Lakeland Industry & Community Association

NOVEMBER 2023

Monthly Ambient Air Quality Monitoring Report

LICA-202311

Operation and Maintenance:

Bureau Veritas Canada

Data Validation and Report:

Lakeland Industry & Community Association

December 20, 2023

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Lakeland Industry & Community Association
5107 50 St
Bonnyville, AB, T9N 2J7
Phone #: 780-226-7068
E-mail: monitoring@lica.ca
www.lica.ca

December 20, 2023

Alberta Environment and Protected Areas (EPA)
11th Floor, Oxbridge Place
9820 106 Street
Edmonton, AB, T5K 2J6

RE: LICA – November 2023 Monthly Ambient Air Quality Monitoring Report

Enclosed is the November 2023 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
Michael Bisaga, Monitoring Programs Manager
5107 50 Street
Bonnyville, AB, T9N 2J7
Phone #: 780-226-7068
E-mail: monitoring@lica.ca

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
CH4	Methane
EPEA	Environmental Protection and Enhancement Act
H2S	Hydrogen Sulphide
kph	kilometers per hour
LICA	Lakeland Industry & Community Association
mb	millibar
mm	millimeter
NMHC	Non-Methane Hydrocarbons
NO	Nitric Oxide
NO2	Nitrogen Dioxide
NOx	Oxide of Nitrogen
PAC	Polycyclic Aromatic Compounds
ppb	parts per billion
ppm	parts per million
RH	Relative Humidity
SO2	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 November 2023

Cold Lake South

- 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 operation issues were identified this month.

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, except PM2.5. One 1-hour PM2.5 exceedance was recorded this month. The exceedance of the PM2.5 guideline on November 1 is believed to be the result of low wind speeds and an active excavation near the station.

Date	Time (MST)	Parameter	Average Period	Concentration (µg/m3)	Wind speed (km/hr)	Wind Direction	Reference #
1-Nov	7	PM2.5	1-Hour	157	1.8	217°(SW)	521437

- **O3:** On November 23, the Thermo 49iQ analyzer, s/n: 1202068570, was removed following a successful shut-down calibration due to the ozonator failure. The Thermo 49i analyzer, s/n: 1002240371, was installed following by a installation calibration on the same day.

St. Lina Station

- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- All parameters met the 90% operational uptime requirement, except THC/CH4/NMHC (79.6%). **DINC0003273**.
- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) where applicable.
- **THC/CH4/NMHC:** On November 7, the Thermo 55i analyzer, s/n: 1236656107, failed the shut-down calibration, and it was replaced with the Thermo 55i analyzer, s/n: 1180930026. The replacement analyzer was allowed time to stabilize overnight. A successful installation calibration was completed on November 8. Data were invalidated back to the last valid calibration check, which was November 3 hour 15. Ninety hours of downtime were recorded.

Lac La Biche Station

- 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 events were identified this month.

Integrated Sampling

All the integrated sampling analytical results are included in the November 2023 Integrated Sampling Report.

- **VOCs Sampling System:**
  - The VOC sampler is programed 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.
  - Five samples were collected this month: on November 2, 8, 14, 20 and 26.
- **PAHs Sampling System:**
  - The PUF sampler is programed to collect a 24-hour sample of air every sixth day as per the National Air Pollution Surveillance schedule (NAPS).
  - Five samples were collected this month: on November 2, 8, 14, 20 and 26.
- **Partisol Sampling System:**
  - The Partisol sampler is programed 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.
  - Five samples were collected this month: on November 2, 8, 14, 20 and 26.
- **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 October 29 and November 3, and were removed between November 30 and December 2.
- A total of 13 duplicate samples were collected: 2 for H2S, 3 for SO2, 2 for NO2, 2 for O3, 2 for HNO3 and 2 for NH3.

- **PAC Sampling System**:
  - The PAC sampling program began in December 2019, and is designed to collect a 2-month integrated sample.
  - The media for the November/December monitoring period were installed between October 29 and November 3. The media are scheduled to be removed by the end December.
- **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.
  - No canister event was recorded this month.

Revisions to Alberta's Ambient Air Quality Data Warehouse

No revisions to historical data previously submitted to the Alberta's Ambient Air Quality Data Warehouse were made this month.

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

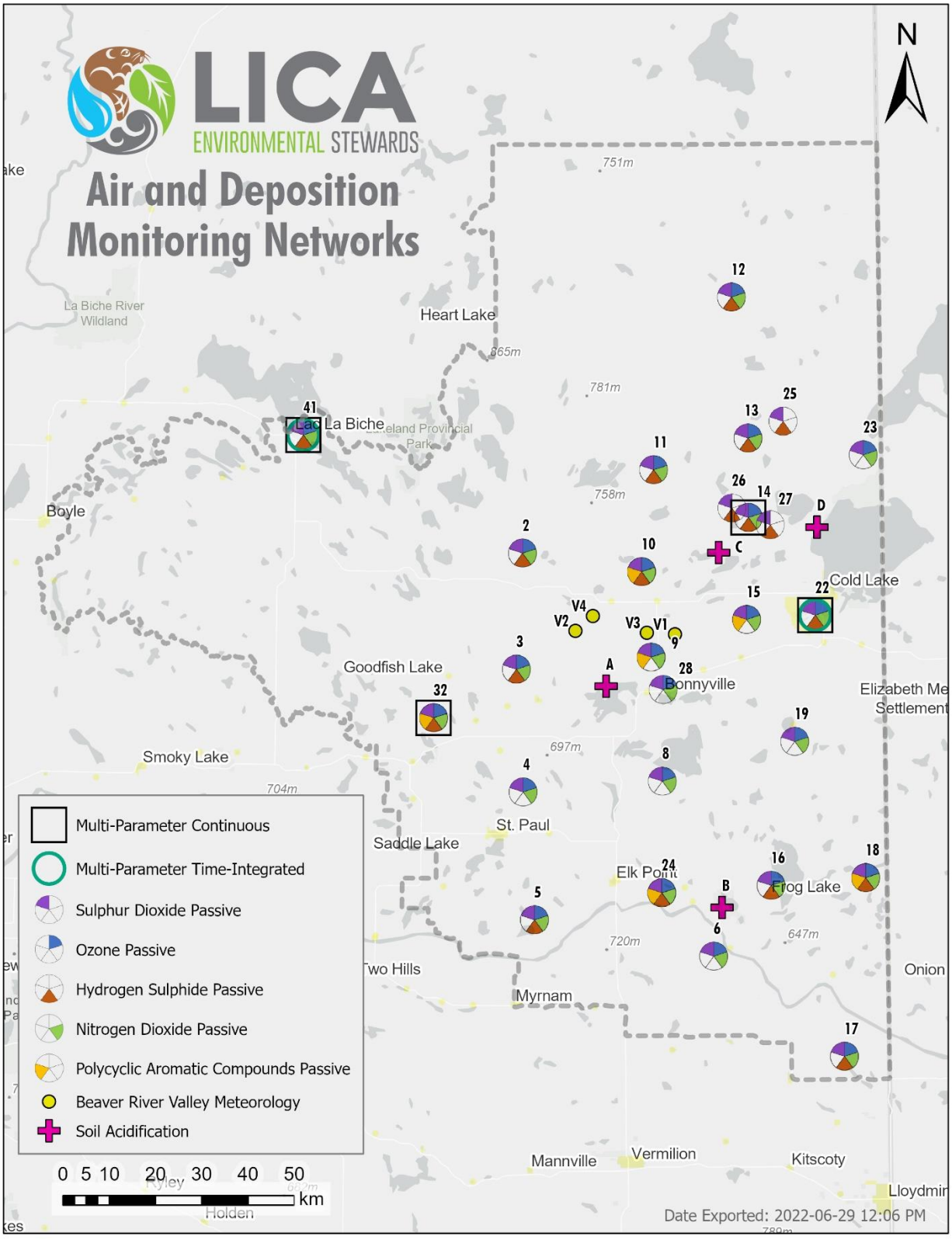
This report was reviewed by Michael Bisaga in accordance with Chapter 9 of the Air Monitoring Directive (AMD 2016).

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

December 20, 2023

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
SO2 Thermo 43i-TLE #1180260018	November 11, 2023	• No operational issues were identified.
TRS Thermo 450i #812728560 **TRS convertor** CD Nova CDN-101 #501	November 11, 2023	• No operational issues were identified.
NOx/NO/NO2 Thermo 42i #1505664393	November 11, 2023	• The analyzer failed the daily span check on November 3. A repeat zero-span check was initiated on November 4 hour 6 to assess the drift. The check results were within the acceptable range. No further actions were required. One hour of downtime was recorded due to the additional quality check.
O3 Thermo 49iQ #12208316585	November 12, 2023	• No operational issues were identified.
THC/CH4/NMHC Thermo 55i #1180930025 **H2 Generator** HG300 #210567071	November 29, 2023	• A successful monthly calibration was completed on November 12. • The analyzer failed due to the N2 gas depletion on November 20. The gas cylinder was replaced on November 21. Fifteen hours of downtime was recorded due to this event. • The analyzer failed the daily span check, repeat zero-span check and as-found points check on November 29. The cause was likely due to a change in flame temperature. A repeat multi-point calibration was completed on November 29 to correct the issue. Data were invalidated back to the last valid calibration check, which was November 28. Thirty-one hours of downtime were recorded.

Parameter	Calibration Date	Equipment Operational Summary
PM2.5 Teledyne T640 #575	November 12, 2023	• No operational issues were identified.

Parameter	Verification Date	Equipment Operational Summary
RH Rotronic HC2A-S3 #20257103	November 12, 2023	• No operational issues were identified.
BP Met One 092 #Y23368	November 12, 2023	• No operational issues were identified.
AT Rotronic HC2A-S3 #20257103	November 12, 2023	• No operational issues were identified.
ST COMET #NA	November 12, 2023	• No operational issues were identified.
WS/WD/STDWD RM Young 05305AQ #177354	November 12, 2023	• Wind direction data contained in this report represents where the wind is coming from. • An annual wind system calibration was completed on July 6, 2022. • No operational issues were identified.

Monitored Data Summary for Cold Lake South Station

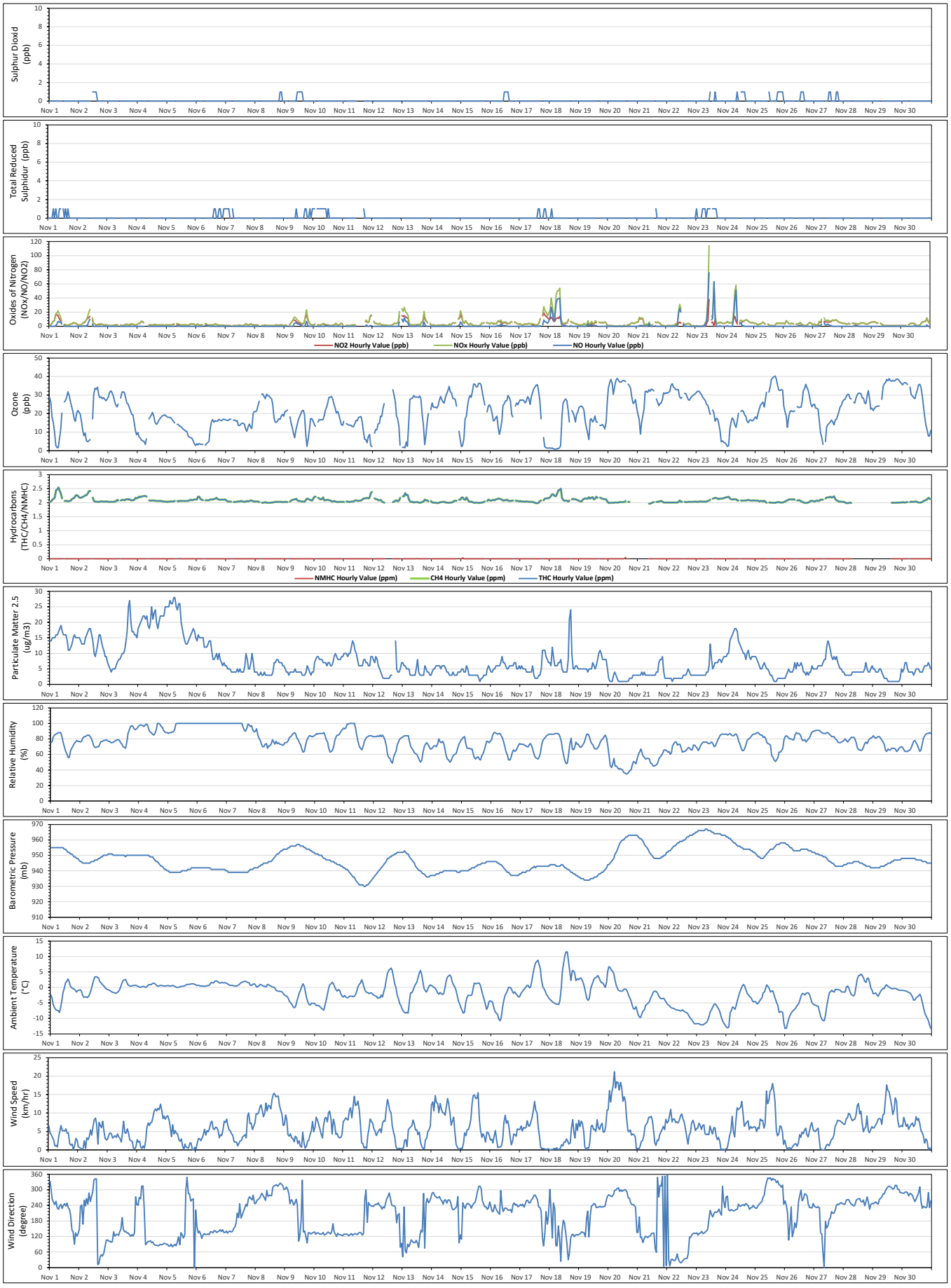
Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.1	0	1	Nov 2 at hr 11	4	WNW	0.3	Nov 25	100.0	94.8
TRS (ppb)	-	-	-	-	-	-	0.1	0	1	Nov 1 at hr 4	2.6	WSW	0.5	Nov 10	100.0	94.8
NOx (ppb)	-	-	-	-	-	-	5.1	0	114	Nov 23 at hr 11	6.5	SW	17.7	Nov 18	99.9	94.6
NO (ppb)	-	-	-	-	-	-	1.3	0	76	Nov 23 at hr 11	6.5	SW	10.6	Nov 18	99.9	94.6
NO2 (ppb)	159	-	-	0	-	-	3.8	0	38	Nov 23 at hr 11	6.5	SW	7.3	Nov 18	99.9	94.6
O3 (ppb)	76	-	-	0	-	-	21.2	0.9	40.3	Nov 25 at hr 16	13.1	NNW	34.2	Nov 20	100.0	94.8
THC (ppm)	-	-	-	-	-	-	2.08	1.97	2.54	Nov 1 at hr 7	0.8	SW	2.20	Nov 18	93.6	88.6
CH4 (ppm)	-	-	-	-	-	-	2.08	1.97	2.54	Nov 1 at hr 7	0.8	SW	2.20	Nov 18	93.6	88.6
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.05	Nov 20 at hr 14	13.1	WNW	0.00	Nov 15	93.6	88.6
PM2.5 (µg/m3)	80	29	-	0	0	-	7.3	1	28	Nov 5 at hr 5	6.8	E	21.3	Nov 4	100.0	99.7
RH (%)	-	-	-	-	-	-	76.6	35	100	Nov 4 at hr 15	11.1	E	100.0	Nov 6	100.0	100.0
BP (millibar)	-	-	-	-	-	-	947	930	967	Nov 23 at hr 7	4.4	SE	965	Nov 23	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-2.0	-13.3	11.5	Nov 18 at hr 13	2.1	SE	1.7	Nov 18	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	23.3	21.8	25.6	Nov 11 at hr 19	0.4	S	24.3	Nov 6	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	2.0	0.0	21.2	Nov 20 at hr 5	21.2	WNW	11.7	Nov 20	100.0	100.0
WDV (sector)	-	-	-	-	-	-	251 (WSW)	-	-	-	-	-	-	-	100.0	100.0

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

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 Nov 2023 - Cold Lake South Station



Tamarack Station

Equipment Operation Summary

Parameter	Calibration Date	Equipment Operational Summary
SO2 Thermo 43i-TLE #1180930031	November 21, 2023	• Following a successful shut-down calibration on November 21, the flow senor was replaced. A successful post-repair calibration was completed afterwards. One hour of downtime was recorded due to this maintenance activity. • Eight hours of downtime were recorded due to power failures on November 1 and 2. • Seven hours of downtime were recorded due to intermittent polling errors this month.
H2S Thermo 450i #CM17360005	November 21, 2023	• Following a successful shut-down calibration on November 21, the SO2 scrubber material was replaced. A successful post-repair calibration was completed afterwards. One hour of downtime was recorded due to this maintenance activity. • Eight hours of downtime were recorded due to power failures on November 1 and 2. • Seven hours of downtime were recorded due to intermittent polling errors this month.
NOx/NO/NO2 Thermo 42i #1180930028	November 22, 2023	• Eight hours of downtime were recorded due to power failures on November 1 and 2. • Seven hours of downtime were recorded due to intermittent polling errors this month.
THC/CH4/NMHC Thermo 55i #1180030034 #1505664392	November 22, 2023	• Six hours of downtime were recorded due to power failures on November 1 and 2. Two hours of downtime were recorded as the analyzer required extended time to recover after the power outages. • Seven hours of downtime were recorded due to intermittent polling errors this month.
PM2.5 Thermo Sharp 5030 #CM2209	November 22, 2023	• Seven hours of downtime were recorded due to power failures on November 1 and 2. • Seven hours of downtime were recorded due to intermittent polling errors this month.

Parameter	Calibration Date	Equipment Operational Summary
O3 Thermo 49iQ #1202068570 Thermo 49i #1002240371	November 28, 2023	• Data collected on November 21 from hour 10 to hour 15 were lost due to a power supply issue. Six hours of downtime were recorded. • A successful monthly calibration was completed on November 22. The as-left zero-span check could not be run due to a problem with the ozonator, which affected the internal span system. • To fix the problem on the ozonator, on November 23 the Thermo 49iQ analyzer, s/n: 1202068570, was removed after a successful shut-down calibration, and the Thermo 49i analyzer, s/n: 1002240371, was installed. A successful installation calibration was completed afterwards. Ten hours of downtime were recorded due to this event. • The analyzer started showing span drifts after the November 23's installation calibration. A repeat multi-point calibration was completed to correct the drift on November 28. Five hours of downtime were recorded due to this maintenance. • Eight hours of downtime were recorded due to power failures on November 1 and 2. • Seven hours of downtime were recorded due to intermittent polling errors this month.

Parameter	Verification Date	Equipment Operational Summary
RH Rotronic HC2A-S3 #20433166	November 22, 2023	• Six hours of downtime were recorded due to power failures on November 1 and 2. • Seven hours of downtime were recorded due to intermittent polling errors this month.
BP Met One 090D #F4497	November 22, 2023	• Six hours of downtime were recorded due to power failures on November 1 and 2. • Seven hours of downtime were recorded due to intermittent polling errors this month.
AT Rotronic HC2A-S3 #20433166	November 22, 2023	• Six hours of downtime were recorded due to power failures on November 1 and 2. • Seven hours of downtime were recorded due to intermittent polling errors this month.
ST COMET #NA	November 22, 2023	• Six hours of downtime were recorded due to power failures on November 1 and 2. • Six hours of downtime were recorded due to intermittent polling errors this month.

Parameter	Verification Date	Equipment Operational Summary
Precipitation MetOne 387 #C13580	November 22, 2023	• Six hours of downtime were recorded due to power failures on November 1 and 2. • Seven hours of downtime were recorded due to intermittent polling errors this month.
WS/WD/STDWD RM Young 05305VK #161465	November 22, 2023	• Wind direction data contained in this report represents where the wind is coming from. • An annual wind system calibration was completed on September 17, 2023. • Six hours of downtime were recorded due to power failures on November 1 and 2. • Seven hours of downtime were recorded due to intermittent polling errors this month.

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	0.6	0	10	Nov 20 at hr 7	14.2	WNW	3.3	Nov 29	97.8	92.8
H2S (ppb)	10	3	-	0	0	-	0.1	0	2	Nov 13 at hr 21	8.3	WNW	0.0	Nov 1	97.8	92.8
NOx (ppb)	-	-	-	-	-	-	4.5	0	28	Nov 1 at hr 7	1.8	SW	11.7	Nov 27	97.9	92.9
NO (ppb)	-	-	-	-	-	-	0.6	0	17	Nov 1 at hr 7	1.8	SW	2.2	Nov 20	97.9	92.9
NO2 (ppb)	159	-	-	0	-	-	3.9	0	17	Nov 11 at hr 22	6.7	W	10.0	Nov 27	97.9	92.9
O3 (ppb)	76	-	-	0	-	-	21.8	2.1	39.3	Nov 25 at hr 15	9.6	N	33.2	Nov 25	95.0	90.4
THC (ppm)	-	-	-	-	-	-	2.06	1.96	2.44	Nov 13 at hr 21	8.3	WNW	2.16	Nov 18	97.9	93.2
CH4 (ppm)	-	-	-	-	-	-	2.06	1.96	2.33	Nov 18 at hr 8	0.9	NE	2.16	Nov 18	97.9	93.2
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.32	Nov 13 at hr 21	8.3	WNW	0.03	Nov 29	97.9	93.2
PM2.5 (µg/m3)	80	29	-	1	0	-	5.6	1	157	Nov 1 at hr 7	1.8	SW	24.6	Nov 1	98.1	97.8
RH (%)	-	-	-	-	-	-	82.7	32	100	Nov 3 at hr 17	4.6	S	100.0	Nov 6	98.2	98.2
BP (millibar)	-	-	-	-	-	-	932	915	950	Nov 23 at hr 5	1.6	SSE	949	Nov 23	98.2	98.2
Ext. Temp. (°C)	-	-	-	-	-	-	-2.3	-12.7	10.4	Nov 18 at hr 14	3.7	SE	1.6	Nov 17	98.2	98.2
Stn. Temp. (°C)	-	-	-	-	-	-	21.1	18.4	24.0	Nov 1 at hr 10	5	SSW	22.5	Nov 1	98.3	98.3
Precipitation (mm)*	-	-	-	-	-	-	0.7	0.0	0.3	Nov 5 at hr 21	2.2	ENE	0.4	Nov 5	98.2	98.1
WSV (km/hr)	-	-	-	-	-	-	2.3	0.1	19.7	Nov 20 at hr 5	19.7	WNW	11.8	Nov 20	98.2	98.2
WDV (sector)	-	-	-	-	-	-	251 (WSW)	-	-	-	-	-	-	-	98.2	98.2

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

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

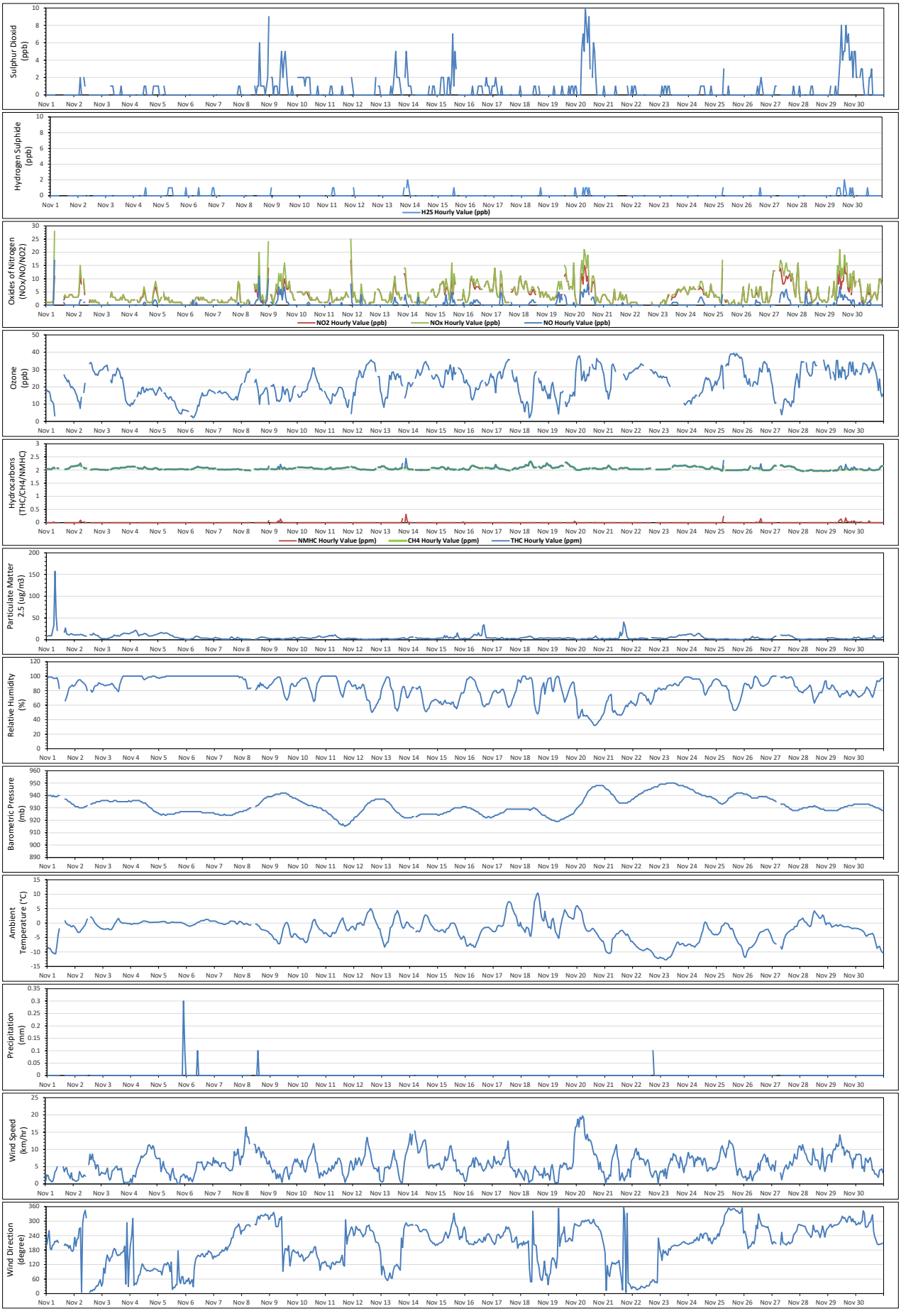
Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) Exceedances

The following exceedances of AAAQG was observed at the Tamarack Site.

Date	Time (MST)	Parameter	Average Period	AAAQOs / AAAQGs	Concentration	Wind speed	Wind Direction	Reference #
Nov 1	7	PM2.5	1-Hour	80 µg/m3	157.4 µg/m3	1.8 km/hr	217° (SW)	521437

The source of the exceedance of the PM2.5 guideline was believed to be the result of low wind speeds and an active excavation near the station.

Timeseries Chart of Hourly Average for the month of Nov 2023 - Tamarack Site



St. Lina Station

Equipment Operation Summary

Parameter	Calibration Date	Equipment Operational Summary
SO2 Thermo 43i #1226154720	November 10, 2023	• No operational issues were identified this month. • Due to datalogger polling errors, fifty-three hours of downtime were recorded this month. Successful repeat zero-span checks were completed after the datalogger reset on November 5 and 20. Two hours of downtime were recorded due to these additional quality checks.
H2S Teledyne T100 #1014	November 8, 2023	• No operational issues were identified this month. • Due to datalogger polling errors, fifty-three hours of downtime were recorded this month. Successful repeat zero-span checks were completed after the datalogger reset on November 5 and 20. Two hours of downtime were recorded due to these additional quality checks.
NOx/NO/NO2 Thermo 42i #1180930029	November 10, 2023	• No operational issues were identified this month. • Due to datalogger polling errors, fifty-three hours of downtime were recorded this month. Successful repeat zero-span checks were completed after the datalogger reset on November 5 and 20. Two hours of downtime were recorded due to these additional quality checks.
O3 Thermo 49iQ #12208316586	November 7, 2023	• Following a successful shut-down calibration on November 7, the analyzer's cells were cleaned. A successful post-repair calibration was completed afterwards. One hour of downtime was recorded due to this event. • Due to datalogger polling errors, fifty-three hours of downtime were recorded this month. Successful repeat zero-span checks were completed after the datalogger reset on November 5 and 20. Two hours of downtime were recorded due to these additional quality checks.
PM2.5 Thermo Sharp 5030i #CM17091001	November 10, 2023	• Due to datalogger polling errors, fifty-three hours of downtime were recorded this month.

Parameter	Calibration Date	Equipment Operational Summary
THC/CH4/NMHC Thermo 55i #1236656107 # 1180930026	November 8, 2023	• Bad injections began being recorded from November 1 to 7. One-minute data were reviewed and discarded if data quality was affected by the injection issues. Hourly data were re-calculated using validated 1-min dataset. Two hours of downtime were recorded as hourly data completeness requirement did not meet and therefore were invalidated. • The Thermo 55i analyzer, s/n: 1236656107, failed the November 7's shut-down calibration. The analyzer was replaced with the Thermo 55i analyzer, s/n: 1180930026. The replacement analyzer was allowed time to stabilize overnight. A successful installation calibration was completed on November 8. Data were invalidated back to the last valid calibration check, which was November 3 hour 15. Ninety hours of downtime were recorded. • Due to datalogger polling errors, fifty-three hours of downtime were recorded this month. Successful repeat zero-span checks were completed after the datalogger reset on November 5 and 20. Two hours of downtime were recorded due to these additional quality checks.

Parameter	Verification Date	Equipment Operational Summary
RH Rotronic HC2A-S3 #20404750	November 10, 2023	• Due to datalogger polling errors, fifty-three hours of downtime were recorded this month.
BP Met One 090D #F4498	November 10, 2023	• Due to datalogger polling errors, fifty-three hours of downtime were recorded this month.
AT Rotronic HC2A-S3 #20404750	November 10, 2023	• Due to datalogger polling errors, fifty-three hours of downtime were recorded this month.
ST COMET #NA	November 10, 2023	• Due to datalogger polling errors, fifty-three hours of downtime were recorded this month.
Precipitation MetOne 387D #A23775	November 10, 2023	• Due to datalogger polling errors, fifty-three hours of downtime were recorded this month.

Parameter	Verification Date	Equipment Operational Summary
WS/WD/STDWD RM Young 05305VK #161466	November 10, 2023	• Wind direction data contained in this report represents where the wind is coming from. • An annual wind system calibration was completed on July 22, 2022. • Due to datalogger polling errors, fifty-three hours of downtime were recorded this month.

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	0.1	0	2	Nov 16 at hr 13	15	SW	0.7	Nov 2	92.4	87.6
H2S (ppb)	10	3	-	0	0	-	0.1	0	2	Nov 1 at hr 9	5.7	SW	2.0	Nov 1	92.4	87.5
NOx (ppb)	-	-	-	-	-	-	2.5	0	16	Nov 27 at hr 16	14.4	WSW	5.9	Nov 27	92.4	87.3
NO (ppb)	-	-	-	-	-	-	0.1	0	4	Nov 1 at hr 8	7	SW	0.5	Nov 24	92.4	87.3
NO2 (ppb)	159	-	-	0	-	-	2.4	0	15	Nov 27 at hr 16	14.4	WSW	5.4	Nov 27	92.4	87.3
O3 (ppb)	76	-	-	0	-	-	25.8	7.3	38.9	Nov 20 at hr 10	22.2	NW	35.5	Nov 20	92.2	87.5
THC (ppm)	-	-	-	-	-	-	2.09	1.87	2.54	Nov 22 at hr 17	3.9	ESE	2.17	Nov 23	79.6	75.5
CH4 (ppm)	-	-	-	-	-	-	2.09	1.87	2.54	Nov 22 at hr 17	3.9	ESE	2.17	Nov 23	79.6	75.5
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.14	Nov 8 at hr 17	17	NNW	0.00	Nov 24	79.6	75.5
PM2.5 (µg/m3)	80	29	-	0	0	-	4.8	0	24	Nov 3 at hr 20	7.4	WNW	13.0	Nov 3	92.6	92.4
RH (%)	-	-	-	-	-	-	76.9	29	100	Nov 6 at hr 12	8.6	S	99.5	Nov 6	92.6	92.6
BP (millibar)	-	-	-	-	-	-	916	900	933	Nov 23 at hr 10	11.5	SW	931	Nov 23	92.6	92.6
Ext. Temp. (°C)	-	-	-	-	-	-	-1.8	-11.0	12.3	Nov 18 at hr 14	5.9	SSE	5.0	Nov 18	92.6	92.6
Stn. Temp. (°C)	-	-	-	-	-	-	21.5	14.9	23.9	Nov 10 at hr 15	9.5	S	22.8	Nov 10	92.6	92.6
Precipitation (mm)*	-	-	-	-	-	-	0.6	0.0	0.4	Nov 7 at hr 19	15.7	NW	0.4	Nov 7	92.6	92.6
WSV (km/hr)	-	-	-	-	-	-	5.9	0.2	27.8	Nov 20 at hr 3	27.8	NW	17.6	Nov 8	92.6	92.6
WDV (sector)	-	-	-	-	-	-	252 (WSW)	-	-	-	-	-	-	-	92.6	92.6

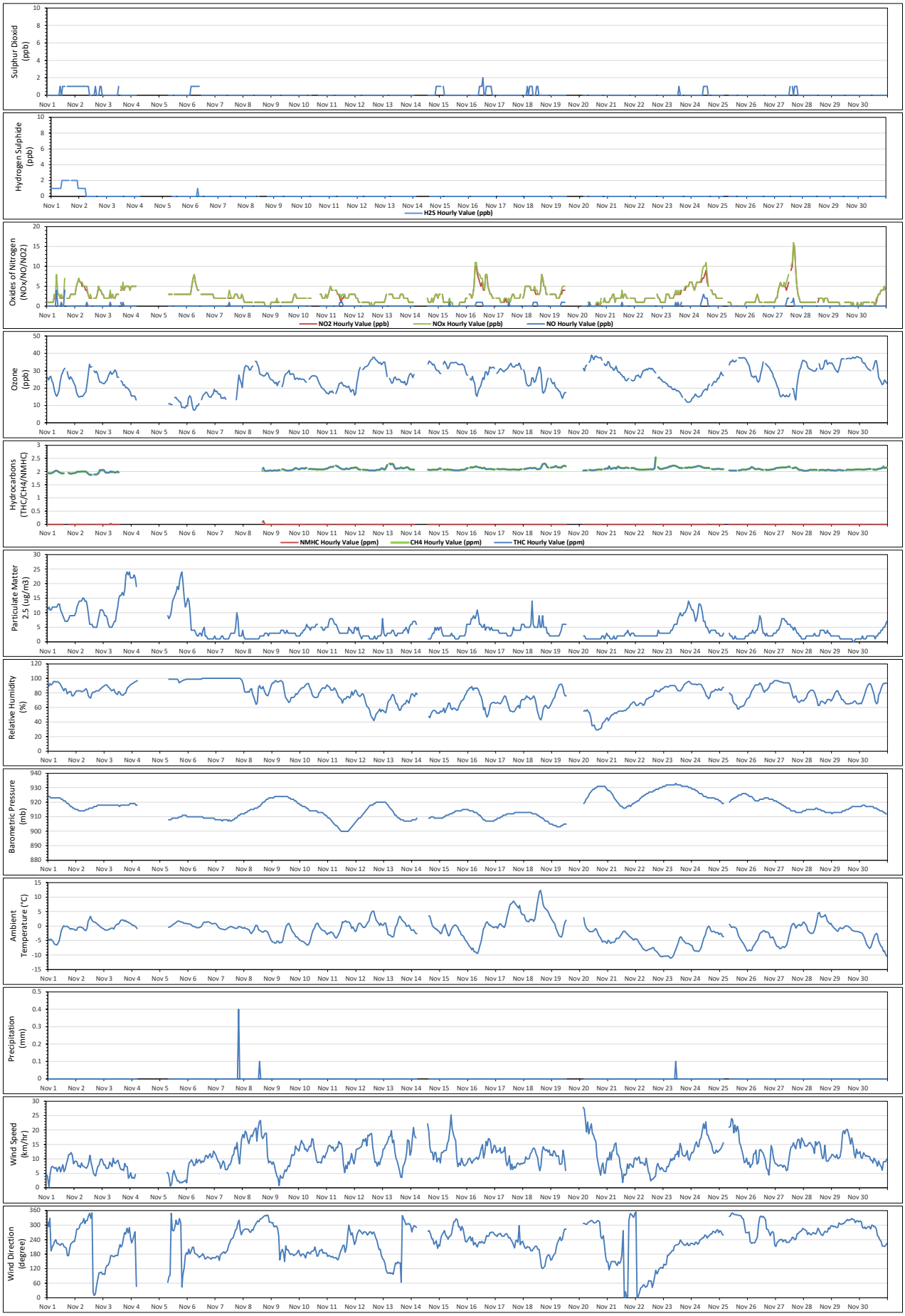
1- Date/ Time given is the first minimum and maximum value that was recorded

* 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 Nov 2023 - St. Lina Site



Lac La Biche Station

Equipment Operation Summary

Parameter	Calibration Date	Equipment Operational Summary
SO2 Thermo 43i-TLE #1180320043	November 24, 2023	• No operational issues were identified this month.
H2S Thermo 450i #CM17360002	November 24, 2023	• A repeat zero-span check was completed on November 23 hour 6 to assess the span drift. The check results were within the acceptable check range. Oen hour of downtime was recorded due to the additional quality check. • Following a successful shut-down calibration on November 24, the SO2 scrubber material was replaced. A successful post-repair calibration was completed afterwards. One hour of downtime was recorded due to this maintenance activity.
NOx/NO/NO2 Thermo 42i #1180930027	November 24, 2023	• No operational issues were identified this month.
O3 Thermo 49i #1002240372	November 25, 2023	• No operational issues were identified this month.
THC/CH4/NMHC Thermo 55i #1180030044	November 25, 2023	• The analyzer failed the November 6 and 7's daily span checks and the November 7's repeat zero-span check due to span gas depletion. The span gas cylinder was replaced on November 7. An additional zero-span check was completed afterwards to confirm the analyzer's functionality. Three hours of downtime were recorded due to this event.
PM2.5 Thermo Sharp 5030i #CM17071016	November 25, 2023	• No operational issues were identified this month.
Parameter	**Verification Date**	**Equipment Operational Summary**
RH Rotronic HC2A-S3 #0020357518	November 25, 2023	• No operational issues were recorded this month.

Parameter	Verification Date	Equipment Operational Summary
BP Met One 092 #Y23360	November 25, 2023	• No operational issues were recorded this month.
AT Rotronic HC2A-S3 #0020357518	November 25, 2023	• No operational issues were recorded this month.
ST COMET #NA	November 25, 2023	• No operational issues were recorded this month.
WS/WD/STDWD RM Young 05305VK #56778	November 25, 2023	• Wind direction data contained in this report represents where the wind is coming from. • The last annual wind system calibration was completed on September 15, 2023. • No operational issues were recorded this month.

Monitored Data Summary for Lac La Biche Station

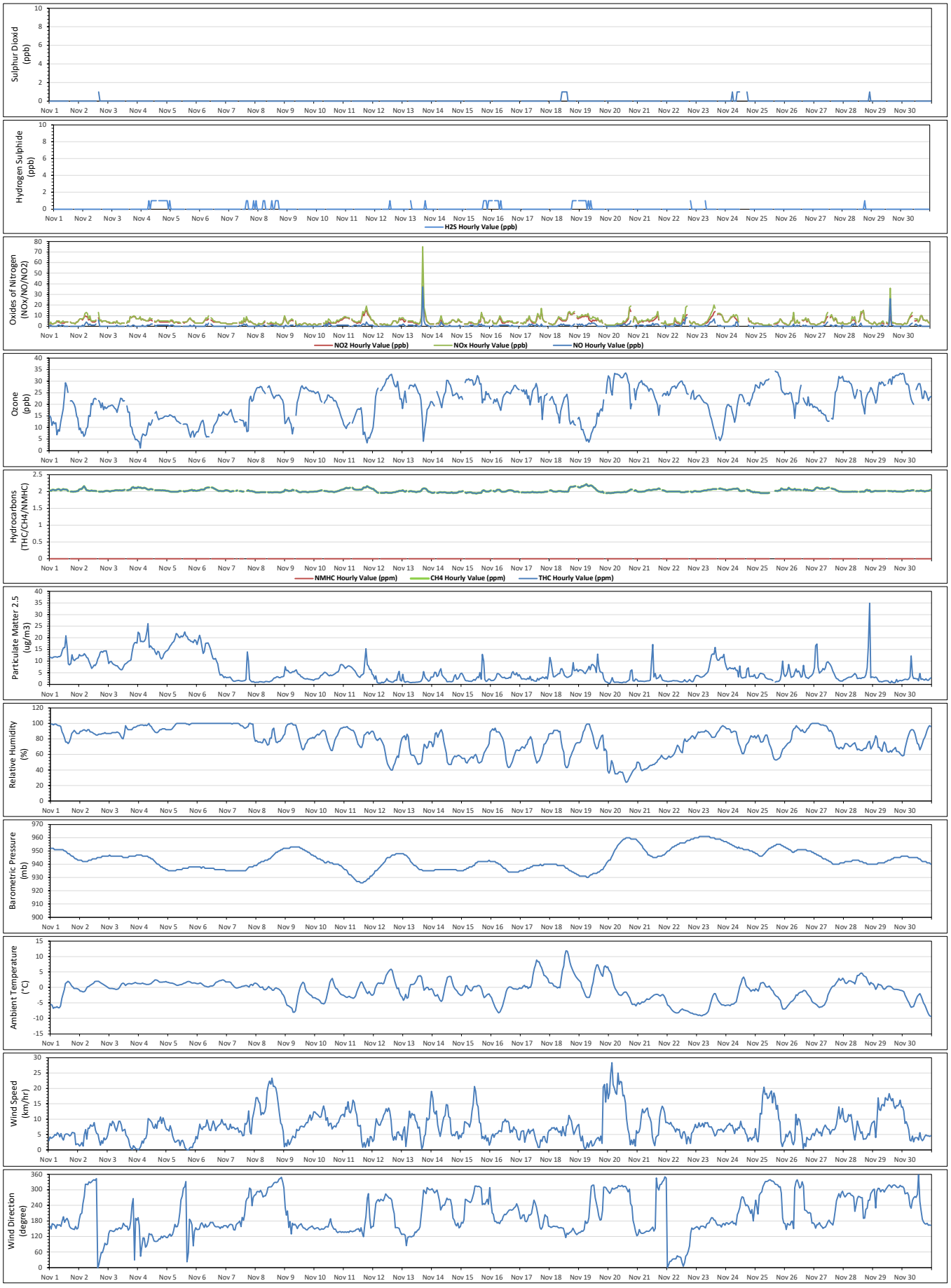
Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.0	0	1	Nov 2 at hr 16	5.1	NNE	0.3	Nov 24	100.0	95.1
H2S (ppb)	10	3	-	0	0	-	0.1	0	1	Nov 4 at hr 6	3.6	ENE	1.0	Nov 4	99.7	94.6
NOx (ppb)	-	-	-	-	-	-	5.2	1	75	Nov 13 at hr 17	1.2	WNW	8.8	Nov 13	100.0	94.8
NO (ppb)	-	-	-	-	-	-	0.7	0	37	Nov 13 at hr 17	1.2	WNW	2.5	Nov 13	100.0	94.8
NO2 (ppb)	159	-	-	0	-	-	4.4	1	38	Nov 13 at hr 17	1.2	WNW	7.4	Nov 11	100.0	94.8
O3 (ppb)	76	-	-	0	-	-	20.7	1.2	34.4	Nov 25 at hr 16	17.2	NW	29.6	Nov 25	100.0	95.2
THC (ppm)	-	-	-	-	-	-	2.02	1.94	2.22	Nov 19 at hr 6	0.7	SSE	2.09	Nov 19	99.6	94.8
CH4 (ppm)	-	-	-	-	-	-	2.02	1.94	2.22	Nov 19 at hr 6	0.7	SSE	2.09	Nov 19	99.6	94.8
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.00	Nov 1 at hr 0	3	SSE	0.00	Nov 1	99.6	94.8
PM2.5 (µg/m3)	80	29	-	0	0	-	5.8	1	35	Nov 28 at hr 21	4.8	WSW	19.2	Nov 5	100.0	99.9
RH (%)	-	-	-	-	-	-	77.6	24	100	Nov 4 at hr 8	5	E	100.0	Nov 6	100.0	100.0
BP (millibar)	-	-	-	-	-	-	944	926	961	Nov 23 at hr 2	8.8	SE	960	Nov 23	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-0.9	-9.4	11.9	Nov 18 at hr 13	4.6	ESE	4.3	Nov 18	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	23.5	20.1	24.9	Nov 26 at hr 4	6.1	SSE	24.2	Nov 21	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	2.0	0.0	28.4	Nov 20 at hr 3	28.4	NW	15.7	Nov 8	100.0	100.0
WDV (sector)	-	-	-	-	-	-	230 (SW)	-	-	-	-	-	-	-	100.0	100.0

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

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 Nov 2023 - Lac La Biche Station



TABLES AND CHARTS

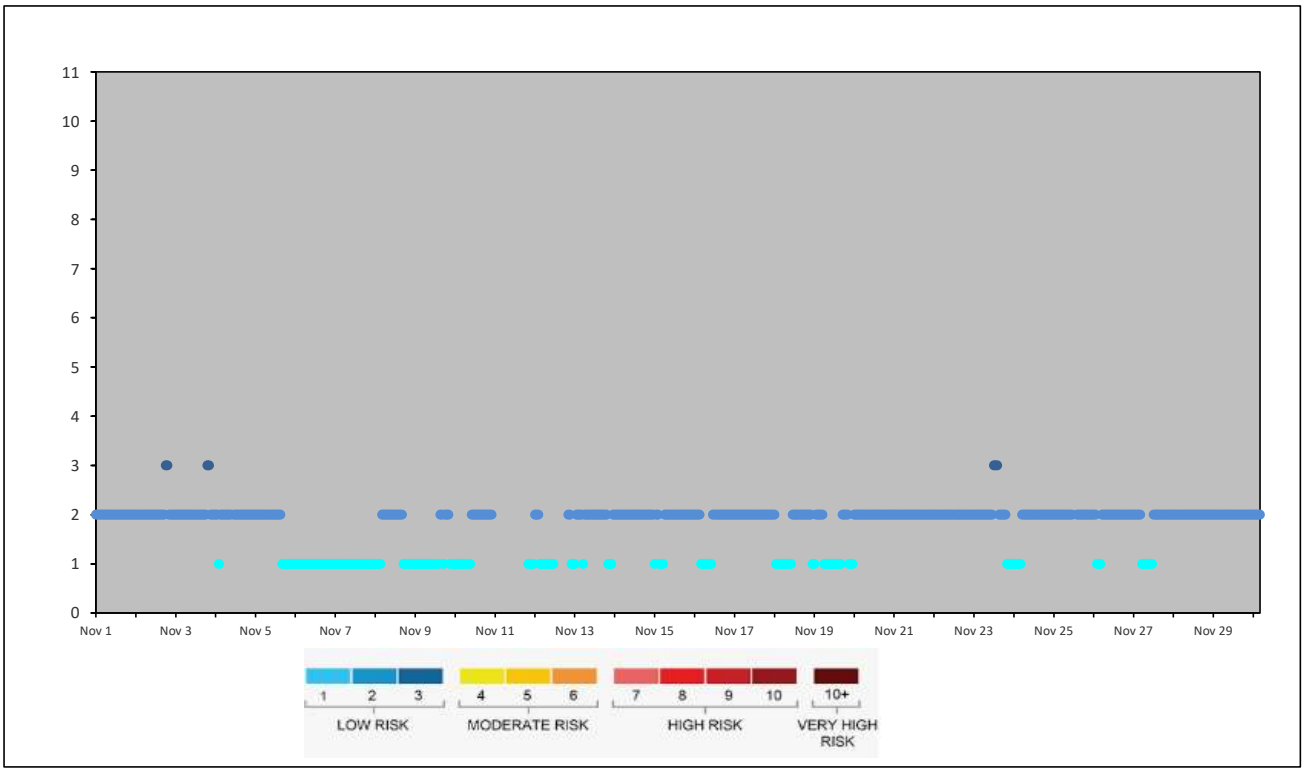
COLD LAKE SOUTH STATION

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - November 2023

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
Nov 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
Nov 2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2
Nov 3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2
Nov 4	2	2	1	2	2	2	2	2	2	2		2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1
Nov 6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
Nov 7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Nov 8	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1
Nov 9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	2	2	1	1	1
Nov 10	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	
Nov 11																					1	1	1	1
Nov 12	2	2	2	1	1	1	1	1	1	1	1	1									2	2	1	1
Nov 13	1	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2
Nov 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
Nov 15	1	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 16	2	2	2	2	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 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
Nov 18	2	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	1
Nov 19	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1
Nov 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
Nov 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
Nov 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
Nov 23	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	2	2	2	1	1	1	1
Nov 24	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 25	2	2	2	2	2	2	2	2	2	2	2	2			2	2	2	2	2	2	2	2	2	2
Nov 26	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 27	2	2	2	2	2	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
Nov 28	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 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
Nov 30	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1



Lakeland Industry & Community Association

Cold Lake South Station - November 2023

Summary of Hourly Averages

SULPHUR DIOXIDE (SO_2) in ppb

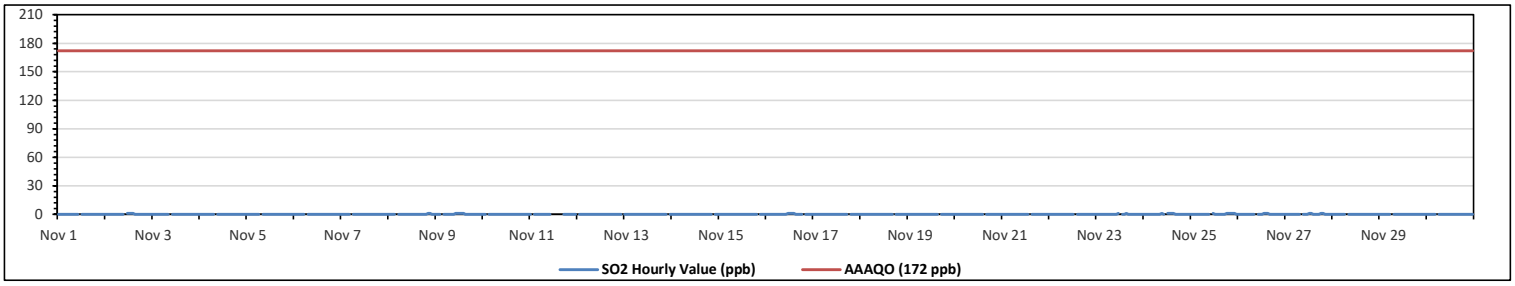
Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb

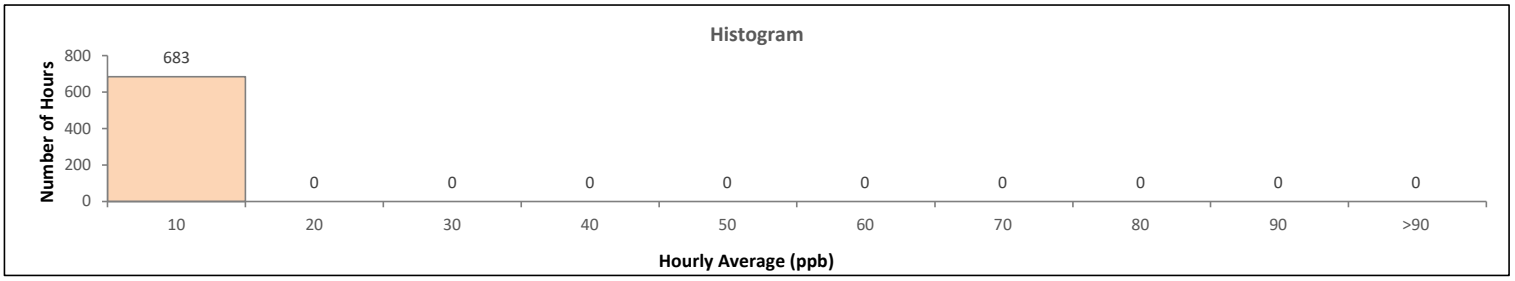
Number of 1-Hour Exceedances:	0	Number of 24-Hour Exceedances:	0	30-Day Exceedence:	0	
Maximum Hourly Value:	1	ppb	on Nov 2 at hr 11	Hours in Service:	720	
Maximum Daily Value:	0.3	ppb	on Nov 25	Hours of Data:	683	
Minimum Hourly Value:	0	ppb	on Nov 1 at hr 0	Hours of Missing Data:	0	
Minimum Daily Value:	0.0	ppb	on Nov 1	Hours of Calibration:	37	
Monthly Average:	0.1	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			
Nov 1	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
Nov 2	0	0	0	0	0	0	0	0	0	0	S	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.2
Nov 3	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
Nov 4	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
Nov 5	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
Nov 6	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	0.0
Nov 7	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	0.0
Nov 8	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0.1
Nov 9	0	0	0	S	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.2
Nov 10	0	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
Nov 11	0	S	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	NA
Nov 12	S	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
Nov 13	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
Nov 14	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
Nov 15	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
Nov 16	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	S	0	0	0	0	0	1	0.2
Nov 17	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
Nov 18	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
Nov 19	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
Nov 20	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
Nov 21	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
Nov 22	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
Nov 23	0	0	0	0	0	0	0	0	0	0	0	1	S	0	0	1	0	0	0	0	0	0	0	0	0	1	0.1
Nov 24	0	0	0	0	0	0	0	0	0	1	0	S	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0.2
Nov 25	0	0	0	0	0	0	0	0	0	0	S	1	0	0	0	0	0	0	1	1	1	1	1	0	0	1	**0.3**
Nov 26	0	0	0	0	0	0	0	0	0	S	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	1	0.1
Nov 27	0	0	0	0	0	0	0	0	S	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	0	1	0.2
Nov 28	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
Nov 29	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	0.0
Nov 30	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	0.0
Diurnal Maximum	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0			
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.1	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	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.



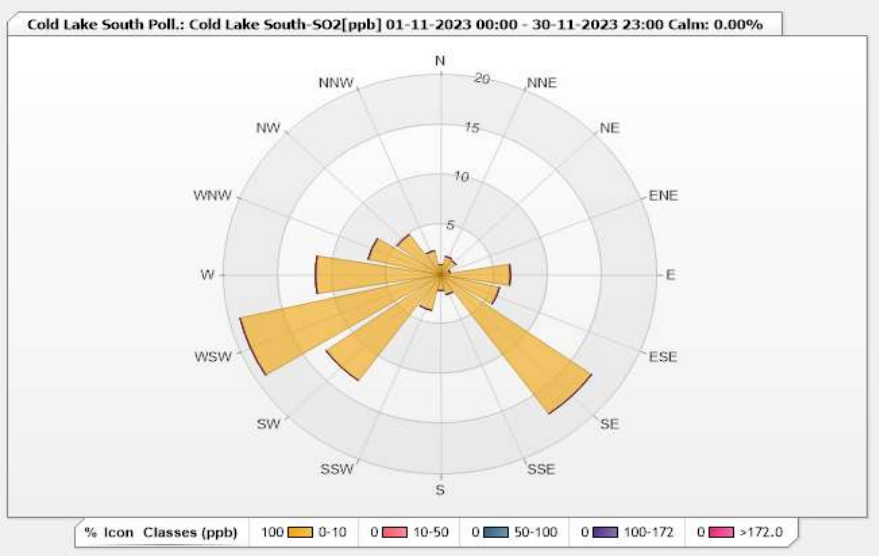


Station: Cold Lake South Poll.: Cold Lake South-SO2[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 94.86% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	1.02	0	0	0	0	1.02
NNE	1.9	0	0	0	0	1.9
NE	1.76	0	0	0	0	1.76
ENE	0.88	0	0	0	0	0.88
E	6.44	0	0	0	0	6.44
ESE	5.56	0	0	0	0	5.56
SE	17.13	0	0	0	0	17.13
SSE	2.05	0	0	0	0	2.05
S	1.61	0	0	0	0	1.61
SSW	3.66	0	0	0	0	3.66
SW	13.03	0	0	0	0	13.03
WSW	19.03	0	0	0	0	19.03
W	11.57	0	0	0	0	11.57
WNW	6.88	0	0	0	0	6.88
NW	4.98	0	0	0	0	4.98
NNW	2.49	0	0	0	0	2.49
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Cold Lake South Station - November 2023

Summary of Hourly Averages

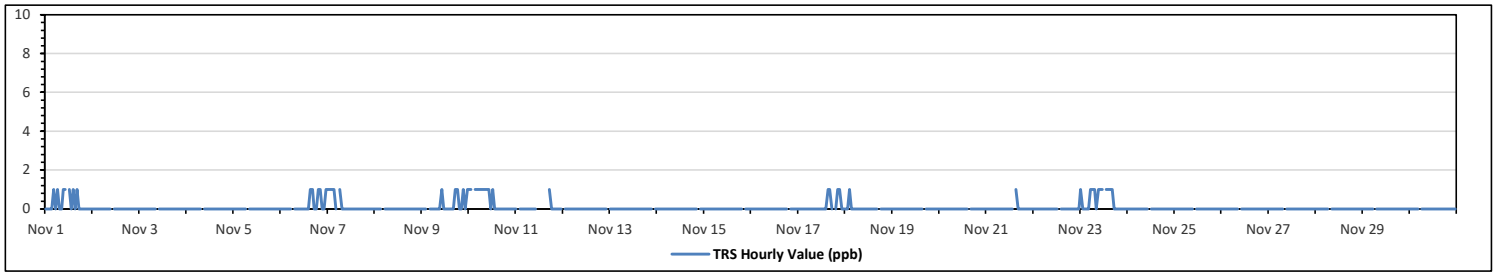
TOTAL REDUCED SULPHUR (TRS) in ppb

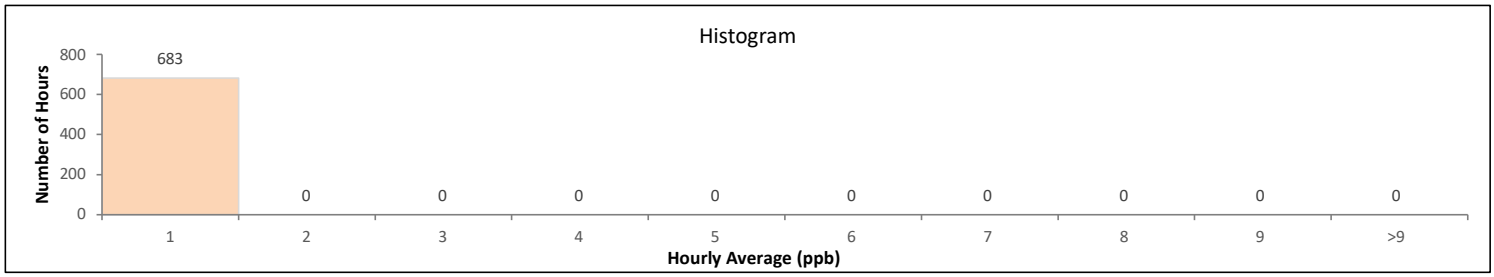
Maximum Hourly Value:	1	ppb	on Nov 1 at hr 4	Hours in Service:	720
Maximum Daily Value:	0.5	ppb	on Nov 10	Hours of Data:	683
Minimum Hourly Value:	0	ppb	on Nov 1 at hr 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on Nov 2	Hours of Calibration:	37
Monthly Average:	0.1	ppb		Operational Uptime:	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			
Nov 1	0	0	0	0	1	0	1	0	0	1	1	S	1	0	1	0	1	0	0	0	0	0	0	0	0	1	0.3
Nov 2	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	0.0
Nov 3	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
Nov 4	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
Nov 5	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
Nov 6	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	1	0	1	0.2
Nov 7	1	1	1	1	0	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2
Nov 8	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	0	0.0
Nov 9	0	0	0	S	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	1	0	1	0	1	0.2
Nov 10	1	1	S	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.5
Nov 11	0	S	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	1	0	0	0	0	0	0	0	1	NA
Nov 12	S	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
Nov 13	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
Nov 14	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
Nov 15	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
Nov 16	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
Nov 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	S	0	1	1	0	0	0	1	0.2
Nov 18	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	0.0
Nov 19	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
Nov 20	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
Nov 21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	0	0	0	0	0	0	0	0	0	1	0.0
Nov 22	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
Nov 23	1	0	0	0	0	1	1	1	0	1	1	1	S	1	1	1	1	0	0	0	0	0	0	0	0	1	0.5
Nov 24	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
Nov 25	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	0.0
Nov 26	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
Nov 27	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
Nov 28	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
Nov 29	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	0.0
Nov 30	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	0.0
Diurnal Maximum	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0			
Diurnal Average	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	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	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.



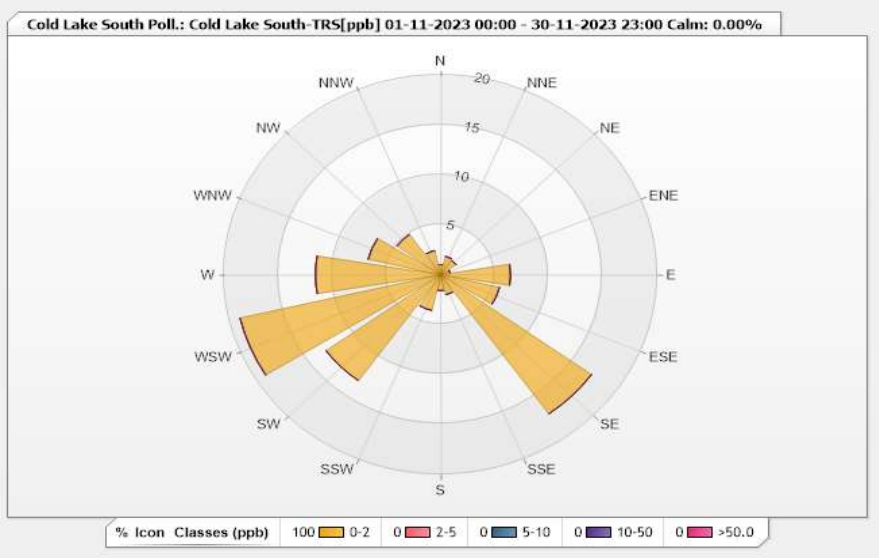


Station: Cold Lake South Poll.: Cold Lake South-TRS[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 94.86% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	1.02	0	0	0	0	1.02
NNE	1.9	0	0	0	0	1.9
NE	1.76	0	0	0	0	1.76
ENE	0.88	0	0	0	0	0.88
E	6.44	0	0	0	0	6.44
ESE	5.56	0	0	0	0	5.56
SE	17.13	0	0	0	0	17.13
SSE	2.05	0	0	0	0	2.05
S	1.61	0	0	0	0	1.61
SSW	3.66	0	0	0	0	3.66
SW	13.03	0	0	0	0	13.03
WSW	19.03	0	0	0	0	19.03
W	11.57	0	0	0	0	11.57
WNW	6.88	0	0	0	0	6.88
NW	4.98	0	0	0	0	4.98
NNW	2.49	0	0	0	0	2.49
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Cold Lake South Station - November 2023

Summary of Hourly Averages

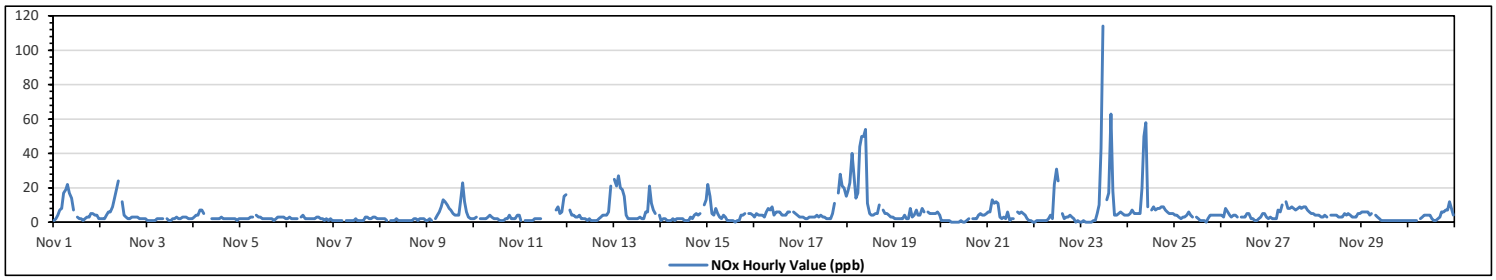
OXIDES OF NITROGEN (NOx) in ppb

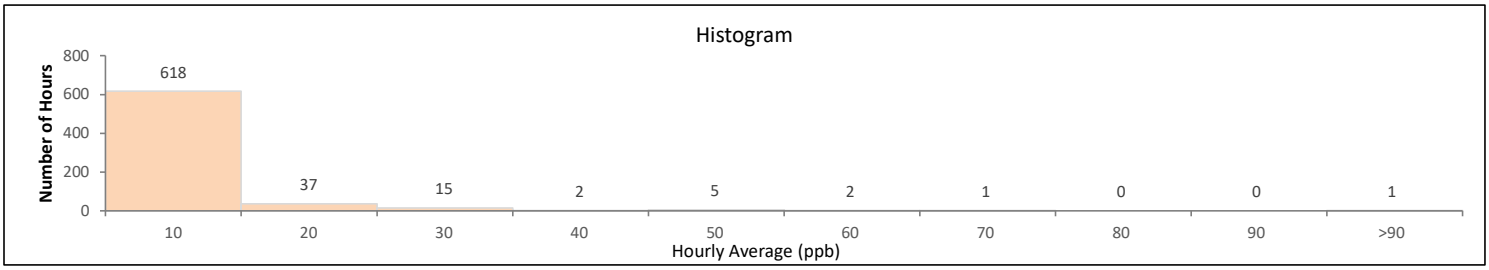
Maximum Hourly Value:	114	ppb	on Nov 23 at hr 11	Hours in Service:	720
Maximum Daily Value:	17.7	ppb	on Nov 18	Hours of Data:	681
Minimum Hourly Value:	0	ppb	on Nov 15 at hr 14	Hours of Missing Data:	1
Minimum Daily Value:	1.4	ppb	on Nov 8	Hours of Calibration:	38
Monthly Average:	5.1	ppb		Operational 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			
Nov 1	1	2	4	7	8	17	19	22	17	14	7	S	3	2	2	1	2	3	3	5	5	4	4	2	1	22	6.7
Nov 2	2	2	2	4	6	6	9	13	18	24	S	12	4	3	2	2	3	3	3	3	2	2	2	2	2	24	5.6
Nov 3	1	1	1	1	1	2	2	2	2	S	2	1	1	2	2	3	2	2	3	3	3	2	2	2	1	3	1.9
Nov 4	3	4	4	7	7	5	NRM	10	S	2	2	2	2	2	3	2	2	2	2	2	2	2	1	2	1	10	3.2
Nov 5	2	2	2	2	2	3	3	S	4	3	3	2	2	2	2	2	2	1	2	3	3	3	3	2	1	4	2.4
Nov 6	2	3	2	2	2	2	S	3	4	2	2	2	2	2	2	3	3	2	2	1	2	1	2	1	1	4	2.1
Nov 7	1	1	1	1	1	S	1	1	1	1	1	2	1	1	1	1	3	3	2	2	3	3	2	2	1	3	1.6
Nov 8	2	2	2	1	S	1	1	1	2	1	1	1	1	1	1	1	1	2	2	1	2	2	2	1	1	2	**1.4**
Nov 9	1	2	1	S	2	4	6	9	13	12	10	8	7	5	4	4	4	13	23	12	6	3	2	2	1	23	6.7
Nov 10	2	3	S	2	2	2	2	3	4	3	2	2	2	1	1	1	2	2	4	2	2	2	4	4	1	4	2.3
Nov 11	1	S	1	1	1	1	1	2	2	2	2	C	C	C	C	C	C	C	7	9	5	6	15	16	1	16	NA
Nov 12	S	7	4	4	3	3	4	2	2	2	1	2	1	1	1	1	2	3	4	4	4	6	21	S	1	21	3.7
Nov 13	25	21	27	20	19	15	4	2	2	2	2	2	2	3	2	2	6	6	21	11	7	5	S	4	2	27	9.1
Nov 14	1	2	2	1	1	1	2	1	2	2	2	2	1	1	1	3	2	4	5	4	5	S	10	13	1	13	3.0
Nov 15	22	15	5	4	8	5	3	2	4	3	1	1	1	1	0	1	1	4	4	5	S	5	5	4	**0**	22	4.5
Nov 16	3	5	4	4	4	3	6	8	7	9	4	6	6	6	4	4	4	6	6	S	6	5	4	3	3	9	5.1
Nov 17	3	3	2	2	3	3	3	3	4	3	4	3	3	2	2	2	5	11	S	17	28	21	20	15	2	28	7.0
Nov 18	18	23	40	27	14	17	44	50	50	54	11	5	4	4	5	5	10	S	7	5	5	4	3	3	3	54	**17.7**
Nov 19	2	2	2	2	2	4	2	2	8	3	4	7	4	4	8	6	S	6	5	5	5	5	6	4	2	8	4.3
Nov 20	1	1	1	1	1	0	0	0	0	0	1	0	0	1	2	S	2	2	2	4	5	4	4	5	**0**	5	1.6
Nov 21	6	6	13	11	12	11	3	2	3	2	6	1	2	2	S	6	5	6	5	4	2	1	1	0	**0**	13	4.8
Nov 22	0	1	1	1	1	1	1	2	4	2	22	31	24	S	5	2	3	3	4	3	2	0	1	0	**0**	31	5.0
Nov 23	0	1	0	0	0	0	1	1	5	10	43	**114**	S	13	17	63	18	4	4	5	6	5	4	4	**0**	**114**	13.8
Nov 24	4	5	7	5	5	5	5	20	50	58	9	S	7	9	7	8	8	9	9	7	6	5	5	5	4	58	11.2
Nov 25	4	4	3	2	3	3	4	6	4	3	S	3	2	1	1	1	0	2	4	4	4	4	4	4	**0**	6	3.0
Nov 26	4	3	8	6	4	3	4	4	3	S	3	3	3	5	5	2	2	1	1	2	3	5	5	3	1	8	3.6
Nov 27	2	3	2	2	2	7	6	10	S	12	8	8	9	8	7	8	9	8	9	9	7	6	5	5	2	12	6.6
Nov 28	4	4	4	3	3	4	3	S	4	4	4	4	3	3	3	5	4	5	4	3	3	3	5	5	3	5	3.8
Nov 29	6	6	6	6	4	5	S	4	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	2.4
Nov 30	1	1	1	1	1	S	2	3	4	4	4	4	2	1	1	2	3	6	6	7	7	12	8	4	1	12	3.7
Diurnal Maximum	25	23	40	27	19	17	44	50	50	58	43	114	24	13	17	63	18	13	23	17	28	21	21	16			
Diurnal Average	4.3	4.7	5.2	4.5	4.2	4.8	5.2	6.7	8.1	8.5	5.8	8.5	3.6	3.1	3.3	5.1	3.9	4.3	5.3	4.9	4.9	4.4	5.2	4.1			

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.



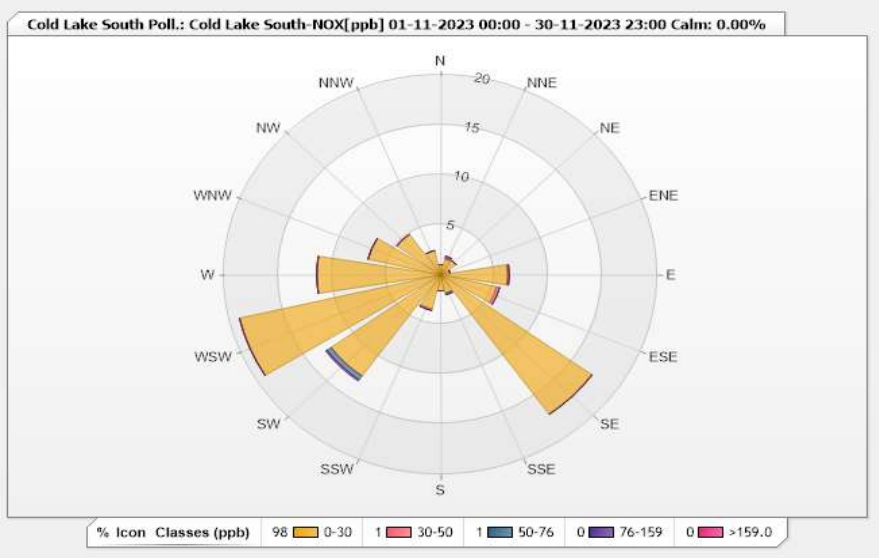


Station: Cold Lake South Poll.: Cold Lake South-NOX[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 94.58% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	1.03	0	0	0	0	1.03
NNE	1.62	0.15	0.15	0	0	1.92
NE	1.76	0	0	0	0	1.76
ENE	0.88	0	0	0	0	0.88
E	6.17	0.15	0	0	0	6.32
ESE	5.29	0.29	0	0	0	5.58
SE	17.18	0	0	0	0	17.18
SSE	1.91	0	0.15	0	0	2.06
S	1.62	0	0	0	0	1.62
SSW	3.52	0.15	0	0	0	3.67
SW	12.48	0	0.44	0.15	0	13.07
WSW	19.09	0	0	0	0	19.09
W	11.45	0	0	0	0	11.45
WNW	6.9	0	0	0	0	6.9
NW	4.99	0	0	0	0	4.99
NNW	2.5	0	0	0	0	2.5
Summary	98.39	0.74	0.74	0.15	0	100



Lakeland Industry & Community Association

Cold Lake South Station - November 2023

Summary of Hourly Averages

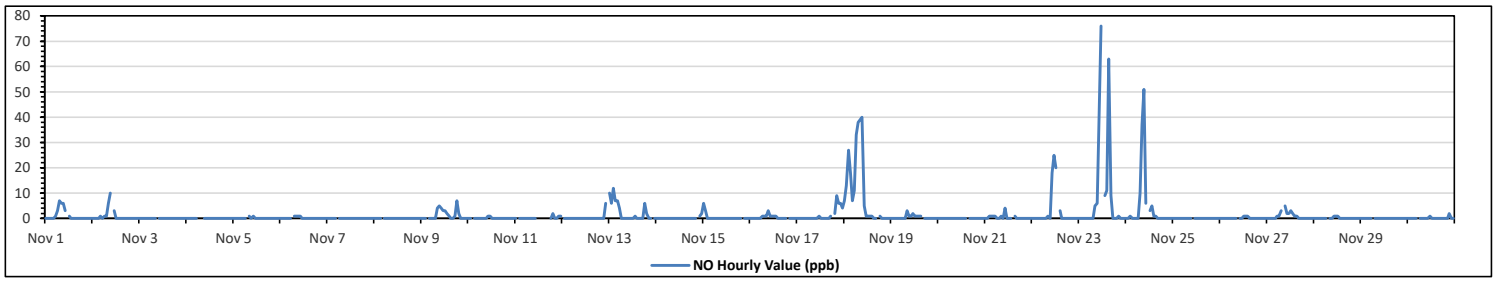
NITRIC OXIDE (NO) in ppb

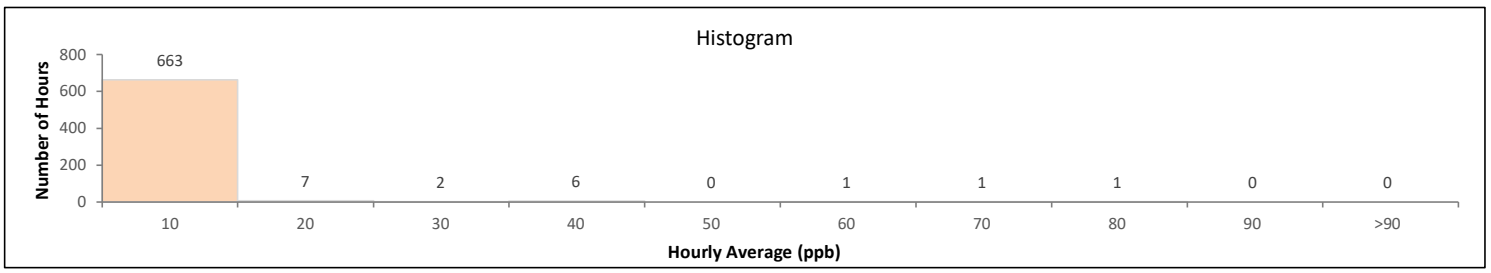
Maximum Hourly Value:	76	ppb	on Nov 23 at hr 11	Hours in Service:	720	
Maximum Daily Value:	10.6	ppb	on Nov 18	Hours of Data:	681	
Minimum Hourly Value:	0	ppb	on Nov 1 at hr 0	Hours of Missing Data:	1	
Minimum Daily Value:	0.0	ppb	on Nov 3	Hours of Calibration:	38	
Monthly Average:	1.3	ppb		Operational 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			
Nov 1	0	0	0	0	0	1	3	7	6	6	3	S	1	0	0	0	0	0	0	0	0	0	0	0	0	7	1.2
Nov 2	0	0	0	0	1	0	1	1	6	10	S	3	0	0	0	0	0	0	0	0	0	0	0	0	0	10	1.0
Nov 3	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
Nov 4	0	0	0	0	0	0	NRM	2	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1
Nov 5	0	0	0	0	0	0	0	S	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Nov 6	0	0	0	0	0	0	S	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2
Nov 7	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	0.0
Nov 8	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	0	0.0
Nov 9	0	0	0	S	0	0	0	0	4	5	4	3	3	2	1	0	0	1	7	2	0	0	0	0	0	7	1.4
Nov 10	0	0	S	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Nov 11	0	S	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	C	0	2	0	0	1	1	0	2	NA
Nov 12	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	S	0	6	0.3
Nov 13	10	6	12	7	7	4	0	0	0	0	0	0	0	1	0	0	0	0	6	2	0	0	S	0	0	12	2.4
Nov 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	2	0	2	0.1
Nov 15	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	6	0.4
Nov 16	0	0	0	0	0	0	1	1	1	3	1	1	1	1	0	0	0	0	0	S	0	0	0	0	0	3	0.4
Nov 17	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	S	2	9	6	6	4	0	9	1.3
Nov 18	7	13	27	18	7	11	33	38	39	40	5	1	1	1	1	0	0	S	1	0	0	0	0	0	0	40	10.6
Nov 19	0	0	0	0	0	0	0	0	3	1	1	2	1	1	1	1	S	0	0	0	0	0	0	0	0	3	0.5
Nov 20	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
Nov 21	0	0	1	1	1	1	0	0	1	0	4	0	0	0	S	1	0	0	0	0	0	0	0	0	0	4	0.4
Nov 22	0	0	0	0	0	0	0	0	1	0	18	25	20	S	3	0	0	0	0	0	0	0	0	0	0	25	2.9
Nov 23	0	0	0	0	0	0	0	0	5	6	35	76	S	9	11	63	9	0	0	0	1	0	0	0	0	76	9.3
Nov 24	0	0	1	0	0	0	0	10	37	51	6	S	3	5	1	1	0	0	0	0	0	0	0	0	0	51	5.0
Nov 25	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	0.0
Nov 26	0	0	0	0	0	0	0	0	0	S	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.1
Nov 27	0	0	0	0	0	1	1	3	S	5	2	2	3	2	1	1	0	0	0	0	0	0	0	0	0	5	0.9
Nov 28	0	0	0	0	0	0	0	S	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Nov 29	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	0.0
Nov 30	0	0	0	0	0	S	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0.1
Diurnal Maximum	10	13	27	18	7	11	33	38	39	51	35	76	20	9	11	63	9	1	7	2	9	6	6	4			
Diurnal Average	0.8	0.8	1.4	0.9	0.6	0.6	1.4	2.3	3.8	4.6	3.0	4.3	1.3	0.8	0.7	2.4	0.3	0.1	0.5	0.3	0.3	0.3	0.5	0.2			

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.



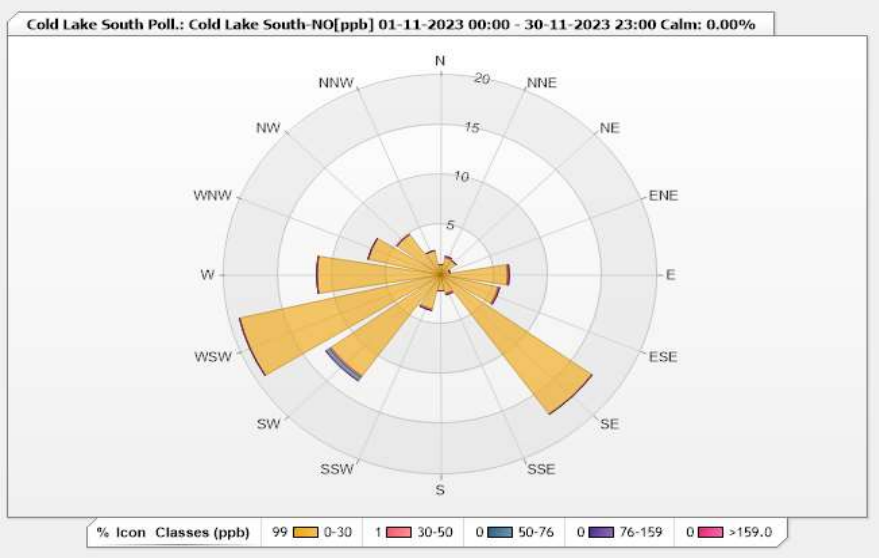


Station: Cold Lake South Poll.: Cold Lake South-NO[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 94.58% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	1.03	0	0	0	0	1.03
NNE	1.76	0.15	0	0	0	1.91
NE	1.76	0	0	0	0	1.76
ENE	0.88	0	0	0	0	0.88
E	6.17	0.15	0	0	0	6.32
ESE	5.43	0.15	0	0	0	5.58
SE	17.18	0	0	0	0	17.18
SSE	1.91	0.15	0	0	0	2.06
S	1.62	0	0	0	0	1.62
SSW	3.52	0.15	0	0	0	3.67
SW	12.48	0.15	0.44	0	0	13.07
WSW	19.09	0	0	0	0	19.09
W	11.45	0	0	0	0	11.45
WNW	6.9	0	0	0	0	6.9
NW	4.99	0	0	0	0	4.99
NNW	2.5	0	0	0	0	2.5
Summary	98.67	0.9	0.44	0	0	100



Lakeland Industry & Community Association

Cold Lake South Station - November 2023

Summary of Hourly Averages

NITROGEN DIOXIDE (NO_2) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb

Number of 1-Hour Exceedances: 0

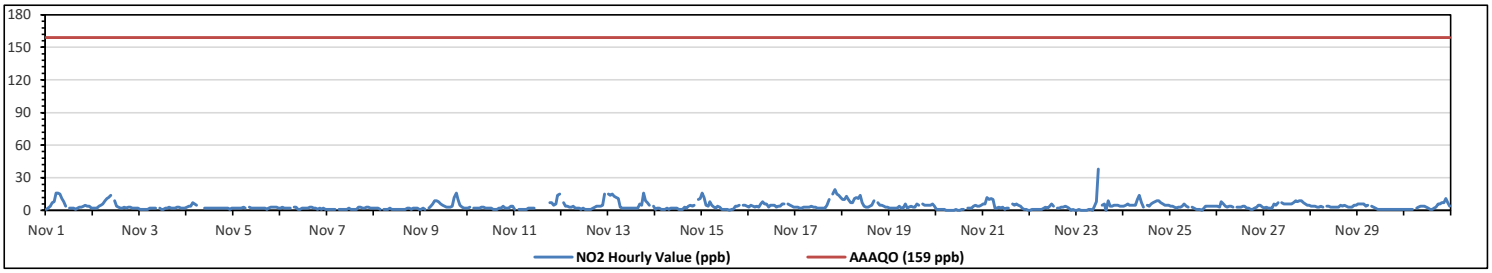
Maximum Hourly Value:	38	ppb	on Nov 23 at hr 11	Hours in Service:	720
Maximum Daily Value:	7.3	ppb	on Nov 18	Hours of Data:	681
Minimum Hourly Value:	0	ppb	on Nov 15 at hr 14	Hours of Missing Data:	1
Minimum Daily Value:	1.4	ppb	on Nov 8	Hours of Calibration:	38
Monthly Average:	3.8	ppb		Operational Uptime:	99.9

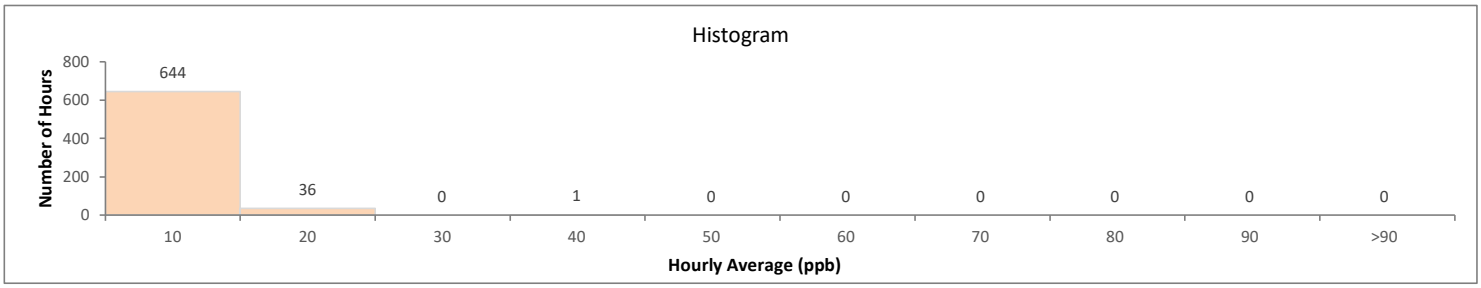
Day	Hourly Period Starting at (MST)																						Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Nov 1	1	2	4	7	8	16	16	15	11	8	4	S	2	2	2	1	2	3	3	4	5	4	4	2	1	16	5.5
Nov 2	2	2	2	4	5	6	9	11	12	14	S	9	4	3	2	2	3	2	3	3	2	2	2	2	2	14	4.6
Nov 3	1	1	1	1	1	2	2	2	2	S	2	1	1	2	2	3	2	2	2	3	3	2	2	2	1	3	1.8
Nov 4	3	4	4	7	6	5	NRM	7	S	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	7	3.0
Nov 5	2	2	2	2	2	3	2	S	3	2	2	2	2	2	2	2	2	1	2	3	3	3	3	2	1	3	2.2
Nov 6	2	3	2	2	2	2	S	3	3	1	1	2	2	2	2	3	3	2	2	1	2	1	2	1	1	3	2.0
Nov 7	1	1	1	1	1	S	1	1	1	1	1	2	1	1	1	1	3	3	2	2	3	3	2	2	1	3	1.6
Nov 8	2	2	2	1	S	1	1	1	2	1	1	1	1	1	1	1	1	2	2	1	2	2	2	1	1	2	1.4
Nov 9	1	2	1	S	2	4	6	9	9	8	6	5	4	3	3	3	4	12	16	10	5	3	2	2	1	16	5.2
Nov 10	2	3	S	2	2	2	2	3	3	2	2	2	2	1	1	1	2	2	4	2	2	2	4	4	1	4	2.3
Nov 11	1	S	1	1	1	1	1	2	2	2	2	C	C	C	C	C	C	C	7	7	5	6	14	15	1	15	NA
Nov 12	S	7	4	4	3	3	4	2	2	2	1	2	1	1	1	1	2	3	4	4	4	5	15	S	1	15	3.4
Nov 13	15	14	15	13	12	11	3	2	2	2	2	2	2	2	2	2	6	5	16	9	7	5	S	4	2	16	6.7
Nov 14	1	2	2	1	1	1	2	1	2	2	2	2	1	1	1	3	2	4	5	4	5	S	10	11	1	11	2.9
Nov 15	16	12	5	4	8	5	3	2	4	3	1	1	1	1	0	1	1	4	4	5	S	5	5	4	0	16	4.1
Nov 16	3	5	4	3	4	3	6	8	6	6	3	5	5	5	3	4	4	6	6	S	6	5	4	3	3	8	4.7
Nov 17	3	3	2	2	3	3	3	3	4	3	3	2	2	2	2	2	5	10	S	15	19	15	14	12	2	19	5.7
Nov 18	10	10	13	10	7	7	11	12	11	14	7	4	3	3	4	5	9	S	7	5	5	4	3	3	3	14	7.3
Nov 19	2	2	2	2	2	4	2	2	6	2	3	4	3	3	6	5	S	6	5	5	5	5	6	4	2	6	3.7
Nov 20	1	1	1	1	1	0	0	0	0	0	1	0	0	1	1	S	2	2	2	4	5	4	4	5	0	5	1.6
Nov 21	6	6	12	10	11	10	2	2	3	2	3	1	2	2	S	6	5	6	5	4	2	1	1	0	0	12	4.4
Nov 22	0	1	1	1	1	1	1	2	3	2	4	6	4	S	2	2	3	3	4	3	2	0	1	0	0	6	2.0
Nov 23	0	1	0	0	0	0	1	1	0	4	8	38	S	5	6	0	9	4	4	5	5	5	4	4	0	38	4.5
Nov 24	4	5	6	5	5	5	5	10	14	7	3	S	5	4	6	7	8	9	9	7	6	5	5	5	3	14	6.3
Nov 25	4	4	3	2	3	3	4	6	4	3	S	3	2	1	1	1	0	2	4	4	4	4	4	4	0	6	3.0
Nov 26	4	3	8	6	4	3	4	4	3	S	3	3	3	4	4	2	2	1	1	2	3	5	5	3	1	8	3.5
Nov 27	2	3	2	2	2	6	5	7	S	7	6	6	6	6	6	7	9	8	9	9	7	6	5	5	2	9	5.7
Nov 28	4	4	4	3	3	4	3	S	4	4	3	3	3	3	3	5	4	5	4	3	3	3	5	5	3	5	3.7
Nov 29	6	6	6	6	4	5	S	4	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	2.4
Nov 30	1	1	1	1	1	S	2	3	4	4	4	3	2	1	1	2	3	6	6	7	7	11	7	4	1	11	3.6
Diurnal Maximum	16	14	15	13	12	16	16	15	14	14	8	38	6	6	6	7	9	12	16	15	19	15	15	15			
Diurnal Average	3.4	3.9	3.8	3.6	3.6	4.1	3.7	4.5	4.4	3.9	2.9	4.1	2.4	2.3	2.4	2.7	3.5	4.1	4.9	4.6	4.5	4.1	4.7	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	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.



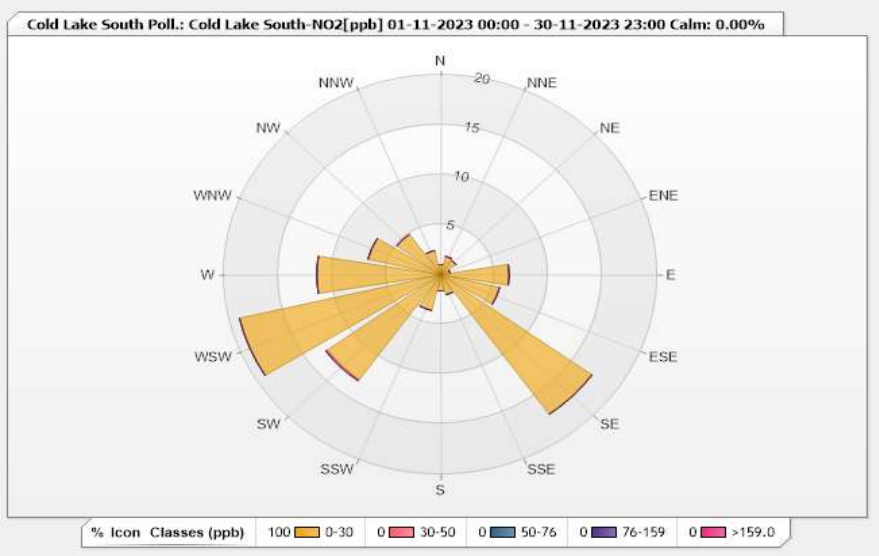


Station: Cold Lake South Poll.: Cold Lake South-NO2[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 94.58% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	1.03	0	0	0	0	1.03
NNE	1.91	0	0	0	0	1.91
NE	1.76	0	0	0	0	1.76
ENE	0.88	0	0	0	0	0.88
E	6.31	0	0	0	0	6.31
ESE	5.58	0	0	0	0	5.58
SE	17.18	0	0	0	0	17.18
SSE	2.06	0	0	0	0	2.06
S	1.62	0	0	0	0	1.62
SSW	3.67	0	0	0	0	3.67
SW	12.92	0.15	0	0	0	13.07
WSW	19.09	0	0	0	0	19.09
W	11.45	0	0	0	0	11.45
WNW	6.9	0	0	0	0	6.9
NW	4.99	0	0	0	0	4.99
NNW	2.5	0	0	0	0	2.5
Summary	100	0.15	0	0	0	100



Lakeland Industry & Community Association

Cold Lake South Station - November 2023

Summary of Hourly Averages

OZONE (O_3) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb

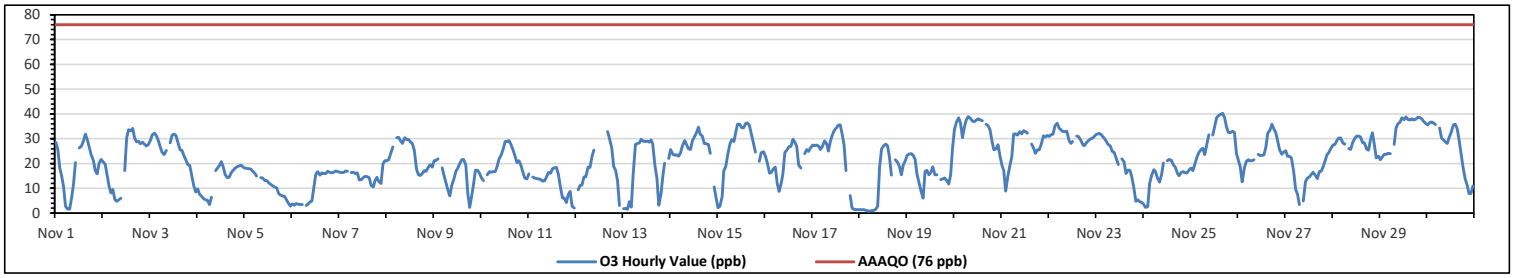
Number of 1-Hour Exceedances: 0

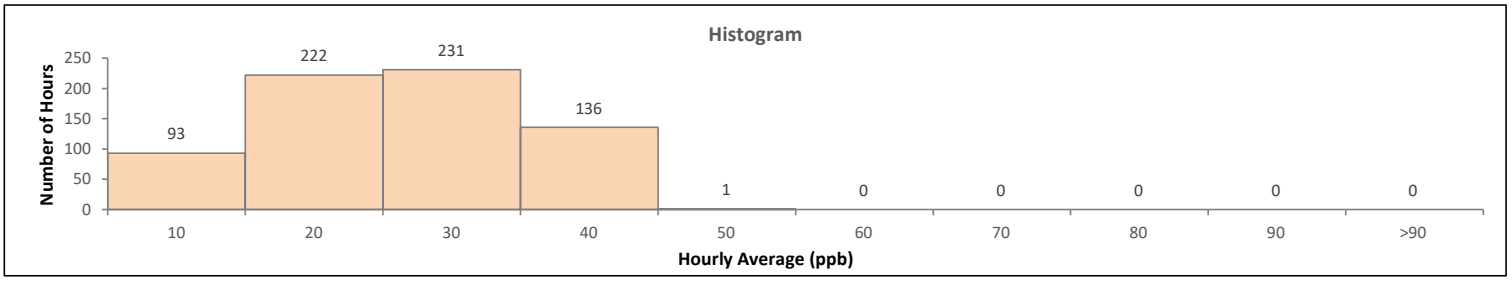
Maximum Hourly Value:	40.3	ppb	on Nov 25 at hr 16	Hours in Service:	720
Maximum Daily Value:	34.2	ppb	on Nov 20	Hours of Data:	683
Minimum Hourly Value:	0.9	ppb	on Nov 18 at hr 4	Hours of Missing Data:	0
Minimum Daily Value:	10.6	ppb	on Nov 6	Hours of Calibration:	37
Monthly Average:	21.2	ppb		Operational 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			
Nov 1	28.5	25.7	18.3	15	10.5	2.9	1.7	1.7	6.1	11.7	20.3	S	26.3	27.1	29.1	31.8	29.6	26.6	23.6	21.3	17.2	15.8	20.1	21.7	1.7	31.8	18.8
Nov 2	20.7	19.7	15.3	11	8.1	9.5	5.5	4.8	5.3	6	S	17.1	30.3	33.7	33.1	34.2	30.3	28.7	29	28	28.6	27.7	27	27.8	4.8	34.2	20.9
Nov 3	29.2	31.6	32.3	31.2	29.3	26.6	24.5	23.6	25.2	S	28.4	31.5	31.8	31.3	28.6	25.6	25.3	23.2	21.5	19.6	19.3	14.8	10.9	8.5	8.5	32.3	24.9
Nov 4	9.8	7.5	6.8	5.7	5.3	5.1	3.4	6.4	S	17.1	18.2	19.2	20.7	18.6	15.5	14.3	14.6	16.3	17.3	18.1	18.7	19.1	19.3	18.6	3.4	20.7	13.7
Nov 5	18.2	18	17.9	17.8	16.8	16	15	S	14.3	14.1	13.2	13.1	12.3	11.6	11.1	10.6	10.2	8	7.3	7	6.9	5.5	3.9	2.8	2.8	18.2	11.8
Nov 6	3.7	3.1	3.9	3.5	3.4	3.4	S	3	3.7	4.5	4.9	11.3	15.6	16.8	15.3	16.2	16	15.9	16.9	16.5	16.2	16.5	17	16.8	3.0	17.0	**10.6**
Nov 7	16.5	16.3	16.4	17	16.9	S	16.4	16.5	15.9	16.2	13.5	13.6	14.3	14.8	14.7	14.3	11.3	10.5	13	14.4	12.7	11.9	19.9	21.1	10.5	21.1	15.1
Nov 8	21.1	21.5	24	26.7	S	30.5	30.6	29.1	28.1	30.5	29.6	29.6	28.7	28	25.2	17.7	15.5	15.2	15.9	17.2	16.9	18.6	19.6	18.6	15.2	30.6	23.4
Nov 9	21.2	21.3	22	S	18.3	15.1	12.2	9.3	7	11.3	13.9	16.9	18.2	20	21.5	21.7	19.3	8.1	2.3	6.7	11.5	17.3	17.3	15.9	2.3	22.0	15.1
Nov 10	14.1	13.1	S	15.5	16.8	16.5	16.8	16.7	18.9	21.9	23.6	26.1	28.8	28.9	29.3	27.8	25.3	22.8	20.3	21.1	19.4	16.6	14.1	13.7	13.1	29.3	20.4
Nov 11	15.8	S	14.6	14.2	13.9	13.8	13.6	12.9	13	14.5	16.4	16.1	17.9	18.3	18.4	15.7	11	6.2	6	4.3	7.4	8.8	2.9	2.1	2.1	18.4	12.1
Nov 12	S	9.4	11.3	11.4	14.5	14.7	18.6	18.4	22.7	25.4	C	C	C	C	C	C	32.9	30.1	26.3	18.8	17.3	13.1	3	S	3.0	32.9	NA
Nov 13	1.8	1.9	1.5	4.7	2.4	15.8	27.7	28.1	28.3	29.8	29	28.9	29	28.6	29.5	27.9	19.1	14.3	3.2	7.8	15.3	20.1	S	22.1	1.5	29.8	18.1
Nov 14	25.7	23.7	23.3	23.6	23	24.3	27.2	29.3	27.6	26.1	25.7	29.1	30.7	32.6	34.7	31.8	31.1	28.2	28	27.7	24.1	S	10.5	6.1	6.1	34.7	25.8
Nov 15	2.2	2.9	6.7	17	18.7	24	27.8	29.7	28.8	32.2	35.9	35.9	34.5	34.4	36.3	36.4	35.5	31.4	28.2	24.6	S	20.9	24.3	24.7	2.2	36.4	25.8
Nov 16	23.1	20.3	16.1	16.4	17.7	18.6	12.1	8.8	12.2	16.1	24.4	25.4	26.8	26.9	29.8	28.6	26.9	19.5	18.2	S	24	25.7	24.8	26.3	8.8	29.8	21.2
Nov 17	27.5	27.2	27.4	27	25.7	26.8	29.1	28.2	25	28.9	31.4	33.2	34.5	35.4	35.6	31.8	27.4	17.2	S	7.1	2.1	1.5	1.4	1.4	1.4	35.6	23.2
Nov 18	1.4	1.3	1.4	1.1	0.9	0.9	1	1.1	1.5	2.8	18.5	25.8	27.1	27.9	27	22.4	15.4	S	21.6	20.5	18.8	15.5	19.5	21	**0.9**	27.9	12.8
Nov 19	23.3	23.9	24	23.3	21.7	15.6	12.4	9.2	6	16.7	17.3	15.5	16.4	18.7	15.5	15.5	S	13.6	13.7	14.1	13.1	11.7	15.5	26.3	6.0	26.3	16.7
Nov 20	33.8	36.7	38.5	36.3	30.5	34.7	37.7	39	38.2	37.1	36.9	37.5	38	37.7	37.2	S	35.9	35.2	33.6	29.2	25.5	25.9	27.6	23.2	23.2	39.0	**34.2**
Nov 21	19.5	17.1	8.9	15.1	19.1	22.5	31.9	32	31.4	32.9	32	33.2	32.9	32.3	S	27.9	26.3	24.2	25.5	25.6	27.7	31.2	30.7	31.3	8.9	33.2	26.6
Nov 22	30.9	31.6	31.9	35.2	36.2	34.3	33.7	32.9	32.9	33	29.3	28.2	28.8	S	31	30.8	29.4	27.6	27.2	28.5	29.2	29.9	30.3	31	27.2	36.2	31.0
Nov 23	31.7	32.1	32	31.1	30	28.8	27.8	27.1	24.9	24.5	22	19.6	S	22	20.6	16	17.4	17.1	14.7	10.6	4.8	5.3	4.6	4.2	4.2	32.1	20.4
Nov 24	3.5	2.3	2.7	12.1	15.2	17.6	16.7	14.3	12.5	15.5	20.2	S	21.1	21.7	21.3	19.5	18.5	16	15.1	16.4	16.7	16.2	16.2	17.4	2.3	21.7	15.2
Nov 25	18.2	17.2	19.8	22.6	24.5	25.5	26.2	23.6	27.3	31.6	S	31.5	34.8	38.4	39.3	39.9	**40.3**	38.6	34.9	32.6	32.5	33	32.6	24.2	17.2	**40.3**	30.0
Nov 26	21.4	18.7	12.6	18.3	20.9	21.6	21.2	21.2	21.5	S	23.8	23.2	23.4	23.5	26.5	32.3	33.5	35.8	34	32.5	29.1	25.5	23.7	24.6	12.6	35.8	24.7
Nov 27	25.1	23	22.8	22.3	16.7	9.6	7.5	3.4	S	4.9	12.7	14.1	14.6	15.6	16.5	15.3	13.9	16.7	16.9	18.7	21	23.5	24.5	26.4	3.4	26.4	16.8
Nov 28	27.4	27.7	29.3	30.4	30.3	28.3	27.9	S	26.1	25.7	28.4	30.2	31	31.1	30.7	28.5	28.4	25.8	25.4	29.7	32.4	27.7	22.3	23	22.3	32.4	28.2
Nov 29	21.6	22.7	23.7	23.8	24.2	24	S	27.7	34.5	36.1	36.7	38.4	37.7	38.9	37.8	37.5	38	37.5	37.9	38.7	38.6	38	37	36.2	21.6	38.9	33.4
Nov 30	35.6	36.5	36.8	36.4	35.7	S	34.3	30.3	29.5	28.7	28.1	30.6	32.9	35.6	35.8	34.1	29.4	24.1	18.7	13.7	11.4	7.8	7.9	11	7.8	36.8	27.2
Diurnal Maximum	35.6	36.7	38.5	36.4	36.2	34.7	37.7	39.0	38.2	37.1	36.9	38.4	38.0	38.9	39.3	39.9	40.3	38.6	37.9	38.7	38.6	38.0	37.0	36.2			
Diurnal Average	19.7	19.1	18.7	19.5	18.9	18.8	20.0	18.9	20.3	21.3	23.5	25.0	26.4	26.8	26.7	25.2	24.4	21.9	20.6	19.7	19.3	18.8	18.2	18.9			

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance	
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance	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.



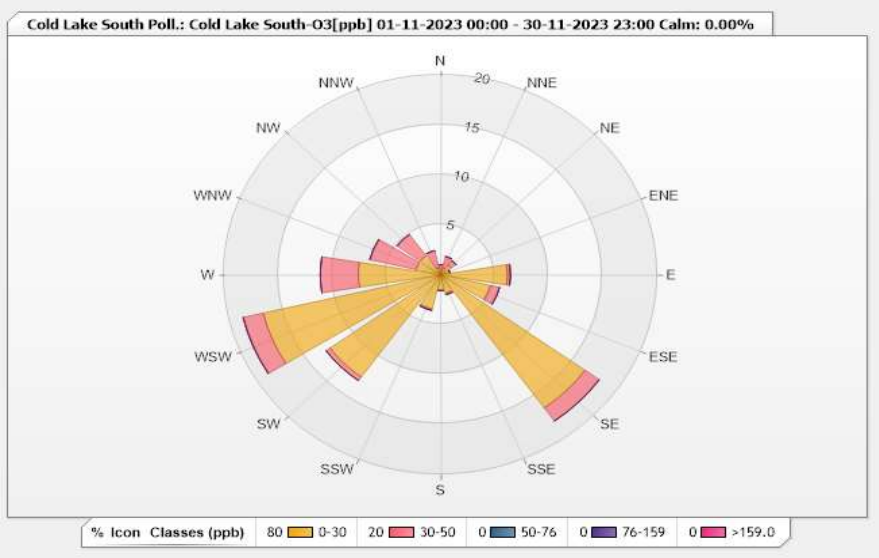


Station: Cold Lake South Poll.: Cold Lake South-O3[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 94.86% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	0.29	0.73	0	0	0	1.02
NNE	0.73	1.17	0	0	0	1.9
NE	1.17	0.59	0	0	0	1.76
ENE	0.88	0	0	0	0	0.88
E	6.15	0.29	0	0	0	6.44
ESE	4.69	0.88	0	0	0	5.57
SE	16.4	1.61	0	0	0	18.01
SSE	1.9	0.15	0	0	0	2.05
S	1.61	0	0	0	0	1.61
SSW	3.51	0.15	0	0	0	3.66
SW	12.59	0.44	0	0	0	13.03
WSW	16.84	1.9	0	0	0	18.74
W	7.61	3.51	0	0	0	11.12
WNW	2.34	4.39	0	0	0	6.73
NW	2.34	2.64	0	0	0	4.98
NNW	0.73	1.76	0	0	0	2.49
Summary	79.78	20.21	0	0	0	100



Lakeland Industry & Community Association

Cold Lake South Station - November 2023

Summary of Hourly Averages

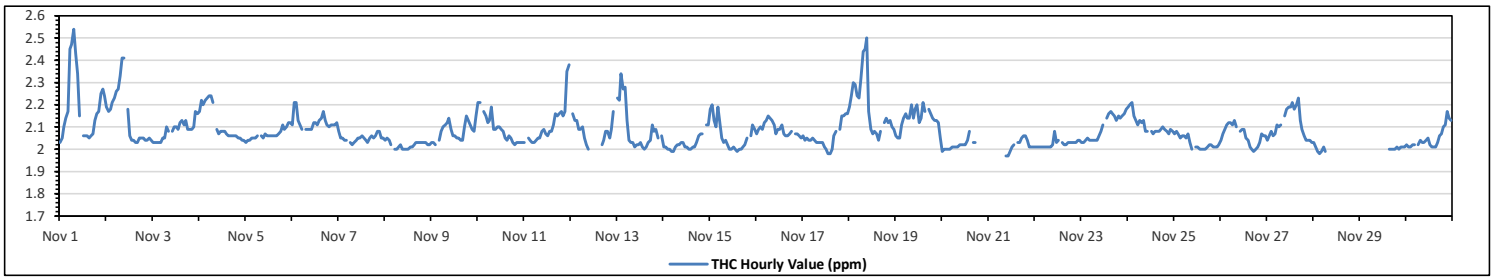
TOTAL HYDROCARBONS (THC) in ppm

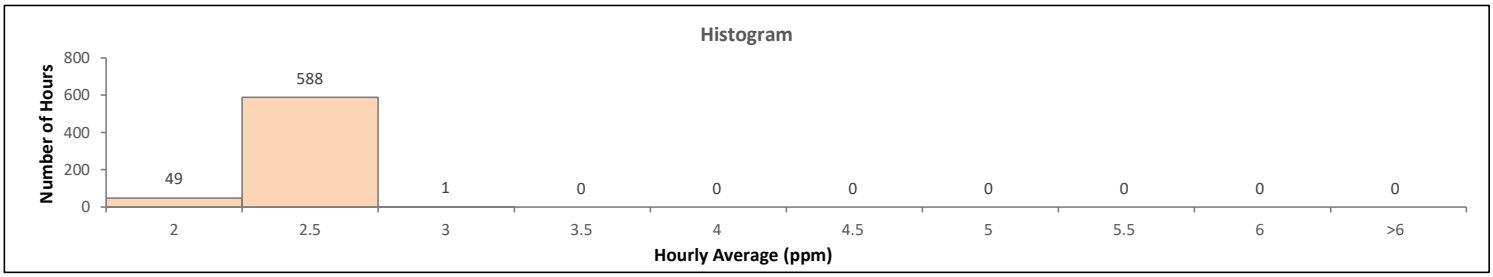
Maximum Hourly Value:	2.54	ppm	on Nov 1 at hr 7	Hours in Service:	720
Maximum Daily Value:	2.20	ppm	on Nov 18	Hours of Data:	638
Minimum Hourly Value:	1.97	ppm	on Nov 21 at hr 9	Hours of Missing Data:	46
Minimum Daily Value:	2.02	ppm	on Nov 8	Hours of Calibration:	36
Monthly Average:	2.08	ppm		Operational Uptime:	93.6

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			
Nov 1	2.03	2.05	2.10	2.14	2.17	2.45	2.47	**2.54**	2.43	2.34	2.15	S	2.06	2.06	2.06	2.05	2.06	2.07	2.13	2.16	2.17	2.25	2.27	2.24	2.03	**2.54**	2.19
Nov 2	2.19	2.17	2.18	2.21	2.23	2.26	2.27	2.33	2.41	2.41	S	2.18	2.06	2.04	2.04	2.03	2.03	2.05	2.05	2.05	2.04	2.04	2.05	2.04	2.03	2.41	2.15
Nov 3	2.03	2.03	2.03	2.03	2.03	2.05	2.05	2.10	2.08	S	2.08	2.10	2.10	2.09	2.12	2.13	2.11	2.13	2.09	2.09	2.09	2.10	2.17	2.16	2.03	2.17	2.09
Nov 4	2.17	2.22	2.20	2.22	2.23	2.24	2.24	2.21	S	2.09	2.07	2.08	2.08	2.08	2.07	2.06	2.06	2.06	2.06	2.06	2.05	2.05	2.04	2.04	2.04	2.24	2.12
Nov 5	2.03	2.04	2.04	2.05	2.05	2.05	2.06	S	2.06	2.05	2.07	2.06	2.06	2.06	2.06	2.06	2.06	2.07	2.08	2.11	2.09	2.10	2.12	2.12	2.03	2.12	2.07
Nov 6	2.11	2.21	2.21	2.13	2.11	2.09	S	2.09	2.09	2.09	2.09	2.12	2.12	2.11	2.13	2.14	2.17	2.13	2.11	2.10	2.11	2.11	2.11	2.12	2.09	2.21	2.12
Nov 7	2.08	2.05	2.05	2.04	2.04	S	2.03	2.02	2.03	2.04	2.05	2.05	2.06	2.05	2.04	2.03	2.05	2.06	2.05	2.06	2.08	2.08	2.05	2.05	2.02	2.08	2.05
Nov 8	2.04	2.05	2.04	2.02	S	2.00	2.00	2.01	2.02	2.00	2.00	2.00	2.00	2.01	2.01	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.02	2.02	2.00	2.05	2.02
Nov 9	2.03	2.03	2.02	S	2.04	2.08	2.10	2.11	2.12	2.14	2.09	2.06	2.06	2.05	2.05	2.04	2.04	2.10	2.15	2.13	2.11	2.09	2.08	2.15	2.02	2.15	2.08
Nov 10	2.21	2.21	S	2.17	2.15	2.12	2.13	2.19	2.09	2.09	2.10	2.10	2.09	2.08	2.05	2.04	2.06	2.05	2.03	2.02	2.03	2.03	2.03	2.03	2.02	2.21	2.09
Nov 11	2.03	S	2.05	2.04	2.03	2.03	2.04	2.05	2.05	2.08	2.09	2.07	2.06	2.08	2.08	2.11	2.16	2.15	2.16	2.17	2.15	2.17	2.35	2.38	2.03	2.38	2.11
Nov 12	S	2.16	2.13	2.13	2.09	2.09	2.10	2.05	2.02	2.00	C	C	C	C	C	C	2.02	2.04	2.08	2.08	2.05	2.09	2.17	S	2.00	2.17	NA
Nov 13	2.23	2.22	2.34	2.27	2.28	2.13	2.04	2.03	2.03	2.01	2.02	2.02	2.03	2.01	2.00	2.01	2.03	2.04	2.11	2.08	2.09	2.05	S	2.06	2.00	2.34	2.09
Nov 14	2.01	2.01	2.00	2.00	1.99	1.99	2.01	2.02	2.02	2.03	2.03	2.01	2.01	2.00	2.00	2.01	2.01	2.03	2.06	2.07	2.07	S	2.11	2.11	1.99	2.11	2.03
Nov 15	2.18	2.20	2.13	2.10	2.19	2.12	2.05	2.03	2.04	2.02	2.00	2.00	2.01	2.00	1.99	2.00	2.00	2.01	2.02	2.05	S	2.06	2.11	2.09	1.99	2.20	2.06
Nov 16	2.07	2.09	2.10	2.09	2.12	2.13	2.15	2.14	2.13	2.11	2.07	2.09	2.09	2.11	2.07	2.06	2.06	2.07	2.08	S	2.07	2.07	2.06	2.05	2.05	2.15	2.09
Nov 17	2.06	2.04	2.05	2.04	2.04	2.05	2.04	2.03	2.03	2.03	2.03	2.01	2.00	1.98	1.98	2.00	2.06	2.08	S	2.09	2.15	2.15	2.16	2.16	1.98	2.16	2.05
Nov 18	2.19	2.24	2.30	2.29	2.24	2.23	2.32	2.44	2.45	2.50	2.17	2.09	2.07	2.08	2.07	2.04	2.08	S	2.12	2.14	2.12	2.13	2.10	2.09	2.04	2.50	**2.20**
Nov 19	2.06	2.05	2.05	2.11	2.14	2.16	2.14	2.14	2.20	2.14	2.18	2.20	2.12	2.14	2.21	2.17	S	2.18	2.16	2.14	2.13	2.13	2.12	2.05	2.05	2.21	2.14
Nov 20	1.99	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.01	2.02	2.02	2.02	2.02	2.04	2.08	S	2.03	2.03	X	X	X	X	X	X	1.99	2.08	NA
Nov 21	X	X	X	X	X	X	X	X	X	1.97	1.97	1.99	2.01	2.02	S	2.03	2.03	2.05	2.06	2.06	2.04	2.01	2.01	2.01	1.97	2.06	NA
Nov 22	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.02	2.08	2.03	2.04	S	2.03	2.02	2.02	2.03	2.03	2.03	2.03	2.03	2.04	2.04	2.01	2.08	2.02
Nov 23	2.03	2.03	2.04	2.05	2.04	2.04	2.04	2.04	2.04	2.06	2.08	2.11	S	2.14	2.16	2.17	2.16	2.15	2.13	2.15	2.14	2.15	2.16	2.18	2.03	2.18	2.10
Nov 24	2.19	2.20	2.21	2.15	2.13	2.11	2.13	2.12	2.13	2.08	2.08	S	2.08	2.07	2.08	2.08	2.08	2.09	2.10	2.09	2.08	2.07	2.09	2.08	2.07	2.21	2.11
Nov 25	2.07	2.08	2.07	2.05	2.06	2.06	2.05	2.07	2.03	2.00	S	2.01	2.01	2.00	2.00	2.00	2.00	2.01	2.02	2.02	2.01	2.01	2.01	2.02	2.00	2.08	2.03
Nov 26	2.04	2.07	2.09	2.11	2.12	2.12	2.11	2.13	2.10	S	2.08	2.09	2.09	2.05	2.04	2.01	2.00	1.99	2.00	2.01	2.03	2.07	2.06	2.06	1.99	2.13	2.06
Nov 27	2.04	2.06	2.08	2.06	2.07	2.11	2.10	2.11	S	2.15	2.18	2.19	2.19	2.21	2.18	2.20	2.23	2.13	2.09	2.06	2.04	2.04	2.04	2.03	2.03	2.23	2.11
Nov 28	2.03	2.01	1.99	1.98	1.99	2.01	1.99	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1.98	2.03	NA
Nov 29	X	X	X	X	X	X	X	X	X	X	X	NRM	NRM	NRM	NRM	2.00	2.00	2.00	2.00	2.01	2.00	2.01	2.01	2.01	2.00	2.01	NA
Nov 30	2.02	2.01	2.01	2.02	2.02	S	2.02	2.04	2.03	2.03	2.04	2.05	2.02	2.01	2.01	2.01	2.03	2.06	2.07	2.10	2.11	2.17	2.14	2.13	2.01	2.17	2.05
Diurnal Maximum	2.23	2.24	2.34	2.29	2.28	2.45	2.47	2.54	2.45	2.50	2.18	2.20	2.19	2.21	2.21	2.20	2.23	2.18	2.16	2.17	2.17	2.25	2.35	2.38			
Diurnal Average	2.08	2.09	2.09	2.09	2.10	2.11	2.10	2.12	2.11	2.10	2.07	2.07	2.06	2.06	2.06	2.06	2.06	2.07	2.08	2.08	2.08	2.08	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	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.



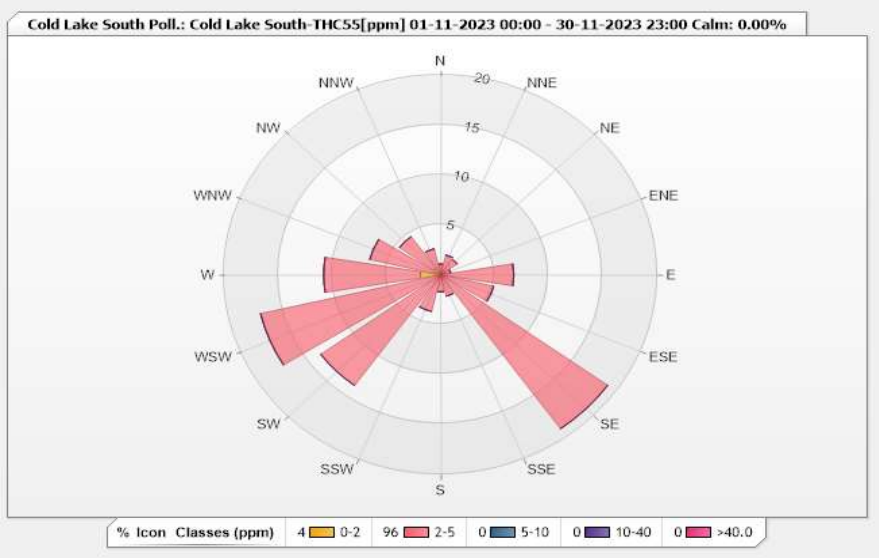


Station: Cold Lake South Poll.: Cold Lake South-THC55[ppm] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 88.61% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	0	1.1	0	0	0	1.1
NNE	0	2.04	0	0	0	2.04
NE	0	1.88	0	0	0	1.88
ENE	0	0.94	0	0	0	0.94
E	0	6.74	0	0	0	6.74
ESE	0.31	4.7	0	0	0	5.01
SE	0.16	18.81	0	0	0	18.97
SSE	0	2.19	0	0	0	2.19
S	0	1.72	0	0	0	1.72
SSW	0	3.76	0	0	0	3.76
SW	0.16	13.48	0	0	0	13.64
WSW	0.16	16.93	0	0	0	17.09
W	1.88	8.93	0	0	0	10.81
WNW	0.47	6.27	0	0	0	6.74
NW	0.78	3.92	0	0	0	4.7
NNW	0.16	2.51	0	0	0	2.67
Summary	4.08	95.92	0	0	0	100



Lakeland Industry & Community Association

Cold Lake South Station - November 2023

Summary of Hourly Averages

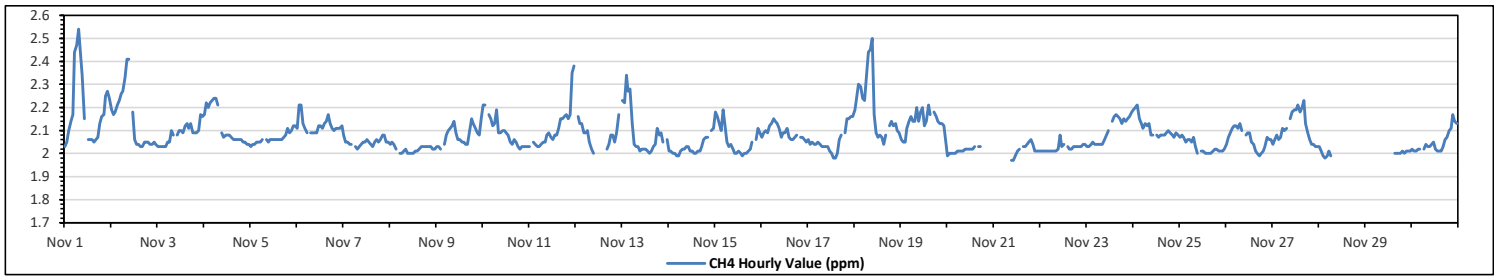
METHANE (CH4) in ppm

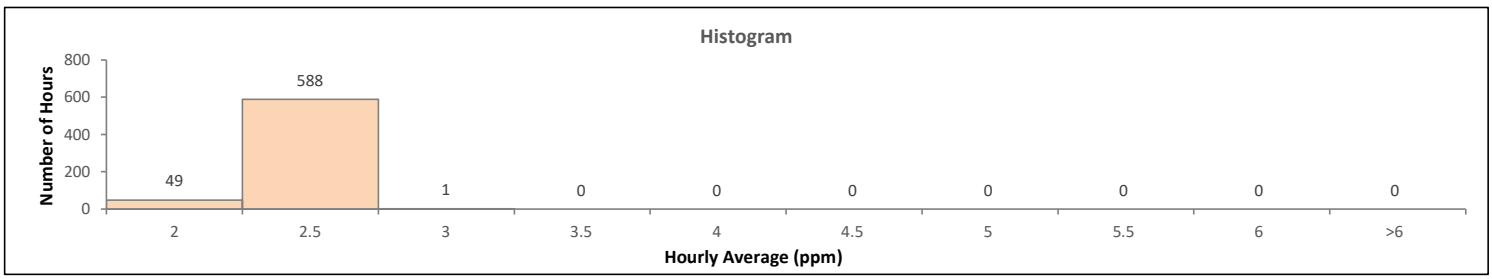
Maximum Hourly Value:	2.54	ppm	on Nov 1 at hr 7	Hours in Service:	720	
Maximum Daily Value:	2.20	ppm	on Nov 18	Hours of Data:	638	
Minimum Hourly Value:	1.97	ppm	on Nov 21 at hr 9	Hours of Missing Data:	46	
Minimum Daily Value:	2.02	ppm	on Nov 8	Hours of Calibration:	36	
Monthly Average:	2.08	ppm		Operational Uptime:	93.6	

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			
Nov 1	2.03	2.05	2.10	2.14	2.17	2.44	2.47	**2.54**	2.43	2.34	2.15	S	2.06	2.06	2.06	2.05	2.06	2.07	2.13	2.16	2.17	2.25	2.27	2.24	2.03	**2.54**	2.19
Nov 2	2.19	2.17	2.18	2.21	2.23	2.26	2.27	2.33	2.41	2.41	S	2.18	2.06	2.04	2.04	2.03	2.03	2.05	2.05	2.05	2.04	2.04	2.05	2.04	2.03	2.41	2.15
Nov 3	2.03	2.03	2.03	2.03	2.03	2.05	2.05	2.10	2.08	S	2.08	2.10	2.10	2.09	2.12	2.13	2.11	2.13	2.09	2.09	2.09	2.10	2.17	2.16	2.03	2.17	2.09
Nov 4	2.17	2.22	2.20	2.22	2.23	2.24	2.24	2.21	S	2.09	2.07	2.08	2.08	2.08	2.07	2.06	2.06	2.06	2.06	2.06	2.05	2.05	2.04	2.04	2.04	2.24	2.12
Nov 5	2.03	2.04	2.04	2.05	2.05	2.05	2.06	S	2.06	2.05	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.07	2.08	2.11	2.09	2.10	2.12	2.12	2.03	2.12	2.07
Nov 6	2.11	2.21	2.21	2.13	2.11	2.09	S	2.09	2.09	2.09	2.09	2.12	2.12	2.11	2.13	2.14	2.17	2.13	2.11	2.10	2.11	2.11	2.11	2.12	2.09	2.21	2.12
Nov 7	2.08	2.05	2.05	2.04	2.04	S	2.03	2.02	2.03	2.04	2.05	2.05	2.06	2.05	2.04	2.03	2.05	2.06	2.05	2.06	2.08	2.08	2.05	2.05	2.02	2.08	2.05
Nov 8	2.04	2.05	2.04	2.02	S	2.00	2.00	2.01	2.02	2.00	2.00	2.00	2.00	2.01	2.01	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.02	2.02	2.00	2.05	2.02
Nov 9	2.03	2.03	2.02	S	2.04	2.08	2.10	2.11	2.12	2.14	2.09	2.06	2.06	2.05	2.05	2.04	2.04	2.10	2.15	2.13	2.11	2.09	2.08	2.15	2.02	2.15	2.08
Nov 10	2.21	2.21	S	2.17	2.15	2.12	2.13	2.19	2.09	2.09	2.10	2.10	2.09	2.08	2.05	2.04	2.06	2.05	2.03	2.02	2.03	2.03	2.03	2.03	2.02	2.21	2.09
Nov 11	2.03	S	2.05	2.04	2.03	2.03	2.04	2.05	2.05	2.08	2.09	2.07	2.06	2.08	2.08	2.11	2.15	2.15	2.16	2.17	2.15	2.17	2.35	2.38	2.03	2.38	2.11
Nov 12	S	2.16	2.13	2.13	2.09	2.09	2.10	2.05	2.02	2.00	C	C	C	C	C	C	2.02	2.04	2.08	2.08	2.05	2.09	2.17	S	2.00	2.17	NA
Nov 13	2.23	2.22	2.34	2.27	2.28	2.13	2.04	2.03	2.03	2.01	2.02	2.02	2.02	2.01	2.00	2.01	2.03	2.04	2.11	2.08	2.09	2.05	S	2.06	2.00	2.34	2.09
Nov 14	2.01	2.01	2.00	2.00	1.99	1.99	2.01	2.02	2.02	2.03	2.03	2.01	2.01	2.00	2.00	2.01	2.01	2.03	2.06	2.07	2.07	S	2.10	2.11	1.99	2.11	2.03
Nov 15	2.18	2.16	2.13	2.10	2.19	2.12	2.05	2.03	2.04	2.02	2.00	2.00	2.01	2.00	1.99	2.00	2.00	2.01	2.02	2.05	S	2.06	2.11	2.09	1.99	2.19	2.06
Nov 16	2.07	2.09	2.10	2.09	2.12	2.13	2.15	2.14	2.13	2.11	2.07	2.09	2.09	2.11	2.07	2.06	2.06	2.07	2.08	S	2.07	2.07	2.06	2.05	2.05	2.15	2.09
Nov 17	2.06	2.04	2.05	2.04	2.04	2.05	2.04	2.03	2.03	2.03	2.03	2.01	2.00	1.98	1.98	2.00	2.06	2.08	S	2.09	2.15	2.15	2.16	2.16	1.98	2.16	2.05
Nov 18	2.19	2.24	2.30	2.29	2.24	2.23	2.32	2.44	2.45	2.50	2.17	2.09	2.07	2.08	2.07	2.04	2.08	S	2.12	2.14	2.12	2.13	2.10	2.09	2.04	2.50	**2.20**
Nov 19	2.06	2.05	2.05	2.11	2.14	2.16	2.14	2.14	2.20	2.14	2.18	2.20	2.12	2.14	2.21	2.17	S	2.18	2.16	2.14	2.13	2.13	2.12	2.05	2.05	2.21	2.14
Nov 20	1.99	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.01	2.02	2.02	2.02	2.02	2.02	2.03	S	2.03	2.03	X	X	X	X	X	X	1.99	2.03	NA
Nov 21	X	X	X	X	X	X	X	X	X	1.97	1.97	1.99	2.01	2.02	S	2.03	2.03	2.04	2.05	2.06	2.04	2.01	2.01	2.01	1.97	2.06	NA
Nov 22	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.02	2.08	2.03	2.04	S	2.03	2.02	2.02	2.03	2.03	2.03	2.03	2.03	2.04	2.04	2.01	2.08	2.02
Nov 23	2.03	2.03	2.04	2.05	2.04	2.04	2.04	2.04	2.04	2.06	2.08	2.10	S	2.14	2.16	2.17	2.16	2.15	2.13	2.15	2.14	2.15	2.16	2.18	2.03	2.18	2.10
Nov 24	2.19	2.20	2.21	2.15	2.13	2.11	2.13	2.12	2.13	2.08	2.08	S	2.08	2.07	2.08	2.08	2.08	2.09	2.10	2.09	2.08	2.07	2.09	2.08	2.07	2.21	2.11
Nov 25	2.07	2.08	2.07	2.05	2.06	2.06	2.05	2.07	2.03	2.00	S	2.01	2.01	2.00	2.00	2.00	2.00	2.01	2.02	2.02	2.01	2.01	2.01	2.02	2.00	2.08	2.03
Nov 26	2.04	2.07	2.09	2.11	2.12	2.12	2.11	2.13	2.10	S	2.08	2.09	2.09	2.05	2.04	2.01	2.00	1.99	2.00	2.01	2.03	2.07	2.06	2.06	1.99	2.13	2.06
Nov 27	2.04	2.06	2.08	2.06	2.07	2.11	2.10	2.11	S	2.15	2.18	2.19	2.19	2.21	2.18	2.20	2.23	2.13	2.09	2.06	2.04	2.04	2.03	2.03	2.03	2.23	2.11
Nov 28	2.03	2.01	1.99	1.98	1.99	2.01	1.99	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1.98	2.03	NA
Nov 29	X	X	X	X	X	X	X	X	X	X	X	NRM	NRM	NRM	NRM	2.00	2.00	2.00	2.00	2.01	2.00	2.01	2.01	2.01	2.00	2.01	NA
Nov 30	2.02	2.01	2.01	2.02	2.02	S	2.02	2.04	2.03	2.03	2.04	2.05	2.02	2.01	2.01	2.01	2.03	2.06	2.07	2.10	2.11	2.17	2.14	2.13	2.01	2.17	2.05
Diurnal Maximum	2.23	2.24	2.34	2.29	2.28	2.44	2.47	2.54	2.45	2.50	2.18	2.20	2.19	2.21	2.21	2.20	2.23	2.18	2.16	2.17	2.17	2.25	2.35	2.38			
Diurnal Average	2.08	2.09	2.09	2.09	2.10	2.11	2.10	2.12	2.11	2.10	2.07	2.07	2.06	2.06	2.06	2.06	2.06	2.07	2.08	2.08	2.08	2.08	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	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.



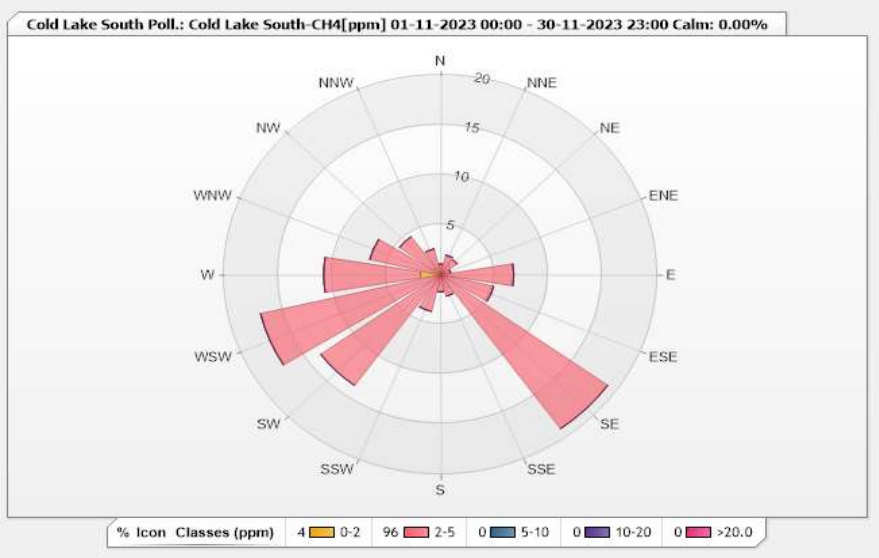


Station: Cold Lake South Poll.: Cold Lake South-CH4[ppm] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 88.61% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	0	1.1	0	0	0	1.1
NNE	0	2.04	0	0	0	2.04
NE	0	1.88	0	0	0	1.88
ENE	0	0.94	0	0	0	0.94
E	0	6.74	0	0	0	6.74
ESE	0.31	4.7	0	0	0	5.01
SE	0.16	18.81	0	0	0	18.97
SSE	0	2.19	0	0	0	2.19
S	0	1.72	0	0	0	1.72
SSW	0	3.76	0	0	0	3.76
SW	0.16	13.48	0	0	0	13.64
WSW	0.16	16.93	0	0	0	17.09
W	1.88	8.93	0	0	0	10.81
WNW	0.47	6.27	0	0	0	6.74
NW	0.78	3.92	0	0	0	4.7
NNW	0.16	2.51	0	0	0	2.67
Summary	4.08	95.92	0	0	0	100



Lakeland Industry & Community Association

Cold Lake South Station - November 2023

Summary of Hourly Averages

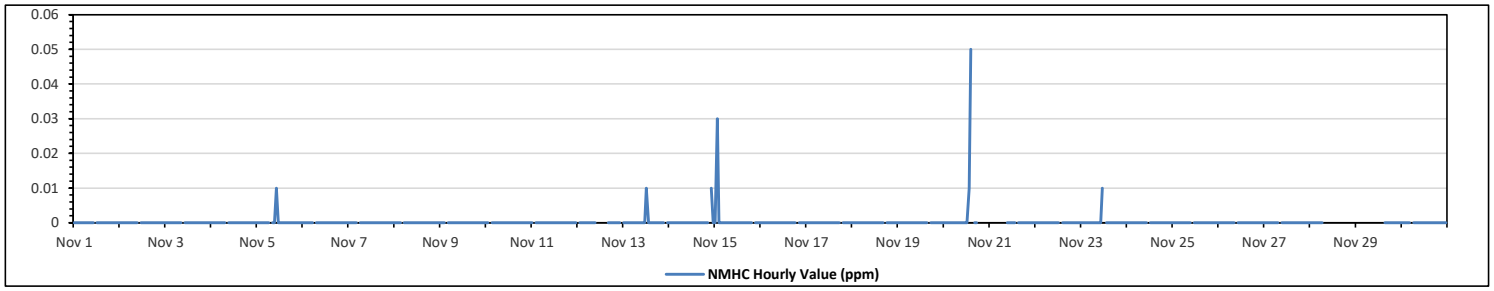
NON-METHANE HYDROCARBONS (NMHC) in ppm

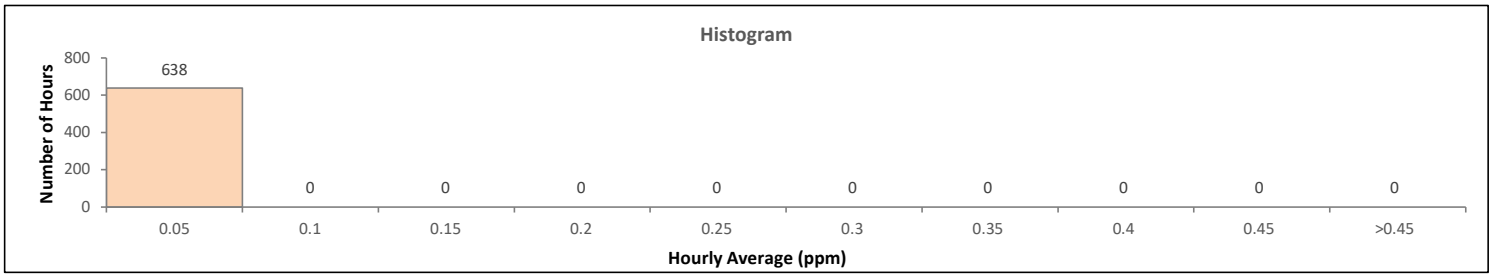
Maximum Hourly Value:	0.05	ppm	on Nov 20 at hr 14	Hours in Service:	720	
Maximum Daily Value:	0.00	ppm	on Nov 15	Hours of Data:	638	
Minimum Hourly Value:	0.00	ppm	on Nov 1 at hr 0	Hours of Missing Data:	46	
Minimum Daily Value:	0.00	ppm	on Nov 1	Hours of Calibration:	36	
Monthly Average:	0.00	ppm		Operational Uptime:	93.6	

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			
Nov 1	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
Nov 2	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
Nov 3	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
Nov 4	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
Nov 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	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	0.01	0.00
Nov 6	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
Nov 7	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
Nov 8	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
Nov 9	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
Nov 10	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
Nov 11	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
Nov 12	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	NA
Nov 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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.01	0.00
Nov 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.01	0.00	0.00	0.01	0.00
Nov 15	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	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	0.03	**0.00**
Nov 16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Nov 17	0.00	0.00	0.00	0.00	0.00	0.00	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
Nov 18	0.00	0.00	0.00	0.00	0.00	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
Nov 19	0.00	0.00	0.00	0.00	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
Nov 20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	**0.05**	S	0.00	0.00	X	X	X	X	X	X	0.00	**0.05**	NA
Nov 21	X	X	X	X	X	X	X	X	X	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	NA
Nov 22	0.00	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
Nov 23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	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	0.01	0.00
Nov 24	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
Nov 25	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
Nov 26	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
Nov 27	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
Nov 28	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	X	X	X	0.00	0.00	NA
Nov 29	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	0.00	NA
Nov 30	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
Diurnal Maximum	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	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	0.00	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	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.



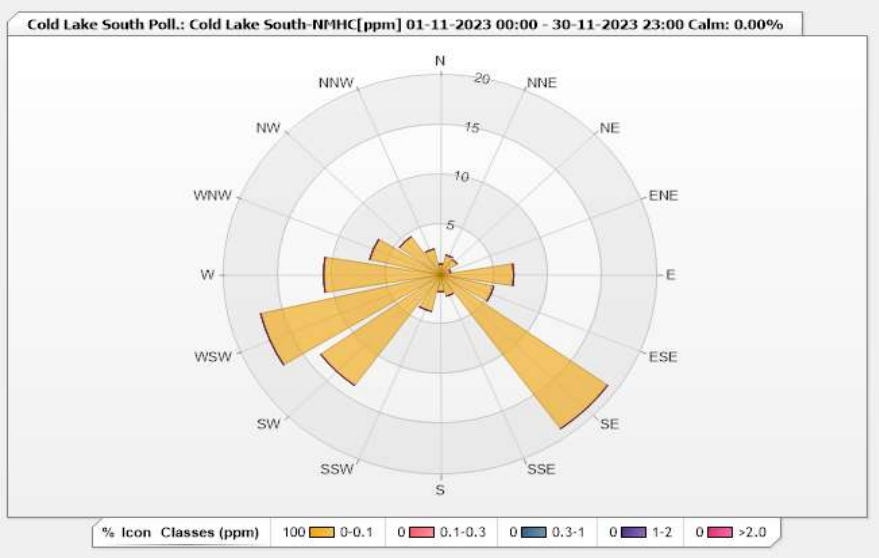


Station: Cold Lake South Poll.: Cold Lake South-NMHC[ppm] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 88.61% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	1.1	0	0	0	0	1.1
NNE	2.04	0	0	0	0	2.04
NE	1.88	0	0	0	0	1.88
ENE	0.94	0	0	0	0	0.94
E	6.74	0	0	0	0	6.74
ESE	5.02	0	0	0	0	5.02
SE	18.97	0	0	0	0	18.97
SSE	2.19	0	0	0	0	2.19
S	1.72	0	0	0	0	1.72
SSW	3.76	0	0	0	0	3.76
SW	13.64	0	0	0	0	13.64
WSW	17.08	0	0	0	0	17.08
W	10.82	0	0	0	0	10.82
WNW	6.74	0	0	0	0	6.74
NW	4.7	0	0	0	0	4.7
NNW	2.66	0	0	0	0	2.66
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Cold Lake South Station - November 2023

Summary of Hourly Averages

PARTICULATE MATTER 2.5 ($PM_{2.5}$) in µg/m^3

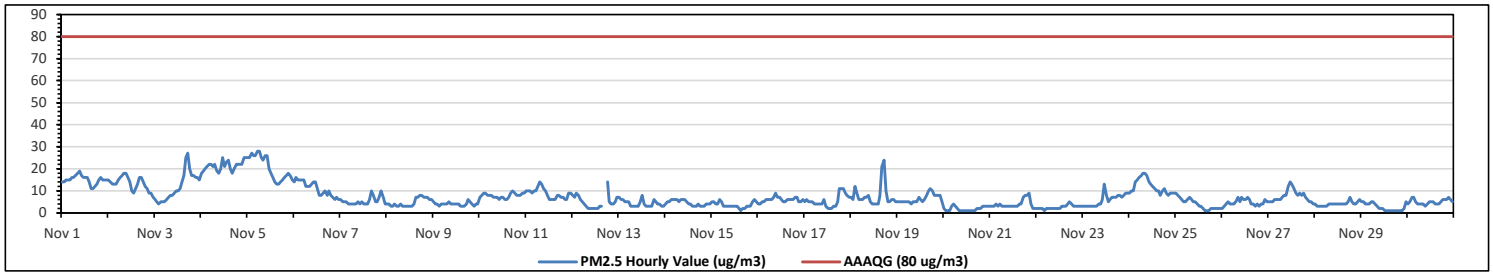
Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m3, Alberta Ambient Air Quality Objective (AAAQO): 24-Hour 29 µg/m3

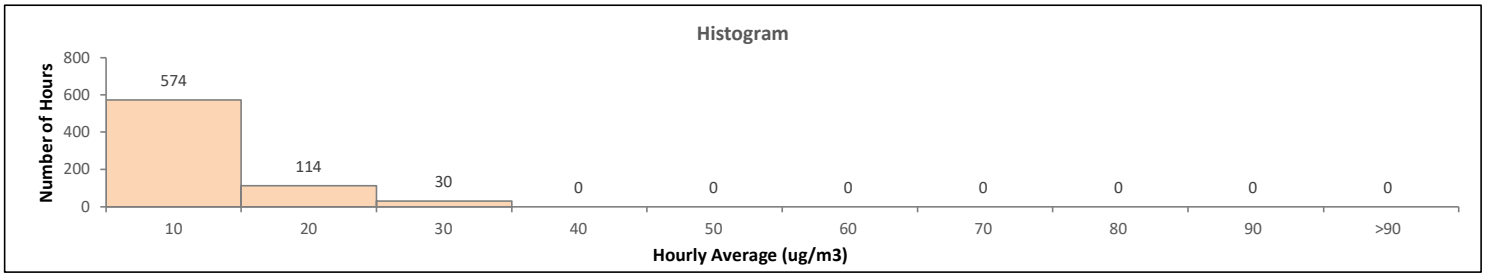
Number of 1-Hour Exceedances:	0	Number of 24-Hour Exceedances:	0
Maximum Hourly Value:	28 µg/m^3 on Nov 5 at hr 5	Hours in Service:	720
Maximum Daily Value:	21.3 µg/m^3 on Nov 4	Hours of Data:	718
Minimum Hourly Value:	1 µg/m^3 on Nov 15 at hr 15	Hours of Missing Data:	0
Minimum Daily Value:	2 µg/m^3 on Nov 20	Hours of Calibration:	2
Monthly Average:	7.3 µg/m^3	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			
Nov 1	14	14	15	15	15	16	16	17	18	19	17	16	16	16	14	11	11	12	13	15	16	15	15	15	11	19	15.0
Nov 2	15	14	13	13	13	15	16	17	18	18	16	14	10	9	11	13	16	16	14	12	11	9	9	7	7	18	13.3
Nov 3	6	5	4	5	5	5	6	7	8	8	9	10	10	11	14	17	25	27	20	17	17	16	16	15	4	27	11.8
Nov 4	18	19	20	21	22	22	21	22	19	18	20	25	21	23	24	20	18	20	22	22	22	22	25	25	18	25	**21.3**
Nov 5	25	25	27	26	26	**28**	**28**	25	24	26	26	20	18	16	14	13	13	14	15	16	17	18	17	15	13	**28**	20.5
Nov 6	14	16	15	15	15	15	12	12	12	13	14	14	11	8	8	9	10	8	10	8	7	6	7	6	6	16	11.0
Nov 7	6	5	5	5	4	4	4	4	4	5	4	5	4	4	4	6	10	8	5	5	7	10	7	4	4	10	5.4
Nov 8	4	4	3	3	4	3	3	4	3	3	3	3	3	3	4	7	7	8	8	7	7	7	6	6	3	8	4.7
Nov 9	5	4	4	3	4	4	4	4	5	4	4	4	4	4	3	3	3	4	6	5	4	3	4	4	3	6	4.0
Nov 10	7	8	9	9	8	8	8	7	7	7	6	7	7	6	6	7	9	10	9	8	8	8	9	9	6	10	7.8
Nov 11	10	10	10	9	10	10	12	14	13	11	10	8	6	6	6	6	8	8	7	7	6	6	9	9	6	14	8.8
Nov 12	8	7	9	8	6	5	4	3	2	2	2	2	2	2	3	3	C	C	14	5	4	4	5	7	2	14	4.9
Nov 13	7	6	6	5	5	5	3	3	3	3	3	5	8	4	3	3	3	3	6	5	4	4	3	3	3	8	4.3
Nov 14	4	5	5	6	6	6	6	5	6	6	6	5	4	4	3	3	3	4	3	3	3	4	4	4	3	6	4.5
Nov 15	5	5	4	4	6	5	3	3	3	3	3	3	3	3	2	1	2	2	3	3	3	5	6	5	**1**	6	3.5
Nov 16	4	4	5	5	6	6	6	6	7	9	7	7	6	5	5	6	6	6	6	7	7	5	5	6	4	9	5.9
Nov 17	5	6	5	5	5	4	4	4	4	4	6	3	2	2	2	3	3	5	11	11	11	9	8	7	2	11	5.4
Nov 18	7	6	12	9	6	6	6	7	7	8	5	4	4	4	4	8	21	24	10	5	5	6	6	5	4	24	7.7
Nov 19	5	5	5	5	5	5	5	4	5	5	5	7	6	5	6	8	10	11	10	8	8	8	8	5	4	11	6.4
Nov 20	2	1	1	1	3	4	3	2	1	1	1	1	1	1	1	1	1	2	2	2	3	3	3	3	**1**	4	**1.8**
Nov 21	3	3	3	4	3	4	3	3	3	3	3	3	3	3	3	4	4	7	8	8	9	4	2	2	2	9	4.0
Nov 22	2	2	2	2	1	2	2	2	2	2	2	2	2	3	3	3	4	5	4	3	3	3	3	3	**1**	5	2.6
Nov 23	3	3	3	3	3	3	3	3	4	4	6	13	8	5	6	7	7	7	8	8	7	8	9	9	3	13	5.8
Nov 24	9	10	10	14	15	16	17	18	18	17	14	13	12	11	10	10	8	10	11	9	8	9	9	9	8	18	12.0
Nov 25	9	8	7	6	5	5	6	7	6	5	5	4	3	3	2	1	1	1	2	2	2	2	2	2	**1**	9	4.0
Nov 26	2	3	4	5	4	4	4	5	7	5	7	6	6	7	6	4	4	3	4	3	4	4	6	5	2	7	4.7
Nov 27	5	5	5	6	6	6	6	7	8	8	12	14	13	11	9	8	9	8	9	7	6	5	5	4	4	14	7.6
Nov 28	4	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	5	7	5	4	4	5	6	3	7	4.1
Nov 29	5	5	4	4	4	5	5	4	3	2	2	2	1	1	1	1	1	1	1	1	1	1	2	5	**1**	5	2.6
Nov 30	4	5	7	7	5	4	4	4	4	3	4	5	5	5	4	4	4	5	6	6	6	7	6	5	3	7	5.0
Diurnal Maximum	25	25	27	26	26	28	28	25	24	26	26	25	21	23	24	20	25	27	22	22	22	22	25	25			
Diurnal Average	7.2	7.2	7.5	7.5	7.4	7.6	7.4	7.6	7.6	7.5	7.5	7.6	6.8	6.3	6.2	6.5	7.8	8.4	8.5	7.4	7.3	7.2	7.4	7.0			

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance	
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance	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.



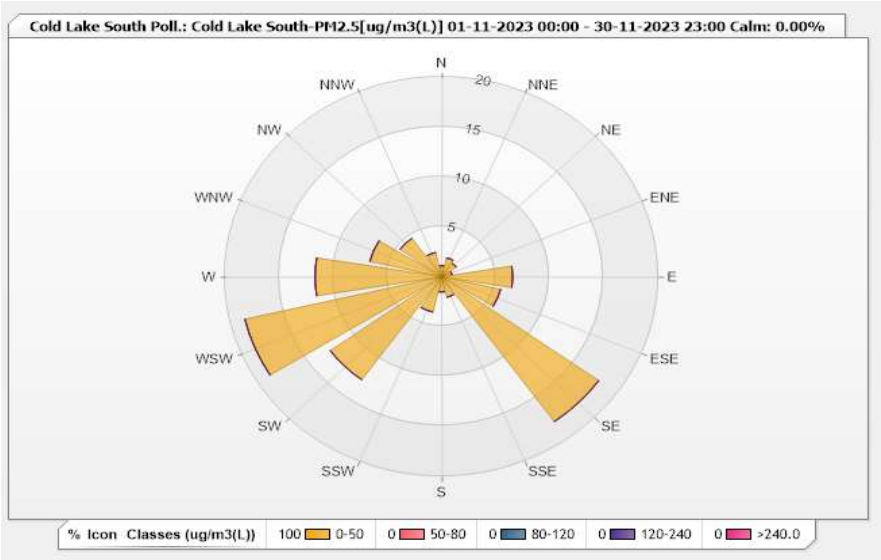


Station: Cold Lake South Poll.: Cold Lake South-PM2.5[ug/m3(L)] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 99.72% Calm Avg: 0.00 [ug/m3(L)]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	1.11	0	0	0	0	1.11
NNE	1.95	0	0	0	0	1.95
NE	1.67	0	0	0	0	1.67
ENE	0.97	0	0	0	0	0.97
E	6.55	0	0	0	0	6.55
ESE	5.57	0	0	0	0	5.57
SE	17.83	0	0	0	0	17.83
SSE	2.09	0	0	0	0	2.09
S	1.53	0	0	0	0	1.53
SSW	3.62	0	0	0	0	3.62
SW	12.67	0	0	0	0	12.67
WSW	18.66	0	0	0	0	18.66
W	11.7	0	0	0	0	11.7
WNW	6.82	0	0	0	0	6.82
NW	4.74	0	0	0	0	4.74
NNW	2.51	0	0	0	0	2.51
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Cold Lake South Station - November 2023

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

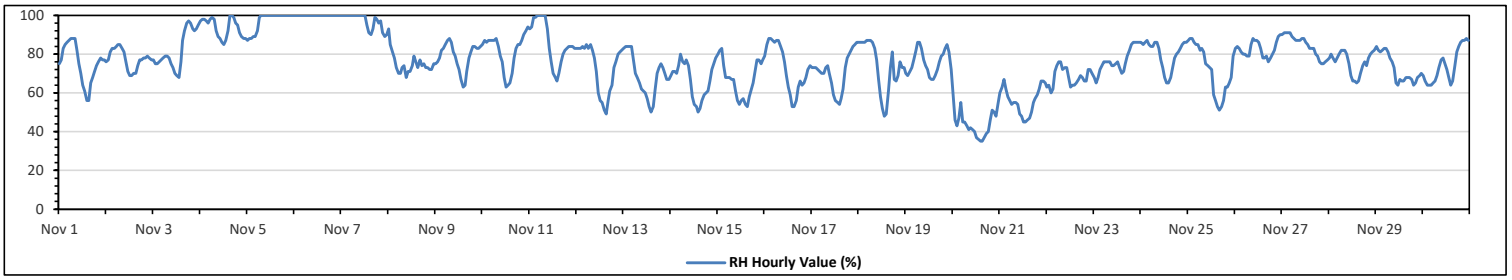
Maximum Hourly Value:	100	%	on Nov 4 at hr 15	Hours in Service:	720	
Maximum Daily Value:	100.0	%	on Nov 6	Hours of Data:	720	
Minimum Hourly Value:	35	%	on Nov 20 at hr 14	Hours of Missing Data:	0	
Minimum Daily Value:	44.0	%	on Nov 20	Hours of Calibration:	0	
Monthly Average:	76.6	%		Operational Uptime:	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			
Nov 1	75	77	83	85	86	87	88	88	88	82	75	70	64	61	56	56	65	68	71	74	76	78	77	77	56	88	75.3
Nov 2	76	77	81	83	83	84	85	85	83	81	76	71	69	69	70	70	74	77	77	78	78	79	78	77	69	85	77.5
Nov 3	77	75	75	76	77	78	79	79	78	75	73	70	69	68	76	87	92	96	97	96	93	92	93	95	68	97	81.9
Nov 4	97	98	98	97	96	98	99	98	92	89	88	86	85	87	92	**100**	**100**	99	96	95	91	89	88	88	85	**100**	93.6
Nov 5	87	88	88	89	89	92	99	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	87	**100**	97.2
Nov 6	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	100	**100**	**100.0**
Nov 7	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	95	91	90	93	99	98	96	97	91	89	90	89	**100**	97.0
Nov 8	93	85	81	78	73	70	70	73	74	68	71	71	74	79	76	73	77	74	75	73	73	72	72	75	68	93	75.0
Nov 9	75	76	78	82	83	85	87	88	86	81	79	75	72	67	63	64	71	78	81	84	84	83	83	84	63	88	78.7
Nov 10	85	87	86	87	87	87	87	88	84	79	76	68	63	64	65	70	78	83	85	85	87	90	92	94	63	94	81.5
Nov 11	93	94	99	99	**100**	**100**	**100**	**100**	**100**	93	83	76	70	68	66	70	76	80	82	83	84	84	84	83	66	**100**	86.1
Nov 12	83	83	83	84	83	85	83	85	82	78	71	60	56	55	51	49	56	61	64	73	76	80	81	82	49	85	72.7
Nov 13	83	84	84	84	84	77	70	68	65	62	61	60	57	53	50	53	62	70	73	75	73	70	67	67	50	84	68.8
Nov 14	69	71	71	70	74	80	76	75	77	74	67	58	54	53	50	52	56	59	60	61	66	72	75	78	50	80	66.6
Nov 15	80	82	83	74	68	68	68	67	67	61	56	54	56	57	54	53	58	61	65	71	77	77	75	77	53	83	67.0
Nov 16	79	85	88	88	87	86	87	87	84	81	76	69	63	59	53	53	56	63	66	64	65	68	72	74	53	88	73.0
Nov 17	73	73	73	72	71	70	70	73	74	70	65	59	56	55	54	57	62	73	78	80	82	84	85	86	54	86	70.6
Nov 18	86	86	86	86	87	87	87	86	83	77	67	58	52	48	49	61	73	81	67	66	69	76	73	73	48	87	73.5
Nov 19	70	69	71	73	77	82	86	86	83	77	74	72	68	67	67	69	72	76	79	80	83	85	81	72	67	86	75.8
Nov 20	59	46	43	47	55	45	45	43	41	42	41	40	37	36	**35**	**35**	37	39	40	46	51	50	48	54	**35**	59	**44.0**
Nov 21	60	63	67	62	58	56	54	55	55	54	49	48	45	45	46	47	50	55	57	59	62	66	66	65	45	67	56.0
Nov 22	63	64	60	62	71	74	76	76	72	73	73	68	63	64	64	65	67	69	68	66	66	72	72	70	60	76	68.3
Nov 23	68	65	68	72	74	76	76	76	76	74	74	75	76	73	70	71	75	79	82	85	86	86	86	86	65	86	76.2
Nov 24	86	85	86	87	85	84	84	86	86	83	77	73	68	65	65	68	73	78	80	81	83	85	86	86	65	87	80.0
Nov 25	87	88	88	86	85	85	82	83	81	75	74	73	72	59	56	53	51	53	56	63	63	65	68	79	51	88	71.9
Nov 26	83	84	83	81	80	80	79	79	85	88	87	87	86	83	78	78	79	76	78	80	82	86	89	90	76	90	82.5
Nov 27	90	91	91	91	91	89	88	87	87	87	88	88	86	85	83	83	83	80	79	76	75	75	76	77	75	91	84.4
Nov 28	78	80	78	76	78	80	82	82	82	80	75	69	66	66	65	66	70	74	76	74	78	80	81	82	65	82	75.8
Nov 29	84	82	81	82	83	83	81	78	76	73	65	64	67	66	66	68	68	68	67	64	65	68	69	70	64	84	72.4
Nov 30	69	66	64	64	64	65	66	69	73	77	78	75	72	68	64	66	74	81	84	86	87	87	88	87	64	88	73.9
Diurnal Maximum	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100			
Diurnal Average	80.3	80.1	80.6	80.6	81.0	81.1	81.1	81.3	80.5	77.8	74.6	71.2	68.9	67.2	65.8	67.6	71.6	75.0	76.0	77.1	78.4	79.7	79.8	80.6			

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 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 - November 2023

Summary of Hourly Averages

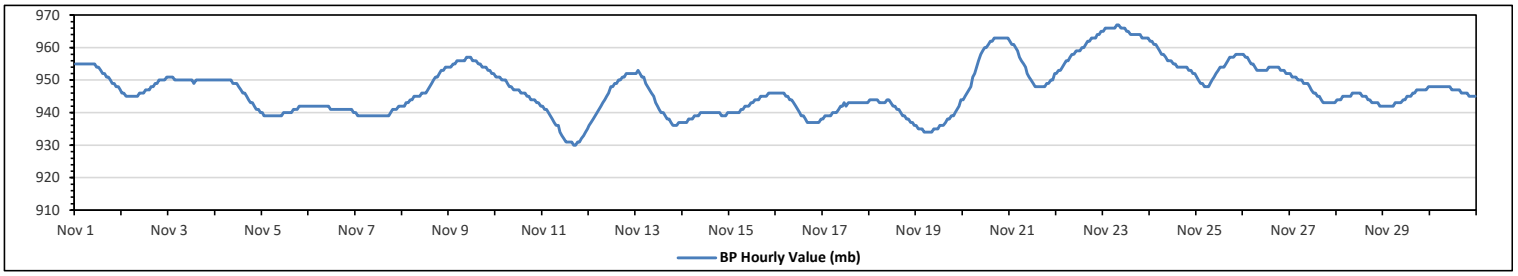
BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	967	mb	on Nov 23 at hr 7	Hours in Service:	720
Maximum Daily Value:	965	mb	on Nov 23	Hours of Data:	720
Minimum Hourly Value:	930	mb	on Nov 11 at hr 16	Hours of Missing Data:	0
Minimum Daily Value:	935	mb	on Nov 11	Hours of Calibration:	0
Monthly Average:	947	mb		Operational Uptime:	100.0

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
Nov 1	955	955	955	955	955	955	955	955	955	955	955	954	954	953	952	952	951	951	950	949	949	948	948	947	947	955	953
Nov 2	946	946	945	945	945	945	945	945	945	946	946	946	947	947	947	948	948	949	949	950	950	950	950	951	945	951	947
Nov 3	951	951	951	950	950	950	950	950	950	950	950	950	950	949	950	950	950	950	950	950	950	950	950	950	949	951	950
Nov 4	950	950	950	950	950	950	950	950	950	949	949	949	948	947	946	946	945	944	943	943	942	941	941	940	940	950	947
Nov 5	940	939	939	939	939	939	939	939	939	939	939	940	940	940	940	940	941	941	941	942	942	942	942	942	939	942	940
Nov 6	942	942	942	942	942	942	942	942	942	942	942	941	941	941	941	941	941	941	941	941	941	941	941	940	940	942	941
Nov 7	940	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	940	941	941	941	942	942	939	942	940
Nov 8	942	942	943	943	944	944	945	945	945	945	946	946	946	947	948	949	950	951	951	952	953	953	954	954	942	954	947
Nov 9	954	954	955	955	956	956	956	956	956	957	957	957	956	956	956	955	955	954	954	954	953	953	952	952	952	957	955
Nov 10	951	951	951	950	950	950	949	948	948	947	947	947	947	946	946	946	945	945	944	944	944	943	943	942	942	951	947
Nov 11	942	941	941	940	939	938	937	936	936	934	933	932	931	931	931	931	**930**	**930**	931	931	932	933	934	935	**930**	942	**935**
Nov 12	936	937	938	939	940	941	942	943	944	945	946	948	948	949	949	950	950	951	951	952	952	952	952	952	936	952	946
Nov 13	952	953	952	951	951	949	948	947	946	945	943	942	941	940	940	939	938	938	937	936	936	936	937	937	936	953	943
Nov 14	937	937	937	938	938	938	939	939	939	940	940	940	940	940	940	940	940	940	940	940	939	939	939	940	937	940	939
Nov 15	940	940	940	940	940	940	941	941	942	942	942	943	943	944	944	944	945	945	945	945	946	946	946	946	940	946	943
Nov 16	946	946	946	946	946	945	945	944	944	943	942	941	940	939	939	938	937	937	937	937	937	937	937	938	937	946	941
Nov 17	938	939	939	939	939	940	940	940	941	942	942	943	942	943	943	943	943	943	943	943	943	943	943	943	938	943	942
Nov 18	944	944	944	944	944	943	943	943	943	944	944	943	942	942	941	941	940	939	939	938	938	937	937	936	936	944	941
Nov 19	936	935	935	935	934	934	934	934	934	935	935	935	936	936	936	937	938	938	939	939	940	941	942	944	934	944	937
Nov 20	944	945	946	947	948	951	952	954	956	958	959	960	960	961	962	962	963	963	963	963	963	963	963	963	944	963	957
Nov 21	962	961	961	960	959	957	956	955	954	952	951	950	949	948	948	948	948	948	948	949	949	950	950	952	948	962	953
Nov 22	952	953	953	954	955	956	956	957	958	958	959	959	959	960	960	961	962	962	963	963	963	964	964	965	952	965	959
Nov 23	965	966	966	966	966	966	966	**967**	**967**	966	966	966	965	965	964	964	964	964	964	964	963	963	963	963	963	**967**	**965**
Nov 24	962	962	961	961	960	959	958	958	957	956	956	956	955	955	954	954	954	954	954	954	953	953	952	952	952	962	956
Nov 25	951	950	949	949	948	948	948	949	950	951	952	953	954	954	954	955	956	957	957	957	958	958	958	958	948	958	953
Nov 26	958	957	957	956	955	955	954	953	953	953	953	953	953	954	954	954	954	954	954	953	953	953	952	952	952	958	954
Nov 27	952	951	951	951	950	950	950	949	949	949	948	947	946	946	945	945	944	943	943	943	943	943	943	943	943	952	947
Nov 28	944	944	944	945	945	945	945	945	946	946	946	946	946	945	945	945	944	944	943	943	943	943	942	942	942	946	944
Nov 29	942	942	942	942	942	942	943	943	943	943	944	944	945	945	945	946	946	947	947	947	947	947	947	948	942	948	945
Nov 30	948	948	948	948	948	948	948	948	948	948	948	947	947	947	947	947	946	946	946	946	945	945	945	945	945	948	947
Diurnal Maximum	965	966	966	966	966	966	966	967	967	966	966	966	965	965	964	964	964	964	964	964	963	964	964	965			
Diurnal Average	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947			

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

Cold Lake South Station - November 2023

Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

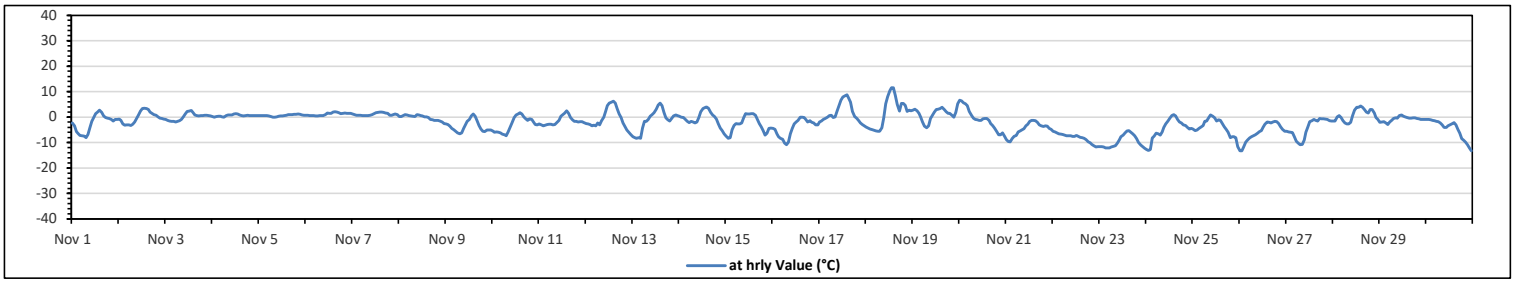
Maximum Hourly Value:	11.5	°C	on Nov 18 at hr 13	Hours in Service:	720	
Maximum Daily Value:	1.7	°C	on Nov 18	Hours of Data:	720	
Minimum Hourly Value:	-13.3	°C	on Nov 26 at hr 0	Hours of Missing Data:	0	
Minimum Daily Value:	-9.6	°C	on Nov 23	Hours of Calibration:	0	
Monthly Average:	-2.0	°C		Operational Uptime:	100.0	

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
Nov 1	-2.4	-3.4	-5.7	-6.5	-7.2	-7.4	-7.5	-8.1	-6.8	-4.2	-1.7	-0.2	1.4	2	2.7	1.8	0.4	-0.1	-0.4	-0.5	-0.9	-1.5	-1	-0.9	-8.1	2.7	-2.4
Nov 2	-0.8	-1.2	-2.6	-3.2	-3.1	-3	-3.3	-2.8	-1.9	-0.6	0.8	2.4	3.4	3.5	3.3	2.9	1.9	1.5	1	0.7	0.1	-0.4	-0.6	-0.8	-3.3	3.5	-0.1
Nov 3	-1	-1.2	-1.5	-1.6	-1.7	-1.9	-1.7	-1.4	-0.9	0.1	1.3	2.2	2.4	2.6	1.8	0.8	0.6	0.4	0.5	0.6	0.7	0.7	0.6	0.4	-1.9	2.6	0.1
Nov 4	0.2	0	0.2	0.3	0.3	0.1	0	0.5	0.9	0.9	0.9	1.3	1.4	1.2	0.8	0.5	0.4	0.6	0.7	0.6	0.5	0.5	0.5	0.6	0.0	1.4	0.6
Nov 5	0.6	0.5	0.5	0.6	0.6	0.4	0.2	0	0	0.1	0.3	0.4	0.4	0.5	0.7	1	1	1	1.1	1.1	1.2	1.1	0.9	0.7	0.0	1.2	0.6
Nov 6	0.7	0.7	0.5	0.5	0.5	0.4	0.4	0.5	0.6	0.6	1	1.6	1.5	1.5	2	2.1	2	1.7	1.4	1.5	1.6	1.5	1.5	1.5	0.4	2.1	1.2
Nov 7	1.3	1	0.7	0.7	0.7	0.6	0.5	0.5	0.5	0.7	1	1.4	1.7	1.8	2	2	1.8	1.6	1.5	0.7	0.7	1	1.2	1	0.5	2.0	1.1
Nov 8	0.2	0.2	0.6	1	0.8	0.6	0.4	0.3	0.2	1	0.8	0.6	0.4	0.1	0.1	-0.2	-0.9	-1.1	-1.2	-1.3	-1.3	-1.5	-2	-2.5	-2.5	1.0	-0.2
Nov 9	-2.7	-2.9	-3.6	-4.5	-5	-5.5	-6.2	-6.6	-6.2	-4.4	-3.2	-1.7	-0.9	0.4	1.2	0.3	-1.4	-3.3	-4.7	-5.5	-5.7	-5.1	-5.1	-5.1	-6.6	1.2	-3.6
Nov 10	-5.4	-5.9	-5.8	-5.9	-6.2	-6.7	-7	-7.4	-5.8	-4	-2.3	-0.1	0.9	1.2	1.7	1.2	0.1	-0.7	-1.2	-0.7	-1	-2.1	-2.9	-3.1	-7.4	1.7	-2.9
Nov 11	-2.6	-3.1	-3.4	-3.2	-2.9	-2.8	-2.8	-3	-2.9	-2.2	-1.2	0.3	1	1.5	2.5	1.5	-0.1	-1.1	-1.6	-1.6	-2	-1.8	-1.8	-2.2	-3.4	2.5	-1.5
Nov 12	-2.5	-2.7	-2.9	-3.5	-3.2	-3.4	-2.4	-3.1	-1.4	0	2.3	4.5	5.5	5.8	6.3	5.5	3.2	1.2	-0.1	-2.4	-3.7	-5.1	-5.9	-6.9	-6.9	6.3	-0.6
Nov 13	-7.7	-8.1	-8.3	-8	-8.3	-4.3	-1.7	-1.7	-1	0.3	1	1.7	3.1	4.7	5.5	4.4	1.8	-0.3	-1.1	-1.5	-0.5	0.4	0.8	0.6	-8.3	5.5	-1.2
Nov 14	0.3	0	-0.2	-0.9	-1.7	-2.2	-1.6	-2	-2.3	-1.9	-0.2	2.1	3.4	3.7	4	3.5	1.8	0.8	0.2	-0.8	-2.6	-4.3	-5.3	-6.5	-6.5	4.0	-0.5
Nov 15	-7.5	-8.3	-8.1	-5	-3.3	-2.5	-2.6	-2.6	-2.4	-0.3	1.4	1.3	1.2	1.4	1.4	0.7	-1	-2.5	-3.8	-5.3	-7.1	-6.3	-4.5	-4.3	-8.3	1.4	-2.9
Nov 16	-4.5	-4.9	-6.6	-7.8	-8.3	-8.7	-10.2	-10.8	-9.8	-6.5	-4.4	-2.6	-1.9	-1.2	0	0	-0.2	-1.1	-1.9	-1.4	-2.1	-2.4	-3.1	-3	-10.8	0.0	-4.3
Nov 17	-2	-1.5	-0.9	-0.5	0	0.6	0.7	-0.1	0.1	2.3	4.4	6.6	7.9	8.4	8.8	7.5	5.8	2.2	0.2	-0.4	-1.3	-2.3	-2.9	-3.5	-3.5	8.8	1.7
Nov 18	-3.9	-4.3	-4.7	-5	-5.2	-5.4	-5.5	-5.5	-4.2	-0.1	5.3	8.1	10.4	**11.5**	**11.5**	8.5	5	2.3	5.4	5.4	4.6	2.2	2.8	2.5	-5.5	**11.5**	**1.7**
Nov 19	2.8	3.1	2.5	1.5	0.1	-1.9	-3.6	-4.2	-3.5	-0.5	0.7	1.9	2.9	3.1	3.4	3.9	3	2.1	1.5	1.5	0.7	0	1.8	5.2	-4.2	5.2	1.2
Nov 20	6.7	6.4	5.6	5.2	4.5	2.2	0.7	-0.4	-1	-1.1	-1.2	-1.2	-0.7	-0.5	-0.6	-1.2	-2.5	-3.3	-4.3	-5.7	-6.9	-7	-6.2	-7.5	-7.5	6.7	-0.8
Nov 21	-8.9	-9.6	-9.7	-8.4	-7.6	-7.2	-5.8	-5.4	-5.1	-4.6	-3.5	-2.8	-1.7	-1.3	-1.2	-1.4	-2.1	-3	-3.5	-3.7	-3.5	-3.6	-4.4	-4.9	-9.7	-1.2	-4.7
Nov 22	-5.5	-5.8	-6.2	-6.6	-6.7	-6.8	-7.1	-7.3	-7.3	-7.4	-7.6	-7.6	-7.2	-7.6	-7.9	-8.1	-8.3	-8.9	-9.7	-10.1	-10.7	-11.3	-11.8	-11.7	-11.8	-5.5	-8.1
Nov 23	-11.7	-11.7	-11.8	-12.1	-12.1	-12.1	-11.8	-11.5	-11.2	-10.3	-9	-7.7	-7.1	-6.2	-5.4	-5.3	-6	-6.6	-7.3	-8.4	-10	-10.9	-11.6	-12.2	-12.2	-5.3	**-9.6**
Nov 24	-12.8	-13.1	-12.8	-8.2	-7.5	-6.3	-6.6	-7.1	-5.8	-4	-2.7	-1.5	-0.4	0.5	1	0.4	-0.9	-1.9	-2.4	-3	-3.3	-4.1	-4.7	-4.5	-13.1	1.0	-4.7
Nov 25	-4.7	-5.3	-5.1	-4.4	-3.9	-3.3	-1.7	-1.5	-0.3	0.8	0.3	-0.3	-1.5	-1.1	-1.2	-2.5	-3.8	-4.9	-5.9	-8.1	-7.8	-7.8	-8.1	-11.7	-11.7	0.8	-3.9
Nov 26	**-13.3**	-13.2	-11.6	-9.9	-9	-8.2	-7.7	-7.3	-6.9	-6.4	-5.7	-5.3	-4.1	-2.8	-1.9	-2.1	-2.4	-1.9	-1.7	-1.8	-2.5	-3.8	-4.9	-5.5	**-13.3**	-1.7	-5.8
Nov 27	-5.6	-5.8	-6	-6.1	-7.7	-9.5	-10.3	-10.8	-10.7	-9	-5.9	-3.9	-1.8	-1.4	-0.9	-1.3	-1.5	-0.6	-0.7	-0.7	-0.8	-0.9	-1.4	-1.5	-10.8	-0.6	-4.4
Nov 28	-1.5	-1.5	0.1	0.5	-0.2	-1.4	-2.3	-2.6	-2.7	-2.1	0.6	2.8	3.9	3.9	4.3	3.9	3	2	1.6	2.9	3	1.6	-0.1	-1	-2.7	4.3	0.8
Nov 29	-2.1	-1.9	-1.8	-2.4	-2.9	-1.9	-1.3	-0.6	-0.3	-0.4	0.6	0.8	0.3	0.1	-0.2	-0.4	-0.4	-0.3	-0.3	-0.5	-0.7	-0.9	-0.9	-0.9	-2.9	0.8	-0.8
Nov 30	-1	-1	-1.1	-1.2	-1.4	-1.6	-1.8	-2.3	-3.1	-4.1	-4	-3.4	-3	-2.7	-2.2	-3	-4.8	-6.4	-8.4	-9.1	-9.8	-10.8	-12.1	**-13.3**	**-13.3**	-1.0	-4.7
Diurnal Maximum	6.7	6.4	5.6	5.2	4.5	2.2	0.7	0.5	0.9	2.3	5.3	8.1	10.4	11.5	11.5	8.5	5.8	2.3	5.4	5.4	4.6	2.2	2.8	5.2			
Diurnal Average	-3.2	-3.5	-3.7	-3.5	-3.6	-3.6	-3.7	-3.8	-3.4	-2.2	-1.0	0.1	0.8	1.2	1.5	0.9	-0.2	-1.0	-1.5	-1.9	-2.4	-2.8	-3.0	-3.4			

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.



Lakeland Industry & Community Association

Cold Lake South Station - November 2023

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

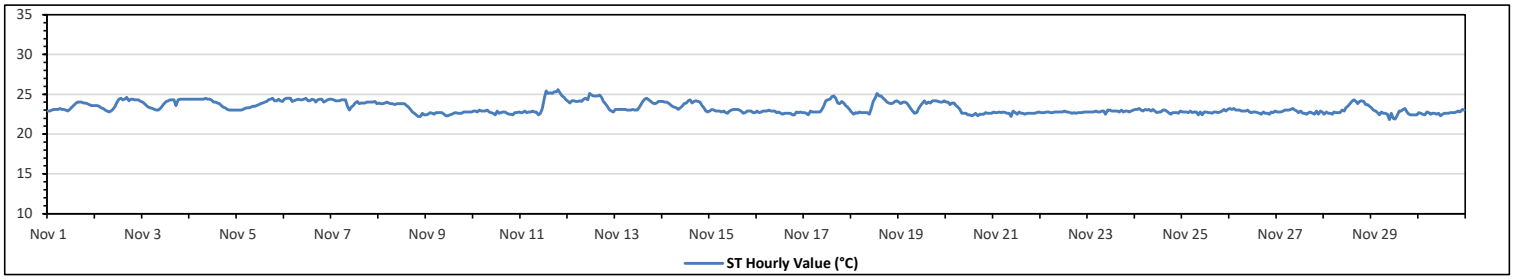
Maximum Hourly Value:	25.6	°C	on Nov 11 at hr 19	Hours in Service:	720	
Maximum Daily Value:	24.3	°C	on Nov 6	Hours of Data:	720	
Minimum Hourly Value:	21.8	°C	on Nov 29 at hr 9	Hours of Missing Data:	0	
Minimum Daily Value:	22.6	°C	on Nov 29	Hours of Calibration:	0	
Monthly Average:	23.3	°C		Operational 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			
Nov 1	22.9	22.9	23.0	23.1	23.1	23.1	23.2	23.1	23.1	23.0	22.9	23.1	23.4	23.6	23.8	24.0	24.0	24.0	23.9	23.9	23.8	23.7	23.6	23.6	22.9	24.0	23.4
Nov 2	23.6	23.6	23.5	23.3	23.2	23.0	22.9	22.8	22.9	23.1	23.5	24.0	24.4	24.5	24.3	24.4	24.6	24.2	24.4	24.4	24.3	24.3	24.3	24.1	22.8	24.6	23.8
Nov 3	24.0	23.8	23.6	23.4	23.3	23.2	23.1	23.0	23.0	23.2	23.5	23.8	24.1	24.2	24.3	24.3	24.3	23.6	24.3	24.4	24.4	24.4	24.4	24.4	23.0	24.4	23.8
Nov 4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.5	24.4	24.4	24.3	24.0	24.0	23.9	23.8	23.6	23.4	23.3	23.1	23.0	23.0	23.0	23.0	23.0	24.5	23.9
Nov 5	23.0	23.0	23.0	23.1	23.2	23.3	23.3	23.4	23.5	23.5	23.6	23.7	23.8	23.9	24.0	24.1	24.3	24.4	24.5	24.2	24.2	24.4	24.2	24.1	23.0	24.5	23.7
Nov 6	24.4	24.5	24.5	24.5	24.1	24.2	24.3	24.4	24.3	24.3	24.4	24.5	24.2	24.2	24.4	24.3	24.0	24.3	24.4	24.4	24.0	24.2	24.3	24.4	24.0	24.5	**24.3**
Nov 7	24.4	24.3	24.2	24.2	24.2	24.3	24.3	24.3	23.5	23.0	23.4	23.6	23.9	24.1	23.8	23.9	23.9	23.9	24.0	24.0	24.0	24.0	24.1	23.8	23.0	24.4	24.0
Nov 8	23.9	23.8	23.8	23.9	24.0	23.9	23.8	23.8	23.7	23.8	23.8	23.8	23.8	23.8	23.6	23.4	23.1	22.8	22.6	22.4	22.2	22.2	22.6	22.4	22.2	24.0	23.4
Nov 9	22.4	22.5	22.7	22.6	22.5	22.7	22.7	22.7	22.7	22.5	22.3	22.3	22.4	22.5	22.6	22.7	22.6	22.6	22.6	22.8	22.8	22.8	22.8	22.8	22.3	22.8	22.6
Nov 10	22.9	22.9	22.8	23.0	22.9	22.9	22.9	23.0	22.8	22.7	22.6	22.4	22.9	22.6	22.7	22.8	22.8	22.6	22.5	22.5	22.4	22.7	22.7	22.8	22.4	23.0	22.7
Nov 11	22.7	22.7	22.9	22.7	22.8	22.8	22.9	22.8	22.8	22.4	22.6	23.2	24.6	25.4	25.1	25.2	25.1	25.3	25.3	**25.6**	25.2	24.8	24.6	24.3	22.4	**25.6**	23.9
Nov 12	24.1	23.9	24.2	24.2	24.1	24.1	24.2	24.1	24.4	24.5	24.3	25.1	24.9	24.8	24.8	24.8	24.9	24.6	24.1	23.8	23.5	23.1	22.9	22.8	22.8	25.1	24.2
Nov 13	23.1	23.1	23.1	23.1	23.1	23.0	23.0	23.0	23.0	23.1	23.0	23.0	23.3	23.7	24.1	24.4	24.5	24.3	24.1	23.9	23.8	23.9	24.1	24.1	23.0	24.5	23.5
Nov 14	24.1	24.0	24.0	23.9	23.7	23.5	23.4	23.3	23.1	23.3	23.5	23.8	23.9	24.2	24.3	23.9	24.1	24.2	24.1	24.0	23.6	23.3	22.9	22.8	22.8	24.3	23.7
Nov 15	22.9	23.1	23.0	22.9	22.9	22.9	22.8	22.9	22.7	22.6	22.9	23.0	23.1	23.1	23.1	23.0	22.9	22.6	22.7	22.9	22.9	22.9	22.7	22.7	22.6	23.1	22.9
Nov 16	22.9	22.7	22.8	22.9	22.9	22.9	23.0	22.9	22.9	22.9	22.7	22.8	22.6	22.5	22.6	22.6	22.6	22.6	22.4	22.4	22.8	22.7	22.8	22.7	22.4	23.0	22.7
Nov 17	22.7	22.6	22.4	22.9	22.8	22.8	22.8	22.8	22.8	23.1	23.6	24.2	24.3	24.4	24.7	24.8	24.5	23.9	23.8	24.1	23.9	23.6	23.4	23.1	22.4	24.8	23.5
Nov 18	22.8	22.5	22.7	22.6	22.8	22.7	22.7	22.7	22.7	22.5	23.2	24.1	24.5	25.1	24.8	24.8	24.5	24.3	24.0	23.9	23.8	23.9	24.1	24.2	22.5	25.1	23.6
Nov 19	24.0	23.8	24.0	24.0	23.9	23.6	23.2	22.9	22.6	22.7	23.2	23.6	23.9	24.2	23.8	24.0	23.9	24.2	24.2	24.2	24.1	24.0	24.0	24.2	22.6	24.2	23.8
Nov 20	24.0	24.0	23.7	23.9	23.9	23.6	23.4	23.1	22.6	22.6	22.6	22.4	22.4	22.3	22.4	22.6	22.3	22.5	22.5	22.5	22.7	22.6	22.6	22.6	22.3	24.0	22.9
Nov 21	22.8	22.7	22.7	22.8	22.7	22.8	22.7	22.6	22.6	22.2	22.9	22.7	22.5	22.8	22.6	22.6	22.5	22.6	22.6	22.6	22.6	22.6	22.7	22.8	22.2	22.9	22.7
Nov 22	22.7	22.7	22.7	22.8	22.8	22.7	22.7	22.8	22.8	22.8	22.8	22.8	22.9	22.8	22.8	22.7	22.6	22.7	22.6	22.7	22.7	22.7	22.8	22.8	22.6	22.9	22.7
Nov 23	22.8	22.8	22.8	22.8	22.9	22.8	22.8	22.9	22.9	22.5	23.0	23.0	22.9	22.9	22.9	22.9	22.8	23.0	22.8	22.9	22.9	22.8	22.9	23.0	22.5	23.0	22.9
Nov 24	23.1	23.1	23.2	23.0	22.9	23.1	23.0	23.1	22.9	23.1	22.9	22.7	22.8	22.8	23.0	23.0	22.9	22.7	22.5	22.7	22.7	22.7	22.6	22.9	22.5	23.2	22.9
Nov 25	22.8	22.8	22.8	22.7	22.9	22.7	22.8	22.8	22.4	22.8	22.4	22.8	22.8	22.7	22.7	22.6	22.8	22.8	22.7	22.8	22.9	23.1	22.9	23.1	22.4	23.1	22.8
Nov 26	23.2	23.1	23.2	23.0	23.0	23.0	22.9	22.9	22.9	23.0	22.8	22.7	22.8	22.8	22.7	22.6	22.5	22.8	22.6	22.6	22.5	22.8	22.7	22.9	22.5	23.2	22.8
Nov 27	22.8	22.8	22.8	22.9	23.0	23.0	23.0	23.1	23.2	23.0	22.9	22.7	22.9	22.6	22.6	22.5	22.7	22.8	22.6	22.5	22.9	22.5	22.9	22.8	22.5	23.2	22.8
Nov 28	22.5	22.8	22.6	22.6	22.5	22.8	22.7	22.7	22.7	23.0	22.9	23.3	23.5	23.8	24.1	24.3	24.1	23.8	24.1	24.2	24.1	23.7	23.7	23.5	22.5	24.3	23.3
Nov 29	23.3	23.0	22.9	22.7	22.4	22.8	22.6	22.6	22.5	**21.8**	22.6	22.0	21.9	22.3	22.9	22.9	23.1	23.2	22.8	22.5	22.4	22.4	22.4	22.4	**21.8**	23.3	**22.6**
Nov 30	22.7	22.6	22.5	22.4	22.8	22.7	22.5	22.6	22.6	22.5	22.6	22.3	22.5	22.6	22.6	22.6	22.7	22.7	22.7	22.8	22.9	22.8	23.1	23.0	22.3	23.1	22.7
Diurnal Maximum	24.4	24.5	24.5	24.5	24.4	24.4	24.4	24.4	24.5	24.5	24.4	25.1	24.9	25.4	25.1	25.2	25.1	25.3	25.3	25.6	25.2	24.8	24.6	24.4			
Diurnal Average	23.3	23.2	23.2	23.2	23.2	23.2	23.1	23.1	23.0	23.0	23.1	23.3	23.4	23.5	23.5	23.6	23.5	23.4	23.4	23.4	23.3	23.3	23.3	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	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

Cold Lake South Station - November 2023

Summary of Hourly Averages

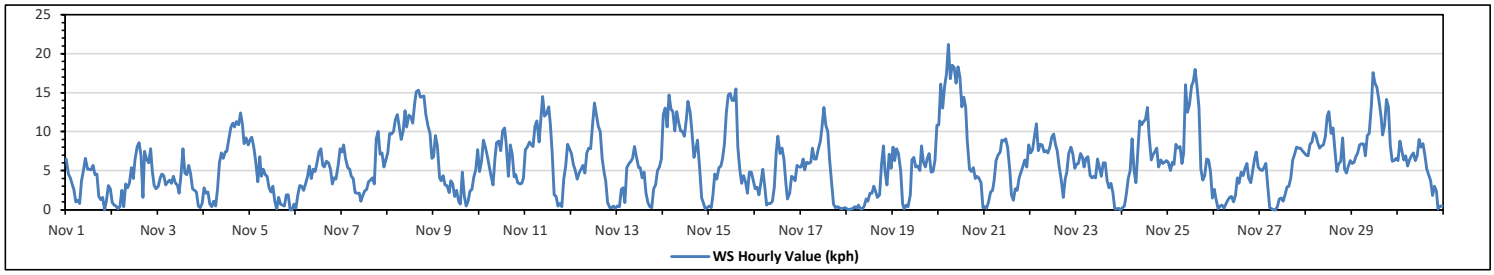
VECTOR WIND SPEED (VWS) in km/hr

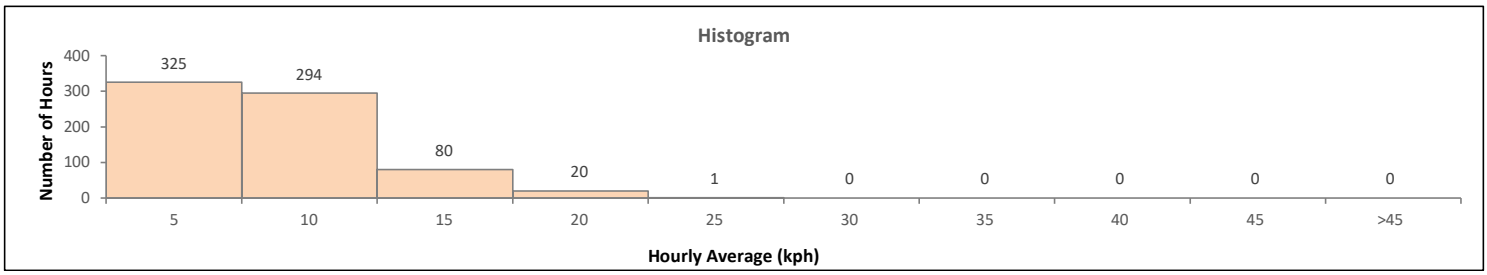
Maximum Hourly Value:	21.2	kph	on Nov 20 at hr 5	Hours in Service:	720
Maximum Daily Value:	11.7	kph	on Nov 20	Hours of Data:	720
Minimum Hourly Value:	0.0	kph	on Nov 1 at hr 20	Hours of Missing Data:	0
Minimum Daily Value:	2.2	kph	on Nov 18	Hours of Calibration:	0
Monthly Average:	2.0	kph		Operational 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			
Nov 1	6.5	4.6	4.1	3.4	2.6	1.0	1.2	0.8	3.7	5.0	6.6	5.2	5.2	5.1	5.7	4.5	4.6	1.7	1.3	1.6	**0.0**	1.2	3.1	2.7	**0.0**	6.6	3.4
Nov 2	0.9	0.6	0.5	0.1	0.4	2.5	0.4	3.3	2.8	3.5	5.4	4.0	6.4	8.1	8.6	6.9	1.6	7.5	6.5	6.0	7.8	5.0	3.1	2.7	0.1	8.6	3.9
Nov 3	3.0	4.1	4.6	4.4	3.2	3.6	3.8	3.4	4.3	3.5	3.1	2.1	4.5	7.8	4.7	4.5	5.7	4.6	2.7	2.5	2.3	0.5	0.3	0.8	0.3	7.8	3.5
Nov 4	2.8	2.1	2.3	0.7	0.4	1.1	0.5	2.6	6.0	7.3	6.6	7.4	7.5	9.2	10.6	11.1	10.6	11.3	10.9	12.4	10.9	8.5	9.2	8.3	0.4	12.4	6.7
Nov 5	9.0	9.3	8.1	6.3	3.6	6.8	4.3	5.2	4.5	4.3	2.8	2.3	3.0	1.1	0.1	1.6	0.7	0.6	0.5	1.9	1.9	**0.0**	**0.0**	0.7	**0.0**	9.3	3.3
Nov 6	0.2	1.9	3.1	3.0	2.5	3.3	4.2	5.6	4.0	5.2	4.9	5.8	7.4	7.8	5.7	5.5	6.2	6.0	5.2	3.3	4.1	3.9	5.7	7.8	0.2	7.8	4.7
Nov 7	7.4	8.3	6.6	5.4	5.2	4.3	4.0	2.2	2.1	2.1	1.1	1.8	2.4	2.6	3.6	3.8	4.1	3.3	9.1	10.0	7.1	7.3	5.5	6.4	1.1	10.0	4.8
Nov 8	7.3	9.8	9.7	10.0	11.6	12.2	10.6	9.0	10.0	12.7	10.6	12.1	11.9	11.1	13.6	15.1	15.3	14.4	14.5	14.6	12.2	10.7	9.8	6.6	6.6	15.3	11.5
Nov 9	6.8	9.5	8.2	4.1	3.7	4.4	3.2	3.1	2.2	3.7	3.3	1.7	2.5	1.0	0.7	4.8	1.8	0.5	1.1	2.4	2.6	4.2	5.1	7.7	0.5	9.5	3.7
Nov 10	4.9	6.2	8.9	8.0	6.9	5.6	4.3	3.2	6.6	8.6	8.8	7.6	10.1	10.5	8.5	4.3	8.3	7.1	4.2	4.5	3.5	3.3	3.4	4.1	3.2	10.5	6.3
Nov 11	7.7	8.0	8.7	8.3	8.1	10.7	11.4	8.7	11.4	14.5	12.0	12.3	13.2	11.0	7.2	1.9	1.7	0.5	0.8	0.4	3.9	5.6	8.4	7.8	0.4	14.5	7.7
Nov 12	7.2	5.8	5.0	3.9	4.7	5.2	5.7	4.7	7.3	7.9	7.8	10.9	13.7	12.4	10.7	10.0	6.6	4.8	3.7	0.9	0.3	0.3	0.5	0.2	0.2	13.7	5.8
Nov 13	0.5	0.4	2.6	2.8	0.9	5.4	5.9	6.2	6.6	8.1	6.8	5.4	5.4	4.1	4.8	2.1	0.9	0.4	0.3	2.7	3.2	5.0	5.5	6.5	0.3	8.1	3.9
Nov 14	12.2	13.0	10.6	14.7	12.9	12.6	10.1	12.6	11.2	10.1	10.0	9.4	11.6	13.9	12.5	9.8	6.7	7.7	8.9	5.1	1.5	0.8	0.1	0.3	0.1	14.7	9.1
Nov 15	0.5	0.3	1.8	4.6	3.9	5.4	5.6	6.5	8.4	12.4	14.7	14.9	14.0	14.0	15.5	8.0	5.2	3.4	4.4	3.6	2.1	4.8	4.8	3.8	0.3	15.5	6.8
Nov 16	2.7	2.9	1.9	3.5	5.2	3.0	0.6	0.8	0.8	1.1	2.9	7.4	9.4	7.2	7.9	6.5	3.5	1.4	2.1	4.3	4.1	3.7	5.7	5.5	0.6	9.4	3.9
Nov 17	5.5	6.5	5.1	6.1	5.9	6.1	7.9	6.5	6.5	7.7	8.8	10.6	13.1	10.8	10.0	6.3	3.5	0.7	0.3	0.4	0.3	0.1	0.2	0.3	0.1	13.1	5.4
Nov 18	0.1	**0.0**	0.1	0.1	0.4	0.2	0.6	0.1	0.1	0.5	1.4	1.1	2.1	2.1	3.0	2.3	1.6	1.9	5.8	8.2	4.9	3.2	7.1	5.3	**0.0**	8.2	**2.2**
Nov 19	8.0	6.3	7.8	7.2	4.9	0.7	0.1	0.6	0.4	1.9	6.4	6.7	5.5	5.6	5.0	8.2	6.1	5.5	6.6	7.2	4.8	4.9	6.3	10.8	0.1	10.8	5.3
Nov 20	10.9	16.1	13.0	15.8	17.4	**21.2**	16.8	18.5	18.2	16.2	18.3	17.0	13.2	14.4	13.1	8.8	5.2	4.9	5.4	4.0	4.3	4.1	3.5	0.3	0.3	**21.2**	**11.7**
Nov 21	0.4	0.2	0.9	2.3	2.5	3.8	6.3	7.0	7.4	8.9	8.8	9.1	8.0	5.0	1.9	1.2	2.7	2.5	4.1	4.8	5.6	6.4	5.5	8.3	0.2	9.1	4.7
Nov 22	7.3	7.7	9.4	11.0	7.6	8.4	8.3	7.4	7.6	7.3	8.0	9.3	9.7	8.3	7.6	5.6	3.7	1.6	3.9	4.8	7.2	8.0	7.1	5.3	1.6	11.0	7.2
Nov 23	5.8	5.9	7.2	6.7	5.5	6.6	6.8	4.4	4.1	4.3	4.1	6.5	5.2	4.3	6.0	6.0	3.7	2.8	3.4	2.2	0.1	0.1	0.2	**0.0**	**0.0**	7.2	4.2
Nov 24	0.3	0.5	2.0	4.0	5.0	9.1	5.1	3.5	7.5	11.4	10.9	11.3	11.6	13.1	9.6	6.4	7.1	7.5	7.9	5.5	6.4	5.9	6.1	6.3	0.3	13.1	6.8
Nov 25	6.1	5.0	6.1	5.8	8.4	7.9	8.1	5.9	7.2	16.0	12.5	13.4	15.9	16.4	18.0	15.8	13.1	5.2	3.8	4.4	6.5	6.4	4.9	1.5	1.5	18.0	8.9
Nov 26	2.6	1.2	0.1	0.5	0.6	0.2	0.7	1.2	1.6	1.7	1.0	1.8	4.1	3.4	4.8	4.4	5.3	5.9	4.1	3.5	5.0	6.6	7.4	5.5	0.1	7.4	3.1
Nov 27	5.1	5.0	5.5	5.9	3.0	0.3	0.1	**0.0**	**0.0**	0.4	1.4	1.5	1.1	1.9	2.9	3.0	4.1	6.4	7.1	8.0	7.9	7.9	7.6	7.3	**0.0**	8.0	3.9
Nov 28	7.0	6.9	8.4	8.7	9.9	9.6	8.6	7.9	8.2	8.3	9.4	12.0	12.6	9.8	10.5	7.6	4.9	5.8	6.2	9.2	5.2	4.7	5.5	6.3	4.7	12.6	8.1
Nov 29	5.9	6.1	6.8	7.3	8.3	8.5	8.4	6.9	9.5	9.8	13.5	17.6	16.2	15.7	14.1	12.0	9.6	10.8	14.1	13.2	8.2	6.2	6.3	6.6	5.9	17.6	10.1
Nov 30	6.3	8.8	7.6	6.4	6.9	5.6	6.4	6.9	7.3	6.3	6.9	9.0	8.0	8.5	7.0	5.2	4.6	3.7	1.8	3.0	2.4	0.1	0.5	0.5	0.1	9.0	5.4
Diurnal Maximum	12.2	16.1	13.0	15.8	17.4	21.2	16.8	18.5	18.2	16.2	18.3	17.6	16.2	16.4	18.0	15.8	15.3	14.4	14.5	14.6	12.2	10.7	9.8	10.8			
Diurnal Average	5.0	5.4	5.6	5.7	5.4	5.8	5.3	5.2	5.9	7.0	7.3	7.9	8.5	8.2	7.8	6.4	5.3	4.7	5.0	5.2	4.5	4.3	4.6	4.5			

C	Monthly Calibration	**S**	Daily Zero-Span Check	**Q**	Quality Assurance	
K	Collection Error	**ND**	No Data (Machine Not in Service)	**Y**	Routine Maintenance	**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.



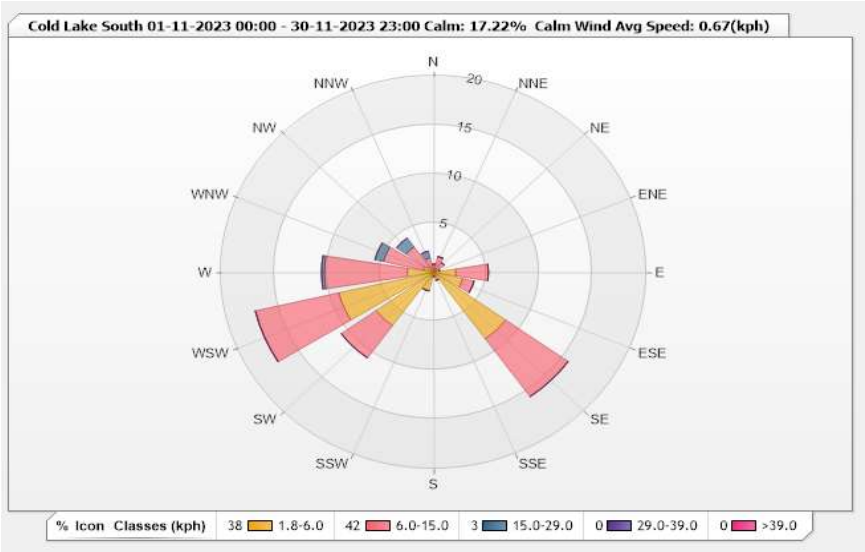


Station: Cold Lake South Monitor: WDS [kph] Monthly: 11-2023

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

Calm (WS<1.8kph): 17.22% 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	0.28	0.56	0	0	0	0.84
NNE	0.14	1.53	0	0	0	1.67
NE	0.28	0.97	0	0	0	1.25
ENE	0.56	0	0	0	0	0.56
E	2.08	3.06	0	0	0	5.14
ESE	2.78	1.11	0	0	0	3.89
SE	8.33	7.22	0	0	0	15.55
SSE	0.83	0	0	0	0	0.83
S	0.42	0	0	0	0	0.42
SSW	1.94	0	0	0	0	1.94
SW	6.67	4.03	0	0	0	10.7
WSW	9.17	8.06	0	0	0	17.23
W	2.5	7.78	0.28	0	0	10.56
WNW	0.97	3.89	0.83	0	0	5.69
NW	0.69	2.5	1.11	0	0	4.3
NNW	0.42	1.11	0.69	0	0	2.22
Summary	38.06	41.82	2.91	0	0	82.79



Lakeland Industry & Community Association

Cold Lake South Station - November 2023

Summary of Hourly Averages

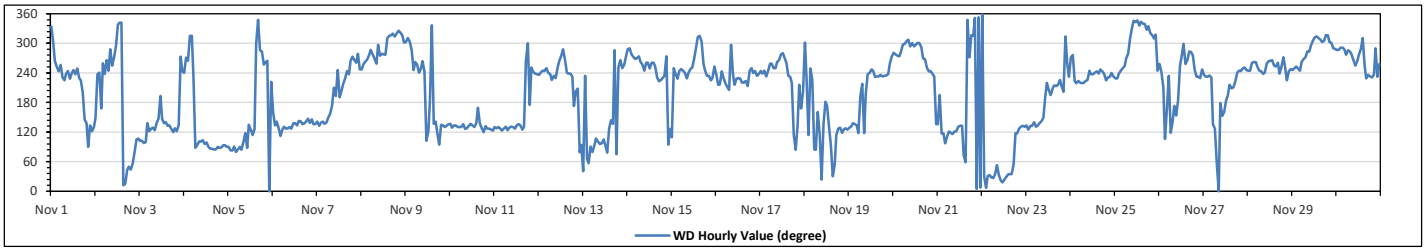
WIND DIRECTION (VWD) in sector

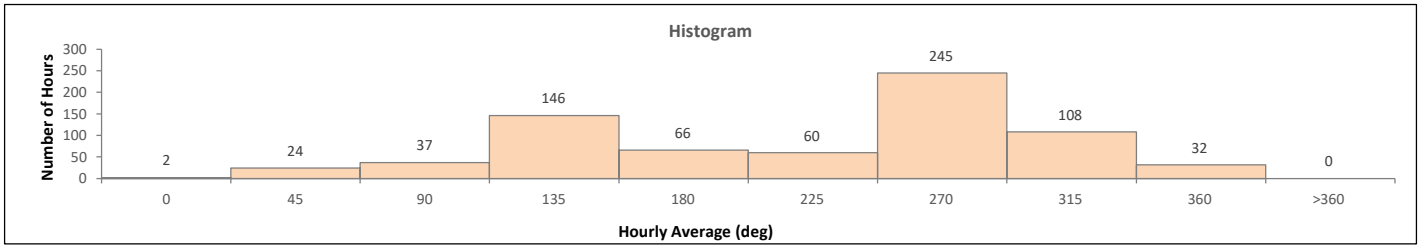
Monthly Average:	251 (WSW) degree	Hours in Service:	720
		Hours of Data:	720
		Hours of Missing Data:	0
		Hours of Calibration:	0
		Operational Uptime:	100.0

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
Nov 1	NNW	WNW	W	WSW	WSW	WSW	SW	SW	WSW	WSW	SW	WSW	WSW	SW	WSW	SW	SW	SSW	SE	SE	E	SE	ESE	SE	241	WSW
Nov 2	SSE	SW	WSW	SSE	WSW	SW	W	WSW	WNW	WSW	W	WNW	NNW	NNW	NNW	NNE	NNE	NE	NE	NE	NE	ENE	ESE	ESE	5	N
Nov 3	E	E	E	E	SE	ESE	SE	SE	ESE	SE	SE	S	SE	SE	SE	SE	SE	SE	ESE	SE	ESE	SE	W	WSW	129	SE
Nov 4	WSW	W	W	NW	NW	SW	E	E	E	E	ESE	E	E	E	E	E	E	E	E	E	E	E	E	E	92	E
Nov 5	E	E	E	E	E	E	E	E	E	ESE	E	SE	SE	ESE	SE	WNW	NNW	WNW	WNW	WSW	W	W	N	SW	92	E
Nov 6	SSE	SE	SE	SE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	135	SE
Nov 7	SE	SE	SE	SE	SE	SE	SSE	SSE	S	SSW	S	WSW	S	SSW	SW	SW	WSW	SW	W	W	W	W	W	WSW	211	SSW
Nov 8	WSW	WSW	W	W	W	WNW	W	W	WSW	WNW	W	W	W	W	NW	NW	NW	NW	NW	NW	NW	NW	NW	WNW	294	WNW
Nov 9	WNW	NW	WNW	WNW	WSW	W	WSW	WSW	WSW	W	WSW	E	ESE	S	NNW	SE	SE	ESE	E	SE	SE	SE	SE	SE	236	SW
Nov 10	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SE	SE	ESE	SE	SE	SE	SE	ESE	132	SE
Nov 11	SE	SE	SE	SE	ESE	SE	SE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	W	WNW	S	WSW	WSW	WSW	SW	139	SE
Nov 12	SW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	WSW	W	W	WNW	W	WSW	WSW	WSW	SW	S	SSW	SSW	ENE	E	250	WSW
Nov 13	NE	SW	ENE	ENE	E	E	E	ESE	E	E	E	ESE	E	ENE	SE	SE	SE	WNW	ENE	WSW	W	WSW	WSW	W	105	ESE
Nov 14	WNW	WNW	W	W	W	W	W	W	WSW	WSW	W	W	WSW	W	W	WSW	SW	SW	SW	SW	SW	W	E	SE	261	W
Nov 15	ESE	WSW	SW	SW	WSW	WSW	WSW	WSW	SW	WSW	WSW	WSW	W	WNW	NW	NW	WNW	WSW	WSW	SW	SW	SW	SW	WSW	260	WSW
Nov 16	SW	SW	SW	WSW	SW	SW	SSW	SSW	WNW	SW	SW	SW	SW	SW	SW	SW	SW	SSW	WSW	WSW	WSW	WSW	SW	SW	230	SW
Nov 17	WSW	WSW	WSW	SW	WSW	WSW	WSW	WSW	WSW	W	W	W	W	W	W	SW	SW	SW	ESE	E	SE	SW	SSE	SSW	257	WSW
Nov 18	WNW	SW	ESE	WSW	SW	E	E	SSE	ESE	NNE	SE	S	S	SE	E	NNE	NE	ESE	SE	SE	ESE	SE	SE	SE	122	ESE
Nov 19	SE	SE	SE	SE	SE	ESE	S	SW	ESE	SSW	SW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	W	218	SW
Nov 20	W	W	W	W	W	WNW	WNW	WNW	NW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W	W	WSW	WSW	WSW	WSW	SW	SE	289	WNW
Nov 21	SE	SSW	ESE	ESE	E	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	ENE	ENE	NNW	W	NW	NW	N	N	N	N	92	E
Nov 22	N	NNE	N	NNE	NNE	NNE	NNE	NE	NE	NNE	NNE	NNE	NNE	NNE	NE	NE	NE	NE	ESE	ESE	SE	SE	SE	SE	43	NE
Nov 23	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	S	SW	SSW	SSW	SSW	SSW	SSW	SW	SW	SSW	SSW	NW	WSW	SW	167	SSE
Nov 24	W	W	SW	SW	SW	SW	SW	SW	SW	SW	WSW	SW	SW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	WSW	SW	234	SW
Nov 25	SW	SW	WSW	WSW	WSW	WSW	W	W	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	WSW	317	NW
Nov 26	WSW	WSW	SSW	ESE	SSE	SW	ESE	SE	S	SSE	S	WSW	W	WNW	WSW	W	WNW	W	W	WSW	SW	SW	SW	WSW	251	WSW
Nov 27	SW	SW	SW	SW	SW	SE	SE	ENE	N	S	SSE	SSE	S	S	SW	SSW	SSW	SW	WSW	WSW	WSW	WSW	WSW	WSW	233	SW
Nov 28	WSW	WSW	W	W	W	WSW	WSW	WSW	SW	WSW	WSW	W	W	W	WSW	WSW	W	WSW	WSW	W	WSW	SW	WSW	WSW	254	WSW
Nov 29	WSW	WSW	WSW	WSW	WSW	W	W	W	WNW	WNW	WNW	WNW	NW	NW	NW	NW	WNW	WNW	NW	NW	WNW	WNW	WNW	WNW	293	WNW
Nov 30	WNW	WNW	WNW	WNW	WNW	W	WNW	WNW	W	W	WSW	W	W	WNW	NW	WSW	SW	SW	SW	SW	SW	WNW	SW	WSW	275	W

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 (Machine 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

Cold Lake South Station - November 2023

Summary of Hourly Averages

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

WIND SPEED

Maximum Hourly Value:	21.2	kph	on Nov 20 at hr 5	Hours in Service:	720
Maximum Daily Value:	11.7	kph	on Nov 20	Hours of Data:	720
Minimum Hourly Value:	0.0	kph	on Nov 1 at hr 20	Hours of Missing Data:	0
Minimum Daily Value:	2.2	kph	on Nov 18	Hours of Calibration:	0
Monthly Average:	2.0	kph		Operational Uptime:	100.0

WIND DIRECTION

Monthly Average: 251 degree (WSW)

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			
Nov 1	6.5	4.6	4.1	3.4	2.6	1.0	1.2	0.8	3.7	5.0	6.6	5.2	5.2	5.1	5.7	4.5	4.6	1.7	1.3	1.6	**0.0**	1.2	3.1	2.7	**0.0**	6.6	3.4
	NNW	WNW	W	WSW	WSW	WSW	SW	SW	WSW	WSW	SW	WSW	WSW	SW	WSW	SW	SW	SSW	SE	SE	E	SE	ESE	SE			241(WSW)
Nov 2	0.9	0.6	0.5	0.1	0.4	2.5	0.4	3.3	2.8	3.5	5.4	4.0	6.4	8.1	8.6	6.9	1.6	7.5	6.5	6.0	7.8	5.0	3.1	2.7	0.1	8.6	3.9
	SSE	SW	WSW	SSE	WSW	SW	W	WSW	WNW	WSW	W	WNW	NNW	NNW	NNW	NNE	NNE	NE	NE	NE	NE	ENE	ESE	ESE			5(N)
Nov 3	3.0	4.1	4.6	4.4	3.2	3.6	3.8	3.4	4.3	3.5	3.1	2.1	4.5	7.8	4.7	4.5	5.7	4.6	2.7	2.5	2.3	0.5	0.3	0.8	0.3	7.8	3.5
	E	E	E	E	SE	ESE	SE	SE	ESE	SE	SE	S	SE	SE	SE	SE	SE	SE	ESE	SE	ESE	SE	W	WSW			129(SE)
Nov 4	2.8	2.1	2.3	0.7	0.4	1.1	0.5	2.6	6.0	7.3	6.6	7.4	7.5	9.2	10.6	11.1	10.6	11.3	10.9	12.4	10.9	8.5	9.2	8.3	0.4	12.4	6.7
	WSW	W	W	NW	NW	SW	E	E	E	E	ESE	E	E	E	E	E	E	E	E	E	E	E	E	E			92(E)
Nov 5	9.0	9.3	8.1	6.3	3.6	6.8	4.3	5.2	4.5	4.3	2.8	2.3	3.0	1.1	0.1	1.6	0.7	0.6	0.5	1.9	1.9	**0.0**	**0.0**	0.7	**0.0**	9.3	3.3
	E	E	E	E	E	E	E	E	E	ESE	E	SE	SE	ESE	SE	WNW	NNW	WNW	WNW	WSW	W	W	N	SW			92(E)
Nov 6	0.2	1.9	3.1	3.0	2.5	3.3	4.2	5.6	4.0	5.2	4.9	5.8	7.4	7.8	5.7	5.5	6.2	6.0	5.2	3.3	4.1	3.9	5.7	7.8	0.2	7.8	4.7
	SSE	SE	SE	SE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE			135(SE)
Nov 7	7.4	8.3	6.6	5.4	5.2	4.3	4.0	2.2	2.1	2.1	1.1	1.8	2.4	2.6	3.6	3.8	4.1	3.3	9.1	10.0	7.1	7.3	5.5	6.4	1.1	10.0	4.8
	SE	SE	SE	SE	SE	SE	SSE	SSE	S	SSW	S	WSW	S	SSW	SW	SW	WSW	SW	W	W	W	W	W	WSW			211(SSW)
Nov 8	7.3	9.8	9.7	10.0	11.6	12.2	10.6	9.0	10.0	12.7	10.6	12.1	11.9	11.1	13.6	15.1	15.3	14.4	14.5	14.6	12.2	10.7	9.8	6.6	6.6	15.3	11.5
	WSW	WSW	W	W	W	WNW	W	W	WSW	WNW	W	W	W	W	NW	NW	NW	NW	NW	NW	NW	NW	NW	WNW			294(WNW)
Nov 9	6.8	9.5	8.2	4.1	3.7	4.4	3.2	3.1	2.2	3.7	3.3	1.7	2.5	1.0	0.7	4.8	1.8	0.5	1.1	2.4	2.6	4.2	5.1	7.7	0.5	9.5	3.7
	WNW	NW	WNW	WNW	WSW	W	WSW	WSW	WSW	W	WSW	E	ESE	S	NNW	SE	SE	ESE	E	SE	SE	SE	SE	SE			236(SW)
Nov 10	4.9	6.2	8.9	8.0	6.9	5.6	4.3	3.2	6.6	8.6	8.8	7.6	10.1	10.5	8.5	4.3	8.3	7.1	4.2	4.5	3.5	3.3	3.4	4.1	3.2	10.5	6.3
	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SE	SE	ESE	SE	SE	SE	SE	ESE			132(SE)
Nov 11	7.7	8.0	8.7	8.3	8.1	10.7	11.4	8.7	11.4	14.5	12.0	12.3	13.2	11.0	7.2	1.9	1.7	0.5	0.8	0.4	3.9	5.6	8.4	7.8	0.4	14.5	7.7
	SE	SE	SE	SE	ESE	SE	SE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	W	WNW	S	WSW	WSW	WSW	SW			139(SE)
Nov 12	7.2	5.8	5.0	3.9	4.7	5.2	5.7	4.7	7.3	7.9	7.8	10.9	13.7	12.4	10.7	10.0	6.6	4.8	3.7	0.9	0.3	0.3	0.5	0.2	0.2	13.7	5.8
	SW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	WSW	W	W	WNW	W	WSW	WSW	WSW	SW	S	SSW	SSW	ENE	E			250(WSW)
Nov 13	0.5	0.4	2.6	2.8	0.9	5.4	5.9	6.2	6.6	8.1	6.8	5.4	5.4	4.1	4.8	2.1	0.9	0.4	0.3	2.7	3.2	5.0	5.5	6.5	0.3	8.1	3.9
	NE	SW	ENE	ENE	E	E	E	ESE	E	E	E	ESE	E	ENE	SE	SE	SE	WNW	ENE	WSW	W	WSW	WSW	W			105(ESE)
Nov 14	12.2	13.0	10.6	14.7	12.9	12.6	10.1	12.6	11.2	10.1	10.0	9.4	11.6	13.9	12.5	9.8	6.7	7.7	8.9	5.1	1.5	0.8	0.1	0.3	0.1	14.7	9.1
	WNW	WNW	W	W	W	W	W	W	WSW	WSW	W	W	WSW	W	W	WSW	SW	SW	SW	SW	SW	W	E	SE			261(W)
Nov 15	0.5	0.3	1.8	4.6	3.9	5.4	5.6	6.5	8.4	12.4	14.7	14.9	14.0	14.0	15.5	8.0	5.2	3.4	4.4	3.6	2.1	4.8	4.8	3.8	0.3	15.5	6.8
	ESE	WSW	SW	SW	WSW	WSW	WSW	WSW	SW	WSW	WSW	WSW	W	WNW	NW	NW	WNW	WSW	WSW	SW	SW	SW	SW	WSW			260(WSW)
Nov 16	2.7	2.9	1.9	3.5	5.2	3.0	0.6	0.8	0.8	1.1	2.9	7.4	9.4	7.2	7.9	6.5	3.5	1.4	2.1	4.3	4.1	3.7	5.7	5.5	0.6	9.4	3.9
	SW	SW	SW	WSW	SW	SW	SSW	SSW	WNW	SW	SW	SW	SW	SW	SW	SW	SW	SSW	WSW	WSW	WSW	WSW	SW	SW			230(SW)
Nov 17	5.5	6.5	5.1	6.1	5.9	6.1	7.9	6.5	6.5	7.7	8.8	10.6	13.1	10.8	10.0	6.3	3.5	0.7	0.3	0.4	0.3	0.1	0.2	0.3	0.1	13.1	5.4
	WSW	WSW	WSW	SW	WSW	WSW	WSW	WSW	WSW	W	W	W	W	W	W	SW	SW	SW	ESE	E	SE	SW	SSE	SSW			257(WSW)
Nov 18	0.1	**0.0**	0.1	0.1	0.4	0.2	0.6	0.1	0.1	0.5	1.4	1.1	2.1	2.1	3.0	2.3	1.6	1.9	5.8	8.2	4.9	3.2	7.1	5.3	**0.0**	8.2	**2.2**
	WNW	SW	ESE	WSW	SW	E	E	SSE	ESE	NNE	SE	S	S	SE	E	NNE	NE	ESE	SE	SE	ESE	SE	SE	SE			122(ESE)
Nov 19	8.0	6.3	7.8	7.2	4.9	0.7	0.1	0.6	0.4	1.9	6.4	6.7	5.5	5.6	5.0	8.2	6.1	5.5	6.6	7.2	4.8	4.9	6.3	10.8	0.1	10.8	5.3
	SE	SE	SE	SE	SE	ESE	S	SW	ESE	SSW	SW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	W			218(SW)
Nov 20	10.9	16.1	13.0	15.8	17.4	**21.2**	16.8	18.5	18.2	16.2	18.3	17.0	13.2	14.4	13.1	8.8	5.2	4.9	5.4	4.0	4.3	4.1	3.5	0.3	0.3	**21.2**	**11.7**
	W	W	W	W	W	WNW	WNW	WNW	NW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W	W	WSW	WSW	WSW	WSW	SW	SE			289(WNW)
Nov 21	0.4	0.2	0.9	2.3	2.5	3.8	6.3	7.0	7.4	8.9	8.8	9.1	8.0	5.0	1.9	1.2	2.7	2.5	4.1	4.8	5.6	6.4	5.5	8.3	0.2	9.1	4.7
	SE	SSW	ESE	ESE	E	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	ENE	ENE	NNW	W	NW	NW	N	N	N	N			92(E)
Nov 22	7.3	7.7	9.4	11.0	7.6	8.4	8.3	7.4	7.6	7.3	8.0	9.3	9.7	8.3	7.6	5.6	3.7	1.6	3.9	4.8	7.2	8.0	7.1	5.3	1.6	11.0	7.2
	N	NNE	N	NNE	NNE	NNE	NNE	NE	NE	NNE	NNE	NNE	NNE	NNE	NE	NE	NE	NE	ESE	ESE	SE	SE	SE	SE			43(NE)
Nov 23	5.8	5.9	7.2	6.7	5.5	6.6	6.8	4.4	4.1	4.3	4.1	6.5	5.2	4.3	6.0	6.0	3.7	2.8	3.4	2.2	0.1	0.1	0.2	**0.0**	**0.0**	7.2	4.2
	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	S	SW	SSW	SSW	SSW	SSW	SSW	SW	SW	SSW	SSW	NW	WSW	SW			167(SSE)
Nov 24	0.3	0.5	2.0	4.0	5.0	9.1	5.1	3.5	7.5	11.4	10.9	11.3	11.6	13.1	9.6	6.4	7.1	7.5	7.9	5.5	6.4	5.9	6.1	6.3	0.3	13.1	6.8
	W	W	SW	SW	SW	SW	SW	SW	SW	SW	WSW	SW	SW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	WSW	SW			234(SW)
Nov 25	6.1	5.0	6.1	5.8	8.4	7.9	8.1	5.9	7.2	16.0	12.5	13.4	15.9	16.4	18.0	15.8	13.1	5.2	3.8	4.4	6.5	6.4	4.9	1.5	1.5	18.0	8.9
	SW	SW	WSW	WSW	WSW	WSW	W	W	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	WSW			317(NW)
Nov 26	2.6	1.2	0.1	0.5	0.6	0.2	0.7	1.2	1.6	1.7	1.0	1.8	4.1	3.4	4.8	4.4	5.3	5.9	4.1	3.5	5.0	6.6	7.4	5.5	0.1	7.4	3.1
	WSW	WSW	SSW	ESE	SSE	SW	ESE	SE	S	SSE	S	WSW	W	WNW	WSW	W	WNW	W	W	WSW	SW	SW	SW	WSW			251(WSW)
Nov 27	5.1	5.0	5.5	5.9	3.0	0.3	0.1	**0.0**	**0.0**	0.4	1.4	1.5	1.1	1.9	2.9	3.0	4.1	6.4	7.1	8.0	7.9	7.9	7.6	7.3	**0.0**	8.0	3.9
	SW	SW	SW	SW	SW	SE	SE	ENE	N	S	SSE	SSE	S	S	SW	SSW	SSW	SW	WSW	WSW	WSW	WSW	WSW	WSW			233(SW)
Nov 28	7.0	6.9	8.4	8.7	9.9	9.6	8.6	7.9	8.2	8.3	9.4	12.0	12.6	9.8	10.5	7.6	4.9	5.8	6.2	9.2	5.2	4.7	5.5	6.3	4.7	12.6	8.1
	WSW	WSW	W	W	W	WSW	WSW	WSW	SW	WSW	WSW	W	W	W	WSW	WSW	W	WSW	WSW	W	WSW	SW	WSW	WSW			254(WSW)
Nov 29	5.9	6.1	6.8	7.3	8.3	8.5	8.4	6.9	9.5	9.8	13.5	17.6	16.2	15.7	14.1	12.0	9.6	10.8	14.1	13.2	8.2	6.2	6.3	6.6	5.9	17.6	10.1
	WSW	WSW	WSW	WSW	WSW	W	W	W	WNW	WNW	WNW	WNW	NW	NW	NW	NW	WNW	WNW	NW	NW	WNW	WNW	WNW	WNW			293(WNW)
Nov 30	6.3	8.8	7.6	6.4	6.9	5.6	6.4	6.9	7.3	6.3	6.9	9.0	8.0	8.5	7.0	5.2	4.6	3.7	1.8	3.0	2.4	0.1	0.5	0.5	0.1	9.0	5.4
	WNW	WNW	WNW	WNW	WNW	W	WNW	WNW	W	W	WSW	W	W	WNW	NW	WSW	SW	SW	SW	SW	SW	WNW	SW	WSW			275(W)

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

Cold Lake South Station - November 2023

Summary of Hour Standard Deviations

STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

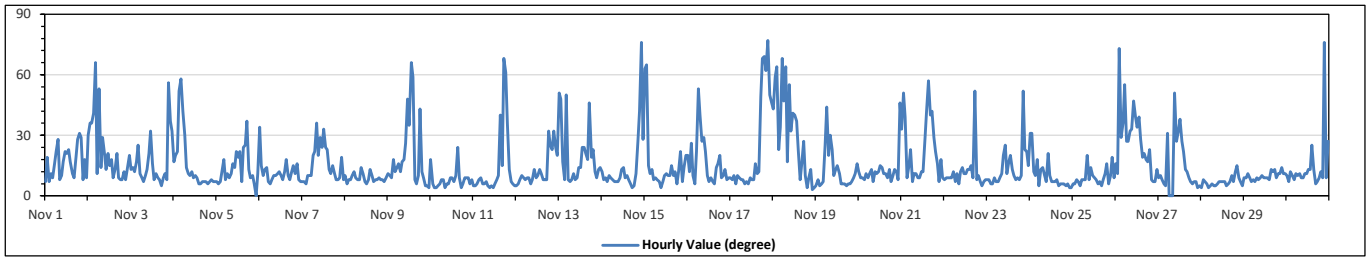
Maximum Hourly Value:	77	degree on Nov 17 at hr 21	Hours in Service:	720		
			Hours of Data:	720		
Minimum Hourly Value:	0	degree on Nov 5 at hr 22	Hours of Missing Data:	0		
			Hours of Calibration:	0		
			Operational Uptime:	100.0		

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		
Nov 1	7	19	7	11	9	16	22	28	8	10	17	22	21	23	17	11	9	19	28	31	29	8	18	9	7	31
Nov 2	30	36	36	41	66	11	53	14	29	21	13	21	15	18	9	13	21	9	8	8	12	8	14	20	8	66
Nov 3	13	14	12	17	25	11	9	7	10	13	21	32	16	8	11	9	8	5	9	11	8	56	37	32	5	56
Nov 4	17	20	22	52	58	42	30	14	11	10	12	9	10	9	6	6	7	7	7	6	7	8	7	7	6	58
Nov 5	7	6	7	12	18	8	11	9	11	16	14	22	19	22	7	24	25	37	13	9	10	6	**0**	11	**0**	37
Nov 6	34	15	10	13	14	7	6	8	10	10	11	12	10	8	12	18	10	8	12	15	11	16	8	7	6	34
Nov 7	7	7	6	10	10	10	20	22	36	20	29	24	33	24	23	13	11	15	11	8	8	9	19	8	6	36
Nov 8	10	6	8	8	10	12	9	8	8	14	11	7	6	8	13	10	7	8	8	9	8	8	7	9	6	14
Nov 9	11	10	9	18	12	14	16	12	17	18	26	48	35	66	59	8	6	10	43	12	9	5	5	4	4	66
Nov 10	18	6	4	4	5	6	8	8	4	6	6	9	9	7	10	24	9	4	6	9	9	9	6	8	4	24
Nov 11	5	5	6	8	9	6	6	7	5	4	5	4	6	8	10	40	15	68	61	36	13	7	6	5	4	68
Nov 12	5	6	8	10	9	8	9	9	6	8	13	9	10	13	11	8	8	8	32	25	23	32	24	20	5	32
Nov 13	51	48	17	8	50	8	7	8	11	8	9	14	14	24	24	21	18	46	19	23	12	9	13	14	7	51
Nov 14	12	8	9	7	10	9	8	7	7	7	9	13	14	9	10	8	6	4	5	11	27	42	76	28	4	76
Nov 15	63	65	15	11	13	8	9	8	7	4	7	10	11	10	10	15	10	12	6	12	22	7	14	20	4	65
Nov 16	20	12	26	10	6	22	53	40	27	29	22	10	7	9	7	6	14	16	20	9	10	13	8	9	6	53
Nov 17	9	8	10	6	10	9	8	8	6	7	6	9	8	8	16	11	12	49	68	69	62	77	50	46	6	77
Nov 18	43	59	64	23	34	68	47	64	17	55	32	41	40	37	23	8	16	27	10	4	9	13	3	4	3	68
Nov 19	5	8	5	6	7	25	44	20	30	23	10	13	15	11	6	6	6	5	6	6	7	9	11	16	5	44
Nov 20	12	9	9	8	11	9	11	13	7	12	11	12	15	14	11	11	9	13	7	10	13	12	8	46	7	46
Nov 21	33	51	39	9	15	23	7	11	11	9	9	12	12	28	42	57	40	42	29	22	16	7	18	9	7	57
Nov 22	8	9	9	9	9	12	7	11	6	12	14	11	11	13	13	15	9	52	8	10	7	5	7	8	5	52
Nov 23	8	8	6	6	9	7	7	9	11	20	25	11	17	20	13	10	8	9	8	10	52	23	22	15	6	52
Nov 24	31	31	12	10	18	5	13	14	10	7	21	10	7	7	7	8	5	6	6	6	5	6	4	4	4	31
Nov 25	6	6	8	7	5	8	8	8	20	8	14	10	9	8	6	7	5	8	11	16	6	10	19	9	5	20
Nov 26	16	11	73	29	36	55	27	27	32	33	47	39	34	39	28	19	21	18	17	23	8	7	7	13	7	73
Nov 27	9	10	8	6	5	31	**0**	**0**	**0**	51	27	32	38	27	22	13	12	9	7	6	7	7	4	5	**0**	51
Nov 28	4	8	7	6	4	5	6	5	5	6	7	7	7	7	5	6	7	10	7	12	15	9	7	5	4	15
Nov 29	9	9	11	9	7	8	7	9	8	9	10	9	9	9	8	13	12	13	9	11	11	14	11	11	7	14
Nov 30	10	7	12	10	8	11	10	11	9	9	11	11	13	13	25	13	6	7	9	12	9	76	9	27	6	76
Diurnal Minimum	4	5	4	4	4	5	0	0	0	4	5	4	6	7	5	6	5	4	5	4	5	5	0	4		
Diurnal Maximum	63	65	73	52	66	68	53	64	36	55	47	48	40	66	59	57	40	68	68	69	62	77	76	46		

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 (Machine 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.



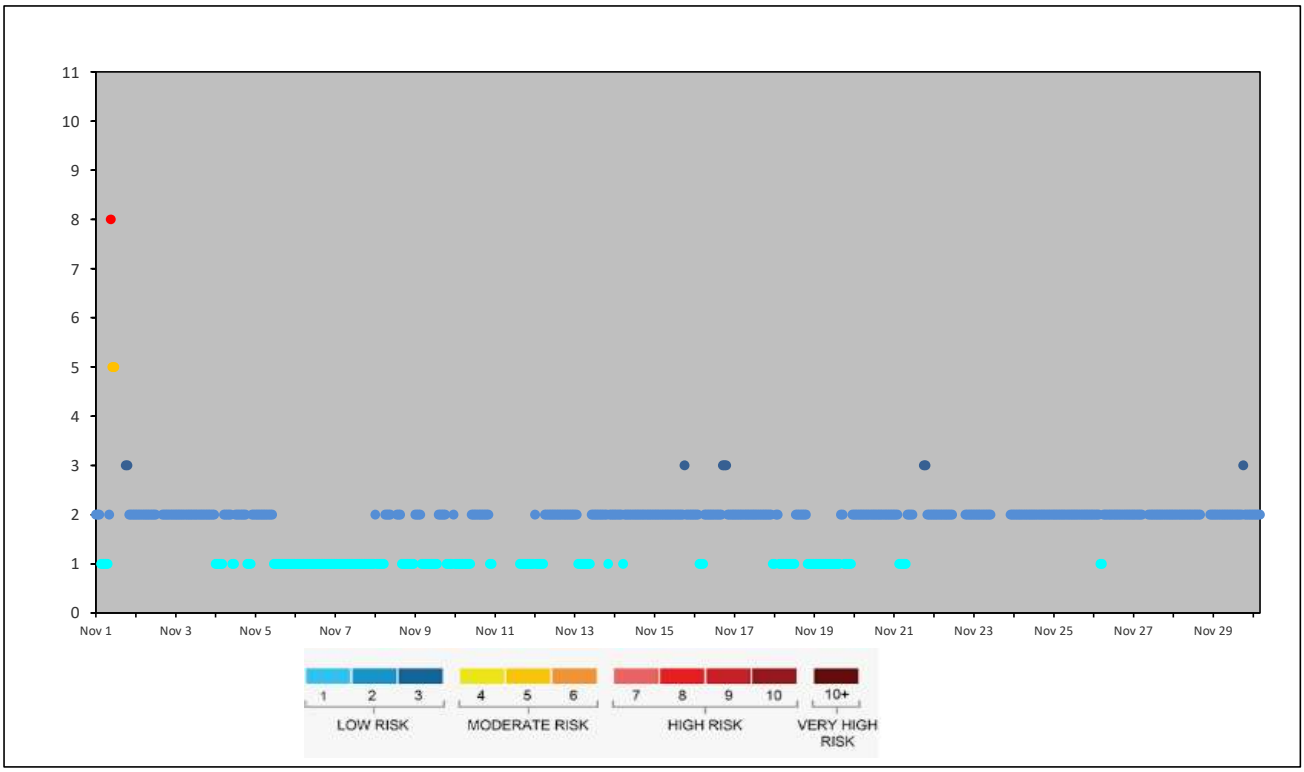
TAMARACK STATION

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - November 2023

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
Nov 1	2	2	2	1	1	1	1	1	2	8	5	5							3	3	2	2	2	2
Nov 2	2	2	2	2	2	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2
Nov 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
Nov 4	1	1	1	1	1	2	2	2	2	2	1	1	2	2	2	2	2	2	2	1	1	1	2	2
Nov 5	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Nov 6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
Nov 7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Nov 8	2	1	1	1	1	1	2	2	2	2				2	2	2	1	1	1	1	1	1	1	1
Nov 9	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	2
Nov 10	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	1	1	
Nov 11																1	1	1	1	1	1	1	1	1
Nov 12	2	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 13	2	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	1	2	2	2
Nov 14	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2
Nov 16	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	2	2
Nov 17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
Nov 18	1	2	2	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1
Nov 19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	2
Nov 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
Nov 21	2	2	2	1	1	1	1	1	2	2	2	2							3	3	2	2	2	2
Nov 22	2	2	2	2	2	2	2	2	2	2	2	2								2	2	2	2	2
Nov 23	2	2	2	2	2	2	2	2	2	2	2												2	2
Nov 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
Nov 25	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 26	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 27	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 28	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2						2	2
Nov 29	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2
Nov 30	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

Tamarack Site - November 2023

Summary of Hourly Averages

SULPHUR DIOXIDE (SO_2) in ppb

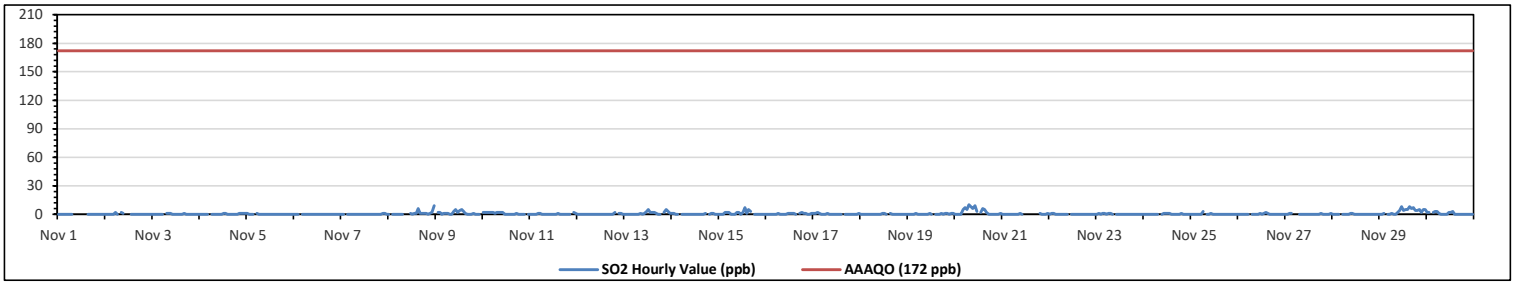
Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb

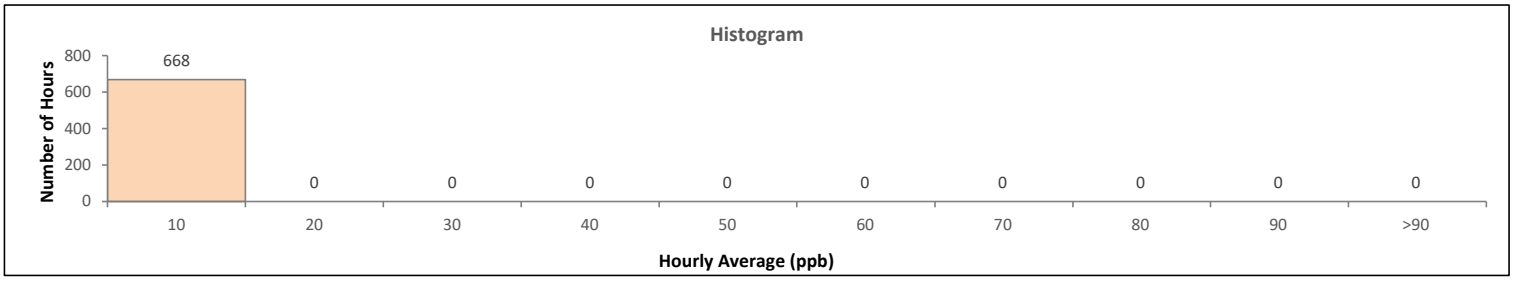
Number of 1-Hour Exceedances:	0	Number of 24-Hour Exceedances:	0	30-Day Exceedence:	0	
Maximum Hourly Value:	10	ppb	on Nov 20 at hr 7	Hours in Service:	720	
Maximum Daily Value:	3.3	ppb	on Nov 29	Hours of Data:	668	
Minimum Hourly Value:	0	ppb	on Nov 1 at hr 0	Hours of Missing Data:	16	
Minimum Daily Value:	0.0	ppb	on Nov 6	Hours of Calibration:	36	
Monthly Average:	0.6	ppb		Operational Uptime:	97.8	

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			
Nov 1	0	0	0	0	0	0	0	0	S	4	P	P	P	P	P	0	0	0	0	0	0	0	0	0	0	4	0.2
Nov 2	0	0	0	0	0	2	0	S	2	1	P	P	P	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3
Nov 3	0	0	0	0	0	0	S	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0.2
Nov 4	0	0	0	0	0	S	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	1	1	0	1	0.3
Nov 5	1	0	0	0	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Nov 6	0	0	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
Nov 7	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0.1
Nov 8	0	S	0	0	0	0	0	0	K	K	K	1	0	1	1	6	1	1	1	1	0	1	2	9	0	9	1.3
Nov 9	S	2	2	0	1	1	1	0	0	3	5	2	4	5	3	1	0	0	0	1	0	0	0	S	0	5	1.4
Nov 10	2	2	2	2	2	2	1	2	2	2	2	0	0	0	0	0	0	1	0	0	0	0	S	0	0	2	1.0
Nov 11	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	S	2	1	0	2	0.3
Nov 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	S	1	1	0	0	2	0.2
Nov 13	0	0	0	0	0	0	0	0	1	0	1	3	5	2	2	2	1	0	0	S	2	5	3	1	0	5	1.2
Nov 14	1	1	0	0	K	0	0	0	0	0	0	0	0	0	0	0	0	1	S	0	1	1	0	0	0	1	0.2
Nov 15	0	0	0	2	2	2	0	0	0	2	2	0	2	7	1	5	3	S	0	0	0	0	0	0	0	7	1.2
Nov 16	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	0	S	1	2	1	1	0	0	1	0	2	0.5
Nov 17	1	1	2	1	0	0	0	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	0	2	0.3
Nov 18	0	0	0	0	0	0	0	0	0	0	0	1	1	0	S	1	0	0	0	0	0	0	0	0	0	1	0.1
Nov 19	0	0	0	0	1	0	0	0	0	0	0	1	0	S	0	0	0	1	0	1	1	0	1	1	0	1	0.3
Nov 20	0	0	0	0	5	7	5	10	8	6	9	3	S	2	6	5	2	0	0	0	0	0	0	1	0	10	3.0
Nov 21	0	0	0	0	0	0	0	0	0	1	0	S	C	C	NRM	C	C	C	C	1	0	0	0	1	0	1	NA
Nov 22	0	1	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Nov 23	0	1	0	1	1	0	1	1	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2
Nov 24	0	0	0	0	0	0	0	0	S	0	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	1	0.2
Nov 25	0	0	0	0	0	0	3	S	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.2
Nov 26	0	0	0	0	0	0	S	0	0	0	0	1	0	1	2	1	0	0	0	0	0	0	0	0	0	2	0.2
Nov 27	0	0	1	1	K	K	K	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0.2
Nov 28	0	0	0	0	S	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Nov 29	0	0	1	S	0	0	1	0	0	2	4	8	4	5	5	8	6	7	4	4	5	2	5	5	0	8	3.3
Nov 30	2	2	S	2	3	3	1	0	0	0	0	2	2	3	0	0	0	0	0	0	0	0	0	0	0	3	0.9
Diurnal Maximum	2	2	2	2	5	7	5	10	8	6	9	8	5	7	6	8	6	7	4	4	5	5	5	9			
Diurnal Average	0.2	0.3	0.3	0.3	0.6	0.7	0.5	0.5	0.5	0.8	1.0	0.9	0.8	1.1	0.8	1.0	0.5	0.4	0.3	0.4	0.4	0.4	0.6	0.8			

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance	
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance	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.



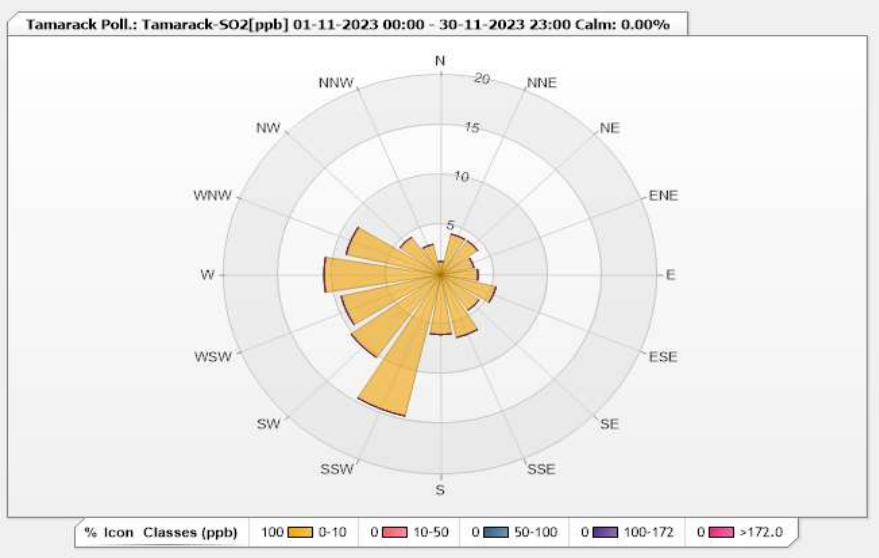


Station: Tamarack Poll.: Tamarack-SO2[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 92.78% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	1.35	0	0	0	0	1.35
NNE	4.19	0	0	0	0	4.19
NE	4.19	0	0	0	0	4.19
ENE	3.14	0	0	0	0	3.14
E	3.44	0	0	0	0	3.44
ESE	5.24	0	0	0	0	5.24
SE	4.34	0	0	0	0	4.34
SSE	6.44	0	0	0	0	6.44
S	5.99	0	0	0	0	5.99
SSW	14.52	0	0	0	0	14.52
SW	10.18	0	0	0	0	10.18
WSW	9.43	0	0	0	0	9.43
W	10.78	0	0	0	0	10.78
WNW	8.98	0	0	0	0	8.98
NW	4.64	0	0	0	0	4.64
NNW	3.14	0	0	0	0	3.14
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - November 2023

Summary of Hourly Averages

HYDROGEN SULPHIDE (H_2S) in ppb

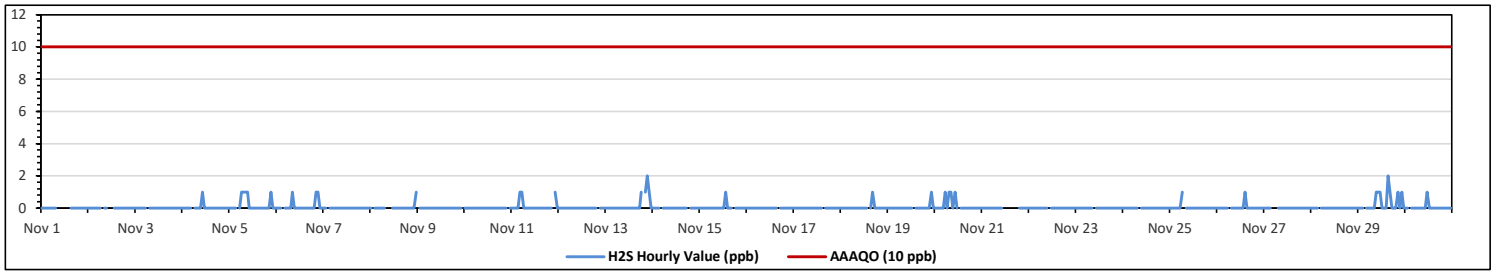
Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 10 ppb, 24-Hour 3 ppb

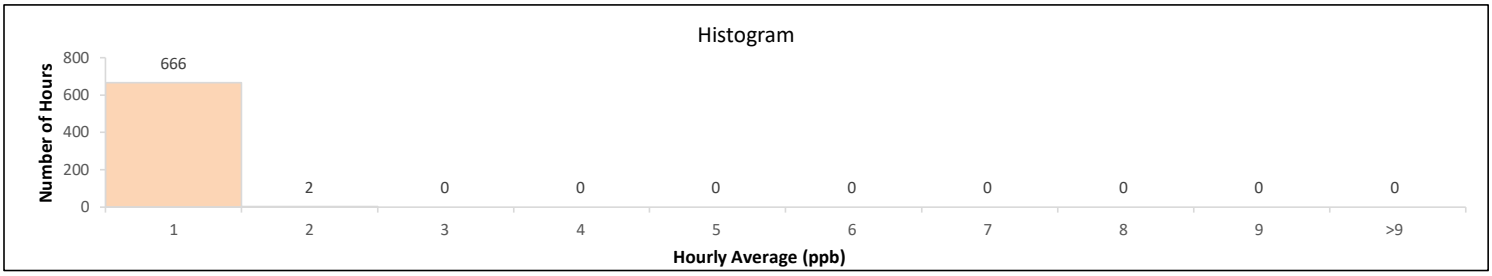
Number of 1-Hour Exceedances:	0		Number of 24-Hour Exceedances:	0	
Maximum Hourly Value:	2	ppb	on Nov 13 at hr 21	Hours in Service:	720
Maximum Daily Value:	0.0	ppb	on Nov 1	Hours of Data:	668
Minimum Hourly Value:	0	ppb	on Nov 1 at hr 0	Hours of Missing Data:	16
Minimum Daily Value:	0.0	ppb	on Nov 1	Hours of Calibration:	36
Monthly Average:	0.1	ppb		Operational Uptime:	97.8

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			
Nov 1	0	0	0	0	0	0	0	0	S	0	P	P	P	P	P	0	0	0	0	0	0	0	0	0	0	0	0.0
Nov 2	0	0	0	0	0	0	0	S	0	0	P	P	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Nov 3	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	0.0
Nov 4	0	0	0	0	0	S	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Nov 5	0	0	0	0	S	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0.0
Nov 6	0	0	0	S	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0.0
Nov 7	0	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
Nov 8	0	S	0	0	0	0	0	0	K	K	K	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.0
Nov 9	S	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
Nov 10	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
Nov 11	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	0	0	1	0.0
Nov 12	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
Nov 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	S	1	2	1	0	0	2	0.0
Nov 14	0	0	0	0	K	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.0
Nov 15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	S	0	0	0	0	0	0	0	1	0.0
Nov 16	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
Nov 17	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
Nov 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	0	0	0	0	0	0	0	0	1	0.0
Nov 19	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0	0	1	0.0
Nov 20	0	0	0	0	0	1	0	1	1	0	1	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Nov 21	0	0	0	0	0	0	0	0	0	0	0	S	C	C	NRM	C	C	C	C	0	0	0	0	0	0	0	-
Nov 22	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	0.0
Nov 23	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
Nov 24	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
Nov 25	0	0	0	0	0	0	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Nov 26	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.0
Nov 27	0	0	0	0	K	K	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Nov 28	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	0	0.0
Nov 29	0	0	0	S	0	0	0	0	0	1	1	1	0	0	0	2	1	0	0	0	1	0	1	0	0	2	0.0
Nov 30	0	0	S	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Diurnal Maximum	0	0	0	0	1	1	1	1	1	1	1	1	0	1	1	2	1	0	1	0	1	2	1	1			
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	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	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.



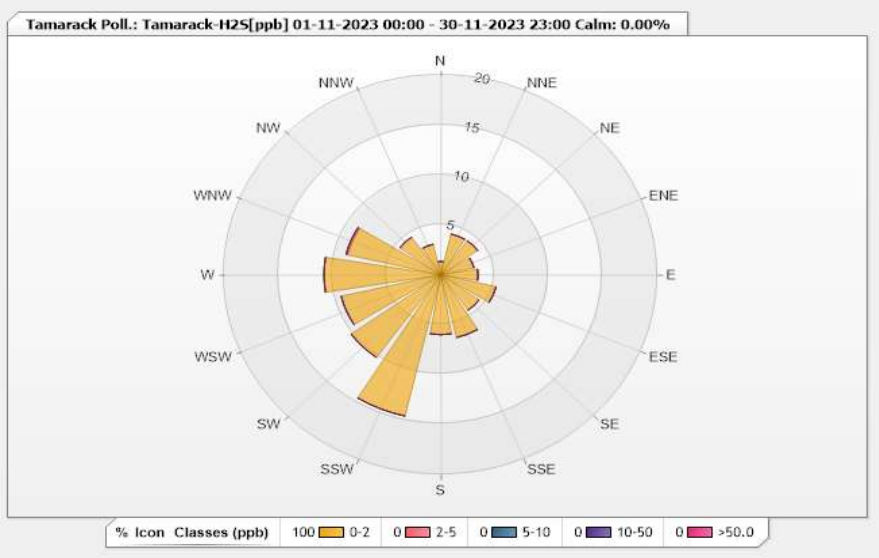


Station: Tamarack Poll.: Tamarack-H2S[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 92.78% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	1.35	0	0	0	0	1.35
NNE	4.19	0	0	0	0	4.19
NE	4.19	0	0	0	0	4.19
ENE	3.14	0	0	0	0	3.14
E	3.44	0	0	0	0	3.44
ESE	5.24	0	0	0	0	5.24
SE	4.34	0	0	0	0	4.34
SSE	6.44	0	0	0	0	6.44
S	5.99	0	0	0	0	5.99
SSW	14.52	0	0	0	0	14.52
SW	10.18	0	0	0	0	10.18
WSW	9.43	0	0	0	0	9.43
W	10.78	0	0	0	0	10.78
WNW	8.83	0.15	0	0	0	8.98
NW	4.64	0	0	0	0	4.64
NNW	3.14	0	0	0	0	3.14
Summary	100	0.15	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - November 2023

Summary of Hourly Averages

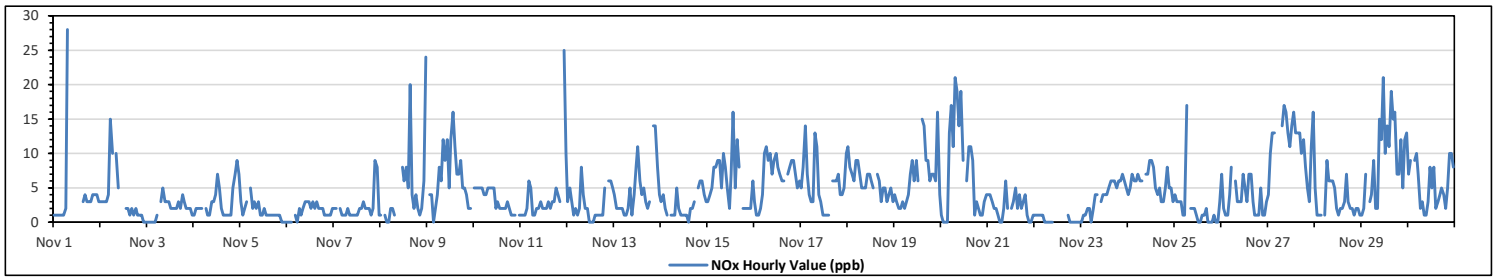
OXIDES OF NITROGEN (NOx) in ppb

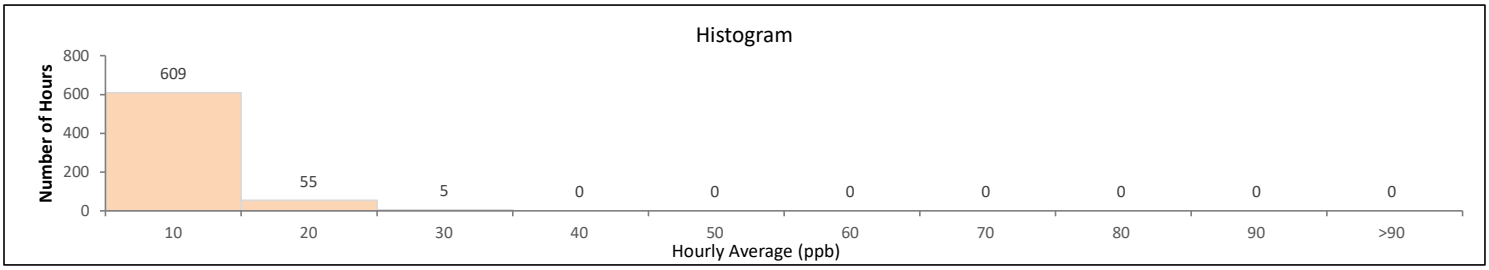
Maximum Hourly Value:	28	ppb	on Nov 1 at hr 7	Hours in Service:	720	
Maximum Daily Value:	11.7	ppb	on Nov 27	Hours of Data:	669	
Minimum Hourly Value:	0	ppb	on Nov 2 at hr 22	Hours of Missing Data:	15	
Minimum Daily Value:	1.6	ppb	on Nov 5	Hours of Calibration:	36	
Monthly Average:	4.5	ppb		Operational Uptime:	97.9	

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			
Nov 1	1	1	1	1	1	1	2	28	S	12	P	P	P	P	P	3	4	3	3	3	4	4	4	3	1	28	4.4
Nov 2	3	3	3	3	4	15	10	S	10	5	P	P	P	2	2	1	2	1	2	1	1	1	0	0	0	15	3.5
Nov 3	0	0	0	0	0	1	S	3	5	3	3	3	2	2	2	2	3	2	4	3	2	2	2	1	0	5	2.0
Nov 4	1	2	2	2	2	S	2	1	1	3	3	4	7	5	2	1	1	1	1	1	5	7	9	7	1	9	3.0
Nov 5	3	1	2	3	S	5	2	3	2	3	1	1	2	1	1	1	1	1	1	1	1	0	0	0	0	5	1.6
Nov 6	0	0	0	S	1	0	2	1	2	3	3	3	2	3	2	3	2	2	2	1	1	1	1	2	0	3	1.6
Nov 7	2	2	S	2	1	1	1	2	1	1	1	1	1	2	2	3	2	2	2	1	2	9	8	1	1	9	2.2
Nov 8	1	S	1	0	0	2	2	1	K	K	K	8	6	8	5	20	4	2	4	2	1	2	6	24	0	24	5.0
Nov 9	S	4	4	0	2	4	8	6	12	9	12	5	12	16	11	7	7	9	5	5	4	2	2	S	0	16	6.6
Nov 10	5	5	5	5	5	4	4	5	5	5	5	2	3	2	2	2	2	3	2	1	1	1	S	1	1	5	3.3
Nov 11	1	1	1	2	6	5	1	1	2	2	3	2	2	2	3	2	3	3	5	4	3	S	25	10	1	25	3.9
Nov 12	3	5	3	1	2	1	2	8	4	2	2	0	0	0	1	1	1	1	1	5	S	6	6	5	0	8	2.6
Nov 13	4	2	2	2	2	1	1	2	5	1	4	8	11	6	4	5	3	2	3	S	14	14	8	4	1	14	4.7
Nov 14	3	4	2	1	K	1	1	1	5	2	1	1	1	1	0	2	2	3	S	5	6	6	4	3	0	6	2.5
Nov 15	3	4	5	8	8	9	9	5	10	8	5	2	7	16	5	12	8	S	2	2	2	2	2	6	2	16	6.1
Nov 16	3	1	1	2	4	10	11	9	10	7	9	10	8	7	6	6	S	7	8	9	9	7	5	6	1	11	6.7
Nov 17	5	8	14	7	4	3	3	13	11	4	3	1	1	1	1	S	6	6	6	7	4	4	5	10	1	14	5.5
Nov 18	11	8	7	6	9	9	7	5	5	5	7	7	6	5	S	7	6	3	5	5	3	4	5	3	3	11	6.0
Nov 19	4	3	2	2	3	2	3	4	7	9	6	9	6	S	15	14	9	9	6	7	7	6	16	4	2	16	6.7
Nov 20	1	0	0	0	13	17	11	21	19	14	19	9	S	6	11	11	9	1	3	2	1	1	3	4	0	21	7.7
Nov 21	4	4	3	2	2	1	0	0	2	6	2	S	2	3	5	2	4	2	3	4	1	0	0	1	0	6	2.3
Nov 22	1	1	1	1	1	0	0	0	0	0	S	C	C	C	C	C	C	1	0	0	0	0	0	0	0	1	NA
Nov 23	0	1	1	2	2	0	2	4	4	S	3	4	4	4	5	6	6	6	5	6	6	7	6	5	0	7	3.9
Nov 24	4	5	7	6	6	7	6	6	S	7	7	9	9	8	5	4	5	3	3	5	8	5	5	3	3	9	5.8
Nov 25	4	3	3	3	1	1	17	S	2	2	2	1	0	0	1	1	2	0	0	0	1	0	0	3	0	17	2.0
Nov 26	7	2	1	1	4	8	S	6	3	3	3	7	5	3	7	7	3	1	1	1	5	1	1	3	1	8	3.6
Nov 27	4	10	13	13	K	K	K	14	17	16	13	11	14	16	13	13	13	10	12	8	5	3	11	16	3	17	11.7
Nov 28	5	1	1	1	S	1	9	6	6	6	5	2	1	2	2	3	7	3	2	2	1	2	2	1	1	9	3.1
Nov 29	1	2	7	S	3	4	9	2	2	15	12	21	10	14	11	19	15	16	7	7	12	5	12	13	1	21	9.5
Nov 30	7	9	S	9	10	7	2	3	1	1	3	8	5	8	2	3	4	5	4	2	5	10	10	8	1	10	5.5
Diurnal Maximum	11	10	14	13	13	17	17	28	19	16	19	21	14	16	15	20	15	16	12	9	14	14	25	24			
Diurnal Average	3.1	3.2	3.3	3.0	3.7	4.3	4.7	5.7	5.7	5.5	5.3	5.3	4.9	5.3	4.7	5.8	4.8	3.7	3.5	3.4	4.0	3.9	5.4	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	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.



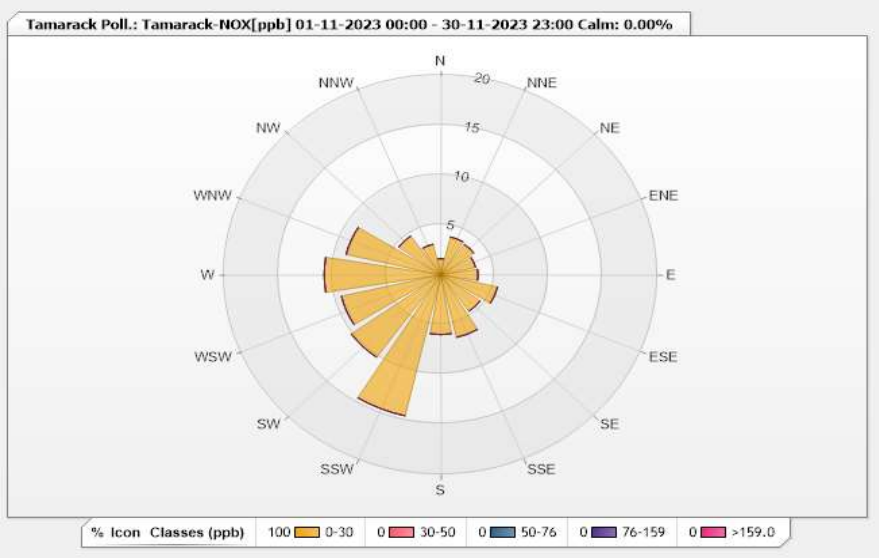


Station: Tamarack Poll.: Tamarack-NOX[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 92.92% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	1.64	0	0	0	0	1.64
NNE	3.89	0	0	0	0	3.89
NE	3.74	0	0	0	0	3.74
ENE	3.29	0	0	0	0	3.29
E	3.44	0	0	0	0	3.44
ESE	5.38	0	0	0	0	5.38
SE	4.48	0	0	0	0	4.48
SSE	6.43	0	0	0	0	6.43
S	5.98	0	0	0	0	5.98
SSW	14.5	0	0	0	0	14.5
SW	10.16	0	0	0	0	10.16
WSW	9.42	0	0	0	0	9.42
W	10.76	0	0	0	0	10.76
WNW	8.97	0	0	0	0	8.97
NW	4.78	0	0	0	0	4.78
NNW	3.14	0	0	0	0	3.14
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - November 2023

Summary of Hourly Averages

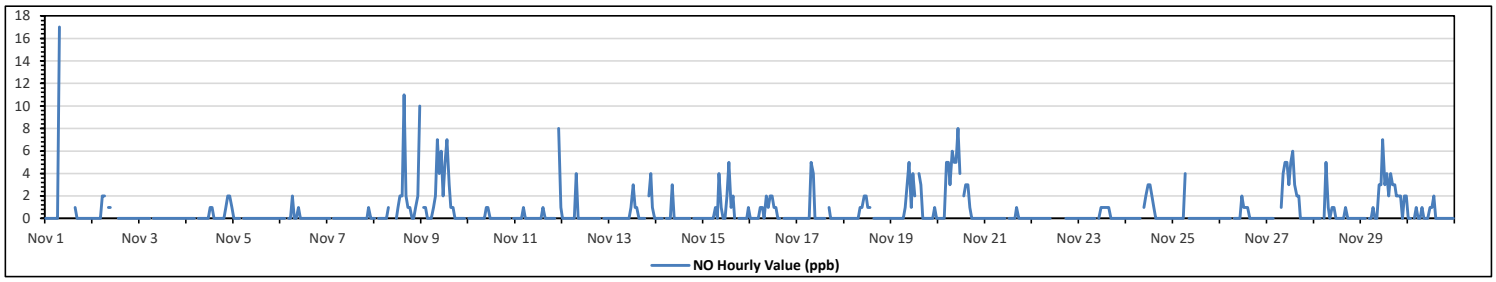
NITRIC OXIDE (NO) in ppb

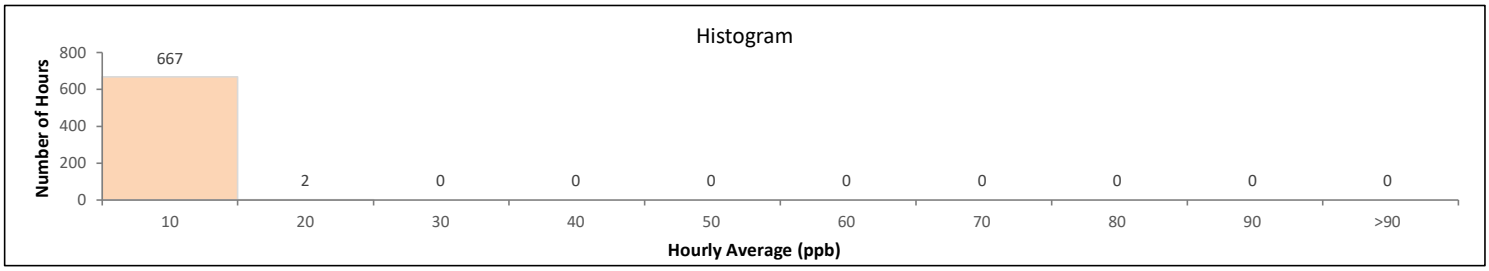
Maximum Hourly Value:	17	ppb	on Nov 1 at hr 7	Hours in Service:	720	
Maximum Daily Value:	2.2	ppb	on Nov 20	Hours of Data:	669	
Minimum Hourly Value:	0	ppb	on Nov 1 at hr 0	Hours of Missing Data:	15	
Minimum Daily Value:	0.0	ppb	on Nov 3	Hours of Calibration:	36	
Monthly Average:	0.6	ppb		Operational Uptime:	97.9	

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			
Nov 1	0	0	0	0	0	0	0	17	S	4	P	P	P	P	P	1	0	0	0	0	0	0	0	0	0	17	1.2
Nov 2	0	0	0	0	0	2	2	S	1	1	P	P	P	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3
Nov 3	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	0.0
Nov 4	0	0	0	0	0	S	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	2	2	1	0	2	0.3
Nov 5	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	0	0.0
Nov 6	0	0	0	S	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1
Nov 7	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0.0
Nov 8	0	S	0	0	0	0	0	1	K	K	K	0	1	2	2	11	2	1	1	0	0	1	2	10	0	11	1.7
Nov 9	S	1	1	0	0	0	1	2	7	4	6	2	5	7	3	1	1	0	0	0	0	0	0	S	0	7	1.9
Nov 10	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	1	0.1
Nov 11	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	S	8	1	0	8	0.5
Nov 12	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	4	0.2
Nov 13	0	0	0	0	0	0	0	0	0	0	0	1	3	1	1	0	0	0	0	S	2	4	1	0	0	4	0.6
Nov 14	0	0	0	0	K	0	0	0	3	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	3	0.1
Nov 15	0	0	0	0	0	0	1	0	4	1	0	0	2	5	1	2	0	S	0	0	0	0	0	1	0	5	0.7
Nov 16	0	0	0	0	0	1	1	0	2	1	2	2	1	1	0	0	S	0	0	0	0	0	0	0	0	2	0.5
Nov 17	0	0	0	0	0	0	0	5	4	0	0	0	0	0	0	S	1	0	0	0	0	0	0	0	0	5	0.4
Nov 18	0	0	0	0	0	0	0	0	1	1	2	2	1	1	S	0	0	0	0	0	0	0	0	0	0	2	0.3
Nov 19	0	0	0	0	0	0	0	1	3	5	1	4	2	S	4	3	0	0	0	0	0	0	1	0	0	5	1.0
Nov 20	0	0	0	0	5	5	3	6	5	5	8	4	S	2	3	3	1	0	0	0	0	0	0	0	0	8	2.2
Nov 21	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0.0
Nov 22	0	0	0	0	0	0	0	0	0	0	S	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	NA
Nov 23	0	0	0	0	0	0	0	0	0	S	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0.2
Nov 24	0	0	0	0	0	0	0	0	S	1	2	3	3	2	1	0	0	0	0	0	0	0	0	0	0	3	0.5
Nov 25	0	0	0	0	0	0	4	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.2
Nov 26	0	0	0	0	0	0	S	0	0	0	0	2	1	1	1	0	0	0	0	0	0	0	0	0	0	2	0.2
Nov 27	0	0	0	0	K	K	K	1	4	5	5	3	5	6	3	2	2	0	0	0	0	0	0	0	0	6	1.7
Nov 28	0	0	0	0	S	0	5	1	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	5	0.4
Nov 29	0	0	0	S	0	0	1	0	0	3	3	7	3	4	2	4	3	3	2	2	2	0	2	2	0	7	1.9
Nov 30	0	0	S	0	1	0	0	1	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	2	0.3
Diurnal Maximum	0	1	1	0	5	5	5	17	7	5	8	7	5	7	4	11	3	3	2	2	2	4	8	10			
Diurnal Average	0.0	0.0	0.0	0.0	0.3	0.3	0.7	1.4	1.3	1.2	1.2	1.2	1.2	1.3	0.9	1.0	0.4	0.1	0.1	0.1	0.2	0.3	0.6	0.5			

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance		
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance	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.



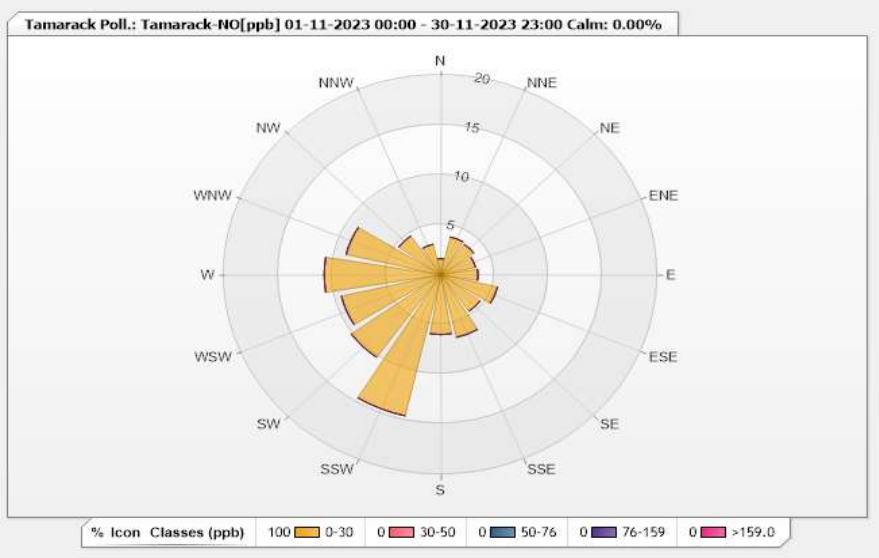


Station: Tamarack Poll.: Tamarack-NO[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 92.92% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	1.64	0	0	0	0	1.64
NNE	3.89	0	0	0	0	3.89
NE	3.74	0	0	0	0	3.74
ENE	3.29	0	0	0	0	3.29
E	3.44	0	0	0	0	3.44
ESE	5.38	0	0	0	0	5.38
SE	4.48	0	0	0	0	4.48
SSE	6.43	0	0	0	0	6.43
S	5.98	0	0	0	0	5.98
SSW	14.5	0	0	0	0	14.5
SW	10.16	0	0	0	0	10.16
WSW	9.42	0	0	0	0	9.42
W	10.76	0	0	0	0	10.76
WNW	8.97	0	0	0	0	8.97
NW	4.78	0	0	0	0	4.78
NNW	3.14	0	0	0	0	3.14
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - November 2023

Summary of Hourly Averages

NITROGEN DIOXIDE (NO_2) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb

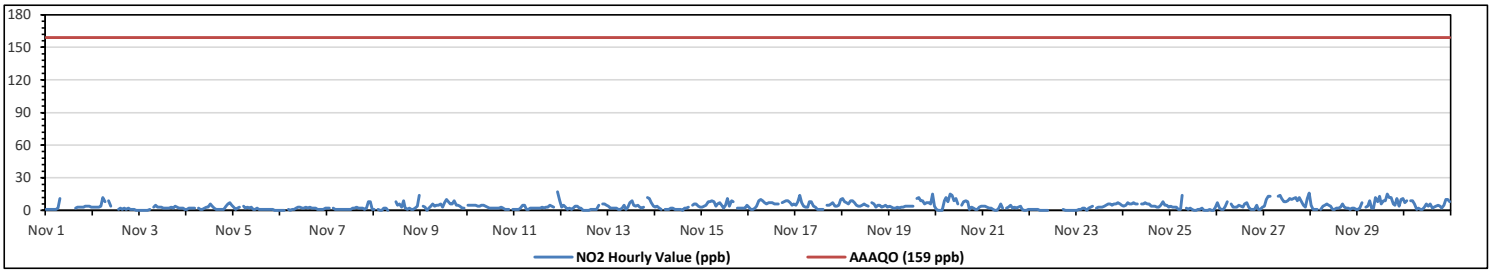
Number of 1-Hour Exceedances: 0

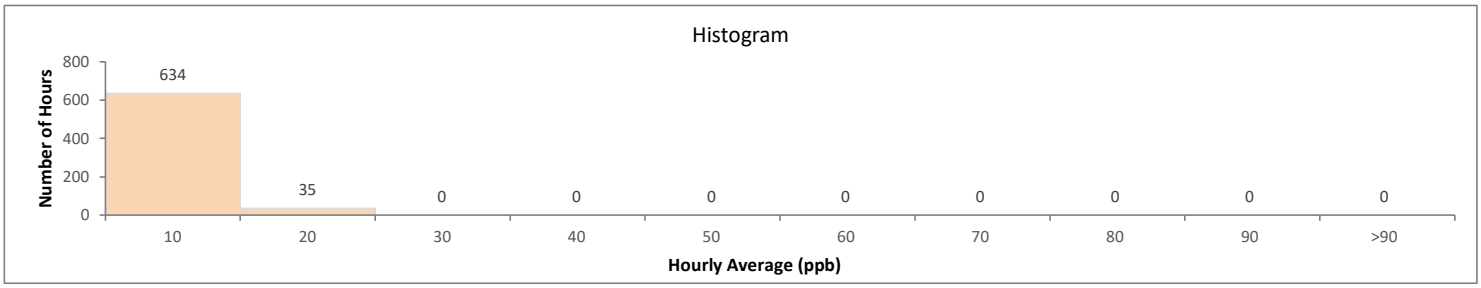
Maximum Hourly Value:	17	ppb	on Nov 11 at hr 22	Hours in Service:	720
Maximum Daily Value:	10.0	ppb	on Nov 27	Hours of Data:	669
Minimum Hourly Value:	0	ppb	on Nov 2 at hr 22	Hours of Missing Data:	15
Minimum Daily Value:	1.5	ppb	on Nov 5	Hours of Calibration:	36
Monthly Average:	3.9	ppb		Operational Uptime:	97.9

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			
Nov 1	1	1	1	1	1	1	2	11	S	8	P	P	P	P	P	2	3	3	3	3	4	4	4	3	1	11	3.1
Nov 2	3	3	3	3	4	12	8	S	9	4	P	P	P	1	2	1	2	1	2	1	1	1	0	0	0	12	3.1
Nov 3	0	0	0	0	0	1	S	3	5	3	3	3	2	2	2	2	3	2	4	3	2	2	2	1	0	5	2.0
Nov 4	1	2	2	2	2	S	2	1	1	2	3	3	6	4	2	1	1	1	1	1	4	6	7	5	1	7	2.6
Nov 5	3	1	2	3	S	4	2	3	2	3	1	1	2	1	1	1	1	1	1	1	1	0	0	0	0	4	1.5
Nov 6	0	0	0	S	1	0	1	1	2	3	3	2	2	3	2	3	2	2	2	1	1	1	1	2	0	3	1.5
Nov 7	2	2	S	2	1	1	1	1	1	1	1	1	1	2	2	3	2	2	2	1	2	8	8	1	1	8	2.1
Nov 8	1	S	1	0	0	2	2	0	K	K	K	8	5	6	3	9	2	1	2	1	1	2	4	14	0	14	3.2
Nov 9	S	4	3	0	2	4	6	4	5	5	6	3	7	10	8	6	6	9	5	5	4	2	2	S	0	10	4.8
Nov 10	5	5	5	5	5	4	4	5	5	4	3	2	2	2	2	2	2	3	2	1	1	1	S	1	1	5	3.1
Nov 11	1	1	1	2	5	5	1	1	2	2	2	2	2	2	3	2	3	3	5	4	3	S	17	9	1	17	3.4
Nov 12	3	5	3	1	2	1	2	4	4	2	2	0	0	0	0	1	1	1	1	5	S	6	6	5	0	6	2.4
Nov 13	4	2	2	2	2	1	1	2	5	1	3	7	9	5	4	5	3	2	3	S	12	11	7	4	1	12	4.2
Nov 14	3	4	2	1	K	1	1	1	2	2	1	1	1	1	0	2	2	3	S	5	6	6	4	3	0	6	2.4
Nov 15	3	4	5	8	8	9	8	4	6	7	5	2	5	11	4	9	8	S	2	2	2	2	2	5	2	11	5.3
Nov 16	3	1	1	2	4	9	10	9	7	6	7	7	7	6	6	6	S	7	8	9	9	7	5	6	1	10	6.2
Nov 17	5	8	14	7	4	3	3	8	8	4	3	1	1	1	1	S	5	5	6	7	4	4	5	10	1	14	5.1
Nov 18	11	8	7	6	9	9	7	5	4	4	5	6	5	4	S	7	6	3	5	5	3	4	5	3	3	11	5.7
Nov 19	4	3	2	2	3	2	3	3	4	4	4	4	4	S	11	12	9	9	6	7	7	6	15	4	2	15	5.6
Nov 20	1	0	0	0	9	12	8	15	14	9	11	6	S	5	8	9	8	1	3	2	1	1	3	4	0	15	5.7
Nov 21	4	4	3	2	2	1	0	0	2	6	2	S	2	3	5	2	3	2	3	4	1	0	0	1	0	6	2.3
Nov 22	1	1	1	1	1	0	0	0	0	0	S	C	C	C	C	C	C	1	0	0	0	0	0	0	0	1	NA
Nov 23	0	1	1	2	2	0	2	3	4	S	2	3	3	3	4	5	6	6	5	6	6	7	6	5	0	7	3.6
Nov 24	4	5	7	6	6	7	6	6	S	6	6	7	6	6	4	4	4	3	3	5	8	5	5	3	3	8	5.3
Nov 25	4	3	3	3	1	1	14	S	2	1	2	1	0	0	1	1	2	0	0	0	1	0	0	3	0	14	1.9
Nov 26	7	2	1	1	4	8	S	6	3	3	3	5	4	3	6	7	3	1	1	1	5	1	1	3	1	8	3.4
Nov 27	4	10	13	13	K	K	K	13	14	11	8	8	9	11	10	11	12	9	12	8	5	3	11	16	3	16	10.0
Nov 28	5	1	1	1	S	1	4	5	6	5	4	1	1	2	2	3	6	3	2	2	1	2	2	1	1	6	2.7
Nov 29	1	2	7	S	3	4	9	2	2	12	8	13	6	9	9	15	12	12	6	5	11	4	10	11	1	15	7.5
Nov 30	7	9	S	9	9	6	1	2	1	1	3	6	4	6	2	3	4	5	4	2	5	10	10	8	1	10	5.1
Diurnal Maximum	11	10	14	13	9	12	14	15	14	12	11	13	9	11	11	15	12	12	12	9	12	11	17	16			
Diurnal Average	3.1	3.2	3.3	3.0	3.5	3.9	4.0	4.2	4.4	4.3	3.9	4.0	3.7	4.0	3.9	4.8	4.3	3.5	3.4	3.3	3.8	3.7	4.9	4.5			

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance	
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance	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.



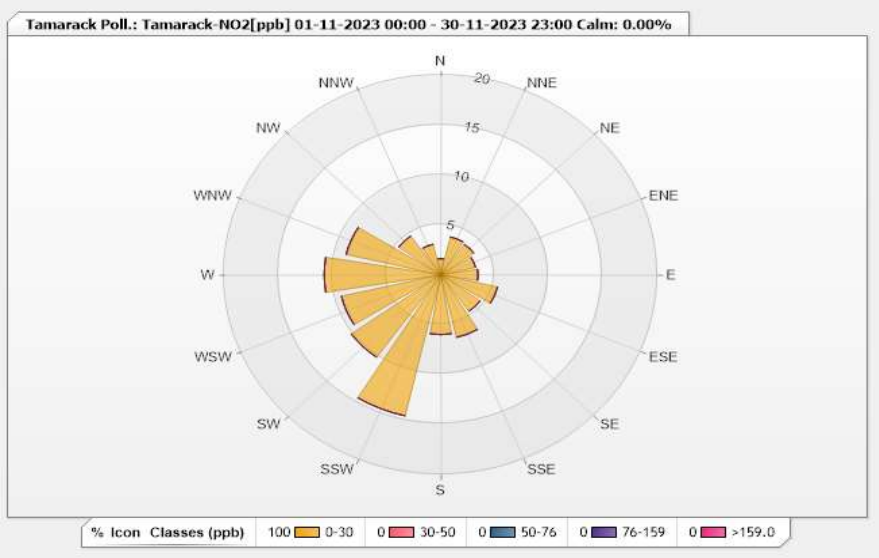


Station: Tamarack Poll.: Tamarack-NO2[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 92.92% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	1.64	0	0	0	0	1.64
NNE	3.89	0	0	0	0	3.89
NE	3.74	0	0	0	0	3.74
ENE	3.29	0	0	0	0	3.29
E	3.44	0	0	0	0	3.44
ESE	5.38	0	0	0	0	5.38
SE	4.48	0	0	0	0	4.48
SSE	6.43	0	0	0	0	6.43
S	5.98	0	0	0	0	5.98
SSW	14.5	0	0	0	0	14.5
SW	10.16	0	0	0	0	10.16
WSW	9.42	0	0	0	0	9.42
W	10.76	0	0	0	0	10.76
WNW	8.97	0	0	0	0	8.97
NW	4.78	0	0	0	0	4.78
NNW	3.14	0	0	0	0	3.14
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - November 2023

Summary of Hourly Averages

OZONE (O_3) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb

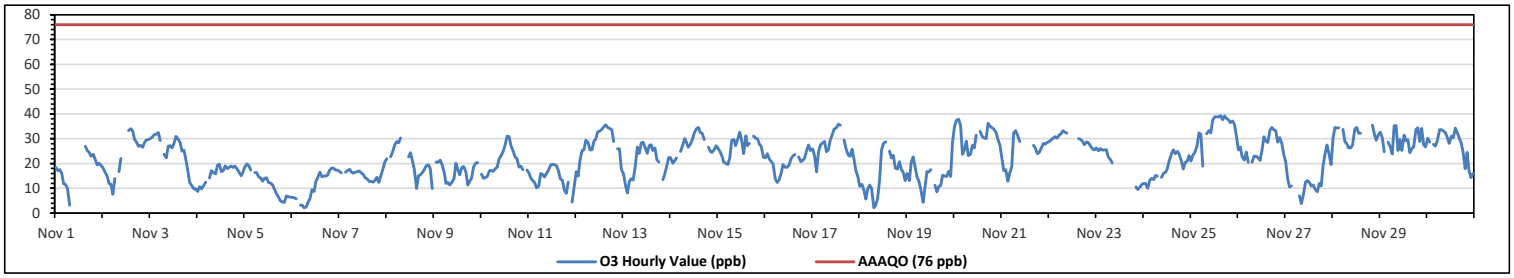
Number of 1-Hour Exceedances: 0

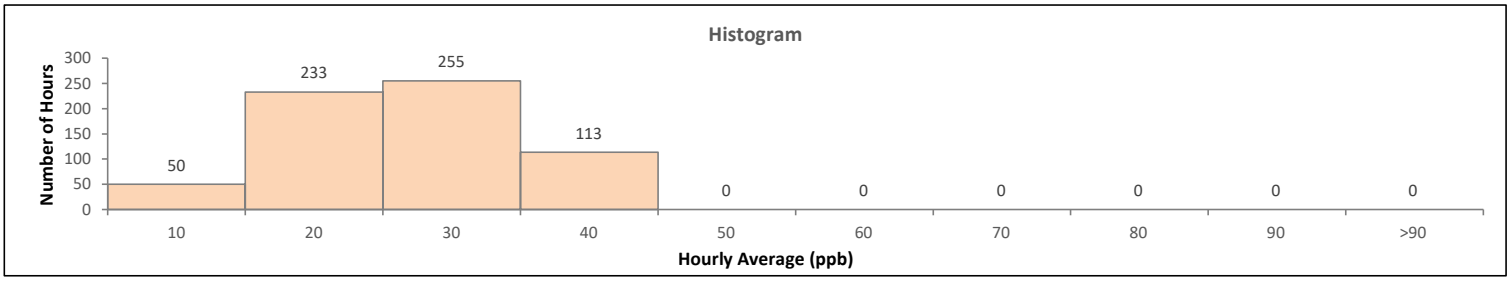
Maximum Hourly Value:	39.3	ppb	on Nov 25 at hr 15	Hours in Service:	720
Maximum Daily Value:	33.2	ppb	on Nov 25	Hours of Data:	651
Minimum Hourly Value:	2.1	ppb	on Nov 6 at hr 6	Hours of Missing Data:	36
Minimum Daily Value:	10.8	ppb	on Nov 6	Hours of Calibration:	33
Monthly Average:	21.8	ppb		Operational Uptime:	95.0

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			
Nov 1	18.4	17.2	17.5	16.1	11.8	11.6	10	3.2	S	17.1	P	P	P	P	P	26.9	25.2	24.5	22.9	23.7	21.5	19.5	20.1	19.2	3.2	26.9	18.1
Nov 2	18.3	16.4	15.1	11.9	11.6	7.6	13.9	S	16.7	22.1	P	P	P	33.3	34.1	33.1	29.6	28.6	26.9	27.3	26.5	28.5	29.5	29.7	7.6	34.1	23.0
Nov 3	30	30.7	31.7	31.9	32.5	29.3	S	23.8	22.3	26.9	27.2	26.3	28.1	30.9	30	28.5	25	25.4	21.7	17.3	12.3	10.9	9.7	9.8	9.7	32.5	24.4
Nov 4	8.8	10.7	9.7	11.2	12.5	S	14.2	17.1	16.4	15.8	19.4	19.8	16.8	17.2	19.1	17.9	18.5	18.9	18.4	19	17.8	16.4	15.1	16.6	8.8	19.8	16.0
Nov 5	18.5	19.9	19.1	17.4	S	16.3	16.4	14.5	14.1	12.9	14.2	14.2	12.4	12.1	11.4	9.6	7.5	6.4	5	4.5	4.4	7	6.6	6.5	4.4	19.9	11.8
Nov 6	6.4	6.2	5.7	S	3.1	3.2	2.1	2.5	4.4	5.9	9.4	8.8	12.6	14.3	16.5	14.7	15	15	15.3	17.3	18.2	18	17.4	17.3	**2.1**	18.2	**10.8**
Nov 7	16.9	16.2	S	16.5	17.1	17.7	16.6	16.1	16.5	16.8	17	16.1	15.7	14.3	13.8	12.8	12.7	12.5	13.3	14.4	12.3	15.4	17.8	20.8	12.3	20.8	15.6
Nov 8	22	S	22.6	25	27.6	28.8	28.4	30.3	K	K	K	22.6	24.3	21.1	17.7	9.9	15.1	15.5	16.3	17.5	19.1	19.5	17.9	9.9	9.9	30.3	20.6
Nov 9	S	20.6	20.4	21.4	19.5	16.6	11.9	12.4	11.4	12.4	13.9	20.1	17.6	15.5	18.3	18.8	16.8	11.4	12.7	14.1	18.5	20.1	20.3	S	11.4	21.4	16.6
Nov 10	15.7	14	14.3	14.8	17.1	17.1	16.9	17.9	18.5	22	23.4	25	27.6	31	30.8	27.2	25	22.7	22	18.5	18.9	17.6	S	17.4	14.0	31.0	20.7
Nov 11	16.2	14.2	13.1	12.4	10.1	10.9	16	15.6	14.6	16	17.3	19.4	19.8	19.5	19.2	17.3	13.9	13.2	9.2	8	12.5	S	4.5	11.1	4.5	19.8	14.1
Nov 12	16.8	15	21.5	25.1	25.6	29.4	28.5	25.6	25.5	28.9	29.9	32.8	33.1	33.8	34.8	35.6	34.6	34.2	33.7	28.9	S	25.9	26	17.7	15.0	35.6	28.0
Nov 13	15.7	11.2	8.1	12.7	13.9	13.5	19.5	26.6	24.2	28.3	28.6	26.5	24.1	27.2	27.6	25.3	26.4	21.6	20.6	S	13.6	15.5	19.1	22.4	8.1	28.6	20.5
Nov 14	22.3	20.1	21.2	22.3	K	24.9	27	30	28.4	26.5	27.9	29.8	32.4	34	34.6	32.7	32.1	29.7	S	26.5	24.8	24.4	25.6	27.2	20.1	34.6	27.5
Nov 15	26.2	24.9	22.8	20.4	20.1	19.6	22.4	29.4	29.7	27.2	29.5	32.7	29.3	24	31.2	27.2	28.1	S	31	30.4	29.9	27.9	26.9	22.5	19.6	32.7	26.7
Nov 16	22.2	24	21.7	20.9	19.9	13.7	12.3	13.4	16.4	19.6	18.5	18.4	19.3	21.9	23.1	23.6	S	22.6	20.7	21.3	22.2	25.2	27.5	25.3	12.3	27.5	20.6
Nov 17	26	23	16.6	24.6	27.4	28.3	28.8	24.7	25.6	29.5	31.6	33.9	34.5	35.8	35.5	S	29.5	26.1	23.5	22.9	25.8	21.8	17	14.8	14.8	35.8	26.4
Nov 18	10.8	11.6	9.3	5.6	9.7	11.4	9.9	2.2	3.1	6.1	13.5	25.4	28.2	28.7	S	25	22.2	23.3	18.1	17.8	20.7	17.7	16.4	13.2	2.2	28.7	15.2
Nov 19	15.9	13.1	20.6	22.6	18.6	14.7	12.7	9.4	4.4	10.6	16.7	16.6	17.5	S	11.3	8.6	10.7	11.3	15.4	14.9	14.8	16.9	14.8	28.9	4.4	28.9	14.8
Nov 20	34.8	37.4	37.9	35.3	23.8	25.6	29	23.2	23.8	27.3	26.3	31.5	S	33	30.8	30.4	30.1	36.3	35	34.4	33.9	32.5	29.6	27.4	23.2	37.9	30.8
Nov 21	22.3	17.2	17.5	12.9	16.2	18.8	32.4	33.2	31.4	28.8	X	X	X	X	X	X	27.3	26.2	24	24.5	26.2	28.2	27.9	28.5	12.9	33.2	24.6
Nov 22	28.8	29.5	30.2	30.8	30.3	31.5	31.8	33.3	32.7	32.3	S	C	C	C	C	30	29.6	28.7	27.6	28.7	28.4	27	25.8	25.5	25.5	33.3	29.6
Nov 23	26.4	25.1	26.1	25.4	25.5	25.6	22.8	21.7	20.2	S	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	10.6	9.5	10.4	11.5	9.5	26.4	NA
Nov 24	12	12	10	13.1	14	13.6	15.2	15	S	14.4	16.1	16.5	17.9	21.2	23.9	25.5	24	24.9	23.8	21.5	17.8	20.4	20.9	23.2	10.0	25.5	18.1
Nov 25	21	23.4	24.4	27	32.4	31.9	18.9	S	32	33.3	32.4	37.5	38.9	38.9	38.8	**39.3**	37.6	39.2	38.2	37.6	36.5	37.1	35.9	31.2	18.9	**39.3**	**33.2**
Nov 26	25.5	26.7	22.7	21.4	24.6	20.5	S	20.4	22.9	23	22.2	21.3	25.4	30.8	29.1	28.5	33.5	34.6	33.6	33.2	28.6	30.5	28.2	23.6	20.4	34.6	26.6
Nov 27	20.8	14	10.6	10.9	K	K	K	7	3.9	7.2	12.5	13.1	12.4	11	11.4	9.6	8.6	11.9	10.9	19.2	23.9	27.5	24.2	19.6	3.9	27.5	13.8
Nov 28	30.3	34.6	34.3	34.4	S	33.8	28.8	28	26.4	26.3	27.5	33.9	34.6	32.3	32.3	NRM	NRM	NRM	NRM	NRM	35.4	32	29.4	31.7	26.3	35.4	31.4
Nov 29	32.7	30.4	24.7	S	28.6	26.6	23.9	35.2	35.3	25.2	29.7	25.3	31.5	29.1	29.7	24.3	25.9	26.6	33.6	34.4	28.8	34.2	27.6	26.7	23.9	35.3	29.1
Nov 30	30.2	28.6	S	27.8	27	29.3	33.6	33.6	33.1	32.5	30.6	28.1	31	30.5	34.3	32.5	30.5	28.5	24.9	17.9	24.5	17	14.3	15.9	14.3	34.3	27.7
Diurnal Maximum	34.8	37.4	37.9	35.3	32.5	33.8	33.6	35.2	35.3	33.3	32.4	37.5	38.9	38.9	38.8	39.3	37.6	39.2	38.2	37.6	36.5	37.1	35.9	31.7			
Diurnal Average	21.1	20.3	19.6	20.4	20.0	20.4	20.1	20.2	20.5	21.2	22.3	23.8	24.4	25.7	25.6	23.6	23.5	23.0	22.2	22.1	21.7	22.2	20.9	20.5			

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance	
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance	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.



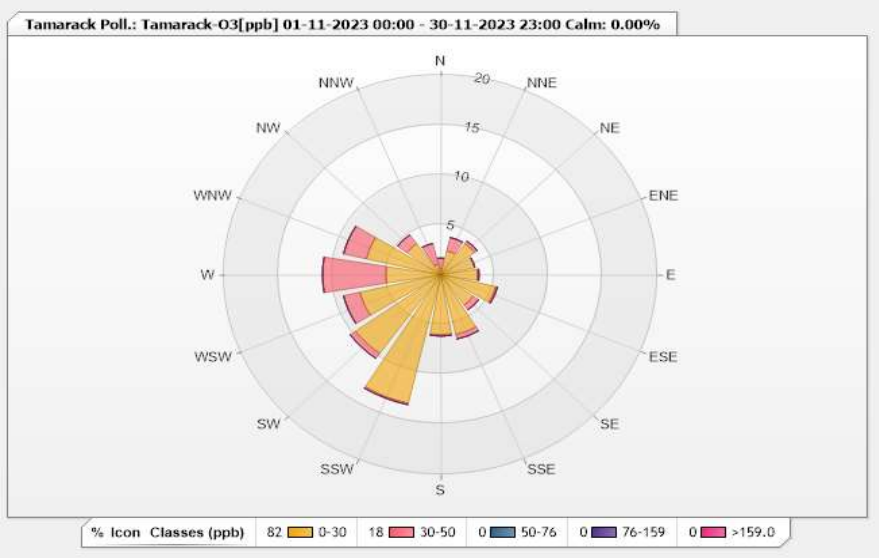


Station: Tamarack Poll.: Tamarack-O3[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 90.42% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	0.61	1.08	0	0	0	1.69
NNE	2.46	1.38	0	0	0	3.84
NE	3.84	0.31	0	0	0	4.15
ENE	3.23	0	0	0	0	3.23
E	3.38	0.15	0	0	0	3.53
ESE	5.22	0.15	0	0	0	5.37
SE	3.69	0.61	0	0	0	4.3
SSE	6.14	0.46	0	0	0	6.6
S	5.99	0.15	0	0	0	6.14
SSW	13.21	0.15	0	0	0	13.36
SW	9.68	0.61	0	0	0	10.29
WSW	7.68	1.54	0	0	0	9.22
W	5.07	5.84	0	0	0	10.91
WNW	7.07	2.15	0	0	0	9.22
NW	3.84	1.08	0	0	0	4.92
NNW	1.08	2.15	0	0	0	3.23
Summary	82.19	17.81	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - November 2023

Summary of Hourly Averages

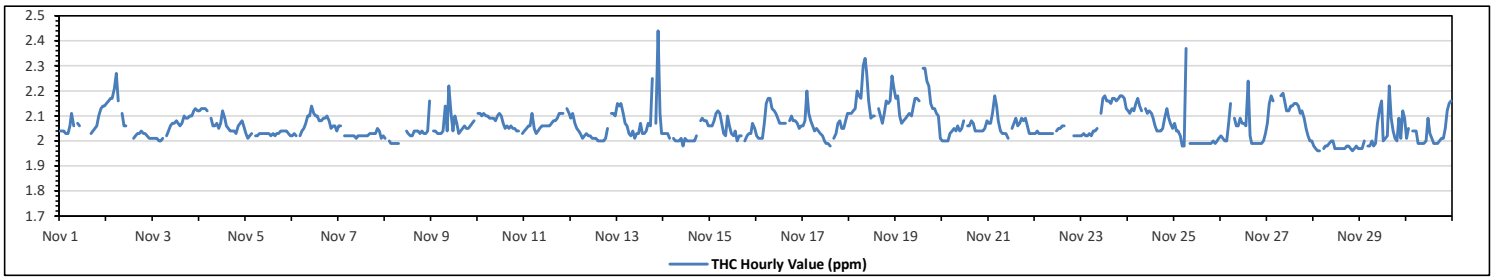
TOTAL HYDROCARBONS (THC) in ppm

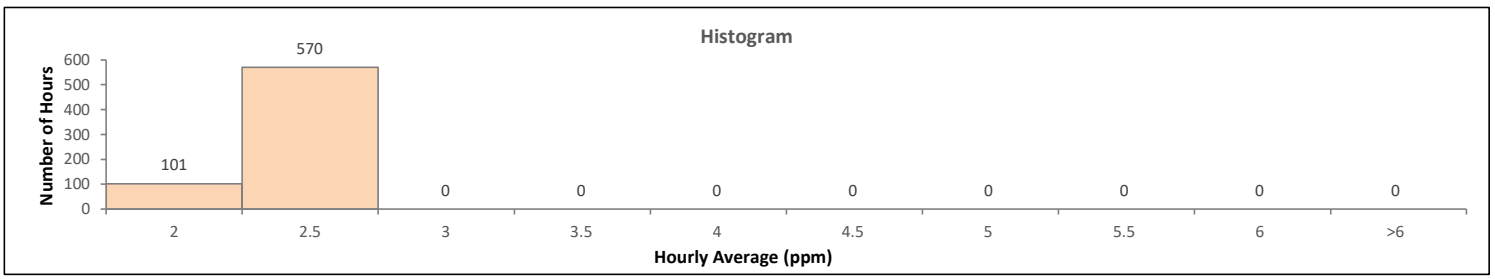
Maximum Hourly Value:	2.44	ppm	on Nov 13 at hr 21	Hours in Service:	720
Maximum Daily Value:	2.16	ppm	on Nov 18	Hours of Data:	671
Minimum Hourly Value:	1.96	ppm	on Nov 28 at hr 2	Hours of Missing Data:	15
Minimum Daily Value:	1.97	ppm	on Nov 28	Hours of Calibration:	34
Monthly Average:	2.06	ppm		Operational Uptime:	97.9

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			
Nov 1	2.04	2.04	2.04	2.03	2.03	2.06	2.11	2.06	S	2.07	2.06	P	P	P	P	X	2.03	2.04	2.05	2.06	2.10	2.13	2.14	2.14	2.03	2.14	2.07
Nov 2	2.15	2.16	2.17	2.17	2.21	2.27	2.16	S	2.11	2.06	2.06	P	P	X	2.01	2.02	2.03	2.03	2.04	2.03	2.03	2.02	2.01	2.01	2.01	2.27	2.09
Nov 3	2.01	2.01	2.01	2.00	2.00	2.01	S	2.02	2.04	2.06	2.07	2.07	2.08	2.07	2.06	2.07	2.10	2.09	2.09	2.10	2.10	2.12	2.13	2.12	2.00	2.13	2.06
Nov 4	2.12	2.13	2.13	2.13	2.12	S	2.09	2.06	2.06	2.07	2.05	2.07	2.12	2.09	2.06	2.05	2.04	2.04	2.04	2.03	2.06	2.07	2.08	2.06	2.03	2.13	2.08
Nov 5	2.03	2.01	2.02	2.03	S	2.02	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.02	2.03	2.02	2.03	2.03	2.04	2.04	2.04	2.04	2.03	2.02	2.01	2.04	2.03
Nov 6	2.02	2.03	2.02	S	2.02	2.04	2.05	2.07	2.10	2.10	2.14	2.11	2.10	2.10	2.08	2.08	2.09	2.09	2.10	2.08	2.05	2.06	2.06	2.04	2.02	2.14	2.07
Nov 7	2.06	2.06	S	2.02	2.02	2.02	2.02	2.02	2.02	2.01	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.03	2.03	2.05	2.04	2.01	2.02	2.01	2.06	2.03
Nov 8	2.01	S	2.00	1.99	1.99	1.99	1.99	1.99	K	K	K	2.04	2.03	2.02	2.02	2.04	2.04	2.04	2.03	2.04	2.03	2.03	2.04	2.16	1.99	2.16	2.03
Nov 9	S	2.04	2.04	2.03	2.03	2.03	2.04	2.14	2.04	2.22	2.11	2.04	2.10	2.07	2.03	2.04	2.05	2.06	2.05	2.05	2.06	2.07	2.08	S	2.03	2.22	2.06
Nov 10	2.11	2.11	2.10	2.11	2.10	2.10	2.09	2.09	2.09	2.08	2.10	2.11	2.10	2.07	2.05	2.06	2.05	2.06	2.05	2.05	2.04	2.04	S	2.03	2.03	2.11	2.08
Nov 11	2.04	2.05	2.06	2.06	2.11	2.05	2.03	2.04	2.05	2.06	2.06	2.06	2.06	2.06	2.07	2.08	2.08	2.09	2.11	2.11	2.11	S	2.13	2.11	2.03	2.13	2.07
Nov 12	2.09	2.11	2.07	2.05	2.04	2.03	2.01	2.02	2.03	2.02	2.02	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.01	2.05	S	2.11	2.11	2.10	2.00	2.11	2.04
Nov 13	2.15	2.14	2.15	2.11	2.07	2.06	2.03	2.02	2.04	2.01	2.03	2.03	2.07	2.03	2.03	2.04	2.07	2.06	2.25	S	2.07	**2.44**	2.11	2.03	2.01	**2.44**	2.09
Nov 14	2.03	2.03	2.03	2.01	K	2.01	2.00	2.00	2.00	2.01	1.98	2.01	2.00	2.00	2.00	2.00	2.00	2.02	S	2.08	2.09	2.08	2.08	2.06	1.98	2.09	2.02
Nov 15	2.06	2.06	2.08	2.11	2.12	2.11	2.07	2.03	2.02	2.10	2.06	2.03	2.02	2.04	2.00	2.02	2.02	S	2.00	2.02	2.03	2.03	2.07	2.05	2.00	2.12	2.05
Nov 16	2.02	2.01	2.01	2.01	2.07	2.15	2.17	2.17	2.13	2.12	2.11	2.09	2.07	2.07	2.07	2.07	S	2.08	2.10	2.08	2.08	2.07	2.05	2.06	2.01	2.17	2.08
Nov 17	2.06	2.08	2.20	2.11	2.08	2.06	2.04	2.05	2.04	2.03	2.02	2.00	1.99	1.99	1.98	S	2.01	2.03	2.07	2.08	2.05	2.05	2.08	2.11	1.98	2.20	2.05
Nov 18	2.11	2.11	2.12	2.13	2.20	2.18	2.17	2.30	2.33	2.27	2.16	2.09	2.10	2.10	S	2.13	2.10	2.07	2.11	2.16	2.15	2.16	2.26	2.21	2.07	2.33	**2.16**
Nov 19	2.17	2.18	2.10	2.07	2.08	2.09	2.10	2.11	2.10	2.14	2.17	2.17	2.16	S	2.29	2.29	2.24	2.22	2.15	2.13	2.13	2.11	2.10	2.01	2.01	2.29	2.14
Nov 20	2.00	2.00	2.00	2.00	2.03	2.04	2.05	2.04	2.06	2.04	2.05	2.08	S	2.06	2.06	2.08	2.07	2.04	2.04	2.04	2.04	2.04	2.05	2.08	2.00	2.08	2.04
Nov 21	2.07	2.07	2.11	2.18	2.14	2.08	2.04	2.03	2.03	2.03	2.01	S	2.05	2.07	2.09	2.06	2.07	2.09	2.08	2.09	2.06	2.03	2.03	2.03	2.01	2.18	2.07
Nov 22	2.03	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.03	S	2.04	2.05	2.05	2.06	2.06	C	C	C	C	2.02	2.02	2.02	2.02	2.02	2.06	2.03
Nov 23	2.02	2.03	2.02	2.02	2.03	2.02	2.04	2.04	2.05	S	2.11	2.17	2.18	2.16	2.16	2.15	2.17	2.17	2.16	2.17	2.18	2.18	2.17	2.13	2.02	2.18	2.11
Nov 24	2.12	2.11	2.13	2.12	2.15	2.17	2.14	2.12	S	2.13	2.11	2.12	2.11	2.09	2.06	2.04	2.04	2.04	2.05	2.09	2.13	2.09	2.07	2.05	2.04	2.17	2.10
Nov 25	2.07	2.04	2.04	2.02	1.98	1.98	2.37	S	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.00	1.99	2.00	2.01	1.98	2.37	2.02
Nov 26	2.02	2.01	2.00	2.00	2.07	2.15	S	2.09	2.06	2.06	2.09	2.07	2.07	2.06	2.24	2.02	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.03	1.99	2.24	2.04
Nov 27	2.07	2.15	2.18	2.16	K	K	K	2.18	2.19	2.16	2.12	2.12	2.14	2.14	2.15	2.15	2.14	2.11	2.12	2.09	2.05	2.02	2.00	2.00	2.00	2.19	2.12
Nov 28	1.98	1.97	1.96	1.96	S	1.97	1.98	1.98	1.99	2.00	2.00	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.97	1.96	1.97	1.98	1.97	1.96	2.00	1.97
Nov 29	1.97	1.97	2.00	S	1.98	1.98	2.00	1.98	1.99	2.07	2.13	2.16	2.00	2.01	2.02	2.22	2.09	2.04	2.01	2.00	2.09	2.01	2.12	2.09	1.97	2.22	2.04
Nov 30	2.01	2.05	S	2.04	2.04	2.04	1.99	1.99	1.99	1.99	2.00	2.09	2.03	2.01	1.99	1.99	1.99	2.00	2.01	2.01	2.05	2.12	2.15	2.16	1.99	2.16	2.03
Diurnal Maximum	2.17	2.18	2.20	2.18	2.21	2.27	2.37	2.30	2.33	2.27	2.17	2.17	2.18	2.16	2.29	2.29	2.24	2.22	2.25	2.17	2.18	2.44	2.26	2.21			
Diurnal Average	2.06	2.06	2.07	2.06	2.07	2.06	2.07	2.06	2.06	2.07	2.07	2.07	2.06	2.05	2.06	2.06	2.05	2.05	2.06	2.06	2.06	2.07	2.07	2.07			

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.



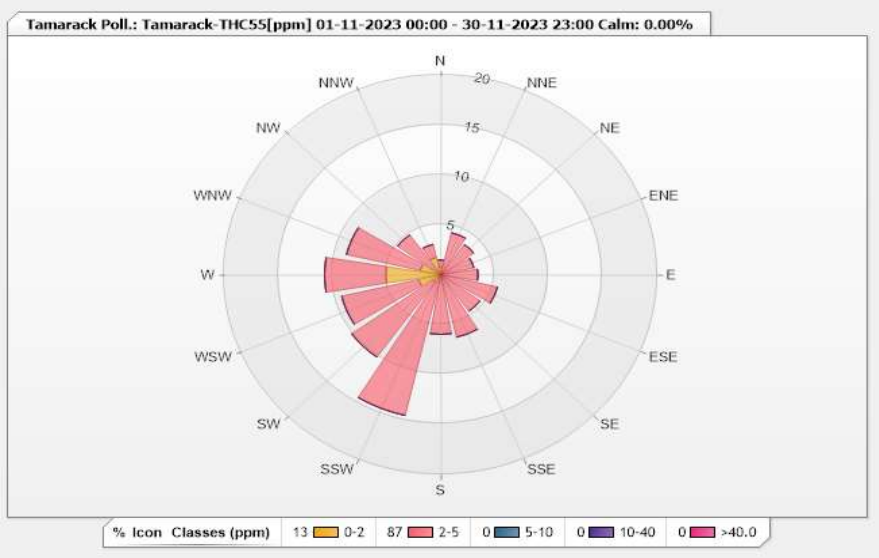


Station: Tamarack Poll.: Tamarack-THC55[ppm] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 93.19% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	0.75	0.75	0	0	0	1.5
NNE	0	4.32	0	0	0	4.32
NE	0	3.73	0	0	0	3.73
ENE	0	3.13	0	0	0	3.13
E	0	3.43	0	0	0	3.43
ESE	0	5.37	0	0	0	5.37
SE	0	4.47	0	0	0	4.47
SSE	0.15	6.26	0	0	0	6.41
S	0	5.96	0	0	0	5.96
SSW	0	14.46	0	0	0	14.46
SW	0.89	9.24	0	0	0	10.13
WSW	2.09	7.3	0	0	0	9.39
W	5.07	5.66	0	0	0	10.73
WNW	1.94	7	0	0	0	8.94
NW	0.15	4.77	0	0	0	4.92
NNW	1.79	1.34	0	0	0	3.13
Summary	12.83	87.19	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - November 2023

Summary of Hourly Averages

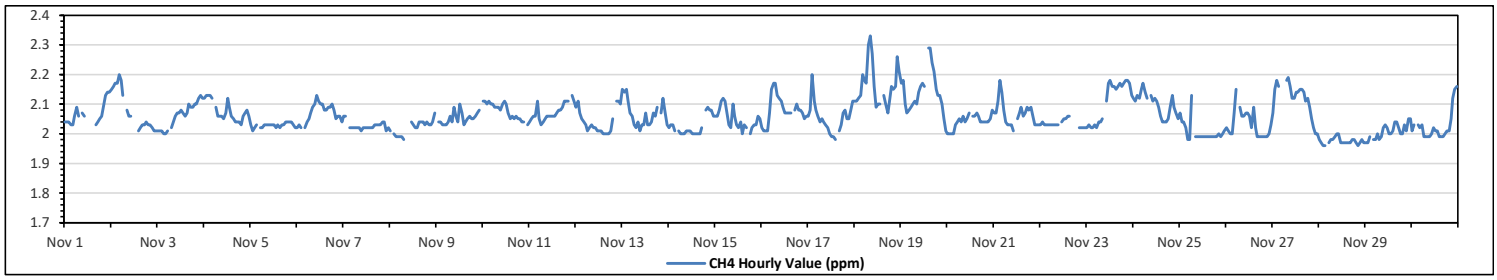
METHANE (CH4) in ppm

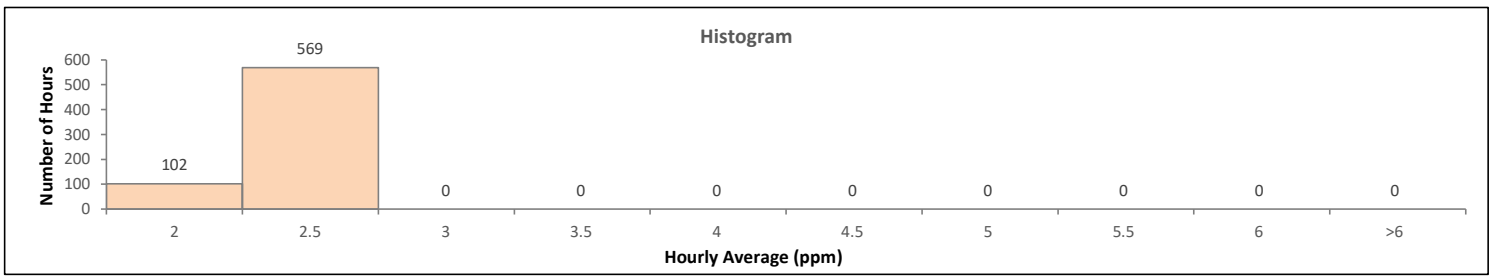
Maximum Hourly Value:	2.33	ppm	on Nov 18 at hr 8	Hours in Service:	720
Maximum Daily Value:	2.16	ppm	on Nov 18	Hours of Data:	671
Minimum Hourly Value:	1.96	ppm	on Nov 28 at hr 2	Hours of Missing Data:	15
Minimum Daily Value:	1.97	ppm	on Nov 28	Hours of Calibration:	34
Monthly Average:	2.06	ppm		Operational Uptime:	97.9

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			
Nov 1	2.04	2.04	2.04	2.03	2.03	2.06	2.09	2.06	S	2.07	2.06	P	P	P	P	X	2.03	2.04	2.05	2.06	2.10	2.13	2.14	2.14	2.03	2.14	2.07
Nov 2	2.15	2.16	2.17	2.17	2.20	2.18	2.13	S	2.08	2.06	2.06	P	P	X	2.01	2.02	2.03	2.03	2.04	2.03	2.03	2.02	2.01	2.01	2.01	2.20	2.08
Nov 3	2.01	2.01	2.01	2.00	2.00	2.01	S	2.02	2.04	2.06	2.07	2.07	2.08	2.07	2.06	2.07	2.10	2.09	2.09	2.10	2.10	2.12	2.13	2.12	2.00	2.13	2.06
Nov 4	2.12	2.13	2.13	2.13	2.12	S	2.09	2.06	2.06	2.06	2.05	2.07	2.12	2.09	2.06	2.05	2.04	2.04	2.04	2.03	2.06	2.07	2.08	2.06	2.03	2.13	2.08
Nov 5	2.03	2.01	2.02	2.03	S	2.02	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.02	2.03	2.02	2.03	2.03	2.04	2.04	2.04	2.04	2.03	2.02	2.01	2.04	2.03
Nov 6	2.02	2.03	2.02	S	2.02	2.04	2.05	2.07	2.09	2.10	2.13	2.11	2.10	2.10	2.08	2.08	2.09	2.09	2.10	2.08	2.05	2.06	2.06	2.04	2.02	2.13	2.07
Nov 7	2.06	2.06	S	2.02	2.02	2.02	2.02	2.02	2.02	2.01	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.03	2.03	2.04	2.04	2.01	2.02	2.01	2.06	2.03
Nov 8	2.01	S	2.00	1.99	1.99	1.99	1.99	1.98	K	K	K	2.04	2.03	2.02	2.02	2.04	2.04	2.04	2.03	2.04	2.03	2.03	2.04	2.07	1.98	2.07	2.02
Nov 9	S	2.04	2.04	2.03	2.03	2.03	2.04	2.06	2.04	2.09	2.06	2.04	2.10	2.07	2.03	2.04	2.05	2.06	2.05	2.05	2.06	2.07	2.08	S	2.03	2.10	2.05
Nov 10	2.11	2.11	2.10	2.11	2.10	2.10	2.09	2.09	2.09	2.08	2.10	2.11	2.10	2.07	2.05	2.06	2.05	2.06	2.05	2.05	2.04	2.04	S	2.03	2.03	2.11	2.08
Nov 11	2.04	2.05	2.06	2.06	2.11	2.05	2.03	2.04	2.05	2.06	2.06	2.06	2.06	2.06	2.07	2.08	2.08	2.09	2.11	2.11	2.11	S	2.13	2.11	2.03	2.13	2.07
Nov 12	2.09	2.11	2.07	2.05	2.04	2.03	2.01	2.02	2.03	2.02	2.02	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.01	2.05	S	2.11	2.11	2.10	2.00	2.11	2.04
Nov 13	2.15	2.14	2.15	2.11	2.07	2.06	2.03	2.02	2.04	2.01	2.03	2.03	2.07	2.03	2.03	2.04	2.07	2.06	2.09	S	2.07	2.12	2.07	2.03	2.01	2.15	2.07
Nov 14	2.02	2.03	2.03	2.01	K	2.01	2.00	2.00	2.00	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.02	S	2.08	2.09	2.08	2.08	2.06	2.00	2.09	2.02
Nov 15	2.06	2.06	2.08	2.11	2.12	2.11	2.07	2.03	2.02	2.10	2.06	2.03	2.02	2.04	2.00	2.03	2.02	S	2.00	2.02	2.03	2.03	2.06	2.05	2.00	2.12	2.05
Nov 16	2.02	2.01	2.01	2.01	2.07	2.15	2.17	2.17	2.13	2.12	2.11	2.09	2.07	2.07	2.07	2.07	S	2.08	2.10	2.08	2.08	2.07	2.05	2.06	2.01	2.17	2.08
Nov 17	2.06	2.08	2.20	2.11	2.08	2.06	2.04	2.05	2.04	2.03	2.02	2.00	1.99	1.99	1.98	S	2.01	2.03	2.07	2.08	2.05	2.05	2.08	2.11	1.98	2.20	2.05
Nov 18	2.11	2.11	2.12	2.13	2.20	2.18	2.17	2.30	**2.33**	2.27	2.16	2.09	2.10	2.10	S	2.13	2.10	2.07	2.11	2.16	2.15	2.16	2.26	2.21	2.07	**2.33**	**2.16**
Nov 19	2.17	2.18	2.10	2.07	2.08	2.09	2.10	2.11	2.10	2.14	2.16	2.17	2.16	S	2.29	2.29	2.24	2.21	2.15	2.13	2.13	2.10	2.05	2.01	2.01	2.29	2.14
Nov 20	2.00	2.00	2.00	2.00	2.03	2.04	2.05	2.04	2.06	2.04	2.05	2.07	S	2.06	2.06	2.07	2.06	2.04	2.04	2.04	2.04	2.04	2.05	2.08	2.00	2.08	2.04
Nov 21	2.07	2.07	2.11	2.18	2.14	2.08	2.04	2.03	2.03	2.03	2.01	S	2.05	2.07	2.09	2.06	2.07	2.09	2.08	2.09	2.06	2.03	2.03	2.03	2.01	2.18	2.07
Nov 22	2.03	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.03	S	2.04	2.05	2.05	2.06	2.06	C	C	C	C	2.02	2.02	2.02	2.02	2.02	2.06	2.03
Nov 23	2.02	2.03	2.02	2.02	2.03	2.02	2.04	2.04	2.05	S	2.11	2.17	2.18	2.16	2.16	2.15	2.16	2.17	2.16	2.17	2.18	2.18	2.17	2.13	2.02	2.18	2.11
Nov 24	2.12	2.11	2.13	2.12	2.15	2.17	2.14	2.12	S	2.13	2.11	2.12	2.11	2.09	2.06	2.04	2.04	2.04	2.05	2.09	2.13	2.09	2.07	2.05	2.04	2.17	2.10
Nov 25	2.07	2.04	2.04	2.02	1.98	1.98	2.13	S	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.00	1.99	2.00	2.01	1.98	2.13	2.01
Nov 26	2.02	2.01	2.00	2.00	2.07	2.15	S	2.09	2.06	2.06	2.07	2.07	2.06	2.02	2.09	2.02	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.03	1.99	2.15	2.03
Nov 27	2.07	2.15	2.18	2.16	K	K	K	2.18	2.19	2.16	2.12	2.12	2.14	2.14	2.15	2.15	2.14	2.11	2.12	2.09	2.05	2.02	2.00	2.00	2.00	2.19	2.12
Nov 28	1.98	1.97	1.96	1.96	S	1.97	1.98	1.98	1.99	2.00	2.00	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.97	1.96	1.97	1.98	1.97	1.96	2.00	1.97
Nov 29	1.97	1.97	1.99	S	1.98	1.98	2.00	1.98	1.99	2.02	2.03	2.02	2.00	2.00	2.01	2.04	2.04	2.02	2.00	2.00	2.03	2.01	2.05	2.05	1.97	2.05	2.01
Nov 30	2.01	2.03	S	2.03	2.02	2.03	1.99	1.99	1.99	1.99	2.00	2.02	2.01	2.01	1.99	1.99	1.99	2.00	2.01	2.01	2.05	2.12	2.15	2.16	1.99	2.16	2.03
Diurnal Maximum	2.17	2.18	2.20	2.18	2.20	2.18	2.17	2.30	2.33	2.27	2.16	2.17	2.18	2.16	2.29	2.29	2.24	2.21	2.16	2.17	2.18	2.18	2.26	2.21			
Diurnal Average	2.06	2.06	2.06	2.06	2.07	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.05	2.05	2.06	2.05	2.05	2.06	2.06	2.06	2.06	2.07	2.06			

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.



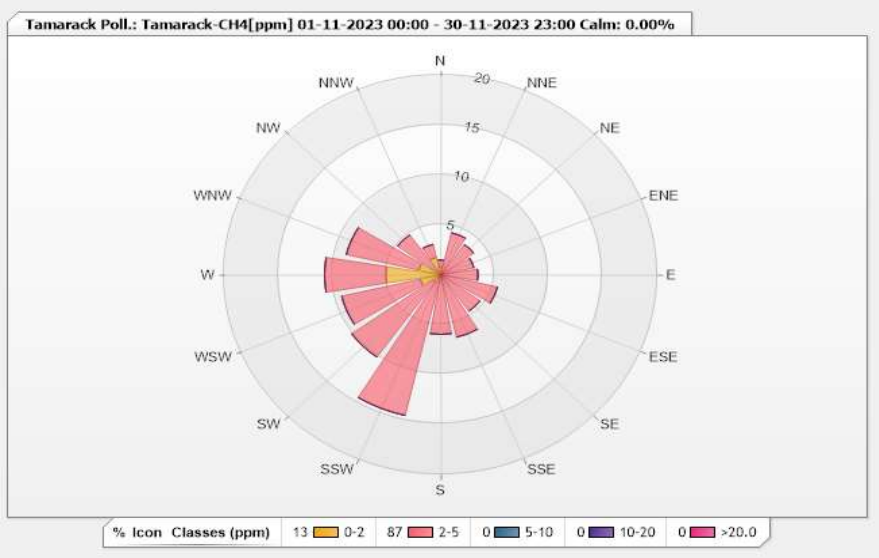


Station: Tamarack Poll.: Tamarack-CH4[ppm] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 93.19% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	0.75	0.75	0	0	0	1.5
NNE	0	4.32	0	0	0	4.32
NE	0	3.73	0	0	0	3.73
ENE	0	3.13	0	0	0	3.13
E	0	3.43	0	0	0	3.43
ESE	0	5.37	0	0	0	5.37
SE	0	4.47	0	0	0	4.47
SSE	0.15	6.26	0	0	0	6.41
S	0	5.96	0	0	0	5.96
SSW	0	14.46	0	0	0	14.46
SW	0.89	9.24	0	0	0	10.13
WSW	1.94	7.45	0	0	0	9.39
W	5.07	5.66	0	0	0	10.73
WNW	2.09	6.86	0	0	0	8.95
NW	0.45	4.47	0	0	0	4.92
NNW	1.79	1.34	0	0	0	3.13
Summary	13.13	86.9	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - November 2023

Summary of Hourly Averages

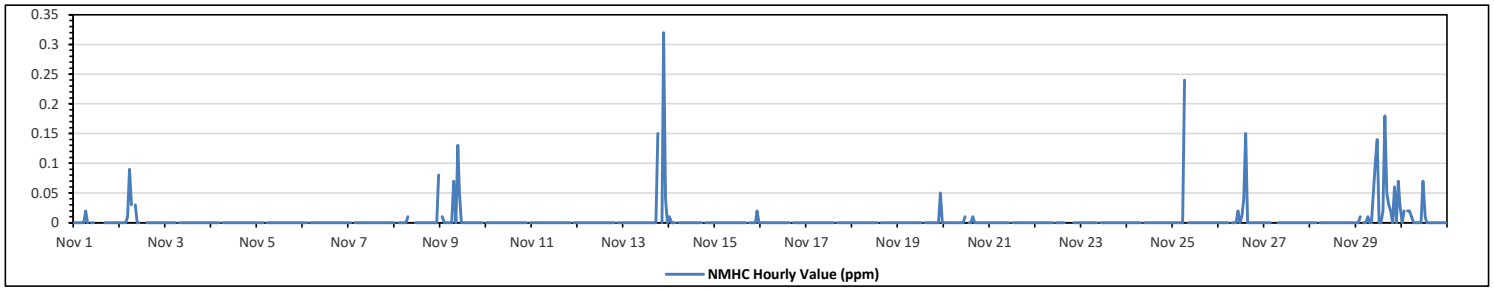
NON-METHANE HYDROCARBONS (NMHC) in ppm

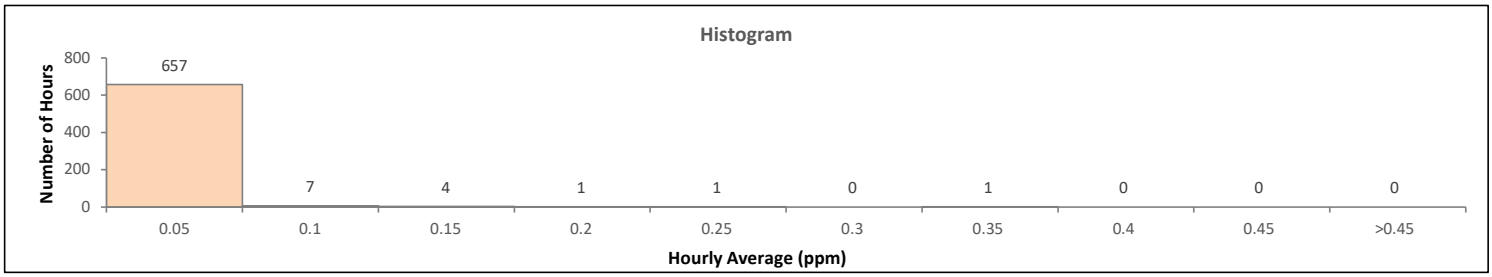
Maximum Hourly Value:	0.32	ppm	on Nov 13 at hr 21	Hours in Service:	720
Maximum Daily Value:	0.03	ppm	on Nov 29	Hours of Data:	671
Minimum Hourly Value:	0.00	ppm	on Nov 1 at hr 0	Hours of Missing Data:	15
Minimum Daily Value:	0.00	ppm	on Nov 3	Hours of Calibration:	34
Monthly Average:	0.00	ppm		Operational Uptime:	97.9

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			
Nov 1	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	S	0.00	0.00	P	P	P	P	X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
Nov 2	0.00	0.00	0.00	0.00	0.01	0.09	0.03	S	0.03	0.00	0.00	P	P	X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
Nov 3	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
Nov 4	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
Nov 5	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
Nov 6	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
Nov 7	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
Nov 8	0.00	S	0.00	0.00	0.00	0.00	0.00	0.01	K	K	K	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.08	0.00
Nov 9	S	0.01	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.13	0.05	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	0.13	0.01
Nov 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Nov 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	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
Nov 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	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
Nov 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	0.00	0.00	0.00	0.00	0.00	0.00	0.15	S	0.00	**0.32**	0.04	0.00	0.00	**0.32**	0.02
Nov 14	0.01	0.00	0.00	0.00	K	0.00	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	0.01	0.00
Nov 15	0.00	0.00	0.00	0.00	0.00	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	0.02	0.00	0.00	0.02	0.00
Nov 16	0.00	0.00	0.00	0.00	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
Nov 17	0.00	0.00	0.00	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
Nov 18	0.00	0.00	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
Nov 19	0.00	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	0.05	0.00	0.00	0.05	0.00
Nov 20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	S	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Nov 21	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
Nov 22	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	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 23	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
Nov 24	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
Nov 25	0.00	0.00	0.00	0.00	0.00	0.00	0.24	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	0.24	0.01
Nov 26	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.02	0.00	0.01	0.04	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.01
Nov 27	0.00	0.00	0.00	0.00	K	K	K	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 28	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
Nov 29	0.00	0.00	0.01	S	0.00	0.00	0.01	0.00	0.00	0.05	0.10	0.14	0.00	0.00	0.02	0.18	0.05	0.03	0.02	0.00	0.06	0.00	0.07	0.03	0.00	0.18	**0.03**
Nov 30	0.00	0.02	S	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.07	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	0.07	0.01
Diurnal Maximum	0.01	0.02	0.01	0.02	0.02	0.09	0.24	0.07	0.03	0.13	0.10	0.14	0.01	0.04	0.15	0.18	0.05	0.03	0.15	0.00	0.06	0.32	0.07	0.08			
Diurnal Average	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.01	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	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.



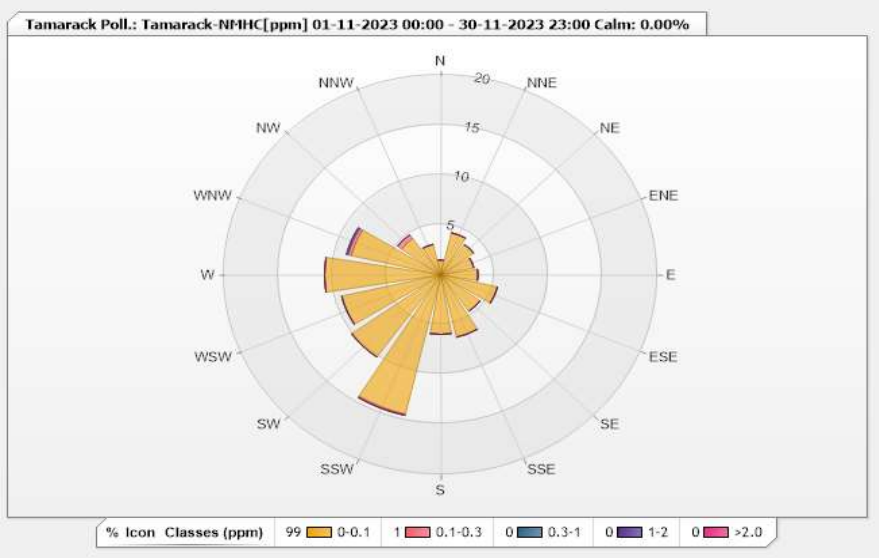


Station: Tamarack Poll.: Tamarack-NMHC[ppm] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 93.19% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	1.49	0	0	0	0	1.49
NNE	4.32	0	0	0	0	4.32
NE	3.73	0	0	0	0	3.73
ENE	3.13	0	0	0	0	3.13
E	3.43	0	0	0	0	3.43
ESE	5.37	0	0	0	0	5.37
SE	4.47	0	0	0	0	4.47
SSE	6.41	0	0	0	0	6.41
S	5.96	0	0	0	0	5.96
SSW	14.31	0.15	0	0	0	14.46
SW	10.13	0	0	0	0	10.13
WSW	9.39	0	0	0	0	9.39
W	10.73	0	0	0	0	10.73
WNW	8.49	0.3	0.15	0	0	8.94
NW	4.47	0.45	0	0	0	4.92
NNW	3.13	0	0	0	0	3.13
Summary	98.96	0.9	0.15	0	0	100



Lakeland Industry & Community Association

Tamarack Site - November 2023

Summary of Hourly Averages

PARTICULATE MATTER 2.5 ($PM_{2.5}$) in µg/m^3

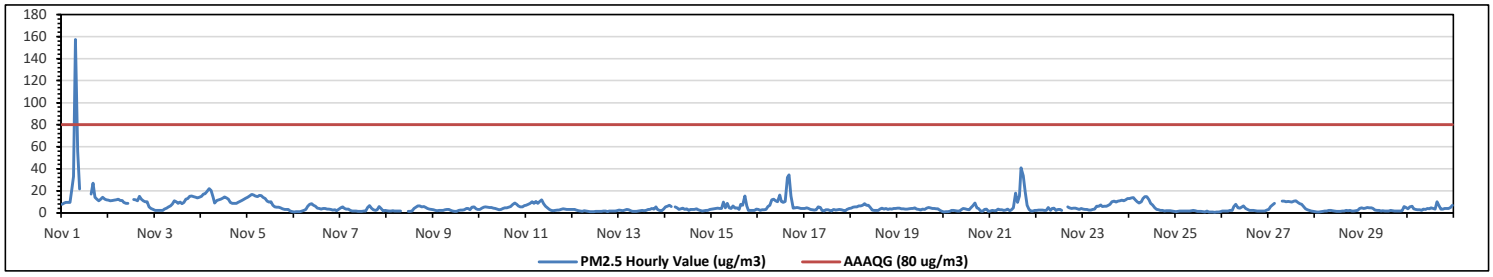
Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m3, Alberta Ambient Air Quality Objective (AAAQO): 24-Hour 29 µg/m3

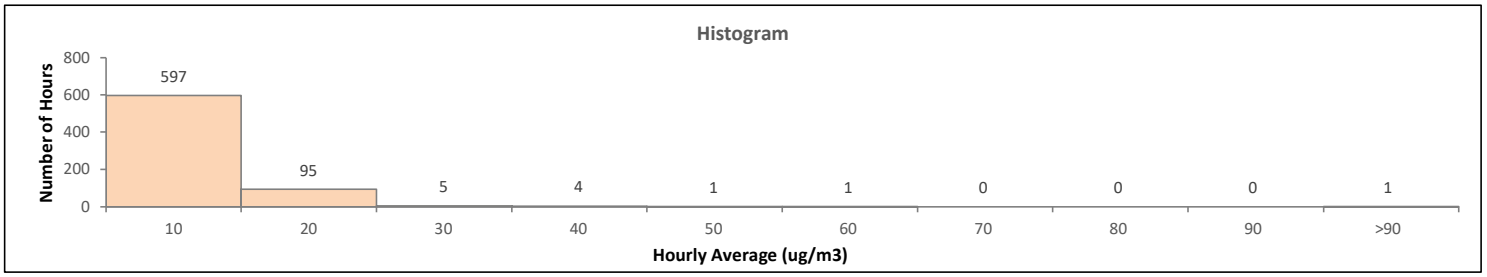
Number of 1-Hour Exceedances:	1	Number of 24-Hour Exceedances:	0
Maximum Hourly Value:	157 µg/m^3 on Nov 1 at hr 7	Hours in Service:	720
Maximum Daily Value:	24.6 µg/m^3 on Nov 1	Hours of Data:	704
Minimum Hourly Value:	1 µg/m^3 on Nov 25 at hr 20	Hours of Missing Data:	14
Minimum Daily Value:	1 µg/m^3 on Nov 25	Hours of Calibration:	2
Monthly Average:	5.6 µg/m^3	Operational Uptime:	98.1

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			
Nov 1	8	9	10	10	9	22	33	**157**	56	22	P	P	P	P	P	17	27	14	12	19	11	13	14	12	12	**157**	**24.6**
Nov 2	11	11	11	12	12	12	11	11	9	9	9	P	P	12	12	11	15	13	11	10	10	6	4	3	3	15	10.2
Nov 3	2	2	2	2	2	4	4	6	6	8	11	10	9	10	8	9	13	13	15	15	15	14	14	14	2	15	8.7
Nov 4	15	17	17	19	22	20	14	9	11	12	12	13	15	14	13	9	9	9	9	10	10	11	12	13	9	22	13.1
Nov 5	14	15	17	16	15	15	16	16	14	13	11	10	10	7	6	5	5	5	4	3	3	3	2	1	1	17	9.4
Nov 6	1	1	1	1	2	2	3	6	8	8	7	6	4	4	4	4	4	3	4	3	3	3	2	3	1	8	3.6
Nov 7	4	6	4	3	3	2	2	2	2	1	1	1	2	2	5	7	4	3	2	3	6	4	2	2	1	7	3.0
Nov 8	2	2	2	2	2	1	2	2	K	K	K	1	1	2	4	5	6	6	6	6	5	4	3	3	1	6	3.1
Nov 9	3	2	2	2	2	2	3	3	3	2	2	1	1	2	3	3	3	4	4	3	5	5	4	3	1	5	2.8
Nov 10	3	4	5	6	5	5	5	4	4	3	3	3	4	5	5	5	6	8	9	8	6	6	5	7	3	9	5.1
Nov 11	7	8	8	10	9	10	9	11	12	8	6	5	3	2	2	2	3	3	3	4	4	3	3	3	2	12	5.6
Nov 12	3	3	3	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	3	1.6
Nov 13	3	2	2	3	3	3	2	1	1	1	1	2	2	2	2	3	3	4	4	5	3	2	2	3	1	5	2.5
Nov 14	6	6	7	6	K	5	5	3	4	4	3	4	2	3	3	3	4	3	2	2	2	2	2	3	2	7	3.6
Nov 15	3	4	4	4	4	4	10	5	9	5	4	6	4	5	3	8	7	15	6	2	2	2	2	4	2	15	5.1
Nov 16	3	2	3	3	3	6	7	12	13	11	10	16	11	9	10	32	35	15	4	5	5	4	4	4	2	35	9.4
Nov 17	4	5	4	3	3	3	3	5	5	2	2	3	3	2	2	3	3	3	3	3	2	2	3	4	2	5	3.0
Nov 18	4	5	5	5	6	6	7	8	7	7	5	3	2	2	2	3	4	3	4	3	4	4	4	4	2	8	4.5
Nov 19	4	4	4	4	4	4	4	4	4	5	4	3	3	3	3	4	5	5	4	4	4	4	2	1	1	5	3.6
Nov 20	1	1	1	1	2	2	2	2	2	3	4	4	3	3	5	6	9	5	4	2	1	3	3	1	1	9	2.9
Nov 21	2	2	2	2	4	3	3	2	3	4	2	3	5	18	9	15	41	34	19	7	3	2	2	2	2	41	7.7
Nov 22	2	3	3	3	2	2	5	2	4	4	2	3	3	2	C	C	5	5	4	4	4	4	3	4	2	5	3.3
Nov 23	4	3	3	3	3	3	3	6	6	7	6	6	6	7	8	10	11	10	11	11	12	11	12	13	3	13	7.2
Nov 24	13	14	14	12	10	9	10	13	15	15	12	9	7	5	3	3	2	2	2	2	2	2	2	1	1	15	7.4
Nov 25	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	**1**	2	**1.3**
Nov 26	2	2	2	2	2	2	6	8	5	4	5	6	4	3	2	2	2	2	2	2	2	2	2	3	2	8	3.0
Nov 27	3	6	8	9	K	K	K	11	11	10	10	10	10	11	11	10	8	8	6	4	3	2	2	1	1	11	7.2
Nov 28	1	1	1	1	1	2	2	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4	1	4	1.7
Nov 29	5	4	4	5	4	4	4	3	2	2	2	2	2	2	2	2	2	2	1	1	2	2	6	5	1	6	2.9
Nov 30	4	6	6	4	3	3	3	2	3	3	4	4	5	4	3	10	7	3	3	4	4	4	5	7	2	10	4.3
Diurnal Maximum	15	17	17	19	22	22	33	157	56	22	12	16	15	18	13	32	41	34	19	15	15	14	14	14			
Diurnal Average	4.6	5.0	5.1	5.1	5.0	5.5	6.2	10.6	7.6	6.1	5.0	4.9	4.4	4.9	4.7	6.8	8.2	6.7	5.4	4.6	4.5	4.3	4.1	4.4			

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.





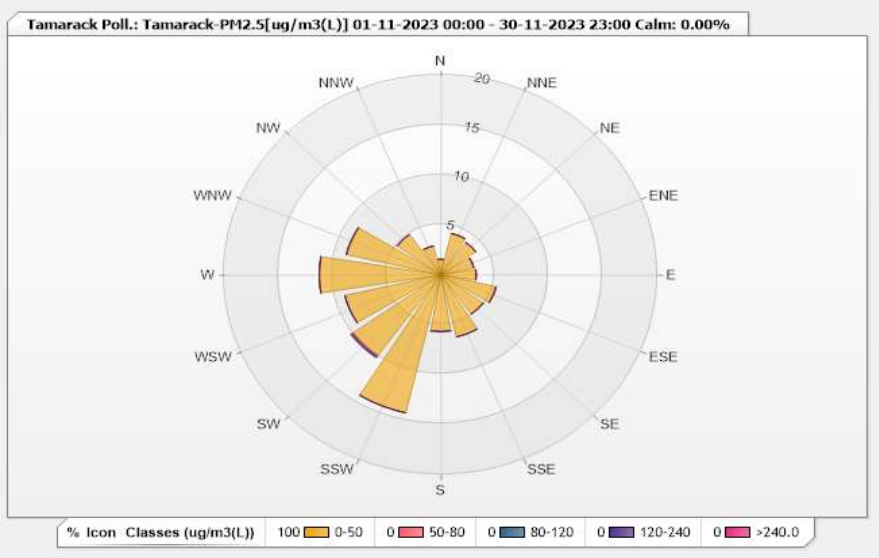
Station: Tamarack Poll.: Tamarack-PM2.5[ug/m3(L)] Monthly: 11-2023

)]

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

Calm: 0.00% Valid Data: 97.78% Calm Avg: 0.00 [ug/m3(L)]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	1.56	0	0	0	0	1.56
NNE	4.26	0	0	0	0	4.26
NE	3.98	0	0	0	0	3.98
ENE	3.13	0	0	0	0	3.13
E	3.27	0	0	0	0	3.27
ESE	5.26	0	0	0	0	5.26
SE	4.83	0	0	0	0	4.83
SSE	6.39	0	0	0	0	6.39
S	5.68	0	0	0	0	5.68
SSW	14.2	0	0	0	0	14.2
SW	9.94	0.14	0	0.14	0	10.22
WSW	9.09	0	0	0	0	9.09
W	11.22	0	0	0	0	11.22
WNW	8.95	0	0	0	0	8.95
NW	4.97	0	0	0	0	4.97
NNW	2.98	0	0	0	0	2.98
Summary	100	0.14	0	0.14	0	100



Lakeland Industry & Community Association

Tamarack Site - November 2023

Summary of Hourly Averages

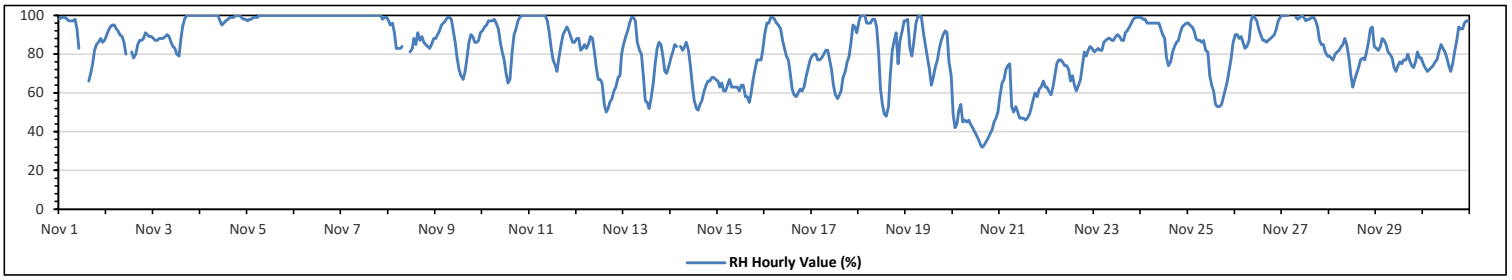
RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	100	%	on Nov 3 at hr 17	Hours in Service:	720	
Maximum Daily Value:	100.0	%	on Nov 6	Hours of Data:	707	
Minimum Hourly Value:	32	%	on Nov 20 at hr 15	Hours of Missing Data:	13	
Minimum Daily Value:	42.3	%	on Nov 20	Hours of Calibration:	0	
Monthly Average:	82.7	%		Operational Uptime:	98.2	

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
Nov 1	98	99	99	99	98	97	97	97	98	93	83	P	P	P	P	66	70	75	82	85	86	88	86	87	66	99	89.2
Nov 2	89	92	94	95	95	93	92	90	89	86	80	P	P	81	78	80	85	87	87	88	91	90	89	89	78	95	88.2
Nov 3	88	87	87	88	88	88	89	90	89	86	84	83	80	79	88	94	98	**100**	**100**	**100**	**100**	**100**	**100**	**100**	79	**100**	91.1
Nov 4	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	97	95	96	97	98	99	99	99	**100**	**100**	**100**	99	98	98	95	**100**	99.0
Nov 5	97	98	98	99	99	99	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	97	**100**	99.6
Nov 6	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	100	**100**	**100.0**
Nov 7	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	98	99	99	98	**100**	99.8
Nov 8	97	95	96	91	83	83	83	84	K	K	K	81	83	88	85	91	87	89	86	85	84	83	85	88	81	97	87.0
Nov 9	88	90	92	95	96	97	99	99	98	92	86	78	72	69	67	71	77	86	90	89	86	86	87	91	67	99	86.7
Nov 10	92	94	95	97	97	97	98	96	93	86	81	77	70	65	67	81	90	93	97	99	**100**	**100**	**100**	**100**	65	**100**	90.2
Nov 11	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	97	91	83	77	74	71	78	85	90	92	94	92	89	86	86	71	**100**	91.0
Nov 12	88	88	82	83	85	83	85	89	88	81	73	67	67	65	54	50	52	55	57	61	63	68	69	80	50	89	72.2
Nov 13	85	89	92	96	99	99	97	86	82	80	69	56	55	52	57	65	75	83	86	85	79	71	70	74	52	99	78.4
Nov 14	78	81	85	84	K	84	82	84	86	82	74	64	56	52	51	54	56	61	64	66	66	68	68	67	51	86	70.1
Nov 15	66	63	65	61	61	64	67	63	63	63	63	61	64	64	58	58	55	59	67	72	77	77	77	82	55	82	65.4
Nov 16	90	96	96	99	99	98	96	95	93	87	83	79	77	70	62	59	58	60	62	61	63	68	72	77	58	99	79.2
Nov 17	79	80	80	77	77	78	80	82	82	78	72	64	59	57	59	61	68	71	76	79	86	95	94	91	57	95	76.0
Nov 18	97	**100**	**100**	**100**	96	96	96	98	98	94	81	62	54	49	48	53	70	82	87	91	75	87	92	97	48	**100**	83.5
Nov 19	97	98	83	79	86	96	99	**100**	99	90	84	78	72	64	68	73	77	83	87	90	92	91	76	69	64	**100**	84.6
Nov 20	49	42	44	51	54	45	46	45	46	44	42	40	38	36	33	**32**	33	35	37	39	41	45	47	50	**32**	54	**42.3**
Nov 21	58	65	67	72	74	75	53	50	53	50	47	47	47	46	47	49	53	57	60	58	62	63	66	63	46	75	57.6
Nov 22	63	61	59	63	69	75	77	77	76	74	74	72	66	69	64	61	64	67	74	81	79	82	84	83	59	84	71.4
Nov 23	81	82	83	82	82	86	87	88	88	87	87	89	90	89	87	87	91	92	94	96	98	99	99	99	81	99	89.3
Nov 24	99	98	98	96	96	96	96	96	96	96	93	90	88	78	74	76	81	84	86	87	91	94	95	96	74	99	90.8
Nov 25	96	95	94	92	88	87	87	86	87	82	81	69	64	61	54	53	53	54	58	62	66	72	78	86	53	96	75.2
Nov 26	90	90	88	89	86	83	84	87	97	**100**	99	97	93	90	87	87	86	87	88	89	90	93	97	99	83	**100**	90.7
Nov 27	**100**	**100**	**100**	**100**	K	K	K	99	98	99	**100**	99	97	98	98	99	99	97	94	87	85	85	81	79	79	**100**	95.0
Nov 28	79	78	77	80	81	82	84	85	88	85	78	69	63	67	70	73	77	78	77	81	86	93	94	84	63	94	79.5
Nov 29	83	82	84	88	87	85	81	80	78	73	71	74	76	75	77	77	80	77	74	73	76	81	78	78	71	88	78.7
Nov 30	75	73	71	72	73	74	76	77	81	85	83	81	78	74	71	75	82	87	94	93	93	96	97	97	71	97	81.6
Diurnal Maximum	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100			
Diurnal Average	86.7	87.2	87.0	87.6	87.5	87.6	87.3	87.4	87.8	85.2	81.2	77.0	74.4	72.7	71.5	73.4	76.7	79.6	81.9	83.0	83.6	85.4	85.5	86.3			

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance		
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance	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

Tamarack Site - November 2023

Summary of Hourly Averages

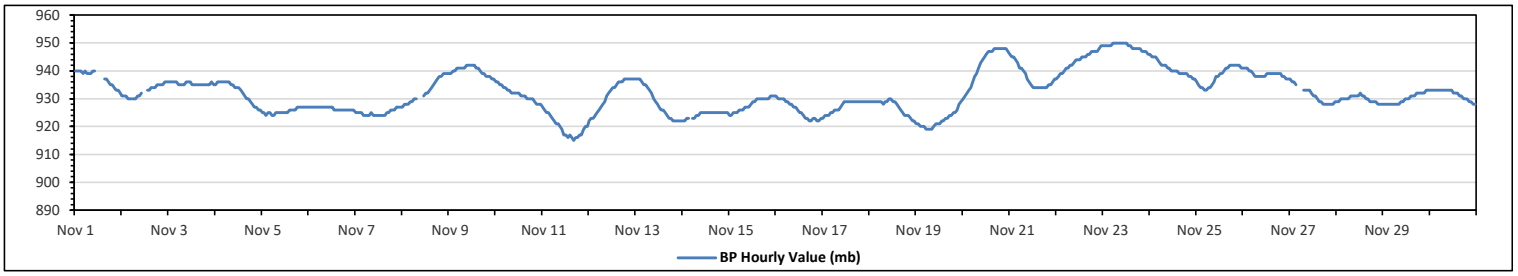
BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	950	mb	on Nov 23 at hr 5	Hours in Service:	720	
Maximum Daily Value:	949	mb	on Nov 23	Hours of Data:	707	
Minimum Hourly Value:	915	mb	on Nov 11 at hr 16	Hours of Missing Data:	13	
Minimum Daily Value:	920	mb	on Nov 11	Hours of Calibration:	0	
Monthly Average:	932	mb		Operational Uptime:	98.2	

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
Nov 1	940	940	940	940	939	940	939	939	939	940	940	P	P	P	P	937	937	936	935	935	934	933	933	932	932	940	937
Nov 2	931	931	931	930	930	930	930	930	931	931	932	P	P	933	933	934	934	934	935	935	935	935	936	936	930	936	933
Nov 3	936	936	936	936	936	935	935	935	935	936	936	936	935	935	935	935	935	935	935	935	935	935	936	935	935	936	935
Nov 4	935	936	936	936	936	936	936	936	935	935	934	934	934	933	932	931	930	930	929	928	927	927	926	926	926	936	932
Nov 5	925	925	924	925	925	924	924	925	925	925	925	925	925	925	926	926	926	926	927	927	927	927	927	927	924	927	926
Nov 6	927	927	927	927	927	927	927	927	927	927	927	927	927	926	926	926	926	926	926	926	926	926	926	926	926	927	927
Nov 7	925	925	925	925	924	924	924	924	925	924	924	924	924	924	924	924	925	925	926	926	926	927	927	927	924	927	925
Nov 8	927	928	928	928	929	929	930	930	K	K	K	931	932	932	933	934	935	936	937	938	938	939	939	939	927	939	933
Nov 9	939	939	940	940	941	941	941	941	941	942	942	942	942	942	941	941	940	939	939	938	938	938	937	937	937	942	940
Nov 10	936	936	935	935	934	934	933	933	932	932	932	932	932	931	931	931	930	930	930	930	929	928	928	928	928	936	932
Nov 11	927	926	925	925	924	923	922	921	921	920	919	917	917	916	917	916	**915**	916	916	917	917	919	920	920	**915**	927	**920**
Nov 12	922	923	923	924	925	926	927	928	929	931	932	933	934	934	935	936	936	936	937	937	937	937	937	937	922	937	932
Nov 13	937	937	937	936	935	935	934	933	932	930	929	928	927	926	926	925	924	923	923	922	922	922	922	922	922	937	929
Nov 14	922	922	923	923	K	923	923	924	924	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	922	925	924
Nov 15	924	924	925	925	925	926	926	926	927	927	927	928	929	929	930	930	930	930	930	930	930	931	931	931	924	931	928
Nov 16	931	930	930	930	930	929	929	928	928	927	927	926	925	925	924	923	923	922	922	923	923	922	922	923	922	931	926
Nov 17	923	924	924	924	925	925	926	926	926	927	928	929	929	929	929	929	929	929	929	929	929	929	929	929	923	929	927
Nov 18	929	929	929	929	929	929	929	928	929	929	930	930	929	929	928	927	926	925	924	924	924	923	922	922	922	930	927
Nov 19	921	921	920	920	920	919	919	919	919	920	921	921	921	922	922	923	923	924	924	925	925	926	928	929	919	929	922
Nov 20	930	931	932	933	934	936	938	939	941	943	944	945	946	947	947	947	948	948	948	948	948	948	948	947	930	948	942
Nov 21	946	945	945	944	943	941	941	940	939	937	936	935	934	934	934	934	934	934	934	934	935	935	936	937	934	946	938
Nov 22	937	938	939	939	940	941	941	942	942	943	944	944	944	945	945	945	946	946	947	947	947	947	948	949	937	949	944
Nov 23	949	949	949	949	949	**950**	**950**	**950**	**950**	**950**	**950**	**950**	**950**	949	949	948	948	948	948	948	947	947	947	946	946	**950**	**949**
Nov 24	946	945	945	945	944	943	942	942	942	941	941	940	940	940	940	939	939	939	939	939	938	938	937	937	937	946	941
Nov 25	936	935	934	934	933	933	934	934	935	936	938	938	939	939	940	941	941	942	942	942	942	942	942	941	933	942	938
Nov 26	941	941	941	940	940	939	938	938	938	938	938	938	939	939	939	939	939	939	939	939	938	938	937	937	937	941	939
Nov 27	937	936	936	935	K	K	K	933	933	933	933	932	931	931	930	929	929	928	928	928	928	928	928	929	928	937	931
Nov 28	929	929	930	930	930	930	930	931	931	931	931	931	932	931	931	930	930	929	929	929	929	928	928	928	928	932	930
Nov 29	928	928	928	928	928	928	928	928	928	929	929	930	930	930	931	931	931	932	932	932	932	932	933	933	928	933	930
Nov 30	933	933	933	933	933	933	933	933	933	933	933	933	932	932	932	931	931	930	930	930	929	929	928	928	928	933	932
Diurnal Maximum	949	949	949	949	949	950	950	950	950	950	950	950	950	949	949	948	948	948	948	948	948	948	948	949			
Diurnal Average	932	932	932	932	932	932	932	932	932	932	933	932	932	932	932	932	932	932	932	932	932	932	932	932			

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

Tamarack Site - November 2023

Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

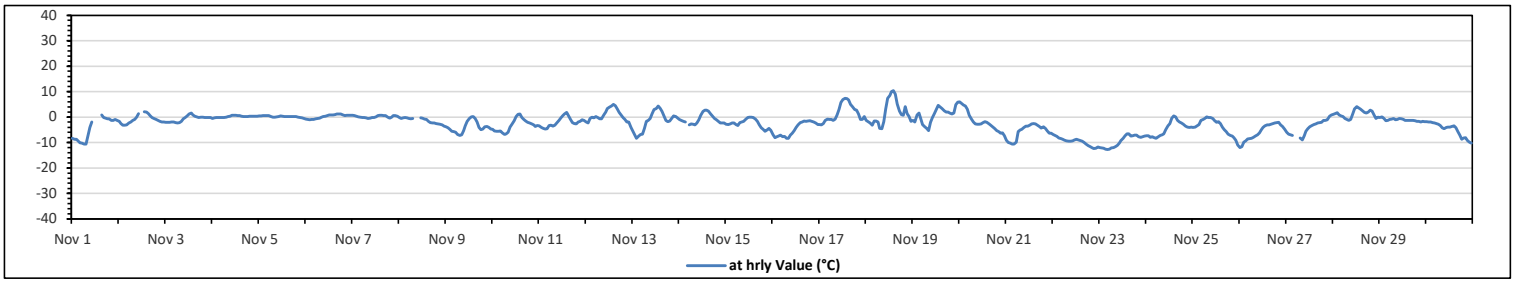
Maximum Hourly Value:	10.4	°C	on Nov 18 at hr 14	Hours in Service:	720	
Maximum Daily Value:	1.6	°C	on Nov 17	Hours of Data:	707	
Minimum Hourly Value:	-12.7	°C	on Nov 23 at hr 4	Hours of Missing Data:	13	
Minimum Daily Value:	-9.6	°C	on Nov 22	Hours of Calibration:	0	
Monthly Average:	-2.3	°C		Operational Uptime:	98.2	

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			
Nov 1	-8.3	-8.8	-8.7	-9.4	-10.1	-10.3	-10.6	-10.6	-7.4	-4	-2	P	P	P	P	0.8	-0.1	-0.4	-0.7	-0.7	-1.2	-1.3	-0.9	-1.2	-10.6	0.8	-4.8
Nov 2	-1.7	-2.5	-3.2	-3.2	-3	-2.3	-2	-1.3	-0.9	0	1.4	P	P	2.1	1.9	1.4	0.6	-0.1	-0.5	-1	-1.3	-1.6	-1.9	-1.9	-3.2	2.1	-1.0
Nov 3	-2.1	-2.1	-2.1	-2	-1.9	-2.2	-2.3	-2.2	-1.6	-0.7	-0.1	0.4	1.2	1.6	0.8	0.3	0.1	-0.1	0	0	-0.1	-0.2	-0.2	-0.2	-2.3	1.6	-0.7
Nov 4	-0.5	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	0	0.2	0.3	0.7	0.7	0.7	0.5	0.5	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	-0.5	0.7	0.2
Nov 5	0.4	0.4	0.5	0.5	0.5	0.5	0.2	0	0	0.1	0.2	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0	-0.1	-0.3	-0.6	-0.6	0.5	0.2
Nov 6	-0.8	-0.9	-1.1	-1	-0.9	-0.7	-0.6	-0.4	0	0.2	0.3	0.5	0.8	0.9	0.8	1	1.2	1.2	1.2	0.9	0.6	0.7	0.7	0.7	-1.1	1.2	0.2
Nov 7	0.7	0.5	0.3	0.1	0	-0.1	-0.2	-0.3	-0.5	-0.4	-0.2	-0.1	0.1	0.6	0.7	0.7	0.6	0.5	0	-0.4	0	0.6	0.5	0.3	-0.5	0.7	0.2
Nov 8	-0.1	-0.5	-0.3	-0.1	-0.3	-0.6	-0.7	-0.6	K	K	K	-0.3	-0.4	-0.8	-1	-1.7	-2.2	-2.3	-2.4	-2.5	-2.6	-2.8	-3	-3.6	-3.6	-0.1	-1.4
Nov 9	-3.8	-4.2	-4.8	-5.6	-5.7	-5.9	-6.8	-7.2	-6.9	-5.3	-3.5	-1.7	-0.6	0.1	0.2	-0.5	-2	-4.1	-5	-4.7	-3.8	-3.7	-4	-4.7	-7.2	0.2	-3.9
Nov 10	-4.9	-5.4	-5.5	-5.5	-5.4	-6.2	-6.8	-6.6	-5.9	-3.9	-2.8	-1.4	0.2	1.1	1.2	-0.2	-0.9	-1.5	-2.1	-2.4	-2.6	-3.1	-3.7	-3.3	-6.8	1.2	-3.2
Nov 11	-3.5	-4.1	-4.4	-4.7	-4.6	-3.3	-3.2	-3.6	-3.2	-2.3	-1.3	-0.3	0.5	1.3	1.8	0.4	-0.9	-2.2	-2.5	-2.7	-2	-1.6	-1.1	-1.3	-4.7	1.8	-2.0
Nov 12	-2	-2.4	-0.6	0	-0.3	0.2	-0.1	-0.7	-0.7	0.9	1.9	3.4	3.9	4.3	5	4.4	3.2	1.8	0.9	-0.1	-0.9	-1.9	-2	-4.1	-4.1	5.0	0.6
Nov 13	-5.6	-7.1	-8.3	-7.5	-6.8	-6.7	-4.5	-1.6	-1.3	-0.5	1.4	2.9	3.4	4.3	3.5	2.2	0.4	-1.3	-1.8	-1.5	-0.5	0.4	0.2	-0.3	-8.3	4.3	-1.5
Nov 14	-1	-1.3	-1.6	-1.9	K	-3.1	-2.7	-2.8	-3	-2.3	-1.1	0.7	2.2	2.8	2.7	2.3	1.3	0.3	-0.5	-1.1	-1.6	-2.3	-2.4	-2.4	-3.1	2.8	-0.8
Nov 15	-2.8	-2.9	-2.7	-2.4	-2.4	-2.9	-3.3	-2.2	-1.9	-1.7	-1	-0.2	0	0	-0.1	-0.8	-1.7	-3	-4.2	-4.8	-5.6	-5.1	-4.5	-5.2	-5.6	0.0	-2.6
Nov 16	-7	-8	-7.8	-7.5	-7.1	-7.8	-7.6	-8.3	-8.3	-7.1	-6.3	-5.3	-4.1	-3.1	-2.2	-1.9	-1.5	-1.6	-1.5	-1.4	-1.6	-2	-2.3	-2.9	-8.3	-1.4	-4.8
Nov 17	-2.9	-3	-2.5	-1.3	-0.8	-0.9	-1	-1.2	-0.8	0.9	3	5.7	6.9	7.4	7.2	6.8	5	4.1	3	2.7	1.2	-0.9	-1	0.2	-3.0	7.4	**1.6**
Nov 18	-1.3	-1.8	-2.4	-3.2	-1.5	-1.5	-2	-4.4	-4.6	-1.8	3.2	7.4	8.5	10	**10.4**	9	5.1	2.4	1	0.7	4.1	1.4	0.2	-1.6	-4.6	**10.4**	1.6
Nov 19	-1.3	-2	0.9	1.6	-0.4	-2.9	-3.7	-4.5	-5.3	-2.1	-0.1	1.4	3	4.6	4	3.3	2.5	1.9	1.9	1.6	1.3	1.6	4.8	5.8	-5.3	5.8	0.7
Nov 20	6	5.4	4.7	4.3	3.1	0.7	-0.8	-1.9	-2.6	-2.8	-2.8	-2.6	-2.2	-1.8	-2.1	-2.7	-3.2	-3.8	-4.5	-5.3	-5.7	-6.3	-6.2	-7.3	-7.3	6.0	-1.7
Nov 21	-9.1	-10	-10.2	-10.5	-10.5	-9.9	-5.7	-5.1	-4.9	-4.1	-3.6	-3.6	-3.2	-2.6	-2.5	-2.7	-3.2	-3.7	-4.3	-3.8	-4.4	-5.4	-6.4	-6.3	-10.5	-2.5	-5.7
Nov 22	-6.8	-7.2	-7.6	-8.2	-8.4	-8.8	-9.1	-9.3	-9.4	-9.5	-9.3	-9	-8.7	-9	-9.2	-9.5	-10	-10.5	-11.3	-11.7	-11.9	-12.3	-12.2	-11.8	-12.3	-6.8	**-9.6**
Nov 23	-12	-12.1	-12.2	-12.6	**-12.7**	-12.6	-12.1	-11.9	-11.7	-11.1	-10.2	-9.2	-8.3	-7.4	-6.6	-6.6	-7.5	-7.4	-7.1	-7.1	-7.8	-7.9	-7.8	-7.5	**-12.7**	-6.6	-9.6
Nov 24	-7.3	-7.3	-7.9	-7.8	-8	-8.3	-7.8	-7.2	-7	-6.6	-5	-3.5	-2.5	-0.4	0.4	0.1	-1.2	-2	-2.4	-2.8	-3.6	-3.9	-4.1	-3.9	-8.3	0.4	-4.6
Nov 25	-4.1	-3.9	-3.5	-2.9	-1.2	-0.9	-0.6	0.1	-0.1	-0.2	-0.6	-1.4	-2.1	-1.8	-2.5	-3.9	-5	-5.7	-6.7	-7.2	-7.5	-8	-9.1	-10.9	-10.9	0.1	-3.7
Nov 26	-11.9	-11.7	-9.8	-9.3	-8.6	-8.5	-8.3	-7.9	-7.5	-6.9	-6.2	-5	-4	-3.4	-3	-3	-2.8	-2.5	-2.3	-2.2	-2.1	-3	-3.7	-4.8	-11.9	-2.1	-5.8
Nov 27	-5.9	-6.7	-7	-7.2	K	K	K	-8.2	-9	-7.4	-5.5	-4.6	-3.8	-3.3	-2.9	-2.7	-2.4	-2.2	-2.1	-1.2	-1.2	-1.1	0.3	0.9	-9.0	0.9	-4.0
Nov 28	1.1	1.4	1.7	0.9	0.4	0.2	-0.6	-0.9	-1.3	-0.9	1.1	3.2	4.2	3.6	3.1	2.5	1.8	1.6	1.9	2.8	2.3	0.5	-0.6	0	-1.3	4.2	1.3
Nov 29	-0.2	0.1	-0.5	-1.4	-1.2	-1	-0.8	-0.6	-1.1	-0.9	-0.6	-0.7	-1	-1.2	-1.3	-1.3	-1.3	-1.2	-1.4	-1.6	-1.7	-2	-1.7	-1.8	-2.0	0.1	-1.1
Nov 30	-1.8	-1.9	-2	-2.2	-2.3	-2.5	-2.8	-3.3	-4.2	-4.6	-4.1	-3.9	-3.9	-3.7	-3.5	-4.2	-5.7	-7.1	-8.7	-8.2	-8	-9.2	-9.9	-10.3	-10.3	-1.8	-4.9
Diurnal Maximum	6.0	5.4	4.7	4.3	3.1	0.7	0.2	0.1	0.2	0.9	3.2	7.4	8.5	10.0	10.4	9.0	5.1	4.1	3.0	2.8	4.1	1.6	4.8	5.8			
Diurnal Average	-3.4	-3.7	-3.6	-3.7	-3.6	-3.7	-3.7	-3.8	-3.8	-2.9	-1.8	-0.9	-0.3	0.2	0.3	-0.2	-1.0	-1.6	-2.1	-2.2	-2.3	-2.7	-2.7	-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	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

Tamarack Site - November 2023

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

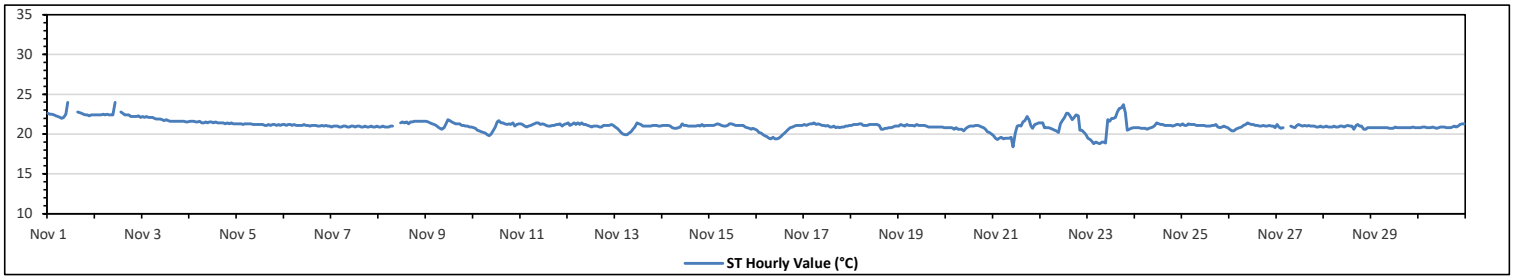
Maximum Hourly Value:	24.0	°C	on Nov 1 at hr 10	Hours in Service:	720	
Maximum Daily Value:	22.5	°C	on Nov 1	Hours of Data:	708	
Minimum Hourly Value:	18.4	°C	on Nov 21 at hr 10	Hours of Missing Data:	12	
Minimum Daily Value:	20.2	°C	on Nov 16	Hours of Calibration:	0	
Monthly Average:	21.1	°C		Operational Uptime:	98.3	

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			
Nov 1	22.6	22.5	22.5	22.4	22.3	22.2	22.1	22.0	22.1	22.5	**24.0**	P	P	P	P	22.8	22.7	22.6	22.5	22.4	22.4	22.3	22.4	22.4	22.0	**24.0**	**22.5**
Nov 2	22.4	22.4	22.4	22.4	22.5	22.4	22.5	22.4	22.4	22.4	**24.0**	P	P	22.8	22.6	22.4	22.4	22.4	22.2	22.2	22.2	22.2	22.3	22.1	22.1	**24.0**	22.5
Nov 3	22.2	22.1	22.2	22.1	22.1	22.1	22.0	21.9	21.9	21.9	21.8	21.7	21.8	21.7	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.5	21.5	21.5	22.2	21.8
Nov 4	21.6	21.6	21.6	21.5	21.5	21.6	21.4	21.4	21.5	21.4	21.5	21.5	21.4	21.5	21.4	21.4	21.4	21.4	21.3	21.4	21.3	21.4	21.3	21.3	21.3	21.6	21.4
Nov 5	21.3	21.3	21.3	21.2	21.3	21.3	21.3	21.3	21.2	21.2	21.2	21.2	21.2	21.2	21.1	21.1	21.2	21.1	21.2	21.2	21.1	21.2	21.1	21.2	21.1	21.3	21.2
Nov 6	21.2	21.1	21.2	21.2	21.1	21.2	21.1	21.1	21.1	21.1	21.2	21.1	21.1	21.0	21.1	21.1	21.1	21.0	21.0	21.1	21.0	21.1	21.0	21.0	21.0	21.2	21.1
Nov 7	20.9	21.0	21.0	21.0	20.9	20.9	21.0	21.0	20.9	20.9	21.0	21.0	20.9	21.0	21.0	20.9	20.9	21.0	20.9	20.9	21.0	20.9	20.9	21.0	20.9	21.0	21.0
Nov 8	20.9	20.9	21.0	20.9	20.9	20.9	21.0	21.0	K	K	K	21.4	21.5	21.4	21.5	21.3	21.5	21.5	21.6	21.6	21.6	21.6	21.6	21.6	20.9	21.6	21.3
Nov 9	21.6	21.5	21.4	21.3	21.2	21.1	20.9	20.7	20.6	20.8	21.3	21.8	21.7	21.5	21.4	21.3	21.3	21.3	21.1	21.1	21.0	21.0	20.9	20.9	20.6	21.8	21.2
Nov 10	20.8	20.7	20.5	20.4	20.3	20.2	20.1	19.9	19.8	20.0	20.4	20.9	21.5	21.7	21.4	21.4	21.3	21.2	21.3	21.2	21.4	21.0	21.2	21.3	19.8	21.7	20.8
Nov 11	21.3	21.2	21.0	20.9	21.0	21.1	21.2	21.3	21.4	21.4	21.2	21.3	21.2	21.1	21.0	21.0	21.1	21.1	21.2	21.2	21.3	21.0	21.2	21.3	20.9	21.4	21.2
Nov 12	21.4	21.1	21.2	21.4	21.2	21.4	21.2	21.4	21.2	21.2	21.1	21.0	20.9	21.0	21.0	21.0	20.9	20.9	21.1	21.1	21.1	21.1	21.2	21.1	20.9	21.4	21.1
Nov 13	20.9	20.7	20.5	20.2	20.0	19.9	19.9	20.1	20.3	20.6	20.9	21.4	21.3	21.2	21.0	21.0	21.0	21.0	21.0	21.1	21.1	21.1	21.0	21.0	19.9	21.4	20.8
Nov 14	21.1	21.1	21.1	21.1	21.0	20.8	20.7	20.7	20.8	20.9	21.3	21.1	21.1	21.0	21.0	21.0	21.0	21.0	21.1	21.0	21.2	21.0	21.1	21.1	20.7	21.3	21.0
Nov 15	21.1	21.1	21.1	21.2	21.3	21.2	21.1	21.0	21.0	21.1	21.3	21.3	21.2	21.1	21.1	21.1	21.1	21.1	20.9	20.8	20.7	20.6	20.7	20.6	20.6	21.3	21.0
Nov 16	20.5	20.2	20.1	19.9	19.8	19.7	19.5	19.4	19.6	19.4	19.4	19.5	19.7	19.9	20.1	20.4	20.6	20.8	20.9	21.0	21.1	21.1	21.1	21.1	19.4	21.1	**20.2**
Nov 17	21.2	21.1	21.2	21.3	21.3	21.4	21.2	21.3	21.2	21.1	21.1	21.0	21.1	20.9	20.9	21.0	20.8	20.9	20.8	20.9	20.9	21.0	21.0	21.1	20.8	21.4	21.1
Nov 18	21.1	21.2	21.2	21.2	21.3	21.3	21.1	21.1	21.1	21.2	21.2	21.2	21.2	21.2	21.1	20.6	20.6	20.7	20.7	20.8	20.8	20.9	21.0	21.0	20.6	21.3	21.0
Nov 19	21.0	21.2	21.1	21.0	21.2	21.1	21.1	21.1	21.0	21.2	21.1	21.1	21.1	21.1	21.0	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.8	20.8	21.2	21.0
Nov 20	20.8	20.8	20.8	20.8	20.6	20.8	20.6	20.6	20.6	20.4	20.7	20.9	21.0	21.0	21.0	21.1	21.1	21.0	20.9	20.8	20.6	20.3	20.2	20.0	20.0	21.1	20.7
Nov 21	19.8	19.5	19.3	19.5	19.6	19.4	19.5	19.5	19.5	19.6	**18.4**	20.1	21.0	21.1	21.0	21.5	21.7	22.2	21.8	21.0	20.7	21.2	21.3	21.4	**18.4**	22.2	20.4
Nov 22	21.4	21.4	20.8	20.8	20.8	20.7	20.6	20.5	20.4	20.2	21.3	21.7	22.1	22.6	22.6	22.3	21.8	22.1	22.4	22.3	20.5	20.5	20.2	19.9	19.9	22.6	21.2
Nov 23	19.5	19.3	19.1	18.8	19.0	18.9	18.8	19.0	19.0	18.9	21.8	21.6	22.0	22.0	22.1	22.8	23.2	23.3	23.7	22.7	20.5	20.6	20.7	20.8	18.8	23.7	20.8
Nov 24	20.8	20.8	20.8	20.7	20.7	20.7	20.6	20.7	20.8	20.9	21.1	21.4	21.3	21.2	21.2	21.1	21.1	21.1	21.1	21.0	21.1	21.2	21.2	21.1	20.6	21.4	21.0
Nov 25	21.3	21.1	21.1	21.3	21.2	21.2	21.2	21.1	21.1	21.1	21.1	21.1	21.0	21.0	21.0	21.1	21.1	21.2	20.9	20.8	20.9	21.0	20.9	20.8	20.8	21.3	21.1
Nov 26	20.6	20.4	20.4	20.6	20.7	20.8	20.9	21.1	21.2	21.4	21.3	21.2	21.2	21.1	21.1	21.0	21.0	21.1	21.0	21.0	21.1	21.0	21.0	20.8	20.4	21.4	21.0
Nov 27	21.2	20.9	20.7	20.8	K	K	K	21.0	20.9	20.8	21.1	21.2	21.1	21.0	21.1	21.0	21.1	21.0	21.0	21.0	20.9	20.9	21.0	20.9	20.7	21.2	21.0
Nov 28	20.9	21.0	20.9	20.9	20.9	21.0	20.9	20.9	21.0	21.0	20.9	21.0	21.1	21.0	21.0	20.6	21.1	21.2	21.0	21.0	20.6	20.6	20.8	20.8	20.6	21.2	20.9
Nov 29	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.7	20.7	20.7	20.9	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.9	20.8	20.8	20.7	20.9	20.8
Nov 30	20.8	20.8	20.9	20.9	20.8	20.8	20.8	20.9	20.8	20.7	20.8	20.9	20.9	20.9	20.8	20.8	20.8	20.9	21.0	20.9	21.0	21.2	21.3	21.3	20.7	21.3	20.9
Diurnal Maximum	22.6	22.5	22.5	22.4	22.5	22.4	22.5	22.4	22.4	22.5	24.0	21.8	22.1	22.8	22.6	22.8	23.2	23.3	23.7	22.7	22.4	22.3	22.4	22.4			
Diurnal Average	21.1	21.0	21.0	21.0	20.9	20.9	20.9	20.9	20.9	20.9	21.2	21.1	21.2	21.2	21.2	21.2	21.3	21.3	21.3	21.2	21.1	21.1	21.1	21.1			

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.



Lakeland Industry & Community Association

Tamarack Site - November 2023

Summary of Hourly Averages

PRECIPITATION in mm

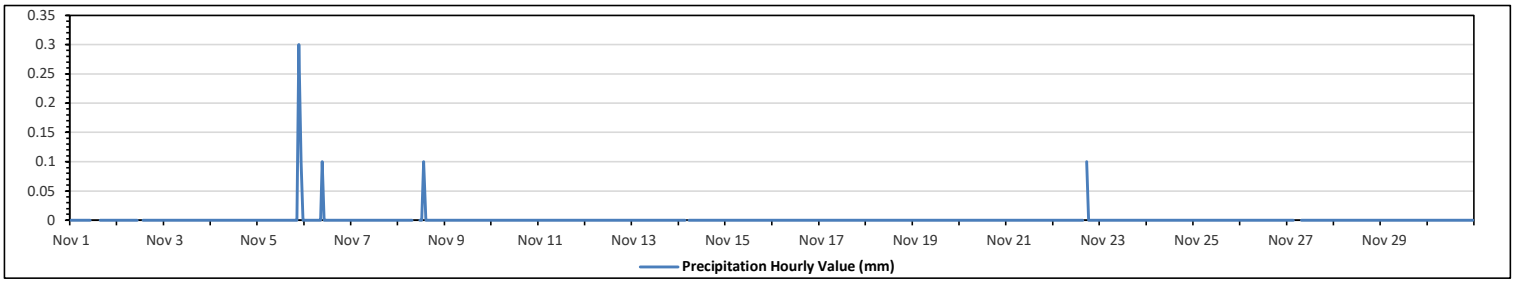
Maximum Hourly Value:	0.3	mm	on Nov 5 at hr 21	Hours in Service:	720	
Maximum Daily Value:	0.4	mm	on Nov 5	Hours of Data:	706	
Minimum Hourly Value:	0.0	mm	on Nov 1 at hr 0	Hours of Missing Data:	13	
Minimum Daily Value:	0.0	mm	on Nov 1	Hours of Calibration:	1	
Monthly Total:	0.7	mm		Operational Uptime:	98.2	

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			
Nov 1	0	0	0	0	0	0	0	0	0	0	0	P	P	P	P	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 2	0	0	0	0	0	0	0	0	0	0	0	P	P	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 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
Nov 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
Nov 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0.3**	0.1	0	0.0	**0.3**	**0.4**
Nov 6	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	0.1	0.1
Nov 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	0.0
Nov 8	0	0	0	0	0	0	0	0	K	K	K	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.1
Nov 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
Nov 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
Nov 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	0.0
Nov 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
Nov 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
Nov 14	0	0	0	0	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 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
Nov 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
Nov 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
Nov 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
Nov 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
Nov 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
Nov 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
Nov 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C	0.1	0	0	0	0	0	0	0.0	0.1	0.1
Nov 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
Nov 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
Nov 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
Nov 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
Nov 27	0	0	0	0	K	K	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 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
Nov 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
Nov 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
Diurnal Maximum	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	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.1	0.0			
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			

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

Tamarack Site - November 2023

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

Maximum Hourly Value:	19.7	kph	on Nov 20 at hr 5	Hours in Service:	720	
Maximum Daily Value:	11.8	kph	on Nov 20	Hours of Data:	707	
Minimum Hourly Value:	0.1	kph	on Nov 3 at hr 21	Hours of Missing Data:	13	
Minimum Daily Value:	2.6	kph	on Nov 1	Hours of Calibration:	0	
Monthly Average:	2.3	kph		Operational Uptime:	98.2	

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			
Nov 1	0.8	2.6	2.4	1.2	1.1	0.6	0.7	1.8	3.5	3.9	5.0	P	P	P	P	5.0	3.5	4.5	4.7	2.9	2.5	1.6	3.2	1.2	0.6	5.0	**2.6**
Nov 2	1.3	0.9	0.7	0.9	1.2	3.6	2.9	2.1	2.0	2.6	2.2	P	P	5.6	8.6	7.0	8.7	6.7	6.5	4.3	5.6	5.4	2.4	2.7	0.7	8.7	3.8
Nov 3	3.4	3.1	3.1	2.8	3.6	4.6	2.1	1.1	1.6	3.8	4.0	4.4	4.9	5.2	4.0	4.4	4.1	4.6	2.1	0.3	0.5	**0.1**	0.4	0.5	**0.1**	5.2	2.9
Nov 4	0.5	1.5	**0.1**	2.5	2.4	2.0	3.9	4.9	5.9	6.7	8.1	7.6	8.0	8.4	8.7	9.4	11.1	11.4	10.6	10.1	11.1	10.4	8.3	7.4	**0.1**	11.4	6.7
Nov 5	7.3	7.4	7.4	3.5	5.0	6.5	4.6	4.2	3.2	3.1	2.7	1.0	3.3	4.5	2.9	1.4	1.4	**0.1**	**0.1**	**0.1**	2.2	2.2	2.8	2.7	**0.1**	7.4	3.3
Nov 6	1.7	2.4	1.8	0.9	1.8	1.3	0.6	1.8	3.1	3.9	6.3	6.3	6.2	6.2	6.4	4.9	4.0	4.9	5.2	6.4	6.0	6.0	5.6	5.3	0.6	6.4	4.1
Nov 7	7.6	6.0	6.8	6.0	6.4	5.4	4.9	6.0	6.0	6.1	6.1	4.7	4.5	4.3	3.8	3.9	3.9	5.3	9.4	8.2	8.6	10.1	7.4	5.5	3.8	10.1	6.1
Nov 8	8.0	7.6	8.9	12.3	16.5	13.6	13.6	11.6	K	K	K	11.5	11.3	9.0	10.0	10.6	9.5	7.6	9.4	9.2	7.6	7.6	5.9	5.8	5.8	16.5	9.9
Nov 9	6.7	5.1	4.3	3.3	4.1	3.7	1.5	2.8	1.7	2.9	1.8	0.4	2.4	4.2	4.7	5.0	2.6	1.3	3.1	3.0	5.3	6.2	7.2	6.3	0.4	7.2	3.7
Nov 10	7.3	6.1	5.9	4.7	6.8	5.7	3.9	3.4	4.6	6.7	7.8	8.3	9.2	10.4	11.7	9.8	6.4	6.0	3.4	1.7	3.3	2.7	2.3	3.8	1.7	11.7	5.9
Nov 11	3.4	2.8	3.2	4.6	4.0	3.7	5.3	4.3	5.1	6.4	5.8	7.4	7.4	6.7	5.5	2.7	2.2	0.4	1.5	2.1	3.1	5.5	6.7	5.9	0.4	7.4	4.4
Nov 12	4.0	4.5	7.4	5.5	6.4	7.6	6.8	5.3	6.2	7.3	8.2	11.8	13.5	11.4	10.2	9.0	6.5	5.3	4.4	4.5	4.3	3.5	4.9	1.1	1.1	13.5	6.7
Nov 13	0.7	0.5	1.0	4.6	4.8	4.7	5.1	4.3	4.7	6.2	8.1	9.8	7.0	6.8	5.2	2.6	1.1	0.4	0.2	2.8	6.2	8.3	9.3	10.4	0.2	10.4	4.8
Nov 14	12.0	14.5	11.3	14.3	K	15.4	13.0	11.5	8.9	9.2	10.3	11.0	12.2	12.6	12.7	9.8	5.5	4.5	5.4	5.4	5.5	4.6	5.4	5.4	4.5	15.4	9.6
Nov 15	5.8	5.5	6.0	4.6	4.1	4.5	5.4	7.9	6.7	7.1	8.4	10.7	11.1	9.4	6.8	6.6	7.0	3.6	4.1	4.0	3.0	2.7	3.1	1.8	1.8	11.1	5.8
Nov 16	0.8	0.8	2.4	4.5	5.2	5.1	5.9	7.5	4.8	7.7	7.3	6.6	5.4	6.0	5.2	4.3	3.7	4.2	4.6	5.9	6.9	5.8	5.4	4.5	0.8	7.7	5.0
Nov 17	5.1	8.0	6.7	5.8	6.4	6.6	5.6	5.6	6.5	7.6	7.4	9.9	10.0	12.4	8.3	4.9	4.8	4.3	3.7	3.9	1.9	2.9	4.4	3.5	1.9	12.4	6.1
Nov 18	3.0	2.4	1.7	1.0	4.0	3.3	2.6	**0.1**	0.9	0.9	1.2	4.2	5.2	4.4	3.7	3.6	2.5	2.6	2.9	1.7	4.6	2.4	2.7	3.1	**0.1**	5.2	2.7
Nov 19	2.5	1.1	4.6	5.6	3.7	0.5	0.3	0.4	**0.1**	3.7	5.5	4.7	5.2	6.2	5.6	5.9	4.2	4.2	4.8	4.3	4.8	6.4	13.8	16.5	**0.1**	16.5	4.8
Nov 20	16.7	18.8	16.5	19.3	18.7	**19.7**	18.9	14.2	12.9	14.4	12.5	12.9	12.4	11.3	9.7	8.4	8.7	8.2	6.8	4.2	6.3	4.1	3.4	3.6	3.4	**19.7**	**11.8**
Nov 21	2.0	**0.1**	1.7	1.4	2.7	2.2	6.4	8.0	8.8	10.2	11.4	8.2	6.4	1.0	1.8	3.2	1.7	0.9	2.2	2.3	4.3	4.2	2.0	6.6	**0.1**	11.4	4.2
Nov 22	7.2	7.6	9.6	10.3	8.4	9.3	7.0	7.5	7.1	7.2	6.6	5.4	6.4	7.0	5.9	3.7	2.7	1.9	2.8	3.6	3.8	2.7	**0.1**	2.6	**0.1**	10.3	5.7
Nov 23	3.7	3.4	4.0	2.2	4.4	1.6	3.8	5.6	6.3	7.4	6.8	8.8	8.2	8.3	6.7	6.2	4.6	7.8	6.6	5.0	3.3	5.3	5.6	7.7	1.6	8.8	5.6
Nov 24	9.1	7.4	7.6	8.1	7.6	5.0	7.3	6.7	7.9	7.0	7.6	6.6	5.4	7.3	7.4	5.7	3.7	3.9	4.7	4.6	4.7	4.0	4.5	4.3	3.7	9.1	6.2
Nov 25	4.9	6.2	6.4	8.6	10.4	11.0	9.6	8.8	7.6	10.2	10.5	12.6	11.9	11.8	11.1	9.6	6.8	4.5	2.5	4.0	4.5	3.9	2.4	1.8	1.8	12.6	7.6
Nov 26	2.0	2.3	1.0	1.8	1.6	3.8	2.1	0.9	2.5	2.9	3.5	3.5	6.0	3.9	6.6	6.9	7.9	8.6	8.2	6.3	7.6	5.6	4.7	4.0	0.9	8.6	4.3
Nov 27	5.6	5.3	3.7	6.7	K	K	K	3.2	1.2	2.6	4.1	4.9	5.5	4.3	4.7	6.5	5.9	5.3	6.5	8.7	7.4	7.2	9.9	11.0	1.2	11.0	5.7
Nov 28	10.9	9.7	11.4	9.9	9.0	8.5	7.1	6.4	6.2	5.6	5.5	10.2	8.2	6.8	7.0	6.8	5.2	4.2	6.0	10.4	5.6	3.6	4.9	7.6	3.6	11.4	7.4
Nov 29	8.3	8.5	8.3	6.3	9.2	10.1	9.9	11.6	10.8	11.1	14.2	12.2	10.3	10.7	8.3	9.2	9.8	9.2	9.4	7.7	7.1	4.6	7.5	7.0	4.6	14.2	9.2
Nov 30	8.6	8.4	8.5	8.7	8.3	4.5	5.1	3.6	7.4	7.0	6.2	7.0	7.6	6.3	4.0	4.0	2.9	2.9	2.5	1.9	4.0	4.1	4.4	3.2	1.9	8.7	5.5
Diurnal Maximum	16.7	18.8	16.5	19.3	18.7	19.7	18.9	14.2	12.9	14.4	14.2	12.9	13.5	12.6	12.7	10.6	11.1	11.4	10.6	10.4	11.1	10.4	13.8	16.5			
Diurnal Average	5.4	5.4	5.5	5.7	6.0	6.0	5.7	5.4	5.3	6.3	6.7	7.6	7.7	7.3	6.8	6.0	5.1	4.6	4.8	4.7	5.1	4.8	5.0	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	P Power Failure
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)			

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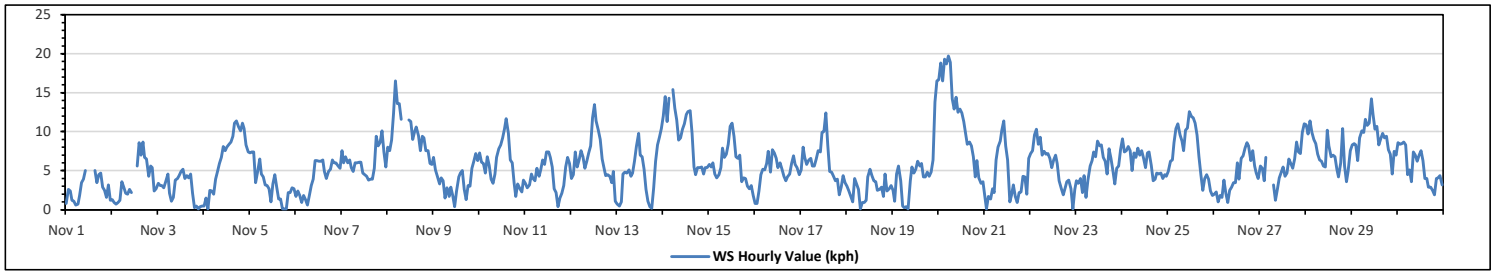
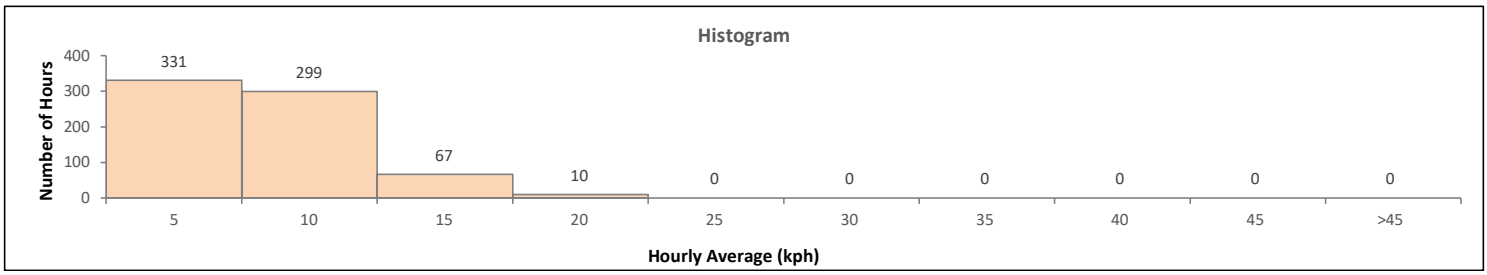


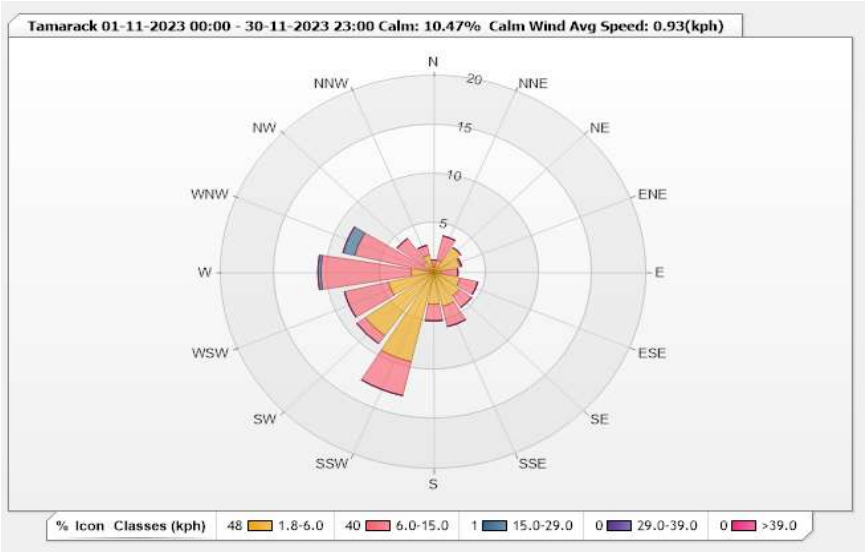


Station: Tamarack Monitor: WDS [kph] Monthly: 11-2023

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

Calm (WS<1.8kph): 10.47% Valid Data: 98.19%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	0.57	0.71	0	0	0	1.28
NNE	1.27	2.55	0	0	0	3.82
NE	3.11	0	0	0	0	3.11
ENE	2.55	0.14	0	0	0	2.69
E	0.57	1.7	0	0	0	2.27
ESE	2.55	1.7	0	0	0	4.25
SE	2.97	1.41	0	0	0	4.38
SSE	3.54	2.12	0	0	0	5.66
S	3.25	1.7	0	0	0	4.95
SSW	9.34	3.54	0	0	0	12.88
SW	7.92	0.99	0	0	0	8.91
WSW	4.38	4.24	0	0	0	8.62
W	2.12	8.49	0.28	0	0	10.89
WNW	0.42	7.21	1.13	0	0	8.76
NW	1.27	2.97	0	0	0	4.24
NNW	1.84	0.99	0	0	0	2.83
Summary	47.67	40.46	1.41	0	0	89.54



Lakeland Industry & Community Association

Tamarack Site - November 2023

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:	251 (WSW) degree	Hours in Service:	720
		Hours of Data:	707
		Hours of Missing Data:	13
		Hours of Calibration:	0
		Operational Uptime:	98.2

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
Nov 1	SSW	SW	WSW	S	S	SSW	SSW	SW	SSW	SW	SSW	P	P	P	P	SSW	SSW	SSW	SSW	S	SSW	S	S	S	205	SSW
Nov 2	SW	SSW	SW	SW	W	W	N	WNW	NW	NNW	NW	P	P	N	NNE	N	NNE	NNE	NNE	NNE	NNE	NE	ENE	NNE	10	N
Nov 3	NE	ESE	E	SE	SSE	SE	SE	SE	SSE	S	S	S	SSE	SSE	SSE	SSE	SSE	S	S	SSW	NE	WNW	NNE	SE	154	SSE
Nov 4	SSW	WSW	NW	NE	NE	NE	NE	ENE	ENE	E	ESE	ESE	ESE	E	E	E	E	E	E	E	ESE	ESE	E	E	96	E
Nov 5	E	E	E	ENE	ESE	ESE	ESE	ESE	SE	ESE	E	SE	NNE	NNE	NNE	NE	NE	S	ENE	NE	ENE	ENE	NE	NE	86	E
Nov 6	NE	NE	ENE	NE	NE	ENE	NNE	ESE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	S	S	SSE	SE	153	SSE
Nov 7	SSE	SSE	SSE	SSE	SSE	SSE	S	S	S	S	S	S	S	SSW	SSW	SW	SW	WSW	W	W	W	WNW	W	WSW	210	SSW
Nov 8	W	W	W	W	W	WNW	WNW	W	K	K	K	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NNW	NW	NW	NW	297	WNW
Nov 9	NW	NW	NW	NNW	NW	W	W	W	NW	NW	NW	E	SSE	S	S	S	SSW	ESE	SE	S	S	S	S	SSE	219	SW
Nov 10	S	SSE	SSE	SSE	SSE	SE	SE	SE	SSE	SSE	SSE	S	SSE	S	S	SSW	SSE	SE	SE	E	ESE	SE	SE	SE	161	SSE
Nov 11	SE	ESE	ESE	ESE	E	SE	SE	ESE	ESE	SE	SE	SE	SE	SE	SSE	ESE	ESE	WNW	SSW	SW	WSW	W	W	W	143	SE
Nov 12	WSW	WSW	W	W	W	W	WSW	WSW	SW	WSW	WSW	W	W	WNW	W	W	WSW	WSW	SW	SSW	SSW	SSW	SSW	SSE	256	WSW
Nov 13	ENE	ESE	E	ENE	ENE	NE	ENE	E	ENE	ENE	E	ESE	ESE	ESE	ESE	ESE	E	SW	S	W	WNW	WNW	W	W	77	ENE
Nov 14	W	W	WNW	W	K	WNW	W	W	W	WSW	WSW	W	W	W	W	WSW	WSW	SW	SW	SW	SSW	SSW	SSW	SSW	263	W
Nov 15	SSW	SSW	SSW	SSW	SW	SW	WSW	WSW	WSW	SW	WSW	WSW	WNW	WNW	NNW	WNW	W	W	WSW	SW	SW	SW	W	W	253	WSW
Nov 16	WSW	SSW	SW	SSW	SSW	SSW	SSW	SSW	SW	SSW	SSW	SW	SW	SW	SSW	SSW	SW	SW	SW	WSW	WSW	WSW	SW	SW	220	SW
Nov 17	SSW	SSW	SSW	WSW	WSW	WSW	SW	SW	SW	WSW	WSW	W	W	W	W	WSW	SSW	SSW	SW	SW	SW	S	SSW	SSW	240	WSW
Nov 18	SSW	SSW	SW	SSW	SSW	SSW	SW	E	NE	NE	NNW	SSW	SSW	SSW	SE	ESE	ENE	ENE	NE	E	SE	ENE	E	NE	155	SSE
Nov 19	ENE	E	SE	SE	SE	SE	ESE	SSE	N	SSW	SW	WSW	WSW	W	SSW	SW	SW	SW	SW	SW	SW	W	WNW	WNW	239	WSW
Nov 20	WNW	W	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	NW	WNW	W	W	W	W	W	WSW	SW	SSW	289	WNW
Nov 21	SSE	NNE	ESE	E	ENE	ESE	SE	ESE	SE	ESE	SE	SE	SE	E	ENE	NNE	N	NW	N	NNW	NE	NE	NNE	NNE	102	E
Nov 22	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NE	NNE	NE	NE	NE	ENE	NE	NE	NE	NE	SW	S	29	NNE
Nov 23	SSE	SE	S	SSE	S	SSE	SSE	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	194	SSW
Nov 24	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	WSW	WSW	SW	WSW	WSW	WSW	WSW	SW	SW	SSW	SSW	SW	SW	SW	225	SW
Nov 25	SW	WSW	SW	WSW	W	W	WNW	NW	NNW	NNW	N	N	NNW	NNW	N	N	NNW	NNW	NNW	NNW	NNW	NNW	N	WSW	322	NW
Nov 26	WSW	WSW	SW	S	SSW	SSW	SSW	SSW	SSW	SW	W	W	NNW	NW	WNW	W	W	W	W	W	W	WSW	WSW	SW	267	W
Nov 27	SSW	SSW	SSW	SSW	K	K	K	SSW	WSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	WSW	WSW	WSW	W	WNW	WNW	232	SW
Nov 28	W	W	W	W	W	W	WSW	WSW	WSW	SW	WSW	W	W	WSW	W	WSW	WSW	SW	WSW	W	WSW	SW	WSW	W	264	W
Nov 29	W	W	WNW	W	W	WNW	WNW	W	WNW	WNW	WNW	WNW	NW	NW	NW	WNW	WNW	NW	NW	NW	WNW	NW	WNW	WNW	296	WNW
Nov 30	WNW	WNW	WNW	WNW	WNW	WNW	NNW	NNW	W	W	W	WNW	WNW	NW	NW	WSW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	279	W

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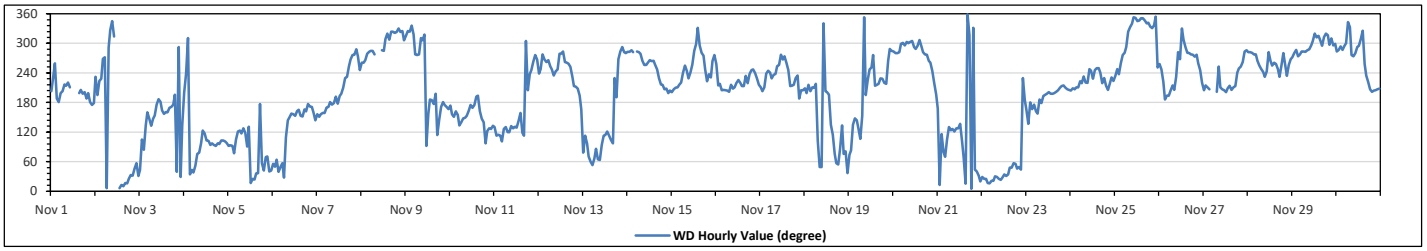
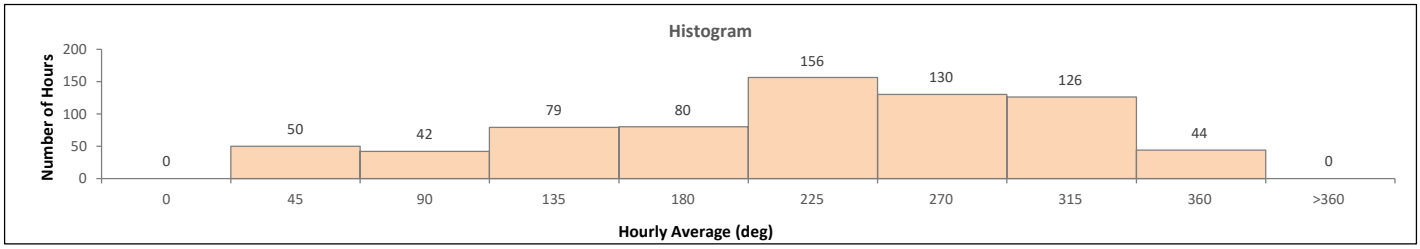
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.





Lakeland Industry & Community Association

Tamarack Site - November 2023

Summary of Hourly Averages

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

WIND SPEED

Maximum Hourly Value:	19.7	kph	on Nov 20 at hr 5	Hours in Service:	720
Maximum Daily Value:	11.8	kph	on Nov 20	Hours of Data:	707
Minimum Hourly Value:	0.1	kph	on Nov 3 at hr 21	Hours of Missing Data:	13
Minimum Daily Value:	2.6	kph	on Nov 1	Hours of Calibration:	0
Monthly Average:	2.3	kph		Operational Uptime:	98.2

WIND DIRECTION

Monthly Average: 251 degree (WSW)

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			
Nov 1	0.8	2.6	2.4	1.2	1.1	0.6	0.7	1.8	3.5	3.9	5.0	P	P	P	P	5.0	3.5	4.5	4.7	2.9	2.5	1.6	3.2	1.2	0.6	5.0	**2.6**
	SSW	SW	WSW	S	S	SSW	SSW	SW	SSW	SW	SSW	P	P	P	P	SSW	SSW	SSW	SSW	S	SSW	S	S	S			205(SSW)
Nov 2	1.3	0.9	0.7	0.9	1.2	3.6	2.9	2.1	2.0	2.6	2.2	P	P	5.6	8.6	7.0	8.7	6.7	6.5	4.3	5.6	5.4	2.4	2.7	0.7	8.7	3.8
	SW	SSW	SW	SW	W	W	N	WNW	NW	NNW	NW	P	P	N	NNE	N	NNE	NNE	NNE	NNE	NNE	NE	ENE	NNE			10(N)
Nov 3	3.4	3.1	3.1	2.8	3.6	4.6	2.1	1.1	1.6	3.8	4.0	4.4	4.9	5.2	4.0	4.4	4.1	4.6	2.1	0.3	0.5	**0.1**	0.4	0.5	**0.1**	5.2	2.9
	NE	ESE	E	SE	SSE	SE	SE	SE	SSE	S	S	S	SSE	SSE	SSE	SSE	SSE	S	S	SSW	NE	WNW	NNE	SE			154(SSE)
Nov 4	0.5	1.5	**0.1**	2.5	2.4	2.0	3.9	4.9	5.9	6.7	8.1	7.6	8.0	8.4	8.7	9.4	11.1	11.4	10.6	10.1	11.1	10.4	8.3	7.4	**0.1**	11.4	6.7
	SSW	WSW	NW	NE	NE	NE	NE	ENE	ENE	E	ESE	ESE	ESE	E	E	E	E	E	E	E	ESE	ESE	E	E			96(E)
Nov 5	7.3	7.4	7.4	3.5	5.0	6.5	4.6	4.2	3.2	3.1	2.7	1.0	3.3	4.5	2.9	1.4	1.4	**0.1**	**0.1**	**0.1**	2.2	2.2	2.8	2.7	**0.1**	7.4	3.3
	E	E	E	ENE	ESE	ESE	ESE	ESE	SE	ESE	E	SE	NNE	NNE	NNE	NE	NE	S	ENE	NE	ENE	ENE	NE	NE			86(E)
Nov 6	1.7	2.4	1.8	0.9	1.8	1.3	0.6	1.8	3.1	3.9	6.3	6.3	6.2	6.2	6.4	4.9	4.0	4.9	5.2	6.4	6.0	6.0	5.6	5.3	0.6	6.4	4.1
	NE	NE	ENE	NE	NE	ENE	NNE	ESE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	S	S	SSE	SE			153(SSE)
Nov 7	7.6	6.0	6.8	6.0	6.4	5.4	4.9	6.0	6.0	6.1	6.1	4.7	4.5	4.3	3.8	3.9	3.9	5.3	9.4	8.2	8.6	10.1	7.4	5.5	3.8	10.1	6.1
	SSE	SSE	SSE	SSE	SSE	SSE	S	S	S	S	S	S	S	SSW	SSW	SW	SW	WSW	W	W	W	WNW	W	WSW			210(SSW)
Nov 8	8.0	7.6	8.9	12.3	16.5	13.6	13.6	11.6	K	K	K	11.5	11.3	9.0	10.0	10.6	9.5	7.6	9.4	9.2	7.6	7.6	5.9	5.8	5.8	16.5	9.9
	W	W	W	W	W	WNW	WNW	W	K	K	K	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	NW	NW	NW			297(WNW)
Nov 9	6.7	5.1	4.3	3.3	4.1	3.7	1.5	2.8	1.7	2.9	1.8	0.4	2.4	4.2	4.7	5.0	2.6	1.3	3.1	3.0	5.3	6.2	7.2	6.3	0.4	7.2	3.7
	NW	NW	NW	NNW	NW	W	W	W	NW	NW	NW	E	SSE	S	S	S	SSW	ESE	SE	S	S	S	S	SSE			219(SW)
Nov 10	7.3	6.1	5.9	4.7	6.8	5.7	3.9	3.4	4.6	6.7	7.8	8.3	9.2	10.4	11.7	9.8	6.4	6.0	3.4	1.7	3.3	2.7	2.3	3.8	1.7	11.7	5.9
	S	SSE	SSE	SSE	SSE	SE	SE	SE	SSE	SSE	SSE	S	SSE	S	S	SSW	SSE	SE	SE	E	ESE	SE	SE	SE			161(SSE)
Nov 11	3.4	2.8	3.2	4.6	4.0	3.7	5.3	4.3	5.1	6.4	5.8	7.4	7.4	6.7	5.5	2.7	2.2	0.4	1.5	2.1	3.1	5.5	6.7	5.9	0.4	7.4	4.4
	SE	ESE	ESE	ESE	E	SE	SE	ESE	ESE	SE	SE	SE	SE	SE	SSE	ESE	ESE	WNW	SSW	SW	WSW	W	W	W			143(SE)
Nov 12	4.0	4.5	7.4	5.5	6.4	7.6	6.8	5.3	6.2	7.3	8.2	11.8	13.5	11.4	10.2	9.0	6.5	5.3	4.4	4.5	4.3	3.5	4.9	1.1	1.1	13.5	6.7
	WSW	WSW	W	W	W	W	WSW	WSW	SW	WSW	WSW	W	W	WNW	W	W	WSW	WSW	SW	SSW	SSW	SSW	SSW	SSE			256(WSW)
Nov 13	0.7	0.5	1.0	4.6	4.8	4.7	5.1	4.3	4.7	6.2	8.1	9.8	7.0	6.8	5.2	2.6	1.1	0.4	0.2	2.8	6.2	8.3	9.3	10.4	0.2	10.4	4.8
	ENE	ESE	E	ENE	ENE	NE	ENE	E	ENE	ENE	E	ESE	ESE	ESE	ESE	ESE	E	SW	S	W	WNW	WNW	W	W			77(ENE)
Nov 14	12.0	14.5	11.3	14.3	K	15.4	13.0	11.5	8.9	9.2	10.3	11.0	12.2	12.6	12.7	9.8	5.5	4.5	5.4	5.4	5.5	4.6	5.4	5.4	4.5	15.4	9.6
	W	W	WNW	W	K	WNW	W	W	W	WSW	WSW	W	W	W	W	WSW	WSW	SW	SW	SW	SSW	SSW	SSW	SSW			263(W)
Nov 15	5.8	5.5	6.0	4.6	4.1	4.5	5.4	7.9	6.7	7.1	8.4	10.7	11.1	9.4	6.8	6.6	7.0	3.6	4.1	4.0	3.0	2.7	3.1	1.8	1.8	11.1	5.8
	SSW	SSW	SSW	SSW	SW	SW	WSW	WSW	WSW	SW	WSW	WSW	WNW	WNW	NNW	WNW	W	W	WSW	SW	SW	SW	W	W			253(WSW)
Nov 16	0.8	0.8	2.4	4.5	5.2	5.1	5.9	7.5	4.8	7.7	7.3	6.6	5.4	6.0	5.2	4.3	3.7	4.2	4.6	5.9	6.9	5.8	5.4	4.5	0.8	7.7	5.0
	WSW	SSW	SW	SSW	SSW	SSW	SSW	SSW	SW	SSW	SSW	SW	SW	SW	SSW	SSW	SW	SW	SW	WSW	WSW	WSW	SW	SW			220(SW)
Nov 17	5.1	8.0	6.7	5.8	6.4	6.6	5.6	5.6	6.5	7.6	7.4	9.9	10.0	12.4	8.3	4.9	4.8	4.3	3.7	3.9	1.9	2.9	4.4	3.5	1.9	12.4	6.1
	SSW	SSW	SSW	WSW	WSW	WSW	SW	SW	SW	WSW	WSW	W	W	W	W	WSW	SSW	SSW	SW	SW	SW	S	SSW	SSW			240(WSW)
Nov 18	3.0	2.4	1.7	1.0	4.0	3.3	2.6	**0.1**	0.9	0.9	1.2	4.2	5.2	4.4	3.7	3.6	2.5	2.6	2.9	1.7	4.6	2.4	2.7	3.1	**0.1**	5.2	2.7
	SSW	SSW	SW	SSW	SSW	SSW	SW	E	NE	NE	NNW	SSW	SSW	SSW	SE	ESE	ENE	ENE	NE	E	SE	ENE	E	NE			155(SSE)
Nov 19	2.5	1.1	4.6	5.6	3.7	0.5	0.3	0.4	**0.1**	3.7	5.5	4.7	5.2	6.2	5.6	5.9	4.2	4.2	4.8	4.3	4.8	6.4	13.8	16.5	**0.1**	16.5	4.8
	ENE	E	SE	SE	SE	SE	ESE	SSE	N	SSW	SW	WSW	WSW	W	SSW	SW	SW	SW	SW	SW	SW	W	WNW	WNW			239(WSW)
Nov 20	16.7	18.8	16.5	19.3	18.7	**19.7**	18.9	14.2	12.9	14.4	12.5	12.9	12.4	11.3	9.7	8.4	8.7	8.2	6.8	4.2	6.3	4.1	3.4	3.6	3.4	**19.7**	**11.8**
	WNW	W	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	NW	WNW	W	W	W	W	W	WSW	SW	SSW			289(WNW)
Nov 21	2.0	**0.1**	1.7	1.4	2.7	2.2	6.4	8.0	8.8	10.2	11.4	8.2	6.4	1.0	1.8	3.2	1.7	0.9	2.2	2.3	4.3	4.2	2.0	6.6	**0.1**	11.4	4.2
	SSE	NNE	ESE	E	ENE	ESE	SE	ESE	SE	ESE	SE	SE	SE	E	ENE	NNE	N	NW	N	NNW	NE	NE	NNE	NNE			102(E)
Nov 22	7.2	7.6	9.6	10.3	8.4	9.3	7.0	7.5	7.1	7.2	6.6	5.4	6.4	7.0	5.9	3.7	2.7	1.9	2.8	3.6	3.8	2.7	**0.1**	2.6	**0.1**	10.3	5.7
	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NE	NNE	NE	NE	NE	ENE	NE	NE	NE	NE	SW	S			29(NNE)
Nov 23	3.7	3.4	4.0	2.2	4.4	1.6	3.8	5.6	6.3	7.4	6.8	8.8	8.2	8.3	6.7	6.2	4.6	7.8	6.6	5.0	3.3	5.3	5.6	7.7	1.6	8.8	5.6
	SSE	SE	S	SSE	S	SSE	SSE	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW			194(SSW)
Nov 24	9.1	7.4	7.6	8.1	7.6	5.0	7.3	6.7	7.9	7.0	7.6	6.6	5.4	7.3	7.4	5.7	3.7	3.9	4.7	4.6	4.7	4.0	4.5	4.3	3.7	9.1	6.2
	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	WSW	WSW	SW	WSW	WSW	WSW	WSW	SW	SW	SSW	SSW	SW	SW	SW			225(SW)
Nov 25	4.9	6.2	6.4	8.6	10.4	11.0	9.6	8.8	7.6	10.2	10.5	12.6	11.9	11.8	11.1	9.6	6.8	4.5	2.5	4.0	4.5	3.9	2.4	1.8	1.8	12.6	7.6
	SW	WSW	SW	WSW	W	W	WNW	NW	NNW	NNW	N	N	NNW	NNW	N	N	NNW	NNW	NNW	NNW	NNW	NNW	N	WSW			322(NW)
Nov 26	2.0	2.3	1.0	1.8	1.6	3.8	2.1	0.9	2.5	2.9	3.5	3.5	6.0	3.9	6.6	6.9	7.9	8.6	8.2	6.3	7.6	5.6	4.7	4.0	0.9	8.6	4.3
	WSW	WSW	SW	S	SSW	SSW	SSW	SSW	SSW	SW	W	W	NNW	NW	WNW	W	W	W	W	W	W	WSW	WSW	SW			267(W)
Nov 27	5.6	5.3	3.7	6.7	K	K	K	3.2	1.2	2.6	4.1	4.9	5.5	4.3	4.7	6.5	5.9	5.3	6.5	8.7	7.4	7.2	9.9	11.0	1.2	11.0	5.7
	SSW	SSW	SSW	SSW	K	K	K	SSW	WSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	WSW	WSW	WSW	W	WNW	WNW			232(SW)
Nov 28	10.9	9.7	11.4	9.9	9.0	8.5	7.1	6.4	6.2	5.6	5.5	10.2	8.2	6.8	7.0	6.8	5.2	4.2	6.0	10.4	5.6	3.6	4.9	7.6	3.6	11.4	7.4
	W	W	W	W	W	W	WSW	WSW	WSW	SW	WSW	W	W	WSW	W	WSW	WSW	SW	WSW	W	WSW	SW	WSW	W			264(W)
Nov 29	8.3	8.5	8.3	6.3	9.2	10.1	9.9	11.6	10.8	11.1	14.2	12.2	10.3	10.7	8.3	9.2	9.8	9.2	9.4	7.7	7.1	4.6	7.5	7.0	4.6	14.2	9.2
	W	W	WNW	W	W	WNW	WNW	W	WNW	WNW	WNW	WNW	NW	NW	NW	WNW	WNW	NW	NW	NW	WNW	NW	WNW	WNW			296(WNW)
Nov 30	8.6	8.4	8.5	8.7	8.3	4.5	5.1	3.6	7.4	7.0	6.2	7.0	7.6	6.3	4.0	4.0	2.9	2.9	2.5	1.9	4.0	4.1	4.4	3.2	1.9	8.7	5.5
	WNW	WNW	WNW	WNW	WNW	WNW	NNW	NNW	W	W	W	WNW	WNW	NW	NW	WSW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW			279(W)

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

Tamarack Site - November 2023

Summary of Hour Standard Deviations

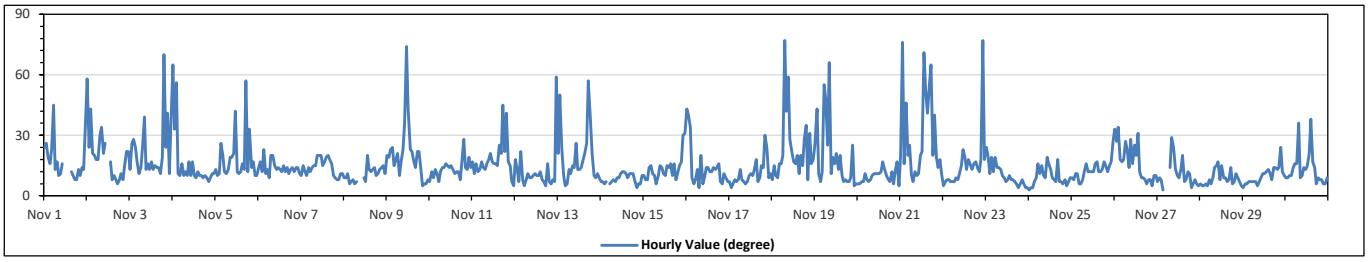
STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

Maximum Hourly Value:	77 degree on Nov 18 at hr 7	Hours in Service:	720
		Hours of Data:	707
Minimum Hourly Value:	3 degree on Nov 24 at hr 0	Hours of Missing Data:	13
		Hours of Calibration:	0
		Operational Uptime:	98.2

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	
Nov 1	24	26	19	16	23	45	13	17	10	11	16	P	P	P	P	12	10	8	8	13	10	14	13	37	8	45
Nov 2	58	24	43	21	20	18	18	30	34	21	26	P	P	17	8	10	8	6	8	11	8	15	22	22	6	58
Nov 3	13	26	28	24	17	11	14	24	39	13	16	13	17	13	15	14	14	11	19	70	24	41	11	37	11	70
Nov 4	65	33	56	11	10	16	10	12	10	17	10	17	10	9	12	10	10	9	10	9	7	9	11	11	7	65
Nov 5	13	10	11	26	20	12	11	13	19	19	21	42	12	11	12	16	13	57	12	33	14	17	10	10	10	57
Nov 6	14	17	12	23	11	13	9	20	20	15	13	14	13	12	15	12	14	11	13	14	12	14	14	11	9	23
Nov 7	10	15	12	10	14	12	14	15	15	20	20	20	15	17	19	20	18	16	10	9	8	8	11	11	8	20
Nov 8	9	9	11	6	7	8	6	7	K	K	K	9	7	20	13	12	13	14	10	11	13	14	15	11	6	20
Nov 9	20	19	23	24	15	18	21	10	17	23	36	74	43	23	22	17	14	22	22	13	5	6	6	8	5	74
Nov 10	7	12	9	13	11	7	12	14	14	16	15	14	15	13	11	12	12	8	17	28	14	13	19	14	7	28
Nov 11	17	11	16	12	13	17	14	13	16	18	21	17	16	16	15	25	21	45	22	41	17	15	7	5	5	45
Nov 12	18	13	7	22	8	5	8	11	9	9	10	11	10	10	12	8	7	5	16	7	6	8	7	59	5	59
Nov 13	21	50	24	10	5	6	13	11	15	14	26	13	13	14	18	21	26	57	37	21	10	9	11	9	5	57
Nov 14	7	7	6	7	K	6	7	8	7	9	9	11	12	12	11	9	11	11	11	7	4	6	6	10	4	12
Nov 15	10	8	8	14	15	11	10	6	10	15	14	11	10	15	14	16	10	16	8	11	15	17	30	31	6	31
Nov 16	43	40	34	9	6	8	13	4	20	6	9	14	14	12	12	14	13	14	16	7	6	11	9	7	4	43
Nov 17	7	4	6	8	7	8	13	8	7	6	7	10	11	10	13	18	7	9	15	14	30	24	9	11	4	30
Nov 18	8	15	10	9	16	16	20	77	42	59	28	22	17	16	20	11	20	15	28	35	8	31	16	18	8	77
Nov 19	25	43	11	7	12	55	48	25	66	11	19	16	21	13	20	10	7	8	7	7	9	25	5	6	5	66
Nov 20	6	6	7	7	11	8	7	8	10	11	11	11	11	12	17	13	10	8	7	12	6	13	17	5	5	17
Nov 21	20	76	16	46	20	25	10	7	12	10	11	20	22	71	53	41	55	65	20	40	19	14	18	11	7	76
Nov 22	5	7	8	8	7	7	7	9	8	11	15	23	19	13	18	16	13	16	17	14	12	18	77	18	5	77
Nov 23	24	20	11	19	12	19	14	14	13	10	9	7	8	10	8	8	7	6	4	6	8	6	4	4	4	24
Nov 24	3	4	4	7	9	16	11	15	10	9	19	16	13	9	8	7	18	7	7	6	8	5	7	9	3	19
Nov 25	9	8	11	11	6	6	8	12	16	12	12	12	12	16	17	12	12	13	17	15	12	15	17	27	6	27
Nov 26	33	27	34	18	17	18	27	23	14	28	16	25	20	31	12	9	9	8	6	8	8	5	10	10	5	34
Nov 27	7	9	8	3	K	K	K	14	29	24	13	10	9	13	20	7	8	12	11	4	6	8	6	5	3	29
Nov 28	6	5	5	6	5	8	6	9	14	15	17	8	15	9	9	7	8	14	6	7	11	9	7	5	5	17
Nov 29	4	6	6	7	7	7	7	7	5	7	9	11	11	12	13	11	8	14	14	13	14	24	12	10	4	24
Nov 30	9	9	10	10	14	16	16	36	9	10	14	13	15	21	38	17	14	6	9	8	8	6	6	9	6	38
Diurnal Minimum	3	4	4	3	5	5	6	4	5	6	7	7	7	9	8	7	7	5	4	4	4	5	4	4		
Diurnal Maximum	65	76	56	46	23	55	48	77	66	59	36	74	43	71	53	41	55	65	37	70	30	41	77	59		

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 (Machine 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.



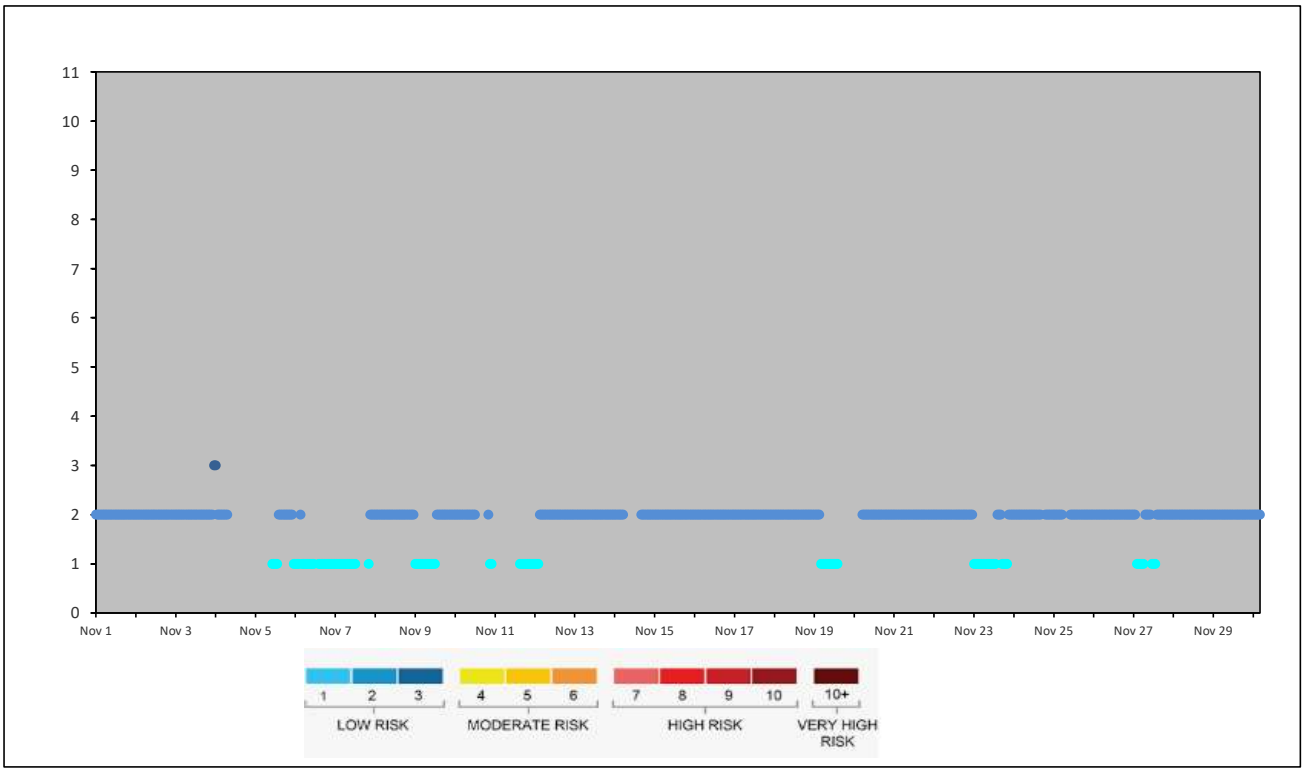
ST. LINA STATION

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - November 2023

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
Nov 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
Nov 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
Nov 3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
Nov 4	3	2	2	2	2	2	2	2																
Nov 5											1	1	1	1	2	2	2	2	2	2	2	2	2	1
Nov 6	1	1	1	2	1	1	1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	
Nov 7	1	1	1	1	1	1	1	1	1	1	1	1	1								1	2	2	2
Nov 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
Nov 9	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2
Nov 10	2	2	2	2	2	2	2	2	2	2	2	2	2								2	1	1	
Nov 11																1	1	1	1	1	1	1	1	1
Nov 12	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 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
Nov 14	2	2	2	2	2	2											2	2	2	2	2	2	2	2
Nov 15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 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
Nov 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
Nov 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
Nov 19	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1									
Nov 20						2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 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
Nov 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
Nov 23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	2	2	2
Nov 24	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			2	2	2	2	2
Nov 25	2	2	2	2	2	2					2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 26	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 27	2	2	1	1	1	1	1	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2
Nov 28	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 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
Nov 30	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 - November 2023

Summary of Hourly Averages

SULPHUR DIOXIDE (SO_2) in ppb

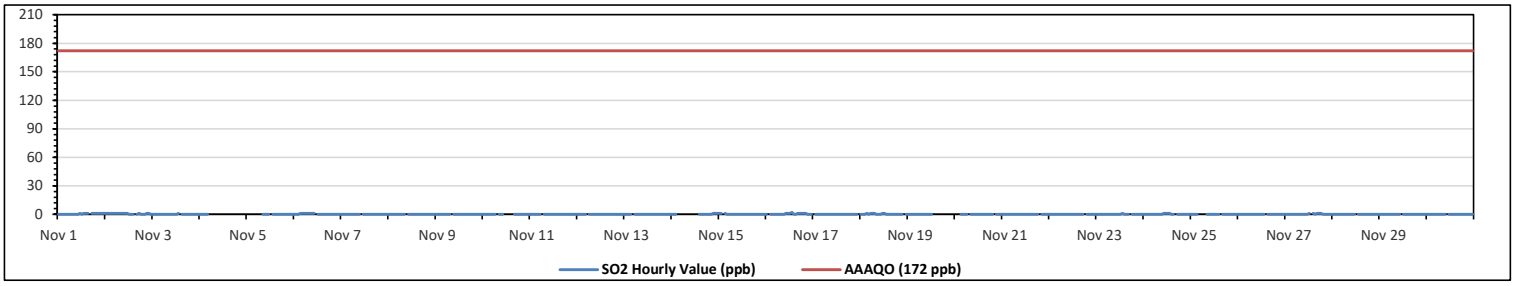
Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb

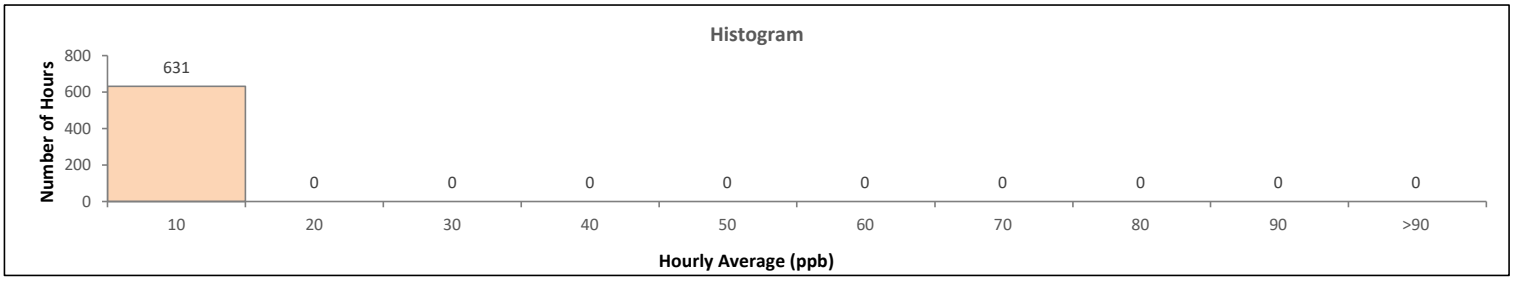
Number of 1-Hour Exceedances:	0	Number of 24-Hour Exceedances:	0	30-Day Exceedence:	0	
Maximum Hourly Value:	2	ppb	on Nov 16 at hr 13	Hours in Service:	720	
Maximum Daily Value:	0.7	ppb	on Nov 2	Hours of Data:	631	
Minimum Hourly Value:	0	ppb	on Nov 1 at hr 0	Hours of Missing Data:	55	
Minimum Daily Value:	0.0	ppb	on Nov 7	Hours of Calibration:	34	
Monthly Average:	0.1	ppb		Operational Uptime:	92.4	

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			
Nov 1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	S	1	1	1	1	1	1	1	0	1	0.5
Nov 2	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	S	0	1	0	0	0	1	1	0	0	1	**0.7**
Nov 3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	S	0	0	0	0	0	0	0	0	0	0	1	0.0
Nov 4	0	0	0	0	0	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	0	0	NA
Nov 5	K	K	K	K	K	K	K	NRM	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
Nov 6	0	0	0	1	1	1	1	1	1	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3
Nov 7	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	0.0
Nov 8	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
Nov 9	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
Nov 10	0	0	0	0	0	0	0	S	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0.0
Nov 11	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	0.0
Nov 12	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	0.0
Nov 13	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	0	0.0
Nov 14	0	0	0	S	0	K	K	K	K	K	K	K	K	K	0	0	0	0	0	0	0	1	1	1	0	1	NA
Nov 15	1	1	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Nov 16	0	S	0	0	0	0	0	0	0	0	1	1	1	2	0	0	1	1	1	1	1	0	0	0	0	2	0.4
Nov 17	S	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
Nov 18	0	0	0	1	0	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	S	0	0	1	0.3
Nov 19	0	0	0	0	0	0	0	0	0	0	0	0	0	K	K	K	K	K	K	K	K	K	K	K	0	0	NA
Nov 20	K	K	K	0	0	0	0	NRM	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0
Nov 21	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
Nov 22	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
Nov 23	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	S	0	0	0	0	0	0	0	1	0.0
Nov 24	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	S	0	0	0	0	0	0	0	0	1	0.2
Nov 25	0	0	0	0	K	K	K	K	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0.0
Nov 26	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
Nov 27	0	0	0	0	0	0	0	0	0	0	0	0	1	S	1	0	1	1	1	0	0	0	0	0	0	1	0.2
Nov 28	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
Nov 29	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
Nov 30	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	0.0
Diurnal Maximum	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1			
Diurnal Average	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	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	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.



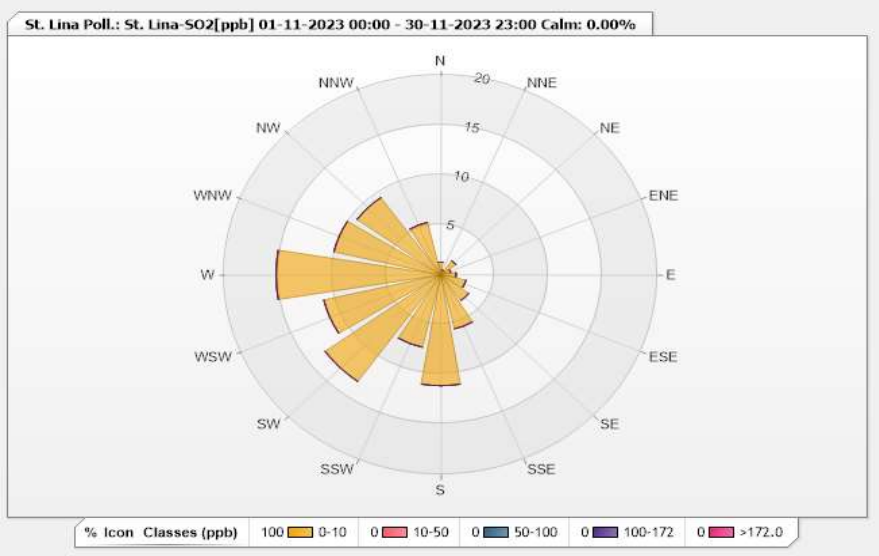


Station: St. Lina Poll.: St. Lina-SO2[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 87.64% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	1.27	0	0	0	0	1.27
NNE	0.48	0	0	0	0	0.48
NE	1.74	0	0	0	0	1.74
ENE	0.95	0	0	0	0	0.95
E	1.43	0	0	0	0	1.43
ESE	2.38	0	0	0	0	2.38
SE	3.17	0	0	0	0	3.17
SSE	5.55	0	0	0	0	5.55
S	11.09	0	0	0	0	11.09
SSW	7.45	0	0	0	0	7.45
SW	13.15	0	0	0	0	13.15
WSW	11.09	0	0	0	0	11.09
W	15.21	0	0	0	0	15.21
WNW	10.14	0	0	0	0	10.14
NW	9.51	0	0	0	0	9.51
NNW	5.39	0	0	0	0	5.39
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - November 2023

Summary of Hourly Averages

HYDROGEN SULPHIDE (H_2S) in ppb

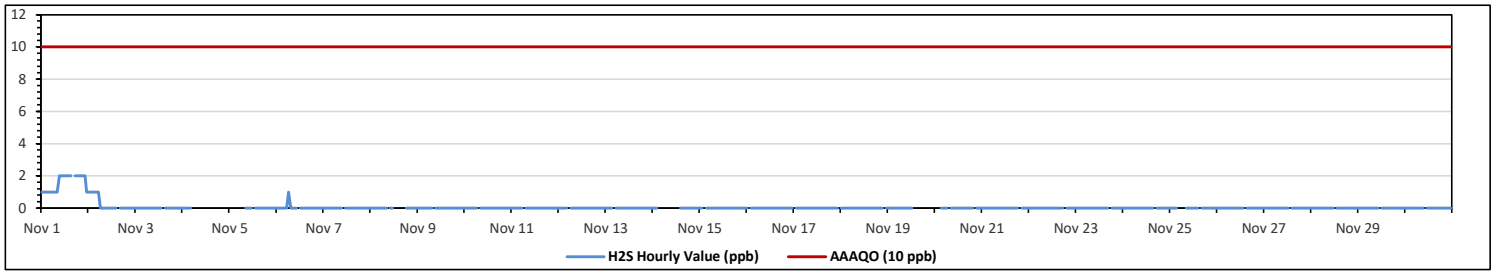
Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 10 ppb, 24-Hour 3 ppb

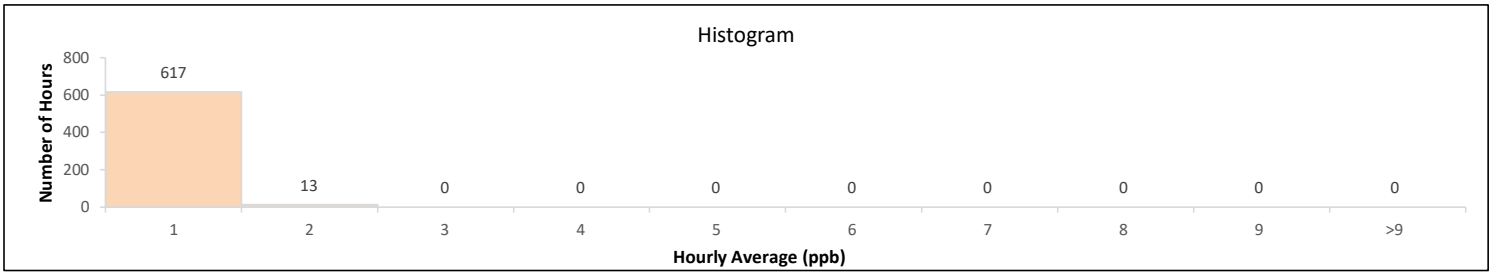
Number of 1-Hour Exceedances:	0		Number of 24-Hour Exceedances:	0	
Maximum Hourly Value:	2	ppb	on Nov 1 at hr 9	Hours in Service:	720
Maximum Daily Value:	2.0	ppb	on Nov 1	Hours of Data:	630
Minimum Hourly Value:	0	ppb	on Nov 2 at hr 6	Hours of Missing Data:	55
Minimum Daily Value:	0.0	ppb	on Nov 2	Hours of Calibration:	35
Monthly Average:	0.1	ppb		Operational Uptime:	92.4

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			
Nov 1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	S	2	2	2	2	2	2	1	1	2	2.0
Nov 2	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0.0
Nov 3	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
Nov 4	0	0	0	0	0	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	0	0	-
Nov 5	K	K	K	K	K	K	K	NRM	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Nov 6	0	0	0	0	0	0	1	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Nov 7	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	0.0
Nov 8	0	0	0	0	0	0	0	0	0	S	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	-
Nov 9	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
Nov 10	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
Nov 11	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	0.0
Nov 12	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	0.0
Nov 13	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	0	0.0
Nov 14	0	0	0	S	0	K	K	K	K	K	K	K	K	K	0	0	0	0	0	0	0	0	0	0	0	0	-
Nov 15	0	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
Nov 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
Nov 17	S	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
Nov 18	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
Nov 19	0	0	0	0	0	0	0	0	0	0	0	0	0	K	K	K	K	K	K	K	K	K	K	K	0	0	-
Nov 20	K	K	K	0	0	0	0	NRM	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0
Nov 21	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
Nov 22	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
Nov 23	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
Nov 24	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
Nov 25	0	0	0	0	K	K	K	K	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0.0
Nov 26	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
Nov 27	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
Nov 28	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
Nov 29	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
Nov 30	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	0.0
Diurnal Maximum	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	0	2	2	2	2	2	2	1			
Diurnal Average	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	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	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.



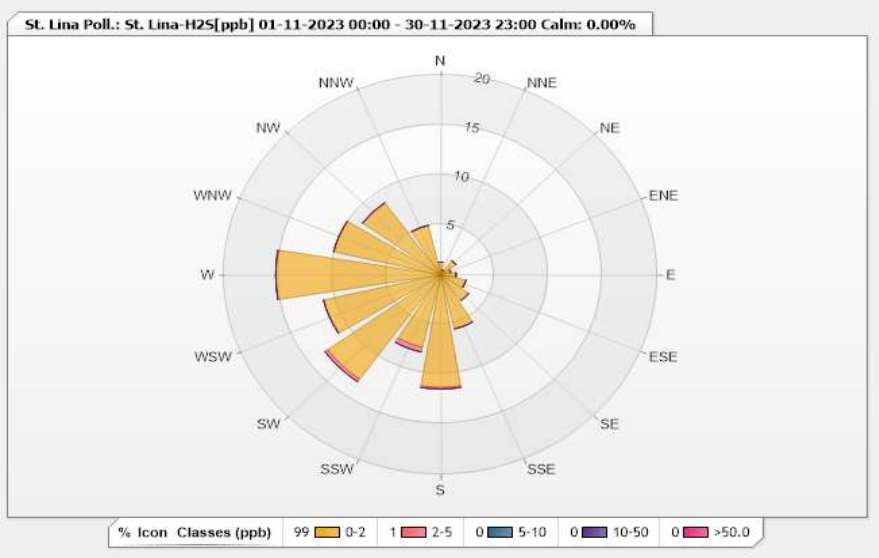


Station: St. Lina Poll.: St. Lina-H2S[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 87.50% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	1.27	0	0	0	0	1.27
NNE	0.48	0	0	0	0	0.48
NE	1.75	0	0	0	0	1.75
ENE	0.95	0	0	0	0	0.95
E	1.43	0	0	0	0	1.43
ESE	2.38	0	0	0	0	2.38
SE	3.17	0	0	0	0	3.17
SSE	5.56	0	0	0	0	5.56
S	11.27	0.16	0	0	0	11.43
SSW	7.46	0.48	0	0	0	7.94
SW	12.86	0.32	0	0	0	13.18
WSW	11.11	0	0	0	0	11.11
W	15.24	0	0	0	0	15.24
WNW	10.16	0	0	0	0	10.16
NW	8.89	0	0	0	0	8.89
NNW	5.08	0	0	0	0	5.08
Summary	99.06	0.96	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - November 2023

Summary of Hourly Averages

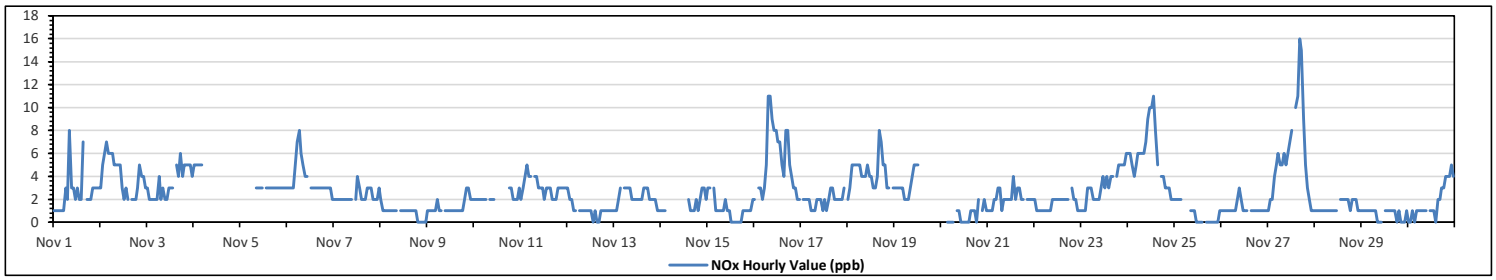
OXIDES OF NITROGEN (NOx) in ppb

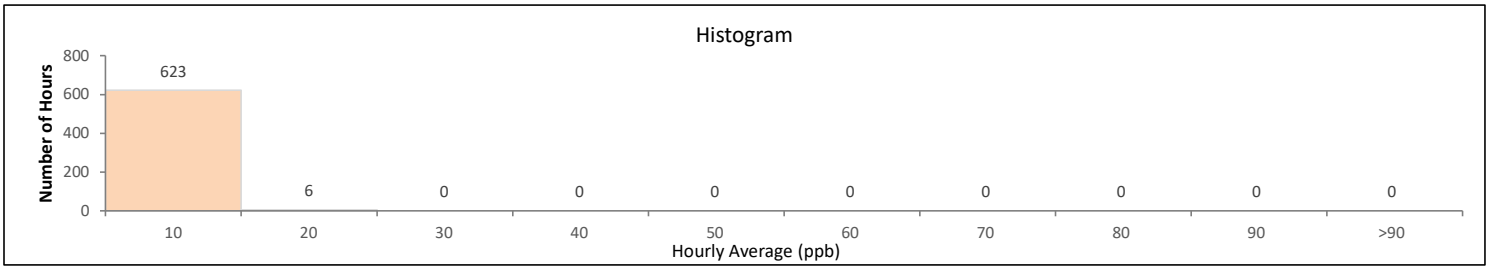
Maximum Hourly Value:	16	ppb	on Nov 27 at hr 16	Hours in Service:	720	
Maximum Daily Value:	5.9	ppb	on Nov 27	Hours of Data:	629	
Minimum Hourly Value:	0	ppb	on Nov 8 at hr 19	Hours of Missing Data:	55	
Minimum Daily Value:	0.6	ppb	on Nov 20	Hours of Calibration:	36	
Monthly Average:	2.5	ppb		Operational Uptime:	92.4	

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			
Nov 1	1	1	1	1	1	1	3	2	8	3	3	2	3	2	2	7	S	2	2	2	3	3	3	3	1	8	2.6
Nov 2	3	5	6	7	6	6	6	5	5	5	5	3	2	3	2	S	2	2	2	3	5	4	4	3	2	7	4.1
Nov 3	3	2	2	2	2	2	4	2	3	2	2	3	3	3	S	5	4	6	4	5	5	5	5	4	2	6	3.4
Nov 4	5	5	5	5	5	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	5	5	NA
Nov 5	K	K	K	K	K	K	K	NRM	3	3	3	3	S	3	3	3	3	3	3	3	3	3	3	3	3	3	NA
Nov 6	3	3	3	3	5	7	8	6	5	4	4	S	3	3	3	3	3	3	3	3	3	3	3	2	2	8	3.7
Nov 7	2	2	2	2	2	2	2	2	2	2	S	2	4	3	2	2	2	3	3	3	2	2	2	3	2	4	2.3
Nov 8	2	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	2	0.8
Nov 9	1	1	1	1	1	2	1	1	S	1	1	1	1	1	1	1	1	1	1	2	3	3	2	2	1	3	1.3
Nov 10	2	2	2	2	2	2	2	S	2	2	C	C	C	C	C	C	C	3	3	2	2	2	3	2	2	3	NA
Nov 11	2	3	4	5	4	4	S	4	4	3	3	3	2	3	3	3	2	2	2	3	3	3	3	3	2	5	3.1
Nov 12	3	2	2	1	1	S	1	1	1	1	1	1	1	0	1	0	0	1	1	1	1	1	1	1	0	3	1.0
Nov 13	1	1	2	3	S	3	3	3	3	2	2	2	2	2	2	3	3	3	2	2	2	2	1	1	1	3	2.2
Nov 14	1	1	1	S	1	K	K	K	K	K	K	K	K	K	2	1	1	1	2	1	2	3	3	2	1	3	NA
Nov 15	3	3	S	3	1	1	1	1	1	2	1	1	0	0	0	0	0	0	1	1	1	1	1	2	0	3	1.1
Nov 16	2	S	3	3	2	3	5	11	11	9	8	8	7	7	5	4	8	8	5	4	3	3	2	2	2	11	5.3
Nov 17	S	2	2	2	2	1	1	1	2	2	2	1	2	1	2	3	3	2	2	2	2	2	3	S	1	3	1.9
Nov 18	2	3	5	5	5	5	5	4	4	4	5	4	4	3	3	4	8	7	5	5	3	3	S	3	2	8	4.3
Nov 19	3	3	3	3	3	2	2	2	3	4	5	5	5	K	K	K	K	K	K	K	K	K	K	K	2	5	NA
Nov 20	K	K	K	0	0	0	0	NRM	1	1	0	0	0	0	0	1	1	1	0	2	S	1	2	1	0	2	0.6
Nov 21	1	1	1	2	2	3	3	1	2	2	2	2	2	4	2	3	3	2	2	S	2	2	2	2	1	4	2.1
Nov 22	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	S	3	2	2	1	1	1	3	1.6
Nov 23	1	1	1	3	3	3	2	2	2	2	3	4	3	4	3	4	4	S	4	5	5	5	5	6	1	6	3.3
Nov 24	6	6	5	4	5	6	6	6	6	7	9	10	10	11	8	5	S	4	4	3	3	3	2	2	2	11	5.7
Nov 25	2	2	2	2	K	K	K	K	1	1	1	0	0	0	0	S	0	0	0	0	0	0	0	1	0	2	0.6
Nov 26	1	1	1	1	1	1	1	1	2	3	2	1	1	1	S	1	1	1	1	1	1	1	1	1	1	3	1.2
Nov 27	1	2	2	4	5	6	5	5	6	5	6	7	8	S	10	11	16	15	9	5	3	2	1	1	1	16	5.9
Nov 28	1	1	1	1	1	1	1	1	1	1	1	S	2	2	2	2	2	2	1	2	2	2	1	1	1	2	1.3
Nov 29	1	1	1	1	1	1	1	1	0	0	0	S	1	1	1	1	1	1	0	1	0	0	0	1	0	1	0.7
Nov 30	0	0	1	0	1	1	1	1	1	1	S	1	1	1	0	2	2	3	3	4	4	4	5	4	0	5	1.8
Diurnal Maximum	6	6	6	7	6	7	8	11	11	9	10	10	11	10	11	16	15	9	5	5	5	5	6				
Diurnal Average	2.0	2.1	2.3	2.4	2.4	2.6	2.6	2.7	3.0	2.7	2.8	2.7	2.7	2.4	2.4	2.9	2.9	2.9	2.4	2.6	2.4	2.3	2.1	2.1			

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.



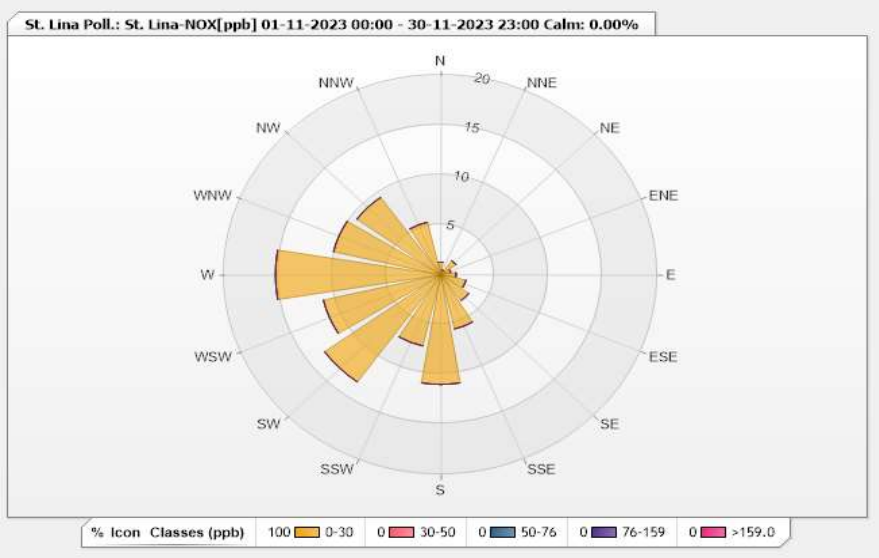


Station: St. Lina Poll.: St. Lina-NOX[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 87.36% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	1.27	0	0	0	0	1.27
NNE	0.48	0	0	0	0	0.48
NE	1.75	0	0	0	0	1.75
ENE	0.95	0	0	0	0	0.95
E	1.43	0	0	0	0	1.43
ESE	2.38	0	0	0	0	2.38
SE	3.18	0	0	0	0	3.18
SSE	5.56	0	0	0	0	5.56
S	10.97	0	0	0	0	10.97
SSW	7.31	0	0	0	0	7.31
SW	13.2	0	0	0	0	13.2
WSW	11.13	0	0	0	0	11.13
W	15.26	0	0	0	0	15.26
WNW	10.17	0	0	0	0	10.17
NW	9.54	0	0	0	0	9.54
NNW	5.41	0	0	0	0	5.41
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - November 2023

Summary of Hourly Averages

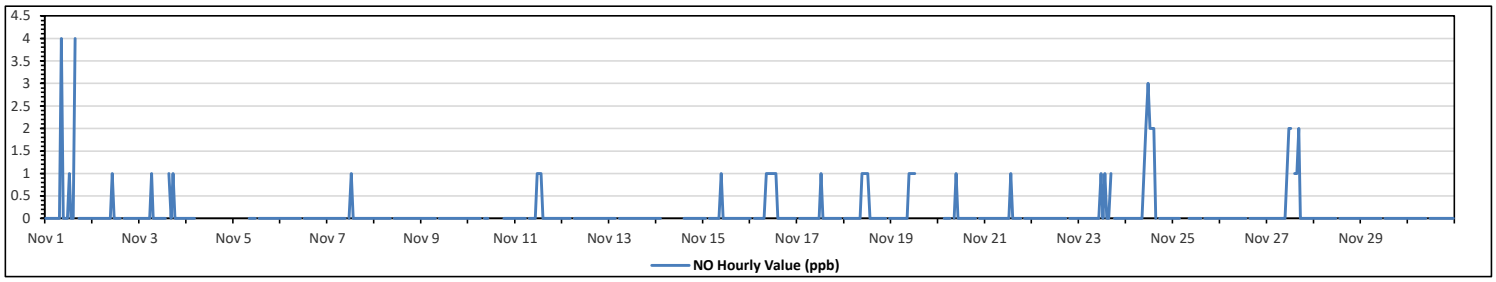
NITRIC OXIDE (NO) in ppb

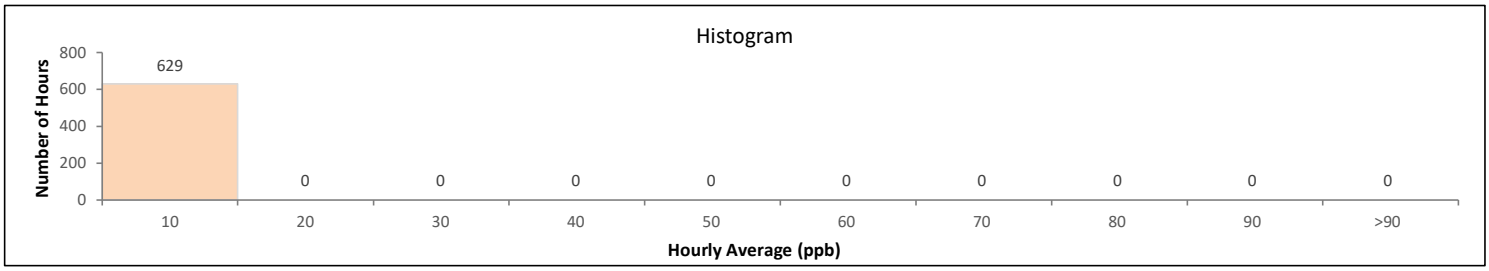
Maximum Hourly Value:	4	ppb	on Nov 1 at hr 8	Hours in Service:	720	
Maximum Daily Value:	0.5	ppb	on Nov 24	Hours of Data:	629	
Minimum Hourly Value:	0	ppb	on Nov 1 at hr 0	Hours of Missing Data:	55	
Minimum Daily Value:	0.0	ppb	on Nov 6	Hours of Calibration:	36	
Monthly Average:	0.1	ppb		Operational Uptime:	92.4	

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			
Nov 1	0	0	0	0	0	0	0	0	4	0	0	0	1	0	0	4	S	0	0	0	0	0	0	0	0	4	0.4
Nov 2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0.0
Nov 3	0	0	0	0	0	0	1	0	0	0	0	0	0	0	S	1	0	1	0	0	0	0	0	0	0	1	0.1
Nov 4	0	0	0	0	0	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	0	0	NA
Nov 5	K	K	K	K	K	K	K	NRM	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
Nov 6	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
Nov 7	0	0	0	0	0	0	0	0	0	0	S	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Nov 8	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
Nov 9	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
Nov 10	0	0	0	0	0	0	0	S	0	0	0	C	C	C	C	C	C	C	0	0	0	0	0	0	0	0	NA
Nov 11	0	0	0	0	0	0	S	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Nov 12	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	0	0.0
Nov 13	0	0	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
Nov 14	0	0	0	S	0	K	K	K	K	K	K	K	K	K	0	0	0	0	0	0	0	0	0	0	0	0	NA
Nov 15	0	0	S	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Nov 16	0	S	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0.3
Nov 17	S	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	S	0	1	0.0
Nov 18	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	S	0	0	1	0.2
Nov 19	0	0	0	0	0	0	0	0	0	1	1	1	1	K	K	K	K	K	K	K	K	K	K	K	0	1	NA
Nov 20	K	K	K	0	0	0	0	NRM	0	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	0.1
Nov 21	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	S	0	0	0	0	0	1	0.0
Nov 22	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
Nov 23	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	S	0	0	0	0	0	0	0	1	0.1
Nov 24	0	0	0	0	0	0	0	0	0	1	2	3	2	2	2	0	S	0	0	0	0	0	0	0	0	3	0.5
Nov 25	0	0	0	0	K	K	K	K	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0.0
Nov 26	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
Nov 27	0	0	0	0	0	0	0	0	0	0	1	2	2	S	1	1	2	0	0	0	0	0	0	0	0	2	0.4
Nov 28	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
Nov 29	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
Nov 30	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	0.0
Diurnal Maximum	0	0	0	0	0	0	1	0	4	1	2	3	2	2	2	4	2	1	0	0	0	0	0	0			
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.4	0.4	0.2	0.1	0.2	0.1	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	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.



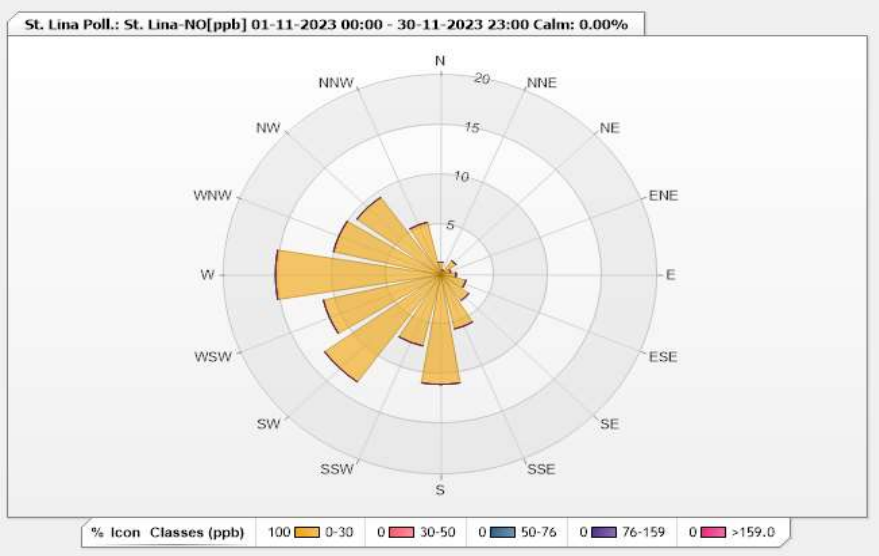


Station: St. Lina Poll.: St. Lina-NO[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 87.36% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	1.27	0	0	0	0	1.27
NNE	0.48	0	0	0	0	0.48
NE	1.75	0	0	0	0	1.75
ENE	0.95	0	0	0	0	0.95
E	1.43	0	0	0	0	1.43
ESE	2.38	0	0	0	0	2.38
SE	3.18	0	0	0	0	3.18
SSE	5.56	0	0	0	0	5.56
S	10.97	0	0	0	0	10.97
SSW	7.31	0	0	0	0	7.31
SW	13.2	0	0	0	0	13.2
WSW	11.13	0	0	0	0	11.13
W	15.26	0	0	0	0	15.26
WNW	10.17	0	0	0	0	10.17
NW	9.54	0	0	0	0	9.54
NNW	5.41	0	0	0	0	5.41
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - November 2023

Summary of Hourly Averages

NITROGEN DIOXIDE (NO_2) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb

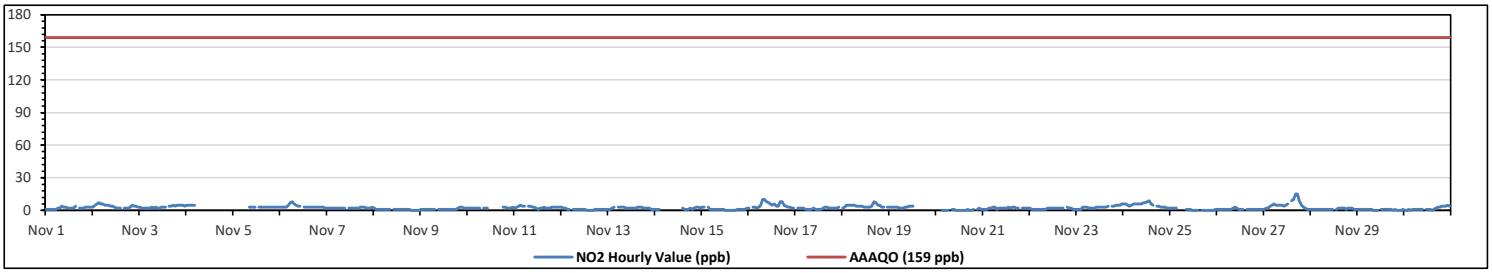
Number of 1-Hour Exceedances: 0

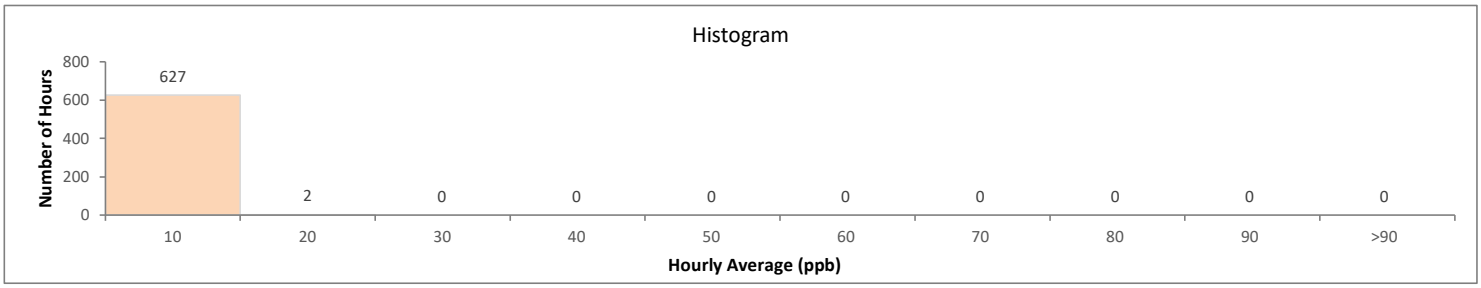
Maximum Hourly Value:	15	ppb	on Nov 27 at hr 16	Hours in Service:	720
Maximum Daily Value:	5.4	ppb	on Nov 27	Hours of Data:	629
Minimum Hourly Value:	0	ppb	on Nov 8 at hr 19	Hours of Missing Data:	55
Minimum Daily Value:	0.4	ppb	on Nov 20	Hours of Calibration:	36
Monthly Average:	2.4	ppb		Operational Uptime:	92.4

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			
Nov 1	1	1	1	1	1	1	2	2	4	3	3	2	2	2	2	4	S	2	2	2	3	3	3	3	1	4	2.2
Nov 2	3	5	6	7	6	6	5	5	5	4	4	3	2	2	2	S	2	2	2	3	5	4	4	3	2	7	3.9
Nov 3	3	2	2	2	2	2	3	2	3	2	2	3	3	3	S	4	4	5	4	5	5	5	5	4	2	5	3.3
Nov 4	5	5	5	5	5	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	5	5	NA
Nov 5	K	K	K	K	K	K	K	NRM	3	3	3	3	S	3	3	3	3	3	3	3	3	3	3	3	3	3	NA
Nov 6	3	3	3	3	5	7	8	6	5	4	4	S	3	3	3	3	3	3	3	3	3	3	3	2	2	8	3.7
Nov 7	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2	3	3	3	2	2	2	3	2	3	2.2
Nov 8	2	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	2	0.8
Nov 9	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	2	3	3	2	2	1	3	1.3
Nov 10	2	2	2	2	2	2	2	S	2	2	2	C	C	C	C	C	C	C	3	3	2	2	2	3	2	3	NA
Nov 11	2	3	4	5	4	4	S	4	4	3	3	2	1	2	2	3	2	2	2	3	3	3	3	3	1	5	2.9
Nov 12	3	2	2	1	1	S	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	0	3	1.0
Nov 13	1	1	2	3	S	3	3	3	3	2	2	2	2	2	2	3	3	3	2	2	2	2	1	1	1	3	2.2
Nov 14	1	1	1	S	1	K	K	K	K	K	K	K	K	K	2	1	1	1	2	1	2	3	3	2	1	3	NA
Nov 15	3	3	S	3	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	2	0	3	1.0
Nov 16	2	S	3	3	2	3	5	10	10	8	7	6	5	6	4	4	8	8	5	4	3	3	2	2	2	10	4.9
Nov 17	S	2	2	2	2	1	1	1	1	2	1	1	1	1	2	3	3	2	2	2	2	2	3	S	1	3	1.8
Nov 18	2	3	5	5	5	5	5	4	4	4	4	3	3	3	3	4	8	7	5	5	3	3	S	3	2	8	4.2
Nov 19	3	3	3	3	3	2	2	2	3	3	4	4	4	K	K	K	K	K	K	K	K	K	K	K	2	4	NA
Nov 20	K	K	K	0	0	0	0	NRM	1	1	0	0	0	0	0	0	1	0	0	1	S	1	2	1	0	2	0.4
Nov 21	1	1	1	2	2	3	3	1	2	2	2	2	2	3	2	3	3	2	2	S	2	2	2	2	1	3	2.0
Nov 22	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	S	3	2	2	1	1	1	3	1.6
Nov 23	1	1	1	3	3	3	2	2	2	2	3	3	3	3	3	3	4	S	4	4	5	5	5	6	1	6	3.1
Nov 24	6	6	5	4	5	6	6	6	6	6	7	7	8	9	6	5	S	4	4	3	3	3	2	2	2	9	5.2
Nov 25	2	2	2	2	K	K	K	K	1	1	1	0	0	0	0	S	0	0	0	0	0	0	0	1	0	2	0.6
Nov 26	1	1	1	1	1	1	1	1	2	3	2	1	1	1	S	1	1	1	1	1	1	1	1	1	1	3	1.2
Nov 27	1	2	2	4	5	6	5	5	5	5	4	5	6	S	9	10	15	15	9	5	3	2	1	1	1	15	5.4
Nov 28	1	1	1	1	1	1	1	1	1	1	1	1	S	1	2	2	2	2	1	2	2	2	1	1	1	2	1.3
Nov 29	1	1	1	1	1	1	1	1	0	0	0	S	1	1	1	1	1	1	0	1	0	0	0	1	0	1	0.7
Nov 30	0	0	1	0	1	1	1	1	1	1	S	1	1	1	0	1	2	3	3	4	4	4	5	4	0	5	1.7
Diurnal Maximum	6	6	6	7	6	7	8	10	10	8	7	7	8	9	9	10	15	15	9	5	5	5	5	6			
Diurnal Average	2.0	2.1	2.3	2.4	2.4	2.6	2.5	2.7	2.7	2.6	2.5	2.3	2.2	2.1	2.2	2.6	2.9	2.8	2.4	2.5	2.4	2.3	2.1	2.1			

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.



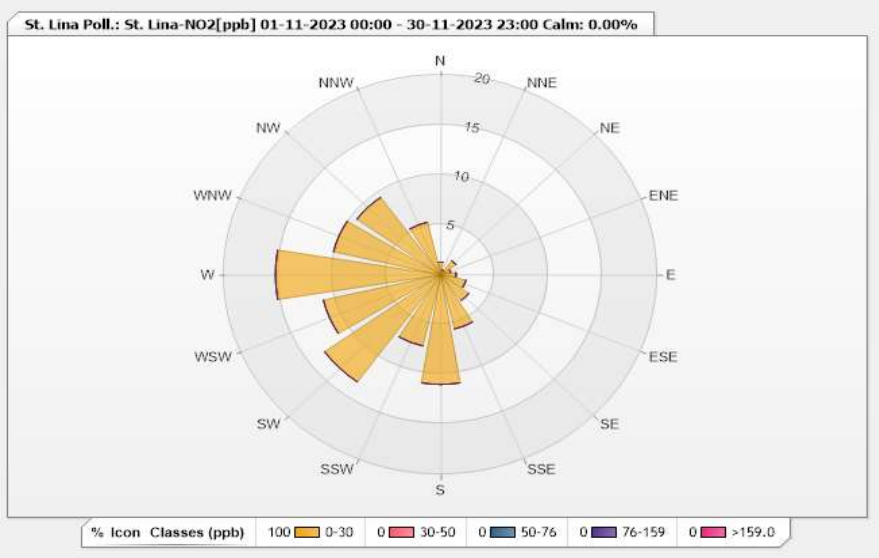


Station: St. Lina Poll.: St. Lina-NO2[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 87.36% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	1.27	0	0	0	0	1.27
NNE	0.48	0	0	0	0	0.48
NE	1.75	0	0	0	0	1.75
ENE	0.95	0	0	0	0	0.95
E	1.43	0	0	0	0	1.43
ESE	2.38	0	0	0	0	2.38
SE	3.18	0	0	0	0	3.18
SSE	5.56	0	0	0	0	5.56
S	10.97	0	0	0	0	10.97
SSW	7.31	0	0	0	0	7.31
SW	13.2	0	0	0	0	13.2
WSW	11.13	0	0	0	0	11.13
W	15.26	0	0	0	0	15.26
WNW	10.17	0	0	0	0	10.17
NW	9.54	0	0	0	0	9.54
NNW	5.41	0	0	0	0	5.41
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - November 2023

Summary of Hourly Averages

OZONE (O_3) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb

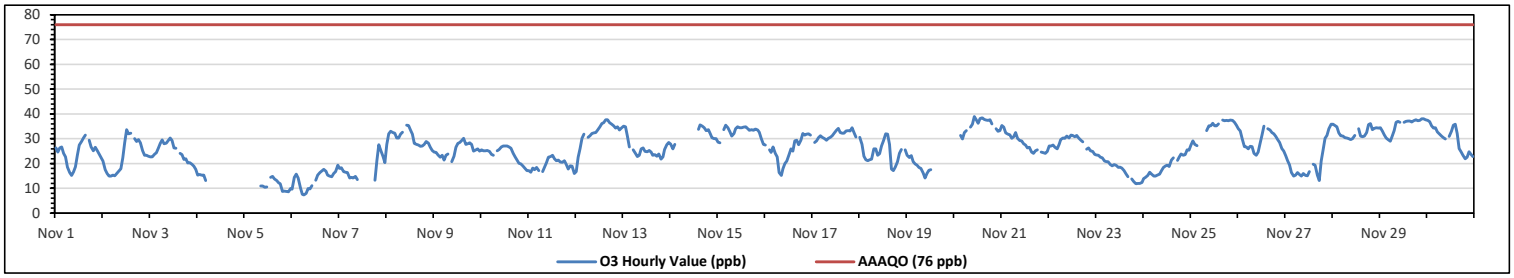
Number of 1-Hour Exceedances: 0

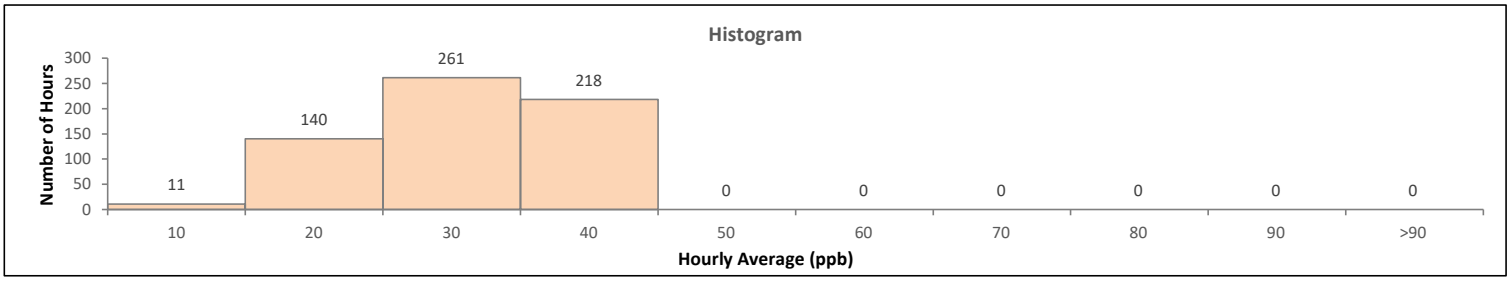
Maximum Hourly Value:	38.9	ppb	on Nov 20 at hr 10	Hours in Service:	720
Maximum Daily Value:	35.5	ppb	on Nov 20	Hours of Data:	630
Minimum Hourly Value:	7.3	ppb	on Nov 6 at hr 6	Hours of Missing Data:	56
Minimum Daily Value:	13.5	ppb	on Nov 6	Hours of Calibration:	34
Monthly Average:	25.8	ppb		Operational Uptime:	92.2

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			
Nov 1	26.3	24.6	26.3	26.7	24.2	22.7	18.5	16.4	15.2	16.6	18.7	23.4	27.5	28.9	30.4	31.4	S	29.4	26.6	25.1	26.5	25.3	23.9	22.4	15.2	31.4	24.2
Nov 2	21	17.5	15.9	14.9	15	15.4	15.1	16	17	17.9	22.2	28.5	33.7	32	32.3	S	30	28.8	29.6	28.4	25.1	23.3	23.3	22.9	14.9	33.7	22.9
Nov 3	22.6	22.6	23.7	24.3	26.2	28.2	29.5	28	28.3	29.3	30.4	29.2	26.3	26.2	S	24.2	23.6	21.7	21.9	20.2	20.3	19.7	18.9	17.7	17.7	30.4	24.5
Nov 4	15.4	15.6	15.3	15.3	13.1	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	13.1	15.6	NA
Nov 5	K	K	K	K	K	K	K	NRM	10.9	11	10.4	10.5	S	14.4	14.8	13.7	13.2	12.2	11.8	8.8	8.9	8.8	8.6	9.9	8.6	14.8	NA
Nov 6	9.6	14.4	15.7	14.2	10.3	7.5	7.3	8	9.9	9.7	11.1	S	13.3	15.4	16.3	17	17.7	16.9	15.3	14.9	14.7	15.9	16.7	19.3	**7.3**	19.3	**13.5**
Nov 7	18	18.3	16.8	16.5	16.4	14.1	14.4	14.1	14.8	13.6	S	13.6	C	C	NRM	C	C	C	13.3	21.1	27.6	25	23	20.3	13.3	27.6	NA
Nov 8	27.7	32	33	32.5	32.3	30.4	30.4	31.8	32.7	S	35.4	35.3	33.5	31.8	28.1	27.7	27.4	26.9	27	27.7	28.9	28.3	26.5	25.2	25.2	35.4	30.1
Nov 9	24.6	24.5	23.5	22.5	23.4	21.4	23.3	23.9	S	20.8	23	26.5	28.1	28.5	29.3	30.2	27.8	28	28.4	27.8	25	25.4	25.9	25	20.8	30.2	25.5
Nov 10	25.6	25.1	25.1	25.2	24.8	23.8	23.3	S	25.1	25.7	26.6	27	27	27.1	26.7	26.2	24.2	22.6	21.4	20.1	19.9	19.1	18.2	17.1	17.1	27.1	23.8
Nov 11	17.1	16.5	18.1	17.6	18.4	17.1	S	16.8	18.6	20.3	22.5	22.8	23.3	21.9	21.1	21.4	20.6	20.5	21.2	19.6	17.8	19.1	18.9	15.9	15.9	23.3	19.4
Nov 12	16.8	22.5	26.1	30.2	31.9	S	30.6	31.2	32.1	32.4	32.6	33.5	34.8	36.1	36.5	37.7	37.6	36.5	35.9	35.2	34.3	34.8	33.5	34.3	16.8	37.7	32.5
Nov 13	35	34.9	30.9	26.6	S	25.6	24.2	22.8	23.3	26	26.4	24.9	24.7	25.2	24.6	23.3	23.6	23	23.9	21.8	22.6	25.7	27.6	28.5	21.8	35.0	25.9
Nov 14	27.9	26	27.8	S	30	K	K	K	K	K	K	K	K	K	33.8	35.6	35	34.4	33.3	33.7	32	30.5	30.1	30.1	26.0	35.6	NA
Nov 15	28.6	28.4	S	33.7	35.4	34.4	32.9	31.1	32.1	34.1	34.8	34.5	34.5	34.7	34.8	34.2	33.4	33.6	33.4	33.9	33.5	32.7	30.2	27.8	27.8	35.4	32.9
Nov 16	27.4	S	25.5	24.5	26.7	24.2	22.6	16.4	15.2	17.9	20	21	23.6	26	25	29.1	29.4	27.6	29.4	32.1	31.5	31.9	32	31.4	15.2	32.1	25.7
Nov 17	S	28.5	29.1	30.5	31.2	30.6	30	29.4	30.2	30.6	31.2	32.3	33.4	34.2	32.5	32.2	32.2	33.1	33.3	33.1	34.4	32.6	30.7	S	28.5	34.4	31.6
Nov 18	30.6	27.7	23	21.6	21.2	21.5	21.8	25.9	25.9	23.3	24	27	29.1	32	31.9	27.8	17.8	17.1	18.5	20.7	24.2	25.7	S	25.5	17.1	32.0	24.5
Nov 19	23.4	22.4	23.2	20.8	19.9	19.4	18.4	18	16.2	14.1	15.9	17.3	17.5	K	K	K	K	K	K	K	K	K	K	K	14.1	23.4	NA
Nov 20	K	K	K	31.3	29.9	32.5	33.2	NRM	34.7	35.9	**38.9**	37.7	36.3	38.2	38.4	37.8	37.5	37.4	37.6	36	S	34.1	33	33.2	29.9	**38.9**	**35.5**
Nov 21	35.3	34.7	32.4	31.9	31.6	30.2	30.8	32.5	30.2	29.2	29.1	28	27.5	26.4	26.5	24.6	24.1	25.1	25.6	S	24.6	24.3	24.2	24.9	24.1	35.3	28.4
Nov 22	27.1	27.1	27.5	26.5	26	27.7	29.6	30.3	30.2	31	30.4	31.4	31.3	30.8	31.3	30.3	29.4	28.7	S	25.8	26.4	25.1	24.8	23.8	23.8	31.4	28.4
Nov 23	23.5	23.4	22.5	22.3	21	20.8	20.8	19.6	19.1	19.6	19.2	18.4	18.5	18.1	17.1	15.8	14.7	S	13.7	12.8	11.8	11.9	12	12.4	11.8	23.5	17.8
Nov 24	13.9	14.4	15.2	16.5	15.7	15	14.9	15.4	15.7	17.2	18.4	19.1	19.4	18.8	21.4	22.3	S	21.3	22.5	23.9	23.3	23.6	25.6	25.4	13.9	25.6	19.1
Nov 25	27.4	29.1	27.7	27.2	K	K	K	K	33.3	35.2	35.2	36.2	35.2	35.2	36	S	37.5	37.3	37.4	37.3	37.5	37.4	36.7	35.5	27.2	37.5	34.4
Nov 26	34.1	33.1	30	26.8	26.7	26	26.9	26.8	24.1	23.4	24.6	28.2	31.5	35.1	S	34.1	33.5	32.5	32	30.9	29.6	28.5	26.1	25	23.4	35.1	29.1
Nov 27	23.2	21.1	19.5	16.4	15	15.4	16.3	15.6	15	15.9	15.2	15.1	16.7	S	19.8	19.4	15.3	13.1	21	25.6	30.2	31.3	34.1	35.9	13.1	35.9	20.3
Nov 28	35.8	35.3	34.9	32.4	31.2	31	30.5	30.3	30	29.6	30.1	31.3	S	34	31.1	30.8	31	32.5	35.7	36.1	33.6	34.2	34.5	34.3	29.6	36.1	32.6
Nov 29	34.4	33.1	31.6	30.4	29.6	29	31.1	33.3	36.6	37	36.7	S	36.7	37	37.1	37.1	36.8	37.2	37.7	37.2	37.4	38	38.1	37.6	29.0	38.1	35.2
Nov 30	37.4	36.9	35.2	34.3	34.4	32.8	31.9	31	30.5	29.9	S	30.9	33	35.5	35.8	32.1	26.1	24.7	23.3	21.9	22.5	24.7	23.7	22.8	21.9	37.4	30.1
Diurnal Maximum	37.4	36.9	35.2	34.3	35.4	34.4	33.2	33.3	36.6	37.0	38.9	37.7	36.7	38.2	38.4	37.8	37.6	37.4	37.7	37.3	37.5	38.0	38.1	37.6			
Diurnal Average	25.5	25.5	25.0	24.8	24.5	23.9	24.3	23.5	24.0	24.0	25.5	26.3	27.9	28.9	28.5	27.8	27.2	27.0	26.3	26.4	26.1	26.3	26.0	25.3			

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance	
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance	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.



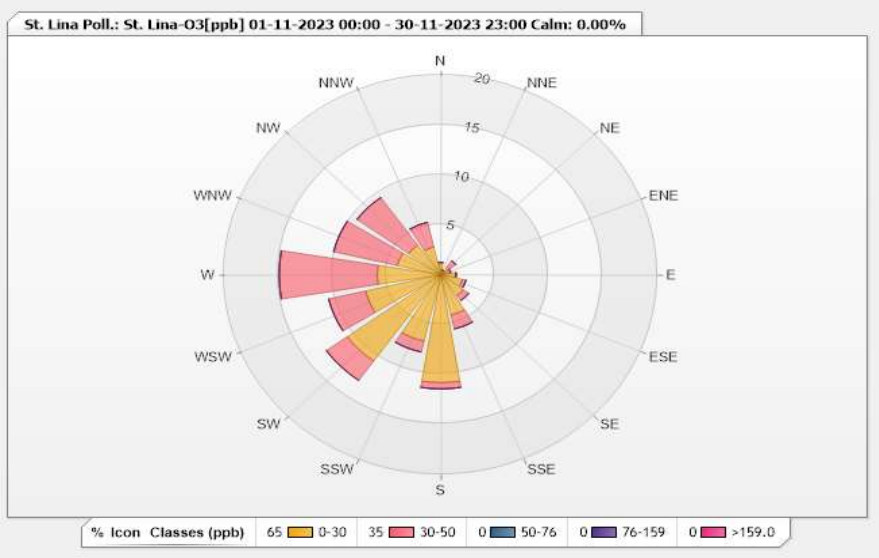


Station: St. Lina Poll.: St. Lina-O3[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 87.50% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	1.11	0.16	0	0	0	1.27
NNE	0.48	0	0	0	0	0.48
NE	0.95	0.79	0	0	0	1.74
ENE	0.32	0.63	0	0	0	0.95
E	1.43	0	0	0	0	1.43
ESE	2.06	0.32	0	0	0	2.38
SE	2.54	0.63	0	0	0	3.17
SSE	4.13	1.43	0	0	0	5.56
S	10.79	0.63	0	0	0	11.42
SSW	6.83	1.11	0	0	0	7.94
SW	10.63	2.38	0	0	0	13.01
WSW	7.14	3.49	0	0	0	10.63
W	5.87	9.05	0	0	0	14.92
WNW	4.13	6.03	0	0	0	10.16
NW	3.65	5.87	0	0	0	9.52
NNW	2.86	2.54	0	0	0	5.4
Summary	64.92	35.06	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - November 2023

Summary of Hourly Averages

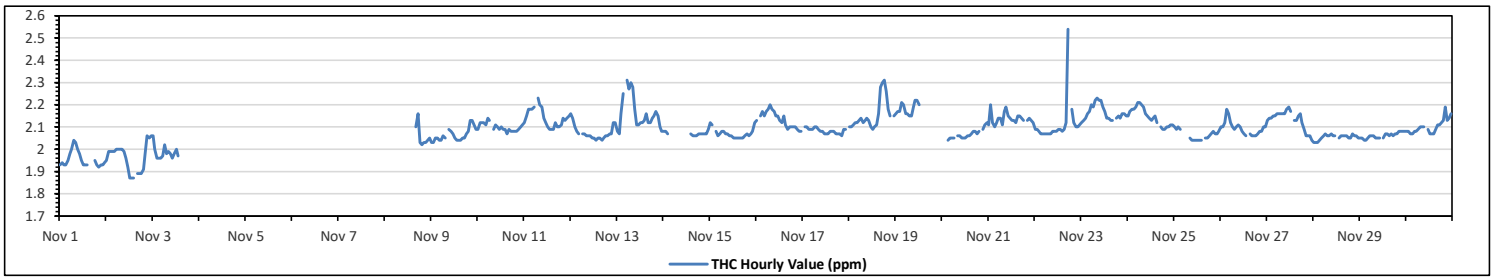
TOTAL HYDROCARBONS (THC) in ppm

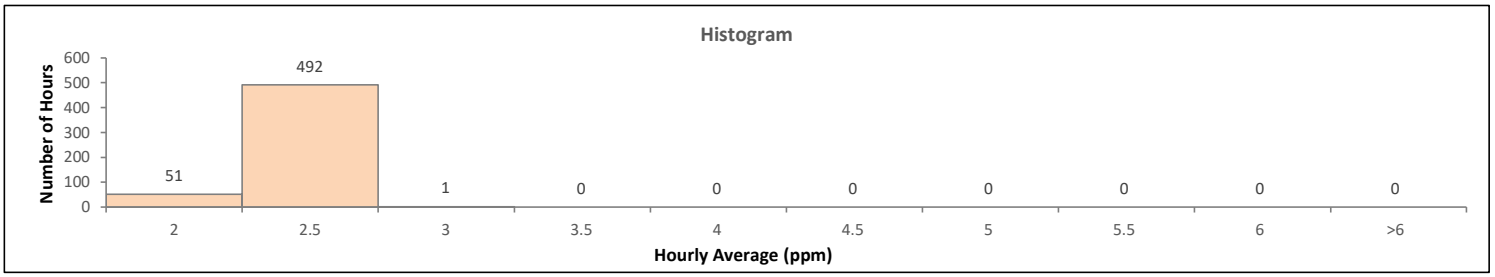
Maximum Hourly Value:	2.54	ppm	on Nov 22 at hr 17	Hours in Service:	720	
Maximum Daily Value:	2.17	ppm	on Nov 23	Hours of Data:	544	
Minimum Hourly Value:	1.87	ppm	on Nov 2 at hr 12	Hours of Missing Data:	147	
Minimum Daily Value:	1.95	ppm	on Nov 1	Hours of Calibration:	29	
Monthly Average:	2.09	ppm		Operational Uptime:	79.6	

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			
Nov 1	1.93	1.94	1.93	1.93	1.95	1.98	2.00	2.04	2.03	2.00	1.98	1.95	1.93	1.93	1.93	X	S	X	1.95	1.93	1.92	1.93	1.93	1.94	1.92	2.04	1.95
Nov 2	1.95	1.99	1.99	1.99	1.99	2.00	2.00	2.00	2.00	1.99	1.96	1.92	1.87	1.87	1.87	S	1.89	1.89	1.89	1.91	1.98	2.06	2.05	2.06	1.87	2.06	1.96
Nov 3	2.06	2.00	1.96	1.96	1.96	1.97	2.02	1.98	1.99	1.98	1.96	1.98	2.00	1.97	S	X	X	X	X	X	X	X	X	X	1.96	2.06	NA
Nov 4	X	X	X	X	X	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	-	-	-
Nov 5	K	K	K	K	K	K	K	NRM	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Nov 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	-	-	-
Nov 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	-	-	-
Nov 8	X	X	X	X	X	X	X	X	X	X	X	X	C	C	C	C	2.10	2.16	2.03	2.02	2.03	2.03	2.04	2.05	2.02	2.16	NA
Nov 9	2.03	2.03	2.05	2.05	2.04	2.04	2.06	2.05	S	2.09	2.08	2.07	2.05	2.04	2.04	2.04	2.05	2.05	2.07	2.08	2.13	2.13	2.11	2.09	2.03	2.13	2.06
Nov 10	2.09	2.12	2.12	2.12	2.11	2.14	2.13	S	2.09	2.11	2.10	2.09	2.10	2.09	2.09	2.07	2.09	2.08	2.08	2.08	2.08	2.09	2.10	2.11	2.07	2.14	2.10
Nov 11	2.12	2.15	2.18	2.18	2.18	2.19	S	2.23	2.20	2.19	2.14	2.12	2.10	2.09	2.09	2.09	2.12	2.10	2.10	2.11	2.14	2.13	2.14	2.15	2.09	2.23	2.14
Nov 12	2.16	2.14	2.10	2.08	2.07	S	2.07	2.07	2.06	2.06	2.06	2.05	2.05	2.04	2.05	2.05	2.04	2.05	2.06	2.06	2.07	2.07	2.12	2.12	2.04	2.16	2.07
Nov 13	2.08	2.07	2.16	2.25	S	2.31	2.27	2.30	2.28	2.18	2.11	2.11	2.12	2.12	2.13	2.16	2.12	2.12	2.14	2.15	2.17	2.15	2.10	2.08	2.07	2.31	2.16
Nov 14	2.08	2.08	2.07	S	2.06	K	K	K	K	K	K	K	K	K	2.07	2.06	2.06	2.06	2.07	2.07	2.07	2.07	2.07	2.09	2.06	2.09	NA
Nov 15	2.12	2.11	S	2.08	2.06	2.07	2.08	2.08	2.07	2.07	2.06	2.06	2.05	2.05	2.05	2.05	2.05	2.05	2.06	2.07	2.06	2.07	2.08	2.12	2.05	2.12	2.07
Nov 16	2.13	S	2.15	2.17	2.15	2.17	2.18	2.20	2.18	2.17	2.15	2.15	2.13	2.12	2.15	2.11	2.09	2.10	2.10	2.10	2.10	2.09	2.08	2.08	2.08	2.20	2.13
Nov 17	S	2.10	2.10	2.09	2.09	2.09	2.10	2.10	2.09	2.08	2.08	2.07	2.07	2.07	2.08	2.08	2.08	2.07	2.07	2.07	2.06	2.09	2.09	S	2.06	2.10	2.08
Nov 18	2.10	2.10	2.11	2.12	2.12	2.13	2.14	2.12	2.13	2.14	2.13	2.10	2.09	2.10	2.11	2.16	2.28	2.30	2.31	2.26	2.18	2.15	S	2.15	2.09	2.31	2.15
Nov 19	2.16	2.17	2.17	2.21	2.20	2.16	2.16	2.15	2.15	2.19	2.22	2.22	2.20	K	K	K	K	K	K	K	K	K	K	K	2.15	2.22	NA
Nov 20	K	K	K	2.04	2.05	2.05	2.05	NRM	2.06	2.06	2.05	2.05	2.05	2.06	2.06	2.07	2.08	2.08	2.07	2.08	S	2.09	2.11	2.12	2.04	2.12	2.07
Nov 21	2.11	2.20	2.12	2.10	2.12	2.14	2.14	2.11	2.17	2.19	2.15	2.14	2.13	2.13	2.12	2.15	2.15	2.14	2.13	S	2.13	2.14	2.13	2.12	2.10	2.20	2.14
Nov 22	2.09	2.09	2.08	2.07	2.07	2.07	2.07	2.07	2.07	2.08	2.08	2.08	2.09	2.09	2.08	2.09	2.12	**2.54**	S	2.18	2.12	2.10	2.10	2.11	2.07	**2.54**	2.11
Nov 23	2.12	2.13	2.14	2.16	2.17	2.20	2.19	2.22	2.23	2.22	2.22	2.19	2.17	2.14	2.14	2.13	2.13	S	2.14	2.15	2.14	2.16	2.16	2.15	2.12	2.23	**2.17**
Nov 24	2.15	2.17	2.18	2.18	2.19	2.21	2.21	2.20	2.19	2.16	2.15	2.14	2.13	2.14	2.15	2.12	S	2.10	2.09	2.09	2.10	2.10	2.11	2.11	2.09	2.21	2.15
Nov 25	2.10	2.09	2.10	2.09	K	K	K	K	2.05	2.04	2.04	2.04	2.04	2.04	2.04	S	2.05	2.05	2.06	2.07	2.08	2.07	2.07	2.08	2.04	2.10	2.06
Nov 26	2.10	2.10	2.12	2.18	2.16	2.12	2.10	2.09	2.10	2.11	2.10	2.08	2.07	2.06	S	2.07	2.06	2.06	2.06	2.07	2.08	2.08	2.10	2.10	2.06	2.18	2.09
Nov 27	2.13	2.14	2.14	2.15	2.15	2.16	2.16	2.16	2.16	2.16	2.18	2.19	2.17	S	2.13	2.13	2.15	2.16	2.12	2.09	2.06	2.06	2.06	2.04	2.04	2.19	2.13
Nov 28	2.03	2.03	2.03	2.04	2.05	2.06	2.07	2.06	2.06	2.07	2.06	2.06	S	2.05	2.06	2.06	2.06	2.06	2.05	2.05	2.07	2.06	2.06	2.05	2.03	2.07	2.05
Nov 29	2.05	2.05	2.04	2.04	2.05	2.06	2.06	2.06	2.05	2.05	2.05	S	2.05	2.07	2.07	2.06	2.07	2.06	2.07	2.07	2.08	2.08	2.08	2.08	2.04	2.08	2.06
Nov 30	2.08	2.08	2.07	2.07	2.08	2.08	2.09	2.10	2.10	2.10	S	2.09	2.07	2.07	2.07	2.09	2.11	2.11	2.12	2.13	2.19	2.13	2.14	2.16	2.07	2.19	2.10
Diurnal Maximum	2.16	2.20	2.18	2.25	2.20	2.31	2.27	2.30	2.28	2.22	2.22	2.22	2.20	2.14	2.15	2.16	2.28	2.54	2.31	2.26	2.19	2.16	2.16	2.16			
Diurnal Average	2.09	2.09	2.09	2.10	2.09	2.11	2.11	2.11	2.11	2.10	2.09	2.08	2.08	2.06	2.07	2.09	2.09	2.11	2.08	2.08	2.09	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	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.



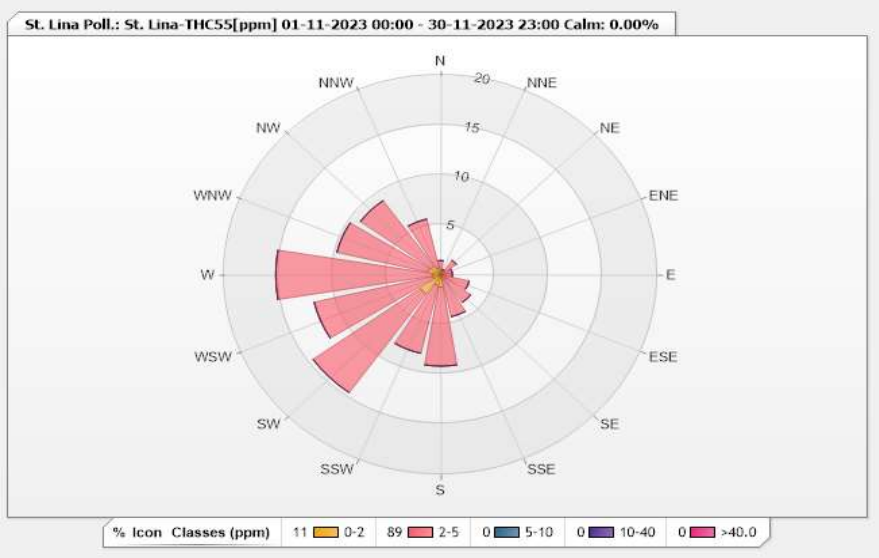


Station: St. Lina Poll.: St. Lina-THC55[ppm] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 75.56% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	0.36	1.08	0	0	0	1.44
NNE	0.18	0.36	0	0	0	0.54
NE	0.18	1.61	0	0	0	1.79
ENE	0.18	0.9	0	0	0	1.08
E	0	1.08	0	0	0	1.08
ESE	0.18	2.51	0	0	0	2.69
SE	0.54	2.87	0	0	0	3.41
SSE	0.18	4.12	0	0	0	4.3
S	1.25	7.89	0	0	0	9.14
SSW	1.08	6.99	0	0	0	8.07
SW	2.33	12.19	0	0	0	14.52
WSW	0.72	11.29	0	0	0	12.01
W	0.72	14.52	0	0	0	15.24
WNW	1.25	8.6	0	0	0	9.85
NW	1.08	8.06	0	0	0	9.14
NNW	0.72	5.02	0	0	0	5.74
Summary	10.95	89.09	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - November 2023

Summary of Hourly Averages

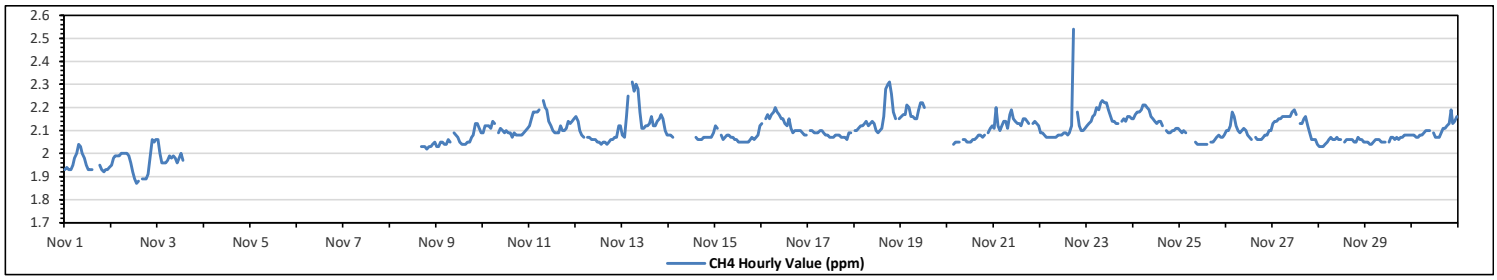
METHANE (CH4) in ppm

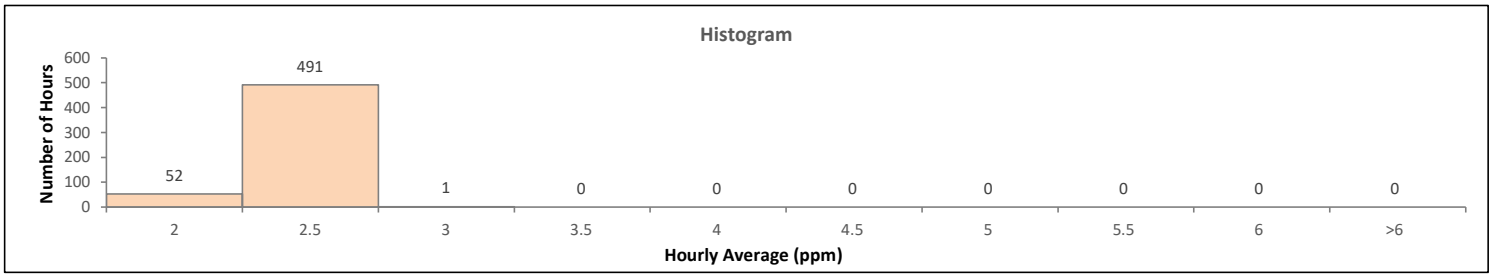
Maximum Hourly Value:	2.54	ppm	on Nov 22 at hr 17	Hours in Service:	720	
Maximum Daily Value:	2.17	ppm	on Nov 23	Hours of Data:	544	
Minimum Hourly Value:	1.87	ppm	on Nov 2 at hr 13	Hours of Missing Data:	147	
Minimum Daily Value:	1.95	ppm	on Nov 1	Hours of Calibration:	29	
Monthly Average:	2.09	ppm		Operational Uptime:	79.6	

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			
Nov 1	1.93	1.94	1.93	1.93	1.95	1.98	2.00	2.04	2.03	2.00	1.98	1.95	1.93	1.93	1.93	X	S	X	1.95	1.93	1.92	1.93	1.93	1.94	1.92	2.04	1.95
Nov 2	1.95	1.98	1.99	1.99	1.99	2.00	2.00	2.00	2.00	1.99	1.96	1.92	1.89	1.87	1.88	S	1.89	1.89	1.89	1.91	1.98	2.06	2.05	2.06	1.87	2.06	1.96
Nov 3	2.06	2.00	1.96	1.96	1.96	1.97	1.99	1.98	1.99	1.98	1.96	1.98	2.00	1.97	S	X	X	X	X	X	X	X	X	X	1.96	2.06	NA
Nov 4	X	X	X	X	X	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	-	-	-
Nov 5	K	K	K	K	K	K	K	NRM	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Nov 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	-	-	-
Nov 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	-	-	-
Nov 8	X	X	X	X	X	X	X	X	X	X	X	X	C	C	C	C	2.03	2.03	2.03	2.02	2.03	2.03	2.04	2.05	2.02	2.05	NA
Nov 9	2.03	2.03	2.05	2.05	2.04	2.04	2.06	2.05	S	2.09	2.08	2.07	2.05	2.04	2.04	2.04	2.05	2.05	2.07	2.08	2.13	2.13	2.11	2.09	2.03	2.13	2.06
Nov 10	2.09	2.12	2.12	2.12	2.11	2.14	2.13	S	2.09	2.11	2.10	2.09	2.10	2.09	2.09	2.07	2.09	2.08	2.08	2.08	2.08	2.09	2.10	2.11	2.07	2.14	2.10
Nov 11	2.12	2.15	2.18	2.18	2.18	2.19	S	2.23	2.20	2.19	2.14	2.12	2.10	2.09	2.09	2.09	2.12	2.10	2.10	2.11	2.14	2.13	2.14	2.15	2.09	2.23	2.14
Nov 12	2.16	2.14	2.10	2.08	2.07	S	2.07	2.07	2.06	2.06	2.06	2.05	2.05	2.04	2.05	2.05	2.04	2.05	2.06	2.06	2.07	2.07	2.12	2.12	2.04	2.16	2.07
Nov 13	2.08	2.07	2.16	2.25	S	2.31	2.27	2.30	2.28	2.18	2.11	2.11	2.12	2.12	2.13	2.16	2.12	2.12	2.14	2.15	2.17	2.15	2.10	2.08	2.07	2.31	2.16
Nov 14	2.08	2.08	2.07	S	2.06	K	K	K	K	K	K	K	K	K	2.07	2.06	2.06	2.06	2.07	2.07	2.07	2.07	2.07	2.09	2.06	2.09	NA
Nov 15	2.12	2.11	S	2.08	2.06	2.07	2.08	2.08	2.07	2.07	2.06	2.06	2.05	2.05	2.05	2.05	2.05	2.05	2.06	2.07	2.06	2.07	2.08	2.12	2.05	2.12	2.07
Nov 16	2.13	S	2.15	2.17	2.15	2.17	2.18	2.20	2.18	2.17	2.15	2.15	2.13	2.12	2.15	2.11	2.09	2.10	2.10	2.10	2.10	2.09	2.08	2.08	2.08	2.20	2.13
Nov 17	S	2.10	2.10	2.09	2.09	2.09	2.10	2.10	2.09	2.08	2.08	2.07	2.07	2.07	2.08	2.08	2.08	2.07	2.07	2.07	2.06	2.09	2.09	S	2.06	2.10	2.08
Nov 18	2.10	2.10	2.11	2.12	2.12	2.13	2.14	2.12	2.13	2.14	2.13	2.10	2.09	2.10	2.11	2.16	2.28	2.30	2.31	2.26	2.18	2.15	S	2.15	2.09	2.31	2.15
Nov 19	2.16	2.17	2.17	2.21	2.20	2.16	2.16	2.15	2.15	2.19	2.22	2.22	2.20	K	K	K	K	K	K	K	K	K	K	K	2.15	2.22	NA
Nov 20	K	K	K	2.04	2.05	2.05	2.05	NRM	2.06	2.06	2.05	2.05	2.05	2.06	2.06	2.07	2.08	2.08	2.07	2.08	S	2.09	2.11	2.12	2.04	2.12	2.07
Nov 21	2.11	2.20	2.12	2.10	2.12	2.14	2.14	2.11	2.17	2.19	2.15	2.14	2.13	2.13	2.12	2.15	2.15	2.14	2.13	S	2.13	2.14	2.13	2.12	2.10	2.20	2.14
Nov 22	2.09	2.09	2.08	2.07	2.07	2.07	2.07	2.07	2.07	2.08	2.08	2.08	2.09	2.09	2.08	2.09	2.12	**2.54**	S	2.18	2.12	2.10	2.10	2.11	2.07	**2.54**	2.11
Nov 23	2.12	2.13	2.14	2.16	2.17	2.20	2.19	2.22	2.23	2.22	2.22	2.19	2.17	2.14	2.14	2.13	2.13	S	2.14	2.15	2.14	2.16	2.16	2.15	2.12	2.23	**2.17**
Nov 24	2.15	2.17	2.18	2.18	2.19	2.21	2.21	2.20	2.19	2.16	2.15	2.14	2.13	2.14	2.14	2.12	S	2.10	2.09	2.09	2.10	2.10	2.11	2.11	2.09	2.21	2.15
Nov 25	2.10	2.09	2.10	2.09	K	K	K	K	2.05	2.04	2.04	2.04	2.04	2.04	2.04	S	2.05	2.05	2.06	2.07	2.08	2.07	2.07	2.08	2.04	2.10	2.06
Nov 26	2.10	2.10	2.12	2.18	2.16	2.12	2.10	2.09	2.10	2.11	2.10	2.08	2.07	2.06	S	2.07	2.06	2.06	2.06	2.07	2.08	2.08	2.10	2.10	2.06	2.18	2.09
Nov 27	2.13	2.14	2.14	2.15	2.15	2.16	2.16	2.16	2.16	2.16	2.18	2.19	2.17	S	2.13	2.13	2.15	2.16	2.12	2.09	2.06	2.06	2.06	2.04	2.04	2.19	2.13
Nov 28	2.03	2.03	2.03	2.04	2.05	2.06	2.07	2.06	2.06	2.07	2.06	2.06	S	2.05	2.06	2.06	2.06	2.06	2.05	2.05	2.07	2.06	2.06	2.05	2.03	2.07	2.05
Nov 29	2.05	2.05	2.04	2.04	2.05	2.06	2.06	2.06	2.05	2.05	2.05	S	2.05	2.07	2.07	2.06	2.07	2.06	2.07	2.07	2.08	2.08	2.08	2.08	2.04	2.08	2.06
Nov 30	2.08	2.08	2.07	2.07	2.08	2.08	2.09	2.10	2.10	2.10	S	2.09	2.07	2.07	2.07	2.09	2.11	2.11	2.12	2.13	2.19	2.13	2.14	2.16	2.07	2.19	2.10
Diurnal Maximum	2.16	2.20	2.18	2.25	2.20	2.31	2.27	2.30	2.28	2.22	2.22	2.22	2.20	2.14	2.15	2.16	2.28	2.54	2.31	2.26	2.19	2.16	2.16	2.16			
Diurnal Average	2.09	2.09	2.09	2.10	2.09	2.11	2.11	2.11	2.11	2.10	2.09	2.08	2.08	2.06	2.07	2.09	2.09	2.10	2.08	2.08	2.09	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	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.



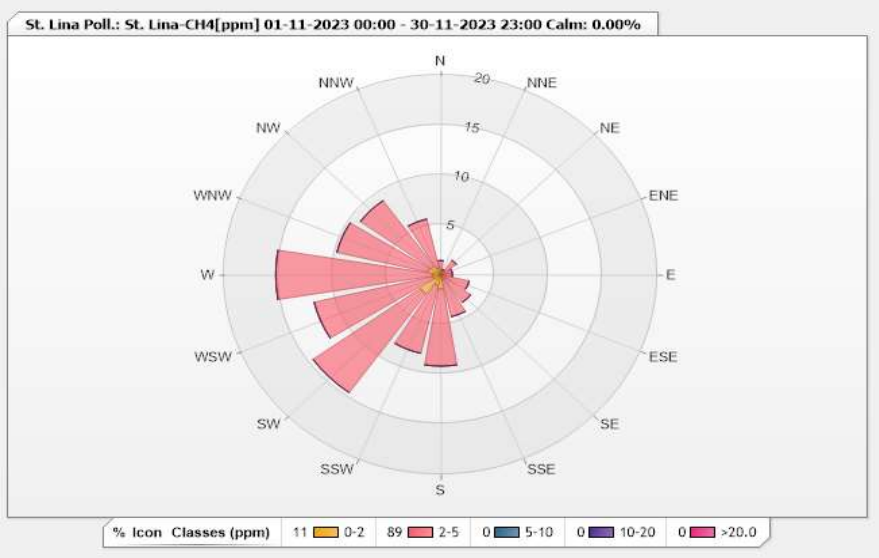


Station: St. Lina Poll.: St. Lina-CH4[ppm] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 75.56% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	0.36	1.08	0	0	0	1.44
NNE	0.18	0.36	0	0	0	0.54
NE	0.18	1.61	0	0	0	1.79
ENE	0.18	0.9	0	0	0	1.08
E	0	1.08	0	0	0	1.08
ESE	0.18	2.51	0	0	0	2.69
SE	0.54	2.87	0	0	0	3.41
SSE	0.18	4.12	0	0	0	4.3
S	1.43	7.71	0	0	0	9.14
SSW	1.08	6.99	0	0	0	8.07
SW	2.33	12.19	0	0	0	14.52
WSW	0.72	11.29	0	0	0	12.01
W	0.72	14.52	0	0	0	15.24
WNW	1.25	8.6	0	0	0	9.85
NW	1.08	8.06	0	0	0	9.14
NNW	0.72	5.02	0	0	0	5.74
Summary	11.13	88.91	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - November 2023

Summary of Hourly Averages

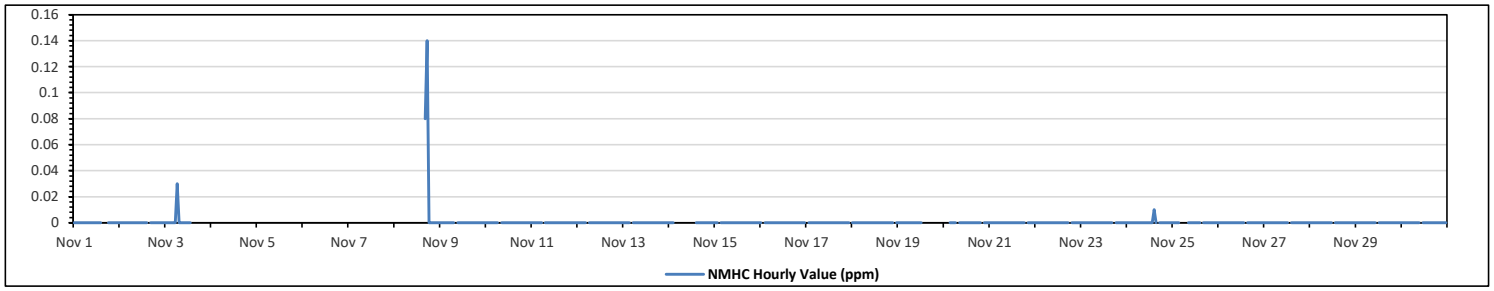
NON-METHANE HYDROCARBONS (NMHC) in ppm

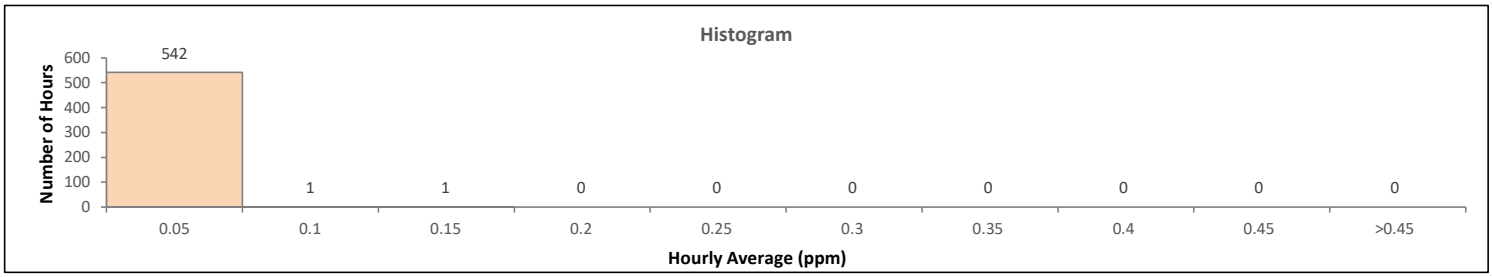
Maximum Hourly Value:	0.14	ppm	on Nov 8 at hr 17	Hours in Service:	720	
Maximum Daily Value:	0.00	ppm	on Nov 24	Hours of Data:	544	
Minimum Hourly Value:	0.00	ppm	on Nov 1 at hr 0	Hours of Missing Data:	147	
Minimum Daily Value:	0.00	ppm	on Nov 1	Hours of Calibration:	29	
Monthly Average:	0.00	ppm		Operational Uptime:	79.6	

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			
Nov 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	S	X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Nov 3	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	X	X	X	X	X	X	X	X	X	0.00	0.03	NA
Nov 4	X	X	X	X	X	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	-	-	-
Nov 5	K	K	K	K	K	K	K	NRM	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Nov 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	-	-	-
Nov 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	-	-	-
Nov 8	X	X	X	X	X	X	X	X	X	X	X	X	C	C	C	C	0.08	**0.14**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.14**	NA
Nov 9	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
Nov 10	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
Nov 11	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
Nov 12	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
Nov 13	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
Nov 14	0.00	0.00	0.00	S	0.00	K	K	K	K	K	K	K	K	K	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA
Nov 15	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
Nov 16	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
Nov 17	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	S	0.00	0.00	0.00
Nov 18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Nov 19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	K	K	K	K	K	K	K	K	K	K	K	0.00	0.00	NA
Nov 20	K	K	K	0.00	0.00	0.00	0.00	NRM	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
Nov 21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Nov 22	0.00	0.00	0.00	0.00	0.00	0.00	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
Nov 23	0.00	0.00	0.00	0.00	0.00	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
Nov 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	0.01	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	**0.00**
Nov 25	0.00	0.00	0.00	0.00	K	K	K	K	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
Nov 26	0.00	0.00	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
Nov 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	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
Nov 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	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
Nov 29	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
Nov 30	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
Diurnal Maximum	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.08	0.14	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	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00			

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.



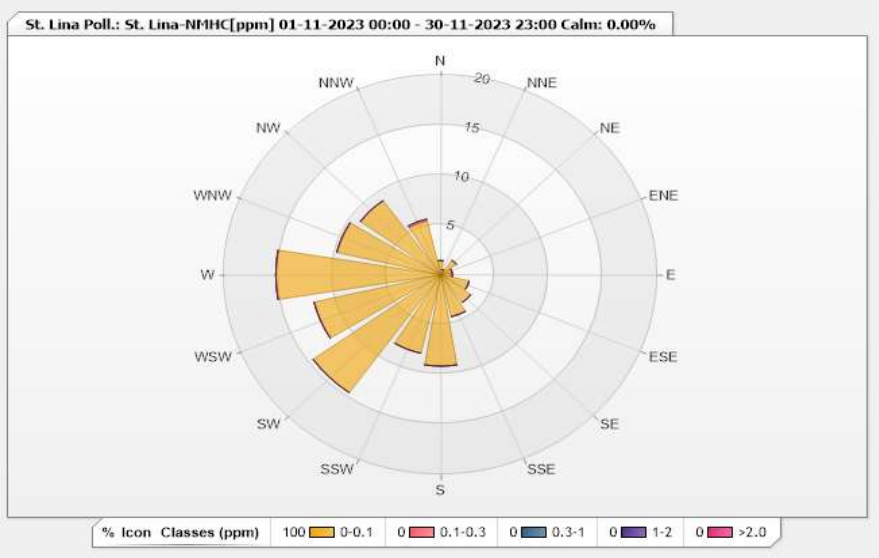


Station: St. Lina Poll.: St. Lina-NMHC[ppm] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 75.56% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	1.43	0	0	0	0	1.43
NNE	0.54	0	0	0	0	0.54
NE	1.79	0	0	0	0	1.79
ENE	1.08	0	0	0	0	1.08
E	1.08	0	0	0	0	1.08
ESE	2.69	0	0	0	0	2.69
SE	3.41	0	0	0	0	3.41
SSE	4.3	0	0	0	0	4.3
S	9.14	0	0	0	0	9.14
SSW	8.06	0	0	0	0	8.06
SW	14.52	0	0	0	0	14.52
WSW	12.01	0	0	0	0	12.01
W	15.23	0	0	0	0	15.23
WNW	9.86	0	0	0	0	9.86
NW	9.14	0	0	0	0	9.14
NNW	5.56	0.18	0	0	0	5.74
Summary	100	0.18	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - November 2023

Summary of Hourly Averages

PARTICULATE MATTER 2.5 ($PM_{2.5}$) in µg/m^3

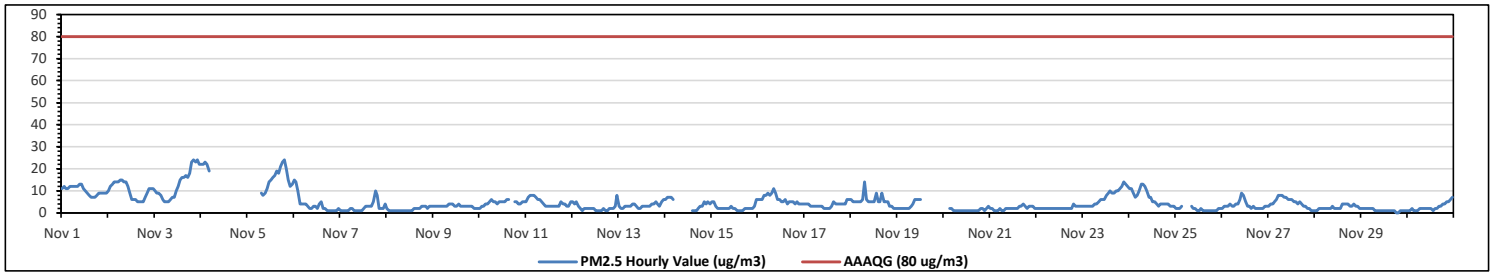
Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m3, Alberta Ambient Air Quality Objective (AAAQO): 24-Hour 29 µg/m3

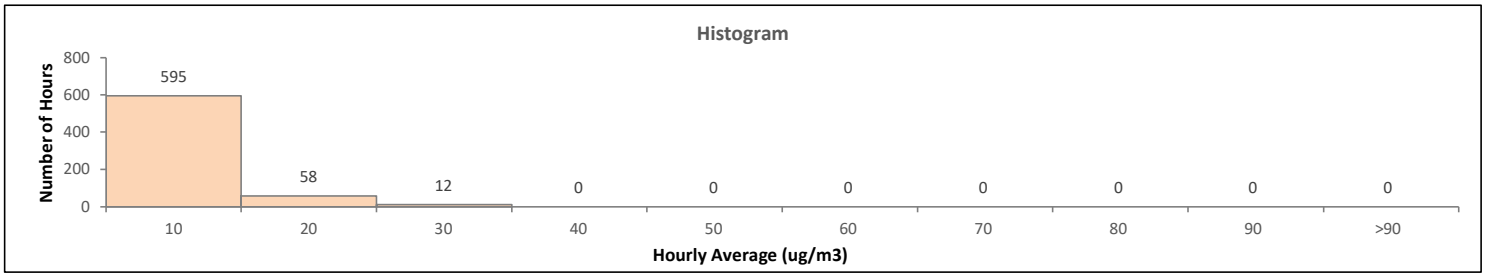
Number of 1-Hour Exceedances:	0	Number of 24-Hour Exceedances:	0
Maximum Hourly Value:	24 µg/m^3 on Nov 3 at hr 20	Hours in Service:	720
Maximum Daily Value:	13.0 µg/m^3 on Nov 3	Hours of Data:	665
Minimum Hourly Value:	0 µg/m^3 on Nov 29 at hr 18	Hours of Missing Data:	53
Minimum Daily Value:	1 µg/m^3 on Nov 29	Hours of Calibration:	2
Monthly Average:	4.8 µg/m^3	Operational Uptime:	92.6

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			
Nov 1	11	12	11	11	12	12	12	12	12	13	13	11	10	9	8	7	7	7	8	9	9	9	9	9	7	13	10.1
Nov 2	10	12	13	14	14	14	15	15	14	14	12	9	6	6	6	5	5	5	5	7	9	11	11	11	5	15	10.1
Nov 3	10	9	9	8	6	5	5	5	6	7	7	10	12	15	16	16	17	16	18	23	**24**	23	**24**	22	5	**24**	**13.0**
Nov 4	22	22	23	22	19	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	19	23	NA
Nov 5	K	K	K	K	K	K	K	9	8	9	11	14	15	16	17	19	18	21	23	**24**	20	15	12	13	8	**24**	NA
Nov 6	15	14	10	4	4	4	4	3	2	2	3	3	2	4	5	2	2	1	1	1	1	1	1	2	1	15	3.8
Nov 7	1	1	1	1	1	2	2	1	1	1	1	1	2	3	3	3	3	5	10	8	2	2	2	4	1	10	2.5
Nov 8	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	2	3	3	1	3	1.7
Nov 9	3	3	3	3	3	3	3	3	4	4	4	3	3	4	3	3	3	3	3	3	3	2	2	2	2	4	3.0
Nov 10	2	3	3	4	4	5	6	5	5	4	5	5	5	5	6	6	C	C	5	5	4	4	5	5	2	6	4.6
Nov 11	5	7	8	8	8	7	6	6	5	4	3	3	3	3	3	3	3	3	5	4	4	3	3	5	3	8	4.7
Nov 12	5	4	5	3	2	1	2	2	2	2	2	2	1	1	1	1	2	1	1	2	2	2	3	8	1	8	2.4
Nov 13	3	2	2	3	3	3	3	4	4	3	2	2	3	3	3	3	3	4	4	5	4	3	5	6	2	6	3.3
Nov 14	6	7	7	7	6	K	K	K	K	K	K	K	K	K	1	1	1	2	3	3	5	4	5	4	1	7	NA
Nov 15	5	5	3	2	2	2	2	2	2	2	3	2	2	1	1	1	1	2	2	2	2	2	3	6	1	6	2.4
Nov 16	6	6	6	8	8	9	8	9	11	9	6	6	5	5	6	4	5	5	5	4	5	4	4	4	4	11	6.2
Nov 17	4	4	4	3	3	3	3	3	3	3	2	2	2	2	3	5	4	4	4	4	4	4	6	6	2	6	3.5
Nov 18	6	5	5	5	5	5	6	14	6	5	5	5	5	9	5	5	9	5	5	5	3	3	2	2	2	14	5.4
Nov 19	2	2	2	2	2	2	2	3	4	6	6	6	6	K	K	K	K	K	K	K	K	K	K	K	2	6	NA
Nov 20	K	K	K	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	3	1	3	1.3
Nov 21	2	2	1	1	1	2	1	1	2	2	2	2	2	2	2	3	3	4	3	2	3	3	3	2	1	4	2.1
Nov 22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	3	3	3	3	2	4	2.3
Nov 23	3	3	3	3	3	3	4	4	5	6	6	6	8	9	10	9	9	10	10	11	12	14	13	12	3	14	7.3
Nov 24	11	11	9	7	8	10	13	13	12	10	7	7	5	5	4	3	4	4	4	4	4	3	3	3	3	13	6.8
Nov 25	2	2	2	3	K	K	K	K	3	2	2	1	1	2	1	1	1	1	1	1	1	1	2	2	1	3	1.6
Nov 26	2	3	3	3	4	3	3	4	4	6	9	8	5	3	3	2	3	2	2	2	2	2	3	3	2	9	3.5
Nov 27	3	4	4	5	6	8	8	8	7	7	6	6	6	5	5	4	5	4	3	3	2	2	1	1	1	8	4.7
Nov 28	1	1	2	2	2	2	2	2	2	3	2	2	2	2	4	4	4	4	3	3	4	3	3	2	1	4	2.5
Nov 29	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	**0**	2	**1.2**
Nov 30	1	1	2	1	1	1	2	2	2	2	2	2	2	1	2	2	2	3	3	4	4	5	5	6	7	1	7	2.6
Diurnal Maximum	22	22	23	22	19	14	15	15	14	14	13	14	15	16	17	19	18	21	23	24	24	23	24	22			
Diurnal Average	5.3	5.4	5.2	4.8	4.8	4.3	4.5	5.0	4.7	4.7	4.5	4.4	4.2	4.4	4.4	4.2	4.5	4.5	4.9	5.3	5.1	4.7	5.0	5.4			

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.



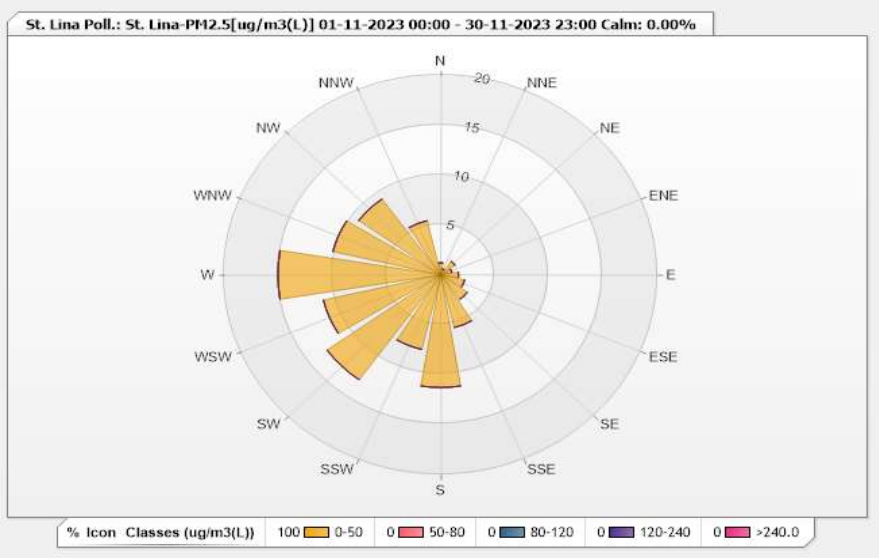


Station: St. Lina Poll.: St. Lina-PM2.5[ug/m3(L)] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 92.36% Calm Avg: 0.00 [ug/m3(L)]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	1.2	0	0	0	0	1.2
NNE	0.6	0	0	0	0	0.6
NE	1.65	0	0	0	0	1.65
ENE	1.05	0	0	0	0	1.05
E	1.65	0	0	0	0	1.65
ESE	2.26	0	0	0	0	2.26
SE	3.01	0	0	0	0	3.01
SSE	5.41	0	0	0	0	5.41
S	11.28	0	0	0	0	11.28
SSW	7.67	0	0	0	0	7.67
SW	12.93	0	0	0	0	12.93
WSW	11.13	0	0	0	0	11.13
W	15.04	0	0	0	0	15.04
WNW	10.23	0	0	0	0	10.23
NW	9.32	0	0	0	0	9.32
NNW	5.56	0	0	0	0	5.56
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - November 2023

Summary of Hourly Averages

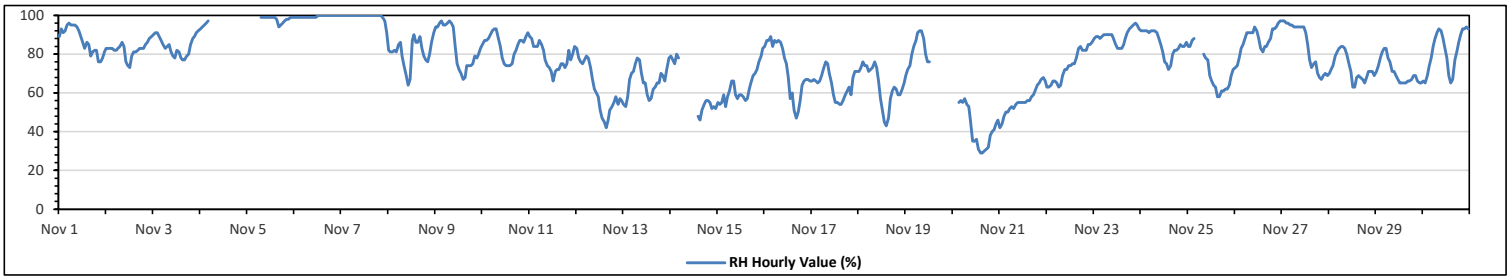
RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	100	%	on Nov 6 at hr 12	Hours in Service:	720
Maximum Daily Value:	99.5	%	on Nov 6	Hours of Data:	667
Minimum Hourly Value:	29	%	on Nov 20 at hr 14	Hours of Missing Data:	53
Minimum Daily Value:	41.6	%	on Nov 20	Hours of Calibration:	0
Monthly Average:	76.9	%		Operational Uptime:	92.6

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
Nov 1	89	93	91	92	95	96	95	95	95	94	92	89	86	83	86	85	79	81	82	82	76	76	78	81	76	96	87.1
Nov 2	83	83	83	83	82	82	83	84	86	84	76	74	73	79	81	81	82	83	83	83	85	86	88	89	73	89	82.3
Nov 3	90	91	91	89	87	85	83	84	85	81	79	78	82	81	78	77	77	79	80	85	88	89	91	92	77	92	84.3
Nov 4	93	94	95	96	97	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	93	97	NA
Nov 5	K	K	K	K	K	K	K	99	99	99	99	99	99	99	99	98	94	95	96	97	98	98	99	99	94	99	NA
Nov 6	99	99	99	99	99	99	99	99	99	99	99	100	100	100	100	100	100	100	100	100	100	100	100	100	99	100	99.5
Nov 7	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	97	91	91	100	99.5
Nov 8	82	81	81	82	81	85	86	79	74	69	64	67	87	90	86	86	89	83	79	77	76	80	86	91	64	91	80.9
Nov 9	94	94	96	97	95	95	96	97	96	94	84	75	72	70	67	68	74	74	74	75	79	78	80	83	67	97	83.6
Nov 10	85	87	87	88	90	92	93	93	88	84	78	75	74	74	74	75	80	82	85	87	87	86	89	91	74	93	84.3
Nov 11	89	88	84	84	84	87	85	82	77	74	73	71	66	71	72	72	75	75	73	75	82	77	80	84	66	89	78.3
Nov 12	83	78	76	75	77	79	78	73	67	62	60	58	51	47	45	42	46	51	53	55	58	54	57	56	42	83	61.7
Nov 13	54	53	58	67	70	71	75	78	77	70	65	65	59	56	57	62	63	65	65	70	69	66	72	78	53	78	66.0
Nov 14	79	77	75	80	78	K	K	K	K	K	K	K	K	K	48	46	51	54	56	56	55	52	53	52	46	80	NA
Nov 15	55	54	55	59	53	58	61	66	66	59	57	59	59	58	56	57	62	65	69	70	72	76	79	83	53	83	62.8
Nov 16	84	87	87	89	84	87	86	87	86	83	78	75	68	57	60	51	47	50	56	64	66	67	67	66	47	89	72.2
Nov 17	66	67	66	65	66	69	73	76	75	70	65	59	55	55	54	54	56	59	61	63	59	68	71	71	54	76	64.3
Nov 18	71	73	76	74	74	71	72	73	76	73	66	57	51	45	43	47	57	61	63	62	59	59	62	65	43	76	63.8
Nov 19	69	72	74	80	84	87	91	92	92	88	80	76	76	K	K	K	K	K	K	K	K	K	K	K	69	92	NA
Nov 20	K	K	K	55	56	55	57	54	53	46	35	35	36	31	29	29	30	31	32	38	40	41	44	46	29	57	41.6
Nov 21	42	44	48	50	50	52	53	52	54	55	55	55	55	55	56	56	58	59	61	64	65	67	68	66	42	68	55.8
Nov 22	63	63	64	66	66	65	63	64	69	72	72	74	74	75	75	78	83	84	82	82	82	85	85	86	63	86	73.8
Nov 23	88	89	89	88	89	90	90	90	90	90	88	85	83	83	83	85	88	91	93	94	95	96	95	93	83	96	89.4
Nov 24	92	92	92	92	91	92	92	92	91	88	85	81	76	75	72	74	80	82	82	83	85	84	84	86	72	92	85.1
Nov 25	84	84	87	88	K	K	K	K	80	78	77	69	66	64	63	58	58	61	61	62	62	64	69	72	58	88	70.4
Nov 26	73	74	78	83	85	88	91	91	91	91	94	92	88	83	81	84	84	86	88	93	93	94	96	97	73	97	87.4
Nov 27	97	97	96	96	95	95	94	94	94	94	94	94	91	85	77	73	75	76	70	68	67	69	70	69	67	97	84.6
Nov 28	70	72	74	79	81	83	84	84	83	80	75	71	63	63	68	69	68	67	65	68	71	71	71	69	63	84	72.9
Nov 29	71	74	78	81	83	83	78	76	71	71	69	67	65	65	65	65	66	66	67	69	69	66	65	65	65	83	70.6
Nov 30	66	65	69	74	78	84	88	91	93	92	88	83	78	69	65	67	77	81	86	90	93	93	94	93	65	94	81.5
Diurnal Maximum	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100			
Diurnal Average	79.0	79.5	80.3	81.1	81.1	81.9	82.5	83.1	82.4	80.0	76.7	74.4	72.6	70.9	69.3	69.3	71.4	72.9	73.6	75.4	76.1	76.5	78.2	79.1			

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.



Lakeland Industry & Community Association

St. Lina Site - November 2023

Summary of Hourly Averages

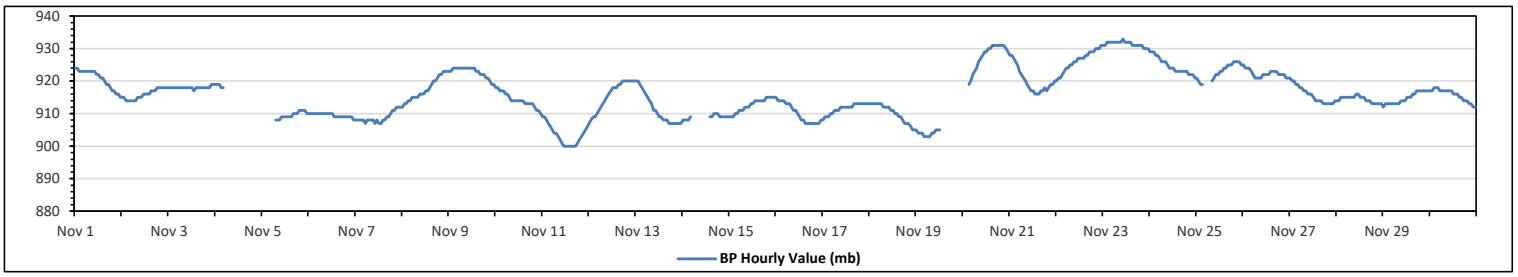
BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	933	mb	on Nov 23 at hr 10	Hours in Service:	720	
Maximum Daily Value:	931	mb	on Nov 23	Hours of Data:	667	
Minimum Hourly Value:	900	mb	on Nov 11 at hr 11	Hours of Missing Data:	53	
Minimum Daily Value:	903	mb	on Nov 11	Hours of Calibration:	0	
Monthly Average:	916	mb		Operational Uptime:	92.6	

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			
Nov 1	924	924	923	923	923	923	923	923	923	923	923	922	922	921	921	920	919	919	918	917	917	916	916	915	915	924	921
Nov 2	915	915	914	914	914	914	914	914	915	915	915	916	916	916	916	917	917	917	918	918	918	918	918	918	914	918	916
Nov 3	918	918	918	918	918	918	918	918	918	918	918	918	918	917	918	918	918	918	918	918	918	918	919	919	917	919	918
Nov 4	919	919	919	918	918	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	918	919	NA
Nov 5	K	K	K	K	K	K	K	908	908	908	909	909	909	909	909	909	910	910	910	911	911	911	911	910	908	911	NA
Nov 6	910	910	910	910	910	910	910	910	910	910	910	910	910	909	909	909	909	909	909	909	909	909	909	908	908	910	910
Nov 7	908	908	908	908	908	907	908	908	908	908	907	908	907	907	908	908	909	909	910	911	911	912	912	912	907	912	909
Nov 8	912	913	913	914	914	915	915	915	915	916	916	916	917	917	918	919	920	920	921	922	922	923	923	923	912	923	917
Nov 9	923	923	924	924	924	924	924	924	924	924	924	924	924	924	923	923	922	922	922	921	921	920	919	919	919	924	923
Nov 10	918	918	917	917	917	916	916	915	914	914	914	914	914	914	914	913	913	913	913	912	911	911	910	910	910	918	914
Nov 11	909	909	908	907	906	905	904	904	903	902	901	**900**	**900**	**900**	**900**	**900**	**900**	**900**	901	902	903	904	905	906	**900**	909	**903**
Nov 12	907	908	909	909	910	911	912	913	914	915	916	917	918	918	918	919	919	920	920	920	920	920	920	920	907	920	916
Nov 13	920	920	919	918	917	916	915	914	913	911	911	910	909	909	908	908	908	907	907	907	907	907	907	907	907	920	911
Nov 14	908	908	908	908	909	K	K	K	K	K	K	K	K	K	909	909	910	910	910	909	909	909	909	909	908	910	NA
Nov 15	909	909	909	910	910	911	911	911	912	912	912	913	913	914	914	914	914	914	914	915	915	915	915	915	909	915	913
Nov 16	915	914	914	914	914	913	913	913	912	911	911	910	909	908	908	907	907	907	907	907	907	907	907	908	907	915	910
Nov 17	908	909	909	909	910	910	911	911	911	912	912	912	912	912	912	912	913	913	913	913	913	913	913	913	908	913	912
Nov 18	913	913	913	913	913	913	913	912	912	912	912	911	911	910	910	909	909	908	907	907	907	906	905	905	905	913	910
Nov 19	905	904	904	904	903	903	903	903	904	904	905	905	905	K	K	K	K	K	K	K	K	K	K	K	903	905	NA
Nov 20	K	K	K	919	920	922	923	924	926	927	928	929	929	930	930	931	931	931	931	931	931	931	930	929	919	931	928
Nov 21	928	928	927	926	925	923	922	921	920	919	918	917	917	916	916	916	917	917	918	917	918	919	919	920	916	928	920
Nov 22	920	921	921	922	923	924	924	925	925	926	926	927	927	927	927	928	928	929	929	929	930	930	930	931	920	931	926
Nov 23	931	931	932	932	932	932	932	932	932	932	**933**	932	932	932	932	931	931	931	931	931	931	930	930	930	930	**933**	**931**
Nov 24	929	929	929	928	928	927	926	926	926	925	924	924	924	923	923	923	923	923	923	923	922	922	922	921	921	929	925
Nov 25	921	920	919	919	K	K	K	K	920	921	922	922	923	923	924	924	925	925	925	926	926	926	926	925	919	926	923
Nov 26	925	924	924	924	923	922	921	921	921	921	922	922	922	922	923	923	923	923	922	922	922	922	921	921	921	925	922
Nov 27	921	920	920	919	919	918	918	917	917	916	916	916	915	914	914	914	914	913	913	913	913	913	913	914	913	921	916
Nov 28	914	914	915	915	915	915	915	915	915	915	916	916	915	915	915	914	914	914	913	913	913	913	913	913	913	916	914
Nov 29	912	913	913	913	913	913	913	913	913	914	914	914	915	915	915	916	916	917	917	917	917	917	917	917	912	917	915
Nov 30	917	917	918	918	918	917	917	917	917	917	917	917	916	916	916	915	915	914	914	914	913	913	912	912	912	918	916
Diurnal Maximum	931	931	932	932	932	932	932	932	932	932	933	932	932	932	932	931	931	931	931	931	931	931	930	931			
Diurnal Average	916	916	916	916	916	916	916	916	916	916	916	916	916	916	916	916	916	916	916	916	916	916	916	916			

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 - November 2023

Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

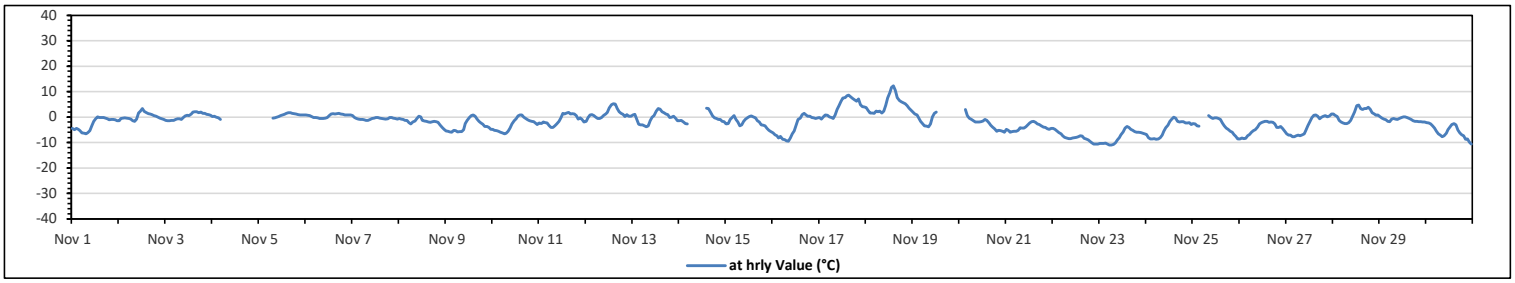
Maximum Hourly Value:	12.3	°C	on Nov 18 at hr 14	Hours in Service:	720	
Maximum Daily Value:	5.0	°C	on Nov 18	Hours of Data:	667	
Minimum Hourly Value:	-11.0	°C	on Nov 23 at hr 5	Hours of Missing Data:	53	
Minimum Daily Value:	-8.0	°C	on Nov 22	Hours of Calibration:	0	
Monthly Average:	-1.8	°C		Operational Uptime:	92.6	

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			
Nov 1	-4.5	-5	-4.5	-4.9	-5.3	-6.2	-6.4	-6.5	-6.1	-5.3	-3.5	-1.6	-0.7	0.1	-0.2	-0.1	-0.1	-0.4	-0.7	-1.1	-0.9	-1	-1.1	-1.4	-6.5	0.1	-2.8
Nov 2	-1.4	-0.6	-0.4	-0.3	-0.4	-0.6	-0.8	-1.4	-1.6	-0.8	1.6	2.4	3.4	2.2	1.7	1.4	1.3	1	0.6	0.3	0	-0.4	-0.7	-0.9	-1.6	3.4	0.2
Nov 3	-1.2	-1.4	-1.4	-1.3	-1.2	-0.9	-0.7	-0.7	-1	-0.1	0.4	0.7	0.6	1.2	1.9	2.1	2.1	1.7	1.9	1.5	1.5	1.1	1	0.7	-1.4	2.1	0.4
Nov 4	0.2	0.3	0	-0.3	-0.9	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	-0.9	0.3	NA
Nov 5	K	K	K	K	K	K	K	-0.4	-0.3	0	0.2	0.6	0.8	1.1	1.5	1.7	1.7	1.5	1.4	1.3	1	0.9	0.9	0.8	-0.4	1.7	NA
Nov 6	0.8	0.7	0.5	0.2	-0.2	-0.1	-0.3	-0.6	-0.6	-0.6	-0.4	-0.1	0.5	1.2	1.4	1.2	1.4	1.5	1.3	1.1	0.8	0.8	0.9	0.9	-0.6	1.5	0.5
Nov 7	0.6	-0.1	-0.5	-0.8	-1	-1	-1.1	-1.3	-1.2	-0.9	-0.6	-0.4	-0.2	-0.2	-0.4	-0.6	-0.7	-0.8	-0.7	-0.2	-0.2	-0.4	-0.6	-0.8	-1.3	0.6	-0.6
Nov 8	-0.5	-0.8	-0.9	-1.2	-1.3	-2.2	-2.6	-2	-1.5	-0.5	0.3	0.1	-1.2	-1.5	-1.7	-1.9	-2.1	-1.8	-1.6	-1.8	-2.1	-3.1	-4.1	-4.9	-4.9	0.3	-1.7
Nov 9	-5.4	-5.6	-5.8	-5.9	-5.2	-5.3	-5.8	-5.7	-5.7	-5	-2.5	-1.2	-0.1	0.6	0.9	0.3	-0.8	-1.7	-2.3	-2.8	-3.7	-3.7	-4.1	-4.8	-5.9	0.9	-3.4
Nov 10	-4.9	-5.2	-5.3	-5.5	-5.9	-6.2	-6.6	-6.4	-5.5	-4.3	-2.6	-1.4	-0.7	0.4	0.9	0.9	0	-0.6	-1.1	-1.4	-1.6	-1.8	-2.4	-2.9	-6.6	0.9	-2.9
Nov 11	-2.4	-2.5	-2	-2.2	-2.4	-3.3	-4	-4.1	-3.4	-2.7	-1.7	-0.3	1.5	1.2	1.6	1.8	1.3	1.4	1.3	0.6	-0.8	-0.3	-1	-1.9	-4.1	1.8	-1.0
Nov 12	-1.6	-0.1	0.8	1	0.6	0	-0.5	-0.5	-0.1	0.7	1.3	1.8	3.6	4.8	5.2	5.1	3.4	2.1	1.5	1.1	0.2	1	0.3	0.3	-1.6	5.2	1.3
Nov 13	0.9	1.1	-0.5	-2.8	-3.1	-3.1	-3.5	-3.8	-3.5	-1.4	0	0.5	2.4	3.4	3.1	2.1	1.7	1.3	1	-0.1	0	0.3	-0.5	-1.4	-3.8	3.4	-0.2
Nov 14	-1.4	-1.3	-1.9	-2.5	-2.6	K	K	K	K	K	K	K	K	K	3.5	3.4	1.8	0.4	-0.3	-0.6	-1	-1	-1.6	-1.8	-2.6	3.5	NA
Nov 15	-2.6	-2.5	-1	-0.1	0.6	-0.9	-2	-3.4	-3.1	-1.6	-0.8	-0.2	0.2	0.4	0.1	-0.3	-1.4	-2	-3	-3.2	-3.5	-4.5	-5.2	-5.7	-5.7	0.6	-1.9
Nov 16	-6.2	-7	-7.4	-8.2	-7.6	-8.8	-8.9	-9.3	-9.4	-8.2	-6.6	-5.4	-3.2	-1	-0.4	1	1.5	0.9	0.3	0.3	-0.1	-0.3	-0.6	-0.3	-9.4	1.5	-4.0
Nov 17	-0.2	-0.8	0.1	0.8	0.7	0.1	-0.2	-0.5	0.8	2.9	4.5	6.1	7.5	7.7	8.3	8.6	8	7.3	6.8	6.2	7.1	4.9	4.1	4	-0.8	8.6	4.0
Nov 18	3.8	2.6	1.6	1.6	1.5	2.3	2.1	2.3	1.6	2.3	4.6	7.5	9.6	11.7	**12.3**	10.6	7.6	6.5	6	5.6	5.3	4.5	3.5	2.8	1.5	**12.3**	**5.0**
Nov 19	2	1.3	0.9	-0.6	-1.6	-2.5	-3.4	-3.6	-3.8	-2.6	0.1	1.5	2	K	K	K	K	K	K	K	K	K	K	K	-3.8	2.0	NA
Nov 20	K	K	K	2.9	0.6	-0.4	-1	-1.4	-1.9	-1.9	-1.9	-1.8	-1.5	-0.9	-1.2	-2.3	-3.2	-3.9	-4.6	-5.5	-5.2	-5.3	-5.6	-6	-6.0	2.9	-2.5
Nov 21	-4.9	-5.2	-6	-5.7	-5.6	-5.6	-5.2	-4.2	-4.3	-4.3	-3.8	-3	-2.4	-1.8	-1.7	-2.1	-2.6	-2.9	-3.4	-3.9	-4.1	-4.6	-4.8	-4.4	-6.0	-1.7	-4.0
Nov 22	-4.4	-4.8	-5.4	-6.1	-6.6	-7.3	-7.9	-8.2	-8.4	-8.5	-8.2	-8	-7.9	-7.8	-7.4	-7.5	-8.3	-8.6	-9	-9.6	-10.1	-10.5	-10.6	-10.5	-10.6	-4.4	**-8.0**
Nov 23	-10.4	-10.4	-10.4	-10.3	-10.5	**-11**	**-11**	-10.7	-10.1	-9	-8.1	-7	-5.8	-4.3	-3.7	-4	-4.9	-5.2	-5.7	-6	-6	-6.1	-6.4	-6.6	**-11.0**	-3.7	-7.7
Nov 24	-6.8	-8	-8.6	-8.6	-8.5	-8.8	-8.6	-8	-7.1	-5.6	-4.2	-3.2	-1.7	-0.8	0	-0.4	-1.6	-2	-1.8	-1.8	-2.3	-2.3	-2.2	-2.9	-8.8	0.0	-4.4
Nov 25	-2.5	-2.6	-3.5	-3.6	K	K	K	K	0.6	0	-0.5	-0.3	-0.3	-0.6	-0.9	-2.4	-3.5	-4.3	-4.9	-5.5	-6	-6.8	-7.6	-8.6	-8.6	0.6	-3.2
Nov 26	-8.6	-8.2	-8.5	-8.3	-7.3	-6.8	-6	-5.3	-5	-3.9	-2.7	-2.2	-2	-1.6	-1.6	-2.1	-2	-2.1	-2.6	-4	-4	-3.7	-4.5	-5.6	-8.6	-1.6	-4.5
Nov 27	-6.5	-7.1	-7.1	-7.7	-7.8	-7.3	-7.1	-7.4	-7	-6.5	-5.2	-3.4	-2	-0.2	0.7	0.9	0.3	-0.7	0	0.3	0.5	0.1	0.4	1.2	-7.8	1.2	-3.3
Nov 28	1.3	0.7	0.2	-1.3	-1.9	-2.3	-2.5	-2.5	-2.2	-1.2	0.3	2	4.4	4.7	3.3	3	3.3	3.4	3.9	3.1	1.7	1.3	0.7	0.9	-2.5	4.7	1.0
Nov 29	0.2	-0.4	-0.8	-1.1	-1.6	-1.8	-0.8	-0.6	-0.8	-0.9	-0.6	-0.1	0.1	0.1	-0.2	-0.5	-0.9	-1.4	-1.6	-1.7	-1.8	-1.8	-1.9	-2	-2.0	0.2	-1.0
Nov 30	-2.2	-2.3	-2.6	-3.4	-4.3	-5.5	-6.5	-7.1	-7.7	-7.4	-6.3	-5	-3.9	-2.9	-2.5	-3	-5.1	-6.2	-7	-7.4	-8.7	-8.6	-9.8	-10.5	-10.5	-2.2	-5.7
Diurnal Maximum	3.8	2.6	1.6	2.9	1.5	2.3	2.1	2.3	1.6	2.9	4.6	7.5	9.6	11.7	12.3	10.6	8.0	7.3	6.8	6.2	7.1	4.9	4.1	4.0			
Diurnal Average	-2.5	-2.7	-2.9	-3.0	-3.2	-3.7	-3.9	-3.8	-3.5	-2.8	-1.7	-0.8	0.1	0.6	0.9	0.6	-0.1	-0.6	-0.9	-1.3	-1.6	-1.8	-2.3	-2.6			

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 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 - November 2023

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

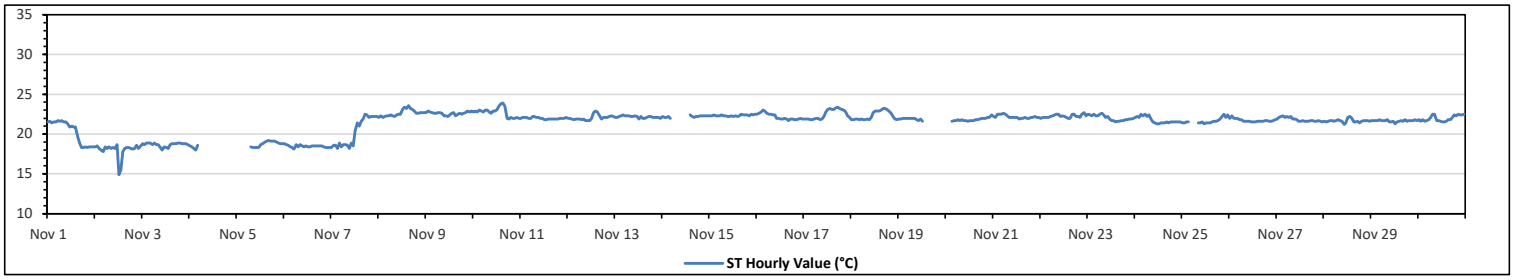
Maximum Hourly Value:	23.9	°C	on Nov 10 at hr 15	Hours in Service:	720
Maximum Daily Value:	22.8	°C	on Nov 10	Hours of Data:	667
Minimum Hourly Value:	14.9	°C	on Nov 2 at hr 12	Hours of Missing Data:	53
Minimum Daily Value:	18.0	°C	on Nov 2	Hours of Calibration:	0
Monthly Average:	21.5	°C		Operational Uptime:	92.6

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			
Nov 1	21.5	21.6	21.4	21.5	21.5	21.7	21.6	21.7	21.5	21.5	21.3	20.9	21.0	20.9	20.9	19.7	18.9	18.3	18.3	18.4	18.3	18.4	18.4	18.4	18.3	21.7	20.3
Nov 2	18.4	18.5	18.2	18.0	17.8	18.4	18.2	18.4	18.2	18.3	18.2	18.7	**14.9**	15.5	17.8	18.2	18.3	18.3	18.2	18.1	18.2	18.6	18.2	18.5	**14.9**	18.7	**18.0**
Nov 3	18.8	18.7	18.9	18.9	18.9	18.7	18.9	18.7	18.7	18.3	18.0	18.4	18.3	18.2	18.7	18.8	18.8	18.8	18.9	18.9	18.8	18.8	18.8	18.7	18.0	18.9	18.7
Nov 4	18.5	18.4	18.2	18.0	18.6	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	18.0	18.6	NA
Nov 5	K	K	K	K	K	K	K	18.4	18.3	18.3	18.3	18.3	18.7	18.8	19.0	19.1	19.2	19.1	19.1	19.1	19.0	18.9	18.8	18.8	18.3	19.2	NA
Nov 6	18.8	18.7	18.6	18.4	18.3	18.1	18.7	18.4	18.7	18.5	18.4	18.5	18.4	18.4	18.5	18.5	18.5	18.5	18.5	18.5	18.4	18.3	18.3	18.3	18.1	18.8	18.5
Nov 7	18.3	18.6	18.6	18.2	18.9	18.4	18.7	18.7	18.6	18.2	18.9	18.5	20.4	21.4	21.0	21.6	21.9	22.5	22.4	22.1	22.2	22.2	22.2	22.2	18.2	22.5	20.2
Nov 8	22.1	22.3	22.1	22.2	22.3	22.3	22.4	22.3	22.2	22.4	22.5	22.5	23.1	23.4	23.2	23.6	23.2	23.1	22.9	22.6	22.6	22.7	22.7	22.7	22.1	23.6	22.6
Nov 9	22.7	22.9	22.8	22.7	22.6	22.6	22.7	22.7	22.6	22.3	22.3	22.2	22.4	22.6	22.7	22.3	22.5	22.6	22.5	22.6	22.7	22.9	22.8	22.9	22.2	22.9	22.6
Nov 10	22.8	22.9	22.8	23.0	22.9	22.8	23.0	23.0	22.8	22.6	22.9	22.9	23.1	23.5	23.8	**23.9**	23.5	22.0	21.9	22.1	22.0	22.0	22.1	22.0	21.9	**23.9**	**22.8**
Nov 11	22.0	22.1	22.1	22.1	22.0	22.0	22.2	22.2	22.1	22.1	22.0	22.0	21.8	21.8	21.9	21.9	21.9	21.9	21.9	21.9	22.0	22.0	22.0	22.1	21.8	22.2	22.0
Nov 12	22.0	22.0	21.9	21.8	21.9	21.9	21.9	21.8	21.9	21.7	21.7	21.7	22.0	22.7	22.9	22.8	22.3	21.9	22.1	22.1	22.1	22.2	22.3	22.2	21.7	22.9	22.1
Nov 13	22.1	22.1	22.2	22.3	22.4	22.3	22.3	22.3	22.2	22.2	22.3	22.2	21.9	22.2	22.0	22.0	22.1	22.2	22.2	22.1	22.1	22.1	22.1	22.0	21.9	22.4	22.2
Nov 14	22.2	22.1	22.1	22.2	22.0	K	K	K	K	K	K	K	K	K	22.4	22.2	22.1	22.2	22.2	22.3	22.3	22.3	22.3	22.3	22.0	22.4	NA
Nov 15	22.3	22.3	22.4	22.3	22.3	22.3	22.4	22.3	22.3	22.2	22.2	22.3	22.2	22.3	22.2	22.3	22.5	22.4	22.4	22.4	22.3	22.5	22.4	22.5	22.2	22.5	22.3
Nov 16	22.5	22.6	22.8	23.0	22.9	22.6	22.5	22.5	22.4	22.4	22.0	22.0	21.9	21.9	22.0	21.9	21.7	21.9	21.9	21.8	21.8	21.9	22.0	21.9	21.7	23.0	22.2
Nov 17	21.9	21.9	21.9	21.8	21.8	21.9	22.0	22.0	21.8	21.9	22.2	22.8	23.1	23.2	23.1	23.1	23.3	23.4	23.2	23.1	23.0	22.8	22.3	22.1	21.8	23.4	22.5
Nov 18	21.8	21.8	21.9	21.9	21.8	21.9	21.8	21.8	21.9	21.8	22.1	22.7	22.9	22.9	22.9	23.0	23.2	23.2	23.1	22.9	22.6	22.2	21.9	21.8	21.8	23.2	22.3
Nov 19	21.9	21.9	22.0	22.0	22.0	22.0	22.0	22.0	22.0	21.8	21.7	21.9	21.6	K	K	K	K	K	K	K	K	K	K	K	21.6	22.0	NA
Nov 20	K	K	K	21.6	21.7	21.7	21.8	21.7	21.8	21.7	21.7	21.6	21.7	21.7	21.7	21.8	21.8	21.9	22.0	22.0	22.0	22.1	22.1	22.4	21.6	22.4	21.8
Nov 21	22.2	22.1	22.5	22.5	22.5	22.6	22.5	22.3	22.1	22.1	22.1	22.1	22.1	21.9	22.0	22.0	22.1	22.0	22.0	22.1	22.1	22.2	22.1	22.1	21.9	22.6	22.2
Nov 22	22.0	22.1	22.1	22.1	22.1	22.2	22.3	22.4	22.5	22.5	22.2	22.3	22.2	22.1	22.0	22.0	22.5	22.5	22.2	22.2	22.1	22.5	22.7	22.3	22.0	22.7	22.3
Nov 23	22.5	22.4	22.3	22.5	22.3	22.3	22.5	22.6	22.4	22.1	22.2	21.9	21.7	21.7	21.5	21.6	21.6	21.7	21.7	21.8	21.8	21.9	21.9	22.0	21.5	22.6	22.0
Nov 24	22.1	22.2	22.1	22.5	22.3	22.5	22.2	22.4	21.9	21.5	21.4	21.3	21.3	21.4	21.4	21.4	21.5	21.4	21.5	21.5	21.5	21.5	21.5	21.5	21.3	22.5	21.7
Nov 25	21.4	21.4	21.5	21.5	K	K	K	K	21.4	21.4	21.5	21.3	21.4	21.4	21.4	21.5	21.6	21.6	21.7	21.9	22.2	22.5	22.1	22.4	21.3	22.5	21.7
Nov 26	22.0	22.3	22.0	22.0	22.0	21.8	21.8	21.6	21.6	21.6	21.6	21.5	21.5	21.5	21.6	21.6	21.6	21.6	21.7	21.7	21.6	21.6	21.7	21.8	21.5	22.3	21.7
Nov 27	21.9	22.1	22.2	22.3	22.1	22.2	22.1	22.2	21.9	21.9	21.8	21.6	21.6	21.7	21.6	21.6	21.6	21.7	21.7	21.6	21.6	21.7	21.6	21.5	21.5	22.3	21.8
Nov 28	21.6	21.5	21.6	21.7	21.7	21.6	21.7	21.8	21.7	21.6	21.2	21.4	22.1	22.2	22.0	21.5	21.5	21.6	21.4	21.6	21.7	21.7	21.7	21.6	21.2	22.2	21.7
Nov 29	21.7	21.7	21.7	21.7	21.8	21.7	21.7	21.7	21.8	21.5	21.5	21.6	21.3	21.5	21.6	21.7	21.6	21.8	21.6	21.7	21.7	21.7	21.8	21.7	21.3	21.8	21.7
Nov 30	21.8	21.6	21.8	21.6	21.7	21.8	22.1	22.5	22.5	21.7	21.7	21.6	21.5	21.5	21.6	21.8	21.8	22.1	22.4	22.3	22.5	22.4	22.4	22.5	21.5	22.5	22.0
Diurnal Maximum	22.8	22.9	22.8	23.0	22.9	22.8	23.0	23.0	22.8	22.6	22.9	22.9	23.1	23.5	23.8	23.9	23.5	23.4	23.2	23.1	23.0	22.9	22.8	22.9			
Diurnal Average	21.4	21.5	21.5	21.5	21.5	21.6	21.6	21.5	21.4	21.3	21.3	21.3	21.3	21.4	21.6	21.6	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5			

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance	
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance	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 - November 2023

Summary of Hourly Averages

PRECIPITATION in mm

Maximum Hourly Value:	0.4	mm	on Nov 7 at hr 19	Hours in Service:	720	
Maximum Daily Value:	0.4	mm	on Nov 7	Hours of Data:	667	
Minimum Hourly Value:	0.0	mm	on Nov 1 at hr 0	Hours of Missing Data:	53	
Minimum Daily Value:	0.0	mm	on Nov 1	Hours of Calibration:	0	
Monthly Total:	0.6	mm		Operational Uptime:	92.6	

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			
Nov 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
Nov 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
Nov 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
Nov 4	0	0	0	0	0	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	0.0	0.0	NA
Nov 5	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
Nov 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
Nov 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0.4**	0	0	0	0	0.0	**0.4**	**0.4**
Nov 8	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	0.1	0.1
Nov 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
Nov 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
Nov 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	0.0
Nov 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
Nov 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
Nov 14	0	0	0	0	0	K	K	K	K	K	K	K	K	K	0	0	0	0	0	0	0	0	0	0	0.0	0.0	NA
Nov 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
Nov 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
Nov 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
Nov 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
Nov 19	0	0	0	0	0	0	0	0	0	0	0	0	0	K	K	K	K	K	K	K	K	K	K	K	0.0	0.0	NA
Nov 20	K	K	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 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
Nov 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
Nov 23	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	0.1	0.1
Nov 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
Nov 25	0	0	0	0	K	K	K	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 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
Nov 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
Nov 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
Nov 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
Nov 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
Diurnal Maximum	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	0.1	0.0	0.0	0.0	0.0	0.0	0.4	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	0.0	0.0	0.0	0.0	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	P Power Failure
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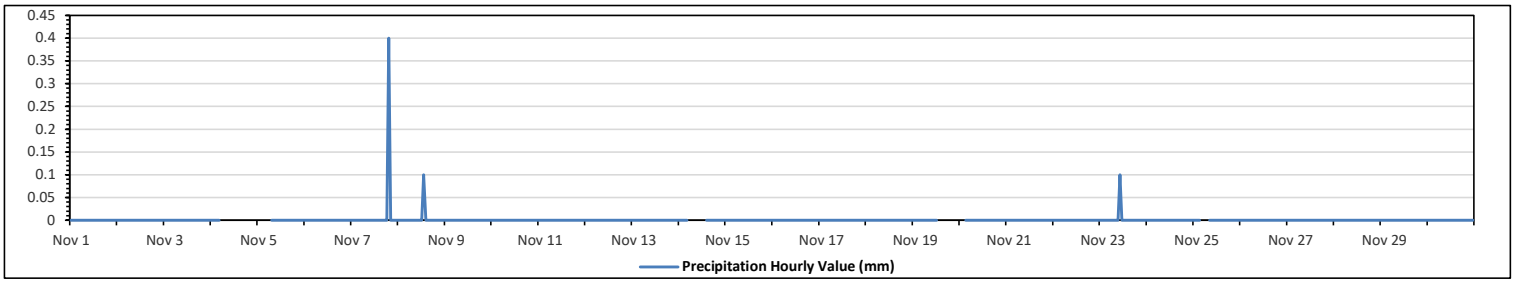


Lakeland Industry & Community Association

St. Lina Site - November 2023

Summary of Hourly Averages

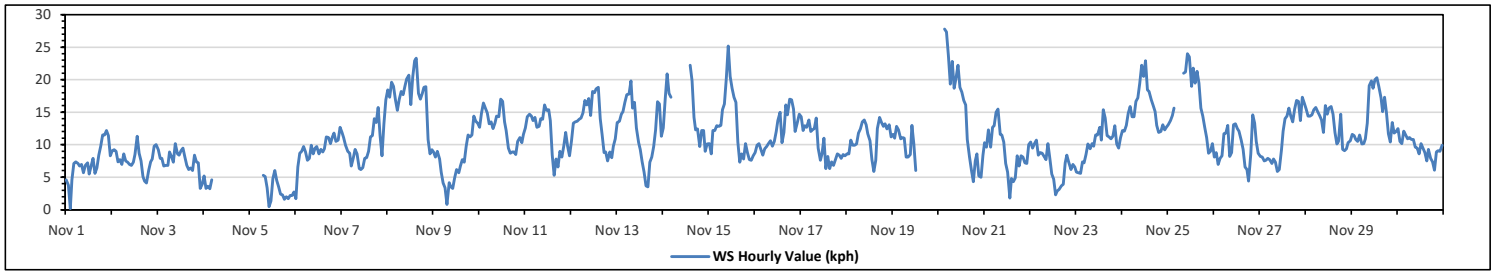
VECTOR WIND SPEED (VWS) in km/hr

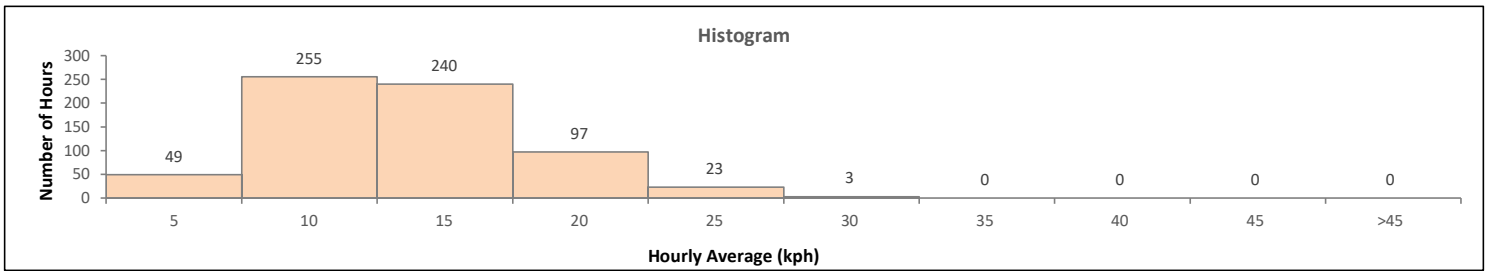
Maximum Hourly Value:	27.8	kph	on Nov 20 at hr 3	Hours in Service:	720	
Maximum Daily Value:	17.6	kph	on Nov 8	Hours of Data:	667	
Minimum Hourly Value:	0.2	kph	on Nov 1 at hr 2	Hours of Missing Data:	53	
Minimum Daily Value:	7.1	kph	on Nov 22	Hours of Calibration:	0	
Monthly Average:	5.9	kph		Operational Uptime:	92.6	

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			
Nov 1	4.6	3.8	**0.2**	4.6	7.1	7.4	7.1	6.7	7.0	5.7	6.8	7.2	5.5	6.7	7.9	5.6	6.4	8.4	9.8	11.5	11.5	12.2	11.4	8.3	**0.2**	12.2	7.2
Nov 2	9.1	9.2	9.0	7.4	7.7	7.0	8.6	7.5	7.3	7.0	6.8	7.3	8.5	11.3	8.7	7.5	5.1	4.4	4.1	6.1	7.4	7.8	9.8	10.0	4.1	11.3	7.7
Nov 3	9.2	7.9	7.9	6.7	6.8	6.8	8.9	8.2	7.3	10.2	8.6	8.4	9.1	9.5	8.1	6.8	6.2	6.4	6.0	8.4	7.4	7.2	3.3	3.9	3.3	10.2	7.5
Nov 4	5.2	3.3	3.6	3.2	4.6	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	3.2	5.2	NA
Nov 5	K	K	K	K	K	K	K	5.3	5.1	3.4	0.5	1.4	4.8	6.0	4.5	3.5	2.4	2.3	1.6	2.0	1.7	2.2	2.2	2.7	0.5	6.0	NA
Nov 6	1.7	6.6	8.7	9.0	9.7	8.9	7.6	7.9	9.9	8.6	9.5	9.7	8.6	9.3	8.9	9.4	11.2	11.1	10.2	11.2	11.8	10.5	10.7	12.7	1.7	12.7	9.3
Nov 7	11.9	11.1	9.9	9.0	8.7	6.7	7.9	9.3	8.6	6.3	6.2	6.5	7.9	8.0	9.0	11.2	11.4	14.0	13.4	15.7	11.4	8.3	13.2	16.9	6.2	16.9	10.1
Nov 8	18.4	17.3	19.6	19.0	16.9	15.3	17.0	18.2	17.7	19.1	20.1	20.7	16.2	20.4	22.9	23.3	17.9	17.0	17.9	18.8	18.9	10.8	8.6	9.2	8.6	23.3	**17.6**
Nov 9	8.9	8.1	9.0	7.8	5.8	4.1	3.4	0.8	4.2	3.5	3.3	4.9	6.2	5.7	6.7	7.7	7.3	9.7	11.5	11.2	11.5	14.4	13.6	13.3	0.8	14.4	7.6
Nov 10	12.7	14.9	16.4	15.6	14.9	13.2	13.5	12.5	13.3	14.4	14.3	17.0	16.7	13.5	12.2	9.5	8.7	8.9	8.9	8.5	10.5	11.1	10.3	11.6	8.5	17.0	12.6
Nov 11	12.6	14.3	14.7	14.4	13.7	14.2	12.7	12.8	14.0	13.9	16.1	15.3	15.4	13.7	8.4	5.3	7.8	6.6	9.0	8.1	9.8	11.9	9.8	8.3	5.3	16.1	11.8
Nov 12	10.5	13.3	13.5	13.6	13.9	14.1	14.9	16.8	16.1	17.1	14.5	18.2	18.0	18.6	18.8	14.0	11.5	8.8	8.9	7.5	8.9	8.0	9.8	10.9	7.5	18.8	13.3
Nov 13	13.4	13.6	14.7	15.1	16.5	17.7	17.8	19.8	15.6	16.5	12.6	10.3	9.3	7.4	5.8	3.7	3.5	7.3	8.1	9.7	12.3	16.6	16.3	11.3	3.5	19.8	12.3
Nov 14	12.6	17.0	20.9	17.9	17.3	K	K	K	K	K	K	K	K	K	22.2	19.8	14.2	12.3	12.4	9.7	12.2	12.2	9.0	10.1	9.0	22.2	NA
Nov 15	10.2	8.6	12.2	12.2	12.9	12.8	13.0	15.4	16.3	20.2	25.2	20.5	18.7	17.3	16.5	10.4	7.3	8.6	7.8	10.2	8.8	7.7	7.6	8.3	7.3	25.2	12.9
Nov 16	8.8	9.9	10.2	9.3	8.4	9.4	9.7	10.1	10.6	9.8	10.5	12.0	13.7	15.0	10.3	11.9	16.1	14.6	17.0	16.9	15.5	12.0	13.2	14.7	8.4	17.0	12.1
Nov 17	14.3	12.2	12.9	12.7	13.8	12.0	12.3	12.5	14.1	9.5	7.6	8.6	11.0	6.3	8.2	6.3	7.4	6.8	7.7	8.6	8.4	7.9	8.5	8.3	6.3	14.3	9.9
Nov 18	8.6	8.6	10.7	9.9	9.9	10.1	11.8	12.4	13.5	13.8	13.1	11.7	10.6	7.7	5.9	7.6	12.5	14.2	13.4	12.8	13.2	12.4	13.1	11.2	5.9	14.2	11.2
Nov 19	11.6	11.0	12.8	12.3	10.9	11.1	11.0	8.1	8.1	8.5	13.0	10.1	6.0	K	K	K	K	K	K	K	K	K	K	K	6.0	13.0	NA
Nov 20	K	K	K	**27.8**	27.3	23.7	19.3	22.8	18.7	20.3	22.2	18.8	18.1	16.8	16.1	10.8	8.1	6.1	4.3	7.5	8.6	5.2	5.0	8.4	4.3	**27.8**	15.0
Nov 21	10.3	9.6	12.3	9.6	12.7	12.9	15.0	15.5	11.6	11.5	10.4	7.1	5.8	1.8	4.8	4.3	4.9	8.3	6.7	8.3	8.1	7.2	7.1	10.0	1.8	15.5	9.0
Nov 22	10.4	9.5	10.2	10.7	8.4	8.8	8.7	8.2	7.7	10.2	7.9	5.5	4.7	2.3	2.9	3.1	3.7	3.9	7.2	8.4	7.3	6.2	7.0	6.6	2.3	10.7	**7.1**
Nov 23	5.8	5.7	5.6	7.4	7.2	8.5	10.1	9.4	10.2	9.8	11.5	11.5	12.7	10.7	15.4	14.1	11.4	11.2	10.9	11.3	12.9	10.1	9.5	11.1	5.6	15.4	10.2
Nov 24	12.2	12.1	13.0	14.8	15.9	14.3	14.3	16.7	17.2	19.5	22.2	20.5	22.9	18.4	18.2	16.9	16.0	15.1	13.0	11.9	12.0	13.1	12.3	12.7	11.9	22.9	15.6
Nov 25	13.1	13.7	14.5	15.6	K	K	K	K	21.0	21.2	24.0	23.5	19.0	21.8	19.5	21.3	19.5	15.6	14.4	12.7	11.1	8.7	9.0	10.2	8.7	24.0	16.5
Nov 26	8.1	8.8	7.0	7.9	8.3	11.7	11.8	13.0	8.2	8.8	13.1	13.2	12.5	12.1	10.7	9.3	6.6	6.2	4.4	8.6	14.6	13.3	10.5	8.7	4.4	14.6	9.9
Nov 27	8.2	8.1	7.5	7.6	7.9	7.7	7.1	7.8	7.3	5.9	6.2	9.3	12.1	14.0	14.4	15.6	14.4	13.5	15.5	16.8	16.7	13.7	17.3	16.4	5.9	17.3	11.3
Nov 28	15.5	14.4	14.4	14.6	15.4	15.7	15.1	14.5	13.8	11.9	16.0	14.7	15.6	15.9	14.7	11.9	10.1	10.5	14.7	9.3	9.1	9.4	10.3	10.6	9.1	16.0	13.3
Nov 29	11.6	11.4	10.8	10.5	11.5	10.1	10.2	10.9	13.3	19.1	19.8	18.7	20.0	20.3	19.0	17.2	15.1	17.3	14.9	11.7	10.4	13.4	11.8	12.0	10.1	20.3	14.2
Nov 30	12.5	10.5	10.2	12.1	11.5	10.9	11.1	10.8	10.8	9.6	9.5	8.6	10.2	9.5	8.8	7.5	9.3	7.9	7.4	6.1	8.9	9.1	9.0	9.9	6.1	12.5	9.7
Diurnal Maximum	18.4	17.3	20.9	27.8	27.3	23.7	19.3	22.8	21.0	21.2	25.2	23.5	22.9	21.8	22.9	23.3	19.5	17.3	17.9	18.8	18.9	16.6	17.3	16.9			
Diurnal Average	10.4	10.5	11.2	11.7	11.6	11.4	11.5	11.6	11.7	12.0	12.6	12.2	12.1	11.9	11.8	10.6	9.9	9.9	10.0	10.3	10.7	10.1	10.0	10.3			

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance	
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance	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.



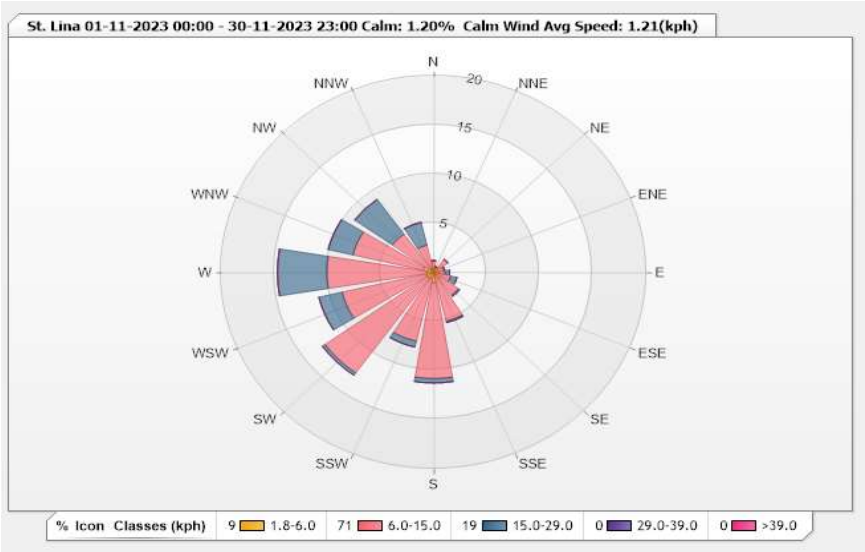


Station: St. Lina Monitor: WDS [kph] Monthly: 11-2023

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

Calm (WS<1.8kph): 1.20% Valid Data: 92.64%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	0.45	0.75	0	0	0	1.2
NNE	0.3	0.3	0	0	0	0.6
NE	0.6	1.05	0	0	0	1.65
ENE	0.9	0.15	0	0	0	1.05
E	0.45	0.6	0.45	0	0	1.5
ESE	0.15	1.5	0.6	0	0	2.25
SE	0.75	2.1	0.15	0	0	3
SSE	0.3	4.8	0.15	0	0	5.25
S	1.05	9.75	0.45	0	0	11.25
SSW	0.6	6.6	0.6	0	0	7.8
SW	0.75	11.84	0.3	0	0	12.89
WSW	0.75	8.1	2.25	0	0	11.1
W	0.6	9.45	4.65	0	0	14.7
WNW	1.05	6.75	2.4	0	0	10.2
NW	0.3	4.5	4.35	0	0	9.15
NNW	0.3	2.55	2.4	0	0	5.25
Summary	9.3	70.79	18.75	0	0	98.84



Lakeland Industry & Community Association

St. Lina Site - November 2023

Summary of Hourly Averages

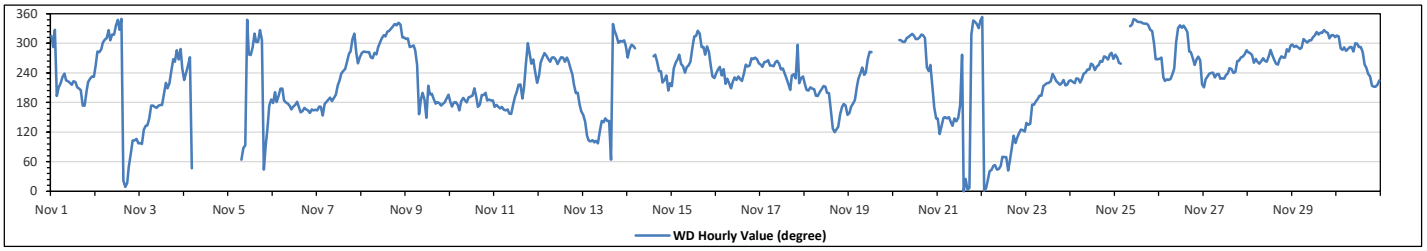
WIND DIRECTION (VWD) in sector

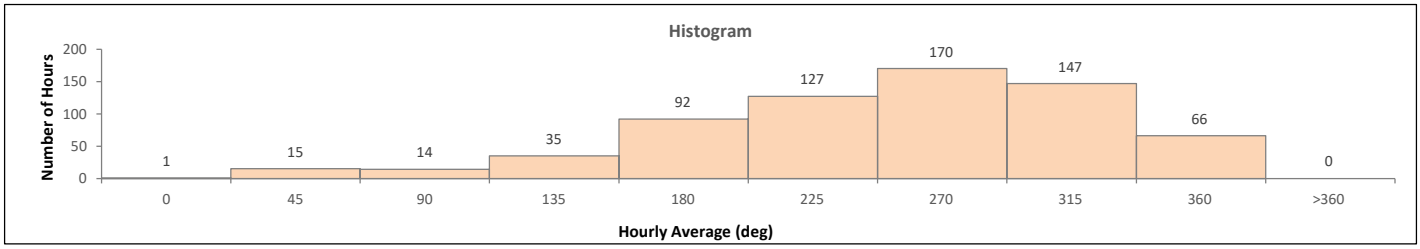
Monthly Average:	252 (WSW) degree	Hours in Service:	720
		Hours of Data:	667
		Hours of Missing Data:	53
		Hours of Calibration:	0
		Operational Uptime:	92.6

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
Nov 1	NW	WNW	NNW	S	SSW	SW	SW	WSW	SW	SW	SW	SW	SW	SW	SSW	SSW	SSW	S	S	SSW	SW	SW	SW	SW	218	SW
Nov 2	WSW	WNW	W	WNW	WNW	NW	NW	NW	NW	NW	NW	NNW	NNW	NNW	N	NNE	N	NNE	NE	ENE	ESE	ESE	ESE	E	338	NNW
Nov 3	E	E	SE	SE	SE	SE	S	S	S	SSE	S	S	S	SSW	SW	SSW	SW	WSW	W	W	WNW	W	WNW	WSW	186	S
Nov 4	SW	WSW	WSW	W	NE	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	NA	NA
Nov 5	K	K	K	K	K	K	K	ENE	E	E	NNW	W	W	WNW	NW	WNW	WNW	NW	NW	NE	E	SE	S	S	NA	NA
Nov 6	S	SSW	S	S	SSW	SSW	S	S	S	S	SSE	S	S	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	175	S
Nov 7	SSE	S	S	SSE	S	S	S	S	S	S	SSW	SSW	SW	WSW	WSW	WSW	W	W	WNW	NW	NW	W	WSW	W	233	SW
Nov 8	W	WNW	W	W	W	W	W	W	W	WNW	WNW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	306	NW
Nov 9	NW	NW	WNW	WNW	WNW	WNW	WSW	SSE	S	SSW	S	SSE	SSW	SSW	SSW	S	S	S	S	S	S	S	S	SSW	205	SSW
Nov 10	S	S	S	S	S	SSE	S	S	S	S	S	S	SSW	SSW	S	S	S	SSW	SSW	SSW	S	S	S	S	185	S
Nov 11	S	S	S	SSE	S	SSE	SSE	SSE	SSE	SSE	S	S	SSW	SW	SW	S	SSW	WSW	WNW	W	WSW	W	WSW	SW	193	S
Nov 12	SW	W	W	W	W	W	W	W	W	W	WSW	W	W	W	W	W	W	WSW	SW	SW	SSW	SSW	S	SSE	257	WSW
Nov 13	SSE	SE	ESE	ESE	E	ESE	E	E	E	ESE	SE	SE	SE	SE	SE	ENE	NNW	NW	NW	WNW	WNW	WNW	NW	WNW	111	ESE
Nov 14	W	WNW	WNW	WNW	WNW	K	K	K	K	K	K	K	K	K	W	W	W	WSW	WSW	SW	SW	SW	SSW	SW	NA	NA
Nov 15	SSW	WSW	W	W	W	WSW	WSW	WSW	WSW	WSW	W	WNW	NW	NW	NW	NW	WNW	WNW	W	WNW	W	WSW	SW	SW	273	W
Nov 16	WSW	WSW	WSW	SW	WSW	SW	SW	SW	SSW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	W	W	W	W	WSW	244	WSW
Nov 17	WSW	WSW	W	W	W	WSW	WSW	WSW	W	W	WSW	WSW	WSW	WSW	SW	SW	SSW	SW	SW	SW	WNW	SW	SW	SW	250	WSW
Nov 18	SW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SSE	SE	ESE	SE	SE	SSE	S	S	S	SSE	182	S
Nov 19	SSE	S	S	S	SSW	SW	WSW	WSW	SW	WSW	W	W	W	K	K	K	K	K	K	K	K	K	K	K	NA	NA
Nov 20	K	K	K	NW	NW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	WSW	WSW	WSW	SSW	SSE	SE	305	WNW
Nov 21	SE	ESE	SE	SSE	SSE	SE	SSE	SE	SE	SE	SE	SSE	S	W	N	NNE	N	N	NW	NNW	NNW	NNW	NNW	NNW	125	SE
Nov 22	N	N	N	NNE	NE	NE	NE	NE	NE	NE	NE	ENE	ENE	ENE	NE	ENE	E	ESE	E	ESE	ESE	SE	ESE	ESE	58	ENE
Nov 23	SE	SE	SE	S	S	S	S	SSW	SSW	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SSW	SW	SW	210	SSW
Nov 24	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	W	W	W	W	W	W	249	WSW
Nov 25	W	W	W	WSW	K	K	K	K	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	WNW	W	W	324	NW
Nov 26	W	W	SW	SW	SW	SW	SW	WSW	WSW	WNW	NNW	NNW	NNW	NNW	NNW	NW	WNW	W	W	WSW	W	W	W	SW	276	W
Nov 27	SSW	SW	SW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	W	W	W	W	W	WNW	250	WSW
Nov 28	W	W	W	W	W	W	WSW	W	W	W	W	W	WNW	W	W	WSW	WSW	W	W	W	W	WNW	WNW	WNW	271	W
Nov 29	WNW	WNW	WNW	WNW	WNW	WNW	NW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	311	NW
Nov 30	NW	NW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W	WSW	WSW	SW	SW	SSW	SSW	SSW	SW	SW	275	W

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 (Machine 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 - November 2023

Summary of Hourly Averages

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

WIND SPEED

Maximum Hourly Value:	27.8	kph	on Nov 20 at hr 3	Hours in Service:	720
Maximum Daily Value:	17.6	kph	on Nov 8	Hours of Data:	667
Minimum Hourly Value:	0.2	kph	on Nov 1 at hr 2	Hours of Missing Data:	53
Minimum Daily Value:	7.1	kph	on Nov 22	Hours of Calibration:	0
Monthly Average:	5.9	kph		Operational Uptime:	92.6

WIND DIRECTION

Monthly Average: 252 degree (WSW)

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			
Nov 1	4.6	3.8	**0.2**	4.6	7.1	7.4	7.1	6.7	7.0	5.7	6.8	7.2	5.5	6.7	7.9	5.6	6.4	8.4	9.8	11.5	11.5	12.2	11.4	8.3	**0.2**	12.2	7.2
	NW	WNW	NNW	S	SSW	SW	SW	WSW	SW	SW	SW	SW	SW	SW	SSW	SSW	SSW	S	S	SSW	SW	SW	SW	SW			218(SW)
Nov 2	9.1	9.2	9.0	7.4	7.7	7.0	8.6	7.5	7.3	7.0	6.8	7.3	8.5	11.3	8.7	7.5	5.1	4.4	4.1	6.1	7.4	7.8	9.8	10.0	4.1	11.3	7.7
	WSW	WNW	W	WNW	WNW	NW	NW	NW	NW	NW	NW	NNW	NNW	NNW	N	NNE	N	NNE	NE	ENE	ESE	ESE	ESE	E			338(NNW)
Nov 3	9.2	7.9	7.9	6.7	6.8	6.8	8.9	8.2	7.3	10.2	8.6	8.4	9.1	9.5	8.1	6.8	6.2	6.4	6.0	8.4	7.4	7.2	3.3	3.9	3.3	10.2	7.5
	E	E	SE	SE	SE	SE	S	S	S	SSE	S	S	S	SSW	SW	SSW	SW	WSW	W	W	WNW	W	WNW	WSW			186(S)
Nov 4	5.2	3.3	3.6	3.2	4.6	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	3.2	5.2	NA
	SW	WSW	WSW	W	NE	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**			NA(NA)
Nov 5	**K**	**K**	**K**	**K**	**K**	**K**	**K**	5.3	5.1	3.4	0.5	1.4	4.8	6.0	4.5	3.5	2.4	2.3	1.6	2.0	1.7	2.2	2.2	2.7	0.5	6.0	NA
	K	**K**	**K**	**K**	**K**	**K**	**K**	ENE	E	E	NNW	W	W	WNW	NW	WNW	WNW	NW	NW	NE	E	SE	S	S			NA(NA)
Nov 6	1.7	6.6	8.7	9.0	9.7	8.9	7.6	7.9	9.9	8.6	9.5	9.7	8.6	9.3	8.9	9.4	11.2	11.1	10.2	11.2	11.8	10.5	10.7	12.7	1.7	12.7	9.3
	S	SSW	S	S	SSW	SSW	S	S	S	S	SSE	S	S	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE			175(S)
Nov 7	11.9	11.1	9.9	9.0	8.7	6.7	7.9	9.3	8.6	6.3	6.2	6.5	7.9	8.0	9.0	11.2	11.4	14.0	13.4	15.7	11.4	8.3	13.2	16.9	6.2	16.9	10.1
	SSE	S	S	SSE	S	S	S	S	S	S	SSW	SSW	SW	WSW	WSW	WSW	W	W	WNW	NW	NW	W	WSW	W			233(SW)
Nov 8	18.4	17.3	19.6	19.0	16.9	15.3	17.0	18.2	17.7	19.1	20.1	20.7	16.2	20.4	22.9	23.3	17.9	17.0	17.9	18.8	18.9	10.8	8.6	9.2	8.6	23.3	**17.6**
	W	WNW	W	W	W	W	W	W	W	WNW	WNW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW			306(NW)
Nov 9	8.9	8.1	9.0	7.8	5.8	4.1	3.4	0.8	4.2	3.5	3.3	4.9	6.2	5.7	6.7	7.7	7.3	9.7	11.5	11.2	11.5	14.4	13.6	13.3	0.8	14.4	7.6
	NW	NW	WNW	WNW	WNW	WNW	WSW	SSE	S	SSW	S	SSE	SSW	SSW	SSW	S	S	S	S	S	S	S	S	SSW			205(SSW)
Nov 10	12.7	14.9	16.4	15.6	14.9	13.2	13.5	12.5	13.3	14.4	14.3	17.0	16.7	13.5	12.2	9.5	8.7	8.9	8.9	8.5	10.5	11.1	10.3	11.6	8.5	17.0	12.6
	S	S	S	S	S	SSE	S	S	S	S	S	S	SSW	SSW	S	S	S	SSW	SSW	SSW	S	S	S	S			185(S)
Nov 11	12.6	14.3	14.7	14.4	13.7	14.2	12.7	12.8	14.0	13.9	16.1	15.3	15.4	13.7	8.4	5.3	7.8	6.6	9.0	8.1	9.8	11.9	9.8	8.3	5.3	16.1	11.8
	S	S	S	SSE	S	SSE	SSE	SSE	SSE	SSE	S	S	SSW	SW	SW	S	SSW	WSW	WNW	W	WSW	W	WSW	SW			193(S)
Nov 12	10.5	13.3	13.5	13.6	13.9	14.1	14.9	16.8	16.1	17.1	14.5	18.2	18.0	18.6	18.8	14.0	11.5	8.8	8.9	7.5	8.9	8.0	9.8	10.9	7.5	18.8	13.3
	SW	W	W	W	W	W	W	W	W	W	WSW	W	W	W	W	W	W	WSW	SW	SW	SSW	SSW	S	SSE			257(WSW)
Nov 13	13.4	13.6	14.7	15.1	16.5	17.7	17.8	19.8	15.6	16.5	12.6	10.3	9.3	7.4	5.8	3.7	3.5	7.3	8.1	9.7	12.3	16.6	16.3	11.3	3.5	19.8	12.3
	SSE	SE	ESE	ESE	E	ESE	E	E	E	ESE	SE	SE	SE	SE	SE	ENE	NNW	NW	NW	WNW	WNW	WNW	NW	WNW			111(ESE)
Nov 14	12.6	17.0	20.9	17.9	17.3	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	22.2	19.8	14.2	12.3	12.4	9.7	12.2	12.2	9.0	10.1	9.0	22.2	NA
	W	WNW	WNW	WNW	WNW	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	W	W	W	WSW	WSW	SW	SW	SW	SSW	SW			NA(NA)
Nov 15	10.2	8.6	12.2	12.2	12.9	12.8	13.0	15.4	16.3	20.2	25.2	20.5	18.7	17.3	16.5	10.4	7.3	8.6	7.8	10.2	8.8	7.7	7.6	8.3	7.3	25.2	12.9
	SSW	WSW	W	W	W	WSW	WSW	WSW	WSW	WSW	W	WNW	NW	NW	NW	NW	WNW	WNW	W	WNW	W	WSW	SW	SW			273(W)
Nov 16	8.8	9.9	10.2	9.3	8.4	9.4	9.7	10.1	10.6	9.8	10.5	12.0	13.7	15.0	10.3	11.9	16.1	14.6	17.0	16.9	15.5	12.0	13.2	14.7	8.4	17.0	12.1
	WSW	WSW	WSW	SW	WSW	SW	SW	SW	SSW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	W	W	W	W	WSW			244(WSW)
Nov 17	14.3	12.2	12.9	12.7	13.8	12.0	12.3	12.5	14.1	9.5	7.6	8.6	11.0	6.3	8.2	6.3	7.4	6.8	7.7	8.6	8.4	7.9	8.5	8.3	6.3	14.3	9.9
	WSW	WSW	W	W	W	WSW	WSW	WSW	W	W	WSW	WSW	WSW	WSW	SW	SW	SSW	SW	SW	SW	WNW	SW	SW	SW			250(WSW)
Nov 18	8.6	8.6	10.7	9.9	9.9	10.1	11.8	12.4	13.5	13.8	13.1	11.7	10.6	7.7	5.9	7.6	12.5	14.2	13.4	12.8	13.2	12.4	13.1	11.2	5.9	14.2	11.2
	SW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SSE	SE	ESE	SE	SE	SSE	S	S	S	SSE			182(S)
Nov 19	11.6	11.0	12.8	12.3	10.9	11.1	11.0	8.1	8.1	8.5	13.0	10.1	6.0	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	6.0	13.0	NA
	SSE	S	S	S	SSW	SW	WSW	WSW	SW	WSW	W	W	W	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**	**K**			NA(NA)
Nov 20	**K**	**K**	**K**	**27.8**	27.3	23.7	19.3	22.8	18.7	20.3	22.2	18.8	18.1	16.8	16.1	10.8	8.1	6.1	4.3	7.5	8.6	5.2	5.0	8.4	4.3	**27.8**	15.0
	K	**K**	**K**	NW	NW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	WSW	WSW	WSW	SSW	SSE	SE			305(WNW)
Nov 21	10.3	9.6	12.3	9.6	12.7	12.9	15.0	15.5	11.6	11.5	10.4	7.1	5.8	1.8	4.8	4.3	4.9	8.3	6.7	8.3	8.1	7.2	7.1	10.0	1.8	15.5	9.0
	SE	ESE	SE	SSE	SSE	SE	SSE	SE	SE	SE	SE	SSE	S	W	N	NNE	N	N	NW	NNW	NNW	NNW	NNW	NNW			125(SE)
Nov 22	10.4	9.5	10.2	10.7	8.4	8.8	8.7	8.2	7.7	10.2	7.9	5.5	4.7	2.3	2.9	3.1	3.7	3.9	7.2	8.4	7.3	6.2	7.0	6.6	2.3	10.7	**7.1**
	N	N	N	NNE	NE	NE	NE	NE	NE	NE	NE	ENE	ENE	ENE	NE	ENE	E	ESE	E	ESE	ESE	SE	ESE	ESE			58(ENE)
Nov 23	5.8	5.7	5.6	7.4	7.2	8.5	10.1	9.4	10.2	9.8	11.5	11.5	12.7	10.7	15.4	14.1	11.4	11.2	10.9	11.3	12.9	10.1	9.5	11.1	5.6	15.4	10.2
	SE	SE	SE	S	S	S	S	SSW	SSW	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SSW	SW	SW			210(SSW)
Nov 24	12.2	12.1	13.0	14.8	15.9	14.3	14.3	16.7	17.2	19.5	22.2	20.5	22.9	18.4	18.2	16.9	16.0	15.1	13.0	11.9	12.0	13.1	12.3	12.7	11.9	22.9	15.6
	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	W	W	W	W	W	W			249(WSW)
Nov 25	13.1	13.7	14.5	15.6	**K**	**K**	**K**	**K**	21.0	21.2	24.0	23.5	19.0	21.8	19.5	21.3	19.5	15.6	14.4	12.7	11.1	8.7	9.0	10.2	8.7	24.0	16.5
	W	W	W	WSW	**K**	**K**	**K**	**K**	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	WNW	W	W			324(NW)
Nov 26	8.1	8.8	7.0	7.9	8.3	11.7	11.8	13.0	8.2	8.8	13.1	13.2	12.5	12.1	10.7	9.3	6.6	6.2	4.4	8.6	14.6	13.3	10.5	8.7	4.4	14.6	9.9
	W	W	SW	SW	SW	SW	SW	WSW	WSW	WNW	NNW	NNW	NNW	NNW	NW	NW	WNW	W	W	WSW	W	W	W	SW			276(W)
Nov 27	8.2	8.1	7.5	7.6	7.9	7.7	7.1	7.8	7.3	5.9	6.2	9.3	12.1	14.0	14.4	15.6	14.4	13.5	15.5	16.8	16.7	13.7	17.3	16.4	5.9	17.3	11.3
	SSW	SW	SW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	W	W	W	W	W	WNW			250(WSW)
Nov 28	15.5	14.4	14.4	14.6	15.4	15.7	15.1	14.5	13.8	11.9	16.0	14.7	15.6	15.9	14.7	11.9	10.1	10.5	14.7	9.3	9.1	9.4	10.3	10.6	9.1	16.0	13.3
	W	W	W	W	W	W	WSW	W	W	W	W	W	WNW	W	W	WSW	WSW	W	W	W	W	WNW	WNW	WNW			271(W)
Nov 29	11.6	11.4	10.8	10.5	11.5	10.1	10.2	10.9	13.3	19.1	19.8	18.7	20.0	20.3	19.0	17.2	15.1	17.3	14.9	11.7	10.4	13.4	11.8	12.0	10.1	20.3	14.2
	WNW	WNW	WNW	WNW	WNW	WNW	NW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW			311(NW)
Nov 30	12.5	10.5	10.2	12.1	11.5	10.9	11.1	10.8	10.8	9.6	9.5	8.6	10.2	9.5	8.8	7.5	9.3	7.9	7.4	6.1	8.9	9.1	9.0	9.9	6.1	12.5	9.7
	NW	NW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W	WSW	WSW	SW	SW	SSW	SSW	SSW	SW	SW			275(W)

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 - November 2023

Summary of Hour Standard Deviations

STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

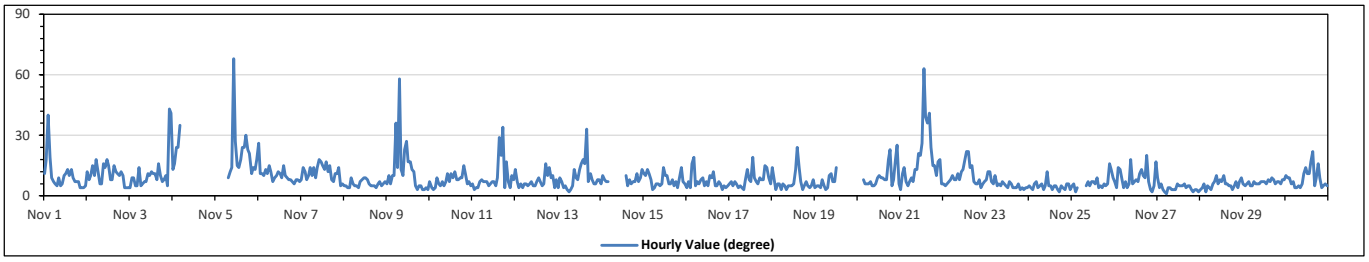
Maximum Hourly Value:	68	degree on Nov 5 at hr 10	Hours in Service:	720		
			Hours of Data:	667		
Minimum Hourly Value:	1	degree on Nov 27 at hr 5	Hours of Missing Data:	53		
			Hours of Calibration:	0		
			Operational Uptime:	92.6		

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		
Nov 1	11	18	40	19	9	7	6	5	9	5	6	10	11	13	10	13	9	7	7	7	4	4	4	5	4	40
Nov 2	12	8	10	15	10	18	12	6	6	16	14	18	15	8	8	15	12	11	10	12	10	4	4	4	4	18
Nov 3	4	9	9	5	5	14	5	6	7	7	11	10	12	11	11	8	16	10	7	8	10	5	43	41	4	43
Nov 4	13	16	24	24	35	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	13	35
Nov 5	K	K	K	K	K	K	K	9	12	14	68	27	15	14	18	24	24	30	23	21	11	14	13	18	9	68
Nov 6	26	11	11	10	13	11	15	12	7	9	10	12	11	9	15	10	9	8	8	7	6	8	8	7	6	26
Nov 7	8	14	12	8	10	14	10	14	9	14	18	17	15	13	17	12	15	8	7	11	11	14	5	6	5	18
Nov 8	5	5	4	4	9	6	5	5	4	7	8	9	9	8	6	5	5	5	4	6	7	5	6	7	4	9
Nov 9	6	10	6	10	10	36	14	58	13	10	23	27	17	17	13	12	5	3	5	5	3	3	4	3	3	58
Nov 10	7	4	3	4	9	6	5	7	5	7	11	7	11	9	12	8	8	9	9	15	11	6	7	5	3	15
Nov 11	6	3	4	4	7	8	7	7	7	5	6	7	7	5	9	29	20	34	4	17	7	4	10	8	3	34
Nov 12	13	7	4	6	4	6	6	5	6	7	5	5	7	9	7	5	6	16	10	14	9	10	4	8	4	16
Nov 13	4	9	7	4	5	3	2	3	5	13	9	8	13	16	18	16	33	7	11	8	6	6	8	8	2	33
Nov 14	6	10	8	7	7	K	K	K	K	K	K	K	K	K	10	5	8	6	7	7	11	7	9	13	5	13
Nov 15	11	10	13	11	8	3	4	6	6	5	6	14	10	10	6	6	8	5	7	4	9	14	7	6	3	14
Nov 16	4	7	4	16	19	5	7	6	8	9	5	7	5	10	9	12	5	5	7	6	3	5	4	5	3	19
Nov 17	6	7	5	7	6	4	5	4	3	8	13	8	7	19	9	7	6	9	8	8	15	14	9	6	3	19
Nov 18	14	8	3	6	6	3	6	5	3	5	5	5	6	13	24	14	7	3	5	7	5	4	5	8	3	24
Nov 19	4	5	5	4	8	5	3	4	10	11	7	7	14	K	K	K	K	K	K	K	K	K	K	K	3	14
Nov 20	K	K	K	8	6	6	6	7	5	5	6	9	10	9	9	8	8	18	23	5	8	18	25	6	5	25
Nov 21	3	11	14	7	5	7	9	7	13	13	21	20	26	63	39	36	41	24	15	15	10	17	18	6	3	63
Nov 22	6	5	6	7	8	10	8	8	11	8	12	13	18	22	22	14	15	7	6	6	8	4	6	7	4	22
Nov 23	8	12	12	7	6	10	5	6	5	7	6	5	4	7	6	4	4	4	6	3	4	3	4	4	3	12
Nov 24	5	4	3	6	7	4	5	6	3	5	12	5	5	3	5	5	3	2	5	4	3	6	6	3	2	12
Nov 25	5	6	2	4	K	K	K	K	5	7	5	7	7	6	9	4	5	4	6	5	6	16	13	9	2	16
Nov 26	7	4	14	13	8	4	7	4	6	18	6	7	8	7	11	13	10	9	20	7	3	2	5	17	2	20
Nov 27	9	4	6	3	2	1	4	4	3	3	3	6	5	5	5	6	4	5	5	3	2	3	3	2	1	9
Nov 28	3	4	6	2	5	4	3	6	7	10	6	8	7	10	6	6	5	5	3	5	7	4	7	9	2	10
Nov 29	6	5	6	7	5	5	7	6	6	6	7	7	7	6	8	7	9	8	6	7	7	6	8	8	5	9
Nov 30	10	9	9	6	7	4	4	5	4	6	11	14	11	11	17	22	5	9	16	9	4	5	6	5	4	22
Diurnal Minimum	3	3	2	2	2	1	2	3	3	3	3	5	4	3	5	4	3	2	3	3	2	2	3	2		
Diurnal Maximum	26	18	40	24	35	36	15	58	13	18	68	27	26	63	39	36	41	34	23	21	15	18	43	41		

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 (Machine 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.



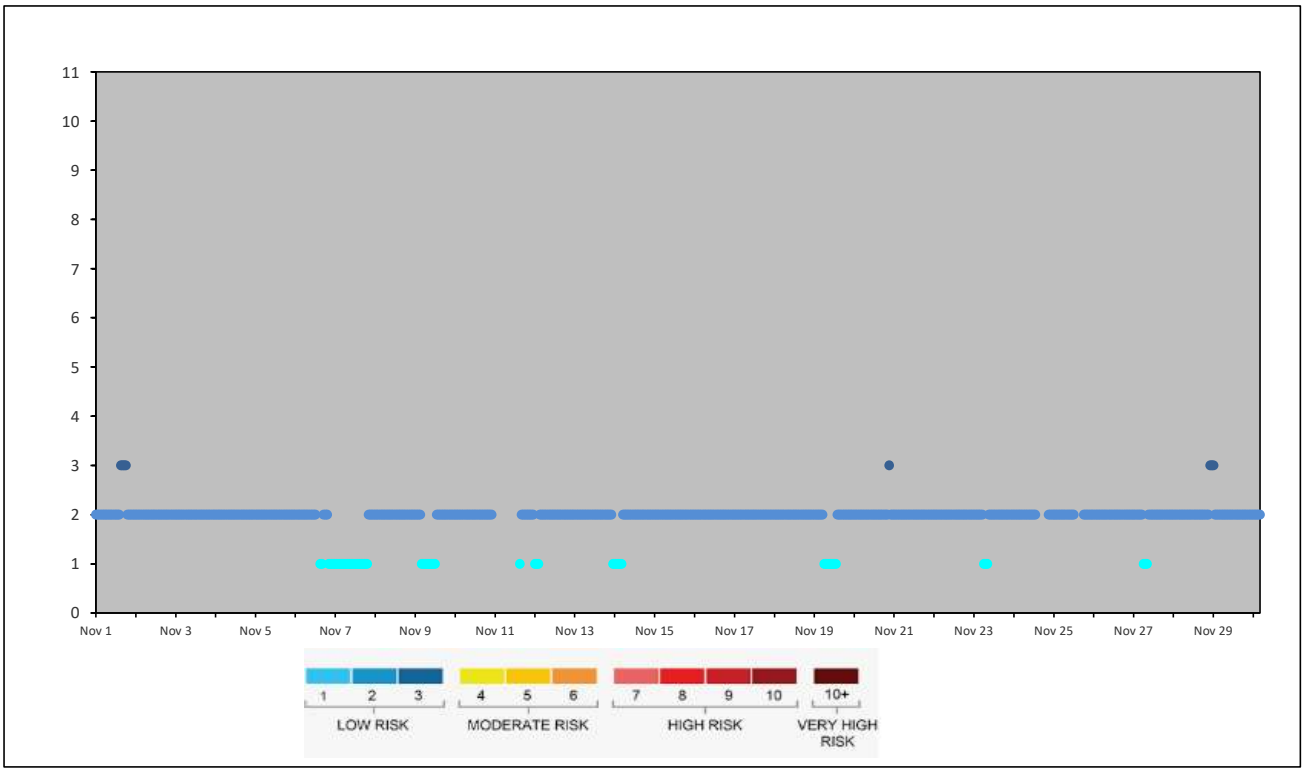
LAC LA BICHE STATION

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - November 2023

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
Nov 1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	2	2	2	2	2
Nov 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
Nov 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
Nov 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
Nov 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
Nov 6	2	2	2	2	2	2	2	2	2	2	2	2	2			1	1	2	2	2	1	1	1	2
Nov 7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
Nov 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
Nov 9	2	2	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2
Nov 10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Nov 11																1	2	2	2	2	2	2	2	2
Nov 12	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
Nov 14	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 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
Nov 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
Nov 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
Nov 19	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
Nov 20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2
Nov 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
Nov 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
Nov 23	2	2	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 24	2	2	2	2	2	2	2	2	2	2	2	2	2	2								2	2	2
Nov 25	2	2	2	2	2	2	2	2	2	2	2	2	2						2	2	2	2	2	2
Nov 26	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 27	2	2	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 28	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
Nov 29	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nov 30	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

Lac La Biche Station - November 2023

Summary of Hourly Averages

SULPHUR DIOXIDE (SO_2) in ppb

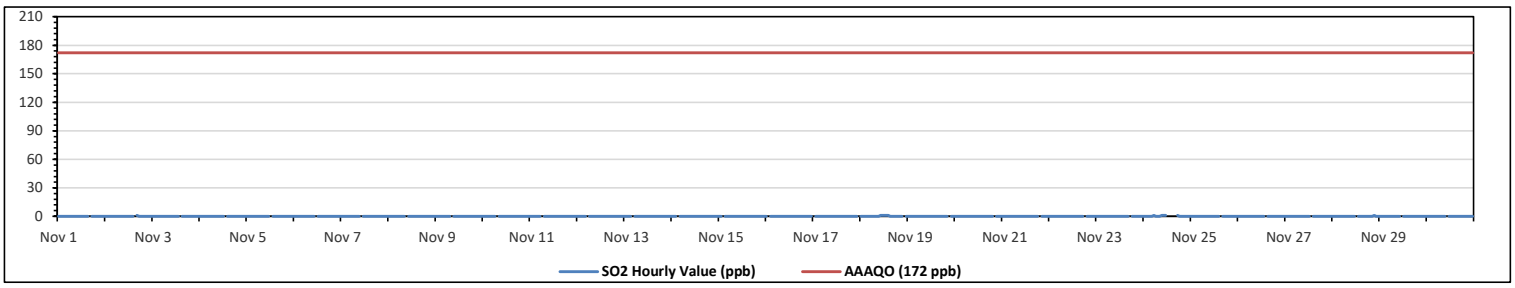
Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb

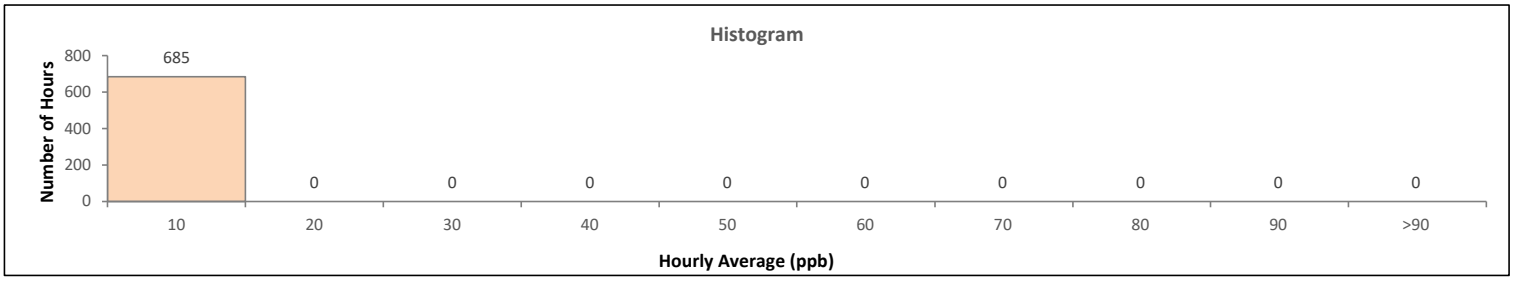
Number of 1-Hour Exceedances:	0	Number of 24-Hour Exceedances:	0	30-Day Exceedence:	0		
Maximum Hourly Value:	1	ppb	on Nov 2 at hr 16	Hours in Service:	720		
Maximum Daily Value:	0.3	ppb	on Nov 24	Hours of Data:	685		
Minimum Hourly Value:	0	ppb	on Nov 1 at hr 0	Hours of Missing Data:	0		
Minimum Daily Value:	0.0	ppb	on Nov 1	Hours of Calibration:	35		
Monthly Average:	0.0	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			
Nov 1	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
Nov 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	0	0	0	0	0	0	0	0	1	0.0
Nov 3	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
Nov 4	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
Nov 5	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
Nov 6	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
Nov 7	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	0.0
Nov 8	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
Nov 9	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
Nov 10	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
Nov 11	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	0.0
Nov 12	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	0.0
Nov 13	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	0	0.0
Nov 14	0	0	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
Nov 15	0	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
Nov 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
Nov 17	S	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
Nov 18	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	S	0	0	1	0.2
Nov 19	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
Nov 20	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
Nov 21	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
Nov 22	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
Nov 23	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
Nov 24	0	0	0	0	0	1	0	0	0	1	1	1	C	C	C	C	C	1	0	0	0	0	0	0	0	1	0.3
Nov 25	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
Nov 26	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
Nov 27	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
Nov 28	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0	0	0	1	0.0
Nov 29	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
Nov 30	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	0.0
Diurnal Maximum	0	0	0	0	0	1	0	0	0	1	1	1	1	1	1	0	1	1	0	0	0	1	0	0			
Diurnal Average	0.0	0.0	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	0.0	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	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.



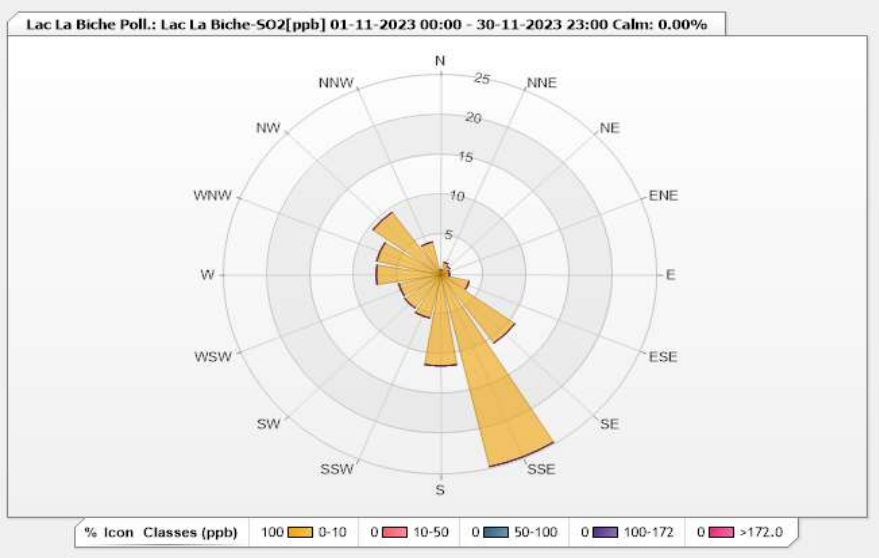


Station: Lac La Biche Poll.: Lac La Biche-SO2[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 95.14% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	0.58	0	0	0	0	0.58
NNE	1.61	0	0	0	0	1.61
NE	1.31	0	0	0	0	1.31
ENE	1.02	0	0	0	0	1.02
E	1.02	0	0	0	0	1.02
ESE	3.36	0	0	0	0	3.36
SE	10.51	0	0	0	0	10.51
SSE	24.67	0	0	0	0	24.67
S	11.39	0	0	0	0	11.39
SSW	5.55	0	0	0	0	5.55
SW	5.11	0	0	0	0	5.11
WSW	4.96	0	0	0	0	4.96
W	7.45	0	0	0	0	7.45
WNW	7.59	0	0	0	0	7.59
NW	9.64	0	0	0	0	9.64
NNW	4.23	0	0	0	0	4.23
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - November 2023

Summary of Hourly Averages

HYDROGEN SULPHIDE (H_2S) in ppb

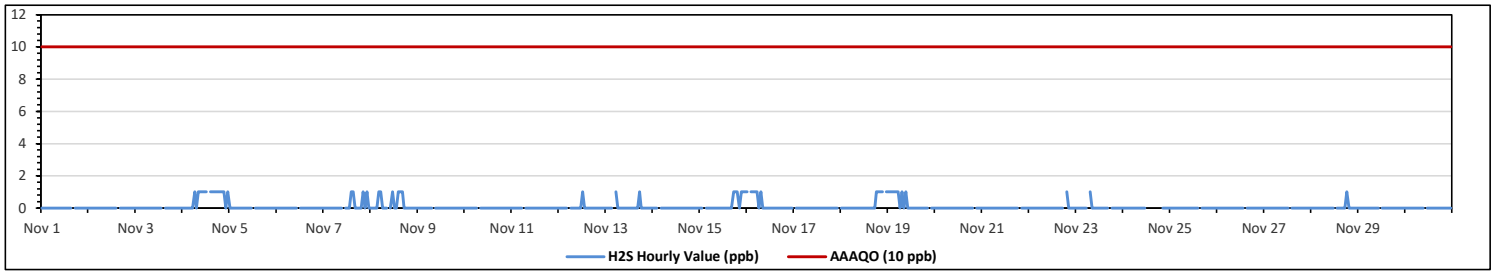
Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 10 ppb, 24-Hour 3 ppb

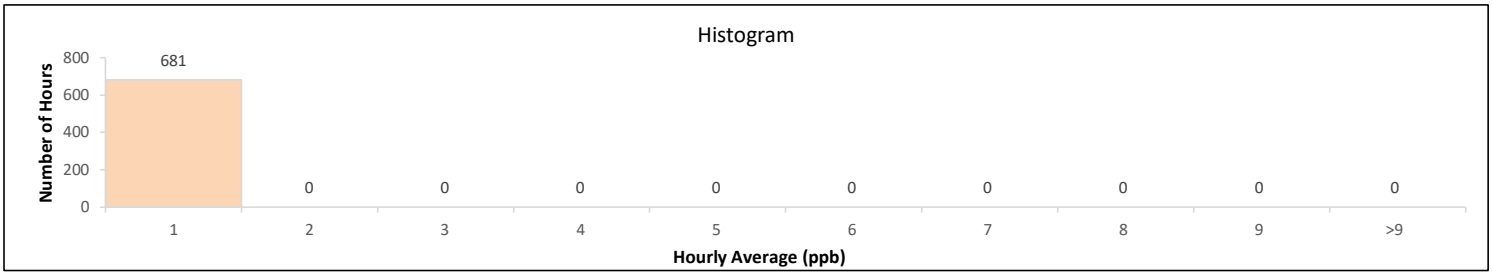
Number of 1-Hour Exceedances:	0		Number of 24-Hour Exceedances:	0	
Maximum Hourly Value:	1	ppb	on Nov 4 at hr 6	Hours in Service:	720
Maximum Daily Value:	1.0	ppb	on Nov 4	Hours of Data:	681
Minimum Hourly Value:	0	ppb	on Nov 1 at hr 0	Hours of Missing Data:	2
Minimum Daily Value:	0.0	ppb	on Nov 1	Hours of Calibration:	37
Monthly Average:	0.1	ppb		Operational Uptime:	99.7

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			
Nov 1	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
Nov 2	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
Nov 3	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
Nov 4	0	0	0	0	0	0	1	0	1	1	1	1	1	S	1	1	1	1	1	1	1	1	0	1	0	1	1.0
Nov 5	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
Nov 6	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
Nov 7	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	1	0	0	0	0	1	0	1	0	0	1	0.0
Nov 8	0	0	0	0	1	1	0	0	0	S	0	1	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0.0
Nov 9	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
Nov 10	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
Nov 11	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	0.0
Nov 12	0	0	0	0	0	S	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Nov 13	0	0	0	0	S	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0.0
Nov 14	0	0	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
Nov 15	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	0	1	0.0
Nov 16	1	S	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Nov 17	S	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
Nov 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	S	1	0	1	0.0
Nov 19	1	1	1	1	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	0.0
Nov 20	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
Nov 21	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
Nov 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	0	0	0	0	0	1	0.0
Nov 23	0	0	0	0	0	0	NRM	1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	0.0
Nov 24	0	0	0	0	0	0	0	0	0	0	0	0	C	C	C	NRM	C	C	C	C	0	0	0	0	0	0	-
Nov 25	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
Nov 26	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
Nov 27	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
Nov 28	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0	0	0	0	0	0	1	0.0
Nov 29	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
Nov 30	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	0.0
Diurnal Maximum	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1			
Diurnal Average	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	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	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.



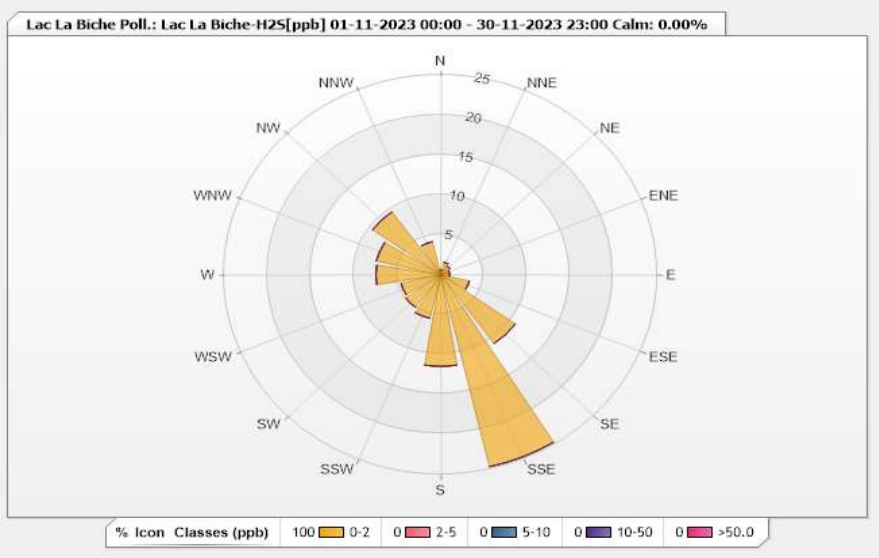


Station: Lac La Biche Poll.: Lac La Biche-H2S[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 94.58% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	0.59	0	0	0	0	0.59
NNE	1.62	0	0	0	0	1.62
NE	1.32	0	0	0	0	1.32
ENE	1.03	0	0	0	0	1.03
E	1.03	0	0	0	0	1.03
ESE	3.38	0	0	0	0	3.38
SE	10.57	0	0	0	0	10.57
SSE	24.67	0	0	0	0	24.67
S	11.45	0	0	0	0	11.45
SSW	5.58	0	0	0	0	5.58
SW	4.99	0	0	0	0	4.99
WSW	4.7	0	0	0	0	4.7
W	7.49	0	0	0	0	7.49
WNW	7.64	0	0	0	0	7.64
NW	9.69	0	0	0	0	9.69
NNW	4.26	0	0	0	0	4.26
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - November 2023

Summary of Hourly Averages

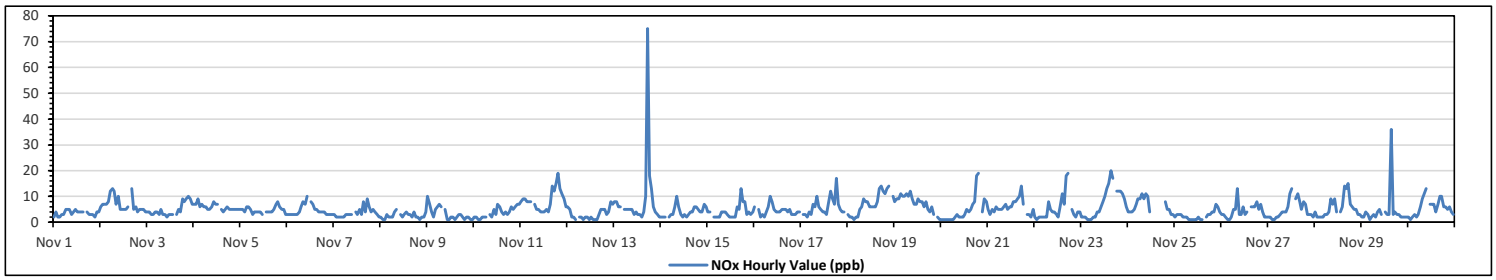
OXIDES OF NITROGEN (NOx) in ppb

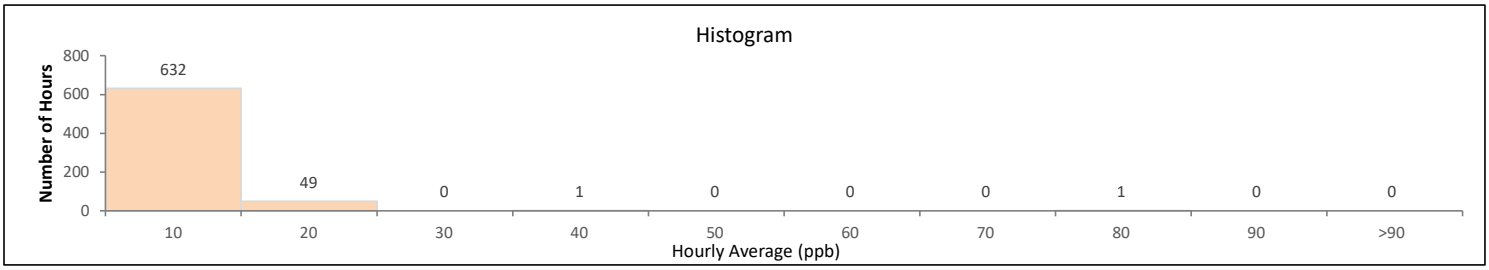
Maximum Hourly Value:	75	ppb	on Nov 13 at hr 17	Hours in Service:	720	
Maximum Daily Value:	8.8	ppb	on Nov 13	Hours of Data:	683	
Minimum Hourly Value:	1	ppb	on Nov 8 at hr 1	Hours of Missing Data:	0	
Minimum Daily Value:	2.6	ppb	on Nov 8	Hours of Calibration:	37	
Monthly Average:	5.2	ppb		Operational 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			
Nov 1	2	4	2	2	3	3	5	5	5	3	4	5	4	4	4	4	S	4	3	3	3	2	4	4	2	5	3.6
Nov 2	6	7	7	7	8	12	13	12	7	10	5	5	5	5	6	S	13	5	6	4	5	5	5	4	4	13	7.0
Nov 3	4	4	3	3	4	4	3	5	3	3	2	3	3	3	S	3	5	4	9	8	9	10	9	7	2	10	4.8
Nov 4	7	7	9	6	7	6	6	5	5	6	8	7	7	S	5	4	5	6	5	5	5	5	5	5	4	9	5.9
Nov 5	5	5	4	6	6	5	3	4	4	4	4	3	S	4	4	4	4	5	7	8	6	5	5	3	3	8	4.7
Nov 6	3	3	3	3	3	3	4	6	8	7	10	S	8	7	5	5	4	4	4	4	3	3	3	3	3	10	4.6
Nov 7	3	2	2	2	2	2	3	3	3	3	S	4	3	5	3	8	4	9	6	4	5	4	3	2	2	9	3.7
Nov 8	2	1	1	3	2	2	2	4	5	S	3	2	3	4	3	3	2	4	2	2	1	2	2	4	**1**	5	**2.6**
Nov 9	10	7	4	2	5	6	7	6	S	5	1	1	2	2	1	2	3	3	2	1	2	2	1	1	**1**	10	3.3
Nov 10	2	2	1	1	2	2	2	S	3	2	5	3	7	6	4	3	4	3	4	6	5	6	7	7	**1**	7	3.8
Nov 11	8	9	9	8	8	8	S	7	5	5	4	4	4	5	4	7	14	12	15	19	13	11	9	6	4	19	8.4
Nov 12	6	5	2	2	1	S	2	2	1	2	2	1	2	1	1	1	3	5	5	5	3	4	8	7	**1**	8	3.1
Nov 13	8	8	6	6	S	5	5	5	5	5	3	4	3	3	2	4	10	**75**	18	13	6	4	3	2	2	**75**	**8.8**
Nov 14	2	2	2	S	2	3	3	6	10	6	3	2	3	2	3	4	4	6	6	5	4	4	7	6	2	10	4.1
Nov 15	4	4	S	2	2	2	2	4	4	4	3	2	2	2	2	6	5	13	8	8	3	4	3	4	2	13	4.0
Nov 16	6	S	5	2	3	2	4	6	10	8	5	4	4	4	5	5	5	4	5	3	3	3	4	4	2	10	4.5
Nov 17	S	3	3	2	4	3	7	6	10	6	5	4	4	3	8	12	9	7	17	7	5	4	4	S	2	17	6.0
Nov 18	3	2	2	1	2	2	5	6	9	8	8	6	6	6	6	8	13	14	12	11	13	14	S	10	**1**	14	7.3
Nov 19	8	9	9	11	10	10	11	10	12	9	7	7	9	8	8	6	8	5	4	6	3	S	2	1	**1**	12	7.5
Nov 20	1	1	1	1	1	1	1	2	3	2	2	2	3	5	4	5	7	8	18	19	S	4	9	8	**1**	19	4.7
Nov 21	5	3	5	4	6	5	5	5	6	7	5	6	6	8	8	9	10	14	7	S	3	3	2	5	2	14	6.0
Nov 22	2	1	2	2	2	2	2	8	5	4	4	3	2	6	11	7	18	19	S	5	3	2	4	4	**1**	19	5.1
Nov 23	2	2	2	1	1	1	2	2	4	4	6	8	10	13	15	20	17	S	12	12	12	11	9	6	**1**	20	7.5
Nov 24	4	4	4	5	7	9	9	11	9	11	10	4	C	C	C	C	C	C	C	8	5	5	3	3	3	11	NA
Nov 25	2	3	3	3	2	2	2	1	1	1	1	1	2	1	1	S	2	3	3	4	4	7	6	4	**1**	7	**2.6**
Nov 26	3	3	2	1	1	2	5	5	13	3	3	6	3	4	S	6	6	6	8	5	7	4	2	2	**1**	13	4.3
Nov 27	2	2	1	1	2	2	3	4	4	4	6	11	13	S	9	11	8	5	8	7	3	3	3	2	**1**	13	5.0
Nov 28	4	2	2	2	2	3	3	4	9	7	9	4	S	4	6	14	13	15	7	6	5	5	3	3	2	15	5.7
Nov 29	2	2	4	3	1	2	3	2	4	5	3	S	4	3	3	36	3	4	3	3	2	2	2	2	**1**	36	4.3
Nov 30	2	1	2	3	2	3	6	9	11	13	S	7	7	7	4	7	10	10	6	6	5	6	4	3	**1**	13	5.8
Diurnal Maximum	10	9	9	11	10	12	13	12	13	13	10	11	13	13	15	36	18	75	18	19	13	14	9	10			
Diurnal Average	4.1	3.7	3.5	3.3	3.5	3.9	4.4	5.3	6.1	5.4	4.7	4.3	4.8	4.6	5.0	7.6	7.5	9.7	7.5	6.8	5.0	5.0	4.5	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	**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.



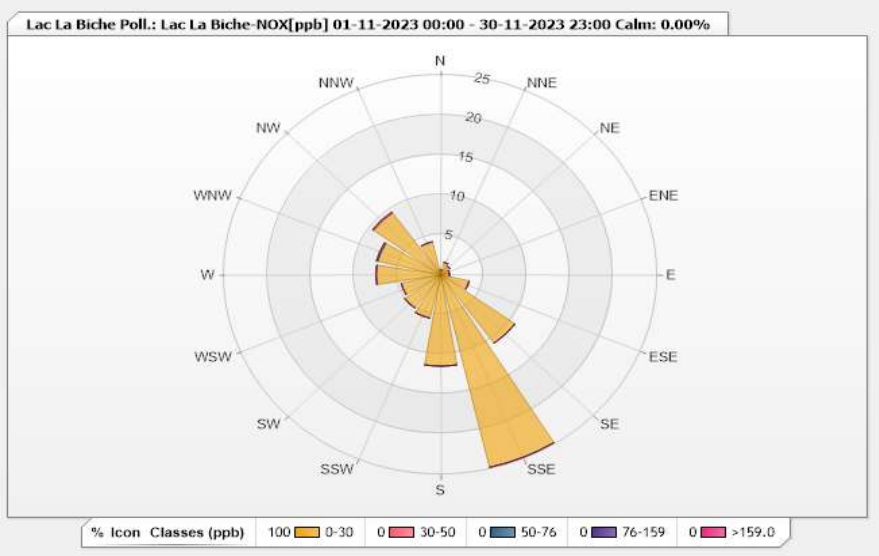


Station: Lac La Biche Poll.: Lac La Biche-NOX[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 94.86% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	0.59	0	0	0	0	0.59
NNE	1.61	0	0	0	0	1.61
NE	1.32	0	0	0	0	1.32
ENE	1.02	0	0	0	0	1.02
E	1.02	0	0	0	0	1.02
ESE	3.37	0	0	0	0	3.37
SE	10.54	0	0	0	0	10.54
SSE	24.74	0	0	0	0	24.74
S	11.42	0	0	0	0	11.42
SSW	5.56	0	0	0	0	5.56
SW	5.12	0	0	0	0	5.12
WSW	4.69	0	0	0	0	4.69
W	7.47	0	0	0	0	7.47
WNW	7.47	0	0.15	0	0	7.62
NW	9.52	0.15	0	0	0	9.67
NNW	4.25	0	0	0	0	4.25
Summary	100	0.15	0.15	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - November 2023

Summary of Hourly Averages

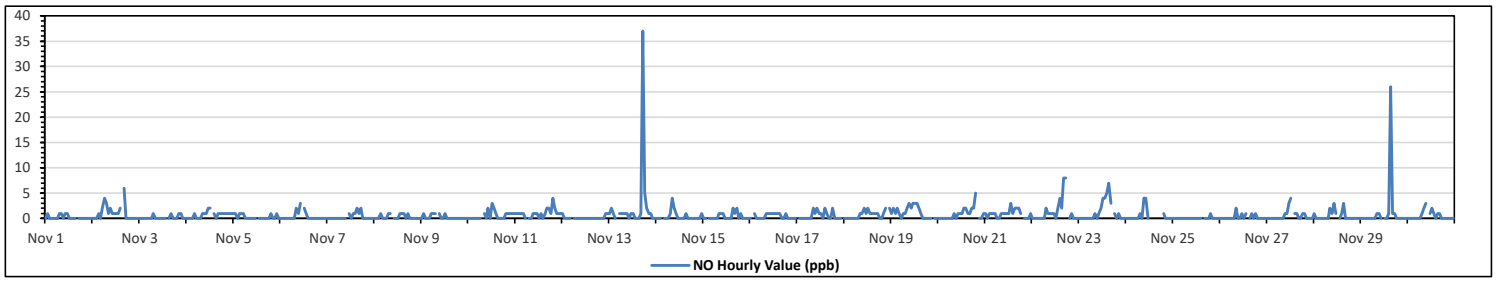
NITRIC OXIDE (NO) in ppb

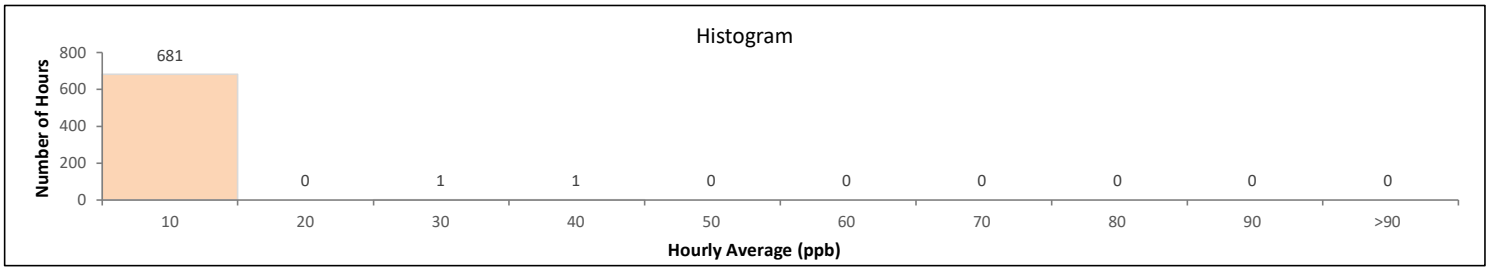
Maximum Hourly Value:	37	ppb	on Nov 13 at hr 17	Hours in Service:	720
Maximum Daily Value:	2.5	ppb	on Nov 13	Hours of Data:	683
Minimum Hourly Value:	0	ppb	on Nov 1 at hr 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on Nov 25	Hours of Calibration:	37
Monthly Average:	0.7	ppb		Operational Uptime:	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			
Nov 1	0	1	0	0	0	0	0	1	1	0	1	1	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0.2
Nov 2	0	0	0	1	0	2	4	3	1	2	1	1	1	1	2	S	6	0	0	0	0	0	0	0	0	6	1.1
Nov 3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	S	0	1	0	0	0	1	1	0	0	0	1	0.2
Nov 4	0	0	0	0	1	0	0	0	1	1	1	2	2	S	1	0	1	1	1	1	1	1	1	1	0	2	0.7
Nov 5	1	1	0	1	1	1	0	0	0	0	0	0	S	0	0	0	0	0	0	1	0	0	1	0	0	1	0.3
Nov 6	0	0	0	0	0	0	0	0	2	1	3	S	2	1	0	0	0	0	0	0	0	0	0	0	0	3	0.4
Nov 7	0	0	0	0	0	0	0	0	0	0	S	1	0	1	1	2	1	2	0	0	0	0	0	0	0	2	0.3
Nov 8	0	0	0	1	0	0	0	1	1	S	0	0	0	1	1	1	0	1	0	0	0	0	0	0	0	1	0.3
Nov 9	0	1	0	0	0	1	1	1	S	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3
Nov 10	0	0	0	0	0	0	0	S	1	0	2	0	3	2	1	0	0	0	0	1	1	1	1	1	0	3	0.6
Nov 11	1	1	1	1	1	0	S	0	0	1	1	1	0	1	0	1	2	2	1	4	2	1	1	1	0	4	1.0
Nov 12	1	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0.1
Nov 13	1	2	1	0	S	1	1	1	1	1	0	1	1	0	0	0	1	37	5	2	1	1	0	0	0	**37**	**2.5**
Nov 14	0	0	0	S	0	0	0	1	4	2	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	4	0.4
Nov 15	0	0	S	0	0	0	0	0	1	1	1	0	0	0	0	2	1	2	0	1	0	0	0	0	0	2	0.4
Nov 16	0	S	1	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	1	0	0	0	0	0	0	1	0.4
Nov 17	S	0	0	0	0	0	0	0	2	1	2	1	1	0	2	1	0	0	2	0	0	0	0	S	0	2	0.5
Nov 18	0	0	0	0	0	0	0	0	1	1	2	1	2	1	1	1	1	1	0	0	1	2	S	2	0	2	0.7
Nov 19	1	2	1	2	1	0	1	1	2	3	2	3	3	3	2	1	0	0	0	0	0	S	0	0	0	3	1.2
Nov 20	0	0	0	0	0	0	0	0	1	0	1	1	1	2	2	1	1	2	2	5	S	0	0	1	0	5	0.9
Nov 21	1	0	1	1	1	1	0	0	1	1	1	1	1	3	1	2	2	2	1	S	0	0	0	1	0	3	1.0
Nov 22	0	0	0	0	0	0	0	2	1	1	1	1	0	2	4	2	8	8	S	0	1	0	0	0	0	8	1.3
Nov 23	0	0	0	0	0	0	0	0	1	0	1	2	4	4	5	7	3	S	1	0	1	0	0	0	0	7	1.3
Nov 24	0	0	0	0	0	0	0	1	0	4	4	0	C	C	C	C	C	C	C	1	0	0	0	0	0	4	NA
Nov 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	0	0	0	0	0	1	0.0
Nov 26	0	0	0	0	0	0	0	0	2	0	0	1	0	1	S	0	1	0	1	0	0	0	0	0	0	2	0.3
Nov 27	0	0	0	0	0	0	0	0	0	1	1	3	4	S	1	1	0	0	1	1	0	0	0	0	0	4	0.6
Nov 28	1	0	0	0	0	0	0	0	2	1	3	1	S	0	1	3	0	0	0	0	0	0	0	0	0	3	0.5
Nov 29	0	0	0	0	0	0	0	0	1	1	0	S	0	0	1	26	1	1	0	0	0	0	0	0	0	26	1.3
Nov 30	0	0	0	0	0	0	0	1	2	3	S	1	2	1	0	1	1	0	0	0	0	0	0	0	0	3	0.5
Diurnal Maximum	1	2	1	2	1	2	4	3	4	4	4	3	4	4	5	26	8	37	5	5	2	2	1	2			
Diurnal Average	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.5	1.0	1.0	1.1	0.9	1.1	0.9	1.0	2.0	1.1	2.1	0.6	0.6	0.3	0.2	0.2	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	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.



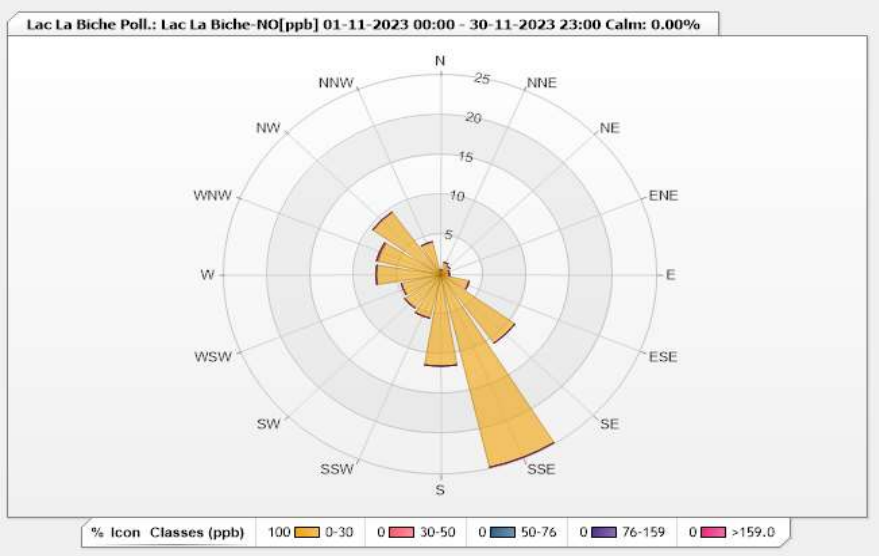


Station: Lac La Biche Poll.: Lac La Biche-NO[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 94.86% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	0.59	0	0	0	0	0.59
NNE	1.61	0	0	0	0	1.61
NE	1.32	0	0	0	0	1.32
ENE	1.02	0	0	0	0	1.02
E	1.02	0	0	0	0	1.02
ESE	3.37	0	0	0	0	3.37
SE	10.54	0	0	0	0	10.54
SSE	24.74	0	0	0	0	24.74
S	11.42	0	0	0	0	11.42
SSW	5.56	0	0	0	0	5.56
SW	5.12	0	0	0	0	5.12
WSW	4.69	0	0	0	0	4.69
W	7.47	0	0	0	0	7.47
WNW	7.47	0.15	0	0	0	7.62
NW	9.66	0	0	0	0	9.66
NNW	4.25	0	0	0	0	4.25
Summary	100	0.15	0	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - November 2023

Summary of Hourly Averages

NITROGEN DIOXIDE (NO_2) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb

Number of 1-Hour Exceedances: 0

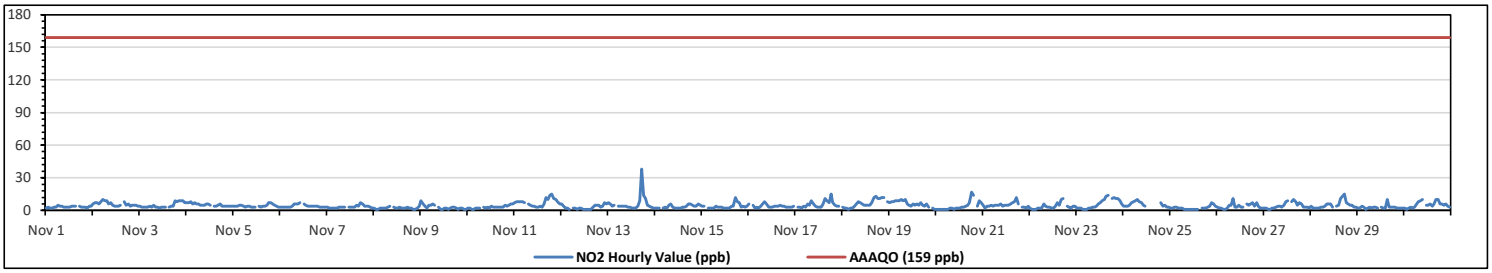
Maximum Hourly Value:	38	ppb	on Nov 13 at hr 17	Hours in Service:	720
Maximum Daily Value:	7.4	ppb	on Nov 11	Hours of Data:	683
Minimum Hourly Value:	1	ppb	on Nov 8 at hr 1	Hours of Missing Data:	0
Minimum Daily Value:	2.2	ppb	on Nov 8	Hours of Calibration:	37
Monthly Average:	4.4	ppb		Operational Uptime:	100.0

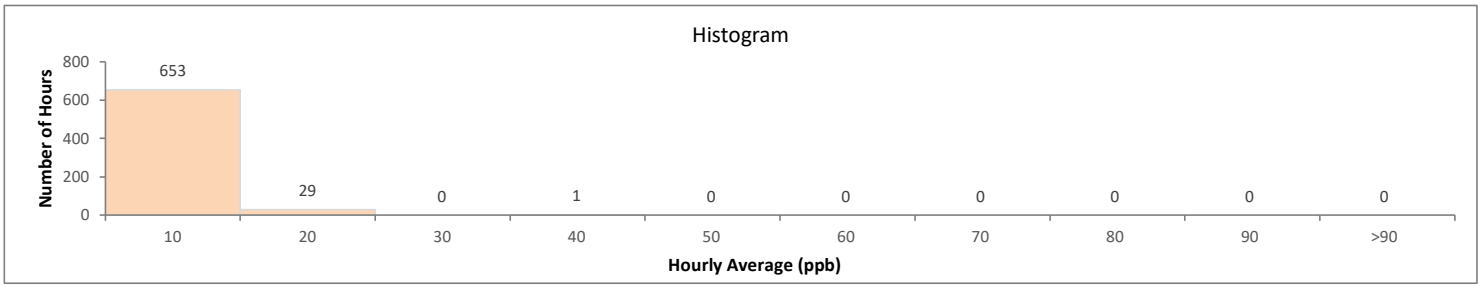
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Nov 1	2	3	2	2	3	3	5	4	4	3	3	3	3	4	4	4	S	4	3	3	3	2	4	4	2	5	3.3
Nov 2	6	7	7	6	8	10	9	9	6	7	5	4	4	4	5	S	8	5	6	4	5	5	5	4	4	10	6.0
Nov 3	4	3	3	3	3	4	3	5	3	3	2	3	3	3	S	3	4	4	9	8	9	9	9	7	2	9	4.7
Nov 4	7	7	8	6	7	6	6	5	5	5	6	6	5	S	4	4	5	6	4	4	4	4	4	4	4	8	5.3
Nov 5	4	4	4	5	5	4	3	4	4	3	3	3	S	4	3	4	4	5	7	7	6	5	4	3	3	7	4.3
Nov 6	3	3	3	3	3	3	4	6	6	6	7	S	6	5	4	4	4	4	4	4	3	3	3	3	3	7	4.1
Nov 7	3	2	2	2	2	2	3	3	3	3	S	3	3	3	3	5	4	7	6	4	4	4	3	2	2	7	3.3
Nov 8	2	1	1	2	2	2	2	3	4	S	3	2	2	3	2	2	2	3	2	2	1	1	2	4	1	4	2.2
Nov 9	9	6	4	2	5	5	6	5	S	3	1	1	2	2	1	2	3	3	2	1	2	2	1	1	1	9	3.0
Nov 10	2	2	1	1	2	2	2	S	3	2	3	2	4	3	3	3	3	3	3	5	4	5	6	6	1	6	3.0
Nov 11	7	8	8	8	8	7	S	6	5	4	4	3	3	4	3	6	12	10	14	15	11	10	8	6	3	15	7.4
Nov 12	6	4	2	2	1	S	2	2	1	2	2	1	1	1	1	1	3	5	5	5	3	4	7	6	1	7	2.9
Nov 13	7	6	4	5	S	4	4	4	4	4	3	3	2	2	2	4	9	38	14	11	5	4	3	2	2	38	6.3
Nov 14	2	2	2	S	2	3	2	5	6	3	2	2	2	2	3	3	4	6	6	5	4	4	6	5	2	6	3.5
Nov 15	4	4	S	2	2	2	2	4	3	3	3	2	2	2	2	4	4	12	8	7	3	4	3	4	2	12	3.7
Nov 16	6	S	5	2	3	2	4	6	8	6	3	3	3	4	4	4	5	4	4	3	3	3	3	4	2	8	4.0
Nov 17	S	3	3	2	4	3	6	5	9	6	4	3	3	3	6	11	9	7	15	7	5	4	4	S	2	15	5.5
Nov 18	3	2	2	1	2	2	4	6	8	7	6	5	5	5	5	7	12	13	11	11	12	12	S	8	1	13	6.5
Nov 19	7	8	8	9	9	9	10	9	10	6	5	4	6	5	6	5	7	5	4	6	3	S	2	1	1	10	6.3
Nov 20	1	1	1	1	1	1	1	2	2	1	2	2	2	3	3	4	5	7	17	14	S	4	9	7	1	17	4.0
Nov 21	5	2	4	4	5	4	5	5	5	6	4	5	5	5	6	7	8	12	6	S	3	3	2	4	2	12	5.0
Nov 22	2	1	1	1	2	2	2	6	4	3	3	2	2	4	7	5	10	11	S	4	3	2	4	4	1	11	3.7
Nov 23	2	2	2	1	1	1	2	2	3	3	4	6	7	9	10	13	14	S	11	12	11	11	9	6	1	14	6.2
Nov 24	4	4	4	5	7	8	9	10	8	7	5	4	C	C	C	C	C	C	C	7	4	5	3	3	3	10	NA
Nov 25	2	2	3	3	2	2	2	1	1	1	1	1	1	1	1	S	2	2	2	3	4	7	6	4	1	7	2.3
Nov 26	3	2	2	1	1	2	5	5	11	3	3	5	3	3	S	6	5	6	7	4	7	4	2	2	1	11	4.0
Nov 27	2	2	1	1	2	2	3	4	4	3	5	8	9	S	8	10	8	5	7	6	3	3	3	2	1	10	4.4
Nov 28	4	2	2	2	2	3	3	4	6	6	6	3	S	4	5	11	13	15	7	6	5	5	3	3	2	15	5.2
Nov 29	2	2	4	3	1	2	3	2	3	3	2	S	3	2	2	10	3	3	3	3	2	2	2	2	1	10	2.8
Nov 30	2	1	2	3	2	3	6	8	9	10	S	5	5	6	4	6	10	10	6	6	5	6	4	3	1	10	5.3
Diurnal Maximum	9	8	8	9	9	10	10	10	11	10	7	8	9	9	10	13	14	38	17	15	12	12	9	8			
Diurnal Average	3.9	3.3	3.3	3.0	3.3	3.6	4.1	4.8	5.1	4.2	3.6	3.4	3.6	3.6	4.0	5.5	6.4	7.7	6.9	6.1	4.7	4.7	4.3	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	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.



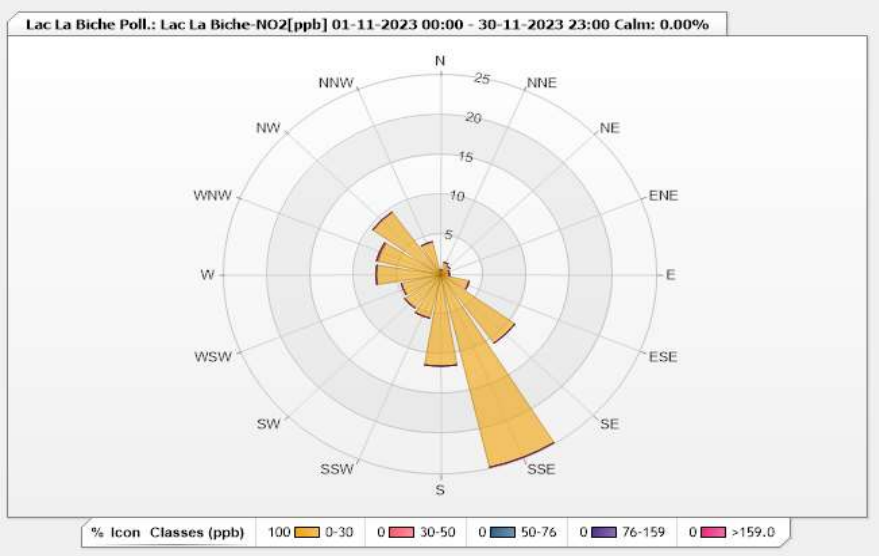


Station: Lac La Biche Poll.: Lac La Biche-NO2[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 94.86% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	0.59	0	0	0	0	0.59
NNE	1.61	0	0	0	0	1.61
NE	1.32	0	0	0	0	1.32
ENE	1.02	0	0	0	0	1.02
E	1.02	0	0	0	0	1.02
ESE	3.37	0	0	0	0	3.37
SE	10.54	0	0	0	0	10.54
SSE	24.74	0	0	0	0	24.74
S	11.42	0	0	0	0	11.42
SSW	5.56	0	0	0	0	5.56
SW	5.12	0	0	0	0	5.12
WSW	4.69	0	0	0	0	4.69
W	7.47	0	0	0	0	7.47
WNW	7.47	0.15	0	0	0	7.62
NW	9.66	0	0	0	0	9.66
NNW	4.25	0	0	0	0	4.25
Summary	100	0.15	0	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - November 2023

Summary of Hourly Averages

OZONE (O_3) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb

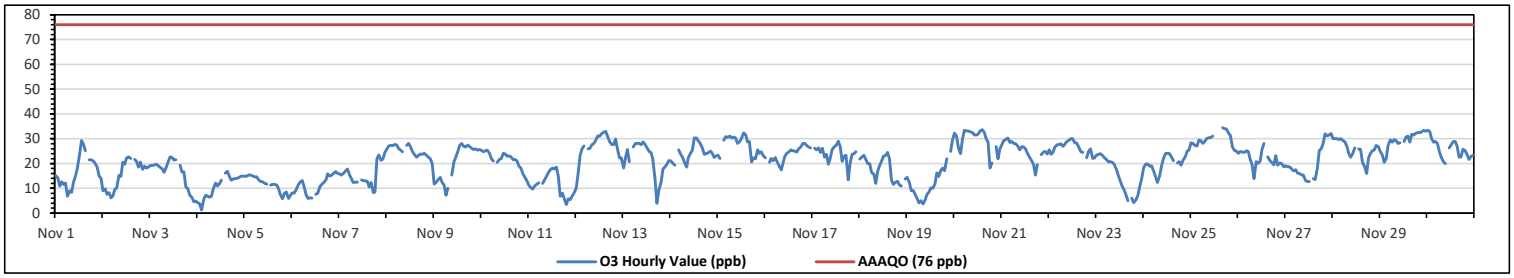
Number of 1-Hour Exceedances: 0

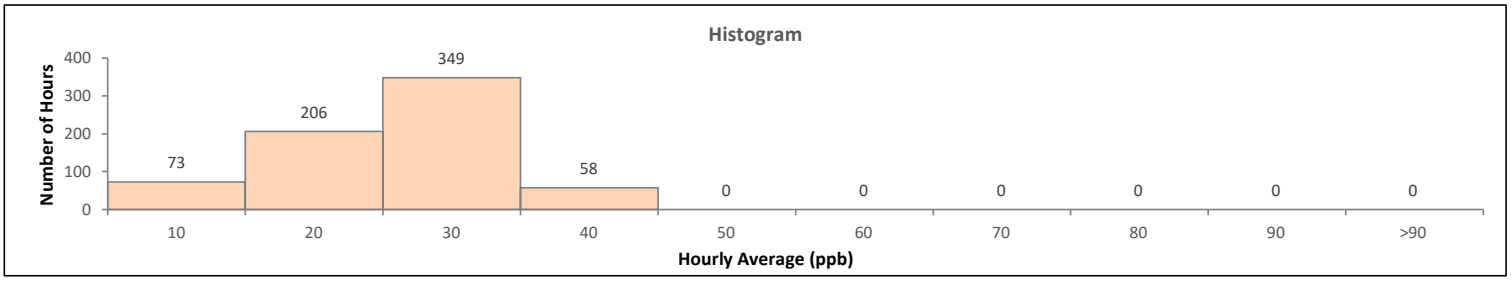
Maximum Hourly Value:	34.4	ppb	on Nov 25 at hr 16	Hours in Service:	720
Maximum Daily Value:	29.6	ppb	on Nov 25	Hours of Data:	686
Minimum Hourly Value:	1.2	ppb	on Nov 4 at hr 2	Hours of Missing Data:	0
Minimum Daily Value:	10.8	ppb	on Nov 4	Hours of Calibration:	34
Monthly Average:	20.7	ppb		Operational 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			
Nov 1	15.1	14.2	10.9	12.6	11.6	12.1	6.8	9.1	8.4	12.5	15	18	23	29.3	27.9	25.1	S	21.5	21.6	21	20	18.5	14.9	14	6.8	29.3	16.7
Nov 2	9.1	9.8	7.5	8.2	6.2	7	9.5	10.2	15.2	14.8	20.4	19.8	22.2	22.6	22.1	S	21.7	20.9	18.6	20.6	17.7	19	18.2	18.6	6.2	22.6	15.6
Nov 3	19.2	19.2	19.5	19.7	19.1	18.4	17.9	16.5	18.6	20.7	22.6	22.4	21.4	21.6	S	19.3	16.6	16.6	10.6	9.9	7.3	6.3	4.7	4.9	4.7	22.6	16.2
Nov 4	4.2	3.9	1.2	5.5	7.2	6.9	6.5	6.9	9.9	12.1	10.9	11.8	13.3	S	16.1	16.9	14.8	13.3	13.8	13.9	14	14.4	14.9	15	**1.2**	16.9	**10.8**
Nov 5	14.8	14.9	15.5	15.3	14.9	14.5	14.7	13.5	12.7	12.6	12	11.7	S	11.4	11.5	11.5	11.4	9.7	7.5	5.8	7.9	8.5	5.9	7.2	5.8	15.5	11.5
Nov 6	8.1	8.1	9.5	11.4	12.6	13.1	11	7.3	5.9	6.1	6	S	7.6	8	10.7	11.5	12.4	13.4	15.8	14.9	15.3	16.1	16.8	15.9	5.9	16.8	11.2
Nov 7	15.8	15.4	16.1	17	17.8	15.3	14	12.3	12.5	12.5	S	13.4	13.1	13	12.9	10.5	12.4	8.2	8.5	21.9	23.5	21.3	21.9	24.4	8.2	24.4	15.4
Nov 8	25.8	27	27.3	27.2	27.8	27.5	26.1	25.4	24.7	S	27.3	28.1	26.8	24.9	23.8	22.5	23.3	23.9	23.8	24.1	23.5	22.5	21.9	19.9	19.9	28.1	25.0
Nov 9	11.7	12.3	13.5	14.4	12.4	11.4	7.2	10	S	15.3	20.7	22.7	24.9	27.3	28.1	26.9	26.7	27.5	26.8	26.2	25.7	25.9	25.4	25.7	7.2	28.1	20.4
Nov 10	25.2	24.7	25.1	25.4	24.2	22	21	S	20.5	21.5	22.1	24.1	23.9	23	23.1	22.6	21.5	21.7	21	19	18.1	16	14.5	13	13.0	25.4	21.4
Nov 11	11.2	10.3	9.6	10.9	11.5	12.2	S	11.9	13.4	14.8	16.4	17.7	18.1	17.8	18.6	14.8	6.9	8	5.6	3.4	5.7	5.4	6.9	8.3	3.4	18.6	11.3
Nov 12	10.1	16.1	23.2	26	27	S	25.9	26.2	27.6	28.1	29.4	31.1	31.1	32.1	32.7	33	30.9	28.9	27.7	27.6	29.9	25.8	22.2	22.3	10.1	33.0	26.7
Nov 13	18.2	22.2	25.7	20.8	S	26.7	28.2	28.2	28.1	27.6	28.7	27.7	26.2	24.9	24.3	21.9	14.2	4	9.3	12.4	17.8	18.4	19.6	21.2	4.0	28.7	21.6
Nov 14	21.1	20.1	19.3	S	25.5	23.9	22.5	20.2	18.6	22.3	24.2	25.4	30.4	30.3	29	28.3	26.3	23.7	24	24.3	25	24.3	22.4	23.1	18.6	30.4	24.1
Nov 15	23.4	22.1	S	29.4	30.8	30.6	31.1	30.3	30.7	30.4	28.2	28.8	30.3	32.4	31.5	28.7	28.9	20.6	22.3	21.9	25.5	24.2	24.7	23.1	20.6	32.4	27.4
Nov 16	22.2	S	20.5	22.1	21.1	22.4	20.6	19.1	17.4	20.1	22.9	24.2	24.7	25.5	25.1	25	24.6	26	26.6	28.1	28.2	27.3	26.7	26.3	17.4	28.2	23.8
Nov 17	S	26.2	25.5	26.3	24.4	26.2	22.5	23.7	19.7	22.3	25.8	26.7	27.4	29	26.8	20.9	23	23.4	13.4	20.2	23.8	24	24.7	S	13.4	29.0	23.9
Nov 18	21.8	22.7	23.4	21.7	20	20	16.4	15.7	11.9	16.9	19.2	20.9	23	23.3	24.4	21.8	13.4	11.5	12.3	12.9	11.4	11	S	13.7	11.0	24.4	17.8
Nov 19	14.4	12.4	9.1	9.2	7.5	5.9	4.1	5	3.7	5.2	7.4	8.5	10.2	10	11.7	16.2	14.8	17.1	18.1	17.1	22	S	24.8	29.7	3.7	29.7	12.4
Nov 20	32.3	31.2	26.1	24	29.9	33.4	33.1	33.1	32.8	32.5	31.6	31.4	31.8	33.1	33.6	32.7	30	28.6	18.1	20.2	S	26.8	22	25.9	18.1	33.6	29.3
Nov 21	27.6	29.2	29.6	30.3	28.5	28.8	28.1	28	27.2	25.6	26.8	26.7	26	24.2	22.6	21.2	19.8	15.3	19.6	S	23.6	24.6	24.8	23.9	15.3	30.3	25.3
Nov 22	25.5	23.8	24.6	26.6	27.6	27.7	28	26.9	27.9	28.8	29.4	30	30.1	28.4	28.3	26.6	24.7	24.4	S	22.3	24.9	26	22.1	22.3	22.1	30.1	26.4
Nov 23	23.3	23.7	24	23.4	22.3	21.7	20.8	20.7	20.4	19.8	17.7	15.2	13.5	11.3	9.4	7.3	5	S	6	4.3	5.4	7.1	10.7	14.5	4.3	24.0	15.1
Nov 24	18.3	19.8	19.9	19	19.1	16.8	14.8	12.3	14.9	19	22.1	24.2	24.2	24.1	22.7	21.1	S	20.2	20.8	19.4	21.5	22.6	24.8	25.6	12.3	25.6	20.3
Nov 25	28.4	28.1	27.3	27	29.5	29.1	28.2	28.8	30.1	30.5	30.5	31	C	C	C	C	**34.4**	34	33.9	32.4	31.3	26.5	25.2	25	25.0	**34.4**	**29.6**
Nov 26	24.2	24.8	24.6	24.5	25.1	24.9	21.8	19.6	13.9	20.8	20.1	20.9	25.7	28.2	S	22.7	21.2	20.3	19.5	23.2	19.3	20.2	20	18.7	13.9	28.2	21.9
Nov 27	19.1	18.7	18.7	17.9	17	17.5	16.1	16	15.5	15.4	13.2	12.7	12.8	S	13.9	13.6	18	25.2	25.9	28	32	31.2	31.5	32.1	12.7	32.1	20.1
Nov 28	30	30	30	29.7	30	29.2	28.7	27	24.1	22.5	23.9	26.4	S	25.9	25.7	20.5	19	15.9	22.2	24.1	25.1	25.5	27.3	26.6	15.9	30.0	25.6
Nov 29	24.7	23.5	20.5	21.9	27.3	29.5	28.6	29.7	29.2	28.1	28.4	S	28.9	30.7	31	28.6	31.9	31.4	32.3	32.6	32.5	32.8	33.4	33	20.5	33.4	29.2
Nov 30	33.4	33	30.1	28.6	28.8	28.1	24.5	22.2	20.8	20	S	26.3	27.8	28.9	28.9	26.8	22.5	22.6	25.8	25.1	23.6	21.7	22.8	23.4	20.0	33.4	25.9
Diurnal Maximum	33.4	33.0	30.1	30.3	30.8	33.4	33.1	33.1	32.8	32.5	31.6	31.4	31.8	33.1	33.6	33.0	34.4	34.0	33.9	32.6	32.5	32.8	33.4	33.0			
Diurnal Average	19.9	20.3	19.9	20.6	20.9	20.8	20.0	19.2	19.2	20.0	21.5	22.4	22.9	23.7	22.8	21.4	20.4	19.9	19.0	19.9	20.7	20.5	20.5	20.6			

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



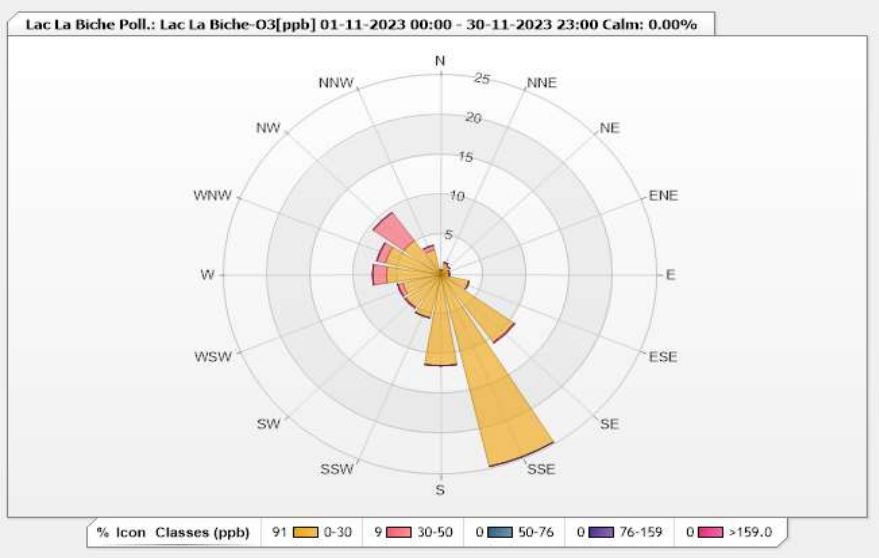


Station: Lac La Biche Poll.: Lac La Biche-O3[ppb] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 95.28% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	0.58	0	0	0	0	0.58
NNE	1.46	0.15	0	0	0	1.61
NE	1.31	0	0	0	0	1.31
ENE	1.02	0	0	0	0	1.02
E	1.02	0	0	0	0	1.02
ESE	3.35	0	0	0	0	3.35
SE	10.35	0.15	0	0	0	10.5
SSE	24.64	0	0	0	0	24.64
S	11.37	0	0	0	0	11.37
SSW	5.54	0	0	0	0	5.54
SW	4.96	0.15	0	0	0	5.11
WSW	4.52	0.58	0	0	0	5.1
W	6.27	1.6	0	0	0	7.87
WNW	6.56	1.02	0	0	0	7.58
NW	5.25	4.37	0	0	0	9.62
NNW	3.21	0.58	0	0	0	3.79
Summary	91.41	8.6	0	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - November 2023

Summary of Hourly Averages

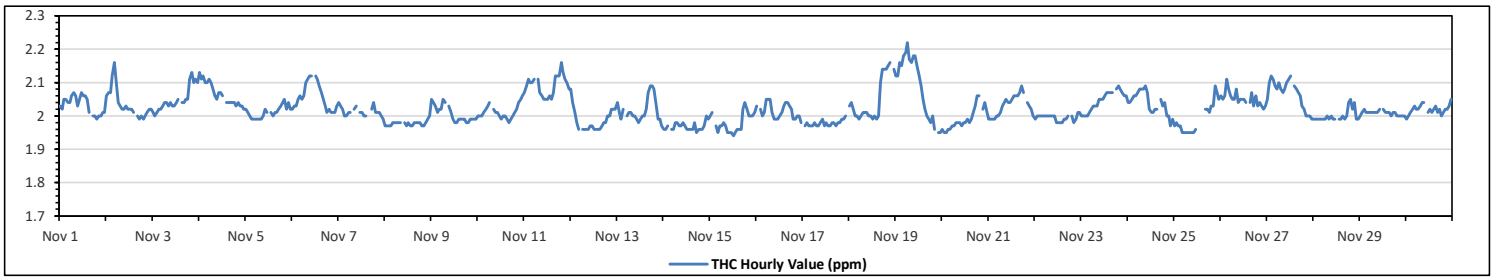
TOTAL HYDROCARBONS (THC) in ppm

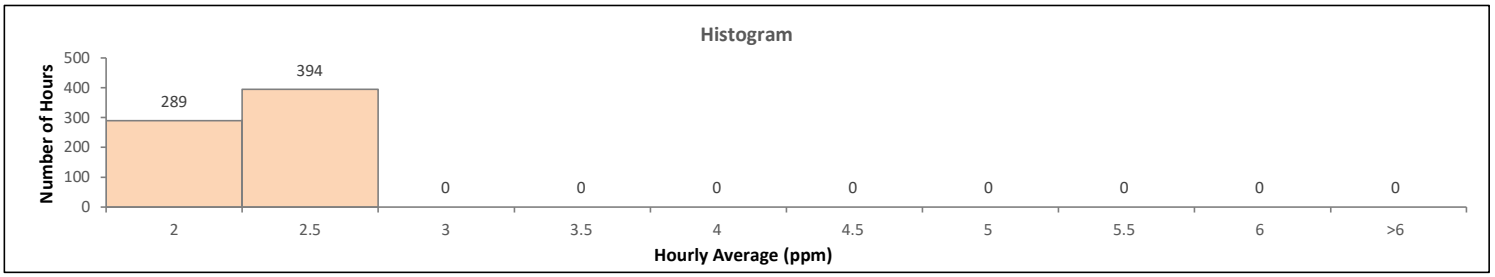
Maximum Hourly Value:	2.22	ppm	on Nov 19 at hr 6	Hours in Service:	720
Maximum Daily Value:	2.09	ppm	on Nov 19	Hours of Data:	683
Minimum Hourly Value:	1.94	ppm	on Nov 15 at hr 12	Hours of Missing Data:	3
Minimum Daily Value:	1.97	ppm	on Nov 14	Hours of Calibration:	34
Monthly Average:	2.02	ppm		Operational 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			
Nov 1	2.03	2.02	2.05	2.05	2.04	2.04	2.06	2.07	2.06	2.03	2.05	2.07	2.06	2.06	2.05	2.01	S	2.00	2.00	1.99	2.00	2.00	2.01	2.01	1.99	2.07	2.03
Nov 2	2.06	2.07	2.07	2.12	2.16	2.10	2.04	2.03	2.02	2.02	2.03	2.02	2.02	2.02	2.01	S	2.00	1.99	2.00	1.99	2.00	2.01	2.02	2.02	1.99	2.16	2.04
Nov 3	2.01	2.00	2.01	2.02	2.02	2.03	2.04	2.04	2.03	2.04	2.03	2.03	2.04	2.05	S	2.04	2.04	2.05	2.05	2.11	2.13	2.10	2.11	2.10	2.00	2.13	2.05
Nov 4	2.13	2.11	2.12	2.10	2.10	2.11	2.10	2.08	2.06	2.05	2.07	2.07	2.06	S	2.04	2.04	2.04	2.04	2.04	2.03	2.04	2.03	2.03	2.02	2.02	2.13	2.07
Nov 5	2.02	2.01	2.00	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.02	2.01	S	2.01	2.00	2.01	2.01	2.02	2.03	2.04	2.05	2.02	2.04	2.02	1.99	2.05	2.01
Nov 6	2.02	2.03	2.03	2.05	2.06	2.05	2.06	2.10	2.11	2.12	2.12	S	2.12	2.11	2.09	2.07	2.05	2.03	2.01	2.02	2.01	2.01	2.01	2.03	2.01	2.12	2.06
Nov 7	2.04	2.03	2.02	2.00	2.00	2.01	2.01	NRM	2.02	2.03	S	2.01	2.01	2.00	2.00	NRM	NRM	2.02	2.04	2.01	2.01	2.01	2.00	1.99	1.99	2.04	2.01
Nov 8	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	S	1.98	1.97	1.98	1.97	1.97	1.98	1.98	1.98	1.98	1.97	1.97	1.98	1.99	2.00	1.97	2.00	1.98
Nov 9	2.05	2.04	2.03	2.01	2.02	2.02	2.05	2.04	S	2.03	2.01	1.99	1.98	1.98	1.99	1.99	1.99	1.99	1.98	1.98	1.99	1.99	1.99	1.99	1.98	2.05	2.01
Nov 10	2.00	2.00	2.00	2.01	2.02	2.03	2.04	S	2.02	2.01	2.01	2.00	1.99	2.00	2.00	1.99	1.98	1.99	2.00	2.01	2.02	2.04	2.05	2.06	1.98	2.06	2.01
Nov 11	2.07	2.09	2.11	2.10	2.10	2.11	S	2.11	2.07	2.06	2.05	2.05	2.05	2.06	2.05	2.07	2.12	2.12	2.12	2.16	2.13	2.11	2.10	2.08	2.05	2.16	**2.09**
Nov 12	2.08	2.04	2.01	1.98	1.96	S	1.96	1.96	1.96	1.96	1.97	1.97	1.96	1.96	1.96	1.96	1.97	1.98	1.98	2.00	2.00	2.02	2.02	2.02	1.96	2.08	1.99
Nov 13	2.04	2.01	1.99	2.02	S	2.00	2.01	2.01	2.00	2.00	1.99	1.98	1.99	2.00	2.00	2.02	2.07	2.09	2.09	2.08	2.04	1.99	1.99	1.97	1.97	2.09	2.02
Nov 14	1.96	1.96	1.97	S	1.96	1.96	1.98	1.98	1.97	1.97	1.98	1.97	1.96	1.96	1.96	1.96	1.98	1.95	1.96	1.96	1.96	1.97	2.00	1.99	1.95	2.00	1.97
Nov 15	2.00	2.01	S	1.97	1.95	1.97	1.97	1.98	1.97	1.95	1.95	1.95	1.94	1.95	1.96	1.96	1.96	2.02	2.04	2.02	2.00	2.00	2.00	2.01	1.94	2.04	1.98
Nov 16	2.03	S	2.02	2.00	2.01	2.05	2.05	2.05	2.01	1.99	1.99	1.99	2.00	2.01	2.03	2.04	2.04	2.03	2.02	1.99	1.99	2.00	2.00	1.98	1.98	2.05	2.01
Nov 17	S	1.97	1.98	1.97	1.97	1.97	1.98	1.97	1.97	1.98	1.99	1.97	1.98	1.97	1.97	1.98	1.98	1.97	1.98	1.98	1.99	1.99	2.00	S	1.97	2.00	1.98
Nov 18	2.03	2.04	2.02	2.00	2.00	1.99	2.00	2.01	2.01	2.01	2.00	2.00	1.99	2.00	1.99	2.00	2.10	2.14	2.14	2.14	2.15	2.16	S	2.14	1.99	2.16	2.05
Nov 19	2.12	2.12	2.16	2.15	2.18	2.19	**2.22**	2.17	2.16	2.18	2.18	2.15	2.12	2.09	2.05	2.02	2.00	1.99	1.98	2.00	1.96	S	1.95	1.95	1.95	**2.22**	**2.09**
Nov 20	1.96	1.95	1.95	1.96	1.96	1.97	1.97	1.98	1.98	1.98	1.97	1.98	1.98	1.99	1.98	1.99	2.01	2.03	2.06	2.06	S	2.02	2.04	2.01	1.95	2.06	1.99
Nov 21	1.99	1.99	1.99	1.99	2.00	2.00	2.01	2.03	2.04	2.05	2.04	2.04	2.05	2.06	2.06	2.06	2.07	2.09	2.07	S	2.04	2.03	2.02	2.00	1.99	2.09	2.03
Nov 22	1.99	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.98	1.98	1.98	1.98	1.99	1.99	2.00	S	2.00	1.98	1.99	2.01	2.01	1.98	2.01	1.99
Nov 23	2.00	2.00	2.00	2.00	2.01	2.02	2.03	2.03	2.03	2.05	2.05	2.05	2.06	2.07	2.07	2.07	2.07	S	2.08	2.09	2.08	2.07	2.06	2.06	2.00	2.09	2.05
Nov 24	2.04	2.04	2.05	2.06	2.06	2.07	2.08	2.08	2.08	2.09	2.07	2.02	2.01	2.01	2.02	2.02	S	2.05	2.03	2.04	2.00	2.00	1.97	1.99	1.97	2.09	2.04
Nov 25	1.97	1.98	1.97	1.97	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	C	C	C	C	2.02	2.02	2.01	2.03	2.03	2.09	2.07	2.05	1.95	2.09	1.99
Nov 26	2.06	2.05	2.06	2.11	2.08	2.06	2.05	2.05	2.08	2.04	2.05	2.05	2.05	2.04	S	2.04	2.07	2.03	2.06	2.03	2.04	2.03	2.02	2.03	2.02	2.11	2.05
Nov 27	2.05	2.10	2.12	2.11	2.09	2.08	2.10	2.08	2.07	2.08	2.10	2.11	2.12	S	2.09	2.08	2.07	2.06	2.03	2.02	2.00	2.00	2.00	1.99	1.99	2.12	2.07
Nov 28	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.00	1.99	2.00	1.99	1.99	S	1.99	1.99	2.00	1.99	2.00	2.04	2.05	2.02	2.04	1.99	1.99	1.99	2.05	2.00
Nov 29	2.00	2.01	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.02	S	2.02	2.01	2.01	2.01	2.00	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.02	2.01
Nov 30	1.99	2.00	2.01	2.02	2.03	2.02	2.02	2.03	2.04	2.04	S	2.01	2.02	2.01	2.02	2.03	2.01	2.02	2.00	2.01	2.02	2.02	2.03	2.05	1.99	2.05	2.02
Diurnal Maximum	2.13	2.12	2.16	2.15	2.18	2.19	2.22	2.17	2.16	2.18	2.18	2.15	2.12	2.11	2.09	2.08	2.12	2.14	2.14	2.16	2.15	2.16	2.11	2.14			
Diurnal Average	2.02	2.02	2.02	2.03	2.02	2.03	2.03	2.03	2.02	2.02	2.02	2.01	2.02	2.01	2.01	2.02	2.02	2.02	2.03	2.03	2.02	2.02	2.02	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	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.



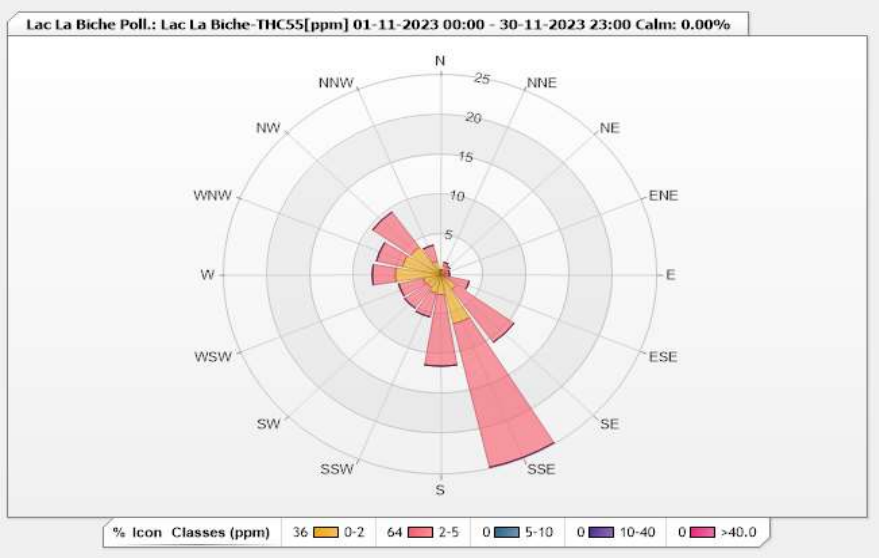


Station: Lac La Biche Poll.: Lac La Biche-THC55[ppm] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 94.86% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	0.29	0.29	0	0	0	0.58
NNE	1.17	0.44	0	0	0	1.61
NE	0.73	0.59	0	0	0	1.32
ENE	0.44	0.59	0	0	0	1.03
E	0	1.02	0	0	0	1.02
ESE	0.44	2.93	0	0	0	3.37
SE	2.2	8.2	0	0	0	10.4
SSE	6.3	18.45	0	0	0	24.75
S	2.49	8.93	0	0	0	11.42
SSW	2.34	3.07	0	0	0	5.41
SW	1.9	3.22	0	0	0	5.12
WSW	2.05	2.93	0	0	0	4.98
W	5.27	2.64	0	0	0	7.91
WNW	4.54	3.07	0	0	0	7.61
NW	4.25	5.42	0	0	0	9.67
NNW	1.76	2.05	0	0	0	3.81
Summary	36.17	63.84	0	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - November 2023

Summary of Hourly Averages

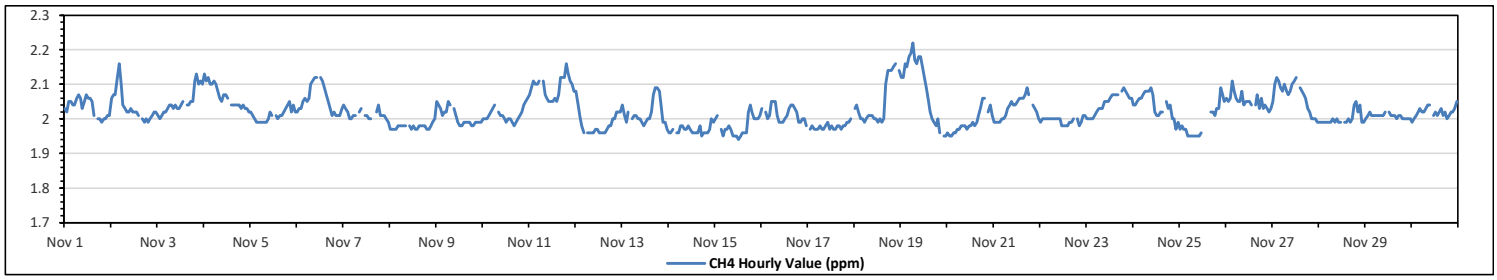
METHANE (CH4) in ppm

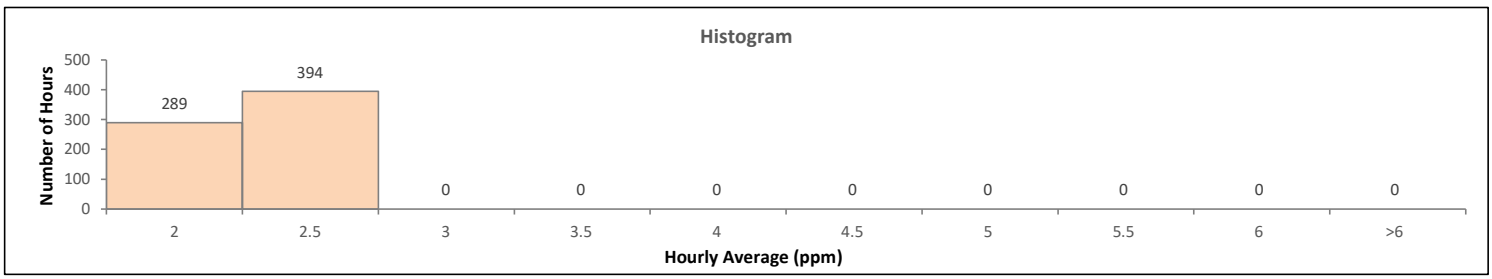
Maximum Hourly Value:	2.22	ppm	on Nov 19 at hr 6	Hours in Service:	720	
Maximum Daily Value:	2.09	ppm	on Nov 19	Hours of Data:	683	
Minimum Hourly Value:	1.94	ppm	on Nov 15 at hr 12	Hours of Missing Data:	3	
Minimum Daily Value:	1.97	ppm	on Nov 14	Hours of Calibration:	34	
Monthly Average:	2.02	ppm		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			
Nov 1	2.03	2.02	2.05	2.05	2.04	2.04	2.06	2.07	2.06	2.03	2.05	2.07	2.06	2.06	2.05	2.01	S	2.00	2.00	1.99	2.00	2.00	2.01	2.01	1.99	2.07	2.03
Nov 2	2.06	2.07	2.07	2.12	2.16	2.10	2.04	2.03	2.02	2.02	2.03	2.02	2.02	2.02	2.01	S	2.00	1.99	2.00	1.99	2.00	2.01	2.02	2.02	1.99	2.16	2.04
Nov 3	2.01	2.00	2.01	2.02	2.02	2.03	2.04	2.04	2.03	2.04	2.03	2.03	2.04	2.05	S	2.04	2.04	2.05	2.05	2.11	2.13	2.10	2.11	2.10	2.00	2.13	2.05
Nov 4	2.13	2.11	2.12	2.10	2.10	2.11	2.10	2.08	2.06	2.05	2.07	2.07	2.06	S	2.04	2.04	2.04	2.04	2.04	2.03	2.04	2.03	2.03	2.02	2.02	2.13	2.07
Nov 5	2.02	2.01	2.00	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.02	2.01	S	2.01	2.00	2.01	2.01	2.02	2.03	2.04	2.05	2.02	2.04	2.02	1.99	2.05	2.01
Nov 6	2.02	2.03	2.03	2.05	2.06	2.05	2.06	2.10	2.11	2.12	2.12	S	2.12	2.11	2.09	2.07	2.05	2.03	2.01	2.02	2.01	2.01	2.01	2.03	2.01	2.12	2.06
Nov 7	2.04	2.03	2.02	2.00	2.00	2.01	2.01	NRM	2.02	2.03	S	2.01	2.01	2.00	2.00	NRM	NRM	2.02	2.04	2.01	2.01	2.01	2.00	1.99	1.99	2.04	2.01
Nov 8	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	S	1.98	1.97	1.98	1.97	1.97	1.98	1.98	1.98	1.98	1.97	1.97	1.98	1.99	2.00	1.97	2.00	1.98
Nov 9	2.05	2.04	2.03	2.01	2.02	2.02	2.05	2.04	S	2.03	2.01	1.99	1.98	1.98	1.99	1.99	1.99	1.99	1.98	1.98	1.99	1.99	1.99	1.99	1.98	2.05	2.01
Nov 10	2.00	2.00	2.00	2.01	2.02	2.03	2.04	S	2.02	2.01	2.01	2.00	1.99	2.00	2.00	1.99	1.98	1.99	2.00	2.01	2.02	2.04	2.05	2.06	1.98	2.06	2.01
Nov 11	2.07	2.09	2.11	2.10	2.10	2.11	S	2.11	2.07	2.06	2.05	2.05	2.05	2.06	2.05	2.07	2.12	2.12	2.12	2.16	2.13	2.11	2.10	2.08	2.05	2.16	**2.09**
Nov 12	2.08	2.04	2.01	1.98	1.96	S	1.96	1.96	1.96	1.96	1.97	1.97	1.96	1.96	1.96	1.96	1.97	1.98	1.98	2.00	2.00	2.02	2.02	2.02	1.96	2.08	1.99
Nov 13	2.04	2.01	1.99	2.02	S	2.00	2.01	2.01	2.00	2.00	1.99	1.98	1.99	2.00	2.00	2.02	2.07	2.09	2.09	2.08	2.04	1.99	1.99	1.97	1.97	2.09	2.02
Nov 14	1.96	1.96	1.97	S	1.96	1.96	1.98	1.98	1.97	1.97	1.98	1.97	1.96	1.96	1.96	1.96	1.98	1.95	1.96	1.96	1.96	1.97	2.00	1.99	1.95	2.00	1.97
Nov 15	2.00	2.01	S	1.97	1.95	1.97	1.97	1.98	1.97	1.95	1.95	1.95	1.94	1.95	1.96	1.96	1.96	2.02	2.04	2.02	2.00	2.00	2.00	2.01	1.94	2.04	1.98
Nov 16	2.03	S	2.02	2.00	2.01	2.05	2.05	2.05	2.01	1.99	1.99	1.99	2.00	2.01	2.03	2.04	2.04	2.03	2.02	1.99	1.99	2.00	2.00	1.98	1.98	2.05	2.01
Nov 17	S	1.97	1.98	1.97	1.97	1.97	1.98	1.97	1.97	1.98	1.99	1.97	1.98	1.97	1.97	1.98	1.98	1.97	1.98	1.98	1.99	1.99	2.00	S	1.97	2.00	1.98
Nov 18	2.03	2.04	2.02	2.00	2.00	1.99	2.00	2.01	2.01	2.01	2.00	2.00	1.99	2.00	1.99	2.00	2.10	2.14	2.14	2.14	2.15	2.16	S	2.14	1.99	2.16	2.05
Nov 19	2.12	2.12	2.16	2.15	2.18	2.19	**2.22**	2.17	2.16	2.18	2.18	2.15	2.12	2.09	2.05	2.02	2.00	1.99	1.98	2.00	1.96	S	1.95	1.95	1.95	**2.22**	**2.09**
Nov 20	1.96	1.95	1.95	1.96	1.96	1.97	1.97	1.98	1.98	1.98	1.97	1.98	1.98	1.99	1.98	1.99	2.01	2.03	2.06	2.06	S	2.02	2.04	2.01	1.95	2.06	1.99
Nov 21	1.99	1.99	1.99	1.99	2.00	2.00	2.01	2.03	2.04	2.05	2.04	2.04	2.05	2.06	2.06	2.06	2.07	2.09	2.07	S	2.04	2.03	2.02	2.00	1.99	2.09	2.03
Nov 22	1.99	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.98	1.98	1.98	1.98	1.99	1.99	2.00	S	2.00	1.98	1.99	2.01	2.01	1.98	2.01	1.99
Nov 23	2.00	2.00	2.00	2.00	2.01	2.02	2.03	2.03	2.03	2.05	2.05	2.05	2.06	2.07	2.07	2.07	2.07	S	2.08	2.09	2.08	2.07	2.06	2.06	2.00	2.09	2.05
Nov 24	2.04	2.04	2.05	2.06	2.06	2.07	2.08	2.08	2.08	2.09	2.07	2.02	2.01	2.01	2.02	2.02	S	2.05	2.03	2.04	2.00	2.00	1.97	1.99	1.97	2.09	2.04
Nov 25	1.97	1.98	1.97	1.97	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	C	C	C	C	2.02	2.02	2.01	2.03	2.03	2.09	2.07	2.05	1.95	2.09	1.99
Nov 26	2.06	2.05	2.06	2.11	2.08	2.06	2.05	2.05	2.08	2.04	2.05	2.05	2.05	2.04	S	2.04	2.07	2.03	2.06	2.03	2.04	2.03	2.02	2.03	2.02	2.11	2.05
Nov 27	2.05	2.10	2.12	2.11	2.09	2.08	2.10	2.08	2.07	2.08	2.10	2.11	2.12	S	2.09	2.08	2.07	2.06	2.03	2.02	2.00	2.00	2.00	1.99	1.99	2.12	2.07
Nov 28	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.00	1.99	2.00	1.99	1.99	S	1.99	1.99	2.00	1.99	2.00	2.04	2.05	2.02	2.04	1.99	1.99	1.99	2.05	2.00
Nov 29	2.00	2.01	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.02	S	2.02	2.01	2.01	2.01	2.00	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.02	2.01
Nov 30	1.99	2.00	2.01	2.02	2.03	2.02	2.02	2.03	2.04	2.04	S	2.01	2.02	2.01	2.02	2.03	2.01	2.02	2.00	2.01	2.02	2.02	2.03	2.05	1.99	2.05	2.02
Diurnal Maximum	2.13	2.12	2.16	2.15	2.18	2.19	2.22	2.17	2.16	2.18	2.18	2.15	2.12	2.11	2.09	2.08	2.12	2.14	2.14	2.16	2.15	2.16	2.11	2.14			
Diurnal Average	2.02	2.02	2.02	2.03	2.02	2.03	2.03	2.03	2.02	2.02	2.02	2.01	2.02	2.01	2.01	2.02	2.02	2.02	2.03	2.03	2.02	2.02	2.02	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	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.



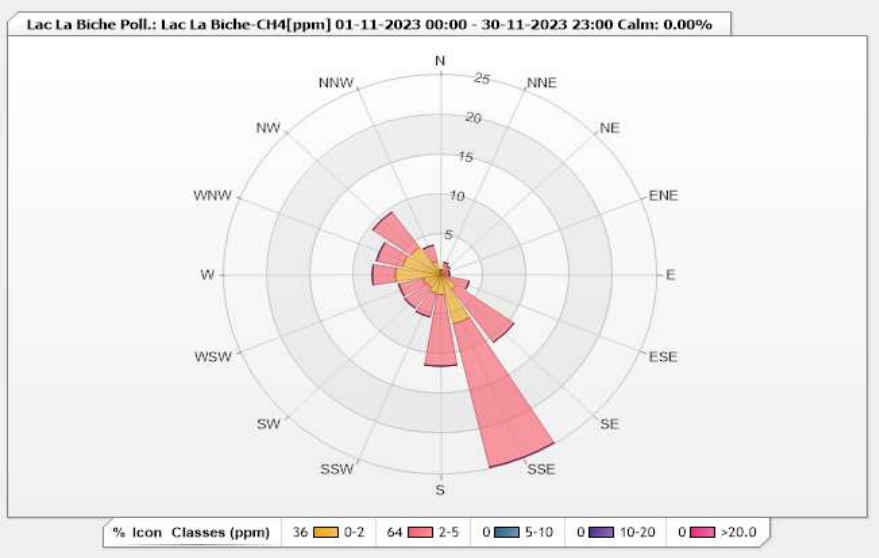


Station: Lac La Biche Poll.: Lac La Biche-CH4[ppm] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 94.86% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	0.29	0.29	0	0	0	0.58
NNE	1.17	0.44	0	0	0	1.61
NE	0.73	0.59	0	0	0	1.32
ENE	0.44	0.59	0	0	0	1.03
E	0	1.02	0	0	0	1.02
ESE	0.44	2.93	0	0	0	3.37
SE	2.2	8.2	0	0	0	10.4
SSE	6.3	18.45	0	0	0	24.75
S	2.49	8.93	0	0	0	11.42
SSW	2.34	3.07	0	0	0	5.41
SW	1.9	3.22	0	0	0	5.12
WSW	2.05	2.93	0	0	0	4.98
W	5.27	2.64	0	0	0	7.91
WNW	4.54	3.07	0	0	0	7.61
NW	4.25	5.42	0	0	0	9.67
NNW	1.76	2.05	0	0	0	3.81
Summary	36.17	63.84	0	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - November 2023

Summary of Hourly Averages

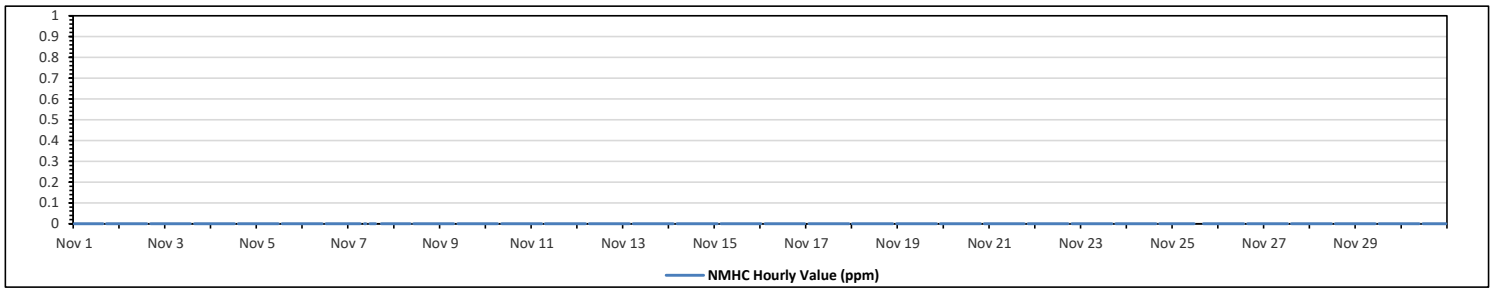
NON-METHANE HYDROCARBONS (NMHC) in ppm

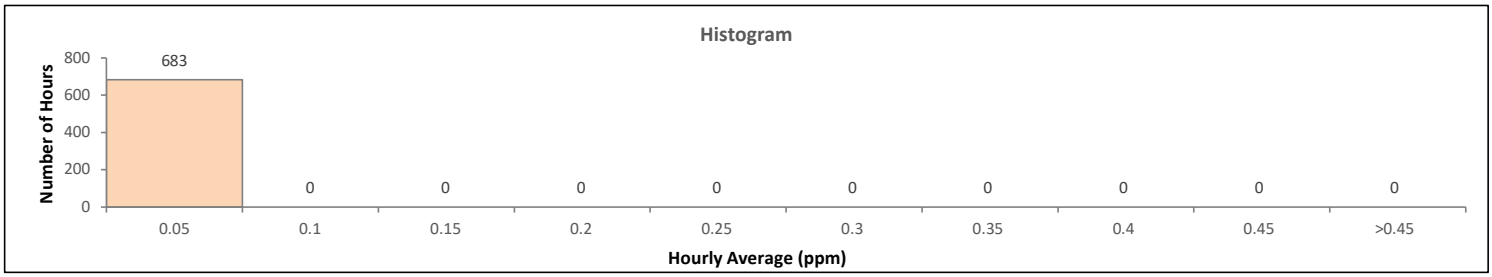
Maximum Hourly Value:	0.00	ppm	on Nov 1 at hr 0	Hours in Service:	720
Maximum Daily Value:	0.00	ppm	on Nov 1	Hours of Data:	683
Minimum Hourly Value:	0.00	ppm	on Nov 1 at hr 0	Hours of Missing Data:	3
Minimum Daily Value:	0.00	ppm	on Nov 1	Hours of Calibration:	34
Monthly Average:	0.00	ppm		Operational 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			
Nov 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Nov 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Nov 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	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
Nov 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Nov 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	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
Nov 6	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
Nov 7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NRM	0.00	0.00	S	0.00	0.00	0.00	0.00	NRM	NRM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 8	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
Nov 9	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
Nov 10	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
Nov 11	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
Nov 12	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
Nov 13	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
Nov 14	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
Nov 15	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
Nov 16	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
Nov 17	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	S	0.00	0.00	0.00
Nov 18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Nov 19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Nov 20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Nov 21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Nov 22	0.00	0.00	0.00	0.00	0.00	0.00	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
Nov 23	0.00	0.00	0.00	0.00	0.00	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
Nov 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	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
Nov 26	0.00	0.00	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
Nov 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	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
Nov 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	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
Nov 29	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
Nov 30	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
Diurnal Maximum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	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	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.



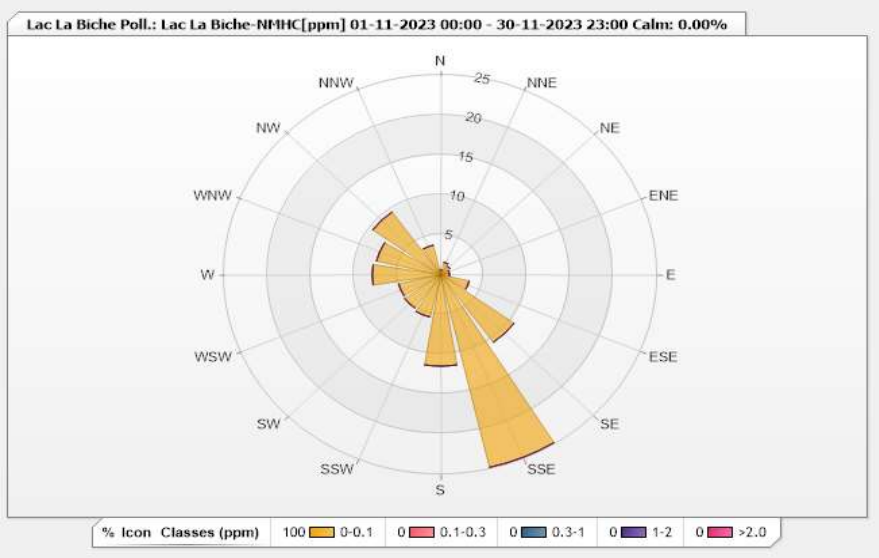


Station: Lac La Biche Poll.: Lac La Biche-NMHC[ppm] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 94.86% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	0.59	0	0	0	0	0.59
NNE	1.61	0	0	0	0	1.61
NE	1.32	0	0	0	0	1.32
ENE	1.02	0	0	0	0	1.02
E	1.02	0	0	0	0	1.02
ESE	3.37	0	0	0	0	3.37
SE	10.4	0	0	0	0	10.4
SSE	24.74	0	0	0	0	24.74
S	11.42	0	0	0	0	11.42
SSW	5.42	0	0	0	0	5.42
SW	5.12	0	0	0	0	5.12
WSW	4.98	0	0	0	0	4.98
W	7.91	0	0	0	0	7.91
WNW	7.61	0	0	0	0	7.61
NW	9.66	0	0	0	0	9.66
NNW	3.81	0	0	0	0	3.81
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - November 2023

Summary of Hourly Averages

PARTICULATE MATTER 2.5 ($PM_{2.5}$) in µg/m^3

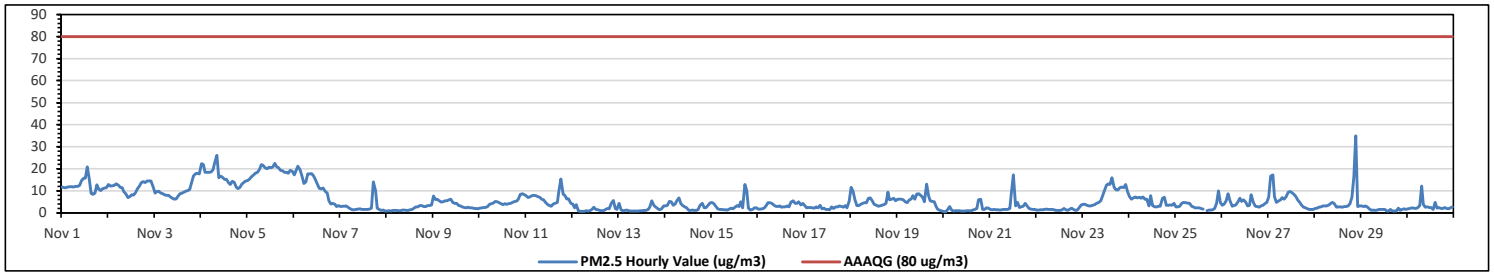
Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m3, Alberta Ambient Air Quality Objective (AAAQO): 24-Hour 29 µg/m3

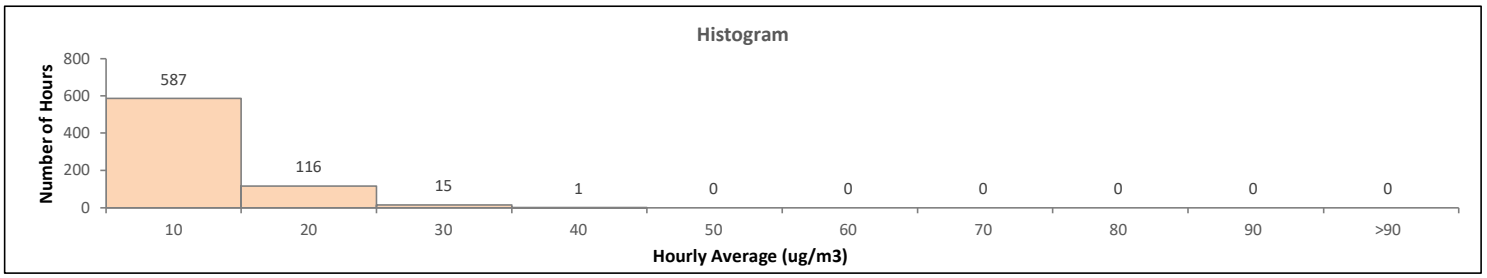
Number of 1-Hour Exceedances:	0	Number of 24-Hour Exceedances:	0		
Maximum Hourly Value:	35 µg/m^3 on Nov 28 at hr 21			Hours in Service:	720
Maximum Daily Value:	19.2 µg/m^3 on Nov 5			Hours of Data:	719
Minimum Hourly Value:	1 µg/m^3 on Nov 20 at hr 0			Hours of Missing Data:	0
Minimum Daily Value:	2 µg/m^3 on Nov 22			Hours of Calibration:	1
Monthly Average:	5.8 µg/m^3			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			
Nov 1	12	12	11	12	12	12	12	12	12	12	15	16	16	21	16	9	8	9	13	11	10	11	11	11	8	21	12.3
Nov 2	13	12	12	12	13	13	12	11	10	9	7	7	8	8	9	11	12	14	14	14	14	14	15	12	7	15	11.5
Nov 3	9	10	10	9	9	8	8	8	7	7	6	6	8	9	9	9	10	10	11	14	17	18	18	18	6	18	10.3
Nov 4	22	22	18	19	18	19	20	23	26	16	17	16	15	15	14	13	14	14	12	11	12	13	14	14	11	26	16.5
Nov 5	15	15	16	17	18	18	20	22	22	20	20	21	20	21	23	21	21	19	19	19	18	18	19	19	15	23	**19.2**
Nov 6	17	19	21	20	17	13	14	18	18	18	17	15	13	11	11	11	10	9	6	4	4	4	3	3	3	21	12.3
Nov 7	3	3	3	3	2	2	1	1	2	2	2	2	2	2	2	2	2	14	10	2	2	1	1	1	1	14	2.7
Nov 8	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	3	3	3	3	3	3	4	1	4	1.9
Nov 9	8	6	6	5	5	5	6	5	6	6	5	4	4	3	3	3	2	2	3	2	2	2	2	2	2	8	4.1
Nov 10	2	2	2	2	3	4	4	5	5	5	5	4	4	4	4	4	4	5	5	5	6	8	9	8	2	9	4.6
Nov 11	8	7	7	8	8	8	7	7	6	6	5	4	3	3	4	4	5	10	15	9	8	6	6	4	3	15	6.6
Nov 12	4	2	4	1	1	1	1	1	1	1	2	3	2	1	1	1	1	2	2	2	4	6	2	2	1	6	1.8
Nov 13	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	6	3	3	2	1	2	3	1	6	1.8
Nov 14	3	3	5	5	3	4	6	7	4	3	3	2	1	1	1	1	1	2	4	4	2	2	3	5	1	7	3.2
Nov 15	5	4	3	2	2	2	1	1	1	2	2	2	3	3	3	5	2	13	10	2	1	2	2	2	1	13	3.1
Nov 16	2	2	2	2	3	5	5	4	4	3	3	3	3	3	3	3	3	5	6	4	4	5	4	4	2	6	3.4
Nov 17	3	2	2	2	2	2	3	2	4	2	2	2	2	1	3	2	3	3	3	3	3	3	2	5	1	5	2.5
Nov 18	12	10	6	3	3	4	4	5	5	7	7	5	4	3	3	3	3	4	4	9	6	6	7	6	3	12	5.4
Nov 19	6	6	6	6	5	5	6	6	8	6	9	9	8	7	5	13	8	6	5	5	3	2	1	1	1	13	5.8
Nov 20	1	1	2	3	1	1	1	1	1	1	1	1	1	1	1	1	2	2	6	6	2	2	2	2	**1**	6	1.7
Nov 21	2	1	2	1	1	1	1	2	2	2	2	9	17	3	5	2	3	3	4	3	2	2	2	2	1	17	3.0
Nov 22	1	1	1	1	2	2	2	2	2	1	1	1	1	1	2	1	1	2	2	2	1	1	2	4	1	4	**1.6**
Nov 23	4	4	4	3	3	3	4	4	5	5	7	10	13	13	13	16	12	10	10	11	12	12	13	10	3	16	8.3
Nov 24	7	6	7	7	7	7	7	7	6	6	3	8	3	3	3	3	3	7	7	3	3	4	3	4	3	8	5.2
Nov 25	3	3	3	4	5	5	5	4	3	3	2	2	2	2	2	C	1	1	1	1	2	4	10	5	1	10	3.2
Nov 26	3	4	6	9	6	3	3	4	5	7	5	6	5	3	4	8	5	3	3	3	3	4	4	5	3	9	4.5
Nov 27	7	17	17	7	5	5	6	7	6	7	9	10	9	8	7	6	5	3	3	2	2	2	2	2	2	17	6.4
Nov 28	2	2	3	3	3	3	3	4	4	5	4	3	3	3	3	3	3	3	4	7	16	**35**	3	3	2	**35**	5.1
Nov 29	3	3	3	3	2	1	1	1	1	2	2	2	2	1	1	2	1	1	1	2	1	2	2	2	1	3	1.6
Nov 30	2	2	2	2	2	2	3	12	4	3	3	2	2	2	5	2	2	2	2	2	2	2	2	3	2	12	2.8
Diurnal Maximum	22	22	21	20	18	19	20	23	26	20	20	21	20	21	23	21	21	19	19	19	18	35	19	19			
Diurnal Average	6.1	6.1	6.2	5.8	5.4	5.3	5.5	6.3	6.0	5.6	5.5	5.9	5.8	5.3	5.3	5.6	5.1	6.1	6.3	5.6	5.6	6.4	5.6	5.4			

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.



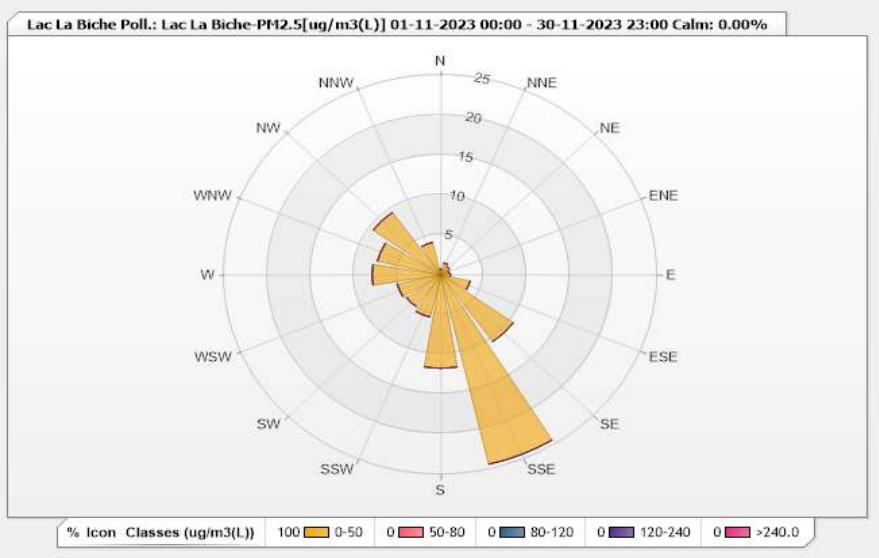


Station: Lac La Biche Poll.: Lac La Biche-PM2.5[ug/m3(L)] Monthly: 11-2023

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

Calm: 0.00% Valid Data: 99.86% Calm Avg: 0.00 [ug/m3(L)]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	0.7	0	0	0	0	0.7
NNE	1.53	0	0	0	0	1.53
NE	1.25	0	0	0	0	1.25
ENE	0.97	0	0	0	0	0.97
E	1.11	0	0	0	0	1.11
ESE	3.48	0	0	0	0	3.48
SE	10.29	0	0	0	0	10.29
SSE	24.34	0	0	0	0	24.34
S	11.68	0	0	0	0	11.68
SSW	5.42	0	0	0	0	5.42
SW	4.87	0	0	0	0	4.87
WSW	5.15	0	0	0	0	5.15
W	7.93	0	0	0	0	7.93
WNW	7.51	0	0	0	0	7.51
NW	9.6	0	0	0	0	9.6
NNW	4.17	0	0	0	0	4.17
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - November 2023

Summary of Hourly Averages

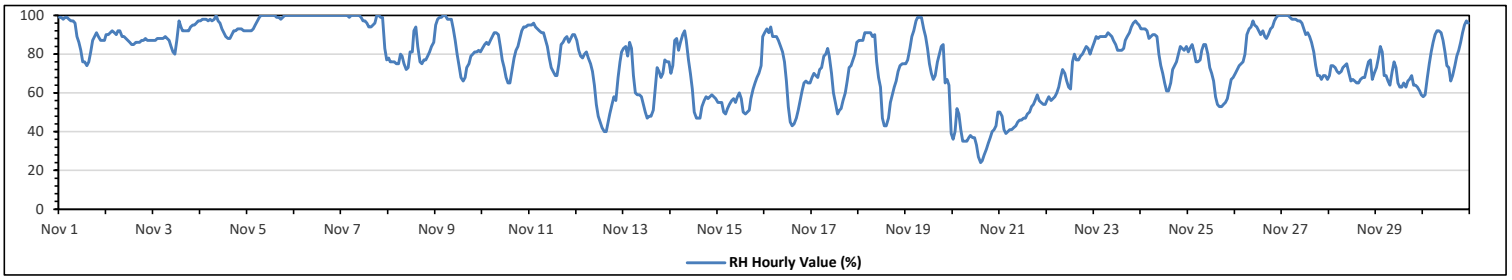
RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	100	%	on Nov 4 at hr 8	Hours in Service:	720
Maximum Daily Value:	100.0	%	on Nov 6	Hours of Data:	720
Minimum Hourly Value:	24	%	on Nov 20 at hr 14	Hours of Missing Data:	0
Minimum Daily Value:	36.9	%	on Nov 20	Hours of Calibration:	0
Monthly Average:	77.6	%		Operational Uptime:	100.0

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
Nov 1	99	99	98	99	99	98	97	97	96	89	86	82	76	76	74	76	81	87	89	91	89	87	87	87	74	99	89.1
Nov 2	90	90	91	92	91	90	92	92	89	89	88	87	86	85	85	86	86	86	87	87	88	87	87	87	85	92	88.3
Nov 3	87	87	88	88	88	88	89	88	87	84	81	80	87	97	94	92	92	92	92	94	95	95	96	97	80	97	89.9
Nov 4	97	98	98	98	97	98	97	98	**100**	97	96	93	91	89	88	88	90	92	92	93	93	93	92	92	88	**100**	94.2
Nov 5	92	92	92	93	95	97	99	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	99	99	98	99	**100**	**100**	**100**	**100**	**100**	92	**100**	98.1
Nov 6	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	100	**100**	**100.0**
Nov 7	**100**	**100**	**100**	**100**	99	**100**	**100**	**100**	**100**	**100**	99	97	97	96	94	94	95	96	**100**	**100**	99	99	83	77	77	**100**	96.9
Nov 8	78	76	76	76	75	75	80	79	75	72	73	81	81	92	94	84	76	75	77	77	79	81	84	86	72	94	79.3
Nov 9	95	98	99	99	**100**	**100**	98	98	98	93	87	80	74	68	66	68	73	75	79	80	81	81	82	81	66	**100**	85.5
Nov 10	83	85	86	85	87	89	91	91	90	84	77	73	68	65	65	72	78	82	84	88	92	94	94	95	65	95	83.3
Nov 11	95	95	96	94	93	92	91	91	88	84	78	73	71	69	69	75	85	86	88	89	86	88	90	90	69	96	85.7
Nov 12	87	82	79	78	80	81	78	75	71	64	54	48	45	42	40	40	45	49	54	58	56	68	76	81	40	87	63.8
Nov 13	83	84	79	86	83	69	60	59	59	58	54	50	47	48	48	51	62	73	71	68	70	77	76	76	47	86	66.3
Nov 14	70	74	87	88	82	86	90	92	87	77	70	62	50	47	47	47	53	56	58	57	58	59	58	57	47	92	67.2
Nov 15	55	55	55	50	49	52	54	56	57	55	58	60	57	50	49	50	51	57	62	65	68	70	74	89	49	89	58.3
Nov 16	91	93	91	94	89	89	89	87	84	81	76	66	53	45	43	44	47	51	56	61	65	66	65	65	43	94	70.5
Nov 17	68	70	69	68	72	73	79	80	83	79	70	60	55	49	51	52	56	60	66	73	74	77	80	86	49	86	68.8
Nov 18	87	87	87	91	91	91	91	89	90	76	68	63	47	43	43	47	55	59	63	66	71	74	75	75	43	91	72.0
Nov 19	75	77	83	89	92	97	99	99	99	93	89	83	75	70	67	69	76	80	84	85	65	67	64	39	39	99	79.8
Nov 20	36	40	52	49	41	35	35	35	37	38	37	37	33	27	**24**	25	28	31	34	37	40	41	43	50	**24**	52	**36.9**
Nov 21	50	48	41	39	40	41	41	42	43	45	46	46	47	47	49	50	53	54	56	59	56	55	54	54	39	59	48.2
Nov 22	56	58	56	57	58	60	63	68	72	70	66	63	62	76	80	77	77	79	80	82	84	83	80	83	56	84	70.4
Nov 23	86	89	88	89	89	89	89	91	90	89	87	85	82	82	82	83	87	89	91	94	96	97	96	95	82	97	89.0
Nov 24	93	93	93	92	88	89	90	90	89	80	74	70	65	61	61	65	72	74	76	80	84	83	82	84	61	93	80.3
Nov 25	81	83	85	81	76	76	77	82	85	85	80	73	70	66	58	54	53	53	54	55	57	62	67	68	53	85	70.0
Nov 26	70	72	74	75	76	80	90	93	94	97	95	94	92	90	92	89	88	90	93	94	97	99	**100**	**100**	70	**100**	88.9
Nov 27	**100**	**100**	**100**	**100**	99	98	98	98	97	97	96	93	90	91	89	86	81	74	69	69	67	69	69	67	67	**100**	87.4
Nov 28	69	74	74	73	71	70	71	73	74	75	70	66	67	66	65	65	67	68	68	72	76	77	67	70	65	77	70.3
Nov 29	73	78	84	81	69	69	66	64	71	76	73	65	63	63	65	63	66	67	69	64	64	63	61	59	59	84	68.2
Nov 30	58	59	68	75	81	86	90	92	92	91	87	81	74	73	66	69	74	79	82	86	91	95	97	96	58	97	80.9
Diurnal Maximum	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100			
Diurnal Average	80.1	81.2	82.3	82.6	81.7	81.9	82.8	83.3	83.2	80.6	77.2	73.7	70.2	69.1	68.3	68.7	71.5	73.7	75.8	77.5	78.0	79.6	79.3	79.5			

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance	
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance	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 - November 2023

Summary of Hourly Averages

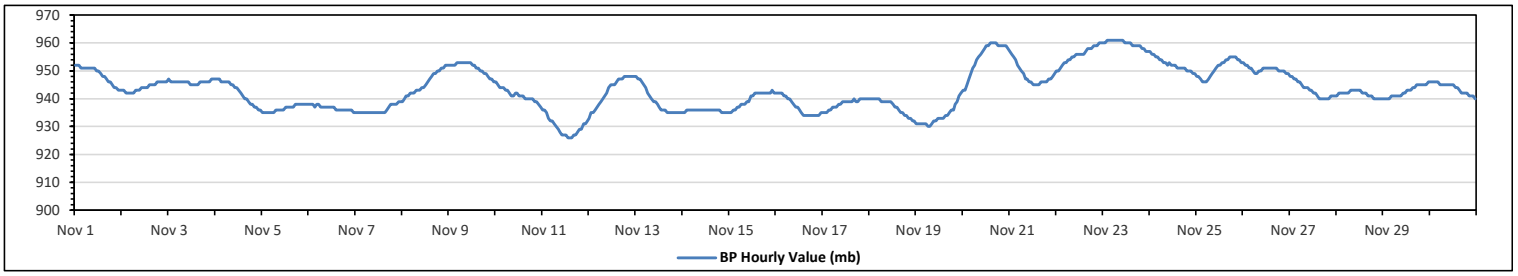
BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	961	mb	on Nov 23 at hr 2	Hours in Service:	720	
Maximum Daily Value:	960	mb	on Nov 23	Hours of Data:	720	
Minimum Hourly Value:	926	mb	on Nov 11 at hr 13	Hours of Missing Data:	0	
Minimum Daily Value:	930	mb	on Nov 11	Hours of Calibration:	0	
Monthly Average:	944	mb		Operational Uptime:	100.0	

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
Nov 1	952	952	952	951	951	951	951	951	951	951	951	950	950	949	948	948	947	946	946	945	944	944	943	943	943	952	949
Nov 2	943	943	942	942	942	942	942	943	943	943	944	944	944	944	945	945	945	945	946	946	946	946	946	946	942	946	944
Nov 3	947	946	946	946	946	946	946	946	946	946	946	945	945	945	945	945	946	946	946	946	946	946	947	947	945	947	946
Nov 4	947	947	947	946	946	946	946	946	945	945	944	944	943	942	941	940	940	939	938	938	937	937	936	936	936	947	942
Nov 5	935	935	935	935	935	935	935	936	936	936	936	936	937	937	937	937	937	938	938	938	938	938	938	938	935	938	937
Nov 6	938	938	938	937	938	938	937	937	937	937	937	937	937	937	936	936	936	936	936	936	936	936	936	935	935	938	937
Nov 7	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	936	937	938	938	938	938	939	939	935	939	936
Nov 8	939	940	941	941	942	942	942	943	943	943	944	944	945	946	947	948	949	949	950	950	951	951	952	952	939	952	946
Nov 9	952	952	952	952	953	953	953	953	953	953	953	953	952	952	951	951	950	950	949	949	948	947	947	946	946	953	951
Nov 10	946	945	944	944	944	943	943	942	941	941	942	942	941	941	941	940	940	940	940	940	939	939	938	937	937	946	941
Nov 11	936	936	935	933	932	932	931	930	929	928	927	927	927	**926**	**926**	**926**	927	927	928	929	929	931	931	932	**926**	936	**930**
Nov 12	933	935	935	936	937	938	939	940	941	942	944	945	945	945	946	947	947	947	948	948	948	948	948	948	933	948	943
Nov 13	948	947	947	946	945	944	942	941	940	939	939	938	937	936	936	936	935	935	935	935	935	935	935	935	935	948	939
Nov 14	935	935	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	935	935	935	935	935	936	936
Nov 15	935	935	936	936	937	937	938	938	938	939	939	941	941	942	942	942	942	942	942	942	942	942	943	942	935	943	940
Nov 16	942	942	942	942	941	941	940	940	939	938	937	937	936	935	934	934	934	934	934	934	934	934	934	935	934	942	937
Nov 17	935	935	935	936	936	937	937	937	938	938	939	939	939	939	939	939	940	939	939	940	940	940	940	940	935	940	938
Nov 18	940	940	940	940	940	940	939	939	939	939	939	939	938	937	937	936	935	935	934	934	933	933	932	932	932	940	937
Nov 19	931	931	931	931	931	931	930	930	931	932	932	933	933	933	933	934	934	935	936	936	938	939	941	942	930	942	934
Nov 20	943	943	945	947	949	951	952	954	955	956	957	958	959	959	960	960	960	960	959	959	959	959	959	958	943	960	955
Nov 21	957	956	955	954	952	951	950	949	947	947	946	946	945	945	945	945	946	946	946	946	947	947	948	949	945	957	949
Nov 22	950	950	951	952	953	953	954	954	955	955	956	956	956	956	956	957	958	958	958	959	959	959	960	960	950	960	956
Nov 23	960	960	**961**	**961**	**961**	**961**	**961**	**961**	**961**	**961**	**961**	960	960	960	960	959	959	959	959	959	958	958	957	957	957	**961**	**960**
Nov 24	957	956	956	955	955	954	954	953	953	952	953	952	952	952	951	951	951	951	951	950	950	950	949	949	949	957	952
Nov 25	948	948	947	946	946	946	947	948	949	950	951	952	952	953	953	954	954	955	955	955	955	954	954	953	946	955	951
Nov 26	953	952	952	951	951	950	949	949	950	950	951	951	951	951	951	951	951	951	950	950	950	950	949	949	949	953	951
Nov 27	948	948	947	947	946	946	945	944	944	944	943	943	942	942	941	940	940	940	940	940	940	941	941	941	940	948	943
Nov 28	941	942	942	942	942	942	942	943	943	943	943	943	943	942	942	942	941	941	941	940	940	940	940	940	940	943	942
Nov 29	940	940	940	940	941	941	941	941	941	941	942	942	943	943	943	944	944	945	945	945	945	945	945	946	940	946	943
Nov 30	946	946	946	946	946	945	945	945	945	945	945	945	945	944	944	943	942	942	942	942	941	941	941	940	940	946	944
Diurnal Maximum	960	960	961	961	961	961	961	961	961	961	961	960	960	960	960	960	960	960	959	959	959	959	960	960			
Diurnal Average	944	944	944	944	944	944	943	943	943	944	944	944	944	943	943	943	943	943	944	944	943	943	943	943			

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 - November 2023

Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

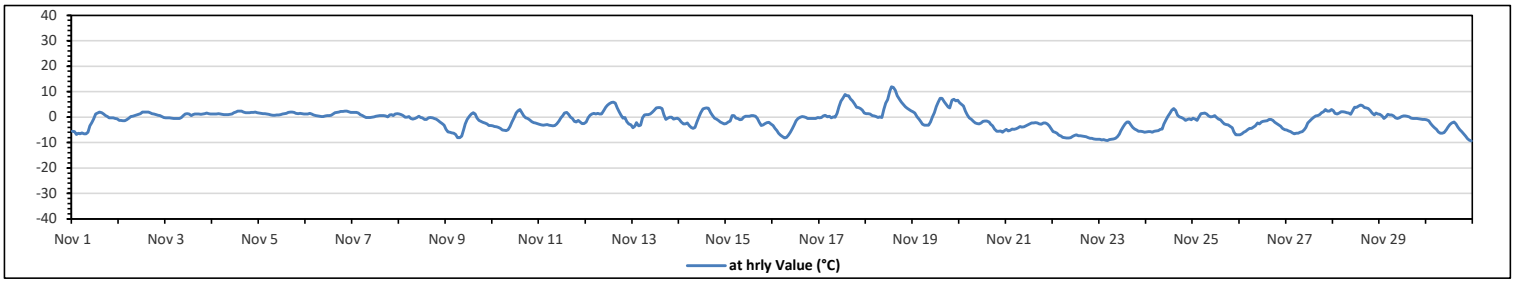
Maximum Hourly Value:	11.9	°C	on Nov 18 at hr 13	Hours in Service:	720	
Maximum Daily Value:	4.3	°C	on Nov 18	Hours of Data:	720	
Minimum Hourly Value:	-9.4	°C	on Nov 30 at hr 23	Hours of Missing Data:	0	
Minimum Daily Value:	-7.6	°C	on Nov 22	Hours of Calibration:	0	
Monthly Average:	-0.9	°C		Operational Uptime:	100.0	

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
Nov 1	-5.5	-5.7	-6.8	-6.4	-6.5	-6.2	-6.6	-6.6	-6	-3.5	-2.2	-0.7	1.3	1.6	2	1.7	1.2	0.5	0.2	-0.3	-0.3	-0.3	-0.5	-0.7	-6.8	2.0	-2.3
Nov 2	-1.2	-1.2	-1.4	-1.4	-1.1	-0.4	0.2	0.3	0.6	0.9	1.1	1.4	1.9	2	2	2	1.7	1.4	1.2	1	0.7	0.5	0.2	-0.1	-1.4	2.0	0.5
Nov 3	-0.3	-0.3	-0.3	-0.4	-0.5	-0.6	-0.6	-0.5	-0.1	0.6	1.2	1.4	1.2	0.6	1	1.2	1.3	1.2	1.1	1.3	1.4	1.6	1.4	1.3	-0.6	1.6	0.6
Nov 4	1.3	1.2	1.3	1.4	1.2	1.1	1	1	1	1.1	1.3	1.7	2	2.4	2.4	2.3	2	1.7	1.7	1.7	1.8	1.8	1.9	1.7	1.0	2.4	1.6
Nov 5	1.6	1.5	1.4	1.4	1.3	1.1	0.9	0.7	0.7	0.8	0.9	1	1.2	1.4	1.5	1.8	1.9	1.9	1.8	1.5	1.4	1.5	1.4	1.3	0.7	1.9	1.3
Nov 6	1.2	1.3	1.5	1.3	0.9	0.6	0.4	0.3	0.2	0.2	0.4	0.5	0.5	0.7	1.2	1.7	1.8	2	2.2	2.2	2.4	2.4	2.1	1.8	0.2	2.4	1.2
Nov 7	1.8	1.8	1.8	1.6	1	0.6	0.2	-0.1	-0.2	-0.1	0	0.1	0.3	0.4	0.5	0.6	0.6	0.4	0.1	0.8	1	0.6	1.3	1.4	-0.2	1.8	0.7
Nov 8	1.3	1	0.5	0	0	0.2	-0.6	-0.8	-0.6	-0.2	0.3	-0.2	-0.3	-0.9	-0.9	-0.3	-0.1	-0.3	-0.5	-0.8	-1.2	-2	-2.5	-3.2	-3.2	1.3	-0.5
Nov 9	-4.8	-5.8	-5.9	-6.2	-6.4	-6.8	-8	-8	-7.5	-5	-2.7	-0.9	0.3	1.2	1.7	1.3	-0.4	-1.3	-1.7	-2.1	-2.4	-2.6	-3.3	-3.3	-8.0	1.7	-3.4
Nov 10	-3.4	-3.7	-3.8	-4	-4.4	-5.1	-5.2	-5.3	-5	-3.7	-2	-0.2	1.6	2.5	2.9	1.7	0.4	-0.3	-0.5	-1.1	-1.8	-2.2	-2.4	-2.5	-5.3	2.9	-2.0
Nov 11	-2.8	-3.1	-3.2	-3	-2.9	-3.2	-3.3	-3.5	-3.3	-2.7	-1.5	-0.3	0.5	1.6	1.8	1.1	0	-0.6	-1.6	-2	-1.3	-1.9	-2.5	-2.5	-3.5	1.8	-1.7
Nov 12	-1.9	-0.3	0.7	1.3	1.5	1.3	1.5	1.2	1.3	2.6	3.9	4.6	5.2	5.7	5.9	5.5	3.6	2.1	0.7	-0.4	-0.2	-1.8	-2.7	-3.1	-3.1	5.9	1.6
Nov 13	-4.2	-3.6	-2.2	-3.5	-3.2	-0.3	0.9	1	1	1.2	1.8	2.6	3.6	3.7	3.8	3.3	0.9	-0.9	-0.4	0	0	-0.8	-0.6	-0.4	-4.2	3.8	0.2
Nov 14	-0.9	-2	-2.7	-2.7	-2.3	-3.3	-4.1	-4.5	-4	-1.9	0	1.7	3.2	3.5	3.6	3.5	1.7	0.5	-0.4	-0.8	-1.3	-1.9	-2.3	-2.6	-4.5	3.6	-0.8
Nov 15	-2.5	-2	-1.5	0.5	0.6	-0.4	-0.6	-1.1	-1	0	0.3	0.3	0.3	0.6	0.6	0.3	-0.6	-2.1	-3.3	-3	-2.5	-2.2	-2.1	-2.7	-3.3	0.6	-1.0
Nov 16	-3.3	-4.4	-5.3	-6.4	-7.1	-7.8	-8.2	-7.9	-7.1	-6	-4.6	-3	-1.4	-0.5	0	0.2	0.1	-0.2	-0.5	-0.5	-0.5	-0.6	-0.5	-0.1	-8.2	0.2	-3.2
Nov 17	-0.3	-0.2	0.4	0.7	0.1	0.3	-0.3	0.1	0	1.5	4.1	6.2	7.3	8.9	8.3	8.3	7.1	6.4	5.1	3.9	3.7	3.3	2.8	1.6	-0.3	8.9	3.3
Nov 18	1.4	1.4	1.3	0.5	0.4	0.2	-0.2	0.1	-0.1	2.9	5.5	6.9	10.3	**11.9**	11.7	10.5	8.3	7	5.9	5	4.2	3.5	2.9	2.5	-0.2	**11.9**	**4.3**
Nov 19	2.1	1.6	0.1	-0.8	-1.7	-2.8	-3.2	-3.2	-3.2	-2	0.1	1.7	4.2	5.9	7.3	7.3	6	5	4	3.6	6.6	7	6.4	6.6	-3.2	7.3	2.4
Nov 20	5.6	5	4.3	2.3	0.8	-0.3	-0.9	-1.6	-2.3	-2.5	-2.6	-2.3	-1.7	-1.5	-1.5	-2	-2.8	-3.4	-4.7	-5.5	-5.5	-5.4	-6	-5.3	-6.0	5.6	-1.7
Nov 21	-4.9	-5.4	-5.2	-4.7	-4.8	-4.6	-4.2	-3.7	-3.9	-3.8	-3.4	-3.1	-2.7	-2.4	-2.3	-2.2	-2.3	-2.6	-2.8	-2.4	-2.3	-2.7	-3.5	-4.6	-5.4	-2.2	-3.5
Nov 22	-5.7	-6	-6.4	-7.1	-7.5	-7.9	-8.1	-8.2	-8.2	-8.1	-7.6	-7.2	-6.9	-7.3	-7.4	-7.5	-7.6	-7.8	-8.1	-8.3	-8.3	-8.6	-8.7	-8.7	-8.7	-5.7	**-7.6**
Nov 23	-8.8	-9	-8.9	-9.1	-9.2	-8.9	-8.8	-8.6	-8.3	-7.8	-6.7	-5.3	-3.8	-2.7	-2	-2	-3.1	-4	-4.7	-5.1	-5.6	-5.6	-5.7	-5.9	-9.2	-2.0	-6.2
Nov 24	-5.8	-5.7	-5.7	-5.9	-5.5	-5.4	-5.3	-4.9	-4.7	-2.8	-1.3	0.3	1.5	2.8	3.4	2.6	0.7	0.1	-0.2	-0.6	-1.3	-0.9	-0.7	-1.1	-5.9	3.4	-1.9
Nov 25	-0.4	-0.8	-1.2	0.1	1.4	1.5	1.6	1.2	0.4	0.1	0.2	0.5	-0.2	-0.8	-1.1	-2	-2.6	-2.9	-3.1	-3.7	-4.2	-5.8	-6.9	-7	-7.0	1.6	-1.5
Nov 26	-6.9	-6.5	-6	-5.5	-5	-4.5	-4.4	-3.9	-3.4	-2.4	-2.6	-1.9	-1.6	-1.5	-1.4	-1	-1	-1.3	-2.1	-2.5	-3	-3.6	-4.5	-5	-6.9	-1.0	-3.4
Nov 27	-5.1	-5.4	-5.7	-6.2	-6.5	-6.3	-6.3	-5.9	-5.7	-5	-4	-2.4	-1.5	-0.7	0	0.4	0.5	1	1.7	2.1	2.9	2.3	2.4	3	-6.5	3.0	-2.1
Nov 28	2.5	1.5	1.3	1.6	2.1	2.1	2	1.7	1.6	1.1	2.5	3.9	3.9	4.3	4.7	4.5	3.8	3.6	3.4	2.6	1.6	0.8	1.6	1.3	0.8	4.7	2.5
Nov 29	1.1	0.4	-0.6	0.1	1.1	0.8	0.8	0.4	-0.3	-0.6	-0.3	0.2	0.4	0.4	0.3	0.1	-0.4	-0.6	-0.6	-0.6	-0.7	-0.8	-0.9	-1	-1.0	1.1	-0.1
Nov 30	-1.1	-1.4	-2.5	-3.4	-4.2	-4.9	-5.8	-6.4	-6.3	-6.1	-5	-3.9	-2.9	-2.4	-2	-2.7	-3.9	-5	-5.7	-6.6	-7.5	-8.5	-9.1	**-9.4**	**-9.4**	-1.1	-4.9
Diurnal Maximum	5.6	5.0	4.3	2.3	2.1	2.1	2.0	1.7	1.6	2.9	5.5	6.9	10.3	11.9	11.7	10.5	8.3	7.0	5.9	5.0	6.6	7.0	6.4	6.6			
Diurnal Average	-1.7	-1.9	-2.0	-2.1	-2.2	-2.3	-2.5	-2.6	-2.5	-1.7	-0.8	0.1	0.9	1.4	1.6	1.4	0.6	0.0	-0.4	-0.7	-0.7	-1.1	-1.4	-1.6			

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 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 - November 2023

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

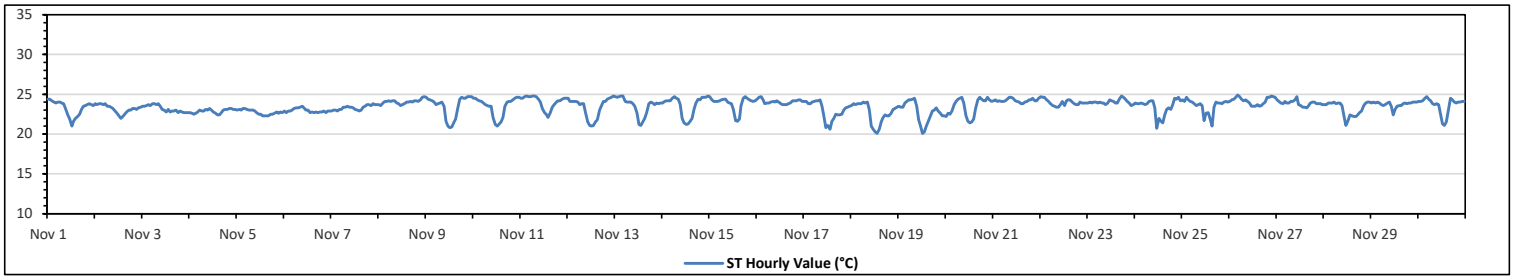
Maximum Hourly Value:	24.9	°C	on Nov 26 at hr 4	Hours in Service:	720	
Maximum Daily Value:	24.2	°C	on Nov 21	Hours of Data:	720	
Minimum Hourly Value:	20.1	°C	on Nov 18 at hr 13	Hours of Missing Data:	0	
Minimum Daily Value:	22.6	°C	on Nov 18	Hours of Calibration:	0	
Monthly Average:	23.5	°C		Operational Uptime:	100.0	

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
Nov 1	24.4	24.4	24.2	24.0	23.9	24.0	24.0	23.9	23.8	23.1	22.4	21.9	21.0	21.6	22.0	22.2	22.5	23.1	23.5	23.6	23.7	23.8	23.7	23.6	21.0	24.4	23.3
Nov 2	23.8	23.7	23.8	23.8	23.7	23.8	23.5	23.5	23.4	23.2	22.9	22.6	22.3	22.0	22.2	22.5	22.8	23.0	23.0	23.2	23.2	23.1	23.3	23.4	22.0	23.8	23.2
Nov 3	23.5	23.5	23.6	23.7	23.6	23.8	23.8	23.7	23.8	23.5	23.1	23.0	22.8	23.1	22.8	22.9	22.9	23.0	22.7	22.9	22.8	22.7	22.7	22.7	22.7	23.8	23.2
Nov 4	22.7	22.6	22.5	22.6	22.8	23.0	22.9	22.9	23.1	23.0	23.2	23.0	22.8	22.6	22.4	22.4	22.7	23.0	23.1	23.1	23.2	23.2	23.1	23.1	22.4	23.2	22.9
Nov 5	23.0	23.1	23.0	23.2	23.2	23.1	23.0	23.0	23.0	22.9	22.7	22.5	22.5	22.3	22.3	22.3	22.3	22.5	22.5	22.6	22.8	22.6	22.8	22.7	22.3	23.2	22.7
Nov 6	22.9	22.7	22.9	22.9	23.0	23.2	23.3	23.3	23.4	23.5	23.3	23.0	23.0	22.7	22.8	22.7	22.8	22.7	22.8	22.8	22.9	22.7	22.9	22.9	22.7	23.5	23.0
Nov 7	22.9	23.0	23.0	22.9	23.1	23.1	23.4	23.4	23.5	23.4	23.4	23.3	23.1	23.0	22.9	23.0	23.4	23.5	23.7	23.7	23.6	23.8	23.7	23.7	22.9	23.8	23.3
Nov 8	23.7	23.6	23.9	24.1	24.1	24.2	24.1	24.2	24.2	23.9	23.8	23.6	23.7	23.8	24.0	24.0	24.1	24.0	24.2	24.2	24.1	24.3	24.6	24.7	23.6	24.7	24.0
Nov 9	24.6	24.4	24.3	24.2	24.0	23.7	23.8	23.9	24.0	23.5	21.6	21.0	20.8	20.9	21.4	21.9	23.3	24.4	24.6	24.5	24.5	24.7	24.7	24.7	20.8	24.7	23.5
Nov 10	24.5	24.5	24.3	24.2	24.1	23.9	23.7	23.6	23.5	23.5	22.1	21.2	21.0	21.2	21.5	22.1	23.5	24.0	24.1	24.1	24.3	24.5	24.6	24.6	21.0	24.6	23.4
Nov 11	24.5	24.5	24.7	24.8	24.7	24.7	24.8	24.8	24.7	24.4	24.0	23.2	22.7	22.5	22.1	22.7	23.4	23.7	24.0	24.2	24.2	24.4	24.5	24.5	22.1	24.8	24.0
Nov 12	24.5	24.1	24.1	24.1	24.1	24.0	23.7	23.8	23.8	22.7	21.5	21.1	21.0	21.1	21.5	21.8	23.0	23.6	24.1	24.1	24.4	24.5	24.6	24.8	21.0	24.8	23.3
Nov 13	24.7	24.6	24.7	24.8	24.8	24.1	24.0	24.0	24.0	23.8	23.5	22.6	21.2	21.1	21.5	22.0	22.7	23.8	24.0	23.9	23.7	23.9	23.8	23.9	21.1	24.8	23.5
Nov 14	23.9	24.1	24.2	24.2	24.2	24.5	24.7	24.5	24.4	23.7	22.0	21.4	21.2	21.3	21.6	22.0	23.1	23.9	24.4	24.3	24.6	24.6	24.6	24.8	21.2	24.8	23.6
Nov 15	24.7	24.3	24.1	24.1	24.1	24.2	24.3	24.4	24.4	24.0	23.9	23.8	23.1	21.7	21.6	21.9	23.6	24.5	24.7	24.5	24.3	24.2	24.1	24.2	21.6	24.7	23.9
Nov 16	24.4	24.6	24.7	24.3	23.8	23.9	23.9	24.0	24.1	24.0	24.2	24.0	23.8	23.7	23.7	23.7	23.8	23.9	24.2	24.2	24.2	24.3	24.3	24.1	23.7	24.7	24.1
Nov 17	24.1	24.1	23.8	23.8	24.0	24.1	24.2	24.2	24.3	23.5	22.2	20.8	21.1	20.6	21.6	22.0	22.5	22.4	22.4	22.5	23.0	23.3	23.4	23.5	20.6	24.3	23.0
Nov 18	23.6	23.8	23.7	23.8	23.8	23.8	24.0	23.9	24.0	23.0	21.0	20.6	20.3	**20.1**	20.6	21.5	22.1	22.4	22.3	22.3	22.6	23.1	23.2	23.4	**20.1**	24.0	**22.6**
Nov 19	23.5	23.4	23.4	23.9	24.1	24.3	24.3	24.4	24.5	23.5	21.8	21.0	**20.1**	20.3	21.0	21.7	22.3	22.9	23.0	23.3	22.9	22.6	22.3	22.3	**20.1**	24.5	22.8
Nov 20	22.2	22.6	22.5	22.9	23.7	24.1	24.4	24.5	24.6	23.9	22.3	21.6	21.4	21.5	21.9	23.2	24.3	24.6	24.4	24.2	24.2	24.6	24.3	24.1	21.4	24.6	23.4
Nov 21	24.2	24.3	24.1	24.2	24.1	24.1	24.2	24.4	24.6	24.6	24.5	24.2	24.1	24.0	23.8	23.8	24.0	24.1	24.3	24.3	24.5	24.2	24.2	24.5	23.8	24.6	**24.2**
Nov 22	24.7	24.6	24.6	24.3	24.1	23.8	23.6	23.5	23.4	23.4	23.7	24.1	23.6	24.2	24.3	24.3	24.0	23.8	23.7	23.7	24.0	23.9	23.9	23.9	23.4	24.7	24.0
Nov 23	23.9	24.0	23.9	24.0	24.0	23.9	24.0	23.9	23.9	23.7	23.9	24.3	24.2	24.1	23.9	23.9	24.4	24.8	24.6	24.4	24.1	23.9	23.6	23.7	23.6	24.8	24.0
Nov 24	23.9	23.8	23.8	23.9	23.8	23.7	23.8	24.1	24.2	24.2	23.3	20.7	22.0	21.6	21.4	22.4	23.1	23.3	23.1	23.7	24.5	24.4	24.6	24.2	20.7	24.6	23.4
Nov 25	24.3	24.1	24.6	24.3	24.1	24.0	23.8	23.6	23.7	23.8	23.6	21.7	22.6	22.7	21.9	21.0	23.4	24.0	23.9	23.9	23.8	24.0	24.1	24.0	21.0	24.6	23.5
Nov 26	24.1	24.3	24.4	24.6	**24.9**	24.7	24.4	24.2	24.3	24.1	23.9	23.5	23.5	23.5	23.7	23.5	23.6	23.8	24.0	24.6	24.6	24.8	24.7	24.6	23.5	**24.9**	24.2
Nov 27	24.3	24.1	23.9	23.8	24.1	23.9	23.9	24.1	24.1	24.3	24.7	23.7	23.6	23.4	23.4	23.3	23.6	23.9	24.0	24.0	23.8	23.8	23.8	23.7	23.3	24.7	23.9
Nov 28	23.7	23.7	23.9	23.9	23.9	24.0	23.8	23.9	23.9	23.6	22.1	21.1	21.6	22.4	22.3	22.2	22.2	22.4	22.7	22.9	23.6	23.9	24.0	24.0	21.1	24.0	23.2
Nov 29	23.9	24.0	23.9	24.0	23.9	23.7	23.6	23.7	23.9	24.0	23.5	22.4	23.1	23.5	23.6	23.6	23.8	23.9	23.8	23.9	23.9	24.0	24.0	24.0	22.4	24.0	23.7
Nov 30	24.1	24.1	24.2	24.5	24.7	24.4	24.2	23.8	23.7	23.8	23.7	22.5	21.3	21.1	21.5	22.9	24.5	24.3	24.0	23.9	24.0	24.0	24.1	24.1	21.1	24.7	23.6
Diurnal Maximum	24.7	24.6	24.7	24.8	24.9	24.7	24.8	24.8	24.7	24.6	24.7	24.3	24.2	24.2	24.3	24.3	24.5	24.8	24.7	24.6	24.6	24.8	24.7	24.8			
Diurnal Average	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.7	23.1	22.4	22.3	22.3	22.4	22.6	23.3	23.6	23.7	23.7	23.8	23.9	23.9	23.9			

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance			
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance	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 - November 2023

Summary of Hourly Averages

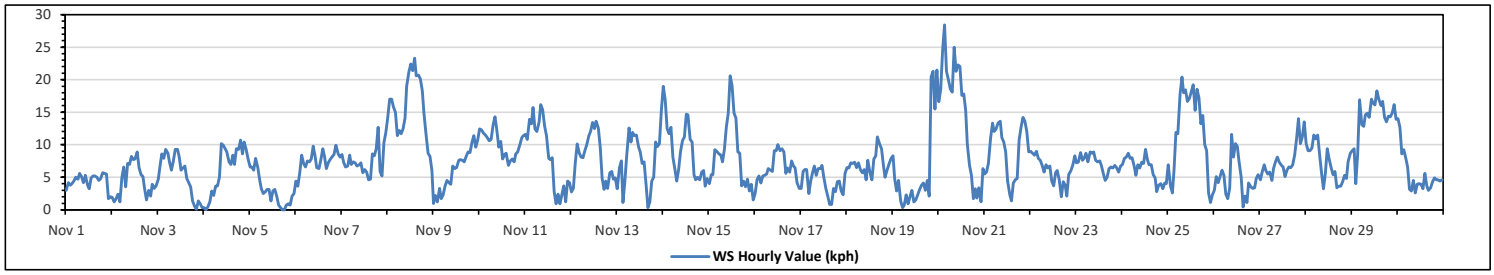
VECTOR WIND SPEED (VWS) in km/hr

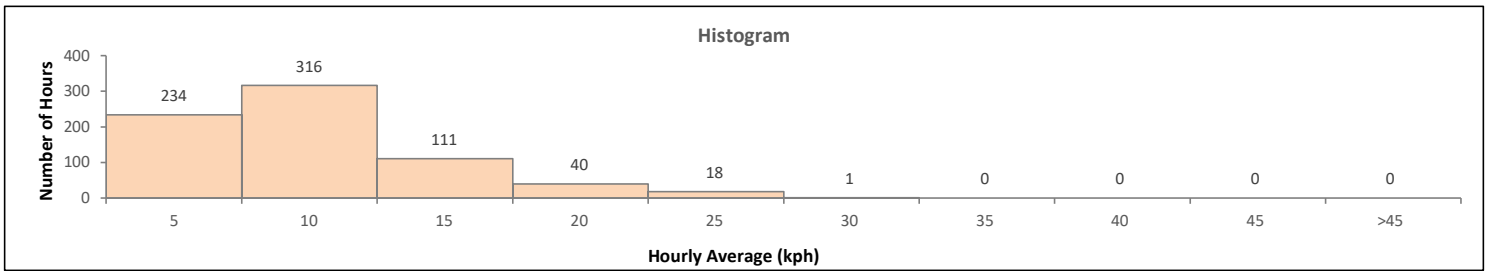
Maximum Hourly Value:	28.4	kph	on Nov 20 at hr 3	Hours in Service:	720
Maximum Daily Value:	15.7	kph	on Nov 8	Hours of Data:	720
Minimum Hourly Value:	0.0	kph	on Nov 4 at hr 1	Hours of Missing Data:	0
Minimum Daily Value:	2.9	kph	on Nov 5	Hours of Calibration:	0
Monthly Average:	2.0	kph		Operational Uptime:	100.0

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
Nov 1	3.0	4.2	3.8	4.0	4.4	5.0	4.7	5.6	5.1	4.2	5.3	3.8	3.2	4.9	5.2	5.2	5.0	4.5	4.8	5.7	5.6	5.5	1.7	2.0	1.7	5.7	4.4
Nov 2	1.9	1.2	1.7	2.4	1.2	4.9	6.6	3.5	7.1	7.0	8.2	7.7	7.8	8.9	6.4	5.4	5.1	3.3	1.5	3.0	2.1	3.9	3.3	3.7	1.2	8.9	4.5
Nov 3	4.7	7.0	8.6	7.9	9.3	8.7	7.3	6.1	7.5	9.3	9.3	8.2	6.1	6.4	6.7	4.8	4.2	3.5	1.4	0.6	0.1	1.4	0.9	0.3	0.1	9.3	5.4
Nov 4	0.3	**0.0**	0.5	1.2	2.9	2.2	3.6	3.7	5.0	10.2	9.9	9.4	8.9	7.4	7.0	8.4	7.0	9.4	9.3	10.7	8.6	10.4	9.4	7.7	**0.0**	10.7	6.4
Nov 5	6.6	6.6	6.1	7.9	6.5	4.5	3.2	2.5	2.7	3.1	3.1	1.4	2.9	3.1	2.1	0.7	0.3	**0.0**	**0.0**	0.7	0.9	0.7	2.1	2.5	**0.0**	7.9	**2.9**
Nov 6	4.4	3.6	5.7	8.4	7.1	6.6	7.5	7.4	7.8	9.8	8.2	6.5	6.3	7.7	9.4	8.3	6.3	7.3	7.8	8.2	8.5	9.9	8.6	8.1	3.6	9.9	7.5
Nov 7	8.5	7.3	6.6	6.7	8.4	7.0	7.4	7.2	6.7	6.9	7.2	5.7	6.2	5.8	4.6	4.7	8.6	8.3	9.4	12.7	5.9	5.2	10.3	11.9	4.6	12.7	7.5
Nov 8	14.2	17.0	17.0	15.8	15.0	11.4	12.2	11.7	12.5	14.1	19.0	21.2	22.4	21.4	23.3	20.6	20.7	20.1	18.3	14.9	11.9	8.7	8.2	6.0	6.0	23.3	**15.7**
Nov 9	1.0	2.2	1.2	3.3	1.7	2.3	3.6	4.5	4.1	3.9	6.7	6.3	6.5	7.6	7.7	7.6	7.4	8.2	8.9	8.8	10.3	11.4	9.6	10.7	1.0	11.4	6.1
Nov 10	12.4	12.3	11.8	11.5	11.1	10.6	10.8	13.0	14.3	12.6	9.6	10.5	7.8	8.5	8.7	6.8	7.5	7.8	7.4	8.6	8.9	10.0	11.1	11.4	6.8	14.3	10.2
Nov 11	11.6	10.8	13.9	13.2	15.7	12.4	12.0	13.5	16.2	15.4	12.9	11.4	7.9	7.7	8.0	2.8	0.9	2.4	0.9	2.3	3.7	1.2	4.4	4.2	0.9	16.2	8.6
Nov 12	2.7	3.3	7.2	10.1	8.8	8.1	8.0	9.1	10.0	11.3	12.1	13.4	12.5	13.6	12.6	9.6	4.8	3.1	4.4	3.3	5.7	5.9	4.7	4.9	2.7	13.6	7.9
Nov 13	3.2	6.4	7.5	1.1	4.4	8.5	12.6	10.4	11.9	11.4	11.5	9.6	8.9	7.1	7.4	4.0	0.3	1.2	4.4	5.0	10.4	9.7	10.2	15.3	0.3	15.3	7.6
Nov 14	19.0	16.9	12.5	11.7	12.7	8.1	6.3	4.4	6.2	9.0	10.6	11.2	14.7	14.6	10.8	10.4	5.4	4.6	5.0	4.6	5.8	6.0	3.6	4.8	3.6	19.0	9.1
Nov 15	4.0	5.4	5.4	9.2	9.0	8.6	8.4	7.4	9.3	12.7	14.8	20.6	19.1	14.9	14.1	8.9	8.7	3.7	4.4	3.5	4.7	2.9	3.9	1.5	1.5	20.6	8.5
Nov 16	2.5	4.6	5.2	4.1	5.2	5.3	5.5	6.3	6.1	5.9	9.1	9.1	10.0	9.1	9.4	8.9	5.6	6.4	5.8	7.5	6.7	6.4	4.2	3.3	2.5	10.0	6.3
Nov 17	3.3	5.9	6.2	6.2	2.5	4.5	5.6	6.7	5.3	6.3	6.3	6.8	4.9	3.3	2.1	0.8	0.8	3.3	2.8	4.3	4.4	2.9	2.3	5.6	0.8	6.8	4.3
Nov 18	6.5	6.4	7.2	7.1	7.3	6.5	7.2	6.2	5.7	6.2	4.6	7.6	5.7	4.6	7.8	8.3	11.2	10.1	9.4	6.8	5.0	6.0	7.1	7.9	4.6	11.2	7.0
Nov 19	8.3	4.8	2.9	4.5	1.3	0.3	0.7	2.3	0.9	2.2	3.0	1.2	1.5	2.3	3.2	3.8	4.1	3.0	4.5	2.1	20.4	21.3	15.5	21.5	0.3	21.5	5.7
Nov 20	16.6	18.5	24.6	**28.4**	21.3	20.0	18.6	18.1	25.0	21.3	22.3	22.0	17.6	17.8	15.3	10.2	6.8	5.3	1.7	3.2	1.8	3.4	1.2	6.3	1.2	**28.4**	14.5
Nov 21	5.5	5.8	7.1	11.1	13.3	12.0	12.4	13.3	13.6	11.1	10.4	8.9	4.4	2.3	1.4	4.1	4.6	4.8	10.7	12.7	14.2	13.6	12.0	8.9	1.4	14.2	9.1
Nov 22	9.0	8.7	8.4	9.0	7.9	7.6	6.8	5.8	6.9	6.4	6.7	4.4	3.7	5.7	6.0	4.7	2.0	4.3	3.8	2.1	5.4	6.0	6.9	8.3	2.0	9.0	6.1
Nov 23	7.2	7.3	8.8	7.6	7.9	8.7	7.4	8.9	8.7	8.9	7.6	7.4	7.5	6.8	5.6	4.5	5.0	6.3	6.6	6.4	6.8	6.4	5.8	6.7	4.5	8.9	7.1
Nov 24	7.0	7.9	8.1	8.7	7.9	8.0	6.8	5.3	6.9	6.4	7.3	7.1	9.3	7.7	6.9	6.9	5.4	4.9	2.8	3.8	4.0	3.2	4.1	4.0	2.8	9.3	6.3
Nov 25	6.9	3.7	2.6	6.0	11.9	11.7	17.8	20.4	18.0	18.4	16.7	17.1	18.3	19.2	15.3	18.5	17.2	13.2	14.5	10.0	9.1	2.6	1.1	2.3	1.1	20.4	12.2
Nov 26	3.0	5.1	4.2	5.1	6.1	5.3	2.4	1.7	3.3	11.6	8.1	10.2	9.7	7.5	5.0	0.4	2.1	1.1	4.1	3.5	3.3	3.4	4.8	5.4	0.4	11.6	4.9
Nov 27	4.6	5.9	6.9	6.0	5.5	5.8	4.5	6.3	7.4	8.1	7.3	6.8	6.6	5.1	6.1	6.6	6.5	6.9	8.4	10.9	14.0	10.2	11.2	13.5	4.5	14.0	7.5
Nov 28	10.2	9.1	9.1	9.5	11.5	10.9	11.5	8.5	5.7	3.2	5.6	9.4	8.0	6.5	5.4	5.9	3.4	3.6	3.6	4.3	5.3	4.8	7.4	8.7	3.2	11.5	7.1
Nov 29	9.1	9.4	4.0	8.6	16.9	13.1	12.8	14.6	14.8	14.2	17.0	16.4	16.1	18.3	17.0	16.0	16.7	14.2	13.5	14.4	14.3	14.9	16.2	13.9	4.0	18.3	14.0
Nov 30	14.0	12.7	8.6	9.2	8.0	6.6	3.1	2.9	4.5	2.6	3.9	4.0	3.9	3.2	5.6	3.7	3.0	3.4	4.3	4.9	4.6	4.6	4.4	4.6	2.6	14.0	5.4
Diurnal Maximum	19.0	18.5	24.6	28.4	21.3	20.0	18.6	20.4	25.0	21.3	22.3	22.0	22.4	21.4	23.3	20.6	20.7	20.1	18.3	14.9	20.4	21.3	16.2	21.5			
Diurnal Average	7.0	7.3	7.4	8.2	8.4	7.8	7.9	7.9	8.6	9.1	9.5	9.5	8.9	8.6	8.2	7.1	6.2	5.9	6.1	6.3	7.1	6.8	6.5	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.



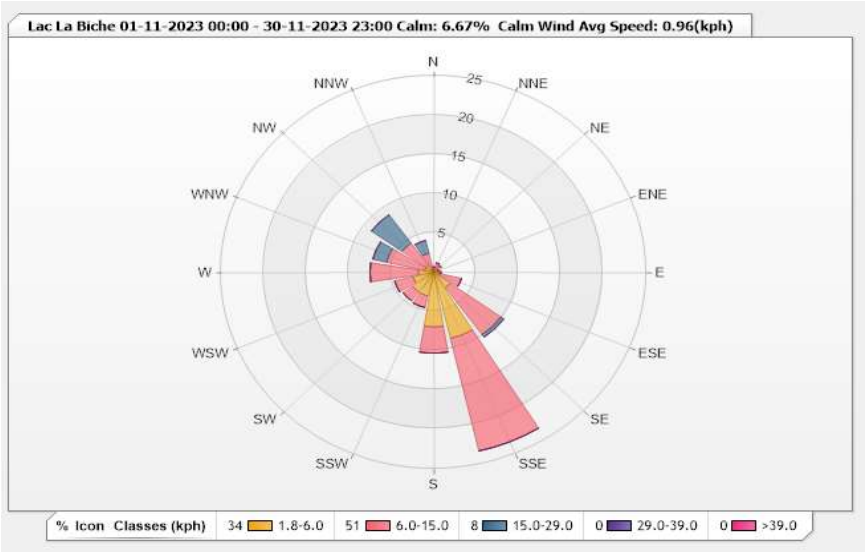


Station: Lac La Biche Monitor: WDS [kph] Monthly: 11-2023

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

Calm (WS<1.8kph): 6.67% 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	0.42	0.28	0	0	0	0.7
NNE	0.28	0.97	0	0	0	1.25
NE	0.69	0.42	0	0	0	1.11
ENE	0.56	0	0	0	0	0.56
E	0.69	0.14	0	0	0	0.83
ESE	0.69	2.64	0	0	0	3.33
SE	2.36	7.36	0.42	0	0	10.14
SSE	8.61	14.72	0	0	0	23.33
S	6.94	3.33	0	0	0	10.27
SSW	3.06	1.53	0	0	0	4.59
SW	3.06	1.39	0	0	0	4.45
WSW	2.5	2.22	0	0	0	4.72
W	1.81	5.69	0	0	0	7.5
WNW	1.11	4.58	1.67	0	0	7.36
NW	1.11	3.47	4.44	0	0	9.02
NNW	0.28	2.22	1.67	0	0	4.17
Summary	34.17	50.96	8.2	0	0	93.33



Lakeland Industry & Community Association

Lac La Biche Station - November 2023

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:	230 (SW)	degree	
Hours in Service:	720		
Hours of Data:	720		
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
Nov 1	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	SSW	S	S	S	S	SSE	SSE	SSE	SSE	SE	SSE	SSE	SSE	164	SSE
Nov 2	S	SSW	SSW	WSW	W	NW	NW	NW	NNW	NW	NNW	NNW	NNW	NNW	NNW	N	NNE	NE	ENE	ENE	ENE	E	E	E	346	NNW
Nov 3	SE	SE	SE	SE	SE	SE	SSE	SE	SSE	SSE	SSE	SSE	S	SSE	SSE	SSE	SE	SSE	S	WSW	W	NNE	S	S	150	SSE
Nov 4	S	SSE	NE	ENE	ESE	ESE	ENE	E	E	SE	SE	SE	ESE	ESE	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	114	ESE
Nov 5	ESE	ESE	SE	ESE	SE	SE	SSE	SSE	SSE	S	SSW	W	W	NW	NW	NNW	NNE	ENE	S	S	SSE	E	SE	SSE	144	SE
Nov 6	SE	SE	SSE	SSE	S	SSE	SSE	SSE	SSE	SSE	SSE	S	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	161	SSE
Nov 7	SSE	SSE	SSE	SSE	SSE	SSE	SE	SE	SSE	SSE	S	S	SSE	SSW	S	SSW	WSW	W	W	NW	WNW	WSW	W	W	205	SSW
Nov 8	W	WNW	WNW	WNW	WNW	WNW	W	W	W	WNW	NW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	310	NW
Nov 9	SW	SSW	SW	SSE	S	SE	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	SE	SSE	SSE	SSE	SSE	SSE	158	SSE
Nov 10	SSE	SSE	SSE	SSE	SE	SE	SSE	SE	SSE	SSE	SSE	SSE	S	S	SSE	SSE	SE	SSE	SE	SE	SE	SE	SE	SE	150	SSE
Nov 11	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SSE	SE	SSE	SE	ESE	SSE	SSW	W	WNW	S	SSE	SSE	143	SE
Nov 12	SSE	SSW	WSW	WSW	W	WSW	W	W	WSW	W	WNW	W	W	W	W	WSW	SW	SSW	SSE	SSE	SSE	SSE	SE	SE	251	WSW
Nov 13	SE	SE	ESE	E	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	SE	SSE	SSW	WSW	WNW	WNW	WNW	NW	WNW	WNW	WNW	140	SE
Nov 14	WNW	WNW	WNW	WNW	WNW	W	WSW	SW	SW	WSW	WSW	WSW	W	W	W	W	SW	S	S	SSE	SSE	S	SSE	SSE	260	WSW
Nov 15	S	S	S	W	W	WSW	WSW	WSW	WSW	W	WNW	NW	NW	NW	NW	NW	NW	WSW	WSW	WSW	WSW	W	WSW	NW	281	W
Nov 16	WSW	SSW	SSW	S	S	S	S	SSE	S	S	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	SW	SW	WSW	SW	SSW	208	SSW
Nov 17	S	S	SSW	SSW	S	S	S	SSW	SSW	SSW	SW	WSW	WSW	SW	SSW	S	SSE	SE	SSE	S	SSW	SSW	SSW	SSE	201	SSW
Nov 18	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	ESE	SE	SE	SE	SE	SE	SSE	SE	SE	SE	SE	145	SE
Nov 19	SE	SE	SE	SE	SE	S	SSE	S	S	W	NW	NW	NW	W	WSW	SW	SSW	S	S	SW	NW	NW	NW	WNW	281	W
Nov 20	WNW	WNW	WNW	NW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	WNW	WNW	WNW	WSW	SW	S	SSE	SE	ESE	305	WNW
Nov 21	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SSE	SE	SSE	NNW	NW	WNW	NW	NW	NNW	NNW	N	NNW	120	ESE
Nov 22	N	NNE	NNE	NNE	NNE	NE	NE	NE	NE	NE	NE	NE	NNE	N	NNE	NE	NE	ENE	E	SE	SSE	SE	SSE	SSE	45	NE
Nov 23	SSE	SSE	SE	SSE	SSE	SSE	SSE	SSE	SSE	S	S	S	S	S	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	166	SSE
Nov 24	S	S	SSE	S	S	S	SSE	S	SSE	SSW	SSW	SW	W	W	W	WSW	WSW	WSW	SW	SW	SSW	SW	S	SW	206	SSW
Nov 25	WSW	SW	SSW	W	WNW	WNW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NW	WNW	S	S	320	NW
Nov 26	SSE	SE	SSE	SSE	SSE	S	S	SSE	NW	NNW	NNW	NW	NW	NW	NNW	NW	SW	SW	SW	SSW	SSW	SSW	S	S	249	WSW
Nov 27	SSE	SSE	SSE	SSE	S	SSE	SSE	SSE	SSE	SSE	SSE	S	S	S	SSE	SSE	S	SW	WSW	W	WNW	W	WNW	WNW	206	SSW
Nov 28	W	W	W	WNW	WNW	WNW	W	W	W	SW	WSW	W	W	W	W	W	S	S	SW	SW	WSW	WSW	WNW	WNW	271	W
Nov 29	WNW	WNW	SW	WNW	NW	WNW	WNW	WNW	WNW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	307	NW
Nov 30	NW	NW	WNW	WNW	WNW	W	WSW	SW	WSW	W	W	W	W	N	WSW	SW	S	S	SSE	SSE	S	SSE	SSE	SSE	261	W

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 (Machine Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)			

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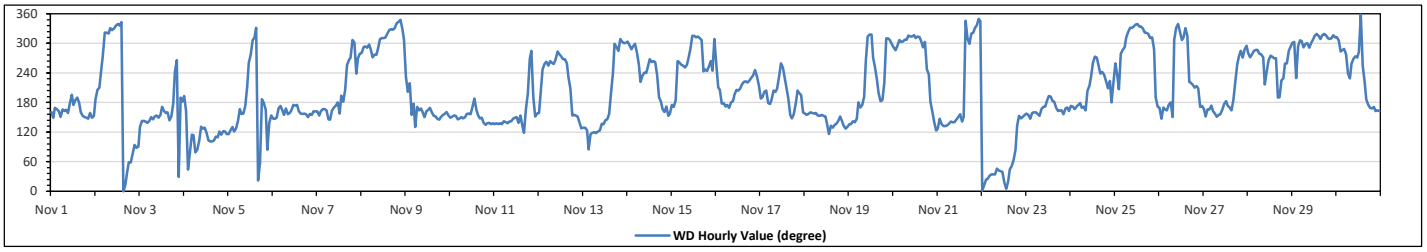
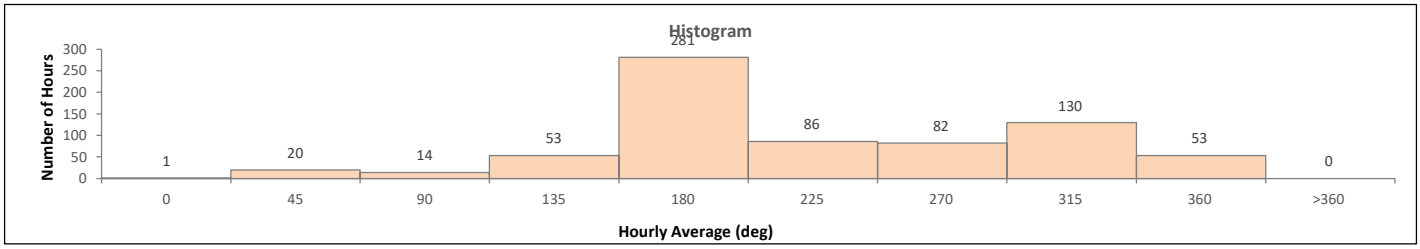
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.





Lakeland Industry & Community Association

Lac La Biche Station - November 2023

Summary of Hourly Averages

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

WIND SPEED

Maximum Hourly Value:	28.4	kph	on Nov 20 at hr 3	Hours in Service:	720
Maximum Daily Value:	15.7	kph	on Nov 8	Hours of Data:	720
Minimum Hourly Value:	0.0	kph	on Nov 4 at hr 1	Hours of Missing Data:	0
Minimum Daily Value:	2.9	kph	on Nov 5	Hours of Calibration:	0
Monthly Average:	2.0	kph		Operational Uptime:	100.0

WIND DIRECTION

Monthly Average: 230 degree (SW)

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			
Nov 1	3.0	4.2	3.8	4.0	4.4	5.0	4.7	5.6	5.1	4.2	5.3	3.8	3.2	4.9	5.2	5.2	5.0	4.5	4.8	5.7	5.6	5.5	1.7	2.0	1.7	5.7	4.4
	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	SSW	S	S	S	S	SSE	SSE	SSE	SSE	SE	SSE	SSE	SSE			164(SSE)
Nov 2	1.9	1.2	1.7	2.4	1.2	4.9	6.6	3.5	7.1	7.0	8.2	7.7	7.8	8.9	6.4	5.4	5.1	3.3	1.5	3.0	2.1	3.9	3.3	3.7	1.2	8.9	4.5
	S	SSW	SSW	WSW	W	NW	NW	NW	NNW	NW	NNW	NNW	NNW	NNW	NNW	N	NNE	NE	ENE	ENE	ENE	E	E	E			346(NNW)
Nov 3	4.7	7.0	8.6	7.9	9.3	8.7	7.3	6.1	7.5	9.3	9.3	8.2	6.1	6.4	6.7	4.8	4.2	3.5	1.4	0.6	0.1	1.4	0.9	0.3	0.1	9.3	5.4
	SE	SE	SE	SE	SE	SE	SSE	SE	SSE	SSE	SSE	SSE	S	SSE	SSE	SSE	SE	SSE	S	WSW	W	NNE	S	S			150(SSE)
Nov 4	0.3	**0.0**	0.5	1.2	2.9	2.2	3.6	3.7	5.0	10.2	9.9	9.4	8.9	7.4	7.0	8.4	7.0	9.4	9.3	10.7	8.6	10.4	9.4	7.7	**0.0**	10.7	6.4
	S	SSE	NE	ENE	ESE	ESE	ENE	E	E	SE	SE	SE	ESE	ESE	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE			114(ESE)
Nov 5	6.6	6.6	6.1	7.9	6.5	4.5	3.2	2.5	2.7	3.1	3.1	1.4	2.9	3.1	2.1	0.7	0.3	**0.0**	**0.0**	0.7	0.9	0.7	2.1	2.5	**0.0**	7.9	**2.9**
	ESE	ESE	SE	ESE	SE	SE	SSE	SSE	SSE	S	SSW	W	W	NW	NW	NNW	NNE	ENE	S	S	SSE	E	SE	SSE			144(SE)
Nov 6	4.4	3.6	5.7	8.4	7.1	6.6	7.5	7.4	7.8	9.8	8.2	6.5	6.3	7.7	9.4	8.3	6.3	7.3	7.8	8.2	8.5	9.9	8.6	8.1	3.6	9.9	7.5
	SE	SE	SSE	SSE	S	SSE	SSE	SSE	SSE	SSE	SSE	S	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE			161(SSE)
Nov 7	8.5	7.3	6.6	6.7	8.4	7.0	7.4	7.2	6.7	6.9	7.2	5.7	6.2	5.8	4.6	4.7	8.6	8.3	9.4	12.7	5.9	5.2	10.3	11.9	4.6	12.7	7.5
	SSE	SSE	SSE	SSE	SSE	SSE	SE	SE	SSE	SSE	S	S	SSE	SSW	S	SSW	WSW	W	W	NW	WNW	WSW	W	W			205(SSW)
Nov 8	14.2	17.0	17.0	15.8	15.0	11.4	12.2	11.7	12.5	14.1	19.0	21.2	22.4	21.4	23.3	20.6	20.7	20.1	18.3	14.9	11.9	8.7	8.2	6.0	6.0	23.3	**15.7**
	W	WNW	WNW	WNW	WNW	WNW	W	W	W	WNW	NW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW			310(NW)
Nov 9	1.0	2.2	1.2	3.3	1.7	2.3	3.6	4.5	4.1	3.9	6.7	6.3	6.5	7.6	7.7	7.6	7.4	8.2	8.9	8.8	10.3	11.4	9.6	10.7	1.0	11.4	6.1
	SW	SSW	SW	SSE	S	SE	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	SE	SSE	SSE	SSE	SSE	SSE			158(SSE)
Nov 10	12.4	12.3	11.8	11.5	11.1	10.6	10.8	13.0	14.3	12.6	9.6	10.5	7.8	8.5	8.7	6.8	7.5	7.8	7.4	8.6	8.9	10.0	11.1	11.4	6.8	14.3	10.2
	SSE	SSE	SSE	SSE	SE	SE	SSE	SE	SSE	SSE	SSE	SSE	S	S	SSE	SSE	SE	SSE	SE	SE	SE	SE	SE	SE			150(SSE)
Nov 11	11.6	10.8	13.9	13.2	15.7	12.4	12.0	13.5	16.2	15.4	12.9	11.4	7.9	7.7	8.0	2.8	0.9	2.4	0.9	2.3	3.7	1.2	4.4	4.2	0.9	16.2	8.6
	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SSE	SE	SSE	SE	ESE	SSE	SSW	W	WNW	S	SSE	SSE			143(SE)
Nov 12	2.7	3.3	7.2	10.1	8.8	8.1	8.0	9.1	10.0	11.3	12.1	13.4	12.5	13.6	12.6	9.6	4.8	3.1	4.4	3.3	5.7	5.9	4.7	4.9	2.7	13.6	7.9
	SSE	SSW	WSW	WSW	W	WSW	W	W	WSW	W	WNW	W	W	W	W	WSW	SW	SSW	SSE	SSE	SSE	SSE	SE	SE			251(WSW)
Nov 13	3.2	6.4	7.5	1.1	4.4	8.5	12.6	10.4	11.9	11.4	11.5	9.6	8.9	7.1	7.4	4.0	0.3	1.2	4.4	5.0	10.4	9.7	10.2	15.3	0.3	15.3	7.6
	SE	SE	ESE	E	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	SE	SSE	SSW	WSW	WNW	WNW	NW	WNW	NW	WNW	WNW			140(SE)
Nov 14	19.0	16.9	12.5	11.7	12.7	8.1	6.3	4.4	6.2	9.0	10.6	11.2	14.7	14.6	10.8	10.4	5.4	4.6	5.0	4.6	5.8	6.0	3.6	4.8	3.6	19.0	9.1
	WNW	WNW	WNW	WNW	WNW	W	WSW	SW	SW	WSW	WSW	WSW	W	W	W	W	SW	S	S	SSE	SSE	S	SSE	SSE			260(WSW)
Nov 15	4.0	5.4	5.4	9.2	9.0	8.6	8.4	7.4	9.3	12.7	14.8	20.6	19.1	14.9	14.1	8.9	8.7	3.7	4.4	3.5	4.7	2.9	3.9	1.5	1.5	20.6	8.5
	S	S	S	W	W	WSW	WSW	WSW	WSW	W	WNW	NW	NW	NW	NW	NW	NW	WSW	WSW	WSW	WSW	W	WSW	NW			281(W)
Nov 16	2.5	4.6	5.2	4.1	5.2	5.3	5.5	6.3	6.1	5.9	9.1	9.1	10.0	9.1	9.4	8.9	5.6	6.4	5.8	7.5	6.7	6.4	4.2	3.3	2.5	10.0	6.3
	WSW	SSW	SSW	S	S	S	S	SSE	S	S	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	SW	SW	WSW	SW	SSW			208(SSW)
Nov 17	3.3	5.9	6.2	6.2	2.5	4.5	5.6	6.7	5.3	6.3	6.3	6.8	4.9	3.3	2.1	0.8	0.8	3.3	2.8	4.3	4.4	2.9	2.3	5.6	0.8	6.8	4.3
	S	S	SSW	SSW	S	S	S	SSW	SSW	SSW	SW	WSW	WSW	SW	SSW	S	SSE	SE	SSE	S	SSW	SSW	SSW	SSE			201(SSW)
Nov 18	6.5	6.4	7.2	7.1	7.3	6.5	7.2	6.2	5.7	6.2	4.6	7.6	5.7	4.6	7.8	8.3	11.2	10.1	9.4	6.8	5.0	6.0	7.1	7.9	4.6	11.2	7.0
	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	ESE	SE	SE	SE	SE	SE	SSE	SE	SE	SE	SE			145(SE)
Nov 19	8.3	4.8	2.9	4.5	1.3	0.3	0.7	2.3	0.9	2.2	3.0	1.2	1.5	2.3	3.2	3.8	4.1	3.0	4.5	2.1	20.4	21.3	15.5	21.5	0.3	21.5	5.7
	SE	SE	SE	SE	SE	S	SSE	S	S	W	NW	NW	NW	W	WSW	SW	SSW	S	S	SW	NW	NW	NW	WNW			281(W)
Nov 20	16.6	18.5	24.6	**28.4**	21.3	20.0	18.6	18.1	25.0	21.3	22.3	22.0	17.6	17.8	15.3	10.2	6.8	5.3	1.7	3.2	1.8	3.4	1.2	6.3	1.2	**28.4**	14.5
	WNW	WNW	WNW	NW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	WNW	WNW	WNW	WSW	SW	S	SSE	SE	ESE			305(WNW)
Nov 21	5.5	5.8	7.1	11.1	13.3	12.0	12.4	13.3	13.6	11.1	10.4	8.9	4.4	2.3	1.4	4.1	4.6	4.8	10.7	12.7	14.2	13.6	12.0	8.9	1.4	14.2	9.1
	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SSE	SE	SSE	NNW	NW	WNW	NW	NW	NNW	NNW	N	NNW			120(ESE)
Nov 22	9.0	8.7	8.4	9.0	7.9	7.6	6.8	5.8	6.9	6.4	6.7	4.4	3.7	5.7	6.0	4.7	2.0	4.3	3.8	2.1	5.4	6.0	6.9	8.3	2.0	9.0	6.1
	N	NNE	NNE	NNE	NNE	NE	NE	NE	NE	NE	NE	NE	NNE	N	NNE	NE	NE	ENE	E	SE	SSE	SE	SSE	SSE			45(NE)
Nov 23	7.2	7.3	8.8	7.6	7.9	8.7	7.4	8.9	8.7	8.9	7.6	7.4	7.5	6.8	5.6	4.5	5.0	6.3	6.6	6.4	6.8	6.4	5.8	6.7	4.5	8.9	7.1
	SSE	SSE	SE	SSE	SSE	SSE	SSE	SSE	SSE	S	S	S	S	S	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE			166(SSE)
Nov 24	7.0	7.9	8.1	8.7	7.9	8.0	6.8	5.3	6.9	6.4	7.3	7.1	9.3	7.7	6.9	6.9	5.4	4.9	2.8	3.8	4.0	3.2	4.1	4.0	2.8	9.3	6.3
	S	S	SSE	S	S	S	SSE	S	SSE	SSW	SSW	SW	W	W	W	WSW	WSW	WSW	SW	SW	SSW	SW	S	SW			206(SSW)
Nov 25	6.9	3.7	2.6	6.0	11.9	11.7	17.8	20.4	18.0	18.4	16.7	17.1	18.3	19.2	15.3	18.5	17.2	13.2	14.5	10.0	9.1	2.6	1.1	2.3	1.1	20.4	12.2
	WSW	SW	SSW	W	WNW	WNW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NW	WNW	S	S			320(NW)
Nov 26	3.0	5.1	4.2	5.1	6.1	5.3	2.4	1.7	3.3	11.6	8.1	10.2	9.7	7.5	5.0	0.4	2.1	1.1	4.1	3.5	3.3	3.4	4.8	5.4	0.4	11.6	4.9
	SSE	SE	SSE	SSE	SSE	S	S	SSE	NW	NNW	NNW	NW	NW	NW	NNW	NW	SW	SW	SW	SSW	SSW	SSW	S	S			249(WSW)
Nov 27	4.6	5.9	6.9	6.0	5.5	5.8	4.5	6.3	7.4	8.1	7.3	6.8	6.6	5.1	6.1	6.6	6.5	6.9	8.4	10.9	14.0	10.2	11.2	13.5	4.5	14.0	7.5
	SSE	SSE	SSE	SSE	S	SSE	SSE	SSE	SSE	SSE	SSE	S	S	S	SSE	SSE	S	SW	WSW	W	WNW	W	WNW	WNW			206(SSW)
Nov 28	10.2	9.1	9.1	9.5	11.5	10.9	11.5	8.5	5.7	3.2	5.6	9.4	8.0	6.5	5.4	5.9	3.4	3.6	3.6	4.3	5.3	4.8	7.4	8.7	3.2	11.5	7.1
	W	W	W	WNW	WNW	WNW	W	W	W	SW	WSW	W	W	W	W	W	S	S	SW	SW	WSW	WSW	WNW	WNW			271(W)
Nov 29	9.1	9.4	4.0	8.6	16.9	13.1	12.8	14.6	14.8	14.2	17.0	16.4	16.1	18.3	17.0	16.0	16.7	14.2	13.5	14.4	14.3	14.9	16.2	13.9	4.0	18.3	14.0
	WNW	WNW	SW	WNW	NW	WNW	WNW	WNW	WNW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW			307(NW)
Nov 30	14.0	12.7	8.6	9.2	8.0	6.6	3.1	2.9	4.5	2.6	3.9	4.0	3.9	3.2	5.6	3.7	3.0	3.4	4.3	4.9	4.6	4.6	4.4	4.6	2.6	14.0	5.4
	NW	NW	WNW	WNW	WNW	W	WSW	SW	WSW	W	W	W	W	N	WSW	SW	S	S	SSE	SSE	S	SSE	SSE	SSE			261(W)

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 - November 2023

Summary of Hour Standard Deviations

STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

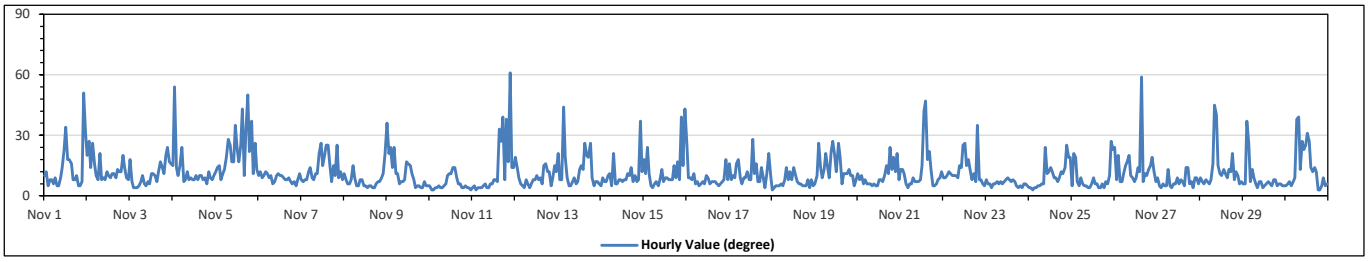
Maximum Hourly Value:	61 degree on Nov 11 at hr 21	Hours in Service:	720
		Hours of Data:	720
Minimum Hourly Value:	3 degree on Nov 10 at hr 1	Hours of Missing Data:	0
		Hours of Calibration:	0
		Operational Uptime:	100.0

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		
Nov 1	10	12	5	8	8	6	9	5	5	9	14	23	34	18	18	16	8	8	10	5	5	7	51	31	5	51
Nov 2	20	27	14	26	16	10	8	21	8	9	8	12	10	9	11	11	9	13	12	12	20	14	9	8	8	27
Nov 3	18	7	4	4	4	5	7	10	6	5	7	6	11	11	10	7	12	17	14	11	20	24	17	16	4	24
Nov 4	15	54	14	10	15	24	7	8	12	8	9	8	8	10	8	10	10	8	9	6	12	9	8	10	6	54
Nov 5	12	14	15	8	11	13	19	28	25	17	17	35	23	17	25	43	10	32	50	22	37	11	26	13	8	50
Nov 6	10	12	9	10	12	11	9	10	6	7	10	11	10	10	9	8	8	9	7	6	7	5	8	11	5	12
Nov 7	8	7	8	8	12	14	9	8	11	11	21	26	15	20	25	25	16	7	15	10	25	9	12	8	7	26
Nov 8	11	8	6	6	8	15	9	5	5	8	8	5	5	4	5	5	4	4	6	7	7	9	11	21	4	21
Nov 9	36	21	24	14	24	11	11	6	7	7	8	17	16	15	11	8	4	5	5	4	4	7	5	5	4	36
Nov 10	5	**3**	**3**	4	4	5	4	4	5	6	10	11	11	14	14	9	6	6	4	4	5	4	4	**3**	**3**	14
Nov 11	4	5	**3**	4	4	4	5	6	4	4	6	6	8	8	7	33	27	39	8	38	17	**61**	14	14	**3**	**61**
Nov 12	19	14	9	6	5	4	8	6	4	6	8	8	10	8	9	6	15	16	12	12	5	9	15	12	4	19
Nov 13	21	8	8	44	19	9	5	5	7	9	6	7	13	15	13	26	20	19	26	9	5	7	7	6	5	44
Nov 14	5	9	7	7	10	11	5	21	6	6	8	8	7	8	8	11	10	14	7	10	7	8	37	12	5	37
Nov 15	18	11	24	11	5	4	6	7	5	8	13	7	9	9	8	8	8	15	9	17	8	39	15	43	4	43
Nov 16	26	9	9	8	11	6	7	5	6	7	6	10	9	6	7	7	7	6	5	6	7	8	18	8	5	26
Nov 17	16	8	10	9	16	18	9	6	9	9	12	8	8	28	11	16	7	7	14	9	4	11	21	10	4	28
Nov 18	**3**	4	5	5	5	6	5	8	14	8	12	8	14	10	7	6	6	5	5	5	8	4	8	5	**3**	14
Nov 19	6	10	26	14	9	13	21	14	9	22	27	20	12	26	19	6	11	11	11	13	10	10	5	8	5	27
Nov 20	11	8	10	6	8	6	6	6	5	6	5	5	8	8	7	10	15	11	24	13	19	12	21	8	5	24
Nov 21	13	13	11	6	4	6	6	9	7	7	7	8	15	42	47	18	22	13	5	5	6	8	9	12	4	47
Nov 22	9	9	10	12	11	10	10	10	9	15	14	25	26	15	18	13	8	11	7	35	8	8	6	5	5	35
Nov 23	8	6	6	4	6	6	7	6	7	6	7	8	9	8	7	8	7	5	4	5	4	6	6	5	4	9
Nov 24	4	4	**3**	4	4	5	5	6	6	24	11	12	14	12	9	9	7	9	12	11	14	25	19	19	**3**	25
Nov 25	5	21	19	7	5	9	6	5	5	4	4	6	9	6	6	4	4	6	4	7	6	10	27	23	4	27
Nov 26	24	8	20	7	7	11	15	17	20	10	9	7	9	14	12	59	7	11	10	13	15	19	12	7	7	59
Nov 27	9	5	4	6	5	5	13	5	4	6	6	9	6	8	7	5	14	14	6	7	4	9	9	6	4	14
Nov 28	9	7	6	8	7	6	8	16	45	40	15	11	10	13	11	9	13	12	21	8	12	10	6	7	6	45
Nov 29	6	6	37	26	7	13	9	6	4	7	7	4	5	6	7	6	5	8	8	5	6	6	5	5	4	37
Nov 30	5	6	7	5	7	9	38	39	13	27	23	25	31	27	14	12	14	12	**3**	**3**	5	9	5	6	**3**	39
Diurnal Minimum	3	3	3	4	4	4	4	4	4	4	4	4	5	4	5	4	4	4	3	3	4	4	4	3		
Diurnal Maximum	36	54	37	44	24	24	38	39	45	40	27	35	34	42	47	59	27	39	50	38	37	61	51	43		

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 (Machine 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.



END OF REPORT

This page, 159 of 159 ends the November 2023 Monthly Ambient Air Quality Monitoring Report.

Lakeland Industry & Community Association

NOVEMBER 2023

Ambient Air Monitoring Calibration Report

- COLD LAKE SOUTH STATION-

CAL-LICA-202311-01174

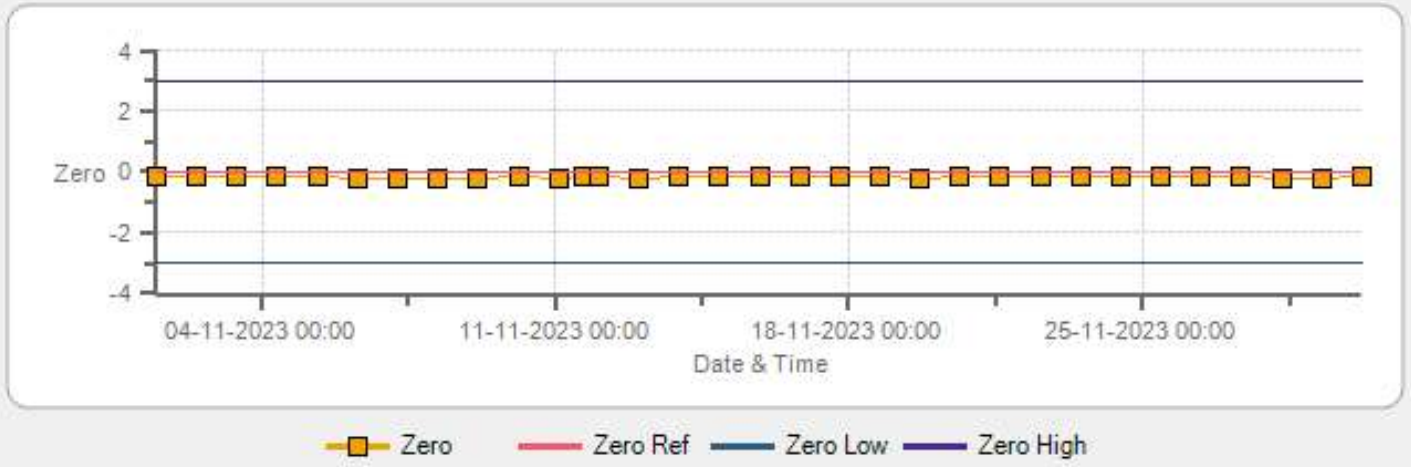
Station Operation and Maintenance:
Bureau Veritas Canada

Data Validation and Report:
LICA / Bureau Veritas Canada

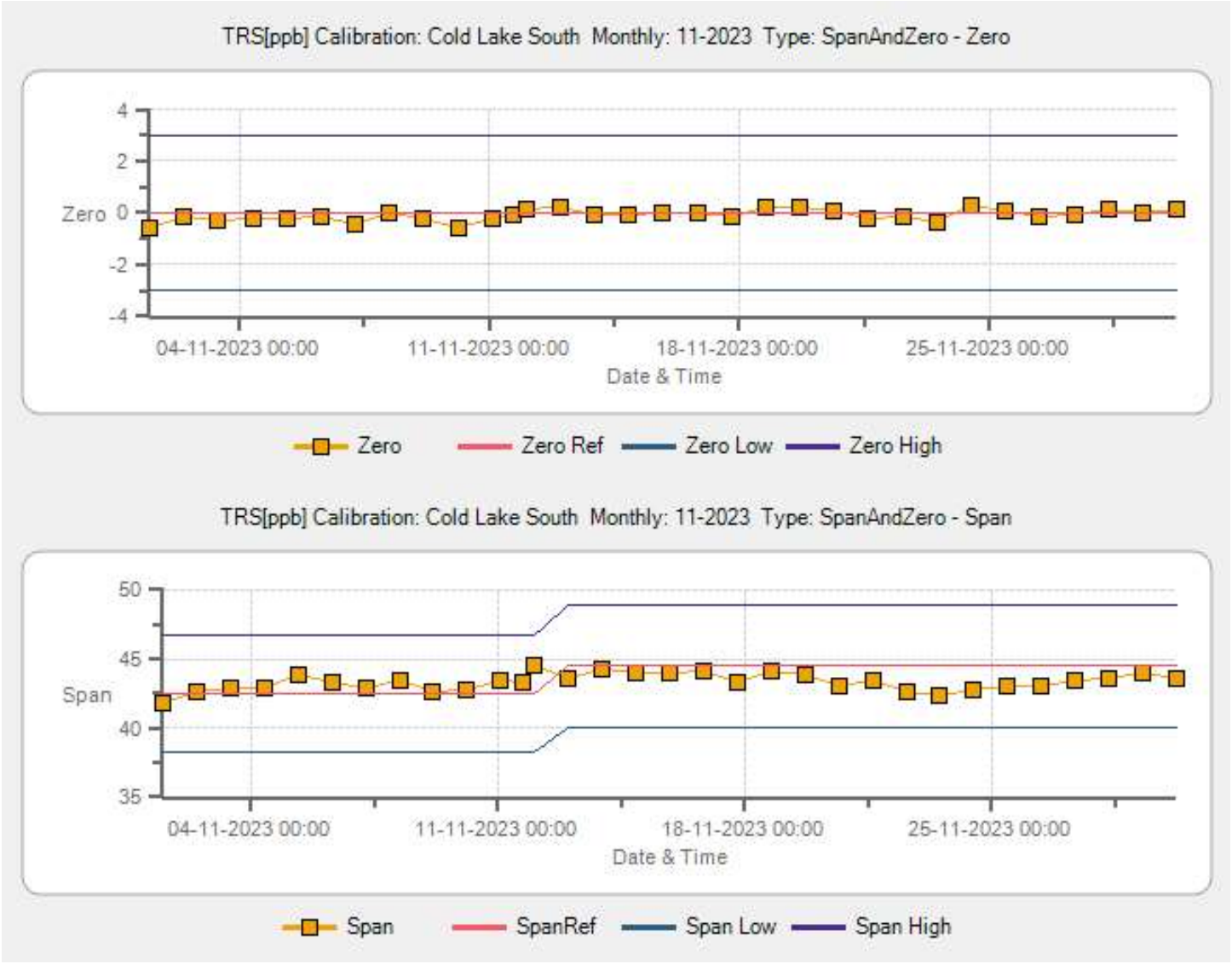
December 20, 2023

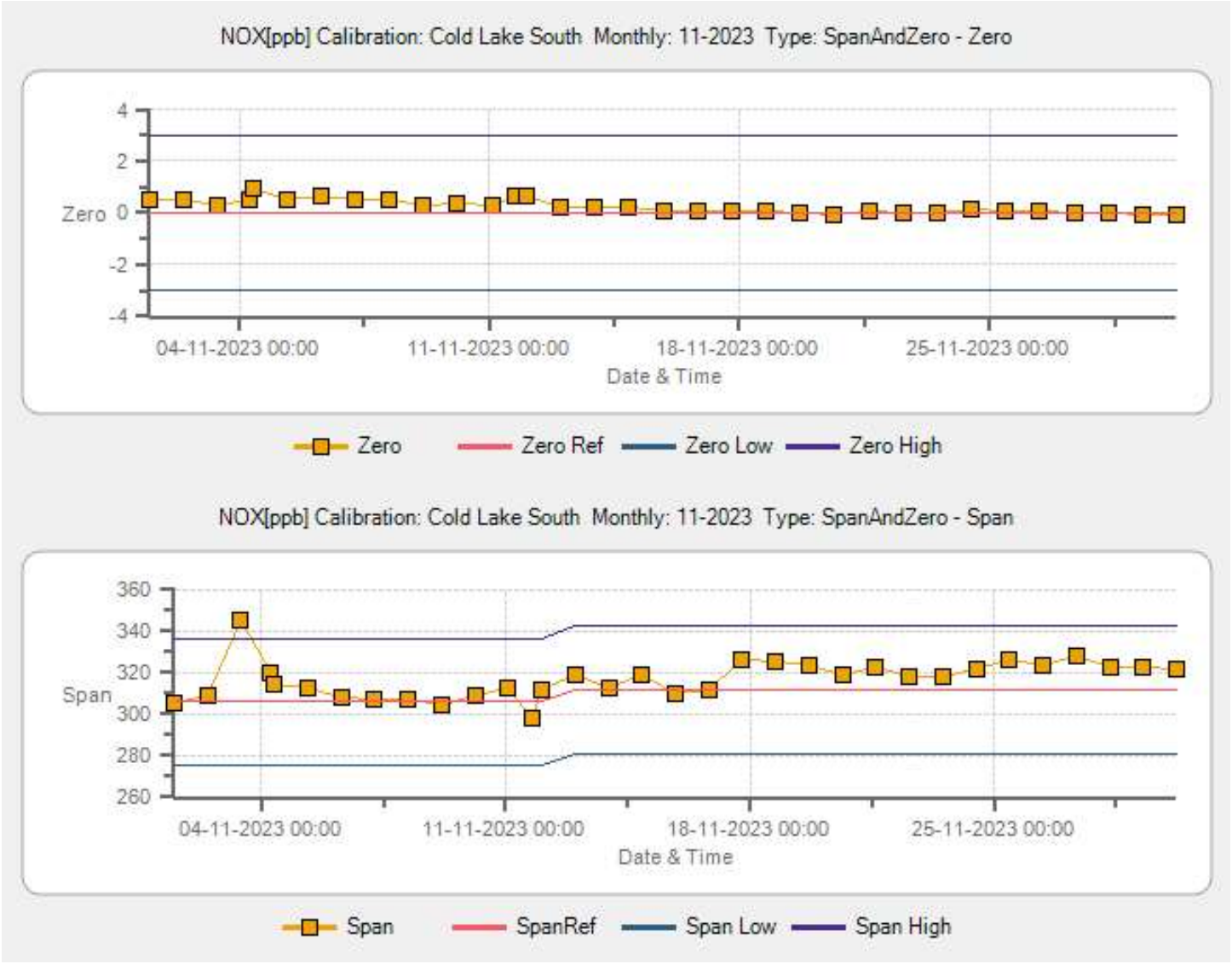
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Cold Lake South Monthly: 11-2023 Type: SpanAndZero - Zero

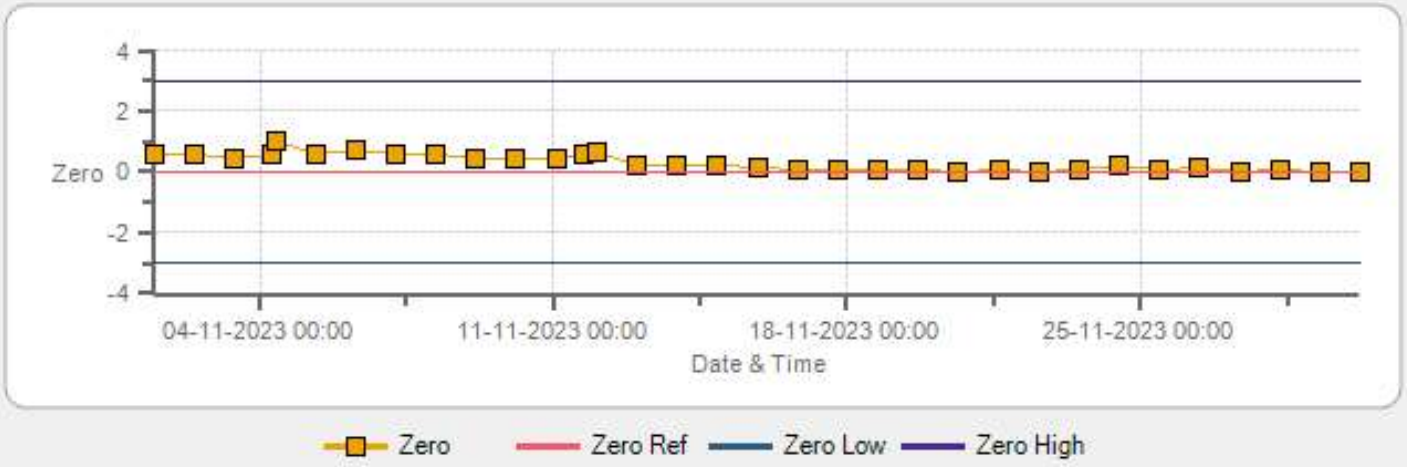


SO2[ppb] Calibration: Cold Lake South Monthly: 11-2023 Type: SpanAndZero - Span

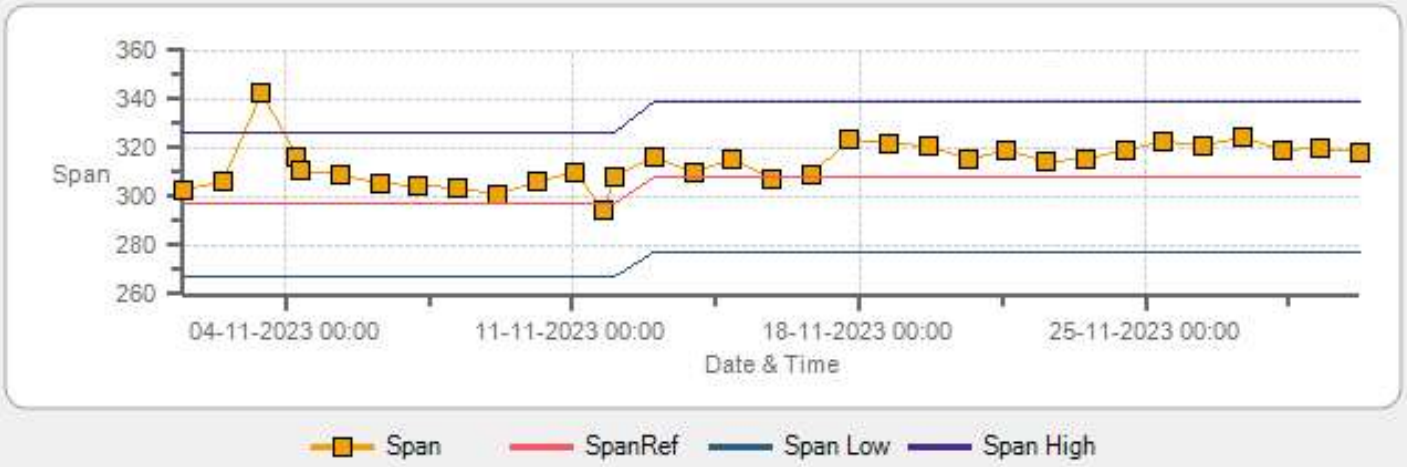

TRS[ppb] Calibration: Cold Lake South Monthly: 11-2023 Type: SpanAndZero - Zero
4
2
Zero 0
-2
-4
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
TRS[ppb] Calibration: Cold Lake South Monthly: 11-2023 Type: SpanAndZero - Span
50
45
Span
40
35
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Span
SpanRef
Span Low
Span High


NOX[ppb] Calibration: Cold Lake South Monthly: 11-2023 Type: SpanAndZero - Zero
4
2
Zero 0
-2
-4
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
NOX[ppb] Calibration: Cold Lake South Monthly: 11-2023 Type: SpanAndZero - Span
360
340
320
Span 300
280
260
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Span
SpanRef
Span Low
Span High

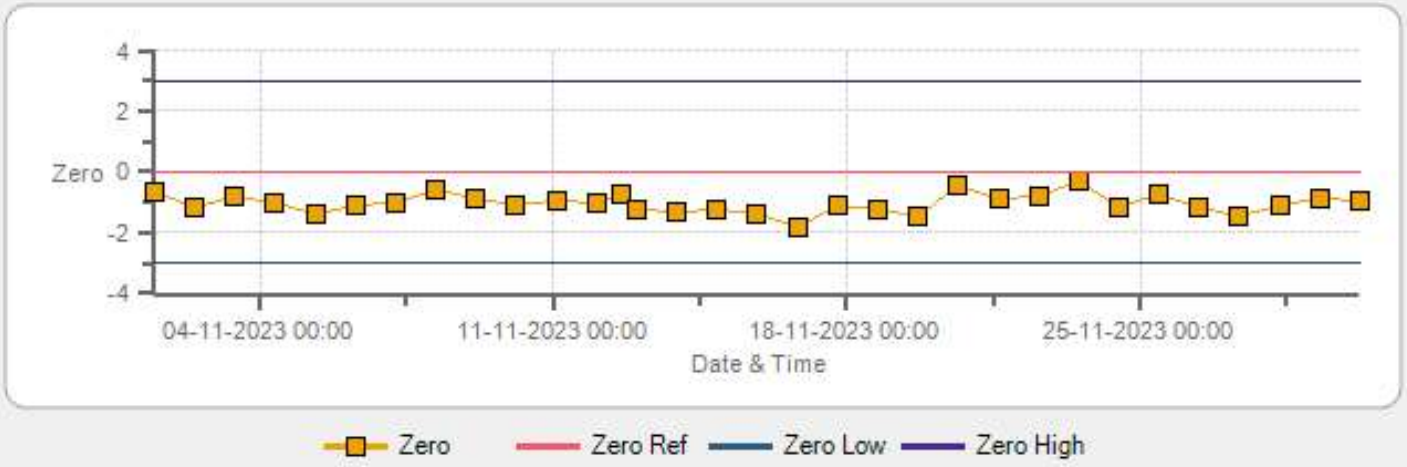
NO2[ppb] Calibration: Cold Lake South Monthly: 11-2023 Type: SpanAndZero - Zero



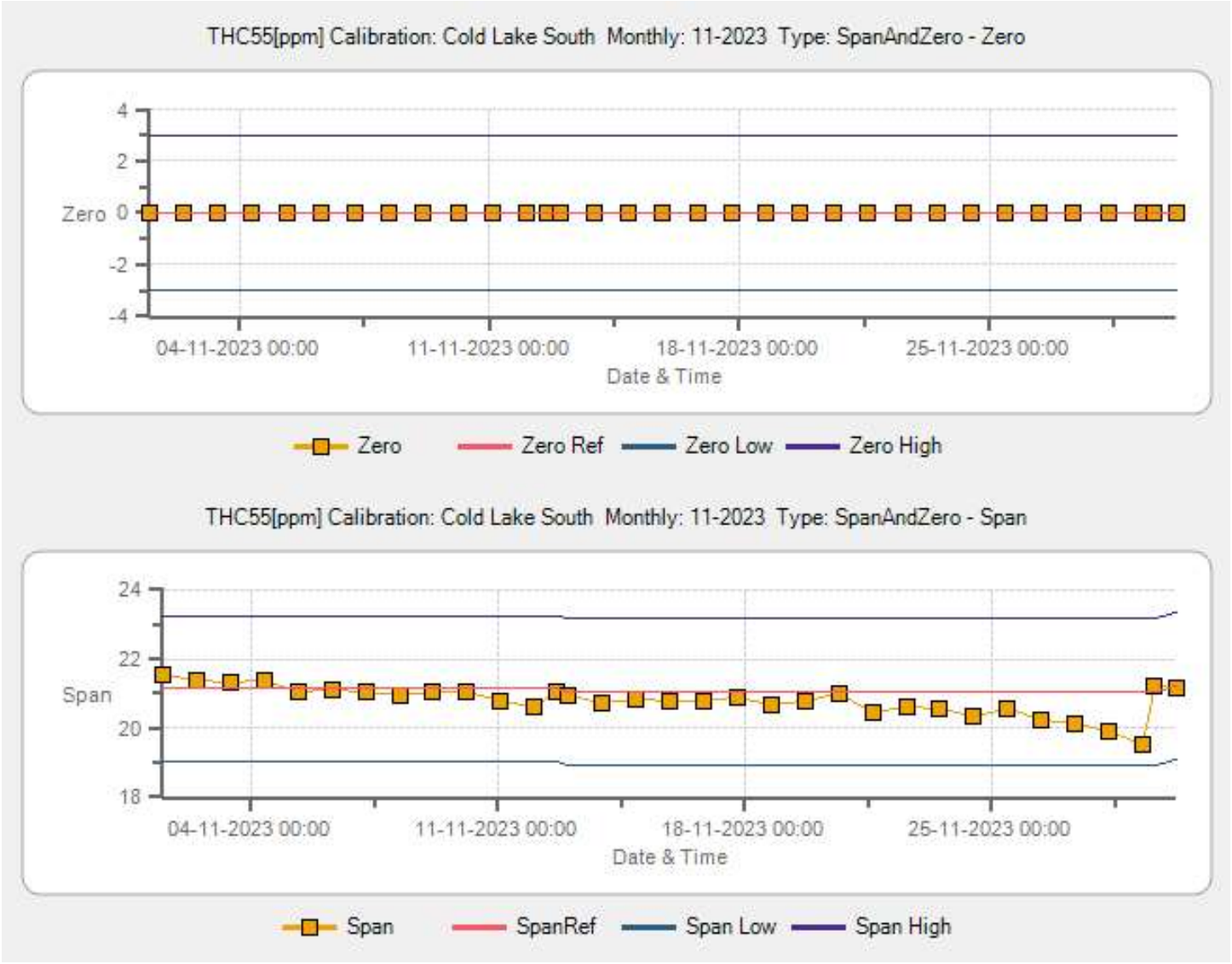
NO2[ppb] Calibration: Cold Lake South Monthly: 11-2023 Type: SpanAndZero - Span

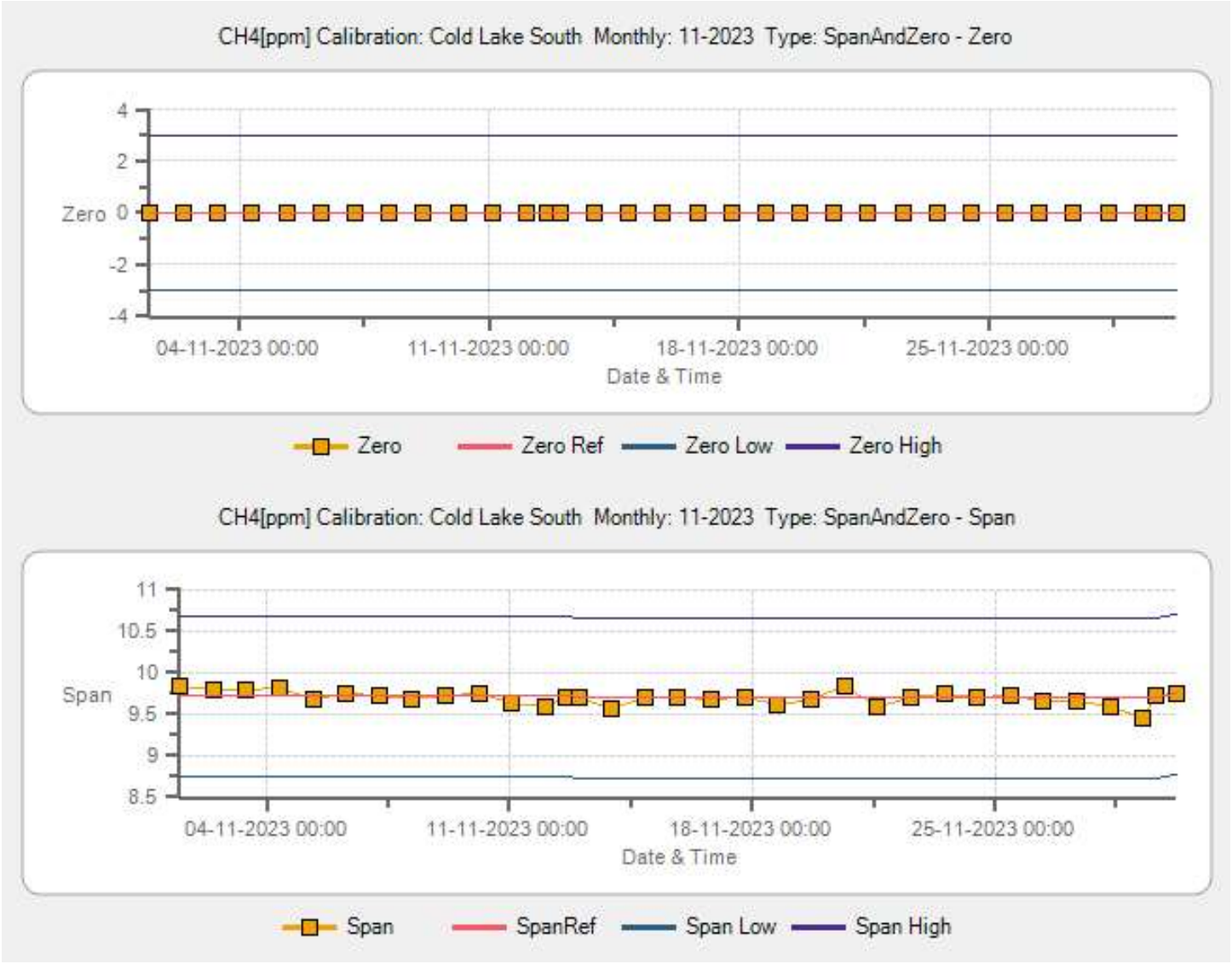


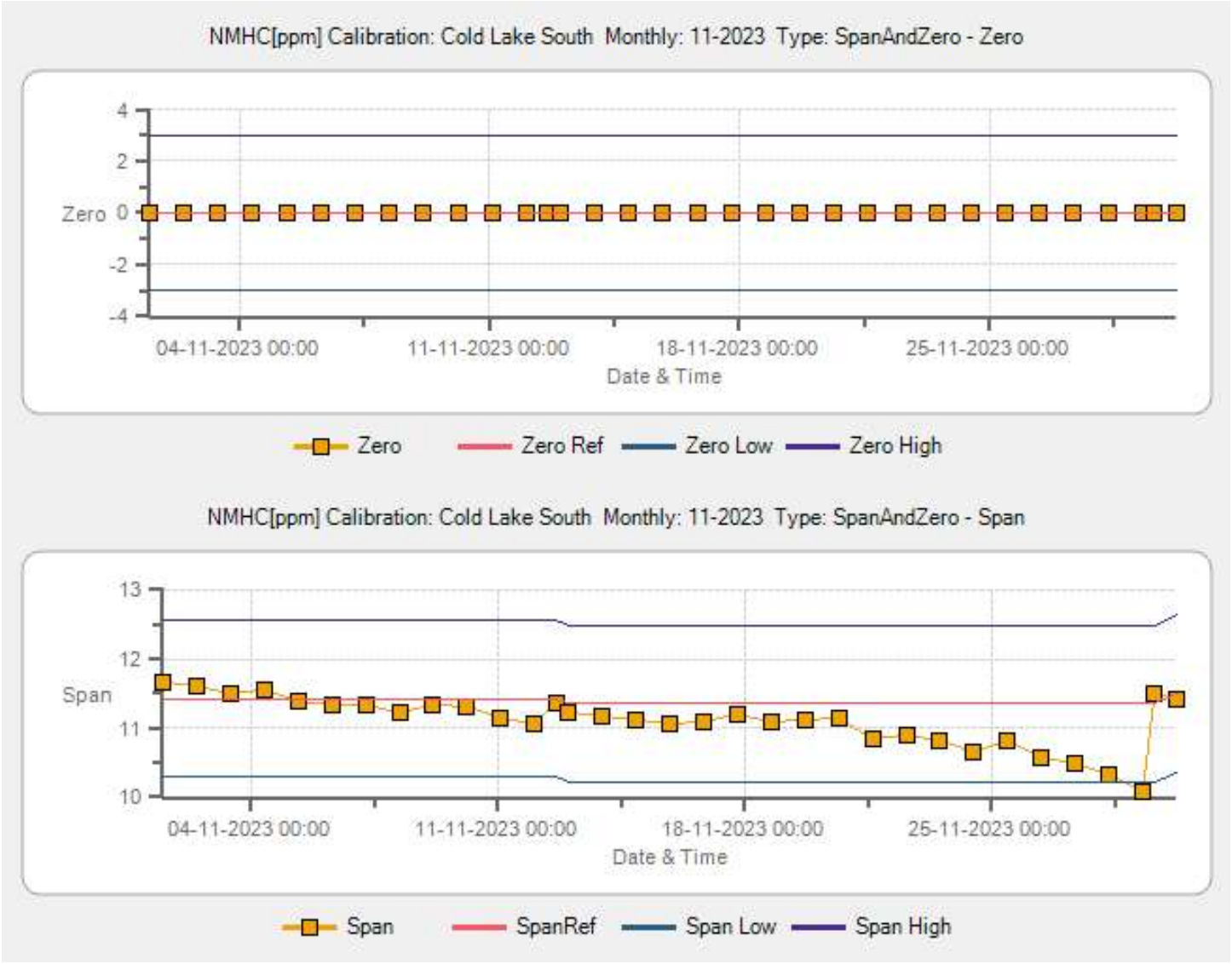
O3[ppb] Calibration: Cold Lake South Monthly: 11-2023 Type: SpanAndZero - Zero



O3[ppb] Calibration: Cold Lake South Monthly: 11-2023 Type: SpanAndZero - Span


THC55[ppm] Calibration: Cold Lake South Monthly: 11-2023 Type: SpanAndZero - Zero
4
2
Zero 0
-2
-4
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
THC55[ppm] Calibration: Cold Lake South Monthly: 11-2023 Type: SpanAndZero - Span
24
22
Span
20
18
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Span
SpanRef
Span Low
Span High


CH4[ppm] Calibration: Cold Lake South Monthly: 11-2023 Type: SpanAndZero - Zero
4
2
Zero 0
-2
-4
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
CH4[ppm] Calibration: Cold Lake South Monthly: 11-2023 Type: SpanAndZero - Span
11
10.5
10
Span
9.5
9
8.5
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Span
SpanRef
Span Low
Span High


NMHC[ppm] Calibration: Cold Lake South Monthly: 11-2023 Type: SpanAndZero - Zero
4
2
Zero 0
-2
-4
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
NMHC[ppm] Calibration: Cold Lake South Monthly: 11-2023 Type: SpanAndZero - Span
13
12
Span
11
10
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Span
SpanRef
Span Low
Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution

DATE:	11-Nov-2023	PREVIOUS CALIBRATION DATE:	18-Oct-2023
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.003
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	932
PURPOSE	Routine	START TIME (MST):	10:50
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:18

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180260018	FLOW (mL/min)	430
INITIAL		FINAL	
BKG/OFFSET	2.38	BKG/OFFSET	2.41
COEF/SLOPE	0.986	COEF/SLOPE	0.988
Expected (reference) Value	386	Expected (reference) Value	386.4

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):	700	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:

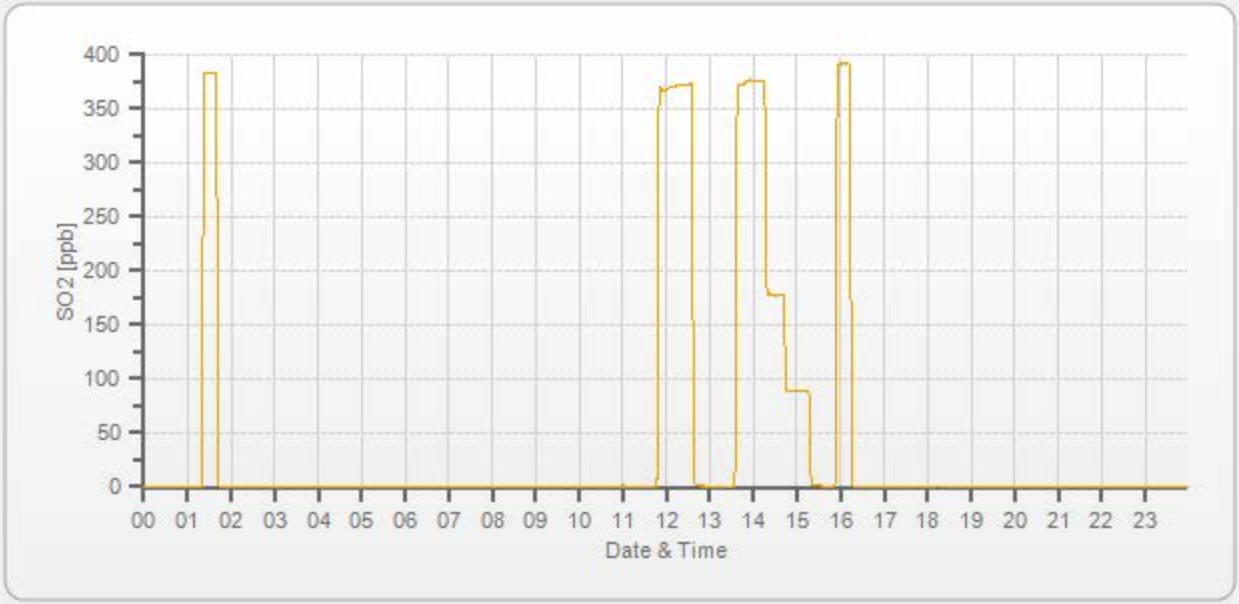
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000		5000	0.00	-0.2	0		
4961	37.20	4998	375.13	373	375.6	1.005	0.999
4982	17.60	5000	177.41	n/a	176.7	n/a	1.004
4990	8.80	4999	88.72	n/a	87.5	n/a	1.014

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	-0.1%

COMMENTS:

Sample inlet filter was changed.


SO2[ppb] Station: Cold Lake South Daily: 11-11-2023 Type: AVG 1 Min. [1 Min.]
SO2 [ppb]
400
350
300
250
200
150
100
50
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Date & Time
SO2 [ppb]

TRS Analyzer Calibration by Dilution

DATE:	11-Nov-2023	PREVIOUS CALIBRATION DATE:	18-Oct-2023
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	932
PURPOSE	Routine	START TIME (MST):	10:52
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:18

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	812728560	FLOW (mL/min)	487
INITIAL		FINAL	
BKG/OFFSET	28	BKG/OFFSET	28.2
COEF/SLOPE	1.187	COEF/SLOPE	1.2
Expected (reference) Value	42.5	Expected (reference) Value	44.5

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:	EY 0002287	HIGH ID	n/a
CONC (ppm):	10.10	EXPIRY DATE	n/a
CYLINDER (psi):	200	LOW ID	n/a
EXPIRY DATE	14-Sep-2024	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:	10:54	SO2 Conc (ppb)	380
END TIME:	11:09	Analyzer Response (ppb)	0.0

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
7500		7500	0.00	-0.3	0		
7442	57.90	7500	77.97	81	78.2	0.959	0.997
7472	28.20	7500	37.98	n/a	38.4	n/a	0.989
7486	14.10	7500	18.99	n/a	19.4	n/a	0.979

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	0.2%

COMMENTS:

Sample inlet filter was changed.

TRS[ppb] Station: Cold Lake South Daily: 11-11-2023 Type: AVG 1 Min. [1 Min.]

NOx Calibration by Dilution/Gas-Phase Titration

CALIBRATION:

DATE:	11-Nov-2023	PREVIOUS CALIBRATION DATE:	18-Oct-2023
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	932
PURPOSE	Routine	START TIME (MST):	10:53
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:59

ANALYZER:

MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
SERIAL #:	1505664393	NOx	1.001
FLOW (mL/min)	664	NO	1.000
RANGE (ppb)	500	NO2	0.999
GPT FOR O3?		No	

CALIBRATION SYSTEM:

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	4.9	n/a	BKG/OFFSET:	5.1	4.8	n/a
SLOPE/COEF/CE:	1.006	1.064	0.999	SLOPE/COEF/CE:	1.006	1.063	0.999

EXPECTED (REFERENCE) VALUE:

INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	306.0	10.4	297.0		311.9	3.3	308.5

CALIBRATION PARAMETERS:

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

NO/NOx CALIBRATION:

FLOW RATE (mL/min)			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
			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		5000	0.0	0.0	0.0	-0.2	0.0	0.1	0.0	0.0	0.0						
4961	37.20	4998	380.3	384.1	3.7	383.3	386.9	3.7	380.5	384.0	3.5	0.992	0.993		1.000	1.000	
4982	17.60	5000	179.9	181.6	1.8	n/a	n/a	n/a	180.1	181.6	1.4	n/a	n/a		0.999	1.000	
4990	8.80	4999	90.0	90.8	0.9	n/a	n/a	n/a	89.9	90.6	0.7	n/a	n/a		1.001	1.003	

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	382.3	385.2	2.9				
AS-FOUND HIGH	37.20	4998	235	127.8	385.8	257.9	254.5	255	0.998	100.20%
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	262.1	386.2	123.6	120.2	120.7	0.996	100.42%
LOW	37.20	4998	40	335.2	386.1	50.9	47.1	48	0.981	101.91%
NO2 adjustment not required.									AVERAGE:	100.84%

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
NO	1.000	1.001	0.00%
NOx	1.000	1.000	-0.02%
NO2	1.000	0.998	0.17%

COMMENTS:

Sample inlet filter was changed.

Station: Cold Lake South Daily: 11-11-2023 Type: AVG 1 Min. [1 Min.]

Ozone Calibration by Photometer (Varying UV Lamp)

DATE:	12-Nov-2023	PREVIOUS CALIBRATION DATE:	15-Oct-2023
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.003
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	946
PURPOSE	Install/Post-Repair	START TIME (MST):	10:36
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:17

ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	12208316585	FLOW (mL/min)	1.3
INITIAL		FINAL	
BKG/OFFSET	0.4	BKG/OFFSET	0.8
COEF/SLOPE	1.03	COEF/SLOPE	1.084
Expected (reference) Value	271	Expected (reference) Value	280

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:

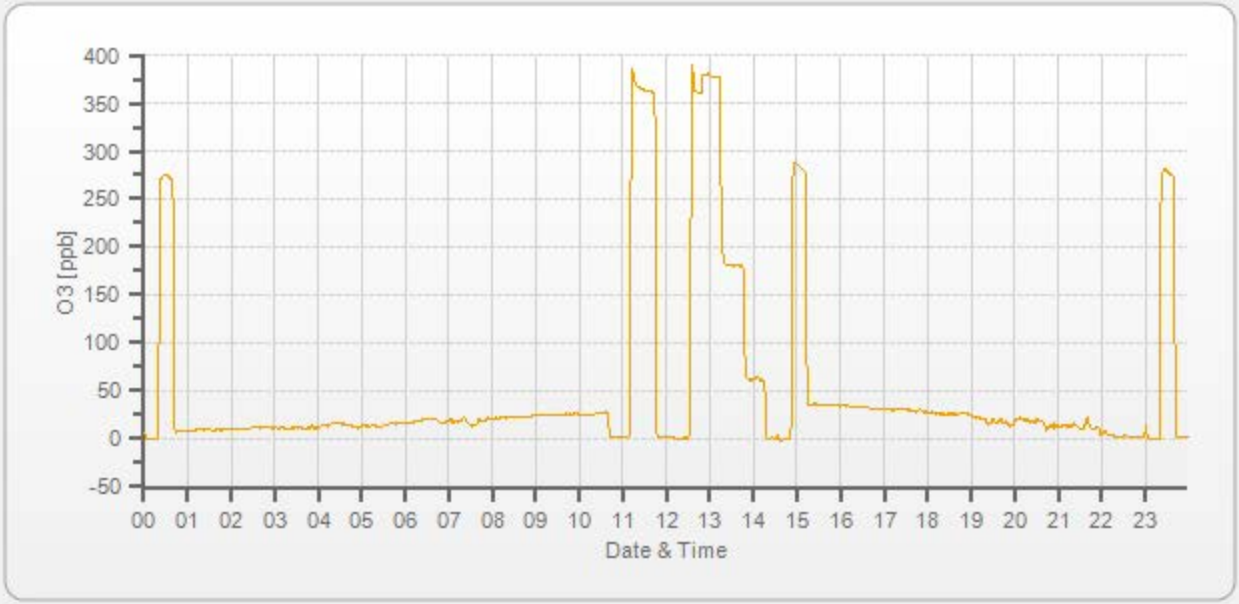
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED Initial	INDICATED Final	Initial	Final
5000		5000	0.0	0.5	0.0		
5000		5000	378.0	362.4	376.7	1.044	1.003
5000		5000	180.0	n/a	179.8	n/a	1.001
5000		5000	60.0	n/a	61.9	n/a	0.969

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.994	0.2%

COMMENTS:

Sample inlet filter was changed.


O3[ppb] Station: Cold Lake South Daily: 12-11-2023 Type: AVG 1 Min. [1 Min.]
400
350
300
250
200
150
100
50
0
-50
O3 [ppb]
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Date & Time
O3 [ppb]

Methane/Non-Methane Analyzer Calibration by Dilution

CALIBRATION:

DATE:	12-Nov-2023	PREVIOUS CALIBRATION DATE:	18-Oct-2023
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	946
PURPOSE	Routine	START TIME (MST):	10:38
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:16

ANALYZER:

VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
	Thermo 55i	1180930025	1100
PARAMETER:	CH4	NMHC	THC
RANGE (ppm):	20	20	40
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 23593		HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH_4/C_3H_8 (ppm):	603.0	204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	134	CYLINDER (psi):	900		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 (CH4/NMHC)	HIGH	MID	LOW	CH4 EQUIVILANCE	
TARGET	14	7	3.5	C_3H_8 as CH_4	561.0
RANGE	12 - 16	6 - 8	2 - 4	THC as CH_4	1164.0

EXPECTED (REFERENCE) VALUE:

INITIAL	CH4	NMHC	THC	FINAL	CH4	NMHC	THC
	9.72	11.43	21.14		9.70	11.35	21.05

CALIBRATION:

FLOW RATE (mL/min)			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC
3100		3100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
3025	74.60	3100	14.51	13.50	28.01	14.36	13.08	27.43	14.54	13.49	28.03	1.011	1.032	1.021	0.998	1.001	0.999
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.15	6.84	14.00	n/a	n/a	n/a	1.015	0.987	1.000
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.55	3.46	7.01	n/a	n/a	n/a	1.019	0.973	0.996

LINEAR REGRESSION ANALYSIS:

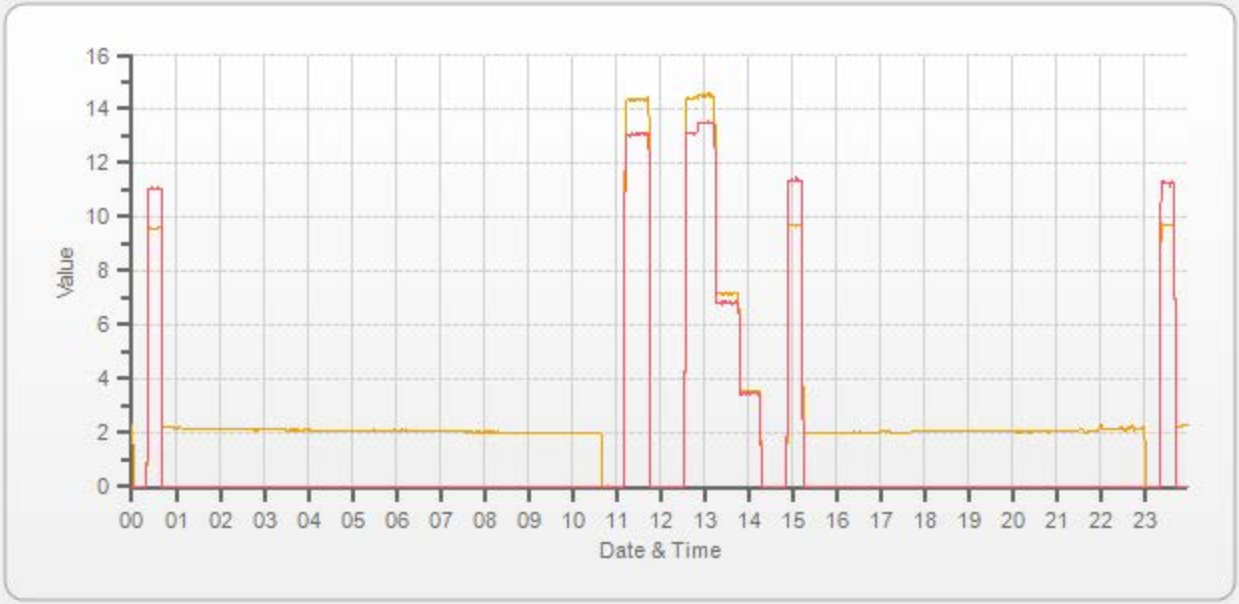
	CORRELATION	SLOPE	INTERCEPT
CH4	1.000	1.003	-0.3%
NMHC	1.000	0.998	0.3%
THC	1.000	1.000	0.0%

Comments:

Sample inlet filter was changed.

Use Zero Chrom? **Yes**

Station: Cold Lake South Daily: 12-11-2023 Type: AVG 1 Min. [1 Min.]



Methane/Non-Methane Analyzer Calibration by Dilution

CALIBRATION:

DATE:	29-Nov-2023	PREVIOUS CALIBRATION DATE:	12-Nov-2023
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	943
PURPOSE	Repeat	START TIME (MST):	10:46
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:51

ANALYZER:

VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
	Thermo 55i	1180930025	1100
PARAMETER:	CH4	NMHC	THC
RANGE (ppm):	20	20	40
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_4/C_3H_8 (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 (CH4/NMHC)	HIGH	MID	LOW	CH4 EQUIVILANCE	
TARGET	14	7	3.5	C_3H_8 as CH_4	561.0
RANGE	12 - 16	6 - 8	2 - 4	THC as CH_4	1164.0

EXPECTED (REFERENCE) VALUE:

INITIAL	CH4	NMHC	THC	FINAL	CH4	NMHC	THC
	9.70	11.35	21.05		9.74	11.49	21.23

CALIBRATION:

FLOW RATE (mL/min)			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC
3100		3100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
3025	74.60	3100	14.51	13.50	28.01	14.29	11.97	26.26	14.54	13.45	27.99	1.015	**1.128**	1.067	0.998	1.004	1.001
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.27	6.95	14.22	n/a	n/a	n/a	0.998	0.971	0.985
3081	18.70	3100	3.64	3.38	7.02	n/a	n/a	n/a	3.64	3.50	7.15	n/a	n/a	n/a	0.999	0.967	0.982

LINEAR REGRESSION ANALYSIS:

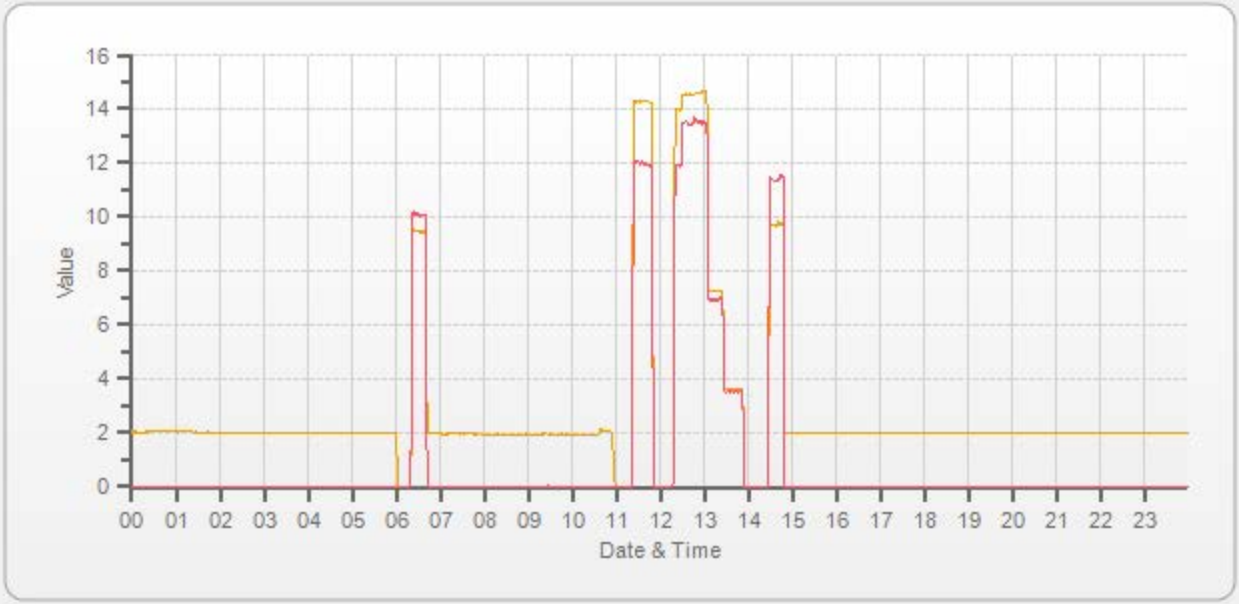
	CORRELATION	SLOPE	INTERCEPT
CH4	1.000	1.002	0.0%
NMHC	1.000	0.995	0.5%
THC	1.000	0.999	0.2%

Comments:

Repeat calibration wqas completed to correct the NMHC drift.
NMHC fails as-found. Data to be invalidated to last good point.

Use Zero Chrom? **Yes**

Station: Cold Lake South Daily: 29-11-2023 Type: AVG 1 Min. [1 Min.]



Teledyne T640 Audit/Calibration

Date/Previous Audit Date:	November 12, 2023	October 28, 2023	**Weather Conditions:**	A few clouds	
Company:	LICA		**Start Time (mst):**	16:02	
Station:	Cold Lake South		**End Time (mst):**	17:26	
Parameter:	PM 2.5		**Performed By/Reviewer:**	Alex Yakupov	Chris Wesson

Instrument Data:

Make/Model:	Teledyne T640	**Serial Number:**	575
Owner:	LICA	**Alarms (detail in comments):**	No

Reference Standards/I.D./Expiry Date:

Flow Standard: DeltaCal DC-1/#201587 / Dec 12, 2023
Digital Manometer: DeltaCal DC-1/#201587 / Dec 12, 2023
Temperature: Vaisala / HM70 / #T1640130/ Jun 26, 2024
Pressure: Fisher / FB 61291/ #130168457/ Mar 20, 2024

DIAGNOSTICS:

Ambient Pressure (mmHg)	711.8	Ambient Temp (°C)	2.5	ASC Heater Duty (%)	0.0
Box Temp (°C)	29.4	Current PMT HV (V)	1431	LED Temp (°C)	38.51
P3 Value	47	PMT Setting (V)	1432	Pump PWM (%)	43
Sample Flow (L/min)	5.01	Sample RH (%RH)	11.5	Sample Temp (°C)	26.6

Monthly Audit/Calibration:

Item:	As-found		As-left		Tolerance
	Reference	T640x	Reference	T640x	
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)	711.8	711.8	711.8	711.8	+/- 10 mm Hg
Ambient Temperature (°C)	2.70	2.5	n/a		+/- 2°C
Sample Flow (L/min)	5.00	5.01	5.00	5.01	+/-5% of T640x (e.g., 4.75 – 5.25 lpm)
Additional Monthly Maintenance :					***Completed***
				Inlet cleaned?	Yes
				Sample tubing inspected (inner and outer)?	Yes

Quarterly Audit/Calibration:

SpanDust™ Standard	Peak at Channel	Lot No:	Expiry:
	10.9	100128-050-046	31-Jan-2025

Comments:

n/a

Meteorological System Checklist

Date:	November 12, 2023		
Technician:	Alex Yakupov		
Station:	Cold Lake South		
Unit:	**Make:**	**Model:**	**Serial #:**
Temperature Sensor:	Rotronic	HC2A-S3	20257103
Barometric Pressure Sensor:	MetOne	92	Y23368
Relative Humidity Sensor:	Rotronic	HC2A-S3	20257103
Anemometer:	RM Young	05305AQ	177354
AMBIENT TEMPERATURE SENSOR CHECK			
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	Vaisala / HM70 / #T1640130/ Jun 26, 2024		
Reference Temperature (°C):	2.7		
Station - Ambient Temperature (°C):	2.5		
Temperature Difference (°C):	0.2		
BAROMETRIC PRESSURE SENSOR CHECK			
Reference Barometer ID:	Fisher / FB 61291/ #130168457/ Mar 20, 2024		
Reference Pressure - Units/Reading:	millibar	949	
Station Pressure - Units/Reading:	millibar	950	
Pressure Tolerance +/- 15% of error:	807 - 1091	-0.11%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Reference Hygrometer ID:	Vaisala / HM70 / #T1640130/ Jun 26, 2024		
Reference Hygrometer % RH- Reading:	55.60		
Station Hygrometer % RH- Reading:	59.40		
RH Tolerance +/- 15% of difference:	47.26 - 63.94	-6.8%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	October 28, 2023	Previous check date:	October 28, 2023
Wind Speed Observed (kph):	10-Jan	Wind Direction Observed:	SW
Wind speed on Data Logger (kph):	7.6	Wind Direction on Data Logger:	SW
	Annual audit: Jul 6, 2022	Wind Direction Pass/Fail?:	Pass

Comments

Station (Trailer) temperature vs Reference gauge: 24.6 vs 24.4, Difference = 0.2 degrees. Passed. Wind system: Model 05305AQ. Signal box # 32400

Meteorological Sensor Audit/Calibration

Location Information

Company:	LICA	**Performed By:**	Alex Yakupov
Audit Location:	Cold Lake South	**Reviewed By:**	Chris Wesson
Audit Date:	July 6, 2022	**Start/End Time (mst):**	15:54 / 17:48
Calibration Purpose:	routine annual	**Weather Conditions:**	A few clouds

Wind Sensor Information

Sensor ID Data:		**Sensor Outputs:**	
Sensor Make:	RM Young	**Velocity Voltage Output Range:**	n/a
Sensor Model:	05305AQ	**Velocity Unit Output Range:**	0-200
Serial #:	177354	**Direction Voltage Output Range:**	n/a
Previous Cal/Audit Date:	April 20, 2021	**Direction Unit Output Range:**	0-360

Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 id# CA4744 expires Aug 6, 2022

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	18.2	18.2	1.013
2000	36.9	36.6	36.6	1.007
3000	55.3	55.1	55.1	1.003
4000	73.7	73.5	73.5	1.003
5000	92.2	92.1	92.0	1.001
6000	110.6	110.4	110.3	1.002
7000	129.0	128.8	128.8	1.002
8000	147.4	147.3	147.3	1.001
9000	165.9	165.6	165.6	1.002
10000	184.3	184.2	184.2	1.001
		The audit meets AMD requirements.	**Average Correction Factor=**	**1.003**

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	355	0.1	0.0	0.1
30	330	27	329	2.7	1.4	2.0
60	300	58	298	2.4	1.9	2.1
90	270	89	268	1.1	2.1	1.6
120	240	119	239	0.9	1.1	1.0
150	210	148	208	1.6	2.1	1.8
180	180	178	180	2.4	-0.2	1.3
210	150	208	149	2.3	1.1	1.7
240	120	239	119	1.3	0.6	1.0
270	90	268	91	2.2	-1.2	1.7
300	60	298	58	2.3	1.9	2.1
330	30	329	28	1.3	2.5	1.9
355	0	355	0	-0.1	0.1	0.1
The audit meets AMD requirements.			**Average Absolute Degrees Difference=**			**1.4**

Comments:

Output via RMY32400 Serial Interface

End of Report

Lakeland Industry & Community Association

NOVEMBER 2023

Ambient Air Monitoring Calibration Report

- TAMARACK STATION-

CAL-LICA-202311-01248

Station Operation and Maintenance:
Bureau Veritas Canada

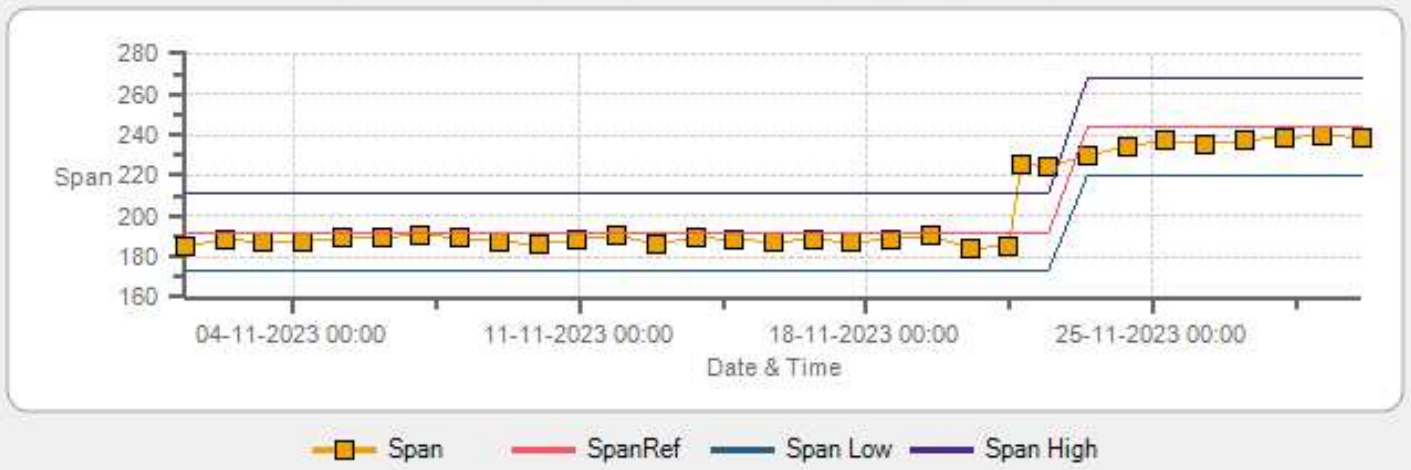
Data Validation and Report:
LICA / Bureau Veritas Canada

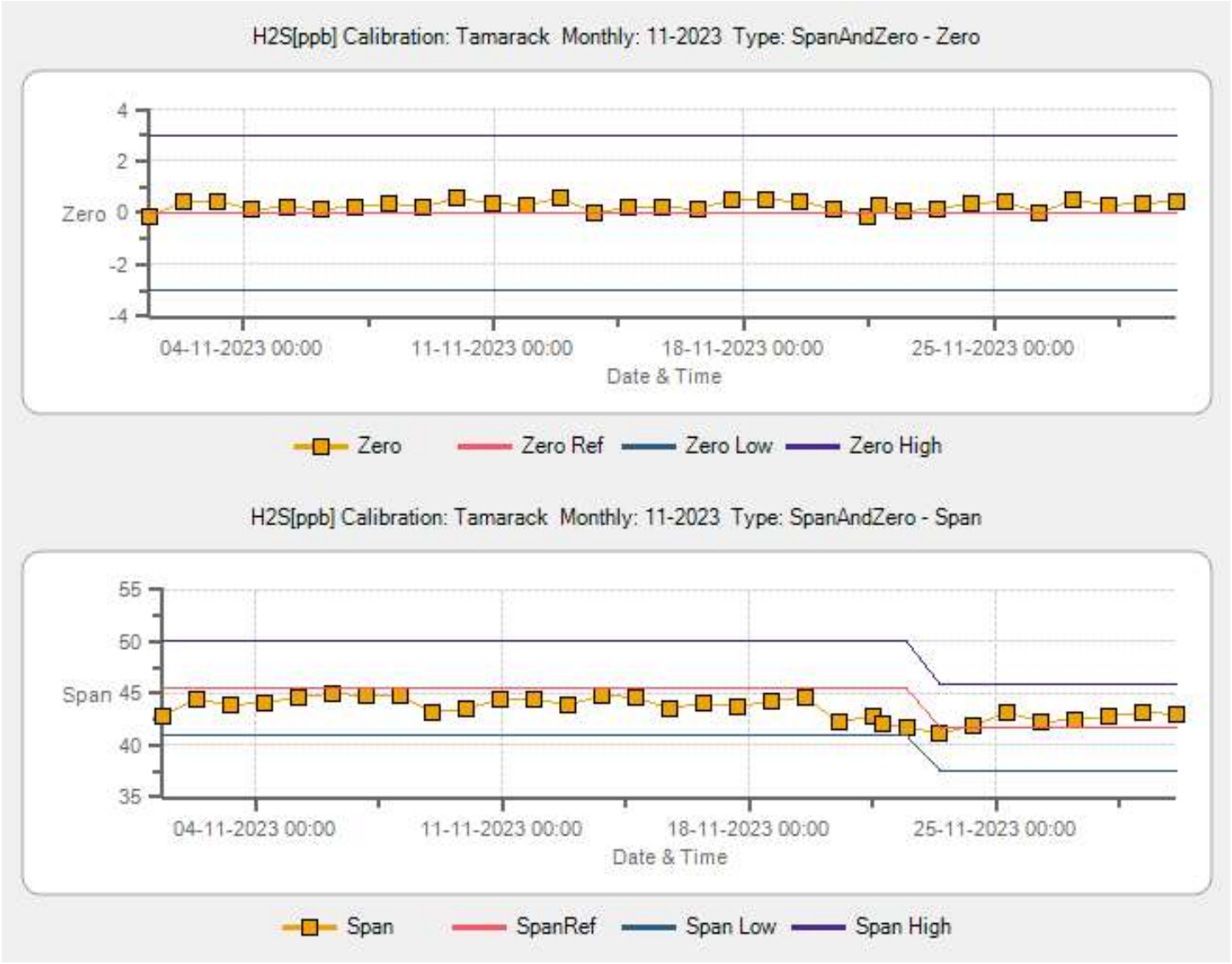
December 20, 2023

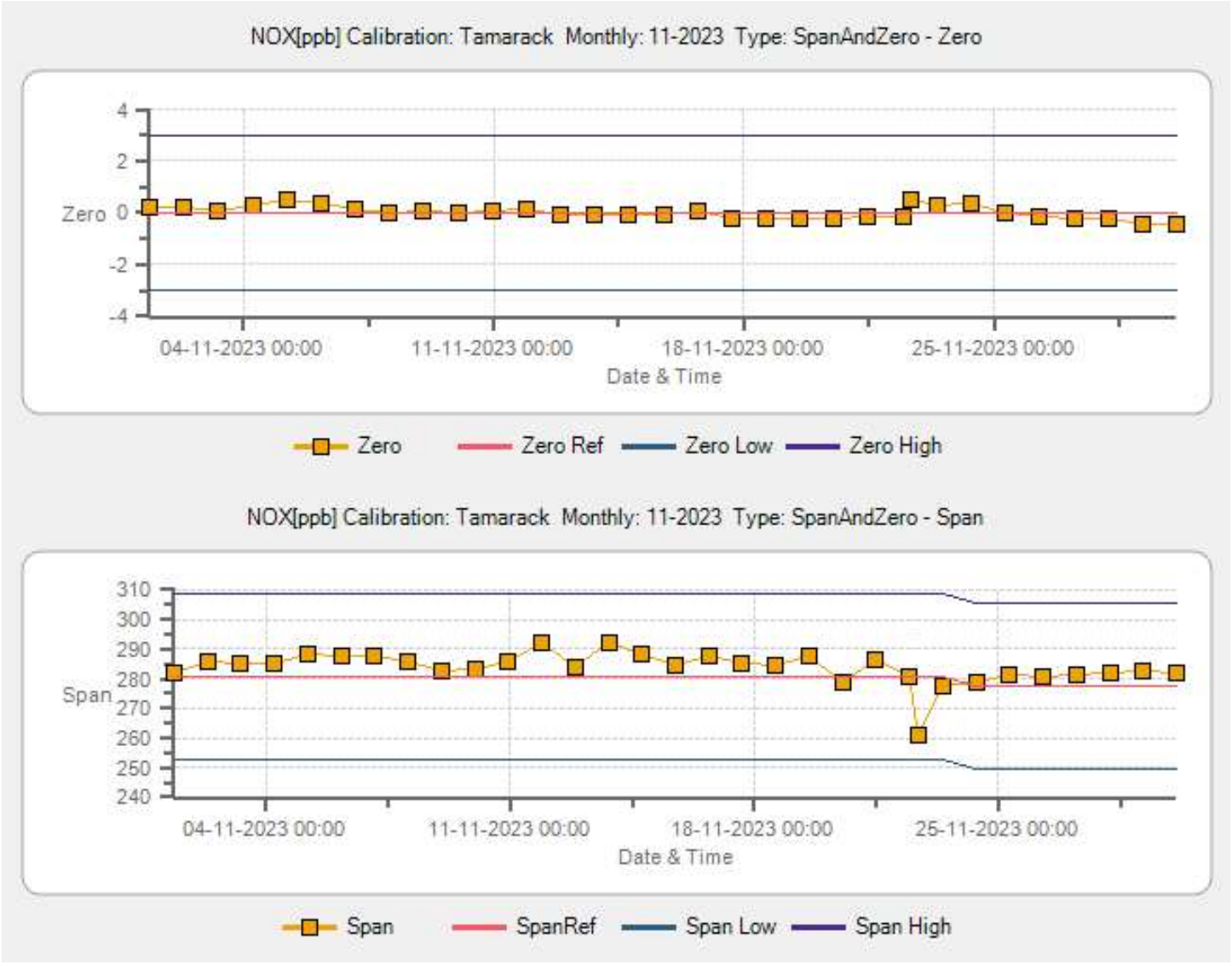
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Tamarack Monthly: 11-2023 Type: SpanAndZero - Zero

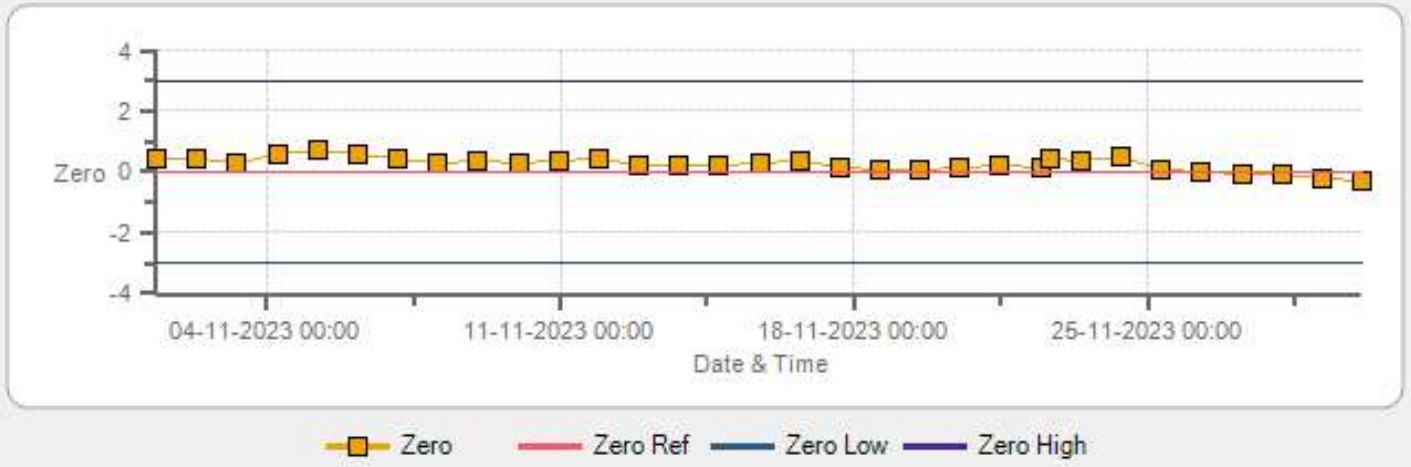
SO2[ppb] Calibration: Tamarack Monthly: 11-2023 Type: SpanAndZero - Span




H2S[ppb] Calibration: Tamarack Monthly: 11-2023 Type: SpanAndZero - Zero
4
2
Zero 0
-2
-4
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
H2S[ppb] Calibration: Tamarack Monthly: 11-2023 Type: SpanAndZero - Span
55
50
Span 45
40
35
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Span
SpanRef
Span Low
Span High

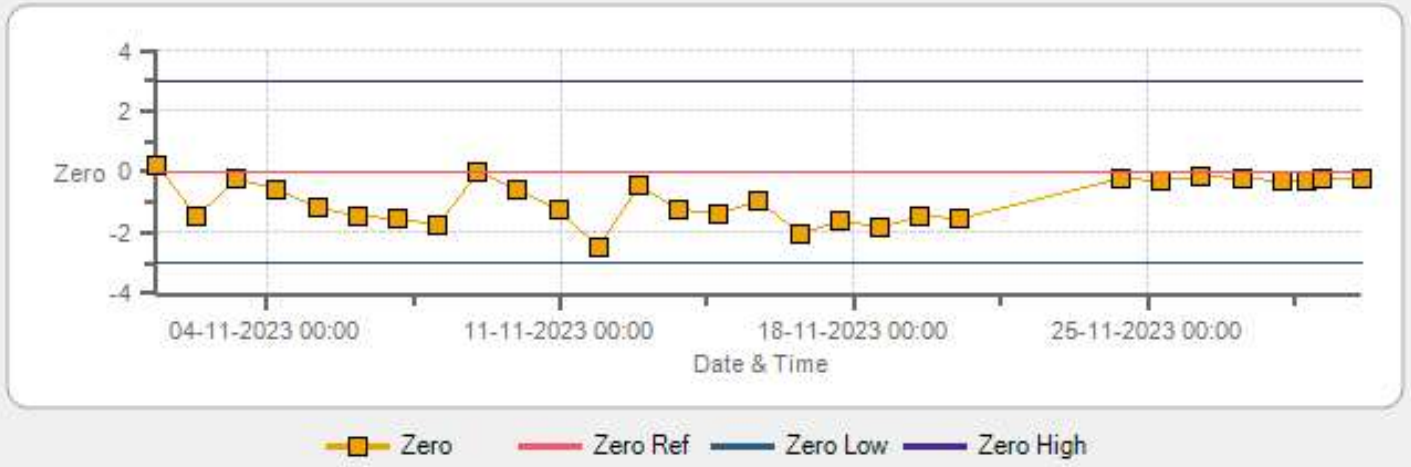

NOX[ppb] Calibration: Tamarack Monthly: 11-2023 Type: SpanAndZero - Zero
4
2
Zero 0
-2
-4
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
NOX[ppb] Calibration: Tamarack Monthly: 11-2023 Type: SpanAndZero - Span
310
300
290
Span 280
270
260
250
240
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Span
SpanRef
Span Low
Span High

NO2[ppb] Calibration: Tamarack Monthly: 11-2023 Type: SpanAndZero - Zero

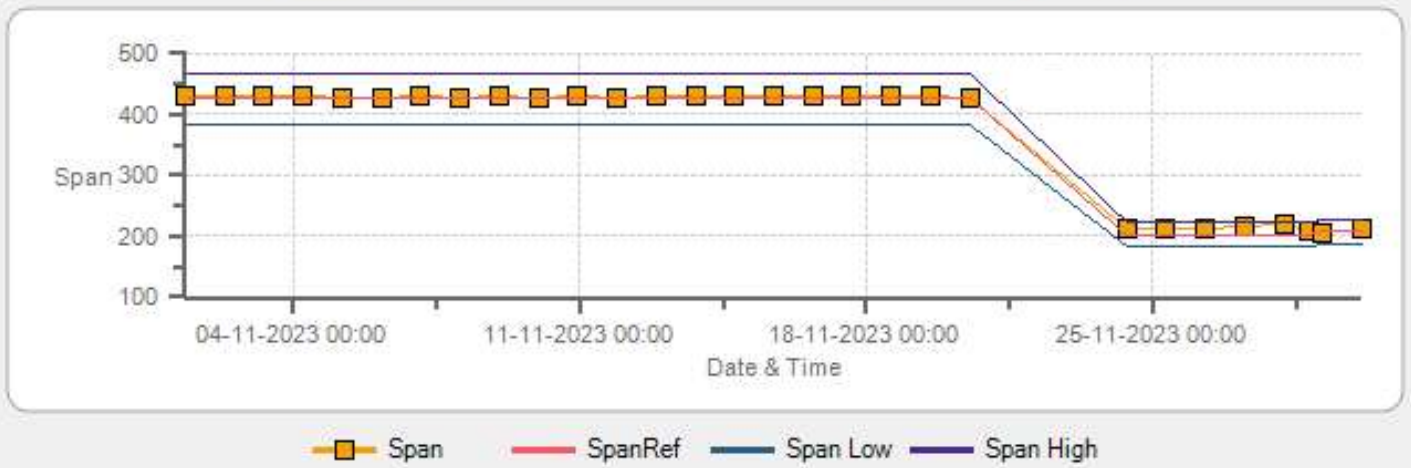


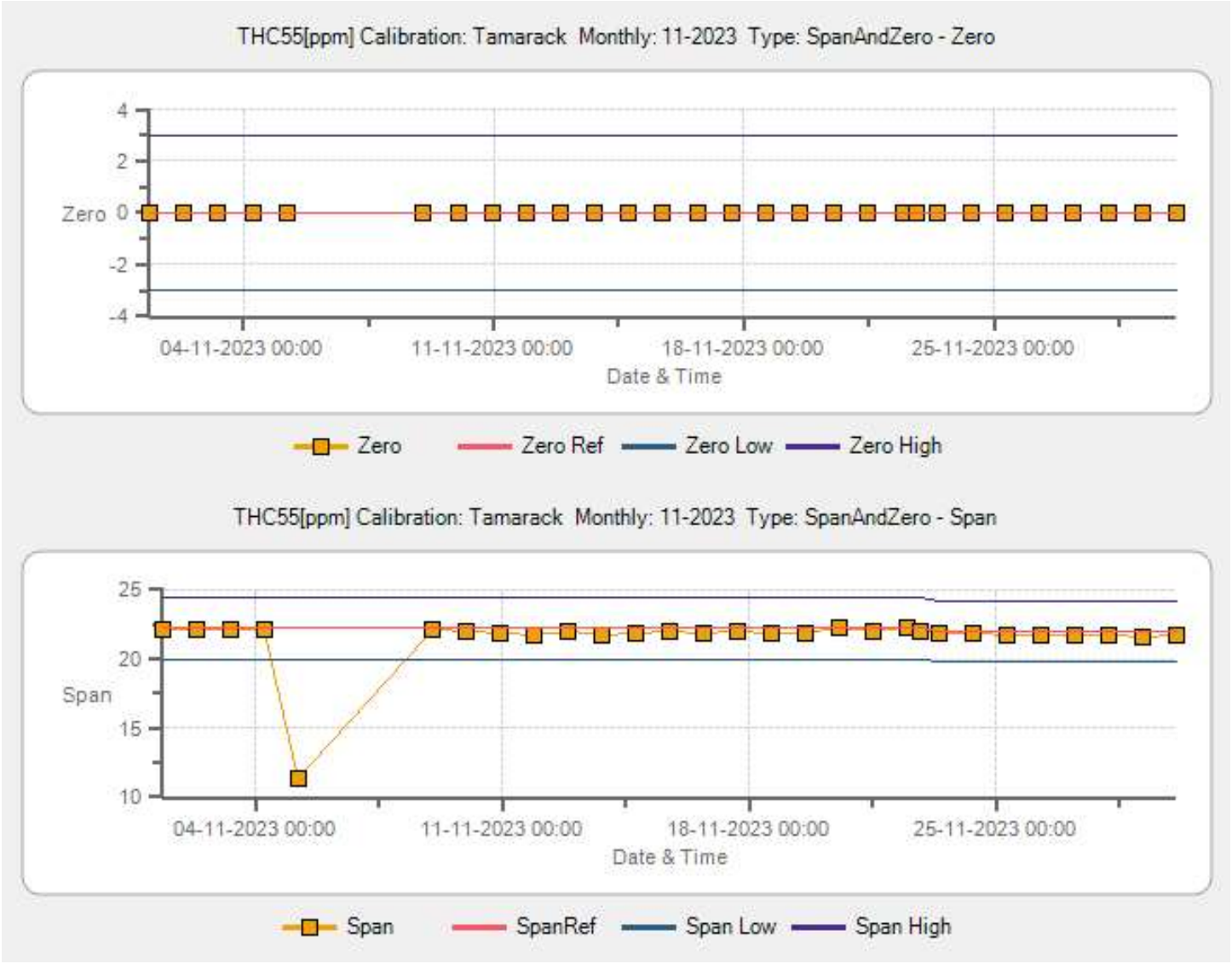
NO2[ppb] Calibration: Tamarack Monthly: 11-2023 Type: SpanAndZero - Span

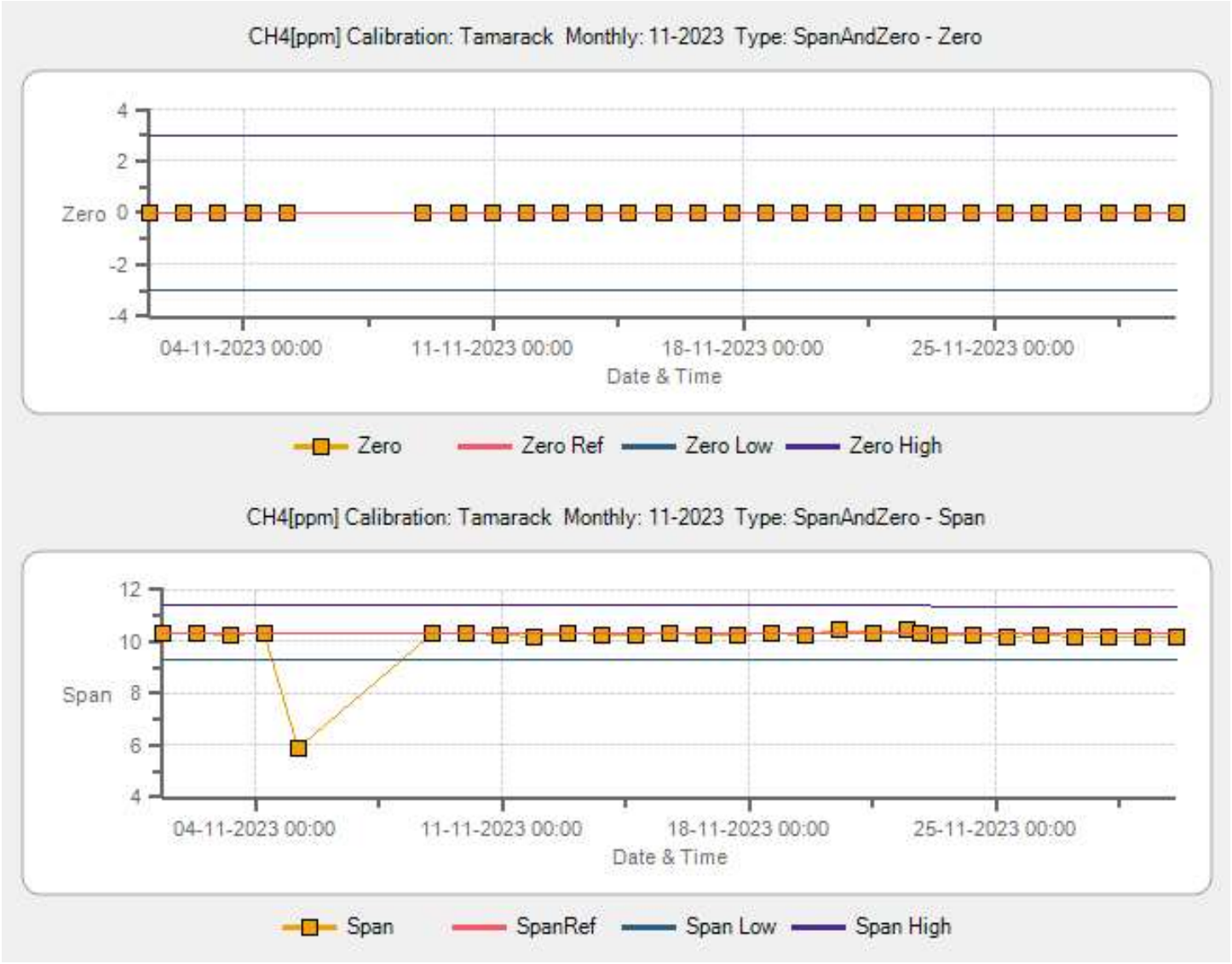
O3[ppb] Calibration: Tamarack Monthly: 11-2023 Type: SpanAndZero - Zero

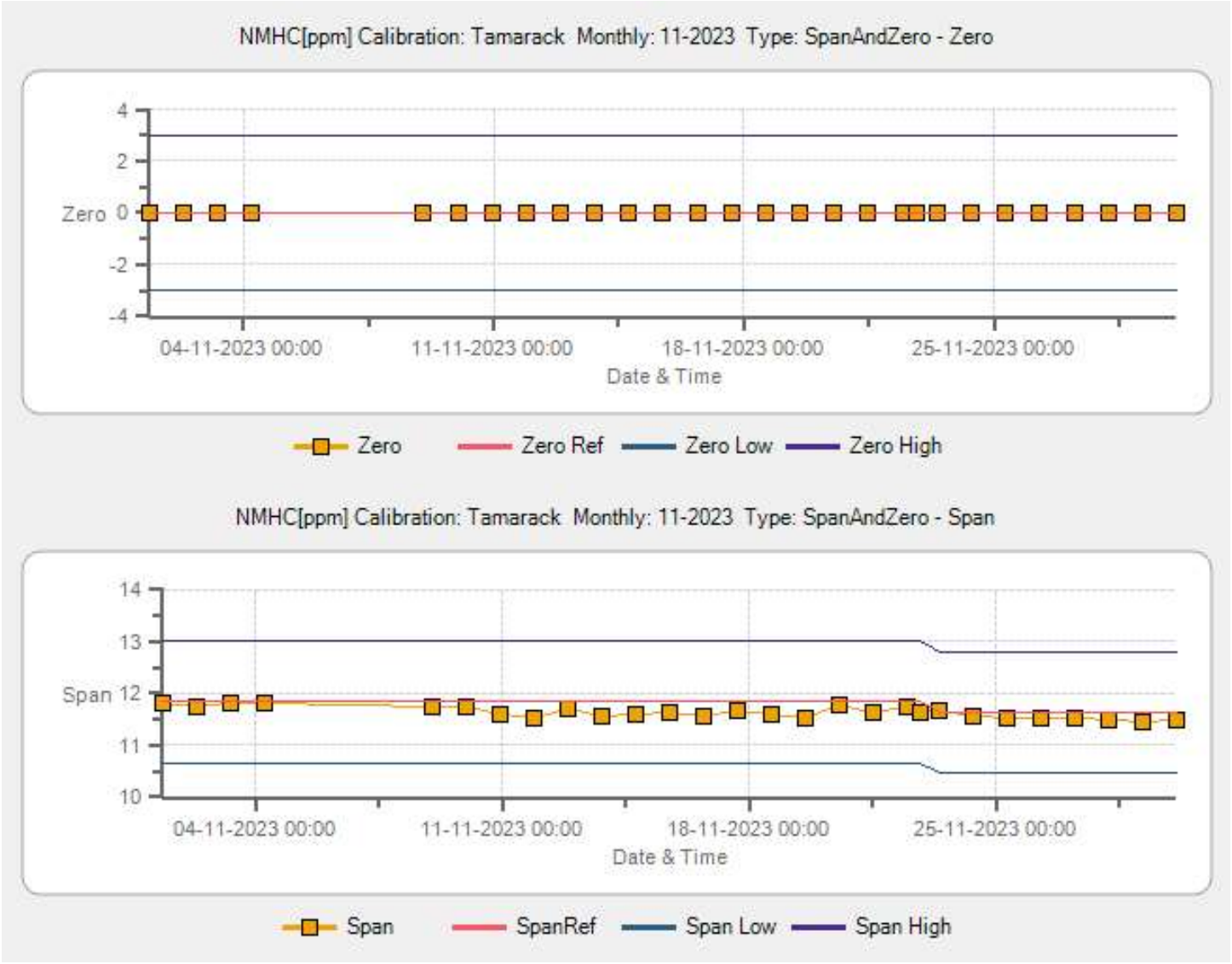


O3[ppb] Calibration: Tamarack Monthly: 11-2023 Type: SpanAndZero - Span




THC55[ppm] Calibration: Tamarack Monthly: 11-2023 Type: SpanAndZero - Zero
4
2
Zero 0
-2
-4
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
THC55[ppm] Calibration: Tamarack Monthly: 11-2023 Type: SpanAndZero - Span
25
20
Span
15
10
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Span
SpanRef
Span Low
Span High


CH4[ppm] Calibration: Tamarack Monthly: 11-2023 Type: SpanAndZero - Zero
Zero
4
2
0
-2
-4
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
CH4[ppm] Calibration: Tamarack Monthly: 11-2023 Type: SpanAndZero - Span
Span
12
10
8
6
4
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Span
SpanRef
Span Low
Span High


NMHC[ppm] Calibration: Tamarack Monthly: 11-2023 Type: SpanAndZero - Zero
4
2
Zero 0
-2
-4
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
NMHC[ppm] Calibration: Tamarack Monthly: 11-2023 Type: SpanAndZero - Span
14
13
Span 12
11
10
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Span
SpanRef
Span Low
Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution

DATE:	21-Nov-2023	PREVIOUS CALIBRATION DATE:	19-Oct-2023
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.002
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	935
PURPOSE	Removal/Shut-down	START TIME (MST):	11:49
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:08

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180930031	FLOW (mL/min)	0
INITIAL		FINAL	
BKG/OFFSET	2.88	BKG/OFFSET	n/a
COEF/SLOPE	1.02	COEF/SLOPE	n/a
Expected (reference) Value	192	Expected (reference) Value	n/a

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):	700	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	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000		5000	0.00	-0.1	n/a		
4961	37.20	4998	375.13	365.4	n/a	1.026	n/a
4982	17.60	5000	177.41	171.7	n/a	1.033	n/a
4990	8.80	4999	88.72	85.5	n/a	1.036	n/a

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.975	-0.1%

COMMENTS:

Shutdown calibration was completed to install a new flowrate sensor

SO2 Analyzer Calibration by Dilution

DATE:	21-Nov-2023	PREVIOUS CALIBRATION DATE:	19-Oct-2023
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	935
PURPOSE	Install/Post-Repair	START TIME (MST):	15:23
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:52

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180930031	FLOW (mL/min)	354
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	2.95
COEF/SLOPE	n/a	COEF/SLOPE	1.056
Expected (reference) Value	n/a	Expected (reference) Value	244

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):	700	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	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000		5000	0.00	n/a	0		
4961	37.20	4998	375.13	n/a	375.6	n/a	0.999
4982	17.60	5000	177.41	n/a	177.3	n/a	1.001
4990	8.80	4999	88.72	n/a	87.7	n/a	1.012

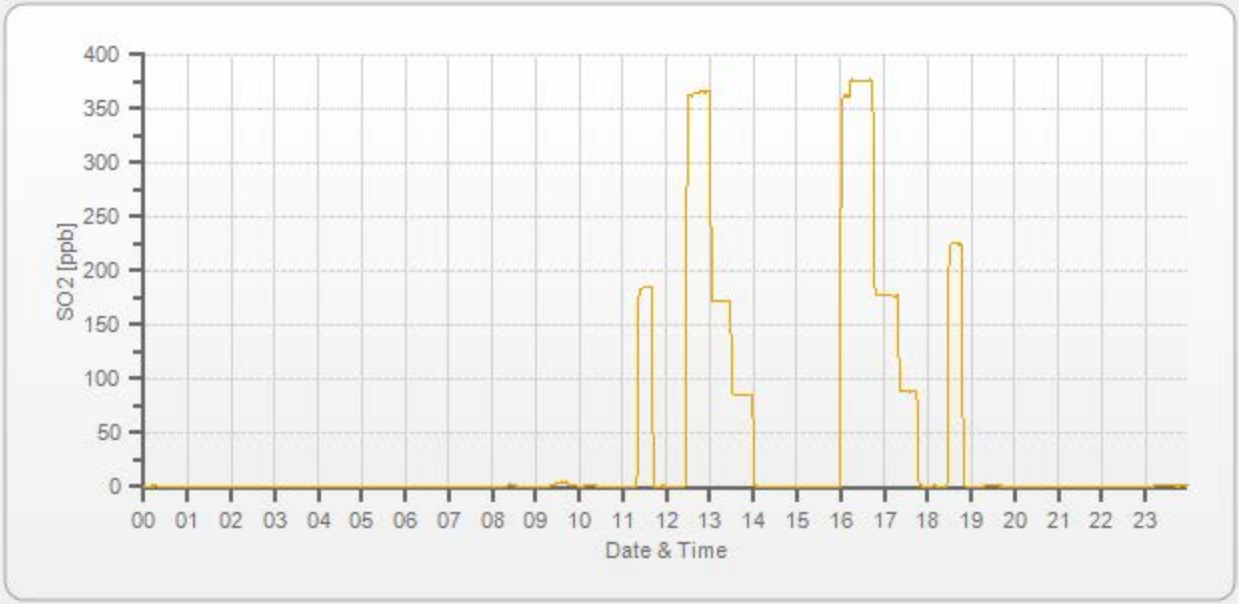
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	-0.1%

COMMENTS:

Sample inlet filter was changed. A new flow sensor was installed.

SO2[ppb] Station: Tamarack Daily: 21-11-2023 Type: AVG 1 Min. [1 Min.]



H2S Analyzer Calibration by Dilution

DATE:	21-Nov-2023	PREVIOUS CALIBRATION DATE:	19-Oct-2023
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	935
PURPOSE	Removal/Shut-down	START TIME (MST):	11:48
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:08

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 17360005	FLOW (mL/min)	912
INITIAL		FINAL	
BKG/OFFSET	37.2	BKG/OFFSET	n/a
COEF/SLOPE	0.82	COEF/SLOPE	n/a
Expected (reference) Value	45.6	Expected (reference) Value	n/a

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:	EY 0002287	HIGH ID	n/a
CONC (ppm):	10.10	EXPIRY DATE	n/a
CYLINDER (psi):	200	LOW ID	n/a
EXPIRY DATE	14-Sep-2024	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:	11:53	SO2 Conc (ppb)	380
END TIME:	12:08	Analyzer Response (ppb)	0.0

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
7500		7500	0.00	0.1	n/a		
7442	57.90	7500	77.97	79.3	n/a	0.984	n/a
7472	28.20	7500	37.98	38.6	n/a	0.986	n/a
7486	14.10	7500	18.99	19.7	n/a	0.969	n/a

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.014	0.2%

COMMENTS:

Shutdown calibration was completed to renew SO2 scrubber

H2S Analyzer Calibration by Dilution

DATE:	21-Nov-2023	PREVIOUS CALIBRATION DATE:	19-Oct-2023
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	935
PURPOSE	Install/Post-Repair	START TIME (MST):	15:21
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:52

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 17360005	FLOW (mL/min)	904
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	36.5
COEF/SLOPE	n/a	COEF/SLOPE	0.809
Expected (reference) Value	n/a	Expected (reference) Value	41.8

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:	EY 0002287	HIGH ID	n/a
CONC (ppm):	10.10	EXPIRY DATE	n/a
CYLINDER (psi):	200	LOW ID	n/a
EXPIRY DATE	14-Sep-2024	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:	15:24	SO2 Conc (ppb)	380
END TIME:	15:39	Analyzer Response (ppb)	0.0

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
7500		7500	0.00	n/a	0		
7442	57.90	7500	77.97	n/a	77.9	n/a	1.001
7472	28.20	7500	37.98	n/a	38	n/a	0.999
7486	14.10	7500	18.99	n/a	19	n/a	0.999

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.999	0.0%

COMMENTS:

Sample inlet filter was changed. SO2 scrubber was renewed.

H2S[ppb] Station: Tamarack Daily: 21-11-2023 Type: AVG 1 Min. [1 Min.]

NOx Calibration by Dilution/Gas-Phase Titration

CALIBRATION:

				ANALYZER:			
DATE:	22-Nov-2023	PREVIOUS CALIBRATION DATE:	19-Oct-2023	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930028	NOx	0.998
LOCATION:	Tamarack	BAROMETRIC (mBar):	943	FLOW (mL/min)	739	NO	0.998
PURPOSE	Routine	START TIME (MST):	10:53	RANGE (ppb)	500	NO2	1.001
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:47	GPT FOR O3?		No	

CALIBRATION SYSTEM:

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):	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:	2.4	2.2	n/a	BKG/OFFSET:	2.5	2	n/a
SLOPE/COEF/CE:	1.01	1.172	0.998	SLOPE/COEF/CE:	1.01	1.165	0.998

EXPECTED (REFERENCE) VALUE:

INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	280.8	3.0	277.9		277.5	2.4	275.1

CALIBRATION PARAMETERS:

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

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
5000		5000	0.0	0.0	0.0	-0.2	0.4	-0.3	0.0	0.0	0.0						
4961	37.10	4998	379.3	383.0	3.7	381.5	386.3	4.8	379.9	384.2	4.4	0.994	0.993		0.998	0.997	
4982	17.60	5000	179.9	181.6	1.8	n/a	n/a	n/a	179.6	181.5	1.9	n/a	n/a		1.002	1.001	
4990	8.80	4999	90.0	90.8	0.9	n/a	n/a	n/a	89.6	90.7	1.0	n/a	n/a		1.004	1.001	

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	378.5	382.4	3.9				
AS-FOUND HIGH	37.10	4997	235	121.5	382.3	260.8	257	256.9	1.000	99.96%
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	256.7	382.6	125.9	121.8	122	0.998	100.16%
LOW	37.10	4997	40	328.8	381.8	52.9	49.7	49	1.014	98.59%
NO2 adjustment not required.									AVERAGE:	99.57%

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
NO	1.000	1.002	-0.06%
NOx	1.000	1.003	-0.06%
NO2	1.000	1.002	-0.10%

COMMENTS:

Sample inlet filter was changed.

Station: Tamarack Daily: 22-11-2023 Type: AVG 1 Min. [1 Min.]

Ozone Calibration by Photometer (Varying UV Lamp)

DATE:	22-Nov-2023	PREVIOUS CALIBRATION DATE:	20-Oct-2023
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.003
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	943
PURPOSE	Routine	START TIME (MST):	10:47
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:13

ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	1202068570	FLOW (mL/min)	1350
INITIAL		FINAL	
BKG/OFFSET	4.4	BKG/OFFSET	3.9
COEF/SLOPE	1.027	COEF/SLOPE	1.035
Expected (reference) Value	426	Expected (reference) Value	see comment

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:

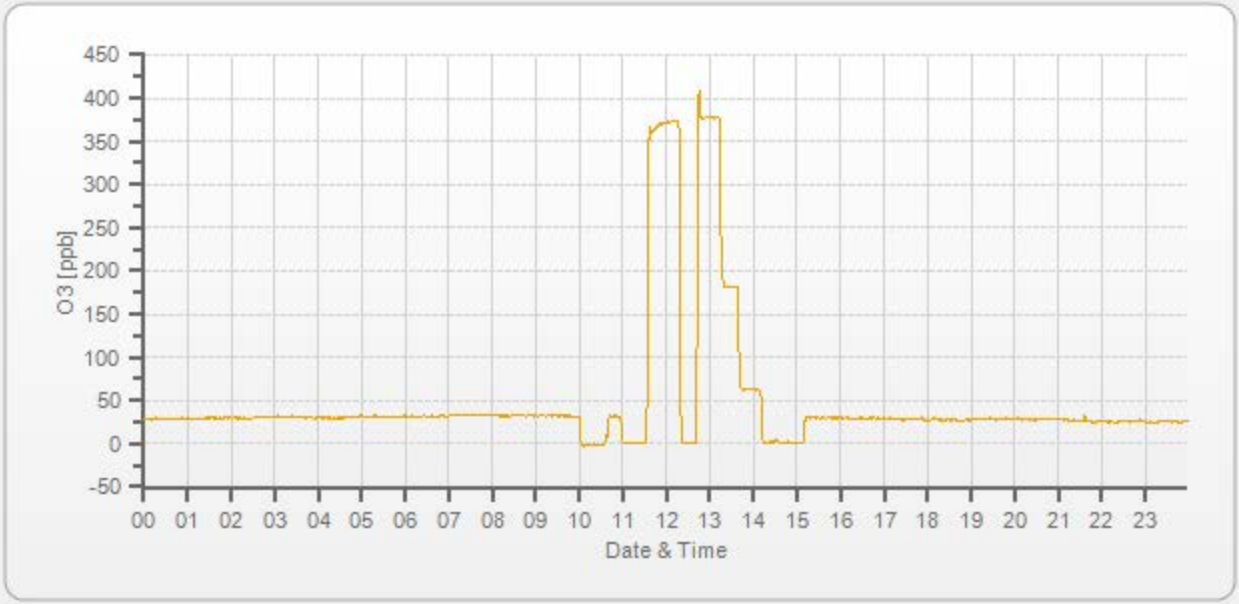
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000		5000	0.0	-0.3	0.0		
5000		5000	378.0	371.7	377.3	1.016	1.002
5000		5000	180.0	n/a	180.6	n/a	0.997
5000		5000	61.0	n/a	61.9	n/a	0.985

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.997	0.1%

COMMENTS:

Sample inlet filter was changed.
Analyzer (sample) OK but suspected problem with ozonator (internal span)


O3[ppb] Station: Tamarack Daily: 22-11-2023 Type: AVG 1 Min. [1 Min.]
O3 [ppb]
450
400
350
300
250
200
150
100
50
0
-50
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Date & Time
O3 [ppb]

Ozone Calibration by Photometer (Varying UV Lamp)

DATE:	23-Nov-2023	PREVIOUS CALIBRATION DATE:	22-Nov-2023
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.002
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	944
PURPOSE	Removal/Shut-down	START TIME (MST):	10:14
PERFORMED BY:	Alex Yakupov	END TIME (MST):	12:03

ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	1202068570	FLOW (mL/min)	1380
INITIAL		FINAL	
BKG/OFFSET	3.9	BKG/OFFSET	n/a
COEF/SLOPE	1.035	COEF/SLOPE	n/a
Expected (reference) Value	span generation failed	Expected (reference) Value	n/a

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	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000		5000	0.0	0.2	n/a		
5000		5000	378.0	379.0	n/a	0.998	n/a
5000		5000	180.0	180.6	n/a	0.998	n/a
5000		5000	61.0	60.5	n/a	1.012	n/a

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.003	0.0%

COMMENTS:

Shutdown calibration to remove the analyzer for repair.

Ozone Calibration by Photometer (Varying UV Lamp)

DATE:	23-Nov-2023	PREVIOUS CALIBRATION DATE:	n/a
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	944
PURPOSE	Install/Post-Repair	START TIME (MST):	15:51
PERFORMED BY:	Alex Yakupov	END TIME (MST):	19:21

ANALYZER:

MAKE/MODEL	Thermo 49i	RANGE	500 ppb
SERIAL #	1002240371	FLOW (mL/min)	1506
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	0.2
COEF/SLOPE	n/a	COEF/SLOPE	1.067
Expected (reference) Value	n/a	Expected (reference) Value	203.5

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	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000		5000	0.0	n/a	0.0		
5000		5000	378.0	n/a	379.1	n/a	0.997
5000		5000	180.0	n/a	179.8	n/a	1.001
5000		5000	61.0	n/a	62.6	n/a	0.974

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.001	0.1%

COMMENTS:

16:50-17:01 = calibrator reset and high point restarted


O3[ppb] Station: Tamarack Daily: 23-11-2023 Type: AVG 1 Min. [1 Min.]
O3 [ppb]
450
400
350
300
250
200
150
100
50
0
-50
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Date & Time
O3 [ppb]

Ozone Calibration by Photometer (Varying UV Lamp)

DATE:	28-Nov-2023	PREVIOUS CALIBRATION DATE:	23-Oct-2023
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	0.997
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	944
PURPOSE	Routine	START TIME (MST):	15:21
PERFORMED BY:	Alex Yakupov	END TIME (MST):	19:39

ANALYZER:

MAKE/MODEL	Thermo 49i	RANGE	500 ppb
SERIAL #	1002240371	FLOW (mL/min)	1485
INITIAL		FINAL	
BKG/OFFSET	0.2	BKG/OFFSET	0.2
COEF/SLOPE	1.067	COEF/SLOPE	1.054
Expected (reference) Value	203.5	Expected (reference) Value	208

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	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000		5000	0.0	0.0	0.0		
5000		5000	378.0	391.0	378.1	0.967	1.000
5000		5000	180.0	n/a	179.8	n/a	1.001
5000		5000	61.0	n/a	60.8	n/a	1.003

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.0%

COMMENTS:

Repeat calibration to correct the EV and rebuild a Zero pump.


O3[ppb] Station: Tamarack Daily: 28-11-2023 Type: AVG 1 Min. [1 Min.]
O3 [ppb]
450
400
350
300
250
200
150
100
50
0
-50
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Date & Time
O3 [ppb]

Methane/Non-Methane Analyzer Calibration by Dilution

CALIBRATION:

DATE:	22-Nov-2023	PREVIOUS CALIBRATION DATE:	20-Oct-2023
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	945
PURPOSE	Routine	START TIME (MST):	16:04
PERFORMED BY:	Alex Yakupov	END TIME (MST):	19:45

ANALYZER:

VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
	Thermo 55i	1505664392	1200
PARAMETER:	CH4	NMHC	THC
RANGE (ppm):	20	20	40
PREVIOUS CF:	1.001	0.996	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_4/C_3H_8 (ppm):	603.0	204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	132	CYLINDER (psi):	900		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 (CH4/NMHC)	HIGH	MID	LOW	CH4 EQUIVILANCE	
TARGET	14	7	3.5	C_3H_8 as CH_4	561.0
RANGE	12 - 16	6 - 8	2 - 4	THC as CH_4	1164.0

EXPECTED (REFERENCE) VALUE:

INITIAL	CH4	NMHC	THC	FINAL	CH4	NMHC	THC
	10.36	11.85	22.21		10.32	11.63	21.95

CALIBRATION:

FLOW RATE (mL/min)			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC
3100		3100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
3025	74.60	3100	14.51	13.50	28.01	14.79	13.77	28.56	14.53	13.55	28.08	0.981	0.980	0.981	0.999	0.996	0.998
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.28	6.73	14.01	n/a	n/a	n/a	0.997	1.003	1.000
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.65	3.34	6.99	n/a	n/a	n/a	0.991	1.008	0.999

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
CH4	1.000	1.001	0.1%
NMHC	1.000	1.004	-0.1%
THC	1.000	1.002	0.0%

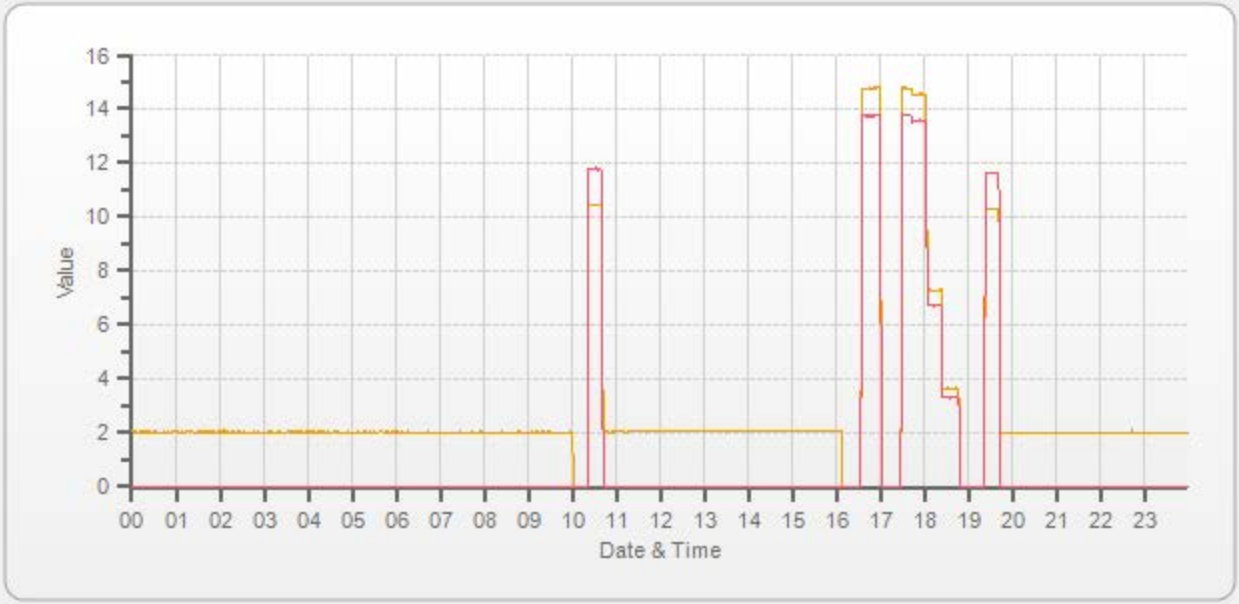
Comments:

Sample inlet filter was changed.

BV analyzer

Use Zero Chrom? **Yes**

Station: Tamarack Daily: 22-11-2023 Type: AVG 1 Min. [1 Min.]



Thermo 5030 SHARP Monitor Monthly Check

Date:	November 22, 2023	**Performed By/Reviewer:**	Alex Yakupov / Chris Wesson
Company:	LICA	**Start Time (mst):**	14:37
Station Name/Location:	Tamarack	**End Time (mst):**	15:47
Previous Audit Date:	September 25, 2023	**Calibration Purpose:**	routine monthly
Parameter:	PM 2.5	**Weather Conditions:**	Light snow

SHARP Information and Status:

Serial Number:	CM-2209	**Status:**	0.00
Approx Tape remaining:	7/10	**Error Code:**	0.00

Reference Standards:

	Air Flow			
	Manometer	**Orifice**	**Pressure:**	**Temperature:**
Make:	Delta Cal	Delta Cal	Fisher	Vaisala
Model:	DC-1	DC-1	FB61291	HM70
Serial Number:	#201587	#201587	130168457	T1640130
Calibration Expiration Date:	December 12, 2023	December 12, 2023	March 20, 2024	June 26, 2024

As found temperature and pressure:

	Tolerance +/- 4°C		**Tolerance +/- 13.33 hPa**
SHARP T1 °C:	-8.0	**SHARP P3 (hPa):**	949.000
Reference °C:	-8.7	**Reference (hPa):**	947.000
Difference °C:	-0.7	**Difference (hPa) :**	2.000

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

	Tolerance +/- 4°C		**Tolerance +/- 13.33 hPa**
SHARP T1 °C:	-8.0	**SHARP P3 (hPa):**	949.000
Reference °C:	-8.7	**Reference (hPa):**	947.000
Difference °C:	-0.7	**Difference :**	2.000

As found flows:

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

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	1000.00	**SHARP Airflow (l/min)**	16.67
Pump Voltage (%)	53.40	**Reference AirFlow (l/min)**	16.69
		Difference (l/min)	0.02

Inlet Assembly:

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

Comments:

Leak check: 16.69 vs 16.58, 0.11 < 0.80 lpm, passed.

Meteorological System Checklist

Date:	November 22, 2023
Technician:	Alex Yakupov
Station:	Tamarack / Audit time: 16:08 - 17:49

Unit:	Make:	Model:	Serial #:
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	16:08-16:22 - water test.
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 (^{o}C):	-8.9
Station - Ambient Temperature (^{o}C):	-9.8
Temperature Difference (^{o}C):	0.9

BAROMETRIC PRESSURE SENSOR CHECK

Reference Barometer ID:	Fisher / FB 61291/ #130168457/ Mar 20, 2024	
Reference Pressure - Units/Reading:	millibar	946
Station Pressure - Units/Reading:	millibar	945
Pressure Tolerance +/- 15% of error:	804 - 1088	0.11%

RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Reference Hygrometer ID:	Vaisala HMP76B #T1640130, Exp. Date: Jun 26, 2024	
Reference Hygrometer % RH- Reading:	63.60	
Station Hygrometer % RH- Reading:	63.40	
RH Tolerance +/- 15% of difference:	54.06 - 73.14	0.3%

ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Previous check date:	October 20, 2023	Previous check date:	October 20, 2023
Wind Speed Observed (kph):	0~10	Wind Direction Observed:	NE
Wind speed on Data Logger (kph):	2.2	Wind Direction on Data Logger:	NE
	Annual audit: Sep 17, 2023	Wind Direction Pass/Fail?:	Pass

Comments

Station (Trailer) temperature vs Reference gauge temperature: 22.0 vs 22.4 degrees, difference = 0.4 => Passed.

Meteorological Sensor Audit/Calibration

Location Information

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

NOVEMBER 2023

Ambient Air Monitoring Calibration Report

- ST. LINA STATION-

CAL-LICA-202311-01250

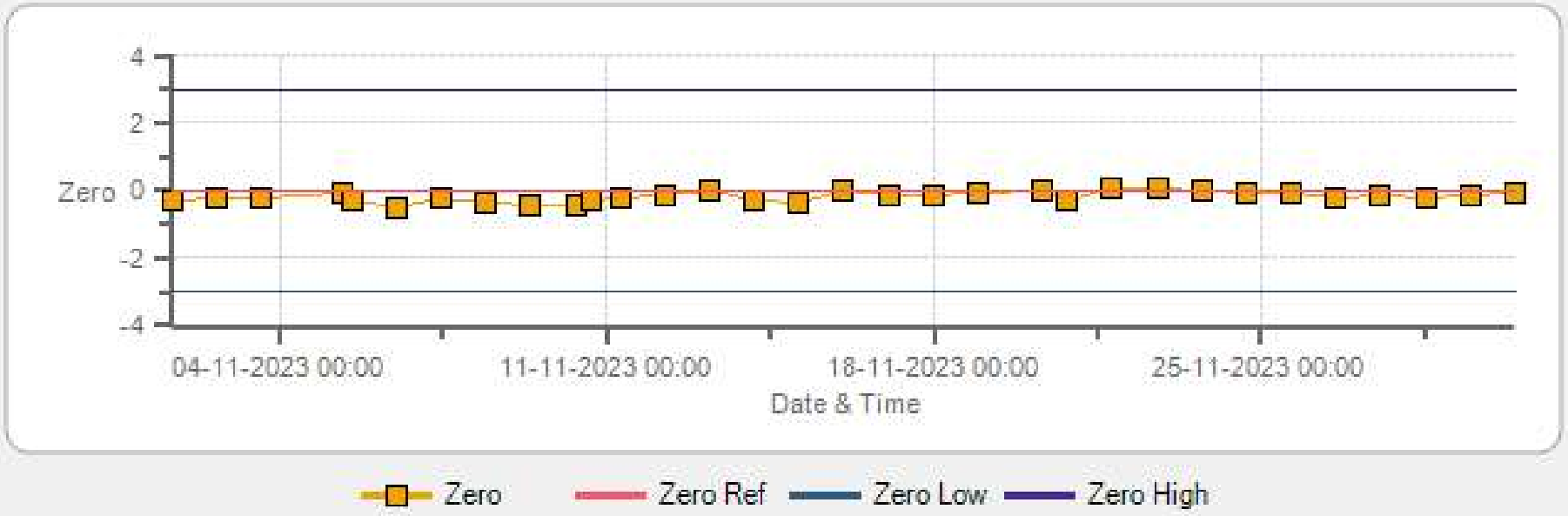
Station Operation and Maintenance:
Bureau Veritas Canada

Data Validation and Report:
LICA / Bureau Veritas Canada

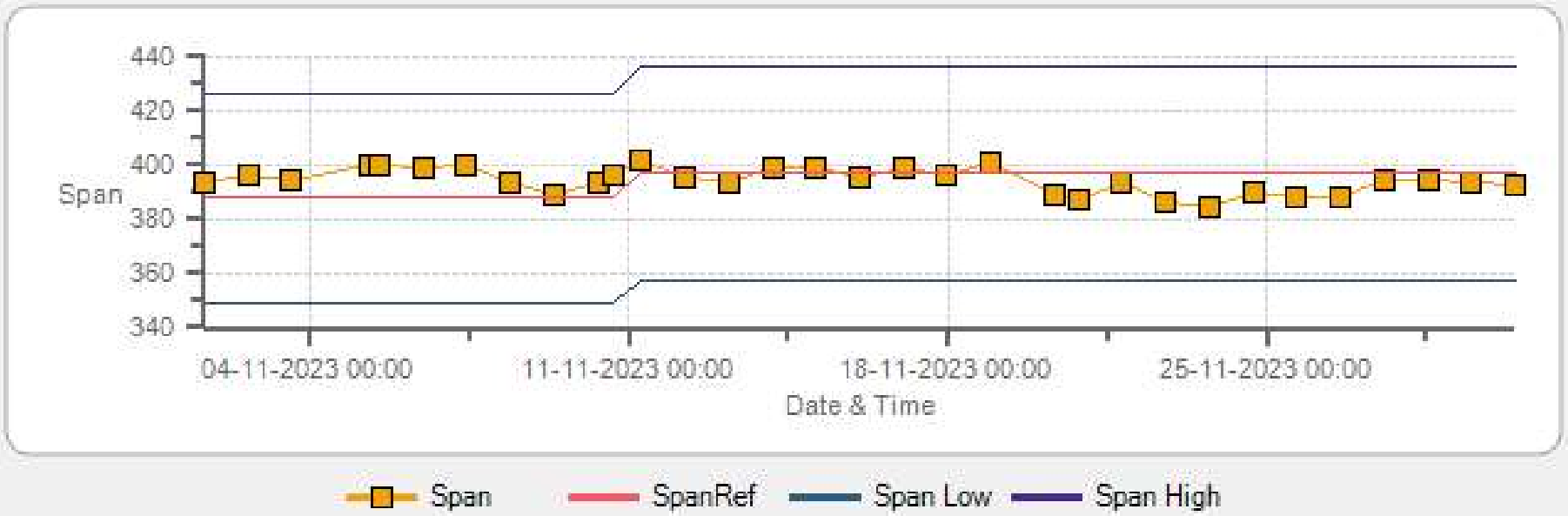
December 20, 2023

DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

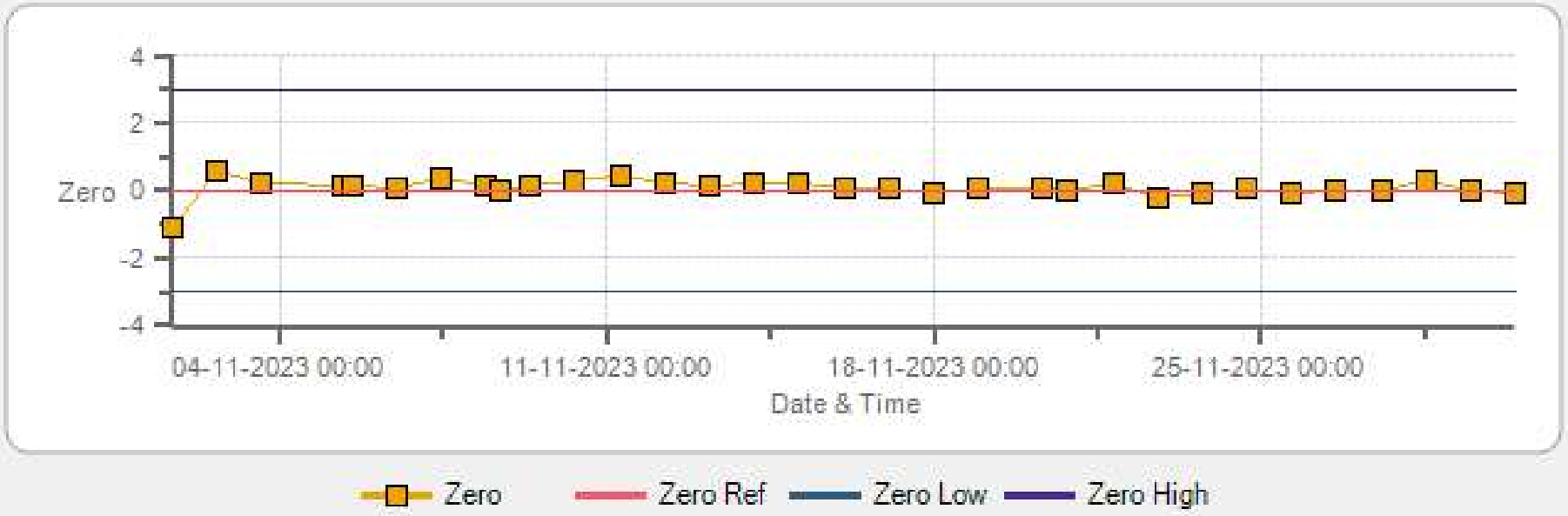
SO2[ppb] Calibration: St. Lina Monthly: 11-2023 Type: SpanAndZero - Zero



SO2[ppb] Calibration: St. Lina Monthly: 11-2023 Type: SpanAndZero - Span

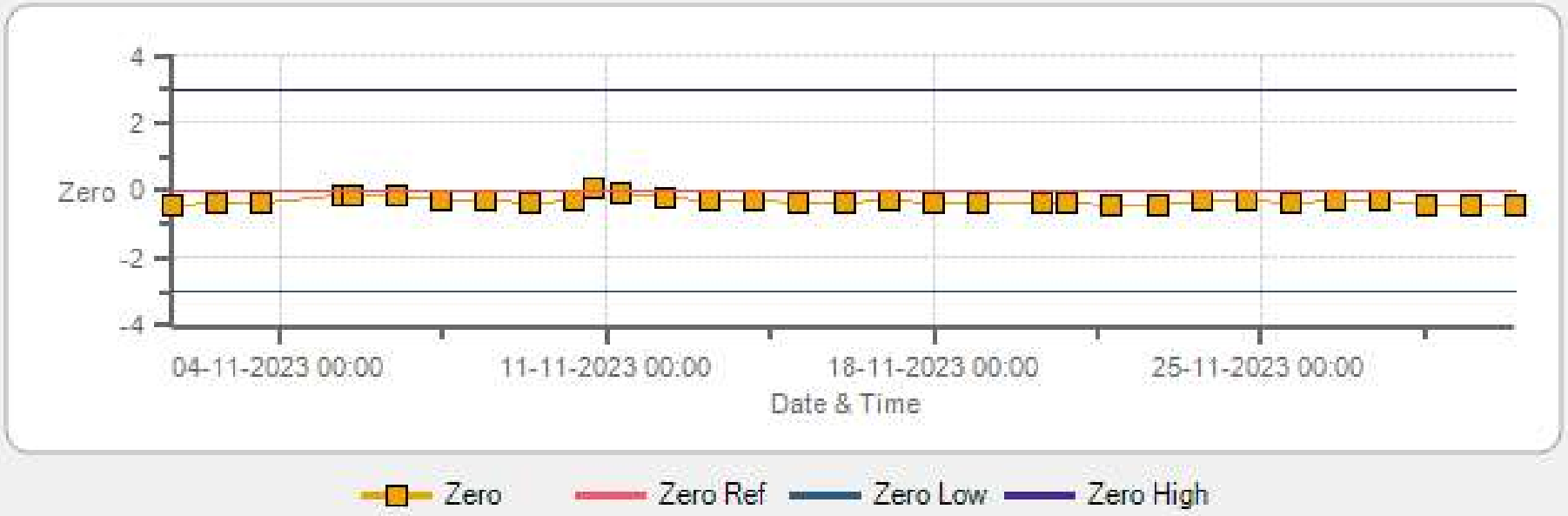


H2S[ppb] Calibration: St. Lina Monthly: 11-2023 Type: SpanAndZero - Zero



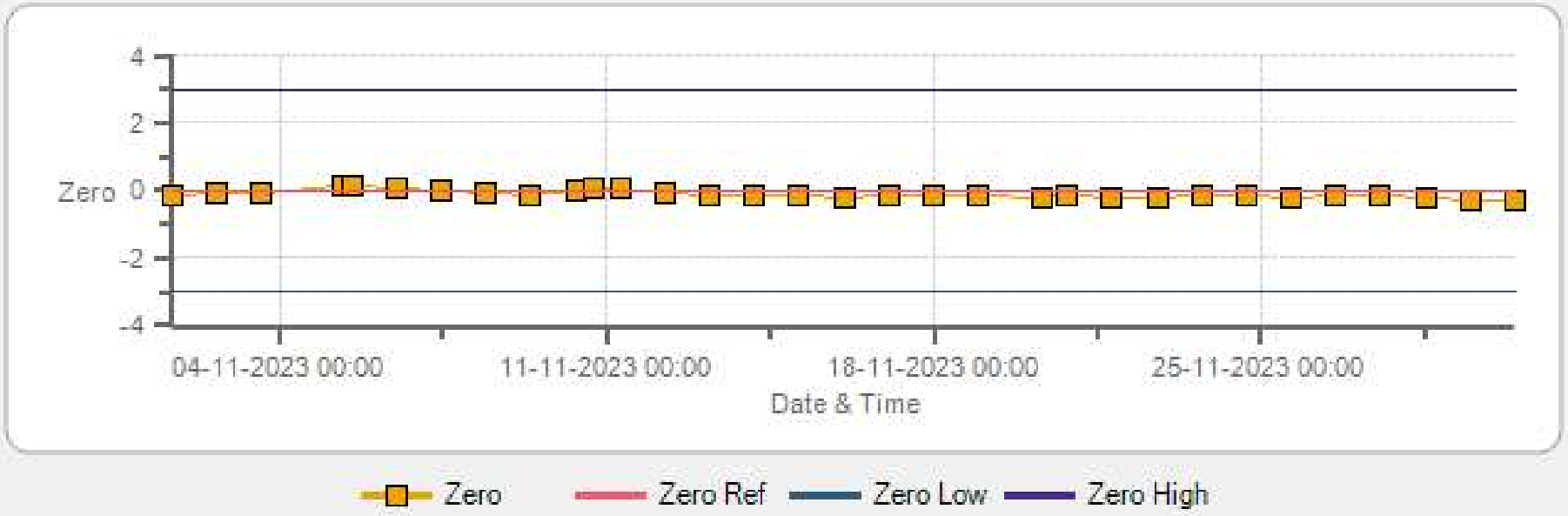
H2S[ppb] Calibration: St. Lina Monthly: 11-2023 Type: SpanAndZero - Span

NOX[ppb] Calibration: St. Lina Monthly: 11-2023 Type: SpanAndZero - Zero



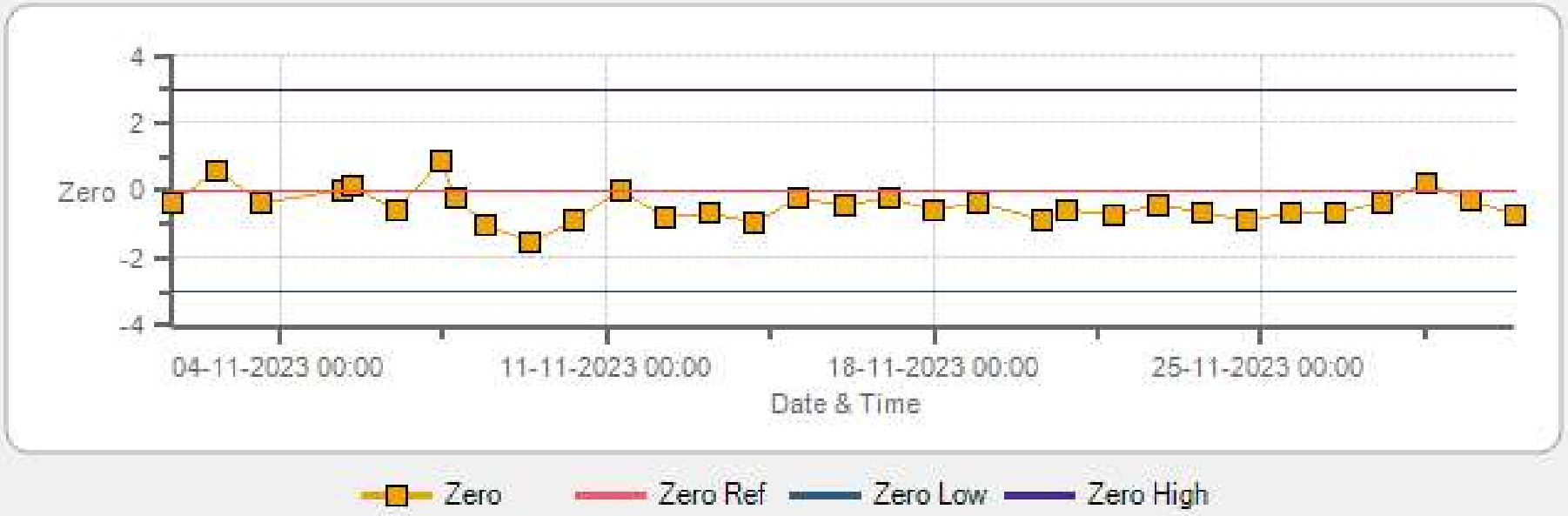
NOX[ppb] Calibration: St. Lina Monthly: 11-2023 Type: SpanAndZero - Span

NO2[ppb] Calibration: St. Lina Monthly: 11-2023 Type: SpanAndZero - Zero

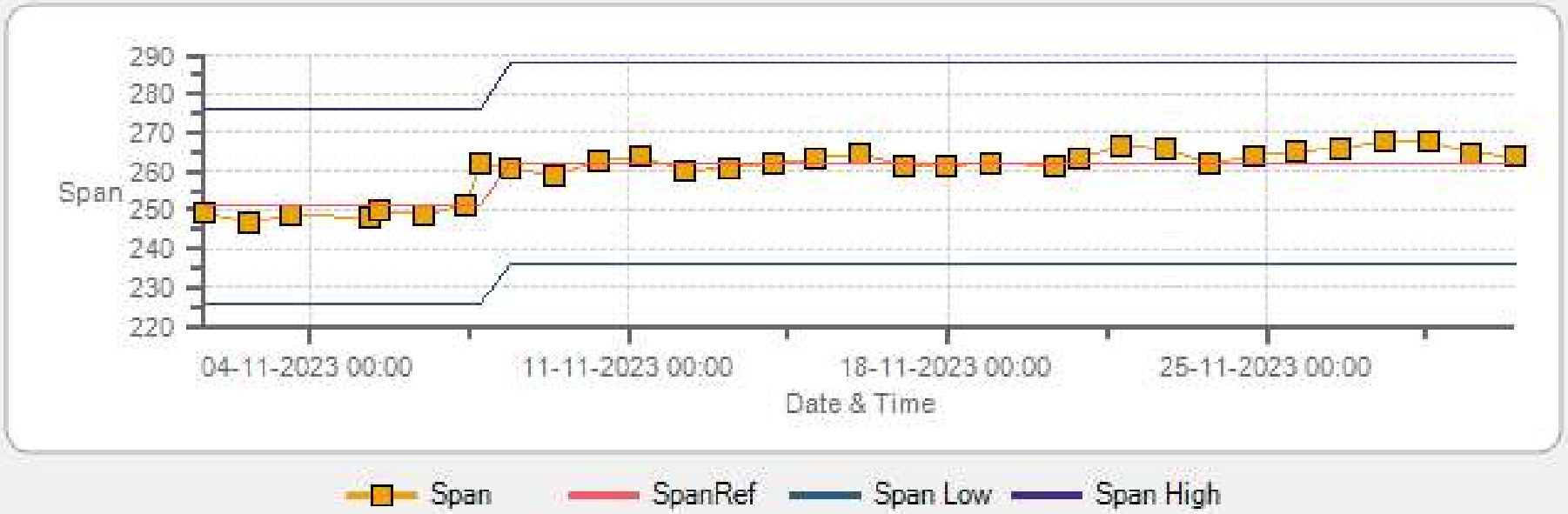


NO2[ppb] Calibration: St. Lina Monthly: 11-2023 Type: SpanAndZero - Span

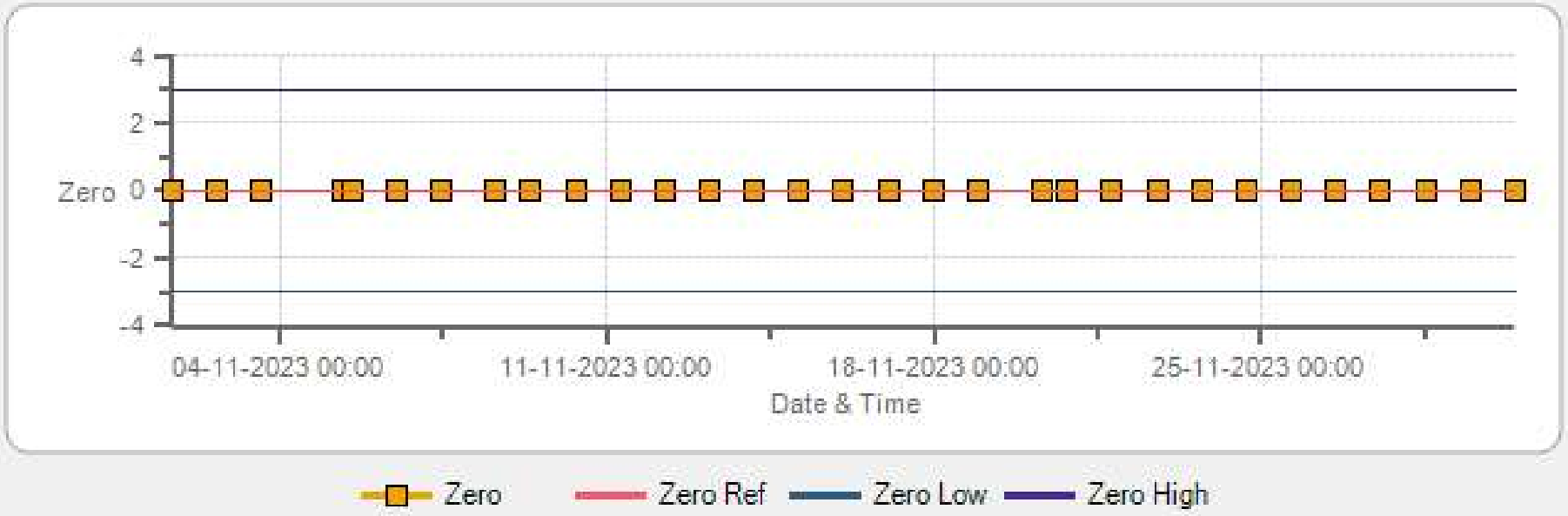
O3[ppb] Calibration: St. Lina Monthly: 11-2023 Type: SpanAndZero - Zero



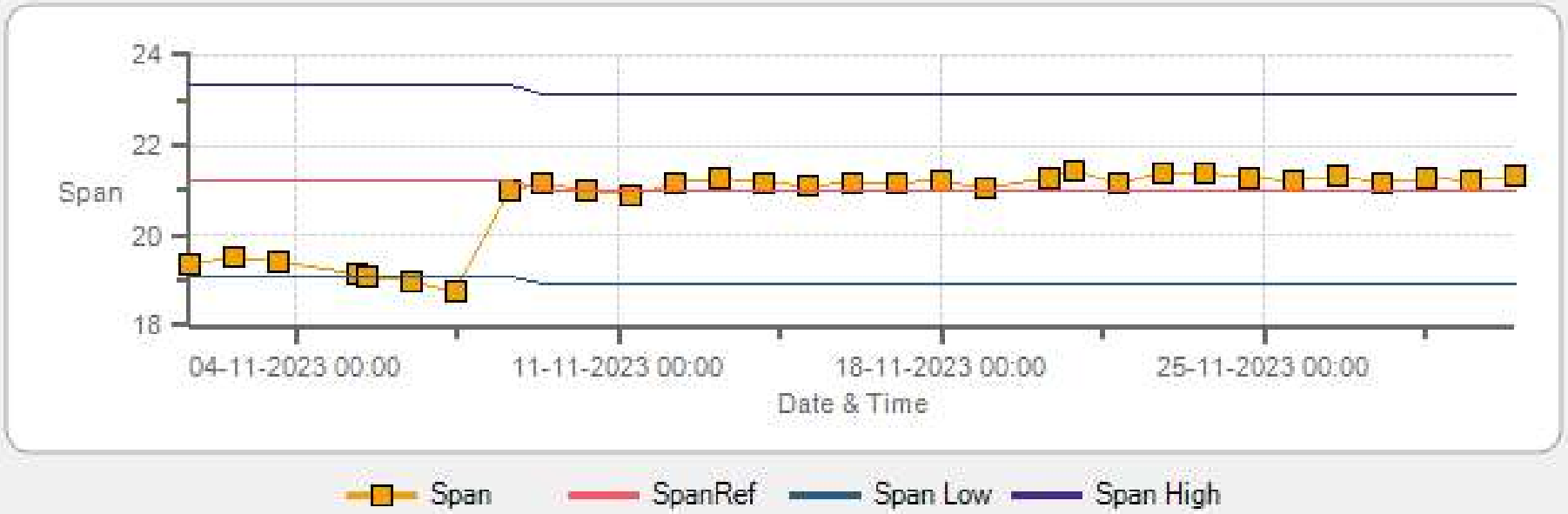
O3[ppb] Calibration: St. Lina Monthly: 11-2023 Type: SpanAndZero - Span



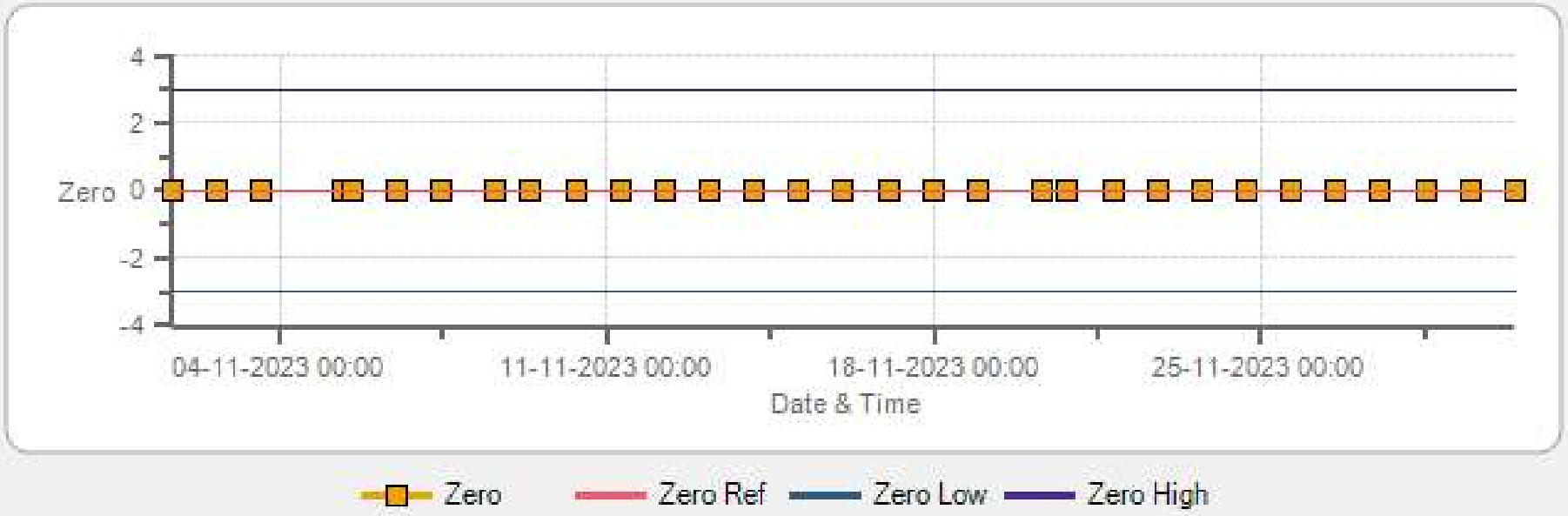
THC55[ppm] Calibration: St. Lina Monthly: 11-2023 Type: SpanAndZero - Zero



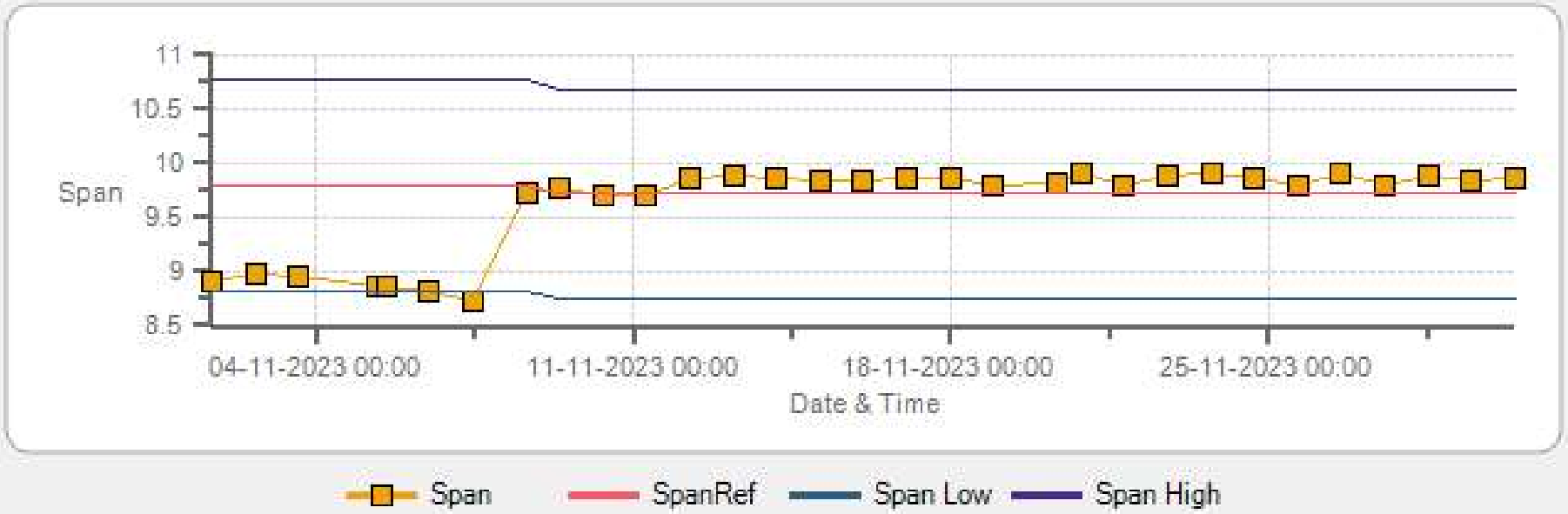
THC55[ppm] Calibration: St. Lina Monthly: 11-2023 Type: SpanAndZero - Span



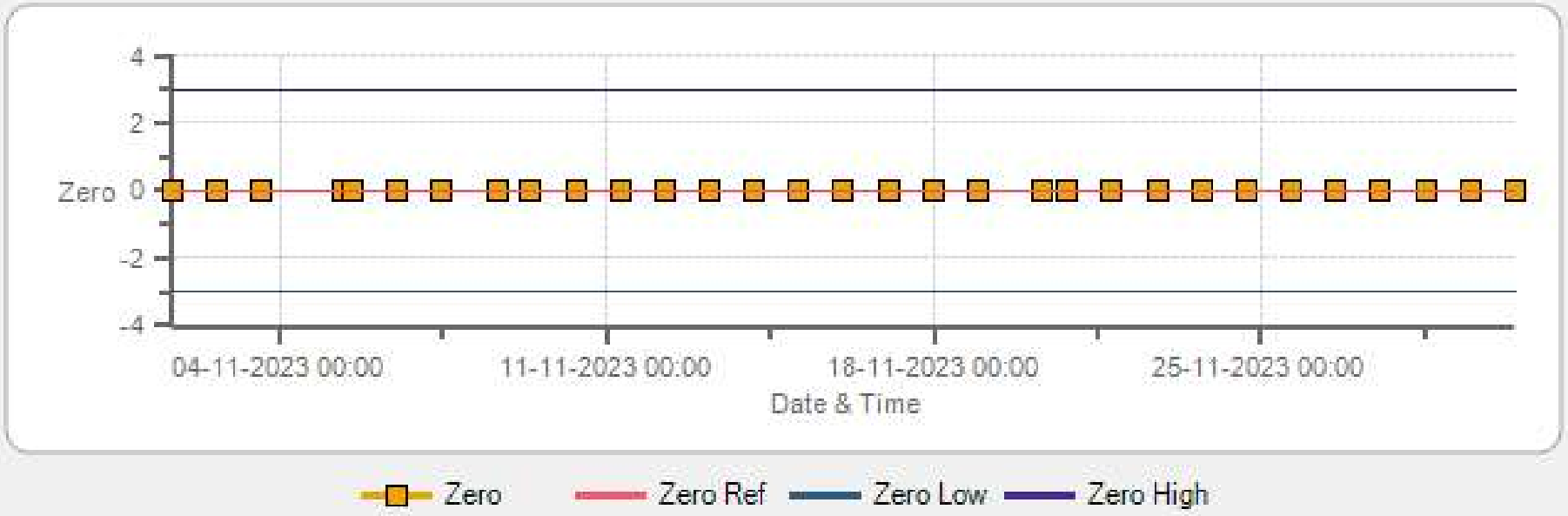
CH4[ppm] Calibration: St. Lina Monthly: 11-2023 Type: SpanAndZero - Zero



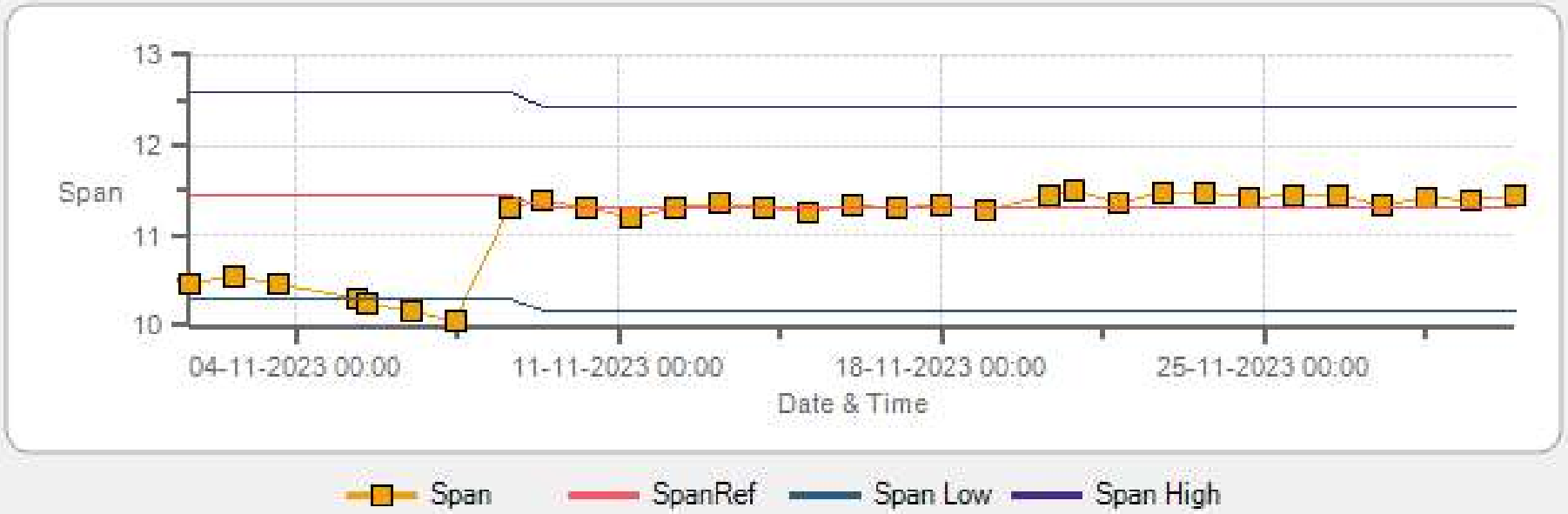
CH4[ppm] Calibration: St. Lina Monthly: 11-2023 Type: SpanAndZero - Span



NMHC[ppm] Calibration: St. Lina Monthly: 11-2023 Type: SpanAndZero - Zero



NMHC[ppm] Calibration: St. Lina Monthly: 11-2023 Type: SpanAndZero - Span



MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution

DATE:	10-Nov-2023	PREVIOUS CALIBRATION DATE:	24-Oct-2023
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.001
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	914
PURPOSE	Routine	START TIME (MST):	11:17
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:47

ANALYZER:

MAKE/MODEL	Thermo 43i	RANGE	500 ppb
SERIAL #	1226154720	FLOW (mL/min)	410
INITIAL		FINAL	
BKG/OFFSET	16.2	BKG/OFFSET	16.2
COEF/SLOPE	1.018	COEF/SLOPE	1.023
Expected (reference) Value	388	Expected (reference) Value	397

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):	700	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	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000		5000	0.00	-0.2	0		
4961	37.20	4998	375.13	371	376.1	1.011	0.997
4982	17.60	5000	177.41	n/a	177.5	n/a	0.999
4990	8.80	4999	88.72	n/a	88.2	n/a	1.006

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.003	-0.1%

COMMENTS:

Sample inlet filter was changed.
BV analayzer

SO2[ppb] Station: St. Lina Daily: 10-11-2023 Type: AVG 1 Min. [1 Min.]

H2S Analyzer Calibration by Dilution

DATE:	08-Nov-2023	PREVIOUS CALIBRATION DATE:	14-Oct-2023
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	0.998
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	916
PURPOSE	Routine	START TIME (MST):	11:56
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:20

ANALYZER:

MAKE/MODEL	Teledyne T100	RANGE	100 ppb
SERIAL #	1014	FLOW (mL/min)	509
INITIAL		FINAL	
BKG/OFFSET	7.7	BKG/OFFSET	7.7
COEF/SLOPE	1.547	COEF/SLOPE	1.649
Expected (reference) Value	82.2	Expected (reference) Value	82.4

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:	EY 0002287	HIGH ID	n/a
CONC (ppm):	10.10	EXPIRY DATE	n/a
CYLINDER (psi):	200	LOW ID	n/a
EXPIRY DATE	14-Sep-2024	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:	12:04	SO2 Conc (ppb)	380
END TIME:	12:19	Analyzer Response (ppb)	0.0

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
7500		7500	0.00	0	0		
7442	57.90	7500	77.97	73.7	78	1.058	1.000
7472	28.20	7500	37.98	n/a	38.2	n/a	0.994
7486	14.10	7500	18.99	n/a	18.5	n/a	1.026

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.003	-0.2%

COMMENTS:

Sample inlet filter was changed.
BV analyzer

H2S[ppb] Station: St. Lina Daily: 08-11-2023 Type: AVG 1 Min. [1 Min.]

NOx Calibration by Dilution/Gas-Phase Titration

CALIBRATION:

DATE:	10-Nov-2023	PREVIOUS CALIBRATION DATE:	11-Oct-2023
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	914
PURPOSE	Routine	START TIME (MST):	11:19
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:29

ANALYZER:

MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
SERIAL #:	1180930029	NOx	1.001
FLOW (mL/min)	802	NO	1.001
RANGE (ppb)	500	NO2	1.000
GPT FOR O3?		No	

CALIBRATION SYSTEM:

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:	4.8	4.5	n/a	BKG/OFFSET:	4.7	4.4	n/a
SLOPE/COEF/CE:	1.011	0.912	0.997	SLOPE/COEF/CE:	1.009	0.9	0.997

EXPECTED (REFERENCE) VALUE:

INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	240.6	1.7	238.9		225.3	1.7	223.7

CALIBRATION PARAMETERS:

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

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
5000		5000	0.0	0.0	0.0	-0.2	-0.1	0.1	0.0	0.0	0.0						
4961	37.20	4998	380.3	384.1	3.7	385.5	389.5	4.0	379.6	383.0	3.5	0.986	0.986		1.002	1.003	
4982	17.60	5000	179.9	181.6	1.8	n/a	n/a	n/a	179.7	181.5	1.9	n/a	n/a		1.001	1.001	
4990	8.80	4999	90.0	90.8	0.9	n/a	n/a	n/a	89.9	90.6	0.7	n/a	n/a		1.001	1.003	

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	379.5	382.4	2.9				
AS-FOUND HIGH	37.20	4998	240	128.6	382.7	254.1	250.9	251.2	0.999	100.12%
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	125	259.3	382.6	123.2	120.2	120.3	0.999	100.08%
LOW	37.20	4998	45	329.7	383.0	53.3	49.8	50.4	0.988	101.20%
NO2 adjustment not required.									AVERAGE:	100.47%

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
NO	1.000	0.998	0.02%
NOx	1.000	0.997	0.02%
NO2	1.000	0.999	0.10%

COMMENTS:

Sample inlet filter was changed.

Station: St. Lina Daily: 10-11-2023 Type: AVG 1 Min. [1 Min.]

Ozone Calibration by Photometer (Varying UV Lamp)

DATE:	07-Nov-2023	PREVIOUS CALIBRATION DATE:	11-Oct-2023
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.002
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	907
PURPOSE	Removal/Shut-down	START TIME (MST):	12:22
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:33

ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	12208316586	FLOW (mL/min)	1320
INITIAL		FINAL	
BKG/OFFSET	-0.5	BKG/OFFSET	n/a
COEF/SLOPE	1.011	COEF/SLOPE	n/a
Expected (reference) Value	251	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 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	INDICATED Final	Initial	Final
5000		5000	0.0	1.4	n/a		
5000		5000	378.0	377.9	n/a	1.004	n/a
5000		5000	180.0	181.3	n/a	1.001	n/a
5000		5000	61.0	62.4	n/a	1.000	n/a

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.996	0.3%

COMMENTS:

Shutdown calibration to complete an annual maintenance: cleaning of the cells.
13:38 - operator error, Mid Point restarted

Ozone Calibration by Photometer (Varying UV Lamp)

DATE:	07-Nov-2023	PREVIOUS CALIBRATION DATE:	n/a
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	907
PURPOSE	Install/Post-Repair	START TIME (MST):	15:09
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:55

ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	12208316586	FLOW (mL/min)	1320
INITIAL		FINAL	
BKG/OFFSET	-0.5	BKG/OFFSET	0.3
COEF/SLOPE	1.011	COEF/SLOPE	1.017
Expected (reference) Value	251	Expected (reference) Value	262

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:

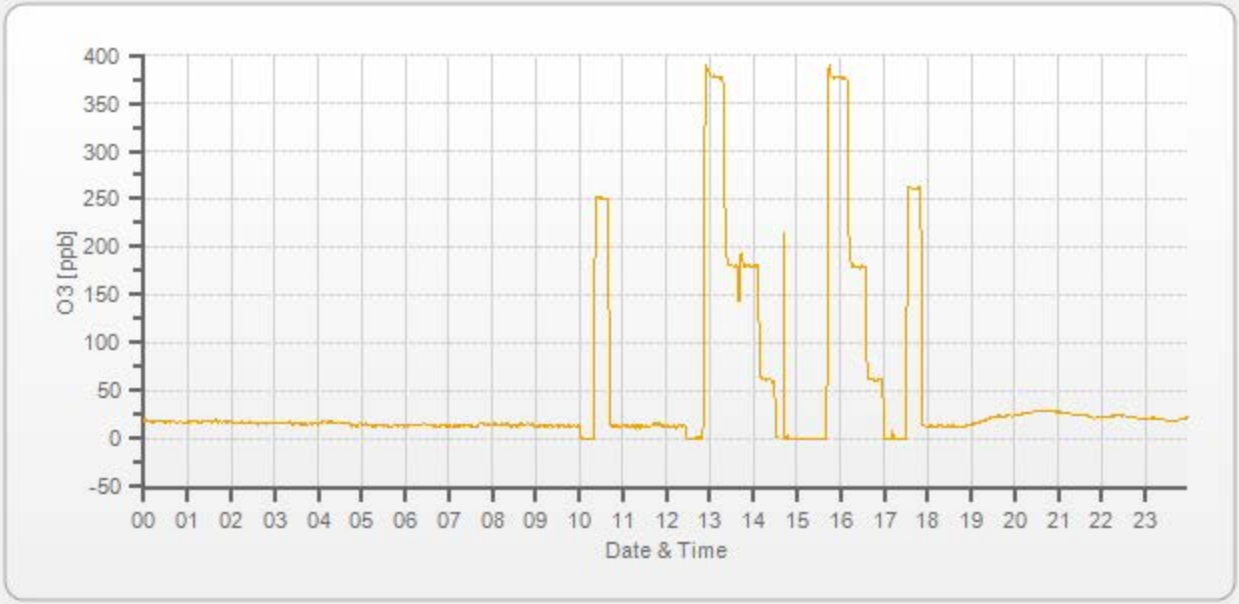
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000		5000	0.0	n/a	0.0		
5000		5000	378.0	n/a	376.5	n/a	1.004
5000		5000	180.0	n/a	178.8	n/a	1.007
5000		5000	61.0	n/a	60.8	n/a	1.003

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.996	0.0%

COMMENTS:

Sampe inlet filter was changed. Cells were cleaned.


O3[ppb] Station: St. Lina Daily: 07-11-2023 Type: AVG 1 Min. [1 Min.]
O3 [ppb]
400
350
300
250
200
150
100
50
0
-50
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Date & Time
O3 [ppb]

Methane/Non-Methane Analyzer Calibration by Dilution

CALIBRATION:

DATE:	08-Nov-2023	PREVIOUS CALIBRATION DATE:	n/a
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	916
PURPOSE	Install/Post-Repair	START TIME (MST):	11:54
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:14

ANALYZER:

VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
	Thermo 55i	1180930026	1180
PARAMETER:	CH4	NMHC	THC
RANGE (ppm):	20	20	40
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_4/C_3H_8 (ppm):	603.0	204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	132	CYLINDER (psi):	1000		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 (CH4/NMHC)	HIGH	MID	LOW	CH4 EQUIVILANCE	
TARGET	14	7	3.5	C_3H_8 as CH_4	561.0
RANGE	12 - 16	6 - 8	2 - 4	THC as CH_4	1164.0

EXPECTED (REFERENCE) VALUE:

INITIAL	CH4	NMHC	THC	FINAL	CH4	NMHC	THC
	n/a	n/a	n/a		9.72	11.30	21.02

CALIBRATION:

FLOW RATE (mL/min)			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC
3100		3100	0.00	0.00	0.00	n/a	n/a	n/a	0.00	0.00	0.00						
3025	74.60	3100	14.51	13.50	28.01	n/a	n/a	n/a	14.50	13.48	27.98	n/a	n/a	n/a	1.001	1.001	1.001
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.27	6.73	14.00	n/a	n/a	n/a	0.998	1.003	1.000
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.63	3.38	7.01	n/a	n/a	n/a	0.997	0.996	0.996

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
CH4	1.000	0.999	0.0%
NMHC	1.000	0.998	0.0%
THC	1.000	0.999	0.0%

Comments:

Sample inlet filter was changed. Zero Chromatogram was completed.

Use Zero Chrom? **Yes**

Station: St. Lina Daily: 08-11-2023 Type: AVG 1 Min. [1 Min.]

Thermo 5030i SHARP Monitor Monthly Check

Date:	November 10, 2023	**Performed By/Reviewer:**	Alex Yakupov / Chris Wesson
Company:	LICA	**Start Time (mst):**	16:45
Station Name/Location:	St. Lina	**End Time (mst):**	17:38
Previous Audit Date:	October 14, 2023	**Calibration Purpose:**	routine monthly
Parameter:	PM 2.5	**Weather Conditions:**	A few clouds

SHARP 5030i Information and Status:

Serial Number: CM 17091001 **Filter Tape Counter** 380

Reference Standards:

	Air Flow			
	Manometer	**Orifice**	**Pressure:**	**Temp / RH:**
Make:	Delta Cal	Delta Cal	Fisher	Vaisala HMP76B
Model:	DC1	DC1	FB61291	HMP 76B
Serial Number:	201587	201587	130168457	T1640130
Calibration Expiration Date:	December 12, 2023	December 12, 2023	March 20, 2024	June 26, 2024

Ambient Temperature (°C)

	Reference	SHARP	Difference
#1	-1.40	-0.7	-0.7

Range	Action
< ± 2°C	OK
2-3 °C	Recalibrate
> 3°C	*Fail*

Ambient Relative Humidity (%RH)

As Found:

	Reference	SHARP	Difference
#1	79.50	80.6	-1.1

Range	Action
< ± 2 %RH	OK
2-5 %RH	Recalibrate
> 5 %RH	*Fail*

Barometric Pressure (mmHg)

As Found:

	Reference	SHARP	Difference
#1	695.0	695.0	0.0

Range	Action
< ± 10 mmHg	OK
10-12 mmHg	Recalibrate
> 12 mmHg	*Fail*

Flow Audit (L/min)

As Found:

	Reference	SHARP
#1	16.71	16.68
#2	16.70	16.67
#3	16.70	16.67
Average	16.70	16.67

% Difference -0.18%

Range	Action
< ± 4%	OK
4-5%	Recalibrate
>5%	*Fail*

Leak Check (L/min)

	Without Leak Check Adapter			With leak Check Adapter			
	Reference	**SHARP**	**Difference**	**Reference**	**SHARP**	**Difference**	
#1	16.70	16.67	0.03	16.50	16.64	-0.14	*Leak Limit: 0.80 L/min*
					LEAK RATE:	**-0.17**	

Meteorological System Checklist

Date:	November 10, 2023
Technician:	Alex Yakupov / Audit time: 17:08 - 17:54
Reviewer:	Chris Wesson
Station:	St. Lina

Unit:	Make:	Model:	Serial #:
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	
Are the bucket drain holes clean?	yes	
Is the screen on the housing? (screen should be on between July and September	no	17:12 - test with water (reading 1.0 mm for 10 tips)
Is the housing clean?	yes	No issues. Response is timely and accurate.
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:	Vaisala / HM70 / #T1640130, Exp. Date: Jun 26, 2024
Reference Temperature (°C):	-1.4
Station - Ambient Temperature (°C):	-0.3
Temperature Difference (°C):	1.1

BAROMETRIC PRESSURE SENSOR CHECK

Reference Barometer ID:	Fisher / FB 61291/ #130168457/ Mar 20, 2024	
Reference Pressure - Units/Reading:	millibar	926
Station Pressure - Units/Reading:	millibar	913
Pressure Tolerance +/- 15% of error:	787 - 1065	1.40%

RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Reference Hygrometer ID:	Vaisala / HM70 / #T1640130, Exp. Date: Jun 26, 2024	
Reference Hygrometer % RH- Reading:	79.60	
Station Hygrometer % RH- Reading:	81.30	
RH Tolerance +/- 15% of difference:	67.66 - 91.54	-2.1%

ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Previous check date:	October 14, 2023	Previous check date:	October 14, 2023
Wind Speed Observed (kph):	10-20	Wind Direction Observed:	S
Wind speed on Data Logger (kph):	11.6	Wind Direction on Data Logger:	S
	Annual audit: Jul 22, 2022	Wind Direction Pass/Fail?:	Pass

Comments

Station (Trailer) temperature vs Reference gauge temperature: 22.1 vs 22.2. Difference: 0.1 degrees. Passed

Meteorological Sensor Audit/Calibration

Location Information

Company:	LICA	**Performed By:**	Alex Yakupov
Audit Location:	St. Lina	**Reviewed By:**	Chris Wesson
Audit Date:	July 22, 2022	**Start/End Time (mst):**	15:07 / 16:23
Calibration Purpose:	routine annual	**Weather Conditions:**	A few clouds

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:	March 16, 2021	**Direction Unit Output Range:**	0-360

Wind Calibrator Information

Calibrator I.D. and Expiry Date: Model 18860-90/18802 SN: CA 4744, expires - Aug 6, 2022

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	36.9	37.0	0.998
3000	55.3	55.4	55.5	0.997
4000	73.7	74.1	74.1	0.995
5000	92.2	92.5	92.4	0.997
6000	110.6	111.0	111.0	0.996
7000	129.0	129.4	129.4	0.997
8000	147.4	148.1	148.1	0.996
9000	165.9	166.6	166.6	0.996
10000	184.3	185.1	185.1	0.996
		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	355	0.4	0.0	0.2
30	330	31	331	-0.6	-0.8	0.7
60	300	62	301	-2.1	-0.6	1.4
90	270	93	270	-2.7	-0.1	1.4
120	240	123	241	-2.9	-1.2	2.1
150	210	152	212	-2.1	-2.1	2.1
180	180	182	183	-2.0	-2.9	2.5
210	150	211	153	-1.2	-2.8	2.0
240	120	241	123	-0.8	-3.1	2.0
270	90	270	93	-0.3	-3.0	1.7
300	60	301	62	-0.8	-2.3	1.6
330	30	331	30	-0.5	-0.4	0.4
355	0	355	1	0.0	0.5	0.3
The audit meets AMD requirements.			**Average Absolute Degrees Difference=**			**1.4**

Comments:

n/a

End of Report

Lakeland Industry & Community Association

NOVEMBER 2023

Ambient Air Monitoring Calibration Report

- LAC LA BICHE STATION-

CAL-LICA-202311-01690

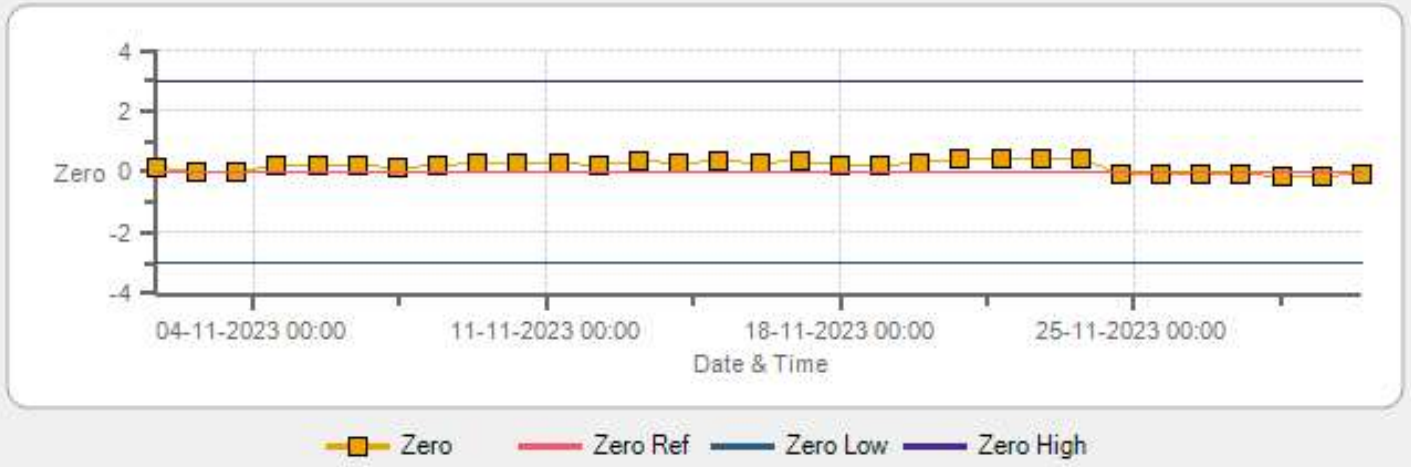
Station Operation and Maintenance:
Bureau Veritas Canada

Data Validation and Report:
LICA / Bureau Veritas Canada

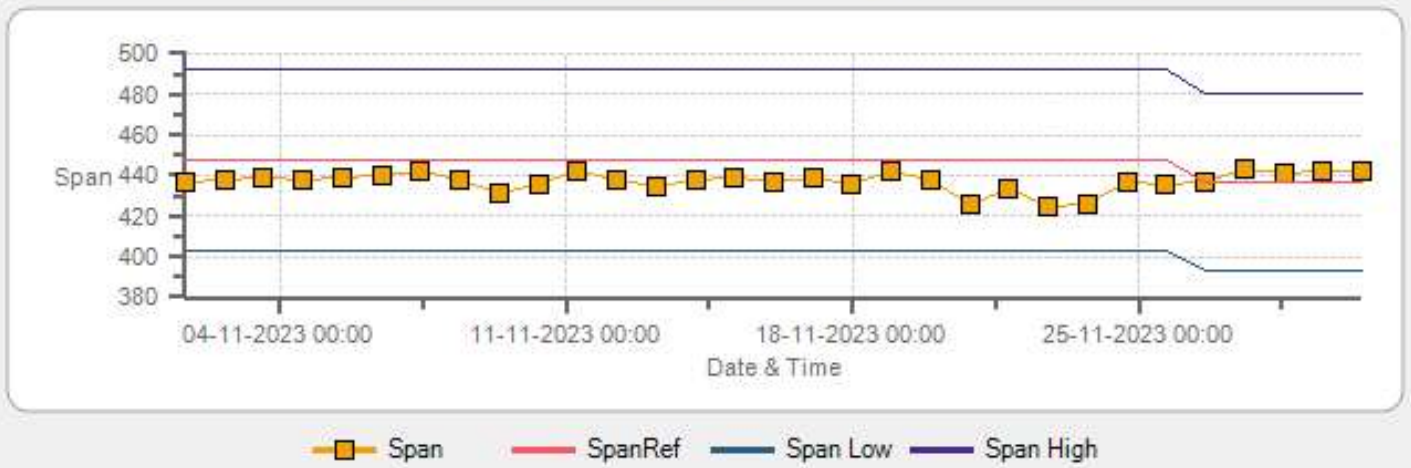
December 20, 2023

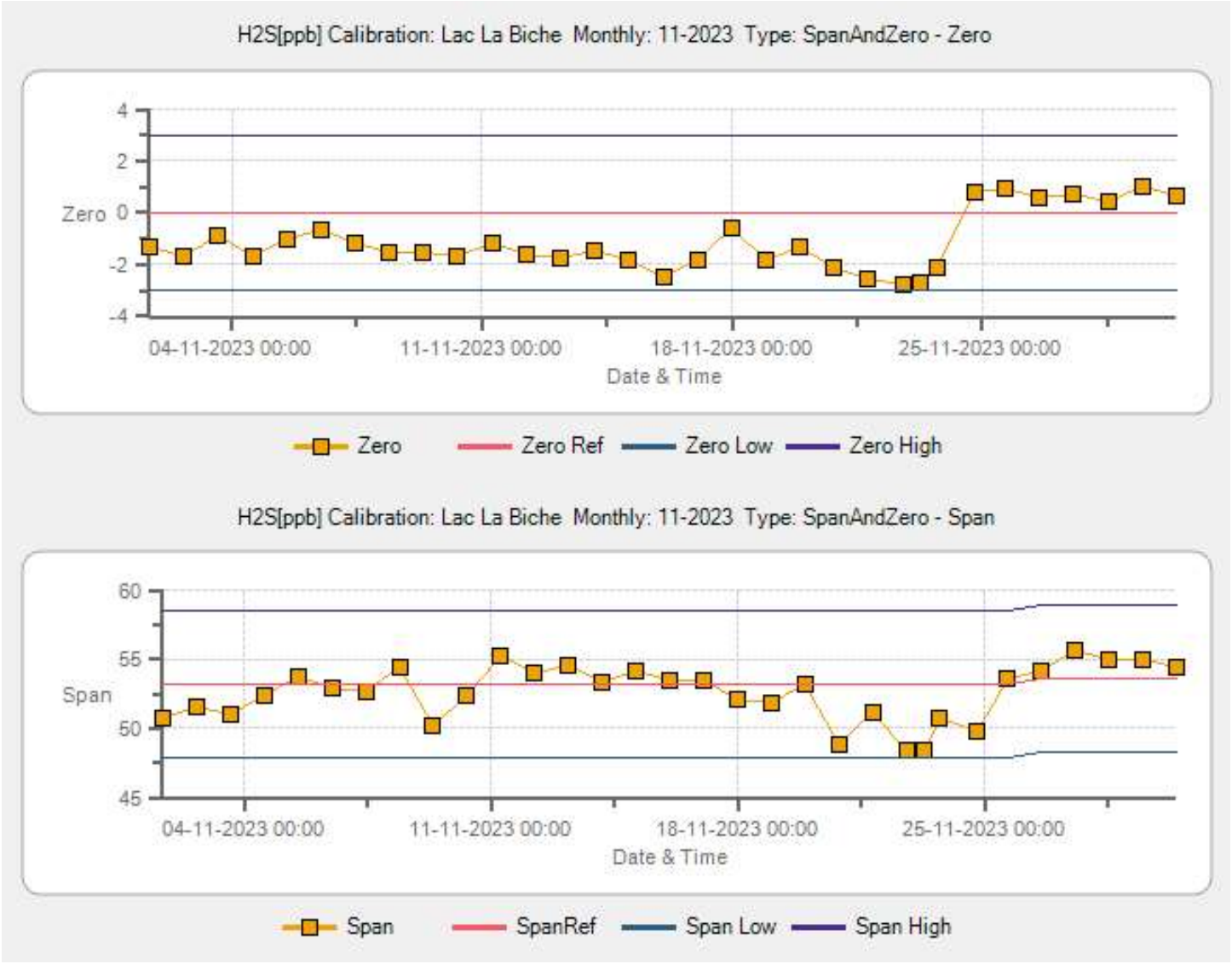
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Lac La Biche Monthly: 11-2023 Type: SpanAndZero - Zero

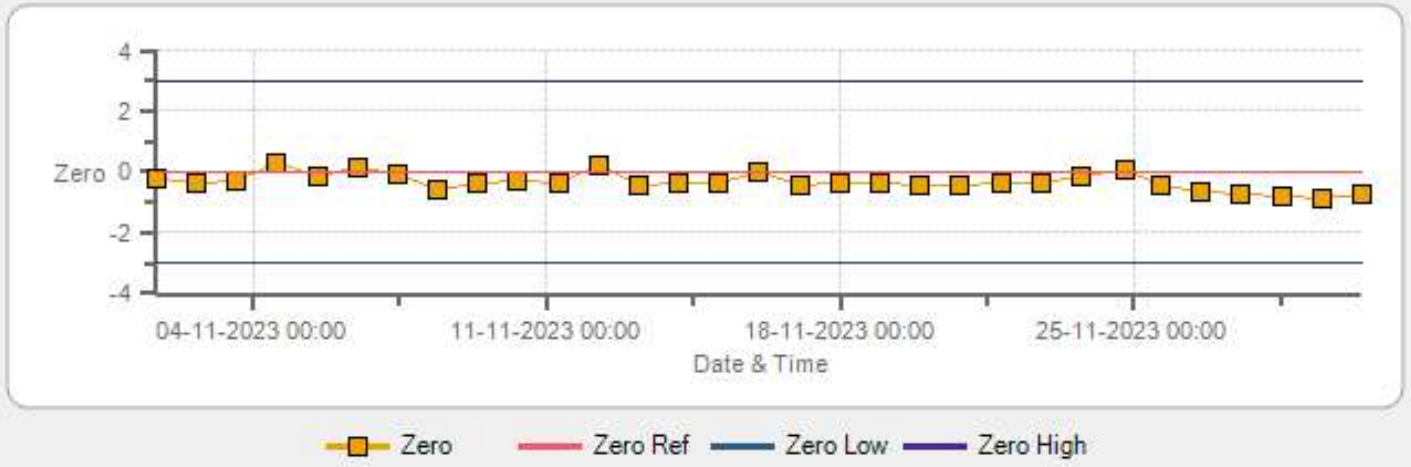


SO2[ppb] Calibration: Lac La Biche Monthly: 11-2023 Type: SpanAndZero - Span




H2S[ppb] Calibration: Lac La Biche Monthly: 11-2023 Type: SpanAndZero - Zero
Zero
4
2
0
-2
-4
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
H2S[ppb] Calibration: Lac La Biche Monthly: 11-2023 Type: SpanAndZero - Span
Span
60
55
50
45
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Span
SpanRef
Span Low
Span High

NOX[ppb] Calibration: Lac La Biche Monthly: 11-2023 Type: SpanAndZero - Zero

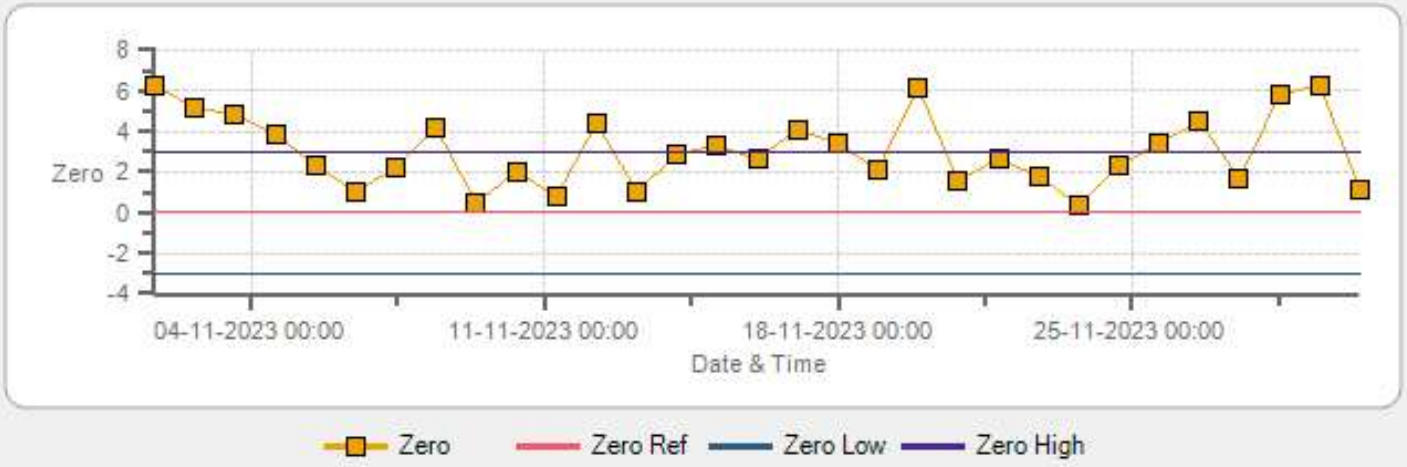


NOX[ppb] Calibration: Lac La Biche Monthly: 11-2023 Type: SpanAndZero - Span

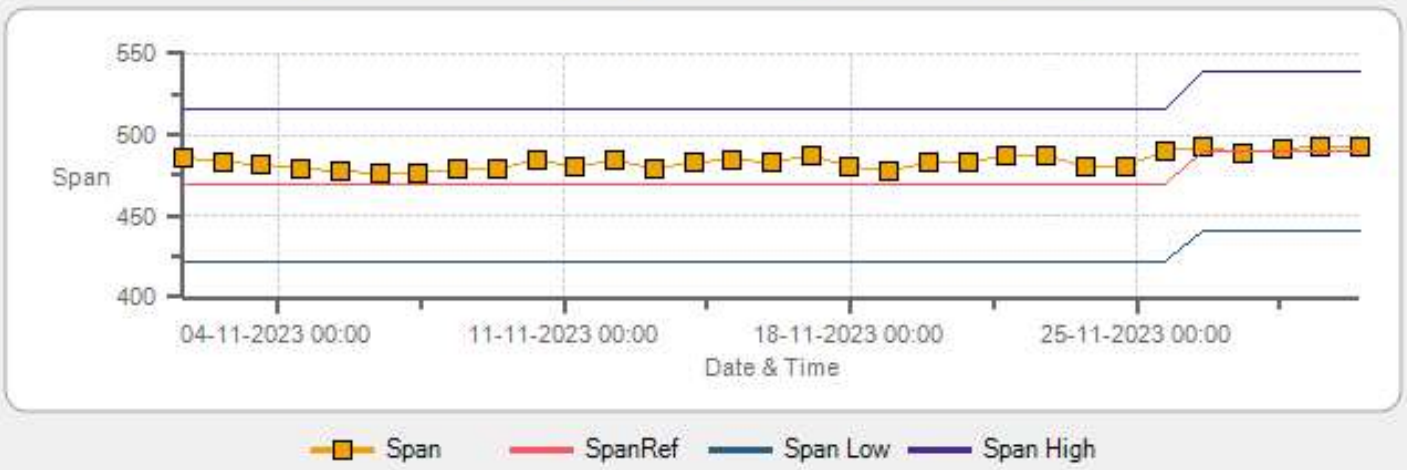
NO2[ppb] Calibration: Lac La Biche Monthly: 11-2023 Type: SpanAndZero - Zero

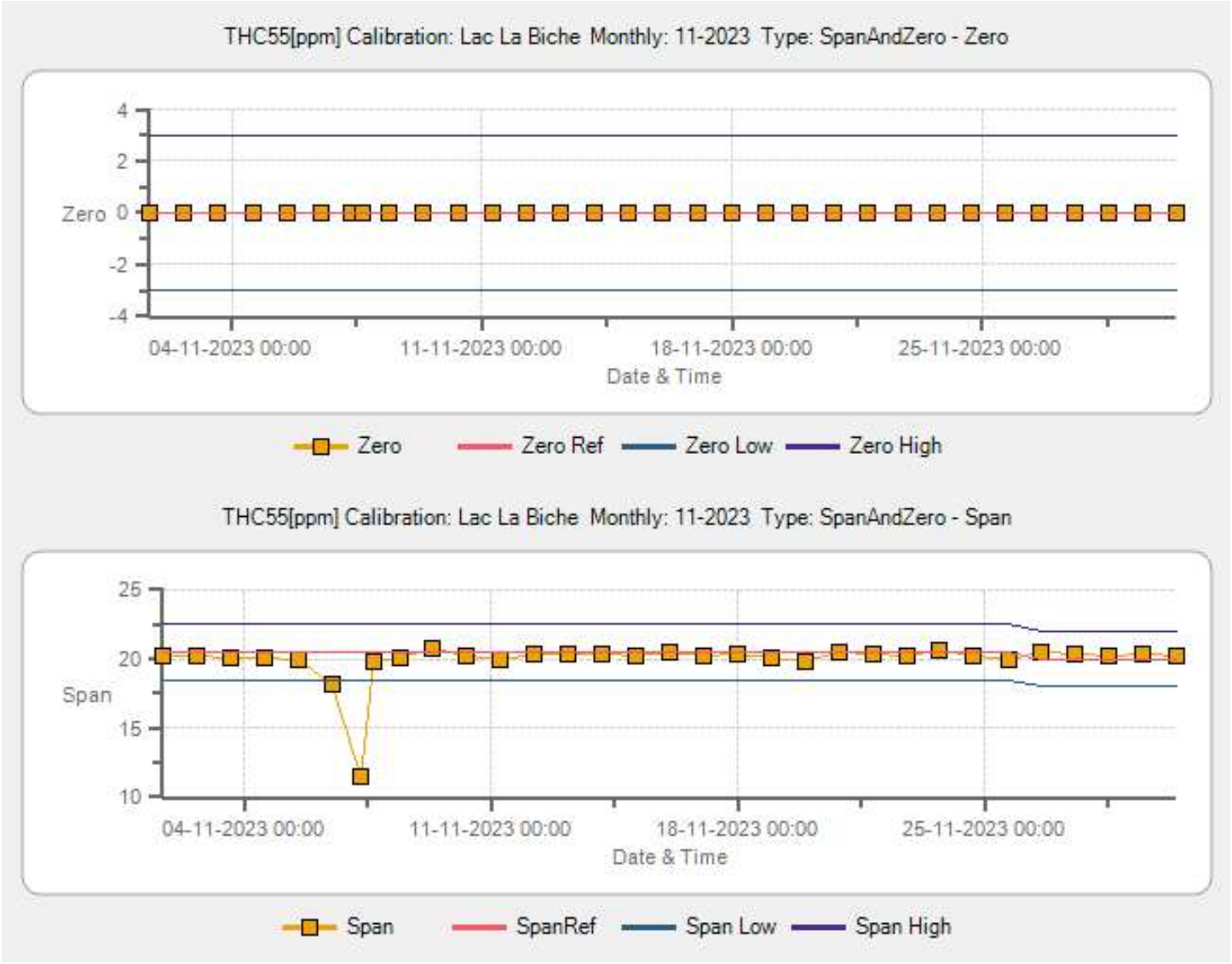
NO2[ppb] Calibration: Lac La Biche Monthly: 11-2023 Type: SpanAndZero - Span

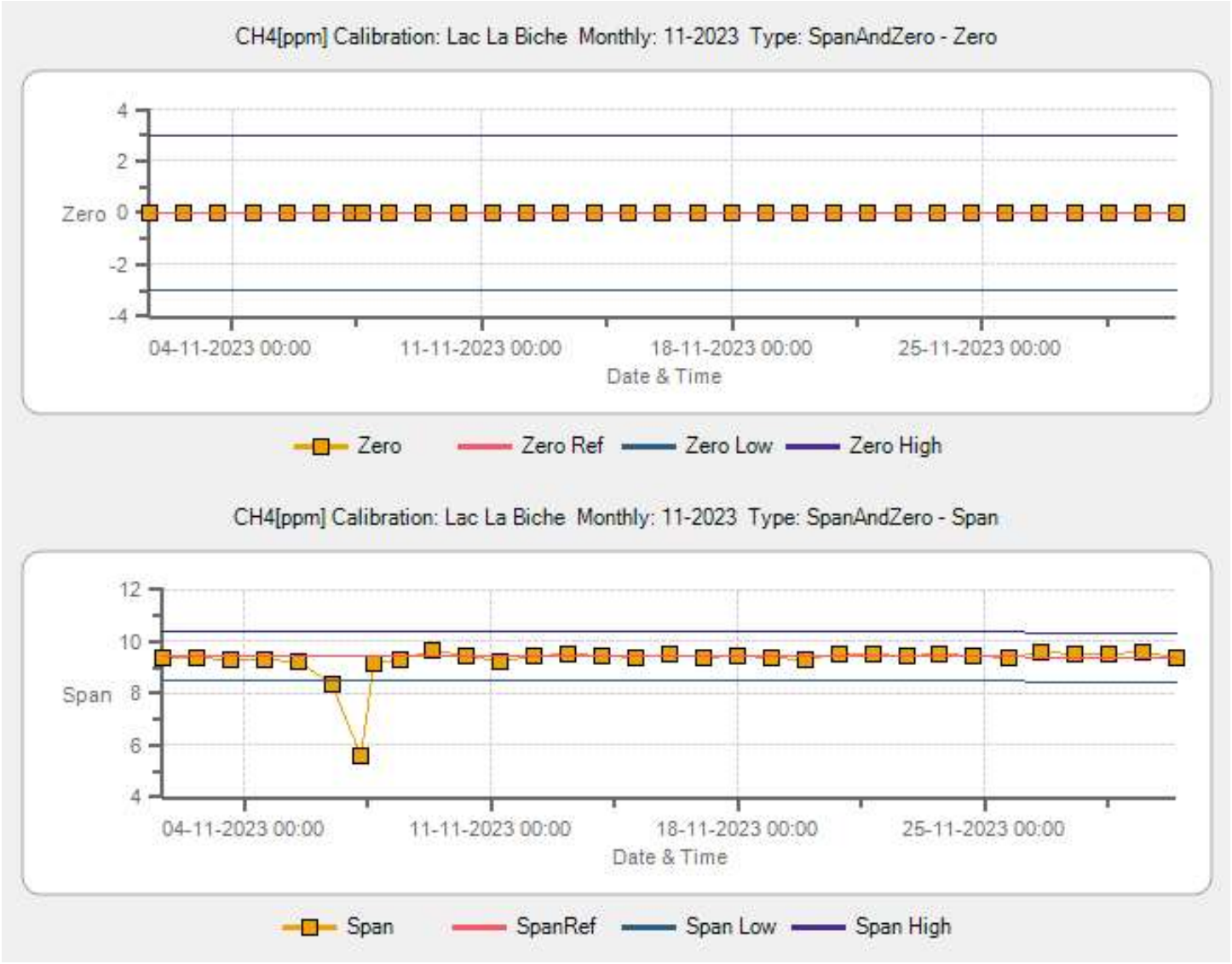
O3[ppb] Calibration: Lac La Biche Monthly: 11-2023 Type: SpanAndZero - Zero



O3[ppb] Calibration: Lac La Biche Monthly: 11-2023 Type: SpanAndZero - Span




THC55[ppm] Calibration: Lac La Biche Monthly: 11-2023 Type: SpanAndZero - Zero
4
2
Zero 0
-2
-4
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
THC55[ppm] Calibration: Lac La Biche Monthly: 11-2023 Type: SpanAndZero - Span
25
20
Span
15
10
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Span
SpanRef
Span Low
Span High


CH4[ppm] Calibration: Lac La Biche Monthly: 11-2023 Type: SpanAndZero - Zero
4
2
Zero 0
-2
-4
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
CH4[ppm] Calibration: Lac La Biche Monthly: 11-2023 Type: SpanAndZero - Span
12
10
Span 8
6
4
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Span
SpanRef
Span Low
Span High


NMHC[ppm] Calibration: Lac La Biche Monthly: 11-2023 Type: SpanAndZero - Zero
Zero
4
2
0
-2
-4
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
NMHC[ppm] Calibration: Lac La Biche Monthly: 11-2023 Type: SpanAndZero - Span
Span
14
12
10
8
6
4
04-11-2023 00:00
11-11-2023 00:00
18-11-2023 00:00
25-11-2023 00:00
Date & Time
Span
SpanRef
Span Low
Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution

DATE:	24-Nov-2023	PREVIOUS CALIBRATION DATE:	04-Oct-2023
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	0.998
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	951
PURPOSE	Routine	START TIME (MST):	12:11
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:44

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180320043	FLOW (mL/min)	459
INITIAL		FINAL	
BKG/OFFSET	6.94	BKG/OFFSET	7.45
COEF/SLOPE	1.403	COEF/SLOPE	1.425
Expected (reference) Value	448	Expected (reference) Value	437

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):	700	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	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000		5000	0.00	0.42	0		
4961	37.20	4998	375.13	370.19	376.14	1.014	0.997
4982	17.60	5000	177.41	n/a	177.54	n/a	0.999
4990	8.80	4999	88.72	n/a	87.87	n/a	1.010

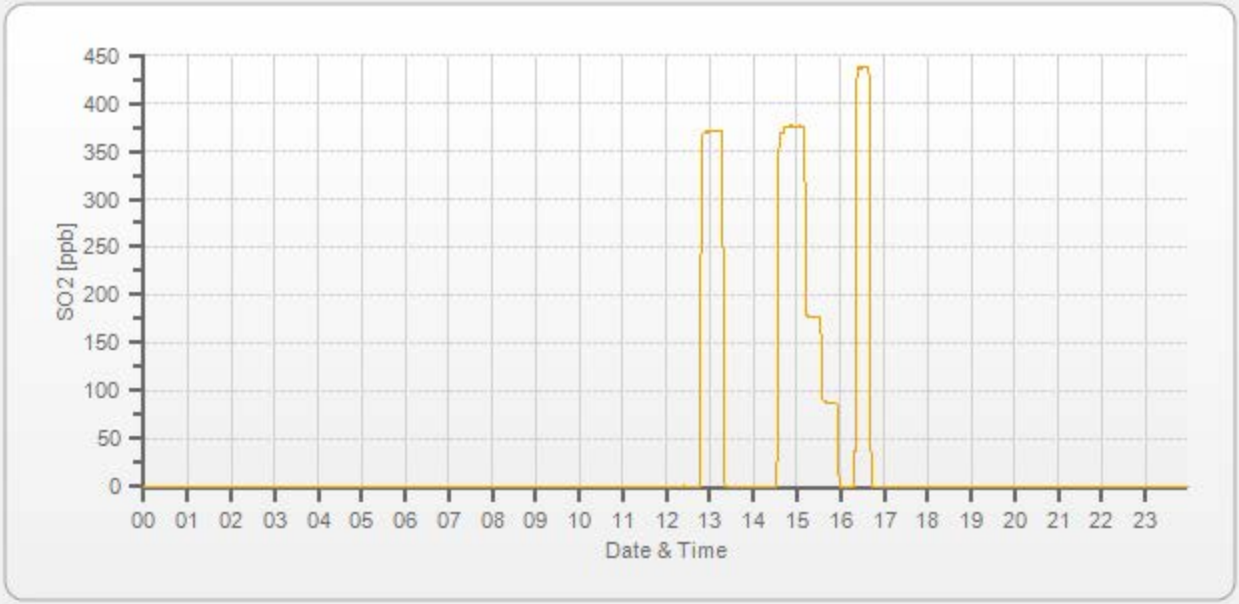
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.004	-0.1%

COMMENTS:

Sample inlet filter was changed.

SO2[ppb] Station: Lac La Biche Daily: 24-11-2023 Type: AVG 1 Min. [1 Min.]



H2S Analyzer Calibration by Dilution

DATE:	24-Nov-2023	PREVIOUS CALIBRATION DATE:	04-Oct-2023
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	1.004
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	951
PURPOSE	Removal/Shut-down	START TIME (MST):	12:05
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:44

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM17360002	FLOW (mL/min)	932
INITIAL		FINAL	
BKG/OFFSET	85.7	BKG/OFFSET	n/a
COEF/SLOPE	1.028	COEF/SLOPE	n/a
Expected (reference) Value	53.2	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:	EY 0002287	HIGH ID	n/a
CONC (ppm):	10.10	EXPIRY DATE	n/a
CYLINDER (psi):	200	LOW ID	n/a
EXPIRY DATE	14-Sep-2024	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:	12:22	SO2 Conc (ppb)	380
END TIME:	12:37	Analyzer Response (ppb)	0.0

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
7500		7500	0.00	-2.2	n/a		
7442	57.90	7500	77.97	79.4	n/a	0.956	n/a
7472	28.20	7500	37.98	36.2	n/a	0.989	n/a
7486	14.10	7500	18.99	17	n/a	0.989	n/a

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.048	-2.7%

COMMENTS:

Shutdown calibration to renew SO2 scrubber.

H2S Analyzer Calibration by Dilution

DATE:	24-Nov-2023	PREVIOUS CALIBRATION DATE:	n/a
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	951
PURPOSE	Install/Post-Repair	START TIME (MST):	15:25
PERFORMED BY:	Alex Yakupov	END TIME (MST):	19:14

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM17360002	FLOW (mL/min)	935
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	85.1
COEF/SLOPE	n/a	COEF/SLOPE	1.061
Expected (reference) Value	n/a	Expected (reference) Value	53.6

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:	EY 0002287	HIGH ID	n/a
CONC (ppm):	10.10	EXPIRY DATE	n/a
CYLINDER (psi):	200	LOW ID	n/a
EXPIRY DATE	14-Sep-2024	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:	15:56	SO2 Conc (ppb)	380
END TIME:	16:11	Analyzer Response (ppb)	0.0

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
7500		7500	0.00	n/a	0		
7442	57.90	7500	77.97	n/a	77.5	n/a	1.006
7472	28.20	7500	37.98	n/a	37.8	n/a	1.005
7486	14.10	7500	18.99	n/a	19.6	n/a	0.969

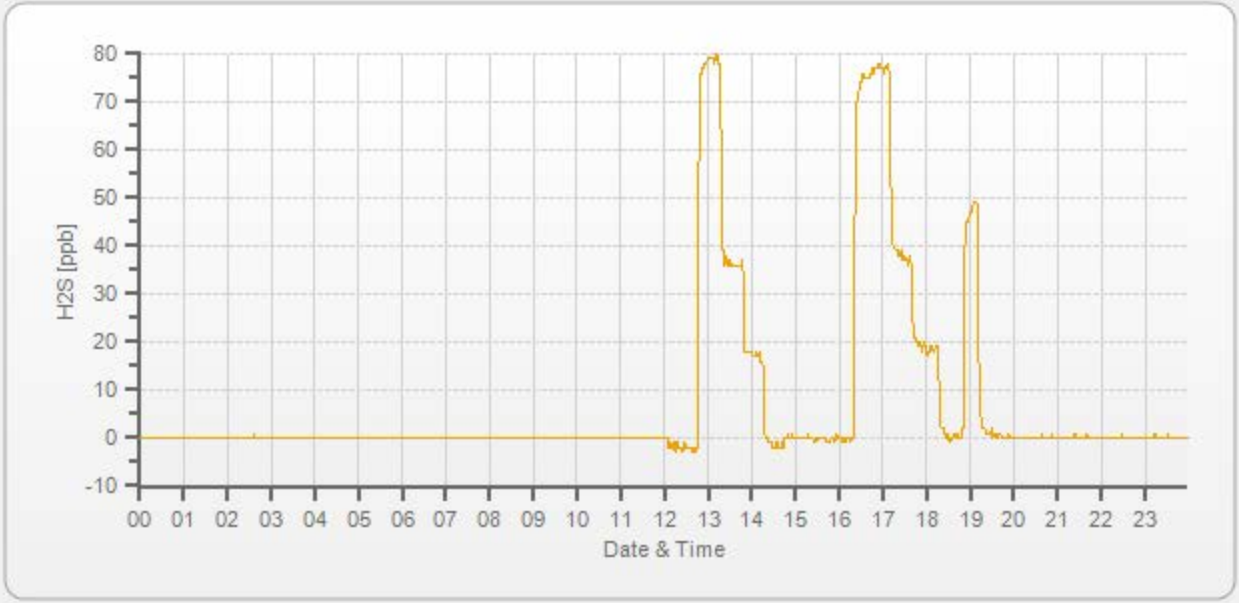
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.991	0.3%

COMMENTS:

Sample inlet filter was changed. SO2 scrubber was renewed.

H2S[ppb] Station: Lac La Biche Daily: 24-11-2023 Type: AVG 1 Min. [1 Min.]



NOx Calibration by Dilution/Gas-Phase Titration

CALIBRATION:

				ANALYZER:			
DATE:	24-Nov-2023	PREVIOUS CALIBRATION DATE:	04-Oct-2023	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930027	NOx	1.002
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	951	FLOW (mL/min)	769	NO	1.001
PURPOSE	Routine	START TIME (MST):	12:12	RANGE (ppb)	500	NO2	0.998
PERFORMED BY:	Alex Yakupov	END TIME (MST):	19:14	GPT FOR O3?		No	

CALIBRATION SYSTEM:

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:	9	8.7	n/a	BKG/OFFSET:	9.2	8.9	n/a
SLOPE/COEF/CE:	1.008	0.839	0.998	SLOPE/COEF/CE:	1.008	0.841	0.998

EXPECTED (REFERENCE) VALUE:

INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	326.0	3.8	322.0		344.0	2.4	341.6

CALIBRATION PARAMETERS:

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

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
5000		5000	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0						
4961	37.20	4998	380.3	384.1	3.7	380.6	384.3	3.7	380.3	384.2	3.9	0.999	1.000		1.000	1.000	
4982	17.60	5000	179.9	181.6	1.8	n/a	n/a	n/a	178.9	180.7	1.7	n/a	n/a		1.005	1.005	
4990	8.80	4999	90.0	90.8	0.9	n/a	n/a	n/a	88.9	89.8	0.9	n/a	n/a		1.012	1.012	

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	377.8	381.1	3.3				
AS-FOUND HIGH	37.20	4998	235	121.3	381.6	260.3	256.5	257	0.998	100.19%
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	258.8	382.1	123.2	119	119.9	0.992	100.76%
LOW	37.20	4998	40	332.6	381.5	48.9	45.2	45.6	0.991	100.88%
NO2 adjustment not required.									AVERAGE:	100.61%

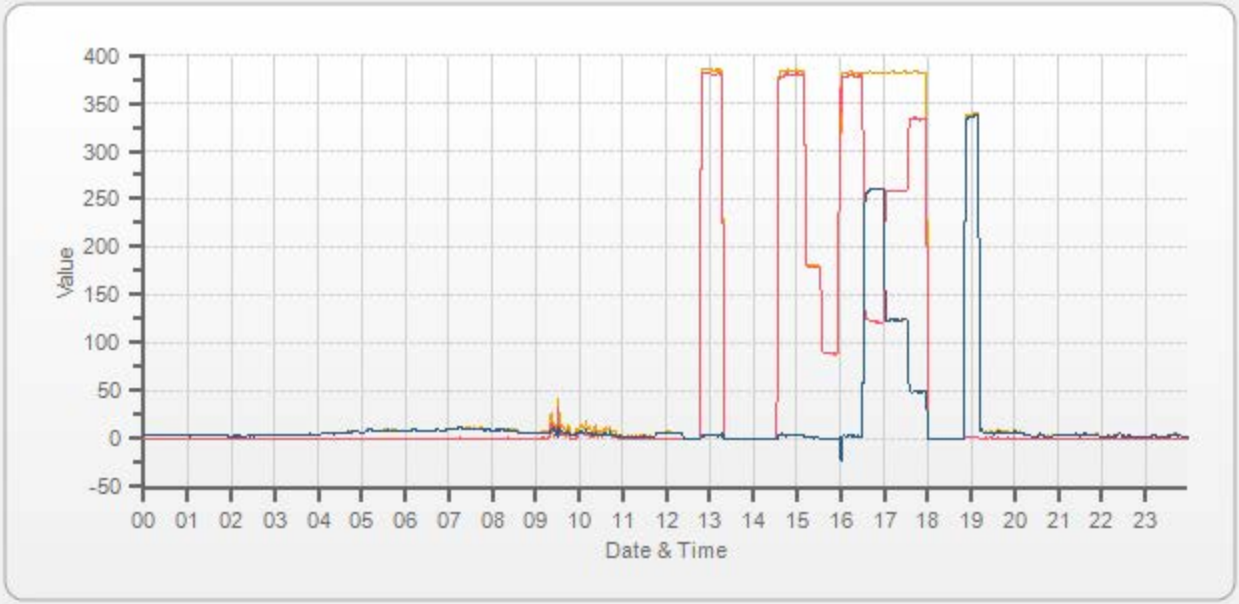
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
NO	1.000	1.001	-0.12%
NOx	1.000	1.001	-0.13%
NO2	1.000	1.000	0.12%

COMMENTS:

Sample inlet filter was changed.

Station: Lac La Biche Daily: 24-11-2023 Type: AVG 1 Min. [1 Min.]



Ozone Calibration by Photometer (Varying UV Lamp)

DATE:	25-Nov-2023	PREVIOUS CALIBRATION DATE:	03-Oct-2023
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.001
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	952
PURPOSE	Routine	START TIME (MST):	12:07
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:09

ANALYZER:

MAKE/MODEL	Thermo 49i	RANGE	500 ppb
SERIAL #	1002240372	FLOW (mL/min)	1428
INITIAL		FINAL	
BKG/OFFSET	0	BKG/OFFSET	0
COEF/SLOPE	1.039	COEF/SLOPE	1.055
Expected (reference) Value	469	Expected (reference) Value	490

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	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000		5000	0.0	0.0	0.0		
5000		5000	378.0	369.1	378.2	1.024	0.999
5000		5000	180.0	n/a	180.8	n/a	0.996
5000		5000	61.0	n/a	61.4	n/a	0.993

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.1%

COMMENTS:

Sample inlet filter was changed.
15:00 = daily ZS. Low point restarted


O3[ppb] Station: Lac La Biche Daily: 25-11-2023 Type: AVG 1 Min. [1 Min.]
500
450
400
350
300
250
200
150
100
50
0
-50
O3 [ppb]
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Date & Time
O3 [ppb]

Methane/Non-Methane Analyzer Calibration by Dilution

CALIBRATION:

DATE:	25-Nov-2023	PREVIOUS CALIBRATION DATE:	03-Oct-2023
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	952
PURPOSE	Routine	START TIME (MST):	12:08
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:09

ANALYZER:

VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
	Thermo 55i	1180320044	1018
PARAMETER:	CH4	NMHC	THC
RANGE (ppm):	20	20	40
PREVIOUS CF:	1.001	0.994	0.998

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_4/C_3H_8 (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 (CH4/NMHC)	HIGH	MID	LOW	CH4 EQUIVILANCE	
TARGET	14	7	3.5	C_3H_8 as CH_4	561.0
RANGE	12 - 16	6 - 8	2 - 4	THC as CH_4	1164.0

EXPECTED (REFERENCE) VALUE:

INITIAL	CH4	NMHC	THC	FINAL	CH4	NMHC	THC
	9.45	11.09	20.55		9.39	10.59	19.98

CALIBRATION:

FLOW RATE (mL/min)			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC
3100		3100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
3025	74.60	3100	14.51	13.50	28.01	14.17	13.37	27.54	14.44	13.49	27.95	1.024	1.010	1.017	1.005	1.001	1.002
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.23	6.73	13.96	n/a	n/a	n/a	1.004	1.003	1.003
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.59	3.34	6.93	n/a	n/a	n/a	1.008	1.008	1.008

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
CH4	1.000	0.995	0.0%
NMHC	1.000	1.000	-0.1%
THC	1.000	0.998	0.0%

Comments:

Sample inlet filter was changed.

15:00 = daily ZS. Low point restarted.

Use Zero Chrom? **Yes**

Station: Lac La Biche Daily: 25-11-2023 Type: AVG 1 Min. [1 Min.]

Thermo 5030i SHARP Monitor Monthly Check

Date:	November 25, 2023	**Performed By/Reviewer:**	Alex Yakupov / Chris Wesson
Company:	LICA	**Start Time (mst):**	14:54
Station Name/Location:	Lac La Biche	**End Time (mst):**	16:01
Previous Audit Date:	October 4, 2023	**Calibration Purpose:**	routine monthly
Parameter:	PM 2.5	**Weather Conditions:**	A few clouds

SHARP 5030i Information and Status:

Serial Number: CM 17071016 **Filter Tape Counter** 1

Reference Standards: **Air Flow**

	Manometer	Orifice	Pressure:	Temp / RH:
Make:	Delta Cal	Delta Cal	Fisher Scientific	Vaisala HMP76B
Model:	DC1	DC1	FB 61291	HMP 76B
Serial Number:	201587	201587	130168457	T1640130
Calibration Expiration Date:	December 12, 2023	December 12, 2023	March 20, 2024	June 26, 2024

Ambient Temperature (°C)

	Reference	SHARP	Difference
#1	-0.60	-1.0	0.4

Range	Action
< ± 2°C	OK
2-3 °C	Recalibrate
> 3°C	*Fail*

Ambient Relative Humidity (%RH)

As Found:

	Reference	SHARP	Difference
#1	54.80	55.6	-0.8

Range	Action
< ± 2 %RH	OK
2-5 %RH	Recalibrate
> 5 %RH	*Fail*

Barometric Pressure (mmHg)

As Found:

	Reference	SHARP	Difference
#1	713.0	713.0	0.0

Range	Action
< ± 10 mmHg	OK
10-12 mmHg	Recalibrate
> 12 mmHg	*Fail*

Flow Audit (L/min)

As Found:

	Reference	SHARP
#1	16.72	16.67
#2	16.72	16.67
#3	16.72	16.67
Average	16.72	16.67

% Difference -0.30%

Range	Action
< ± 4%	OK
4-5%	Recalibrate
>5%	*Fail*

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	16.59	16.65	-0.06	*Leak Limit: 0.80 L/min*
					LEAK RATE:	**-0.11**	

Meteorological System Checklist

Date:	November 25, 2023		
Technician:	Alex Yakupov		
Station:	Lac La Biche		
Unit:	**Make:**	**Model:**	**Serial #:**
Temperature Sensor:	Rotronic	HC2A-S3	20357518
Barometric Pressure Sensor:	MetOne	92	Y23360
Relative Humidity Sensor:	Rotronic	HC2A-S3	20357518
Anemometer:	RM Young	05305VK	56778
AMBIENT TEMPERATURE SENSOR CHECK			
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	Vaisala / HM70 / #T1640130/ Jun 26, 2024		
Reference Temperature (°C):	0.2		
Station - Ambient Temperature (°C):	-1.1		
Temperature Difference (°C):	1.3		
BAROMETRIC PRESSURE SENSOR CHECK			
Reference Barometer ID:	Fisher Scientific / FB 61291 / #130168457/ Mar 20, 2024		
Reference Pressure - Units/Reading:	millibar	950	
Station Pressure - Units/Reading:	millibar	953	
Pressure Tolerance +/- 15% of error:	808 - 1093	-0.32%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Reference Hygrometer ID:	Vaisala / HM70 / #T1640130/ Jun 26, 2024		
Reference Hygrometer % RH- Reading:	60.10		
Station Hygrometer % RH- Reading:	54.60		
RH Tolerance +/- 15% of difference:	51.09 - 69.12	9.2%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	October 4, 2023	Previous check date:	October 4, 2023
Wind Speed Observed (kph):	10-20	Wind Direction Observed:	NW
Wind speed on Data Logger (kph):	15.3	Wind Direction on Data Logger:	NW
	Annual audit: Sep 15, 2023	Wind Direction Pass/Fail?:	Pass

Comments

Station (Trailer) temperature vs Reference gauge: 19.8 vs 20.1 - 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:	RM Young	**Velocity Voltage Output Range:**	0-1
Sensor Model:	05305VK	**Velocity Unit Output Range:**	0-200
Serial #:	56778	**Direction Voltage Output Range:**	0-1
Previous Cal/Audit Date:	May 9, 2022	**Direction Unit Output Range:**	0-360

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=**	**0.999**

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=**			**2.0**

Comments:

No issues.

End of Report

Parameter	Method & Procedure
SULPHUR DIOXIDE (SO_2)	Bureau Veritas EMS SOP-00209: Ambient Sulphur Monitoring
HYDROGEN SULPHIDE (H_2S)	Bureau Veritas EMS SOP-00209: Ambient Sulphur Monitoring
TOTAL HYDROCARBONS (THC), METHANE (CH4), NON-METHANE(NMHC)	Bureau Veritas EMS SOP-00001: Methane, Non-Methane Hydrocarbon Analyzer Monitoring
OXIDES OF NITROGEN (NOx), NITRIC OXIDE (NO) & NITROGEN DIOXIDE (NO_2)	Bureau Veritas EMS SOP-00213: Ambient NO/NO_2/NOx Monitoring
OZONE (O3)	Bureau Veritas EMS SOP-00212: Ambient O3 Monitoring
PARTICULATE MATTER < 2.5 MICRONS ($PM_{2.5}$)	Bureau Veritas EMS SOP-00010: Thermo Model 5030 SHARP Monitor & EMS SOP-00015: Teledyne API PM Monitor Model T640
WIND SPEED (WS) & WIND DIRECTION (WD)	Bureau Veritas EMS SOP-00013: RM Young Wind Monitor Calibration
RELATIVE HUMIDITY (RH)	Operation Manual
BAROMETRIC PRESSURE (BP)	Operation Manual
AMBIENT TEMPERATURE (AmbTPX)	Operation Manual
STATION TEMPERATURE (StnTPX)	Operation Manual
PRECIPITATION	Bureau Veritas EMS SOP-00242: Precipitation Collector Installation / Maintenance