



Lakeland Industry & Community Association

NOVEMBER 2022

Monthly Ambient Air Quality Monitoring Report

LICA-202211

Operation and Maintenance:

Bureau Veritas Canada

Data Validation and Report:

Lakeland Industry & Community Association

December 21, 2022

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December 21, 2022

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RE: LICA – November 2022 Monthly Ambient Air Quality Monitoring Report

Enclosed is the November 2022 Monthly Ambient Air Quality Monitoring Report for the continuous ambient air quality monitoring stations of the Lakeland Industry & Community Association (LICA) regional air quality monitoring network.

The representative of the Person Responsible for this monitoring program is

LICA Airshed

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

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LIST OF ACRONYMS

AAAQOs	Alberta Ambient Air Quality Objectives
AEP	Alberta Environment and Parks
AMD	Air Monitoring Directive
AT	Ambient Temperature
BP	Barometric Pressure
CH ₄	Methane
EPEA	Environmental Protection and Enhancement Act
H ₂ S	Hydrogen Sulphide
kph	kilometers per hour
LICA	Lakeland Industry & Community Association
mb	millibar
mm	millimeter
NMHC	Non-Methane Hydrocarbons
NO	Nitric Oxide
NO ₂	Nitrogen Dioxide
NO _x	Oxide of Nitrogen
PAC	Polycyclic Aromatic Compounds
ppb	parts per billion
ppm	parts per million
RH	Relative Humidity
SO ₂	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 2022

Cold Lake South

- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) where applicable, except PM2.5. One 24-hour PM2.5 exceedance was recorded this month and was caused by stagnant weather conditions; similar air quality observations were made at several monitoring stations across Alberta between November 10 – 13, 2022. This stagnant episode was marked by sustained low wind speeds which hindered the dispersion of pollutants causing them to become built-up in the area.

Date	Time (MST)	Parameter	Average Period	AAAQOs / AAAQGs	Concentration	Wind speed (km/hr)	Wind Direction	Reference #
Nov 13	-	PM2.5	24-Hour	29 ug/m3	30.4 ug/m3	2.7	223° (SW)	406725

- All parameters met the 90% operational uptime requirement.
- **O3:** The Thermo 49i analyzer, s/n: 700419951 was removed following a successful shut-down calibration on November 23. The brand new Thermo 49iQ analyzer, s/n: 12208316585, was

installed afterwards. A successful installation calibration was completed on November 24. Twenty-two hours of downtime were recorded due to this event.

Tamarack

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

St. Lina Station

- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) where applicable.
- All parameters met the 90% operational uptime requirement.
- **TPX/RH:** A brand new Rotronic HC2-S3 TPX/RH sensor, s/n: 20404750 was installed on November 14. A successful sensor audit was completed on November 15. The existing Rotronic HC2-S3 TPX/RH sensor, s/n: 20221366, was removed following a successful sensor audit afterwards. One hour of downtime was recorded due to this event.

Lac La Biche Station

- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) where applicable, except PM2.5. One 24-hour PM2.5 exceedance was recorded this month and was caused by stagnant weather conditions; similar air quality observations were made at several monitoring stations across Alberta between November 10 – 13, 2022. This stagnant episode was marked by sustained low wind speeds which hindered the dispersion of pollutants causing them to become built-up in the area.

Date	Time (MST)	Parameter	Average Period	AAAQOs / AAAQGs	Concentration	Wind speed (km/hr)	Wind Direction	Reference #
Nov 12	-	PM2.5	24-Hour	29 ug/m3	37.9 ug/m3	4.0	153° (SSE)	406703

- All parameters met the 90% operational uptime requirement.
- No major events were identified this month.

Integrated Sampling

All the integrated sampling analytical results are included in the November 2022 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 1, 7, 13, 19 and 25.
- **PAHs Sampling System:**
 - The PUF sampler is programmed to collect a 24-hour sample of air every sixth day as per the National Air Pollution Surveillance schedule (NAPS).
 - Five samples were collected this month: on November 1, 7, 13, 19 and 25.
- **Partisol Sampling System:**
 - The Partisol sampler is programmed to collect a 24-hour sample of air every sixth day as per National Air Pollution Surveillance schedule (NAPS).
 - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
 - Five samples were collected this month: on November 1, 7, 13, 19 and 25.
- **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 November 2 and November 4, and were removed between November 30 and December 2.
 - A total of 9 duplicate samples were collected: 2 for H₂S, 3 for SO₂, 2 for NO₂ and 2 for O₃.
 - Passive Ammonia (NH₃) and nitric acid (HNO₃) filters are also part of the LICA network; these parameters support implementation of LICA's Acid Deposition Monitoring Strategy for the Cold Lake Region.. The sample media were installed along with the existing passive parameters (SO₂, H₂S, NO₂ and O₃) in all LICA passive monitoring stations during the November sample media deployment. The media will be exchanged on a monthly basis.
- **PAC Sampling System:**
 - The PAC sampling program began in November 2019, and is designed to collect a 2-month integrated sample.
 - The media for the November / December monitoring period were installed between November 2 and November 3 and will be removed in late December or early January 2023.
- **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 events were 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).

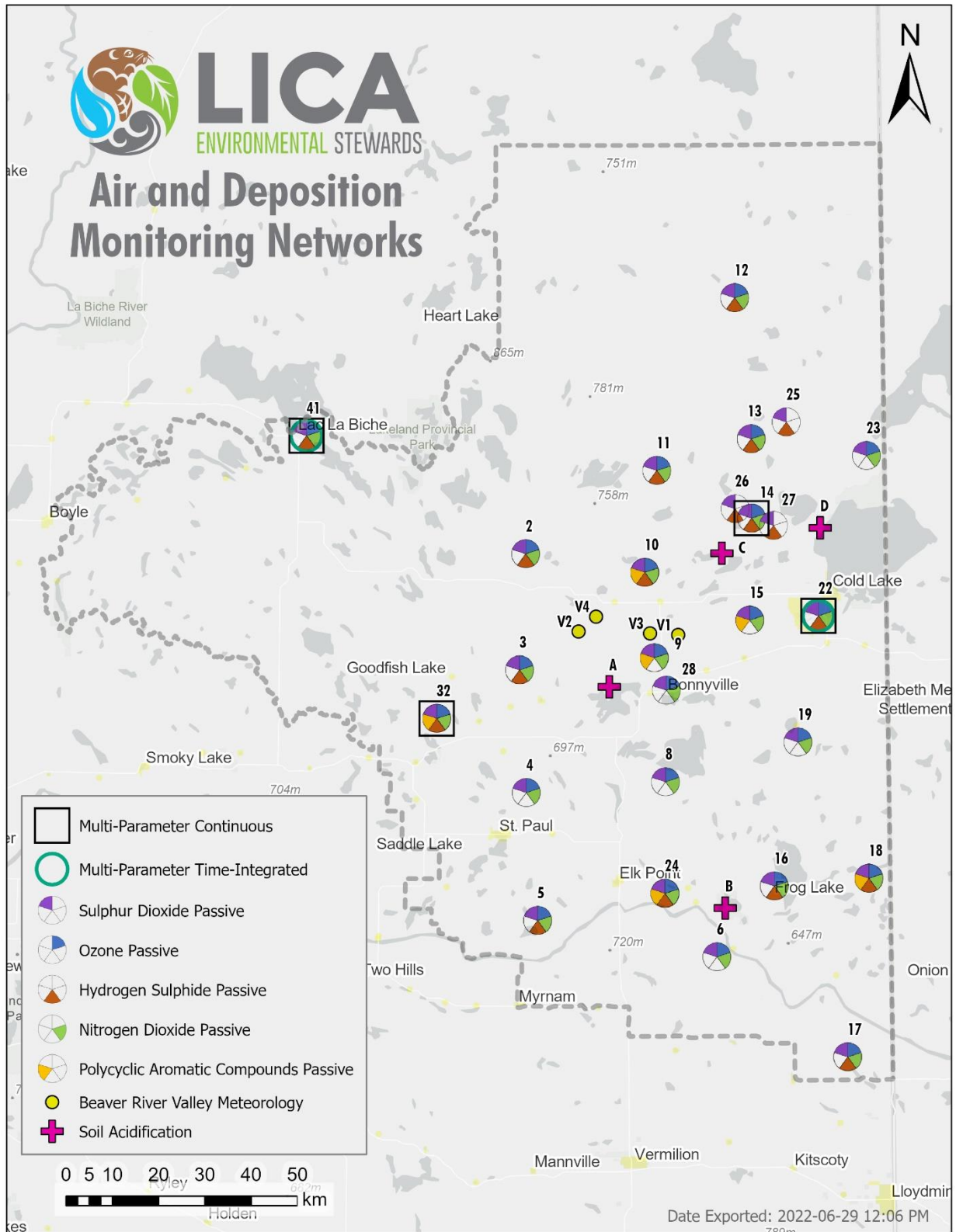
I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements. I also certify that at the time of this report's submission, all air data have been electronically uploaded to Alberta's Ambient Air Quality Data Warehouse as required by the AMD, with the exception of electronic submission for the results of intermittent samples, Partisol samples and passive samples. Electronic submission for the intermittent sample, Partisol sample and passive sample results will be performed during the preparation of the November 2022 integrated sampling report. 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 21, 2022

Map of LICA Continuous Monitoring Network



CONTINUOUS NETWORK EQUIPMENT AND MONITORING RESULTS SUMMARY

Cold Lake South Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	Calibration Date
Sulphur Dioxide (SO₂)	Thermo / 43i-TLE	1180260018	November 22, 2022
<ul style="list-style-type: none"> No operational issues were recorded this month. 			
Total Reduced Sulphur (TRS)	Thermo / 450i	812728560	November 22, 2022
<ul style="list-style-type: none"> No operational issues were identified this month. 			
Total Hydrocarbons / Methane/ Non-methane Hydrocarbons (THC/CH₄/NMHC)	Thermo / 55i	1180930025	November 23, 2022
<ul style="list-style-type: none"> No operational issues were identified this month. 			
Oxide of Nitrogen / Nitric Oxide/ Nitrogen Dioxide (NO_x/NO/NO₂)	Thermo / 42i	1505664393	November 22, 2022
<ul style="list-style-type: none"> The analyzer failed the daily span check on November 14. A repeat zero-span check was completed on November 14 hour 20 and hour 21 to investigate the drift. The check result was within the acceptable range. No further actions were required. Two hours of downtime were recorded due to this additional quality check. 			
Ozone (O₃)	Thermo 49i / Thermo 49iQ	700419951 / 12208316585	November 24, 2022
<ul style="list-style-type: none"> The Thermo 49i analyzer, s/n: 700419951 was removed following a successful shut-down calibration on November 23. The brand new Thermo 49iQ analyzer, s/n: 12208316585, was installed afterwards. A successful installation calibration was completed on November 24. Twenty-two hours of downtime were recorded due to this event. 			
Particulate Matter 2.5 (PM_{2.5})	Teledyne T640	575	November 22, 2022
<ul style="list-style-type: none"> No operational issues were identified this month. 			

Parameter	Make / Model	Serial Number	System Check Date
Relative Humidity (RH)	Rotronic / HC2A-S3	20257103	November 22, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Barometric Pressure (BP)	Met One / Part 092	Y23368	November 22, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Ambient Temperature (AT)	Rotronic / HC2A-S3	20257103	November 22, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Station Temperature (ST)	BV-supplied	n/a	November 22, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Wind Speed (WS) / Wind Direction (WD)/ Stand Deviation Wind Direction (STDWD)	RM Young / 05305AQ	177354	November 22, 2022
<ul style="list-style-type: none"> 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 issues were identified this month. 			

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	0.2	0	2	November 12 at hour 3	7	SE	1.0	November 12	100.0	95.0
TRS (ppb)	-	-	-	-	-	-	0.1	0	1	November 2 at hour 0	8.1	NE	1.0	November 24	100.0	95.0
NOx (ppb)	-	-	-	-	-	-	4.8	0	41	November 22 at hour 20	0.6	W	14.6	November 22	99.7	94.7
NO (ppb)	-	-	-	-	-	-	0.6	0	17	November 22 at hour 20	0.6	W	3.5	November 15	99.7	94.7
NO2 (ppb)	159	-	-	0	-	-	4.2	0	25	November 22 at hour 20	0.6	W	12.3	November 22	99.7	94.7
O3 (ppb)	76	-	-	0	-	-	25.1	1.0	40.2	November 20 at hour 13	10.1	NW	36.1	November 29	96.9	91.8
THC (ppm)	-	-	-	-	-	-	2.04	1.90	2.46	November 13 at hour 8	1.7	SE	2.27	November 12	100.0	94.7
CH4 (ppm)	-	-	-	-	-	-	2.04	1.90	2.46	November 13 at hour 8	1.7	SE	2.27	November 12	100.0	94.7
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.06	November 20 at hour 22	0.6	ESE	0.00	November 20	100.0	94.7
PM2.5 (µg/m3)	80	29	-	0	1	-	9.5	1	49	November 13 at hour 17	2.1	WSW	30.4	November 13	100.0	99.9
RH (%)	-	-	-	-	-	-	75.3	40	90	November 1 at hour 21	7.6	ENE	83.4	November 3	100.0	100.0
BP (millibar)	-	-	-	-	-	-	952	924	978	November 17 at hour 3	9	NW	971	November 17	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-7.8	-25.0	4.5	November 21 at hour 14	8.6	WSW	0.4	November 1	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	21.9	20.0	24.0	November 23 at hour 15	8.9	WSW	22.9	November 23	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	2.3	0.0	21.9	November 16 at hour 14	21.9	NNW	15.4	November 16	100.0	100.0
WVD (sector)	-	-	-	-	-	-	323 (NW)	-	-	-	-	-	-	-	100.0	100.0

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

Alberta Ambient Air Quality Objectives (AAAOs) and/or Alberta Ambient Air Quality Guidelines (AAAQs) Exceedances

The following exceedances of AAAQOs were observed at the Cold Lake South Station.

Date	Time (MST)	Parameter	Average Period	AAAOs	Concentration	Wind speed	Wind Direction	Reference #
November 13	-	PM2.5	24-Hour	29 µg/m3	30.4 µg/m3	2.7 km/hr	223° (SW)	406725

- The exceedance of the PM2.5 objective on 13-November is believed to be the result of wildfires burning in west and north of the province. With the low wind speeds recorded at the time, the pollutant was not dispersed sooner and then were built-up in the area.

Tamarack Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	Calibration Date
Sulphur Dioxide (SO₂)	Thermo / 43i-TLE	1180930031	November 18, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Hydrogen Sulphide (H₂S)	Thermo / 450i	CM17360005	November 17, 2022
<ul style="list-style-type: none"> The daily span results trended low starting November 6, likely due to cold temperatures. Repeat zero-span checks were completed on November 10 hour 7 and November 16 hour 17 to investigate the drift. The analyzer failed the November 16 and November 17 check requirements. A successful monthly calibration was completed on November 17 to correct the drift. As the analyzer passed the multi-point calibration check requirements, data collected before November 17 were considered valid. No data were discarded. However, two hours of downtime were recorded due to additional quality checks. 			
Oxide of Nitrogen / Nitric Oxide/ Nitrogen Dioxide (NO_x/NO/NO₂)	Thermo / 42i	1180930028	November 18, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Ozone (O₃)	Thermo 49iQ	1202068570	November 18, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Total Hydrocarbons / Methane/ Non-methane Hydrocarbons (THC/CH₄/NMHC)	Thermo / 55i	1314057759	November 17, 2022
<ul style="list-style-type: none"> The analyzer failed the daily span check on November 14. A repeat zero-span check was completed on November 14 hour 20 to investigate the drift. It was concluded the span gas depletion. The span gas cylinder was replaced on November 16 following by a successful control zero-span check to obtain a new expected span value. Two hours of downtime were recorded due to additional quality checks. 			
Particulate Matter 2.5 (PM_{2.5})	Thermo / Sharp 5030	CM 2209	November 18, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			

Parameter	Make / Model	Serial Number	System Check Date
Relative Humidity (RH)	Rotronic / HC2A-S3	20433166	November 18, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Ambient Temperature (AT)	Rotronic / HC2A-S3	20433166	November 18, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Barometric Pressure (BP)	Met One / Part 090D	F4497	November 18, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Station Temperature (ST)	BV-supplied	n/a	November 18, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Precipitation (PRECIP)	Met One / Part 387	C13580	November 18, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Wind Speed (WS) / Wind Direction (WD)/ Stand Deviation Wind Direction (STDWD)	RM Young / 05305VK	161465	November 18, 2022
<ul style="list-style-type: none"> Wind direction data contained in this report represents where the wind is coming from. An annual wind system calibration was completed on July 26, 2022. No issues were identified this month. 			

Monitored Data Summary for Tamarack 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	0.9	0	24	November 18 at hour 6	9	WNW	6.5	November 18	100.0	95.0
H2S (ppb)	10	3	-	0	0	-	0.0	0	1	November 1 at hour 6	5	ESE	0.4	November 15	99.7	94.6
NOx (ppb)	-	-	-	-	-	-	5.4	0	48	November 11 at hour 10	1.2	NE	13.1	November 13	100.0	94.7
NO (ppb)	-	-	-	-	-	-	0.8	0	32	November 11 at hour 10	1.2	NE	4.9	November 11	100.0	94.7
NO2 (ppb)	159	-	-	0	-	-	4.6	0	28	November 25 at hour 2	4.6	SW	12.1	November 13	100.0	94.7
O3 (ppb)	76	-	-	0	-	-	24.8	1.2	40.2	November 20 at hour 12	7.3	NNW	34.0	November 30	100.0	95.0
THC (ppm)	-	-	-	-	-	-	2.02	1.90	2.58	November 13 at hour 3	3.4	SSW	2.33	November 12	99.7	94.6
CH4 (ppm)	-	-	-	-	-	-	2.02	1.90	2.58	November 13 at hour 3	3.4	SSW	2.33	November 12	99.7	94.6
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.25	November 24 at hour 22	1.4	SW	0.02	November 24	99.7	94.6
PM2.5 (µg/m3)	80	29	-	0	0	-	5.2	1	28	November 11 at hour 6	0.7	WSW	17.5	November 12	100.0	99.9
RH (%)	-	-	-	-	-	-	81.6	37	100	November 1 at hour 18	6.8	NE	94.1	November 3	100.0	100.0
BP (millibar)	-	-	-	-	-	-	936	910	961	November 17 at hour 1	7	NNW	955	November 17	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-8.0	-24.5	4.6	November 21 at hour 14	12.1	W	0.2	November 22	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	20.6	19.0	22.4	November 20 at hour 15	3.2	NNW	22.1	November 23	100.0	100.0
Precipitation (mm)*	-	-	-	-	-	-	12.6	0.0	0.7	November 8 at hour 11	3.2	NNW	0.1	November 12	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	2.0	0.1	19.9	November 5 at hour 12	19.9	NNE	12.4	November 5	100.0	100.0
WDV (sector)	-	-	-	-	-	-	319 (NW)	-	-	-	-	-	-	-	100.0	100.0

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

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

Alberta Ambient Air Quality Objectives (AAAOs) and/or Alberta Ambient Air Quality Guidelines (AAAQs) Exceedances

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

St. Lina Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	Calibration Date
Sulphur Dioxide (SO₂)	Thermo / 43i-TLE	1180930030	November 15, 2022
<ul style="list-style-type: none"> No operational issues were recorded this month. 			
Hydrogen Sulphide (H₂S)	Thermo 450i	CM18010058	November 15, 2022
<ul style="list-style-type: none"> No operational issues were recorded this month. 			
Total Hydrocarbons / Methane/ Non-methane Hydrocarbons (THC/CH₄/NMHC)	Thermo / 55i	1180030034	November 14, 2022
<ul style="list-style-type: none"> Both the N₂ gas cylinder and the span gas cylinders were replaced on November 2. A successful control zero-span check was completed afterwards to obtain a new expected span value. Two hours of downtime were recorded due to this event. The HC channels were put offline while the hydrogen generator was being serviced on November 15. One hour of downtime was recorded. 			
Oxide of Nitrogen / Nitric Oxide/ Nitrogen Dioxide (NO_x/NO/NO₂)	Thermo / 42i	1180930029	November 15, 2022
<ul style="list-style-type: none"> No operational issues were recorded this month. 			
Ozone (O₃)	Thermo 49iQ	12208316586	November 14, 2022
<ul style="list-style-type: none"> No operational issues were recorded this month. 			
Particulate Matter 2.5 (PM_{2.5})	Thermo / Sharp 5030i	CM17091001	November 15, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			

Parameter	Make / Model	Serial Number	System Check Date
Relative Humidity (RH)	Rotronic / HC2-S3	20221366 / 20404750	November 15, 2022
<ul style="list-style-type: none"> It was noticed that the Rotronic HC2-S3, s/n: 20221366, recorded higher than expected readings, compared with other LICA stations. To address this concern, a brand new Rotronic HC2-S3 TPX/RH sensor, s/n: 20404750 was installed on November 14. A successful sensor audit was completed on November 15. The existing Rotronic HC2-S3 TPX/RH sensor, s/n: 20221366, was removed following a successful sensor audit afterwards. Because the sensor, s/n: 20221366, passed the audit requirements, data collected by this sensor were considered valid. However, one hour of downtime was recorded due to new sensor installation. 			
Ambient Temperature (AT)	Rotronic / HC2-S3	20221366	November 15, 2022
<ul style="list-style-type: none"> It was noticed that the Rotronic HC2-S3, s/n: 20221366, recorded higher than expected readings, compared with other LICA stations. To address this concern, a brand new Rotronic HC2-S3 TPX/RH sensor, s/n: 20404750 was installed on November 14. A successful sensor audit was completed on November 15. The existing Rotronic HC2-S3 TPX/RH sensor, s/n: 20221366, was removed following a successful sensor audit afterwards. Because the sensor, s/n: 20221366, passed the audit requirements. Data collected by this sensor were considered valid. However, one hour of downtime was recorded due to new sensor installation. 			
Barometric Pressure (BP)	Met One / Part 090D	F4998	November 15, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Station Temperature (ST)	BV-supplied	n/a	November 15, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Precipitation (PRECIP)	Met One / Part 387D	A23775	November 15, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Wind Speed (WS) / Wind Direction (WD)/ Stand Deviation Wind Direction (STDWD)	RM Young / 05305VK	161466	November 15, 2022
<ul style="list-style-type: none"> 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. No issues were identified this month. 			

Monitored Data Summary for St. Lina 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	0.2	0	3	November 6 at hour 23	10.5	NE	1.1	November 11	100.0	95.0
H2S (ppb)	10	3	-	0	0	-	0.0	0	1	November 13 at hour 13	9.4	SW	0.2	November 26	100.0	95.0
NOx (ppb)	-	-	-	-	-	-	3.7	0	24	November 11 at hour 19	9.5	SSE	12.9	November 12	100.0	94.7
NO (ppb)	-	-	-	-	-	-	0.2	0	5	November 12 at hour 13	7.5	SW	1.1	November 13	100.0	94.7
NO2 (ppb)	159	-	-	0	-	-	3.4	0	24	November 11 at hour 19	9.5	SSE	11.9	November 12	100.0	94.7
O3 (ppb)	76	-	-	0	-	-	30.8	9.1	43.1	November 20 at hour 12	16.9	NNW	40.5	November 20	100.0	95.0
THC (ppm)	-	-	-	-	-	-	2.09	1.98	2.65	November 11 at hour 19	9.5	SSE	2.37	November 11	99.6	94.6
CH4 (ppm)	-	-	-	-	-	-	2.09	1.98	2.65	November 11 at hour 19	9.5	SSE	2.37	November 11	99.6	94.6
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.00	November 1 at hour 0	10	ESE	0.00	November 1	99.6	94.6
PM2.5 (µg/m3)	80	29	-	0	0	-	5.9	0	35	November 11 at hour 18	9.7	SSE	26.3	November 11	100.0	99.9
RH (%)	-	-	-	-	-	-	83.1	34	100	November 1 at hour 8	10.7	ENE	100.0	November 2	99.9	99.9
BP (millibar)	-	-	-	-	-	-	920	893	944	November 17 at hour 1	15.8	NNW	938	November 17	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-7.7	-23.4	5.1	November 21 at hour 14	20.5	W	1.0	November 23	99.9	99.9
Stn. Temp. (°C)	-	-	-	-	-	-	21.9	19.3	28.6	November 19 at hour 22	8.3	W	24.1	November 15	100.0	100.0
Precipitation (mm)*	-	-	-	-	-	-	5.8	0.0	0.6	November 7 at hour 22	13.2	NE	0.1	November 7	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	4.7	0.0	26.2	November 16 at hour 14	26.2	NNW	21.5	November 28	100.0	100.0
WDV (sector)	-	-	-	-	-	-	303 (WNW)	-	-	-	-	-	-	-	100.0	100.0

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

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

Alberta Ambient Air Quality Objectives (AAAOs) and/or Alberta Ambient Air Quality Guidelines (AAAQs) Exceedances

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

Lac La Biche Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	Calibration Date
Sulphur Dioxide (SO₂)	Thermo / 43i-TLE	1180320043	November 9, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Hydrogen Sulphide (H₂S)	API 101A	324	November 9, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Oxide of Nitrogen / Nitric Oxide/ Nitrogen Dioxide (NO_x/NO/NO₂)	Thermo / 42i	1180930027	November 9, 2022
<ul style="list-style-type: none"> Nox daily span response trended high early this month. The problem appeared to be caused by incorrect expected span values. The expected values were updated after the monthly calibration was completed on November 9. 			
Ozone (O₃)	Thermo 49i	1002240372	November 8, 2022
<ul style="list-style-type: none"> The analyzer failed both the scheduled and repeat zero-span check on November 14 and November 15 due to zero-span pump failure. The pump was rebuilt following by a successful zero-span check on November 16. Two hours of downtime were recorded due to the additional quality checks. 			
Total Hydrocarbons / Methane/ Non-methane Hydrocarbons (THC/CH₄/NMHC)	Thermo / 55i	1180320044	November 10, 2022
<ul style="list-style-type: none"> The monthly calibration was attempted but was aborted due to unstable readings on November 8. It was suspected that the station's zero air was contaminated by the use of an alcohol-based hand sanitizer within the station. Column condition was performed overnight to correct the issue. The hydrogen generator was serviced on November 9. The analyzer then was allowed time to stabilize overnight. A successful monthly calibration was completed on November 10. Forty-five hours of downtime were recorded due to these maintenance activities. 			
Particulate Matter 2.5 (PM_{2.5})	Thermo / Sharp 5030i	CM 17071016	November 10, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			

Parameter	Make / Model	Serial Number	System Check Date
Relative Humidity (RH)	Rotronic / HC2A-S3	0020357518	November 10, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Ambient Temperature (AT)	Rotronic / HC2A-S3	0020357518	November 10, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Barometric Pressure (BP)	Met One / Part 092	Y23360	November 10, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Station Temperature (ST)	BV-supplied	n/a	November 10, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Wind Speed (WS) / Wind Direction (WD)/ Stand Deviation Wind Direction (STDWD)	RM Young / 05305VK	56778	November 10, 2022
<ul style="list-style-type: none"> Wind direction data contained in this report represents where the wind is coming from. The last annual wind system calibration was completed on May 9, 2022. No issues were identified 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	0.2	0	4	November 11 at hour 22	9.5	SSE	1.2	November 11	100.0	95.0
H2S (ppb)	10	3	-	0	0	-	0.0	0	0	November 1 at hour 0	4.5	SE	0.0	November 1	100.0	95.0
NOx (ppb)	-	-	-	-	-	-	6.5	1	47	November 14 at hour 17	0.4	SW	17.0	November 12	100.0	94.7
NO (ppb)	-	-	-	-	-	-	0.9	0	21	November 14 at hour 8	1.7	N	4.4	November 14	100.0	94.7
NO2 (ppb)	159	-	-	0	-	-	5.6	1	31	November 14 at hour 17	0.4	SW	14.5	November 12	100.0	94.7
O3 (ppb)	76	-	-	0	-	-	26.2	2.0	39.1	November 20 at hour 10	13.5	NW	34.3	November 20	99.7	94.8
THC (ppm)	-	-	-	-	-	-	2.05	1.90	2.54	November 12 at hour 15	3.3	SE	2.40	November 12	93.8	89.0
CH4 (ppm)	-	-	-	-	-	-	2.05	1.90	2.54	November 12 at hour 15	3.3	SE	2.40	November 12	93.8	89.0
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.02	November 11 at hour 7	3.4	SSE	0.00	November 11	93.8	89.0
PM2.5 (µg/m3)	80	29	-	0	1	-	7.0	0	75	November 13 at hour 18	2.7	WSW	37.9	November 12	100.0	99.9
RH (%)	-	-	-	-	-	-	77.8	36	100	November 1 at hour 18	5.9	NNE	92.7	November 2	100.0	100.0
BP (millibar)	-	-	-	-	-	-	949	921	975	November 16 at hour 23	16.1	NNW	968	November 17	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-6.6	-23.2	8.9	November 22 at hour 13	3.1	WSW	3.4	November 22	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	22.0	19.5	25.4	November 26 at hour 7	4.2	SSW	24.5	November 26	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	2.2	0.4	23.9	November 28 at hour 1	23.9	NW	19.3	November 28	100.0	100.0
WVD (sector)	-	-	-	-	-	-	326 (NW)	-	-	-	-	-	-	-	100.0	100.0

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

Alberta Ambient Air Quality Objectives (AAAOs)and/or Alberta Ambient Air Quality Guidelines (AAAQs) Exceedances

The following exceedances of AAAQOs were observed at the Lac La Biche Station.

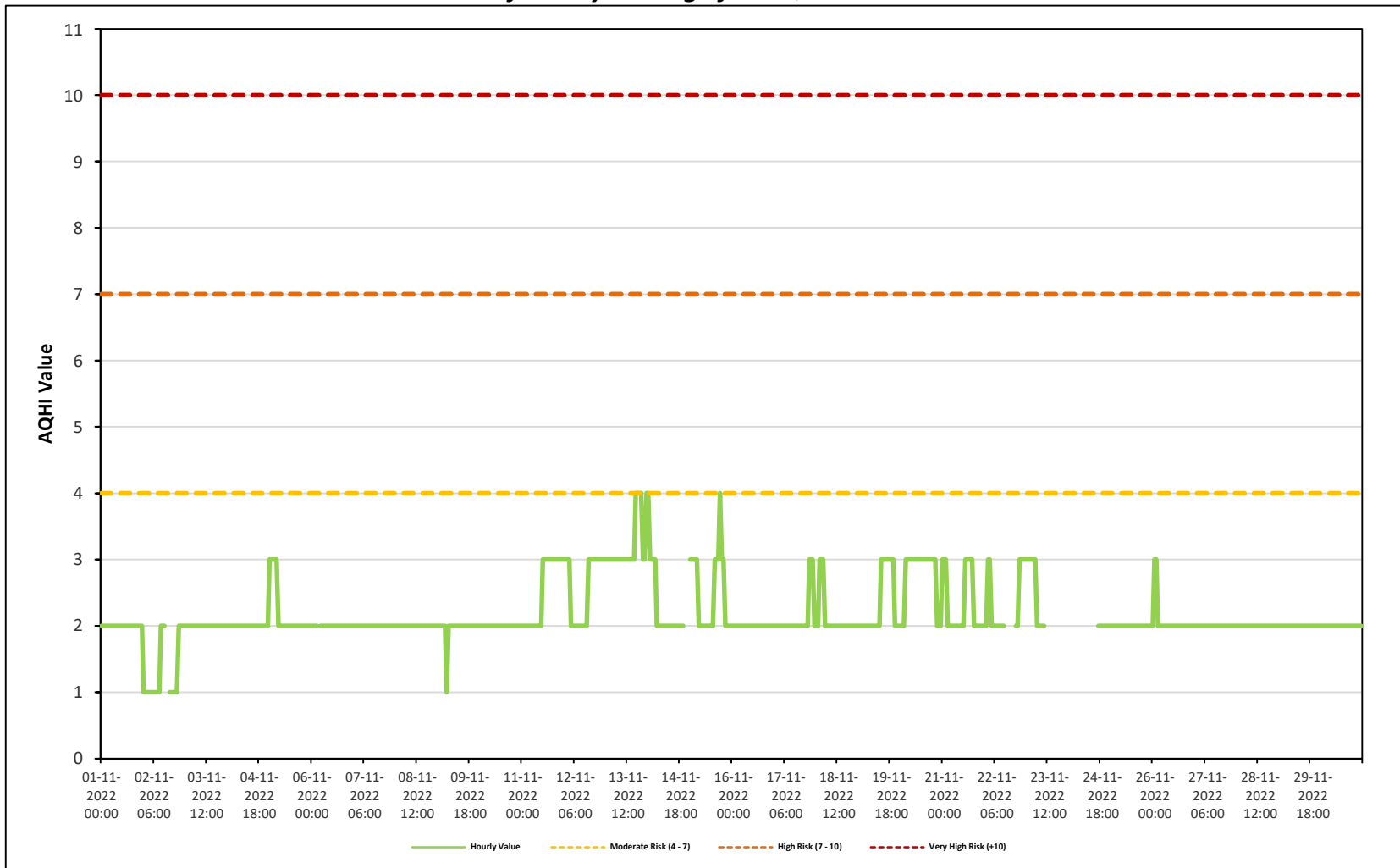
Date	Time (MST)	Parameter	Average Period	AAAOs	Concentration	Wind speed	Wind Direction	Reference #
November 12	-	PM2.5	24-Hour	29 µg/m3	37.9 µg/m3	4.0 km/hr	153° (SSE)	406703

- The exceedance of the PM2.5 objective on 12-November is believed to be the result of wildfires burning in west and north of the province. With the low wind speeds recorded at the time, the pollutant was not dispersed sooner and then were built-up in the area.

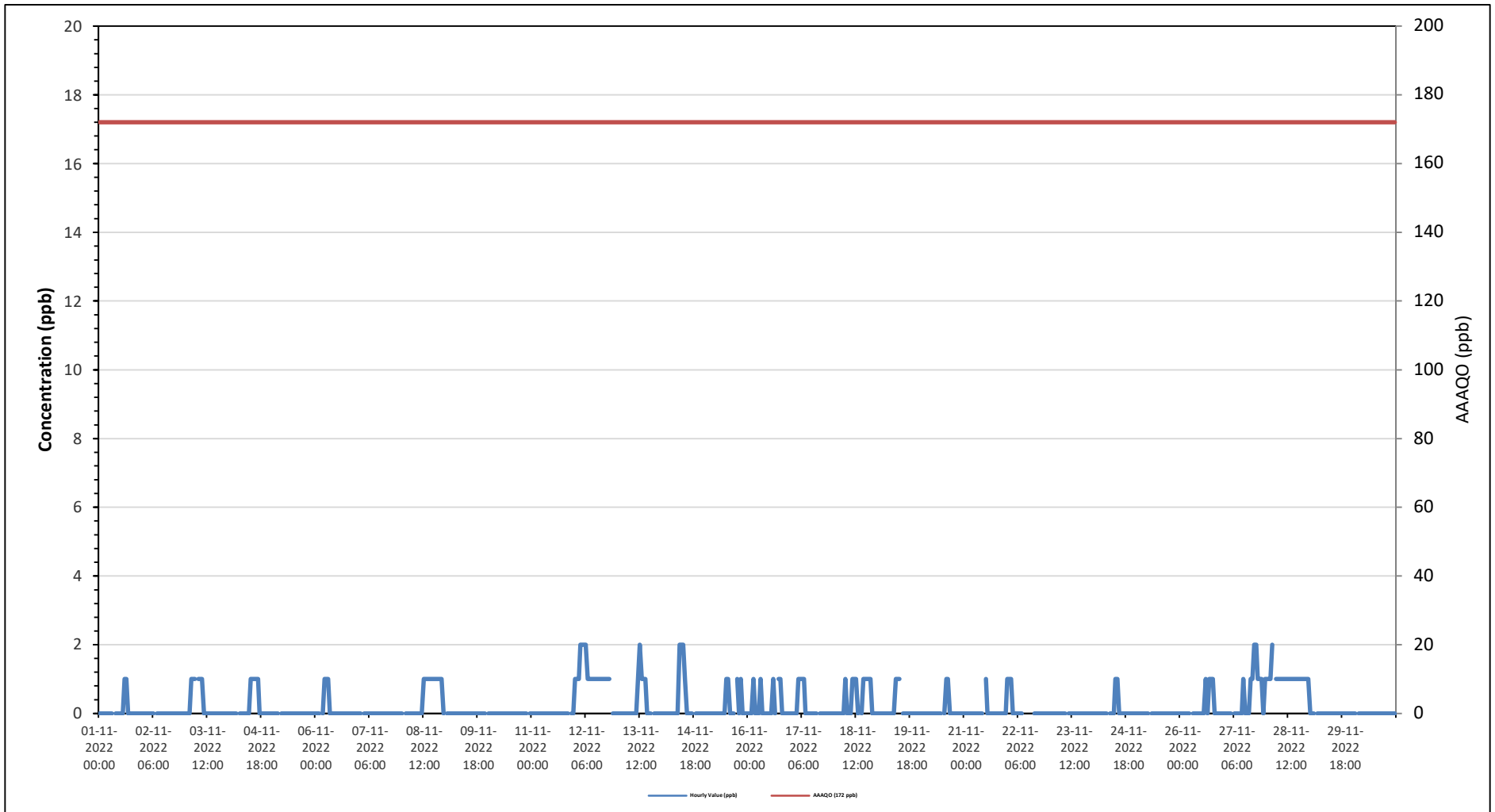
TABLES AND CHARTS

COLD LAKE SOUTH STATION

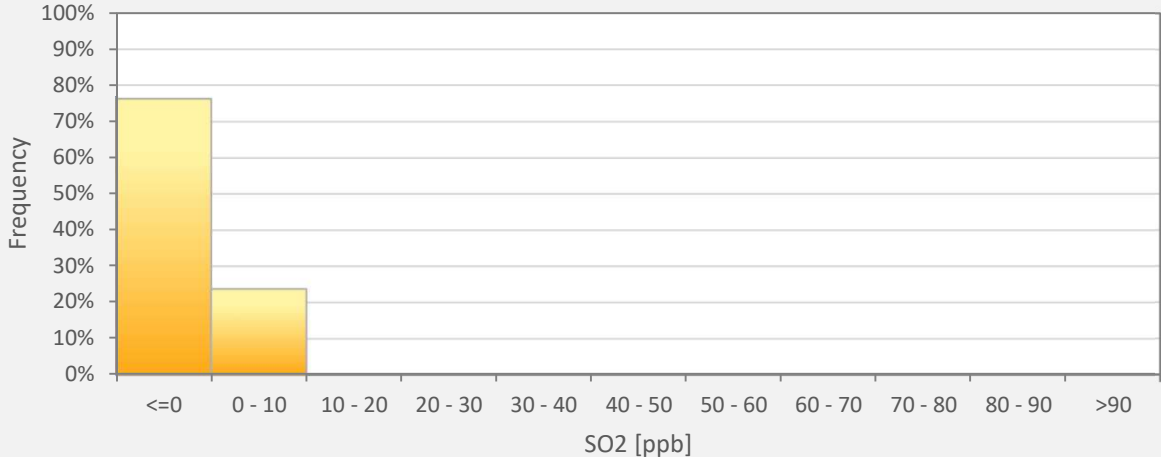
Timeseries Chart of Hourly Average for AQHI - Cold Lake South Station



Timeseries Chart of Hourly Average for SO2 - Cold Lake South Station



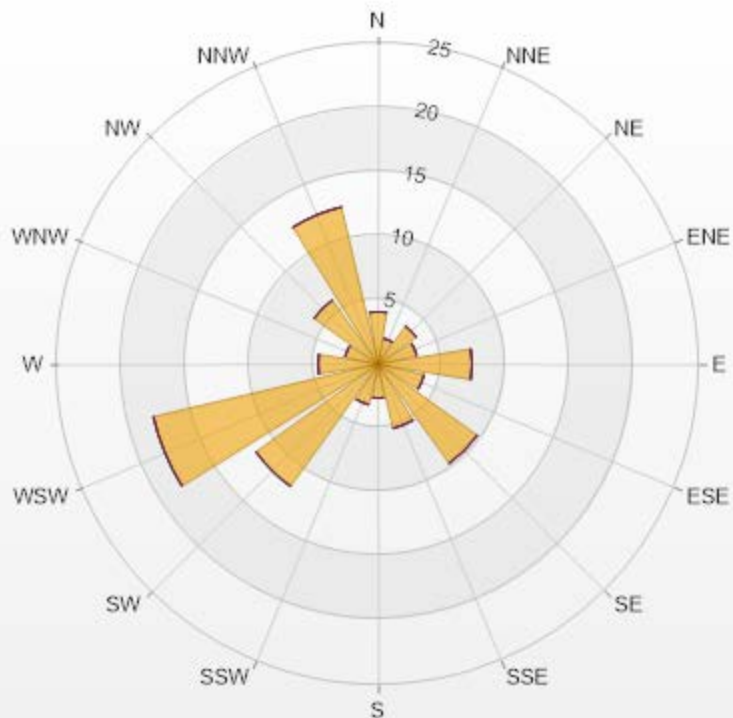
SO2[ppb] Histogram: Cold Lake South Monthly: 11-2022 1 Hr.



Classes	SO2
<=0	76.32%
0 - 10	23.68%
10 - 20	0.00%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-SO2[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.00% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	4.09	0	0	0	0	4.09
NNE	2.05	0	0	0	0	2.05
NE	3.65	0	0	0	0	3.65
ENE	3.07	0	0	0	0	3.07
E	7.31	0	0	0	0	7.31
ESE	3.65	0	0	0	0	3.65
SE	9.5	0	0	0	0	9.5
SSE	5.12	0	0	0	0	5.12
S	2.63	0	0	0	0	2.63
SSW	3.22	0	0	0	0	3.22
SW	11.7	0	0	0	0	11.7
WSW	17.98	0	0	0	0	17.98
W	4.68	0	0	0	0	4.68
WNW	2.63	0	0	0	0	2.63
NW	6.14	0	0	0	0	6.14
NNW	12.57	0	0	0	0	12.57
Summary	100	0	0	0	0	100



LICA-202211

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% Icon Classes (ppb)

100 0-10

0 10-50

0 50-100

0 100-172

0 >172.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - November 2022

Summary of Hourly Averages

TOTAL REDUCED SULPHUR (TRS) in ppb

Maximum Hourly Value:	1 ppb on November 2 at hour 0	Hours in Service:	720
Maximum Daily Value:	1.0 ppb on November 24	Hours of Data:	684
Minimum Hourly Value:	0 ppb on November 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 ppb on November 1	Hours of Calibration:	36
Monthly Average:	0.1 ppb	Operational Uptime:	100.0

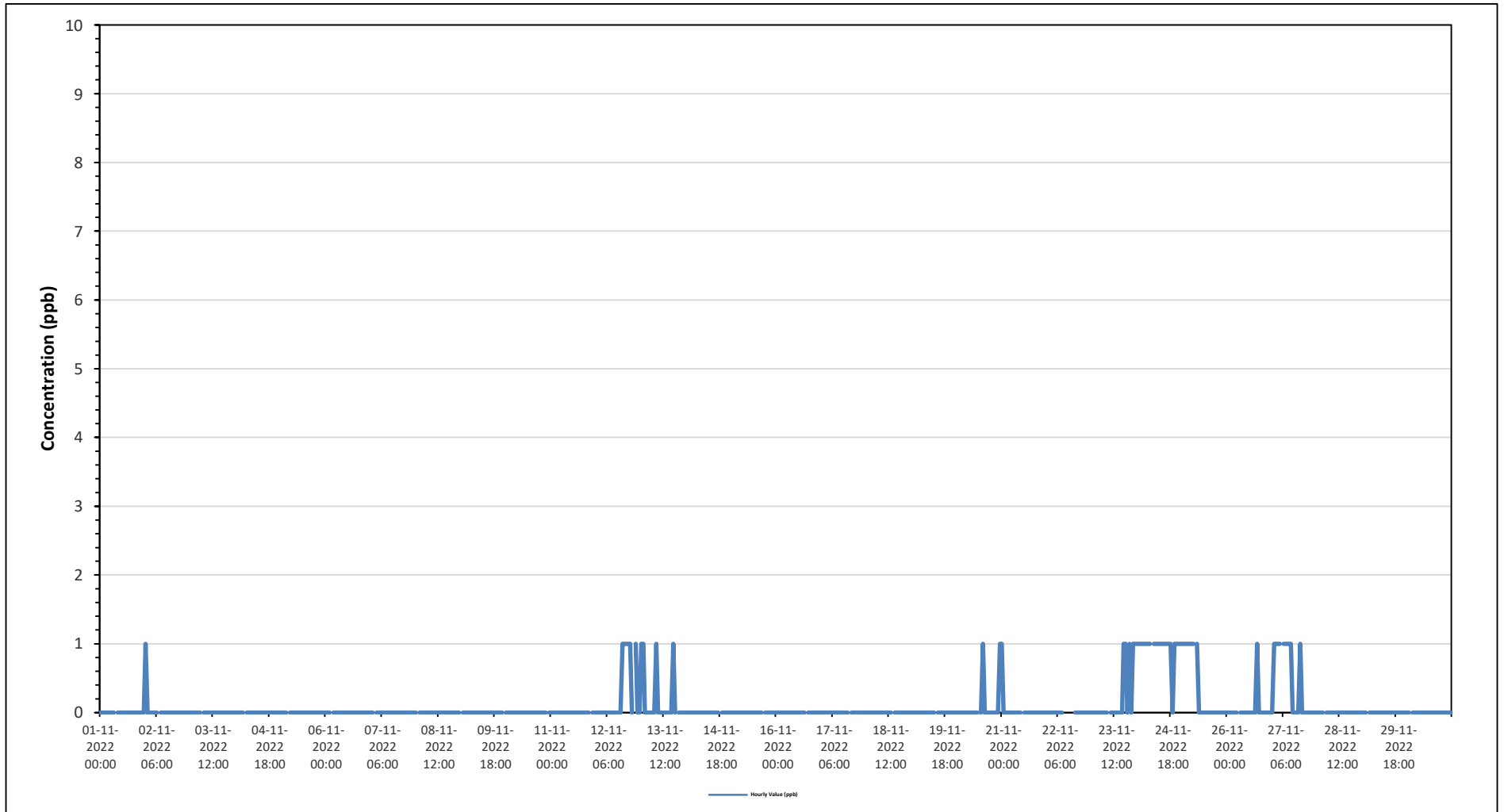
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23						
Nov 1	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Nov 2	1	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0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

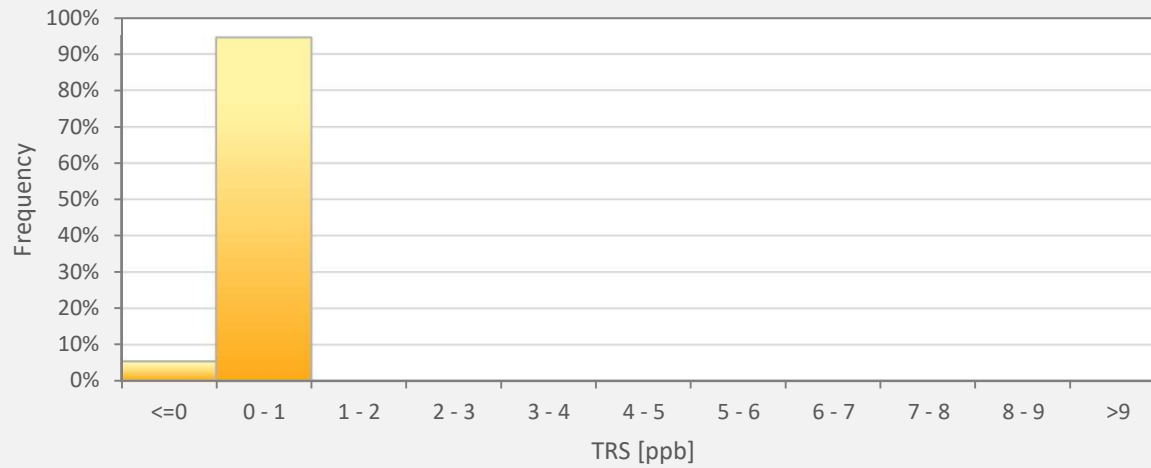
C Monthly Calibration **S** Daily Zero-Span Check **Q** Quality Assurance
K Collection Error **N** No Data (Machine Not in Service) **Y** Routine Maintenance
X InValid Data (Equipment Malfunction /Recovery) **NRM** UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)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

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

Timeseries Chart of Hourly Average for TRS - Cold Lake South Station



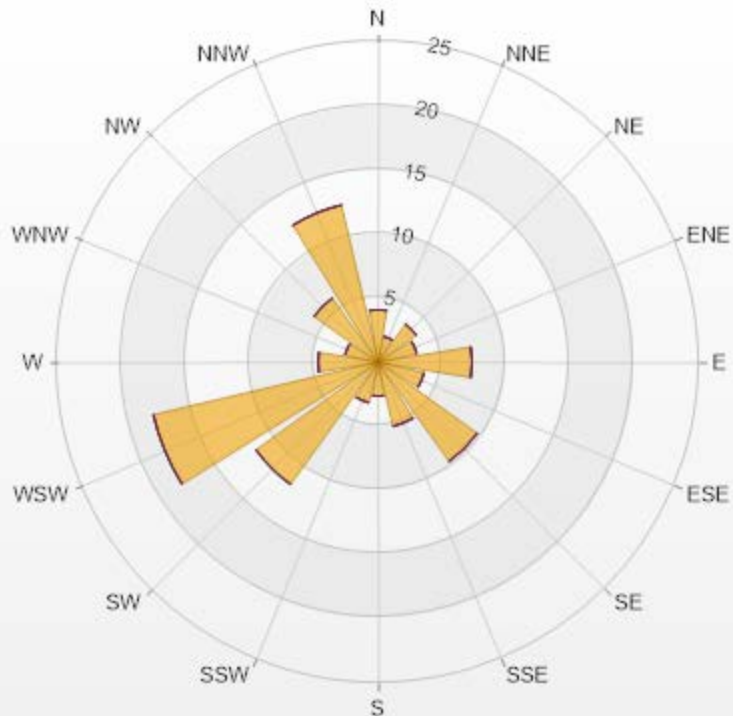
TRS[ppb] Histogram: Cold Lake South Monthly: 11-2022 1 Hr.



Classes	TRS
<=0	5.41%
0 - 1	94.59%
1 - 2	0.00%
2 - 3	0.00%
3 - 4	0.00%
4 - 5	0.00%
5 - 6	0.00%
6 - 7	0.00%
7 - 8	0.00%
8 - 9	0.00%
>9	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-TRS[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.00% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	4.09	0	0	0	0	4.09
NNE	2.05	0	0	0	0	2.05
NE	3.65	0	0	0	0	3.65
ENE	3.07	0	0	0	0	3.07
E	7.31	0	0	0	0	7.31
ESE	3.65	0	0	0	0	3.65
SE	9.5	0	0	0	0	9.5
SSE	5.12	0	0	0	0	5.12
S	2.63	0	0	0	0	2.63
SSW	3.22	0	0	0	0	3.22
SW	11.7	0	0	0	0	11.7
WSW	17.98	0	0	0	0	17.98
W	4.68	0	0	0	0	4.68
WNW	2.63	0	0	0	0	2.63
NW	6.14	0	0	0	0	6.14
NNW	12.57	0	0	0	0	12.57
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100 0-2

0 2-5

0 5-10

0 10-50

0 >50.0



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Cold Lake South Station - November 2022

Summary of Hourly Averages

OXIDES OF NITROGEN (NOx) in ppb

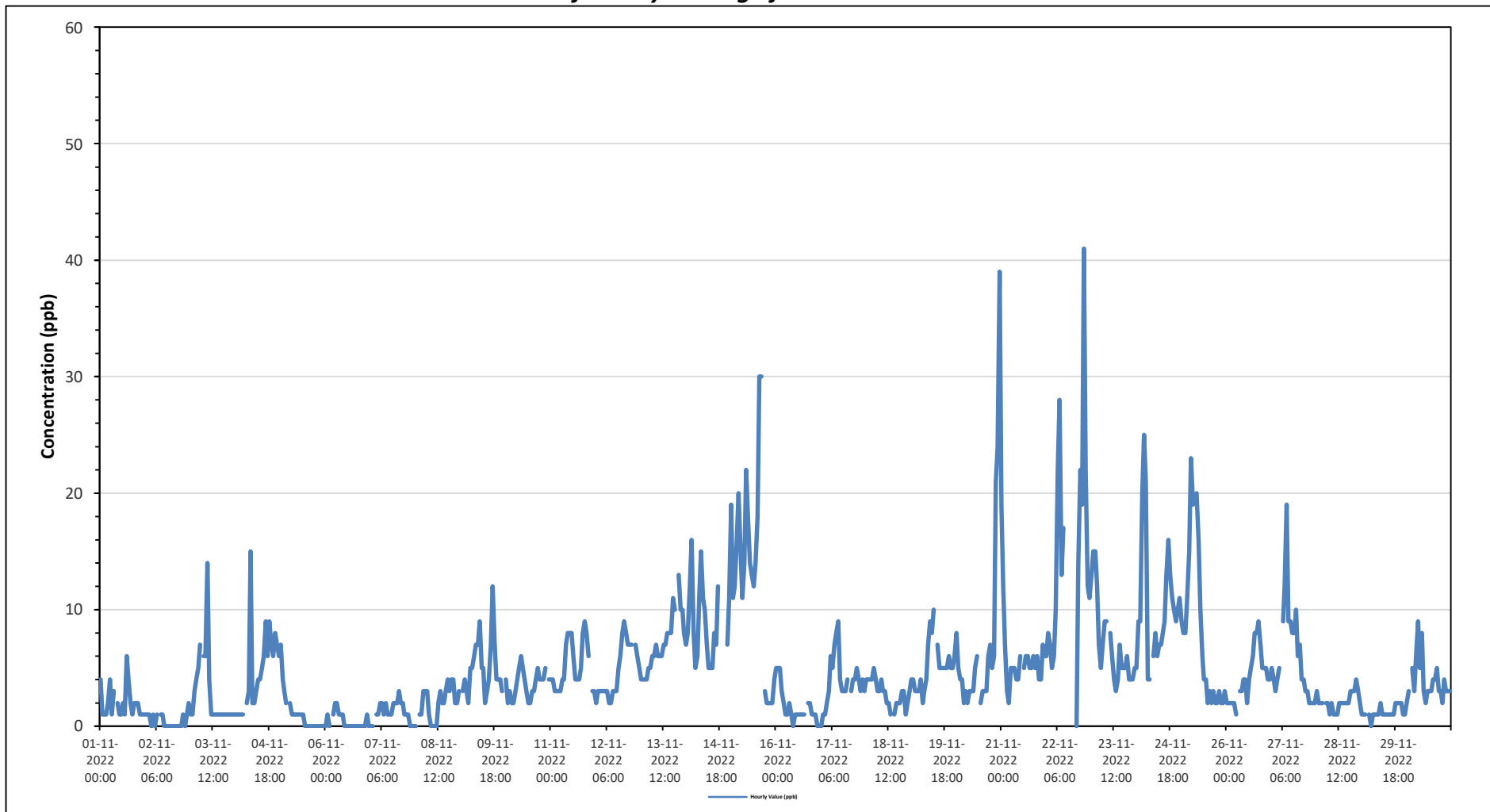
Maximum Hourly Value:	41 ppb on November 22 at hour 20	Hours in Service:	720
Maximum Daily Value:	14.6 ppb on November 22	Hours of Data:	682
Minimum Hourly Value:	0 ppb on November 2 at hour 3	Hours of Missing Data:	2
Minimum Daily Value:	0.4 ppb on November 6	Hours of Calibration:	36
Monthly Average:	4.8 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			
Nov 1	4	1	1	1	2	4	1	3	S	2	1	1	2	1	6	4	2	1	2	2	2	1	1	1		
Nov 2	1	1	1	0	1	0	1	S	1	1	0	0	0	0	0	0	0	0	0	0	1	0	1	2		
Nov 3	1	1	3	4	5	7	S	6	6	14	4	1	1	1	1	1	1	1	1	1	1	1	1	1		
Nov 4	1	1	1	1	1	S	2	3	15	2	2	3	4	4	5	6	9	6	9	7	6	8	7	6		
Nov 5	7	4	3	2	S	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0		
Nov 6	0	1	0	S	1	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0		
Nov 7	0	0	S	1	1	2	2	1	2	1	1	2	2	2	2	2	2	1	1	1	0	0	0	0		
Nov 8	0	S	1	1	3	3	3	1	0	0	0	0	2	3	2	3	4	3	4	4	2	2	3	0		
Nov 9	S	3	4	3	2	5	5	6	7	7	9	5	5	2	3	4	7	12	7	4	4	4	3	S		
Nov 10	4	2	3	2	2	3	4	5	6	5	4	3	2	2	3	3	4	5	4	4	4	5	S	4		
Nov 11	4	4	3	3	3	3	4	4	7	8	8	8	6	4	4	4	5	8	9	8	6	S	3	3		
Nov 12	2	3	3	3	3	3	3	2	2	3	3	3	5	6	8	9	8	7	7	7	S	7	6	5		
Nov 13	4	4	4	4	5	5	6	6	7	6	6	6	7	7	8	8	8	11	10	S	13	10	10	8		
Nov 14	7	8	12	16	8	5	6	11	15	11	10	7	5	5	5	8	7	12	S	7	NRM	NRM	7	11		
Nov 15	19	11	12	16	20	15	11	14	22	18	14	13	12	14	18	30	30	S	3	2	2	2	2	4		
Nov 16	5	5	5	3	2	1	1	2	1	0	1	1	1	1	1	1	S	2	2	1	1	1	0	0		
Nov 17	0	1	1	2	3	6	5	7	8	9	4	3	3	3	4	S	3	4	4	5	4	3	4	3		
Nov 18	4	4	4	4	5	4	3	3	4	3	3	2	2	1	S	1	2	2	2	3	3	1	2	3		
Nov 19	4	4	3	3	3	4	2	3	4	7	9	8	10	S	7	5	5	5	5	5	6	5	5	6		
Nov 20	8	5	4	4	2	3	2	3	3	3	5	6	S	2	3	3	3	6	7	5	6	21	24	39		
Nov 21	19	12	7	3	2	5	5	5	4	4	6	S	5	6	6	5	5	6	5	6	4	4	7	6		
Nov 22	6	8	7	5	6	10	22	28	13	17	C	C	C	C	C	0	14	22	19	41	22	12	11	0		
Nov 23	13	15	15	12	7	5	7	9	9	S	8	6	4	3	4	7	5	5	5	6	4	4	4	5		
Nov 24	5	9	9	20	25	21	4	4	S	6	8	6	7	7	8	9	13	16	13	11	10	9	10	11		
Nov 25	9	8	8	11	15	23	19	S	20	16	10	6	4	4	2	3	2	3	2	2	3	2	3	2		
Nov 26	2	2	2	2	2	1	S	3	3	4	4	2	4	5	6	8	8	9	7	5	5	5	4	4		
Nov 27	5	4	3	4	5	S	9	12	19	9	9	8	8	10	6	7	4	4	3	3	2	2	2	2		
Nov 28	3	2	2	2	S	2	2	1	2	1	1	1	1	2	2	2	2	2	3	3	3	4	3	2		
Nov 29	1	1	1	S	1	0	1	1	1	1	2	1	1	1	1	1	1	1	2	2	2	1	1	0		
Nov 30	2	3	S	5	3	6	9	5	8	3	2	3	3	3	4	4	5	3	3	2	4	3	3	3		
Diurnal Maximum	19	15	15	20	25	23	22	28	22	18	14	13	12	14	18	30	30	16	22	19	41	22	24	39		
Diurnal Average	4.8	4.4	4.4	4.9	4.9	5.4	5.1	5.4	6.8	5.6	4.7	3.8	3.9	3.5	4.3	4.9	5.0	5.2	4.9	4.3	5.1	4.6	4.4	5.1		

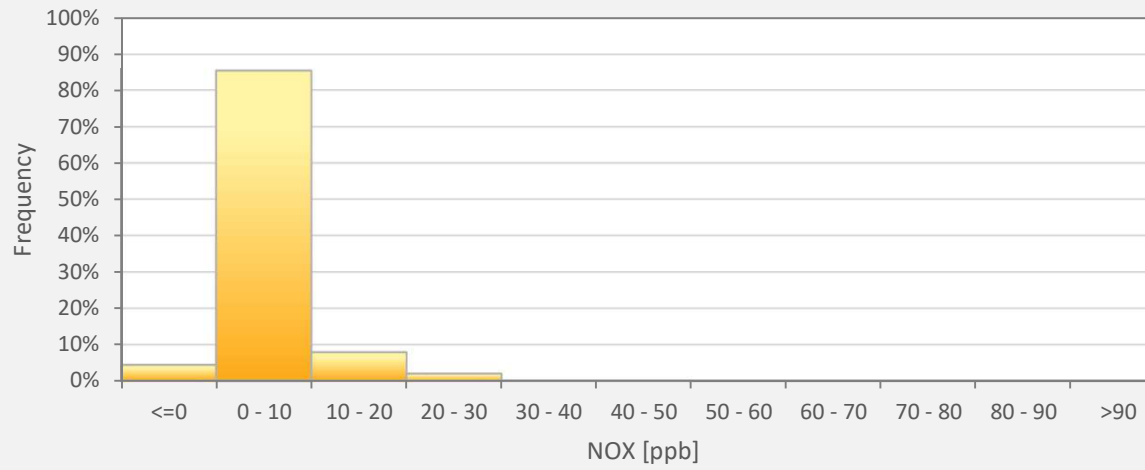
C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	N No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction /Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

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

Timeseries Chart of Hourly Average for NOx - Cold Lake South Station



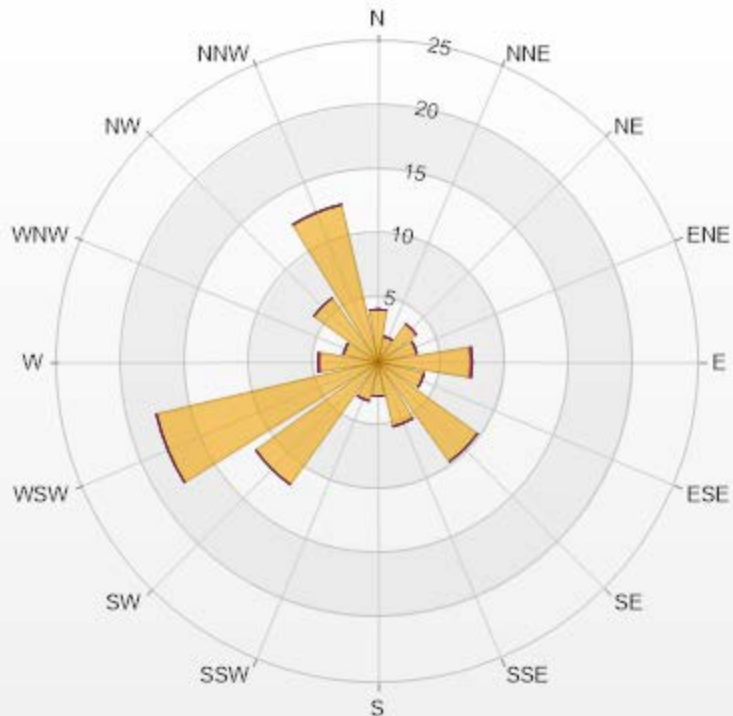
NOX[ppb] Histogram: Cold Lake South Monthly: 11-2022 1 Hr.



Classes	NOX
<=0	4.40%
0 - 10	85.34%
10 - 20	7.92%
20 - 30	2.05%
30 - 40	0.15%
40 - 50	0.15%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-NOX[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.72% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	4.11	0	0	0	0	4.11
NNE	2.05	0	0	0	0	2.05
NE	3.67	0	0	0	0	3.67
ENE	3.08	0	0	0	0	3.08
E	7.18	0.15	0	0	0	7.33
ESE	3.67	0	0	0	0	3.67
SE	9.53	0	0	0	0	9.53
SSE	5.13	0	0	0	0	5.13
S	2.64	0	0	0	0	2.64
SSW	3.08	0	0	0	0	3.08
SW	11.73	0	0	0	0	11.73
WSW	17.74	0	0	0	0	17.74
W	4.55	0.15	0	0	0	4.7
WNW	2.79	0	0	0	0	2.79
NW	6.16	0	0	0	0	6.16
NNW	12.61	0	0	0	0	12.61
Summary	100	0.3	0	0	0	100



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% Icon Classes (ppb)

100  0-30

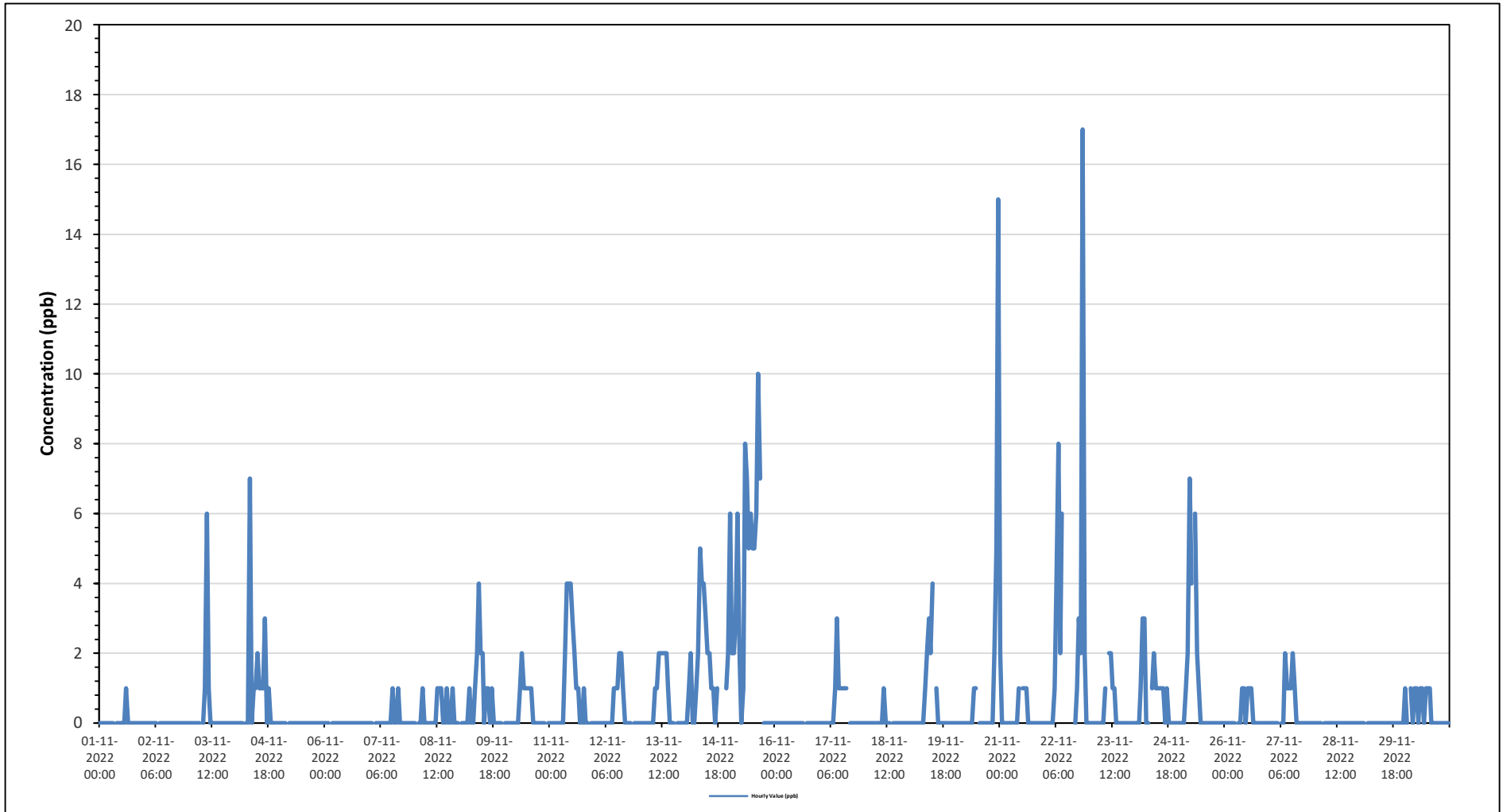
0  30-50

0  50-76

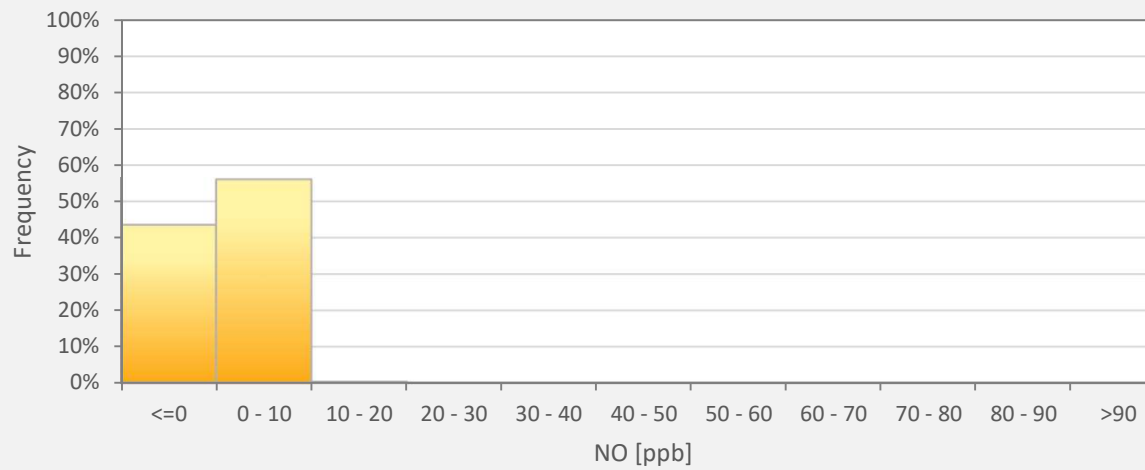
0  76-159

0  >159.0

Timeseries Chart of Hourly Average for NO - Cold Lake South Station



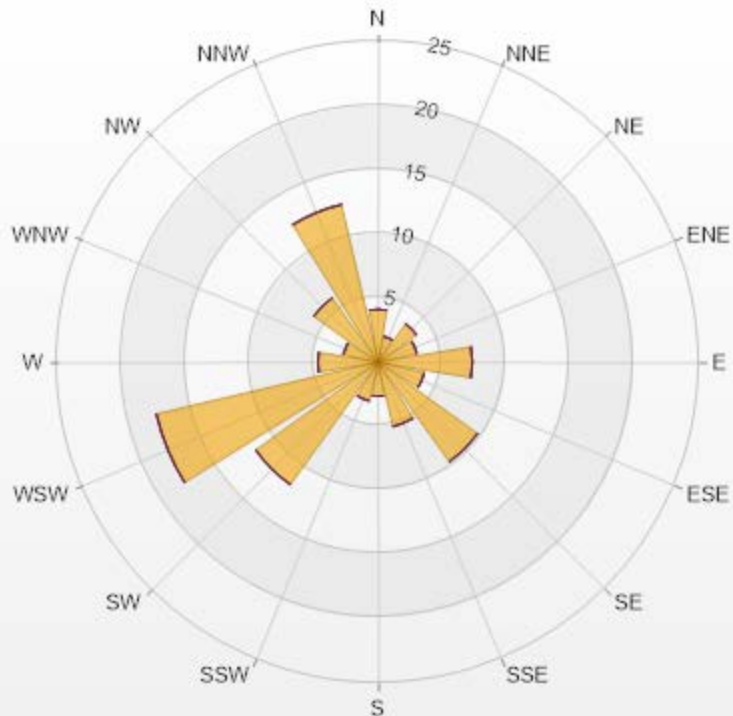
NO[ppb] Histogram: Cold Lake South Monthly: 11-2022 1 Hr.



Classes	NO
<=0	43.55%
0 - 10	56.01%
10 - 20	0.44%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-NO[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.72% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	4.11	0	0	0	0	4.11
NNE	2.05	0	0	0	0	2.05
NE	3.67	0	0	0	0	3.67
ENE	3.08	0	0	0	0	3.08
E	7.33	0	0	0	0	7.33
ESE	3.67	0	0	0	0	3.67
SE	9.53	0	0	0	0	9.53
SSE	5.13	0	0	0	0	5.13
S	2.64	0	0	0	0	2.64
SSW	3.08	0	0	0	0	3.08
SW	11.73	0	0	0	0	11.73
WSW	17.74	0	0	0	0	17.74
W	4.69	0	0	0	0	4.69
WNW	2.79	0	0	0	0	2.79
NW	6.16	0	0	0	0	6.16
NNW	12.61	0	0	0	0	12.61
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100  0-30

0  30-50

0  50-76

0  76-159

0  >159.0



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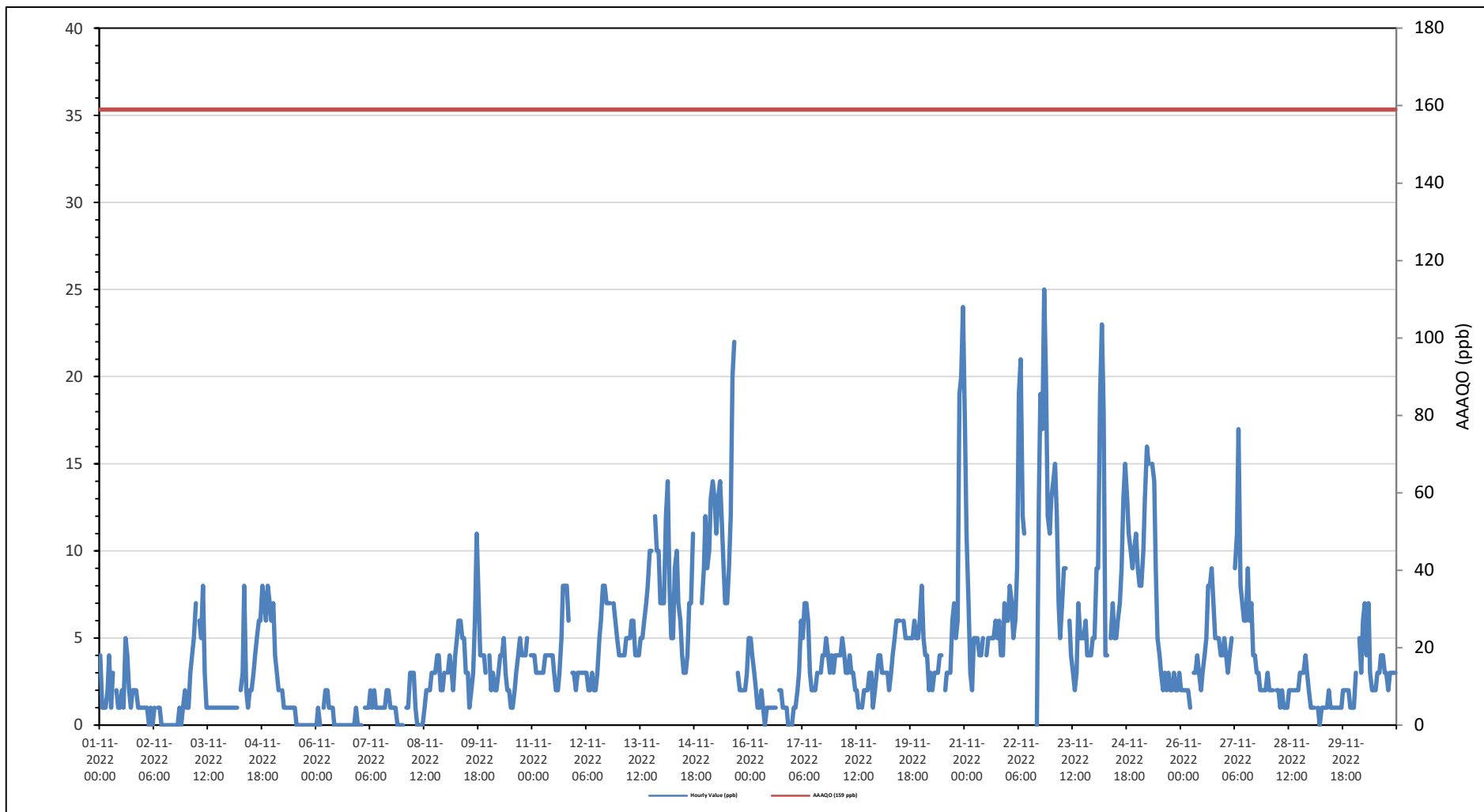
Cold Lake South Station - November 2022

Summary of Hourly Averages

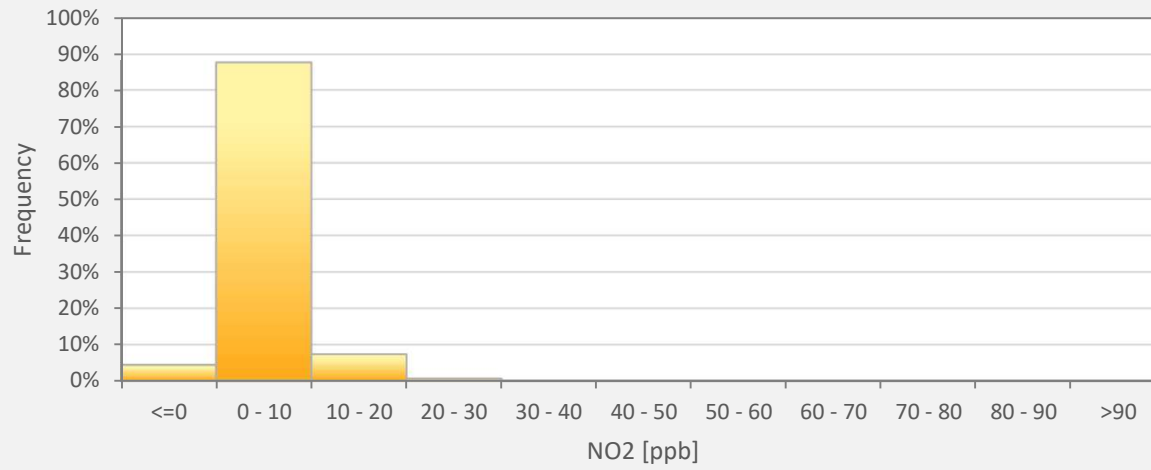
NITROGEN DIOXIDE (NO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb																												
Number of 1-Hour Exceedances: 0																												
Maximum Hourly Value: 25 ppb on November 22 at hour 20												Hours in Service: 720																
Maximum Daily Value: 12.3 ppb on November 22												Hours of Data: 682																
Minimum Hourly Value: 0 ppb on November 2 at hour 3												Hours of Missing Data: 2																
Minimum Daily Value: 0.4 ppb on November 6												Hours of Calibration: 36																
Monthly Average: 4.2 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	4	1	1	1	2	4	1	3	S	2	1	1	2	1	5	4	2	1	2	2	2	1	1	1	1	1	5	2.0
Nov 2	1	1	1	0	1	0	1	S	1	1	0	0	0	0	0	0	0	0	0	0	1	0	1	2	0	2	0.5	
Nov 3	1	1	3	4	5	7	S	6	5	8	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	2.4
Nov 4	1	1	1	1	1	S	2	3	8	2	1	2	2	3	4	5	6	6	8	7	6	8	7	6	1	8	4.0	
Nov 5	7	4	3	2	S	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	7	1.1	
Nov 6	0	1	0	S	1	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0.4	
Nov 7	0	0	S	1	1	1	2	1	2	1	1	1	1	1	1	2	2	1	1	1	1	0	0	0	0	2	1.0	
Nov 8	0	S	1	1	3	3	3	1	0	0	1	1	2	2	2	3	3	3	4	4	2	2	3	0	4	1.9		
Nov 9	S	3	4	3	2	4	5	6	6	5	5	3	3	1	2	3	6	11	7	4	4	4	3	S	1	11	4.3	
Nov 10	4	2	3	2	2	3	4	4	5	3	2	2	1	1	2	3	4	5	4	4	4	5	S	4	1	5	3.2	
Nov 11	4	4	3	3	3	3	3	4	4	4	4	3	2	2	3	5	8	8	8	8	6	S	3	3	2	8	4.1	
Nov 12	2	3	3	3	3	3	3	2	2	3	2	2	3	5	6	8	8	7	7	7	S	7	6	5	2	8	4.3	
Nov 13	4	4	4	4	5	5	5	6	6	4	4	4	5	5	6	7	8	10	10	S	12	10	10	7	4	12	6.3	
Nov 14	7	7	12	14	8	5	5	9	10	7	6	4	3	3	4	7	7	11	S	6	NRM	NRM	7	9	3	14	7.2	
Nov 15	12	9	10	13	14	13	11	13	14	12	9	7	7	9	12	20	22	S	3	2	2	2	2	3	2	22	9.6	
Nov 16	5	5	4	3	2	1	1	2	1	0	1	1	1	1	1	1	S	2	2	1	1	1	0	0	0	5	1.6	
Nov 17	0	1	1	2	3	6	5	7	7	6	3	2	2	2	3	S	3	4	4	5	4	3	4	3	0	7	3.5	
Nov 18	4	4	4	4	5	4	3	3	4	3	3	2	2	2	S	1	2	2	2	3	3	1	2	3	1	5	2.8	
Nov 19	4	4	3	3	3	3	2	3	4	5	6	6	S	6	5	5	5	5	5	5	6	5	5	6	2	6	4.6	
Nov 20	8	5	4	4	2	3	2	3	3	3	4	4	S	2	3	3	3	6	7	5	6	19	20	24	2	24	6.2	
Nov 21	17	11	7	3	2	5	5	5	4	4	5	S	4	5	5	5	5	5	6	5	6	4	4	7	6	2	17	5.7
Nov 22	6	8	7	5	6	9	19	21	12	11	C	C	C	C	C	0	13	19	17	25	20	12	11	0	25	12.3		
Nov 23	13	14	15	12	7	5	7	9	9	S	6	4	3	2	3	7	5	5	5	6	4	4	4	5	2	15	6.7	
Nov 24	5	9	9	19	23	18	4	4	S	5	7	5	5	6	7	9	13	15	13	11	10	9	10	11	4	23	9.9	
Nov 25	9	8	8	10	13	16	15	S	15	14	9	5	4	3	2	3	2	3	2	2	3	2	2	3	2	16	6.7	
Nov 26	2	2	2	2	2	1	S	3	3	4	3	2	3	4	5	8	8	9	7	5	5	5	4	4	1	9	4.0	
Nov 27	5	4	3	4	5	S	9	11	17	8	7	6	6	9	6	7	4	4	3	3	2	2	2	2	2	17	5.6	
Nov 28	3	2	2	2	S	2	2	1	2	1	1	1	2	2	2	2	2	2	3	3	3	4	3	2	1	4	2.1	
Nov 29	1	1	1	S	1	0	1	1	1	1	2	1	1	1	1	1	1	1	2	2	2	2	1	1	0	2	1.2	
Nov 30	1	3	S	5	3	6	7	4	7	3	2	2	2	3	3	4	4	3	3	2	2	3	3	3	1	7	3.4	
Diurnal Maximum	17	14	15	19	23	18	19	21	17	14	9	7	7	9	12	20	22	15	19	17	25	20	20	24				
Diurnal Average	4.5	4.2	4.3	4.6	4.6	4.8	4.6	4.9	5.5	4.2	3.4	2.6	2.6	2.7	3.4	4.3	4.5	5.0	4.7	4.2	4.4	4.4	4.2	4.4				
C Monthly Calibration											S Daily Zero-Span Check											Q Quality Assurance						
K Collection Error											N No Data (Machine Not in Service)											Y Routine Maintenance						
X InValid Data (Equipment Malfunction /Recovery)											NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)											P Power Failure						
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																												
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																												

Timeseries Chart of Hourly Average for NO2 - Cold Lake South Station



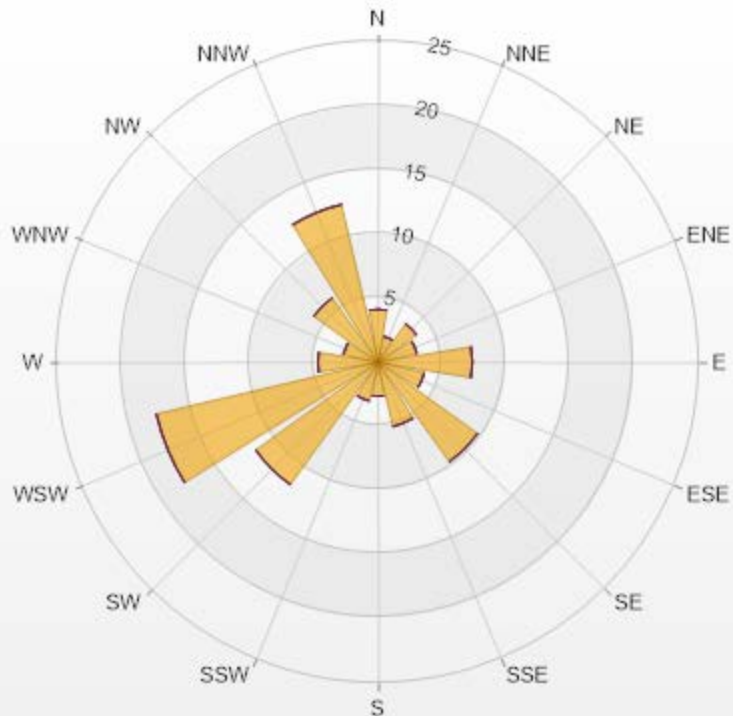
NO2[ppb] Histogram: Cold Lake South Monthly: 11-2022 1 Hr.



Classes	NO2
<=0	4.40%
0 - 10	87.54%
10 - 20	7.33%
20 - 30	0.73%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-NO2[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.72% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	4.11	0	0	0	0	4.11
NNE	2.05	0	0	0	0	2.05
NE	3.67	0	0	0	0	3.67
ENE	3.08	0	0	0	0	3.08
E	7.33	0	0	0	0	7.33
ESE	3.67	0	0	0	0	3.67
SE	9.53	0	0	0	0	9.53
SSE	5.13	0	0	0	0	5.13
S	2.64	0	0	0	0	2.64
SSW	3.08	0	0	0	0	3.08
SW	11.73	0	0	0	0	11.73
WSW	17.74	0	0	0	0	17.74
W	4.69	0	0	0	0	4.69
WNW	2.79	0	0	0	0	2.79
NW	6.16	0	0	0	0	6.16
NNW	12.61	0	0	0	0	12.61
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100  0-30

0  30-50

0  50-76

0  76-159

0  >159.0



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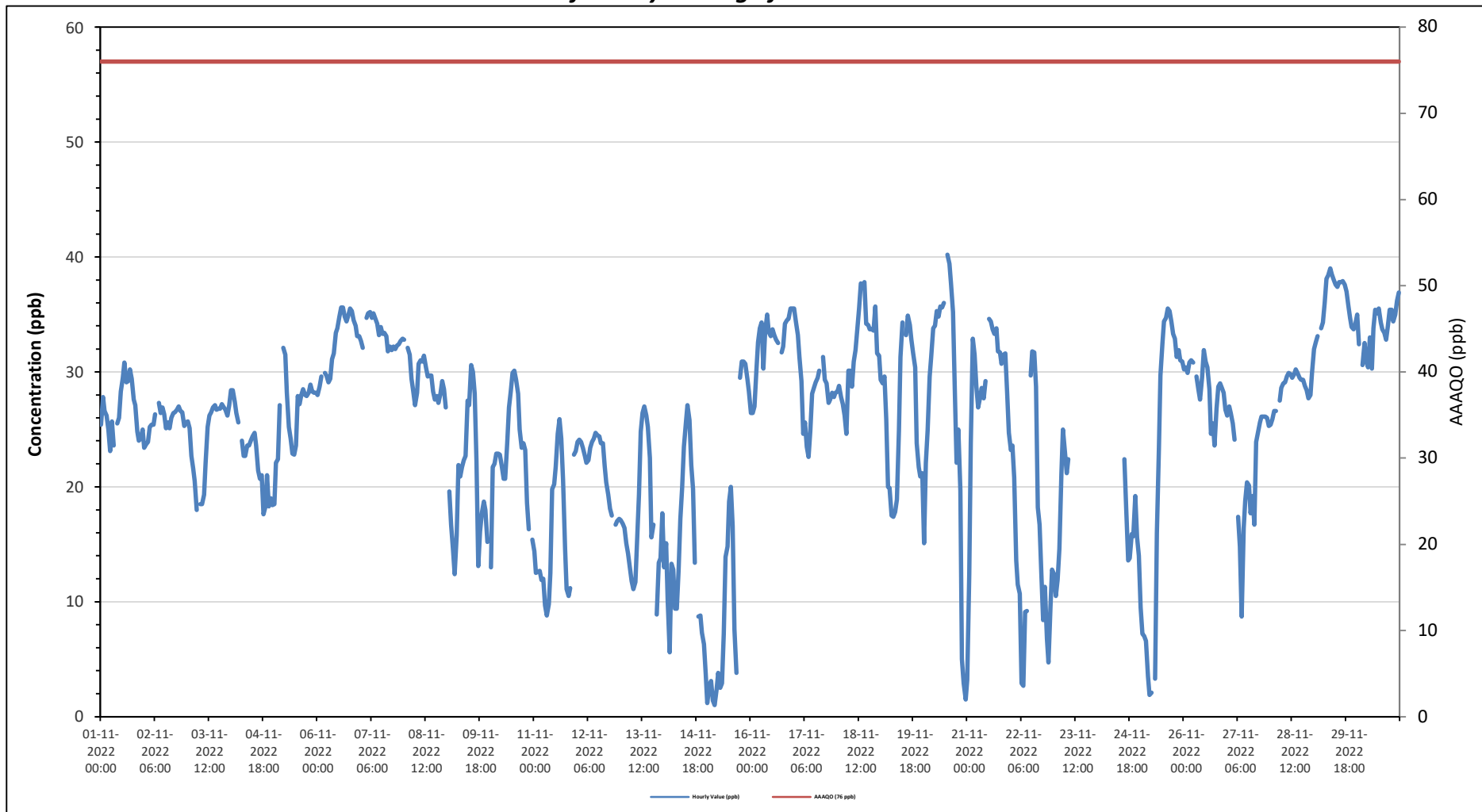
Cold Lake South Station - November 2022

Summary of Hourly Averages

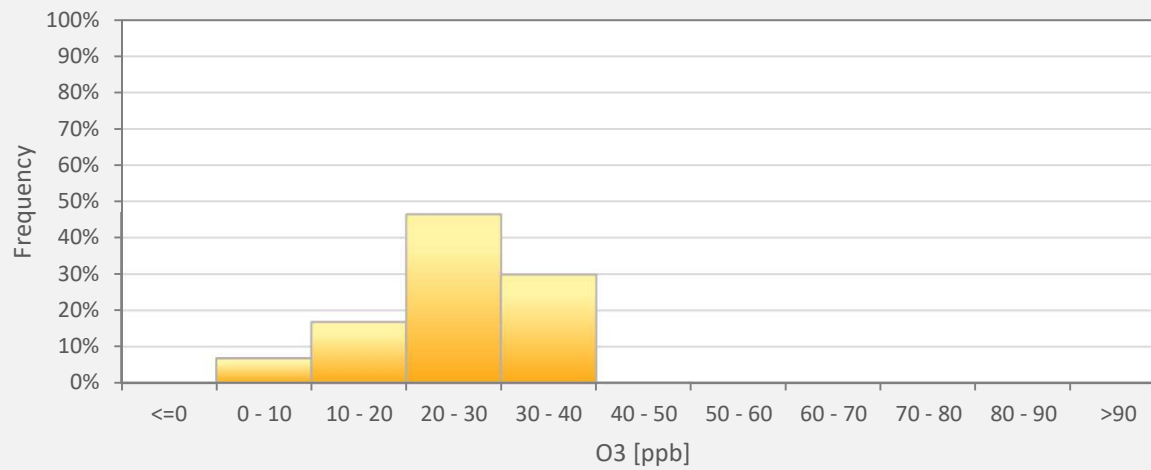
OZONE (O₃) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb																												
Number of 1-Hour Exceedances: 0																												
Maximum Hourly Value: 40.2 ppb on November 20 at hour 13													Hours in Service: 720															
Maximum Daily Value: 36.1 ppb on November 29													Hours of Data: 661															
Minimum Hourly Value: 1.0 ppb on November 15 at hour 4													Hours of Missing Data: 22															
Minimum Daily Value: 13.2 ppb on November 15													Hours of Calibration: 37															
Monthly Average: 25.1 ppb													Operational Uptime: 96.9															
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	25.4	27.8	26.6	26.2	25.0	23.1	25.7	23.6	S	25.5	26.0	28.3	29.5	30.8	29.1	29.2	30.2	29.4	27.6	27.1	24.8	24.0	24.2	25.0	23.1	30.8	26.7	
Nov 2	23.4	23.7	23.9	25.2	25.4	25.4	26.3	S	27.3	26.4	26.9	26.3	25.1	25.6	25.1	26.0	26.4	26.5	26.7	27.0	26.6	26.5	25.3	25.6	23.4	27.3	25.8	
Nov 3	25.7	25.1	22.7	21.6	20.5	18.0	S	18.5	18.5	19.3	22.1	25.2	26.2	26.5	26.9	27.1	26.7	26.8	26.8	27.2	26.9	26.7	26.2	27.1	18.0	27.2	24.3	
Nov 4	28.4	28.4	27.4	26.4	25.6	S	24.0	22.7	22.7	23.6	23.6	24.0	24.4	24.7	23.6	21.4	20.7	21.0	17.6	18.3	21.0	18.3	19.0	18.4	17.6	28.4	22.8	
Nov 5	18.5	22.1	22.4	27.1	S	32.1	31.5	28.2	25.2	24.2	22.9	22.8	23.6	27.9	27.2	28.0	28.5	28.0	27.9	28.2	28.9	28.3	28.2	28.2	18.5	32.1	26.5	
Nov 6	28.0	28.7	29.6	S	29.9	29.7	29.1	29.4	31.1	31.6	33.4	33.8	34.8	35.6	35.6	34.8	34.4	34.9	35.5	35.3	34.5	34.0	33.1	33.1	28.0	35.6	32.6	
Nov 7	32.7	32.1	S	34.7	35.1	35.2	34.7	35.1	34.6	34.2	33.2	33.9	33.3	33.4	33.1	31.8	32.2	31.9	32.2	32.0	32.3	32.4	32.7	32.9	31.8	35.2	33.3	
Nov 8	32.8	S	32.1	31.5	29.4	28.3	27.1	28.2	30.7	31.0	30.9	31.4	30.4	29.6	29.7	29.7	28.3	27.6	27.9	27.3	28.1	29.2	28.5	26.9	26.9	32.8	29.4	
Nov 9	S	19.6	16.7	14.4	12.4	15.8	21.9	20.9	21.7	22.3	22.7	27.5	27.1	30.6	30.0	28.1	22.2	13.1	16.1	17.7	18.7	18.0	15.2	S	12.4	30.6	20.6	
Nov 10	13.0	21.7	22.0	22.9	22.9	22.8	21.9	20.7	20.7	23.8	26.9	28.3	29.9	30.1	29.3	28.1	25.0	23.4	23.8	23.2	18.6	16.3	S	15.4	13.0	30.1	23.1	
Nov 11	14.4	12.5	12.6	12.7	11.9	12.0	9.7	8.8	9.8	12.5	19.8	20.2	21.7	24.6	25.9	24.2	20.6	14.6	11.1	10.5	11.2	S	22.8	23.1	8.8	25.9	16.0	
Nov 12	23.9	24.1	23.9	23.4	22.7	22.1	22.3	23.4	23.9	24.2	24.7	24.5	24.4	23.8	23.8	21.8	20.4	19.3	18.1	17.5	S	16.7	17.0	17.2	16.7	24.7	21.9	
Nov 13	17.1	16.8	16.4	15.1	14.2	13.0	11.8	11.1	11.7	15.0	19.3	24.8	26.4	27.0	26.2	25.2	22.5	15.6	16.7	S	8.9	13.4	13.8	17.7	8.9	27.0	17.4	
Nov 14	13.0	15.1	10.2	5.6	13.3	12.8	9.4	9.4	12.7	17.2	19.9	23.5	25.6	27.1	25.8	21.9	19.8	13.4	S	8.7	8.8	7.3	6.3	3.7	3.7	27.1	14.4	
Nov 15	1.2	2.7	3.1	1.4	1.0	2.4	3.8	2.5	2.9	7.2	13.9	14.8	18.7	20.0	16.6	7.6	3.8	S	29.5	30.9	30.9	30.7	29.4	28.3	1.0	30.9	13.2	
Nov 16	26.4	26.4	27.0	29.9	32.6	33.8	34.3	30.3	33.5	35.0	33.5	33.1	33.7	33.2	32.8	32.5	S	31.7	32.2	34.2	34.5	34.6	35.5	35.5	26.4	35.5	32.4	
Nov 17	35.5	34.4	33.2	31.3	29.2	24.6	25.6	23.5	22.6	24.9	28.1	28.6	29.1	29.5	30.1	S	31.3	29.3	29.0	27.3	27.6	28.2	27.8	28.2	22.6	35.5	28.6	
Nov 18	28.3	28.8	27.8	27.2	26.2	24.6	30.1	30.1	28.7	30.9	31.9	33.7	35.5	37.7	S	37.8	34.2	34.1	33.7	33.7	33.6	35.7	31.6	31.4	24.6	37.8	31.6	
Nov 19	29.3	29.0	29.6	25.9	20.0	19.9	17.5	17.4	17.8	18.9	24.9	31.3	34.3	S	33.2	34.9	34.1	32.8	31.6	30.4	23.8	21.7	20.9	21.2	17.4	34.9	26.1	
Nov 20	15.1	22.1	24.9	29.6	31.3	33.8	34.0	35.3	34.8	35.7	35.6	36.0	S	40.2	39.4	37.7	35.2	28.5	22.1	25.0	19.7	5.0	2.9	1.5	1.5	40.2	27.2	
Nov 21	3.2	12.4	23.8	32.9	31.5	28.7	26.9	27.8	28.6	27.7	29.2	S	34.6	34.4	33.7	33.3	33.8	31.8	31.7	30.7	31.5	31.6	28.3	24.7	3.2	34.6	28.4	
Nov 22	23.2	23.6	20.8	13.6	11.5	10.7	2.9	2.7	9.1	9.2	S	29.7	31.8	31.7	28.7	18.2	16.7	12.4	8.4	11.3	6.8	4.7	9.6	12.8	2.7	31.8	15.2	
Nov 23	12.4	10.5	11.9	14.6	21.2	25.0	23.0	21.2	22.4	S	C	C	C	C	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	10.5	25.0	-	
Nov 24	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	C	C	C	C	22.4	18.2	13.6	13.8	15.9	15.7	19.2	15.6	14.0	13.6	22.4	-	
Nov 25	9.5	7.2	7.0	6.6	3.5	1.9	2.1	S	3.3	16.0	23.3	29.7	32.5	34.4	34.7	35.5	35.3	34.4	33.3	32.9	31.3	31.9	31.0	30.9	1.9	35.5	22.1	
Nov 26	30.2	30.4	29.9	30.8	31.0	30.8	S	29.6	28.4	27.6	29.5	31.9	30.9	30.4	28.5	24.6	25.5	23.6	26.8	28.7	29.0	28.6	28.2	26.7	23.6	31.9	28.8	
Nov 27	26.2	27.0	26.4	25.5	24.1	S	17.4	14.8	8.7	16.4	18.8	20.4	20.1	17.7	19.2	16.7	23.9	24.7	25.6	26.1	26.1	26.0	25.3	8.7	27.0	21.9		
Nov 28	25.4	25.9	26.6	26.6	S	27.5	28.6	29.0	29.1	29.6	29.9	29.8	29.5	29.8	30.2	29.9	29.5	29.3	29.3	28.8	28.4	27.7	28.0	29.9	25.4	30.2	28.6	
Nov 29	32.0	32.6	33.1	S	33.8	34.3	36.0	38.1	38.4	39.0	38.5	38.0	37.6	37.4	37.8	37.8	37.9	37.6	37.0	35.8	34.7	33.9	33.7	34.2	32.0	39.0	36.1	
Nov 30	35.0	32.4	S	30.6	32.5	30.9	30.4	33.0	30.3	33.8	35.4	35.1	35.5	34.3	33.7	33.4	32.8	34.0	35.4	34.4	35.4	34.4	35.0	36.2	36.9	30.3	36.9	33.8
Diurnal Maximum	35.5	34.4	33.2	34.7	35.1	35.2	36.0	38.1	38.4	39.0	38.5	38.0	37.6	40.2	39.4	37.8	37.9	37.6	37.0	35.8	34.7	35.7	36.2	36.9				
Diurnal Average	22.5	23.0	22.7	22.7	22.9	22.9	22.5	22.8	22.5	24.4	26.8	28.4	29.1	29.9	29.3	27.8	26.8	25.8	26.0	26.0	24.9	24.5	24.2	24.1				
C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance									
K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance									
X	Invalid Data (Equipment Malfunction/Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)								P	Power Failure									
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																												
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																												

Timeseries Chart of Hourly Average for O3 - Cold Lake South Station



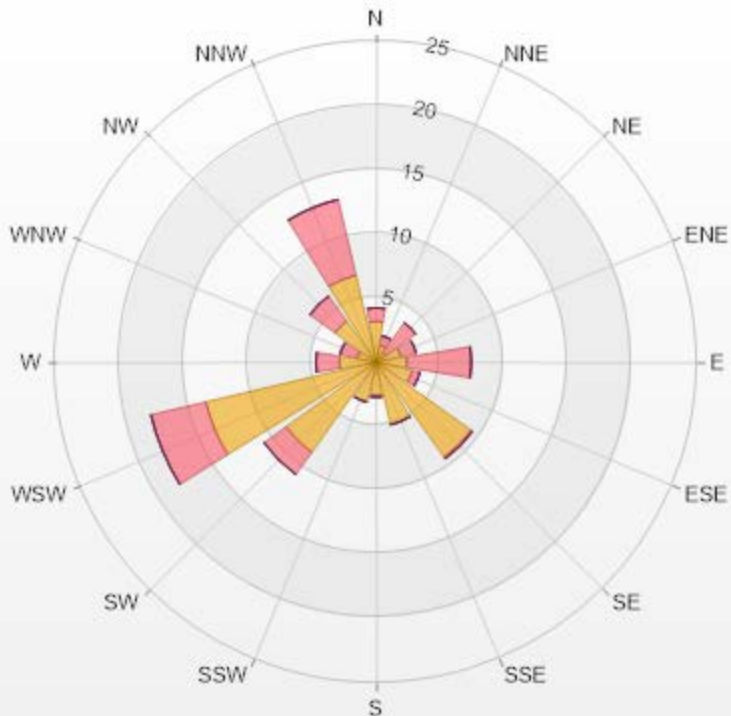
O3[ppb] Histogram: Cold Lake South Monthly: 11-2022 1 Hr.



Classes	O3
<=0	0.00%
0 - 10	6.81%
10 - 20	16.79%
20 - 30	46.44%
30 - 40	29.80%
40 - 50	0.15%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-O3[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 91.81% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	3.18	1.06	0	0	0	4.24
NNE	1.36	0.76	0	0	0	2.12
NE	0.91	2.87	0	0	0	3.78
ENE	1.97	1.21	0	0	0	3.18
E	2.42	4.99	0	0	0	7.41
ESE	2.87	0.61	0	0	0	3.48
SE	9.08	0.15	0	0	0	9.23
SSE	4.99	0	0	0	0	4.99
S	2.57	0.15	0	0	0	2.72
SSW	3.18	0	0	0	0	3.18
SW	8.62	2.12	0	0	0	10.74
WSW	13.62	4.39	0	0	0	18.01
W	2.87	1.82	0	0	0	4.69
WNW	1.51	1.36	0	0	0	2.87
NW	3.93	2.42	0	0	0	6.35
NNW	6.96	6.05	0	0	0	13.01
Summary	70.04	29.96	0	0	0	100



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% Icon Classes (ppb)

70 0-30

30 30-50

0 50-76

0 76-159

0 >159.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - November 2022

Summary of Hourly Averages

TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	2.46 ppm on November 13 at hour 8	Hours in Service:	720
Maximum Daily Value:	2.27 ppm on November 12	Hours of Data:	682
Minimum Hourly Value:	1.90 ppm on November 5 at hour 5	Hours of Missing Data:	0
Minimum Daily Value:	1.93 ppm on November 2	Hours of Calibration:	38
Monthly Average:	2.04 ppm	Operational Uptime:	100.0

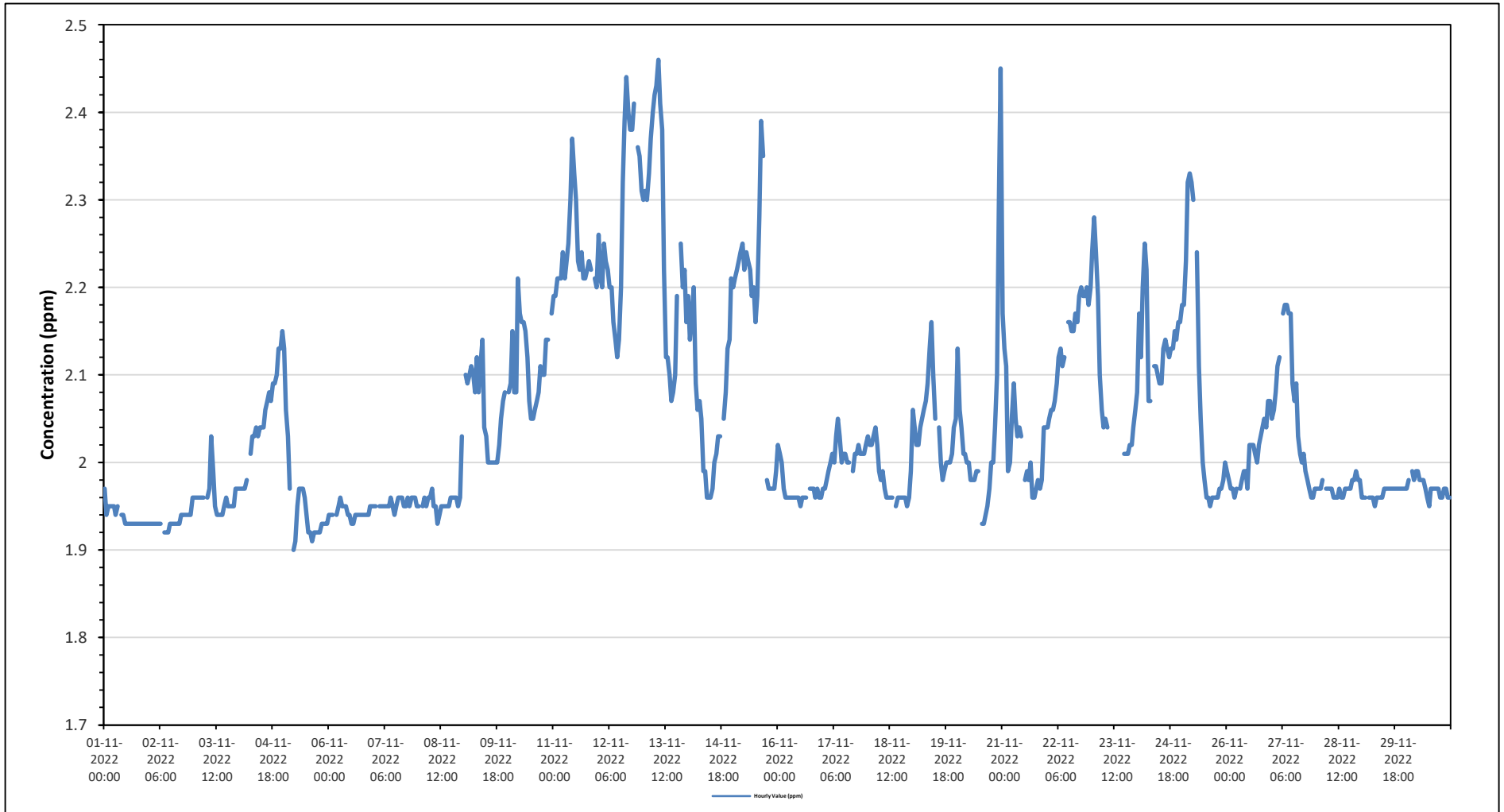
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Nov 1	1.97	1.94	1.95	1.95	1.95	1.95	1.94	1.95	S	1.94	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.97	1.94	1.94
Nov 2	1.93	1.93	1.93	1.93	1.93	1.93	1.93	S	1.92	1.92	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.96	1.92	1.96	1.93
Nov 3	1.96	1.96	1.96	1.96	1.96	1.96	S	1.96	1.97	2.03	1.99	1.95	1.94	1.94	1.94	1.94	1.95	1.96	1.95	1.95	1.95	1.95	1.97	1.97	1.94	2.03	1.96	1.96
Nov 4	1.97	1.97	1.97	1.97	1.98	S	2.01	2.03	2.03	2.04	2.03	2.04	2.04	2.04	2.06	2.07	2.08	2.07	2.09	2.09	2.10	2.13	2.13	2.15	1.97	2.15	2.05	2.05
Nov 5	2.13	2.06	2.03	1.97	S	1.90	1.91	1.95	1.97	1.97	1.97	1.96	1.94	1.92	1.92	1.91	1.92	1.92	1.92	1.92	1.93	1.93	1.93	1.93	1.90	2.13	1.95	1.95
Nov 6	1.94	1.94	1.94	S	1.94	1.95	1.96	1.95	1.95	1.95	1.94	1.94	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.93	1.96	1.94	1.94
Nov 7	1.95	1.95	S	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.95	1.94	1.95	1.96	1.95	1.95	1.96	1.95	1.96	1.96	1.96	1.96	1.94	1.96	1.95	1.95
Nov 8	1.95	S	1.95	1.96	1.95	1.96	1.96	1.96	1.97	1.95	1.95	1.93	1.94	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.95	1.96	1.93	2.03	1.96	1.96
Nov 9	S	2.10	2.09	2.10	2.11	2.10	2.08	2.12	2.08	2.11	2.14	2.04	2.03	2.00	2.00	2.00	2.00	2.00	2.00	2.02	2.05	2.07	2.08	S	2.00	2.14	2.06	2.06
Nov 10	2.08	2.09	2.15	2.08	2.08	2.21	2.17	2.16	2.16	2.15	2.12	2.07	2.05	2.05	2.06	2.07	2.08	2.11	2.10	2.10	2.14	2.14	S	2.17	2.05	2.21	2.11	2.11
Nov 11	2.19	2.19	2.21	2.21	2.21	2.24	2.21	2.23	2.25	2.30	2.37	2.33	2.30	2.23	2.22	2.24	2.21	2.22	2.23	2.22	S	2.21	2.20	2.20	2.19	2.37	2.24	2.24
Nov 12	2.26	2.21	2.20	2.25	2.23	2.22	2.20	2.20	2.16	2.14	2.12	2.14	2.20	2.32	2.39	2.44	2.40	2.38	2.38	2.41	S	2.36	2.35	2.31	2.12	2.44	2.27	2.27
Nov 13	2.30	2.31	2.30	2.33	2.37	2.40	2.42	2.43	2.46	2.41	2.38	2.22	2.12	2.12	2.10	2.07	2.08	2.10	2.19	S	2.25	2.20	2.22	2.16	2.07	2.46	2.26	2.26
Nov 14	2.19	2.14	2.17	2.20	2.09	2.06	2.07	2.05	1.99	1.99	1.96	1.96	1.96	1.97	2.00	2.01	2.03	2.03	S	2.05	2.08	2.13	2.14	2.21	1.96	2.21	2.06	2.06
Nov 15	2.20	2.21	2.22	2.23	2.24	2.25	2.22	2.24	2.23	2.22	2.19	2.20	2.16	2.19	2.28	2.39	2.35	S	1.98	1.97	1.97	1.97	1.97	1.99	1.97	2.39	2.17	2.17
Nov 16	2.02	2.01	2.00	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.96	1.96	1.96	S	1.97	1.97	1.97	1.96	1.97	1.96	1.96	1.95	2.02	1.97	1.97
Nov 17	1.97	1.97	1.98	1.99	2.00	2.01	2.00	2.03	2.05	2.03	2.00	2.01	2.01	2.00	2.00	S	1.99	2.01	2.01	2.02	2.01	2.01	2.01	2.02	1.97	2.05	2.01	2.01
Nov 18	2.03	2.02	2.02	2.03	2.04	2.02	1.99	1.98	1.99	1.97	1.96	1.96	1.96	S	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.96	1.99	1.95	2.04	1.98	1.98
Nov 19	2.06	2.04	2.02	2.02	2.04	2.05	2.06	2.06	2.07	2.09	2.13	2.16	2.10	2.05	S	2.04	2.00	1.98	1.99	2.00	2.00	2.01	2.04	2.05	1.98	2.16	2.04	2.04
Nov 20	2.13	2.06	2.04	2.01	2.01	2.00	2.00	1.98	1.98	1.98	1.99	1.99	S	1.93	1.93	1.94	1.95	1.97	2.00	2.00	2.04	2.10	2.29	2.45	1.93	2.45	2.03	2.03
Nov 21	2.17	2.13	2.11	1.99	2.00	2.05	2.09	2.05	2.03	2.04	2.03	S	1.98	1.99	1.98	2.00	1.96	1.96	1.97	1.98	1.97	1.98	2.04	2.04	1.96	2.17	2.02	2.02
Nov 22	2.04	2.05	2.06	2.06	2.07	2.09	2.12	2.13	2.11	2.12	S	2.16	2.16	2.15	2.15	2.17	2.16	2.19	2.20	2.19	2.19	2.20	2.18	2.20	2.04	2.20	2.14	2.14
Nov 23	2.24	2.28	2.24	2.19	2.10	2.06	2.04	2.05	2.04	S	C	C	C	C	C	C	C	C	2.01	2.01	2.01	2.02	2.02	2.04	2.06	2.01	2.28	-
Nov 24	2.08	2.17	2.12	2.20	2.25	2.22	2.07	2.07	S	2.11	2.11	2.10	2.09	2.09	2.13	2.14	2.13	2.12	2.13	2.13	2.15	2.14	2.16	2.16	2.07	2.25	2.13	2.13
Nov 25	2.18	2.18	2.23	2.32	2.33	2.32	2.30	S	2.24	2.11	2.05	2.00	1.98	1.96	1.96	1.95	1.96	1.96	1.96	1.96	1.97	1.97	1.98	2.00	1.95	2.33	2.08	2.08
Nov 26	1.99	1.98	1.97	1.97	1.96	1.97	S	1.97	1.98	1.99	1.99	1.97	2.02	2.02	2.02	2.01	2.00	2.02	2.03	2.04	2.05	2.04	2.07	2.07	1.96	2.07	2.01	2.01
Nov 27	2.05	2.06	2.08	2.11	2.12	S	2.17	2.18	2.18	2.17	2.17	2.09	2.07	2.09	2.03	2.01	2.00	2.01	1.99	1.98	1.97	1.96	1.96	1.97	1.96	2.18	2.06	2.06
Nov 28	1.97	1.97	1.97	1.98	S	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.97	1.96	1.96	1.97	1.97	1.97	1.97	1.98	1.98	1.99	1.98	1.98	1.96	1.99	1.97	1.97
Nov 29	1.96	1.96	1.96	S	1.96	1.96	1.96	1.95	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.95	1.97	1.96	1.96
Nov 30	1.97	1.98	S	1.99	1.98	1.99	1.99	1.98	1.98	1.98	1.98	1.97	1.96	1.95	1.97	1.97	1.97	1.97	1.96	1.96	1.97	1.97	1.96	1.96	1.95	1.99	1.97	1.97
Diurnal Maximum	2.30	2.31	2.30	2.33	2.37	2.40	2.42	2.43	2.46	2.41	2.38	2.33	2.30	2.32	2.39	2.44	2.40	2.38	2.38	2.41	2.25	2.36	2.35	2.45				
Diurnal Average	2.06	2.06	2.07	2.07	2.06	2.06	2.06	2.06	2.06	2.05	2.05	2.03	2.02	2.02	2.03	2.03	2.03	2.02	2.02	2.02	2.02	2.03	2.05	2.06				

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

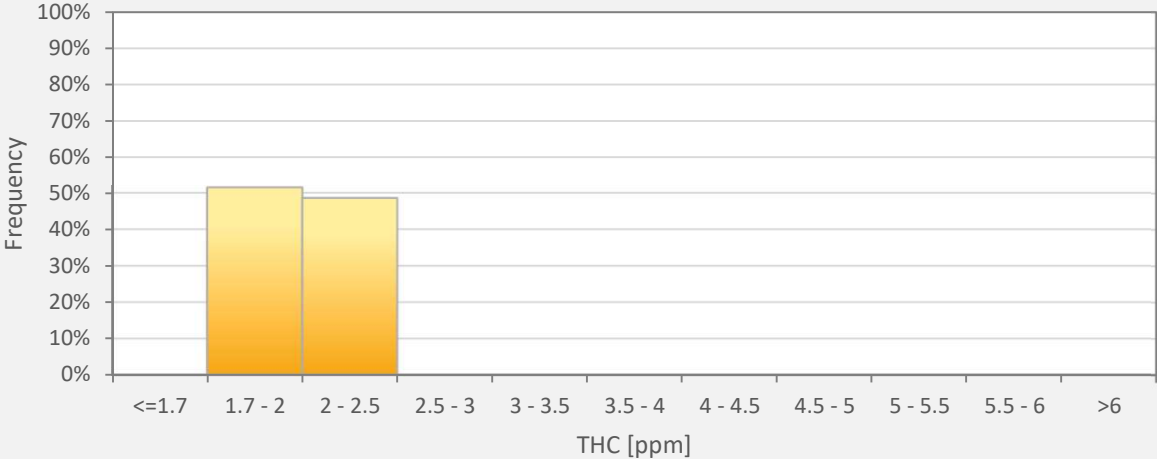
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

Timeseries Chart of Hourly Average for THC - Cold Lake South Station



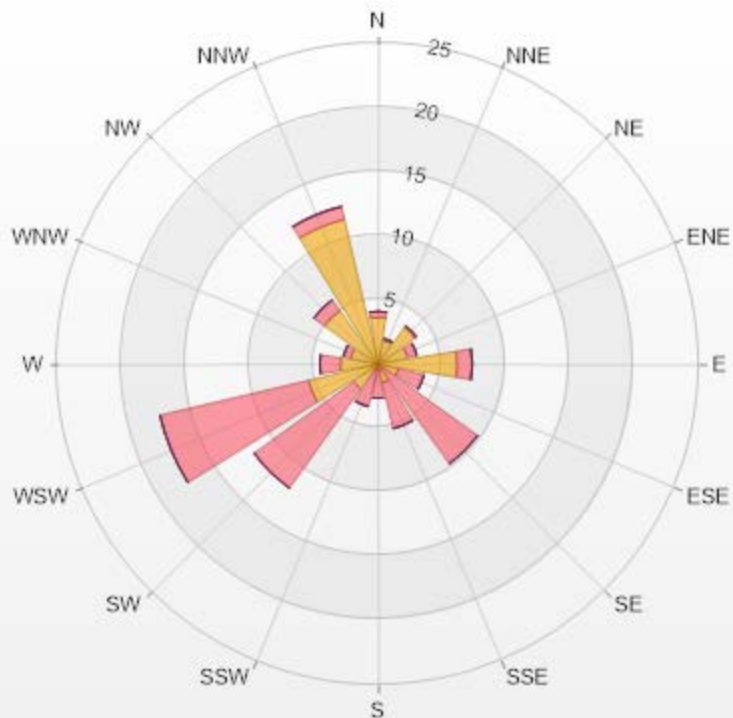
THC55[ppm] Histogram: Cold Lake South Monthly: 11-2022 1 Hr.



Classes	THC55
<=1.7	0.00%
1.7 - 2	51.47%
2 - 2.5	48.53%
2.5 - 3	0.00%
3 - 3.5	0.00%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-THC55[ppm] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.72% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	3.67	0.44	0	0	0	4.11
NNE	1.91	0.15	0	0	0	2.06
NE	3.52	0.15	0	0	0	3.67
ENE	2.35	0.73	0	0	0	3.08
E	6.16	1.17	0	0	0	7.33
ESE	1.61	2.05	0	0	0	3.66
SE	0.44	9.09	0	0	0	9.53
SSE	1.47	3.67	0	0	0	5.14
S	0.15	2.49	0	0	0	2.64
SSW	0.44	2.93	0	0	0	3.37
SW	2.35	9.53	0	0	0	11.88
WSW	5.57	11.88	0	0	0	17.45
W	2.93	1.61	0	0	0	4.54
WNW	2.2	0.59	0	0	0	2.79
NW	5.13	1.03	0	0	0	6.16
NNW	11.58	1.03	0	0	0	12.61
Summary	51.48	48.54	0	0	0	100



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% Icon Classes (ppm)

51

0-2

49

2-5

0

5-10

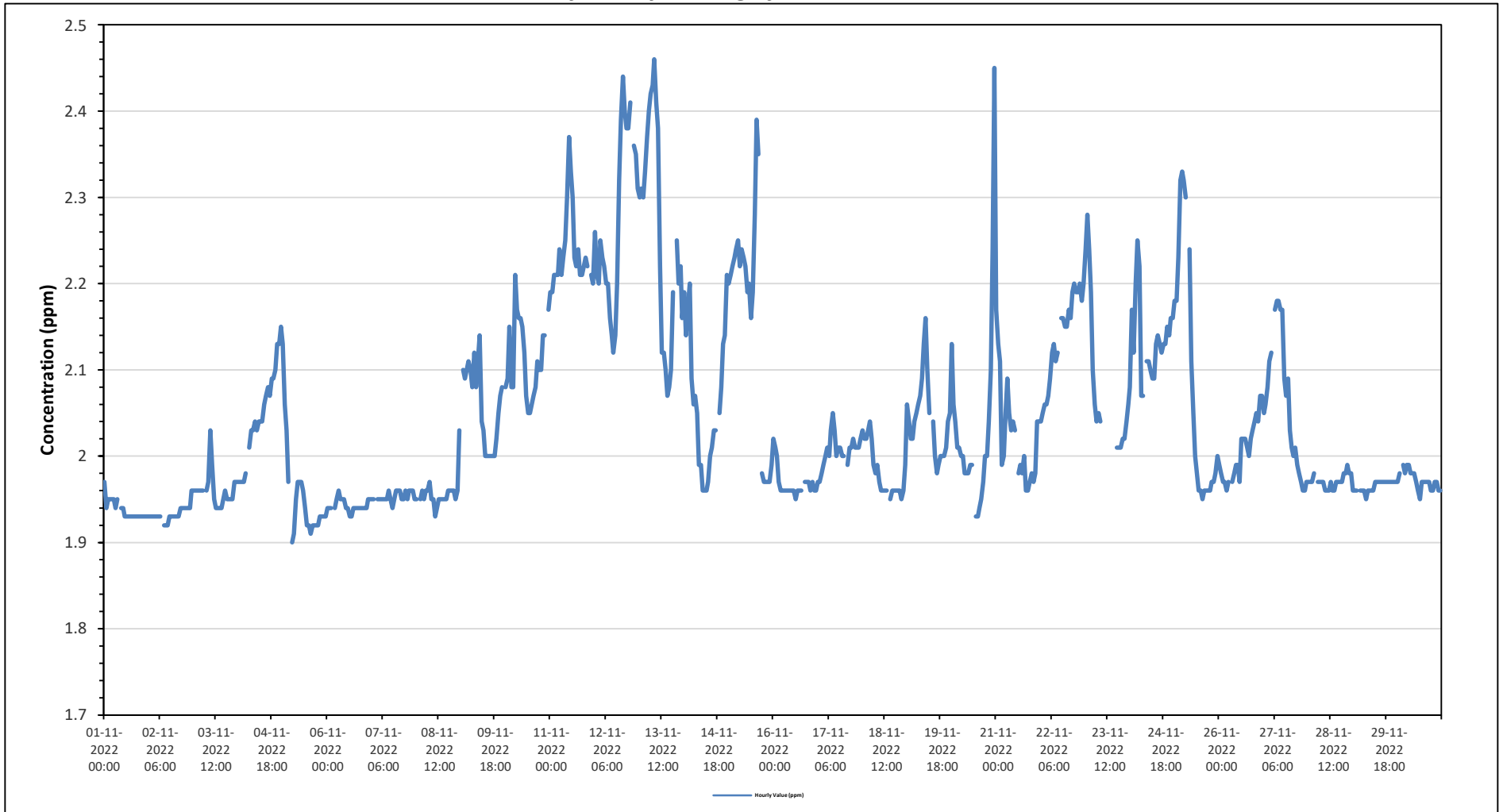
0

10-40

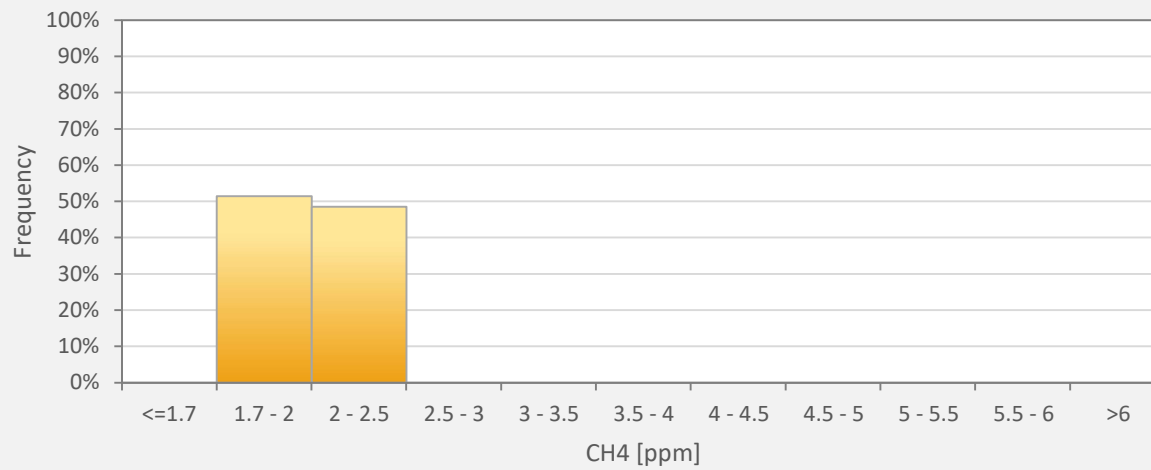
0

>40.0

Timeseries Chart of Hourly Average for CH4 - Cold Lake South Station



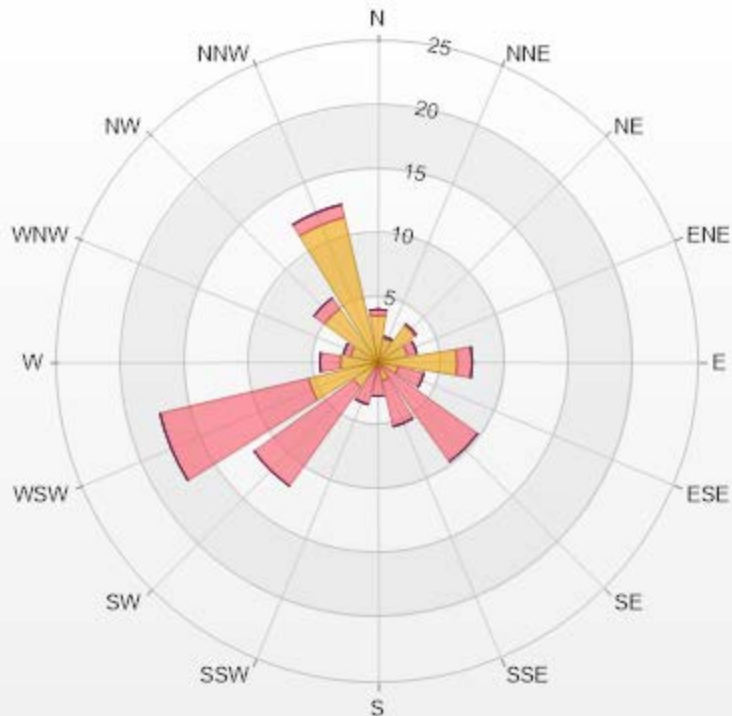
CH4[ppm] Histogram: Cold Lake South Monthly: 11-2022 1 Hr.



Classes	CH4
<=1.7	0.00%
1.7 - 2	51.47%
2 - 2.5	48.53%
2.5 - 3	0.00%
3 - 3.5	0.00%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-CH4[ppm] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.72% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	3.67	0.44	0	0	0	4.11
NNE	1.91	0.15	0	0	0	2.06
NE	3.52	0.15	0	0	0	3.67
ENE	2.35	0.73	0	0	0	3.08
E	6.16	1.17	0	0	0	7.33
ESE	1.61	2.05	0	0	0	3.66
SE	0.44	9.09	0	0	0	9.53
SSE	1.47	3.67	0	0	0	5.14
S	0.15	2.49	0	0	0	2.64
SSW	0.44	2.93	0	0	0	3.37
SW	2.35	9.53	0	0	0	11.88
WSW	5.57	11.88	0	0	0	17.45
W	2.93	1.61	0	0	0	4.54
WNW	2.2	0.59	0	0	0	2.79
NW	5.13	1.03	0	0	0	6.16
NNW	11.58	1.03	0	0	0	12.61
Summary	51.48	48.54	0	0	0	100



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% Icon Classes (ppm)

51

0-2

49

2-5

0

5-10

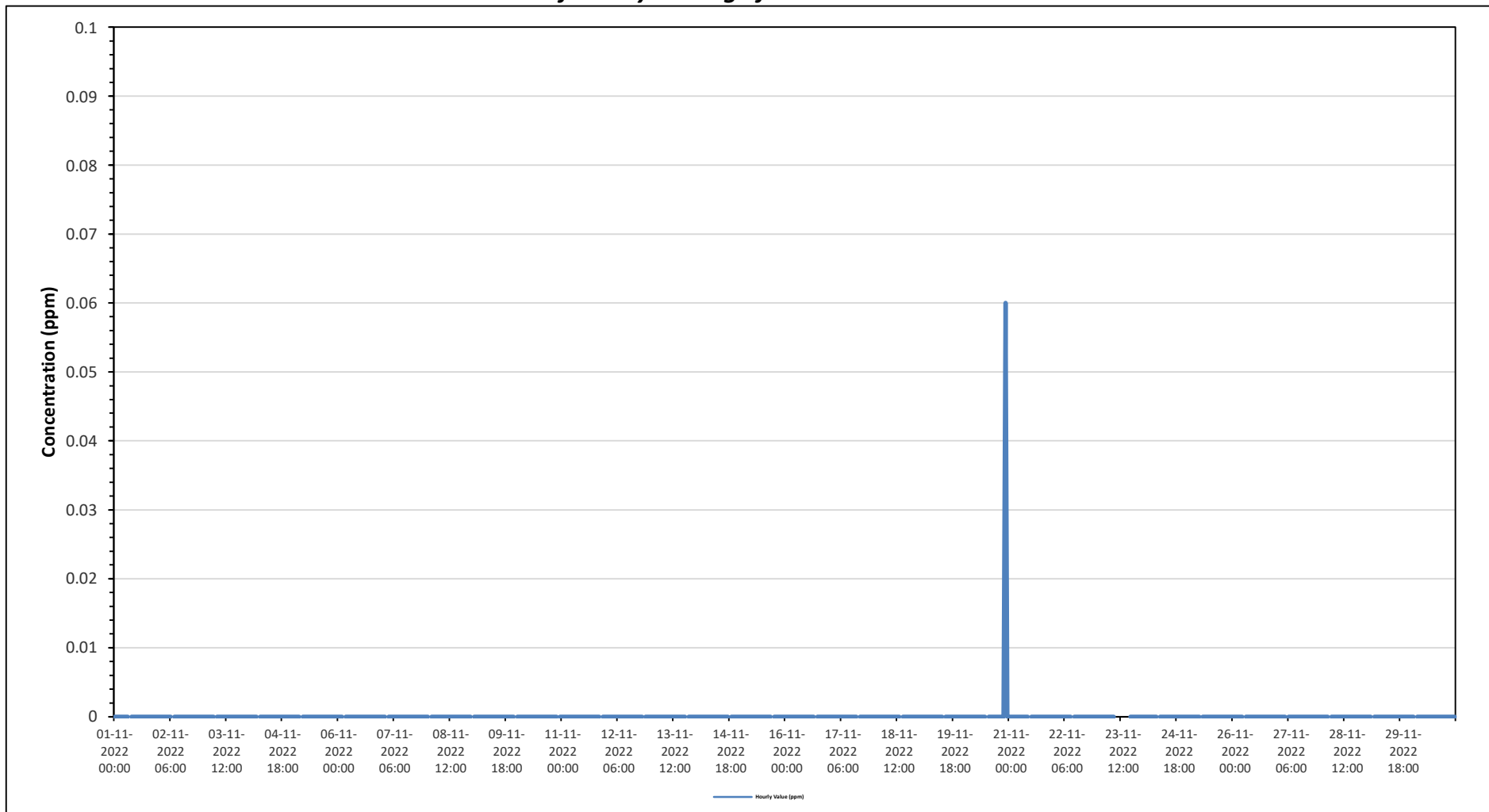
0

10-20

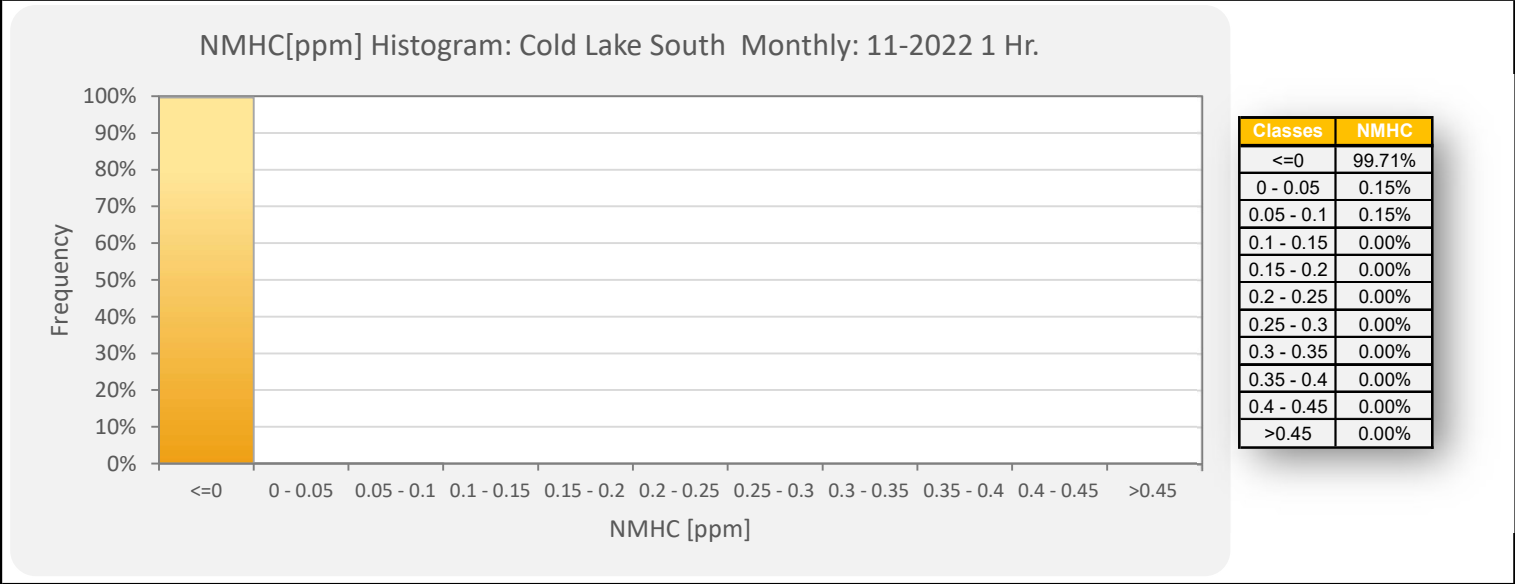
0

>20.0

Timeseries Chart of Hourly Average for NMHC - Cold Lake South Station

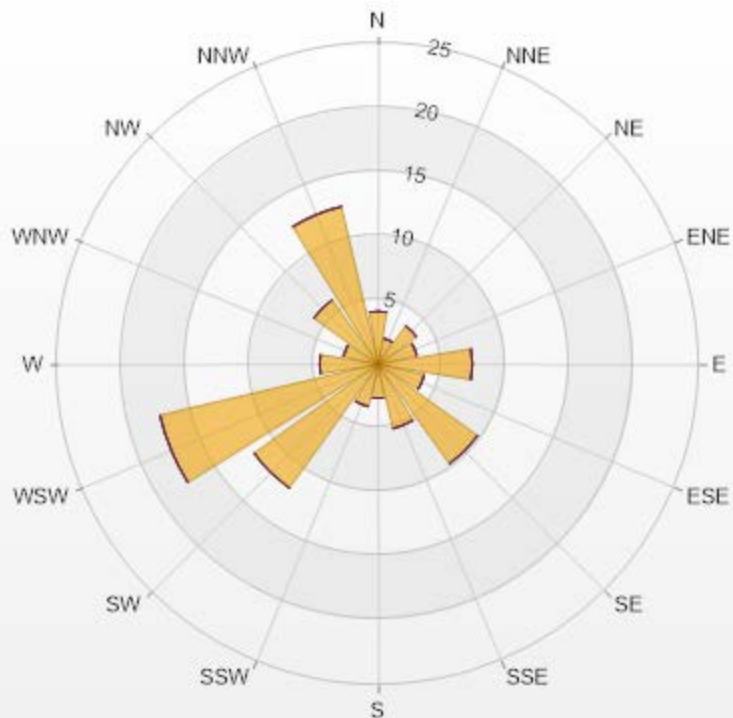


NMHC[ppm] Histogram: Cold Lake South Monthly: 11-2022 1 Hr.



Wind: Cold Lake South Poll.: Cold Lake South-NMHC[ppm] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.72% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	4.11	0	0	0	0	4.11
NNE	2.05	0	0	0	0	2.05
NE	3.67	0	0	0	0	3.67
ENE	3.08	0	0	0	0	3.08
E	7.33	0	0	0	0	7.33
ESE	3.67	0	0	0	0	3.67
SE	9.53	0	0	0	0	9.53
SSE	5.13	0	0	0	0	5.13
S	2.64	0	0	0	0	2.64
SSW	3.37	0	0	0	0	3.37
SW	11.88	0	0	0	0	11.88
WSW	17.45	0	0	0	0	17.45
W	4.55	0	0	0	0	4.55
WNW	2.79	0	0	0	0	2.79
NW	6.16	0	0	0	0	6.16
NNW	12.61	0	0	0	0	12.61
Summary	100	0	0	0	0	100



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% Icon Classes (ppm)

100  0-0.1

0  0.1-0.3

0  0.3-1

0  1-2

0  >2.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - November 2022

Summary of Hourly Averages

PARTICULATE MATTER 2.5 (PM_{2.5}) in µg/m³

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: 1

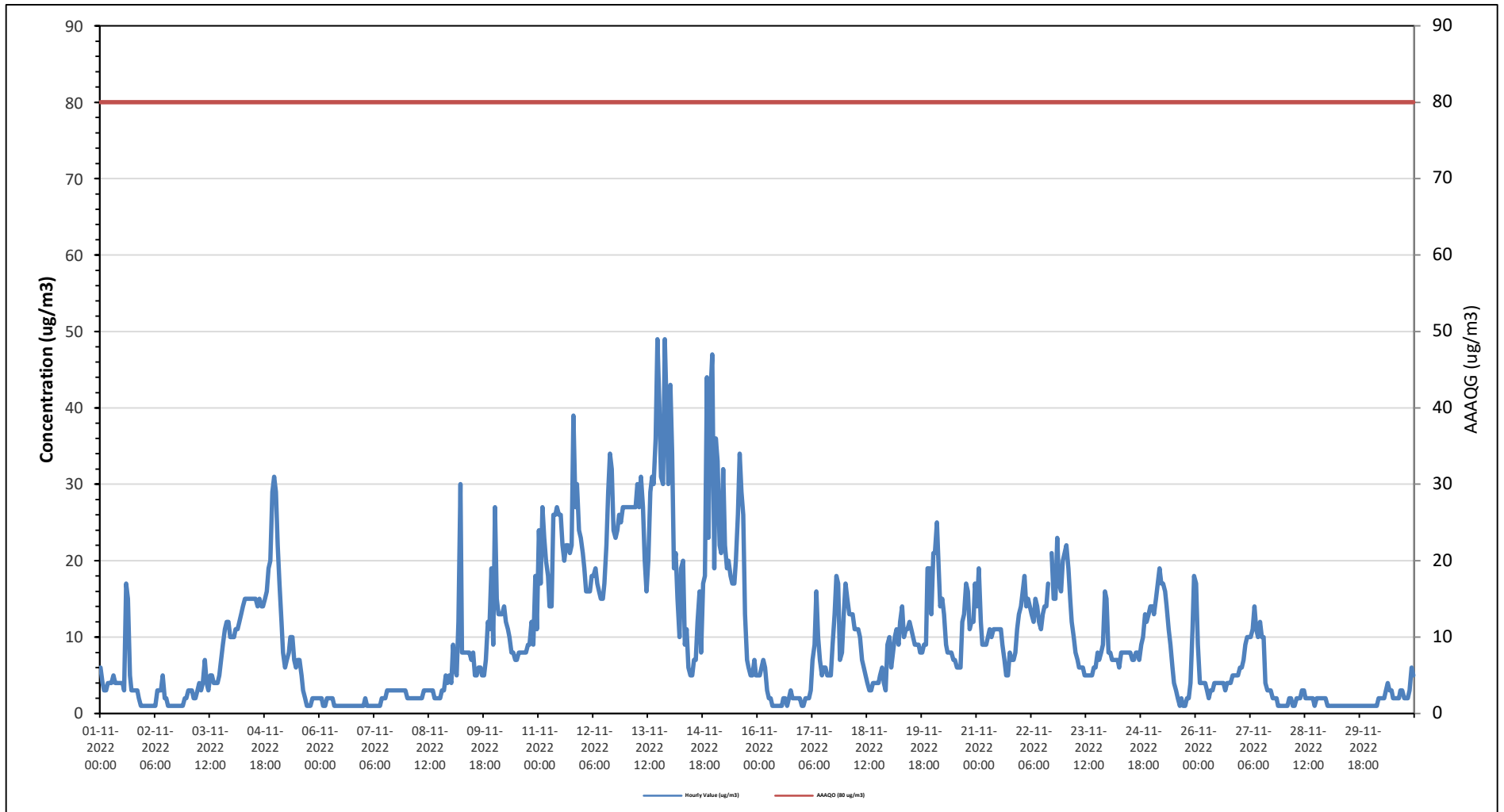
Maximum Hourly Value:	49 µg/m ³ on November 13 at hour 17	Hours in Service:	720
Maximum Daily Value:	30.4 µg/m ³ on November 13	Hours of Data:	719
Minimum Hourly Value:	1 µg/m ³ on November 1 at hour 22	Hours of Missing Data:	0
Minimum Daily Value:	1 µg/m ³ on November 29	Hours of Calibration:	1
Monthly Average:	9.5 µg/m ³	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	6	4	3	3	4	4	4	5	4	4	4	4	3	17	15	5	3	3	3	3	2	1	1	1	1	17	4.5	
Nov 2	1	1	1	1	1	1	1	3	3	3	5	2	2	1	1	1	1	1	1	1	1	2	2	2	1	5	1.6	
Nov 3	3	3	3	2	2	3	4	3	4	7	4	3	5	5	4	4	4	5	7	9	11	12	12	10	2	12	5.4	
Nov 4	10	10	11	11	12	13	14	15	15	15	15	15	15	14	15	14	14	15	16	19	20	29	31	10	31	15.5		
Nov 5	29	22	17	12	8	6	7	8	10	10	7	6	7	7	5	3	2	1	1	1	2	2	2	2	1	29	7.4	
Nov 6	2	2	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.3	
Nov 7	1	2	1	1	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3	3	3	3	3	3	1	3	2.1	
Nov 8	2	2	2	2	2	2	2	2	3	3	3	3	3	3	2	2	2	2	3	3	5	4	5	2	5	2.7		
Nov 9	4	9	6	5	12	30	8	8	8	8	8	7	8	5	5	6	6	5	5	7	12	11	19	9	4	30	8.8	
Nov 10	27	15	13	13	13	14	12	11	10	8	8	7	7	8	8	8	8	8	9	9	12	9	18	11	7	27	11.1	
Nov 11	24	17	27	23	20	18	14	14	26	26	27	26	26	22	20	22	22	21	22	39	27	30	24	23	14	39	23.3	
Nov 12	21	19	16	16	16	18	18	19	17	16	15	15	17	22	29	34	32	24	23	24	26	25	27	27	15	34	21.5	
Nov 13	27	27	27	27	27	30	27	31	27	20	16	20	29	31	30	36	49	41	31	30	49	40	30	16	49	30.4		
Nov 14	43	34	19	21	15	10	19	20	9	11	6	5	5	7	7	12	16	8	17	18	44	23	42	47	5	47	19.1	
Nov 15	19	36	33	22	21	32	22	19	20	18	17	17	20	26	34	29	26	13	7	6	5	5	7	5	5	36	19.1	
Nov 16	5	5	6	7	6	3	2	2	1	1	1	1	1	2	2	2	1	2	3	2	2	2	2	2	1	7	2.6	
Nov 17	1	1	2	2	2	3	7	9	16	10	7	5	6	6	5	5	5	9	13	18	17	7	8	13	1	18	7.4	
Nov 18	17	15	13	13	13	11	11	10	7	6	5	4	3	3	4	4	4	4	4	5	6	4	3	9	3	17	7.7	
Nov 19	10	6	8	10	11	9	12	14	10	11	12	11	10	9	9	9	8	8	8	9	9	19	19	13	6	19	10.7	
Nov 20	21	21	25	19	14	15	13	9	8	8	8	7	7	6	6	6	12	13	17	16	11	12	12	17	6	25	12.6	
Nov 21	14	19	12	9	9	9	10	11	10	11	11	11	11	9	7	5	5	8	7	7	8	11	13	5	19	9.9		
Nov 22	14	16	18	14	15	14	13	12	15	14	12	11	13	14	14	17	C	21	15	15	23	17	16	20	11	23	15.3	
Nov 23	21	22	19	15	12	10	8	7	6	6	5	5	5	5	5	6	6	6	8	7	8	9	16	15	5	22	9.7	
Nov 24	8	8	7	7	7	7	6	8	8	8	8	8	8	7	7	8	8	7	9	10	13	12	13	14	6	14	8.6	
Nov 25	14	13	15	17	19	17	17	16	14	11	9	6	4	3	2	1	2	1	1	2	2	4	11	18	1	19	9.1	
Nov 26	17	9	4	4	4	4	3	2	3	3	4	4	4	4	4	3	4	4	4	4	5	5	5	2	2	17	4.7	
Nov 27	6	6	7	9	10	10	10	11	14	11	10	12	10	10	4	3	3	3	2	2	2	1	1	1	1	1	14	6.6
Nov 28	1	1	1	2	2	1	1	2	2	2	3	3	2	2	2	2	2	1	2	2	2	2	2	2	1	3	1.8	
Nov 29	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	
Nov 30	1	1	1	1	2	2	2	2	3	4	3	2	2	2	2	2	3	3	2	2	2	3	6	5	1	6	2.5	
Diurnal Maximum	43	36	33	27	27	32	30	27	31	27	27	26	26	29	34	34	36	49	41	39	44	49	42	47				
Diurnal Average	12.3	11.6	10.6	9.7	9.4	9.9	9.1	9.1	9.4	8.9	8.1	7.4	7.7	8.1	8.6	8.7	8.3	8.2	8.5	9.1	10.3	10.1	11.9	11.8				

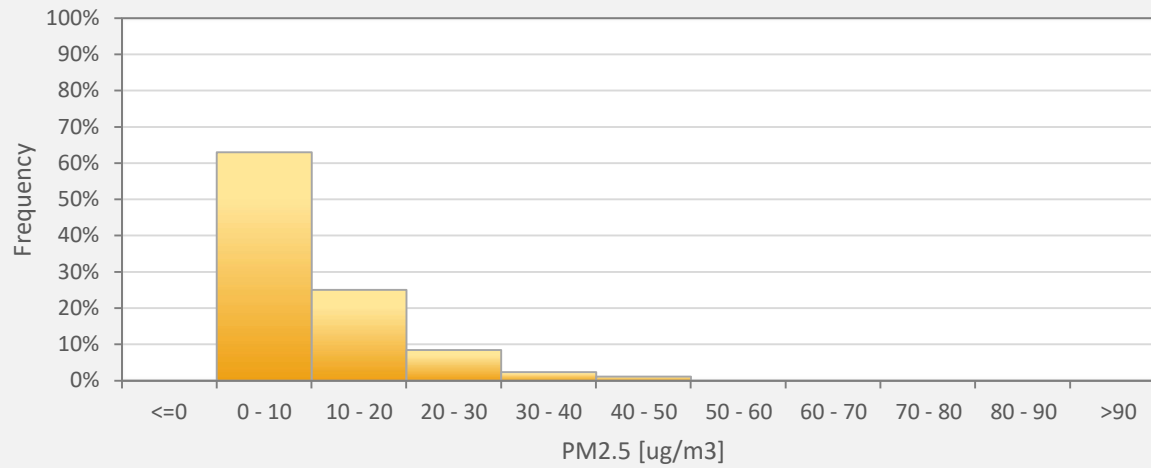
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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

Timeseries Chart of Hourly Average for PM2.5 - Cold Lake South Station



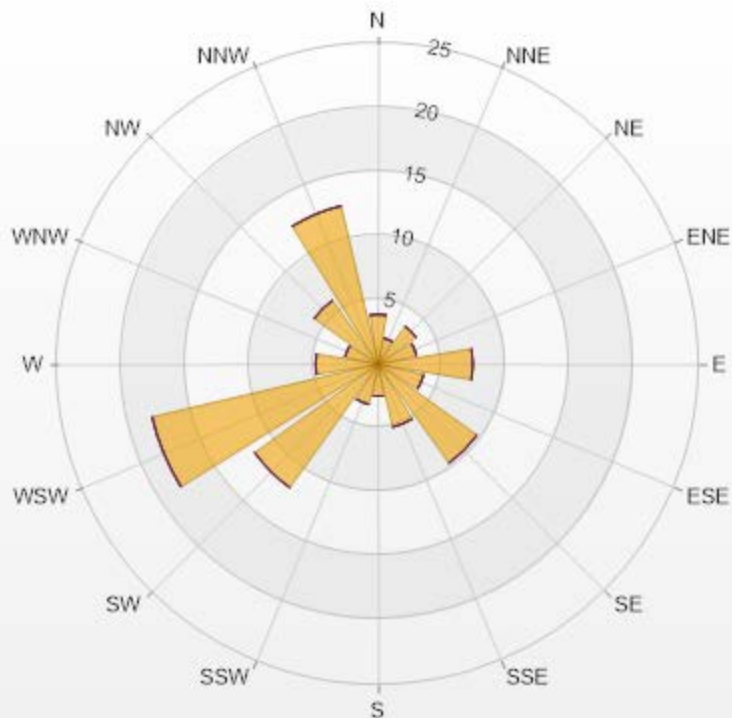
PM2.5[ug/m3(L)] Histogram: Cold Lake South Monthly: 11-2022 1 Hr.



Classes	PM2.5
<=0	0.00%
0 - 10	63.00%
10 - 20	25.03%
20 - 30	8.48%
30 - 40	2.36%
40 - 50	1.11%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-PM2.5[ug/m3(L)] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 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	3.89	0	0	0	0	3.89
NNE	2.09	0	0	0	0	2.09
NE	3.62	0	0	0	0	3.62
ENE	3.06	0	0	0	0	3.06
E	7.37	0	0	0	0	7.37
ESE	3.62	0	0	0	0	3.62
SE	9.46	0	0	0	0	9.46
SSE	5.01	0	0	0	0	5.01
S	2.5	0	0	0	0	2.5
SSW	3.2	0	0	0	0	3.2
SW	11.82	0	0	0	0	11.82
WSW	18.08	0	0	0	0	18.08
W	4.87	0	0	0	0	4.87
WNW	2.64	0	0	0	0	2.64
NW	6.12	0	0	0	0	6.12
NNW	12.66	0	0	0	0	12.66
Summary	100	0	0	0	0	100




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% Icon Classes (ug/m3(L))

100  0-50

0  50-80

0  80-120

0  120-240

0  >240.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - November 2022

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	90 %	on November 1 at hour 21	Hours in Service:	720
Maximum Daily Value:	83.4 %	on November 3	Hours of Data:	720
Minimum Hourly Value:	40 %	on November 20 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	61.2 %	on November 20	Hours of Calibration:	0
Monthly Average:	75.3 %		Operational Uptime:	100.0

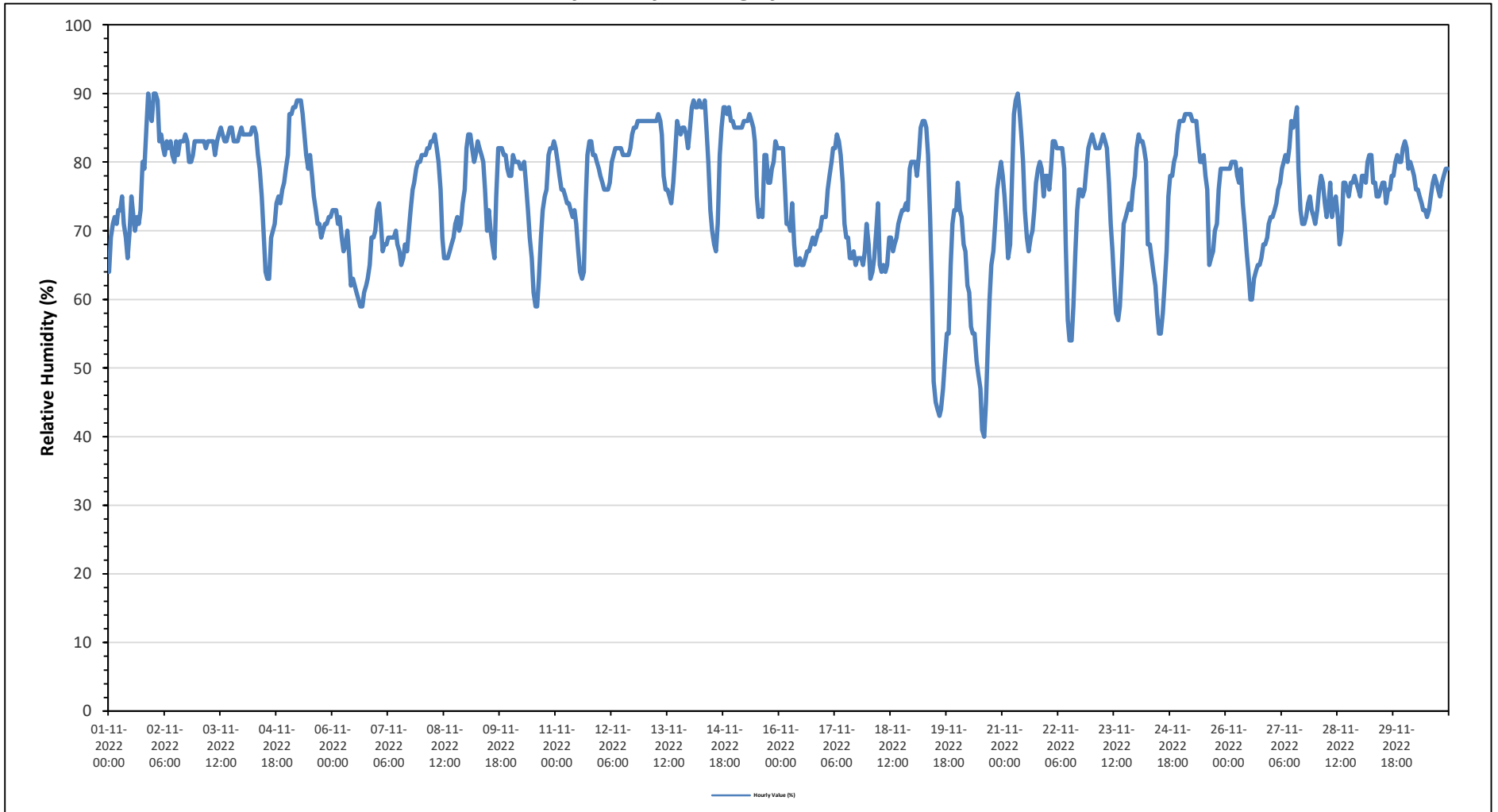
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Nov 1	64	69	71	72	71	73	73	75	71	69	66	70	75	72	70	72	71	73	80	79	85	90	87	86	64	90	74.3
Nov 2	90	90	89	83	84	82	81	83	82	83	81	80	83	81	83	83	83	84	83	80	80	81	83	83	80	90	83.1
Nov 3	83	83	83	83	82	83	83	83	83	81	83	84	85	84	83	83	84	85	85	83	83	83	84	85	81	85	83.4
Nov 4	84	84	84	84	84	85	85	84	81	79	75	70	64	63	63	69	70	71	74	75	74	76	77	79	63	85	76.4
Nov 5	81	87	87	88	88	89	89	89	87	84	81	79	81	78	75	73	71	71	69	70	71	71	72	72	69	89	79.3
Nov 6	73	73	73	71	72	69	67	68	70	66	62	63	62	61	60	59	59	61	62	63	65	69	69	70	59	73	66.1
Nov 7	73	74	71	67	68	68	69	69	69	69	70	68	67	65	66	68	67	70	73	76	77	79	80	80	65	80	71.0
Nov 8	81	81	81	82	82	83	83	84	82	80	76	69	66	66	66	67	68	69	71	72	70	71	74	76	66	84	75.0
Nov 9	82	84	84	82	80	81	83	82	81	80	76	70	73	70	68	66	75	82	82	82	81	81	79	78	66	84	78.4
Nov 10	78	81	80	80	80	79	79	80	77	73	69	66	61	59	59	63	69	73	75	76	81	82	82	83	59	83	74.4
Nov 11	82	80	78	76	76	75	74	74	73	72	73	71	67	64	63	64	74	81	83	83	81	81	80	79	63	83	75.2
Nov 12	78	77	76	76	76	77	80	81	82	82	82	82	81	81	81	81	82	84	85	85	86	86	86	86	76	86	81.4
Nov 13	86	86	86	86	86	86	86	86	87	86	84	78	76	76	75	74	77	81	86	85	84	85	85	84	74	87	82.8
Nov 14	85	88	89	88	88	89	88	88	89	84	80	73	70	68	67	71	81	85	88	88	87	88	86	86	67	89	83.1
Nov 15	85	85	85	85	85	86	86	86	87	86	85	83	75	72	73	72	81	81	77	77	79	80	83	82	72	87	81.5
Nov 16	82	82	82	76	71	71	70	74	68	65	65	66	65	65	66	67	67	68	69	68	69	70	70	72	65	82	70.3
Nov 17	72	72	76	78	80	82	82	84	83	81	77	71	69	69	66	66	67	65	66	66	66	65	67	71	65	84	72.5
Nov 18	68	63	64	66	70	74	65	64	65	64	65	69	69	67	68	69	71	72	73	73	74	73	79	80	63	80	69.4
Nov 19	80	80	78	81	85	86	86	85	81	72	62	48	45	44	43	44	47	51	55	55	65	71	73	73	43	86	66.3
Nov 20	77	73	72	68	67	62	61	56	55	55	51	49	47	41	40	45	53	60	65	67	71	76	78	80	40	80	61.2
Nov 21	78	75	71	66	68	77	87	89	90	88	84	80	73	69	67	69	70	73	77	79	80	79	75	78	66	90	76.8
Nov 22	78	76	79	83	83	82	82	82	82	79	68	57	54	54	59	67	73	76	76	75	76	79	82	83	54	83	74.4
Nov 23	84	83	82	82	82	83	84	83	82	77	71	67	62	58	57	59	65	71	72	73	74	73	76	78	57	84	74.1
Nov 24	82	84	83	83	82	80	68	68	66	64	62	58	55	55	58	62	67	75	78	78	80	81	84	86	55	86	72.5
Nov 25	86	86	87	87	87	87	86	86	86	86	83	80	81	78	76	65	66	67	70	71	76	79	79	79	65	87	79.5
Nov 26	79	79	79	80	80	80	78	77	79	74	71	67	64	60	60	63	64	65	65	66	68	68	69	71	60	80	71.1
Nov 27	72	72	73	74	76	77	79	80	81	80	82	86	85	86	88	79	73	71	71	72	74	75	73	72	71	88	77.1
Nov 28	71	73	76	78	77	74	72	74	77	72	74	75	72	68	70	77	77	76	75	77	77	78	77	76	68	78	74.7
Nov 29	75	78	78	77	80	81	81	77	77	75	75	76	77	77	74	76	76	78	78	80	81	80	82	74	82	77.9	
Nov 30	83	82	79	80	79	78	76	76	75	74	73	73	72	73	75	77	78	77	76	75	77	78	79	79	72	83	76.8
Diurnal Maximum	90	90	89	88	88	89	89	89	90	88	85	86	85	86	88	83	84	86	88	88	87	90	87	86			
Diurnal Average	79.1	79.3	79.2	78.7	79.0	79.3	78.8	78.9	78.2	75.8	73.2	70.9	69.2	67.4	67.3	68.4	71.0	73.4	74.6	74.9	76.4	77.6	78.2	78.9			

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

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

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

Timeseries Chart of Hourly Average for RH - Cold Lake South Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - November 2022

Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	978 mb on November 17 at hour 3	Hours in Service:	720
Maximum Daily Value:	971 mb on November 17	Hours of Data:	720
Minimum Hourly Value:	924 mb on November 5 at hour 3	Hours of Missing Data:	0
Minimum Daily Value:	933 mb on November 5	Hours of Calibration:	0
Monthly Average:	952 mb	Operational Uptime:	100.0

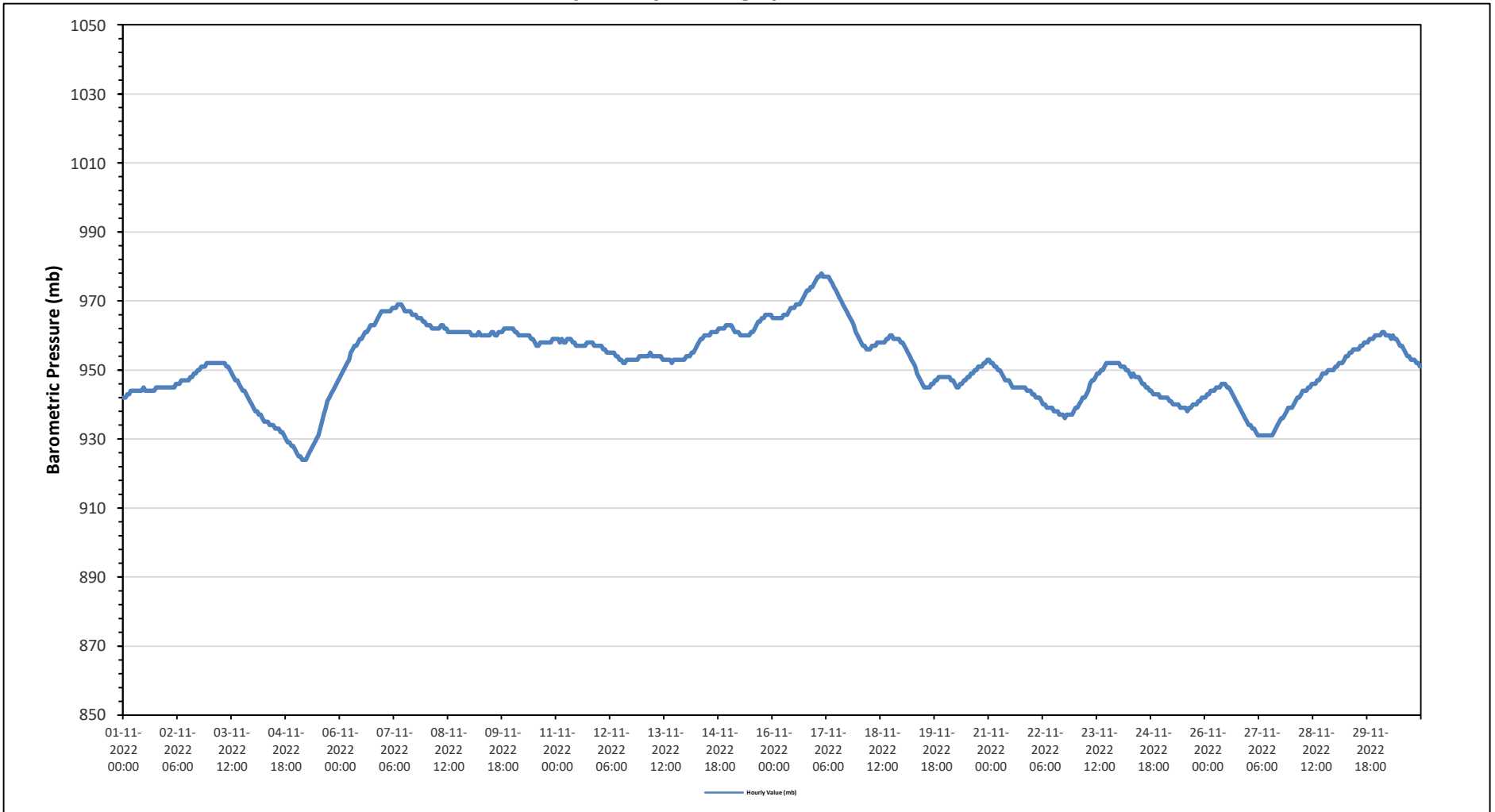
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Nov 1	942	942	943	943	944	944	944	944	944	944	944	945	944	944	944	944	944	944	945	945	945	945	945	945	942	945	944.0	
Nov 2	945	945	945	945	945	946	946	946	946	947	947	947	947	947	948	948	949	949	950	950	951	951	951	952	952	945	952	947.9
Nov 3	952	952	952	952	952	952	952	952	952	951	951	950	949	948	947	947	946	945	944	944	943	942	941	940	940	940	952	948.2
Nov 4	939	938	938	937	937	936	935	935	935	934	934	934	933	933	933	932	932	931	930	929	929	928	928	927	927	927	939	933.2
Nov 5	926	925	925	924	924	924	925	926	927	928	929	930	931	933	935	937	939	941	942	943	944	945	946	947	924	947	933.2	
Nov 6	948	949	950	951	952	953	955	956	957	957	958	959	959	960	961	961	962	963	963	964	965	966	966	967	948	967	958.3	
Nov 7	967	967	967	967	967	968	968	968	968	969	969	968	967	967	967	966	966	966	966	965	965	965	964	964	964	964	969	966.8
Nov 8	963	963	963	962	962	962	962	962	963	963	962	961	961	961	961	961	961	961	961	961	961	961	961	961	961	961	963	961.7
Nov 9	961	960	960	960	960	961	960	960	960	960	960	960	961	961	960	960	961	961	961	962	962	962	962	962	960	962	960.7	
Nov 10	962	961	961	960	960	960	960	960	960	960	959	959	958	957	957	958	958	958	958	958	958	958	959	959	957	962	959.1	
Nov 11	959	959	958	959	958	958	959	959	959	958	958	957	957	957	957	957	958	958	958	958	958	957	957	957	957	959	957.9	
Nov 12	957	957	956	956	955	955	955	955	955	954	954	953	953	952	952	953	953	953	953	953	953	953	954	954	952	957	954.1	
Nov 13	954	954	954	954	955	954	954	954	954	954	954	953	953	953	953	953	952	953	953	953	953	953	953	953	952	955	953.5	
Nov 14	954	954	954	955	955	956	957	958	959	959	960	960	960	960	961	961	961	962	962	962	962	963	963	963	954	963	959.1	
Nov 15	963	963	962	961	961	961	960	960	960	960	960	961	961	962	963	964	964	965	965	966	966	966	966	966	960	966	962.5	
Nov 16	965	965	965	965	965	966	966	966	966	967	968	968	968	969	969	969	970	971	972	973	973	974	974	975	965	975	968.7	
Nov 17	976	977	977	978	977	977	977	977	976	975	974	973	972	971	970	969	968	967	966	965	964	963	961	960	960	978	971.3	
Nov 18	959	958	957	957	956	956	956	956	957	957	957	958	958	958	958	959	960	960	960	959	959	959	959	958	956	960	958.0	
Nov 19	958	957	956	955	954	953	952	951	949	948	947	946	945	945	945	946	946	947	947	948	948	948	948	948	945	958	949.3	
Nov 20	948	948	948	947	947	946	945	945	946	946	947	947	948	948	949	949	950	950	951	951	951	952	952	953	945	953	948.5	
Nov 21	953	952	952	951	951	950	950	949	948	947	947	946	945	945	945	945	945	945	945	945	944	944	944	944	944	944	947.3	
Nov 22	943	943	942	942	942	941	940	940	939	939	939	938	938	938	937	937	936	936	937	937	937	937	938	936	943	939.0		
Nov 23	939	939	940	941	942	942	943	944	946	947	947	948	949	949	950	950	951	952	952	952	952	952	952	952	939	952	947.1	
Nov 24	952	951	951	951	950	950	949	948	949	948	948	948	947	946	946	945	945	944	944	943	943	943	942	942	942	942	946.9	
Nov 25	942	942	942	942	941	941	940	940	940	939	939	939	938	939	939	940	940	940	941	941	941	942	942	938	942	940.3		
Nov 26	942	943	943	944	944	944	945	945	945	946	946	945	945	944	943	942	941	940	939	938	937	936	935	935	935	946	942.4	
Nov 27	934	934	933	933	932	931	931	931	931	931	931	931	931	931	932	933	934	935	936	936	937	938	939	931	939	933.5		
Nov 28	939	940	941	942	942	943	944	944	944	945	945	946	946	946	947	947	948	949	949	950	950	950	950	939	950	945.7		
Nov 29	951	951	952	952	952	953	954	954	955	955	956	956	956	956	957	957	958	958	958	959	959	959	960	960	951	960	955.8	
Nov 30	960	960	961	961	960	960	960	959	960	959	958	957	957	956	955	954	954	953	953	952	952	951	951	951	951	961	956.8	
Diurnal Maximum	976	977	977	978	977	977	977	977	976	975	974	973	972	971	970	969	970	971	972	973	973	974	974	975				
Diurnal Average	952	952	952	952	951	951	951	951	952	952	952	952	951	951	951	952	952	952	952	952	952	952	952	952				

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

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

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

Timeseries Chart of Hourly Average for BP - Cold Lake South Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - November 2022

Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

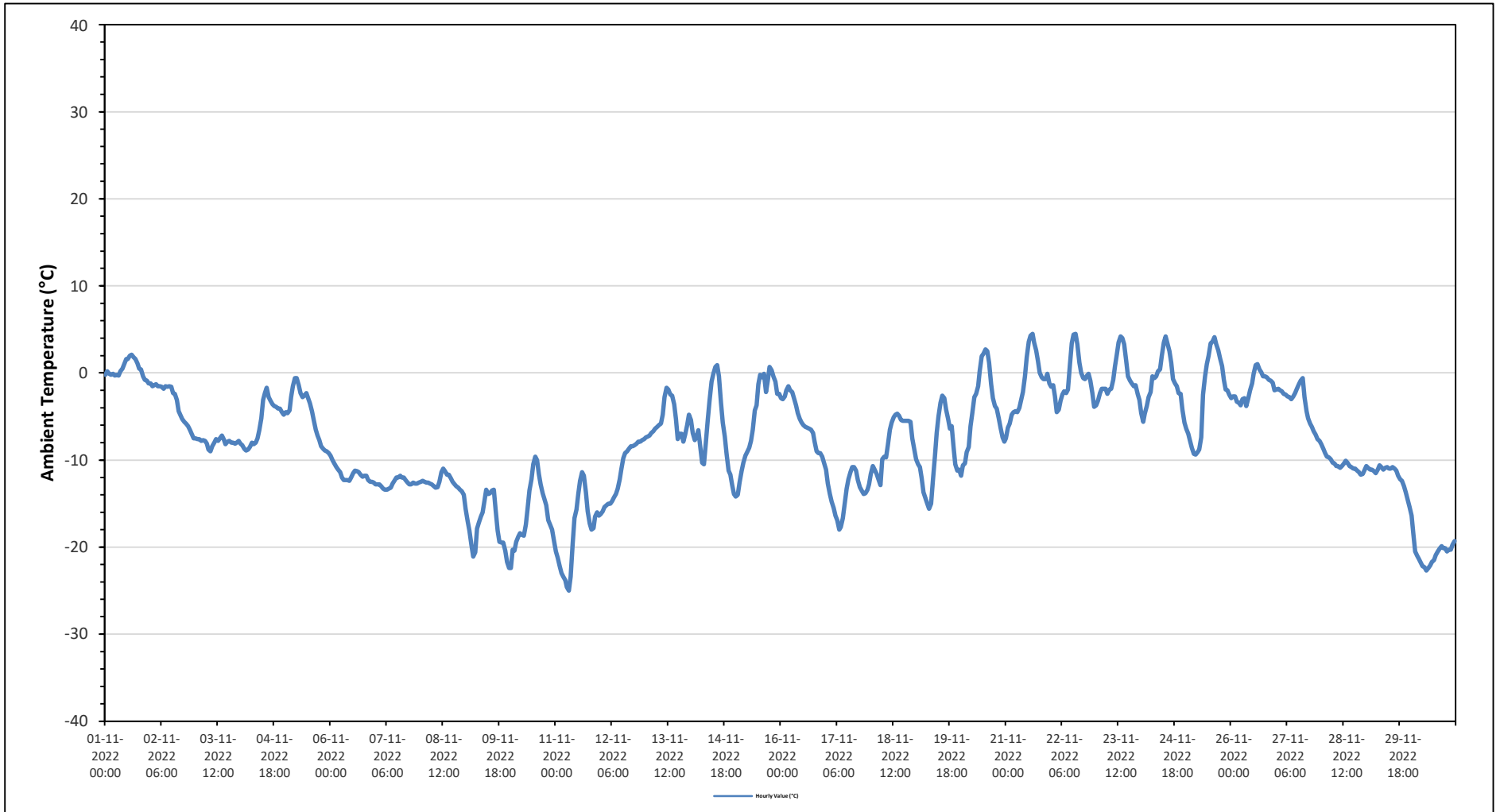
Maximum Hourly Value:	4.5 °C	on November 21 at hour 14	Hours in Service:	720
Maximum Daily Value:	0.4 °C	on November 1	Hours of Data:	720
Minimum Hourly Value:	-25.0 °C	on November 11 at hour 7	Hours of Missing Data:	0
Minimum Daily Value:	-20.7 °C	on November 30	Hours of Calibration:	0
Monthly Average:	-7.8 °C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Nov 1	-0.2	0.2	-0.1	-0.2	-0.1	-0.3	-0.2	-0.3	0.2	0.5	1	1.6	1.6	2	2.1	1.8	1.6	1.1	0.5	0.4	-0.4	-0.8	-0.9	-1.2	-1.2	2.1	0.4
Nov 2	-1.2	-1.5	-1.4	-1.3	-1.5	-1.5	-1.6	-1.8	-1.5	-1.6	-1.5	-1.6	-2.3	-2.4	-3.1	-4.4	-4.9	-5.3	-5.6	-5.8	-6.1	-6.5	-7	-7.5	-7.5	-1.2	-3.3
Nov 3	-7.5	-7.6	-7.6	-7.8	-7.7	-7.8	-8.1	-8.8	-9	-8.4	-8	-7.6	-7.8	-7.5	-7.2	-7.6	-8.2	-7.9	-7.8	-8	-8	-8.1	-8	-7.8	-9.0	-7.2	-7.9
Nov 4	-8.1	-8.3	-8.7	-8.9	-8.8	-8.5	-8	-8.2	-8	-7.5	-6.6	-5.2	-3.1	-2.3	-1.7	-2.8	-3.2	-3.6	-3.8	-3.9	-4.1	-4.1	-4.5	-4.8	-8.9	-1.7	-5.7
Nov 5	-4.5	-4.6	-4.3	-2.8	-1.5	-0.6	-0.6	-1.4	-2.3	-2.8	-2.6	-2.3	-2.9	-3.5	-4.4	-5.4	-6.5	-7.2	-7.7	-8.4	-8.7	-8.9	-9	-9.2	-9.2	-0.6	-4.7
Nov 6	-9.5	-10	-10.4	-10.8	-11.1	-11.4	-12	-12.3	-12.3	-12.3	-12.4	-12	-11.5	-11.2	-11.3	-11.4	-11.7	-11.9	-11.8	-11.8	-12.3	-12.5	-12.5	-12.6	-12.6	-9.5	-11.6
Nov 7	-12.8	-12.8	-12.8	-13	-13.3	-13.4	-13.4	-13.3	-13.2	-12.7	-12.4	-12	-11.8	-12	-12	-12.3	-12.6	-12.8	-12.8	-12.8	-12.6	-12.7	-12.7	-12.6	-13.4	-11.8	-12.7
Nov 8	-12.5	-12.4	-12.5	-12.6	-12.6	-12.7	-12.8	-13	-13.2	-13.1	-12.5	-11.4	-11	-11.3	-11.7	-11.7	-12.1	-12.5	-12.8	-13	-13.2	-13.4	-13.6	-14	-14.0	-11.0	-12.6
Nov 9	-15.6	-17	-18.1	-19.8	-21.1	-20.6	-17.9	-17.2	-16.5	-16	-14.7	-13.4	-13.9	-13.8	-13.5	-13.4	-15.7	-18.1	-19.4	-19.5	-19.5	-20.4	-21.7	-22.4	-22.4	-13.4	-17.5
Nov 10	-22.4	-20.3	-20.4	-19.4	-18.8	-18.4	-18.6	-18.7	-17.4	-15.5	-13.5	-12.2	-10.5	-9.6	-10	-11.6	-12.8	-13.8	-14.5	-15.2	-16.9	-17.4	-18	-19.2	-22.4	-9.6	-16.0
Nov 11	-20.5	-21.2	-22.2	-23	-23.4	-23.8	-24.6	-25	-23.4	-19.6	-16.7	-15.7	-13.9	-12.4	-11.4	-11.8	-13.7	-15.9	-17.3	-18	-17.8	-16.5	-16	-16.4	-25.0	-11.4	-18.3
Nov 12	-16.2	-15.9	-15.4	-15.2	-15	-15	-14.7	-14.3	-13.9	-13.3	-12.2	-11.1	-9.8	-9.2	-9	-8.7	-8.4	-8.4	-8.3	-8.1	-7.9	-7.9	-7.7	-7.6	-16.2	-7.6	-11.4
Nov 13	-7.4	-7.3	-7.2	-6.9	-6.7	-6.4	-6.2	-6	-5.8	-4.8	-2.8	-1.7	-1.9	-2.5	-2.6	-3.6	-5.3	-7.6	-7	-7	-7.9	-7.1	-6	-4.8	-7.9	-1.7	-5.5
Nov 14	-5.4	-6.9	-7.7	-7.3	-6.6	-8.6	-10.3	-10.5	-8.2	-5.4	-3.2	-1	-0.1	0.7	0.9	-0.4	-3.4	-5.7	-7.3	-9.3	-11.2	-11.7	-12.9	-13.9	-13.9	0.9	-6.5
Nov 15	-14.2	-14	-12.6	-11.3	-10.3	-9.5	-9.1	-8.6	-7.8	-6.5	-4.3	-3.7	-1.3	-0.2	-0.5	-0.1	-2.2	-0.9	0.7	0.3	-0.4	-1	-2.4	-2.4	-14.2	0.7	-5.1
Nov 16	-2.9	-3	-2.7	-2	-1.5	-2	-2.2	-2.9	-3.7	-4.6	-5.3	-5.7	-6	-6.2	-6.3	-6.4	-6.5	-6.9	-7.9	-9	-9.2	-9.2	-9.6	-10.3	-10.3	-1.5	-5.5
Nov 17	-11.1	-12.7	-13.9	-14.8	-15.5	-16.4	-16.9	-18	-17.7	-16.7	-15.1	-13.3	-12.2	-11.4	-10.8	-10.8	-11.2	-12.3	-13.1	-13.5	-13.9	-13.8	-13.4	-12.8	-18.0	-10.8	-13.8
Nov 18	-11.6	-10.7	-11.1	-11.6	-12.2	-12.9	-9.9	-9.6	-9.7	-8.3	-6.5	-5.7	-5.1	-4.8	-4.7	-4.9	-5.4	-5.5	-5.5	-5.5	-5.5	-5.6	-7.5	-8.8	-12.9	-4.7	-7.9
Nov 19	-9.9	-10.5	-10.8	-12.1	-13.7	-14.3	-15	-15.6	-15	-12.4	-9.6	-6.9	-5	-3.4	-2.6	-2.9	-4.2	-5.3	-6.4	-6.1	-8.4	-10.5	-11.2	-11.1	-15.6	-2.6	-9.3
Nov 20	-11.8	-10.6	-10.4	-9.1	-8.5	-6.1	-4.6	-2.8	-2.4	-1.5	0.2	1.9	2.2	2.7	2.5	1.2	-1.3	-2.9	-3.8	-4.1	-5.2	-6.3	-7.4	-7.9	-11.8	2.7	-4.0
Nov 21	-7.5	-6.3	-5.8	-4.8	-4.5	-4.4	-4.5	-4	-3.1	-2.2	-0.4	1.8	3.6	4.3	4.5	3.5	2.6	1.4	0	-0.5	-0.7	-0.7	-0.1	-1.2	-7.5	4.5	-1.2
Nov 22	-1.6	-1.4	-2.7	-4.5	-4.2	-3.2	-2.5	-2.1	-2.3	-1.9	1	3.4	4.4	4.5	3.3	1.2	0	-0.6	-0.7	-0.3	-0.1	-0.9	-2.3	-3.9	-4.5	4.5	-0.7
Nov 23	-3.7	-3.2	-2.3	-1.8	-1.8	-1.8	-2.4	-1.9	-1.8	-0.8	0.8	2.1	3.5	4.2	4	3.3	1.4	-0.4	-0.9	-1.2	-1.5	-1.4	-2.4	-3.1	-3.7	4.2	-0.5
Nov 24	-4.6	-5.6	-4.7	-3.8	-2.8	-2.2	-0.4	-0.6	-0.4	0.2	0.4	2	3.5	4.2	3.3	2.5	1.2	-0.7	-1.2	-1.5	-2.3	-2.4	-4.2	-5.7	-5.7	4.2	-1.1
Nov 25	-6.4	-7	-7.8	-8.6	-9.3	-9.4	-9.1	-8.8	-7.4	-2.5	-0.4	1	2	3.4	3.6	4.1	3.3	2.6	1.7	0.8	-0.8	-1.9	-2	-2.5	-9.4	4.1	-2.6
Nov 26	-2.9	-2.7	-2.7	-3.3	-3.4	-3.7	-3	-2.9	-3.8	-2.9	-2	-1.2	-0.1	0.9	1	0.4	0.1	-0.4	-0.4	-0.5	-0.8	-0.9	-1.1	-2	-3.8	1.0	-1.6
Nov 27	-1.9	-1.8	-2	-2.1	-2.4	-2.5	-2.7	-2.8	-3	-2.7	-2.3	-1.8	-1.3	-0.9	-0.6	-2.8	-4.4	-5.2	-5.8	-6.2	-6.7	-7.1	-7.6	-7.8	-7.8	-0.6	-3.5
Nov 28	-8.2	-8.7	-9.2	-9.6	-9.7	-9.9	-10.3	-10.4	-10.7	-10.7	-10.9	-10.7	-10.4	-10.1	-10.3	-10.7	-10.8	-11	-11	-11.2	-11.4	-11.7	-11.6	-11.2	-11.7	-8.2	-10.4
Nov 29	-10.7	-10.9	-11.1	-11.1	-11.3	-11.5	-11.1	-10.6	-10.8	-11.1	-10.9	-10.8	-11	-11	-10.8	-11	-11.2	-11.8	-12.2	-12.4	-13	-13.7	-14.6	-15.4	-15.4	-10.6	-11.7
Nov 30	-16.4	-18.5	-20.5	-21	-21.3	-21.8	-22.2	-22.3	-22.7	-22.4	-22.1	-21.7	-21.5	-20.9	-20.5	-20.2	-19.9	-20.1	-20.5	-20.3	-20.3	-19.7	-19.3	-22.7	-16.4	-20.7	
Diurnal Maximum	-0.2	0.2	-0.1	-0.2	-0.1	-0.3	-0.2	-0.3	0.2	0.5	1.0	3.4	4.4	4.5	4.5	4.1	3.3	2.6	1.7	0.8	-0.1	-0.7	-0.1	-1.2			
Diurnal Average	-9.0	-9.1	-9.3	-9.4	-9.4	-9.4	-9.2	-9.2	-8.9	-8.0	-6.9	-5.8	-5.1	-4.7	-4.7	-5.2	-6.2	-7.0	-7.4	-7.7	-8.2	-8.5	-8.9	-9.3			

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

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

Timeseries Chart of Hourly Average for AT - Cold Lake South Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - November 2022

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:	24.0 °C	on November 23 at hour 15	Hours in Service:	720
Maximum Daily Value:	22.9 °C	on November 23	Hours of Data:	720
Minimum Hourly Value:	20.0 °C	on November 8 at hour 10	Hours of Missing Data:	0
Minimum Daily Value:	21.1 °C	on November 2	Hours of Calibration:	0
Monthly Average:	21.9 °C		Operational Uptime:	100.0

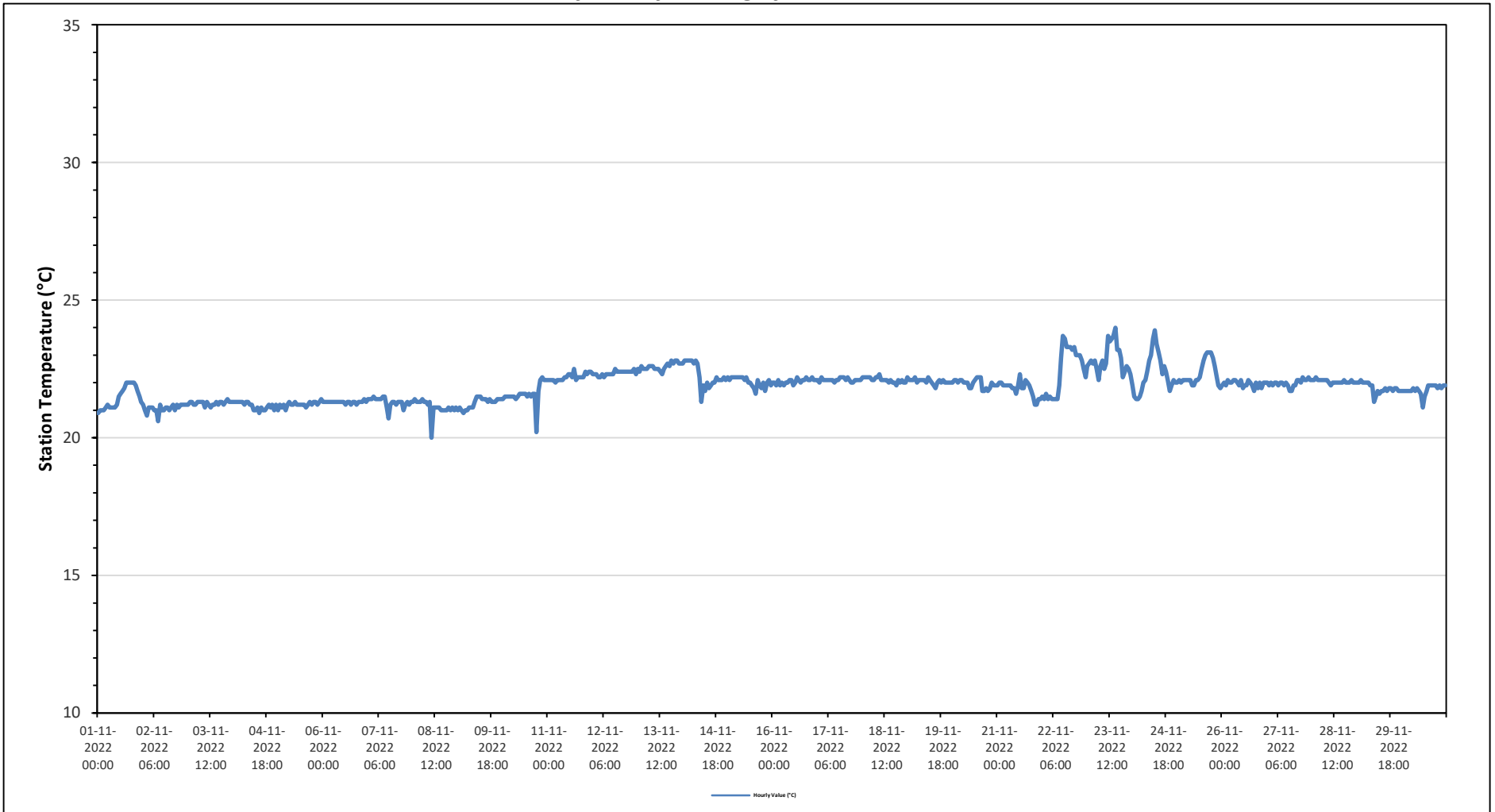
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Nov 1	20.9	21.0	21.0	21.0	21.1	21.2	21.1	21.1	21.1	21.1	21.2	21.5	21.6	21.7	21.8	22.0	22.0	22.0	22.0	22.0	21.9	21.7	21.5	21.3	20.9	22.0	21.5
Nov 2	21.2	21.0	20.8	21.1	21.1	21.1	21.0	21.0	20.6	21.2	21.0	21.0	21.1	21.1	21.0	21.1	21.2	21.0	21.2	21.1	21.2	21.2	21.2	21.2	20.6	21.2	21.1
Nov 3	21.2	21.3	21.3	21.2	21.2	21.3	21.3	21.3	21.3	21.3	21.1	21.3	21.2	21.1	21.2	21.2	21.3	21.2	21.3	21.3	21.2	21.3	21.4	21.3	21.1	21.4	21.3
Nov 4	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.2	21.3	21.3	21.2	21.2	21.0	21.1	20.9	21.1	21.0	21.0	21.1	21.2	21.1	21.2	21.0	21.2	20.9	21.3	21.2
Nov 5	21.0	21.2	21.1	21.2	21.0	21.2	21.3	21.2	21.2	21.3	21.2	21.2	21.2	21.2	21.2	21.1	21.2	21.3	21.2	21.3	21.3	21.2	21.3	21.0	21.4	21.2	21.2
Nov 6	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.2	21.3	21.3	21.2	21.3	21.3	21.2	21.3	21.3	21.3	21.4	21.3	21.2	21.4	21.3
Nov 7	21.4	21.4	21.4	21.5	21.4	21.4	21.4	21.4	21.4	21.5	21.5	21.1	20.7	21.2	21.3	21.3	21.2	21.3	21.3	21.3	21.0	21.2	21.3	21.2	20.7	21.5	21.3
Nov 8	21.3	21.4	21.3	21.3	21.3	21.4	21.3	21.4	21.3	21.3	21.2	21.3	20.0	21.1	21.1	21.1	21.1	21.0	21.0	21.0	21.0	21.1	21.0	21.1	20.0	21.4	21.1
Nov 9	21.0	21.1	21.0	20.9	21.0	21.0	21.1	21.1	21.1	21.1	21.3	21.5	21.5	21.5	21.4	21.4	21.4	21.3	21.4	21.3	21.3	21.3	21.4	21.4	20.9	21.5	21.3
Nov 10	21.4	21.5	21.5	21.5	21.5	21.5	21.5	21.4	21.5	21.6	21.6	21.6	21.6	21.5	21.6	21.5	21.6	21.6	20.2	21.7	22.1	22.2	22.1	20.2	22.2	21.6	
Nov 11	22.1	22.1	22.1	22.1	22.0	22.1	22.1	22.1	22.1	22.1	22.2	22.2	22.3	22.2	22.5	22.1	22.2	22.2	22.2	22.2	22.2	22.4	22.4	22.0	22.0	22.5	22.2
Nov 12	22.3	22.3	22.3	22.2	22.2	22.3	22.2	22.3	22.3	22.3	22.3	22.3	22.3	22.5	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.2	22.2	22.5	22.3
Nov 13	22.5	22.4	22.6	22.5	22.5	22.5	22.6	22.6	22.6	22.6	22.5	22.5	22.5	22.4	22.3	22.5	22.6	22.7	22.6	22.8	22.7	22.8	22.8	22.7	22.3	22.8	22.6
Nov 14	22.7	22.8	22.8	22.8	22.8	22.8	22.7	22.8	22.7	22.2	21.3	21.9	21.7	22.0	21.8	21.9	22.0	22.0	22.2	22.1	22.1	22.1	22.2	22.1	21.3	22.8	22.3
Nov 15	22.2	22.1	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.1	22.2	22.0	22.0	21.9	21.8	21.6	22.1	21.9	21.8	22.0	21.7	22.0	22.1	21.9	21.6	22.2	22.0
Nov 16	22.0	22.0	21.9	22.1	21.9	22.0	21.9	22.0	22.0	22.1	22.1	21.9	22.0	22.2	22.1	22.0	22.1	22.1	22.2	22.1	22.1	22.2	22.1	22.1	21.9	22.2	22.1
Nov 17	22.1	22.0	22.2	22.1	22.1	22.1	22.1	22.1	22.1	22.0	22.1	22.1	22.2	22.2	22.2	22.1	22.2	22.1	22.0	22.0	22.1	22.1	22.1	22.0	22.0	22.2	22.1
Nov 18	22.2	22.2	22.2	22.2	22.2	22.1	22.1	22.2	22.2	22.3	22.1	22.1	22.1	22.1	22.0	22.1	22.0	22.0	21.9	22.1	22.0	22.1	22.0	22.0	21.9	22.3	22.1
Nov 19	22.2	22.1	22.1	22.1	22.2	22.0	22.1	22.1	22.1	22.1	22.0	22.2	22.1	22.0	21.9	21.8	22.0	22.1	22.0	22.1	22.0	22.1	22.0	22.0	21.8	22.2	22.1
Nov 20	22.0	22.1	22.1	22.0	22.1	22.1	22.0	22.0	22.0	21.8	21.8	22.0	22.1	22.2	22.2	22.2	21.7	21.7	21.8	21.7	21.8	22.0	21.9	21.9	21.7	22.2	22.0
Nov 21	21.9	22.0	22.0	21.9	21.9	21.9	21.9	21.9	21.8	21.8	21.6	21.9	22.3	21.8	21.8	22.1	22.0	21.9	21.7	21.5	21.2	21.2	21.4	21.4	21.2	22.3	21.8
Nov 22	21.5	21.4	21.6	21.4	21.5	21.4	21.4	21.4	21.4	21.9	22.9	23.7	23.6	23.3	23.3	23.3	23.2	23.3	23.0	23.0	23.0	22.8	22.5	22.2	21.4	23.7	22.4
Nov 23	22.6	22.7	22.8	22.7	22.8	22.5	22.1	22.6	22.8	22.5	22.7	23.7	23.5	23.6	23.7	24.0	23.2	23.2	22.9	22.2	22.4	22.6	22.5	22.3	22.1	24.0	22.9
Nov 24	21.9	21.5	21.4	21.4	21.5	21.7	22.0	22.1	22.4	22.8	23.0	23.6	23.9	23.4	23.1	22.8	22.3	22.6	22.4	22.1	21.7	21.9	22.1	22.0	21.4	23.9	22.3
Nov 25	22.0	22.1	22.0	22.1	22.1	22.1	22.1	22.1	21.9	21.9	22.1	22.1	22.2	22.5	22.8	23.0	23.1	23.1	22.9	22.6	22.2	21.9	21.8	21.8	21.8	23.1	22.3
Nov 26	21.9	22.0	21.9	22.1	22.0	22.0	22.1	22.1	22.0	21.9	22.1	21.8	21.9	22.1	22.0	21.9	21.7	22.0	21.8	22.0	21.8	22.0	22.0	22.0	21.7	22.1	22.0
Nov 27	22.0	21.9	22.0	21.9	22.0	22.0	21.9	22.0	22.0	21.9	22.0	21.9	21.7	21.7	21.9	21.9	22.1	22.1	22.0	22.2	22.1	22.1	22.2	22.1	21.7	22.2	22.0
Nov 28	22.1	22.1	22.2	22.1	22.1	22.1	22.1	22.1	22.1	22.0	21.9	22.0	22.0	22.0	22.0	22.0	22.0	22.1	22.0	22.0	22.0	22.1	22.0	22.0	21.9	22.2	22.0
Nov 29	22.0	22.0	22.1	22.0	22.0	22.0	22.0	21.9	21.9	21.3	21.5	21.7	21.6	21.7	21.7	21.8	21.7	21.8	21.8	21.7	21.8	21.7	21.7	21.7	21.3	22.1	21.8
Nov 30	21.7	21.7	21.7	21.7	21.7	21.7	21.8	21.7	21.8	21.7	21.6	21.1	21.5	21.7	21.9	21.9	21.9	21.9	21.8	21.9	21.8	21.9	21.9	21.9	21.1	21.9	21.7
Diurnal Maximum	22.7	22.8	22.8	22.8	22.8	22.8	22.7	22.8	22.8	22.8	23.0	23.7	23.9	23.6	23.7	24.0	23.2	23.3	23.1	23.0	23.0	22.8	22.7	22.7			
Diurnal Average	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.9	21.9	21.9	22.0	22.0	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.8			

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

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

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

Timeseries Chart of Hourly Average for ST - Cold Lake South Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - November 2022

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

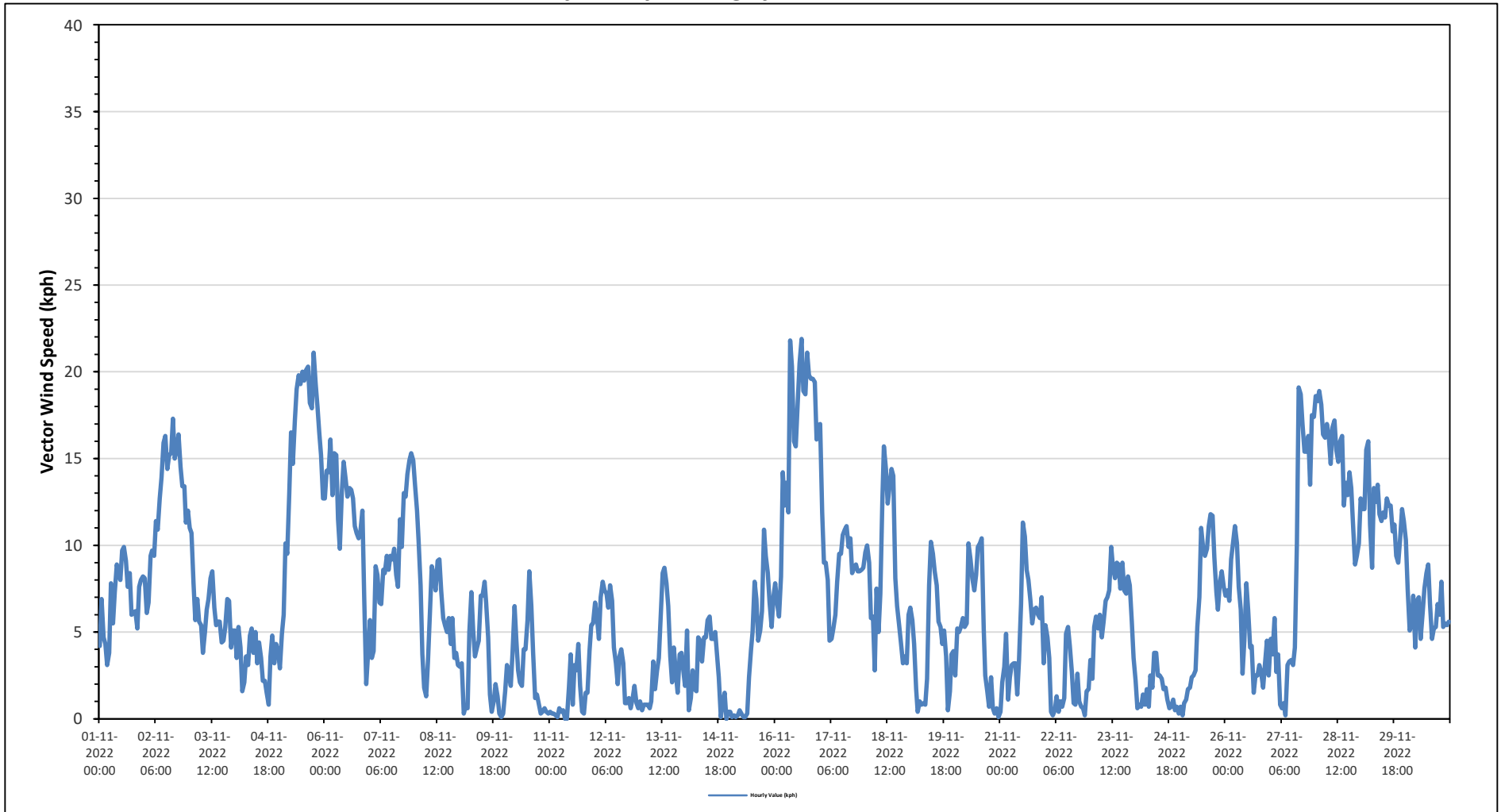
Maximum Hourly Value:	21.9 kph	on November 16 at hour 14	Hours in Service:	720
Maximum Daily Value:	15.4 kph	on November 16	Hours of Data:	720
Minimum Hourly Value:	0.0 kph	on November 11 at hour 8	Hours of Missing Data:	0
Minimum Daily Value:	1.1 kph	on November 11	Hours of Calibration:	0
Monthly Average:	2.3 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	4.2	6.9	4.7	4.3	3.1	3.8	7.8	5.5	7.3	8.9	8.4	8.0	9.7	9.9	9.1	7.6	8.4	6.0	6.1	6.2	5.2	7.6	8.0	8.2	3.1	9.9	6.6
Nov 2	8.1	6.1	6.7	9.4	9.7	9.4	11.4	10.9	12.7	13.9	15.9	16.3	14.4	15.2	15.3	17.3	15.0	15.5	16.4	14.5	13.4	13.4	11.3	12.0	6.1	17.3	11.7
Nov 3	11.0	10.7	7.8	5.7	6.9	5.6	5.4	3.8	5.0	6.3	6.9	8.1	8.5	6.4	5.4	5.6	5.6	4.4	4.5	5.3	6.9	6.8	4.1	5.1	3.8	11.0	3.0
Nov 4	5.1	3.5	5.3	4.1	1.6	2.1	3.6	3.1	4.8	5.2	3.8	5.0	3.2	4.4	3.5	2.2	2.2	1.5	0.8	3.6	4.8	3.2	4.3	3.9	0.8	5.3	2.6
Nov 5	2.9	4.9	6.0	10.1	9.5	13.0	16.5	14.7	17.2	19.0	19.8	19.3	20.0	19.5	20.1	20.3	18.2	17.9	21.1	19.3	18.0	16.5	15.2	12.7	2.9	21.1	14.0
Nov 6	12.7	14.3	14.2	16.1	12.9	15.3	15.2	11.5	9.8	13.1	14.8	13.8	12.8	13.3	13.2	12.7	11.1	10.7	10.4	10.8	12.0	7.0	2.0	3.7	2.0	16.1	11.6
Nov 7	5.7	3.5	3.9	8.8	8.3	6.7	6.6	8.6	8.4	9.4	8.6	9.4	9.2	9.8	8.3	7.6	11.5	9.9	13.0	12.8	14.1	14.9	15.3	14.9	3.5	15.3	8.7
Nov 8	13.5	12.0	10.3	7.7	3.7	1.8	1.3	3.3	6.2	8.8	8.3	7.4	9.1	9.2	7.4	5.8	5.4	5.0	5.8	4.3	5.8	3.5	3.8	3.1	1.3	13.5	3.7
Nov 9	3.0	3.2	0.3	0.7	0.6	5.0	7.3	5.1	3.6	4.1	4.5	7.1	7.1	7.9	6.7	4.7	1.4	0.4	1.0	2.0	1.3	0.3	0.1	0.3	0.1	7.9	3.1
Nov 10	1.6	3.1	2.6	1.9	3.8	6.5	4.5	2.8	2.1	1.9	4.0	4.0	5.7	8.5	6.5	3.8	1.2	1.4	0.8	0.3	0.4	0.6	0.4	0.3	0.3	8.5	2.3
Nov 11	0.4	0.3	0.3	0.2	0.1	0.6	0.4	0.5	0.0	0.0	1.8	3.7	0.8	3.1	2.8	4.3	1.9	0.4	0.3	1.5	1.5	3.9	5.4	5.5	0.0	5.5	1.1
Nov 12	6.7	5.9	4.6	7.0	7.9	7.4	7.2	6.4	7.7	6.8	4.1	3.2	2.0	3.6	4.0	3.2	0.9	0.9	1.2	0.6	1.2	1.9	0.9	0.6	0.6	7.9	3.3
Nov 13	1.0	0.5	0.8	0.8	0.8	0.6	1.0	3.3	1.7	2.8	3.5	5.8	8.4	8.7	7.8	6.5	3.6	2.1	4.1	2.6	1.5	3.7	3.8	2.7	0.5	8.7	2.7
Nov 14	1.9	5.1	0.5	1.2	2.8	1.7	1.6	4.7	4.5	3.3	4.7	4.7	5.7	5.9	4.6	4.6	5.0	3.5	2.4	0.1	0.9	1.5	0.0	0.4	0.0	5.9	2.9
Nov 15	0.4	0.1	0.2	0.1	0.2	0.5	0.3	0.1	0.1	0.3	2.4	4.0	5.0	7.9	6.9	4.5	5.1	6.2	10.9	9.4	8.4	6.7	5.3	7.0	0.1	10.9	3.3
Nov 16	7.8	6.6	5.9	8.2	14.2	12.3	13.6	11.9	21.8	20.3	16.0	15.7	18.3	20.5	21.9	18.9	18.7	21.1	19.8	19.6	19.6	19.4	16.1	16.9	5.9	21.9	15.4
Nov 17	17.0	11.9	9.0	9.0	8.0	4.5	4.6	5.2	6.0	7.9	9.5	9.5	10.6	10.9	11.1	9.9	10.4	8.4	8.7	8.9	8.5	8.5	8.6	8.7	4.5	17.0	7.2
Nov 18	9.6	10.0	9.0	5.8	5.9	2.8	7.5	5.0	7.2	12.6	15.7	14.4	12.4	13.5	14.4	14.0	8.1	6.5	5.4	4.4	3.2	3.6	3.2	6.0	2.8	15.7	7.0
Nov 19	6.4	5.7	4.3	1.7	0.4	1.0	0.8	0.9	0.8	2.3	7.7	10.2	9.5	8.5	7.7	5.6	5.3	4.3	5.1	3.6	0.5	1.6	3.7	3.9	0.4	10.2	4.0
Nov 20	2.5	5.2	5.0	5.3	5.8	5.3	5.5	10.1	9.2	8.1	7.4	8.3	9.9	10.1	10.4	5.2	2.5	1.6	0.7	2.4	0.6	0.3	0.6	0.1	0.1	10.4	4.3
Nov 21	0.4	2.1	3.0	4.9	1.1	2.4	3.1	3.2	3.2	1.4	3.4	6.6	11.3	10.5	8.6	8.0	6.8	5.5	6.3	6.4	6.0	5.8	7.0	3.2	0.4	11.3	3.9
Nov 22	5.4	4.7	3.5	0.4	0.2	0.5	1.3	0.4	1.0	0.7	1.2	4.9	5.3	4.2	2.7	0.9	0.8	2.6	1.0	0.7	0.6	0.2	1.6	1.7	0.2	5.4	1.7
Nov 23	3.4	2.3	5.3	5.9	5.2	6.0	4.7	5.6	6.8	7.0	7.4	9.9	8.7	8.1	9.0	8.9	7.5	9.0	7.4	7.2	8.2	7.7	5.6	3.5	2.3	9.9	6.6
Nov 24	2.2	0.6	0.8	0.7	1.4	0.8	1.7	0.7	2.5	1.8	3.8	3.8	2.5	2.5	2.3	1.7	1.8	1.1	0.6	0.7	1.1	0.5	0.7	0.3	0.3	3.8	1.1
Nov 25	0.7	0.2	0.9	1.1	1.7	1.8	2.4	2.5	2.8	5.3	7.0	11.0	9.8	9.4	9.8	11.1	11.8	11.7	9.3	7.3	6.3	7.9	8.5	7.6	0.2	11.8	6.0
Nov 26	7.1	7.4	6.8	9.2	10.2	11.1	10.1	7.6	6.3	2.6	4.5	7.8	6.3	4.1	4.2	1.5	2.5	2.5	3.1	2.7	1.8	3.1	4.5	2.5	1.5	11.1	4.2
Nov 27	4.6	3.7	5.8	2.7	3.7	0.8	0.6	0.9	0.2	3.1	3.3	3.4	3.1	4.1	10.1	19.1	18.7	17.0	15.4	15.4	16.3	13.5	17.5	17.4	0.2	19.1	6.1
Nov 28	18.6	18.3	18.9	18.1	16.4	16.2	17.0	16.4	14.7	16.8	17.2	15.5	14.8	16.0	16.3	12.3	13.6	12.9	14.2	13.3	11.2	8.9	9.4	10.1	8.9	18.9	14.8
Nov 29	12.7	12.1	12.1	15.5	16.0	11.2	8.7	13.3	12.5	13.5	11.8	11.4	11.9	11.6	12.7	12.3	12.3	10.8	11.2	9.4	9.0	10.3	12.1	11.4	8.7	16.0	10.5
Nov 30	10.3	7.5	5.1	5.4	7.1	4.1	6.8	7.0	4.6	6.1	7.5	8.4	8.9	6.6	4.6	5.2	5.3	6.6	6.0	7.9	5.3	5.5	5.4	5.6	4.1	10.3	6.3
Diurnal Maximum	19	18	19	18	16	16	17	16	22	20	20	19	20	21	22	20	19	21	21	20	20	19	18	17			
Diurnal Average	6.2	5.9	5.5	5.7	5.6	5.4	6.0	5.8	6.4	7.1	7.8	8.7	8.8	9.1	8.9	8.2	7.4	6.9	7.1	6.8	6.5	6.3	6.1	6.0			

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

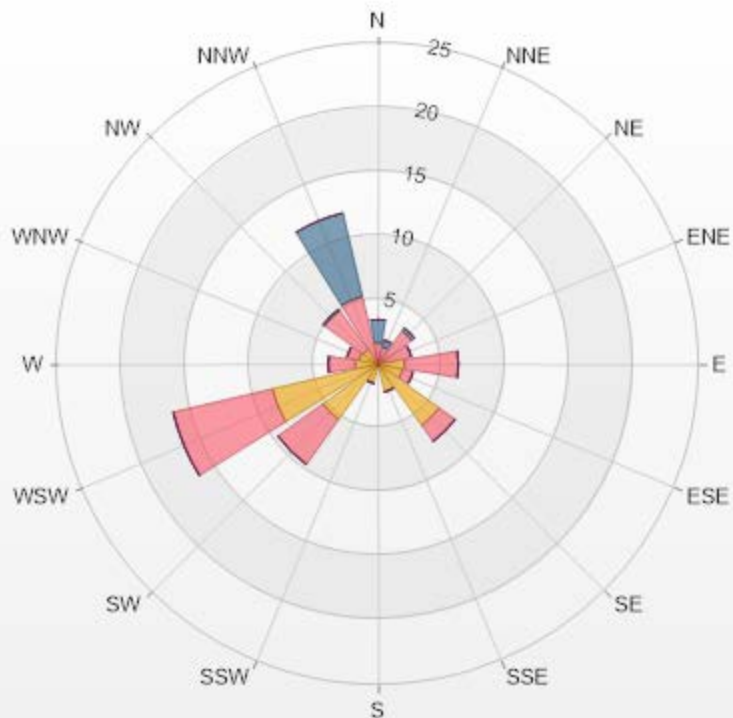
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

Timeseries Chart of Hourly Average for VWS - Cold Lake South Station



Wind: Cold Lake South Monitor: WDS [kph] Monthly: 11-2022 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 18.47% 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	1.67	1.81	0	0	3.48
NNE	0	1.39	0.56	0	0	1.95
NE	0.14	3.06	0.28	0	0	3.48
ENE	0.56	2.08	0	0	0	2.64
E	2.08	4.17	0	0	0	6.25
ESE	1.94	0.83	0	0	0	2.77
SE	5.83	1.53	0	0	0	7.36
SSE	2.22	0	0	0	0	2.22
S	0.14	0	0	0	0	0.14
SSW	1.53	0	0	0	0	1.53
SW	5.28	4.31	0	0	0	9.59
WSW	8.47	7.92	0	0	0	16.39
W	1.81	2.08	0	0	0	3.89
WNW	1.53	0.97	0	0	0	2.5
NW	1.39	3.75	0.14	0	0	5.28
NNW	0.28	5.14	6.67	0	0	12.09
Summary	33.2	38.9	9.46	0	0	81.56



LICA-202211

% Icon Classes (kph)

33



1.8-6.0

39



6.0-15.0

9



15.0-29.0

0



29.0-39.0

0



>39.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - November 2022

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:	323 (NW) degree	Hours in Service:	720
		Hours of Data:	720
		Hours of Missing Data:	0
		Hours of Calibration:	0
		Operational Uptime:	100.0

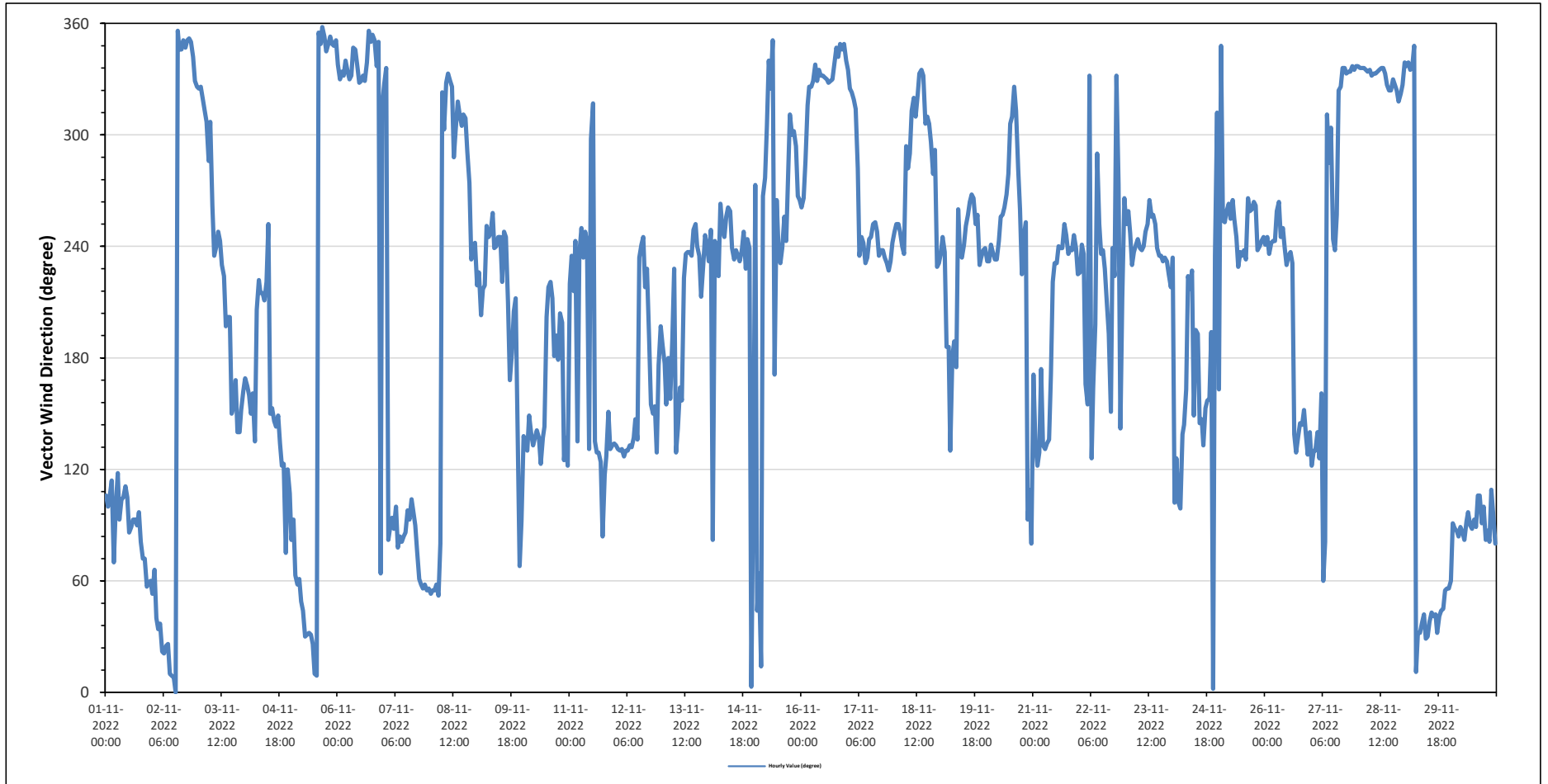
Day	Hourly Period Starting at (MST)																							Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant
Nov 1	ESE	E	ESE	ESE	ENE	E	ESE	E	ESE	ESE	ESE	ESE	E	E	E	E	E	E	E	ENE	ENE	ENE	ENE	ENE	91	E
Nov 2	NE	ENE	NE	NE	NE	NNE	NNE	NNE	NNE	N	N	N	N	N	NNW	NNW	N	NNW	N	N	N	NNW	NNW	NW	3	N
Nov 3	NW	NW	NW	NW	NW	WNW	NW	W	SW	WSW	WSW	WSW	SW	SW	SSW	SSW	SSW	SSE	SSE	SSE	SE	SE	SSE	SSE	242	WSW
Nov 4	SSE	SSE	SSE	SSE	SSE	SE	SSW	SW	SSW	SSW	SSW	SW	WSW	SSE	SSE	SE	SE	SSE	SE	ESE	ESE	ENE	ESE	ESE	166	SSE
Nov 5	E	E	ENE	ENE	ENE	NE	NE	NNE	NNE	NNE	NNE	NNE	N	N	N	NNW	N	N	NNW	NNW	N	NNW	NNW	N	13	NNE
Nov 6	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	N	NNW	N	ENE	NW	338	NNW
Nov 7	NNW	NNW	E	E	E	E	E	ENE	E	E	E	E	E	ESE	E	E	ENE	ENE	ENE	NE	ENE	NE	NE	NE	74	ENE
Nov 8	NE	NE	NE	ENE	NE	E	NW	WNW	NNW	NNW	NNW	NW	WNW	WNW	NW	NW	WNW	NW	NW	WNW	W	SW	WSW	WSW	336	NNW
Nov 9	SW	SW	SSW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	WSW	SSW	SSE	S	SSW	SSW	SE	ENE	E	237	SW	
Nov 10	SE	SE	SE	SSE	SE	SE	SE	SE	SE	ESE	SE	SE	SSW	SW	SW	SSW	S	S	SSW	SSW	SE	SE	ESE	166	SSE	
Nov 11	SW	SW	SW	WSW	SE	SW	WSW	SW	WSW	WSW	SE	WNW	NW	SE	SE	SE	ESE	E	ESE	SE	SSE	SE	SE	SE	139	SE
Nov 12	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SW	WSW	WSW	SW	S	SSE	SSE	SSE	SE	S	SSW	144	SE	
Nov 13	S	S	SSE	S	SSE	S	SW	SE	SE	SSE	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	SW	SSW	SW	WSW	WSW	223	SW
Nov 14	SW	WSW	E	WSW	SW	SW	W	WSW	WSW	WSW	W	WSW	WSW	SW	SW	SW	SW	SW	WSW	SW	WSW	WSW	N	ESE	243	WSW
Nov 15	W	NE	ENE	NNE	W	W	WNW	NNW	NW	N	S	W	WSW	SW	WSW	WSW	W	NW	WNW	WNW	WNW	W	W	272	W	
Nov 16	W	W	WNW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	332	NNW
Nov 17	NNW	NW	NW	NW	NW	W	SW	WSW	WSW	SW	SW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	WSW	259	WSW
Nov 18	WSW	WSW	WSW	WSW	WSW	SW	WNW	W	WNW	NW	NW	NW	NNW	NNW	NNW	NNW	NW	NW	WNW	W	WNW	SW	SW	298	WNW	
Nov 19	SW	WSW	SW	S	S	SE	S	S	S	WSW	SW	SW	WSW	WSW	W	W	WSW	WSW	SW	SW	SW	SW	WSW	244	WSW	
Nov 20	SW	SW	WSW	SW	SW	SW	WSW	WSW	WSW	W	W	W	NW	NW	NW	NW	W	WSW	SW	WSW	WSW	E	ESE	E	269	W
Nov 21	S	SE	ESE	SE	S	SE	SE	SE	SE	S	SW	SW	WSW	WSW	WSW	WSW	WSW	SW	WSW	SW	WSW	SW	WSW	223	SW	
Nov 22	SW	WSW	SW	SSE	SSE	NNW	SE	SSE	SSW	WNW	WSW	SW	SW	SSW	S	SSE	WSW	SW	NNW	W	SE	SSW	W	230	SW	
Nov 23	WSW	WSW	WSW	SW	SW	WSW	WSW	WSW	SW	WSW	WSW	W	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	243	WSW	
Nov 24	SW	E	SE	E	E	SE	SE	SSE	SW	SW	SW	SSE	SSW	S	SE	SE	SSE	SSE	SSE	SSW	N	SW	NW	176	S	
Nov 25	SSE	NNW	WSW	WSW	WSW	W	WSW	W	WSW	WSW	SW	SW	SW	SW	W	WSW	WSW	W	W	SW	WSW	WSW	WSW	248	WSW	
Nov 26	WSW	WSW	SW	WSW	WSW	WSW	WSW	W	WSW	WSW	WSW	SW	SW	SW	SW	SE	SE	SE	SE	SE	SSE	SE	SE	SE	230	SW
Nov 27	ESE	SE	SE	SE	SE	SSE	ENE	E	NW	WNW	WNW	WSW	SW	WSW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	332	NNW	
Nov 28	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	NNW	NW	NW	NW	NW	NW	NW	332	NNW
Nov 29	NNW	NNW	NNW	NNW	NNW	NNW	NNE	NNE	NNE	NE	NE	NNE	NNE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	23	NNE
Nov 30	ENE	E	E	E	E	E	E	E	E	E	E	E	E	ESE	ESE	E	E	E	E	E	E	ESE	E	E	89	E

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

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

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

Timeseries Chart of Hourly Average for VWD - Cold Lake South Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - November 2022

Summary of Hourly Averages

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

WIND SPEED																															
Maximum Hourly Value:							21.9 kph on November 16 at hour 14							Hours in Service:							720										
Maximum Daily Value:							15.4 kph on November 16							Hours of Data:							720										
Minimum Hourly Value:							0.0 kph on November 11 at hour 8							Hours of Missing Data:							0										
Minimum Daily Value:							1.1 kph on November 11							Hours of Calibration:							0										
Monthly Average:							2.3 kph							Operational Uptime:							100										
WIND DIRECTION																															
Monthly Average:							323 (NW) degree																								
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	4.2	6.9	4.7	4.3	3.1	3.8	7.8	5.5	7.3	8.9	8.4	8.0	9.7	9.9	9.1	7.6	8.4	6.0	6.1	6.2	5.2	7.6	8.0	8.2	3.1	9.9	6.6				
	ESE	E	ESE	ESE	ENE	E	ESE	E	ESE	ESE	ESE	ESE	E	E	E	E	E	E	E	ENE	ENE	ENE	ENE	ENE							
Nov 2	8.1	6.1	6.7	9.4	9.7	9.4	11.4	10.9	12.7	13.9	15.9	16.3	14.4	15.2	15.3	17.3	15.0	15.5	16.4	14.5	13.4	13.4	11.3	12.0	6.1	17.3	11.7				
	NE	ENE	NE	NE	ENE	NNE	NNE	NNE	NNE	N	N	N	N	NNW	NNW	N	NNW	N	N	N	N	NNW	NNW	NW							
Nov 3	11.0	10.7	7.8	5.7	6.9	5.6	5.4	3.8	5.0	6.3	6.9	8.1	8.5	6.4	5.4	5.6	5.6	4.4	4.5	5.3	6.9	6.8	4.1	5.1	3.8	11.0	3.0				
	NW	NW	NW	NW	NW	WNW	NW	W	SW	WSW	WSW	WSW	SW	SW	SSW	SSW	SSW	SSE	SSE	SSE	SE	SE	SSE	SSE							
Nov 4	5.1	3.5	5.3	4.1	1.6	2.1	3.6	3.1	4.8	5.2	3.8	5.0	3.2	4.4	3.5	2.2	2.2	1.5	0.8	3.6	4.8	3.2	4.3	3.9	0.8	5.3	2.6				
	SSE	SSE	SSE	SSE	SSE	SE	SSW	SW	SSW	SSW	SSW	SW	WSW	SSE	SSE	SE	SE	SSE	SE	ESE	ESE	ENE	ESE	ESE							
Nov 5	2.9	4.9	6.0	10.1	9.5	13.0	16.5	14.7	17.2	19.0	19.8	19.3	20.0	19.5	20.1	20.3	18.2	17.9	21.1	19.3	18.0	16.5	15.2	12.7	2.9	21.1	14.0				
	E	E	ENE	ENE	NE	NE	NNE	NNE	NNE	NNE	NNE	N	N	NNW	N	N	NNW	N	NNW	N	NNW	NW	NNW	N							
Nov 6	12.7	14.3	14.2	16.1	12.9	15.3	15.2	11.5	9.8	13.1	14.8	13.8	12.8	13.3	13.2	12.7	11.1	10.7	10.4	10.8	12.0	7.0	2.0	3.7	2.0	16.1	11.6				
	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	NNW	N	ENE	NW	NW							
Nov 7	5.7	3.5	3.9	8.8	8.3	6.7	6.6	8.6	8.4	9.4	8.6	9.4	9.2	9.8	8.3	7.6	11.5	9.9	13.0	12.8	14.1	14.9	15.3	14.9	3.5	15.3	8.7				
	NNW	NNW	E	E	E	E	ENE	E	E	E	E	E	E	ESE	E	ESE	E	ENE	ENE	ENE	NE	ENE	NE	NE							
Nov 8	13.5	12.0	10.3	7.7	3.7	1.8	1.3	3.3	6.2	8.8	8.3	7.4	9.1	9.2	7.4	5.8	5.4	5.0	5.8	4.3	5.8	3.5	3.8	3.1	1.3	13.5	3.7				
	NE	NE	NE	ENE	NE	E	NW	WNW	NNW	NNW	NNW	NW	WNW	WNW	NW	NW	WNW	NW	NW	WNW	W	SW	WSW	WSW							
Nov 9	3.0	3.2	0.3	0.7	0.6	5.0	7.3	5.1	3.6	4.1	4.5	7.1	7.1	7.9	6.7	4.7	1.4	0.4	1.0	2.0	1.3	0.3	0.1	0.3	0.1	7.9	3.1				
	SW	SW	SSW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	WSW	WSW	SSW	SSE	S	SSW	SSW	SE	ENE	E								
Nov 10	1.6	3.1	2.6	1.9	3.8	6.5	4.5	2.8	2.1	1.9	4.0	5.7	8.5	6.5	3.8	1.2	1.4	0.8	0.3	0.4	0.6	0.4	0.3	0.3	8.5	2.3					
	SE	SE	SE	SSE	SE	SE	SE	SE	SE	ESE	SE	SE	SSW	SW	SSW	S	S	S	SSW	SSW	SE	SE	ESE								
Nov 11	0.4	0.3	0.3	0.2	0.1	0.6	0.4	0.5	0.0	0.0	1.8	3.7	0.8	3.1	2.8	4.3	1.9	0.4	0.3	1.5	1.5	3.9	5.4	5.5	0.0	5.5	1.1				
	SW	SW	SW	WSW	SE	SW	WSW	SW	WSW	WSW	SE	WNW	NW	SE	SE	ESE	E	ESE	SE	SSE	SE	SE	SE	SE							
Nov 12	6.7	5.9	4.6	7.0	7.9	7.4	7.2	6.4	7.7	6.8	4.1	3.2	2.0	3.6	4.0	3.2	0.9	0.9	1.2	0.6	1.2	1.9	0.9	0.6	0.6	7.9	3.3				
	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SW	WSW	WSW	SW	SW	S	SSE	SSE	SE	S	SSW								
Nov 13	1.0	0.5	0.8	0.8	0.8	0.6	1.0	3.3	1.7	2.8	3.5	5.8	8.4	8.7	7.8	6.5	3.6	2.1	4.1	2.6	1.5	3.7	3.8	2.7	0.5	8.7	2.7				
	S	S	SSE	S	SSE	S	SW	SE	SE	SSE	SSE	SW	SW	SW	SW	WSW	WSW	WSW	SW	SSW	SW	WSW	WSW								
Nov 14	1.9	5.1	0.5	1.2	2.8	1.7	1.6	4.7	4.5	3.3	4.7	4.7	5.7	5.9	4.6	4.6	5.0	3.5	2.4	0.1	0.9	1.5	0.0	0.4	0.0	5.9	2.9				
	SW	WSW	E	WSW	SW	W	WSW	WSW	WSW	W	WSW	WSW	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	N	ESE								
Nov 15	0.4	0.1	0.2	0.1	0.2	0.5	0.3	0.1	0.1	0.3	2.4	4.0	5.0	7.9	6.9	4.5	5.1	6.2	10.9	9.4	8.4	6.7	5.3	7.0	0.1	10.9	3.3				
	W	NE	ENE	NNE	W	W	WNW	NNW	NW	N	S	W	WSW	SW	WSW	WSW	WSW	W	NW	WNW	WNW	WNW	W	W							
Nov 16	7.8	6.6	5.9	8.2	14.2	12.3	13.6	11.9	21.8	20.3	16.0	15.7	18.3	20.5	21.9	18.9	18.7	21.1	19.8	19.6	19.6	19.4	16.1	16.9	5.9	21.9	15.4				
	W	WNW	NNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW							
Nov 17	17.0	11.9	9.0	9.0	8.0	4.5	4.6	5.2	6.0	7.9	9.5	9.5	10.6	10.9	11.1	9.9	10.4	8.4	8.7	8.9	8.5	8.5	8.6	8.7	4.5	17.0	7.2				
	NNW	NW	NNW	NW	NW	W	SW	WSW	WSW	SW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	WSW							
Nov 18	9.6	10.0	9.0	5.8	5.9	2.8	7.5	5.0	7.2	12.6	15.7	14.4	12.4	13.5	14.4	14.0	8.1	6.5	5.4	4.4	3.2	3.6	3.2	6.0	2.8	15.7	7.0				
	WSW	WSW	WSW	WSW	WSW	SW	WNW	W	WNW	NW	NW	NW	NW	NNW	NNW	NNW	NW	NW	NW	WNW	W	WNW	SW	SW							
Nov 19	6.4	5.7	4.3	1.7	0.4	1.0	0.8	0.9	0.8	2.3	7.7	10.2	9.5	8.5	7.7	5.6	5.3	4.3	5.1	3.6	0.5	1.6	3.7	3.9	0.4	10.2	4.0				
	SW	WSW	SW	S	S	SE	S	S	S	WSW	SW	SW	WSW	WSW	WSW	W	W	W	WSW	WSW	SW	SW	SW	WSW							
Nov 20	2.5	5.2	5.0	5.3	5.8	5.3	5.5	10.1	9.2	8.1	7.4	8.3	9.9	10.1	10.4	5.2	2.5	1.6	0.7	2.4	0.6	0.3	0.6	0.1	0.1	10.4	4.3				
	SW	SW	WSW	SW	SW	SW	WSW	WSW	WSW	W	W	W	NW	NW	NW	NW	W	WSW	SW	WSW	WSW	E	ESE	E							



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - November 2022

Summary of Hourly Averages

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

WIND SPEED																													
Maximum Hourly Value:	21.9	kph	on November 16 at hour 14	Hours in Service:	720																								
Maximum Daily Value:	15.4	kph	on November 16	Hours of Data:	720																								
Minimum Hourly Value:	0.0	kph	on November 11 at hour 8	Hours of Missing Data:	0																								
Minimum Daily Value:	1.1	kph	on November 11	Hours of Calibration:	0																								
Monthly Average:	2.3	kph		Operational Uptime:	100																								
WIND DIRECTION																													
Monthly Average:	323 (NW) degree																												
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 21	0.4	2.1	3.0	4.9	1.1	2.4	3.1	3.2	3.2	1.4	3.4	6.6	11.3	10.5	8.6	8.0	6.8	5.5	6.3	6.4	6.0	5.8	7.0	3.2	0.4	11.3	3.9		
	S	SE	ESE	SE	S	SE	SE	SE	SE	S	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	SW	WSW	SW	WSW	WSW	SW					
Nov 22	5.4	4.7	3.5	0.4	0.2	0.5	1.3	0.4	1.0	0.7	1.2	4.9	5.3	4.2	2.7	0.9	0.8	2.6	1.0	0.7	0.6	0.2	1.6	1.7	0.2	5.4	1.7		
	SW	WSW	SW	SSE	SSE	NNW	SE	SSE	SSW	WNW	WSW	SW	SW	SSW	S	SSE	WSW	SW	NNW	W	SE	SSW	W						
Nov 23	3.4	2.3	5.3	5.9	5.2	6.0	4.7	5.6	6.8	7.0	7.4	9.9	8.7	8.1	9.0	8.9	7.5	9.0	7.4	7.2	8.2	7.7	5.6	3.5	2.3	9.9	6.6		
	WSW	WSW	WSW	SW	SW	WSW	WSW	WSW	SW	WSW	WSW	WSW	W	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW					
Nov 24	2.2	0.6	0.8	0.7	1.4	0.8	1.7	0.7	2.5	1.8	3.8	3.8	2.5	2.5	2.3	1.7	1.8	1.1	0.6	0.7	1.1	0.5	0.7	0.3	0.3	3.8	1.1		
	SW	E	SE	E	E	SE	SE	SSE	SW	SW	SW	SSE	SSW	S	SE	SE	SE	SSE	SSE	SSW	N	SW	NW						
Nov 25	0.7	0.2	0.9	1.1	1.7	1.8	2.4	2.5	2.8	5.3	7.0	11.0	9.8	9.4	9.8	11.1	11.8	11.7	9.3	7.3	6.3	7.9	8.5	7.6	0.2	11.8	6.0		
	SSE	NNW	WSW	WSW	WSW	W	WSW	W	WSW	WSW	SW	SW	SW	SW	SW	W	WSW	WSW	W	W	SW	WSW	WSW	WSW					
Nov 26	7.1	7.4	6.8	9.2	10.2	11.1	10.1	7.6	6.3	2.6	4.5	7.8	6.3	4.1	4.2	1.5	2.5	2.5	3.1	2.7	1.8	3.1	4.5	2.5	1.5	11.1	4.2		
	WSW	WSW	SW	WSW	WSW	WSW	WSW	W	WSW	WSW	WSW	SW	SW	SW	SW	SE	SE	SE	SE	SE	SSE	SE	SE	SE					
Nov 27	4.6	3.7	5.8	2.7	3.7	0.8	0.6	0.9	0.2	3.1	3.3	3.4	3.1	4.1	10.1	19.1	18.7	17.0	15.4	15.4	16.3	13.5	17.5	17.4	0.2	19.1	6.1		
	ESE	SE	SE	SE	SE	SSE	ENE	E	NW	WNW	WNW	WSW	SW	WSW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW					
Nov 28	18.6	18.3	18.9	18.1	16.4	16.2	17.0	16.4	14.7	16.8	17.2	15.5	14.8	16.0	16.3	12.3	13.6	12.9	14.2	13.3	11.2	8.9	9.4	10.1	8.9	18.9	14.8		
	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	NNW	NW	NNW	NW	NW	NW					
Nov 29	12.7	12.1	12.1	15.5	16.0	11.2	8.7	13.3	12.5	13.5	11.8	11.4	11.9	11.6	12.7	12.3	12.3	10.8	11.2	9.4	9.0	10.3	12.1	11.4	8.7	16.0	10.5		
	NNW	NNW	NNW	NNW	NNW	NNW	NNE	NNE	NNE	NE	NE	NNE	NNE	NE	NE	NE	NE	NNE	NE	NE	NE	NE	NE	NE					
Nov 30	10.3	7.5	5.1	5.4	7.1	4.1	6.8	7.0	4.6	6.1	7.5	8.4	8.9	6.6	4.6	5.2	5.3	6.6	6.0	7.9	5.3	5.5	5.4	5.6	4.1	10.3	6.3		
	ENE	E	E	E	E	E	E	E	E	E	E	E	E	E	ESE	ESE	E	E	E	E	E	ESE	E	E					
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance												
K	Collection Error							N	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 2022

Summary of Hour Standard Deviations

STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

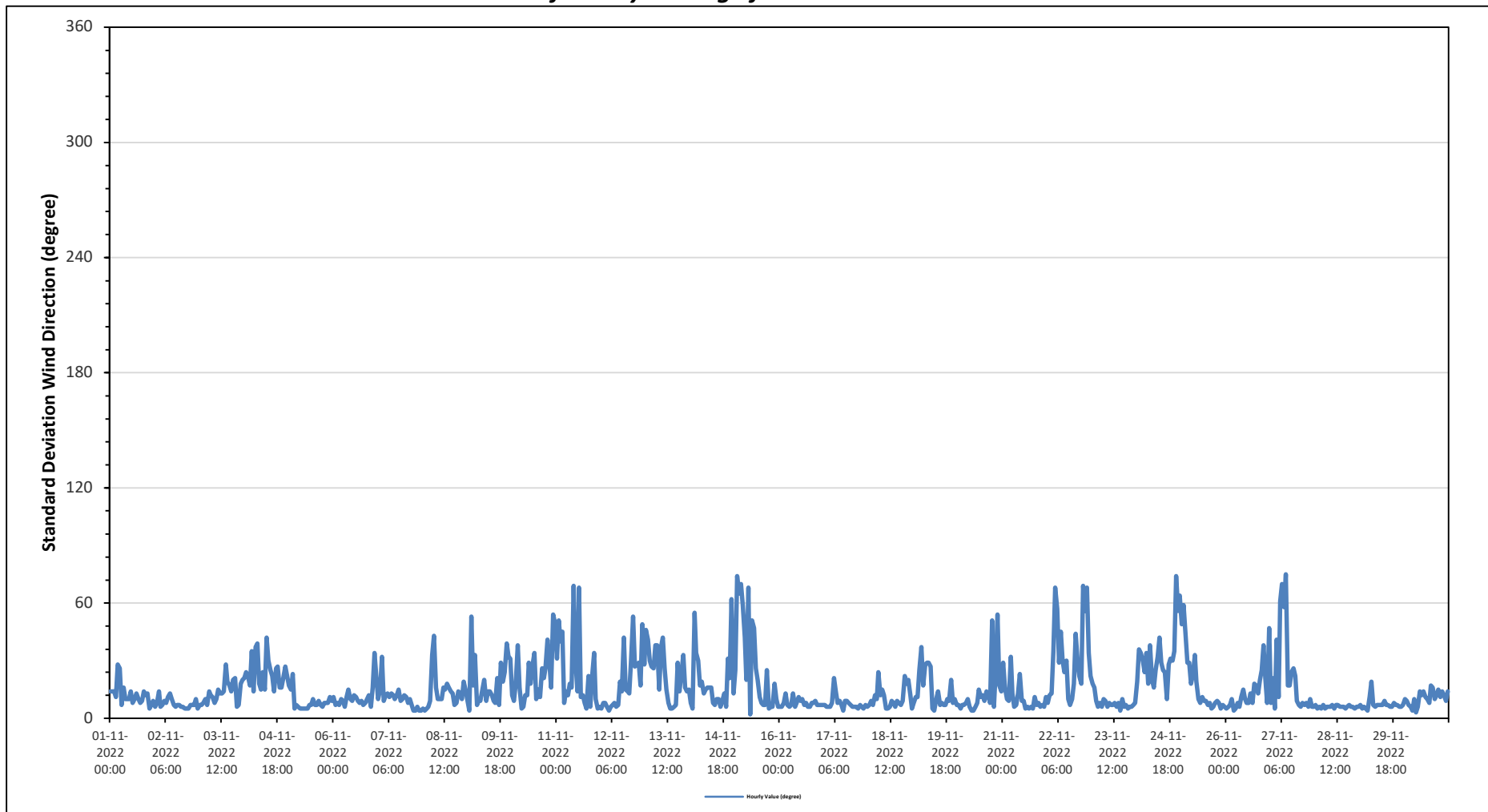
Maximum Hourly Value:	75 degree on November 27 at hour 8	Hours in Service:	720
Minimum Hourly Value:	2 degree on November 15 at hour 8	Hours of Data:	720
		Hours of Missing Data:	0
		Hours of Calibration:	0
		Operational Uptime:	100.0

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	14	14	14	11	28	26	7	16	10	10	10	14	8	10	13	10	8	9	14	12	13	5	7	9	5	28	
Nov 2	6	8	14	6	7	9	8	11	13	10	7	6	7	7	6	6	5	5	5	7	7	7	10	5	5	14	
Nov 3	7	7	8	10	7	14	12	11	8	10	15	13	13	14	28	19	17	14	20	21	6	7	18	20	6	28	
Nov 4	21	24	22	17	35	14	37	39	18	15	24	15	42	30	25	22	14	26	27	16	16	21	27	22	14	42	
Nov 5	17	15	23	5	7	6	5	5	5	5	5	7	7	10	7	7	9	7	6	8	8	8	11	9	5	23	
Nov 6	11	7	8	7	10	9	6	11	15	10	9	12	11	9	8	9	7	8	10	12	6	16	34	20	6	34	
Nov 7	10	15	32	9	12	13	11	13	12	10	12	15	9	10	12	11	8	10	7	4	4	6	4	4	4	32	
Nov 8	5	4	5	6	9	33	43	16	10	10	10	16	15	18	16	14	13	7	8	14	13	10	19	15	4	43	
Nov 9	9	4	53	17	33	7	9	9	15	20	9	14	14	12	9	8	21	7	29	19	24	39	32	31	4	53	
Nov 10	12	9	18	38	16	5	6	12	12	29	18	28	34	10	15	11	26	21	26	41	30	16	54	50	5	54	
Nov 11	31	51	40	45	8	14	12	18	16	69	30	14	68	11	12	8	5	22	6	23	34	10	5	6	5	69	
Nov 12	5	8	8	6	4	6	7	8	6	7	19	14	42	15	14	13	30	53	27	28	29	17	49	28	4	53	
Nov 13	46	41	30	27	26	38	38	15	37	42	26	15	8	5	5	6	7	29	14	23	33	16	14	15	5	46	
Nov 14	8	5	55	34	30	17	19	13	15	16	16	16	8	7	10	10	6	9	13	6	31	21	62	13	5	62	
Nov 15	25	74	65	70	59	42	20	68	2	51	47	26	20	11	8	7	7	25	5	6	6	18	10	6	2	74	
Nov 16	6	6	8	13	7	6	7	13	6	8	11	9	10	7	8	6	6	8	8	9	7	7	7	7	6	13	
Nov 17	7	6	6	6	8	21	14	8	9	7	4	9	9	8	7	6	6	6	5	7	6	5	7	6	4	21	
Nov 18	7	9	7	12	10	24	12	15	12	5	5	6	9	8	6	9	8	7	9	22	18	20	12	5	5	24	
Nov 19	8	11	11	25	37	17	28	29	29	27	5	4	10	14	7	8	7	7	10	9	20	8	10	7	4	37	
Nov 20	7	5	7	7	8	10	6	4	4	6	8	15	11	12	9	14	12	8	51	6	25	54	17	14	4	54	
Nov 21	29	16	10	9	32	13	6	7	13	23	9	5	6	5	6	5	11	7	8	6	7	6	11	5	5	32	
Nov 22	8	12	13	35	68	57	29	45	30	24	30	10	7	10	18	44	29	22	18	69	56	68	34	22	7	69	
Nov 23	18	16	9	6	8	6	10	9	6	8	7	7	8	6	8	4	10	6	7	5	6	6	7	8	4	18	
Nov 24	19	36	34	30	24	34	18	38	20	16	25	32	42	29	25	24	10	28	31	30	35	74	56	64	10	74	
Nov 25	49	59	45	29	29	18	23	33	19	10	8	11	9	9	7	8	5	6	8	9	8	5	7	6	5	59	
Nov 26	5	6	7	10	4	5	8	6	11	15	10	8	8	13	8	18	17	13	20	25	38	21	8	47	4	47	
Nov 27	8	21	5	41	11	61	70	58	75	17	17	24	26	22	9	7	6	8	7	8	6	10	6	6	5	75	
Nov 28	7	5	6	5	7	5	6	6	7	5	7	7	6	6	6	5	6	6	7	6	6	5	6	6	5	7	
Nov 29	7	5	6	5	4	11	19	7	6	7	7	7	7	9	7	7	6	6	8	7	7	6	6	7	4	19	
Nov 30	10	9	7	6	4	10	3	6	14	12	14	11	10	8	17	16	10	12	15	11	14	12	9	14	3	17	
Diurnal Minimum	5	4	5	5	4	5	3	4	2	5	4	4	5	5	5	4	5	5	5	4	4	5	4	4	4	4	4
Diurnal Maximum	49	74	65	70	68	61	70	68	75	69	47	32	68	30	28	44	30	53	51	69	56	74	62	64			

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

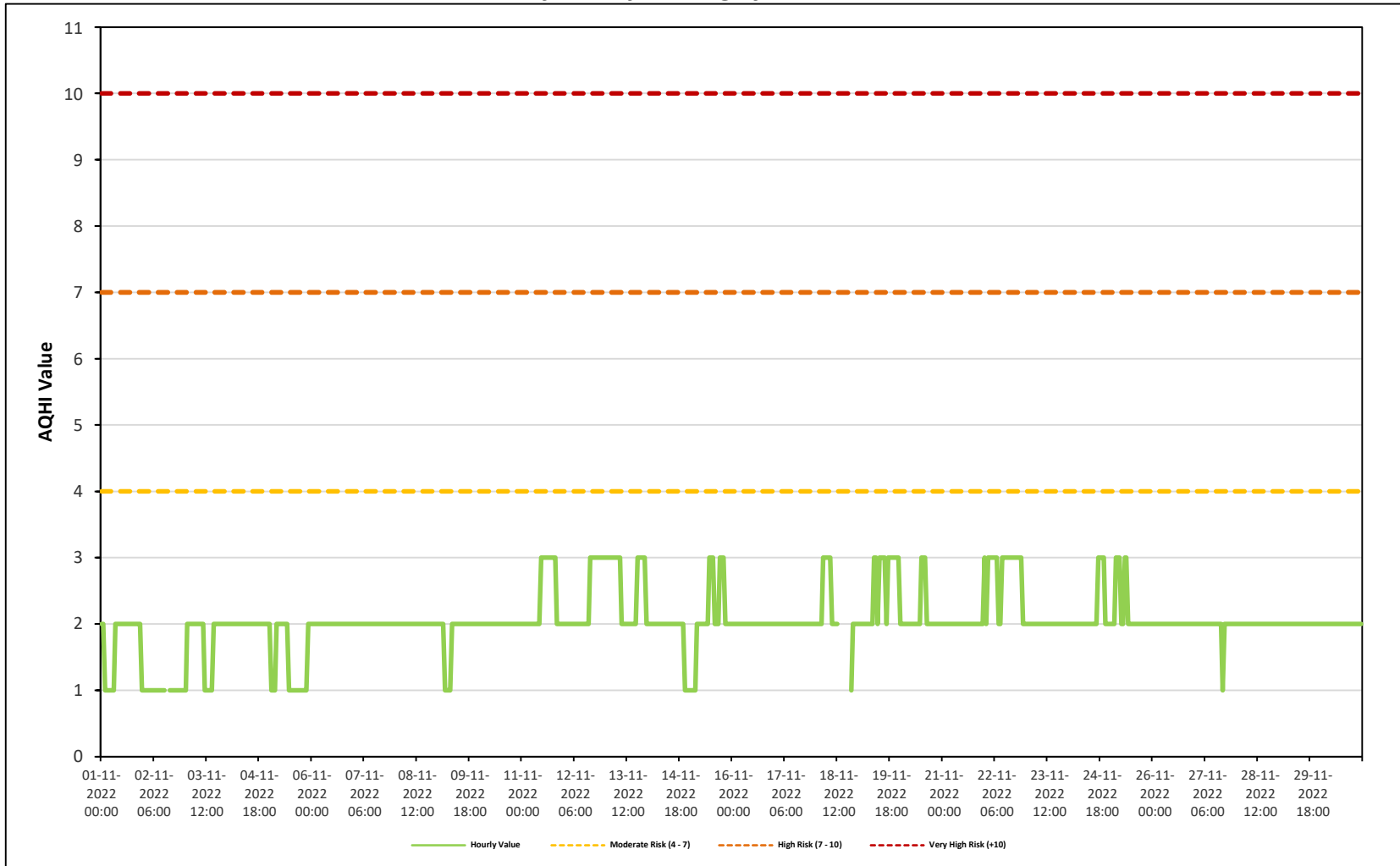
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

Timeseries Chart of Hourly Average for STDWD - Cold Lake South Station



TAMARACK STATION

Timeseries Chart of Hourly Average for AQHI - Tamarack Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Station - November 2022

Summary of Hourly Averages

SULPHUR DIOXIDE (SO₂) 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:	24 ppb on November 18 at hour 6	Hours in Service:	720
Maximum Daily Value:	6.5 ppb on November 18	Hours of Data:	684
Minimum Hourly Value:	0 ppb on November 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 ppb on November 2	Hours of Calibration:	36
Monthly Average:	0.9 ppb	Operational Uptime:	100.0

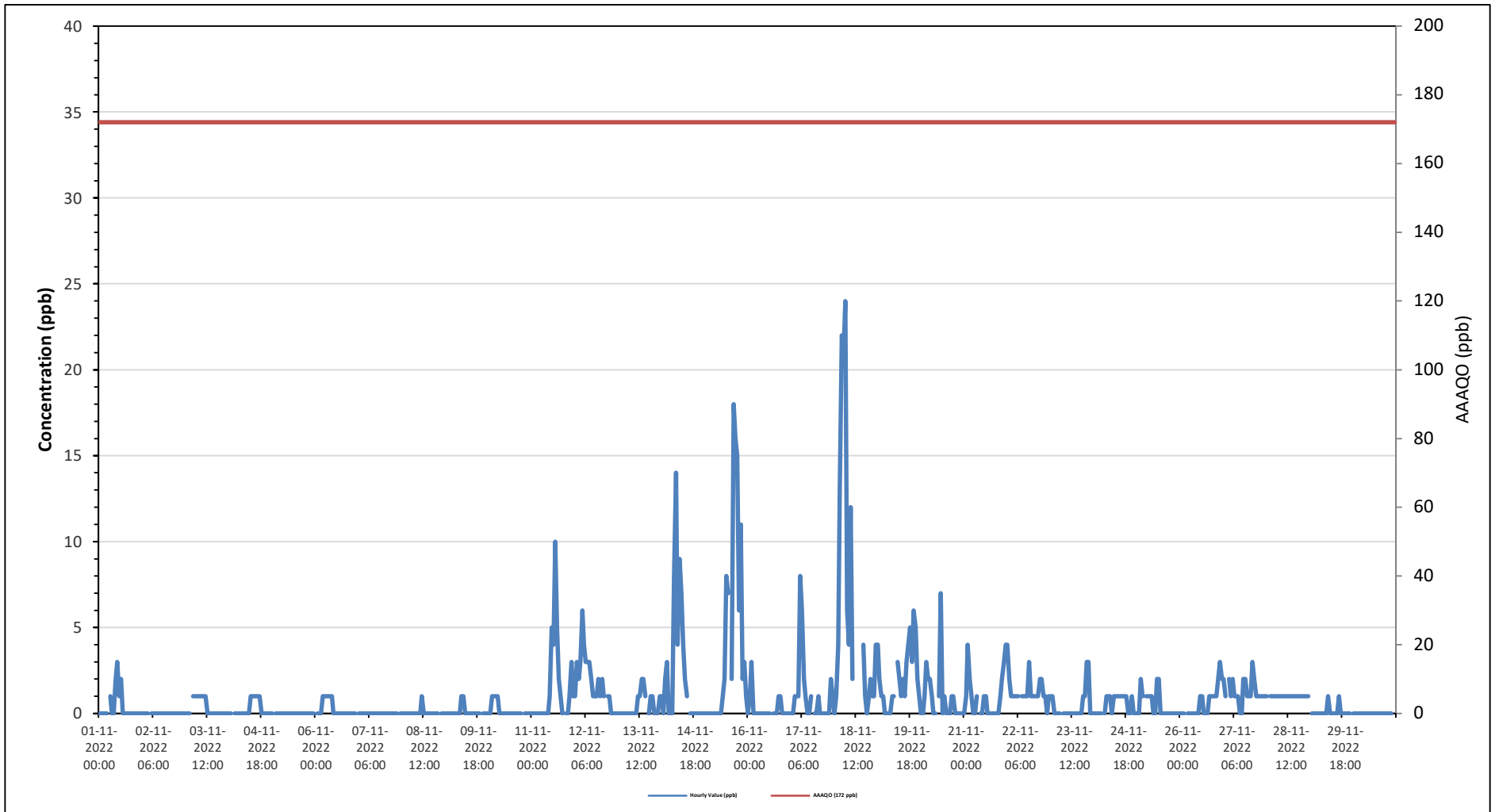
Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average											
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23														
Nov 1	0	0	0	0	0	S	1	0	0	2	3	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.4
Nov 2	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Nov 3	0	0	0	S	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3			
Nov 4	0	0	S	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3			
Nov 5	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0		
Nov 6	S	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	1	0.3				
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	S	0	0	0	0	0.0			
Nov 8	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	S	0	0	0	0	1	0.0				
Nov 9	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0.1			
Nov 10	0	0	1	1	1	1	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	1	0.2			
Nov 11	0	0	0	0	0	0	0	0	0	0	1	5	4	10	5	2	1	0	0	S	0	0	1	3	1	0	0	0	0	0	0	0	0	10	1.4			
Nov 12	1	3	2	3	6	4	3	3	3	2	1	1	1	2	1	2	1	S	0	1	1	0	0	0	0	0	0	0	0	0	0	0	6	1.8				
Nov 13	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	1	S	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	2	0.4				
Nov 14	1	0	2	3	0	0	0	8	14	4	9	7	4	2	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	2.4				
Nov 15	0	0	0	0	0	0	0	0	0	0	1	2	8	7	S	2	18	16	15	6	11	2	3	1	0	0	0	0	0	0	0	0	18	4.0				
Nov 16	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0.3				
Nov 17	0	0	1	1	1	8	6	2	1	0	0	1	S	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	1.1				
Nov 18	0	1	4	13	22	21	24	6	4	12	2	C	C	C	C	C	4	1	0	1	2	1	1	4	0	0	0	0	0	0	0	24	6.5					
Nov 19	4	2	1	1	0	0	0	0	1	1	S	3	2	1	2	1	3	4	5	3	6	5	2	1	0	0	0	0	0	0	0	0	6	2.1				
Nov 20	0	0	1	3	2	2	1	0	0	0	S	1	7	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	7	0.9				
Nov 21	0	1	4	2	1	0	0	1	S	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.9				
Nov 22	4	2	1	1	1	1	1	S	1	1	1	1	3	1	1	1	1	1	2	1	1	0	1	0	1	0	0	0	0	0	0	4	1.3					
Nov 23	1	1	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	1	1	3	3	0	0	0	0	0	0	0	0	0	3	0.4					
Nov 24	0	0	0	0	0	S	0	1	1	1	0	1	1	1	1	1	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0.5				
Nov 25	0	0	2	1	S	1	1	1	1	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.5				
Nov 26	0	0	0	S	0	0	0	0	0	0	0	1	1	0	0	0	1	1	1	1	1	2	3	2	0	0	0	0	0	0	0	0	3	0.6				
Nov 27	2	1	S	2	1	2	1	1	1	0	0	2	2	1	1	1	3	2	1	1	1	1	1	1	0	0	0	0	0	0	0	0	3	1.3				
Nov 28	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0			
Nov 29	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1			
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	S	0	0	0	0	0	0	0.0			
Diurnal Maximum	4	3	4	13	22	21	24	8	14	12	9	7	8	10	5	2	18	16	15	6	11	5	3	4														
Diurnal Average	0.5	0.4	0.8	1.1	1.4	1.5	1.4	0.9	1.0	0.9	0.8	1.3	1.2	1.1	0.6	0.5	1.2	1.0	1.1	0.6	0.9	0.7	0.7	0.6														

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

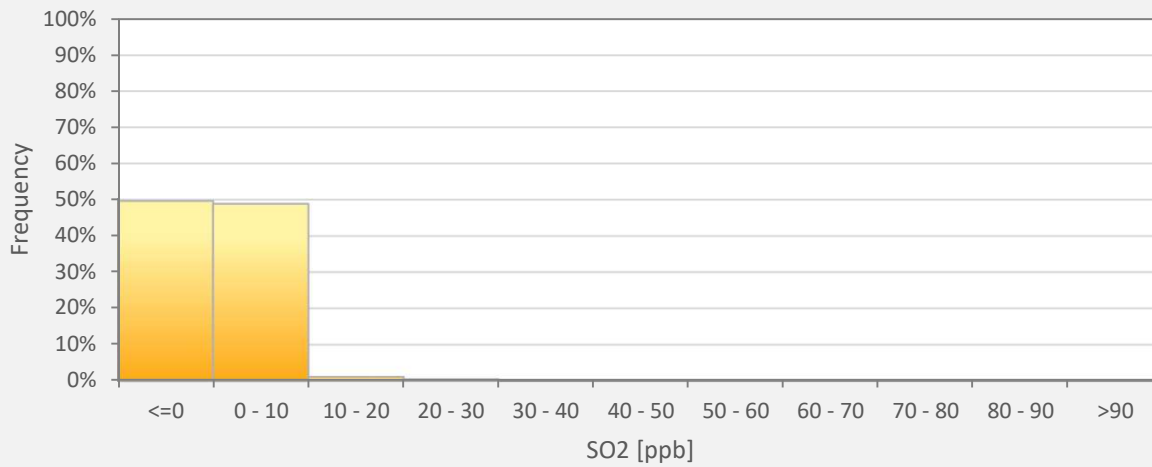
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

Timeseries Chart of Hourly Average for SO2 - Tamarack Station



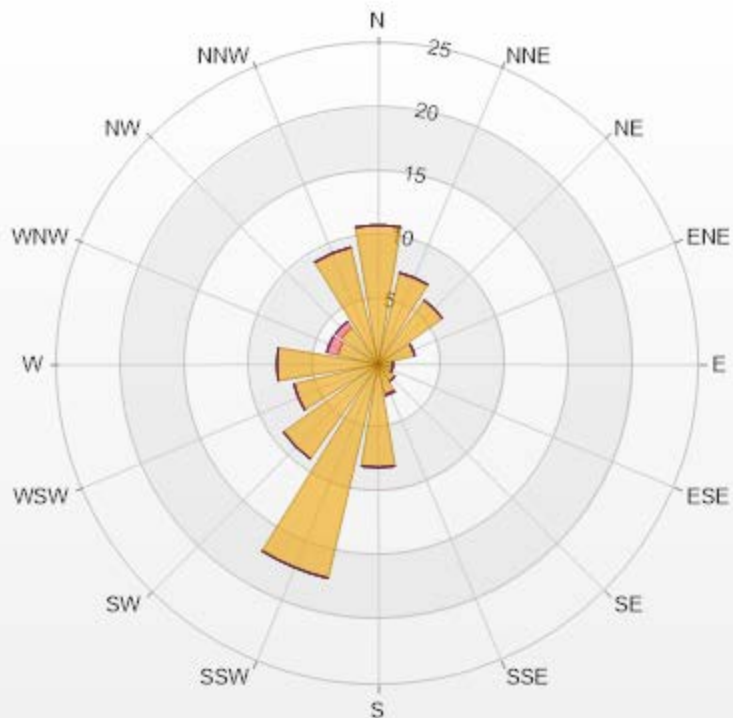
SO2[ppb] Histogram: Tamarack Monthly: 11-2022 1 Hr.



Classes	SO2
<=0	49.56%
0 - 10	48.83%
10 - 20	1.17%
20 - 30	0.44%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Tamarack Poll.: Tamarack-SO2[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.00% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	10.82	0	0	0	0	10.82
NNE	7.31	0	0	0	0	7.31
NE	6.14	0	0	0	0	6.14
ENE	2.92	0	0	0	0	2.92
E	1.17	0	0	0	0	1.17
ESE	1.17	0	0	0	0	1.17
SE	1.61	0	0	0	0	1.61
SSE	2.34	0.15	0	0	0	2.49
S	8.04	0	0	0	0	8.04
SSW	17.11	0	0	0	0	17.11
SW	9.06	0	0	0	0	9.06
WSW	6.73	0	0	0	0	6.73
W	7.89	0	0	0	0	7.89
WNW	3.22	0.88	0	0	0	4.1
NW	3.51	0.58	0	0	0	4.09
NNW	9.36	0	0	0	0	9.36
Summary	98.4	1.61	0	0	0	100



LICA-202211

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% Icon Classes (ppb)

98

0-10

2

10-50

0

50-100

0

100-172

0

>172.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Station - November 2022 Summary of Hourly Averages

HYDROGEN SULPHIDE (H₂S) 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

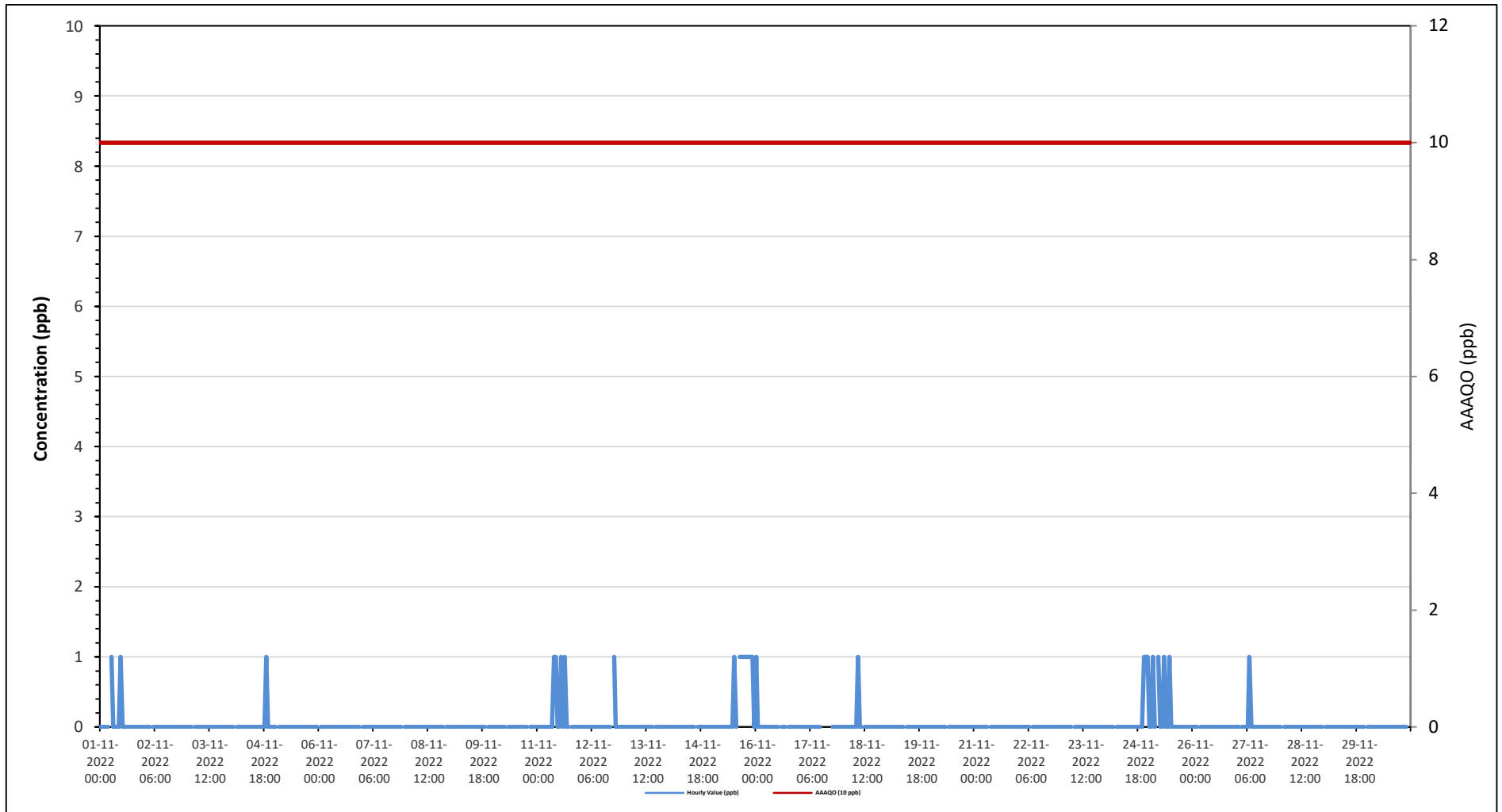
Maximum Hourly Value:	1 ppb on November 1 at hour 6	Hours in Service:	720
Maximum Daily Value:	0.4 ppb on November 15	Hours of Data:	681
Minimum Hourly Value:	0 ppb on November 1 at hour 0	Hours of Missing Data:	2
Minimum Daily Value:	0.0 ppb on November 2	Hours of Calibration:	37
Monthly Average:	0.0 ppb	Operational Uptime:	99.7

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	0	0	0	0	0	S	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	
Nov 2	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	0.0	
Nov 3	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	0.0	
Nov 4	0	0	S	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		
Nov 5	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Nov 6	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	S	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	0	0	0	0	S	S	0	0	0.0	
Nov 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0.0	
Nov 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0	
Nov 10	0	0	0	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	0.0	
Nov 11	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	1	0	0	0	S	1	0	0	0	0	0	0	1	0.2	
Nov 12	0	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	0	1	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	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 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	S	1	1	1	1	1	1	1	1	1	1	1	0.4	
Nov 16	1	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	1	0.0	
Nov 17	0	0	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	0.0	
Nov 18	0	0	0	0	0	0	0	0	1	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	
Nov 19	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	0	0.0
Nov 20	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	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	0.0
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	0.0
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	0.0
Nov 24	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	1	1	1	0.1	
Nov 25	0	0	1	0	S	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	
Nov 26	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	0	0.0
Nov 27	0	0	S	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	
Nov 28	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Nov 29	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	S	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	S	0	0	0	0.0
Diurnal Maximum	1.0	0.0	1.0	0.0	0.0	1.0	1.0	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	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Diurnal Average	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	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	

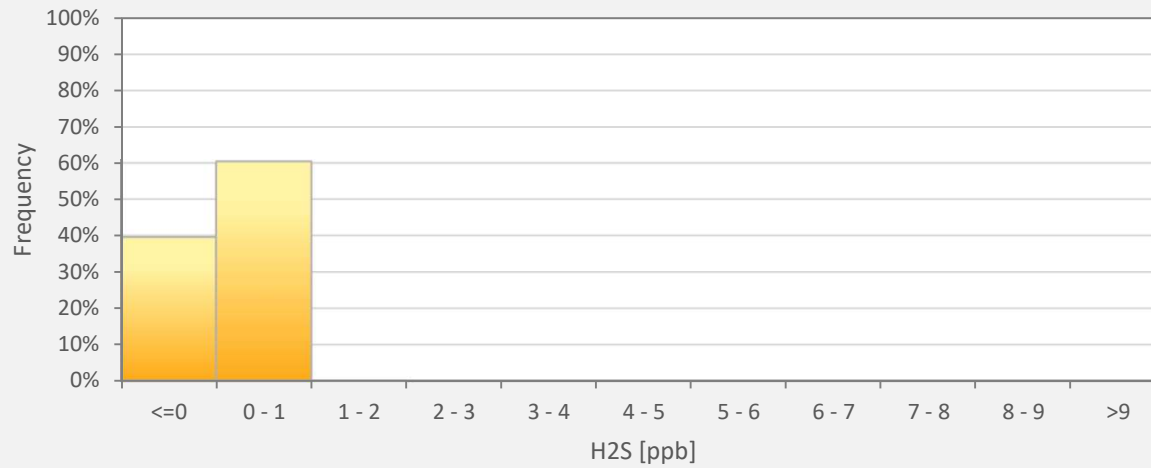
C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	N No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction /Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

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

Timeseries Chart of Hourly Average for H2S - Tamarack Station



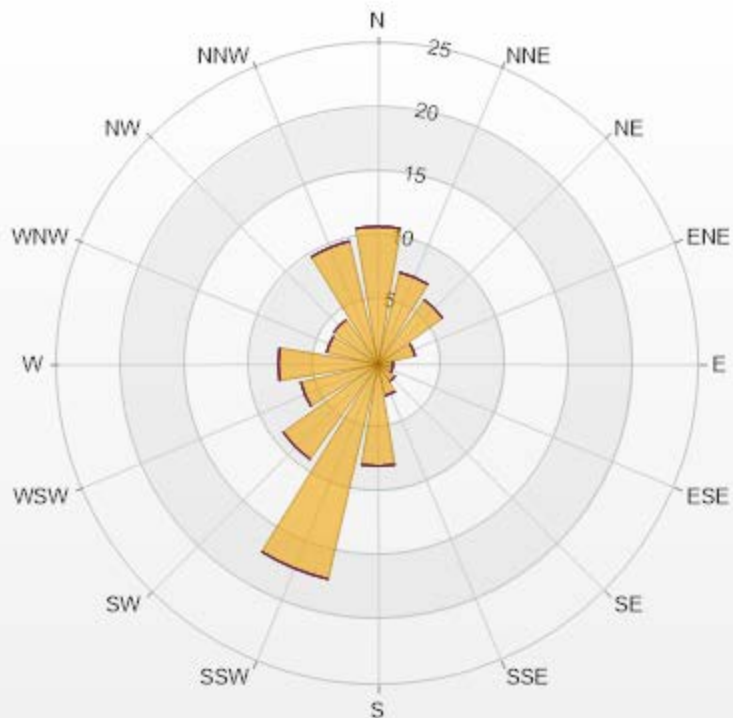
H2S[ppb] Histogram: Tamarack Monthly: 11-2022 1 Hr.



Classes	H2S
<=0	39.50%
0 - 1	60.35%
1 - 2	0.15%
2 - 3	0.00%
3 - 4	0.00%
4 - 5	0.00%
5 - 6	0.00%
6 - 7	0.00%
7 - 8	0.00%
8 - 9	0.00%
>9	0.00%

Wind: Tamarack Poll.: Tamarack-H2S[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 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	10.72	0	0	0	0	10.72
NNE	7.34	0	0	0	0	7.34
NE	6.17	0	0	0	0	6.17
ENE	2.94	0	0	0	0	2.94
E	1.17	0	0	0	0	1.17
ESE	1.17	0	0	0	0	1.17
SE	1.62	0	0	0	0	1.62
SSE	2.5	0	0	0	0	2.5
S	7.93	0	0	0	0	7.93
SSW	17.18	0	0	0	0	17.18
SW	9.1	0	0	0	0	9.1
WSW	6.17	0	0	0	0	6.17
W	7.78	0	0	0	0	7.78
WNW	4.11	0	0	0	0	4.11
NW	4.26	0	0	0	0	4.26
NNW	9.84	0	0	0	0	9.84
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100 0-2

0 2-5

0 5-10

0 10-50

0 >50.0



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Tamarack Station - November 2022

Summary of Hourly Averages

OXIDES OF NITROGEN (NOx) in ppb

Maximum Hourly Value:	48 ppb on November 11 at hour 10	Hours in Service:	720
Maximum Daily Value:	13.1 ppb on November 13	Hours of Data:	682
Minimum Hourly Value:	0 ppb on November 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 ppb on November 7	Hours of Calibration:	38
Monthly Average:	5.4 ppb	Operational Uptime:	100.0

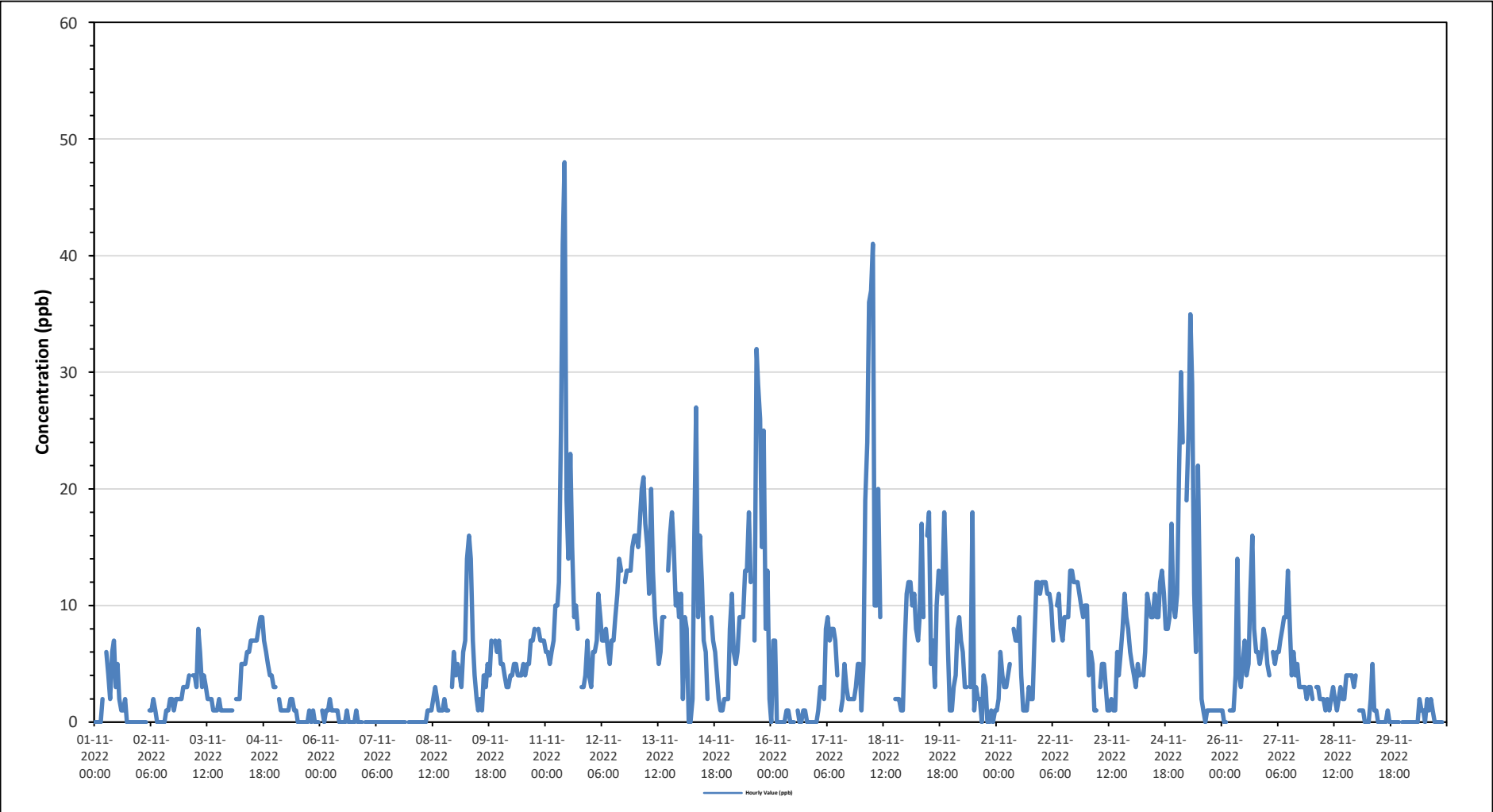
Day	Hourly Period Starting at (MST)																							Daily	Daily	Daily					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average				
Nov 1	0	0	0	0	2	S	6	4	2	6	7	3	5	2	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	7	1.8
Nov 2	0	0	0	0	S	1	1	2	1	0	0	0	0	0	1	1	2	2	1	2	2	2	2	2	3	0	3	1.0			
Nov 3	3	3	4	S	4	4	3	8	6	3	4	3	2	2	2	1	1	1	2	1	1	1	1	1	1	1	8	2.7			
Nov 4	1	1	S	2	2	2	5	5	5	6	6	7	7	7	8	9	9	9	7	6	5	4	4	3	1	9	5.1				
Nov 5	3	S	2	1	1	1	1	1	2	2	1	1	0	0	0	0	0	0	1	0	1	0	0	0	0	3	0.8				
Nov 6	S	1	0	1	1	2	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	S	0	2	0.5				
Nov 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	S	0	0	0	0.0			
Nov 8	0	0	0	0	0	0	0	0	0	0	1	1	2	3	2	1	1	1	2	1	1	S	3	6	0	6	1.1				
Nov 9	4	5	4	3	6	7	14	16	14	7	4	2	1	2	1	4	3	5	4	7	S	7	6	7	1	16	5.8				
Nov 10	5	5	4	3	3	4	4	5	5	4	4	5	4	5	5	7	7	8	S	8	7	7	7	7	3	8	5.2				
Nov 11	6	6	5	6	7	10	10	12	25	41	48	19	14	23	15	9	10	8	S	3	4	7	4	3	48	12.8					
Nov 12	3	6	6	7	11	9	7	7	8	6	5	7	7	9	11	14	13	S	12	13	13	13	15	16	3	16	9.5				
Nov 13	16	15	17	20	21	17	15	11	20	13	9	7	5	6	9	9	S	13	16	18	15	10	11	9	5	21	13.1				
Nov 14	11	2	9	8	0	2	16	27	9	16	12	7	6	2	S	9	7	6	4	2	1	1	2	0	27	6.9					
Nov 15	2	2	8	11	6	5	6	9	9	9	13	13	18	12	S	7	32	29	26	15	25	8	13	2	2	32	12.2				
Nov 16	0	7	7	0	0	0	0	0	1	1	0	0	0	S	1	0	0	1	1	0	0	0	0	0	0	7	0.8				
Nov 17	0	1	3	3	2	8	9	7	8	8	7	4	S	1	2	5	3	2	2	2	2	3	5	5	0	9	4.0				
Nov 18	1	5	19	24	36	37	41	10	10	20	9	C	C	C	C	C	C	C	2	2	2	1	1	7	1	41	-				
Nov 19	11	12	12	10	11	8	7	9	17	9	S	16	18	5	7	3	10	13	12	11	18	13	6	1	1	18	10.4				
Nov 20	1	3	4	8	9	7	6	3	3	S	3	18	1	3	2	2	0	4	3	0	0	1	0	1	0	18	3.6				
Nov 21	1	2	6	4	3	3	4	5	S	8	7	7	9	4	1	1	1	3	2	2	7	12	12	11	1	12	5.0				
Nov 22	12	12	12	11	10	7	S	10	11	8	7	9	9	9	9	13	13	12	12	12	11	10	9	10	7	13	10.4				
Nov 23	10	4	6	5	1	1	S	3	5	5	3	1	1	2	1	1	6	4	6	8	11	9	8	6	1	11	4.7				
Nov 24	5	4	3	5	4	S	4	6	11	10	9	9	11	9	9	12	13	11	8	8	9	17	10	9	3	17	8.5				
Nov 25	11	21	30	24	S	19	25	35	29	11	6	22	13	2	1	0	1	1	1	1	1	1	1	1	0	35	11.2				
Nov 26	1	0	0	S	1	1	1	4	14	4	3	5	7	4	5	11	16	8	6	6	5	6	8	7	0	16	5.3				
Nov 27	5	4	S	6	5	6	6	7	8	9	9	13	8	4	6	4	5	3	3	3	3	2	3	3	2	13	5.4				
Nov 28	2	S	3	3	2	2	2	1	2	1	2	3	2	1	2	3	2	2	4	4	4	4	3	4	1	4	2.5				
Nov 29	S	1	1	1	0	0	0	2	5	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	5	0.6				
Nov 30	0	0	0	0	0	0	0	0	0	0	2	1	1	0	2	1	2	1	0	0	0	0	0	0	0	0	2	0.4			
Diurnal Maximum	16	21	30	24	36	37	41	35	29	41	48	22	18	23	15	14	32	29	26	18	25	17	15	16							
Diurnal Average	4.1	4.4	5.9	5.9	5.3	5.9	6.4	6.5	8.6	7.2	6.4	6.4	5.4	4.4	3.7	4.2	5.8	5.2	5.1	4.5	5.1	4.7	4.9	4.5							

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

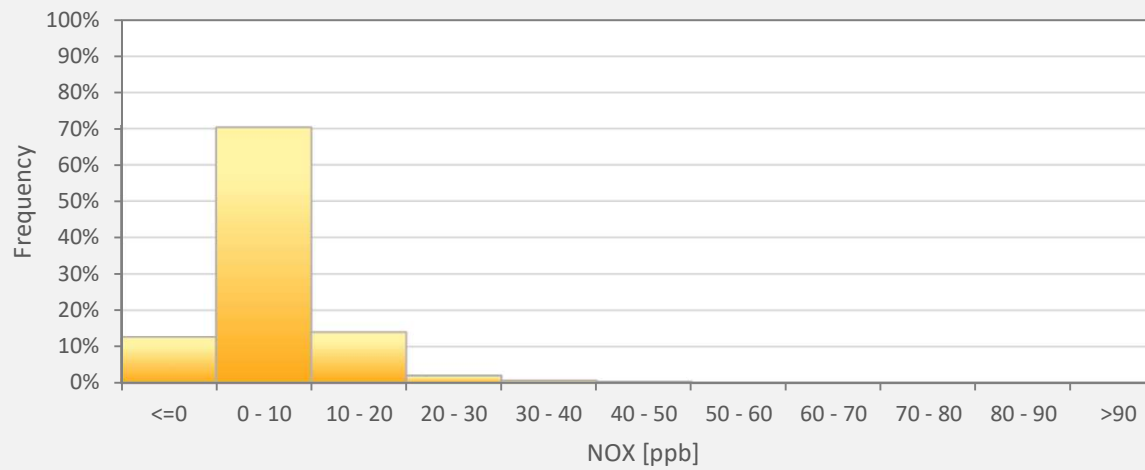
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

Timeseries Chart of Hourly Average for NOx - Tamarack Station



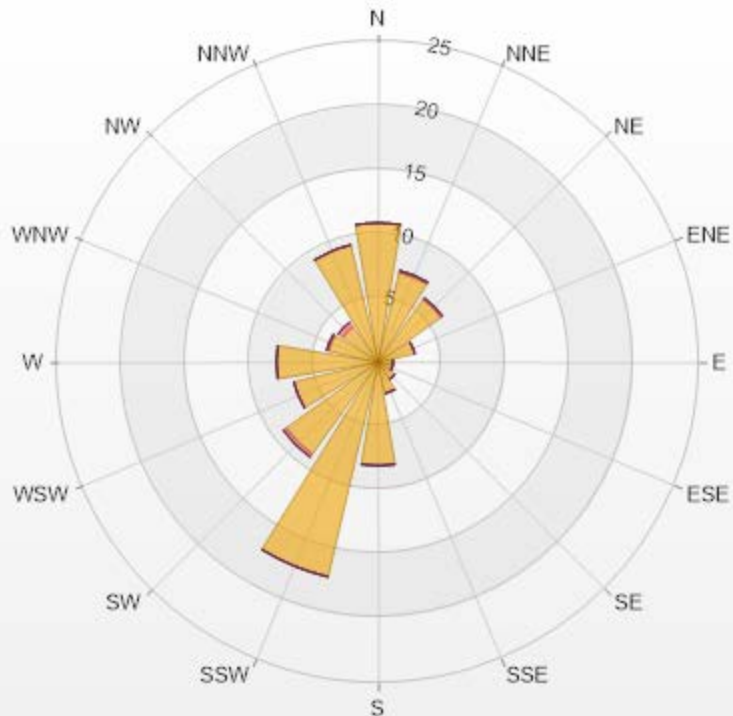
NOX[ppb] Histogram: Tamarack Monthly: 11-2022 1 Hr.



Classes	NOX
<=0	12.61%
0 - 10	70.23%
10 - 20	13.93%
20 - 30	2.05%
30 - 40	0.73%
40 - 50	0.44%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Tamarack Poll.: Tamarack-NOX[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.72% Calm Avg: 0.00 [ppb]

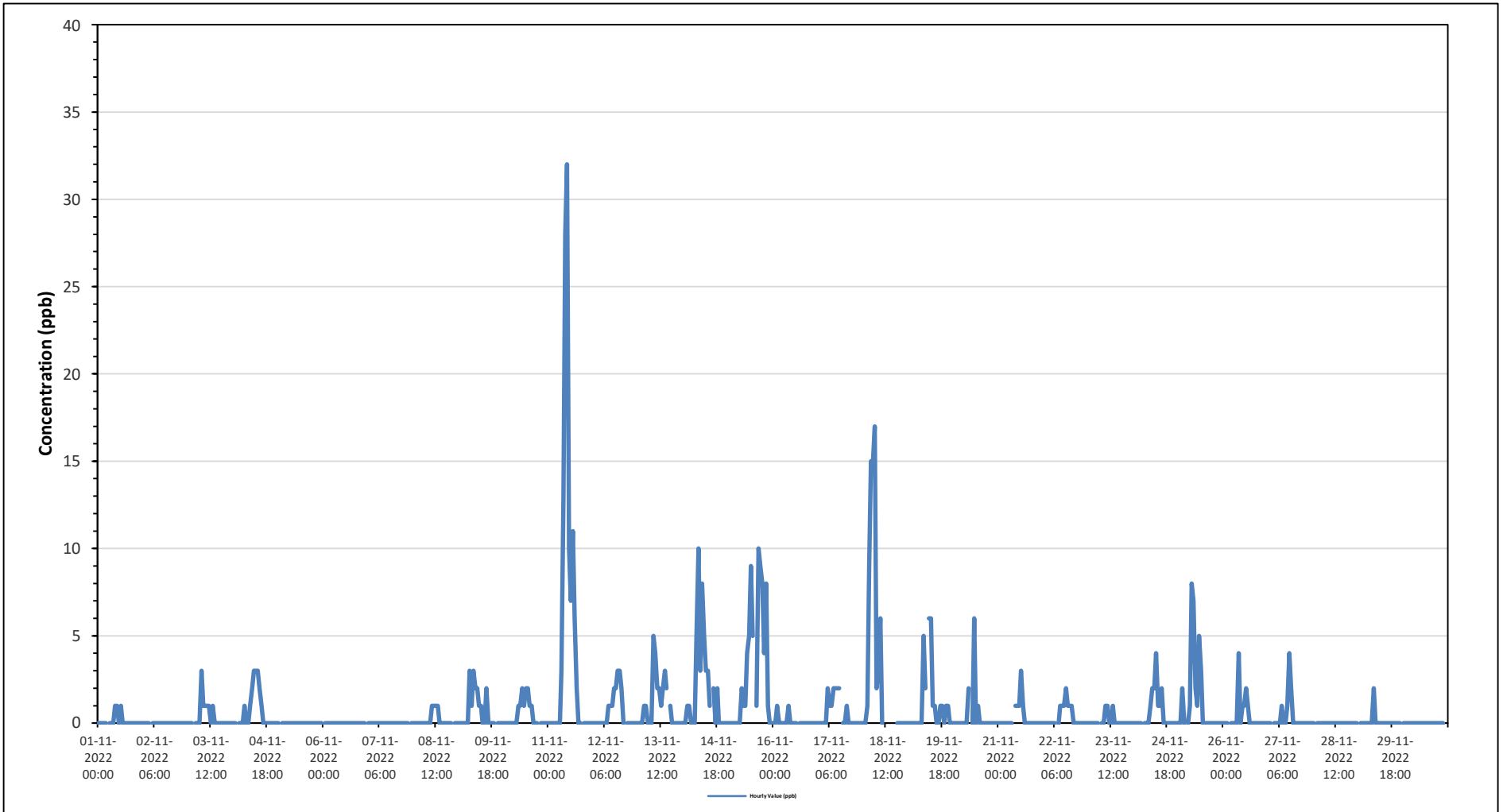
Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	10.85	0	0	0	0	10.85
NNE	7.18	0.15	0	0	0	7.33
NE	6.01	0.15	0	0	0	6.16
ENE	2.93	0	0	0	0	2.93
E	1.17	0	0	0	0	1.17
ESE	1.17	0	0	0	0	1.17
SE	1.61	0	0	0	0	1.61
SSE	2.49	0	0	0	0	2.49
S	8.06	0	0	0	0	8.06
SSW	17.16	0	0	0	0	17.16
SW	8.8	0.29	0	0	0	9.09
WSW	6.74	0	0	0	0	6.74
W	7.92	0	0	0	0	7.92
WNW	3.96	0.15	0	0	0	4.11
NW	3.37	0.44	0	0	0	3.81
NNW	9.38	0	0	0	0	9.38
Summary	98.8	1.18	0	0	0	100



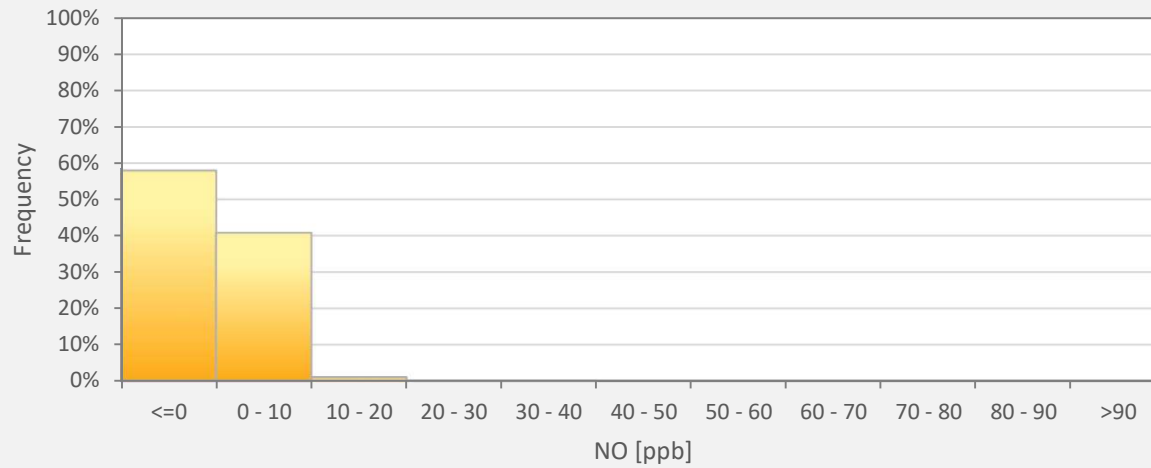
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% Icon Classes (ppb)	99	0-30	1	30-50	0	50-76	0	76-159	0	>159.0
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Timeseries Chart of Hourly Average for NO - Tamarack Station



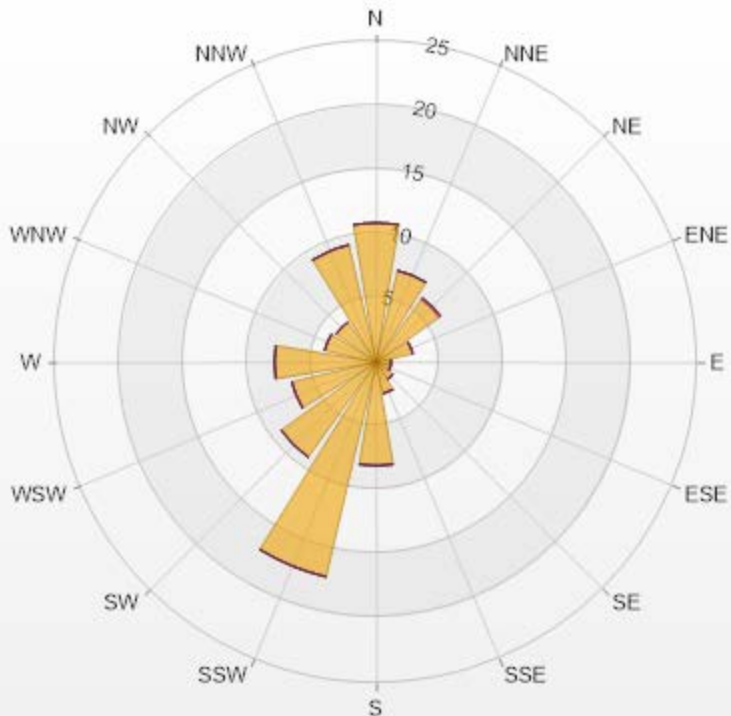
NO[ppb] Histogram: Tamarack Monthly: 11-2022 1 Hr.



Classes	NO
<=0	57.92%
0 - 10	40.76%
10 - 20	1.03%
20 - 30	0.15%
30 - 40	0.15%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Tamarack Poll.: Tamarack-NO[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.72% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	10.85	0	0	0	0	10.85
NNE	7.33	0	0	0	0	7.33
NE	6.01	0.15	0	0	0	6.16
ENE	2.93	0	0	0	0	2.93
E	1.17	0	0	0	0	1.17
ESE	1.17	0	0	0	0	1.17
SE	1.61	0	0	0	0	1.61
SSE	2.49	0	0	0	0	2.49
S	8.06	0	0	0	0	8.06
SSW	17.16	0	0	0	0	17.16
SW	9.09	0	0	0	0	9.09
WSW	6.74	0	0	0	0	6.74
W	7.92	0	0	0	0	7.92
WNW	4.11	0	0	0	0	4.11
NW	3.81	0	0	0	0	3.81
NNW	9.38	0	0	0	0	9.38
Summary	100	0.15	0	0	0	100




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% Icon Classes (ppb)

100  0-30

0  30-50

0  50-76

0  76-159

0  >159.0



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Tamarack Station - November 2022

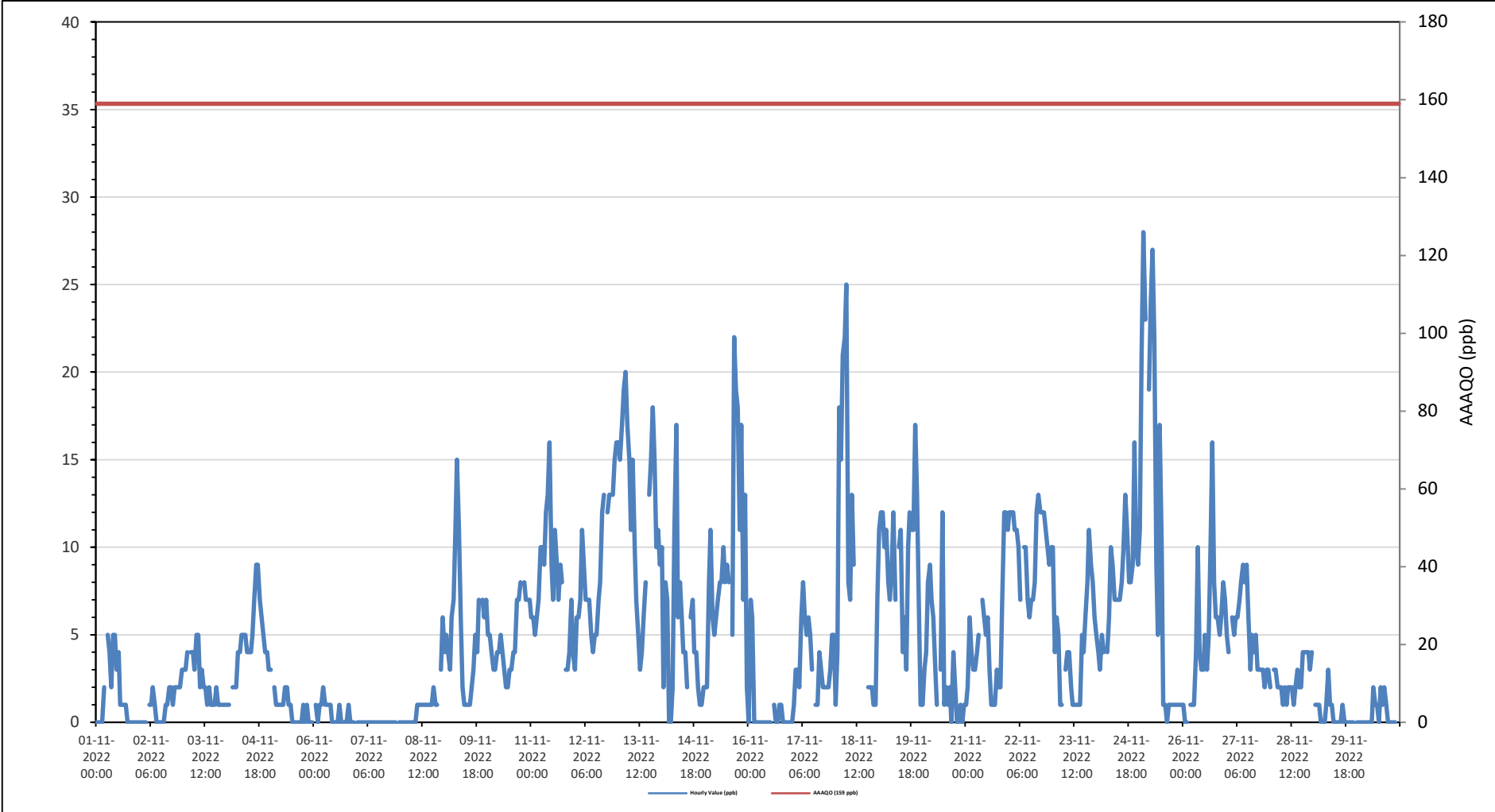
Summary of Hourly Averages

NITROGEN DIOXIDE (NO₂) in ppb

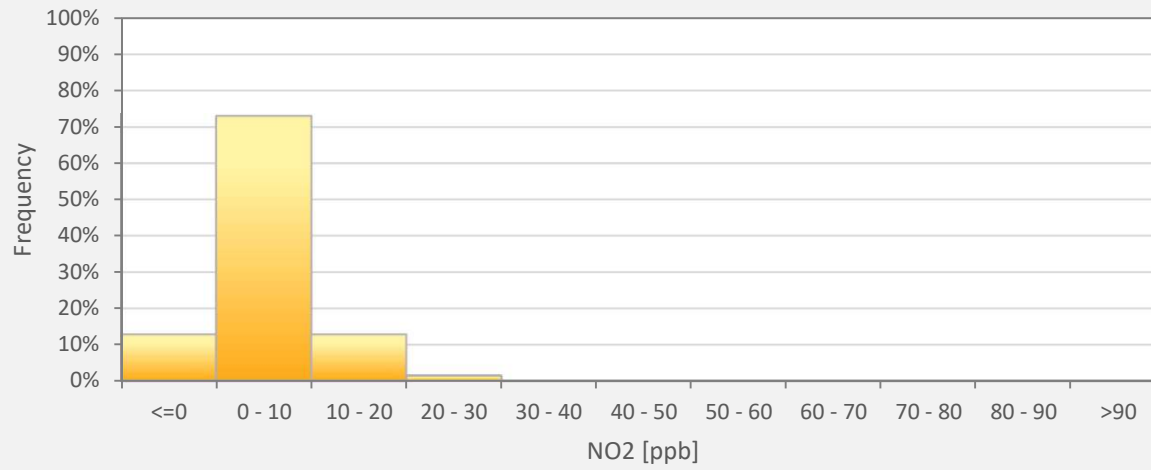
Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb																													
Number of 1-Hour Exceedances: 0																													
Maximum Hourly Value: 28 ppb on November 25 at hour 2												Hours in Service: 720																	
Maximum Daily Value: 12.1 ppb on November 13												Hours of Data: 682																	
Minimum Hourly Value: 0 ppb on November 1 at hour 0												Hours of Missing Data: 0																	
Minimum Daily Value: 0.0 ppb on November 7												Hours of Calibration: 38																	
Monthly Average: 4.6 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	2	S	5	4	2	5	5	3	4	1	1	1	0	0	0	0	0	0	0	0	0	0	0	5	1.5
Nov 2	0	0	0	0	S	1	1	2	1	0	0	0	0	0	1	1	2	2	1	2	2	2	2	2	3	0	3	1.0	
Nov 3	3	3	4	S	4	4	3	5	5	2	3	2	2	1	2	1	1	1	2	1	1	1	1	1	1	1	5	2.3	
Nov 4	1	1	S	2	2	2	4	4	5	5	5	4	4	4	5	7	9	9	7	6	5	4	4	3	1	9	4.4		
Nov 5	3	S	2	1	1	1	1	1	2	2	1	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0.8	
Nov 6	S	1	0	1	1	2	1	1	1	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	S	0	2	0.5	
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	S	0	0	0	0.0	
Nov 8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	2	1	1	S	3	6	0	6	1.0		
Nov 9	4	5	4	3	6	7	11	15	11	6	2	1	1	1	1	2	3	5	4	7	S	7	6	7	1	15	5.2		
Nov 10	5	5	4	3	3	4	4	5	4	3	2	2	3	3	4	4	7	7	8	S	8	7	7	7	2	8	4.7		
Nov 11	6	6	5	6	7	10	10	9	12	13	16	9	7	11	9	7	9	8	S	12	13	13	13	15	16	3	16	7.9	
Nov 12	3	6	6	7	11	9	7	7	7	5	4	5	5	7	8	12	13	S	12	13	13	13	15	16	3	16	8.9		
Nov 13	16	15	17	19	20	17	15	11	15	10	7	5	3	4	6	8	S	13	15	18	15	10	11	9	3	20	12.1		
Nov 14	10	2	8	7	0	0	2	11	17	6	8	6	4	4	2	S	6	7	4	4	2	1	1	2	0	17	5.0		
Nov 15	2	2	8	11	6	5	6	7	8	8	10	8	9	8	S	5	22	19	18	11	17	7	13	2	2	22	9.2		
Nov 16	0	7	6	0	0	0	0	0	0	0	0	0	0	S	1	0	0	1	1	0	0	0	0	0	0	0	7	0.7	
Nov 17	0	1	3	3	2	6	8	6	5	6	5	3	S	1	1	4	3	2	2	2	2	3	5	5	0	8	3.4		
Nov 18	1	4	18	15	21	22	25	8	7	13	9	C	C	C	C	C	C	C	2	2	2	1	1	7	1	25	-		
Nov 19	11	12	12	10	11	8	7	9	12	7	S	10	11	4	6	3	10	12	11	11	17	13	6	1	1	17	9.3		
Nov 20	1	3	4	8	9	7	6	3	1	S	3	12	1	2	1	2	0	4	2	0	0	1	0	1	0	12	3.1		
Nov 21	1	2	6	4	3	3	4	5	S	7	6	5	6	3	1	1	1	3	2	2	7	12	12	11	1	12	4.7		
Nov 22	12	12	12	11	11	10	7	S	10	10	7	6	7	7	8	12	13	12	12	12	11	10	9	10	6	13	10.0		
Nov 23	10	4	6	5	1	1	S	3	4	4	2	1	1	1	1	5	4	6	8	11	9	8	6	1	11	4.4			
Nov 24	5	4	3	5	4	S	4	6	10	9	7	7	7	7	8	10	13	11	8	8	9	16	10	9	3	16	7.8		
Nov 25	11	21	28	23	S	19	24	27	22	9	5	17	10	1	1	0	1	1	1	1	1	1	1	1	0	28	9.8		
Nov 26	1	0	0	S	1	1	1	4	10	4	3	3	5	3	5	10	16	8	6	6	5	6	8	7	0	16	4.9		
Nov 27	5	4	S	6	5	6	6	7	8	9	8	9	6	3	5	4	5	3	3	3	3	2	3	3	2	9	5.0		
Nov 28	2	S	3	3	2	2	2	1	2	1	2	2	2	1	2	3	2	2	4	4	4	4	3	4	1	4	2.5		
Nov 29	S	1	1	1	0	0	0	1	3	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0.5		
Nov 30	0	0	0	0	0	0	0	0	0	2	1	1	0	2	1	2	1	0	0	0	0	0	0	0	0	0	2	0.4	
Diurnal Maximum	16	21	28	23	21	22	25	27	22	13	16	17	11	11	9	12	22	19	18	18	17	16	15	16					
Diurnal Average	4.0	4.3	5.7	5.5	4.8	5.3	5.7	5.6	6.3	5.1	4.2	4.2	3.5	2.9	2.9	3.6	5.2	4.8	4.6	4.3	4.8	4.6	4.9	4.5					
C Monthly Calibration											S Daily Zero-Span Check											Q Quality Assurance							
K Collection Error											N No Data (Machine Not in Service)											Y Routine Maintenance							
X InValid Data (Equipment Malfunction /Recovery)											NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)											P Power Failure							

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

Timeseries Chart of Hourly Average for NO2 - Tamarack Station



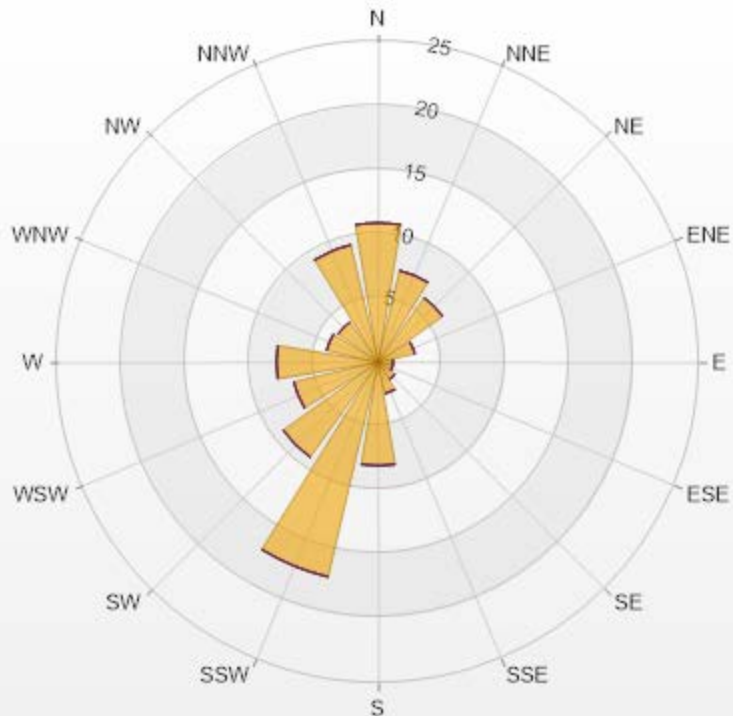
NO2[ppb] Histogram: Tamarack Monthly: 11-2022 1 Hr.



Classes	NO2
<=0	12.76%
0 - 10	73.02%
10 - 20	12.76%
20 - 30	1.47%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Tamarack Poll.: Tamarack-NO2[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.72% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	10.85	0	0	0	0	10.85
NNE	7.33	0	0	0	0	7.33
NE	6.16	0	0	0	0	6.16
ENE	2.93	0	0	0	0	2.93
E	1.17	0	0	0	0	1.17
ESE	1.17	0	0	0	0	1.17
SE	1.61	0	0	0	0	1.61
SSE	2.49	0	0	0	0	2.49
S	8.06	0	0	0	0	8.06
SSW	17.16	0	0	0	0	17.16
SW	9.09	0	0	0	0	9.09
WSW	6.74	0	0	0	0	6.74
W	7.92	0	0	0	0	7.92
WNW	4.11	0	0	0	0	4.11
NW	3.81	0	0	0	0	3.81
NNW	9.38	0	0	0	0	9.38
Summary	100	0	0	0	0	100



LICA-202211

% Icon Classes (ppb)	100	0-30	0	30-50	0	50-76	0	76-159	0	>159.0
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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Station - November 2022

Summary of Hourly Averages

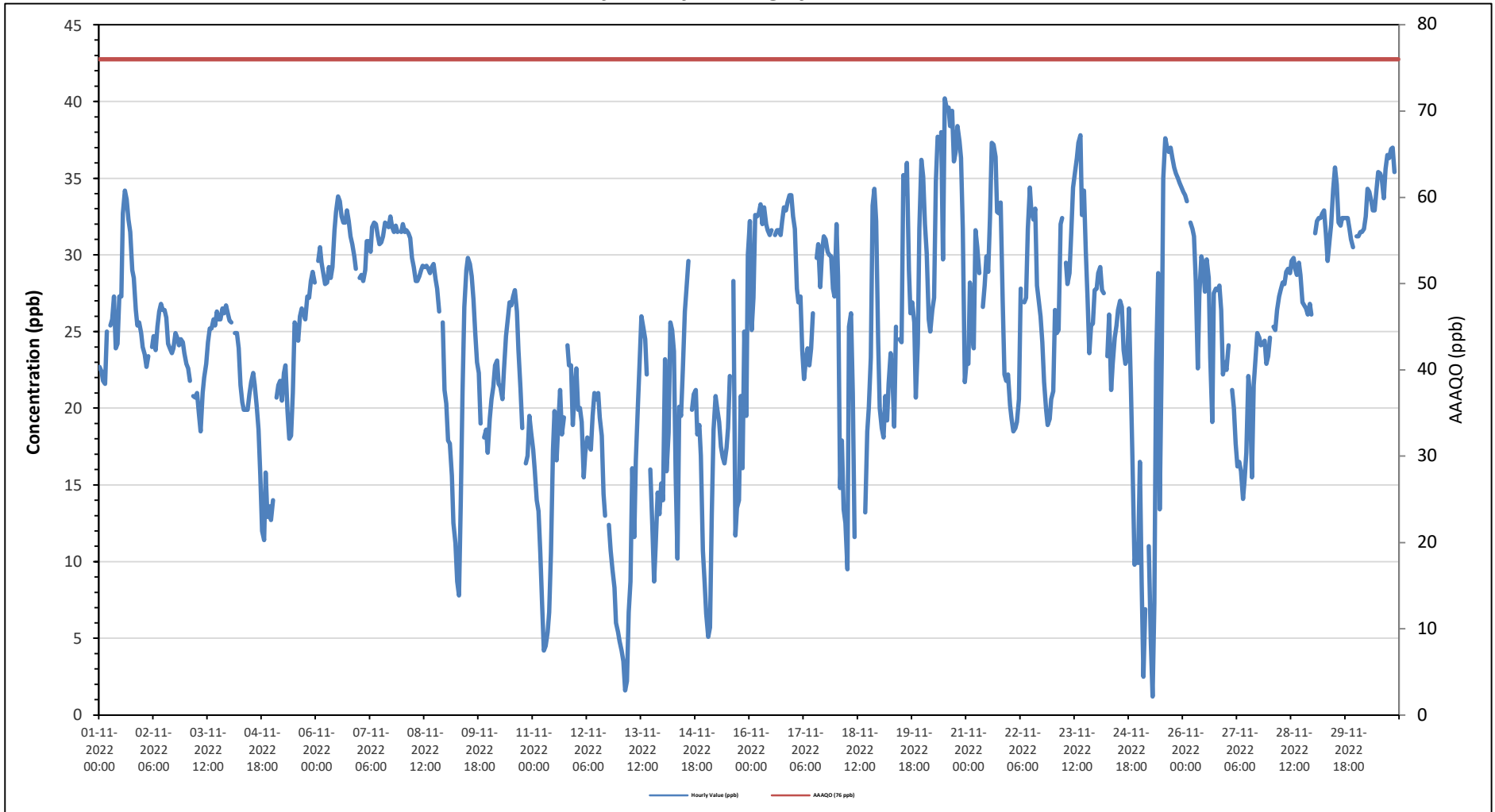
OZONE (O₃) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb																															
Number of 1-Hour Exceedances: 0																															
Maximum Hourly Value: 40.2 ppb on November 20 at hour 12												Hours in Service: 720																			
Maximum Daily Value: 34.0 ppb on November 30												Hours of Data: 684																			
Minimum Hourly Value: 1.2 ppb on November 25 at hour 7												Hours of Missing Data: 0																			
Minimum Daily Value: 13.4 ppb on November 13												Hours of Calibration: 36																			
Monthly Average: 24.8 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	22.7	22.4	21.8	21.6	25.0	S	25.4	25.8	27.3	23.9	24.2	27.3	32.7	34.2	33.6	32.3	31.5	29.0	28.5	26.4	25.4	25.6	24.9	21.6	34.2	26.9					
Nov 2	24.0	23.5	22.7	23.4	S	24.0	24.7	23.8	25.3	26.3	26.8	26.4	26.4	25.9	24.2	23.9	23.6	23.9	24.9	24.6	24.1	24.5	24.3	23.6	22.7	26.8	24.6				
Nov 3	22.9	22.6	21.8	S	20.8	20.7	21.0	19.7	18.5	21.0	22.0	22.9	24.3	25.2	25.2	25.8	25.4	26.3	25.8	25.8	26.5	26.2	26.7	26.2	18.5	26.7	23.6				
Nov 4	25.7	25.6	S	24.9	24.9	23.9	21.5	20.4	19.9	19.9	19.9	20.9	21.7	22.3	21.5	20.1	18.6	15.6	12.0	11.4	15.8	12.9	13.6	12.7	11.4	25.7	19.4				
Nov 5	14.0	S	20.7	21.5	21.8	20.5	22.3	22.8	19.8	18.0	18.2	21.0	25.6	25.3	24.4	26.0	26.5	26.1	25.8	27.3	27.2	28.3	28.9	28.2	14.0	28.9	23.5				
Nov 6	S	29.6	30.5	29.5	28.7	28.1	28.2	29.2	28.5	29.2	31.6	32.8	33.8	33.5	32.5	32.1	32.1	32.9	32.2	31.2	30.7	29.9	29.1	S	28.1	33.8	30.7				
Nov 7	28.5	28.7	28.3	29.0	30.9	30.9	30.2	31.8	32.1	32.0	31.3	30.7	30.8	31.2	32.1	32.0	31.8	32.5	31.8	31.5	31.9	31.5	S	31.5	28.3	32.5	31.0				
Nov 8	32.0	31.5	31.6	31.4	31.1	29.8	29.2	28.3	28.3	28.6	29.0	29.3	29.2	29.3	29.1	28.8	29.2	29.4	28.4	27.8	26.3	S	25.6	21.2	21.2	32.0	28.9				
Nov 9	20.3	17.9	17.7	15.6	12.5	11.2	8.7	7.8	13.9	21.1	26.6	29.0	29.8	29.4	28.6	27.1	24.9	23.0	22.3	19.0	S	18.1	18.6	17.1	7.8	29.8	20.0				
Nov 10	19.3	20.6	21.4	22.8	23.1	21.6	21.4	20.6	22.5	24.7	25.8	26.9	26.7	27.3	27.7	26.3	23.8	21.3	18.7	S	16.4	16.9	19.5	18.4	16.4	27.7	22.3				
Nov 11	17.3	16.0	14.0	13.3	10.6	7.3	4.2	4.5	5.4	6.7	10.6	17.3	19.8	16.6	19.0	21.2	18.3	19.4	S	24.1	22.8	22.8	18.9	21.1	4.2	24.1	15.3				
Nov 12	22.6	19.9	20.0	19.1	15.5	17.1	18.1	17.6	17.3	19.5	21.0	20.6	21.0	19.4	18.2	14.4	13.0	S	12.4	10.7	9.5	8.3	6.0	5.4	5.4	22.6	15.9				
Nov 13	4.8	4.2	3.5	1.6	2.2	6.7	8.7	16.1	11.6	16.6	20.1	23.0	26.0	25.3	24.5	22.2	S	16.0	12.3	8.7	11.0	14.5	13.1	15.1	1.6	26.0	13.4				
Nov 14	14.0	23.2	15.9	18.4	25.6	25.1	23.7	15.5	10.2	20.1	19.5	22.5	26.3	27.7	29.6	S	19.9	20.9	21.2	18.3	18.9	16.9	10.7	8.6	8.6	29.6	19.7				
Nov 15	6.6	5.1	5.7	13.1	18.6	20.8	20.0	19.1	17.5	16.8	16.4	17.4	18.7	22.1	S	28.3	11.7	13.5	14.0	20.8	16.1	25.0	19.5	30.0	5.1	30.0	17.3				
Nov 16	32.2	25.1	27.2	32.6	32.5	32.7	33.3	32.0	33.1	32.0	31.6	31.3	31.6	S	31.3	31.6	31.6	31.3	32.2	33.1	32.9	33.4	33.9	33.9	25.1	33.9	31.8				
Nov 17	32.5	31.7	27.8	26.9	27.3	23.8	21.9	23.1	23.9	22.8	23.9	26.2	S	29.8	30.7	27.9	30.2	31.2	31.0	30.2	30.0	29.9	27.8	27.3	21.9	32.5	27.7				
Nov 18	32.0	28.6	14.8	17.9	13.4	12.5	9.5	25.3	26.2	21.0	11.6	C	C	C	C	C	13.2	18.5	20.0	23.3	33.2	34.3	32.2	24.3	9.5	34.3	21.7				
Nov 19	20.0	18.7	18.1	20.8	19.2	21.6	23.6	22.1	18.8	25.3	S	24.5	24.3	35.2	34.0	36.0	29.0	26.2	26.9	25.6	20.7	24.2	31.7	36.2	18.1	36.2	25.3				
Nov 20	35.1	32.0	30.1	25.8	25.0	26.4	27.2	34.8	37.7	S	38.0	29.7	40.2	39.6	39.6	38.4	39.4	36.1	36.7	38.4	37.4	36.3	31.7	21.7	21.7	40.2	33.8				
Nov 21	22.9	22.9	28.2	25.0	23.9	31.6	30.5	28.8	S	26.6	28.0	29.9	28.9	32.4	37.3	37.2	36.4	32.8	32.7	33.4	27.0	22.2	21.8	22.2	21.8	37.3	28.8				
Nov 22	20.2	19.3	18.5	18.7	19.1	20.6	27.8	S	26.9	27.2	31.7	34.4	32.8	32.3	33.0	28.0	27.0	26.0	24.3	21.7	19.9	18.9	19.3	20.6	18.5	34.4	24.7				
Nov 23	21.1	26.4	24.9	25.1	32.0	32.4	S	29.5	28.1	28.8	31.5	34.4	35.3	36.3	37.3	37.8	32.6	34.2	30.3	27.2	23.6	25.4	25.5	27.7	21.1	37.8	29.9				
Nov 24	27.8	28.8	29.2	27.7	27.5	S	23.4	26.1	21.2	22.9	24.6	25.4	26.4	27.0	26.6	23.8	22.9	23.3	26.5	21.1	16.5	9.8	11.1	9.9	9.8	29.2	23.0				
Nov 25	16.5	8.6	2.5	6.9	S	11.0	4.8	1.2	7.3	23.0	28.8	13.4	23.4	35.0	37.6	37.0	36.7	37.0	36.3	35.7	35.3	35.0	34.7	34.4	1.2	37.6	23.6				
Nov 26	34.1	33.9	33.5	S	32.1	31.7	31.2	28.3	22.6	27.4	29.9	29.4	27.6	29.7	28.5	23.3	19.1	27.5	27.8	27.7	28.0	26.4	22.2	23.0	19.1	34.1	28.0				
Nov 27	22.5	24.1	S	21.2	20.0	17.7	16.2	16.5	15.9	14.1	15.3	17.1	22.1	20.9	15.5	21.5	23.2	24.9	24.6	24.1	24.2	24.4	22.9	23.4	14.1	24.9	20.5				
Nov 28	24.6	S	25.3	25.1	26.4	27.3	27.7	28.2	28.1	28.9	29.1	28.8	29.6	29.8	29.1	28.7	29.5	28.7	26.9	26.7	26.5	26.1	26.8	26.1	24.6	29.8	27.6				
Nov 29	S	31.4	32.2	32.4	32.4	32.7	32.9	31.4	29.6	31.0	32.0	34.3	35.7	34.6	32.1	31.9	32.4	32.4	32.4	32.4	31.7	31.0	30.5	S	29.6	35.7	32.2				
Nov 30	31.2	31.2	31.5	31.5	31.7	32.5	34.3	34.1	33.5	32.9	32.0	34.2	35.4	35.3	35.0	33.7	35.6	36.5	36.3	36.9	37.0	35.4	S	34.5	31.2	37.0	34.0				
Diurnal Maximum	35.1	33.9	33.5	32.6	32.5	32.7	34.3	34.8	37.7	32.9	38.0	34.4	40.2	39.6	39.6	38.4	39.4	37.0	36.7	38.4	37.4	36.3	34.7	36.2							
Diurnal Average	23.1	23.3	22.1	22.2	23.4	22.9	22.5	22.9	22.4	23.7	25.2	26.2	27.9	29.0	29.2	28.5	26.5	26.9	26.1	25.8	25.1	24.6	23.3	23.2							
C	Monthly Calibration										S	Daily Zero-Span Check										Q	Quality Assurance								
K	Collection Error										N	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)																			

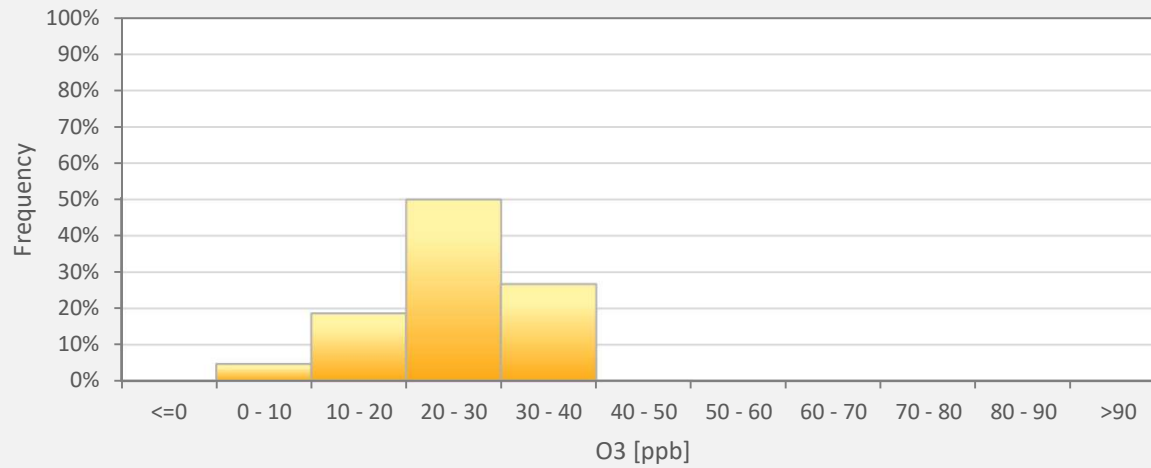
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

Timeseries Chart of Hourly Average for O3 - Tamarack Station



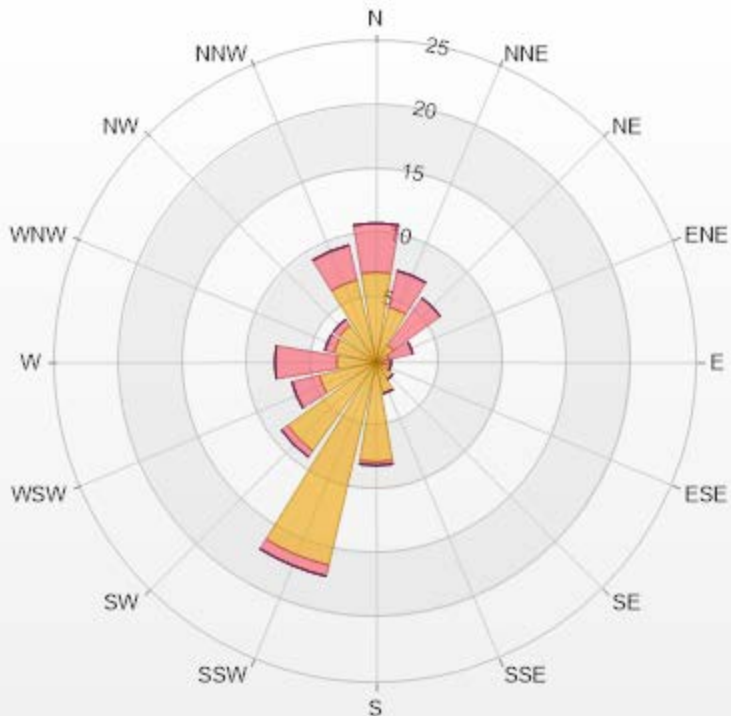
O3[ppb] Histogram: Tamarack Monthly: 11-2022 1 Hr.



Classes	O3
<=0	0.00%
0 - 10	4.68%
10 - 20	18.57%
20 - 30	50.00%
30 - 40	26.61%
40 - 50	0.15%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Tamarack Poll.: Tamarack-O3[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.00% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	7.02	3.8	0	0	0	10.82
NNE	4.39	2.92	0	0	0	7.31
NE	1.61	4.53	0	0	0	6.14
ENE	1.02	1.9	0	0	0	2.92
E	0.44	0.73	0	0	0	1.17
ESE	1.17	0	0	0	0	1.17
SE	1.61	0	0	0	0	1.61
SSE	2.49	0	0	0	0	2.49
S	7.75	0.29	0	0	0	8.04
SSW	16.23	0.88	0	0	0	17.11
SW	8.48	0.58	0	0	0	9.06
WSW	4.53	2.19	0	0	0	6.72
W	3.07	4.82	0	0	0	7.89
WNW	3.36	0.73	0	0	0	4.09
NW	3.51	0.58	0	0	0	4.09
NNW	6.58	2.78	0	0	0	9.36
Summary	73.26	26.73	0	0	0	100



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% Icon Classes (ppb)	73	0-30	27	30-50	0	50-76	0	76-159	0	>159.0
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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Station - November 2022

Summary of Hourly Averages

TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	2.58 ppm on November 13 at hour 3	Hours in Service:	720
Maximum Daily Value:	2.33 ppm on November 12	Hours of Data:	681
Minimum Hourly Value:	1.90 ppm on November 16 at hour 5	Hours of Missing Data:	2
Minimum Daily Value:	1.91 ppm on November 16	Hours of Calibration:	37
Monthly Average:	2.02 ppm	Operational Uptime:	99.7

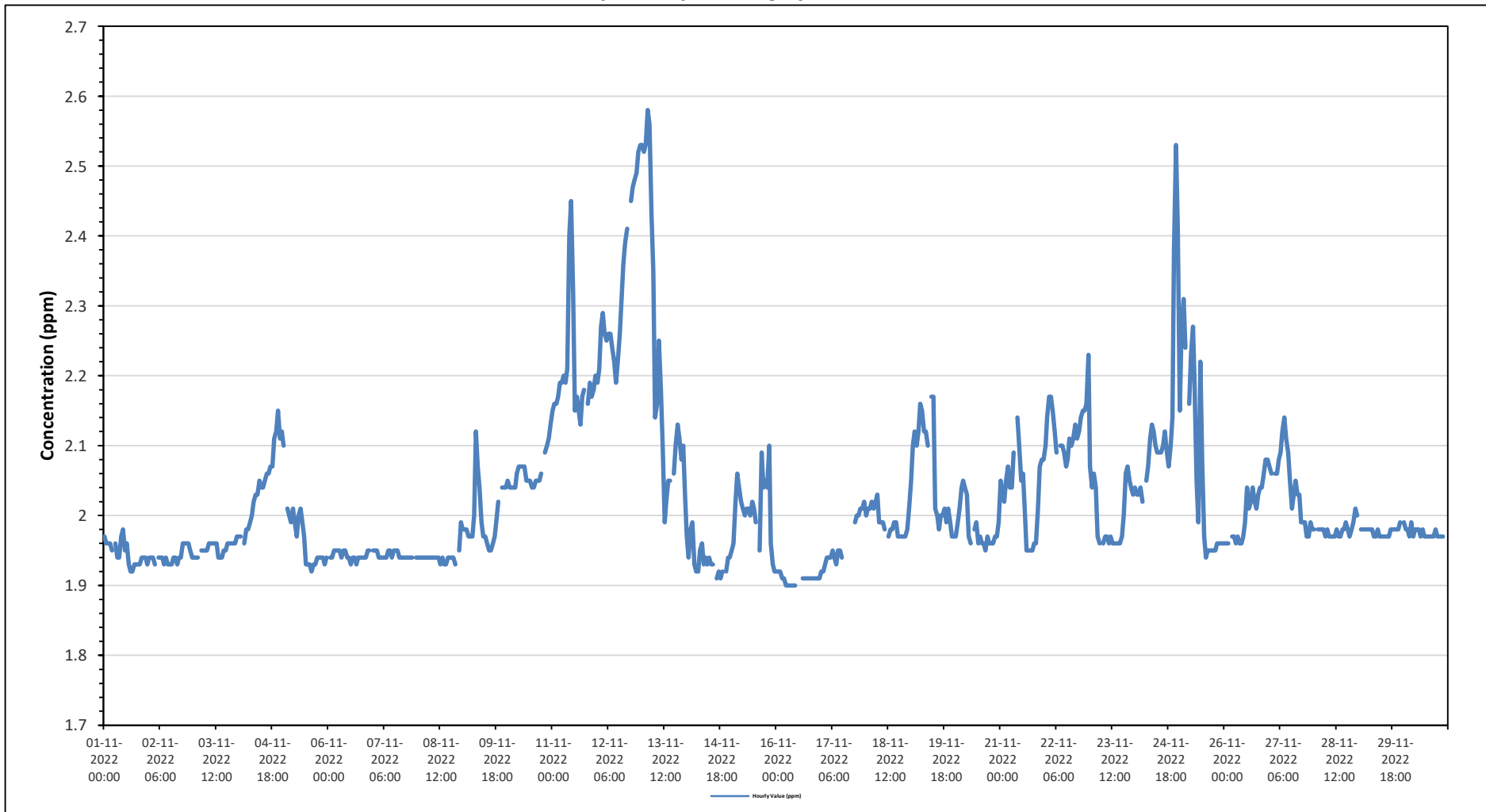
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Nov 1	1.97	1.96	1.96	1.96	1.95	S	1.96	1.94	1.94	1.97	1.98	1.95	1.96	1.93	1.92	1.92	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.93	1.92	1.98	1.95	
Nov 2	1.94	1.94	1.94	1.93	S	1.94	1.94	1.94	1.93	1.94	1.93	1.93	1.93	1.94	1.94	1.93	1.94	1.94	1.96	1.96	1.96	1.96	1.95	1.94	1.93	1.96	1.94	
Nov 3	1.94	1.94	1.94	S	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.94	1.94	1.94	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.94	1.97	1.95	
Nov 4	1.97	1.97	S	1.96	1.98	1.98	1.99	2.00	2.02	2.03	2.03	2.05	2.04	2.04	2.05	2.06	2.06	2.07	2.07	2.11	2.12	2.15	2.11	2.12	1.96	2.15	2.04	
Nov 5	2.10	S	2.01	2.00	1.99	2.01	1.99	1.97	2.00	2.01	1.99	1.97	1.93	1.93	1.93	1.92	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.93	1.94	1.92	1.97	
Nov 6	S	1.94	1.94	1.95	1.95	1.95	1.95	1.94	1.95	1.95	1.94	1.94	1.93	1.94	1.94	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.95	S	1.93	1.95	
Nov 7	1.95	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.94	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.94	
Nov 8	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.93	1.94	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.93	S	1.95	1.99	1.93	1.99	
Nov 9	1.98	1.98	1.98	1.97	1.97	1.97	2.00	2.12	2.07	2.04	1.99	1.97	1.97	1.96	1.95	1.95	1.96	1.97	1.99	2.02	S	2.04	2.04	2.04	1.95	2.12	2.00	
Nov 10	2.05	2.04	2.04	2.04	2.04	2.06	2.07	2.07	2.07	2.05	2.05	2.05	2.04	2.04	2.05	2.05	2.05	2.05	2.05	S	2.09	2.10	2.11	2.13	2.04	2.13	2.06	
Nov 11	2.15	2.16	2.16	2.17	2.19	2.19	2.20	2.19	2.21	2.40	2.45	2.32	2.15	2.17	2.15	2.13	2.17	2.18	S	2.16	2.19	2.17	2.18	2.20	2.13	2.45	2.20	
Nov 12	2.19	2.21	2.27	2.29	2.26	2.25	2.26	2.26	2.24	2.22	2.19	2.22	2.26	2.31	2.36	2.39	2.41	S	2.45	2.47	2.48	2.49	2.52	2.53	2.19	2.53	2.33	
Nov 13	2.53	2.52	2.53	2.58	2.56	2.43	2.35	2.14	2.16	2.25	2.18	2.10	1.99	2.02	2.05	2.05	S	2.06	2.10	2.13	2.11	2.08	2.10	2.03	1.99	2.58	2.22	
Nov 14	1.97	1.94	1.98	1.99	1.93	1.92	1.92	1.95	1.96	1.93	1.94	1.93	1.94	1.93	1.94	1.93	S	1.91	1.92	1.91	1.92	NRM	1.92	1.94	1.94	1.91	1.99	
Nov 15	1.95	1.96	2.02	2.06	2.04	2.02	2.01	2.00	2.01	2.01	2.00	2.02	2.01	1.99	S	1.95	2.09	2.04	2.05	2.04	2.10	1.96	1.93	1.92	1.92	2.10	2.01	
Nov 16	1.92	1.92	1.92	1.91	1.91	1.90	1.90	1.90	1.90	1.90	1.90	NRM	1.91	S	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	
Nov 17	1.92	1.92	1.93	1.94	1.94	1.94	1.95	1.94	1.93	1.95	1.95	1.94	S	C	C	C	C	C	C	1.99	2.00	2.00	2.01	2.01	2.02	1.92	2.02	
Nov 18	2.00	2.01	2.01	2.02	2.01	2.02	2.03	1.99	1.99	1.99	1.98	S	1.97	1.98	1.98	1.99	1.99	1.97	1.97	1.97	1.97	1.98	2.01	2.01	1.97	2.03	1.99	
Nov 19	2.05	2.10	2.12	2.10	2.12	2.16	2.15	2.12	2.12	2.10	S	2.17	2.17	2.01	2.00	1.98	2.00	2.00	2.01	1.99	2.01	1.99	1.97	1.97	1.97	1.97	2.06	
Nov 20	1.97	1.99	2.01	2.04	2.05	2.04	2.03	1.97	1.96	S	1.98	1.99	1.96	1.97	1.96	1.96	1.95	1.97	1.96	1.96	1.96	1.97	1.97	1.99	1.95	2.05	1.98	
Nov 21	2.05	2.03	2.02	2.05	2.07	2.04	2.04	2.09	S	2.14	2.10	2.05	2.06	2.00	1.95	1.95	1.95	1.95	1.96	1.96	2.01	2.07	2.08	2.08	1.95	2.14	2.03	
Nov 22	2.10	2.14	2.17	2.17	2.15	2.12	2.09	S	2.10	2.10	2.09	2.07	2.08	2.11	2.10	2.11	2.13	2.11	2.12	2.14	2.15	2.15	2.16	2.23	2.07	2.23	2.13	
Nov 23	2.07	2.04	2.06	2.04	1.97	1.96	S	1.96	1.97	1.97	1.96	1.97	1.96	1.96	1.96	1.96	1.96	1.97	2.00	2.06	2.07	2.05	2.04	2.03	1.96	2.07	2.00	
Nov 24	2.04	2.03	2.03	2.04	2.02	S	2.05	2.07	2.11	2.13	2.12	2.10	2.09	2.09	2.09	2.10	2.12	2.09	2.07	2.10	2.14	2.38	2.53	2.41	2.02	2.53	2.13	
Nov 25	2.15	2.27	2.31	2.24	S	2.16	2.23	2.27	2.19	2.05	1.99	2.22	2.08	1.97	1.94	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.94	2.31	2.07	
Nov 26	1.96	1.96	1.96	S	1.97	1.97	1.96	1.97	1.96	1.96	1.97	1.99	2.04	2.01	2.02	2.04	2.02	2.01	2.03	2.04	2.04	2.06	2.08	2.08	1.96	2.08	2.00	
Nov 27	2.07	2.06	S	2.06	2.06	2.08	2.09	2.12	2.14	2.11	2.09	2.05	2.01	2.03	2.05	2.03	2.03	1.99	1.99	1.99	1.97	1.97	1.99	1.98	1.97	2.14	2.04	
Nov 28	1.98	S	1.98	1.98	1.98	1.98	1.97	1.98	1.97	1.98	1.97	1.97	1.97	1.98	1.97	1.97	1.98	1.98	1.99	1.98	1.97	1.98	1.99	2.01	2.00	1.97	2.01	
Nov 29	S	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.97	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.97	1.99	1.98	
Nov 30	1.99	1.98	1.98	1.97	1.99	1.97	1.98	1.98	1.98	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	S	1.97	1.97	1.97	
Diurnal Maximum	2.53	2.52	2.53	2.58	2.56	2.43	2.35	2.27	2.24	2.40	2.45	2.32	2.26	2.31	2.36	2.39	2.41	2.18	2.45	2.47	2.48	2.49	2.53	2.53				
Diurnal Average	2.03	2.03	2.04	2.05	2.03	2.03	2.03	2.02	2.02	2.03	2.02	2.03	2.01	2.00	2.00	2.00	2.00	2.01	1.99	2.00	2.02	2.03	2.04	2.05	2.05			

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

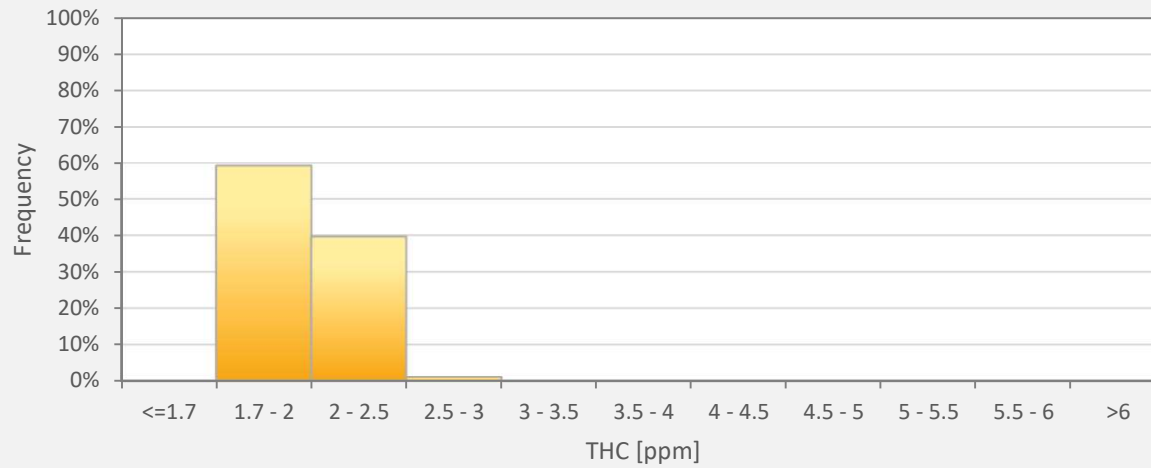
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

Timeseries Chart of Hourly Average for THC - Tamarack Station



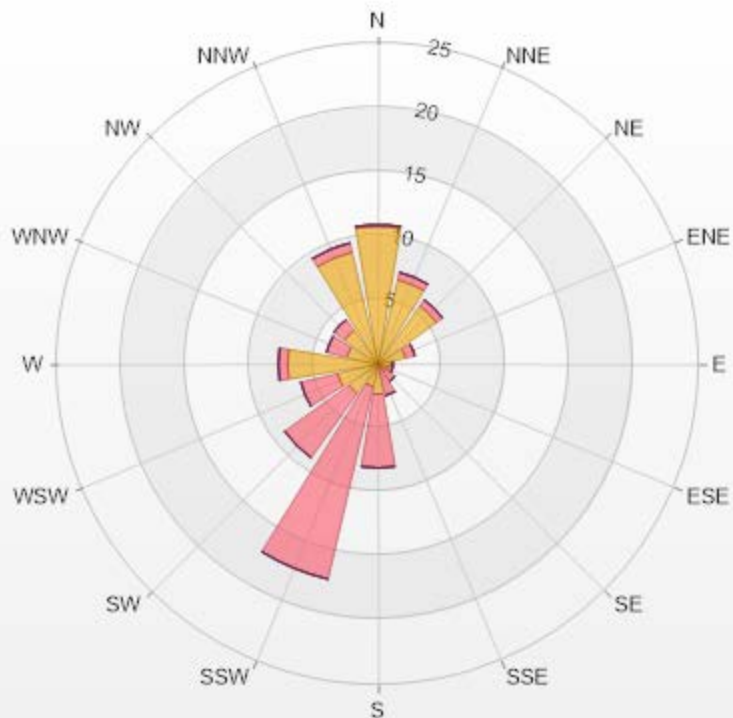
THC55[ppm] Histogram: Tamarack Monthly: 11-2022 1 Hr.



Classes	THC55
<=1.7	0.00%
1.7 - 2	59.18%
2 - 2.5	39.65%
2.5 - 3	1.17%
3 - 3.5	0.00%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: Tamarack Poll.: Tamarack-THC55[ppm] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.58% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	10.72	0.15	0	0	0	10.87
NNE	6.75	0.59	0	0	0	7.34
NE	5.58	0.59	0	0	0	6.17
ENE	2.2	0.73	0	0	0	2.93
E	1.03	0.15	0	0	0	1.18
ESE	0.73	0.44	0	0	0	1.17
SE	0.29	1.32	0	0	0	1.61
SSE	0	2.5	0	0	0	2.5
S	2.35	5.73	0	0	0	8.08
SSW	1.76	15.42	0	0	0	17.18
SW	2.79	6.17	0	0	0	8.96
WSW	3.23	2.94	0	0	0	6.17
W	7.05	0.73	0	0	0	7.78
WNW	2.5	1.62	0	0	0	4.12
NW	3.23	1.03	0	0	0	4.26
NNW	8.96	0.73	0	0	0	9.69
Summary	59.17	40.84	0	0	0	100



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% Icon Classes (ppm)

59  0-2

41  2-5

0  5-10

0  10-40

0  >40.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Station - November 2022

Summary of Hourly Averages

METHANE (CH₄) in ppm

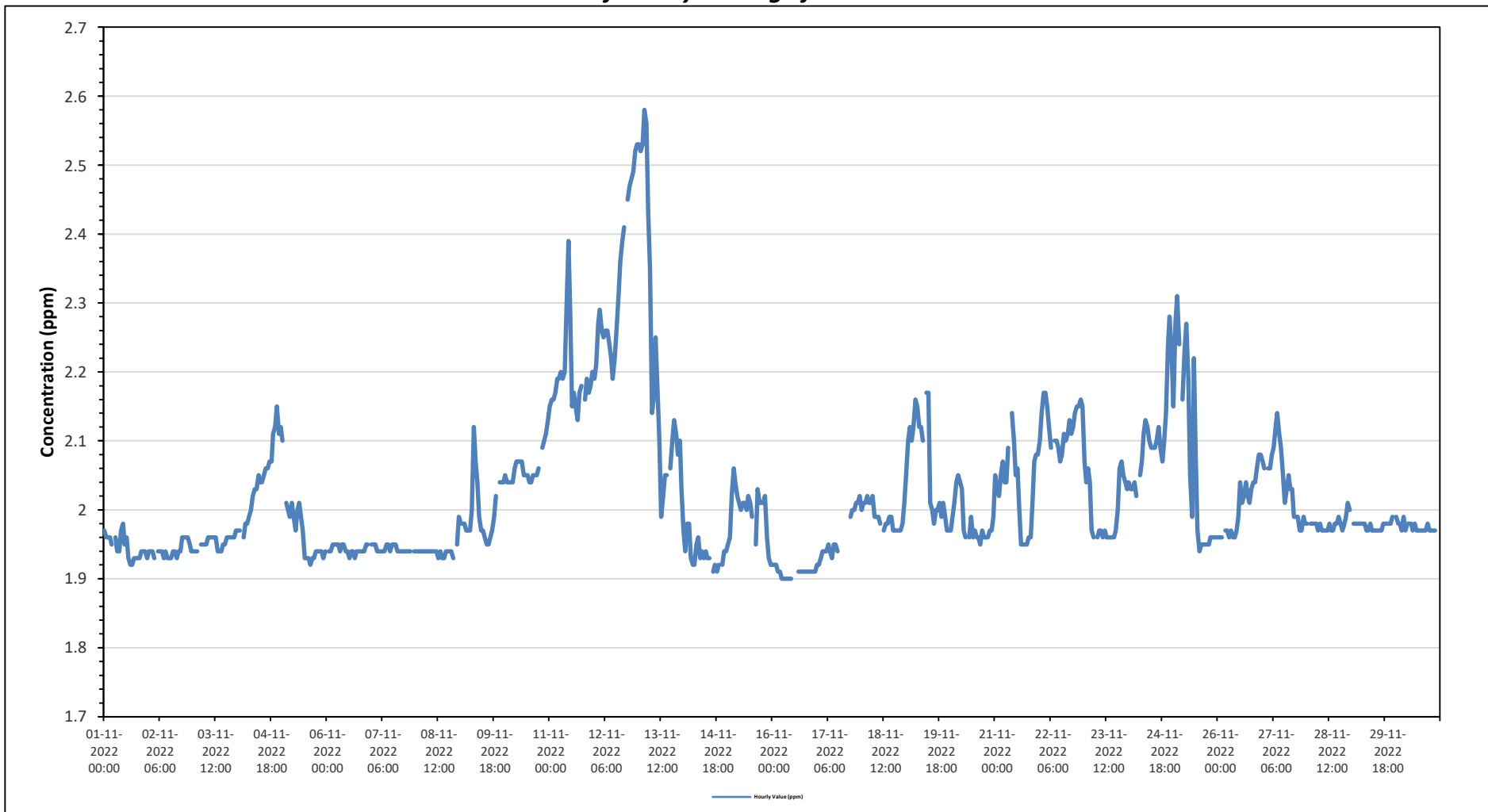
Maximum Hourly Value:	2.58 ppm on November 13 at hour 3	Hours in Service:	720
Maximum Daily Value:	2.33 ppm on November 12	Hours of Data:	681
Minimum Hourly Value:	1.90 ppm on November 16 at hour 5	Hours of Missing Data:	2
Minimum Daily Value:	1.91 ppm on November 16	Hours of Calibration:	37
Monthly Average:	2.02 ppm	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	1.97	1.96	1.96	1.96	1.95	S	1.96	1.94	1.94	1.97	1.98	1.95	1.96	1.93	1.92	1.92	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.93	1.92	1.98	1.95	
Nov 2	1.94	1.94	1.94	1.93	S	1.94	1.94	1.94	1.93	1.94	1.93	1.93	1.93	1.94	1.94	1.93	1.94	1.94	1.96	1.96	1.96	1.96	1.95	1.94	1.93	1.96	1.94	
Nov 3	1.94	1.94	1.94	S	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.94	1.94	1.94	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.94	1.97	1.95	
Nov 4	1.97	1.97	S	1.96	1.98	1.98	1.99	2.00	2.02	2.03	2.03	2.05	2.04	2.04	2.05	2.06	2.06	2.07	2.07	2.11	2.12	2.15	2.11	2.12	1.96	2.15	2.04	
Nov 5	2.10	S	2.01	2.00	1.99	2.01	1.99	1.97	2.00	2.01	1.99	1.97	1.93	1.93	1.93	1.92	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.93	1.94	1.92	1.97	
Nov 6	S	1.94	1.94	1.95	1.95	1.95	1.95	1.94	1.95	1.95	1.94	1.94	1.93	1.94	1.94	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.95	S	1.93	1.95	
Nov 7	1.95	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.94	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.94	
Nov 8	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.93	1.94	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.93	S	1.95	1.99	1.93	1.99	
Nov 9	1.98	1.98	1.98	1.97	1.97	1.97	2.00	2.12	2.07	2.04	1.99	1.97	1.97	1.96	1.95	1.95	1.96	1.97	1.99	2.02	S	2.04	2.04	2.04	1.95	2.12	2.00	
Nov 10	2.05	2.04	2.04	2.04	2.04	2.06	2.07	2.07	2.07	2.05	2.05	2.05	2.04	2.04	2.05	2.05	2.05	2.05	2.06	S	2.09	2.10	2.11	2.13	2.04	2.13	2.06	
Nov 11	2.15	2.16	2.16	2.17	2.19	2.19	2.20	2.19	2.20	2.29	2.39	2.28	2.15	2.17	2.15	2.13	2.17	2.18	S	2.16	2.19	2.17	2.18	2.20	2.13	2.39	2.19	
Nov 12	2.19	2.21	2.27	2.29	2.26	2.25	2.26	2.26	2.24	2.22	2.19	2.22	2.26	2.31	2.36	2.39	2.41	S	2.45	2.47	2.48	2.49	2.52	2.53	2.19	2.53	2.33	
Nov 13	2.53	2.52	2.53	2.58	2.56	2.43	2.35	2.14	2.16	2.25	2.18	2.10	1.99	2.02	2.05	2.05	S	2.06	2.10	2.13	2.11	2.08	2.10	2.03	1.99	2.58	2.22	
Nov 14	1.97	1.94	1.98	1.98	1.93	1.92	1.92	1.95	1.96	1.93	1.94	1.93	1.94	1.93	1.93	S	1.91	1.92	1.91	1.92	NRM	1.92	1.94	1.94	1.91	1.98	1.94	
Nov 15	1.95	1.96	2.02	2.06	2.04	2.02	2.01	2.00	2.01	2.01	2.00	2.02	2.01	1.99	S	1.95	2.03	2.01	2.01	2.01	2.02	2.02	1.96	1.93	1.92	1.92	2.06	
Nov 16	1.92	1.92	1.92	1.91	1.91	1.90	1.90	1.90	1.90	1.90	1.90	NRM	1.91	S	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	
Nov 17	1.92	1.92	1.93	1.94	1.94	1.94	1.95	1.94	1.93	1.95	1.95	1.94	S	C	C	C	C	C	1.99	2.00	2.00	2.01	2.01	2.02	1.92	2.02	1.96	
Nov 18	2.00	2.01	2.01	2.02	2.01	2.01	2.02	1.99	1.99	1.99	1.98	S	1.97	1.98	1.98	1.99	1.99	1.97	1.97	1.97	1.97	1.98	2.01	1.97	1.97	2.02	1.99	
Nov 19	2.05	2.10	2.12	2.10	2.12	2.16	2.15	2.12	2.12	2.10	S	2.17	2.17	2.01	2.00	1.98	2.00	2.00	2.01	1.99	2.01	1.99	1.97	1.97	1.97	1.97	2.06	
Nov 20	1.97	1.99	2.01	2.04	2.05	2.04	2.03	1.97	1.96	S	1.96	1.99	1.96	1.97	1.96	1.96	1.95	1.97	1.96	1.96	1.96	1.96	1.97	1.99	1.95	2.05	1.98	
Nov 21	2.05	2.03	2.02	2.05	2.07	2.04	2.04	2.09	S	2.14	2.10	2.05	2.06	2.00	1.95	1.95	1.95	1.95	1.96	1.96	2.01	2.07	2.08	2.08	1.95	2.14	2.03	
Nov 22	2.10	2.14	2.17	2.17	2.15	2.12	2.09	S	2.10	2.10	2.09	2.07	2.08	2.11	2.10	2.11	2.13	2.11	2.12	2.14	2.15	2.15	2.16	2.15	2.07	2.17	2.12	
Nov 23	2.07	2.04	2.06	2.04	1.97	1.96	S	1.96	1.97	1.97	1.96	1.97	1.96	1.96	1.96	1.96	1.96	1.97	2.00	2.06	2.07	2.05	2.04	2.03	1.96	2.07	2.00	
Nov 24	2.04	2.03	2.03	2.04	2.02	S	2.05	2.07	2.11	2.13	2.12	2.10	2.09	2.09	2.09	2.10	2.12	2.09	2.07	2.10	2.14	2.24	2.28	2.23	2.02	2.28	2.10	
Nov 25	2.15	2.27	2.31	2.24	S	2.16	2.23	2.27	2.19	2.05	1.99	2.22	2.08	1.97	1.94	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.94	2.31	2.07	
Nov 26	1.96	1.96	1.96	S	1.97	1.97	1.96	1.97	1.96	1.96	1.97	1.99	2.04	2.01	2.02	2.04	2.02	2.01	2.03	2.04	2.04	2.06	2.08	2.08	1.96	2.08	2.00	
Nov 27	2.07	2.06	S	2.06	2.06	2.08	2.09	2.12	2.14	2.11	2.09	2.05	2.01	2.03	2.05	2.03	2.03	1.99	1.99	1.99	1.97	1.97	1.99	1.98	1.97	2.14	2.04	
Nov 28	1.98	S	1.98	1.98	1.98	1.98	1.97	1.98	1.97	1.98	1.97	1.97	1.97	1.98	1.97	1.97	1.98	1.98	1.99	1.98	1.97	1.98	1.99	2.01	2.00	1.97	2.01	
Nov 29	S	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.97	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.97	1.99	1.98	
Nov 30	1.99	1.98	1.98	1.97	1.99	1.97	1.98	1.98	1.98	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	S	1.97	1.97	1.97	
Diurnal Maximum	2.53	2.52	2.53	2.58	2.56	2.43	2.35	2.27	2.24	2.29	2.39	2.28	2.26	2.31	2.36	2.39	2.41	2.18	2.45	2.47	2.48	2.49	2.52	2.53				
Diurnal Average	2.03	2.03	2.04	2.05	2.03	2.03	2.03	2.02	2.02	2.03	2.02	2.03	2.01	2.00	2.00	2.00	2.00	2.00	1.99	2.00	2.01	2.03	2.03	2.04	2.04			

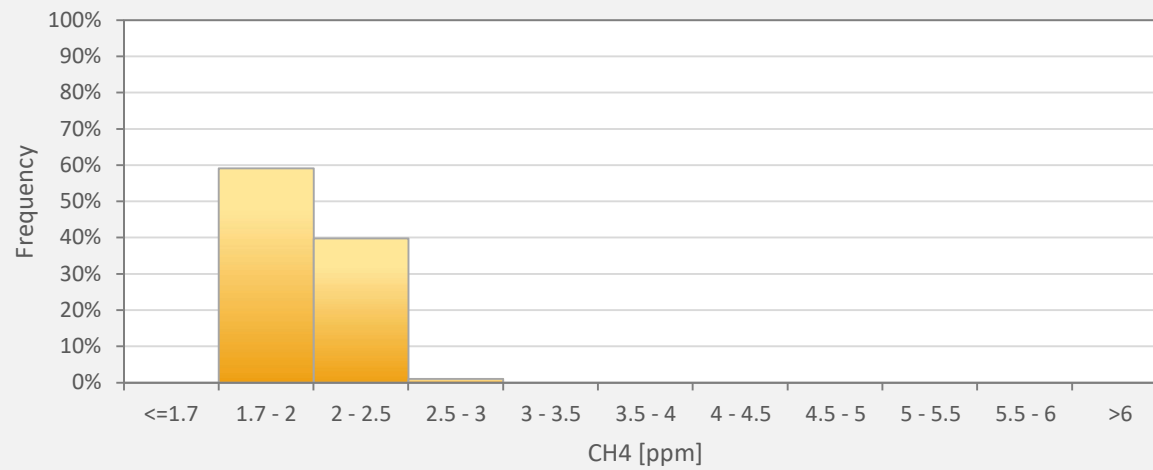
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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

Timeseries Chart of Hourly Average for CH4 - Tamarack Station



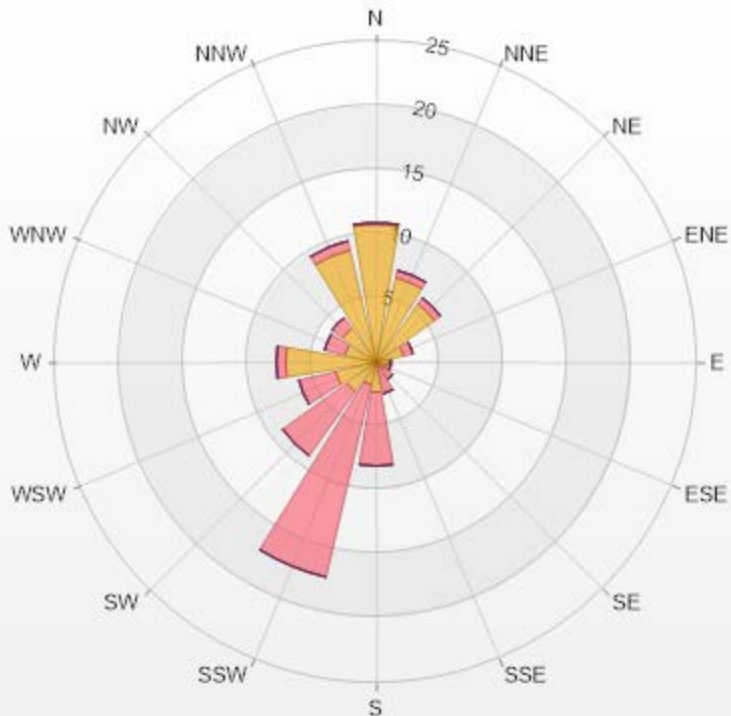
CH4[ppm] Histogram: Tamarack Monthly: 11-2022 1 Hr.



Classes	CH4
<=1.7	0.00%
1.7 - 2	59.18%
2 - 2.5	39.79%
2.5 - 3	1.03%
3 - 3.5	0.00%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: Tamarack Poll.: Tamarack-CH4[ppm] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.58% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	10.72	0.15	0	0	0	10.87
NNE	6.75	0.59	0	0	0	7.34
NE	5.58	0.59	0	0	0	6.17
ENE	2.2	0.73	0	0	0	2.93
E	1.03	0.15	0	0	0	1.18
ESE	0.73	0.44	0	0	0	1.17
SE	0.29	1.32	0	0	0	1.61
SSE	0	2.5	0	0	0	2.5
S	2.35	5.73	0	0	0	8.08
SSW	1.76	15.42	0	0	0	17.18
SW	2.79	6.17	0	0	0	8.96
WSW	3.23	2.94	0	0	0	6.17
W	7.05	0.73	0	0	0	7.78
WNW	2.5	1.62	0	0	0	4.12
NW	3.23	1.03	0	0	0	4.26
NNW	8.96	0.73	0	0	0	9.69
Summary	59.17	40.84	0	0	0	100



LICA-202211

% Icon Classes (ppm)

59  0-2

41  2-5

0  5-10

0  10-20

0  >20.0



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Tamarack Station - November 2022

Summary of Hourly Averages

NON-METHANE HYDROCARBONS (NMHC) in ppm

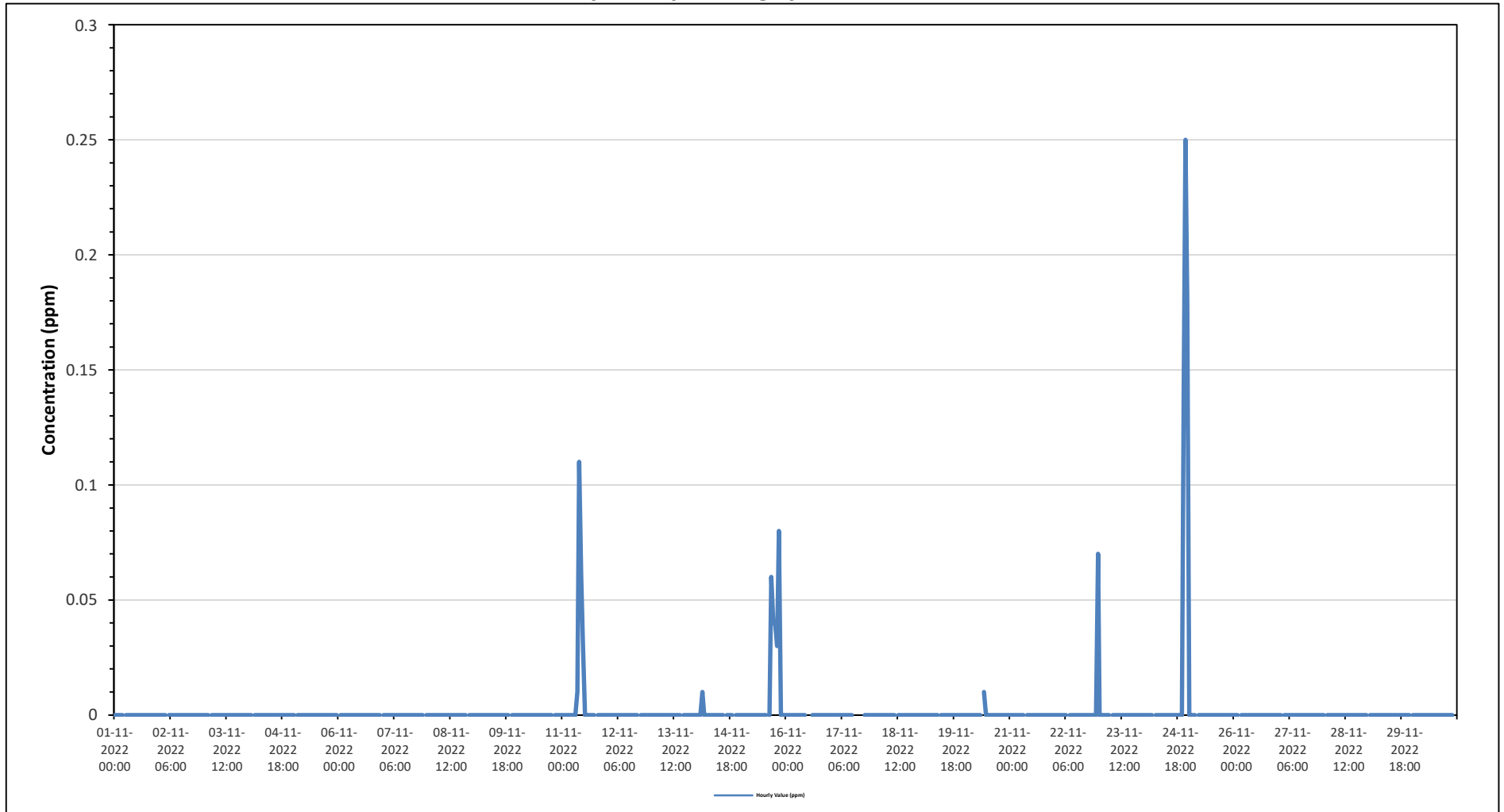
Maximum Hourly Value:	0.25 ppm on November 24 at hour 22	Hours in Service:	720
Maximum Daily Value:	0.02 ppm on November 24	Hours of Data:	681
Minimum Hourly Value:	0.00 ppm on November 1 at hour 0	Hours of Missing Data:	2
Minimum Daily Value:	0.00 ppm on November 1	Hours of Calibration:	37
Monthly Average:	0.00 ppm	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	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 2	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 3	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 4	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 5	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 6	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	S	0.00	0.00	0.00	
Nov 7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	S	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	0.00	0.00	0.00	0.00	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 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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 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	S	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	0.00	0.00	0.01	0.11	0.06	0.03	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	0.11	0.01	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	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 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	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 14	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	NRM	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	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	S	0.00	0.06	0.04	0.04	0.03	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	NRM	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 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	S	C	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 20	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	0.00	0.00	0.00	0.00	0.00	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 21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	
Nov 23	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 24	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	0.14	0.25	0.18	0.00	0.02	
Nov 25	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 26	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 27	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 28	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 29	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	S	S	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	0.00	0.00	0.00	0.00	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	
Diurnal Maximum	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.11	0.06	0.03	0.00	0.00	0.00	0.00	0.06	0.04	0.04	0.03	0.08	0.14	0.25	0.18							
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	0.01	0.01								

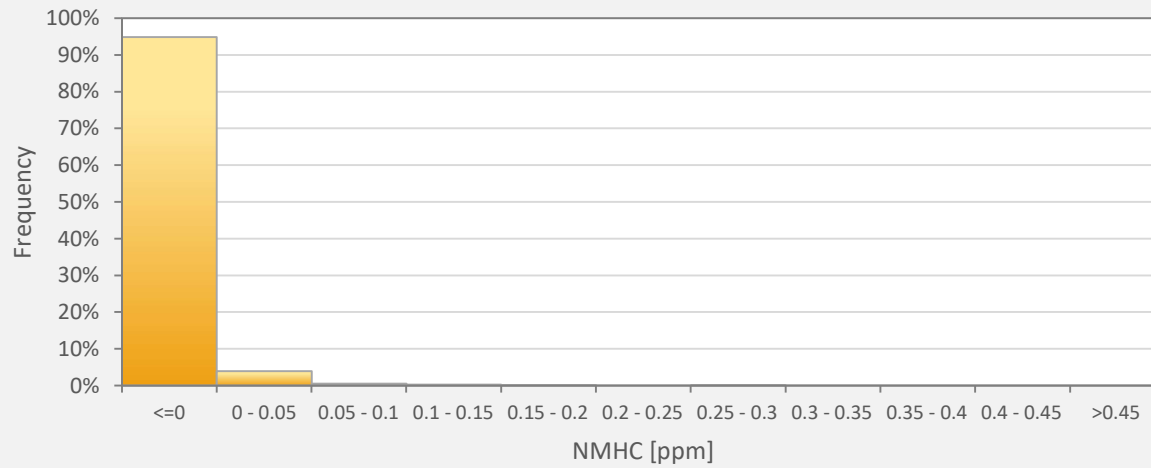
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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

Timeseries Chart of Hourly Average for NMHC - Tamarack Station



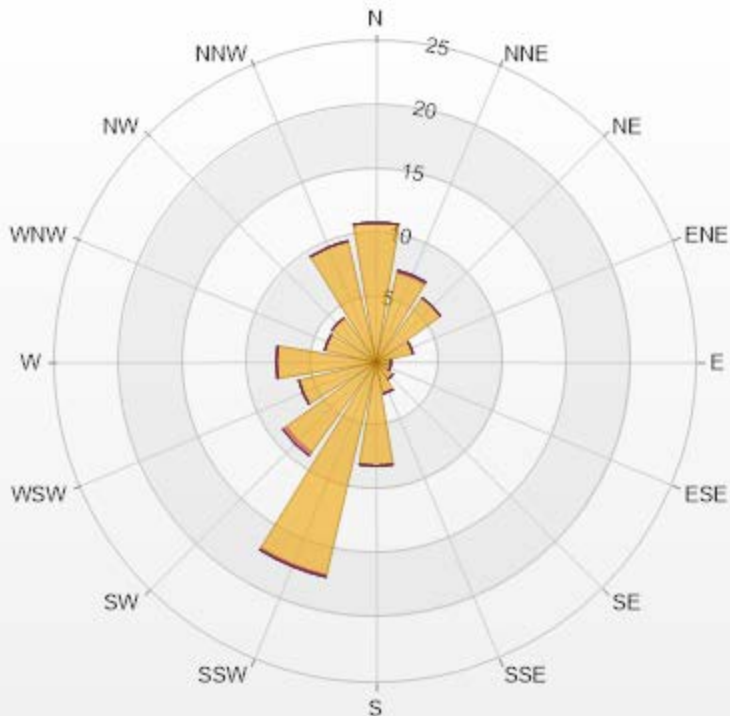
NMHC[ppm] Histogram: Tamarack Monthly: 11-2022 1 Hr.



Classes	NMHC
<=0	94.86%
0 - 0.05	3.96%
0.05 - 0.1	0.59%
0.1 - 0.15	0.29%
0.15 - 0.2	0.15%
0.2 - 0.25	0.00%
0.25 - 0.3	0.15%
0.3 - 0.35	0.00%
0.35 - 0.4	0.00%
0.4 - 0.45	0.00%
>0.45	0.00%

Wind: Tamarack Poll.: Tamarack-NMHC[ppm] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.58% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	10.87	0	0	0	0	10.87
NNE	7.2	0.15	0	0	0	7.35
NE	6.17	0	0	0	0	6.17
ENE	2.94	0	0	0	0	2.94
E	1.17	0	0	0	0	1.17
ESE	1.17	0	0	0	0	1.17
SE	1.62	0	0	0	0	1.62
SSE	2.5	0	0	0	0	2.5
S	8.08	0	0	0	0	8.08
SSW	17.03	0.15	0	0	0	17.18
SW	8.66	0.29	0	0	0	8.95
WSW	6.17	0	0	0	0	6.17
W	7.78	0	0	0	0	7.78
WNW	4.11	0	0	0	0	4.11
NW	4.26	0	0	0	0	4.26
NNW	9.69	0	0	0	0	9.69
Summary	99.42	0.59	0	0	0	100



LICA-202211

% Icon Classes (ppm)

99  0-0.1

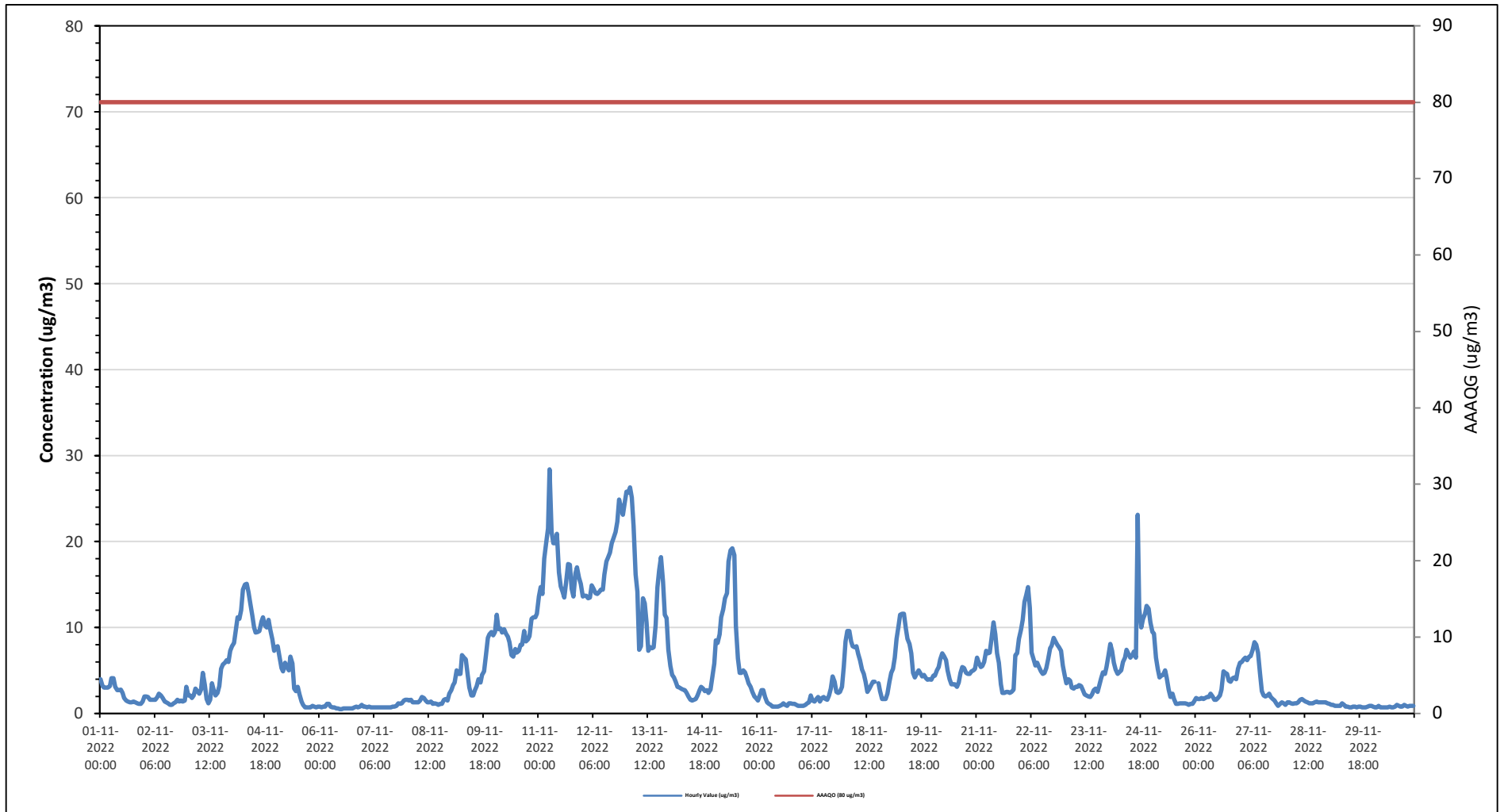
1  0.1-0.3

0  0.3-1

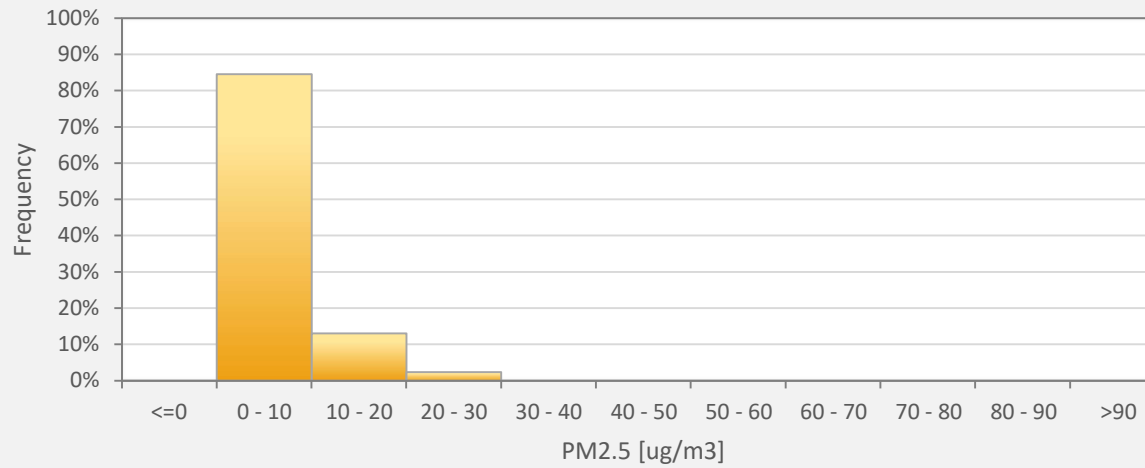
0  1-2

0  >2.0

Timeseries Chart of Hourly Average for PM2.5 - Tamarack Station



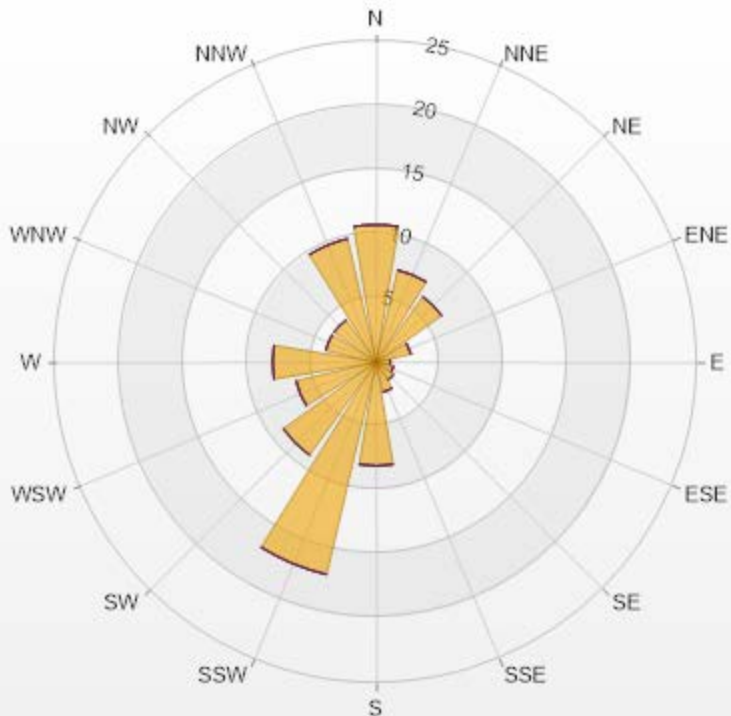
PM2.5[ug/m3(L)] Histogram: Tamarack Monthly: 11-2022 1 Hr.



Classes	PM2.5
<=0	0.00%
0 - 10	84.56%
10 - 20	13.07%
20 - 30	2.36%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Tamarack Poll.: Tamarack-PM2.5[ug/m3(L)] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 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	10.71	0	0	0	0	10.71
NNE	7.37	0	0	0	0	7.37
NE	6.26	0	0	0	0	6.26
ENE	2.78	0	0	0	0	2.78
E	1.11	0	0	0	0	1.11
ESE	1.39	0	0	0	0	1.39
SE	1.67	0	0	0	0	1.67
SSE	2.36	0	0	0	0	2.36
S	8.07	0	0	0	0	8.07
SSW	16.97	0	0	0	0	16.97
SW	8.9	0	0	0	0	8.9
WSW	6.4	0	0	0	0	6.4
W	8.07	0	0	0	0	8.07
WNW	4.03	0	0	0	0	4.03
NW	4.03	0	0	0	0	4.03
NNW	9.87	0	0	0	0	9.87
Summary	100	0	0	0	0	100



LICA-202211

% Icon Classes (ug/m3(L))

100 0-50

0 50-80

0 80-120

0 120-240

0 >240.0



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Tamarack Station - November 2022

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	100 %	on November 1 at hour 18	Hours in Service:	720
Maximum Daily Value:	94.1 %	on November 3	Hours of Data:	720
Minimum Hourly Value:	37 %	on November 19 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	53.8 %	on November 20	Hours of Calibration:	0
Monthly Average:	81.6 %		Operational Uptime:	100.0

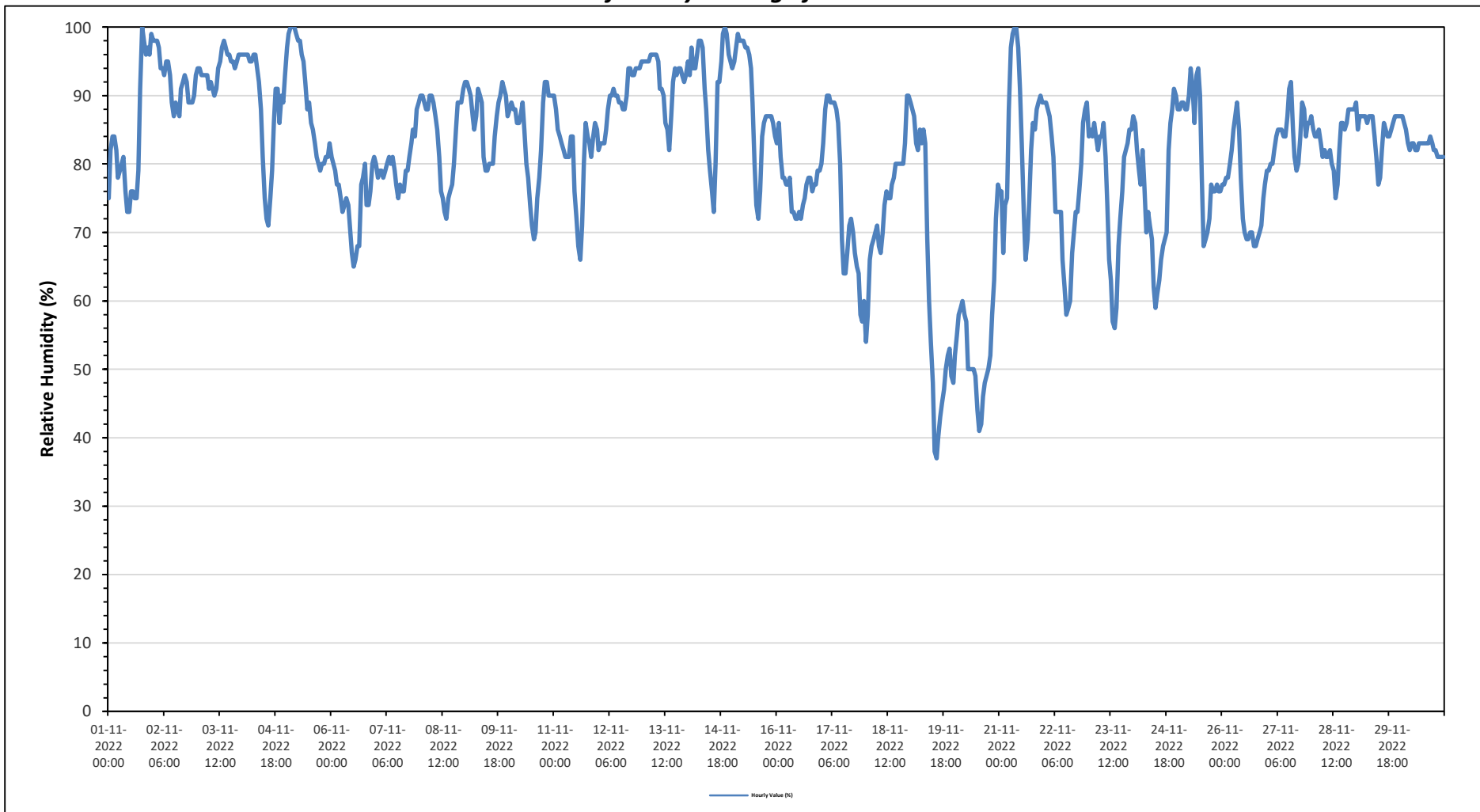
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Nov 1	75	82	84	84	82	78	79	80	81	76	73	73	76	76	75	75	79	91	100	98	96	97	96	99	73	100	83.5	
Nov 2	98	98	98	97	94	94	93	95	95	93	89	87	89	88	87	91	92	93	92	89	89	89	90	93	87	98	92.2	
Nov 3	94	94	93	93	93	93	91	92	91	90	91	94	95	97	98	97	96	96	95	95	94	95	96	96	90	98	94.1	
Nov 4	96	96	96	96	95	95	96	96	94	92	88	81	75	72	71	75	79	86	91	91	86	90	89	93	71	96	88.3	
Nov 5	97	99	100	100	100	99	98	98	96	95	92	88	89	86	85	83	81	80	79	80	80	81	81	83	79	100	89.6	
Nov 6	81	80	79	77	77	75	73	74	75	74	71	67	65	66	68	68	77	78	80	74	74	76	80	81	65	81	74.6	
Nov 7	80	78	79	79	78	79	80	81	80	81	79	77	75	77	76	76	79	79	81	83	85	84	88	89	75	89	80.1	
Nov 8	90	90	89	88	88	90	90	89	87	85	81	76	75	73	72	75	76	77	80	85	89	89	89	91	72	91	83.9	
Nov 9	92	92	91	90	87	85	87	91	90	89	81	79	79	80	80	80	84	87	89	90	92	91	90	87	79	92	86.8	
Nov 10	88	89	88	88	86	86	87	89	85	80	78	74	71	69	70	75	78	82	89	92	92	90	90	90	69	92	83.6	
Nov 11	90	88	85	84	83	82	81	81	81	84	84	76	72	68	66	71	80	86	84	83	81	84	86	85	66	90	81.0	
Nov 12	82	83	83	83	85	88	90	90	91	90	90	89	89	88	88	90	94	94	93	93	94	94	94	95	82	95	89.6	
Nov 13	95	95	95	95	96	96	96	96	96	95	91	91	90	86	85	82	87	92	94	93	94	94	93	92	82	96	92.3	
Nov 14	95	93	97	94	94	96	98	98	97	91	88	82	79	76	73	80	92	92	95	99	100	99	96	95	73	100	91.6	
Nov 15	94	95	97	99	98	98	98	97	97	96	94	89	80	74	72	76	84	86	87	87	87	87	86	84	72	99	89.3	
Nov 16	83	86	81	78	78	77	77	78	73	73	72	72	73	72	74	75	77	78	78	76	77	77	79	79	72	86	76.8	
Nov 17	80	83	88	90	90	89	89	89	88	86	80	69	64	64	67	71	72	70	67	65	64	58	57	60	57	90	75.0	
Nov 18	54	58	66	68	69	70	71	68	67	70	74	76	75	75	77	78	80	80	80	80	83	90	90	54	90	74.1		
Nov 19	89	88	87	83	82	85	83	85	83	69	60	54	48	38	37	40	43	45	47	50	52	53	49	48	37	89	62.4	
Nov 20	52	55	58	59	60	58	57	50	50	50	50	49	44	41	42	46	48	49	50	52	58	63	72	77	41	77	53.8	
Nov 21	76	76	67	74	75	88	97	99	100	100	97	91	83	73	66	69	75	82	86	85	88	89	90	89	66	100	84.0	
Nov 22	89	89	88	87	84	81	73	73	73	66	62	58	59	60	67	70	73	73	76	80	86	88	89	89	58	89	75.7	
Nov 23	84	85	84	86	84	82	84	84	86	81	74	66	63	57	56	59	68	72	76	81	82	83	85	85	56	86	77.0	
Nov 24	87	86	82	79	77	82	77	70	73	71	69	62	59	61	63	66	68	69	70	82	86	88	91	90	59	91	75.3	
Nov 25	88	88	89	89	88	88	90	94	91	86	93	94	90	78	68	69	70	72	77	76	76	77	76	76	68	94	82.6	
Nov 26	77	77	78	78	80	82	85	87	89	85	78	72	70	69	69	70	70	68	68	69	70	71	75	77	68	89	75.6	
Nov 27	79	79	80	80	82	84	85	85	85	84	84	87	91	92	85	81	79	80	84	89	88	84	86	86	79	92	84.1	
Nov 28	87	85	84	84	85	83	81	82	81	81	82	80	79	75	77	82	86	86	85	86	88	88	88	88	75	88	83.5	
Nov 29	89	85	87	87	87	87	86	87	87	87	84	81	77	78	82	86	85	84	84	85	86	87	87	87	77	89	85.1	
Nov 30	87	87	86	85	83	82	83	83	82	82	83	83	83	83	83	83	84	83	82	82	81	81	81	81	81	81	87	83.0
Diurnal Maximum	98	99	100	100	100	99	98	99	100	100	97	94	95	97	98	97	96	96	100	99	100	99	96	99				
Diurnal Average	84.9	85.3	85.3	85.1	84.7	85.1	85.2	85.4	84.8	82.8	80.5	77.3	75.1	73.0	72.3	74.7	77.9	79.7	81.2	82.2	83.0	83.6	84.6	85.2				

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

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

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

Timeseries Chart of Hourly Average for RH - Tamarack Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Station - November 2022

Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	961 mb on November 17 at hour 1	Hours in Service:	720
Maximum Daily Value:	955 mb on November 17	Hours of Data:	720
Minimum Hourly Value:	910 mb on November 5 at hour 2	Hours of Missing Data:	0
Minimum Daily Value:	918 mb on November 4	Hours of Calibration:	0
Monthly Average:	936 mb	Operational Uptime:	100.0

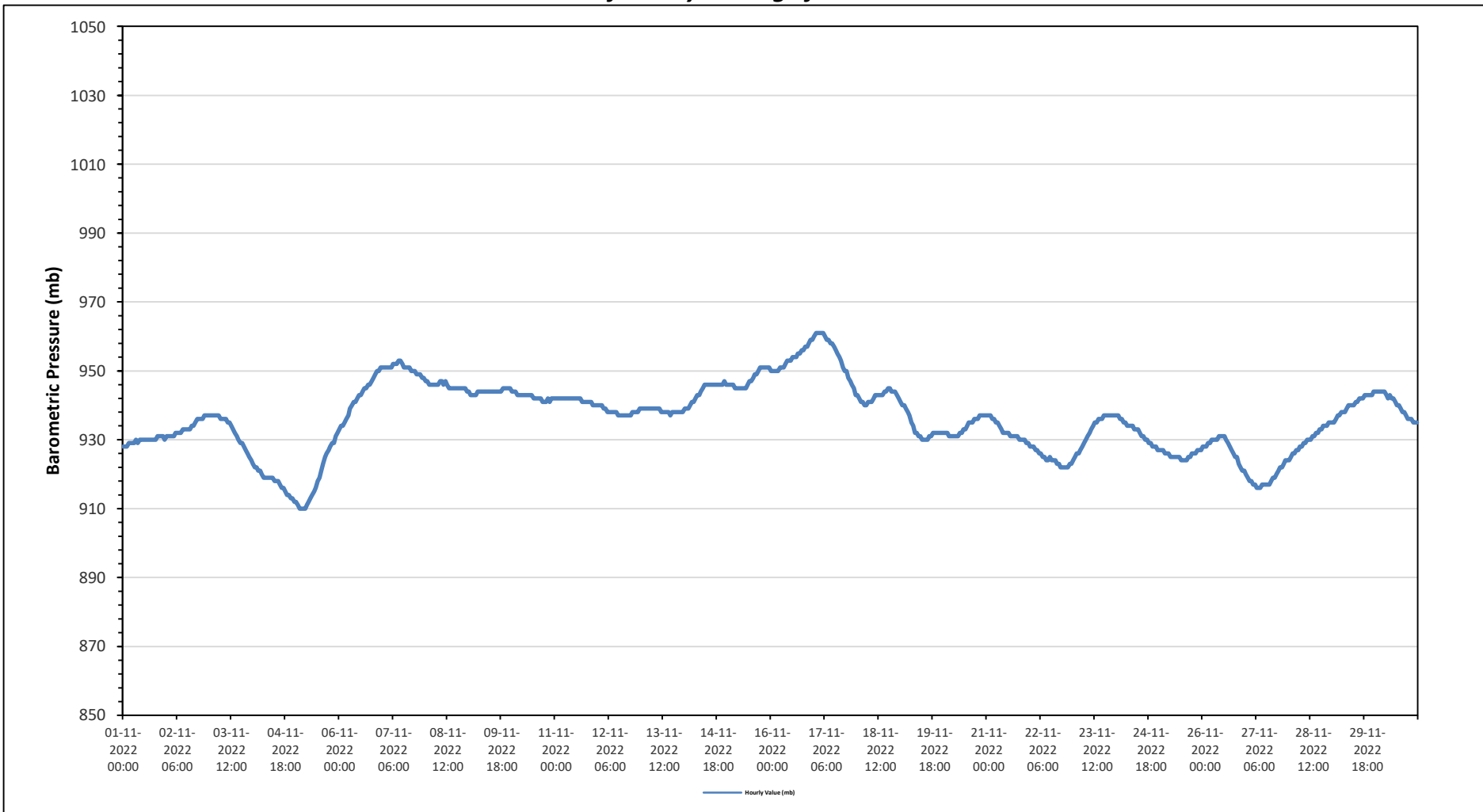
Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Nov 1	928	928	928	929	929	929	929	930	929	930	930	930	930	930	930	930	930	930	930	931	931	931	931	930	928	931	929.7
Nov 2	931	931	931	931	931	932	932	932	932	932	933	933	933	933	934	934	935	936	936	936	936	937	937	937	931	937	933.6
Nov 3	937	937	937	937	937	937	936	936	936	936	935	935	934	933	932	931	930	929	929	928	927	926	925	924	924	937	932.7
Nov 4	923	922	922	921	921	920	919	919	919	919	919	918	918	918	917	916	916	915	914	914	913	913	912	912	912	923	917.8
Nov 5	912	911	910	910	910	910	911	912	913	914	915	916	918	919	921	923	925	926	927	928	929	929	931	932	910	932	918.8
Nov 6	933	934	934	935	936	937	939	940	941	941	942	943	943	944	945	945	946	946	947	948	949	950	950	951	933	951	942.5
Nov 7	951	951	951	951	951	951	952	952	952	953	953	952	951	951	951	951	950	950	950	949	949	949	948	948	948	953	950.7
Nov 8	947	947	946	946	946	946	946	946	947	947	946	946	945	945	945	945	945	945	945	945	945	945	944	944	944	947	945.7
Nov 9	944	943	943	943	943	944	944	944	944	944	944	944	944	944	944	944	944	944	944	945	945	945	945	945	943	945	944.0
Nov 10	944	944	944	943	943	943	943	943	943	943	943	943	942	942	942	942	941	941	941	941	942	941	942	942	941	944	942.5
Nov 11	942	942	942	942	942	942	942	942	942	942	942	942	942	942	941	941	941	941	941	941	940	940	940	940	940	942	941.5
Nov 12	940	940	940	939	939	938	938	938	938	938	938	937	937	937	937	937	937	937	937	937	938	938	938	938	937	940	938.0
Nov 13	939	939	939	939	939	939	939	939	939	939	939	938	938	938	938	938	937	938	938	938	938	938	938	938	937	939	938.4
Nov 14	939	939	939	940	941	941	942	943	943	944	945	946	946	946	946	946	946	946	946	946	946	946	947	946	939	947	944.0
Nov 15	946	946	946	946	945	945	945	945	945	945	945	946	947	947	948	949	949	950	951	951	951	951	951	951	945	951	947.5
Nov 16	950	950	950	950	950	951	951	951	952	953	953	953	954	954	954	955	955	956	956	957	957	958	959	959	950	959	953.7
Nov 17	960	961	961	961	961	961	960	959	959	958	958	957	956	955	954	953	951	950	948	947	946	945	943	943	961	954.8	
Nov 18	943	942	941	941	940	940	941	941	942	943	943	943	943	943	944	944	945	945	944	944	944	943	942	940	945	945	942.6
Nov 19	941	940	940	939	938	937	935	934	932	932	931	931	930	930	930	931	931	932	932	932	932	932	932	930	941	933.5	
Nov 20	932	932	932	931	931	931	931	931	931	932	932	933	933	934	935	935	935	936	936	936	937	937	937	937	931	937	933.6
Nov 21	937	937	937	936	936	935	935	934	933	932	932	932	932	931	931	931	931	930	930	930	930	929	929	929	929	937	932.5
Nov 22	928	928	928	927	927	926	926	925	925	924	924	924	924	923	923	922	922	922	922	922	922	923	923	922	922	928	924.5
Nov 23	924	925	926	926	927	928	929	930	931	932	933	934	935	935	936	936	936	937	937	937	937	937	937	937	924	937	932.6
Nov 24	937	937	936	936	935	935	934	934	934	933	933	933	932	931	931	930	930	929	929	928	928	928	927	927	927	937	932.3
Nov 25	927	927	927	926	926	926	925	925	925	925	925	924	924	924	925	925	926	926	926	926	926	927	927	924	927	925.6	
Nov 26	928	928	928	929	929	930	930	930	931	931	931	931	930	929	928	927	926	925	925	923	922	921	921	921	921	931	927.6
Nov 27	920	919	918	918	917	917	916	916	916	917	917	917	917	917	918	919	919	920	921	922	922	923	924	924	916	924	918.9
Nov 28	924	925	926	926	927	927	928	928	929	929	930	930	930	931	931	932	932	933	933	934	934	934	935	935	924	935	930.1
Nov 29	935	935	936	937	937	938	938	938	939	940	940	940	941	941	942	942	943	943	943	943	943	943	944	944	935	944	940.0
Nov 30	944	944	944	944	944	944	943	942	943	942	942	941	940	940	939	938	938	937	936	936	935	935	935	935	935	944	940.1
Diurnal Maximum	960	961	961	961	961	961	960	959	959	958	958	957	956	955	954	955	955	956	956	957	957	958	959	959			
Diurnal Average	936	936	936	936	936	936	936	936	936	936	936	937	936	936	936	936	936	937	937	937	937	937	937	936			

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

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

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

Timeseries Chart of Hourly Average for BP - Tamarack Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Station - November 2022

Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

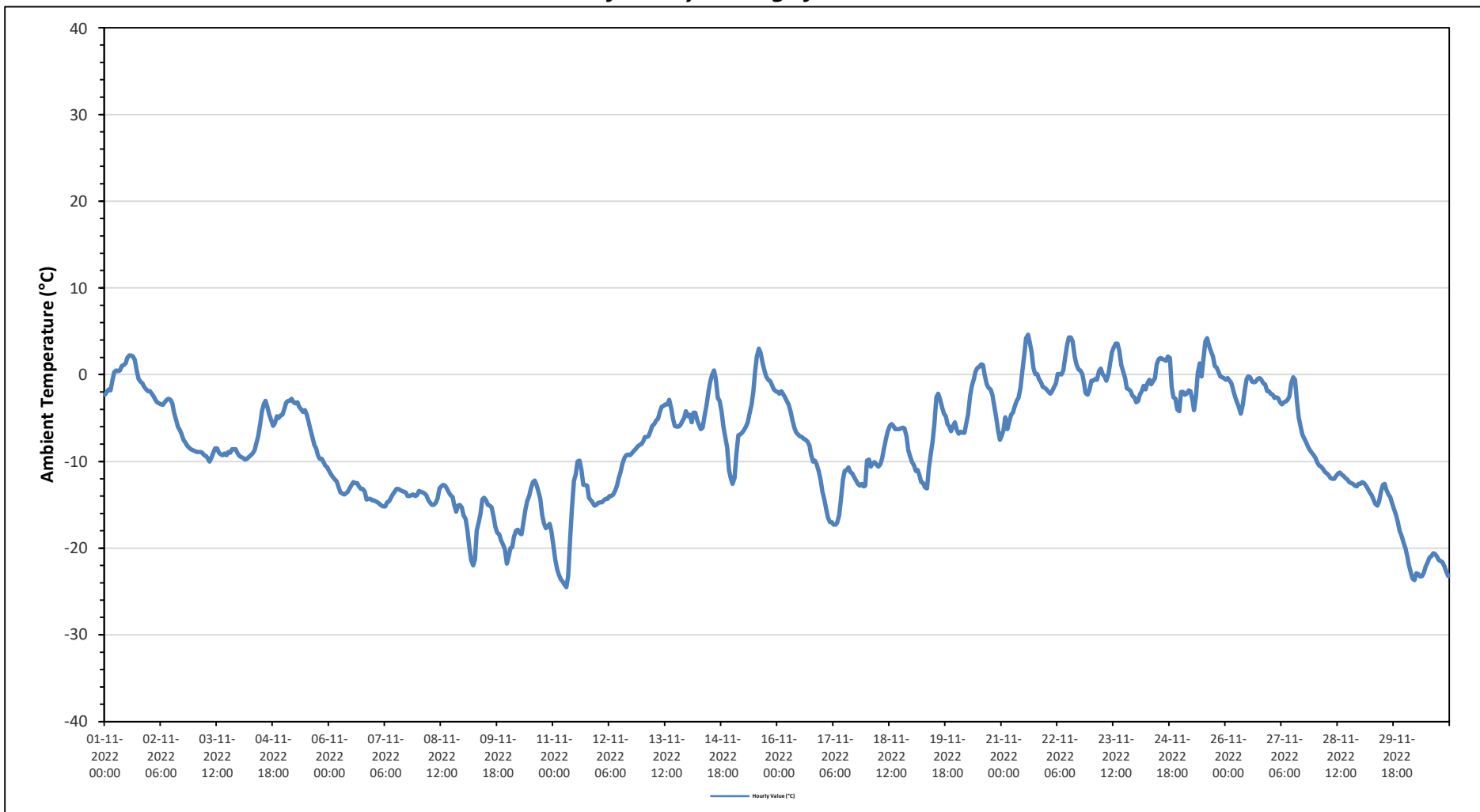
Maximum Hourly Value:	4.6 °C	on November 21 at hour 14	Hours in Service:	720
Maximum Daily Value:	0.2 °C	on November 22	Hours of Data:	720
Minimum Hourly Value:	-24.5 °C	on November 11 at hour 7	Hours of Missing Data:	0
Minimum Daily Value:	-22.0 °C	on November 30	Hours of Calibration:	0
Monthly Average:	-8.0 °C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Nov 1	-2.3	-2	-1.7	-1.8	-0.6	0.3	0.5	0.4	0.5	1	1.1	1.3	1.9	2.2	2.2	2.1	1.7	0.4	-0.5	-0.8	-1	-1.4	-1.7	-1.9	-2.3	2.2	0.0
Nov 2	-1.9	-2.2	-2.5	-2.9	-3.2	-3.3	-3.4	-3.5	-3.2	-2.9	-2.8	-2.9	-3.3	-4.4	-5.2	-6	-6.4	-6.8	-7.5	-7.8	-8.2	-8.4	-8.6	-8.7	-8.7	-1.9	-4.8
Nov 3	-8.8	-8.9	-8.9	-8.9	-9	-9.3	-9.4	-9.6	-10	-9.6	-9	-8.5	-8.5	-9	-9.2	-9.3	-9.1	-9.3	-8.9	-9	-8.6	-8.6	-8.6	-9.1	-10.0	-8.5	-9.0
Nov 4	-9.4	-9.5	-9.6	-9.8	-9.7	-9.5	-9.3	-9.1	-8.7	-7.9	-7.1	-5.7	-4.2	-3.4	-3	-3.8	-4.6	-5.3	-5.9	-5.6	-4.8	-5	-4.7	-4.6	-9.8	-3.0	-6.7
Nov 5	-3.9	-3.2	-3	-3	-2.8	-3.2	-3.3	-3.2	-3.7	-4	-4.3	-4.1	-4.6	-5.4	-6.4	-7.2	-8.1	-8.5	-9.3	-9.7	-9.7	-10.1	-10.5	-10.7	-10.7	-2.8	-5.9
Nov 6	-11.1	-11.5	-11.8	-12.1	-12.3	-13	-13.6	-13.7	-13.8	-13.7	-13.5	-13.1	-12.7	-12.4	-12.5	-12.5	-12.9	-13.2	-13.2	-13.5	-14.4	-14.3	-14.3	-14.5	-14.5	-11.1	-13.1
Nov 7	-14.5	-14.6	-14.7	-14.9	-15.1	-15.2	-15.2	-14.7	-14.6	-14.2	-13.8	-13.5	-13.2	-13.2	-13.3	-13.4	-13.5	-13.6	-14	-14	-13.9	-13.8	-14	-13.9	-15.2	-13.2	-14.1
Nov 8	-13.4	-13.5	-13.6	-13.7	-13.9	-14.4	-14.7	-15	-15	-14.8	-14.3	-13.1	-12.9	-12.7	-12.8	-13.1	-13.6	-13.9	-14.1	-15	-15.8	-15.1	-15	-15.3	-15.8	-12.7	-14.1
Nov 9	-16.2	-16.6	-17.9	-19.9	-21.4	-22	-21.3	-18	-17	-16	-14.4	-14.2	-14.5	-15	-15.1	-15.3	-16.3	-17.6	-18.2	-18.4	-19.1	-19.6	-20.1	-21.8	-22.0	-14.2	-17.7
Nov 10	-21	-20	-19.9	-18.7	-18	-17.9	-18.3	-18.4	-16.9	-15.6	-14.6	-14	-13.1	-12.4	-12.2	-12.7	-13.4	-14.3	-16.1	-17.1	-17.7	-17.5	-17.2	-18.1	-21.0	-12.2	-16.5
Nov 11	-19.8	-21.3	-22.5	-23.1	-23.6	-23.9	-24.2	-24.5	-23.2	-18.8	-15.4	-12.2	-11.5	-10	-9.9	-10.9	-12.7	-12.7	-12.8	-14.2	-14.5	-14.7	-15.1	-15	-24.5	-9.9	-16.9
Nov 12	-14.8	-14.7	-14.7	-14.5	-14.3	-14.3	-14	-14	-13.8	-13.4	-12.8	-12	-11.2	-10.3	-9.6	-9.3	-9.2	-9.3	-9.1	-8.8	-8.6	-8.3	-8.1	-8	-14.8	-8.0	-11.5
Nov 13	-7.7	-7.2	-7.2	-7.1	-6.5	-5.9	-5.7	-5.3	-5.1	-4.3	-3.7	-3.6	-3.4	-3.4	-2.9	-3.9	-5.1	-5.9	-6	-6	-5.8	-5.4	-5	-4.2	-7.7	-2.9	-5.3
Nov 14	-4.8	-4.6	-5.5	-4.4	-4.4	-5.3	-5.8	-6.3	-6.1	-4.7	-3.6	-2	-0.8	0	0.5	-0.5	-2.7	-3	-4.3	-6	-7.3	-8.4	-11	-11.9	-11.9	0.5	-4.7
Nov 15	-12.6	-11.9	-9.2	-7	-6.9	-6.7	-6.4	-6	-5.5	-4.5	-3.5	-2	0.3	2.1	3	2.5	1.3	0.5	-0.2	-0.6	-0.7	-1.2	-1.7	-1.9	-12.6	3.0	-3.3
Nov 16	-2	-2.2	-1.9	-2.2	-2.6	-3	-3.5	-4.2	-5.3	-6.1	-6.7	-6.9	-7.1	-7.2	-7.4	-7.5	-7.7	-8.2	-9.2	-10	-9.9	-10.3	-11.1	-12	-12.0	-1.9	-6.4
Nov 17	-13.5	-14.3	-15.5	-16.5	-17	-17	-17.3	-17.3	-17.1	-16.2	-14.4	-12.1	-11.1	-11	-10.7	-11.2	-11.4	-11.8	-12.2	-12.6	-12.8	-12.6	-12.9	-12.8	-17.3	-10.7	-13.8
Nov 18	-9.9	-9.8	-10.6	-10.2	-10.1	-10.4	-10.6	-10.3	-9.6	-8.5	-7.4	-6.5	-5.9	-5.7	-5.9	-6.3	-6.3	-6.3	-6.2	-6.1	-6.2	-7.1	-8.7	-9.5	-10.6	-5.7	-8.1
Nov 19	-10.1	-10.5	-11.1	-11	-11.6	-12.4	-12.5	-13	-13.1	-10.8	-9.1	-7.7	-5.7	-2.6	-2.2	-2.9	-3.7	-4.5	-4.8	-5.7	-6	-6.5	-5.9	-5.5	-13.1	-2.2	-7.9
Nov 20	-6.4	-6.8	-6.6	-6.7	-6.7	-5.6	-4.6	-2.5	-1.3	-0.5	0.3	0.8	0.9	1.2	1.1	-0.1	-1.1	-1.5	-1.7	-2.3	-3.7	-4.9	-6.5	-7.5	-7.5	1.2	-3.0
Nov 21	-7.1	-6.4	-4.9	-6.3	-5.5	-4.6	-4.4	-3.6	-3	-2.7	-1.5	0.3	2.3	4.2	4.6	3.8	2.6	0.8	0.1	0.1	-0.5	-0.9	-1.4	-1.5	-7.1	4.6	-1.5
Nov 22	-1.7	-2	-2.2	-1.9	-1.4	-1	0.1	0.1	0	0.5	2.1	3.4	4.3	4.3	3.8	2.1	1.2	0.6	0.5	0.1	-0.8	-2.1	-2.3	-1.8	-2.3	4.3	0.2
Nov 23	-0.7	-0.7	-0.5	-0.6	0.4	0.7	0.1	-0.2	-0.7	0	1.3	2.6	3.1	3.6	3.6	2.8	1.1	0.4	-0.4	-1.6	-1.7	-1.9	-2.5	-2.6	-2.6	3.6	0.2
Nov 24	-3.2	-3	-2.3	-1.9	-1.3	-1.7	-1	-0.6	-1.1	-0.8	-0.4	1.2	1.8	1.9	1.8	1.7	1.6	2.1	1.9	-1.4	-2.6	-2.8	-4	-4.2	-4.2	2.1	-0.8
Nov 25	-2	-2	-2.3	-2.2	-1.8	-1.9	-2.9	-4.1	-2.5	0.2	1.3	-0.2	1.7	3.8	4.2	3.3	2.7	2.1	1	0.8	0.3	-0.2	-0.3	-0.4	-4.1	4.2	-0.1
Nov 26	-0.6	-0.4	-0.7	-1	-1.9	-2.6	-3.2	-3.8	-4.5	-3.4	-1.9	-0.5	-0.2	-0.3	-0.8	-0.9	-0.8	-0.5	-0.4	-0.6	-1	-1.1	-1.9	-1.9	-4.5	-0.2	-1.5
Nov 27	-2.2	-2.3	-2.7	-2.6	-2.7	-3.2	-3.4	-3.2	-3.1	-2.9	-2.5	-1	-0.3	-0.6	-3.2	-5	-6.1	-6.9	-7.4	-7.8	-8.3	-8.7	-9	-9.3	-9.3	-0.3	-4.4
Nov 28	-9.6	-10.2	-10.5	-10.6	-10.9	-11.2	-11.4	-11.6	-11.9	-12	-12	-11.7	-11.4	-11.3	-11.5	-11.7	-11.9	-12.1	-12.4	-12.5	-12.6	-12.8	-12.9	-12.6	-12.9	-9.6	-11.6
Nov 29	-12.6	-12.4	-12.5	-12.8	-13.2	-13.6	-13.9	-14.4	-14.9	-15.1	-14.6	-13.4	-12.7	-12.6	-13.3	-13.8	-14.1	-14.8	-15.5	-16.1	-17	-18	-18.6	-19.3	-19.3	-12.4	-14.6
Nov 30	-20	-20.9	-22	-22.9	-23.5	-23.7	-22.9	-24	-23.3	-23.2	-22.8	-22.1	-21.6	-21.1	-20.9	-20.6	-20.7	-21	-21.4	-21.5	-21.6	-22.1	-22.7	-23.2	-23.7	-20.0	-22.0
Diurnal Maximum	-0.6	-0.4	-0.5	-0.6	0.4	0.7	0.5	0.4	0.5	1.0	2.1	3.4	4.3	4.3	4.6	3.8	2.7	2.1	1.9	0.8	0.3	-0.2	-0.3	-0.4			
Diurnal Average	-8.8	-8.9	-9.0	-9.0	-9.1	-9.2	-9.2	-9.1	-8.9	-8.2	-7.3	-6.4	-5.8	-5.4	-5.4	-6.0	-6.6	-7.1	-7.6	-8.1	-8.5	-8.8	-9.2	-9.5			

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

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

Timeseries Chart of Hourly Average for AT - Tamarack Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Station - November 2022

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:	22.4 °C	on November 20 at hour 15	Hours in Service:	720
Maximum Daily Value:	22.1 °C	on November 23	Hours of Data:	720
Minimum Hourly Value:	19.0 °C	on November 2 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	19.9 °C	on November 6	Hours of Calibration:	0
Monthly Average:	20.6 °C		Operational Uptime:	100.0

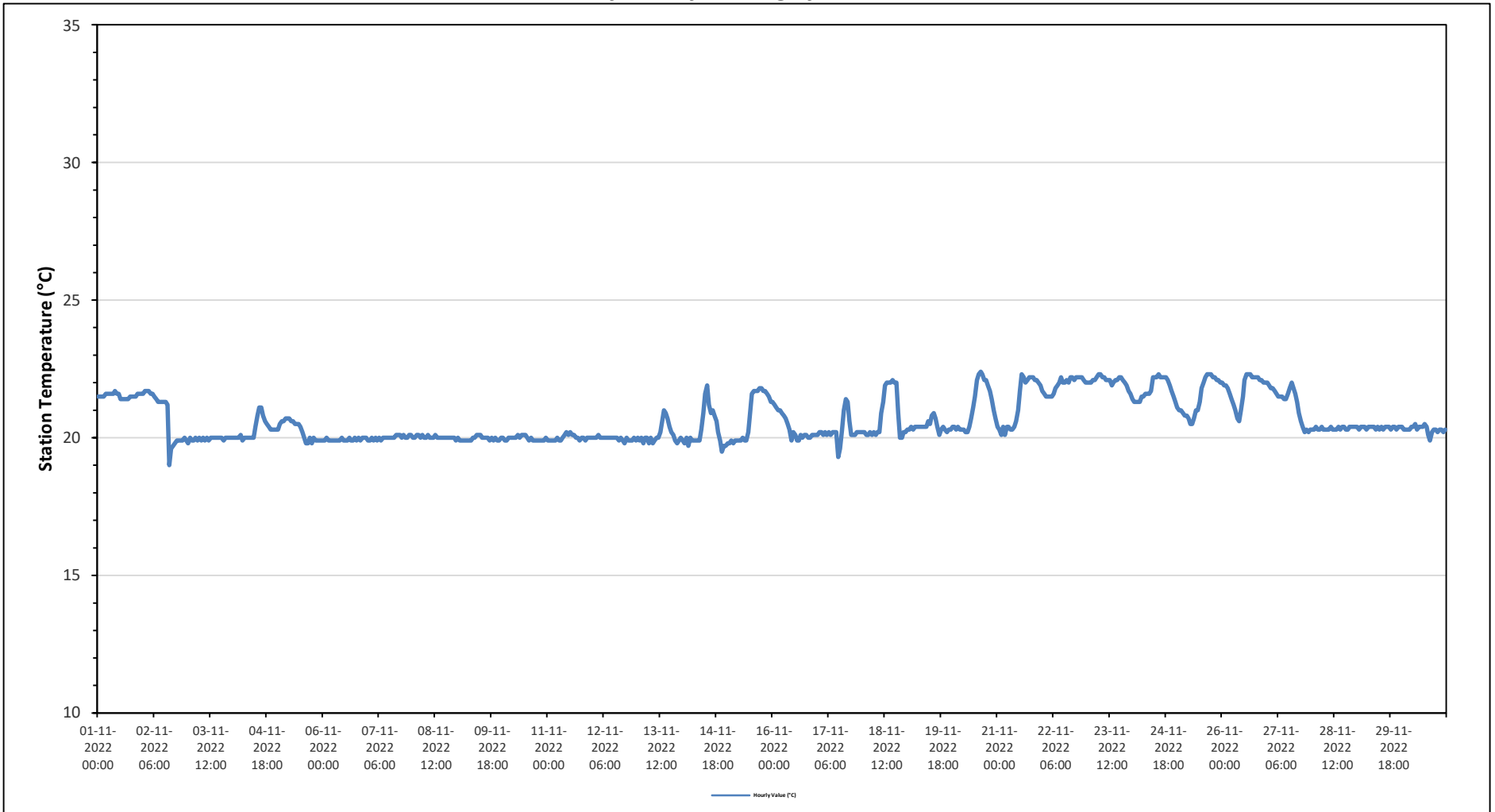
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Nov 1	21.5	21.5	21.5	21.5	21.6	21.6	21.6	21.6	21.6	21.7	21.6	21.6	21.4	21.4	21.4	21.4	21.5	21.5	21.5	21.5	21.6	21.6	21.6	21.4	21.7	21.5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

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

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

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

Timeseries Chart of Hourly Average for ST - Tamarack Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Station - November 2022

Summary of Hourly Averages

PRECIPITATION in mm

Maximum Hourly Value:	0.7 mm on November 8 at hour 11	Hours in Service:	720
Maximum Daily Value:	0.1 mm on November 12	Hours of Data:	720
Minimum Hourly Value:	0.0 mm on November 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 mm on November 3	Hours of Calibration:	0
Monthly Total:	12.6 mm	Operational Uptime:	100.0

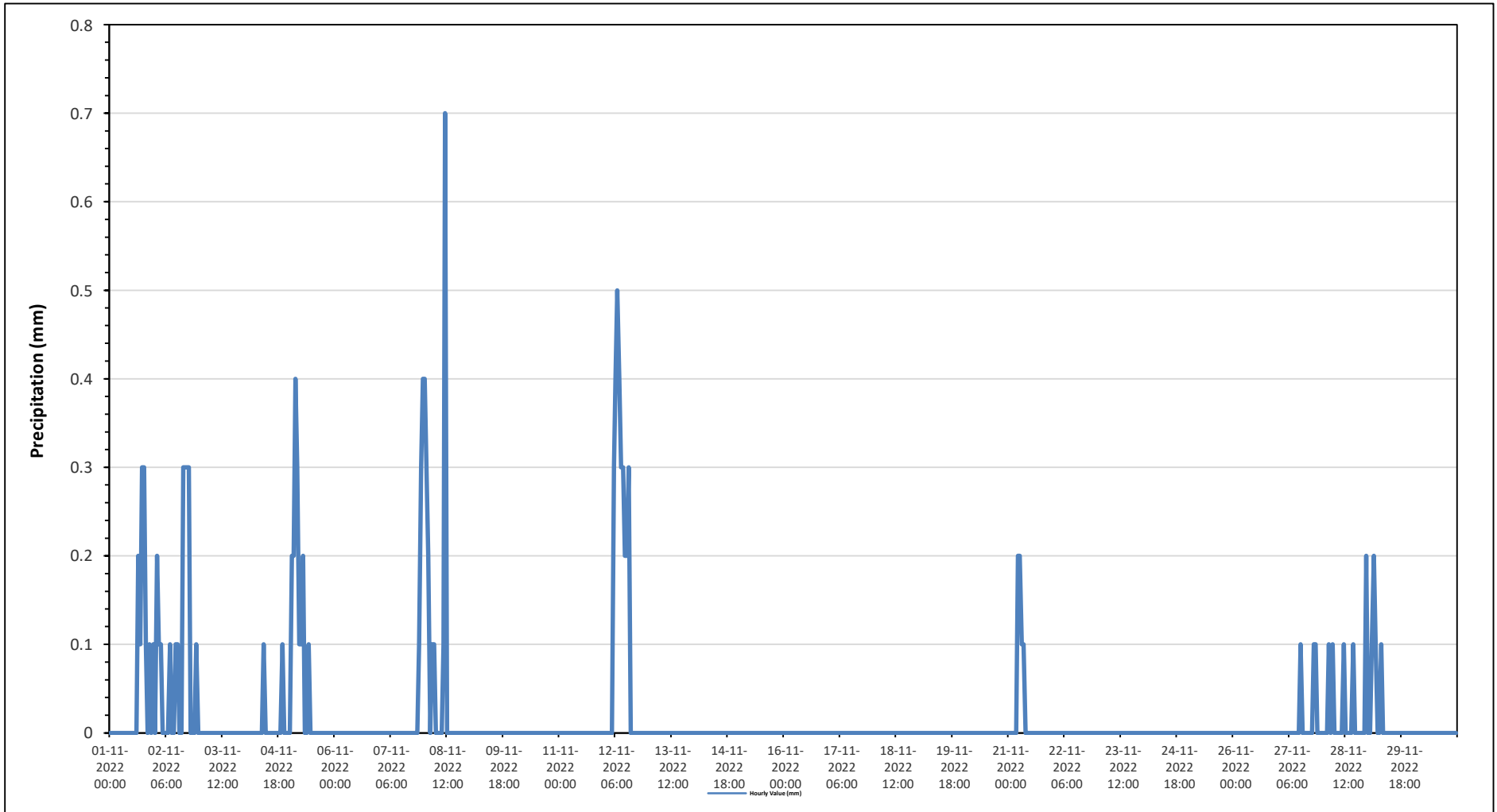
Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Total	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
Nov 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.1	0.3	0.3	0.1	0	0.1	0	0.1	0.0	0.3	0.1	
Nov 2	0	0.2	0.1	0.1	0	0	0	0	0.1	0	0	0.1	0.1	0	0	0.3	0.3	0.3	0.3	0	0	0	0.1	0	0.0	0.3	0.1	
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	0.1	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0.0	0.1	0.0	
Nov 5	0	0.2	0.2	0.4	0.3	0.1	0.1	0.2	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.4	0.1	
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	0	0	0.1	0.3	0.4	0.0	0.4	0.0
Nov 8	0.4	0.3	0.2	0	0.1	0.1	0	0	0	0	0.1	0.7	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.7	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	0.3	0.4	0.5	0.4	0.3	0.3	0.2	0.2	0.3	0	0	0	0	0	0	0	0	0	0	0.0	0.5	0.1	
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	0	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	0.2	0.2	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.2	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	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	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0.1	0.1	0	0	0	0.0	0.1	0.0	
Nov 28	0	0	0	0.1	0	0.1	0	0	0	0	0	0.1	0	0	0	0	0.1	0	0	0	0	0	0	0.2	0.0	0.2	0.0	
Nov 29	0	0	0.1	0.2	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.2	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	0.4	0.3	0.2	0.4	0.3	0.3	0.4	0.5	0.4	0.3	0.3	0.7	0.2	0.3	0.0	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.3	0.4				
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	N No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction /Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

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

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

Timeseries Chart of Hourly Average for Precipitation - Tamarack Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Station - November 2022

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

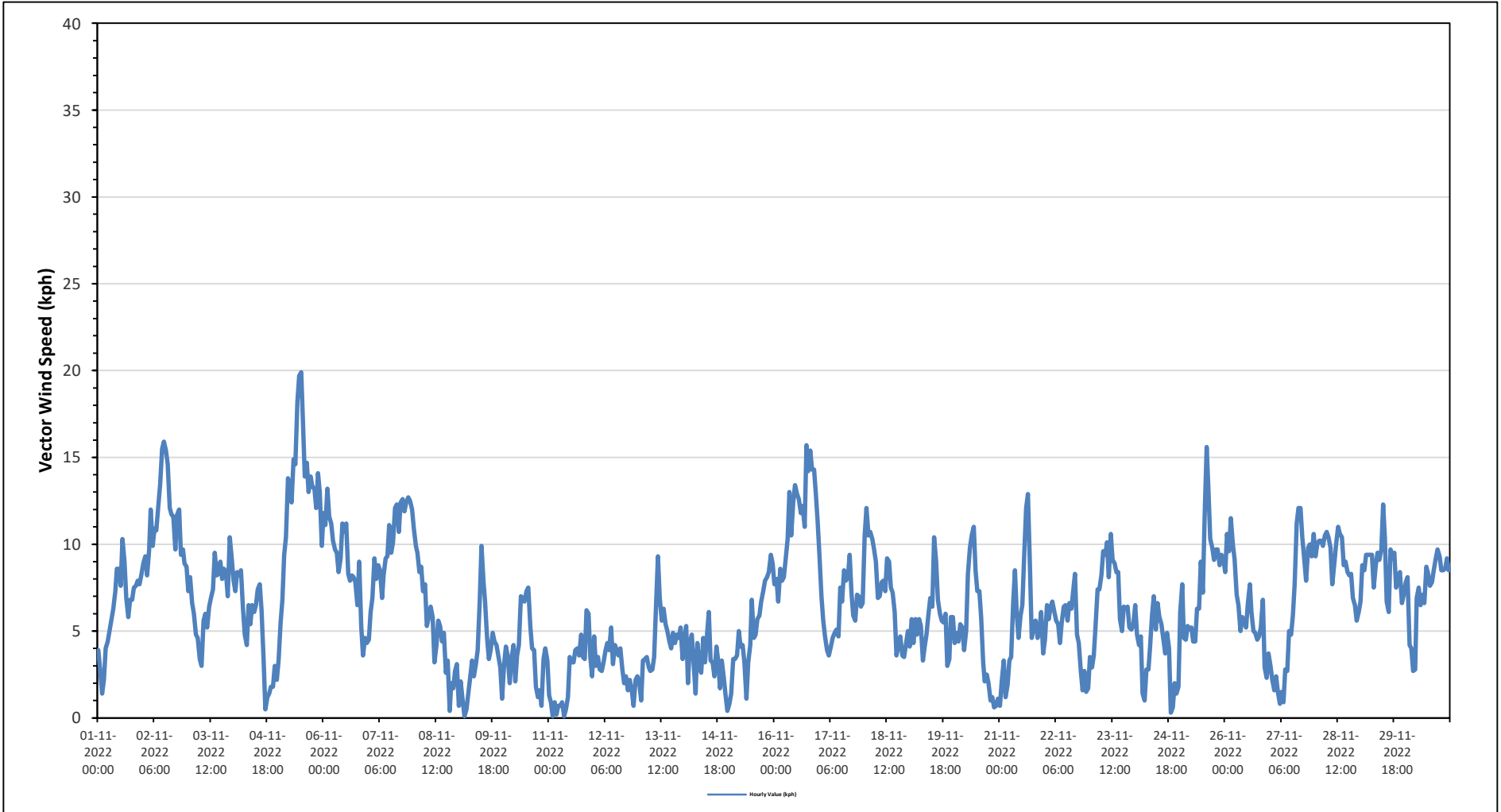
Maximum Hourly Value:	19.9 kph	on November 5 at hour 12	Hours in Service:	720
Maximum Daily Value:	12.4 kph	on November 5	Hours of Data:	720
Minimum Hourly Value:	0.1 kph	on November 9 at hour 3	Hours of Missing Data:	0
Minimum Daily Value:	2.1 kph	on November 11	Hours of Calibration:	0
Monthly Average:	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	3.9	2.8	1.4	2.2	4.0	4.4	5.0	5.7	6.3	7.3	8.6	8.6	7.6	10.3	9.0	6.9	5.8	6.8	6.8	7.5	7.6	7.9	7.7	8.3	1.4	10.3	5.4
Nov 2	8.9	9.3	8.2	9.7	12.0	9.9	10.9	10.8	12.2	13.4	15.5	15.9	15.4	14.6	12.1	11.7	11.6	9.7	11.7	12.0	9.4	9.7	8.9	8.7	8.2	15.9	11.1
Nov 3	7.3	8.1	6.6	6.0	4.8	4.6	3.4	3.0	5.6	6.0	5.2	6.4	6.9	7.4	9.5	8.2	8.3	9.0	8.0	8.6	8.4	7.0	10.4	9.3	3.0	10.4	3.3
Nov 4	7.9	7.3	8.4	8.2	8.5	6.3	4.8	4.2	6.5	5.4	6.5	6.1	6.5	7.4	7.7	6.2	3.4	0.5	1.2	1.4	1.8	1.8	3.0	2.2	0.5	8.5	4.4
Nov 5	3.3	5.5	6.8	9.4	10.4	13.8	13.3	12.4	14.9	14.6	18.2	19.7	19.9	17.0	13.9	14.7	13.0	13.9	13.3	13.2	12.1	14.1	13.0	9.9	3.3	19.9	12.4
Nov 6	11.8	11.1	13.2	11.6	11.2	10.2	9.7	9.5	8.4	9.2	11.2	10.7	11.2	8.3	7.9	8.2	8.1	7.8	6.5	9.0	5.3	3.6	4.6	4.3	3.6	13.2	8.7
Nov 7	4.5	6.1	6.9	9.2	8.0	8.8	8.5	6.9	8.2	9.2	9.3	11.1	9.5	10.1	12.1	12.3	10.7	12.4	12.6	11.9	12.4	12.7	12.5	12.0	4.5	12.7	9.6
Nov 8	10.9	9.9	9.5	8.4	8.7	7.3	7.7	5.3	5.8	6.4	5.8	3.2	4.2	5.6	5.3	4.4	4.9	2.6	3.3	0.4	2.0	1.7	2.7	3.1	0.4	10.9	4.1
Nov 9	0.7	2.1	1.0	0.1	0.5	1.4	2.4	3.3	2.4	3.1	3.9	6.7	9.9	7.8	6.7	4.6	3.4	3.9	4.9	4.4	4.2	3.6	2.9	1.1	0.1	9.9	3.3
Nov 10	3.1	4.1	3.6	2.0	3.4	4.2	2.1	3.6	4.2	7.0	6.9	6.7	7.3	7.5	5.3	4.0	3.9	1.8	1.2	1.6	0.7	3.4	4.0	3.3	0.7	7.5	3.9
Nov 11	1.3	0.9	0.1	0.9	0.2	0.7	0.7	0.9	0.1	0.5	1.2	3.5	3.2	3.2	3.9	4.0	3.6	4.8	3.5	3.4	6.2	6.0	3.5	2.4	0.1	6.2	2.1
Nov 12	4.7	3.0	3.5	2.8	2.7	3.2	3.9	4.3	3.9	5.2	3.1	4.2	3.9	3.6	4.0	2.8	2.0	2.4	1.6	2.2	1.6	0.7	2.2	2.4	0.7	5.2	2.8
Nov 13	2.1	1.0	3.3	3.4	3.5	2.9	2.7	2.8	3.5	6.7	9.3	6.9	5.6	6.3	5.4	5.0	4.4	4.0	4.9	4.3	4.8	4.6	5.2	3.4	1.0	9.3	4.3
Nov 14	4.5	5.3	2.0	4.4	4.8	3.2	1.4	4.3	3.0	2.6	4.6	3.2	4.6	6.1	3.3	3.2	2.4	4.1	3.4	1.7	3.3	2.3	1.3	0.4	0.4	6.1	2.8
Nov 15	0.8	1.4	3.4	3.4	3.6	5.0	4.1	4.2	3.2	1.1	3.2	4.2	6.8	4.6	4.8	5.7	5.9	6.7	7.3	7.9	8.1	8.4	9.4	8.9	0.8	9.4	3.9
Nov 16	7.7	8.0	6.7	8.6	7.9	8.1	9.1	10.3	13.0	10.5	12.4	13.4	12.9	12.6	11.8	12.2	11.0	15.7	14.2	15.4	14.3	14.3	12.9	11.3	6.7	15.7	10.8
Nov 17	9.4	7.0	5.6	4.7	3.9	3.6	4.1	4.6	4.9	5.1	4.7	7.5	6.7	8.5	7.9	8.1	9.4	7.2	5.9	5.6	7.1	7.0	6.4	6.6	3.6	9.4	4.8
Nov 18	10.5	12.1	10.5	10.7	10.3	9.7	9.0	6.9	7.0	7.8	7.9	7.3	9.2	9.0	7.5	7.2	6.1	3.6	4.2	4.7	3.6	3.5	4.3	5.0	3.5	12.1	6.5
Nov 19	4.1	5.7	4.3	5.7	4.8	5.7	5.3	3.3	4.1	4.8	6.0	6.9	6.4	10.4	9.0	6.8	6.0	5.6	5.5	6.0	3.0	3.4	5.8	5.8	3.0	10.4	4.7
Nov 20	4.3	4.9	4.4	5.4	5.2	3.9	5.0	8.3	9.8	10.5	11.0	8.5	7.3	7.3	5.8	3.2	2.1	2.5	2.0	1.0	1.2	0.6	0.7	1.1	0.6	11.0	3.6
Nov 21	0.7	2.1	3.3	1.2	1.9	3.3	3.5	6.6	8.5	6.0	4.6	5.9	6.5	9.6	12.1	12.9	8.7	4.6	5.3	5.6	4.6	5.1	6.1	3.7	0.7	12.9	4.4
Nov 22	4.5	6.5	5.7	6.4	6.7	6.1	5.6	5.4	4.3	5.5	6.4	6.5	5.6	6.6	6.3	7.3	8.3	4.8	4.3	2.7	1.6	2.7	1.5	1.7	1.5	8.3	5.0
Nov 23	3.5	2.9	3.6	5.3	7.4	7.4	8.2	9.6	9.4	10.1	8.1	10.6	9.1	8.9	8.4	8.4	5.7	5.0	6.4	6.3	6.4	5.2	5.1	5.3	2.9	10.6	6.1
Nov 24	6.5	4.8	4.2	4.7	1.4	1.0	2.8	2.8	4.0	5.9	7.0	5.1	6.6	5.8	5.4	4.6	3.7	4.9	4.0	0.3	0.6	2.0	1.4	1.8	0.3	7.0	3.6
Nov 25	6.1	7.7	4.6	4.5	5.3	5.1	5.2	4.4	4.4	6.3	6.3	9.0	7.2	11.6	15.6	13.1	10.3	9.8	9.1	9.7	9.7	8.8	9.4	9.1	4.4	15.6	7.3
Nov 26	8.4	10.6	9.6	11.5	10.0	9.1	7.1	6.5	5.0	5.8	5.6	5.2	6.6	7.7	6.1	5.0	4.9	4.5	4.7	5.2	6.8	2.9	2.3	3.7	2.3	11.5	4.9
Nov 27	3.0	2.2	1.6	2.4	1.5	0.8	1.5	0.9	2.8	2.7	5.0	4.8	5.9	7.7	11.2	12.1	12.1	10.4	9.1	7.9	9.8	10.0	9.3	10.6	0.8	12.1	4.6
Nov 28	9.3	10.0	10.2	10.2	9.9	10.5	10.7	10.4	9.8	7.7	8.9	10.0	11.0	10.6	10.4	8.8	9.0	8.4	8.2	8.3	6.9	6.5	5.6	6.1	5.6	11.0	9.0
Nov 29	6.7	8.8	8.5	9.4	9.4	9.4	9.4	7.5	8.8	9.5	9.1	9.7	12.3	10.3	6.7	6.1	9.7	9.2	9.5	7.5	8.0	8.4	6.6	7.1	6.1	12.3	8.4
Nov 30	7.8	8.1	4.2	4.0	2.7	2.8	6.9	7.5	6.5	7.1	6.6	8.7	8.3	7.6	7.8	8.5	9.2	9.7	9.3	8.5	8.5	8.6	9.2	8.5	2.7	9.7	7.2
Diurnal Maximum	12	12	13	12	12	14	13	12	15	15	18	20	20	17	16	15	13	16	14	15	14	14	13	12			
Diurnal Average	5.6	6.0	5.5	5.9	5.8	5.7	5.8	5.9	6.4	6.8	7.4	7.9	8.1	8.5	8.1	7.5	6.9	6.5	6.4	6.1	6.0	5.9	5.9	5.6			

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

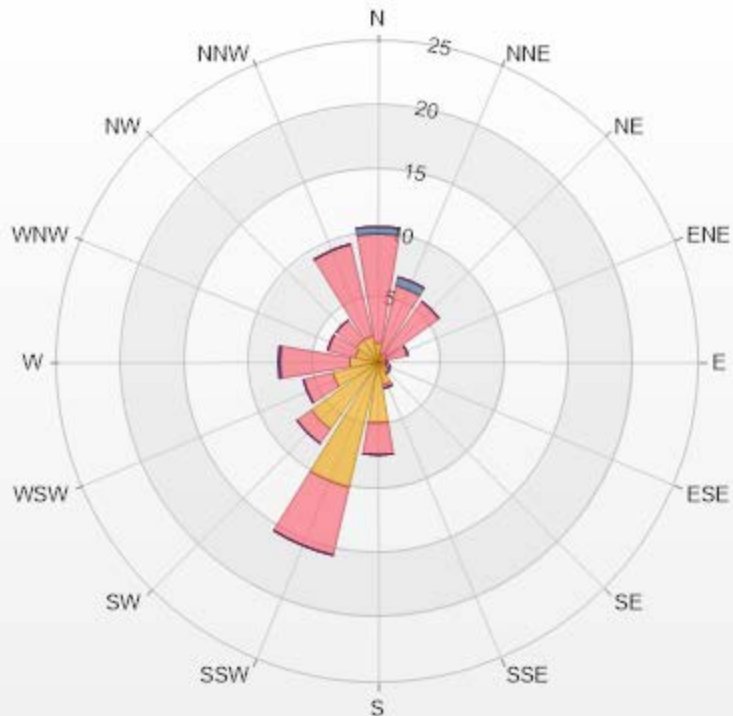
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

Timeseries Chart of Hourly Average for VWS - Tamarack Station



Wind: Tamarack Monitor: WDS [kph] Monthly: 11-2022 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 7.92% 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	1.53	8.47	0.56	0	0	10.56
NNE	0.56	5.56	0.69	0	0	6.81
NE	0.83	5	0	0	0	5.83
ENE	0.69	1.67	0	0	0	2.36
E	0	0.69	0	0	0	0.69
ESE	0.69	0.28	0	0	0	0.97
SE	0.97	0.14	0	0	0	1.11
SSE	1.81	0.28	0	0	0	2.09
S	4.72	2.5	0	0	0	7.22
SSW	10	5.42	0	0	0	15.42
SW	6.39	1.39	0	0	0	7.78
WSW	3.61	2.36	0	0	0	5.97
W	2.22	5.42	0.14	0	0	7.78
WNW	1.81	2.22	0	0	0	4.03
NW	2.08	1.94	0	0	0	4.02
NNW	2.08	7.36	0	0	0	9.44
Summary	39.99	50.7	1.39	0	0	92.08



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% Icon Classes (kph)

40 1.8-6.0

51 5.0-15.0

1 15.0-29.0

0 29.0-39.0

0 >39.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Station - November 2022

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:	319 (NW) degree	Hours in Service:	720
		Hours of Data:	720
		Hours of Missing Data:	0
		Hours of Calibration:	0
		Operational Uptime:	100.0

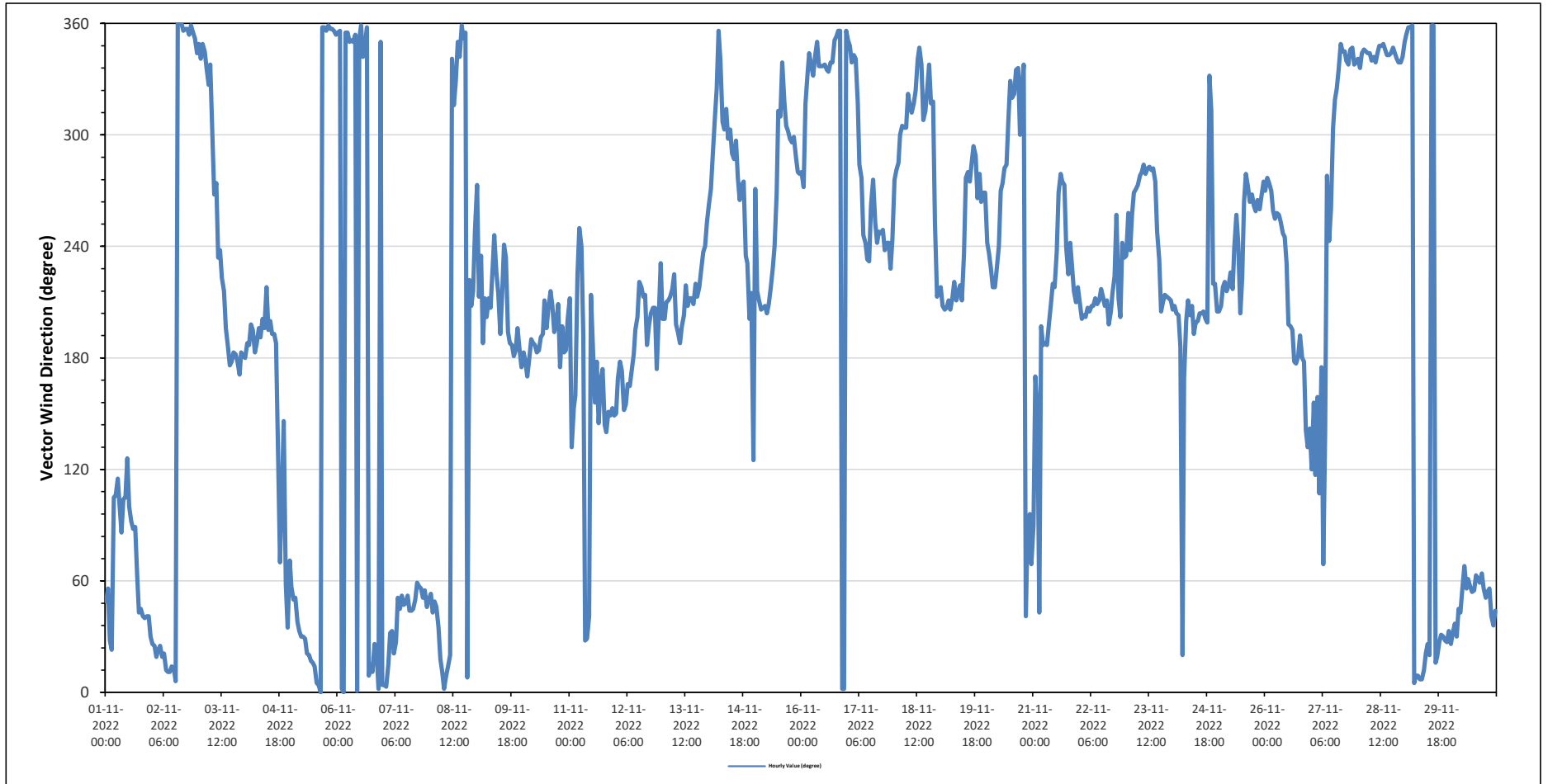
Day	Hourly Period Starting at (MST)																							Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant
Nov 1	NE	NE	NNE	NNE	ESE	ESE	ESE	E	E	ESE	ESE	SE	E	E	E	E	ENE	NE	NE	NE	NE	NE	NNE	75	ENE	
Nov 2	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	N	N	N	N	N	N	N	NNW	7	N	
Nov 3	NNW	NNW	NNW	NNW	NNW	NW	NNW	WNW	W	W	SW	SW	SW	SSW	S	S	S	S	S	S	S	S	S	217	SW	
Nov 4	S	S	S	SSW	SSW	S	S	SSW	S	SSW	SSW	SW	SSW	S	S	S	SE	ENE	ESE	ESE	ENE	NE	ENE	189	S	
Nov 5	ENE	NE	NE	NE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	N	N	N	N	N	N	N	N	13	NNE	
Nov 6	N	N	N	N	N	N	N	N	N	N	N	N	N	NNW	NNW	N	N	NNE	NNE	NNE	NNE	N	N	358	N	
Nov 7	N	N	NNE	NNE	NNE	NNE	NNE	NE	NE	NE	NE	NE	NE	NE	NE	NE	ENE	ENE	NE	NE	NE	NE	NE	44	NE	
Nov 8	NE	NE	NE	NE	NE	NNE	NNE	N	N	NNE	NNE	NNW	NW	NNW	N	NNW	N	N	N	N	SW	SSW	SW	WSW	15	NNE
Nov 9	W	SSW	SW	S	SSW	SSW	SSW	SSW	SW	WSW	SW	SSW	S	SSW	WSW	SW	SSW	S	S	S	S	SSW	S	208	SSW	
Nov 10	S	S	SSE	S	S	S	S	S	S	S	S	SSW	SSW	SSW	SW	SSW	SSW	SSW	SSW	S	SSW	S	S	194	SSW	
Nov 11	SSW	SE	SSE	SSE	SW	WSW	WSW	S	NNE	NNE	NE	SSW	S	SSE	S	SE	SSE	S	SE	SE	SSE	SSE	SSE	162	SSE	
Nov 12	SSE	SSE	S	S	SSE	SSE	SSE	SSE	S	S	SSW	SSW	SW	SW	SSW	SSW	S	SSW	SSW	SSW	SSW	S	SSW	187	S	
Nov 13	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	SSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	WSW	213	SSW
Nov 14	W	W	WNW	NW	NW	N	NNW	NW	WNW	NW	WNW	WNW	WNW	WNW	W	W	W	W	W	SW	SW	SSW	SSW	SE	287	WNW
Nov 15	W	SW	SSW	SSW	SSW	SSW	SSW	SSW	SW	WSW	W	NW	NW	NNW	NW	WNW	WNW	WNW	WNW	WNW	WNW	W	W	278	W	
Nov 16	W	W	NW	NNW	NNW	NNW	NNW	NNW	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	N	N	N	N	341	NNW	
Nov 17	N	NNW	NNW	NNW	NNW	NW	WNW	W	WSW	WSW	SW	SW	W	W	WSW	WSW	WSW	WSW	WSW	WSW	SW	WSW	WSW	265	W	
Nov 18	W	W	WNW	WNW	WNW	WNW	WNW	NW	NW	NW	NW	NNW	NNW	NNW	NW	NW	NW	NW	NW	NW	WSW	SSW	SW	306	NW	
Nov 19	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SSW	SW	W	W	W	WNW	WNW	WNW	W	W	W	W	246	WSW	
Nov 20	WSW	SW	SW	SW	SW	SW	WSW	W	W	W	WNW	NW	NNW	NW	NW	NNW	NNW	WNW	NW	NNW	NE	E	E	280	W	
Nov 21	E	SSE	SSE	NE	SSW	S	S	S	SSW	SSW	SW	SW	W	W	W	W	WSW	SW	WSW	SW	SW	SSW	SW	232	SW	
Nov 22	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	210	SSW
Nov 23	SW	WSW	SW	WSW	W	W	W	W	W	WNW	W	W	W	W	W	WSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	260	WSW	
Nov 24	SSW	SSW	SSW	SSW	S	NNE	SSE	SSW	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	NNW	NW	SW	SSW	203	SSW	
Nov 25	SSW	SSW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	SSW	SW	W	W	W	W	W	WSW	W	WSW	W	250	WSW	
Nov 26	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SSW	SSW	SSW	S	S	S	S	S	S	SE	SE	232	SW	
Nov 27	ESE	SSE	ESE	SSE	ESE	S	ENE	SE	W	WSW	WSW	WNW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	336	NNW	
Nov 28	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	344	NNW
Nov 29	N	N	N	N	N	N	N	N	N	N	NNE	NNE	NNE	NNE	N	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	13	NNE	
Nov 30	NNE	NNE	NE	NNE	NE	NE	ENE	ENE	NE	ENE	ENE	NE	NE	ENE	ENE	ENE	ENE	NE	NE	NE	NE	NE	NE	51	NE	

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

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

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

Timeseries Chart of Hourly Average for VWD - Tamarack Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Station - November 2022

Summary of Hourly Averages

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

WIND SPEED																											
Maximum Hourly Value:	19.9	kph	on November 5 at hour 12													Hours in Service:	720										
Maximum Daily Value:	12.4	kph	on November 5													Hours of Data:	720										
Minimum Hourly Value:	0.1	kph	on November 9 at hour 3													Hours of Missing Data:	0										
Minimum Daily Value:	2.1	kph	on November 11													Hours of Calibration:	0										
Monthly Average:	2.0	kph														Operational Uptime:	100										
WIND DIRECTION																											
Monthly Average:	319 (NW) degree																										
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	3.9	2.8	1.4	2.2	4.0	4.4	5.0	5.7	6.3	7.3	8.6	8.6	7.6	10.3	9.0	6.9	5.8	6.8	6.8	7.5	7.6	7.9	7.7	8.3	1.4	10.3	5.4
	NE	NE	NNE	NNE	ESE	ESE	ESE	E	E	ESE	ESE	E	E	E	E	ENE	NE	NE	NE	NE	NE	NE	NE	NNE			
Nov 2	8.9	9.3	8.2	9.7	12.0	9.9	10.9	10.8	12.2	13.4	15.5	15.9	15.4	14.6	12.1	11.7	11.6	9.7	11.7	12.0	9.4	9.7	8.9	8.7	8.2	15.9	11.1
	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	N	N	N	N	N	N	N	N	NNW			
Nov 3	7.3	8.1	6.6	6.0	4.8	4.6	3.4	3.0	5.6	6.0	5.2	6.4	6.9	7.4	9.5	8.2	8.3	9.0	8.0	8.6	8.4	7.0	10.4	9.3	3.0	10.4	3.3
	NNW	NNW	NNW	NNW	NNW	NW	NNW	WNW	W	SW	SW	SW	SW	SSW	S	S	S	S	S	S	S	S	S	S			
Nov 4	7.9	7.3	8.4	8.2	8.5	6.3	4.8	4.2	6.5	5.4	6.5	6.1	6.5	7.4	7.7	6.2	3.4	0.5	1.2	1.4	1.8	1.8	3.0	2.2	0.5	8.5	4.4
	S	S	S	SSW	SSW	S	S	SSW	S	SSW	SSW	SW	SSW	SSW	S	S	S	SE	ENE	ESE	SE	ENE	NE	ENE			
Nov 5	3.3	5.5	6.8	9.4	10.4	13.8	13.3	12.4	14.9	14.6	18.2	19.7	19.9	17.0	13.9	14.7	13.0	13.9	13.3	13.2	12.1	14.1	13.0	9.9	3.3	19.9	12.4
	ENE	NE	NE	NE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	N	N	N	N	N	N	N	N	N			
Nov 6	11.8	11.1	13.2	11.6	11.2	10.2	9.7	9.5	8.4	9.2	11.2	10.7	11.2	8.3	7.9	8.2	8.1	7.8	6.5	9.0	5.3	3.6	4.6	4.3	3.6	13.2	8.7
	N	N	N	N	N	N	N	N	N	N	N	N	NNW	NNW	N	N	NNE	NNE	NNE	NNE	N	N	N	N			
Nov 7	4.5	6.1	6.9	9.2	8.0	8.8	8.5	6.9	8.2	9.2	9.3	11.1	9.5	10.1	12.1	12.3	10.7	12.4	12.6	11.9	12.4	12.7	12.5	12.0	4.5	12.7	9.6
	N	N	NNE	NNE	NNE	NNE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	ENE	ENE	ENE	NE	NE	NE	NE	NE			
Nov 8	10.9	9.9	9.5	8.4	8.7	7.3	7.7	5.3	5.8	6.4	5.8	3.2	4.2	5.6	5.3	4.4	4.9	2.6	3.3	0.4	2.0	1.7	2.7	3.1	0.4	10.9	4.1
	NE	NE	NE	NE	NE	NNE	NNE	N	N	NNE	NNE	NNW	NNW	N	NNW	N	N	N	N	SW	SSW	SW	WSW	WSW			
Nov 9	0.7	2.1	1.0	0.1	0.5	1.4	2.4	3.3	2.4	3.1	3.9	6.7	9.9	7.8	6.7	4.6	3.4	3.9	4.9	4.4	4.2	3.6	2.9	1.1	0.1	9.9	3.3
	W	SSW	SW	S	SSW	SSW	SSW	SSW	SW	WSW	SW	SSW	S	SSW	WSW	SW	SSW	S	S	S	S	SSW	S	S			
Nov 10	3.1	4.1	3.6	2.0	3.4	4.2	2.1	3.6	4.2	7.0	6.9	6.7	7.3	7.5	5.3	4.0	3.9	1.8	1.2	1.6	0.7	3.4	4.0	3.3	0.7	7.5	3.9
	S	S	SSE	S	S	S	S	S	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	S	S	SSW			
Nov 11	1.3	0.9	0.1	0.9	0.2	0.7	0.7	0.9	0.1	0.5	1.2	3.5	3.2	3.2	3.9	4.0	3.6	4.8	3.5	3.4	6.2	6.0	3.5	2.4	0.1	6.2	2.1
	SSW	SE	SSE	SSE	SW	WSW	WSW	S	NNE	NNE	NE	SSW	S	SSE	S	SE	SSE	S	SE	SE	SSE	SSE	SSE	SSE			
Nov 12	4.7	3.0	3.5	2.8	2.7	3.2	3.9	4.3	3.9	5.2	3.1	4.2	3.9	3.6	4.0	2.8	2.0	2.4	1.6	2.2	1.6	0.7	2.2	2.4	0.7	5.2	2.8
	SSE	SSE	S	S	SSE	SSE	SSE	SSE	S	S	SSW	SSW	SW	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	S	SSW	SSW			
Nov 13	2.1	1.0	3.3	3.4	3.5	2.9	2.7	2.8	3.5	6.7	9.3	6.9	5.6	6.3	5.4	5.0	4.4	4.0	4.9	4.3	4.8	4.6	5.2	3.4	1.0	9.3	4.3
	SSW	SSW	SSW	SSW	SSW	SW	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	WSW	WSW			
Nov 14	4.5	5.3	2.0	4.4	4.8	3.2	1.4	4.3	3.0	2.6	4.6	3.2	4.6	6.1	3.3	3.2	2.4	4.1	3.4	1.7	3.3	2.3	1.3	0.4	0.4	6.1	2.8
	W	W	WNW	NW	NW	N	NNW	NW	WNW	NW	WNW	WNW	WNW	WNW	WNW	W	W	W	W	SW	SW	SSW	SSW	SE			
Nov 15	0.8	1.4	3.4	3.4	3.6	5.0	4.1	4.2	3.2	1.1	3.2	4.2	6.8	4.6	4.8	5.7	5.9	6.7	7.3	7.9	8.1	8.4	9.4	8.9	0.8	9.4	3.9
	W	SW	SSW	SSW	SSW	SSW	SSW	SW	SW	WSW	W	NW	NW	NNW	NW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W			
Nov 16	7.7	8.0	6.7	8.6	7.9	8.1	9.1	10.3	13.0	10.5	12.4	13.4	12.9	12.6	11.8	12.2	11.0	15.7	14.2	15.4	14.3	14.3	12.9	11.3	6.7	15.7	10.8
	W	W	NW	NNW	NNW	NNW	NNW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	N	N	N	N			
Nov 17	9.4	7.0	5.6	4.7	3.9	3.6	4.1	4.6	4.9	5.1	4.7	7.5	6.7	8.5	7.9	8.1	9.4	7.2	5.9	5.6	7.1	7.0	6.4	6.6	3.6	9.4	4.8
	N	NNW	NNW	NNW	NNW	NW	WNW	W	WSW	WSW	SW	SW	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW			
Nov 18	10.5	12.1	10.5	10.7	10.3	9.7	9.0	6.9	7.0	7.8	7.9	7.3	9.2	9.0	7.5	7.2	6.1	3.6	4.2	4.7	3.6	3.5	4.3	5.0	3.5	12.1	6.5
	W	W	WNW	WNW	WNW	WNW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NW	NW	NW	NNW	NW	NW	WSW	SSW	SSW	SSW			
Nov 19	4.1	5.7	4.3	5.7	4.8	5.7	5.3	3.3	4.1	4.8	6.0	6.9	6.4	10.4	9.0	6.8	6.0	5.6	5.5	6.0	3.0	3.4	5.8	5.8	3.0	10.4	4.7
	SW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	W	W	W	WNW	WNW	WNW	W	W	W	W			
Nov 20	4.3	4.9	4.4	5.4	5.2	3.9	5.0	8.3	9.8	10.5	11.0	8.5	7.3	7.3	5.8	3.2	2.1	2.5	2.0	1.0	1.2	0.6	0.7	1.1	0.6	11.0	3.6
	WSW	SW	SW	SW	SW	SW	WSW	W	W	W	WNW	NW	NNW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	ENE			



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Station - November 2022

Summary of Hourly Averages

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

WIND SPEED																															
Maximum Hourly Value:	19.9	kph	on November 5 at hour 12													Hours in Service:	720														
Maximum Daily Value:	12.4	kph	on November 5													Hours of Data:	720														
Minimum Hourly Value:	0.1	kph	on November 9 at hour 3													Hours of Missing Data:	0														
Minimum Daily Value:	2.1	kph	on November 11													Hours of Calibration:	0														
Monthly Average:	2.0	kph														Operational Uptime:	100														
WIND DIRECTION																															
Monthly Average:	319 (NW) degree																														
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 21	0.7	2.1	3.3	1.2	1.9	3.3	3.5	6.6	8.5	6.0	4.6	5.9	6.5	9.6	12.1	12.9	8.7	4.6	5.3	5.6	4.6	5.1	6.1	3.7	0.7	12.9	4.4				
	E	SSE	SSE	NE	SSW	S	S	S	SSW	SSW	SW	SW	SW	W	W	W	W	WSW	SW	WSW	SW	SW	SSW	SW							
Nov 22	4.5	6.5	5.7	6.4	6.7	6.1	5.6	5.4	4.3	5.5	6.4	6.5	5.6	6.6	6.3	7.3	8.3	4.8	4.3	2.7	1.6	2.7	1.5	1.7	1.5	8.3	5.0				
	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW							
Nov 23	3.5	2.9	3.6	5.3	7.4	7.4	8.2	9.6	9.4	10.1	8.1	10.6	9.1	8.9	8.4	8.4	5.7	5.0	6.4	6.3	6.4	5.2	5.1	5.3	2.9	10.6	6.1				
	SW	WSW	SW	WSW	W	W	W	W	W	WNW	W	W	W	W	W	W	WSW	SW	SSW	SSW	SSW	SSW	SSW								
Nov 24	6.5	4.8	4.2	4.7	1.4	1.0	2.8	2.8	4.0	5.9	7.0	5.1	6.6	5.8	5.4	4.6	3.7	4.9	4.0	0.3	0.6	2.0	1.4	1.8	0.3	7.0	3.6				
	SSW	SSW	SSW	SSW	S	NNE	SSE	SSW	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	NNW	NW	SW	SSW							
Nov 25	6.1	7.7	4.6	4.5	5.3	5.1	5.2	4.4	4.4	6.3	6.3	9.0	7.2	11.6	15.6	13.1	10.3	9.8	9.1	9.7	9.7	8.8	9.4	9.1	4.4	15.6	7.3				
	SSW	SSW	SW	SW	SW	SW	SW	WSW	WSW	WSW	SSW	SW	W	W	W	W	W	W	WSW	W	WSW	W	WSW	W							
Nov 26	8.4	10.6	9.6	11.5	10.0	9.1	7.1	6.5	5.0	5.8	5.6	5.2	6.6	7.7	6.1	5.0	4.9	4.5	4.7	5.2	6.8	2.9	2.3	3.7	2.3	11.5	4.9				
	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SSW	SSW	SSW	SSW	S	S	S	S	S	S	SE	SE	SE							
Nov 27	3.0	2.2	1.6	2.4	1.5	0.8	1.5	0.9	2.8	2.7	5.0	4.8	5.9	7.7	11.2	12.1	12.1	10.4	9.1	7.9	9.8	10.0	9.3	10.6	0.8	12.1	4.6				
	ESE	SSE	ESE	SSE	ESE	S	ENE	SE	W	WSW	WSW	WNW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW							
Nov 28	9.3	10.0	10.2	10.2	9.9	10.5	10.7	10.4	9.8	7.7	8.9	10.0	11.0	10.6	10.4	8.8	9.0	8.4	8.2	8.3	6.9	6.5	5.6	6.1	5.6	11.0	9.0				
	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW							
Nov 29	6.7	8.8	8.5	9.4	9.4	9.4	9.4	7.5	8.8	9.5	9.1	9.7	12.3	10.3	6.7	6.1	9.7	9.2	9.5	7.5	8.0	8.4	6.6	7.1	6.1	12.3	8.4				
	N	N	N	N	N	N	N	N	N	N	N	N	NNE	NNE	NNE	N	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE							
Nov 30	7.8	8.1	4.2	4.0	2.7	2.8	6.9	7.5	6.5	7.1	6.6	8.7	8.3	7.6	7.8	8.5	9.2	9.7	9.3	8.5	8.5	8.6	9.2	8.5	2.7	9.7	7.2				
	NNE	NNE	NE	NNE	NE	NE	ENE	NE	ENE	NE	ENE	NE	NE	ENE	ENE	ENE	ENE	ENE	NE	NE	NE	NE	NE	NE							
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance														
K	Collection Error							N	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 Station - November 2022
Summary of Hour Standard Deviations

STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

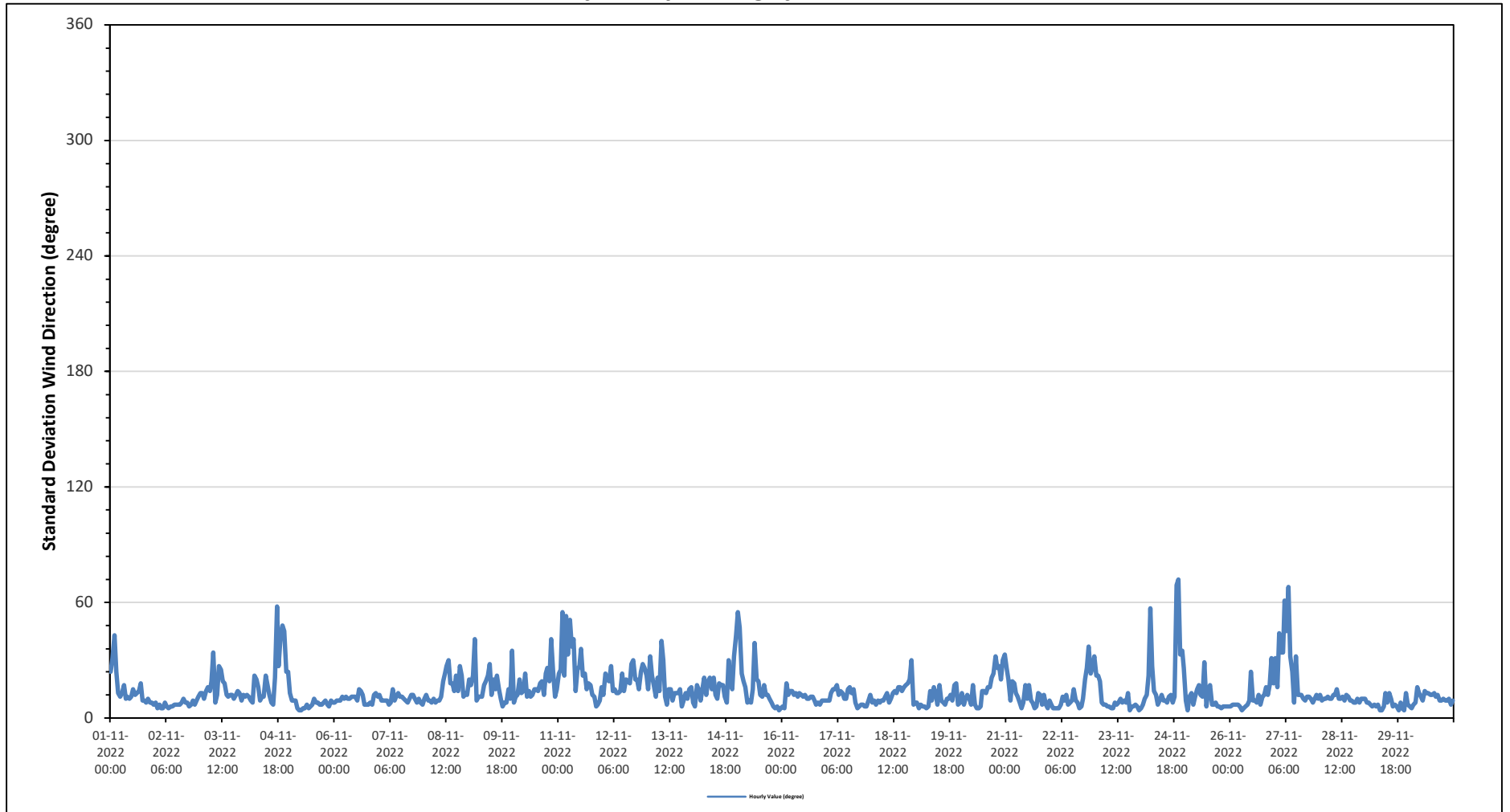
Maximum Hourly Value: 72 degree on November 24 at hour 20	Hours in Service: 720
Minimum Hourly Value: 4 degree on November 5 at hour 5	Hours of Data: 720
	Hours of Missing Data: 0
	Hours of Calibration: 0
	Operational Uptime: 100.0

Day	Hourly Period Starting at (MST)																							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
Nov 1	24	31	43	24	13	11	13	17	10	11	10	11	15	12	13	14	18	9	9	8	10	8	8	7	7	43
Nov 2	8	5	7	5	5	8	6	5	6	6	7	7	7	7	8	10	8	8	6	7	9	7	9	11	5	11
Nov 3	13	13	10	14	16	14	19	34	8	12	27	25	19	18	12	11	12	12	10	12	14	13	9	12	8	34
Nov 4	11	12	11	9	8	22	20	16	9	11	11	22	17	12	8	7	21	58	27	43	48	45	24	24	7	58
Nov 5	13	9	9	9	5	4	4	5	5	7	5	6	7	10	8	8	7	7	8	9	7	6	9	8	4	13
Nov 6	8	9	9	9	11	10	11	10	10	11	11	11	9	15	14	12	7	7	7	8	7	12	13	11	7	15
Nov 7	12	9	9	9	9	7	8	15	9	11	13	11	11	10	9	8	10	12	12	10	8	10	8	7	7	15
Nov 8	10	12	9	9	8	10	8	9	9	11	19	23	27	30	18	18	14	22	14	27	22	11	13	12	8	30
Nov 9	20	17	22	41	9	11	11	11	17	19	22	28	12	20	15	22	15	10	6	8	8	15	10	35	6	41
Nov 10	8	11	12	20	13	14	23	11	14	11	12	15	15	14	18	19	12	23	26	19	41	25	11	15	8	41
Nov 11	23	25	55	22	53	33	51	37	41	14	25	27	36	22	23	15	18	17	12	11	6	7	9	16	6	55
Nov 12	12	23	20	19	27	14	15	13	13	14	23	14	20	19	18	28	30	20	20	15	24	28	26	22	12	30
Nov 13	15	32	22	17	11	21	14	40	30	11	7	15	15	9	13	13	13	15	6	9	13	10	15	16	6	40
Nov 14	8	6	17	15	9	15	21	12	19	21	15	21	12	10	18	17	17	11	8	30	20	15	32	43	6	43
Nov 15	55	47	23	19	16	8	9	8	15	39	20	19	12	11	17	12	12	10	8	6	5	6	4	5	4	55
Nov 16	6	5	18	12	14	14	12	13	11	13	12	11	12	10	10	11	11	9	7	8	7	9	9	9	5	18
Nov 17	9	9	13	15	15	17	12	14	13	10	10	15	16	13	15	8	5	6	7	7	6	6	9	12	5	17
Nov 18	8	9	7	9	8	9	9	11	13	8	10	13	14	13	16	16	14	16	17	18	20	30	7	8	7	30
Nov 19	8	5	7	6	6	5	6	14	9	16	13	7	17	9	8	7	10	10	12	9	17	18	7	8	5	18
Nov 20	13	7	10	12	10	7	17	7	5	5	6	14	14	13	16	16	21	23	32	26	27	20	30	33	5	33
Nov 21	26	20	9	19	18	13	11	8	5	8	17	10	17	9	8	5	6	13	12	7	12	7	5	9	5	26
Nov 22	7	5	5	5	5	7	11	9	12	7	8	9	15	9	8	5	6	10	20	26	37	23	26	32	5	37
Nov 23	22	22	19	8	7	7	6	6	5	5	8	7	8	10	8	9	8	13	4	6	6	7	6	4	4	22
Nov 24	5	7	10	12	22	57	27	14	12	7	9	12	9	9	8	11	12	8	11	69	72	33	35	26	5	72
Nov 25	9	4	11	13	7	11	15	17	12	11	29	6	14	17	7	8	6	6	5	6	6	6	6	6	4	29
Nov 26	6	7	7	7	7	6	4	5	6	7	9	24	9	9	8	12	7	11	12	16	12	17	31	18	4	31
Nov 27	31	16	44	34	34	61	45	68	32	24	8	32	12	12	12	10	9	11	11	10	8	10	12	10	8	68
Nov 28	12	9	10	10	11	10	10	12	12	15	10	10	11	9	12	11	9	9	8	8	10	8	10	10	8	15
Nov 29	10	8	8	7	6	7	6	7	4	4	6	13	8	13	10	6	7	6	4	8	5	4	13	7	4	13
Nov 30	6	5	7	8	16	13	11	9	14	13	13	12	12	13	11	12	9	9	10	9	9	10	7	9	5	16
Diurnal Minimum	5	4	5	5	5	4	4	5	4	4	5	6	7	7	7	5	5	6	4	5	5	4	4	4		
Diurnal Maximum	55	47	55	41	53	61	51	68	41	39	29	32	36	30	23	28	30	58	32	69	72	45	35	43		

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

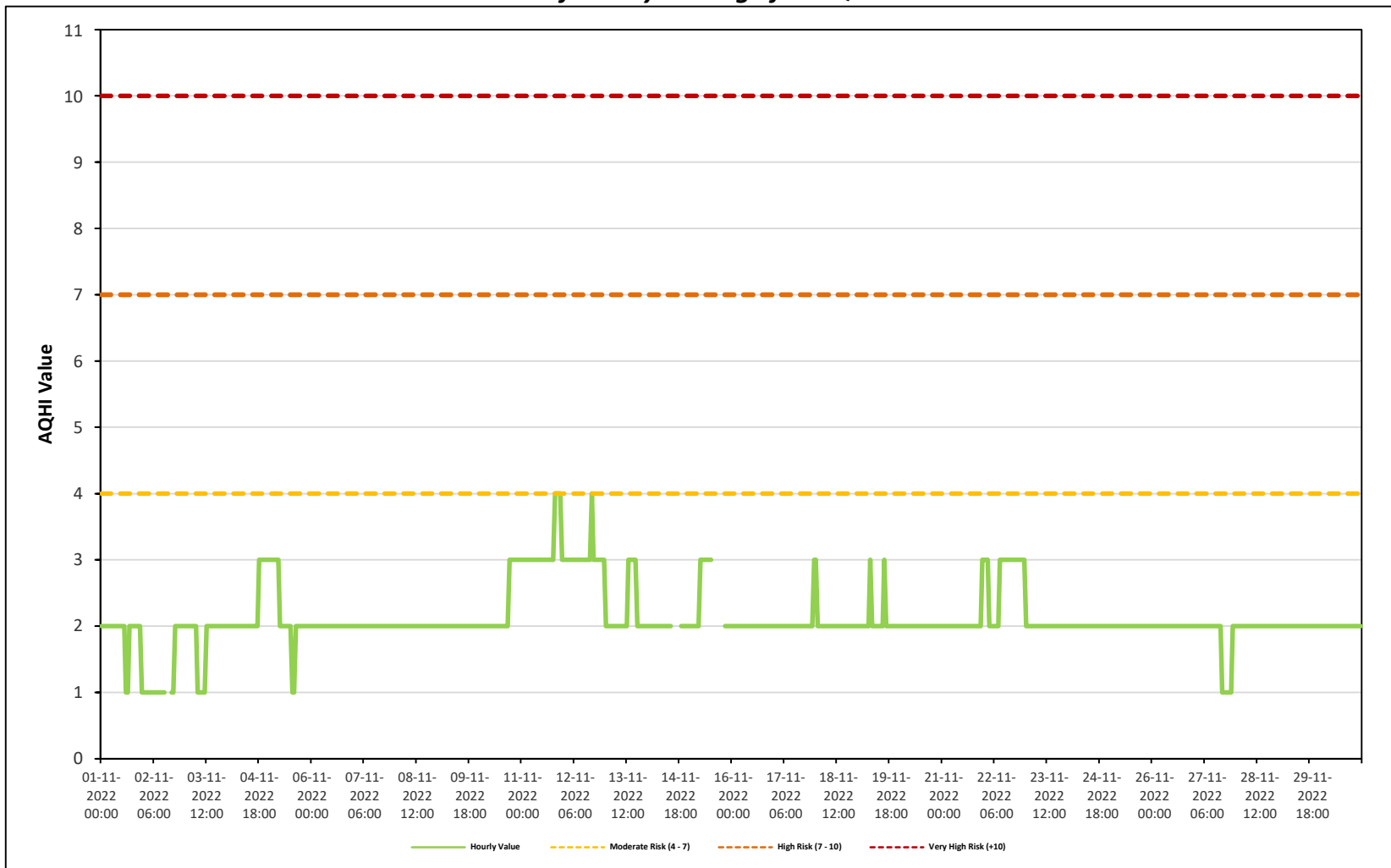
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

Timeseries Chart of Hourly Average for STDWD - Tamarack Station



ST. LINA STATION

Timeseries Chart of Hourly Average for AQHI - St. Lina Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Station - November 2022

Summary of Hourly Averages

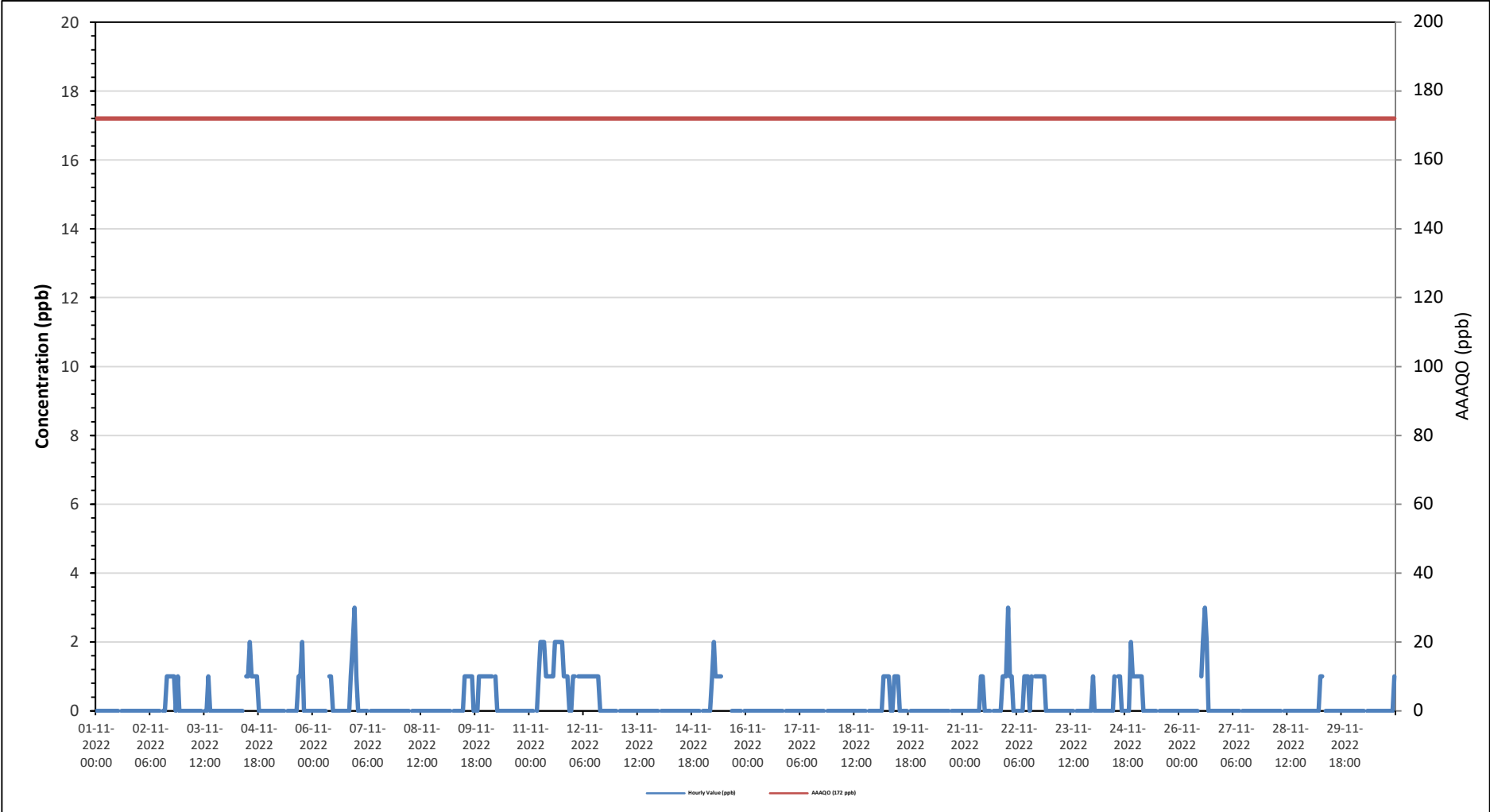
SULPHUR DIOXIDE (SO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																												
Number of 1-Hour Exceedances: 0								Number of 24-Hour Exceedances: 0								30-Day Exceedence: 0												
Maximum Hourly Value: 3 ppb on November 6 at hour 23													Hours in Service: 720															
Maximum Daily Value: 1.1 ppb on November 11													Hours of Data: 684															
Minimum Hourly Value: 0 ppb on November 1 at hour 0													Hours of Missing Data: 0															
Minimum Daily Value: 0.0 ppb on November 1													Hours of Calibration: 36															
Monthly Average: 0.2 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	0	0	0	0	0	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	1	1	1	1	1	0	1	0	0	0	0	1	0.3
Nov 3	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	1	0.0
Nov 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	2	0.3
Nov 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	2	0.2
Nov 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	0	3	0.3
Nov 7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Nov 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Nov 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	1	1	1	1	0	1	0.4
Nov 10	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2
Nov 11	0	0	0	0	0	1	2	2	2	1	1	1	1	1	2	2	2	2	1	1	1	0	0	0	0	2	1.1	
Nov 12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0.6
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
Nov 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Nov 15	0	0	0	0	0	1	2	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	2	0.4
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
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
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
Nov 19	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3
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
Nov 21	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0.2
Nov 22	1	3	1	1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	3	0.7	
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
Nov 24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	1	1	0	0.3	
Nov 25	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2
Nov 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	2	0	0	0	0	0	0	0	0	3	0.3
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
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
Nov 29	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
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	1	0	1	0.0
Diurnal Maximum	1	3	1	1	1	1	2	2	2	1	1	1	1	2	3	2	2	2	2	1	1	2	2	3				
Diurnal Average	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.3	0.2	0.3	0.3	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2				

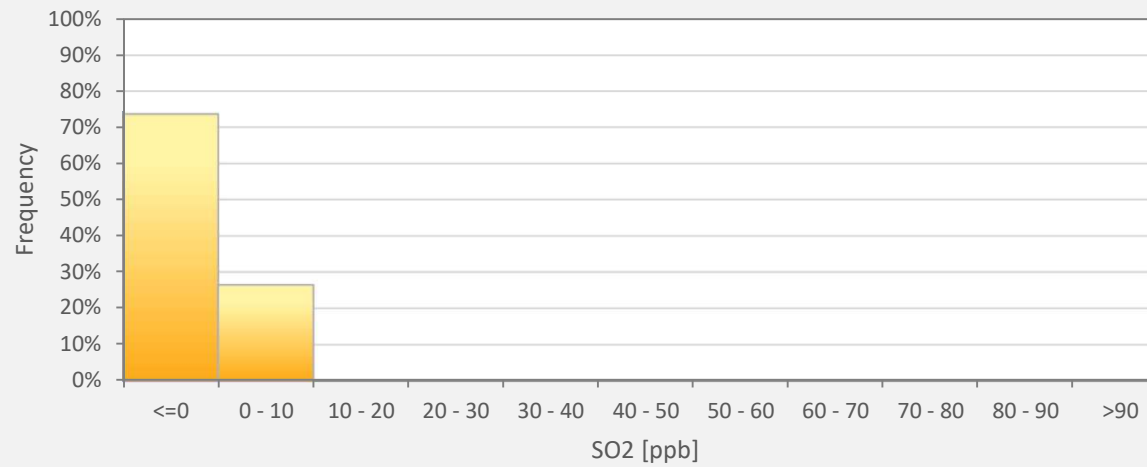
- | | | |
|--|--|------------------------------|
| C Monthly Calibration | S Daily Zero-Span Check | Q Quality Assurance |
| K Collection Error | N No Data (Machine Not in Service) | Y Routine Maintenance |
| X InValid Data (Equipment Malfunction/Recovery) | NRM UnitMaint (Repeat Calibration / Repeat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

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

Timeseries Chart of Hourly Average for SO2 - St. Lina Station



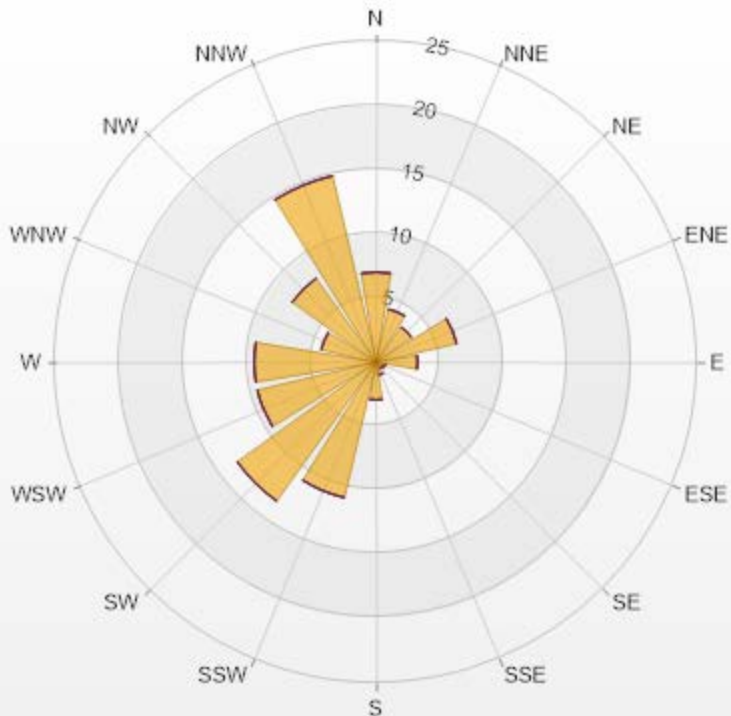
SO2[ppb] Histogram: St. Lina Monthly: 11-2022 1 Hr.



Classes	SO2
<=0	73.54%
0 - 10	26.46%
10 - 20	0.00%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: St. Lina Poll.: St. Lina-SO2[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.00% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	7.02	0	0	0	0	7.02
NNE	4.24	0	0	0	0	4.24
NE	3.36	0	0	0	0	3.36
ENE	6.43	0	0	0	0	6.43
E	3.22	0	0	0	0	3.22
ESE	0.73	0	0	0	0	0.73
SE	0.58	0	0	0	0	0.58
SSE	1.02	0	0	0	0	1.02
S	2.92	0	0	0	0	2.92
SSW	10.82	0	0	0	0	10.82
SW	13.3	0	0	0	0	13.3
WSW	9.5	0	0	0	0	9.5
W	9.5	0	0	0	0	9.5
WNW	4.39	0	0	0	0	4.39
NW	8.04	0	0	0	0	8.04
NNW	14.91	0	0	0	0	14.91
Summary	100	0	0	0	0	100



LICA-202211

% Icon Classes (ppb)

100 0-10

0 10-50

0 50-100

0 100-172

0 >172.0



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St. Lina Station - November 2022

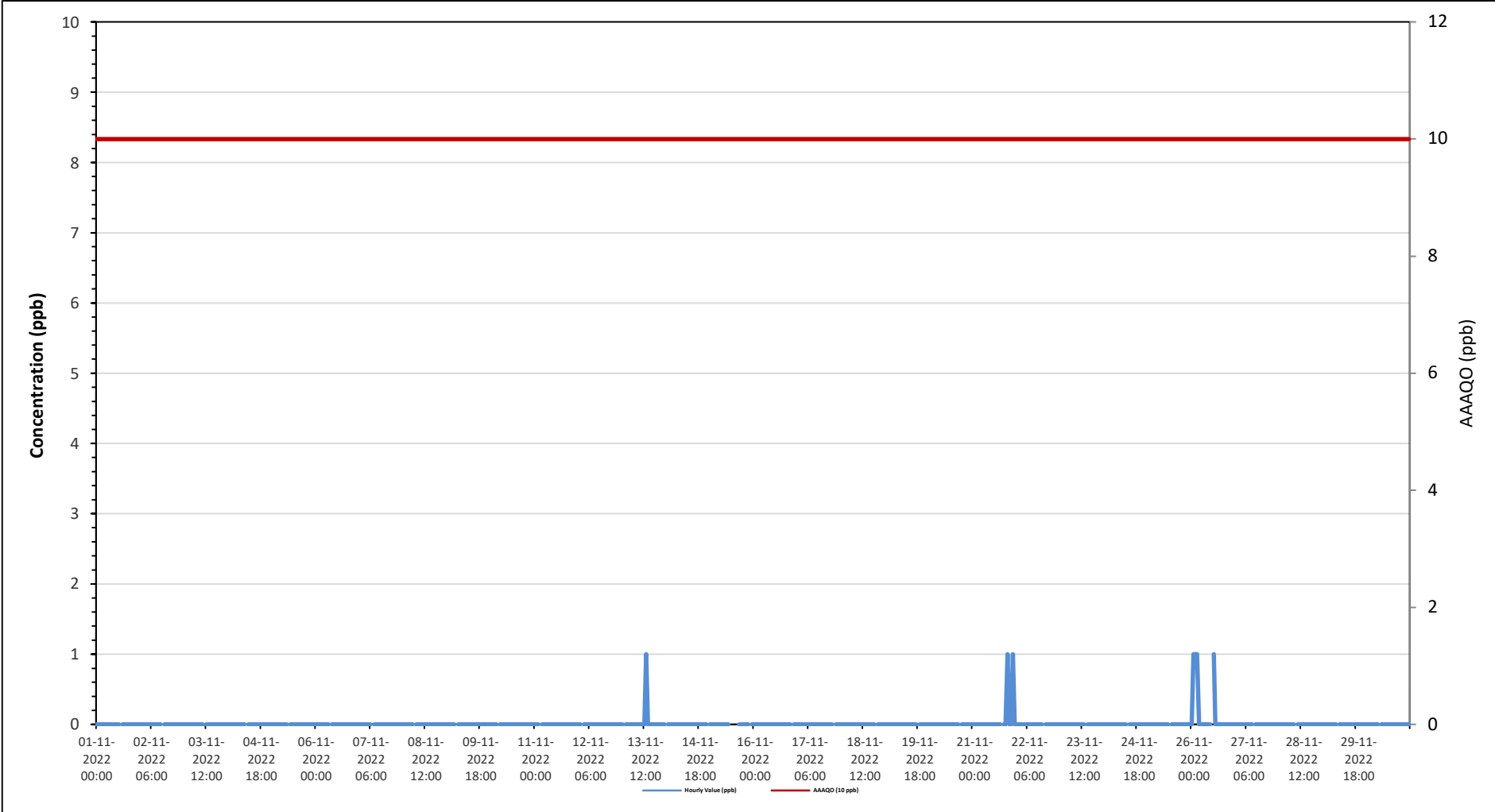
Summary of Hourly Averages

HYDROGEN SULPHIDE (H₂S) in ppb

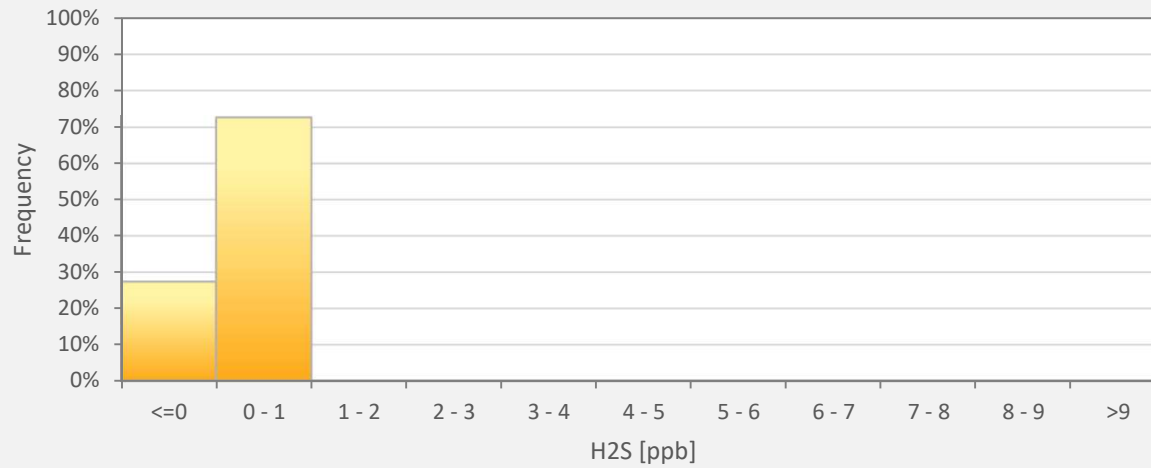
Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 10 ppb, 24-Hour 3 ppb																												
Number of 1-Hour Exceedances: 0					Number of 24-Hour Exceedances: 0																							
Maximum Hourly Value: 1 ppb on November 13 at hour 13					Hours in Service: 720																							
Maximum Daily Value: 0.2 ppb on November 26					Hours of Data: 684																							
Minimum Hourly Value: 0 ppb on November 1 at hour 0					Hours of Missing Data: 0																							
Minimum Daily Value: 0.0 ppb on November 1					Hours of Calibration: 36																							
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	S	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	S	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	S	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	S	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	S	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	0	0	S	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	S	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	S	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	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 10	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 11	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 12	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 13	0	S	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
Nov 14	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0
Nov 15	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	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	S	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
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
Nov 19	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 20	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 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
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
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
Nov 24	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 25	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 26	0	1	1	1	0	0	0	0	0	0	0	S	1	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	S	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	S	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	S	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	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diurnal Maximum	0.0	1.0	1.0	1.0	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	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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							N	No Data (Machine Not in Service)							Y	Routine Maintenance											
X	Invalid Data (Equipment Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)							P	Power Failure											

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

Timeseries Chart of Hourly Average for H2S - St. Lina Station



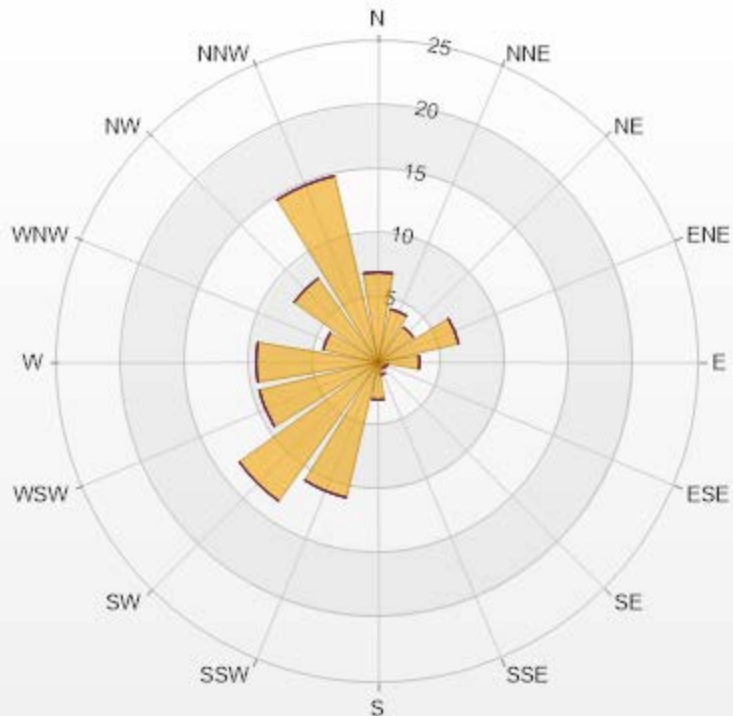
H2S[ppb] Histogram: St. Lina Monthly: 11-2022 1 Hr.



Classes	H2S
<=0	27.34%
0 - 1	72.66%
1 - 2	0.00%
2 - 3	0.00%
3 - 4	0.00%
4 - 5	0.00%
5 - 6	0.00%
6 - 7	0.00%
7 - 8	0.00%
8 - 9	0.00%
>9	0.00%

Wind: St. Lina Poll.: St. Lina-H2S[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.00% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	7.02	0	0	0	0	7.02
NNE	4.24	0	0	0	0	4.24
NE	3.36	0	0	0	0	3.36
ENE	6.43	0	0	0	0	6.43
E	3.22	0	0	0	0	3.22
ESE	0.73	0	0	0	0	0.73
SE	0.58	0	0	0	0	0.58
SSE	1.02	0	0	0	0	1.02
S	2.92	0	0	0	0	2.92
SSW	10.82	0	0	0	0	10.82
SW	13.3	0	0	0	0	13.3
WSW	9.5	0	0	0	0	9.5
W	9.5	0	0	0	0	9.5
WNW	4.39	0	0	0	0	4.39
NW	8.04	0	0	0	0	8.04
NNW	14.91	0	0	0	0	14.91
Summary	100	0	0	0	0	100



LICA-202211

% Icon Classes (ppb)

100 0-2

0 2-5

0 5-10

0 10-50

0 >50.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Station - November 2022

Summary of Hourly Averages

OXIDES OF NITROGEN (NOx) in ppb

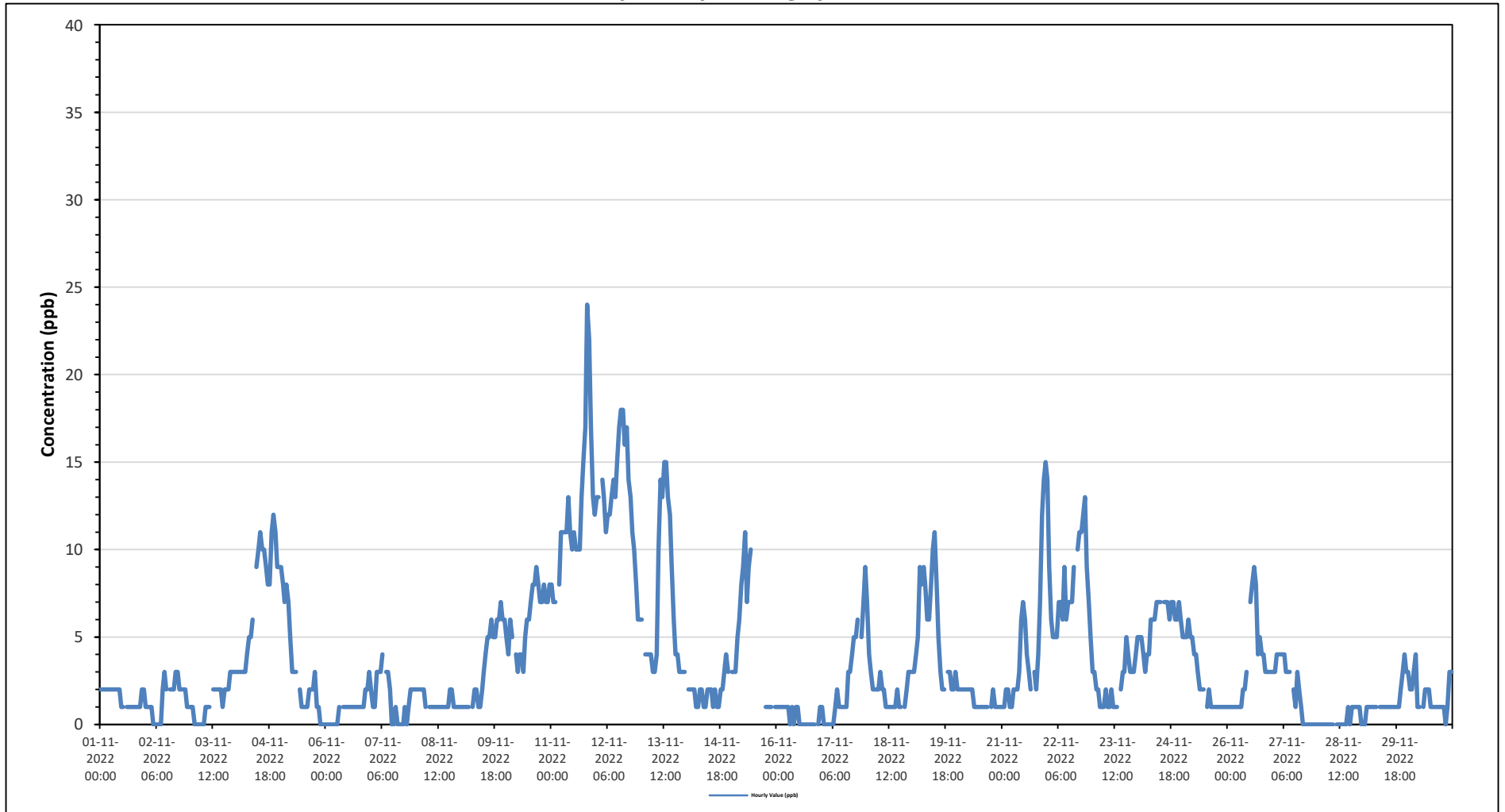
Maximum Hourly Value:	24 ppb on November 11 at hour 19	Hours in Service:	720
Maximum Daily Value:	12.9 ppb on November 12	Hours of Data:	682
Minimum Hourly Value:	0 ppb on November 2 at hour 4	Hours of Missing Data:	0
Minimum Daily Value:	0.3 ppb on November 28	Hours of Calibration:	38
Monthly Average:	3.7 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	2	2	2	2	2	2	2	2	2	2	2	1	1	S	1	1	1	1	1	1	1	2	2	1	2	1.6		
Nov 2	1	1	1	1	0	0	0	0	0	2	3	2	S	2	2	2	3	3	2	2	2	2	1	1	0	3	1.4	
Nov 3	1	1	0	0	0	0	0	0	1	1	1	S	2	2	2	2	1	2	2	2	3	3	3	0	3	1.3		
Nov 4	3	3	3	3	3	3	4	5	5	6	S	9	10	11	10	10	9	8	8	11	12	11	9	9	3	12	7.2	
Nov 5	9	8	7	8	7	5	3	3	3	S	2	1	1	1	1	2	2	2	3	1	1	0	0	0	0	9	3.0	
Nov 6	0	0	0	0	0	0	0	1	S	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	0	3	0.9	
Nov 7	2	1	1	3	3	3	4	S	3	3	2	0	0	1	0	0	0	0	1	2	2	2	2	0	4	1.5		
Nov 8	2	2	2	2	2	1	S	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	2	1.3	
Nov 9	1	1	1	1	1	S	1	2	2	1	1	2	3	4	5	5	6	5	5	6	6	7	6	6	1	7	3.4	
Nov 10	5	4	6	5	S	4	3	4	4	3	5	6	6	7	8	8	9	8	7	7	8	7	7	8	3	9	6.0	
Nov 11	8	7	7	S	8	11	11	11	11	13	11	10	11	10	10	10	13	15	17	24	22	17	13	12	7	24	12.3	
Nov 12	13	13	S	14	13	11	12	12	13	14	13	15	17	18	18	16	17	14	13	11	10	8	6	6	6	18	12.9	
Nov 13	6	S	4	4	4	4	3	3	4	10	14	13	15	15	13	12	9	6	4	4	3	3	3	3	3	15	6.9	
Nov 14	S	2	2	2	2	1	1	2	2	1	1	2	2	2	1	2	1	1	2	2	3	4	3	S	1	4	1.9	
Nov 15	3	3	3	5	6	8	9	11	7	9	10	C	C	C	C	C	C	C	C	1	1	1	1	S	1	1	11	-
Nov 16	1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	S	0	1	0	1	0.5
Nov 17	1	0	0	0	0	0	0	1	2	1	1	1	1	1	3	3	4	5	5	6	S	5	7	9	0	9	2.4	
Nov 18	7	4	3	2	2	2	2	3	2	2	1	1	1	1	1	1	2	1	1	S	S	1	2	3	3	1	7	2.1
Nov 19	3	3	4	5	9	8	9	8	6	6	8	10	11	8	5	3	2	2	S	3	3	2	2	3	2	11	5.3	
Nov 20	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	S	1	2	1	1	1	1	1	1	2	1.4
Nov 21	1	1	2	2	1	1	2	2	2	3	6	7	6	4	3	2	S	3	2	4	7	12	14	15	1	15	4.4	
Nov 22	14	9	6	5	5	5	7	7	6	9	6	7	7	7	7	S	10	11	11	12	13	9	7	5	5	14	8.1	
Nov 23	3	3	2	2	1	1	1	2	1	1	2	1	1	1	S	2	3	3	5	4	3	3	3	4	1	5	2.3	
Nov 24	5	5	5	4	3	4	4	6	6	6	7	7	7	S	7	7	7	6	7	7	6	6	7	6	3	7	5.9	
Nov 25	5	5	5	6	5	5	4	4	3	2	2	S	1	2	1	1	1	1	1	1	1	1	1	1	1	6	2.6	
Nov 26	1	1	1	1	1	1	1	1	2	2	3	S	7	8	9	8	4	5	4	4	3	3	3	3	1	9	3.3	
Nov 27	3	3	4	4	4	4	4	3	3	3	S	2	1	3	2	1	0	0	0	0	0	0	0	0	0	4	1.9	
Nov 28	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	0	1	1	1	1	1	1	0	1	0.3	
Nov 29	0	0	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	2	3	4	3	0	4	1.3
Nov 30	3	2	2	3	4	1	1	S	1	2	2	2	1	1	1	1	1	1	1	1	0	1	3	3	0	4	1.7	
Diurnal Maximum	14	13	7	14	13	11	12	12	13	14	14	15	17	18	18	16	17	15	17	24	22	17	14	15				
Diurnal Average	3.6	3.0	2.7	3.0	3.1	3.1	3.2	3.5	3.4	3.8	3.9	3.9	4.3	4.1	4.2	3.7	4.0	3.8	3.8	4.2	4.0	4.1	3.9	3.9				

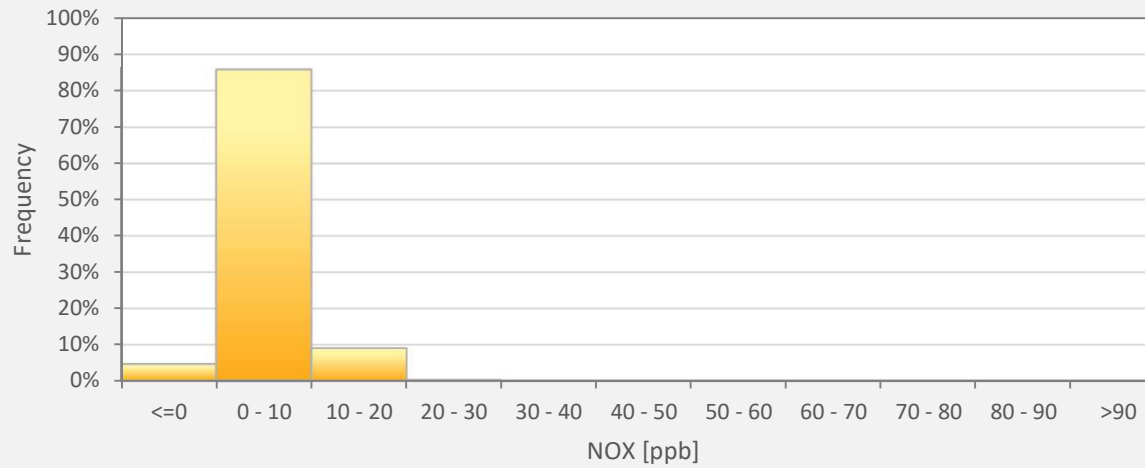
C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	N No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction /Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

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

Timeseries Chart of Hourly Average for NOx - St. Lina Station



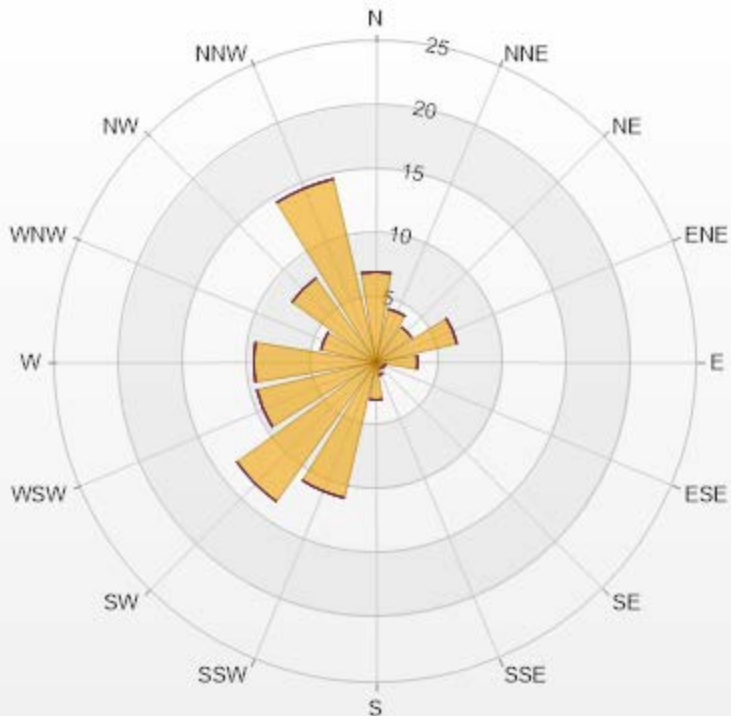
NOX[ppb] Histogram: St. Lina Monthly: 11-2022 1 Hr.



Classes	NOX
<=0	4.69%
0 - 10	85.92%
10 - 20	9.09%
20 - 30	0.29%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: St. Lina Poll.: St. Lina-NOX[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.72% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	7.04	0	0	0	0	7.04
NNE	4.25	0	0	0	0	4.25
NE	3.37	0	0	0	0	3.37
ENE	6.45	0	0	0	0	6.45
E	3.23	0	0	0	0	3.23
ESE	0.73	0	0	0	0	0.73
SE	0.59	0	0	0	0	0.59
SSE	1.03	0	0	0	0	1.03
S	2.93	0	0	0	0	2.93
SSW	10.85	0	0	0	0	10.85
SW	13.34	0	0	0	0	13.34
WSW	9.53	0	0	0	0	9.53
W	9.53	0	0	0	0	9.53
WNW	4.4	0	0	0	0	4.4
NW	8.06	0	0	0	0	8.06
NNW	14.66	0	0	0	0	14.66
Summary	100	0	0	0	0	100




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% Icon Classes (ppb)

100  0-30

0  30-50

0  50-76

0  76-159

0  >159.0



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St. Lina Station - November 2022

Summary of Hourly Averages

NITRIC OXIDE (NO) in ppb

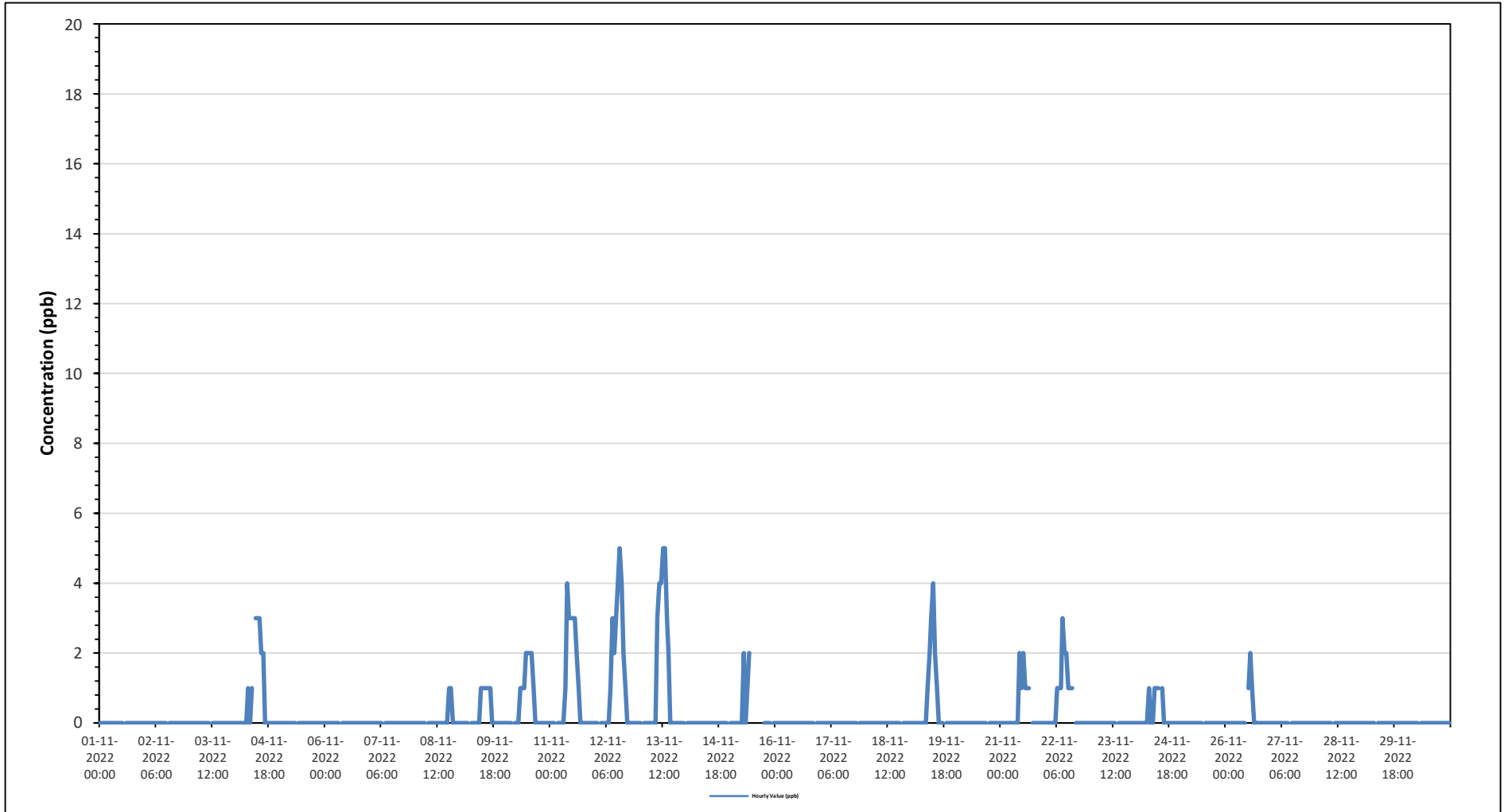
Maximum Hourly Value:	5 ppb	on November 12 at hour 13	Hours in Service:	720
Maximum Daily Value:	1.1 ppb	on November 13	Hours of Data:	682
Minimum Hourly Value:	0 ppb	on November 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 ppb	on November 1	Hours of Calibration:	38
Monthly Average:	0.2 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	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
Nov 2	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
Nov 3	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
Nov 4	0	0	0	0	0	0	0	0	1	0	1	S	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							
Nov 5	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	0	0	0	0	0	0	0	0	0	0	0	0							
Nov 6	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	0	0	0	0	0	0	0	0	0	0	0	0							
Nov 7	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	0	0	0	0	0	0	0	0	0	0	0	0							
Nov 8	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
Nov 9	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0						
Nov 10	0	0	0	0	S	0	0	0	0	1	1	1	2	2	2	2	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						
Nov 11	0	0	0	S	0	0	0	0	1	4	3	3	3	3	2	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						
Nov 12	0	0	S	0	0	0	0	0	1	3	2	3	4	5	4	2	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					
Nov 13	0	S	0	0	0	0	0	0	0	0	0	3	4	4	5	5	3	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					
Nov 14	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Nov 15	0	0	0	0	0	0	0	0	2	0	1	2	C	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	S	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	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	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	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	1	2	3	4	2	1	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 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	S	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	2	1	2	1	1	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		
Nov 22	0	0	0	0	0	0	0	1	1	1	3	2	2	1	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
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	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	1	0	0	1	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	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	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	S	1	2	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	
Nov 27	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	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	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Nov 29	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	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	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diurnal Maximum	0	0	0	0	0	0	1	2	1	4	4	4	5	5	4	2	1	0	1	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	
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.6	0.7	0.9	1.0	0.9	0.7	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		

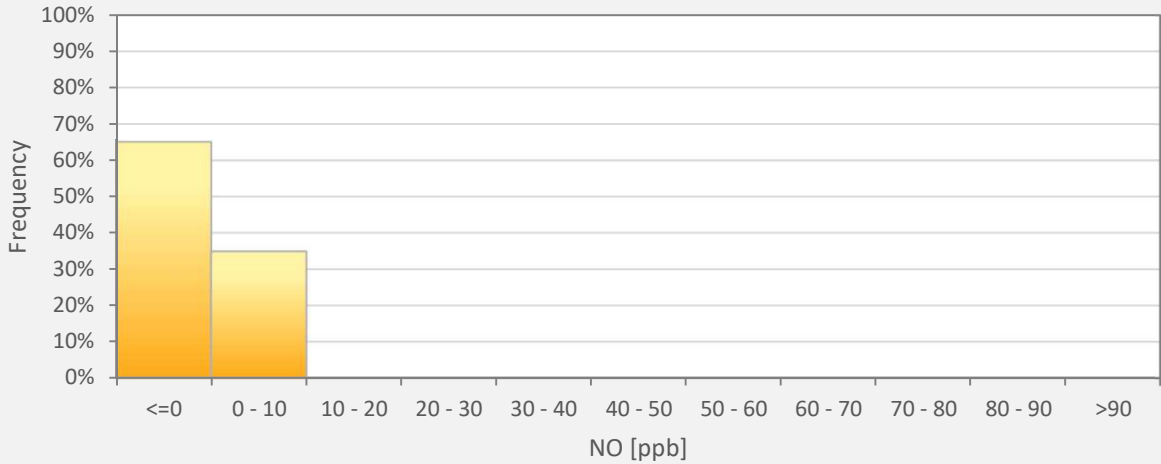
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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

Timeseries Chart of Hourly Average for NO - St. Lina Station



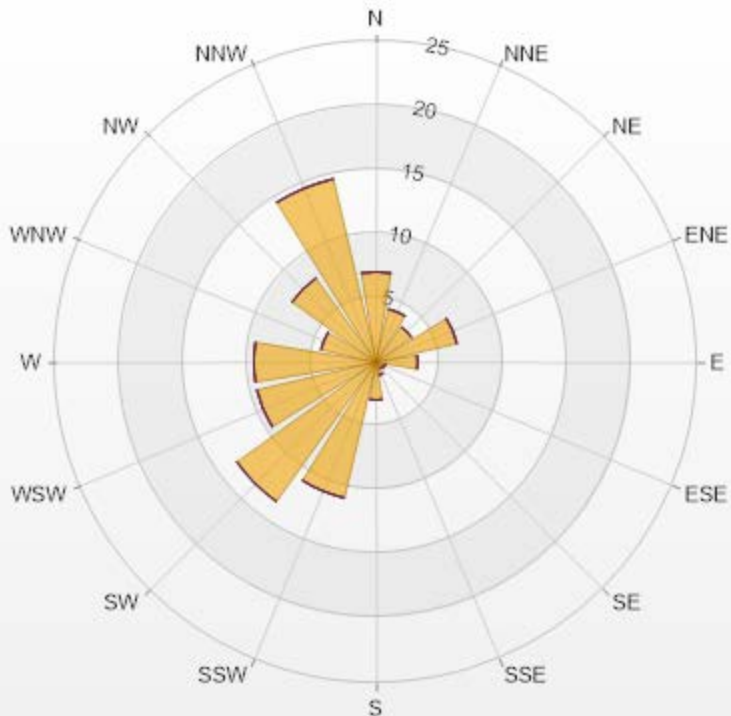
NO[ppb] Histogram: St. Lina Monthly: 11-2022 1 Hr.



Classes	NO
<=0	65.10%
0 - 10	34.90%
10 - 20	0.00%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: St. Lina Poll.: St. Lina-NO[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.72% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	7.04	0	0	0	0	7.04
NNE	4.25	0	0	0	0	4.25
NE	3.37	0	0	0	0	3.37
ENE	6.45	0	0	0	0	6.45
E	3.23	0	0	0	0	3.23
ESE	0.73	0	0	0	0	0.73
SE	0.59	0	0	0	0	0.59
SSE	1.03	0	0	0	0	1.03
S	2.93	0	0	0	0	2.93
SSW	10.85	0	0	0	0	10.85
SW	13.34	0	0	0	0	13.34
WSW	9.53	0	0	0	0	9.53
W	9.53	0	0	0	0	9.53
WNW	4.4	0	0	0	0	4.4
NW	8.06	0	0	0	0	8.06
NNW	14.66	0	0	0	0	14.66
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100  0-30

0  30-50

0  50-76

0  76-159

0  >159.0



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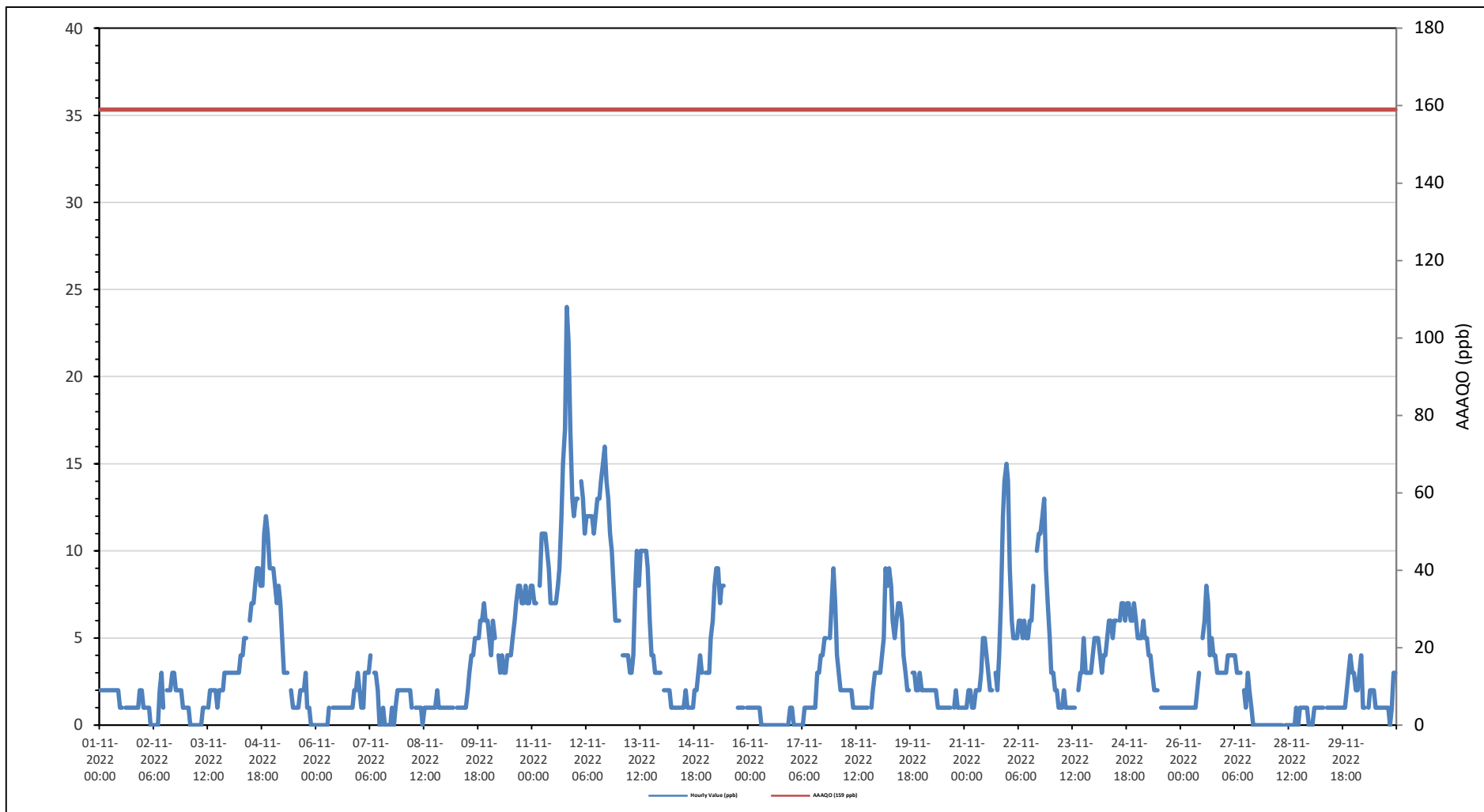
St. Lina Station - November 2022

Summary of Hourly Averages

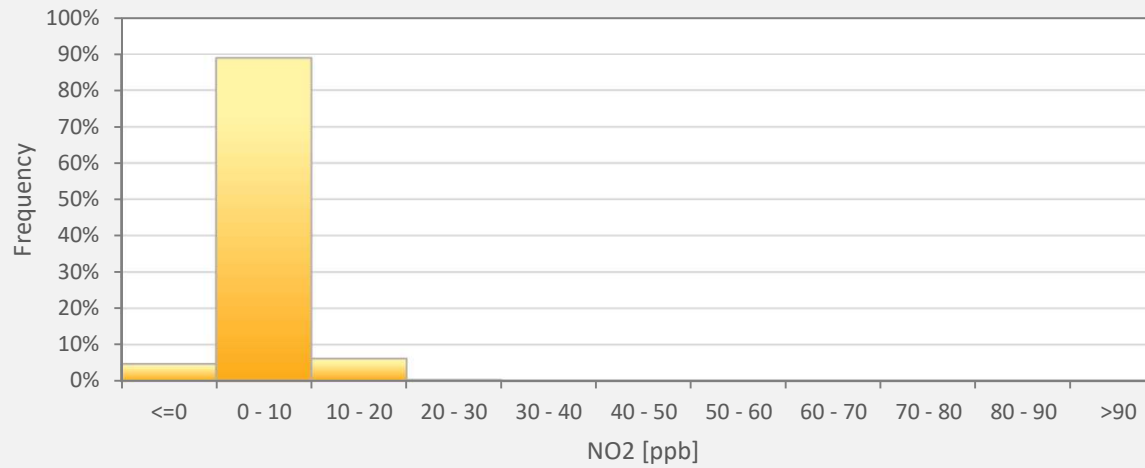
NITROGEN DIOXIDE (NO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb																												
Number of 1-Hour Exceedances: 0																												
Maximum Hourly Value: 24 ppb on November 11 at hour 19												Hours in Service: 720																
Maximum Daily Value: 11.9 ppb on November 12												Hours of Data: 682																
Minimum Hourly Value: 0 ppb on November 2 at hour 4												Hours of Missing Data: 0																
Minimum Daily Value: 0.3 ppb on November 28												Hours of Calibration: 38																
Monthly Average: 3.4 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	2	2	2	2	2	2	2	2	2	2	1	1	S	1	1	1	1	1	1	1	1	2	2	1	2	1.6	
Nov 2	1	1	1	1	0	0	0	0	0	0	2	3	1	S	2	2	2	3	3	2	2	2	2	1	1	0	3	1.4
Nov 3	1	1	0	0	0	0	0	0	0	1	1	S	1	2	2	2	2	1	2	2	2	3	3	3	0	3	1.3	
Nov 4	3	3	3	3	3	3	4	4	5	5	S	6	7	7	8	9	9	8	8	11	12	11	9	9	3	12	6.5	
Nov 5	9	8	7	8	7	5	3	3	3	S	2	1	1	1	1	2	2	2	3	1	1	0	0	0	0	9	3.0	
Nov 6	0	0	0	0	0	0	0	1	S	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	0	3	0.9	
Nov 7	2	1	1	3	3	3	4	S	3	3	2	0	0	1	0	0	0	0	1	0	1	2	2	2	0	4	1.5	
Nov 8	2	2	2	2	2	1	S	1	1	1	1	0	1	1	1	1	1	1	1	2	1	1	1	1	0	2	1.2	
Nov 9	1	1	1	1	1	S	1	1	1	1	1	1	2	3	4	4	5	5	5	6	6	7	6	6	1	7	3.0	
Nov 10	5	4	6	5	S	4	3	4	3	3	4	4	4	5	6	7	8	8	7	7	8	7	7	8	3	8	5.5	
Nov 11	8	7	7	S	8	11	11	11	10	9	7	7	7	7	8	9	12	15	17	24	22	17	13	12	7	24	11.3	
Nov 12	13	13	S	14	13	11	12	12	12	12	11	12	13	13	14	15	16	14	13	11	10	8	6	6	6	16	11.9	
Nov 13	6	S	4	4	4	4	3	3	4	8	10	8	10	10	10	10	9	6	4	4	3	3	3	3	3	10	5.8	
Nov 14	S	2	2	2	2	1	1	1	1	1	1	1	2	1	1	1	1	1	2	2	3	4	3	S	1	4	1.6	
Nov 15	3	3	3	5	6	8	9	9	7	8	8	C	C	C	C	C	C	C	1	1	1	1	S	1	1	9	-	
Nov 16	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	0	1	0.3	
Nov 17	1	0	0	0	0	0	0	1	1	1	1	1	1	1	3	3	4	4	5	5	S	5	7	9	0	9	2.3	
Nov 18	7	4	3	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	S	1	2	3	3	1	7	2.0	
Nov 19	3	3	4	5	9	8	9	8	6	5	6	7	7	6	4	3	2	2	S	3	3	2	2	3	2	9	4.8	
Nov 20	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	S	1	2	1	1	1	1	1	2	1.4	
Nov 21	1	1	2	2	1	1	2	2	2	3	5	5	4	3	2	2	S	3	2	4	7	12	14	15	1	15	4.1	
Nov 22	14	9	6	5	5	5	6	6	5	6	5	6	6	8	S	10	11	11	12	13	9	7	5	5	14	7.6		
Nov 23	3	3	2	2	1	1	1	2	1	1	1	1	1	S	2	3	3	5	3	3	3	3	4	1	5	2.2		
Nov 24	5	5	5	4	3	4	4	5	6	6	5	6	6	S	6	7	7	6	7	7	6	6	7	6	3	7	5.6	
Nov 25	5	5	5	6	5	5	4	4	3	2	2	2	S	1	1	1	1	1	1	1	1	1	1	1	1	6	2.6	
Nov 26	1	1	1	1	1	1	1	1	1	2	3	S	5	6	8	7	4	5	4	4	3	3	3	1	8	3.0		
Nov 27	3	3	4	4	4	4	4	3	3	3	S	2	1	3	2	1	0	0	0	0	0	0	0	0	0	4	1.9	
Nov 28	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	0	1	1	1	1	1	0	0	1	0.3	
Nov 29	0	0	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	2	3	4	3	0	4	1.3
Nov 30	3	2	2	3	4	1	1	S	1	2	2	2	1	1	1	1	1	1	1	1	0	1	3	3	0	4	1.7	
Diurnal Maximum	14	13	7	14	13	11	12	12	12	12	11	12	13	13	14	15	16	15	17	24	22	17	14	15				
Diurnal Average	3.6	3.0	2.7	3.0	3.1	3.1	3.1	3.2	3.0	3.3	3.1	2.9	3.1	3.2	3.5	3.4	3.8	3.7	3.7	4.1	4.0	4.1	3.9	3.9				
C Monthly Calibration											S Daily Zero-Span Check											Q Quality Assurance						
K Collection Error											N No Data (Machine Not in Service)											Y Routine Maintenance						
X InValid Data (Equipment Malfunction /Recovery)											NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)											P Power Failure						
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																												
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																												

Timeseries Chart of Hourly Average for NO2 - St. Lina Station



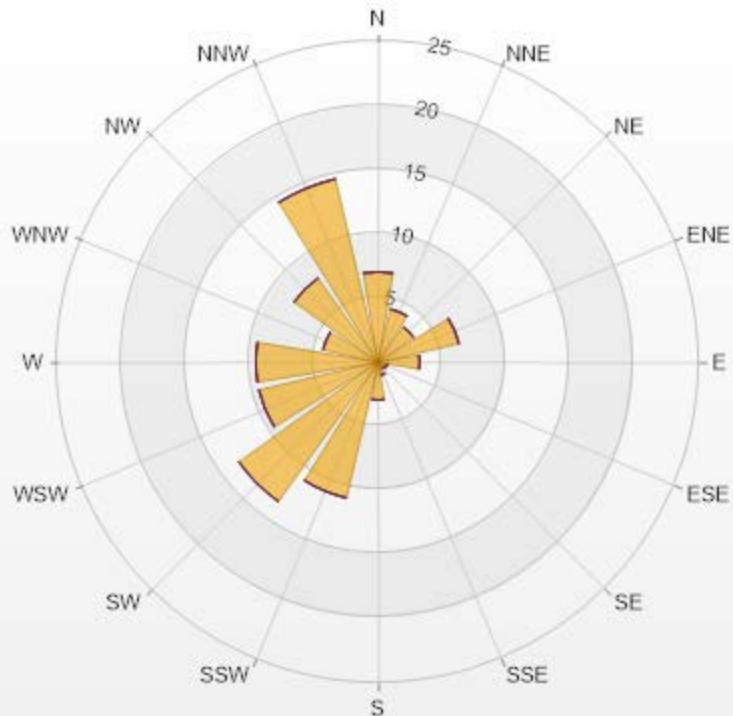
NO2[ppb] Histogram: St. Lina Monthly: 11-2022 1 Hr.



Classes	NO2
<=0	4.69%
0 - 10	88.86%
10 - 20	6.16%
20 - 30	0.29%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: St. Lina Poll.: St. Lina-NO2[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.72% Calm Avg: 0.00 [ppb]


Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	7.04	0	0	0	0	7.04
NNE	4.25	0	0	0	0	4.25
NE	3.37	0	0	0	0	3.37
ENE	6.45	0	0	0	0	6.45
E	3.23	0	0	0	0	3.23
ESE	0.73	0	0	0	0	0.73
SE	0.59	0	0	0	0	0.59
SSE	1.03	0	0	0	0	1.03
S	2.93	0	0	0	0	2.93
SSW	10.85	0	0	0	0	10.85
SW	13.34	0	0	0	0	13.34
WSW	9.53	0	0	0	0	9.53
W	9.53	0	0	0	0	9.53
WNW	4.4	0	0	0	0	4.4
NW	8.06	0	0	0	0	8.06
NNW	14.66	0	0	0	0	14.66
Summary	100	0	0	0	0	100



LICA-202211

% Icon Classes (ppb)

100  0-30

0  30-50

0  50-76

0  76-159

0  >159.0



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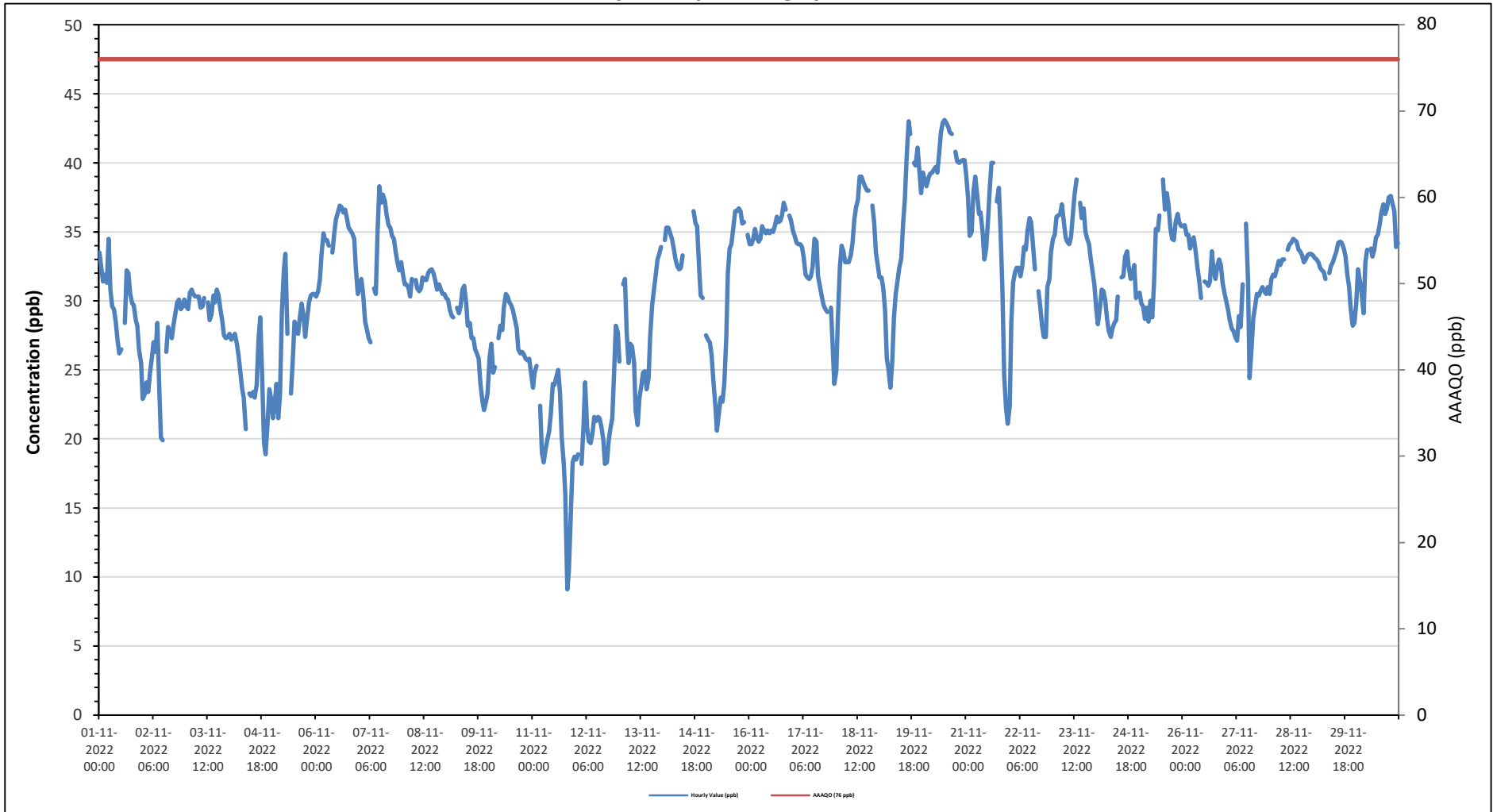
St. Lina Station - November 2022

Summary of Hourly Averages

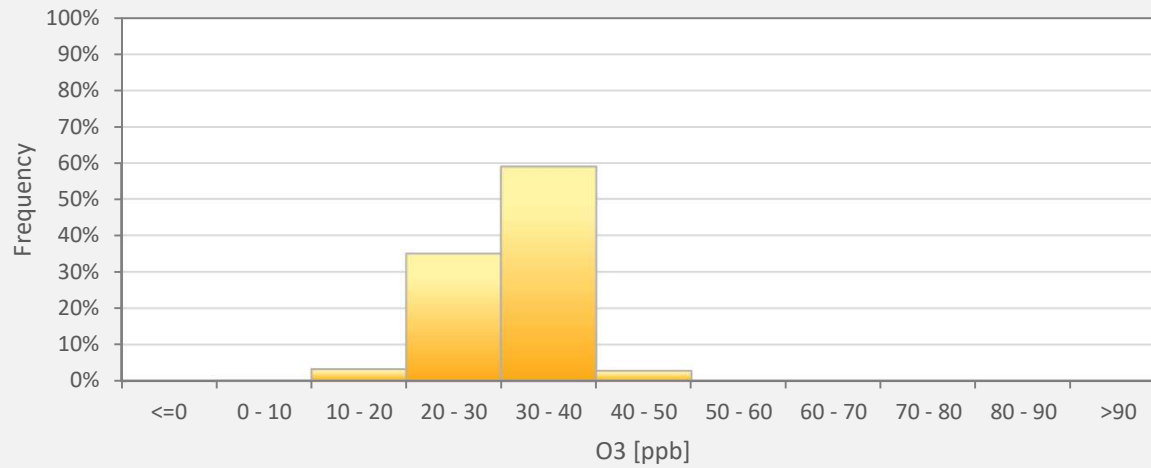
OZONE (O₃) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb																																																			
Number of 1-Hour Exceedances: 0																																																			
Maximum Hourly Value: 43.1 ppb on November 20 at hour 12												Hours in Service: 720																																							
Maximum Daily Value: 40.5 ppb on November 20												Hours of Data: 684																																							
Minimum Hourly Value: 9.1 ppb on November 11 at hour 19												Hours of Missing Data: 0																																							
Minimum Daily Value: 20.1 ppb on November 11												Hours of Calibration: 36																																							
Monthly Average: 30.8 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	33.5	32.3	31.4	31.9	31.3	34.5	30.8	29.6	29.4	28.5	27.2	26.2	26.5	S	26.3	28.1	27.7	27.3	28.2	29.1	29.9	30.1	29.4	29.6	30.1	25.5	34.5	29.8																							
Nov 2	22.9	23.2	24.1	23.4	24.8	26.0	27.0	26.3	28.4	23.9	20.1	19.9	S	26.3	28.1	27.7	27.3	28.2	29.1	29.9	30.1	29.4	29.6	30.1	19.9	30.1	26.3																								
Nov 3	29.6	29.4	30.6	30.8	30.5	30.3	30.3	30.3	29.5	29.6	30.2	S	29.9	28.6	29.0	30.4	29.9	30.8	30.4	29.4	28.5	27.5	27.3	27.4	27.3	30.8	29.6																								
Nov 4	27.6	27.2	27.4	27.6	26.9	26.0	24.8	23.6	23.0	20.7	S	23.3	23.1	23.4	23.0	23.9	27.1	28.8	24.8	19.7	18.9	20.9	23.6	23.0	18.9	28.8	24.3																								
Nov 5	21.5	22.4	24.0	21.5	23.3	29.1	32.2	33.4	27.6	S	23.3	25.7	28.5	28.1	27.6	28.8	29.8	28.8	27.4	28.8	29.9	30.4	30.5	30.5	21.5	33.4	27.5																								
Nov 6	30.3	30.7	31.6	33.3	34.9	34.4	34.4	34.0	S	33.5	35.0	35.9	36.4	36.9	36.8	36.4	36.6	36.0	35.3	35.1	34.9	34.5	32.5	30.5	30.3	36.9	34.3																								
Nov 7	30.9	31.6	30.5	28.5	28.0	27.3	27.0	S	30.9	30.5	35.1	38.3	37.1	37.7	37.2	36.3	35.5	35.3	34.7	34.5	33.6	32.8	32.2	32.8	27.0	38.3	33.0																								
Nov 8	32.0	31.2	31.2	31.0	30.3	31.6	S	31.5	30.9	30.7	30.9	31.7	31.5	31.5	32.0	32.2	32.3	32.0	31.4	30.8	31.2	30.8	30.5	30.5	30.3	32.3	31.3																								
Nov 9	30.2	30.1	29.4	28.9	28.8	S	29.5	29.1	29.6	30.8	31.1	29.8	28.2	28.4	27.3	27.3	26.5	26.2	25.8	24.0	22.7	22.1	22.7	23.3	22.1	31.1	27.5																								
Nov 10	25.9	26.9	24.8	25.2	S	27.3	28.2	27.9	29.5	30.5	30.3	29.9	29.7	29.3	28.7	28.0	26.5	26.2	26.3	26.1	25.8	25.7	25.8	24.8	24.8	30.5	27.4																								
Nov 11	23.7	24.8	25.3	S	22.4	19.0	18.3	19.2	20.0	20.5	21.8	24.0	23.9	24.5	25.0	23.4	20.1	18.2	16.0	9.1	10.4	14.7	18.3	18.7	9.1	25.3	20.1																								
Nov 12	18.5	18.9	S	18.2	21.0	24.1	20.8	19.8	19.7	20.4	21.6	21.3	21.6	21.5	20.8	19.9	18.2	18.3	19.9	20.8	21.5	25.2	28.2	27.7	18.2	28.2	21.2																								
Nov 13	25.6	S	31.2	31.6	27.6	25.5	26.9	26.7	25.5	22.0	21.0	23.0	23.8	24.8	24.9	23.6	24.4	27.4	29.7	30.8	31.7	33.0	33.4	33.9	21.0	33.9	27.3																								
Nov 14	S	34.4	35.3	35.3	34.9	34.5	33.8	33.0	32.5	32.3	32.4	33.3	C	C	C	C	C	36.5	35.6	35.4	32.4	30.4	30.2	S	30.2	36.5	-																								
Nov 15	27.5	27.2	27.0	26.1	24.2	22.4	20.6	21.9	23.0	22.7	24.0	27.4	32.0	33.8	34.1	35.2	36.5	36.5	36.7	36.5	35.6	35.7	S	34.8	20.6	36.7	29.6																								
Nov 16	34.1	34.1	34.5	35.2	34.6	34.3	34.5	35.4	35.1	34.9	35.1	34.9	35.1	35.0	35.4	36.1	35.7	35.8	36.2	37.1	36.6	S	36.2	35.8	34.1	37.1	35.3																								
Nov 17	35.1	34.7	34.2	34.1	34.1	33.9	33.1	31.9	31.7	31.6	31.8	32.5	34.5	34.3	31.8	31.0	30.3	29.7	29.4	29.2	S	29.5	26.6	24.0	24.0	35.1	31.7																								
Nov 18	24.9	28.6	32.4	34.0	33.6	32.8	32.8	32.8	33.3	34.2	35.9	36.8	37.3	39.0	39.0	38.6	38.3	38.0	38.0	S	36.9	35.7	33.5	32.5	24.9	39.0	34.7																								
Nov 19	31.7	31.7	30.9	29.3	25.8	25.1	23.7	25.5	28.8	30.5	31.6	32.4	33.1	35.6	37.4	40.4	43.0	42.1	S	40.0	39.8	41.1	39.7	37.8	23.7	43.0	33.8																								
Nov 20	39.3	38.8	38.3	38.9	39.2	39.3	39.5	39.7	39.3	40.7	42.2	42.9	43.1	42.9	42.6	42.2	42.1	S	40.8	40.1	40.0	40.1	40.2	40.2	38.3	43.1	40.5																								
Nov 21	39.2	37.4	34.7	35.0	37.9	39.0	37.8	36.3	36.4	35.0	33.0	33.8	35.7	38.1	40.0	40.0	S	37.2	38.2	35.4	30.9	24.6	22.3	21.1	21.1	40.0	34.7																								
Nov 22	22.4	28.4	31.3	32.1	32.4	32.4	31.8	32.5	33.9	33.7	35.1	36.0	35.7	33.9	32.3	S	30.7	29.6	28.2	27.4	27.4	31.0	31.6	33.5	22.4	36.0	31.4																								
Nov 23	34.5	34.8	36.1	36.2	36.3	37.0	35.7	34.6	34.3	34.1	34.6	36.2	37.7	38.8	S	37.1	36.0	36.7	35.0	34.5	34.1	33.0	32.1	31.2	31.2	38.8	35.2																								
Nov 24	29.3	28.3	29.5	30.8	30.7	30.0	28.7	27.8	27.4	28.0	28.4	28.6	30.3	S	31.7	31.8	33.2	33.6	32.5	31.6	31.8	32.6	30.2	30.5	27.4	33.6	30.3																								
Nov 25	30.6	29.8	29.6	28.7	29.5	28.5	30.0	28.8	31.3	35.2	35.1	36.2	S	38.8	36.6	37.8	37.0	35.3	34.5	34.4	35.7	36.3	35.7	35.4	28.5	38.8	33.5																								
Nov 26	35.4	35.5	34.8	34.8	33.8	34.4	34.6	33.7	32.4	31.6	30.2	S	31.4	31.3	31.4	33.6	32.2	31.6	32.5	33.0	32.6	31.3	30.6	30.2	30.2	35.5	32.8																								
Nov 27	30.0	29.3	28.6	28.0	27.8	27.4	27.1	28.9	28.1	31.2	S	35.6	31.5	24.4	26.6	28.8	29.6	30.5	30.4	30.7	31.0	30.7	30.5	31.0	24.4	35.6	29.5																								
Nov 28	30.5	31.6	31.9	31.8	32.3	32.9	32.6	33.0	33.0	S	33.7	34.1	34.2	34.5	34.4	34.3	33.7	33.6	33.3	32.8	33.0	33.3	33.4	33.4	30.5	34.5	33.1																								
Nov 29	33.3	33.1	33.0	32.8	32.4	32.2	32.1	31.6	S	32.0	32.5	32.8	33.2	33.6	34.2	34.3	34.2	33.8	33.2	31.9	31.0	29.5	28.2	28.4	28.2	34.3	32.3																								
Nov 30	29.8	32.3	31.4	30.6	29.1	32.8	33.7	S	33.8	33.2	33.7	34.6	34.8	35.6	36.4	37.0	36.3	36.7	37.5	37.6	37.1	36.5	33.9	34.2	29.1	37.6	34.3																								
Diurnal Maximum	39.3	38.8	38.3	38.9	39.2	39.3	39.5	39.7	39.3	40.7	42.2	42.9	43.1	42.9	42.6	42.2	43.0	42.1	40.8	40.1	40.0	41.1	40.2	40.2																											
Diurnal Average	29.6	30.3	30.9	30.5	30.3	30.5	30.1	30.0	29.9	30.1	30.6	31.3	31.8	32.2	31.9	32.4	32.0	31.9	31.4	30.9	30.8	30.6	30.2	30.1																											
C	Monthly Calibration												S	Daily Zero-Span Check												Q	Quality Assurance																								
K	Collection Error												N	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.																																																			

Timeseries Chart of Hourly Average for O3 - St. Lina Station



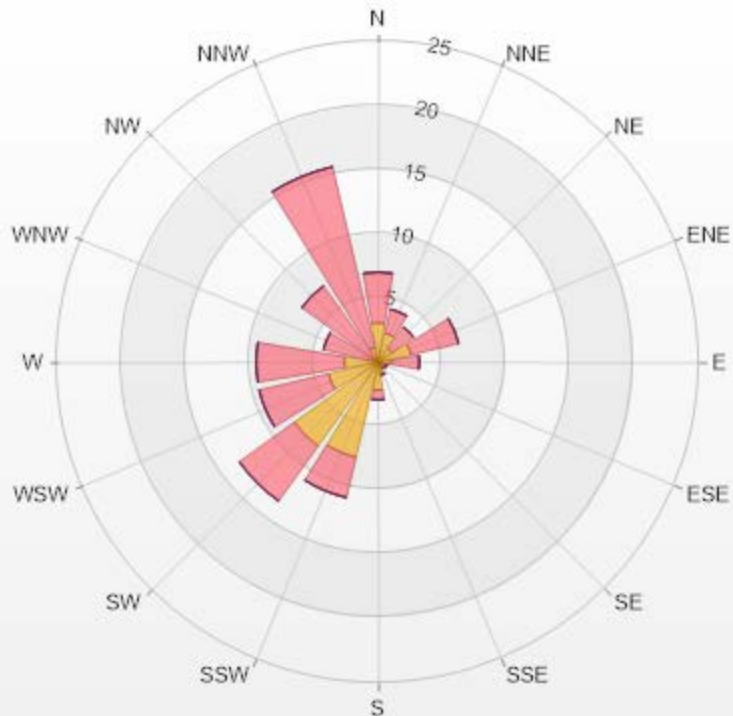
O3[ppb] Histogram: St. Lina Monthly: 11-2022 1 Hr.



Classes	O3
<=0	0.00%
0 - 10	0.15%
10 - 20	3.22%
20 - 30	34.94%
30 - 40	58.92%
40 - 50	2.78%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: St. Lina Poll.: St. Lina-O3[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.00% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	3.07	3.95	0	0	0	7.02
NNE	2.34	1.9	0	0	0	4.24
NE	1.32	2.05	0	0	0	3.37
ENE	2.63	3.8	0	0	0	6.43
E	1.02	2.19	0	0	0	3.21
ESE	0.29	0.44	0	0	0	0.73
SE	0.29	0.29	0	0	0	0.58
SSE	0.88	0.15	0	0	0	1.03
S	2.19	0.73	0	0	0	2.92
SSW	7.6	3.22	0	0	0	10.82
SW	8.04	5.26	0	0	0	13.3
WSW	3.95	5.56	0	0	0	9.51
W	2.63	6.87	0	0	0	9.5
WNW	0.58	3.8	0	0	0	4.38
NW	0.29	7.02	0	0	0	7.31
NNW	1.17	14.47	0	0	0	15.64
Summary	38.29	61.7	0	0	0	100



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% Icon Classes (ppb)	38	0-30	62	30-50	0	50-76	0	76-159	0	>159.0
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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Station - November 2022

Summary of Hourly Averages

TOTAL HYDROCARBONS (THC) in ppm

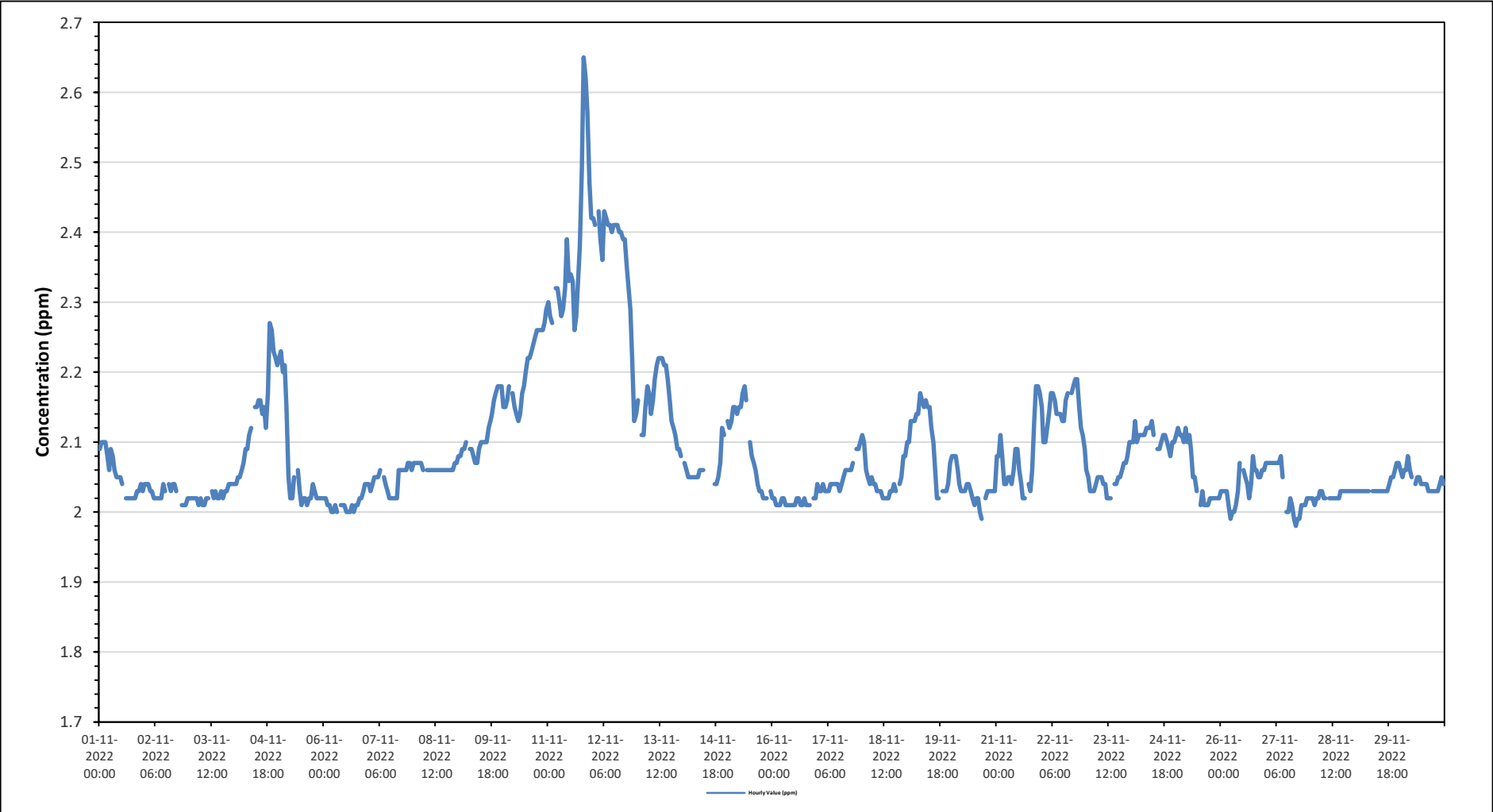
Maximum Hourly Value:	2.65 ppm on November 11 at hour 19	Hours in Service:	720
Maximum Daily Value:	2.37 ppm on November 11	Hours of Data:	681
Minimum Hourly Value:	1.98 ppm on November 27 at hour 16	Hours of Missing Data:	3
Minimum Daily Value:	2.01 ppm on November 6	Hours of Calibration:	36
Monthly Average:	2.09 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	2.09	2.10	2.10	2.10	2.08	2.06	2.09	2.08	2.06	2.05	2.05	2.05	2.04	S	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.04	2.03	2.02	2.10	2.05	
Nov 2	2.04	2.04	2.04	2.03	2.03	2.02	2.02	2.02	2.02	2.02	2.04	2.03	S	2.04	2.03	2.04	2.04	2.03	NRM	NRM	2.01	2.01	2.01	2.02	2.01	2.04	2.03	
Nov 3	2.02	2.02	2.02	2.02	2.02	2.01	2.02	2.01	2.01	2.02	2.02	S	2.03	2.02	2.03	2.02	2.02	2.03	2.02	2.03	2.03	2.04	2.04	2.04	2.01	2.04	2.02	
Nov 4	2.04	2.04	2.05	2.05	2.06	2.07	2.09	2.09	2.11	2.12	S	2.15	2.15	2.16	2.16	2.14	2.15	2.12	2.17	2.27	2.26	2.23	2.22	2.21	2.04	2.27	2.14	
Nov 5	2.22	2.23	2.20	2.21	2.15	2.05	2.02	2.02	2.05	S	2.06	2.03	2.01	2.02	2.02	2.01	2.02	2.02	2.04	2.03	2.02	2.02	2.02	2.02	2.01	2.23	2.06	
Nov 6	2.02	2.02	2.01	2.01	2.00	2.00	2.01	2.00	S	2.01	2.01	2.01	2.00	2.00	2.00	2.01	2.00	2.01	2.01	2.02	2.02	2.03	2.04	2.04	2.00	2.04	2.01	
Nov 7	2.04	2.03	2.04	2.05	2.05	2.05	2.06	S	2.05	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.06	2.06	2.06	2.06	2.06	2.07	2.07	2.06	2.02	2.07	2.05	
Nov 8	2.07	2.07	2.07	2.07	2.07	2.06	S	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.07	2.07	2.06	2.07	2.06	
Nov 9	2.08	2.08	2.09	2.09	2.10	S	2.09	2.09	2.08	2.07	2.07	2.09	2.10	2.10	2.10	2.10	2.12	2.13	2.14	2.16	2.17	2.18	2.18	2.18	2.07	2.18	2.11	
Nov 10	2.15	2.15	2.16	2.18	S	2.17	2.15	2.14	2.13	2.14	2.17	2.18	2.20	2.22	2.22	2.23	2.24	2.25	2.26	2.26	2.26	2.27	2.29	2.13	2.29	2.20		
Nov 11	2.30	2.28	2.27	S	2.32	2.32	2.30	2.28	2.29	2.32	2.39	2.33	2.34	2.33	2.26	2.28	2.33	2.38	2.49	2.65	2.62	2.57	2.47	2.42	2.26	2.65	2.37	
Nov 12	2.42	2.41	S	2.43	2.39	2.36	2.43	2.42	2.41	2.41	2.40	2.41	2.41	2.41	2.40	2.40	2.39	2.39	2.35	2.32	2.29	2.21	2.13	2.14	2.13	2.43	2.36	
Nov 13	2.16	S	2.11	2.11	2.15	2.18	2.17	2.14	2.16	2.19	2.21	2.22	2.22	2.22	2.21	2.21	2.19	2.16	2.13	2.12	2.11	2.09	2.09	2.08	2.08	2.22	2.16	
Nov 14	S	2.07	2.06	2.05	2.05	2.05	2.05	2.05	2.05	2.06	2.06	2.06	C	C	C	C	C	2.04	2.04	2.05	2.07	2.12	2.11	S	2.04	2.12	-	
Nov 15	2.13	2.12	2.13	2.15	2.15	2.14	2.15	2.15	2.17	2.18	2.16	Y	2.10	2.08	2.07	2.06	2.04	2.03	2.03	2.02	2.02	2.02	S	2.03	2.02	2.18	2.10	
Nov 16	2.02	2.02	2.01	2.01	2.01	2.02	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.02	2.02	2.01	2.01	2.02	2.01	2.01	2.01	S	2.02	2.02	2.01	2.02	2.01	
Nov 17	2.04	2.03	2.03	2.04	2.03	2.03	2.03	2.04	2.04	2.04	2.04	2.04	2.03	2.04	2.05	2.06	2.06	2.06	2.06	2.07	S	2.09	2.09	2.10	2.03	2.10	2.05	
Nov 18	2.11	2.10	2.06	2.05	2.04	2.05	2.04	2.04	2.03	2.03	2.03	2.02	2.02	2.02	2.02	2.03	2.03	2.04	2.03	S	S	2.04	2.05	2.08	2.08	2.02	2.11	2.05
Nov 19	2.10	2.10	2.13	2.13	2.13	2.14	2.14	2.17	2.16	2.15	2.16	2.15	2.15	2.12	2.10	2.06	2.02	2.02	S	2.03	2.03	2.03	2.04	2.07	2.02	2.17	2.10	
Nov 20	2.08	2.08	2.08	2.06	2.04	2.03	2.03	2.03	2.04	2.04	2.03	2.02	2.01	2.02	2.02	2.00	1.99	S	2.02	2.03	2.03	2.03	2.03	2.03	1.99	2.08	2.03	
Nov 21	2.08	2.08	2.11	2.08	2.04	2.04	2.05	2.05	2.04	2.06	2.09	2.09	2.06	2.04	2.02	2.02	S	2.04	2.03	2.06	2.13	2.18	2.18	2.17	2.02	2.18	2.08	
Nov 22	2.15	2.10	2.10	2.12	2.14	2.17	2.16	2.14	2.14	2.14	2.13	2.13	2.16	2.17	S	2.17	2.18	2.19	2.19	2.15	2.12	2.11	2.09	2.09	2.09	2.19	2.14	
Nov 23	2.06	2.05	2.03	2.03	2.03	2.04	2.05	2.05	2.05	2.04	2.04	2.02	2.02	2.02	S	2.04	2.04	2.05	2.05	2.06	2.07	2.07	2.08	2.10	2.02	2.10	2.05	
Nov 24	2.10	2.10	2.13	2.10	2.11	2.11	2.11	2.11	2.12	2.12	2.12	2.13	2.11	S	2.09	2.09	2.10	2.11	2.11	2.10	2.09	2.08	2.10	2.10	2.08	2.13	2.11	
Nov 25	2.11	2.12	2.11	2.11	2.10	2.12	2.10	2.11	2.09	2.05	2.05	2.03	S	2.01	2.03	2.01	2.01	2.01	2.02	2.02	2.02	2.02	2.02	2.02	2.01	2.12	2.06	
Nov 26	2.03	2.03	2.03	2.03	2.01	1.99	2.00	2.00	2.01	2.03	2.07	S	2.06	2.05	2.04	2.02	2.04	2.08	2.06	2.06	2.05	2.05	2.06	2.06	1.99	2.08	2.04	
Nov 27	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.08	2.05	S	2.00	2.00	2.02	2.01	1.99	1.98	1.99	1.99	2.01	2.01	2.01	2.02	2.02	1.98	2.08	2.03	
Nov 28	2.02	2.02	2.01	2.02	2.02	2.03	2.03	2.02	2.02	S	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.01	2.03	2.02	
Nov 29	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	S	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.04	2.05	2.05	2.06	2.07	2.07	2.03	2.04	
Nov 30	2.06	2.05	2.06	2.06	2.08	2.06	2.05	S	2.04	2.05	2.05	2.04	2.04	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.04	2.05	2.04	2.03	2.07	2.04	
Diurnal Maximum	2.42	2.41	2.27	2.43	2.39	2.36	2.43	2.42	2.41	2.41	2.40	2.41	2.41	2.41	2.40	2.40	2.39	2.39	2.49	2.65	2.62	2.57	2.47	2.42				
Diurnal Average	2.10	2.09	2.08	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.08	2.08	2.07	2.08	2.08	2.09	2.10	2.10	2.10	2.09	2.09			

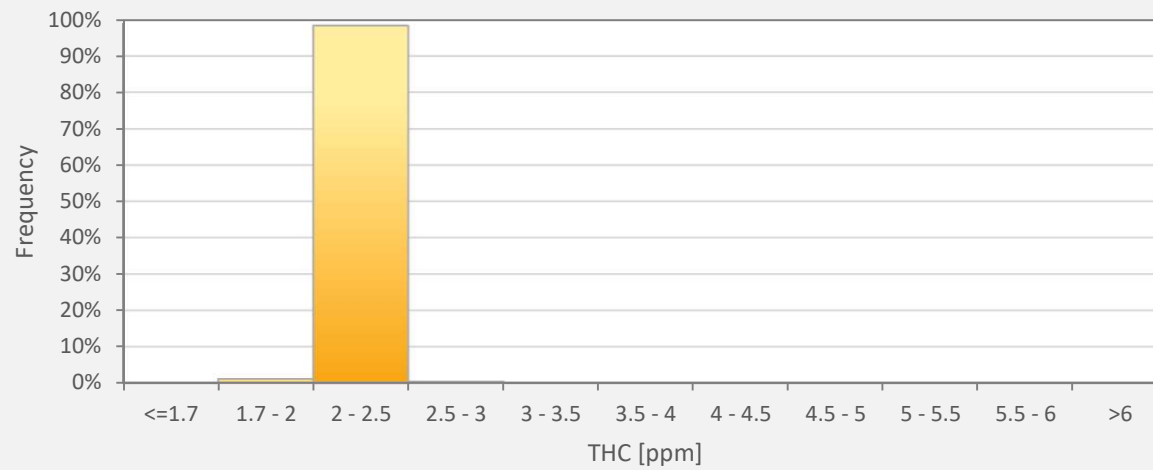
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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

Timeseries Chart of Hourly Average for THC - St. Lina Station



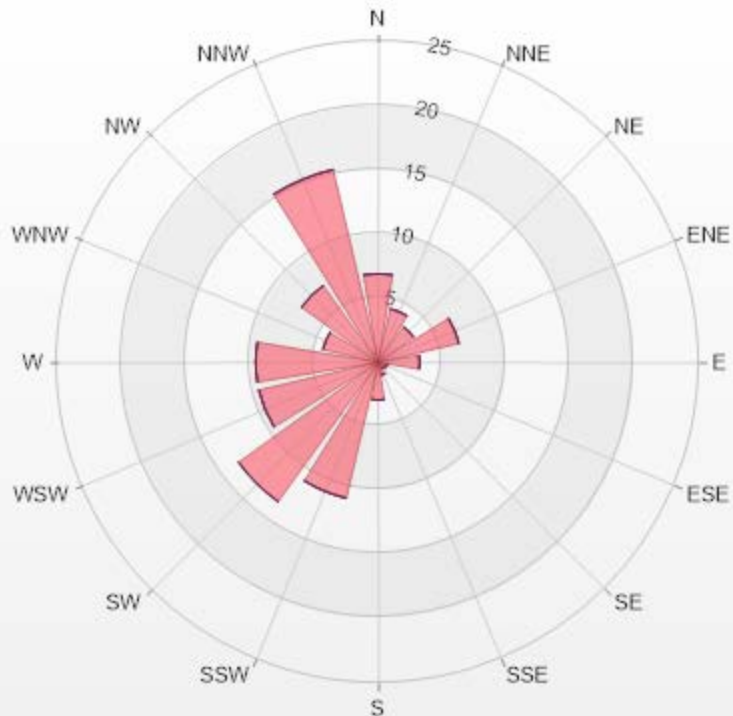
THC55[ppm] Histogram: St. Lina Monthly: 11-2022 1 Hr.



Classes	THC55
<=1.7	0.00%
1.7 - 2	1.17%
2 - 2.5	98.38%
2.5 - 3	0.44%
3 - 3.5	0.00%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: St. Lina Poll.: St. Lina-THC55[ppm] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.58% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	0	6.9	0	0	0	6.9
NNE	0	4.26	0	0	0	4.26
NE	0	3.38	0	0	0	3.38
ENE	0	6.46	0	0	0	6.46
E	0	3.23	0	0	0	3.23
ESE	0	0.73	0	0	0	0.73
SE	0	0.59	0	0	0	0.59
SSE	0	1.03	0	0	0	1.03
S	0	2.94	0	0	0	2.94
SSW	0	10.87	0	0	0	10.87
SW	0	13.36	0	0	0	13.36
WSW	0	9.54	0	0	0	9.54
W	0.29	9.25	0	0	0	9.54
WNW	0	4.41	0	0	0	4.41
NW	0.15	7.2	0	0	0	7.35
NNW	0.73	14.68	0	0	0	15.41
Summary	1.17	98.83	0	0	0	100



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% Icon Classes (ppm)

1 0-2

99 2-5

0 5-10

0 10-40

0 >40.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Station - November 2022

Summary of Hourly Averages

METHANE (CH₄) in ppm

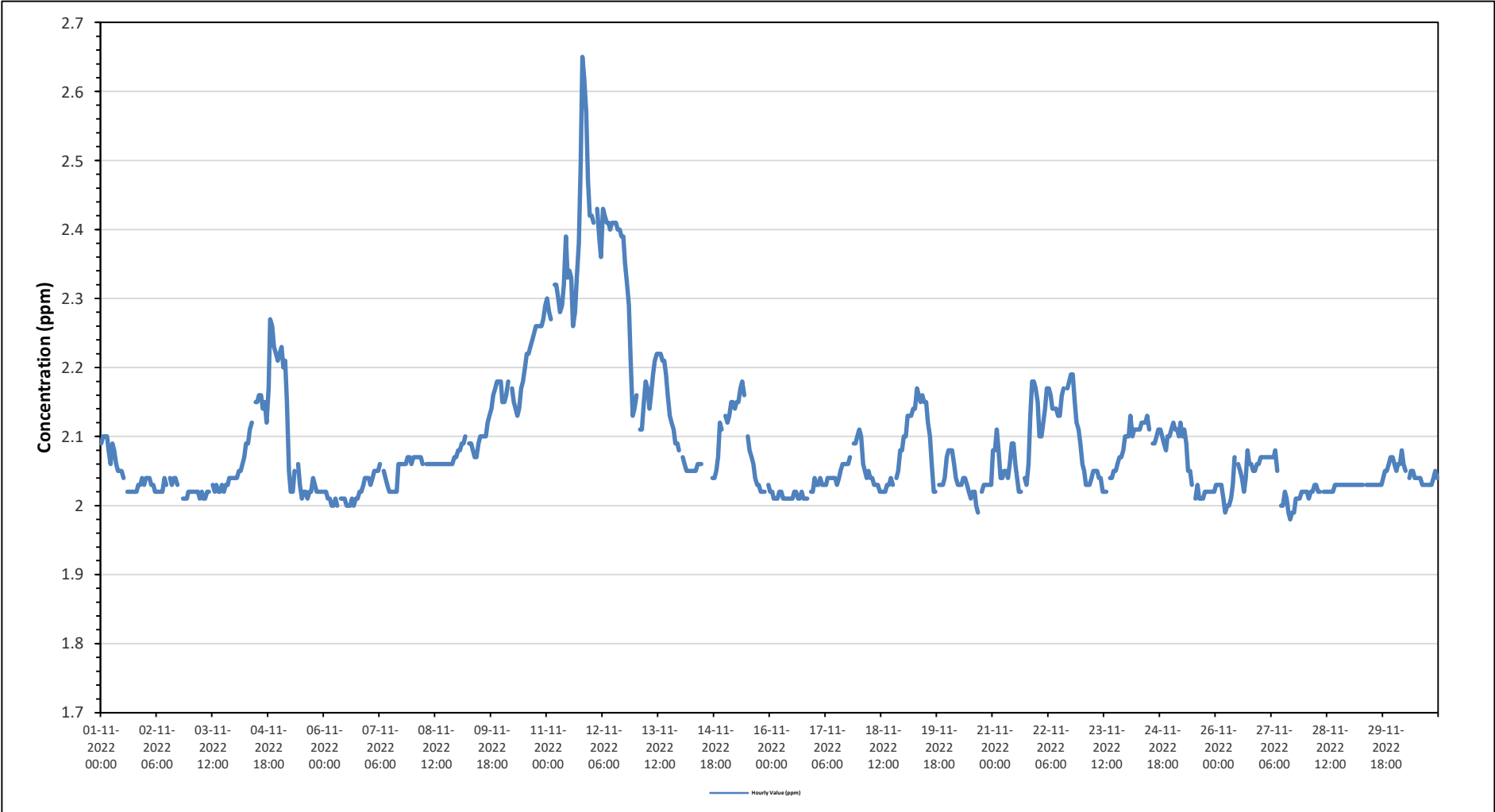
Maximum Hourly Value:	2.65 ppm on November 11 at hour 19	Hours in Service:	720
Maximum Daily Value:	2.37 ppm on November 11	Hours of Data:	681
Minimum Hourly Value:	1.98 ppm on November 27 at hour 16	Hours of Missing Data:	3
Minimum Daily Value:	2.01 ppm on November 6	Hours of Calibration:	36
Monthly Average:	2.09 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	2.09	2.10	2.10	2.10	2.08	2.06	2.09	2.08	2.06	2.05	2.05	2.05	2.04	S	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.04	2.03	2.02	2.10	2.05	
Nov 2	2.04	2.04	2.04	2.03	2.03	2.02	2.02	2.02	2.02	2.02	2.04	2.03	S	2.04	2.03	2.04	2.04	2.03	NRM	NRM	2.01	2.01	2.01	2.02	2.01	2.04	2.03	
Nov 3	2.02	2.02	2.02	2.02	2.02	2.01	2.02	2.01	2.01	2.02	2.02	S	2.03	2.02	2.03	2.02	2.02	2.03	2.02	2.03	2.03	2.04	2.04	2.04	2.01	2.04	2.02	
Nov 4	2.04	2.04	2.05	2.05	2.06	2.07	2.09	2.09	2.11	2.12	S	2.15	2.15	2.16	2.16	2.14	2.15	2.12	2.17	2.27	2.26	2.23	2.22	2.21	2.04	2.27	2.14	
Nov 5	2.22	2.23	2.20	2.21	2.15	2.05	2.02	2.02	2.05	S	2.06	2.03	2.01	2.02	2.02	2.01	2.02	2.02	2.04	2.03	2.02	2.02	2.02	2.02	2.01	2.23	2.06	
Nov 6	2.02	2.02	2.01	2.01	2.00	2.00	2.01	2.00	S	2.01	2.01	2.01	2.00	2.00	2.00	2.01	2.00	2.01	2.01	2.02	2.02	2.03	2.04	2.04	2.00	2.04	2.01	
Nov 7	2.04	2.03	2.04	2.05	2.05	2.05	2.06	S	2.05	2.04	2.03	2.02	2.02	2.02	2.02	2.06	2.06	2.06	2.06	2.06	2.06	2.07	2.07	2.06	2.02	2.07	2.05	
Nov 8	2.07	2.07	2.07	2.07	2.07	2.06	S	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.07	2.07	2.06	2.07	2.06	
Nov 9	2.08	2.08	2.09	2.09	2.10	S	2.09	2.09	2.08	2.07	2.07	2.09	2.10	2.10	2.10	2.10	2.12	2.13	2.14	2.16	2.17	2.18	2.18	2.18	2.07	2.18	2.11	
Nov 10	2.15	2.15	2.16	2.18	S	2.17	2.15	2.14	2.13	2.14	2.17	2.18	2.20	2.22	2.22	2.23	2.24	2.25	2.26	2.26	2.26	2.27	2.29	2.13	2.29	2.20		
Nov 11	2.30	2.28	2.27	S	2.32	2.32	2.30	2.28	2.29	2.32	2.39	2.33	2.34	2.33	2.26	2.28	2.33	2.38	2.49	2.65	2.62	2.57	2.47	2.42	2.26	2.65	2.37	
Nov 12	2.42	2.41	S	2.43	2.39	2.36	2.43	2.42	2.41	2.41	2.40	2.41	2.41	2.41	2.40	2.40	2.39	2.39	2.35	2.32	2.29	2.21	2.13	2.14	2.13	2.43	2.36	
Nov 13	2.16	S	2.11	2.11	2.15	2.18	2.17	2.14	2.16	2.19	2.21	2.22	2.22	2.22	2.21	2.21	2.19	2.16	2.13	2.12	2.11	2.09	2.09	2.08	2.08	2.22	2.16	
Nov 14	S	2.07	2.06	2.05	2.05	2.05	2.05	2.05	2.05	2.06	2.06	2.06	C	C	C	C	C	2.04	2.04	2.05	2.07	2.12	2.11	S	2.04	2.12	-	
Nov 15	2.13	2.12	2.13	2.15	2.15	2.14	2.15	2.15	2.17	2.18	2.16	Y	2.10	2.08	2.07	2.06	2.04	2.03	2.03	2.02	2.02	2.02	S	2.03	2.02	2.18	2.10	
Nov 16	2.02	2.02	2.01	2.01	2.01	2.02	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.02	2.02	2.01	2.01	2.02	2.01	2.01	2.01	S	2.02	2.02	2.01	2.02	2.01	
Nov 17	2.04	2.03	2.03	2.04	2.03	2.03	2.03	2.04	2.04	2.04	2.04	2.04	2.03	2.04	2.05	2.06	2.06	2.06	2.06	2.07	S	2.09	2.09	2.10	2.03	2.10	2.05	
Nov 18	2.11	2.10	2.06	2.05	2.04	2.05	2.04	2.04	2.03	2.03	2.03	2.02	2.02	2.02	2.02	2.03	2.03	2.04	2.03	S	S	2.04	2.05	2.08	2.08	2.02	2.11	2.05
Nov 19	2.10	2.10	2.13	2.13	2.13	2.14	2.14	2.17	2.16	2.15	2.16	2.15	2.15	2.12	2.10	2.06	2.02	2.02	S	2.03	2.03	2.03	2.04	2.07	2.02	2.17	2.10	
Nov 20	2.08	2.08	2.08	2.06	2.04	2.03	2.03	2.03	2.04	2.04	2.03	2.02	2.01	2.02	2.02	2.00	1.99	S	2.02	2.03	2.03	2.03	2.03	2.03	1.99	2.08	2.03	
Nov 21	2.08	2.08	2.11	2.08	2.04	2.04	2.05	2.05	2.04	2.06	2.09	2.09	2.06	2.04	2.02	2.02	S	2.04	2.03	2.06	2.13	2.18	2.18	2.17	2.02	2.18	2.08	
Nov 22	2.15	2.10	2.10	2.12	2.14	2.17	2.17	2.16	2.14	2.14	2.14	2.13	2.13	2.16	2.17	S	2.17	2.18	2.19	2.19	2.15	2.12	2.11	2.09	2.09	2.19	2.14	
Nov 23	2.06	2.05	2.03	2.03	2.03	2.04	2.05	2.05	2.05	2.04	2.04	2.02	2.02	2.02	S	2.04	2.04	2.05	2.05	2.06	2.07	2.07	2.08	2.10	2.02	2.10	2.05	
Nov 24	2.10	2.10	2.13	2.10	2.11	2.11	2.11	2.11	2.12	2.12	2.12	2.13	2.11	S	2.09	2.09	2.10	2.11	2.11	2.10	2.09	2.08	2.10	2.10	2.08	2.13	2.11	
Nov 25	2.11	2.12	2.11	2.11	2.10	2.12	2.10	2.11	2.09	2.05	2.05	2.03	S	2.01	2.03	2.01	2.01	2.01	2.02	2.02	2.02	2.02	2.02	2.02	2.01	2.12	2.06	
Nov 26	2.03	2.03	2.03	2.03	2.01	1.99	2.00	2.00	2.01	2.03	2.07	S	2.06	2.05	2.04	2.02	2.04	2.08	2.06	2.06	2.05	2.05	2.06	2.06	1.99	2.08	2.04	
Nov 27	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.08	2.05	S	2.00	2.00	2.02	2.01	1.99	1.98	1.99	1.99	2.01	2.01	2.01	2.02	2.02	1.98	2.08	2.03	
Nov 28	2.02	2.02	2.01	2.02	2.02	2.03	2.03	2.02	2.02	S	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.01	2.03	2.02	
Nov 29	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	S	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.04	2.05	2.05	2.06	2.07	2.07	2.03	2.04	
Nov 30	2.06	2.05	2.06	2.06	2.08	2.06	2.05	S	2.04	2.05	2.05	2.04	2.04	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.04	2.05	2.04	2.03	2.07	2.04	
Diurnal Maximum	2.42	2.41	2.27	2.43	2.39	2.36	2.43	2.42	2.41	2.41	2.40	2.41	2.41	2.41	2.40	2.40	2.39	2.39	2.49	2.65	2.62	2.57	2.47	2.42				
Diurnal Average	2.10	2.09	2.08	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.08	2.08	2.07	2.08	2.08	2.09	2.10	2.10	2.10	2.09	2.09			

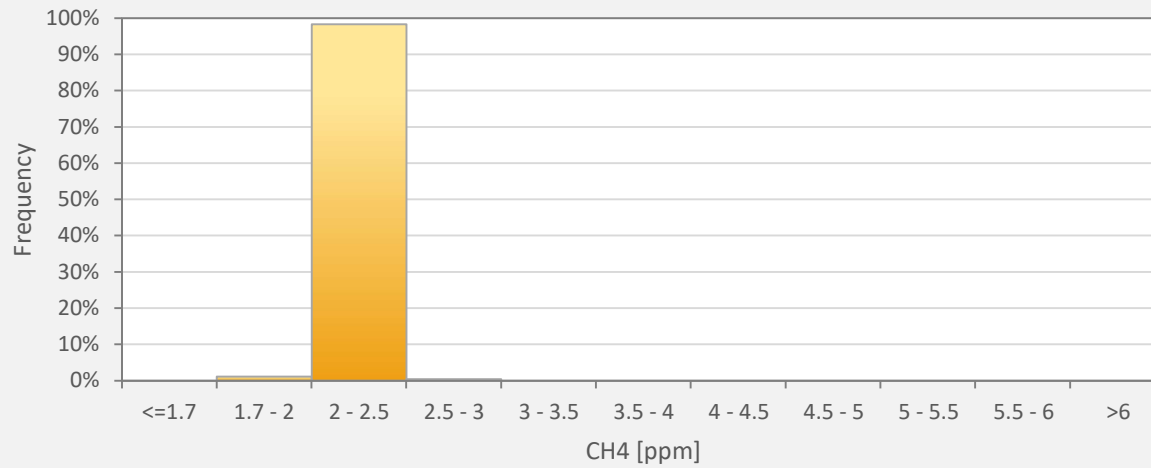
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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

Timeseries Chart of Hourly Average for CH4 - St. Lina Station



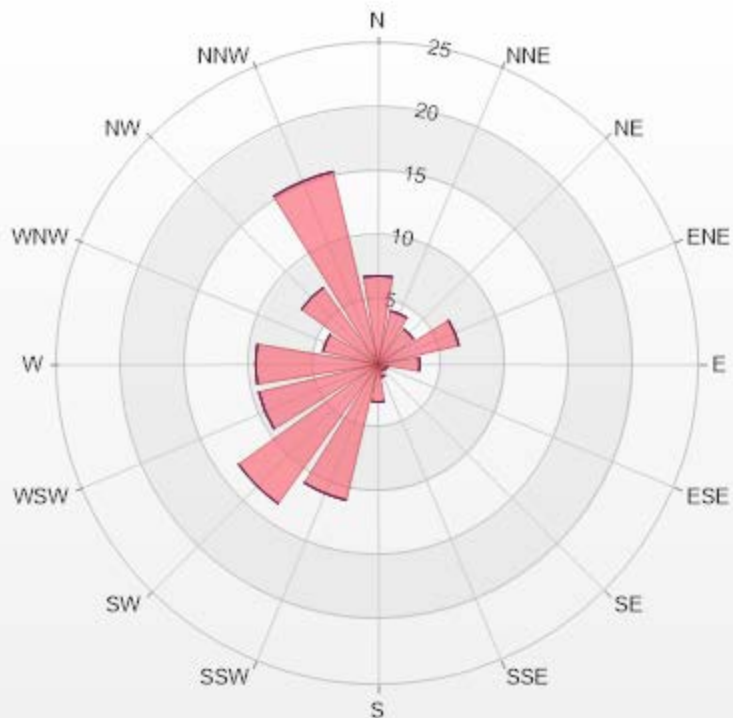
CH4[ppm] Histogram: St. Lina Monthly: 11-2022 1 Hr.



Classes	CH4
<=1.7	0.00%
1.7 - 2	1.17%
2 - 2.5	98.38%
2.5 - 3	0.44%
3 - 3.5	0.00%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: St. Lina Poll.: St. Lina-CH4[ppm] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.58% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	0	6.9	0	0	0	6.9
NNE	0	4.26	0	0	0	4.26
NE	0	3.38	0	0	0	3.38
ENE	0	6.46	0	0	0	6.46
E	0	3.23	0	0	0	3.23
ESE	0	0.73	0	0	0	0.73
SE	0	0.59	0	0	0	0.59
SSE	0	1.03	0	0	0	1.03
S	0	2.94	0	0	0	2.94
SSW	0	10.87	0	0	0	10.87
SW	0	13.36	0	0	0	13.36
WSW	0	9.54	0	0	0	9.54
W	0.29	9.25	0	0	0	9.54
WNW	0	4.41	0	0	0	4.41
NW	0.15	7.2	0	0	0	7.35
NNW	0.73	14.68	0	0	0	15.41
Summary	1.17	98.83	0	0	0	100



LICA-202211

% Icon Classes (ppm)

1 0-2

99 2-5

0 5-10

0 10-20

0 >20.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Station - November 2022

Summary of Hourly Averages

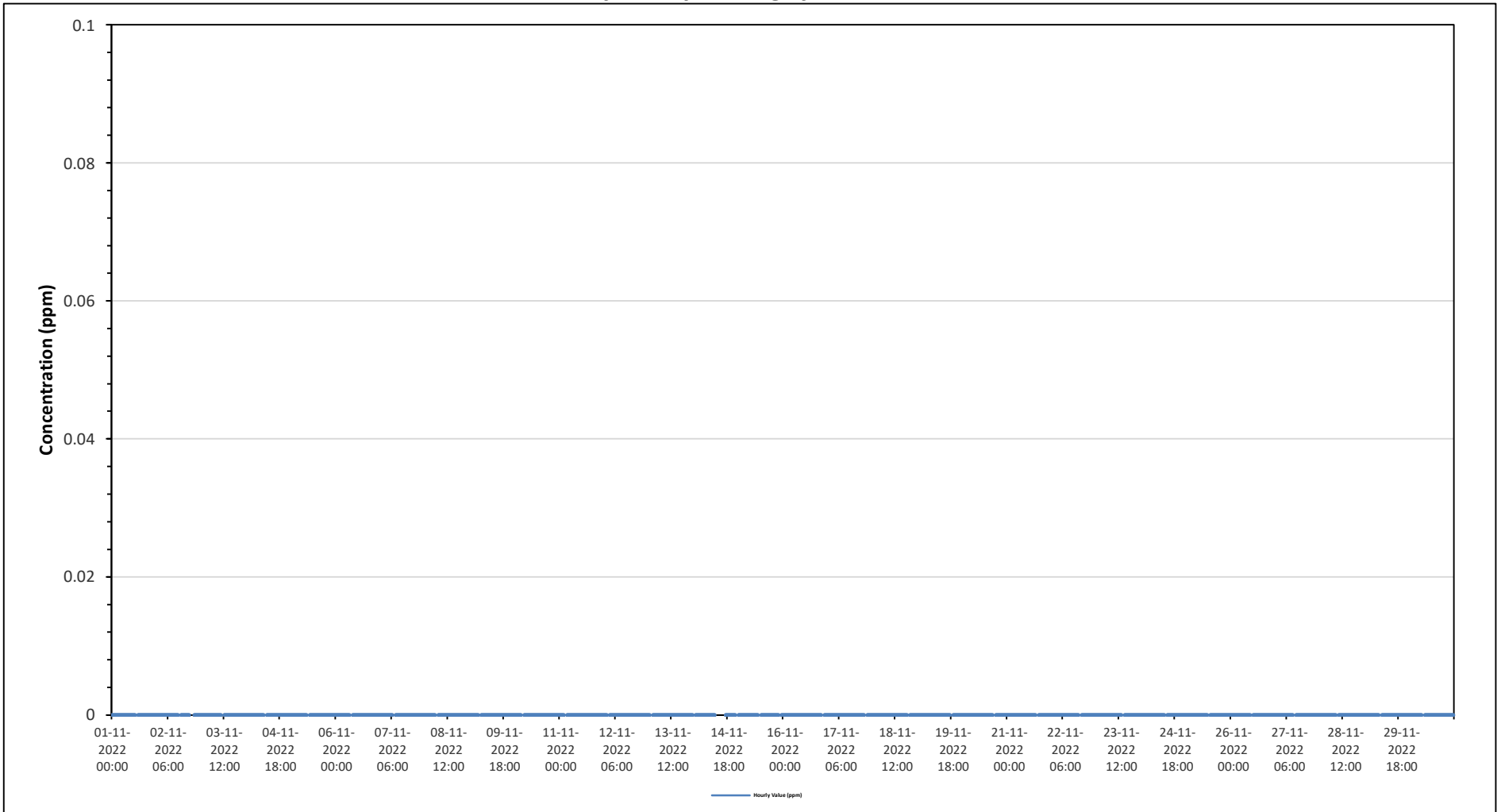
NON-METHANE HYDROCARBONS (NMHC) in ppm

Maximum Hourly Value:	0.00 ppm on November 1 at hour 0	Hours in Service:	720
Maximum Daily Value:	0.00 ppm on November 1	Hours of Data:	681
Minimum Hourly Value:	0.00 ppm on November 1 at hour 0	Hours of Missing Data:	3
Minimum Daily Value:	0.00 ppm on November 1	Hours of Calibration:	36
Monthly Average:	0.00 ppm	Operational Uptime:	99.6

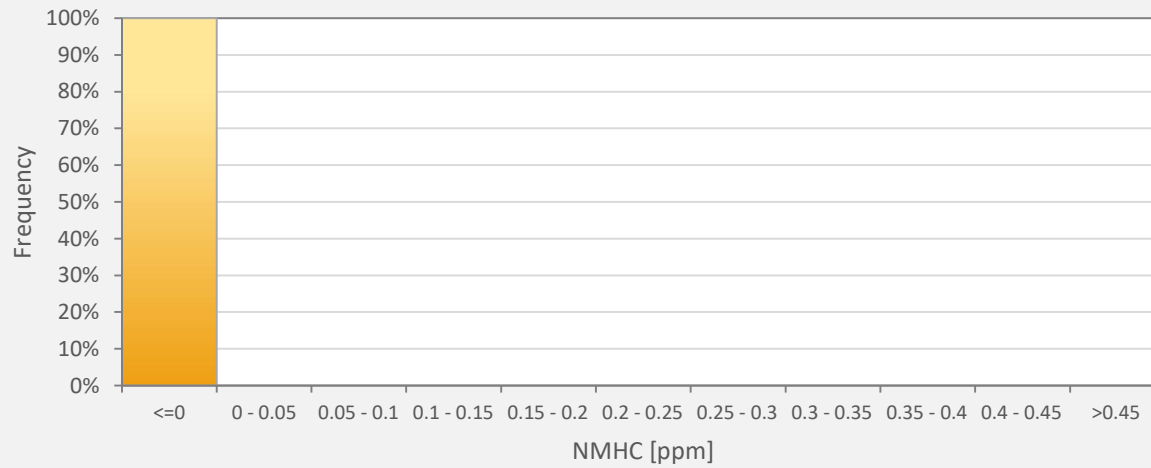
Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
Nov 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	S	0.00	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	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	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 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 8	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 9	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 10	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 11	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 12	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 13	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 14	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	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	Y	0.00	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 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	0.00	0.00	0.00	0.00	0.00	0.00	S	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	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 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	S	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	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	0.00	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 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	0.00	S	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	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 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	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 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	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 25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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 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	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 27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
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	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	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							N	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.

Timeseries Chart of Hourly Average for NMHC - St. Lina Station



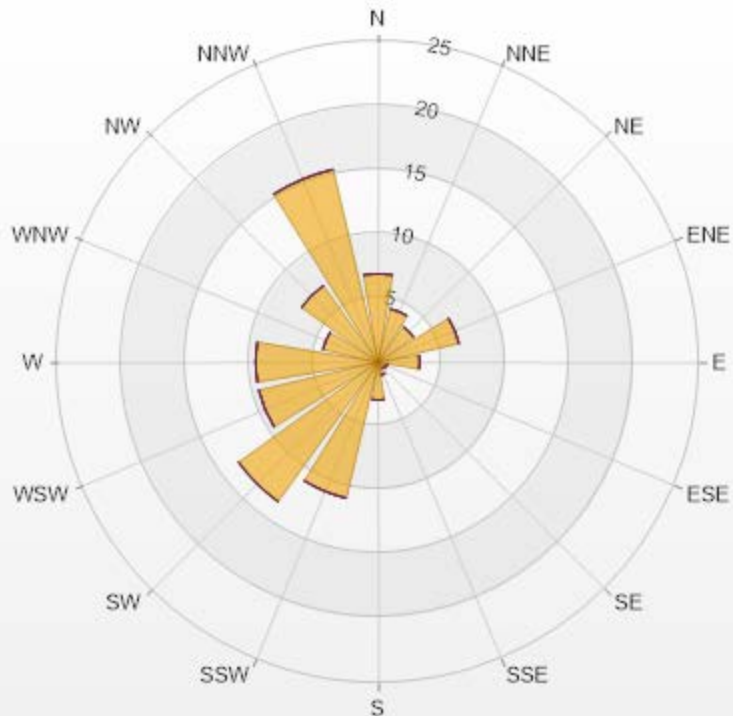
NMHC[ppm] Histogram: St. Lina Monthly: 11-2022 1 Hr.



Classes	NMHC
<=0	100.00%
0 - 0.05	0.00%
0.05 - 0.1	0.00%
0.1 - 0.15	0.00%
0.15 - 0.2	0.00%
0.2 - 0.25	0.00%
0.25 - 0.3	0.00%
0.3 - 0.35	0.00%
0.35 - 0.4	0.00%
0.4 - 0.45	0.00%
>0.45	0.00%

Wind: St. Lina Poll.: St. Lina-NMHC[ppm] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.58% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	6.9	0	0	0	0	6.9
NNE	4.26	0	0	0	0	4.26
NE	3.38	0	0	0	0	3.38
ENE	6.46	0	0	0	0	6.46
E	3.23	0	0	0	0	3.23
ESE	0.73	0	0	0	0	0.73
SE	0.59	0	0	0	0	0.59
SSE	1.03	0	0	0	0	1.03
S	2.94	0	0	0	0	2.94
SSW	10.87	0	0	0	0	10.87
SW	13.36	0	0	0	0	13.36
WSW	9.54	0	0	0	0	9.54
W	9.54	0	0	0	0	9.54
WNW	4.41	0	0	0	0	4.41
NW	7.34	0	0	0	0	7.34
NNW	15.42	0	0	0	0	15.42
Summary	100	0	0	0	0	100



LICA-202211

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% Icon Classes (ppm)

100 0-0.1

0 0.1-0.3

0 0.3-1

0 1-2

0 >2.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Station - November 2022

Summary of Hourly Averages

PARTICULATE MATTER 2.5 (PM_{2.5}) in µg/m³

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

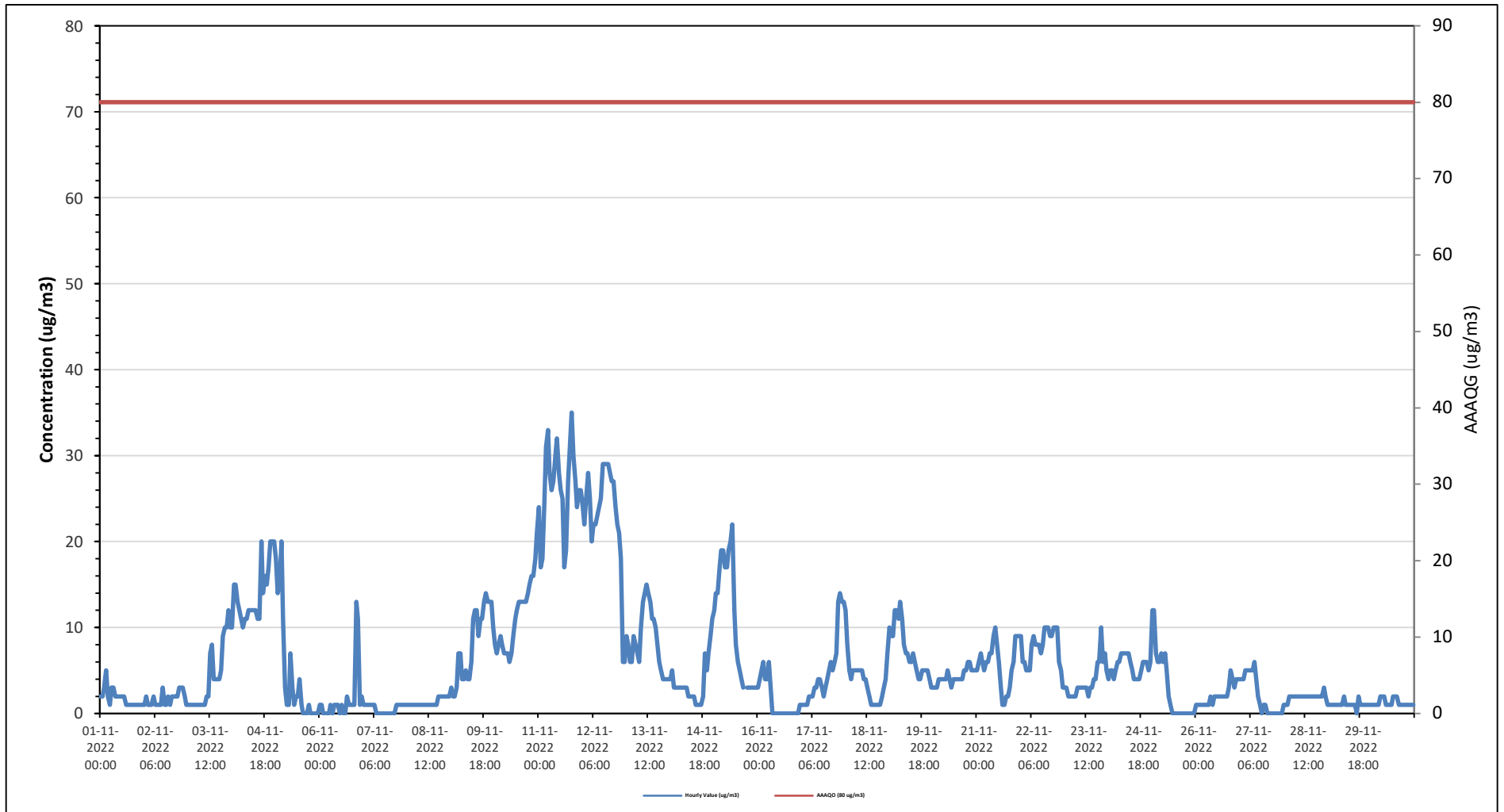
Maximum Hourly Value:	35 µg/m ³ on November 11 at hour 18	Hours in Service:	720
Maximum Daily Value:	26.3 µg/m ³ on November 11	Hours of Data:	719
Minimum Hourly Value:	0 µg/m ³ on November 5 at hour 15	Hours of Missing Data:	0
Minimum Daily Value:	1 µg/m ³ on November 7	Hours of Calibration:	1
Monthly Average:	5.9 µg/m ³	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	2	3	5	2	1	3	3	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	1.8
Nov 2	1	2	1	1	1	2	1	1	1	1	3	1	1	2	1	2	2	2	2	3	3	3	2	1	1	1	3	1.7	
Nov 3	1	1	1	1	1	1	1	1	1	1	2	2	7	8	4	4	4	4	5	9	10	10	12	10	10	12	12	4.2	
Nov 4	10	15	15	13	12	11	10	11	11	12	12	12	12	11	11	20	14	16	15	17	20	20	20	20	10	20	13.8		
Nov 5	18	14	15	20	11	3	1	1	7	3	1	2	2	4	1	0	0	0	1	0	0	0	0	0	0	0	20	4.3	
Nov 6	1	1	0	0	0	0	1	0	1	1	1	0	1	0	0	2	1	1	1	1	13	11	1	2	0	13	1.7		
Nov 7	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	0.5		
Nov 8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	2	1.3		
Nov 9	3	2	2	3	7	7	4	4	5	4	4	6	11	12	12	9	11	11	13	14	13	13	13	10	2	14	8.0		
Nov 10	8	7	8	9	8	7	7	7	6	7	9	11	12	13	13	13	13	13	14	15	16	16	18	21	6	21	11.3		
Nov 11	24	17	18	24	31	33	28	26	27	30	32	28	26	25	17	19	27	31	35	30	27	24	26	26	17	35	26.3		
Nov 12	24	22	25	28	25	20	22	22	23	24	25	29	29	29	29	28	27	27	24	22	21	18	6	6	6	29	23.1		
Nov 13	9	8	6	6	9	8	7	6	10	13	14	15	14	13	11	11	10	8	6	5	4	4	4	4	4	15	8.5		
Nov 14	4	5	3	3	3	3	3	3	3	3	2	2	2	2	1	1	1	1	2	7	5	7	9	11	1	11	3.6		
Nov 15	12	14	14	17	19	19	17	17	19	20	22	12	8	6	5	4	3	C	3	3	3	3	3	3	3	3	22	10.7	
Nov 16	3	4	5	6	4	4	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6	1.5		
Nov 17	1	1	1	1	2	2	2	3	3	4	4	3	2	3	4	5	6	5	6	7	13	14	13	13	1	14	4.9		
Nov 18	12	8	5	4	5	5	5	5	5	4	4	3	2	1	1	1	1	1	1	2	3	4	7	1	12	3.9			
Nov 19	10	9	9	12	12	11	13	11	8	7	7	6	6	7	6	5	4	4	5	5	5	4	3	3	3	13	7.3		
Nov 20	3	3	3	4	4	4	4	4	5	4	3	4	4	4	4	4	4	5	5	6	6	5	5	5	3	6	4.3		
Nov 21	5	6	7	6	5	6	6	7	7	9	10	8	6	3	1	1	2	2	3	5	6	9	9	9	1	10	5.8		
Nov 22	9	6	6	5	5	5	8	9	8	8	8	7	8	10	10	9	9	10	10	10	6	5	3	3	10	7.7			
Nov 23	3	3	2	2	2	2	2	3	3	3	3	3	2	3	3	4	4	4	6	6	10	6	7	5	2	10	3.8		
Nov 24	4	5	5	4	5	6	6	7	7	7	7	7	6	5	4	4	4	4	5	6	6	6	5	6	4	7	5.5		
Nov 25	12	12	7	6	6	7	6	7	5	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	3.0		
Nov 26	1	1	1	1	1	1	1	1	2	1	2	2	2	2	2	2	2	3	5	4	3	4	4	1	5	2.1			
Nov 27	4	4	4	5	5	5	5	5	6	4	2	1	0	1	1	0	0	0	0	0	0	0	0	0	0	6	2.2		
Nov 28	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	1	3	1.9		
Nov 29	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	0	2	1	1	1	1	1	1	0	2	2	1.0		
Nov 30	1	1	1	1	1	2	2	2	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	1.3		
Diurnal Maximum	24	22	25	28	31	33	28	26	27	30	32	29	29	29	29	28	27	31	35	30	27	24	26	26					
Diurnal Average	6.3	5.9	5.7	6.4	6.4	6.0	5.9	5.8	6.0	6.0	6.2	5.7	5.8	5.8	4.9	4.8	5.3	5.4	5.8	6.1	6.7	6.5	6.0	5.9					

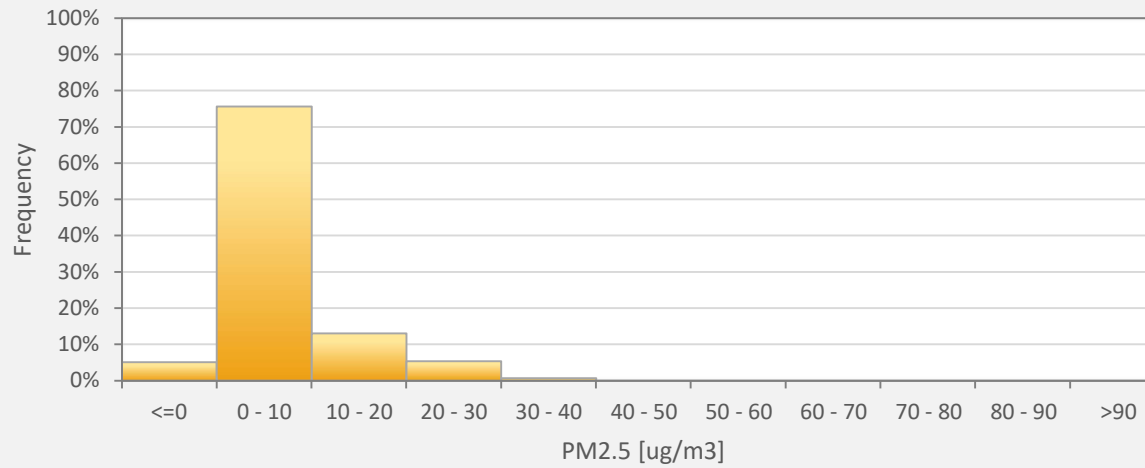
C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	N No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction /Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

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

Timeseries Chart of Hourly Average for PM2.5 - St. Lina Station



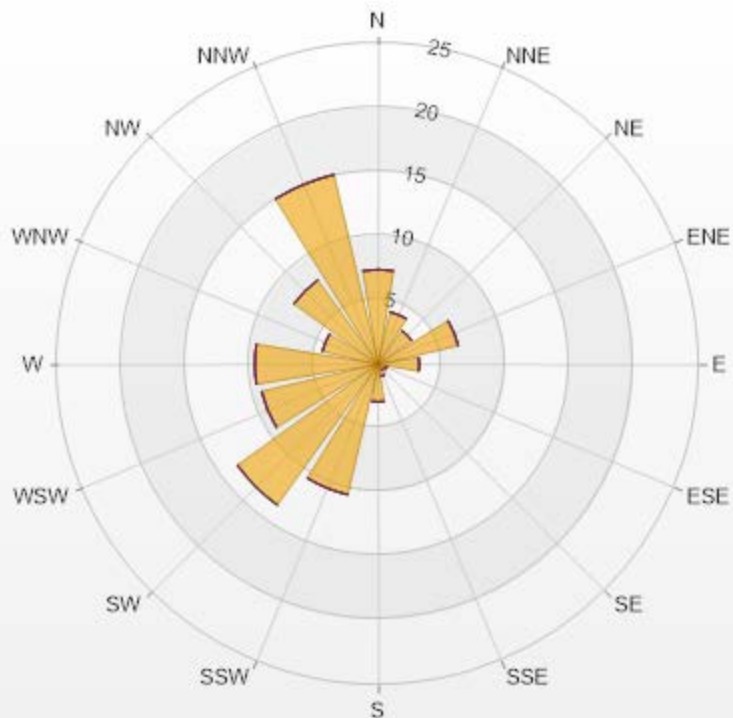
PM2.5[ug/m3(L)] Histogram: St. Lina Monthly: 11-2022 1 Hr.



Classes	PM2.5
<=0	5.15%
0 - 10	75.66%
10 - 20	13.07%
20 - 30	5.42%
30 - 40	0.70%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: St. Lina Poll.: St. Lina-PM2.5[ug/m3(L)] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 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	7.37	0	0	0	0	7.37
NNE	4.17	0	0	0	0	4.17
NE	3.2	0	0	0	0	3.2
ENE	6.4	0	0	0	0	6.4
E	3.2	0	0	0	0	3.2
ESE	0.7	0	0	0	0	0.7
SE	0.56	0	0	0	0	0.56
SSE	0.97	0	0	0	0	0.97
S	2.92	0	0	0	0	2.92
SSW	10.43	0	0	0	0	10.43
SW	13.49	0	0	0	0	13.49
WSW	9.32	0	0	0	0	9.32
W	9.6	0	0	0	0	9.6
WNW	4.45	0	0	0	0	4.45
NW	8.07	0	0	0	0	8.07
NNW	15.16	0	0	0	0	15.16
Summary	100	0	0	0	0	100




LICA-202211


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% Icon Classes ($\mu\text{g}/\text{m}^3$ (L))

100  0-50

0  50-80

0  80-120

0  120-240

0  >240.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Station - November 2022

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	100 %	on November 1 at hour 8	Hours in Service:	720
Maximum Daily Value:	#### %	on November 2	Hours of Data:	719
Minimum Hourly Value:	34 %	on November 19 at hour 15	Hours of Missing Data:	1
Minimum Daily Value:	53.8 %	on November 20	Hours of Calibration:	0
Monthly Average:	83.1 %		Operational Uptime:	99.9

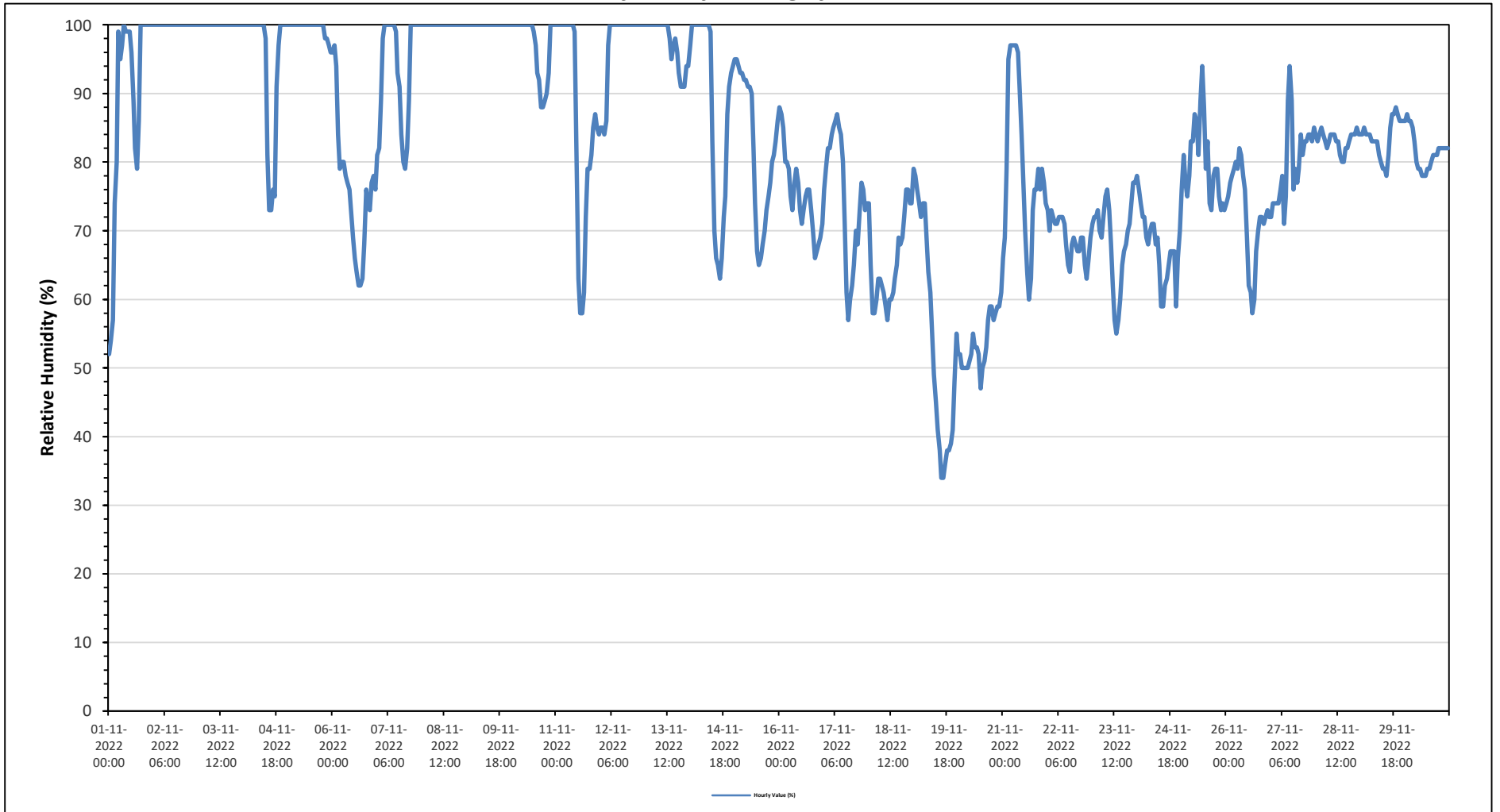
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Nov 1	52	54	57	74	80	99	95	97	100	99	99	99	96	89	82	79	86	100	100	100	100	100	100	100	52	100	89.0
Nov 2	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100.0
Nov 3	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 4	100	100	100	100	100	100	100	100	100	100	100	100	100	98	81	73	76	75	91	97	100	100	100	100	73	100	94.3
Nov 5	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	98	98	97	96	96	100	99.5
Nov 6	96	97	94	84	79	80	80	78	77	76	73	69	66	64	62	62	63	68	76	74	73	77	78	76	62	97	75.9
Nov 7	81	82	89	98	100	100	100	100	100	100	99	93	91	84	80	79	82	89	100	100	100	100	100	100	79	100	93.6
Nov 8	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 9	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 10	100	100	100	100	100	100	100	100	100	100	100	100	100	99	97	93	92	88	88	89	90	93	100	100	88	100	97.0
Nov 11	100	100	100	100	100	100	100	100	100	100	99	82	63	58	58	61	72	79	79	81	85	87	85	84	58	100	86.4
Nov 12	85	85	84	86	97	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	84	100	97.4
Nov 13	100	100	100	100	100	100	100	100	100	100	100	100	100	98	95	97	98	96	93	91	91	91	94	94	91	100	97.4
Nov 14	97	100	100	100	100	100	100	100	100	100	99	83	70	Y	65	63	66	72	75	87	91	93	94	63	100	89.3	
Nov 15	95	95	94	93	93	92	92	91	91	90	82	74	67	65	66	68	70	73	75	77	80	81	83	86	65	95	82.2
Nov 16	88	87	85	80	80	79	75	73	77	79	77	73	71	73	75	76	76	73	70	66	67	68	69	71	66	88	75.3
Nov 17	76	79	82	82	84	85	86	87	85	84	80	71	61	57	60	62	65	70	68	73	77	76	73	74	57	87	74.9
Nov 18	74	65	58	58	60	63	63	62	61	59	57	60	61	63	65	69	68	69	72	76	76	74	74	74	57	76	65.3
Nov 19	79	78	76	74	72	74	74	69	64	61	55	49	45	41	38	34	34	36	38	38	39	41	48	55	34	79	54.7
Nov 20	52	52	50	50	50	50	51	52	55	53	53	52	47	50	51	53	57	59	59	57	58	59	59	61	47	61	53.8
Nov 21	66	69	79	95	97	97	97	97	96	91	84	77	70	64	60	63	73	76	76	79	76	79	77	74	60	97	79.7
Nov 22	73	70	73	72	71	71	72	72	72	71	68	65	64	68	69	68	67	67	69	69	65	63	66	69	63	73	68.9
Nov 23	71	72	72	73	70	69	72	75	76	73	68	62	57	55	57	60	65	67	68	70	71	74	77	77	55	77	68.8
Nov 24	78	76	74	72	72	69	68	70	71	71	68	69	65	59	59	62	63	65	67	67	67	59	66	70	59	78	67.8
Nov 25	76	81	77	75	78	83	83	87	86	81	89	94	88	79	83	74	73	78	79	75	73	74	73	73	73	94	79.9
Nov 26	74	75	77	78	79	80	79	82	81	78	76	69	62	61	58	60	67	70	72	72	71	72	73	72	58	82	72.4
Nov 27	72	74	74	74	74	76	78	71	75	89	94	89	76	79	77	79	84	81	83	83	84	84	83	85	71	94	79.9
Nov 28	84	83	84	85	84	83	82	83	84	84	84	83	83	81	80	80	82	82	83	84	84	84	85	84	80	85	83.1
Nov 29	84	84	85	84	84	84	83	83	83	83	81	80	79	78	81	85	87	87	88	87	86	86	86	86	78	88	83.6
Nov 30	86	87	86	86	85	83	80	79	79	78	78	78	79	79	80	81	81	81	82	82	82	82	82	82	78	87	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	100	100	100
Diurnal Average	84.6	84.8	85.0	85.8	86.3	87.2	87.0	86.9	87.1	86.7	85.5	82.9	79.0	76.4	75.8	75.8	78.0	79.8	81.5	82.1	82.9	83.4	84.1	84.6			

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

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

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

Timeseries Chart of Hourly Average for RH - St. Lina Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Station - November 2022

Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	944 mb on November 17 at hour 1	Hours in Service:	720
Maximum Daily Value:	938 mb on November 17	Hours of Data:	720
Minimum Hourly Value:	893 mb on November 5 at hour 2	Hours of Missing Data:	0
Minimum Daily Value:	901 mb on November 4	Hours of Calibration:	0
Monthly Average:	920 mb	Operational Uptime:	100.0

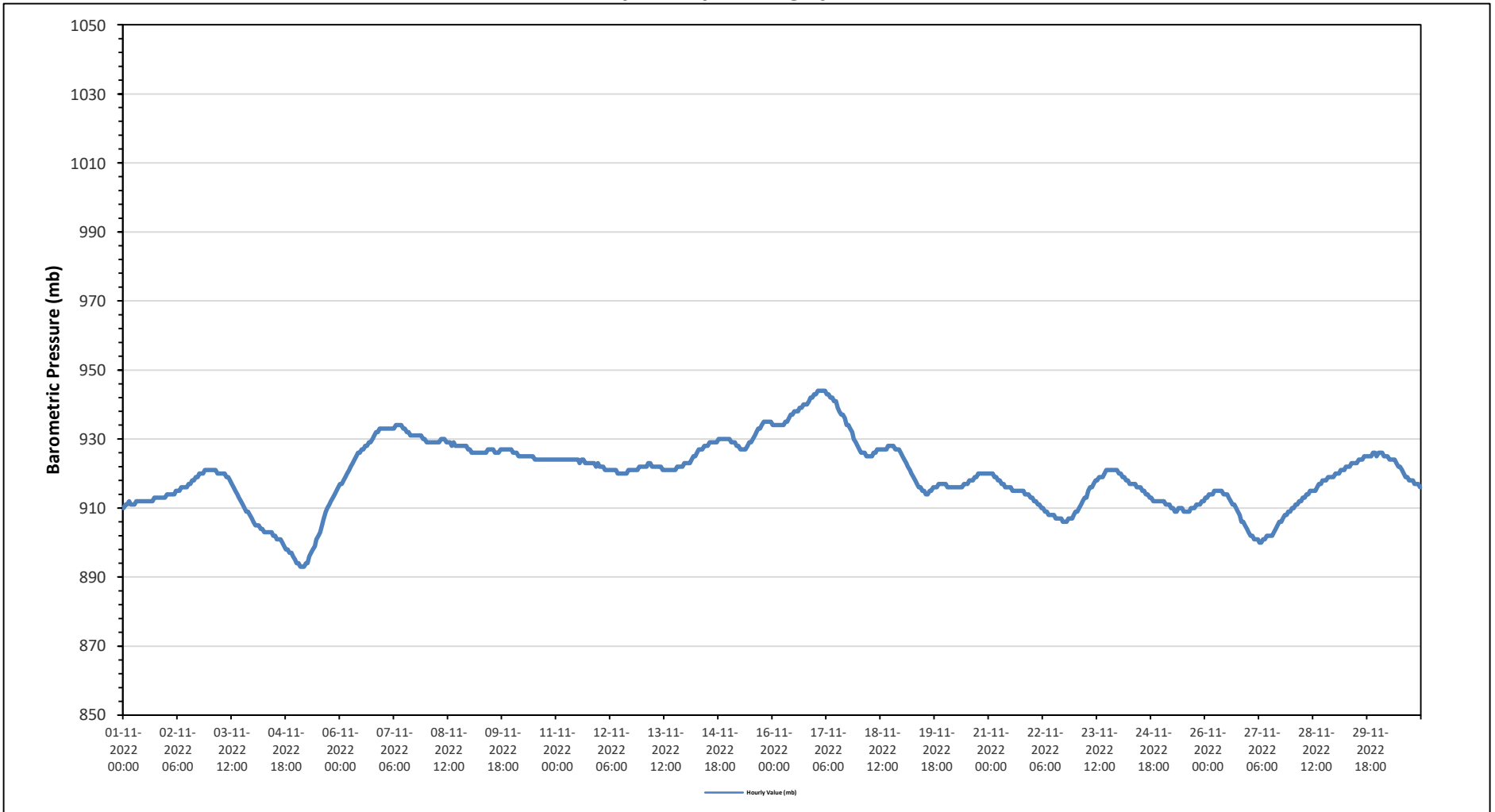
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Nov 1	910	911	911	912	911	911	911	912	912	912	912	912	912	912	912	912	912	913	913	913	913	913	913	913	910	913	912.0
Nov 2	914	914	914	914	914	915	915	915	916	916	916	916	917	917	918	918	919	919	920	920	921	921	921	921	914	921	917.1
Nov 3	921	921	921	921	920	920	920	920	920	919	919	918	917	916	915	914	913	912	911	910	909	909	908	907	907	921	915.9
Nov 4	906	905	905	905	904	904	903	903	903	903	903	902	902	901	901	901	900	899	898	898	897	897	896	895	895	906	901.3
Nov 5	894	894	893	893	893	894	894	896	897	898	899	901	902	903	905	907	909	910	911	912	913	914	915	916	893	916	902.6
Nov 6	917	917	918	919	920	921	922	923	924	925	926	926	927	927	928	928	929	929	930	931	932	932	933	933	917	933	925.7
Nov 7	933	933	933	933	933	933	933	934	934	934	933	933	932	932	931	931	931	931	931	931	931	931	930	930	930	934	932.3
Nov 8	929	929	929	929	929	929	929	929	930	930	930	929	929	929	928	929	928	928	928	928	928	928	928	927	927	930	928.7
Nov 9	927	926	926	926	926	926	926	926	926	926	926	927	927	927	927	926	926	926	927	927	927	927	927	927	926	927	926.5
Nov 10	926	926	926	925	925	925	925	925	925	925	925	924	924	924	924	924	924	924	924	924	924	924	924	924	924	926	924.6
Nov 11	924	924	924	924	924	924	924	924	924	924	924	924	923	923	923	923	923	923	923	923	923	922	923	922	922	924	923.6
Nov 12	922	922	922	921	921	921	921	921	921	921	920	920	920	920	920	921	921	921	921	921	921	921	922	922	920	922	921.0
Nov 13	922	922	922	923	923	922	922	922	922	922	922	921	921	921	921	921	921	921	921	922	922	922	922	923	921	923	921.8
Nov 14	923	923	923	924	925	925	926	927	927	927	928	928	928	929	929	929	929	930	930	930	930	930	930	930	923	930	927.5
Nov 15	930	929	929	929	928	928	927	927	927	927	928	929	929	930	931	932	933	933	934	935	935	935	935	935	927	935	930.6
Nov 16	934	934	934	934	934	934	934	935	935	935	936	937	937	938	938	938	939	939	940	940	940	941	942	942	934	943	937.4
Nov 17	943	944	944	944	944	944	943	943	942	941	941	939	938	937	937	936	934	934	933	932	930	929	928	928	928	944	938.4
Nov 18	927	926	926	926	925	925	925	925	926	926	927	927	927	927	927	928	928	928	928	928	927	927	927	926	925	928	926.6
Nov 19	925	924	923	922	921	920	919	918	917	916	916	915	915	914	914	915	915	916	916	916	917	917	917	917	914	925	917.7
Nov 20	917	916	916	916	916	916	916	916	916	916	917	917	917	918	918	918	919	919	920	920	920	920	920	916	920	917.7	
Nov 21	920	920	920	919	919	918	918	917	917	916	916	916	916	915	915	915	915	915	915	915	914	914	914	913	913	920	916.3
Nov 22	913	912	912	911	911	910	910	909	908	908	908	908	907	907	907	907	906	906	906	906	907	907	907	908	906	913	908.5
Nov 23	909	909	910	911	912	913	913	915	916	916	917	918	918	919	919	919	920	921	921	921	921	921	921	921	909	921	916.7
Nov 24	920	920	919	919	918	918	917	917	917	916	916	916	915	915	915	914	914	913	913	912	912	912	912	912	912	920	915.6
Nov 25	912	912	911	911	911	910	910	909	909	910	910	909	909	909	909	910	910	910	911	911	911	912	912	909	912	910.3	
Nov 26	913	913	914	914	914	915	915	915	915	915	914	914	913	912	911	911	910	909	908	906	906	905	904	904	904	915	911.7
Nov 27	903	902	902	901	901	901	900	900	901	901	902	902	902	902	903	904	905	906	906	907	908	908	909	909	900	909	903.5
Nov 28	910	910	911	911	912	912	913	913	914	914	915	915	915	915	916	917	917	918	918	918	919	919	919	919	910	919	915.0
Nov 29	920	920	920	921	921	921	922	922	922	923	923	923	923	924	924	924	925	925	925	925	925	926	926	925	920	926	923.1
Nov 30	926	926	926	925	925	925	924	924	924	924	923	922	922	921	920	919	919	918	918	918	917	917	916	916	916	926	921.5
Diurnal Maximum	943	944	944	944	944	944	943	943	942	942	941	941	939	938	938	939	939	940	940	940	941	942	942	943			
Diurnal Average	920	919	919	919	919	919	919	919	919	920	920	920	920	920	920	920	920	920	920	920	920	920	920	920			

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

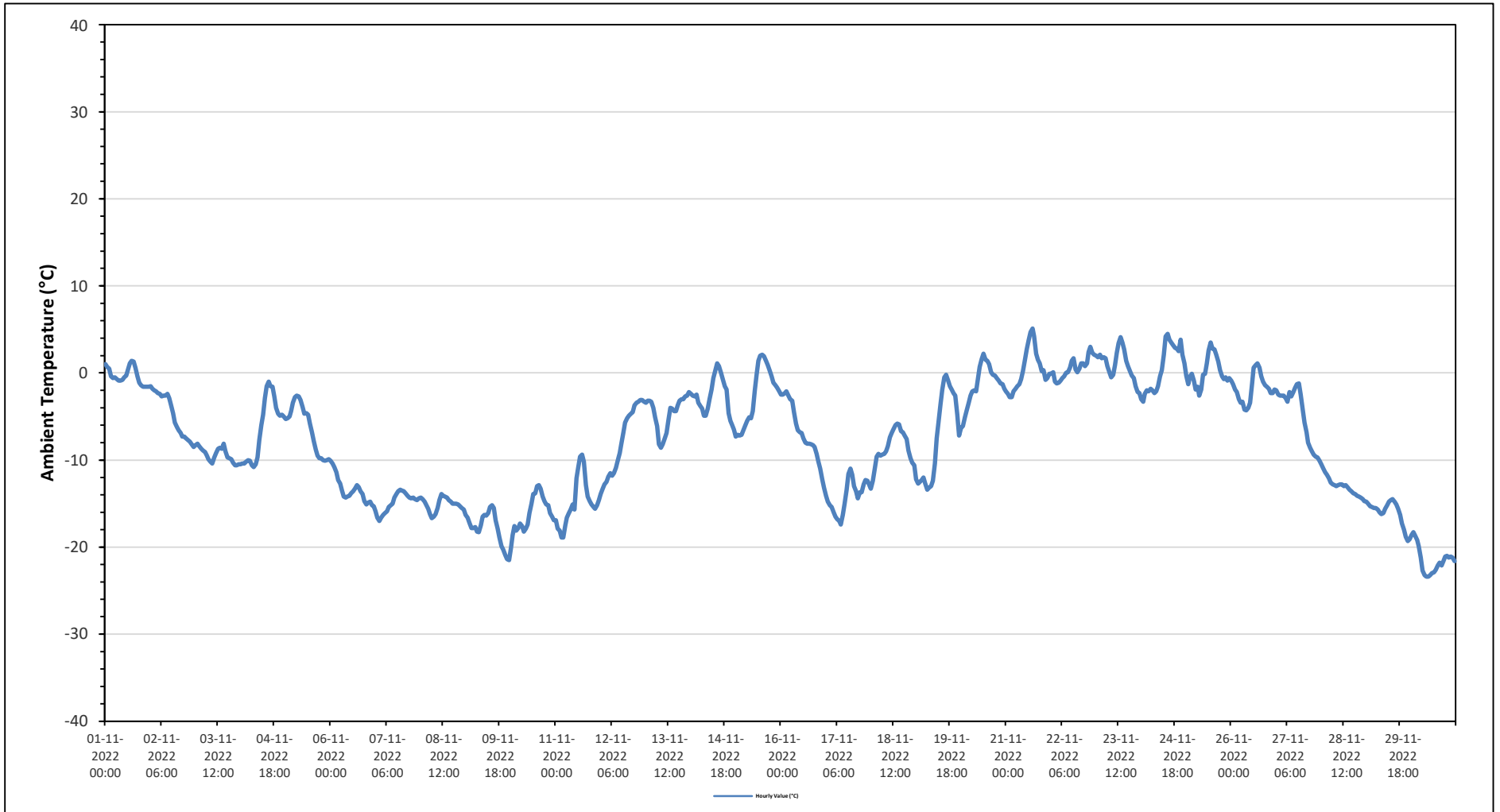
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

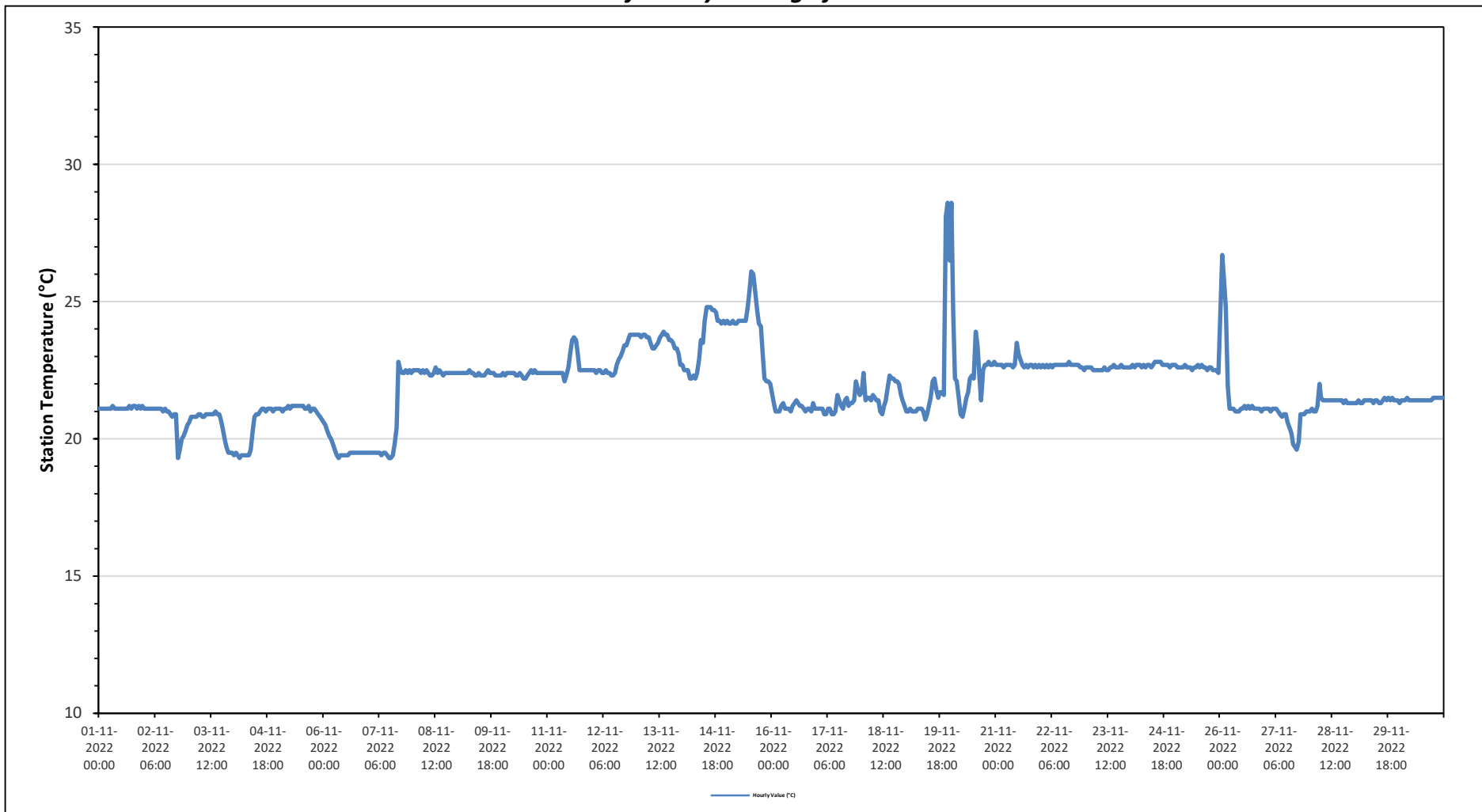
Timeseries Chart of Hourly Average for BP - St. Lina Station



Timeseries Chart of Hourly Average for AT - St. Lina Station



Timeseries Chart of Hourly Average for ST - St. Lina Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Station - November 2022

Summary of Hourly Averages

PRECIPITATION in mm

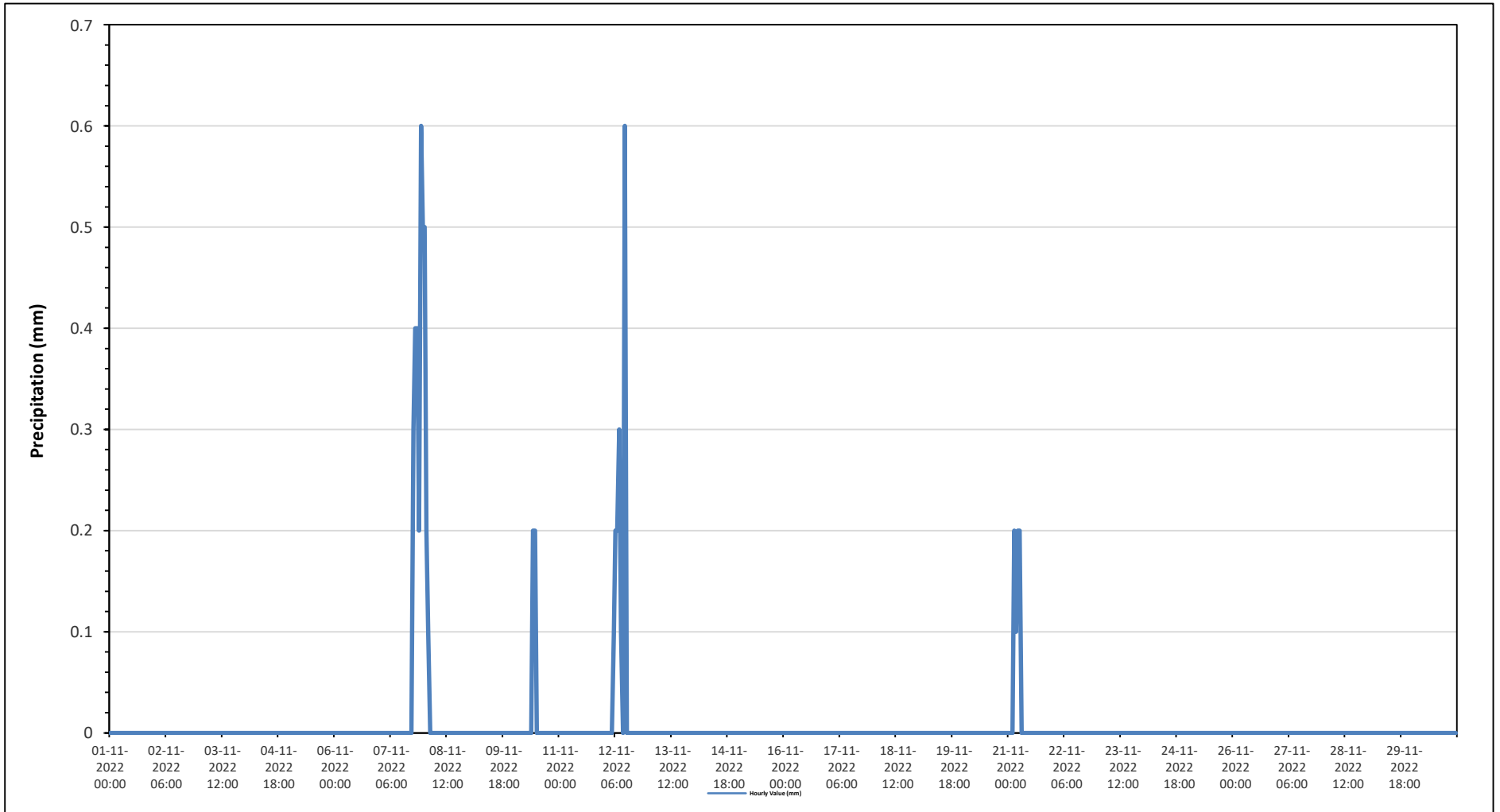
Maximum Hourly Value:	0.6 mm on November 7 at hour 22	Hours in Service:	720
Maximum Daily Value:	0.1 mm on November 7	Hours of Data:	720
Minimum Hourly Value:	0.0 mm on November 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 mm on November 1	Hours of Calibration:	0
Monthly Total:	5.8 mm	Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Total	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
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	0	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	0	0	0.0	0.0	0.0
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	0.3	0.4	0.4	0.2	0.6	0.5	0.0	0.6	0.1
Nov 8	0.5	0.2	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	0.5	0.0
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	0.2	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.2	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	0.1	0.2	0.2	0.3	0.1	0	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.6	0.1
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	0	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	0.2	0.1	0.2	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.2	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	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	0	0	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	0.5	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.1	0.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.4	0.2	0.6	0.5			
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	N No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction /Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

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

Timeseries Chart of Hourly Average for Precipitation - St. Lina Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Station - November 2022

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

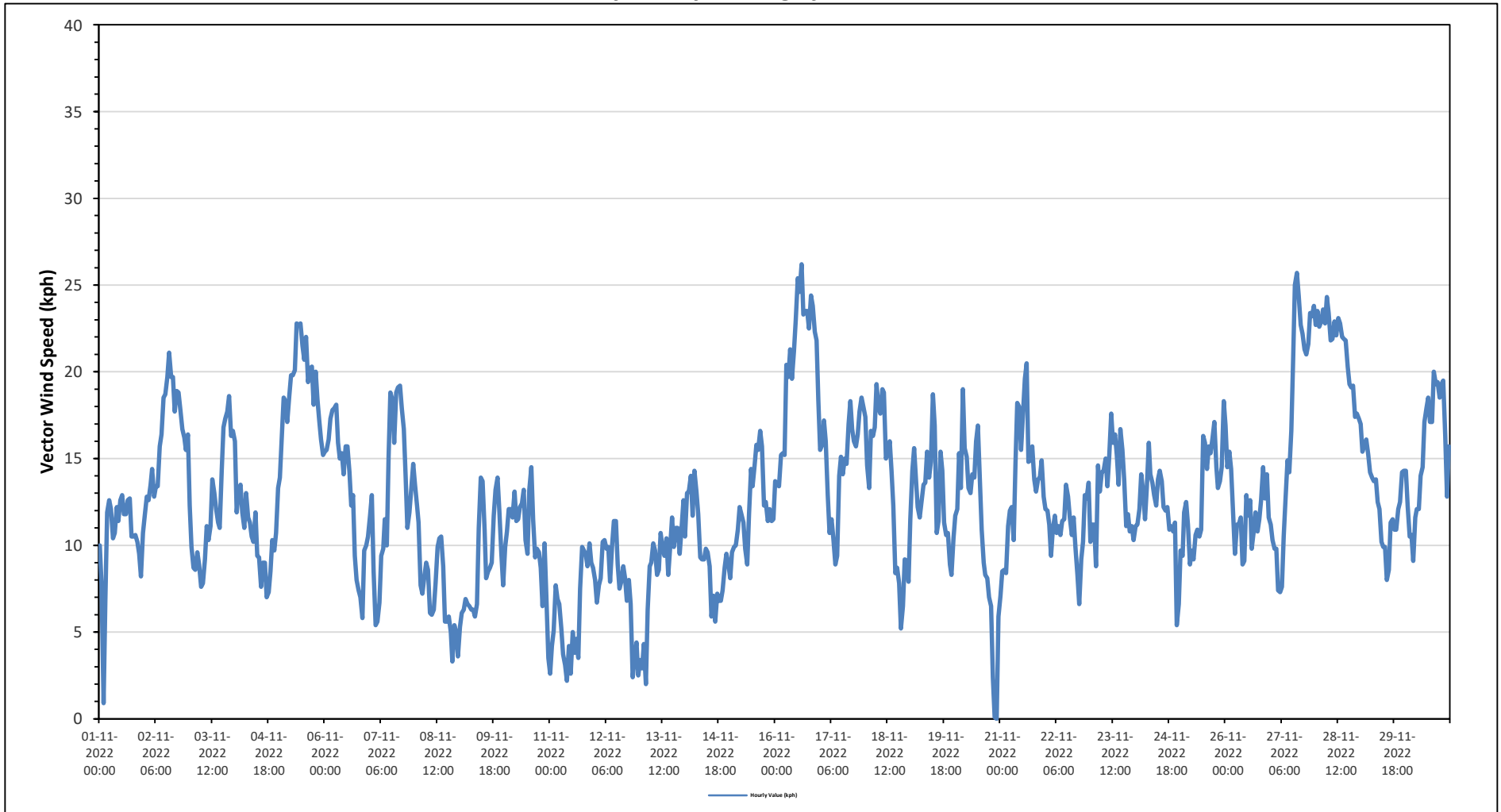
Maximum Hourly Value:	26.2 kph on November 16 at hour 14	Hours in Service:	720
Maximum Daily Value:	21.5 kph on November 28	Hours of Data:	720
Minimum Hourly Value:	0.0 kph on November 20 at hour 22	Hours of Missing Data:	0
Minimum Daily Value:	3.8 kph on November 11	Hours of Calibration:	0
Monthly Average:	4.7 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	10.0	7.7	0.9	6.9	11.9	12.6	12.1	10.4	10.7	12.2	11.4	12.6	12.9	11.8	11.8	12.6	12.7	10.5	10.5	10.6	10.2	9.5	8.2	10.7	0.9	12.9	9.8
Nov 2	11.7	12.8	12.6	13.5	14.4	12.8	13.4	13.4	15.7	16.4	18.5	18.7	19.7	21.1	19.7	19.7	17.7	18.9	18.8	17.7	16.7	16.2	15.5	16.4	11.7	21.1	15.6
Nov 3	12.3	9.9	8.7	8.6	9.6	8.9	7.6	7.8	9.2	11.1	10.3	11.1	13.8	13.0	12.1	11.3	11.0	14.3	16.8	17.3	17.7	18.6	16.3	16.6	7.6	18.6	7.2
Nov 4	16.0	11.9	13.1	13.5	11.9	11.0	13.0	11.6	11.3	10.5	10.2	11.9	9.4	9.3	7.6	9.0	9.0	7.0	7.3	8.5	10.3	9.7	10.7	13.3	7.0	16.0	7.0
Nov 5	13.9	16.4	18.5	18.3	17.1	18.6	19.8	19.8	20.1	22.8	22.7	22.8	21.5	20.7	22.0	19.4	20.2	20.3	18.1	20.0	18.4	17.2	16.1	15.2	13.9	22.8	17.3
Nov 6	15.4	15.5	16.1	17.3	17.8	17.9	18.1	15.9	15.0	15.3	14.1	15.7	15.7	14.2	12.3	12.9	9.4	8.0	7.4	7.0	5.8	9.7	10.0	10.5	5.8	18.1	12.8
Nov 7	11.7	12.9	8.5	5.4	5.6	6.7	9.4	9.8	11.5	10.0	15.1	18.8	18.4	15.9	18.8	19.1	19.2	17.9	16.7	14.0	11.0	11.9	13.2	14.7	5.4	19.2	12.7
Nov 8	13.5	12.3	11.3	7.7	7.2	8.1	9.0	8.6	6.1	6.0	6.3	7.8	9.9	10.4	10.5	8.8	5.6	5.6	5.9	5.0	3.3	5.4	5.0	3.6	3.3	13.5	5.4
Nov 9	5.3	6.1	6.3	6.9	6.6	6.5	6.3	6.3	5.9	6.6	11.0	13.9	13.7	10.9	8.1	8.5	8.7	9.0	11.7	13.2	13.9	12.0	9.5	7.7	5.3	13.9	8.7
Nov 10	9.9	10.8	12.1	12.1	11.6	13.1	11.4	11.5	12.2	12.4	13.2	10.3	9.5	13.2	14.5	11.5	9.3	9.8	9.6	8.7	6.5	10.1	7.1	3.5	3.5	14.5	10.1
Nov 11	2.6	4.2	5.1	7.7	6.9	6.6	5.2	3.7	3.1	2.2	4.2	2.6	5.0	3.8	4.6	3.5	7.5	9.9	9.7	9.5	8.8	10.1	9.0	8.7	2.2	10.1	3.8
Nov 12	8.0	6.7	7.7	8.1	10.2	10.3	9.8	9.9	7.9	10.0	11.4	11.4	8.9	7.5	7.9	8.8	8.1	6.8	8.0	6.6	2.4	3.4	4.4	2.5	2.4	11.4	6.1
Nov 13	3.4	2.9	4.3	2.0	6.3	8.8	9.0	10.1	9.7	8.3	8.6	10.7	9.8	9.4	10.4	8.3	10.0	11.6	9.9	11.0	11.0	9.5	10.9	12.6	2.0	12.6	7.7
Nov 14	10.5	13.0	13.1	14.0	11.7	14.3	13.1	11.8	9.3	9.2	9.2	9.8	9.6	8.8	5.9	7.1	5.6	7.2	6.8	6.8	7.4	8.7	9.5	9.0	5.6	14.3	8.1
Nov 15	8.1	9.6	9.9	10.0	10.9	12.2	11.8	11.3	9.8	8.9	11.8	14.4	13.4	14.6	15.8	15.5	16.6	15.7	12.3	12.5	11.4	12.1	11.4	11.5	8.1	16.6	8.0
Nov 16	13.7	13.5	13.4	15.2	15.3	15.2	20.4	19.7	21.3	19.6	21.2	23.0	25.4	24.6	26.2	23.3	23.5	23.5	22.5	24.4	23.8	22.3	21.8	18.3	13.4	26.2	20.0
Nov 17	15.5	15.8	17.2	16.0	12.9	10.7	11.5	10.4	8.9	9.4	14.0	15.1	14.1	15.0	14.7	17.0	18.3	16.7	16.0	15.7	16.4	17.7	18.5	18.0	8.9	18.5	12.1
Nov 18	17.4	14.6	13.3	16.6	16.3	16.8	19.3	17.9	17.6	19.0	18.8	15.0	15.3	16.0	14.3	12.3	8.4	8.7	7.8	5.2	6.5	9.2	9.1	7.9	5.2	19.3	11.7
Nov 19	11.5	14.3	15.6	13.6	12.2	11.6	12.5	13.5	13.6	15.4	13.9	14.8	18.7	16.9	10.7	11.4	15.4	14.3	11.3	10.6	10.7	8.9	8.3	10.4	8.3	18.7	10.5
Nov 20	11.7	12.1	15.3	13.3	19.0	15.6	15.1	13.3	13.0	14.1	13.9	16.0	16.9	13.7	10.9	9.0	8.3	8.1	7.0	6.5	2.4	0.1	0.0	5.9	0.0	19.0	8.8
Nov 21	7.1	8.5	8.6	8.4	11.1	12.0	12.2	10.3	14.7	18.2	18.0	15.5	17.4	19.6	20.5	14.8	14.9	15.7	13.8	13.1	13.8	13.9	14.9	12.8	7.1	20.5	12.6
Nov 22	12.1	12.0	11.2	9.4	10.9	11.7	10.7	11.1	10.6	11.4	11.5	13.5	12.8	11.6	10.6	11.6	9.9	8.3	6.6	9.2	10.2	12.9	12.7	13.6	6.6	13.6	9.2
Nov 23	10.2	11.2	11.2	8.8	14.6	13.1	14.2	14.3	15.0	13.4	15.1	17.6	15.9	16.4	15.2	13.5	16.7	15.5	13.8	11.1	11.8	10.8	11.1	10.3	8.8	17.6	12.5
Nov 24	11.1	11.2	12.1	14.1	13.2	11.5	13.3	15.9	14.1	13.6	12.9	12.3	13.8	14.3	13.7	12.2	12.0	12.2	10.9	11.1	10.8	11.3	5.4	6.6	5.4	15.9	11.2
Nov 25	9.7	9.4	11.9	12.5	11.2	8.9	9.7	9.2	10.6	10.9	10.5	10.9	16.3	15.9	14.4	15.7	15.3	16.2	17.1	14.5	13.3	13.7	14.5	18.3	8.9	18.3	12.4
Nov 26	16.9	14.5	15.4	14.4	11.8	9.5	11.2	11.2	11.6	8.9	9.1	12.9	11.7	12.6	9.8	10.8	11.9	10.8	11.5	12.6	14.5	12.7	14.1	11.6	8.9	16.9	10.1
Nov 27	11.2	10.3	9.8	9.8	7.4	7.3	7.6	10.5	12.6	14.9	14.2	16.6	20.6	25.0	25.7	24.4	22.7	22.2	21.3	21.0	21.6	23.4	23.2	23.8	7.3	25.7	13.0
Nov 28	22.7	23.5	22.6	22.9	23.6	22.8	24.3	23.4	21.8	21.9	22.9	22.1	23.1	22.8	22.0	21.9	21.8	20.3	19.3	19.1	19.2	17.4	17.6	17.3	17.3	24.3	21.5
Nov 29	17.0	15.4	15.8	16.1	15.2	14.2	13.9	13.7	13.8	12.5	12.1	10.2	9.9	9.9	8.0	8.6	11.3	11.5	10.9	10.9	12.1	12.5	14.2	14.3	8.0	17.0	11.2
Nov 30	14.3	12.3	10.5	10.6	9.1	11.6	12.1	12.1	14.0	14.5	17.1	17.9	18.5	17.1	17.1	20.0	19.3	19.4	18.5	19.3	19.5	16.3	12.8	15.7	9.1	20.0	15.3
Diurnal Maximum	23	24	23	23	24	23	24	23	22	23	23	25	25	26	24	24	24	24	23	24	24	23	23	24			
Diurnal Average	11.8	11.7	11.7	11.8	12.1	12.0	12.6	12.3	12.4	12.7	13.4	14.2	14.7	14.5	13.9	13.4	13.3	13.2	12.6	12.4	12.0	12.2	11.8	12.0			

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

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

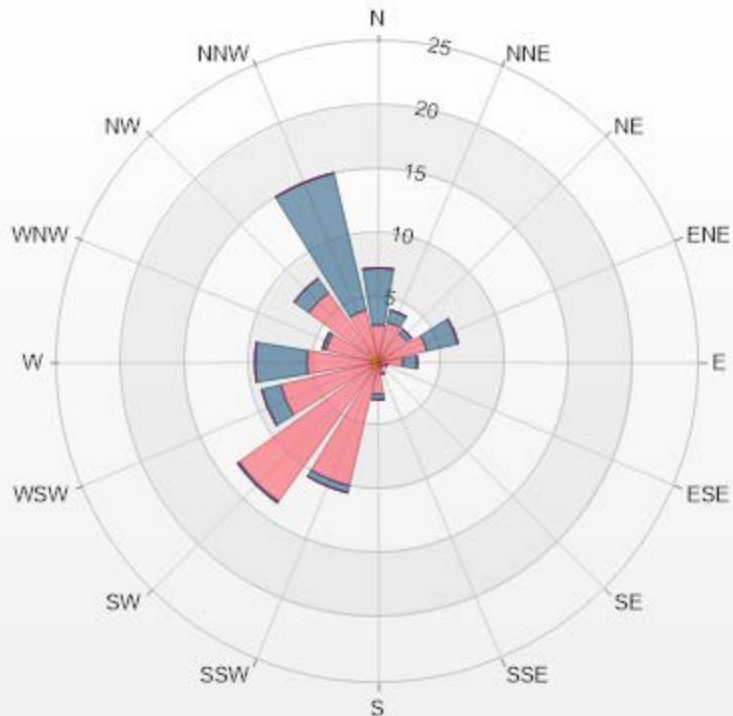
Timeseries Chart of Hourly Average for VWS - St. Lina Station



Wind: St. Lina Monitor: WDS [kph] Monthly: 11-2022 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.

Calm: 0.42% 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	2.5	4.44	0	0	7.36
NNE	0.42	2.78	0.97	0	0	4.17
NE	0.28	2.5	0.42	0	0	3.2
ENE	0	3.89	2.5	0	0	6.39
E	0	1.94	1.11	0	0	3.05
ESE	0.14	0.56	0	0	0	0.7
SE	0.14	0.28	0	0	0	0.42
SSE	0.28	0.69	0	0	0	0.97
S	0.28	2.22	0.42	0	0	2.92
SSW	0.56	9.31	0.56	0	0	10.43
SW	0.69	12.64	0.14	0	0	13.47
WSW	0.28	7.5	1.53	0	0	9.31
W	0.56	5	4.03	0	0	9.59
WNW	0.56	3.61	0.28	0	0	4.45
NW	0.97	5.69	1.39	0	0	8.05
NNW	0.28	3.89	10.97	0	0	15.14
Summary	5.86	65	28.76	0	0	100



LICA-202211



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Station - November 2022

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:	303 (WNW) degree	Hours in Service:	720
		Hours of Data:	720
		Hours of Missing Data:	0
		Hours of Calibration:	0
		Operational Uptime:	100.0

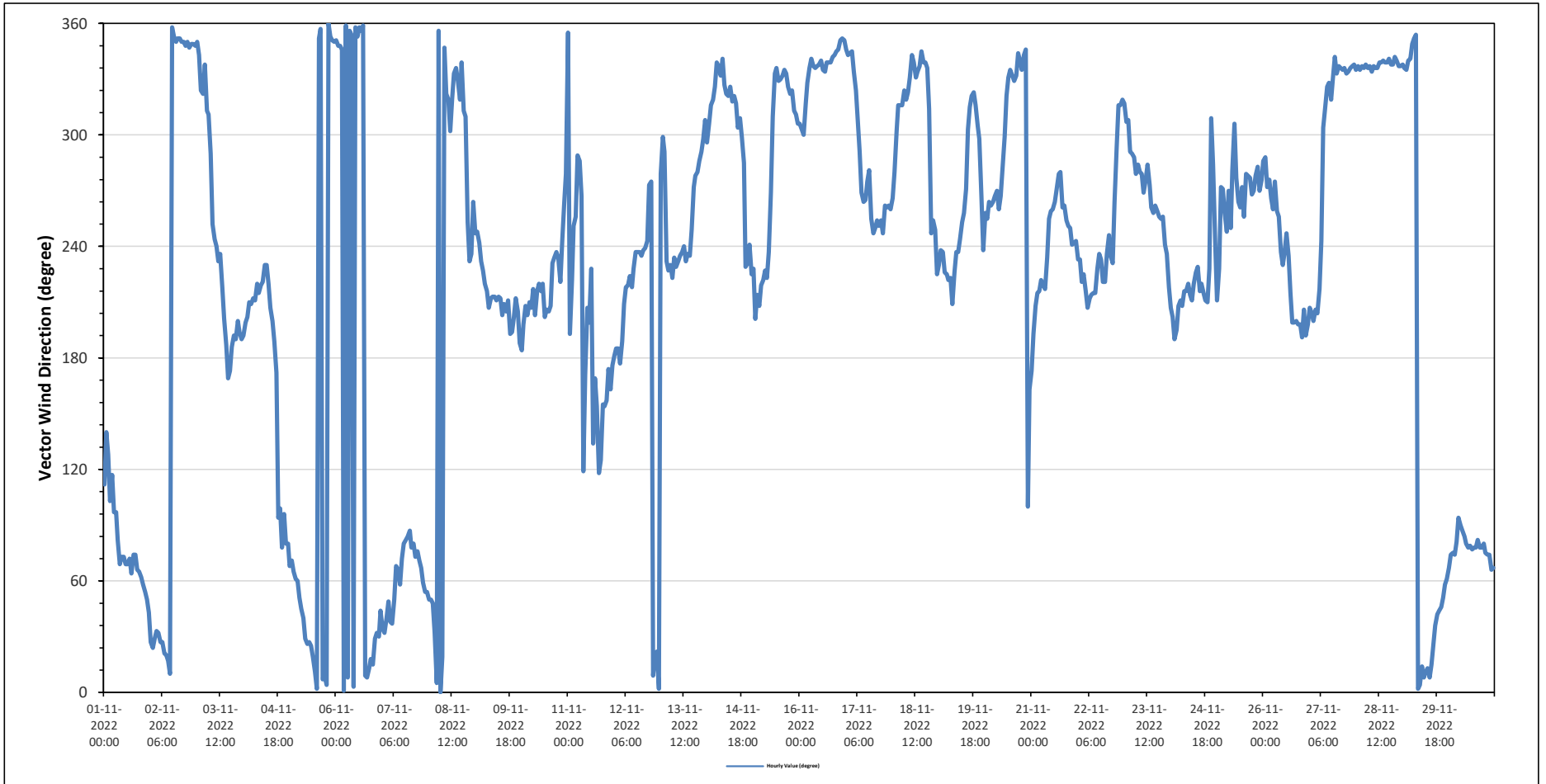
Day	Hourly Period Starting at (MST)																							Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant	
Nov 1	ESE	SE	SE	ESE	ESE	E	E	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	NE	NE	76	ENE	
Nov 2	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	N	N	N	N	N	NNW	N	NNW	NNW	NNW	NNW	NNW	3	N	
Nov 3	N	NNW	NW	NW	NNW	NW	NW	WNW	WSW	WSW	WSW	SW	SW	SW	SSW	S	SSE	S	S	S	S	SSW	SSW	S	223	SW	
Nov 4	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	E	E	ENE	E	E	E	192	S	
Nov 5	ENE	ENE	ENE	ENE	ENE	NE	NE	NE	NNE	NNE	NNE	NNE	NNE	N	N	N	N	N	N	N	N	N	N	N	23	NNE	
Nov 6	N	NNW	NNW	NNW	N	N	N	N	N	N	N	N	N	N	N	N	N	NNE	NNE	NNE	NNE	NNE	NNE	NE	2	N	
Nov 7	NE	NNE	NE	NE	NE	NE	NE	ENE	ENE	ENE	ENE	E	E	E	E	ENE	E	ENE	ENE	ENE	ENE	ENE	NE	NE	66	ENE	
Nov 8	NE	NE	NE	NNE	N	N	N	NNE	NNW	NW	NW	WNW	NW	NNW	NNW	NNW	NW	NNW	NW	NW	WSW	SW	SW	W	347	NNW	
Nov 9	WSW	WSW	WSW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	S	211	SSW	
Nov 10	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	216	SW	
Nov 11	N	S	SW	WSW	WSW	WNW	WNW	W	ESE	S	SSW	SSW	SW	SE	SSE	SSE	ESE	SE	SSE	SSE	SSE	S	SSE	S	181	S	
Nov 12	S	S	S	S	S	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	W	W	N	NNE	NNE	N	224	SW		
Nov 13	W	WNW	WNW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	SW	SW	SW	WSW	W	W	W	WNW	WNW	WNW	NW	256	WSW		
Nov 14	WNW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NW	NW	WNW	NW	WNW	WNW	SW	SW	WSW	SW	310	NW		
Nov 15	SW	SSW	SSW	SSW	SW	SW	SW	SW	SW	W	NW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NW	NW	295	WNW		
Nov 16	NW	WNW	WNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	N	337	NNW	
Nov 17	NNW	NNW	NNW	NNW	NNW	NW	NW	WNW	W	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	W	279	W	
Nov 18	W	W	WNW	NW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	WSW	WSW	WSW	SW	316	NW	
Nov 19	SW	SW	SW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	256	WSW	
Nov 20	WSW	WSW	W	W	W	W	W	WSW	W	W	WNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	E	SSE	291	WNW	
Nov 21	S	S	SSW	SSW	SW	SW	SW	SW	SW	WSW	WSW	W	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	247	WSW	
Nov 22	SW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	239	WSW	
Nov 23	NW	NW	NW	WNW	WNW	WNW	W	WNW	W	W	W	WNW	W	W	WSW	W	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	272	W	
Nov 24	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	217	SW	
Nov 25	SSW	SW	W	W	WSW	WSW	W	WSW	W	NW	W	W	W	W	WSW	W	W	W	W	W	W	W	W	W	269	W	
Nov 26	WNW	WNW	W	W	W	WSW	W	WSW	WSW	SW	SW	SW	WSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	S	SSW	235	SW	
Nov 27	SSW	SSW	SSW	SSW	SSW	SW	WSW	WNW	NW	NW	NNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	323	NW	
Nov 28	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	337	NNW
Nov 29	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	N	NNE	N	NNE	NNE	N	NNE	NNE	NE	NE	NE	NE	NE	ENE	ENE	10	N	
Nov 30	ENE	ENE	ENE	ENE	E	E	E	E	E	E	ENE	ENE	ENE	ENE	ENE	E	ENE	ENE	E	ENE	ENE	ENE	ENE	ENE	78	ENE	

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

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

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

Timeseries Chart of Hourly Average for VWD - St. Lina Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Station - November 2022

Summary of Hourly Averages

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

WIND SPEED																																																				
Maximum Hourly Value:		26.2 kph on November 16 at hour 14										Hours in Service:		720																																						
Maximum Daily Value:		21.5 kph on November 28										Hours of Data:		720																																						
Minimum Hourly Value:		0.0 kph on November 20 at hour 22										Hours of Missing Data:		0																																						
Minimum Daily Value:		3.8 kph on November 11										Hours of Calibration:		0																																						
Monthly Average:		4.7 kph										Operational Uptime:		100																																						
WIND DIRECTION																																																				
Monthly Average:		303 (WNW degree)																																																		
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	10.0	7.7	0.9	6.9	11.9	12.6	12.1	10.4	10.7	12.2	11.4	12.6	12.9	11.8	11.8	12.6	12.7	10.5	10.5	10.6	10.2	9.5	8.2	10.7	ESE	SE	SE	ESE	ESE	E	E	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	NE	NE	NE	0.9	12.9	9.8		
Nov 2	11.7	12.8	12.6	13.5	14.4	12.8	13.4	13.4	15.7	16.4	18.5	18.7	19.7	21.1	19.7	19.7	17.7	18.9	18.8	17.7	16.7	16.2	15.5	16.4	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	N	N	N	N	NNW	N	NNW	NNW	NNW	NNW	NNW	NNW	11.7	21.1	15.6	
Nov 3	12.3	9.9	8.7	8.6	9.6	8.9	7.6	7.8	9.2	11.1	10.3	11.1	13.8	13.0	12.1	11.3	11.0	14.3	16.8	17.3	17.7	18.6	16.3	16.6	N	NNW	NW	NW	NNW	NW	NW	WSW	WSW	WSW	SW	SW	SW	SSW	S	SSE	S	S	S	S	SSW	SSW	S	S	7.6	18.6	7.2	
Nov 4	16.0	11.9	13.1	13.5	11.9	13.0	11.6	11.3	10.5	10.2	11.9	9.4	9.3	7.6	9.0	9.0	7.0	7.3	8.5	10.3	9.7	10.7	13.3	S	SSW	SSW	SSW	SSW	SSW	SSW	SW	SSW	SW	SW	SW	SW	SSW	SSW	S	S	E	E	ENE	E	E	E	7.0	16.0	7.0			
Nov 5	13.9	16.4	18.5	18.3	17.1	18.6	19.8	19.8	20.1	22.8	22.7	22.8	21.5	20.7	22.0	19.4	20.2	20.3	18.1	20.0	18.4	17.2	16.1	15.2	ENE	ENE	ENE	ENE	NE	NE	NE	NNE	NNE	NNE	NNE	N	N	N	N	N	N	N	N	N	N	N	N	N	N	13.9	22.8	17.3
Nov 6	15.4	15.5	16.1	17.3	17.8	17.9	18.1	15.9	15.0	15.3	14.1	15.7	15.7	14.2	12.3	12.9	9.4	8.0	7.4	7.0	5.8	9.7	10.0	10.5	N	NNW	NNW	NNW	N	N	N	N	N	N	N	N	N	N	N	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NE	5.8	18.1	12.8	
Nov 7	11.7	12.9	8.5	5.4	5.6	6.7	9.4	9.8	11.5	10.0	15.1	18.8	18.4	15.9	18.8	19.1	19.2	17.9	16.7	14.0	11.0	11.9	13.2	14.7	NE	NNE	NE	NE	NE	NE	NE	ENE	ENE	ENE	ENE	E	E	E	ENE	E	ENE	ENE	ENE	ENE	ENE	NE	NE	NE	NE	5.4	19.2	12.7
Nov 8	13.5	12.3	11.3	7.7	7.2	8.1	9.0	8.6	6.1	6.0	6.3	7.8	9.9	10.4	10.5	8.8	5.6	5.6	5.9	5.0	3.3	5.4	5.0	3.6	NE	NE	NE	NNE	N	N	NNE	NNW	NW	NNW	NW	NNW	NNW	NNW	NNW	NW	NW	WSW	SW	SW	W	W	W	W	3.3	13.5	5.4	
Nov 9	5.3	6.1	6.3	6.9	6.6	6.5	6.3	6.3	5.9	6.6	11.0	13.9	13.7	10.9	8.1	8.5	8.7	9.0	11.7	13.2	13.9	12.0	9.5	7.7	WSW	WSW	WSW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	S	5.3	13.9	8.7	
Nov 10	9.9	10.8	12.1	12.1	11.6	13.1	11.4	11.5	12.2	12.4	13.2	10.3	9.5	13.2	14.5	11.5	9.3	9.8	9.6	8.7	6.5	10.1	7.1	3.5	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	WSW	W	W	3.5	14.5	10.1	
Nov 11	2.6	4.2	5.1	7.7	6.9	6.6	5.2	3.7	3.1	2.2	4.2	2.6	5.0	3.8	4.6	3.5	7.5	9.9	9.7	9.5	8.8	10.1	9.0	8.7	N	S	SW	WSW	WSW	WNW	WNW	W	ESE	S	SSW	SSW	SW	SE	SSE	SSE	ESE	SE	SSE	SSE	S	SSE	S	2.2	10.1	3.8		
Nov 12	8.0	6.7	7.7	8.1	10.2	10.3	9.8	9.9	7.9	10.0	11.4	11.4	8.9	7.5	7.9	8.8	8.1	6.8	8.0	6.6	2.4	3.4	4.4	2.5	S	S	S	S	S	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	W	W	N	NNE	NNE	N	2.4	11.4	6.1		
Nov 13	3.4	2.9	4.3	2.0	6.3	8.8	9.0	10.1	9.7	8.3	8.6	10.7	9.8	9.4	10.4	8.3	10.0	11.6	9.9	11.0	11.0	9.5	10.9	12.6	W	WNW	WNW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	SW	SW	SW	WSW	W	W	W	WNW	WNW	WNW	NW	2.0	12.6	7.7	
Nov 14	10.5	13.0	13.1	14.0	11.7	14.3	13.1	11.8	9.3	9.2	9.2	9.8	9.6	8.8	5.9	7.1	5.6	7.2	6.8	6.8	7.4	8.7	9.5	9.0	WNW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NW	NW	WNW	NW	WNW	WNW	WNW	SW	SW	WSW	SW	5.6	14.3	8.1	
Nov 15	8.1	9.6	9.9	10.0	10.9	12.2	11.8	11.3	9.8	8.9	11.8	14.4	13.4	14.6	15.8	15.5	16.6	15.7	12.3	12.5	11.4	12.1	11.4	11.5	SW	SSW	SSW	SSW	SW	SW	SW	SW	SW	W	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NW	NW	8.1	16.6	8.0	
Nov 16	13.7	13.5	13.4	15.2	15.3	15.2	20.4	19.7	21.3	19.6	21.2	23.0	25.4	24.6	26.2	23.3	23.5	23.5	22.5	24.4	23.8	22.3	21.8	18.3	NW	NNW	WNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	13.4	26.2	20.0	
Nov 17	15.5	15.8	17.2	16.0	12.9	10.7	11.5	10.4	8.9	9.4	14.0	15.1	14.1	15.0	14.7	17.0	18.3	16.7	16.0	15.7	16.4	17.7	18.5	18.0	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	W	W	W	WSW	8.9	18.5	12.1			
Nov 18	17.4	14.6	13.3	16.6	16.3	16.8	19.3	17.9	17.6	19.0	18.8	15.0	15.3	16.0	14.3	12.3	8.4	8.7	7.8	5.2	6.5	9.2	9.1	7.9	W	W	WNW	NW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	WSW	WSW	WSW	WSW	5.2	19.3	11.7	
Nov 19	11.5	14.3	15.6	13.6	12.2	11.6	12.5	13.5	13.6	15.4	13.9	14.8	18.7	16.9	10.7	11.4	15.4	14.3	11.3	10.6	10.7	8.9	8.3	10.4	SW	SW	SW	SW	SW	SW	SSW	SW	SW	SW	WSW	WSW	WSW	W	WNW	NW	NW	NW	WNW	WNW	W	WSW	8.3	18.7	10.5			
Nov 20	11.7	12.1	15.3	13.3	19.0	15.6	15.1	13.3	13.0	14.1	13.9	16.0	16.9	13.7	10.9	9.0	8.3	8.1	7.0	6.5	2.4	0.1	0.0	5.9	WSW	WSW	W	W	W	W	WSW	W	W	WNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	0.0	19.0	8.8		



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Station - November 2022

Summary of Hourly Averages

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

WIND SPEED		Maximum Hourly Value: 26.2 kph on November 16 at hour 14		Hours in Service: 720																								
WIND DIRECTION		Maximum Daily Value: 21.5 kph on November 28		Hours of Data: 720																								
		Minimum Hourly Value: 0.0 kph on November 20 at hour 22		Hours of Missing Data: 0																								
		Minimum Daily Value: 3.8 kph on November 11		Hours of Calibration: 0																								
		Monthly Average: 4.7 kph		Operational Uptime: 100																								
Monthly Average: 303 (WNW degree)																												
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 21	7.1	8.5	8.6	8.4	11.1	12.0	12.2	10.3	14.7	18.2	18.0	15.5	17.4	19.6	20.5	14.8	14.9	15.7	13.8	13.1	13.8	13.9	14.9	12.8	7.1	20.5	12.6	
	S	S	SSW	SSW	SW	SW	SW	SW	SW	WSW	WSW	WSW	W	W	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW				
Nov 22	12.1	12.0	11.2	9.4	10.9	11.7	10.7	11.1	10.6	11.4	11.5	13.5	12.8	11.6	10.6	11.6	9.9	8.3	6.6	9.2	10.2	12.9	12.7	13.6	6.6	13.6	9.2	
	SW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	WSW	SW	SW	W	WNW	NW	NW	NW	NW				
Nov 23	10.2	11.2	11.2	8.8	14.6	13.1	14.2	14.3	15.0	13.4	15.1	17.6	15.9	16.4	15.2	13.5	16.7	15.5	13.8	11.1	11.8	10.8	11.1	10.3	8.8	17.6	12.5	
	NW	NW	NW	WNW	WNW	WNW	W	WNW	W	W	W	WNW	W	W	WSW	W	WSW	W	WSW	WSW	WSW	WSW	SW	SW				
Nov 24	11.1	11.2	12.1	14.1	13.2	11.5	13.3	15.9	14.1	13.6	12.9	12.3	13.8	14.3	13.7	12.2	12.0	10.9	11.1	10.8	11.3	5.4	6.6	5.4	15.9	11.2		
	SSW	SSW	S	SSW	SSW	SSW	SSW	SW	SW	SW	SSW	SSW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SW	NW	WNW	WSW				
Nov 25	9.7	9.4	11.9	12.5	11.2	8.9	9.7	9.2	10.6	10.9	10.5	10.9	16.3	15.9	14.4	15.7	15.3	16.2	17.1	14.5	13.3	13.7	14.5	18.3	8.9	18.3	12.4	
	SSW	SW	W	W	WSW	WSW	W	WSW	W	NW	W	W	W	W	WSW	W	W	W	W	W	W	W	W	W				
Nov 26	16.9	14.5	15.4	14.4	11.8	9.5	11.2	11.2	11.6	8.9	9.1	12.9	11.7	12.6	9.8	10.8	11.9	10.8	11.5	12.6	14.5	12.7	14.1	11.6	8.9	16.9	10.1	
	WNW	WNW	W	W	W	WSW	W	WSW	WSW	SW	SW	WSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	S	SSW				
Nov 27	11.2	10.3	9.8	9.8	7.4	7.3	7.6	10.5	12.6	14.9	14.2	16.6	20.6	25.0	25.7	24.4	22.7	22.2	21.3	21.0	21.6	23.4	23.2	23.8	7.3	25.7	13.0	
	SSW	SSW	SSW	SSW	SSW	SW	WSW	WNW	NW	NW	NNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW				
Nov 28	22.7	23.5	22.6	22.9	23.6	22.8	24.3	23.4	21.8	21.9	22.9	22.1	23.1	22.8	22.0	21.9	21.8	20.3	19.3	19.1	19.2	17.4	17.6	17.3	17.3	24.3	21.5	
	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW				
Nov 29	17.0	15.4	15.8	16.1	15.2	14.2	13.9	13.7	13.8	12.5	12.1	10.2	9.9	9.9	8.0	8.6	11.3	11.5	10.9	10.9	12.1	12.5	14.2	14.3	8.0	17.0	11.2	
	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	N	NNE	N	NNE	NNE	N	NNE	NNE	NE	NE	NE	NE	NE	ENE	ENE				
Nov 30	14.3	12.3	10.5	10.6	9.1	11.6	12.1	12.1	14.0	14.5	17.1	17.9	18.5	17.1	17.1	20.0	19.3	19.4	18.5	19.3	19.5	16.3	12.8	15.7	9.1	20.0	15.3	
	ENE	ENE	ENE	ENE	E	E	E	E	E	E	E	ENE	ENE	ENE	ENE	E	ENE	ENE	E	ENE	ENE	ENE	ENE	ENE				
C	Monthly Calibration						S	Daily Zero-Span Check						Q	Quality Assurance													
K	Collection Error						N	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 Station - November 2022

Summary of Hour Standard Deviations

STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

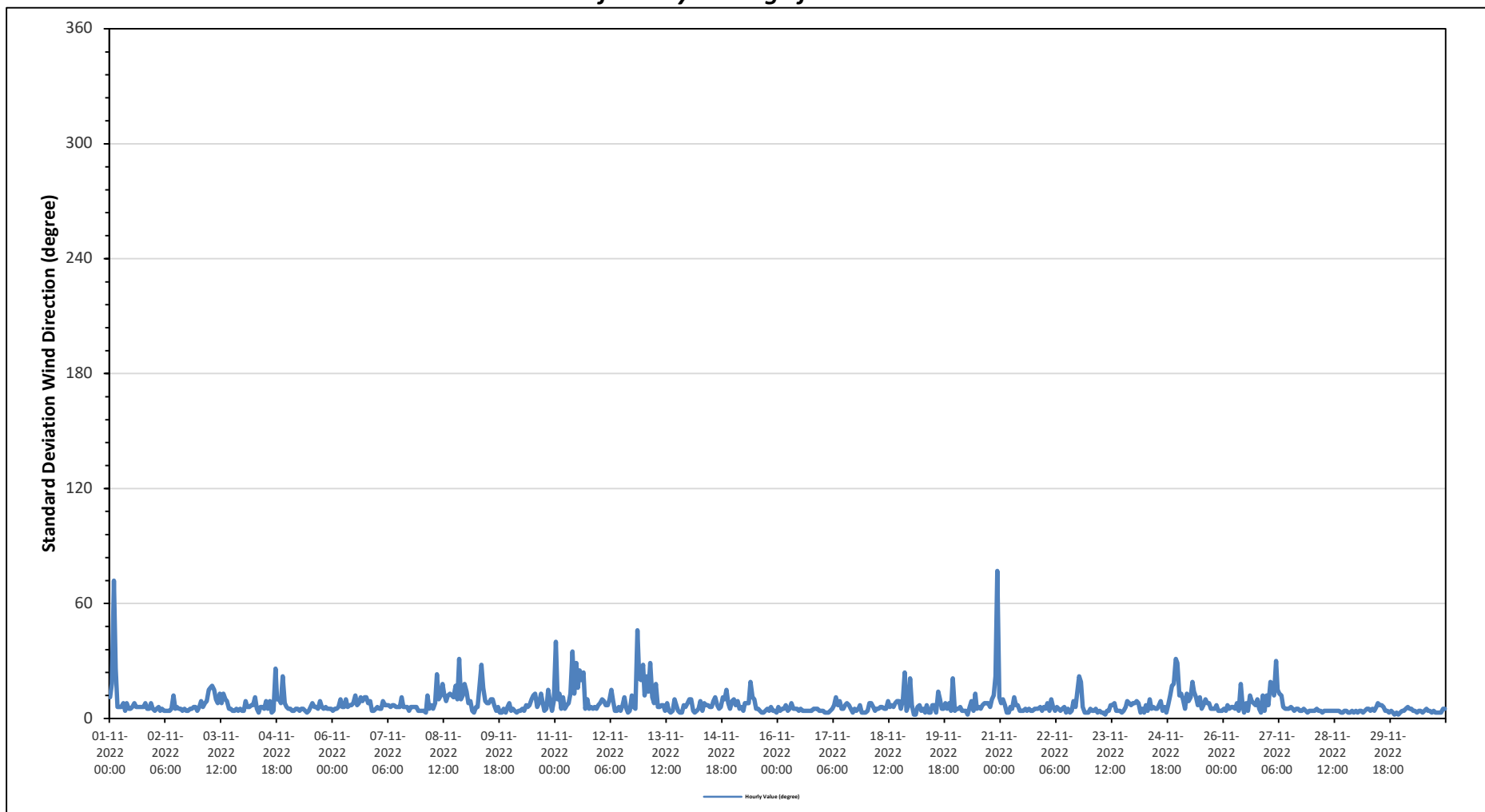
Maximum Hourly Value: 77 degree on November 20 at hour 22	Hours in Service: 720
Minimum Hourly Value: 2 degree on November 19 at hour 1	Hours of Data: 720
	Hours of Missing Data: 0
	Hours of Calibration: 0
	Operational Uptime: 100.0

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	11	18	72	26	6	6	6	8	4	8	5	5	6	8	6	6	6	6	6	8	5	5	8	5	4	72	
Nov 2	4	5	6	4	5	4	4	4	4	5	12	5	6	5	5	4	5	4	4	5	5	6	6	4	4	12	
Nov 3	6	9	6	8	9	15	16	17	15	10	8	13	8	13	10	9	5	5	4	4	5	4	5	4	4	17	
Nov 4	4	9	6	6	7	7	11	5	3	6	6	5	9	5	9	3	4	26	10	10	8	22	8	6	3	26	
Nov 5	5	5	4	4	5	5	4	5	5	4	3	4	6	8	6	6	5	9	6	5	6	5	5	5	3	9	
Nov 6	4	5	5	6	10	6	6	10	6	7	7	8	12	7	8	11	9	11	11	8	9	4	4	5	4	12	
Nov 7	6	5	5	9	7	7	7	6	7	7	6	6	6	11	6	6	6	4	6	6	6	6	4	4	4	11	
Nov 8	4	4	3	12	5	7	5	8	23	10	12	18	13	9	12	13	12	11	17	10	31	10	12	18	3	31	
Nov 9	14	8	9	4	3	6	6	16	28	16	9	8	8	10	10	7	4	6	3	3	5	3	6	8	3	28	
Nov 10	4	5	4	3	4	4	5	4	7	6	7	10	12	13	6	8	13	8	4	5	15	9	4	9	3	15	
Nov 11	40	10	13	5	11	5	7	8	13	35	13	29	16	25	20	24	5	10	5	6	5	6	5	7	5	40	
Nov 12	8	10	9	7	7	10	15	9	4	4	6	4	7	11	5	3	4	12	6	5	46	21	20	28	3	46	
Nov 13	12	22	14	29	11	8	18	6	6	7	7	4	8	4	3	4	10	7	4	3	3	7	6	8	3	29	
Nov 14	10	10	4	3	4	5	9	4	8	7	7	6	6	9	11	7	5	6	11	10	15	8	5	9	3	15	
Nov 15	10	7	9	5	6	4	8	8	8	19	11	10	5	5	4	3	3	4	5	4	6	4	4	3	3	19	
Nov 16	6	4	5	5	7	4	5	8	5	5	5	4	5	4	4	4	4	4	4	5	5	5	4	4	4	8	
Nov 17	4	3	3	3	4	5	7	11	7	9	5	5	7	8	7	5	3	5	4	5	7	3	3	3	3	11	
Nov 18	4	8	8	6	4	5	5	6	6	5	5	9	6	7	6	8	9	9	5	10	24	4	7	21	4	24	
Nov 19	7	2	2	6	7	4	5	3	7	3	3	7	7	3	14	10	5	5	8	5	8	4	21	4	2	21	
Nov 20	5	5	6	4	4	4	2	6	9	4	13	5	6	5	7	8	8	8	6	10	12	22	77	11	2	77	
Nov 21	8	10	7	3	3	6	5	11	7	7	4	4	4	5	4	5	4	4	5	5	5	6	4	6	3	11	
Nov 22	5	8	4	10	6	4	6	5	4	5	6	3	5	3	4	9	6	13	22	19	6	3	3	3	3	22	
Nov 23	5	4	4	5	3	4	3	3	2	4	4	7	7	8	4	4	4	3	4	6	9	8	7	8	2	9	
Nov 24	8	9	8	3	5	3	7	4	10	5	6	5	5	7	9	4	6	3	7	12	17	18	31	29	3	31	
Nov 25	12	13	10	5	13	9	11	19	14	11	7	11	5	7	10	8	8	5	5	7	4	4	4	4	4	4	19
Nov 26	5	4	7	5	6	6	5	8	4	18	7	3	8	4	12	9	8	7	10	5	3	12	4	12	3	18	
Nov 27	7	19	18	12	30	15	13	12	6	5	5	5	6	5	4	5	5	4	4	5	4	3	4	4	3	30	
Nov 28	4	4	5	4	4	3	4	4	4	4	4	4	4	4	4	3	3	4	4	3	3	4	3	4	3	5	
Nov 29	3	4	4	3	4	4	5	4	5	4	6	8	7	7	6	4	4	3	4	3	2	3	2	3	2	8	
Nov 30	4	4	5	6	5	5	4	4	3	4	4	3	4	5	4	4	3	4	3	3	3	3	5	5	3	6	
Diurnal Minimum	3	2	2	3	3	3	2	3	2	3	3	3	4	3	3	3	3	3	3	3	2	3	2	3	3	3	
Diurnal Maximum	40	22	72	29	30	15	18	19	28	35	13	29	16	25	20	24	13	26	22	19	46	22	77	29	3	3	

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

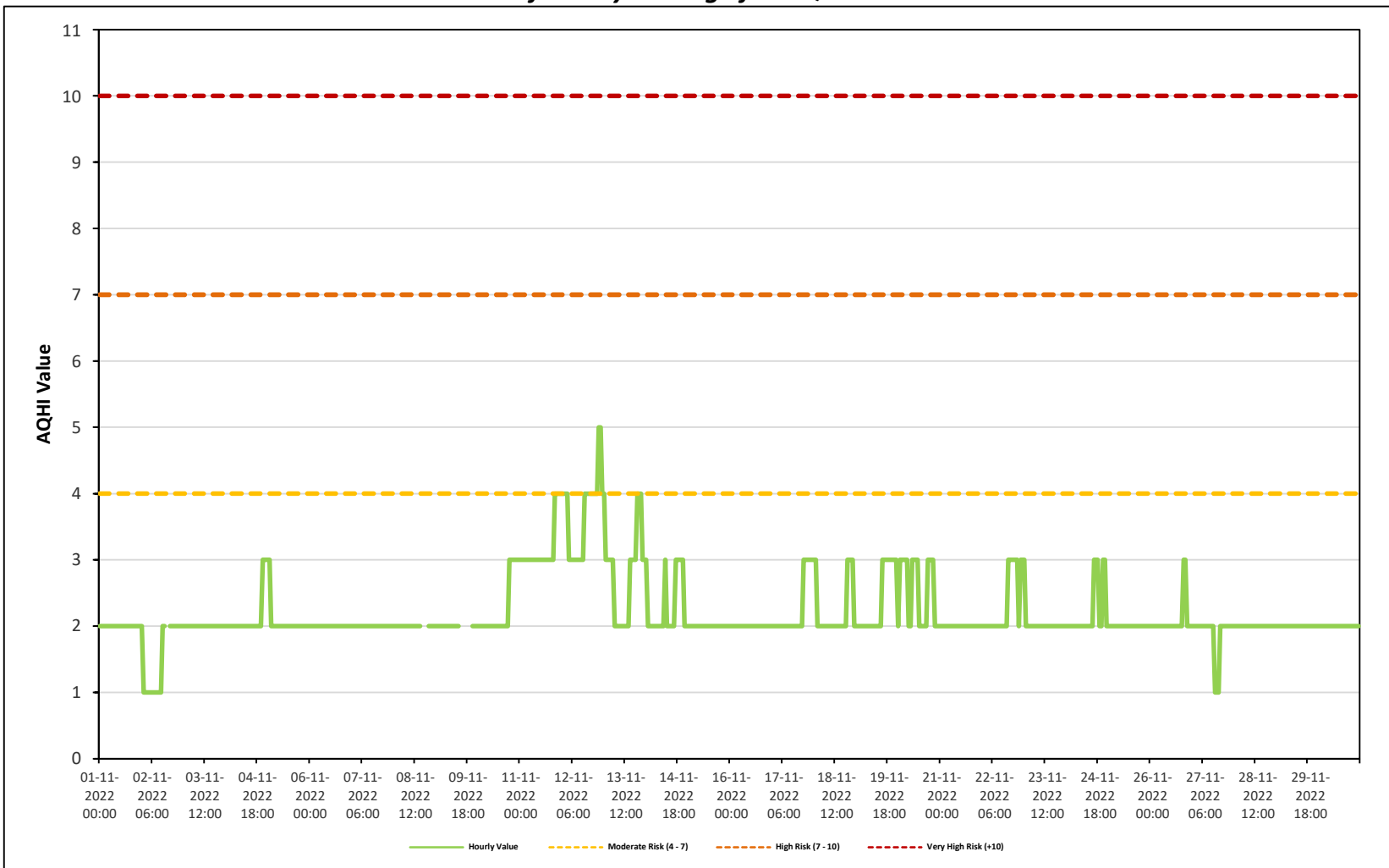
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

Timeseries Chart of Hourly Average for STDWD - St. Lina Station



LAC LA BICHE STATION

Timeseries Chart of Hourly Average for AQHI - Lac La Biche Station





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Lac La Biche Station - November 2022

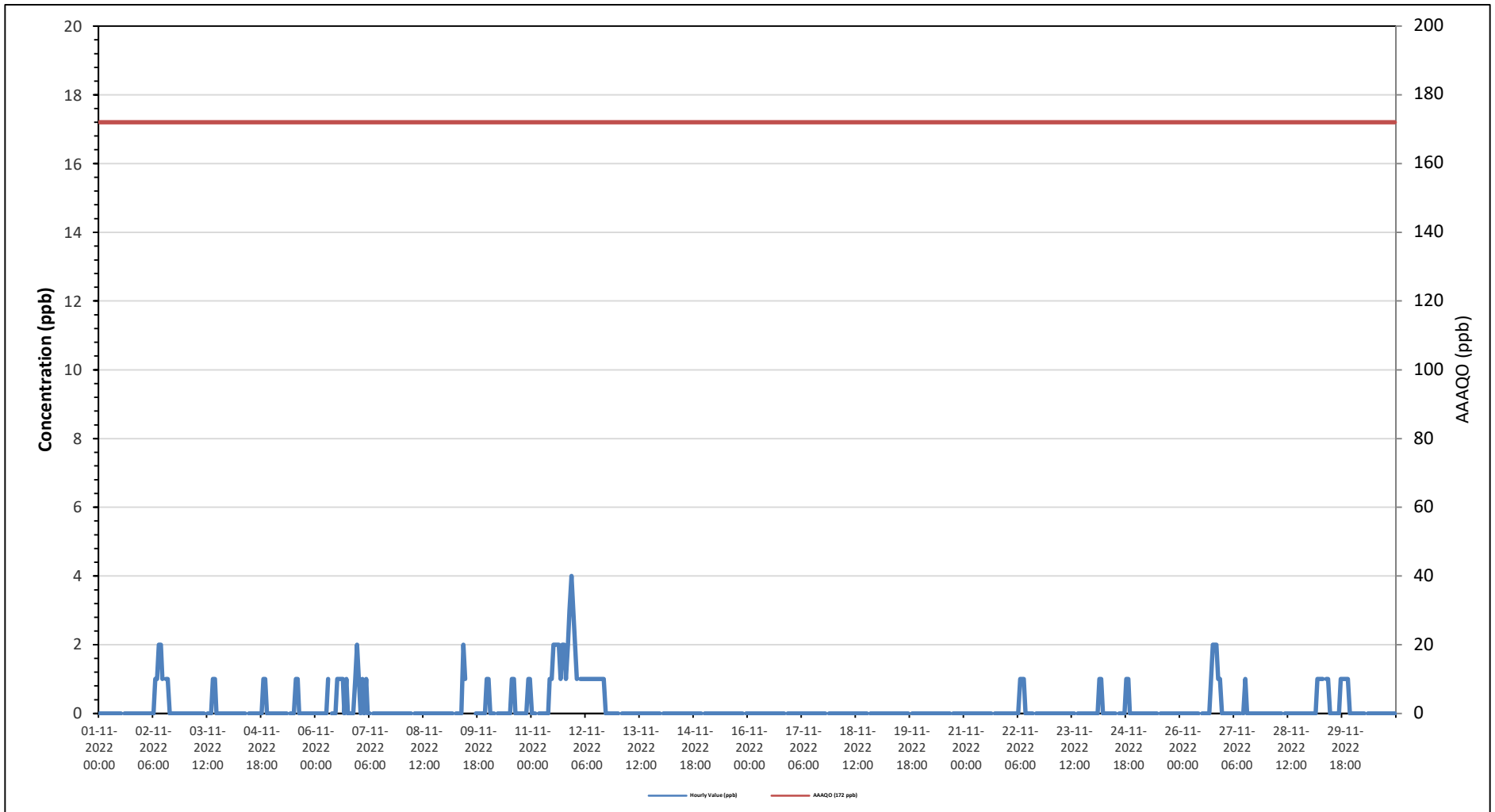
Summary of Hourly Averages

SULPHUR DIOXIDE (SO₂) in ppb

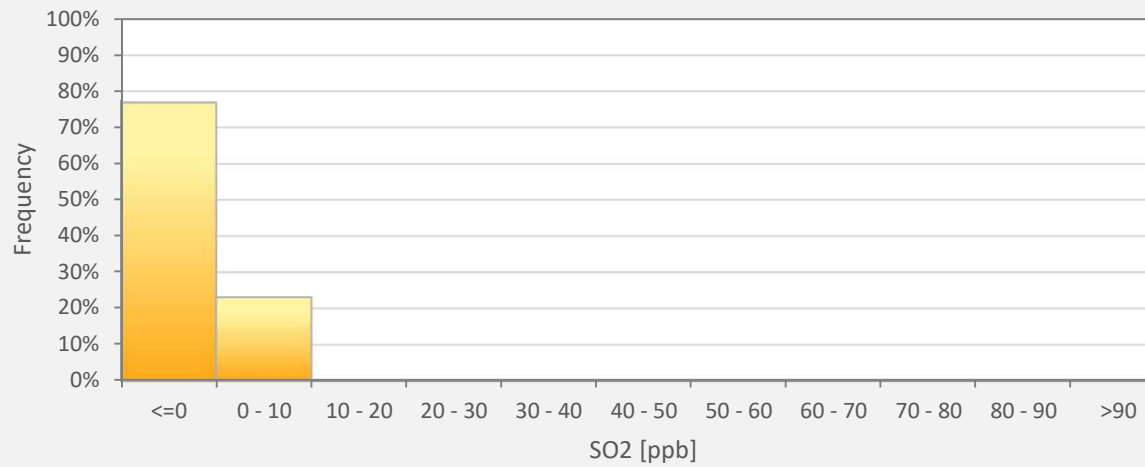
Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																																									
Number of 1-Hour Exceedances: 0							Number of 24-Hour Exceedances: 0							30-Day Exceedence: 0																											
Maximum Hourly Value: 4 ppb on November 11 at hour 22														Hours in Service: 720																											
Maximum Daily Value: 1.2 ppb on November 11														Hours of Data: 684																											
Minimum Hourly Value: 0 ppb on November 1 at hour 0														Hours of Missing Data: 0																											
Minimum Daily Value: 0.0 ppb on November 1														Hours of Calibration: 36																											
Monthly Average: 0.2 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	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Nov 2	0	0	0	0	0	0	0	1	1	2	2	1	S	1	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	2	0.4
Nov 3	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	
Nov 4	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	
Nov 5	0	0	0	0	0	0	0	0	0	0	S	0	0	1	1	0	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 6	0	0	0	0	0	0	0	1	S	0	0	0	1	1	1	1	0	1	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4		
Nov 7	1	0	1	0	1	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	0	0	0	1	0.1			
Nov 8	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	0	0	0	0	0	0	0	0	0	0	0.0		
Nov 9	0	0	0	0	0	S	0	0	0	0	2	1	C	C	C	C	C	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0.2			
Nov 10	1	0	0	0	S	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0.2			
Nov 11	0	0	0	S	0	0	0	0	0	0	1	1	2	2	2	2	1	2	2	1	2	3	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1.2		
Nov 12	2	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.7		
Nov 13	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0		
Nov 14	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	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	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	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	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	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	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	0	0	0	0	0	0	0	0	0.0		
Nov 22	0	0	0	0	0	0	0	1	1	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	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	0	0	0	0	0	0	0	0	0.0		
Nov 24	0	0	0	1	1	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2		
Nov 25	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0		
Nov 26	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	2	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4		
Nov 27	0	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	0	0	0	0	0	0	0	0	0	0	0	1	0.0		
Nov 28	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	0	0	0	0	0	0	0	0	0	0	0.0		
Nov 29	0	0	0	0	1	1	1	1	S	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.5		
Nov 30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0		
Diurnal Maximum	2	1	1	1	1	1	1	1	1	2	2	1	2	2	2	2	1	2	2	2	2	3	4	3																	
Diurnal Average	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.3	0.1	0.2	0.3	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2																	
C	Monthly Calibration										S	Daily Zero-Span Check										Q	Quality Assurance																		
K	Collection Error										N	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.

Timeseries Chart of Hourly Average for SO2 - Lac La Biche Station



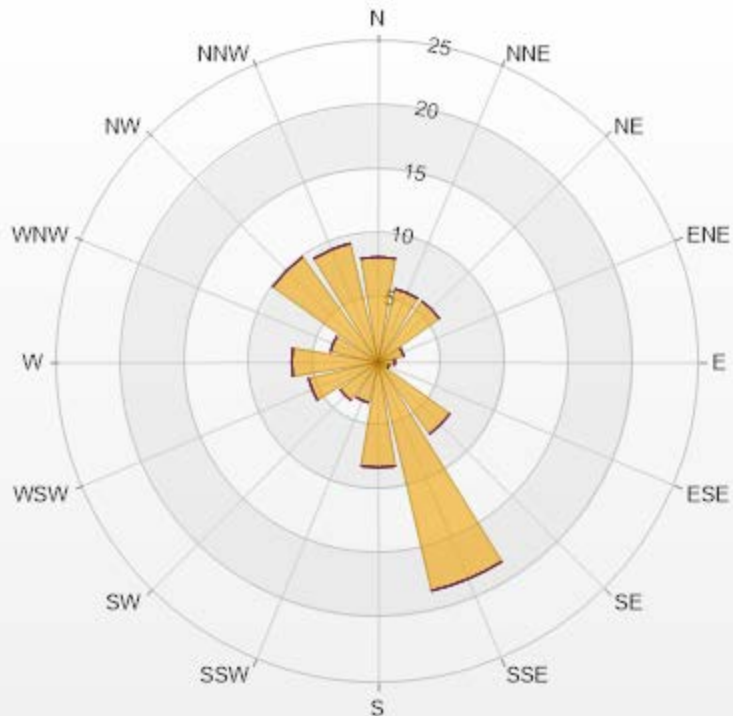
SO2[ppb] Histogram: Lac La Biche Monthly: 11-2022 1 Hr.



Classes	SO2
<=0	76.90%
0 - 10	23.10%
10 - 20	0.00%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Lac La Biche Poll.: Lac La Biche-SO2[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.00% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	8.19	0	0	0	0	8.19
NNE	5.85	0	0	0	0	5.85
NE	5.85	0	0	0	0	5.85
ENE	2.05	0	0	0	0	2.05
E	1.32	0	0	0	0	1.32
ESE	0.88	0	0	0	0	0.88
SE	6.87	0	0	0	0	6.87
SSE	18.27	0	0	0	0	18.27
S	8.19	0	0	0	0	8.19
SSW	3.22	0	0	0	0	3.22
SW	3.65	0	0	0	0	3.65
WSW	5.56	0	0	0	0	5.56
W	6.73	0	0	0	0	6.73
WNW	3.8	0	0	0	0	3.8
NW	10.09	0	0	0	0	10.09
NNW	9.5	0	0	0	0	9.5
Summary	100	0	0	0	0	100



LICA-202211

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% Icon Classes (ppb)

100 0-10

0 10-50

0 50-100

0 100-172

0 >172.0



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Lac La Biche Station - November 2022

Summary of Hourly Averages

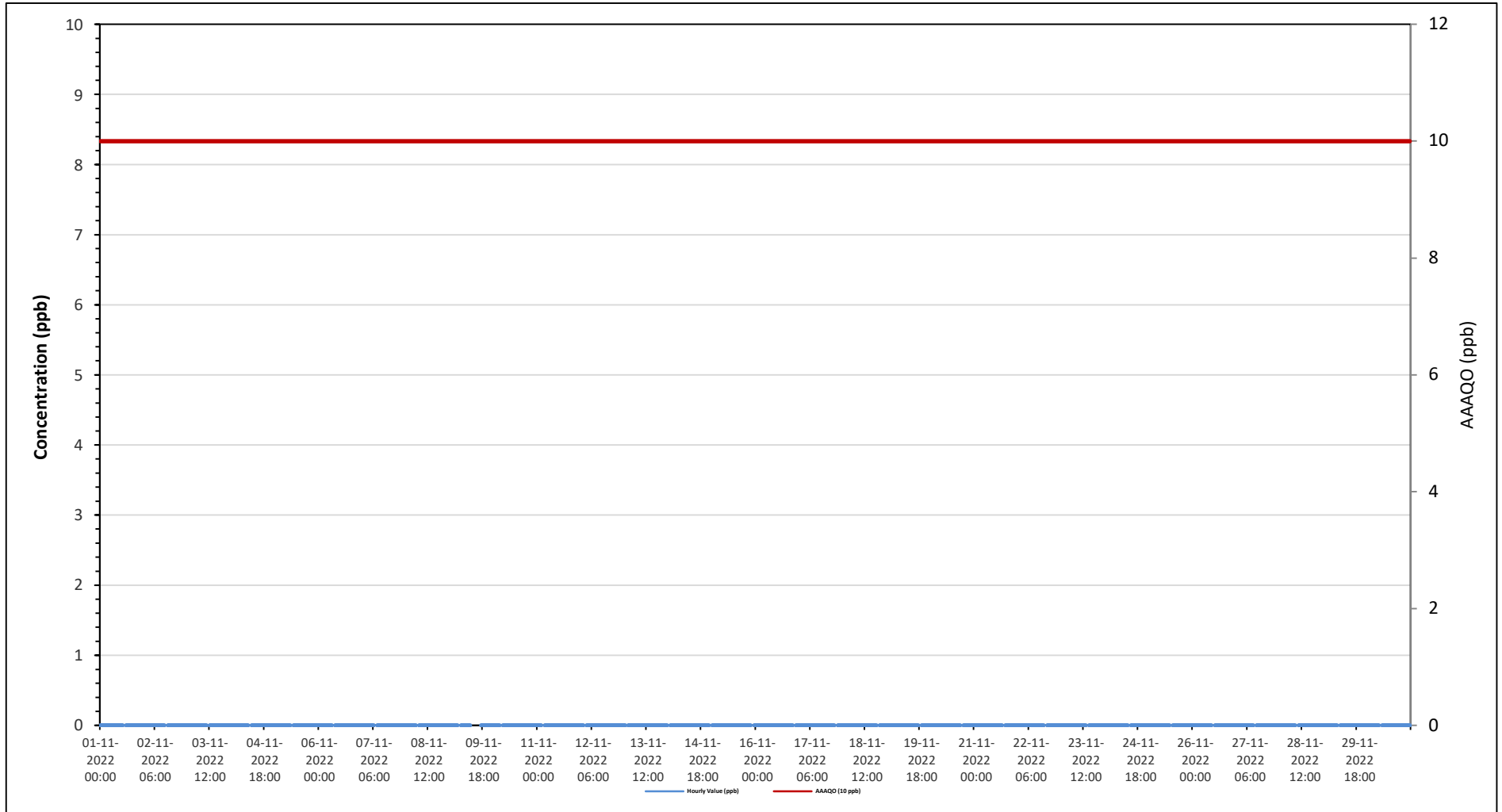
HYDROGEN SULPHIDE (H₂S) in ppb

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: 0 ppb on November 1 at hour 0										Hours in Service: 720																				
Maximum Daily Value: 0.0 ppb on November 1										Hours of Data: 684																				
Minimum Hourly Value: 0 ppb on November 1 at hour 0										Hours of Missing Data: 0																				
Minimum Daily Value: 0.0 ppb on November 1										Hours of Calibration: 36																				
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	S	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	S	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	S	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	S	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	S	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	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 7	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	0	0.0
Nov 8	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	0	0.0
Nov 9	0	0	0	0	0	S	0	0	0	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Nov 10	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	0	0.0
Nov 11	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	0	0.0
Nov 12	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	0	0.0
Nov 13	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Nov 14	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	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	0.0
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	0.0
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	0.0
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	0.0
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	0.0
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	0.0
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	0.0
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	0.0
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	0.0
Nov 24	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Nov 25	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Nov 26	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	0	0.0
Nov 27	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	0	0.0
Nov 28	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Nov 29	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Nov 30	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	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

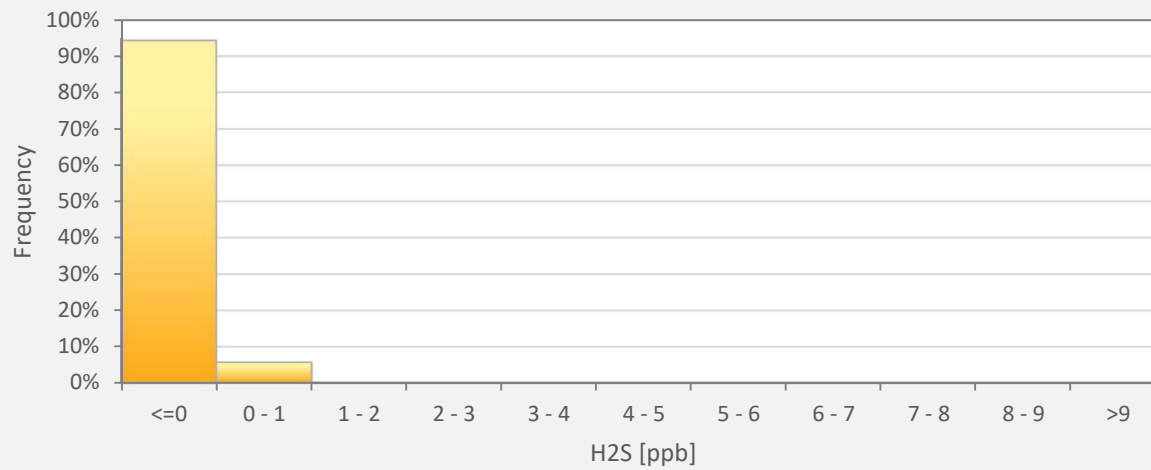
C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	N No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction /Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

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

Timeseries Chart of Hourly Average for H2S - Lac La Biche Station



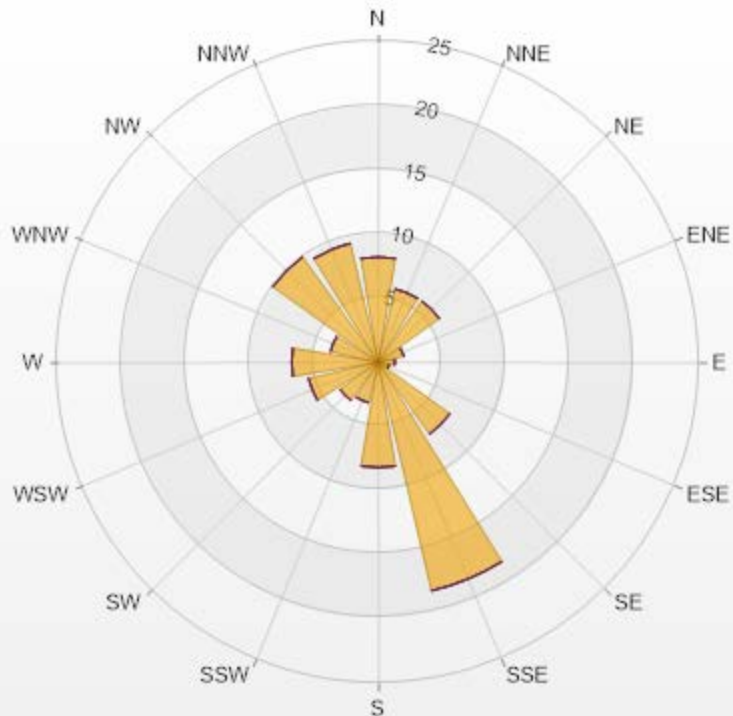
H2S[ppb] Histogram: Lac La Biche Monthly: 11-2022 1 Hr.



Classes	H2S
<=0	94.30%
0 - 1	5.70%
1 - 2	0.00%
2 - 3	0.00%
3 - 4	0.00%
4 - 5	0.00%
5 - 6	0.00%
6 - 7	0.00%
7 - 8	0.00%
8 - 9	0.00%
>9	0.00%

Wind: Lac La Biche Poll.: Lac La Biche-H2S[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.00% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	8.19	0	0	0	0	8.19
NNE	5.85	0	0	0	0	5.85
NE	5.85	0	0	0	0	5.85
ENE	2.05	0	0	0	0	2.05
E	1.32	0	0	0	0	1.32
ESE	0.88	0	0	0	0	0.88
SE	6.87	0	0	0	0	6.87
SSE	18.27	0	0	0	0	18.27
S	8.19	0	0	0	0	8.19
SSW	3.22	0	0	0	0	3.22
SW	3.65	0	0	0	0	3.65
WSW	5.56	0	0	0	0	5.56
W	6.73	0	0	0	0	6.73
WNW	3.8	0	0	0	0	3.8
NW	10.09	0	0	0	0	10.09
NNW	9.5	0	0	0	0	9.5
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100 0-2

0 2-5

0 5-10

0 10-50

0 >50.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - November 2022

Summary of Hourly Averages

OXIDES OF NITROGEN (NOx) in ppb

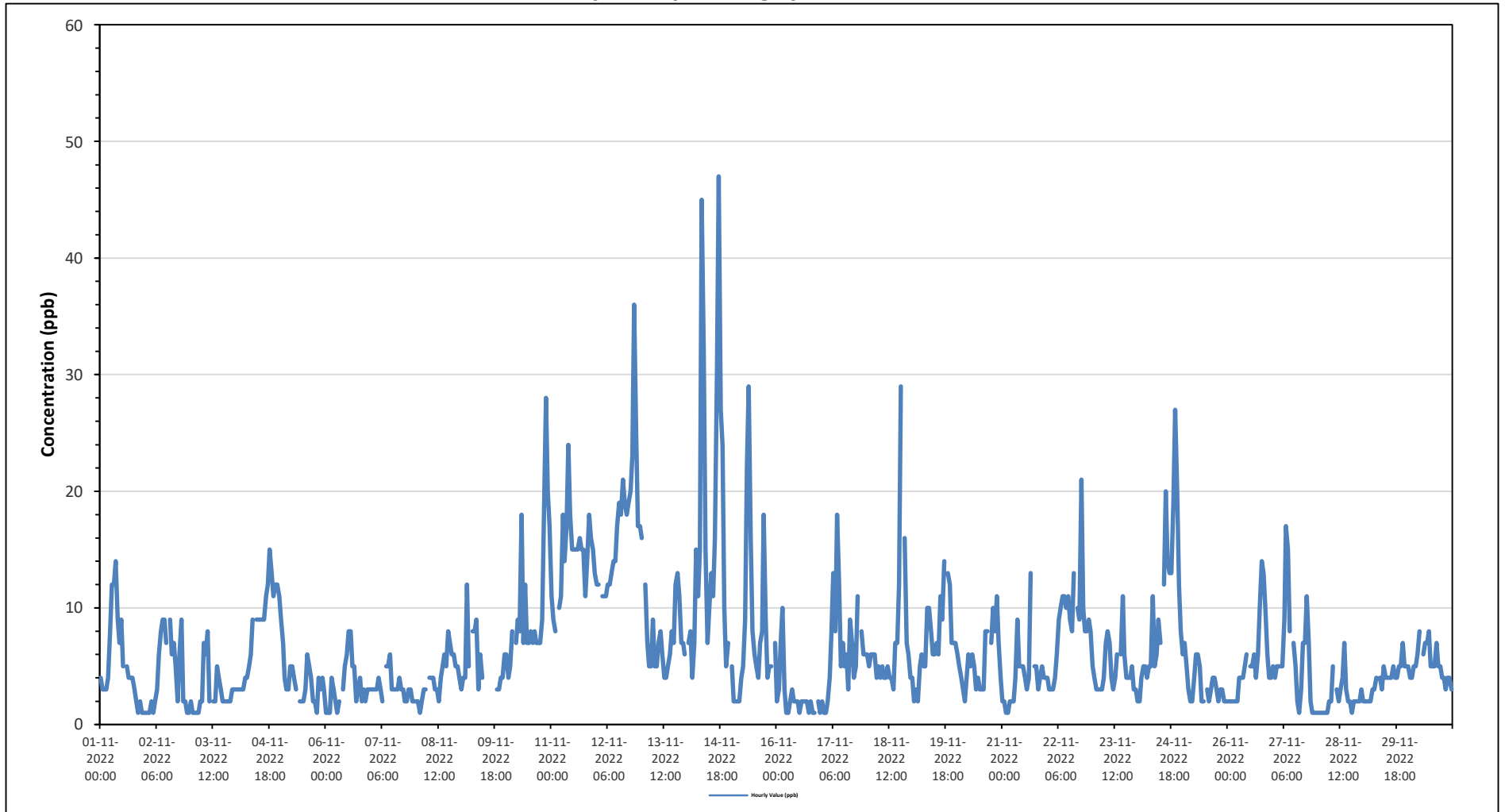
Maximum Hourly Value:	47 ppb on November 14 at hour 17	Hours in Service:	720
Maximum Daily Value:	17.0 ppb on November 12	Hours of Data:	682
Minimum Hourly Value:	1 ppb on November 1 at hour 20	Hours of Missing Data:	0
Minimum Daily Value:	2.3 ppb on November 28	Hours of Calibration:	38
Monthly Average:	6.5 ppb	Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Nov 1	4	3	3	3	4	8	12	12	14	9	7	9	5	S	5	4	4	4	3	2	1	2	1	1	1	14	5.2
Nov 2	1	1	1	2	1	2	3	6	8	9	9	7	S	9	6	7	5	2	6	9	2	2	1	1	1	9	4.3
Nov 3	2	1	1	1	1	2	2	7	6	8	2	S	2	2	5	4	3	2	2	2	2	2	3	3	1	8	2.8
Nov 4	3	3	3	3	3	4	4	5	6	9	S	9	9	9	9	9	11	12	15	13	11	12	12	11	3	15	8.0
Nov 5	9	7	4	3	3	5	5	4	3	S	2	2	2	3	6	5	4	2	2	1	4	3	4	3	1	9	3.7
Nov 6	1	1	1	4	3	2	1	2	S	3	5	6	8	8	5	5	2	3	4	2	3	2	3	3	1	8	3.3
Nov 7	3	3	3	3	4	3	2	S	5	5	6	3	3	3	3	4	3	3	2	2	3	3	2	2	2	6	3.2
Nov 8	2	2	1	2	3	3	S	4	4	4	3	3	2	4	5	6	5	8	7	6	6	5	5	4	1	8	4.1
Nov 9	3	4	4	12	5	S	8	8	9	3	6	4	C	C	C	C	C	C	C	3	3	4	4	6	3	12	-
Nov 10	6	4	5	8	S	7	9	8	18	7	12	7	7	8	7	8	7	7	7	9	18	28	20	17	4	28	10.2
Nov 11	11	9	8	S	10	11	18	14	17	24	18	15	15	15	15	16	15	15	11	14	18	16	15	13	8	24	14.5
Nov 12	12	12	S	11	11	11	12	12	13	14	14	17	19	18	21	19	18	19	20	23	36	25	17	17	11	36	17.0
Nov 13	16	S	12	7	5	5	9	5	5	7	8	6	4	4	5	6	8	7	12	13	11	7	7	6	4	16	7.6
Nov 14	S	7	8	4	7	15	11	15	45	32	15	7	10	13	11	16	30	47	27	24	10	5	7	S	4	47	16.6
Nov 15	5	2	2	2	2	4	5	9	22	29	16	8	6	5	4	7	8	18	9	4	5	5	S	7	2	29	8.0
Nov 16	2	3	7	10	3	1	1	2	3	2	2	2	1	2	2	2	2	1	2	1	1	S	2	1	1	10	2.4
Nov 17	2	1	1	2	4	8	13	8	18	12	5	7	5	6	3	9	7	4	5	11	S	8	6	6	1	18	6.6
Nov 18	6	5	6	6	6	4	5	4	5	4	5	4	4	3	7	7	12	29	S	16	7	6	4	3	29	6.9	
Nov 19	4	2	3	2	5	6	5	5	10	10	8	6	6	7	6	11	9	14	S	13	12	7	7	7	2	14	7.2
Nov 20	6	5	4	3	2	4	6	5	6	5	3	4	3	3	3	8	8	S	7	10	8	11	7	4	2	11	5.4
Nov 21	2	2	1	1	2	2	2	4	9	5	5	5	4	3	4	13	S	5	5	3	4	5	4	4	1	13	4.1
Nov 22	4	3	3	3	4	6	9	10	11	11	10	11	9	8	13	S	10	9	21	10	8	8	9	8	3	21	8.6
Nov 23	5	4	3	3	3	3	4	7	8	7	4	3	4	6	S	6	11	6	4	4	4	5	3	3	3	11	4.8
Nov 24	2	2	4	5	5	4	5	5	11	5	6	9	7	S	12	20	14	13	13	19	27	20	12	8	2	27	9.9
Nov 25	6	7	5	3	2	2	4	6	6	5	2	2	S	3	2	3	4	4	3	2	3	3	2	2	2	7	3.5
Nov 26	2	2	2	2	2	2	4	4	4	5	6	S	5	5	6	4	6	10	14	13	10	6	4	4	2	14	5.3
Nov 27	5	4	5	5	5	5	9	17	15	8	S	7	5	2	1	3	7	7	11	7	2	1	1	1	1	17	5.8
Nov 28	1	1	1	1	1	1	2	2	5	S	3	2	3	4	7	3	2	2	1	2	2	2	2	3	1	7	2.3
Nov 29	2	2	2	2	2	3	3	4	S	4	3	5	4	4	4	5	4	4	5	4	5	7	5	5	2	7	3.8
Nov 30	5	4	4	5	5	6	8	S	6	7	7	8	5	5	5	7	5	5	4	4	3	4	4	3	3	8	5.2
Diurnal Maximum	16	12	12	12	11	15	18	17	45	32	18	17	19	18	21	20	30	47	29	24	36	28	20	17			
Diurnal Average	4.6	3.7	3.7	4.1	3.9	4.8	6.2	6.9	10.4	9.0	6.8	6.4	5.8	6.0	6.4	7.7	7.9	8.8	8.9	8.0	8.2	7.4	6.0	5.4			

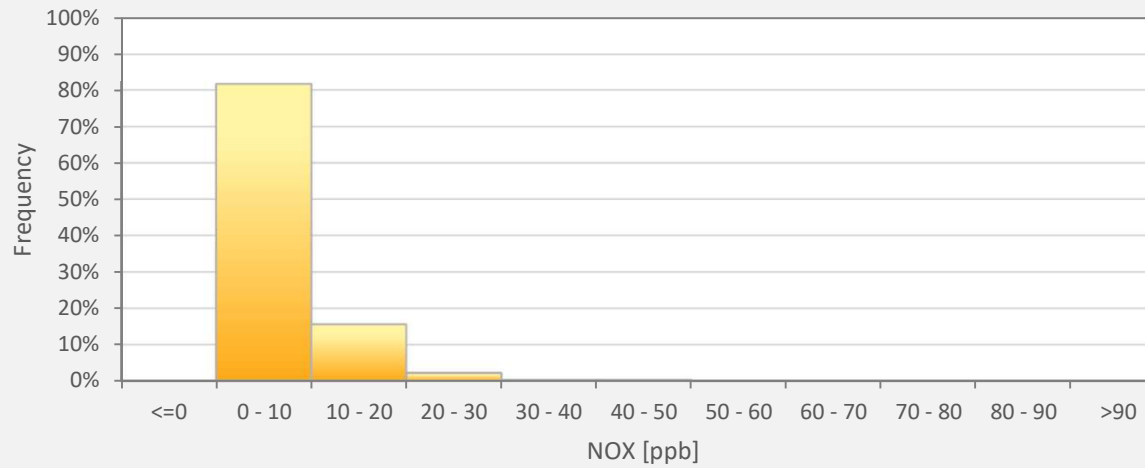
C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	N No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction /Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

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

Timeseries Chart of Hourly Average for NOx - Lac La Biche Station



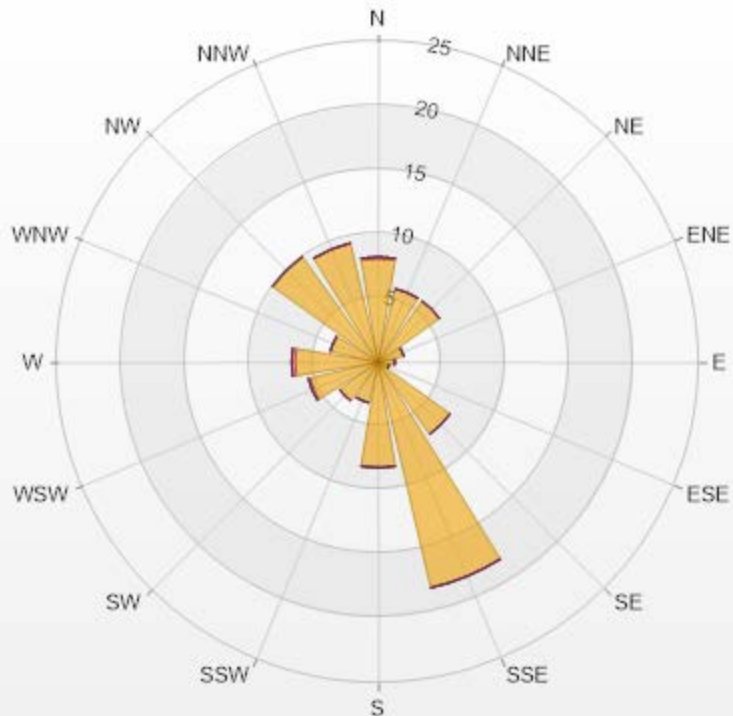
NOX[ppb] Histogram: Lac La Biche Monthly: 11-2022 1 Hr.



Classes	NOX
<=0	0.00%
0 - 10	81.67%
10 - 20	15.54%
20 - 30	2.20%
30 - 40	0.29%
40 - 50	0.29%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Lac La Biche Poll.: Lac La Biche-NOX[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.72% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	8.06	0.15	0	0	0	8.21
NNE	5.87	0	0	0	0	5.87
NE	5.87	0	0	0	0	5.87
ENE	2.05	0	0	0	0	2.05
E	1.32	0	0	0	0	1.32
ESE	0.88	0	0	0	0	0.88
SE	6.89	0	0	0	0	6.89
SSE	18.04	0	0	0	0	18.04
S	8.21	0	0	0	0	8.21
SSW	3.23	0	0	0	0	3.23
SW	3.67	0	0	0	0	3.67
WSW	5.43	0.15	0	0	0	5.58
W	6.45	0.29	0	0	0	6.74
WNW	3.81	0	0	0	0	3.81
NW	10.12	0	0	0	0	10.12
NNW	9.53	0	0	0	0	9.53
Summary	99.43	0.59	0	0	0	100

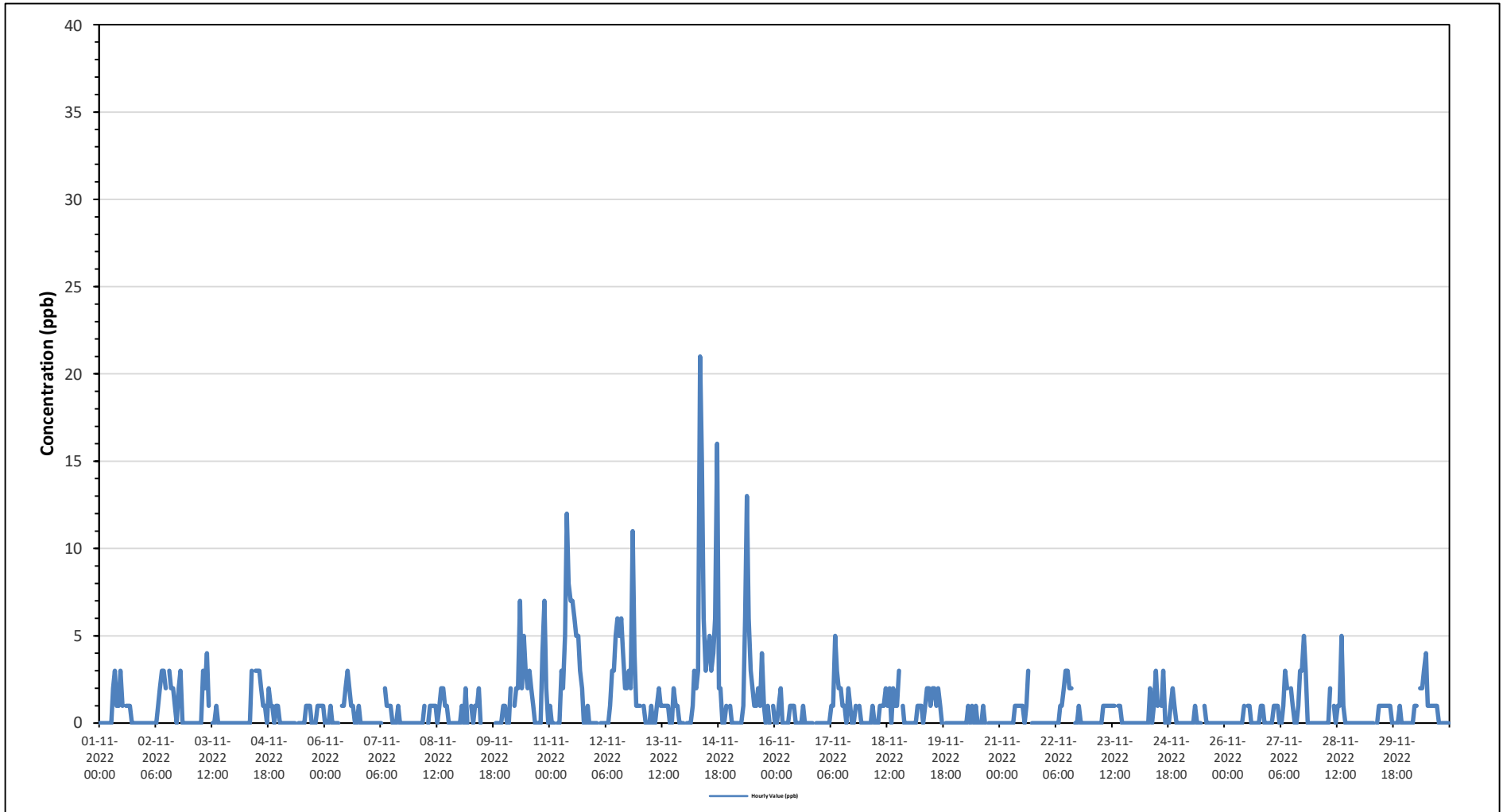


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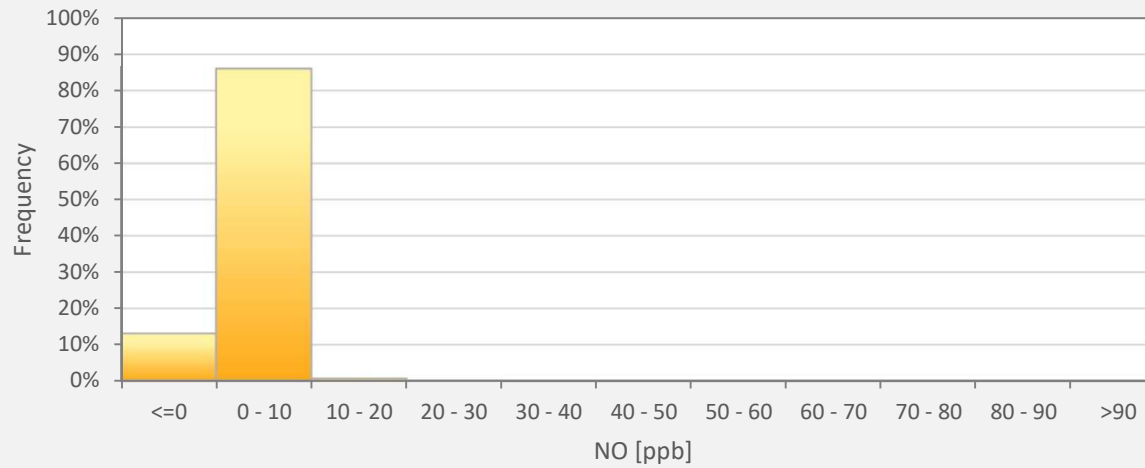
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% Icon Classes (ppb)	99	0-30	1	30-50	0	50-76	0	76-159	0	>159.0
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Timeseries Chart of Hourly Average for NO - Lac La Biche Station



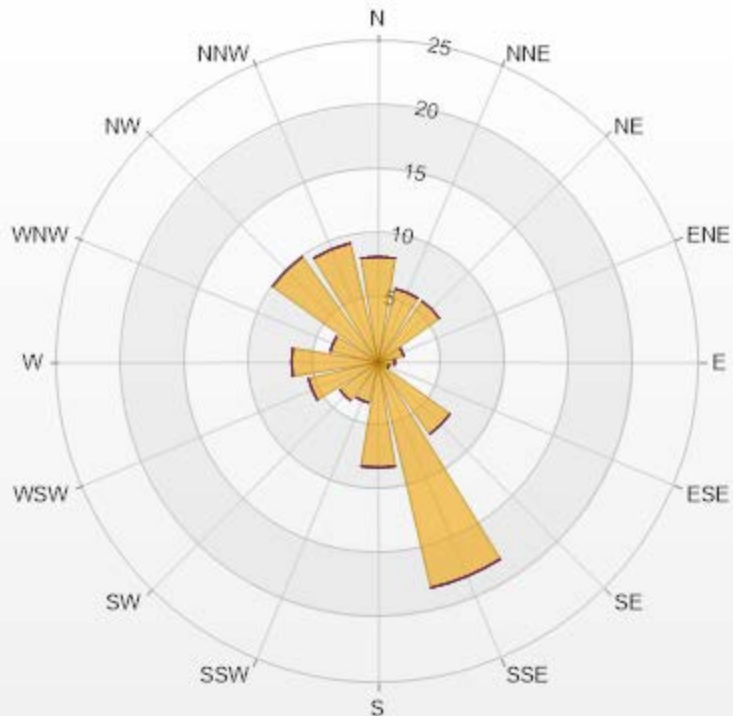
NO[ppb] Histogram: Lac La Biche Monthly: 11-2022 1 Hr.



Classes	NO
<=0	13.05%
0 - 10	86.07%
10 - 20	0.73%
20 - 30	0.15%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Lac La Biche Poll.: Lac La Biche-NO[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.72% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	8.21	0	0	0	0	8.21
NNE	5.87	0	0	0	0	5.87
NE	5.87	0	0	0	0	5.87
ENE	2.05	0	0	0	0	2.05
E	1.32	0	0	0	0	1.32
ESE	0.88	0	0	0	0	0.88
SE	6.89	0	0	0	0	6.89
SSE	18.04	0	0	0	0	18.04
S	8.21	0	0	0	0	8.21
SSW	3.23	0	0	0	0	3.23
SW	3.67	0	0	0	0	3.67
WSW	5.57	0	0	0	0	5.57
W	6.74	0	0	0	0	6.74
WNW	3.81	0	0	0	0	3.81
NW	10.12	0	0	0	0	10.12
NNW	9.53	0	0	0	0	9.53
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100  0-30

0  30-50

0  50-76

0  76-159

0  >159.0



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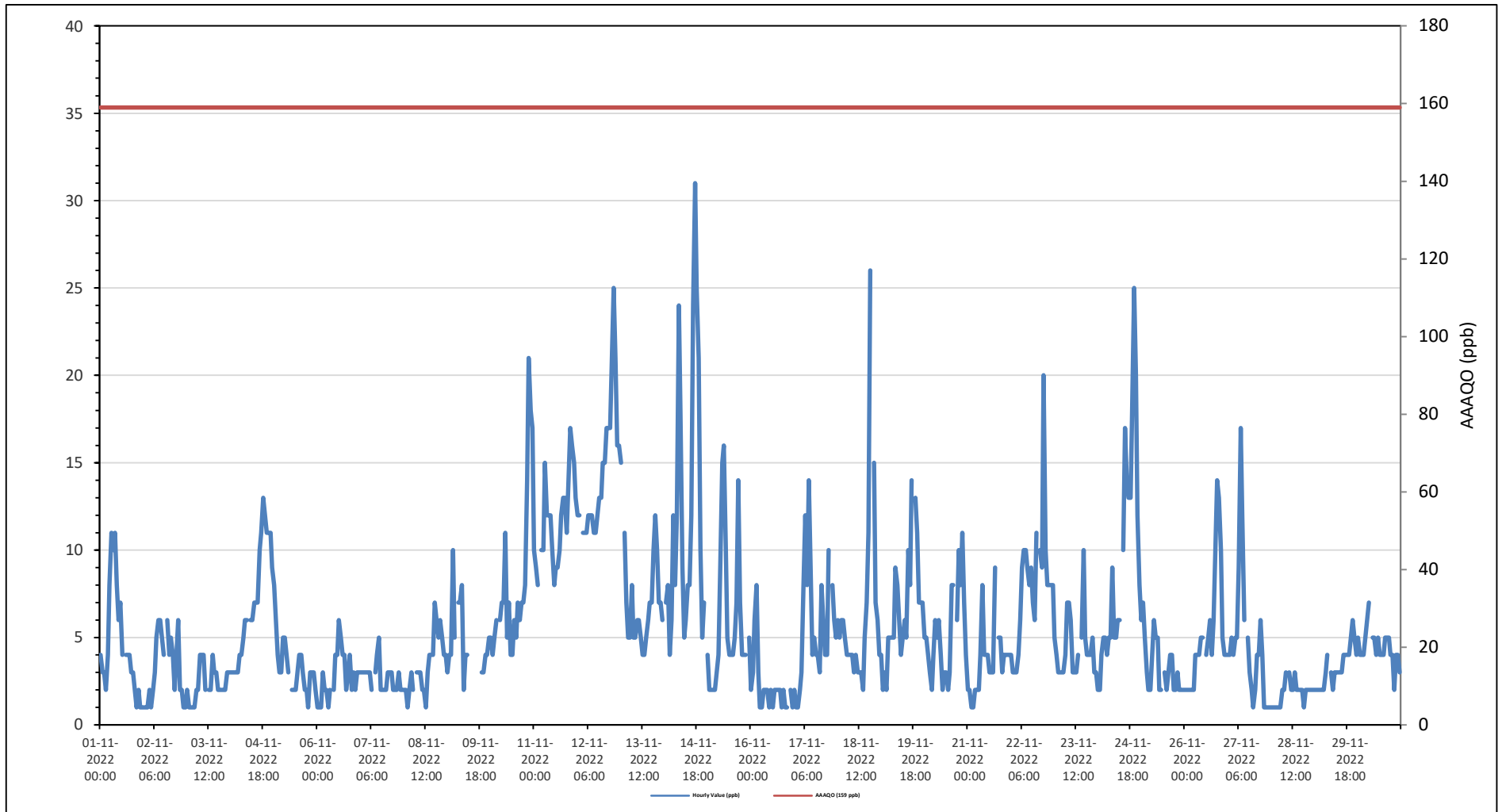
Lac La Biche Station - November 2022

Summary of Hourly Averages

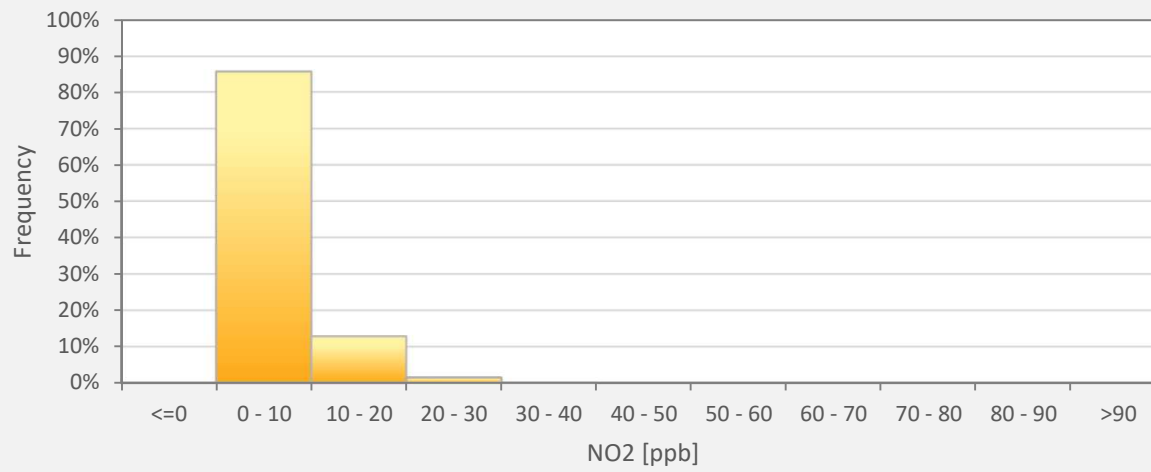
NITROGEN DIOXIDE (NO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb																																															
Number of 1-Hour Exceedances: 0																																															
Maximum Hourly Value: 31 ppb on November 14 at hour 17												Hours in Service: 720																																			
Maximum Daily Value: 14.5 ppb on November 12												Hours of Data: 682																																			
Minimum Hourly Value: 1 ppb on November 1 at hour 20												Hours of Missing Data: 0																																			
Minimum Daily Value: 1.8 ppb on November 28												Hours of Calibration: 38																																			
Monthly Average: 5.6 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	4	3	3	2	4	8	11	10	11	8	6	7	4	S	4	4	4	3	3	2	1	2	1	1	1	1	11	4.6																			
Nov 2	1	1	1	2	1	2	3	5	6	6	5	4	S	6	4	5	4	2	4	6	2	2	1	1	1	1	6	3.2																			
Nov 3	2	1	1	1	1	2	2	4	4	4	2	S	2	2	4	3	3	2	2	2	2	2	3	3	1	4	2.3																				
Nov 4	3	3	3	3	4	4	4	5	6	6	S	6	7	7	7	10	11	13	12	11	11	11	9	3	13	7.0																					
Nov 5	8	6	4	3	3	5	5	4	3	S	2	2	3	4	4	3	2	2	1	3	3	3	2	1	8	3.3																					
Nov 6	1	1	1	3	2	2	1	2	S	2	4	4	6	5	4	4	2	3	4	2	3	2	3	3	1	6	2.8																				
Nov 7	3	3	3	3	3	3	2	S	3	4	5	2	2	2	3	3	3	2	2	2	3	2	2	2	2	5	2.7																				
Nov 8	2	2	1	2	3	2	S	3	3	3	2	2	1	3	4	4	4	7	6	5	6	5	4	4	1	7	3.4																				
Nov 9	3	4	4	10	5	S	7	7	8	2	4	4	C	C	C	C	C	C	C	3	3	4	4	5	2	10	-																				
Nov 10	5	4	5	6	S	6	7	7	11	5	7	4	4	6	5	7	6	7	7	8	14	21	18	17	4	21	8.1																				
Nov 11	10	9	8	S	10	10	15	12	12	12	10	8	9	9	10	12	13	13	11	14	17	16	15	13	8	17	11.7																				
Nov 12	12	12	S	11	11	11	12	12	12	11	11	12	13	13	15	15	17	17	17	21	25	21	16	16	11	25	14.5																				
Nov 13	15	S	11	7	5	5	8	5	5	6	6	5	4	4	5	6	7	7	10	12	10	7	7	6	4	15	7.1																				
Nov 14	S	7	8	4	6	12	8	12	24	18	9	5	6	8	8	12	24	31	25	21	10	5	7	S	4	31	12.3																				
Nov 15	4	2	2	2	2	3	4	9	15	16	10	5	4	4	4	5	7	14	7	4	4	4	S	5	2	16	5.9																				
Nov 16	2	3	6	8	3	1	1	2	2	2	1	2	1	2	2	2	2	1	2	1	1	S	2	1	1	8	2.2																				
Nov 17	2	1	1	2	3	8	12	8	14	9	4	5	4	4	3	8	6	4	4	10	S	8	6	5	1	14	5.7																				
Nov 18	6	5	6	6	5	4	4	4	3	4	3	3	3	2	5	7	11	26	S	15	7	6	4	2	26	6.2																					
Nov 19	4	2	3	2	5	5	5	5	9	8	6	4	5	6	5	10	8	14	S	13	11	7	7	7	2	14	6.6																				
Nov 20	5	5	4	3	2	4	6	5	6	4	2	3	3	2	3	8	8	S	6	10	8	11	7	4	2	11	5.2																				
Nov 21	2	2	1	1	2	2	2	4	8	4	4	4	3	3	9	S	5	5	3	4	4	4	4	4	1	9	3.6																				
Nov 22	4	3	3	3	4	6	9	10	10	9	8	9	7	6	11	S	10	9	20	10	8	8	8	8	3	20	8.0																				
Nov 23	5	4	3	3	3	3	4	7	7	6	3	3	3	4	S	5	10	5	4	4	4	5	3	3	3	10	4.4																				
Nov 24	2	2	4	5	5	4	5	5	9	5	5	6	6	S	10	17	14	13	13	18	25	20	12	8	2	25	9.3																				
Nov 25	6	7	5	3	2	2	4	6	5	5	2	2	S	3	2	3	4	4	2	2	3	2	2	2	2	7	3.4																				
Nov 26	2	2	2	2	2	4	4	4	5	5	2	S	5	6	4	6	10	14	13	10	5	4	4	2	2	14	5.2																				
Nov 27	4	4	5	4	5	5	9	17	12	6	S	5	3	2	1	2	4	4	6	4	1	1	1	1	1	17	4.6																				
Nov 28	1	1	1	1	1	1	2	2	3	S	3	2	2	3	2	2	2	2	1	2	2	2	2	2	1	3	1.8																				
Nov 29	2	2	2	2	2	3	4	S	3	2	3	3	3	3	3	4	4	4	4	5	6	5	4	2	6	3.3																					
Nov 30	5	4	4	4	5	6	7	S	5	4	5	4	3	4	5	5	5	4	4	2	4	4	3	2	7	4.4																					
Diurnal Maximum	15	12	11	11	11	12	15	17	24	18	11	12	13	13	15	17	24	31	26	21	25	21	18	17																							
Diurnal Average	4.3	3.6	3.6	3.7	3.7	4.5	5.7	6.4	7.9	6.3	4.9	4.5	4.2	4.5	4.9	6.2	7.0	7.6	8.0	7.3	7.3	6.8	5.8	5.1																							
C	Monthly Calibration											S	Daily Zero-Span Check											Q	Quality Assurance																						
K	Collection Error											N	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.																																															

Timeseries Chart of Hourly Average for NO2 - Lac La Biche Station



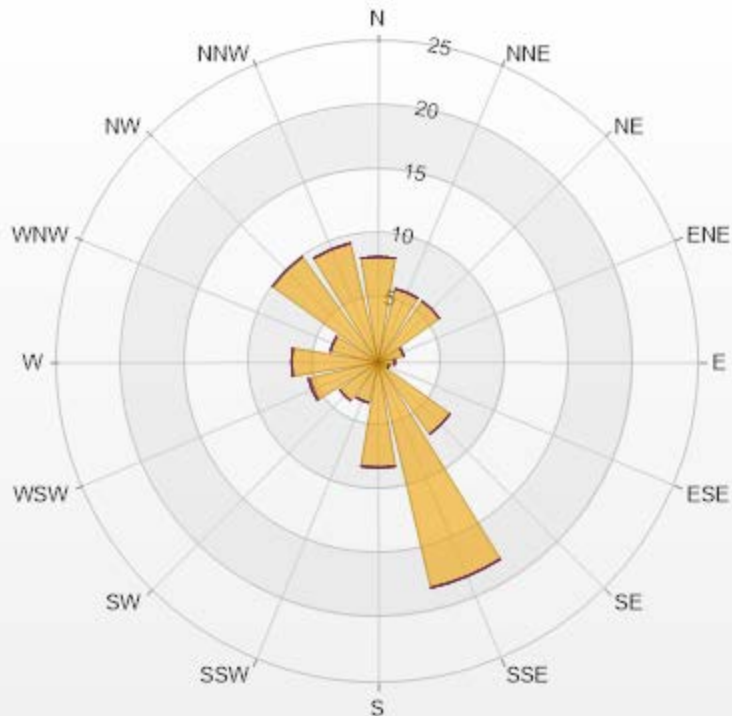
NO2[ppb] Histogram: Lac La Biche Monthly: 11-2022 1 Hr.



Classes	NO2
<=0	0.00%
0 - 10	85.63%
10 - 20	12.76%
20 - 30	1.47%
30 - 40	0.15%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Lac La Biche Poll.: Lac La Biche-NO2[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.72% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	8.21	0	0	0	0	8.21
NNE	5.87	0	0	0	0	5.87
NE	5.87	0	0	0	0	5.87
ENE	2.05	0	0	0	0	2.05
E	1.32	0	0	0	0	1.32
ESE	0.88	0	0	0	0	0.88
SE	6.89	0	0	0	0	6.89
SSE	18.04	0	0	0	0	18.04
S	8.21	0	0	0	0	8.21
SSW	3.23	0	0	0	0	3.23
SW	3.67	0	0	0	0	3.67
WSW	5.43	0.15	0	0	0	5.58
W	6.74	0	0	0	0	6.74
WNW	3.81	0	0	0	0	3.81
NW	10.12	0	0	0	0	10.12
NNW	9.53	0	0	0	0	9.53
Summary	100	0.15	0	0	0	100



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% Icon Classes (ppb)

100  0-30

0  30-50

0  50-76

0  76-159

0  >159.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - November 2022

Summary of Hourly Averages

OZONE (O₃) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb
 Number of 1-Hour Exceedances: 0

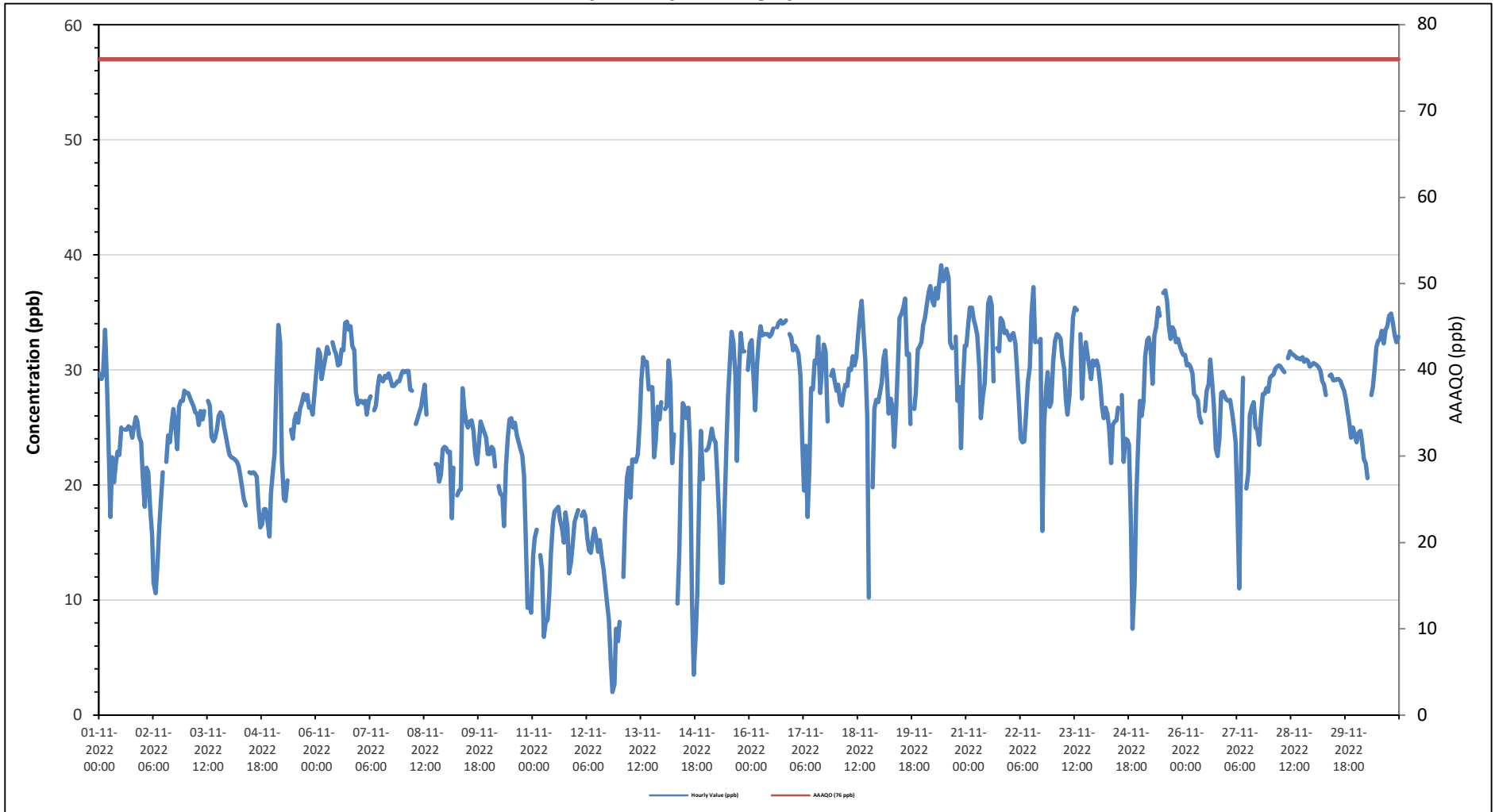
Maximum Hourly Value:	39.1 ppb on November 20 at hour 10	Hours in Service:	720
Maximum Daily Value:	34.3 ppb on November 20	Hours of Data:	683
Minimum Hourly Value:	2.0 ppb on November 12 at hour 20	Hours of Missing Data:	2
Minimum Daily Value:	12.5 ppb on November 12	Hours of Calibration:	35
Monthly Average:	26.2 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	29.7	29.2	29.6	33.5	29.2	23.3	17.2	22.4	20.2	21.8	22.9	22.6	25.0	S	24.8	24.8	25.1	25.0	24.1	25.0	25.9	25.5	24.2	23.7	17.2	33.5	25.0
Nov 2	20.9	18.1	21.5	21.1	18.1	15.7	11.5	10.6	13.0	16.2	18.7	21.1	S	22.0	24.3	23.7	25.5	26.6	25.0	23.1	26.8	27.3	27.3	28.2	10.6	28.2	21.1
Nov 3	28.0	28.0	27.6	27.2	26.9	26.3	26.2	25.2	26.4	25.7	26.4	S	27.3	26.9	24.2	23.8	24.1	24.8	26.0	26.3	26.0	25.1	24.2	23.3	23.3	28.0	25.9
Nov 4	22.6	22.4	22.3	22.2	22.0	21.6	20.7	19.7	18.8	18.2	S	21.1	21.0	21.1	21.0	20.7	18.1	16.3	16.6	17.9	17.9	16.9	15.5	19.3	15.5	22.6	19.7
Nov 5	21.3	22.7	29.6	33.9	32.4	22.1	18.8	18.6	20.4	S	24.8	24.0	25.7	26.2	25.4	26.6	27.1	27.9	27.4	27.8	26.7	26.8	26.1	28.2	18.6	33.9	25.7
Nov 6	29.7	31.8	31.4	29.2	30.2	30.9	32.0	31.4	S	32.4	31.7	31.4	30.4	30.5	31.8	31.7	34.1	34.2	33.5	33.8	32.1	31.7	28.1	27.0	27.0	34.2	31.3
Nov 7	27.3	27.3	27.1	27.3	26.1	27.3	27.7	S	26.5	26.9	28.5	29.5	29.2	29.0	29.5	29.3	29.7	29.2	28.6	28.6	28.8	29.0	29.0	29.6	26.1	29.7	28.3
Nov 8	29.9	29.8	29.9	29.9	28.3	28.2	S	25.3	25.7	26.3	26.8	27.7	28.7	26.1	C	C	C	C	21.8	21.8	20.3	20.9	23.1	23.3	20.3	29.9	26.0
Nov 9	23.2	22.8	22.9	17.1	21.5	S	19.1	19.5	19.6	28.4	26.6	25.4	25.0	25.5	25.6	24.7	22.7	21.8	23.5	25.5	25.0	24.6	24.1	22.7	17.1	28.4	23.3
Nov 10	22.7	23.3	23.1	21.6	S	19.9	19.2	19.1	16.4	21.6	24.1	25.7	25.8	25.0	25.4	24.3	23.8	23.1	22.6	20.8	15.2	9.3	9.7	8.9	8.9	25.8	20.5
Nov 11	13.9	15.4	16.1	S	13.9	12.6	6.8	8.0	8.3	10.4	14.1	16.8	17.7	17.9	18.1	16.9	16.3	15.0	17.6	16.3	12.3	13.3	15.0	16.8	6.8	18.1	14.3
Nov 12	17.3	17.8	S	17.3	17.7	17.3	15.4	14.3	14.1	15.3	16.2	15.4	14.2	15.2	13.7	12.7	11.4	9.7	8.3	4.8	2.0	2.7	7.5	6.4	2.0	17.8	12.5
Nov 13	8.1	S	12.0	17.1	20.6	21.5	18.9	22.2	22.2	22.0	22.7	25.3	29.2	31.1	30.5	30.7	28.3	28.5	28.5	22.4	23.7	26.8	25.7	27.2	8.1	31.1	23.7
Nov 14	S	26.6	26.8	30.8	28.7	21.9	24.4	NRM	9.7	14.0	22.0	27.1	26.7	25.8	26.7	23.0	10.1	3.5	7.1	10.6	19.7	24.7	20.5	S	3.5	30.8	20.5
Nov 15	23.0	23.2	23.9	24.9	24.0	23.7	21.2	17.2	11.5	17.6	23.7	27.7	30.6	33.3	32.4	29.5	22.1	29.6	33.2	31.6	31.6	S	30.0	11.5	33.3	25.1	
Nov 16	32.3	32.6	29.5	26.5	30.4	32.5	33.8	33.0	33.1	33.1	33.1	32.9	33.1	33.6	NRM	33.7	34.1	34.3	34.0	34.1	34.3	S	33.1	32.8	26.5	34.3	32.7
Nov 17	31.7	32.1	31.8	31.4	29.5	23.8	19.5	23.4	17.2	21.4	28.4	28.3	30.8	30.6	32.9	28.0	30.2	32.2	31.6	25.5	S	29.5	30.0	29.1	17.2	32.9	28.2
Nov 18	28.2	28.7	27.2	26.9	28.0	28.7	28.6	30.1	30.0	31.2	30.4	31.1	33.1	34.8	36.0	33.3	30.9	25.9	10.2	S	19.8	26.6	27.4	27.2	10.2	36.0	28.4
Nov 19	27.9	28.9	31.0	31.7	29.1	26.2	27.5	26.8	23.3	26.2	30.7	34.5	34.9	35.4	36.2	31.3	31.4	25.3	S	26.6	28.0	31.8	32.0	32.4	23.3	36.2	30.0
Nov 20	33.9	34.5	35.6	36.8	37.3	36.0	35.6	37.1	36.2	37.7	39.1	37.7	37.9	38.8	38.0	32.4	31.9	S	32.9	27.3	28.5	23.2	28.6	32.1	23.2	39.1	34.3
Nov 21	32.1	34.1	35.4	35.4	34.4	33.8	33.0	30.2	25.8	27.7	28.8	32.3	35.8	36.3	35.6	29.0	S	31.9	31.6	34.5	34.2	33.2	33.4	33.0	25.8	36.3	32.7
Nov 22	32.6	33.0	33.2	32.3	30.2	27.1	24.0	23.7	23.8	26.2	28.9	30.3	34.7	37.2	32.4	S	32.4	32.7	16.0	25.3	28.4	29.8	26.8	27.2	16.0	37.2	29.1
Nov 23	30.8	32.5	33.1	33.0	32.7	31.2	30.1	27.3	26.1	27.8	31.6	34.6	35.4	35.2	S	33.1	27.5	31.2	32.4	31.3	30.3	29.2	30.8	30.4	26.1	35.4	31.2
Nov 24	30.8	30.3	28.7	26.8	25.8	26.7	26.2	24.9	21.9	25.2	25.5	25.6	26.7	S	27.8	22.0	24.0	23.9	23.5	16.4	7.5	11.3	19.0	23.4	7.5	30.8	23.6
Nov 25	27.3	26.0	27.2	31.2	32.6	32.8	31.6	28.8	33.0	33.7	35.4	34.7	S	36.7	36.9	36.0	33.8	32.7	33.7	33.4	32.4	32.7	32.2	31.6	26.0	36.9	32.5
Nov 26	31.3	31.3	30.4	30.5	30.3	29.7	27.9	27.7	27.4	26.0	25.4	S	26.4	28.2	28.8	30.9	28.8	27.0	23.1	22.5	24.0	28.0	28.1	27.7	22.5	31.3	27.9
Nov 27	27.4	27.3	27.4	26.3	25.1	23.7	18.0	11.0	21.7	29.3	S	19.7	21.1	26.1	26.8	27.2	25.0	24.8	23.5	25.8	27.9	27.9	28.4	28.1	11.0	29.3	24.8
Nov 28	29.3	29.5	29.6	30.1	30.3	30.4	30.3	30.0	29.8	S	31.0	31.6	31.4	31.3	31.2	31.0	31.0	30.9	31.1	30.7	30.9	30.8	30.3	30.4	29.3	31.6	30.6
Nov 29	30.6	30.5	30.4	30.2	29.9	29.0	28.7	27.8	S	29.5	29.6	29.1	29.1	29.2	29.2	29.0	28.6	28.2	27.4	26.3	25.3	24.1	25.0	24.3	24.1	30.6	28.3
Nov 30	23.7	24.5	24.7	23.8	22.2	21.9	20.6	S	27.8	28.5	30.1	32.0	32.5	32.7	33.4	32.3	33.5	33.8	34.7	34.9	34.2	33.0	32.4	24.9	20.6	34.9	29.6
Diurnal Maximum	33.9	34.5	35.6	36.8	37.3	36.0	35.6	37.1	36.2	37.7	39.1	37.7	37.9	38.8	38.0	36.0	34.1	34.3	34.7	34.9	34.3	33.2	33.4	33.0			
Diurnal Average	26.5	27.4	27.6	27.8	27.2	25.7	23.9	23.5	22.5	24.8	26.8	27.5	28.4	29.3	28.9	27.7	26.7	25.8	25.0	25.3	24.8	25.1	25.4	26.1			

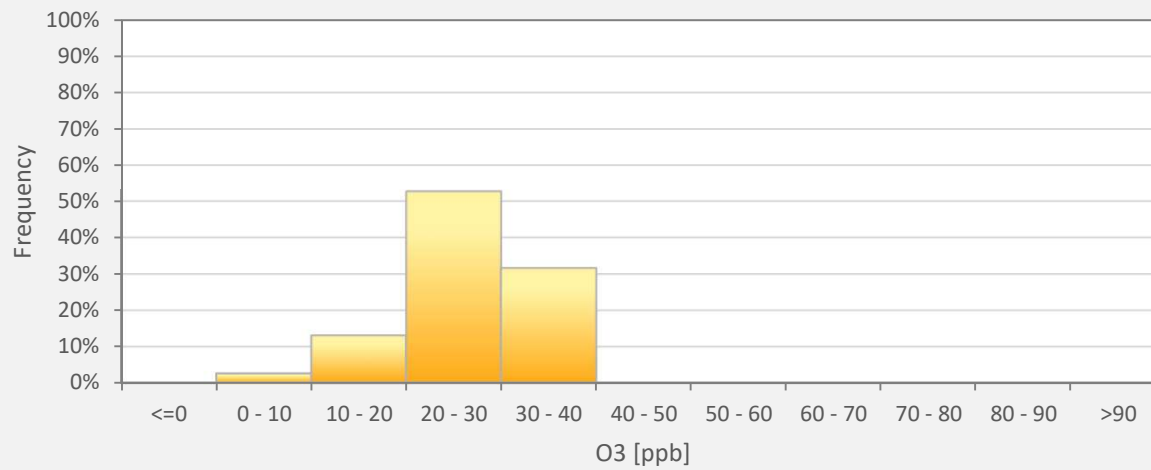
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction/Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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

Timeseries Chart of Hourly Average for O3 - Lac La Biche Station



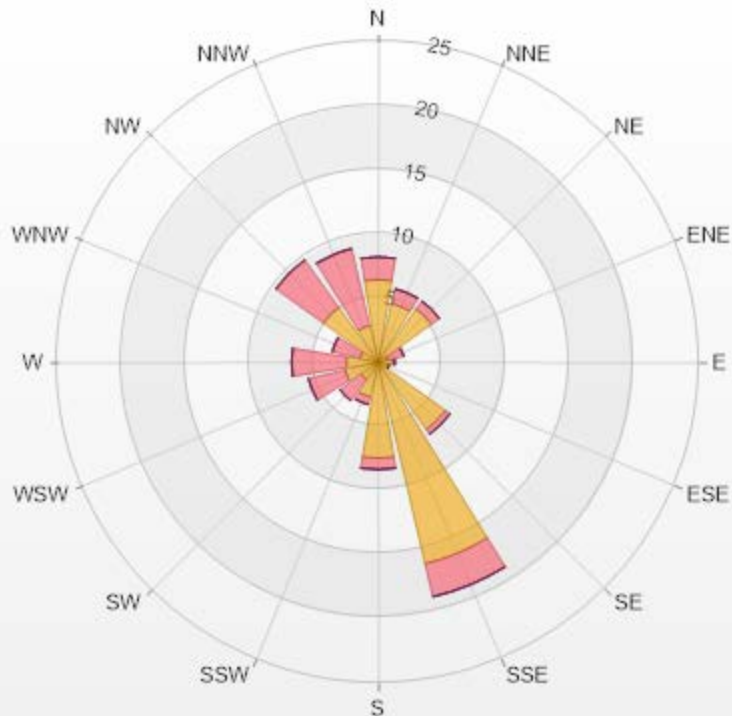
O3[ppb] Histogram: Lac La Biche Monthly: 11-2022 1 Hr.



Classes	O3
<=0	0.00%
0 - 10	2.64%
10 - 20	13.03%
20 - 30	52.71%
30 - 40	31.63%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Lac La Biche Poll.: Lac La Biche-O3[ppb] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 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	6.44	1.76	0	0	0	8.2
NNE	4.69	1.17	0	0	0	5.86
NE	5.12	0.73	0	0	0	5.85
ENE	0.73	1.32	0	0	0	2.05
E	1.17	0.15	0	0	0	1.32
ESE	0.88	0	0	0	0	0.88
SE	6.44	0.44	0	0	0	6.88
SSE	16.11	2.64	0	0	0	18.75
S	7.47	0.88	0	0	0	8.35
SSW	2.78	0.59	0	0	0	3.37
SW	1.61	2.05	0	0	0	3.66
WSW	2.64	2.93	0	0	0	5.57
W	2.49	4.25	0	0	0	6.74
WNW	1.46	2.2	0	0	0	3.66
NW	5.27	4.54	0	0	0	9.81
NNW	2.93	6.15	0	0	0	9.08
Summary	68.23	31.8	0	0	0	100



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% Icon Classes (ppb)

68

0-30

32

30-50

0

50-76

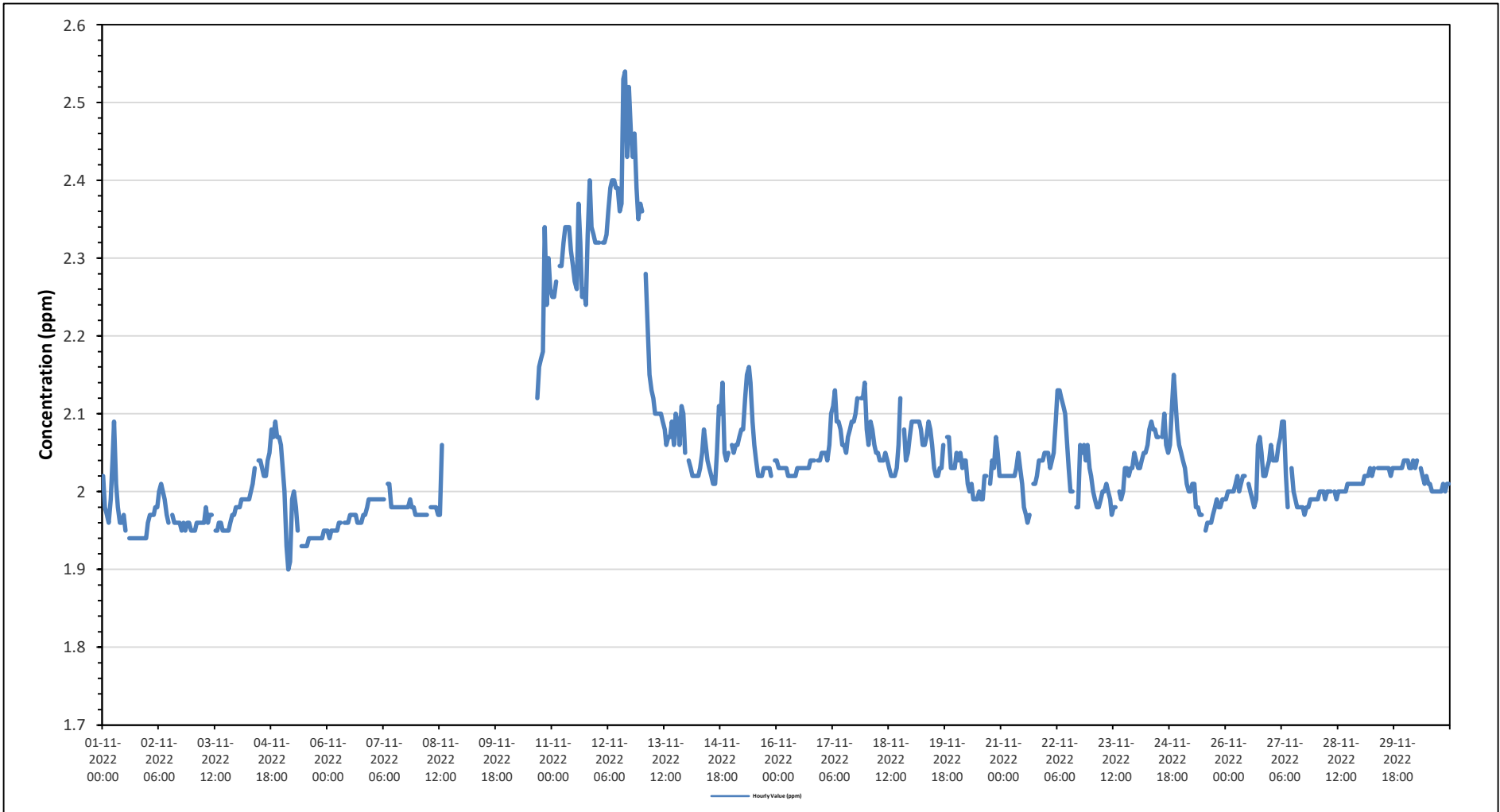
0

76-159

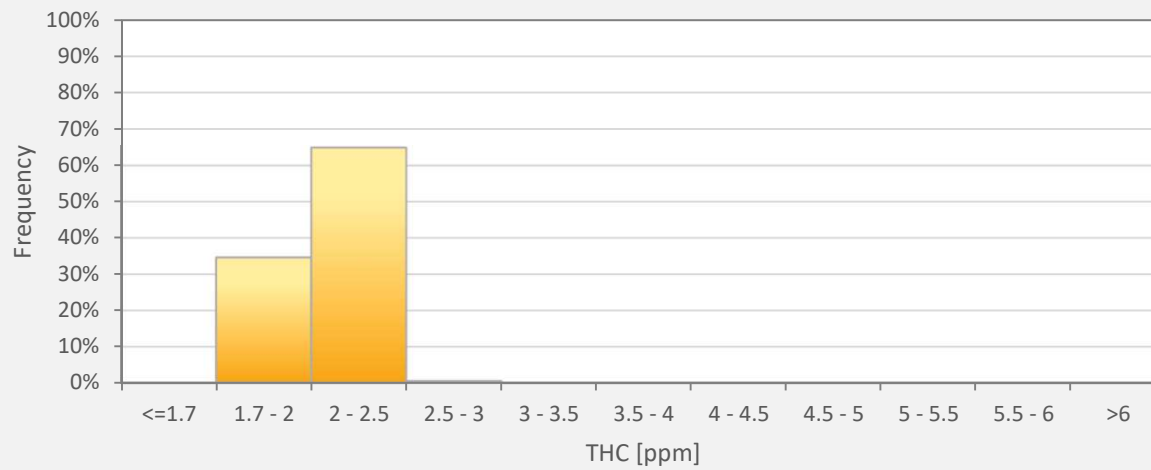
0

>159.0

Timeseries Chart of Hourly Average for THC - Lac La Biche Station



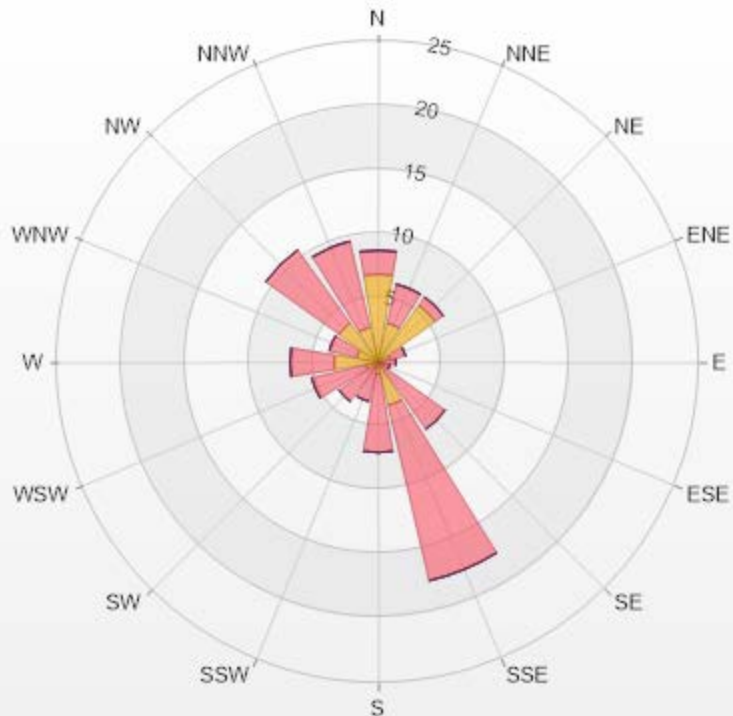
THC55[ppm] Histogram: Lac La Biche Monthly: 11-2022 1 Hr.



Classes	THC55
<=1.7	0.00%
1.7 - 2	34.63%
2 - 2.5	64.90%
2.5 - 3	0.47%
3 - 3.5	0.00%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: Lac La Biche Poll.: Lac La Biche-THC55[ppm] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 89.03% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	6.86	1.87	0	0	0	8.73
NNE	3.12	3.12	0	0	0	6.24
NE	5.46	0.78	0	0	0	6.24
ENE	0.94	1.25	0	0	0	2.19
E	0.31	1.09	0	0	0	1.4
ESE	0	0.94	0	0	0	0.94
SE	0.16	6.24	0	0	0	6.4
SSE	3.43	14.04	0	0	0	17.47
S	0.94	6.08	0	0	0	7.02
SSW	0.47	2.65	0	0	0	3.12
SW	0.31	3.43	0	0	0	3.74
WSW	0.94	4.37	0	0	0	5.31
W	3.43	3.43	0	0	0	6.86
WNW	1.72	2.18	0	0	0	3.9
NW	3.74	7.02	0	0	0	10.76
NNW	2.81	6.86	0	0	0	9.67
Summary	34.64	65.35	0	0	0	100



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% Icon Classes (ppm)

35 0-2

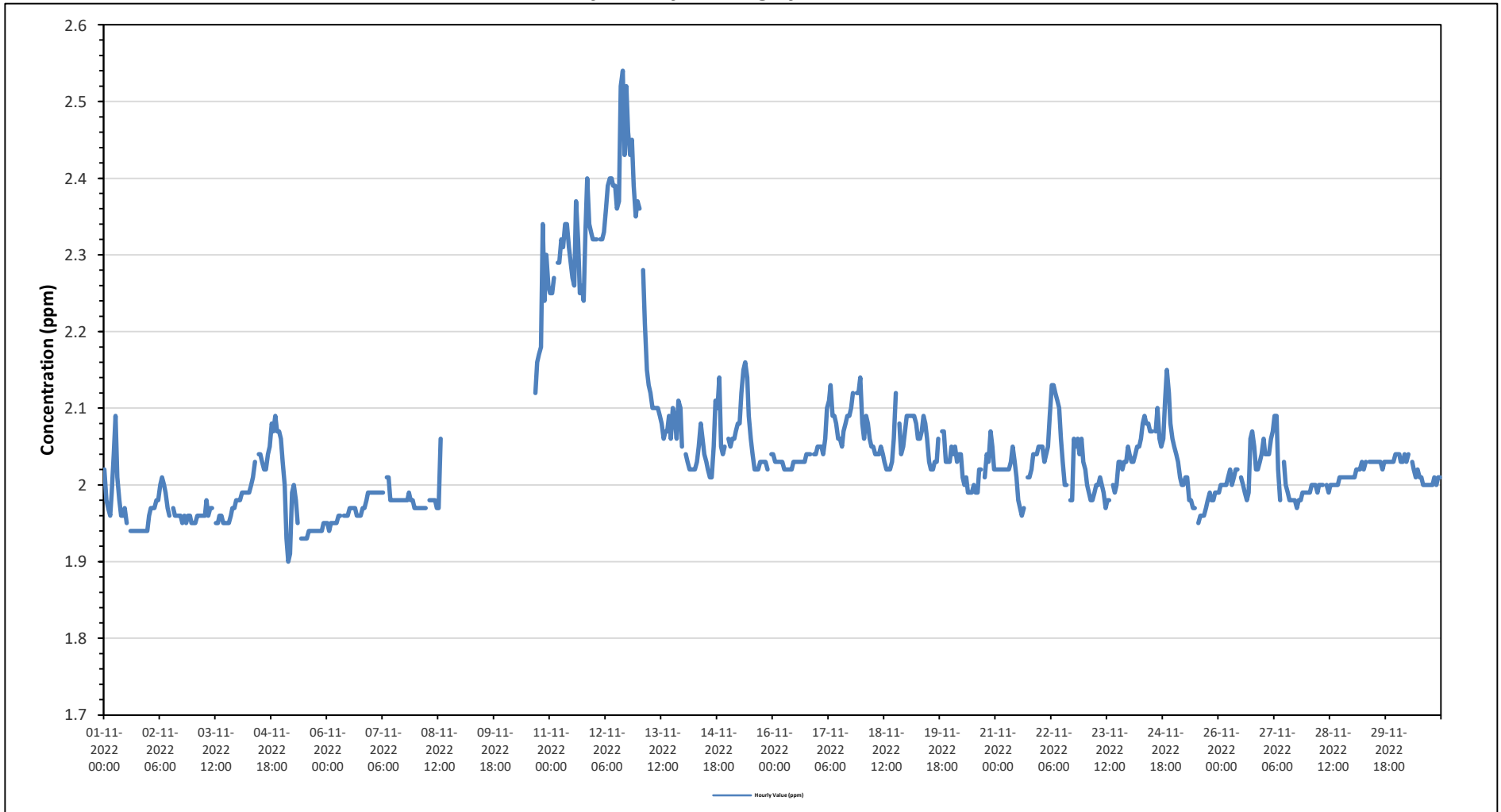
65 2-5

0 5-10

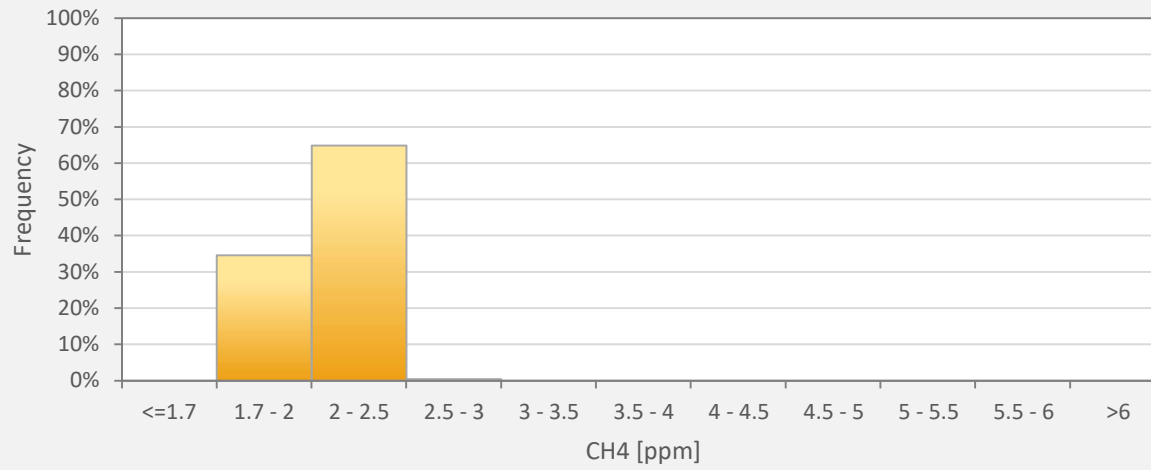
0 10-40

0 >40.0

Timeseries Chart of Hourly Average for CH4 - Lac La Biche Station



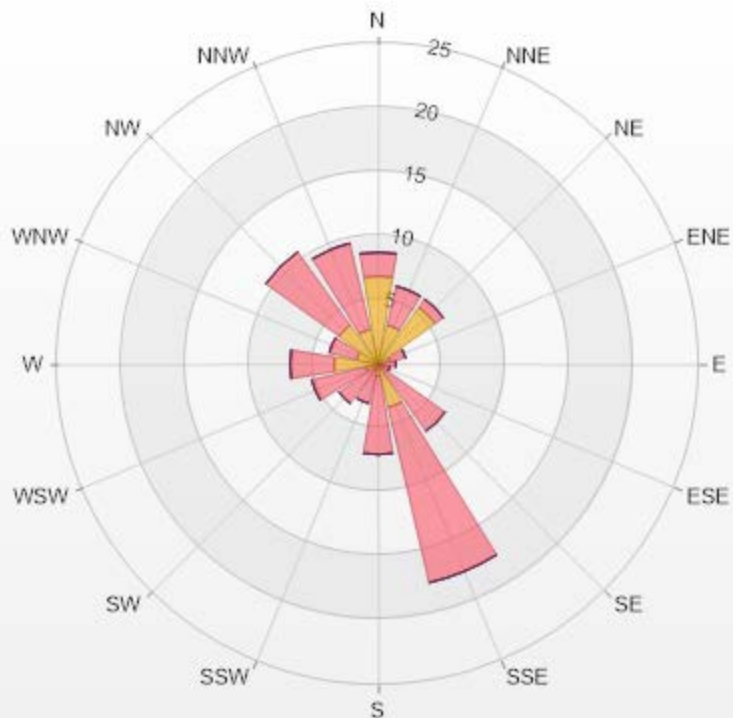
CH4[ppm] Histogram: Lac La Biche Monthly: 11-2022 1 Hr.



Classes	CH4
<=1.7	0.00%
1.7 - 2	34.63%
2 - 2.5	64.90%
2.5 - 3	0.47%
3 - 3.5	0.00%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: Lac La Biche Poll.: Lac La Biche-CH4[ppm] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 89.03% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	6.86	1.87	0	0	0	8.73
NNE	3.12	3.12	0	0	0	6.24
NE	5.46	0.78	0	0	0	6.24
ENE	0.94	1.25	0	0	0	2.19
E	0.31	1.09	0	0	0	1.4
ESE	0	0.94	0	0	0	0.94
SE	0.16	6.24	0	0	0	6.4
SSE	3.43	14.04	0	0	0	17.47
S	0.94	6.08	0	0	0	7.02
SSW	0.47	2.65	0	0	0	3.12
SW	0.31	3.43	0	0	0	3.74
WSW	0.94	4.37	0	0	0	5.31
W	3.43	3.43	0	0	0	6.86
WNW	1.72	2.18	0	0	0	3.9
NW	3.74	7.02	0	0	0	10.76
NNW	2.81	6.86	0	0	0	9.67
Summary	34.64	65.35	0	0	0	100



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% Icon Classes (ppm)

35 0-2

65 2-5

0 5-10

0 10-20

0 >20.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - November 2022

Summary of Hourly Averages

NON-METHANE HYDROCARBONS (NMHC) in ppm

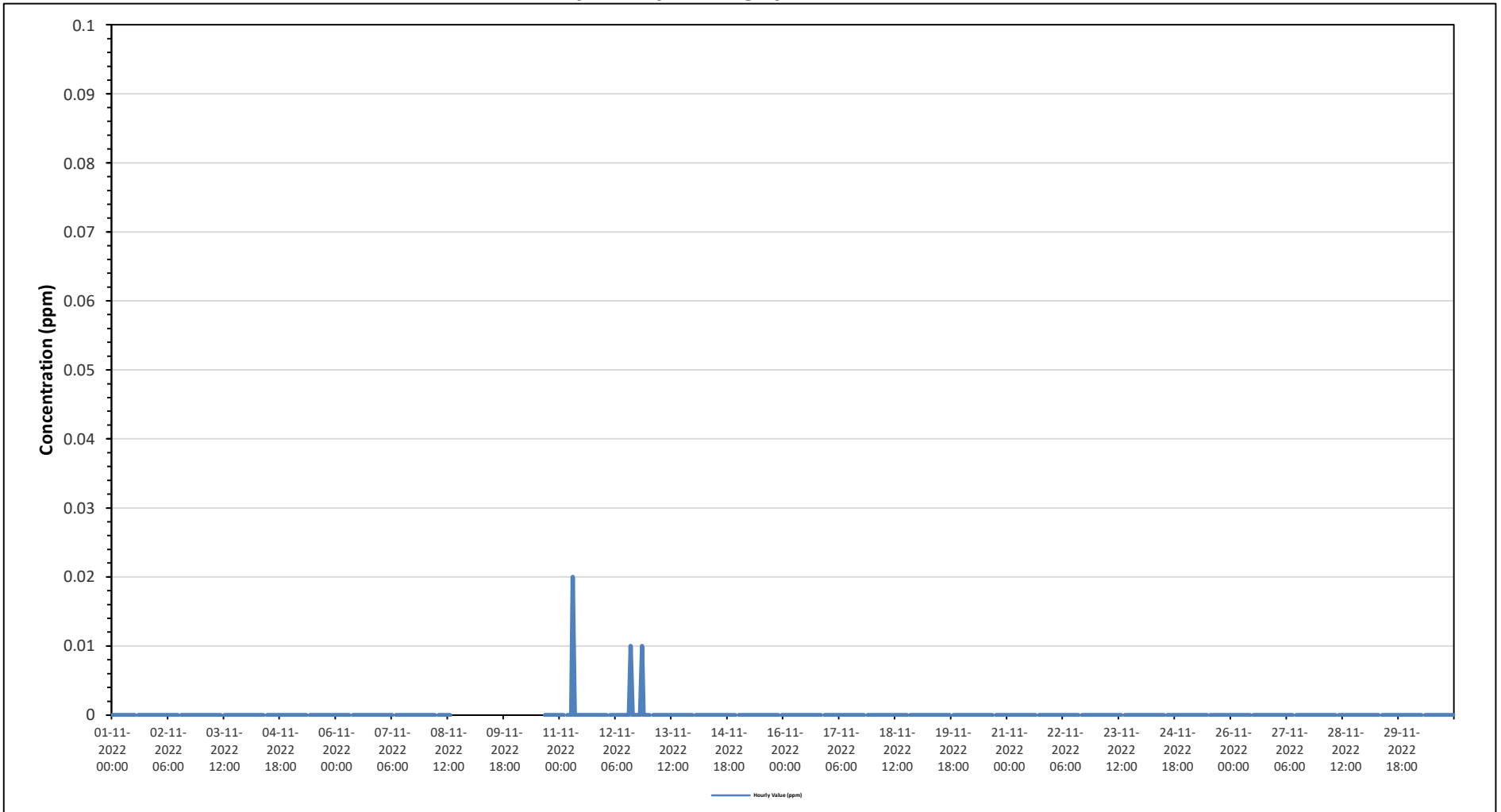
Maximum Hourly Value: 0.02 ppm on November 11 at hour 7	Hours in Service: 720
Maximum Daily Value: 0.00 ppm on November 11	Hours of Data: 641
Minimum Hourly Value: 0.00 ppm on November 1 at hour 0	Hours of Missing Data: 45
Minimum Daily Value: 0.00 ppm on November 1	Hours of Calibration: 34
Monthly Average: 0.00 ppm	Operational Uptime: 93.8

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	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 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	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 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	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 6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nov 8	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	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	0.00	0.00	
Nov 9	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	-	-
Nov 10	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	0.00	0.00
Nov 11	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	
Nov 12	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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Nov 13	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nov 14	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	
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	0.00	0.00	0.00	0.00	0.00	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	
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	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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 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	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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 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	0.00	0.00	0.00	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 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	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

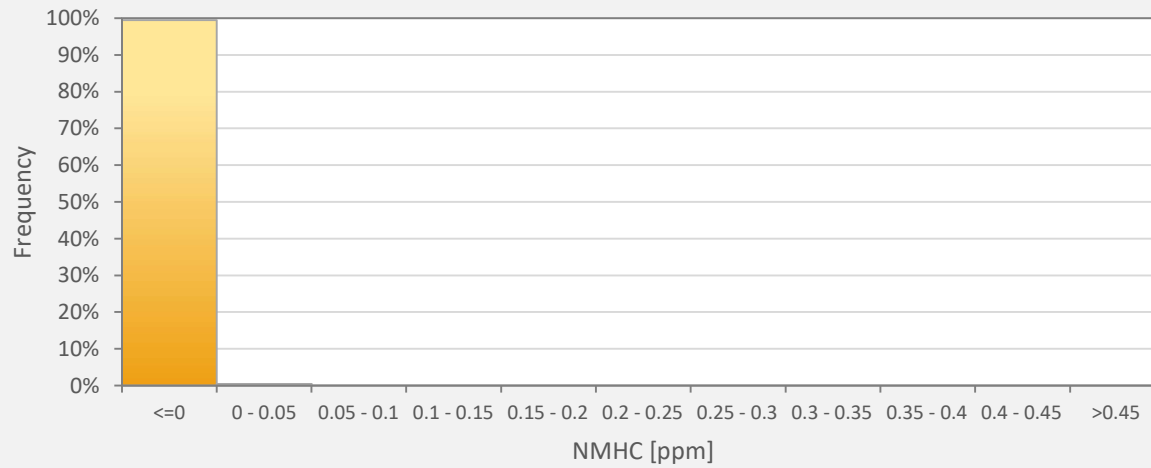
C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	N No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction /Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

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

Timeseries Chart of Hourly Average for NMHC - Lac La Biche Station



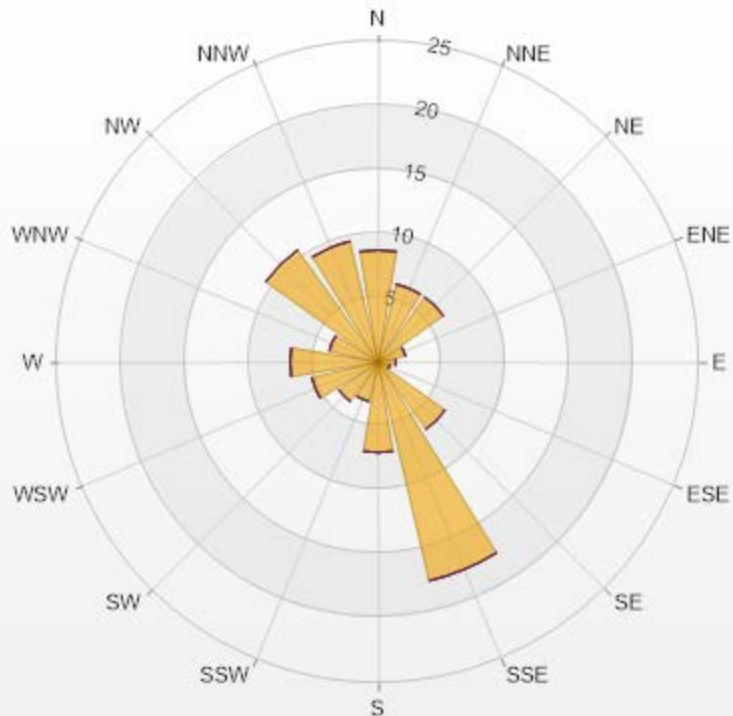
NMHC[ppm] Histogram: Lac La Biche Monthly: 11-2022 1 Hr.



Classes	NMHC
<=0	99.53%
0 - 0.05	0.47%
0.05 - 0.1	0.00%
0.1 - 0.15	0.00%
0.15 - 0.2	0.00%
0.2 - 0.25	0.00%
0.25 - 0.3	0.00%
0.3 - 0.35	0.00%
0.35 - 0.4	0.00%
0.4 - 0.45	0.00%
>0.45	0.00%

Wind: Lac La Biche Poll.: Lac La Biche-NMHC[ppm] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 89.03% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	8.74	0	0	0	0	8.74
NNE	6.24	0	0	0	0	6.24
NE	6.24	0	0	0	0	6.24
ENE	2.18	0	0	0	0	2.18
E	1.4	0	0	0	0	1.4
ESE	0.94	0	0	0	0	0.94
SE	6.4	0	0	0	0	6.4
SSE	17.47	0	0	0	0	17.47
S	7.02	0	0	0	0	7.02
SSW	3.12	0	0	0	0	3.12
SW	3.74	0	0	0	0	3.74
WSW	5.3	0	0	0	0	5.3
W	6.86	0	0	0	0	6.86
WNW	3.9	0	0	0	0	3.9
NW	10.76	0	0	0	0	10.76
NNW	9.67	0	0	0	0	9.67
Summary	100	0	0	0	0	100



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% Icon Classes (ppm)

100 0-0.1

0 0.1-0.3

0 0.3-1

0 1-2

0 >2.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - November 2022

Summary of Hourly Averages

PARTICULATE MATTER 2.5 (PM_{2.5}) in µg/m³

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: 1

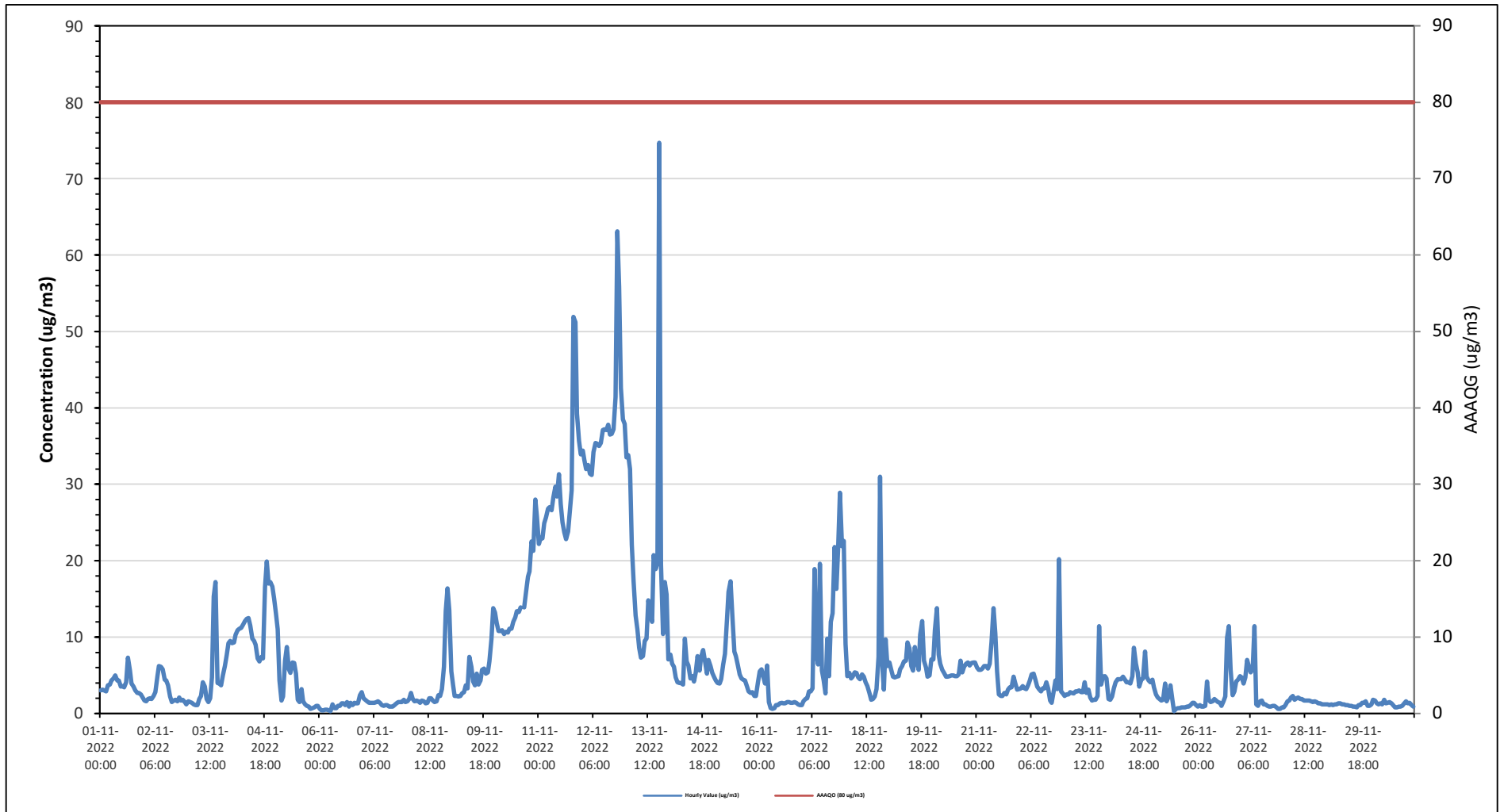
Maximum Hourly Value:	75 µg/m ³ on November 13 at hour 18	Hours in Service:	720
Maximum Daily Value:	37.9 µg/m ³ on November 12	Hours of Data:	719
Minimum Hourly Value:	0 µg/m ³ on November 6 at hour 6	Hours of Missing Data:	0
Minimum Daily Value:	1 µg/m ³ on November 6	Hours of Calibration:	1
Monthly Average:	7.0 µg/m ³	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	3	3	3	4	4	4	5	5	4	4	4	4	3	4	7	6	4	4	4	3	3	3	2	2	7	3.7
Nov 2	2	2	2	2	2	2	3	5	6	6	6	4	4	4	2	2	2	2	2	2	2	2	2	1	1	6	2.8
Nov 3	2	2	1	1	1	1	2	2	4	4	2	2	2	5	15	17	4	4	4	5	6	8	9	10	1	17	4.6
Nov 4	9	9	10	11	11	11	12	12	12	13	12	10	10	9	7	7	7	7	17	20	17	17	17	15	7	20	11.7
Nov 5	13	11	4	2	2	7	9	6	5	7	7	5	2	2	3	2	1	1	1	1	1	1	1	1	1	13	3.9
Nov 6	1	0	0	1	1	0	0	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	3	0	3	1.1
Nov 7	2	2	2	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	2	1.4
Nov 8	2	2	3	2	2	2	2	1	2	2	1	1	2	2	2	2	2	2	3	6	13	16	14	1	16	3.6	
Nov 9	6	4	2	2	2	2	3	3	4	3	7	6	4	4	5	4	4	6	6	5	5	7	10	14	2	14	4.9
Nov 10	13	12	11	11	11	10	11	11	11	11	12	13	13	13	14	C	14	16	18	19	23	21	28	26	10	28	14.8
Nov 11	22	23	23	25	26	27	27	27	28	30	28	31	27	25	24	23	24	27	29	52	51	39	36	34	22	52	29.5
Nov 12	34	33	32	33	31	31	34	35	35	35	35	37	37	37	38	37	37	37	41	63	56	43	39	38	31	63	37.9
Nov 13	34	34	32	22	17	13	11	9	7	8	10	10	15	13	12	21	19	20	75	20	10	17	16	7	7	75	18.7
Nov 14	8	7	6	5	4	4	4	4	10	7	6	5	5	4	5	8	6	7	8	7	5	7	6	5	4	10	5.9
Nov 15	5	4	4	4	5	6	8	12	16	17	13	8	8	6	5	5	4	4	4	3	3	3	2	2	2	17	6.3
Nov 16	4	6	6	5	4	6	2	1	1	1	1	1	1	1	1	1	2	2	1	1	2	1	1	1	1	6	2.2
Nov 17	1	2	2	2	3	3	3	19	8	6	20	6	4	3	10	5	12	13	22	16	22	29	22	23	1	29	10.6
Nov 18	9	5	5	5	5	5	5	5	5	5	5	4	4	3	2	2	2	3	7	31	7	3	10	6	2	31	5.9
Nov 19	7	6	5	5	5	6	6	7	7	9	9	6	6	9	7	6	10	12	7	6	5	5	7	5	5	12	6.7
Nov 20	7	11	14	8	7	6	5	5	5	5	5	5	5	5	5	7	5	6	7	7	6	7	7	7	5	14	6.4
Nov 21	6	6	6	6	6	6	6	7	9	14	11	6	3	2	2	3	3	3	3	3	5	4	3	3	2	14	5.2
Nov 22	3	4	3	3	4	4	5	5	4	4	3	3	3	3	4	3	2	1	3	4	3	20	3	3	1	20	4.1
Nov 23	2	3	3	3	3	3	3	3	3	3	3	4	3	3	2	2	2	2	2	11	4	5	5	5	2	11	3.3
Nov 24	2	2	2	3	4	5	5	5	5	4	4	4	4	5	9	7	5	4	4	5	8	5	4	4	2	9	4.5
Nov 25	4	3	3	2	2	2	2	4	2	2	4	2	0	1	1	1	1	1	1	1	1	1	1	1	0	4	1.7
Nov 26	1	1	1	1	1	1	4	2	2	2	2	2	1	1	2	2	10	11	6	2	3	4	4	1	11	2.8	
Nov 27	5	5	4	5	7	6	5	6	11	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	11	2.9
Nov 28	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	2	1.6
Nov 29	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	2	1.1
Nov 30	1	2	2	1	1	1	2	1	1	2	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	1.3
Diurnal Maximum	34	34	32	33	31	31	34	35	35	35	35	37	37	37	38	37	37	37	75	63	56	43	39	38			
Diurnal Average	7.0	6.7	6.4	5.8	5.8	6.0	6.2	6.8	7.1	6.9	7.2	6.2	5.8	5.6	6.3	6.1	5.9	6.6	9.7	10.1	8.7	9.0	8.6	8.0			

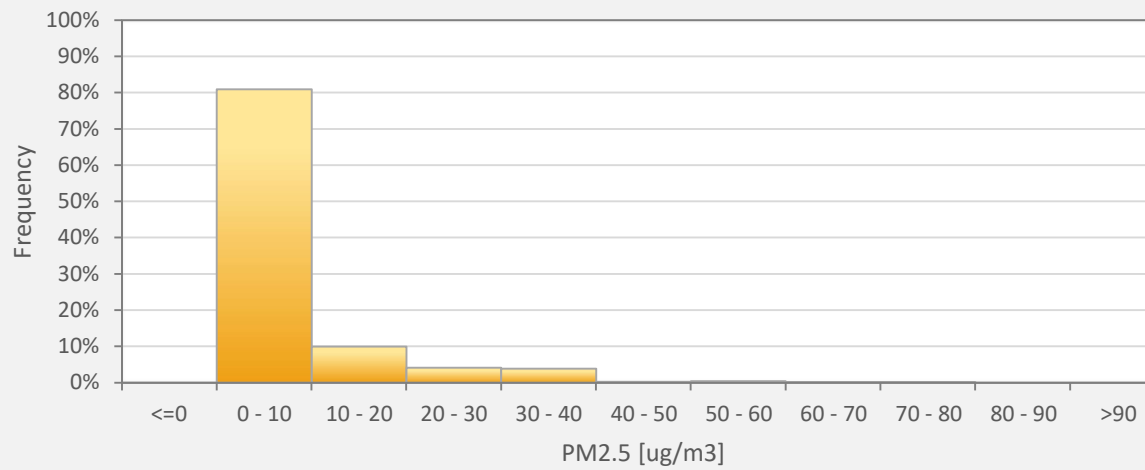
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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

Timeseries Chart of Hourly Average for PM2.5 - Lac La Biche Station



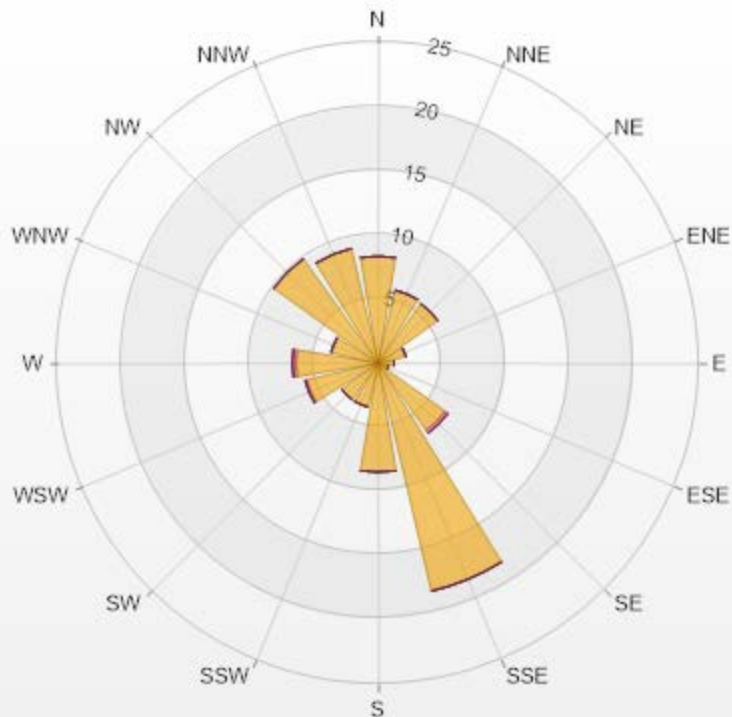
PM2.5[ug/m3(L)] Histogram: Lac La Biche Monthly: 11-2022 1 Hr.



Classes	PM2.5
<=0	0.00%
0 - 10	80.95%
10 - 20	10.01%
20 - 30	4.17%
30 - 40	3.89%
40 - 50	0.28%
50 - 60	0.42%
60 - 70	0.14%
70 - 80	0.14%
80 - 90	0.00%
>90	0.00%

Wind: Lac La Biche Poll.: Lac La Biche-PM2.5[ug/m3(L)] Monthly: 11-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 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	8.34	0	0	0	0	8.34
NNE	5.84	0	0	0	0	5.84
NE	5.7	0	0	0	0	5.7
ENE	2.23	0	0	0	0	2.23
E	1.25	0	0	0	0	1.25
ESE	0.83	0	0	0	0	0.83
SE	6.4	0.28	0	0	0	6.68
SSE	18.22	0	0	0	0	18.22
S	8.48	0	0	0	0	8.48
SSW	3.48	0	0	0	0	3.48
SW	3.48	0	0	0	0	3.48
WSW	5.7	0.14	0	0	0	5.84
W	6.4	0.28	0	0	0	6.68
WNW	3.76	0	0	0	0	3.76
NW	10.01	0	0	0	0	10.01
NNW	9.18	0	0	0	0	9.18
Summary	99.3	0.7	0	0	0	100



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% Icon Classes (ug/m3(L))	99	0-50	1	50-80	0	80-120	0	120-240	0	>240.0
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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - November 2022

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	100 %	on November 1 at hour 18	Hours in Service:	720
Maximum Daily Value:	92.7 %	on November 2	Hours of Data:	720
Minimum Hourly Value:	36 %	on November 19 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	54.0 %	on November 20	Hours of Calibration:	0
Monthly Average:	77.8 %		Operational Uptime:	100.0

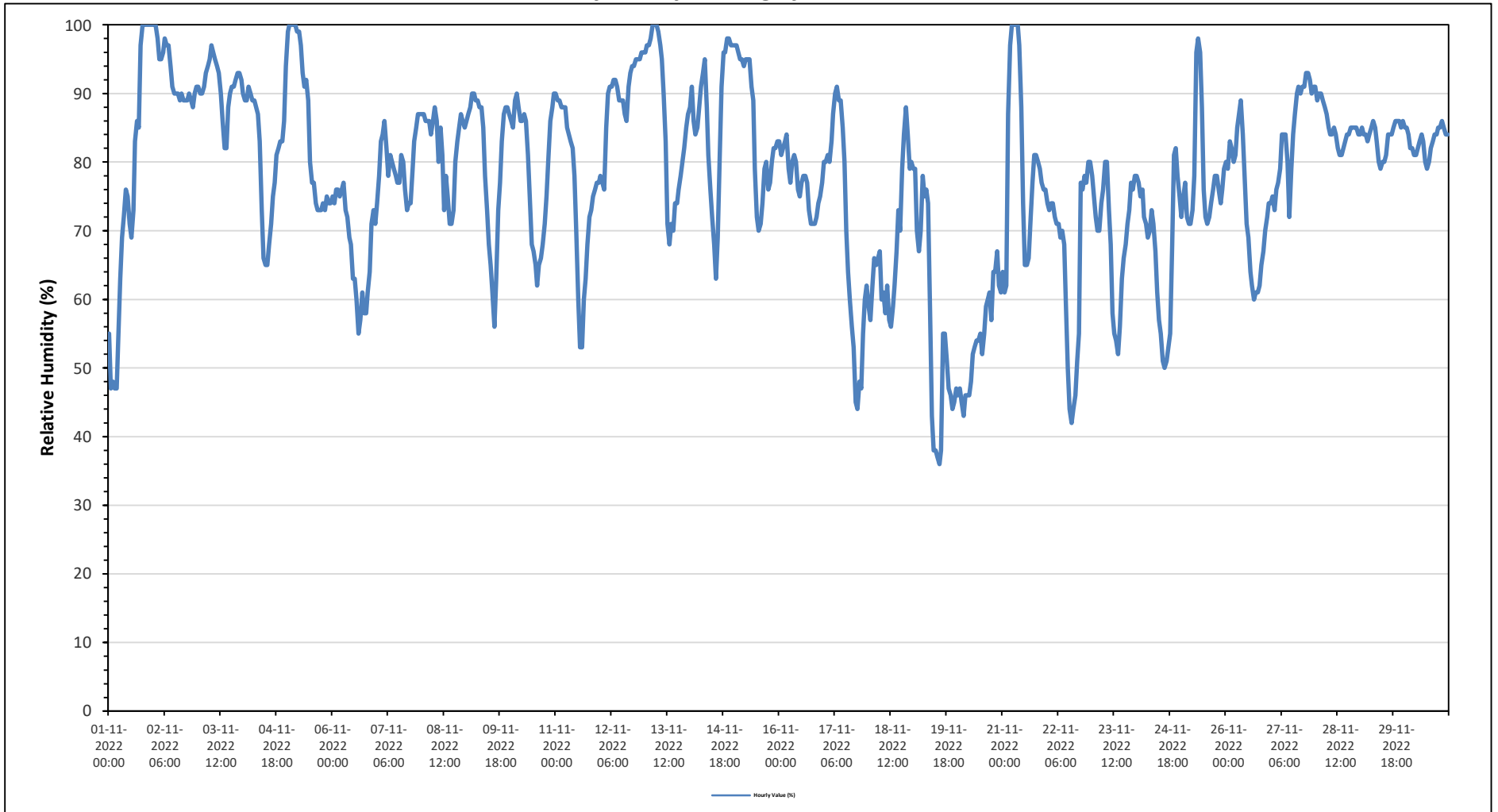
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Nov 1	55	47	48	47	47	54	63	69	72	76	75	71	69	73	83	86	85	97	100	100	100	100	100	100	47	100	75.7
Nov 2	100	100	98	95	95	96	98	97	97	94	91	90	90	90	89	90	89	89	89	90	89	88	90	91	88	100	92.7
Nov 3	91	90	90	91	93	94	95	97	96	95	94	93	90	86	82	82	88	90	91	91	92	93	93	92	82	97	91.2
Nov 4	90	89	89	91	90	89	89	88	87	83	73	66	65	65	68	71	75	77	81	82	83	83	86	94	65	94	81.4
Nov 5	99	100	100	100	100	99	99	97	93	91	92	89	80	77	77	74	73	73	73	74	73	75	74	74	73	100	85.7
Nov 6	75	74	76	76	75	76	77	73	72	69	68	63	63	60	55	57	61	58	58	61	64	71	73	71	55	77	67.8
Nov 7	74	78	83	84	86	82	78	81	80	79	78	77	77	81	80	76	73	74	74	79	83	85	87	87	73	87	79.8
Nov 8	87	87	86	86	86	84	86	88	86	80	85	81	73	78	75	71	71	73	80	83	85	87	86	85	71	88	82.0
Nov 9	86	87	88	90	90	89	89	88	88	85	78	73	68	65	61	56	63	73	77	83	87	88	88	87	56	90	80.3
Nov 10	86	85	89	90	88	86	86	87	86	81	75	68	67	65	62	65	66	68	71	75	81	86	88	90	62	90	78.8
Nov 11	90	89	89	88	88	88	85	84	83	82	78	70	60	53	53	60	63	68	72	73	75	76	77	77	53	90	75.9
Nov 12	78	77	76	85	90	91	91	92	92	91	89	89	89	87	86	91	93	94	94	95	95	95	96	96	76	96	89.7
Nov 13	96	97	97	98	100	100	100	99	97	95	90	83	71	68	71	70	74	74	76	78	80	82	85	87	68	100	86.2
Nov 14	88	91	86	84	85	88	91	93	95	88	81	76	72	68	63	69	81	91	96	96	98	98	97	97	63	98	86.3
Nov 15	97	97	96	95	94	95	95	95	95	91	89	79	72	70	71	74	79	80	76	77	80	82	82	83	70	97	85.2
Nov 16	83	81	82	83	84	79	77	80	81	80	76	75	77	78	78	77	73	71	71	71	72	74	75	77	71	84	77.3
Nov 17	80	80	81	80	83	87	90	91	89	89	85	80	70	64	60	56	53	45	44	48	47	55	60	62	44	91	70.0
Nov 18	59	57	62	66	65	66	67	60	61	58	62	57	56	59	62	67	73	70	79	84	88	84	79	80	56	88	67.5
Nov 19	79	79	70	67	70	78	75	76	74	58	43	38	38	37	36	38	55	55	51	47	46	44	45	47	36	79	56.1
Nov 20	46	47	45	43	46	46	46	48	52	53	54	54	55	52	55	59	60	61	57	64	64	67	62	61	43	67	54.0
Nov 21	64	61	62	87	97	100	100	100	100	97	88	74	65	65	66	72	77	81	81	80	79	77	76	76	61	100	80.2
Nov 22	74	73	74	74	72	71	71	69	70	68	60	50	44	42	44	46	51	55	77	76	78	77	80	80	42	80	65.7
Nov 23	78	75	72	70	70	74	76	80	80	73	68	58	55	54	52	56	63	66	68	71	73	77	76	78	52	80	69.3
Nov 24	78	77	75	76	72	71	69	70	73	71	67	61	57	55	51	50	51	53	55	68	81	82	78	75	50	82	67.3
Nov 25	72	75	77	72	71	71	73	78	96	98	96	88	76	72	71	72	74	76	78	78	76	74	76	79	71	98	77.9
Nov 26	80	79	83	82	80	81	85	87	89	84	78	71	69	64	62	60	61	61	62	65	67	70	72	74	60	89	73.6
Nov 27	74	75	73	76	77	79	84	84	84	80	72	79	84	87	90	91	90	91	91	93	93	92	90	91	72	93	84.2
Nov 28	91	89	90	90	89	88	87	85	84	84	85	84	82	81	81	82	83	84	84	85	85	85	85	84	81	91	85.3
Nov 29	84	85	84	84	83	84	85	86	85	83	80	79	80	80	81	84	84	84	85	86	86	86	85	86	79	86	83.7
Nov 30	85	85	84	82	82	81	81	82	83	84	83	80	79	80	82	83	84	84	85	85	86	85	84	84	79	86	83.0
Diurnal Maximum	100	100	100	100	100	100	100	100	100	98	96	93	90	90	90	91	93	97	100	100	100	100	100	100			
Diurnal Average	80.6	80.2	80.2	81.1	81.6	82.2	82.9	83.5	84.0	81.3	77.8	73.2	69.8	68.5	68.2	69.5	72.2	73.9	75.9	77.9	79.5	80.6	80.8	81.5			

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

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

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

Timeseries Chart of Hourly Average for RH - Lac La Biche Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - November 2022

Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	975 mb	on November 16 at hour 23	Hours in Service:	720
Maximum Daily Value:	968 mb	on November 17	Hours of Data:	720
Minimum Hourly Value:	921 mb	on November 5 at hour 2	Hours of Missing Data:	0
Minimum Daily Value:	928 mb	on November 4	Hours of Calibration:	0
Monthly Average:	949 mb		Operational Uptime:	100.0

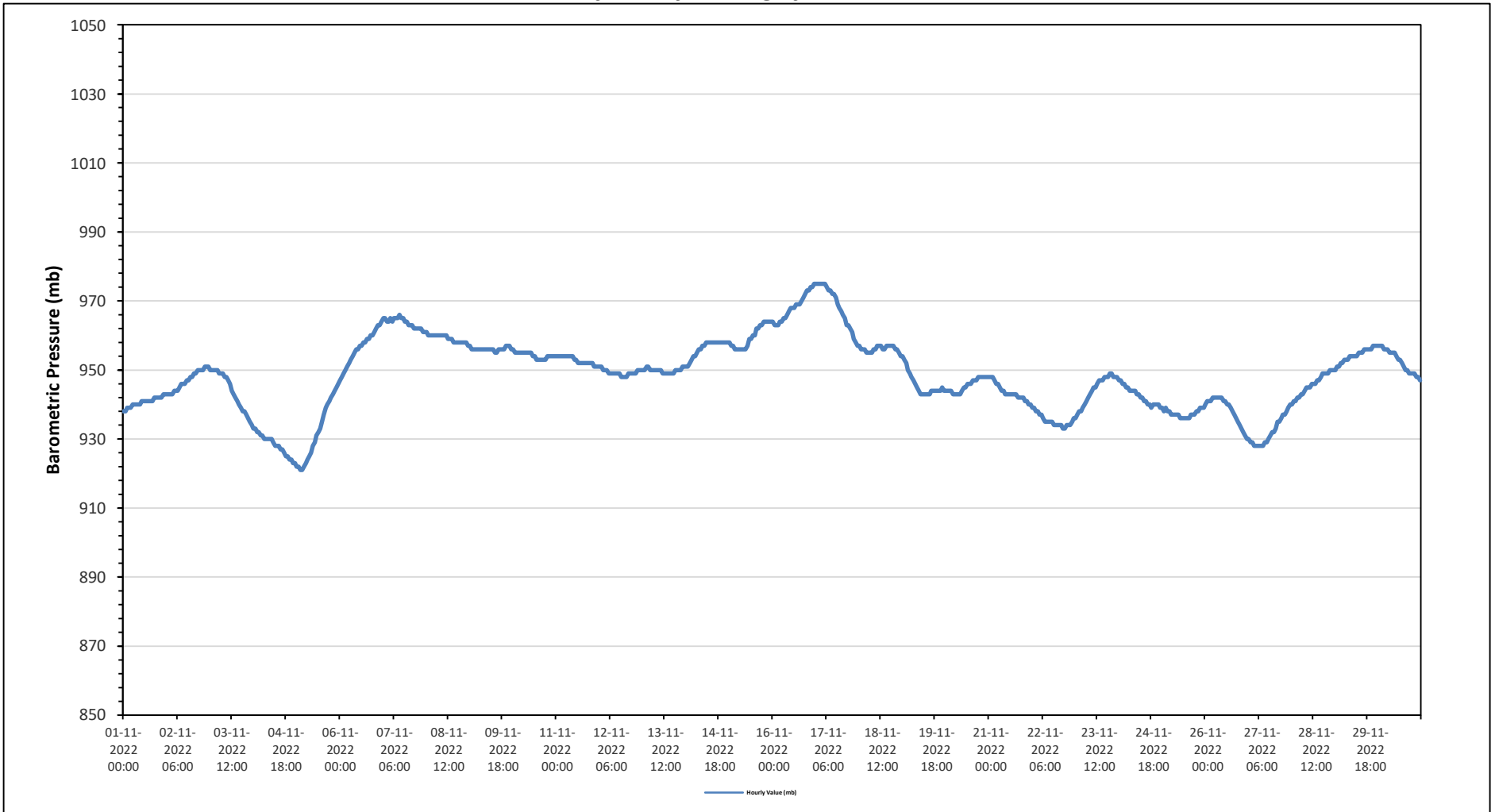
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Nov 1	938	938	939	939	939	940	940	940	940	940	941	941	941	941	941	941	941	942	942	942	942	942	943	943	938	943	940.7
Nov 2	943	943	943	943	944	944	944	945	946	946	946	947	947	948	948	949	949	950	950	950	950	951	951	951	943	951	947.0
Nov 3	950	950	950	950	950	949	949	949	948	948	947	946	944	943	942	941	940	939	938	938	937	936	935	934	934	950	943.9
Nov 4	933	933	932	932	931	931	930	930	930	930	929	928	928	928	927	927	926	925	925	924	924	923	923	923	923	933	928.3
Nov 5	922	922	921	921	922	923	924	925	926	928	929	931	932	933	935	937	939	940	941	942	943	944	945	946	921	946	932.1
Nov 6	947	948	949	950	951	952	953	954	955	956	956	957	957	958	958	959	959	960	960	961	962	963	963	964	947	964	956.3
Nov 7	965	965	964	964	965	964	965	965	965	966	965	965	964	964	963	963	963	962	962	962	962	962	961	961	961	966	963.6
Nov 8	961	960	960	960	960	960	960	960	960	960	960	959	959	959	958	958	958	958	958	958	958	958	958	957	957	961	959.1
Nov 9	957	956	956	956	956	956	956	956	956	956	956	956	956	956	955	955	956	956	956	956	957	957	957	956	955	957	956.1
Nov 10	956	955	955	955	955	955	955	955	955	955	955	954	954	953	953	953	953	953	953	954	954	954	954	954	953	956	954.3
Nov 11	954	954	954	954	954	954	954	954	954	953	953	952	952	952	952	952	952	952	952	952	951	951	951	951	951	954	952.8
Nov 12	951	951	950	950	950	949	949	949	949	949	949	949	948	948	948	948	949	949	949	949	949	950	950	950	948	951	949.3
Nov 13	950	950	951	951	950	950	950	950	950	950	950	949	949	949	949	949	949	950	950	950	950	951	951	949	951	949.9	
Nov 14	951	951	952	953	954	954	955	956	956	956	957	957	958	958	958	958	958	958	958	958	958	958	958	958	951	958	956.3
Nov 15	958	957	957	956	956	956	956	956	956	956	956	957	959	959	960	960	962	962	963	963	964	964	964	964	956	964	959.5
Nov 16	964	963	963	963	964	964	965	965	966	967	968	968	968	969	969	969	970	971	972	973	973	974	974	975	963	975	968.2
Nov 17	975	975	975	975	975	975	974	973	973	972	972	971	969	968	967	966	965	963	963	962	961	959	958	957	957	975	968.5
Nov 18	957	956	956	956	955	955	955	955	956	956	957	957	957	956	956	957	957	957	957	957	956	956	955	954	954	957	956.1
Nov 19	954	953	952	950	949	948	947	946	946	945	944	943	943	943	943	943	944	944	944	944	944	944	945	944	943	954	945.8
Nov 20	944	944	944	944	943	943	943	943	943	944	945	945	946	946	946	947	947	947	948	948	948	948	948	948	943	948	945.5
Nov 21	948	948	948	947	946	946	945	944	944	943	943	943	943	943	943	942	942	942	942	941	941	940	940	940	940	948	943.6
Nov 22	939	939	938	938	937	937	936	935	935	935	935	934	934	934	934	933	933	933	934	934	934	935	936	936	933	939	935.3
Nov 23	936	937	938	938	939	940	941	942	943	944	945	945	946	947	947	947	948	948	948	949	949	948	948	948	936	949	944.2
Nov 24	947	947	946	946	945	945	944	944	944	944	943	943	942	942	941	941	940	939	940	940	940	940	939	939	939	947	942.6
Nov 25	939	938	939	938	938	937	937	937	937	936	936	936	936	936	936	937	937	937	938	938	938	939	939	939	936	939	937.4
Nov 26	940	941	941	941	942	942	942	942	942	941	941	940	940	939	938	937	936	935	934	933	932	931	930	930	930	942	938.4
Nov 27	930	929	929	928	928	928	928	928	928	929	929	930	931	932	932	933	935	935	936	937	937	938	939	940	928	940	932.0
Nov 28	940	941	941	942	942	943	943	944	945	945	945	946	946	946	947	947	948	949	949	949	949	950	950	950	940	950	945.7
Nov 29	950	951	951	952	952	953	953	953	954	954	954	955	955	955	955	956	956	956	956	956	956	957	957	957	950	957	954.2
Nov 30	957	957	957	956	956	956	955	955	955	955	954	954	953	953	952	951	950	950	949	949	948	948	947	947	947	957	952.5
Diurnal Maximum	975	975	975	975	975	975	974	973	973	972	972	971	969	969	969	969	970	971	972	973	973	974	974	975			
Diurnal Average	949	948	948	948	948	948	948	948	949	949	949	949	949	949	949	949	949	949	949	949	949	949	949	949			

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

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

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

Timeseries Chart of Hourly Average for BP - Lac La Biche Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - November 2022

Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

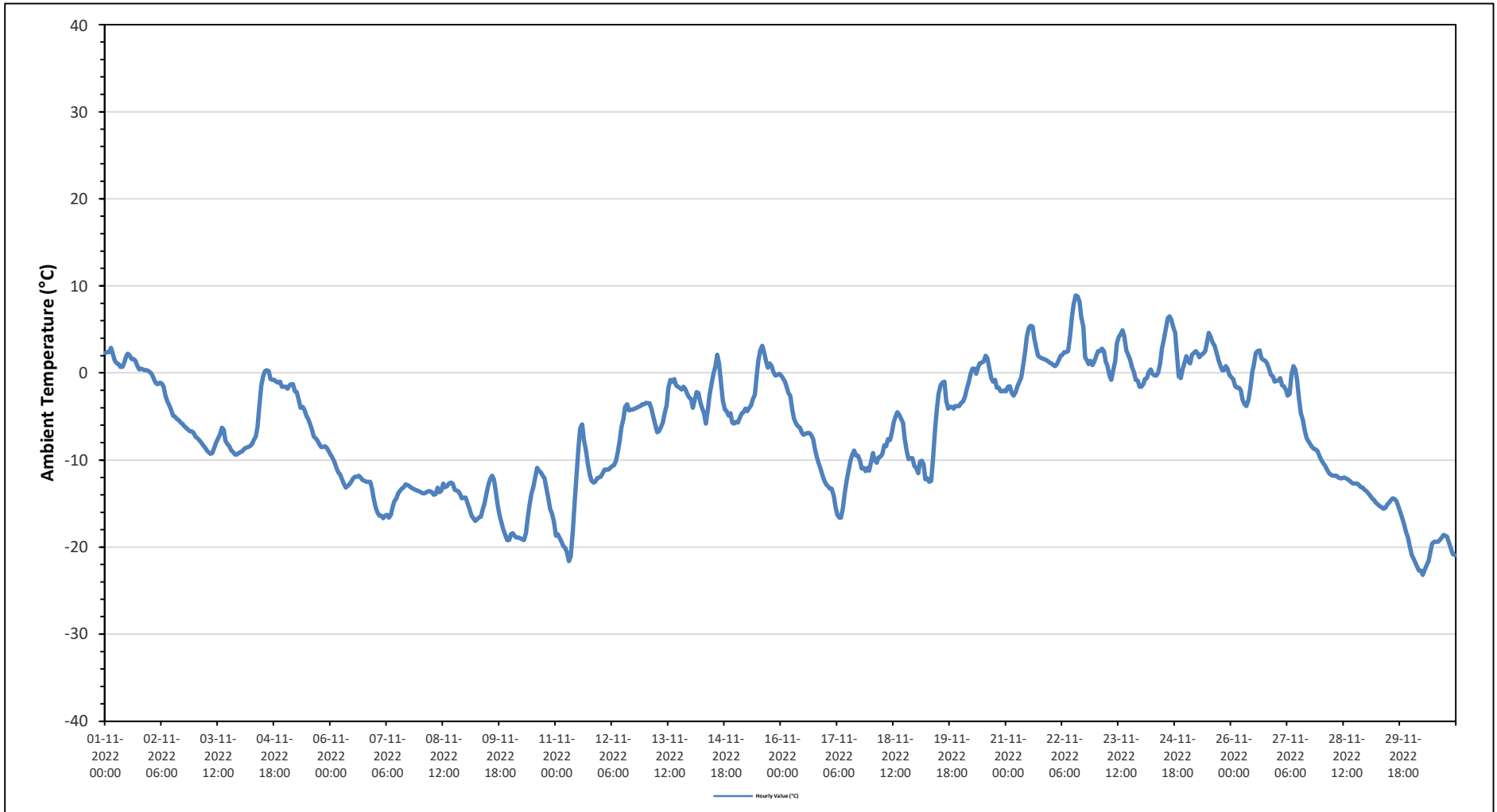
Maximum Hourly Value:	8.9 °C	on November 22 at hour 13	Hours in Service:	720
Maximum Daily Value:	3.4 °C	on November 22	Hours of Data:	720
Minimum Hourly Value:	-23.2 °C	on November 30 at hour 6	Hours of Missing Data:	0
Minimum Daily Value:	-20.6 °C	on November 30	Hours of Calibration:	0
Monthly Average:	-6.6 °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	2.3	2.4	2.4	2.9	2.1	1.4	1.1	1	0.7	0.7	1.2	1.9	2.2	2	1.6	1.6	1.4	0.8	0.4	0.5	0.4	0.3	0.3	0.2	0.2	2.9	1.3
Nov 2	0	-0.3	-0.8	-1.2	-1.3	-1.1	-1.2	-1.6	-2.6	-3.3	-3.7	-4.3	-4.9	-5	-5.3	-5.4	-5.7	-5.8	-6.1	-6.3	-6.5	-6.7	-6.7	-6.9	-6.9	0.0	-3.9
Nov 3	-7.3	-7.5	-7.7	-8	-8.3	-8.6	-8.9	-9.1	-9.3	-9.2	-8.6	-8	-7.5	-7.1	-6.3	-6.5	-7.8	-8.2	-8.4	-8.9	-9.1	-9.4	-9.4	-9.2	-9.4	-6.3	-8.3
Nov 4	-9.1	-9	-8.7	-8.6	-8.5	-8.4	-8.2	-7.7	-7.3	-6.2	-3.8	-1.4	-0.4	0.2	0.3	0.2	-0.7	-0.8	-0.8	-1	-1.1	-1	-1.6	-1.6	-9.1	0.3	-4.0
Nov 5	-1.6	-1.8	-1.4	-1.3	-1.3	-2.1	-2.2	-3.1	-4	-3.9	-4.2	-4.9	-5.3	-5.8	-6.5	-7.3	-7.5	-7.8	-8.2	-8.5	-8.5	-8.4	-8.6	-9	-9.0	-1.3	-5.1
Nov 6	-9.4	-9.8	-10.2	-10.9	-11.4	-11.7	-12.2	-12.7	-13.2	-13	-12.8	-12.5	-12.1	-11.9	-11.9	-11.8	-12	-12.3	-12.4	-12.5	-12.5	-13.3	-14.5	-14.5	-14.5	-9.4	-12.1
Nov 7	-15.4	-16	-16.4	-16.4	-16.7	-16.4	-16.3	-16.6	-16.3	-15.4	-14.7	-14.4	-13.8	-13.5	-13.3	-13.1	-12.8	-12.9	-13	-13.2	-13.3	-13.4	-13.5	-13.6	-16.7	-12.8	-14.6
Nov 8	-13.7	-13.8	-13.8	-13.7	-13.6	-13.7	-14	-13.9	-13.2	-13.7	-13.5	-12.7	-13.1	-13	-12.7	-12.6	-12.7	-13.4	-13.5	-13.6	-13.9	-14.4	-14.3	-14.4	-14.4	-12.6	-13.5
Nov 9	-14.3	-15	-15.6	-16.4	-16.7	-17	-16.8	-16.6	-16.5	-15.7	-15	-14	-12.9	-12.2	-11.8	-12.2	-13.5	-15.2	-16.3	-17.2	-18	-18.6	-19.2	-19.2	-19.2	-11.8	-15.7
Nov 10	-18.5	-18.4	-18.7	-18.9	-18.9	-19	-19.1	-19.2	-18.4	-16.7	-15.2	-13.8	-13.1	-11.9	-10.9	-11.2	-11.4	-11.8	-12.1	-13.2	-14.4	-15.6	-16.2	-17.1	-19.2	-10.9	-15.6
Nov 11	-18.7	-18.5	-19	-19.4	-19.9	-20.1	-20.6	-21.6	-21.1	-18.3	-15.1	-11.7	-8.8	-6.4	-5.9	-7.7	-8.9	-10.4	-11.7	-12.4	-12.6	-12.5	-12.1	-12	-21.6	-5.9	-14.4
Nov 12	-11.9	-11.5	-11.1	-11.1	-11.1	-10.9	-10.7	-10.6	-10.1	-9.1	-7.7	-6.3	-5.3	-3.9	-3.6	-4.3	-4.2	-4.2	-4.1	-4	-3.9	-3.8	-3.6	-3.6	-11.9	-3.6	-7.1
Nov 13	-3.4	-3.5	-3.5	-4.1	-5.1	-5.9	-6.8	-6.7	-6.2	-5.7	-4.7	-3.7	-1.7	-0.8	-1	-0.7	-1.4	-1.6	-1.7	-1.9	-1.6	-1.8	-2.4	-2.8	-6.8	-0.7	-3.3
Nov 14	-3	-4	-3	-2.2	-2.3	-3.4	-4.1	-4.6	-5.8	-4.2	-2.5	-1.2	-0.1	0.8	2.1	1.1	-1.2	-3.2	-4.2	-4.4	-4.9	-4.6	-5.7	-5.8	-5.8	2.1	-2.9
Nov 15	-5.6	-5.7	-5.2	-4.7	-4.5	-4.1	-4.4	-4	-3.7	-3	-2.5	-0.3	1.5	2.6	3.1	2.4	1.3	0.6	1.1	0.8	0.1	-0.3	-0.2	-0.1	-5.7	3.1	-1.5
Nov 16	-0.3	-0.6	-1	-1.5	-2.3	-2.6	-4.2	-5.3	-5.8	-6.1	-6.3	-6.8	-7.1	-7	-6.9	-6.9	-7.1	-7.6	-8.6	-9.6	-10.3	-10.9	-11.7	-12.3	-12.3	-0.3	-6.2
Nov 17	-12.8	-13	-13.3	-13.3	-14.1	-15.4	-16.3	-16.6	-16.6	-15.5	-13.8	-12.3	-11.2	-10	-9.4	-8.9	-9.5	-9.5	-10.1	-11	-10.9	-11.3	-10.9	-11.2	-16.6	-8.9	-12.4
Nov 18	-10.3	-9.2	-10	-10.3	-9.7	-9.6	-9.3	-8.3	-8.4	-7.6	-7.7	-6.9	-5.6	-5	-4.5	-4.8	-5.3	-5.7	-7.6	-9	-9.9	-9.8	-9.8	-10.7	-10.7	-4.5	-8.1
Nov 19	-10.9	-11.5	-10.2	-10.1	-10.5	-12.2	-12.1	-12.5	-12.4	-9.9	-6.6	-4.2	-2.4	-1.4	-1.1	-1	-3.2	-4.1	-3.9	-3.9	-4.1	-3.8	-3.8	-3.8	-12.5	-1.0	-6.7
Nov 20	-3.4	-3.3	-2.7	-1.8	-1	-0.1	0.5	0.5	-0.1	0.7	1.1	1.2	1.3	2	1.7	0.6	-0.6	-1	-0.8	-1.7	-1.7	-2.1	-2.1	-2	-3.4	2.0	-0.6
Nov 21	-2.1	-1.6	-1.5	-2.3	-2.6	-2.2	-1.5	-1	-0.5	0.8	2.4	4.2	5.2	5.4	5.3	4	2.9	2	1.8	1.7	1.6	1.5	1.4	1.2	-2.6	5.4	1.1
Nov 22	1.1	0.9	0.8	1	1.5	2	2.1	2.4	2.4	2.5	4.3	6.4	7.9	8.9	8.8	8.2	6.4	5.3	1.8	1.4	1	1.4	0.9	1.3	0.8	8.9	3.4
Nov 23	2	2.5	2.5	2.8	2.5	1.3	0.8	-0.3	-0.8	0.4	1.3	3.4	4.1	4.5	4.9	4.2	2.6	2.1	1.5	0.7	0.1	-0.8	-0.9	-1.6	-1.6	4.9	1.7
Nov 24	-1.6	-1.3	-0.7	-0.6	0.1	0.4	-0.1	-0.3	-0.3	0	1.1	2.8	3.9	5	6.3	6.5	6.1	5.3	4.6	2.1	-0.4	-0.6	0.4	1.2	-1.6	6.5	1.7
Nov 25	1.9	1.3	1.1	2.1	2.3	2.5	2.2	1.8	2.1	2.2	2.5	3.5	4.6	4.1	3.5	3.1	2.4	1.5	0.9	0.3	0.3	0.8	0.5	-0.2	-0.2	4.6	2.0
Nov 26	-0.5	-0.7	-1.5	-1.7	-1.7	-2	-3.1	-3.6	-3.8	-3.1	-1.8	0.1	0.9	2.3	2.5	2.6	1.7	1.5	1.4	1.1	0.5	-0.2	-0.4	-1	-3.8	2.6	-0.4
Nov 27	-0.9	-0.9	-0.6	-1.4	-1.5	-1.9	-2.6	-2.4	-0.2	0.8	0.4	-0.8	-3	-4.6	-5.4	-6.6	-7.5	-7.8	-8.2	-8.5	-8.7	-8.8	-9	-9.6	-9.6	0.8	-4.2
Nov 28	-10	-10.4	-10.7	-11.1	-11.5	-11.7	-11.8	-11.8	-11.8	-12	-12.1	-12.1	-12	-12.1	-12.2	-12.4	-12.6	-12.7	-12.7	-12.7	-12.9	-13.1	-13.2	-13.4	-13.4	-10.0	-12.0
Nov 29	-13.6	-13.8	-14.1	-14.4	-14.6	-14.9	-15.1	-15.3	-15.4	-15.6	-15.5	-15.1	-14.9	-14.6	-14.4	-14.5	-14.7	-15.3	-16	-16.6	-17.4	-18.2	-18.9	-19.9	-19.9	-13.6	-15.5
Nov 30	-20.9	-21.3	-21.8	-22.3	-22.7	-22.7	-23.2	-22.6	-22.1	-21.6	-20.6	-19.6	-19.4	-19.4	-19.2	-18.9	-18.6	-18.7	-18.8	-19.5	-20.2	-20.8	-20.9	-20.9	-23.2	-18.6	-20.6
Diurnal Maximum	2.3	2.5	2.5	2.9	2.5	2.5	2.2	2.4	2.4	2.5	4.3	6.4	7.9	8.9	8.8	8.2	6.4	5.3	4.6	2.1	1.6	1.5	1.4	1.3			
Diurnal Average	-7.1	-7.2	-7.2	-7.3	-7.4	-7.7	-7.9	-8.1	-8.0	-7.3	-6.5	-5.5	-4.8	-4.3	-4.1	-4.4	-5.1	-5.7	-6.2	-6.7	-7.1	-7.3	-7.5	-7.7			

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

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

Timeseries Chart of Hourly Average for AT - Lac La Biche Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - November 2022

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:	25.4 °C	on November 26 at hour 7	Hours in Service:	720
Maximum Daily Value:	24.5 °C	on November 26	Hours of Data:	720
Minimum Hourly Value:	19.5 °C	on November 18 at hour 12	Hours of Missing Data:	0
Minimum Daily Value:	20.9 °C	on November 2	Hours of Calibration:	0
Monthly Average:	22.0 °C		Operational Uptime:	100.0

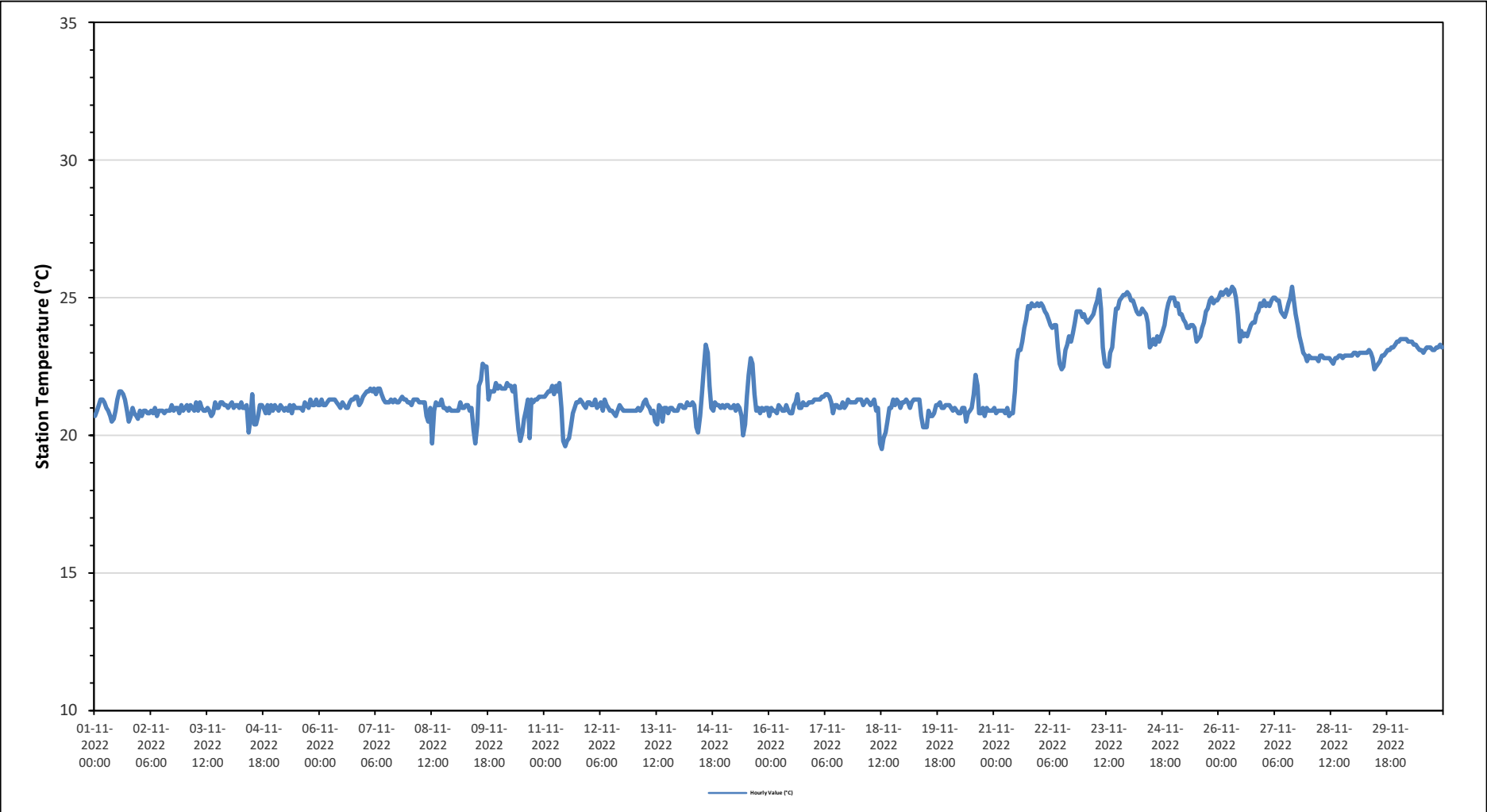
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Nov 1	20.7	20.9	21.1	21.3	21.3	21.2	21.0	20.9	20.7	20.5	20.6	20.9	21.3	21.6	21.6	21.5	21.3	20.9	20.5	20.7	21.0	20.8	20.7	20.6	20.5	21.6	21.0
Nov 2	20.9	20.7	20.9	20.9	20.8	20.8	20.9	20.8	21.0	20.7	20.9	20.9	20.9	20.8	20.9	20.9	20.9	21.1	20.9	21.0	21.0	20.8	21.1	20.9	20.7	21.1	20.9
Nov 3	21.0	21.1	20.9	21.1	21.0	20.9	21.2	20.9	21.2	21.0	20.9	20.9	21.0	20.9	20.7	20.8	21.2	21.0	21.0	21.2	21.2	21.1	21.1	21.0	20.7	21.2	21.0
Nov 4	21.1	21.2	21.0	21.1	21.1	21.0	21.2	21.0	21.2	21.0	20.1	20.6	21.5	20.4	20.4	20.7	21.1	21.1	21.0	20.8	21.1	20.8	21.1	20.9	20.1	21.5	20.9
Nov 5	21.1	21.0	20.9	21.1	21.0	20.9	21.0	20.9	21.1	20.8	21.1	21.0	21.0	21.0	20.9	21.2	21.1	21.0	21.3	21.1	21.1	21.3	21.1	21.0	20.8	21.3	21.0
Nov 6	21.1	21.3	21.1	21.1	21.2	21.3	21.3	21.3	21.2	21.1	21.0	21.2	21.1	21.0	21.0	21.2	21.3	21.3	21.4	21.4	21.1	21.2	21.4	21.0	21.4	21.4	21.2
Nov 7	21.5	21.6	21.6	21.7	21.6	21.7	21.5	21.7	21.5	21.3	21.2	21.2	21.2	21.3	21.2	21.3	21.2	21.3	21.2	21.3	21.4	21.3	21.3	21.2	21.2	21.7	21.4
Nov 8	21.2	21.1	21.3	21.3	21.3	21.2	21.2	21.2	21.2	20.7	20.5	21.0	19.7	20.9	21.2	21.1	21.1	21.3	21.0	21.0	20.9	21.0	20.9	20.9	19.7	21.3	21.0
Nov 9	20.9	20.9	20.9	21.2	21.0	21.0	21.1	21.1	20.9	21.0	20.2	19.7	20.4	21.8	22.0	22.6	22.5	22.5	21.3	21.6	21.6	21.6	21.9	21.7	19.7	22.6	21.3
Nov 10	21.8	21.7	21.7	21.7	21.9	21.8	21.8	21.6	21.8	21.0	20.2	19.8	20.1	20.6	20.9	21.3	19.9	21.3	21.2	21.3	21.3	21.4	21.4	21.4	19.8	21.9	21.2
Nov 11	21.4	21.5	21.6	21.6	21.8	21.5	21.8	21.6	21.9	21.0	19.8	19.6	19.8	19.9	20.3	20.8	21.0	21.2	21.2	21.3	21.2	21.1	21.0	21.2	19.6	21.9	21.0
Nov 12	21.2	21.1	21.1	21.3	21.0	21.1	21.2	20.9	21.3	21.1	21.0	20.9	20.9	20.8	20.7	20.9	21.1	21.0	20.9	20.9	20.9	20.9	20.9	20.9	20.7	21.3	21.0
Nov 13	20.9	20.9	21.0	20.9	21.0	21.2	21.3	21.1	21.0	20.8	20.9	20.5	20.4	21.1	21.0	20.5	21.0	21.0	20.8	21.0	21.0	20.9	20.9	20.9	20.4	21.3	20.9
Nov 14	21.1	21.1	21.0	21.0	21.2	21.1	21.1	21.2	21.1	20.3	20.1	20.7	21.5	22.5	23.3	23.0	21.8	21.0	20.9	21.2	21.1	21.1	21.0	21.1	20.1	23.3	21.3
Nov 15	21.0	21.1	21.1	21.0	21.0	21.1	20.9	21.1	21.0	20.7	20.0	20.4	21.4	22.2	22.8	22.6	21.5	20.9	21.0	20.8	21.0	20.9	21.0	21.0	20.0	22.8	21.1
Nov 16	20.7	21.0	20.9	20.9	20.8	21.1	21.0	20.9	20.9	21.1	20.9	20.8	20.8	21.1	21.2	21.5	21.0	21.0	21.2	21.1	21.1	21.2	21.2	21.2	20.7	21.5	21.0
Nov 17	21.3	21.3	21.3	21.3	21.4	21.4	21.5	21.5	21.4	21.2	20.8	21.1	21.1	21.0	21.0	21.2	21.0	21.1	21.3	21.2	21.2	21.2	21.3	20.8	21.5	21.2	21.2
Nov 18	21.3	21.3	21.1	21.2	21.3	21.2	21.1	21.2	21.3	20.9	21.0	19.7	19.5	19.9	20.1	20.5	21.0	21.0	21.3	21.1	21.3	21.2	21.0	21.2	19.5	21.3	20.9
Nov 19	21.2	21.3	21.2	21.0	21.2	21.3	21.3	21.3	21.3	20.7	20.3	20.3	20.3	20.9	20.7	20.7	20.8	21.1	21.1	21.2	21.0	21.0	21.1	21.1	20.3	21.3	21.0
Nov 20	21.1	21.0	20.9	21.0	20.9	20.8	20.8	21.0	21.0	20.5	20.8	20.9	21.0	21.5	22.2	21.8	20.8	20.8	21.0	20.7	21.0	20.9	20.9	20.9	20.5	22.2	21.0
Nov 21	21.0	20.8	20.9	20.9	20.9	20.9	20.8	21.0	20.7	20.8	20.8	21.6	22.7	23.1	23.1	23.4	23.9	24.2	24.7	24.6	24.8	24.7	24.7	24.8	20.7	24.8	22.5
Nov 22	24.7	24.8	24.7	24.5	24.4	24.2	24.0	23.9	24.0	24.0	23.2	22.6	22.4	22.5	23.1	23.3	23.6	23.4	23.7	24.1	24.5	24.5	24.5	24.3	22.4	24.8	23.9
Nov 23	24.4	24.2	24.1	24.2	24.3	24.4	24.7	24.9	25.3	24.6	23.2	22.6	22.5	22.5	23.0	23.2	23.9	24.6	24.6	24.9	25.0	25.1	25.1	25.2	22.5	25.3	24.2
Nov 24	25.1	24.9	24.9	24.7	24.5	24.4	24.4	24.6	24.5	24.4	24.1	23.2	23.3	23.5	23.3	23.6	23.4	23.6	23.8	24.0	24.5	24.8	25.0	25.0	23.2	25.1	24.2
Nov 25	25.0	24.7	24.8	24.4	24.4	24.2	24.1	23.9	23.9	24.0	24.0	23.9	23.4	23.5	23.6	23.9	24.1	24.5	24.6	24.9	25.0	24.8	24.9	24.9	23.4	25.0	24.3
Nov 26	25.0	25.2	25.1	25.2	25.3	25.1	25.2	25.4	25.3	25.0	24.4	23.4	23.8	23.6	23.7	23.6	23.8	24.0	24.1	24.1	24.4	24.5	24.8	24.7	23.4	25.4	24.5
Nov 27	24.9	24.7	24.8	24.7	24.9	25.0	25.0	24.9	24.9	24.5	24.4	24.3	24.5	24.8	25.0	25.4	24.9	24.4	24.0	23.6	23.3	23.0	22.9	22.7	22.7	25.4	24.4
Nov 28	22.9	22.8	22.8	22.8	22.8	22.7	22.9	22.9	22.8	22.8	22.8	22.7	22.6	22.8	22.8	22.9	22.9	22.9	22.9	22.8	22.9	22.9	22.9	22.9	22.6	22.9	22.8
Nov 29	23.0	23.0	22.9	23.0	23.0	23.0	23.0	23.0	23.1	23.0	22.8	22.4	22.5	22.6	22.7	22.9	22.9	23.0	23.1	23.1	23.1	23.2	23.3	23.4	22.4	23.4	23.0
Nov 30	23.4	23.5	23.5	23.5	23.5	23.4	23.4	23.4	23.3	23.3	23.2	23.1	23.1	23.0	23.1	23.2	23.2	23.2	23.1	23.1	23.2	23.2	23.3	23.4	23.0	23.5	23.3
Diurnal Maximum	25.1	25.2	25.1	25.2	25.3	25.1	25.2	25.4	25.3	25.0	24.4	24.3	24.5	24.8	25.0	25.4	24.9	24.6	24.7	24.9	25.0	25.1	25.1	25.2			
Diurnal Average	22.1	22.1	22.0	22.1	22.1	22.0	22.1	22.0	22.1	22.0	22.1	21.8	21.5	21.4	21.5	21.8	21.9	22.0	22.0	22.0	22.0	22.0	22.0	22.1	22.1	22.1	22.1

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

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

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

Timeseries Chart of Hourly Average for ST - Lac La Biche Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - November 2022

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

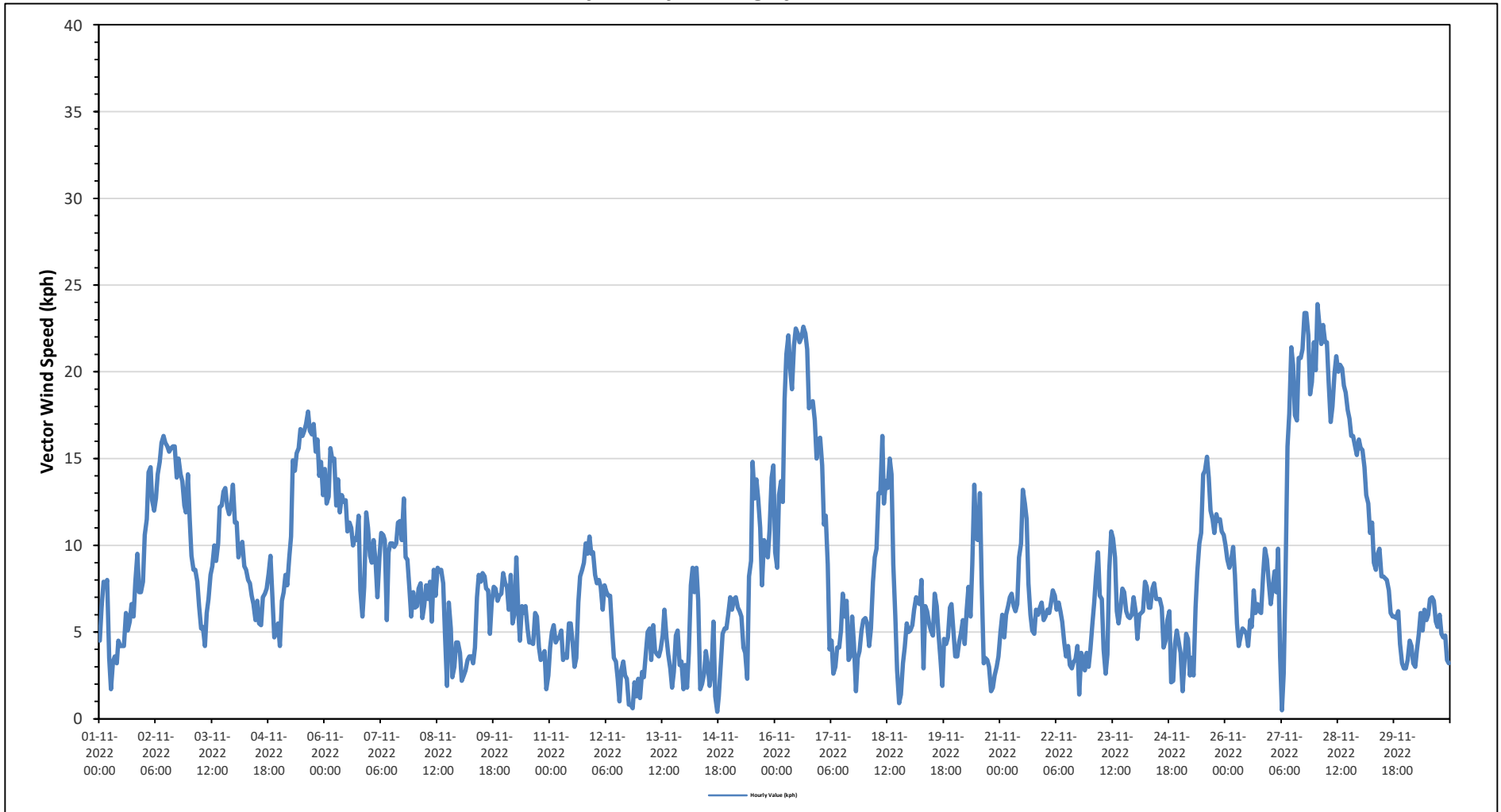
Maximum Hourly Value: 23.9 kph on November 28 at hour 1	Hours in Service: 720
Maximum Daily Value: 19.3 kph on November 28	Hours of Data: 720
Minimum Hourly Value: 0.4 kph on November 14 at hour 17	Hours of Missing Data: 0
Minimum Daily Value: 1.8 kph on November 14	Hours of Calibration: 0
Monthly Average: 2.2 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	4.5	6.4	7.9	7.6	8.0	3.5	1.7	3.3	3.6	3.2	4.5	4.2	4.2	4.2	6.1	5.1	5.6	6.6	5.9	7.9	9.5	7.3	7.3	7.9	1.7	9.5	3.6	
Nov 2	10.6	11.5	14.2	14.5	12.6	12.0	12.7	14.1	14.8	15.9	16.3	15.9	15.7	15.4	15.6	15.7	15.7	13.9	15.0	14.1	13.7	12.3	11.9	14.1	10.6	16.3	14.0	
Nov 3	11.5	9.4	8.6	8.6	7.9	6.5	5.2	5.3	4.2	6.1	6.9	8.3	8.8	10.0	9.1	10.1	12.2	12.3	13.1	13.3	12.2	11.8	12.3	13.5	4.2	13.5	4.7	
Nov 4	11.3	11.3	9.3	9.9	10.2	8.8	8.6	8.0	7.8	7.1	6.6	5.7	6.8	5.5	5.4	7.0	7.2	7.5	8.4	9.4	7.2	4.7	5.0	5.5	4.7	11.3	7.3	
Nov 5	4.2	6.8	7.3	8.3	7.7	9.3	10.5	14.9	14.3	15.3	15.6	16.7	16.3	16.6	17.0	17.7	16.6	16.4	17.0	15.4	16.1	14.0	14.8	12.9	4.2	17.7	12.5	
Nov 6	14.4	12.4	12.8	15.6	14.9	15.0	12.3	13.8	11.9	12.9	12.5	12.6	10.8	11.3	11.0	10.0	10.4	10.3	11.7	7.4	5.9	7.6	11.9	11.0	5.9	15.6	10.9	
Nov 7	9.4	9.0	10.3	9.0	7.0	9.3	10.7	10.6	10.3	5.7	9.6	10.1	10.1	9.9	10.1	11.3	11.4	10.3	12.7	9.3	9.2	7.5	5.9	7.3	5.7	12.7	9.3	
Nov 8	6.4	6.5	7.5	7.8	5.8	6.5	7.7	6.9	7.9	5.6	8.6	7.1	8.7	8.5	8.6	7.8	4.9	1.9	6.7	5.2	2.4	3.0	4.4	4.4	1.9	8.7	3.7	
Nov 9	3.8	2.2	2.5	2.8	3.4	3.6	3.6	3.2	4.1	7.0	8.3	7.9	8.4	8.2	7.5	7.4	4.9	6.7	7.6	7.5	6.8	7.1	7.2	8.4	2.2	8.4	5.5	
Nov 10	7.8	7.6	6.3	8.3	5.5	6.1	9.3	6.4	4.5	6.5	6.1	6.5	5.2	4.4	4.4	4.3	6.1	5.9	4.1	3.4	3.6	3.9	1.7	2.5	1.7	9.3	5.2	
Nov 11	4.1	5.0	5.4	4.4	4.6	4.7	5.1	3.4	3.7	3.5	5.5	5.5	4.3	3.0	3.5	6.7	8.2	8.6	9.0	10.1	9.5	10.5	9.5	9.6	3.0	10.5	5.9	
Nov 12	8.3	7.8	8.0	7.6	6.3	7.7	7.3	7.1	7.1	5.1	3.5	3.3	2.3	1.0	2.8	3.3	2.5	2.3	0.8	0.8	0.6	2.1	1.3	2.3	0.6	8.3	4.0	
Nov 13	1.2	2.7	2.4	3.8	5.0	5.2	3.4	5.4	3.9	3.7	3.6	4.0	4.8	6.3	4.7	3.7	2.9	1.8	2.7	4.8	5.1	3.1	3.3	1.7	1.2	6.3	2.7	
Nov 14	3.1	1.8	3.8	7.7	8.7	7.3	8.7	6.8	1.7	2.0	2.6	3.9	3.2	1.9	2.6	5.6	1.3	0.4	1.3	3.2	4.9	5.2	5.2	6.0	0.4	8.7	1.8	
Nov 15	7.0	6.3	6.9	7.0	6.4	6.2	5.9	4.1	3.8	2.3	8.2	9.1	14.8	12.7	13.8	12.7	11.0	7.7	10.3	10.1	9.3	10.9	13.9	14.6	2.3	14.8	4.5	
Nov 16	9.6	8.7	12.9	13.7	12.5	18.4	21.0	22.1	20.2	19.0	21.5	22.5	22.2	21.7	22.0	22.6	22.2	21.3	17.9	18.2	18.3	17.2	15.0	16.1	8.7	22.6	18.0	
Nov 17	16.2	14.6	11.2	11.7	8.9	4.0	4.5	2.6	3.0	4.1	4.1	5.1	7.2	5.9	6.8	3.4	3.6	5.9	4.3	1.6	3.5	3.9	5.1	5.7	1.6	16.2	4.4	
Nov 18	5.8	5.5	4.2	5.2	7.9	9.3	9.8	13.0	13.0	16.3	12.4	13.7	13.3	15.0	14.1	8.9	5.9	2.8	0.9	1.4	3.2	4.1	5.5	5.0	0.9	16.3	6.6	
Nov 19	5.1	5.4	6.3	7.0	6.7	6.6	8.0	2.9	6.5	6.2	5.5	5.1	4.8	7.2	6.5	4.9	3.4	1.9	4.6	4.3	4.7	6.4	6.6	5.0	1.9	8.0	2.1	
Nov 20	3.6	3.6	4.4	4.9	5.7	4.3	6.3	7.6	5.9	8.9	13.5	10.4	10.3	13.0	7.8	3.2	3.5	3.4	3.0	1.6	1.8	2.5	3.0	3.6	1.6	13.5	4.0	
Nov 21	5.0	6.0	4.7	6.0	6.5	7.0	7.2	6.5	6.2	6.6	9.3	10.1	13.2	12.4	11.5	7.8	6.0	5.1	4.9	6.3	6.0	6.4	6.7	5.7	4.7	13.2	5.0	
Nov 22	5.9	6.3	6.1	6.7	7.4	7.1	6.3	6.7	6.2	5.6	4.4	3.6	4.2	3.1	2.9	3.3	3.4	4.2	1.4	3.8	3.5	2.8	3.8	3.0	1.4	7.4	3.8	
Nov 23	4.0	5.5	6.7	8.2	9.6	7.1	6.9	4.0	2.6	3.7	8.5	10.8	10.4	9.3	6.2	5.5	6.3	7.5	7.3	6.2	5.9	5.8	6.0	7.0	2.6	10.8	5.3	
Nov 24	6.2	4.6	6.0	6.1	6.2	7.9	7.6	6.4	6.4	7.5	7.8	6.9	6.9	6.9	6.4	4.1	4.5	5.7	6.2	2.1	2.2	4.3	5.1	4.4	2.1	7.9	5.6	
Nov 25	3.8	1.6	3.0	4.9	4.6	2.5	3.5	2.5	6.4	8.5	10.1	10.7	14.1	14.3	15.1	13.9	12.0	11.5	10.7	11.8	11.4	11.5	10.8	10.6	1.6	15.1	7.7	
Nov 26	10.0	9.2	8.7	9.1	9.9	8.3	5.5	4.2	4.8	5.2	5.1	4.9	4.2	5.7	5.3	7.4	6.1	6.6	6.2	6.1	8.3	9.8	9.2	7.9	4.2	10.0	4.6	
Nov 27	6.6	7.5	8.5	7.3	9.8	3.6	0.5	2.6	8.0	15.7	17.6	21.4	20.4	17.5	17.2	20.8	20.8	21.3	23.4	23.4	22.1	18.7	19.4	21.7	0.5	23.4	11.0	
Nov 28	20.1	23.9	22.8	21.6	22.7	21.7	21.7	19.4	17.1	18.0	19.9	20.9	20.0	20.4	20.2	19.2	18.8	17.8	17.3	16.3	16.3	15.7	15.2	16.1	15.2	23.9	19.3	
Nov 29	15.6	15.5	14.5	12.9	12.4	10.7	11.3	9.0	8.6	9.5	9.8	8.2	8.1	8.0	7.4	6.1	5.9	5.9	5.8	6.2	4.3	3.2	2.9	2.9	2.9	15.6	8.3	
Nov 30	2.9	3.4	4.5	4.2	3.2	3.0	3.9	4.9	6.1	5.1	6.3	5.7	6.0	6.9	7.0	6.8	5.6	5.3	6.0	4.9	4.7	4.8	3.4	3.2	2.9	2.9	7.0	4.6
Diurnal Maximum	20	24	23	22	23	22	22	22	20	19	22	23	22	22	22	23	22	21	23	23	22	19	19	22				
Diurnal Average	7.6	7.6	7.9	8.4	8.3	7.8	7.9	7.6	7.5	8.1	9.1	9.4	9.7	9.5	9.3	8.9	8.3	8.0	8.2	7.9	7.8	7.6	7.8	8.0				

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

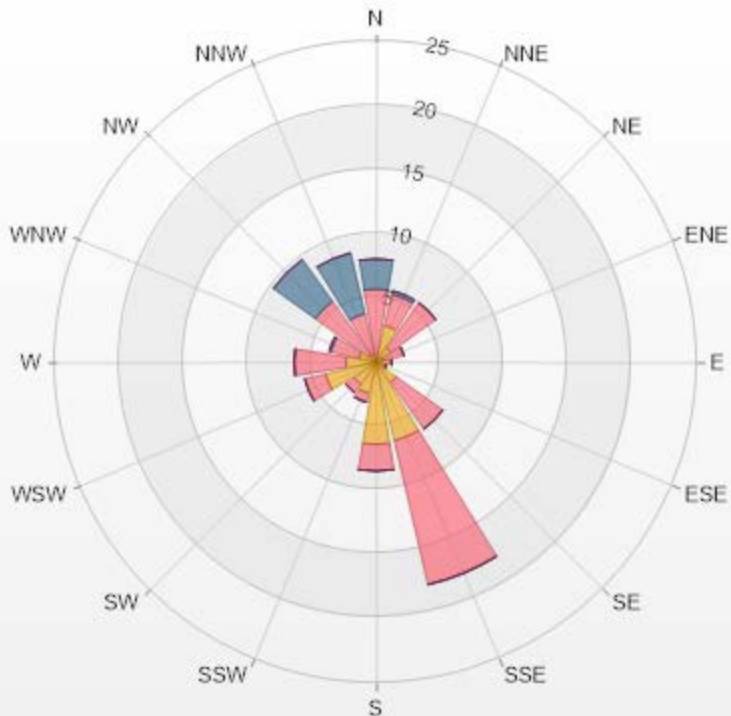
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

Timeseries Chart of Hourly Average for VWS - Lac La Biche Station



Wind: Lac La Biche Monitor: WDS [kph] Monthly: 11-2022 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 3.06% 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	5.42	2.36	0	0	8.06
NNE	2.92	2.5	0.28	0	0	5.7
NE	1.39	4.31	0	0	0	5.7
ENE	0.56	1.67	0	0	0	2.23
E	1.11	0.14	0	0	0	1.25
ESE	0.69	0.14	0	0	0	0.83
SE	1.94	4.44	0	0	0	6.38
SSE	6.25	11.53	0	0	0	17.78
S	6.39	2.08	0	0	0	8.47
SSW	2.5	0.69	0	0	0	3.19
SW	2.08	0.83	0	0	0	2.91
WSW	4.03	1.67	0	0	0	5.7
W	2.36	4.03	0	0	0	6.39
WNW	1.39	2.22	0.14	0	0	3.75
NW	0.69	5.14	4.03	0	0	9.86
NNW	0.69	3.19	4.86	0	0	8.74
Summary	35.27	50	11.67	0	0	96.94



LICA-202211



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - November 2022

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:	326 (NW) degree	Hours in Service:	720
		Hours of Data:	720
		Hours of Missing Data:	0
		Hours of Calibration:	0
		Operational Uptime:	100.0

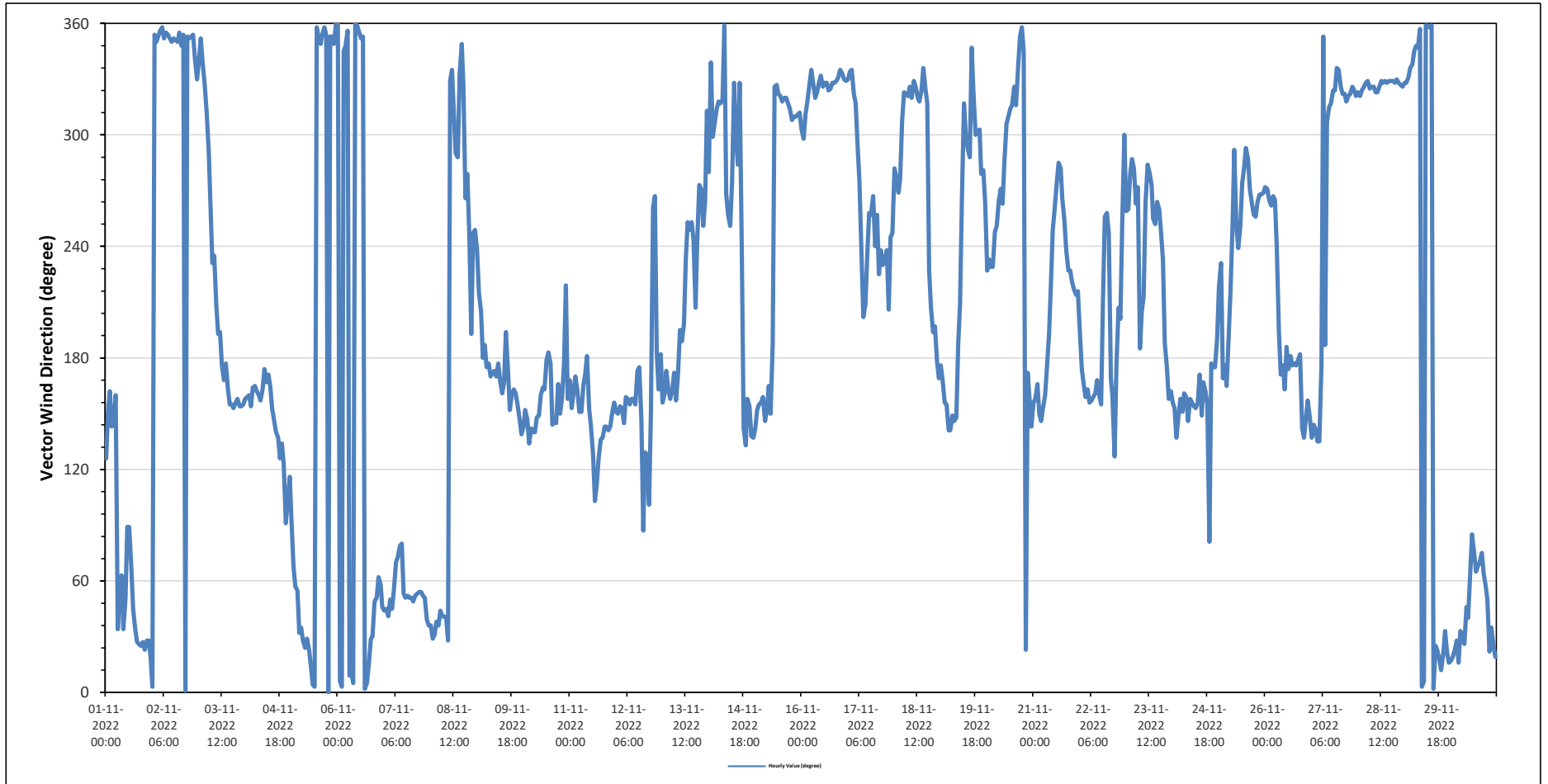
Day	Hourly Period Starting at (MST)																							Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant	
Nov 1	SE	SSE	SSE	SE	SE	SSE	NE	NE	ENE	NE	NE	E	E	ENE	NE	NE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	61	ENE	
Nov 2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	NNW	N	N	N	N	N	N	NNW	NNW	352	N	
Nov 3	NNW	N	NNW	NW	NW	WNW	W	SW	SW	SSW	S	SSW	S	SSE	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	177	S	
Nov 4	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	SSE	S	SSE	SSE	SE	SE	SE	SE	SE	SE	ESE	E	ESE	ESE	150	SSE
Nov 5	E	ENE	ENE	NE	NNE	NE	NNE	NNE	NNE	NNE	NNE	N	N	N	N	NNW	N	N	N	N	N	N	NNW	N	9	N	
Nov 6	N	N	N	NNW	NNW	N	N	NNE	N	N	N	N	N	N	N	NNE	NNE	NNE	NE	NE	ENE	ENE	NE	NE	10	N	
Nov 7	NE	NE	NE	NE	NE	ENE	ENE	ENE	ENE	E	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	53	NE	
Nov 8	NE	NNE	NNE	NE	NE	NE	NE	NE	NE	NNE	NNW	NNW	NW	WNW	WNW	NNW	NNW	NW	W	W	WSW	S	WSW	WSW	348	NNW	
Nov 9	SW	SSW	SSW	S	S	S	S	SSE	S	S	SSE	S	SSE	SSE	SSW	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	169	SSE	
Nov 10	SE	SSE	SE	SE	SE	SE	SE	SE	SSE	SSE	SSE	SSE	S	S	SE	SE	SE	SE	SSE	SSE	SSE	S	SW	SSE	154	SSE	
Nov 11	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	S	SSE	SE	SE	ESE	ESE	SE	SE	SE	SE	SE	SE	SE	SSE	SSE	147	SE	
Nov 12	SSE	SSE	SSE	SSE	SE	SSE	SSE	SSE	SSE	SSE	SSE	S	S	SE	E	SE	SE	E	SSE	W	W	S	SSE	S	153	SSE	
Nov 13	SSE	SSE	S	SSE	SSE	SSE	S	SSE	SSE	SSW	S	SSW	SW	WSW	WSW	WSW	WSW	SSW	WSW	W	W	WSW	W	NW	212	SSW	
Nov 14	W	NNW	WNW	NW	NW	NW	NW	NW	N	W	WSW	WSW	W	NNW	WNW	WNW	NNW	SW	SE	SE	SSE	SSE	SE	SE	291	WNW	
Nov 15	SE	SSE	SSE	SSE	SSE	SE	SSE	SSE	SSE	S	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	308	NW	
Nov 16	WNW	WNW	NW	NW	NW	NNW	NNW	NW	NW	NNW	NNW	NW	NNW	NW	NNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	326	NW	
Nov 17	NNW	NNW	NNW	NW	NW	WNW	W	SW	SSW	SSW	SW	WSW	WSW	W	WSW	WSW	SW	SW	SW	SW	SW	SSW	WSW	WSW	280	W	
Nov 18	W	W	W	W	NW	NW	NW	NW	NW	NNW	NW	NW	NW	NW	NW	NNW	NW	SW	SSW	SSW	SSW	S	SSE	312	NW		
Nov 19	S	SSE	SSE	SSE	SE	SE	SSE	SE	SE	S	SSW	W	NW	WNW	WNW	WNW	NNW	NW	WNW	WNW	WNW	W	W	W	226	SW	
Nov 20	SW	SW	SW	SW	WSW	WSW	W	W	W	WNW	NW	NW	NW	NW	NW	NNW	N	N	NNW	NNE	S	SSE	SE	289	WNW		
Nov 21	SSE	SSE	SSE	SSE	SE	SSE	SSE	S	S	SW	WSW	WSW	W	WNW	W	WSW	SW	SW	SW	SW	SSW	SSW	SW	SW	224	SW	
Nov 22	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSW	WSW	WSW	WSW	SSE	SE	S	SSW	SSW	WSW	WNW	W	178	S		
Nov 23	WSW	WSW	W	WNW	W	W	W	S	SSW	SSW	W	WNW	W	W	WSW	WSW	W	WSW	WSW	SW	S	S	SSE	SSE	253	WSW	
Nov 24	SSE	SSE	SE	SSE	SSE	SSE	SSE	SSE	SE	SSE	SSE	SSE	SSE	SSE	S	SSE	SSE	SSE	SSE	E	S	S	S	S	157	SSE	
Nov 25	SW	SW	SSE	S	SSE	S	SW	WSW	WNW	WSW	WSW	WSW	W	W	WNW	WNW	W	W	WSW	WSW	W	W	W	W	262	W	
Nov 26	W	W	W	W	W	W	WSW	SSW	S	S	SSE	S	S	S	S	S	S	S	S	SE	SE	SE	SSE	SE	198	SSW	
Nov 27	SE	SE	SE	SE	SE	S	N	S	NW	NW	NW	NW	NW	NNW	NNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	323	NW	
Nov 28	NW	NW	NW	NW	NNW	NNW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	327	NW	
Nov 29	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	N	N	N	N	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	353	N	
Nov 30	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NE	NE	ENE	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	NNE	NNE	NNE	NNE	49	NE	

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

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

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

Timeseries Chart of Hourly Average for VWD - Lac La Biche Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - November 2022

Summary of Hourly Averages

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

WIND SPEED																												
Maximum Hourly Value:		23.9 kph on November 28 at hour 1														Hours in Service:		720										
Maximum Daily Value:		19.3 kph on November 28														Hours of Data:		720										
Minimum Hourly Value:		0.4 kph on November 14 at hour 17														Hours of Missing Data:		0										
Minimum Daily Value:		1.8 kph on November 14														Hours of Calibration:		0										
Monthly Average:		2.2 kph														Operational Uptime:		100										
WIND DIRECTION																												
Monthly Average:		326 (NW) degree																										
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	6.4	7.9	7.6	8.0	3.5	1.7	3.3	3.6	3.2	4.5	4.2	4.2	4.2	6.1	5.1	5.6	6.6	5.9	7.9	9.5	7.3	7.3	7.9	1.7	9.5	3.6	
	SE	SSE	SSE	SE	SE	SSE	NE	ENE	NE	NE	NE	E	ENE	NE	NE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE				
Nov 2	10.6	11.5	14.2	14.5	12.6	12.0	12.7	14.1	14.8	15.9	16.3	15.9	15.7	15.4	15.6	15.7	15.7	13.9	15.0	14.1	13.7	12.3	11.9	14.1	10.6	16.3	14.0	
	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	NNW	N	N	N	N	N	N	NNW	NNW				
Nov 3	11.5	9.4	8.6	8.6	7.9	6.5	5.2	5.3	4.2	6.1	6.9	8.3	8.8	10.0	9.1	10.1	12.2	12.3	13.1	13.3	12.2	11.8	12.3	13.5	4.2	13.5	4.7	
	NNW	N	NNW	NW	WNW	W	SW	SW	SSW	S	SSW	S	SSE	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE				
Nov 4	11.3	11.3	9.3	9.9	10.2	8.8	8.6	8.0	7.8	7.1	6.6	5.7	6.8	5.5	5.4	7.0	7.2	7.5	8.4	9.4	7.2	4.7	5.0	5.5	4.7	11.3	7.3	
	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	SSE	S	SSE	SSE	SE	SE	SE	SE	SE	SE	ESE	E	ESE	ESE			
Nov 5	4.2	6.8	7.3	8.3	7.7	9.3	10.5	14.9	14.3	15.3	15.6	16.7	16.3	16.6	17.0	17.7	16.6	16.4	17.0	15.4	16.1	14.0	14.8	12.9	4.2	17.7	12.5	
	E	ENE	ENE	NE	NNE	NE	NNE	NNE	NNE	NNE	N	N	N	N	N	NNW	N	N	N	N	N	N	NNW	N				
Nov 6	14.4	12.4	12.8	15.6	14.9	15.0	12.3	13.8	11.9	12.9	12.5	12.6	10.8	11.3	11.0	10.0	10.4	10.3	11.7	7.4	5.9	7.6	11.9	11.0	5.9	15.6	10.9	
	N	N	N	NNW	NNW	N	N	NNE	N	N	N	N	N	N	N	N	NNE	NNE	NNE	NE	NE	ENE	ENE	NE				
Nov 7	9.4	9.0	10.3	9.0	7.0	9.3	10.7	10.6	10.3	5.7	9.6	10.1	10.1	9.9	10.1	11.3	11.4	10.3	12.7	9.3	9.2	7.5	5.9	7.3	5.7	12.7	9.3	
	NE	NE	NE	NE	NE	NE	ENE	ENE	ENE	E	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE				
Nov 8	6.4	6.5	7.5	7.8	5.8	6.5	7.7	6.9	7.9	5.6	8.6	7.1	8.7	8.5	8.6	7.8	4.9	1.9	6.7	5.2	2.4	3.0	4.4	4.4	1.9	8.7	3.7	
	NE	NNE	NNE	NE	NE	NE	NE	NE	NE	NNE	NNW	NNW	NW	WNW	WNW	NNW	NNW	NW	W	W	WSW	S	WSW	WSW				
Nov 9	3.8	2.2	2.5	2.8	3.4	3.6	3.6	3.2	4.1	7.0	8.3	7.9	8.4	8.2	7.5	7.4	4.9	6.7	7.6	7.5	6.8	7.1	7.2	8.4	2.2	8.4	5.5	
	SW	SSW	SSW	S	S	S	SSE	S	S	SSE	S	SSE	SSE	SSE	SSE	SSW	S	SSE	SSE	SSE	SSE	SSE	SE	SE				
Nov 10	7.8	7.6	6.3	8.3	5.5	6.1	9.3	6.4	4.5	6.5	6.1	6.5	5.2	4.4	4.4	4.3	6.1	5.9	4.1	3.4	3.6	3.9	1.7	2.5	1.7	9.3	5.2	
	SE	SSE	SE	SE	SE	SE	SE	SE	SSE	SSE	SSE	SSE	S	S	S	SE	SE	SE	SSE	SSE	SSE	S	SW	SSE				
Nov 11	4.1	5.0	5.4	4.4	4.6	4.7	5.1	3.4	3.7	3.5	5.5	5.5	4.3	3.0	3.5	6.7	8.2	8.6	9.0	10.1	9.5	10.5	9.5	9.6	3.0	10.5	5.9	
	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	S	SSE	SE	SE	ESE	ESE	SE	SE	SE	SE	SE	SE	SE	SSE	SSE				
Nov 12	8.3	7.8	8.0	7.6	6.3	7.7	7.3	7.1	7.1	5.1	3.5	3.3	2.3	1.0	2.8	3.3	2.5	2.3	0.8	0.8	0.6	2.1	1.3	2.3	0.6	8.3	4.0	
	SSE	SSE	SSE	SSE	SE	SSE	SSE	SSE	SSE	SSE	S	S	SE	E	SE	E	SE	E	SSE	W	W	S	SSE	S				
Nov 13	1.2	2.7	2.4	3.8	5.0	5.2	3.4	5.4	3.9	3.7	3.6	4.0	4.8	6.3	4.7	3.7	2.9	1.8	2.7	4.8	5.1	3.1	3.3	1.7	1.2	6.3	2.7	
	SSE	SSE	S	SSE	SSE	SSE	S	SSE	SSE	SSW	S	SSW	SW	WSW	WSW	WSW	SSW	WSW	SSW	WSW	W	W	WSW	W	NW			
Nov 14	3.1	1.8	3.8	7.7	8.7	7.3	8.7	6.8	1.7	2.0	2.6	3.9	3.2	1.9	2.6	5.6	1.3	0.4	1.3	3.2	4.9	5.2	5.2	6.0	0.4	8.7	1.8	
	W	NNW	WNW	NW	NW	NW	NW	NW	N	W	WSW	WSW	W	NNW	WNW	WNW	NNW	SW	SE	SE	SSE	SSE	SE	SE				
Nov 15	7.0	6.3	6.9	7.0	6.4	6.2	5.9	4.1	3.8	2.3	8.2	9.1	14.8	12.7	13.8	12.7	11.0	7.7	10.3	10.1	9.3	10.9	13.9	14.6	2.3	14.8	4.5	
	SE	SSE	SSE	SSE	SSE	SE	SSE	SSE	SSE	S	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW				
Nov 16	9.6	8.7	12.9	13.7	12.5	18.4	21.0	22.1	20.2	19.0	21.5	22.5	22.2	21.7	22.0	22.6	22.2	21.3	17.9	18.2	18.3	17.2	15.0	16.1	8.7	22.6	18.0	
	WNW	WNW	NW	NW	NW	NNW	NNW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW				
Nov 17	16.2	14.6	11.2	11.7	8.9	4.0	4.5	2.6	3.0	4.1	4.1	5.1	7.2	5.9	6.8	3.4	3.6	5.9	4.3	1.6	3.5	3.9	5.1	5.7	1.6	16.2	4.4	
	NNW	NNW	NNW	NW	WNW	W	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW				
Nov 18	5.8	5.5	4.2	5.2	7.9	9.3	9.8	13.0	13.0	16.3	12.4	13.7	13.3	15.0	14.1	8.9	5.9	2.8	0.9	1.4	3.2	4.1	5.5	5.0	0.9	16.3	6.6	
	W	W	W	W	NW	NW	NW	NW	NW	NNW	NW	NNW	NW	NW	NW	NNW	NW	NW	SW	SSW	SSW	SSW	S	SSE				
Nov 19	5.1	5.4	6.3	7.0	6.7	6.6	8.0	2.9	6.5	6.2	5.5	5.1	4.8	7.2	6.5	4.9	3.4	1.9	4.6	4.3	4.7	6.4	6.6	5.0	1.9	8.0	2.1	
	S	SSE	SSE	SSE	SE	SE	SSE	SE	SE	S	SSW	W	NW	WNW	WNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	W	W	W			
Nov 20	3.6	3.6	4.4	4.9	5.7	4.3	6.3	7.6	5.9	8.9	13.5	10.4	10.3	13.0	7.8	3.2	3.5	3.4	3.0	1.6	1.8	2.5	3.0	3.6	1.6	13.5	4.0	
	SW	SW	SW	SW	WSW	WSW	W	W	W	WNW	NW	NW	NW	NW	NW	NNW	N	N	NNW	NNE	S	SSE	SE	SE				



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - November 2022

Summary of Hourly Averages

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

WIND SPEED																																															
Maximum Hourly Value:	23.9 kph on November 28 at hour 1														Hours in Service:	720																															
Maximum Daily Value:	19.3 kph on November 28														Hours of Data:	720																															
Minimum Hourly Value:	0.4 kph on November 14 at hour 17														Hours of Missing Data:	0																															
Minimum Daily Value:	1.8 kph on November 14														Hours of Calibration:	0																															
Monthly Average:	2.2 kph														Operational Uptime:	100																															
WIND DIRECTION																																															
Monthly Average:	326 (NW) degree																																														
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 21	5.0	6.0	4.7	6.0	6.5	7.0	7.2	6.5	6.2	6.6	9.3	10.1	13.2	12.4	11.5	7.8	6.0	5.1	4.9	6.3	6.0	6.4	6.7	5.7	4.7	13.2	5.0																				
	SSE	SSE	SSE	SSE	SE	SSE	SSE	S	S	SW	WSW	WSW	W	WNW	W	W	WSW	SW	SW	SW	SW	SSW	SW																								
Nov 22	5.9	6.3	6.1	6.7	7.4	7.1	6.3	6.7	6.2	5.6	4.4	3.6	4.2	3.1	2.9	3.3	3.4	4.2	1.4	3.8	3.5	2.8	3.8	3.0	1.4	7.4	3.8																				
	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSW	WSW	WSW	WSW	SSE	SSE	SE	S	SSW	SSW	WSW	WNW																							
Nov 23	4.0	5.5	6.7	8.2	9.6	7.1	6.9	4.0	2.6	3.7	8.5	10.8	10.4	9.3	6.2	5.5	6.3	7.5	7.3	6.2	5.9	5.8	6.0	7.0	2.6	10.8	5.3																				
	WSW	WSW	W	WNW	W	W	W	S	SSW	SSW	W	WNW	W	W	WSW	WSW	W	WSW	WSW	SW	S	S	SSE	SSE																							
Nov 24	6.2	4.6	6.0	6.1	6.2	7.9	7.6	6.4	6.4	7.5	7.8	6.9	6.9	6.9	6.4	4.1	4.5	5.7	6.2	2.1	2.2	4.3	5.1	4.4	2.1	7.9	5.6																				
	SSE	SSE	SE	SSE	SSE	SSE	SSE	SE	SSE	SSE	SSE	SSE	SSE	SSE	S	SSE	SSE	SSE	SSE	E	S	S	S	S																							
Nov 25	3.8	1.6	3.0	4.9	4.6	2.5	3.5	2.5	6.4	8.5	10.1	10.7	14.1	14.3	15.1	13.9	12.0	11.5	10.7	11.8	11.4	11.5	10.8	10.6	1.6	15.1	7.7																				
	SW	SW	SSE	S	SSE	S	SW	WSW	WNW	WSW	WSW	WSW	W	W	WNW	WNW	W	W	WSW	WSW	W	W	W	W																							
Nov 26	10.0	9.2	8.7	9.1	9.9	8.3	5.5	4.2	4.8	5.2	5.1	4.9	4.2	5.7	5.3	7.4	6.1	6.6	6.2	6.1	8.3	9.8	9.2	7.9	4.2	10.0	4.6																				
	W	W	W	W	W	W	WSW	SSW	S	S	SSE	S	S	S	S	S	S	S	S	SE	SE	SE	SSE	SE																							
Nov 27	6.6	7.5	8.5	7.3	9.8	3.6	0.5	2.6	8.0	15.7	17.6	21.4	20.4	17.5	17.2	20.8	20.8	21.3	23.4	23.4	22.1	18.7	19.4	21.7	0.5	23.4	11.0																				
	SE	SE	SE	SE	SE	S	N	S	NW	NW	NW	NW	NW	NNW	NNW	NW	NW	NW	NW	NW	NW	NW	NW	NW																							
Nov 28	20.1	23.9	22.8	21.6	22.7	21.7	21.7	19.4	17.1	18.0	19.9	20.9	20.0	20.4	20.2	19.2	18.8	17.8	17.3	16.3	16.3	15.7	15.2	16.1	15.2	23.9	19.3																				
	NW	NW	NW	NW	NNW	NNW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW																							
Nov 29	15.6	15.5	14.5	12.9	12.4	10.7	11.3	9.0	8.6	9.5	9.8	8.2	8.2	8.1	8.0	7.4	6.1	5.9	5.9	5.8	6.2	4.3	3.2	2.9	2.9	15.6	8.3																				
	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	N	N	N	N	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE																							
Nov 30	2.9	3.4	4.5	4.2	3.2	3.0	3.9	4.9	6.1	5.1	6.3	5.7	6.0	6.9	7.0	6.8	5.6	5.3	6.0	4.9	4.7	4.8	3.4	3.2	2.9	7.0	4.6																				
	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NE	NE	ENE	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	NNE	NE	NNE	NNE																							
C	Monthly Calibration														S	Daily Zero-Span Check										Q	Quality Assurance																				
K	Collection Error														N	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 2022

Summary of Hour Standard Deviations

STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

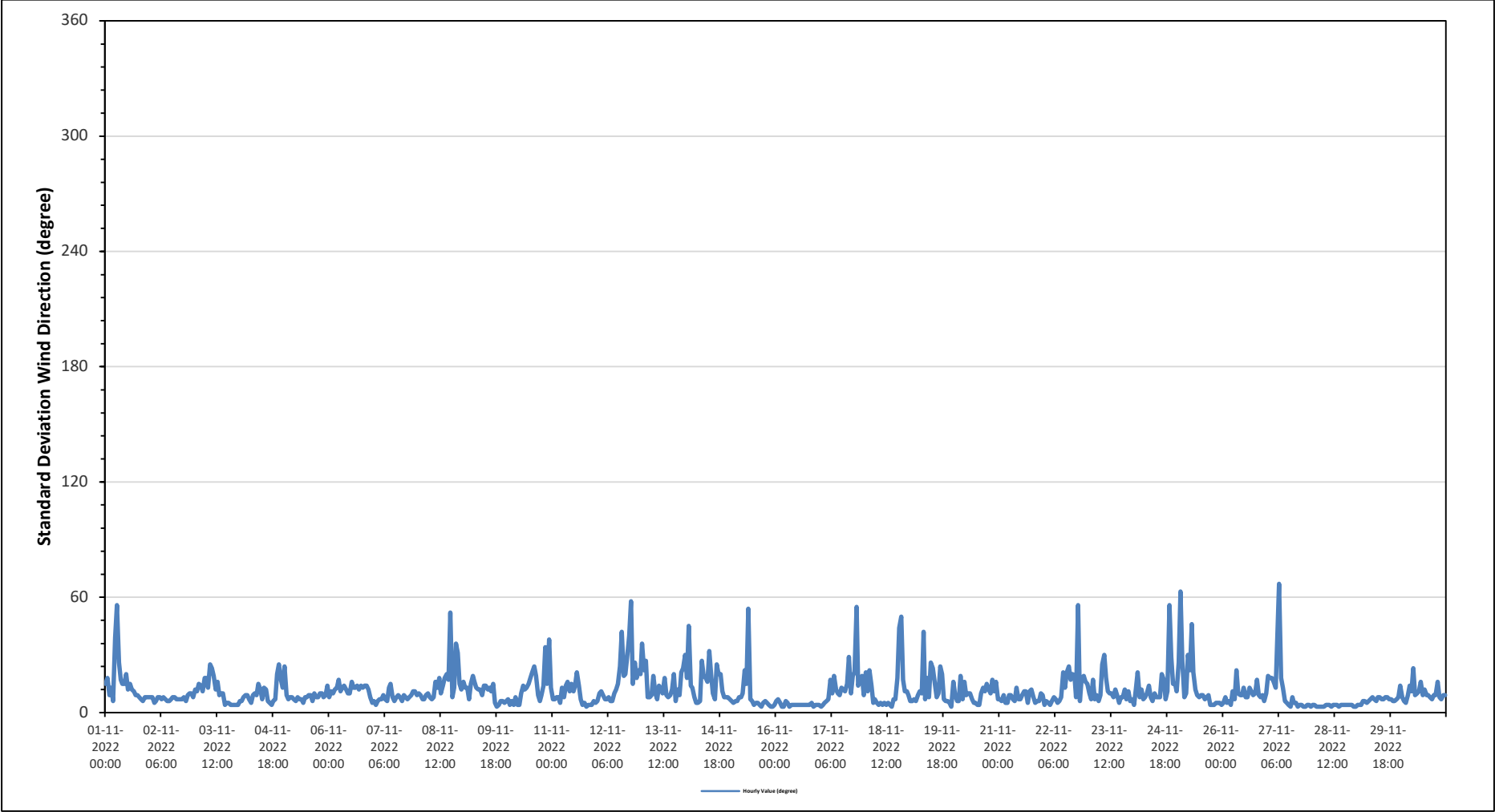
Maximum Hourly Value: 67 degree on November 27 at hour 6	Hours in Service: 720
Minimum Hourly Value: 3 degree on November 9 at hour 18	Hours of Data: 720
	Hours of Missing Data: 0
	Hours of Calibration: 0
	Operational Uptime: 100.0

Day	Hourly Period Starting at (MST)																							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
Nov 1	15	18	9	13	6	39	56	26	17	15	15	20	12	15	12	11	9	9	8	7	6	8	8	8	6	56
Nov 2	8	8	5	6	8	8	7	8	7	6	6	7	8	8	7	7	7	7	8	6	9	10	10	8	5	10
Nov 3	12	11	15	14	11	18	18	13	25	23	19	12	16	9	10	10	4	5	5	4	4	4	4	4	4	25
Nov 4	6	6	8	9	9	7	5	9	10	9	15	12	7	13	12	6	5	4	6	7	20	25	17	13	4	25
Nov 5	24	9	7	8	8	7	6	8	7	7	5	8	8	9	9	6	10	8	8	10	10	8	9	14	5	24
Nov 6	8	11	10	12	13	17	11	13	14	12	10	10	16	13	13	14	12	14	13	14	14	12	8	5	5	17
Nov 7	6	4	6	7	7	9	7	6	13	15	8	6	8	9	8	6	9	8	7	8	9	11	11	9	4	15
Nov 8	10	9	7	7	9	10	8	7	8	16	13	18	10	14	18	20	17	52	8	13	36	31	15	12	7	52
Nov 9	16	13	13	7	15	19	16	13	12	12	9	14	14	12	13	11	15	5	3	4	6	6	5	6	3	19
Nov 10	7	4	6	4	8	4	4	10	14	12	13	15	18	21	24	19	9	6	9	14	34	15	38	13	4	38
Nov 11	7	7	8	8	5	13	8	14	16	11	15	11	14	21	14	7	4	5	3	4	4	4	6	5	3	21
Nov 12	6	10	11	9	7	7	8	6	6	10	12	15	24	42	19	20	29	40	58	15	26	18	22	20	6	58
Nov 13	36	22	27	8	8	9	19	10	7	14	12	10	18	9	8	9	12	20	6	12	9	21	23	30	6	36
Nov 14	18	45	14	13	8	5	5	6	27	19	18	16	32	20	10	7	25	20	20	11	8	8	8	7	5	45
Nov 15	6	5	6	6	8	8	10	22	15	54	7	6	4	5	5	4	3	5	6	5	4	3	3	4	3	54
Nov 16	6	7	5	3	3	6	5	3	4	4	4	4	4	4	4	4	4	4	4	5	3	4	4	4	3	7
Nov 17	3	4	5	6	7	17	10	19	12	10	9	13	12	11	15	29	10	19	21	55	14	17	19	9	3	55
Nov 18	21	11	22	14	5	7	5	4	5	4	5	4	5	4	3	7	7	18	44	50	17	11	11	9	3	50
Nov 19	6	6	7	6	9	11	10	42	7	18	8	26	23	16	8	10	24	20	7	6	6	5	3	16	3	42
Nov 20	9	6	6	19	7	16	9	10	10	7	5	5	4	4	10	13	11	15	12	10	17	11	16	7	4	19
Nov 21	7	6	9	5	5	9	9	7	6	13	7	7	9	11	11	5	11	12	8	5	6	6	10	9	5	13
Nov 22	4	6	5	4	6	8	7	5	6	8	21	13	21	24	17	20	19	8	56	6	18	19	16	15	4	56
Nov 23	10	7	17	7	9	6	9	25	30	18	11	10	10	8	12	9	5	8	8	12	7	11	6	7	5	30
Nov 24	4	12	21	8	12	7	8	10	14	8	6	10	8	8	8	20	17	7	11	56	29	15	15	11	4	56
Nov 25	26	63	27	8	10	30	22	46	21	12	9	8	9	9	7	8	9	4	4	4	5	5	5	4	4	63
Nov 26	5	8	5	6	4	11	7	22	10	9	9	13	8	8	13	11	9	10	17	9	8	9	6	10	4	22
Nov 27	19	18	18	16	13	38	67	18	13	6	5	4	3	8	5	5	3	4	4	3	3	4	4	3	3	67
Nov 28	4	4	3	3	3	3	3	4	4	4	3	4	4	4	3	4	4	4	4	4	4	4	3	3	3	4
Nov 29	4	4	4	6	6	5	6	7	8	7	6	8	8	7	7	8	8	7	7	6	6	7	8	14	4	14
Nov 30	8	6	5	9	14	11	23	9	10	11	16	9	12	9	9	8	7	9	9	16	8	7	9	9	5	23
Diurnal Minimum	3	4	3	3	3	3	3	3	4	4	3	4	3	4	3	4	3	4	3	3	3	3	3	3	3	3
Diurnal Maximum	36	63	27	19	15	39	67	46	30	54	21	26	32	42	24	29	52	58	56	36	31	38	30			

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

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

Timeseries Chart of Hourly Average for STDWD - Lac La Biche Station



END OF REPORT

This page, 312 of 312, ends the November 2022 Monthly Ambient Air Quality Monitoring Report.



Lakeland Industry & Community Association

NOVEMBER 2022
Ambient Air Monitoring Calibration Report
- COLD LAKE SOUTH STATION-
CAL-LICA-202211-01174

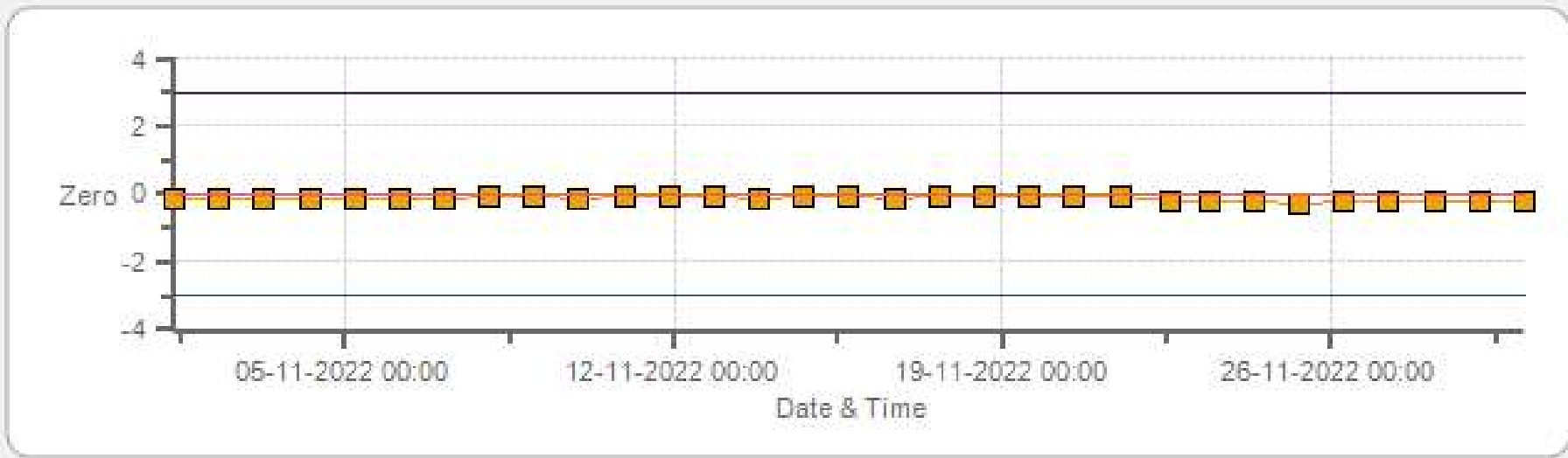
Station Operation and Maintenance:
Bureau Veritas Canada

Data Validation and Report:
LICA / Bureau Veritas Canada

December 19, 2022

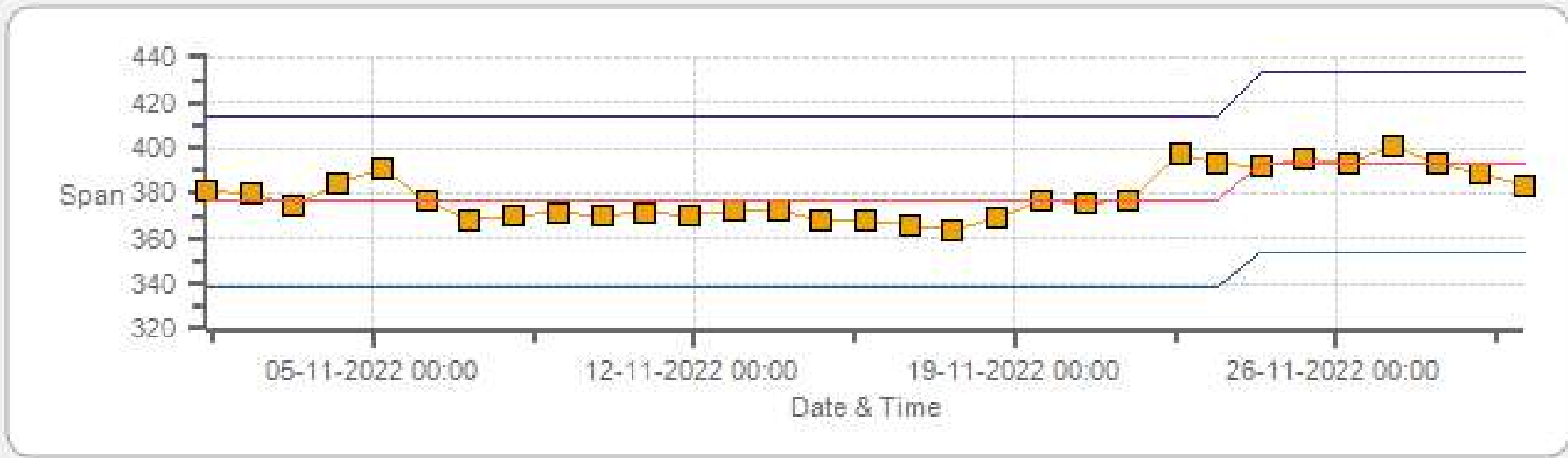
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Cold Lake South Monthly: 11-2022 Type: SpanAndZero - Zero



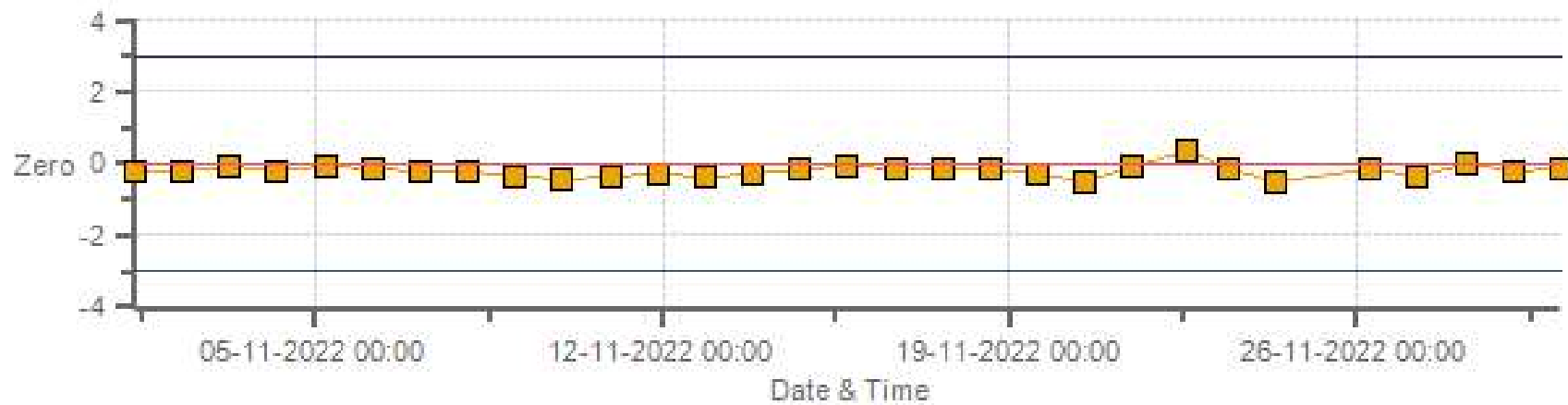
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: Cold Lake South Monthly: 11-2022 Type: SpanAndZero - Span



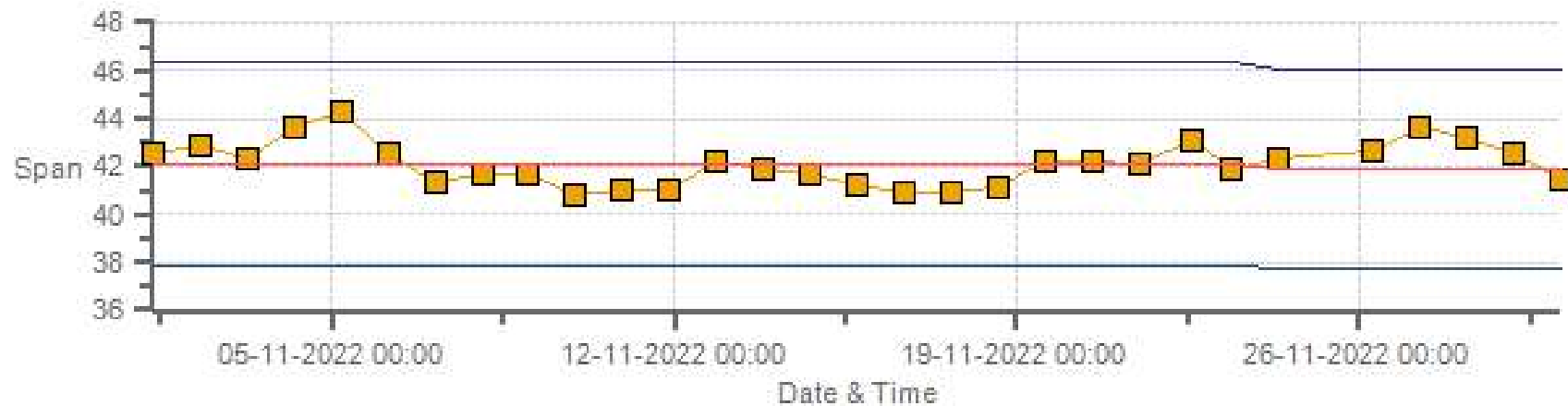
Span Span Ref Span Low Span High

TRS[ppb] Calibration: Cold Lake South Monthly: 11-2022 Type: SpanAndZero - Zero



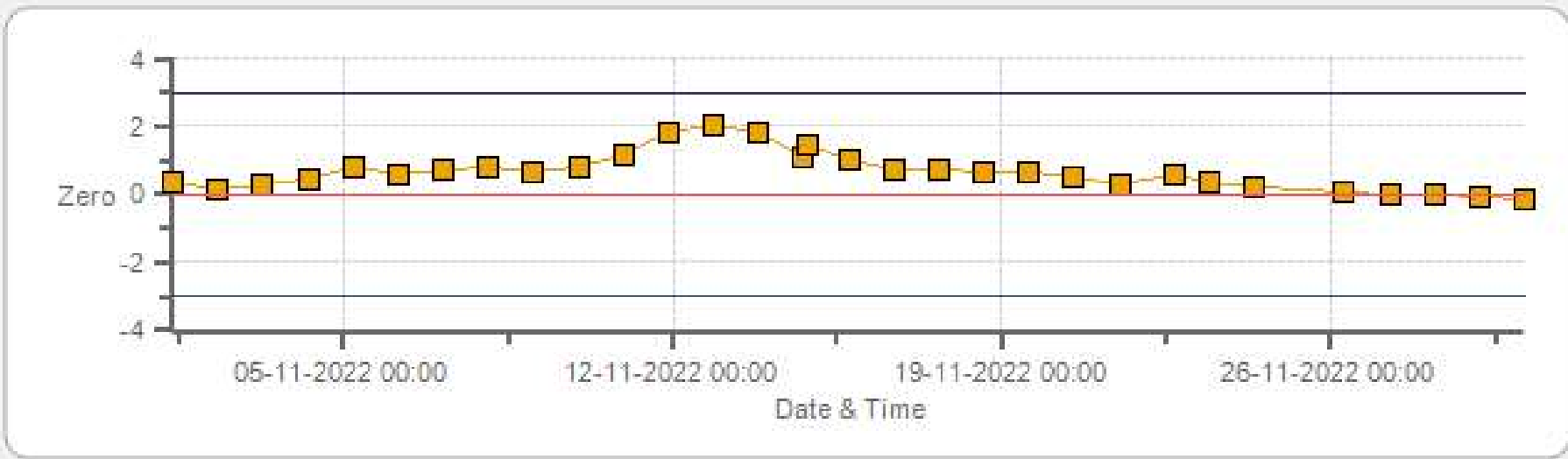
Zero Zero Ref Zero Low Zero High

TRS[ppb] Calibration: Cold Lake South Monthly: 11-2022 Type: SpanAndZero - Span



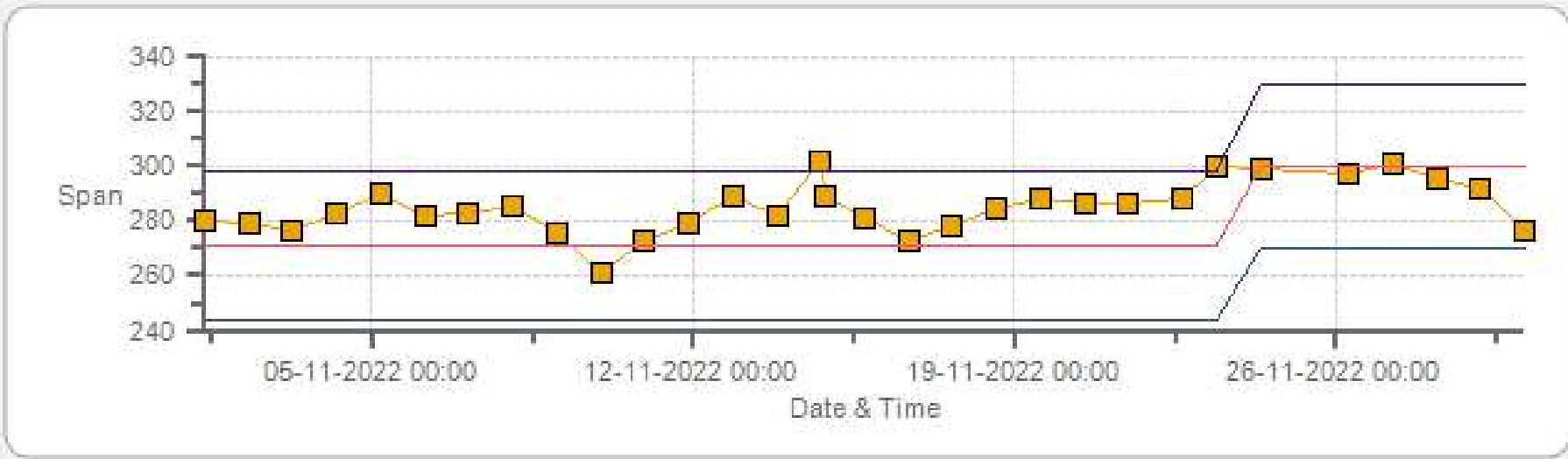
Span SpanRef Span Low Span High

NOX[ppb] Calibration: Cold Lake South Monthly: 11-2022 Type: SpanAndZero - Zero



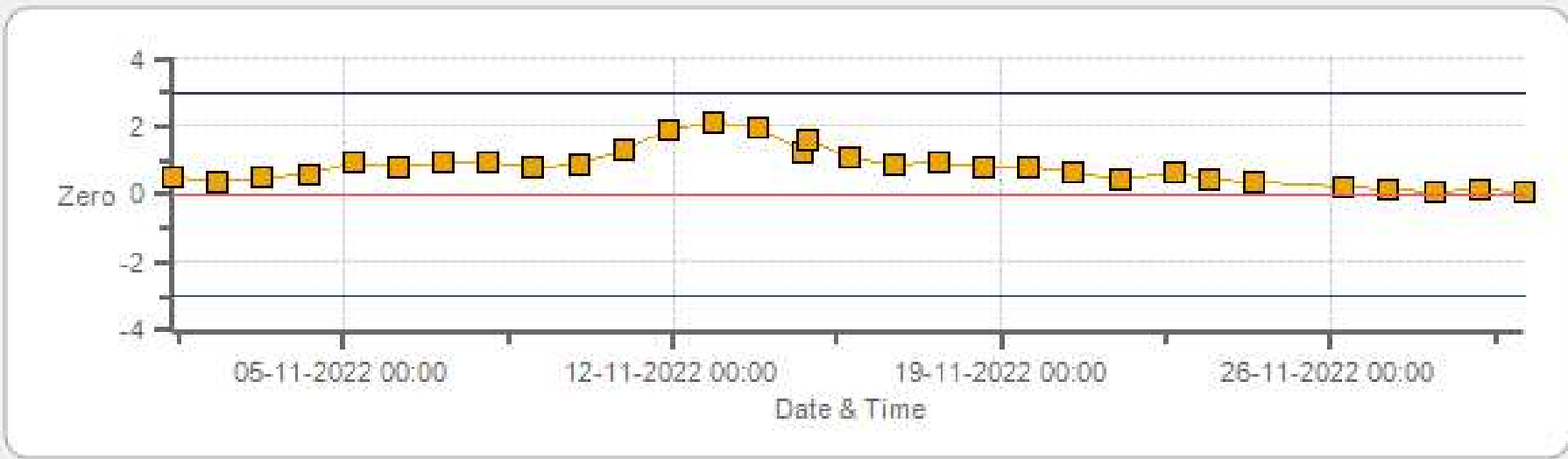
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: Cold Lake South Monthly: 11-2022 Type: SpanAndZero - Span



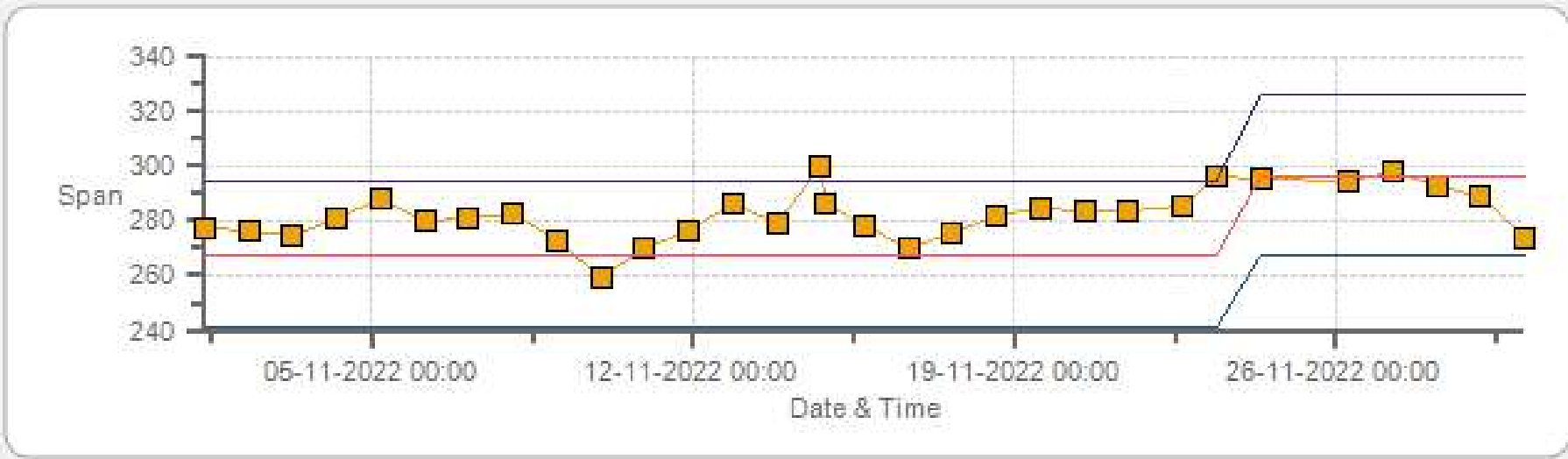
Span Span Ref Span Low Span High

NO2[ppb] Calibration: Cold Lake South Monthly: 11-2022 Type: SpanAndZero - Zero



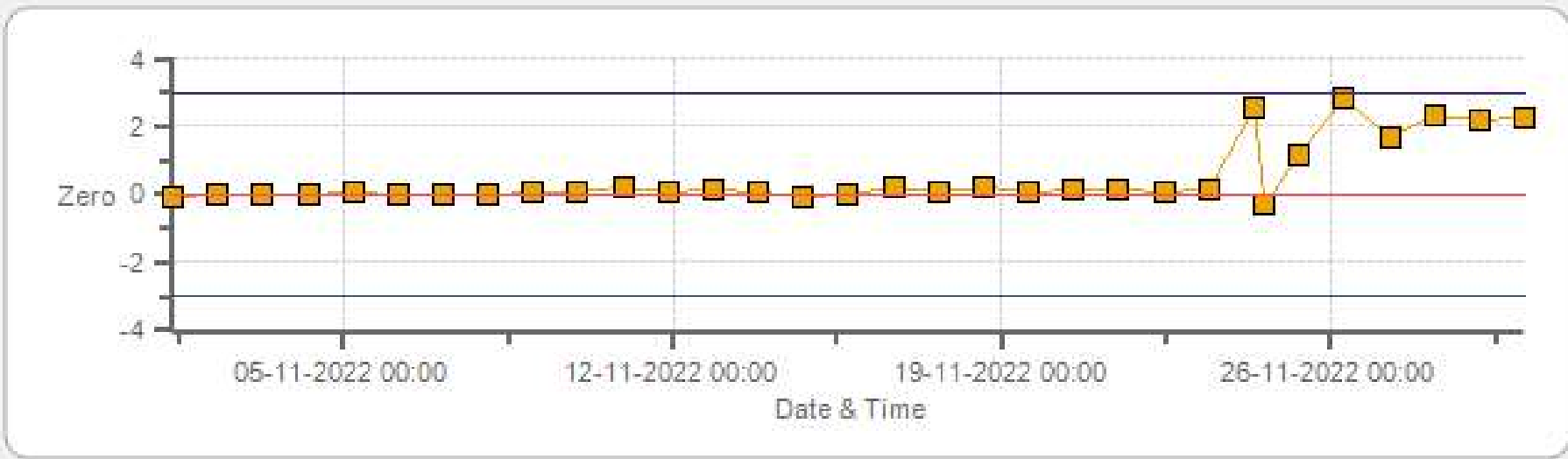
Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: Cold Lake South Monthly: 11-2022 Type: SpanAndZero - Span



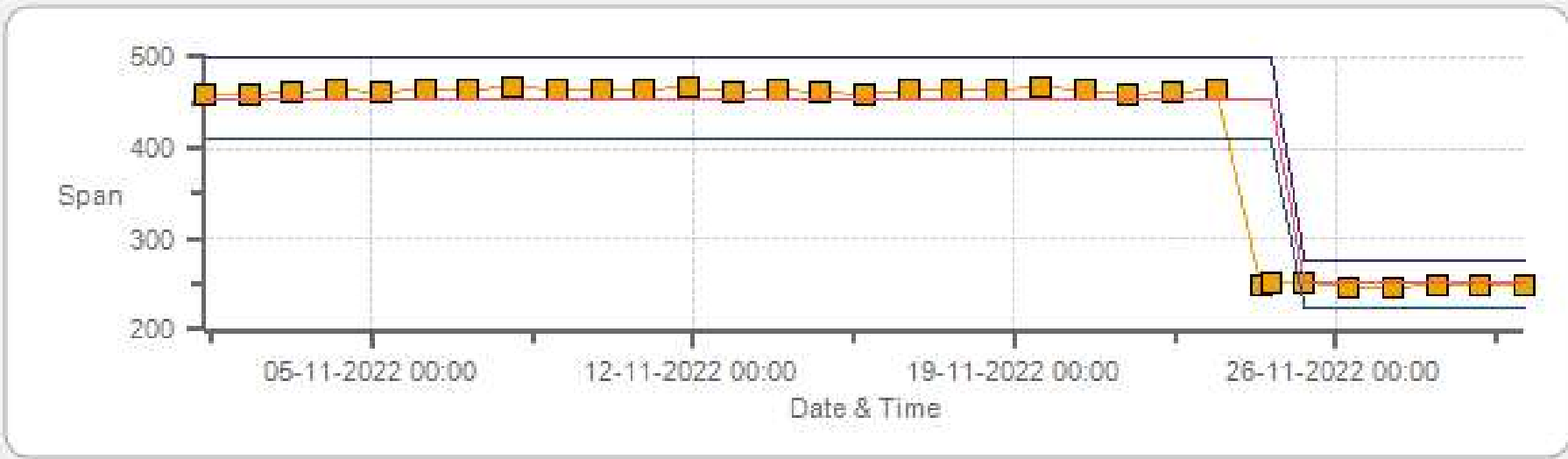
Span SpanRef Span Low Span High

O3[ppb] Calibration: Cold Lake South Monthly: 11-2022 Type: SpanAndZero - Zero



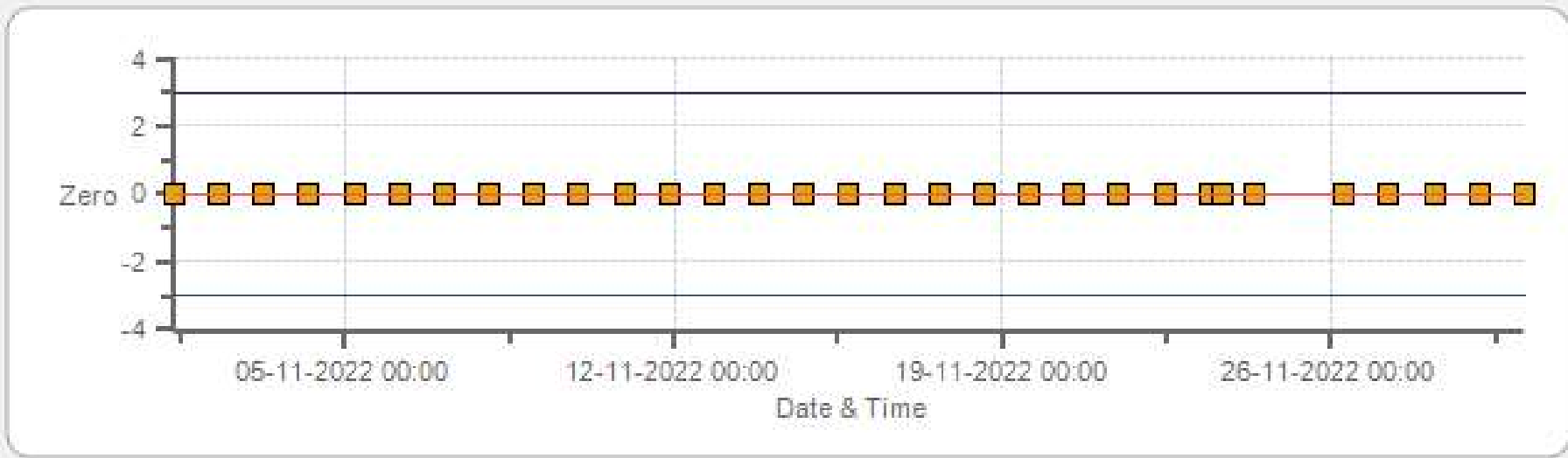
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: Cold Lake South Monthly: 11-2022 Type: SpanAndZero - Span



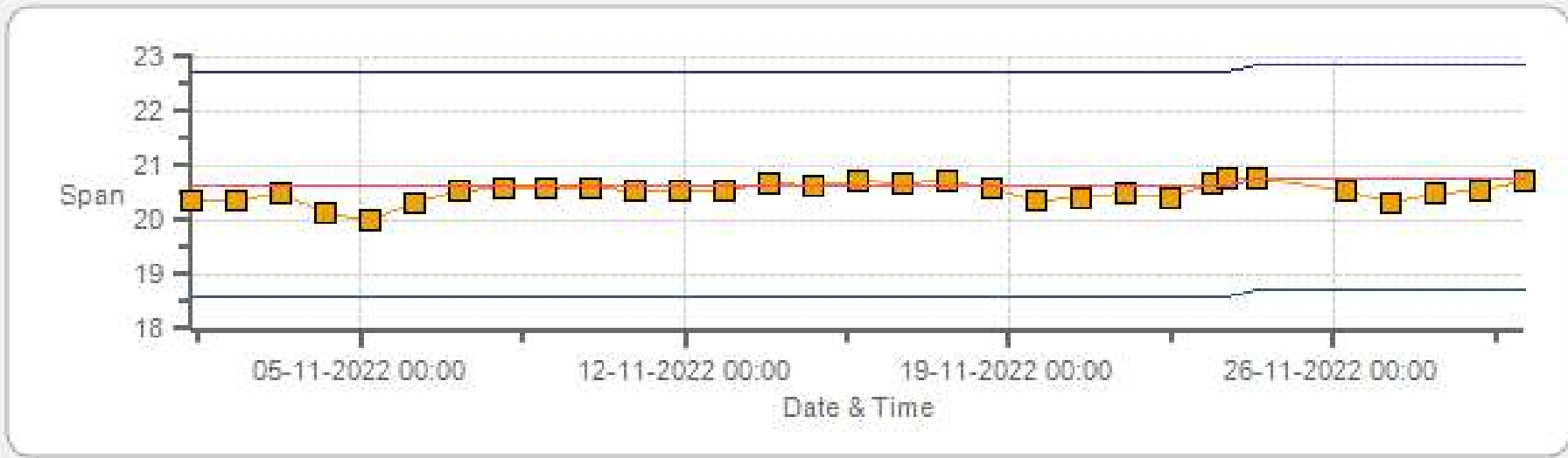
Span SpanRef Span Low Span High

THC55[ppm] Calibration: Cold Lake South Monthly: 11-2022 Type: SpanAndZero - Zero



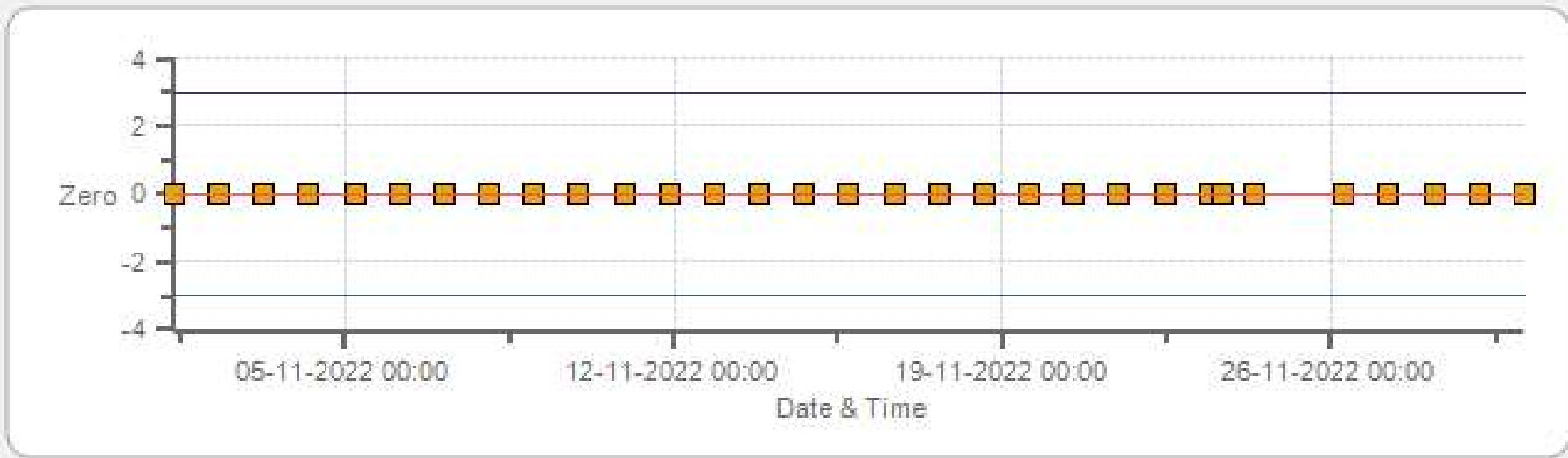
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: Cold Lake South Monthly: 11-2022 Type: SpanAndZero - Span



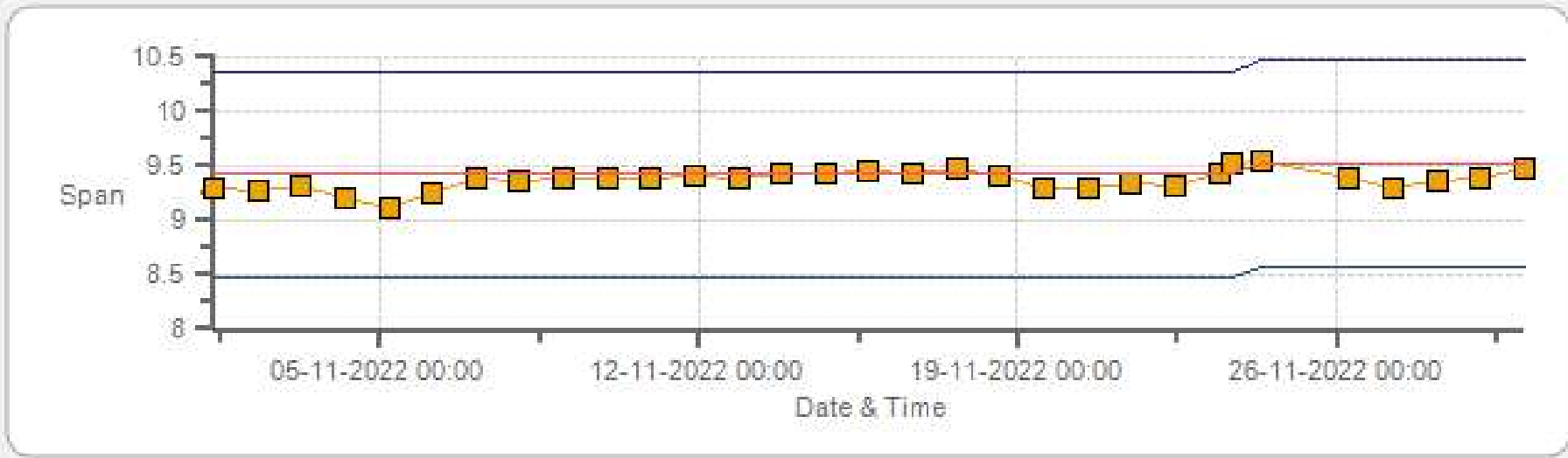
Span SpanRef Span Low Span High

CH4[ppm] Calibration: Cold Lake South Monthly: 11-2022 Type: SpanAndZero - Zero



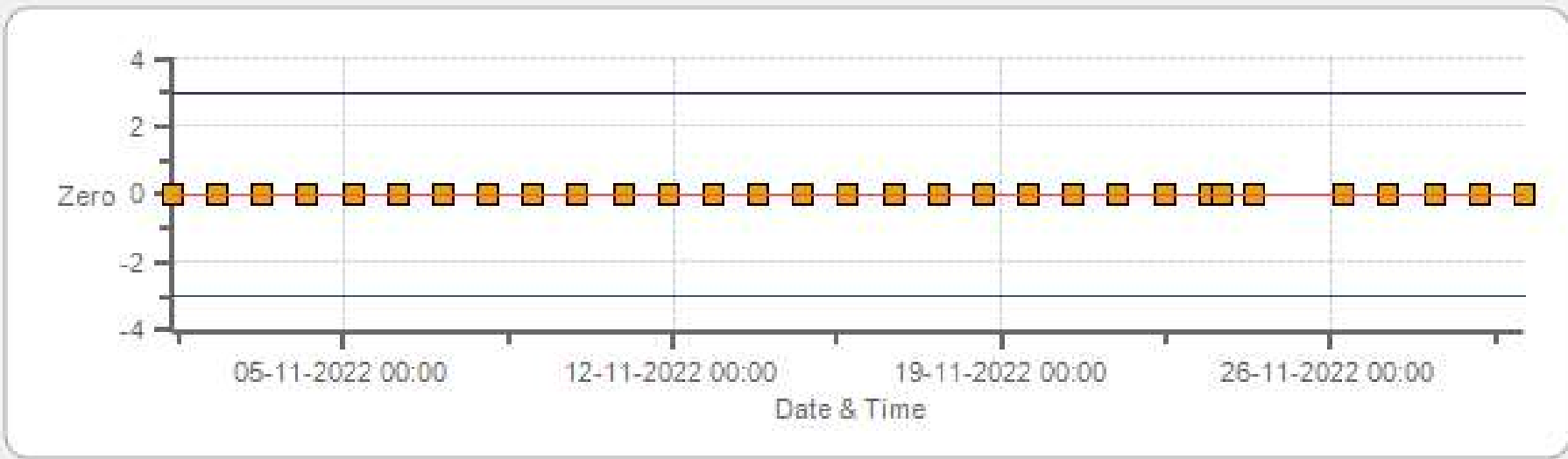
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: Cold Lake South Monthly: 11-2022 Type: SpanAndZero - Span



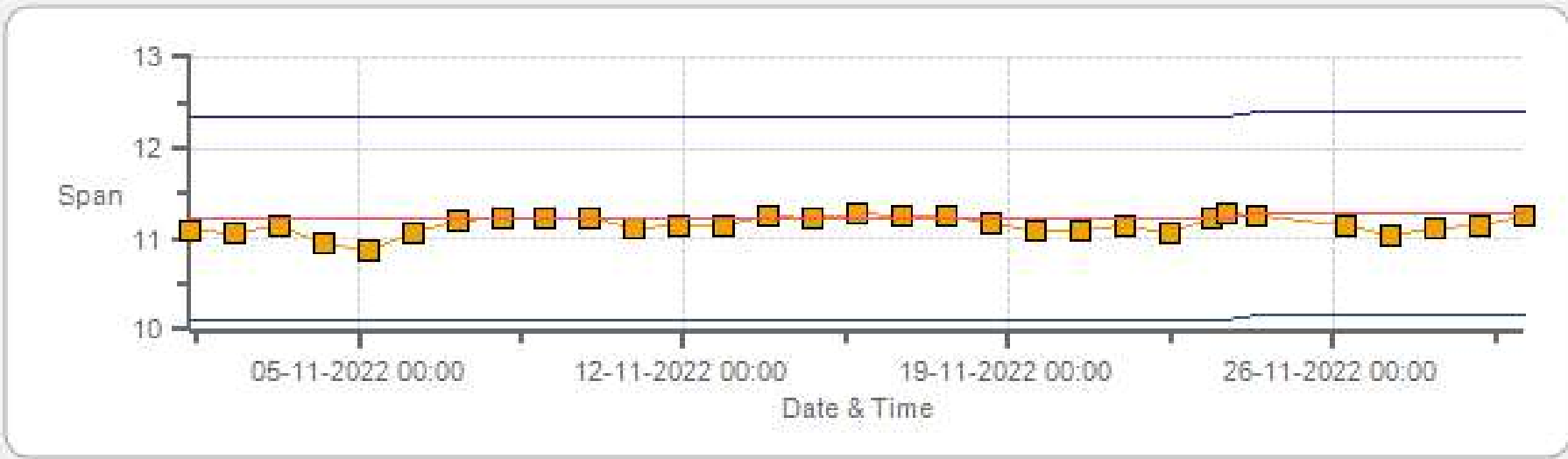
Span SpanRef Span Low Span High

NMHC[ppm] Calibration: Cold Lake South Monthly: 11-2022 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: Cold Lake South Monthly: 11-2022 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	22-Nov-2022	PREVIOUS CALIBRATION DATE:	18-Oct-2022
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	0.997
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	938
PURPOSE:	Routine	START TIME (MST):	09:45
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:16

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180260018	FLOW (mL/min)	433
INITIAL		FINAL	
BKG/OFFSET	2.23	BKG/OFFSET	2.46
COEF/SLOPE	0.979	COEF/SLOPE	1.02
Expected (reference) Value	376.6	Expected (reference) Value	393.6

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	17100415	ID:	132
MFC CALIBRATION DATE:	02-Sep-2022	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 105146	HIGH ID	n/a
CONC (ppm):	50.80	EXPIRY DATE	n/a
CYLINDER (psi):	250	LOW ID	n/a
EXPIRY DATE	09-Jun-2029	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

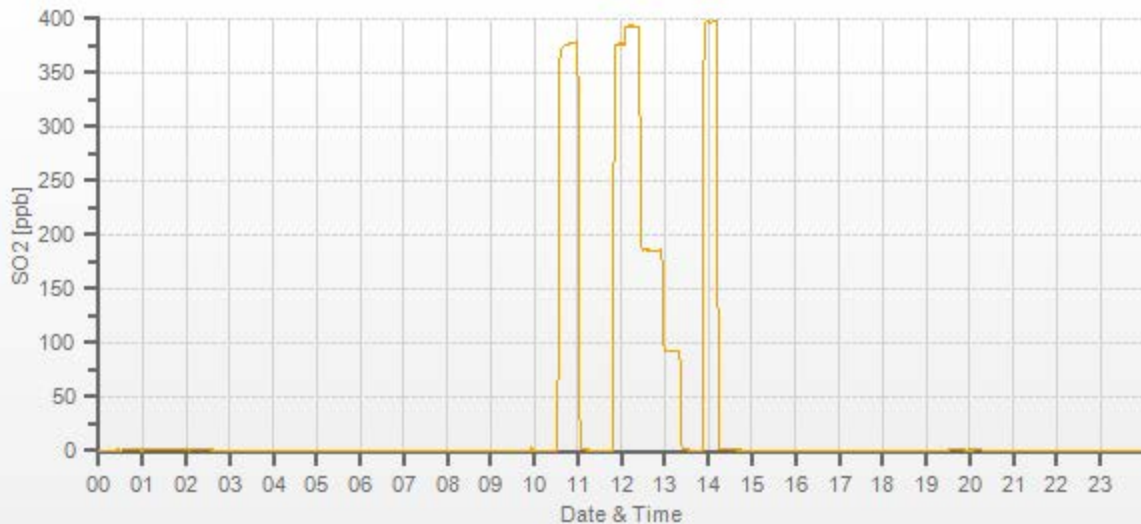
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	38.50	5000	0.00	0	0	1.038	0.996
4962	38.50	5000	391.16	377	392.8	1.038	0.996
4982	18.00	5000	182.88	n/a	185.8	n/a	0.984
4991	9.00	5000	91.44	n/a	92.2	n/a	0.992

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.004	0.1%

COMMENTS:

Sample inlet filter was changed.



TRS Analyzer Calibration by Dilution



DATE:	22-Nov-2022	PREVIOUS CALIBRATION DATE:	18-Oct-2022
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	1.001
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	938
PURPOSE:	Routine	START TIME (MST):	09:44
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:16

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	812728560	FLOW (mL/min)	490
INITIAL		FINAL	
BKG/OFFSET	25.3	BKG/OFFSET	25.3
COEF/SLOPE	1.146	COEF/SLOPE	1.136
Expected (reference) Value	42.1	Expected (reference) Value	41.9

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	21-Oct-2022	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):	1600	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:	09:56	SO2 Conc (ppb)	380
END TIME:	10:11	Analyzer Response (ppb)	0.0

CALIBRATION:

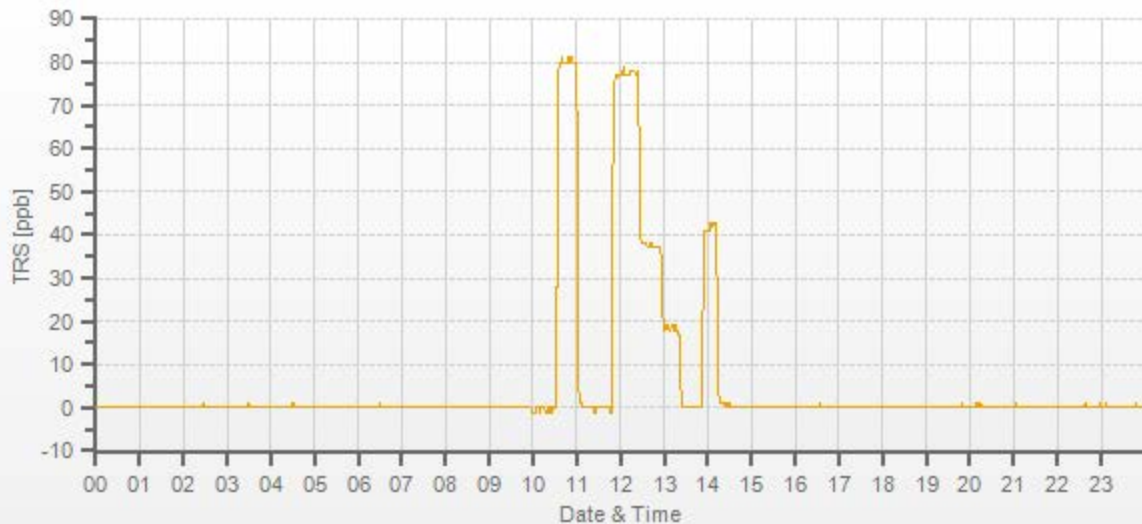
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	7500	7500	0.00	-0.3	0	0.961	0.995
7442	57.90	7500	77.97	80.8	78.4	0.961	0.995
7472	28.20	7500	37.98	n/a	37.5	n/a	1.013
7486	14.10	7500	18.99	n/a	18.5	n/a	1.026

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.007	-0.4%

COMMENTS:

Sample inlet filter was changed.



NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	22-Nov-2022	PREVIOUS CALIBRATION DATE:	18-Oct-2022	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1505664393	NOx	0.999
LOCATION:	CLS	BAROMETRIC (mBar):	938	FLOW (mL/min)	707	NO	0.999
PURPOSE:	Routine	START TIME (MST):	09:52	RANGE (ppb)	500	NO2	1.000
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:10	GPT FOR O3?		No	

CALIBRATION SYSTEM:							
CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 105146	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	NO/NOx (PPM):	50.0 50.1	HIGH EXPIRY:	n/a
ID:	17100415	ID:	132	CYLINDER (psi):	250	LOW ID:	n/a
MFC CALIBRATION DATE:	02-Sep-2022	OXIDIZER ID:	n/a	EXPIRY DATE	09-Jun-2029	LOW EXPIRY:	n/a

CALIBRATION SETTINGS:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	4.7	4.7	n/a	BKG/OFFSET:	5.1	4.9	n/a
SLOPE/COEF/CE:	0.999	1.012	1.001	SLOPE/COEF/CE:	0.999	1.066	1.001

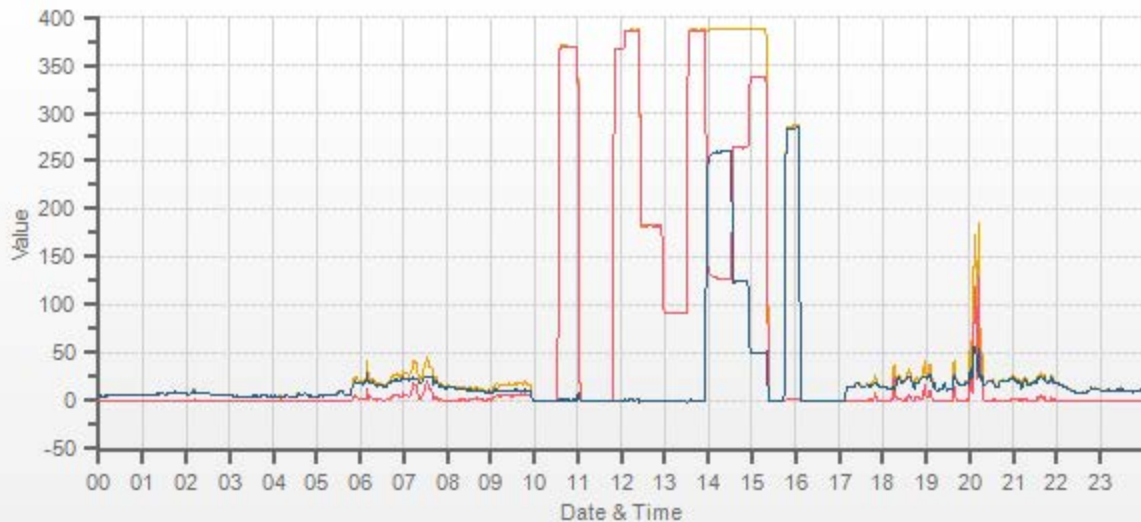
EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	271.2	3.5	267.7		299.6	3.1	296.5

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			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	38.50	5000	0.0	0.0	0.0	-0.1	0.0	0.1	0.0	0.0	0.0	1.045	1.044	0.998	0.998	0.987	0.985	
4962	38.50	5000	385.0	385.8	0.8	368.4	369.6	1.3	385.6	386.7	1.1	1.045	1.044	0.998	0.998	0.987	0.985	
4982	18.00	5000	180.0	180.4	0.4	n/a	n/a	n/a	182.4	183.1	0.6	n/a	n/a	0.987	0.985	0.987	0.984	
4991	9.00	5000	90.0	90.2	0.2	n/a	n/a	n/a	91.2	91.6	0.2	n/a	n/a	0.987	0.984	0.987	0.984	

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	38.50	5000	0	385.8	386.7	0.9	258.3	258.9	0.998	100.23%
AS-FOUND HIGH	38.50	5000	235	127.5	387.3	259.8	258.3	258.9	0.998	100.23%
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MID	38.50	5000	110	263.7	387.7	123.9	122.1	123	0.993	100.74%
LOW	38.50	5000	40	337.4	387.5	50.0	48.4	49.1	0.986	101.45%
NO2 adjustment not required.									AVERAGE:	100.81%

LINEAR REGRESSION ANALYSIS:				COMMENTS:
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	1.001	0.18%	
NOx	1.000	1.002	0.20%	
NO2	1.000	0.999	0.17%	



CAL-LICA-202211-01174

Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	23-Nov-2022	PREVIOUS CALIBRATION DATE:	19-Oct-2022
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	947
PURPOSE:	Removal/Shut-down	START TIME (MST):	10:39
PERFORMED BY:	Alex Yakupov	END TIME (MST):	12:39

ANALYZER:

MAKE/MODEL	Thermo 49i	RANGE	500 ppb
SERIAL #	700419951	FLOW (mL/min)	1463
INITIAL		FINAL	
BKG/OFFSET	-0.2	BKG/OFFSET	n/a
COEF/SLOPE	1.059	COEF/SLOPE	n/a
Expected (reference) Value	454.2	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:	21-Oct-2022	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

CALIBRATION PARAMETERS:

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

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	 	5000	0.0	0.0	n/a	 	
5000	 	5000	378.0	374.9	n/a	1.008	n/a
5000	 	5000	180.0	177.5	n/a	1.014	n/a
5000	 	5000	60.0	59.8	n/a	1.003	n/a

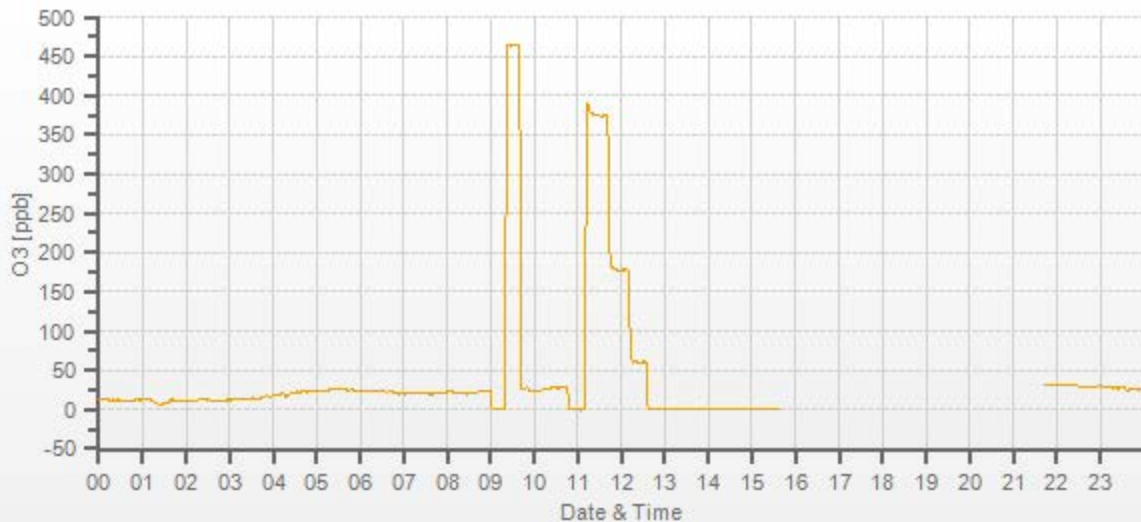
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.991	0.0%

COMMENTS:

Shutdown calibration was completed to install a new analyzer.

O3[ppb] Station: Cold Lake South Daily: 23-11-2022 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202211-01174

Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	24-Nov-2022	PREVIOUS CALIBRATION DATE:	n/a
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	948
PURPOSE:	Install/Post-Repair	START TIME (MST):	11:10
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:16

ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	12208316585	FLOW (mL/min)	1270
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	0.1
COEF/SLOPE	n/a	COEF/SLOPE	1.032
Expected (reference) Value	n/a	Expected (reference) Value	251

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	21-Oct-2022	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

CALIBRATION PARAMETERS:

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

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	5000	5000	0.0	n/a	0.0	n/a	n/a
5000	5000	5000	378.0	n/a	378.0	n/a	1.000
5000	5000	5000	180.0	n/a	179.9	n/a	1.001
5000	5000	5000	60.0	n/a	61.1	n/a	0.982

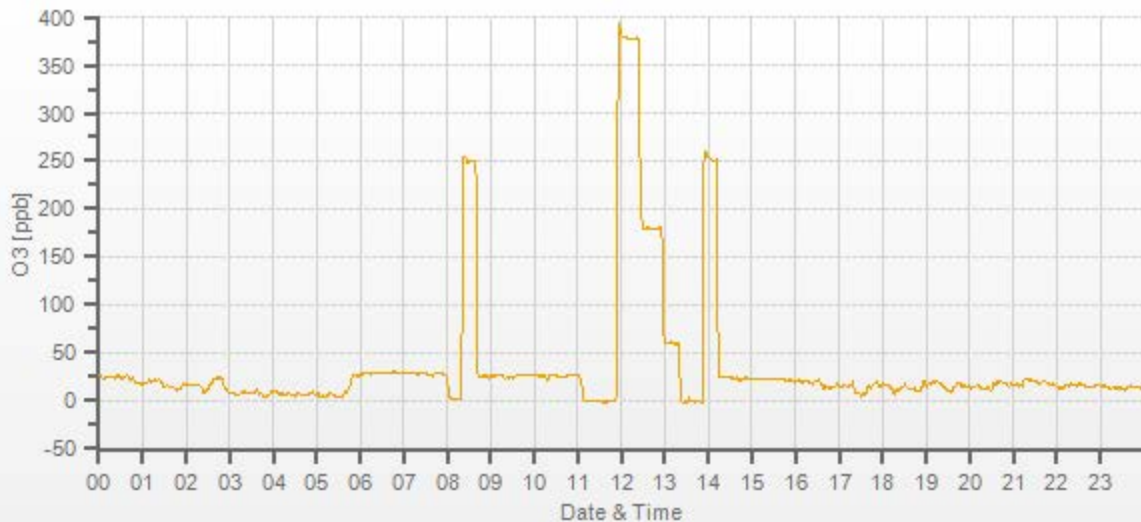
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.999	0.1%

COMMENTS:

A new analyzer was installed. Sample inlet filter was changed.

O3[ppb] Station: Cold Lake South Daily: 24-11-2022 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202211-01174

Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	23-Nov-2022	PREVIOUS CALIBRATION DATE:	19-Oct-2022	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1180930025	1140
LOCATION:	CLS	BAROMETRIC (mBar):	947	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Routine	START TIME (MST):	10:42	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:39	PREVIOUS CF:	0.999	0.994	0.996

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 ₃ H ₈ (ppm):	603.0 204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	132	CYLINDER (psi):	1500	LOW ID:	n/a
MFC CALIBRATION DATE:	02-Sep-2022	OXIDIZER ID:	115	EXPIRY DATE:	18-Aug-2029	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

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

EXPECTED (REFERENCE) VALUE:

INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.43	11.22	20.65		9.52	11.28	20.79

CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3100	X	3100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	X	X	X	X	X
3025	74.60	3100	14.51	13.50	28.01	14.32	13.41	27.73	14.50	13.51	28.02	1.013	1.007	1.010	1.001	0.999	1.000
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.16	6.83	14.00	n/a	n/a	n/a	1.013	0.988	1.000
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.56	3.47	7.04	n/a	n/a	n/a	1.016	0.970	0.992

LINEAR REGRESSION ANALYSIS:

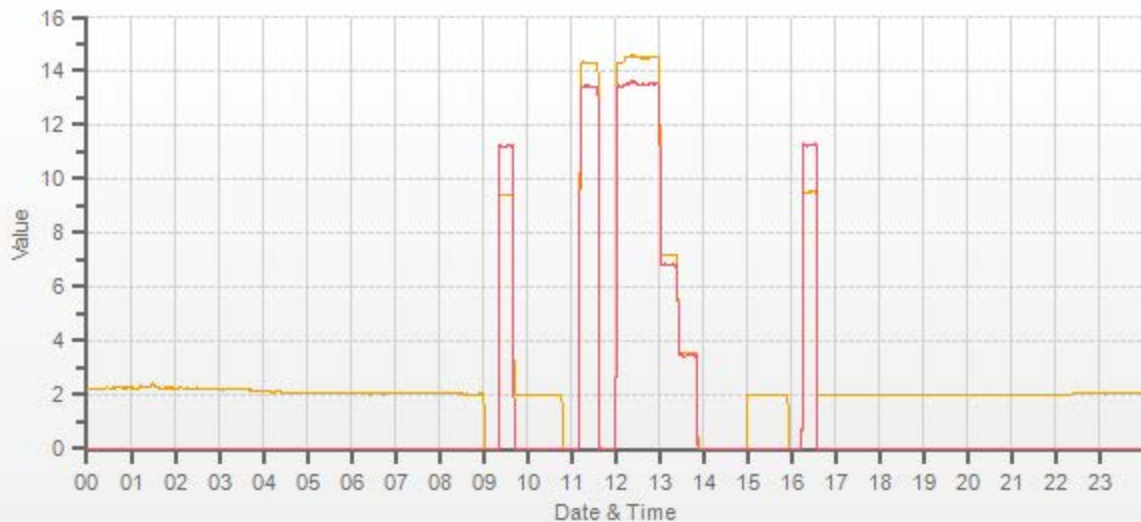
	CORRELATION	SLOPE	INTERCEPT
CH ₄	1.000	1.000	-0.2%
NMHC	1.000	0.999	0.3%
THC	1.000	1.000	0.0%

Comments:

Sample inlet filter was changed.

Use Zero Chrom?

Yes



CAL-LICA-202211-01174



Teledyne T640 Audit/Calibration

Date/Previous Audit Date:	November 22, 2022	October 19, 2022	Weather Conditions:	A few clouds	
Company:	LICA		Start Time (mst):	16:15	
Station:	Cold Lake South		End Time (mst):	17:07	
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 DC1 S/N 177246 / Sep 03, 2023			Temperature: Vaisala / HM70 / #T1640130/ Jun 14, 2023		
Digital Manometer: DeltaCal DC1 S/N 177246 / Sep 03, 2023			Pressure: Fisher Scientific / FB 61291 / #130168457/ Feb 17, 2023		
DIAGNOSTICS:					
Ambient Pressure (mmHg)	702.1	Ambient Temp (°C)	0.2	ASC Heater Duty (%)	0.0
Box Temp (°C)	29.0	Current PMT HV (V)	1442	LED Temp (°C)	37.96
P3 Value	49	PMT Setting (V)	1444	Pump PWM (%)	79
Sample Flow (L/min)	4.99	Sample RH (%RH)	13.2	Sample Temp (°C)	26.0
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)	702.8	702.1	702.8	702.1	+/- 10 mm Hg
Ambient Temperature (°C)	0.10	0.2	n/a		+/- 2°C
Sample Flow (L/min)	5.04	4.99	50.20	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
Comments:					
n/a					

Meteorological System Checklist



Date:	November 22, 2022		
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 14, 2023		
Reference Temperature (°C):	2.7		
Station - Ambient Temperature (°C):	2.5		
Temperature Difference (°C):	0.2		
BAROMETRIC PRESSURE SENSOR CHECK			
Reference Barometer ID:	Fisher Scientific / FB 61291 / #130168457/ Feb 17, 2023		
Reference Pressure - Units/Reading:	millibar	950	
Station Pressure - Units/Reading:	millibar	949	
Pressure Tolerance +/- 15% of error:	808 - 1093	0.11%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Reference Hygrometer ID:	Vaisala HMP76B #T1640130, Exp. Date: Jun 14, 2023		
Reference Hygrometer % RH- Reading:	68.60		
Station Hygrometer % RH- Reading:	62.90		
RH Tolerance +/- 15% of difference:	58.31 - 78.89	8.3%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	October 19, 2022	Previous check date:	October 19, 2022
Wind Speed Observed (kph):	0-10	Wind Direction Observed:	SW
Wind speed on Data Logger (kph):	7.1	Wind Direction on Data Logger:	SW
	Annual audit: Jul 6, 2022	Wind Direction Pass/Fail?:	Pass
Comments			
Station (Trailer) temperature vs Reference gauge: 22.8 vs 22.6, passed. Wind system: Model 05305AQ. Signal box # 32400			



Meteorological Sensor Audit/Calibration

Location Information

Company: LICA
 Audit Location: Cold Lake South
 Audit Date: July 6, 2022
 Calibration Purpose: routine annual

Performed By: Alex Yakupov
 Reviewed By: Chris Wesson
 Start/End Time (mst): 15:54 / 17:48
 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 2022

Ambient Air Monitoring Calibration Report

- TAMARACK STATION-

CAL-LICA-202211-01248

Station Operation and Maintenance:

Bureau Veritas Canada

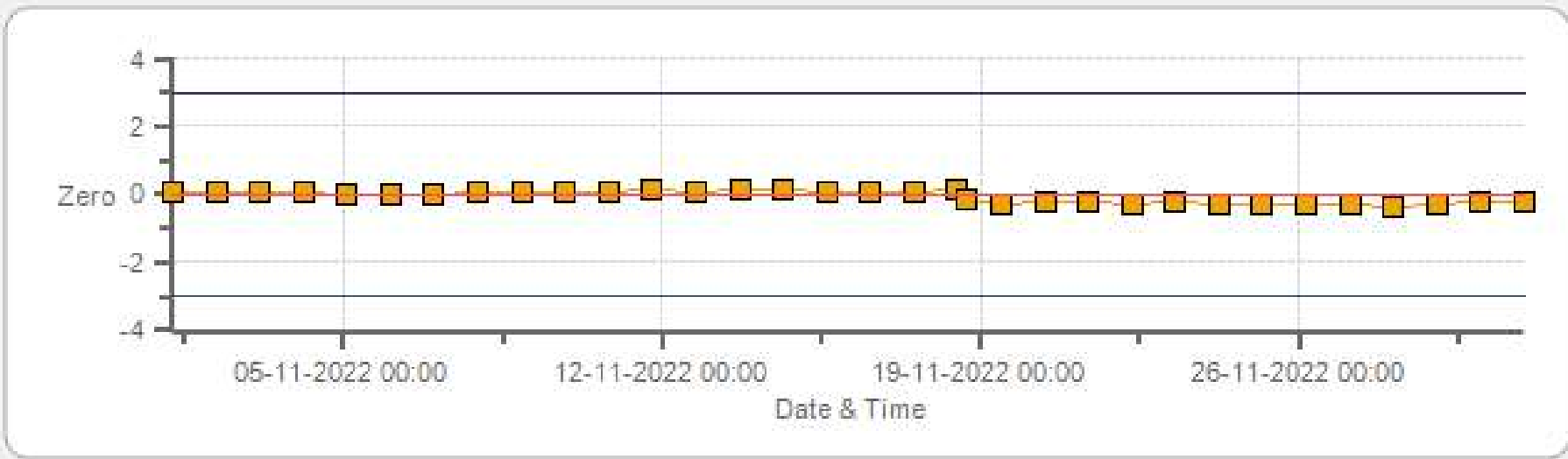
Data Validation and Report:

LICA / Bureau Veritas Canada

December 19, 2022

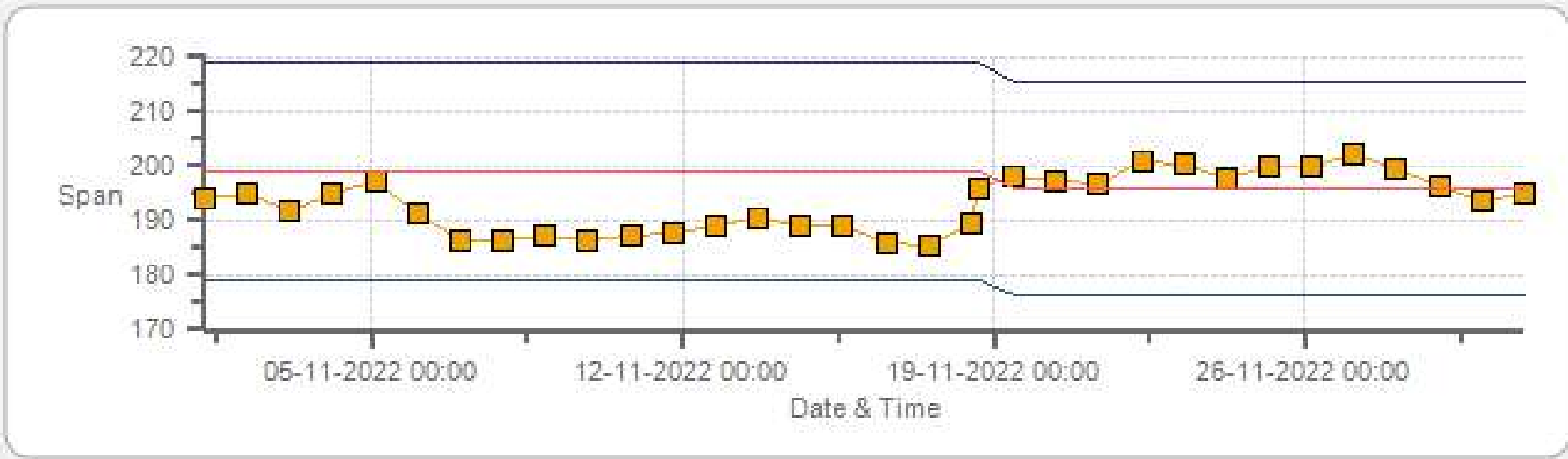
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Tamarack Monthly: 11-2022 Type: SpanAndZero - Zero



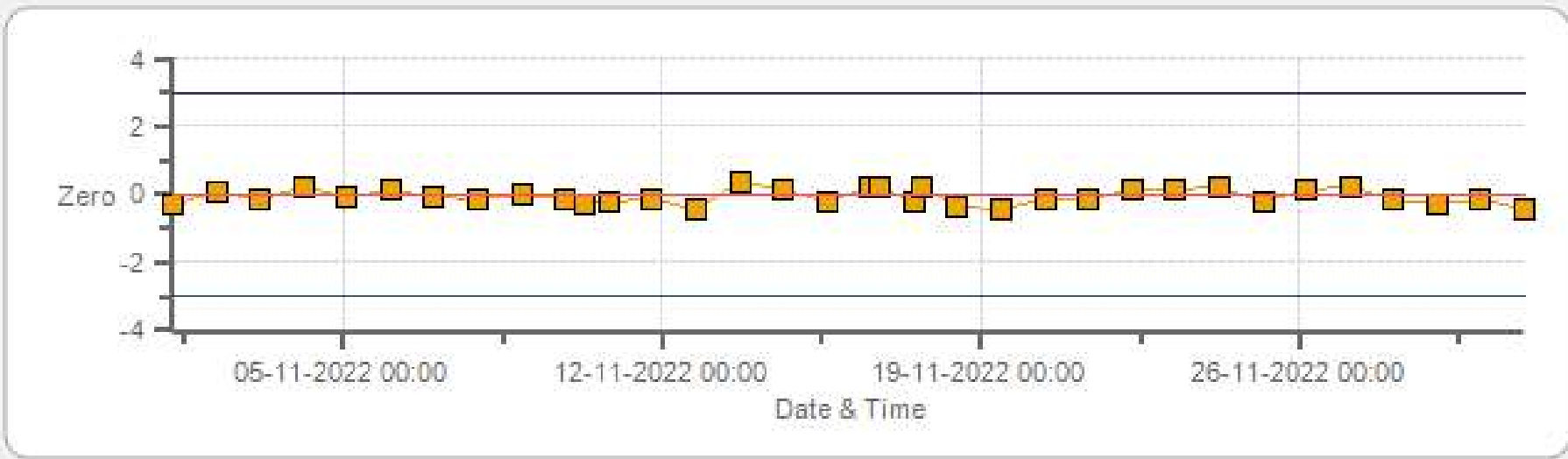
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: Tamarack Monthly: 11-2022 Type: SpanAndZero - Span



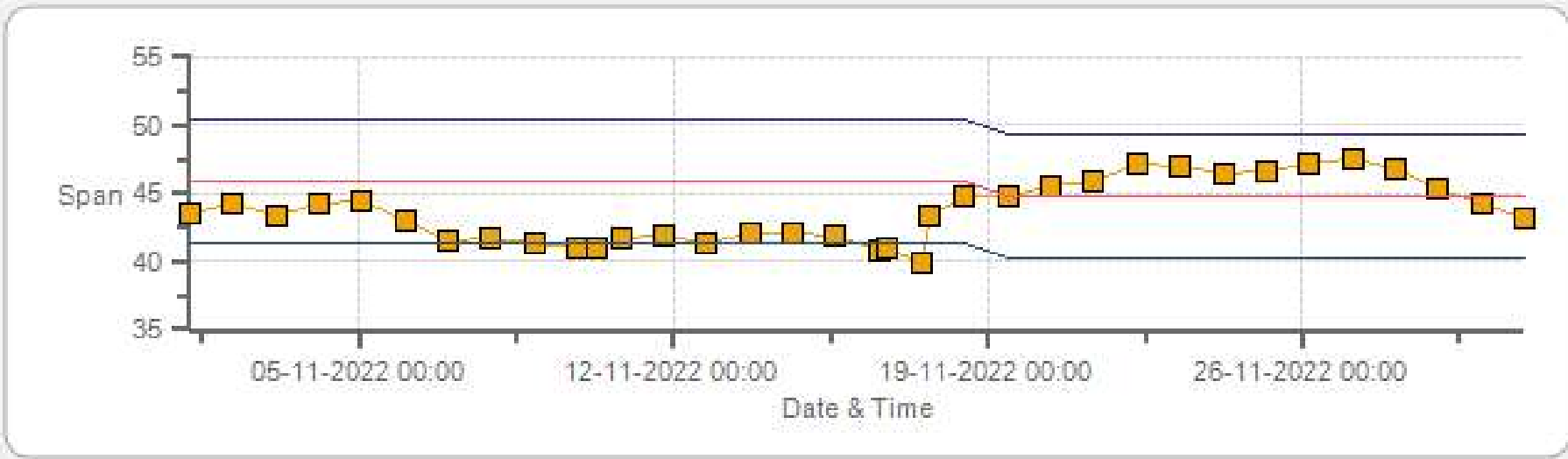
Span SpanRef Span Low Span High

H2S[ppb] Calibration: Tamarack Monthly: 11-2022 Type: SpanAndZero - Zero



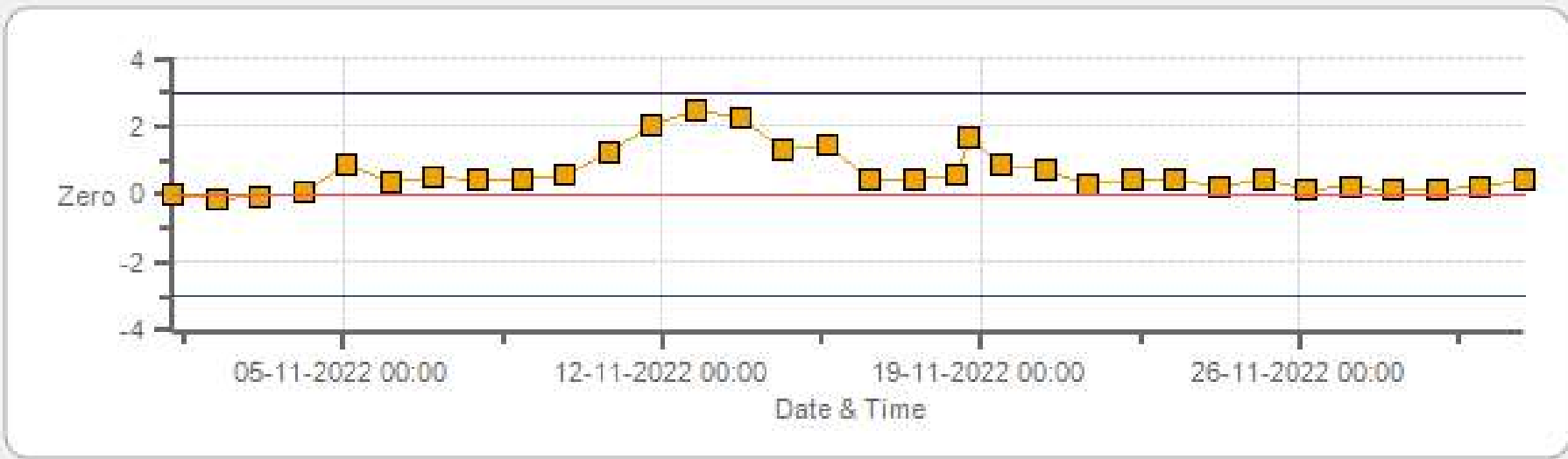
Zero Zero Ref Zero Low Zero High

H2S[ppb] Calibration: Tamarack Monthly: 11-2022 Type: SpanAndZero - Span



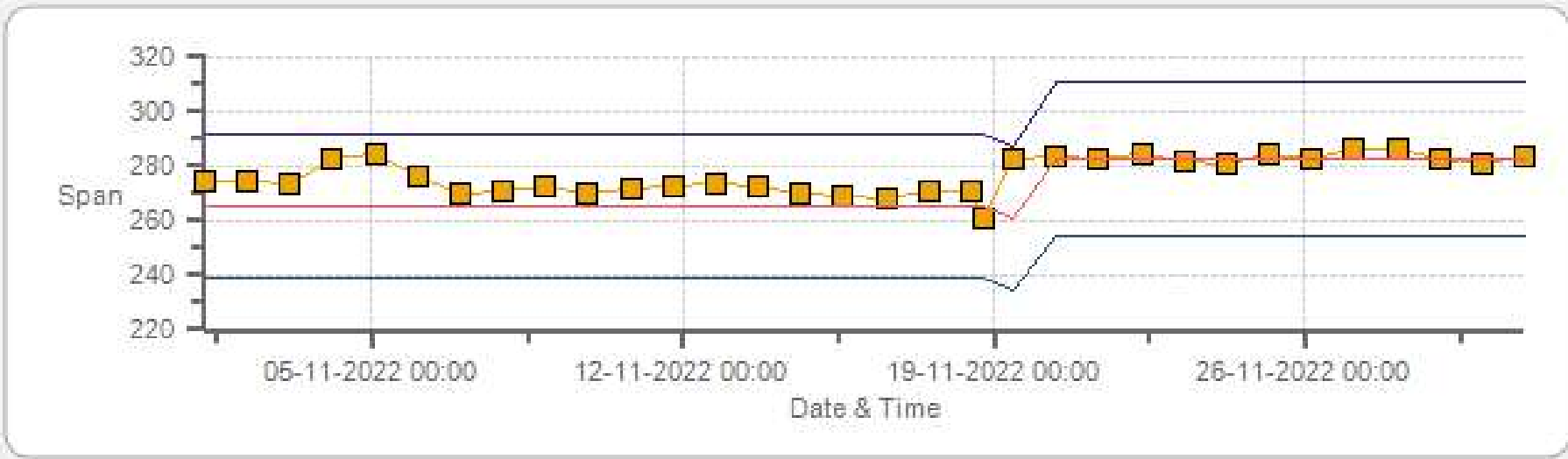
Span SpanRef Span Low Span High

NOX[ppb] Calibration: Tamarack Monthly: 11-2022 Type: SpanAndZero - Zero



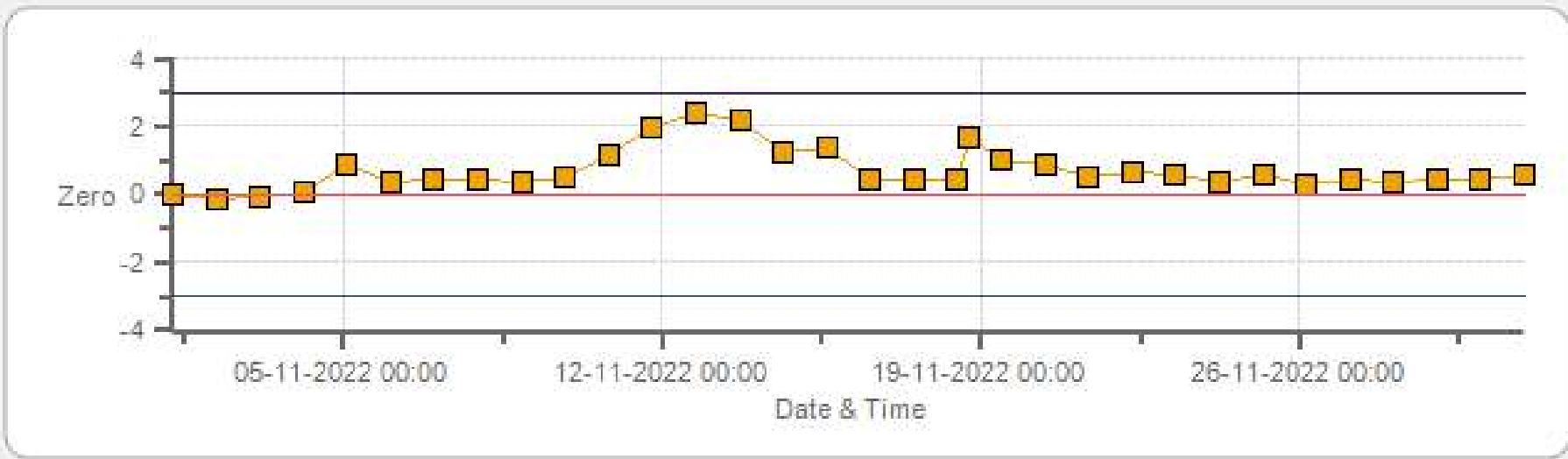
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: Tamarack Monthly: 11-2022 Type: SpanAndZero - Span



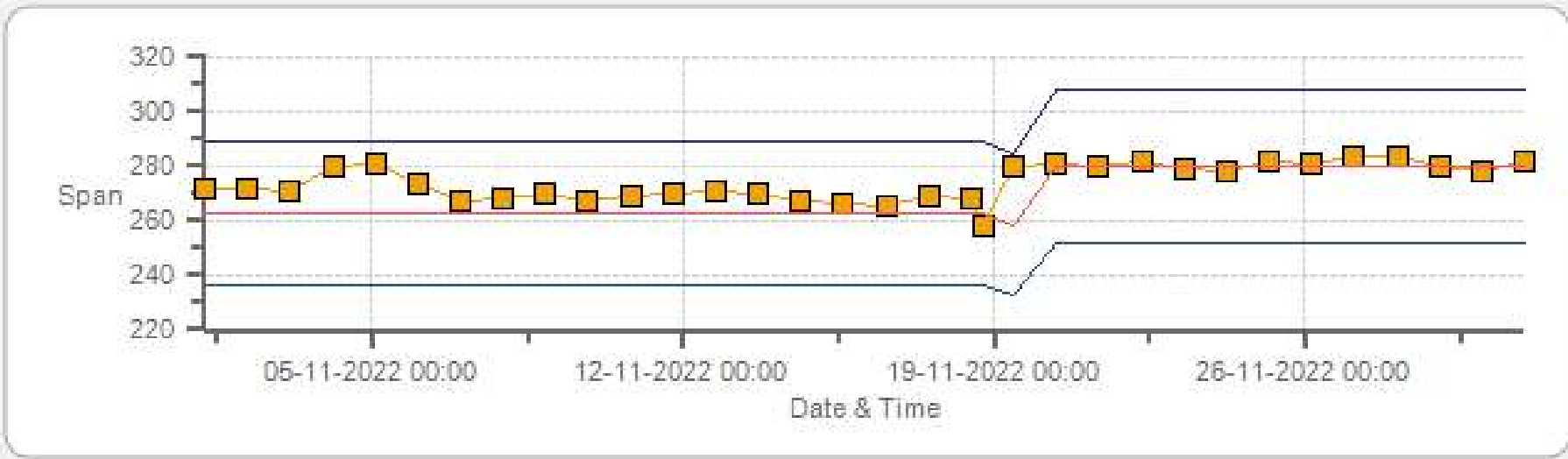
Span SpanRef Span Low Span High

NO2[ppb] Calibration: Tamarack Monthly: 11-2022 Type: SpanAndZero - Zero



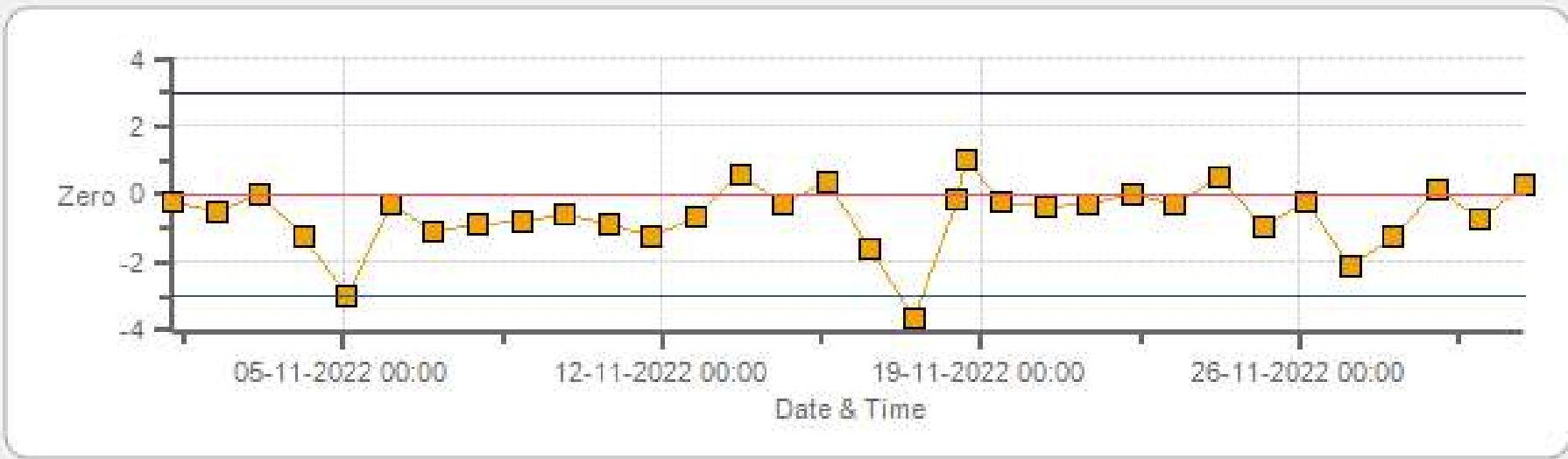
Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: Tamarack Monthly: 11-2022 Type: SpanAndZero - Span



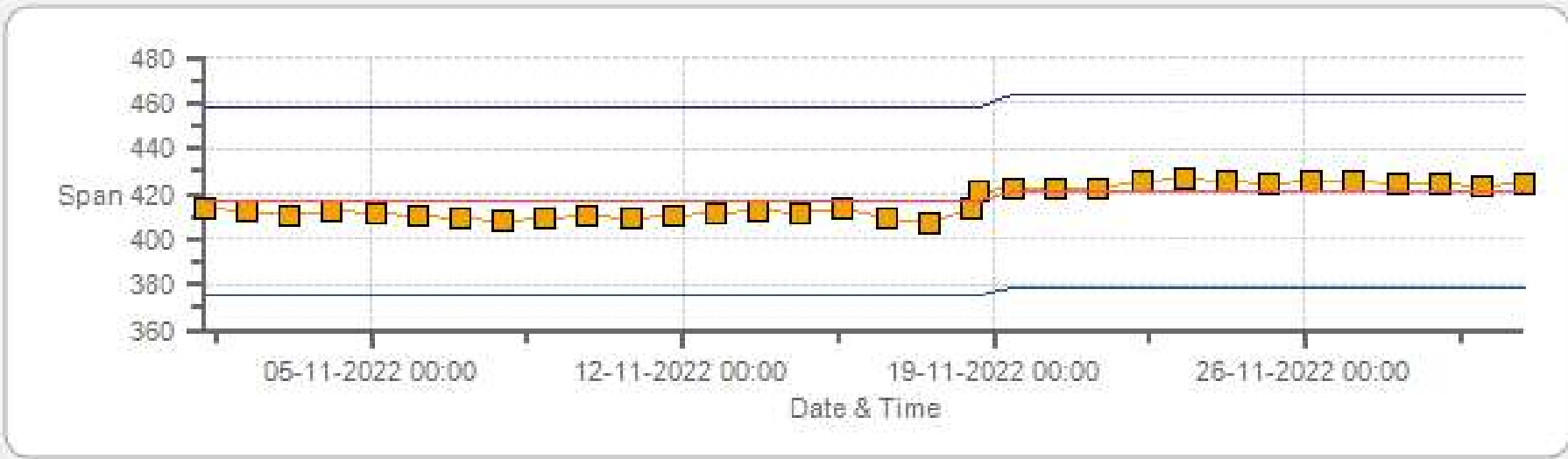
Span SpanRef Span Low Span High

O3[ppb] Calibration: Tamarack Monthly: 11-2022 Type: SpanAndZero - Zero



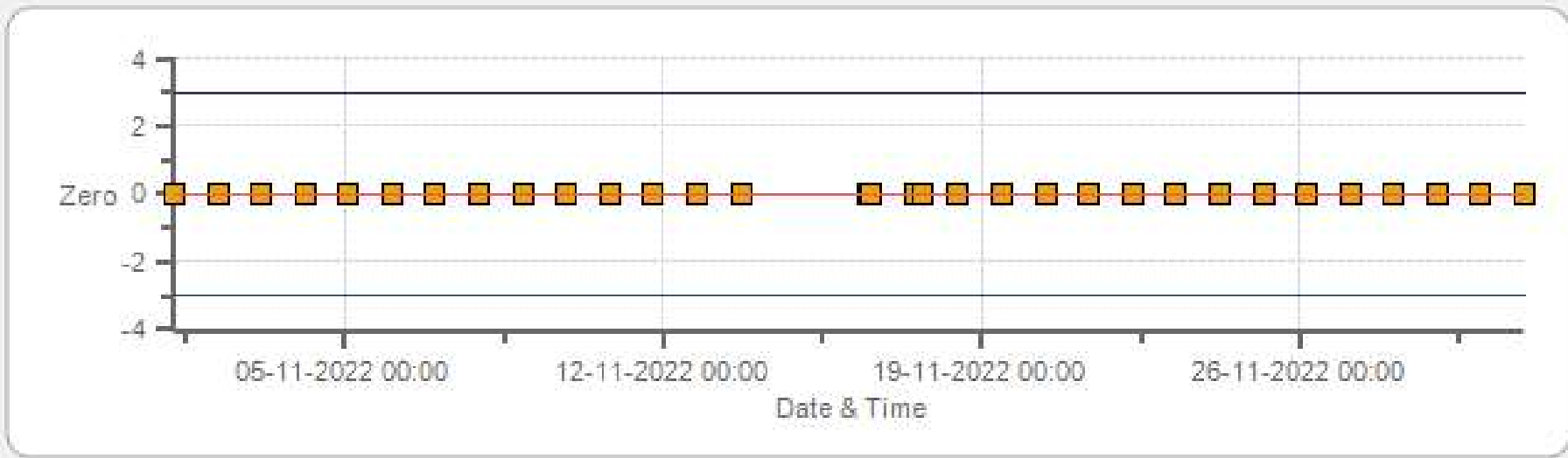
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: Tamarack Monthly: 11-2022 Type: SpanAndZero - Span



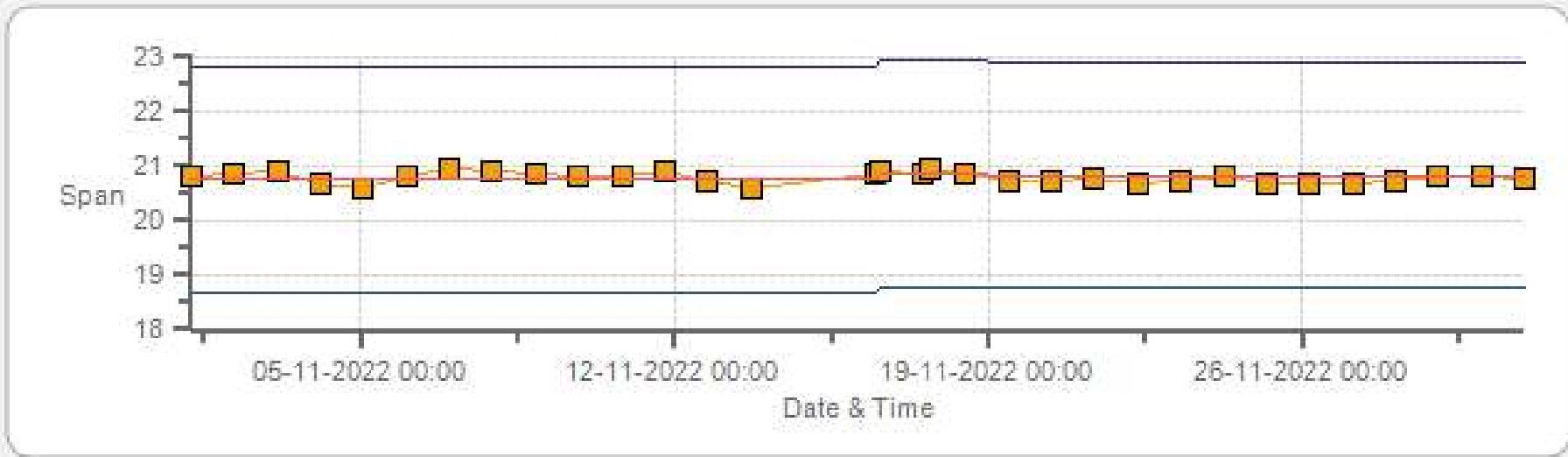
Span SpanRef Span Low Span High

THC55[ppm] Calibration: Tamarack Monthly: 11-2022 Type: SpanAndZero - Zero



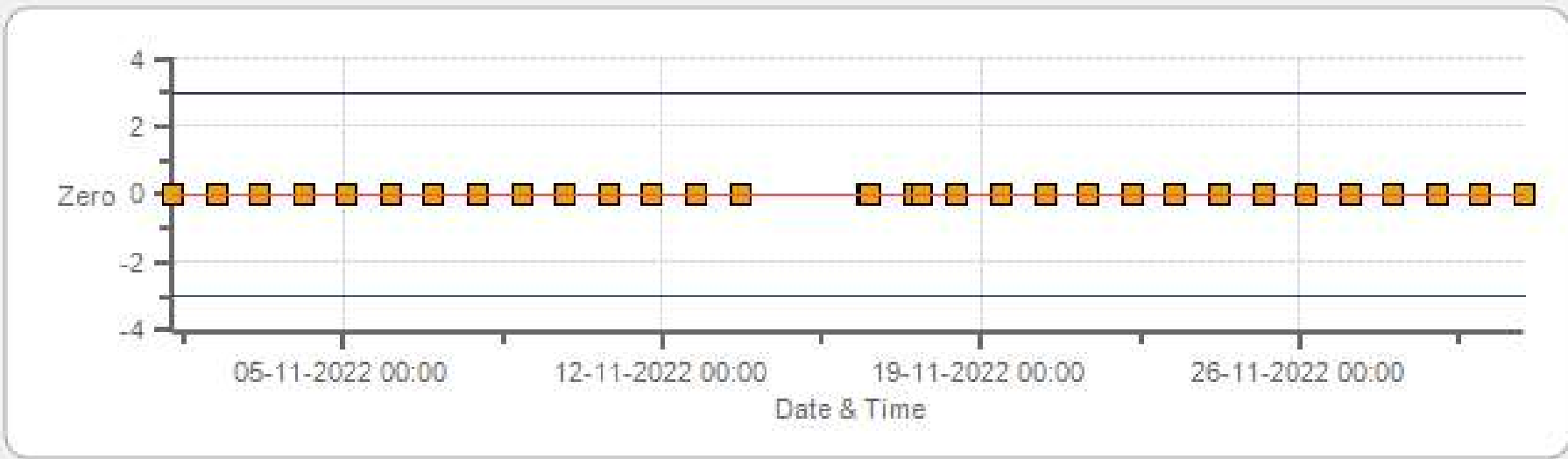
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: Tamarack Monthly: 11-2022 Type: SpanAndZero - Span



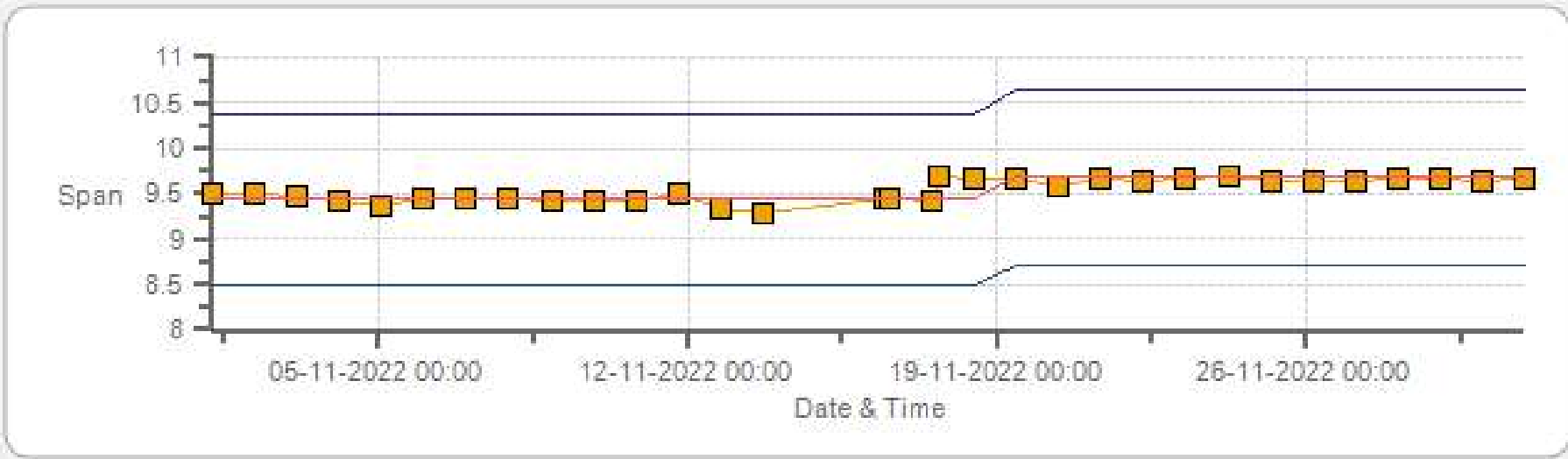
Span Span Ref Span Low Span High

CH4[ppm] Calibration: Tamarack Monthly: 11-2022 Type: SpanAndZero - Zero



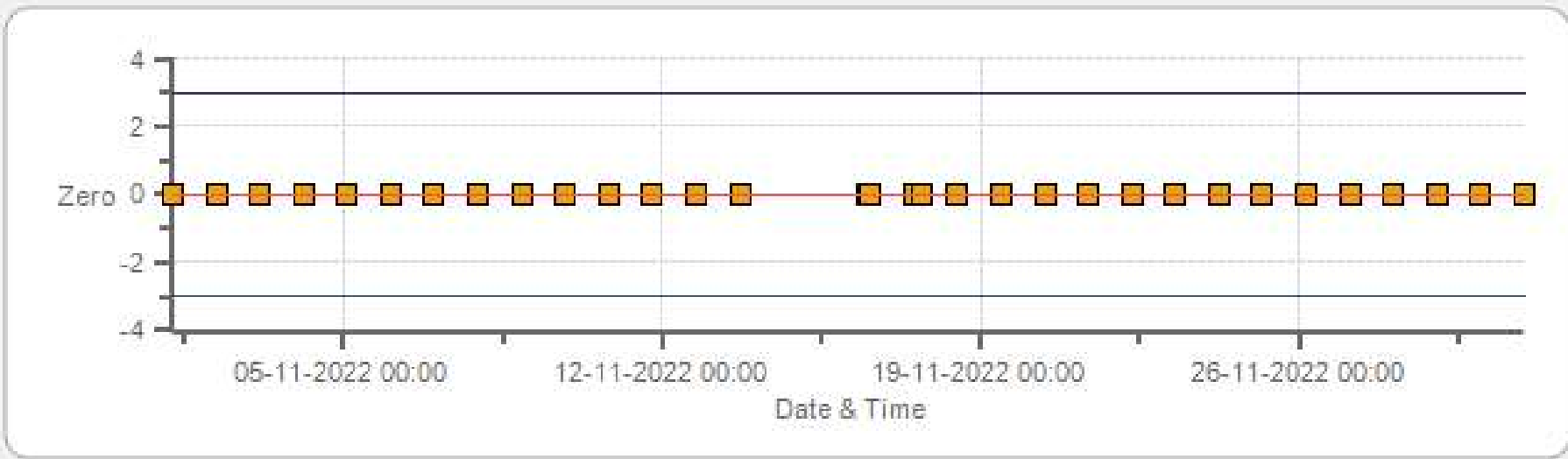
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: Tamarack Monthly: 11-2022 Type: SpanAndZero - Span



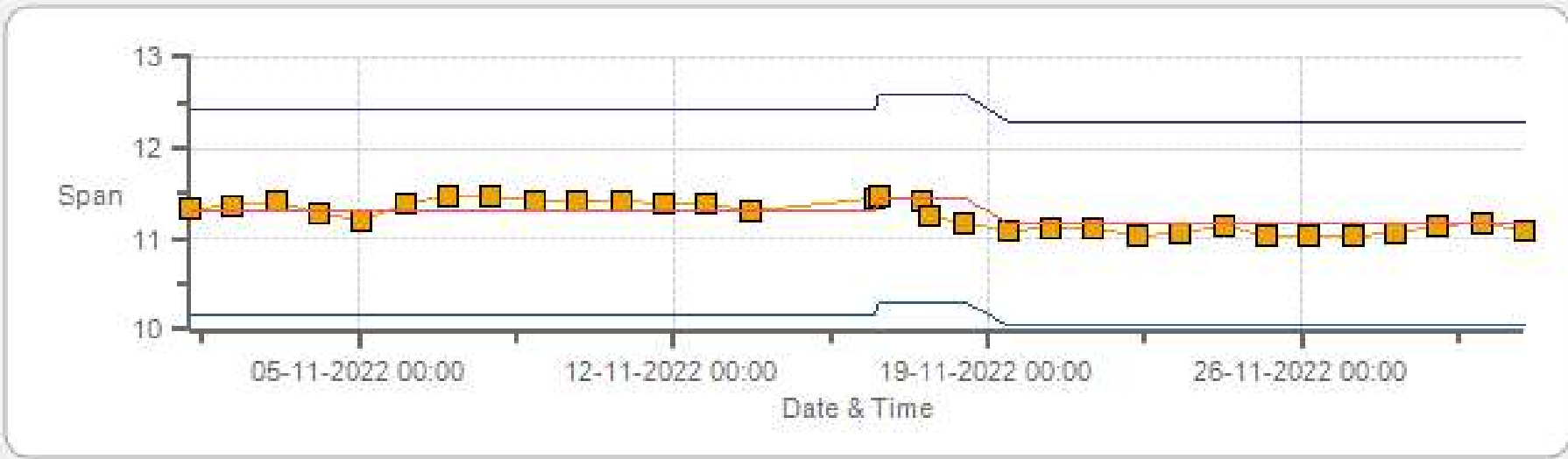
Span SpanRef Span Low Span High

NMHC[ppm] Calibration: Tamarack Monthly: 11-2022 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: Tamarack Monthly: 11-2022 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	18-Nov-2022	PREVIOUS CALIBRATION DATE:	27-Oct-2022
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	0.999
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	942
PURPOSE:	Routine	START TIME (MST):	11:45
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:50

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180930031	FLOW (mL/min)	448
INITIAL		FINAL	
BKG/OFFSET	2.59	BKG/OFFSET	2.93
COEF/SLOPE	0.997	COEF/SLOPE	1.032
Expected (reference) Value	199.1	Expected (reference) Value	196

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	17100415	ID:	132
MFC CALIBRATION DATE:	02-Sep-2022	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 105146	HIGH ID	n/a
CONC (ppm):	50.80	EXPIRY DATE	n/a
CYLINDER (psi):	300	LOW ID	n/a
EXPIRY DATE	09-Jun-2029	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	38.50	5000	0.00	0.1	0	1.035	0.998
4962	38.50	5000	391.16	377.9	391.8	1.035	0.998
4982	18.00	5000	182.88	n/a	184.8	n/a	0.990
4991	9.00	5000	91.44	n/a	91.8	n/a	0.996

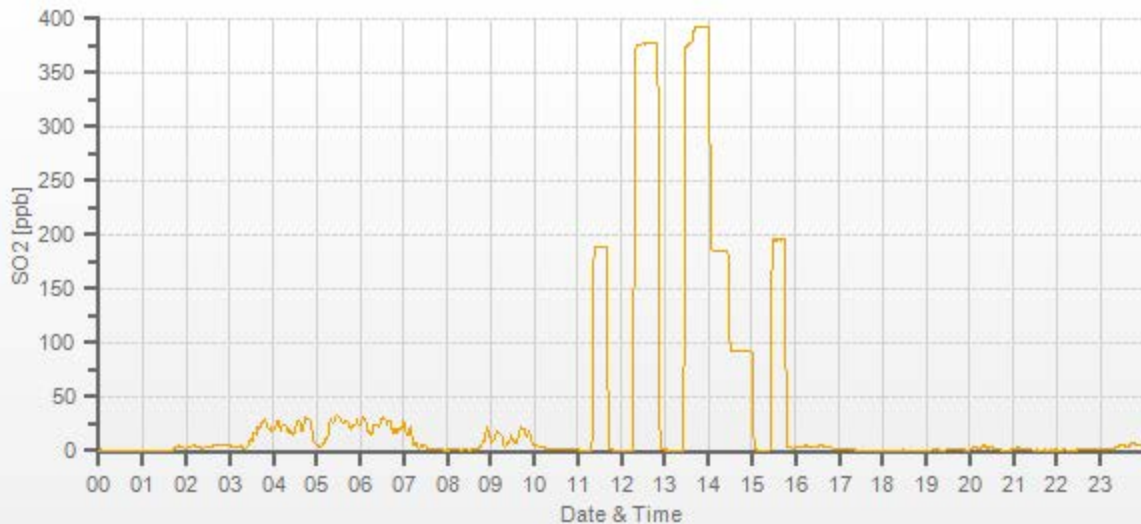
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	0.1%

COMMENTS:

Sample inlet filter was changed.

SO2[ppb] Station: Tamarack Daily: 18-11-2022 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202211-01248

H2S Analyzer Calibration by Dilution



DATE:	17-Nov-2022	PREVIOUS CALIBRATION DATE:	27-Oct-2022
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	0.998
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	955
PURPOSE:	Routine	START TIME (MST):	12:46
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:20

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 17360005	FLOW (mL/min)	937
INITIAL		FINAL	
BKG/OFFSET	31.3	BKG/OFFSET	33.2
COEF/SLOPE	0.747	COEF/SLOPE	0.816
Expected (reference) Value	45.9	Expected (reference) Value	44.8

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	21-Oct-2022	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):	1700	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:	12:48	SO2 Conc (ppb)	380
END TIME:	13:03	Analyzer Response (ppb)	0.0

CALIBRATION:

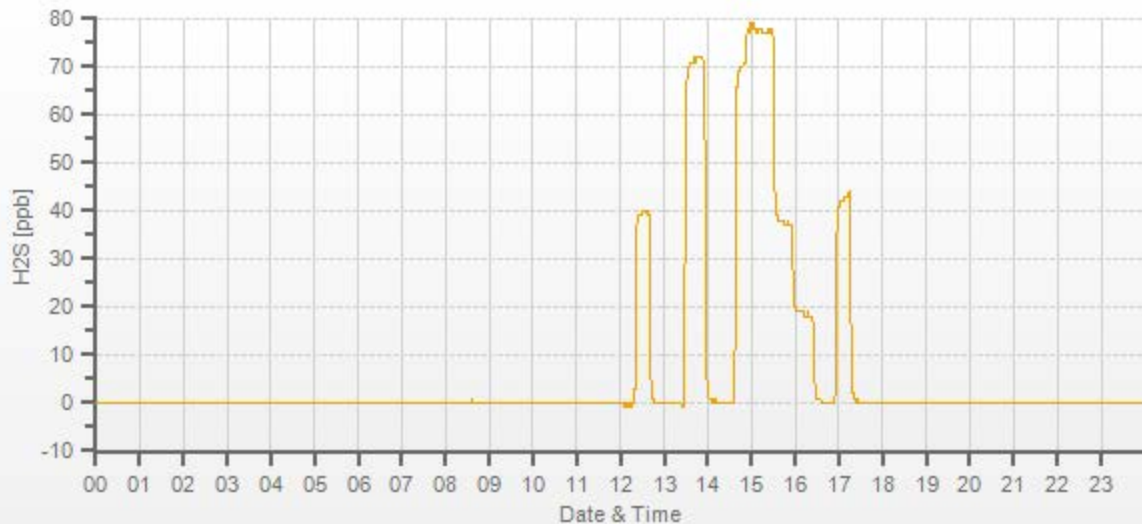
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	7500	7500	0.00	-0.1	0	1.083	1.006
7442	57.90	7500	77.97	71.9	77.5	1.083	1.006
7472	28.20	7500	37.98	n/a	37.7	n/a	1.007
7486	14.10	7500	18.99	n/a	18.5	n/a	1.026

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.996	-0.2%

COMMENTS:

Sample inlet filter was changed.



NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	18-Nov-2022	PREVIOUS CALIBRATION DATE:	27-Oct-2022	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930028	NOx	1.000
LOCATION:	Tamarack	BAROMETRIC (mBar):	942	FLOW (mL/min)	864	NO	0.999
PURPOSE:	Routine	START TIME (MST):	11:46	RANGE (ppb)	500	NO2	1.001
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:55	GPT FOR O3?		No	

CALIBRATION SYSTEM:							
CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 105146	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	NO/NOx (PPM):	50.0 50.1	HIGH EXPIRY:	n/a
ID:	17100415	ID:	132	CYLINDER (psi):	300	LOW ID:	n/a
MFC CALIBRATION DATE:	02-Sep-2022	OXIDIZER ID:	n/a	EXPIRY DATE	09-Jun-2029	LOW EXPIRY:	n/a

CALIBRATION SETTINGS:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	2	1.6	n/a	BKG/OFFSET:	2	1.8	n/a
SLOPE/COEF/CE:	1	1.009	1	SLOPE/COEF/CE:	1.003	1.031	1

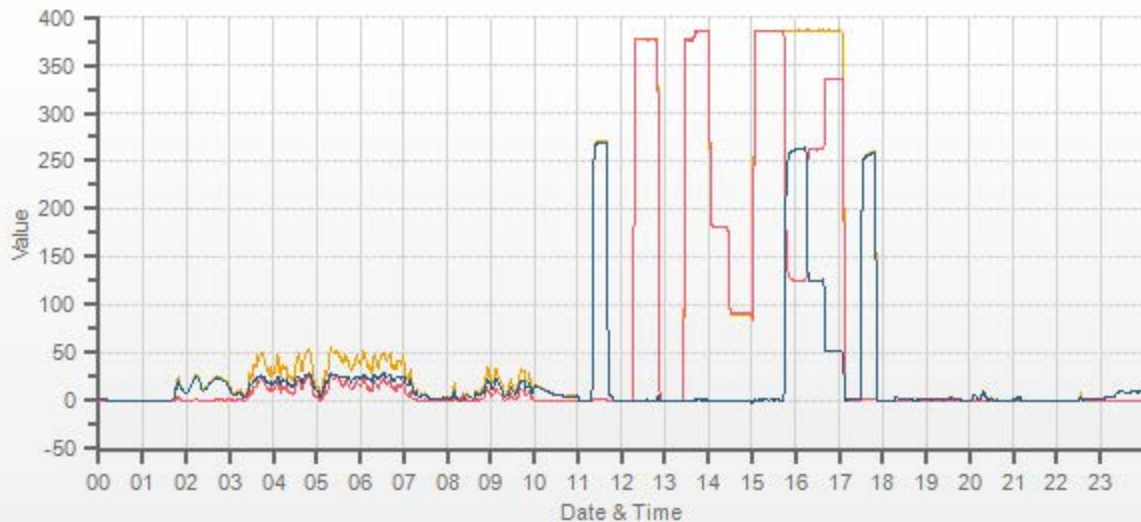
EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	265.6	2.8	262.9		261.1	2.7	258.3

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

FLOW RATE			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000	38.50	5000	0.0	0.0	0.0	-0.1	0.1	-0.2	0.0	0.0	0.0	1.021	1.022	0.999	0.997	0.989	0.986
4962	38.50	5000	385.0	385.8	0.8	377.1	377.7	0.6	385.2	386.8	1.7	1.021	1.022	0.999	0.997	0.989	0.986
4982	18.00	5000	180.0	180.4	0.4	n/a	n/a	n/a	182.0	182.9	0.9	n/a	n/a	0.989	0.986	0.989	0.986
4991	9.00	5000	90.0	90.2	0.2	n/a	n/a	n/a	91.2	91.5	0.3	n/a	n/a	0.987	0.986	0.987	0.986

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	38.50	5000	0	385.9	387.4	1.5	261.5	261.8	0.999	100.11%
AS-FOUND HIGH	38.50	5000	240	124.4	387.7	263.3	261.5	261.8	0.999	100.11%
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MID	38.50	5000	125	261.6	387.8	126.1	124.3	124.6	0.998	100.24%
LOW	38.50	5000	45	335.1	387.8	52.7	50.8	51.2	0.992	100.79%
NO2 adjustment not required.									AVERAGE:	100.38%

LINEAR REGRESSION ANALYSIS:				COMMENTS:
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	1.000	0.17%	
NOx	1.000	1.002	0.18%	
NO2	1.000	1.000	0.08%	



CAL-LICA-202211-01248

Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	18-Nov-2022	PREVIOUS CALIBRATION DATE:	27-Oct-2022
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	942
PURPOSE:	Routine	START TIME (MST):	11:47
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:50

ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	1202068570	FLOW (mL/min)	1380
INITIAL		FINAL	
BKG/OFFSET	2.8	BKG/OFFSET	2.8
COEF/SLOPE	1	COEF/SLOPE	1.023
Expected (reference) Value	416.7	Expected (reference) Value	421

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	21-Oct-2022	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

CALIBRATION PARAMETERS:

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

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	 	5000	0.0	1.6	0.0	 	
5000	 	5000	378.0	367.0	376.4	1.034	1.004
5000	 	5000	180.0	n/a	181.6	n/a	0.991
5000	 	5000	61.0	n/a	60.8	n/a	1.003

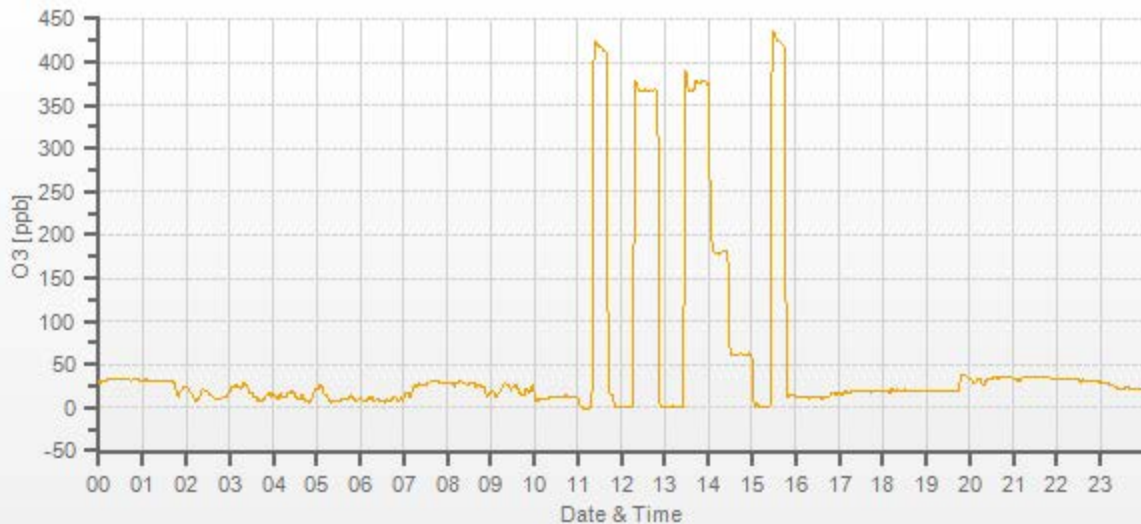
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.996	0.1%

COMMENTS:

Sample inlet filter was changed.

O3[ppb] Station: Tamarack Daily: 18-11-2022 Type: AVG 1 Min. [1 Min.]



Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	17-Nov-2022	PREVIOUS CALIBRATION DATE:	27-Oct-2022	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1314057759	1240
LOCATION:	Tamarack	BAROMETRIC (mBar):	955	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Routine	START TIME (MST):	12:48	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:20	PREVIOUS CF:	0.999	1.002	1.000

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 23593	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH ₄ /C ₃ H ₈ (ppm):	603.0 204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	132	CYLINDER (psi):	1600	LOW ID:	n/a
MFC CALIBRATION DATE:	02-Sep-2022	OXIDIZER ID:	115	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

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

EXPECTED (REFERENCE) VALUE:

INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.44	11.30	20.75		9.68	11.17	20.84

CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3100	X	3100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	X	X	X	X	X
3025	74.60	3100	14.51	13.50	28.01	14.13	13.71	27.85	14.52	13.52	28.04	1.027	0.985	1.006	0.999	0.999	0.999
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	3.35	6.98	n/a	n/a	n/a	0.997	1.005	1.001

LINEAR REGRESSION ANALYSIS:

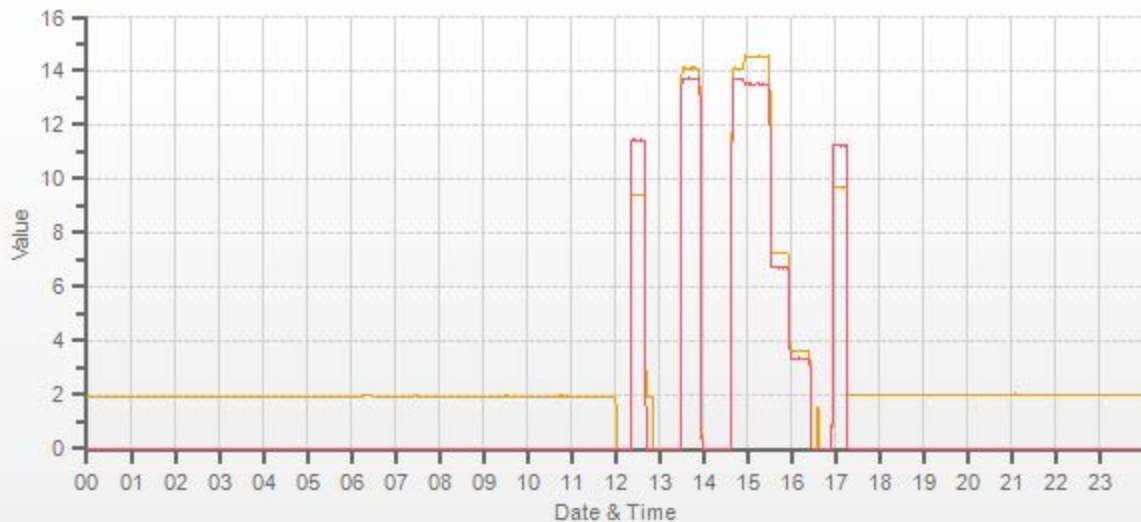
	CORRELATION	SLOPE	INTERCEPT
CH ₄	1.000	1.000	0.0%
NMHC	1.000	1.002	-0.1%
THC	1.000	1.001	0.0%

Comments:

Sample inlet filter was changed.

Use Zero Chrom?

Yes



CAL-LICA-202211-01248

Thermo 5030 SHARP Monitor Monthly Check

Date: November 18, 2022
Company: LICA
Station Name/Location: Tamarack
Previous Audit Date: October 27, 2022
Parameter: PM 2.5

Performed By/Reviewer: Alex Yakupov | Chris Wesson
Start Time (mst): 17:10
End Time (mst): 17:52
Calibration Purpose: routine monthly
Weather Conditions: A few clouds

SHARP Information and Status:

Serial Number: CM-2209 **Status:** 0.00
Approx Tape remaining: 4/10 **Error Code:** 0.00

Reference Standards:

Air Flow

	Manometer	Orifice	Pressure:	Temperature:
Make:	DeltaCal	DeltaCal	Fisher Scientific	Vaisala
Model:	DC1	DC1	FB 61291	HM70
Serial Number:	177246	177246	#130168457	T1640130
Calibration Expiration Date:	September 7, 2023	September 7, 2023	February 17, 2023	June 14, 2023

As found temperature and pressure:

<p style="text-align: center;">Tolerance +/- 4°C</p> <p>SHARP T1 °C: <u>-6.0</u></p> <p>Reference °C: <u>-6.3</u></p> <p>Difference °C: <u>-0.3</u></p>	<p style="text-align: center;">Tolerance +/- 13.33 hPa</p> <p>SHARP P3 (hPa): <u>947.000</u></p> <p>Reference (hPa): <u>946.000</u></p> <p>Difference (hPa) : <u>1.000</u></p>
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As left temperature and pressure (same as above if as found adequate):

<p style="text-align: center;">Tolerance +/- 4°C</p> <p>SHARP T1 °C: <u>-6.0</u></p> <p>Reference °C: <u>-6.3</u></p> <p>Difference °C: <u>-0.3</u></p>	<p style="text-align: center;">Tolerance +/- 13.33 hPa</p> <p>SHARP P3 (hPa): <u>948.000</u></p> <p>Reference (hPa): <u>946.000</u></p> <p>Difference : <u>2.000</u></p>
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As found flows:

<p style="text-align: center;">Targets: 1000 l/hr / <90%</p> <p>SHARP AirFlow l/hr <u>1000.00</u></p> <p>Pump Voltage (%) <u>54.10</u></p>	<p style="text-align: center;">Flow Tolerance 16.67 lpm +/- 0.67 lpm</p> <p>SHARP Airflow (l/min) <u>16.67</u></p> <p>Reference AirFlow (l/min) <u>16.68</u></p> <p>Difference (l/min) <u>0.01</u></p>
---	--

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

<p style="text-align: center;">Targets: 1000 l/hr / <90%</p> <p>SHARP AirFlow l/hr <u>1000.00</u></p> <p>Pump Voltage (%) <u>54.10</u></p>	<p style="text-align: center;">Flow Tolerance 16.67 lpm +/- 0.67 lpm</p> <p>SHARP Airflow (l/min) <u>16.67</u></p> <p>Reference AirFlow (l/min) <u>16.68</u></p> <p>Difference (l/min) <u>0.01</u></p>
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Inlet Assembly:

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

Comments:

Leak check: 16.59 vs 16.64, 0.05 < 0.80 lpm, passed.

Meteorological System Checklist



Date:	November 18, 2022		
Technician:	Alex Yakupov		
Station:	Tamarack / Audit time: 18:01 - 18:42		
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	Water test was completed. No issues.	
Is the housing clean?	yes		
Is the area around the housing clean and free from obstacles?	yes	Water testing: 18:13, Response is timely and accurate. 1 ml/10 tips	
TIP TEST - Slowly pour water until 10 tip are heard. (10 tips = 1 ml)			
# of Tips	Data Logger Response (ml):	Manual Specification = +/- 0.2 ml	
10	1.00	0.00	
AMBIENT TEMPERATURE SENSOR CHECK			
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	Vaisala HMP76B #T1640130, Exp. Date: Jun 14, 2023		
Reference Temperature (°C):	-6.6		
Station - Ambient Temperature (°C):	-6.2		
Temperature Difference (°C):			
BAROMETRIC PRESSURE SENSOR CHECK			
Reference Barometer ID:	Fisher Scientific / FB 61291 / #130168457 / Exp. Date: Feb 17, 2023		
Reference Pressure - Units/Reading:	millibar	946	
Station Pressure - Units/Reading:	millibar	944	
Pressure Tolerance +/- 15% of error:	804 - 1088	0.21%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Reference Hygrometer ID:	Vaisala HMP76B #T1640130, Exp. Date: Jun 14, 2023		
Reference Hygrometer % RH- Reading:	78.40		
Station Hygrometer % RH- Reading:	79.90		
RH Tolerance +/- 15% of difference:	66.64 - 90.16	-1.9%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	October 27, 2022	Previous check date:	October 27, 2022
Wind Speed Observed (kph):	1 to 10	Wind Direction Observed:	NW
Wind speed on Data Logger (kph):	1.1	Wind Direction on Data Logger:	NW
	Annual audit: Jul 26, 2022	Wind Direction Pass/Fail?:	Pass
Comments			
Station (Trailer) temperature vs Reference gauge temperature: 22.2 vs 22.6, difference = 0.4 => Passed.			



Meteorological Sensor Audit/Calibration

Location Information

Company: LICA
 Audit Location: Tamarack
 Audit Date: July 26, 2022
 Calibration Purpose: routine annual

Performed By: Alex Yakupov
 Reviewed By: Chris Wesson
 Start/End Time (mst): 16:01 / 17:14
 Weather Conditions: Mix of sun and 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 #:	161465	Direction Voltage Output Range:	0-1
Previous Cal/Audit Date:	September 20, 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	36.9	0.999
3000	55.3	55.4	55.4	0.998
4000	73.7	73.9	73.9	0.998
5000	92.2	92.5	92.4	0.997
6000	110.6	111.0	111.0	0.996
7000	129.0	129.5	129.5	0.996
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=	0.997

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	3	355	2.7	-0.1	1.4
30	330	34	331	-4.1	-1.3	2.7
60	300	64	301	-4.3	-1.0	2.7
90	270	95	272	-4.7	-1.5	3.1
120	240	125	242	-4.6	-2.2	3.4
150	210	154	213	-4.4	-3.4	3.9
180	180	184	185	-4.4	-4.6	4.5
210	150	213	153	-2.7	-3.2	2.9
240	120	242	125	-1.6	-4.6	3.1
270	90	270	94	-0.1	-4.0	2.1
300	60	300	63	0.2	-3.3	1.7
330	30	330	32	-0.4	-1.6	1.0
355	0	355	3	-0.1	2.7	1.4
The audit meets AMD requirements.				Average Absolute Degrees Difference=		2.6

Comments:

n/a

End of Report



Lakeland Industry & Community Association

NOVEMBER 2022
Ambient Air Monitoring Calibration Report
- ST. LINA STATION-
CAL-LICA-202211-01250

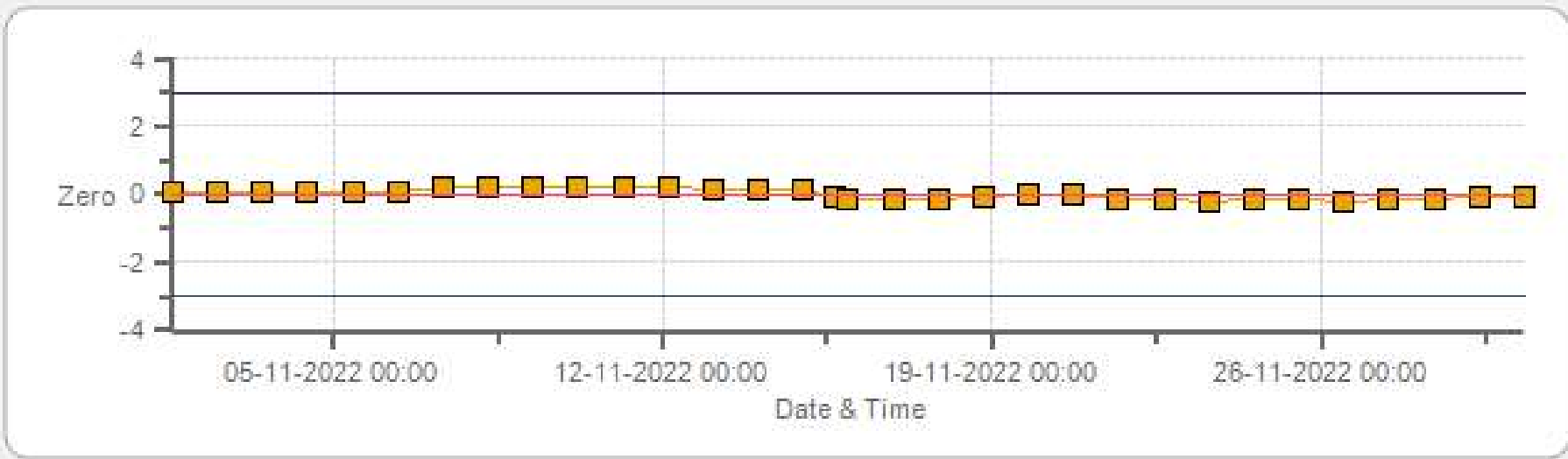
Station Operation and Maintenance:
Bureau Veritas Canada

Data Validation and Report:
LICA / Bureau Veritas Canada

December 19, 2022

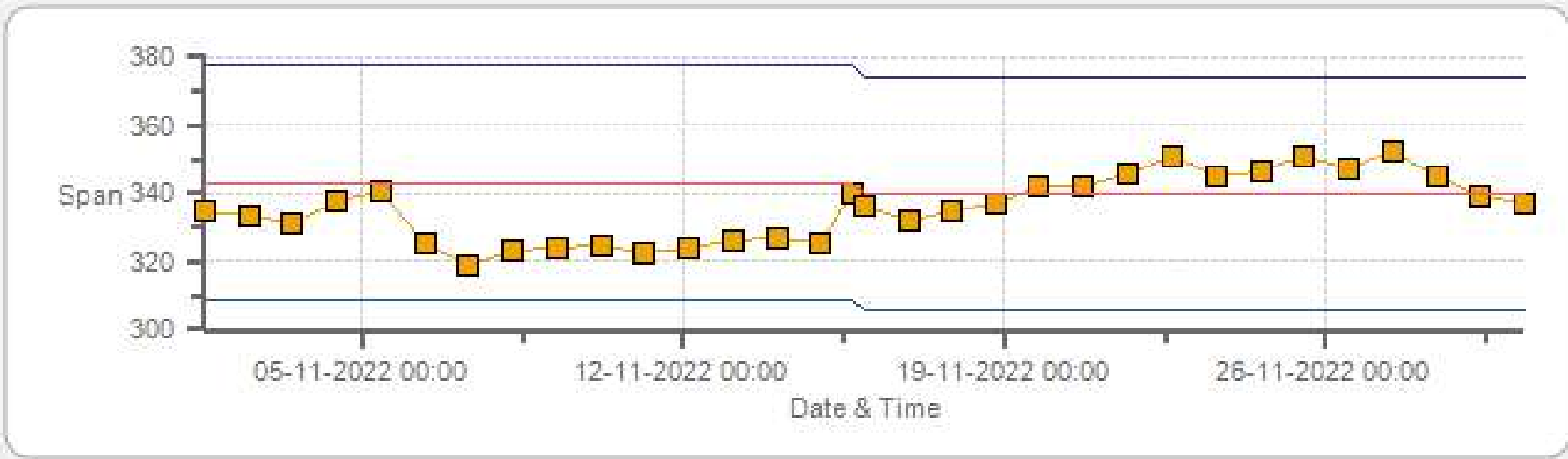
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: St. Lina Monthly: 11-2022 Type: SpanAndZero - Zero



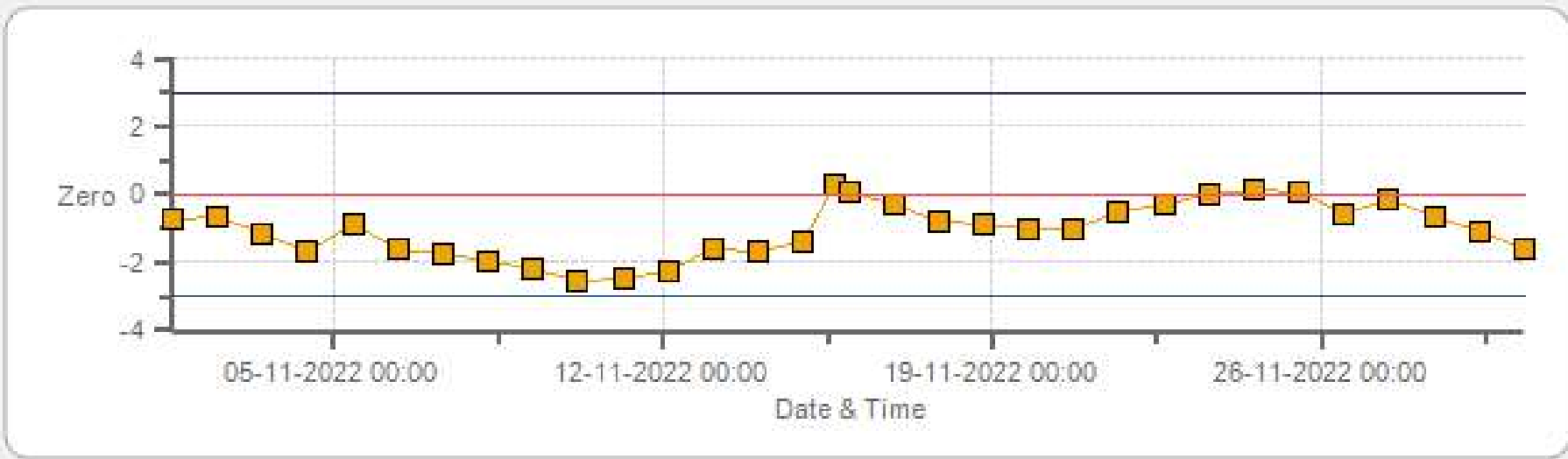
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: St. Lina Monthly: 11-2022 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

H2S[ppb] Calibration: St. Lina Monthly: 11-2022 Type: SpanAndZero - Zero



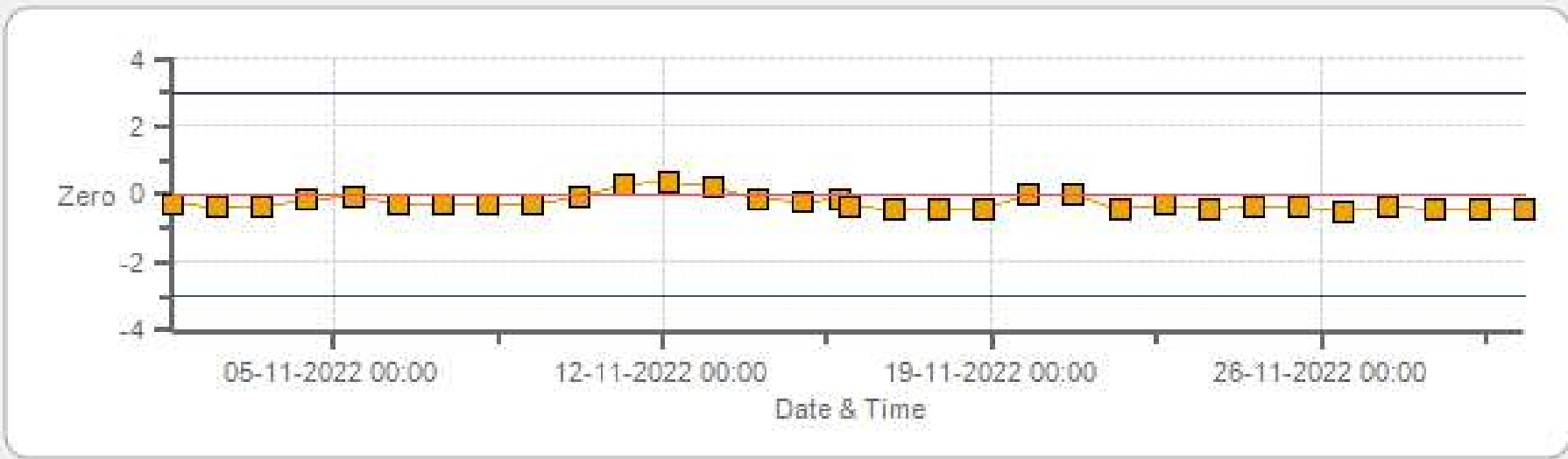
Zero Zero Ref Zero Low Zero High

H2S[ppb] Calibration: St. Lina Monthly: 11-2022 Type: SpanAndZero - Span



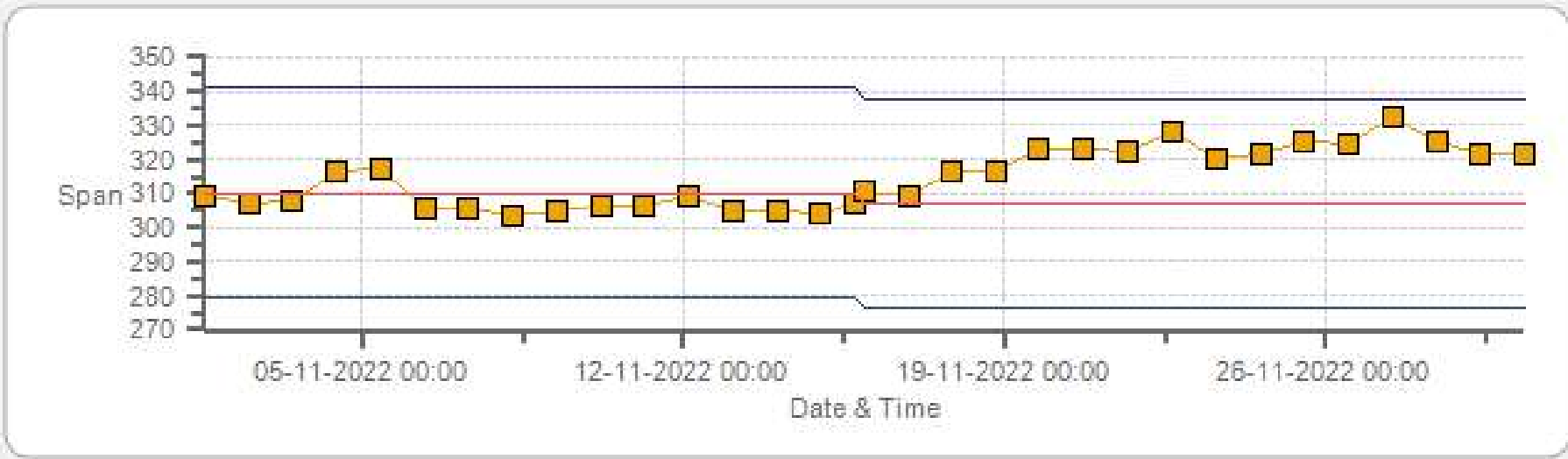
Span SpanRef Span Low Span High

NOX[ppb] Calibration: St. Lina Monthly: 11-2022 Type: SpanAndZero - Zero



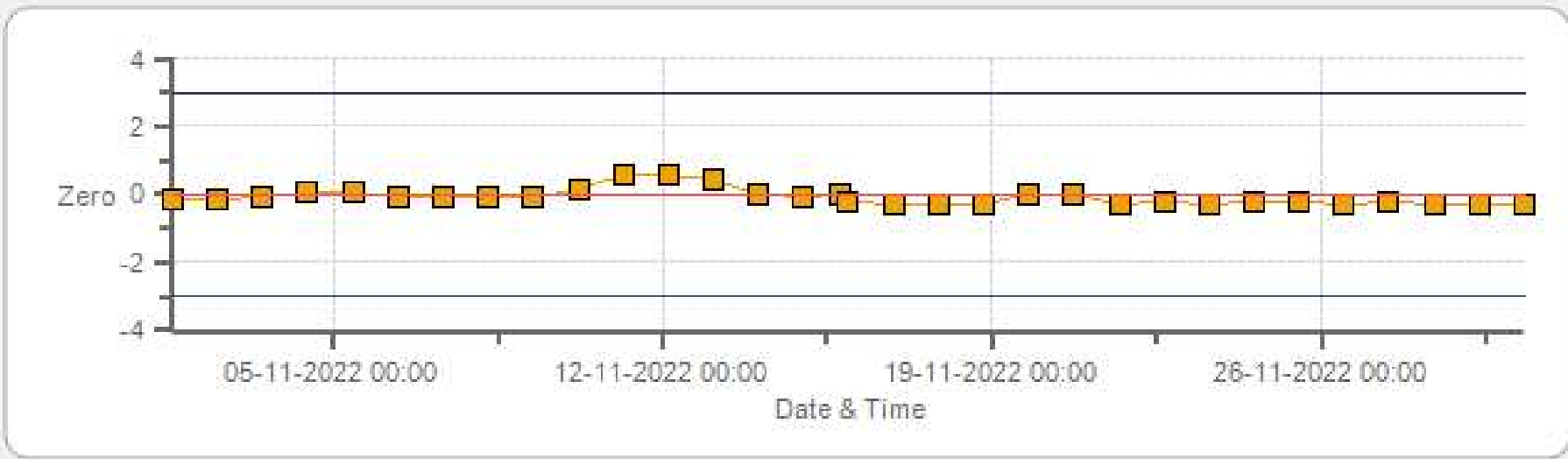
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: St. Lina Monthly: 11-2022 Type: SpanAndZero - Span



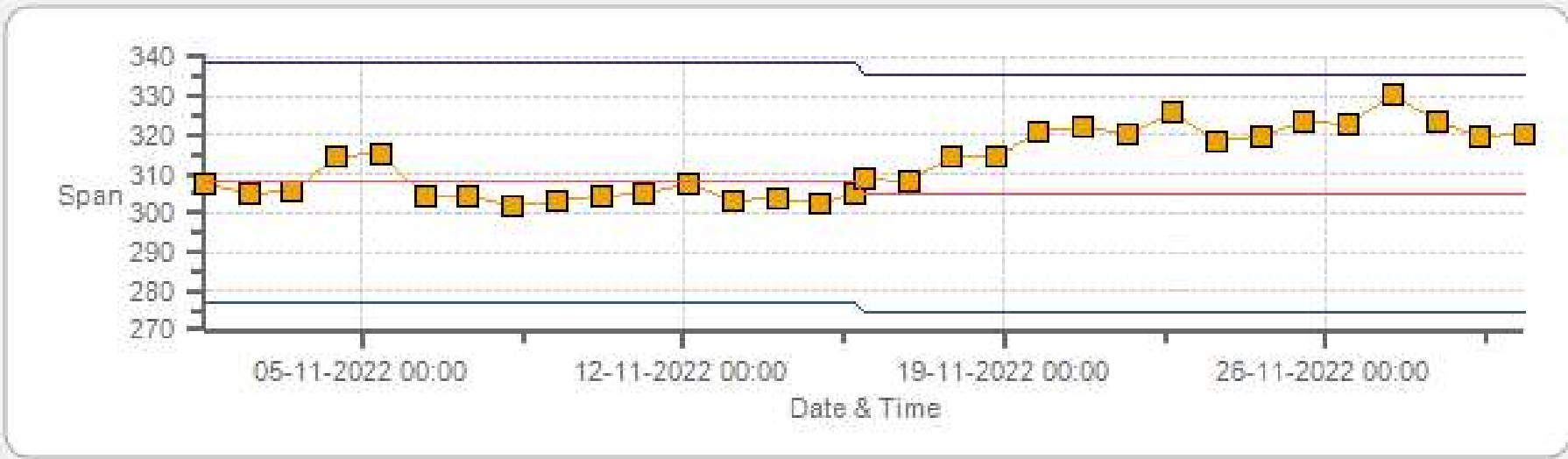
Span SpanRef Span Low Span High

NO2[ppb] Calibration: St. Lina Monthly: 11-2022 Type: SpanAndZero - Zero



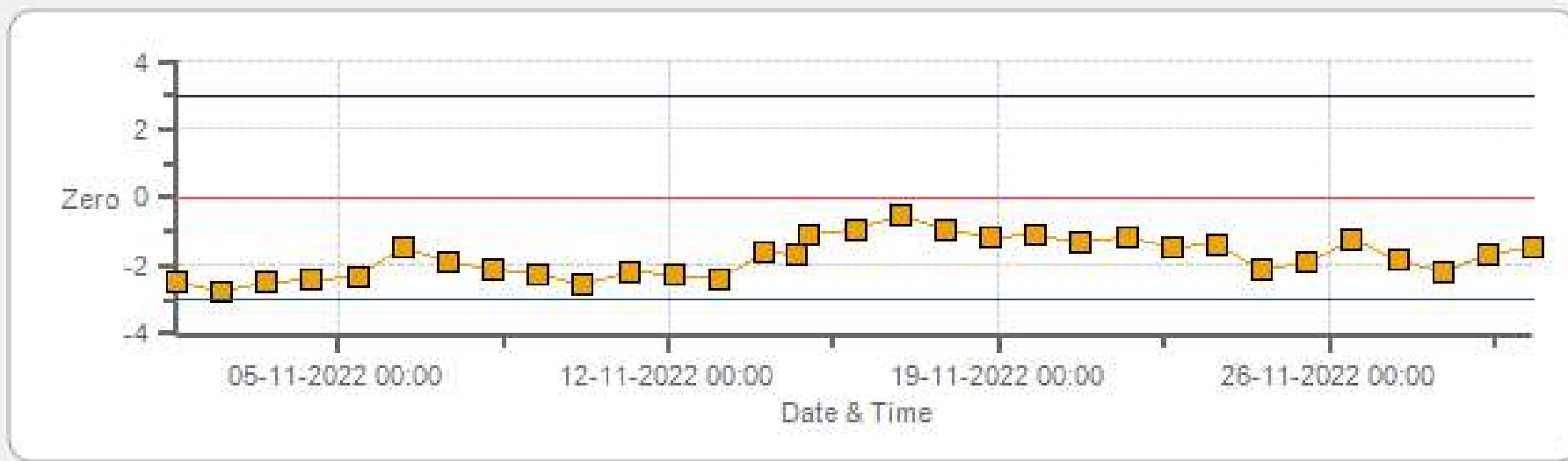
Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: St. Lina Monthly: 11-2022 Type: SpanAndZero - Span



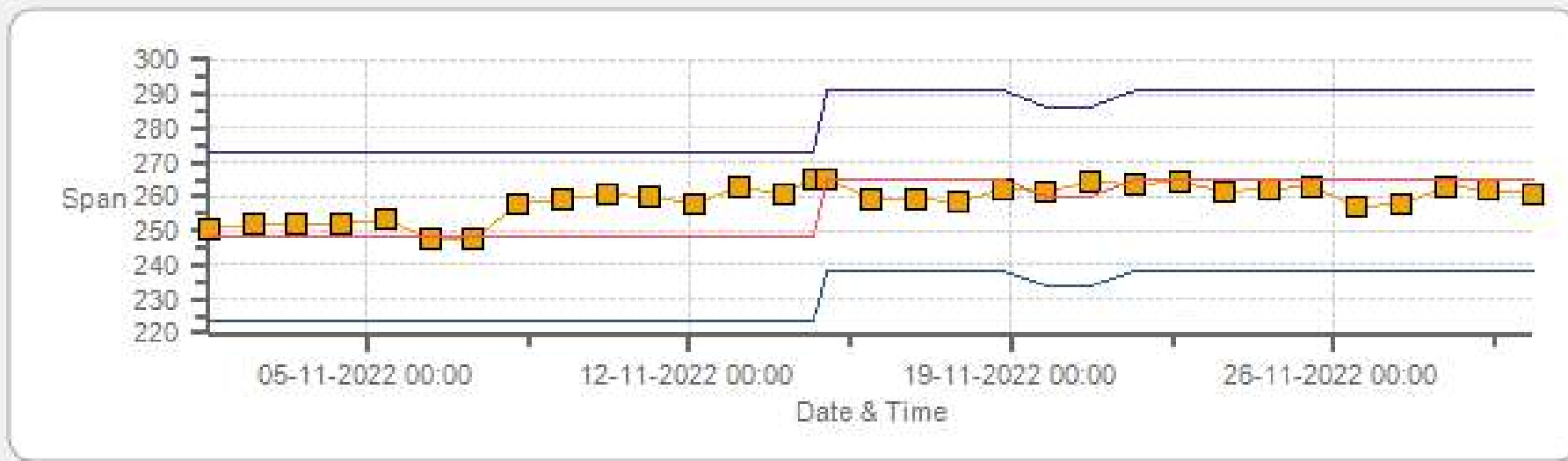
Span SpanRef Span Low Span High

O3[ppb] Calibration: St. Lina Monthly: 11-2022 Type: SpanAndZero - Zero



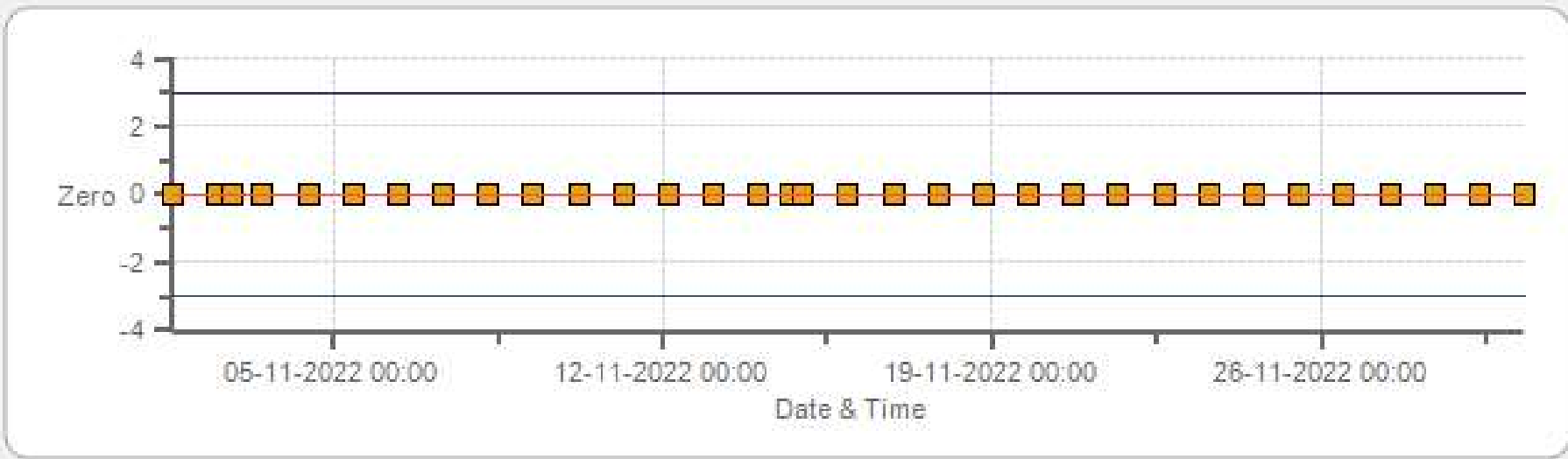
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: St. Lina Monthly: 11-2022 Type: SpanAndZero - Span



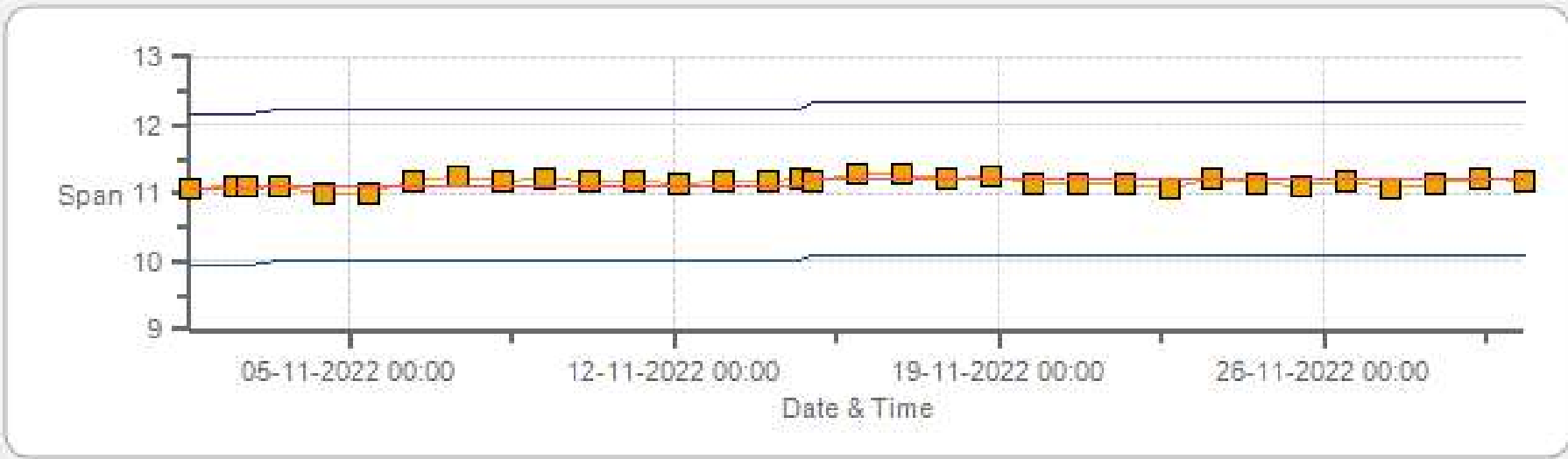
Span SpanRef Span Low Span High

NMHC[ppm] Calibration: St. Lina Monthly: 11-2022 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: St. Lina Monthly: 11-2022 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	15-Nov-2022	PREVIOUS CALIBRATION DATE:	13-Oct-2022
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	0.998
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	928
PURPOSE:	Routine	START TIME (MST):	11:35
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:48

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180930030	FLOW (mL/min)	436
INITIAL		FINAL	
BKG/OFFSET	4.6	BKG/OFFSET	5.04
COEF/SLOPE	1.168	COEF/SLOPE	1.222
Expected (reference) Value	343.2	Expected (reference) Value	340.2

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	17100415	ID:	132
MFC CALIBRATION DATE:	02-Sep-2022	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 105146	HIGH ID	n/a
CONC (ppm):	50.80	EXPIRY DATE	n/a
CYLINDER (psi):	300	LOW ID	n/a
EXPIRY DATE	09-Jun-2029	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	38.50	5000	0.00	0.2	0	1.054	1.000
4959	38.50	4997	391.39	371.5	391.3	1.054	1.000
4981	18.00	4999	182.92	n/a	183.9	n/a	0.995
4990	9.00	4999	91.46	n/a	91.1	n/a	1.004

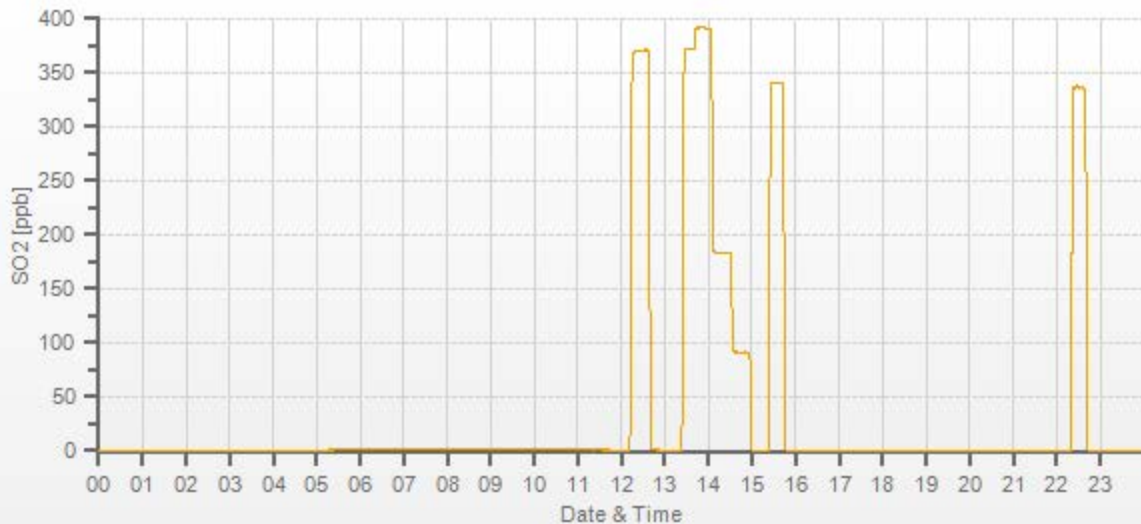
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.0%

COMMENTS:

Sample inlet filter was changed.

SO2[ppb] Station: St. Lina Daily: 15-11-2022 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202211-01250

H2S Analyzer Calibration by Dilution



DATE:	15-Nov-2022	PREVIOUS CALIBRATION DATE:	13-Oct-2022
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	0.996
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	928
PURPOSE:	Routine	START TIME (MST):	11:36
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:48

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM18010058	FLOW (mL/min)	806
INITIAL		FINAL	
BKG/OFFSET	55.2	BKG/OFFSET	54
COEF/SLOPE	0.976	COEF/SLOPE	0.989
Expected (reference) Value	88.2	Expected (reference) Value	84.9

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	21-Oct-2022	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):	1400	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:	11:38	SO2 Conc (ppb)	380
END TIME:	11:53	Analyzer Response (ppb)	0.0

CALIBRATION:

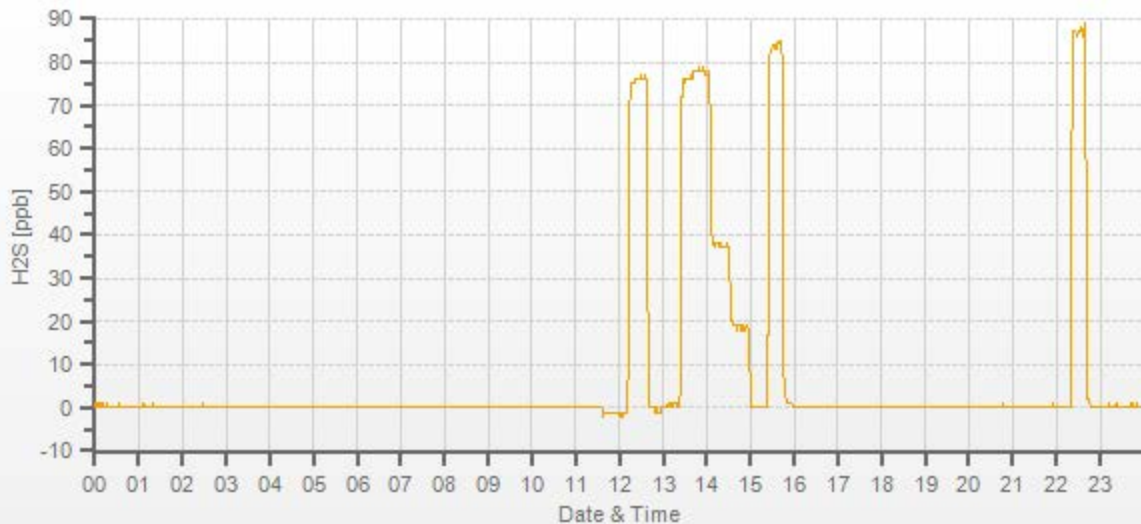
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	7500	7500	0.00	-1.6	0	1.001	1.002
7442	57.90	7500	77.97	76.3	77.8	1.001	1.002
7472	28.20	7500	37.98	n/a	37.5	n/a	1.013
7486	14.10	7500	18.99	n/a	18.7	n/a	1.015

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.998	-0.2%

COMMENTS:

Sample inlet filter was changed.



NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	15-Nov-2022	PREVIOUS CALIBRATION DATE:	13-Oct-2022	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930029	NOx	0.999
LOCATION:	St. Lina	BAROMETRIC (mBar):	928	FLOW (mL/min)	827	NO	1.000
PURPOSE:	Routine	START TIME (MST):	11:37	RANGE (ppb)	500	NO2	1.000
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:49	GPT FOR O3?		No	

CALIBRATION SYSTEM:							
CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 105146	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	NO/NOx (PPM):	50.0 50.1	HIGH EXPIRY:	n/a
ID:	17100415	ID:	132	CYLINDER (psi):	300	LOW ID:	n/a
MFC CALIBRATION DATE:	02-Sep-2022	OXIDIZER ID:	n/a	EXPIRY DATE	09-Jun-2029	LOW EXPIRY:	n/a

CALIBRATION SETTINGS:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	4.4	4.1	n/a	BKG/OFFSET:	4.6	4.2	n/a
SLOPE/COEF/CE:	1	0.874	1.003	SLOPE/COEF/CE:	1.001	0.907	1

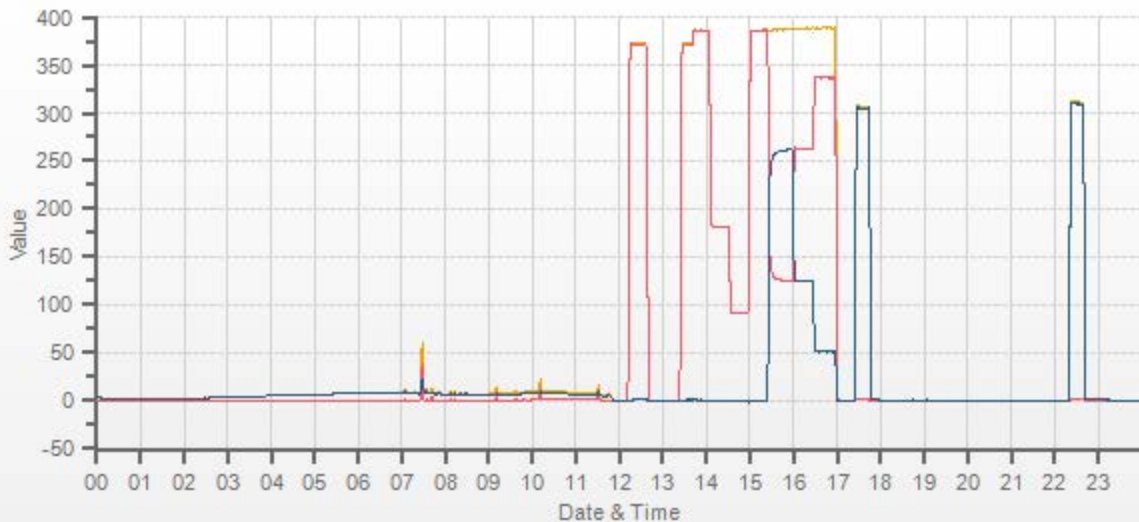
EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	310.3	2.3	308.0		307.0	1.7	305.3

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

FLOW RATE			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000	38.50	5000	0.0	0.0	0.0	-0.1	0.2	0.3	0.0	0.0	0.0	1.039	1.037	0.991	0.991	0.992	0.992
4959	38.50	4997	385.2	386.0	0.8	370.5	372.6	2.1	384.9	385.3	0.4	1.039	1.037	0.991	0.991	0.992	0.992
4981	18.00	4999	180.0	180.4	0.4	n/a	n/a	n/a	181.7	181.8	0.1	n/a	n/a	0.991	0.991	0.992	0.992
4990	9.00	4999	90.0	90.2	0.2	n/a	n/a	n/a	90.9	91.0	0.0	n/a	n/a	0.990	0.990	0.991	0.991

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	38.50	4997	0	386.1	386.3	0.1	261	261.6	0.998	100.23%
AS-FOUND HIGH	38.50	4997	240	125.1	386.8	261.7	261	261.6	0.998	100.23%
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MID	38.50	4997	125	262.8	388.2	125.4	123.3	125.3	0.984	101.62%
LOW	38.50	4997	45	336.5	388.4	51.9	49.6	51.8	0.958	104.44%
NO2 adjustment not required.									AVERAGE:	102.10%

LINEAR REGRESSION ANALYSIS:				COMMENTS:
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	0.999	0.16%	
NOx	1.000	0.998	0.15%	
NO2	1.000	0.992	0.55%	



CAL-LICA-202211-01250

Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	14-Nov-2022	PREVIOUS CALIBRATION DATE:	14-Oct-2022
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	0.997
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	928
PURPOSE:	Routine	START TIME (MST):	12:20
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:45

ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	12208316586	FLOW (mL/min)	1330
INITIAL		FINAL	
BKG/OFFSET	0.5	BKG/OFFSET	0.5
COEF/SLOPE	1.024	COEF/SLOPE	1.027
Expected (reference) Value	248.4	Expected (reference) Value	265

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	21-Oct-2022	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

CALIBRATION PARAMETERS:

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

CALIBRATION:

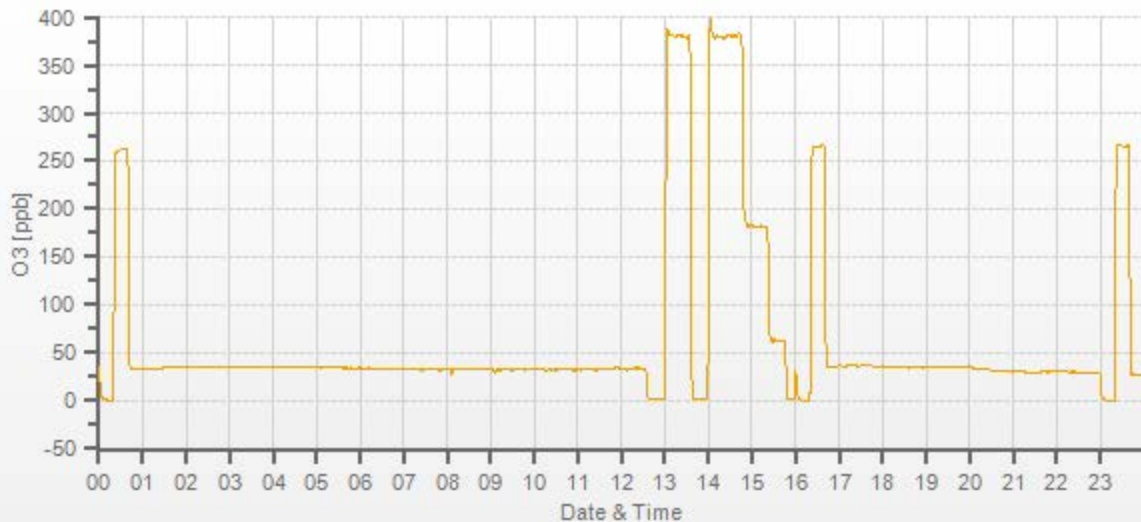
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	XXXX	5000	0.0	0.0	0.0	XXXX	XXXX
5000	XXXX	5000	378.0	377.9	378.1	1.000	1.000
5000	XXXX	5000	180.0	n/a	179.6	n/a	1.002
5000	XXXX	5000	60.0	n/a	60.8	n/a	0.987

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.999	0.0%

COMMENTS:

Sampe inlet filter was changed.



Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	14-Nov-2022	PREVIOUS CALIBRATION DATE:	14-Oct-2022	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1180030034	1014
LOCATION:	St. Lina	BAROMETRIC (mBar):	928	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	12:21	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:45	PREVIOUS CF:	1.004	1.003	1.003

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 ₃ H ₈ (ppm):	603.0 204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	132	CYLINDER (psi):	1600	LOW ID:	n/a
MFC CALIBRATION DATE:	02-Sep-2022	OXIDIZER ID:	115	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

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

EXPECTED (REFERENCE) VALUE:

INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.50	11.06	20.56		9.64	11.21	20.85

CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3100	X	3100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	X	X	X	X	X
3025	74.60	3100	14.51	13.50	28.01	14.55	13.55	28.10	14.50	13.51	28.01	0.997	0.996	0.997	1.001	0.999	1.000
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.26	6.79	14.05	n/a	n/a	n/a	0.999	0.994	0.997
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.65	3.45	7.10	n/a	n/a	n/a	0.991	0.976	0.984

LINEAR REGRESSION ANALYSIS:

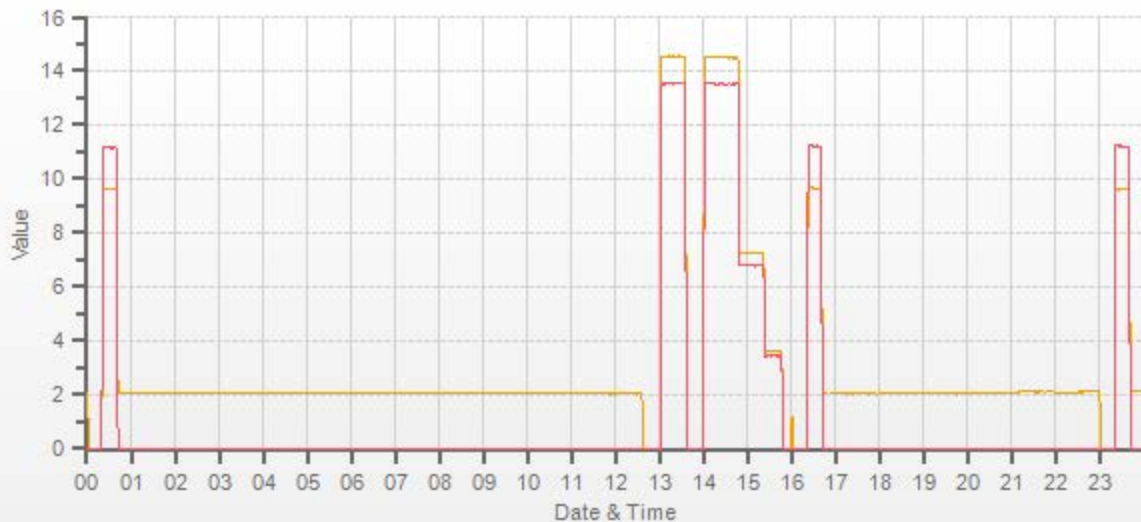
	CORRELATION	SLOPE	INTERCEPT
CH ₄	1.000	0.999	0.1%
NMHC	1.000	0.999	0.2%
THC	1.000	0.999	0.1%

Comments:

Sample inlet filter was changed. H2 Generator maintenance: new Desiccant cartridge was installed.

Use Zero Chrom?

Yes



CAL-LICA-202211-01250

Thermo 5030i SHARP Monitor Monthly Check

Date: November 15, 2022	Performed By/Reviewer: Alex Yakupov Chris Wesson
Company: LICA	Start Time (mst): 17:05
Station Name/Location: St. Lina	End Time (mst): 17:41
Previous Audit Date: October 14, 2022	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:** 1

Reference Standards:

Air Flow

	Manometer	Orifice	Pressure:	Temp / RH:
Make:	DeltaCal	DeltaCal	Fisher Scientific	Vaisala HMP76B
Model:	DC1	DC1	FB 61291	HMP 76B
Serial Number:	177246	177246	130168457	T1640130
Calibration Expiration Date:	September 7, 2023	September 7, 2023	February 17, 2023	June 14, 2023

Ambient Temperature (°C)				Range	Action
	Reference	SHARP	Difference	< ± 2°C	OK
#1	1.10	1.0	0.1	2-3 °C	Recalibrate
				> 3°C	Fail

Ambient Relative Humidity (%RH)				Range	Action
As Found:				< ± 2 %RH	OK
	Reference	SHARP	Difference	2-5 %RH	Recalibrate
#1	73.10	73.0	0.1	> 5 %RH	Fail

Barometric Pressure (mmHg)				Range	Action
As Found:				< ± 10 mmHg	OK
	Reference	SHARP	Difference	10-12 mmHg	Recalibrate
#1	699.0	700.0	-1.0	> 12 mmHg	Fail

Flow Audit (L/min)						Range	Action
As Found:						< ± 4%	OK
	Reference	SHARP		% Difference		4-5%	Recalibrate
#1	16.65	16.67		0.10%		>5%	Fail
#2	16.65	16.67					
#3	16.66	16.67					
Average	16.65	16.67					

Leak Check (L/min)						
Without Leak Check Adapter			With leak Check Adapter			
	Reference	SHARP	Difference	Reference	SHARP	Difference
#1	16.65	16.67	-0.02	16.53	16.61	-0.08
LEAK RATE:						-0.06

Leak Limit: 0.80 L/min

Meteorological System Checklist



Date:	November 15, 2022
Technician:	Alex Yakupov / Audit time: 17:28 - 18:12
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	17:32 - water test. Response is timely and accurate. No issues.
Is the screen on the housing? (screen should be on between July and September)	yes	
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 ml)

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

AMBIENT TEMPERATURE SENSOR CHECK

Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	Vaisala / HM70 / #T1640130/ Jun 14, 2023		
Reference Temperature (°C):	0.9		
Station - Ambient Temperature (°C):	0.9		
Temperature Difference (°C):	0.0		

BAROMETRIC PRESSURE SENSOR CHECK

Reference Barometer ID:	Fisher Scientific #130168457, Exp. Date: Feb 17, 2023		
Reference Pressure - Units/Reading:	millibar	914	
Station Pressure - Units/Reading:	millibar	913	
Pressure Tolerance +/- 15% of error:	777 - 1051	0.11%	

RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Reference Hygrometer ID:	Vaisala / HM70 / #T1640130/ Jun 14, 2023		
Reference Hygrometer % RH- Reading:	73.00		
Station Hygrometer % RH- Reading:	72.90		
RH Tolerance +/- 15% of difference:	62.05 - 83.95	0.1%	

ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Previous check date:	October 14, 2022	Previous check date:	October 14, 2022
Wind Speed Observed (kph):	10-20	Wind Direction Observed:	W
Wind speed on Data Logger (kph):	18.1	Wind Direction on Data Logger:	W
	Annual audit: Jul 22, 2022	Wind Direction Pass/Fail?:	Pass

Comments

Station (Trailer) temperature vs Reference gauge temperature: 24.9 vs 24.6 , passed.
RH/TPX sensor # 20221366 was removed. Audit: TPX amb = 2.1, TPX Ref = 1.9; RH Amb = 84.2, RH ref = 74.1



Meteorological Sensor Audit/Calibration

Location Information

Company: LICA
 Audit Location: St. Lina
 Audit Date: July 22, 2022
 Calibration Purpose: routine annual

Performed By: Alex Yakupov
 Reviewed By: Chris Wesson
 Start/End Time (mst): 15:07 / 16:23
 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 2022

Ambient Air Monitoring Calibration Report

- LAC LA BICHE STATION-

CAL-LICA-202211-01690

Station Operation and Maintenance:

Bureau Veritas Canada

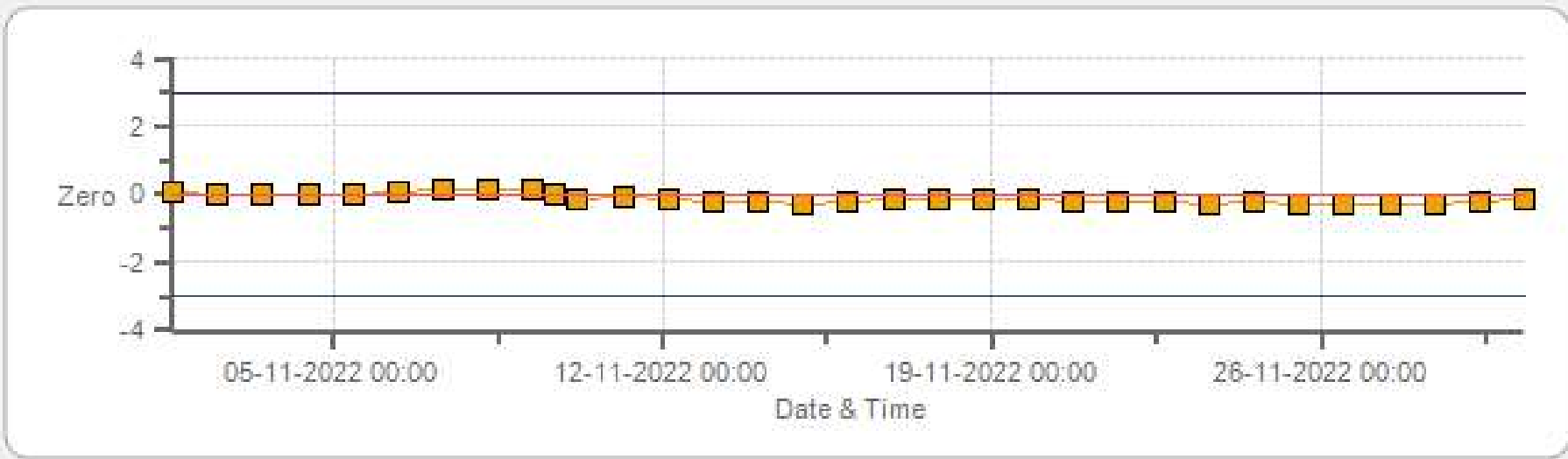
Data Validation and Report:

LICA / Bureau Veritas Canada

December 19, 2022

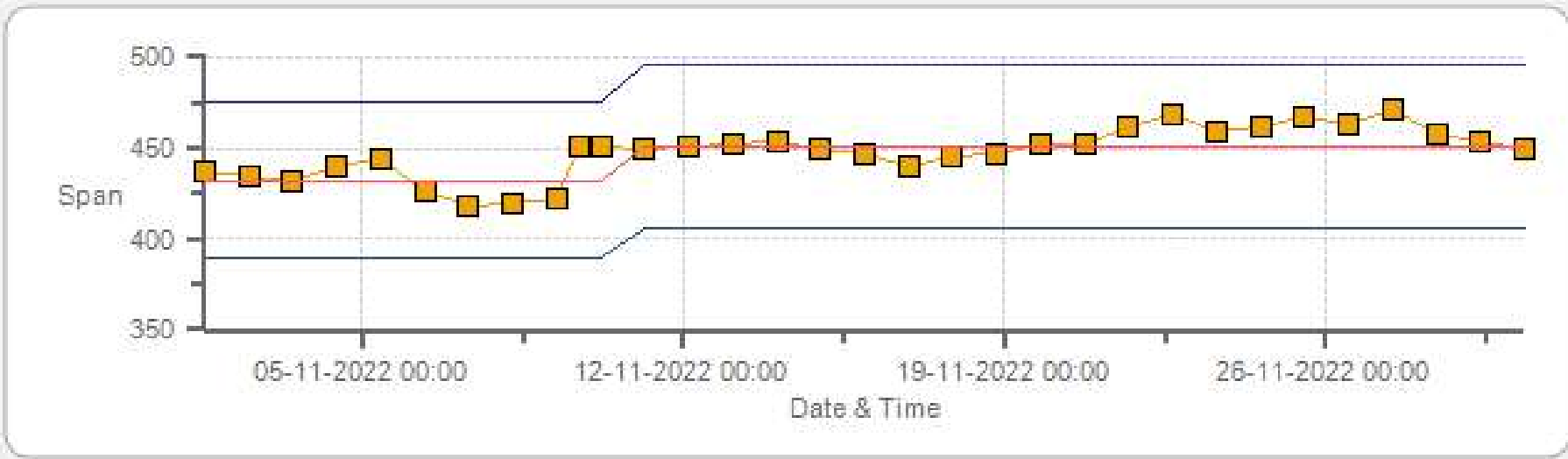
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Lac La Biche Monthly: 11-2022 Type: SpanAndZero - Zero



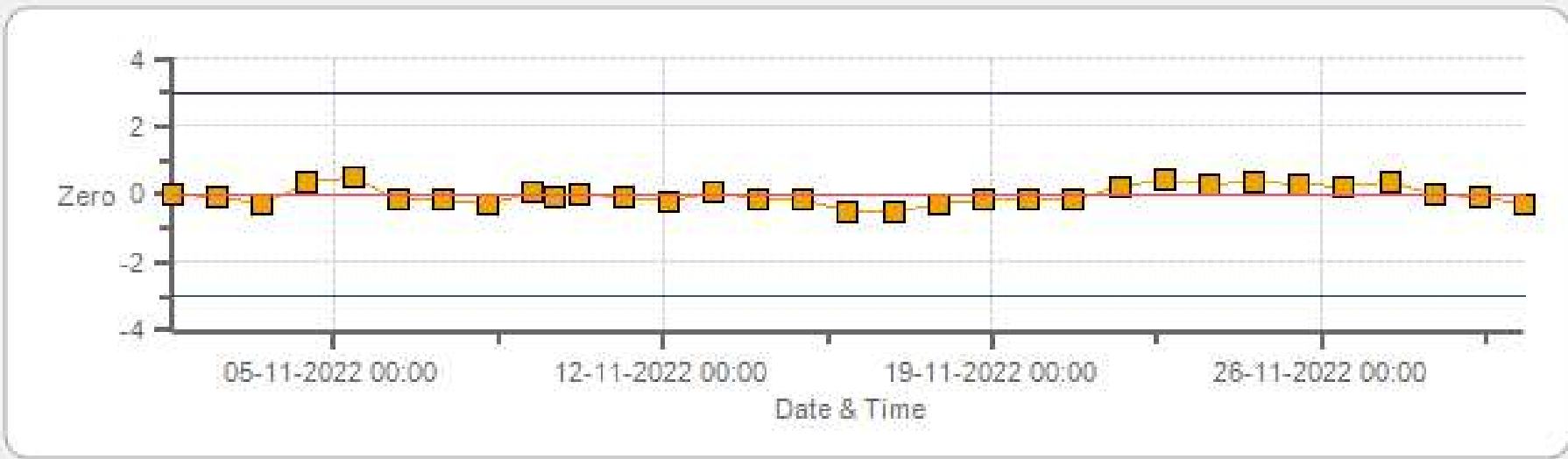
■ Zero
 — Zero Ref
 — Zero Low
 — Zero High

SO2[ppb] Calibration: Lac La Biche Monthly: 11-2022 Type: SpanAndZero - Span



■ Span
 — SpanRef
 — Span Low
 — Span High

H2S[ppb] Calibration: Lac La Biche Monthly: 11-2022 Type: SpanAndZero - Zero



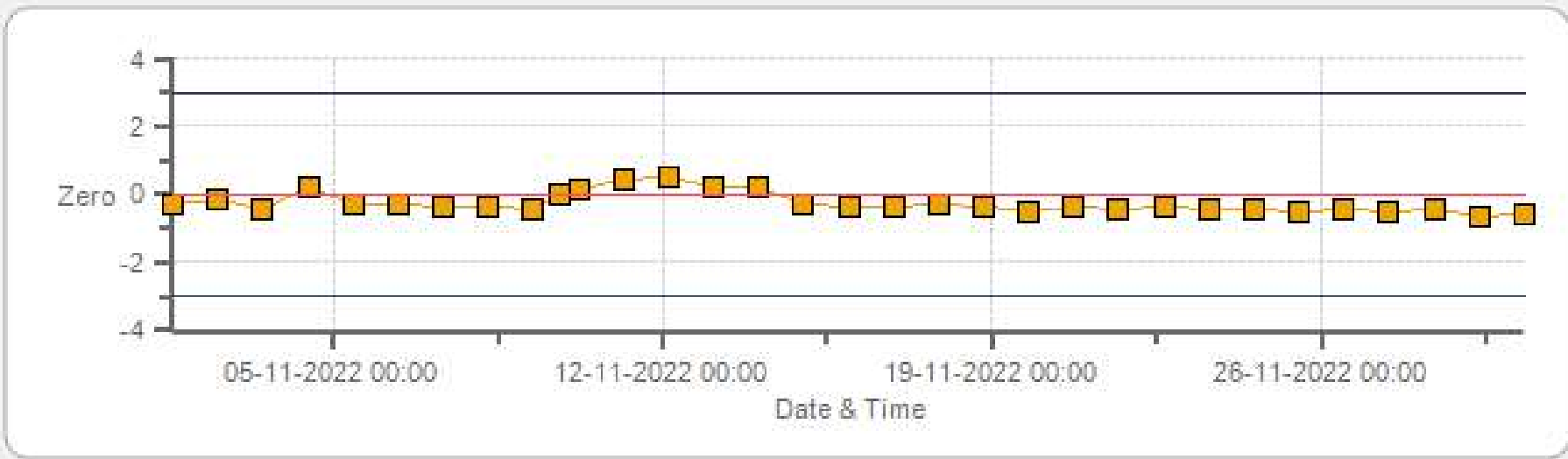
Zero Zero Ref Zero Low Zero High

H2S[ppb] Calibration: Lac La Biche Monthly: 11-2022 Type: SpanAndZero - Span



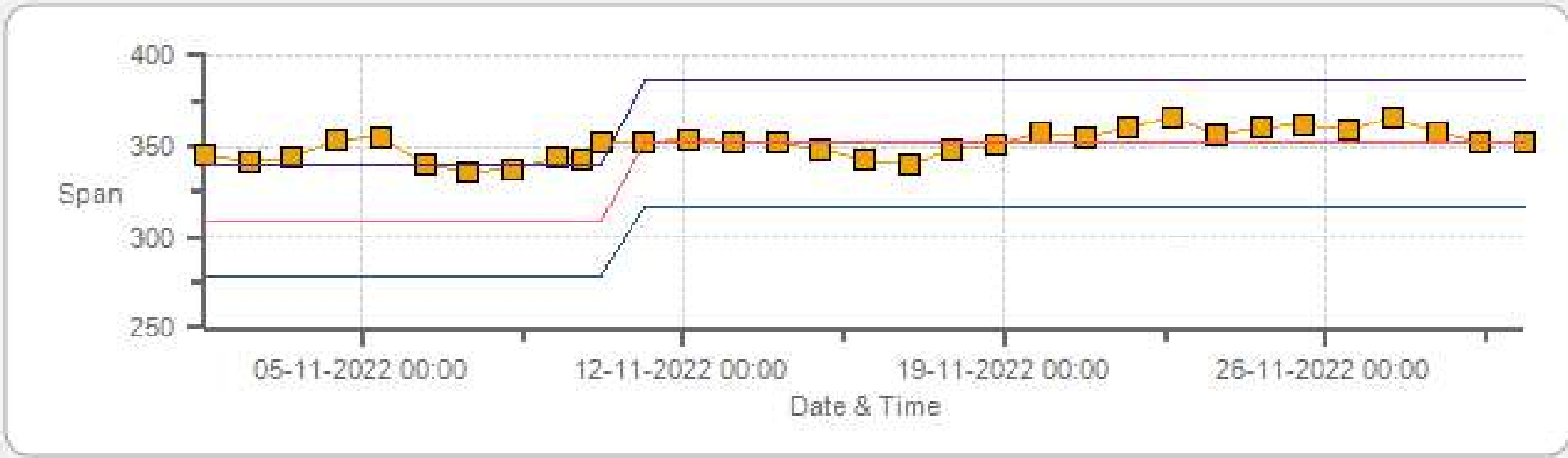
Span SpanRef Span Low Span High

NOX[ppb] Calibration: Lac La Biche Monthly: 11-2022 Type: SpanAndZero - Zero



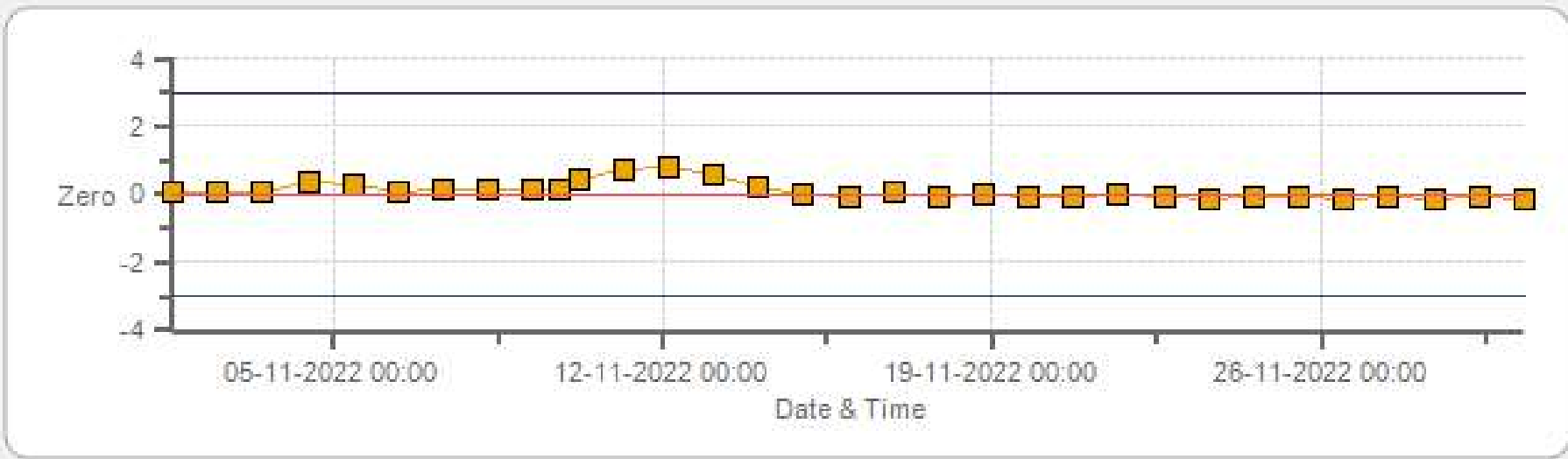
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: Lac La Biche Monthly: 11-2022 Type: SpanAndZero - Span



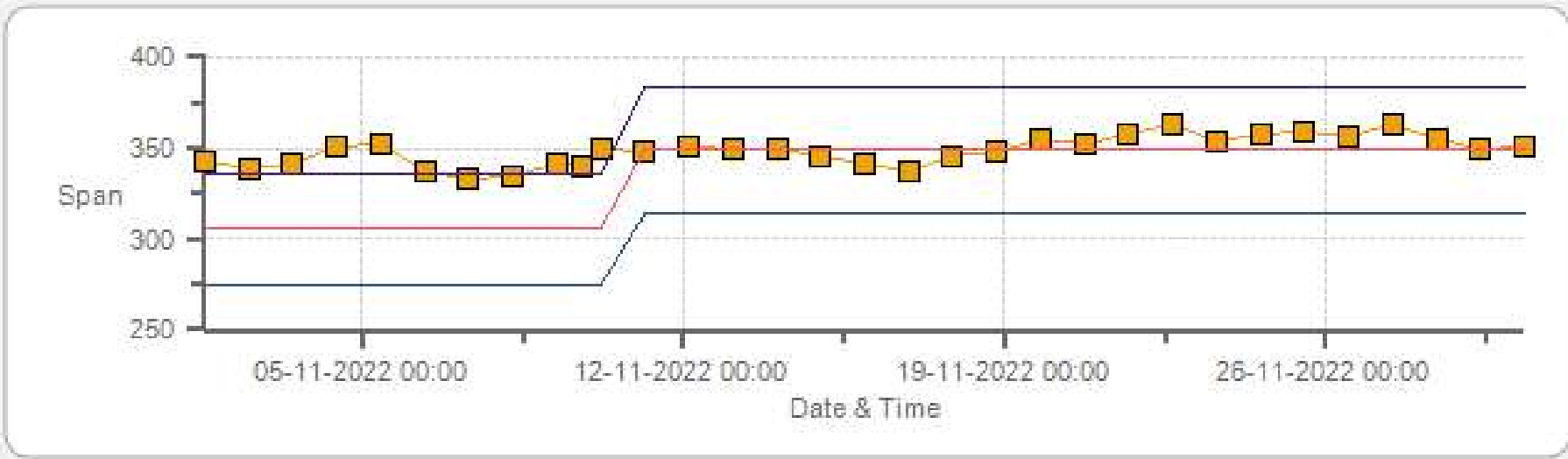
Span SpanRef Span Low Span High

NO2[ppb] Calibration: Lac La Biche Monthly: 11-2022 Type: SpanAndZero - Zero



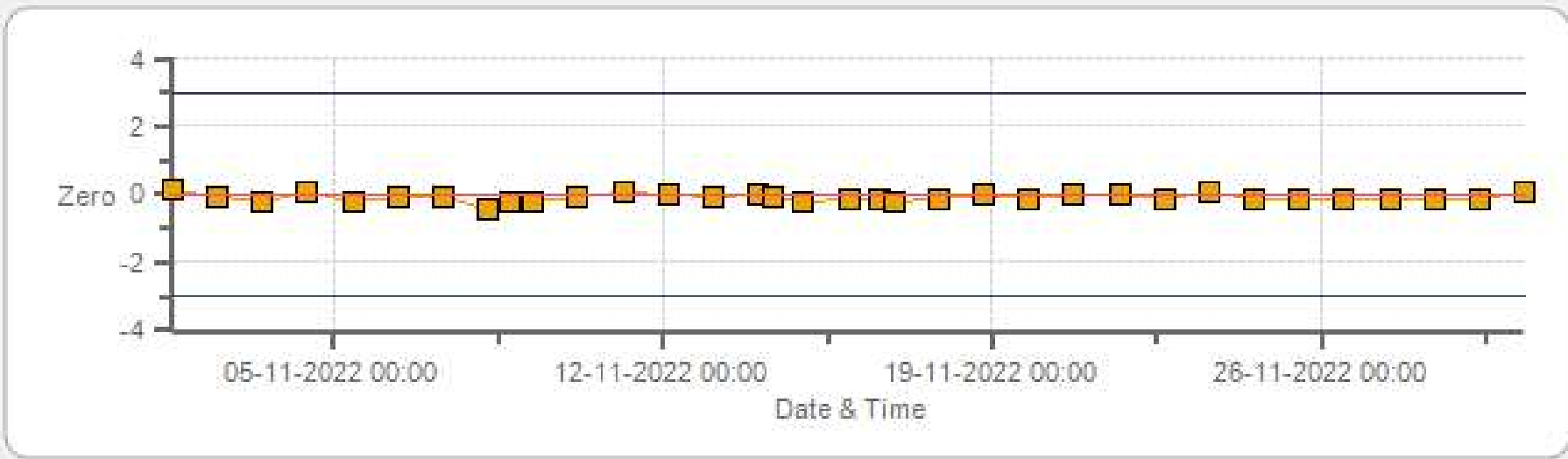
■ Zero
 — Zero Ref
 — Zero Low
 — Zero High

NO2[ppb] Calibration: Lac La Biche Monthly: 11-2022 Type: SpanAndZero - Span



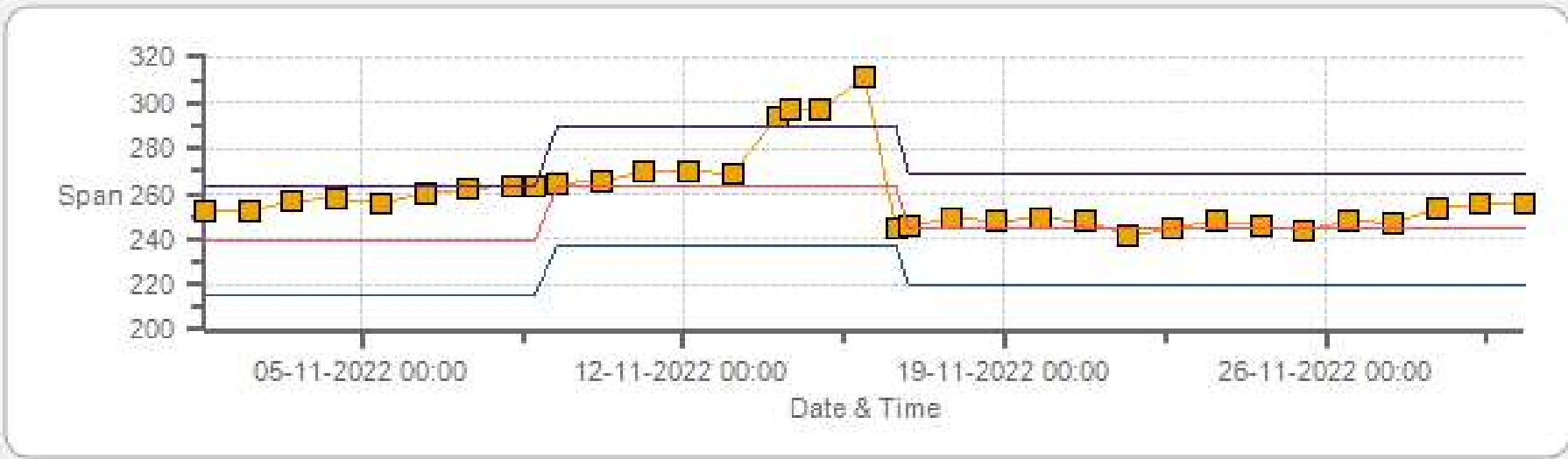
■ Span
 — SpanRef
 — Span Low
 — Span High

O3[ppb] Calibration: Lac La Biche Monthly: 11-2022 Type: SpanAndZero - Zero



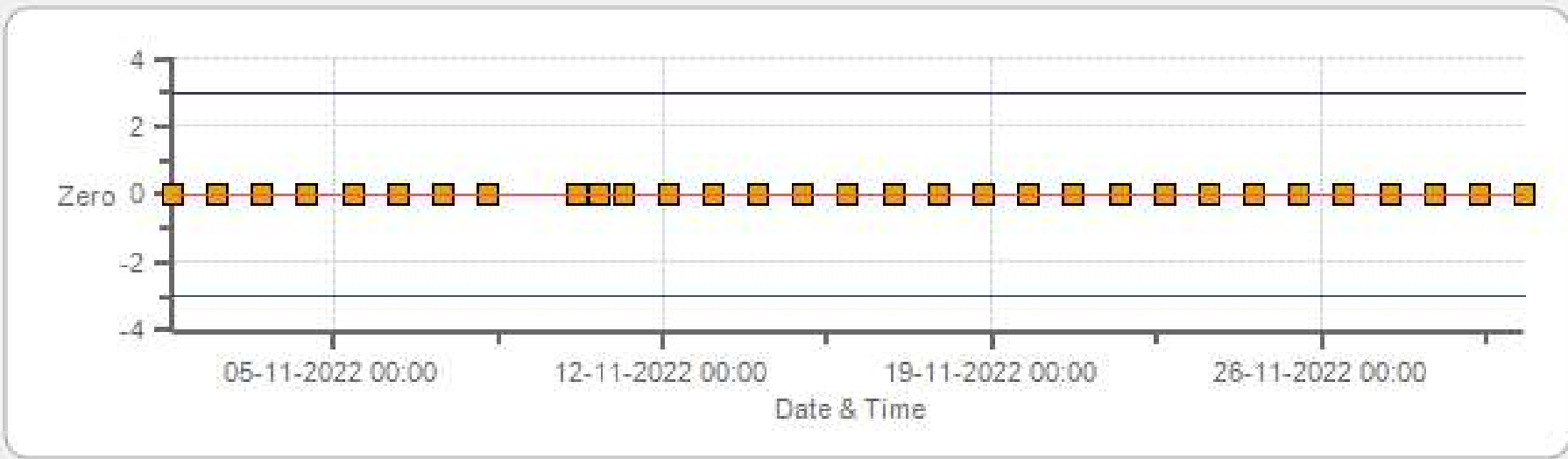
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: Lac La Biche Monthly: 11-2022 Type: SpanAndZero - Span



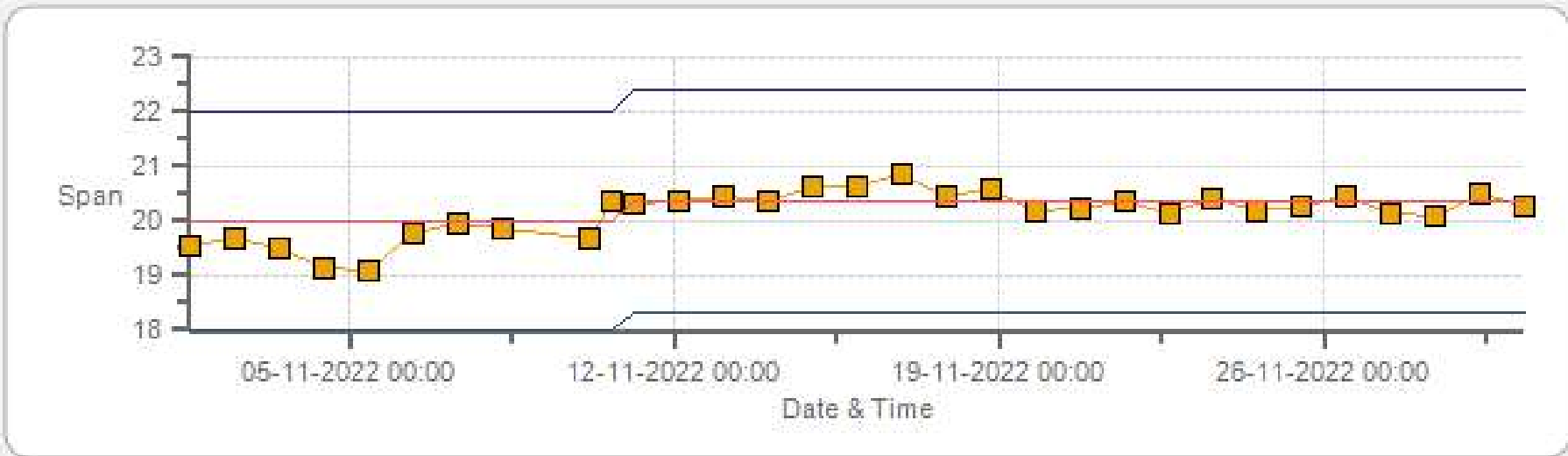
Span SpanRef Span Low Span High

THC55[ppm] Calibration: Lac La Biche Monthly: 11-2022 Type: SpanAndZero - Zero



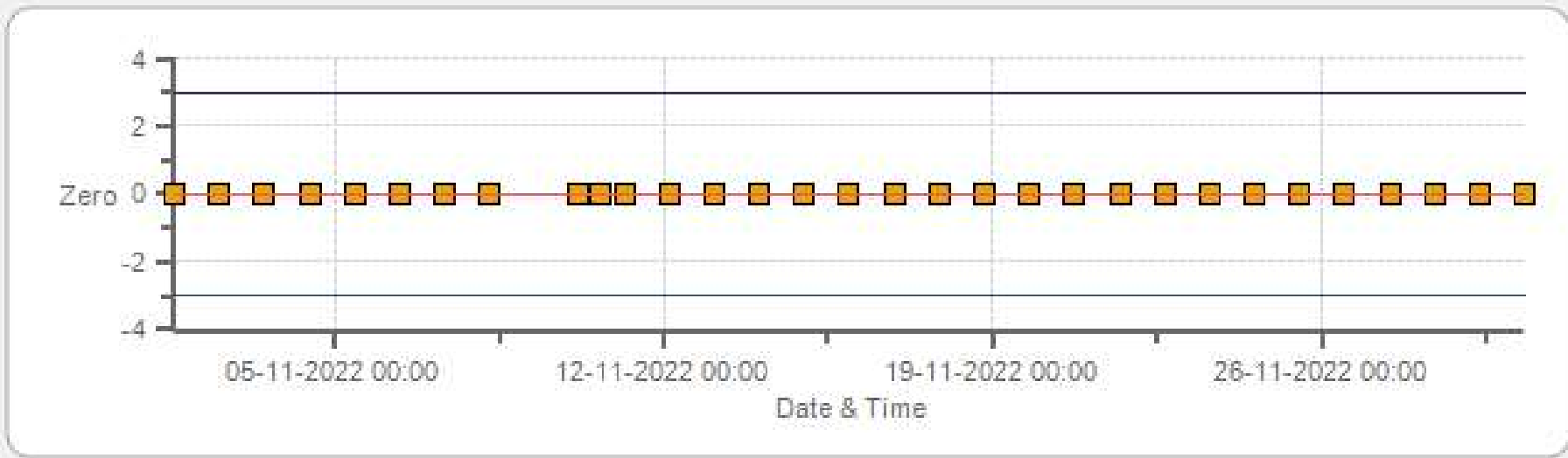
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: Lac La Biche Monthly: 11-2022 Type: SpanAndZero - Span



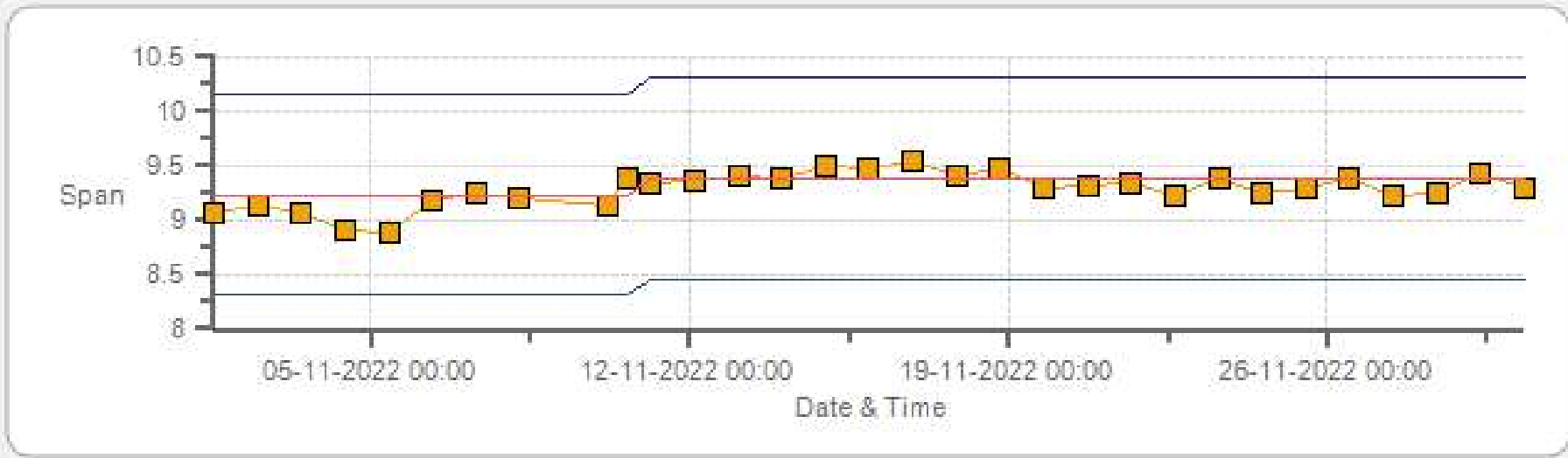
Span Span Ref Span Low Span High

CH4[ppm] Calibration: Lac La Biche Monthly: 11-2022 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: Lac La Biche Monthly: 11-2022 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	09-Nov-2022	PREVIOUS CALIBRATION DATE:	05-Oct-2022
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	0.999
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	956
PURPOSE:	Routine	START TIME (MST):	12:13
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:02

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180320043	FLOW (mL/min)	460
INITIAL		FINAL	
BKG/OFFSET	6.07	BKG/OFFSET	6.76
COEF/SLOPE	1.112	COEF/SLOPE	1.185
Expected (reference) Value	432.1	Expected (reference) Value	451

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	26801218	ID:	132
MFC CALIBRATION DATE:	02-Sep-2022	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 105146	HIGH ID	n/a
CONC (ppm):	50.80	EXPIRY DATE	n/a
CYLINDER (psi):	300	LOW ID	n/a
EXPIRY DATE	09-Jun-2029	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

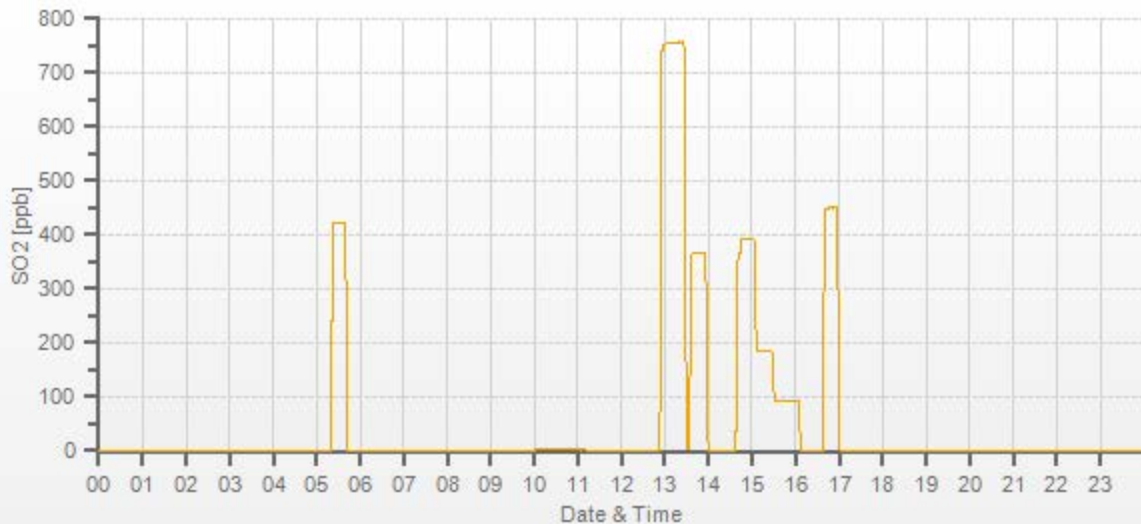
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	38.50	5000	0.00	0.14	0	1.063	1.000
4962	38.50	5000	391.16	368.08	391.03	1.063	1.000
4982	18.00	5000	182.88	n/a	184.19	n/a	0.993
4991	9.00	5000	91.44	n/a	91.58	n/a	0.998

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.1%

COMMENTS:

Sample inlet filter was changed.
12:53-13:28 = incorrect target used. Calibrator reprogrammed and as-found high repeated.



H2S Analyzer Calibration by Dilution



DATE:	09-Nov-2022	PREVIOUS CALIBRATION DATE:	05-Oct-2022
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	0.998
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	956
PURPOSE:	Routine	START TIME (MST):	12:12
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:02

ANALYZER:

MAKE/MODEL	API 101A	RANGE	100 ppb
SERIAL #	324	FLOW (mL/min)	511
INITIAL		FINAL	
BKG/OFFSET	31.6	BKG/OFFSET	31.6
COEF/SLOPE	1.017	COEF/SLOPE	1.033
Expected (reference) Value	30.1	Expected (reference) Value	29.4

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	21-Oct-2022	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):	1800	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:	12:17	SO2 Conc (ppb)	380
END TIME:	12:32	Analyzer Response (ppb)	0.0

CALIBRATION:

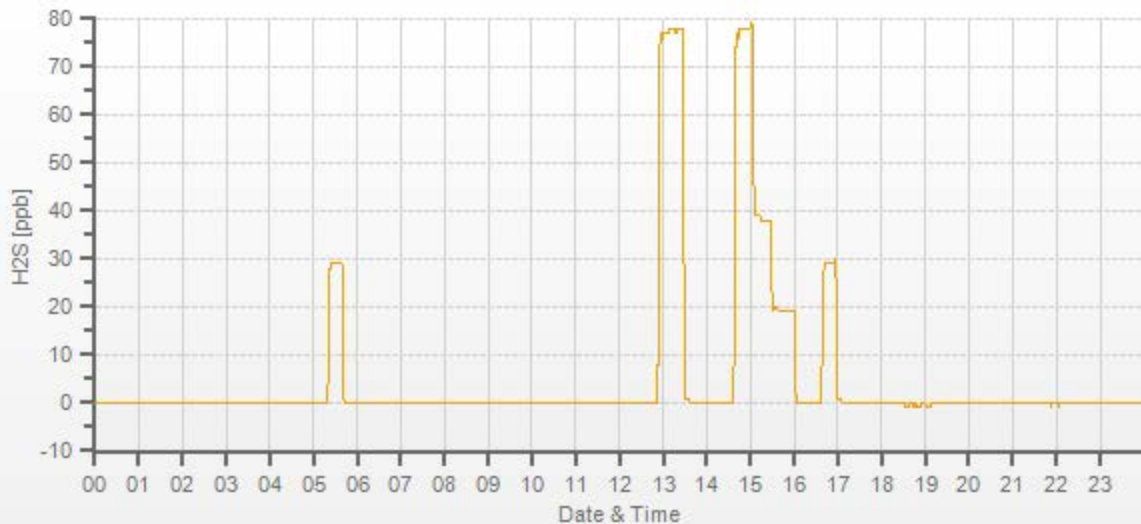
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	7500	7500	0.00	-0.1	0	0.998	0.998
7442	57.90	7500	77.97	78	78.1	0.998	0.998
7472	28.20	7500	37.98	n/a	38.3	n/a	0.992
7486	14.10	7500	18.99	n/a	19	n/a	0.999

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	0.0%

COMMENTS:

Sample inlet filter was changed.



NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	09-Nov-2022	PREVIOUS CALIBRATION DATE:	05-Oct-2022	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930027	NOx	0.999
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	956	FLOW (mL/min)	726	NO	1.000
PURPOSE:	Routine	START TIME (MST):	12:14	RANGE (ppb)	500	NO2	1.004
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:52	GPT FOR O3?		No	

CALIBRATION SYSTEM:							
CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 105146	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	NO/NOx (PPM):	50.0 50.1	HIGH EXPIRY:	n/a
ID:	26801218	ID:	132	CYLINDER (psi):	300	LOW ID:	n/a
MFC CALIBRATION DATE:	02-Sep-2022	OXIDIZER ID:	n/a	EXPIRY DATE	09-Jun-2029	LOW EXPIRY:	n/a

CALIBRATION SETTINGS:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	8.7	8.6	n/a	BKG/OFFSET:	8.8	8.5	n/a
SLOPE/COEF/CE:	1	0.884	1.002	SLOPE/COEF/CE:	1.003	0.898	1

EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	309.0	3.5	305.6		351.8	2.9	348.9

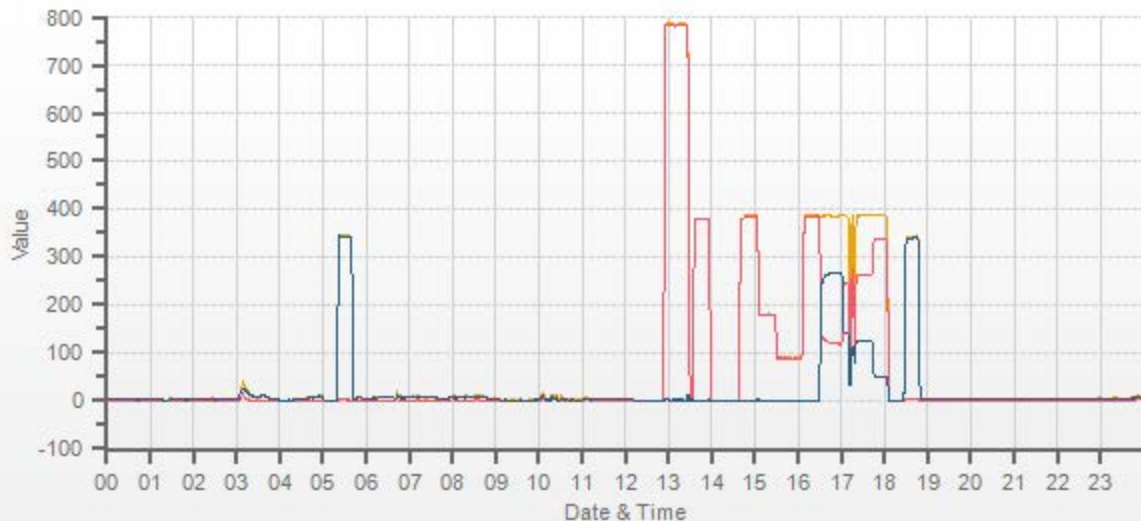
POINT	NO TARGET (PPB)	NO2 TARGET (PPB)	NO2 RANGE	O3 POINT
HIGH	380	250	230-265	n/a
MID	180	125	115-150	n/a
LOW	90	45	40-55	n/a
EXTRA 1	n/a	n/a	n/a	n/a

FLOW RATE			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000	5000	5000	0.0	0.0	0.0	-0.3	-0.2	0.1	0.0	0.0	0.0	1.000	0.999	1.000	0.999	1.000	0.999
4962	38.50	5000	385.0	385.8	0.8	378.6	380.0	1.4	385.0	386.3	1.3	1.016	1.015	1.000	1.000	0.999	1.000
4982	18.00	5000	180.0	180.4	0.4	n/a	n/a	n/a	180.6	181.3	0.6	n/a	n/a	1.000	0.997	0.995	1.000
4991	9.00	5000	90.0	90.2	0.2	n/a	n/a	n/a	89.3	89.7	0.4	n/a	n/a	1.000	1.008	1.005	1.000

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	38.70	4998	0	384.9	386.8	1.8	262.7	262.1	1.002	99.77%	
AS-FOUND HIGH	38.70	4998	235	122.2	386.1	263.9	262.7	262.1	1.002	99.77%	
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
MID	38.70	4998	110	262.1	386.0	123.9	122.8	122.1	1.006	99.43%	
LOW	38.70	4998	40	336.5	386.5	50.1	48.4	48.3	1.002	99.79%	
NO2 adjustment not required.									AVERAGE:	99.66%	

LINEAR REGRESSION ANALYSIS:				COMMENTS:
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	1.001	-0.03%	
NOx	1.000	1.002	-0.02%	
NO2	1.000	0.998	-0.04%	

Sample inlet filter was changed.
12:53-13:28 = incorrect target used. Calibrator reprogrammed and as-found high repeated.
17:10-17:20 = reprogramming GPT points.



CAL-LICA-202211-01690

Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	08-Nov-2022	PREVIOUS CALIBRATION DATE:	04-Oct-2022
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.003
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	959
PURPOSE:	Routine	START TIME (MST):	13:52
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:13

ANALYZER:

MAKE/MODEL	Thermo 49i	RANGE	500 ppb
SERIAL #	1002240372	FLOW (mL/min)	1479
INITIAL		FINAL	
BKG/OFFSET	0	BKG/OFFSET	0
COEF/SLOPE	1.031	COEF/SLOPE	1.034
Expected (reference) Value	238.9	Expected (reference) Value	263.5

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	21-Oct-2022	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

CALIBRATION PARAMETERS:

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

CALIBRATION:

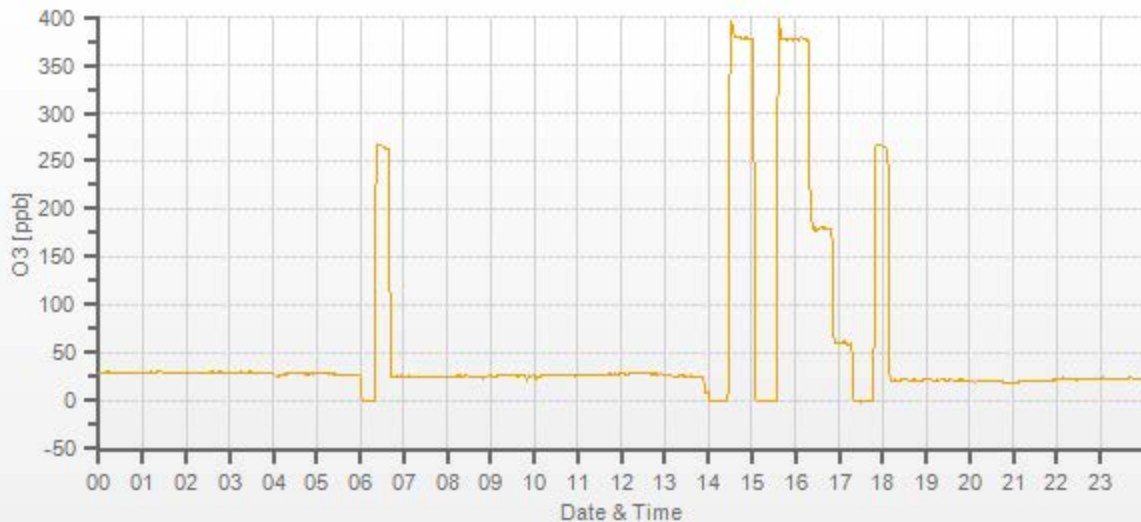
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	XXXX	5000	0.0	0.0	0.0	XXXX	XXXX
5000	XXXX	5000	378.0	376.7	377.9	1.003	1.000
5000	XXXX	5000	180.0	n/a	179.8	n/a	1.001
5000	XXXX	5000	60.0	n/a	59.0	n/a	1.017

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.001	-0.1%

COMMENTS:

Sample inlet filter was changed.



Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	10-Nov-2022	PREVIOUS CALIBRATION DATE:	04-Oct-2022	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1180320044	1017
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	954	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Routine	START TIME (MST):	11:38	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:35	PREVIOUS CF:	1.000	0.998	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 ₃ H ₈ (ppm):	603.0 204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	132	CYLINDER (psi):	1600	LOW ID:	n/a
MFC CALIBRATION DATE:	02-Sep-2022	OXIDIZER ID:	115	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

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

EXPECTED (REFERENCE) VALUE:

INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.23	10.78	20.01		9.39	10.97	20.36

CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3100	X	3100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	X	X	X	X	X
3025	74.60	3100	14.51	13.50	28.01	14.18	13.03	27.21	14.52	13.57	28.09	1.023	1.036	1.029	0.999	0.995	0.997
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.24	6.74	13.99	n/a	n/a	n/a	1.002	1.001	1.001
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.62	3.35	6.97	n/a	n/a	n/a	0.999	1.005	1.002

LINEAR REGRESSION ANALYSIS:

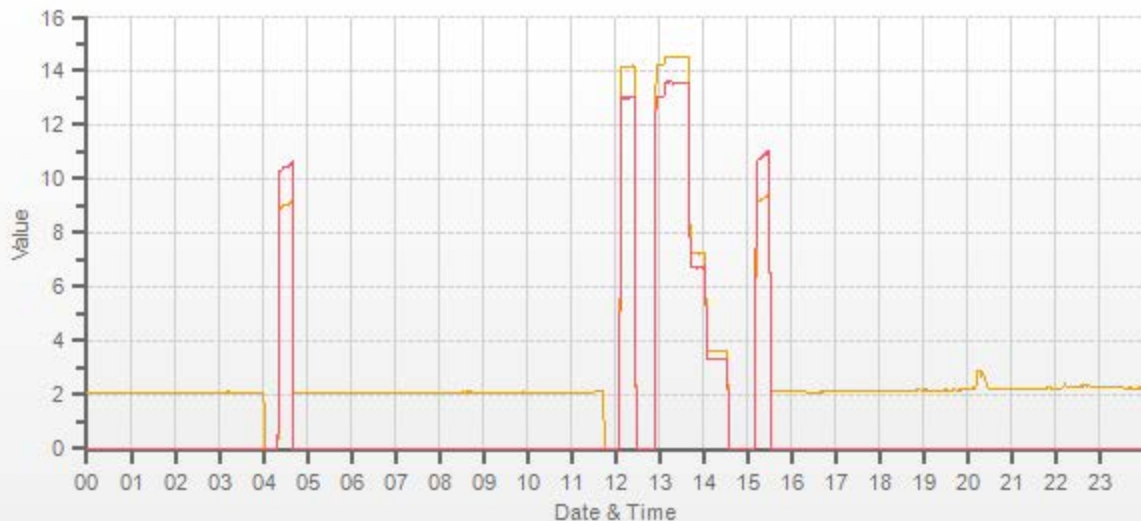
	CORRELATION	SLOPE	INTERCEPT
CH ₄	1.000	1.000	0.0%
NMHC	1.000	1.006	-0.1%
THC	1.000	1.003	-0.1%

Comments:

Calibration second attempt was completed after column conditioning and H₂ generator maintenance.

Use Zero Chrom?

Yes



CAL-LICA-202211-01690

Thermo 5030i SHARP Monitor Monthly Check

Date: November 10, 2022	Performed By/Reviewer: Alex Yakupov Chris Wesson
Company: LICA	Start Time (mst): 14:51
Station Name/Location: Lac La Biche	End Time (mst): 15:37
Previous Audit Date: October 5, 2022	Calibration Purpose: routine monthly
Parameter: PM 2.5	Weather Conditions: Mainly sunny

SHARP 5030i Information and Status:

Serial Number: CM 17071016	Filter Tape Counter	142
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Reference Standards:

Air Flow				
	Manometer	Orifice	Pressure:	Temp / RH:
Make:	DeltaCal	DeltaCal	Fisher Scientific	Vaisala HMP76B
Model:	DC1	DC1	FB 61291	HMP 76B
Serial Number:	177246	177246	130168457	T1640130
Calibration Expiration Date:	September 7, 2023	September 7, 2023	February 17, 2023	June 14, 2023

Ambient Temperature (°C)				Range	Action
	Reference	SHARP	Difference	$< \pm 2^{\circ}\text{C}$	OK
#1	-11.90	-12.6	0.7	2-3 °C	Recalibrate
				$> 3^{\circ}\text{C}$	Fail

Ambient Relative Humidity (%RH)				Range	Action
As Found:					
	Reference	SHARP	Difference	$< \pm 2\% \text{RH}$	OK
#1	62.40	62.8	-0.4	2-5 %RH	Recalibrate
				$> 5\% \text{RH}$	Fail

Barometric Pressure (mmHg)				Range	Action
As Found:					
	Reference	SHARP	Difference	$< \pm 10 \text{ mmHg}$	OK
#1	716.0	715.0	1.0	10-12 mmHg	Recalibrate
				$> 12 \text{ mmHg}$	Fail

Flow Audit (L/min)						Range	Action
As Found:						$< \pm 4\%$	OK
	Reference	SHARP		% Difference	0.10%	4-5%	Recalibrate
#1	16.64	16.66				$> 5\%$	Fail
#2	16.65	16.66					
#3	16.65	16.67					
Average	16.65	16.66					

Leak Check (L/min)						
Without Leak Check Adapter			With leak Check Adapter			
	Reference	SHARP	Difference	Reference	SHARP	Difference
#1	16.65	16.67	-0.02	16.55	16.61	-0.06
				LEAK RATE:		-0.04

Leak Limit: 0.80 L/min

Meteorological System Checklist



Date:	November 10, 2022		
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 14, 2023		
Reference Temperature (°C):	-11.8		
Station - Ambient Temperature (°C):	-11.2		
Temperature Difference (°C):	0.6		
BAROMETRIC PRESSURE SENSOR CHECK			
Reference Barometer ID:	Fisher Scientific / FB 61291 / #130168457/ Feb 17, 2023		
Reference Pressure - Units/Reading:	millibar	953	
Station Pressure - Units/Reading:	millibar	952	
Pressure Tolerance +/- 15% of error:	810 - 1096	0.10%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Reference Hygrometer ID:	Vaisala / HM70 / #T1640130/ Jun 14, 2023		
Reference Hygrometer % RH- Reading:	63.40		
Station Hygrometer % RH- Reading:	63.90		
RH Tolerance +/- 15% of difference:	53.89 - 72.91	-0.8%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	October 5, 2022	Previous check date:	October 5, 2022
Wind Speed Observed (kph):	1 - 10	Wind Direction Observed:	SE
Wind speed on Data Logger (kph):	7.4	Wind Direction on Data Logger:	SE
	Annual audit: May 22, 2022	Wind Direction Pass/Fail?:	Pass
Comments			
Station (Trailer) temperature vs Reference gauge: 20.0 vs 20.6, passed.			



Meteorological Sensor Audit/Calibration

Location Information

Company: LICA
 Audit Location: Lac La Biche
 Audit Date: May 9, 2022
 Calibration Purpose: installation

Performed By: Alex Yakupov
 Reviewed By: Chris Wesson
 Start/End Time (mst): 17:47/18:45
 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 #:	56778	Direction Voltage Output Range:	0-1
Previous Cal/Audit Date:	n/a	Direction Unit Output Range:	0-360

Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 id# CA 4744 expires August 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	18.4	18.4	1.002
2000	36.9	36.9	36.9	0.999
3000	55.3	55.3	55.3	1.000
4000	73.7	73.8	73.8	0.999
5000	92.2	92.2	92.2	0.999
6000	110.6	110.6	110.6	1.000
7000	129.0	129.1	129.1	0.999
8000	147.4	147.5	147.5	1.000
9000	165.9	165.9	166.0	1.000
10000	184.3	184.3	184.4	1.000
The audit meets AMD requirements.			Average Correction Factor=	1.000

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	356	1.0	-1.0	1.0
30	330	30	331	-0.4	-1.4	0.9
60	300	61	301	-1.1	-1.2	1.2
90	270	92	272	-2.1	-1.7	1.9
120	240	121	240	-1.4	-0.2	0.8
150	210	152	211	-2.1	-1.3	1.7
180	180	182	181	-2.0	-1.3	1.7
210	150	212	153	-2.1	-2.5	2.3
240	120	241	122	-1.4	-2.3	1.9
270	90	271	92	-1.4	-2.1	1.7
300	60	300	61	-0.1	-1.2	0.7
330	30	330	31	-0.2	-1.2	0.7
355	0	356	1	-1.0	0.6	0.8
The audit meets AMD requirements.				Average Absolute Degrees Difference=		1.3

Comments:

No issues.

End of Report

Parameter	Method & Procedure
SULPHUR DIOXIDE (SO₂)	Bureau Veritas EMS SOP-00209: Ambient Sulphur Monitoring
HYDROGEN SULPHIDE (H₂S)	Bureau Veritas EMS SOP-00209: Ambient Sulphur Monitoring
TOTAL HYDROCARBONS (THC), METHANE (CH₄), NON-METHANE(NMHC)	Bureau Veritas EMS SOP-00001: Methane, Non-Methane HydrcarbonAnalyzer Monitoring
OXIDES OF NITROGEN (NO_x), NITRIC OXIDE (NO) & NITROGEN DIOXIDE (NO₂)	Bureau Veritas EMS SOP-00213: Ambient NO/NO₂/NO_x 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