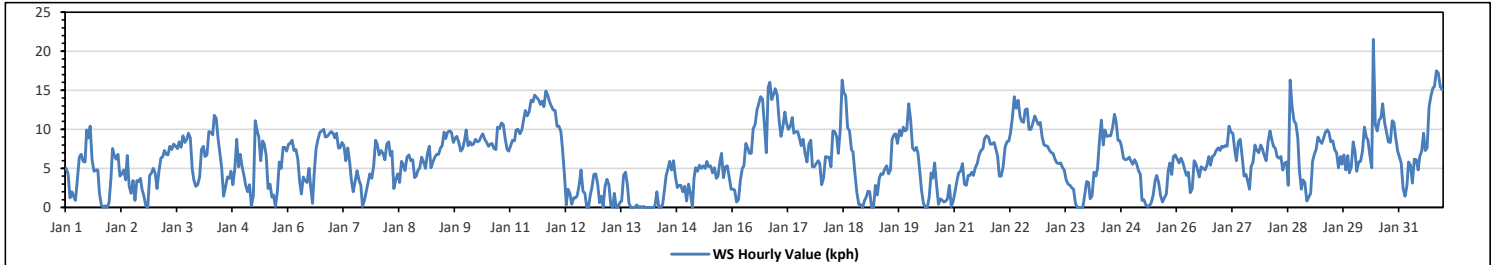
VECTOR WIND SPEED (VWS) in km/hr

Maximum Hourly Value:	21.5 kph	on Jan 30 at hr 10	Hours in Service:	744
Maximum Daily Value:	12.1 kph	on Jan 11	Hours of Data:	744
Minimum Hourly Value:	0.0 kph	on Jan 1 at hr 20	Hours of Missing Data:	0
Minimum Daily Value:	1.1 kph	on Jan 13	Hours of Calibration:	0
Monthly Average:	0.5 kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Jan 1	5.0	4.3	1.2	2.0	1.4	0.9	3.5	6.4	6.8	5.9	5.8	9.9	8.9	10.4	6.1	4.6	4.8	4.8	1.8	0.3	0.0	0.2	0.0	0.6	0.0	10.4	4.0
Jan 2	3.7	7.5	6.7	6.2	6.8	4.0	4.3	4.8	3.5	6.6	2.7	1.8	3.4	0.9	3.4	3.3	3.7	2.3	1.4	0.2	0.0	4.1	4.4	5.0	0.0	7.5	3.8
Jan 3	4.4	2.4	4.6	6.3	6.5	7.3	6.8	6.7	7.8	7.4	8.1	7.8	7.5	8.4	7.7	9.2	8.3	8.7	9.5	8.9	4.9	3.5	2.7	2.9	2.4	9.5	6.6
Jan 4	3.9	7.4	7.8	6.5	6.7	9.7	9.6	9.3	11.8	11.4	8.7	7.1	5.1	1.4	2.6	3.9	3.7	4.6	2.9	4.9	8.7	5.2	6.8	5.2	1.4	11.8	6.5
Jan 5	4.0	2.8	2.0	2.9	0.2	1.5	11.1	9.8	9.0	6.0	8.5	8.1	6.7	2.4	3.0	1.3	1.6	0.1	2.0	5.8	5.0	7.7	7.7	7.2	0.1	11.1	4.9
Jan 6	8.1	8.2	8.6	7.3	7.4	6.2	3.6	1.7	3.9	3.4	3.2	5.0	2.7	0.5	4.3	7.5	8.7	9.6	9.8	10.0	9.0	9.1	9.4	9.7	0.5	10.0	6.5
Jan 7	9.5	8.9	9.5	7.6	7.6	8.3	7.9	6.0	7.6	5.8	3.6	2.0	3.3	4.7	3.5	2.8	0.1	0.9	1.9	3.1	4.3	3.7	5.3	8.6	0.1	9.5	5.3
Jan 8	8.1	6.7	7.3	6.9	6.1	8.1	8.4	6.6	7.2	2.4	3.5	4.3	3.2	5.9	5.5	4.7	6.4	6.7	6.0	6.1	3.8	4.0	4.7	5.1	2.4	8.4	5.7
Jan 9	6.4	5.8	5.0	6.9	7.8	5.1	5.8	6.4	6.8	6.8	7.5	7.9	9.6	8.8	9.6	9.8	9.6	8.3	8.9	9.1	8.3	7.2	7.5	8.6	5.0	9.8	7.6
Jan 10	9.9	7.9	8.4	8.0	8.1	8.7	8.4	8.5	9.1	9.4	8.7	8.3	7.8	8.1	8.2	7.5	7.4	10.3	10.1	10.8	10.6	8.8	7.4	7.2	7.2	10.8	8.7
Jan 11	7.9	8.6	8.5	9.9	10.0	9.4	9.9	11.1	12.4	11.7	12.3	13.7	13.5	14.4	14.1	13.8	13.2	13.6	12.9	14.9	14.4	13.6	13.0	12.5	7.9	14.9	12.1
Jan 12	12.4	10.4	10.4	9.7	7.5	4.3	0.3	2.3	1.8	0.4	1.2	1.2	1.5	2.8	4.8	2.1	1.8	0.0	0.0	1.6	2.5	4.2	4.3	3.0	0.0	12.4	3.8
Jan 13	0.6	1.4	0.0	2.7	3.6	2.9	0.3	0.0	1.8	0.0	0.0	0.6	0.8	4.1	4.5	2.8	0.5	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.0	4.5	1.1
Jan 14	0.1	0.0	0.0	0.0	0.0	0.0	0.2	2.0	0.0	0.0	0.4	2.3	4.1	5.0	5.9	4.8	6.0	3.9	2.5	2.8	2.8	2.0	2.7	0.8	0.0	6.0	2.0
Jan 15	3.0	1.8	0.0	3.7	5.1	4.6	5.4	5.0	5.3	5.0	5.9	5.2	5.3	4.4	5.1	3.7	4.0	5.9	6.9	3.8	5.2	5.3	3.9	2.3	0.0	6.9	4.4
Jan 16	2.3	2.2	0.7	1.0	3.5	5.0	5.3	8.2	7.6	6.9	6.9	10.1	10.6	12.5	13.4	14.2	13.9	10.6	7.0	15.4	16.0	13.8	14.5	15.2	0.7	16.0	9.0
Jan 17	14.4	11.1	9.1	10.4	12.2	10.8	10.0	10.4	11.5	9.5	9.7	9.7	8.8	7.9	8.7	6.9	5.8	8.1	8.6	5.2	5.2	5.6	6.0	5.6	5.2	14.4	8.8
Jan 18	2.9	3.8	6.5	6.4	6.4	5.2	9.8	9.7	9.0	6.9	9.9	16.3	14.7	14.3	10.2	9.8	7.4	7.1	4.3	1.9	0.4	0.3	0.0	0.9	0.0	16.3	6.8
Jan 19	1.3	2.1	2.0	0.0	0.0	2.8	1.6	3.7	4.3	4.2	4.9	5.3	4.3	4.8	8.7	9.3	9.4	8.2	9.9	9.2	10.3	9.8	10.0	13.3	0.0	13.3	5.8
Jan 20	11.2	7.6	7.3	7.7	6.9	4.4	2.2	0.5	0.0	0.0	1.3	4.4	3.7	5.7	2.9	0.4	1.1	0.9	0.7	0.8	1.1	2.8	0.1	0.8	0.0	11.2	3.1
Jan 21	2.1	3.4	4.4	4.6	5.6	3.0	2.8	4.1	4.1	4.5	4.1	5.1	5.6	6.7	7.3	7.5	8.8	9.2	9.0	8.1	8.1	8.3	7.5	6.5	2.1	9.2	5.9
Jan 22	4.0	4.0	5.2	7.7	8.4	8.5	9.5	11.5	14.2	12.7	13.7	11.6	11.0	10.9	12.5	12.6	10.0	10.0	10.8	11.7	11.1	10.6	10.9	9.0	4.0	14.2	10.1
Jan 23	8.0	7.9	7.8	7.3	7.0	6.9	6.2	5.7	5.6	5.7	5.1	4.8	3.5	3.0	2.8	2.5	2.3	0.5	0.0	0.0	0.0	0.0	1.6	3.3	0.0	8.0	4.1
Jan 24	3.2	1.1	1.5	4.5	4.0	5.0	8.5	11.2	8.0	9.9	9.1	9.2	9.2	10.2	11.9	11.0	8.6	8.5	7.8	6.3	6.1	6.2	6.4	6.0	1.1	11.9	7.2
Jan 25	5.5	6.1	5.6	4.7	4.2	0.9	1.0	0.3	0.1	0.2	0.6	1.6	3.4	4.1	3.2	1.5	0.7	1.2	1.7	4.7	5.7	4.2	6.5	6.7	0.1	6.7	3.1
Jan 26	6.2	5.7	6.3	5.7	4.9	4.1	4.5	1.9	2.4	6.0	5.6	4.9	3.9	5.2	5.0	4.8	5.4	6.5	5.4	6.5	6.7	7.3	7.6	7.3	1.9	7.6	5.4
Jan 27	7.8	7.7	7.9	7.8	10.4	9.6	9.5	7.3	6.0	8.4	8.7	6.5	4.0	4.2	3.4	2.3	5.2	5.8	8.0	7.3	7.0	8.0	7.5	6.6	2.3	10.4	7.0
Jan 28	6.0	8.4	9.8	8.6	7.8	7.5	6.5	6.3	6.5	4.8	5.7	5.8	2.8	16.3	12.9	11.1	10.7	8.8	4.7	2.3	3.5	3.2	0.8	1.3	0.8	16.3	6.8
Jan 29	1.8	5.9	6.7	7.4	9.0	8.5	8.2	8.8	9.6	9.9	9.6	8.4	8.5	7.4	7.0	5.1	6.5	5.5	6.7	4.8	6.6	4.4	5.2	8.4	1.8	9.9	7.1
Jan 30	7.0	4.6	5.8	5.9	7.2	10.3	9.0	8.6	6.7	5.1	21.5	10.6	9.8	11.2	11.5	13.3	10.9	9.6	8.4	8.3	11.1	10.9	8.9	7.2	4.6	21.5	9.3
Jan 31	6.5	5.7	2.4	1.4	2.8	5.8	5.4	3.1	6.2	6.1	4.8	6.5	7.2	9.5	7.3	7.6	12.8	14.3	15.3	15.5	17.5	17.2	15.5	15.1	1.4	17.5	8.8
Diurnal Maximum	14.4	11.1	10.4	10.4	12.2	10.8	11.1	11.5	14.2	12.7	12.5	16.3	14.7	16.3	14.1	14.2	13.9	14.3	15.3	15.5	17.5	17.2	15.5	15.2			
Diurnal Average	5.7	5.5	5.5	5.7	6.0	5.8	6.0	6.1	6.3	5.9	6.5	6.6	6.3	7.0	7.0	6.5	6.4	6.3	6.0	6.1	6.3	6.2	6.1	6.2			

<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>ND</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> InValid Data (Equipment Malfunction/Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b> Power Failure

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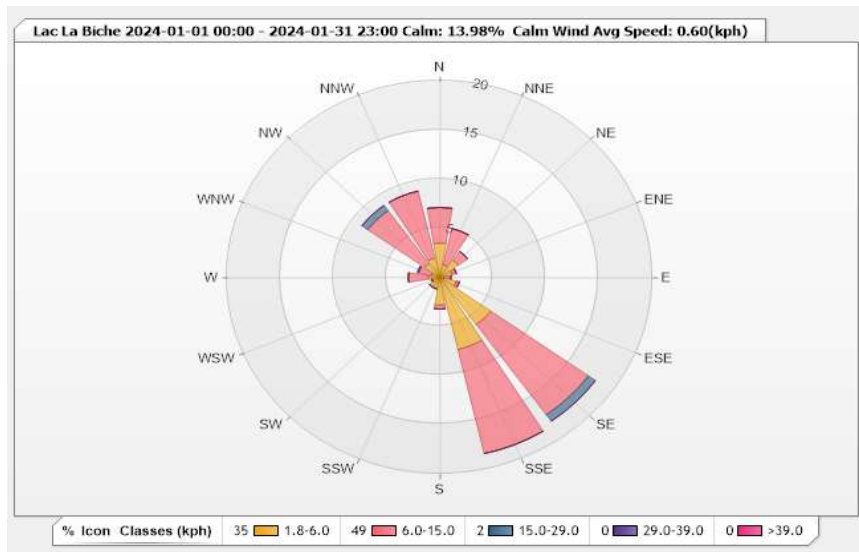


Station: Lac La Biche Monitor: WDS [kph] Monthly: 01-2024

Type: Wind Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm (WS<1.8kph): 13.98%      Valid Data: 100.00%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	3.49	3.63	0	0	0	7.12
NNE	1.34	3.76	0	0	0	5.1
NE	2.15	1.08	0	0	0	3.23
ENE	1.21	0.4	0	0	0	1.61
E	0.4	0.67	0	0	0	1.07
ESE	1.61	0.27	0	0	0	1.88
SE	5.91	11.29	0.81	0	0	18.01
SSE	7.53	10.89	0	0	0	18.42
S	2.82	0.4	0	0	0	3.22
SSW	1.21	0	0	0	0	1.21
SW	1.21	0	0	0	0	1.21
WSW	0.67	0.13	0	0	0	0.8
W	1.08	1.88	0	0	0	2.96
WNW	0.81	1.21	0.13	0	0	2.15
NW	1.75	6.59	0.67	0	0	9.01
NNW	2.02	6.99	0	0	0	9.01
Summary	35.21	49.19	1.61	0	0	86.01



Lakeland Industry & Community Association

Lac La Biche Station - January 2024

Summary of Hourly Averages

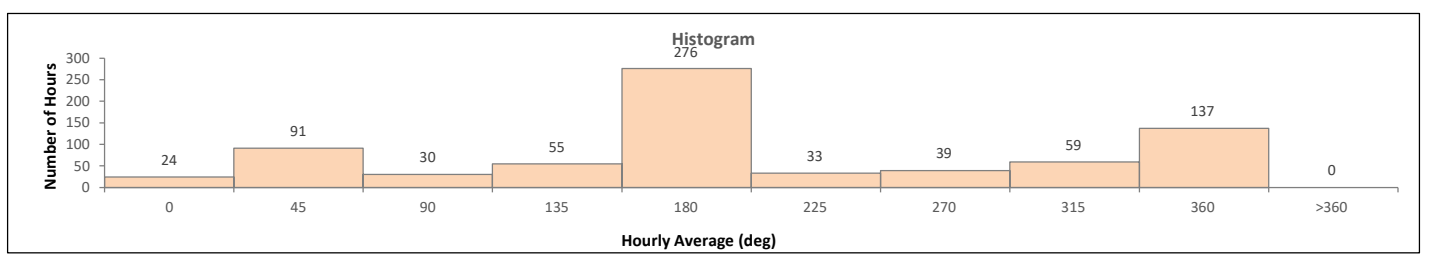
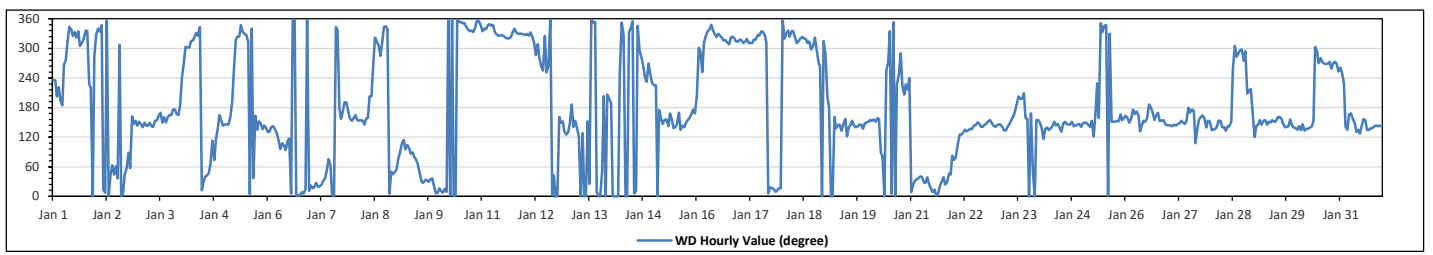
WIND DIRECTION (VWD) in sector

Monthly Average:	93 (E)	degree	Hours in Service:	744
			Hours of Data:	744
			Hours of Missing Data:	0
			Hours of Calibration:	0
			Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant	
Jan 1	SW	SW	SSW	SW	SSW	S	W	W	NW	NNW	NNW	NW	NNW	NW	NNW	WNW	NW	NW	NNW	NNW	SW	SW	N	W	308	NW	
Jan 2	NNW	NNW	NNW	NNW	NNE	N	N	N	NE	ENE	NE	ENE	NE	NW	N	N	NE	ENE	E	ENE	SSE	SE	SSE	SE	20	NNE	
Jan 3	SSE	SE	SE	SSE	SE	SE	SSE	SE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	S	SSE	SSE	S	156	SSE	
Jan 4	WSW	W	WNW	WNW	WNW	NW	NW	NW	NNW	NNW	NNW	NNE	NE	NE	NE	ENE	ESE	ENE	ESE	SE	SSE	SSE	SE	SE	335	NNW	
Jan 5	SE	SE	SE	SSE	S	WSW	NW	NW	NW	NNW	NNW	NNW	NW	NW	N	NNW	NE	SSE	SE	SSE	SE	SE	SE	SE	340	NNW	
Jan 6	SE	SE	SE	SE	SE	SE	ESE	E	ESE	ESE	E	ESE	ESE	N	N	N	N	N	N	N	N	NNE	N	NNE	52	NE	
Jan 7	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NE	NE	ENE	ENE	N	N	NNW	NNW	S	SSE	S	S	S	SSE	SSE	SSE	35	NE	
Jan 8	SSE	SSE	SSE	SSE	SSE	SSE	SE	SSE	SSE	SSW	SSW	W	NW	NW	WNW	WNW	NW	NNW	NNW	NNW	N	NE	NE	NE	162	SSE	
Jan 9	NE	ENE	E	ESE	ESE	E	ESE	E	E	E	ENE	ENE	ENE	NE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	55	NE	
Jan 10	NNE	N	N	NNE	N	N	N	N	N	N	N	N	N	N	N	NNW	NNW	NNW	NNW	NNW	NNW	N	N	NNW	354	N	
Jan 11	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	331	NNW
Jan 12	NW	NNW	NW	NNW	NW	NW	WNW	NW	W	W	WSW	NW	WSW	W	N	N	NE	N	N	SSE	SSE	SSE	SE	SE	325	NW	
Jan 13	SE	SE	S	SE	SSE	SE	ESE	N	SE	N	N	SSE	NNE	N	N	N	N	N	N	NE	SSW	N	SSW	SSW	81	E	
Jan 14	S	N	N	N	N	WSW	N	NW	N	N	NNW	NNW	N	N	NNE	NNW	WNW	W	W	WSW	SW	W	WSW	SW	314	NW	
Jan 15	SW	SW	N	S	SSE	SE	SSE	SE	SSE	SE	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SSE	SSE	S	SSE	156	SSE	
Jan 16	SSW	WNW	WNW	WSW	NW	NW	NNW	NNW	NNW	NNW	NNW	NW	NNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	321	NW	
Jan 17	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NW	N	NNE	NNE	NNE	N	NNE	NNE	NNE	331	NNW	
Jan 18	N	NW	NNW	NNW	NW	NNW	NNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	WNW	WNW	NW	WNW	W	W	N	NW	320	NW	
Jan 19	WNW	SSW	S	N	N	SSE	SE	SE	SE	SE	SE	ESE	ESE	SE	SE	SSE	SE	SE	SE	SE	SE	SE	SE	SE	146	SE	
Jan 20	SSE	SSE	SSE	SSE	SSE	SSE	E	E	N	WSW	W	NNW	N	N	N	SW	WSW	WNW	SW	SSW	SW	SW	WSW	166	SSE		
Jan 21	N	NNE	NNE	NE	NE	NE	NE	NNE	NNE	NNE	NNE	NNE	N	NNE	N	N	N	NNE	NNE	NE	NNE	NNE	NE	E	299	NNE	
Jan 22	ENE	ENE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	138	SE	
Jan 23	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SSE	S	S	SSW	SSW	SSW	SSE	SSE	N	SSE	NE	N	SSE	SSE	155	SSE	
Jan 24	SSE	SE	ESE	SE	SE	SE	SE	SE	SSE	SE	SE	SE	SE	SE	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SE	144	SE	
Jan 25	SE	SSE	SSE	SE	SE	SSE	ESE	S	SW	SSE	N	NNW	NNW	N	NNW	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	147	SE	
Jan 26	SSE	SSE	SSE	SSE	S	SSE	S	SSE	SE	SE	SSE	SSE	SSE	S	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SE	SE	158	SSE	
Jan 27	SE	SE	SE	SE	SE	SE	SE	SSE	SSE	SE	SSE	S	SSE	S	S	ESE	SE	SSE	SSE	SSE	SSE	SE	SSE	SSE	151	SSE	
Jan 28	SE	SE	SE	SE	SSE	SSE	SE	SE	SE	SE	SE	SE	SSE	WSW	WNW	W	WNW	WNW	WNW	W	WNW	SSW	SSW	SSW	198	SSW	
Jan 29	ESE	SE	SE	SSE	SE	SSE	SSE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	SE	SE	SE	SE	SE	SE	SE	149	SSE	
Jan 30	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	WNW	WNW	W	W	W	W	W	W	W	WSW	W	W	W	WSW	249	WSW	
Jan 31	W	WSW	SW	SE	SE	SSE	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	147	SE	

<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>ND</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> Invalid Data (Machine Malfunction/Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b> Power Failure

Daily Average is shown "\*" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "\*" if minimum data completeness criteria of 75% of days per month is not met.



Lakeland Industry & Community Association

Lac La Biche Station - January 2024

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr & WIND DIRECTION (VWD) in sector

WIND SPEED																																																	
Maximum Hourly Value:		21.5 kph on Jan 30 at hr 10										Hours in Service:		744																																			
Maximum Daily Value:		12.1 kph on Jan 11										Hours of Data:		744																																			
Minimum Hourly Value:		0.0 kph on Jan 1 at hr 20										Hours of Missing Data:		0																																			
Minimum Daily Value:		1.1 kph on Jan 13										Hours of Calibration:		0																																			
Monthly Average:		0.5 kph										Operational Uptime:		100.0																																			
WIND DIRECTION																																																	
Monthly Average:		93 degree (E)																																															
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average																							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23																									
Jan 1	5.0	4.3	1.2	2.0	1.4	0.9	3.5	6.4	6.8	5.9	5.8	9.9	8.9	10.4	6.1	4.6	4.8	4.8	1.8	0.3	0.0	0.2	0.0	0.6	0.0	10.4	4.0																						
Jan 2	3.7	7.5	6.7	6.2	6.8	4.0	4.3	4.8	3.5	6.6	2.7	1.8	3.4	0.9	3.4	3.3	3.7	2.3	1.4	0.2	0.0	4.1	4.4	5.0	0.0	7.5	3.8																						
Jan 3	4.4	2.4	4.6	6.3	6.5	7.3	6.8	6.7	7.8	7.4	8.1	7.8	7.5	8.4	7.7	9.2	8.3	8.7	9.5	8.9	4.9	3.5	2.7	2.9	2.4	9.5	6.6																						
Jan 4	3.9	7.4	7.8	6.5	6.7	9.7	9.6	9.3	11.8	11.4	8.7	7.1	5.1	1.4	2.6	3.9	3.7	4.6	2.9	4.9	8.7	5.2	6.8	5.2	1.4	11.8	6.5																						
Jan 5	4.0	2.8	2.0	2.9	0.2	1.5	11.1	9.8	9.0	6.0	8.5	8.1	6.7	2.4	3.0	1.3	1.6	0.1	2.0	5.8	5.0	7.7	7.7	7.2	0.1	11.1	4.9																						
Jan 6	8.1	8.2	8.6	7.3	7.4	6.2	3.6	1.7	3.9	3.4	3.2	5.0	2.7	0.5	4.3	7.5	8.7	9.6	9.8	10.0	9.0	9.1	9.4	9.7	0.5	10.0	6.5																						
Jan 7	9.5	8.9	9.5	7.6	7.6	8.3	7.9	6.0	7.6	5.8	3.6	2.0	3.3	4.7	3.5	2.8	0.1	0.9	1.9	3.1	4.3	3.7	5.3	8.6	0.1	9.5	5.3																						
Jan 8	8.1	6.7	7.3	6.9	6.1	8.1	8.4	6.6	7.2	2.4	3.5	4.3	3.2	5.9	5.5	4.7	6.4	6.7	6.0	6.1	3.8	4.0	4.7	5.1	2.4	8.4	5.7																						
Jan 9	6.4	5.8	5.0	6.9	7.8	5.1	5.8	6.4	6.8	6.8	7.5	7.9	9.6	8.8	9.6	8.3	8.9	9.1	8.3	7.2	7.5	8.6	7.6	8.6	5.0	9.8	7.6																						
Jan 10	9.9	7.9	8.4	8.0	8.1	8.7	8.4	8.5	9.1	9.4	8.7	8.3	7.8	8.1	8.2	7.5	7.4	10.3	10.1	10.8	10.6	8.8	7.4	7.2	7.2	10.8	8.7																						
Jan 11	7.9	8.6	8.5	9.9	10.0	9.4	9.9	11.1	12.4	11.7	12.3	13.7	13.5	14.4	14.1	13.8	13.2	13.6	12.9	14.9	14.4	13.6	13.0	12.5	7.9	14.9	12.1																						
Jan 12	12.4	10.4	10.4	9.7	7.5	4.3	0.3	2.3	1.8	0.4	1.2	1.2	1.5	2.8	4.8	2.1	1.8	0.0	0.0	1.6	2.5	4.2	4.3	3.0	0.0	12.4	3.8																						
Jan 13	0.6	1.4	0.0	2.7	3.6	2.9	0.3	0.0	1.8	0.0	0.0	0.6	0.8	4.1	4.5	2.8	0.5	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.0	4.5	1.1																						
Jan 14	0.1	0.0	0.0	0.0	0.0	0.0	0.2	2.0	0.0	0.0	0.4	2.3	4.1	5.0	5.9	4.8	6.0	3.9	2.5	2.8	2.0	2.7	0.8	0.0	6.0	2.0																							
Jan 15	3.0	1.8	0.0	3.7	5.1	4.6	5.4	5.0	5.3	5.0	5.9	5.2	5.3	4.4	5.1	3.7	4.0	5.9	6.9	3.8	5.2	5.3	3.9	2.3	0.0	6.9	4.4																						
Jan 16	2.3	2.2	0.7	1.0	3.5	5.0	5.3	8.2	7.6	6.9	6.9	10.1	10.6	12.5	13.4	14.2	13.9	10.6	7.0	15.4	16.0	13.8	14.5	15.2	0.7	16.0	9.0																						
Jan 17	14.4	11.1	9.1	10.4	12.2	10.8	10.0	10.4	11.5	9.5	9.7	9.7	8.8	7.9	8.7	6.9	5.8	8.1	8.6	5.2	5.2	5.6	6.0	5.6	5.2	14.4	8.8																						
Jan 18	2.9	3.8	6.5	6.4	6.4	5.2	9.8	9.7	9.0	6.9	9.9	16.3	14.7	14.3	10.2	9.8	7.4	7.1	4.3	1.9	0.4	0.3	0.0	0.9	0.0	16.3	6.8																						
Jan 19	1.3	2.1	2.0	0.0	0.0	2.8	1.6	3.7	4.3	4.2	4.9	5.3	4.3	4.8	8.7	9.3	9.4	8.2	9.9	9.2	10.3	9.8	10.0	13.3	0.0	13.3	5.8																						
Jan 20	11.2	7.6	7.3	7.7	6.9	4.4	2.2	0.5	0.0	0.0	1.3	4.4	3.7	5.7	2.9	0.4	1.1	0.9	0.7	0.8	1.1	2.8	0.1	0.8	0.0	11.2	3.1																						
Jan 21	2.1	3.4	4.4	4.6	5.6	3.0	2.8	4.1	4.1	4.5	4.1	5.1	5.6	6.7	7.3	7.5	8.8	9.2	9.0	8.1	8.1	8.3	7.5	6.5	2.1	9.2	5.9																						
Jan 22	4.0	4.0	5.2	7.7	8.4	8.5	9.5	11.5	14.2	12.7	13.7	11.6	11.0	10.9	12.5	12.6	10.0	10.0	10.8	11.7	11.1	10.6	10.9	9.0	4.0	14.2	10.1																						
Jan 23	8.0	7.9	7.8	7.3	7.0	6.9	6.2	5.7	5.6	5.7	5.1	4.8	3.5	3.0	2.8	2.5	2.3	0.5	0.0	0.0	0.0	0.0	1.6	3.3	0.0	8.0	4.1																						
Jan 24	3.2	1.1	1.5	4.5	4.0	5.0	8.5	11.2	8.0	9.9	9.1	9.2	9.2	10.2	11.9	11.0	8.6	8.5	7.8	6.3	6.1	6.2	6.4	6.0	1.1	11.9	7.2																						
Jan 25	5.5	6.1	5.6	4.7	4.2	0.9	1.0	0.3	0.1	0.2	0.6	1.6	3.4	4.1	3.2	1.5	0.7	1.2	1.7	4.7	5.7	4.2	6.5	6.7	0.1	6.7	3.1																						
Jan 26	6.2	5.7	6.3	5.7	4.9	4.1	4.5	1.9	2.4	6.0	5.6	4.9	3.9	5.2	5.0	4.8	5.4	6.5	5.4	6.5	6.7	7.3	7.6	7.3	1.9	7.6	5.4																						
Jan 27	7.8	7.7	7.9	7.8	10.4	9.6	9.5	7.3	6.0	8.4	8.7	6.5	4.0	4.2	3.4	2.3	5.2	5.8	8.0	7.3	7.0	8.0	7.5	6.6	2.3	10.4	7.0																						
Jan 28	6.0	8.4	9.8	8.6	7.8	7.5	6.5	6.3	6.5	4.8	5.7	5.8	2.8	16.3	12.9	11.1	10.7	8.8	4.7	2.3	3.5	3.2	0.8	1.3	0.8	16.3	6.8																						
Jan 29	1.8	5.9	6.7	7.4	9.0	8.5	8.2	8.8	9.6	9.9	9.6	8.4	8.5	7.4	7.0	5.1	6.5	5.5	6.7	4.8	6.6	4.4	5.2	8.4	1.8	9.9	7.1																						
Jan 30	7.0	4.6	5.8	5.9	7.2	10.3	9.0	8.6	6.7	5.1	21.5	10.6	9.8	11.2	11.5	13.3	10.9	9.6	8.4	8.3	11.1	10.9	8.9	7.2	4.6	21.5	9.3																						
Jan 31	6.5	5.7	2.4	1.4	2.8	5.8	5.4	3.1	6.2	6.1	4.8	6.5	7.2	9.5	7.3	7.6	12.8	14.3	15.3	15.5	17.5	17.2	15.5	15.1	1.4	17.5	8.8																						
	W	WSW	SW	SE	SE	SSE	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE			147(SE)																						
C	Monthly Calibration										S										Daily Zero-Span Check							Q	Quality Assurance																				
K	Collection Error										ND										No Data (Machine Not in Service)							Y	Routine Maintenance										P	Power Failure									
X	InValid Data (Equipment Malfunction /Recovery)										NRM										UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																												

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

**Lakeland Industry & Community Association**  
**Lac La Biche Station - January 2024**  
**Summary of Hour Standard Deviations**

**STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree**

Maximum Hourly Value: 62 degree on Jan 6 at hr 13		Hours in Service: 744	
Minimum Hourly Value: 0 degree on Jan 1 at hr 22		Hours of Data: 744	
		Hours of Missing Data: 0	
		Hours of Calibration: 0	
		Operational Uptime: 100.0	

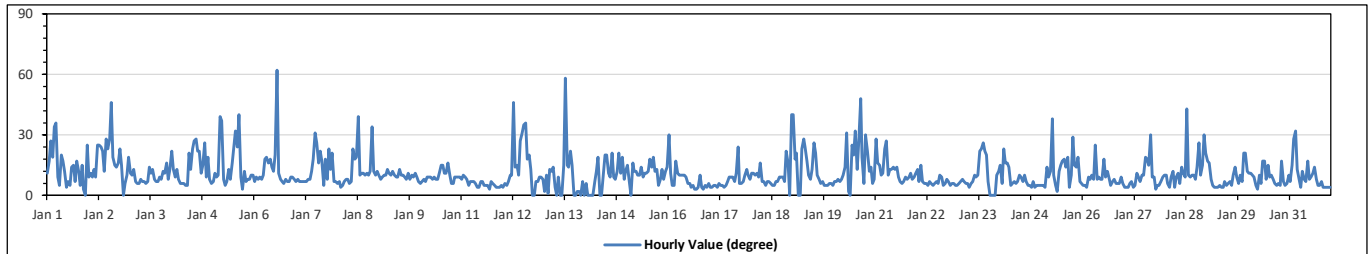
  

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
Jan 1	11	17	27	19	34	36	9	5	20	17	12	4	7	5	14	15	7	17	12	5	15	3	0	25	0	36
Jan 2	9	11	9	13	9	25	25	24	22	12	28	23	28	46	19	15	14	16	23	15	0	6	10	19	0	46
Jan 3	11	10	13	7	6	6	8	7	7	6	7	14	11	13	8	7	7	9	8	12	11	16	8	13	6	16
Jan 4	22	13	9	13	8	6	6	6	5	5	21	13	23	27	28	22	22	11	15	26	9	19	8	6	5	28
Jan 5	7	11	9	10	39	37	8	5	7	13	8	16	24	32	24	40	9	3	12	7	8	8	10	10	3	40
Jan 6	7	9	8	9	8	10	18	19	16	18	14	12	20	62	11	8	7	6	8	7	7	9	9	8	6	62
Jan 7	7	8	7	7	7	7	7	8	8	12	18	31	26	16	22	17	5	18	8	23	13	21	7	7	5	31
Jan 8	6	7	4	5	7	8	8	6	7	23	18	19	39	10	11	11	10	11	10	12	34	12	10	12	4	39
Jan 9	10	8	9	10	10	13	11	10	12	10	9	9	13	10	10	9	8	11	8	10	9	11	9	7	7	13
Jan 10	6	7	8	7	9	9	9	8	9	8	8	11	15	15	11	11	16	10	6	6	9	9	9	9	6	16
Jan 11	8	10	9	8	5	7	7	7	6	4	4	7	7	5	5	3	7	6	5	4	4	4	5	3	10	
Jan 12	4	6	5	7	10	10	46	14	15	10	27	31	35	36	18	20	13	0	0	7	7	9	9	8	0	46
Jan 13	2	10	1	13	12	14	4	0	9	0	0	15	58	15	14	22	15	0	0	2	2	0	7	0	0	58
Jan 14	6	0	0	0	0	7	12	19	0	0	11	20	20	11	9	21	9	8	12	21	11	19	8	12	0	21
Jan 15	15	8	0	16	12	12	10	10	14	9	11	11	12	18	14	19	12	13	5	8	13	8	12	14	0	19
Jan 16	30	11	5	5	17	11	10	10	10	9	6	6	4	5	3	3	4	10	4	3	5	4	6	3	3	30
Jan 17	4	4	5	5	4	6	5	5	4	5	7	9	9	9	7	11	24	6	6	7	10	13	10	8	4	24
Jan 18	11	11	10	11	9	16	7	7	5	7	6	5	5	7	7	9	9	9	9	7	22	16	0	40	0	40
Jan 19	40	18	21	0	0	23	28	24	17	10	8	13	26	21	10	8	6	7	5	5	5	6	6	5	0	40
Jan 20	7	7	8	7	8	10	14	31	2	0	25	20	32	13	27	48	19	6	30	22	12	14	6	8	0	48
Jan 21	28	16	15	10	11	23	27	10	13	13	14	13	14	9	7	6	7	9	8	9	11	8	9	11	6	28
Jan 22	13	7	15	7	6	6	5	7	6	5	6	7	6	10	9	5	6	8	7	5	6	6	5	5	5	15
Jan 23	6	7	8	7	6	6	4	6	7	10	9	10	22	23	26	22	20	7	0	0	0	0	10	12	0	26
Jan 24	15	6	23	16	16	14	5	6	7	6	7	10	9	7	10	7	5	5	4	7	4	5	5	5	4	23
Jan 25	5	5	4	14	9	12	38	10	5	2	12	15	17	18	14	19	4	10	29	15	14	19	7	6	2	38
Jan 26	5	5	4	9	8	10	8	25	8	9	8	8	18	9	12	8	5	7	8	6	6	6	9	6	4	25
Jan 27	4	4	4	6	7	4	5	11	9	7	10	10	19	18	15	30	9	9	3	5	5	7	9	10	3	30
Jan 28	10	6	4	9	12	4	9	11	6	14	11	9	43	10	9	10	10	8	14	26	10	15	30	21	4	43
Jan 29	17	16	8	5	4	4	4	5	4	4	7	5	6	7	5	10	14	9	6	10	7	21	21	12	4	21
Jan 30	11	11	10	9	5	3	10	6	17	17	8	15	9	10	8	6	5	6	5	17	7	5	6	10	3	17
Jan 31	7	15	28	32	13	8	4	12	8	7	17	8	9	11	14	8	5	5	7	4	4	4	4	4	4	32
Diurnal Minimum	2	0	0	0	0	3	4	0	0	0	0	4	5	4	5	3	3	0	0	0	0	0	0	0	0	0
Diurnal Maximum	40	18	28	32	39	37	46	31	22	23	28	31	58	62	28	48	24	18	30	26	34	21	30	40	40	

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Machine Malfunction/Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



END OF REPORT

This page, 159 of 159 ends the January 2024 Monthly Ambient Air Quality Monitoring Report.



**Lakeland Industry & Community Association**

**JANUARY 2024**

**Monthly Ambient Air Quality Monitoring Report**

**LICA-202401-Amended**

**Operation and Maintenance:**

Bureau Veritas Canada

**Data Validation and Report:**

Lakeland Industry & Community Association

March 15, 2024



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Lakeland Industry & Community Association

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**April 2, 2024**

Alberta Environment and Protected Areas (EPA)

11th Floor, Oxbridge Place

9820 106 Street

Edmonton, AB, T5K 2J6

**RE: LICA – January 2024 Monthly Ambient Air Quality Monitoring Report – Amended Report**

---

Enclosed is the January 2024 Amended Monthly Ambient Air Quality Monitoring Report for the continuous ambient air quality monitoring stations of the Lakeland Industry & Community Association (LICA) regional air quality monitoring network. Both ozone analyzers that were operating at the Cold Lake South station and at the Portable Air Monitoring System (PAMS) - Lac La Biche AQM station failed the February's calibration check. The failures affected data quality for data that were collected in January. Data therefore were revised. Documents that are listed bellowed were prepared and submitted as per AMD requirements.

- January 2024 monthly report (LICA-202401) was amended, and this amended report (LICA-202401-Amended) was prepared and submitted to ETS.
- January 2024 hourly data file (AMB-LICA-202401) was revised, and AMB-LICA-202401-01174-01608VC99 was prepared and submitted to ETS. ETS Request #4655422.
- Non-compliance event for the PAM-Lac La Biche O3 event was reported to DRAS on March 14, 2024. DINC0005556.

The representative of the Person Responsible for this monitoring program is

LICA Airshed

Michael Bisaga, Monitoring Programs Manager

5107 50 Street

Bonnyville, AB, T9N 2J7

Phone #: 780-226-7068

E-mail: [monitoring@lica.ca](mailto:monitoring@lica.ca)

This report has been reviewed by Michael Bisaga of the LICA Airshed.

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## Amended Monitoring Notes during the Month of January 2024

### Cold Lake South Station Ozone Analyzer

- The analyzer did not meet the 90% operational uptime requirement (12.0%). **DINC0005054**
- A successful multi-point calibration was completed on January 4. During January 30's repeat calibration, a leak was found in the calibrator. As a result, January 4's calibration was deemed invalid. Data collected between January 4 and January 30 were invalidated as a result. Six hundred twenty-four hours of downtime were recorded due to this event.
- The analyzer failed the as-found points check on February 7. The check result was confirmed with an alternate calibrator. No specific issues could be identified with the analyzer or the calibration system. A multi-point calibration was proceeded to correct the drift on February 7. In the absence of a clear point-of-failure, data were invalidated back to the last valid calibration check, which was January 30. Thirty-one hours of downtime were recorded due to this event.
- Data collected between January 30 hour 17 and January 31 hour 23 were revised as a result.
- **AQHI values:** Due to equipment issues, O3 data collected between January 4 and January 31 were invalidated. As NO2, O3 and PM2.5 are the parameters used to calculate the AQHI values, the AQHI values during this period were affected; AQH values were calculated using the raw data, which means data did not go through data validation. As a result, AQHI values presented in this report were kept for *reference use. AQHI values should be used with cautions.*

### Lac La Biche Station Ozone Analyzer

- The analyzer did not meet the 90% operational uptime requirement (28.2%). **DINC0005556**
- A successful monthly calibration was completed on January 9.
- The analyzer failed the as-found points check on February 2. A multi-point calibration was completed on February 2 to correct the drift. In the absence of a clear point-of-failure, data were invalidated back to the last valid calibration check, which was January 9. Five hundred thirty-four hours of downtime were recorded due to this event.
- Data collected between January 9 hour 19 and January 31 hour 23 were revised as a result.
- **AQHI values:** Due to equipment issues, O3 data collected between January 4 and January 31 were invalidated. As NO2, O3 and PM2.5 are the parameters used to calculate the AQHI values, the AQHI values during this period were affected; AQH values were calculated using the raw data, which means data did not go through data validation. As a result, AQHI values presented in this report were kept for *reference use. AQHI values should be used with cautions.*
  - at 11:15.

## Certification

This report was prepared and submitted by Lily Lin in accordance with Chapter 9 of the Air Monitoring Directive (AMD 2016).



Lily Lin, Data & Reporting Specialist, LICA Airshed

This report was reviewed by Michael Bisaga in accordance with Chapter 9 of the Air Monitoring Directive (AMD 2016).

I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements. I also certify that at the time of this report's submission, all air data have been electronically uploaded to Alberta's Ambient Air Quality Data Warehouse as required by the AMD. Uploading of VOC data from the canister sampling program was not required at the time of completing this report.



Michael Bisaga, Monitoring Programs Manager, LICA Airshed

March 15, 2024

## Cold Lake South Station

### Equipment Operation Summary

Parameter	Calibration Date	Equipment Operational Summary
<p><b>O3</b></p> <p>Thermo 49iQ #12208316585</p>	<p>January 30, 2024</p>	<ul style="list-style-type: none"><li>• A successful multi-point calibration was completed on January 4.</li><li>• During the January 30's repeat calibration, a leak was found in the calibrator. As a result, the January 4's calibration was deemed invalid. Data collected between January 4 and January 30 were invalidated as a result. Six hundred twenty-four hours of downtime were recorded due to this event.</li><li>• The analyzer failed the as-found points check on February 7. The check result was confirmed with an alternate calibrator. No specific issues could be identified with the analyzer or the calibration system. A multi-point calibration was proceeded to correct the drift on February 7. In the absence of a clear point-of-failure, data were invalidated back to the last valid calibration check, which was January 30. Thirty-one hours of downtime were recorded due to this event.</li></ul>

**Monitored Data Summary for Cold Lake South Station**

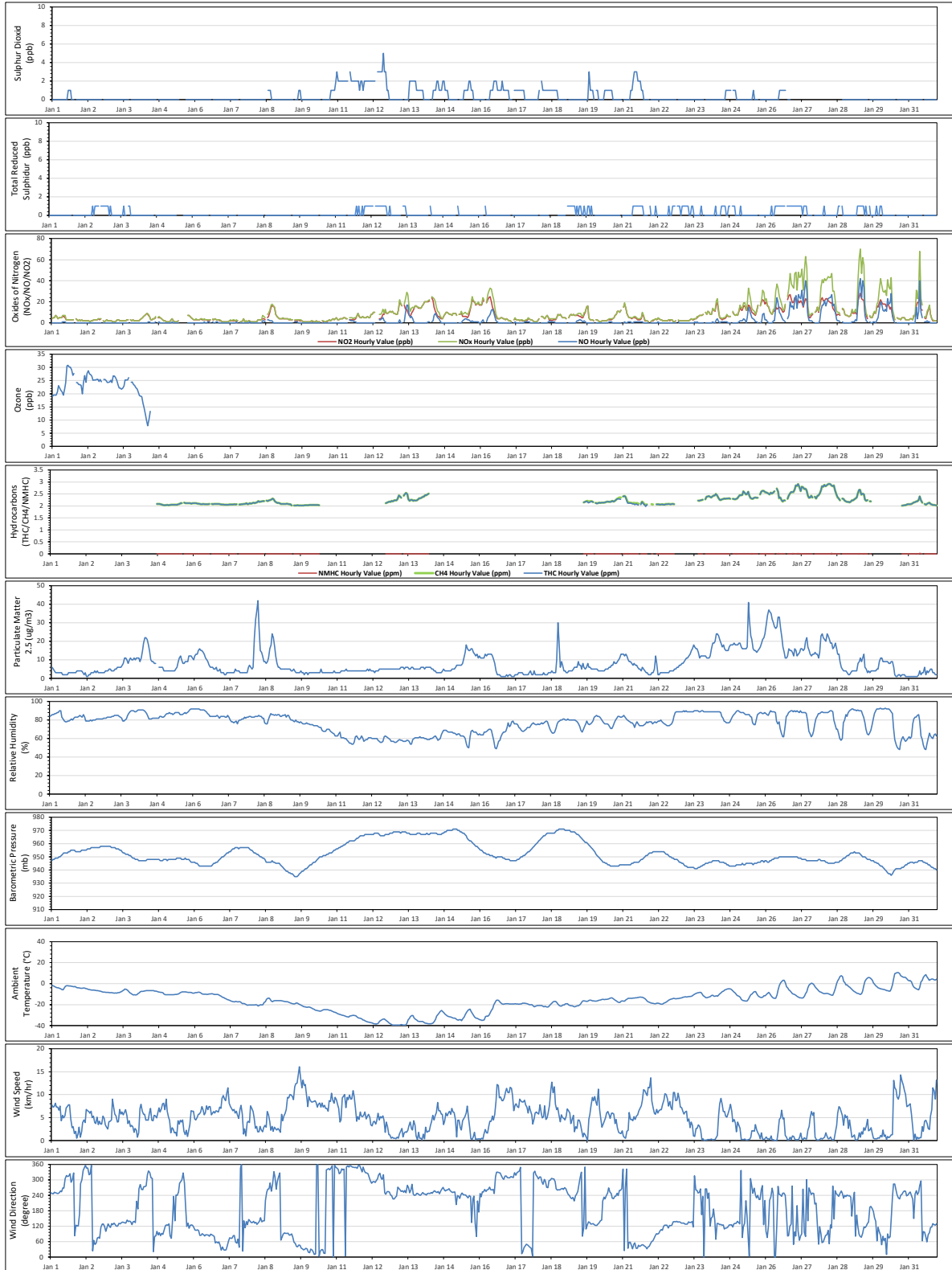
Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.4	0	5	Jan 12 at hr 14	5.4	WNW	2.0	Jan 11	94.2	89.6
TRS (ppb)	-	-	-	-	-	-	0.2	0	1	Jan 2 at hr 12	3.9	ENE	0.8	Jan 12	99.1	94.2
NOx (ppb)	-	-	-	-	-	-	9.6	1	70	Jan 29 at hr 7	0.7	E	30.3	Jan 27	99.9	94.7
NO (ppb)	-	-	-	-	-	-	2.4	0	42	Jan 29 at hr 7	0.7	E	14.4	Jan 27	99.9	94.7
NO2 (ppb)	159	-	-	0	-	-	7.2	1	28	Jan 29 at hr 7	0.7	E	15.8	Jan 27	99.9	94.7
O3 (ppb)	76	-	-	0	-	-	NA	7.9	30.8	Jan 1 at hr 13	7.4	NW	25.3	Jan 2	12.0	10.7
THC (ppm)	-	-	-	-	-	-	NA	1.98	2.92	Jan 27 at hr 3	0.1	E	2.60	Jan 27	57.8	54.3
CH4 (ppm)	-	-	-	-	-	-	NA	2.01	2.92	Jan 28 at hr 5	0.4	NE	2.60	Jan 27	57.8	54.3
NMHC (ppm)	-	-	-	-	-	-	NA	0.00	0.02	Jan 28 at hr 7	0.2	ESE	0.00	Jan 26	57.8	54.3
PM2.5 (µg/m3)	80	29	-	0	0	-	8.1	1	42	Jan 8 at hr 5	1.9	SE	23.7	Jan 26	100.0	99.7
RH (%)	-	-	-	-	-	-	76.8	48	93	Jan 30 at hr 0	1.1	E	89.3	Jan 23	100.0	100.0
BP (millibar)	-	-	-	-	-	-	952	935	971	Jan 15 at hr 1	6.2	WSW	968	Jan 13	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-15.3	-39.5	10.6	Jan 30 at hr 15	9	SW	1.8	Jan 31	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	23.0	18.5	25.4	Jan 30 at hr 13	11.1	WSW	23.9	Jan 30	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	0.6	0.0	16.1	Jan 9 at hr 16	16.1	NE	9.7	Jan 9	100.0	100.0
WDV (sector)	-	-	-	-	-	-	16 (NNE)	-	-	-	-	-	-	-	100.0	100.0

1- Date/ Time given is the first minimum and maximum value that was recorded

**Alberta Ambient Air Quality Objectives (AAQOs) and/or Alberta Ambient Air Quality Guidelines (AAQGs) Exceedances**

The measured ambient air quality was within the AAQOs and/or AAQGs for all monitored parameters.

Timeseries Chart of Hourly Average for the month of Jan 2024 - Cold Lake South Station





**Lac La Biche Station**

**Equipment Operation Summary**

Parameter	Calibration Date	Equipment Operational Summary
O3  Thermo 49i #1002240372	January 09, 2024	<ul style="list-style-type: none"><li>• The analyzer failed the daily zero-span checks from December 21, 2023 onwards. The problem was traced to the failed zero-span pump. The zero-span pump was replaced on January 3 following by a successful zero-span check. The issue did not affect the analyzer’s performance. One hour of downtime was recorded due to the additional quality check.</li><li>• The January 10’s scheduled zero-span check (hour 15) were interrupted and did not complete. A successful repeat zero-span check was completed at hour 21 and hour 22. Two hours of downtime were recorded due to this additional quality check.</li><li>• The analyzer failed the as-found points check on February 2. A multi-point calibration was completed on February 2 to correct the drift. In the absence of a clear point-of-failure, data were invalidated back to the last valid calibration check, which was January 9. Five hundred thirty-four hours of downtime were recorded due to this event.</li></ul>

**Monitored Data Summary for Lac La Biche Station**

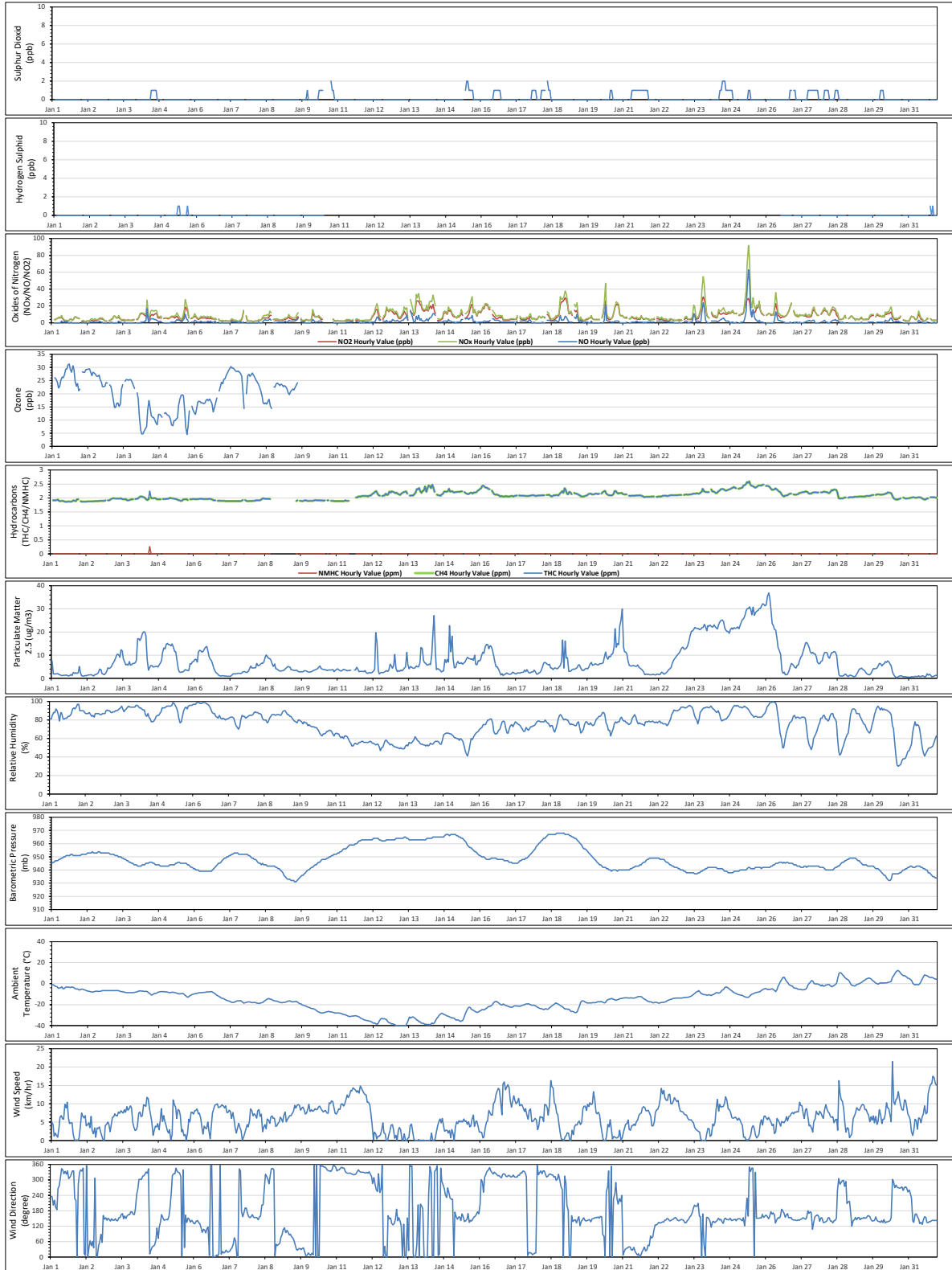
Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.1	0	2	Jan 10 at hr 18	10.1	NNW	0.6	Jan 21	100.0	94.9
H2S (ppb)	10	3	-	0	0	-	NA	0	1	Jan 5 at hr 8	9	NW	0.0	Jan 1	48.8	46.2
NOx (ppb)	-	-	-	-	-	-	9.5	1	92	Jan 25 at hr 9	0.2	SSE	26.4	Jan 25	100.0	94.6
NO (ppb)	-	-	-	-	-	-	1.9	0	63	Jan 25 at hr 9	0.2	SSE	10.6	Jan 25	100.0	94.6
NO2 (ppb)	159	-	-	0	-	-	7.5	1	31	Jan 23 at hr 19	0	SSE	15.7	Jan 25	100.0	94.6
O3 (ppb)	76	-	-	0	-	-	NA	4.5	31.3	Jan 1 at hr 14	6.1	NNW	26.8	Jan 7	28.2	26.5
THC (ppm)	-	-	-	-	-	-	2.08	1.86	2.60	Jan 25 at hr 10	0.6	N	2.44	Jan 25	97.3	92.3
CH4 (ppm)	-	-	-	-	-	-	2.08	1.86	2.60	Jan 25 at hr 10	0.6	N	2.44	Jan 25	97.3	92.3
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.26	Jan 4 at hr 11	7.1	NNE	0.01	Jan 4	97.3	92.3
PM2.5 (µg/m3)	80	29	-	0	0	-	7.5	0	37	Jan 26 at hr 2	6.3	SSE	28.3	Jan 25	100.0	99.7
RH (%)	-	-	-	-	-	-	76.4	30	100	Jan 26 at hr 4	4.9	S	93.1	Jan 6	100.0	100.0
BP (millibar)	-	-	-	-	-	-	948	931	968	Jan 18 at hr 16	7.4	WNW	966	Jan 18	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-14.3	-39.9	12.4	Jan 30 at hr 15	13.3	W	5.5	Jan 30	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	23.8	18.0	25.0	Jan 24 at hr 18	7.8	SSE	24.4	Jan 22	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	0.5	0.0	21.5	Jan 30 at hr 10	21.5	WNW	12.1	Jan 11	100.0	100.0
WDV (sector)	-	-	-	-	-	-	93 (E)	-	-	-	-	-	-	-	100.0	100.0

1- Date/ Time given is the first minimum and maximum value that was recorded

**Alberta Ambient Air Quality Objectives (AAQOs) and/or Alberta Ambient Air Quality Guidelines (AAQGs) Exceedances**

The measured ambient air quality was within the AAQOs and/or AAQGs for all monitored parameters.

Timeseries Chart of Hourly Average for the month of Jan 2024 - Lac La Biche Station



## TABLES AND CHARTS

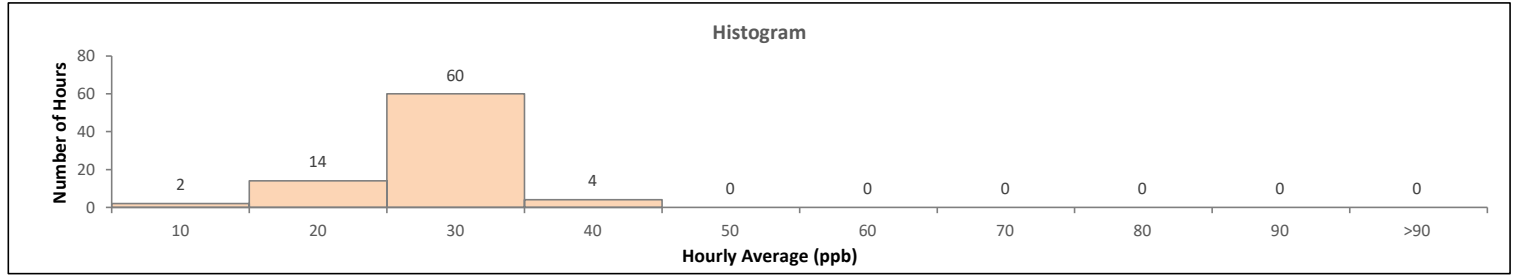
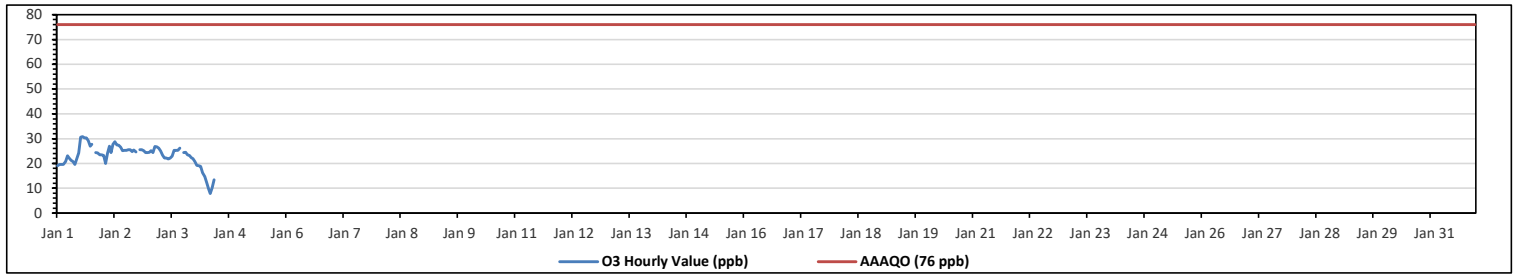
**COLD LAKE SOUTH STATION**

**Lakeland Industry & Community Association**  
**Cold Lake South Station - January 2024**  
**Summary of Hourly Averages**  
**OZONE (O<sub>3</sub>) in ppb**

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb																											
Number of 1-Hour Exceedances: 0																											
Maximum Hourly Value: 30.8 ppb on Jan 1 at hr 13												Hours in Service: 744															
Maximum Daily Value: 25.3 ppb on Jan 2												Hours of Data: 80															
Minimum Hourly Value: 7.9 ppb on Jan 4 at hr 8												Hours of Missing Data: 655															
Minimum Daily Value: 24.0 ppb on Jan 1												Hours of Calibration: 9															
Monthly Average: NA ppb												Operational Uptime: 12.0															
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Jan 1	19.1	19.6	19.5	19.5	20.8	23.1	22.1	21.3	20.7	19.5	21.9	24.2	30.6	30.8	30.2	30.2	29.2	27	27.7	S	24.3	24.2	23.5	23.5	19.1	30.8	24.0
Jan 2	23.2	20	24.1	26.9	24.4	27.7	28.8	27.5	27.3	26.6	25.2	25.3	25.3	25.5	25.6	24.7	25.4	24.6	S	25.5	25.5	25.1	24.3	24.4	20.0	28.8	25.3
Jan 3	24.5	25.2	24.3	26.8	26.7	26.2	25	23.3	22.2	22.1	21.7	22.1	23	25.3	25.3	25.3	26.1	S	24.4	24.5	23.5	23.2	22.3	21.9	21.7	26.8	24.1
Jan 4	20.7	19.3	19.1	18.9	16.3	14.7	12.3	9.6	7.9	10.2	13.3	NRM	NRM	NRM	NRM	NRM	X	X	X	X	X	X	X	X	7.9	20.7	NA
Jan 5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 29	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 30	X	X	X	X	X	X	X	X	X	X	X	C	C	C	C	C	C	X	X	X	X	X	X	X	-	-	-
Jan 31	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Diurnal Maximum	24.5	25.2	24.3	26.9	26.7	27.7	28.8	27.5	27.3	26.6	25.2	25.3	30.6	30.8	30.2	30.2	29.2	27.0	27.7	25.5	25.5	25.1	24.3	24.4			
Diurnal Average	21.9	21.0	21.8	23.0	22.1	22.9	22.1	20.4	19.5	19.6	20.5	23.9	26.3	27.2	27.0	26.7	26.9	25.8	26.1	25.0	24.4	24.2	23.4	23.3			

**C** Monthly Calibration      **S** Daily Zero-Span Check      **Q** Quality Assurance  
**K** Collection Error      **ND** No Data (Machine Not in Service)      **Y** Routine Maintenance  
**X** InValid Data (Equipment Malfunction /Recovery)      **NRM** UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)      **P** Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

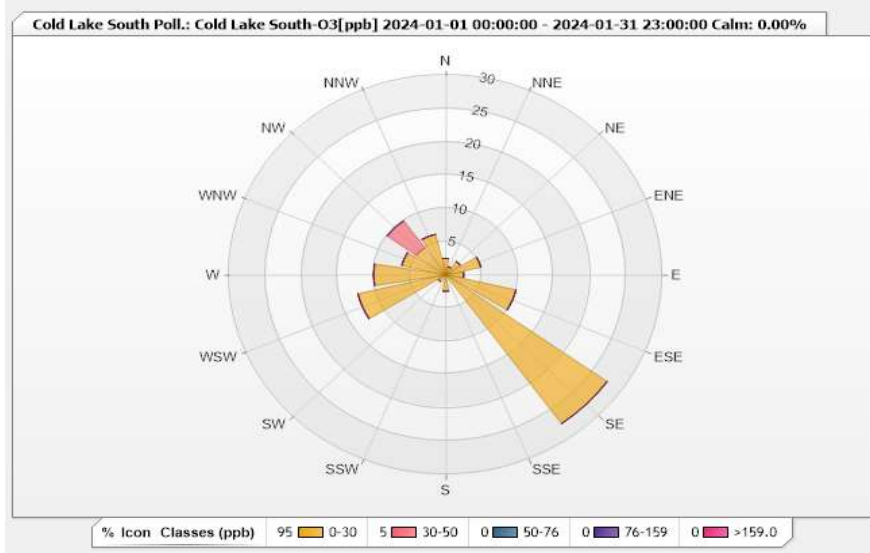


**Station: Cold Lake South Poll.: Cold Lake South-O3[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 10.75%      Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	2.5	0	0	0	0	2.5
NNE	1.25	0	0	0	0	1.25
NE	2.5	0	0	0	0	2.5
ENE	5	0	0	0	0	5
E	2.5	0	0	0	0	2.5
ESE	10	0	0	0	0	10
SE	27.5	0	0	0	0	27.5
SSE	0	0	0	0	0	0
S	2.5	0	0	0	0	2.5
SSW	0	0	0	0	0	0
SW	1.25	0	0	0	0	1.25
WSW	12.5	0	0	0	0	12.5
W	10	0	0	0	0	10
WNW	6.25	0	0	0	0	6.25
NW	5	5	0	0	0	10
NNW	6.25	0	0	0	0	6.25
Summary	95	5	0	0	0	100



**LAC LA BICHE STATION**

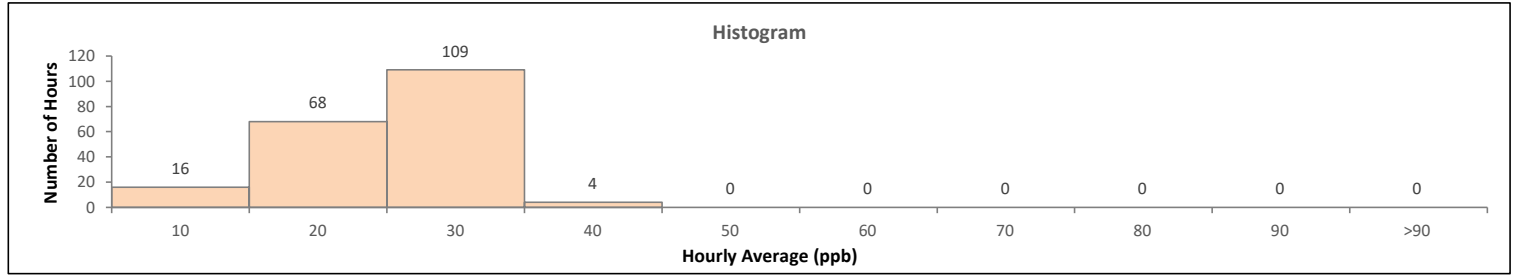
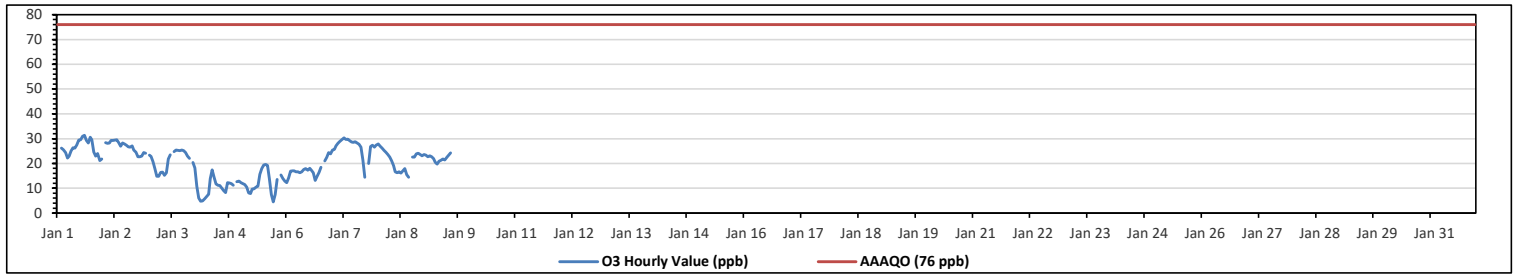


**Lac La Biche Station - January 2024**  
**Summary of Hourly Averages**  
**OZONE (O<sub>3</sub>) in ppb**

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb																											
Number of 1-Hour Exceedances: 0																											
Maximum Hourly Value: 31.3 ppb on Jan 1 at hr 14												Hours in Service: 744															
Maximum Daily Value: 26.8 ppb on Jan 7												Hours of Data: 197															
Minimum Hourly Value: 4.5 ppb on Jan 5 at hr 17												Hours of Missing Data: 534															
Minimum Daily Value: 10.6 ppb on Jan 4												Hours of Calibration: 13															
Monthly Average: NA ppb												Operational Uptime: 28.2															
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Jan 1	27.2	S	26.1	25.5	24.4	22.2	22.9	25	26.3	26.2	27.5	29.4	29.5	31	31.3	29.3	28.2	30.6	29.5	24.6	22.9	23.9	21.2	21.7	21.2	31.3	26.4
Jan 2	S	28.4	28.1	28.2	29.3	29.3	29.4	29.5	28.3	26.9	28.2	27.9	27.4	26.7	26.6	27.1	25.4	24.5	22.7	22.7	22.9	24.3	24.1	S	22.7	29.5	26.7
Jan 3	23.4	22.8	20.7	17.9	14.8	14.8	16.4	16.5	15.2	16.2	21.7	23.5	NRM	24.8	25.4	25.3	25.2	25.4	25.2	24.3	23	22	S	20.4	14.8	25.4	21.1
Jan 4	18.2	10.9	6.1	4.7	4.8	5.8	6.7	7.6	13.8	17.4	14.4	11.7	11.1	11	10	8.9	8.3	12.2	12.1	11.8	11.1	S	12.6	12.9	4.7	18.2	10.6
Jan 5	12.2	11.9	11.5	10.4	8.1	7.8	9.7	9.8	10.4	10.9	15.5	17.9	19.4	19.6	19.3	13.6	7.4	4.5	7.5	13.5	S	15.3	13.9	12.9	4.5	19.6	12.3
Jan 6	12.2	14.2	16.9	17.1	17	16.6	16.6	16.3	16.6	17.5	17.9	17.3	18	17.3	16.3	13.1	14.9	16.4	18.4	S	21	22.4	24.4	23.8	12.2	24.4	17.5
Jan 7	25.4	25.7	27.1	28.1	28.9	29.7	30.3	29.7	29.8	29.2	28.6	28.5	28.7	28.2	27.8	26.6	21.5	14.4	S	20	26.8	27.4	26.6	27.3	14.4	30.3	26.8
Jan 8	27.9	27	26.1	25.3	24.5	23.6	22.6	21	19.1	16.6	16.2	16.6	16.1	17.1	17.9	15.4	14.4	S	22.6	22.5	23.8	24.1	23.7	23.1	14.4	27.9	21.2
Jan 9	23.7	23.4	22.7	23.1	22.7	21.9	20.5	19.7	20.9	21.3	21.8	21.4	22.5	23.5	24.2	C	C	C	C	X	X	X	X	X	19.7	24.2	NA
Jan 10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 29	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 30	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 31	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Diurnal Maximum	27.9	28.4	28.1	28.2	29.3	29.7	30.3	29.7	29.8	29.2	28.6	29.4	29.5	31.0	31.3	29.3	28.2	30.6	29.5	24.6	26.8	27.4	26.6	27.3			
Diurnal Average	21.3	20.5	20.6	20.0	19.4	19.1	19.5	19.5	20.0	20.2	21.3	21.6	21.6	22.1	22.1	19.9	18.2	18.3	19.7	19.9	21.6	22.8	20.9	20.3			

**C** Monthly Calibration      **S** Daily Zero-Span Check      **Q** Quality Assurance  
**K** Collection Error      **ND** No Data (Machine Not in Service)      **Y** Routine Maintenance  
**X** InValid Data (Equipment Malfunction /Recovery)      **NRM** UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)      **P** Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

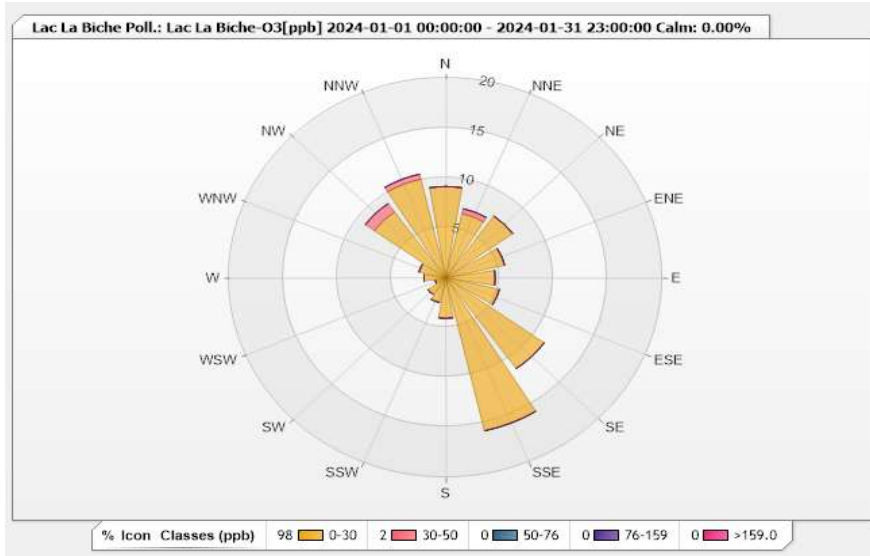


**Station: Lac La Biche Poll.: Lac La Biche-O3[ppb] Monthly: 01-2024**

Type: Pollution Rose  
 Direction: Blowing From (Wind Frequency)  
 Time Base: 1 - Hour

Calm: 0.00%      Valid Data: 26.48%      Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	9.14	0	0	0	0	9.14
NNE	6.6	0.51	0	0	0	7.11
NE	7.61	0	0	0	0	7.61
ENE	5.58	0	0	0	0	5.58
E	4.57	0	0	0	0	4.57
ESE	5.08	0	0	0	0	5.08
SE	11.17	0	0	0	0	11.17
SSE	15.74	0	0	0	0	15.74
S	4.06	0	0	0	0	4.06
SSW	2.54	0	0	0	0	2.54
SW	2.03	0	0	0	0	2.03
WSW	1.02	0	0	0	0	1.02
W	2.03	0	0	0	0	2.03
WNW	2.54	0	0	0	0	2.54
NW	8.12	1.02	0	0	0	9.14
NNW	10.15	0.51	0	0	0	10.66
Summary	97.98	2.04	0	0	0	100



END OF REPORT

This page, 20 of 20 ends the January 2024 Amended Monthly Ambient Air Quality Monitoring Report.



**Lakeland Industry & Community Association**

**JANUARY 2024**

**Ambient Air Monitoring Calibration Report**

**- COLD LAKE SOUTH STATION-**

**CAL-LICA-202401-01174**

**Station Operation and Maintenance:**

Bureau Veritas Canada

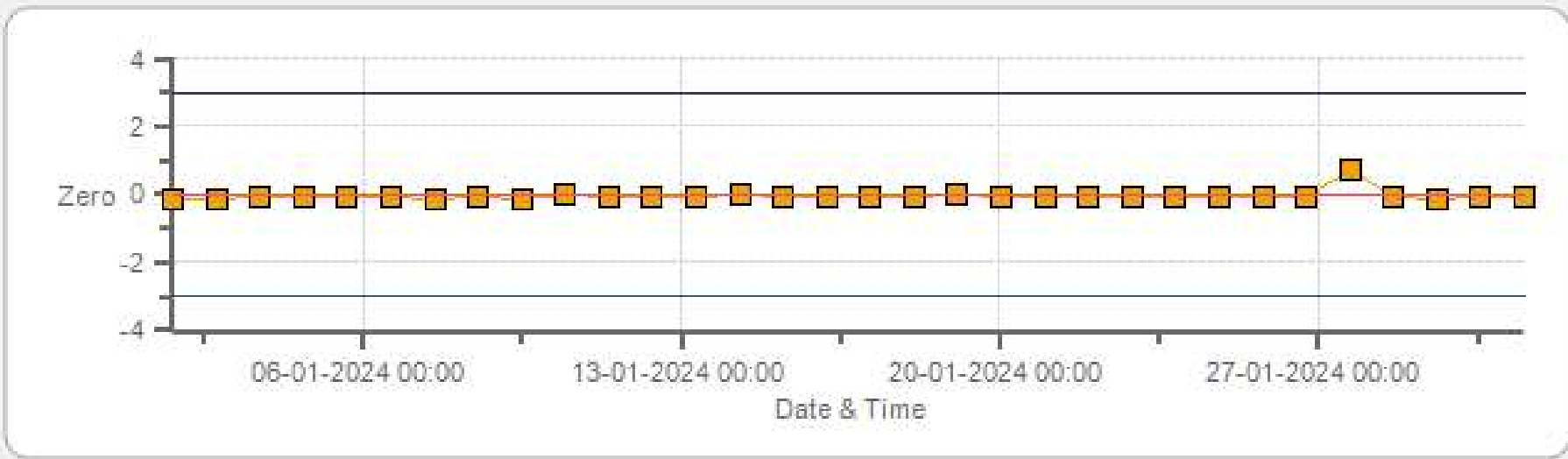
**Data Validation and Report:**

LICA / Bureau Veritas Canada

February 24, 2024

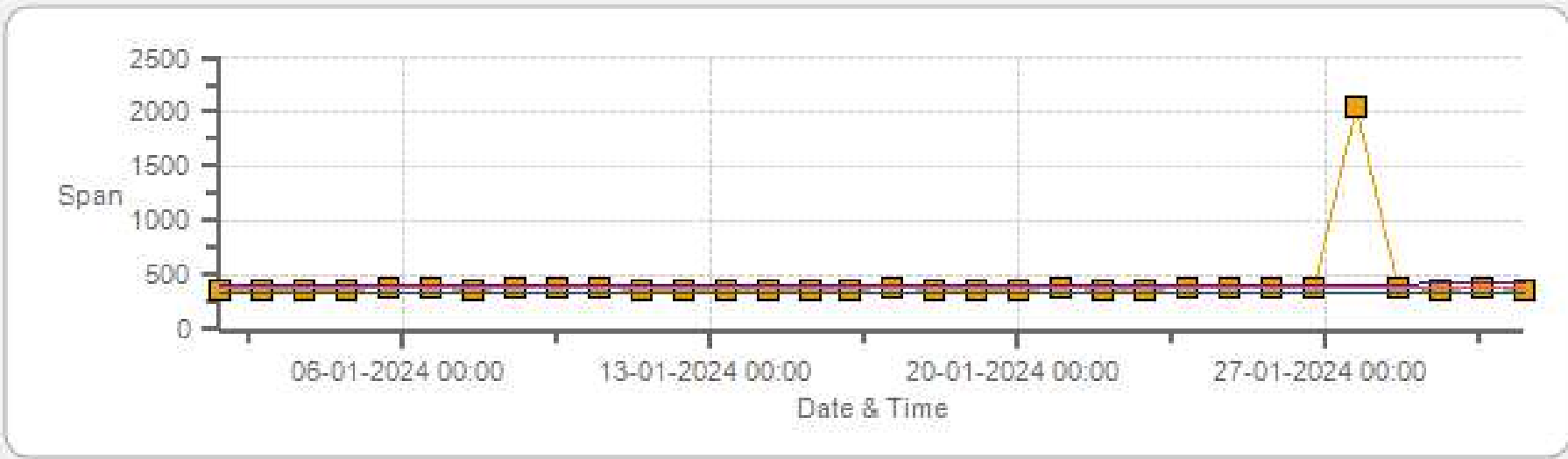
# DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Cold Lake South Monthly: 01-2024 Type: SpanAndZero - Zero



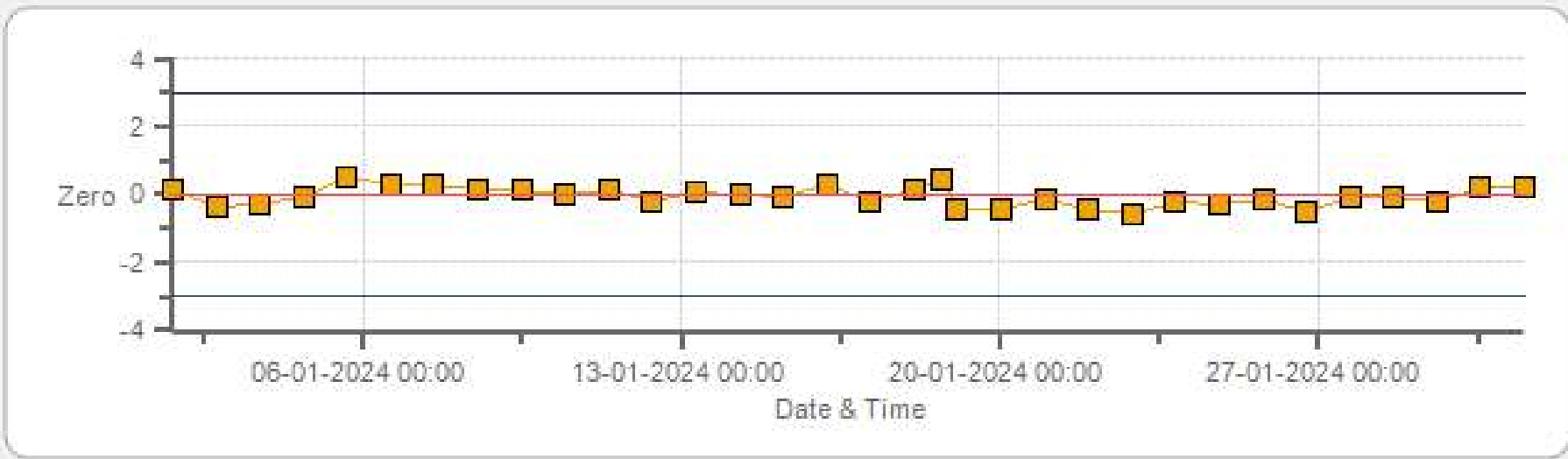
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: Cold Lake South Monthly: 01-2024 Type: SpanAndZero - Span



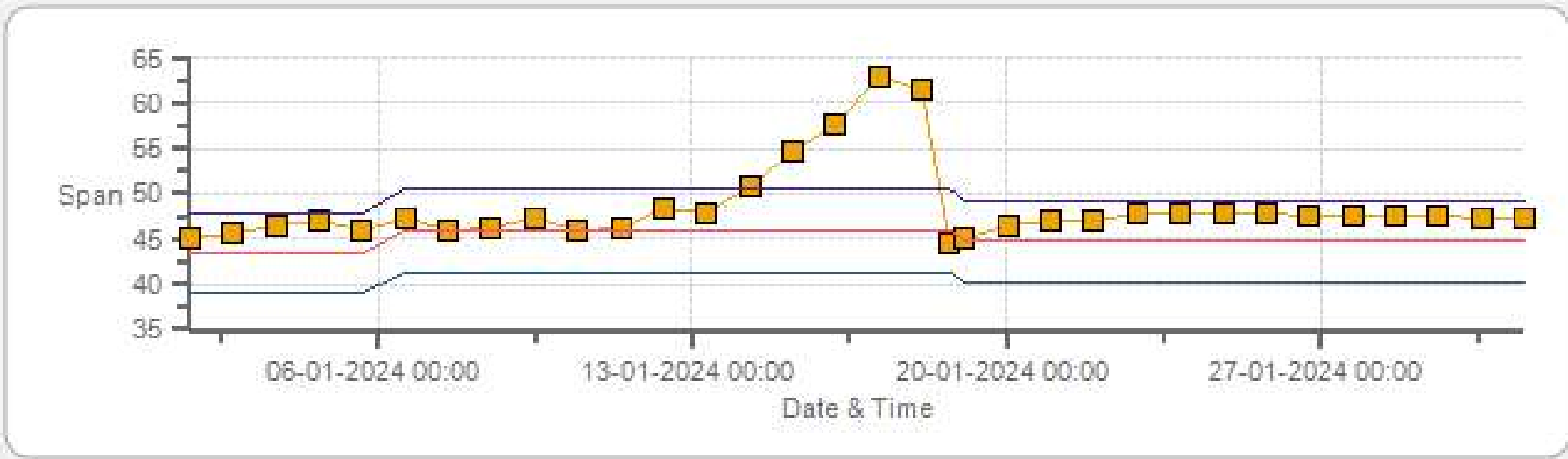
Span Span Ref Span Low Span High

TRS[ppb] Calibration: Cold Lake South Monthly: 01-2024 Type: SpanAndZero - Zero



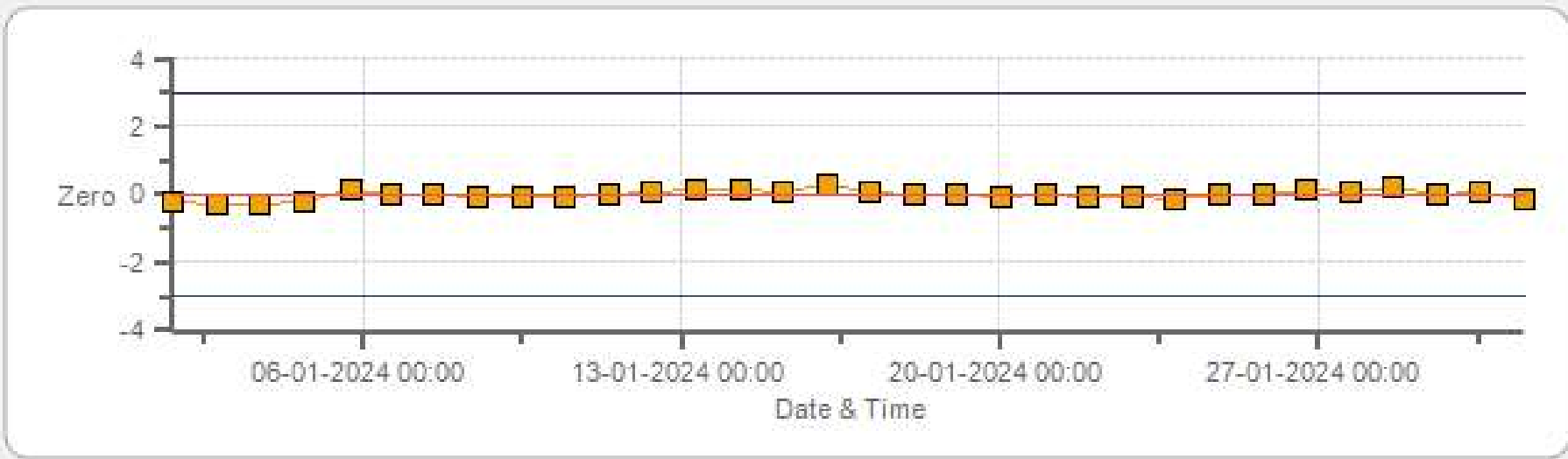
Zero Zero Ref Zero Low Zero High

TRS[ppb] Calibration: Cold Lake South Monthly: 01-2024 Type: SpanAndZero - Span



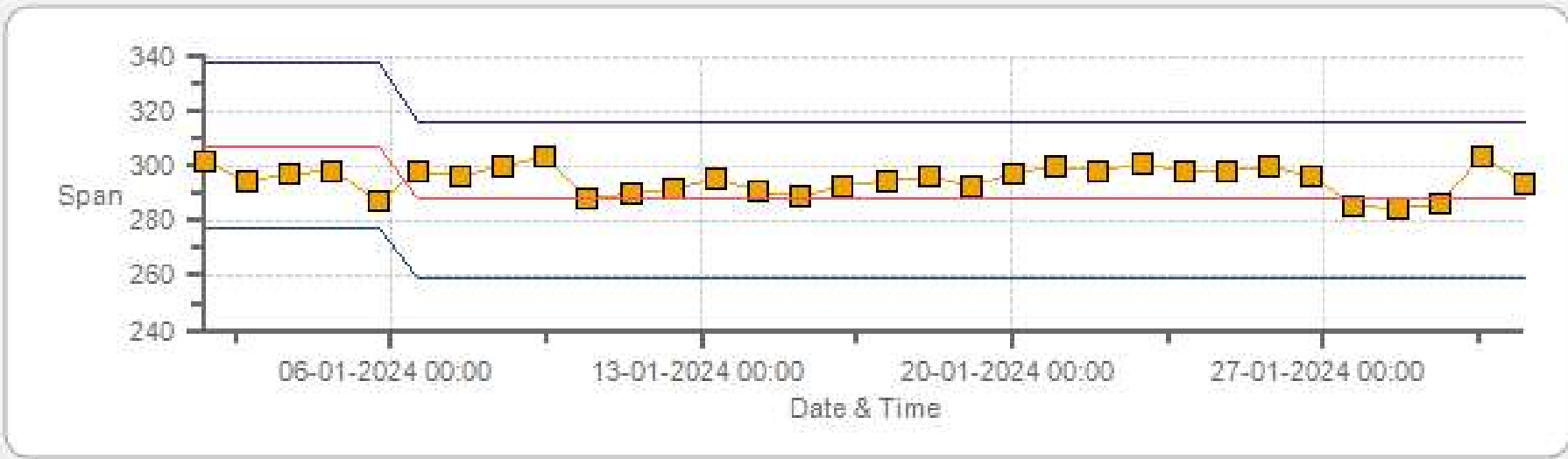
Span SpanRef Span Low Span High

NOX[ppb] Calibration: Cold Lake South Monthly: 01-2024 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

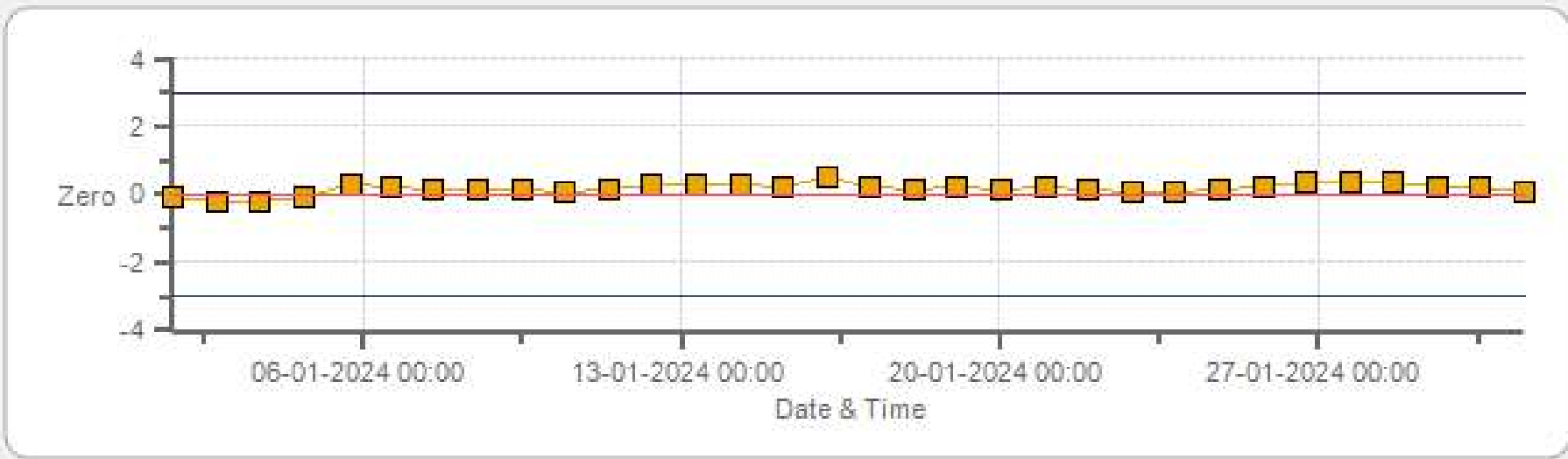
NOX[ppb] Calibration: Cold Lake South Monthly: 01-2024 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

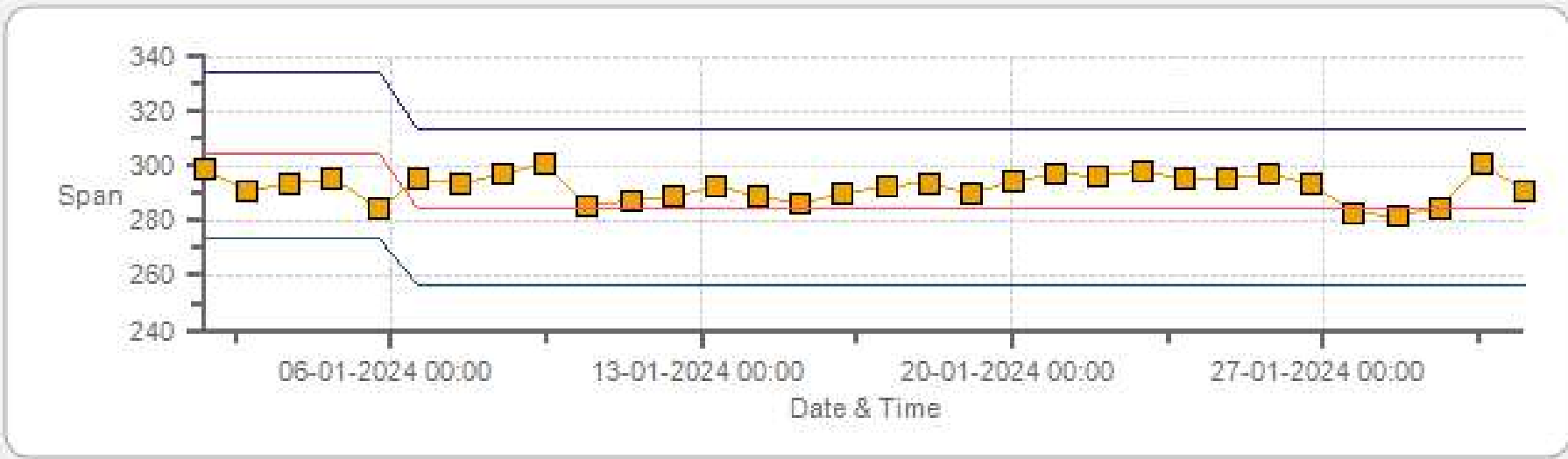


NO2[ppb] Calibration: Cold Lake South Monthly: 01-2024 Type: SpanAndZero - Zero



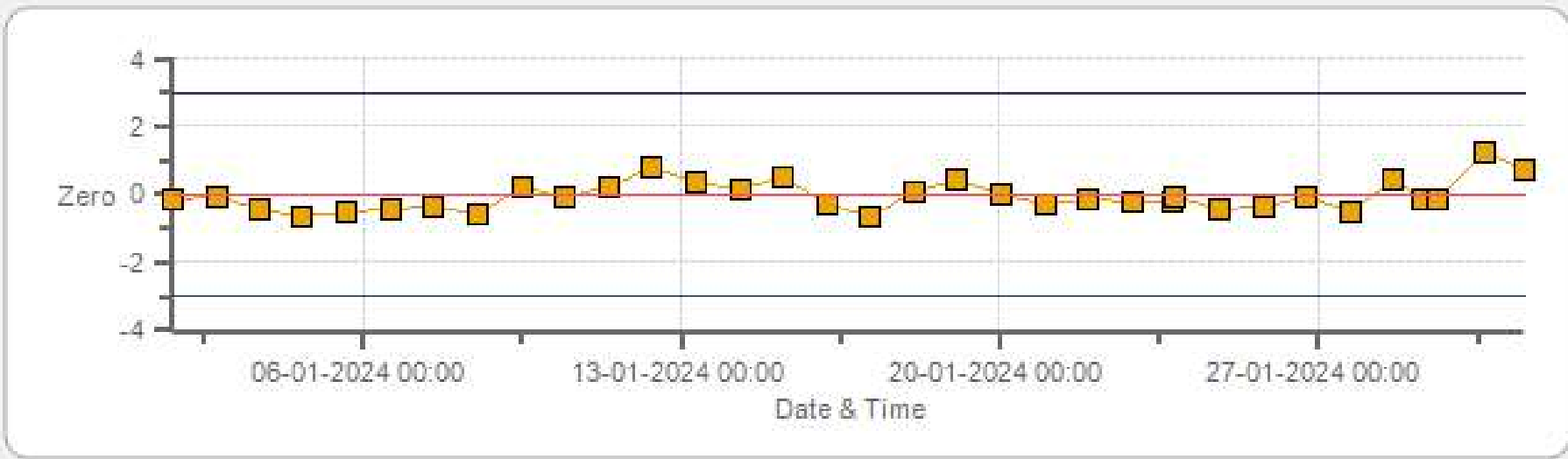
Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: Cold Lake South Monthly: 01-2024 Type: SpanAndZero - Span



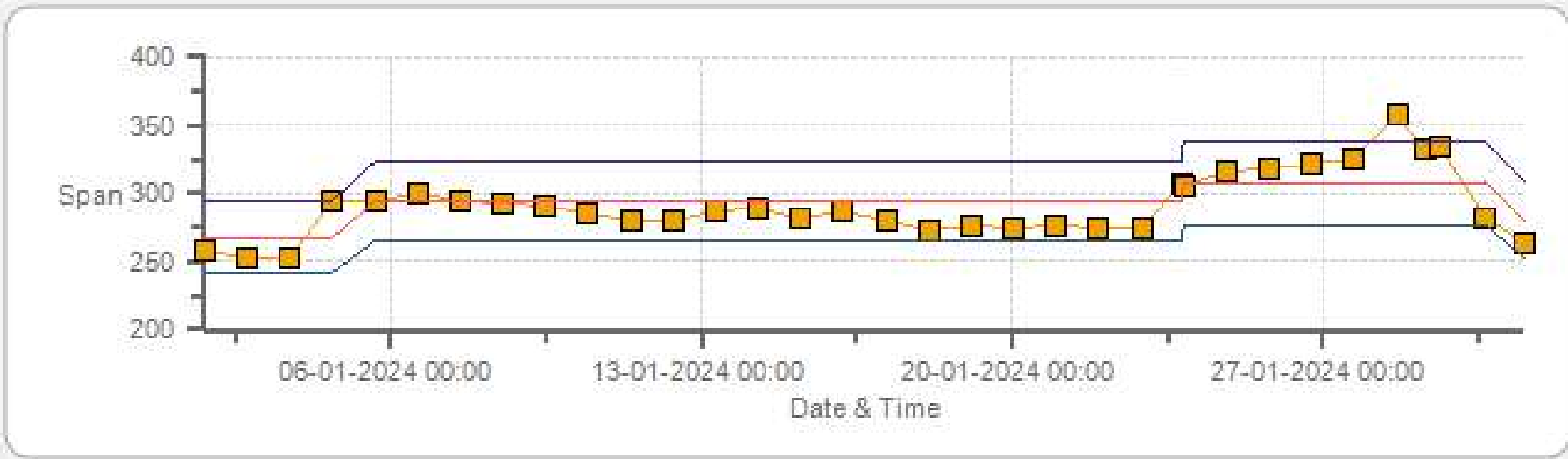
Span SpanRef Span Low Span High

O3[ppb] Calibration: Cold Lake South Monthly: 01-2024 Type: SpanAndZero - Zero



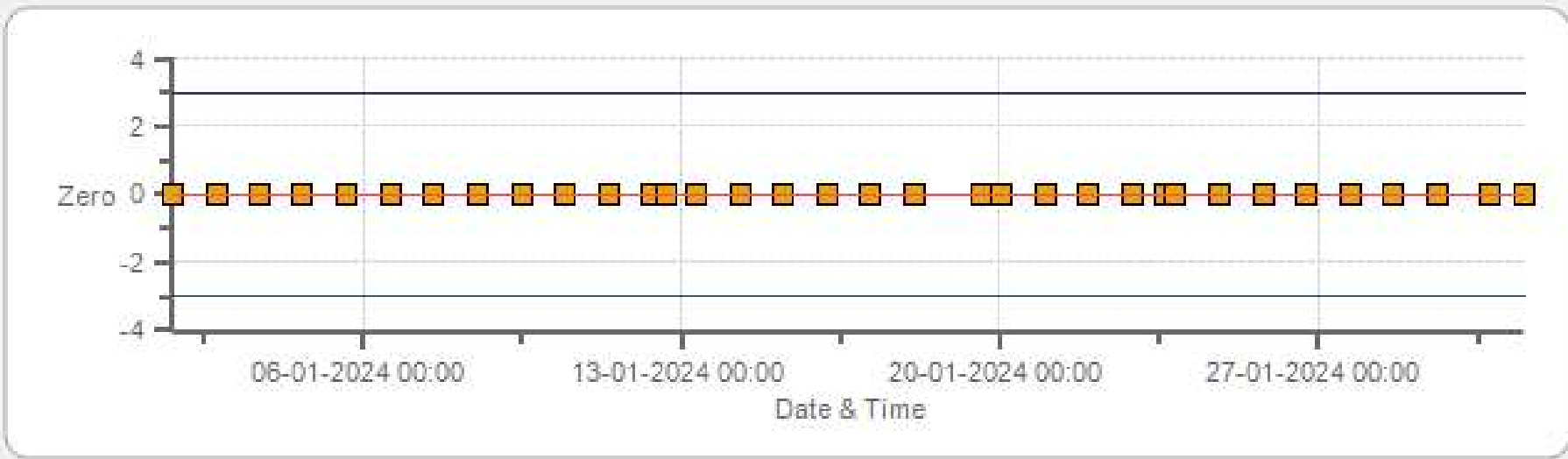
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: Cold Lake South Monthly: 01-2024 Type: SpanAndZero - Span



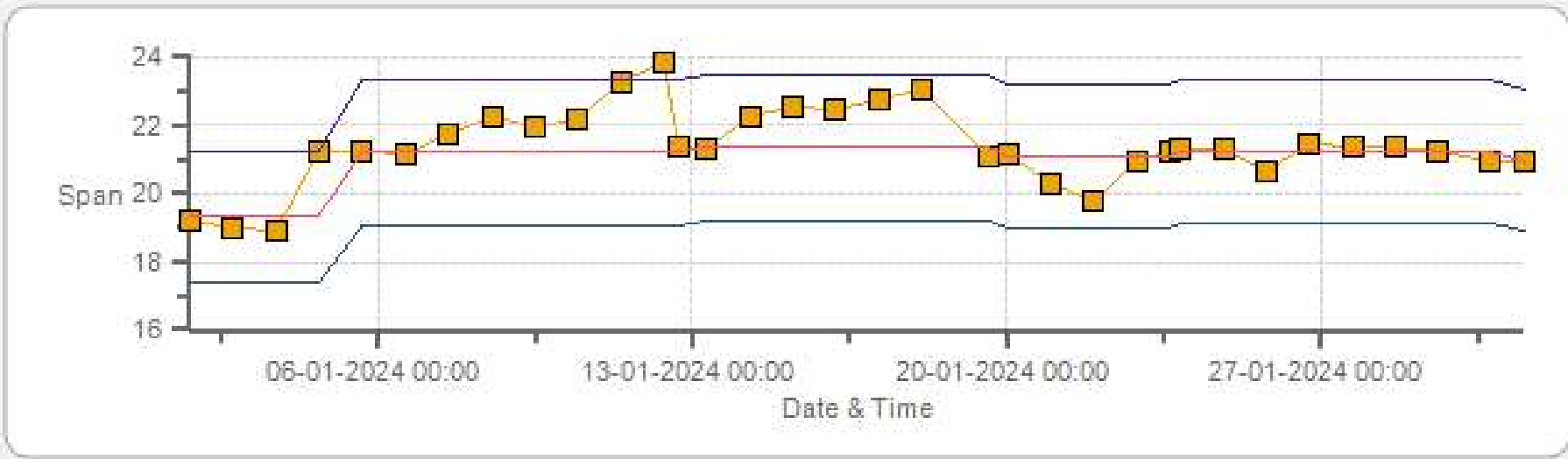
Span SpanRef Span Low Span High

THC55[ppm] Calibration: Cold Lake South Monthly: 01-2024 Type: SpanAndZero - Zero



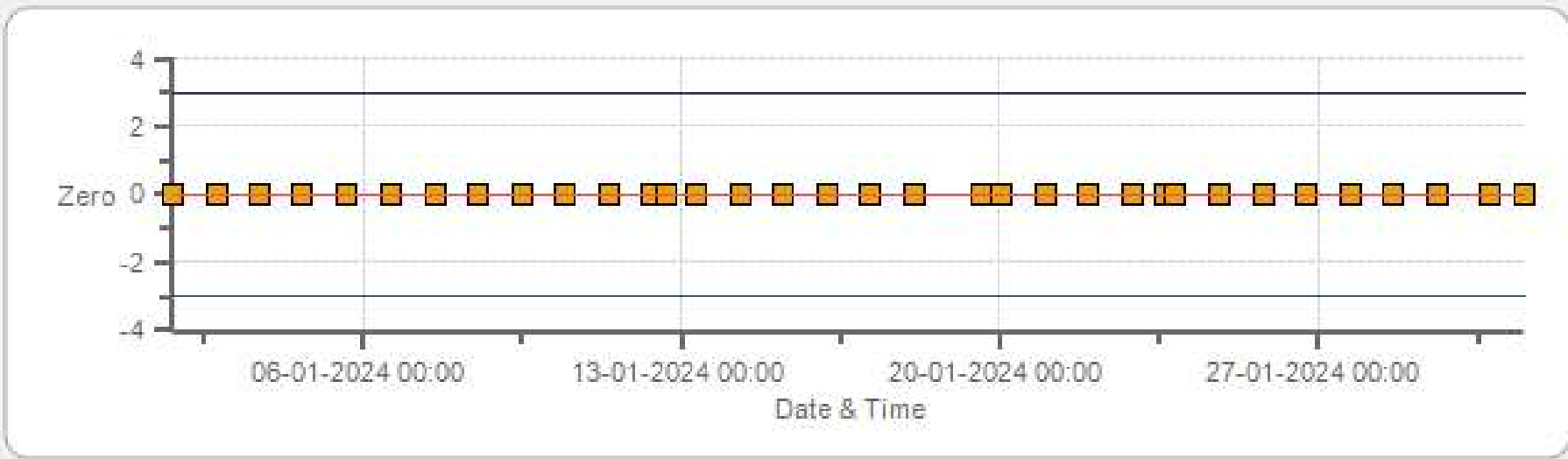
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: Cold Lake South Monthly: 01-2024 Type: SpanAndZero - Span



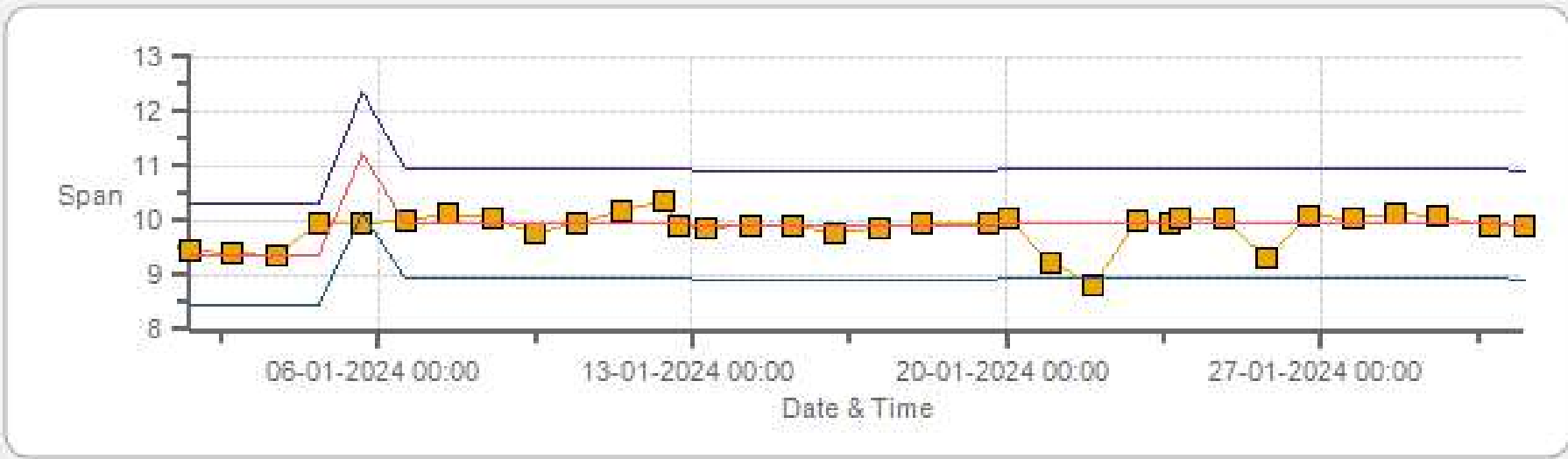
Span Span Ref Span Low Span High

CH4[ppm] Calibration: Cold Lake South Monthly: 01-2024 Type: SpanAndZero - Zero



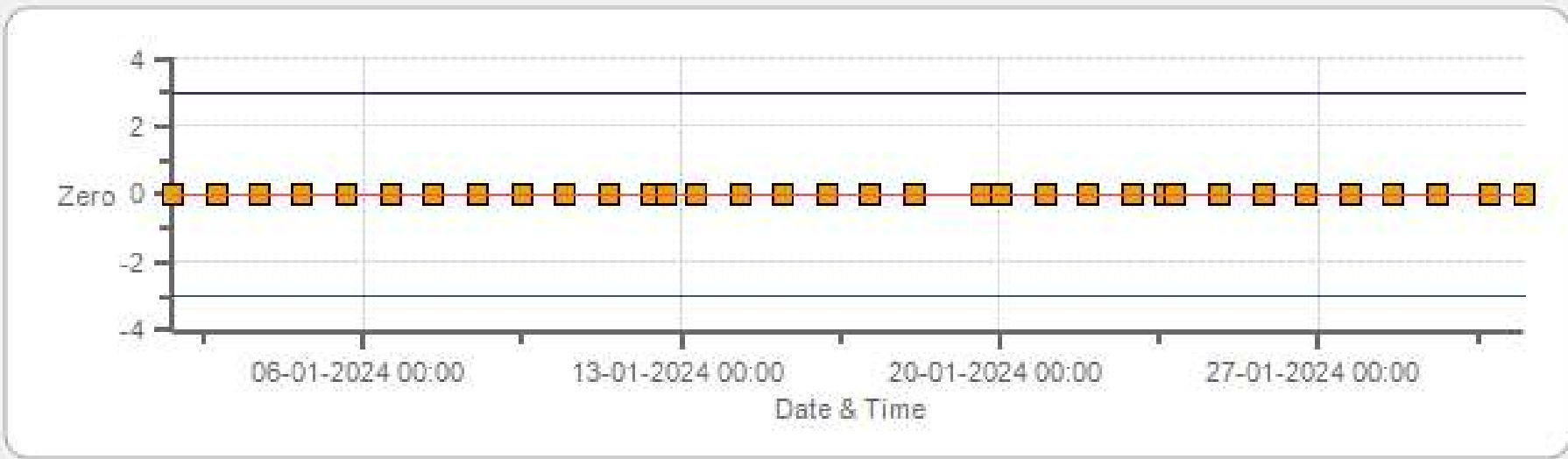
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: Cold Lake South Monthly: 01-2024 Type: SpanAndZero - Span



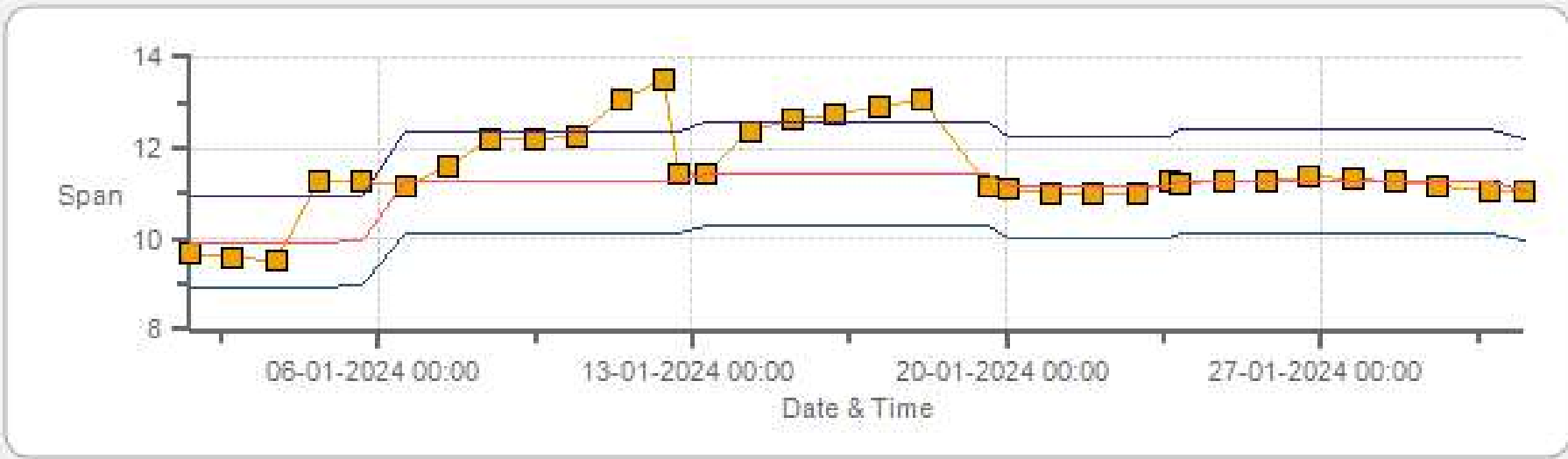
Span Span Ref Span Low Span High

NMHC[ppm] Calibration: Cold Lake South Monthly: 01-2024 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: Cold Lake South Monthly: 01-2024 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

# MULTI-POINT CALIBRATION RECORDS

# SO2 Analyzer Calibration by Dilution



DATE:	05-Jan-2024	PREVIOUS CALIBRATION DATE:	07-Dec-2023
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.001
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	948
PURPOSE:	Routine	START TIME (MST):	11:07
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:44

## ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180260018	FLOW (mL/min)	434
INITIAL		FINAL	
BKG/OFFSET	2.36	BKG/OFFSET	2.41
COEF/SLOPE	0.966	COEF/SLOPE	0.985
Expected (reference) Value	376.5	Expected (reference) Value	376

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	17100415	ID:	132
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 127895	HIGH ID	n/a
CONC (ppm):	50.40	EXPIRY DATE	n/a
CYLINDER (psi):	500	LOW ID	n/a
EXPIRY DATE	27-Oct-2030	EXPIRY DATE	n/a

## CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	390	190	95
RANGE	300 - 400	150 - 200	50 - 100

## SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

## CALIBRATION:

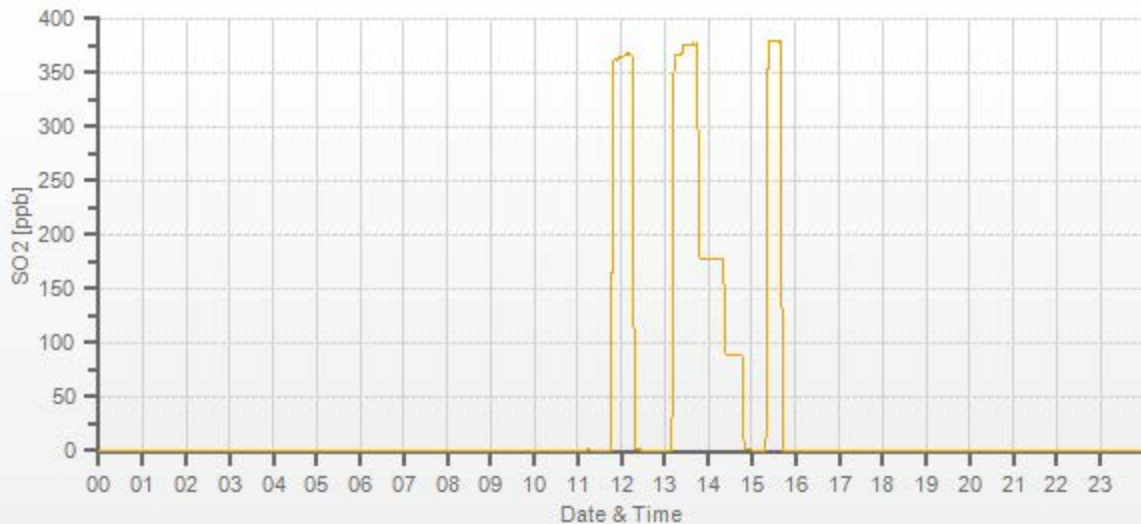
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	<del>37.20</del>	5000	0.00	-0.1	0	<del>1.023</del>	<del>0.999</del>
4961	37.20	4998	375.13	366.6	375.6	1.023	0.999
4982	17.60	5000	177.41	n/a	177.5	n/a	0.999
4990	8.80	4999	88.72	n/a	88.4	n/a	1.004

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	0.0%

## COMMENTS:

Sample inlet filter was changed.





# SO2 Analyzer Calibration by Dilution



DATE:	28-Jan-2024	PREVIOUS CALIBRATION DATE:	n/a
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	945
PURPOSE:	Install/Post-Repair	START TIME (MST):	12:09
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:44

## ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180260018	FLOW (mL/min)	442
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	2.39
COEF/SLOPE	n/a	COEF/SLOPE	1.681
Expected (reference) Value	n/a	Expected (reference) Value	383

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	17100415	ID:	132
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 127895	HIGH ID	n/a
CONC (ppm):	50.40	EXPIRY DATE	n/a
CYLINDER (psi):	500	LOW ID	n/a
EXPIRY DATE	27-Oct-2030	EXPIRY DATE	n/a

## CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	390	190	95
RANGE	300 - 400	150 - 200	50 - 100

## SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

## CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	<del>37.20</del>	5000	0.00	n/a	0	<del>n/a</del>	<del>0.996</del>
4961	37.20	4998	375.13	n/a	376.6	n/a	0.996
4982	17.60	5000	177.41	n/a	176.8	n/a	1.003
4990	8.80	4999	88.72	n/a	88	n/a	1.008

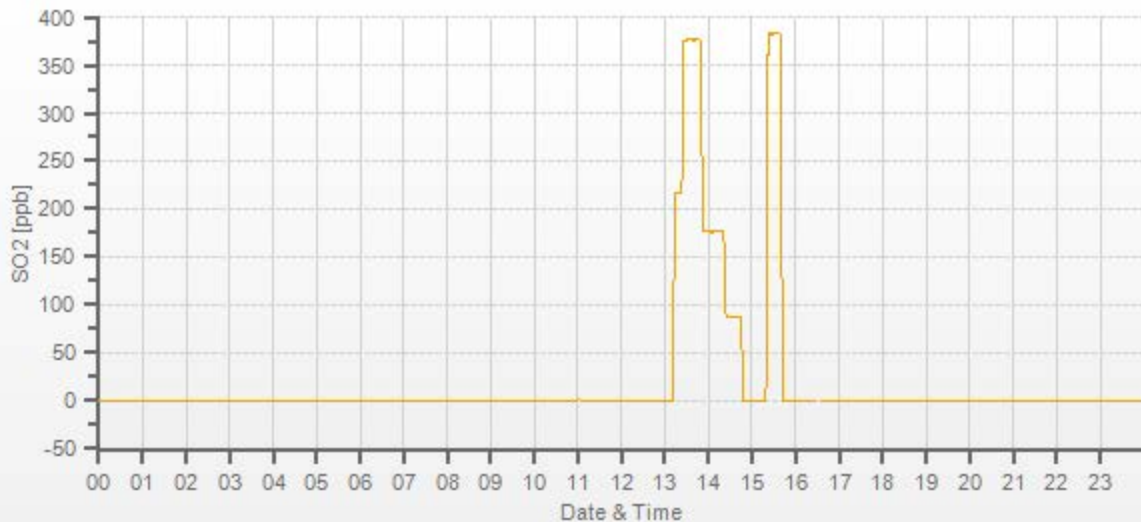
## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.005	-0.1%

## COMMENTS:

Post-repair calibration was completed after a sample pump was repaired. Flash lamp voltage was adjusted.

SO2[ppb] Station: Cold Lake South Daily: 28-01-2024 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202401-01174

# TRS Analyzer Calibration by Dilution



DATE:	05-Jan-2024	PREVIOUS CALIBRATION DATE:	07-Dec-2023
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	0.997
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	948
PURPOSE:	Routine	START TIME (MST):	11:08
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:44

## ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	812728560	FLOW (mL/min)	437
INITIAL		FINAL	
BKG/OFFSET	28	BKG/OFFSET	26.8
COEF/SLOPE	1.19	COEF/SLOPE	1.164
Expected (reference) Value	43.4	Expected (reference) Value	46

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 131360	HIGH ID	n/a
CONC (ppm):	10.05	EXPIRY DATE	n/a
CYLINDER (psi):	1800	LOW ID	n/a
EXPIRY DATE	03-Jan-2026	EXPIRY DATE	n/a

## CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	78	38	19
RANGE	60 - 80	30 - 40	10 - 20

## SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	11:12	SO2 Conc (ppb)	380
END TIME:	11:27	Analyzer Response (ppb)	0.0

## CALIBRATION:

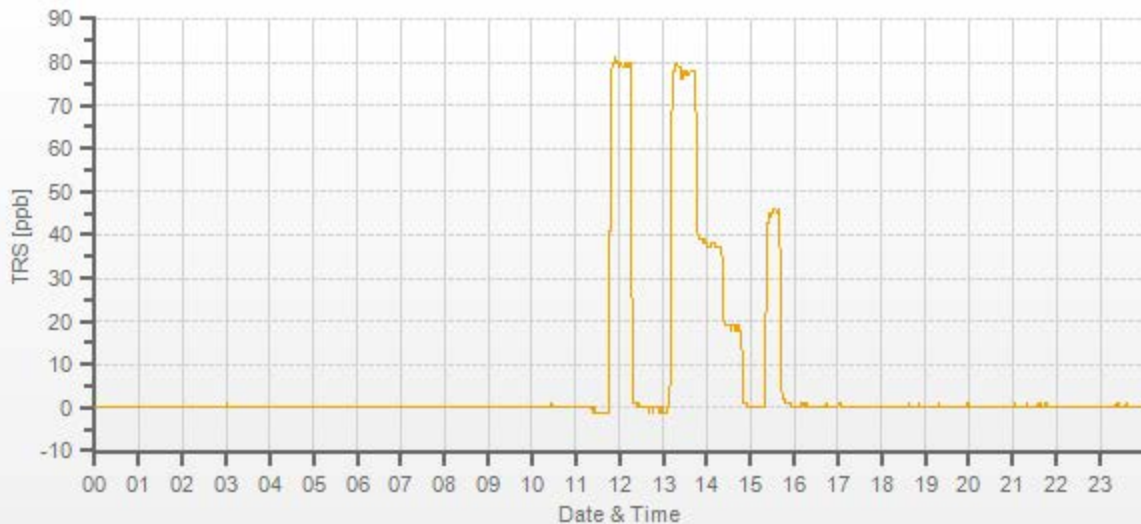
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	<del>58.20</del>	7500	0.00	-0.3	0	<del>0.975</del>	<del>1.000</del>
7442	58.20	7500	77.99	79.7	78	0.975	1.000
7472	28.40	7500	38.06	n/a	38.1	n/a	0.999
7486	14.20	7500	19.03	n/a	19.2	n/a	0.991

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.999	0.1%

## COMMENTS:

Sample inlet filter was changed.



# TRS Analyzer Calibration by Dilution



DATE:	18-Jan-2024	PREVIOUS CALIBRATION DATE:	05-Jan-2024
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	968
PURPOSE:	Removal/Shut-down	START TIME (MST):	10:49
PERFORMED BY:	Alex Yakupov	END TIME (MST):	13:12

## ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	812728560	FLOW (mL/min)	300
INITIAL		FINAL	
BKG/OFFSET	26.8	BKG/OFFSET	n/a
COEF/SLOPE	1.164	COEF/SLOPE	n/a
Expected (reference) Value	46	Expected (reference) Value	n/a

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 131360	HIGH ID	n/a
CONC (ppm):	10.05	EXPIRY DATE	n/a
CYLINDER (psi):	1800	LOW ID	n/a
EXPIRY DATE	03-Jan-2026	EXPIRY DATE	n/a

## CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	78	38	19
RANGE	60 - 80	30 - 40	10 - 20

## SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	10:58	SO2 Conc (ppb)	380
END TIME:	11:13	Analyzer Response (ppb)	0.0

## CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	<del>58.20</del>	7500	0.00	0.3	n/a	<del>0.952</del>	<del>n/a</del>
7442	58.20	7500	77.99	82.2	n/a	0.952	n/a
7472	28.40	7500	38.06	40.9	n/a	0.937	n/a
7486	14.20	7500	19.03	20.1	n/a	0.961	n/a

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.052	0.4%

## COMMENTS:

Shutdown calibration was completed to repair a sample pump. Reason: sample flow drop.

# TRS Analyzer Calibration by Dilution



DATE:	18-Jan-2024	PREVIOUS CALIBRATION DATE:	05-Jan-2024
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	968
PURPOSE:	Install/Post-Repair	START TIME (MST):	13:57
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:36

## ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	812728560	FLOW (mL/min)	510
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	30.9
COEF/SLOPE	n/a	COEF/SLOPE	1.341
Expected (reference) Value	n/a	Expected (reference) Value	44.6

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 131360	HIGH ID	n/a
CONC (ppm):	10.05	EXPIRY DATE	n/a
CYLINDER (psi):	1800	LOW ID	n/a
EXPIRY DATE	03-Jan-2026	EXPIRY DATE	n/a

## CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	78	38	19
RANGE	60 - 80	30 - 40	10 - 20

## SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

## CALIBRATION:

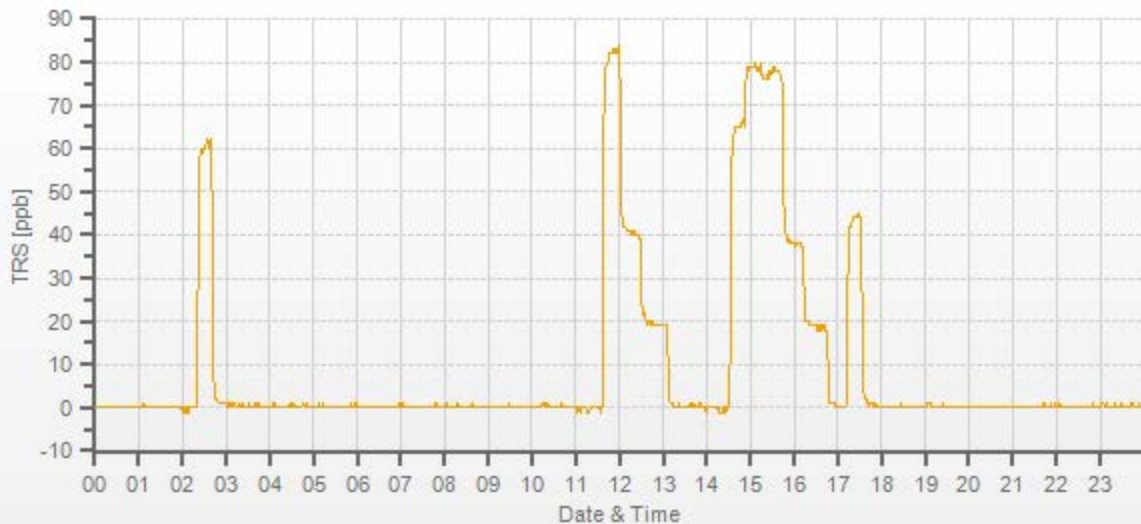
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	<del>58.20</del>	7500	0.00	n/a	0	<del>n/a</del>	<del>1.002</del>
7442	58.20	7500	77.99	n/a	77.8	n/a	1.002
7472	28.40	7500	38.06	n/a	38.6	n/a	0.986
7486	14.20	7500	19.03	n/a	19	n/a	1.001

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.998	0.1%

## COMMENTS:

Sample pump was rebuilt.



# NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	05-Jan-2024	PREVIOUS CALIBRATION DATE:	07-Dec-2023	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1505664393	NOx	1.000
LOCATION:	CLS	BAROMETRIC (mBar):	948	FLOW (mL/min)	686	NO	0.999
PURPOSE:	Routine	START TIME (MST):	11:05	RANGE (ppb)	500	NO2	1.000
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:47	GPT FOR O3?		No	

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 127895	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	NO/NOx (PPM):	51.1   51.6	HIGH EXPIRY:	n/a
ID:	17100415	ID:	132	CYLINDER (psi):	800	LOW ID:	n/a
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a	EXPIRY DATE	27-Oct-2030	LOW EXPIRY:	n/a

CALIBRATION SETTINGS:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	5.2	4.9	n/a	BKG/OFFSET:	5	4.9	n/a
SLOPE/COEF/CE:	0.996	1.051	0.999	SLOPE/COEF/CE:	1.007	1.031	0.999

EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	307.6	3.2	304.4		288.0	2.8	285.0

POINT	NO TARGET (PPB)	NO2 TARGET (PPB)	NO2 RANGE	O3 POINT
HIGH	380	250	230-265	n/a
MID	180	125	115-150	n/a
LOW	90	45	40-55	n/a
EXTRA 1	n/a	n/a	n/a	n/a

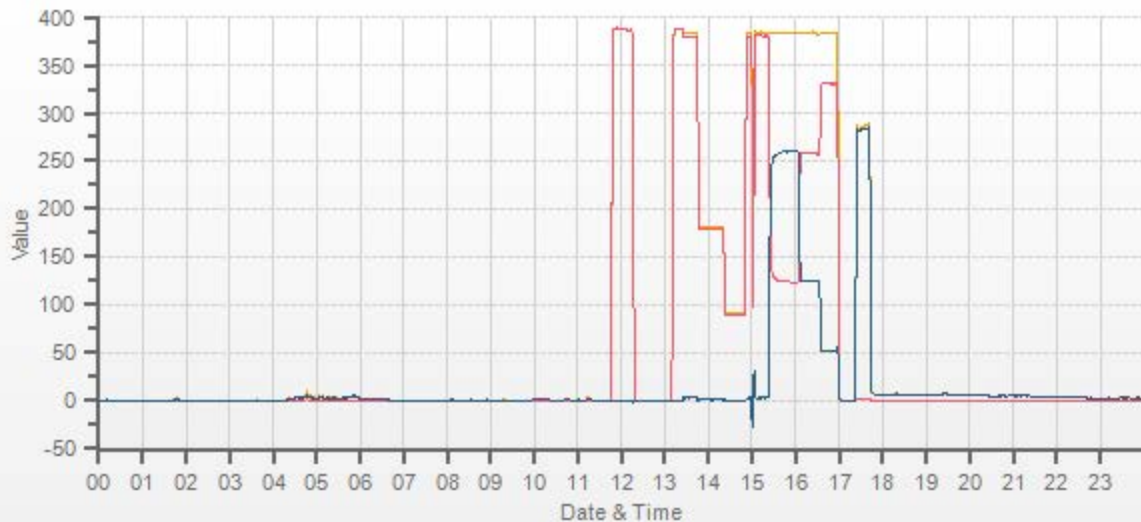
FLOW RATE			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000	<del>37.20</del>	5000	0.0	0.0	0.0	0.0	-0.2	-0.2	0.0	0.0	0.0	<del>0.983</del>	<del>0.992</del>	<del>1.001</del>	<del>1.001</del>	<del>1.001</del>	<del>1.001</del>
4961	37.20	4998	380.3	384.1	3.7	387.1	386.8	-0.3	379.9	383.8	3.9	0.983	0.992	1.001	1.001	1.001	1.001
4982	17.60	5000	179.9	181.6	1.8	n/a	n/a	n/a	179.8	181.5	1.7	n/a	n/a	1.000	1.001	1.001	1.001
4990	8.80	4999	90.0	90.8	0.9	n/a	n/a	n/a	90.1	91.1	1.0	n/a	n/a	0.998	0.997	0.997	0.997

Point	CALIBRATOR			INDICATED (ppb)			NO DROP / O3 Conc (ppb)	NO2 GAIN (ppb)	NO2 Corr. FACTOR	CONV. EFFICIENCY
	GAS	TOTAL	O3 SETPOINT	NO	NOx	NO2				
REFERENCE	37.20	4998	0	380.5	384.1	3.6	<del>257.3</del>	<del>256.9</del>	<del>1.002</del>	<del>99.84%</del>
AS-FOUND HIGH	37.20	4998	235	123.2	383.7	260.5	257.3	256.9	1.002	99.84%
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MID	37.20	4998	110	258.3	384.0	125.7	122.2	122.1	1.001	99.92%
LOW	37.20	4998	40	330.6	383.6	53.0	49.9	49.4	1.010	99.00%
NO2 adjustment not required.									AVERAGE:	99.59%

LINEAR REGRESSION ANALYSIS:				COMMENTS:
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	0.999	0.03%	
NOx	1.000	0.999	0.03%	
NO2	1.000	1.000	-0.07%	

Sample inlet filter was changed.  
15:00 - daily ZS. GPT reference point restarted





CAL-LICA-202401-01174

# Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	04-Jan-2024	PREVIOUS CALIBRATION DATE:	07-Dec-2023
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.001
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	948
PURPOSE:	Routine	START TIME (MST):	10:56
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:17

## ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	12208316585	FLOW (mL/min)	1.31
INITIAL		FINAL	
BKG/OFFSET	0.4	BKG/OFFSET	0.7
COEF/SLOPE	1.047	COEF/SLOPE	1.237
Expected (reference) Value	268.1	Expected (reference) Value	295

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

## CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
RANGE	300 - 400	150 - 200	50 - 100

## CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	<del> </del>	5000	0.0	0.2	0.0	<del> </del>	<del> </del>
5000	<del> </del>	5000	378.0	322.3	377.3	1.174	1.002
5000	<del> </del>	5000	180.0	n/a	181.5	n/a	0.992
5000	<del> </del>	5000	60.0	n/a	61.8	n/a	0.971

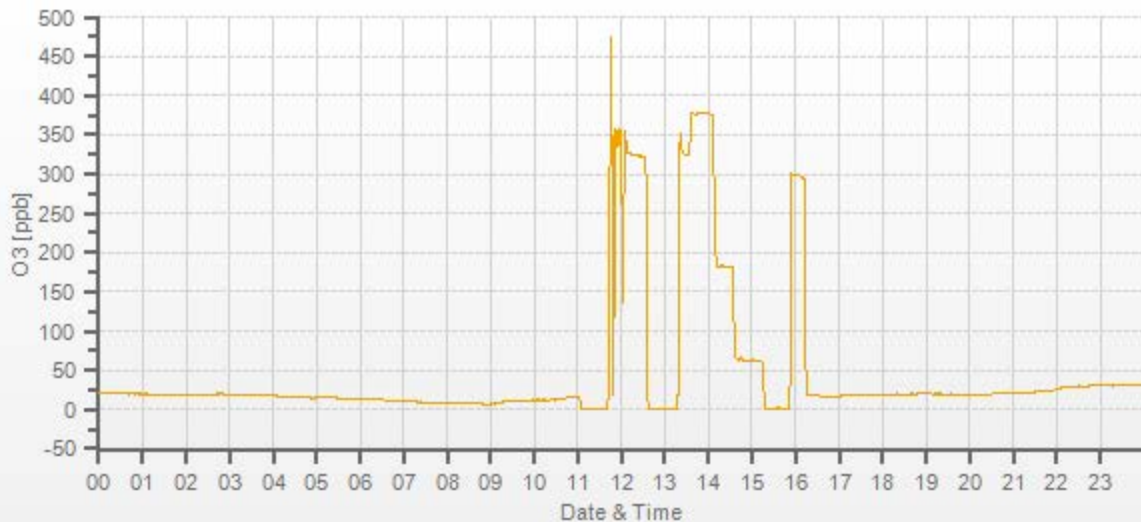
## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.997	0.2%

## COMMENTS:

Sample inlet filter was changed. 11:46 - calibrator reset. High As Found point restarted

O3[ppb] Station: Cold Lake South Daily: 04-01-2024 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202401-01174

# Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	23-Jan-2024	PREVIOUS CALIBRATION DATE:	04-Jan-2024
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.002
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	946
PURPOSE:	Routine	START TIME (MST):	14:29
PERFORMED BY:	Alex Yakupov	END TIME (MST):	19:10

**ANALYZER:**

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	12208316585	FLOW (mL/min)	1300
INITIAL		FINAL	
BKG/OFFSET	0.7	BKG/OFFSET	0.7
COEF/SLOPE	1.237	COEF/SLOPE	1.328
Expected (reference) Value	295	Expected (reference) Value	308

**CALIBRATION SYSTEM:**

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

**CALIBRATION PARAMETERS:**

POINT	HIGH	MID	LOW
RANGE	300 - 400	150 - 200	50 - 100

**CALIBRATION:**

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	<del>          </del>	5000	0.0	0.2	0.0	<del>          </del>	<del>          </del>
5000	<del>          </del>	5000	378.0	357.3	376.9	1.059	1.003
5000	<del>          </del>	5000	180.0	n/a	183.0	n/a	0.984
5000	<del>          </del>	5000	61.0	n/a	61.7	n/a	0.989

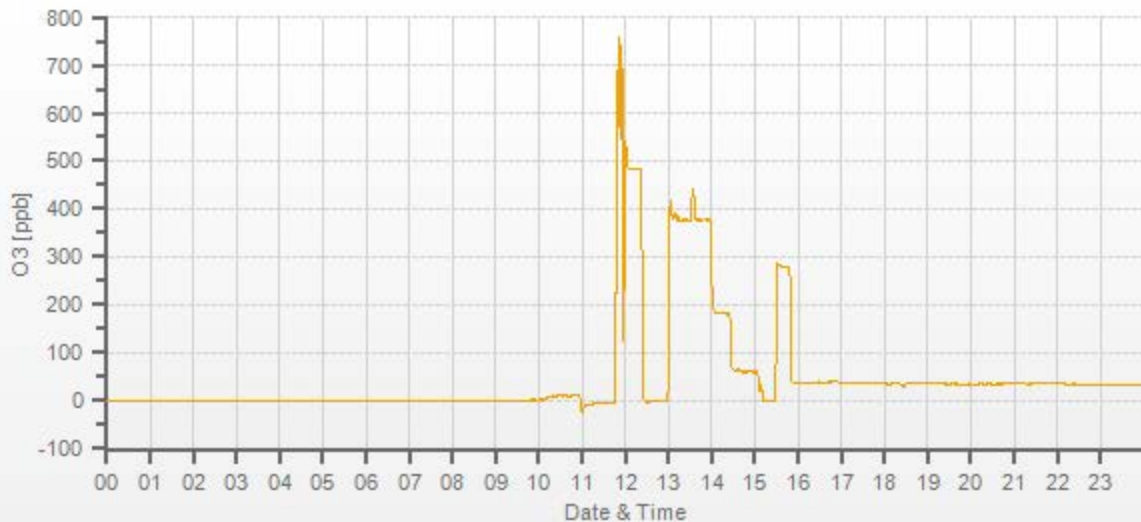
**LINEAR REGRESSION ANALYSIS:**

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.997	0.2%

**COMMENTS:**

Repeat calibration was completed to correct span drift.

O3[ppb] Station: Cold Lake South Daily: 30-01-2024 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202401-01174

# Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	30-Jan-2024	PREVIOUS CALIBRATION DATE:	23-Jan-2024
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.003
CLIENT:	LICA	TEMPERATURE (°C):	23.0
LOCATION:	CLS	BAROMETRIC (mBar):	938
PURPOSE:	Repeat	START TIME (MST):	10:56
PERFORMED BY:	Limin Li	END TIME (MST):	15:53

## ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	12208316585	FLOW (mL/min)	1290
INITIAL		FINAL	
BKG/OFFSET	0.7	BKG/OFFSET	-0.3
COEF/SLOPE	1.328	COEF/SLOPE	1.044
Expected (reference) Value	295	Expected (reference) Value	280.9

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	134
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

## CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
RANGE	300 - 400	150 - 200	50 - 100

## CALIBRATION:

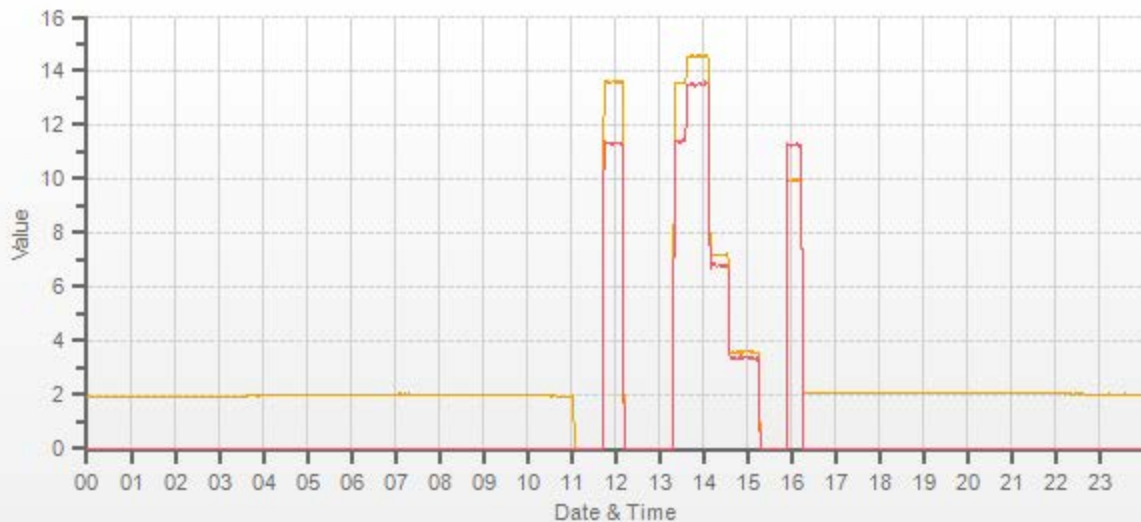
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	<del>XXXX</del>	5000	0.0	-2.7	0.0	<del>XXXX</del>	<del>XXXX</del>
5000	<del>XXXX</del>	5000	378.0	482.8	378.3	0.779	0.999
5000	<del>XXXX</del>	5000	180.0	n/a	183.3	n/a	0.982
5000	<del>XXXX</del>	5000	60.0	n/a	62.0	n/a	0.968

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.3%

## COMMENTS:

Repeat calibration due to daily span drift a lot.  
Leak found and repaired in calibrator prior to calibration



CAL-LICA-202401-01174

# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	04-Jan-2024	PREVIOUS CALIBRATION DATE:	07-Dec-2023	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1180930025	1153
LOCATION:	CLS	BAROMETRIC (mBar):	948	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Routine	START TIME (MST):	10:58	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:17	PREVIOUS CF:	0.999	1.002	1.000

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 23593	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	603.0   204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	134	CYLINDER (psi):	800	LOW ID:	n/a
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

POINT (CH <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE		
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>		561.0
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>		1164.0

## EXPECTED (REFERENCE) VALUE:

INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	9.38	9.93	19.31		9.96	11.25	21.21

## CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3100	<del>X</del>	3100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>
3025	74.60	3100	14.51	13.50	28.01	13.62	11.35	24.97	14.54	13.49	28.03	1.065	1.189	1.122	0.998	1.001	0.999
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.20	6.81	14.01	n/a	n/a	n/a	1.008	0.991	1.000
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.59	3.37	6.96	n/a	n/a	n/a	1.008	0.999	1.003

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
CH <sub>4</sub>	1.000	1.002	-0.1%
NMHC	1.000	1.000	0.1%
THC	1.000	1.001	0.0%

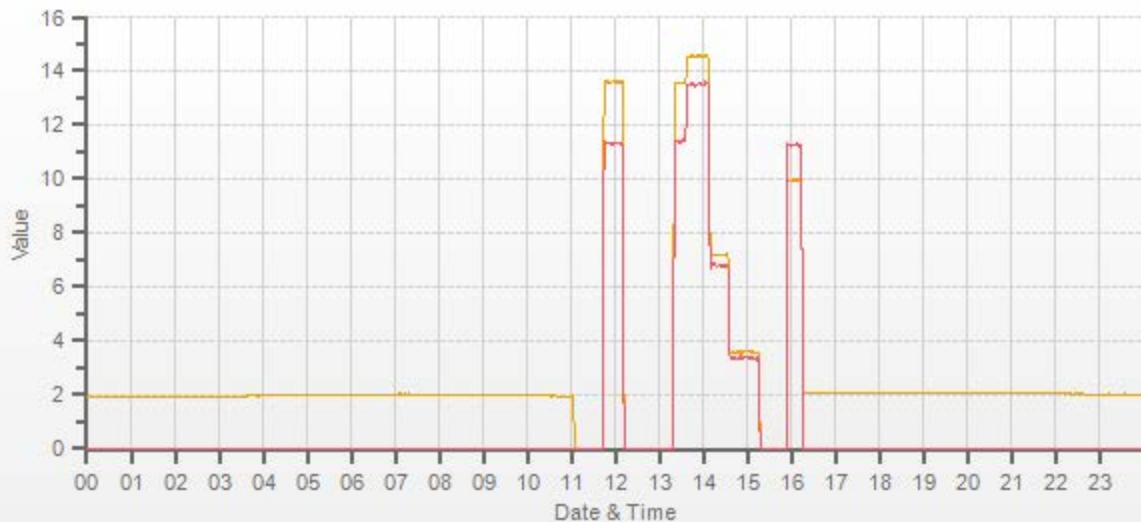
## Comments:

Sample inlet filter was changed.

Use Zero Chrom?

Yes





CAL-LICA-202401-01174

# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	12-Jan-2024	PREVIOUS CALIBRATION DATE:	04-Jan-2024	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1180930025	1153
LOCATION:	CLS	BAROMETRIC (mBar):	966	PARAMETER:	CH4	NMHC	THC
PURPOSE	Repeat	START TIME (MST):	12:52	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:41	PREVIOUS CF:	0.998	1.001	0.999

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 23593	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	603.0   204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	134	CYLINDER (psi):	800	LOW ID:	n/a
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

POINT (CH <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE		
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>		561.0
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>		1164.0

## EXPECTED (REFERENCE) VALUE:

INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	9.96	11.25	21.21		9.91	11.45	21.36

## CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3100	<del>X</del>	3100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>
3025	74.60	3100	14.51	13.50	28.01	15.11	16.04	31.14	14.49	13.53	28.01	0.960	0.842	0.900	1.001	0.998	1.000
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.16	6.76	13.91	n/a	n/a	n/a	1.013	0.999	1.007
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.58	3.30	6.88	n/a	n/a	n/a	1.011	1.020	1.015

## LINEAR REGRESSION ANALYSIS:

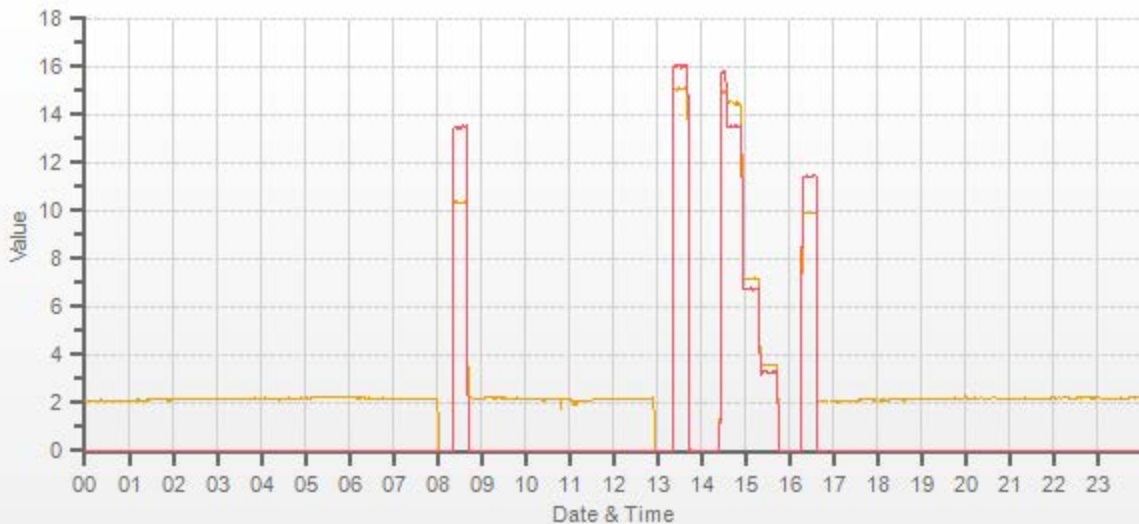
	CORRELATION	SLOPE	INTERCEPT
CH <sub>4</sub>	1.000	0.999	-0.2%
NMHC	1.000	1.004	-0.2%
THC	1.000	1.001	-0.2%

## Comments:

Repeat calibration was completed to correct drift over 10%

Use Zero Chrom?

Yes



CAL-LICA-202401-01174

# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	18-Jan-2024	PREVIOUS CALIBRATION DATE:	12-Jan-2024	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1180930025	1153
LOCATION:	CLS	BAROMETRIC (mBar):	968	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Removal/Shut-down	START TIME (MST):	10:51	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	13:12	PREVIOUS CF:	1.001	0.998	1.000

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 23593	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	603.0   204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	134	CYLINDER (psi):	800	LOW ID:	n/a
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

POINT (CH <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE		
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>		561.0
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>		1164.0

## EXPECTED (REFERENCE) VALUE:

INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	9.91	11.45	21.36		n/a	n/a	n/a

## CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3100	<del>X</del>	3100	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>
3025	74.60	3100	14.51	13.50	28.01	14.56	15.71	30.27	n/a	n/a	n/a	0.997	<b>0.859</b>	0.925	n/a	n/a	n/a
3063	37.30	3100	7.26	6.75	14.01	7.23	7.70	14.92	n/a	n/a	n/a	1.004	<b>0.877</b>	0.939	n/a	n/a	n/a
3081	18.60	3100	3.62	3.37	6.98	3.61	3.64	7.25	n/a	n/a	n/a	1.002	0.925	0.963	n/a	n/a	n/a

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments:	
CH <sub>4</sub>	1.000	1.003	-0.1%	Shutdown calibration was completed to remove the analyzer for repair. Reason: significant drift on the NMHC channel	
NMHC	1.000	<b>1.169</b>	-0.7%		
THC	1.000	1.083	-0.4%		
				Use Zero Chrom?	Yes

# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	19-Jan-2024	PREVIOUS CALIBRATION DATE:	n/a	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1433563261	1100
LOCATION:	CLS	BAROMETRIC (mBar):	966	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Repeat	START TIME (MST):	11:11	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:21	PREVIOUS CF:	n/a	n/a	n/a

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 23593	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	603.0   204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	134	CYLINDER (psi):	800	LOW ID:	n/a
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

POINT (CH <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE		
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>		561.0
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>		1164.0

## EXPECTED (REFERENCE) VALUE:

INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	n/a	n/a	n/a		n/a	9.97	11.14

## CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3100	<del>X</del>	3100	0.00	0.00	0.00	n/a	n/a	n/a	0.00	0.00	0.00	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>
3025	74.60	3100	14.51	13.50	28.01	n/a	n/a	n/a	14.40	13.44	27.84	n/a	n/a	n/a	1.008	1.004	1.006
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.26	6.67	13.93	n/a	n/a	n/a	0.999	1.012	1.005
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.66	3.28	6.94	n/a	n/a	n/a	0.989	1.026	1.006

## LINEAR REGRESSION ANALYSIS:

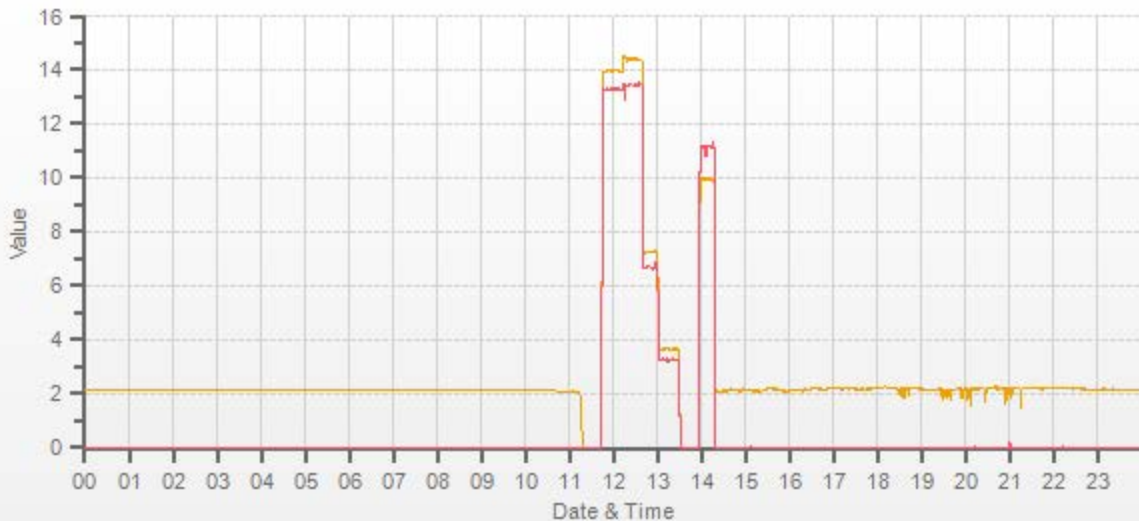
	CORRELATION	SLOPE	INTERCEPT
CH <sub>4</sub>	1.000	0.991	0.2%
NMHC	1.000	0.997	-0.2%
THC	1.000	0.994	0.0%

## Comments:

A new N<sub>2</sub> gas cylinder was connected.  
BV analyzer

Use Zero Chrom?

No



CAL-LICA-202401-01174

# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	23-Jan-2024	PREVIOUS CALIBRATION DATE:	19-Jan-2024	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1433563261	1100
LOCATION:	CLS	BAROMETRIC (mBar):	941	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Install/Post-Repair	START TIME (MST):	10:40	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:00	PREVIOUS CF:	n/a	n/a	n/a

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 23593	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	603.0   204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	134	CYLINDER (psi):	800	LOW ID:	n/a
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

POINT (CH <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE		
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>		561.0
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>		1164.0

## EXPECTED (REFERENCE) VALUE:

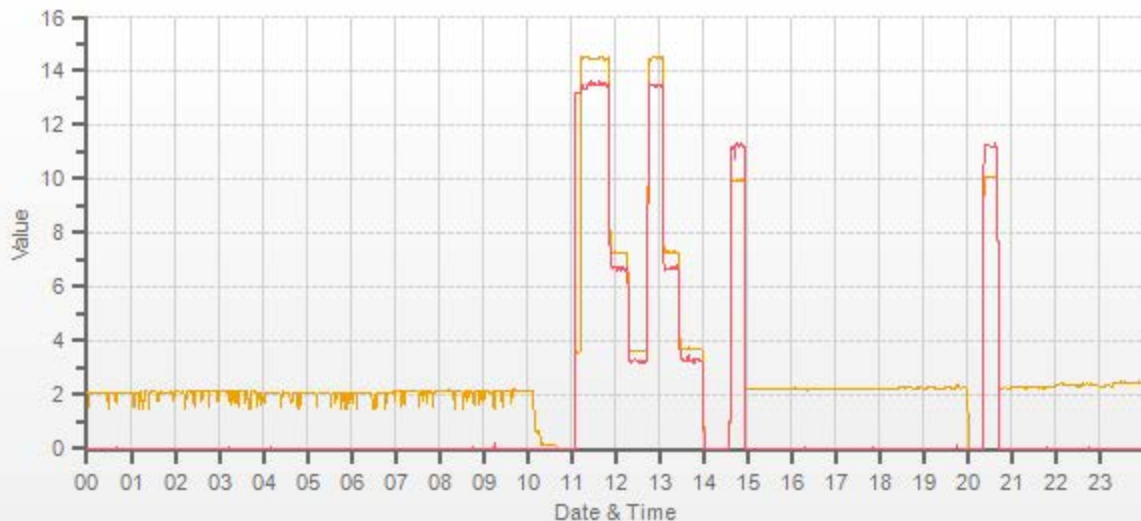
INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	9.97	11.14	21.11		9.96	11.27	21.23

## CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3100	<del>X</del>	3100	0.00	0.00	0.00	n/a	n/a	n/a	0.00	0.00	0.00	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>
3025	74.60	3100	14.51	13.50	28.01	n/a	n/a	n/a	14.52	13.47	27.99	n/a	n/a	n/a	0.999	1.002	1.001
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.28	6.71	13.99	n/a	n/a	n/a	0.997	1.006	1.001
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.72	3.30	7.02	n/a	n/a	n/a	0.973	1.020	0.995

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments:	
CH <sub>4</sub>	1.000	0.998	0.2%	Pressure for N <sub>2</sub> and H <sub>2</sub> was adjusted to fix bad injections issue. 1st attempt failed at low. Repeated from adjusted high.	
NMHC	1.000	0.999	-0.1%		
THC	1.000	0.999	0.0%		
				Use Zero Chrom?	Yes



CAL-LICA-202401-01174



# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	29-Jan-2024	PREVIOUS CALIBRATION DATE:	23-Jan-2024	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	23.0		Thermo 55i	1433563261	1100
LOCATION:	CLS	BAROMETRIC (mBar):	948	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Removal/Shut-down	START TIME (MST):	17:10	RANGE (ppm):	20	20	40
PERFORMED BY:	Limin Li	END TIME (MST):	18:47	PREVIOUS CF:	0.999	1.002	1.001

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 83907	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	895.0   301.0	HIGH EXPIRY:	n/a
ID:	17200415	ID:	134	CYLINDER (psi):	1900	LOW ID:	n/a
MFC CALIBRATION DATE:	11-Sep-2023	OXIDIZER ID:	n/a	EXPIRY DATE	11-Aug-2029	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

POINT (CH <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE		
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>		827.8
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>		1722.8

## EXPECTED (REFERENCE) VALUE:

INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	9.96	11.27	21.23		n/a	n/a	n/a

## CALIBRATION:

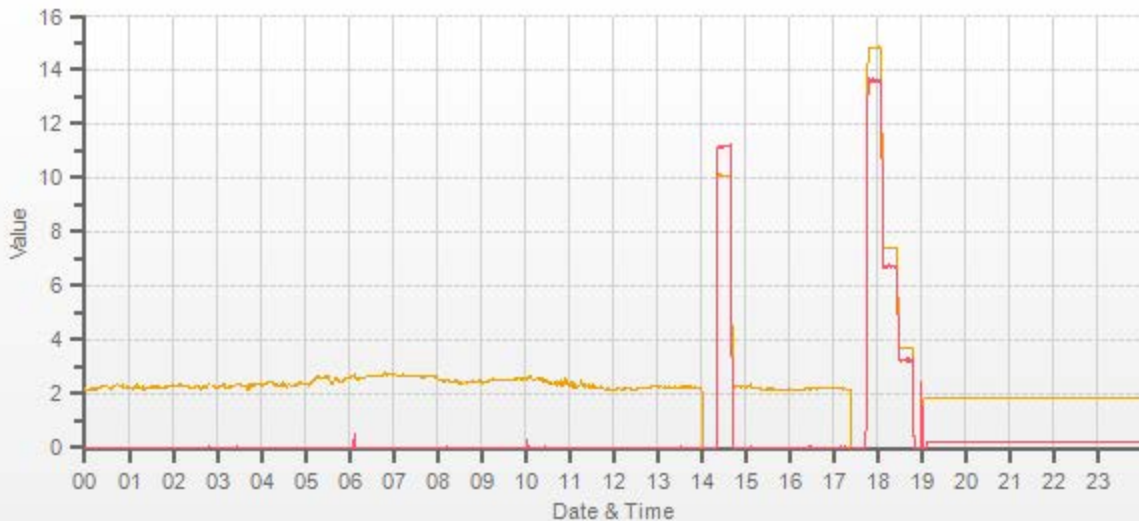
FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3500	<del>X</del>	3500	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>
3443	56.90	3500	14.55	13.46	28.01	14.81	13.65	28.45	n/a	n/a	n/a	0.982	0.986	0.984	n/a	n/a	n/a
3472	28.40	3500	7.26	6.72	13.98	7.41	6.75	14.16	n/a	n/a	n/a	0.980	0.995	0.987	n/a	n/a	n/a
3486	14.20	3500	3.63	3.36	6.99	3.70	3.21	6.92	n/a	n/a	n/a	0.981	1.046	1.010	n/a	n/a	n/a

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
CH <sub>4</sub>	1.000	1.018	0.0%
NMHC	1.000	1.019	-0.5%
THC	1.000	1.018	-0.2%

## Comments:

n/a	
Use Zero Chrom?	Yes



CAL-LICA-202401-01174

# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	30-Jan-2024	PREVIOUS CALIBRATION DATE:	n/a	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	24.3		Thermo 55i	1236656107	1002
LOCATION:	CLS	BAROMETRIC (mBar):	942	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Install/Post-Repair	START TIME (MST):	15:44	RANGE (ppm):	20	20	40
PERFORMED BY:	Limin Li	END TIME (MST):	18:10	PREVIOUS CF:	n/a	n/a	n/a

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 83907	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	895.0   301.0	HIGH EXPIRY:	n/a
ID:	17200415	ID:	134	CYLINDER (psi):	1900	LOW ID:	n/a
MFC CALIBRATION DATE:	11-Sep-2023	OXIDIZER ID:	n/a	EXPIRY DATE	11-Aug-2029	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

POINT (CH <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE		
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>		827.8
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>		1722.8

## EXPECTED (REFERENCE) VALUE:

INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	n/a	n/a	n/a		n/a	9.91	11.07

## CALIBRATION:

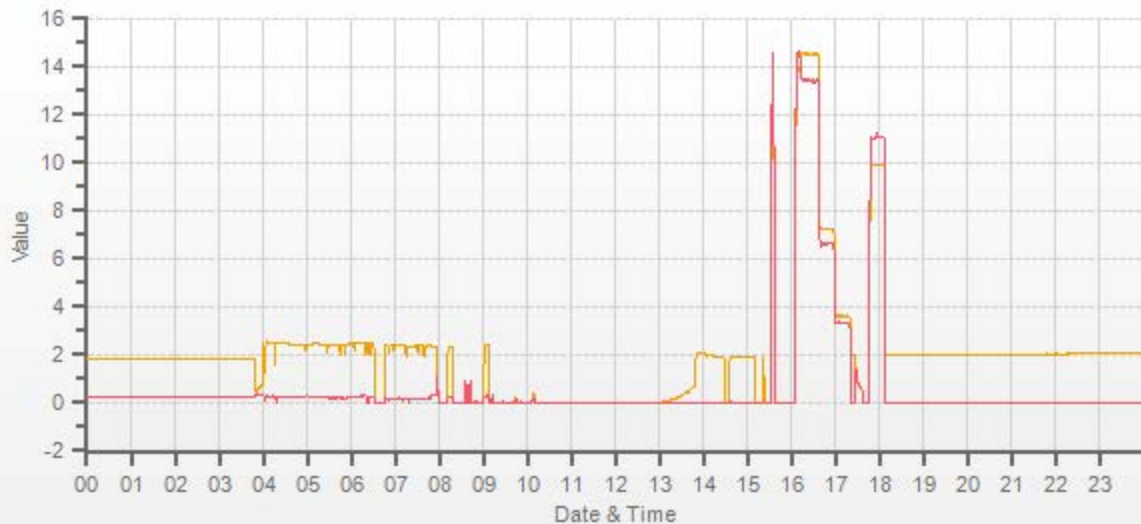
FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3500	<del>X</del>	3500	0.00	0.00	0.00	n/a	n/a	n/a	0.00	0.00	0.00	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>
3443	56.90	3500	14.55	13.46	28.01	n/a	n/a	n/a	14.55	13.45	28.00	n/a	n/a	n/a	1.000	1.001	1.000
3472	28.40	3500	7.26	6.72	13.98	n/a	n/a	n/a	7.25	6.69	13.94	n/a	n/a	n/a	1.002	1.004	1.003
3486	14.20	3500	3.63	3.36	6.99	n/a	n/a	n/a	3.62	3.32	6.94	n/a	n/a	n/a	1.003	1.012	1.007

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
CH <sub>4</sub>	1.000	1.000	0.0%
NMHC	1.000	1.000	-0.1%
THC	1.000	1.000	-0.1%

## Comments:

n/a	
Use Zero Chrom?	No



CAL-LICA-202401-01174



# Teledyne T640 Audit/Calibration

<b>Date/Previous Audit Date:</b>	January 4, 2024	December 27, 2023	<b>Weather Conditions:</b>	Mainly sunny	
<b>Company:</b>	LICA		<b>Start Time (mst):</b>	16:28	
<b>Station:</b>	Cold Lake South		<b>End Time (mst):</b>	17:35	
<b>Parameter:</b>	PM 2.5	<b>Performed By/Reviewer:</b>	Alex Yakupov	Chris Wesson	
<b>Instrument Data:</b>					
<b>Make/Model:</b>	Teledyne T640		<b>Serial Number:</b>	575	
<b>Owner:</b>	LICA		<b>Alarms (detail in comments):</b>	No	
<b>Reference Standards/I.D./Expiry Date:</b>					
Flow Standard: DeltaCal DC-1/#177246 / Nov 27, 2024			Temperature: Vaisala / HM70 / #T1640130/ Jun 26, 2024		
Digital Manometer: DeltaCal DC-1/#177246 / Nov 27, 2024			Pressure: Fisher / FB 61291/ #130168457/ Mar 20, 2024		
<b>DIAGNOSTICS:</b>					
Ambient Pressure (mmHg)	710.2	Ambient Temp (°C)	-7.3	ASC Heater Duty (%)	0.0
Box Temp (°C)	27.5	Current PMT HV (V)	1428	LED Temp (°C)	36.66
P3 Value	47	PMT Setting (V)	1432	Pump PWM (%)	44
Sample Flow (L/min)	5.00	Sample RH (%RH)	9.0	Number concentration	260.0
<b>Monthly Audit/Calibration:</b>					
<b>Item:</b>	<b>As-found</b>		<b>As-left</b>		<b>Tolerance</b>
	<b>Reference</b>	<b>T640x</b>	<b>Reference</b>	<b>T640x</b>	
Zero Test (Leak Check)	PM10	0.0	PM10	0.0	0.0 to 0.2
	PM2.5	0.0	PM2.5	0.0	
Ambient Pressure (mmHg)	710.0	710.0	710	710	+/- 10 mm Hg
Ambient Temperature (°C)	-7.40	-7.3	n/a		+/- 2°C
Sample Flow (L/min)	5.00	5	5.00	5	+/- 5% of T640x (e.g., 4.75 – 5.25 lpm)
<b>Additional Monthly Maintenance :</b>					<b>Completed</b>
Inlet cleaned?					Yes
Sample tubing inspected (inner and outer)?					Yes
<b>Comments:</b>					
n/a					

# Meteorological System Checklist



Date:		January 5, 2024	
Technician:		Alex Yakupov	
Station:		Cold Lake South	
<b>Unit:</b>	<b>Make:</b>	<b>Model:</b>	<b>Serial #:</b>
Temperature Sensor:	Rotronic	HC2A-S3	20257103
Barometric Pressure Sensor:	MetOne	92	Y23368
Relative Humidity Sensor:	Rotronic	HC2A-S3	20257103
Anemometer:	RM Young	05305AQ	177354
<b>AMBIENT TEMPERATURE SENSOR CHECK</b>			
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	Vaisala / HM70 / #T1640130/ Jun 26, 2024		
Reference Temperature (°C):	-8.2		
Station - Ambient Temperature (°C):	-8.3		
Temperature Difference (°C):	0.1		
<b>BAROMETRIC PRESSURE SENSOR CHECK</b>			
Reference Barometer ID:	Fisher / FB 61291/ #130168457/ Mar 20, 2024		
Reference Pressure - Units/Reading:	millibar	948	
Station Pressure - Units/Reading:	millibar	946	
Pressure Tolerance +/- 15% of error:	806 - 1090	0.21%	
<b>RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK</b>			
Reference Hygrometer ID:	Vaisala / HM70 / #T1640130/ Jun 26, 2024		
Reference Hygrometer % RH- Reading:	81.90		
Station Hygrometer % RH- Reading:	87.40		
RH Tolerance +/- 15% of difference:	69.62 - 94.19	-6.7%	
<b>ANEMOMETER - WIND SPEED &amp; WIND DIRECTION SENSOR CHECK</b>			
<b>WIND SPEED</b>		<b>WIND DIRECTION</b>	
Previous check date:	December 7, 2023	Previous check date:	November 7, 2023
Wind Speed Observed (kph):	0~10	Wind Direction Observed:	SW
Wind speed on Data Logger (kph):	7.6	Wind Direction on Data Logger:	SW
	Annual audit: Dec 27, 2023	Wind Direction Pass/Fail?:	Pass

Comments

Station (Trailer) temperature vs Reference gauge: 23.8 vs 23.7, Difference = 0.1 degrees. Passed. Wind system: Model 05305AQ. Signal box #



# Meteorological Sensor Audit/Calibration

## Location Information

Company: LICA  
 Audit Location: Cold Lake South  
 Audit Date: December 27, 2023  
 Calibration Purpose: routine annual

Performed By: Alex Yakupov  
 Reviewed By: Chris Wesson  
 Start/End Time (mst): 12:09 / 14:17  
 Weather Conditions: Mainly sunny

## Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1
Sensor Model:	05305AQ	Velocity Unit Output Range:	0-200
Serial #:	177354	Direction Voltage Output Range:	0-1
Previous Cal/Audit Date:	July 6, 2022	Direction Unit Output Range:	0-360

## Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 ID# CA4744 expires Oct 18, 2024

## Wind Speed Audit Data **\*\*+/- 2% of the average correction factor is the limit\*\***

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.0	0.0	-
1000	18.4	18.3	18.3	1.007
2000	36.9	36.9	36.7	1.002
3000	55.3	55.1	55.1	1.003
4000	73.7	73.6	73.6	1.002
5000	92.2	92.0	92.0	1.002
6000	110.6	110.5	110.5	1.001
7000	129.0	128.9	128.9	1.001
8000	147.4	147.3	147.3	1.001
9000	165.9	165.8	165.8	1.000
10000	184.3	184.2	184.2	1.001
The audit meets AMD requirements.			Average Correction Factor=	1.002

## Wind Direction Audit Data **\*\*+/- 3° of the absolute average degrees difference for all points is the limit\*\***

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	0	353	0.2	2.4	1.3
30	330	26	329	3.7	1.0	2.4
60	300	58	298	2.3	2.0	2.2
90	270	87	268	2.8	2.3	2.6
120	240	119	236	1.5	4.5	3.0
150	210	149	208	1.4	1.7	1.6
180	180	177	177	2.7	2.7	2.7
210	150	206	149	4.0	0.9	2.5
240	120	235	120	4.6	0.5	2.6
270	90	266	89	3.7	1.2	2.5
300	60	297	58	2.7	1.9	2.3
330	30	328	27	1.9	3.1	2.5
355	0	353	0	2.4	0.1	1.2
The audit meets AMD requirements.				Average Absolute Degrees Difference=		2.2

### Comments:

No issues.

# End of Report





**Lakeland Industry & Community Association**

**JANUARY 2024**

**Ambient Air Monitoring Calibration Report**

**- TAMARACK STATION-**

**CAL-LICA-202401-01248**

**Station Operation and Maintenance:**

Bureau Veritas Canada

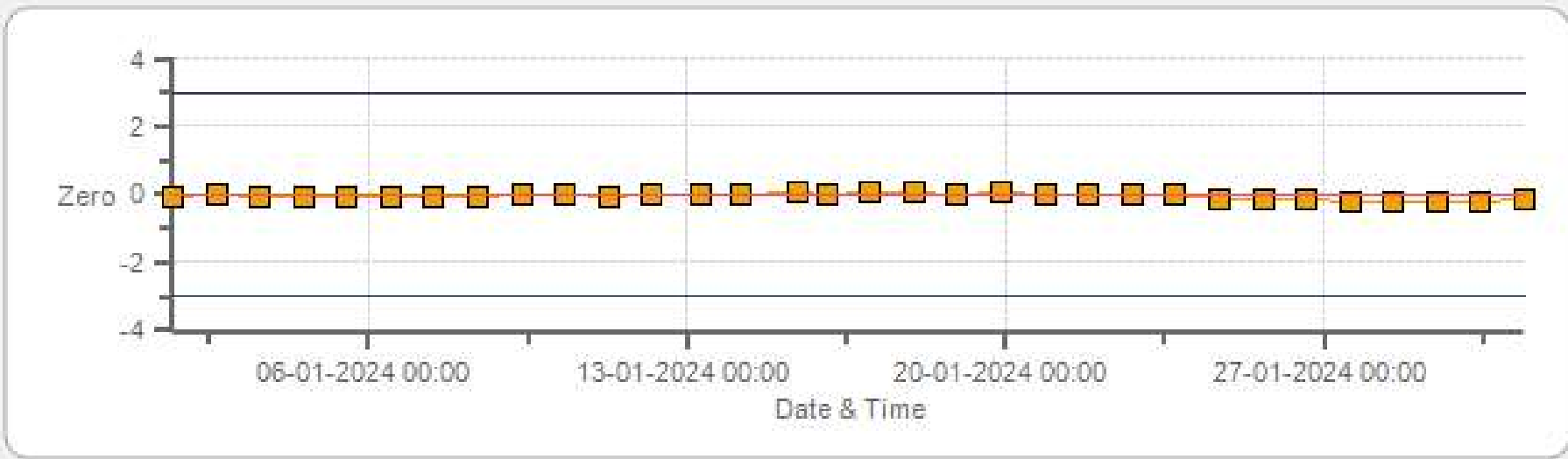
**Data Validation and Report:**

LICA / Bureau Veritas Canada

February 24, 2024

# DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Tamarack Monthly: 01-2024 Type: SpanAndZero - Zero



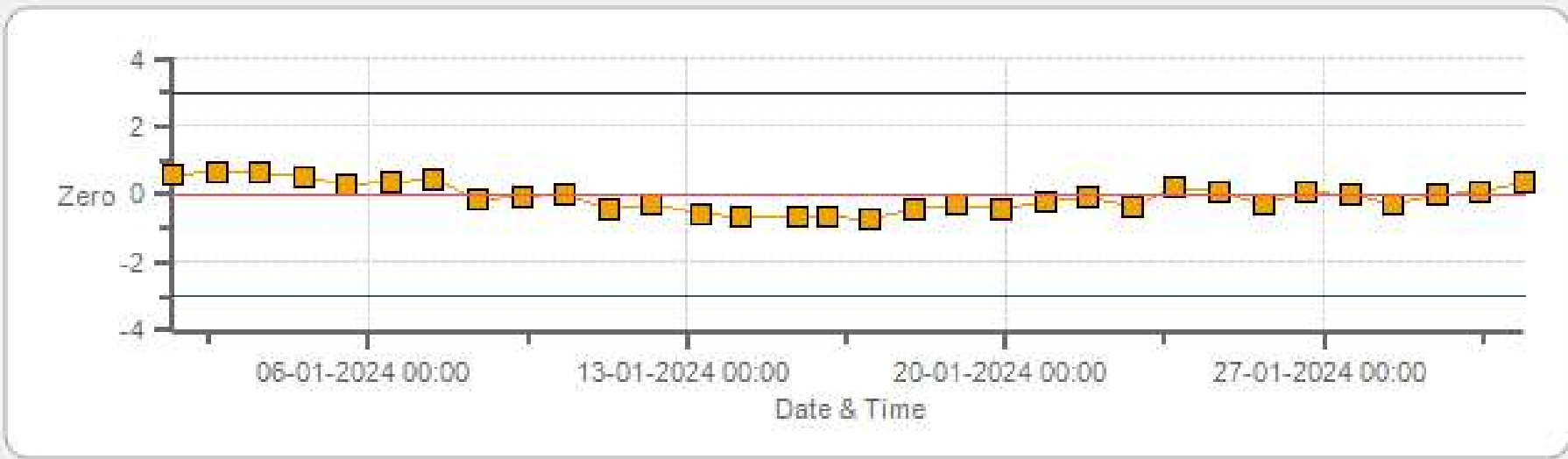
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: Tamarack Monthly: 01-2024 Type: SpanAndZero - Span



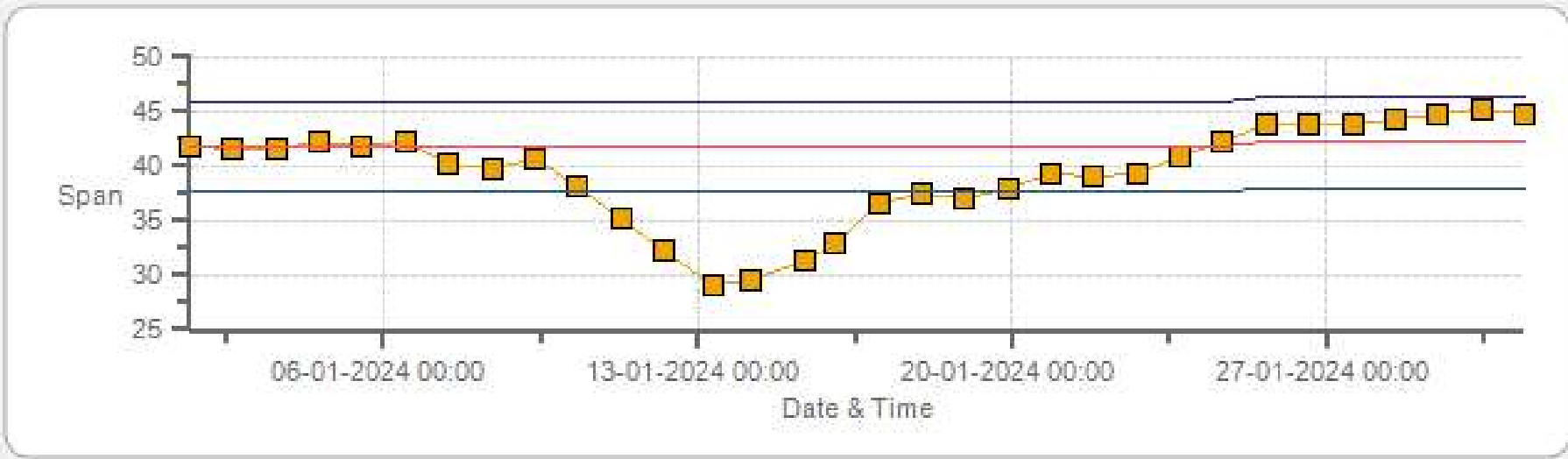
Span Span Ref Span Low Span High

H2S[ppb] Calibration: Tamarack Monthly: 01-2024 Type: SpanAndZero - Zero



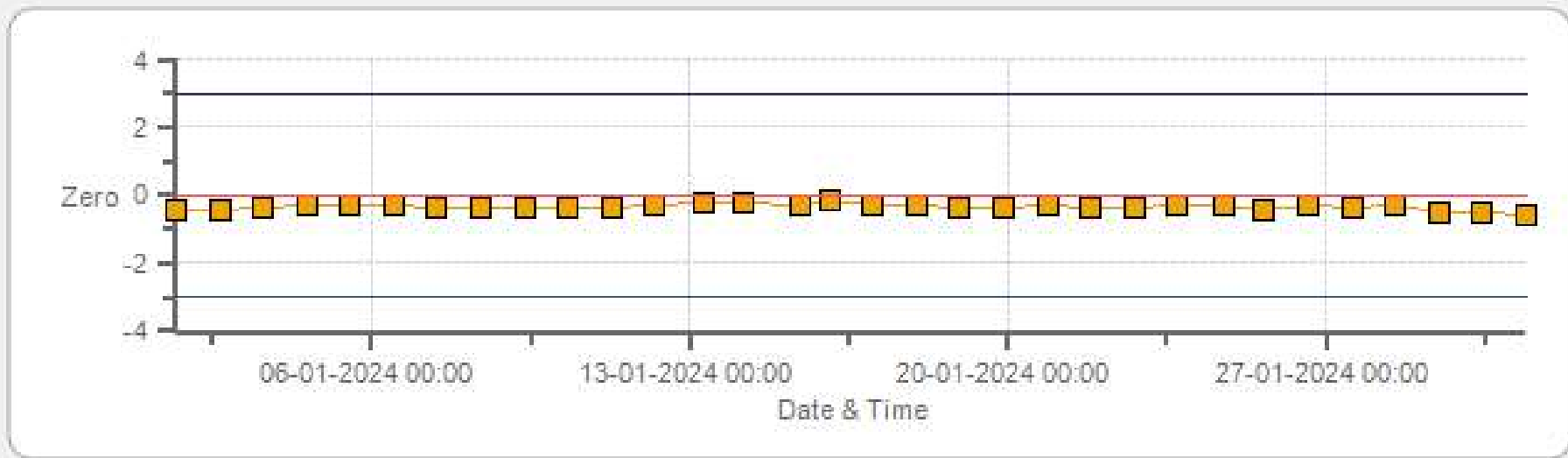
Zero Zero Ref Zero Low Zero High

H2S[ppb] Calibration: Tamarack Monthly: 01-2024 Type: SpanAndZero - Span



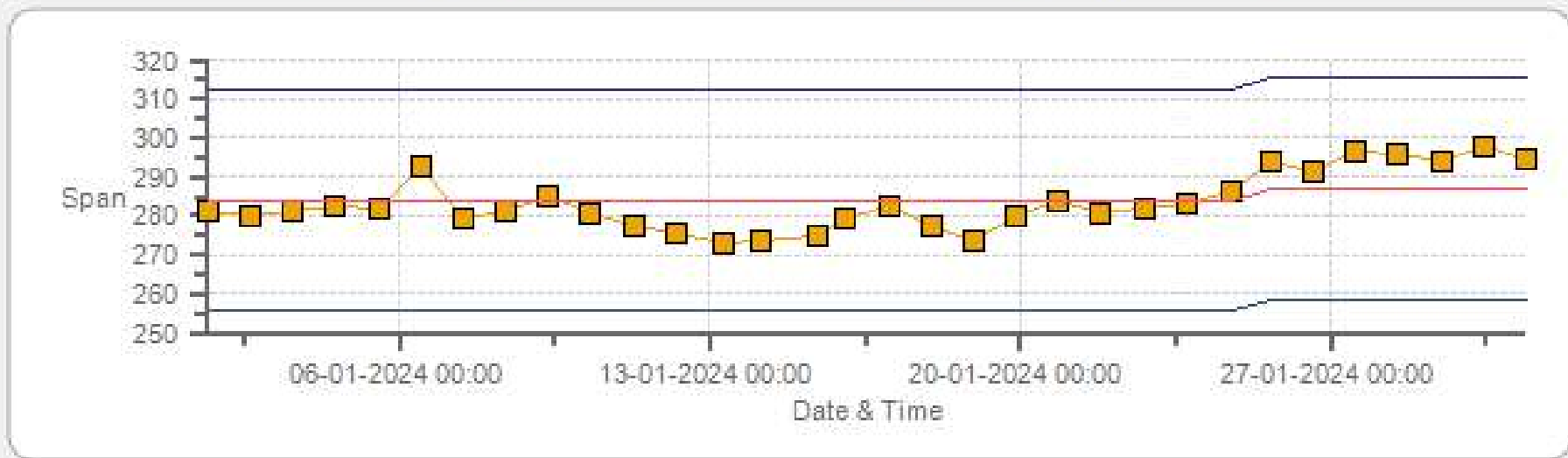
Span SpanRef Span Low Span High

NOX[ppb] Calibration: Tamarack Monthly: 01-2024 Type: SpanAndZero - Zero



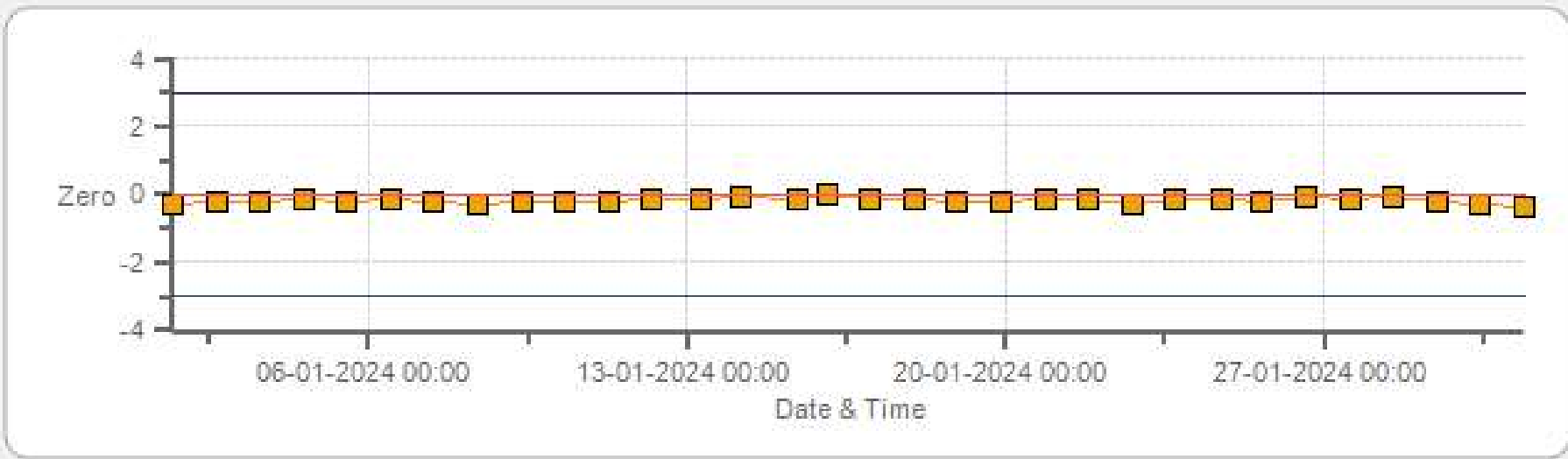
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: Tamarack Monthly: 01-2024 Type: SpanAndZero - Span



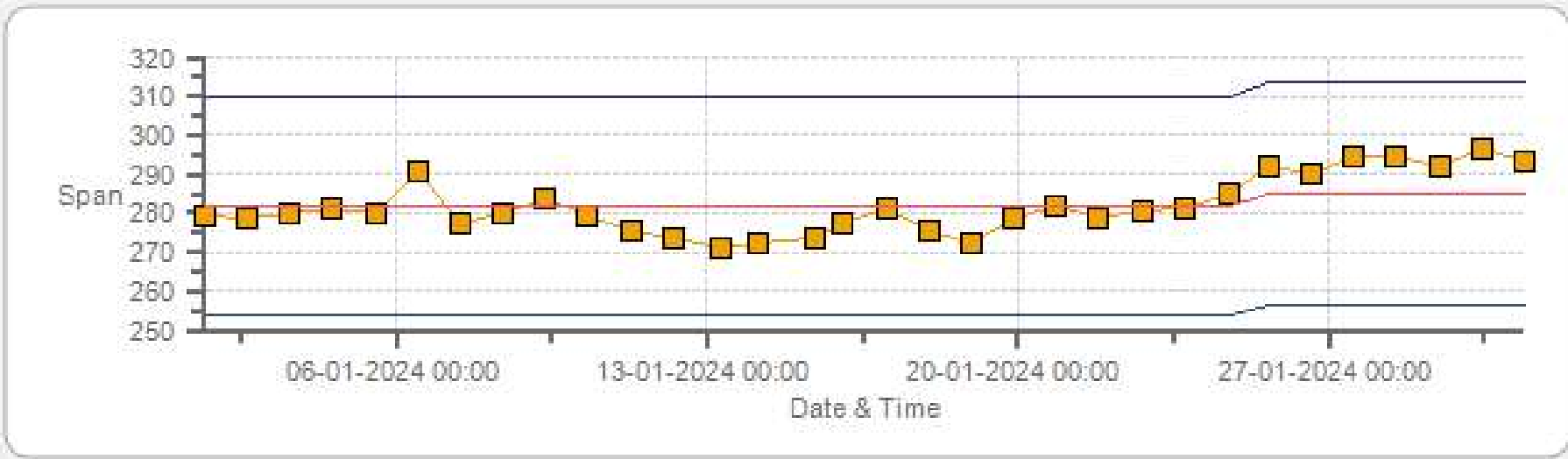
Span SpanRef Span Low Span High

NO2[ppb] Calibration: Tamarack Monthly: 01-2024 Type: SpanAndZero - Zero



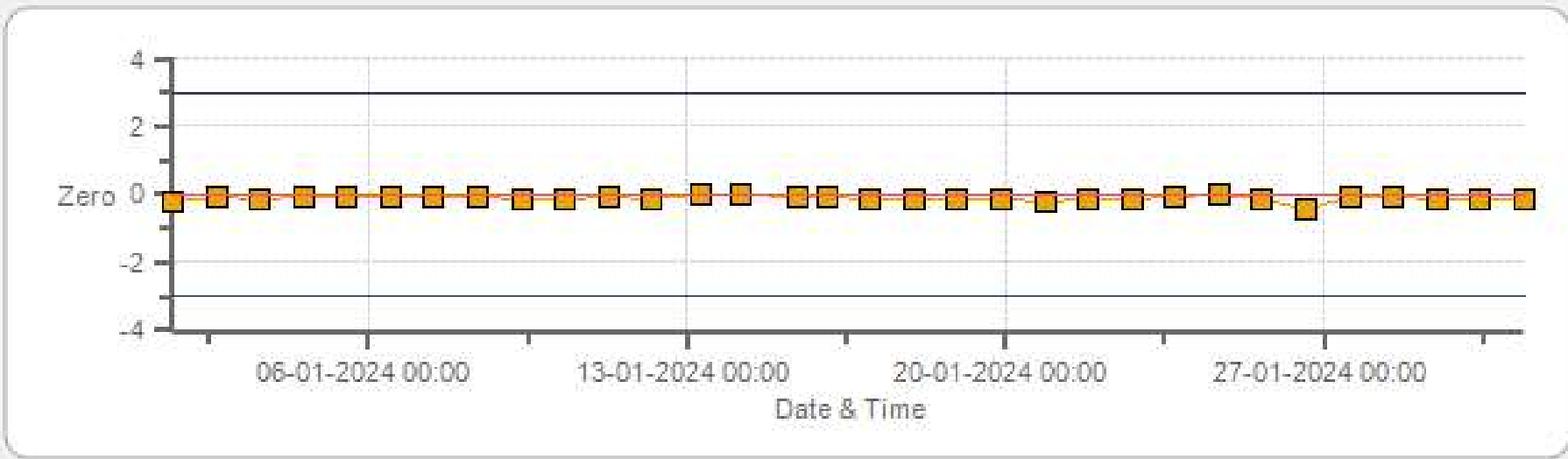
Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: Tamarack Monthly: 01-2024 Type: SpanAndZero - Span



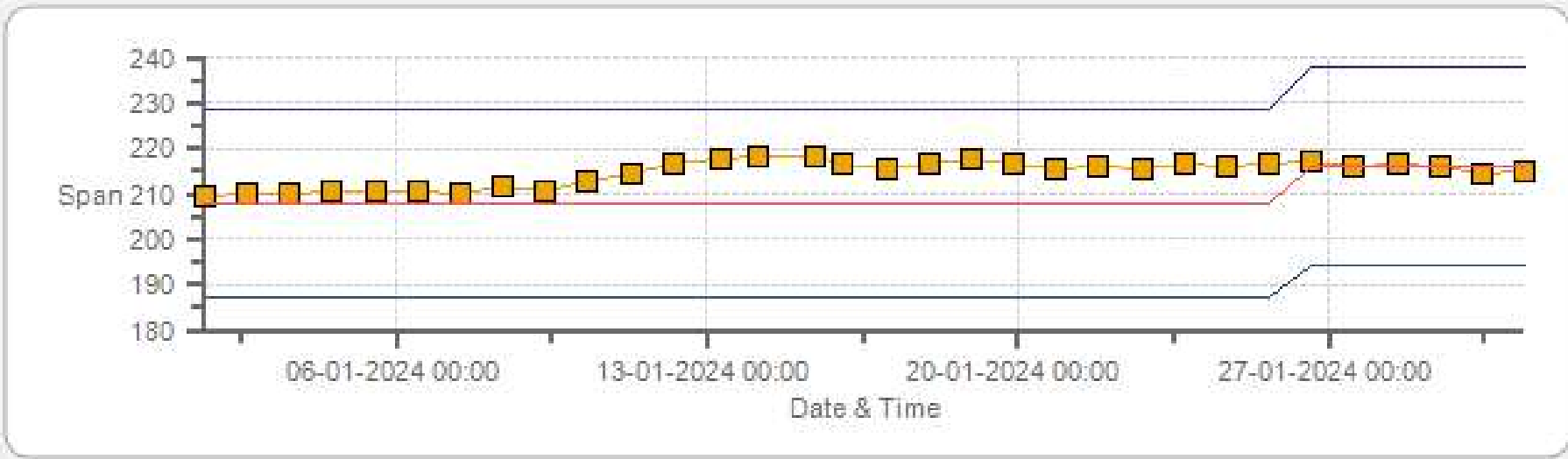
Span Span Ref Span Low Span High

O3[ppb] Calibration: Tamarack Monthly: 01-2024 Type: SpanAndZero - Zero



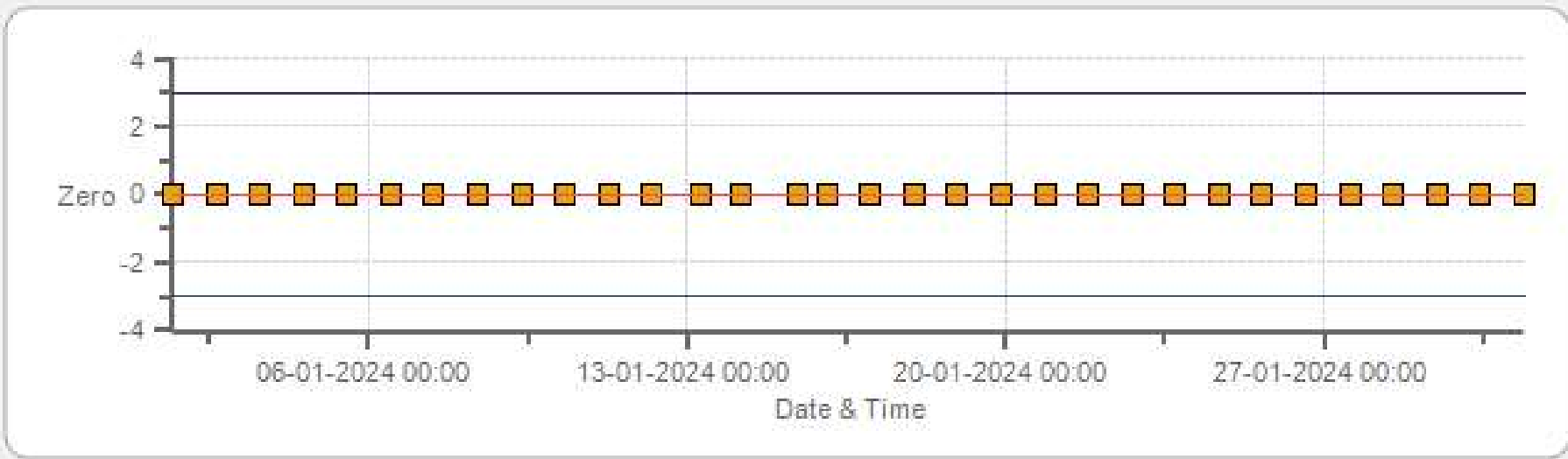
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: Tamarack Monthly: 01-2024 Type: SpanAndZero - Span



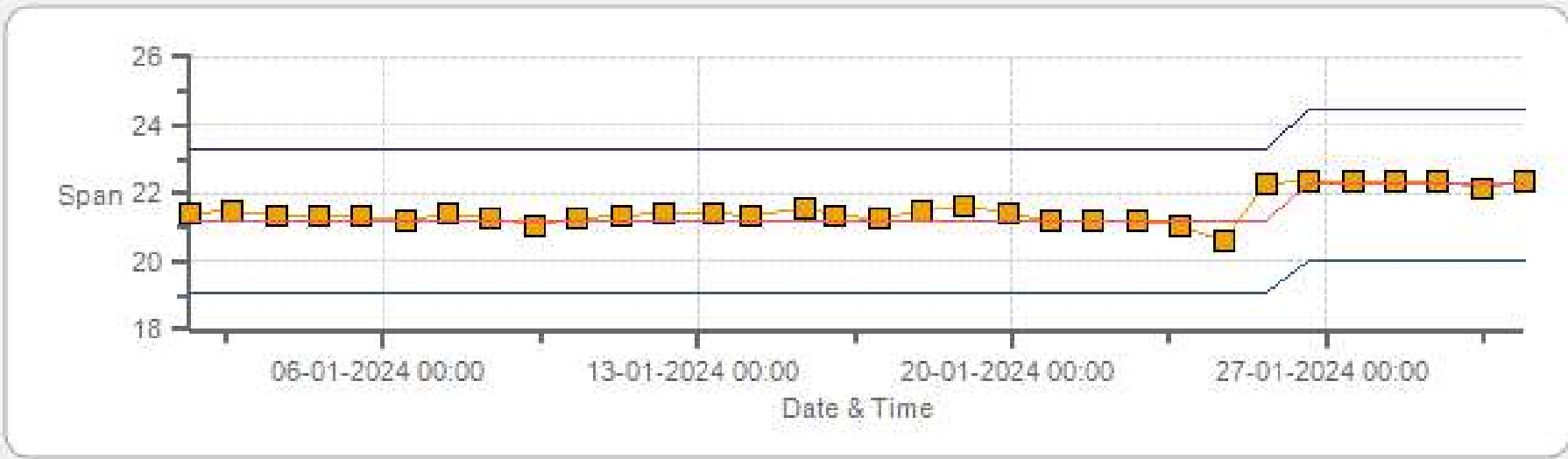
Span Span Ref Span Low Span High

THC55[ppm] Calibration: Tamarack Monthly: 01-2024 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

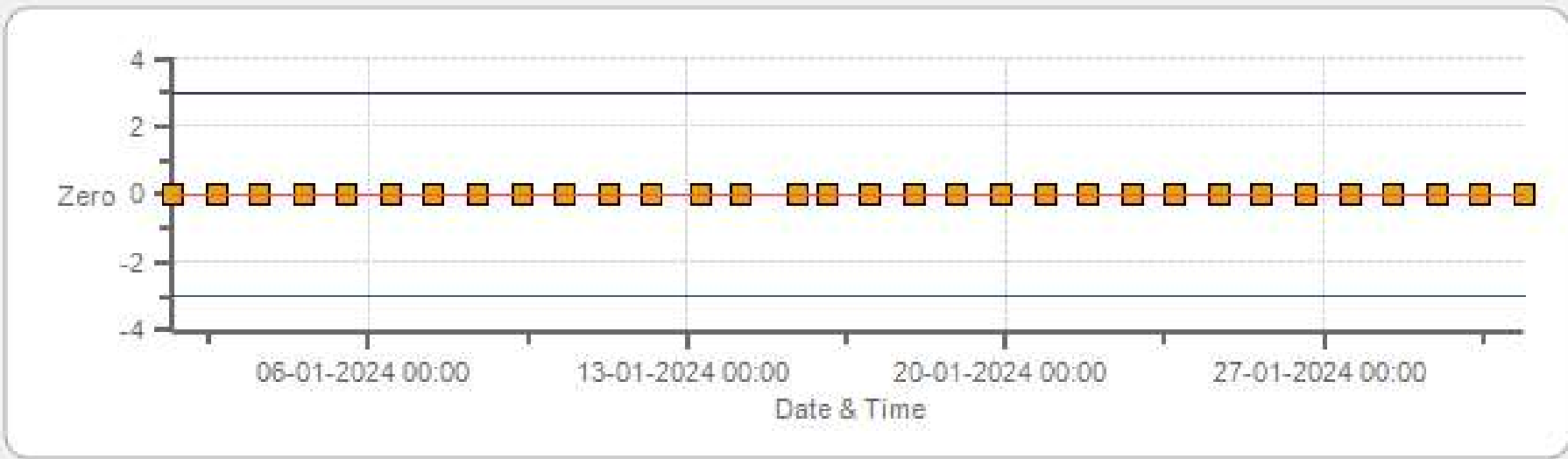
THC55[ppm] Calibration: Tamarack Monthly: 01-2024 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

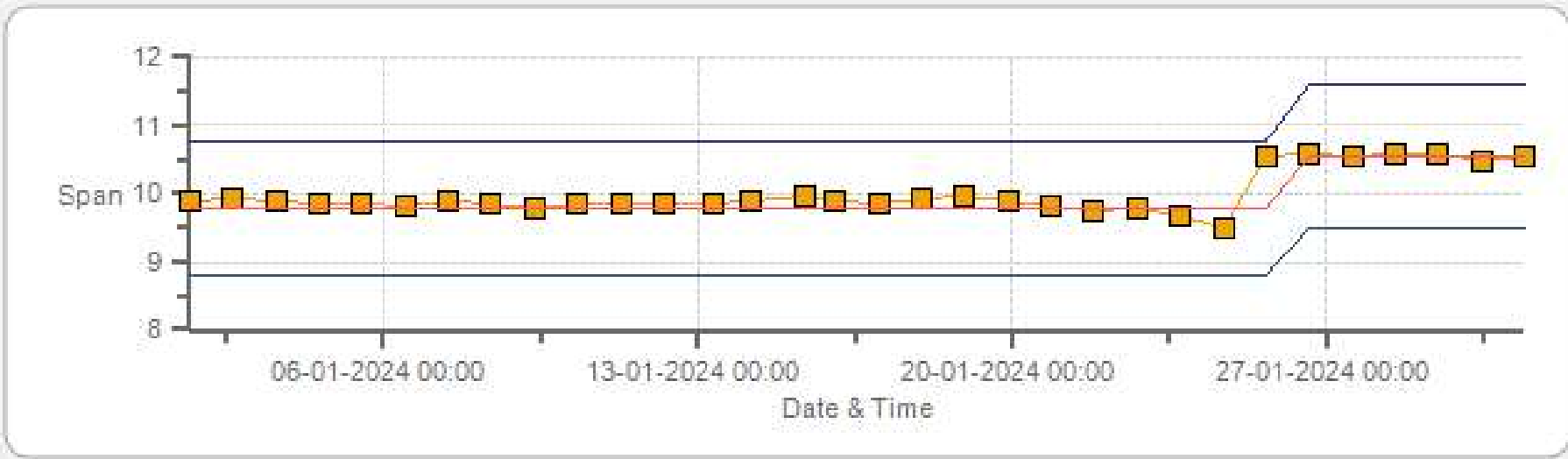


CH4[ppm] Calibration: Tamarack Monthly: 01-2024 Type: SpanAndZero - Zero

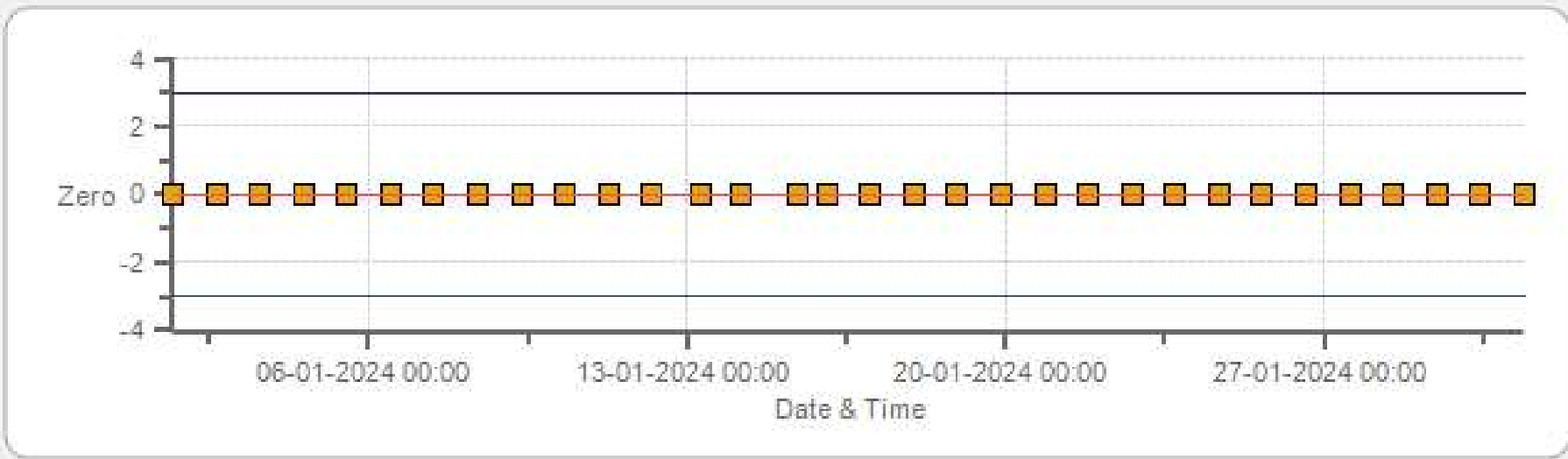


Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: Tamarack Monthly: 01-2024 Type: SpanAndZero - Span

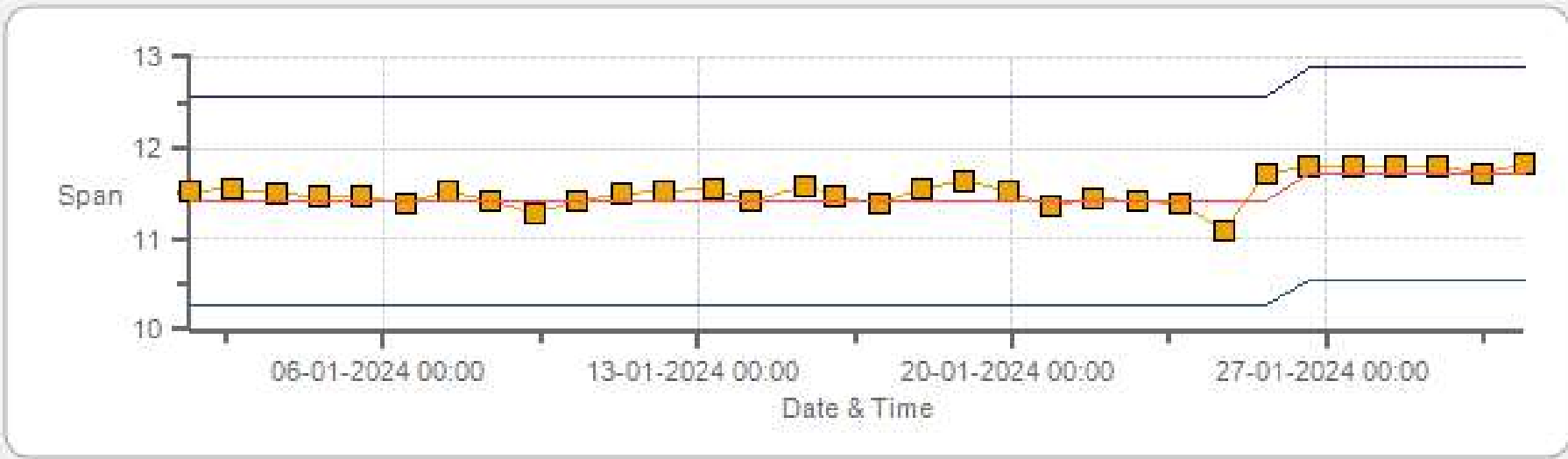


NMHC[ppm] Calibration: Tamarack Monthly: 01-2024 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: Tamarack Monthly: 01-2024 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

# MULTI-POINT CALIBRATION RECORDS

# SO2 Analyzer Calibration by Dilution



DATE:	24-Jan-2024	PREVIOUS CALIBRATION DATE:	12-Dec-2023
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	931
PURPOSE:	Routine	START TIME (MST):	11:57
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:35

## ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180930031	FLOW (mL/min)	417
INITIAL		FINAL	
BKG/OFFSET	2.89	BKG/OFFSET	3.11
COEF/SLOPE	1.028	COEF/SLOPE	1.063
Expected (reference) Value	189.8	Expected (reference) Value	197

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	17100415	ID:	132
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 127895	HIGH ID	n/a
CONC (ppm):	50.40	EXPIRY DATE	n/a
CYLINDER (psi):	500	LOW ID	n/a
EXPIRY DATE	27-Oct-2030	EXPIRY DATE	n/a

## CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	390	190	95
RANGE	300 - 400	150 - 200	50 - 100

## SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

## CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	<del>37.20</del>	5000	0.00	0	0	<del>1.041</del>	<del>0.998</del>
4961	37.20	4998	375.13	360.4	375.8	1.041	0.998
4982	17.60	5000	177.41	n/a	176.9	n/a	1.003
4990	8.80	4999	88.72	n/a	87.8	n/a	1.010

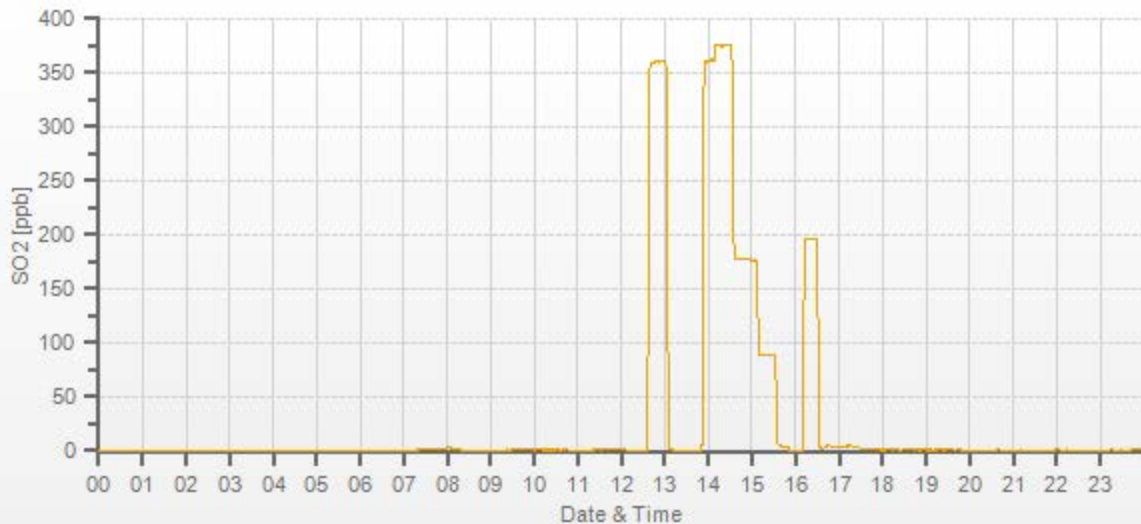
## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.003	-0.1%

## COMMENTS:

Sample inlet filter was changed.

SO2[ppb] Station: Tamarack Daily: 24-01-2024 Type: AVG 1 Min. [1 Min.]



CAL-LICA-2024-01248

# H2S Analyzer Calibration by Dilution



DATE:	24-Jan-2024	PREVIOUS CALIBRATION DATE:	12-Dec-2023
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	0.997
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	931
PURPOSE:	Routine	START TIME (MST):	11:58
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:35

## ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 17360005	FLOW (mL/min)	894
INITIAL		FINAL	
BKG/OFFSET	36.2	BKG/OFFSET	39.3
COEF/SLOPE	0.802	COEF/SLOPE	0.86
Expected (reference) Value	41.8	Expected (reference) Value	42.2

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	134
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 131360	HIGH ID	n/a
CONC (ppm):	10.05	EXPIRY DATE	n/a
CYLINDER (psi):	1800	LOW ID	n/a
EXPIRY DATE	03-Jan-2026	EXPIRY DATE	n/a

## CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	78	38	19
RANGE	60 - 80	30 - 40	10 - 20

## SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	12:02	SO2 Conc (ppb)	380
END TIME:	12:17	Analyzer Response (ppb)	0.0

## CALIBRATION:

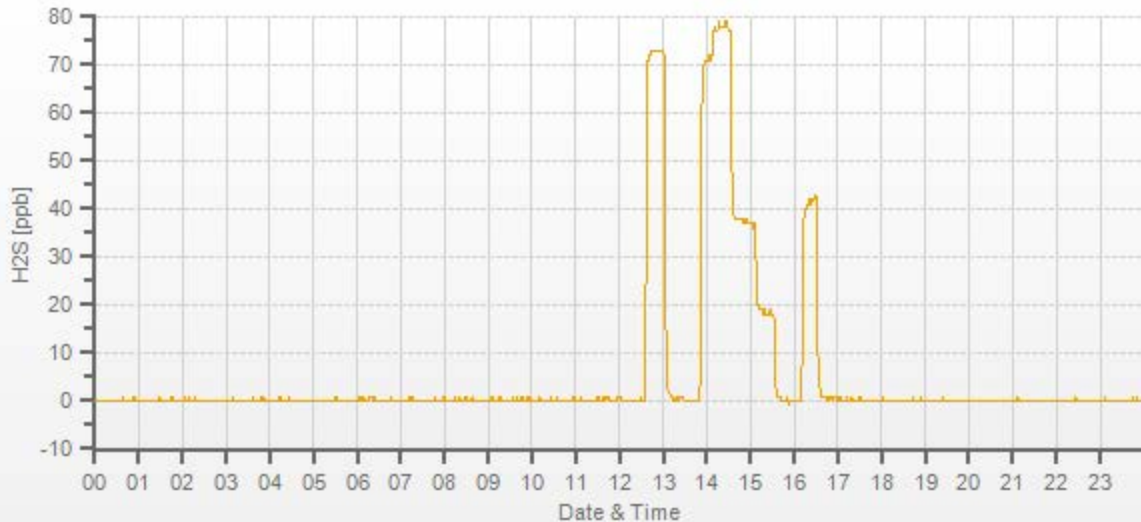
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	<del>57.90</del>	7500	0.00	0.4	0	<del>1.064</del>	<del>0.995</del>
7442	57.90	7500	77.59	73.3	78	1.064	0.995
7472	28.20	7500	37.79	n/a	37.8	n/a	1.000
7486	14.10	7500	18.89	n/a	18.8	n/a	1.005

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.006	-0.1%

## COMMENTS:

Sample inlet filter was changed.



# NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	24-Jan-2024	PREVIOUS CALIBRATION DATE:	12-Dec-2023	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930028	NOx	1.001
LOCATION:	Tamarack	BAROMETRIC (mBar):	931	FLOW (mL/min)	712	NO	0.999
PURPOSE:	Routine	START TIME (MST):	11:56	RANGE (ppb)	500	NO2	0.999
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:17	GPT FOR O3?		No	

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 127895	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	NO/NOx (PPM):	51.1   51.6	HIGH EXPIRY:	n/a
ID:	17100415	ID:	134	CYLINDER (psi):	500	LOW ID:	n/a
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a	EXPIRY DATE	27-Oct-2030	LOW EXPIRY:	n/a

CALIBRATION SETTINGS:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	2.3	2	n/a	BKG/OFFSET:	2.7	2.2	n/a
SLOPE/COEF/CE:	0.999	1.173	0.998	SLOPE/COEF/CE:	1.009	1.209	0.998

EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	277.5	2.0	281.8		287.0	1.7	285.0

CALIBRATION PARAMETERS:		NO TARGET (PPB)	NO2 TARGET (PPB)	NO2 RANGE	O3 POINT
POINT					
HIGH		380	250	230-265	n/a
MID		180	125	115-150	n/a
LOW		90	45	40-55	n/a
EXTRA 1		n/a	n/a	n/a	n/a

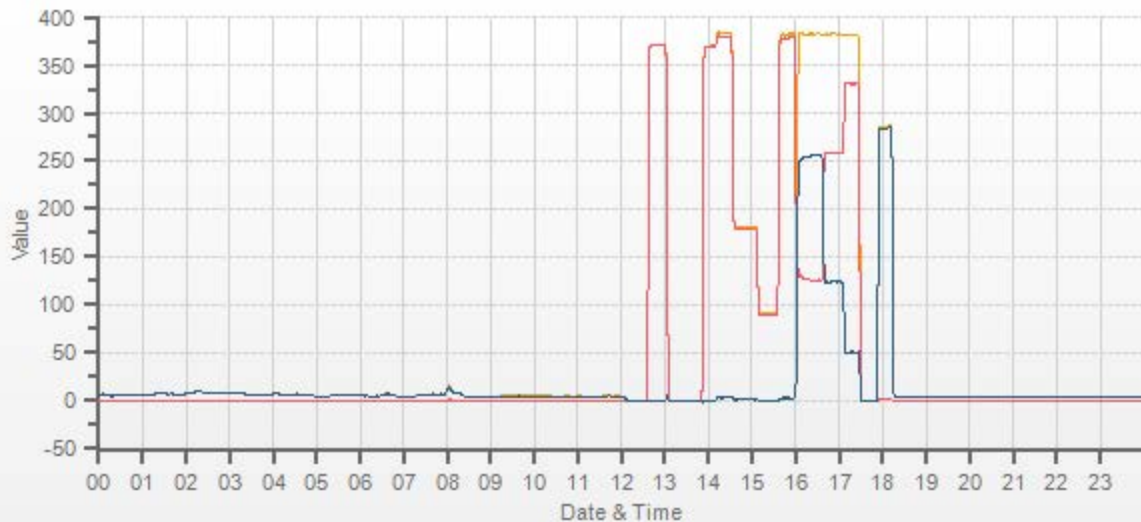
FLOW RATE			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000	<del>37.10</del>	5000	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	<del>1.024</del>	<del>1.034</del>	<del>1.000</del>	<del>0.999</del>	<del>1.000</del>	<del>1.000</del>
4961	37.10	4998	379.3	383.0	3.7	370.4	370.8	0.4	379.2	383.3	4.0	1.024	1.034	1.000	0.999	1.000	1.000
4982	17.60	5000	179.9	181.6	1.8	n/a	n/a	n/a	179.6	181.4	1.8	n/a	n/a	1.002	1.001	1.001	1.001
4990	8.80	4999	90.0	90.8	0.9	n/a	n/a	n/a	89.9	90.5	0.6	n/a	n/a	1.001	1.004	1.004	1.004

GPT CALIBRATION:										
Point	CALIBRATOR			INDICATED (ppb)			NO DROP / O3 Conc (ppb)	NO2 GAIN (ppb)	NO2 Corr. FACTOR	CONV. EFFICIENCY
	GAS	TOTAL	O3 SETPOINT	NO	NOx	NO2				
REFERENCE	37.10	4997	0	378.4	382.2	3.6	<del>252.2</del>	<del>252.2</del>	<del>1.000</del>	<del>100.00%</del>
AS-FOUND HIGH	37.10	4997	235	126.2	382.1	255.8	252.2	252.2	1.000	100.00%
ADJUSTED HIGH	37.10	4997	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MID	37.10	4997	110	258.8	381.8	123.0	119.6	119.4	1.002	99.83%
LOW	37.10	4997	40	330.8	382.0	51.5	47.6	47.9	0.994	100.63%
NO2 adjustment not required.									AVERAGE:	100.15%

LINEAR REGRESSION ANALYSIS:				COMMENTS:
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	1.000	-0.01%	
NOx	1.000	1.001	-0.05%	
NO2	1.000	0.999	0.04%	

Sample inlet filter was changed.  
16:00 = Daily ZS check. GPT high point restarted





# Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	25-Jan-2024	PREVIOUS CALIBRATION DATE:	13-Dec-2023
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.003
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	929
PURPOSE:	Routine	START TIME (MST):	10:50
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:30

## ANALYZER:

MAKE/MODEL	Thermo 49i	RANGE	500 ppb
SERIAL #	1002240371	FLOW (mL/min)	1480
INITIAL		FINAL	
BKG/OFFSET	0.1	BKG/OFFSET	0.1
COEF/SLOPE	0.998	COEF/SLOPE	1.009
Expected (reference) Value	208	Expected (reference) Value	216

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	134
MFC CALIBRATION DATE:	20-Oct-2023	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

## CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
RANGE	300 - 400	150 - 200	50 - 100

## CALIBRATION:

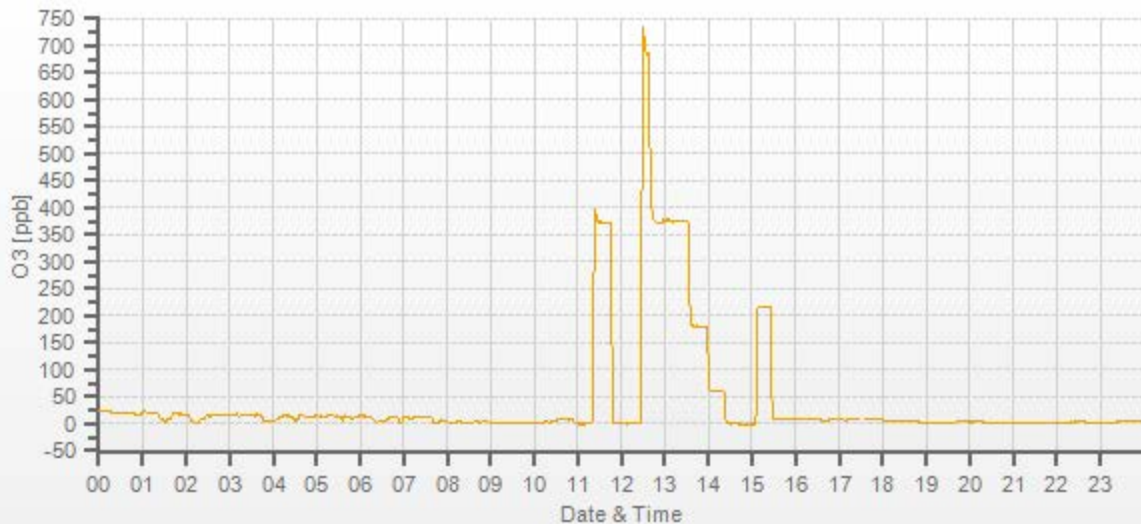
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	<del>          </del>	5000	0.0	0.1	0.0	<del>          </del>	<del>          </del>
5000	<del>          </del>	5000	378.0	373.0	376.7	1.014	1.003
5000	<del>          </del>	5000	180.0	n/a	180.8	n/a	0.996
5000	<del>          </del>	5000	61.0	n/a	61.1	n/a	0.998

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.997	0.1%

## COMMENTS:

Sample inlet filter was changed.



# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	25-Jan-2024	PREVIOUS CALIBRATION DATE:	12-Dec-2023	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1505664392	1200
LOCATION:	Tamarack	BAROMETRIC (mBar):	929	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Routine	START TIME (MST):	10:51	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:30	PREVIOUS CF:	1.001	1.002	1.000

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 23593	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	603.0   204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	132	CYLINDER (psi):	800	LOW ID:	n/a
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	115	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

POINT (CH <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE		
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>		561.0
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>		1164.0

## EXPECTED (REFERENCE) VALUE:

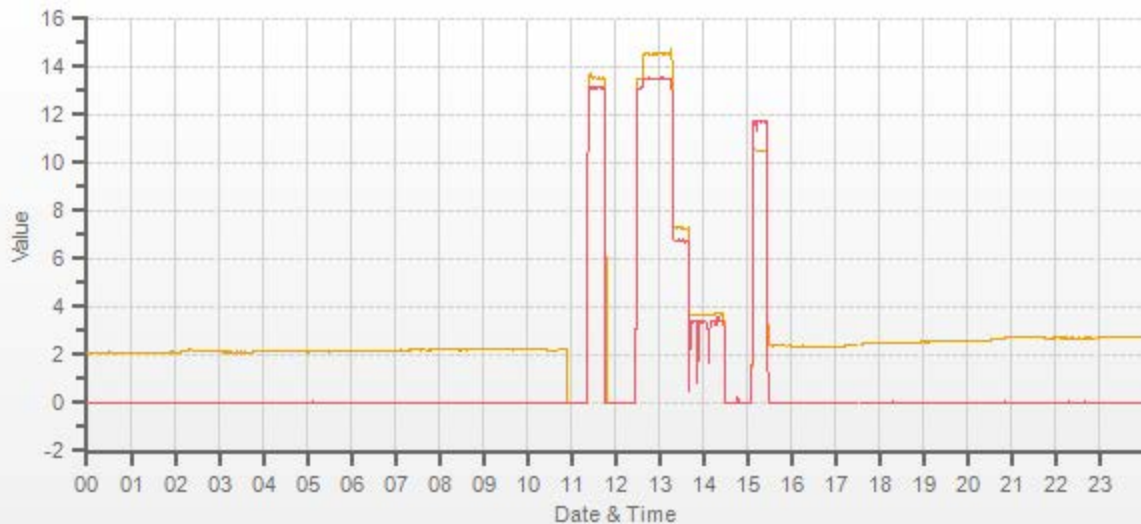
INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	9.79	11.41	21.20		10.54	11.72	22.26

## CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3100	<del>X</del>	3100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>
3025	74.60	3100	14.51	13.50	28.01	13.52	13.13	26.67	14.55	13.52	28.06	1.073	1.028	1.050	0.997	0.999	0.998
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.29	6.76	14.06	n/a	n/a	n/a	0.995	0.999	0.996
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.66	3.39	7.05	n/a	n/a	n/a	0.989	0.993	0.991

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments: Sample inlet filter was changed.	
CH <sub>4</sub>	1.000	1.002	0.1%		
NMHC	1.000	1.001	0.0%		
THC	1.000	1.001	0.1%		
				Use Zero Chrom?	Yes



CAL-LICA-2024-01248

## Thermo 5030 SHARP Monitor Monthly Check

Date: <u>January 25, 2025</u>	Performed By/Reviewer: <u>Alex Yakupov</u>   <u>Chris Wesson</u>
Company: <u>LICA</u>	Start Time (mst): <u>15:55</u>
Station Name/Location: <u>Tamarack</u>	End Time (mst): <u>17:03</u>
Previous Audit Date: <u>December 13, 2023</u>	Calibration Purpose: <u>routine monthly</u>
Parameter: <u>PM 2.5</u>	Weather Conditions: <u>A few clouds</u>

**SHARP Information and Status:**

Serial Number: <u>CM-2209</u>	Status: <u>0.00</u>
Approx Tape remaining: <u>8/10</u>	Error Code: <u>0.00</u>

**Reference Standards: Air Flow**

	Manometer	Orifice	Pressure:	Temperature:
Make:	Delta Cal	Delta Cal	Fisher	Vaisala
Model:	DC-1	DC-1	FB61291	HM70
Serial Number:	#177246	#177246	130168457	T1640130
Calibration Expiration Date:	November 27, 2024	November 27, 2024	March 20, 2024	June 26, 2024

**As found temperature and pressure:**

Tolerance +/- 4°C	Tolerance +/- 13.33 hPa
SHARP T1 °C: <u>-6.0</u>	SHARP P3 (hPa): <u>935.000</u>
Reference °C: <u>-6.5</u>	Reference (hPa): <u>933.000</u>
Difference °C: <u>-0.5</u>	Difference (hPa): <u>2.000</u>

**As left temperature and pressure (same as above if as found adequate):**

Tolerance +/- 4°C	Tolerance +/- 13.33 hPa
SHARP T1 °C: <u>-6.0</u>	SHARP P3 (hPa): <u>935.000</u>
Reference °C: <u>-6.5</u>	Reference (hPa): <u>933.000</u>
Difference °C: <u>-0.5</u>	Difference: <u>2.000</u>

**As found flows:**

Targets: 1000 l/hr / <90%	Flow Tolerance 16.67 lpm +/- 0.67 lpm
SHARP AirFlow l/hr: <u>1000.00</u>	SHARP Airflow (l/min): <u>16.67</u>
Pump Voltage (%): <u>56.20</u>	Reference AirFlow (l/min): <u>16.72</u>
	Difference (l/min): <u>0.05</u>

**As left flows (same as above if as found adequate):**

Targets: 1000 l/hr / <90%	Flow Tolerance 16.67 lpm +/- 0.67 lpm
SHARP AirFlow l/hr: <u>1000.00</u>	SHARP Airflow (l/min): <u>16.67</u>
Pump Voltage (%): <u>53.40</u>	Reference AirFlow (l/min): <u>16.69</u>
	Difference (l/min): <u>0.02</u>

**Inlet Assembly:**

	Yes/No?	If No, give reason
PM10 Inlet Cleaned	yes	
PM2.5 Cyclone Cleaned	yes	

**Comments:**

Leak check: 16.65 vs 16.54, 0.11 < 0.80 lpm, passed.

# Meteorological System Checklist



Date:	January 25, 2023		
Technician:	Alex Yakupov		
Station:	Tamarack / Audit time: 17:03 - 18:06		
<b>Unit:</b>	<b>Make:</b>	<b>Model:</b>	<b>Serial #:</b>
Precipitation Sampler:	Met One	387 D	C 13580
Temperature Sensor:	Rotronic	HC2A-S3	20433166
Barometric Pressure Sensor:	MetOne	Part 090D	F4497
Relative Humidity Sensor:	Rotronic	HC2A-S3	20433166
Anemometer:	RM Young	05305VK	161465

### PRECIPITATION SENSOR CHECK

Checklist:	Reply:	Comments:
Is the sensor Level?	yes	
Is the heater operating properly?	yes	
Are the bucket drain holes clean?	yes	
Is the screen on the housing? (screen should be on between July and September)	no	17:09 - water test. Response is timely and accurate. (1.1 mm for 11 water tips)
Is the housing clean?	yes	
Is the area around the housing clean and free from obstacles?	yes	

### TIP TEST - Slowly pour water until 10 tip are heard. (10 tips = 1 mm)

# of Tips	Data Logger Response (mm):	Manual Specification = +/- 0.2 mm
10	1.00	0.00

### AMBIENT TEMPERATURE SENSOR CHECK

Parameter:	Temperature @ 2 metres	
Reference Thermometer ID:	Vaisala HMP76B #T1640130, Exp. Date: Jun 26, 2024	
Reference Temperature (°C):	-7.1	
Station - Ambient Temperature (°C):	-7.5	
Temperature Difference (°C):	0.4	

### BAROMETRIC PRESSURE SENSOR CHECK

Reference Barometer ID:	Fisher / FB 61291/ #130168457/ Mar 20, 2024	
Reference Pressure - Units/Reading:	millibar	933
Station Pressure - Units/Reading:	millibar	930
Pressure Tolerance +/- 15% of error:	793 - 1073	0.32%

### RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Reference Hygrometer ID:	Vaisala HMP76B #T1640130, Exp. Date: Jun 26, 2024	
Reference Hygrometer % RH- Reading:	84.10	
Station Hygrometer % RH- Reading:	87.50	
RH Tolerance +/- 15% of difference:	71.49 - 96.72	-4.0%

### ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Previous check date:	December 13, 2023	Previous check date:	December 13, 2023
Wind Speed Observed (kph):	0 ~10	Wind Direction Observed:	SW
Wind speed on Data Logger (kph):	2.7	Wind Direction on Data Logger:	SW
	Annual audit: Sep 17, 2023	Wind Direction Pass/Fail?:	Pass

Comments

Station (Trailer) temperature vs Reference gauge temperature: 21.7 vs 21.9 degrees, difference = 0.2 => Passed.



# Meteorological Sensor Audit/Calibration

## Location Information

**Company:** LICA  
**Audit Location:** Tamarack  
**Audit Date:** September 17, 2023  
**Calibration Purpose:** routine annual  
**Performed By:** Alex Yakupov  
**Reviewed By:** Chris Wesson  
**Start/End Time (mst):** 15:01 / 17:09  
**Weather Conditions:** Mainly sunny

## Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1
Sensor Model:	05305VK	Velocity Unit Output Range:	0-200
Serial #:	161465	Direction Voltage Output Range:	0-1
Previous Cal/Audit Date:	July 26, 2022	Direction Unit Output Range:	0-360

## Wind Calibrator Information

**Calibrator I.D. and Expiry Date:** Model 18860-90/18802 SN: CA 4744, expires - Oct 18, 2024

## Wind Speed Audit Data **\*\*+/- 2% of the average correction factor is the limit\*\***

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.1	0.1	-
1000	18.4	18.5	18.5	0.996
2000	36.9	37.0	36.9	0.998
3000	55.3	55.4	55.4	0.998
4000	73.7	73.9	73.9	0.998
5000	92.2	92.5	92.5	0.996
6000	110.6	111.0	111.0	0.996
7000	129.0	129.6	129.6	0.995
8000	147.4	148.1	148.1	0.996
9000	165.9	166.7	166.7	0.995
10000	184.3	185.2	185.2	0.995
The audit meets AMD requirements.			Average Correction Factor=	0.996

## Wind Direction Audit Data **\*\*+/- 3° of the absolute average degrees difference for all points is the limit\*\***

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	0	354	0.3	0.8	0.6
30	330	31	331	-0.8	-0.7	0.7
60	300	61	301	-1.4	-0.8	1.1
90	270	94	271	-3.5	-1.0	2.3
120	240	123	242	-2.8	-1.5	2.2
150	210	152	212	-2.3	-2.4	2.4
180	180	182	183	-1.9	-3.4	2.7
210	150	212	155	-2.2	-4.5	3.3
240	120	241	124	-0.7	-4.1	2.4
270	90	270	95	-0.4	-4.8	2.6
300	60	301	64	-0.5	-3.6	2.1
330	30	329	34	0.7	-3.5	2.1
355	0	354	0	0.8	0.4	0.6
The audit meets AMD requirements.				Average Absolute Degrees Difference=		1.9

## Comments:

n/a



# End of Report



**Lakeland Industry & Community Association**

**JANUARY 2024**

**Ambient Air Monitoring Calibration Report**

**- ST. LINA STATION-**

**CAL-LICA-202401-01250**

**Station Operation and Maintenance:**

Bureau Veritas Canada

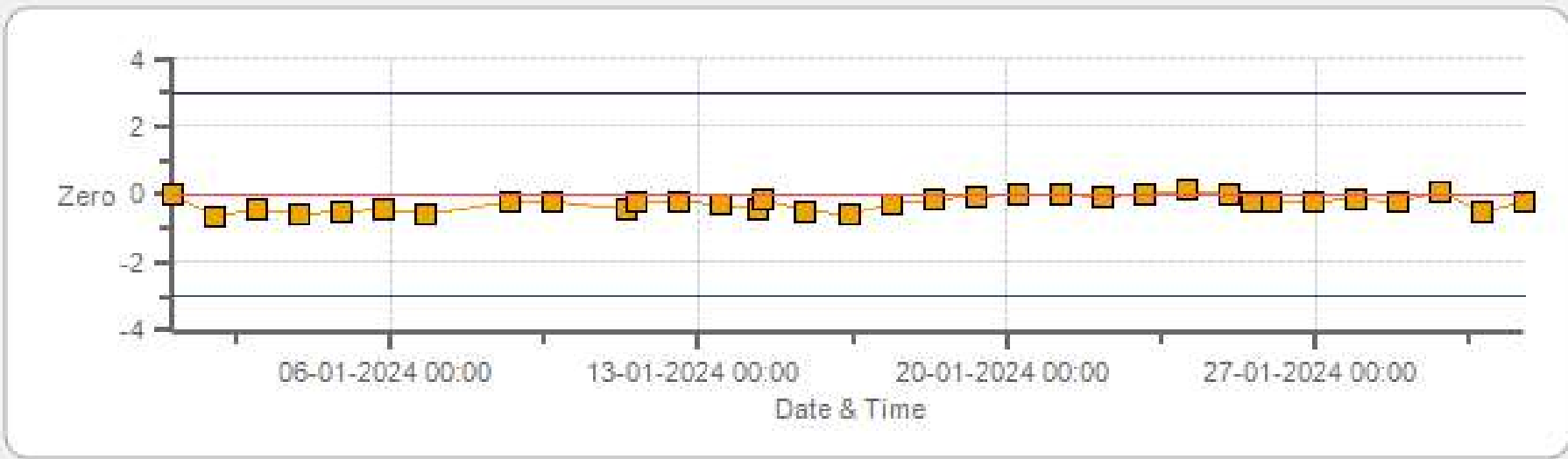
**Data Validation and Report:**

LICA / Bureau Veritas Canada

February 24, 2024

# DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: St. Lina Monthly: 01-2024 Type: SpanAndZero - Zero



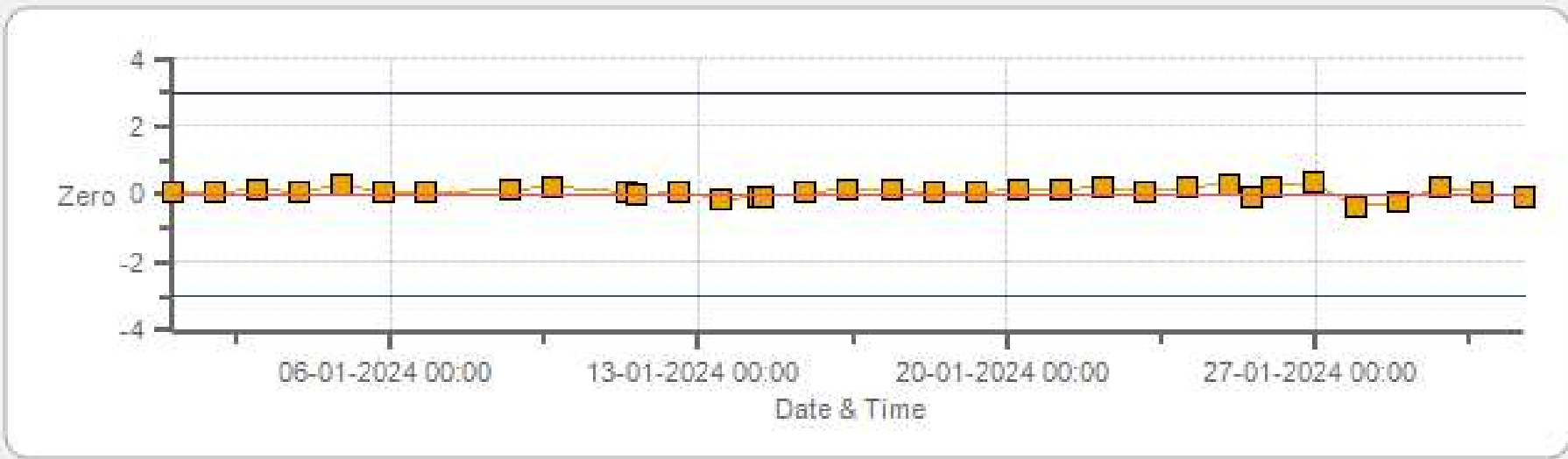
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: St. Lina Monthly: 01-2024 Type: SpanAndZero - Span



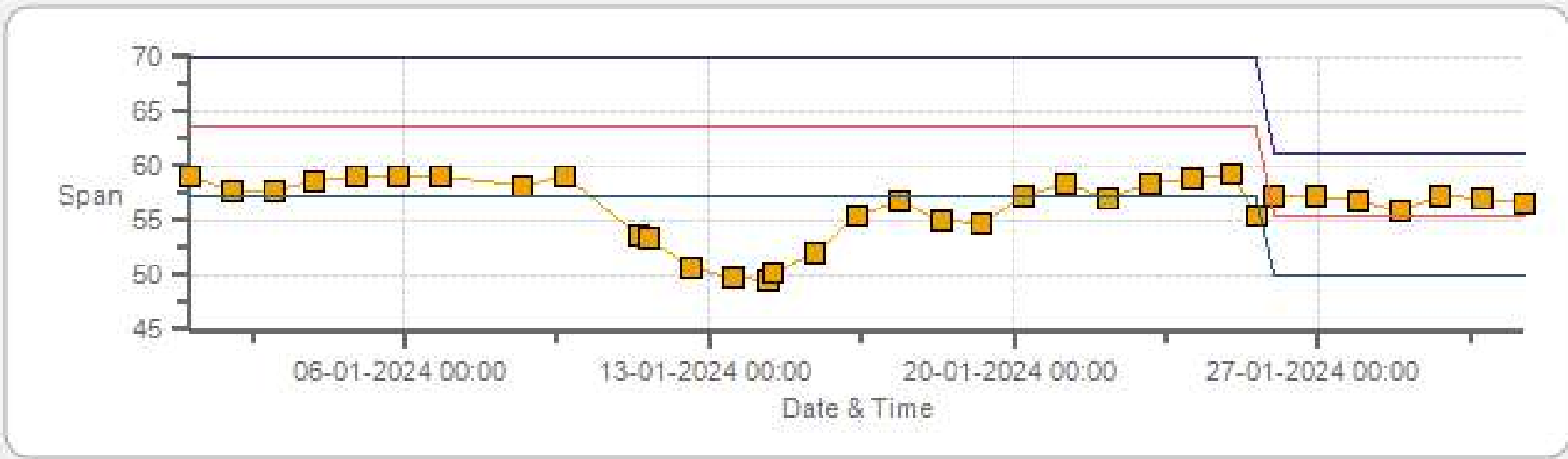
Span SpanRef Span Low Span High

H2S[ppb] Calibration: St. Lina Monthly: 01-2024 Type: SpanAndZero - Zero



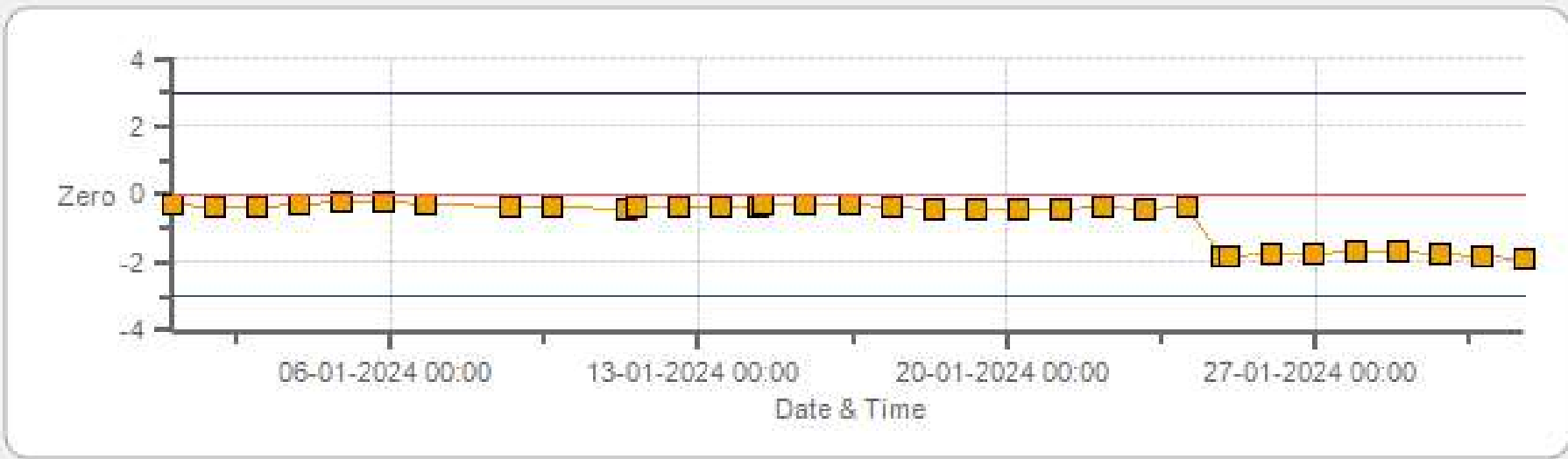
Zero Zero Ref Zero Low Zero High

H2S[ppb] Calibration: St. Lina Monthly: 01-2024 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

NOX[ppb] Calibration: St. Lina Monthly: 01-2024 Type: SpanAndZero - Zero



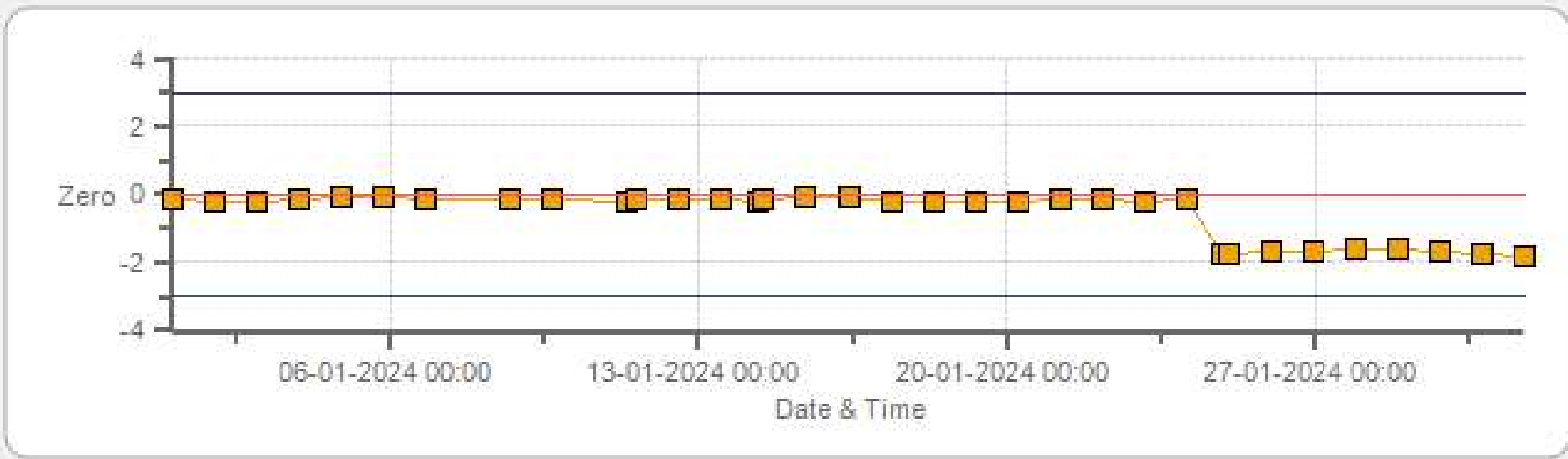
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: St. Lina Monthly: 01-2024 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

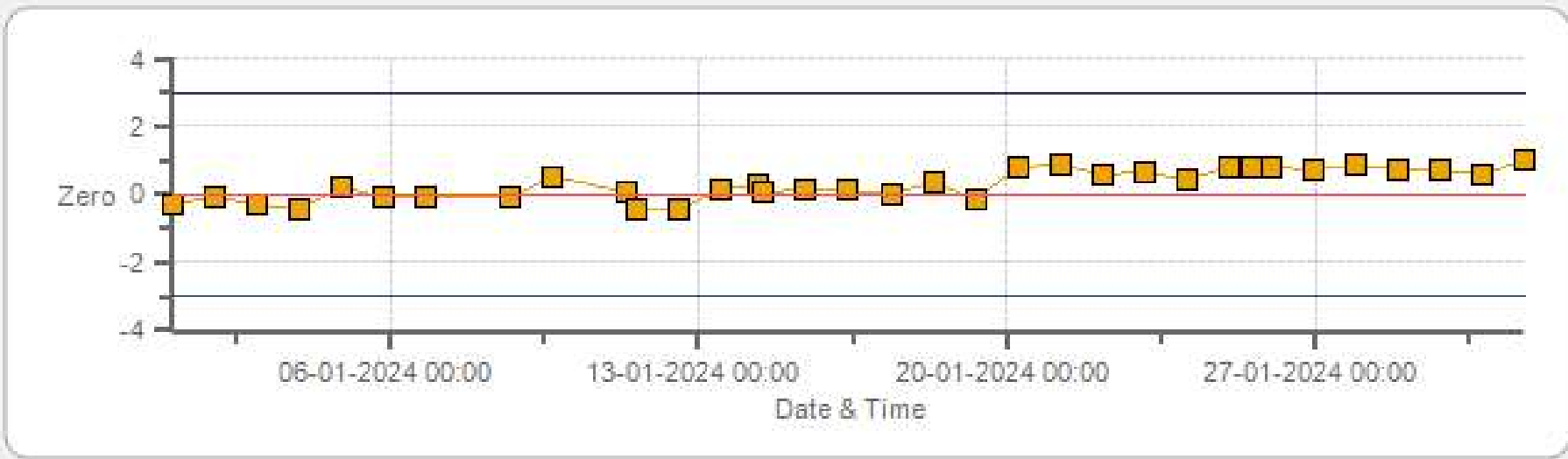
NO2[ppb] Calibration: St. Lina Monthly: 01-2024 Type: SpanAndZero - Zero



NO2[ppb] Calibration: St. Lina Monthly: 01-2024 Type: SpanAndZero - Span



O3[ppb] Calibration: St. Lina Monthly: 01-2024 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

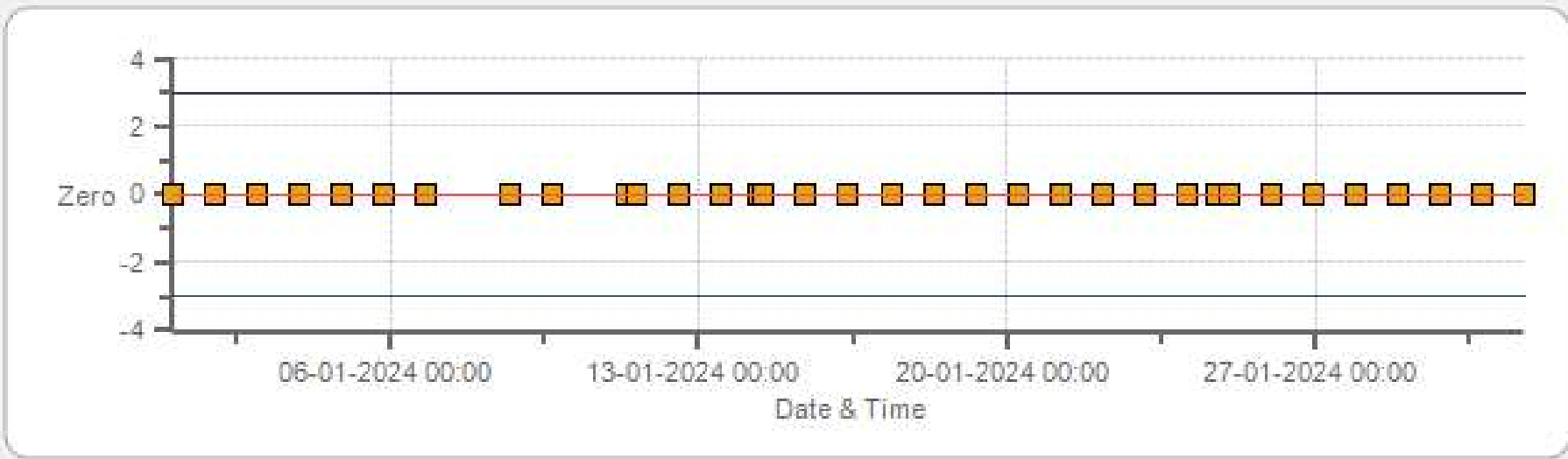
O3[ppb] Calibration: St. Lina Monthly: 01-2024 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

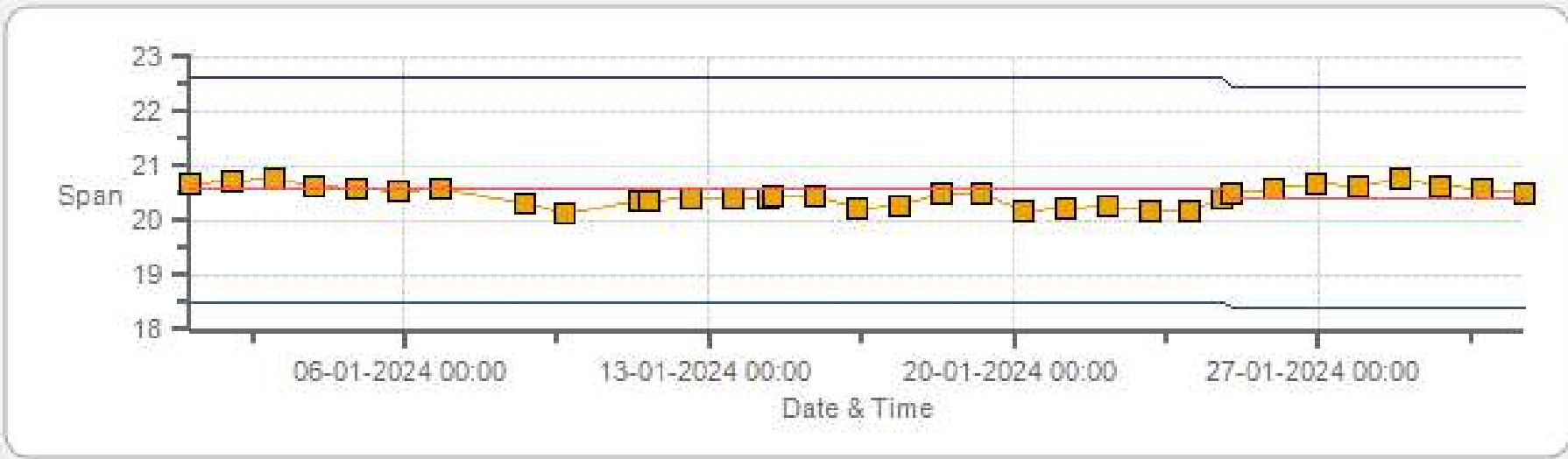


THC55[ppm] Calibration: St. Lina Monthly: 01-2024 Type: SpanAndZero - Zero



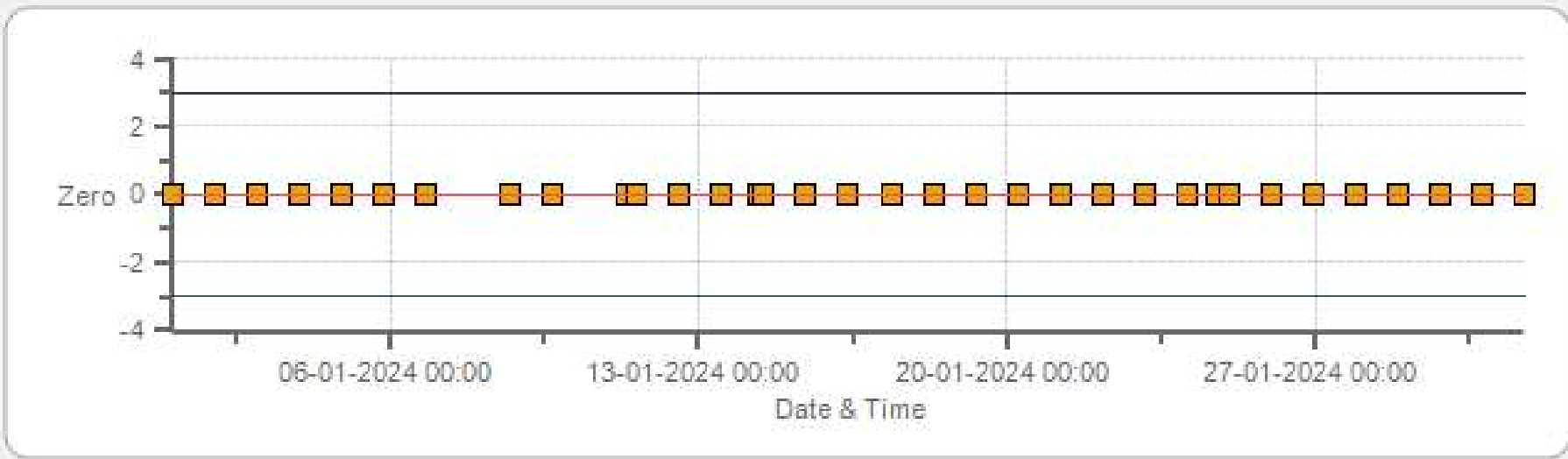
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: St. Lina Monthly: 01-2024 Type: SpanAndZero - Span



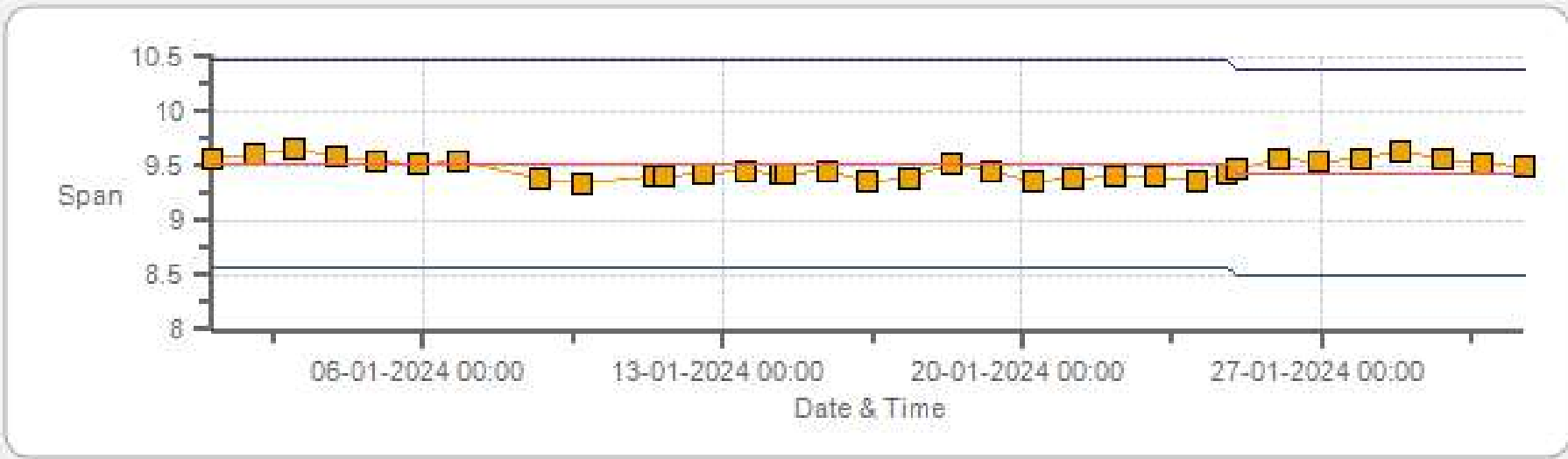
Span Span Ref Span Low Span High

CH4[ppm] Calibration: St. Lina Monthly: 01-2024 Type: SpanAndZero - Zero



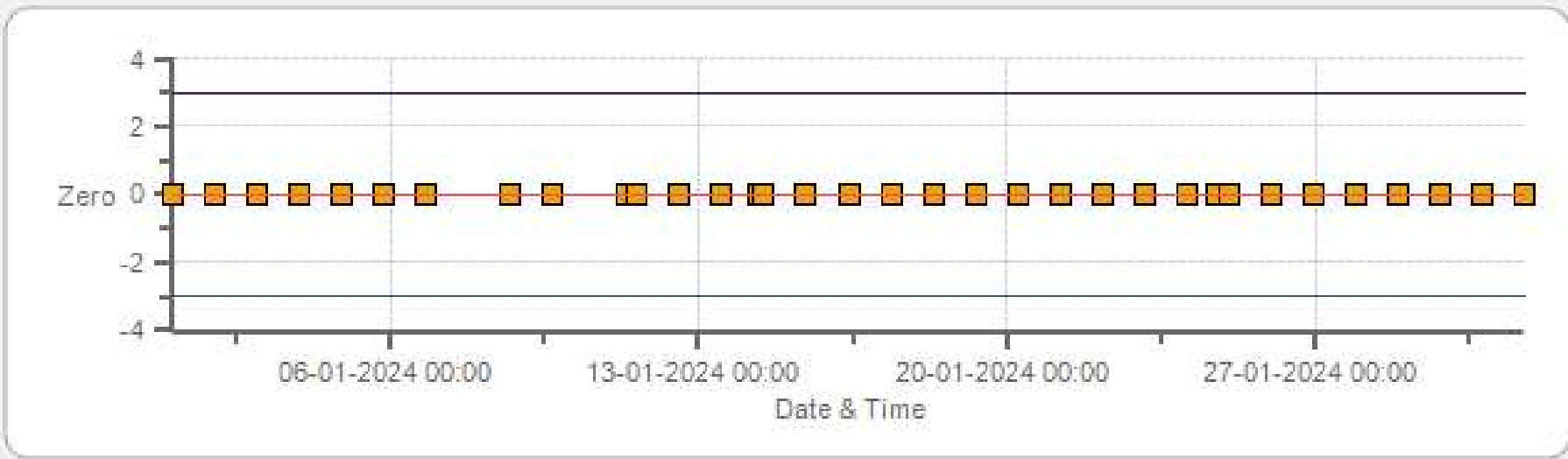
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: St. Lina Monthly: 01-2024 Type: SpanAndZero - Span



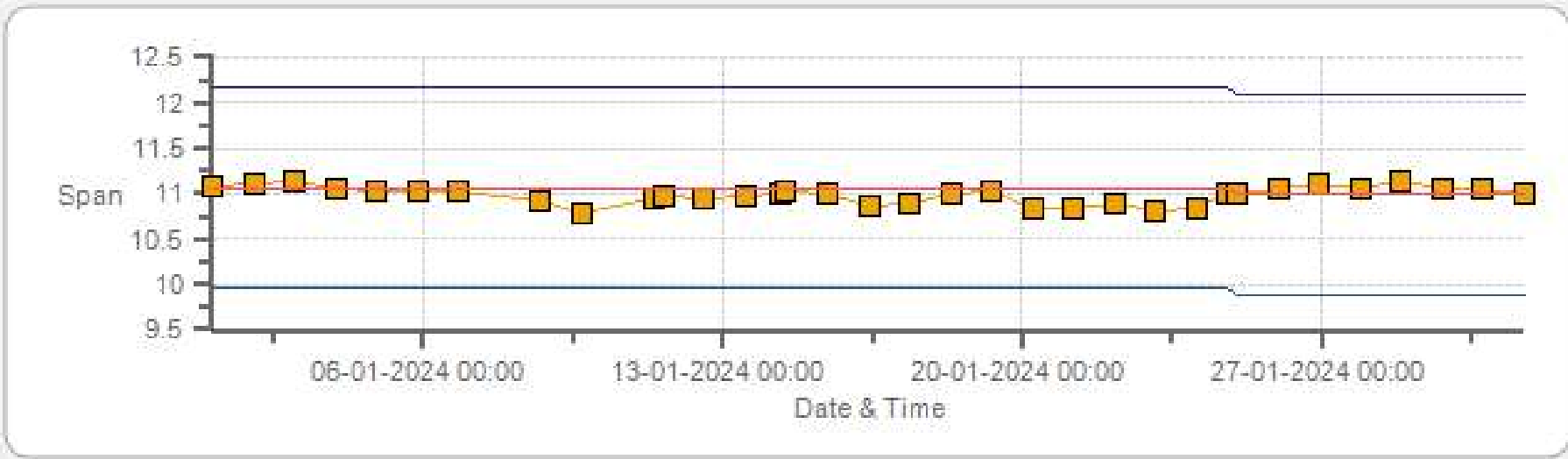
Span SpanRef Span Low Span High

NMHC[ppm] Calibration: St. Lina Monthly: 01-2024 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: St. Lina Monthly: 01-2024 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

# MULTI-POINT CALIBRATION RECORDS

# SO2 Analyzer Calibration by Dilution



DATE:	25-Jan-2024	PREVIOUS CALIBRATION DATE:	05-Dec-2023
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	0.999
CLIENT:	LICA	TEMPERATURE (°C):	20.9
LOCATION:	St. Lina	BAROMETRIC (mBar):	927
PURPOSE:	Routine	START TIME (MST):	09:29
PERFORMED BY:	Chris Wesson	END TIME (MST):	13:30

## ANALYZER:

MAKE/MODEL	Thermo 43i	RANGE	500 ppb
SERIAL #	1226154720	FLOW (mL/min)	407
INITIAL		FINAL	
BKG/OFFSET	16.2	BKG/OFFSET	16.3
COEF/SLOPE	1.019	COEF/SLOPE	1.009
Expected (reference) Value	395.7	Expected (reference) Value	386.3

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Sabio
MODEL:	2010	MODEL:	2020EXP
ID:	58100720	ID:	18700921
MFC CALIBRATION DATE:	09-Oct-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL107286	HIGH ID	n/a
CONC (ppm):	25.10	EXPIRY DATE	n/a
CYLINDER (psi):	700	LOW ID	n/a
EXPIRY DATE	02-Nov-2025	EXPIRY DATE	n/a

## CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	390	190	95
RANGE	300 - 400	150 - 200	50 - 100

## SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

## CALIBRATION:

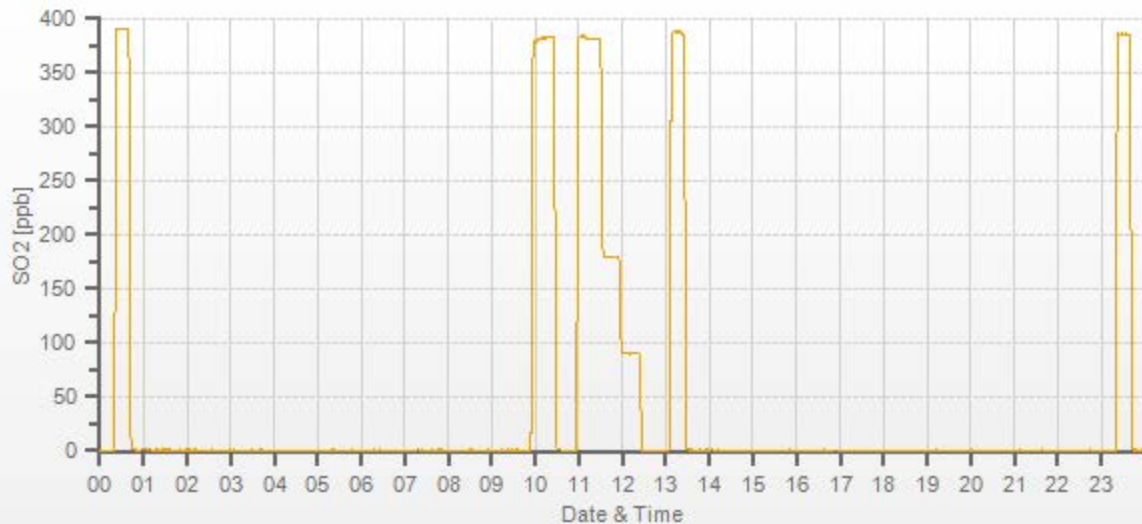
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
4002	<del>60.80</del>	4002	0.00	0.2	0	<del>0.994</del>	<del>1.000</del>
3941	60.80	4002	381.33	383.7	381.5	0.994	1.000
3974	28.80	4003	180.58	n/a	178.9	n/a	1.009
3989	14.40	4003	90.29	n/a	89.9	n/a	1.004

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	-0.1%

## COMMENTS:

BV analyzer
-------------



# H2S Analyzer Calibration by Dilution



DATE:	25-Jan-2024	PREVIOUS CALIBRATION DATE:	05-Dec-2023
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	1.002
CLIENT:	LICA	TEMPERATURE (°C):	20.9
LOCATION:	St. Lina	BAROMETRIC (mBar):	927
PURPOSE:	Routine	START TIME (MST):	09:29
PERFORMED BY:	Chris Wesson	END TIME (MST):	13:30

## ANALYZER:

MAKE/MODEL	Teledyne T100	RANGE	100 ppb
SERIAL #	1014	FLOW (mL/min)	512
INITIAL		FINAL	
BKG/OFFSET	8.071	BKG/OFFSET	8.202
COEF/SLOPE	1.631	COEF/SLOPE	1.58
Expected (reference) Value	63.6	Expected (reference) Value	55.5

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Sabio
MODEL:	2010	MODEL:	2020EXP
ID:	58100720	ID:	18700921
MFC CALIBRATION DATE:	09-Oct-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0002455	HIGH ID	n/a
CONC (ppm):	9.70	EXPIRY DATE	n/a
CYLINDER (psi):	1900	LOW ID	n/a
EXPIRY DATE	29-Sep-2026	EXPIRY DATE	n/a

## CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	78	38	19
RANGE	60 - 80	30 - 40	10 - 20

## SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

## CALIBRATION:

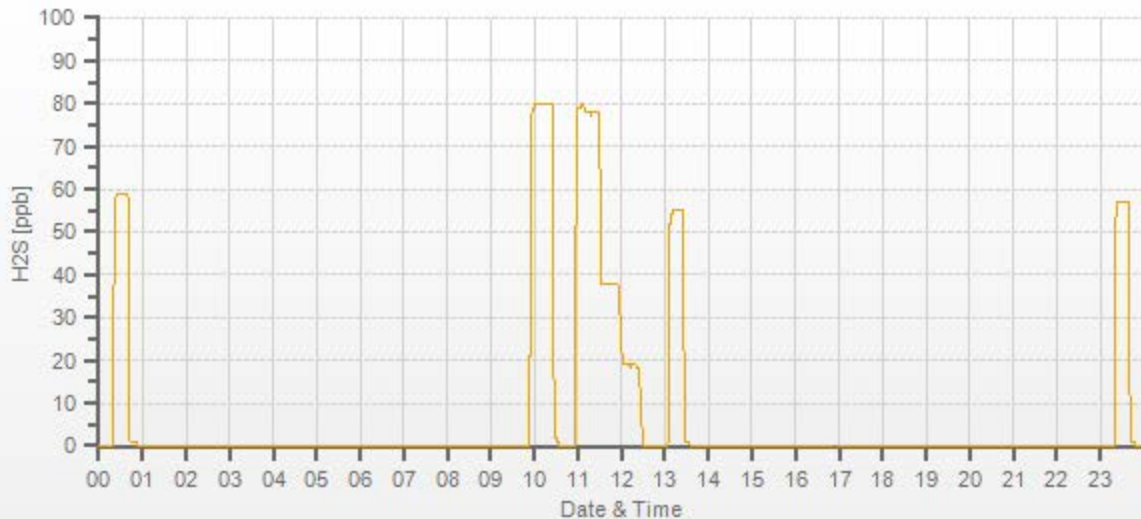
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
4002	<del>32.20</del>	4002	0.00	0.2	0	<del>0.973</del>	<del>0.999</del>
3970	32.20	4002	78.05	80.4	78.1	0.973	0.999
3987	15.70	4003	38.04	n/a	38	n/a	1.001
3995	7.80	4003	18.90	n/a	19	n/a	0.995

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.0%

## COMMENTS:

Sample filter changed.  
BV analyzer T101





# NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	24-Jan-2024	PREVIOUS CALIBRATION DATE:	06-Dec-2023	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	21.0	SERIAL #:	1180930029	NOx	0.998
LOCATION:	St. Lina	BAROMETRIC (mBar):	926	FLOW (mL/min)	776	NO	1.000
PURPOSE:	Routine	START TIME (MST):	15:13	RANGE (ppb)	500	NO2	0.996
PERFORMED BY:	Chris Wesson	END TIME (MST):	20:47	GPT FOR O3?		Yes	

CALIBRATION SYSTEM:							
CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Sabio	CYLINDER ID:	EY0001013	HIGH ID:	n/a
MODEL:	2010	MODEL:	2020EXP	NO/NOx (PPM):	49.2   49.4	HIGH EXPIRY:	n/a
ID:	26701218	ID:	18700921	CYLINDER (psi):	1000	LOW ID:	n/a
MFC CALIBRATION DATE:	08-Sep-2023	OXIDIZER ID:	n/a	EXPIRY DATE	11-Nov-2029	LOW EXPIRY:	n/a

CALIBRATION SETTINGS:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	4.7	4.4	n/a	BKG/OFFSET:	6.2	4.2	n/a
SLOPE/COEF/CE:	1.002	0.909	0.997	SLOPE/COEF/CE:	1.001	0.908	0.997

EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	222.2	1.8	220.4		221.0	1.5	219.2

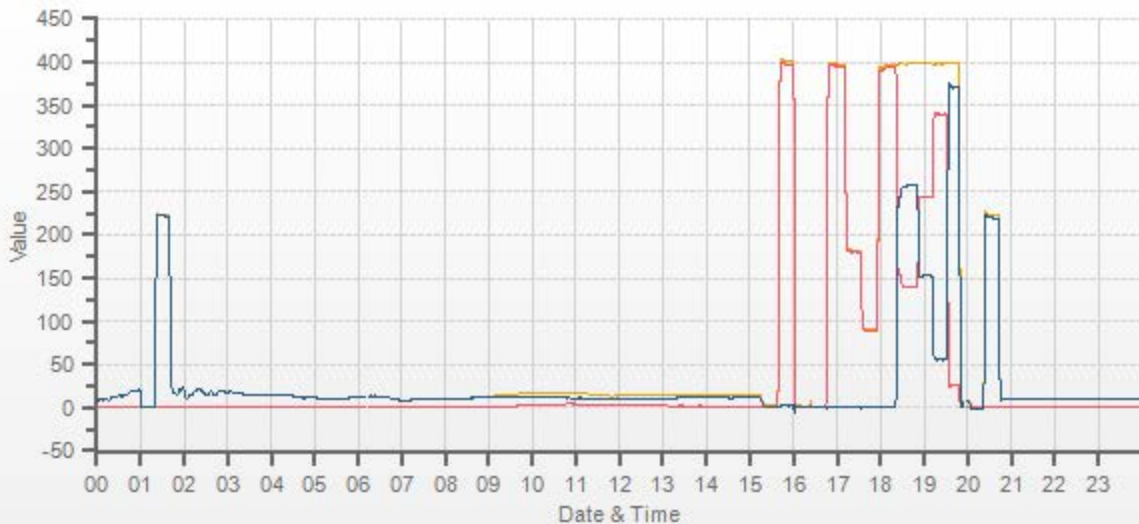
CALIBRATION PARAMETERS:				
POINT	NO TARGET (PPB)	NO2 TARGET (PPB)	NO2 RANGE	O3 POINT
HIGH	395	250	240-275	n/a
MID	180	154	150-157	Mid
LOW	90	54	50-58	Low
EXTRA 1	n/a	340	300-370	High

NO/NOx CALIBRATION:																	
FLOW RATE			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
4998	<del>40.10</del>	4998	0.0	0.0	0.0	-0.2	1.9	2.1	0.0	0.0	0.0	<del>0.995</del>	<del>0.996</del>	<del>0.997</del>	<del>0.999</del>	<del>1.001</del>	<del>1.002</del>
4960	40.10	5000	394.6	396.2	1.6	396.5	399.8	3.3	394.8	395.8	1.0	0.995	0.996	0.997	0.999	1.001	1.002
4982	18.30	5000	180.1	180.8	0.7	n/a	n/a	n/a	180.5	180.6	0.1	n/a	n/a	0.997	0.998	1.001	1.002
4990	9.10	4999	89.6	89.9	0.4	n/a	n/a	n/a	90.0	90.2	0.2	n/a	n/a	0.997	0.995	0.997	1.002

GPT CALIBRATION:										
Point	CALIBRATOR			INDICATED (ppb)			NO DROP / O3 Conc (ppb)	NO2 GAIN (ppb)	NO2 Corr. FACTOR	CONV. EFFICIENCY
	GAS	TOTAL	O3 SETPOINT	NO	NOx	NO2				
REFERENCE	40.10	5000	0	394.3	395.5	1.1	<del>255</del>	<del>256.1</del>	<del>0.996</del>	<del>100.43%</del>
AS-FOUND HIGH	40.10	5000	270	139.3	396.6	257.2	255	256.1	0.996	100.43%
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MID	40.10	5000	160	243.6	396.4	152.8	150.7	151.7	0.993	100.66%
LOW	40.10	5000	60	339.8	396.1	56.2	54.5	55.1	0.989	101.10%
NO2 adjustment not required.									AVERAGE:	100.73%

LINEAR REGRESSION ANALYSIS:				COMMENTS:
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	1.000	0.05%	
NOx	1.000	0.999	0.03%	
NO2	1.000	1.002	0.10%	

Sample inlet filter was changed.  
16:23 = operator error. Adjusted zero restarted.  
Extra point for O3: Setpoint = 380, NO drop/O3 conc = 368ppb



CAL-LICA-202401-01250

# Ozone Calibration by Direct GPT



DATE:	25-Jan-2024	PREVIOUS CALIBRATION DATE:	05-Dec-2023
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	0.999
CLIENT:	LICA	TEMPERATURE (°C):	20.9
LOCATION:	St. Lina	BAROMETRIC (mBar):	927
PURPOSE:	Routine	START TIME (MST):	09:29
PERFORMED BY:	Chris Wesson	END TIME (MST):	13:30

## ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	12208316586	FLOW (mL/min)	1310
INITIAL		FINAL	
BKG/OFFSET	0.5	BKG/OFFSET	0.2
COEF/SLOPE	0.98	COEF/SLOPE	0.999
Expected (reference) Value	257	Expected (reference) Value	260.4

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Sabio
MODEL:	2010	MODEL:	2020EXP
ID:	26701218	ID:	18700921
MFC CALIBRATION DATE:	08-Sep-2023	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Direct GPT	
GPT DATE:	24-Jan-2024	GPT END TIME:	19:52

## CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
RANGE	300 - 400	150 - 200	50 - 100

## CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	<del>          </del>	5000	0.0	0.3	0.0	<del>          </del>	<del>          </del>
5000	<del>          </del>	5000	368.0	363.9	368.5	1.012	0.999
5000	<del>          </del>	5000	150.7	n/a	152.0	n/a	0.991
5000	<del>          </del>	5000	54.5	n/a	55.5	n/a	0.982

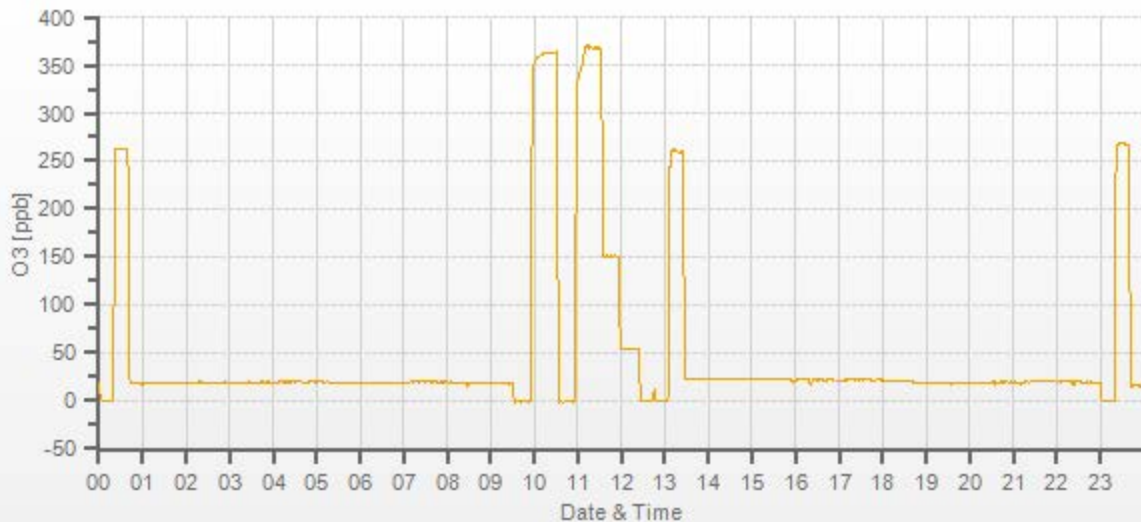
## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.1%

## COMMENTS:

sample filter changed

O3[ppb] Station: St. Lina Daily: 25-01-2024 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202401-01250

# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	24-Jan-2024	PREVIOUS CALIBRATION DATE:	05-Dec-2023	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	21.0		Thermo 55i	1180930026	1046
LOCATION:	St. Lina	BAROMETRIC (mBar):	926	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	15:13	RANGE (ppm):	20	20	40
PERFORMED BY:	Chris Wesson	END TIME (MST):	18:39	PREVIOUS CF:	0.997	0.995	0.996

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Sabio	CYLINDER ID:	LL119576	HIGH ID:	n/a
MODEL:	2010	MODEL:	2020EXP	CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	870.0   299.0	HIGH EXPIRY:	n/a
ID:	58100720	ID:	18700921	CYLINDER (psi):	1100	LOW ID:	n/a
MFC CALIBRATION DATE:	09-Oct-2023	OXIDIZER ID:	115	EXPIRY DATE	22-Dec-2028	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

POINT (CH <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE		
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>		822.3
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>		1692.3

## EXPECTED (REFERENCE) VALUE:

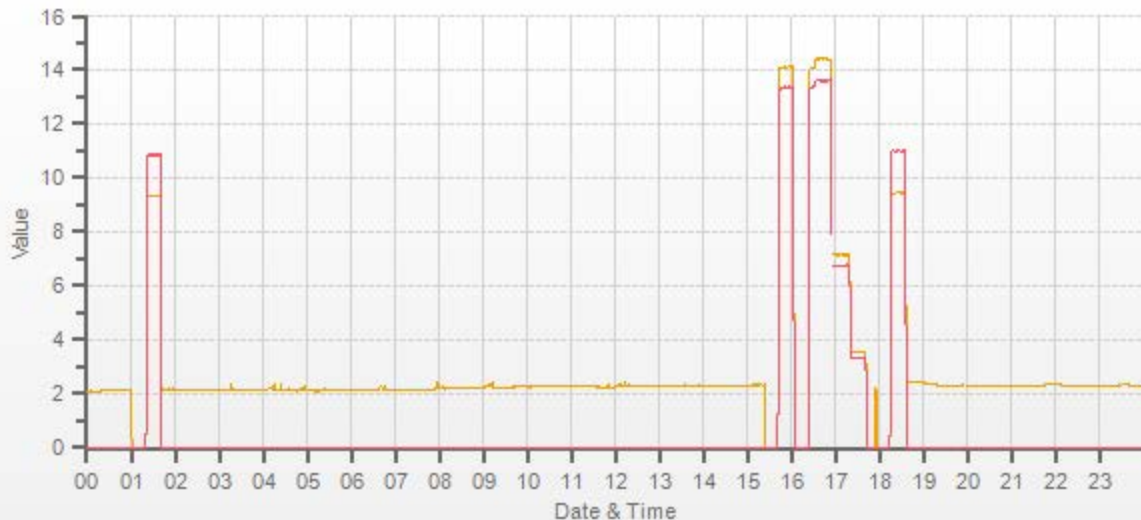
INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	9.52	11.06	20.58		9.44	10.99	20.43

## CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3255	<del>X</del>	3255	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>
3201	53.80	3255	14.38	13.59	27.97	14.13	13.36	27.49	14.42	13.60	28.02	1.018	1.017	1.017	0.997	0.999	0.998
3228	26.90	3255	7.19	6.80	13.99	n/a	n/a	n/a	7.15	6.75	13.90	n/a	n/a	n/a	1.006	1.007	1.006
3240	13.50	3253	3.61	3.41	7.02	n/a	n/a	n/a	3.57	3.35	6.92	n/a	n/a	n/a	1.011	1.019	1.015

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments:	
CH <sub>4</sub>	1.000	1.004	-0.2%	Sample filter changed	
NMHC	1.000	1.002	-0.2%		
THC	1.000	1.003	-0.2%		
				Use Zero Chrom?	Yes



CAL-LICA-202401-01250

## Thermo 5030i SHARP Monitor Monthly Check

Date: <u>January 25, 2024</u>	Performed By/Reviewer: <u>Chris Wesson</u>   <u>Chris Wesson</u>
Company: <u>LICA</u>	Start Time (mst): <u>12:05</u>
Station Name/Location: <u>St. Lina</u>	End Time (mst): <u>12:34</u>
Previous Audit Date: <u>December 24, 2023</u>	Calibration Purpose: <u>routine monthly</u>
Parameter: <u>PM 2.5</u>	Weather Conditions: <u>Mainly clear</u>

**SHARP 5030i Information and Status:**

Serial Number: <u>CM 17091001</u>	Filter Tape Counter: <u>460</u>
-----------------------------------	---------------------------------

**Reference Standards:**

**Air Flow**

	Manometer	Orifice	Pressure:	Temp / RH:
Make:	Delta Cal	Delta Cal	DeltaCal	Traceable
Model:	DC1	DC1	DC1	20250-21
Serial Number:	201587	201587	201587	230557122
Calibration Expiration Date:	December 19, 2024	December 19, 2024	December 19, 2024	August 17, 2025

Ambient Temperature (°C)				Range	Action
	Reference	SHARP	Difference	< ± 2°C	OK
#1	-9.40	-9.4	0.0	2-3 °C	Recalibrate
				> 3°C	Fail

Ambient Relative Humidity (%RH)				Range	Action
As Found:				< ± 2 %RH	OK
	Reference	SHARP	Difference	2-5 %RH	Recalibrate
#1	80.50	79.8	0.7	> 5 %RH	Fail

Barometric Pressure (mmHg)				Range	Action
As Found:				< ± 10 mmHg	OK
	Reference	SHARP	Difference	10-12 mmHg	Recalibrate
#1	695.0	695.0	0.0	> 12 mmHg	Fail

Flow Audit (L/min)						Range	Action
As Found:						< ± 4%	OK
	Reference	SHARP		% Difference		4-5%	Recalibrate
#1	16.65	16.67		0.10%		>5%	Fail
#2	16.64	16.66					
#3	16.64	16.65					
Average	16.64	16.66					

Leak Check (L/min)						
Without Leak Check Adapter			With leak Check Adapter			
	Reference	SHARP	Difference	Reference	SHARP	Difference
#1	n/a	n/a	#VALUE!	n/a	n/a	#VALUE!
<b>LEAK RATE:</b>						<b>#VALUE!</b>

*Leak Limit: 0.80 L/min*

# Meteorological System Checklist



Date:	January 25, 2024		
Technician:	Chris Wesson		
Station:	St. Lina		
<b>Unit:</b>	<b>Make:</b>	<b>Model:</b>	<b>Serial #:</b>
Temperature Sensor:	Rotronic	HC2-S3	20404750
Barometric Pressure Sensor:	Met One	O90D	F4498
Relative Humidity Sensor:	Rotronic	HC2-S3	20404750
Anemometer:	RM Young	05305VK	161466

### PRECIPITATION SENSOR CHECK

Checklist:	Reply:	Comments:
Is the sensor Level?	yes	
Is the heater operating properly?	yes	Bucket/base found frozen due to extreme cold
Are the bucket drain holes clean?	no	Bucket/drains blocked by ice. Defrosted and tested then OK 11:21-11:48
Is the screen on the housing? (screen should be on between July and September)	no	
Is the housing clean?	yes	
Is the area around the housing clean and free from obstacles?	yes	

### TIP TEST - Slowly pour water until 10 tip are heard. (10 tips = 1 mm)

# of Tips	Data Logger Response (mm):	Manual Specification = +/- 0.2 mm
10	1.00	TRUE

### AMBIENT TEMPERATURE SENSOR CHECK

Parameter:	Temperature @ 2 metres	
Reference Thermometer ID:	Traceable 20250-21 #230557122 Exp: Aug 17, 2025	
Reference Temperature (°C):	-9.0	
Station - Ambient Temperature (°C):	-9.4	
Temperature Difference (°C):	0.4	

### BAROMETRIC PRESSURE SENSOR CHECK

Reference Barometer ID:	Brunton ADC #231010, Exp: Oct 10, 2024	
Reference Pressure - Units/Reading:	millibar	926.8
Station Pressure - Units/Reading:	millibar	912.8
Pressure Tolerance +/- 15% of error:	788 - 1066	1.51%

### RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Reference Hygrometer ID:	Traceable 20250-21 #230557122 Exp: Aug 17, 2025	
Reference Hygrometer % RH- Reading:	80.50	
Station Hygrometer % RH- Reading:	88.80	
RH Tolerance +/- 15% of difference:	68.43 - 92.58	-10.3%

### ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Wind Speed Observed (kph):	0~5	Wind Direction Observed:	SW
Wind speed on Data Logger (kph):	3.2	Wind Direction on Data Logger:	SW
	Annual audit: Jul 22, 2022	Wind Direction Pass/Fail?:	Pass

Comments

Precip gauge found frozen. Preceding data invalid.





# Meteorological Sensor Audit/Calibration

## Location Information

Company: LICA  
 Audit Location: St. Lina  
 Audit Date: December 20, 2023  
 Calibration Purpose: routine annual

Performed By: Alex Yakupov  
 Reviewed By: Chris Wesson  
 Start/End Time (mst): 11:54 / 15:37  
 Weather Conditions: Mainly sunny

## Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1
Sensor Model:	05305VK	Velocity Unit Output Range:	0-200
Serial #:	161466	Direction Voltage Output Range:	0-1
Previous Cal/Audit Date:	July 22, 2022	Direction Unit Output Range:	0-360

## Wind Calibrator Information

Calibrator I.D. and Expiry Date: Model 18860-90/18802 SN: CA 4744, expires - Oct 18, 2024

## Wind Speed Audit Data **\*\*+/- 2% of the average correction factor is the limit\*\***

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.1	0.1	-
1000	18.4	18.5	18.5	0.996
2000	36.9	37.0	37.0	0.996
3000	55.3	55.5	55.5	0.996
4000	73.7	74.1	74.1	0.995
5000	92.2	92.6	92.6	0.995
6000	110.6	111.2	111.2	0.994
7000	129.0	129.8	129.8	0.994
8000	147.4	148.4	148.4	0.994
9000	165.9	167.1	167.1	0.993
10000	184.3	185.7	185.7	0.992
The audit meets AMD requirements.			Average Correction Factor=	0.995

## Wind Direction Audit Data **\*\*+/- 3° of the absolute average degrees difference for all points is the limit\*\***

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	1	353	0.9	2.0	1.5
30	330	31	329	-1.0	0.6	0.8
60	300	63	300	-2.7	0.5	1.6
90	270	93	270	-3.4	-0.3	1.9
120	240	124	241	-4.0	-1.3	2.7
150	210	153	212	-3.1	-1.8	2.5
180	180	182	183	-1.8	-2.7	2.3
210	150	211	154	-1.4	-3.6	2.5
240	120	241	125	-0.5	-4.8	2.7
270	90	269	95	1.2	-4.6	2.9
300	60	299	64	1.3	-3.7	2.5
330	30	328	31	1.7	-1.1	1.4
355	0	353	1	2.0	1.1	1.6
The audit meets AMD requirements.				Average Absolute Degrees Difference=		2.0

### Comments:

n/a

# End of Report



**Lakeland Industry & Community Association**

**JANUARY 2024**

**Ambient Air Monitoring Calibration Report**

**- LAC LA BICHE STATION-**

**CAL-LICA-202401-01690**

**Station Operation and Maintenance:**

Bureau Veritas Canada

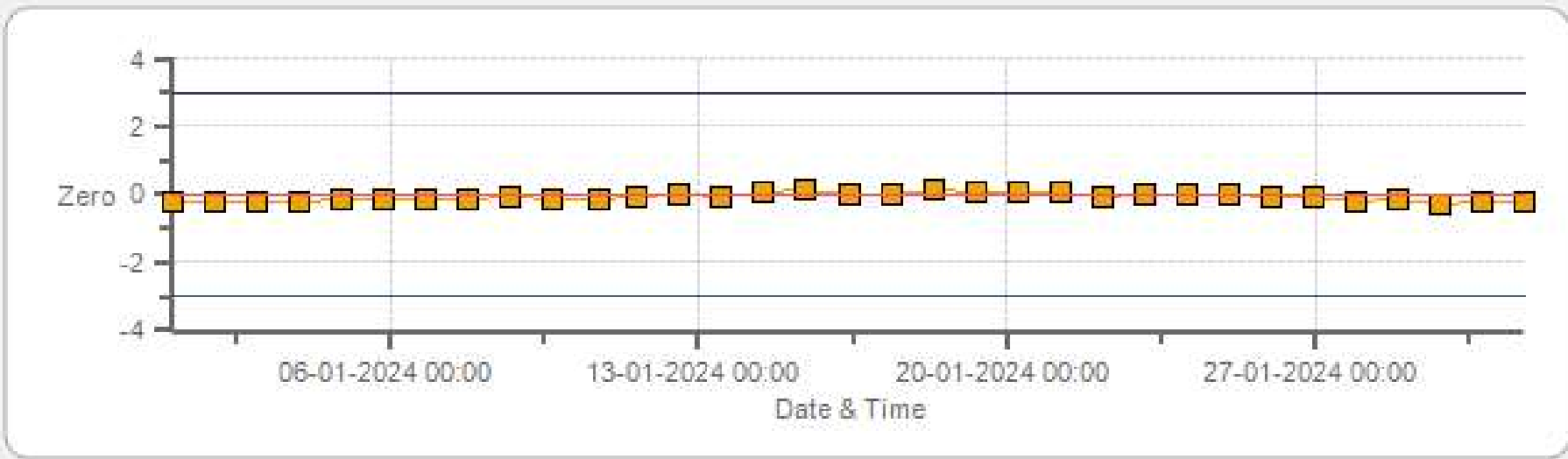
**Data Validation and Report:**

LICA / Bureau Veritas Canada

February 24, 2024

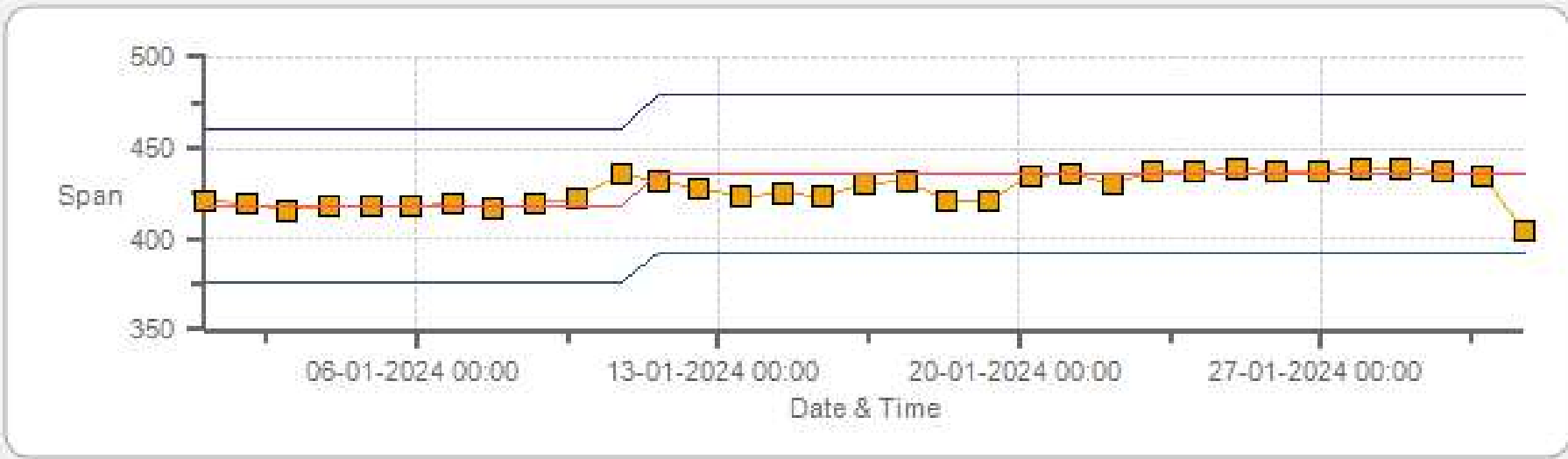
# DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Lac La Biche Monthly: 01-2024 Type: SpanAndZero - Zero



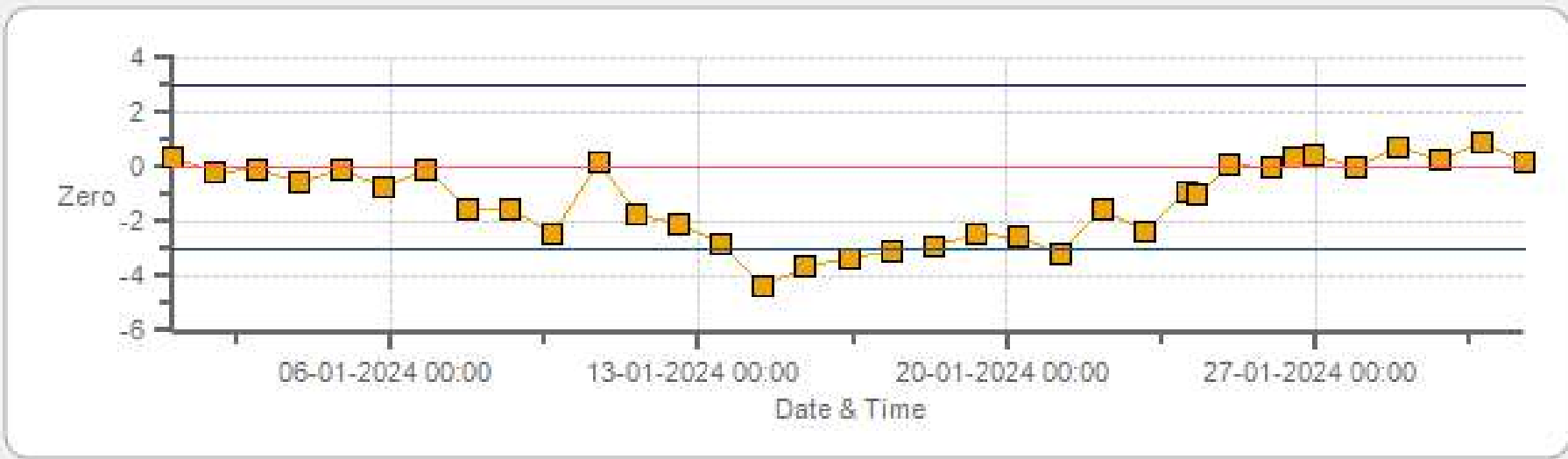
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: Lac La Biche Monthly: 01-2024 Type: SpanAndZero - Span



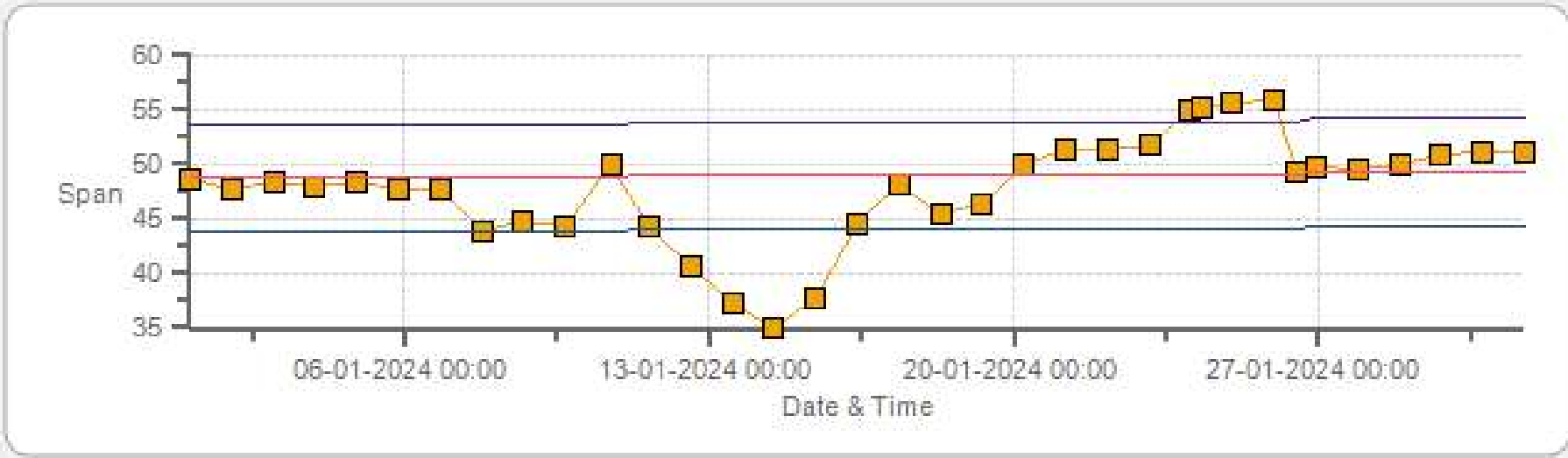
Span Span Ref Span Low Span High

H2S[ppb] Calibration: Lac La Biche Monthly: 01-2024 Type: SpanAndZero - Zero



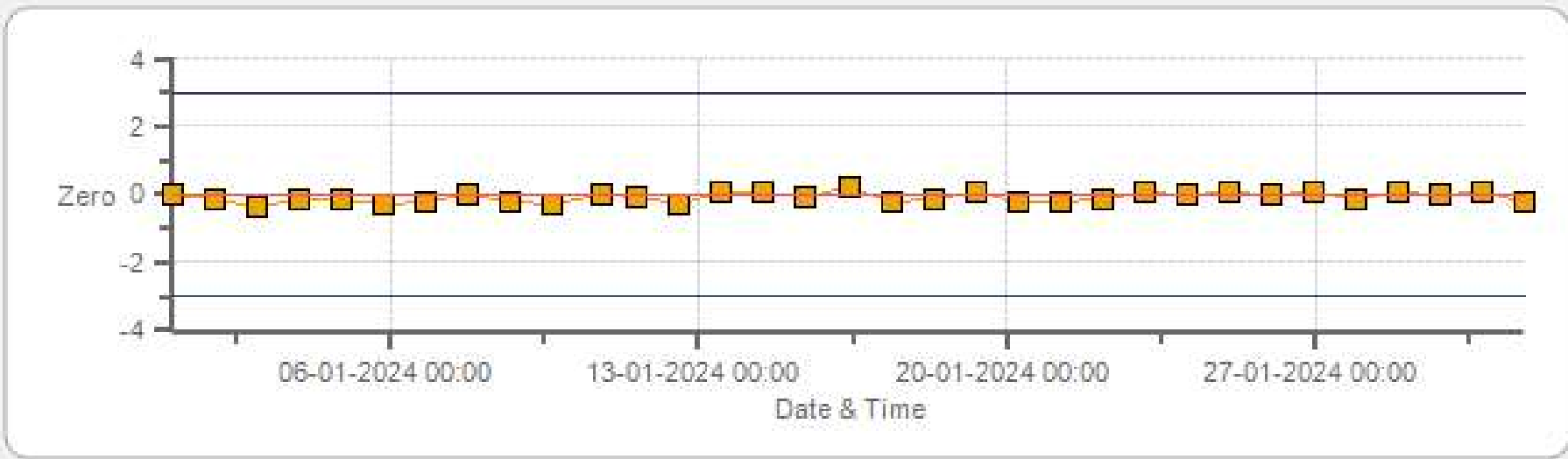
Zero Zero Ref Zero Low Zero High

H2S[ppb] Calibration: Lac La Biche Monthly: 01-2024 Type: SpanAndZero - Span



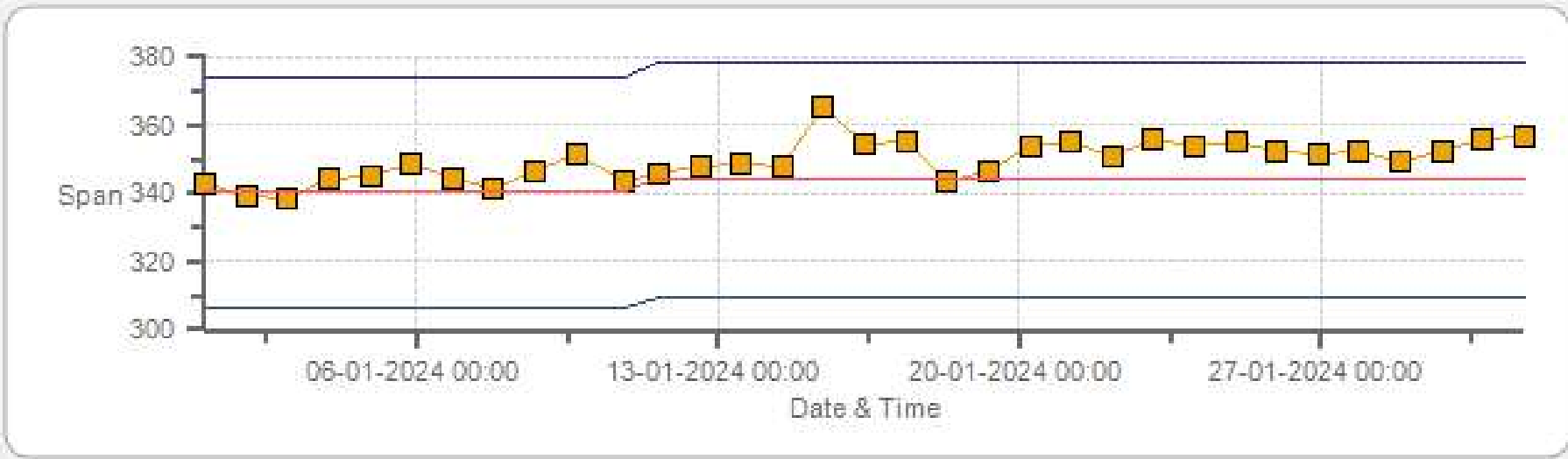
Span SpanRef Span Low Span High

NOX[ppb] Calibration: Lac La Biche Monthly: 01-2024 Type: SpanAndZero - Zero



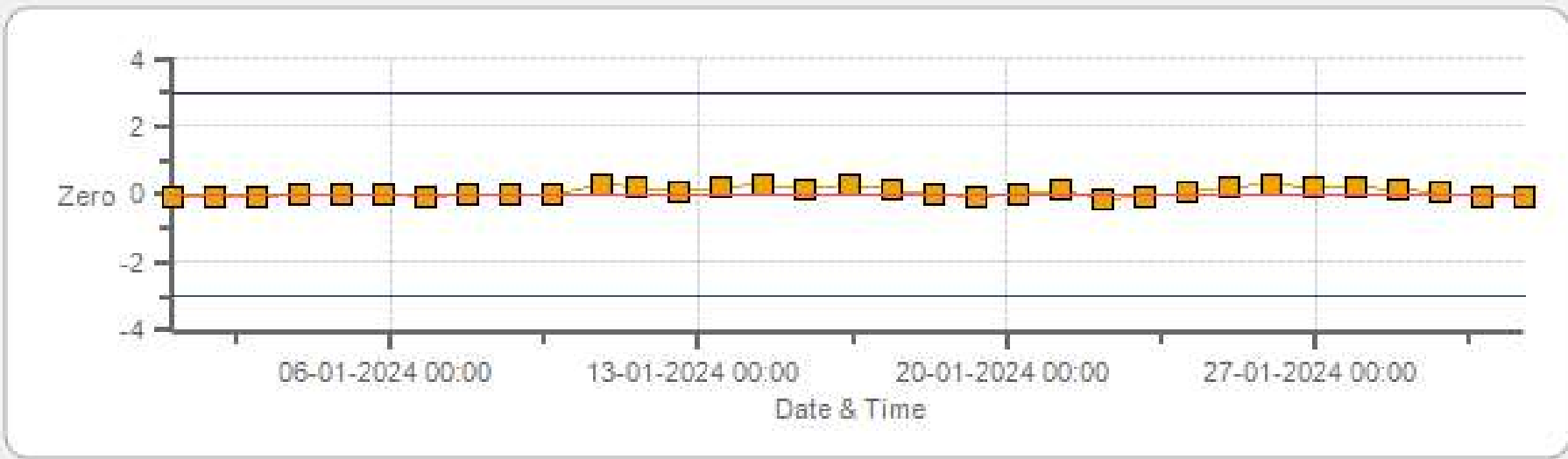
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: Lac La Biche Monthly: 01-2024 Type: SpanAndZero - Span



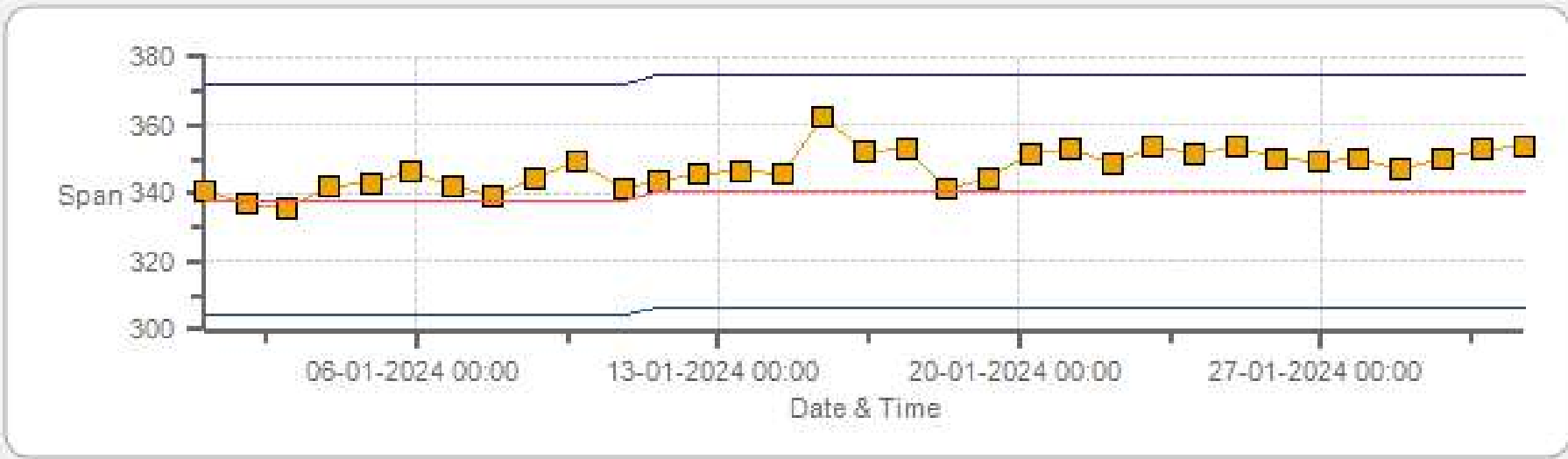
Span Span Ref Span Low Span High

NO2[ppb] Calibration: Lac La Biche Monthly: 01-2024 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

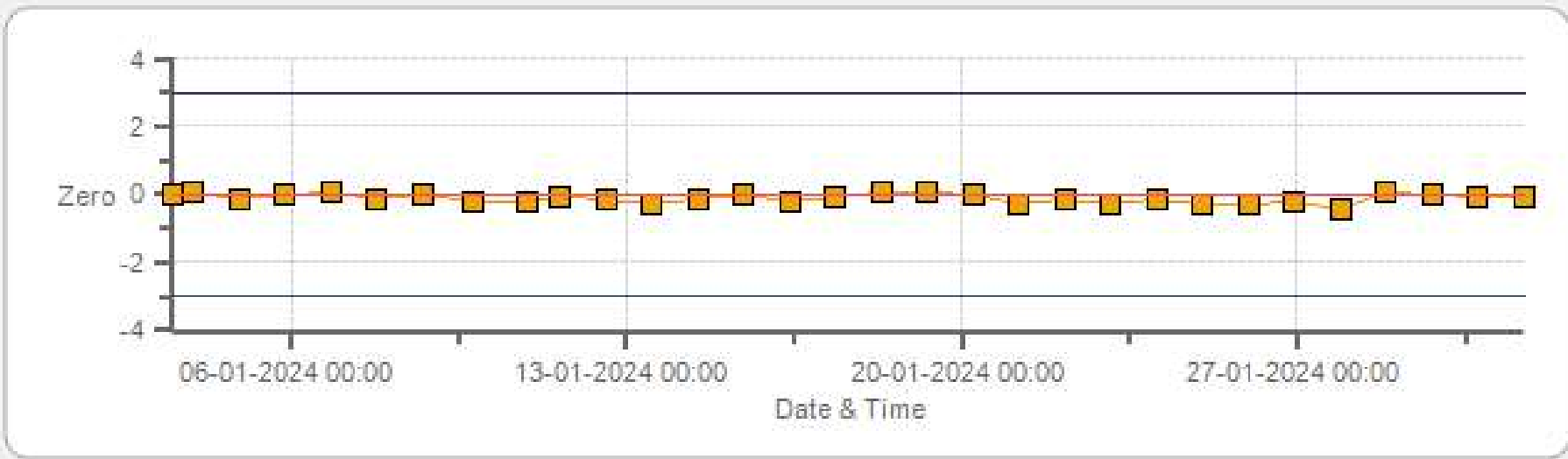
NO2[ppb] Calibration: Lac La Biche Monthly: 01-2024 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

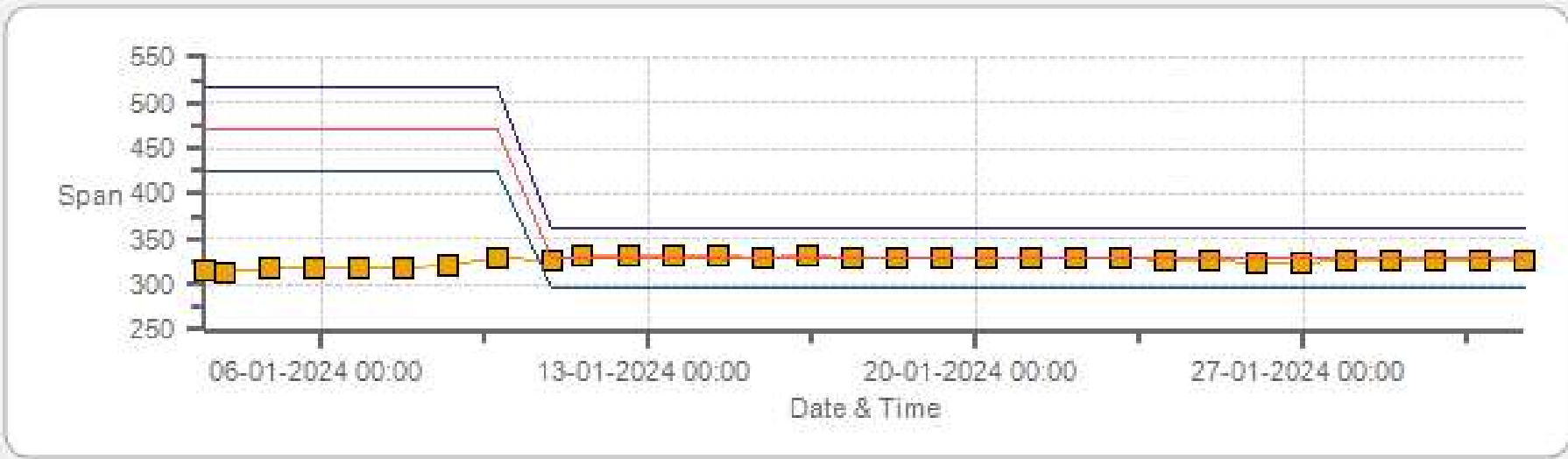


O3[ppb] Calibration: Lac La Biche Monthly: 01-2024 Type: SpanAndZero - Zero



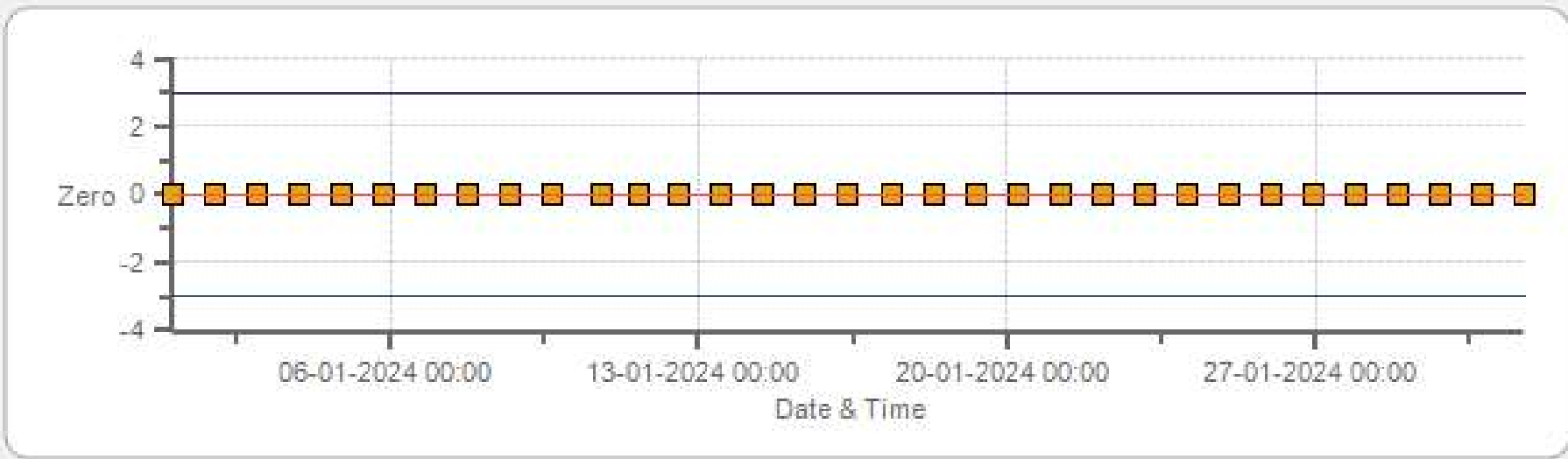
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: Lac La Biche Monthly: 01-2024 Type: SpanAndZero - Span



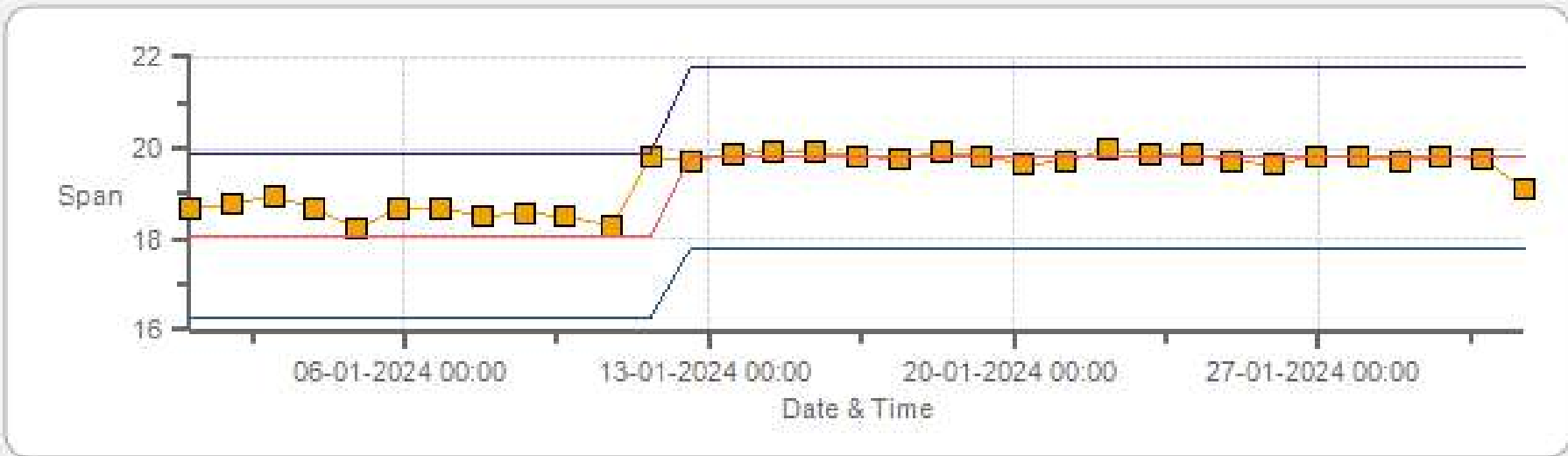
Span Span Ref Span Low Span High

THC55[ppm] Calibration: Lac La Biche Monthly: 01-2024 Type: SpanAndZero - Zero



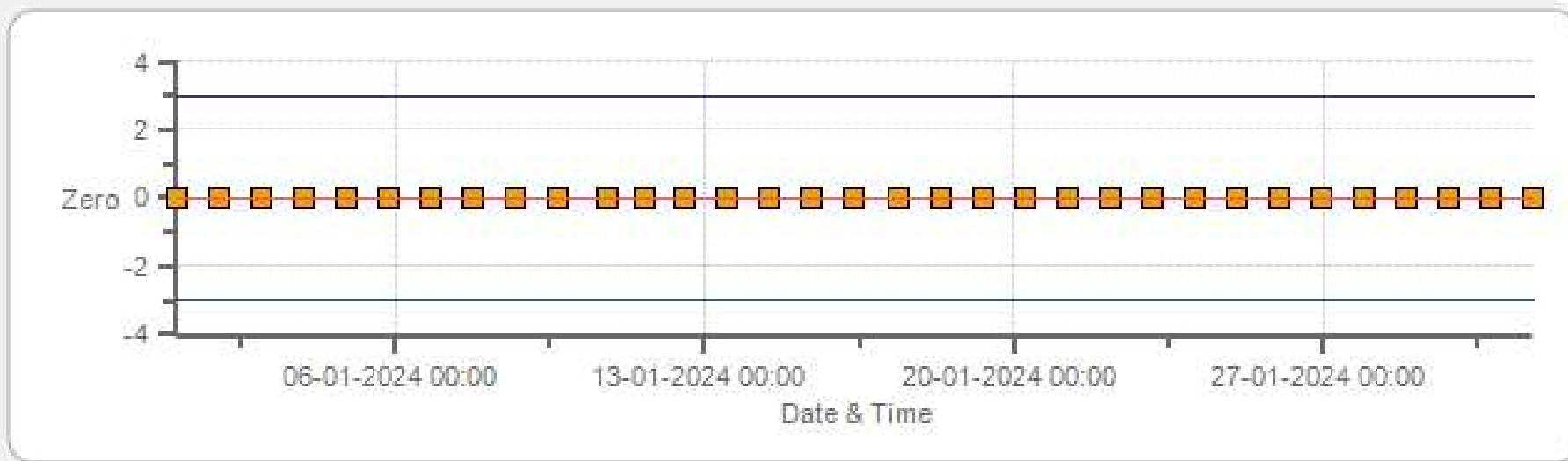
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: Lac La Biche Monthly: 01-2024 Type: SpanAndZero - Span



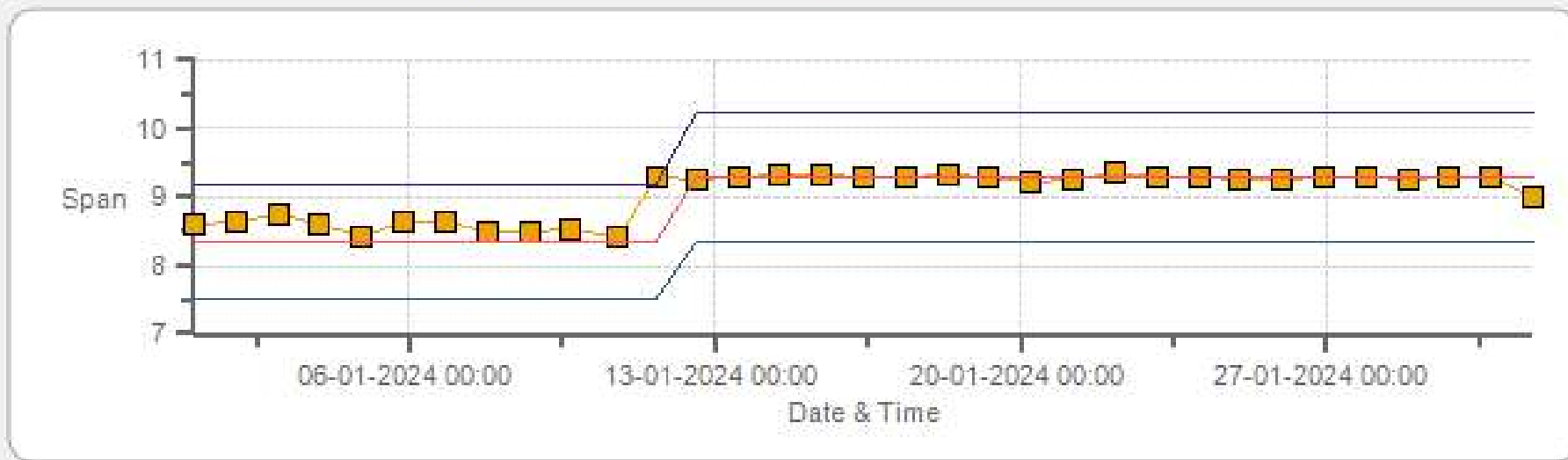
Span SpanRef Span Low Span High

CH4[ppm] Calibration: Lac La Biche Monthly: 01-2024 Type: SpanAndZero - Zero



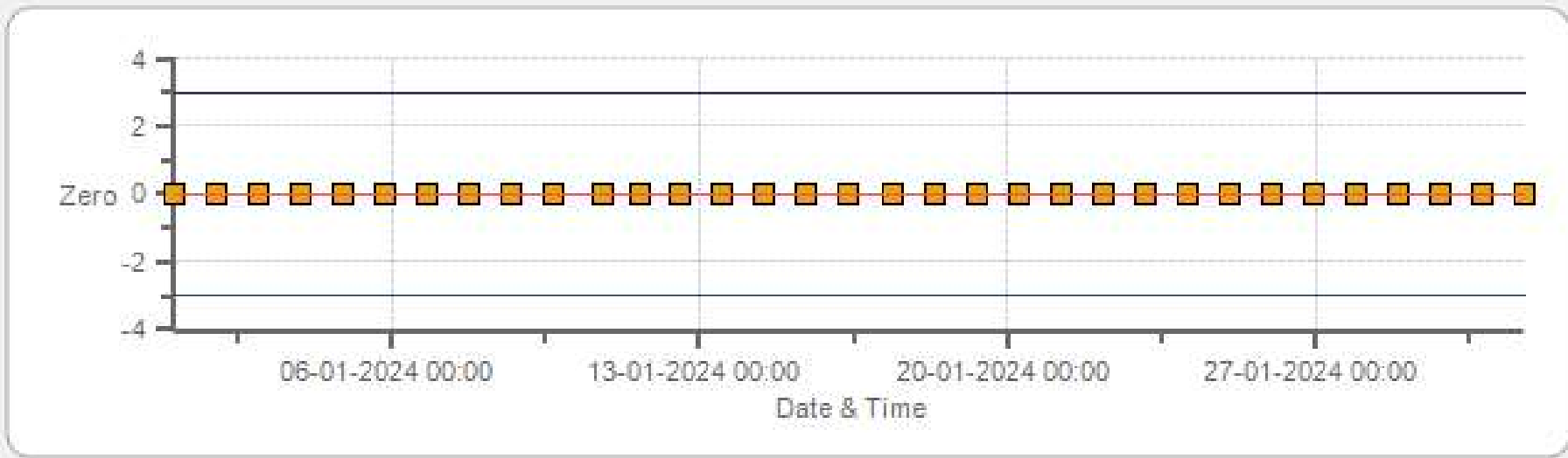
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: Lac La Biche Monthly: 01-2024 Type: SpanAndZero - Span



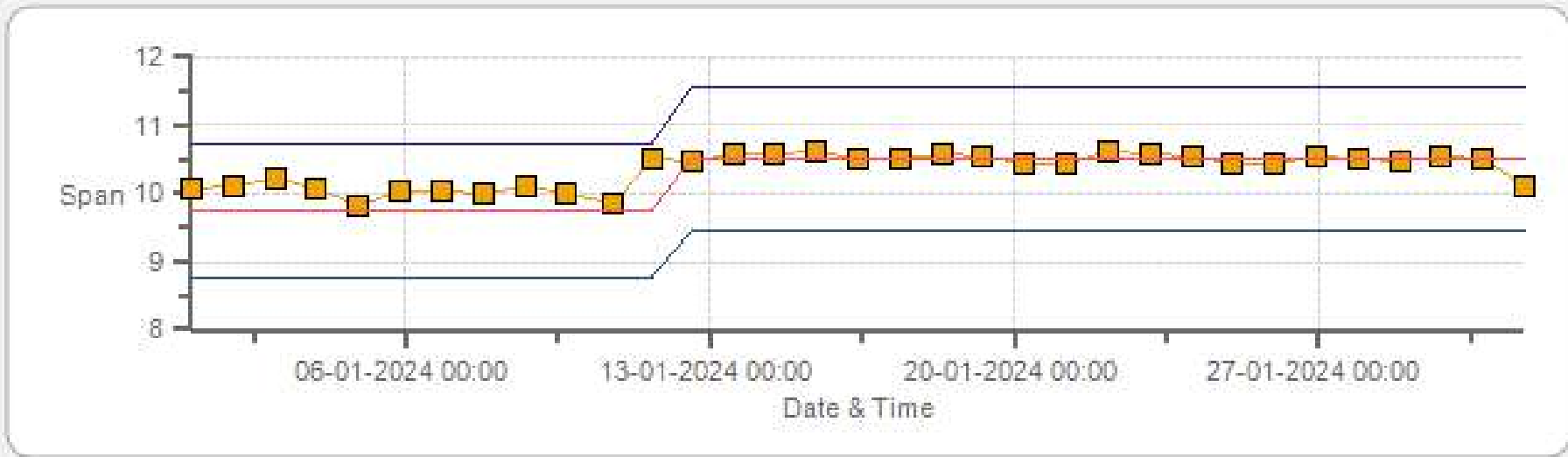
Span SpanRef Span Low Span High

NMHC[ppm] Calibration: Lac La Biche Monthly: 01-2024 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: Lac La Biche Monthly: 01-2024 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

# MULTI-POINT CALIBRATION RECORDS

# SO2 Analyzer Calibration by Dilution



DATE:	10-Jan-2024	PREVIOUS CALIBRATION DATE:	14-Dec-2023
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	947
PURPOSE:	Routine	START TIME (MST):	12:13
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:39

## ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180320043	FLOW (mL/min)	457
INITIAL		FINAL	
BKG/OFFSET	7.34	BKG/OFFSET	7.71
COEF/SLOPE	1.383	COEF/SLOPE	1.459
Expected (reference) Value	418.1	Expected (reference) Value	436

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	17100415	ID:	132
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 127895	HIGH ID	n/a
CONC (ppm):	50.40	EXPIRY DATE	n/a
CYLINDER (psi):	600	LOW ID	n/a
EXPIRY DATE	27-Oct-2030	EXPIRY DATE	n/a

## CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	390	190	95
RANGE	300 - 400	150 - 200	50 - 100

## SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

## CALIBRATION:

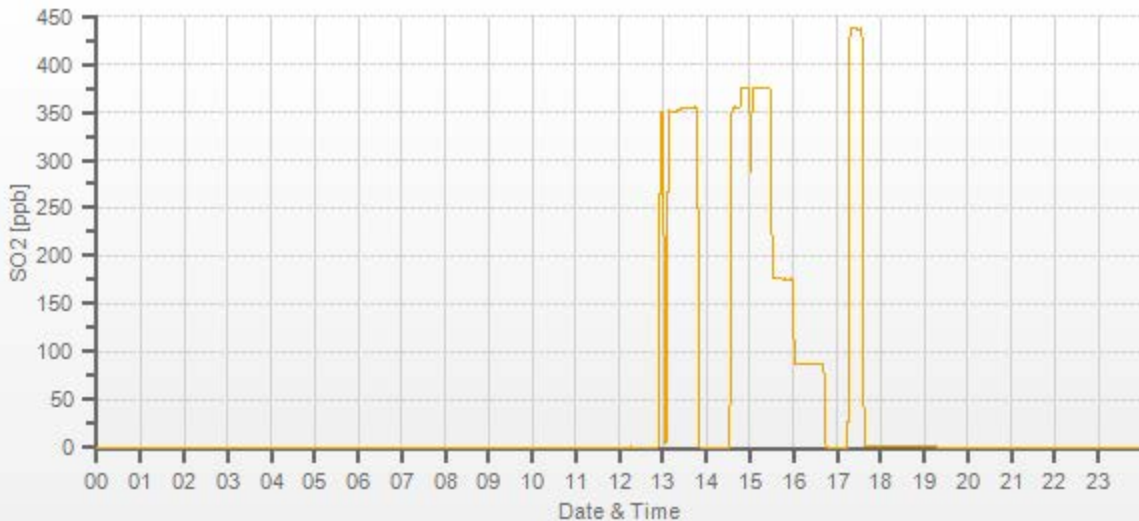
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	<del>37.20</del>	5000	0.00	-0.07	0	<del>1.074</del>	<del>1.001</del>
4961	37.20	4998	375.13	349.2	374.83	1.074	1.001
4982	17.60	5000	177.41	n/a	176.96	n/a	1.003
4990	8.80	4999	88.72	n/a	87.01	n/a	1.020

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.001	-0.1%

## COMMENTS:

Sample inlet filter was changed.  
 12:56 = leak found in calibration system. AF high restarted  
 15:00 = scheduled ZS check. Adjusted High Point restarted



# H2S Analyzer Calibration by Dilution



DATE:	10-Jan-2024	PREVIOUS CALIBRATION DATE:	14-Dec-2023
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	947
PURPOSE:	Install/Post-Repair	START TIME (MST):	12:14
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:39

## ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM17360002	FLOW (mL/min)	927
INITIAL		FINAL	
BKG/OFFSET	79	BKG/OFFSET	90.4
COEF/SLOPE	0.975	COEF/SLOPE	1.151
Expected (reference) Value	48.8	Expected (reference) Value	49

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 131360	HIGH ID	n/a
CONC (ppm):	10.05	EXPIRY DATE	n/a
CYLINDER (psi):	1900	LOW ID	n/a
EXPIRY DATE	03-Jan-2026	EXPIRY DATE	n/a

## CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	78	38	19
RANGE	60 - 80	30 - 40	10 - 20

## SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	12:17	SO2 Conc (ppb)	380
END TIME:	12:32	Analyzer Response (ppb)	0.0

## CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	<del>57.90</del>	7500	0.00	-1.6	0	<del>1.168</del>	<del>0.996</del>
7442	57.90	7500	77.59	64.8	77.9	1.168	0.996
7472	28.20	7500	37.79	n/a	38.6	n/a	0.979
7486	14.10	7500	18.89	n/a	18.9	n/a	1.000

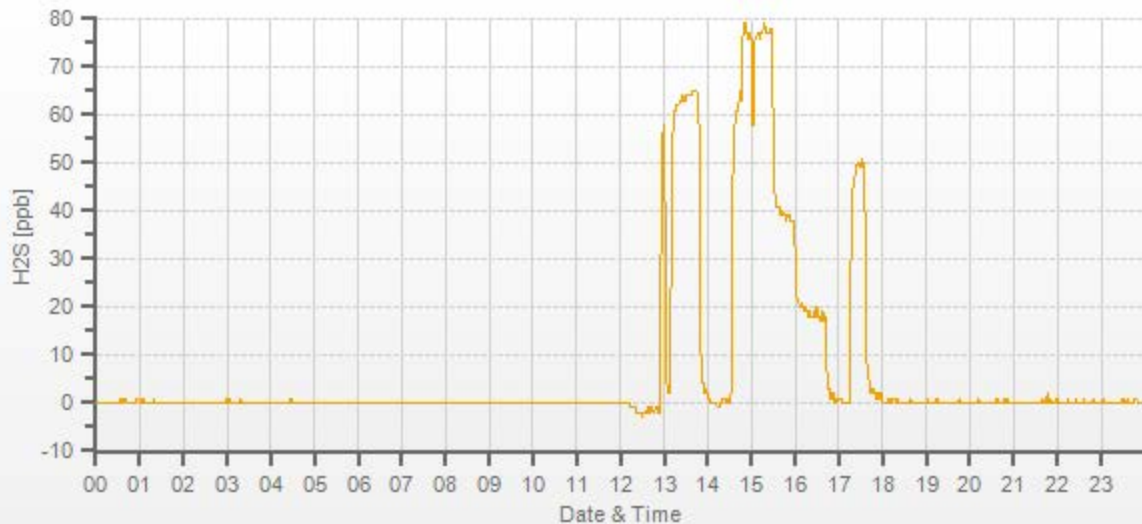
## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.005	0.1%

## COMMENTS:

Sample inlet filter was changed.  
 13:00 = flush/purge regulator. AF high restarted.  
 As Found Point failed - suspected due to low ambient temps.  
 15:00 = scheduled ZS check. Adjusted high restarted





# H2S Analyzer Calibration by Dilution



DATE:	26-Jan-2024	PREVIOUS CALIBRATION DATE:	10-Jan-2024
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	0.996
CLIENT:	LICA	TEMPERATURE (°C):	24.8
LOCATION:	Lac la Biche	BAROMETRIC (mBar):	945
PURPOSE:	Removal/Shut-down	START TIME (MST):	07:53
PERFORMED BY:	Chris Wesson	END TIME (MST):	08:40

## ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM17360002	FLOW (mL/min)	924
INITIAL		FINAL	
BKG/OFFSET	91	BKG/OFFSET	n/a
COEF/SLOPE	1.151	COEF/SLOPE	n/a
Expected (reference) Value	49	Expected (reference) Value	n/a

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Sabio
MODEL:	2010	MODEL:	2020EXP
ID:	58100720	ID:	18700921
MFC CALIBRATION DATE:	09-Oct-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0002455	HIGH ID	n/a
CONC (ppm):	9.70	EXPIRY DATE	n/a
CYLINDER (psi):	2000	LOW ID	n/a
EXPIRY DATE	29-Sep-2026	EXPIRY DATE	n/a

## CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	78	38	19
RANGE	60 - 80	30 - 40	10 - 20

## SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

## CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
4002	<del>32.20</del>	4002	0.00	0.2	n/a	<del>0.890</del>	<del>n/a</del>
3971	32.20	4003	78.03	87.9	n/a	0.890	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.124	0.2%

## COMMENTS:

Shutdown to change scrubber beads  
Failed at high-point, calibration terminated

# H2S Analyzer Calibration by Dilution



DATE:	26-Jan-2024	PREVIOUS CALIBRATION DATE:	n/a
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	LICA	TEMPERATURE (°C):	24.0
LOCATION:	Lac la Biche	BAROMETRIC (mBar):	945
PURPOSE:	Install/Post-Repair	START TIME (MST):	09:24
PERFORMED BY:	Chris Wesson	END TIME (MST):	12:06

## ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM17360002	FLOW (mL/min)	924
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	77.9
COEF/SLOPE	n/a	COEF/SLOPE	0.98
Expected (reference) Value	n/a	Expected (reference) Value	49.3

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Sabio
MODEL:	2010	MODEL:	2020EXP
ID:	58100720	ID:	18700921
MFC CALIBRATION DATE:	09-Oct-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0002455	HIGH ID	n/a
CONC (ppm):	9.70	EXPIRY DATE	n/a
CYLINDER (psi):	2000	LOW ID	n/a
EXPIRY DATE	29-Sep-2026	EXPIRY DATE	n/a

## CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	78	38	19
RANGE	60 - 80	30 - 40	10 - 20

## SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	09:45	SO2 Conc (ppb)	380
END TIME:	10:00	Analyzer Response (ppb)	0.2

## CALIBRATION:

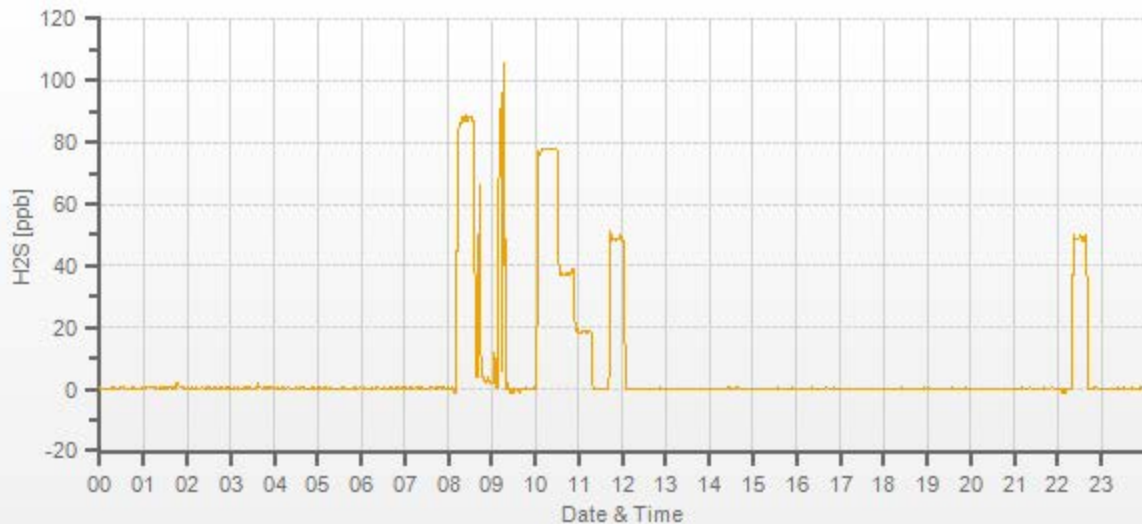
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
4002	<del>32.20</del>	4002	0.00	n/a	0	<del>n/a</del>	<del>0.999</del>
3971	32.20	4003	78.03	n/a	78.1	n/a	0.999
3985	15.70	4001	38.06	n/a	37.9	n/a	1.004
3994	7.80	4002	18.91	n/a	18.7	n/a	1.011

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	-0.1%

## COMMENTS:

Post-repair after change scrubber beads and hardware calibration



# NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	10-Jan-2024	PREVIOUS CALIBRATION DATE:	14-Dec-2023	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930027	NOx	0.999
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	947	FLOW (mL/min)	768	NO	0.999
PURPOSE:	Routine	START TIME (MST):	12:12	RANGE (ppb)	500	NO2	1.003
PERFORMED BY:	Alex Yakupov	END TIME (MST):	19:27	GPT FOR O3?		No	

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 127895	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	NO/NOx (PPM):	51.1   51.6	HIGH EXPIRY:	n/a
ID:	17100415	ID:	132	CYLINDER (psi):	700	LOW ID:	n/a
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a	EXPIRY DATE	27-Oct-2030	LOW EXPIRY:	n/a

CALIBRATION SETTINGS:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	8.7	8.5	n/a	BKG/OFFSET:	9	8.8	n/a
SLOPE/COEF/CE:	0.999	0.833	0.998	SLOPE/COEF/CE:	1.008	0.848	0.998

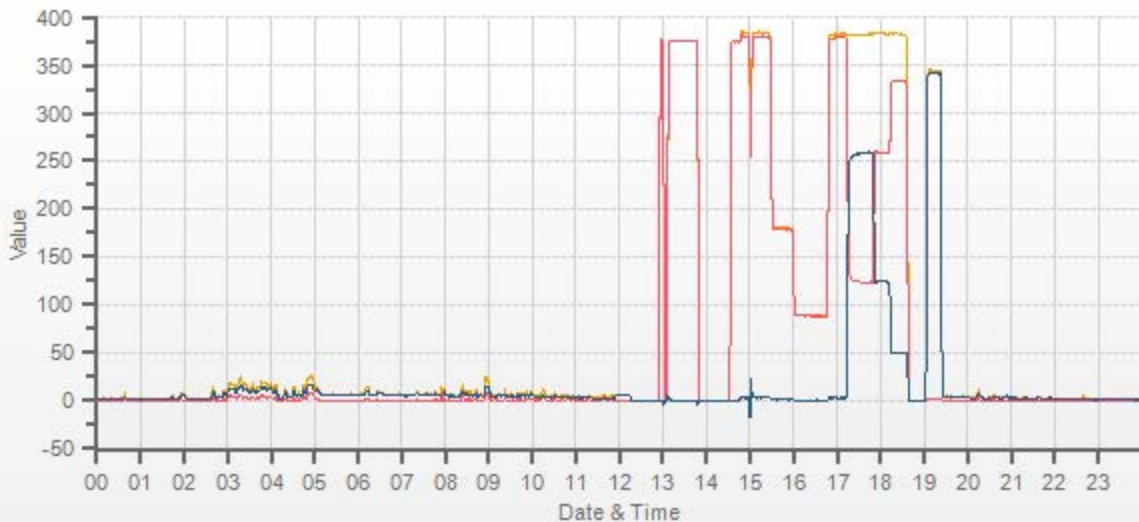
EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	340.4	2.4	337.9		344.0	2.3	341.0

POINT	NO TARGET (PPB)	NO2 TARGET (PPB)	NO2 RANGE	O3 POINT
HIGH	380	250	230-265	n/a
MID	180	125	115-150	n/a
LOW	90	45	40-55	n/a
EXTRA 1	n/a	n/a	n/a	n/a

FLOW RATE			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000	<del>37.20</del>	5000	0.0	0.0	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0	<del>1.014</del>	<del>1.021</del>	<del>1.001</del>	<del>1.000</del>	<del>1.005</del>	<del>1.006</del>
4961	37.20	4998	380.3	384.1	3.7	375.0	376.0	1.0	380.1	384.2	4.0	1.014	1.021	1.001	1.000	1.005	1.006
4982	17.60	5000	179.9	181.6	1.8	n/a	n/a	n/a	178.9	180.6	1.7	n/a	n/a	1.005	1.006	1.015	1.016
4990	8.80	4999	90.0	90.8	0.9	n/a	n/a	n/a	88.6	89.4	0.8	n/a	n/a	1.015	1.016	1.015	1.016

GPT CALIBRATION:										
Point	CALIBRATOR			INDICATED (ppb)			NO DROP / O3 Conc (ppb)	NO2 GAIN (ppb)	NO2 Corr. FACTOR	CONV. EFFICIENCY
	GAS	TOTAL	O3 SETPOINT	NO	NOx	NO2				
REFERENCE	37.20	4998	0	379.0	382.3	3.3	<del>256.1</del>	<del>256.1</del>	<del>1.000</del>	<del>100.00%</del>
AS-FOUND HIGH	37.20	4998	235	122.9	382.2	259.4	256.1	256.1	1.000	100.00%
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MID	37.20	4998	110	258.6	382.4	123.8	120.4	120.5	0.999	100.08%
LOW	37.20	4998	40	332.9	382.1	49.2	46.1	45.9	1.004	99.57%
NO2 adjustment not required.									AVERAGE:	99.88%

LINEAR REGRESSION ANALYSIS:				COMMENTS:
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	1.000	-0.14%	
NOx	1.000	1.001	-0.16%	
NO2	1.000	1.001	-0.03%	
				Sample inlet filter was changed. 12:56 = leak found in calibration system. AF high restarted 15:00 = scheduled ZS check. Adjusted High Point restarted



CAL-LICA-202401-01690

# Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	09-Jan-2024	PREVIOUS CALIBRATION DATE:	15-Dec-2023
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	0.998
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	932
PURPOSE:	Routine	START TIME (MST):	15:06
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:39

## ANALYZER:

MAKE/MODEL	Thermo 49i	RANGE	500 ppb
SERIAL #	1002240372	FLOW (mL/min)	1390
INITIAL		FINAL	
BKG/OFFSET	0	BKG/OFFSET	0
COEF/SLOPE	1.039	COEF/SLOPE	1.048
Expected (reference) Value	469	Expected (reference) Value	329

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

## CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
RANGE	300 - 400	150 - 200	50 - 100

## CALIBRATION:

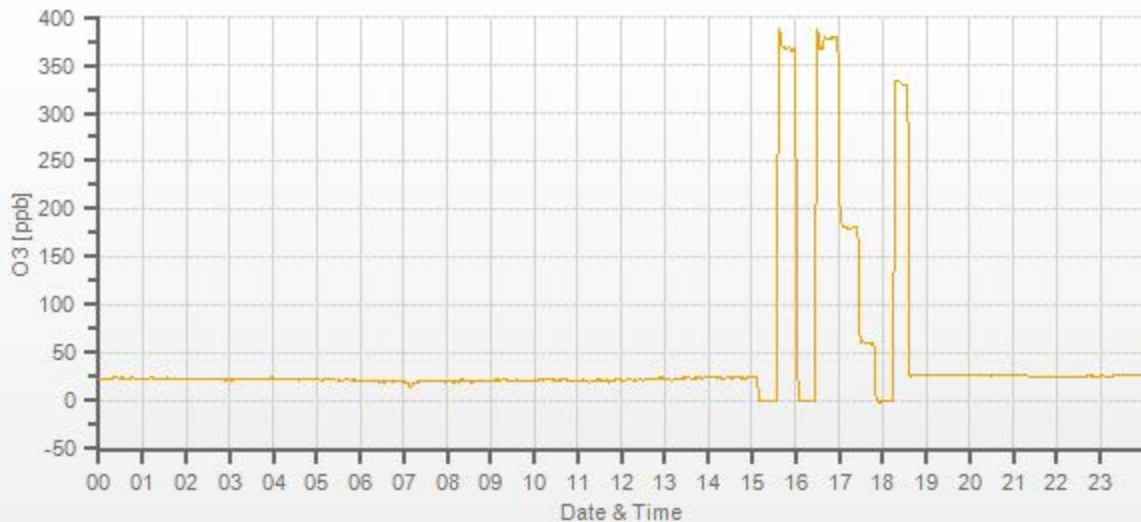
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	<del>          </del>	5000	0.0	0.2	0.0	<del>          </del>	<del>          </del>
5000	<del>          </del>	5000	378.0	366.0	378.0	1.033	1.000
5000	<del>          </del>	5000	180.0	n/a	179.7	n/a	1.002
5000	<del>          </del>	5000	60.0	n/a	59.9	n/a	1.002

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.0%

## COMMENTS:

Sample inlet filter was changed.





# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	11-Jan-2024	PREVIOUS CALIBRATION DATE:	14-Dec-2023	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1180320044	903
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	959	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	11:39	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:35	PREVIOUS CF:	1.002	0.999	1.001

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 23593	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	603.0   204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	134	CYLINDER (psi):	700	LOW ID:	n/a
MFC CALIBRATION DATE:	13-Oct-2023	OXIDIZER ID:	n/a	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

POINT (CH <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE		
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>		561.0
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>		1164.0

## EXPECTED (REFERENCE) VALUE:

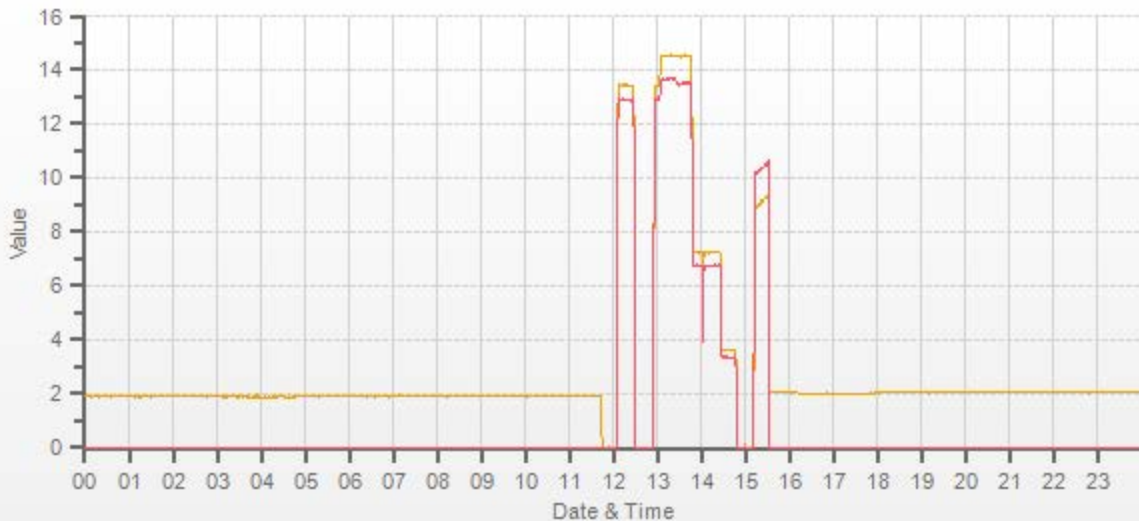
INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	8.34	9.74	18.08		9.29	10.51	19.80

## CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3100	<del>X</del>	3100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>
3025	74.60	3100	14.51	13.50	28.01	13.45	12.92	26.37	14.51	13.52	28.03	1.079	1.045	1.062	1.000	0.999	0.999
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.23	6.75	13.97	n/a	n/a	n/a	1.004	1.000	1.003
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.64	3.36	7.00	n/a	n/a	n/a	0.994	1.002	0.998

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments:	
CH <sub>4</sub>	1.000	0.999	0.0%	Sample inlet filter was changed. 14:00 - scheduled ZS check. Mid Point restarted	
NMHC	1.000	1.002	0.0%		
THC	1.000	1.000	0.0%		
				Use Zero Chrom?	Yes



CAL-LICA-202401-01690

## Thermo 5030i SHARP Monitor Monthly Check

<b>Date:</b> January 11, 2024	<b>Performed By/Reviewer:</b> Alex Yakupov   Chris Wesson
<b>Company:</b> LICA	<b>Start Time (mst):</b> 11:59
<b>Station Name/Location:</b> Lac La Biche	<b>End Time (mst):</b> 13:47
<b>Previous Audit Date:</b> December 15, 2023	<b>Calibration Purpose:</b> routine monthly
<b>Parameter:</b> PM 2.5	<b>Weather Conditions:</b> A few clouds

**SHARP 5030i Information and Status:**

<b>Serial Number:</b> CM 17071016	<b>Filter Tape Counter</b> 50
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**Reference Standards:**

Air Flow				
	Manometer	Orifice	Pressure:	Temp / RH:
<b>Make:</b>	Delta Cal	Delta Cal	Fisher Scientific	Vaisala HMP76B
<b>Model:</b>	DC1	DC1	FB 61291	HMP 76B
<b>Serial Number:</b>	177246	177246	130168457	T1640130
<b>Calibration Expiration Date:</b>	November 27, 2024	November 27, 2024	March 20, 2024	June 26, 2024

Ambient Temperature (°C)				Range	Action
	Reference	SHARP	Difference	$\pm 2^\circ\text{C}$	OK
#1	-29.90	-31.4	1.5	2-3 °C	Recalibrate
				$> 3^\circ\text{C}$	Fail

Ambient Relative Humidity (%RH)				Range	Action
<b>As Found:</b>				$\pm 2\% \text{RH}$	OK
	Reference	SHARP	Difference	2-5 %RH	Recalibrate
#1	61.80	62.2	-0.4	$> 5\% \text{RH}$	Fail

Barometric Pressure (mmHg)				Range	Action
<b>As Found:</b>				$\pm 10 \text{ mmHg}$	OK
	Reference	SHARP	Difference	10-12 mmHg	Recalibrate
#1	717.0	716.0	1.0	$> 12 \text{ mmHg}$	Fail

Flow Audit (L/min)						Range	Action
<b>As Found:</b>						$\pm 4\%$	OK
	Reference	SHARP				4-5%	Recalibrate
#1	16.71	16.67	% Difference	-0.24%		$> 5\%$	Fail
#2	16.71	16.67					
#3	16.71	16.67					
Average	16.71	16.67					

Leak Check (L/min)						
Without Leak Check Adapter			With leak Check Adapter			
	Reference	SHARP	Difference	Reference	SHARP	Difference
#1	16.72	16.67	0.05	16.55	16.64	-0.09
				LEAK RATE:		-0.14

*Leak Limit: 0.80 L/min*

# Meteorological System Checklist



Date:	January 11, 2024		
Technician:	Alex Yakupov		
Station:	Lac La Biche		
<b>Unit:</b>	<b>Make:</b>	<b>Model:</b>	<b>Serial #:</b>
Temperature Sensor:	Rotronic	HC2A-S3	20357518
Barometric Pressure Sensor:	MetOne	92	Y23360
Relative Humidity Sensor:	Rotronic	HC2A-S3	20357518
Anemometer:	RM Young	05305VK	56778
<b>AMBIENT TEMPERATURE SENSOR CHECK</b>			
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	Vaisala / HM70 / #T1640130/ Jun 26, 2024		
Reference Temperature (°C):	-29.4		
Station - Ambient Temperature (°C):	-31.0		
Temperature Difference (°C):	1.6		
<b>BAROMETRIC PRESSURE SENSOR CHECK</b>			
Reference Barometer ID:	Fisher Scientific / FB 61291 / #130168457/ Mar 20, 2024		
Reference Pressure - Units/Reading:	millibar	954	
Station Pressure - Units/Reading:	millibar	959	
Pressure Tolerance +/- 15% of error:	811 - 1097	-0.52%	
<b>RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK</b>			
Reference Hygrometer ID:	Vaisala / HM70 / #T1640130/ Jun 26, 2024		
Reference Hygrometer % RH- Reading:	56.40		
Station Hygrometer % RH- Reading:	61.40		
RH Tolerance +/- 15% of difference:	47.94 - 64.86	-8.9%	
<b>ANEMOMETER - WIND SPEED &amp; WIND DIRECTION SENSOR CHECK</b>			
<b>WIND SPEED</b>		<b>WIND DIRECTION</b>	
Previous check date:	November 25, 2023	Previous check date:	November 25, 2023
Wind Speed Observed (kph):	10~20	Wind Direction Observed:	NW
Wind speed on Data Logger (kph):	15.8	Wind Direction on Data Logger:	NW
	Annual audit: Sep 15, 2023	Wind Direction Pass/Fail?:	Pass

Comments

Station (Trailer) temperature vs Reference gauge: 23.5 vs 23.4 - passed.



# Meteorological Sensor Audit/Calibration

## Location Information

Company: LICA Performed By: Alex Yakupov  
 Audit Location: Lac La Biche Reviewed By: Chris Wesson  
 Audit Date: September 15, 2023 Start/End Time (mst): 16:41 / 18:22  
 Calibration Purpose: routine annual Weather Conditions: Mainly sunny

## Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	<u>RM Young</u>	Velocity Voltage Output Range:	<u>0-1</u>
Sensor Model:	<u>05305VK</u>	Velocity Unit Output Range:	<u>0-200</u>
Serial #:	<u>56778</u>	Direction Voltage Output Range:	<u>0-1</u>
Previous Cal/Audit Date:	<u>May 9, 2022</u>	Direction Unit Output Range:	<u>0-360</u>

## Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 id# CA 4744 expires October 18, 2024

## Wind Speed Audit Data **\*\*+/- 2% of the average correction factor is the limit\*\***

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.1	0.1	-
1000	18.4	18.4	18.4	1.002
2000	36.9	36.9	36.9	0.999
3000	55.3	55.4	55.4	0.998
4000	73.7	73.8	73.8	0.999
5000	92.2	92.2	92.3	0.999
6000	110.6	110.7	110.7	0.999
7000	129.0	129.2	129.2	0.999
8000	147.4	147.7	147.7	0.998
9000	165.9	166.1	166.1	0.999
10000	184.3	184.6	184.6	0.998
The audit meets AMD requirements.			Average Correction Factor=	<b>0.999</b>

## Wind Direction Audit Data **\*\*+/- 3° of the absolute average degrees difference for all points is the limit\*\***

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	1	355	1.0	-0.1	0.6
30	330	31	331	-1.4	-0.9	1.1
60	300	63	301	-3.3	-1.1	2.2
90	270	93	272	-3.2	-1.9	2.5
120	240	123	242	-3.4	-2.0	2.7
150	210	154	212	-3.9	-1.6	2.8
180	180	182	183	-2.4	-2.9	2.7
210	150	212	152	-2.3	-2.2	2.3
240	120	242	124	-1.6	-4.1	2.8
270	90	270	94	-0.3	-3.9	2.1
300	60	300	64	0.0	-4.2	2.1
330	30	330	33	0.0	-2.7	1.4
355	0	355	2	-0.1	1.6	0.9
The audit meets AMD requirements.				Average Absolute Degrees Difference=		<b>2.0</b>

### Comments:

No issues.

# End of Report

<b>Parameter</b>	<b>Method &amp; Procedure</b>
<b>SULPHUR DIOXIDE (SO<sub>2</sub>)</b>	<b>Bureau Veritas EMS SOP-00209: Ambient Sulphur Monitoring</b>
<b>HYDROGEN SULPHIDE (H<sub>2</sub>S)</b>	<b>Bureau Veritas EMS SOP-00209: Ambient Sulphur Monitoring</b>
<b>TOTAL HYDROCARBONS (THC), METHANE (CH<sub>4</sub>), NON-METHANE(NMHC)</b>	<b>Bureau Veritas EMS SOP-00001: Methane, Non-Methane Hydrocarbon Analyzer Monitoring</b>
<b>OXIDES OF NITROGEN (NO<sub>x</sub>), NITRIC OXIDE (NO) &amp; NITROGEN DIOXIDE (NO<sub>2</sub>)</b>	<b>Bureau Veritas EMS SOP-00213: Ambient NO/NO<sub>2</sub>/NO<sub>x</sub> Monitoring</b>
<b>OZONE (O<sub>3</sub>)</b>	<b>Bureau Veritas EMS SOP-00212: Ambient O<sub>3</sub> Monitoring</b>
<b>PARTICULATE MATTER &lt; 2.5 MICRONS (PM<sub>2.5</sub>)</b>	<b>Bureau Veritas EMS SOP-00010: Thermo Model 5030 SHARP Monitor &amp; EMS SOP-00015: Teledyne API PM Monitor Model T640</b>
<b>WIND SPEED (WS) &amp; WIND DIRECTION (WD)</b>	<b>Bureau Veritas EMS SOP-00013: RM Young Wind Monitor Calibration</b>
<b>RELATIVE HUMIDITY (RH)</b>	<b>Operation Manual</b>
<b>BAROMETRIC PRESSURE (BP)</b>	<b>Operation Manual</b>
<b>AMBIENT TEMPERATURE (AmbTPX)</b>	<b>Operation Manual</b>
<b>STATION TEMPERATURE (StnTPX)</b>	<b>Operation Manual</b>
<b>PRECIPITATION</b>	<b>Bureau Veritas EMS SOP-00242: Precipitation Collector Installation / Maintenance</b>