



Lakeland Industry & Community Association

DECEMBER 2022

Monthly Ambient Air Quality Monitoring Report

LICA-202212

Operation and Maintenance:

Bureau Veritas Canada

Data Validation and Report:

Lakeland Industry & Community Association

January 18, 2023

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January 18, 2023

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

Enclosed is the December 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

Michael Bisaga, Monitoring Programs Manager

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

Tamarack

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

Lac La Biche Station

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

Integrated Sampling

All the integrated sampling analytical results are included in the December 2022 Integrated Sampling Report.

- **VOCs Sampling System:**
 - The VOC sampler is programmed to collect a 24-hour sample of air every sixth day as per the National Air Pollution Surveillance schedule (NAPS).
 - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
 - Six samples were collected this month: on December 1, 7, 13, 19, 25 and 31.
- **PAHs Sampling System:**
 - The PUF sampler is programmed to collect a 24-hour sample of air every sixth day as per the National Air Pollution Surveillance schedule (NAPS).
 - Six samples were collected this month: on December 1, 7, 13, 19, 25 and 31.
- **Partisol Sampling System:**
 - The Partisol sampler is programmed to collect a 24-hour sample of air every sixth day as per National Air Pollution Surveillance schedule (NAPS).
 - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
 - Six samples were collected this month: on December 1, 7, 13, 19, 25 and 31.
- **Passive Sampling System:**
 - There were no exceedances of the AAAQOs for all monitored parameters at any of the passive stations during this month.
 - The passive sample filters were installed at the stations between November 30 and December 3, and were removed between December 29, 2022 and January 3, 2023.
 - A total of 13 duplicate samples were collected: 2 for H₂S, 3 for SO₂, 2 for NO₂, 2 for O₃, 2 for HNO₃ and 2 for NH₃.
 - 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 are installed along with the existing passive parameters (SO₂, H₂S, NO₂ and O₃) in all LICA passive monitoring stations and will be exchanged on a monthly basis.
- **PAC Sampling System:**
 - The PAC sampling program began in December 2019, and is designed to collect a 2-month integrated sample.
 - The media for the November / December monitoring period were installed between November 2 and November 3 and were removed between December 29, 2022 and January 3, 2023. The media for the January/February 2023 monitoring period were installed at the

same time while the media for the November / December monitoring period were removed.

- **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).

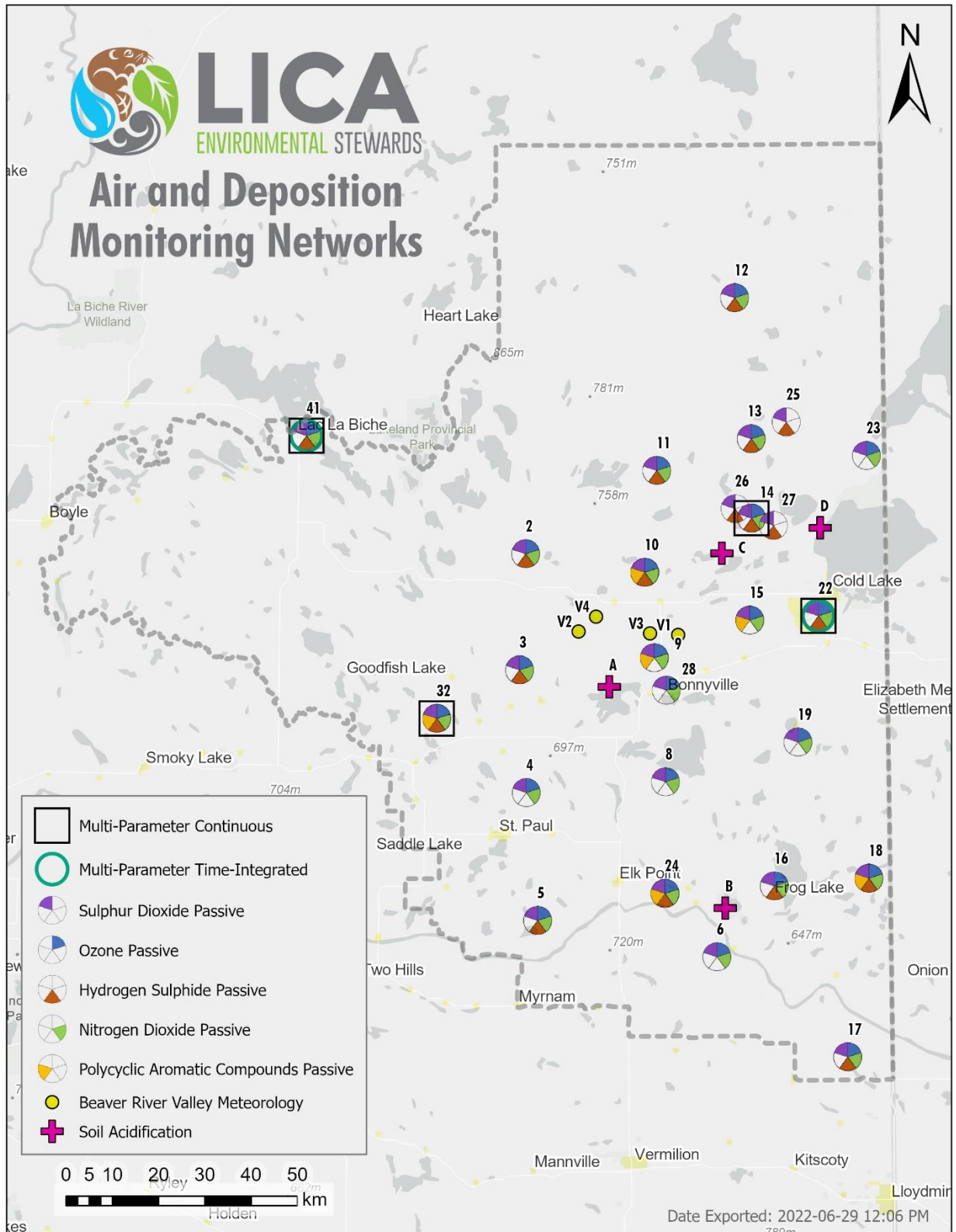
I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements. I also certify that at the time of this report's submission, all 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 December 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

January 18, 2023

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	December 9, 2022
<ul style="list-style-type: none"> No operational issues were recorded this month. 			
Total Reduced Sulphur (TRS)	Thermo / 450i	812728560	December 8, 2022
<ul style="list-style-type: none"> The analyzer failed the December 7 daily zero-span check and the December 8 shut-down calibration due to sample pump failure. The sample pump was repaired, and the post-repair calibration was completed on December 8. Data were invalidated back to the last valid calibration check, which was December 6. Forty-two hours of downtime were recorded due to this event. The analyzer spanned low on December 21 and 22 and failed the span check on December 23. The drift was related to low ambient temperatures and the related lack of moisture in the sample air. The span check results passed after ambient temperatures raised. Low ambient temperatures had a marked effect on TRS span results. This is a perennial problem when the moisture levels in sample air drop very low, causing TRS analyzer to respond more slowly due to the SO₂ scrubber requiring a certain ambient humidity to function optimally. Although daily span check results were often below the requirements, and the daily zero check results were occasionally close to or outside the allowable drift range (while low temperatures were occurring), experience indicates the analyzer's performance remains in compliance with AMD performance criteria, and collected data remain valid. To minimize the impact by the ambient temperatures and humidity, a new batch of the SO₂ scrubber beads were used in the field. The SO₂ scrubber material is scheduled to be renewed periodically, as needed. 			
Total Hydrocarbons / Methane/ Non-methane Hydrocarbons (THC/CH₄/NMHC)	Thermo / 55i	1180930025	December 8, 2022
<ul style="list-style-type: none"> No operational issues were identified this month. The span gas cylinder was replaced following by a repeat zero-span check in order to obtain a new expected span value on December 5. One hour of downtime was recorded due to this event. 			
Oxide of Nitrogen / Nitric Oxide/ Nitrogen Dioxide (NO_x/NO/NO₂)	Thermo / 42i	1505664393	December 9, 2022
<ul style="list-style-type: none"> No operational issues were recorded this month. 			

Parameter	Make / Model	Serial Number	Calibration Date
Ozone (O3)	Thermo 49iQ	12208316585	December 9, 2022
<ul style="list-style-type: none"> No operational issues were recorded this month. 			
Particulate Matter 2.5 (PM2.5)	Teledyne T640	575	December 9, 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	December 9, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Barometric Pressure (BP)	Met One / Part 092	Y23368	December 9, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Ambient Temperature (AT)	Rotronic / HC2A-S3	20257103	December 9, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Station Temperature (ST)	BV-supplied	n/a	December 9, 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	December 9, 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	0.3	0	3	December 11 at hour 20	10.9	NW	0.9	December 25	100.0	94.9
TRS (ppb)	-	-	-	-	-	-	0.1	0	1	December 2 at hour 15	10.2	WSW	0.9	December 3	94.4	89.4
NOx (ppb)	-	-	-	-	-	-	7.2	0	68	December 10 at hour 10	0	N	25.8	December 10	100.0	94.7
NO (ppb)	-	-	-	-	-	-	1.4	0	47	December 10 at hour 10	0	N	12.2	December 10	100.0	94.7
NO2 (ppb)	159	-	-	0	-	-	5.8	0	26	December 23 at hour 1	0.3	ESE	15.4	December 22	100.0	94.7
O3 (ppb)	76	-	-	0	-	-	26.3	0.1	42.6	December 4 at hour 11	28.7	NW	38.2	December 4	100.0	94.9
THC (ppm)	-	-	-	-	-	-	2.11	1.94	2.70	December 10 at hour 10	0	N	2.40	December 31	99.9	94.9
CH4 (ppm)	-	-	-	-	-	-	2.11	1.94	2.70	December 10 at hour 10	0	N	2.40	December 31	99.9	94.9
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.05	December 23 at hour 1	0.3	ESE	0.00	December 23	99.9	94.9
PM2.5 (µg/m3)	80	29	-	0	0	-	7.7	1	31	December 14 at hour 2	6.6	W	22.4	December 10	100.0	99.9
RH (%)	-	-	-	-	-	-	75.7	48	89	December 15 at hour 3	6.1	NW	87.4	December 15	100.0	100.0
BP (millibar)	-	-	-	-	-	-	953	929	980	December 22 at hour 2	4	WSW	978	December 22	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-17.5	-39.0	-2.9	December 4 at hour 10	23.2	NW	-7.5	December 14	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	22.5	19.7	23.2	December 14 at hour 6	4.6	WSW	23.1	December 14	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	0.6	0.0	28.7	December 4 at hour 11	28.7	NW	13.4	December 4	100.0	100.0
WDV (sector)	-	-	-	-	-	-	34 (NE)	-	-	-	-	-	-	-	100.0	100.0

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

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

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

Tamarack Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	Calibration Date
Sulphur Dioxide (SO₂)	Thermo / 43i-TLE	1180930031	December 17, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Hydrogen Sulphide (H₂S)	Thermo / 450i	CM17360005	December 16, 2022
<ul style="list-style-type: none"> The analyzer failed the daily span check on December 6, 20, 21, 22 and 23. This drift was related to low ambient temperatures and lack of moisture in the sample air. The span check results passed after ambient temperatures raised. Low ambient temperatures had a marked effect on H₂S span results. This is a perennial problem when the moisture levels in sample air drop very low, causing TRS analyzer to respond more slowly due to the SO₂ scrubber requiring a certain ambient humidity to function optimally. Although daily span check results were often below the requirements, and the daily zero check results were occasionally close to or outside the allowable drift range (while low temperatures were occurring), experience indicates the analyzer's performance remains in compliance with AMD performance criteria, and collected data remain valid. To minimize the impact by the ambient temperatures and humidity, a new batch of the SO₂ scrubber beads were used in the field. The SO₂ scrubber material is scheduled to be renewed periodically, as needed. 			
Oxide of Nitrogen / Nitric Oxide/ Nitrogen Dioxide (NO_x/NO/NO₂)	Thermo / 42i	1180930028	December 17, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Ozone (O₃)	Thermo 49iQ	1202068570	December 17, 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	December 16, 2022
<ul style="list-style-type: none"> The analyzer failed due to running empty of N₂ gas on December 9. The N₂ gas cylinder was replaced on December 10. Eighteen hours of downtime were recorded due to this event. The H₂ fuel supply for the analyzer was swapped from cylinder to hydrogen generator on December 17. Three hours of downtime were recorded due to this maintenance. The analyzer started having bad injection issues on December 14. Data collected between December 14 and December 31 were reviewed and were discarded if data quality was affected by the injection issues. Hourly data collected on December 28 hour 5 was discarded as a result. 			

Parameter	Make / Model	Serial Number	Calibration Date
Particulate Matter 2.5 (PM2.5)	Thermo / Sharp 5030	CM 2209	December 17, 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	December 17, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Ambient Temperature (AT)	Rotronic / HC2A-S3	20433166	December 17, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Barometric Pressure (BP)	Met One / Part 090D	F4497	December 17, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Station Temperature (ST)	BV-supplied	n/a	December 17, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Precipitation (PRECIP)	Met One / Part 387	C13580	December 17, 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	December 17, 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 Site

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.9	0	10	December 4 at hour 8	12.7	NW	3.0	December 26	100.0	95.1
H2S (ppb)	10	3	-	0	0	-	0.0	0	2	December 22 at hour 11	2.3	WNW	0.3	December 9	100.0	95.0
NOx (ppb)	-	-	-	-	-	-	6.0	0	59	December 10 at hour 8	1.5	ENE	19.0	December 22	100.0	94.9
NO (ppb)	-	-	-	-	-	-	0.8	0	35	December 10 at hour 8	1.5	ENE	6.0	December 10	100.0	94.9
NO2 (ppb)	159	-	-	0	-	-	5.2	0	27	December 22 at hour 18	0.3	W	15.2	December 22	100.0	94.9
O3 (ppb)	76	-	-	0	-	-	26.1	1.0	41.1	December 4 at hour 11	14.8	NW	35.8	December 24	100.0	95.0
THC (ppm)	-	-	-	-	-	-	2.05	1.93	2.75	December 6 at hour 5	5.8	WNW	2.33	December 31	97.0	92.0
CH4 (ppm)	-	-	-	-	-	-	2.04	1.93	2.65	December 31 at hour 16	3.2	S	2.33	December 31	97.0	92.0
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.27	December 22 at hour 12	0.4	NNE	0.03	December 6	97.0	92.0
PM2.5 (µg/m3)	80	29	-	0	0	-	4.6	1	33	December 10 at hour 8	1.5	ENE	12.4	December 31	100.0	99.9
RH (%)	-	-	-	-	-	-	84.3	53	98	December 14 at hour 8	4.8	NW	95.5	December 15	100.0	100.0
BP (millibar)	-	-	-	-	-	-	936	913	964	December 22 at hour 3	3.9	NW	961	December 22	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-18.1	-37.7	-4.0	December 4 at hour 9	14.7	WNW	-7.9	December 14	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	20.3	18.7	22.7	December 16 at hour 17	9	E	20.8	December 16	100.0	100.0
Precipitation (mm)*	-	-	-	-	-	-	26.6	0.0	1.8	December 26 at hour 17	6.7	E	5.5	December 17	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	1.0	0.0	16.1	December 4 at hour 10	16.1	NW	10.3	December 4	100.0	100.0
WDV (sector)	-	-	-	-	-	-	46 (NE)	-	-	-	-	-	-	-	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 (AAQOs) and/or Alberta Ambient Air Quality Guidelines (AAQGs) Exceedances

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

St. Lina Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	Calibration Date
Sulphur Dioxide (SO₂)	Thermo / 43i-TLE	1180930030	December 11, 2022
<ul style="list-style-type: none"> No operational issues were recorded this month. 			
Hydrogen Sulphide (H₂S)	Thermo 450i	CM18010058	December 10, 2022
<ul style="list-style-type: none"> The analyzer failed the daily span check on December 21 and 22. This drift was related to low ambient temperatures and lack of moisture in the sample air. The span check results passed after ambient temperatures raised. Low ambient temperatures had a marked effect on H₂S span results. This is a perennial problem when the moisture levels in sample air drop very low, causing TRS analyzer to respond more slowly due to the SO₂ scrubber requiring a certain ambient humidity to function optimally. Although daily span check results were often below the requirements, and the daily zero check results were occasionally close to or outside the allowable drift range (while low temperatures were occurring), experience indicates the analyzer's performance remains in compliance with AMD performance criteria, and collected data remain valid. To minimize the impact by the ambient temperatures and humidity, a new batch of the SO₂ scrubber beads were used in the field. The SO₂ scrubber material is scheduled to be renewed periodically, as needed. 			
Total Hydrocarbons / Methane/ Non-methane Hydrocarbons (THC/CH₄/NMHC)	Thermo / 55i	1180030034	December 10, 2022
<ul style="list-style-type: none"> No operational issues were recorded this month. 			
Oxide of Nitrogen / Nitric Oxide/ Nitrogen Dioxide (NO_x/NO/NO₂)	Thermo / 42i	1180930029	December 11, 2022
<ul style="list-style-type: none"> No operational issues were recorded this month. 			
Ozone (O₃)	Thermo 49iQ	12208316586	December 11, 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	December 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 / HC2-S3	20404750	December 11, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Ambient Temperature (AT)	Rotronic / HC2-S3	20404750	December 11, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Barometric Pressure (BP)	Met One / Part 090D	F4998	December 11, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Station Temperature (ST)	BV-supplied	n/a	December 11, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Precipitation (PRECIP)	Met One / Part 387D	A23775	December 11, 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	December 11, 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. Data collected between December 30 hour 16 and January 1, 2023 hour 1 were discarded due to the frozen wind system. Thirty-two hours of downtime were recorded in December due to this event. 			

Monitored Data Summary for St. Lina Site

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.3	0	3	December 26 at hour 13	15.5	SE	1.4	December 24	100.0	94.9
H2S (ppb)	10	3	-	0	0	-	0.0	0	1	December 23 at hour 4	13.6	S	0.2	December 23	100.0	94.9
NOx (ppb)	-	-	-	-	-	-	4.1	0	20	December 7 at hour 17	10.2	SW	11.3	December 10	100.0	94.6
NO (ppb)	-	-	-	-	-	-	0.2	0	5	December 30 at hour 12	1.3	E	1.0	December 10	100.0	94.6
NO2 (ppb)	159	-	-	0	-	-	3.8	0	20	December 7 at hour 18	6.6	WSW	10.3	December 10	100.0	94.6
O3 (ppb)	76	-	-	0	-	-	27.2	10.1	40.9	December 4 at hour 10	24.8	NNW	38.6	December 4	100.0	94.9
THC (ppm)	-	-	-	-	-	-	2.11	2.00	2.40	December 31 at hour 23	-**	-**	2.30	December 9	100.0	94.9
CH4 (ppm)	-	-	-	-	-	-	2.11	2.00	2.40	December 31 at hour 23	-**	-**	2.30	December 9	100.0	94.9
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.01	December 24 at hour 19	19	ESE	0.00	December 24	100.0	94.9
PM2.5 (µg/m3)	80	29	-	0	0	-	6.1	0	30	December 19 at hour 17	6.1	N	16.9	December 9	100.0	99.9
RH (%)	-	-	-	-	-	-	81.7	44	95	December 14 at hour 22	8	WNW	91.1	December 15	100.0	100.0
BP (millibar)	-	-	-	-	-	-	919	895	947	December 22 at hour 2	11	NNW	943	December 22	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-17.7	-34.0	-3.5	December 4 at hour 11	22.8	NW	-6.5	December 14	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	20.2	18.6	26.3	December 10 at hour 13	13	ESE	23.8	December 9	100.0	100.0
Precipitation (mm)*	-	-	-	-	-	-	14.6	0.0	1.3	December 24 at hour 20	17.1	ESE	6.4	December 17	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	0.2	0.0	29.9	December 4 at hour 13	29.9	NNW	18.3	December 17	95.7	95.7
WDV (sector)	-	-	-	-	-	-	29 (NNE)	-	-	-	-	-	-	-	95.7	95.7

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

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

-** Wind data is not available

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

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

Lac La Biche Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	Calibration Date
Sulphur Dioxide (SO₂)	Thermo / 43i-TLE	1180320043	December 6, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Hydrogen Sulphide (H₂S)	API 101A	324	December 6, 2022
<ul style="list-style-type: none"> The analyzer failed the daily span check on December 21 and 22. This drift was related to low ambient temperatures and lack of moisture in the sample air. The span check results passed after ambient temperatures raised. Low ambient temperatures had a marked effect on H₂S span results. This is a perennial problem when the moisture levels in sample air drop very low, causing TRS analyzer to respond more slowly due to the SO₂ scrubber requiring a certain ambient humidity to function optimally. Although daily span check results were often below the requirements, and the daily zero check results were occasionally close to or outside the allowable drift range (while low temperatures were occurring), experience indicates the analyzer's performance remains in compliance with AMD performance criteria, and collected data remain valid. To minimize the impact by the ambient temperatures and humidity, a new batch of the SO₂ scrubber beads were used in the field. The SO₂ scrubber material is scheduled to be renewed periodically, as needed. 			
Oxide of Nitrogen / Nitric Oxide/ Nitrogen Dioxide (NO_x/NO/NO₂)	Thermo / 42i	1180930027	December 6, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Ozone (O₃)	Thermo 49i	1002240372	December 7, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Total Hydrocarbons / Methane/ Non-methane Hydrocarbons (THC/CH₄/NMHC)	Thermo / 55i	1180320044	December 7, 2022
<ul style="list-style-type: none"> The analyzer failed the daily span check on December 22 due to running empty of N₂ gas. The N₂ gas cylinder was replaced on December 23. Twenty-five hours of downtime were recorded due to this event. 			
Particulate Matter 2.5 (PM_{2.5})	Thermo / Sharp 5030i	CM 17071016	December 7, 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	December 7, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Ambient Temperature (AT)	Rotronic / HC2A-S3	0020357518	December 7, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Barometric Pressure (BP)	Met One / Part 092	Y23360	December 7, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Station Temperature (ST)	BV-supplied	n/a	December 7, 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	December 7, 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	0.4	0	3	December 5 at hour 19	7.1	N	1.5	December 24	100.0	94.9
H2S (ppb)	10	3	-	0	0	-	0.0	0	1	December 1 at hour 17	1.2	W	0.3	December 9	100.0	94.9
NOx (ppb)	-	-	-	-	-	-	9.8	1	58	December 22 at hour 9	0.6	SE	29.4	December 21	100.0	94.6
NO (ppb)	-	-	-	-	-	-	2.7	0	32	December 22 at hour 9	0.6	SE	15.4	December 21	100.0	94.6
NO2 (ppb)	159	-	-	0	-	-	7.1	1	31	December 1 at hour 17	1.2	W	18.0	December 9	100.0	94.6
O3 (ppb)	76	-	-	0	-	-	23.8	1.3	39.4	December 4 at hour 11	21.1	NW	36.5	December 4	100.0	95.0
THC (ppm)	-	-	-	-	-	-	2.14	1.98	2.44	December 22 at hour 6	0.2	W	2.35	December 9	96.6	91.8
CH4 (ppm)	-	-	-	-	-	-	2.14	1.98	2.44	December 22 at hour 6	0.2	W	2.35	December 9	96.6	91.8
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.02	December 6 at hour 9	1.9	SSE	0.00	December 6	96.6	91.8
PM2.5 (µg/m3)	80	29	-	0	0	-	6.7	0	48	December 6 at hour 8	2.1	WSW	17.9	December 9	100.0	99.7
RH (%)	-	-	-	-	-	-	82.2	49	100	December 15 at hour 0	2.7	W	95.8	December 30	100.0	100.0
BP (millibar)	-	-	-	-	-	-	949	924	978	December 21 at hour 23	9.5	NW	973	December 21	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-17.1	-36.4	-3.3	December 4 at hour 10	17.9	NW	-6.0	December 14	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	23.4	20.0	25.5	December 7 at hour 14	0.9	SW	24.5	December 14	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	0.7	0.0	25.8	December 4 at hour 12	25.8	NW	14.9	December 4	100.0	100.0
WDV (sector)	-	-	-	-	-	-	128 (SE)	-	-	-	-	-	-	-	100.0	100.0

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

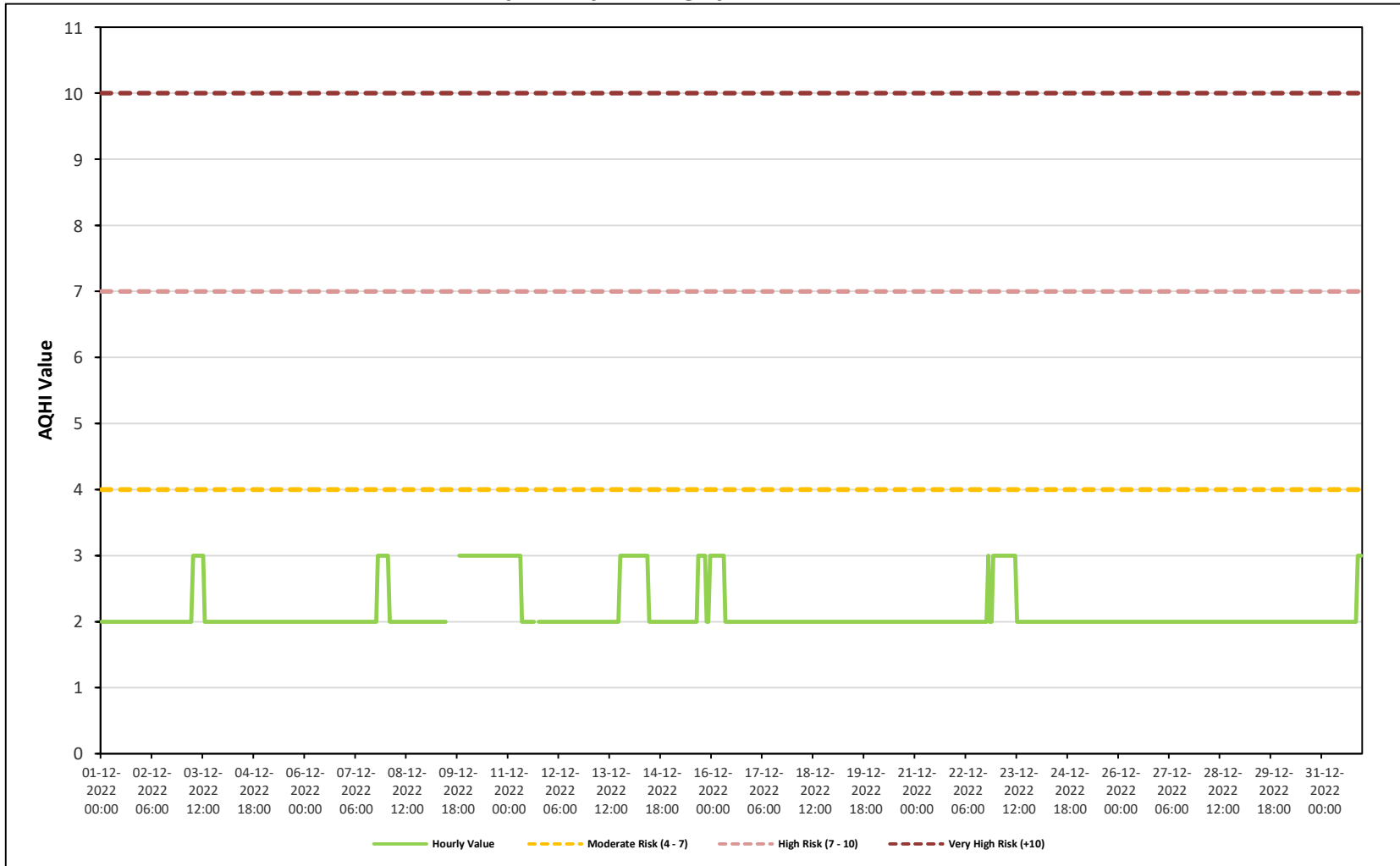
Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) Exceedances

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

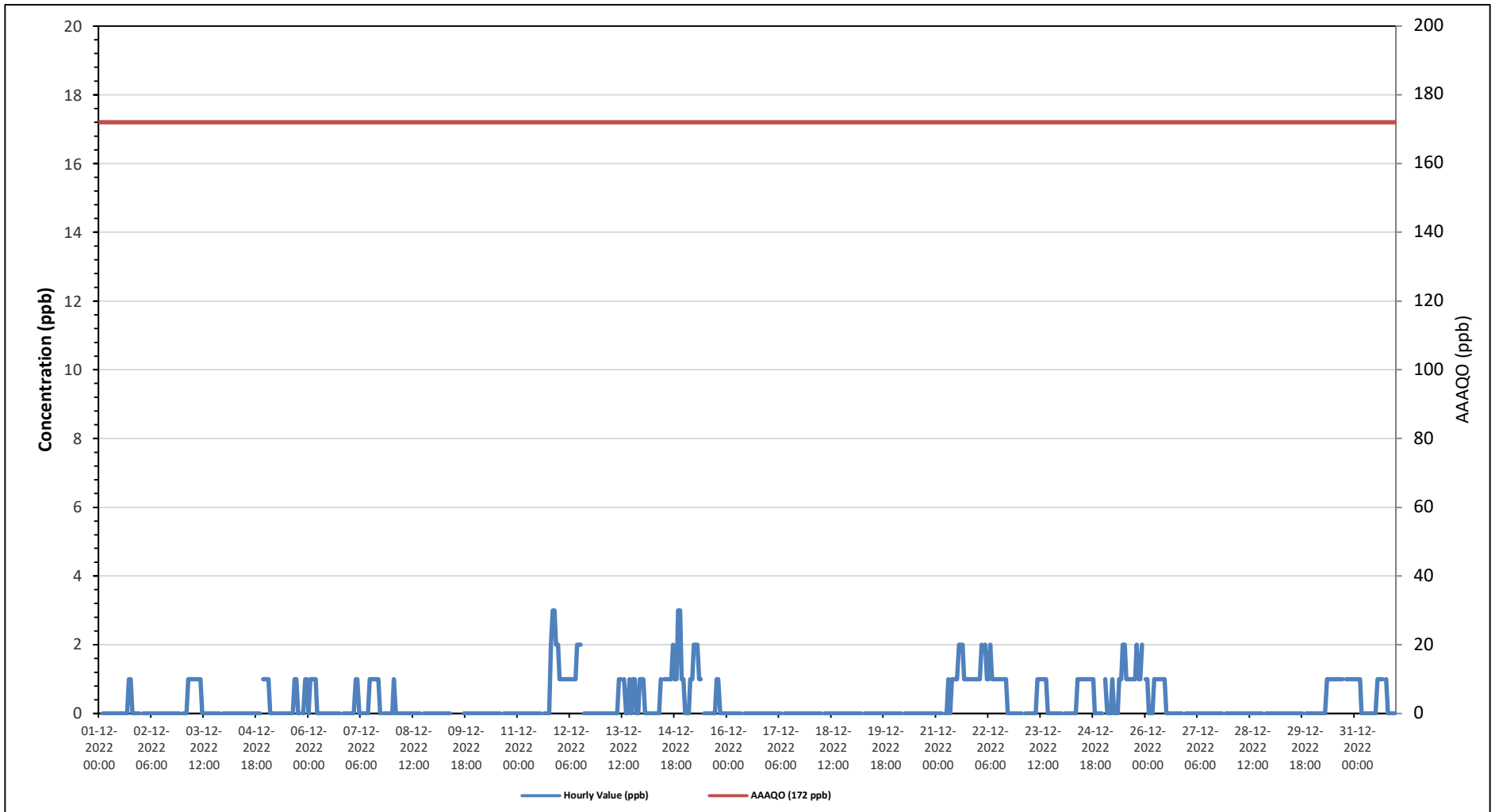
TABLES AND CHARTS

COLD LAKE SOUTH STATION

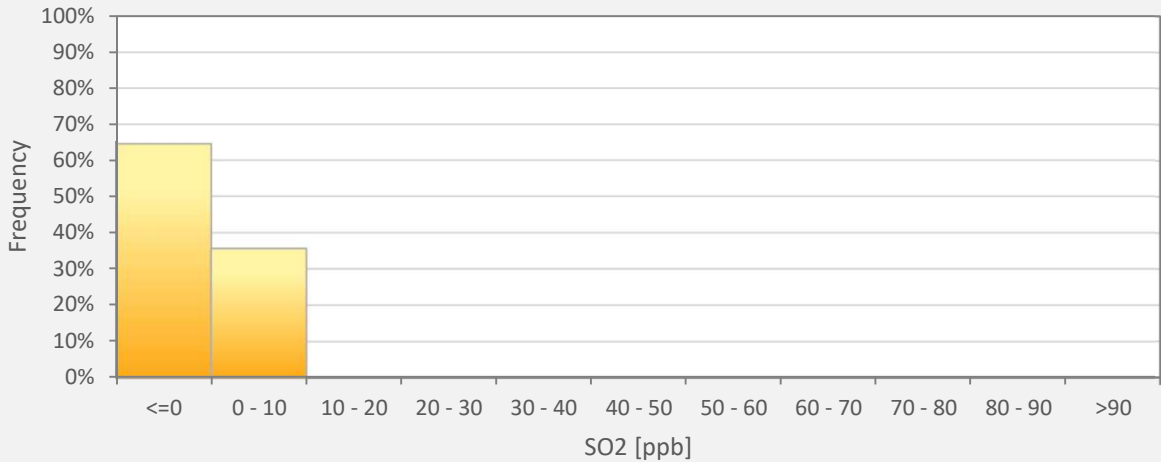
Timeseries Chart of Hourly Average for AQHI - Cold Lake South Station



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



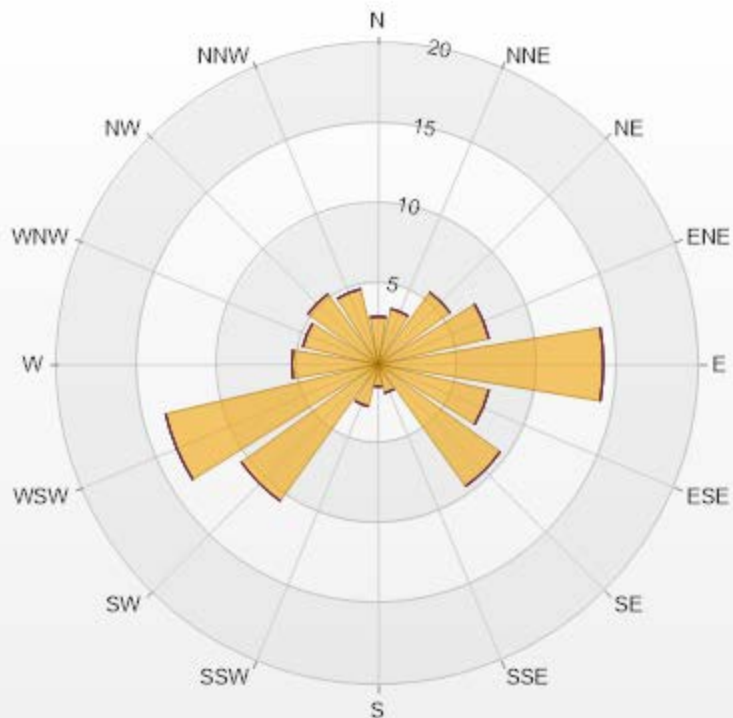
SO2[ppb] Histogram: Cold Lake South Monthly: 12-2022 1 Hr.



Classes	SO2
<=0	64.45%
0 - 10	35.55%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	2.97	0	0	0	0	2.97
NNE	3.54	0	0	0	0	3.54
NE	5.52	0	0	0	0	5.52
ENE	7.08	0	0	0	0	7.08
E	14.02	0	0	0	0	14.02
ESE	7.08	0	0	0	0	7.08
SE	9.35	0	0	0	0	9.35
SSE	1.84	0	0	0	0	1.84
S	1.42	0	0	0	0	1.42
SSW	2.69	0	0	0	0	2.69
SW	10.48	0	0	0	0	10.48
WSW	13.6	0	0	0	0	13.6
W	5.38	0	0	0	0	5.38
WNW	4.82	0	0	0	0	4.82
NW	5.38	0	0	0	0	5.38
NNW	4.82	0	0	0	0	4.82
Summary	100	0	0	0	0	100



LICA-202212

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% Icon Classes (ppb)

100 0-10

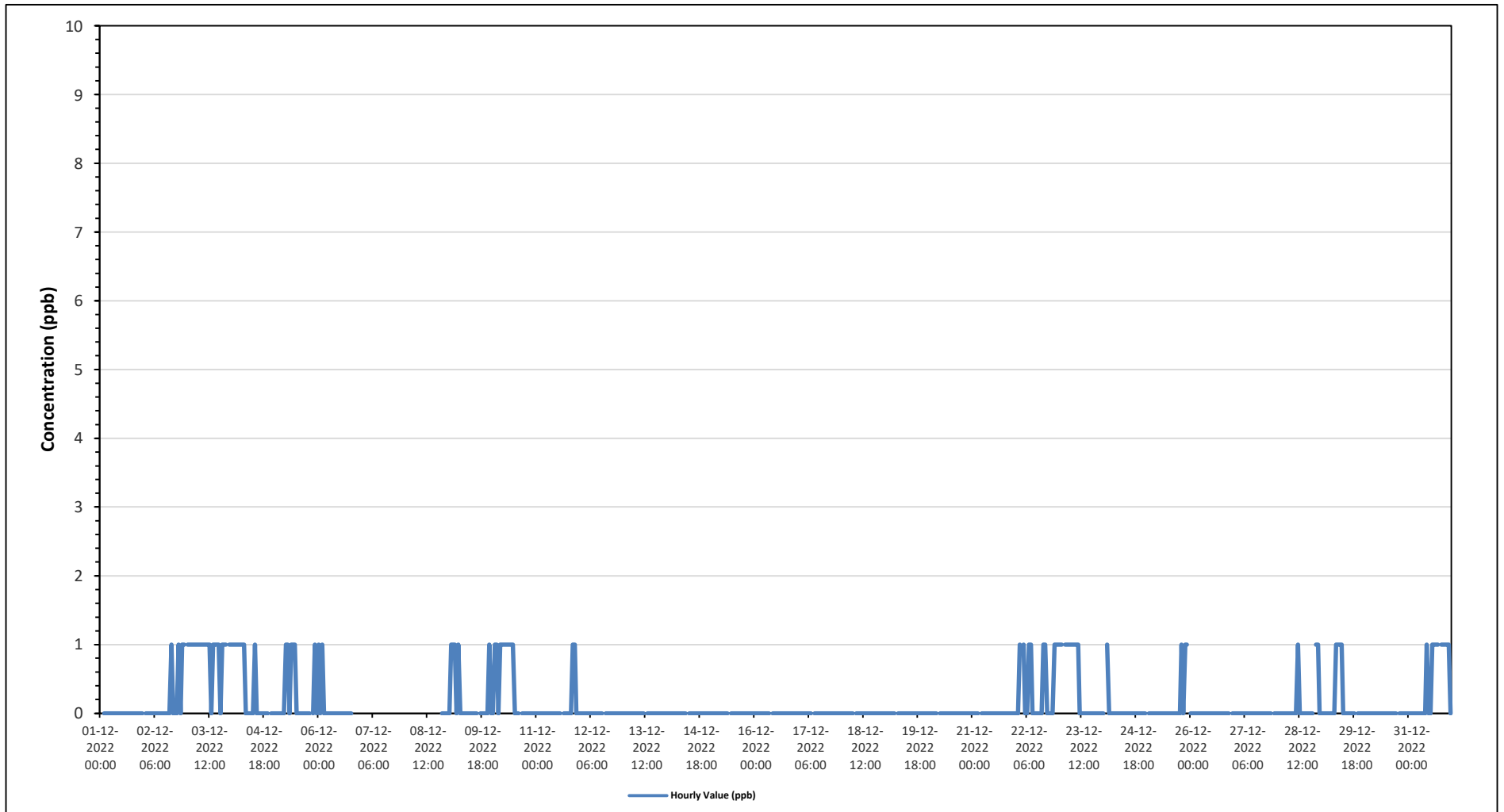
0 10-50

0 50-100

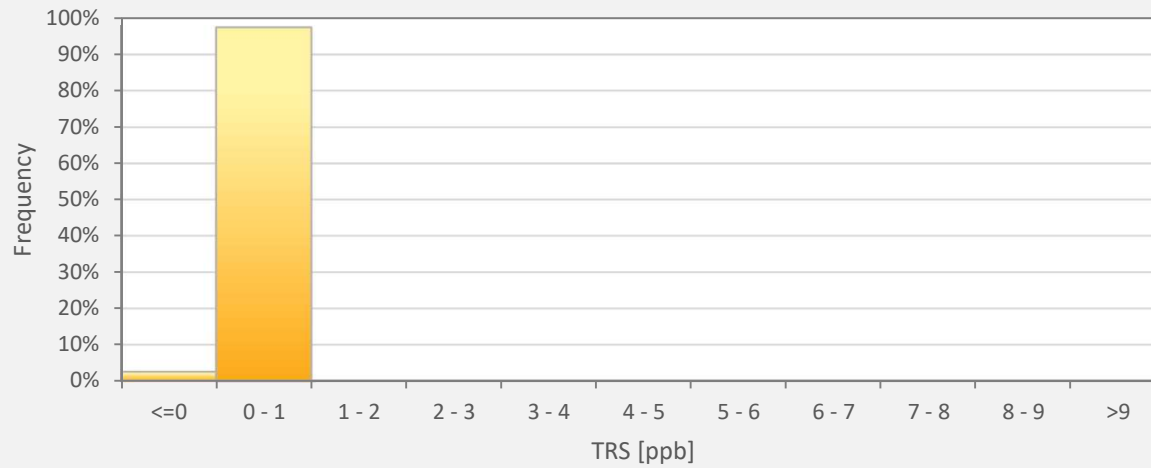
0 100-172

0 >172.0

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



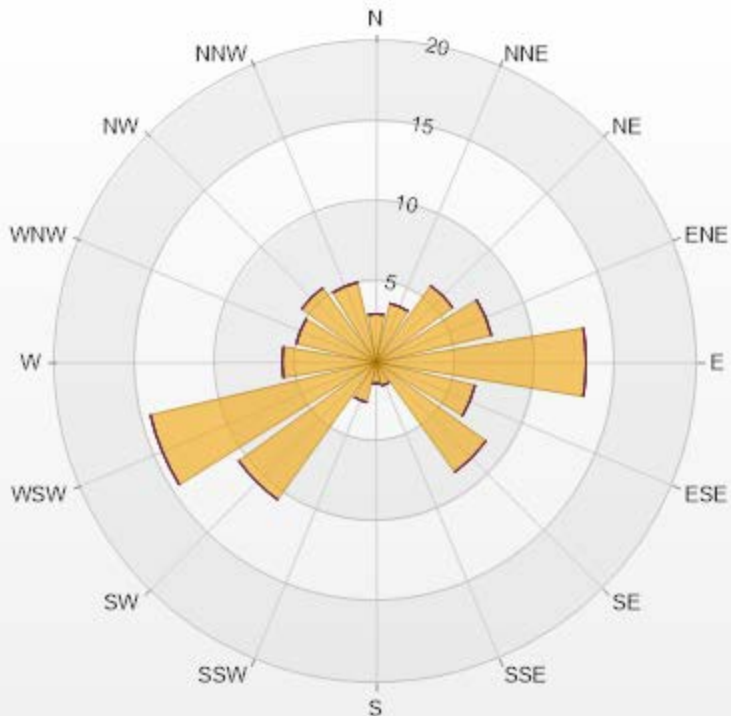
TRS[ppb] Histogram: Cold Lake South Monthly: 12-2022 1 Hr.



Classes	TRS
<=0	2.56%
0 - 1	97.44%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 89.38% Calm Avg: 0.00 [ppb]

Direction	0-2	2-3	3-10	10-50	>50.0	Total
N	3.01	0	0	0	0	3.01
NNE	3.76	0	0	0	0	3.76
NE	5.86	0	0	0	0	5.86
ENE	7.37	0	0	0	0	7.37
E	13.08	0	0	0	0	13.08
ESE	6.32	0	0	0	0	6.32
SE	8.42	0	0	0	0	8.42
SSE	1.5	0	0	0	0	1.5
S	1.35	0	0	0	0	1.35
SSW	2.56	0	0	0	0	2.56
SW	10.53	0	0	0	0	10.53
WSW	14.44	0	0	0	0	14.44
W	5.86	0	0	0	0	5.86
WNW	5.11	0	0	0	0	5.11
NW	5.71	0	0	0	0	5.71
NNW	5.11	0	0	0	0	5.11
Summary	100	0	0	0	0	100



LICA-202212

% Icon Classes (ppb)

100 0-2

0 2-3

0 3-10

0 10-50

0 >50.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 2022

Summary of Hourly Averages

OXIDES OF NITROGEN (NOx) in ppb

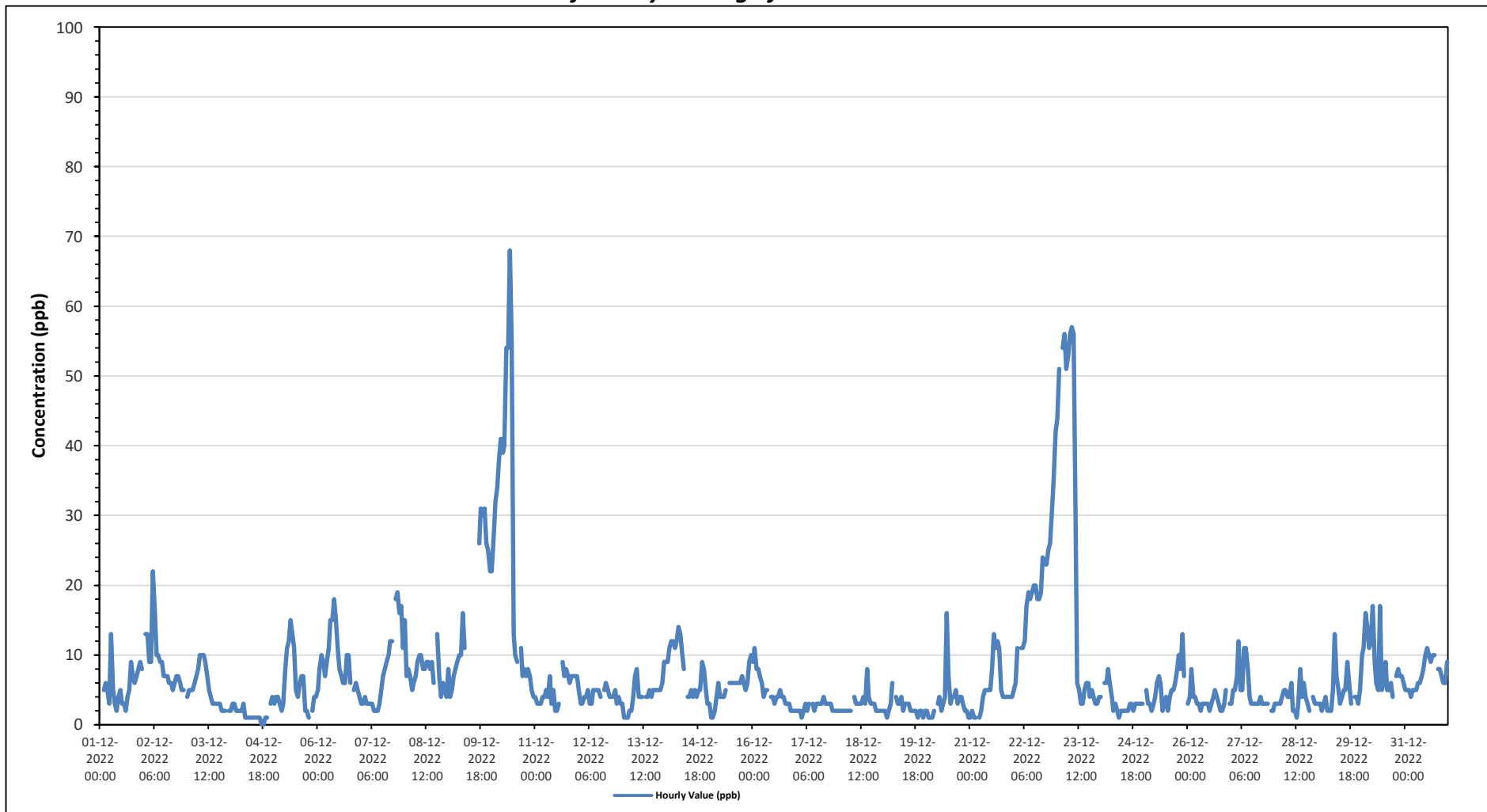
Maximum Hourly Value:	68 ppb on December 10 at hour 10	Hours in Service:	744
Maximum Daily Value:	25.8 ppb on December 10	Hours of Data:	705
Minimum Hourly Value:	0 ppb on December 4 at hour 17	Hours of Missing Data:	0
Minimum Daily Value:	1.6 ppb on December 4	Hours of Calibration:	39
Monthly Average:	7.2 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	
Dec 1	2	S	5	6	5	3	13	5	3	2	4	5	3	3	2	4	5	9	7	6	7	8	9	8	2	13	5.4	
Dec 2	S	13	13	9	9	22	17	10	10	9	9	7	7	7	6	6	5	6	7	7	6	5	5	S	S	5	22	8.9
Dec 3	4	5	5	5	6	7	8	10	10	10	9	7	5	4	3	3	3	3	3	2	2	2	S	S	2	10	5.1	
Dec 4	2	3	3	2	2	2	2	3	1	1	1	1	1	1	1	1	1	0	0	1	1	S	S	3	4	0	4	1.6
Dec 5	3	4	4	3	2	3	8	11	12	15	13	11	5	4	6	7	7	2	2	1	S	S	2	4	4	1	15	5.8
Dec 6	5	8	10	9	7	9	11	15	15	18	15	11	8	7	6	6	10	10	6	S	S	6	5	4	4	4	18	9.0
Dec 7	3	3	4	3	3	3	3	2	2	2	3	5	7	8	9	10	12	12	S	S	18	19	16	17	11	2	19	7.6
Dec 8	15	7	8	7	5	6	7	9	10	10	8	8	9	9	8	9	6	S	S	13	7	4	6	5	4	4	15	7.8
Dec 9	8	4	5	7	8	9	10	10	16	11	C	C	C	C	C	C	C	26	31	30	31	26	25	22	4	31	-	
Dec 10	22	27	32	34	38	41	39	40	54	54	68	55	13	C	C	9	S	11	7	8	7	8	7	5	4	4	68	25.8
Dec 11	4	3	3	3	4	4	5	4	7	3	5	2	2	3	S	9	7	8	7	6	7	7	7	7	7	2	9	5.1
Dec 12	5	3	3	4	4	5	3	3	5	5	5	5	4	S	5	6	5	4	4	4	5	3	4	3	3	3	6	4.2
Dec 13	3	1	1	1	2	2	4	7	8	4	4	4	S	4	4	5	4	5	5	5	5	5	6	9	1	9	4.3	
Dec 14	9	9	11	12	12	11	12	14	13	10	8	S	4	4	5	4	5	4	5	5	9	8	5	3	3	3	14	7.9
Dec 15	3	1	1	2	4	6	4	4	4	5	S	6	6	6	6	6	6	6	7	6	5	6	9	10	1	10	5.2	
Dec 16	9	11	8	8	7	6	4	5	5	S	4	4	3	4	4	5	4	4	3	3	3	2	2	2	2	2	11	4.8
Dec 17	2	2	2	1	2	3	2	3	S	3	2	3	3	3	3	3	3	3	3	3	2	2	2	2	2	1	4	2.5
Dec 18	2	2	2	2	2	2	2	S	4	3	3	3	3	3	4	3	8	4	3	3	3	2	2	2	2	2	8	2.9
Dec 19	2	2	1	2	3	6	S	4	3	3	4	2	3	3	3	2	2	2	2	1	2	2	1	2	1	1	6	2.5
Dec 20	2	1	1	1	2	S	3	4	2	3	4	16	7	3	4	4	5	3	4	4	3	2	2	1	1	1	16	3.5
Dec 21	1	2	1	1	S	1	2	4	5	5	5	8	13	11	12	11	5	4	4	4	4	4	4	4	1	13	5.0	
Dec 22	5	6	11	S	11	11	12	17	19	18	19	20	20	18	18	19	24	23	23	25	26	31	35	42	5	42	19.7	
Dec 23	44	51	S	54	56	51	53	56	57	56	29	6	5	3	3	5	6	6	4	5	4	3	3	4	3	57	24.5	
Dec 24	4	S	6	6	8	6	4	2	3	2	1	2	2	2	2	3	3	2	3	3	3	3	3	3	1	8	3.3	
Dec 25	S	5	3	3	2	3	4	6	7	6	2	3	4	2	4	5	5	6	8	10	8	13	7	S	2	13	5.3	
Dec 26	3	4	8	4	4	3	3	2	3	3	3	3	2	3	4	5	4	3	2	2	3	5	S	3	2	8	3.4	
Dec 27	3	5	5	7	12	5	5	11	11	8	4	3	3	3	3	4	3	3	3	3	3	S	2	2	2	12	4.8	
Dec 28	3	3	3	3	4	5	5	4	4	6	2	2	1	3	8	4	6	4	3	2	S	S	4	3	3	1	8	3.7
Dec 29	3	3	2	3	4	2	2	2	5	13	7	5	3	4	5	5	9	6	3	S	S	4	4	3	5	2	13	4.4
Dec 30	10	11	16	14	11	12	17	9	6	5	17	5	6	9	5	5	6	4	S	7	8	7	7	6	4	17	8.8	
Dec 31	5	5	5	4	5	5	5	6	6	7	8	10	11	10	9	10	10	S	8	8	7	6	6	9	4	11	7.2	
Diurnal Maximum	44	51	32	54	56	51	53	56	57	56	68	55	20	18	18	19	24	26	31	30	31	31	35	42				
Diurnal Average	6.4	7.0	6.1	7.3	8.1	8.5	9.0	9.4	10.3	10.0	9.2	7.6	5.4	5.4	5.5	6.0	6.4	6.2	6.2	6.5	6.8	6.8	6.6	6.4				

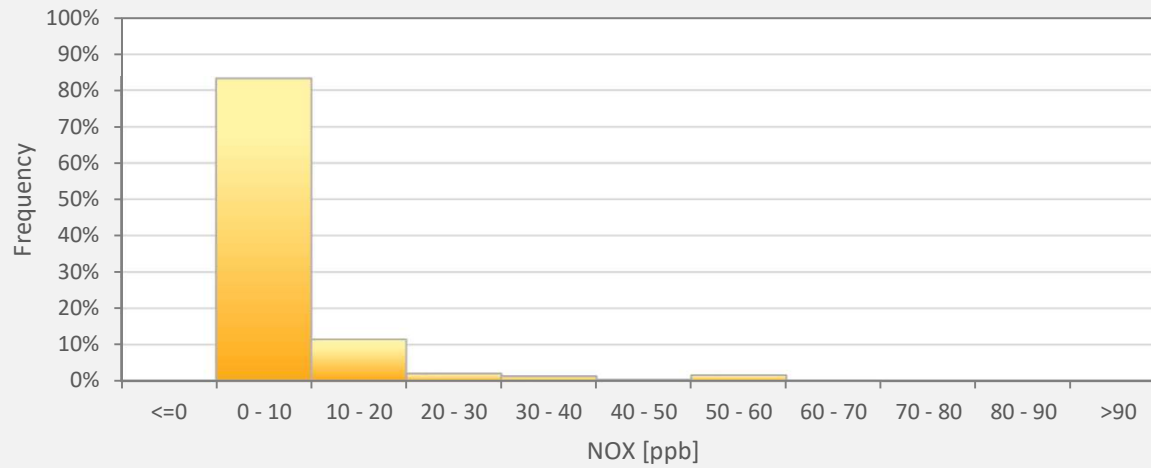
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction/Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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 - Cold Lake South Station



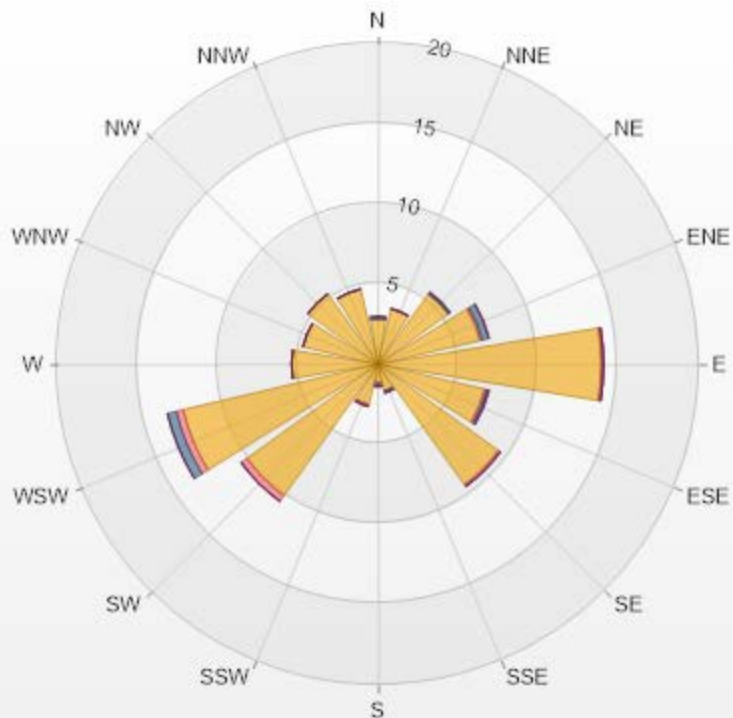
NOX[ppb] Histogram: Cold Lake South Monthly: 12-2022 1 Hr.



Classes	NOX
<=0	0.00%
0 - 10	83.26%
10 - 20	11.35%
20 - 30	1.99%
30 - 40	1.28%
40 - 50	0.43%
50 - 60	1.56%
60 - 70	0.14%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-NOX[ppb] Monthly: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.76% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	2.84	0	0.14	0	0	2.98
NNE	3.55	0	0	0	0	3.55
NE	5.39	0	0.14	0	0	5.53
ENE	6.52	0.14	0.43	0	0	7.09
E	13.9	0.14	0	0	0	14.04
ESE	6.81	0.14	0.14	0	0	7.09
SE	9.22	0.14	0	0	0	9.36
SSE	1.7	0	0.14	0	0	1.84
S	1.13	0.14	0.14	0	0	1.41
SSW	2.55	0.14	0	0	0	2.69
SW	10.07	0.43	0	0	0	10.5
WSW	12.48	0.43	0.57	0	0	13.48
W	5.39	0	0	0	0	5.39
WNW	4.82	0	0	0	0	4.82
NW	5.39	0	0	0	0	5.39
NNW	4.82	0	0	0	0	4.82
Summary	96.58	1.7	1.7	0	0	100

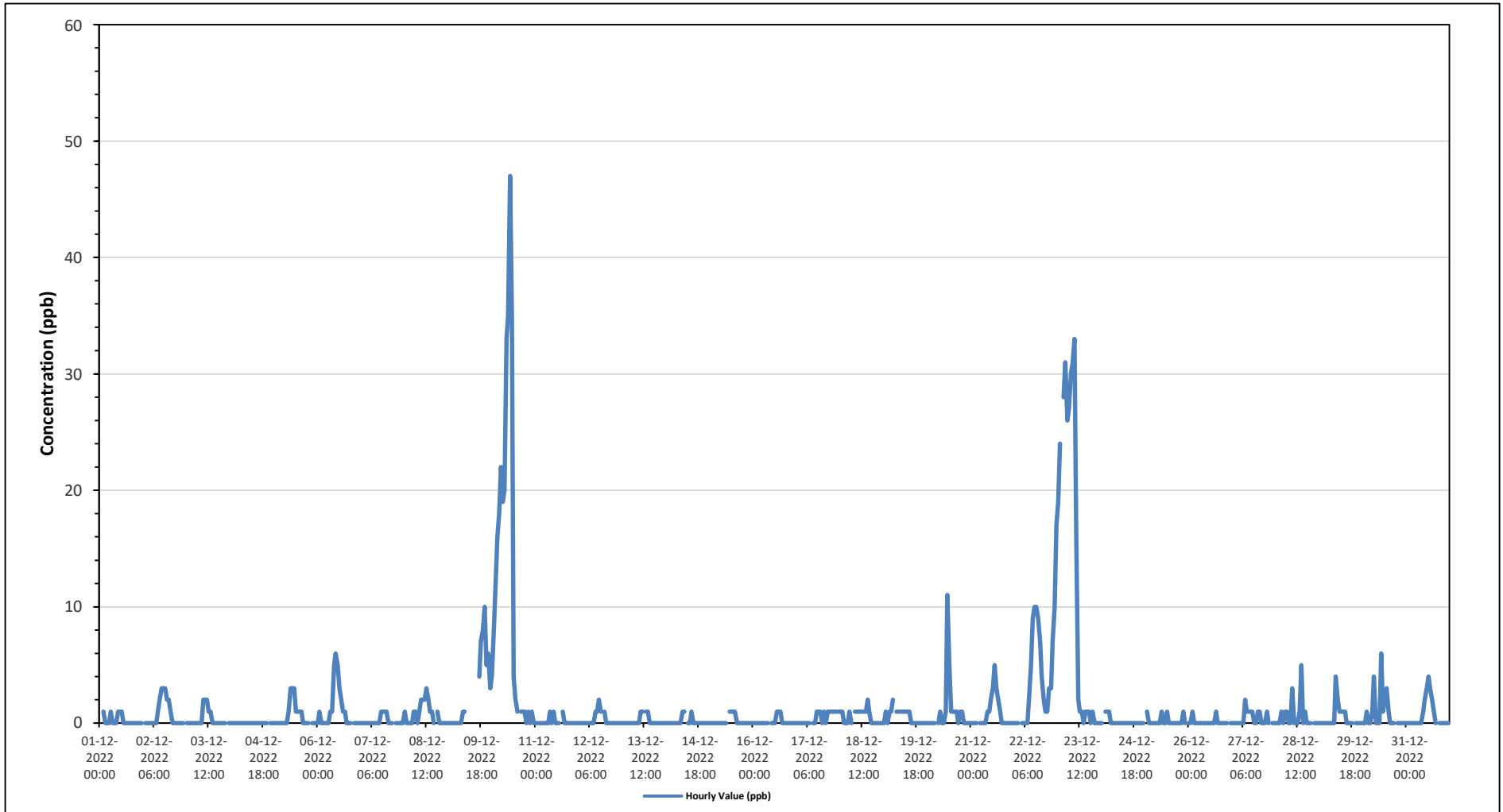


LICA-202212

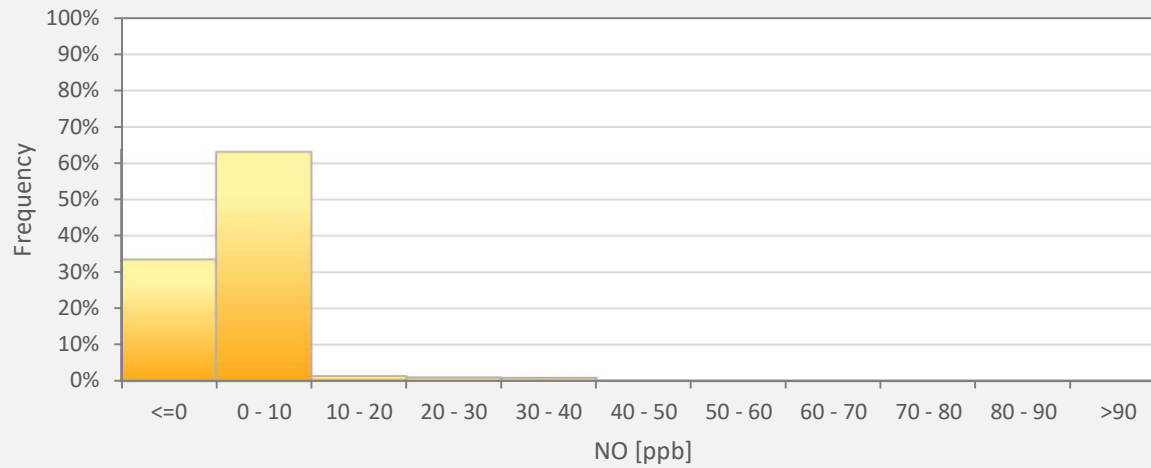
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% Icon Classes (ppb)	97	2	2	0	0
0-30	97	2	2	0	0
30-50		2			
50-76			2		
76-159				0	
>159.0					0

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



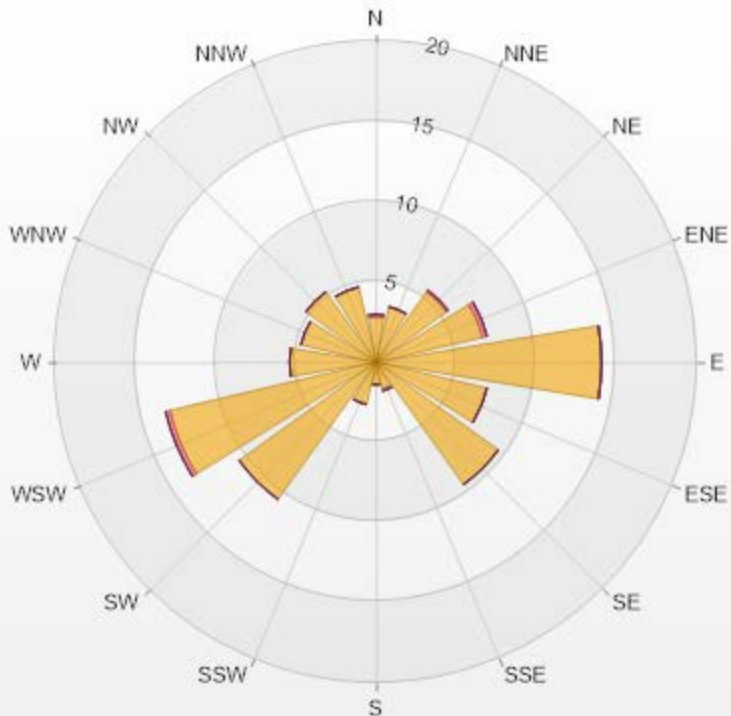
NO[ppb] Histogram: Cold Lake South Monthly: 12-2022 1 Hr.



Classes	NO
<=0	33.48%
0 - 10	63.12%
10 - 20	1.42%
20 - 30	0.99%
30 - 40	0.85%
40 - 50	0.14%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.76% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	2.84	0.14	0	0	0	2.98
NNE	3.55	0	0	0	0	3.55
NE	5.39	0.14	0	0	0	5.53
ENE	6.81	0.28	0	0	0	7.09
E	14.04	0	0	0	0	14.04
ESE	7.09	0	0	0	0	7.09
SE	9.36	0	0	0	0	9.36
SSE	1.7	0.14	0	0	0	1.84
S	1.42	0	0	0	0	1.42
SSW	2.7	0	0	0	0	2.7
SW	10.5	0	0	0	0	10.5
WSW	13.19	0.28	0	0	0	13.47
W	5.39	0	0	0	0	5.39
WNW	4.82	0	0	0	0	4.82
NW	5.39	0	0	0	0	5.39
NNW	4.82	0	0	0	0	4.82
Summary	99.01	0.98	0	0	0	100



LICA-202212

% Icon Classes (ppb)	99	0-30	1	30-50	0	50-76	0	76-159	0	>159.0
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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 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: 26 ppb on December 23 at hour 1

Hours in Service: 744

Maximum Daily Value: 15.4 ppb on December 22

Hours of Data: 705

Minimum Hourly Value: 0 ppb on December 4 at hour 17

Hours of Missing Data: 0

Minimum Daily Value: 1.6 ppb on December 4

Hours of Calibration: 39

Monthly Average: 5.8 ppb

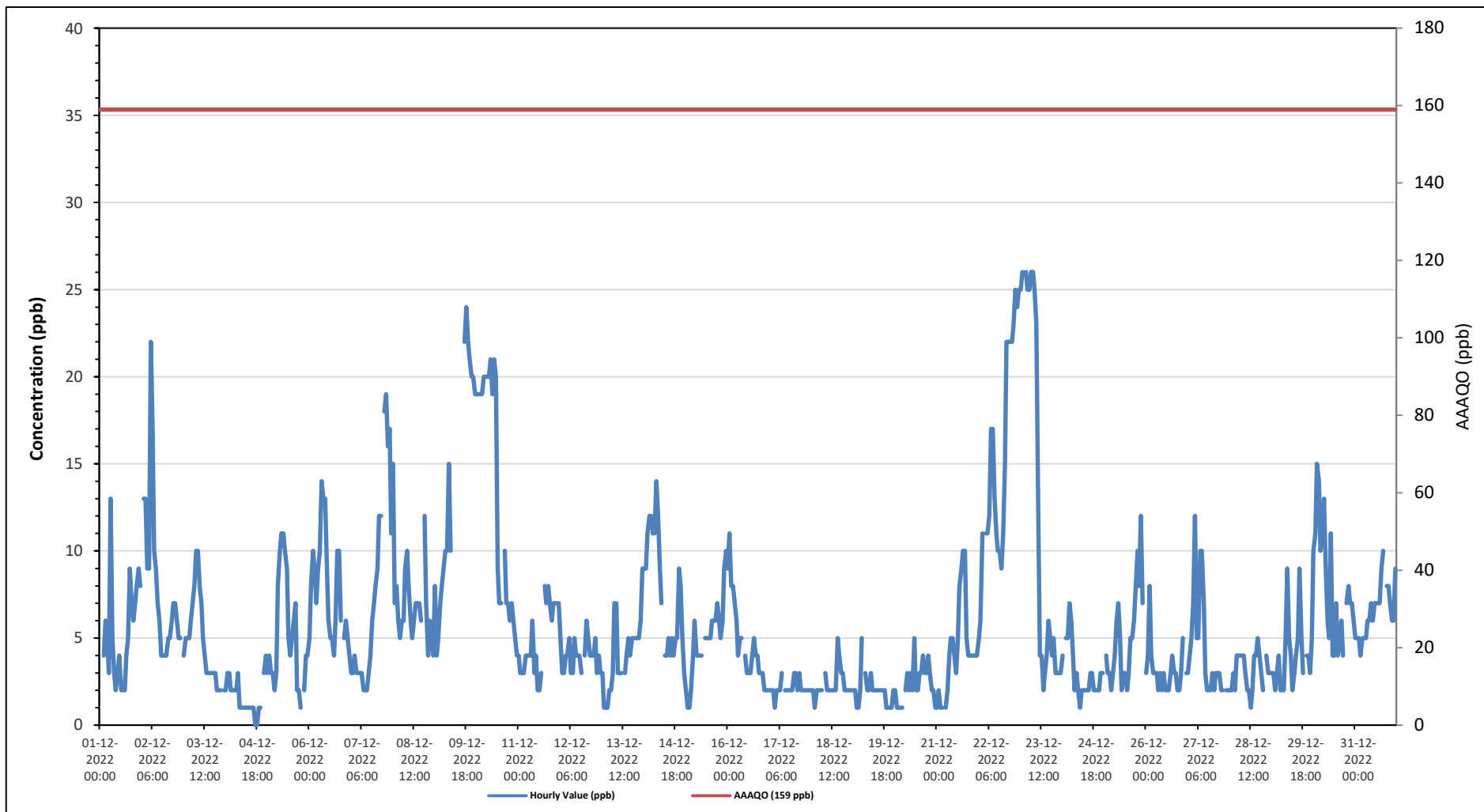
Operational Uptime: 100.0

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	
Dec 1	2	S	4	6	5	3	13	5	3	2	3	4	2	2	2	4	5	9	7	6	7	8	9	8	2	13	5.2	
Dec 2	S	13	13	9	9	22	17	10	9	7	6	4	4	4	4	5	5	6	7	7	6	5	5	S	4	22	8.0	
Dec 3	4	5	5	5	6	7	8	10	10	8	7	5	4	3	3	3	3	3	2	2	2	2	S	2	2	10	4.8	
Dec 4	2	3	3	2	2	2	2	3	1	1	1	1	1	1	1	1	0	0	1	1	S	3	4	0	4	1.6	1.6	
Dec 5	3	4	3	3	2	3	8	10	11	11	10	9	5	4	5	6	7	2	2	1	S	2	4	4	1	11	5.2	
Dec 6	5	8	10	9	7	9	10	14	13	13	9	6	5	5	4	6	10	10	6	S	5	6	5	4	4	14	7.8	
Dec 7	3	3	4	3	3	3	3	2	2	2	3	4	6	7	8	9	12	12	S	18	19	16	17	11	2	19	7.4	
Dec 8	15	7	8	6	5	6	6	9	10	8	6	5	6	7	7	7	6	S	12	7	4	6	5	4	4	15	7.0	
Dec 9	8	4	5	7	8	9	10	10	15	10	C	C	C	C	C	C	C	C	22	24	22	21	20	19	4	24	-	
Dec 10	19	19	19	19	20	20	20	20	21	19	21	20	9	7	7	S	10	7	7	6	7	6	5	4	4	21	13.6	
Dec 11	4	3	3	3	4	4	4	4	6	3	4	2	2	3	S	8	7	8	7	6	7	7	7	7	2	8	4.9	
Dec 12	5	3	3	4	4	5	3	3	5	4	4	4	3	S	4	6	5	4	4	4	4	5	3	4	3	6	4.0	
Dec 13	3	1	1	1	2	2	3	7	7	3	3	3	S	3	4	5	4	5	5	5	5	5	6	9	1	9	4.0	
Dec 14	9	9	11	12	12	11	11	14	12	9	7	S	4	4	5	4	5	4	5	5	9	8	5	3	3	14	7.7	
Dec 15	2	1	1	2	4	6	4	4	4	4	4	S	5	5	5	5	6	6	6	7	6	5	6	9	10	1	10	4.9
Dec 16	9	11	8	8	7	6	4	5	5	S	4	3	3	3	4	5	4	4	3	3	3	2	2	2	2	11	4.7	
Dec 17	2	2	2	1	2	2	2	2	3	S	2	2	2	2	2	3	2	3	2	2	2	2	2	2	1	3	2.1	
Dec 18	2	2	1	2	2	2	2	S	3	2	2	2	2	2	2	2	5	4	3	3	2	2	2	2	1	5	2.3	
Dec 19	2	2	1	1	2	5	S	3	2	2	3	2	2	2	2	2	2	2	2	2	1	1	1	1	2	5	2.0	
Dec 20	2	1	1	1	1	S	2	3	2	3	2	5	2	2	3	3	4	3	3	4	3	2	2	1	1	5	2.4	
Dec 21	1	2	1	1	S	1	2	4	5	5	4	3	5	8	9	10	10	5	4	4	4	4	4	4	1	10	4.3	
Dec 22	5	6	11	S	11	11	12	17	17	13	11	10	10	9	11	15	22	22	22	22	22	23	25	24	25	5	25	15.4
Dec 23	25	26	S	26	25	25	26	26	25	23	13	4	4	2	3	4	6	5	4	5	3	3	3	3	2	26	12.6	
Dec 24	4	S	5	5	7	6	4	2	3	2	1	2	2	2	2	3	3	2	2	2	2	2	3	3	1	7	3.0	
Dec 25	S	4	3	3	3	3	4	6	7	5	2	3	2	3	5	5	6	8	10	8	12	7	S	2	12	5.0		
Dec 26	3	4	8	4	3	3	3	2	3	2	3	2	2	2	3	4	3	3	2	2	3	5	S	3	2	8	3.1	
Dec 27	3	4	5	7	12	5	5	10	10	7	3	2	2	2	3	2	3	3	3	3	2	2	S	2	2	12	4.3	
Dec 28	2	2	3	2	4	4	4	4	4	3	2	2	1	2	4	4	5	4	3	2	S	4	3	3	1	5	3.1	
Dec 29	3	3	2	3	4	2	2	2	5	9	5	4	2	3	4	5	9	5	3	S	4	4	3	5	2	9	4.0	
Dec 30	10	11	15	14	10	11	13	9	6	5	11	4	4	7	4	5	6	4	S	7	8	7	7	6	4	15	8.0	
Dec 31	5	5	5	4	5	5	5	6	6	7	6	7	7	7	9	10	S	8	8	7	6	6	9	4	10	6.5		
Diurnal Maximum	25	26	19	26	25	25	26	26	25	23	21	20	10	9	11	15	22	22	24	22	23	25	24	25				
Diurnal Average	5.6	5.8	5.5	5.8	6.3	6.8	7.1	7.6	7.7	6.5	5.4	4.4	3.8	3.9	4.3	5.3	6.2	6.0	5.8	5.9	6.1	6.2	6.0	5.7				

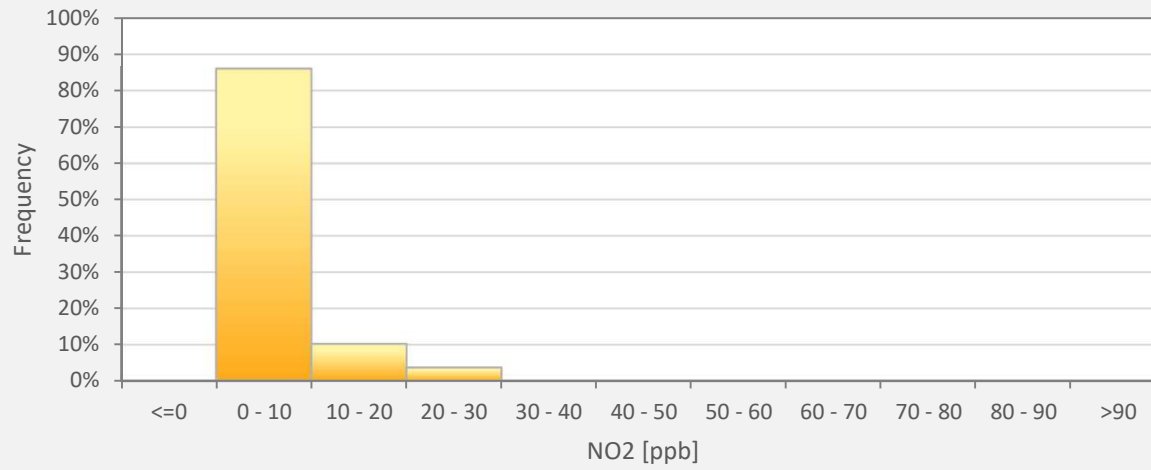
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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 NO2 - Cold Lake South Station



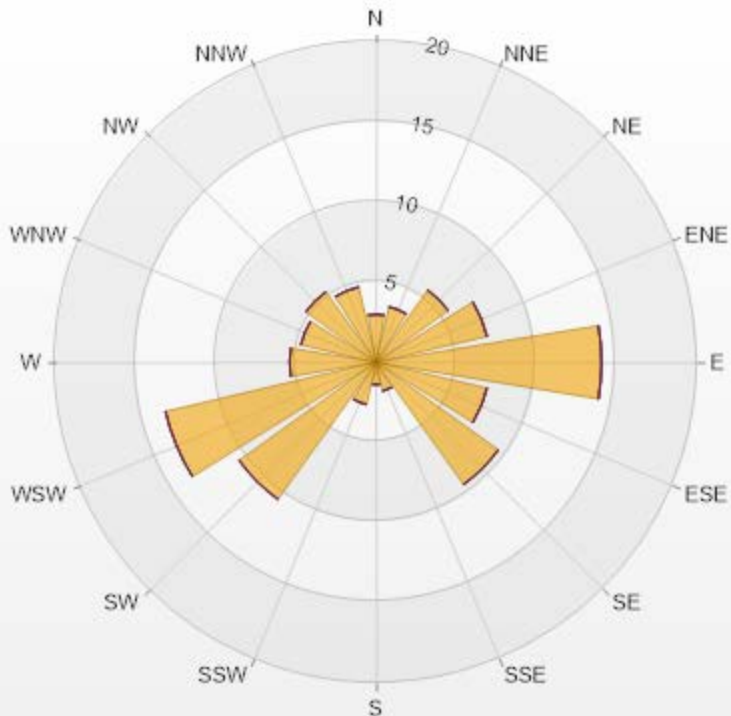
NO2[ppb] Histogram: Cold Lake South Monthly: 12-2022 1 Hr.



Classes	NO2
<=0	0.00%
0 - 10	86.10%
10 - 20	10.21%
20 - 30	3.69%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.76% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	2.98	0	0	0	0	2.98
NNE	3.55	0	0	0	0	3.55
NE	5.53	0	0	0	0	5.53
ENE	7.09	0	0	0	0	7.09
E	14.04	0	0	0	0	14.04
ESE	7.09	0	0	0	0	7.09
SE	9.36	0	0	0	0	9.36
SSE	1.84	0	0	0	0	1.84
S	1.42	0	0	0	0	1.42
SSW	2.7	0	0	0	0	2.7
SW	10.5	0	0	0	0	10.5
WSW	13.48	0	0	0	0	13.48
W	5.39	0	0	0	0	5.39
WNW	4.82	0	0	0	0	4.82
NW	5.39	0	0	0	0	5.39
NNW	4.82	0	0	0	0	4.82
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



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 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:	42.6 ppb on December 4 at hour 11	Hours in Service:	744
Maximum Daily Value:	38.2 ppb on December 4	Hours of Data:	706
Minimum Hourly Value:	0.1 ppb on December 9 at hour 19	Hours of Missing Data:	0
Minimum Daily Value:	8.4 ppb on December 9	Hours of Calibration:	38
Monthly Average:	26.3 ppb	Operational Uptime:	100.0

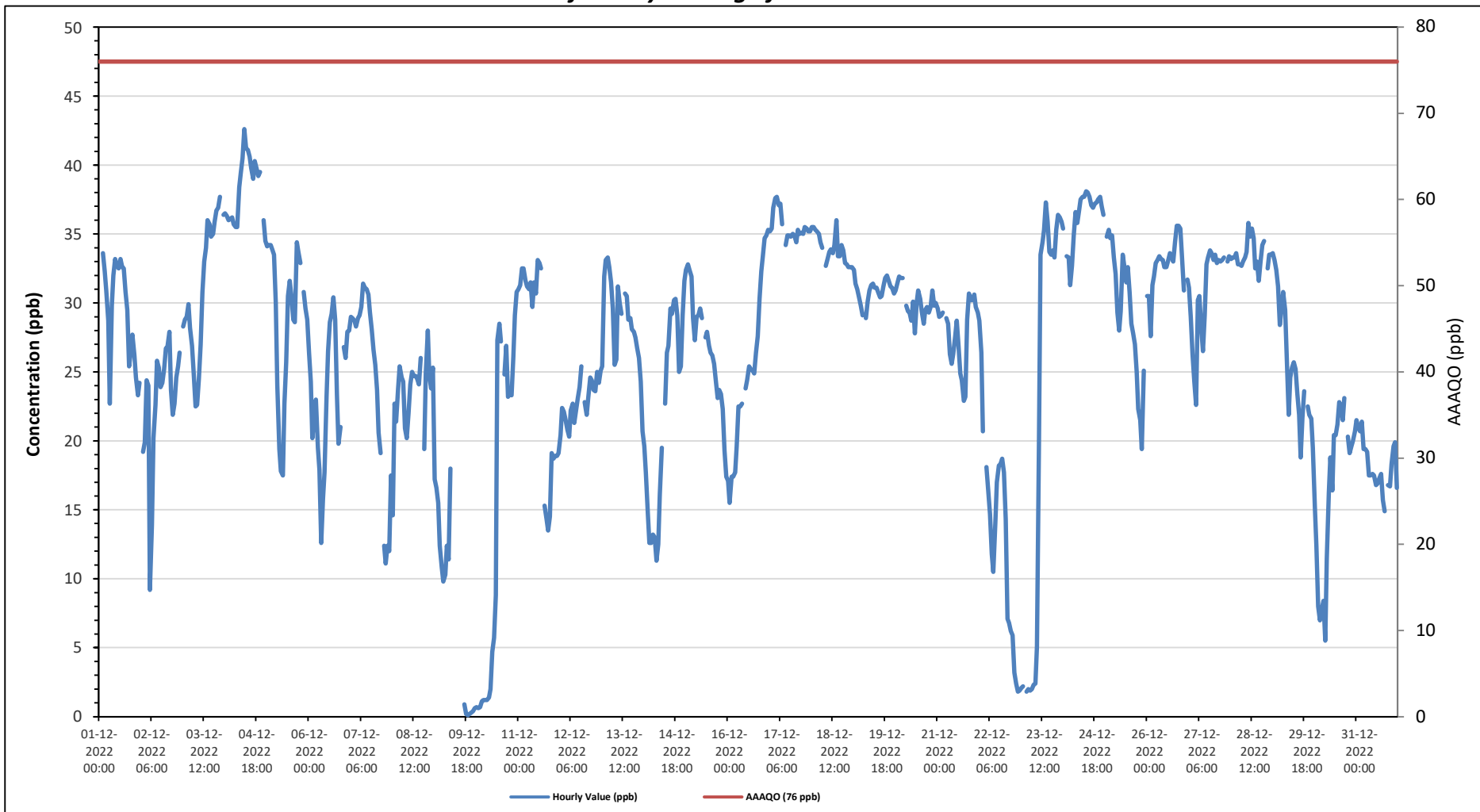
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Dec 1	36.8	S	33.6	32.3	30.9	28.7	22.7	29.8	32	33.2	32.7	32.5	33.2	32.6	32.5	30.8	29.5	25.4	26.5	27.7	26.2	24.6	23.3	24.2	22.7	36.8	29.6
Dec 2	S	19.2	19.9	24.4	24	9.2	13.9	20.2	22.6	25.8	25.3	23.9	24.2	25.2	26.7	26.8	27.9	23.7	21.9	22.7	24.6	25.4	26.4	S	9.2	27.9	22.9
Dec 3	28.3	28.8	29	29.9	28.2	26.9	25.1	22.5	22.6	24.5	27	30.8	33	34	36	35.7	34.8	35	35.9	36.7	36.9	37.7	S	36.4	22.5	37.7	31.1
Dec 4	36.5	36.3	36	36.1	36.2	35.7	35.5	35.5	38.4	39.4	40.5	42.6	41.2	41.1	40.6	39.8	39	40.3	39.7	39.2	39.5	S	36	34.5	34.5	42.6	38.2
Dec 5	34.1	34.2	34.2	33.9	33.5	30	24	19.4	17.8	17.5	22.7	25.7	30.5	31.6	30.4	28.8	28.6	34.4	33.7	32.9	S	30.8	29.6	28.8	17.5	34.4	29.0
Dec 6	26.4	24.3	20.2	21.9	23	19.5	17.9	12.6	15.8	17.7	23.2	26.5	28.6	29.2	30.4	28.8	23.3	19.8	21	S	26.8	26	27.9	28	12.6	30.4	23.4
Dec 7	29	28.9	28.7	28.3	28.9	29.1	29.7	31.4	31.1	31	30.6	29.3	28.1	26.6	25.5	23.7	20.6	19.1	S	12.4	11.1	12.4	12	17.5	11.1	31.4	24.6
Dec 8	14.6	22.7	21.4	23.8	25.4	24.6	24.3	20.9	20.2	22	24.1	25	24.7	24.7	24.5	24.1	26	S	19.4	24.9	28	24.7	23.8	25.3	14.6	28.0	23.4
Dec 9	17.2	16.6	15.5	12.4	10.8	9.8	10.3	12.4	11.4	18	C	C	C	C	C	13.7	S	0.9	0.2	0.1	0.2	0.3	0.4	0.6	0.1	18.0	8.4
Dec 10	0.7	0.6	0.7	1.1	1.2	1.2	1.2	1.4	2	4.7	5.7	8.8	27.3	28.5	27.2	S	24.8	26.9	23.2	23.4	23.3	26.1	29.1	30.8	0.6	30.8	13.9
Dec 11	31	31.3	32.5	32.5	31.6	31.2	31	31.5	29.7	31.5	30.7	33.1	32.9	32.5	S	15.3	14.3	13.5	14.5	19.1	18.7	18.9	18.9	19.1	13.5	33.1	25.9
Dec 12	20.4	22.4	22.1	21.5	20.8	20.3	22.2	22.7	21.3	22.2	23.1	23.9	25.4	S	22.8	21.9	23.1	24.6	24.4	23.7	23.6	25	24.2	25.1	20.3	25.4	22.9
Dec 13	25.4	31.9	33.1	33.3	32.6	31.5	29.6	25.5	25.9	31.2	30	29.2	S	30.7	30.5	28.8	28.9	28.1	27.9	27.5	26.7	26	24.3	20.7	20.7	33.3	28.7
Dec 14	19.6	17.7	14.7	12.6	12.6	13.2	13	11.3	12.5	16.1	19.5	S	22.7	26.4	26.9	29.6	29.2	30.2	30.3	29.1	25	25.4	29.1	31.6	11.3	31.6	21.7
Dec 15	32.4	32.8	32.4	31.9	28.9	27.3	29	29.1	29.6	28.9	S	27.5	27.9	26.9	26.4	26.2	25.6	24.5	23.1	23.7	23.4	22.3	19.3	17.4	17.4	32.8	26.8
Dec 16	17.1	15.5	17.4	17.4	17.7	19.6	22.5	22.5	22.7	S	23.8	24.4	25.4	25.2	25.1	24.9	26.4	27.6	30.3	32.3	33.4	34.7	34.9	35.3	15.5	35.3	25.0
Dec 17	35.2	35.4	36.9	37.6	37.7	37.1	37.2	35.7	S	34.2	34.9	34.9	34.8	35	34.9	34.4	35.3	35	35.1	35	35.5	35.4	35.2	35.2	34.2	37.7	35.5
Dec 18	35.5	35.5	35.3	35.2	35	34.4	34	S	32.7	33.2	33.7	33.9	33.6	34.2	36	33.4	33.4	34.2	33.8	32.9	32.8	32.6	32.6	32.6	32.6	36.0	33.9
Dec 19	32.4	31.4	31	30.4	29.8	29.1	S	28.9	30.1	30.9	31.3	31.4	31.1	31.1	30.8	30.4	30.5	31.2	31.8	32	31.6	31.2	31.1	30.7	28.9	32.4	30.9
Dec 20	30.9	31.5	31.9	31.8	31.8	S	29.8	29.4	29.3	28.7	30.1	27.8	30	30.9	30.3	29.4	28.5	29.5	29.7	29.3	29.7	30.9	29.8	30	27.8	31.9	30.0
Dec 21	29.6	29	29.1	29.3	S	28.9	28.5	26.3	25.6	26.3	27.6	28.7	26.9	24.9	24.4	22.9	23.2	28.8	30.7	30.2	30.2	30.6	29.7	29.3	22.9	30.7	27.9
Dec 22	28.7	26.4	20.7	S	18.1	16.4	14.7	11.8	10.5	14	17	18.2	18.3	18.7	17.7	14.3	7.1	6.8	6.2	5.9	3.2	2.4	1.8	1.9	1.8	28.7	13.1
Dec 23	2.1	2.2	S	1.8	2	1.9	2	2.3	2.4	5.1	20	33.5	34.4	35.3	37.3	35.9	33.7	33.5	33.8	33.3	35.3	36.4	36.2	35.9	1.8	37.3	21.6
Dec 24	35.4	S	33.4	33.3	31.3	32.7	34.9	36.6	35.8	36.7	37.5	37.7	37.7	38.1	38	37.7	37.1	36.9	37.2	37.3	37.5	37.7	37	36.4	31.3	38.1	36.3
Dec 25	S	34.8	35.3	34.7	34.9	33.3	32.1	29.3	28	29.4	33.5	32.7	31.5	32.6	30.8	28.5	27.8	27	25	22.3	21.5	19.4	25.1	S	19.4	35.3	29.5
Dec 26	30.5	30.5	27.6	31.3	31.9	32.9	33.1	33.4	33.2	33.1	32.6	32.6	33	33.6	33.4	33	34.4	35.6	35.6	35.4	33.5	30.9	S	31.7	27.6	35.6	32.7
Dec 27	31.1	29	26.3	24.3	22.6	30.2	30.5	28.3	26.5	29.1	32.8	33.3	33.8	33.6	33.1	33.5	32.9	33.1	33	33.1	33.3	S	33	33.4	22.6	33.8	30.9
Dec 28	33.2	33.3	33.3	33.6	32.8	32.8	32.7	33	33.3	33.7	35.8	34.8	35.4	34.7	32.5	33	31.6	33	34.2	34.5	S	32.5	33.5	33.5	31.6	35.8	33.5
Dec 29	33.6	33.1	32.4	31.2	28.4	29.7	30.8	29.5	26.2	21.9	24.6	25.3	25.7	25.2	23.4	21.9	18.8	21.7	23.6	S	22.5	21.9	21.6	19.5	18.8	33.6	25.8
Dec 30	15.2	12.4	8	7	7.8	8.4	5.5	11.5	16.2	18.8	16.4	20.4	20.4	21.2	22.8	22.5	21.5	23.1	S	20.3	19.1	19.6	20	20.7	5.5	23.1	16.5
Dec 31	21.5	20.9	20.7	21.4	19.4	19.4	19.2	17.5	17.5	17.6	17.5	16.8	16.9	17.3	17.6	15.7	14.9	S	16.8	16.7	18.3	19.6	19.9	16.6	14.9	21.5	18.2
Diurnal Maximum	37	36	37	38	38	37	37	37	38	39	41	43	41	41	41	40	39	40	40	39	40	38	37	36			
Diurnal Average	26.4	25.8	26.4	25.9	25.0	24.2	23.9	23.4	23.4	25.2	27.0	28.5	29.3	29.7	29.3	27.5	27.1	27.0	26.8	26.7	25.9	25.6	25.7	26.3			

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

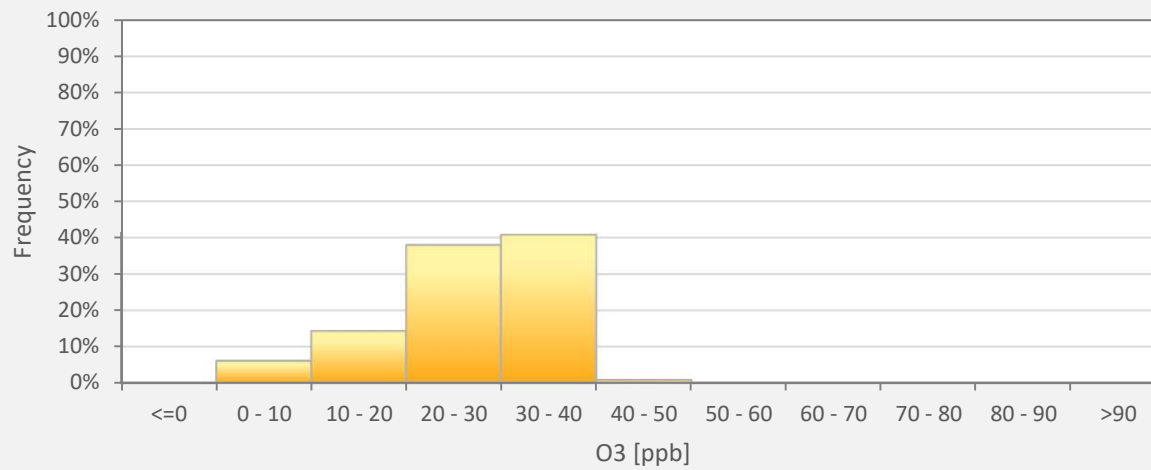
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

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



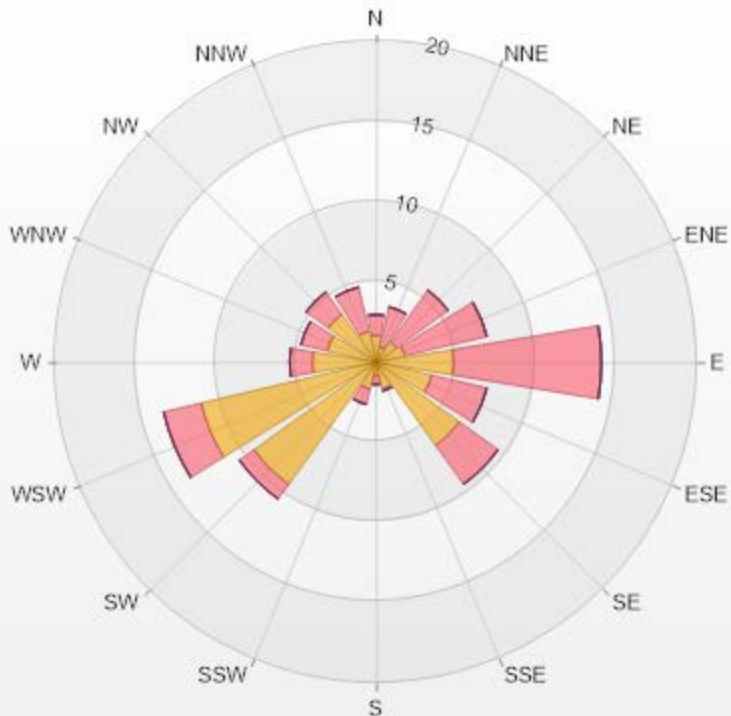
O3[ppb] Histogram: Cold Lake South Monthly: 12-2022 1 Hr.



Classes	O3
<=0	0.00%
0 - 10	6.09%
10 - 20	14.31%
20 - 30	37.96%
30 - 40	40.79%
40 - 50	0.85%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	1.7	1.27	0	0	0	2.97
NNE	0.99	2.55	0	0	0	3.54
NE	1.56	3.97	0	0	0	5.53
ENE	1.84	5.24	0	0	0	7.08
E	4.82	9.21	0	0	0	14.03
ESE	3.54	3.54	0	0	0	7.08
SE	6.37	2.97	0	0	0	9.34
SSE	1.7	0.14	0	0	0	1.84
S	0.85	0.57	0	0	0	1.42
SSW	1.7	0.99	0	0	0	2.69
SW	9.35	1.13	0	0	0	10.48
WSW	11.19	2.41	0	0	0	13.6
W	3.97	1.42	0	0	0	5.39
WNW	3.12	1.7	0	0	0	4.82
NW	3.68	1.7	0	0	0	5.38
NNW	1.98	2.83	0	0	0	4.81
Summary	58.36	41.64	0	0	0	100



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% Icon Classes (ppb)	58	0-30	42	30-50	0	50-76	0	76-159	0	>159.0
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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 2022
Summary of Hourly Averages

TOTAL HYDROCARBONS (THC) in ppm

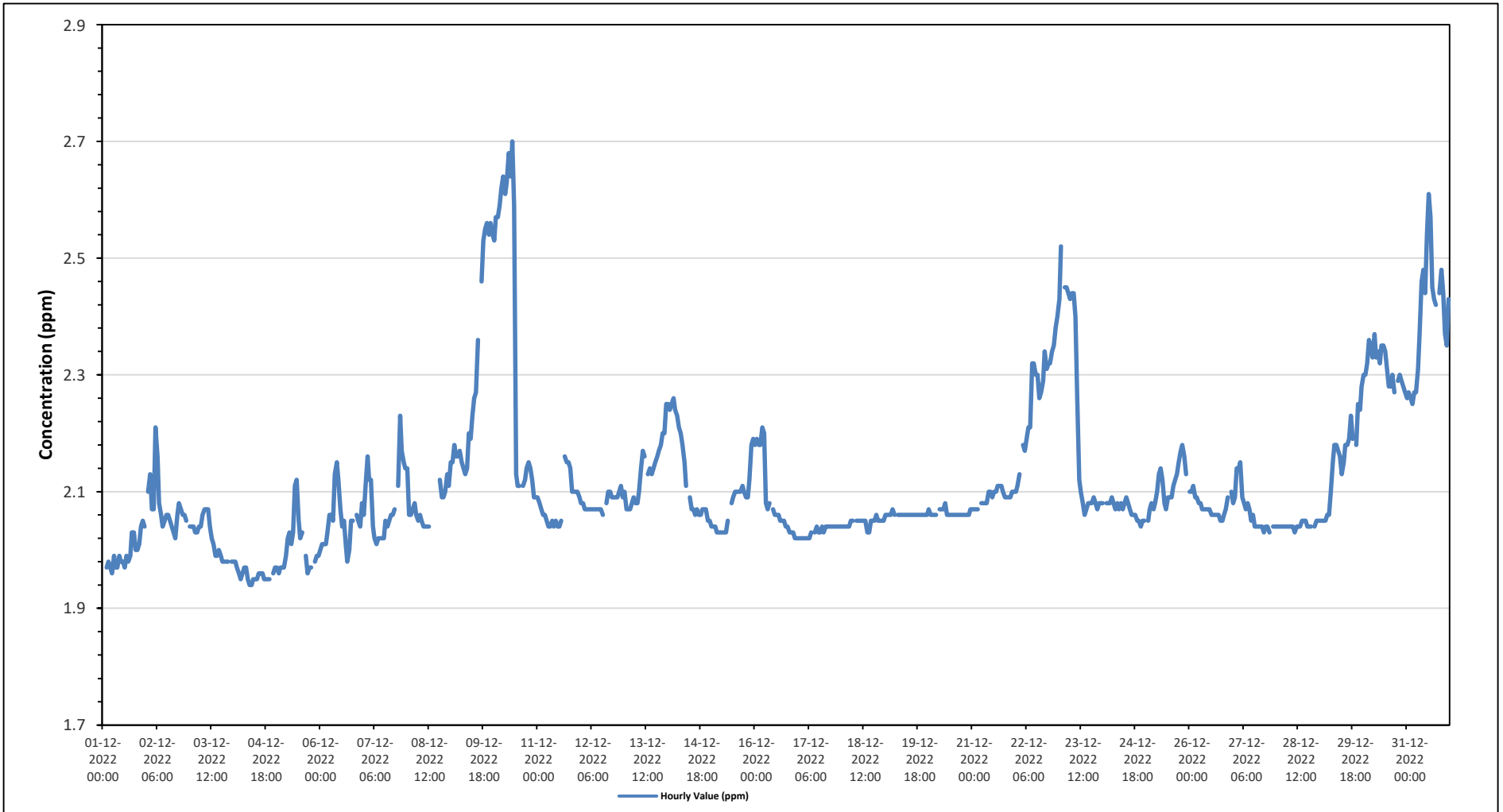
Maximum Hourly Value:	2.70 ppm on December 10 at hour 10	Hours in Service:	744
Maximum Daily Value:	2.40 ppm on December 31	Hours of Data:	706
Minimum Hourly Value:	1.94 ppm on December 4 at hour 9	Hours of Missing Data:	1
Minimum Daily Value:	1.96 ppm on December 4	Hours of Calibration:	37
Monthly Average:	2.11 ppm	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	
Dec 1	1.96	S	1.97	1.98	1.97	1.96	1.99	1.97	1.97	1.99	1.98	1.98	1.97	1.99	1.98	1.99	2.03	2.03	2.00	2.00	2.01	2.04	2.05	2.04	1.96	2.05	1.99	
Dec 2	S	2.10	2.13	2.07	2.07	2.21	2.16	2.08	2.06	2.04	2.05	2.06	2.06	2.05	2.04	2.03	2.02	2.06	2.08	2.07	2.06	2.06	2.05	S	2.02	2.21	2.07	
Dec 3	2.04	2.04	2.04	2.03	2.03	2.04	2.04	2.06	2.07	2.07	2.07	2.04	2.02	2.01	1.99	1.99	2.00	1.99	1.98	1.98	1.98	1.98	S	1.98	1.98	2.07	2.02	
Dec 4	1.98	1.98	1.97	1.96	1.95	1.96	1.97	1.97	1.95	1.94	1.94	1.95	1.95	1.95	1.96	1.96	1.96	1.95	1.95	1.95	1.95	S	1.96	1.97	1.94	1.98	1.96	
Dec 5	1.97	1.96	1.97	1.97	1.97	1.99	2.02	2.03	2.01	2.03	2.11	2.12	2.05	2.02	2.03	NRM	1.99	1.96	1.97	1.97	S	1.98	1.99	1.99	1.96	2.12	2.00	
Dec 6	2.00	2.01	2.01	2.01	2.03	2.06	2.06	2.05	2.13	2.15	2.12	2.07	2.04	2.05	2.01	1.98	2.00	2.05	2.05	S	2.06	2.05	2.04	2.08	1.98	2.15	2.05	
Dec 7	2.06	2.11	2.16	2.12	2.12	2.04	2.02	2.01	2.02	2.02	2.02	2.02	2.05	2.04	2.05	2.06	2.06	2.07	S	2.11	2.23	2.17	2.15	2.14	2.01	2.23	2.08	
Dec 8	2.14	2.06	2.06	2.07	2.08	2.06	2.05	2.06	2.05	2.04	2.04	2.04	2.04	C	C	C	C	C	C	2.12	2.09	2.09	2.10	2.13	2.11	2.04	2.14	2.08
Dec 9	2.15	2.15	2.18	2.16	2.16	2.17	2.15	2.14	2.13	2.14	2.20	2.19	2.23	2.26	2.27	2.36	S	2.46	2.53	2.55	2.56	2.54	2.56	2.54	2.13	2.56	2.29	
Dec 10	2.53	2.57	2.57	2.59	2.62	2.64	2.61	2.63	2.68	2.64	2.70	2.59	2.13	2.11	2.11	S	2.11	2.12	2.14	2.15	2.14	2.12	2.09	2.09	2.09	2.70	2.38	
Dec 11	2.09	2.08	2.07	2.06	2.06	2.05	2.04	2.04	2.05	2.04	2.05	2.04	2.04	2.05	S	2.16	2.15	2.15	2.14	2.10	2.10	2.10	2.10	2.09	2.04	2.16	2.08	
Dec 12	2.08	2.08	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.06	S	2.08	2.10	2.10	2.09	2.09	2.09	2.09	2.10	2.11	2.09	2.06	2.11	2.08	
Dec 13	2.10	2.07	2.07	2.07	2.08	2.09	2.08	2.08	2.10	2.14	2.17	2.16	S	2.13	2.14	2.13	2.14	2.15	2.16	2.17	2.18	2.20	2.20	2.25	2.07	2.25	2.13	
Dec 14	2.25	2.24	2.25	2.26	2.24	2.23	2.21	2.20	2.18	2.15	2.11	S	2.09	2.07	2.07	2.06	2.07	2.06	2.06	2.07	2.07	2.07	2.05	2.05	2.05	2.05	2.26	2.14
Dec 15	2.04	2.04	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.05	S	2.08	2.09	2.10	2.10	2.10	2.10	2.11	2.10	2.09	2.09	2.12	2.18	2.19	2.03	2.19	2.08	
Dec 16	2.18	2.19	2.18	2.18	2.21	2.20	2.08	2.07	2.08	S	2.07	2.06	2.06	2.06	2.05	2.05	2.05	2.04	2.04	2.04	2.03	2.03	2.02	2.02	2.02	2.21	2.09	
Dec 17	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.03	S	2.03	2.04	2.03	2.03	2.04	2.03	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.02	2.04	2.03	
Dec 18	2.04	2.04	2.04	2.04	2.04	2.05	2.05	S	2.05	2.05	2.05	2.05	2.05	2.05	2.03	2.03	2.05	2.05	2.05	2.06	2.05	2.05	2.05	2.05	2.03	2.06	2.05	
Dec 19	2.06	2.06	2.06	2.06	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	2.06	2.06	2.06	2.07	2.06	
Dec 20	2.07	2.06	2.06	2.06	2.06	S	2.07	2.07	2.07	2.08	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	2.06	2.08	2.06	
Dec 21	2.07	2.07	2.07	2.07	S	2.08	2.08	2.08	2.08	2.10	2.10	2.09	2.10	2.10	2.11	2.11	2.11	2.10	2.09	2.09	2.09	2.09	2.10	2.10	2.07	2.11	2.09	
Dec 22	2.10	2.11	2.13	S	2.18	2.17	2.19	2.21	2.21	2.32	2.32	2.30	2.30	2.26	2.27	2.29	2.34	2.31	2.32	2.32	2.34	2.35	2.38	2.40	2.10	2.40	2.27	
Dec 23	2.43	2.52	S	2.45	2.45	2.44	2.43	2.44	2.44	2.40	2.26	2.12	2.10	2.08	2.06	2.07	2.08	2.08	2.08	2.09	2.08	2.07	2.08	2.08	2.06	2.52	2.23	
Dec 24	2.08	S	2.08	2.08	2.08	2.09	2.08	2.07	2.08	2.07	2.08	2.07	2.08	2.09	2.08	2.07	2.06	2.06	2.06	2.05	2.05	2.04	2.05	2.05	2.04	2.09	2.07	
Dec 25	S	2.05	2.07	2.08	2.07	2.08	2.10	2.13	2.14	2.12	2.08	2.07	2.09	2.09	2.09	2.11	2.12	2.13	2.15	2.17	2.18	2.16	2.13	S	2.05	2.18	2.11	
Dec 26	2.10	2.10	2.11	2.09	2.09	2.08	2.08	2.07	2.07	2.07	2.07	2.07	2.06	2.06	2.06	2.06	2.06	2.05	2.05	2.06	2.07	2.09	S	2.10	2.05	2.11	2.07	
Dec 27	2.08	2.09	2.14	2.14	2.15	2.09	2.08	2.07	2.08	2.07	2.05	2.06	2.04	2.04	2.04	2.04	2.04	2.03	2.04	2.04	2.03	S	2.04	2.04	2.03	2.15	2.07	
Dec 28	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.03	2.04	2.04	2.04	2.05	2.05	2.05	2.04	2.04	2.04	2.04	S	2.04	2.05	2.05	2.03	2.05	2.04
Dec 29	2.05	2.05	2.05	2.05	2.06	2.06	2.10	2.15	2.18	2.18	2.17	2.16	2.13	2.15	2.18	2.18	2.19	2.23	2.19	S	2.18	2.25	2.24	2.28	2.05	2.28	2.15	
Dec 30	2.30	2.30	2.32	2.36	2.35	2.33	2.37	2.33	2.34	2.32	2.35	2.35	2.34	2.31	2.28	2.28	2.30	2.27	S	2.29	2.30	2.29	2.28	2.27	2.27	2.37	2.31	
Dec 31	2.26	2.27	2.26	2.25	2.27	2.27	2.31	2.37	2.46	2.48	2.44	2.54	2.61	2.57	2.45	2.43	2.42	S	2.44	2.48	2.44	2.37	2.35	2.43	2.25	2.61	2.40	
Diurnal Maximum	2.53	2.57	2.57	2.59	2.62	2.64	2.61	2.63	2.68	2.64	2.70	2.59	2.61	2.57	2.45	2.43	2.42	2.46	2.53	2.55	2.56	2.54	2.56	2.54	2.06	2.54	2.29	
Diurnal Average	2.11	2.12	2.11	2.11	2.12	2.12	2.12	2.12	2.13	2.13	2.13	2.12	2.10	2.10	2.09	2.10	2.10	2.10	2.11	2.11	2.12	2.12	2.12	2.13	2.06	2.11	2.08	

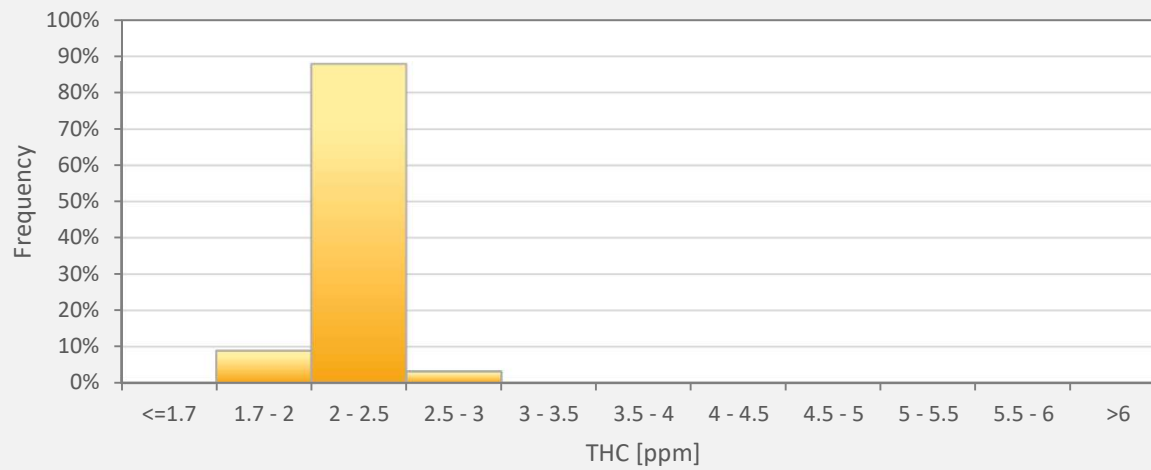
C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	N No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction/Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

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



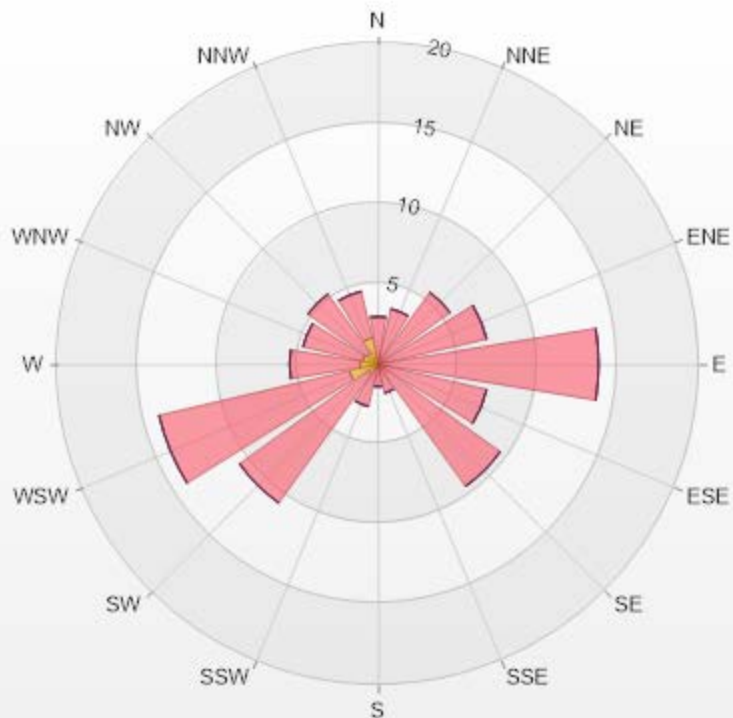
THC55[ppm] Histogram: Cold Lake South Monthly: 12-2022 1 Hr.



Classes	THC55
<=1.7	0.00%
1.7 - 2	8.92%
2 - 2.5	87.96%
2.5 - 3	3.12%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppm]

Direction	0-2	2-3	3-10	10-40	>40.0	Total
N	0.42	2.55	0	0	0	2.97
NNE	0	3.54	0	0	0	3.54
NE	0	5.52	0	0	0	5.52
ENE	0.28	6.66	0	0	0	6.94
E	0	13.74	0	0	0	13.74
ESE	0.42	6.52	0	0	0	6.94
SE	0.28	9.07	0	0	0	9.35
SSE	0	1.84	0	0	0	1.84
S	0.14	1.27	0	0	0	1.41
SSW	0.14	2.55	0	0	0	2.69
SW	0.71	9.92	0	0	0	10.63
WSW	1.84	12.18	0	0	0	14.02
W	1.13	4.39	0	0	0	5.52
WNW	0.99	3.82	0	0	0	4.81
NW	0.85	4.53	0	0	0	5.38
NNW	1.7	2.97	0	0	0	4.67
Summary	8.9	91.07	0	0	0	100



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% Icon Classes (ppm)

9 0-2

91 2-3

0 3-10

0 10-40

0 >40.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 2022

Summary of Hourly Averages

METHANE (CH4) in ppm

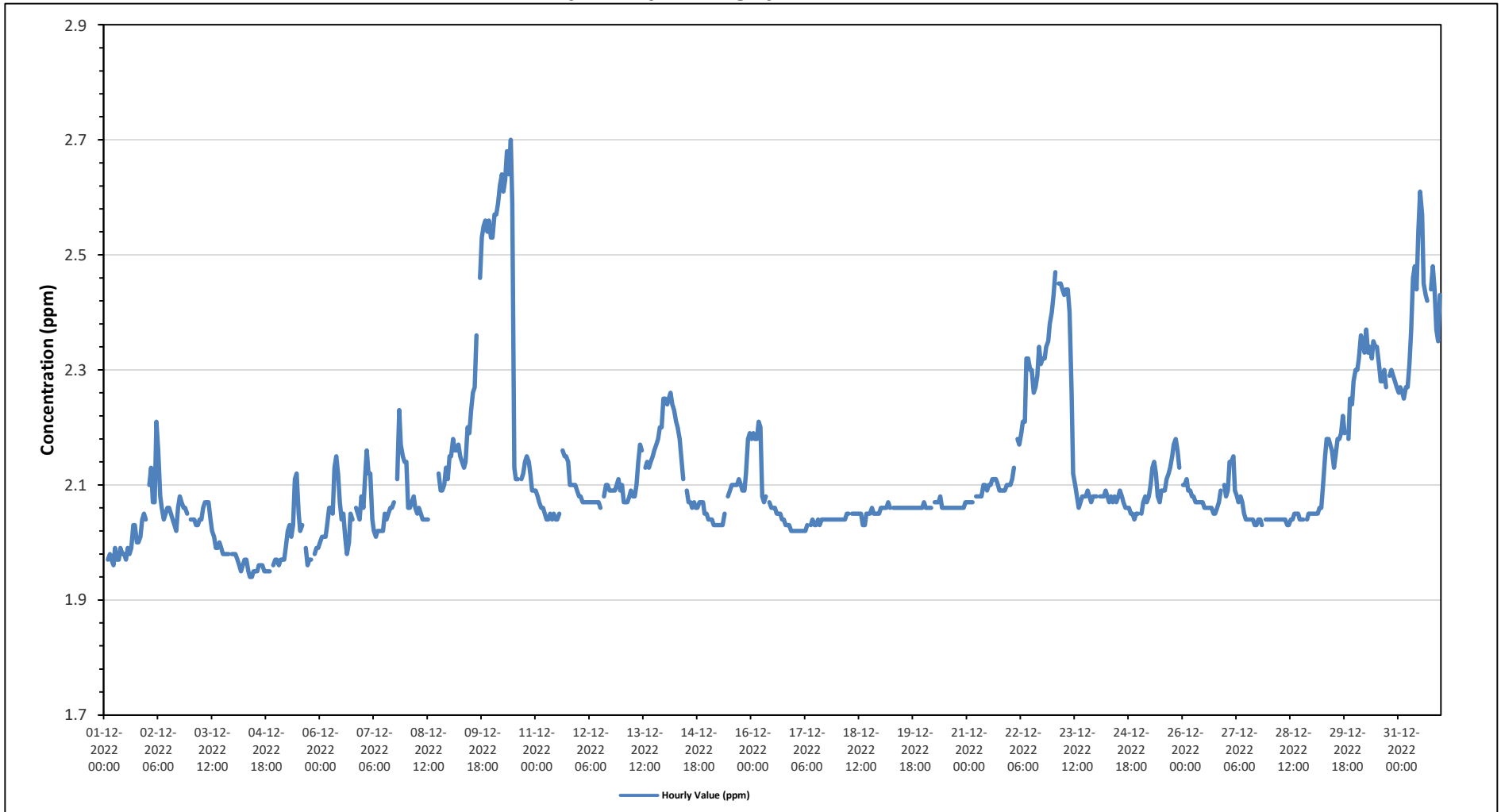
Maximum Hourly Value: 2.70 ppm on December 10 at hour 10	Hours in Service: 744
Maximum Daily Value: 2.40 ppm on December 31	Hours of Data: 706
Minimum Hourly Value: 1.94 ppm on December 4 at hour 9	Hours of Missing Data: 1
Minimum Daily Value: 1.96 ppm on December 4	Hours of Calibration: 37
Monthly Average: 2.11 ppm	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	
Dec 1	1.96	S	1.97	1.98	1.97	1.96	1.99	1.97	1.97	1.99	1.98	1.98	1.97	1.99	1.98	1.99	2.03	2.03	2.00	2.00	2.01	2.04	2.05	2.04	1.96	2.05	1.99	
Dec 2	S	2.10	2.13	2.07	2.07	2.21	2.16	2.08	2.06	2.04	2.05	2.06	2.06	2.05	2.04	2.03	2.02	2.06	2.08	2.07	2.06	2.06	2.05	S	2.02	2.21	2.07	
Dec 3	2.04	2.04	2.04	2.03	2.03	2.04	2.04	2.06	2.07	2.07	2.07	2.04	2.02	2.01	1.99	1.99	2.00	1.99	1.98	1.98	1.98	1.98	S	1.98	1.98	2.07	2.02	
Dec 4	1.98	1.98	1.97	1.96	1.95	1.96	1.97	1.97	1.95	1.94	1.94	1.95	1.95	1.95	1.96	1.96	1.96	1.95	1.95	1.95	1.95	S	1.96	1.97	1.94	1.98	1.96	
Dec 5	1.97	1.96	1.97	1.97	1.97	1.99	2.02	2.03	2.01	2.03	2.11	2.12	2.05	2.02	2.03	NRM	1.99	1.96	1.97	1.97	S	1.98	1.99	1.99	1.96	2.12	2.00	
Dec 6	2.00	2.01	2.01	2.01	2.03	2.06	2.06	2.05	2.13	2.15	2.12	2.07	2.04	2.05	2.01	1.98	2.00	2.05	2.04	S	2.06	2.05	2.04	2.08	1.98	2.15	2.05	
Dec 7	2.06	2.11	2.16	2.12	2.12	2.04	2.02	2.01	2.02	2.02	2.02	2.02	2.05	2.04	2.05	2.06	2.06	2.07	S	2.11	2.23	2.17	2.15	2.14	2.01	2.23	2.08	
Dec 8	2.14	2.06	2.06	2.07	2.08	2.06	2.05	2.06	2.05	2.04	2.04	2.04	2.04	C	C	C	C	C	C	2.12	2.09	2.09	2.10	2.13	2.11	2.04	2.14	2.08
Dec 9	2.15	2.15	2.18	2.16	2.16	2.17	2.15	2.14	2.13	2.14	2.20	2.19	2.23	2.26	2.27	2.36	S	2.46	2.53	2.55	2.56	2.54	2.56	2.53	2.13	2.56	2.29	
Dec 10	2.53	2.57	2.57	2.59	2.62	2.64	2.61	2.63	2.68	2.64	2.70	2.59	2.13	2.11	2.11	S	2.11	2.12	2.14	2.15	2.14	2.12	2.09	2.09	2.09	2.70	2.38	
Dec 11	2.09	2.08	2.07	2.06	2.06	2.05	2.04	2.04	2.05	2.04	2.05	2.04	2.04	2.05	S	2.16	2.15	2.15	2.14	2.10	2.10	2.10	2.10	2.09	2.04	2.16	2.08	
Dec 12	2.08	2.08	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.06	S	2.08	2.10	2.10	2.09	2.09	2.09	2.09	2.10	2.11	2.09	2.06	2.11	2.08
Dec 13	2.10	2.07	2.07	2.07	2.08	2.09	2.08	2.08	2.10	2.14	2.17	2.16	S	2.13	2.14	2.13	2.14	2.15	2.16	2.17	2.18	2.20	2.20	2.25	2.07	2.25	2.13	
Dec 14	2.25	2.24	2.25	2.26	2.24	2.23	2.21	2.20	2.18	2.15	2.11	S	2.09	2.07	2.07	2.06	2.07	2.06	2.06	2.07	2.07	2.07	2.05	2.05	2.05	2.05	2.26	2.14
Dec 15	2.04	2.04	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.05	S	2.08	2.09	2.10	2.10	2.10	2.10	2.11	2.10	2.09	2.09	2.12	2.18	2.19	2.03	2.19	2.08	
Dec 16	2.18	2.19	2.18	2.18	2.21	2.20	2.08	2.07	2.08	S	2.07	2.06	2.06	2.06	2.05	2.05	2.05	2.04	2.04	2.04	2.03	2.03	2.02	2.02	2.02	2.21	2.09	
Dec 17	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.07	S	2.03	2.04	2.03	2.03	2.04	2.03	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.02	2.04	2.03	
Dec 18	2.04	2.04	2.04	2.04	2.04	2.05	2.05	S	2.05	2.05	2.05	2.05	2.05	2.05	2.03	2.03	2.05	2.05	2.05	2.06	2.05	2.05	2.05	2.05	2.03	2.06	2.05	
Dec 19	2.06	2.06	2.06	2.06	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	2.06	2.06	2.06	2.07	2.06	
Dec 20	2.07	2.06	2.06	2.06	2.06	S	2.07	2.07	2.07	2.08	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	2.06	2.08	2.06	
Dec 21	2.07	2.07	2.07	2.07	S	2.08	2.08	2.08	2.08	2.10	2.10	2.09	2.10	2.10	2.11	2.11	2.11	2.10	2.09	2.09	2.09	2.09	2.10	2.10	2.07	2.11	2.09	
Dec 22	2.10	2.11	2.13	S	2.18	2.17	2.19	2.21	2.21	2.32	2.32	2.30	2.30	2.26	2.27	2.29	2.34	2.31	2.32	2.32	2.34	2.35	2.38	2.40	2.10	2.40	2.27	
Dec 23	2.43	2.47	S	2.45	2.45	2.44	2.43	2.44	2.44	2.40	2.26	2.12	2.10	2.08	2.06	2.07	2.08	2.08	2.08	2.09	2.08	2.07	2.08	2.08	2.06	2.47	2.23	
Dec 24	2.08	S	2.08	2.08	2.08	2.09	2.08	2.07	2.08	2.07	2.08	2.07	2.08	2.09	2.08	2.07	2.06	2.06	2.06	2.05	2.05	2.04	2.05	2.05	2.04	2.09	2.07	
Dec 25	S	2.05	2.07	2.08	2.07	2.08	2.10	2.13	2.14	2.12	2.08	2.07	2.09	2.09	2.09	2.11	2.12	2.13	2.15	2.17	2.18	2.16	2.13	S	2.05	2.18	2.11	
Dec 26	2.10	2.10	2.11	2.09	2.09	2.08	2.08	2.07	2.07	2.07	2.07	2.07	2.06	2.06	2.06	2.06	2.06	2.05	2.05	2.06	2.07	2.09	S	2.10	2.05	2.11	2.07	
Dec 27	2.08	2.09	2.14	2.14	2.15	2.09	2.08	2.07	2.08	2.07	2.05	2.04	2.04	2.04	2.04	2.04	2.03	2.03	2.04	2.04	2.03	S	2.04	2.04	2.03	2.15	2.06	
Dec 28	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.03	2.03	2.04	2.04	2.05	2.05	2.05	2.04	2.04	2.04	2.04	S	2.04	2.05	2.05	2.03	2.05	2.04
Dec 29	2.05	2.05	2.05	2.05	2.06	2.06	2.10	2.15	2.18	2.18	2.17	2.16	2.13	2.15	2.18	2.18	2.19	2.22	2.19	S	2.18	2.25	2.24	2.28	2.05	2.28	2.15	
Dec 30	2.30	2.30	2.32	2.36	2.35	2.33	2.37	2.33	2.34	2.32	2.35	2.34	2.34	2.31	2.28	2.28	2.30	2.27	S	2.29	2.30	2.29	2.28	2.27	2.27	2.37	2.31	
Dec 31	2.26	2.27	2.26	2.25	2.27	2.27	2.31	2.37	2.46	2.48	2.44	2.54	2.61	2.57	2.45	2.43	2.42	S	2.44	2.48	2.44	2.37	2.35	2.43	2.25	2.61	2.40	
Diurnal Maximum	2.53	2.57	2.57	2.59	2.62	2.64	2.61	2.63	2.68	2.64	2.70	2.59	2.61	2.57	2.45	2.43	2.42	2.46	2.53	2.55	2.56	2.54	2.56	2.53				
Diurnal Average	2.11	2.12	2.11	2.11	2.12	2.12	2.12	2.12	2.13	2.13	2.13	2.12	2.10	2.10	2.09	2.10	2.09	2.10	2.11	2.11	2.12	2.12	2.12	2.13				

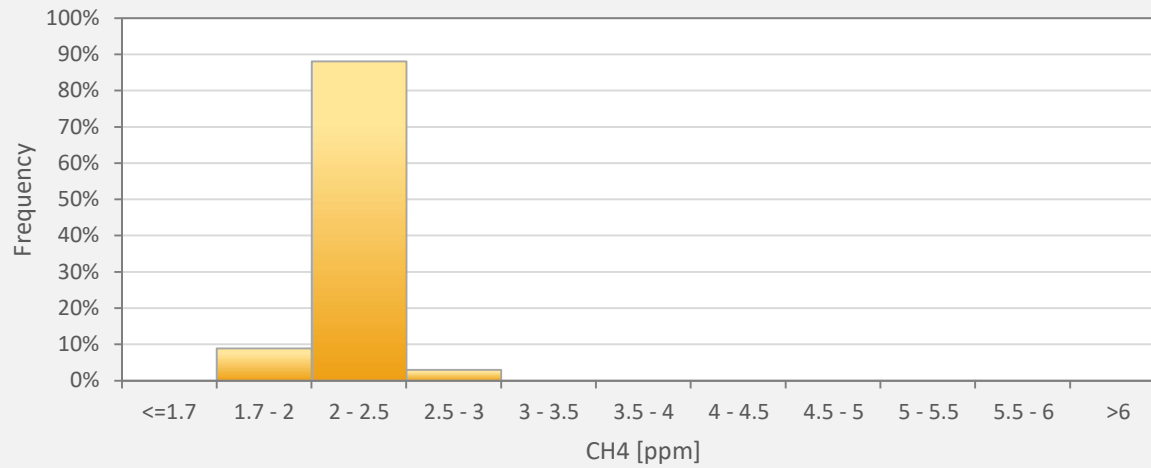
C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance	
K Collection Error	N No Data (Machine Not in Service)	Y Routine Maintenance	P Power Failure
X InValid Data (Equipment Malfunction/Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)		

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 CH4 - Cold Lake South Station



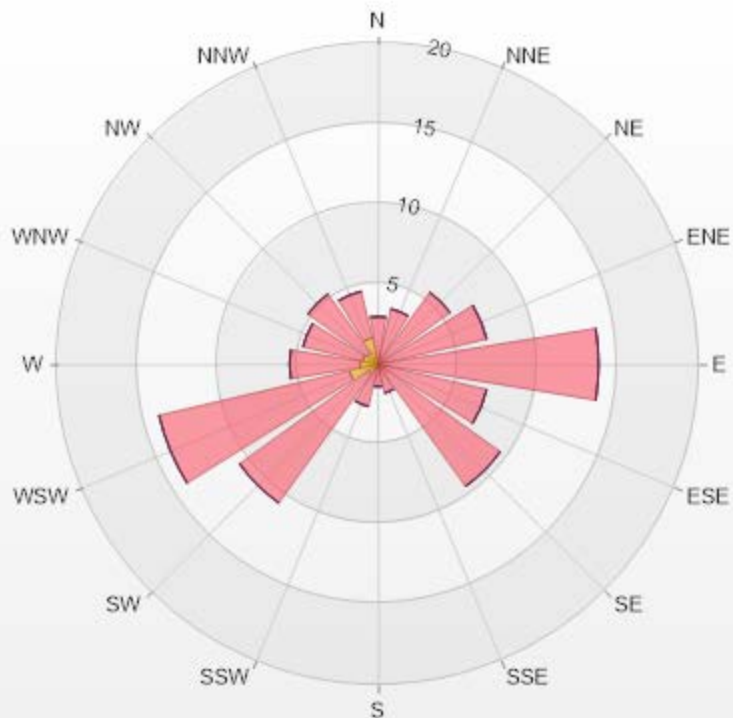
CH4[ppm] Histogram: Cold Lake South Monthly: 12-2022 1 Hr.



Classes	CH4
<=1.7	0.00%
1.7 - 2	8.92%
2 - 2.5	88.10%
2.5 - 3	2.97%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppm]

Direction	0-2	2-3	3-10	10-20	>20.0	Total
N	0.42	2.55	0	0	0	2.97
NNE	0	3.54	0	0	0	3.54
NE	0	5.52	0	0	0	5.52
ENE	0.28	6.66	0	0	0	6.94
E	0	13.74	0	0	0	13.74
ESE	0.42	6.52	0	0	0	6.94
SE	0.28	9.07	0	0	0	9.35
SSE	0	1.84	0	0	0	1.84
S	0.14	1.27	0	0	0	1.41
SSW	0.14	2.55	0	0	0	2.69
SW	0.71	9.92	0	0	0	10.63
WSW	1.84	12.18	0	0	0	14.02
W	1.13	4.39	0	0	0	5.52
WNW	0.99	3.82	0	0	0	4.81
NW	0.85	4.53	0	0	0	5.38
NNW	1.7	2.97	0	0	0	4.67
Summary	8.9	91.07	0	0	0	100



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% Icon Classes (ppm)

9

0-2

91

2-3

0

3-10

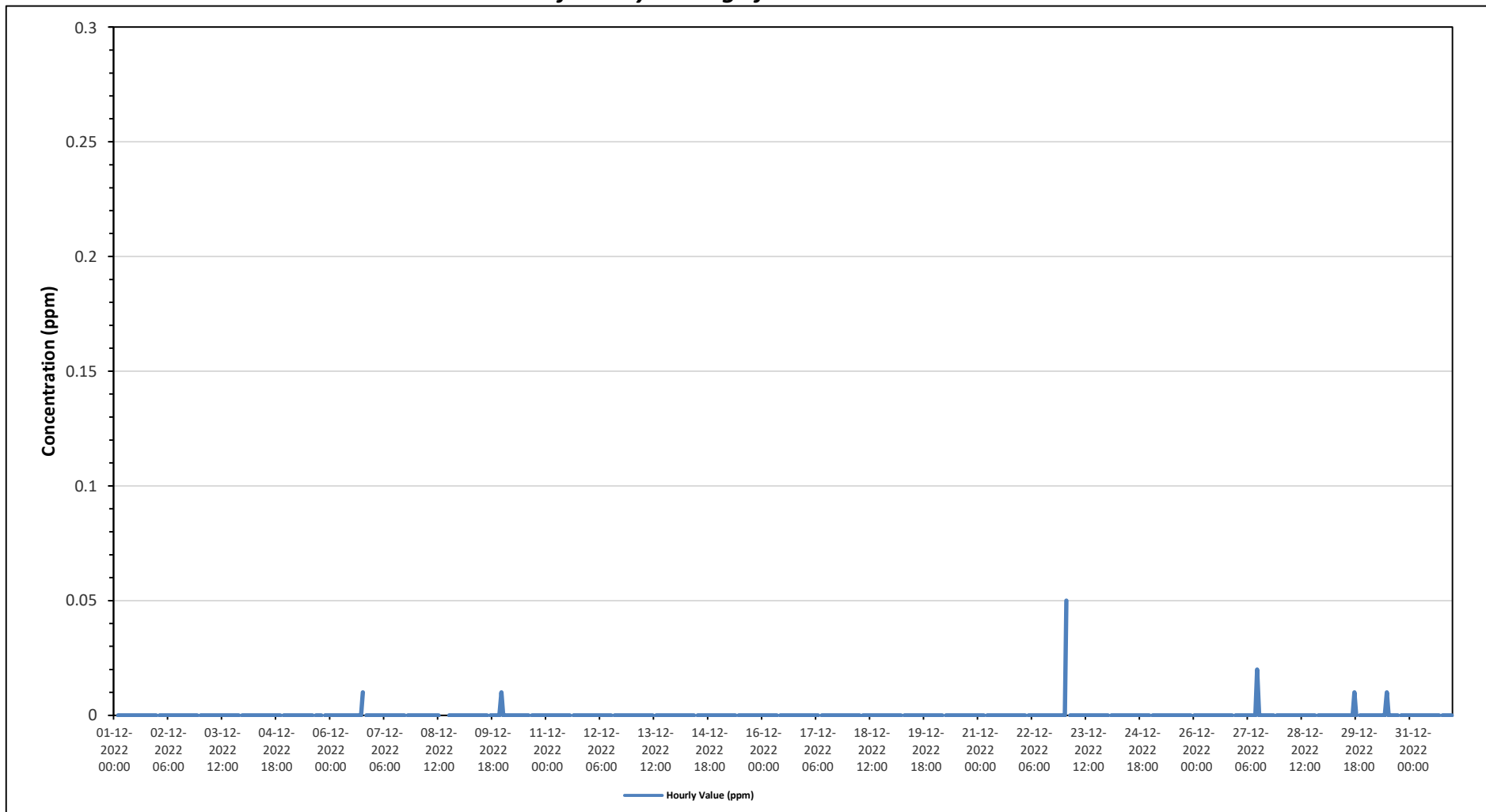
0

10-20

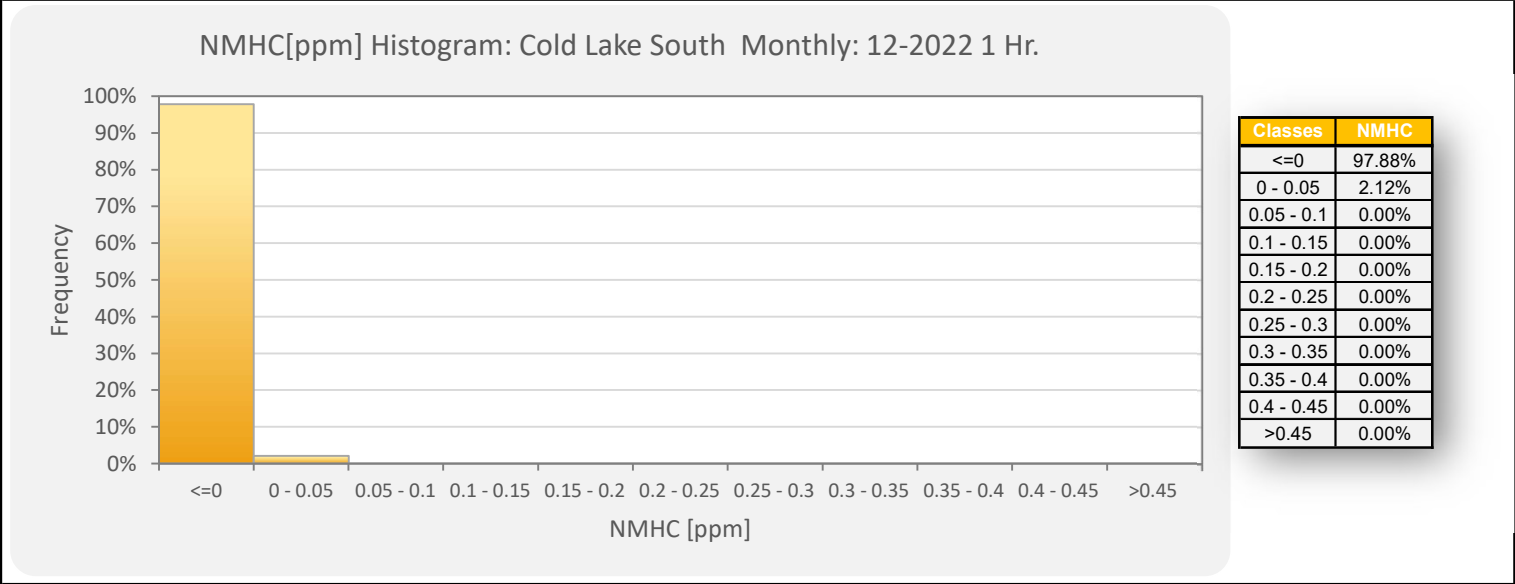
0

>20.0

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

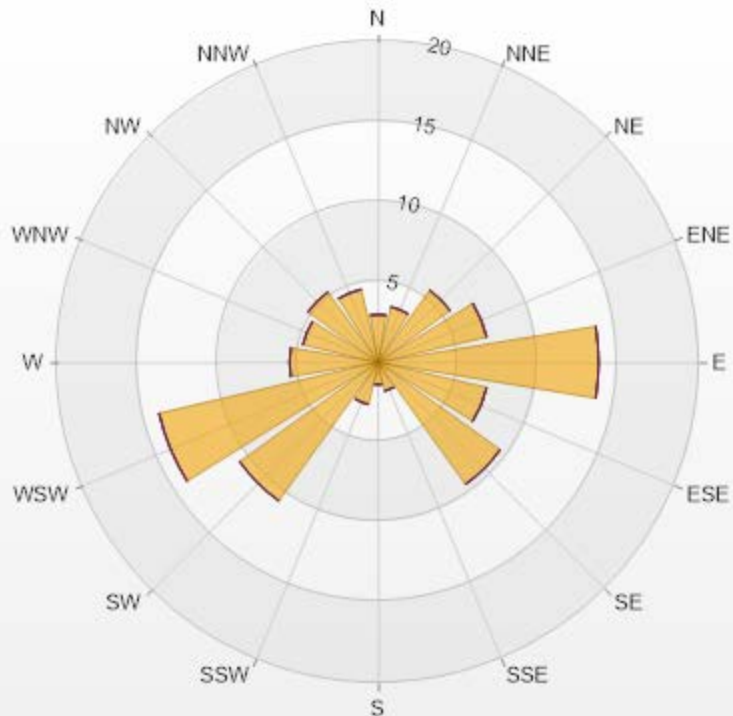


NMHC[ppm] Histogram: Cold Lake South Monthly: 12-2022 1 Hr.



Wind: Cold Lake South Poll.: Cold Lake South-NMHC[ppm] Monthly: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	2.97	0	0	0	0	2.97
NNE	3.54	0	0	0	0	3.54
NE	5.52	0	0	0	0	5.52
ENE	6.94	0	0	0	0	6.94
E	13.74	0	0	0	0	13.74
ESE	6.94	0	0	0	0	6.94
SE	9.35	0	0	0	0	9.35
SSE	1.84	0	0	0	0	1.84
S	1.42	0	0	0	0	1.42
SSW	2.69	0	0	0	0	2.69
SW	10.62	0	0	0	0	10.62
WSW	14.02	0	0	0	0	14.02
W	5.52	0	0	0	0	5.52
WNW	4.82	0	0	0	0	4.82
NW	5.38	0	0	0	0	5.38
NNW	4.67	0	0	0	0	4.67
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

Cold Lake South Station - December 2022

Summary of Hourly Averages

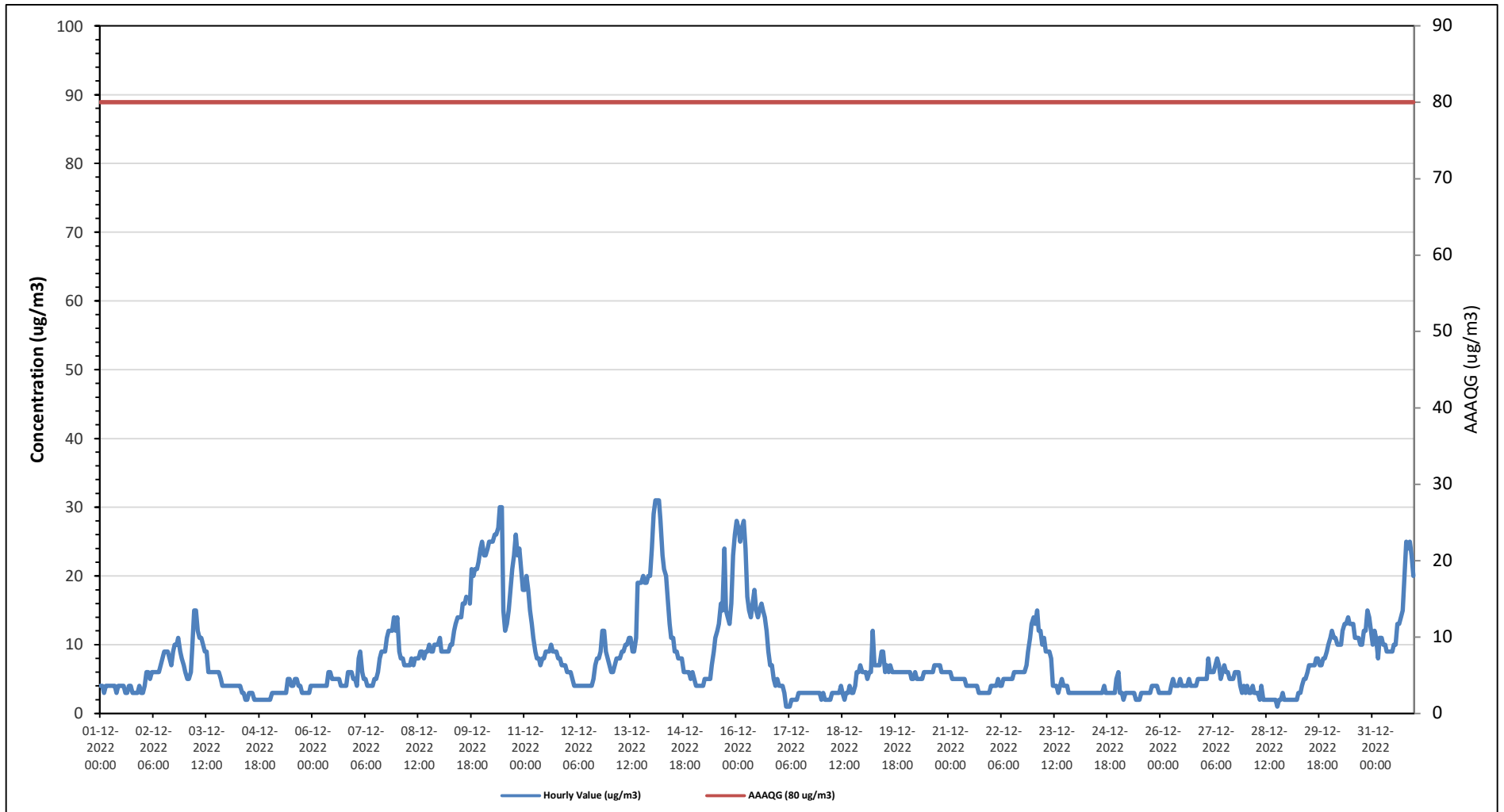
PARTICULATE MATTER 2.5 (PM_{2.5}) in µg/m³

Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m ³ , Alberta Ambient Air Quality Objective (AAAO): 24-Hour 29 µg/m ³																																											
Number of 1-Hour Exceedances: 0											Number of 24-Hour Exceedances: 0																																
Maximum Hourly Value: 31 µg/m ³ on December 14 at hour 2											Hours in Service: 744																																
Maximum Daily Value: 22.4 µg/m ³ on December 10											Hours of Data: 743																																
Minimum Hourly Value: 1 µg/m ³ on December 17 at hour 4											Hours of Missing Data: 0																																
Minimum Daily Value: 3 µg/m ³ on December 28											Hours of Calibration: 1																																
Monthly Average: 7.7 µg/m ³											Operational Uptime: 100.0																																
Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average																
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23																			
Dec 1	4	4	3	4	4	4	4	4	4	3	4	4	4	4	3	3	4	4	3	3	3	3	4	3	3	4	3	3	4	3	3	4	3	3	4	3.6							
Dec 2	3	4	6	6	5	6	6	6	6	6	7	8	9	9	9	8	7	9	10	10	11	9	8	7	3	11	7	3	11	7.3													
Dec 3	6	5	5	6	10	15	15	12	11	11	10	9	9	6	6	6	6	6	6	6	5	4	4	4	4	15	7.6																
Dec 4	4	4	4	4	4	4	4	4	4	3	2	2	3	3	3	2	2	2	2	2	2	2	2	2	2	4	2.9																
Dec 5	2	3	3	3	3	3	3	3	3	3	5	5	4	4	5	5	4	4	3	3	3	3	3	4	2	5	3.5																
Dec 6	4	4	4	4	4	4	4	4	4	6	6	5	5	5	5	5	4	4	4	4	6	6	6	5	4	6	4.7																
Dec 7	5	4	8	9	6	5	5	4	4	4	4	5	5	6	8	9	9	9	11	12	12	12	14	12	4	14	7.6																
Dec 8	14	9	8	8	7	7	7	7	7	8	7	8	8	8	9	9	8	9	9	10	9	9	10	10	7	14	8.7																
Dec 9	11	9	9	9	9	9	10	10	12	13	14	14	14	16	16	17	C	16	21	20	21	21	22	24	9	24	14.7																
Dec 10	25	23	23	24	25	25	26	26	27	30	30	15	12	13	15	18	21	23	26	23	24	21	18	12	30	22.4																	
Dec 11	18	20	18	15	13	11	9	8	8	7	8	8	9	9	10	9	9	9	8	8	8	7	7	7	7	20	10.2																
Dec 12	6	6	6	5	4	4	4	4	4	4	4	4	4	4	4	5	7	8	8	9	12	12	9	8	4	12	6.0																
Dec 13	7	6	6	7	8	8	8	9	9	10	10	11	11	9	9	11	19	19	19	20	19	19	20	20	6	20	12.3																
Dec 14	24	29	31	31	31	28	23	21	20	17	13	11	11	9	9	8	8	8	6	6	6	5	6	5	5	31	15.3																
Dec 15	5	4	4	4	4	4	5	5	5	5	7	9	11	12	13	16	15	24	15	14	13	16	23	26	4	26	10.8																
Dec 16	28	27	25	27	28	24	17	15	14	16	18	15	14	15	16	15	14	12	9	7	7	5	4	5	4	28	15.7																
Dec 17	4	4	4	3	1	1	1	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	1	4	2.7																
Dec 18	2	3	2	2	2	2	3	3	3	3	3	3	2	3	3	4	3	3	4	3	3	6	7	6	2	7	3.4																
Dec 19	6	6	5	6	6	12	7	7	7	7	9	9	6	7	6	7	6	6	6	6	6	6	6	6	5	12	6.7																
Dec 20	6	6	6	5	5	6	5	5	5	5	6	6	6	6	6	6	7	7	7	7	6	6	6	6	5	7	5.9																
Dec 21	6	6	5	5	5	5	5	5	5	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	6	4.2																
Dec 22	4	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6	6	6	6	7	9	11	13	4	13	5.9																
Dec 23	14	13	15	12	12	10	11	9	9	9	8	4	4	4	3	4	5	4	4	4	3	3	3	3	3	3	15	7.1															
Dec 24	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3	3	3	3	5	3	5	3.1																
Dec 25	6	3	3	2	3	3	3	3	3	2	2	2	3	3	3	3	3	3	4	4	4	4	3	2	6	3.1																	
Dec 26	3	3	3	3	3	3	4	5	4	4	4	5	4	4	4	4	5	4	4	4	4	5	5	5	3	5	4.0																
Dec 27	5	5	5	8	6	6	6	7	8	7	5	6	7	6	6	5	5	5	6	6	6	4	3	4	3	8	5.7																
Dec 28	3	4	3	3	4	3	3	3	2	4	2	2	2	2	2	2	2	2	1	2	2	3	2	2	1	4	2.5																
Dec 29	2	2	2	2	2	2	3	3	4	5	5	6	7	7	7	8	8	7	7	8	8	9	10	2	10	5.5																	
Dec 30	11	12	11	11	10	10	10	12	13	13	14	13	13	13	11	11	11	10	10	12	12	15	14	12	10	15	11.8																
Dec 31	10	12	11	8	11	11	10	10	9	9	9	9	10	10	13	13	14	15	20	25	24	25	23	20	8	25	13.8																
Diurnal Maximum	28	29	31	31	31	28	25	26	26	27	30	30	15	16	16	17	19	24	23	26	24	25	23	26	3	31	15.3																
Diurnal Average	8.1	8.0	7.9	7.8	7.8	7.8	7.3	7.2	7.2	7.3	7.5	7.4	6.9	6.8	7.0	7.2	7.4	7.9	8.2	8.3	8.5	8.5	8.5	8.5	4	26	10.8																
C	Monthly Calibration										S	Daily Zero-Span Check										Q	Quality Assurance																				
K	Collection Error										N	No Data (Machine Not in Service)										Y	Routine Maintenance										P	Power Failure									
X	InValid Data (Equipment Malfunction/Recovery)										NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																															

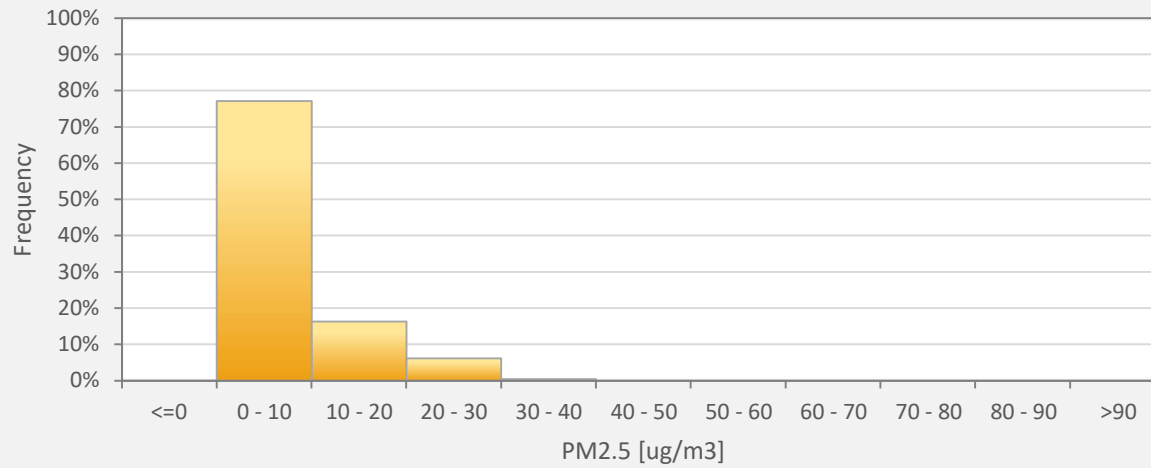
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

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



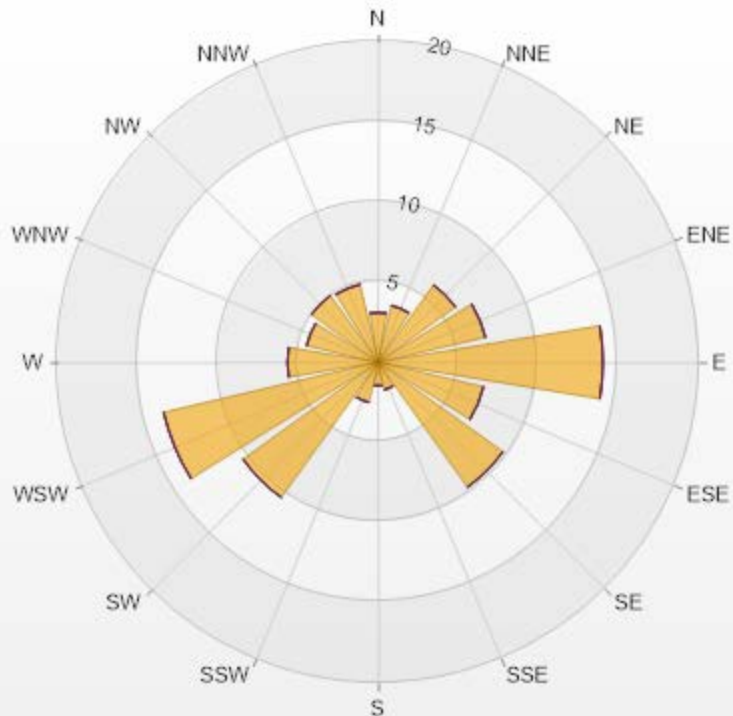
PM2.5[ug/m3(L)] Histogram: Cold Lake South Monthly: 12-2022 1 Hr.



Classes	PM2.5
<=0	0.00%
0 - 10	77.12%
10 - 20	16.29%
20 - 30	6.19%
30 - 40	0.40%
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-PM2.5[ug/m3(L)] Monthly: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 99.87% Calm Avg: 0.00 [ug/m3(L)]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	3.1	0	0	0	0	3.1
NNE	3.63	0	0	0	0	3.63
NE	5.92	0	0	0	0	5.92
ENE	6.86	0	0	0	0	6.86
E	14	0	0	0	0	14
ESE	6.73	0	0	0	0	6.73
SE	9.56	0	0	0	0	9.56
SSE	1.75	0	0	0	0	1.75
S	1.48	0	0	0	0	1.48
SSW	2.56	0	0	0	0	2.56
SW	10.36	0	0	0	0	10.36
WSW	13.73	0	0	0	0	13.73
W	5.65	0	0	0	0	5.65
WNW	4.58	0	0	0	0	4.58
NW	5.11	0	0	0	0	5.11
NNW	4.98	0	0	0	0	4.98
Summary	100	0	0	0	0	100



LICA-202212

% 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 - December 2022

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

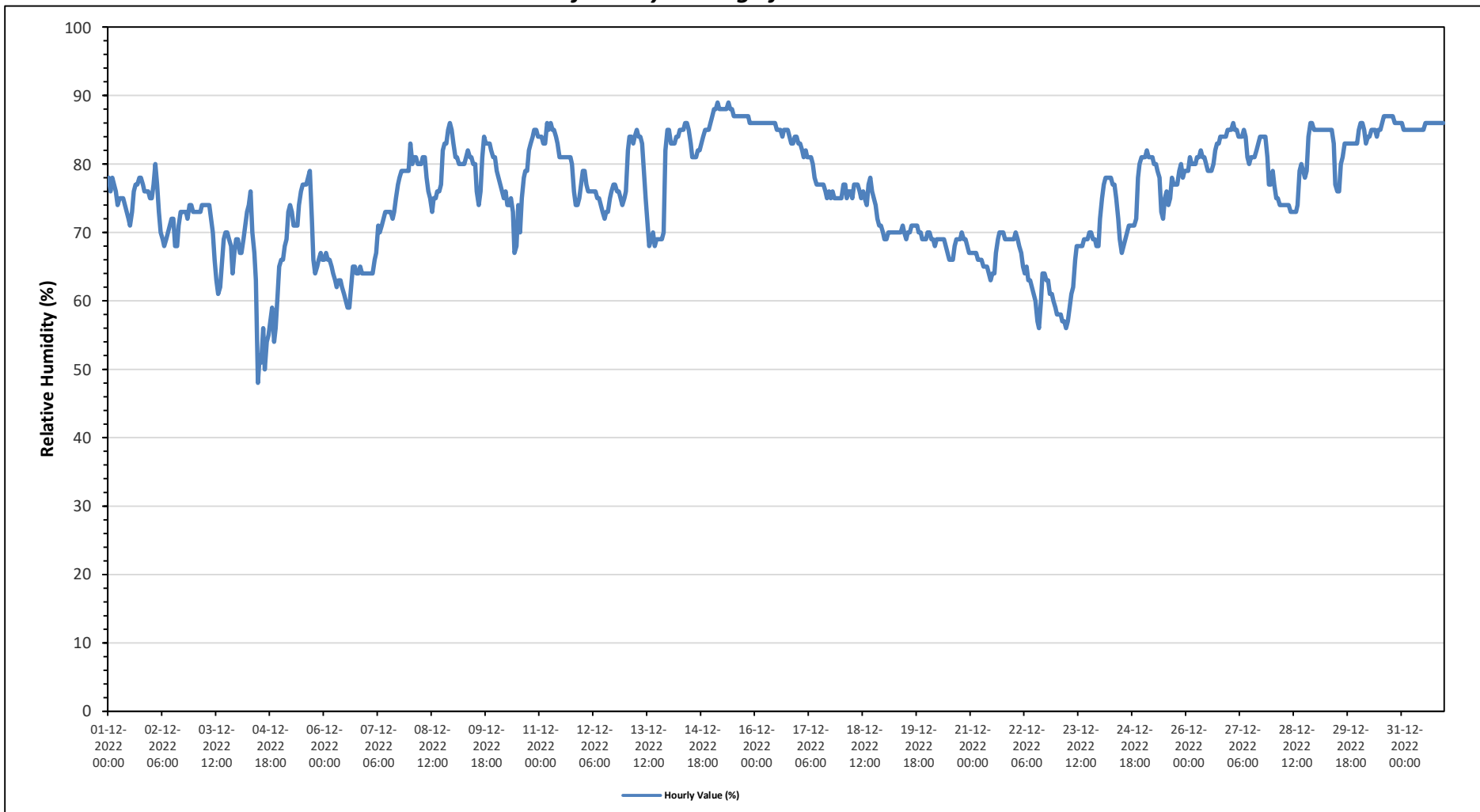
Maximum Hourly Value:	89 %	on December 15 at hour 3	Hours in Service:	744
Maximum Daily Value:	87.4 %	on December 15	Hours of Data:	744
Minimum Hourly Value:	48 %	on December 4 at hour 11	Hours of Missing Data:	0
Minimum Daily Value:	61.8 %	on December 4	Hours of Calibration:	0
Monthly Average:	75.7 %		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
Dec 1	78	76	78	77	76	74	75	75	75	74	73	72	71	73	76	77	77	78	78	77	76	76	76	75	71	78	75.5
Dec 2	75	77	80	77	73	70	69	68	69	70	71	72	72	68	68	71	73	73	73	72	74	74	74	73	68	80	72.3
Dec 3	73	73	73	73	74	74	74	74	74	72	70	66	63	61	62	65	69	70	70	69	68	64	67	69	61	74	69.5
Dec 4	69	67	67	69	71	73	74	76	70	67	63	48	52	51	56	50	54	55	57	59	54	56	61	65	48	76	61.8
Dec 5	66	66	68	69	73	74	73	71	71	71	74	76	77	77	77	78	79	72	66	64	65	66	67	66	64	79	71.1
Dec 6	66	67	66	66	65	64	63	62	63	63	62	61	60	59	59	62	65	65	64	64	65	64	64	64	59	67	63.5
Dec 7	64	64	64	64	66	67	71	70	71	72	73	73	73	73	72	73	75	77	78	79	79	79	79	79	64	79	72.3
Dec 8	83	80	81	81	80	80	80	81	81	78	76	75	73	75	75	76	76	77	82	83	83	85	86	85	73	86	79.7
Dec 9	83	81	81	80	80	80	81	82	81	81	80	80	76	74	76	81	84	83	83	83	82	81	81	81	74	84	80.6
Dec 10	79	78	77	76	75	76	74	74	75	73	67	68	74	70	75	78	79	79	82	83	84	85	85	84	67	85	77.1
Dec 11	84	84	83	83	86	85	86	85	85	84	83	81	81	81	81	81	81	81	80	76	74	74	75	77	74	86	81.3
Dec 12	79	79	77	76	76	76	76	76	75	75	74	73	72	73	73	75	76	77	77	76	76	75	74	75	72	79	75.5
Dec 13	76	82	84	84	83	84	85	84	84	83	79	75	71	68	69	70	68	69	69	69	69	70	82	85	68	85	76.8
Dec 14	85	83	83	83	84	84	85	85	85	85	86	86	85	83	81	81	81	82	83	84	85	85	85	86	81	86	83.8
Dec 15	87	88	88	89	88	88	88	88	88	88	88	88	87	87	87	87	87	87	87	87	87	86	86	86	86	86	87.4
Dec 16	86	86	86	86	86	86	86	86	86	86	86	86	85	85	85	84	85	85	85	84	83	83	84	84	83	86	85.2
Dec 17	83	83	82	81	82	81	81	81	80	78	77	77	77	77	77	76	75	76	75	76	75	75	75	75	75	83	78.1
Dec 18	75	77	77	75	76	76	75	77	77	77	76	75	76	75	74	77	78	76	75	74	72	71	71	70	70	78	75.1
Dec 19	69	69	70	70	70	70	70	70	70	70	71	70	69	70	70	71	71	71	71	70	70	69	69	69	69	71	70.0
Dec 20	70	70	69	69	68	69	69	69	69	69	68	67	66	66	66	68	69	69	69	69	70	69	69	68	67	70	68.4
Dec 21	67	67	67	67	66	66	66	66	65	65	65	64	63	64	64	67	69	70	70	70	69	69	69	69	63	70	67.0
Dec 22	69	70	69	68	67	65	64	65	63	63	62	61	60	57	56	60	64	64	63	63	61	61	60	59	56	70	63.1
Dec 23	58	58	58	57	57	56	57	59	61	62	66	68	68	68	68	69	69	69	70	70	69	69	68	68	56	70	64.3
Dec 24	72	75	77	78	78	78	78	77	77	75	72	69	67	68	69	70	71	71	71	71	71	72	78	80	81	81	74.0
Dec 25	81	81	82	81	81	81	80	80	79	78	73	72	75	76	74	75	78	77	77	77	79	80	78	79	72	82	78.1
Dec 26	79	79	81	80	80	80	81	81	82	81	81	80	79	79	79	80	82	83	83	84	84	84	84	85	79	85	81.3
Dec 27	85	85	86	85	85	84	84	84	85	84	81	80	81	81	81	82	83	84	84	84	84	81	77	77	77	86	82.8
Dec 28	79	77	75	75	74	74	74	74	74	74	73	73	73	73	74	79	80	79	78	79	84	86	86	85	73	86	77.2
Dec 29	85	85	85	85	85	85	85	85	85	85	83	77	76	76	80	81	83	83	83	83	83	83	83	83	76	85	82.8
Dec 30	85	86	86	85	83	84	84	85	85	85	84	85	85	86	87	87	87	87	87	87	87	86	86	86	83	87	85.6
Dec 31	86	85	85	85	85	85	85	85	85	85	85	85	85	85	86	86	86	86	86	86	86	86	86	86	85	86	85.5
Diurnal Maximum	87	88	88	89	88	88	88	88	88	89	88	88	87	87	87	87	87	87	87	87	87	86	86	86	86	86	86
Diurnal Average	76.6	76.7	76.9	76.6	76.5	76.4	76.5	76.5	76.5	76.5	76.0	74.9	73.6	73.4	72.9	73.5	74.6	75.9	76.0	76.0	75.9	75.7	75.8	76.3	76.5		

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 - Cold Lake South Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 2022

Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

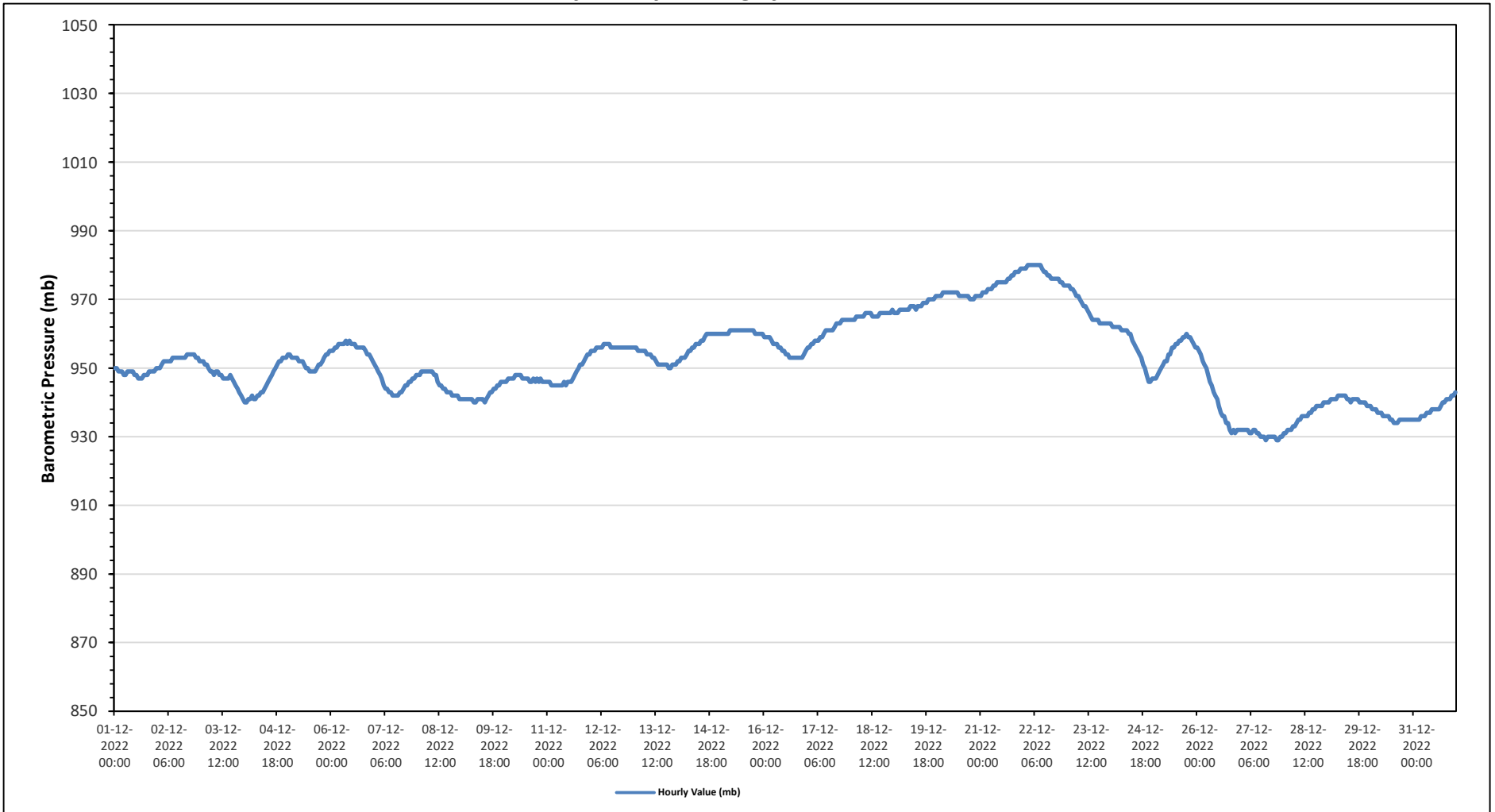
Maximum Hourly Value:	980 mb on December 22 at hour 2	Hours in Service:	744
Maximum Daily Value:	978 mb on December 22	Hours of Data:	744
Minimum Hourly Value:	929 mb on December 27 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	931 mb on December 27	Hours of Calibration:	0
Monthly Average:	953 mb	Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily	Daily	Daily	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Dec 1	950	950	949	949	949	948	948	949	949	949	949	948	948	947	947	947	948	948	948	949	949	949	949	950	947	950	949
Dec 2	950	950	951	952	952	952	952	952	953	953	953	953	953	953	953	954	954	954	954	954	954	953	953	952	950	954	953
Dec 3	952	952	951	951	950	949	949	948	949	949	948	948	947	947	947	947	948	947	946	945	944	943	942	941	941	952	948
Dec 4	940	940	941	941	942	941	941	942	942	943	943	944	945	946	947	948	949	950	951	952	952	953	953	953	940	953	946
Dec 5	954	954	953	953	953	953	952	952	952	951	950	950	949	949	949	949	950	951	951	952	952	953	954	954	949	955	952
Dec 6	955	955	956	956	957	957	957	957	958	957	958	957	957	957	956	956	956	956	956	955	954	954	953	952	952	958	956
Dec 7	951	950	949	948	947	945	944	944	943	943	942	942	942	942	943	943	944	945	945	946	946	947	947	948	942	951	945
Dec 8	948	948	949	949	949	949	949	949	949	948	948	946	945	945	944	944	943	943	943	942	942	942	941	941	949	949	946
Dec 9	941	941	941	941	941	941	941	940	940	941	941	941	941	940	941	942	943	943	944	944	945	945	946	946	940	946	942
Dec 10	946	946	947	947	947	947	948	948	948	948	947	947	947	946	946	947	946	946	947	946	946	946	946	946	946	948	947
Dec 11	946	946	945	945	945	945	945	945	945	946	945	946	946	946	947	948	949	950	951	951	952	953	954	945	954	948	
Dec 12	955	955	955	956	956	956	956	956	957	957	957	956	956	956	956	956	956	956	956	956	956	956	956	955	957	956	956
Dec 13	956	956	955	955	955	955	955	954	954	954	953	953	952	951	951	951	951	951	951	950	950	951	951	950	956	953	953
Dec 14	952	952	953	953	953	954	955	955	956	956	957	957	957	958	958	959	960	960	960	960	960	960	960	960	952	960	957
Dec 15	960	960	960	960	960	961	961	961	961	961	961	961	961	961	961	961	961	961	961	960	960	960	960	960	960	961	961
Dec 16	959	959	959	959	958	957	957	957	956	956	955	955	954	954	953	953	953	953	953	953	953	953	954	955	953	959	955
Dec 17	956	956	957	957	958	958	958	958	959	959	960	961	961	961	961	962	963	963	963	964	964	964	964	964	956	964	961
Dec 18	964	964	964	965	965	965	965	965	966	966	966	966	965	965	965	966	966	966	966	966	966	966	966	966	964	967	965
Dec 19	966	966	966	967	967	967	967	967	967	968	968	968	967	968	968	969	969	969	970	970	970	970	971	966	971	968	
Dec 20	971	971	971	972	972	972	972	972	972	972	972	972	971	971	971	971	971	971	970	970	970	971	971	970	972	971	971
Dec 21	971	972	972	972	973	973	973	974	974	975	975	975	975	975	975	976	976	976	977	977	978	978	978	979	971	979	975
Dec 22	979	979	980	980	980	980	980	980	980	980	979	978	978	977	977	976	976	976	976	976	975	975	974	974	974	980	978
Dec 23	974	974	973	973	972	971	971	970	969	968	968	967	966	965	964	964	964	963	963	963	963	963	963	963	963	974	967
Dec 24	963	962	962	962	962	962	961	961	961	960	960	958	957	956	955	954	953	951	950	948	946	946	947	946	946	963	957
Dec 25	947	947	948	949	950	951	952	952	954	954	956	956	957	957	958	958	959	960	959	959	958	957	956	947	960	955	
Dec 26	956	955	954	952	951	950	948	946	945	943	942	941	939	937	936	936	934	934	932	931	932	931	932	931	956	941	
Dec 27	932	932	932	932	932	931	931	932	932	931	931	930	930	930	929	930	930	930	930	930	929	929	930	930	929	931	931
Dec 28	931	931	932	932	932	933	933	934	935	935	936	936	936	936	937	938	938	938	939	939	939	940	940	931	940	936	
Dec 29	940	940	941	941	941	941	942	942	942	942	942	941	941	940	941	941	941	941	940	940	940	940	939	939	942	941	941
Dec 30	939	938	938	938	937	937	937	936	936	936	936	935	935	934	934	934	935	935	935	935	935	935	935	934	939	936	
Dec 31	935	935	935	935	936	936	936	937	937	937	938	938	938	938	939	940	940	941	941	941	942	942	943	935	943	938	
Diurnal Maximum	979	979	980	980	980	980	980	980	980	980	979	978	978	977	977	976	976	977	977	978	978	979	979	979	979	979	979
Diurnal Average	953	953	953	953	953	953	953	953	953	953	953	953	952	952	952	952	953	953	953	952	952	952	953	953	953	953	953

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)	NRIM	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 - December 2022

Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

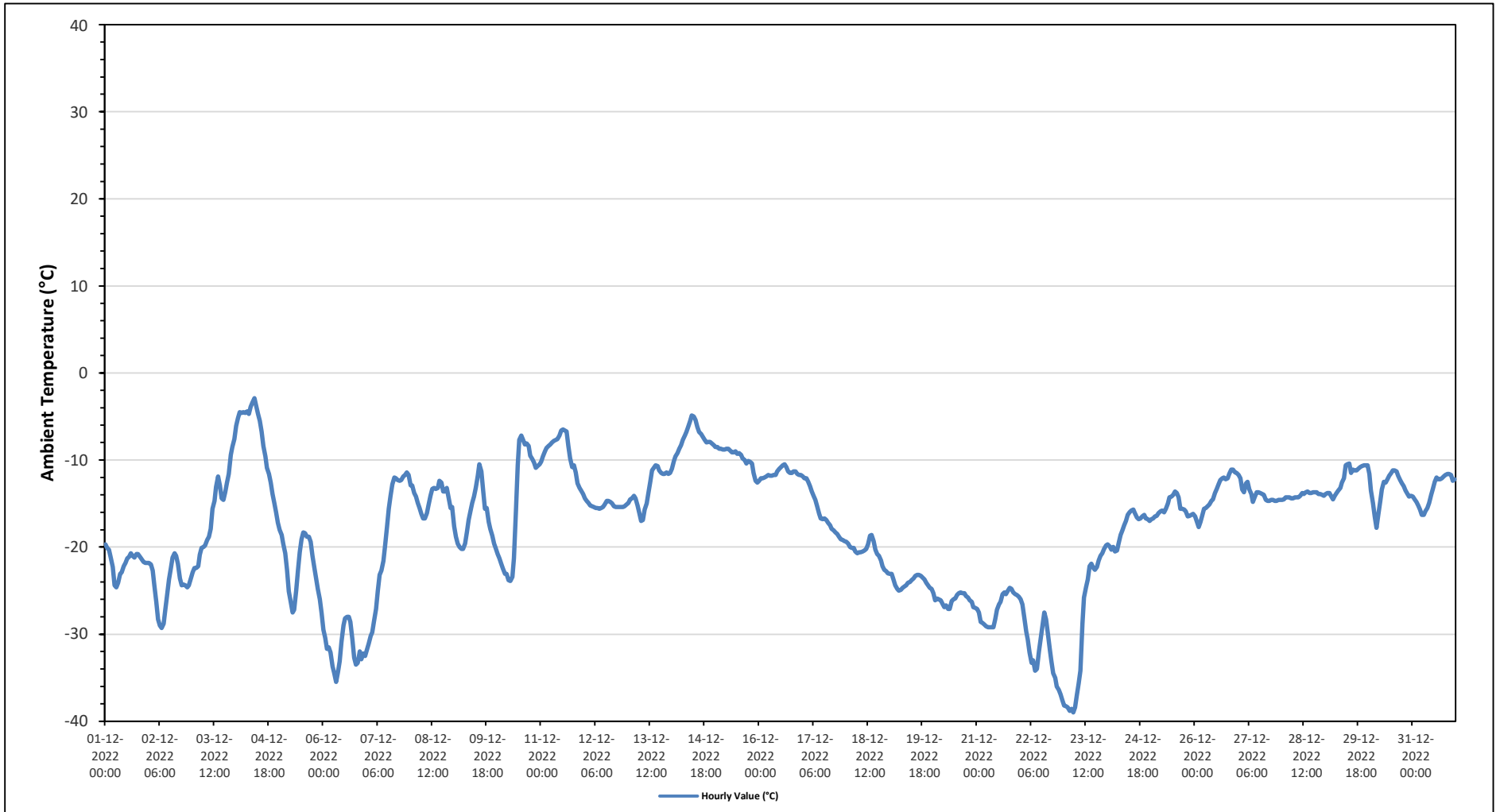
Maximum Hourly Value:	-2.9 °C	on December 4 at hour 10	Hours in Service:	744
Maximum Daily Value:	-7.5 °C	on December 14	Hours of Data:	744
Minimum Hourly Value:	-39.0 °C	on December 23 at hour 5	Hours of Missing Data:	0
Minimum Daily Value:	-31.9 °C	on December 22	Hours of Calibration:	0
Monthly Average:	-17.5 °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	
Dec 1	-19.7	-20.1	-20.3	-21.2	-22.3	-24.4	-24.6	-24.1	-23.1	-22.9	-22.2	-21.8	-21.3	-21.1	-20.7	-21	-21.2	-20.8	-20.8	-21.1	-21.4	-21.7	-21.8	-21.8	-24.6	-19.7	-21.7	
Dec 2	-21.8	-22	-22.7	-24.3	-26.3	-28.3	-29	-29.3	-28.8	-27.3	-25.4	-23.7	-22.5	-21.2	-20.7	-21	-21.9	-23.6	-24.4	-24.3	-24.4	-24.6	-24.4	-23.6	-29.3	-20.7	-24.4	
Dec 3	-22.9	-22.4	-22.4	-22.2	-20.9	-20.1	-20	-19.8	-19.2	-18.8	-17.9	-15.6	-14.7	-13.1	-11.9	-12.9	-14.4	-14.6	-13.7	-12.6	-11.6	-9.4	-8.5	-7.6	-22.9	-7.6	-16.1	
Dec 4	-6.1	-5.2	-4.5	-4.6	-4.5	-4.6	-4.4	-4.7	-3.9	-3.4	-2.9	-3.7	-4.7	-5.5	-6.7	-8.4	-9.6	-10.9	-11.6	-12.6	-13.9	-14.9	-16	-17.2	-17.2	-2.9	-7.7	
Dec 5	-18	-18.6	-19.6	-20.7	-22.6	-25.1	-26.2	-27.5	-27.2	-25	-22.7	-20.6	-19.1	-18.3	-18.4	-18.8	-18.8	-19.4	-21	-22.3	-23.7	-24.8	-26	-27.6	-27.6	-18.0	-22.2	
Dec 6	-29.5	-30.4	-31.7	-31.5	-32.1	-33.7	-34.4	-35.5	-34.4	-33.1	-30.9	-29	-28.2	-28	-28.6	-30.6	-32.7	-33.5	-33.3	-32	-32.9	-32.2	-32.5	-32.5	-35.5	-28.0	-31.6	
Dec 7	-31.8	-31.1	-30.2	-29.8	-28.5	-27.1	-25	-23.2	-22.7	-21.6	-20	-17.7	-15.6	-14.1	-12.8	-12	-12.1	-12.3	-12.4	-12.3	-11.9	-11.7	-11.4	-11.7	-31.8	-11.4	-19.1	
Dec 8	-12.9	-12.9	-13.8	-14.2	-14.9	-15.5	-16.2	-16.7	-16.7	-16.1	-15.2	-14.1	-13.3	-13.2	-13.3	-13.2	-12.4	-12.6	-13.6	-13.6	-13.2	-14.3	-15.5	-15.4	-16.7	-12.4	-14.3	
Dec 9	-17.6	-18.8	-19.6	-20	-20.2	-20.2	-19.6	-18.3	-16.9	-15.9	-14.9	-14.2	-13.2	-11.8	-10.5	-11.3	-13.5	-15.6	-15.5	-17.1	-17.9	-18.7	-19.6	-20.1	-20.2	-10.5	-16.7	
Dec 10	-20.8	-21.3	-21.9	-22.5	-23.1	-23.1	-23.8	-23.9	-23.4	-21.3	-15.8	-10.6	-7.7	-7.2	-7.7	-8.2	-8.1	-8.4	-9.5	-9.9	-10.3	-10.9	-10.7	-10.5	-23.9	-7.2	-15.0	
Dec 11	-10.2	-9.6	-9	-8.6	-8.4	-8.2	-8	-7.8	-7.7	-7.6	-7.2	-6.6	-6.5	-6.6	-6.7	-8.4	-9.8	-10.8	-10.6	-11.4	-12.7	-13.2	-13.5	-13.9	-13.9	-6.5	-9.3	
Dec 12	-14.4	-14.7	-14.9	-15.2	-15.3	-15.4	-15.5	-15.5	-15.6	-15.5	-15.4	-15.1	-14.7	-14.7	-14.8	-15	-15.3	-15.4	-15.4	-15.4	-15.4	-15.4	-15.3	-15.1	-15.6	-14.4	-15.2	
Dec 13	-14.9	-14.5	-14.4	-14.1	-14.4	-15.2	-16.1	-17	-16.9	-15.7	-15	-13.9	-12.5	-11.2	-10.9	-10.6	-10.7	-11.2	-11.5	-11.6	-11.4	-11.6	-11.5	-11.5	-17.0	-10.6	-13.3	
Dec 14	-11	-10.1	-9.6	-9.2	-8.7	-8.3	-7.7	-7.2	-6.8	-6.2	-5.5	-4.9	-5	-5.4	-6.2	-6.8	-7	-7.3	-7.7	-8	-7.9	-7.9	-8.1	-8.3	-11.0	-4.9	-7.5	
Dec 15	-8.5	-8.5	-8.7	-8.7	-8.8	-8.8	-8.7	-8.7	-8.9	-9.1	-9.1	-9	-9.3	-9.2	-9.4	-9.8	-10	-10.4	-10.1	-10.2	-10.4	-11.5	-12.4	-12.6	-12.6	-8.5	-9.6	
Dec 16	-12.4	-12.1	-12.1	-12	-11.9	-11.7	-11.8	-11.8	-11.7	-11.7	-11.3	-11	-10.8	-10.6	-10.5	-10.8	-11.3	-11.5	-11.5	-11.3	-11.6	-11.7	-11.7	-11.7	-12.4	-10.5	-11.5	
Dec 17	-11.9	-12.1	-12.1	-12.5	-13	-13.6	-14.1	-14.6	-15.3	-16.2	-16.7	-16.8	-16.7	-16.9	-17.2	-17.5	-17.9	-18.1	-18.3	-18.5	-18.8	-19.1	-19.2	-19.3	-19.3	-11.9	-16.1	
Dec 18	-19.4	-19.6	-20	-20.1	-20.1	-20.5	-20.7	-20.6	-20.6	-20.5	-20.4	-20.2	-19.7	-18.7	-18.6	-19.3	-20.3	-20.8	-21	-21.5	-22.2	-22.6	-22.8	-23	-23.0	-18.6	-20.6	
Dec 19	-23.1	-23.1	-23.7	-24.4	-24.8	-25	-24.9	-24.7	-24.5	-24.4	-24.1	-24	-23.8	-23.6	-23.3	-23.2	-23.2	-23.3	-23.5	-23.7	-24.1	-24.4	-24.7	-24.8	-25.0	-23.1	-24.0	
Dec 20	-25.3	-26.1	-25.9	-26	-26.1	-26.5	-26.9	-26.7	-27.1	-27.1	-26.2	-26	-25.9	-25.5	-25.3	-25.2	-25.3	-25.3	-25.6	-25.8	-26.1	-26.3	-26.9	-27	-27.1	-25.2	-26.1	
Dec 21	-27.1	-27.5	-28.6	-28.7	-28.9	-29.1	-29.2	-29.2	-29.2	-29.2	-29.2	-28.3	-27.2	-26.6	-26.3	-25.4	-25.2	-25.4	-25	-24.7	-24.8	-25.2	-25.4	-25.7	-29.2	-24.7	-27.0	
Dec 22	-26	-26.6	-28	-29.7	-30.6	-32.1	-33.3	-33	-34.2	-34	-32	-30.7	-29	-27.5	-28.3	-29.9	-31.8	-33.1	-34.5	-35	-36	-36.4	-36.9	-37.6	-37.6	-26.0	-31.9	
Dec 23	-38.2	-38.3	-38.4	-38.8	-38.6	-39	-38.4	-37	-35.7	-34.2	-28.8	-25.8	-24.6	-23.7	-22.2	-21.9	-22.4	-22.6	-22.3	-21.5	-21	-20.7	-20.2	-19.8	-39.0	-19.8	-28.9	
Dec 24	-19.7	-19.9	-20.3	-20	-20.5	-20.4	-19.6	-18.6	-18.1	-17.5	-17	-16.3	-15	-14.7	-15.8	-15.7	-16.1	-16.6	-16.8	-16.7	-16.5	-16.3	-16.7	-16.8	-17	-20.5	-15.7	-17.7
Dec 25	-16.8	-16.7	-16.5	-16.4	-16.1	-15.9	-15.8	-16	-15.6	-15	-14.3	-14.2	-14	-13.6	-13.8	-14.3	-15.6	-15.6	-15.7	-15.9	-16.5	-16.4	-16.3	-16.2	-16.8	-13.6	-15.6	
Dec 26	-16.5	-17	-17.7	-17.1	-16.5	-15.6	-15.5	-15.3	-15.1	-14.7	-14.5	-13.8	-13.3	-12.8	-12.3	-12.1	-12	-12.2	-12.1	-11.6	-11.1	-11.1	-11.4	-11.5	-17.7	-11.1	-13.9	
Dec 27	-11.7	-12.1	-13.4	-13.7	-12.7	-12.5	-13.4	-13.9	-14.8	-14.2	-13.7	-13.7	-13.8	-13.9	-14	-14.6	-14.7	-14.6	-14.6	-14.6	-14.7	-14.7	-14.6	-14.6	-14.8	-11.7	-13.9	
Dec 28	-14.6	-14.5	-14.3	-14.3	-14.3	-14.4	-14.4	-14.3	-14.3	-14.3	-14.1	-13.8	-13.9	-13.7	-13.6	-13.8	-13.8	-13.7	-13.7	-13.7	-13.9	-13.9	-14	-14.1	-14.6	-13.6	-14.1	
Dec 29	-13.9	-13.8	-13.8	-14.1	-14.5	-14.1	-13.8	-13.5	-13.2	-12.6	-12.1	-10.6	-10.5	-10.4	-11.5	-11.1	-11.2	-11.2	-11	-10.8	-10.7	-10.6	-10.6	-10.6	-14.5	-10.4	-12.1	
Dec 30	-11.6	-13.5	-14.9	-16.5	-17.8	-16.3	-14.7	-13.4	-12.5	-12.6	-12.2	-11.8	-11.5	-11.2	-11.2	-11.3	-11.8	-12.3	-12.7	-13	-13.5	-13.9	-14.2	-14.1	-17.8	-11.2	-13.3	
Dec 31	-14.2	-14.5	-14.8	-15.2	-15.7	-16.3	-16.3	-15.9	-15.5	-14.9	-14	-13.4	-12.5	-12	-12.2	-12.2	-12.1	-11.9	-11.7	-11.6	-11.7	-12.4	-12.2	-16.3	-11.6	-13.5		
Diurnal Maximum	-6.1	-5.2	-4.5	-4.6	-4.5	-4.6	-4.4	-4.7	-3.9	-3.4	-2.9	-3.7	-4.7	-5.4	-6.2	-6.8	-7.0	-7.3	-7.7	-8.0	-7.9	-8.1	-7.6					
Diurnal Average	-18.1	-18.3	-18.6	-18.9	-19.1	-19.4	-19.4	-19.3	-19.0	-18.5	-17.4	-16.4	-15.8	-15.4	-15.3	-15.6	-16.2	-16.6	-16.8	-17.0	-17.1	-17.4	-17.6	-17.7				

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 - Cold Lake South Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 2022

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

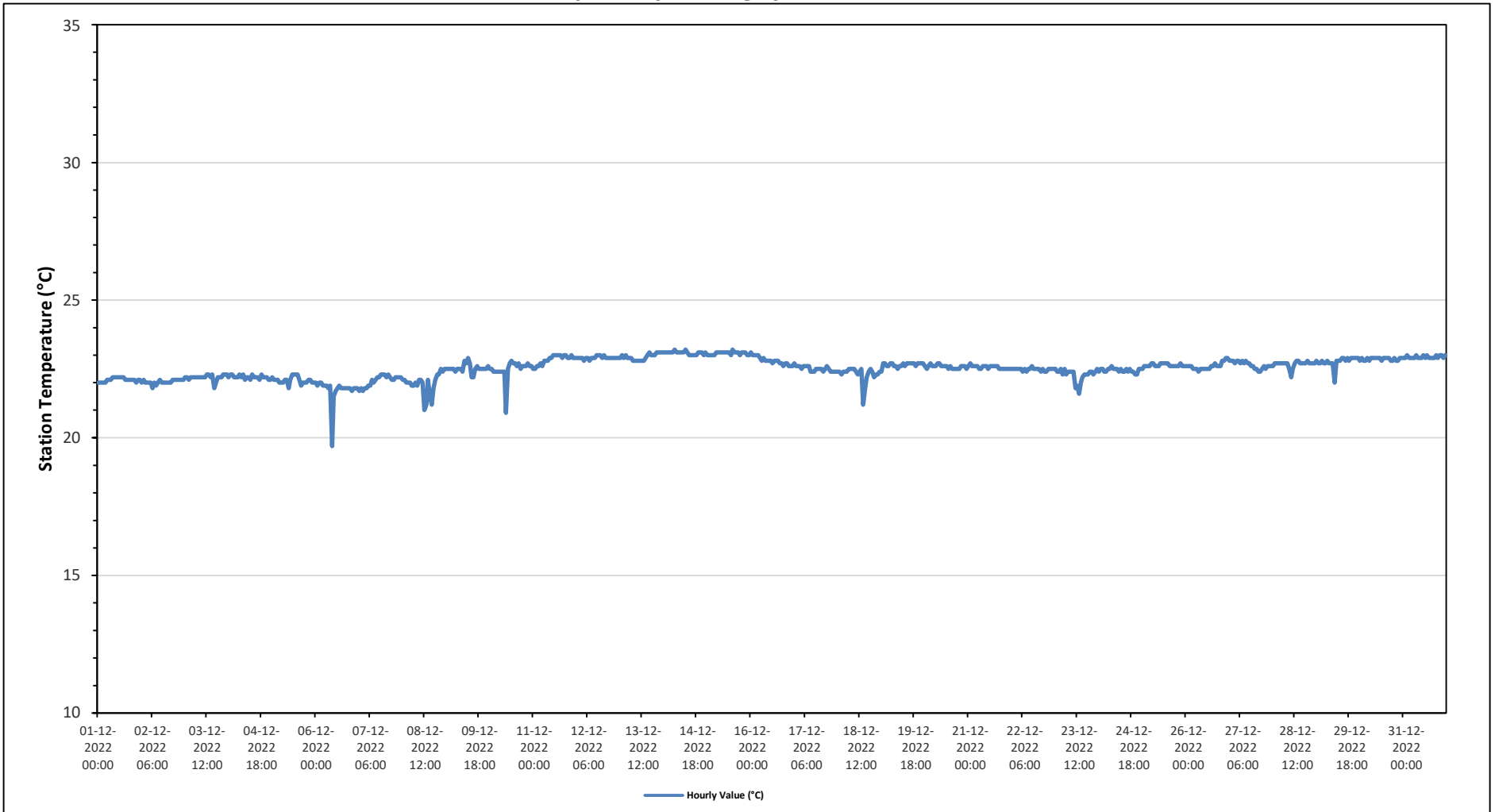
Maximum Hourly Value:	23.2 °C	on December 14 at hour 6	Hours in Service:	744
Maximum Daily Value:	23.1 °C	on December 14	Hours of Data:	744
Minimum Hourly Value:	19.7 °C	on December 6 at hour 9	Hours of Missing Data:	0
Minimum Daily Value:	21.7 °C	on December 6	Hours of Calibration:	0
Monthly Average:	22.5 °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
Dec 1	22.0	22.0	22.0	22.0	22.0	22.1	22.1	22.1	22.2	22.2	22.2	22.2	22.2	22.2	22.1	22.1	22.1	22.1	22.1	22.1	22.0	22.1	22.1	22.1	22.0	22.2	22.1
Dec 2	22.0	22.1	22.0	22.0	22.0	22.0	21.8	22.0	21.9	22.0	22.1	22.0	22.0	22.0	22.0	22.0	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.0
Dec 3	22.2	22.2	22.1	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.3	22.3	22.2	22.3	21.8	22.0	22.2	22.2	22.2	22.3	22.3	22.3	22.3	22.2
Dec 4	22.2	22.3	22.3	22.2	22.2	22.2	22.3	22.2	22.3	22.1	22.2	22.2	22.1	22.3	22.2	22.2	22.1	22.3	22.2	22.2	22.2	22.1	22.1	22.1	22.1	22.1	22.2
Dec 5	22.2	22.1	22.1	22.1	22.0	22.0	22.0	22.1	22.1	21.8	22.1	22.3	22.3	22.3	22.3	22.1	21.9	22.0	22.0	22.0	22.1	22.1	22.0	22.0	22.0	22.0	22.1
Dec 6	22.0	21.9	22.0	22.0	21.9	21.9	21.9	21.8	21.9	19.7	21.5	21.7	21.8	21.9	21.8	21.8	21.8	21.8	21.8	21.8	21.7	21.8	21.8	21.8	21.8	21.8	21.7
Dec 7	21.7	21.8	21.7	21.8	21.8	21.9	21.9	22.1	22.0	22.1	22.2	22.2	22.3	22.3	22.3	22.2	22.3	22.2	22.1	22.1	22.2	22.2	22.2	22.2	22.2	22.2	22.1
Dec 8	22.1	22.1	22.0	22.0	22.0	21.9	21.9	22.0	21.9	22.1	22.1	22.0	21.0	21.2	22.1	21.5	21.2	21.8	22.1	22.3	22.3	22.5	22.4	22.5	22.5	22.5	22.0
Dec 9	22.5	22.5	22.5	22.5	22.5	22.4	22.5	22.5	22.5	22.4	22.8	22.7	22.9	22.7	22.2	22.5	22.6	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.6	22.6	22.5
Dec 10	22.5	22.5	22.4	22.4	22.4	22.4	22.4	22.4	22.4	20.9	22.5	22.7	22.8	22.7	22.7	22.6	22.7	22.5	22.6	22.6	22.6	22.7	22.6	22.6	22.6	22.6	22.9
Dec 11	22.5	22.5	22.6	22.6	22.7	22.6	22.8	22.8	22.8	22.9	22.9	23.0	23.0	23.0	23.0	23.0	22.9	23.0	23.0	22.9	22.9	23.0	22.9	22.9	22.9	22.9	22.8
Dec 12	22.9	22.9	22.9	22.9	22.8	22.9	22.9	22.8	22.9	22.9	22.9	23.0	23.0	23.0	22.9	23.0	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.8
Dec 13	22.9	23.0	22.9	23.0	22.9	22.9	22.9	22.8	22.8	22.8	22.8	22.8	22.8	22.9	23.0	23.1	23.0	23.0	23.0	23.0	23.1	23.1	23.1	23.1	23.1	23.1	22.8
Dec 14	23.1	23.1	23.1	23.1	23.1	23.1	23.2	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.0	23.0	23.0	23.0	23.0	23.0	23.1	23.1	23.1	23.0	23.1	23.0	23.1
Dec 15	23.0	23.0	23.0	23.0	23.0	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.0	23.2	23.1	23.1	23.1	23.1	23.0	23.1	23.1	23.1	23.0	23.0	23.0	23.0
Dec 16	23.1	23.0	23.0	23.0	23.0	22.9	22.8	22.9	22.8	22.8	22.8	22.8	22.7	22.8	22.8	22.8	22.7	22.7	22.7	22.6	22.7	22.6	22.6	22.6	22.6	22.6	22.6
Dec 17	22.7	22.6	22.6	22.6	22.5	22.6	22.6	22.6	22.6	22.4	22.4	22.4	22.5	22.5	22.5	22.5	22.4	22.5	22.6	22.5	22.4	22.4	22.4	22.4	22.4	22.4	22.4
Dec 18	22.4	22.4	22.3	22.4	22.4	22.4	22.5	22.5	22.5	22.5	22.4	22.3	22.4	22.5	21.2	21.8	22.2	22.4	22.5	22.4	22.2	22.3	22.3	22.4	22.4	22.4	22.2
Dec 19	22.4	22.7	22.7	22.6	22.6	22.7	22.7	22.6	22.6	22.5	22.6	22.6	22.7	22.6	22.7	22.7	22.7	22.7	22.7	22.7	22.6	22.7	22.7	22.7	22.7	22.7	22.4
Dec 20	22.6	22.5	22.6	22.7	22.6	22.6	22.6	22.7	22.7	22.6	22.6	22.6	22.6	22.5	22.6	22.5	22.5	22.5	22.5	22.5	22.5	22.6	22.6	22.6	22.5	22.5	22.5
Dec 21	22.6	22.7	22.6	22.6	22.6	22.6	22.5	22.5	22.5	22.6	22.6	22.6	22.5	22.6	22.6	22.6	22.6	22.6	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Dec 22	22.5	22.5	22.5	22.5	22.5	22.5	22.4	22.5	22.4	22.5	22.5	22.5	22.5	22.5	22.5	22.4	22.5	22.4	22.4	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.4
Dec 23	22.5	22.4	22.4	22.5	22.3	22.5	22.3	22.4	22.4	22.4	22.4	21.8	21.9	21.6	22.0	22.2	22.3	22.3	22.3	22.4	22.4	22.3	22.4	22.5	22.5	22.5	21.6
Dec 24	22.4	22.5	22.5	22.4	22.4	22.5	22.5	22.5	22.5	22.4	22.5	22.4	22.5	22.4	22.4	22.5	22.4	22.5	22.4	22.4	22.3	22.3	22.5	22.5	22.5	22.5	22.3
Dec 25	22.5	22.6	22.6	22.6	22.6	22.7	22.7	22.6	22.6	22.6	22.6	22.7	22.7	22.7	22.7	22.6	22.6	22.6	22.6	22.6	22.6	22.7	22.6	22.6	22.6	22.5	22.5
Dec 26	22.6	22.6	22.6	22.6	22.5	22.5	22.5	22.4	22.5	22.5	22.5	22.5	22.5	22.5	22.6	22.6	22.7	22.6	22.6	22.6	22.6	22.8	22.8	22.9	22.9	22.4	22.9
Dec 27	22.8	22.8	22.8	22.7	22.8	22.8	22.7	22.8	22.7	22.8	22.7	22.7	22.6	22.6	22.5	22.5	22.4	22.4	22.5	22.6	22.5	22.6	22.6	22.6	22.6	22.6	22.4
Dec 28	22.6	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.5	22.2	22.5	22.7	22.8	22.8	22.7	22.7	22.7	22.7	22.7	22.8	22.7	22.7	22.7	22.7	22.7	22.2
Dec 29	22.8	22.7	22.7	22.8	22.7	22.7	22.8	22.7	22.7	22.7	22.7	22.0	22.8	22.8	22.8	22.9	22.9	22.8	22.9	22.8	22.9	22.9	22.9	22.9	22.9	22.9	22.0
Dec 30	22.8	22.9	22.8	22.8	22.9	22.8	22.9	22.9	22.9	22.9	22.9	22.9	22.8	22.9	22.9	22.9	22.9	22.9	22.8	22.8	22.9	22.8	22.8	22.9	22.9	22.9	22.8
Dec 31	22.9	22.9	23.0	22.9	22.9	22.9	22.9	23.0	22.9	22.9	22.9	23.0	22.9	23.0	22.9	22.9	22.9	22.9	23.0	22.9	23.0	22.9	23.0	23.0	22.9	23.0	22.9
Diurnal Maximum	23.1	23.1	23.1	23.1	23.1	23.1	23.2	23.1	23.1	23.1	23.1	23.1	23.2	23.1	23.2	23.1	23.1	23.1	23.1	23.1	23.0	23.1	23.1	23.1	23.1	23.1	23.1
Diurnal Average	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.4	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.6	22.5	22.6	22.5	22.6

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 ST - Cold Lake South Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 2022

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

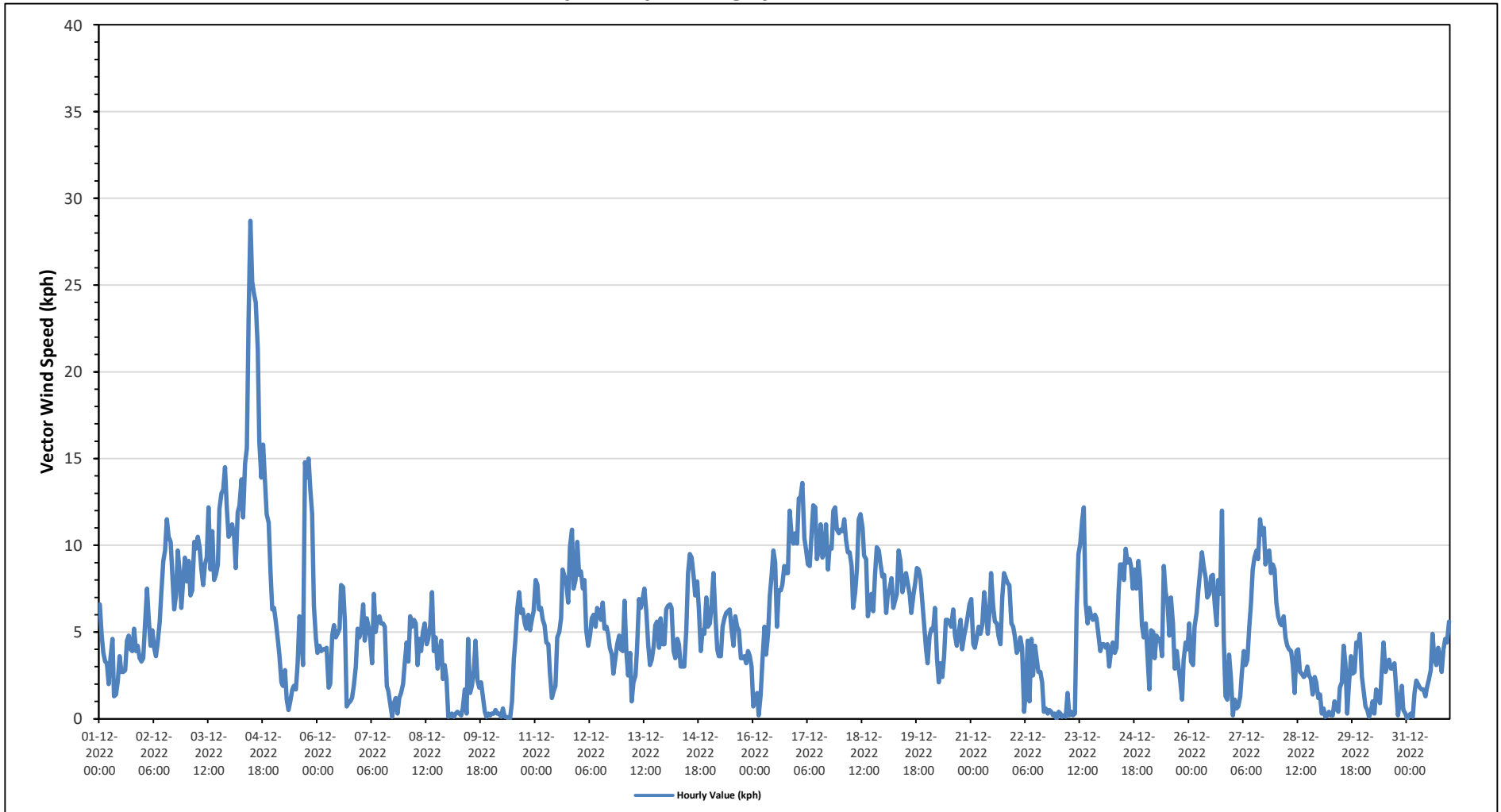
Maximum Hourly Value:	28.7 kph	on December 4 at hour 11	Hours in Service:	744
Maximum Daily Value:	13.4 kph	on December 4	Hours of Data:	744
Minimum Hourly Value:	0.0 kph	on December 10 at hour 9	Hours of Missing Data:	0
Minimum Daily Value:	1.0 kph	on December 9	Hours of Calibration:	0
Monthly Average:	0.6 kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Dec 1	6.6	4.9	3.8	3.3	3.2	2.0	3.5	4.6	1.3	1.4	2.2	3.6	2.7	2.7	2.8	4.5	4.8	4.0	3.9	5.2	3.9	4.2	3.5	3.3	1.3	6.6	1.3
Dec 2	3.5	5.4	7.5	5.9	4.2	5.1	4.1	3.6	4.4	5.6	7.2	9.1	9.7	11.5	10.5	10.2	8.5	6.3	7.1	9.7	8.5	6.4	8.1	9.3	3.5	11.5	7.0
Dec 3	7.9	9.1	7.1	7.4	10.2	9.8	10.5	9.9	8.6	7.7	8.9	9.3	12.2	8.6	10.8	8.0	8.3	8.9	12.1	13.0	13.2	14.5	12.2	10.5	7.1	14.5	9.9
Dec 4	10.7	11.2	10.5	8.7	11.9	12.3	13.8	11.6	14.7	15.6	23.2	28.7	25.2	24.5	24.0	21.3	16.0	13.9	15.8	13.8	11.8	11.3	8.5	6.3	6.3	28.7	13.4
Dec 5	6.4	5.6	4.7	3.7	2.1	1.9	2.8	1.1	0.5	1.0	1.7	1.9	1.7	3.2	5.9	5.1	3.1	14.8	13.9	15.0	13.2	11.8	6.5	4.6	0.5	15.0	4.7
Dec 6	3.8	4.2	3.9	4.0	4.1	1.8	2.0	4.8	5.4	4.7	4.9	5.2	7.7	7.6	5.6	0.7	0.9	1.0	1.2	1.9	3.0	5.2	4.7	0.7	7.7	2.9	
Dec 7	5.2	6.6	4.5	5.8	5.3	4.6	3.2	7.2	5.0	5.8	5.9	5.5	5.5	5.3	1.9	1.6	0.8	0.1	0.9	1.2	0.3	1.2	1.5	2.0	0.1	7.2	2.4
Dec 8	3.1	4.4	3.3	5.9	5.3	5.7	5.5	3.1	4.6	3.9	5.0	5.5	4.3	4.6	5.4	7.3	3.9	4.7	2.9	3.7	4.5	2.3	3.1	2.3	2.3	7.3	4.2
Dec 9	0.1	0.2	0.3	0.1	0.3	0.4	0.3	0.2	0.6	1.7	0.3	4.6	1.5	1.9	2.8	4.5	2.2	1.8	2.1	1.3	0.4	0.1	0.3	0.2	0.1	4.6	1.0
Dec 10	0.3	0.3	0.5	0.3	0.3	0.1	0.6	0.1	0.1	0.0	0.0	1.0	3.4	4.5	6.4	7.3	6.1	6.3	5.5	5.2	6.0	5.1	5.8	6.2	0.0	7.3	2.8
Dec 11	8.0	7.7	6.3	6.4	5.7	5.4	4.4	4.3	2.7	1.2	1.6	1.9	4.7	5.0	5.8	8.6	8.2	7.8	6.7	9.9	10.9	7.5	8.0	10.2	1.2	10.9	1.7
Dec 12	8.3	8.5	7.5	8.0	5.1	4.2	4.8	5.8	6.0	5.3	6.4	6.2	5.7	6.7	5.2	5.3	4.9	4.1	3.7	2.6	3.5	4.3	4.8	4.0	2.6	8.5	4.7
Dec 13	3.9	6.8	3.9	2.5	3.8	1.0	2.1	2.5	4.0	6.9	6.4	6.9	7.5	6.1	4.3	3.1	3.4	4.2	5.4	5.6	4.1	5.8	4.3	4.3	1.0	7.5	3.3
Dec 14	6.3	6.5	6.6	6.4	3.9	3.5	4.6	4.3	3.0	3.0	3.0	5.1	8.4	9.5	9.3	8.2	7.1	7.9	6.2	3.9	5.1	4.9	7.0	5.3	3.0	9.5	4.2
Dec 15	5.5	6.7	8.4	6.1	4.0	3.6	3.6	5.3	5.8	6.1	6.2	6.3	5.2	4.2	5.9	5.3	5.1	3.5	3.5	3.6	3.2	3.9	3.6	3.0	3.0	8.4	4.4
Dec 16	0.7	1.1	1.5	0.2	1.4	3.4	5.3	3.7	4.9	7.1	8.3	9.7	9.0	5.3	7.4	7.4	7.7	8.8	8.4	8.4	12.0	10.5	10.1	10.7	0.2	12.0	5.9
Dec 17	10.1	12.7	12.8	13.6	10.4	9.8	8.9	8.8	10.6	12.3	12.2	9.2	9.7	11.2	9.3	9.6	11.2	8.6	9.9	9.8	12.0	12.2	10.9	10.7	8.6	13.6	10.5
Dec 18	10.9	10.8	11.5	10.3	9.6	9.6	8.8	6.4	7.3	8.7	11.5	11.8	11.0	9.4	9.2	5.9	6.7	7.2	6.2	8.3	9.9	9.7	8.9	8.2	5.9	11.8	8.7
Dec 19	8.3	6.1	7.1	7.5	8.1	6.4	6.8	7.2	9.7	9.1	7.3	7.8	8.4	7.8	7.1	6.1	7.1	7.8	8.7	8.6	8.1	6.8	5.5	4.0	4.0	9.7	7.2
Dec 20	3.2	4.8	5.2	5.1	6.4	3.5	2.1	3.2	2.4	3.6	5.7	5.5	5.3	6.3	4.8	4.2	4.9	5.7	4.0	4.8	5.3	5.9	6.6	2.1	6.6	4.5	
Dec 21	6.9	4.3	4.1	4.7	5.3	4.9	5.4	7.3	6.3	4.9	6.2	8.4	6.5	5.6	5.5	4.8	4.3	7.0	8.4	8.1	7.8	7.7	5.5	5.3	4.1	8.4	5.5
Dec 22	4.8	3.8	4.0	4.7	4.1	0.4	1.7	4.5	1.0	4.6	2.5	4.2	3.4	2.7	2.7	2.1	0.4	0.6	0.3	0.5	0.4	0.2	0.3	0.0	0.0	4.8	2.0
Dec 23	0.4	0.3	0.1	0.2	0.1	1.5	0.2	0.4	0.2	0.3	6.4	9.5	10.1	11.5	12.2	6.7	5.5	6.4	5.9	5.7	6.0	5.8	4.8	3.9	0.1	12.2	4.0
Dec 24	4.3	4.3	4.1	4.3	3.0	4.0	4.4	3.8	4.1	7.3	8.9	8.9	8.0	9.8	9.0	9.2	8.8	7.5	8.6	7.5	9.1	7.9	5.4	4.7	3.0	9.8	6.0
Dec 25	5.5	3.6	1.7	5.1	5.0	3.5	4.8	4.5	4.6	3.6	8.8	7.3	6.8	4.8	7.0	5.5	2.9	3.9	3.1	2.3	1.1	3.4	4.4	4.0	1.1	8.8	2.9
Dec 26	5.5	3.3	3.1	5.3	6.1	7.4	8.5	9.6	8.8	8.1	7.0	7.2	8.2	8.3	6.7	5.4	8.0	7.2	12.0	4.6	1.3	1.1	3.7	2.4	1.1	12.0	5.7
Dec 27	0.2	1.1	0.6	0.7	1.3	2.6	3.9	3.1	3.4	5.2	6.6	8.6	9.3	9.7	9.2	11.5	10.6	11.0	8.9	9.6	9.7	8.4	8.9	8.6	0.2	11.5	6.3
Dec 28	6.7	5.9	5.5	5.4	5.9	4.7	4.2	4.0	3.9	3.1	1.5	3.9	4.0	2.7	2.6	2.4	2.5	3.0	2.5	2.3	1.4	2.4	2.1	1.2	1.2	6.7	3.0
Dec 29	1.4	0.3	0.6	0.1	0.2	0.4	0.2	0.2	1.0	0.6	0.4	1.8	2.1	4.2	3.2	0.3	2.0	3.6	2.6	2.7	4.4	4.2	4.9	2.4	0.1	4.9	1.3
Dec 30	1.7	0.7	0.5	0.1	0.4	1.0	0.3	1.7	1.4	0.9	2.7	4.4	2.7	3.1	3.4	2.9	2.9	3.2	1.7	0.2	1.0	1.9	0.5	0.3	0.1	4.4	1.5
Dec 31	0.0	0.2	0.3	0.1	1.5	2.2	2.0	1.8	1.7	1.7	1.3	1.8	2.3	2.8	4.9	3.5	3.1	4.1	3.6	2.7	4.0	4.6	4.4	5.6	0.0	5.6	2.5
Diurnal Maximum	11	13	13	14	12	12	14	12	15	16	23	29	25	25	24	21	16	15	16	15	13	15	12	11			
Diurnal Average	4.8	4.9	4.6	4.6	4.5	4.2	4.3	4.4	4.4	4.9	5.8	6.8	6.8	6.8	6.9	6.3	5.5	5.9	6.0	5.8	5.9	5.8	5.4	5.0			

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

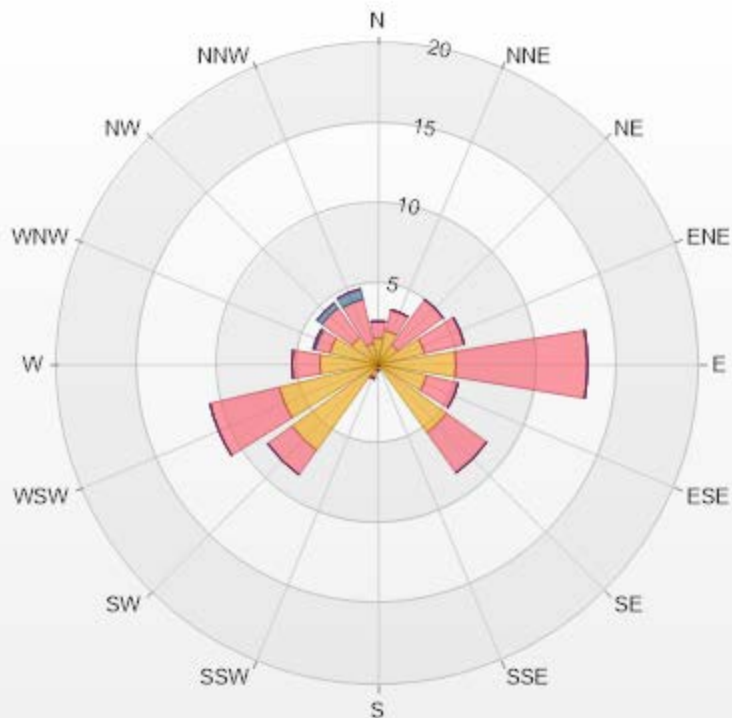
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

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



Wind: Cold Lake South Monitor: WDS [kph] Monthly: 12-2022 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 17.07% 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	1.61	1.08	0	0	0	2.69
NNE	2.15	1.34	0	0	0	3.49
NE	1.48	3.49	0	0	0	4.97
ENE	2.96	2.55	0	0	0	5.51
E	4.84	8.2	0	0	0	13.04
ESE	3.09	2.02	0	0	0	5.11
SE	5.24	3.09	0	0	0	8.33
SSE	0.13	0	0	0	0	0.13
S	0.4	0	0	0	0	0.4
SSW	0.81	0.13	0	0	0	0.94
SW	6.59	1.88	0	0	0	8.47
WSW	6.32	4.44	0	0	0	10.76
W	3.63	1.75	0	0	0	5.38
WNW	3.09	0.94	0.13	0	0	4.16
NW	2.02	2.28	0.4	0	0	4.7
NNW	1.34	2.82	0.67	0	0	4.83
Summary	45.7	36.01	1.2	0	0	82.91



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% Icon Classes (kph)

46

1.8-6.0

36

6.0-15.0

1

15.0-29.0

0

29.0-39.0

0

>39.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

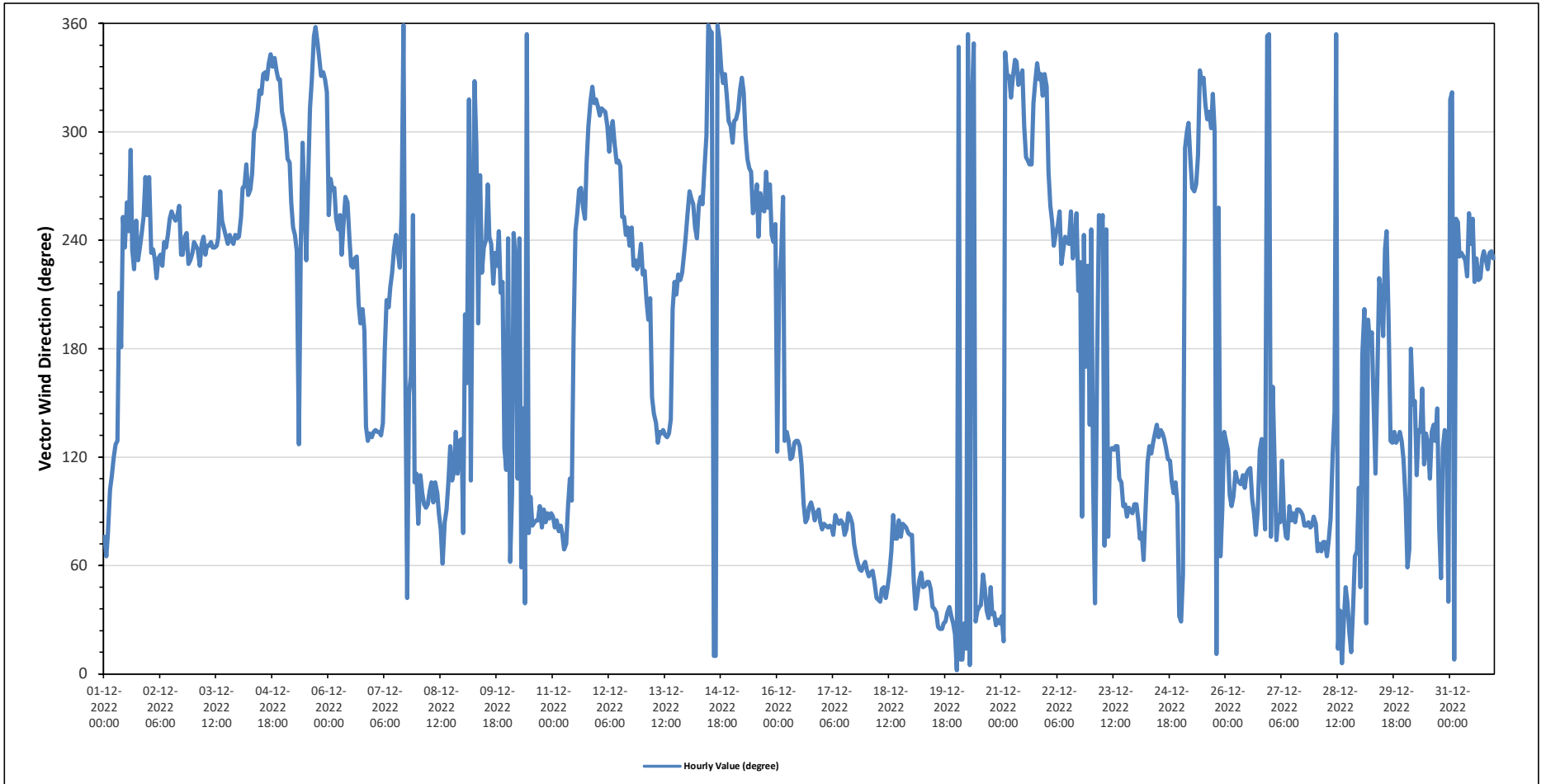
Cold Lake South Station - December 2022

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:		34 (NE) degree										Hours in Service:		744													
												Hours of Data:		744													
												Hours of Missing Data:		0													
												Hours of Calibration:		0													
												Operational Uptime:		100.0													
Day	Hourly Period Starting at (MST)																							Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant	
Dec 1	ENE	ENE	ENE	E	ESE	ESE	SE	SE	SSW	S	WSW	SW	W	WSW	WNW	SW	SW	WSW	SW	SW	WSW	WSW	W	WSW	214	SSW	
Dec 2	W	SW	SW	SW	SW	SW	SW	SW	SW	WSW	SW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	WSW	WSW	SW	SW	SW	242	WSW	
Dec 3	WSW	SW	SW	SW	SW	WSW	SW	SW	SW	WSW	SW	SW	WSW	W	WSW	WSW	WSW	SW	WSW	WSW	SW	WSW	WSW	WSW	240	WSW	
Dec 4	WSW	WSW	W	W	W	W	W	W	WNW	WNW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	312	NW	
Dec 5	NW	WNW	WNW	W	W	WSW	WSW	SW	SE	SW	WNW	W	SW	W	NW	NNW	N	N	N	NNW	NNW	NNW	NNW	NW	323	NW	
Dec 6	WSW	W	W	W	WSW	WSW	WSW	SW	WSW	W	W	WSW	SW	SW	SW	SSW	SSW	SSW	S	SE	SE	SE	SE	SE	233	SW	
Dec 7	SE	SE	SE	SE	SE	SE	S	SSW	SSW	SSW	SW	SW	WSW	SW	SW	WSW	N	SSE	NE	SSE	SSE	WSW	ESE	ESE	183	S	
Dec 8	E	ESE	E	E	E	E	E	ESE	E	ESE	E	E	E	ENE	E	E	ESE	SE	ESE	ESE	SE	ESE	SE	SE	100	E	
Dec 9	ENE	SSW	SSE	NW	ESE	WSW	NNW	WNW	SSW	W	SW	SW	WSW	W	WSW	SW	SW	SW	WSW	SSW	SSW	SW	SE	ESE	238	SW	
Dec 10	WSW	ENE	E	WSW	SW	ESE	WSW	ENE	SE	NE	N	ENE	E	E	E	E	E	E	E	E	E	E	E	E	87	E	
Dec 11	E	E	E	ENE	E	ENE	ENE	ENE	E	ESE	E	S	WSW	WSW	W	W	WSW	WSW	W	WNW	NW	NW	NW	NW	322	NW	
Dec 12	NW	NW	NW	NW	NW	WNW	WNW	WNW	NW	WNW	W	WNW	W	WSW	WSW	WSW	WSW	SW	WSW	SW	SW	SW	SW	SW	279	W	
Dec 13	SW	SW	SSW	SSW	SSW	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSW	SW	SSW	SW	SW	SW	SW	SW	WSW	179	S	
Dec 14	WSW	W	W	WSW	WSW	WSW	WSW	W	WSW	W	WNW	N	N	N	N	N	N	NNW	NW	NNW	NW	NW	WNW	WNW	316	NW	
Dec 15	WNW	NW	NW	NW	NW	NNW	NW	WNW	WNW	W	W	WSW	WSW	W	WSW	W	WSW	W	WSW	W	WSW	W	WSW	WSW	280	W	
Dec 16	ESE	SW	SW	W	SE	SE	SE	ESE	ESE	SE	SE	SE	SE	ESE	E	E	E	E	E	E	E	E	E	E	104	ESE	
Dec 17	E	E	E	E	E	E	ENE	E	E	E	E	E	ENE	E	E	E	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	77	ENE	
Dec 18	ENE	NE	NE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	ENE	E	ENE	ENE	E	ENE	E	E	E	ENE	ENE	62	ENE	
Dec 19	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NNE	NNE	NNE	NNE	NNE	NE	NE	NNE	NNE	NNE	40	NE	
Dec 20	N	NNW	N	N	NNE	NNE	N	N	NW	NNW	NNE	NE	NE	NE	NE	NE	NE	NNE	NE	NNE	NE	NNE	NNE	NNE	25	NNE	
Dec 21	NNE	NNE	NNW	NNW	NNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	W	W	NW	NNW	NNW	NNW	NNW	NNW	NNW	327	NW	
Dec 22	NW	W	WSW	WSW	SW	WSW	WSW	WSW	SW	SW	WSW	WSW	SW	WSW	SW	WSW	SSW	SW	E	WSW	SSE	SW	SE	SE	251	WSW	
Dec 23	WSW	ESE	NE	S	WSW	WSW	WSW	ENE	WSW	ENE	ESE	SE	ESE	SE	SE	ESE	ESE	E	E	E	E	E	E	E	111	ESE	
Dec 24	E	E	ENE	ENE	ENE	E	ESE	SE	ESE	SE	SE	SE	SE	SE	SE	SE	ESE	ESE	ESE	ESE	E	ESE	E	NNE	114	ESE	
Dec 25	NNE	NE	WNW	WNW	WNW	WNW	W	W	W	WNW	NNW	NW	NNW	NW	NW	NW	WNW	NW	WNW	NNE	WSW	ENE	E	SE	318	NW	
Dec 26	SE	ESE	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	E	ENE	E	ESE	SE	ESE	E	N	N	104	ESE	
Dec 27	ENE	SSE	ESE	ENE	E	E	ESE	E	ENE	ENE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	87	E
Dec 28	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	E	ESE	SE	N	NNE	NE	N	NNE	NE	NE	NNE	NNE	NE	ENE	ENE	ESE	60	ENE	
Dec 29	NE	S	SSW	NNE	SSW	S	S	SSE	ESE	SSE	SW	SSW	S	SW	WSW	S	SE	SE	SE	SE	SE	SE	SE	ESE	151	SSE	
Dec 30	E	ENE	ENE	S	SSE	SSE	ESE	SE	SE	SSE	ESE	SE	SE	ESE	SE	SE	SE	SE	E	NE	SE	SE	SE	NE	126	SE	
Dec 31	NW	NW	N	WSW	WSW	SW	SW	SW	SW	SW	WSW	SW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	231	SW	
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 (Machine Malfunction /Recovery)						NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																			
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																											
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																											

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





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 2022

Summary of Hourly Averages

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

WIND SPEED																											
Maximum Hourly Value:		28.7 kph on December 4 at hour 11										Hours in Service:		744													
Maximum Daily Value:		13.4 kph on December 4										Hours of Data:		744													
Minimum Hourly Value:		0.0 kph on December 10 at hour 9										Hours of Missing Data:		0													
Minimum Daily Value:		1.0 kph on December 9										Hours of Calibration:		0													
Monthly Average:		0.6 kph										Operational Uptime:		100													
WIND DIRECTION																											
Monthly Average:		34 (NE) 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			
Dec 1	6.6	4.9	3.8	3.3	3.2	2.0	3.5	4.6	1.3	1.4	2.2	3.6	2.7	2.7	2.8	4.5	4.8	4.0	3.9	5.2	3.9	4.2	3.5	3.3	1.3	6.6	1.3
	ENE	ENE	ENE	E	ESE	ESE	SE	SE	SSW	S	WSW	SW	W	WSW	NNW	SW	SW	WSW	SW	SW	WSW	W	WSW				
Dec 2	3.5	5.4	7.5	5.9	4.2	5.1	4.1	3.6	4.4	5.6	7.2	9.1	9.7	11.5	10.5	10.2	8.5	6.3	7.1	9.7	8.5	6.4	8.1	9.3	3.5	11.5	7.0
	W	SW	SW	SW	SW	SW	SW	WSW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	WSW	SW	SW	SW	SW			
Dec 3	7.9	9.1	7.1	7.4	10.2	9.8	10.5	9.9	8.6	7.7	8.9	9.3	12.2	8.6	10.8	8.0	8.3	8.9	12.1	13.0	13.2	14.5	12.2	10.5	7.1	14.5	9.9
	WSW	SW	SW	SW	WSW	SW	WSW	SW	SW	WSW	SW	SW	WSW	W	WSW	WSW	WSW	SW	WSW	WSW	SW	WSW	SW	WSW			
Dec 4	10.7	11.2	10.5	8.7	11.9	12.3	13.8	11.6	14.7	15.6	23.2	28.7	25.2	24.5	24.0	21.3	16.0	13.9	15.8	13.8	11.8	11.3	8.5	6.3	6.3	28.7	13.4
	WSW	WSW	W	W	W	W	W	W	WNW	NNW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW			
Dec 5	6.4	5.6	4.7	3.7	2.1	1.9	2.8	1.1	0.5	1.0	1.7	1.9	1.7	3.2	5.9	5.1	3.1	14.8	13.9	15.0	13.2	11.8	6.5	4.6	0.5	15.0	4.7
	NW	NNW	NNW	W	W	WSW	WSW	SW	SE	SW	WNW	W	SW	W	NW	NNW	N	N	NNW	NNW	NNW	NNW	NNW	NW			
Dec 6	3.8	4.2	3.9	4.0	4.0	4.1	1.8	2.0	4.8	5.4	4.7	4.9	5.2	7.7	7.6	5.6	0.7	0.9	1.0	1.2	1.9	3.0	5.2	4.7	0.7	7.7	2.9
	WSW	W	W	W	WSW	WSW	WSW	SW	WSW	W	W	WSW	SW	SW	SW	SW	SSW	SSW	SSW	S	SE	SE	SE	SE			
Dec 7	5.2	6.6	4.5	5.8	5.3	4.6	3.2	7.2	5.0	5.8	5.9	5.5	5.5	5.3	1.9	1.6	0.8	0.1	0.9	1.2	0.3	1.2	1.5	2.0	0.1	7.2	2.4
	SE	SE	SE	SE	SE	SE	S	SSW	SSW	SSW	SW	SW	WSW	SW	SW	WSW	N	SSE	NE	SSE	SSE	WSW	ESE	ESE			
Dec 8	3.1	4.4	3.3	5.9	5.3	5.7	5.5	3.1	4.6	3.9	5.0	5.5	4.3	4.6	5.4	7.3	3.9	4.7	2.9	3.7	4.5	2.3	3.1	2.3	2.3	7.3	4.2
	E	ESE	E	E	E	E	E	ESE	E	ESE	E	E	E	ENE	E	E	ESE	SE	ESE	ESE	SE	ESE	SE	SE			
Dec 9	0.1	0.2	0.3	0.1	0.3	0.4	0.3	0.2	0.6	1.7	0.3	4.6	1.5	1.9	2.8	4.5	2.2	1.8	2.1	1.3	0.4	0.1	0.3	0.2	0.1	4.6	1.0
	ENE	SSW	SSE	NW	ESE	WSW	NNW	WNW	SSW	W	SW	SW	WSW	W	WSW	SW	SW	SW	SW	WSW	SSW	SW	SE	ESE			
Dec 10	0.3	0.3	0.5	0.3	0.3	0.1	0.6	0.1	0.1	0.0	0.0	1.0	3.4	4.5	6.4	7.3	6.1	6.3	5.5	5.2	6.0	5.1	5.8	6.2	0.0	7.3	2.8
	WSW	ENE	E	WSW	SW	ESE	WSW	ENE	SE	NE	N	ENE	E	E	E	E	E	E	E	E	E	E	E	E			
Dec 11	8.0	7.7	6.3	6.4	5.7	5.4	4.4	4.3	2.7	1.2	1.6	1.9	4.7	5.0	5.8	8.6	8.2	7.8	6.7	9.9	10.9	7.5	8.0	10.2	1.2	10.9	1.7
	E	E	E	ENE	E	ENE	ENE	ENE	E	ESE	E	S	WSW	WSW	W	W	WSW	WSW	W	WNW	NW	NW	NW	NW			
Dec 12	8.3	8.5	7.5	8.0	5.1	4.2	4.8	5.8	6.0	5.3	6.4	6.2	5.7	6.7	5.2	5.3	4.9	4.1	3.7	2.6	3.5	4.3	4.8	4.0	2.6	8.5	4.7
	NW	NW	NW	NW	WNW	WNW	WNW	NW	WNW	W	WNW	W	WSW	WSW	WSW	WSW	WSW	WSW	SW	WSW	SW	SW	SW	SW			
Dec 13	3.9	6.8	3.9	2.5	3.8	1.0	2.1	2.5	4.0	6.9	6.4	6.9	7.5	6.1	4.3	3.1	3.4	4.2	5.4	5.6	4.1	5.8	4.3	4.3	1.0	7.5	3.3
	SW	SW	SSW	SSW	SSW	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSW	SW	SSW	SW	SW	SW	SW	WSW			
Dec 14	6.3	6.5	6.6	6.4	3.9	3.5	4.6	4.3	3.0	3.0	3.0	5.1	8.4	9.5	9.3	8.2	7.1	7.9	6.2	3.9	5.1	4.9	7.0	5.3	3.0	9.5	4.2
	WSW	W	W	WSW	WSW	WSW	W	WSW	W	WNW	N	N	N	N	N	N	N	N	NNW	NW	NNW	NW	NW	WNW			
Dec 15	5.5	6.7	8.4	6.1	4.0	3.6	3.6	5.3	5.8	6.1	6.2	6.3	5.2	4.2	5.9	5.3	5.1	3.5	3.5	3.6	3.2	3.9	3.6	3.0	3.0	8.4	4.4
	WNW	NW	NW	NW	NW	NNW	NW	WNW	WNW	W	W	WSW	WSW	W	WSW	W	WSW	WSW	W	WSW	W	WSW	WSW	WSW			
Dec 16	0.7	1.1	1.5	0.2	1.4	3.4	5.3	3.7	4.9	7.1	8.3	9.7	9.0	5.3	7.4	7.4	7.7	8.8	8.4	8.4	12.0	10.5	10.1	10.7	0.2	12.0	5.9
	ESE	SW	SW	W	SE	SE	ESE	ESE	ESE	SE	SE	SE	ESE	E	E	E	E	E	E	E	E	E	E	E			
Dec 17	10.1	12.7	12.8	13.6	10.4	9.8	8.9	8.8	10.6	12.3	12.2	9.2	9.7	11.2	9.3	9.6	11.2	8.6	9.9	9.8	12.0	12.2	10.9	10.7	8.6	13.6	10.5
	E	E	E	E	E	E	ENE	E	E	E	E	ENE	E	E	E	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE			
Dec 18	10.9	10.8	11.5	10.3	9.6	9.6	8.8	6.4	7.3	8.7	11.5	11.8	11.0	9.4	9.2	5.9	6.7	7.2	6.2	8.3	9.9	9.7	8.9	8.2	5.9	11.8	8.7
	ENE	NE	NE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	ENE	E	ENE	ENE	E	ENE	E	E	ENE	ENE			
Dec 19	8.3	6.1	7.1	7.5	8.1	6.4	6.8	7.2	9.7	9.1	7.3	7.8	8.4	7.8	7.1	6.1	7.1	7.8	8.7	8.6	8.1	6.8	5.5	4.0	4.0	9.7	7.2
	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NNE	NNE	NNE	NNE	NNE	NE	NE	NNE	NNE	NNE			
Dec 20	3.2	4.8	5.2	5.1	6.4	3.5	2.1	3.2	2.4	3.6	5.7	5.7	5.5	5.3	6.3	4.8	4.2	4.9	5.7	4.0	4.8	5.3	5.9	6.6	2.1	6.6	4.5
	N	NNW	N	N	NNE	NNE	N	N	NW	NNW	NNE	NE	NE	NE	NE	NE	NE	NNE	NE	NNE	NE	NNE	NNE	NNE			



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 2022

Summary of Hourly Averages

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

WIND SPEED																																																											
Maximum Hourly Value: 28.7 kph on December 4 at hour 11														Hours in Service: 744																																													
Maximum Daily Value: 13.4 kph on December 4														Hours of Data: 744																																													
Minimum Hourly Value: 0.0 kph on December 10 at hour 9														Hours of Missing Data: 0																																													
Minimum Daily Value: 1.0 kph on December 9														Hours of Calibration: 0																																													
Monthly Average: 0.6 kph														Operational Uptime: 100																																													
WIND DIRECTION																																																											
Monthly Average: 34 (NE) 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																																			
Dec 21	6.9	4.3	4.1	4.7	5.3	4.9	5.4	7.3	6.3	4.9	6.2	8.4	6.5	5.6	5.5	4.8	4.3	7.0	8.4	8.1	7.8	7.7	5.5	5.3	4.1	8.4	5.5																																
	NNE	NNE	NNW	NNW	NNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	WNW	WNW	WNW	W	W	NW	NNW	NNW	NNW	NNW	NW	NNW																																			
Dec 22	4.8	3.8	4.0	4.7	4.1	0.4	1.7	4.5	1.0	4.6	2.5	4.2	3.4	2.7	2.7	2.1	0.4	0.6	0.3	0.5	0.4	0.2	0.3	0.0	0.0	4.8	2.0																																
	NW	W	WSW	WSW	SW	WSW	WSW	WSW	SW	SW	WSW	WSW	SW	WSW	SW	SW	WSW	SSW	SW	E	WSW	SSE	SW	SE																																			
Dec 23	0.4	0.3	0.1	0.2	0.1	1.5	0.2	0.4	0.2	0.3	6.4	9.5	10.1	11.5	12.2	6.7	5.5	6.4	5.9	5.7	6.0	5.8	4.8	3.9	0.1	12.2	4.0																																
	WSW	ESE	NE	S	WSW	WSW	WSW	ENE	WSW	ENE	ESE	SE	ESE	SE	SE	ESE	ESE	E	E	E	E	E	E	E																																			
Dec 24	4.3	4.3	4.1	4.3	3.0	4.0	4.4	3.8	4.1	7.3	8.9	8.9	8.0	9.8	9.0	9.2	8.8	7.5	8.6	7.5	9.1	7.9	5.4	4.7	3.0	9.8	6.0																																
	E	E	ENE	ENE	ENE	E	ESE	SE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	ESE	E	ESE	E	E	NNE																																			
Dec 25	5.5	3.6	1.7	5.1	5.0	3.5	4.8	4.5	4.6	3.6	8.8	7.3	6.8	4.8	7.0	5.5	2.9	3.9	3.1	2.3	1.1	3.4	4.4	4.0	1.1	8.8	2.9																																
	NNE	NE	WNW	WNW	WNW	WNW	W	W	W	WNW	NNW	NW	NNW	NW	NW	NW	WNW	NW	WNW	NNE	WSW	ENE	E	SE																																			
Dec 26	5.5	3.3	3.1	5.3	6.1	7.4	8.5	9.6	8.8	8.1	7.0	7.2	8.2	8.3	6.7	5.4	8.0	7.2	12.0	4.6	1.3	1.1	3.7	2.4	1.1	12.0	5.7																																
	SE	ESE	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	E	ENE	E	ESE	SE	ESE	E	N	N																																			
Dec 27	0.2	1.1	0.6	0.7	1.3	2.6	3.9	3.1	3.4	5.2	6.6	8.6	9.3	9.7	9.2	11.5	10.6	11.0	8.9	9.6	9.7	8.4	8.9	8.6	0.2	11.5	6.3																																
	ENE	SSE	ESE	ENE	E	E	ESE	E	ENE	ENE	E	E	E	E	E	E	E	E	E	E	E	E	E	E																																			
Dec 28	6.7	5.9	5.5	5.4	5.9	4.7	4.2	4.0	3.9	3.1	1.5	3.9	4.0	2.7	2.6	2.4	2.5	3.0	2.5	2.3	1.4	2.4	2.1	1.2	1.2	6.7	3.0																																
	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	E	ESE	SE	N	NNE	NE	N	NNE	NE	NE	NNE	NNE	NE	ENE	ENE	ESE																																			
Dec 29	1.4	0.3	0.6	0.1	0.2	0.4	0.2	0.2	1.0	0.6	0.4	1.8	2.1	4.2	3.2	0.3	2.0	3.6	2.6	2.7	4.4	4.2	4.9	2.4	0.1	4.9	1.3																																
	NE	S	SSW	NNE	SSW	S	S	SSE	ESE	SSE	SW	SSW	S	SW	WSW	S	SE	SE	SE	SE	SE	SE	SE	ESE																																			
Dec 30	1.7	0.7	0.5	0.1	0.4	1.0	0.3	1.7	1.4	0.9	2.7	4.4	2.7	3.1	3.4	2.9	2.9	3.2	1.7	0.2	1.0	1.9	0.5	0.3	0.1	4.4	1.5																																
	E	ENE	ENE	S	SSE	SSE	ESE	SE	SE	SSE	ESE	SE	ESE	SE	ESE	SE	SE	SE	E	NE	SE	SE	NE	NE																																			
Dec 31	0.0	0.2	0.3	0.1	1.5	2.2	2.0	1.8	1.7	1.7	1.3	1.8	2.3	2.8	4.9	3.5	3.1	4.1	3.6	2.7	4.0	4.6	4.4	5.6	0.0	5.6	2.5																																
	NW	NW	N	WSW	WSW	SW	SW	SW	SW	SW	WSW	SW	WSW	SW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	SW																																			
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	Unit/Maint (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 - December 2022

Summary of Hour Standard Deviations

STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

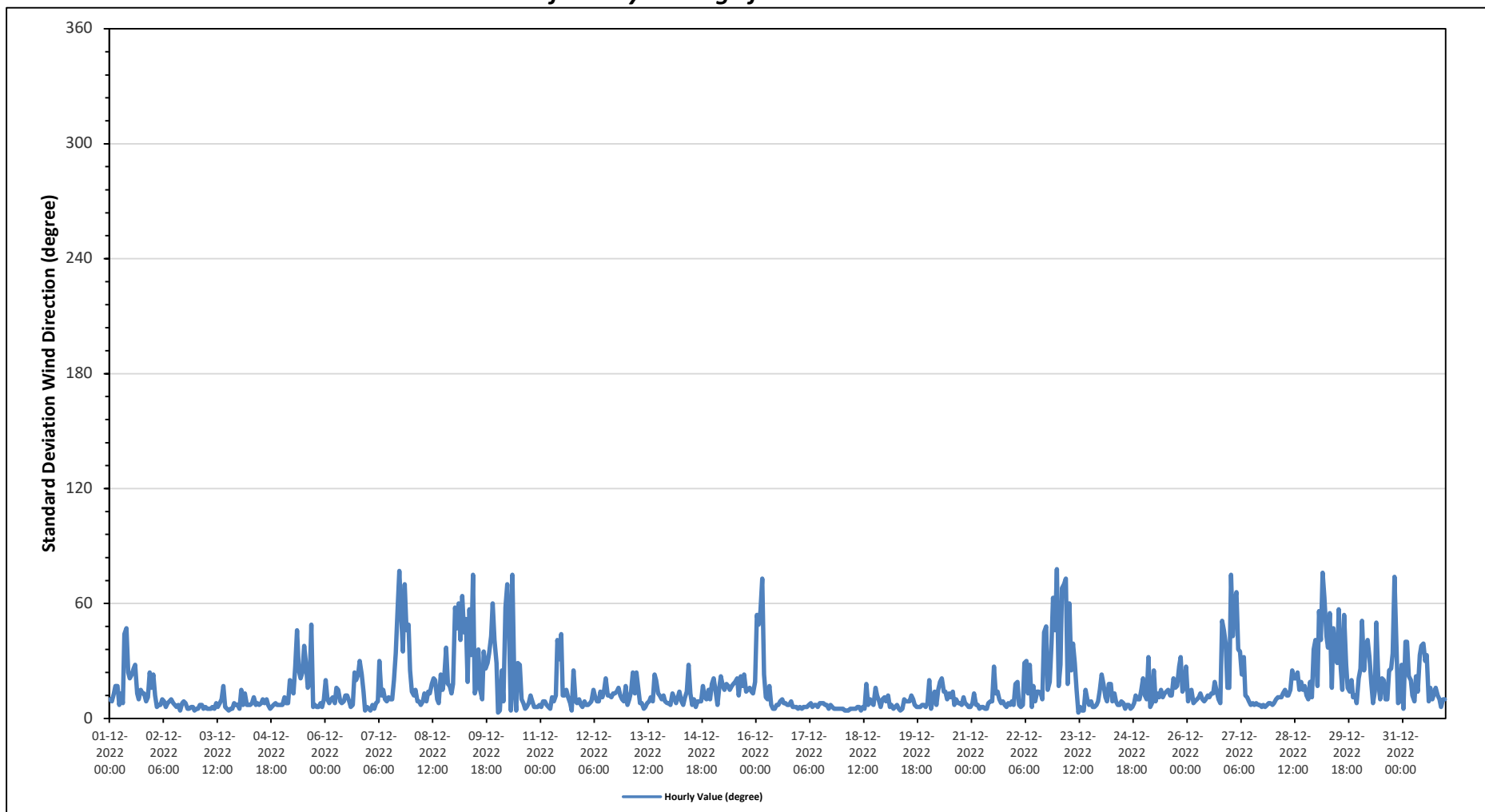
Maximum Hourly Value:	78 degree on December 22 at hour 23	Hours in Service:	744
Minimum Hourly Value:	3 degree on December 10 at hour 0	Hours of Data:	744
		Hours of Missing Data:	0
		Hours of Calibration:	0
		Operational Uptime:	100.0

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
Dec 1	10	9	13	17	17	7	13	8	44	47	24	21	23	26	28	13	10	15	13	13	9	11	24	16	7	47
Dec 2	23	12	6	7	7	10	9	6	8	9	10	8	7	6	7	4	8	9	8	5	5	6	6	4	4	23
Dec 3	5	5	7	7	5	6	5	5	5	6	5	8	6	8	10	17	6	5	4	5	5	8	7	7	4	17
Dec 4	5	15	7	13	7	7	7	8	11	7	8	7	8	10	8	10	7	5	6	7	8	7	7	7	5	15
Dec 5	7	11	8	8	20	19	13	27	46	25	21	24	38	30	16	18	49	6	7	6	6	8	6	10	6	49
Dec 6	20	10	8	10	11	8	16	15	9	8	9	12	12	9	6	7	24	20	23	30	23	14	4	6	4	30
Dec 7	5	4	7	5	8	9	30	12	15	10	9	11	10	10	20	34	56	77	55	35	70	46	49	25	4	77
Dec 8	14	12	15	9	9	7	9	13	9	14	13	18	21	20	10	8	23	15	20	37	18	17	13	18	7	37
Dec 9	58	47	60	41	64	45	52	19	57	33	75	13	17	36	15	10	35	26	29	34	43	60	41	29	10	75
Dec 10	3	4	25	9	58	70	51	4	75	16	4	29	28	10	8	5	6	8	12	9	6	6	6	7	3	75
Dec 11	6	9	9	7	6	5	11	9	12	41	31	44	12	12	15	11	8	4	25	9	8	10	7	6	4	44
Dec 12	9	7	7	8	9	15	11	9	9	14	11	15	21	12	12	11	13	13	14	16	12	10	9	17	7	21
Dec 13	7	10	14	24	13	24	16	8	8	5	6	8	9	11	9	23	20	13	12	10	12	9	8	8	5	24
Dec 14	7	13	11	8	11	14	9	7	11	14	28	13	7	10	6	9	9	9	17	11	10	15	10	18	6	28
Dec 15	21	15	7	15	22	17	15	18	17	15	17	18	19	21	12	22	17	23	14	15	16	14	13	19	7	23
Dec 16	54	49	56	73	23	11	10	17	7	5	5	7	9	10	8	8	7	7	9	6	6	6	5	5	5	73
Dec 17	6	5	6	6	6	7	8	6	7	7	6	8	8	8	7	5	7	6	5	5	5	5	5	5	5	8
Dec 18	5	4	4	4	5	5	5	5	6	6	4	6	5	18	7	10	8	7	16	12	9	6	10	11	4	18
Dec 19	9	12	6	7	5	6	7	5	4	5	10	9	9	9	12	10	7	6	6	6	7	7	6	8	4	12
Dec 20	20	5	10	14	7	15	19	21	14	14	10	13	11	14	7	10	8	8	7	11	8	7	6	6	5	21
Dec 21	8	13	7	7	5	6	6	5	5	8	9	9	27	13	14	10	8	9	7	6	8	7	9	7	5	27
Dec 22	18	19	7	6	7	29	30	13	28	6	17	9	14	14	13	10	45	48	15	19	39	63	46	78	6	78
Dec 23	17	28	68	70	73	18	60	25	39	29	15	3	6	4	4	15	10	7	9	6	6	7	9	15	3	73
Dec 24	23	18	11	9	18	18	9	13	9	7	7	9	8	5	7	7	5	6	8	12	10	10	14	21	5	23
Dec 25	12	10	32	6	8	25	9	13	11	15	11	13	14	15	12	12	21	16	17	27	32	14	17	27	6	32
Dec 26	9	14	15	8	9	10	11	13	10	9	10	12	11	13	13	19	14	10	8	51	46	39	16	16	8	51
Dec 27	75	43	61	66	36	35	23	32	12	11	9	7	8	7	8	7	6	7	6	7	6	8	7	6	7	75
Dec 28	8	10	11	11	11	13	15	12	12	15	25	21	21	24	15	19	15	17	12	10	19	11	36	41	8	41
Dec 29	17	56	41	76	63	43	37	55	16	47	33	29	57	26	15	54	28	16	14	20	11	12	8	21	8	76
Dec 30	26	51	25	38	41	32	19	8	14	50	19	10	21	20	10	10	25	26	34	74	41	8	9	28	8	74
Dec 31	5	40	40	22	20	12	9	22	14	33	38	39	30	33	9	16	10	13	16	12	10	6	10	10	5	40
Diurnal Minimum	3	4	4	4	5	5	5	4	4	5	4	3	5	4	4	4	5	4	4	5	5	5	4	4		
Diurnal Maximum	75	56	68	76	73	70	60	55	75	50	75	44	57	36	28	54	56	77	55	74	70	63	49	78		

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

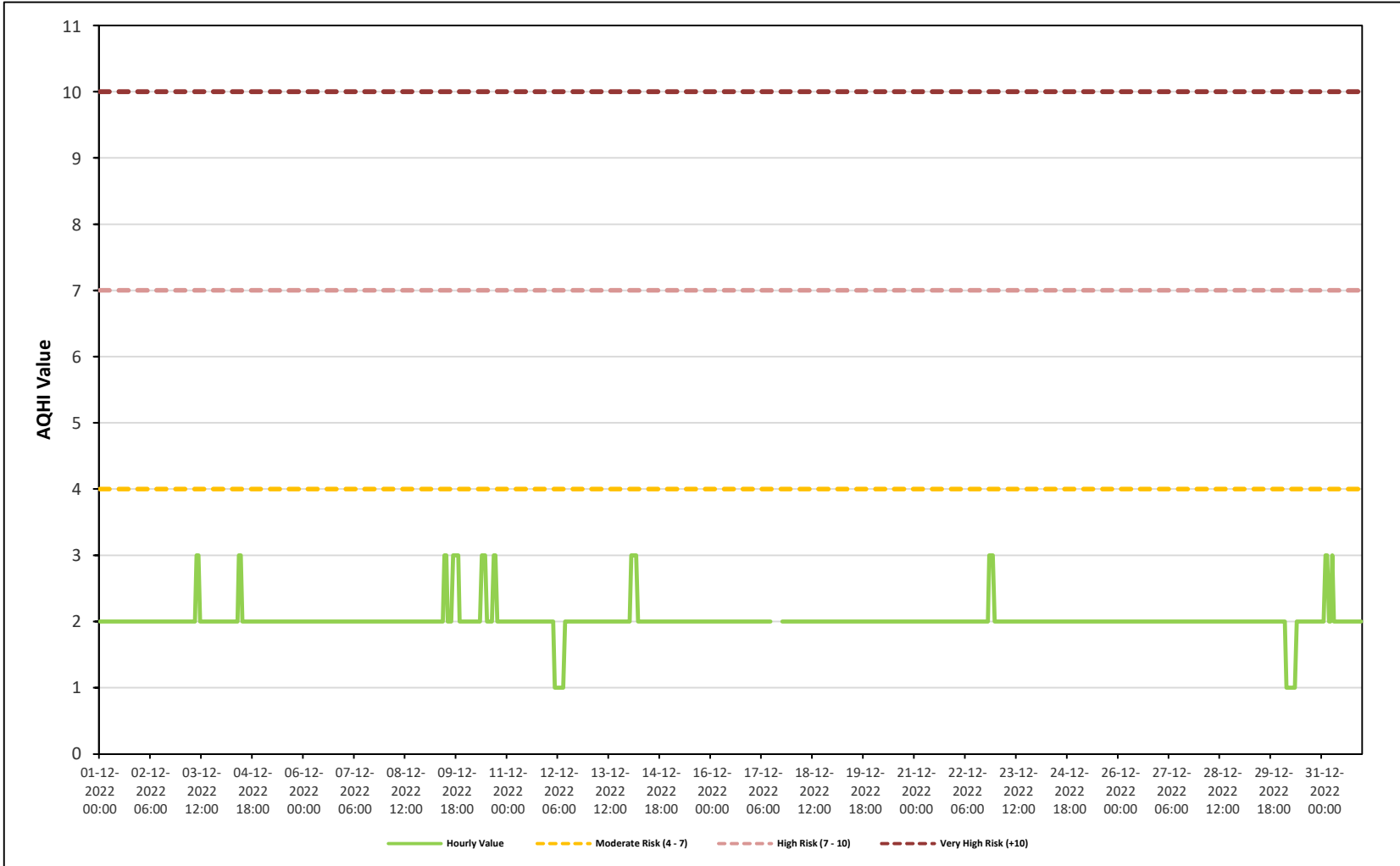
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

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



TAMARACK STATION

Timeseries Chart of Hourly Average for AQHI - Tamarack Site





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - December 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:	10 ppb on December 4 at hour 8	Hours in Service:	744
Maximum Daily Value:	3.0 ppb on December 26	Hours of Data:	708
Minimum Hourly Value:	0 ppb on December 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 ppb on December 17	Hours of Calibration:	36
Monthly Average:	0.9 ppb	Operational Uptime:	100.0

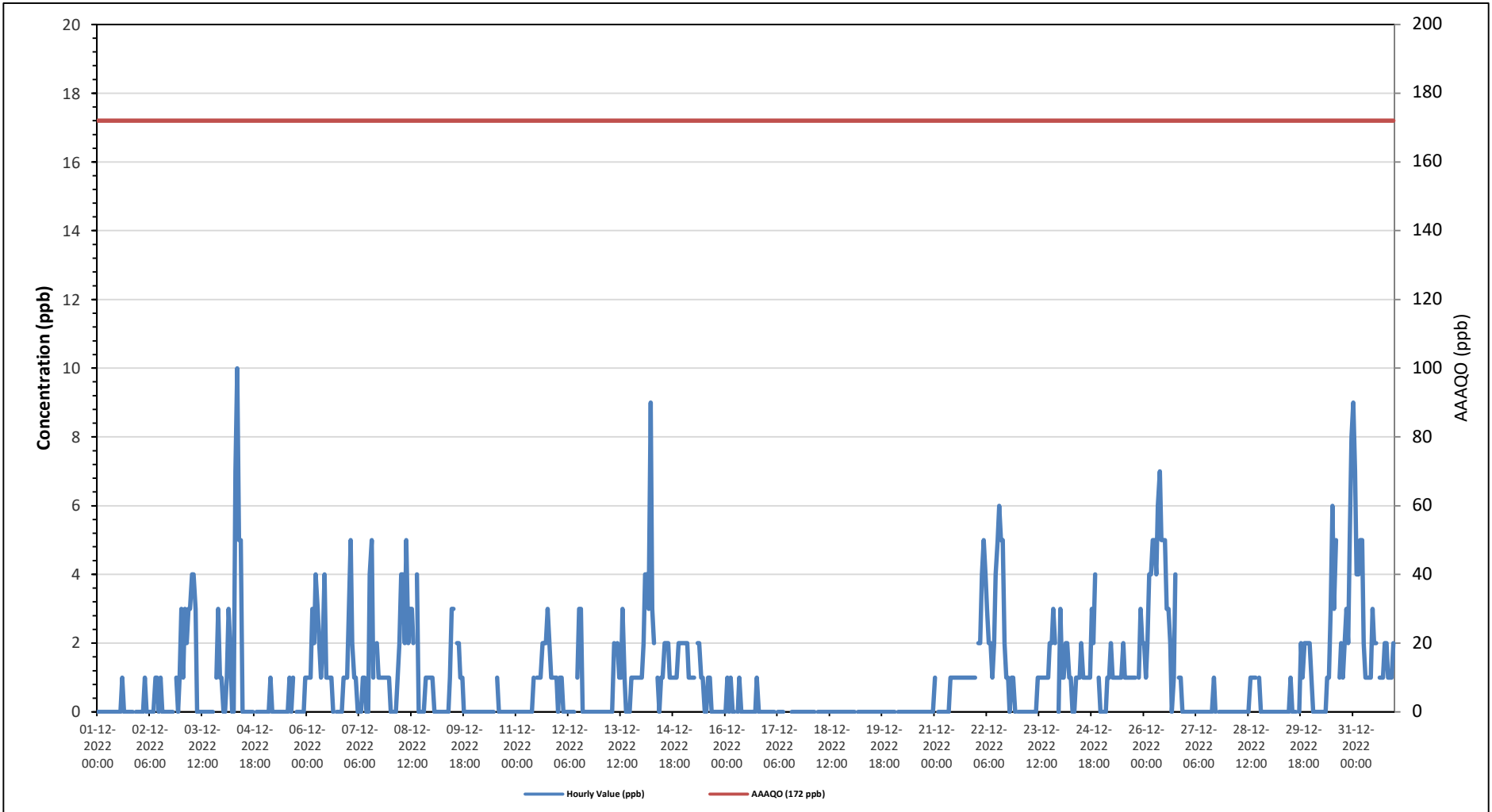
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23		
Dec 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	S	0	0	0	1	0	1	0.0
Dec 2	0	0	0	1	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	S	1	0	1	0	1	0	0.3
Dec 3	3	1	3	2	3	3	4	4	3	0	0	0	0	0	0	0	0	0	0	0	S	1	3	1	1	0	4	1.4	
Dec 4	0	0	1	3	2	0	0	7	10	5	5	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	10	1.4	
Dec 5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	S	0	0	0	0	0	0	0	1	0	0.2	
Dec 6	1	1	1	3	2	4	3	2	1	2	4	1	1	1	1	0	S	0	0	0	0	0	1	1	1	1	0	4	1.3
Dec 7	3	5	2	1	1	0	0	0	1	1	0	0	4	5	1	S	2	1	1	1	1	1	1	1	1	1	0	5	1.4
Dec 8	0	0	0	0	1	2	4	4	2	5	2	3	3	2	S	4	0	0	0	0	0	1	1	1	1	1	0	5	1.6
Dec 9	1	0	0	0	0	0	0	0	0	0	1	3	3	S	2	2	1	1	0	0	0	0	0	0	0	0	0	3	0.6
Dec 10	0	0	0	0	0	0	0	0	0	0	0	0	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Dec 11	0	0	0	0	0	0	0	0	0	0	1	S	1	1	1	2	2	2	3	2	1	1	1	1	1	1	0	3	0.8
Dec 12	0	1	1	0	0	0	0	0	0	0	S	1	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.4
Dec 13	0	0	0	0	0	0	0	0	2	S	2	1	1	3	1	0	0	0	0	1	1	1	1	1	1	1	0	3	0.7
Dec 14	1	2	4	4	3	9	3	2	S	1	0	1	1	2	2	2	1	1	1	1	1	1	2	2	2	2	0	9	2.1
Dec 15	2	2	2	1	1	1	1	S	2	2	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0.8
Dec 16	0	1	0	1	0	0	S	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0.2
Dec 17	0	0	0	0	0	S	0	0	0	0	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Dec 18	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
Dec 19	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
Dec 20	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
Dec 21	1	S	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0.7
Dec 22	S	2	2	4	5	4	3	2	2	1	2	4	5	6	5	5	2	1	1	0	1	1	0	S	0	0	6	2.6	
Dec 23	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	2	2	3	2	S	0	0	0	3	0.7	
Dec 24	3	1	1	2	2	1	0	0	0	1	1	1	2	1	1	1	1	1	3	2	4	S	1	0	0	0	4	1.3	
Dec 25	0	0	0	1	1	2	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	S	1	3	2	0	3	1.1	
Dec 26	2	1	2	4	4	5	5	4	6	7	5	5	5	3	3	2	0	1	4	S	1	1	0	0	0	0	7	3.0	
Dec 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	S	0	0	0	0	0	0	0	1	0.0	
Dec 28	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	S	1	0	0	0	0	0	0	0	0	1	0.2	
Dec 29	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	S	0	2	1	2	2	2	2	2	0	2	0.5	
Dec 30	1	0	0	0	0	0	0	0	0	1	1	3	6	3	5	S	1	2	1	2	3	2	5	8	0	8	1.9		
Dec 31	9	7	4	4	5	5	2	1	1	1	1	3	2	2	S	1	1	1	2	2	1	1	1	2	1	9	2.6		
Diurnal Maximum	9	7	4	4	5	9	5	7	10	7	5	6	6	6	5	5	2	2	4	2	4	3	5	8					
Diurnal Average	0.9	0.8	0.8	1.1	1.0	1.2	0.9	0.9	1.1	1.0	1.0	1.0	1.5	1.3	1.0	0.8	0.6	0.5	0.9	0.6	0.8	0.7	0.8						

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

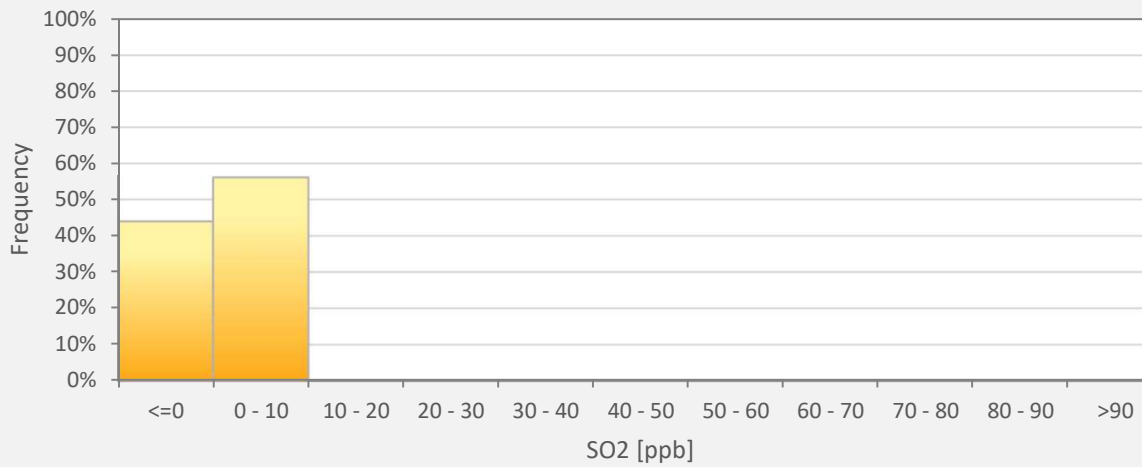
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

Timeseries Chart of Hourly Average for SO2 - Tamarack Site



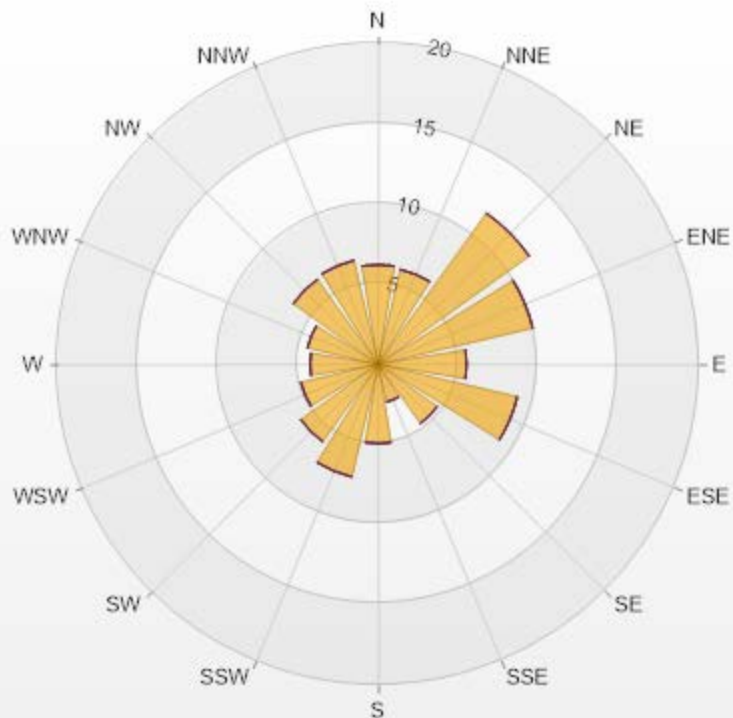
SO2[ppb] Histogram: Tamarack Monthly: 12-2022 1 Hr.



Classes	SO2
<=0	43.93%
0 - 10	56.07%
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: Tamarack Poll.: Tamarack-SO2[ppb] Monthly: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.16% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	6.21	0	0	0	0	6.21
NNE	6.07	0	0	0	0	6.07
NE	11.58	0	0	0	0	11.58
ENE	9.89	0	0	0	0	9.89
E	5.51	0	0	0	0	5.51
ESE	8.9	0	0	0	0	8.9
SE	4.52	0	0	0	0	4.52
SSE	2.4	0	0	0	0	2.4
S	4.94	0	0	0	0	4.94
SSW	7.2	0	0	0	0	7.2
SW	5.93	0	0	0	0	5.93
WSW	4.94	0	0	0	0	4.94
W	4.24	0	0	0	0	4.24
WNW	4.52	0	0	0	0	4.52
NW	6.5	0	0	0	0	6.5
NNW	6.64	0	0	0	0	6.64
Summary	100	0	0	0	0	100



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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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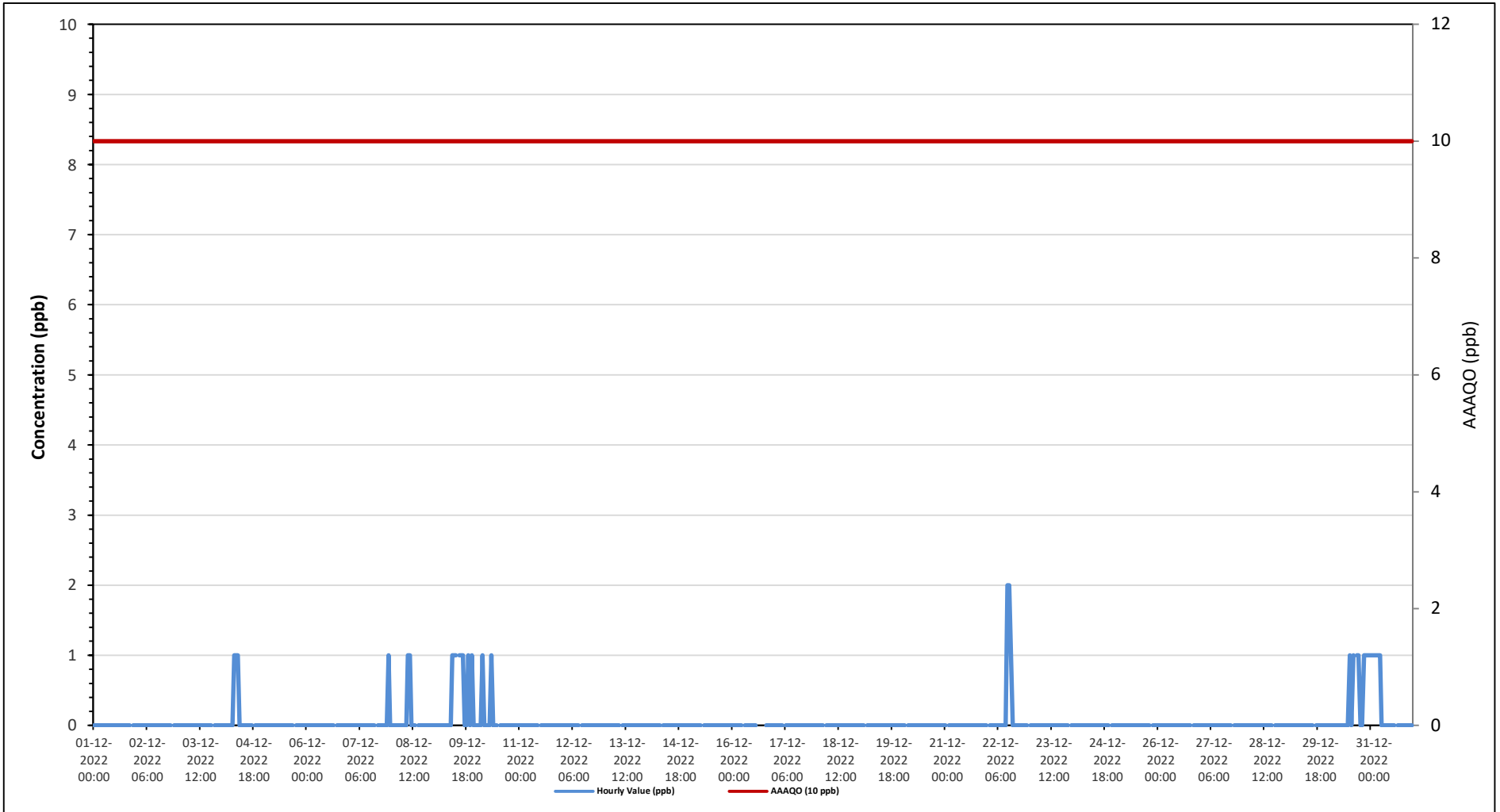
Tamarack Site - December 2022

Summary of Hourly Averages

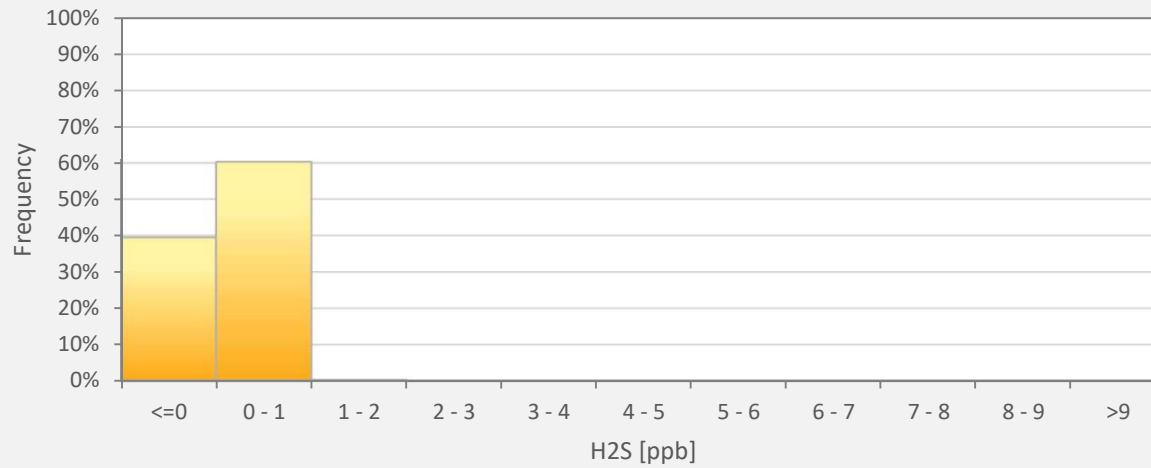
HYDROGEN SULPHIDE (H₂S) in ppb

Table with columns for Day, Hourly Period (0-23), and Daily/Maximum/Average values. Includes summary statistics at the top and a legend at the bottom for maintenance codes.

Timeseries Chart of Hourly Average for H2S - Tamarack Site



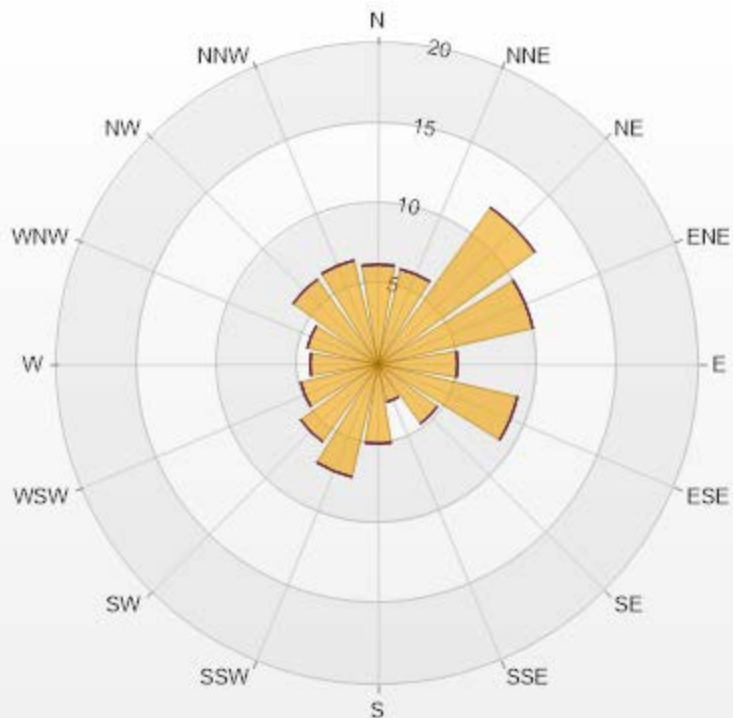
H2S[ppb] Histogram: Tamarack Monthly: 12-2022 1 Hr.



Classes	H2S
<=0	39.46%
0 - 1	60.25%
1 - 2	0.28%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.03% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	6.22	0	0	0	0	6.22
NNE	6.08	0	0	0	0	6.08
NE	12.02	0	0	0	0	12.02
ENE	9.9	0	0	0	0	9.9
E	4.95	0	0	0	0	4.95
ESE	8.91	0	0	0	0	8.91
SE	4.53	0	0	0	0	4.53
SSE	2.4	0	0	0	0	2.4
S	4.95	0	0	0	0	4.95
SSW	7.21	0	0	0	0	7.21
SW	5.94	0	0	0	0	5.94
WSW	4.95	0	0	0	0	4.95
W	4.24	0	0	0	0	4.24
WNW	4.53	0	0	0	0	4.53
NW	6.51	0	0	0	0	6.51
NNW	6.65	0	0	0	0	6.65
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 Site - December 2022

Summary of Hourly Averages

OXIDES OF NITROGEN (NOx) in ppb

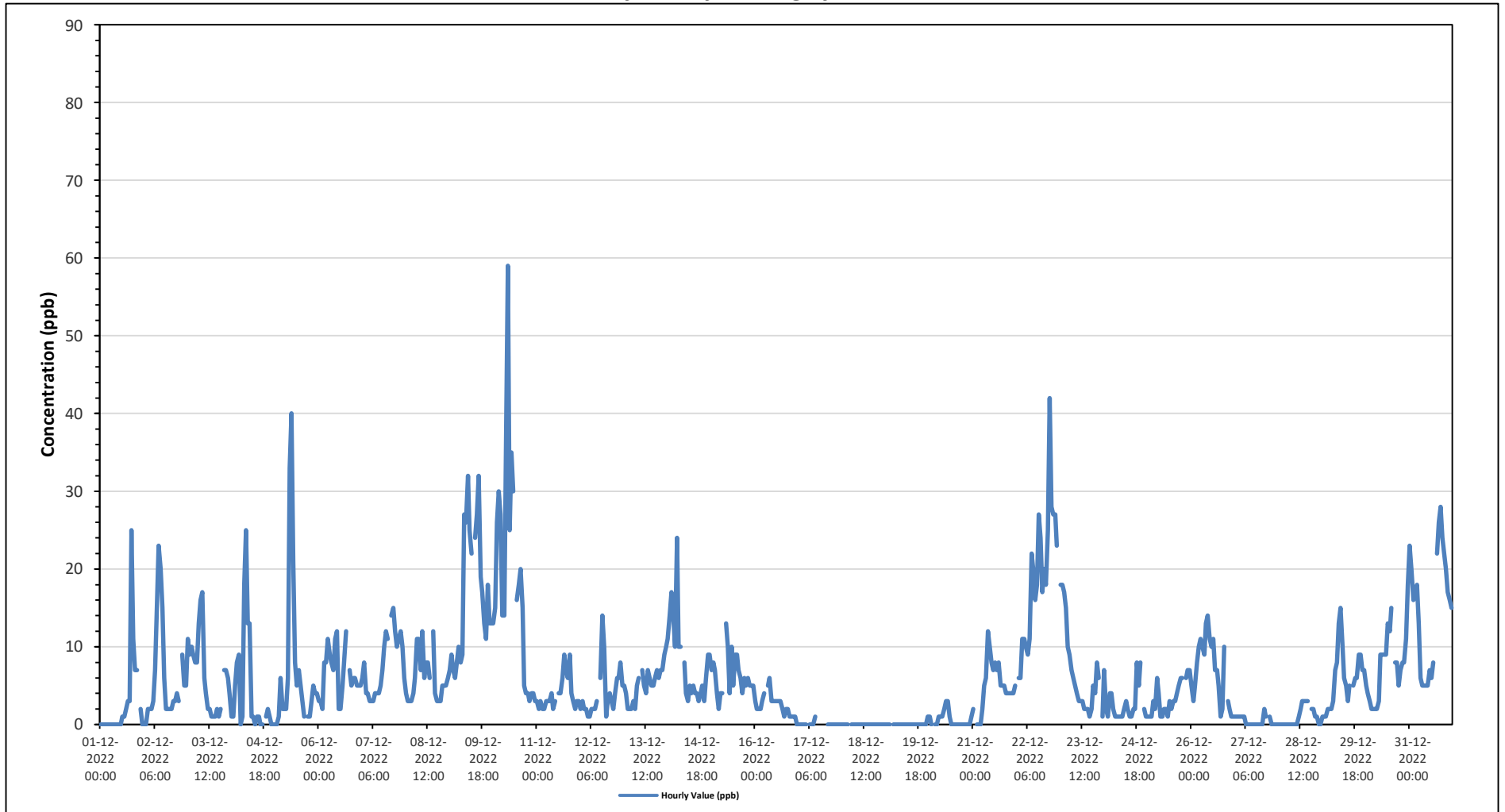
Maximum Hourly Value:	59 ppb on December 10 at hour 8	Hours in Service:	744
Maximum Daily Value:	19.0 ppb on December 22	Hours of Data:	706
Minimum Hourly Value:	0 ppb on December 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 ppb on December 18	Hours of Calibration:	38
Monthly Average:	6.0 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	
Dec 1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	3	3	25	11	7	7	S	2	0	0	25	2.7	
Dec 2	0	0	2	2	2	3	7	16	23	20	15	6	2	2	2	2	3	3	4	3	4	S	9	5	5	0	23	5.9
Dec 3	11	9	10	9	8	8	13	16	17	6	4	2	2	1	1	1	2	1	2	2	S	7	7	6	4	1	17	6.4
Dec 4	1	1	5	8	9	0	1	18	25	13	13	1	1	0	1	1	0	0	S	1	2	1	0	0	0	0	25	4.4
Dec 5	0	0	1	6	2	2	2	6	33	40	21	8	5	7	5	3	S	1	1	3	5	4	4	4	0	40	7.0	
Dec 6	3	3	2	8	8	11	9	8	7	11	12	2	2	5	8	12	S	7	5	6	6	5	5	5	2	12	6.5	
Dec 7	6	8	4	4	3	3	3	4	4	4	5	7	10	12	11	S	14	15	12	10	11	12	10	6	3	15	7.7	
Dec 8	4	3	3	3	4	6	11	11	7	12	6	8	8	6	S	12	4	3	3	3	5	5	5	6	3	12	6.0	
Dec 9	7	9	7	6	8	10	8	9	27	26	32	25	22	S	24	27	32	19	17	13	11	18	13	13	6	32	16.7	
Dec 10	13	15	26	30	27	14	14	34	59	25	35	30	S	16	18	20	15	5	4	4	3	4	4	3	3	59	18.2	
Dec 11	3	2	3	2	2	3	3	3	4	2	3	S	4	4	6	9	7	6	9	4	3	2	3	3	2	9	3.9	
Dec 12	2	3	2	2	1	1	2	2	2	3	S	6	14	10	1	3	4	3	2	4	6	6	8	5	1	14	4.0	
Dec 13	5	4	2	2	2	3	2	5	6	S	7	5	4	7	6	5	5	6	7	6	7	7	9	10	2	10	5.3	
Dec 14	11	14	17	14	10	24	10	10	S	8	4	3	5	4	5	4	4	3	4	5	3	6	9	9	3	24	8.1	
Dec 15	7	8	7	4	2	4	4	S	13	10	4	10	5	9	9	7	6	4	6	5	6	5	5	5	2	13	6.3	
Dec 16	3	2	2	2	3	4	S	5	6	3	3	3	3	3	2	1	2	2	1	1	1	1	0	0	0	6	2.4	
Dec 17	0	0	0	0	0	S	0	0	0	0	1	C	C	C	C	C	C	0	0	0	0	0	0	0	0	1	-	
Dec 18	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	
Dec 19	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.0	
Dec 20	1	0	S	0	0	1	1	1	2	3	3	1	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0.6	
Dec 21	2	S	0	0	0	2	5	6	12	10	8	7	8	7	8	5	5	5	4	4	4	4	4	5	0	12	5.0	
Dec 22	S	6	6	11	11	10	9	11	22	20	16	18	27	24	17	20	18	25	42	28	27	27	23	S	6	42	19.0	
Dec 23	18	18	17	15	10	9	7	6	5	4	3	3	3	2	2	2	1	2	5	4	8	6	S	1	1	18	6.6	
Dec 24	7	2	1	4	4	2	1	1	1	1	1	2	3	2	1	1	2	2	8	5	8	5	8	2	1	8	2.7	
Dec 25	1	1	1	3	2	6	4	1	1	2	2	1	3	2	3	3	4	5	6	6	S	6	7	7	1	7	3.3	
Dec 26	5	3	5	8	10	11	10	9	13	14	11	10	11	7	7	5	1	2	10	S	3	2	1	1	1	14	6.9	
Dec 27	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	2	1	S	1	0	0	0	0	0	0	2	0.4	
Dec 28	0	0	0	0	0	0	0	0	0	0	1	2	3	3	3	3	S	5	2	2	1	1	1	0	0	3	0.9	
Dec 29	1	1	1	2	2	2	3	7	8	13	15	10	6	5	3	5	S	5	6	6	9	9	7	7	1	15	5.8	
Dec 30	5	4	3	2	2	2	2	3	9	9	9	9	13	12	15	S	8	8	5	7	8	8	11	18	2	18	7.5	
Dec 31	23	20	16	17	18	13	6	5	5	5	5	7	6	8	S	22	26	28	24	22	20	17	16	15	5	28	15.0	
Diurnal Maximum	23	20	26	30	27	24	14	34	59	40	35	30	27	24	24	27	32	28	42	28	27	27	23	18				
Diurnal Average	4.7	4.6	4.8	5.5	5.0	5.2	4.6	6.6	10.4	8.8	8.2	6.4	5.9	5.5	5.8	6.3	5.9	6.4	6.9	5.4	5.8	6.0	5.3	4.5				

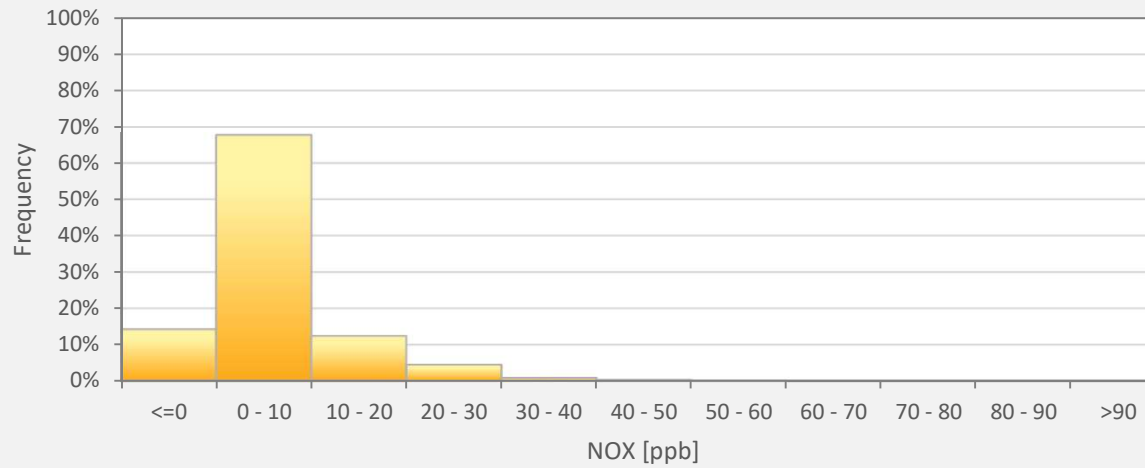
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction/Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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 Site



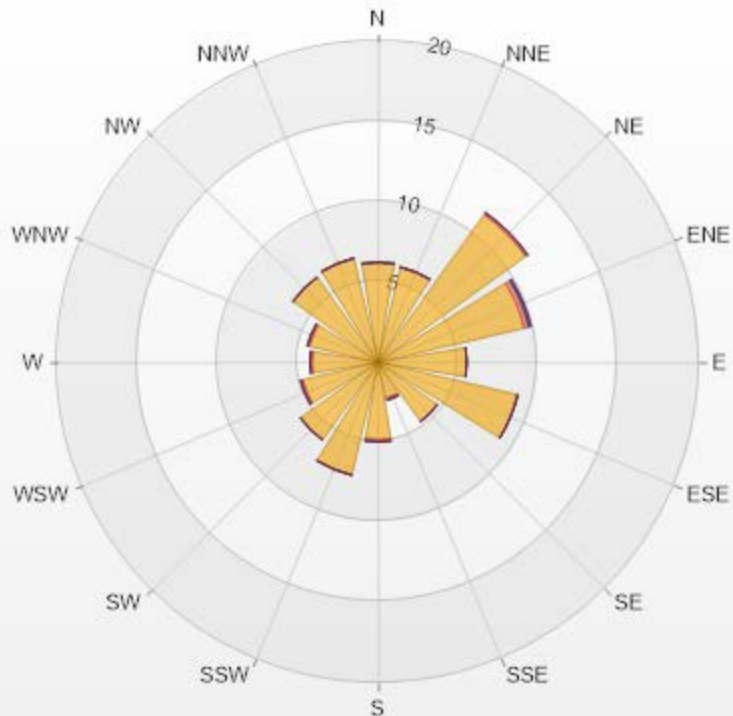
NOX[ppb] Histogram: Tamarack Monthly: 12-2022 1 Hr.



Classes	NOX
<=0	14.16%
0 - 10	67.71%
10 - 20	12.32%
20 - 30	4.53%
30 - 40	0.85%
40 - 50	0.28%
50 - 60	0.14%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Tamarack Poll.: Tamarack-NOX[ppb] Monthly: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	6.23	0	0	0	0	6.23
NNE	6.09	0	0	0	0	6.09
NE	11.33	0.14	0	0	0	11.47
ENE	9.35	0.28	0.14	0	0	9.77
E	5.52	0	0	0	0	5.52
ESE	8.92	0	0	0	0	8.92
SE	4.53	0	0	0	0	4.53
SSE	2.27	0.14	0	0	0	2.41
S	4.82	0.14	0	0	0	4.96
SSW	7.22	0	0	0	0	7.22
SW	5.95	0	0	0	0	5.95
WSW	4.82	0.14	0	0	0	4.96
W	4.11	0.14	0	0	0	4.25
WNW	4.39	0.14	0	0	0	4.53
NW	6.52	0	0	0	0	6.52
NNW	6.66	0	0	0	0	6.66
Summary	98.73	1.12	0.14	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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Tamarack Site - December 2022

Summary of Hourly Averages

NITRIC OXIDE (NO) in ppb

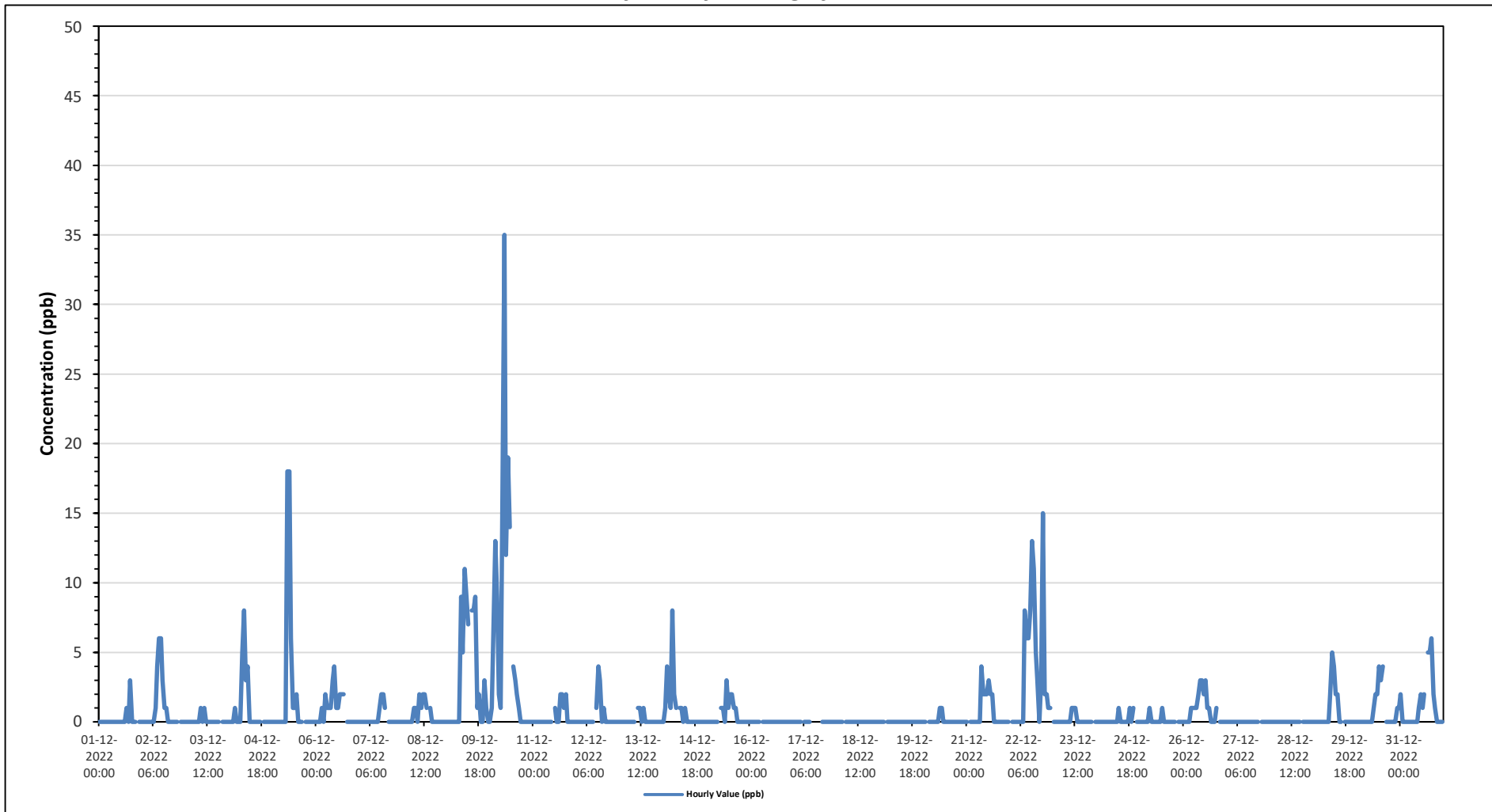
Maximum Hourly Value:	35 ppb on December 10 at hour 8	Hours in Service:	744
Maximum Daily Value:	6.0 ppb on December 10	Hours of Data:	706
Minimum Hourly Value:	0 ppb on December 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 ppb on December 16	Hours of Calibration:	38
Monthly Average:	0.8 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
Dec 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	0	S	0	0	0	0	3	0.2
Dec 2	0	0	0	0	0	0	0	1	4	6	6	3	1	1	0	0	0	0	0	0	S	0	0	0	0	6	1.0
Dec 3	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0.1
Dec 4	0	0	0	1	0	0	0	5	8	3	4	0	0	0	0	0	0	0	S	0	0	0	0	0	0	8	0.9
Dec 5	0	0	0	0	0	0	0	0	18	18	6	1	1	2	0	0	0	S	0	0	0	0	0	0	0	18	2.0
Dec 6	0	0	0	1	0	2	1	1	1	3	4	1	1	2	2	2	S	0	0	0	0	0	0	0	0	4	0.9
Dec 7	0	0	0	0	0	0	0	0	0	0	0	1	2	2	1	S	0	0	0	0	0	0	0	0	0	2	0.3
Dec 8	0	0	0	0	0	0	1	1	0	2	1	2	2	1	S	1	0	0	0	0	0	0	0	0	0	2	0.5
Dec 9	0	0	0	0	0	0	0	0	9	5	11	9	7	S	8	8	9	1	2	0	0	3	1	0	0	11	3.2
Dec 10	0	1	7	13	9	2	1	16	35	12	19	14	S	4	3	2	1	0	0	0	0	0	0	0	0	35	6.0
Dec 11	0	0	0	0	0	0	0	0	0	0	0	S	1	0	0	2	2	1	2	0	0	0	0	0	0	2	0.3
Dec 12	0	0	0	0	0	0	0	0	0	0	S	1	4	3	0	1	0	0	0	0	0	0	0	0	0	4	0.4
Dec 13	0	0	0	0	0	0	0	0	0	S	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Dec 14	0	1	4	2	1	8	2	1	S	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	8	1.0
Dec 15	0	0	0	0	0	0	0	S	1	1	0	3	1	2	2	1	1	0	0	0	0	0	0	0	0	3	0.5
Dec 16	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
Dec 17	0	0	0	0	0	S	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	-	-
Dec 18	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
Dec 19	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
Dec 20	0	0	S	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Dec 21	0	S	0	0	0	0	0	0	4	2	2	2	3	2	2	0	0	0	0	0	0	0	0	0	0	4	0.7
Dec 22	S	0	0	0	0	0	0	0	8	6	6	8	13	11	5	3	0	3	15	2	2	1	1	S	0	15	3.8
Dec 23	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	S	0	1	0.1
Dec 24	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	S	0	0	1	0.1
Dec 25	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	S	0	0	0	0	1	0.1
Dec 26	0	0	0	0	1	1	1	1	2	3	3	2	3	1	1	0	0	0	1	0	S	0	0	0	0	3	0.9
Dec 27	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
Dec 28	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
Dec 29	0	0	0	0	0	0	0	0	0	2	5	4	2	2	0	0	S	0	0	0	0	0	0	0	0	5	0.7
Dec 30	0	0	0	0	0	0	0	0	0	1	2	2	4	3	4	S	0	0	0	0	0	0	1	1	0	4	0.8
Dec 31	2	0	0	0	0	0	0	0	0	1	2	1	2	S	5	5	6	2	1	0	0	0	0	0	0	6	1.2
Diurnal Maximum	2	1	7	13	9	8	2	16	35	18	19	14	13	11	8	8	9	6	15	2	2	3	1	1	1	1	1
Diurnal Average	0.1	0.1	0.4	0.6	0.4	0.5	0.2	0.9	3.0	2.2	2.6	2.0	1.7	1.3	1.0	0.9	0.6	0.5	0.8	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0

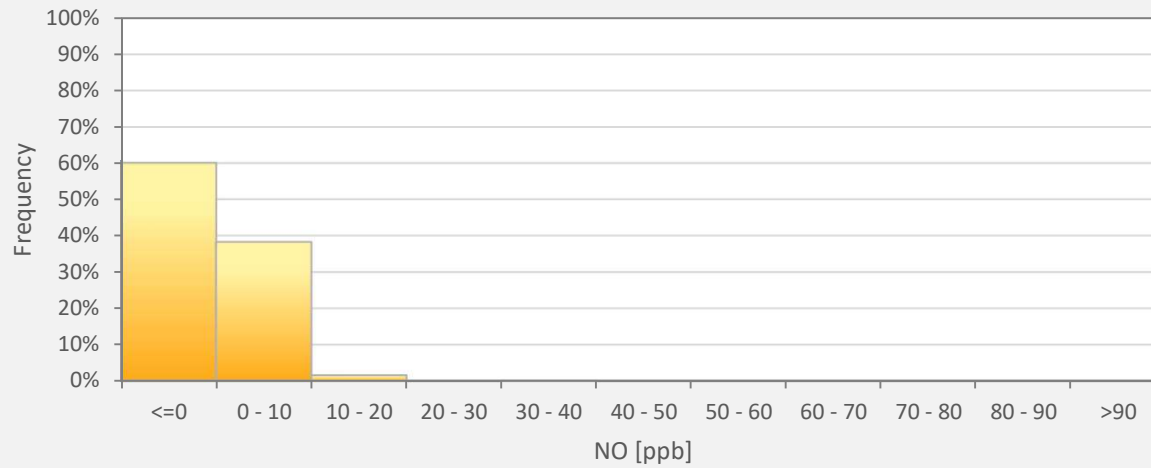
C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	N No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction/Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

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 - Tamarack Site



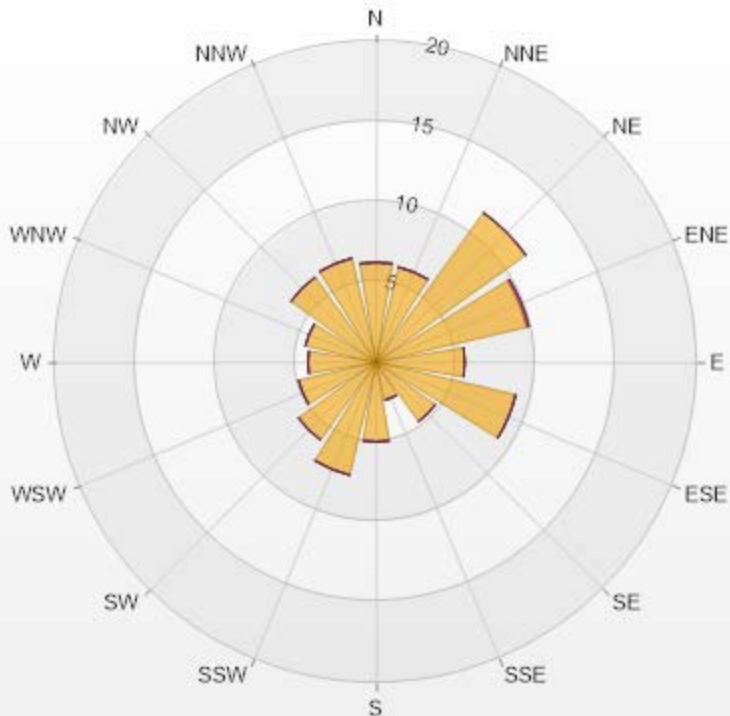
NO[ppb] Histogram: Tamarack Monthly: 12-2022 1 Hr.



Classes	NO
<=0	60.06%
0 - 10	38.24%
10 - 20	1.56%
20 - 30	0.00%
30 - 40	0.14%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	6.23	0	0	0	0	6.23
NNE	6.09	0	0	0	0	6.09
NE	11.47	0	0	0	0	11.47
ENE	9.63	0.14	0	0	0	9.77
E	5.52	0	0	0	0	5.52
ESE	8.92	0	0	0	0	8.92
SE	4.53	0	0	0	0	4.53
SSE	2.41	0	0	0	0	2.41
S	4.96	0	0	0	0	4.96
SSW	7.22	0	0	0	0	7.22
SW	5.95	0	0	0	0	5.95
WSW	4.96	0	0	0	0	4.96
W	4.25	0	0	0	0	4.25
WNW	4.53	0	0	0	0	4.53
NW	6.52	0	0	0	0	6.52
NNW	6.66	0	0	0	0	6.66
Summary	100	0.14	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

Tamarack Site - December 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: 27 ppb on December 22 at hour 18

Hours in Service: 744

Maximum Daily Value: 15.2 ppb on December 22

Hours of Data: 706

Minimum Hourly Value: 0 ppb on December 1 at hour 0

Hours of Missing Data: 0

Minimum Daily Value: 0.0 ppb on December 18

Hours of Calibration: 38

Monthly Average: 5.2 ppb

Operational Uptime: 100.0

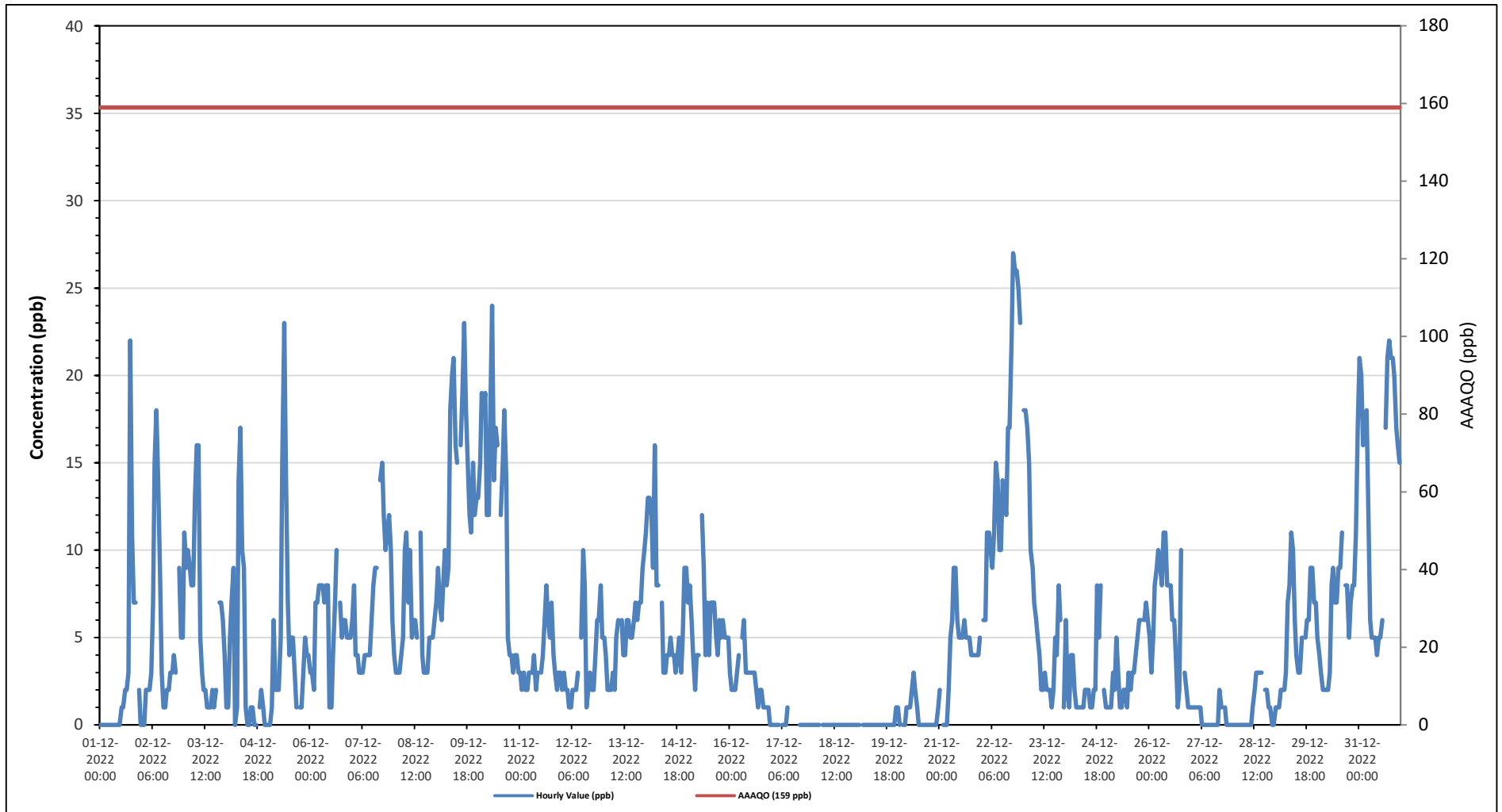
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Dec 1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	3	22	11	7	7	S	2	0	0	22	2.5
Dec 2	0	0	2	2	2	3	7	15	18	14	9	3	1	1	2	2	3	3	4	3	S	9	5	5	0	18	4.9
Dec 3	11	9	10	9	8	8	13	16	16	5	3	2	2	1	1	2	1	2	1	2	S	7	6	4	1	16	6.3
Dec 4	1	1	5	7	9	0	1	14	17	10	9	1	0	0	1	1	0	0	S	1	2	1	0	0	0	17	3.5
Dec 5	0	0	1	6	2	2	2	5	15	23	15	7	4	5	5	3	1	S	1	1	3	5	4	4	0	23	5.0
Dec 6	3	3	2	7	7	8	8	8	7	8	8	1	1	4	7	10	S	7	5	6	6	5	5	5	1	10	5.7
Dec 7	6	8	4	4	3	3	3	4	4	4	4	6	8	9	S	14	15	12	10	11	12	10	6	3	15	7.3	
Dec 8	4	3	3	3	4	5	10	11	7	10	5	6	6	5	S	11	4	3	3	3	5	5	5	6	3	11	5.5
Dec 9	7	9	7	6	8	10	8	9	18	20	21	16	15	S	16	19	23	18	15	12	11	15	12	13	6	23	13.4
Dec 10	13	15	19	18	19	12	12	18	24	14	17	16	S	3	4	6	8	6	5	7	4	3	4	4	3	24	12.3
Dec 11	3	2	3	2	2	3	3	3	4	2	3	S	3	4	6	8	6	5	7	4	3	2	3	3	2	8	3.7
Dec 12	2	3	2	2	1	1	2	2	2	3	S	5	10	8	1	2	3	2	2	4	6	6	8	5	1	10	3.6
Dec 13	5	4	2	2	2	3	2	5	6	S	6	4	4	6	6	5	5	6	7	6	7	7	9	10	2	10	5.2
Dec 14	11	13	13	12	9	16	8	8	S	7	3	3	4	4	5	4	4	3	4	5	3	5	9	9	3	16	7.0
Dec 15	7	8	6	4	2	4	4	S	12	9	4	7	4	7	7	7	5	4	6	5	6	5	5	5	2	12	5.8
Dec 16	3	2	2	2	3	4	S	5	6	3	3	3	3	3	2	1	2	2	1	1	1	1	0	0	6	2.4	
Dec 17	0	0	0	0	0	S	0	0	0	1	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	1	-
Dec 18	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
Dec 19	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.0
Dec 20	1	0	S	0	0	1	1	1	2	3	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0.6
Dec 21	2	S	0	0	0	2	5	6	9	9	6	5	5	5	6	5	5	5	4	4	4	4	4	5	0	9	4.3
Dec 22	S	6	6	11	11	10	9	11	15	14	10	14	13	12	17	17	22	27	26	26	25	23	S	6	27	15.2	
Dec 23	18	18	17	15	10	9	7	6	5	4	2	2	3	2	2	2	1	2	5	4	8	6	S	1	1	18	6.5
Dec 24	6	2	1	4	4	2	1	1	1	1	1	2	2	2	1	1	2	2	8	5	8	S	2	1	1	8	2.6
Dec 25	1	1	1	3	2	5	3	1	1	2	2	1	3	2	3	3	4	5	6	6	S	6	7	6	1	7	3.2
Dec 26	5	3	5	8	9	10	9	8	11	11	8	8	8	6	6	4	1	2	10	S	3	2	1	1	1	11	6.0
Dec 27	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	2	1	S	1	0	0	0	0	0	2	0.4
Dec 28	0	0	0	0	0	0	0	0	0	1	2	3	3	3	3	3	S	S	2	2	1	1	0	0	0	3	0.9
Dec 29	1	1	1	2	2	2	3	7	8	11	10	6	4	3	3	5	S	5	6	6	9	9	7	7	1	11	5.1
Dec 30	5	4	3	2	2	2	2	3	8	9	7	7	9	9	11	S	8	8	5	7	8	8	11	17	2	17	6.7
Dec 31	21	20	16	17	18	13	6	5	5	4	5	5	6	S	17	21	22	21	21	20	17	16	15	4	22	13.7	
Diurnal Maximum	21	20	19	18	19	16	13	18	24	23	21	16	15	13	16	19	23	22	27	26	25	23	17				
Diurnal Average	4.6	4.5	4.4	5.0	4.7	4.6	4.3	5.7	7.4	6.7	5.6	4.4	4.2	4.2	4.8	5.4	5.2	5.9	6.2	5.3	5.8	5.3	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

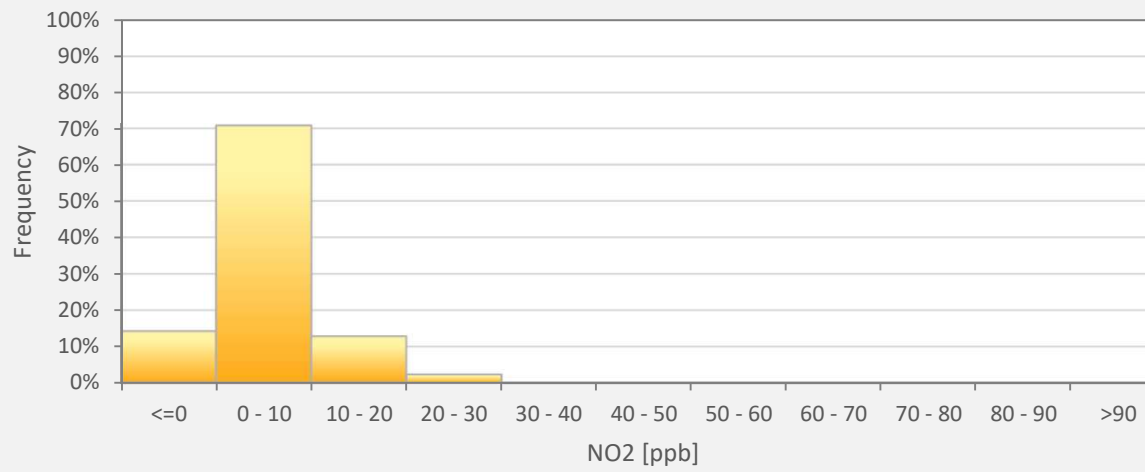
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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 - Tamarack Site



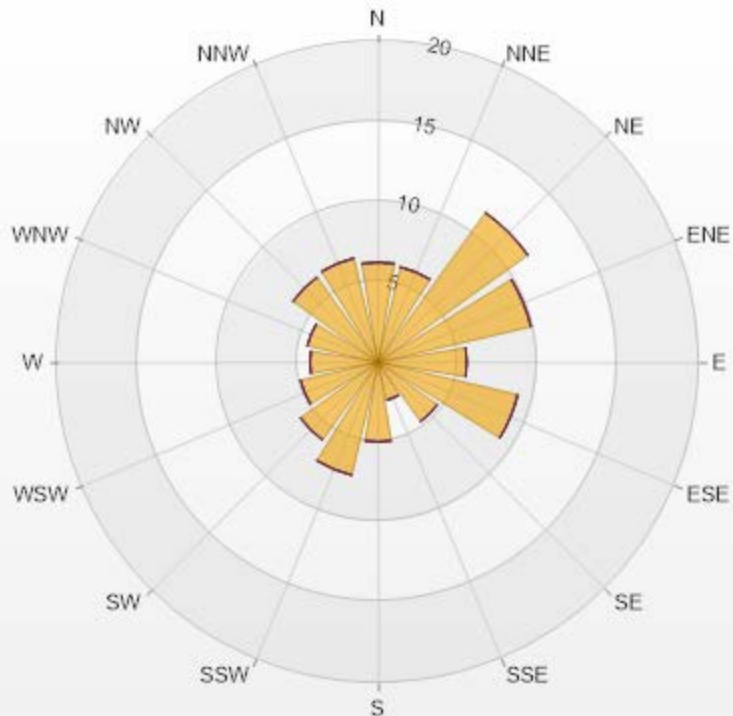
NO2[ppb] Histogram: Tamarack Monthly: 12-2022 1 Hr.



Classes	NO2
<=0	14.16%
0 - 10	70.68%
10 - 20	12.75%
20 - 30	2.41%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	6.23	0	0	0	0	6.23
NNE	6.09	0	0	0	0	6.09
NE	11.47	0	0	0	0	11.47
ENE	9.77	0	0	0	0	9.77
E	5.52	0	0	0	0	5.52
ESE	8.92	0	0	0	0	8.92
SE	4.53	0	0	0	0	4.53
SSE	2.41	0	0	0	0	2.41
S	4.96	0	0	0	0	4.96
SSW	7.22	0	0	0	0	7.22
SW	5.95	0	0	0	0	5.95
WSW	4.96	0	0	0	0	4.96
W	4.25	0	0	0	0	4.25
WNW	4.53	0	0	0	0	4.53
NW	6.52	0	0	0	0	6.52
NNW	6.66	0	0	0	0	6.66
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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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - December 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:	41.1 ppb on December 4 at hour 11	Hours in Service:	744
Maximum Daily Value:	35.8 ppb on December 24	Hours of Data:	707
Minimum Hourly Value:	1.0 ppb on December 31 at hour 17	Hours of Missing Data:	0
Minimum Daily Value:	9.5 ppb on December 31	Hours of Calibration:	37
Monthly Average:	26.1 ppb	Operational Uptime:	100.0

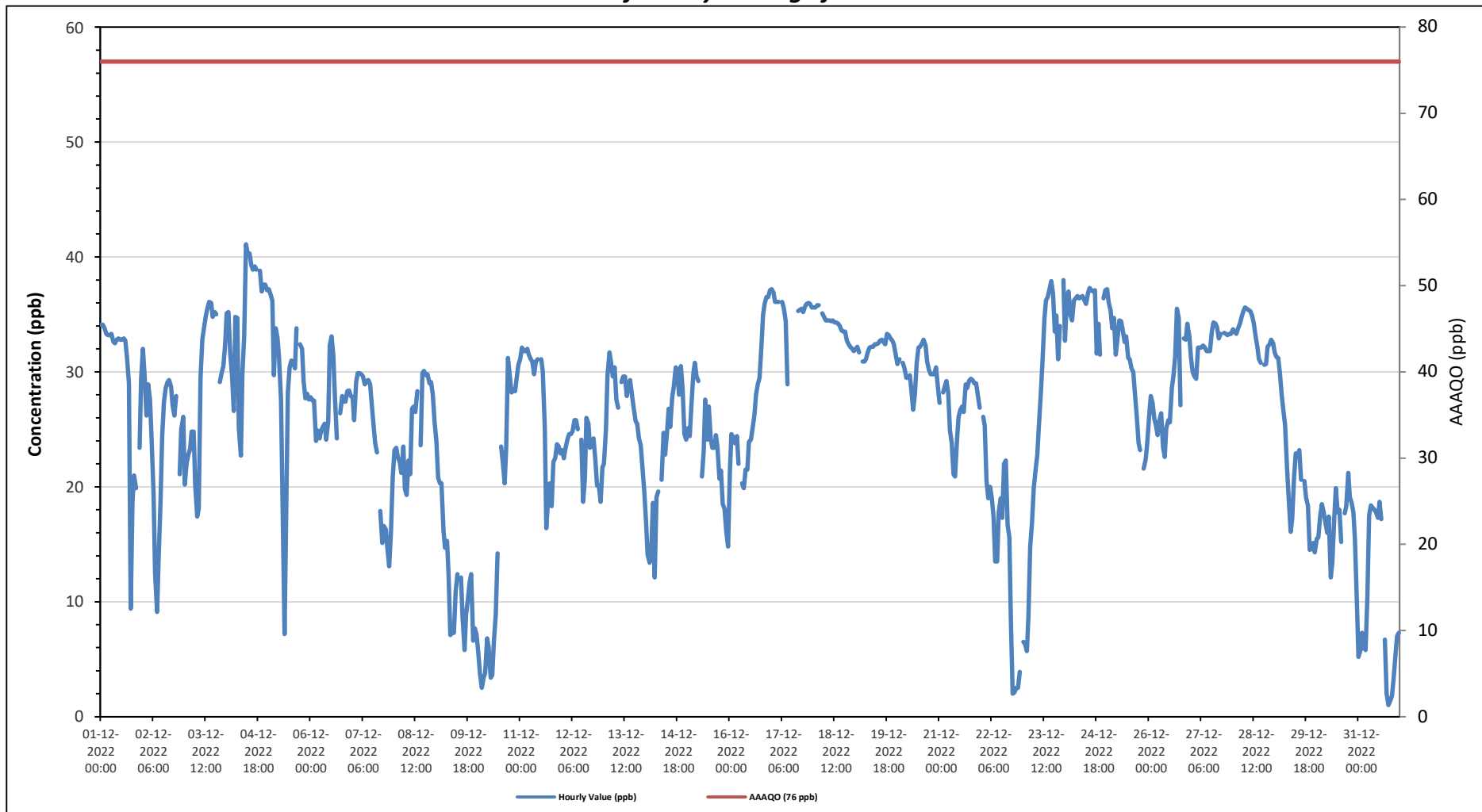
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Dec 1	34.1	34.1	33.8	33.3	33.2	33.2	33.3	32.6	32.5	32.8	32.9	32.8	32.8	32.9	32.7	31.1	29	9.4	18.7	21	19.9	S	23.4	29.4	9.4	34.1	29.5
Dec 2	32	29.6	26.2	28.9	27.6	24.3	19.4	12.5	9.1	13.8	18.4	24.4	27.4	28.6	29.1	29.3	28.7	27.1	26.2	27.9	S	21.1	25	26.1	9.1	32.0	24.5
Dec 3	20.2	22	22.8	23.3	24.8	24.8	20.2	17.4	18.1	29.5	32.8	33.9	34.9	35.6	36.1	36	34.8	35.2	35	S	29.1	29.9	30.5	32.4	17.4	36.1	28.7
Dec 4	35.1	35.2	31.6	29.7	26.6	34.8	34.7	25.1	22.7	29.9	33.1	41.1	40.3	40.3	39.3	38.9	39.2	38.9	S	38.8	37	37.6	37.6	37.1	22.7	41.1	35.0
Dec 5	37.2	36.8	36.2	29.7	33.8	33	31.3	27.6	18.8	7.2	16.9	28.2	30.4	31	30.8	30.3	33.8	S	32.4	32	29.2	27.7	28.1	27.6	7.2	37.2	29.1
Dec 6	27.8	27.5	27.5	24	24.9	24.2	24.9	25.2	25.5	24.1	25.7	32.3	33.1	31.5	27.5	24.2	S	26.4	27.9	27.4	27.4	28.3	28.4	27.9	24.0	33.1	27.1
Dec 7	27.8	25.8	29.1	29.9	29.9	29.8	29.6	28.9	29.2	29.3	28.9	27.3	25.5	23.8	23	S	17.9	15.1	16.6	16.3	14.7	13.1	16	20.8	13.1	29.9	23.8
Dec 8	23.2	23.4	22.6	22.1	21.2	23.5	19.8	19.3	22.3	21.1	26.8	27	26.5	28.3	S	23.6	29.9	30.1	29.7	29.8	29	29.1	28	25.6	19.3	30.1	25.3
Dec 9	24	20.8	20.3	20.3	16.2	14.7	15.3	12.4	7.1	7.3	7.3	10.9	12.4	S	12.1	8.7	5.8	8.9	10.2	11.7	12.4	6.6	7.7	7.2	5.8	24.0	12.2
Dec 10	5.6	3.7	2.5	3.4	3.8	6.8	6	3.4	3.6	6.7	8.9	14.2	S	20.6	22.3	20.3	23.4	31.2	29.7	28.2	28.5	28.3	29.4	30.6	2.5	31.2	15.8
Dec 11	31.1	32.1	31.8	31.8	32	31.5	31.1	30.9	29.8	30.9	31.1	S	31.1	30.1	25.2	16.4	19.3	20.3	18.3	22.2	22.5	23.7	23.5	22.9	16.4	32.1	26.9
Dec 12	23.2	22.5	23.4	24.1	24.6	24.6	24.8	25.8	25	S	24.1	18.7	20.7	26	25.5	23.4	23.7	24.2	22.4	20.1	20.1	18.7	21.7	18.7	26.0	23.2	
Dec 13	22	25	29.7	31.7	30.8	29.6	30.4	27.6	26.9	S	29.1	29.6	29.6	27.9	28.8	29.3	27.9	26.9	25.7	25.5	24.2	23.6	21.6	19.6	19.6	31.7	27.1
Dec 14	16.9	14.1	13.4	14.2	18.6	12.1	19.1	19.6	S	20.6	24.7	22.8	24.6	26.8	25.2	27.8	28.7	30.4	30	28	30.5	28.5	24.6	24.1	12.1	30.5	22.8
Dec 15	25.1	24.4	26.9	29.8	30.8	29.6	29.2	S	20.9	23.1	27.6	24.1	27	24.1	23.4	23.4	24.5	23.5	20.7	21.4	18.5	18.1	16.1	14.8	14.8	30.8	23.8
Dec 16	21.3	24.6	24.3	23.8	24.4	22	S	20.3	19.9	21.5	21.5	23.9	24.1	25	26.3	28	28.9	29.5	32.1	35	35.9	36.5	36.5	37.1	19.9	37.1	27.1
Dec 17	37.2	36.9	36.1	36.1	36.1	S	36.1	35.5	34.4	28.9	C	C	C	C	C	35.3	35.4	35.5	35.2	35.7	35.9	36	35.9	35.6	28.9	37.2	35.4
Dec 18	35.6	35.6	35.8	35.8	S	35.1	34.8	34.5	34.5	34.5	34.4	34.5	34.3	34.3	34.2	34	33.6	33.5	33.5	32.7	32.4	32.2	32	31.8	31.8	35.8	34.1
Dec 19	32	32.2	31.7	S	30.9	30.9	31.1	31.7	32.1	32.2	32.2	32.4	32.4	32.5	32.7	32.8	32.6	32.4	33.3	33.2	32.9	32.7	32.4	31.4	30.9	33.3	32.2
Dec 20	30.7	31.1	S	30.8	30.3	29.5	29.5	29.7	28.4	26.7	28.1	30.8	32.1	32.2	32.5	32.8	32.3	30.9	30.2	29.8	29.8	29.8	30.4	29	26.7	32.8	30.3
Dec 21	27.3	S	28.2	28.7	29.2	28.2	24.9	23.8	21.1	20.9	24.2	26.1	26.7	27	26.5	28.9	28.6	29.2	29.4	29.3	29	29	28.1	26.9	20.9	29.4	27.0
Dec 22	S	26.1	25.3	20.5	19	20	19	17.3	13.5	13.5	17.8	19	17.3	22	22.3	16.7	15.6	8.3	2	2.1	2.5	2.5	3.9	S	2.0	26.1	14.8
Dec 23	6.5	6.4	5.7	8.7	14.8	16.8	19.9	21.4	22.8	25.2	28.2	30.7	34.6	36.2	36.5	37.2	37.9	36.8	33.5	34.9	31.1	34	S	38	5.7	38.0	26.0
Dec 24	32.7	36.5	37	34.9	34.5	36.2	36.4	36.6	36.4	36.5	36.6	36.2	35.9	36.9	37.3	37.1	37	37.1	31.6	34.2	31.5	S	36.4	37.1	31.5	37.3	35.8
Dec 25	37.2	36.1	35.3	33.8	34.7	31.5	32.9	34.5	34.4	33.7	32.6	33.1	31.2	31.1	30.3	30	28	26.1	23.8	23.2	S	21.6	22.4	23.8	21.6	37.2	30.5
Dec 26	26	27.9	27.3	25.9	25.4	24.5	25.8	26.4	23.5	22.6	25.1	25.8	25.6	28.6	29.6	31.3	35.5	34.7	27.1	S	32.9	32.8	34.2	33.1	22.6	35.5	28.3
Dec 27	31.3	30	29.6	29.4	32.1	32.1	32.1	32.3	32.1	31.8	31.8	31.8	33.6	34.3	34.2	33.9	32.9	33.3	S	33.4	33.3	33.2	33.3	33.3	29.4	34.3	32.4
Dec 28	33.7	33.5	33.3	33.8	34.2	34.8	35.3	35.6	35.5	35.4	35.3	34.9	34.2	33.1	32.3	31.1	30.8	S	30.6	30.7	32.2	32.4	32.8	32.5	30.6	35.6	33.4
Dec 29	31.7	31.3	31.2	29.8	27.9	26.5	25.4	21.5	19.1	16.1	17.2	20.7	22.9	22.7	23.2	20.6	S	20.5	19	18.4	14.5	14.6	15.1	14.3	14.3	31.7	21.9
Dec 30	15.5	15.6	17.4	18.5	17.8	16.9	16	17.4	12.1	13.4	17.4	19.9	17.8	18	15.2	S	17.7	18.3	21.2	19.1	18.6	17.8	15.5	9.8	9.8	21.2	16.8
Dec 31	5.2	5.8	7.3	6	5.8	10.3	17.5	18.4	18.2	18	17.8	17.3	18.7	17.2	S	6.7	2	1	1.3	1.8	3.2	5.4	7	7.3	1.0	18.7	9.5
Diurnal Maximum	37	37	37	36	36	36	36	37	36	37	37	41	40	40	39	39	39	39	35	39	37	38	38	38			
Diurnal Average	26.3	26.2	26.1	25.8	25.9	25.7	26.2	24.8	23.7	23.7	25.7	27.2	28.1	28.8	28.4	27.6	27.4	26.0	25.1	25.7	25.5	25.0	25.2	26.3			

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

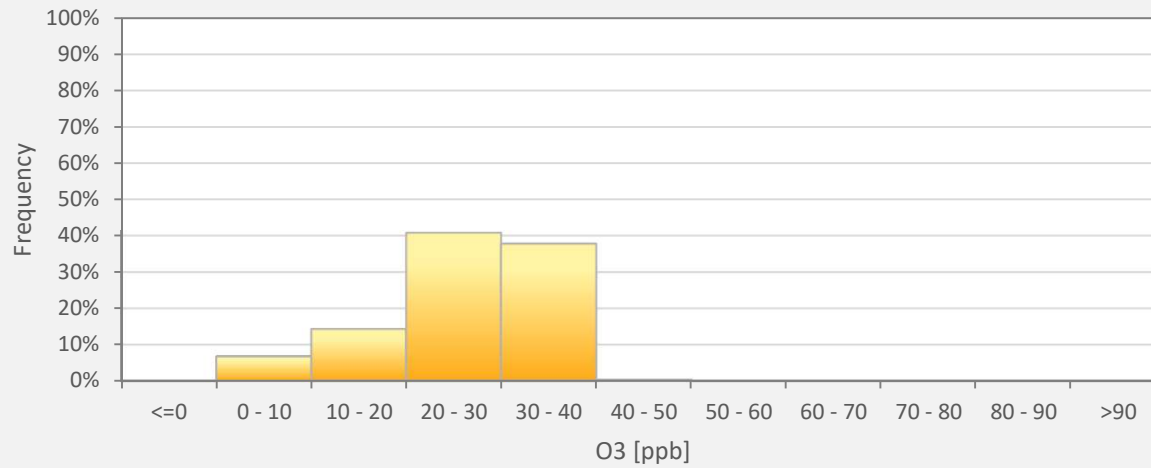
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

Timeseries Chart of Hourly Average for O3 - Tamarack Site



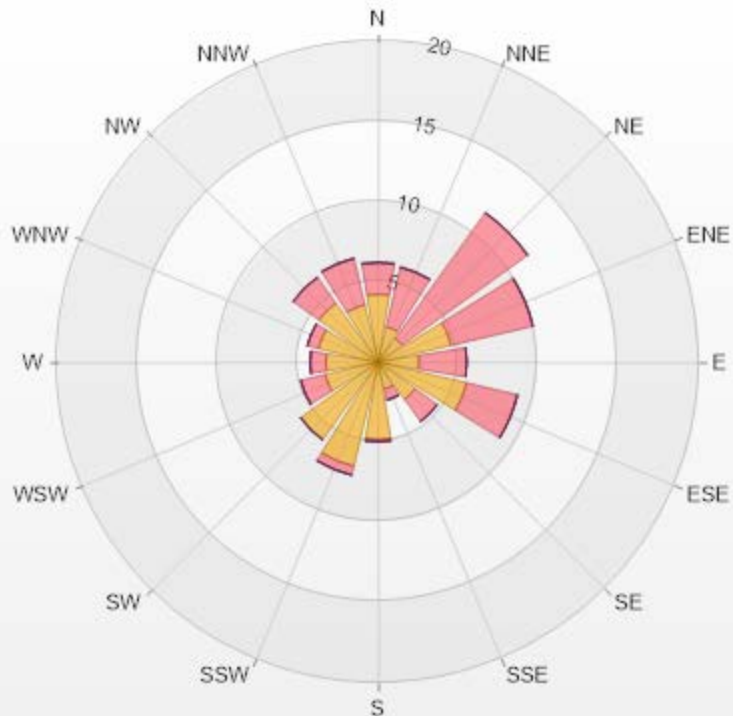
O3[ppb] Histogram: Tamarack Monthly: 12-2022 1 Hr.



Classes	O3
<=0	0.00%
0 - 10	6.79%
10 - 20	14.29%
20 - 30	40.74%
30 - 40	37.77%
40 - 50	0.42%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.03% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	4.24	1.98	0	0	0	6.22
NNE	2.26	3.82	0	0	0	6.08
NE	1.84	9.62	0	0	0	11.46
ENE	4.67	5.23	0	0	0	9.9
E	2.55	2.97	0	0	0	5.52
ESE	5.66	3.25	0	0	0	8.91
SE	2.83	1.7	0	0	0	4.53
SSE	1.7	0.71	0	0	0	2.41
S	4.81	0.14	0	0	0	4.95
SSW	6.65	0.57	0	0	0	7.22
SW	5.94	0	0	0	0	5.94
WSW	3.39	1.56	0	0	0	4.95
W	3.25	0.99	0	0	0	4.24
WNW	3.82	0.71	0	0	0	4.53
NW	4.53	1.98	0	0	0	6.51
NNW	3.68	2.97	0	0	0	6.65
Summary	61.82	38.2	0	0	0	100



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% Icon Classes (ppb)

62

0-30

38

30-50

0

50-76

0

76-159

0

>159.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - December 2022

Summary of Hourly Averages

TOTAL HYDROCARBONS (THC) in ppm

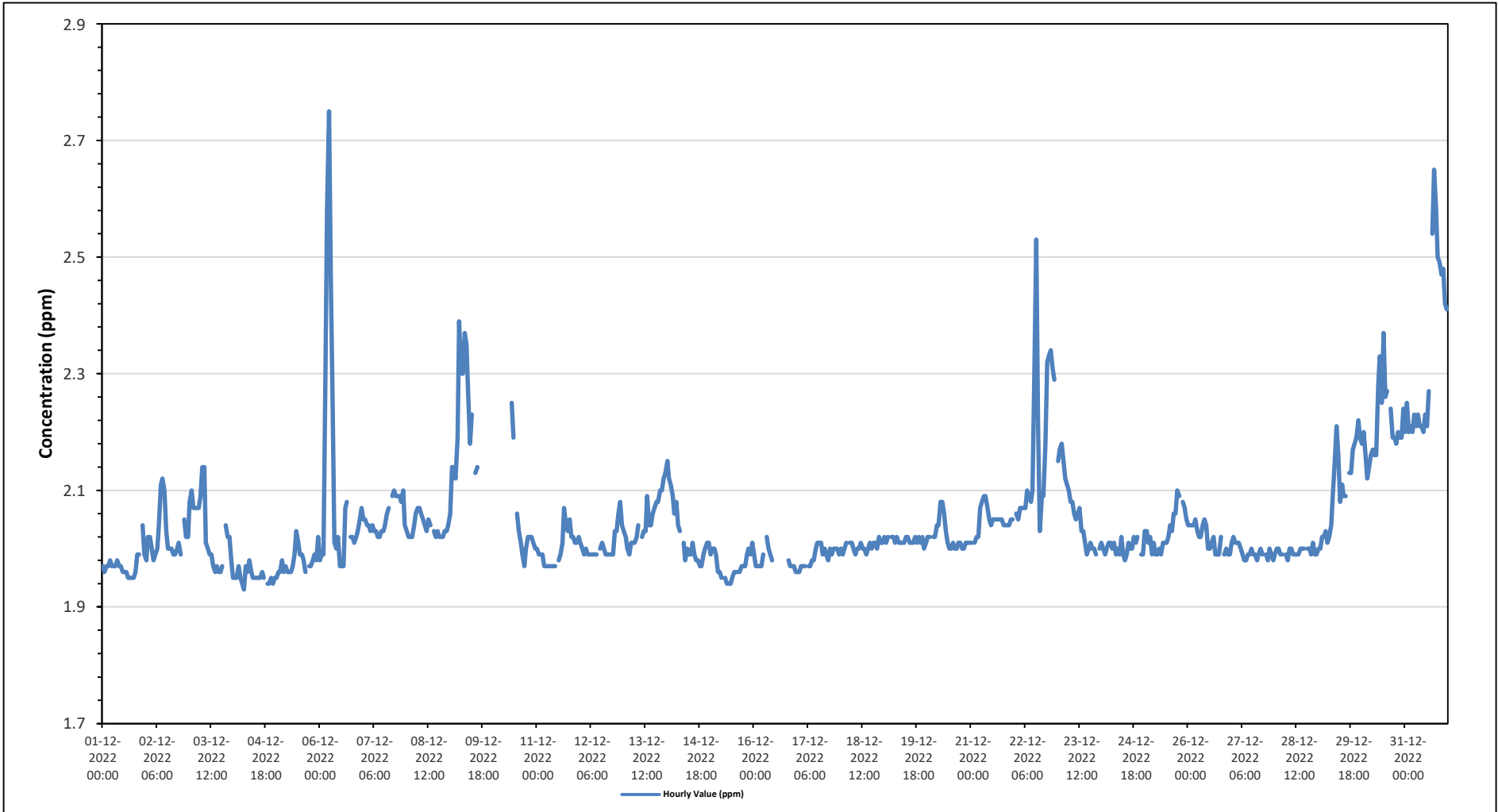
Maximum Hourly Value:	2.75 ppm on December 6 at hour 5	Hours in Service:	744
Maximum Daily Value:	2.33 ppm on December 31	Hours of Data:	685
Minimum Hourly Value:	1.93 ppm on December 4 at hour 6	Hours of Missing Data:	22
Minimum Daily Value:	1.95 ppm on December 4	Hours of Calibration:	37
Monthly Average:	2.05 ppm	Operational Uptime:	97.0

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
Dec 1	1.97	1.96	1.97	1.97	1.98	1.97	1.97	1.97	1.98	1.97	1.97	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.96	1.99	1.99	S	2.04	1.99	1.95	2.04	1.97
Dec 2	1.98	2.02	2.02	2.00	1.98	1.99	2.00	2.04	2.11	2.12	2.10	2.03	2.00	2.00	2.00	1.99	1.99	2.00	2.01	1.99	S	2.05	2.02	2.02	1.98	1.98	2.02
Dec 3	2.08	2.10	2.07	2.07	2.07	2.07	2.09	2.14	2.14	2.01	2.00	1.99	1.99	1.97	1.96	1.97	1.96	1.96	1.97	S	2.04	2.02	2.02	1.98	1.96	2.14	2.03
Dec 4	1.95	1.95	1.95	1.97	1.95	1.94	1.93	1.97	1.96	1.98	1.96	1.95	1.95	1.95	1.95	1.95	1.96	1.95	S	1.94	1.94	1.95	1.94	1.95	1.93	1.98	1.95
Dec 5	1.95	1.96	1.96	1.98	1.96	1.97	1.96	1.96	1.96	1.97	1.99	2.03	2.01	1.99	1.99	1.98	1.96	S	1.97	1.97	1.98	1.99	1.98	2.02	1.95	2.03	1.98
Dec 6	1.98	1.99	1.99	2.31	2.58	2.75	2.46	2.25	2.01	2.00	2.02	1.97	2.01	1.97	2.08	S	2.02	2.02	2.01	2.02	2.03	2.05	2.07	1.97	2.75	2.11	2.11
Dec 7	2.05	2.05	2.04	2.04	2.03	2.04	2.03	2.03	2.02	2.02	2.03	2.03	2.04	2.06	2.07	S	2.09	2.10	2.09	2.09	2.09	2.08	2.10	2.04	2.02	2.10	2.05
Dec 8	2.03	2.02	2.02	2.02	2.04	2.06	2.07	2.07	2.06	2.05	2.04	2.03	2.05	2.04	S	2.03	2.02	2.03	2.02	2.02	2.02	2.03	2.03	2.04	2.02	2.07	2.04
Dec 9	2.06	2.14	2.14	2.12	2.19	2.39	2.30	2.30	2.37	2.35	2.26	2.18	2.23	S	2.13	2.14	X	X	X	X	X	X	X	X	2.06	2.39	-
Dec 10	X	X	X	X	X	X	X	X	X	X	2.25	2.19	S	2.06	2.03	2.01	1.99	1.97	2.00	2.02	2.02	2.02	2.01	2.00	1.97	2.25	-
Dec 11	2.00	1.99	1.99	1.99	1.97	1.97	1.97	1.97	1.97	1.97	1.97	S	1.98	1.99	2.01	2.07	2.04	2.03	2.05	2.02	2.02	2.01	2.01	2.02	1.97	2.07	2.00
Dec 12	2.01	2.00	1.99	2.00	1.99	1.99	1.99	1.99	1.99	1.99	S	2.00	2.01	2.00	1.99	1.99	1.99	1.99	1.99	2.03	2.03	2.06	2.08	2.04	1.99	2.08	2.01
Dec 13	2.03	2.02	2.00	1.99	2.01	2.01	2.01	2.02	2.04	S	2.02	2.03	2.03	2.09	2.04	2.04	2.06	2.07	2.08	2.08	2.10	2.10	2.12	2.13	1.99	2.13	2.05
Dec 14	2.15	2.12	2.11	2.09	2.06	2.08	2.04	2.03	S	2.01	1.98	2.00	1.99	1.99	2.01	1.99	1.98	1.98	1.97	1.97	1.99	2.00	2.01	2.01	1.97	2.15	2.02
Dec 15	1.99	2.00	2.00	1.99	1.96	1.96	1.95	S	1.95	1.94	1.94	1.94	1.95	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.99	2.00	1.99	2.01	1.94	2.01	1.97
Dec 16	1.99	1.97	1.97	1.97	1.97	1.99	S	2.02	2.00	1.99	1.98	NRM	NRM	NRM	C	C	C	C	C	1.98	1.97	1.97	1.97	1.96	1.96	2.02	-
Dec 17	1.96	1.96	1.97	1.97	S	1.97	1.97	1.97	1.98	1.98	2.00	2.01	2.01	2.01	1.99	2.00	1.99	1.98	2.00	1.99	2.00	2.00	2.00	1.99	1.96	2.01	1.99
Dec 18	2.00	1.99	2.00	2.01	S	2.01	2.01	2.00	1.99	2.00	2.00	2.01	2.00	2.00	1.99	2.00	2.01	2.00	2.01	2.01	2.00	2.02	2.01	2.01	1.99	2.02	2.00
Dec 19	2.02	2.01	2.02	S	2.02	2.02	2.01	2.02	2.01	2.01	2.01	2.01	2.02	2.02	2.01	2.01	2.01	2.02	2.01	2.02	2.01	2.02	2.00	2.01	2.00	2.02	2.01
Dec 20	2.02	2.02	S	2.02	2.02	2.04	2.04	2.08	2.08	2.06	2.03	2.01	2.00	2.00	2.01	2.00	2.00	2.01	2.01	2.00	2.00	2.01	2.01	2.01	2.00	2.08	2.02
Dec 21	2.01	S	2.01	2.02	2.02	2.07	2.08	2.09	2.09	2.07	2.05	2.04	2.05	2.05	2.05	2.05	2.05	2.04	2.04	2.04	2.04	2.05	2.05	2.01	2.09	2.05	2.05
Dec 22	S	2.06	2.05	2.07	2.07	2.07	2.07	2.10	2.09	2.08	2.10	2.32	2.53	2.21	2.03	2.09	2.09	2.18	2.32	2.33	2.34	2.31	2.29	S	2.03	2.53	2.17
Dec 23	2.15	2.17	2.18	2.15	2.12	2.11	2.10	2.08	2.08	2.06	2.05	2.06	2.07	2.03	2.03	2.01	1.99	2.00	2.01	2.00	2.00	1.99	S	2.00	1.99	2.18	2.06
Dec 24	2.01	2.00	1.99	2.00	2.01	2.01	2.00	2.01	1.99	2.00	1.99	2.02	1.99	1.98	1.99	2.01	2.00	2.00	2.02	2.01	2.02	S	1.99	1.99	1.98	2.02	2.00
Dec 25	2.03	2.03	2.01	2.02	1.99	2.01	1.99	1.99	2.00	1.99	2.01	2.01	2.01	2.02	2.04	2.03	2.06	2.06	2.10	2.09	S	2.08	2.07	2.05	1.99	2.10	2.03
Dec 26	2.04	2.04	2.04	2.04	2.05	2.03	2.02	2.02	2.04	2.05	2.04	2.00	2.00	2.01	2.02	1.99	1.99	1.99	2.02	S	1.99	2.00	1.99	1.99	1.99	2.05	2.02
Dec 27	2.01	2.02	2.01	2.01	2.01	2.00	1.99	1.98	1.98	1.99	1.99	2.00	1.99	1.99	1.98	1.99	2.00	1.99	S	1.99	1.98	2.00	1.99	1.98	1.98	2.02	1.99
Dec 28	1.99	2.00	2.00	1.99	1.99	X	1.99	1.98	2.00	2.00	1.99	1.99	1.99	1.99	2.00	2.00	2.00	S	2.00	2.00	1.99	2.01	1.99	1.99	1.98	2.01	1.99
Dec 29	2.00	2.00	2.02	2.02	2.03	2.01	2.02	2.04	2.09	2.15	2.21	2.16	2.08	2.11	2.09	2.09	S	2.13	2.13	2.17	2.18	2.19	2.22	2.19	2.00	2.22	2.10
Dec 30	2.18	2.20	2.16	2.12	2.14	2.16	2.17	2.16	2.16	2.28	2.33	2.25	2.37	2.26	2.27	S	2.24	2.19	2.19	2.18	2.20	2.19	2.19	2.24	2.12	2.37	2.21
Dec 31	2.20	2.25	2.20	2.21	2.20	2.23	2.21	2.23	2.21	2.21	2.20	2.23	2.21	2.27	S	2.54	2.65	2.58	2.50	2.49	2.47	2.48	2.42	2.41	2.20	2.65	2.33
Diurnal Maximum	2.20	2.25	2.20	2.31	2.58	2.75	2.46	2.30	2.37	2.35	2.33	2.32	2.53	2.27	2.27	2.54	2.65	2.58	2.50	2.49	2.47	2.48	2.42	2.41			
Diurnal Average	2.03	2.04	2.03	2.04	2.05	2.07	2.05	2.05	2.05	2.04	2.05	2.05	2.05	2.03	2.02	2.03	2.04	2.04	2.05	2.05	2.05	2.06	2.05	2.04			

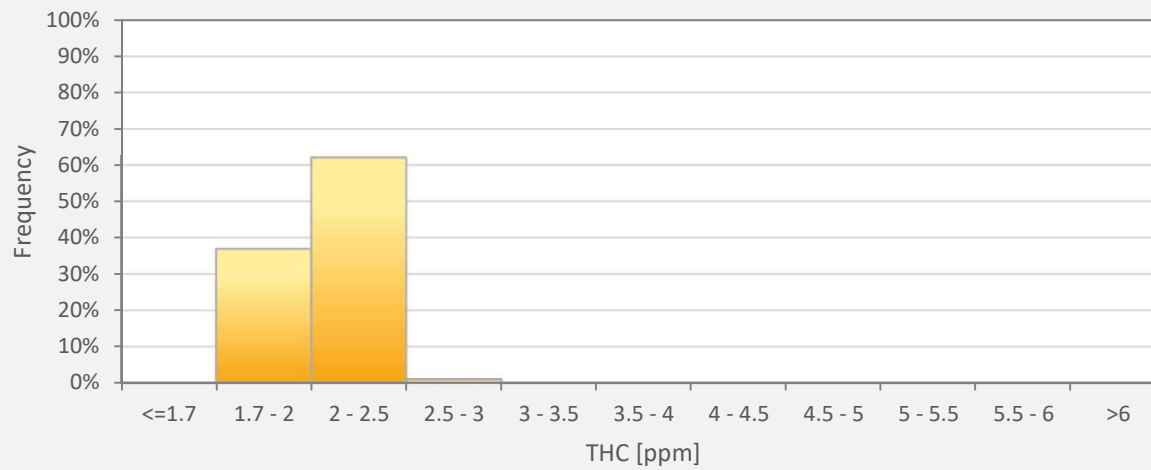
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction/Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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 THC - Tamarack Site



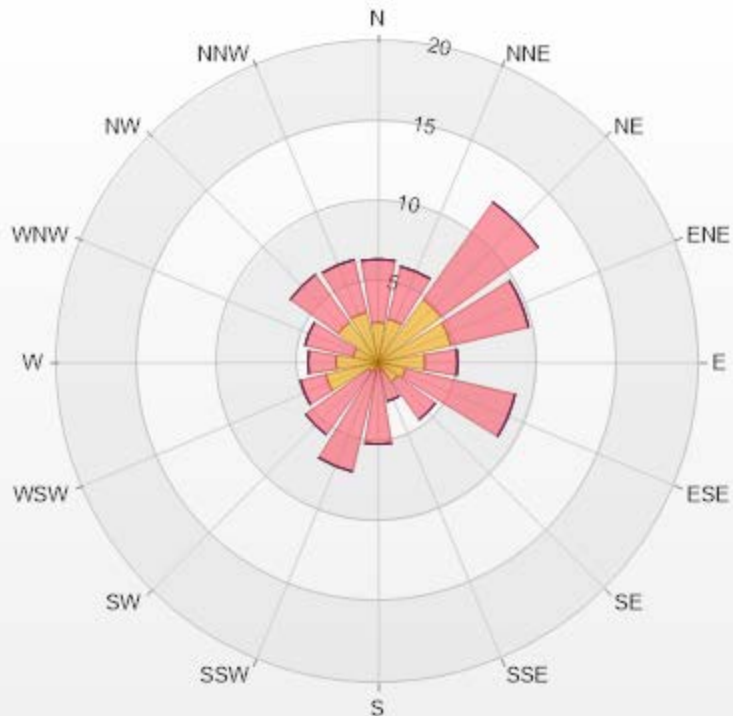
THC55[ppm] Histogram: Tamarack Monthly: 12-2022 1 Hr.



Classes	THC55
<=1.7	0.00%
1.7 - 2	36.93%
2 - 2.5	62.04%
2.5 - 3	1.02%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 92.07% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	2.48	3.94	0	0	0	6.42
NNE	2.77	3.36	0	0	0	6.13
NE	4.82	7.45	0	0	0	12.27
ENE	4.67	4.96	0	0	0	9.63
E	2.92	2.04	0	0	0	4.96
ESE	1.75	7.01	0	0	0	8.76
SE	1.46	2.92	0	0	0	4.38
SSE	0.58	1.9	0	0	0	2.48
S	0.15	4.96	0	0	0	5.11
SSW	0.58	6.42	0	0	0	7
SW	0.73	4.82	0	0	0	5.55
WSW	3.36	1.61	0	0	0	4.97
W	2.63	1.75	0	0	0	4.38
WNW	1.61	3.07	0	0	0	4.68
NW	3.07	3.65	0	0	0	6.72
NNW	3.21	3.36	0	0	0	6.57
Summary	36.79	63.22	0	0	0	100



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% Icon Classes (ppm)

37 ■ 0-2

63 ■ 2-5

0 ■ 5-10

0 ■ 10-40

0 ■ >40.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - December 2022

Summary of Hourly Averages

METHANE (CH4) in ppm

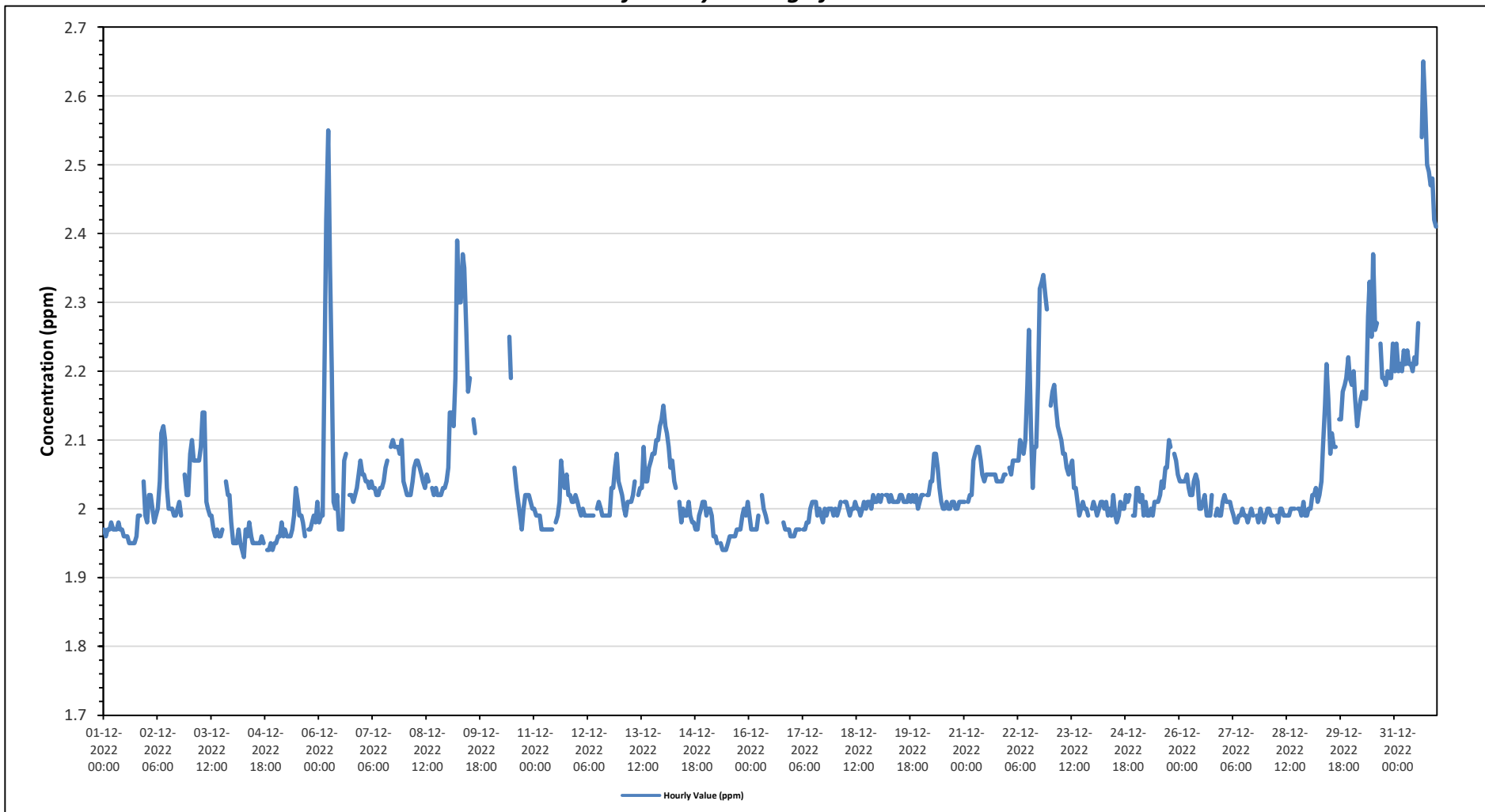
Maximum Hourly Value:	2.65 ppm on December 31 at hour 16	Hours in Service:	744
Maximum Daily Value:	2.33 ppm on December 31	Hours of Data:	685
Minimum Hourly Value:	1.93 ppm on December 4 at hour 6	Hours of Missing Data:	22
Minimum Daily Value:	1.95 ppm on December 4	Hours of Calibration:	37
Monthly Average:	2.04 ppm	Operational Uptime:	97.0

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
Dec 1	1.97	1.96	1.97	1.97	1.98	1.97	1.97	1.97	1.98	1.97	1.97	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.96	1.99	1.99	S	2.04	1.99	1.95	2.04	1.97
Dec 2	1.98	2.02	2.02	2.00	1.98	1.99	2.00	2.04	2.11	2.12	2.10	2.03	2.00	2.00	2.00	1.99	1.99	2.00	2.01	1.99	S	2.05	2.02	2.02	1.98	1.98	2.02
Dec 3	2.08	2.10	2.07	2.07	2.07	2.07	2.09	2.14	2.14	2.01	2.00	1.99	1.99	1.97	1.96	1.97	1.96	1.96	1.97	S	2.04	2.02	2.02	1.98	1.96	2.14	2.03
Dec 4	1.95	1.95	1.95	1.97	1.95	1.94	1.93	1.97	1.96	1.98	1.96	1.95	1.95	1.95	1.95	1.95	1.96	1.95	S	1.94	1.94	1.95	1.94	1.95	1.93	1.98	1.95
Dec 5	1.95	1.96	1.96	1.98	1.96	1.97	1.96	1.96	1.96	1.97	1.99	2.03	2.01	1.99	1.99	1.98	1.96	S	1.97	1.97	1.98	1.99	1.98	2.01	1.95	2.03	1.98
Dec 6	1.98	1.99	1.99	2.23	2.42	2.55	2.35	2.20	2.01	2.00	2.02	1.97	1.97	1.97	2.08	S	2.02	2.02	2.01	2.02	2.03	2.05	2.07	1.97	2.55	2.09	1.98
Dec 7	2.05	2.05	2.04	2.04	2.03	2.04	2.03	2.03	2.02	2.02	2.03	2.03	2.04	2.06	2.07	S	2.09	2.10	2.09	2.09	2.09	2.08	2.10	2.04	2.02	2.10	2.05
Dec 8	2.03	2.02	2.02	2.02	2.04	2.06	2.07	2.07	2.06	2.05	2.04	2.03	2.05	2.04	S	2.03	2.02	2.03	2.02	2.02	2.02	2.03	2.03	2.04	2.02	2.07	2.04
Dec 9	2.06	2.14	2.14	2.12	2.19	2.39	2.30	2.30	2.37	2.35	2.26	2.17	2.19	S	2.13	2.11	X	X	X	X	X	X	X	X	2.06	2.39	-
Dec 10	X	X	X	X	X	X	X	X	X	X	2.25	2.19	S	2.06	2.03	2.01	1.99	1.97	2.00	2.02	2.02	2.02	2.01	2.00	1.97	2.25	-
Dec 11	2.00	1.99	1.99	1.99	1.97	1.97	1.97	1.97	1.97	1.97	1.97	S	1.98	1.99	2.01	2.07	2.04	2.03	2.05	2.02	2.02	2.01	2.01	2.02	1.97	2.07	2.00
Dec 12	2.01	2.00	1.99	2.00	1.99	1.99	1.99	1.99	1.99	1.99	S	2.00	2.01	2.00	1.99	1.99	1.99	1.99	1.99	2.03	2.03	2.06	2.08	2.04	1.99	2.08	2.01
Dec 13	2.03	2.02	2.00	1.99	2.01	2.01	2.01	2.02	2.04	S	2.02	2.03	2.03	2.09	2.04	2.04	2.06	2.07	2.08	2.08	2.10	2.10	2.12	2.13	1.99	2.13	2.05
Dec 14	2.15	2.12	2.11	2.09	2.06	2.07	2.04	2.03	S	2.01	1.98	2.00	1.99	1.99	2.01	1.99	1.98	1.98	1.97	1.97	1.99	2.00	2.01	2.01	1.97	2.15	2.02
Dec 15	1.99	2.00	2.00	1.99	1.96	1.96	1.95	S	1.95	1.94	1.94	1.94	1.95	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.99	2.00	1.99	2.01	1.94	2.01	1.97
Dec 16	1.99	1.97	1.97	1.97	1.97	1.99	S	2.02	2.00	1.99	1.98	NRM	NRM	NRM	C	C	C	C	C	1.98	1.97	1.97	1.97	1.96	1.96	2.02	-
Dec 17	1.96	1.96	1.97	1.97	S	1.97	1.97	1.97	1.98	1.98	2.00	2.01	2.01	2.01	1.99	2.00	1.99	1.98	2.00	1.99	2.00	2.00	2.00	1.99	1.96	2.01	1.99
Dec 18	2.00	1.99	2.00	2.01	S	2.01	2.01	2.00	1.99	2.00	2.00	2.01	2.00	2.00	1.99	2.00	2.01	2.00	2.01	2.01	2.00	2.02	2.01	2.01	1.99	2.02	2.00
Dec 19	2.02	2.01	2.02	S	2.02	2.02	2.01	2.02	2.01	2.01	2.01	2.01	2.02	2.02	2.01	2.01	2.01	2.02	2.01	2.02	2.01	2.02	2.00	2.01	2.00	2.02	2.01
Dec 20	2.02	2.02	S	2.02	2.02	2.04	2.04	2.08	2.08	2.06	2.03	2.01	2.00	2.00	2.01	2.00	2.00	2.01	2.01	2.00	2.00	2.01	2.01	2.01	2.00	2.08	2.02
Dec 21	2.01	S	2.01	2.02	2.02	2.07	2.08	2.09	2.09	2.07	2.05	2.04	2.05	2.05	2.05	2.05	2.05	2.04	2.04	2.04	2.04	2.05	2.05	2.01	2.09	2.05	2.05
Dec 22	S	2.06	2.05	2.07	2.07	2.07	2.07	2.10	2.09	2.08	2.10	2.18	2.26	2.12	2.03	2.09	2.09	2.18	2.32	2.33	2.34	2.31	2.29	S	2.03	2.34	2.15
Dec 23	2.15	2.17	2.18	2.15	2.12	2.11	2.10	2.08	2.08	2.06	2.05	2.06	2.07	2.03	2.03	2.01	1.99	2.00	2.01	2.00	2.00	1.99	S	2.00	1.99	2.18	2.06
Dec 24	2.01	2.00	1.99	2.00	2.01	2.01	2.00	2.01	1.99	2.00	1.99	2.02	1.99	1.98	1.99	2.01	2.00	2.00	2.02	2.01	2.02	S	1.99	1.99	1.98	2.02	2.00
Dec 25	2.03	2.03	2.01	2.02	1.99	2.01	1.99	1.99	2.00	1.99	2.01	2.01	2.01	2.02	2.04	2.03	2.06	2.06	2.10	2.09	S	2.08	2.07	2.05	1.99	2.10	2.03
Dec 26	2.04	2.04	2.04	2.04	2.05	2.03	2.02	2.02	2.04	2.05	2.04	2.00	2.00	2.01	2.02	1.99	1.99	1.99	2.02	S	1.99	2.00	1.99	1.99	1.99	2.05	2.02
Dec 27	2.01	2.02	2.01	2.01	2.01	2.00	1.99	1.98	1.98	1.99	1.99	2.00	1.99	1.99	1.98	1.99	2.00	1.99	S	1.99	1.98	2.00	1.99	1.98	1.98	2.02	1.99
Dec 28	1.99	2.00	2.00	1.99	1.99	X	1.99	1.98	2.00	2.00	1.99	1.99	1.99	1.99	2.00	2.00	2.00	S	2.00	S	2.00	1.99	2.01	1.99	1.98	2.01	1.99
Dec 29	2.00	2.00	2.02	2.02	2.03	2.01	2.02	2.04	2.09	2.15	2.21	2.16	2.08	2.11	2.09	2.09	S	2.13	2.13	2.17	2.18	2.19	2.22	2.19	2.00	2.22	2.10
Dec 30	2.18	2.20	2.16	2.12	2.14	2.16	2.17	2.16	2.16	2.28	2.33	2.25	2.37	2.26	2.27	S	2.24	2.19	2.19	2.18	2.20	2.19	2.19	2.24	2.12	2.37	2.21
Dec 31	2.20	2.24	2.20	2.21	2.20	2.23	2.21	2.23	2.21	2.21	2.20	2.22	2.21	2.27	S	2.54	2.65	2.58	2.50	2.49	2.47	2.48	2.42	2.41	2.20	2.65	2.33
Diurnal Maximum	2.20	2.24	2.20	2.23	2.42	2.55	2.35	2.30	2.37	2.35	2.33	2.25	2.37	2.27	2.27	2.27	2.54	2.65	2.58	2.50	2.49	2.47	2.48	2.42	2.41		
Diurnal Average	2.03	2.04	2.03	2.04	2.04	2.06	2.05	2.05	2.05	2.04	2.05	2.04	2.04	2.03	2.02	2.03	2.04	2.04	2.05	2.05	2.05	2.06	2.05	2.04			

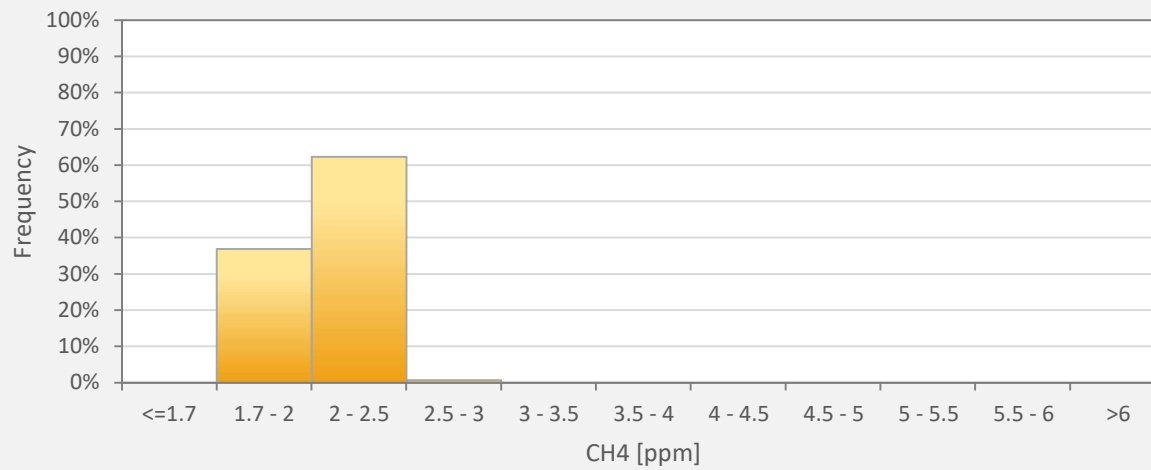
C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	N No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction/Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

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 Site



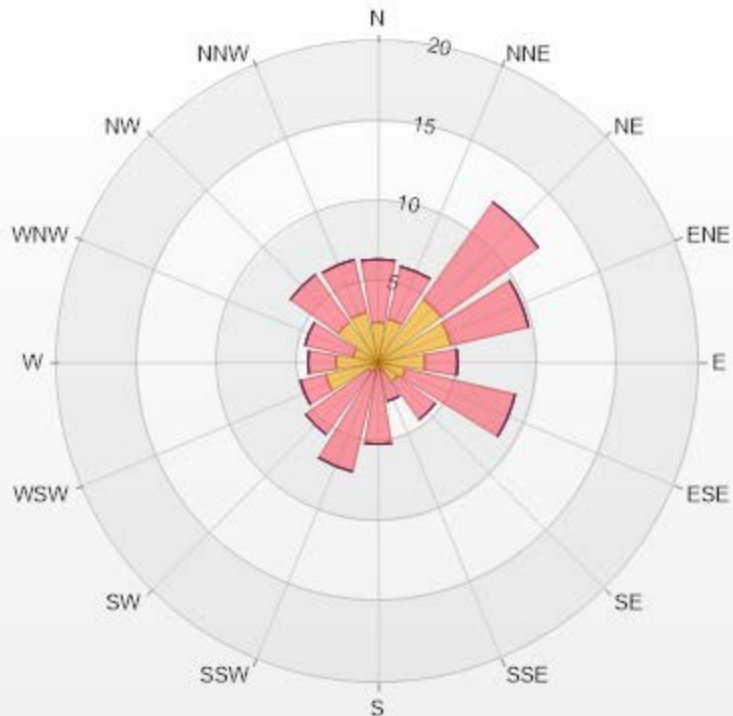
CH4[ppm] Histogram: Tamarack Monthly: 12-2022 1 Hr.



Classes	CH4
<=1.7	0.00%
1.7 - 2	36.93%
2 - 2.5	62.34%
2.5 - 3	0.73%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 92.07% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	2.48	3.94	0	0	0	6.42
NNE	2.77	3.36	0	0	0	6.13
NE	4.82	7.45	0	0	0	12.27
ENE	4.67	4.96	0	0	0	9.63
E	2.92	2.04	0	0	0	4.96
ESE	1.75	7.01	0	0	0	8.76
SE	1.46	2.92	0	0	0	4.38
SSE	0.58	1.9	0	0	0	2.48
S	0.15	4.96	0	0	0	5.11
SSW	0.58	6.42	0	0	0	7
SW	0.73	4.82	0	0	0	5.55
WSW	3.36	1.61	0	0	0	4.97
W	2.63	1.75	0	0	0	4.38
WNW	1.61	3.07	0	0	0	4.68
NW	3.07	3.65	0	0	0	6.72
NNW	3.21	3.36	0	0	0	6.57
Summary	36.79	63.22	0	0	0	100



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% Icon Classes (ppm)

37

0-2

63

2-5

0

5-10

0

10-20

0

>20.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - December 2022

Summary of Hourly Averages

NON-METHANE HYDROCARBONS (NMHC) in ppm

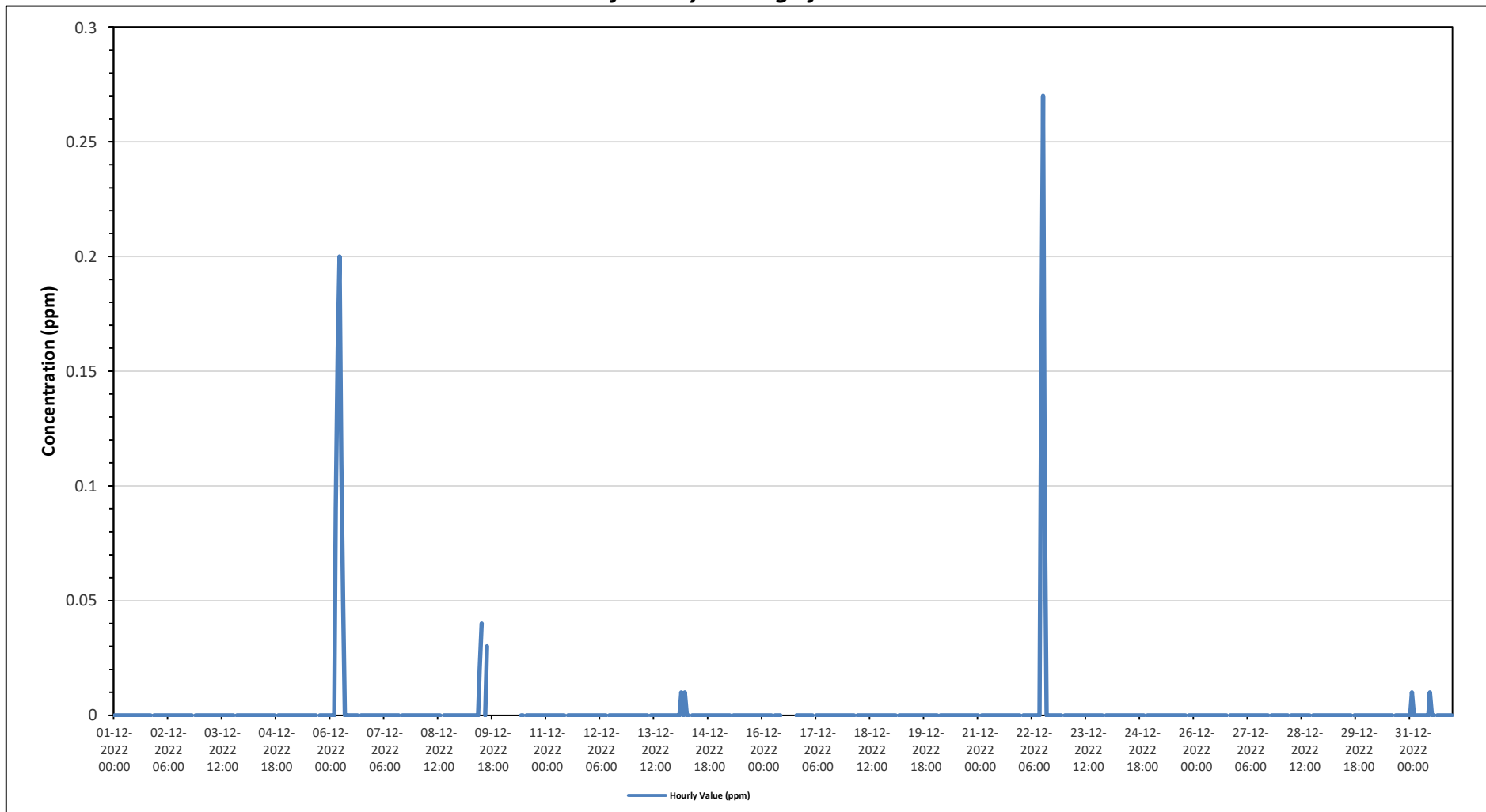
Maximum Hourly Value:	0.27 ppm on December 22 at hour 12	Hours in Service:	744
Maximum Daily Value:	0.03 ppm on December 6	Hours of Data:	685
Minimum Hourly Value:	0.00 ppm on December 1 at hour 0	Hours of Missing Data:	22
Minimum Daily Value:	0.00 ppm on December 1	Hours of Calibration:	37
Monthly Average:	0.00 ppm	Operational Uptime:	97.0

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	
Dec 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	
Dec 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	S	0.00	0.00	0.00	0.00	0.00
Dec 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	
Dec 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	
Dec 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	
Dec 6	0.00	0.00	0.00	0.09	0.16	0.20	0.11	0.05	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	
Dec 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Dec 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	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	
Dec 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	S	0.00	0.03	X	X	X	X	X	X	X	X	X	X	X	0.00	
Dec 10	X	X	X	X	X	X	X	X	X	X	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	
Dec 11	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	
Dec 12	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	
Dec 13	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	
Dec 14	0.00	0.00	0.00	0.01	0.00	0.01	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	
Dec 15	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	
Dec 16	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	NRM	NRM	NRM	C	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Dec 17	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	
Dec 18	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	
Dec 19	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	
Dec 20	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	
Dec 21	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	
Dec 22	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.27	0.09	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	
Dec 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	S	0.00	0.00	0.00	
Dec 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	S	0.00	0.00	0.00	0.00	
Dec 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	S	0.00	0.00	0.00	0.00	0.00	
Dec 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	S	0.00	0.00	0.00	0.00	0.00	0.00	
Dec 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	S	0.00	0.00	0.00	0.00	0.00	0.00	
Dec 28	0.00	0.00	0.00	0.00	0.00	X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Dec 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Dec 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	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	
Dec 31	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	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	
Diurnal Maximum	0.00	0.01	0.00	0.09	0.16	0.20	0.11	0.05	0.00	0.00	0.00	0.15	0.27	0.09	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Diurnal Average	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

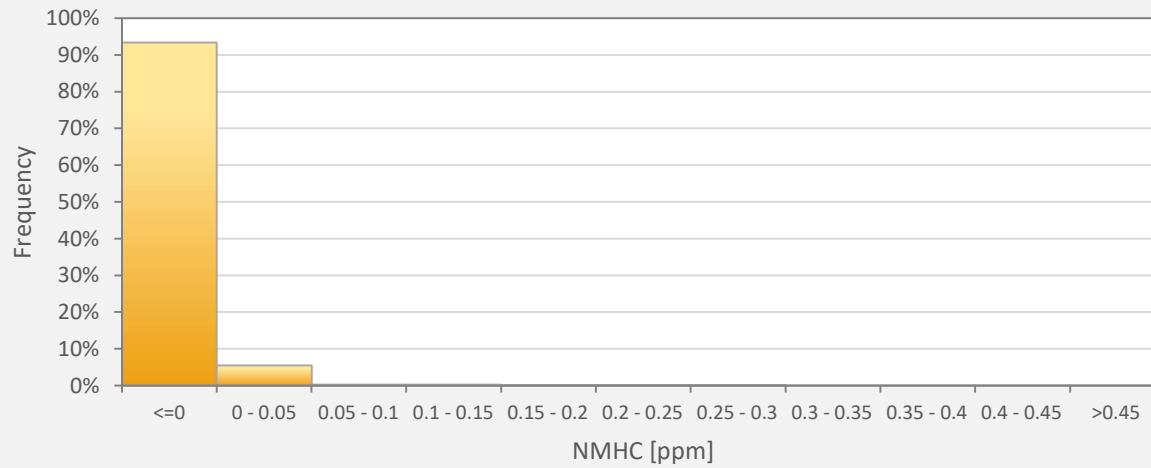
C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance	
K Collection Error	N No Data (Machine Not in Service)	Y Routine Maintenance	P Power Failure
X InValid Data (Equipment Malfunction/Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)		

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 - Tamarack Site



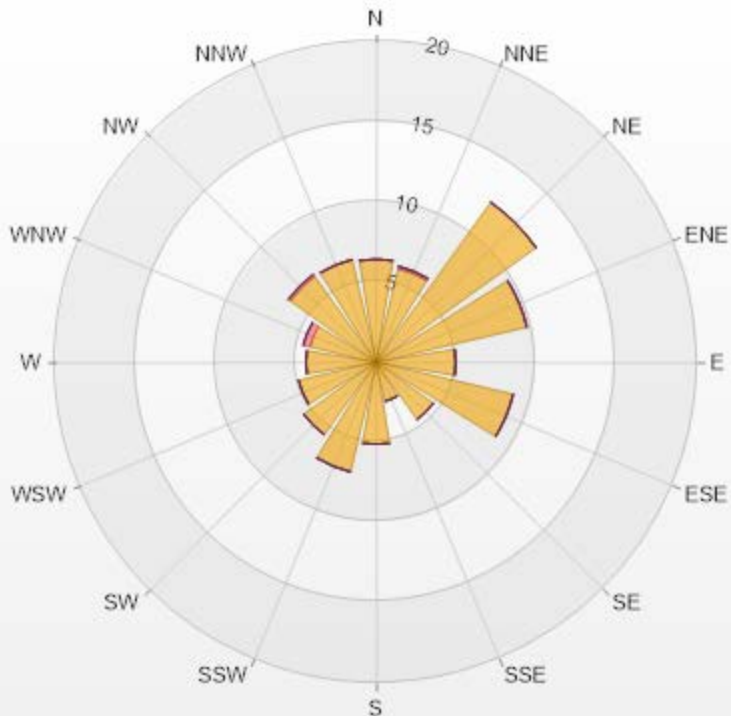
NMHC[ppm] Histogram: Tamarack Monthly: 12-2022 1 Hr.



Classes	NMHC
<=0	93.43%
0 - 0.05	5.55%
0.05 - 0.1	0.29%
0.1 - 0.15	0.29%
0.15 - 0.2	0.15%
0.2 - 0.25	0.15%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 92.07% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	6.42	0	0	0	0	6.42
NNE	5.99	0.15	0	0	0	6.14
NE	12.26	0	0	0	0	12.26
ENE	9.64	0	0	0	0	9.64
E	4.96	0	0	0	0	4.96
ESE	8.76	0	0	0	0	8.76
SE	4.38	0	0	0	0	4.38
SSE	2.48	0	0	0	0	2.48
S	5.11	0	0	0	0	5.11
SSW	7.01	0	0	0	0	7.01
SW	5.55	0	0	0	0	5.55
WSW	4.96	0	0	0	0	4.96
W	4.38	0	0	0	0	4.38
WNW	4.23	0.44	0	0	0	4.67
NW	6.57	0.15	0	0	0	6.72
NNW	6.57	0	0	0	0	6.57
Summary	99.27	0.74	0	0	0	100



LICA-202212

% Icon Classes (ppm)

99 0-0.1

1 0.1-0.3

0 0.3-1

0 1-2

0 >2.0



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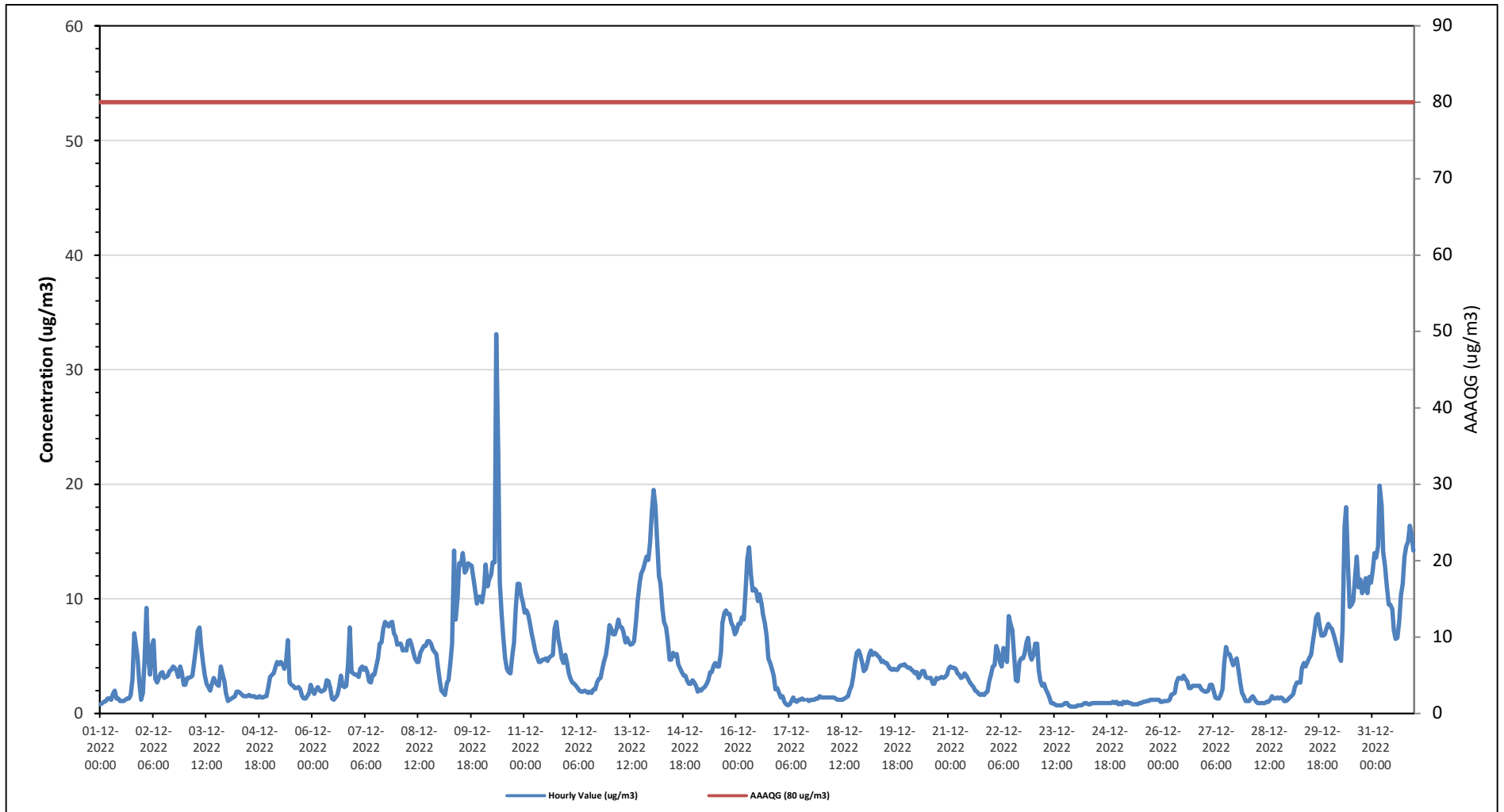
Tamarack Site - December 2022

Summary of Hourly Averages

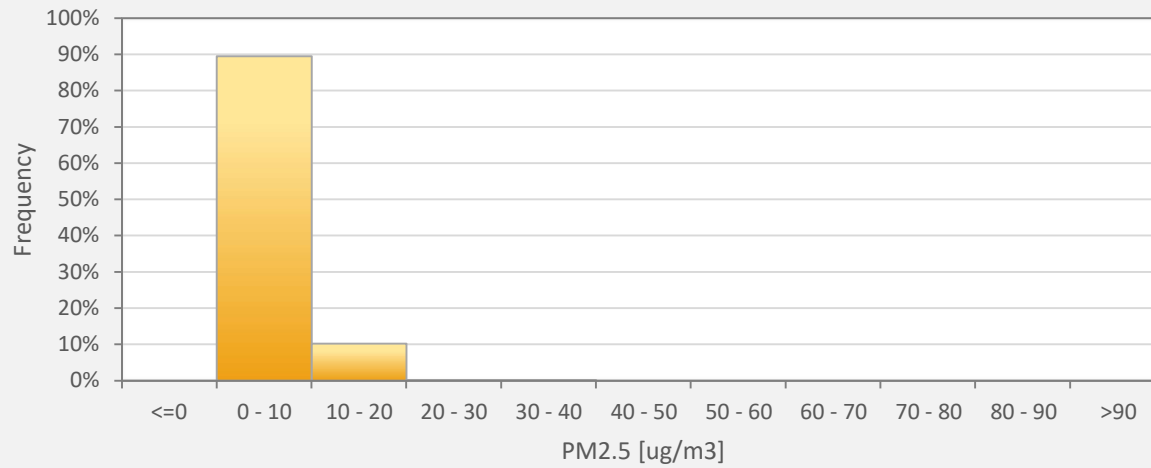
PARTICULATE MATTER 2.5 (PM_{2.5}) in µg/m³

Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m ³ , Alberta Ambient Air Quality Objective (AAAO): 24-Hour 29 µg/m ³																												
Number of 1-Hour Exceedances: 0											Number of 24-Hour Exceedances: 0																	
Maximum Hourly Value: 33 µg/m ³ on December 10 at hour 8											Hours in Service: 744																	
Maximum Daily Value: 12.4 µg/m ³ on December 31											Hours of Data: 743																	
Minimum Hourly Value: 1 µg/m ³ on December 23 at hour 21											Hours of Missing Data: 0																	
Minimum Daily Value: 1 µg/m ³ on December 24											Hours of Calibration: 1																	
Monthly Average: 4.6 µg/m ³											Operational Uptime: 100.0																	
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Dec 1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	2	3	7	6	5	3	1	1	7	2.0		
Dec 2	2	5	9	5	3	6	6	3	3	3	4	4	3	3	3	4	4	4	4	4	3	4	4	3	2	9	3.9	
Dec 3	3	3	3	3	3	5	6	7	8	6	4	3	3	2	2	3	3	3	2	4	4	3	2	2	2	8	3.6	
Dec 4	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	1	2	1.5	
Dec 5	3	3	4	4	5	4	5	4	4	4	5	6	3	3	2	2	2	2	2	1	1	2	2	3	1	6	3.0	
Dec 6	2	2	2	2	2	2	2	2	3	3	2	1	1	1	2	2	3	2	2	2	4	8	4	4	1	8	2.5	
Dec 7	3	3	3	4	4	4	4	4	4	3	3	3	3	4	5	6	6	7	8	8	8	8	7	7	3	8	5.1	
Dec 8	6	6	6	6	6	6	6	6	6	5	5	5	5	5	6	6	6	6	6	6	6	5	5	4	4	6	5.6	
Dec 9	3	2	2	2	3	3	5	6	14	8	10	13	13	14	12	13	13	13	13	12	11	10	10	10	2	14	8.9	
Dec 10	10	11	13	11	12	12	13	13	33	23	11	8	7	5	4	4	4	5	6	9	11	11	10	10	4	33	10.7	
Dec 11	9	9	9	8	7	6	5	5	5	5	5	5	5	5	5	5	7	8	7	6	5	4	5	4	9	5.9		
Dec 12	4	4	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	4	5	5	6	2	6	2.9	
Dec 13	8	7	7	7	7	8	8	8	7	6	7	6	6	6	6	8	10	11	12	13	13	14	13	15	6	15	8.9	
Dec 14	18	20	18	15	12	11	9	8	8	7	5	5	5	5	4	4	4	3	3	3	3	3	3	3	3	20	7.5	
Dec 15	3	2	2	2	2	2	2	3	3	4	4	4	4	4	4	5	8	9	9	9	9	8	8	7	2	9	4.8	
Dec 16	7	8	8	8	8	11	14	15	12	11	11	11	10	10	10	9	8	7	5	4	4	3	2	2	2	15	8.2	
Dec 17	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1.2	
Dec 18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	5	5	6	5	4	1	6	2.2	
Dec 19	4	4	4	5	6	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	6	4.4	
Dec 20	4	4	4	4	4	4	4	3	3	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	3.4	
Dec 21	4	4	4	4	4	4	3	3	3	3	4	3	3	3	2	2	2	2	2	2	2	2	2	3	2	4	2.8	
Dec 22	3	4	4	6	5	5	4	6	5	5	9	8	7	5	3	3	5	5	5	5	6	7	5	5	3	9	5.1	
Dec 23	5	6	6	4	3	2	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	1.9	
Dec 24	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	0.9	
Dec 25	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	
Dec 26	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	1	3	2.1	
Dec 27	2	2	2	2	3	3	2	1	1	1	2	2	4	6	5	5	5	4	5	5	4	3	2	2	1	6	3.0	
Dec 28	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	2	1.2	
Dec 29	1	1	2	2	2	3	3	3	4	4	4	5	5	5	6	7	8	9	8	7	7	7	8	8	1	9	4.9	
Dec 30	8	7	7	6	6	5	5	7	16	18	13	9	10	10	12	14	11	12	11	11	12	11	12	11	5	18	10.1	
Dec 31	13	14	14	15	20	18	14	13	11	10	10	9	7	7	7	8	10	11	14	15	15	16	16	14	7	20	12.4	
Diurnal Maximum	18	20	18	15	20	18	14	15	33	23	13	13	14	12	14	13	13	14	15	15	16	16	15					
Diurnal Average	4.3	4.5	4.6	4.4	4.4	4.5	4.5	4.5	5.5	4.8	4.5	4.1	4.0	4.0	4.0	4.3	4.5	4.7	4.8	5.0	5.1	5.2	4.8	4.7				
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance											
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance							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 PM2.5 - Tamarack Site



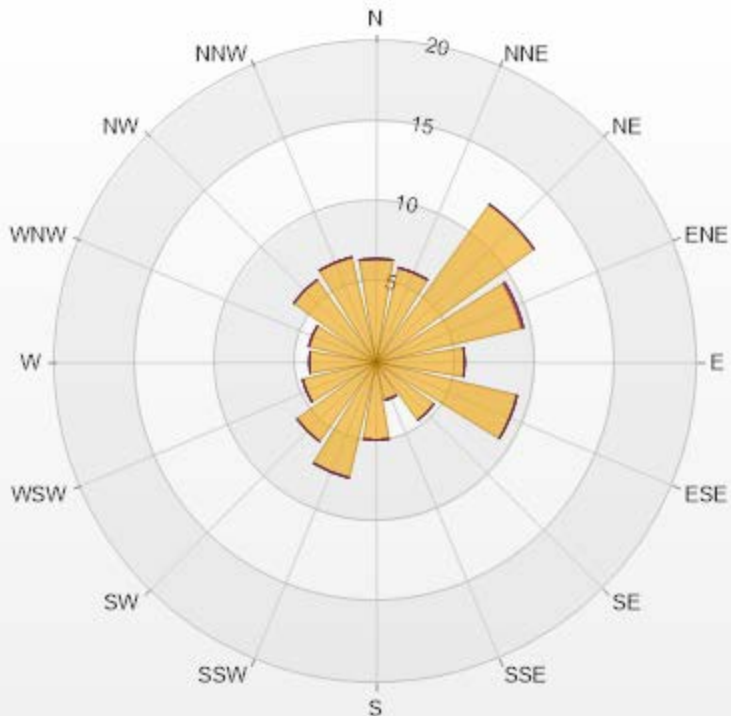
PM2.5[ug/m3(L)] Histogram: Tamarack Monthly: 12-2022 1 Hr.



Classes	PM2.5
<=0	0.00%
0 - 10	89.50%
10 - 20	10.23%
20 - 30	0.13%
30 - 40	0.13%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 99.87% Calm Avg: 0.00 [ug/m3(L)]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	6.46	0	0	0	0	6.46
NNE	6.06	0	0	0	0	6.06
NE	12.11	0	0	0	0	12.11
ENE	9.29	0.13	0	0	0	9.42
E	5.52	0	0	0	0	5.52
ESE	9.02	0	0	0	0	9.02
SE	4.44	0	0	0	0	4.44
SSE	2.42	0	0	0	0	2.42
S	4.85	0	0	0	0	4.85
SSW	7.4	0	0	0	0	7.4
SW	6.06	0	0	0	0	6.06
WSW	4.71	0	0	0	0	4.71
W	4.17	0	0	0	0	4.17
WNW	4.31	0	0	0	0	4.31
NW	6.33	0	0	0	0	6.33
NNW	6.73	0	0	0	0	6.73
Summary	100	0.13	0	0	0	100



LICA-202212

% Icon Classes (ug/m3(L))

100  0-30

0  30-50

0  50-76

0  76-159

0  >159.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - December 2022

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

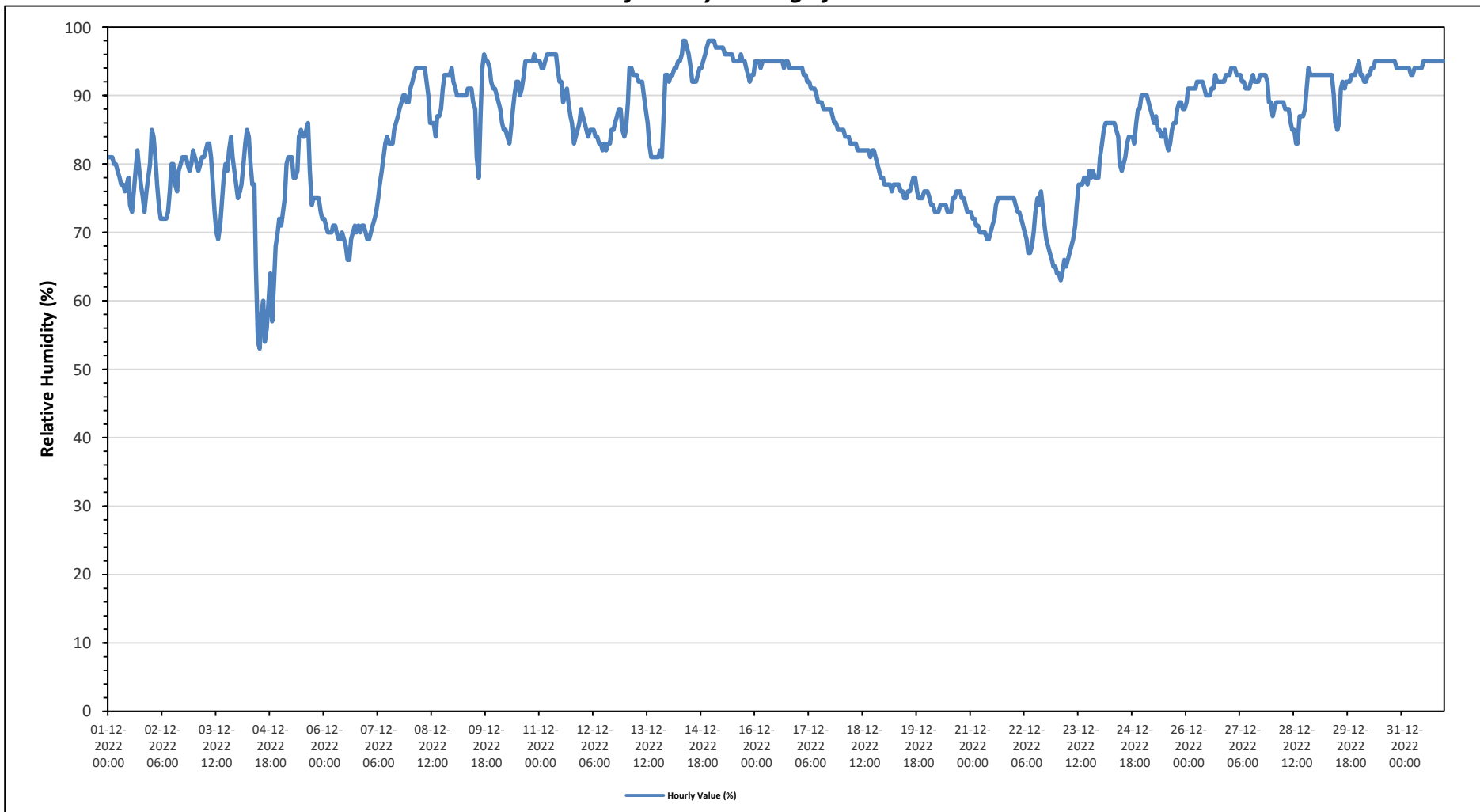
Maximum Hourly Value:	98 %	on December 14 at hour 8	Hours in Service:	744
Maximum Daily Value:	95.5 %	on December 15	Hours of Data:	744
Minimum Hourly Value:	53 %	on December 4 at hour 12	Hours of Missing Data:	0
Minimum Daily Value:	68.7 %	on December 4	Hours of Calibration:	0
Monthly Average:	84.3 %		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
Dec 1	81	81	81	80	80	79	78	77	77	76	77	78	74	73	76	79	82	79	77	75	73	76	78	80	73	82	77.8
Dec 2	85	84	81	77	74	72	72	72	72	73	76	80	80	77	76	79	80	81	81	81	80	79	80	82	72	85	78.1
Dec 3	81	80	79	80	81	81	82	83	83	81	77	73	70	69	71	74	78	80	79	82	84	81	79	77	69	84	78.5
Dec 4	75	76	77	80	83	85	84	80	77	77	65	54	53	58	60	54	56	60	64	57	63	68	70	72	53	85	68.7
Dec 5	71	73	75	80	81	81	81	78	78	79	84	85	84	84	85	86	79	74	75	75	75	73	72	71	86	78.5	
Dec 6	72	71	70	70	70	71	71	70	69	69	70	69	68	66	66	69	70	71	70	71	70	71	71	70	66	72	69.8
Dec 7	69	69	70	71	72	73	75	77	79	81	83	84	83	83	83	85	86	87	88	89	90	90	89	89	69	90	81.0
Dec 8	91	92	93	94	94	94	94	94	94	94	92	90	86	86	86	84	87	87	88	91	93	93	93	94	84	94	91.0
Dec 9	92	91	90	90	90	90	90	91	91	91	89	88	81	78	87	94	96	95	95	95	94	92	91	91	78	96	90.3
Dec 10	90	89	88	86	85	85	84	83	85	88	90	92	92	90	91	93	95	95	95	95	95	96	95	95	83	96	90.5
Dec 11	95	94	94	95	96	96	96	96	96	96	94	92	92	89	90	91	89	87	86	83	84	85	86	88	83	96	91.3
Dec 12	87	86	85	84	85	85	85	84	84	83	83	82	83	82	83	83	85	85	86	87	88	88	85	84	82	88	84.7
Dec 13	85	89	94	94	93	93	93	92	92	92	90	88	86	83	81	81	81	81	81	82	81	87	93	93	81	94	87.7
Dec 14	92	93	93	94	94	95	95	96	98	98	97	96	94	92	92	92	93	94	94	95	96	97	98	98	92	98	94.8
Dec 15	98	98	97	97	97	97	97	96	96	96	96	96	95	95	95	95	96	95	95	94	93	92	93	93	92	98	95.5
Dec 16	95	95	95	94	95	95	95	95	95	95	95	95	95	95	95	94	95	95	94	94	94	94	94	94	94	95	94.7
Dec 17	94	94	94	93	93	92	92	91	91	91	90	89	89	88	88	88	88	88	88	87	86	86	85	85	85	94	89.6
Dec 18	85	85	84	84	84	83	83	83	83	82	82	82	82	82	82	82	81	82	82	81	80	79	78	78	78	85	82.0
Dec 19	77	77	77	77	76	77	77	77	77	76	76	75	75	76	76	77	78	78	76	75	75	75	76	76	75	78	76.3
Dec 20	76	75	74	74	73	73	74	74	74	74	73	73	73	75	75	76	76	76	76	75	75	74	73	73	73	76	74.2
Dec 21	73	72	72	71	71	70	70	70	70	69	69	70	71	72	74	75	75	75	75	75	75	75	75	75	69	75	72.5
Dec 22	75	74	73	73	72	71	70	69	67	67	68	70	73	75	74	76	74	71	69	68	67	66	65	65	65	76	70.5
Dec 23	64	64	63	64	66	65	66	67	68	69	71	74	77	77	77	78	78	77	79	78	79	78	78	78	63	79	72.3
Dec 24	81	83	85	86	86	86	86	86	86	85	84	80	79	80	81	83	84	84	84	83	86	88	88	90	79	90	84.3
Dec 25	90	90	90	89	88	87	86	87	85	85	84	84	85	83	82	83	85	86	86	88	89	89	88	88	82	90	86.5
Dec 26	89	91	91	91	91	91	92	92	92	92	91	90	90	90	91	91	93	92	92	92	92	92	93	93	89	93	91.4
Dec 27	93	94	94	94	93	93	93	92	92	91	91	91	92	93	92	92	92	93	93	93	93	92	89	89	89	94	92.3
Dec 28	87	88	89	89	89	89	89	88	88	88	86	85	85	83	83	87	87	87	88	91	94	93	93	93	83	94	88.3
Dec 29	93	93	93	93	93	93	93	93	93	93	90	86	85	86	91	92	91	92	92	92	93	93	93	94	85	94	91.7
Dec 30	95	93	93	92	93	93	93	94	94	95	95	95	95	95	95	95	95	95	95	95	95	94	94	94	92	95	94.2
Dec 31	94	94	94	94	94	93	93	94	94	94	94	94	95	95	95	95	95	95	95	95	95	95	95	95	93	95	94.4
Diurnal Maximum	98	98	97	97	97	97	96	98	98	97	96	95	95	95	95	96	96	95	95	95	96	97	98	98			
Diurnal Average	84.7	84.8	84.8	84.8	84.9	84.8	84.8	84.5	84.5	84.5	84.0	83.1	82.9	82.3	82.6	83.8	84.4	84.5	84.6	84.4	84.7	84.9	84.9	85.1			

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)	NRIM 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 Site





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - December 2022

Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

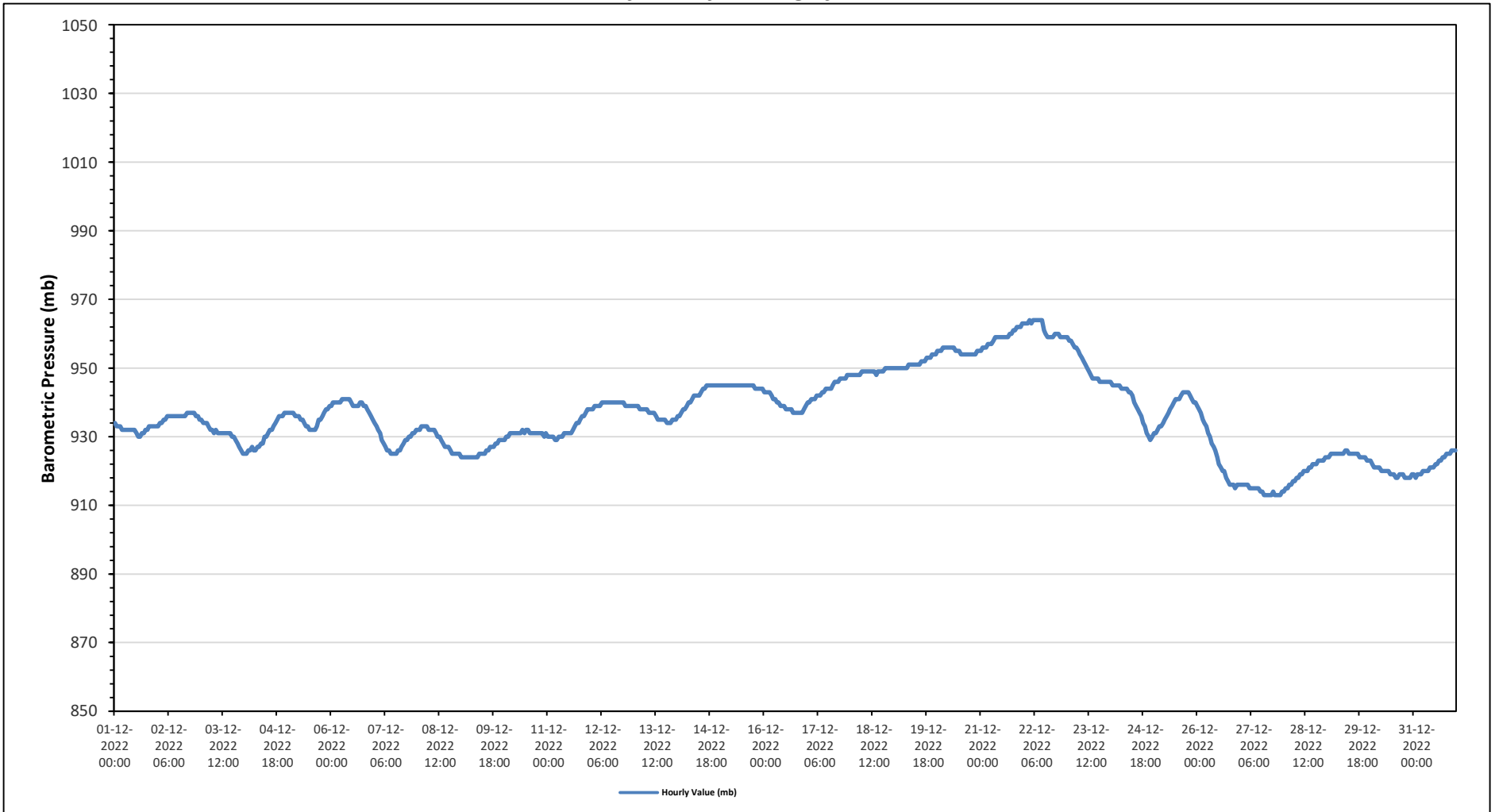
Maximum Hourly Value:	964 mb on December 22 at hour 3	Hours in Service:	744
Maximum Daily Value:	961 mb on December 22	Hours of Data:	744
Minimum Hourly Value:	913 mb on December 27 at hour 13	Hours of Missing Data:	0
Minimum Daily Value:	914 mb on December 27	Hours of Calibration:	0
Monthly Average:	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			
Dec 1	934	933	933	933	932	932	932	932	932	932	932	931	930	930	931	931	932	932	933	933	933	933	933	930	934	932
Dec 2	933	934	934	935	935	936	936	936	936	936	936	936	936	936	936	936	937	937	937	937	936	936	935	933	937	936
Dec 3	935	934	934	934	933	932	932	931	932	931	931	931	931	931	931	931	930	930	929	928	927	926	925	925	935	931
Dec 4	925	925	926	926	927	926	926	927	927	928	928	930	930	931	932	932	933	934	935	936	936	937	937	925	937	930
Dec 5	937	937	937	937	936	936	936	935	935	934	933	933	932	932	932	933	935	935	936	937	938	938	939	932	939	935
Dec 6	939	940	940	940	940	940	941	941	941	941	940	939	939	939	940	940	939	939	938	937	936	935	935	941	939	939
Dec 7	934	933	932	931	929	928	927	926	926	925	925	925	925	926	926	927	928	929	929	930	930	931	931	925	934	929
Dec 8	932	932	933	933	933	933	932	932	932	932	931	930	930	929	928	927	927	926	925	925	925	925	925	925	933	929
Dec 9	924	924	924	924	924	924	924	924	924	924	925	925	925	925	926	926	927	927	927	928	928	929	929	924	929	926
Dec 10	929	930	930	931	931	931	931	931	931	931	932	932	932	931	931	931	931	931	931	931	931	930	931	929	932	931
Dec 11	930	930	930	930	929	929	930	930	930	931	931	931	931	931	932	933	934	934	935	936	936	937	938	929	938	932
Dec 12	938	938	939	939	939	939	940	940	940	940	940	940	940	940	940	940	940	940	939	939	939	939	939	938	940	939
Dec 13	939	939	939	938	938	938	938	938	937	937	937	937	936	935	935	935	935	934	934	934	935	935	935	934	939	936
Dec 14	936	936	937	938	938	939	940	940	941	942	942	942	943	944	944	945	945	945	945	945	945	945	945	936	945	942
Dec 15	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	944	944	944	944	944	945	945
Dec 16	943	943	943	943	942	941	941	940	940	939	939	939	938	938	938	937	937	937	937	937	937	937	937	937	943	939
Dec 17	940	940	941	941	941	942	942	942	942	943	944	944	944	944	945	946	946	946	947	947	947	947	948	940	948	944
Dec 18	948	948	948	948	948	948	949	949	949	949	949	949	949	949	948	949	949	949	949	950	950	950	950	948	950	949
Dec 19	950	950	950	950	950	950	950	950	951	951	951	951	951	951	951	952	952	952	953	953	953	954	954	950	954	951
Dec 20	955	955	955	956	956	956	956	956	956	956	955	955	955	955	954	954	954	954	954	954	954	955	955	954	956	955
Dec 21	955	956	956	956	957	957	957	958	959	959	959	959	959	959	959	960	960	961	961	962	962	962	963	955	963	959
Dec 22	963	963	963	964	963	964	964	964	964	964	964	961	960	959	959	959	959	960	960	960	959	959	959	959	964	961
Dec 23	959	958	958	957	956	956	955	954	953	952	951	950	949	948	947	947	947	946	946	946	946	946	946	946	959	951
Dec 24	946	945	945	945	945	944	944	944	944	943	943	943	942	940	939	938	937	936	934	933	931	930	929	929	946	940
Dec 25	931	931	932	933	933	934	935	936	937	938	939	940	941	941	941	942	943	943	943	943	942	941	940	940	931	938
Dec 26	939	938	937	935	934	933	931	930	928	927	926	924	922	921	920	920	918	917	916	916	916	915	916	915	939	925
Dec 27	916	916	916	916	916	915	915	915	915	915	914	914	913	913	913	913	913	914	913	913	913	913	914	913	916	914
Dec 28	914	915	915	916	916	917	917	918	918	919	919	920	920	920	921	921	922	922	922	923	923	923	924	914	924	920
Dec 29	924	924	925	925	925	925	925	925	925	925	926	926	926	925	925	925	925	924	924	924	924	923	923	923	923	925
Dec 30	923	922	921	921	921	920	920	920	920	920	919	919	919	918	918	919	919	919	918	918	918	918	919	918	923	920
Dec 31	919	918	919	919	919	920	920	920	920	921	921	921	922	922	923	923	924	924	925	925	926	926	926	918	926	922
Diurnal Maximum	963	963	963	964	963	964	964	964	964	964	964	961	960	959	959	959	960	960	961	961	962	962	963	963	963	963
Diurnal Average	937	937	937	937	936	937	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936

C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	N No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction /Recovery)	NRIM 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 Site





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - December 2022

Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

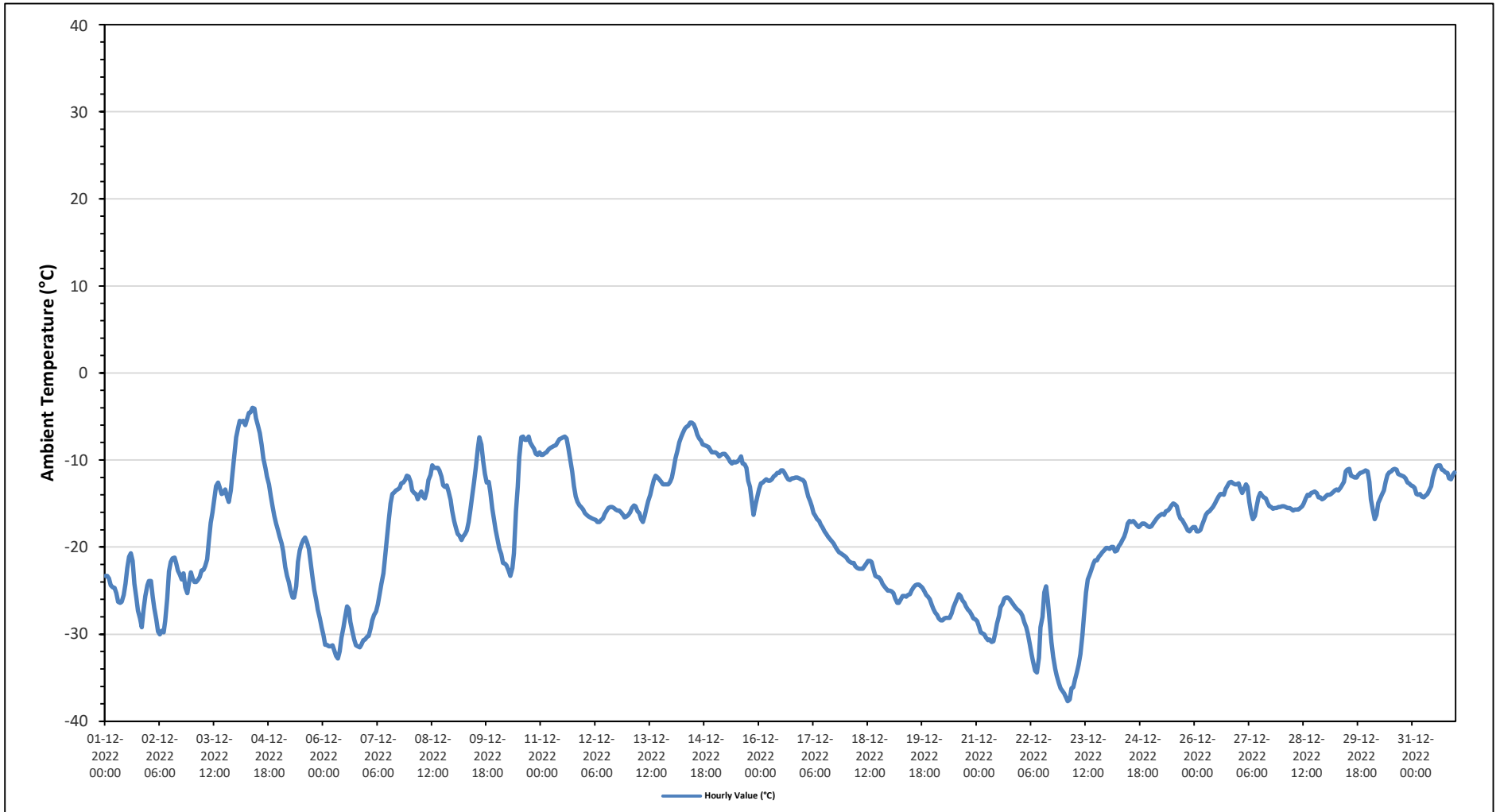
Maximum Hourly Value:	-4.0 °C	on December 4 at hour 9	Hours in Service:	744
Maximum Daily Value:	-7.9 °C	on December 14	Hours of Data:	744
Minimum Hourly Value:	-37.7 °C	on December 23 at hour 2	Hours of Missing Data:	0
Minimum Daily Value:	-31.0 °C	on December 22	Hours of Calibration:	0
Monthly Average:	-18.1 °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
Dec 1	-23.3	-23.3	-23.6	-24.4	-24.6	-24.7	-25.3	-26.3	-26.4	-26.3	-25.5	-24.2	-22.4	-21.1	-20.7	-21.6	-24.2	-25.9	-27.3	-28.2	-29.2	-27.2	-25.6	-24.4	-29.2	-20.7	-24.8
Dec 2	-23.9	-23.9	-25.7	-27	-28.3	-29.7	-30	-29.6	-29.8	-28.5	-25.9	-22.8	-21.7	-21.3	-21.2	-21.8	-22.7	-23.2	-23.7	-23	-24.6	-25.3	-24.2	-22.9	-30.0	-21.2	-25.0
Dec 3	-23.6	-24	-24	-23.7	-23.4	-22.7	-22.6	-22.2	-21.4	-19.2	-17.2	-16	-14.3	-13	-12.6	-13.2	-13.9	-13.8	-13.4	-14.2	-14.8	-13.5	-11.7	-9.4	-24.0	-9.4	-17.4
Dec 4	-7.4	-6.4	-5.5	-5.6	-5.5	-6	-5.3	-4.6	-4.5	-4	-4.1	-5.2	-6.1	-6.9	-8.2	-9.8	-10.9	-11.9	-12.8	-14.1	-15.3	-16.4	-17.3	-18	-18.0	-4.0	-8.8
Dec 5	-18.8	-19.6	-20.5	-22.3	-23.3	-24	-25	-25.8	-25.8	-24.5	-21.7	-20.4	-19.7	-19.2	-18.9	-19.4	-20.2	-21.8	-23.4	-24.9	-26.1	-27.2	-28.2	-29.2	-29.2	-18.8	-22.9
Dec 6	-30.1	-31.2	-31.2	-31.4	-31.4	-31.3	-31.8	-32.5	-32.8	-32	-30.4	-29.2	-28.1	-26.8	-27.1	-28.6	-29.7	-30.6	-31.3	-31.4	-31.5	-31.2	-30.7	-30.6	-32.8	-26.8	-30.5
Dec 7	-30.3	-30.2	-29.3	-28.4	-27.8	-27.4	-26.6	-25.4	-24.2	-23	-21.3	-18.9	-16.9	-15	-13.9	-13.7	-13.5	-13.4	-13.2	-12.7	-12.6	-12.3	-11.8	-11.9	-30.3	-11.8	-19.7
Dec 8	-12.5	-13.5	-13.8	-13.9	-14.5	-14	-13.6	-14.2	-14.4	-13.5	-12.3	-11.7	-10.6	-10.9	-10.9	-10.9	-11.2	-11.9	-12.9	-13.1	-12.9	-13.6	-14.6	-15.8	-15.8	-10.6	-13.0
Dec 9	-17	-17.8	-18.5	-18.7	-19.2	-18.8	-18.5	-18.1	-17.1	-15.7	-14.1	-12.6	-10.9	-8.7	-7.4	-8.2	-10.1	-11.6	-12.6	-12.5	-13.6	-15.6	-16.9	-18	-19.2	-7.4	-14.7
Dec 10	-19.2	-20.2	-20.8	-21.8	-21.9	-22.1	-22.7	-23.3	-22.4	-20.7	-15.9	-13.1	-9.7	-7.4	-7.3	-7.7	-7.7	-7.3	-8	-8.4	-8.7	-9.3	-9.4	-9.1	-23.3	-7.3	-14.3
Dec 11	-9.4	-9.4	-9.2	-9.1	-8.8	-8.6	-8.5	-8.4	-8.3	-8	-7.6	-7.5	-7.4	-7.3	-7.5	-8.6	-9.9	-11.3	-13	-14.2	-14.8	-15.2	-15.4	-15.7	-15.7	-7.3	-10.1
Dec 12	-16.1	-16.3	-16.5	-16.6	-16.7	-16.8	-16.9	-17.1	-17.1	-16.9	-16.7	-16.2	-15.8	-15.5	-15.4	-15.4	-15.5	-15.7	-15.8	-15.8	-16	-16.3	-16.6	-16.5	-17.1	-15.4	-16.3
Dec 13	-16.3	-16	-15.5	-15.2	-15.3	-15.9	-16.1	-16.8	-17.1	-16.4	-15.4	-14.7	-14	-13.1	-12.3	-11.8	-12	-12.2	-12.5	-12.8	-12.8	-12.8	-12.8	-12.5	-17.1	-11.8	-14.3
Dec 14	-12	-10.8	-9.8	-8.9	-8	-7.4	-6.9	-6.4	-6.2	-6.1	-5.7	-5.7	-5.9	-6.4	-7.1	-7.5	-7.8	-8.2	-8.3	-8.4	-8.5	-8.8	-9.1	-9.1	-12.0	-5.7	-7.9
Dec 15	-9.1	-9.3	-9.6	-9.4	-9.3	-9.3	-9.5	-9.8	-10.2	-10.4	-10.2	-10.3	-10.2	-10	-9.6	-10.4	-10.5	-10.9	-12.4	-13.1	-14.9	-16.3	-15.1	-14.2	-16.3	-9.1	-11.0
Dec 16	-13.3	-12.7	-12.6	-12.4	-12.2	-12.4	-12.4	-12.2	-11.9	-11.7	-11.5	-11.5	-11.2	-11.2	-11.5	-11.9	-12.2	-12.3	-12.1	-12.1	-12	-12	-12.1	-12.1	-13.3	-11.2	-12.1
Dec 17	-12.3	-12.5	-13.4	-14.2	-14.7	-15.3	-16.1	-16.4	-16.8	-17	-17.4	-17.8	-18.2	-18.5	-18.8	-19.1	-19.3	-19.6	-20	-20.3	-20.6	-20.7	-20.9	-21	-21.0	-12.3	-17.5
Dec 18	-21.2	-21.5	-21.7	-21.8	-21.8	-22.2	-22.4	-22.5	-22.5	-22.5	-22.2	-21.9	-21.6	-21.6	-21.7	-22.6	-23.3	-23.4	-23.5	-23.8	-24.2	-24.5	-24.8	-25	-25.0	-21.2	-22.7
Dec 19	-25	-25.1	-25.3	-25.9	-26.4	-26.4	-26	-25.6	-25.6	-25.7	-25.5	-25.4	-25	-24.6	-24.4	-24.3	-24.3	-24.5	-24.7	-25.1	-25.5	-25.7	-26	-26.6	-26.6	-24.3	-25.4
Dec 20	-27.1	-27.5	-27.8	-28.2	-28.4	-28.2	-28.1	-28.1	-28.1	-27.6	-26.9	-26.4	-25.9	-25.4	-25.6	-26.1	-26.4	-26.8	-27.2	-27.4	-27.8	-28.2	-28.3	-28.4	-25.4	-27.3	-27.3
Dec 21	-28.5	-29.1	-29.8	-29.9	-30	-30.4	-30.7	-30.6	-30.9	-30.8	-29.9	-28.8	-27.9	-26.9	-26.5	-25.9	-25.8	-25.8	-26	-26.3	-26.6	-26.9	-27.1	-27.3	-30.9	-25.8	-28.3
Dec 22	-27.5	-27.9	-28.6	-29.2	-29.9	-31	-32.3	-33.2	-34.2	-34.4	-32.7	-29.2	-28	-25.2	-24.5	-26.2	-28.8	-30.9	-32.6	-34	-34.8	-35.6	-36.2	-36.5	-36.5	-24.5	-31.0
Dec 23	-36.8	-37.3	-37.7	-37.5	-36.2	-36.1	-35.2	-34.4	-33.5	-32.3	-30.1	-27.9	-25.2	-23.7	-23.2	-22.6	-21.9	-21.5	-21.5	-21.1	-20.9	-20.6	-20.4	-20.1	-37.7	-20.1	-28.2
Dec 24	-20.1	-20.2	-20	-20	-20.5	-20.4	-19.9	-19.6	-19.2	-18.8	-18.2	-17.3	-17	-17.1	-17	-17.2	-17.5	-17.7	-17.5	-17.3	-17.3	-17.4	-17.6	-17.7	-20.5	-17.0	-18.4
Dec 25	-17.6	-17.3	-17	-16.7	-16.5	-16.3	-16.2	-16.3	-15.9	-15.8	-15.6	-15.2	-15	-15.1	-15.3	-16.2	-16.7	-16.9	-17.3	-17.6	-18.1	-18.2	-17.9	-17.7	-18.2	-15.0	-16.6
Dec 26	-17.7	-18.2	-18.2	-18	-17.5	-16.9	-16.3	-16	-15.9	-15.6	-15.4	-15	-14.6	-14.2	-13.9	-13.9	-14	-13.3	-12.9	-12.6	-12.5	-12.7	-12.8	-12.8	-18.2	-12.5	-15.0
Dec 27	-12.7	-13.3	-13.8	-13.3	-12.8	-13.1	-14.8	-16.2	-16.8	-16.4	-15.3	-14.3	-13.8	-14.1	-14.3	-14.4	-14.9	-15.3	-15.4	-15.6	-15.5	-15.4	-15.4	-16.8	-12.7	-14.7	
Dec 28	-15.3	-15.3	-15.4	-15.5	-15.5	-15.6	-15.8	-15.7	-15.7	-15.5	-15.3	-15	-14.4	-14	-14.1	-13.8	-13.7	-13.6	-13.8	-14.3	-14.3	-14.5	-14.4	-15.8	-13.6	-14.8	
Dec 29	-14.2	-14	-14	-13.9	-13.7	-13.5	-13.4	-13.5	-13.2	-12.9	-12.5	-11.3	-11.1	-11	-11.8	-11.9	-12	-12	-11.7	-11.5	-11.4	-11.3	-11.2	-11.3	-14.2	-11.0	-12.4
Dec 30	-12.5	-14.5	-15.8	-16.8	-16.3	-14.9	-14.4	-14	-13.5	-12.5	-11.7	-11.4	-11.3	-11.1	-11	-11.1	-11.6	-11.7	-11.8	-11.9	-12.1	-12.6	-12.7	-12.9	-16.8	-11.0	-12.9
Dec 31	-13	-13.2	-13.9	-14	-13.9	-14.2	-14.3	-14.1	-13.9	-13.5	-13	-12	-11.2	-10.7	-10.6	-10.6	-11.1	-11.2	-11.4	-11.5	-12.1	-12.2	-11.7	-11.4	-14.3	-10.6	-12.4
Diurnal Maximum	-7.4	-6.4	-5.5	-5.6	-5.5	-6.0	-5.3	-4.6	-4.5	-4.0	-4.1	-5.2	-5.9	-6.4	-7.1	-7.5	-7.7	-7.3	-8.0	-8.4	-8.5	-8.8	-9.1	-9.1			
Diurnal Average	-18.8	-19.1	-19.3	-19.5	-19.5	-19.5	-19.6	-19.6	-19.5	-19.0	-18.0	-17.1	-16.3	-15.7	-15.6	-16.0	-16.6	-17.0	-17.4	-17.7	-18.1	-18.4	-18.4	-18.3			

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 - Tamarack Site





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - December 2022

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

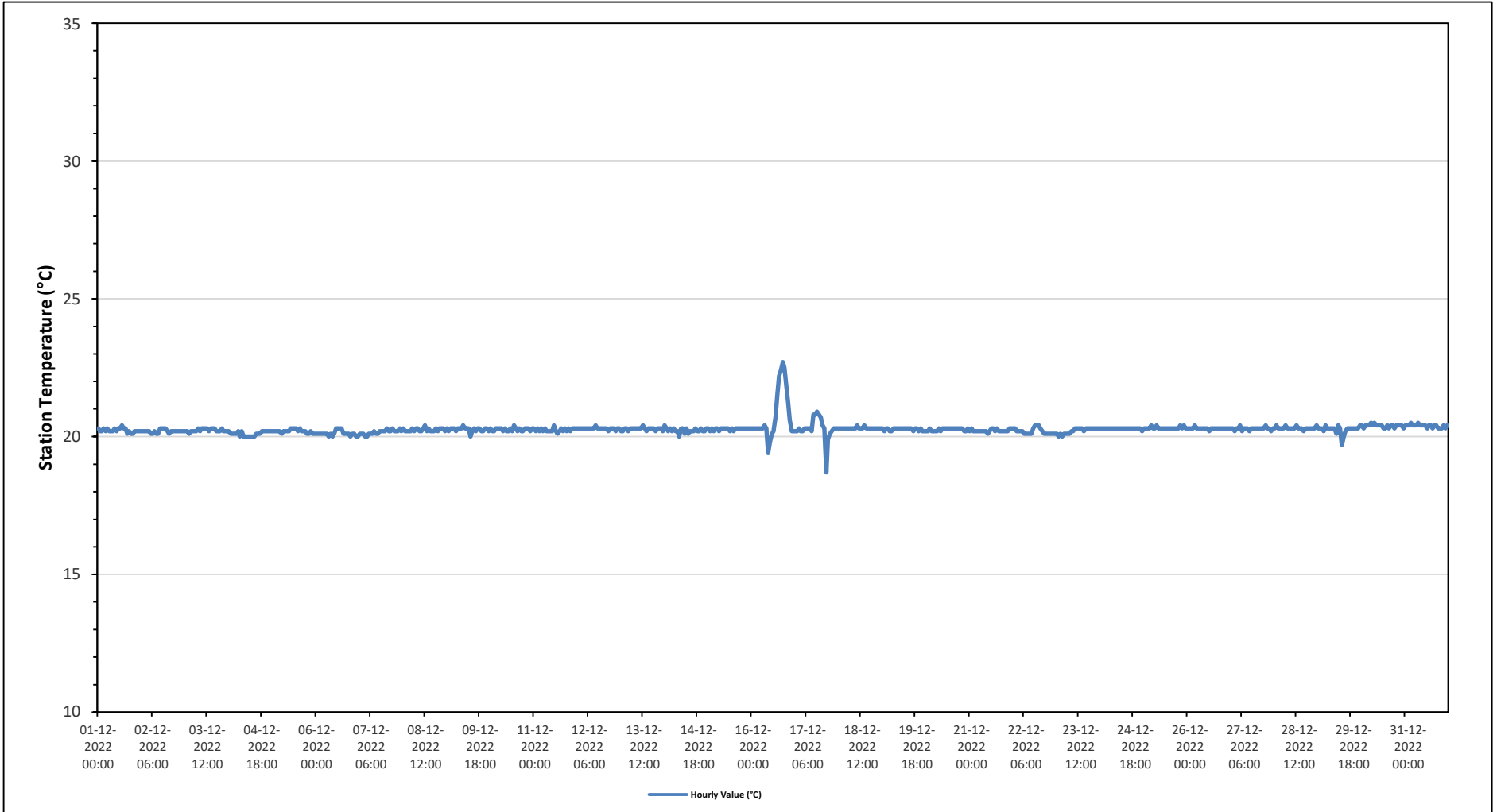
Maximum Hourly Value:	22.7 °C	on December 16 at hour 17	Hours in Service:	744
Maximum Daily Value:	20.8 °C	on December 16	Hours of Data:	744
Minimum Hourly Value:	18.7 °C	on December 17 at hour 17	Hours of Missing Data:	0
Minimum Daily Value:	20.1 °C	on December 4	Hours of Calibration:	0
Monthly Average:	20.3 °C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Dec 1	20.3	20.2	20.2	20.3	20.2	20.3	20.2	20.2	20.2	20.3	20.2	20.3	20.3	20.4	20.3	20.3	20.1	20.2	20.1	20.1	20.2	20.2	20.2	20.2	20.1	20.4	20.2	
Dec 2	20.2	20.2	20.2	20.2	20.2	20.1	20.1	20.2	20.1	20.1	20.3	20.3	20.3	20.3	20.2	20.3	20.3	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.1	20.3	20.2
Dec 3	20.2	20.2	20.1	20.2	20.2	20.2	20.2	20.2	20.3	20.2	20.3	20.3	20.3	20.2	20.3	20.3	20.3	20.2	20.2	20.2	20.2	20.3	20.2	20.2	20.2	20.1	20.3	20.2
Dec 4	20.2	20.1	20.1	20.1	20.1	20.2	20.0	20.2	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.1	20.1	20.1	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.1	20.2	20.1
Dec 5	20.2	20.2	20.2	20.2	20.2	20.1	20.2	20.2	20.2	20.2	20.3	20.3	20.3	20.3	20.2	20.3	20.2	20.2	20.2	20.1	20.1	20.2	20.1	20.1	20.1	20.1	20.3	20.2
Dec 6	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.0	20.1	20.0	20.1	20.3	20.3	20.3	20.1	20.1	20.1	20.1	20.0	20.1	20.1	20.0	20.0	20.0	20.0	20.3	20.1
Dec 7	20.1	20.1	20.1	20.0	20.0	20.1	20.1	20.1	20.2	20.1	20.1	20.2	20.2	20.2	20.2	20.3	20.2	20.2	20.3	20.2	20.2	20.2	20.3	20.2	20.2	20.3	20.2	20.2
Dec 8	20.3	20.2	20.2	20.2	20.2	20.3	20.2	20.3	20.3	20.2	20.2	20.3	20.4	20.2	20.3	20.2	20.2	20.2	20.3	20.2	20.3	20.3	20.3	20.2	20.3	20.3	20.2	20.3
Dec 9	20.3	20.2	20.3	20.3	20.3	20.2	20.3	20.3	20.3	20.3	20.4	20.3	20.3	20.3	20.0	20.2	20.3	20.2	20.3	20.3	20.2	20.2	20.3	20.3	20.3	20.2	20.4	20.3
Dec 10	20.3	20.2	20.2	20.3	20.3	20.3	20.3	20.3	20.2	20.3	20.2	20.3	20.2	20.4	20.3	20.2	20.3	20.2	20.3	20.2	20.3	20.3	20.3	20.2	20.3	20.2	20.4	20.3
Dec 11	20.3	20.2	20.3	20.2	20.3	20.2	20.3	20.2	20.2	20.2	20.2	20.4	20.2	20.1	20.2	20.3	20.2	20.3	20.2	20.3	20.2	20.3	20.2	20.3	20.3	20.1	20.4	20.2
Dec 12	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.4	20.3	20.3	20.3	20.3	20.3	20.3	20.2	20.3	20.3	20.3	20.3	20.2	20.3	20.3	20.2	20.4	20.3
Dec 13	20.2	20.2	20.3	20.3	20.2	20.3	20.3	20.3	20.3	20.3	20.3	20.4	20.3	20.3	20.2	20.3	20.3	20.3	20.3	20.2	20.3	20.2	20.3	20.3	20.3	20.2	20.4	20.3
Dec 14	20.4	20.3	20.2	20.3	20.2	20.3	20.2	20.2	20.0	20.3	20.3	20.1	20.3	20.1	20.2	20.2	20.3	20.2	20.3	20.2	20.2	20.3	20.2	20.2	20.2	20.0	20.4	20.2
Dec 15	20.3	20.2	20.3	20.2	20.3	20.3	20.2	20.3	20.3	20.3	20.3	20.3	20.2	20.3	20.2	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.2	20.3	20.3
Dec 16	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.4	20.3	19.4	19.8	20.1	20.2	20.7	21.5	22.2	22.4	22.7	22.5	21.8	21.2	20.6	20.2	20.2	19.4	22.7	20.8	
Dec 17	20.2	20.2	20.3	20.2	20.2	20.3	20.3	20.3	20.3	20.2	20.8	20.8	20.9	20.8	20.7	20.4	20.3	18.7	19.9	20.1	20.2	20.3	20.3	20.3	18.7	20.9	20.3	
Dec 18	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.4	20.3	20.3	20.3	20.4	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.4	20.3
Dec 19	20.3	20.2	20.3	20.3	20.2	20.2	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.2	20.3	20.3	20.2	20.3	20.2	20.2	20.2	20.3	20.3	20.3
Dec 20	20.2	20.2	20.3	20.2	20.2	20.2	20.2	20.3	20.2	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.2	20.2	20.3	20.2	20.3	20.3	
Dec 21	20.2	20.3	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.1	20.2	20.3	20.3	20.2	20.3	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.1	20.3	20.2	
Dec 22	20.3	20.3	20.2	20.2	20.2	20.2	20.1	20.1	20.1	20.1	20.1	20.1	20.3	20.4	20.4	20.4	20.3	20.2	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.4	20.2	
Dec 23	20.1	20.0	20.1	20.0	20.1	20.1	20.1	20.1	20.2	20.2	20.3	20.3	20.3	20.3	20.3	20.3	20.2	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.0	20.3	20.2	
Dec 24	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.2	20.3	20.3	
Dec 25	20.3	20.3	20.3	20.3	20.4	20.3	20.3	20.4	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.4	20.3	20.4	20.3	20.3	20.4	20.3
Dec 26	20.3	20.3	20.3	20.3	20.4	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.2	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.2	20.4	20.3	
Dec 27	20.3	20.3	20.2	20.3	20.3	20.4	20.2	20.3	20.3	20.3	20.2	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.4	20.3	20.3	20.2	20.3	20.2	20.4	20.3	
Dec 28	20.3	20.4	20.3	20.3	20.3	20.3	20.4	20.3	20.3	20.3	20.3	20.3	20.4	20.3	20.3	20.2	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.2	20.4	20.3	
Dec 29	20.3	20.3	20.3	20.2	20.4	20.3	20.3	20.3	20.3	20.3	20.1	20.4	20.3	19.7	20.0	20.2	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	19.7	20.4	20.3
Dec 30	20.4	20.3	20.4	20.4	20.4	20.5	20.4	20.5	20.4	20.4	20.4	20.4	20.3	20.3	20.4	20.3	20.4	20.4	20.4	20.3	20.4	20.4	20.4	20.3	20.3	20.5	20.4	
Dec 31	20.4	20.4	20.4	20.5	20.4	20.4	20.4	20.5	20.4	20.4	20.4	20.4	20.3	20.4	20.4	20.3	20.4	20.4	20.3	20.3	20.3	20.3	20.4	20.3	20.3	20.5	20.4	
Diurnal Maximum	20.4	20.4	20.4	20.5	20.4	20.5	20.4	20.5	20.4	20.4	20.8	20.8	20.9	20.8	21.5	22.2	22.4	22.7	22.5	21.8	21.2	20.6	20.4	20.4				
Diurnal Average	20.3	20.2	20.2	20.2	20.2	20.3	20.2	20.3	20.2	20.2	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3

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 ST - Tamarack Site





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - December 2022

Summary of Hourly Averages

PRECIPITATION in mm

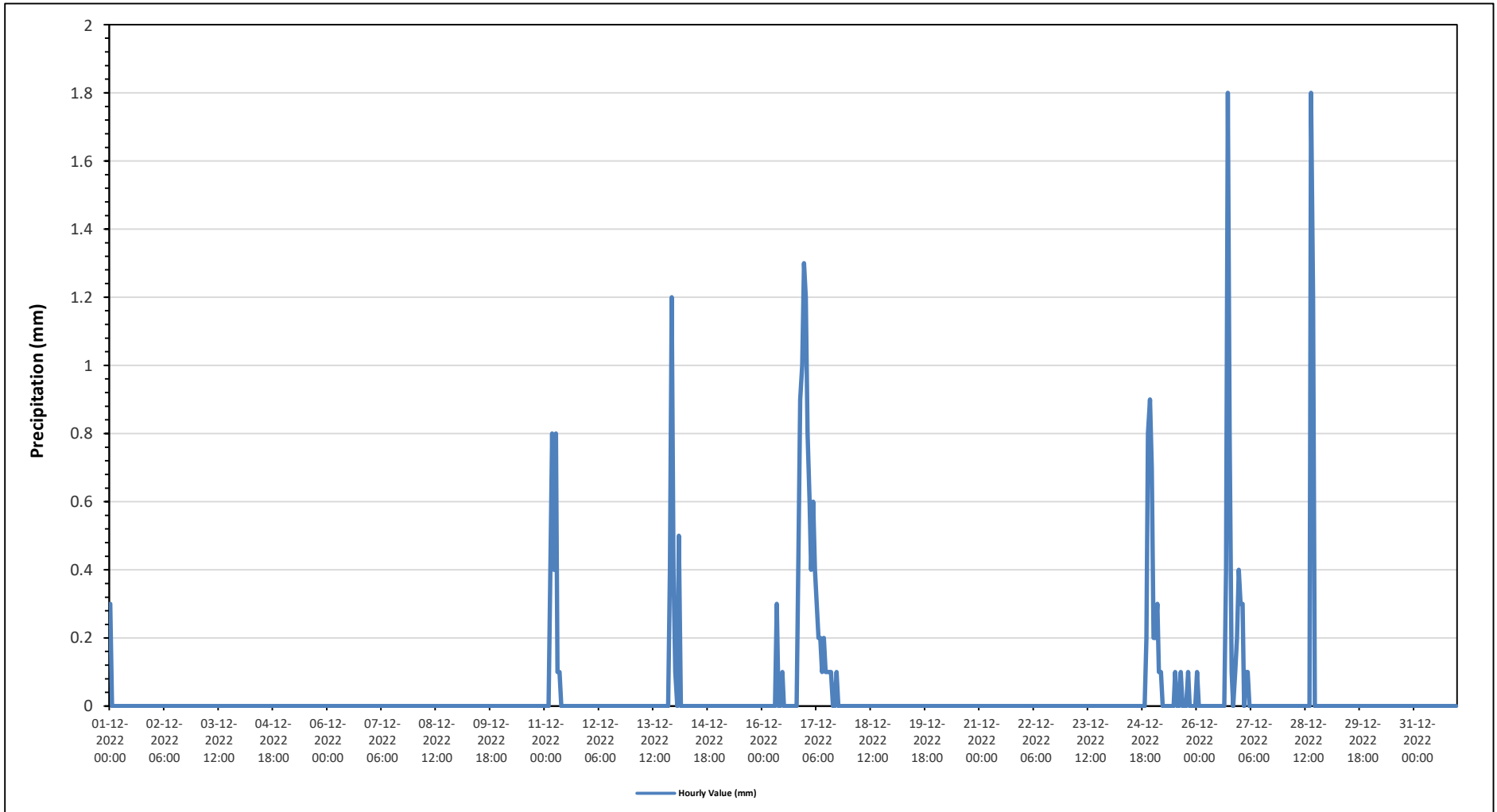
Maximum Hourly Value:	1.8 mm on December 26 at hour 17	Hours in Service:	744
Maximum Daily Value:	5.5 mm on December 17	Hours of Data:	744
Minimum Hourly Value:	0.0 mm on December 1 at hour 1	Hours of Missing Data:	0
Minimum Daily Value:	0.0 mm on December 2	Hours of Calibration:	0
Monthly Total:	26.6 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	
Dec 1	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.3	0.3	
Dec 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	
Dec 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	
Dec 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	
Dec 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	
Dec 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	
Dec 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Dec 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Dec 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	
Dec 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	
Dec 11	0	0	0	0.4	0.8	0.4	0.8	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.8	2.6	
Dec 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	
Dec 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	1.2	0.4	0.0	1.2	2.0
Dec 14	0.1	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.5	0.6	
Dec 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	
Dec 16	0	0	0	0	0	0	0	0	0	0.3	0	0.1	0	0	0	0	0	0	0	0	0	0.5	0.9	1	1.3	0.0	1.3	4.1
Dec 17	1.2	0.8	0.6	0.4	0.6	0.4	0.3	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0	0.1	0	0.1	0	0	0	0	0	0.0	1.2	5.5	
Dec 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	
Dec 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	
Dec 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	
Dec 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	
Dec 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	
Dec 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	
Dec 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.8	0.9	0.7	0.0	0.9	2.6
Dec 25	0.2	0.2	0.3	0.1	0.1	0	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0.1	0	0	0	0	0.0	0.3	1.2	
Dec 26	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	1.8	0.8	0.1	0	0.1	0.2	0.4	0.0	1.8	3.9	
Dec 27	0.3	0.3	0	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.3	0.8	
Dec 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.8	1.2	0	0	0	0	0	0	0.0	1.8	3.0	
Dec 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	
Dec 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	
Dec 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Diurnal Maximum	1.2	0.8	0.6	0.4	0.8	0.4	0.8	0.2	0.3	0.1	0.2	0.1	0.1	0.1	0.1	1.8	1.2	1.8	0.8	0.1	0.5	0.9	1.2	1.3				
Diurnal Average	0.1	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	0.1	0.1	0.1	0.0	0.0	0.0	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)	NRIM 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 Site





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - December 2022

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

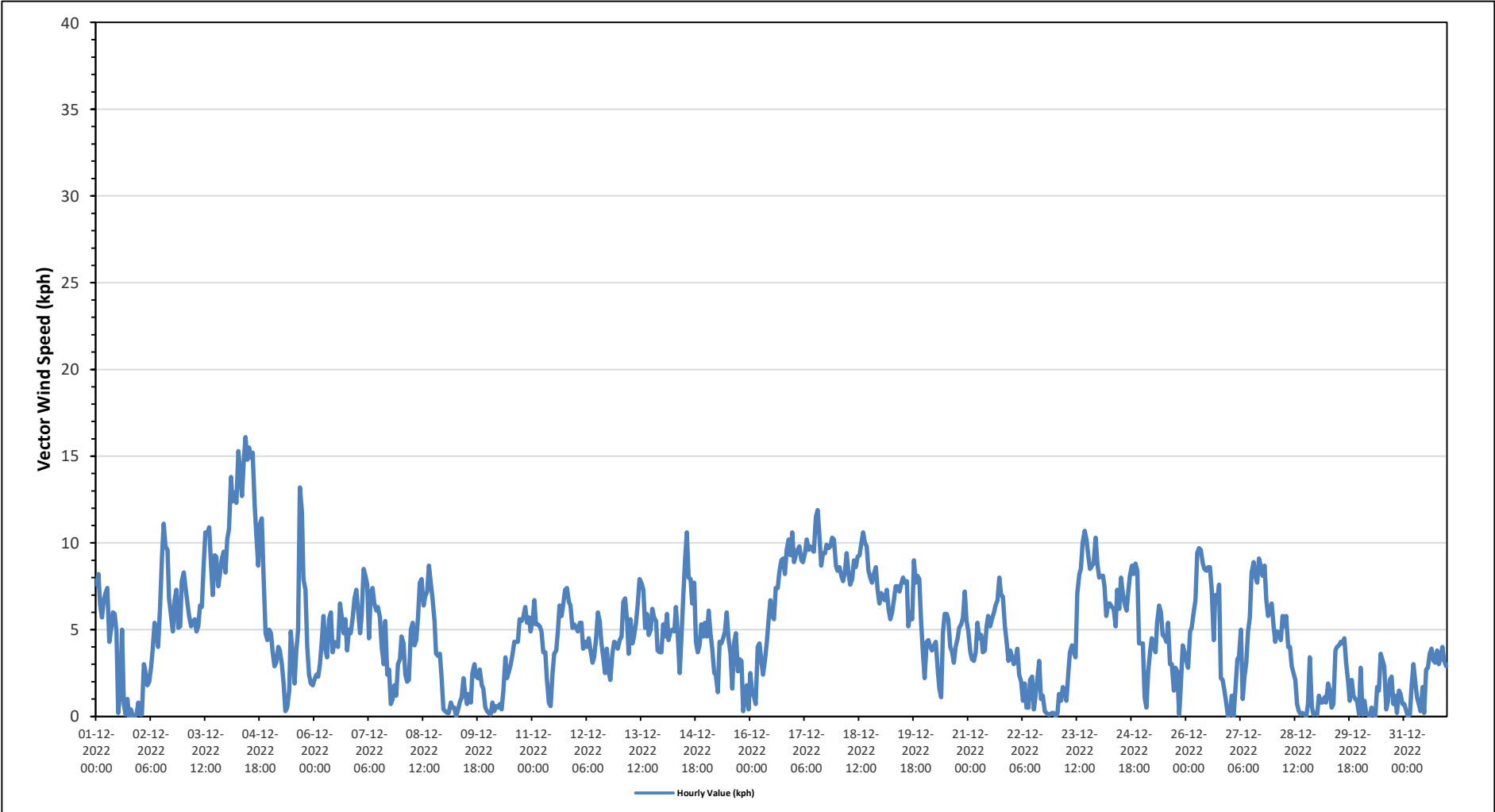
Maximum Hourly Value:	16.1 kph	on December 4 at hour 10	Hours in Service:	744
Maximum Daily Value:	10.3 kph	on December 4	Hours of Data:	744
Minimum Hourly Value:	0.0 kph	on December 1 at hour 18	Hours of Missing Data:	0
Minimum Daily Value:	0.8 kph	on December 22	Hours of Calibration:	0
Monthly Average:	1.0 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
Dec 1	7.6	8.2	6.4	5.7	6.7	7.1	7.4	4.3	4.9	6.0	5.9	4.9	0.2	1.5	5.0	0.7	0.1	1.0	0.0	0.4	0.0	0.0	0.1	0.8	0.0	8.2	3.4
Dec 2	0.1	0.1	3.0	2.6	1.8	2.0	2.8	3.9	5.4	4.8	4.0	6.4	9.1	11.1	9.8	9.6	6.8	5.8	4.9	6.7	7.3	5.1	5.2	7.8	0.1	11.1	4.6
Dec 3	8.3	7.4	6.6	5.8	5.2	5.4	5.6	4.9	5.2	6.4	6.3	8.6	10.6	10.5	10.9	8.8	7.0	9.3	9.2	7.5	8.3	9.1	9.5	8.3	4.9	10.9	7.3
Dec 4	10.2	10.8	13.8	12.4	12.9	12.3	15.3	14.2	12.7	14.7	16.1	14.8	15.5	14.9	15.2	12.2	10.6	8.7	11.1	11.4	8.1	4.8	4.4	5.0	4.4	16.1	10.3
Dec 5	4.8	3.7	2.9	3.1	4.0	3.8	3.0	1.9	0.3	0.5	1.5	4.9	3.5	1.9	3.8	5.0	13.2	11.8	7.9	7.3	4.0	2.4	1.9	1.8	0.3	13.2	2.4
Dec 6	2.1	2.4	2.3	3.0	4.3	5.8	3.8	3.4	5.6	6.0	3.7	4.3	4.1	4.0	6.5	5.7	4.8	5.6	3.8	5.0	4.8	5.7	6.8	7.3	2.1	7.3	2.5
Dec 7	6.1	4.8	5.8	8.5	8.1	7.6	4.5	7.1	7.4	6.5	6.1	6.3	5.7	4.0	3.0	5.5	2.4	2.7	0.7	1.0	1.8	1.2	3.0	3.3	0.7	8.5	3.8
Dec 8	4.6	4.2	2.4	2.0	2.1	5.0	5.4	4.1	4.4	5.7	7.7	7.9	6.4	6.9	7.2	8.7	7.7	6.8	5.5	3.6	3.5	3.6	2.2	0.4	0.4	8.7	4.7
Dec 9	0.3	0.2	0.2	0.8	0.5	0.5	0.0	0.4	0.8	1.1	2.2	1.4	0.7	1.3	0.8	2.5	3.0	2.3	2.2	2.7	1.8	1.6	0.5	0.3	0.0	3.0	0.9
Dec 10	0.2	0.1	0.8	0.3	0.6	0.5	0.7	0.4	1.5	3.4	2.2	2.6	3.0	3.5	4.3	4.3	4.3	5.6	5.5	5.7	6.3	5.4	5.7	4.9	0.1	6.3	2.9
Dec 11	5.5	6.7	5.3	5.3	5.2	4.9	3.7	3.7	2.2	0.8	0.6	2.4	3.6	3.8	5.0	6.4	5.8	6.5	7.3	7.4	6.6	6.4	5.1	5.3	0.6	7.4	2.9
Dec 12	5.1	4.9	5.4	5.4	3.9	4.3	4.0	4.5	3.8	3.1	3.4	4.5	6.0	5.5	4.2	3.3	2.5	3.9	2.5	2.1	3.6	4.3	4.2	3.9	2.1	6.0	3.0
Dec 13	4.4	4.6	6.6	6.8	5.5	3.6	5.6	4.2	4.6	5.4	6.5	7.9	7.7	7.3	5.1	5.9	4.7	5.0	6.2	5.7	5.5	3.8	3.7	3.7	3.6	7.9	5.1
Dec 14	5.3	4.6	5.9	4.4	4.9	5.0	4.9	6.3	4.8	2.5	4.3	6.9	9.0	10.6	8.0	7.9	6.5	7.7	4.3	3.7	4.1	5.3	4.6	5.4	2.5	10.6	4.9
Dec 15	4.6	6.1	4.8	3.9	2.5	2.4	1.4	4.3	4.2	4.5	4.9	6.0	4.5	3.6	1.6	4.2	4.8	2.6	3.3	3.2	0.3	1.1	1.8	0.4	0.3	6.1	2.7
Dec 16	2.5	1.4	1.1	0.7	4.0	4.2	3.1	2.4	3.3	4.3	5.6	6.7	5.8	5.6	7.4	7.4	8.3	9.0	9.1	8.2	9.6	10.2	9.3	10.6	0.7	10.6	5.5
Dec 17	8.9	9.3	9.6	9.8	9.0	8.9	9.4	10.2	9.6	9.8	9.6	9.5	11.5	11.9	10.4	8.7	9.4	9.4	9.9	9.7	9.8	10.3	10.2	8.7	8.7	11.9	9.7
Dec 18	8.4	8.6	8.1	7.8	8.3	9.4	8.2	7.6	7.9	9.0	8.6	9.2	9.3	9.9	10.6	10.0	9.8	8.4	8.0	7.7	8.2	8.6	7.3	6.5	6.5	10.6	8.5
Dec 19	7.1	6.8	6.7	7.3	6.2	5.6	6.0	6.7	7.5	7.5	7.2	7.6	8.0	7.7	7.8	5.2	6.0	5.6	9.0	7.7	8.1	7.9	5.5	3.5	3.5	9.0	6.7
Dec 20	2.2	4.3	4.4	4.0	3.8	4.1	4.3	2.8	1.6	1.1	4.8	5.9	5.9	5.6	4.0	3.7	3.1	4.0	4.5	5.1	5.3	5.7	7.2	5.5	1.1	7.2	4.1
Dec 21	4.9	3.7	3.3	3.2	3.7	5.4	4.5	4.7	3.7	3.8	5.2	5.8	5.2	5.6	6.0	6.4	6.7	8.0	7.0	6.9	5.2	4.4	3.2	3.8	3.2	8.0	4.9
Dec 22	3.5	3.0	3.3	3.9	2.4	2.0	0.9	1.9	0.5	0.5	2.1	2.3	0.4	1.1	2.2	3.2	1.0	1.2	0.3	0.2	0.1	0.1	0.2	0.2	0.1	3.9	0.8
Dec 23	0.0	0.2	1.3	0.9	1.7	1.5	0.9	2.6	3.7	4.1	3.7	3.4	7.1	8.2	8.5	10.0	10.7	10.2	9.3	8.5	8.7	8.8	10.3	8.8	0.0	10.7	5.0
Dec 24	8.0	8.1	8.1	7.5	5.8	6.5	6.5	6.3	6.2	5.2	7.3	6.2	8.0	7.1	6.5	6.1	7.1	8.1	8.7	8.2	8.8	8.4	4.2	4.2	4.2	8.8	6.6
Dec 25	4.2	1.1	0.5	2.6	3.8	4.5	4.0	3.7	5.4	6.4	6.0	4.7	4.6	4.3	5.4	3.0	3.0	1.5	2.8	2.6	0.1	1.7	4.1	3.7	0.1	6.4	2.7
Dec 26	3.2	2.8	4.9	5.1	6.0	6.7	9.4	9.7	9.6	8.8	8.5	8.4	8.6	8.6	7.3	4.4	7.0	6.7	7.6	2.2	2.1	1.5	0.8	0.0	0.0	9.7	5.6
Dec 27	0.1	1.2	0.0	1.5	3.3	3.4	5.0	1.0	2.3	3.1	4.9	5.7	8.3	8.9	8.1	7.7	9.1	8.6	8.1	8.7	6.7	5.8	6.2	6.5	0.0	9.1	5.0
Dec 28	5.3	4.3	4.9	4.7	4.4	5.8	5.2	5.8	4.0	4.0	2.9	2.5	2.1	0.7	0.3	0.1	0.2	0.1	0.0	0.7	3.4	0.6	0.1	0.2	0.0	5.8	2.3
Dec 29	0.1	1.2	0.8	0.8	1.1	0.8	1.9	1.5	0.5	0.7	3.8	4.0	4.1	4.3	4.2	4.5	3.1	2.0	0.9	2.1	1.2	1.0	0.9	0.1	0.1	4.5	1.8
Dec 30	2.8	0.1	0.9	0.2	0.1	0.0	0.5	0.1	0.0	1.7	1.5	3.6	3.2	2.9	0.4	0.9	2.1	2.3	0.7	1.2	0.2	1.5	1.3	0.7	0.0	3.6	0.9
Dec 31	0.7	0.3	0.0	0.1	1.8	3.0	2.0	1.1	0.7	0.3	1.7	0.2	2.7	2.8	3.6	3.9	3.2	3.1	3.8	3.0	3.4	4.0	3.2	2.9	0.0	4.0	2.1
Diurnal Maximum	10	11	14	12	13	12	15	14	13	15	16	15	16	15	15	12	13	12	11	11	10	10	10	11			
Diurnal Average	4.2	4.0	4.2	4.2	4.3	4.6	4.5	4.4	4.3	4.6	5.1	5.7	5.9	6.0	5.9	5.7	5.6	5.6	5.3	5.0	4.7	4.5	4.3	4.0			

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 Unit/Maint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

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

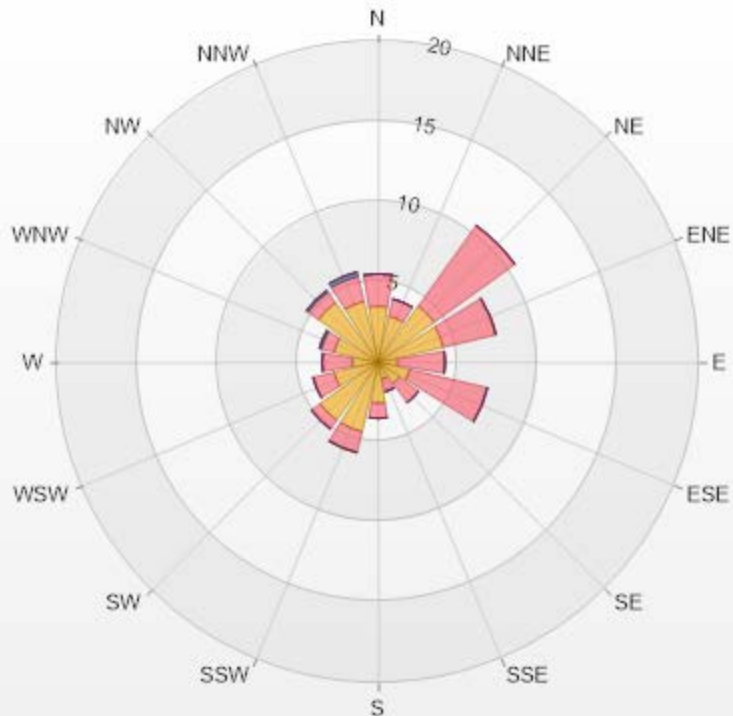
Timeseries Chart of Hourly Average for VWS - Tamarack Site



Wind: Tamarack Monitor: WDS [kph] Monthly: 12-2022 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.

Calm: 19.22% Valid Data: 100.00%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	3.49	2.02	0	0	0	5.51
NNE	2.96	1.08	0	0	0	4.04
NE	4.3	6.18	0	0	0	10.48
ENE	4.17	3.36	0	0	0	7.53
E	1.21	2.96	0	0	0	4.17
ESE	2.02	4.97	0	0	0	6.99
SE	1.61	1.48	0	0	0	3.09
SSE	1.08	0.81	0	0	0	1.89
S	2.55	0.94	0	0	0	3.49
SSW	4.44	1.34	0	0	0	5.78
SW	4.44	0.67	0	0	0	5.11
WSW	2.82	1.34	0	0	0	4.16
W	1.61	1.88	0	0	0	3.49
WNW	2.82	0.81	0.13	0	0	3.76
NW	4.57	0.81	0.13	0	0	5.51
NNW	3.9	1.61	0.27	0	0	5.78
Summary	47.99	32.26	0.53	0	0	80.78



LICA-202212

% Icon Classes (kph)

48  1.8-6.0

32  6.0-15.0

1  15.0-29.0

0  29.0-39.0

0  >39.0



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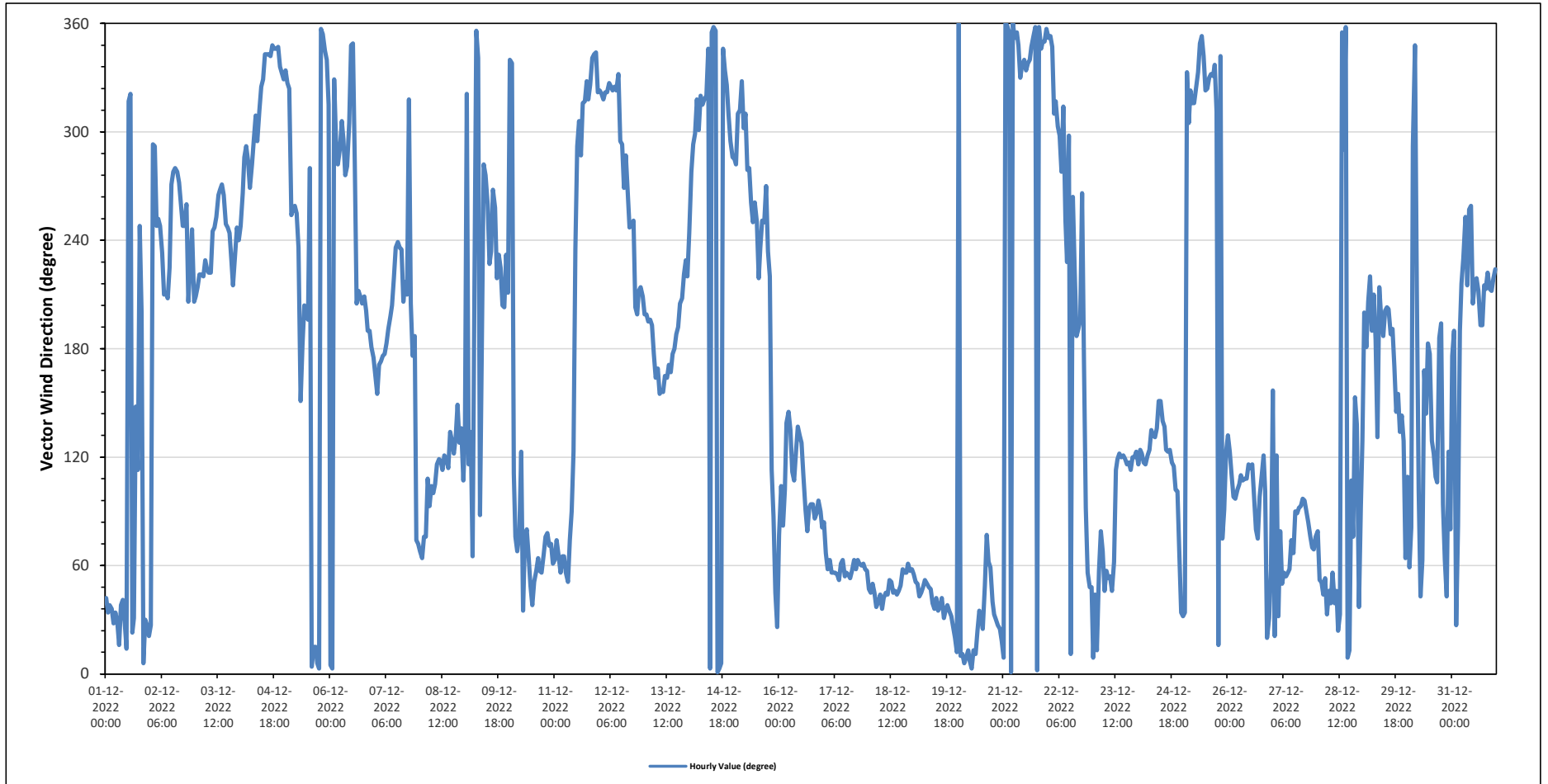
Tamarack Site - December 2022

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:		46 (NE) degree														Hours in Service:		744									
																Hours of Data:		744									
																Hours of Missing Data:		0									
																Hours of Calibration:		0									
																Operational Uptime:		100.0									
Day	Hourly Period Starting at (MST)																							Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant	
Dec 1	NE	NE	NE	NE	NNE	NE	NNE	NNE	NE	NE	NNE	NNE	NW	NW	NNE	NNE	SE	ESE	WSW	SSW	N	NNE	NNE	NNE	31	NNE	
Dec 2	NNE	WNW	WNW	WSW	WSW	WSW	SW	SSW	SSW	SSW	SW	W	W	W	W	W	WSW	WSW	WSW	WSW	SSW	SW	WSW	SSW	250	WSW	
Dec 3	SSW	SSW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	W	W	W	W	WSW	WSW	WSW	SW	SSW	SW	WSW	WSW	240	WSW	
Dec 4	WSW	W	WNW	WNW	WNW	W	W	WNW	NW	WNW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	313	NW	
Dec 5	NNW	NW	NW	WSW	WSW	WSW	WSW	SW	SSE	S	SSW	SSW	SSW	W	N	NNE	NNE	N	N	N	N	NNW	NNW	NW	337	NNW	
Dec 6	N	N	NNW	WNW	W	WNW	NW	WNW	W	W	WNW	NNW	NNW	W	SSW	SSW	SSW	SSW	SSW	SSW	S	S	S	S	245	WSW	
Dec 7	SSE	SSE	S	S	S	S	S	S	SSW	SSW	SW	SW	WSW	SW	SW	SSW	SW	SSW	NW	SSW	S	S	ENE	ENE	192	S	
Dec 8	ENE	ENE	ENE	ENE	ESE	E	ESE	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	ESE	SE	SSE	SE	SE	ESE	ESE	113	ESE	
Dec 9	SE	NW	ESE	SE	ENE	SSW	N	NNW	E	S	W	W	WSW	SW	SW	W	WSW	SW	SW	SSW	SSW	SW	SSW	SSW	234	SW	
Dec 10	NNW	NNW	ESE	ENE	ENE	ENE	ESE	NE	ENE	E	ENE	NE	NE	NE	ENE	ENE	ENE	NE	ENE	ENE	ENE	ENE	ENE	ENE	65	ENE	
Dec 11	ENE	ENE	ENE	NE	ENE	ENE	NE	NE	ENE	E	ESE	SW	WNW	NW	WNW	NW	NW	NNW	NW	NW	NNW	NNW	NNW	NW	357	N	
Dec 12	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	WNW	WNW	W	WNW	W	WSW	WSW	WSW	SSW	SSW	SSW	SSW	SSW	290	WNW	
Dec 13	SSW	SSW	SSW	SSW	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	SSE	S	S	S	S	SSW	SSW	SW	SW	SW	183	S	
Dec 14	WSW	W	WNW	WNW	NW	WNW	NW	NW	NW	NW	NNW	N	N	N	N	N	N	N	NNW	NNW	NW	NW	WNW	WNW	330	NNW	
Dec 15	WNW	W	NW	NW	NNW	WNW	NW	W	W	W	WSW	W	WSW	SW	SW	WSW	WSW	W	SW	SW	ESE	E	NE	NNE	270	W	
Dec 16	ENE	ESE	E	E	SE	SE	SE	ESE	ESE	SE	SE	SE	ESE	E	ENE	E	E	E	E	E	E	E	E	E	101	E	
Dec 17	E	ENE	ENE	ENE	NE	NE	NE	NE	NE	ENE	NE	NE	NE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	59	ENE	
Dec 18	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	48	NE	
Dec 19	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NNE	NE	NE	NE	NNE	NNE	NNE	NNE	40	NE	
Dec 20	N	N	NNE	N	N	NNE	N	N	NNE	NNE	NNE	NE	NNE	NNE	NE	ENE	ENE	ENE	NE	NNE	NNE	NNE	NNE	NNE	27	NNE	
Dec 21	N	N	N	N	N	N	N	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	N	NNW	N	N	N	N	351	N	
Dec 22	N	N	NNW	NW	NW	WNW	WNW	W	NW	WSW	SW	WNW	NNE	W	SW	S	S	SSW	W	S	E	NE	NE	NE	297	WNW	
Dec 23	N	NE	NNE	ENE	ENE	ENE	NE	ENE	NE	NE	NE	ENE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	109	ESE	
Dec 24	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	SE	SSE	SSE	SE	SE	ESE	ESE	ESE	ESE	ESE	E	E	ENE	NE	122	ESE	
Dec 25	NNE	NE	NNW	WNW	NW	NW	NW	NNW	NNW	N	NNW	NW	NW	NNW	NNW	NNW	NNW	NW	NNE	NNW	ENE	E	ESE	ESE	342	NNW	
Dec 26	SE	ESE	ESE	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	E	ENE	E	ESE	ESE	E	NNE	NNE	ENE	ENE	105	ESE	
Dec 27	SSE	NNE	ESE	NNE	ENE	NE	NE	NE	ENE	ENE	ENE	E	E	E	E	E	E	E	E	ENE	ENE	ENE	ENE	ENE	80	E	
Dec 28	ENE	NE	NE	NE	NE	NNE	NE	NE	NE	NE	NE	NNE	NNE	N	WNW	N	N	NNE	ESE	ENE	SSE	SE	NE	E	50	NE	
Dec 29	SE	SSW	S	SSW	SW	S	SSW	S	SE	SSW	SSW	S	SSW	SSW	SSW	S	S	SSE	SE	SSE	SE	SE	ENE	ENE	188	S	
Dec 30	ESE	ENE	E	WNW	NNW	SSW	E	NE	ENE	SSE	SE	S	S	SE	ESE	ESE	ESE	S	SSW	E	ENE	NE	ESE	E	137	SE	
Dec 31	S	S	NNE	E	S	SW	SW	WSW	SSW	WSW	WSW	SSW	SW	SW	SSW	S	S	SSW	SSW	SW	SSW	SSW	SW	SW	214	SSW	
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 (Machine Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																		
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																											
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																											

Timeseries Chart of Hourly Average for VWD - Tamarack Site





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - December 2022

Summary of Hourly Averages

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

WIND SPEED																												
Maximum Hourly Value:		16.1 kph on December 4 at hour 10														Hours in Service:		744										
Maximum Daily Value:		10.3 kph on December 4														Hours of Data:		744										
Minimum Hourly Value:		0.0 kph on December 1 at hour 18														Hours of Missing Data:		0										
Minimum Daily Value:		0.8 kph on December 22														Hours of Calibration:		0										
Monthly Average:		1.0 kph														Operational Uptime:		100										
WIND DIRECTION																												
Monthly Average:		46 (NE) 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				
Dec 1	7.6	8.2	6.4	5.7	6.7	7.1	7.4	4.3	4.9	6.0	5.9	4.9	0.2	1.5	5.0	0.7	0.1	1.0	0.0	0.4	0.0	0.0	0.1	0.8	0.0	8.2	3.4	
Dec 2	NE	NE	NE	NE	NNE	NE	NNE	NNE	NE	NNE	NNE	NW	NW	NNE	NNE	SE	ESE	WSW	SSW	N	NNE	NNE	NNE	0.1	11.1	4.6		
Dec 3	0.1	0.1	3.0	2.6	1.8	2.0	2.8	3.9	5.4	4.8	4.0	6.4	9.1	11.1	9.8	9.6	6.8	5.8	4.9	6.7	7.3	5.1	5.2	7.8	4.9	10.9	7.3	
Dec 4	NNE	WNW	WNW	WSW	WSW	WSW	SW	SSW	SSW	SSW	SW	W	W	W	W	WSW	WSW	WSW	WSW	SSW	SW	WSW	SSW	4.4	16.1	10.3		
Dec 5	8.3	7.4	6.6	5.8	5.2	5.4	5.6	4.9	5.2	6.4	6.3	8.6	10.6	10.5	10.9	8.8	7.0	9.3	9.2	7.5	8.3	9.1	9.5	8.3	0.3	13.2	2.4	
Dec 6	SSW	SSW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	W	W	W	WSW	WSW	WSW	WSW	SSW	SSW	SSW	SSW	2.1	7.3	2.5		
Dec 7	10.2	10.8	13.8	12.4	12.9	12.3	15.3	14.2	12.7	14.7	16.1	14.8	15.5	14.9	15.2	12.2	10.6	8.7	11.1	11.4	8.1	4.8	4.4	5.0	0.7	8.5	3.8	
Dec 8	WSW	W	WNW	WNW	WNW	W	W	WNW	NW	WNW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	0.4	8.7	4.7		
Dec 9	4.8	3.7	2.9	3.1	4.0	3.8	3.0	1.9	0.3	0.5	1.5	4.9	3.5	1.9	3.8	5.0	13.2	11.8	7.9	7.3	4.0	2.4	1.9	1.8	0.3	7.3	2.5	
Dec 10	NNW	NW	NW	WSW	WSW	WSW	WSW	SW	SSE	S	SSW	SSW	SSW	W	N	NNE	NNE	N	N	N	NNW	NNW	NW	2.1	7.3	2.5		
Dec 11	2.1	2.4	2.3	3.0	4.3	5.8	3.8	3.4	5.6	6.0	3.7	4.3	4.1	4.0	6.5	5.7	4.8	5.6	3.8	5.0	4.8	5.7	6.8	7.3	0.7	8.5	3.8	
Dec 12	N	N	NNW	WNW	W	WNW	NW	WNW	W	W	WNW	NNW	NNW	W	SSW	SSW	SSW	SSW	SSW	S	S	S	S	0.4	8.7	4.7		
Dec 13	6.1	4.8	5.8	8.5	8.1	7.6	4.5	7.1	7.4	6.5	6.1	6.3	5.7	4.0	3.0	5.5	2.4	2.7	0.7	1.0	1.8	1.2	3.0	3.3	0.3	7.3	2.5	
Dec 14	SSE	SSE	S	S	S	S	S	S	SSW	SSW	SW	WSW	SW	SW	SSW	SW	SSW	SW	SSW	NW	SSW	S	S	ENE	ENE	0.7	8.5	3.8
Dec 15	4.6	4.2	2.4	2.0	2.1	5.0	5.4	4.1	4.4	5.7	7.7	7.9	6.4	6.9	7.2	8.7	7.7	6.8	5.5	3.6	3.5	3.6	2.2	0.4	0.4	8.7	4.7	
Dec 16	ENE	ENE	ENE	ENE	ESE	E	ESE	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	ESE	SE	SSE	SE	SE	ESE	0.3	7.3	2.5	
Dec 17	0.3	0.2	0.2	0.8	0.5	0.5	0.0	0.4	0.8	1.1	2.2	1.4	0.7	1.3	0.8	2.5	3.0	2.3	2.2	2.7	1.8	1.6	0.5	0.3	0.0	3.0	0.9	
Dec 18	SE	NW	ESE	SE	ENE	SSW	N	NNW	E	S	W	W	WSW	SW	SW	W	WSW	SW	SW	SSW	SSW	SSW	SSW	0.1	6.3	2.9		
Dec 19	0.2	0.1	0.8	0.3	0.6	0.5	0.7	0.4	1.5	3.4	2.2	2.6	3.0	3.5	4.3	4.3	5.6	5.5	5.7	6.3	5.4	5.7	4.9	0.1	6.3	2.9		
Dec 20	NNW	NNW	ESE	ENE	ENE	ESE	NE	ENE	E	ENE	NE	NE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	0.6	7.4	2.9		
Dec 21	5.5	6.7	5.3	5.3	5.2	4.9	3.7	3.7	2.2	0.8	0.6	2.4	3.6	3.8	5.0	6.4	5.8	6.5	7.3	7.4	6.6	6.4	5.1	5.3	0.6	7.4	2.9	
Dec 22	ENE	ENE	ENE	NE	ENE	NE	ENE	NE	ENE	E	ESE	WSW	NNW	NW	NNW	NW	NNW	NW	NNW	NW	NNW	NNW	NNW	2.1	6.0	3.0		
Dec 23	5.1	4.9	5.4	5.4	3.9	4.3	4.0	4.5	3.8	3.1	3.4	4.5	6.0	5.5	4.2	3.3	2.5	3.9	2.5	2.1	3.6	4.3	4.2	3.9	2.1	6.0	3.0	
Dec 24	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	WNW	WNW	W	NNW	W	WSW	WSW	WSW	SSW	SSW	SSW	SSW	3.6	7.9	5.1		
Dec 25	4.4	4.6	6.6	6.8	5.5	3.6	5.6	4.2	4.6	5.4	6.5	7.9	7.7	7.3	5.1	5.9	4.7	5.0	6.2	5.7	5.5	3.8	3.7	3.7	2.5	10.6	4.9	
Dec 26	SSW	SSW	SSW	SSW	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	SSE	S	S	S	S	SSW	SSW	SSW	SSW	0.3	6.1	2.7		
Dec 27	5.3	4.6	5.9	4.4	4.9	5.0	4.9	6.3	4.8	2.5	4.3	6.9	9.0	10.6	8.0	7.9	6.5	7.7	4.3	3.7	4.1	5.3	4.6	5.4	0.3	6.1	2.7	
Dec 28	WSW	W	WNW	WNW	NW	WNW	NW	NW	NW	NNW	N	N	N	N	N	N	N	N	NNW	NNW	NW	NW	WNW	WNW	0.7	10.6	5.5	
Dec 29	4.6	6.1	4.8	3.9	2.5	2.4	1.4	4.3	4.2	4.5	4.9	6.0	4.5	3.6	1.6	4.2	4.8	2.6	3.3	3.2	0.3	1.1	1.8	0.4	0.7	10.6	5.5	
Dec 30	WNW	W	NW	NW	NNW	WNW	NW	W	W	W	WSW	W	WSW	SW	SW	WSW	WSW	W	SW	SW	ESE	E	NE	NNE	0.7	10.6	5.5	
Dec 31	2.5	1.4	1.1	0.7	4.0	4.2	3.1	2.4	3.3	4.3	5.6	6.7	5.8	5.6	7.4	7.4	8.3	9.0	9.1	8.2	9.6	10.2	9.3	10.6	8.7	11.9	9.7	
Dec 1	ENE	ESE	E	E	SE	SE	ESE	ESE	ESE	ESE	SE	SE	ESE	E	ENE	E	E	E	E	E	E	E	E	E	8.7	11.9	9.7	
Dec 2	8.9	9.3	9.6	9.8	9.0	8.9	9.4	10.2	9.6	9.8	9.6	9.5	11.5	11.9	10.4	8.7	9.4	9.4	9.9	9.7	9.8	10.3	10.2	8.7	6.5	10.6	8.5	
Dec 3	E	ENE	ENE	ENE	NE	NE	NE	NE	NE	ENE	ENE	NE	NE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	3.5	9.0	6.7	
Dec 4	8.4	8.6	8.1	7.8	8.3	9.4	8.2	7.6	7.9	9.0	8.6	9.2	9.3	9.9	10.6	10.0	9.8	8.4	8.0	7.7	8.2	8.6	7.3	6.5	6.5	10.6	8.5	
Dec 5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	ENE	ENE	ENE	3.5	9.0	6.7	
Dec 6	7.1	6.8	6.7	7.3	6.2	5.6	6.0	6.7	7.5	7.5	7.2	7.6	8.0	7.7	7.8	5.2	6.0	5.6	9.0	7.7	8.1	7.9	5.5	3.5	1.1	7.2	4.1	
Dec 7	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NNE	NE	NE	NE	NNE	NNE	NNE	NNE	1.1	7.2	4.1	
Dec 8	2.2	4.3	4.4	4.0	3.8	4.1	4.3	2.8	1.6	1.1	4.8	5.9	5.9	5.6	4.0	3.7	3.1	4.0	4.5	5.1	5.3	5.7	7.2	5.5	1.1	7.2	4.1	
Dec 9	N	N	NNE	N	N	NNE	N	N	NNE	NNE	NNE	NE	NNE	NNE	NE	ENE	ENE	ENE	NE	NNE	NNE	NNE	NNE	NNE				



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - December 2022

Summary of Hourly Averages

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

WIND SPEED																																	
Maximum Hourly Value:	16.1	kph	on December 4	at hour 10	Hours in Service:	744																											
Maximum Daily Value:	10.3	kph	on December 4	Hours of Data:	744																												
Minimum Hourly Value:	0.0	kph	on December 1	at hour 18	Hours of Missing Data:	0																											
Minimum Daily Value:	0.8	kph	on December 22	Hours of Calibration:	0																												
Monthly Average:	1.0	kph	Operational Uptime:	100																													
WIND DIRECTION																																	
Monthly Average:	46	(NE)	degree																														
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average							
Dec 21	4.9	3.7	3.3	3.2	3.7	5.4	4.5	4.7	3.7	3.8	5.2	5.8	5.2	5.6	6.0	6.4	6.7	8.0	7.0	6.9	5.2	4.4	3.2	3.8	3.2	8.0	4.9						
Dec 22	3.5	3.0	3.3	3.9	2.4	2.0	0.9	1.9	0.5	0.5	2.1	2.3	0.4	1.1	2.2	3.2	1.0	1.2	0.3	0.2	0.1	0.1	0.2	0.2	0.1	3.9	0.8						
Dec 23	0.0	0.2	1.3	0.9	1.7	1.5	0.9	2.6	3.7	4.1	3.7	3.4	7.1	8.2	8.5	10.0	10.7	10.2	9.3	8.5	8.7	8.8	10.3	8.8	0.0	10.7	5.0						
Dec 24	8.0	8.1	8.1	7.5	5.8	6.5	6.5	6.3	6.2	5.2	7.3	6.2	8.0	7.1	6.5	6.1	7.1	8.1	8.7	8.2	8.8	8.4	4.2	4.2	4.2	8.8	6.6						
Dec 25	4.2	1.1	0.5	2.6	3.8	4.5	4.0	3.7	5.4	6.4	6.0	4.7	4.6	4.3	5.4	3.0	3.0	1.5	2.8	2.6	0.1	1.7	4.1	3.7	0.1	6.4	2.7						
Dec 26	3.2	2.8	4.9	5.1	6.0	6.7	9.4	9.7	9.6	8.8	8.5	8.4	8.6	8.6	7.3	4.4	7.0	6.7	7.6	2.2	2.1	1.5	0.8	0.0	0.0	9.7	5.6						
Dec 27	0.1	1.2	0.0	1.5	3.3	3.4	5.0	1.0	2.3	3.1	4.9	5.7	8.3	8.9	8.1	7.7	9.1	8.6	8.1	8.7	6.7	5.8	6.2	6.5	0.0	9.1	5.0						
Dec 28	5.3	4.3	4.9	4.7	4.4	5.8	5.2	5.8	4.0	4.0	2.9	2.5	2.1	0.7	0.3	0.1	0.2	0.1	0.0	0.7	3.4	0.6	0.1	0.2	0.0	5.8	2.3						
Dec 29	0.1	1.2	0.8	0.8	1.1	0.8	1.9	1.5	0.5	0.7	3.8	4.0	4.1	4.3	4.2	4.5	3.1	2.0	0.9	2.1	1.2	1.0	0.9	0.1	0.1	4.5	1.8						
Dec 30	2.8	0.1	0.9	0.2	0.1	0.0	0.5	0.1	0.0	1.7	1.5	3.6	3.2	2.9	0.4	0.9	2.1	2.3	0.7	1.2	0.2	1.5	1.3	0.7	0.0	3.6	0.9						
Dec 31	0.7	0.3	0.0	0.1	1.8	3.0	2.0	1.1	0.7	0.3	1.7	0.2	2.7	2.8	3.6	3.9	3.2	3.1	3.8	3.0	3.4	4.0	3.2	2.9	0.0	4.0	2.1						
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.																																	



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - December 2022

Summary of Hour Standard Deviations

STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

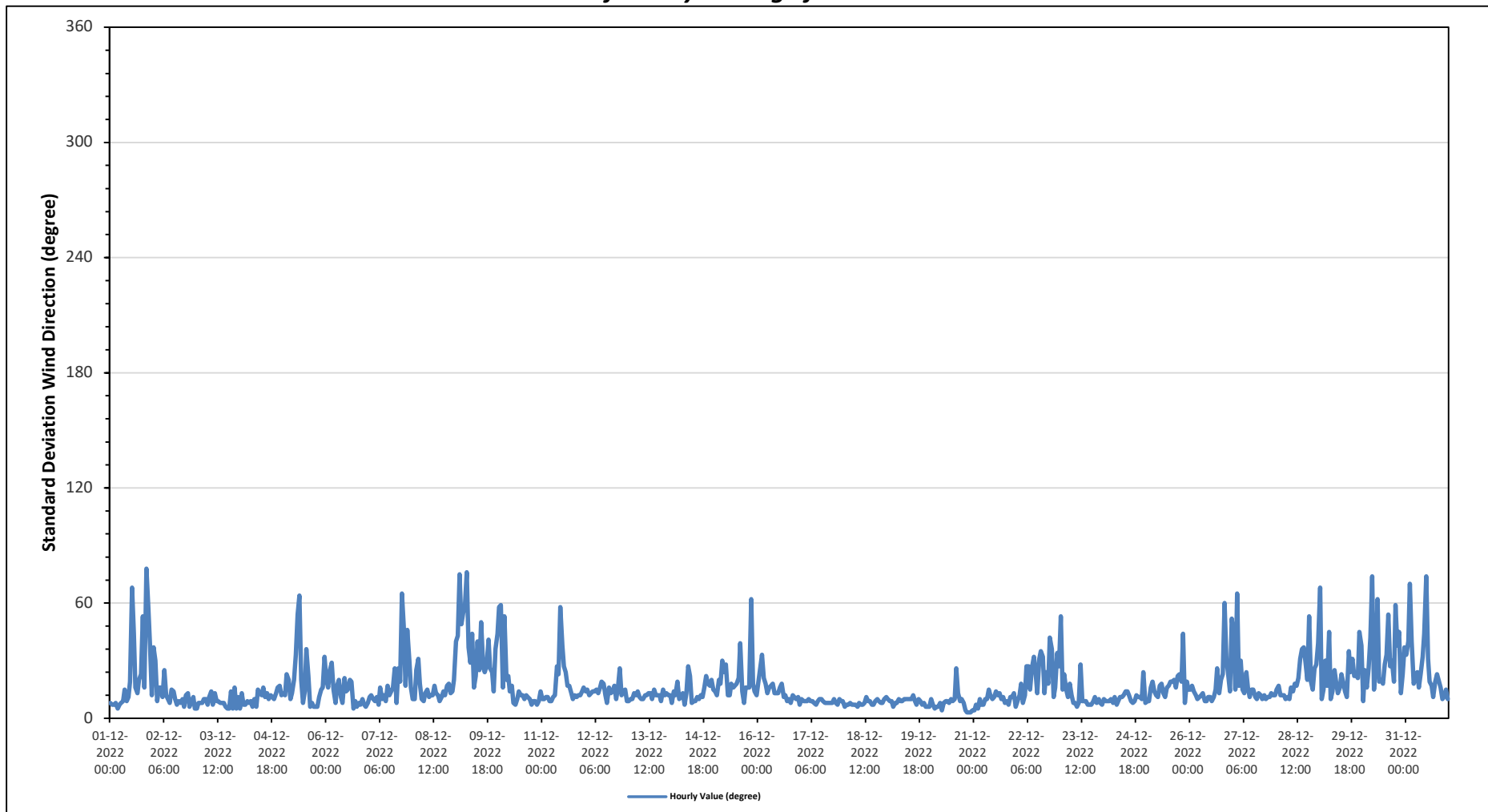
Maximum Hourly Value:	78 degree on December 1 at hour 20	Hours in Service:	744
Minimum Hourly Value:	3 degree on December 20 at hour 20	Hours of Data:	744
		Hours of Missing Data:	0
		Hours of Calibration:	0
		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	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
Dec 1	8	7	7	8	5	7	8	9	15	9	11	19	68	44	16	13	20	23	53	16	78	59	38	12	5	78
Dec 2	37	30	9	16	16	11	25	12	10	8	15	14	10	7	9	8	10	6	12	13	6	9	11	5	5	37
Dec 3	5	8	8	8	10	10	7	11	14	7	13	9	9	8	8	8	6	5	5	14	5	16	5	11	5	16
Dec 4	5	13	7	7	9	8	9	6	10	6	15	13	12	16	11	13	10	12	11	10	13	16	17	12	5	17
Dec 5	13	12	23	20	10	13	20	33	54	64	20	8	14	36	22	6	8	6	6	6	11	15	16	32	6	64
Dec 6	20	16	25	29	15	8	17	20	11	8	21	14	15	20	19	5	9	6	8	7	10	7	6	8	5	29
Dec 7	11	12	10	9	11	7	16	10	12	9	17	12	14	16	26	8	26	19	65	48	17	46	30	16	7	65
Dec 8	10	10	25	31	18	10	9	13	15	11	12	12	17	13	12	9	11	14	12	17	18	13	14	20	9	31
Dec 9	40	43	75	49	55	59	76	37	29	44	16	22	40	25	50	27	24	27	41	26	24	14	36	44	14	76
Dec 10	58	59	16	53	20	22	14	17	8	7	10	14	12	12	10	12	11	10	7	9	9	7	9	14	7	59
Dec 11	10	10	11	11	9	9	11	12	27	23	58	38	27	24	17	17	13	10	12	11	12	12	14	16	9	58
Dec 12	14	15	12	13	14	14	15	13	16	19	18	12	8	16	13	14	17	10	16	26	12	14	15	9	8	26
Dec 13	9	10	10	13	12	14	11	10	10	12	12	13	13	10	15	12	12	9	15	12	13	12	12	12	9	15
Dec 14	8	14	12	19	10	11	13	7	13	27	22	8	9	9	11	10	12	11	16	22	18	17	20	15	7	27
Dec 15	14	12	20	18	30	24	28	12	12	18	16	17	18	21	39	14	8	16	16	16	62	18	14	12	8	62
Dec 16	19	26	33	21	18	13	16	17	18	13	13	13	16	18	11	12	9	10	8	12	11	10	11	7	7	33
Dec 17	10	9	9	9	10	9	9	8	7	9	10	10	9	8	8	8	8	8	10	8	7	10	9	9	7	10
Dec 18	6	7	7	8	7	7	7	6	8	7	7	8	11	9	9	7	7	9	10	9	8	8	10	11	6	11
Dec 19	10	9	9	6	8	8	10	9	9	10	10	10	10	10	12	9	7	10	9	7	8	6	6	6	6	12
Dec 20	10	7	5	6	6	8	4	8	9	9	8	10	9	10	26	13	9	10	8	4	3	3	3	4	3	26
Dec 21	4	7	5	10	7	7	10	10	15	12	10	11	14	12	13	10	11	8	9	7	11	11	13	6	4	15
Dec 22	9	12	18	8	12	27	27	15	26	32	25	13	31	35	32	13	24	18	42	36	11	16	34	27	8	42
Dec 23	53	15	23	15	11	18	12	8	8	6	8	28	9	9	7	7	7	9	11	8	10	8	7	6	53	
Dec 24	10	9	9	9	10	8	11	7	9	11	11	12	14	14	12	9	8	9	12	11	11	10	24	8	7	24
Dec 25	9	9	16	19	14	12	11	17	18	13	11	16	17	19	19	20	16	22	23	19	44	8	19	15	8	44
Dec 26	15	17	14	12	10	11	12	13	9	9	11	11	9	11	15	26	13	20	23	60	31	23	14	52	9	60
Dec 27	44	15	65	17	30	15	13	24	16	11	15	11	10	13	12	10	12	10	11	11	13	12	12	10	65	
Dec 28	15	17	12	12	12	10	11	10	16	14	18	17	21	31	36	37	29	20	53	19	15	26	28	39	10	53
Dec 29	68	10	15	30	17	45	10	14	25	19	13	16	23	18	14	11	35	24	31	22	23	21	45	38	10	68
Dec 30	9	25	16	26	42	74	15	30	62	19	20	18	28	33	54	27	30	19	59	38	45	13	23	37	9	74
Dec 31	33	40	70	40	18	21	24	16	23	32	44	74	31	19	17	11	19	23	20	16	10	11	15	10	10	74
Diurnal Minimum	4	7	5	6	5	7	4	6	7	6	7	8	8	7	8	5	6	5	5	4	3	3	3	4		
Diurnal Maximum	68	59	75	53	55	74	76	37	62	64	58	74	68	44	54	37	35	27	65	60	78	59	45	52		

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

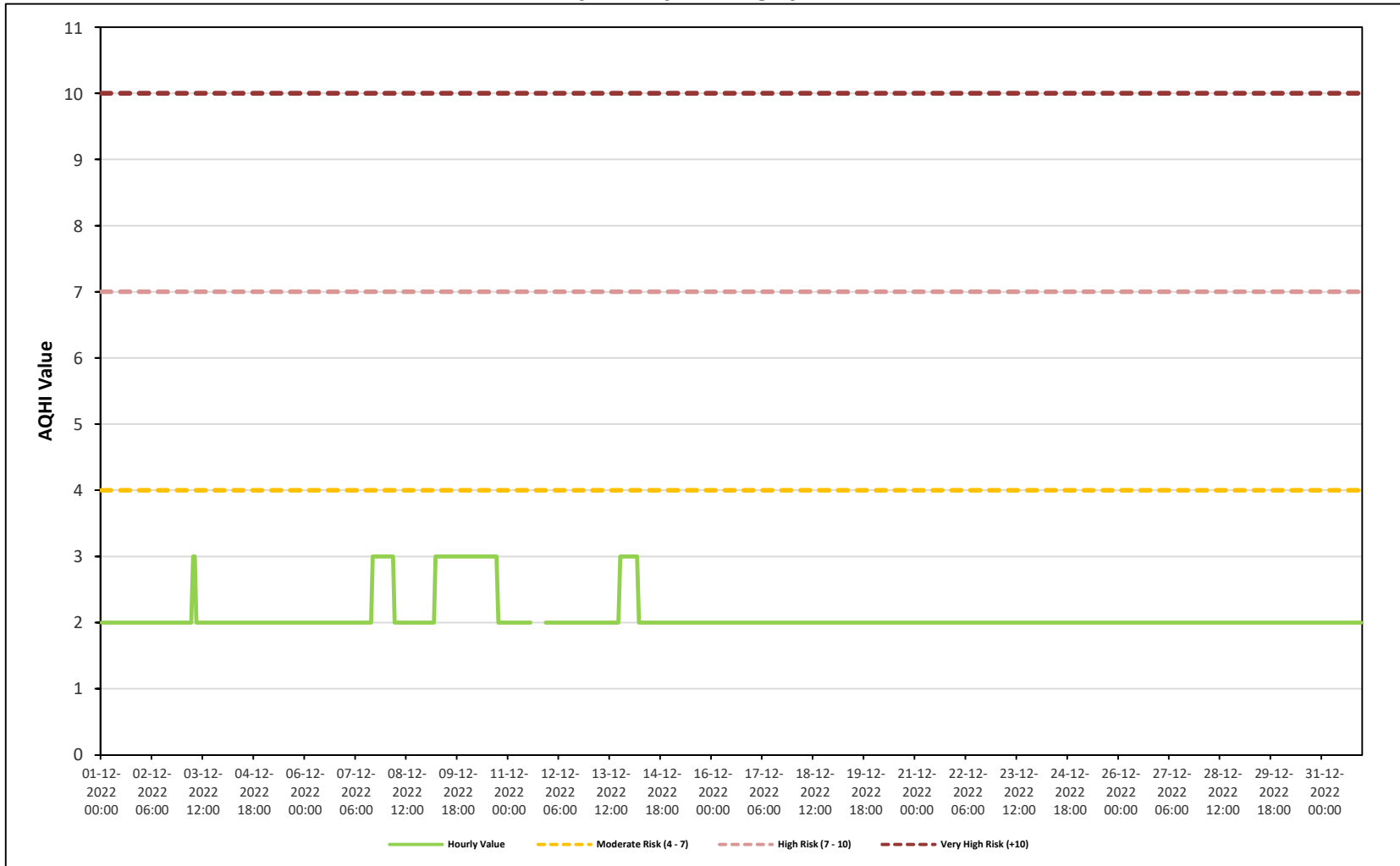
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

Timeseries Chart of Hourly Average for STDWD - Tamarack Site

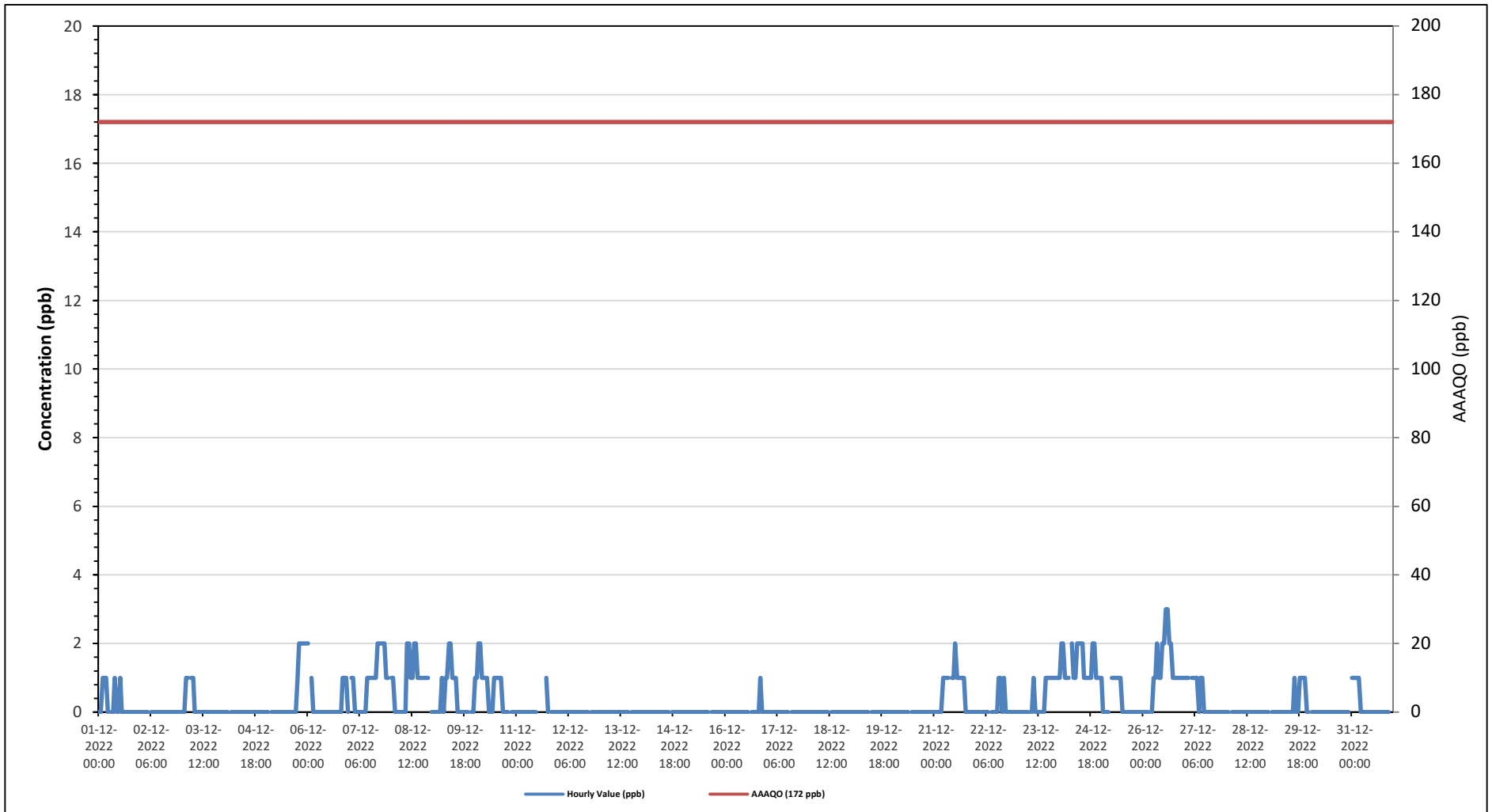


ST. LINA STATION

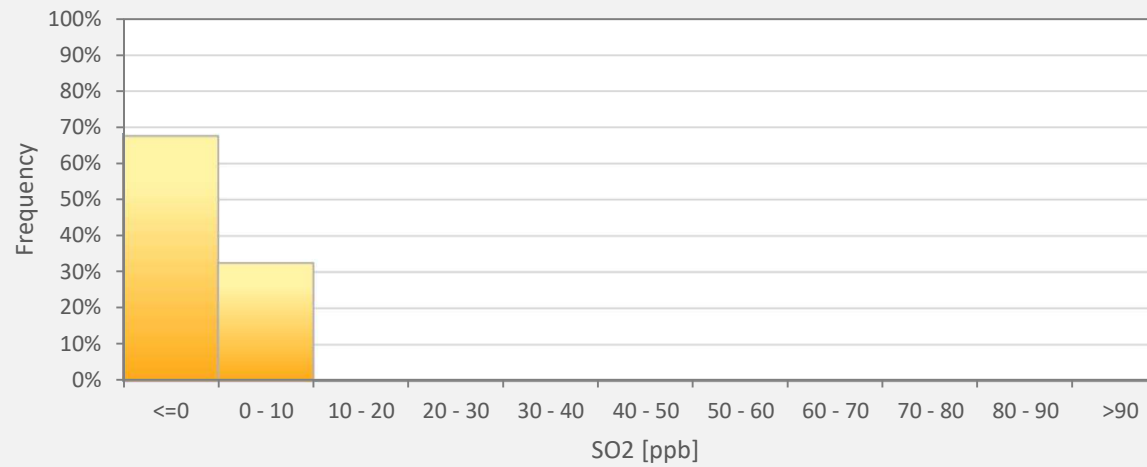
Timeseries Chart of Hourly Average for AQHI - St. Lina Site



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



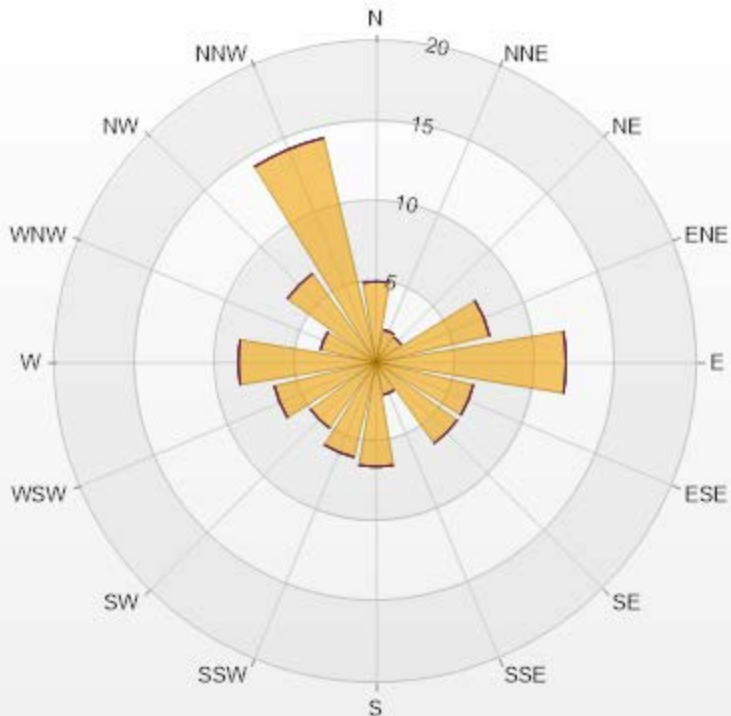
SO2[ppb] Histogram: St. Lina Monthly: 12-2022 1 Hr.



Classes	SO2
<=0	67.56%
0 - 10	32.44%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 90.86% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	5.03	0	0	0	0	5.03
NNE	2.07	0	0	0	0	2.07
NE	1.92	0	0	0	0	1.92
ENE	7.25	0	0	0	0	7.25
E	11.83	0	0	0	0	11.83
ESE	6.21	0	0	0	0	6.21
SE	6.21	0	0	0	0	6.21
SSE	2.07	0	0	0	0	2.07
S	6.51	0	0	0	0	6.51
SSW	6.07	0	0	0	0	6.07
SW	5.03	0	0	0	0	5.03
WSW	6.51	0	0	0	0	6.51
W	8.58	0	0	0	0	8.58
WNW	3.55	0	0	0	0	3.55
NW	6.8	0	0	0	0	6.8
NNW	14.35	0	0	0	0	14.35
Summary	100	0	0	0	0	100



LICA-202212

% Icon Classes (ppb)

100 0-10

0 10-50

0 50-100

0 100-172

0 >172.0

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St. Lina Site - December 2022

Summary of Hourly Averages

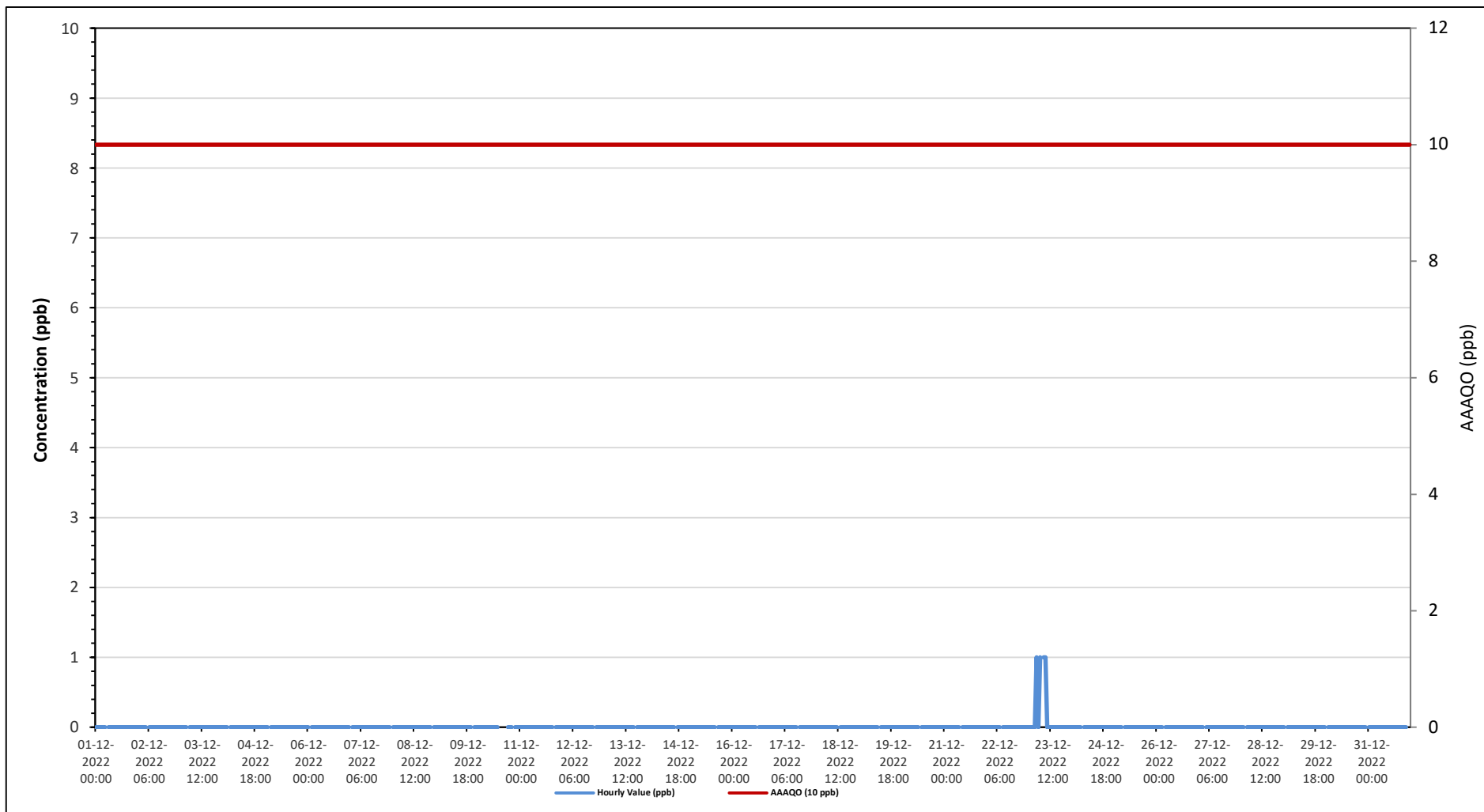
HYDROGEN SULPHIDE (H₂S) in ppb

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 December 23 at hour 4											Hours in Service: 744																
Maximum Daily Value: 0.2 ppb on December 23											Hours of Data: 706																
Minimum Hourly Value: 0 ppb on December 1 at hour 0											Hours of Missing Data: 0																
Minimum Daily Value: 0.0 ppb on December 1											Hours of Calibration: 38																
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
Dec 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
Dec 2	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
Dec 3	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
Dec 4	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
Dec 5	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
Dec 6	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
Dec 7	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
Dec 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	S	0	0
Dec 9	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
Dec 10	0	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	0	0	0	0	S	S	0	0	0	0
Dec 11	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
Dec 12	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
Dec 13	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
Dec 14	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
Dec 15	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
Dec 16	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
Dec 17	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
Dec 18	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
Dec 19	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dec 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
Dec 21	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dec 22	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
Dec 23	0	0	0	0	1	0	1	S	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dec 24	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
Dec 25	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
Dec 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
Dec 27	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
Dec 28	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
Dec 29	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
Dec 30	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
Dec 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	0	1	0	0
Diurnal Maximum	0	0	0	0	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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						P	Power Failure					
X	Invalid Data (Equipment Malfunction /Recovery)						NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																			

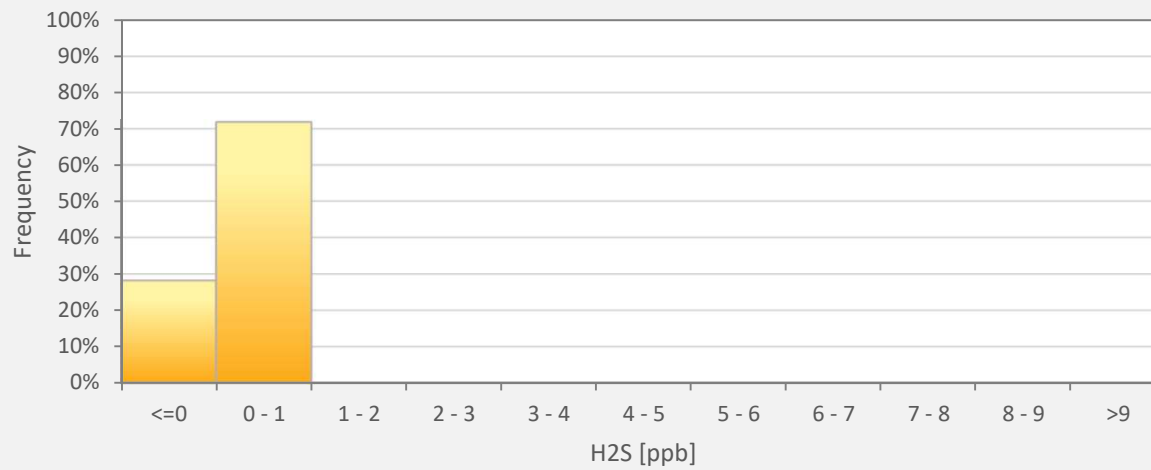
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

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



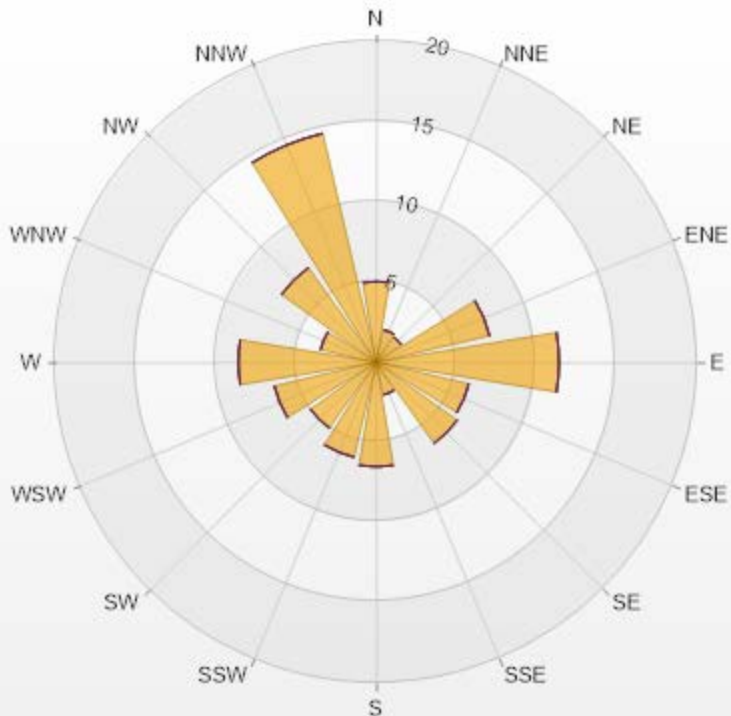
H2S[ppb] Histogram: St. Lina Monthly: 12-2022 1 Hr.



Classes	H2S
<=0	28.19%
0 - 1	71.81%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 90.86% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	5.03	0	0	0	0	5.03
NNE	2.07	0	0	0	0	2.07
NE	1.92	0	0	0	0	1.92
ENE	7.25	0	0	0	0	7.25
E	11.39	0	0	0	0	11.39
ESE	5.92	0	0	0	0	5.92
SE	6.21	0	0	0	0	6.21
SSE	2.07	0	0	0	0	2.07
S	6.51	0	0	0	0	6.51
SSW	6.07	0	0	0	0	6.07
SW	5.03	0	0	0	0	5.03
WSW	6.51	0	0	0	0	6.51
W	8.58	0	0	0	0	8.58
WNW	3.55	0	0	0	0	3.55
NW	7.25	0	0	0	0	7.25
NNW	14.64	0	0	0	0	14.64
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

St. Lina Site - December 2022

Summary of Hourly Averages

OXIDES OF NITROGEN (NOx) in ppb

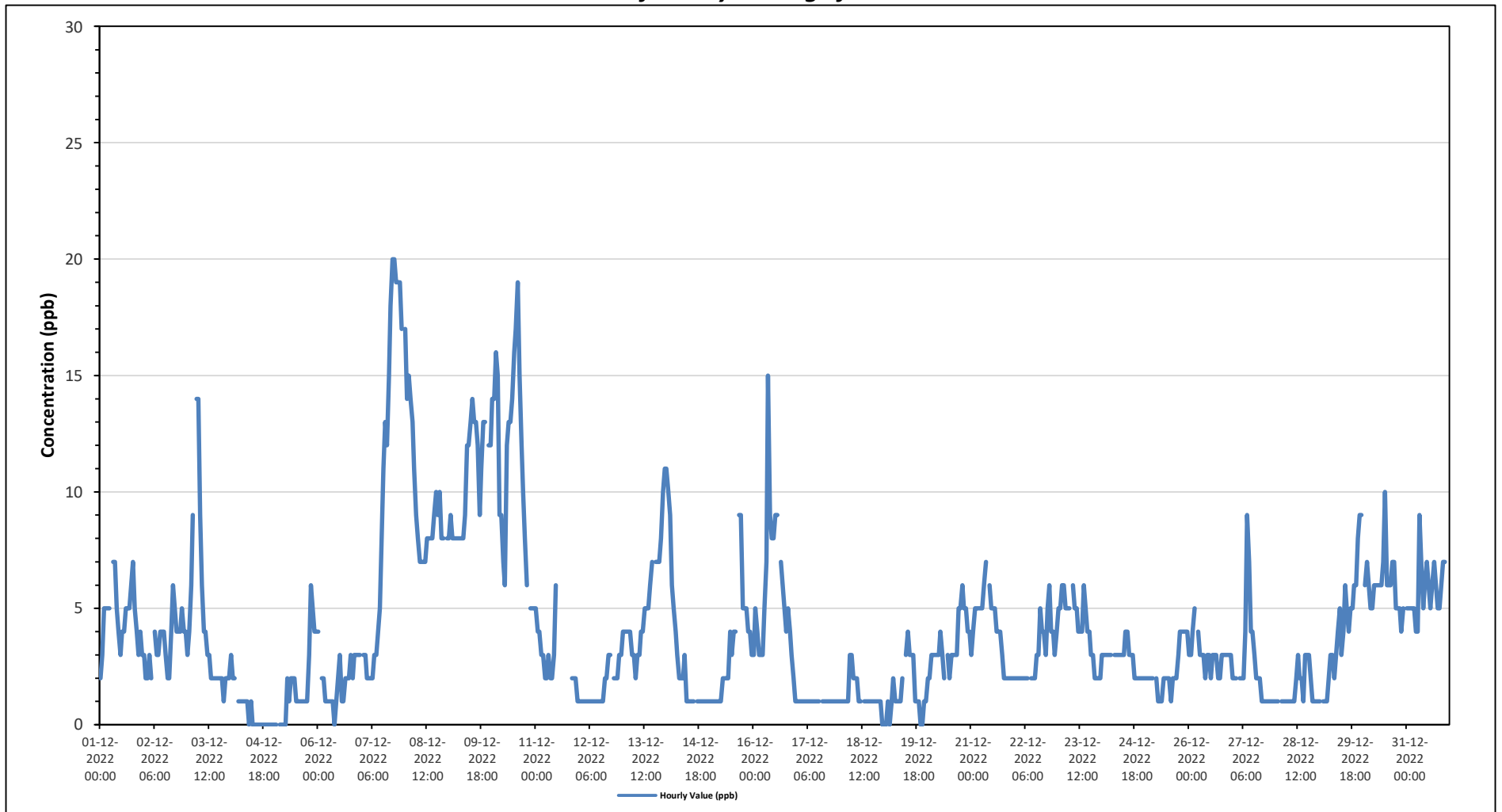
Maximum Hourly Value:	20 ppb on December 7 at hour 17	Hours in Service:	744
Maximum Daily Value:	11.3 ppb on December 10	Hours of Data:	704
Minimum Hourly Value:	0 ppb on December 4 at hour 10	Hours of Missing Data:	0
Minimum Daily Value:	0.6 ppb on December 4	Hours of Calibration:	40
Monthly Average:	4.1 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	
Dec 1	2	3	5	5	5	S	7	7	5	4	3	4	4	5	5	5	6	7	5	4	3	4	3	2	7	4.6		
Dec 2	3	2	2	3	2	S	4	3	3	4	4	3	2	2	4	6	5	4	4	4	5	4	4	2	6	3.5		
Dec 3	3	4	6	9	S	14	14	9	6	4	4	3	2	2	2	2	2	2	2	1	2	2	2	1	14	4.3		
Dec 4	3	2	2	S	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0.6		
Dec 5	0	0	S	0	0	0	0	2	1	2	2	2	1	1	1	1	1	1	1	3	6	5	4	4	6	1.7		
Dec 6	4	S	2	2	1	1	1	1	1	2	3	1	1	2	2	2	2	3	2	3	3	3	3	0	4	1.9		
Dec 7	S	3	3	2	2	2	2	3	3	4	5	8	11	13	12	15	18	20	20	19	19	19	17	S	20	10.0		
Dec 8	17	14	15	14	13	11	9	8	7	7	7	7	8	8	8	8	9	10	9	10	8	8	S	8	7	17	9.7	
Dec 9	8	9	8	8	8	8	8	8	8	9	12	12	13	14	13	13	12	9	11	13	13	S	12	12	8	14	10.5	
Dec 10	14	14	16	15	9	9	7	6	12	13	13	14	16	17	19	15	12	10	8	6	S	5	5	5	5	19	11.3	
Dec 11	5	4	4	3	3	2	2	3	2	2	3	6	C	C	C	C	C	C	C	S	2	2	2	1	1	6	-	
Dec 12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	S	2	2	2	3	3	1	3	1.6	
Dec 13	4	4	4	4	4	3	3	2	3	3	4	4	5	5	5	6	7	S	7	7	7	8	10	11	2	11	5.2	
Dec 14	11	10	9	6	5	4	3	2	2	2	3	1	1	1	1	1	S	1	1	1	1	1	1	1	1	11	3.0	
Dec 15	1	1	1	1	1	1	1	2	2	2	2	4	3	4	4	S	9	9	5	5	5	4	4	3	1	9	3.2	
Dec 16	3	5	4	3	3	3	5	7	15	9	8	8	9	9	S	7	6	5	4	5	4	3	2	1	1	15	5.6	
Dec 17	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1.0	
Dec 18	1	1	1	1	1	3	3	2	2	2	1	1	S	1	1	1	1	1	1	1	1	1	1	0	0	3	1.3	
Dec 19	0	0	1	0	1	2	1	1	1	1	2	S	3	4	3	3	3	3	1	1	1	0	0	1	1	0	4	1.3
Dec 20	2	2	3	3	3	3	3	4	3	2	S	3	2	3	3	3	3	5	5	6	5	5	4	4	2	6	3.4	
Dec 21	3	4	5	5	5	5	5	6	7	S	6	5	5	5	4	4	4	3	2	2	2	2	2	2	2	7	4.0	
Dec 22	2	2	2	2	2	2	2	2	S	2	2	2	3	3	5	4	4	3	5	6	4	4	3	4	2	6	3.0	
Dec 23	5	5	6	6	5	5	5	S	6	5	5	4	4	4	6	5	4	4	3	3	2	2	2	2	2	6	4.3	
Dec 24	3	3	3	3	3	3	S	3	3	3	3	3	3	4	4	3	3	3	2	2	2	2	2	2	2	4	2.8	
Dec 25	2	2	2	2	2	S	2	1	1	1	2	2	2	2	2	2	2	2	3	4	4	4	4	4	1	4	2.3	
Dec 26	3	3	4	5	S	4	3	3	3	2	3	3	2	3	3	3	2	2	3	3	3	3	3	3	2	5	3.0	
Dec 27	2	2	2	S	2	2	2	4	9	7	4	4	3	2	2	2	1	1	1	1	1	1	1	1	1	9	2.5	
Dec 28	1	1	S	1	1	1	1	1	1	1	2	3	2	2	2	1	3	3	3	2	1	1	1	1	1	3	1.5	
Dec 29	1	S	1	1	1	2	3	3	2	3	4	5	3	4	6	5	4	5	5	6	6	8	9	9	1	9	4.2	
Dec 30	S	6	7	6	5	5	6	6	6	6	6	7	10	6	6	6	7	7	5	5	5	4	5	S	4	10	6.0	
Dec 31	5	5	5	5	5	4	4	9	7	5	6	7	6	5	6	7	6	5	5	6	7	7	S	11	4	11	6.0	
Diurnal Maximum	17	14	16	15	13	14	14	9	15	13	13	14	16	17	19	15	18	20	20	19	19	19	17	12				
Diurnal Average	3.8	3.9	4.3	4.0	3.3	3.7	3.5	3.7	4.2	3.6	4.0	4.3	4.5	4.5	4.4	4.5	4.8	4.4	4.4	4.4	4.1	3.8	3.9	3.7				

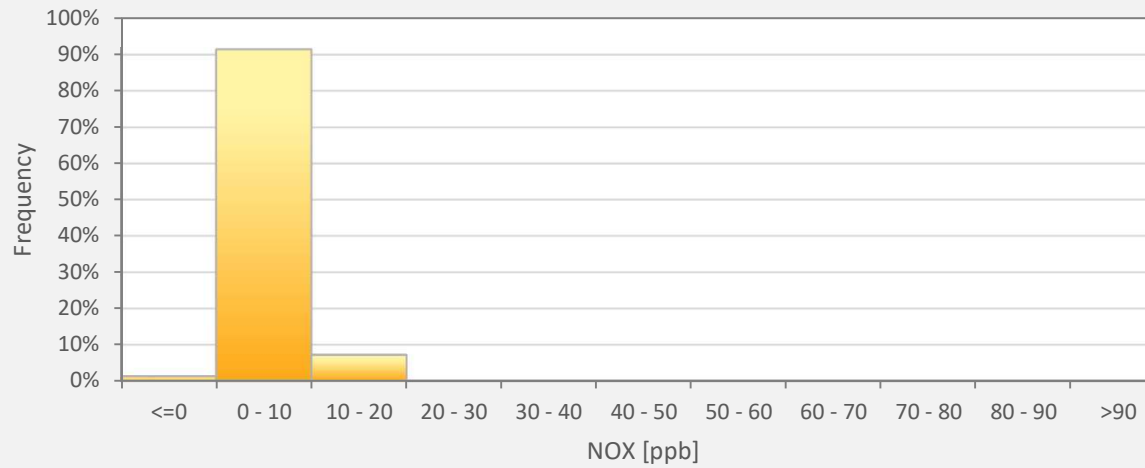
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction/Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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 NOx - St. Lina Site



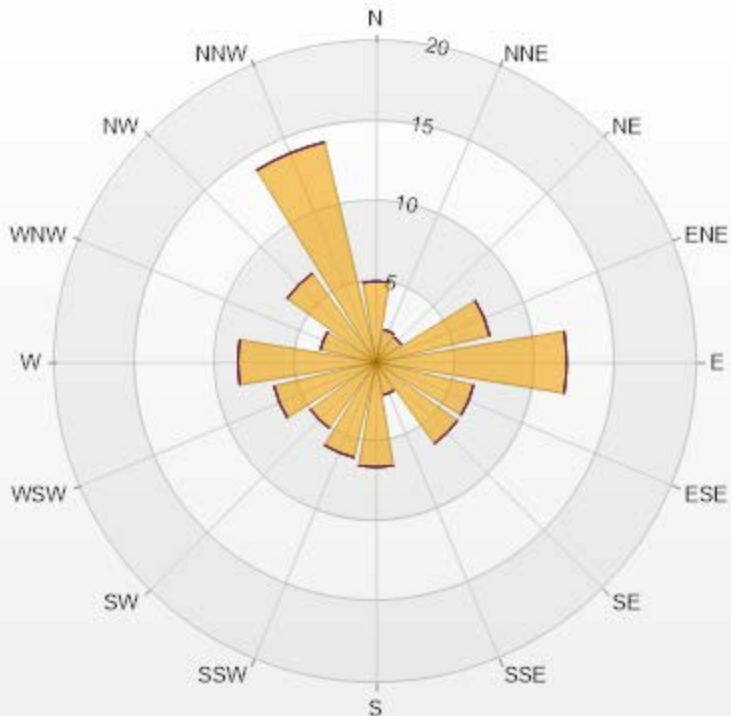
NOX[ppb] Histogram: St. Lina Monthly: 12-2022 1 Hr.



Classes	NOX
<=0	1.28%
0 - 10	91.48%
10 - 20	7.24%
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-NOX[ppb] Monthly: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 90.59% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	5.04	0	0	0	0	5.04
NNE	2.08	0	0	0	0	2.08
NE	1.93	0	0	0	0	1.93
ENE	7.27	0	0	0	0	7.27
E	11.87	0	0	0	0	11.87
ESE	6.23	0	0	0	0	6.23
SE	6.23	0	0	0	0	6.23
SSE	2.08	0	0	0	0	2.08
S	6.53	0	0	0	0	6.53
SSW	6.08	0	0	0	0	6.08
SW	5.04	0	0	0	0	5.04
WSW	6.53	0	0	0	0	6.53
W	8.61	0	0	0	0	8.61
WNW	3.56	0	0	0	0	3.56
NW	6.82	0	0	0	0	6.82
NNW	14.09	0	0	0	0	14.09
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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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - December 2022
Summary of Hourly Averages

NITRIC OXIDE (NO) in ppb

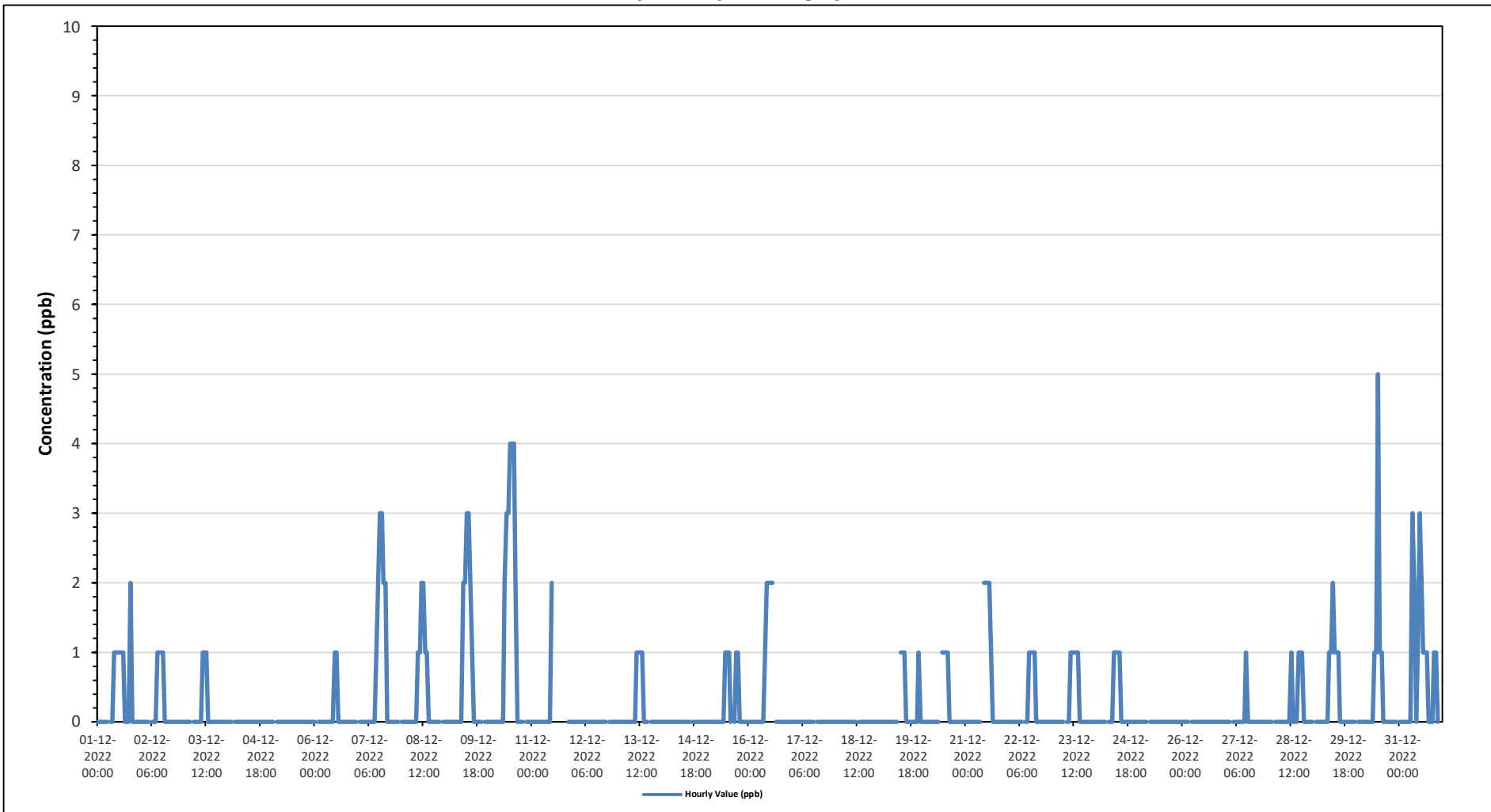
Maximum Hourly Value:	5 ppb on December 30 at hour 12	Hours in Service:	744
Maximum Daily Value:	1.0 ppb on December 10	Hours of Data:	704
Minimum Hourly Value:	0 ppb on December 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 ppb on December 4	Hours of Calibration:	40
Monthly Average:	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										
Dec 1	0	0	0	0	0	0	S	0	0	1	1	1	1	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	
Dec 2	0	0	0	0	0	S	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2		
Dec 3	0	0	0	0	S	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1		
Dec 4	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	
Dec 5	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	
Dec 6	0	S	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	0	1	0.1		
Dec 7	S	0	0	0	0	0	0	0	0	0	1	2	3	3	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.6	
Dec 8	0	0	0	0	0	0	0	0	0	1	1	2	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.3	
Dec 9	0	0	0	0	0	0	0	0	0	0	2	2	3	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0.6
Dec 10	0	0	0	0	0	0	0	0	0	2	3	3	4	4	4	2	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	4	1.0		
Dec 11	0	0	0	0	0	0	0	0	0	0	0	2	C	C	C	C	C	C	C	S	0	0	0	0	0	0	0	0	0	0	0	0	0	2	-		
Dec 12	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	
Dec 13	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2		
Dec 14	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	0	0.0	
Dec 15	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	S	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2		
Dec 16	0	0	0	0	0	0	0	0	0	1	2	2	2	2	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4		
Dec 17	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	
Dec 18	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	
Dec 19	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.2	
Dec 20	0	0	0	0	0	0	0	0	0	0	0	S	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2		
Dec 21	0	0	0	0	0	0	0	0	0	0	S	2	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4	
Dec 22	0	0	0	0	0	0	0	0	S	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2		
Dec 23	0	0	0	0	0	0	0	0	S	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	
Dec 24	0	0	0	0	0	0	S	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	
Dec 25	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	
Dec 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	0	0	0	0	0.0	
Dec 27	0	0	0	S	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	1	0.0		
Dec 28	0	0	S	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2		
Dec 29	0	S	0	0	0	0	0	0	0	1	1	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3		
Dec 30	S	0	0	0	0	0	0	0	0	0	1	1	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.4	
Dec 31	0	0	0	0	0	0	0	3	2	0	1	3	2	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.7
Diurnal Maximum	0	0	0	0	0	0	0	3	2	2	3	3	5	4	4	2	1	1	2	1	1	0	1	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	0.1	0.1	0.2	0.7	1.1	1.2	0.9	0.6	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

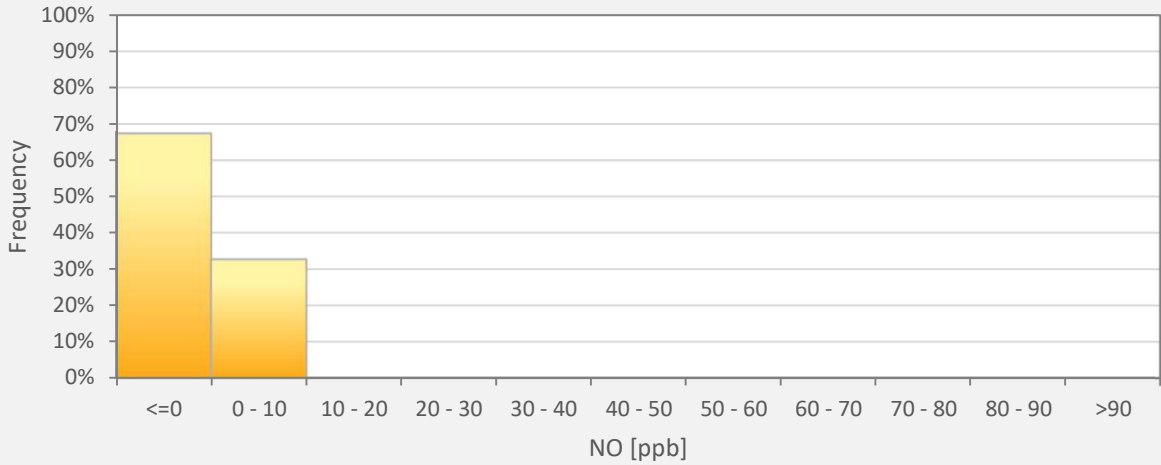
C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	N No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction/Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

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 Site



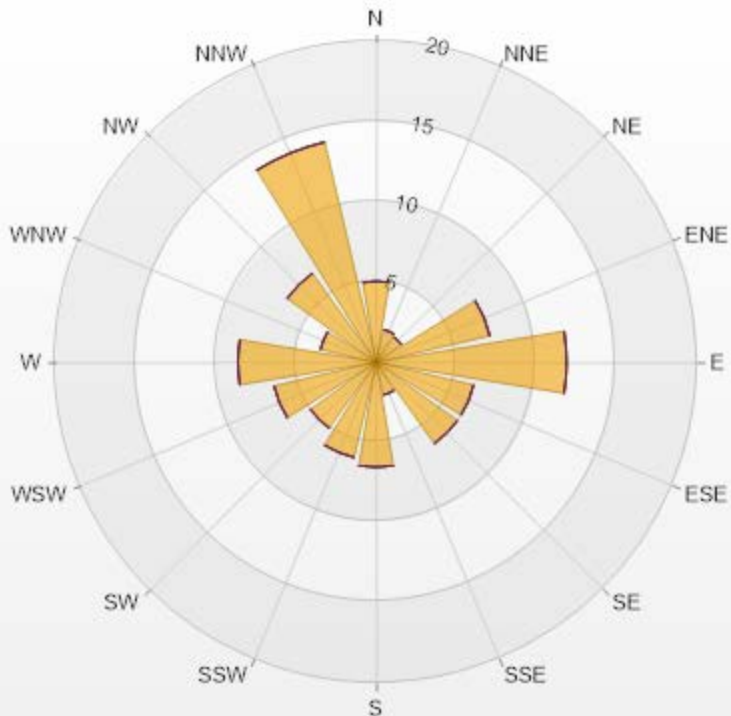
NO[ppb] Histogram: St. Lina Monthly: 12-2022 1 Hr.



Classes	NO
<=0	67.33%
0 - 10	32.67%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 90.59% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	5.04	0	0	0	0	5.04
NNE	2.08	0	0	0	0	2.08
NE	1.93	0	0	0	0	1.93
ENE	7.27	0	0	0	0	7.27
E	11.87	0	0	0	0	11.87
ESE	6.23	0	0	0	0	6.23
SE	6.23	0	0	0	0	6.23
SSE	2.08	0	0	0	0	2.08
S	6.53	0	0	0	0	6.53
SSW	6.08	0	0	0	0	6.08
SW	5.04	0	0	0	0	5.04
WSW	6.53	0	0	0	0	6.53
W	8.61	0	0	0	0	8.61
WNW	3.56	0	0	0	0	3.56
NW	6.82	0	0	0	0	6.82
NNW	14.09	0	0	0	0	14.09
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



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - December 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: 20 ppb on December 7 at hour 18

Hours in Service: 744

Maximum Daily Value: 10.3 ppb on December 10

Hours of Data: 704

Minimum Hourly Value: 0 ppb on December 4 at hour 10

Hours of Missing Data: 0

Minimum Daily Value: 0.6 ppb on December 4

Hours of Calibration: 40

Monthly Average: 3.8 ppb

Operational Uptime: 100.0

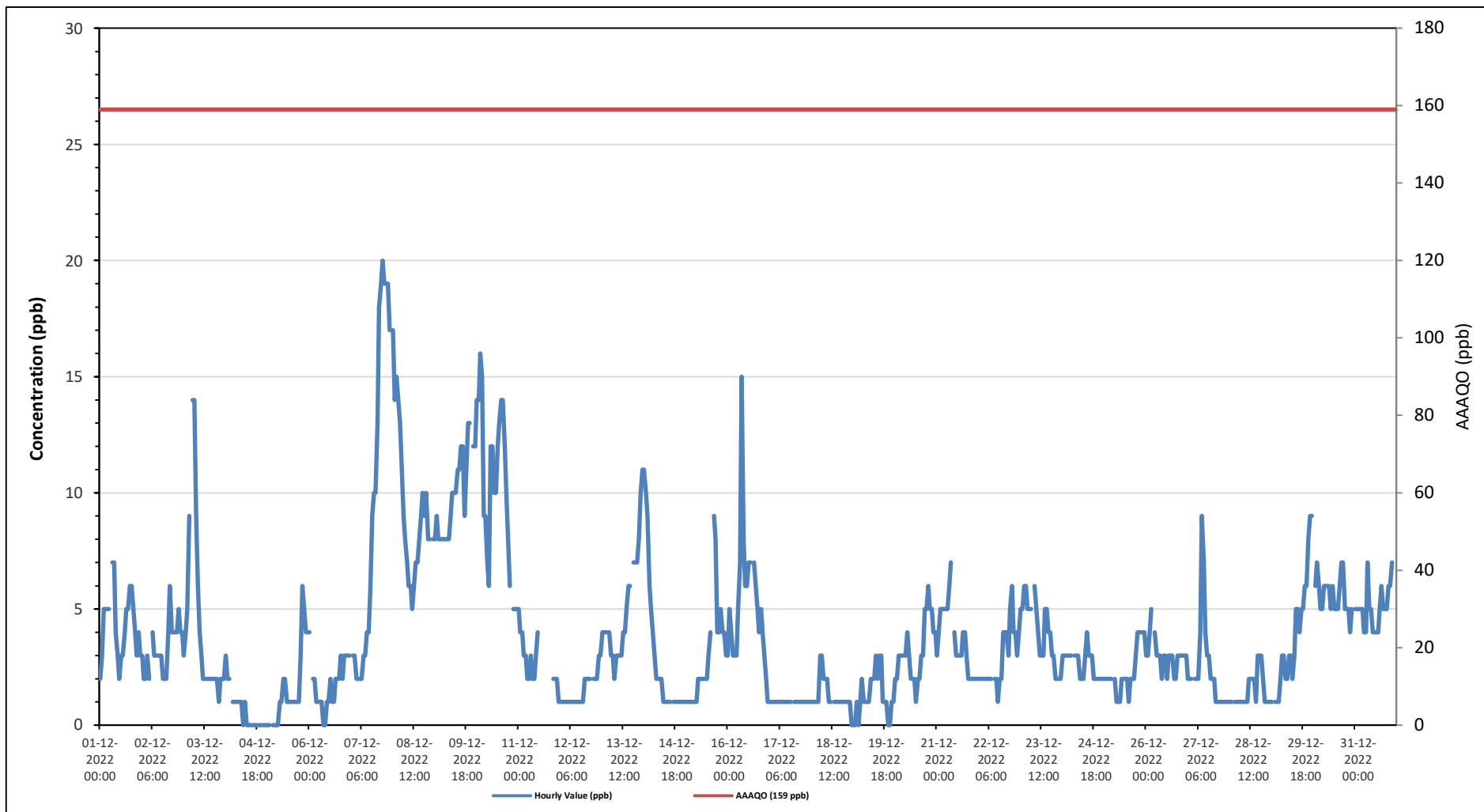
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Dec 1	2	3	5	5	5	5	S	7	7	4	3	2	3	3	4	5	5	6	6	5	4	3	4	3	2	7	4.3
Dec 2	3	2	2	3	2	S	4	3	3	3	3	2	2	2	2	4	6	4	4	4	4	5	4	4	2	6	3.3
Dec 3	3	4	5	9	S	14	14	9	6	4	3	2	2	2	2	2	2	2	2	2	1	2	2	2	1	14	4.2
Dec 4	3	2	2	S	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.6
Dec 5	0	0	S	0	0	0	0	1	1	2	2	1	1	1	1	1	1	1	1	3	6	5	4	4	0	6	1.6
Dec 6	4	S	2	2	1	1	1	1	0	0	1	1	2	1	1	2	2	2	3	2	3	3	3	3	0	4	1.8
Dec 7	S	3	3	2	2	2	2	3	3	4	4	6	9	10	10	13	18	19	20	19	19	19	17	S	2	20	9.4
Dec 8	17	14	15	14	13	11	9	8	7	6	6	5	6	7	7	8	9	10	9	10	8	8	S	8	5	17	9.3
Dec 9	8	9	8	8	8	8	8	8	8	9	10	10	10	11	11	12	12	9	11	13	13	S	12	12	8	13	9.9
Dec 10	14	14	16	15	9	7	6	12	12	10	10	12	13	14	14	12	10	8	6	S	5	5	5	5	5	16	10.3
Dec 11	5	4	4	3	3	2	2	3	2	2	3	4	C	C	C	C	C	C	C	S	2	2	2	1	1	5	-
Dec 12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	S	2	2	2	3	3	1	3	1.5
Dec 13	4	4	4	4	4	3	3	2	3	3	3	3	4	4	5	6	6	S	7	7	7	8	10	11	2	11	5.0
Dec 14	11	10	9	6	5	4	3	2	2	2	2	1	1	1	1	1	S	1	1	1	1	1	1	1	1	11	3.0
Dec 15	1	1	1	1	1	1	1	2	2	2	2	2	2	3	4	S	9	8	4	4	5	4	4	3	1	9	2.9
Dec 16	3	5	4	3	3	3	5	7	15	8	6	6	7	7	S	7	6	5	4	5	4	3	2	1	1	15	5.2
Dec 17	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Dec 18	1	1	1	1	1	3	3	2	2	2	1	1	S	1	1	1	1	1	1	1	1	1	1	0	0	3	1.3
Dec 19	0	0	1	0	1	2	1	1	1	1	2	S	2	3	2	3	3	1	1	1	0	0	1	1	0	3	1.2
Dec 20	2	2	3	3	3	3	3	4	3	2	S	2	1	2	2	3	3	5	5	6	5	5	4	4	1	6	3.3
Dec 21	3	4	5	5	5	5	5	6	7	S	4	3	3	3	3	4	4	3	2	2	2	2	2	2	2	7	3.7
Dec 22	2	2	2	2	2	2	2	2	S	2	2	1	2	2	4	4	4	3	5	6	4	4	3	4	1	6	2.9
Dec 23	5	5	6	6	5	5	5	S	6	5	4	3	3	3	5	5	4	4	3	3	2	2	2	2	2	6	4.0
Dec 24	3	3	3	3	3	3	S	3	3	3	2	2	2	3	4	3	3	3	2	2	2	2	2	2	2	4	2.7
Dec 25	2	2	2	2	2	S	2	1	1	1	2	2	2	2	2	2	2	2	3	4	4	4	4	4	1	4	2.3
Dec 26	3	3	4	5	S	4	3	3	3	2	3	3	2	3	3	3	2	2	3	3	3	3	3	3	2	5	3.0
Dec 27	2	2	2	S	2	2	2	4	9	7	4	3	3	2	2	2	1	1	1	1	1	1	1	1	1	9	2.4
Dec 28	1	1	S	1	1	1	1	1	1	1	1	2	2	2	2	1	3	3	3	2	1	1	1	1	1	3	1.5
Dec 29	1	S	1	1	1	2	3	3	2	2	3	3	2	3	5	5	4	5	5	6	6	8	9	9	1	9	3.9
Dec 30	S	6	7	6	5	5	6	6	6	6	5	6	5	5	5	6	7	7	5	5	5	4	5	S	4	7	5.6
Dec 31	5	5	5	5	5	4	4	7	5	5	4	4	4	4	5	6	5	5	5	6	6	7	S	11	4	11	5.3
Diurnal Maximum	17	14	16	15	13	14	14	9	15	12	10	10	12	13	14	14	18	19	20	19	19	19	17	12			
Diurnal Average	3.8	3.9	4.3	4.0	3.3	3.7	3.5	3.6	4.1	3.4	3.2	3.1	3.3	3.6	3.8	4.3	4.7	4.3	4.4	4.1	3.8	3.9	3.7				

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

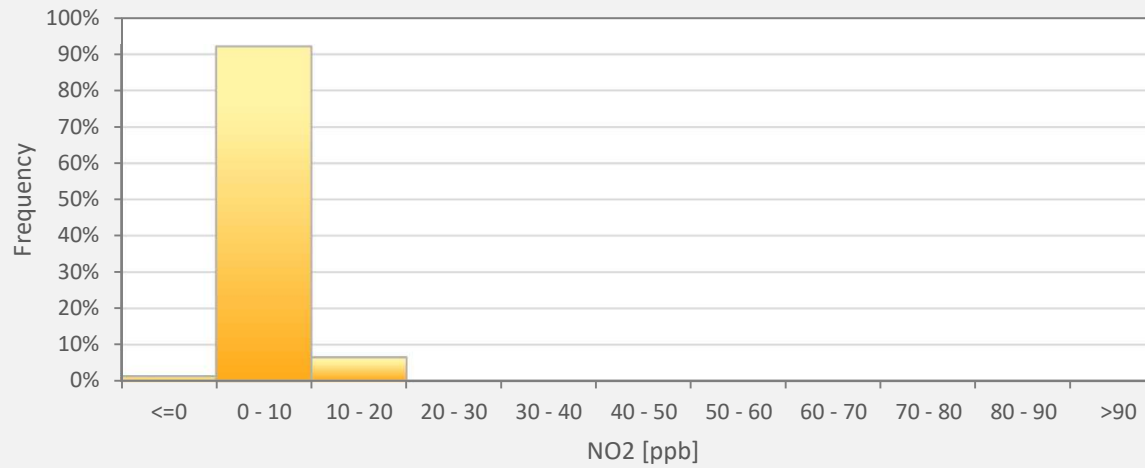
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

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



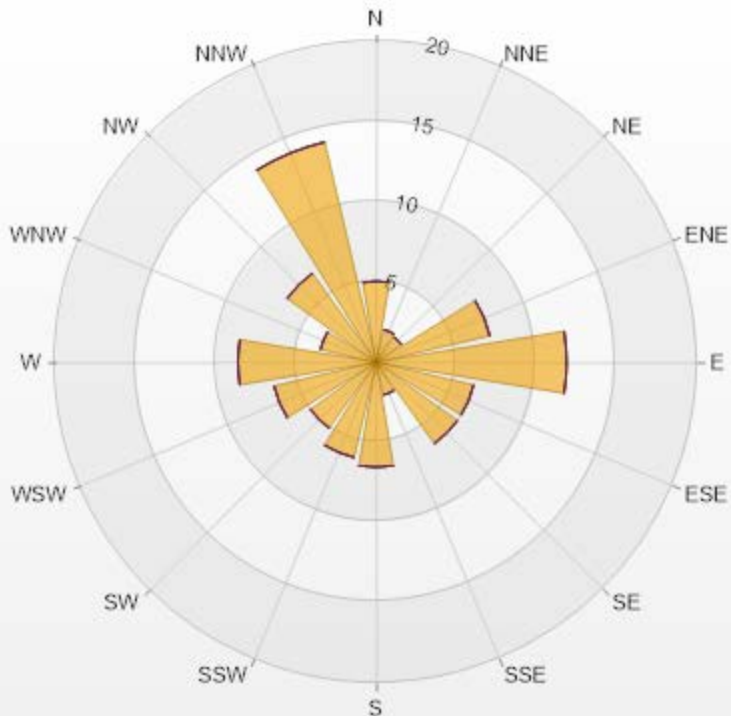
NO2[ppb] Histogram: St. Lina Monthly: 12-2022 1 Hr.



Classes	NO2
<=0	1.28%
0 - 10	92.19%
10 - 20	6.53%
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-NO2[ppb] Monthly: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 90.59% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	5.04	0	0	0	0	5.04
NNE	2.08	0	0	0	0	2.08
NE	1.93	0	0	0	0	1.93
ENE	7.27	0	0	0	0	7.27
E	11.87	0	0	0	0	11.87
ESE	6.23	0	0	0	0	6.23
SE	6.23	0	0	0	0	6.23
SSE	2.08	0	0	0	0	2.08
S	6.53	0	0	0	0	6.53
SSW	6.08	0	0	0	0	6.08
SW	5.04	0	0	0	0	5.04
WSW	6.53	0	0	0	0	6.53
W	8.61	0	0	0	0	8.61
WNW	3.56	0	0	0	0	3.56
NW	6.82	0	0	0	0	6.82
NNW	14.09	0	0	0	0	14.09
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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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - December 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:	40.9 ppb on December 4 at hour 10	Hours in Service:	744
Maximum Daily Value:	38.6 ppb on December 4	Hours of Data:	706
Minimum Hourly Value:	10.1 ppb on December 16 at hour 8	Hours of Missing Data:	0
Minimum Daily Value:	18.6 ppb on December 29	Hours of Calibration:	38
Monthly Average:	27.2 ppb	Operational Uptime:	100.0

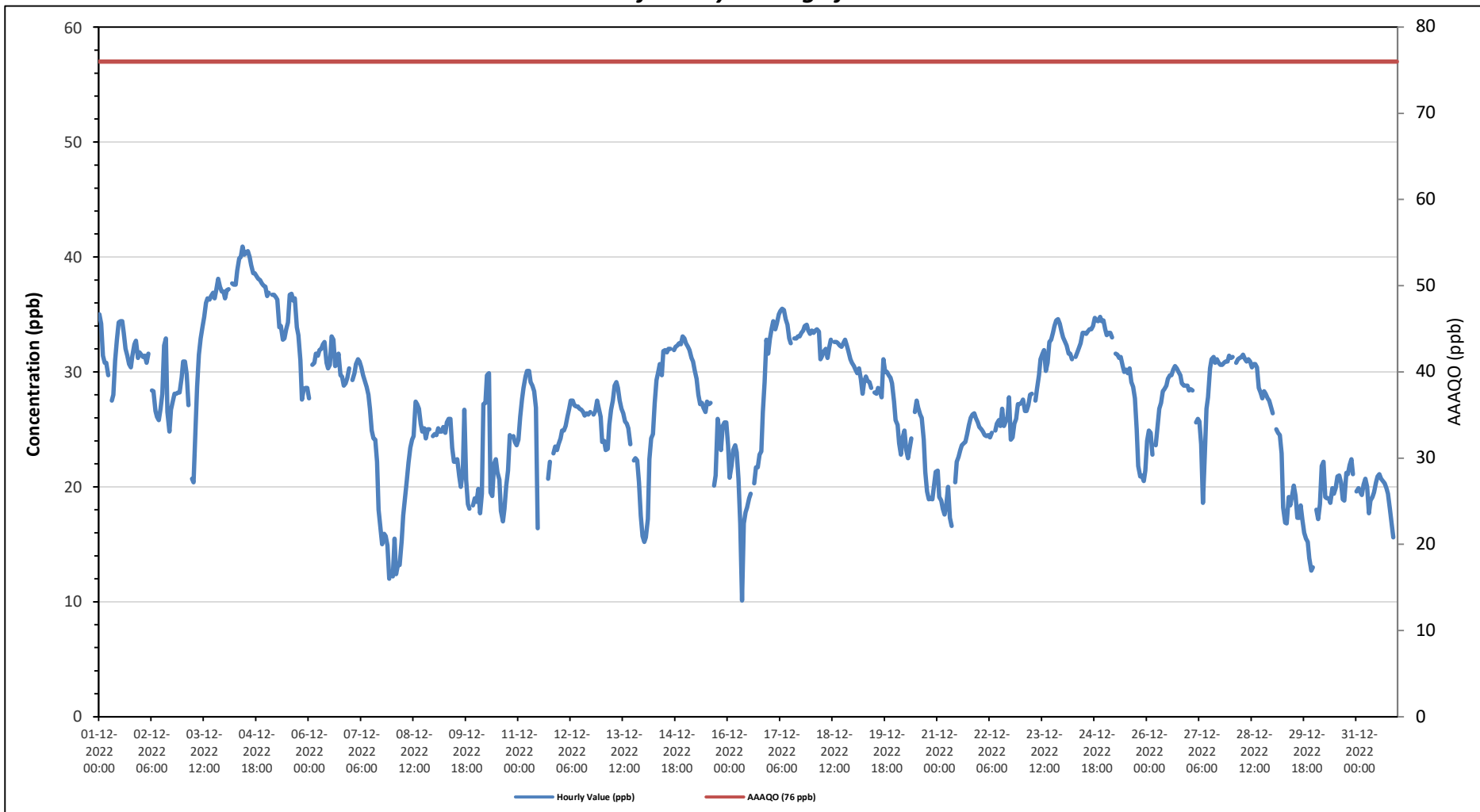
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Dec 1	35	34.2	31.4	30.8	30.8	29.7	S	27.5	28	31	32.8	34.3	34.4	34.4	33.4	32	31.4	30.7	30.4	31.4	32.4	32.7	31.2	31.7	27.5	35.0	31.8
Dec 2	31.5	31.3	31.4	30.8	31.6	S	20.4	28.3	26.6	26.1	25.8	26.8	28.1	32.3	32.9	26.5	24.8	26.7	27.4	28.1	28.1	28.2	28.2	29.5	24.8	32.9	28.7
Dec 3	30.9	30.9	29.8	27.1	S	20.7	28.4	25.2	28.7	31.5	32.9	33.9	34.8	36	36.4	36.3	36.6	36.9	36.4	37.2	38.1	37.4	37	37	20.4	38.1	32.7
Dec 4	36.4	37.1	37.2	S	37.7	37.6	37.6	38.8	39.9	40	40.9	40.2	40.4	40.5	40	39.3	38.6	38.6	38.3	38.1	38	37.7	37.5	37.4	36.4	40.9	38.6
Dec 5	36.6	36.9	S	36.7	36.7	36.5	36.3	33.9	34	32.8	32.9	33.7	34.3	36.7	36.8	36.2	36.4	33.9	33.2	31	27.6	28.5	28.6	28.6	27.6	36.9	33.9
Dec 6	27.7	S	30.6	30.8	31.6	31.4	31.9	32	32.4	32.6	30.8	30.3	30.6	33.1	32.8	30.5	30.7	31.6	29.7	29.6	28.8	29	29.5	30.3	27.7	33.1	30.8
Dec 7	S	29.3	29.9	30.7	31.1	30.9	30.4	29.7	29.2	28.7	28	26.8	24.9	24.2	24.1	22.2	18	16.3	15	15.9	15.7	14.9	12	S	12.0	31.1	24.0
Dec 8	12.2	15.5	12.4	13.3	13.2	15.3	17.5	19	20.5	22.1	23.4	24.1	24.4	27.4	27.2	26.8	25.5	24.8	25.1	24.2	25	25	S	24.4	12.2	27.4	21.2
Dec 9	24.6	24.5	25.1	24.8	24.8	25.2	24.7	25.6	25.9	25.9	23.4	22.2	22.2	22.4	20.9	20	21.4	26.7	20.6	18.5	18.1	S	18.4	19	18.1	26.7	22.8
Dec 10	18.7	19.8	17.7	19.4	27.2	27.3	29.7	29.9	19.5	19.2	22	22.4	21.3	20.6	17.9	17	18.1	20.1	21.4	24.5	S	24.4	23.9	23.6	17.0	29.9	22.0
Dec 11	24.1	26.1	27.6	28.6	29.6	30.1	30.1	29.1	28.8	28.3	26.9	16.4	C	C	C	C	C	20.7	22.2	S	22.9	23.5	23.2	23.7	16.4	30.1	25.7
Dec 12	24.2	24.9	24.9	25.3	26.1	26.8	27.5	27.5	27.1	27	27	26.8	26.7	26.5	26.2	26.4	26.3	26.5	S	26.3	26.6	27.5	26.8	26.1	24.2	27.5	26.4
Dec 13	23.9	24	23.2	23.3	25.4	26.7	27.5	28.8	29.1	28.6	27.5	26.8	26.4	25.7	25.5	25.1	23.7	S	22.3	22.5	22.3	20.4	17.5	15.7	15.7	29.1	24.4
Dec 14	15.2	15.6	17.2	22.4	24.2	24.6	27.3	29.3	30	30.7	29.7	31.8	31.9	31.7	32	32	S	31.9	32.2	32.3	32.5	32.4	33.1	32.9	15.2	33.1	28.4
Dec 15	32.5	32.2	31.9	31.2	30.9	30.1	29.4	28	27.2	27.3	26.9	26.5	27.4	27.2	27.3	S	20.1	21	25.9	25	23.2	25.3	25.6	25.6	20.1	32.5	27.3
Dec 16	23.6	20.8	21.9	23.2	23.6	23	20.7	16.8	10.1	16.8	17.8	18.2	19	19.4	S	20.3	21.7	21.7	22.8	23.1	26.5	29.1	32.8	31.6	10.1	32.8	21.9
Dec 17	32.9	33.8	34.4	33.7	34.2	35	35.3	35.5	35.4	34.6	34.1	32.9	32.5	S	32.9	32.9	33.1	33.1	33.4	33.6	34	34.1	33.6	33.3	32.5	35.5	33.8
Dec 18	33.6	33.4	33.6	33.7	33.5	31.1	31.4	31.8	32	31.2	32.2	32.8	S	32.6	32.6	32.5	32.3	32.2	32.5	32.8	32.3	31.8	31.1	30.8	30.8	33.7	32.3
Dec 19	30.5	30.2	29.9	30.3	29.4	28.1	29.1	29.6	29.2	29.1	28.6	S	28.2	28.1	28.6	28.3	27.8	31.1	30	30	29.7	29.5	29	27.4	27.4	31.1	29.2
Dec 20	25.8	25.4	23.8	22.8	24.3	24.9	23.2	22.5	23.3	24.2	S	26.5	27.5	26.9	26.3	26	24.1	21.3	19.6	18.9	19	18.9	20.2	21.3	18.9	27.5	23.3
Dec 21	21.4	19.1	18.8	18.1	17.6	18.5	20	17.3	16.6	S	20.4	22.2	22.6	23.2	23.6	23.8	23.9	24.6	25.4	26	26.3	26.4	26	25.6	16.6	26.4	22.1
Dec 22	25.2	25	24.8	24.5	24.4	24.5	24.3	24.7	S	24.9	25.5	25.8	25.3	26.8	25.3	25.7	26	27.8	24.1	24.3	25.5	25.9	27.2	27.2	24.1	27.8	25.4
Dec 23	27.3	27.6	26.6	26.6	27.1	28	28.1	S	27.5	28.5	29.7	31.1	31.6	31.9	30.1	30.8	32.6	32.8	33.4	34	34.5	34.6	34.2	33.5	26.6	34.6	30.5
Dec 24	33	32.6	32.3	31.6	31.6	31.1	S	31.3	31.7	32.1	32.5	33.4	33.3	33.5	33.7	33.7	34	34.7	34.5	34.4	34.8	34.4	34.5	31.1	34.8	33.1	
Dec 25	33.7	33.2	33.4	33.4	33	S	31.6	31.5	31.2	31.3	30.5	30	30.2	29.9	30.3	29.1	28.7	27.7	25	21.8	20.9	21	20.5	21.4	20.5	33.7	28.7
Dec 26	24	24.9	24.7	22.8	S	23.6	25.2	26.8	27.3	28.3	28.5	28.8	29.4	29.7	29.7	30.2	30.5	30.3	30	29.7	29	28.8	28.8	28.8	22.8	30.5	27.8
Dec 27	28.4	28.5	28.4	S	25.6	25.9	25.7	23.7	18.6	22.6	26.8	27.8	30.3	31.1	31.3	30.8	31.1	30.8	30.6	30.6	30.8	30.9	30.9	31.4	18.6	31.4	28.4
Dec 28	31.2	31.3	S	30.8	31.1	31.2	31.3	31.5	31.1	30.9	31.1	30.9	30.4	30.7	30.7	30.4	28.6	28.2	27.7	28.3	28.1	27.7	27.5	26.9	26.9	31.5	29.9
Dec 29	26.4	S	25	24.7	24.5	22.9	18.2	16.9	16.8	19.1	18.4	19.2	20.1	19.2	17.3	17.3	18.4	17.1	16	15.5	15.2	13.8	12.7	13	12.7	26.4	18.6
Dec 30	S	18	17.2	18.5	21.8	22.2	19.1	19	19	18.6	19.9	19.4	19.9	20.9	21	20.4	18.9	18.8	21.2	21.1	21.9	22.4	21.1	S	17.2	22.4	20.0
Dec 31	19.6	19.9	19.6	19.3	20.2	20.7	20	17.7	18.8	19.1	19.5	20.4	20.9	21.1	20.7	20.5	20.3	19.9	19.4	18	16.9	15.6	S	10.2	10.2	21.1	19.1
Diurnal Maximum	37	37	37	37	38	38	38	39	40	40	41	40	40	41	40	39	39	39	38	38	38	38	38	37			
Diurnal Average	27.2	27.1	26.4	26.5	27.7	27.0	27.0	27.0	26.5	27.4	27.5	27.4	27.9	28.4	28.5	27.7	27.0	27.3	26.9	26.9	26.8	27.1	27.0	27.0			

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

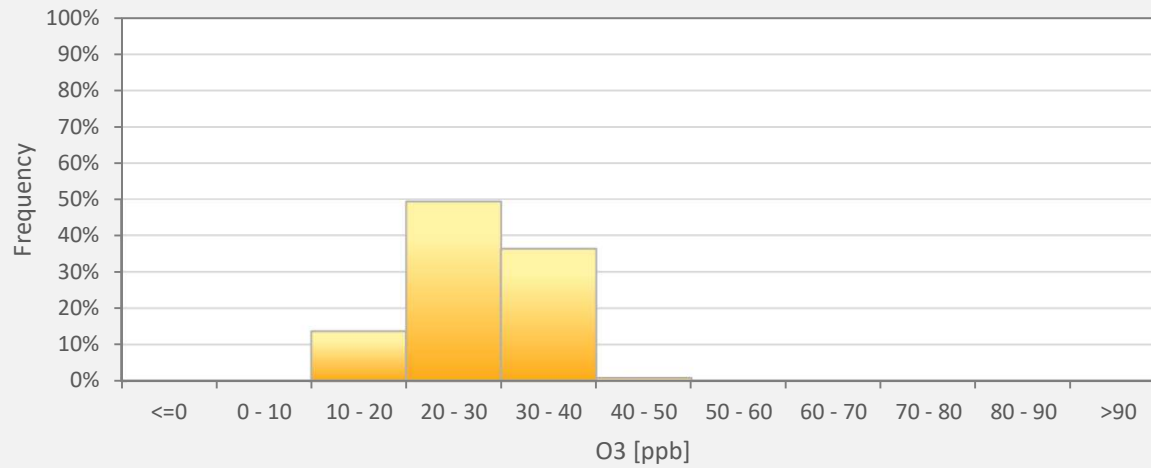
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

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



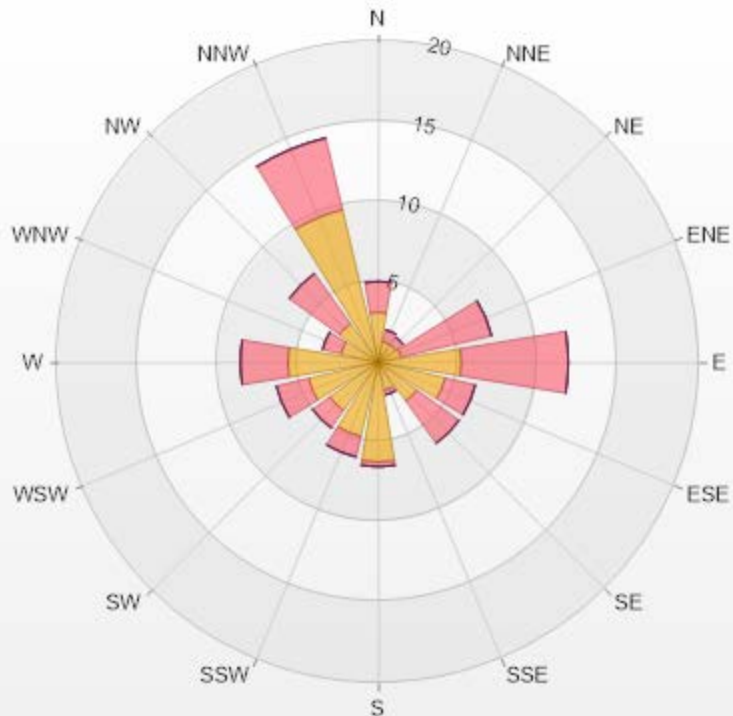
O3[ppb] Histogram: St. Lina Monthly: 12-2022 1 Hr.



Classes	O3
<=0	0.00%
0 - 10	0.00%
10 - 20	13.60%
20 - 30	49.29%
30 - 40	36.26%
40 - 50	0.85%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 90.86% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	3.11	1.92	0	0	0	5.03
NNE	1.33	0.74	0	0	0	2.07
NE	1.33	0.59	0	0	0	1.92
ENE	1.48	5.77	0	0	0	7.25
E	5.18	6.66	0	0	0	11.84
ESE	4.29	1.92	0	0	0	6.21
SE	2.96	3.25	0	0	0	6.21
SSE	1.78	0.3	0	0	0	2.08
S	6.21	0.3	0	0	0	6.51
SSW	4.73	1.33	0	0	0	6.06
SW	3.7	1.33	0	0	0	5.03
WSW	4.44	2.07	0	0	0	6.51
W	5.62	2.96	0	0	0	8.58
WNW	2.37	1.18	0	0	0	3.55
NW	2.96	3.85	0	0	0	6.81
NNW	9.76	4.59	0	0	0	14.35
Summary	61.25	38.76	0	0	0	100



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% Icon Classes (ppb)

61

0-30

39

30-50

0

50-76

0

76-159

0

>159.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - December 2022

Summary of Hourly Averages

TOTAL HYDROCARBONS (THC) in ppm

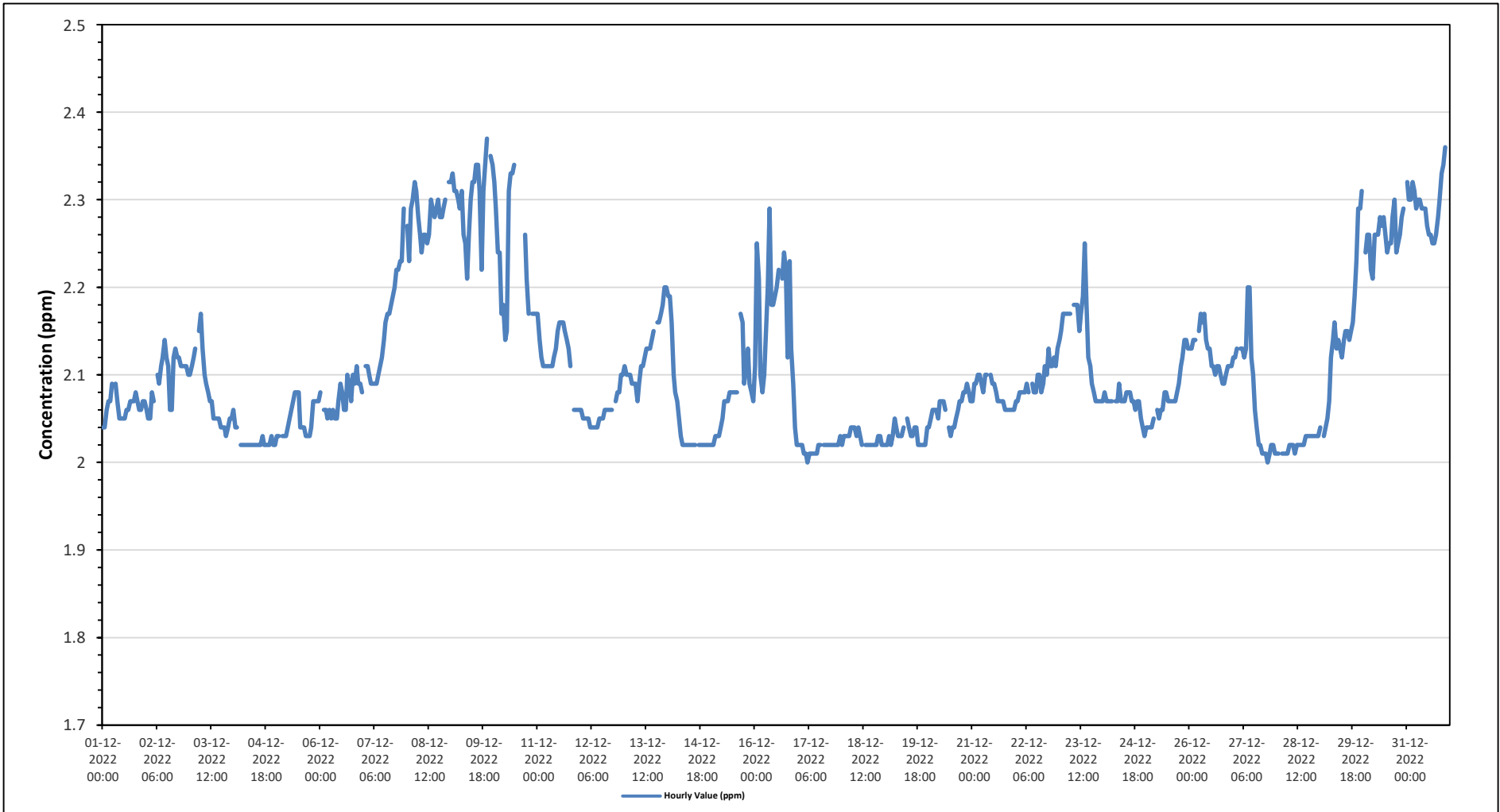
Maximum Hourly Value:	2.40 ppm on December 31 at hour 23	Hours in Service:	744
Maximum Daily Value:	2.30 ppm on December 9	Hours of Data:	706
Minimum Hourly Value:	2.00 ppm on December 17 at hour 5	Hours of Missing Data:	0
Minimum Daily Value:	2.02 ppm on December 17	Hours of Calibration:	38
Monthly Average:	2.11 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	
Dec 1	2.04	2.04	2.06	2.07	2.07	2.09	S	2.09	2.07	2.05	2.05	2.05	2.05	2.06	2.06	2.07	2.07	2.07	2.08	2.07	2.06	2.06	2.07	2.07	2.04	2.09	2.06	
Dec 2	2.06	2.05	2.05	2.08	2.07	S	2.10	2.09	2.11	2.12	2.14	2.12	2.11	2.06	2.06	2.12	2.13	2.12	2.12	2.11	2.11	2.11	2.11	2.11	2.10	2.05	2.14	2.10
Dec 3	2.10	2.11	2.12	2.13	S	2.15	2.17	2.13	2.10	2.09	2.08	2.07	2.07	2.05	2.05	2.05	2.04	2.04	2.04	2.03	2.04	2.05	2.05	2.05	2.03	2.17	2.08	
Dec 4	2.06	2.04	2.04	S	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.02	2.02	2.02	2.02	2.03	2.02	2.02	2.02	2.06	2.02	
Dec 5	2.03	2.03	S	2.03	2.03	2.03	2.04	2.05	2.06	2.07	2.08	2.08	2.08	2.04	2.04	2.03	2.03	2.03	2.04	2.07	2.07	2.07	2.07	2.07	2.03	2.08	2.05	
Dec 6	2.08	S	2.06	2.06	2.05	2.06	2.05	2.06	2.05	2.05	2.07	2.09	2.08	2.06	2.06	2.10	2.09	2.07	2.10	2.09	2.11	2.09	2.09	2.08	2.05	2.11	2.07	
Dec 7	S	2.11	2.11	2.10	2.09	2.09	2.09	2.09	2.10	2.11	2.12	2.14	2.16	2.17	2.17	2.18	2.19	2.20	2.22	2.22	2.23	2.23	2.29	S	2.09	2.29	2.16	
Dec 8	2.27	2.23	2.29	2.30	2.32	2.31	2.28	2.26	2.24	2.26	2.26	2.25	2.26	2.30	2.29	2.28	2.29	2.30	2.28	2.28	2.29	2.30	S	2.32	2.23	2.32	2.28	
Dec 9	2.32	2.33	2.31	2.31	2.30	2.29	2.31	2.26	2.25	2.21	2.26	2.30	2.32	2.32	2.34	2.34	2.31	2.22	2.21	2.34	2.37	S	2.35	2.34	2.21	2.37	2.30	
Dec 10	2.32	2.29	2.24	2.24	2.17	2.18	2.14	2.15	2.31	2.33	2.33	2.34	C	C	C	C	C	2.26	2.21	2.17	S	2.17	2.17	2.17	2.14	2.34	2.23	
Dec 11	2.17	2.14	2.12	2.11	2.11	2.11	2.11	2.11	2.11	2.12	2.13	2.15	2.16	2.16	2.16	2.15	2.14	2.13	2.11	S	2.06	2.06	2.06	2.06	2.06	2.17	2.12	
Dec 12	2.06	2.05	2.05	2.05	2.05	2.04	2.04	2.04	2.04	2.04	2.05	2.05	2.05	2.06	2.06	2.06	2.06	S	2.07	2.08	2.08	2.10	2.10	2.04	2.10	2.06		
Dec 13	2.11	2.10	2.10	2.10	2.09	2.09	2.09	2.09	2.07	2.09	2.11	2.11	2.12	2.13	2.13	2.13	2.14	2.15	S	2.16	2.16	2.17	2.18	2.20	2.20	2.07	2.13	
Dec 14	2.19	2.19	2.16	2.10	2.08	2.07	2.05	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02	S	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.19	2.05	
Dec 15	2.02	2.02	2.03	2.03	2.03	2.04	2.05	2.07	2.07	2.07	2.08	2.08	2.08	2.08	2.08	S	2.17	2.16	2.09	2.11	2.13	2.09	2.08	2.07	2.02	2.17	2.08	
Dec 16	2.11	2.25	2.21	2.10	2.08	2.10	2.15	2.20	2.29	2.18	2.18	2.19	2.20	2.22	S	2.21	2.24	2.22	2.12	2.23	2.13	2.09	2.04	2.02	2.02	2.29	2.16	
Dec 17	2.02	2.02	2.02	2.01	2.01	2.00	2.01	2.01	2.01	2.01	2.02	2.02	2.02	S	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.00	2.03	
Dec 18	2.02	2.03	2.03	2.03	2.03	2.04	2.04	2.04	2.03	2.04	2.03	2.02	S	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.02	2.02	2.02	2.03	
Dec 19	2.02	2.02	2.03	2.02	2.03	2.05	2.04	2.03	2.03	2.03	2.04	S	2.05	2.04	2.03	2.03	2.04	2.04	2.02	2.02	2.02	2.02	2.02	2.04	2.02	2.05	2.03	
Dec 20	2.04	2.05	2.06	2.06	2.06	2.05	2.07	2.07	2.07	2.06	S	2.04	2.03	2.04	2.05	2.06	2.07	2.07	2.07	2.07	2.08	2.08	2.09	2.08	2.07	2.03	2.09	2.06
Dec 21	2.07	2.09	2.09	2.10	2.10	2.09	2.08	2.10	2.10	S	2.10	2.09	2.09	2.08	2.07	2.07	2.07	2.07	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.10	2.08
Dec 22	2.07	2.07	2.08	2.08	2.08	2.08	2.09	2.08	S	2.09	2.08	2.08	2.10	2.10	2.08	2.09	2.11	2.10	2.13	2.11	2.11	2.12	2.11	2.13	2.07	2.13	2.09	
Dec 23	2.14	2.15	2.17	2.17	2.17	2.17	2.17	2.17	S	2.18	2.18	2.18	2.15	2.17	2.19	2.25	2.18	2.12	2.11	2.09	2.08	2.07	2.07	2.07	2.07	2.25	2.14	
Dec 24	2.07	2.08	2.07	2.07	2.07	2.07	S	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.08	2.08	2.07	2.07	2.06	2.07	2.05	2.04	2.03	2.03	2.03	2.09	2.07	
Dec 25	2.04	2.04	2.04	2.04	2.05	S	2.06	2.05	2.06	2.06	2.08	2.08	2.07	2.07	2.07	2.07	2.07	2.08	2.09	2.11	2.12	2.14	2.14	2.13	2.04	2.14	2.08	
Dec 26	2.13	2.13	2.14	2.14	S	2.15	2.17	2.16	2.17	2.14	2.13	2.13	2.11	2.11	2.10	2.11	2.11	2.10	2.09	2.09	2.10	2.11	2.11	2.11	2.09	2.17	2.12	
Dec 27	2.12	2.12	2.13	S	2.13	2.13	2.12	2.13	2.20	2.20	2.12	2.10	2.06	2.04	2.02	2.02	2.01	2.01	2.00	2.01	2.02	2.02	2.01	2.00	2.00	2.20	2.08	
Dec 28	2.01	2.01	S	2.01	2.01	2.01	2.01	2.02	2.02	2.02	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	
Dec 29	2.04	S	2.03	2.04	2.05	2.07	2.12	2.14	2.16	2.13	2.14	2.13	2.12	2.14	2.15	2.15	2.14	2.15	2.16	2.19	2.23	2.29	2.29	2.31	2.03	2.31	2.15	
Dec 30	S	2.24	2.26	2.26	2.22	2.21	2.26	2.26	2.26	2.28	2.27	2.28	2.26	2.24	2.25	2.25	2.28	2.30	2.24	2.25	2.26	2.28	2.29	S	2.21	2.30	2.26	
Dec 31	2.32	2.30	2.30	2.32	2.31	2.29	2.30	2.30	2.29	2.29	2.29	2.26	2.26	2.26	2.25	2.25	2.26	2.28	2.30	2.34	2.33	2.34	2.36	S	2.40	2.25	2.40	2.30
Diurnal Maximum	2.32	2.33	2.31	2.32	2.32	2.31	2.31	2.30	2.31	2.33	2.33	2.34	2.32	2.32	2.34	2.34	2.31	2.30	2.31	2.34	2.37	2.36	2.35	2.40				
Diurnal Average	2.11	2.11	2.12	2.11	2.10	2.11	2.11	2.11	2.12	2.12	2.12	2.12	2.11	2.11	2.10	2.11	2.12	2.11	2.11	2.11	2.11	2.11	2.10	2.11				

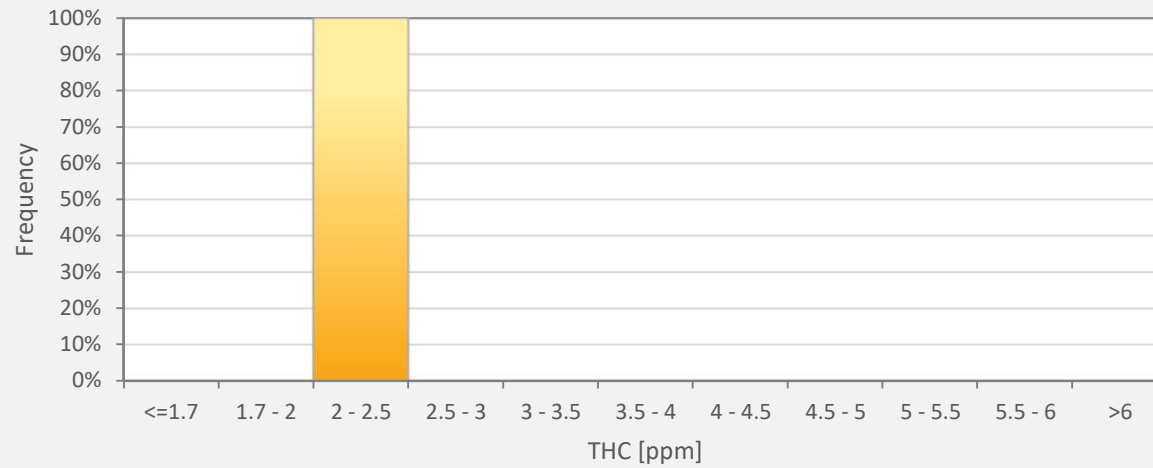
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction/Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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 Site



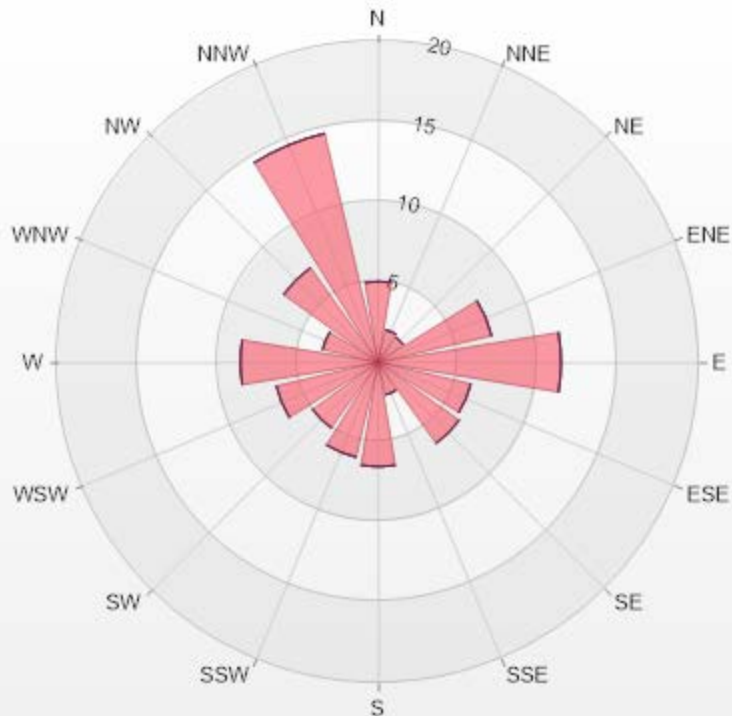
THC55[ppm] Histogram: St. Lina Monthly: 12-2022 1 Hr.



Classes	THC55
<=1.7	0.00%
1.7 - 2	0.00%
2 - 2.5	100.00%
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: St. Lina Poll.: St. Lina-THC55[ppm] Monthly: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 90.86% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	0	5.03	0	0	0	5.03
NNE	0	2.07	0	0	0	2.07
NE	0	1.92	0	0	0	1.92
ENE	0	7.25	0	0	0	7.25
E	0	11.39	0	0	0	11.39
ESE	0	5.92	0	0	0	5.92
SE	0	6.21	0	0	0	6.21
SSE	0	2.07	0	0	0	2.07
S	0	6.51	0	0	0	6.51
SSW	0	6.07	0	0	0	6.07
SW	0	5.03	0	0	0	5.03
WSW	0	6.51	0	0	0	6.51
W	0	8.58	0	0	0	8.58
WNW	0	3.55	0	0	0	3.55
NW	0	7.25	0	0	0	7.25
NNW	0	14.64	0	0	0	14.64
Summary	0	100	0	0	0	100



LICA-202212

% Icon Classes (ppm)

0

0-2

100

2-5

0

5-10

0

10-40

0

>40.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - December 2022

Summary of Hourly Averages

METHANE (CH4) in ppm

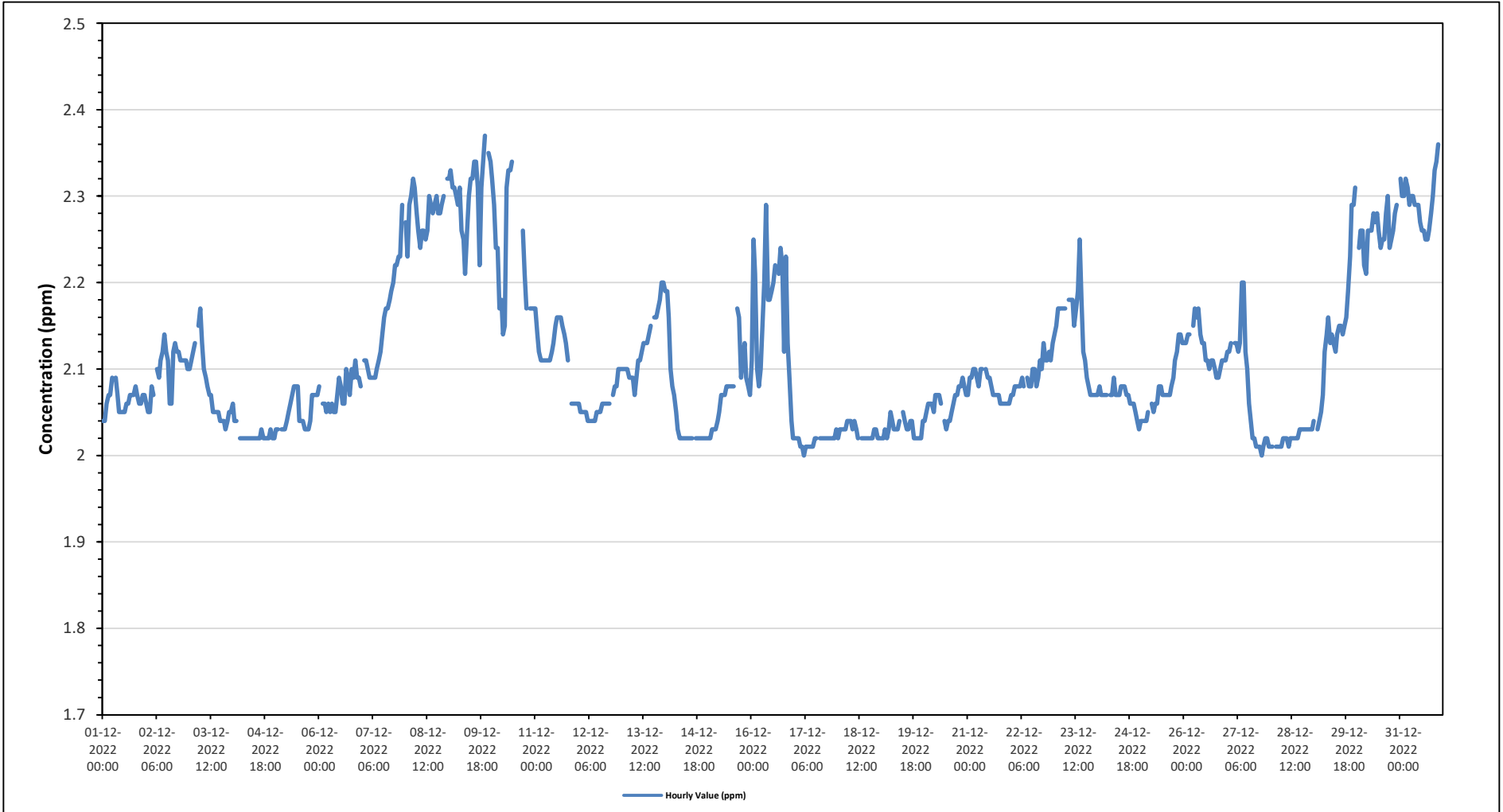
Maximum Hourly Value:	2.40 ppm on December 31 at hour 23	Hours in Service:	744
Maximum Daily Value:	2.30 ppm on December 9	Hours of Data:	706
Minimum Hourly Value:	2.00 ppm on December 17 at hour 5	Hours of Missing Data:	0
Minimum Daily Value:	2.02 ppm on December 17	Hours of Calibration:	38
Monthly Average:	2.11 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
Dec 1	2.04	2.04	2.06	2.07	2.07	2.09	S	2.09	2.07	2.05	2.05	2.05	2.05	2.06	2.06	2.07	2.07	2.08	2.07	2.06	2.06	2.07	2.07	2.04	2.09	2.06	
Dec 2	2.06	2.05	2.05	2.08	2.07	S	2.10	2.09	2.11	2.12	2.14	2.12	2.11	2.06	2.06	2.12	2.13	2.12	2.12	2.11	2.11	2.11	2.11	2.10	2.10	2.10	
Dec 3	2.10	2.11	2.12	2.13	S	2.15	2.17	2.13	2.10	2.09	2.08	2.07	2.07	2.05	2.05	2.03	2.04	2.04	2.04	2.03	2.04	2.05	2.05	2.05	2.05	2.05	
Dec 4	2.06	2.04	2.04	S	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.02	2.02	2.02	2.02	2.02	2.03	2.02	2.02	2.02	2.02	
Dec 5	2.03	2.03	S	2.03	2.03	2.03	2.04	2.05	2.06	2.07	2.08	2.08	2.08	2.04	2.04	2.03	2.03	2.03	2.04	2.07	2.07	2.07	2.07	2.03	2.08	2.05	
Dec 6	2.08	S	2.06	2.06	2.05	2.06	2.05	2.06	2.05	2.05	2.07	2.09	2.08	2.06	2.06	2.10	2.09	2.07	2.10	2.09	2.11	2.09	2.09	2.08	2.05	2.11	2.07
Dec 7	S	2.11	2.11	2.10	2.09	2.09	2.09	2.09	2.10	2.11	2.12	2.14	2.16	2.17	2.17	2.18	2.19	2.20	2.22	2.22	2.23	2.23	2.29	S	2.09	2.29	2.16
Dec 8	2.27	2.23	2.29	2.30	2.32	2.31	2.28	2.26	2.24	2.26	2.26	2.25	2.26	2.30	2.29	2.28	2.29	2.30	2.28	2.28	2.29	2.30	S	2.32	2.23	2.32	2.28
Dec 9	2.32	2.33	2.31	2.31	2.30	2.29	2.31	2.26	2.25	2.21	2.26	2.30	2.32	2.32	2.34	2.34	2.31	2.22	2.31	2.34	S	2.35	2.35	2.34	2.21	2.37	2.30
Dec 10	2.32	2.29	2.24	2.24	2.17	2.18	2.14	2.15	2.31	2.33	2.33	2.34	C	C	C	C	C	2.26	2.21	2.17	S	2.17	2.17	2.17	2.14	2.34	2.23
Dec 11	2.17	2.14	2.12	2.11	2.11	2.11	2.11	2.11	2.11	2.12	2.13	2.15	2.16	2.16	2.16	2.15	2.14	2.13	2.11	S	2.06	2.06	2.06	2.06	2.06	2.17	2.12
Dec 12	2.06	2.05	2.05	2.05	2.05	2.04	2.04	2.04	2.04	2.04	2.05	2.05	2.05	2.06	2.06	2.06	2.06	2.06	S	2.07	2.08	2.08	2.10	2.10	2.04	2.10	2.06
Dec 13	2.10	2.10	2.10	2.10	2.09	2.09	2.09	2.09	2.07	2.09	2.11	2.11	2.12	2.13	2.13	2.14	2.15	S	2.16	2.16	2.17	2.18	2.20	2.20	2.07	2.20	2.13
Dec 14	2.19	2.19	2.16	2.10	2.08	2.07	2.05	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02	S	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.19	2.05
Dec 15	2.02	2.02	2.03	2.03	2.03	2.04	2.05	2.07	2.07	2.07	2.08	2.08	2.08	2.08	2.08	S	2.17	2.16	2.09	2.11	2.13	2.09	2.08	2.07	2.02	2.17	2.08
Dec 16	2.11	2.25	2.21	2.10	2.08	2.10	2.15	2.20	2.29	2.18	2.18	2.19	2.20	2.22	S	2.21	2.24	2.22	2.12	2.23	2.13	2.09	2.04	2.02	2.02	2.29	2.16
Dec 17	2.02	2.02	2.02	2.01	2.01	2.00	2.01	2.01	2.01	2.01	2.01	2.02	2.02	S	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.00	2.03	2.02
Dec 18	2.02	2.03	2.03	2.03	2.03	2.04	2.04	2.04	2.03	2.04	2.03	2.02	S	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.02	2.02	2.04	2.03
Dec 19	2.02	2.02	2.03	2.02	2.03	2.05	2.04	2.03	2.03	2.03	2.04	S	2.05	2.04	2.03	2.03	2.04	2.04	2.02	2.02	2.02	2.02	2.02	2.04	2.02	2.05	2.03
Dec 20	2.04	2.05	2.06	2.06	2.06	2.05	2.07	2.07	2.07	2.06	S	2.04	2.03	2.04	2.05	2.06	2.07	2.07	2.07	2.08	2.08	2.09	2.08	2.07	2.03	2.09	2.06
Dec 21	2.07	2.09	2.09	2.10	2.10	2.09	2.08	2.10	2.10	S	2.10	2.09	2.09	2.08	2.07	2.07	2.07	2.07	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.10	2.08
Dec 22	2.07	2.07	2.08	2.08	2.08	2.08	2.09	2.08	S	2.09	2.08	2.08	2.10	2.10	2.08	2.09	2.11	2.10	2.13	2.11	2.11	2.12	2.11	2.13	2.07	2.13	2.09
Dec 23	2.14	2.15	2.17	2.17	2.17	2.17	2.17	S	2.18	2.18	2.18	2.15	2.17	2.19	2.25	2.18	2.12	2.11	2.09	2.08	2.07	2.07	2.07	2.07	2.07	2.25	2.14
Dec 24	2.07	2.08	2.07	2.07	2.07	S	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.08	2.08	2.08	2.07	2.07	2.06	2.06	2.05	2.04	2.03	2.03	2.03	2.09	2.07
Dec 25	2.04	2.04	2.04	2.04	2.05	S	2.06	2.05	2.06	2.06	2.08	2.08	2.07	2.07	2.07	2.07	2.07	2.08	2.09	2.11	2.12	2.14	2.13	2.04	2.14	2.08	
Dec 26	2.13	2.13	2.14	2.14	S	2.15	2.17	2.16	2.17	2.14	2.13	2.13	2.11	2.11	2.10	2.11	2.11	2.10	2.09	2.09	2.10	2.11	2.11	2.11	2.09	2.17	2.12
Dec 27	2.12	2.12	2.13	S	2.13	2.13	2.12	2.13	2.20	2.20	2.12	2.10	2.06	2.04	2.02	2.02	2.01	2.01	2.00	2.01	2.02	2.02	2.01	2.00	2.00	2.20	2.08
Dec 28	2.01	2.01	S	2.01	2.01	2.01	2.01	2.02	2.02	2.02	2.01	2.02	2.02	2.02	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.01	2.03	2.02
Dec 29	2.04	S	2.03	2.04	2.05	2.07	2.12	2.14	2.16	2.13	2.14	2.13	2.12	2.14	2.15	2.15	2.14	2.15	2.16	2.19	2.23	2.29	2.29	2.31	2.03	2.31	2.15
Dec 30	S	2.24	2.26	2.26	2.22	2.21	2.26	2.26	2.26	2.28	2.27	2.28	2.26	2.24	2.25	2.25	2.28	2.30	2.24	2.25	2.26	2.28	2.29	S	2.21	2.30	2.26
Dec 31	2.32	2.30	2.30	2.32	2.31	2.29	2.30	2.30	2.29	2.29	2.29	2.26	2.26	2.25	2.25	2.26	2.28	2.30	2.24	2.25	2.26	2.28	2.29	S	2.40	2.25	2.30
Diurnal Maximum	2.32	2.33	2.31	2.32	2.32	2.31	2.31	2.30	2.31	2.33	2.33	2.34	2.32	2.32	2.34	2.34	2.31	2.30	2.31	2.34	2.37	2.36	2.35	2.40	2.25	2.40	2.30
Diurnal Average	2.10	2.11	2.12	2.11	2.10	2.11	2.11	2.11	2.12	2.12	2.12	2.12	2.11	2.11	2.10	2.11	2.12	2.11	2.11	2.11	2.11	2.11	2.10	2.11	2.25	2.40	2.30

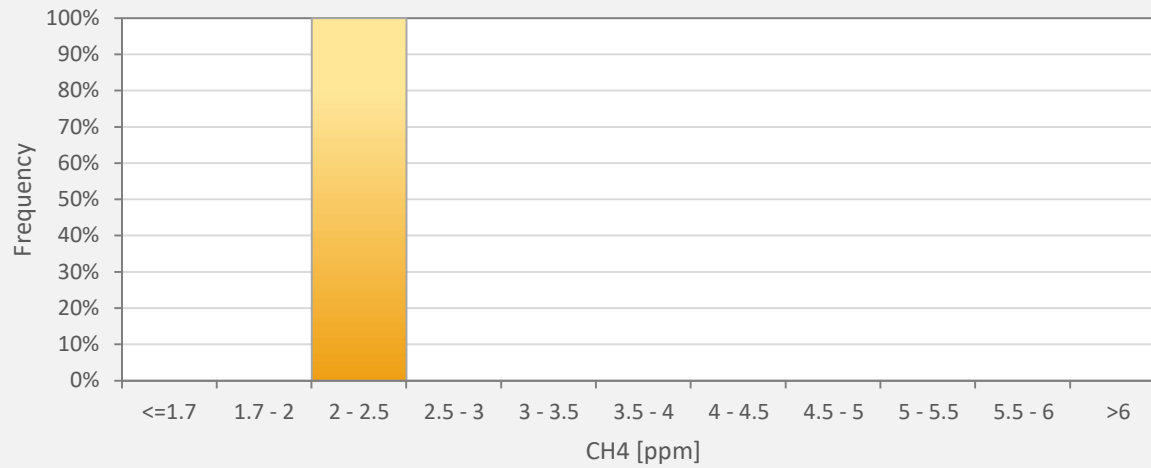
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction/Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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 Site



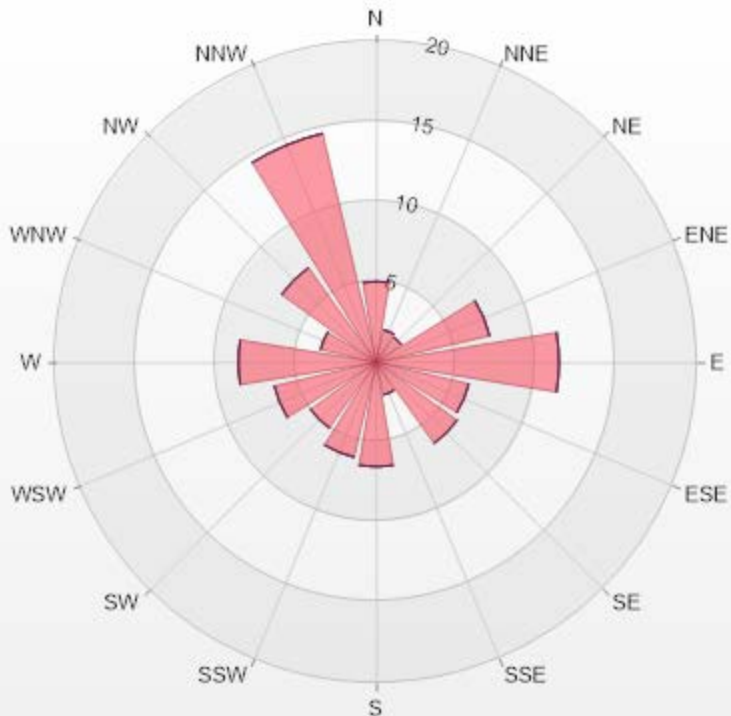
CH4[ppm] Histogram: St. Lina Monthly: 12-2022 1 Hr.



Classes	CH4
<=1.7	0.00%
1.7 - 2	0.00%
2 - 2.5	100.00%
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: St. Lina Poll.: St. Lina-CH4[ppm] Monthly: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 90.86% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	0	5.03	0	0	0	5.03
NNE	0	2.07	0	0	0	2.07
NE	0	1.92	0	0	0	1.92
ENE	0	7.25	0	0	0	7.25
E	0	11.39	0	0	0	11.39
ESE	0	5.92	0	0	0	5.92
SE	0	6.21	0	0	0	6.21
SSE	0	2.07	0	0	0	2.07
S	0	6.51	0	0	0	6.51
SSW	0	6.07	0	0	0	6.07
SW	0	5.03	0	0	0	5.03
WSW	0	6.51	0	0	0	6.51
W	0	8.58	0	0	0	8.58
WNW	0	3.55	0	0	0	3.55
NW	0	7.25	0	0	0	7.25
NNW	0	14.64	0	0	0	14.64
Summary	0	100	0	0	0	100



LICA-202212

% Icon Classes (ppm)

0 0-2

100 2-5

0 5-10

0 10-20

0 >20.0



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St. Lina Site - December 2022

Summary of Hourly Averages

NON-METHANE HYDROCARBONS (NMHC) in ppm

Maximum Hourly Value:	0.01 ppm on December 24 at hour 19	Hours in Service:	744
Maximum Daily Value:	0.00 ppm on December 24	Hours of Data:	706
Minimum Hourly Value:	0.00 ppm on December 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.00 ppm on December 1	Hours of Calibration:	38
Monthly Average:	0.00 ppm	Operational Uptime:	100.0

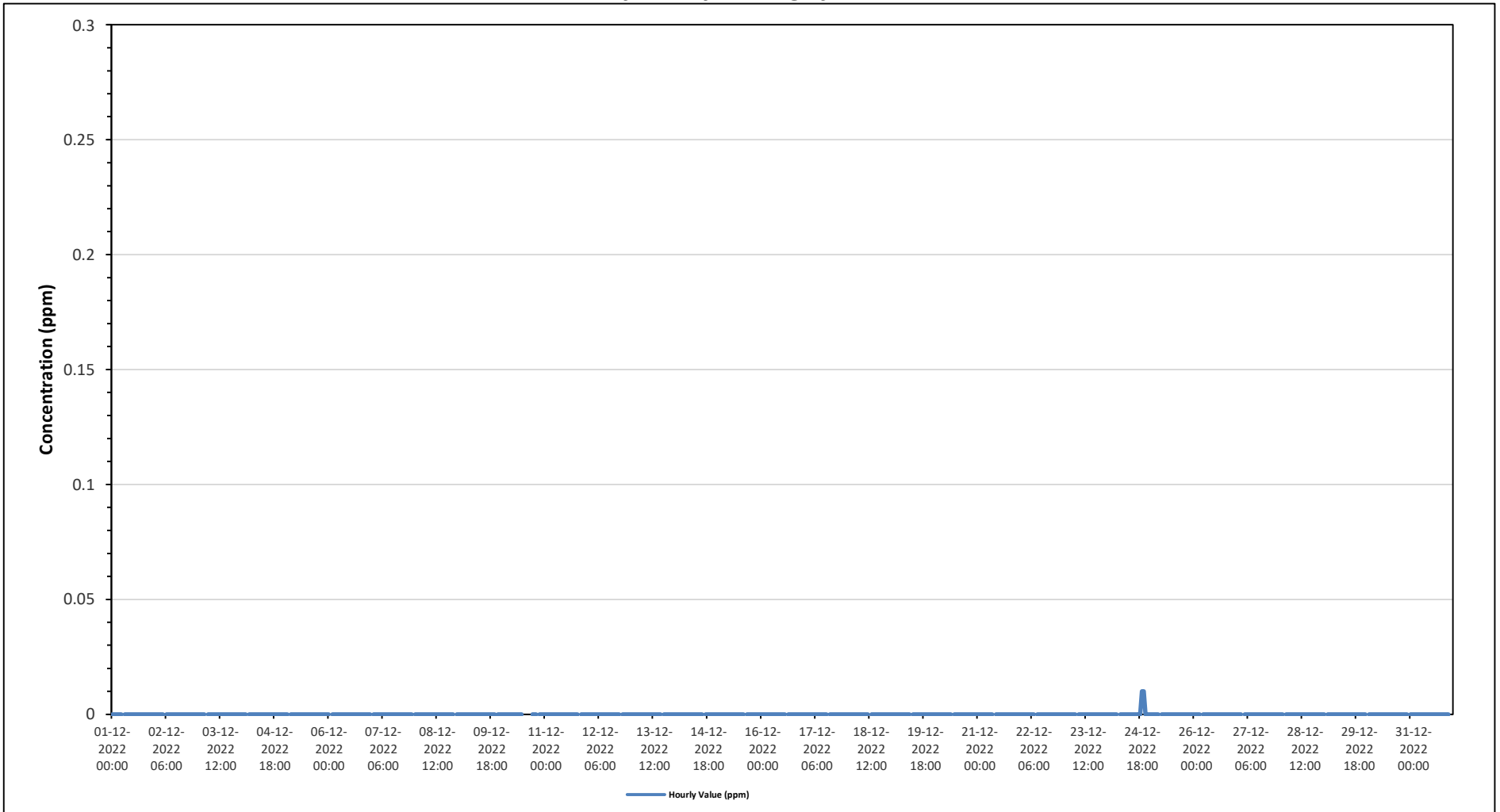
Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average						
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23									
Dec 1	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00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

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

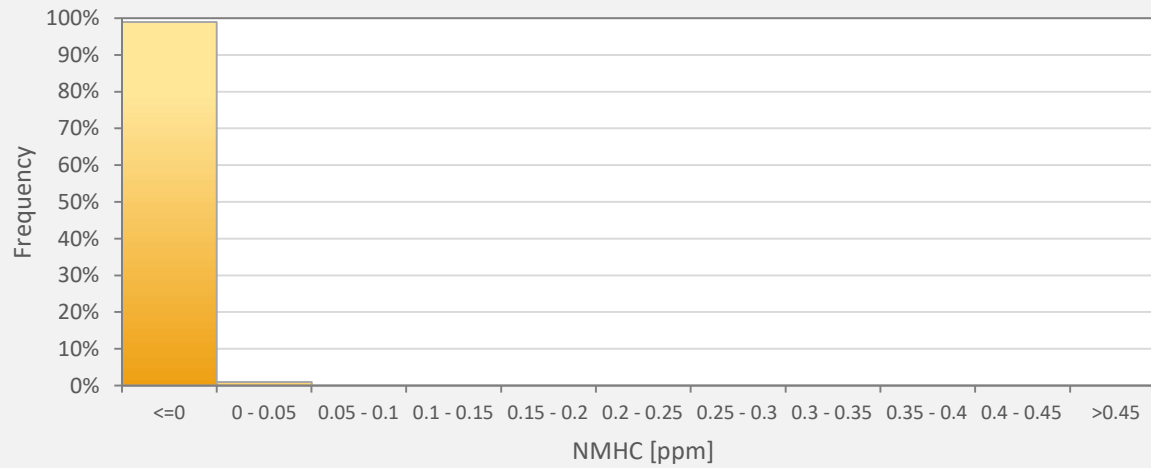
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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 - St. Lina Site



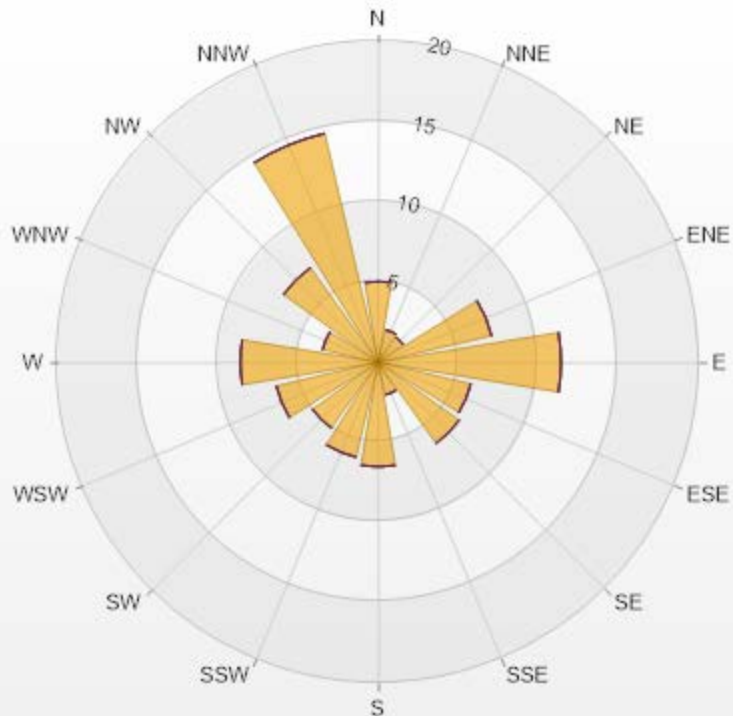
NMHC[ppm] Histogram: St. Lina Monthly: 12-2022 1 Hr.



Classes	NMHC
<=0	99.01%
0 - 0.05	0.99%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 90.86% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	5.03	0	0	0	0	5.03
NNE	2.07	0	0	0	0	2.07
NE	1.92	0	0	0	0	1.92
ENE	7.25	0	0	0	0	7.25
E	11.39	0	0	0	0	11.39
ESE	5.92	0	0	0	0	5.92
SE	6.21	0	0	0	0	6.21
SSE	2.07	0	0	0	0	2.07
S	6.51	0	0	0	0	6.51
SSW	6.07	0	0	0	0	6.07
SW	5.03	0	0	0	0	5.03
WSW	6.51	0	0	0	0	6.51
W	8.58	0	0	0	0	8.58
WNW	3.55	0	0	0	0	3.55
NW	7.25	0	0	0	0	7.25
NNW	14.64	0	0	0	0	14.64
Summary	100	0	0	0	0	100



LICA-202212

% 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 Site - December 2022

Summary of Hourly Averages

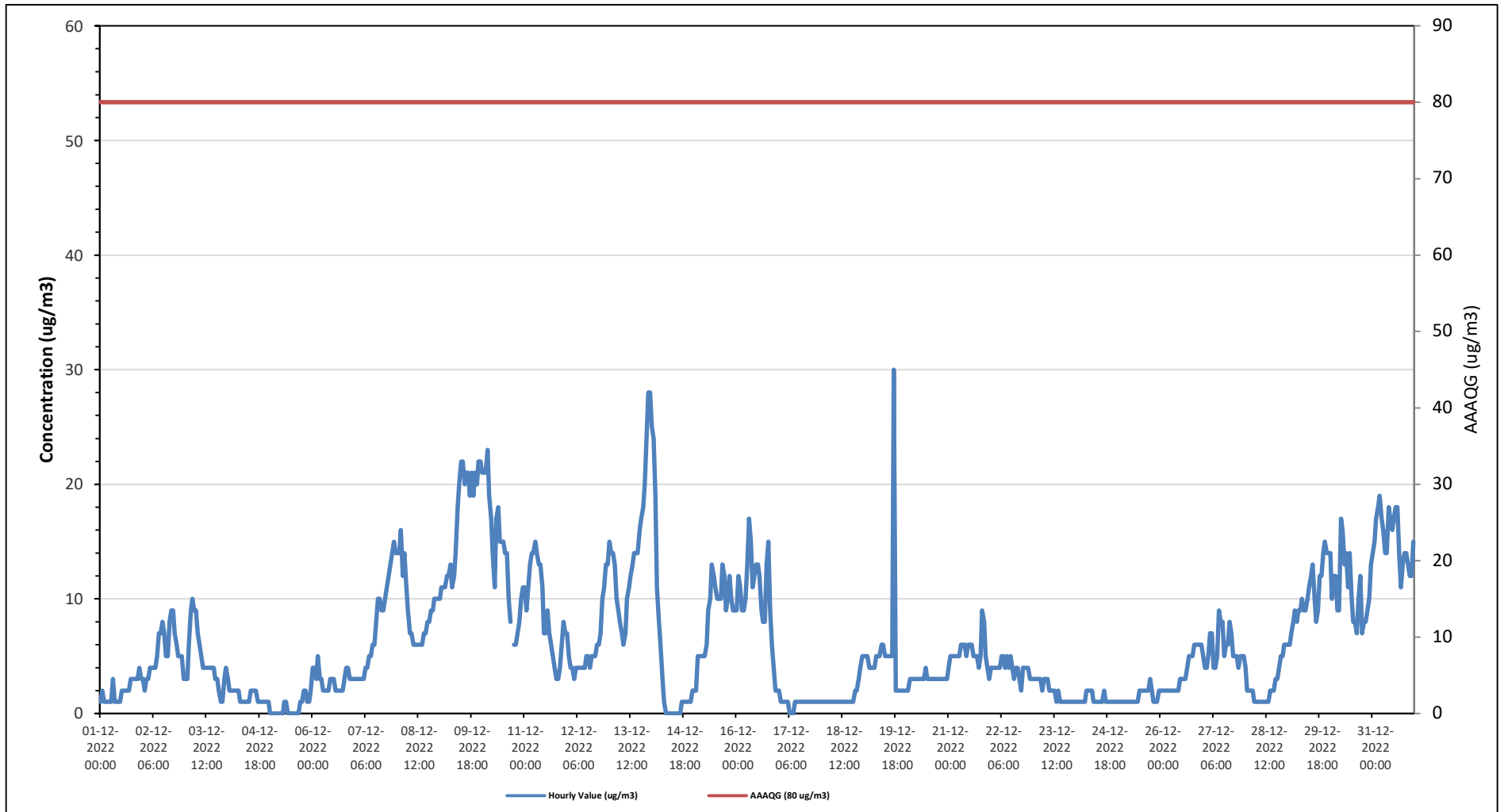
PARTICULATE MATTER 2.5 (PM_{2.5}) in µg/m³

Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m ³ , Alberta Ambient Air Quality Objective (AAAO): 24-Hour 29 µg/m ³																																			
Number of 1-Hour Exceedances: 0											Number of 24-Hour Exceedances: 0																								
Maximum Hourly Value: 30 µg/m ³ on December 19 at hour 17											Hours in Service: 744																								
Maximum Daily Value: 16.9 µg/m ³ on December 9											Hours of Data: 743																								
Minimum Hourly Value: 0 µg/m ³ on December 5 at hour 0											Hours of Missing Data: 0																								
Minimum Daily Value: 1 µg/m ³ on December 5											Hours of Calibration: 1																								
Monthly Average: 6.1 µg/m ³											Operational Uptime: 100.0																								
Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average								
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23											
Dec 1	1	2	1	1	1	1	1	3	1	1	1	1	2	2	2	2	3	3	3	3	3	4	3	1	4	2.0									
Dec 2	3	2	3	3	4	4	4	4	5	7	7	8	7	5	5	8	9	9	7	6	5	5	5	3	2	9	5.3								
Dec 3	3	3	6	9	10	9	9	7	6	5	4	4	4	4	4	4	3	3	2	1	1	3	4	1	10	4.7									
Dec 4	3	2	2	2	2	2	2	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	3	1.5								
Dec 5	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	2	2	1	1	2	0	2	0.5									
Dec 6	4	4	3	5	3	3	2	2	2	2	3	3	2	2	2	2	3	4	4	4	3	3	3	2	5	2.9									
Dec 7	3	3	3	3	3	3	4	4	5	5	6	6	8	10	10	9	9	10	11	12	13	14	15	14	3	15	7.6								
Dec 8	14	14	16	12	14	11	9	7	7	6	6	6	6	6	6	7	7	8	8	9	9	10	10	10	6	16	9.1								
Dec 9	10	11	11	11	12	12	13	11	12	14	18	20	22	22	20	21	21	19	21	19	21	20	22	22	10	22	16.9								
Dec 10	21	21	21	23	19	17	14	11	17	18	15	15	14	14	10	8	C	6	6	7	8	10	11	6	23	14.0									
Dec 11	11	9	11	13	14	14	15	14	13	13	11	7	7	9	7	6	5	4	3	3	4	6	8	7	3	15	8.9								
Dec 12	7	5	4	4	3	4	4	4	4	4	4	5	5	4	5	5	5	6	6	7	10	11	13	13	3	13	5.9								
Dec 13	15	14	14	13	10	9	8	7	6	7	10	11	12	13	14	14	14	16	17	18	20	24	28	28	6	28	14.3								
Dec 14	25	24	19	11	8	6	3	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	25	4.4									
Dec 15	2	2	5	5	5	5	5	6	9	10	13	12	11	10	10	10	13	12	9	10	12	10	9	9	2	13	8.5								
Dec 16	9	12	11	9	9	10	13	17	15	11	12	13	13	12	9	8	8	13	15	9	6	4	2	2	2	17	10.1								
Dec 17	2	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	2	0.9									
Dec 18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	4	5	1	5	1.5								
Dec 19	5	5	5	4	4	4	4	5	5	5	6	6	5	5	5	5	5	30	2	2	2	2	2	2	2	30	5.2								
Dec 20	2	2	3	3	3	3	3	3	3	3	3	4	3	3	3	3	3	3	3	3	3	3	3	3	2	4	3.0								
Dec 21	4	5	5	5	5	5	5	6	6	6	5	6	6	6	5	5	5	4	5	9	8	5	4	3	3	9	5.3								
Dec 22	4	4	4	4	4	4	4	5	5	4	5	4	5	4	4	4	3	2	4	4	4	4	3	3	2	5	3.9								
Dec 23	3	3	3	3	3	2	3	3	3	2	2	2	2	1	2	1	1	1	1	1	1	1	1	1	1	3	1.9								
Dec 24	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1.2								
Dec 25	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	2	1	1	1	2	1	3	1.4									
Dec 26	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	4	5	5	5	6	6	6	6	6	2	6	3.5								
Dec 27	5	4	4	5	7	7	4	4	5	9	8	8	5	6	6	8	7	5	5	5	4	5	5	5	4	9	5.7								
Dec 28	4	2	2	2	2	1	1	1	1	1	1	1	1	1	2	2	3	3	4	5	5	6	6	1	6	2.5									
Dec 29	6	6	7	8	9	8	9	9	10	9	9	10	11	12	13	10	8	9	12	12	14	15	14	14	6	15	10.2								
Dec 30	14	10	12	12	9	9	17	16	13	14	11	14	10	8	8	7	10	12	7	8	8	9	10	13	7	17	10.9								
Dec 31	14	15	17	18	19	17	16	14	14	18	17	16	17	18	18	14	11	13	14	14	13	12	12	15	11	19	15.3								
Diurnal Maximum	25	24	21	23	19	17	17	17	17	18	18	20	22	22	20	21	21	30	21	19	21	24	28	28											
Diurnal Average	6.4	6.1	6.4	6.3	6.1	5.7	5.8	5.5	5.6	5.9	5.9	6.2	6.1	6.0	5.9	5.7	5.6	6.7	5.9	6.0	6.2	6.3	6.7	6.9											
C	Monthly Calibration										S	Daily Zero-Span Check										Q	Quality Assurance												
K	Collection Error										N	No Data (Machine Not in Service)										Y	Routine Maintenance						P	Power Failure					
X	InValid Data (Equipment Malfunction/Recovery)										NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																							

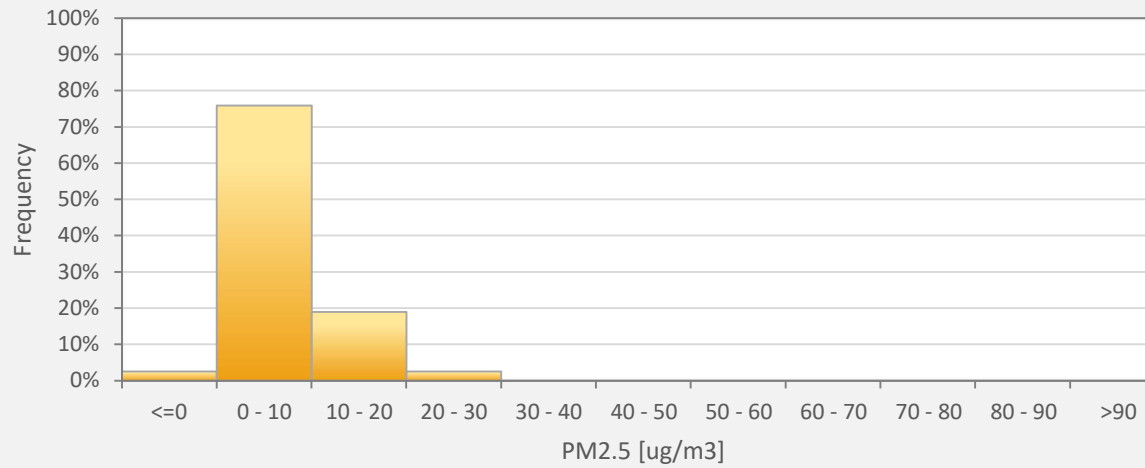
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

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



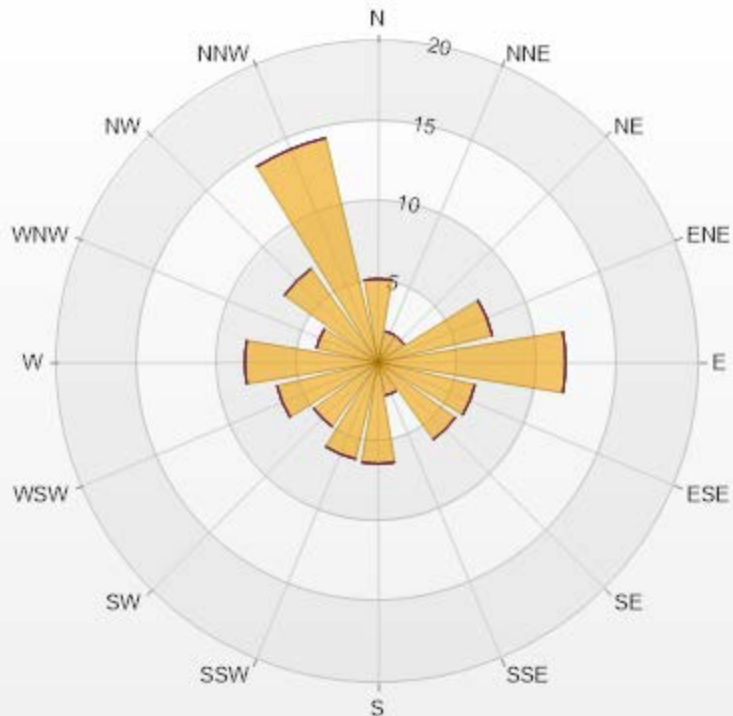
PM2.5[ug/m3(L)] Histogram: St. Lina Monthly: 12-2022 1 Hr.



Classes	PM2.5
<=0	2.56%
0 - 10	75.91%
10 - 20	18.98%
20 - 30	2.56%
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-PM2.5[ug/m3(L)] Monthly: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.56% Calm Avg: 0.00 [ug/m3(L)]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	5.2	0	0	0	0	5.2
NNE	1.97	0	0	0	0	1.97
NE	1.97	0	0	0	0	1.97
ENE	7.31	0	0	0	0	7.31
E	11.67	0	0	0	0	11.67
ESE	6.19	0	0	0	0	6.19
SE	5.91	0	0	0	0	5.91
SSE	2.11	0	0	0	0	2.11
S	6.33	0	0	0	0	6.33
SSW	6.19	0	0	0	0	6.19
SW	4.92	0	0	0	0	4.92
WSW	6.47	0	0	0	0	6.47
W	8.3	0	0	0	0	8.3
WNW	3.94	0	0	0	0	3.94
NW	7.17	0	0	0	0	7.17
NNW	14.35	0	0	0	0	14.35
Summary	100	0	0	0	0	100





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% Icon Classes (ug/m3(L))

100  0-30

0  30-50

0  50-76

0  76-159

0  >159.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - December 2022

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

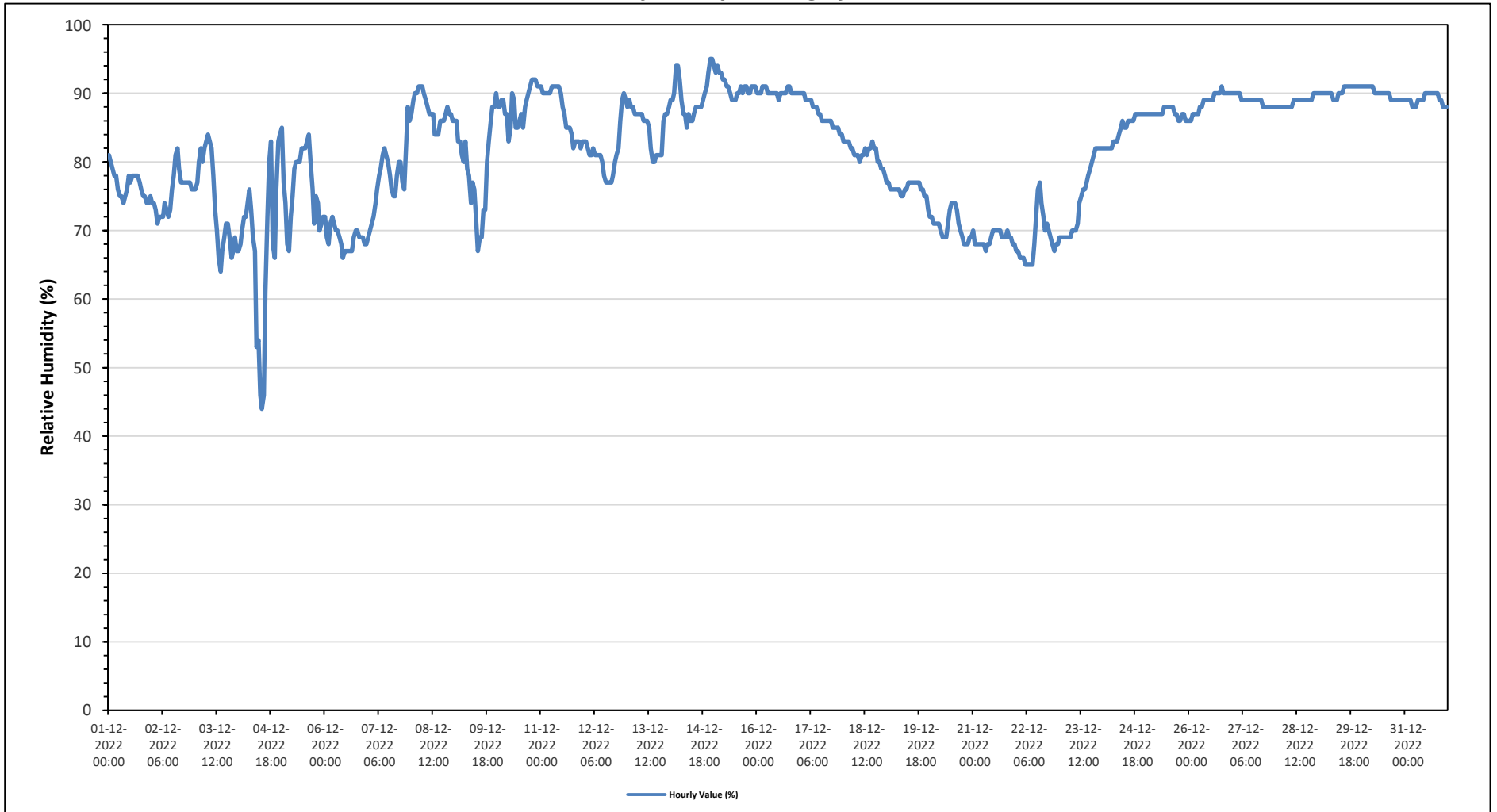
Maximum Hourly Value:	95 %	on December 14 at hour 22	Hours in Service:	744
Maximum Daily Value:	91.1 %	on December 15	Hours of Data:	744
Minimum Hourly Value:	44 %	on December 4 at hour 13	Hours of Missing Data:	0
Minimum Daily Value:	67.7 %	on December 4	Hours of Calibration:	0
Monthly Average:	81.7 %		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	
Dec 1	81	80	79	78	78	76	75	75	74	75	76	78	77	78	78	78	78	77	76	75	74	74	75	74	81	81	76.7	
Dec 2	74	74	73	71	72	72	72	74	73	72	73	76	78	81	82	79	77	77	77	77	77	76	76	76	76	82	82	75.4
Dec 3	76	77	80	82	80	82	83	84	83	82	78	73	70	66	64	67	69	71	71	69	66	67	69	67	64	84	74.0	
Dec 4	67	68	70	72	72	74	76	73	69	67	53	54	46	44	46	61	72	80	83	68	66	76	83	84	44	84	67.7	
Dec 5	85	77	74	68	67	72	75	79	80	80	80	82	82	82	83	84	80	76	71	75	74	70	71	72	67	85	76.6	
Dec 6	72	69	68	71	72	71	70	70	69	68	66	67	67	67	67	69	70	70	69	69	69	69	68	68	66	72	68.9	
Dec 7	69	70	71	72	74	76	78	79	81	82	81	80	78	76	75	75	78	80	80	77	76	82	88	86	69	88	77.7	
Dec 8	87	89	90	90	91	91	91	90	89	88	87	87	87	84	84	84	86	86	86	87	88	87	87	86	84	91	87.6	
Dec 9	86	86	83	83	81	80	83	79	78	74	77	76	71	67	69	69	73	73	80	83	86	88	88	90	67	90	79.3	
Dec 10	88	88	89	89	87	87	83	85	90	89	85	85	86	87	85	88	89	90	91	92	92	92	91	91	83	92	88.3	
Dec 11	91	90	90	90	90	90	91	91	91	91	91	90	88	87	85	85	85	84	82	83	83	83	82	83	82	91	87.3	
Dec 12	83	83	82	81	81	82	81	81	81	81	80	78	77	77	77	78	80	81	82	86	89	90	89	77	90	81.5		
Dec 13	88	89	88	88	87	87	87	87	87	86	86	85	82	80	80	81	81	81	81	86	87	87	88	80	89	85.2		
Dec 14	89	89	90	94	94	92	89	87	87	85	87	86	86	87	88	88	88	88	89	90	91	93	95	95	85	95	89.5	
Dec 15	94	93	94	93	93	92	92	91	91	90	89	89	89	90	90	91	90	91	91	90	90	91	91	91	89	94	91.1	
Dec 16	90	90	90	91	91	91	90	90	90	90	90	89	90	90	90	90	91	91	91	90	90	90	90	89	91	90.2		
Dec 17	90	90	90	89	89	89	89	88	88	88	87	86	86	86	86	86	86	86	85	85	85	85	84	84	84	90	87.0	
Dec 18	83	83	83	83	82	82	81	81	81	81	80	81	81	82	81	82	83	82	82	80	80	79	79	78	78	83	81.3	
Dec 19	77	77	76	76	76	76	76	76	76	75	75	76	76	77	77	77	77	77	77	76	76	75	75	73	73	77	76.1	
Dec 20	72	72	71	71	71	71	70	69	69	69	71	73	74	74	74	73	71	70	69	68	68	68	69	69	68	74	70.7	
Dec 21	70	68	68	68	68	68	68	67	68	68	69	70	70	70	70	69	69	69	70	69	69	68	68	68	67	70	68.8	
Dec 22	67	67	66	66	66	65	65	65	65	65	68	72	76	77	74	72	70	71	70	69	68	67	68	68	65	77	68.6	
Dec 23	69	69	69	69	69	69	69	70	70	70	71	74	75	76	76	77	78	79	80	81	82	82	82	82	69	82	74.5	
Dec 24	82	82	82	82	82	82	83	83	83	84	85	86	85	85	86	86	86	86	87	87	87	87	87	87	82	87	84.7	
Dec 25	87	87	87	87	87	87	87	87	87	87	87	88	88	88	88	88	88	87	87	86	86	87	86	86	86	88	87.1	
Dec 26	86	86	87	87	87	87	88	88	89	89	89	89	89	89	90	90	90	90	91	90	90	90	90	90	86	91	88.8	
Dec 27	90	90	90	90	90	89	89	89	89	89	89	89	89	89	89	89	89	88	88	88	88	88	88	88	88	90	88.9	
Dec 28	88	88	88	88	88	88	88	88	88	88	89	89	89	89	89	89	89	89	89	89	89	90	90	90	88	90	88.7	
Dec 29	90	90	90	90	90	90	90	90	89	89	89	90	90	91	91	91	91	91	91	91	91	91	91	91	89	91	90.3	
Dec 30	91	91	91	91	91	91	91	90	90	90	90	90	90	90	90	89	89	89	89	89	89	89	89	89	89	91	90.0	
Dec 31	89	89	89	89	88	88	88	88	89	89	89	90	90	90	90	90	90	90	90	89	89	88	88	88	88	90	89.1	
Diurnal Maximum	94	93	94	94	94	92	92	91	91	91	91	90	90	90	91	91	91	91	91	92	92	93	95	95				
Diurnal Average	82.3	82.0	81.9	81.9	81.7	81.8	81.9	81.8	81.7	81.3	81.0	81.3	80.8	80.5	80.5	81.1	81.5	81.9	82.0	81.5	81.7	82.3	82.7	82.6				

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)	NRIM 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 Site





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - December 2022

Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

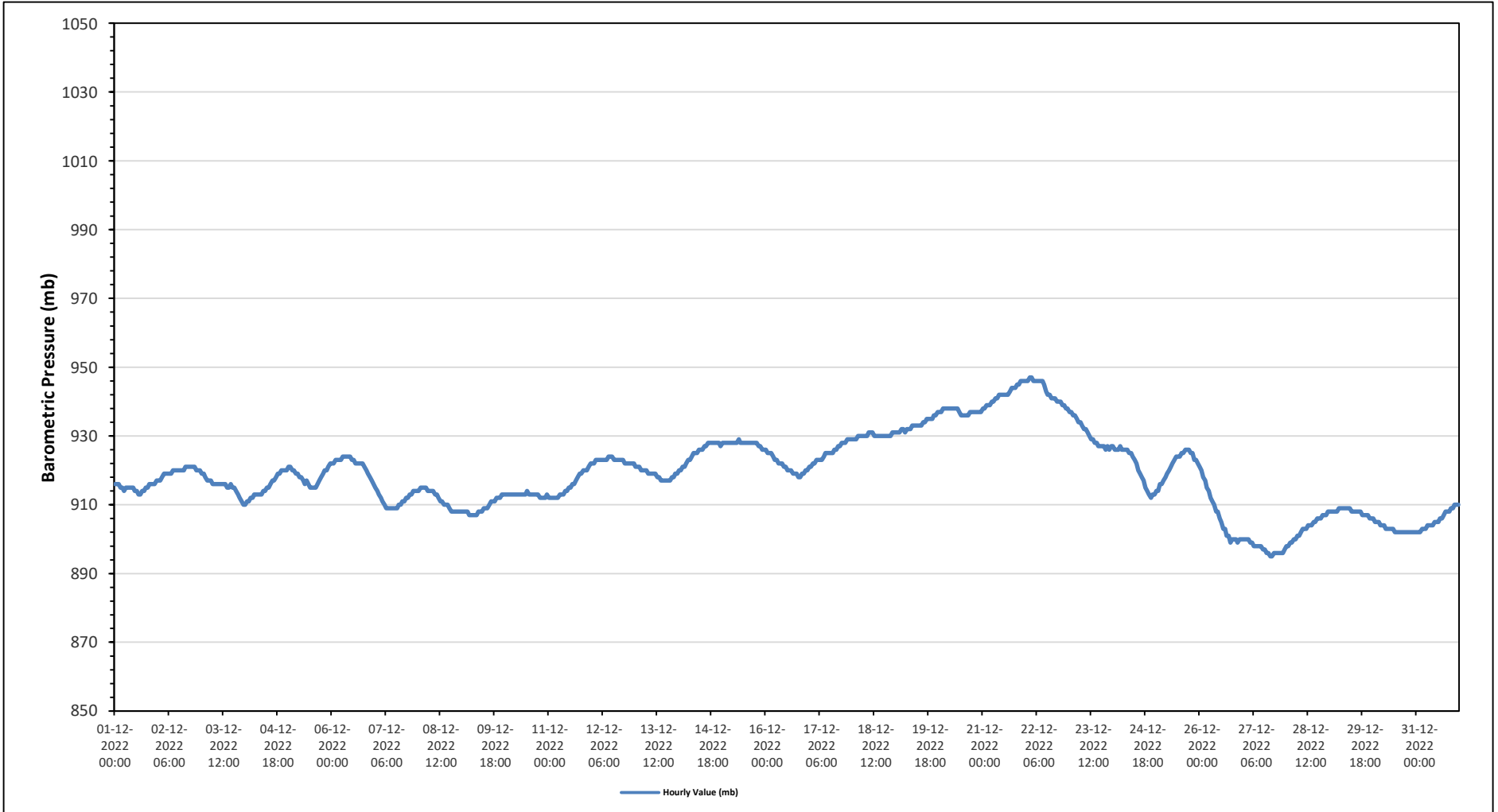
Maximum Hourly Value:	947 mb on December 22 at hour 2	Hours in Service:	744
Maximum Daily Value:	943 mb on December 22	Hours of Data:	744
Minimum Hourly Value:	895 mb on December 27 at hour 15	Hours of Missing Data:	0
Minimum Daily Value:	897 mb on December 27	Hours of Calibration:	0
Monthly Average:	919 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
Dec 1	916	916	916	915	915	914	915	915	915	915	915	914	914	913	913	914	914	915	915	916	916	916	917	917	913	917	915
Dec 2	917	917	918	919	919	919	919	919	920	920	920	920	920	920	920	921	921	921	921	921	921	920	920	920	917	921	920
Dec 3	919	919	918	917	917	917	916	916	916	916	916	916	916	916	915	915	916	915	915	915	914	913	912	911	910	919	915
Dec 4	910	911	911	912	912	913	913	913	913	913	914	914	915	915	916	917	917	918	919	919	920	920	920	920	910	920	915
Dec 5	921	921	920	920	919	919	918	918	917	916	917	916	915	915	915	916	917	918	919	920	920	921	922	915	922	918	918
Dec 6	922	922	923	923	923	923	924	924	924	924	924	923	923	922	922	922	922	921	920	919	918	917	916	916	916	924	922
Dec 7	915	914	913	912	911	910	909	909	909	909	909	909	909	910	910	911	911	912	912	913	913	914	914	914	909	915	911
Dec 8	914	915	915	915	915	914	914	914	914	913	913	912	911	911	910	910	910	909	908	908	908	908	908	908	908	915	912
Dec 9	908	908	908	908	907	907	907	907	907	908	908	908	909	909	909	910	911	911	911	912	912	912	913	913	907	913	909
Dec 10	913	913	913	913	913	913	913	913	913	913	913	913	914	913	913	913	913	913	913	912	912	912	912	913	912	914	913
Dec 11	912	912	912	912	912	912	913	913	913	913	914	914	915	915	916	916	917	918	919	919	920	920	921	922	912	922	916
Dec 12	922	922	923	923	923	923	923	923	923	924	924	924	923	923	923	923	923	923	922	922	922	922	922	922	922	924	923
Dec 13	921	921	921	920	920	920	920	919	919	919	919	918	918	917	917	917	917	917	917	917	918	918	919	919	917	921	919
Dec 14	920	920	921	921	922	923	923	924	925	925	925	926	926	926	927	927	928	928	928	928	928	928	928	928	920	928	925
Dec 15	928	928	928	928	928	928	928	928	928	929	928	928	928	928	928	928	928	928	928	928	928	927	927	926	926	929	928
Dec 16	926	925	925	925	924	923	923	923	922	922	921	921	920	920	920	919	919	918	918	918	919	920	920	918	926	921	921
Dec 17	921	921	922	922	923	923	923	923	924	925	925	925	925	925	926	926	927	927	928	928	928	928	929	929	921	929	925
Dec 18	929	929	929	930	930	930	930	930	930	931	931	931	931	930	930	930	930	930	930	930	930	930	931	931	929	931	930
Dec 19	931	931	931	932	932	931	932	932	932	933	933	933	933	933	933	934	934	935	935	935	935	936	936	937	931	937	933
Dec 20	937	937	938	938	938	938	938	938	938	938	937	936	936	936	936	936	937	937	937	937	937	937	937	937	936	938	937
Dec 21	938	938	939	939	939	940	940	941	941	942	942	942	942	942	943	944	944	944	945	945	946	946	946	946	938	946	942
Dec 22	946	946	947	947	946	946	946	946	946	946	945	943	942	942	941	941	941	940	940	940	939	939	938	938	938	947	943
Dec 23	937	937	936	936	935	934	934	933	932	932	931	930	929	929	928	928	927	927	927	927	926	926	927	926	937	931	931
Dec 24	927	926	926	926	927	926	926	926	926	925	925	924	923	922	920	919	918	917	915	914	913	913	913	912	912	927	921
Dec 25	914	914	916	916	917	918	919	920	921	922	923	924	924	924	925	925	926	926	926	925	925	923	923	922	914	926	922
Dec 26	921	920	918	917	915	914	912	911	910	908	908	906	905	903	903	901	901	899	900	900	900	899	900	900	899	921	907
Dec 27	900	900	900	900	899	899	898	898	898	898	898	897	897	896	896	895	895	896	896	896	896	896	896	897	895	900	897
Dec 28	898	898	899	899	900	900	901	901	902	903	903	904	904	904	905	905	906	906	906	907	907	907	907	908	898	908	903
Dec 29	908	908	908	908	908	909	909	909	909	909	909	909	908	908	908	908	908	907	907	907	907	906	906	906	906	909	908
Dec 30	906	905	905	905	904	904	904	903	903	903	903	903	903	902	902	902	902	902	902	902	902	902	902	902	906	906	903
Dec 31	902	902	902	903	903	904	904	904	904	905	905	905	906	906	907	908	908	908	908	909	909	910	910	910	902	910	906
Diurnal Maximum	946	946	947	947	946	946	946	946	946	946	945	943	942	942	943	944	944	944	945	945	946	946	946	946	946	946	946
Diurnal Average	919	919	919	919	919	919	919	919	919	919	919	919	919	919	919	919	919	919	919	919	919	919	919	919	919	919	919

C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	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 Site





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - December 2022

Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

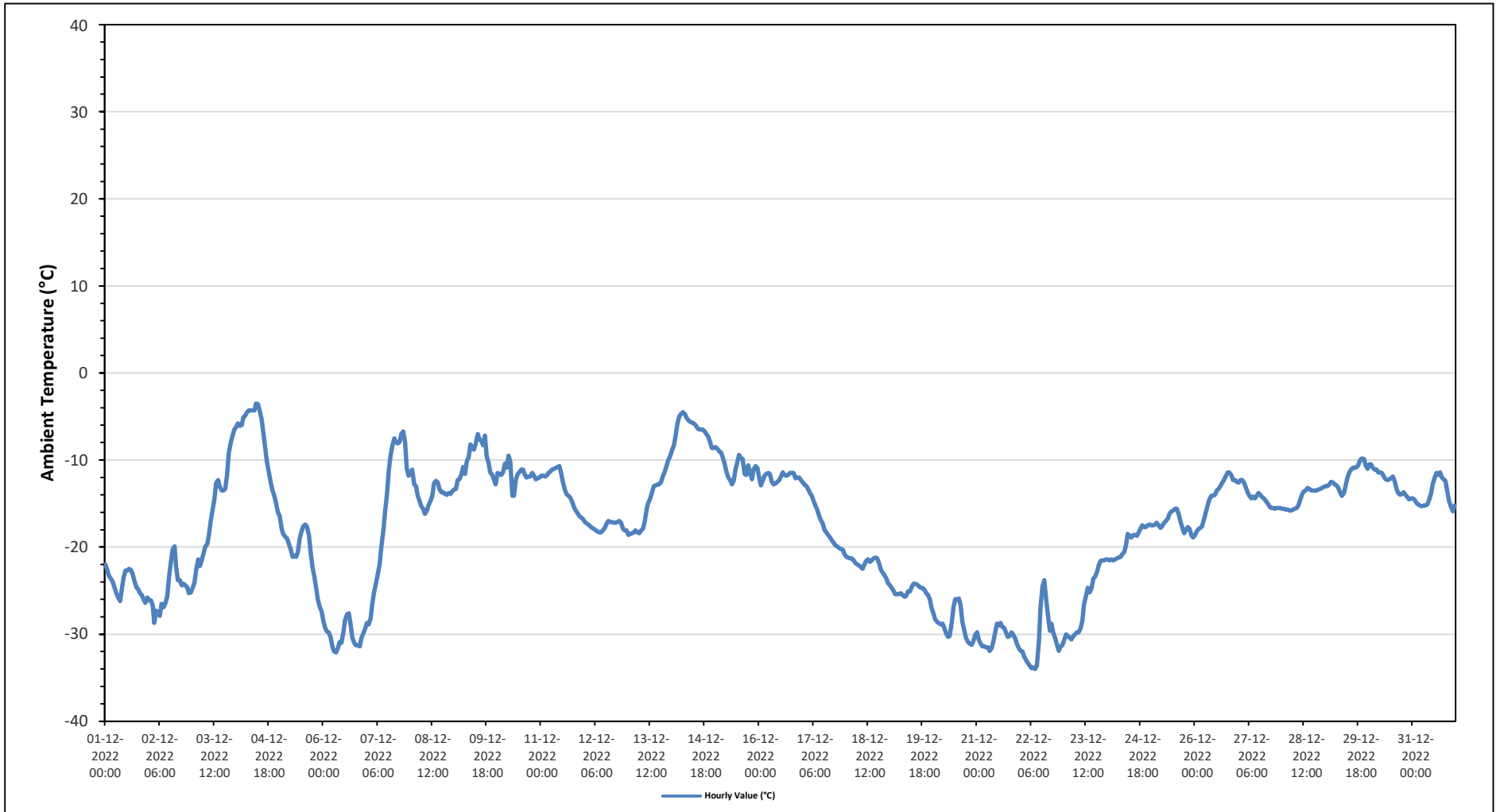
Maximum Hourly Value:	-3.5 °C	on December 4 at hour 11	Hours in Service:	744
Maximum Daily Value:	-6.5 °C	on December 14	Hours of Data:	744
Minimum Hourly Value:	-34.0 °C	on December 22 at hour 8	Hours of Missing Data:	0
Minimum Daily Value:	-30.7 °C	on December 22	Hours of Calibration:	0
Monthly Average:	-17.7 °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	
Dec 1	-22	-22.6	-23.3	-23.6	-24	-24.7	-25.3	-25.8	-26.2	-24.9	-23.4	-22.7	-22.7	-22.5	-22.6	-23.1	-23.9	-24.6	-24.8	-25.3	-25.5	-26	-26.4	-25.8	-26.4	-22.0	-24.2	
Dec 2	-26.1	-26.1	-26.7	-28.7	-27.3	-27.6	-27.9	-26.5	-25.7	-23.5	-21.8	-20.3	-19.9	-22.3	-23.8	-23.8	-24.4	-24.2	-24.4	-24.6	-25.3	-25.2	-28.7	-19.9	-25.0	-28.7	-19.9	-25.0
Dec 3	-24.7	-24.1	-22.6	-21.4	-22.2	-21.6	-20.7	-20	-19.7	-18.6	-17	-15.8	-14.4	-12.7	-12.3	-13.1	-13.5	-13.5	-13.3	-11.8	-9.2	-8	-7.3	-6.5	-24.7	-6.5	-16.0	
Dec 4	-6.2	-5.8	-6.1	-6	-5.1	-4.9	-4.5	-4.3	-4.3	-4.3	-4.3	-3.5	-3.6	-4.4	-5.3	-6.9	-8.8	-10.2	-11.5	-12.6	-13.5	-14.1	-15	-16	-16.0	-3.5	-7.6	
Dec 5	-16.4	-17.9	-18.5	-18.8	-19	-19.6	-20.2	-21.1	-21	-21.1	-20.5	-19	-18.2	-17.6	-17.4	-17.6	-18.6	-20.6	-22.3	-23.3	-24.8	-26	-26.9	-27.4	-27.4	-16.4	-20.6	
Dec 6	-28.5	-29.3	-29.7	-29.8	-30.3	-31.5	-32	-32.1	-31.6	-30.9	-31	-29.7	-28.4	-27.7	-27.6	-28.7	-30.4	-31	-31.3	-31.3	-31.4	-30.5	-29.9	-29.4	-32.1	-27.6	-30.2	
Dec 7	-28.7	-28.9	-28.1	-26.6	-25.2	-24.1	-23.1	-22	-19.9	-18	-16.1	-13.9	-11.2	-9.5	-8.4	-7.5	-7.9	-8.1	-7.9	-7	-6.7	-7.9	-11	-11.8	-28.9	-6.7	-15.8	
Dec 8	-11.5	-11.1	-12.8	-13	-14.1	-14.7	-15.3	-15.6	-16.2	-15.8	-15.2	-14.7	-14.1	-12.7	-12.4	-12.6	-13.3	-13.7	-13.7	-13.9	-14	-13.8	-13.9	-13.6	-16.2	-11.1	-13.8	
Dec 9	-13.4	-13.3	-12.3	-12.2	-11.6	-10.8	-11.6	-10.1	-9.7	-8.2	-8.7	-8.8	-8.1	-7	-7.6	-7.8	-8.3	-7.2	-9.6	-10.4	-11.4	-11.7	-12.3	-12.8	-13.4	-7.0	-10.2	
Dec 10	-11.5	-11.6	-11.7	-11.4	-10.4	-10.9	-9.5	-10.3	-14.1	-14.1	-12.2	-11.6	-11.4	-11.1	-11.1	-11.7	-12	-11.9	-11.9	-11.5	-11.8	-12.2	-12.1	-12	-14.1	-9.5	-11.7	
Dec 11	-11.8	-11.8	-11.9	-11.8	-11.5	-11.3	-11.1	-11	-10.9	-10.8	-10.7	-11.6	-12.6	-13.4	-13.9	-14.1	-14.3	-14.8	-15.4	-15.8	-16.1	-16.5	-16.6	-16.8	-16.8	-10.7	-13.2	
Dec 12	-17.1	-17.3	-17.4	-17.6	-17.8	-17.9	-18.1	-18.2	-18.3	-18.3	-18.1	-17.8	-17.3	-17	-17.1	-17.1	-17.2	-17.2	-17.1	-17	-17.2	-17.9	-18.1	-18.1	-18.3	-17.0	-17.6	
Dec 13	-18.6	-18.5	-18.4	-18.3	-18.1	-18.3	-18.4	-18.1	-17.9	-17.1	-15.6	-14.9	-14.4	-13.7	-13	-12.9	-12.8	-12.8	-12.5	-11.8	-11.4	-10.7	-10	-9.6	-18.6	-9.6	-14.9	
Dec 14	-8.9	-8.3	-7.3	-5.8	-5	-4.7	-4.5	-4.7	-5.1	-5.4	-5.6	-5.7	-5.8	-6	-6.3	-6.5	-6.5	-6.5	-6.7	-7	-7.4	-7.9	-8.6	-8.6	-8.9	-4.5	-6.5	
Dec 15	-8.5	-8.7	-9	-9.1	-9.7	-10.5	-11.3	-12	-12.3	-12.8	-12.4	-11.1	-10.3	-9.4	-9.8	-9.9	-11.6	-11.7	-10.6	-11.4	-12.2	-11.1	-10.7	-10.9	-12.8	-8.5	-10.7	
Dec 16	-12	-12.9	-12.4	-11.8	-11.6	-11.5	-11.6	-12.5	-12.8	-12.7	-12.5	-12.3	-11.9	-11.4	-11.7	-11.8	-11.7	-11.5	-11.5	-11.5	-12.1	-12	-12	-12.3	-12.9	-11.4	-12.0	
Dec 17	-12.6	-12.8	-13	-13.4	-13.8	-14.1	-14.7	-15.2	-15.7	-16.4	-16.9	-17.3	-18	-18.3	-18.6	-18.9	-19.2	-19.5	-19.8	-19.9	-20.1	-20.2	-20.3	-20.8	-20.8	-12.6	-17.1	
Dec 18	-21.1	-21.2	-21.3	-21.3	-21.5	-21.8	-22	-22.1	-22.3	-22.5	-22	-21.6	-21.4	-21.7	-21.5	-21.3	-21.2	-21.3	-21.8	-22.6	-22.9	-23.2	-23.6	-24.1	-24.1	-21.1	-22.0	
Dec 19	-24.4	-24.7	-25	-25.4	-25.4	-25.4	-25.3	-25.5	-25.7	-25.6	-25.1	-25.1	-24.6	-24.2	-24.2	-24.3	-24.5	-24.7	-24.7	-24.9	-25.3	-25.5	-26	-27	-27.0	-24.2	-25.1	
Dec 20	-27.6	-28.3	-28.6	-28.7	-28.9	-28.8	-29.3	-29.9	-30.3	-30.2	-28.7	-26.9	-26	-26	-25.9	-26.7	-28.6	-29.6	-30.4	-30.9	-31.1	-31.2	-30.8	-30	-31.2	-25.9	-28.9	
Dec 21	-29.8	-30.7	-31.1	-31.4	-31.4	-31.5	-31.5	-31.9	-31.6	-30.8	-29.8	-28.8	-29	-28.7	-29.2	-29.3	-29.8	-30.3	-30.2	-29.8	-30.1	-30.5	-31.1	-31.6	-31.9	-28.7	-30.4	
Dec 22	-31.9	-32	-32.6	-33	-33.3	-33.6	-33.9	-33.8	-34	-33.6	-30.8	-27	-24.5	-23.8	-25.9	-27.7	-29.6	-28.8	-29.8	-30.5	-31.1	-31.9	-31.4	-31.3	-34.0	-23.8	-30.7	
Dec 23	-30.7	-30	-30.2	-30.4	-30.6	-30.2	-30	-29.8	-29.8	-29.4	-28.4	-26.6	-25.6	-24.7	-25.2	-24.8	-23.6	-23.4	-22.9	-22.1	-21.6	-21.5	-21.4	-30.7	-21.4	-26.4		
Dec 24	-21.4	-21.5	-21.4	-21.5	-21.4	-21.3	-21.2	-21.1	-20.8	-20.6	-19.8	-18.5	-18.7	-18.9	-18.6	-18.6	-18.7	-18.3	-17.9	-17.5	-17.7	-17.7	-17.5	-17.4	-21.5	-17.4	-19.5	
Dec 25	-17.5	-17.5	-17.4	-17.2	-17.5	-17.8	-17.6	-17.2	-17	-16.7	-16.2	-15.9	-15.8	-15.6	-15.6	-16.2	-17	-17.7	-18.4	-18.1	-17.7	-17.9	-18.6	-18.9	-18.9	-15.6	-17.2	
Dec 26	-18.6	-18.2	-17.9	-17.8	-17.6	-16.8	-16	-15.2	-14.5	-14.1	-14.1	-14	-13.5	-13.3	-13	-12.6	-12.3	-11.9	-11.4	-11.4	-11.7	-12.3	-12.3	-12.5	-18.6	-11.4	-14.3	
Dec 27	-12.6	-12.3	-12.3	-12.6	-13.2	-13.7	-14.1	-14.4	-14.2	-14.4	-14.1	-13.8	-14	-14.3	-14.4	-14.7	-15	-15.3	-15.5	-15.5	-15.6	-15.5	-15.5	-15.5	-15.6	-12.3	-14.3	
Dec 28	-15.6	-15.6	-15.7	-15.7	-15.8	-15.8	-15.7	-15.6	-15.5	-15.2	-14.6	-13.9	-13.6	-13.5	-13.2	-13.3	-13.5	-13.5	-13.5	-13.5	-13.5	-13.4	-13.3	-13.2	-13.1	-15.8	-13.1	-14.4
Dec 29	-13	-13	-12.8	-12.5	-12.6	-12.8	-12.9	-13.2	-13.8	-14.1	-13.8	-12.9	-12.1	-11.4	-11.1	-10.9	-10.9	-10.8	-10.6	-10	-9.8	-9.9	-10.6	-11	-14.1	-9.8	-11.9	
Dec 30	-10.5	-10.5	-10.9	-11.1	-11.1	-11.4	-11.4	-11.5	-11.9	-12.2	-12.3	-12.2	-12.1	-11.9	-12.4	-13.3	-13.8	-14	-13.9	-13.7	-14	-14.3	-14.5	-14.4	-14.5	-10.5	-12.5	
Dec 31	-14.4	-14.6	-14.9	-15.1	-15.2	-15.3	-15.2	-15.2	-15.1	-14.6	-13.8	-12.8	-12	-11.5	-11.7	-11.4	-12	-12.2	-12.4	-13.7	-14.7	-15.4	-15.9	-15.2	-15.9	-11.4	-13.9	
Diurnal Maximum	-6.2	-5.8	-6.1	-5.8	-5.0	-4.7	-4.5	-4.3	-4.3	-4.3	-3.5	-3.6	-4.4	-5.3	-6.5	-6.5	-6.5	-6.7	-7.0	-6.7	-7.9	-7.3	-6.5					
Diurnal Average	-18.3	-18.4	-18.5	-18.5	-18.5	-18.5	-18.6	-18.6	-18.7	-18.4	-17.7	-16.9	-16.4	-15.9	-16.0	-16.4	-16.9	-17.1	-17.3	-17.4	-17.6	-17.8	-18.0	-18.1				

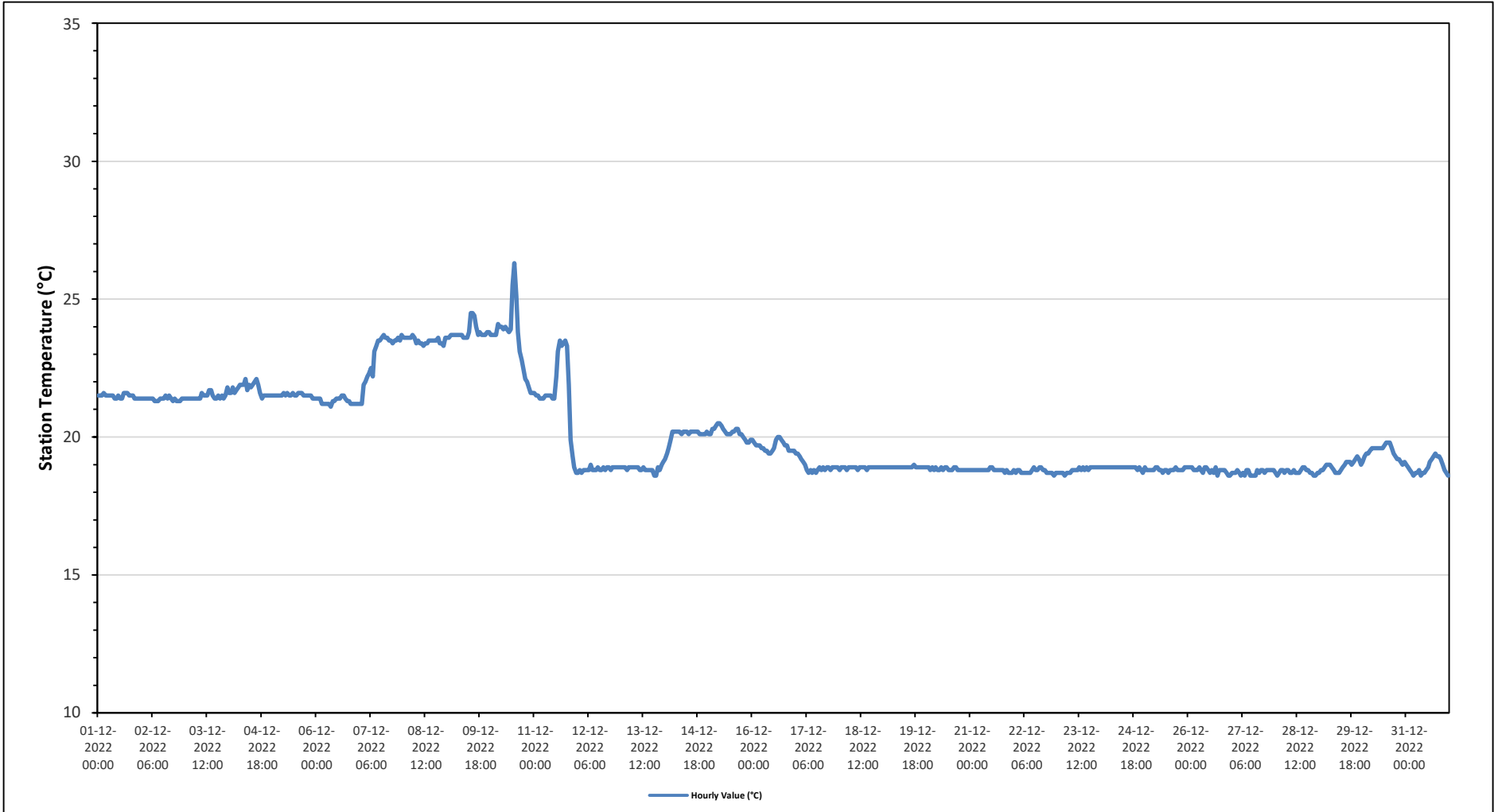
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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 AT - St. Lina Site



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





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - December 2022
Summary of Hourly Averages

PRECIPITATION in mm

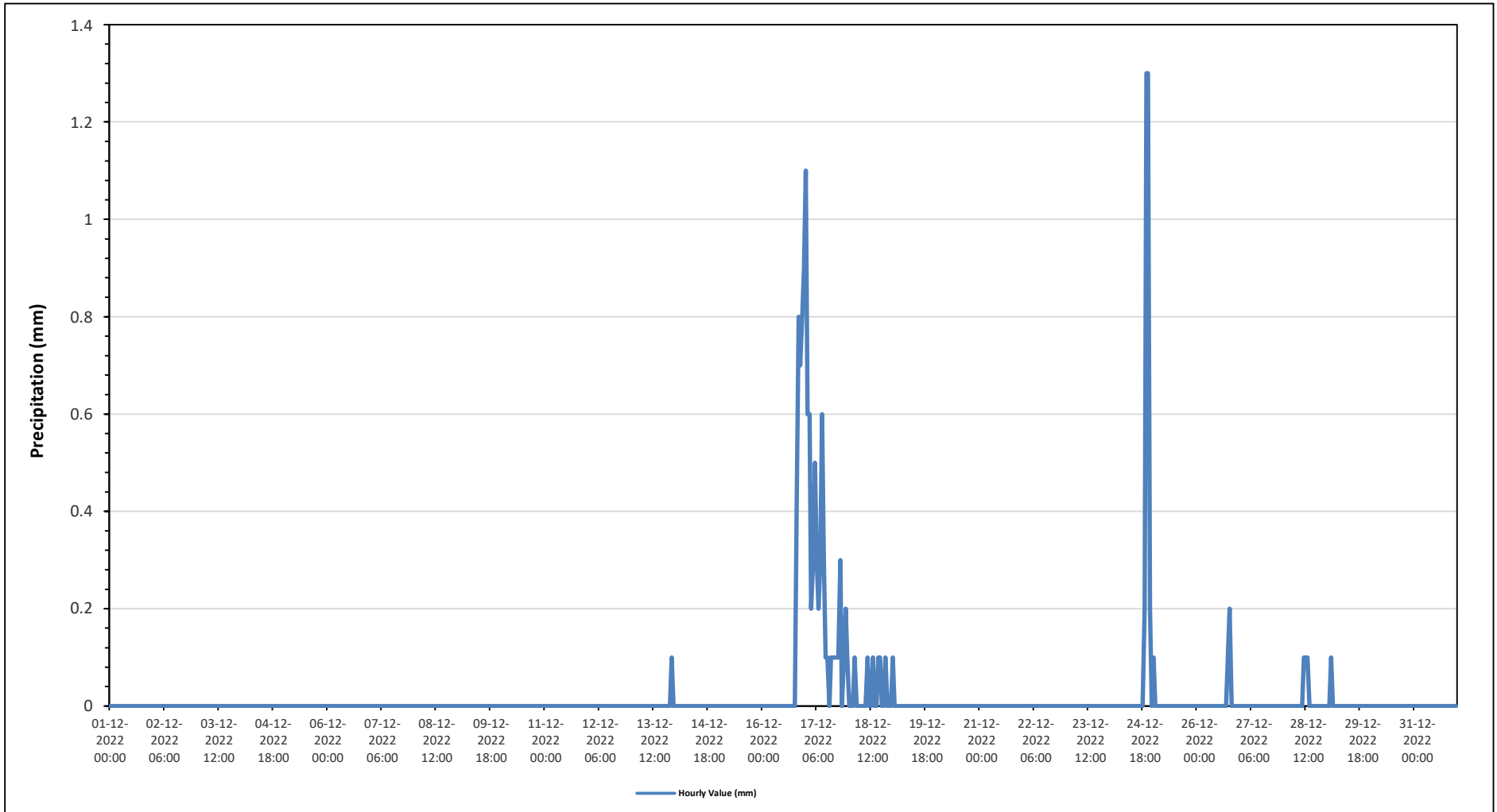
Maximum Hourly Value:	1.3 mm on December 24 at hour 20	Hours in Service:	744
Maximum Daily Value:	6.4 mm on December 17	Hours of Data:	744
Minimum Hourly Value:	0.0 mm on December 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 mm on December 1	Hours of Calibration:	0
Monthly Total:	14.6 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				
Dec 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
Dec 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	0.0
Dec 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	0.0
Dec 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	0.0
Dec 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	0.0
Dec 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	0.0
Dec 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 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	0.0
Dec 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
Dec 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
Dec 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
Dec 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.0	0.1	0.1
Dec 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
Dec 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
Dec 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.8	0.7	0.8	0.9	0.0	0.9	3.6
Dec 17	1.1	0.6	0.6	0.2	0.3	0.5	0.3	0.2	0.3	0.6	0.3	0.1	0.1	0	0.1	0.1	0.1	0.1	0.1	0.3	0	0.1	0.2	0.1	0.0	1.1	6.4	6.4
Dec 18	0	0	0	0.1	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0.1	0.1	0	0	0.1	0	0	0	0	0.0	0.1	0.6
Dec 19	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	0.1	0.1
Dec 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
Dec 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
Dec 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
Dec 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
Dec 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	1.3	1.3	0.2	0	0.0	1.3	3.0	3.0
Dec 25	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	0.1	0.1
Dec 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	0	0	0	0	0	0	0.0	0.2	0.3
Dec 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	0.0
Dec 28	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.3
Dec 29	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	0.1	0.1
Dec 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	0.0
Dec 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Diurnal Maximum	1.1	0.6	0.6	0.2	0.3	0.5	0.3	0.2	0.3	0.6	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	1.3	1.3	0.8	0.9				
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	0.1	0.1	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 Site





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - December 2022
Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

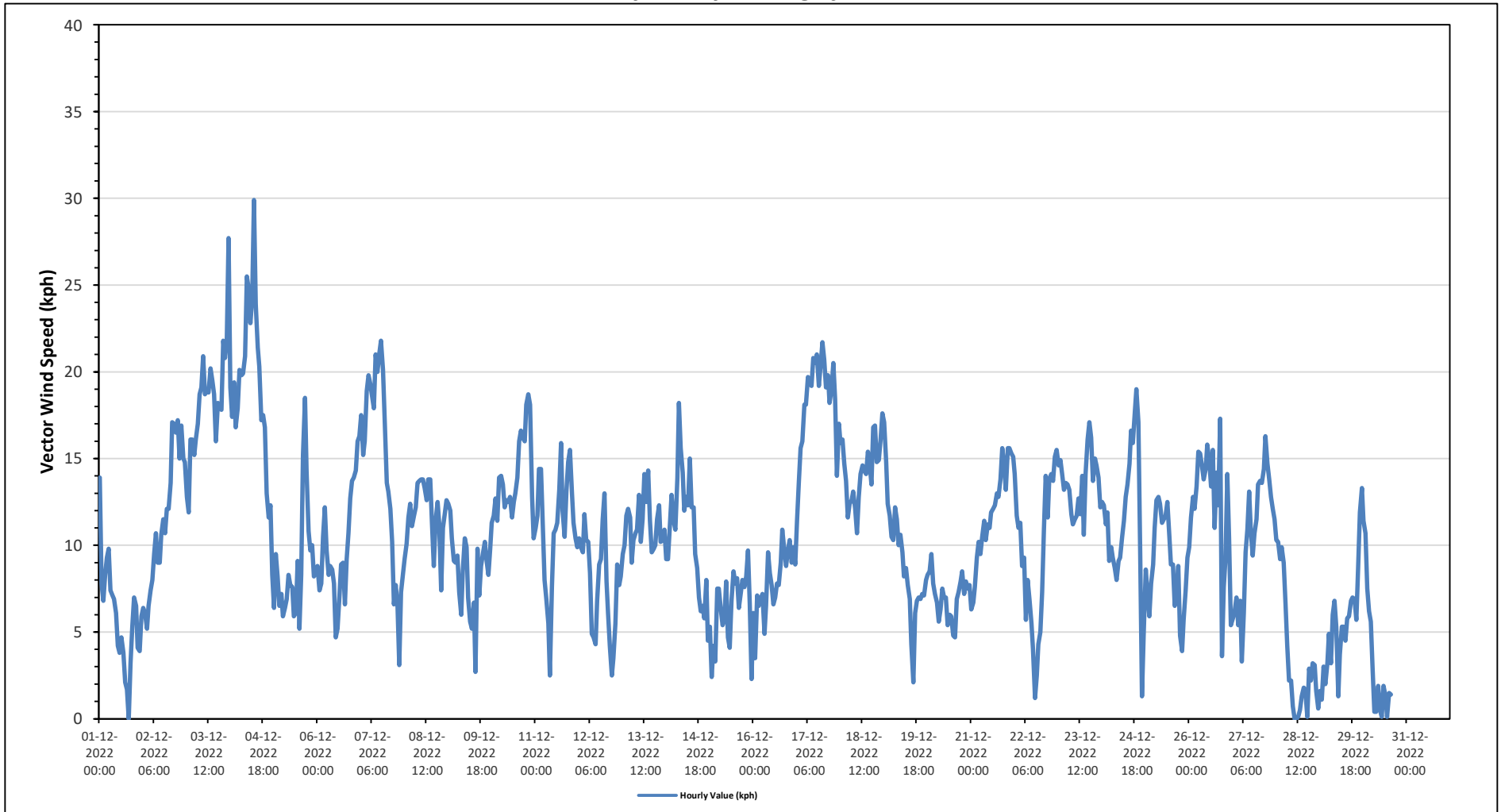
Maximum Hourly Value:	29.9 kph	on December 4 at hour 13	Hours in Service:	744
Maximum Daily Value:	18.3 kph	on December 17	Hours of Data:	712
Minimum Hourly Value:	0.0 kph	on December 1 at hour 16	Hours of Missing Data:	32
Minimum Daily Value:	2.4 kph	on December 28	Hours of Calibration:	0
Monthly Average:	0.2 kph		Operational Uptime:	95.7

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	
Dec 1	13.9	7.8	6.8	8.3	9.3	9.8	7.4	7.1	6.9	6.1	4.2	3.8	4.7	3.8	2.1	1.7	0.0	3.2	5.3	7.0	6.5	4.1	3.9	5.9	0.0	13.9	3.1	
Dec 2	6.4	6.1	5.2	6.5	7.4	8.0	9.5	10.7	9.0	9.0	10.6	11.5	10.7	12.1	12.1	13.6	17.1	17.0	16.5	17.2	15.0	16.9	15.0	14.8	5.2	17.2	11.1	
Dec 3	12.8	11.9	16.1	16.1	15.2	16.1	17.0	18.7	19.1	20.9	18.7	18.9	18.8	20.2	19.5	18.7	16.0	18.2	17.9	17.8	21.8	20.8	21.8	27.7	11.9	27.7	18.0	
Dec 4	19.1	17.4	19.4	16.8	17.9	20.1	19.8	19.9	20.9	25.5	24.8	22.8	24.2	29.9	23.9	21.4	20.3	17.2	17.5	16.8	13.0	11.6	12.3	8.3	8.3	29.9	17.5	
Dec 5	6.4	9.5	8.2	6.5	7.2	5.9	6.4	6.9	8.3	7.7	7.6	5.9	6.1	9.1	5.2	8.3	15.2	18.5	14.3	10.8	9.7	10.0	8.2	8.5	5.2	18.5	5.4	
Dec 6	8.8	7.4	7.8	8.0	10.5	12.2	9.7	8.3	8.8	8.6	7.8	4.7	5.2	7.2	8.9	9.0	6.6	9.2	10.7	12.7	13.7	13.9	14.3	16.0	16.3	4.7	16.3	5.0
Dec 7	17.5	15.2	16.0	18.9	19.8	19.3	18.6	17.9	21.0	20.0	21.1	21.8	20.1	17.1	13.6	13.1	12.1	10.2	6.6	7.7	6.6	3.1	7.3	8.4	3.1	21.8	12.4	
Dec 8	9.2	10.1	11.6	12.4	11.1	11.7	12.2	13.6	13.7	13.8	13.8	13.3	12.6	13.8	13.8	11.2	8.8	11.4	12.5	11.3	7.4	11.0	11.8	12.6	7.4	13.8	9.2	
Dec 9	12.4	12.0	10.4	9.1	9.0	9.4	7.3	6.0	8.5	10.4	9.9	7.0	5.6	5.2	6.7	2.7	9.8	7.1	8.8	9.5	10.2	9.2	8.3	9.8	2.7	12.4	5.8	
Dec 10	11.3	11.7	12.7	11.4	13.9	14.0	13.5	12.2	12.6	12.5	12.8	11.6	12.5	13.0	13.9	16.0	16.6	16.2	16.0	18.1	17.7	18.1	12.8	10.4	10.4	18.7	10.3	
Dec 11	11.0	11.7	14.4	14.4	11.2	8.0	6.9	5.5	2.5	7.6	10.7	10.9	11.3	13.2	15.9	12.0	10.5	13.1	14.8	15.5	13.0	11.3	10.4	9.9	2.5	15.9	7.0	
Dec 12	10.4	9.9	9.6	11.8	10.3	10.2	8.4	4.9	4.7	4.3	6.8	8.9	9.2	11.5	13.0	7.9	6.1	4.2	2.5	3.5	5.5	8.9	7.7	8.2	2.5	13.0	5.0	
Dec 13	9.5	10.0	11.7	12.1	11.6	9.0	10.3	10.7	10.9	12.9	10.2	11.5	14.1	12.5	14.3	11.4	9.6	9.8	10.0	11.5	12.3	10.2	10.3	10.9	9.0	14.3	9.8	
Dec 14	9.2	9.2	11.3	12.9	11.4	10.9	13.9	18.2	15.6	14.2	12.0	12.8	12.3	15.0	12.2	12.2	9.5	8.7	7.0	6.2	6.5	5.8	8.0	4.5	4.5	18.2	10.3	
Dec 15	5.3	2.4	4.2	3.3	7.5	7.5	6.3	5.4	5.7	7.9	4.7	4.1	6.8	8.5	7.8	8.1	6.4	7.3	8.0	7.6	8.2	9.7	6.6	2.3	2.3	9.7	5.7	
Dec 16	6.1	3.5	7.1	6.5	6.9	7.2	4.9	6.5	9.6	8.4	7.7	6.6	7.0	7.8	7.7	9.0	10.9	9.7	8.8	9.7	10.3	9.0	9.9	8.9	3.5	10.9	7.4	
Dec 17	11.4	13.6	15.6	16.0	18.1	18.1	19.7	19.4	19.2	20.8	20.5	21.0	19.2	20.4	21.7	20.7	19.1	19.8	18.2	19.0	20.5	18.4	14.0	17.0	11.4	21.7	18.3	
Dec 18	15.9	16.1	14.7	13.7	11.6	12.4	12.6	13.1	12.1	10.7	12.8	14.1	14.6	14.3	14.1	15.4	14.7	13.5	16.8	16.9	14.8	14.9	16.1	17.6	10.7	17.6	14.2	
Dec 19	17.1	14.8	12.4	11.7	10.5	10.3	12.2	11.5	10.0	10.6	9.6	8.2	8.7	7.7	6.9	4.3	2.1	6.1	6.8	7.0	6.9	7.2	7.1	8.0	2.1	17.1	7.7	
Dec 20	8.3	8.5	9.5	7.8	7.2	6.7	5.6	6.3	7.5	7.0	7.0	5.4	6.0	5.9	4.8	4.7	6.9	7.3	7.9	8.5	7.2	7.9	7.5	7.7	4.7	9.5	6.9	
Dec 21	6.3	6.7	7.6	9.3	10.2	9.5	10.5	11.4	10.3	11.2	11.0	11.9	12.1	12.3	13.0	12.8	13.8	15.6	14.7	13.2	15.6	15.6	15.3	15.1	6.3	15.6	11.8	
Dec 22	14.1	11.7	11.0	11.3	8.8	9.3	5.7	8.0	6.9	5.5	4.0	1.2	2.5	4.3	5.0	7.3	10.9	14.0	11.6	13.8	14.1	13.7	15.1	15.5	1.2	15.5	2.9	
Dec 23	14.6	14.9	14.2	13.2	13.6	13.5	13.2	11.8	11.2	11.5	11.7	12.7	11.8	14.0	10.6	14.1	16.1	17.1	16.2	13.7	15.0	14.6	13.9	12.2	10.6	17.1	12.6	
Dec 24	12.5	12.3	11.2	11.9	9.1	9.9	9.3	8.7	8.0	9.1	9.3	10.5	11.4	12.8	13.5	14.7	16.6	15.9	17.7	19.0	17.1	9.6	1.3	5.0	1.3	19.0	11.0	
Dec 25	8.6	7.2	5.9	7.8	8.9	11.0	12.6	12.8	12.4	11.3	11.5	11.7	12.5	10.5	8.9	8.9	6.5	7.5	8.8	4.8	3.9	5.7	7.4	9.3	3.9	12.8	6.4	
Dec 26	9.9	11.6	12.8	12.1	13.4	15.4	15.3	14.6	13.8	14.4	15.8	14.9	13.4	15.5	11.0	14.2	12.3	17.3	3.6	7.6	9.3	14.1	10.4	5.4	3.6	17.3	9.3	
Dec 27	5.8	6.2	7.0	5.4	6.8	3.3	6.1	9.6	10.9	13.1	10.7	9.4	10.7	11.5	13.5	13.7	13.6	14.4	16.3	14.7	13.8	12.8	12.1	11.5	3.3	16.3	8.6	
Dec 28	10.3	10.2	9.2	9.9	9.0	6.7	4.2	2.2	2.2	0.7	0.0	0.0	0.1	0.5	1.3	1.8	1.7	0.1	2.9	2.2	3.2	3.1	1.6	0.6	0.0	10.3	2.4	
Dec 29	1.6	1.1	3.0	2.0	3.2	4.9	3.2	6.0	6.8	5.3	1.3	3.7	5.3	5.3	4.5	5.8	5.9	6.8	7.0	6.9	5.7	8.7	11.9	13.3	1.1	13.3	4.6	
Dec 30	11.4	10.7	7.5	6.2	5.6	2.9	0.4	0.4	1.9	0.5	0.1	1.9	1.3	0.1	1.5	1.4	X	X	X	X	X	X	X	X	0.1	11.4	-	
Dec 31	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	
Diurnal Maximum	19	17	19	19	20	20	20	20	21	26	25	23	24	30	24	21	20	20	18	19	22	21	22	28				
Diurnal Average	10.6	10.0	10.5	10.5	10.6	10.4	10.0	10.3	10.4	10.7	10.2	10.1	10.4	11.2	10.7	10.5	11.0	11.7	11.3	11.4	11.2	11.0	10.5	10.5				

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

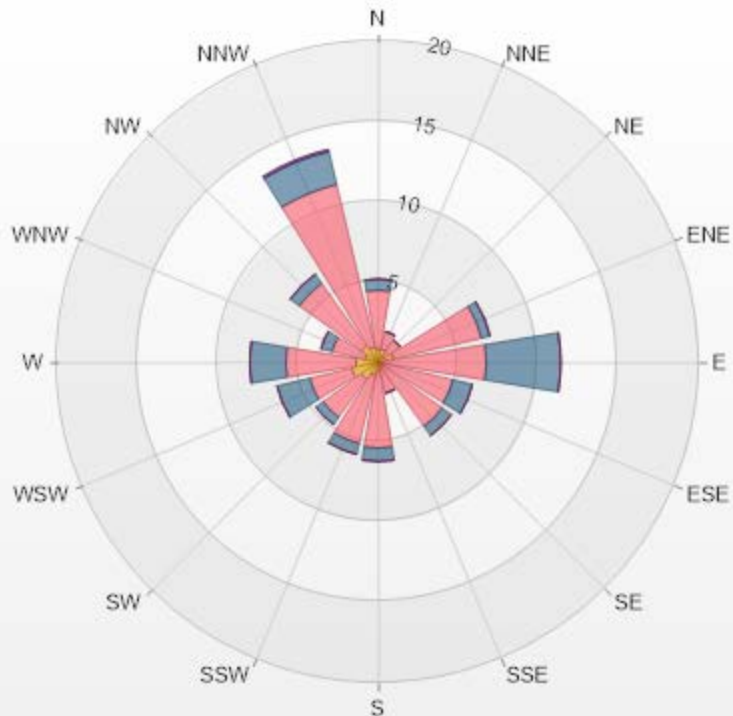
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

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



Wind: St. Lina Monitor: WDS [kph] Monthly: 12-2022 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 3.65% Valid Data: 95.70%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	0.84	3.65	0.7	0	0	5.19
NNE	0.84	1.12	0	0	0	1.96
NE	0.42	1.26	0	0	0	1.68
ENE	0.98	5.62	0.56	0	0	7.16
E	0.14	6.6	4.63	0	0	11.37
ESE	0.28	4.49	1.26	0	0	6.03
SE	0.28	4.63	0.7	0	0	5.61
SSE	0.14	1.83	0	0	0	1.97
S	0.56	4.78	0.84	0	0	6.18
SSW	0.84	4.35	0.7	0	0	5.89
SW	1.26	2.95	0.56	0	0	4.77
WSW	1.69	2.67	2.11	0	0	6.47
W	1.4	4.35	2.25	0	0	8
WNW	0.84	2.11	0.7	0	0	3.65
NW	1.26	4.78	0.7	0	0	6.74
NNW	0.98	10.39	2.11	0.14	0	13.62
Summary	12.75	65.58	17.82	0.14	0	96.29



LICA-202212



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St. Lina Site - December 2022

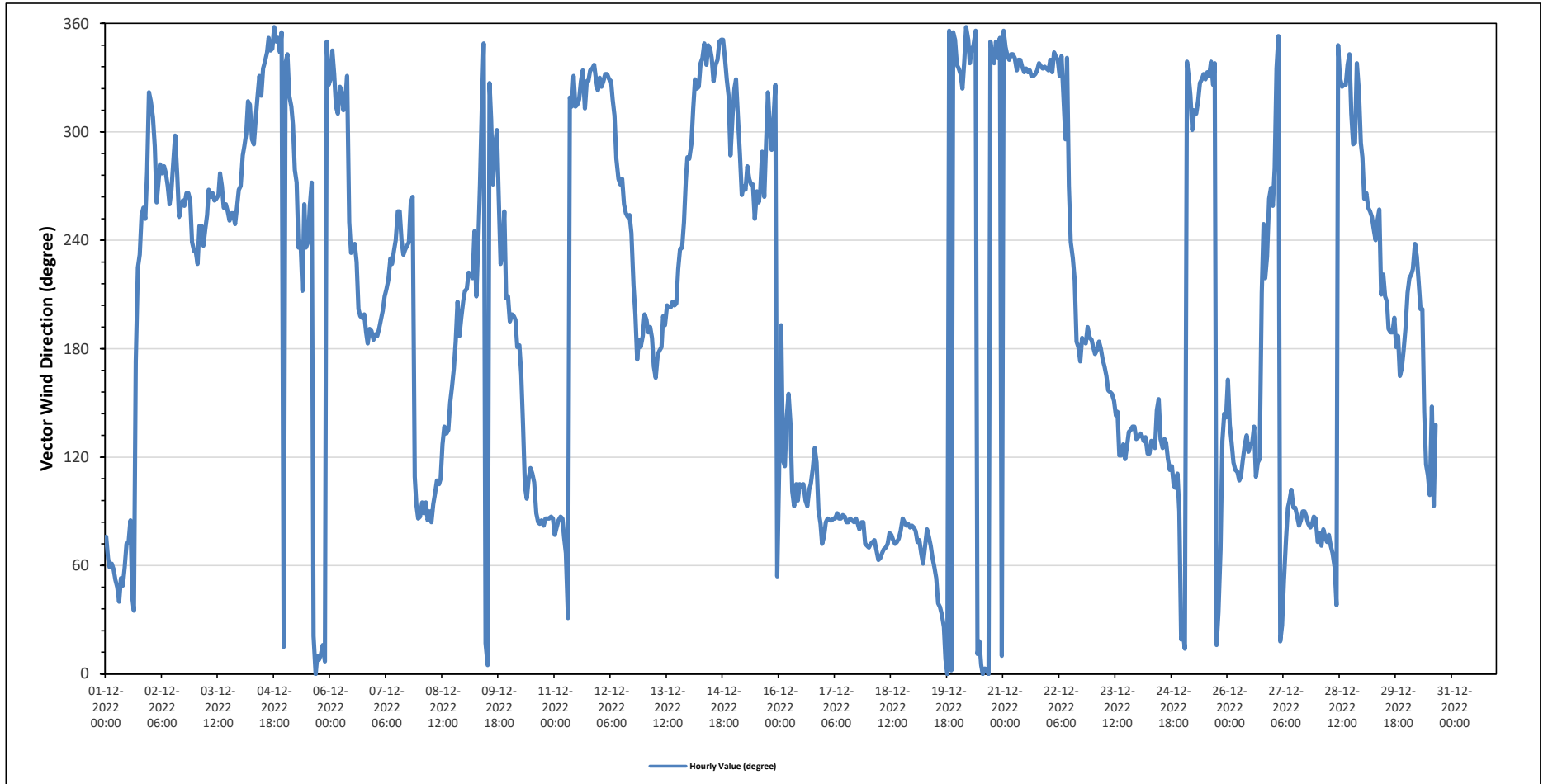
Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:		29 (NNE) degree														Hours in Service:		744									
																Hours of Data:		712									
																Hours of Missing Data:		32									
																Hours of Calibration:		0									
																Operational Uptime:		95.7									
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	
Dec 1	ENE	ENE	ENE	ENE	ENE	NE	NE	NE	NE	NE	ENE	ENE	ENE	E	NE	NE	S	SW	SW	WSW	WSW	WSW	W	NW	50	NE	
Dec 2	NW	NW	WNW	W	W	W	W	W	W	W	WSW	W	W	WNW	W	WSW	WSW	W	WSW	W	W	W	WSW	SW	268	W	
Dec 3	SW	SW	WSW	WSW	SW	WSW	WSW	W	W	W	W	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	257	WSW	
Dec 4	W	WNW	WNW	WNW	NW	NW	WNW	WNW	NW	NW	NNW	NW	NNW	NNW	N	NNW	NNW	N	N	N	NNW	N	NNE	325	NW		
Dec 5	NNW	NNW	NW	NW	WNW	W	W	SW	WSW	SSW	WSW	SW	WSW	WSW	W	NNE	N	N	N	NNE	NNE	N	N	NW	326	NW	
Dec 6	NNW	NNW	NNW	NW	NW	NW	NW	NW	NNW	WSW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	S	S	S	S	S	240	WSW		
Dec 7	S	S	S	SSW	SSW	SSW	SSW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	SW	SW	SW	WSW	W	W	ESE	E	E	221	SW	
Dec 8	E	E	E	E	E	E	E	E	E	ESE	ESE	ESE	SE	SE	SE	SE	SSE	SSE	SSE	S	SSW	S	SSW	SSW	126	SE	
Dec 9	SSW	SSW	SW	SW	SW	WSW	SSW	SW	W	NW	NNW	NNE	N	NW	NW	W	WNW	WNW	W	SW	SW	WSW	SSW	SSW	252	WSW	
Dec 10	SSW	SSW	SSW	SSW	S	S	SSE	SE	ESE	E	ESE	ESE	ESE	ESE	E	E	E	E	E	E	E	E	E	E	115	ESE	
Dec 11	ENE	E	E	E	E	ENE	ENE	NNE	NW	NW	NNW	NW	NW	NW	NNW	NNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NW	353	N	
Dec 12	NNW	NW	NNW	NNW	NNW	NNW	NNW	NW	NW	WNW	W	W	W	WSW	WSW	WSW	WSW	SSW	SSW	S	S	S	S	281	W		
Dec 13	SSW	SSW	S	S	S	SSE	SSE	S	S	S	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	WSW	W	WNW	205	SSW
Dec 14	WNW	WNW	NW	NNW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	NNW	NNW	NW	WNW	NW	NW	332	NNW	
Dec 15	NW	NNW	NW	WNW	W	W	W	W	W	W	WSW	W	W	W	WNW	W	WNW	NW	WNW	WNW	NW	NW	NE	286	WNW		
Dec 16	ESE	S	ESE	ESE	SE	SSE	SE	E	E	ESE	E	ESE	ESE	ESE	E	E	E	ESE	ESE	SE	ESE	E	E	ENE	108	ESE	
Dec 17	ENE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	ENE	ENE	84	E	
Dec 18	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	E	E	E	E	E	75	ENE	
Dec 19	E	ENE	ENE	ENE	ENE	ENE	ENE	E	ENE	ENE	ENE	ENE	NE	NE	NE	NNE	NNE	N	N	N	N	N	NNW	53	NE		
Dec 20	NNW	NNW	NW	NNW	N	N	NNW	NNW	NNW	N	NNE	NNE	N	N	N	N	N	NNW	NNW	N	NNW	N	N	350	N		
Dec 21	N	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	
Dec 22	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	WNW	NNW	W	WSW	SW	SW	S	S	S	S	S	S	S	S	S	237	SW	
Dec 23	S	S	S	S	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SE	SE	ESE	ESE	ESE	ESE	SE	SE	SE	SE	SE	SE	150	SSE	
Dec 24	SE	SE	SE	SE	SE	ESE	ESE	SE	SE	SE	SSE	SE	SE	SE	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	E	NNE	122	ESE	
Dec 25	NNE	NNE	NNW	NNW	NW	WNW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NNW	NNE	NE	ENE	SE	SE	SE	336	NNW		
Dec 26	SSE	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	ESE	SE	SE	SE	ESE	ESE	SSW	WSW	SW	SW	W	W	133	SE		
Dec 27	WSW	W	NNW	N	NNE	NNE	NE	ENE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	81	E		
Dec 28	ENE	ENE	ENE	E	ENE	ENE	ENE	ENE	ENE	NE	NNW	NNW	NW	NW	NW	NNW	NNW	NW	WNW	WNW	NNW	NW	WNW	59	ENE		
Dec 29	WNW	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SSW	SSW	S	S	S	S	SSW	S	S	SSE	SSE	S	S	206	SSW		
Dec 30	SSW	SW	SW	SW	SW	SW	SW	SSW	SE	ESE	ESE	E	SE	E	SE	X	X	X	X	X	X	X	X	X	-	-	
Dec 31	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	

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 Site





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - December 2022

Summary of Hourly Averages

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

WIND SPEED																											
Maximum Hourly Value:		29.9 kph on December 4 at hour 13										Hours in Service:		744													
Maximum Daily Value:		18.3 kph on December 17										Hours of Data:		712													
Minimum Hourly Value:		0.0 kph on December 1 at hour 16										Hours of Missing Data:		32													
Minimum Daily Value:		2.4 kph on December 28										Hours of Calibration:		0													
Monthly Average:		0.2 kph										Operational Uptime:		95.7													
WIND DIRECTION																											
Monthly Average:		29 (NNE) 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			
Dec 1	13.9	7.8	6.8	8.3	9.3	9.8	7.4	7.1	6.9	6.1	4.2	3.8	4.7	3.8	2.1	1.7	0.0	3.2	5.3	7.0	6.5	4.1	3.9	5.9	0.0	13.9	3.1
Dec 2	6.4	6.1	5.2	6.5	7.4	8.0	9.5	10.7	9.0	9.0	10.6	11.5	10.7	12.1	12.1	13.6	17.1	17.0	16.5	17.2	15.0	16.9	15.0	14.8	5.2	17.2	11.1
Dec 3	12.8	11.9	16.1	16.1	15.2	16.1	17.0	18.7	19.1	20.9	18.7	18.9	18.8	20.2	19.5	18.7	16.0	18.2	17.9	17.8	21.8	20.8	21.8	27.7	11.9	27.7	18.0
Dec 4	19.1	17.4	19.4	16.8	17.9	20.1	19.8	19.9	20.9	25.5	24.8	22.8	24.2	29.9	23.9	21.4	20.3	17.2	17.5	16.8	13.0	11.6	12.3	8.3	8.3	29.9	17.5
Dec 5	6.4	9.5	8.2	6.5	7.2	5.9	6.4	6.9	8.3	7.7	7.6	5.9	6.1	9.1	5.2	8.3	15.2	18.5	14.3	10.8	9.7	10.0	8.2	8.5	5.2	18.5	5.4
Dec 6	8.8	7.4	7.8	10.5	12.2	9.7	8.3	8.8	8.6	7.8	4.7	5.2	7.2	8.9	9.0	6.6	9.2	10.7	12.7	13.7	13.9	14.3	16.0	16.3	4.7	16.3	5.0
Dec 7	17.5	15.2	16.0	18.9	19.8	19.3	18.6	17.9	21.0	20.0	21.1	21.8	20.1	17.1	13.6	13.1	12.1	10.2	6.6	7.7	6.6	3.1	7.3	8.4	3.1	21.8	12.4
Dec 8	9.2	10.1	11.6	12.4	11.1	11.7	12.2	13.6	13.7	13.8	13.3	12.6	13.8	13.8	11.2	8.8	11.4	12.5	11.3	7.4	11.0	11.8	12.6	7.4	13.8	9.2	
Dec 9	12.4	12.0	10.4	9.1	9.0	9.4	7.3	6.0	8.5	10.4	9.9	7.0	5.6	5.2	6.7	2.7	9.8	7.1	8.8	9.5	10.2	9.2	8.3	9.8	2.7	12.4	5.8
Dec 10	11.3	11.7	12.7	11.4	13.9	14.0	13.5	12.2	12.6	12.5	12.8	11.6	12.5	13.0	13.9	16.0	16.6	16.2	16.0	18.1	18.7	18.1	12.8	10.4	10.4	18.7	10.3
Dec 11	11.0	11.7	14.4	14.4	11.2	8.0	6.9	5.5	2.5	7.6	10.7	10.9	11.3	13.2	15.9	12.0	10.5	13.1	14.8	15.5	13.0	11.3	10.4	9.9	2.5	15.9	7.0
Dec 12	10.4	9.9	9.6	11.8	10.3	10.2	8.4	4.9	4.7	4.3	6.8	8.9	9.2	11.5	13.0	7.9	6.1	4.2	2.5	3.5	5.5	8.9	7.7	8.2	2.5	13.0	5.0
Dec 13	9.5	10.0	11.7	12.1	11.6	9.0	10.3	10.7	10.9	12.9	10.2	11.5	14.1	12.5	14.3	11.4	9.6	9.8	10.0	11.5	12.3	10.2	10.3	10.9	9.0	14.3	9.8
Dec 14	9.2	9.2	11.3	12.9	11.4	10.9	13.9	18.2	15.6	14.2	12.0	12.8	12.3	15.0	12.2	12.2	9.5	8.7	7.0	6.2	6.5	5.8	8.0	4.5	4.5	18.2	10.3
Dec 15	5.3	2.4	4.2	3.3	7.5	7.5	6.3	5.4	5.7	7.9	4.7	4.1	6.8	8.5	7.8	8.1	6.4	7.3	8.0	7.6	8.2	9.7	6.6	2.3	2.3	9.7	5.7
Dec 16	6.1	3.5	7.1	6.5	6.9	7.2	4.9	6.5	9.6	8.4	7.7	6.6	7.0	7.8	7.7	9.0	10.9	9.7	8.8	9.7	10.3	9.0	9.9	8.9	3.5	10.9	7.4
Dec 17	11.4	13.6	15.6	16.0	18.1	18.1	19.7	19.4	19.2	20.8	20.5	21.0	19.2	20.4	21.7	20.7	19.1	19.8	18.2	19.0	20.5	18.4	14.0	17.0	11.4	21.7	18.3
Dec 18	15.9	16.1	14.7	13.7	11.6	12.4	12.6	13.1	12.1	10.7	12.8	14.1	14.6	14.3	14.1	15.4	14.7	13.5	16.8	16.9	14.8	14.9	16.1	17.6	10.7	17.6	14.2
Dec 19	17.1	14.8	12.4	11.7	10.5	10.3	12.2	11.5	10.0	10.6	9.6	8.2	8.7	7.7	6.9	4.3	2.1	6.1	6.8	7.0	6.9	7.2	7.1	8.0	2.1	17.1	7.7
Dec 20	8.3	8.5	9.5	7.8	7.2	6.7	5.6	6.3	7.5	7.0	7.0	5.4	6.0	5.9	4.8	4.7	6.9	7.3	7.9	8.5	7.2	7.9	7.5	7.7	4.7	9.5	6.9



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - December 2022

Summary of Hourly Averages

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

WIND SPEED																																				
Maximum Hourly Value:	29.9	kph	on December 4 at hour 13	Hours in Service:	744																															
Maximum Daily Value:	18.3	kph	on December 17	Hours of Data:	712																															
Minimum Hourly Value:	0.0	kph	on December 1 at hour 16	Hours of Missing Data:	32																															
Minimum Daily Value:	2.4	kph	on December 28	Hours of Calibration:	0																															
Monthly Average:	0.2	kph		Operational Uptime:	95.7																															
WIND DIRECTION																																				
Monthly Average:	29 (NNE) 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												
Dec 21	6.3	6.7	7.6	9.3	10.2	9.5	10.5	11.4	10.3	11.2	11.0	11.9	12.1	12.3	13.0	12.8	13.8	15.6	14.7	13.2	15.6	15.6	15.3	15.1	6.3	15.6	11.8									
Dec 22	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	1.2	15.5	2.9									
Dec 23	14.1	11.7	11.0	11.3	8.8	9.3	5.7	8.0	6.9	5.5	4.0	1.2	2.5	4.3	5.0	7.3	10.9	14.0	11.6	13.8	14.1	13.7	15.1	15.5	10.6	17.1	12.6									
Dec 24	14.6	14.9	14.2	13.2	13.6	13.5	13.2	11.8	11.2	11.5	11.7	12.7	11.8	14.0	10.6	14.1	16.1	17.1	16.2	13.7	15.0	14.6	13.9	12.2	1.3	19.0	11.0									
Dec 25	S	S	S	S	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SE	SE	ESE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	3.9	12.8	6.4									
Dec 26	12.5	12.3	11.2	11.9	9.1	9.9	9.3	8.7	8.0	9.1	9.3	10.5	11.4	12.8	13.5	14.7	16.6	15.9	17.7	19.0	17.1	9.6	1.3	5.0	3.6	17.3	9.3									
Dec 27	SE	SE	SE	SE	SE	ESE	ESE	SE	SE	SE	SE	SSE	SE	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	NNE	3.3	16.3	8.6									
Dec 28	8.6	7.2	5.9	7.8	8.9	11.0	12.6	12.8	12.4	11.3	11.5	11.7	12.5	10.5	8.9	8.9	6.5	7.5	8.8	4.8	3.9	5.7	7.4	9.3	0.0	10.3	2.4									
Dec 29	NNE	NNE	NNW	NNW	NW	WNW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NNW	NNE	NE	ENE	SE	SE	SE	1.1	13.3	4.6									
Dec 30	9.9	11.6	12.8	12.1	13.4	15.4	15.3	14.6	13.8	14.4	15.8	14.9	13.4	15.5	11.0	14.2	12.3	17.3	3.6	7.6	9.3	14.1	10.4	5.4	0.1	11.4	-									
Dec 31	SSE	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	ESE	SE	SE	ESE	ESE	ESE	SSW	WSW	SW	SW	W	W	W	-	-	-									
	5.8	6.2	7.0	5.4	6.8	3.3	6.1	9.6	10.9	13.1	10.7	9.4	10.7	11.5	13.5	13.7	13.6	14.4	16.3	14.7	13.8	12.8	12.1	11.5												
	WSW	W	NNW	N	NNE	NNE	NE	ENE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E												
	10.3	10.2	9.2	9.9	9.0	6.7	4.2	2.2	2.2	0.7	0.0	0.0	0.1	0.5	1.3	1.8	1.7	0.1	2.9	2.2	3.2	3.1	1.6	0.6												
	ENE	ENE	ENE	E	ENE	ENE	ENE	ENE	ENE	ENE	NE	NNW	NNW	NW	NW	NW	NNW	NNW	NW	WNW	WNW	NNW	NW	WNW												
	1.6	1.1	3.0	2.0	3.2	4.9	3.2	6.0	6.8	5.3	1.3	3.7	5.3	5.3	4.5	5.8	5.9	6.8	7.0	6.9	5.7	8.7	11.9	13.3												
	WNW	W	W	WSW	WSW	WSW	WSW	WSW	WSW	SSW	SW	SSW	SSW	S	S	S	SSW	S	S	SSE	SSE	S	S	S												
	11.4	10.7	7.5	6.2	5.6	2.9	0.4	0.4	1.9	0.5	0.1	1.9	1.3	0.1	1.5	1.4	X	X	X	X	X	X	X	X												
	SSW	SW	SW	SW	SW	SW	SSW	SSW	SE	ESE	ESE	E	SE	E	SE	X	X	X	X	X	X	X	X	X												
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
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 Site - December 2022

Summary of Hour Standard Deviations

STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

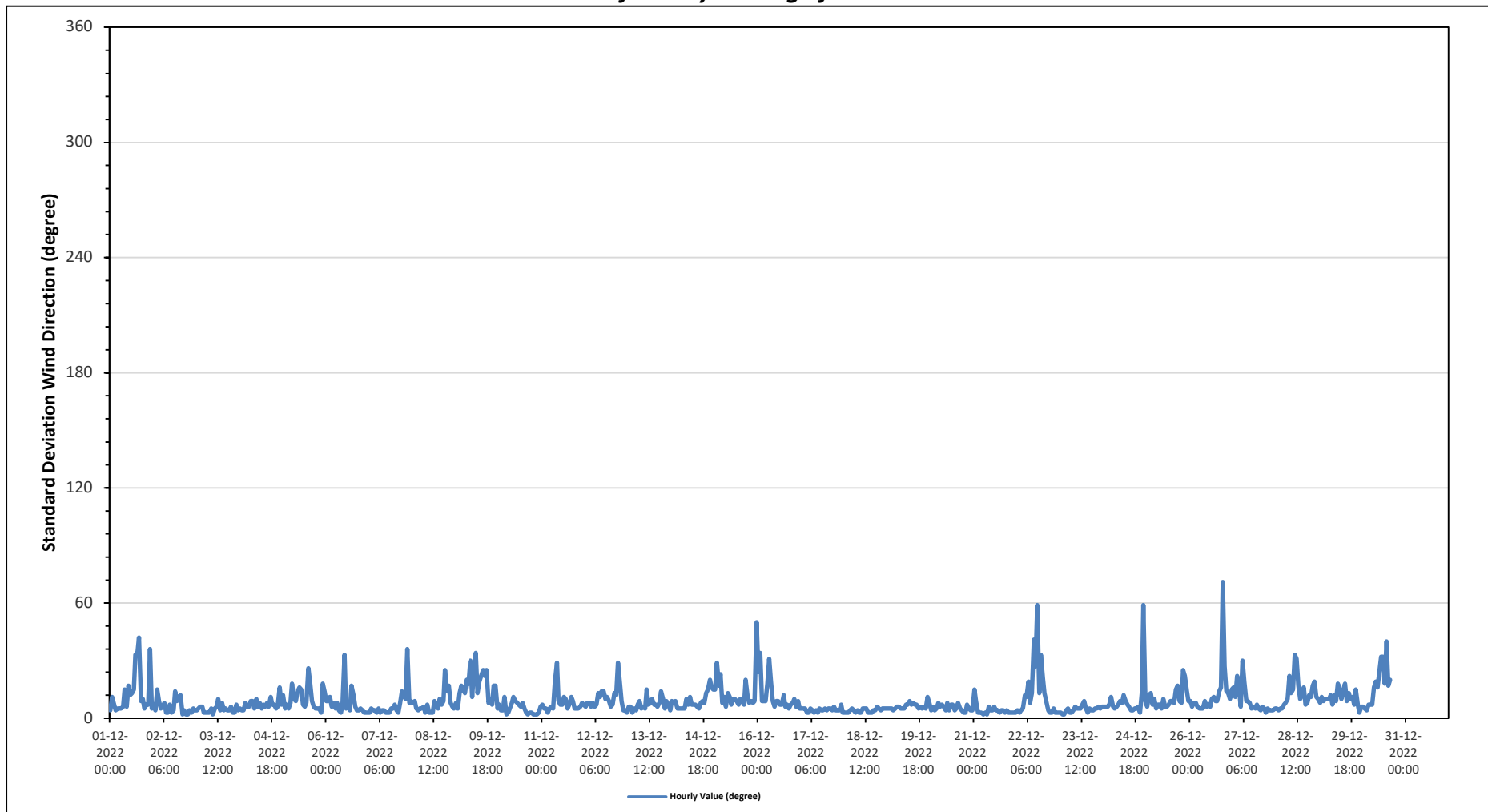
Maximum Hourly Value:	71 degree on December 26 at hour 18	Hours in Service:	744
Minimum Hourly Value:	2 degree on December 2 at hour 16	Hours of Data:	712
		Hours of Missing Data:	32
		Hours of Calibration:	0
		Operational Uptime:	95.7

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
Dec 1	4	11	7	4	5	5	5	6	15	6	17	12	13	15	33	34	42	9	10	5	7	7	36	5	4	42
Dec 2	7	4	15	9	5	6	8	3	3	7	3	4	14	9	11	12	2	4	2	2	4	3	5	4	2	15
Dec 3	4	5	6	6	3	3	3	3	5	2	5	6	10	4	8	4	5	4	4	6	3	3	7	4	2	10
Dec 4	5	4	4	8	6	6	9	9	5	10	6	8	5	7	6	8	6	11	7	7	5	6	16	7	4	16
Dec 5	12	5	7	5	8	18	10	9	14	16	15	7	6	8	26	18	9	6	5	5	5	3	18	14	3	26
Dec 6	9	9	11	6	8	5	8	4	3	7	33	5	6	4	17	12	6	4	4	5	4	3	3	3	3	33
Dec 7	3	5	4	4	3	5	3	4	4	3	3	3	5	5	7	4	3	8	14	12	10	36	8	9	3	36
Dec 8	8	9	5	4	5	5	6	3	7	3	3	3	9	7	5	10	7	9	25	14	17	8	6	5	3	25
Dec 9	8	5	13	17	15	13	20	18	30	11	26	34	13	19	22	25	22	25	8	10	7	17	17	5	5	34
Dec 10	7	4	4	11	2	3	5	8	11	9	8	7	6	8	5	3	2	3	3	2	2	2	3	6	2	11
Dec 11	7	5	5	3	5	6	5	19	29	9	7	7	11	10	5	7	11	9	5	5	5	6	8	7	3	29
Dec 12	6	8	8	6	8	6	7	13	11	14	14	10	11	9	6	7	13	12	29	19	9	4	4	3	3	29
Dec 13	6	6	3	5	4	7	9	5	6	5	15	7	8	10	7	7	6	8	14	10	5	9	7	4	3	15
Dec 14	9	8	9	5	5	5	5	10	7	11	7	7	7	6	5	8	9	8	13	15	20	16	15	5	5	20
Dec 15	15	29	17	23	8	11	6	13	11	7	10	10	9	7	10	9	7	20	11	8	9	8	9	50	6	50
Dec 16	24	34	9	9	9	18	31	19	9	6	9	9	7	7	12	6	7	5	7	8	10	6	9	5	5	34
Dec 17	5	5	5	3	3	5	4	3	4	3	5	4	4	5	4	5	5	4	6	4	4	4	7	3	3	7
Dec 18	3	3	3	4	5	4	3	4	3	3	5	5	5	3	3	3	4	4	6	5	4	5	5	5	3	6
Dec 19	5	5	5	4	5	6	6	5	5	5	7	7	9	7	8	7	7	5	6	5	6	5	11	8	4	11
Dec 20	4	6	4	5	8	6	7	6	4	8	4	7	7	4	5	8	5	4	3	3	7	5	4	4	3	8
Dec 21	15	9	3	3	3	2	3	2	6	4	4	6	4	4	3	4	4	3	4	3	3	3	3	3	2	15
Dec 22	4	3	4	5	12	11	19	8	13	41	27	59	13	33	21	13	9	4	3	3	5	3	3	3	3	59
Dec 23	3	2	2	4	5	3	3	4	6	5	5	7	9	5	3	5	4	4	5	5	5	6	5	6	2	9
Dec 24	6	6	6	7	11	6	5	6	7	9	8	12	9	7	6	4	4	5	5	6	3	13	59	9	3	59
Dec 25	6	12	13	7	10	5	7	7	5	10	6	6	7	9	9	8	15	17	9	8	25	22	14	9	5	25
Dec 26	9	6	8	8	6	5	5	5	9	6	7	6	10	11	9	9	14	16	71	27	14	13	10	15	5	71
Dec 27	16	11	22	16	6	30	19	9	9	8	5	6	5	7	5	4	6	5	3	5	4	4	4	5	3	30
Dec 28	5	4	5	5	7	8	10	22	13	15	33	31	17	10	13	16	7	8	12	11	17	19	11	10	4	33
Dec 29	8	11	9	10	10	10	12	7	12	9	18	15	10	15	18	9	13	10	11	7	15	7	3	6	3	18
Dec 30	6	5	4	7	7	7	16	19	16	23	32	32	18	40	17	20	X	X	X	X	X	X	X	X	4	40
Dec 31	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
Diurnal Minimum	3	2	2	3	2	2	3	2	3	2	3	3	4	3	3	3	2	3	2	2	2	2	3	3	3	3
Diurnal Maximum	24	34	22	23	15	30	31	22	30	41	33	59	18	40	33	34	42	25	71	27	25	36	59	50	50	

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

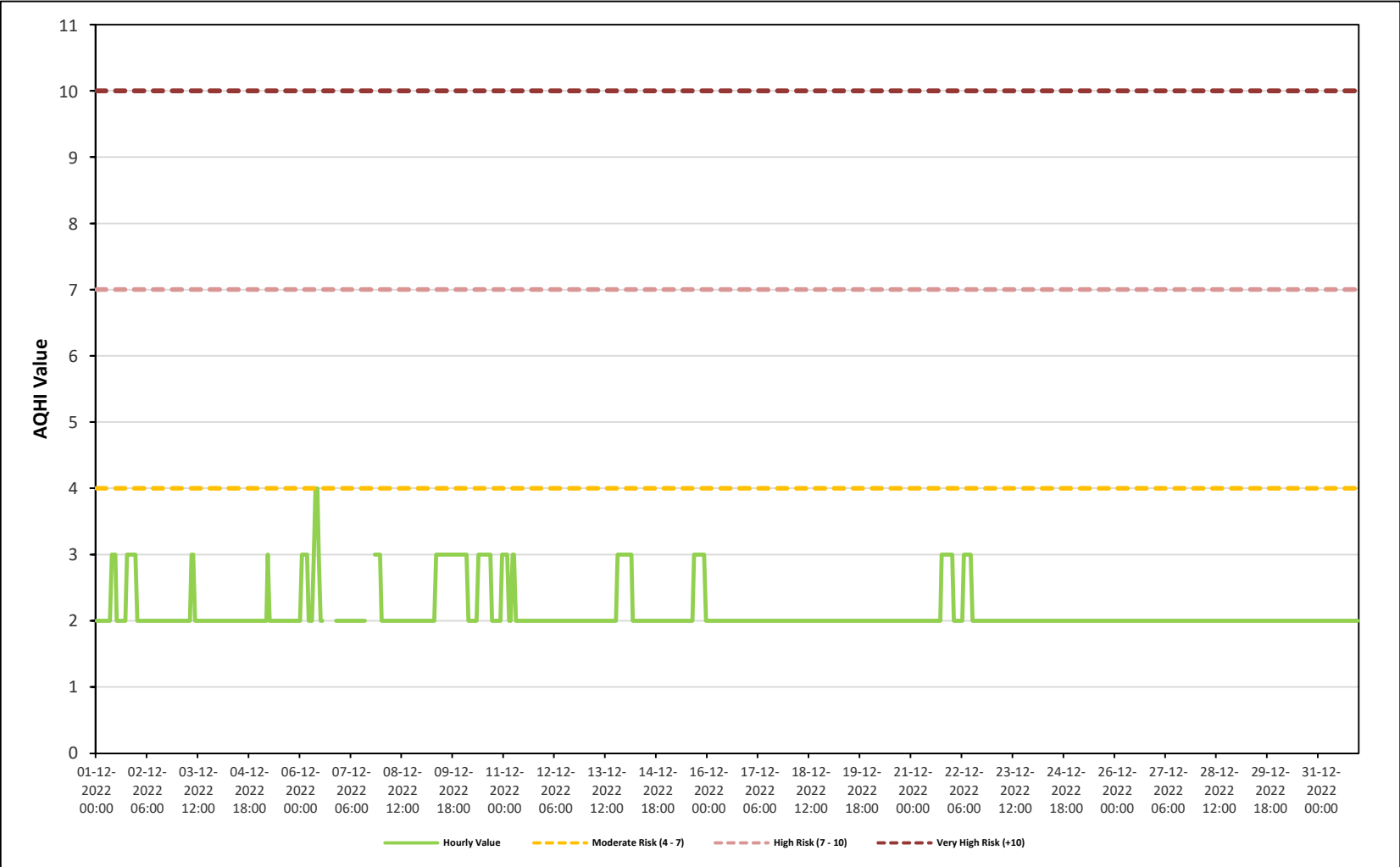
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

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

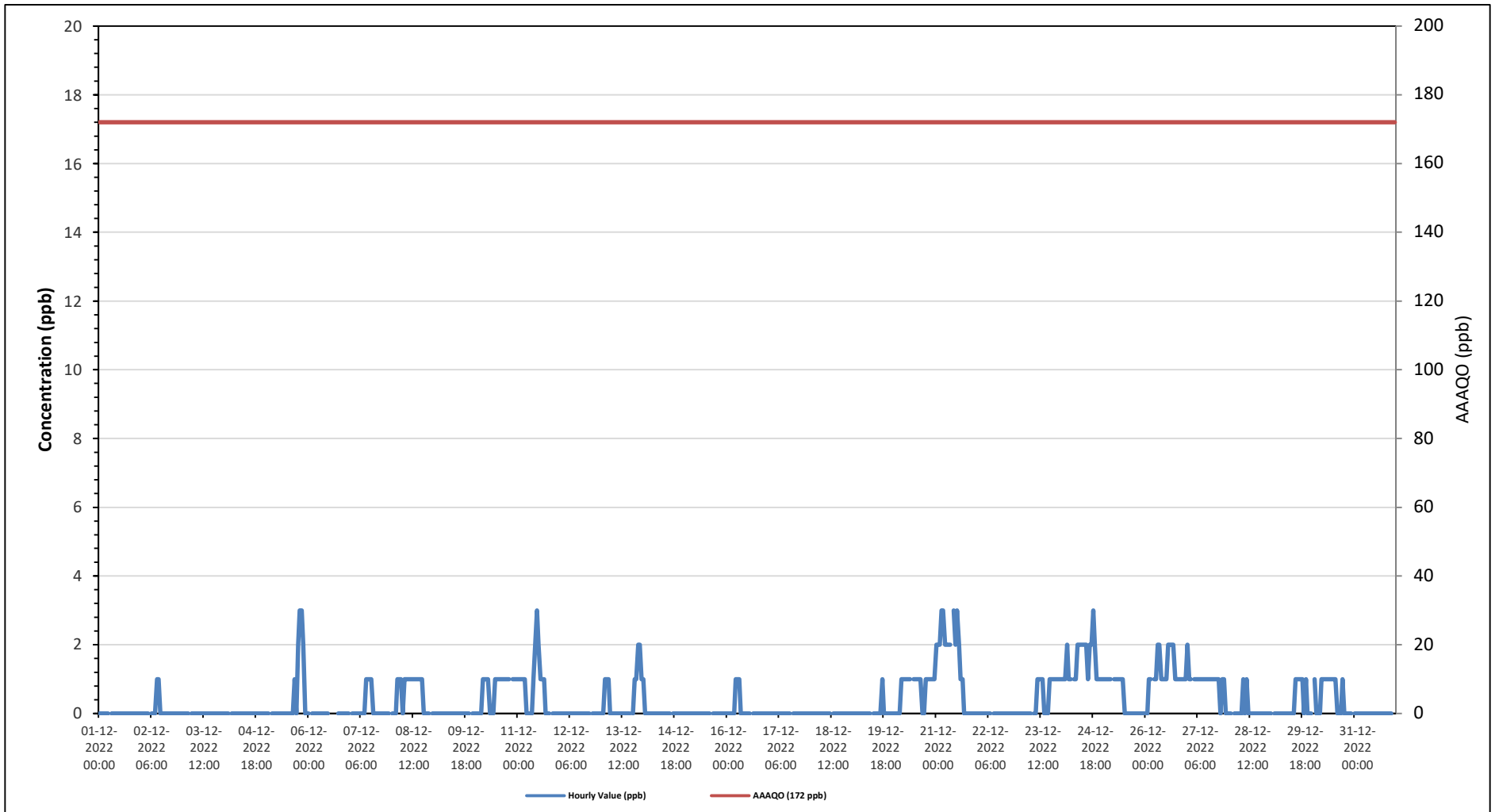


LAC LA BICHE STATION

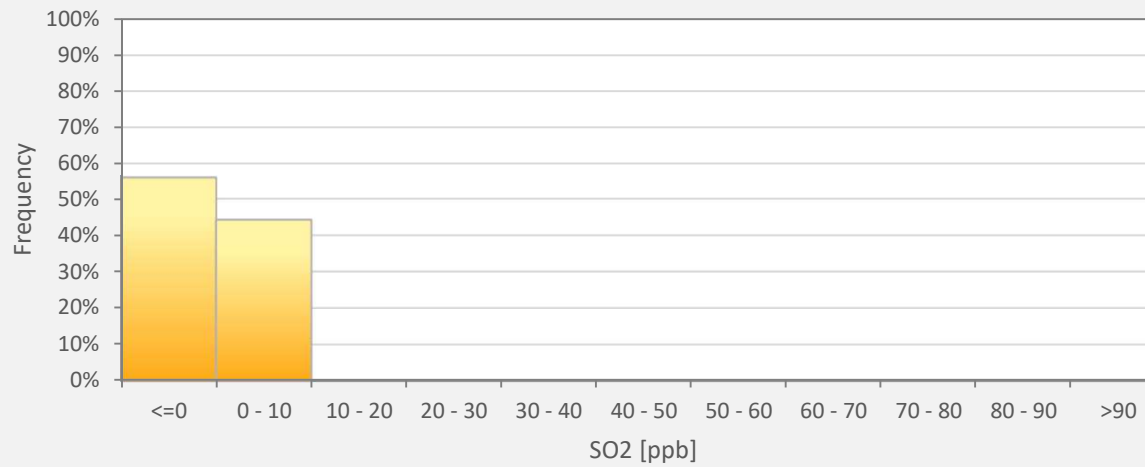
Timeseries Chart of Hourly Average for AQHI - Lac La Biche Station



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



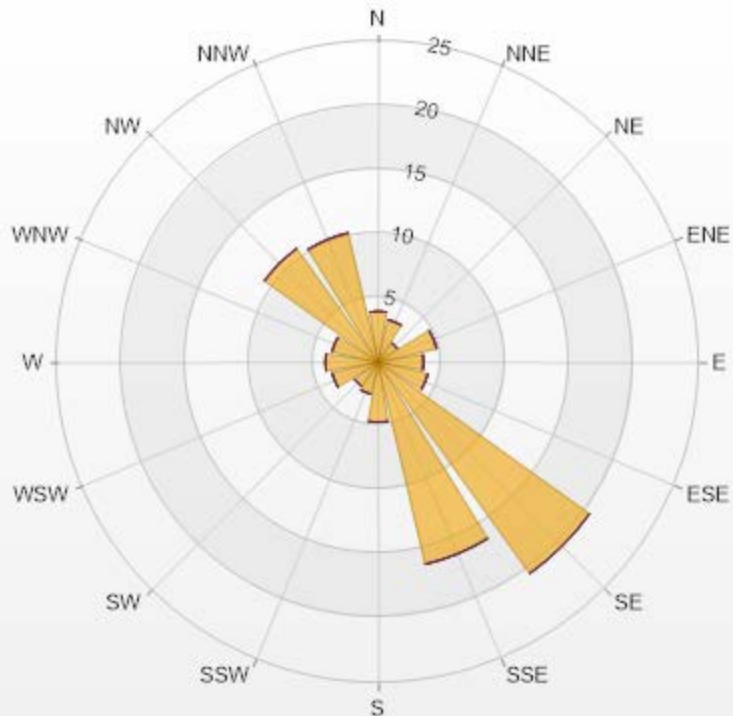
SO2[ppb] Histogram: Lac La Biche Monthly: 12-2022 1 Hr.



Classes	SO2
<=0	55.81%
0 - 10	44.19%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	3.97	0	0	0	0	3.97
NNE	3.4	0	0	0	0	3.4
NE	1.84	0	0	0	0	1.84
ENE	4.67	0	0	0	0	4.67
E	3.54	0	0	0	0	3.54
ESE	3.97	0	0	0	0	3.97
SE	20.25	0	0	0	0	20.25
SSE	16.15	0	0	0	0	16.15
S	4.67	0	0	0	0	4.67
SSW	2.55	0	0	0	0	2.55
SW	2.27	0	0	0	0	2.27
WSW	3.68	0	0	0	0	3.68
W	4.11	0	0	0	0	4.11
WNW	3.68	0	0	0	0	3.68
NW	10.91	0	0	0	0	10.91
NNW	10.34	0	0	0	0	10.34
Summary	100	0	0	0	0	100



LICA-202212

% Icon Classes (ppb)

100 0-10

0 10-50

0 50-100

0 100-172

0 >172.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - December 2022

Summary of Hourly Averages

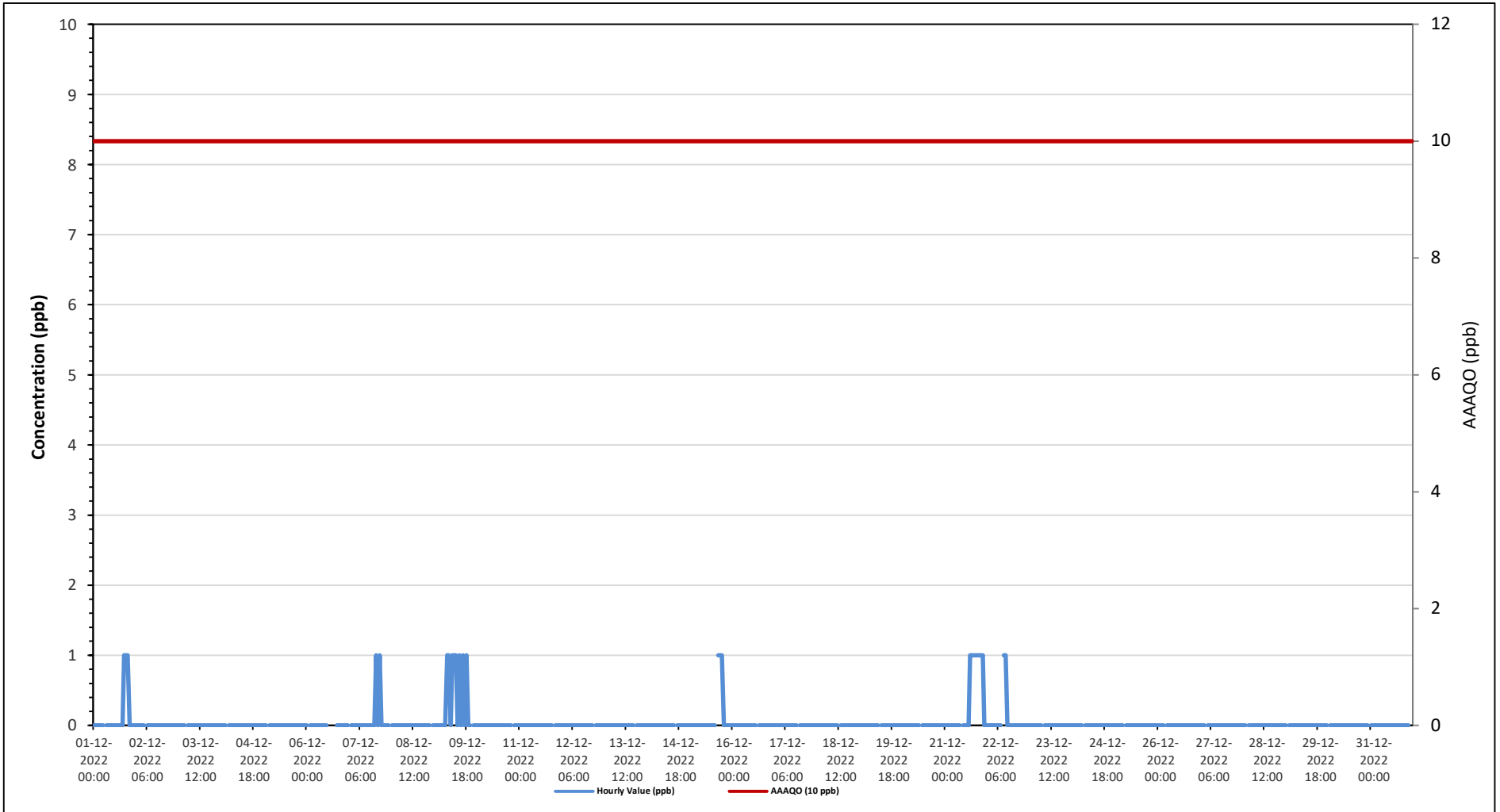
HYDROGEN SULPHIDE (H₂S) in ppb

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 December 1 at hour 17												Hours in Service: 744																								
Maximum Daily Value: 0.3 ppb on December 9												Hours of Data: 706																								
Minimum Hourly Value: 0 ppb on December 1 at hour 0												Hours of Missing Data: 0																								
Minimum Daily Value: 0.0 ppb on December 2												Hours of Calibration: 38																								
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									
Dec 1	0	0	0	0	0	0	S	0	0	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	1	0.1
Dec 2	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
Dec 3	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	
Dec 4	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	
Dec 5	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	
Dec 6	0	S	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	0	0	0	0.0		
Dec 7	S	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	S	0	0	0.1		
Dec 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0		
Dec 9	0	0	0	0	0	0	0	0	1	1	0	1	1	1	0	1	0	1	0	1	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0.3	
Dec 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0.0	
Dec 11	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	
Dec 12	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	
Dec 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0.0	
Dec 14	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	
Dec 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	
Dec 16	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	0.0	
Dec 17	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	
Dec 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Dec 19	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	
Dec 20	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	
Dec 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	
Dec 22	0	0	0	0	0	0	0	0	0	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	0.1	
Dec 23	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Dec 24	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	
Dec 25	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	
Dec 26	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	
Dec 27	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	
Dec 28	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	
Dec 29	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	
Dec 30	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	
Dec 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.0	
Diurnal Maximum	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

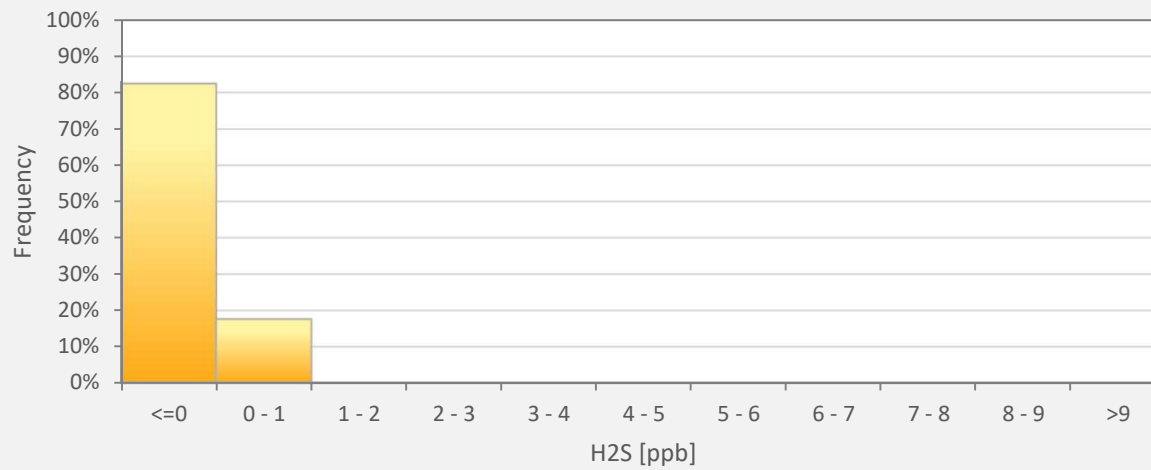
C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	N No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction /Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

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



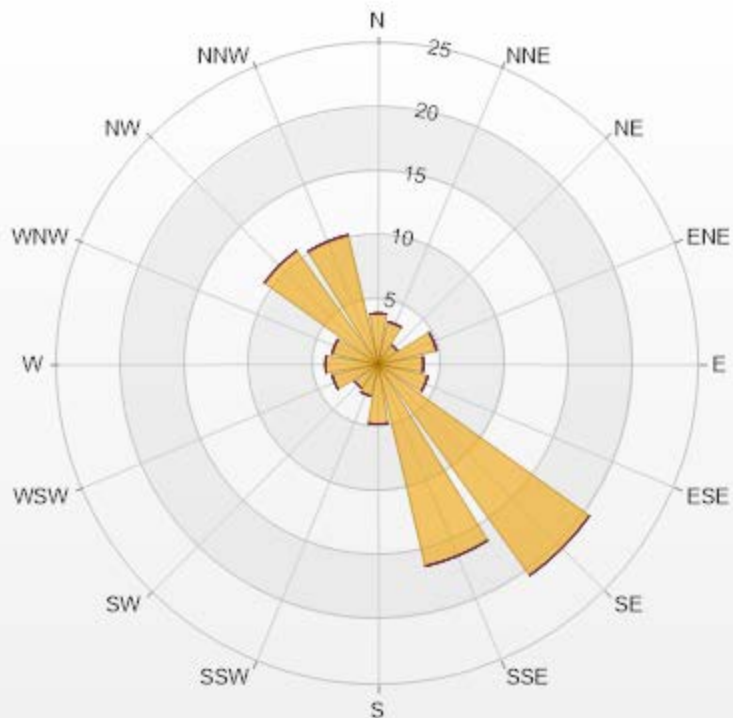
H2S[ppb] Histogram: Lac La Biche Monthly: 12-2022 1 Hr.



Classes	H2S
<=0	82.44%
0 - 1	17.56%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	3.97	0	0	0	0	3.97
NNE	3.4	0	0	0	0	3.4
NE	1.84	0	0	0	0	1.84
ENE	4.67	0	0	0	0	4.67
E	3.54	0	0	0	0	3.54
ESE	3.97	0	0	0	0	3.97
SE	20.25	0	0	0	0	20.25
SSE	16.15	0	0	0	0	16.15
S	4.67	0	0	0	0	4.67
SSW	2.55	0	0	0	0	2.55
SW	2.27	0	0	0	0	2.27
WSW	3.68	0	0	0	0	3.68
W	4.11	0	0	0	0	4.11
WNW	3.68	0	0	0	0	3.68
NW	10.91	0	0	0	0	10.91
NNW	10.34	0	0	0	0	10.34
Summary	100	0	0	0	0	100



LICA-202212

% 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 - December 2022

Summary of Hourly Averages

OXIDES OF NITROGEN (NOx) in ppb

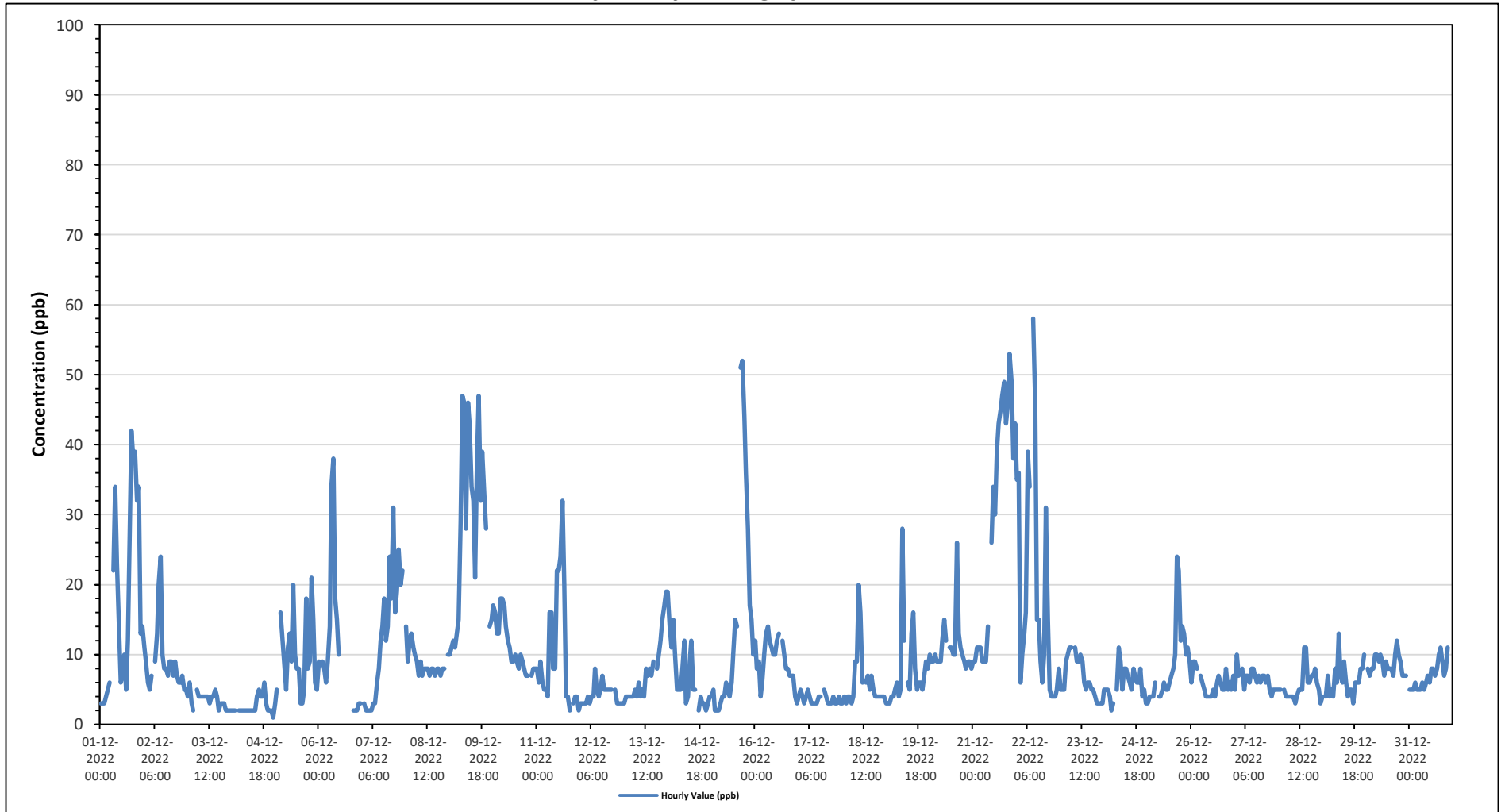
Maximum Hourly Value:	58 ppb on December 22 at hour 9	Hours in Service:	744
Maximum Daily Value:	29.4 ppb on December 21	Hours of Data:	704
Minimum Hourly Value:	1 ppb on December 4 at hour 23	Hours of Missing Data:	0
Minimum Daily Value:	2.6 ppb on December 4	Hours of Calibration:	40
Monthly Average:	9.8 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	
Dec 1	3	3	3	4	5	6	S	22	34	23	15	6	7	10	5	12	27	42	38	39	32	34	13	14	3	42	17.3	
Dec 2	11	9	6	5	7	S	9	13	20	24	10	8	8	7	9	9	7	9	7	6	6	7	5	5	5	24	9.0	
Dec 3	4	6	3	2	S	5	4	4	4	4	4	4	3	4	4	5	4	2	3	3	3	2	2	2	2	6	3.5	
Dec 4	2	2	2	S	2	2	2	2	2	2	2	2	2	2	4	5	4	4	6	3	2	2	2	1	1	6	2.6	
Dec 5	3	5	S	16	12	9	5	11	13	9	20	10	8	8	3	5	18	8	9	21	15	6	5	3	21	9.7		
Dec 6	9	S	9	8	6	9	14	34	38	18	15	10	C	C	C	C	C	C	C	2	2	2	3	3	2	38	-	
Dec 7	S	3	2	2	2	2	3	3	6	8	12	14	18	12	14	24	18	31	16	19	25	20	22	S	2	31	12.5	
Dec 8	14	9	12	13	11	10	9	7	9	7	8	8	8	7	8	8	7	8	8	7	8	8	S	10	7	14	8.9	
Dec 9	10	11	12	11	13	15	29	47	46	28	46	43	34	32	21	37	47	32	39	33	28	S	14	15	10	47	28.0	
Dec 10	17	16	13	13	18	18	17	14	12	11	9	9	10	9	8	10	9	8	7	7	S	7	8	8	7	18	11.2	
Dec 11	8	6	9	6	5	5	4	16	16	8	8	22	22	24	32	20	4	4	2	S	3	4	4	2	2	32	10.2	
Dec 12	3	3	3	3	4	3	4	4	8	5	4	5	7	5	5	5	5	S	5	3	3	3	3	3	3	8	4.3	
Dec 13	3	4	4	4	4	4	5	4	6	4	5	4	8	7	8	7	9	S	8	10	12	15	17	19	3	19	7.4	
Dec 14	19	14	11	15	10	5	5	5	8	12	3	4	9	12	5	7	S	2	4	3	3	2	3	4	2	19	7.1	
Dec 15	4	5	2	2	2	3	4	4	6	5	4	6	10	15	14	S	51	52	44	36	28	17	15	10	2	52	14.7	
Dec 16	12	8	9	4	6	10	13	14	12	11	10	10	12	13	S	12	10	8	8	7	7	7	4	3	3	14	9.1	
Dec 17	4	5	4	3	4	5	4	3	3	3	3	4	4	S	5	4	3	3	3	4	3	3	4	3	3	5	3.7	
Dec 18	3	4	3	4	4	3	4	9	9	20	16	6	S	6	7	5	7	5	4	4	4	4	4	4	4	3	20	6.0
Dec 19	3	3	3	4	4	5	6	4	5	28	12	S	6	5	13	16	8	5	6	6	5	7	9	8	3	28	7.4	
Dec 20	10	9	9	10	9	9	9	12	15	12	S	11	11	10	10	26	13	11	10	9	8	9	9	8	8	26	10.8	
Dec 21	9	9	11	11	11	9	9	9	14	S	26	34	30	39	43	45	47	49	43	46	53	49	38	43	9	53	29.4	
Dec 22	35	36	6	10	13	16	39	34	S	58	46	15	15	9	6	10	31	15	5	4	4	4	5	8	4	58	18.4	
Dec 23	5	5	5	9	10	11	11	S	11	9	9	10	9	6	5	6	6	5	5	4	3	3	3	3	3	11	6.7	
Dec 24	5	5	5	4	2	3	S	5	11	9	5	8	8	7	6	5	8	7	6	6	8	4	5	3	2	11	5.9	
Dec 25	3	4	4	4	6	S	4	4	5	6	5	5	6	7	8	10	24	22	12	14	13	10	11	9	3	24	8.5	
Dec 26	6	9	9	8	S	7	6	5	4	4	4	4	5	4	6	7	6	5	5	8	5	6	5	7	4	9	5.9	
Dec 27	5	10	7	S	8	5	7	7	6	8	8	7	6	7	6	7	7	6	7	5	4	5	5	5	4	10	6.4	
Dec 28	5	5	S	5	4	4	4	4	3	4	5	5	5	11	11	6	6	7	7	8	6	5	3	3	11	5.5		
Dec 29	4	S	4	7	4	5	4	8	6	13	7	6	9	6	4	5	5	3	6	6	6	8	8	10	3	13	6.3	
Dec 30	S	8	7	8	8	10	10	9	10	9	7	9	8	8	8	7	10	12	10	9	7	7	7	S	7	12	8.5	
Dec 31	5	5	5	6	5	5	5	6	5	6	7	6	8	8	7	8	10	11	9	7	8	11	S	10	5	11	7.1	
Diurnal Maximum	35	36	13	16	18	18	39	47	46	58	46	43	34	39	43	45	51	52	44	46	53	49	38	43				
Diurnal Average	7.7	7.6	6.3	6.9	6.9	7.0	8.6	10.8	11.6	12.2	11.1	9.8	10.2	10.1	9.8	11.5	13.7	13.4	11.6	10.9	10.7	9.4	8.2	7.9				

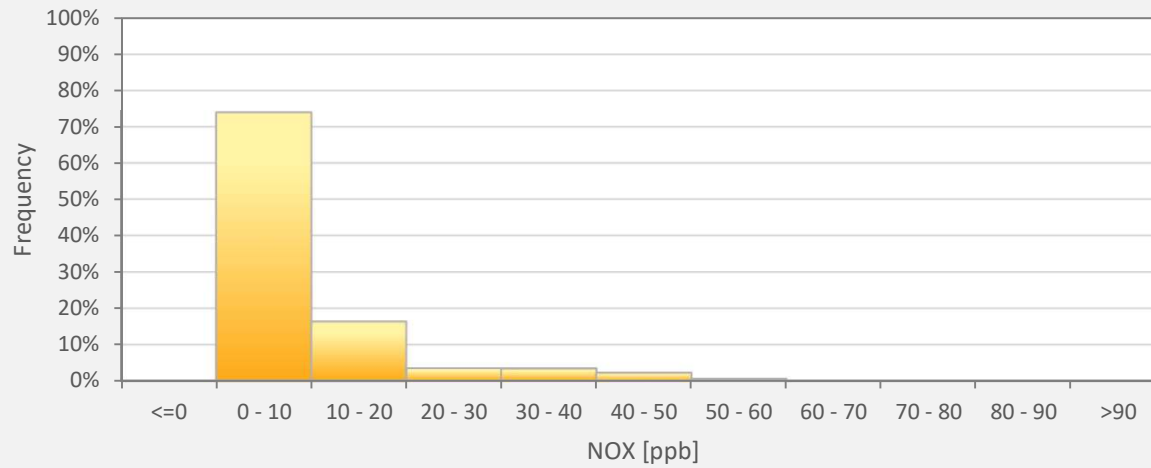
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction/Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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 - Lac La Biche Station



NOX[ppb] Histogram: Lac La Biche Monthly: 12-2022 1 Hr.



Classes	NOX
<=0	0.00%
0 - 10	73.86%
10 - 20	16.34%
20 - 30	3.55%
30 - 40	3.41%
40 - 50	2.27%
50 - 60	0.57%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.62% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	3.84	0.14	0	0	0	3.98
NNE	2.98	0.43	0	0	0	3.41
NE	1.7	0.14	0	0	0	1.84
ENE	4.69	0	0	0	0	4.69
E	3.55	0	0	0	0	3.55
ESE	3.84	0	0.14	0	0	3.98
SE	19.46	0.71	0.14	0	0	20.31
SSE	14.91	0.99	0	0	0	15.9
S	4.4	0.28	0	0	0	4.68
SSW	2.41	0	0.14	0	0	2.55
SW	1.99	0.28	0	0	0	2.27
WSW	3.41	0.28	0	0	0	3.69
W	3.84	0.28	0	0	0	4.12
WNW	3.69	0	0	0	0	3.69
NW	8.95	1.85	0.14	0	0	10.94
NNW	10.09	0.28	0	0	0	10.37
Summary	93.75	5.66	0.56	0	0	100



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - December 2022

Summary of Hourly Averages

NITRIC OXIDE (NO) in ppb

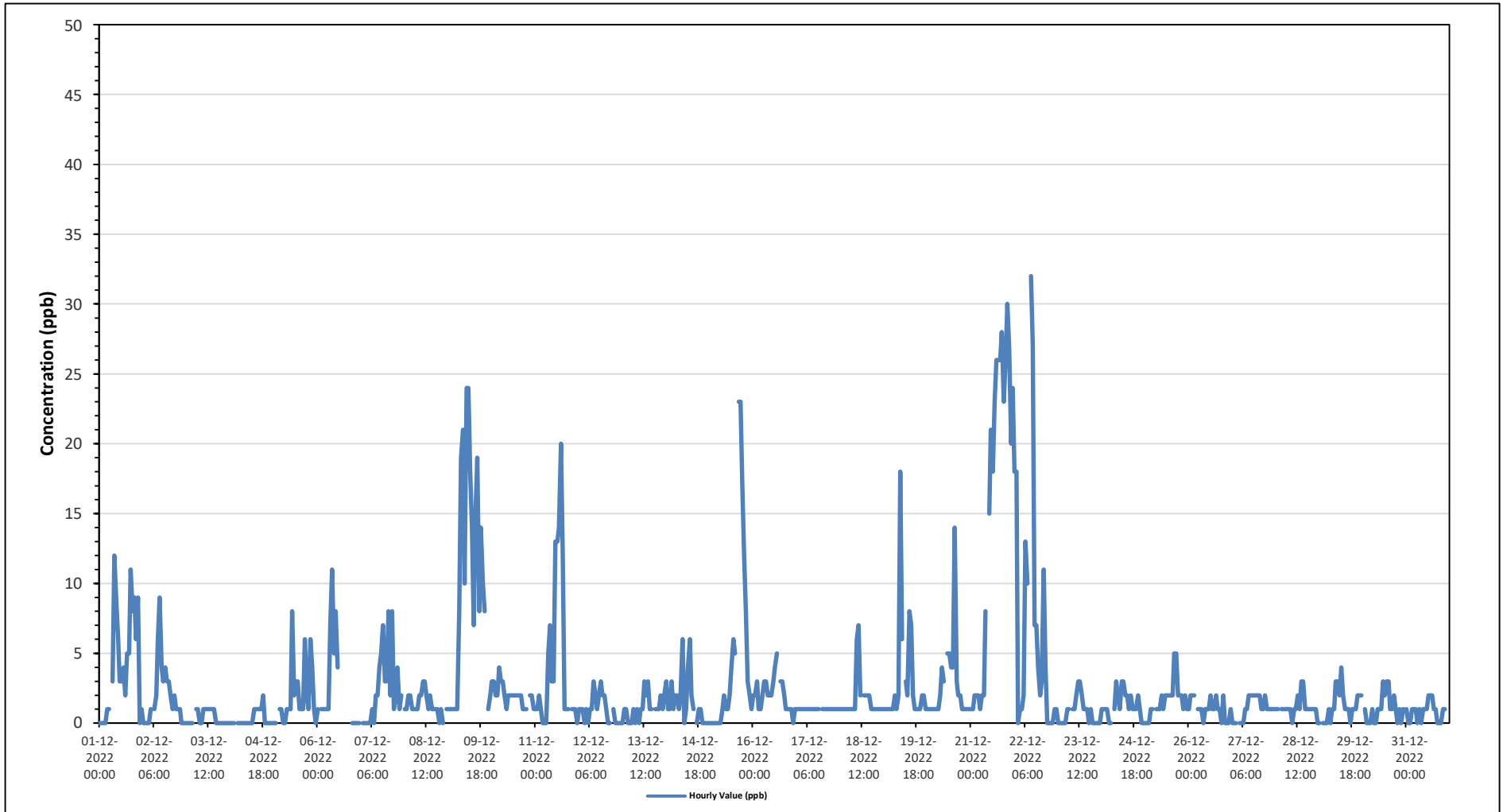
Maximum Hourly Value:	32 ppb on December 22 at hour 9	Hours in Service:	744
Maximum Daily Value:	15.4 ppb on December 21	Hours of Data:	704
Minimum Hourly Value:	0 ppb on December 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.3 ppb on December 4	Hours of Calibration:	40
Monthly Average:	2.7 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			
Dec 1	0	0	0	0	1	1	S	3	12	9	6	3	3	4	2	5	5	11	8	9	6	9	0	1	0	12	4.3
Dec 2	0	0	0	0	1	S	1	2	6	9	4	3	4	3	3	2	1	2	1	1	1	0	0	0	0	9	1.9
Dec 3	0	0	0	0	S	1	1	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.4
Dec 4	0	0	0	S	0	0	0	0	0	0	0	0	0	1	1	1	1	1	2	0	0	0	0	0	0	2	0.3
Dec 5	0	0	S	1	1	0	0	1	1	1	8	2	3	3	1	1	6	2	1	6	4	1	0	0	8	1.9	
Dec 6	1	S	1	1	1	1	1	7	11	5	8	4	C	C	C	C	C	C	C	0	0	0	0	0	11	-	
Dec 7	S	0	0	0	0	0	1	0	2	2	4	5	7	3	3	8	2	8	1	2	4	1	2	S	8	2.5	
Dec 8	1	1	2	2	1	1	1	1	2	2	3	3	2	1	2	1	1	1	1	0	1	0	S	1	3	1.3	
Dec 9	1	1	1	1	1	1	8	19	21	10	24	24	18	14	7	15	19	8	14	10	8	S	1	2	24	9.9	
Dec 10	3	3	2	2	4	3	3	2	1	2	2	2	2	2	2	2	2	1	1	1	S	2	2	1	4	2.0	
Dec 11	1	1	2	1	0	0	0	5	7	3	3	13	13	14	20	12	1	1	1	S	1	1	1	0	20	4.4	
Dec 12	1	1	1	0	1	0	1	1	3	2	1	2	3	2	2	1	0	0	S	1	0	0	0	0	3	1.0	
Dec 13	0	1	1	0	0	0	1	0	1	0	1	1	3	2	3	1	1	S	1	1	1	2	1	2	3	1.0	
Dec 14	3	1	1	3	1	2	2	1	2	6	0	1	4	6	2	1	S	0	1	1	0	0	0	0	6	1.7	
Dec 15	0	0	0	0	0	0	0	1	2	1	1	2	4	6	5	S	23	23	17	12	8	3	2	1	23	4.8	
Dec 16	2	2	3	1	1	2	3	3	2	2	2	3	4	5	S	3	3	2	1	1	1	1	0	1	5	2.1	
Dec 17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Dec 18	1	1	1	1	1	1	1	1	1	6	7	2	S	2	2	2	2	1	1	1	1	1	1	1	1	7	1.7
Dec 19	1	1	1	1	1	1	2	1	2	18	6	S	3	2	8	7	2	1	1	1	1	2	2	1	18	2.9	
Dec 20	1	1	1	1	1	1	1	2	4	3	S	5	5	4	4	14	3	2	2	1	1	1	1	1	14	2.6	
Dec 21	1	1	2	2	2	1	2	2	8	S	15	21	18	23	26	26	26	28	23	26	30	27	20	24	30	15.4	
Dec 22	18	18	0	1	1	2	13	10	S	32	27	7	7	4	2	3	11	4	0	0	0	0	1	1	32	7.0	
Dec 23	0	0	0	0	0	1	1	S	1	1	2	3	3	2	1	1	1	0	1	0	0	0	0	0	3	0.8	
Dec 24	1	1	1	1	0	0	S	1	3	2	1	3	3	2	2	1	2	1	1	1	2	1	0	0	3	1.3	
Dec 25	0	0	0	1	1	S	1	1	1	2	1	2	2	2	2	2	5	5	2	2	2	1	2	1	5	1.7	
Dec 26	1	2	2	2	S	1	1	1	0	1	1	1	2	1	1	2	1	1	0	2	0	0	0	1	2	1.0	
Dec 27	0	0	0	S	0	0	0	1	1	2	2	2	2	2	2	1	1	2	1	1	1	1	1	1	2	1.1	
Dec 28	1	1	S	1	1	1	1	1	1	0	1	1	2	1	3	3	1	1	1	1	1	1	1	0	3	1.1	
Dec 29	0	S	0	0	0	1	0	1	1	3	3	2	4	2	1	1	1	0	1	1	1	2	2	2	4	1.3	
Dec 30	S	1	0	0	0	1	0	0	1	1	1	3	2	3	3	1	1	2	1	0	1	0	1	S	3	1.0	
Dec 31	1	0	0	1	1	1	0	1	0	1	1	1	2	2	2	1	1	0	0	0	1	1	S	2	2	0.9	
Diurnal Maximum	18	18	3	3	4	3	13	19	21	32	27	24	18	23	26	26	26	28	23	26	30	27	20	24			
Diurnal Average	1.4	1.3	0.8	0.9	0.8	0.9	1.6	2.3	3.3	4.3	4.6	4.1	4.4	4.1	3.9	4.2	4.1	3.9	3.0	2.6	2.7	2.1	1.5	1.6			

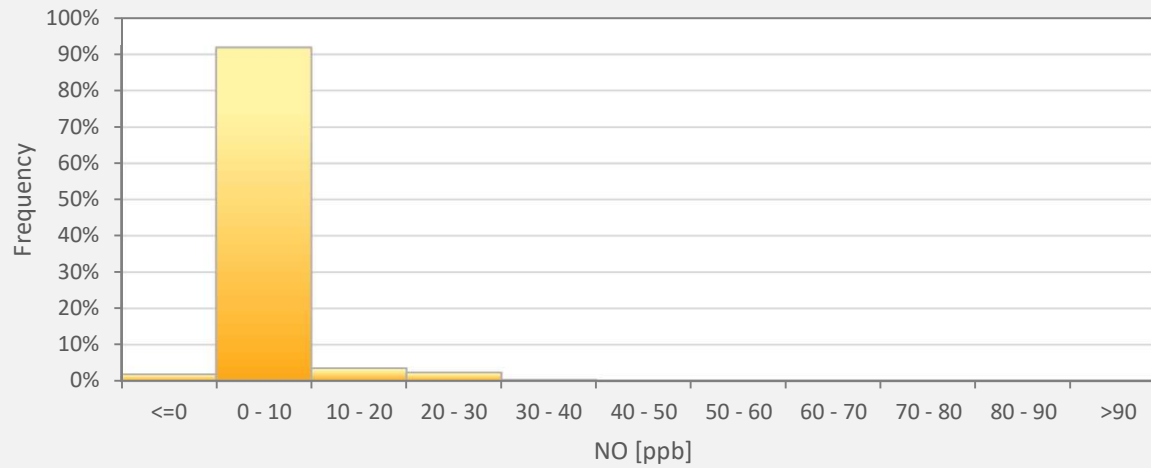
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction/Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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 NO - Lac La Biche Station



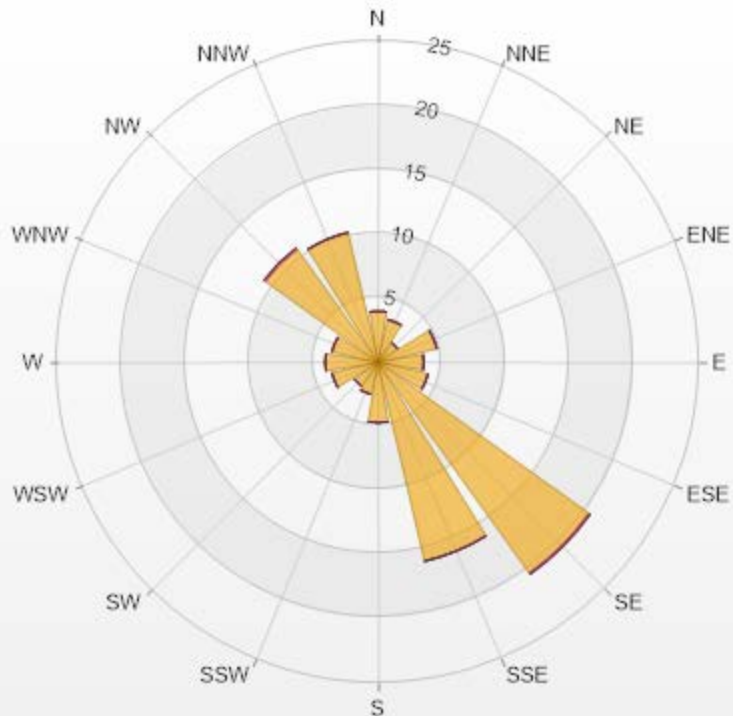
NO[ppb] Histogram: Lac La Biche Monthly: 12-2022 1 Hr.



Classes	NO
<=0	1.85%
0 - 10	91.90%
10 - 20	3.55%
20 - 30	2.41%
30 - 40	0.28%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.62% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	3.98	0	0	0	0	3.98
NNE	3.41	0	0	0	0	3.41
NE	1.85	0	0	0	0	1.85
ENE	4.69	0	0	0	0	4.69
E	3.55	0	0	0	0	3.55
ESE	3.98	0	0	0	0	3.98
SE	20.17	0.14	0	0	0	20.31
SSE	15.91	0	0	0	0	15.91
S	4.69	0	0	0	0	4.69
SSW	2.56	0	0	0	0	2.56
SW	2.27	0	0	0	0	2.27
WSW	3.69	0	0	0	0	3.69
W	4.12	0	0	0	0	4.12
WNW	3.69	0	0	0	0	3.69
NW	10.8	0.14	0	0	0	10.94
NNW	10.37	0	0	0	0	10.37
Summary	100	0.28	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 - December 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 December 1 at hour 17

Hours in Service: 744

Maximum Daily Value: 18.0 ppb on December 9

Hours of Data: 704

Minimum Hourly Value: 1 ppb on December 4 at hour 11

Hours of Missing Data: 0

Minimum Daily Value: 2.1 ppb on December 4

Hours of Calibration: 40

Monthly Average: 7.1 ppb

Operational Uptime: 100.0

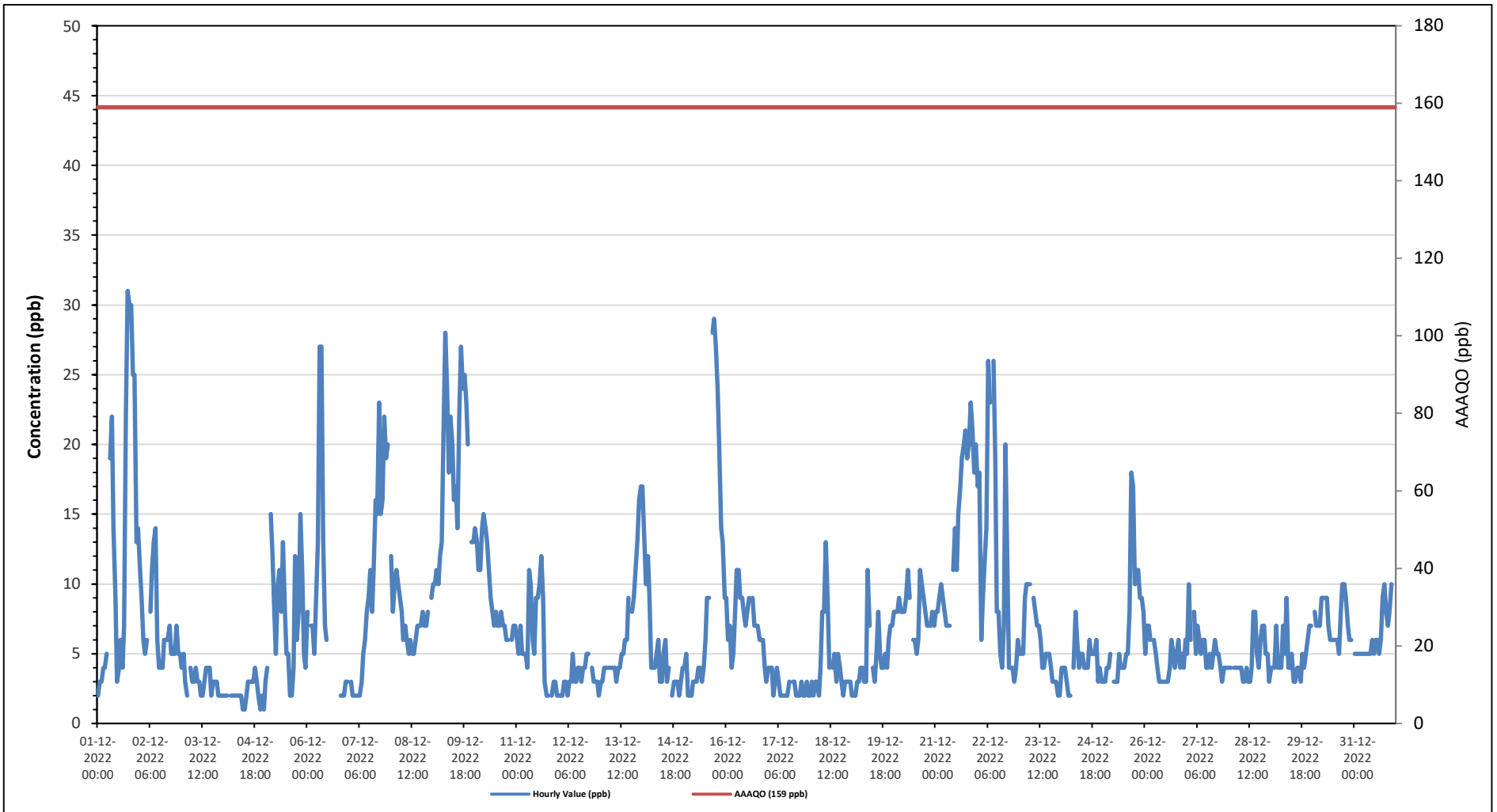
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Dec 1	2	3	3	4	4	5	S	19	22	14	9	3	4	6	4	7	22	31	30	30	25	25	13	14	2	31	13.0	
Dec 2	11	9	6	5	6	S	8	11	13	14	6	4	4	4	6	6	6	7	5	5	5	7	5	5	4	14	6.9	
Dec 3	4	5	3	2	S	4	3	3	4	3	3	2	2	3	4	4	4	2	3	3	3	2	2	2	2	5	3.0	
Dec 4	2	2	2	S	2	2	2	2	2	2	2	1	1	2	3	3	3	3	4	3	2	1	2	1	1	4	2.1	
Dec 5	3	4	S	15	12	8	5	10	11	8	13	8	5	5	2	2	4	12	6	8	15	11	5	4	2	15	7.7	
Dec 6	8	S	7	7	5	9	13	27	27	13	7	6	C	C	C	C	C	C	C	2	2	2	3	2	27	-		
Dec 7	S	3	2	2	2	2	2	3	5	6	8	9	11	8	11	16	15	23	15	16	22	19	20	3	S	23	10.0	
Dec 8	12	8	10	11	10	9	8	6	7	6	5	6	5	5	6	7	7	7	8	7	7	8	S	9	5	12	7.6	
Dec 9	10	10	11	10	12	13	21	28	24	18	22	20	16	17	14	22	27	24	25	23	20	S	13	13	10	28	18.0	
Dec 10	14	13	11	11	14	15	14	13	11	9	8	7	8	7	7	8	7	7	6	6	S	6	7	7	6	15	9.4	
Dec 11	6	5	7	5	5	5	4	11	10	6	5	9	9	10	12	9	3	2	2	S	2	3	3	2	2	12	5.9	
Dec 12	2	2	2	3	3	2	3	3	5	3	3	4	4	3	4	4	5	5	S	4	3	3	3	2	2	5	3.3	
Dec 13	3	3	4	4	4	4	4	4	4	3	4	4	5	5	6	6	9	S	8	9	11	13	16	17	3	17	6.5	
Dec 14	17	13	10	12	9	4	4	4	5	6	3	3	5	6	3	4	S	2	3	3	3	2	3	4	2	17	5.6	
Dec 15	4	5	2	2	2	3	3	3	4	4	3	4	6	9	9	S	28	29	27	24	20	14	13	9	2	29	9.9	
Dec 16	9	6	7	4	5	8	11	11	9	9	8	7	8	9	S	9	7	7	7	6	6	6	4	3	3	11	7.2	
Dec 17	4	4	4	2	3	4	3	2	2	2	2	3	S	3	3	2	2	2	2	3	2	2	3	2	2	4	2.7	
Dec 18	2	3	2	3	3	2	4	8	8	13	9	4	S	4	5	3	5	4	3	2	3	3	3	3	2	13	4.3	
Dec 19	2	2	2	3	3	4	4	3	3	11	7	S	4	3	5	8	5	4	4	5	4	6	7	7	2	11	4.6	
Dec 20	8	8	8	9	8	8	8	9	11	9	S	6	6	5	6	11	10	9	8	7	7	7	8	7	5	11	8.0	
Dec 21	8	8	9	10	9	8	7	7	S	11	14	11	15	17	19	20	21	19	20	23	21	18	20	7	23	14.0		
Dec 22	17	18	6	9	12	14	26	23	S	26	19	8	8	5	4	7	20	11	4	4	4	3	4	6	3	26	11.2	
Dec 23	5	5	5	9	10	10	10	S	9	8	7	7	6	4	4	5	5	5	4	3	3	3	2	2	2	10	5.7	
Dec 24	4	4	4	3	2	2	S	4	8	6	4	5	5	4	4	4	6	5	5	5	6	3	4	3	2	8	4.3	
Dec 25	3	3	4	4	5	S	3	3	3	5	4	4	4	5	5	8	18	17	10	11	11	9	9	8	3	18	6.8	
Dec 26	5	7	7	6	S	6	5	4	3	3	3	3	3	3	4	6	5	4	5	6	4	5	4	6	3	7	4.7	
Dec 27	5	10	6	S	8	5	7	6	5	6	6	4	4	5	4	5	6	5	5	4	3	4	4	4	3	10	5.3	
Dec 28	4	4	S	4	4	4	4	4	4	3	3	4	3	4	8	5	4	6	7	7	5	5	3	3	8	4.6		
Dec 29	4	S	4	7	4	4	4	4	7	5	9	4	4	5	3	3	4	4	3	5	4	5	6	7	3	9	4.9	
Dec 30	S	8	7	7	7	9	9	9	9	7	6	6	6	6	6	5	8	10	10	9	7	6	6	S	5	10	7.4	
Dec 31	5	5	5	5	5	5	5	5	5	5	6	6	6	6	5	6	9	10	8	7	8	10	S	8	5	10	6.3	
Diurnal Maximum	17	18	11	15	14	15	26	28	27	26	22	20	16	17	17	22	28	31	30	30	25	25	20	20				
Diurnal Average	6.3	6.2	5.5	6.1	6.1	6.1	7.0	8.4	8.1	7.9	6.7	5.7	5.7	5.8	5.9	6.0	7.2	9.5	9.5	8.5	8.2	8.1	7.2	6.8	6.2			

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

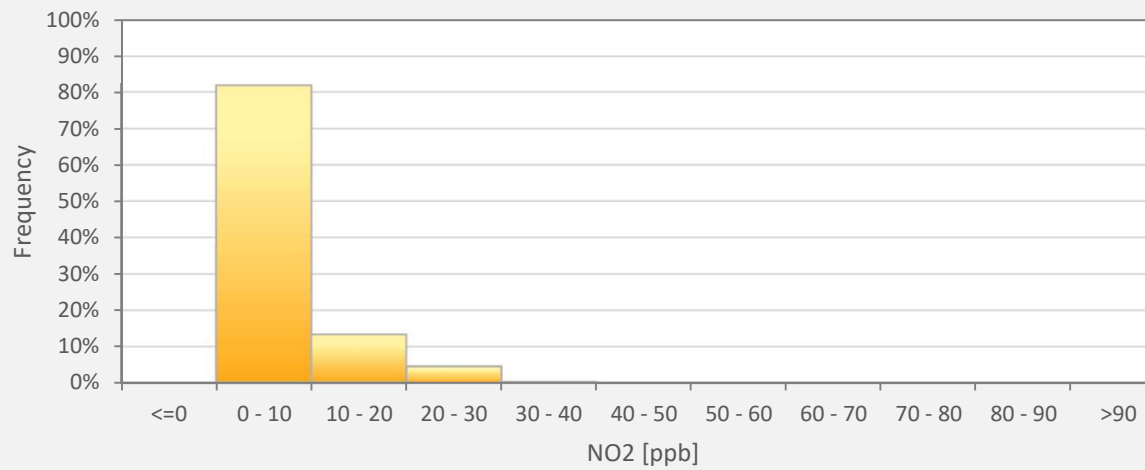
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

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



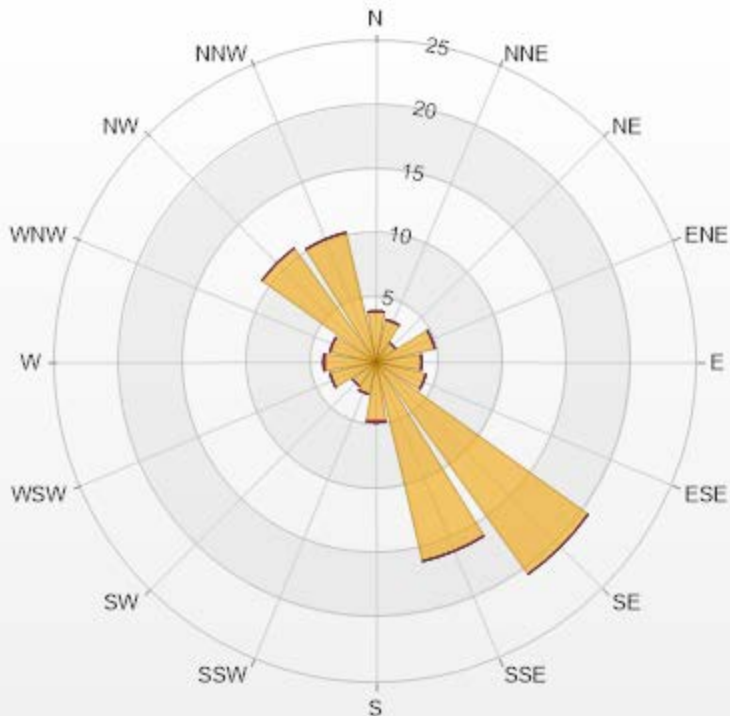
NO2[ppb] Histogram: Lac La Biche Monthly: 12-2022 1 Hr.



Classes	NO2
<=0	0.00%
0 - 10	81.82%
10 - 20	13.35%
20 - 30	4.55%
30 - 40	0.28%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.62% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	3.98	0	0	0	0	3.98
NNE	3.41	0	0	0	0	3.41
NE	1.85	0	0	0	0	1.85
ENE	4.69	0	0	0	0	4.69
E	3.55	0	0	0	0	3.55
ESE	3.98	0	0	0	0	3.98
SE	20.31	0	0	0	0	20.31
SSE	15.91	0	0	0	0	15.91
S	4.55	0.14	0	0	0	4.69
SSW	2.56	0	0	0	0	2.56
SW	2.27	0	0	0	0	2.27
WSW	3.69	0	0	0	0	3.69
W	3.98	0.14	0	0	0	4.12
WNW	3.69	0	0	0	0	3.69
NW	10.94	0	0	0	0	10.94
NNW	10.37	0	0	0	0	10.37
Summary	100	0.28	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 - December 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

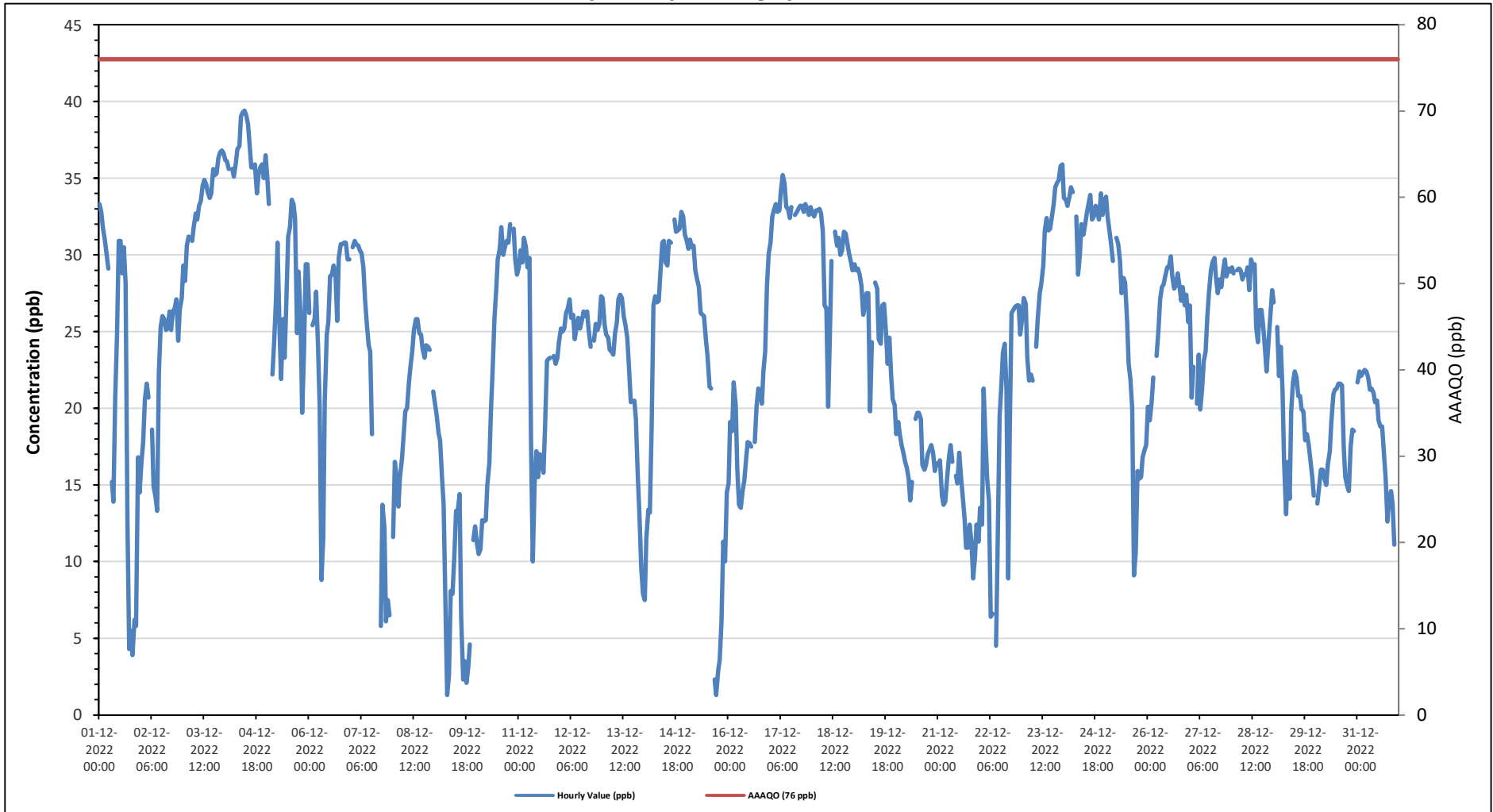
Maximum Hourly Value:	39.4 ppb on December 4 at hour 11	Hours in Service:	744
Maximum Daily Value:	36.5 ppb on December 4	Hours of Data:	707
Minimum Hourly Value:	1.3 ppb on December 9 at hour 7	Hours of Missing Data:	0
Minimum Daily Value:	9.9 ppb on December 9	Hours of Calibration:	37
Monthly Average:	23.8 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
Dec 1	33.3	32.8	31.7	31	30.2	29.1	S	15.2	13.9	20.7	24.7	30.9	30.9	28.8	30.5	28.1	12.8	4.3	5.5	3.9	6.2	5.8	16.8	14.5	3.9	33.3	20.9
Dec 2	16.4	17.8	20.6	21.6	20.7	S	18.6	14.9	14.2	13.3	22.4	25.3	26	25.8	25.1	25.2	26.3	25.1	26.3	26.5	27.1	24.4	26.4	27.2	13.3	27.2	22.5
Dec 3	29.3	28.3	30.6	31.2	S	30.9	31.8	32.7	32.3	33.2	33.5	34.5	34.9	34.6	34.1	33.7	34	35.6	35.2	35.3	36.3	36.7	36.8	36.6	28.3	36.8	33.6
Dec 4	36.2	36.1	35.6	S	35.6	35.1	36	36.9	37.1	39	39.3	39.4	39.1	38.5	37	35.7	35.7	35.9	34	35.2	35.7	35.9	35	36.5	34.0	39.4	36.5
Dec 5	35	33.3	S	22.2	24.4	27.1	30.8	25.1	21.9	25.8	23.3	27.1	31.2	31.8	33.6	33.3	32.4	24.9	28.9	25.9	19.7	23.5	29.4	29.4	19.7	35.0	27.8
Dec 6	26.2	S	25.4	25.8	27.6	23.8	20.1	8.8	11.5	20.5	24.8	25.6	28.6	28.7	29.3	28.8	25.7	29.8	30.7	30.7	30.8	30.8	29.7	29.7	8.8	30.8	25.8
Dec 7	S	30.5	30.9	30.7	30.6	30.3	30.1	29.2	27	25.4	24.1	23.7	18.3	C	C	C	C	5.8	13.7	12.2	6.1	7.5	6.5	S	5.8	30.9	21.3
Dec 8	11.6	16.5	15.6	13.6	15.5	16.7	18.1	19.8	20	21.6	22.8	23.8	25.1	25.8	25.8	24.9	24.8	23.9	23.3	24.1	24	23.8	S	21.1	11.6	25.8	21.0
Dec 9	20.3	19.5	18.4	17.9	15.4	13.7	6.5	1.3	2.6	8.1	7.9	10.3	13.3	13.2	14.4	6.4	2.3	3.5	2.1	3.1	4.6	S	11.4	12.3	1.3	20.3	9.9
Dec 10	11.2	10.5	10.8	12.7	12.6	12.7	15	16.4	19.7	22.5	25.8	27.7	29.7	30.4	31.8	30	30.5	30.9	30.8	32	S	31.7	29.7	28.7	10.5	32.0	23.2
Dec 11	29.2	30.3	29.5	31.1	30.5	29.2	29.8	18	10	15	17.2	15.5	17	16.8	15.8	18.6	23.1	23.2	23.3	S	23.4	22.9	23.3	24.3	10.0	31.1	22.5
Dec 12	25.2	25	25.2	26.2	26.5	27.1	25.9	26.1	24.5	25.2	25.9	25.2	25.7	26.3	26	26.3	25.1	24	S	24.4	25.5	25.1	25.5	27.3	24.0	27.3	25.6
Dec 13	27.2	25.4	24.8	24.6	23.8	23.7	23.5	24.9	25.6	27.1	27.4	27.2	26	25.4	24.6	22.9	20.4	S	20.5	19.3	15.8	13	9.6	7.9	7.9	27.4	22.2
Dec 14	7.5	11.5	13.4	13.2	18.8	26.7	27.3	26.9	27	28.7	30.8	30.9	29.5	29.3	30.9	30.8	S	32.3	31.5	31.6	31.7	32.8	32.5	31.3	7.5	32.8	26.4
Dec 15	31	30.4	31	30.5	30.6	29	28.4	27.9	26.2	26.1	26	24.4	23.4	21.4	21.3	S	2.3	1.3	2.9	3.6	6.1	11.3	10	14.5	1.3	31.0	20.0
Dec 16	15.1	19.1	18.5	21.7	20.2	16.1	13.7	13.5	14.6	15.3	16.7	17.8	17.7	17.5	S	17.8	20.1	21.3	21	20.3	22.4	23.7	28	30.1	13.5	30.1	19.2
Dec 17	30.8	32.5	32.9	33.3	32.8	32.9	34.2	35.2	34.7	33.1	33	32.4	33.1	S	32.6	32.8	33	33.2	33.2	32.8	33.3	33	32.6	33.1	30.8	35.2	33.1
Dec 18	32.7	32.5	32.9	32.9	33	32.7	31.5	26.7	26.5	20.1	25	29.6	S	31.5	30.6	31.1	30	30.3	31.5	31.4	30.7	30.1	29.5	29	20.1	33.0	30.1
Dec 19	29.4	29	29.1	28.7	28	26.1	26.6	27.5	27.5	19.8	24.3	S	28.2	27.8	24.5	24.2	26.7	26.8	25.1	22.9	24.6	22.1	20.6	20.2	19.8	29.4	25.6
Dec 20	18.3	19.1	18.3	17.6	17.1	16.5	16.1	15.4	14	15.2	S	19.3	19.7	19.7	19.3	16.3	16	16.3	17	17.3	17.6	17.1	15.9	16.4	14.0	19.7	17.2
Dec 21	16.3	16.6	14.3	13.7	13.9	15.4	16.7	17.6	16.5	S	15.6	15.1	17.1	15.5	14.4	12.8	10.9	10.9	12.4	11.3	8.9	10.3	12.4	11.3	8.9	17.6	13.9
Dec 22	13.5	12.4	21.3	18.2	15.4	14	6.4	6.6	S	4.5	10.8	19.5	21.2	23.6	24.2	21.2	8.9	18.7	26.2	26.4	26.6	26.7	24.8	4.5	26.7	18.2	
Dec 23	25.9	27.2	26.8	23.3	21.8	22.2	21.8	S	24	25.8	27.5	28.1	29.3	31.6	32.4	31.6	31.7	32.5	33.3	34.4	34.7	34.9	35.8	35.9	21.8	35.9	29.2
Dec 24	33.7	33.6	33.2	33.8	34.4	34.1	S	32.5	28.7	30	32	31.3	31.9	32.8	33.3	33.9	32.3	32.5	33.2	32.9	32.3	34	32.6	33.3	28.7	34.4	32.7
Dec 25	33.8	32.5	31.5	30.7	29.6	S	31.1	30.7	29.6	27.5	28.5	28.2	25.7	22.9	21.9	20	9.1	10.6	15.9	15.4	15.5	16.8	17.3	17.6	9.1	33.8	23.6
Dec 26	20.1	19.2	20.3	22	S	23.4	25	27.1	27.9	28.1	28.6	29.2	29.2	29.9	28.6	27.8	28	28.8	28	27	27.9	26.7	27.4	25.6	19.2	29.9	26.3
Dec 27	26.7	20.7	22.7	S	20.3	23.5	19.9	21.2	23.1	23.7	26	27.5	29	29.5	29.8	28.5	27.5	28.4	27.9	29	29.7	28.6	29.1	28.9	19.9	29.8	26.1
Dec 28	29.2	28.8	S	29	29.1	29	28.4	28.7	28.7	29.2	27.7	29.7	29.3	29.4	25.3	24.3	26.4	26.4	25.3	23.8	22.4	24.4	25.8	27.7	22.4	29.7	27.3
Dec 29	26.9	S	25.3	22.1	24	21.1	16.5	13.1	16.5	14.1	19.8	21.7	22.4	22	20.8	20.8	19.9	19.8	17.9	18.3	17.6	16.7	15.5	14.3	13.1	26.9	19.4
Dec 30	S	13.8	14.9	16	16	15.4	15	16.3	17.2	19.1	20.9	21.2	21.3	21.6	21.6	21.5	17.4	15.5	14.9	14.6	17.5	18.6	18.5	S	13.8	21.6	17.7
Dec 31	21.7	22.4	22.1	22.3	22.5	22.4	22	21.2	21.3	21	20.4	20.5	19.2	18.8	18.8	17.1	15.4	12.6	14	14.6	13.8	11.1	S	12.3	11.1	22.5	18.6
Diurnal Maximum	36	36	36	34	36	35	36	37	37	39	39	39	39	39	37	36	36	36	35	35	36	37	37	37			
Diurnal Average	24.6	24.4	24.4	24.1	24.2	24.1	23.0	21.9	22.1	22.6	24.4	25.4	25.8	25.9	26.1	25.0	22.4	22.2	22.9	22.7	22.3	23.3	23.8	24.2			

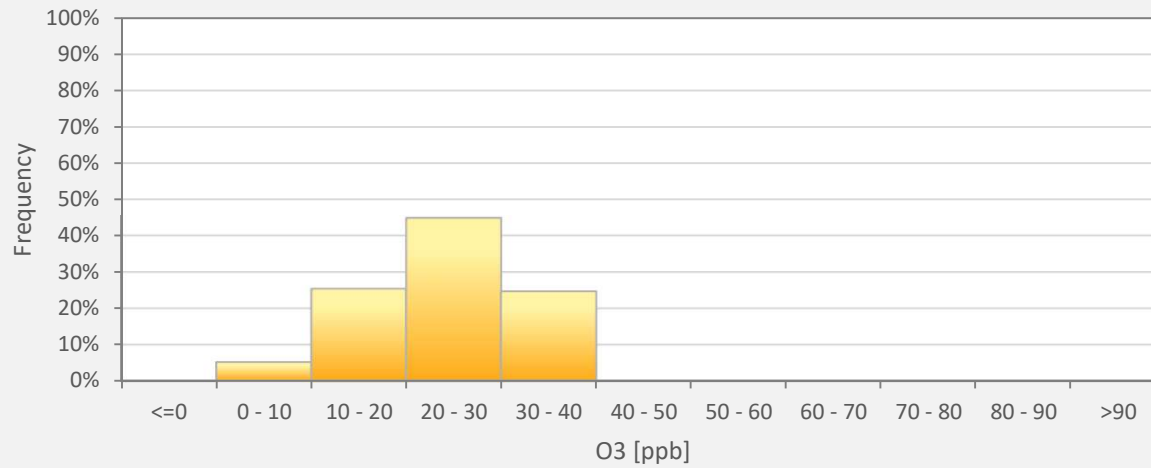
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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 O3 - Lac La Biche Station



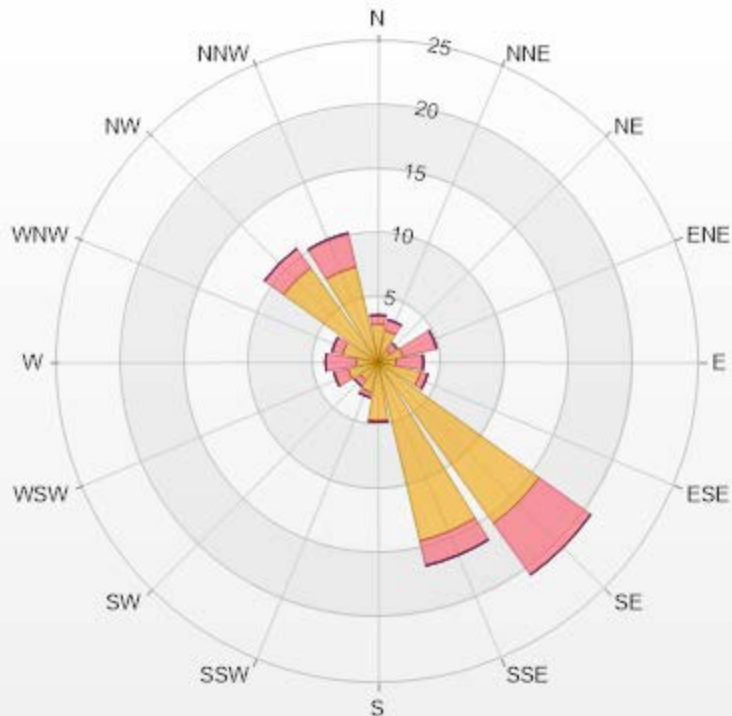
O3[ppb] Histogram: Lac La Biche Monthly: 12-2022 1 Hr.



Classes	O3
<=0	0.00%
0 - 10	5.23%
10 - 20	25.32%
20 - 30	44.84%
30 - 40	24.61%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.03% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	2.97	0.71	0	0	0	3.68
NNE	2.55	0.85	0	0	0	3.4
NE	1.13	0.71	0	0	0	1.84
ENE	1.98	2.69	0	0	0	4.67
E	1.41	2.12	0	0	0	3.53
ESE	3.39	0.57	0	0	0	3.96
SE	15.42	4.95	0	0	0	20.37
SSE	14.29	1.98	0	0	0	16.27
S	4.53	0.14	0	0	0	4.67
SSW	2.4	0.42	0	0	0	2.82
SW	1.7	0.57	0	0	0	2.27
WSW	2.4	1.13	0	0	0	3.53
W	1.7	2.4	0	0	0	4.1
WNW	2.83	0.85	0	0	0	3.68
NW	9.05	1.84	0	0	0	10.89
NNW	7.64	2.69	0	0	0	10.33
Summary	75.39	24.62	0	0	0	100



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% Icon Classes (ppb)

75 0-30

25 30-50

0 50-76

0 76-159

0 >159.0



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Lac La Biche Station - December 2022

Summary of Hourly Averages

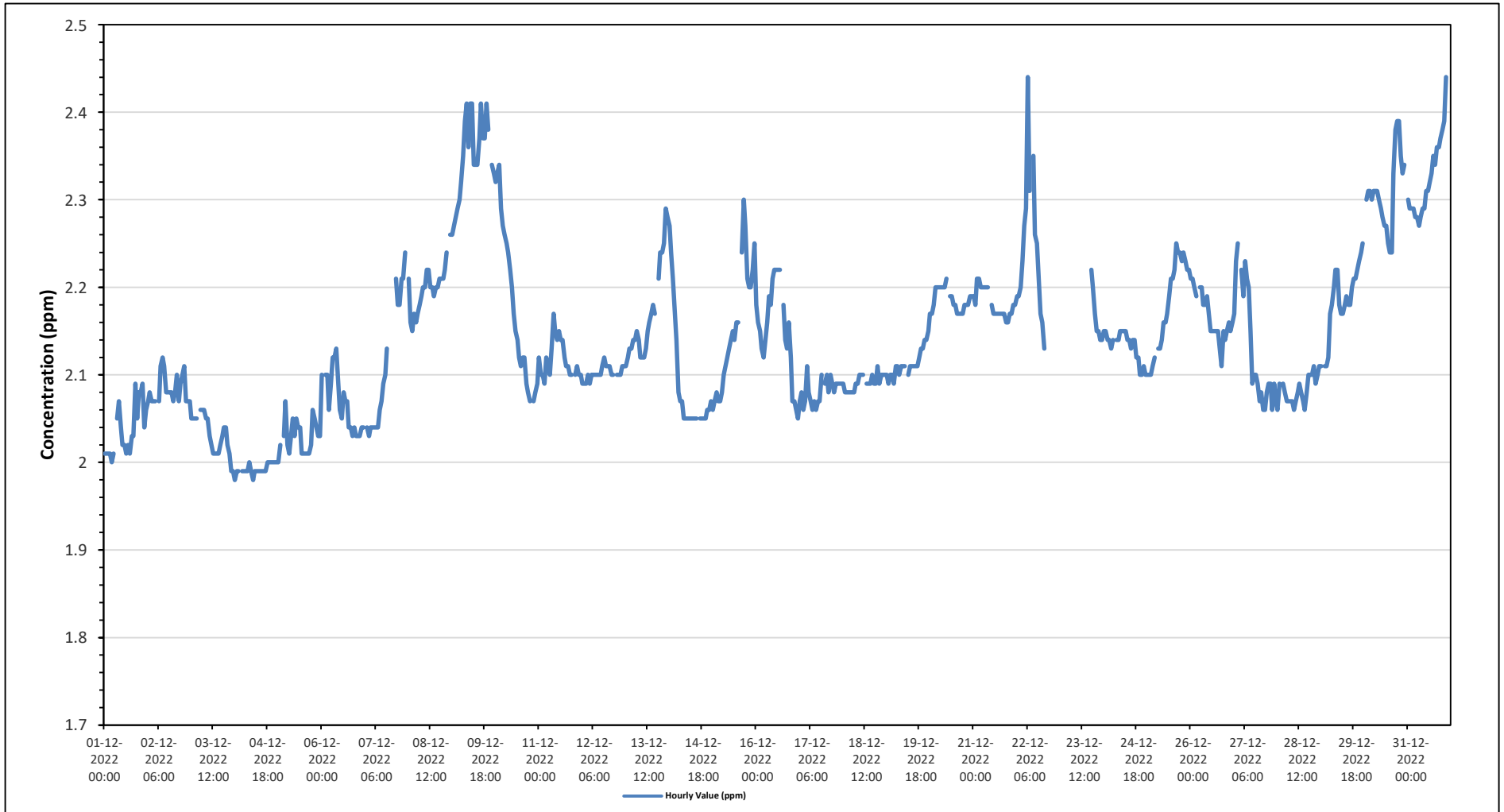
TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	2.44 ppm on December 22 at hour 6	Hours in Service:	744
Maximum Daily Value:	2.35 ppm on December 9	Hours of Data:	683
Minimum Hourly Value:	1.98 ppm on December 4 at hour 0	Hours of Missing Data:	25
Minimum Daily Value:	1.99 ppm on December 4	Hours of Calibration:	36
Monthly Average:	2.14 ppm	Operational Uptime:	96.6

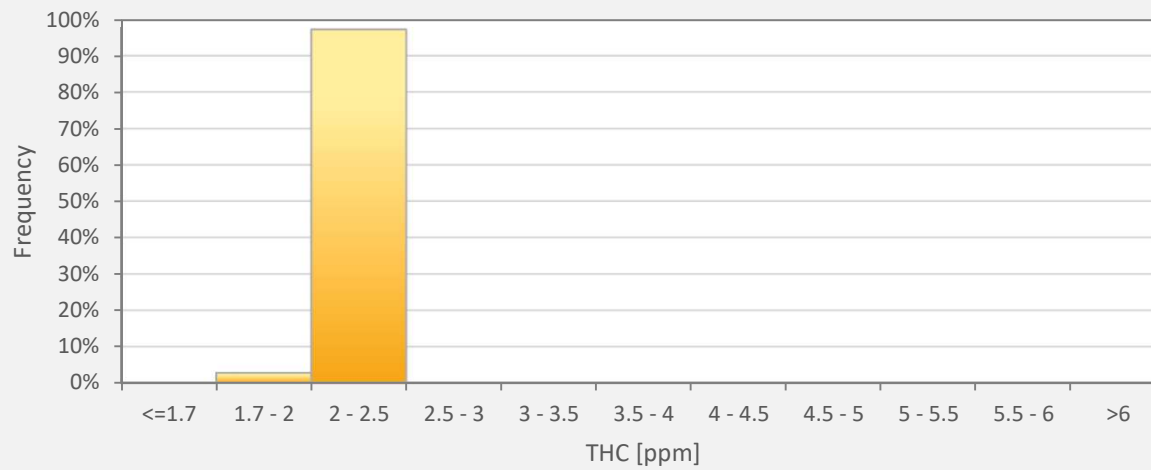
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23		
Dec 1	2.01	2.01	2.01	2.01	2.00	2.01	S	2.05	2.07	2.04	2.02	2.02	2.01	2.02	2.01	2.03	2.03	2.09	2.05	2.08	2.08	2.09	2.04	2.06	2.00	2.09	2.04	2.04	
Dec 2	2.07	2.08	2.07	2.07	2.07	S	2.07	2.11	2.12	2.11	2.08	2.08	2.08	2.08	2.07	2.08	2.10	2.07	2.09	2.10	2.11	2.07	2.07	2.07	2.07	2.12	2.08	2.07	
Dec 3	2.05	2.05	2.05	2.05	S	2.06	2.06	2.06	2.05	2.05	2.03	2.02	2.01	2.01	2.01	2.02	2.03	2.04	2.04	2.02	2.01	1.99	1.99	2.00	1.99	2.06	2.03	2.03	
Dec 4	1.98	1.99	1.99	S	1.99	1.99	1.99	1.99	2.00	1.99	1.98	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.99	1.99	
Dec 5	2.00	2.02	S	2.03	2.07	2.02	2.01	2.03	2.05	2.03	2.05	2.04	2.04	2.01	2.01	2.01	2.01	2.01	2.02	2.06	2.05	2.04	2.03	2.03	2.00	2.07	2.03	2.03	
Dec 6	2.10	S	2.10	2.10	2.10	2.06	2.09	2.12	2.12	2.13	2.09	2.06	2.05	2.08	2.07	2.07	2.04	2.04	2.03	2.04	2.03	2.03	2.04	2.04	2.03	2.13	2.07	2.03	
Dec 7	S	2.04	2.03	2.04	2.04	2.04	2.04	2.04	2.06	2.07	2.09	2.10	2.13	C	C	C	C	2.21	2.18	2.18	2.21	2.21	2.24	S	2.03	2.24	2.11		
Dec 8	2.21	2.16	2.15	2.17	2.16	2.17	2.18	2.19	2.20	2.20	2.22	2.22	2.20	2.20	2.19	2.20	2.20	2.21	2.21	2.21	2.22	2.24	S	2.26	2.15	2.26	2.20	2.15	
Dec 9	2.26	2.27	2.28	2.29	2.30	2.32	2.35	2.39	2.41	2.36	2.41	2.41	2.34	2.34	2.34	2.37	2.41	2.37	2.37	2.41	2.38	S	2.34	2.33	2.26	2.41	2.35	2.35	
Dec 10	2.32	2.33	2.34	2.29	2.27	2.26	2.25	2.24	2.22	2.20	2.17	2.15	2.14	2.12	2.11	2.12	2.12	2.09	2.08	2.07	S	2.07	2.08	2.09	2.07	2.34	2.18	2.18	
Dec 11	2.12	2.10	2.10	2.09	2.12	2.11	2.10	2.13	2.17	2.15	2.14	2.15	2.14	2.14	2.12	2.11	2.11	2.10	2.10	S	2.10	2.11	2.10	2.10	2.09	2.17	2.12	2.12	
Dec 12	2.09	2.09	2.09	2.10	2.09	2.10	2.10	2.10	2.10	2.10	2.10	2.11	2.12	2.11	2.11	2.11	2.11	2.10	2.10	S	2.10	2.10	2.10	2.11	2.11	2.09	2.12	2.10	
Dec 13	2.11	2.12	2.13	2.13	2.14	2.14	2.15	2.14	2.12	2.12	2.12	2.13	2.15	2.16	2.17	2.18	2.17	S	2.21	2.24	2.24	2.25	2.29	2.28	2.11	2.29	2.17	2.17	
Dec 14	2.27	2.24	2.21	2.17	2.14	2.08	2.07	2.07	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	S	2.05	2.05	2.05	2.05	2.06	2.06	2.07	2.05	2.27	2.09	2.09	
Dec 15	2.06	2.07	2.08	2.07	2.07	2.08	2.10	2.11	2.12	2.13	2.14	2.15	2.14	2.16	2.16	S	2.24	2.30	2.27	2.21	2.20	2.20	2.22	2.25	2.06	2.30	2.15	2.15	
Dec 16	2.18	2.16	2.15	2.13	2.12	2.14	2.16	2.19	2.18	2.21	2.22	2.22	2.22	S	2.18	2.14	2.13	2.16	2.12	2.07	2.07	2.06	2.05	2.05	2.05	2.22	2.15	2.15	
Dec 17	2.07	2.08	2.06	2.07	2.11	2.08	2.07	2.06	2.07	2.06	2.07	2.10	S	2.09	2.09	2.10	2.08	2.10	2.09	2.08	2.09	2.09	2.09	2.09	2.06	2.11	2.08	2.08	
Dec 18	2.09	2.08	2.08	2.08	2.08	2.08	2.08	2.09	2.09	2.10	2.10	2.10	S	2.09	2.09	2.09	2.10	2.09	2.09	2.11	2.09	2.10	2.10	2.10	2.08	2.11	2.09	2.09	
Dec 19	2.10	2.09	2.10	2.10	2.09	2.11	2.11	2.10	2.11	2.11	2.11	S	2.10	2.11	2.11	2.11	2.11	2.11	2.12	2.13	2.13	2.14	2.14	2.15	2.09	2.15	2.11	2.11	
Dec 20	2.17	2.17	2.18	2.20	2.20	2.20	2.20	2.20	2.20	2.21	S	2.19	2.19	2.18	2.18	2.17	2.17	2.17	2.17	2.17	2.17	2.18	2.18	2.19	2.17	2.21	2.19	2.19	
Dec 21	2.19	2.18	2.21	2.21	2.20	2.20	2.20	2.20	2.20	S	2.18	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.16	2.16	2.16	2.17	2.18	2.18	2.16	2.21	2.18	2.18	
Dec 22	2.19	2.19	2.20	2.23	2.27	2.29	2.44	2.31	S	2.35	2.26	2.25	2.21	2.17	2.16	2.13	X	X	X	X	X	X	X	X	2.13	2.44	-	-	
Dec 23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.22	2.20	2.17	2.15	2.15	2.14	2.14	2.14	2.22	-	-
Dec 24	2.15	2.15	2.14	2.14	2.13	2.14	S	2.14	2.14	2.15	2.15	2.15	2.15	2.14	2.14	2.13	2.14	2.14	2.12	2.12	2.10	2.10	2.11	2.10	2.10	2.15	2.13	2.13	
Dec 25	2.10	2.10	2.10	2.11	2.12	S	2.13	2.13	2.14	2.16	2.16	2.17	2.19	2.21	2.21	2.22	2.25	2.24	2.24	2.24	2.23	2.24	2.22	2.22	2.10	2.25	2.18	2.18	
Dec 26	2.21	2.21	2.20	2.19	S	2.20	2.20	2.18	2.18	2.19	2.17	2.15	2.15	2.15	2.15	2.15	2.13	2.11	2.15	2.14	2.15	2.16	2.15	2.16	2.11	2.21	2.17	2.17	
Dec 27	2.17	2.23	2.25	S	2.22	2.19	2.23	2.21	2.20	2.15	2.09	2.10	2.10	2.09	2.07	2.08	2.06	2.06	2.08	2.09	2.09	2.06	2.09	2.07	2.06	2.25	2.13	2.13	
Dec 28	2.06	2.09	S	2.09	2.08	2.07	2.07	2.07	2.07	2.06	2.07	2.08	2.09	2.08	2.07	2.06	2.08	2.10	2.10	2.10	2.11	2.09	2.10	2.11	2.06	2.11	2.08	2.08	
Dec 29	2.11	S	2.11	2.11	2.12	2.17	2.18	2.20	2.22	2.22	2.18	2.17	2.17	2.18	2.19	2.18	2.18	2.20	2.21	2.21	2.22	2.23	2.24	2.25	2.11	2.25	2.18	2.18	
Dec 30	S	2.30	2.31	2.31	2.30	2.31	2.31	2.31	2.30	2.29	2.28	2.27	2.27	2.25	2.24	2.24	2.33	2.38	2.39	2.39	2.35	2.33	2.34	S	2.24	2.39	2.31	2.31	
Dec 31	2.30	2.29	2.29	2.29	2.28	2.28	2.27	2.28	2.29	2.29	2.31	2.31	2.32	2.33	2.35	2.34	2.36	2.36	2.37	2.38	2.37	2.38	2.39	2.39	2.27	2.44	2.33	2.33	
Diurnal Maximum	2.32	2.33	2.34	2.31	2.30	2.32	2.44	2.39	2.41	2.36	2.41	2.41	2.34	2.34	2.35	2.37	2.41	2.38	2.39	2.41	2.39	2.44	2.34	2.41	2.27	2.44	2.41	2.41	
Diurnal Average	2.13	2.14	2.14	2.14	2.14	2.14	2.15	2.15	2.15	2.15	2.14	2.14	2.14	2.14	2.13	2.13	2.14	2.15	2.15	2.15	2.15	2.14	2.13	2.14	2.14	2.14	2.14	2.14	
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	Unit Maint (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 THC - Lac La Biche Station



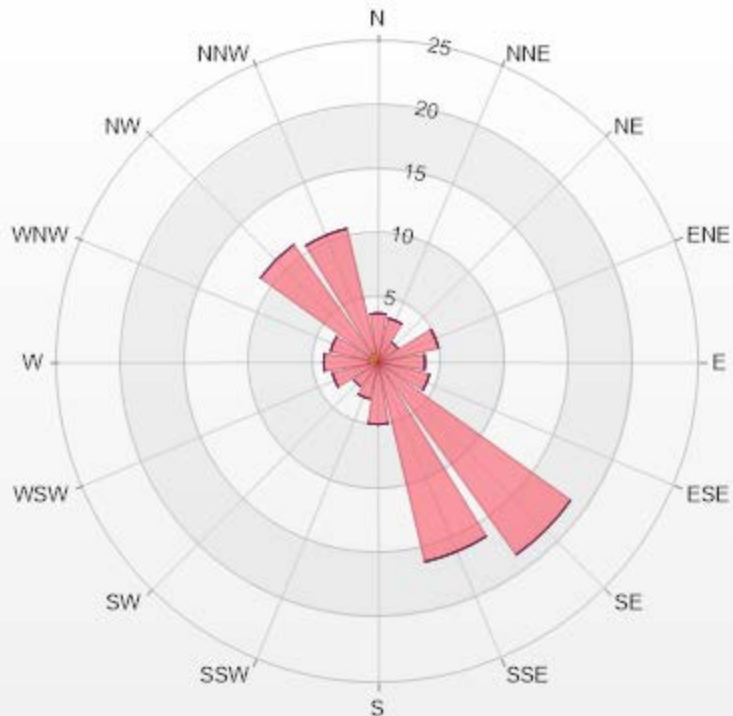
THC55[ppm] Histogram: Lac La Biche Monthly: 12-2022 1 Hr.



Classes	THC55
<=1.7	0.00%
1.7 - 2	2.78%
2 - 2.5	97.22%
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: Lac La Biche Poll.: Lac La Biche-THC55[ppm] Monthly: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 91.80% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	0	3.81	0	0	0	3.81
NNE	0	3.51	0	0	0	3.51
NE	0	1.9	0	0	0	1.9
ENE	0	4.83	0	0	0	4.83
E	0	3.66	0	0	0	3.66
ESE	0	4.1	0	0	0	4.1
SE	0	18.45	0	0	0	18.45
SSE	0	15.96	0	0	0	15.96
S	0	4.83	0	0	0	4.83
SSW	0	2.93	0	0	0	2.93
SW	0	2.34	0	0	0	2.34
WSW	0	3.66	0	0	0	3.66
W	0.73	3.51	0	0	0	4.24
WNW	0.73	3.07	0	0	0	3.8
NW	0.59	10.69	0	0	0	11.28
NNW	0.73	9.96	0	0	0	10.69
Summary	2.78	97.21	0	0	0	100



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% Icon Classes (ppm)

3

0-2

97

2-5

5-10

0

10-40

0

>40.0



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Lac La Biche Station - December 2022

Summary of Hourly Averages

METHANE (CH4) in ppm

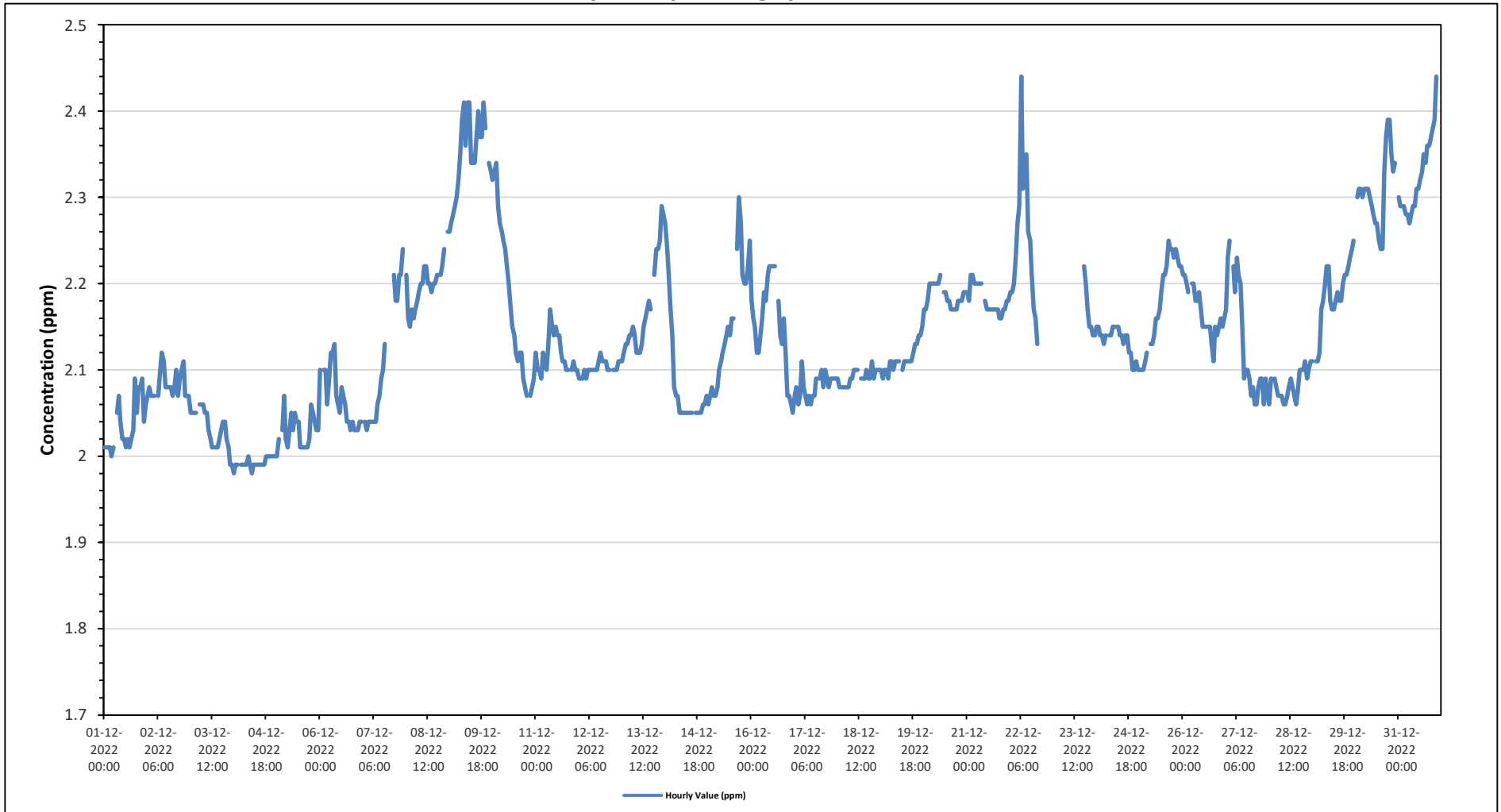
Maximum Hourly Value:	2.44 ppm on December 22 at hour 6	Hours in Service:	744
Maximum Daily Value:	2.35 ppm on December 9	Hours of Data:	683
Minimum Hourly Value:	1.98 ppm on December 4 at hour 0	Hours of Missing Data:	25
Minimum Daily Value:	1.99 ppm on December 4	Hours of Calibration:	36
Monthly Average:	2.14 ppm	Operational Uptime:	96.6

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		
Dec 1	2.01	2.01	2.01	2.01	2.00	2.01	S	2.05	2.07	2.04	2.02	2.02	2.01	2.02	2.01	2.02	2.03	2.09	2.05	2.08	2.08	2.09	2.04	2.06	2.00	2.09	2.04	2.06	
Dec 2	2.07	2.08	2.07	2.07	2.07	S	2.07	2.10	2.12	2.11	2.08	2.08	2.08	2.07	2.08	2.10	2.07	2.09	2.10	2.11	2.07	2.07	2.07	2.07	2.07	2.12	2.08	2.08	
Dec 3	2.05	2.05	2.05	2.05	S	2.06	2.06	2.06	2.05	2.05	2.03	2.02	2.01	2.01	2.01	2.01	2.02	2.03	2.04	2.04	2.02	2.01	1.99	1.99	1.99	2.06	2.03	2.03	
Dec 4	1.98	1.99	1.99	S	1.99	1.99	1.99	1.99	2.00	1.99	1.98	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.99	
Dec 5	2.00	2.02	S	2.03	2.07	2.02	2.01	2.03	2.05	2.03	2.05	2.04	2.04	2.01	2.01	2.01	2.01	2.01	2.02	2.06	2.05	2.04	2.03	2.03	2.00	2.07	2.03	2.03	
Dec 6	2.10	S	2.10	2.10	2.06	2.09	2.12	2.12	2.13	2.07	2.06	2.05	2.08	2.07	2.06	2.04	2.04	2.03	2.04	2.03	2.03	2.03	2.04	2.04	2.03	2.13	2.07	2.03	
Dec 7	S	2.04	2.03	2.04	2.04	2.04	2.04	2.04	2.06	2.07	2.09	2.10	2.13	C	C	C	C	2.21	2.18	2.18	2.21	2.21	2.24	S	2.03	2.24	2.11		
Dec 8	2.21	2.16	2.15	2.17	2.16	2.17	2.18	2.19	2.20	2.20	2.22	2.22	2.20	2.20	2.19	2.20	2.20	2.21	2.21	2.21	2.22	2.24	S	2.26	2.15	2.26	2.20	2.15	
Dec 9	2.26	2.27	2.28	2.29	2.30	2.32	2.35	2.39	2.41	2.36	2.41	2.41	2.34	2.34	2.34	2.37	2.40	2.37	2.37	2.41	2.38	S	2.34	2.33	2.26	2.41	2.35		
Dec 10	2.32	2.33	2.34	2.29	2.27	2.26	2.25	2.24	2.22	2.20	2.17	2.15	2.14	2.12	2.11	2.12	2.12	2.09	2.08	2.07	S	2.07	2.08	2.09	2.07	2.34	2.18	2.07	
Dec 11	2.12	2.10	2.10	2.09	2.12	2.11	2.10	2.13	2.17	2.15	2.14	2.15	2.14	2.14	2.12	2.11	2.11	2.10	2.10	S	2.10	2.11	2.10	2.10	2.09	2.17	2.12	2.09	
Dec 12	2.09	2.09	2.09	2.10	2.09	2.10	2.10	2.10	2.10	2.10	2.10	2.11	2.12	2.11	2.11	2.11	2.11	2.10	2.10	S	2.10	2.10	2.10	2.11	2.11	2.09	2.12	2.10	
Dec 13	2.11	2.12	2.13	2.13	2.14	2.14	2.15	2.14	2.12	2.12	2.12	2.13	2.15	2.16	2.17	2.18	2.17	S	2.21	2.24	2.24	2.25	2.29	2.28	2.11	2.29	2.17	2.11	
Dec 14	2.27	2.24	2.21	2.17	2.14	2.08	2.07	2.07	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	S	2.05	2.05	2.05	2.05	2.06	2.06	2.07	2.05	2.27	2.09	2.05	
Dec 15	2.06	2.07	2.08	2.07	2.07	2.08	2.10	2.11	2.12	2.13	2.14	2.15	2.14	2.16	2.16	S	2.24	2.30	2.27	2.21	2.20	2.20	2.22	2.25	2.06	2.30	2.15	2.06	
Dec 16	2.18	2.16	2.15	2.12	2.12	2.14	2.16	2.19	2.18	2.21	2.22	2.22	2.22	S	2.18	2.14	2.13	2.16	2.12	2.07	2.07	2.06	2.05	2.05	2.05	2.22	2.15	2.05	
Dec 17	2.07	2.08	2.06	2.07	2.11	2.08	2.07	2.06	2.07	2.06	2.07	2.09	S	2.09	2.10	2.08	2.10	2.09	2.08	2.09	2.09	2.09	2.09	2.09	2.06	2.11	2.08	2.06	
Dec 18	2.09	2.08	2.08	2.08	2.08	2.08	2.08	2.09	2.09	2.10	2.10	2.10	S	2.09	2.09	2.09	2.10	2.09	2.09	2.11	2.09	2.10	2.10	2.10	2.08	2.11	2.09	2.08	
Dec 19	2.10	2.09	2.10	2.10	2.09	2.11	2.11	2.10	2.11	2.11	2.11	S	2.10	2.11	2.11	2.11	2.11	2.11	2.12	2.13	2.13	2.14	2.14	2.15	2.09	2.15	2.11	2.11	
Dec 20	2.17	2.17	2.18	2.20	2.20	2.20	2.20	2.20	2.20	2.21	S	2.19	2.19	2.18	2.18	2.17	2.17	2.17	2.17	2.17	2.17	2.18	2.18	2.19	2.19	2.17	2.21	2.19	
Dec 21	2.19	2.18	2.21	2.21	2.20	2.20	2.20	2.20	2.20	S	2.18	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.16	2.16	2.16	2.17	2.18	2.18	2.16	2.21	2.18	2.16	
Dec 22	2.19	2.19	2.20	2.23	2.27	2.29	2.44	2.31	S	2.35	2.26	2.25	2.21	2.17	2.16	2.13	X	X	X	X	X	X	X	X	2.13	2.44	-	2.13	
Dec 23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.22	2.20	2.17	2.15	2.15	2.14	2.14	2.14	2.22	-	2.14
Dec 24	2.15	2.15	2.14	2.14	2.13	2.14	S	2.14	2.14	2.15	2.15	2.15	2.15	2.14	2.14	2.13	2.14	2.14	2.12	2.12	2.10	2.10	2.11	2.10	2.10	2.15	2.13	2.10	
Dec 25	2.10	2.10	2.10	2.11	2.12	S	2.13	2.13	2.14	2.16	2.16	2.16	2.17	2.19	2.21	2.21	2.22	2.25	2.24	2.24	2.23	2.24	2.22	2.22	2.10	2.25	2.18	2.10	
Dec 26	2.21	2.21	2.20	2.19	S	2.20	2.20	2.18	2.18	2.19	2.17	2.15	2.15	2.15	2.15	2.15	2.13	2.11	2.15	2.14	2.15	2.16	2.15	2.16	2.11	2.21	2.17	2.11	
Dec 27	2.17	2.23	2.25	S	2.22	2.19	2.23	2.21	2.20	2.15	2.09	2.10	2.10	2.09	2.07	2.08	2.06	2.06	2.08	2.09	2.09	2.06	2.09	2.07	2.06	2.25	2.13	2.06	
Dec 28	2.06	2.09	S	2.09	2.08	2.07	2.07	2.07	2.06	2.06	2.07	2.08	2.09	2.08	2.07	2.06	2.08	2.10	2.10	2.10	2.11	2.09	2.10	2.11	2.06	2.11	2.08	2.06	
Dec 29	2.11	S	2.11	2.11	2.12	2.17	2.18	2.20	2.22	2.22	2.18	2.17	2.17	2.18	2.19	2.18	2.18	2.20	2.21	2.21	2.22	2.23	2.24	2.25	2.11	2.25	2.18	2.11	
Dec 30	S	2.30	2.31	2.31	2.30	2.31	2.31	2.31	2.30	2.29	2.28	2.27	2.27	2.25	2.24	2.24	2.33	2.37	2.39	2.39	2.39	2.35	2.33	2.34	S	2.24	2.39	2.31	
Dec 31	2.30	2.29	2.29	2.29	2.28	2.28	2.27	2.28	2.29	2.29	2.31	2.31	2.32	2.33	2.35	2.34	2.36	2.36	2.37	2.38	2.39	2.44	S	2.41	2.27	2.44	2.33	2.27	
Diurnal Maximum	2.32	2.33	2.34	2.31	2.30	2.32	2.44	2.39	2.41	2.36	2.41	2.41	2.34	2.34	2.35	2.37	2.40	2.37	2.39	2.41	2.39	2.44	2.34	2.41					
Diurnal Average	2.13	2.14	2.14	2.14	2.14	2.14	2.15	2.15	2.15	2.15	2.14	2.14	2.14	2.14	2.13	2.13	2.14	2.15	2.15	2.15	2.15	2.14	2.13	2.14					

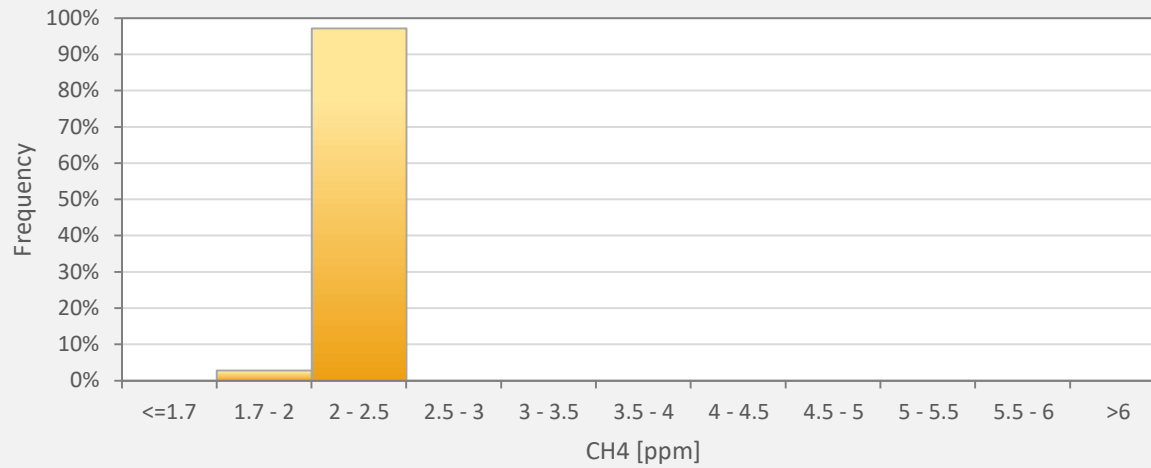
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction/Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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 - Lac La Biche Station



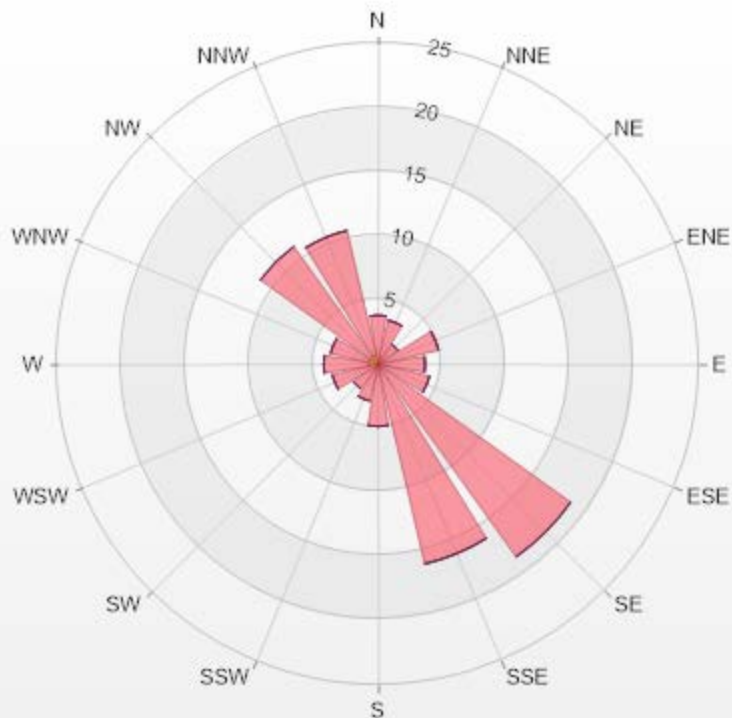
CH4[ppm] Histogram: Lac La Biche Monthly: 12-2022 1 Hr.



Classes	CH4
<=1.7	0.00%
1.7 - 2	2.78%
2 - 2.5	97.22%
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: Lac La Biche Poll.: Lac La Biche-CH4[ppm] Monthly: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 91.80% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	0	3.81	0	0	0	3.81
NNE	0	3.51	0	0	0	3.51
NE	0	1.9	0	0	0	1.9
ENE	0	4.83	0	0	0	4.83
E	0	3.66	0	0	0	3.66
ESE	0	4.1	0	0	0	4.1
SE	0	18.45	0	0	0	18.45
SSE	0	15.96	0	0	0	15.96
S	0	4.83	0	0	0	4.83
SSW	0	2.93	0	0	0	2.93
SW	0	2.34	0	0	0	2.34
WSW	0	3.66	0	0	0	3.66
W	0.73	3.51	0	0	0	4.24
WNW	0.73	3.07	0	0	0	3.8
NW	0.59	10.69	0	0	0	11.28
NNW	0.73	9.96	0	0	0	10.69
Summary	2.78	97.21	0	0	0	100



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% Icon Classes (ppm)

3 0-2

97 2-5

0 5-10

0 10-20

0 >20.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - December 2022

Summary of Hourly Averages

NON-METHANE HYDROCARBONS (NMHC) in ppm

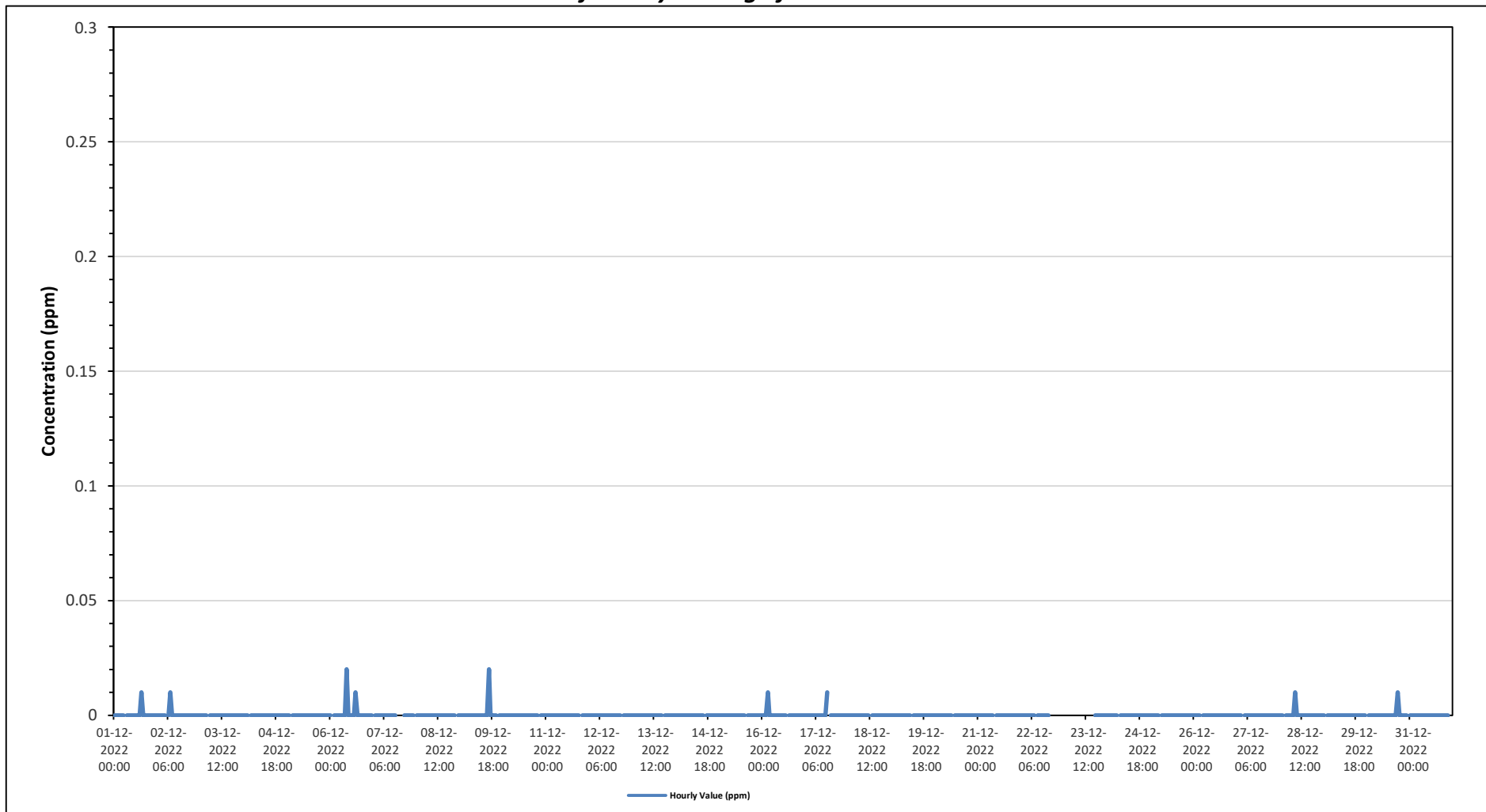
Maximum Hourly Value:	0.02 ppm on December 6 at hour 9	Hours in Service:	744
Maximum Daily Value:	0.00 ppm on December 6	Hours of Data:	683
Minimum Hourly Value:	0.00 ppm on December 1 at hour 0	Hours of Missing Data:	25
Minimum Daily Value:	0.00 ppm on December 3	Hours of Calibration:	36
Monthly Average:	0.00 ppm	Operational Uptime:	96.6

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							
Dec 1	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	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			
Dec 2	0.00	0.00	0.00	0.00	0.00	S	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Dec 3	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			
Dec 4	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			
Dec 5	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			
Dec 6	0.00	S	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	0.01	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			
Dec 7	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	C	C	C	C	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			
Dec 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	0.00	S	0.00	0.00	0.00	0.00			
Dec 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	0.02	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		
Dec 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Dec 11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Dec 12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	
Dec 13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	
Dec 14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Dec 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	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	
Dec 16	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	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	
Dec 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	0.01	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Dec 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	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	
Dec 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	0.00	0.00	0.00	
Dec 20	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	
Dec 21	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
Dec 22	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	
Dec 23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Dec 24	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	0.00
Dec 25	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	0.00
Dec 26	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	0.00	0.00	0.00
Dec 27	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 28	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 29	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
Dec 30	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
Dec 31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diurnal Maximum	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.02	0.00	0.00	0.01	0.00	0.01	0.01	0.02	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
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

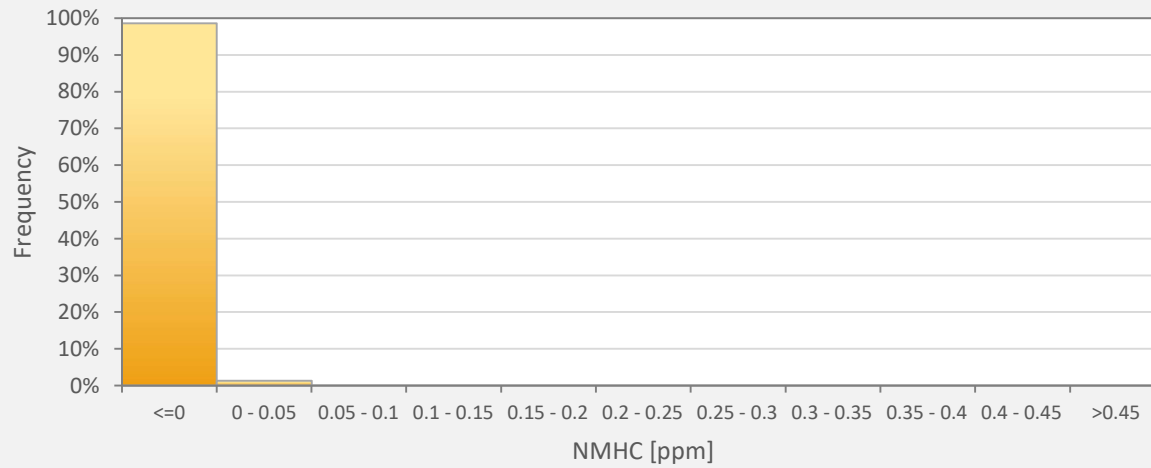
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction/Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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



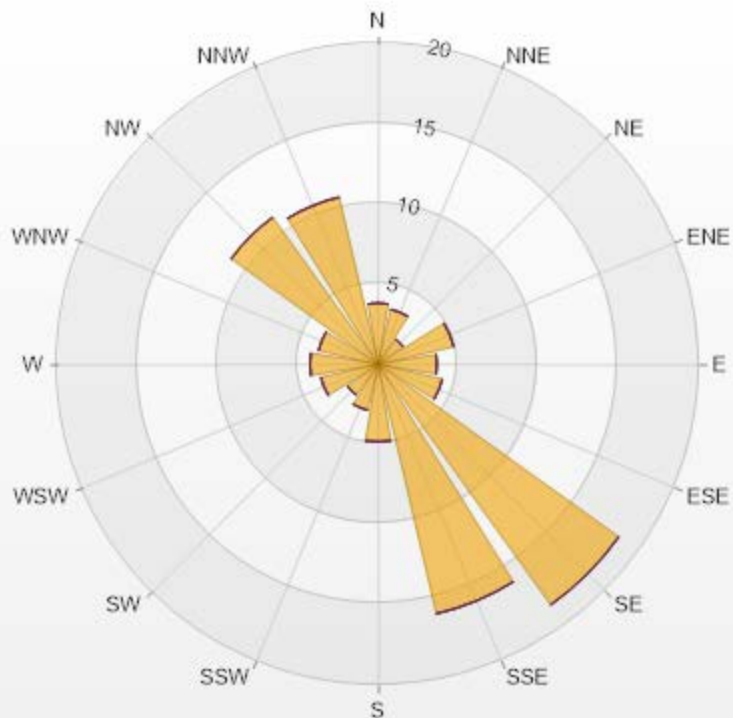
NMHC[ppm] Histogram: Lac La Biche Monthly: 12-2022 1 Hr.



Classes	NMHC
<=0	98.68%
0 - 0.05	1.32%
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: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 91.80% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	3.81	0	0	0	0	3.81
NNE	3.51	0	0	0	0	3.51
NE	1.9	0	0	0	0	1.9
ENE	4.83	0	0	0	0	4.83
E	3.66	0	0	0	0	3.66
ESE	4.1	0	0	0	0	4.1
SE	18.45	0	0	0	0	18.45
SSE	15.96	0	0	0	0	15.96
S	4.83	0	0	0	0	4.83
SSW	2.93	0	0	0	0	2.93
SW	2.34	0	0	0	0	2.34
WSW	3.66	0	0	0	0	3.66
W	4.25	0	0	0	0	4.25
WNW	3.81	0	0	0	0	3.81
NW	11.27	0	0	0	0	11.27
NNW	10.69	0	0	0	0	10.69
Summary	100	0	0	0	0	100



LICA-202212

% Icon Classes (ppm)

100  0-0.1

0  0.1-0.3

0  0.3-1

0  1-2

0  >2.0



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Lac La Biche Station - December 2022

Summary of Hourly Averages

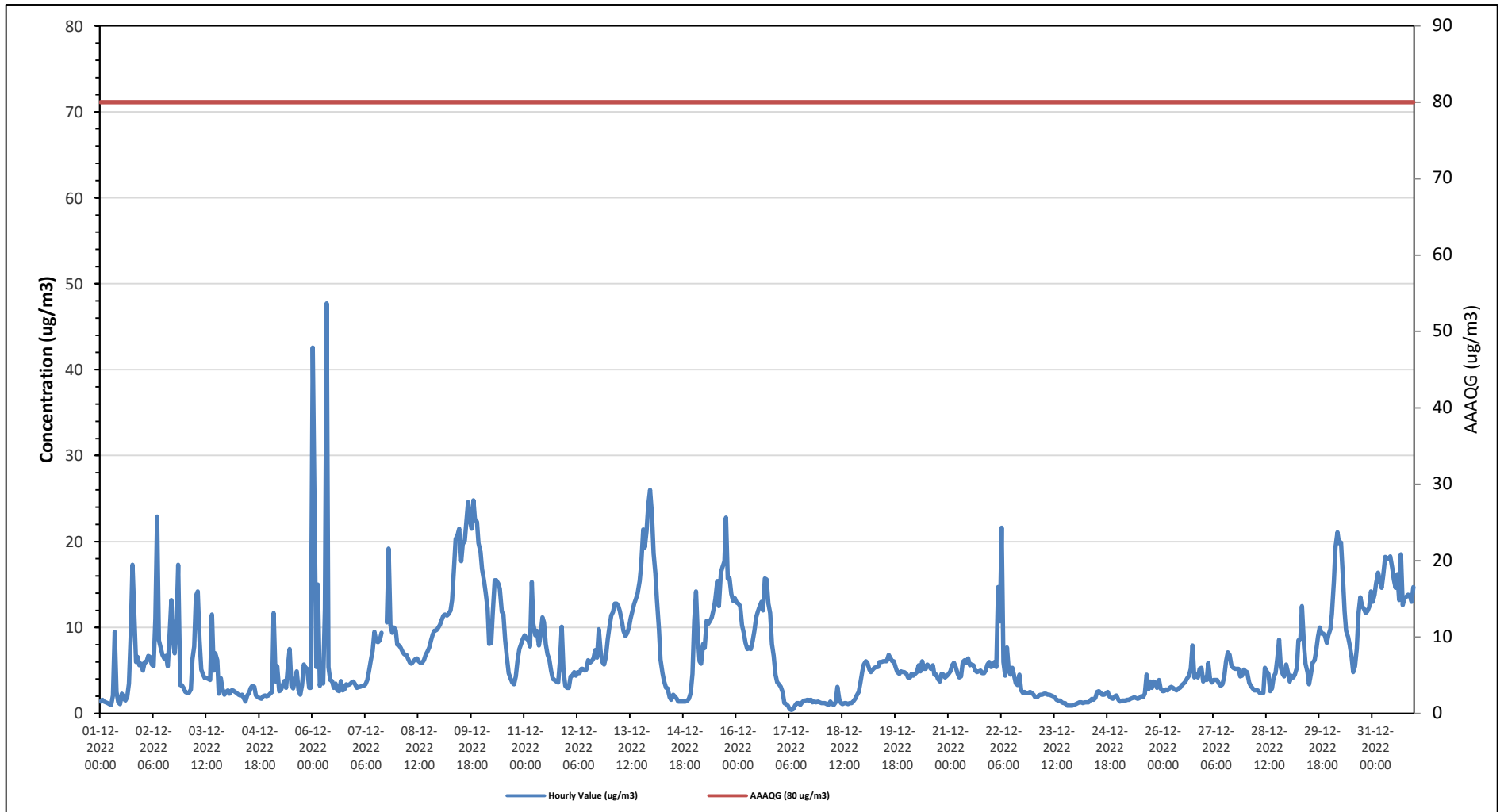
PARTICULATE MATTER 2.5 (PM_{2.5}) in µg/m³

Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m ³ , Alberta Ambient Air Quality Objective (AAAO): 24-Hour 29 µg/m ³																											
Number of 1-Hour Exceedances: 0									Number of 24-Hour Exceedances: 0																		
Maximum Hourly Value: 48 µg/m ³ on December 6 at hour 8													Hours in Service: 744														
Maximum Daily Value: 17.9 µg/m ³ on December 9													Hours of Data: 742														
Minimum Hourly Value: 0 µg/m ³ on December 17 at hour 7													Hours of Missing Data: 0														
Minimum Daily Value: 1 µg/m ³ on December 17													Hours of Calibration: 2														
Monthly Average: 6.7 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
Dec 1	1	2	1	1	1	1	1	2	10	3	1	1	2	2	2	2	4	9	17	12	6	7	6	6	1	17	4.1
Dec 2	5	6	6	7	7	6	6	11	23	9	8	7	6	7	6	9	13	8	7	11	17	3	3	3	3	23	8.0
Dec 3	3	2	2	3	6	8	14	14	9	5	5	4	4	4	12	5	7	6	2	4	3	2	2	3	2	14	5.4
Dec 4	3	2	3	3	3	2	2	2	2	2	1	2	2	3	3	3	2	2	2	2	2	2	2	2	1	3	2.3
Dec 5	2	3	12	4	6	3	3	3	4	3	5	8	3	3	4	5	3	2	3	6	5	5	3	3	2	12	4.1
Dec 6	43	27	5	15	3	4	4	12	48	5	4	4	3	4	3	3	4	3	3	3	3	3	3	4	4	48	8.9
Dec 7	3	3	3	3	3	3	3	4	5	6	7	10	8	8	9	9	C	C	11	19	10	9	10	10	3	19	7.2
Dec 8	8	8	8	7	7	7	6	6	6	6	6	6	6	6	6	6	7	7	8	9	9	10	10	10	6	10	7.2
Dec 9	10	11	11	12	11	12	12	13	17	20	21	22	18	20	20	22	25	23	22	25	23	22	20	19	10	25	17.9
Dec 10	17	15	14	12	8	8	12	16	16	15	15	12	12	9	7	5	4	4	3	4	6	8	8	9	3	17	9.8
Dec 11	9	9	9	8	15	10	9	10	8	9	11	11	8	7	6	5	4	4	4	4	6	10	5	3	3	15	7.6
Dec 12	3	3	4	4	5	4	5	5	5	5	5	5	6	6	6	6	7	7	10	7	6	6	7	9	3	10	5.7
Dec 13	10	11	12	13	13	13	12	11	10	9	9	10	11	12	13	13	14	15	17	21	19	21	24	26	9	26	14.2
Dec 14	23	19	16	13	10	6	5	4	3	3	2	2	2	2	2	1	1	1	1	1	2	2	2	5	1	23	5.4
Dec 15	11	14	9	6	6	8	8	11	10	11	11	12	13	15	13	16	17	18	23	16	16	14	13	13	6	23	12.7
Dec 16	13	13	13	10	9	8	8	8	8	8	10	11	12	12	13	12	16	16	13	12	8	7	5	4	4	16	10.2
Dec 17	3	3	3	1	1	1	1	0	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	0	3	1.4
Dec 18	1	1	1	1	1	1	1	1	1	3	2	1	1	1	1	1	1	1	2	2	2	3	4	5	1	5	1.7
Dec 19	6	6	6	5	5	5	5	5	5	6	6	6	6	6	7	7	6	6	5	5	5	5	5	5	5	7	5.6
Dec 20	5	4	4	5	4	5	5	6	5	6	5	5	6	6	5	6	5	5	4	4	5	5	4	4	4	6	4.8
Dec 21	5	5	6	6	5	5	4	4	6	6	6	6	6	6	5	5	5	5	5	5	5	5	6	6	4	6	5.3
Dec 22	5	6	6	5	15	11	22	6	4	8	5	5	5	4	4	3	5	3	2	3	2	2	3	2	2	22	5.6
Dec 23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	1.7
Dec 24	1	1	1	1	1	1	1	1	2	2	2	2	3	3	2	2	2	2	3	2	2	2	2	2	1	3	1.8
Dec 25	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	5	3	4	3	4	4	3	4	1	5	2.3	
Dec 26	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	8	4	5	4	5	5	3	8	3.7
Dec 27	4	4	4	6	4	4	4	4	4	4	3	3	4	6	7	7	6	5	5	5	5	4	4	5	3	7	4.7
Dec 28	5	5	4	3	3	3	3	3	2	2	2	5	5	5	3	3	4	5	6	9	5	5	4	6	2	9	4.1
Dec 29	5	4	4	4	5	5	9	13	8	6	5	3	5	6	6	7	9	10	9	9	9	8	9	3	13	6.9	
Dec 30	10	12	15	19	21	20	20	17	12	10	9	8	7	5	6	8	12	14	13	12	12	12	14	14	5	21	12.3
Dec 31	13	14	15	16	16	15	16	18	18	18	18	17	16	15	16	13	19	13	13	14	14	14	13	15	13	19	15.3
Diurnal Maximum	43	27	16	19	21	20	22	18	48	20	21	22	18	20	22	25	23	23	25	23	22	24	26				
Diurnal Average	7.5	7.0	6.6	6.5	6.4	6.0	6.6	6.8	8.4	6.4	6.2	6.3	6.0	6.1	6.0	6.4	6.9	6.8	7.5	7.5	7.1	6.7	6.4	6.8			
C	Monthly Calibration						S	Daily Zero-Span Check						Q	Quality Assurance												
K	Collection Error						N	No Data (Machine Not in Service)						Y	Routine Maintenance						P	Power Failure					
X	InValid Data (Equipment Malfunction/Recovery)						NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																			

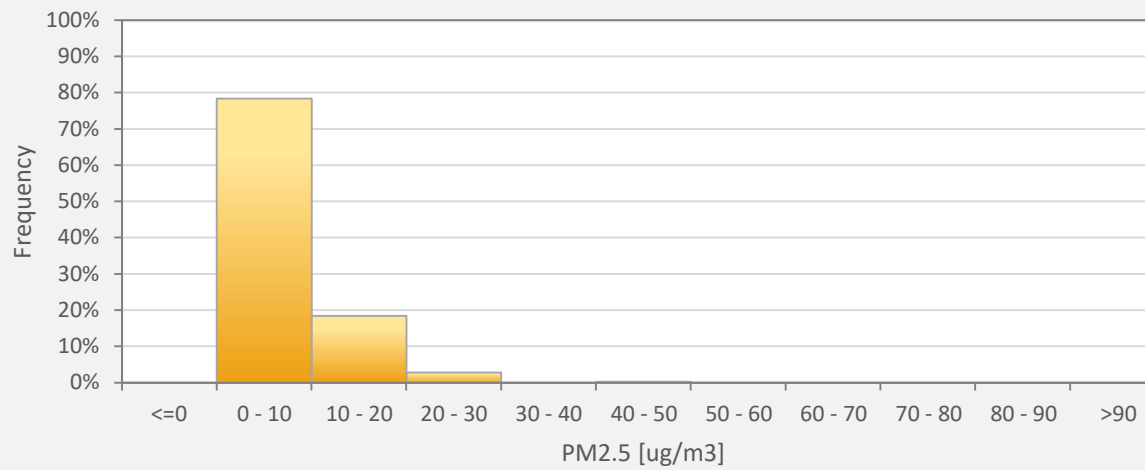
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

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



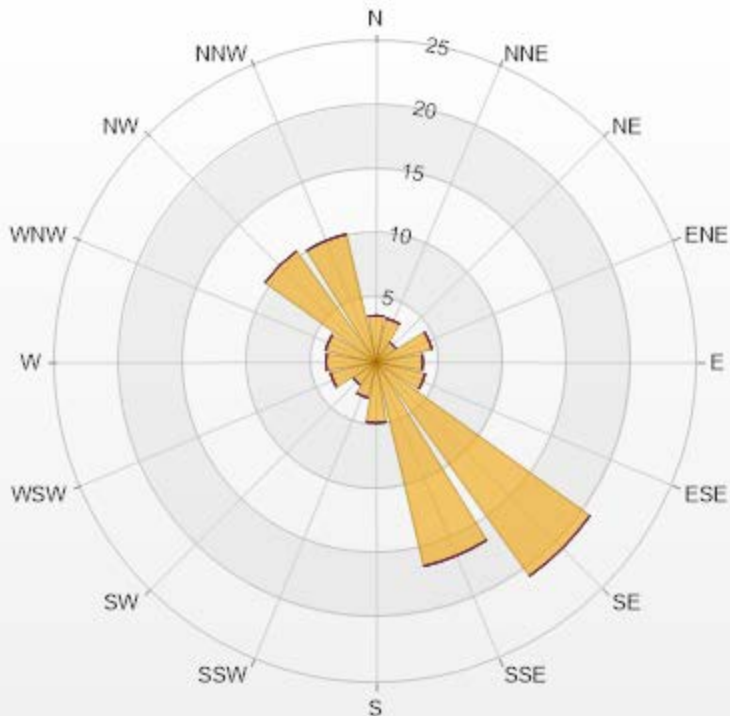
PM2.5[ug/m3(L)] Histogram: Lac La Biche Monthly: 12-2022 1 Hr.



Classes	PM2.5
<=0	0.00%
0 - 10	78.44%
10 - 20	18.46%
20 - 30	2.83%
30 - 40	0.00%
40 - 50	0.27%
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-PM2.5[ug/m3(L)] Monthly: 12-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 99.73% Calm Avg: 0.00 [ug/m3(L)]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	3.64	0	0	0	0	3.64
NNE	3.5	0	0	0	0	3.5
NE	1.89	0	0	0	0	1.89
ENE	4.45	0	0	0	0	4.45
E	3.64	0	0	0	0	3.64
ESE	3.91	0	0	0	0	3.91
SE	20.49	0	0	0	0	20.49
SSE	16.31	0	0	0	0	16.31
S	4.72	0	0	0	0	4.72
SSW	2.83	0	0	0	0	2.83
SW	2.16	0	0	0	0	2.16
WSW	3.64	0	0	0	0	3.64
W	3.91	0	0	0	0	3.91
WNW	4.04	0	0	0	0	4.04
NW	10.65	0	0	0	0	10.65
NNW	10.24	0	0	0	0	10.24
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

Lac La Biche Station - December 2022

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

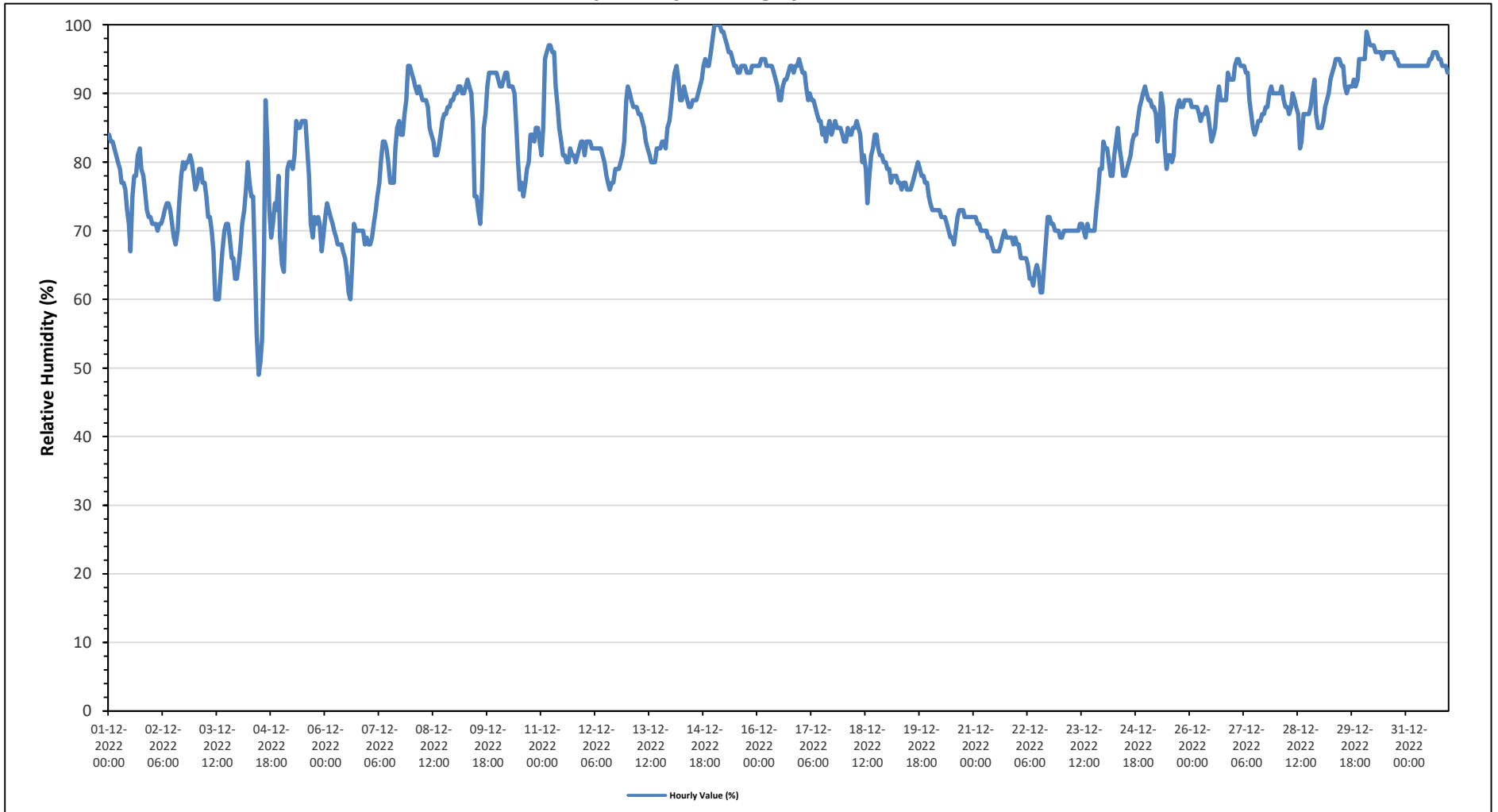
Maximum Hourly Value:	100 %	on December 15 at hour 0	Hours in Service:	744
Maximum Daily Value:	95.8 %	on December 30	Hours of Data:	744
Minimum Hourly Value:	49 %	on December 4 at hour 11	Hours of Missing Data:	0
Minimum Daily Value:	66.5 %	on December 22	Hours of Calibration:	0
Monthly Average:	82.2 %		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	
Dec 1	84	83	83	82	81	80	79	77	77	76	73	71	67	75	78	78	81	82	79	78	76	73	72	72	67	84	77.4	
Dec 2	71	71	71	70	71	71	72	73	74	74	70	73	71	69	68	70	74	78	80	79	80	80	81	80	78	68	81	74.1
Dec 3	76	77	79	79	77	77	75	72	72	74	70	67	60	60	60	64	67	70	71	71	69	66	66	63	63	60	79	69.6
Dec 4	65	68	71	73	76	80	77	75	75	64	55	49	51	54	67	89	82	73	69	71	74	73	78	69	49	89	69.9	
Dec 5	65	64	72	79	80	80	79	81	86	85	85	86	86	86	82	78	71	69	72	71	72	71	67	69	64	86	76.5	
Dec 6	72	74	73	72	71	70	69	68	68	68	67	66	64	61	60	65	71	70	70	70	70	68	69	69	60	74	68.6	
Dec 7	68	68	69	71	73	75	77	80	83	83	82	80	77	77	77	82	85	86	84	84	87	89	94	94	68	94	80.2	
Dec 8	93	92	91	90	91	90	89	89	89	88	85	84	83	81	81	82	84	86	87	87	88	88	89	89	81	93	87.3	
Dec 9	90	90	91	91	90	90	91	92	91	90	86	75	75	73	71	76	85	87	91	93	93	93	93	93	71	93	87.1	
Dec 10	92	91	91	92	93	93	91	91	90	86	80	76	77	75	77	79	80	84	84	83	85	85	83	83	75	93	85.4	
Dec 11	81	85	95	96	97	97	96	96	91	88	85	83	81	81	80	80	82	81	81	80	81	82	83	83	80	97	86.0	
Dec 12	81	83	83	83	82	82	82	82	82	82	81	80	78	77	76	77	79	79	79	79	80	81	83	89	76	89	80.8	
Dec 13	91	90	89	88	88	88	87	87	86	85	83	82	81	80	80	80	82	82	82	83	83	82	85	86	80	91	84.6	
Dec 14	88	91	93	94	92	89	89	91	90	89	88	88	89	89	89	90	91	92	94	95	94	94	96	98	88	98	91.4	
Dec 15	100	100	100	100	99	99	98	97	96	96	95	94	94	93	93	94	94	94	93	93	93	94	94	94	93	100	95.7	
Dec 16	94	94	95	95	95	94	94	94	94	93	92	91	89	89	91	92	92	93	94	94	93	94	94	95	89	95	93.1	
Dec 17	94	93	93	91	89	90	89	89	88	87	86	86	84	85	83	85	86	84	85	86	85	85	85	84	83	94	87.2	
Dec 18	83	83	85	84	84	85	85	86	85	84	80	81	79	74	78	81	82	84	84	82	81	81	80	80	74	86	82.1	
Dec 19	79	79	77	78	78	78	77	77	76	77	77	76	76	76	77	78	79	80	79	78	78	77	77	75	75	80	77.5	
Dec 20	74	73	73	73	73	72	72	72	71	70	69	69	69	68	70	72	73	73	73	72	72	72	72	72	68	74	71.8	
Dec 21	72	72	71	71	70	70	70	70	69	69	68	67	67	67	67	68	69	70	69	69	69	69	68	69	67	72	69.2	
Dec 22	68	68	66	66	66	66	65	63	63	62	64	65	64	61	61	65	68	72	72	71	71	70	70	70	61	72	66.5	
Dec 23	69	69	70	70	70	70	70	70	70	70	70	71	71	70	69	71	70	70	70	70	73	76	79	79	69	79	71.1	
Dec 24	83	82	82	80	78	78	81	83	85	82	80	78	78	79	80	81	83	84	84	86	88	89	90	91	78	91	82.7	
Dec 25	90	89	89	88	88	87	83	85	90	88	82	79	81	81	80	81	86	88	89	88	88	89	89	89	79	90	86.1	
Dec 26	89	88	88	88	88	87	86	87	87	88	87	85	83	84	85	89	91	89	89	89	89	93	92	92	83	93	88.0	
Dec 27	92	94	95	95	94	94	94	93	93	89	87	85	84	85	86	86	87	87	88	88	90	91	90	90	84	95	89.9	
Dec 28	90	90	90	91	89	88	88	87	88	90	89	88	87	82	83	87	87	87	87	88	90	92	87	85	82	92	87.9	
Dec 29	85	85	86	88	89	90	92	93	94	95	95	95	94	94	91	90	91	91	91	92	91	92	95	95	85	95	91.4	
Dec 30	95	95	99	98	97	97	97	96	96	96	96	95	96	96	96	96	96	96	95	95	94	94	94	94	94	99	95.8	
Dec 31	94	94	94	94	94	94	94	94	94	94	94	94	94	95	95	96	96	96	95	95	94	94	94	93	93	96	94.4	
Diurnal Maximum	100	100	100	100	99	99	98	97	96	96	96	95	96	96	96	96	96	96	95	95	94	94	96	98				
Diurnal Average	82.8	83.1	84.0	84.2	84.0	83.9	83.5	83.5	83.7	82.7	80.9	79.2	78.3	78.0	78.5	80.9	82.2	82.5	82.5	82.6	82.8	83.2	83.4	83.3				

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)	NRIM 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 - December 2022

Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

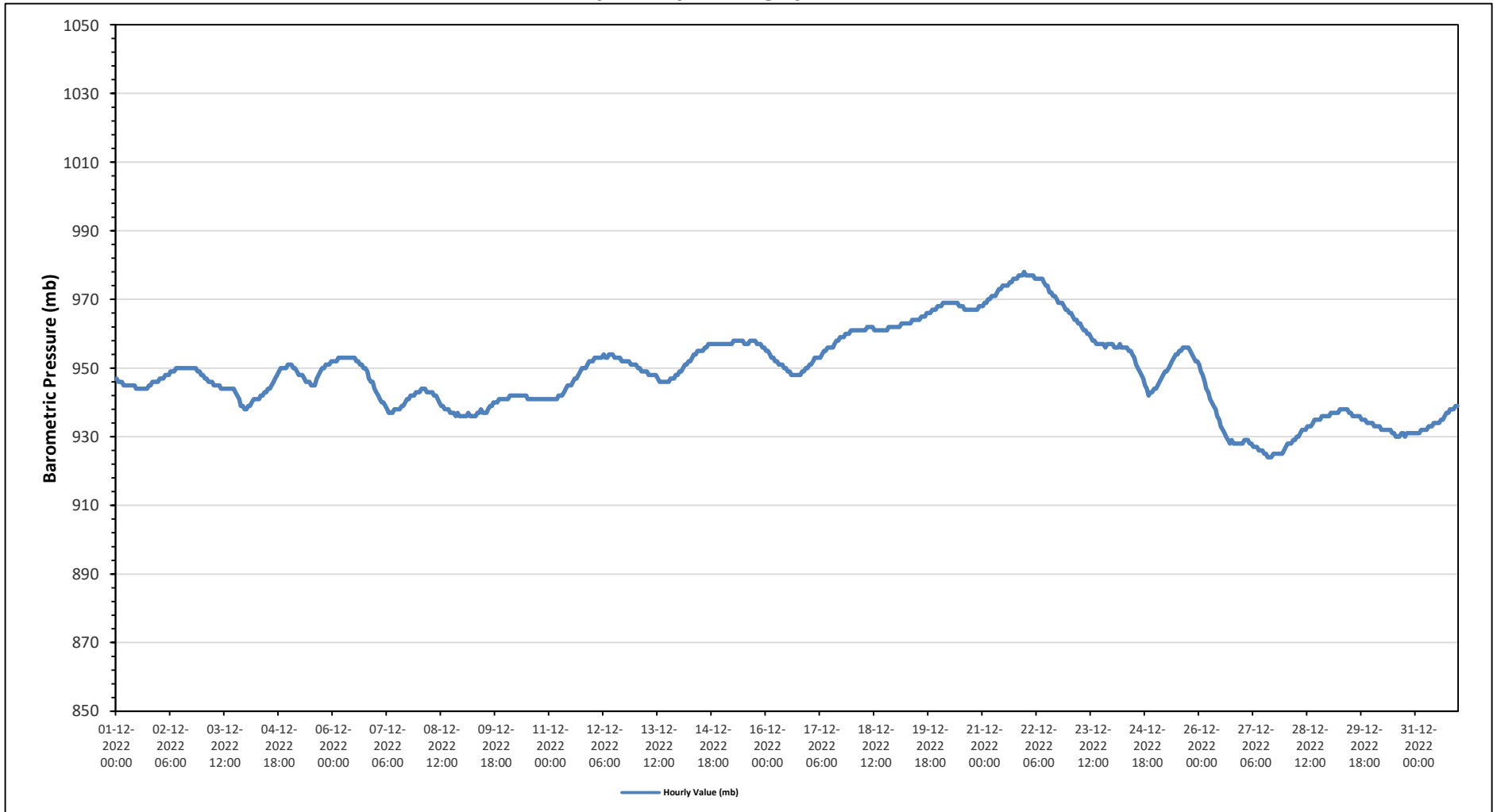
Maximum Hourly Value:	978 mb on December 21 at hour 23	Hours in Service:	744
Maximum Daily Value:	973 mb on December 21	Hours of Data:	744
Minimum Hourly Value:	924 mb on December 27 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	926 mb on December 27	Hours of Calibration:	0
Monthly Average:	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
Dec 1	947	946	946	946	945	945	945	945	945	945	945	944	944	944	944	944	944	944	945	945	946	946	946	944	947	945	
Dec 2	947	947	947	948	948	948	949	949	949	950	950	950	950	950	950	950	950	950	950	950	949	949	948	947	950	949	
Dec 3	948	947	947	946	946	946	945	945	945	945	944	944	944	944	944	944	944	944	943	942	941	939	939	938	938	948	944
Dec 4	938	939	939	940	941	941	941	941	942	942	943	943	944	944	945	946	947	948	949	950	950	950	950	951	938	951	944
Dec 5	951	951	950	950	949	948	948	948	948	947	946	946	945	945	945	947	948	949	950	950	951	951	951	952	945	952	949
Dec 6	952	952	952	953	953	953	953	953	953	953	953	953	953	952	952	951	951	950	950	949	947	946	946	944	944	953	951
Dec 7	943	942	941	940	940	939	938	937	937	937	937	938	938	938	938	939	939	940	941	941	942	942	943	943	937	943	940
Dec 8	943	944	944	944	943	943	943	943	942	942	941	940	939	939	938	938	938	937	937	937	936	937	936	936	936	944	940
Dec 9	936	936	936	937	936	936	936	936	937	937	938	937	937	937	938	939	939	940	940	940	941	941	941	941	941	941	938
Dec 10	941	941	942	942	942	942	942	942	942	942	942	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941
Dec 11	941	941	941	941	941	942	942	942	943	944	945	945	945	946	947	947	948	949	950	950	950	951	952	952	941	952	946
Dec 12	952	953	953	953	953	953	954	953	953	954	954	954	953	953	953	953	952	952	952	952	951	951	951	951	951	954	953
Dec 13	951	950	950	949	949	949	949	948	948	948	947	946	946	946	946	946	946	946	946	947	947	947	948	948	946	951	948
Dec 14	949	949	950	951	951	952	952	953	954	954	955	955	955	955	956	956	957	957	957	957	957	957	957	957	949	957	954
Dec 15	957	957	957	957	957	957	958	958	958	958	958	958	957	957	957	958	958	958	958	957	957	957	956	956	956	958	957
Dec 16	955	955	954	953	953	952	952	951	951	950	949	949	948	948	948	948	948	948	948	949	949	950	950	948	955	950	
Dec 17	951	951	952	953	953	953	953	954	955	955	956	956	956	957	958	958	959	959	959	960	960	960	961	951	961	956	
Dec 18	961	961	961	961	961	961	961	961	962	962	962	962	961	961	961	961	961	961	961	961	962	962	962	962	961	962	961
Dec 19	962	962	962	963	963	963	963	963	963	964	964	964	964	964	965	965	965	966	966	966	967	967	967	968	962	968	964
Dec 20	968	968	969	969	969	969	969	969	969	969	968	968	968	967	967	967	967	967	967	967	967	967	968	967	967	968	968
Dec 21	968	969	969	970	970	971	971	971	972	973	973	974	974	974	974	975	975	976	976	976	977	977	977	978	968	978	973
Dec 22	977	977	977	977	977	976	976	976	976	976	975	974	974	972	972	971	971	970	969	969	969	968	967	967	967	977	973
Dec 23	966	966	965	964	964	963	963	962	961	961	960	959	958	958	957	957	957	957	957	957	956	957	957	956	956	966	960
Dec 24	957	956	956	956	957	956	956	956	956	955	955	954	953	951	950	949	948	947	945	944	943	943	944	942	942	957	951
Dec 25	944	945	946	947	948	949	949	950	951	952	953	954	954	955	955	956	956	956	956	955	954	953	952	952	944	956	952
Dec 26	951	949	948	946	944	943	941	940	939	938	936	935	933	932	931	930	929	928	929	928	928	928	928	928	928	951	936
Dec 27	928	929	929	929	928	928	927	927	927	926	926	926	925	925	924	924	924	925	925	925	925	925	925	926	924	929	926
Dec 28	927	928	928	928	929	929	930	930	931	932	932	933	933	933	934	935	935	935	935	935	935	936	936	936	927	936	932
Dec 29	936	937	937	937	937	937	938	938	938	938	938	937	937	936	936	936	936	936	935	935	935	935	934	934	934	938	936
Dec 30	934	933	933	933	933	932	932	932	932	932	932	931	931	930	930	930	931	931	930	931	931	931	931	930	930	934	932
Dec 31	931	931	931	932	932	932	932	933	933	933	934	934	934	934	935	935	936	937	937	938	938	938	939	939	931	939	935
Diurnal Maximum	977	977	977	977	977	976	976	976	976	976	975	974	974	974	974	975	975	976	976	976	977	977	977	978	968	978	978
Diurnal Average	949	949	949	949	949	949	949	949	949	949	949	949	948	948	948	948	949	949	948	948	948	948	949	948	948	948	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 - December 2022

Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

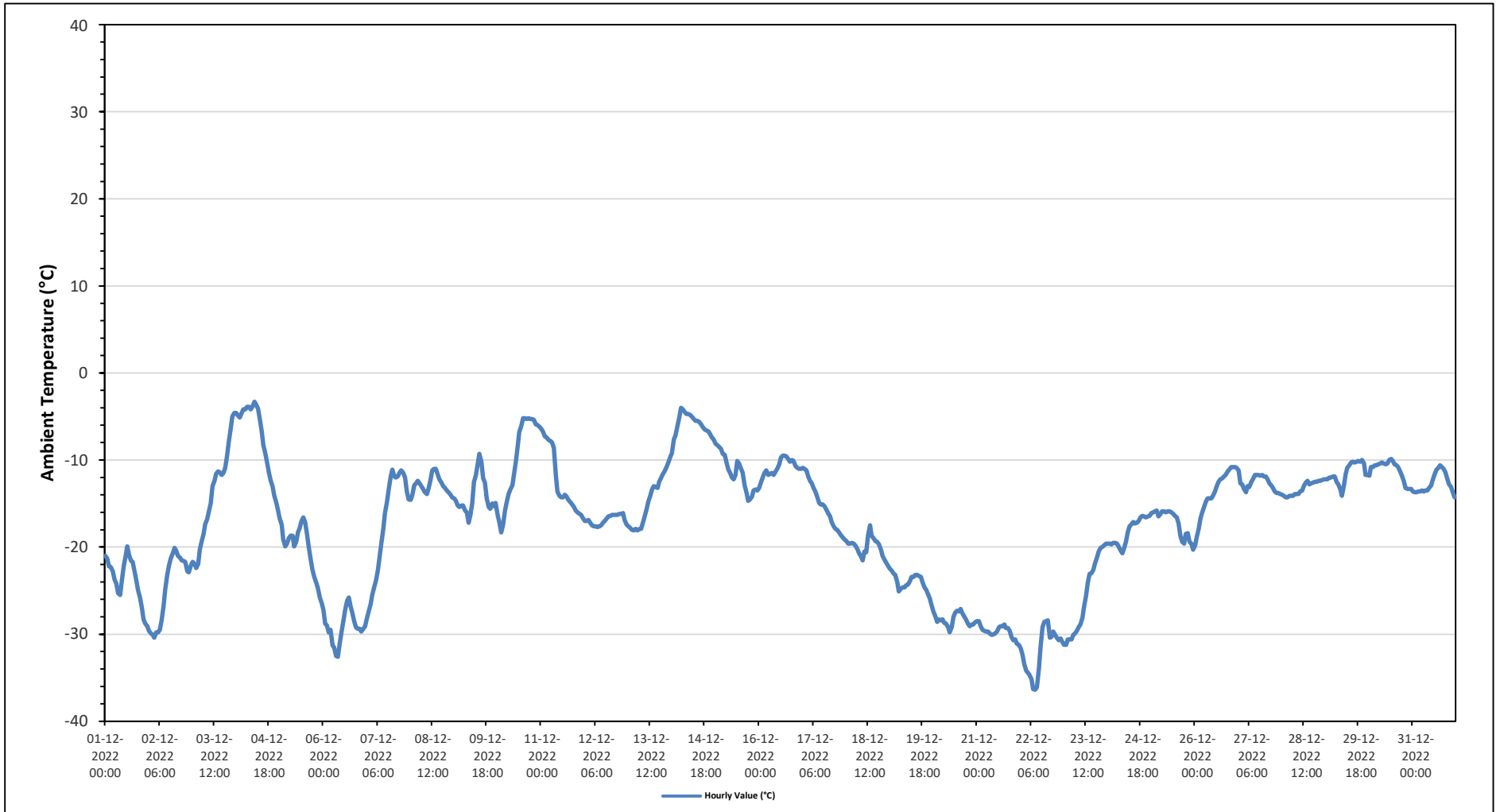
Maximum Hourly Value:	-3.3 °C	on December 4 at hour 10	Hours in Service:	744
Maximum Daily Value:	-6.0 °C	on December 14	Hours of Data:	744
Minimum Hourly Value:	-36.4 °C	on December 22 at hour 8	Hours of Missing Data:	0
Minimum Daily Value:	-32.0 °C	on December 22	Hours of Calibration:	0
Monthly Average:	-17.1 °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
Dec 1	-21	-21.3	-22.2	-22.3	-22.8	-23.7	-24.2	-25.3	-25.5	-24	-22.2	-21.1	-19.9	-20.9	-21.5	-21.7	-22.7	-23.9	-24.9	-25.8	-26.9	-28.3	-28.8	-29.1	-29.1	-19.9	-23.8
Dec 2	-29.6	-29.9	-30.1	-30.4	-29.8	-29.8	-29.5	-28.4	-26.7	-24.9	-23.2	-22.1	-21.3	-20.8	-20.1	-20.4	-21	-21.2	-21.5	-21.6	-21.7	-22.8	-22.9	-22.1	-30.4	-20.1	-24.7
Dec 3	-21.7	-21.9	-22.4	-21.9	-20.3	-19.4	-18.5	-17.4	-16.8	-15.9	-15	-13	-12.4	-11.6	-11.3	-11.4	-11.7	-11.5	-10.9	-9.6	-7.9	-6.3	-5	-4.6	-22.4	-4.6	-14.1
Dec 4	-4.6	-4.9	-5.1	-4.6	-4.2	-4.2	-3.9	-3.9	-4.2	-3.9	-3.3	-3.6	-4.1	-5.3	-6.6	-8.3	-9.3	-10.2	-11.5	-12.4	-13	-14.1	-14.8	-15.7	-15.7	-3.3	-7.3
Dec 5	-16.7	-17.4	-19.1	-19.9	-19.6	-19	-18.7	-18.7	-19.9	-19.4	-18.3	-17.8	-17	-16.6	-17.1	-18.4	-20.1	-21.4	-22.6	-23.4	-24.1	-24.7	-25.8	-26.4	-26.4	-16.6	-20.1
Dec 6	-27.2	-28.8	-29	-29.8	-29.5	-31.3	-31.5	-32.5	-32.6	-31.1	-29.8	-28.4	-27.3	-26.2	-25.8	-26.7	-27.6	-28.5	-29.2	-29.4	-29.4	-29.7	-29.4	-29.1	-32.6	-25.8	-29.2
Dec 7	-28.2	-27.4	-26.5	-25.5	-24.7	-23.8	-22.7	-21.1	-19.5	-17.8	-16.1	-14.8	-13.3	-12	-11.1	-11.9	-12	-11.9	-11.4	-11.2	-11.5	-12	-13.6	-14.5	-28.2	-11.1	-17.3
Dec 8	-14.6	-14.1	-12.9	-12.7	-12.4	-12.7	-13	-13.3	-13.7	-13.9	-13.3	-12.3	-11.2	-11	-11	-11.7	-12.2	-12.6	-13	-13.2	-13.5	-13.7	-14	-14.3	-14.6	-11.0	-12.9
Dec 9	-14.4	-14.7	-15.2	-15.4	-15.2	-15.2	-15.8	-16	-17.2	-16.3	-15	-12.5	-11.8	-10.4	-9.3	-10.2	-12.1	-12.6	-14.4	-15.4	-15.6	-15	-15.3	-14.9	-17.2	-9.3	-14.2
Dec 10	-16.3	-17.2	-18.3	-17.5	-15.8	-14.9	-13.9	-13.4	-12.9	-11.7	-10.1	-8.4	-6.8	-6.1	-5.2	-5.2	-5.3	-5.2	-5.3	-5.4	-5.9	-6	-6.2	-18.3	-5.2	-9.9	
Dec 11	-6.4	-6.7	-7.3	-7.4	-7.7	-7.8	-8	-8.6	-11.8	-13.6	-14.1	-14.3	-14.3	-14	-14.2	-14.6	-14.8	-15.1	-15.4	-15.8	-16	-16.2	-16.3	-16.7	-16.7	-6.4	-12.4
Dec 12	-17	-17	-16.9	-17.2	-17.5	-17.6	-17.6	-17.7	-17.6	-17.5	-17.2	-17	-16.7	-16.5	-16.4	-16.3	-16.3	-16.3	-16.2	-16.2	-16.1	-16.9	-17.4	-17.7	-16.1	-16.9	-16.9
Dec 13	-17.6	-17.8	-18	-18.1	-17.9	-18.1	-17.9	-17.9	-17.2	-16.5	-15.6	-14.8	-14.1	-13.4	-13	-13.1	-13.2	-12.5	-12	-11.6	-11.3	-10.8	-10.3	-9.7	-18.1	-9.7	-14.7
Dec 14	-9.2	-7.6	-7.2	-6.1	-5.1	-4	-4.2	-4.5	-4.7	-4.7	-4.8	-5	-5.3	-5.5	-5.5	-5.6	-5.9	-6.2	-6.5	-6.6	-6.7	-7	-7.4	-7.7	-9.2	-4.0	-6.0
Dec 15	-8.1	-8.3	-8.5	-8.7	-9.3	-9.4	-10.2	-11.1	-11.5	-12	-12.2	-11.7	-10.1	-10.4	-11	-11.4	-12.9	-13.7	-14.7	-14.5	-14.2	-13.5	-13.4	-13.5	-14.7	-8.1	-11.4
Dec 16	-13.2	-12.6	-12	-11.5	-11.2	-11.7	-11.6	-11.5	-11.7	-11.3	-11	-10.5	-9.7	-9.5	-9.5	-9.6	-9.9	-10.2	-10	-10.1	-10.7	-10.9	-11	-11	-13.2	-9.5	-10.9
Dec 17	-10.9	-11	-11.2	-11.9	-12.4	-12.7	-13.2	-13.6	-14.2	-14.9	-15.1	-15.1	-15.3	-15.7	-16.1	-16.5	-17.1	-17.6	-17.9	-18	-18.3	-18.6	-18.9	-19.1	-19.1	-10.9	-15.2
Dec 18	-19.3	-19.6	-19.6	-19.5	-19.6	-19.8	-20.2	-20.7	-21	-21.5	-20.5	-20.6	-18.7	-17.5	-18.7	-19	-19.3	-19.4	-19.7	-20.3	-21	-21.4	-21.8	-22.1	-22.1	-17.5	-20.0
Dec 19	-22.5	-22.7	-23	-23.2	-24	-25.1	-24.8	-24.6	-24.6	-24.4	-24.3	-23.9	-23.4	-23.4	-23.2	-23.3	-23.4	-24	-24.6	-24.9	-25.4	-25.9	-26.7	-26.7	-22.5	-24.1	-24.1
Dec 20	-27.4	-27.9	-28.6	-28.3	-28.4	-28.3	-28.7	-28.8	-29.2	-29.8	-29.2	-28	-27.5	-27.3	-27.4	-27.1	-27.6	-28	-28.3	-28.8	-29.1	-28.9	-28.6	-29.8	-29.8	-27.1	-28.3
Dec 21	-28.5	-28.5	-29.1	-29.5	-29.6	-29.7	-29.7	-29.9	-30.1	-30	-29.9	-29.7	-29.2	-29.1	-29.1	-28.9	-29.3	-29.6	-30.3	-30.7	-30.6	-31.1	-31.2	-31.2	-31.2	-28.5	-29.7
Dec 22	-31.6	-32.3	-33.4	-34.2	-34.4	-34.7	-35.2	-36.3	-36.4	-36.1	-33.9	-31.6	-29.2	-28.6	-28.5	-28.4	-30.4	-30.3	-29.7	-30.1	-30.4	-30.7	-30.5	-30.9	-36.4	-28.4	-32.0
Dec 23	-31.2	-31.2	-30.6	-30.6	-30.6	-30.1	-29.9	-29.6	-29.2	-28.9	-28.1	-26.9	-25.6	-24.1	-23.1	-23	-22.6	-21.9	-21.2	-20.5	-20.1	-20	-19.8	-19.6	-31.2	-19.6	-25.8
Dec 24	-19.6	-19.6	-19.7	-19.5	-19.5	-19.6	-19.9	-20.4	-20.7	-20.1	-19.4	-18.3	-17.6	-17.4	-17.1	-17.3	-17.2	-17	-16.6	-16.4	-16.5	-16.6	-16.5	-16.4	-20.7	-16.4	-18.3
Dec 25	-16.1	-16	-15.9	-15.8	-16.5	-16.2	-15.9	-15.9	-16	-15.9	-15.9	-16	-16.2	-16.4	-16.6	-17.3	-18.7	-19.4	-19.6	-18.5	-18.4	-19.4	-19.6	-20.3	-20.3	-15.8	-17.2
Dec 26	-19.8	-18.9	-17.9	-16.7	-16.1	-15.4	-14.8	-14.4	-14.4	-14.4	-14.1	-13.6	-13	-12.5	-12.2	-12.1	-11.9	-11.7	-11.3	-11.1	-10.8	-10.8	-10.8	-10.9	-19.8	-10.8	-13.7
Dec 27	-11.2	-12.7	-12.8	-13.3	-13.7	-13	-13.1	-12.5	-12.2	-11.7	-11.7	-11.7	-11.8	-11.7	-11.9	-11.9	-12.2	-12.7	-12.9	-13.2	-13.6	-13.8	-13.8	-13.9	-13.9	-11.2	-12.6
Dec 28	-14	-14.1	-14.3	-14.3	-14.1	-14.1	-14.1	-13.9	-13.9	-13.9	-13.6	-13.5	-13	-12.6	-12.4	-12.8	-12.7	-12.6	-12.5	-12.5	-12.4	-12.4	-12.3	-12.2	-14.3	-12.2	-13.3
Dec 29	-12.2	-12.2	-12	-12	-11.9	-11.9	-12.5	-12.8	-13.4	-14.1	-12.9	-11.6	-10.9	-10.6	-10.3	-10.2	-10.3	-10.2	-10.1	-10.2	-10	-10.4	-11.7	-11.7	-14.1	-10.0	-11.5
Dec 30	-11.8	-10.8	-10.8	-10.6	-10.6	-10.5	-10.4	-10.3	-10.4	-10.5	-10.4	-10	-9.9	-10.1	-10.5	-10.6	-10.8	-11.3	-11.8	-12.4	-13.2	-13.3	-13.3	-13.3	-13.3	-9.9	-11.2
Dec 31	-13.6	-13.7	-13.7	-13.6	-13.6	-13.5	-13.6	-13.5	-13.5	-13.2	-12.9	-12.3	-11.6	-11.1	-10.9	-10.6	-10.8	-11	-11.4	-12.2	-12.8	-13.1	-13.7	-14.3	-14.3	-10.6	-12.7
Diurnal Maximum	-4.6	-4.9	-5.1	-4.6	-4.2	-4.0	-3.9	-3.9	-4.2	-3.9	-3.3	-3.6	-4.1	-5.3	-5.2	-5.2	-5.3	-5.3	-5.4	-5.9	-5.0	-4.6	-4.6	-4.6	-4.6	-4.6	-4.6
Diurnal Average	-17.9	-18.0	-18.2	-18.1	-18.0	-18.0	-18.0	-18.0	-18.2	-17.9	-17.2	-16.5	-15.7	-15.4	-15.4	-15.7	-16.2	-16.4	-16.7	-16.8	-17.0	-17.2	-17.4	-17.6	-17.6	-17.6	-17.6

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 AT - Lac La Biche Station





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - December 2022

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

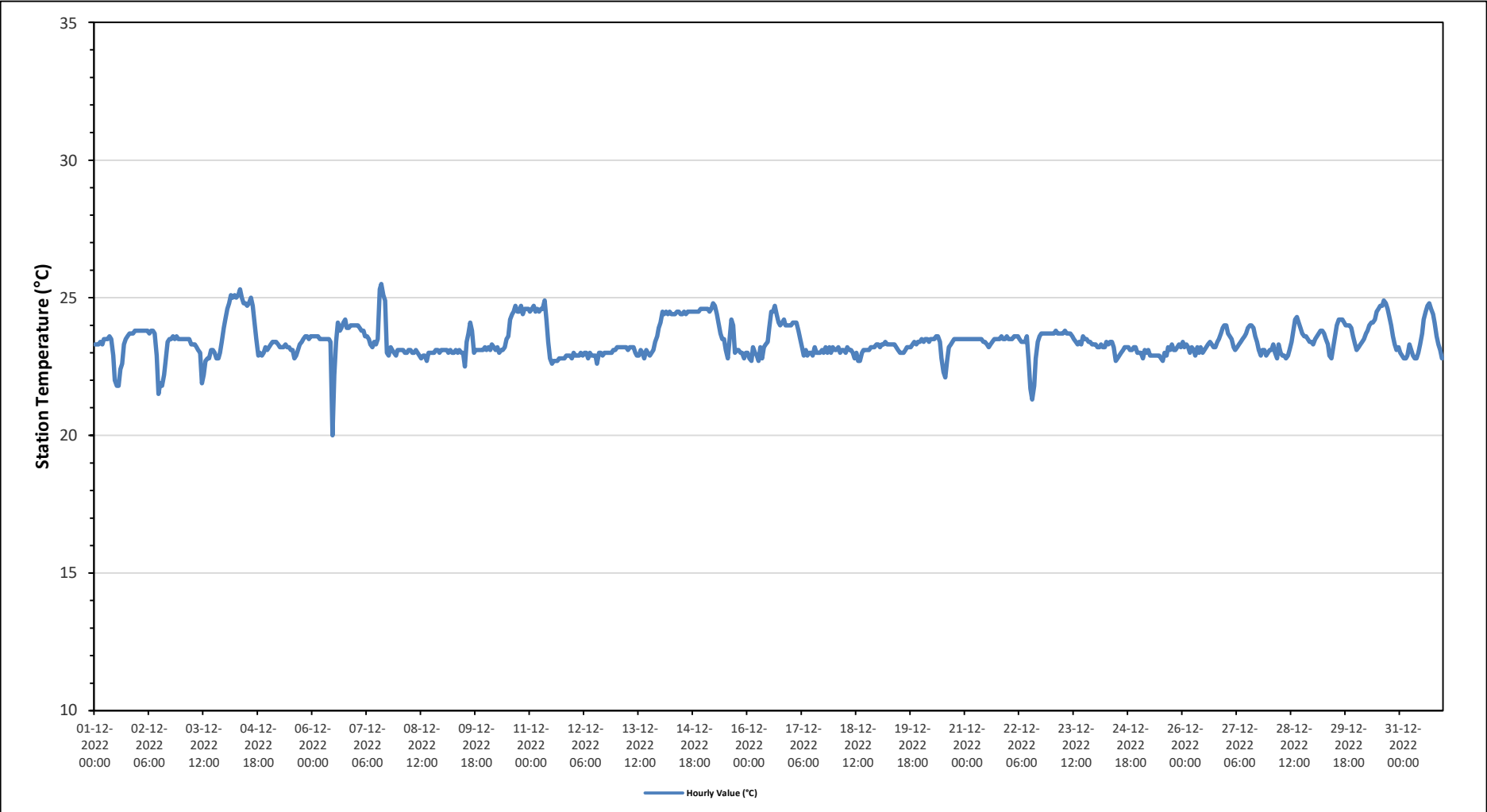
Maximum Hourly Value:	25.5 °C	on December 7 at hour 14	Hours in Service:	744
Maximum Daily Value:	24.5 °C	on December 14	Hours of Data:	744
Minimum Hourly Value:	20.0 °C	on December 6 at hour 11	Hours of Missing Data:	0
Minimum Daily Value:	23.0 °C	on December 12	Hours of Calibration:	0
Monthly Average:	23.4 °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
Dec 1	23.3	23.3	23.3	23.4	23.3	23.5	23.5	23.5	23.6	23.5	22.9	22.0	21.8	21.8	22.4	22.6	23.3	23.5	23.6	23.7	23.7	23.8	23.8	21.8	23.8	23.2	
Dec 2	23.8	23.8	23.8	23.8	23.8	23.8	23.7	23.8	23.8	23.7	22.9	21.5	21.9	21.8	22.2	22.7	23.4	23.5	23.5	23.6	23.5	23.6	23.5	23.5	21.5	23.8	23.3
Dec 3	23.5	23.5	23.5	23.5	23.5	23.3	23.3	23.3	23.2	23.1	23.0	21.9	22.2	22.7	22.8	22.8	23.1	23.1	23.0	22.8	22.8	23.0	23.4	23.9	21.9	23.9	23.1
Dec 4	24.2	24.6	24.8	25.1	25.0	25.1	25.0	25.1	25.3	25.0	24.8	24.8	24.7	24.8	25.0	24.7	24.1	23.5	22.9	23.0	22.9	23.0	23.2	23.1	22.9	25.3	24.3
Dec 5	23.2	23.3	23.4	23.4	23.4	23.3	23.2	23.2	23.2	23.3	23.2	23.2	23.1	23.1	22.8	22.9	23.1	23.3	23.4	23.5	23.6	23.6	23.5	23.6	22.8	23.6	23.3
Dec 6	23.6	23.6	23.6	23.6	23.5	23.5	23.5	23.5	23.5	23.5	23.4	20.0	22.2	23.4	24.1	23.8	23.9	24.1	24.2	23.9	23.9	24.0	24.0	24.0	20.0	24.2	23.5
Dec 7	24.0	24.0	23.9	23.8	23.8	23.6	23.6	23.5	23.3	23.2	23.4	23.3	23.5	25.3	25.5	25.1	24.9	23.0	22.9	23.2	23.1	23.0	22.9	23.1	22.9	25.5	23.7
Dec 8	23.1	23.1	23.1	23.0	23.0	23.1	23.1	23.0	23.0	23.1	23.0	22.9	22.8	22.9	22.9	22.7	23.0	23.0	23.0	23.0	23.1	23.1	23.0	23.1	22.7	23.1	23.0
Dec 9	23.1	23.1	23.1	23.0	23.1	23.0	23.0	23.1	23.0	23.1	23.0	23.0	22.5	23.4	23.7	24.1	23.8	23.0	23.1	23.1	23.1	23.1	23.1	23.2	22.5	24.1	23.2
Dec 10	23.1	23.2	23.1	23.3	23.2	23.1	23.2	23.0	23.1	23.1	23.2	23.5	23.6	24.2	24.4	24.5	24.7	24.5	24.5	24.7	24.4	24.6	24.6	24.6	23.0	24.7	23.8
Dec 11	24.5	24.6	24.7	24.5	24.6	24.5	24.6	24.6	24.9	24.2	23.4	22.8	22.6	22.7	22.7	22.7	22.8	22.8	22.8	22.8	22.9	22.9	22.9	22.8	22.6	24.9	23.6
Dec 12	23.0	22.9	22.9	22.9	23.0	22.9	23.0	23.0	22.8	23.0	22.9	22.9	22.9	22.6	23.0	23.0	22.9	23.0	23.0	23.0	23.0	23.1	23.1	22.6	23.1	23.0	23.0
Dec 13	23.2	23.2	23.2	23.2	23.2	23.2	23.1	23.2	23.2	23.2	23.0	22.9	22.9	23.1	23.0	22.8	23.1	23.0	22.9	23.0	23.1	23.4	23.6	23.9	22.8	23.9	23.2
Dec 14	24.1	24.5	24.4	24.5	24.4	24.5	24.4	24.4	24.4	24.5	24.5	24.4	24.4	24.4	24.5	24.4	24.5	24.5	24.5	24.5	24.5	24.5	24.6	24.6	24.1	24.6	24.5
Dec 15	24.6	24.6	24.6	24.5	24.6	24.8	24.7	24.4	24.1	23.7	23.5	23.5	23.1	22.8	23.4	24.2	24.0	23.0	23.1	23.1	23.0	23.0	22.8	23.0	22.8	24.8	23.8
Dec 16	23.0	22.8	22.7	23.2	23.0	22.9	22.7	23.2	22.8	23.2	23.3	23.4	23.9	24.5	24.5	24.7	24.4	24.1	24.0	24.1	24.2	24.0	24.0	24.0	22.7	24.7	23.6
Dec 17	24.0	24.1	24.1	24.1	23.8	23.5	23.2	22.9	23.1	22.9	23.0	23.0	22.9	23.2	23.0	23.0	23.1	23.0	23.2	23.0	23.2	23.0	23.2	22.9	22.9	24.1	23.3
Dec 18	23.1	23.1	23.2	23.0	23.1	23.1	23.0	23.2	23.1	23.1	23.0	22.8	23.0	22.7	22.7	23.0	23.1	23.1	23.1	23.1	23.2	23.2	23.2	23.3	22.7	23.3	23.1
Dec 19	23.3	23.2	23.3	23.3	23.4	23.3	23.3	23.3	23.3	23.3	23.2	23.1	23.0	23.0	23.1	23.2	23.2	23.2	23.3	23.4	23.3	23.4	23.4	23.0	23.4	23.4	23.2
Dec 20	23.5	23.4	23.5	23.5	23.4	23.5	23.5	23.5	23.6	23.6	23.4	22.8	22.3	22.1	22.7	23.2	23.3	23.4	23.5	23.5	23.5	23.5	23.5	22.1	23.6	23.3	23.5
Dec 21	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.4	23.4	23.3	23.2	23.3	23.4	23.5	23.5	23.5	23.5	23.6	23.5	23.5	23.2	23.6	23.5	23.5
Dec 22	23.5	23.5	23.5	23.6	23.6	23.6	23.5	23.4	23.4	23.4	23.6	22.7	21.7	21.3	21.8	22.8	23.4	23.6	23.7	23.7	23.7	23.7	23.7	21.3	23.7	23.3	23.3
Dec 23	23.7	23.7	23.8	23.7	23.7	23.7	23.7	23.8	23.7	23.7	23.7	23.6	23.5	23.4	23.3	23.4	23.3	23.6	23.5	23.5	23.4	23.4	23.3	23.3	23.3	23.8	23.6
Dec 24	23.3	23.2	23.2	23.3	23.2	23.2	23.4	23.3	23.4	23.4	23.2	22.7	22.8	22.9	23.0	23.1	23.2	23.2	23.2	23.1	23.1	23.2	23.2	22.7	23.4	23.2	23.2
Dec 25	23.0	23.0	22.8	23.1	23.0	23.1	22.9	22.9	22.9	22.9	22.9	22.9	22.8	22.7	23.0	22.9	23.2	23.1	23.3	23.1	23.1	23.2	23.3	23.2	22.7	23.3	23.0
Dec 26	23.4	23.2	23.3	23.2	23.0	23.2	23.1	22.9	23.2	23.0	23.2	23.0	23.1	23.2	23.3	23.4	23.3	23.2	23.2	23.4	23.5	23.7	23.9	22.9	24.0	23.3	23.3
Dec 27	24.0	23.7	23.6	23.5	23.2	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.9	24.0	24.0	23.9	23.6	23.4	23.1	22.9	23.1	23.1	22.9	22.9	22.9	24.0	23.4
Dec 28	23.1	23.1	23.3	23.0	22.8	23.3	23.0	22.9	22.9	22.8	22.9	23.1	23.4	23.8	24.2	24.3	24.1	23.9	23.7	23.6	23.6	23.5	23.4	22.8	23.4	23.4	23.4
Dec 29	23.3	23.5	23.6	23.7	23.8	23.8	23.7	23.5	23.3	22.9	22.8	23.2	23.6	24.0	24.2	24.2	24.1	24.0	24.0	23.9	23.9	23.6	23.3	22.8	24.2	23.7	23.7
Dec 30	23.1	23.2	23.3	23.4	23.5	23.7	23.8	24.0	24.1	24.1	24.2	24.5	24.6	24.7	24.7	24.9	24.8	24.6	24.3	24.0	23.6	23.3	23.1	23.2	23.1	24.9	23.9
Dec 31	23.0	22.9	22.8	22.8	22.9	23.3	23.1	22.9	22.8	22.8	23.0	23.3	23.7	24.2	24.5	24.7	24.8	24.6	24.4	24.1	23.6	23.3	23.1	22.8	22.8	24.8	23.5
Diurnal Maximum	24.6	24.6	24.8	25.1	25.0	25.1	25.0	25.1	25.3	25.0	24.8	24.8	24.7	25.3	25.5	25.1	24.9	24.6	24.5	24.7	24.5	24.6	24.6	24.6	24.6	24.6	24.6
Diurnal Average	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.4	23.4	23.3	23.0	23.1	23.3	23.5	23.6	23.6	23.5	23.5	23.5	23.4	23.4	23.5	23.5	23.5	23.5	23.5

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	Unit/Maint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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

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





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - December 2022

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

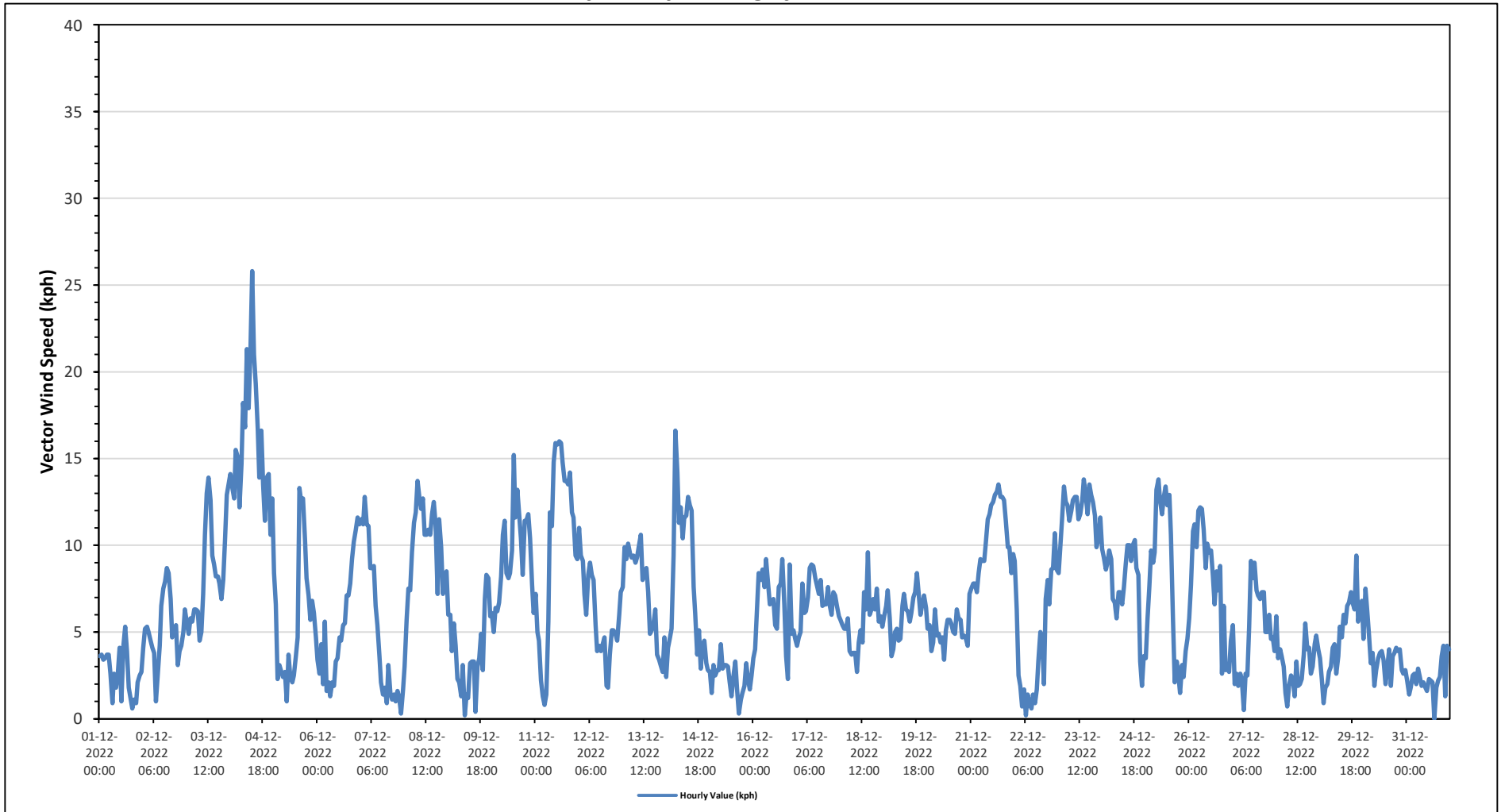
Maximum Hourly Value:	25.8 kph	on December 4 at hour 12	Hours in Service:	744
Maximum Daily Value:	14.9 kph	on December 4	Hours of Data:	744
Minimum Hourly Value:	0.0 kph	on December 31 at hour 15	Hours of Missing Data:	0
Minimum Daily Value:	0.7 kph	on December 28	Hours of Calibration:	0
Monthly Average:	0.7 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
Dec 1	3.6	3.7	3.4	3.5	3.7	3.7	2.6	0.9	2.6	1.8	2.6	4.1	1.0	4.2	5.3	3.9	1.8	1.2	0.6	1.1	0.9	2.1	2.5	2.7	0.6	5.3	1.1
Dec 2	4.1	5.2	5.3	5.0	4.5	4.1	3.8	1.0	2.5	4.2	6.5	7.5	7.9	8.7	8.4	6.9	4.7	5.2	5.4	3.1	3.9	4.2	5.0	6.3	1.0	8.7	3.5
Dec 3	5.5	4.9	5.8	5.6	6.3	6.3	6.2	4.5	5.0	7.2	10.6	13.0	13.9	12.6	9.4	8.9	8.2	8.2	7.8	6.9	8.0	10.3	12.9	13.5	4.5	13.9	7.2
Dec 4	14.1	13.4	12.7	15.5	15.1	12.2	14.7	18.2	16.8	21.3	17.9	21.1	25.8	21.0	19.3	16.7	13.9	16.6	13.5	11.4	13.9	14.1	10.6	12.7	10.6	25.8	14.9
Dec 5	8.4	6.6	2.3	3.1	2.7	2.4	2.7	1.0	3.7	2.4	2.1	2.5	3.6	4.7	13.3	12.5	12.7	10.3	8.1	7.1	5.7	6.8	6.1	4.7	1.0	13.3	3.4
Dec 6	3.4	2.6	4.3	2.0	5.6	1.6	2.1	1.3	2.1	1.9	3.3	3.5	4.7	4.5	5.4	5.5	7.1	7.1	7.8	9.2	10.2	10.9	11.6	11.2	1.3	11.6	3.7
Dec 7	11.5	11.2	12.8	11.2	11.1	8.7	8.7	8.8	6.5	5.4	3.6	2.1	1.4	1.8	0.9	3.1	1.5	1.1	1.4	1.0	1.6	1.2	0.3	1.7	0.3	12.8	4.2
Dec 8	3.0	5.7	7.5	7.4	9.6	11.3	11.9	13.7	12.8	12.1	12.7	10.6	10.6	10.9	10.6	11.8	12.5	11.2	7.2	11.5	9.9	7.2	8.2	8.5	3.0	13.7	9.9
Dec 9	6.0	6.0	3.9	5.5	4.2	2.3	2.1	1.3	3.1	0.2	1.4	1.2	3.2	3.3	3.3	0.4	3.0	3.5	4.9	2.8	6.9	8.3	8.1	5.9	0.2	8.3	2.9
Dec 10	6.1	5.0	6.4	6.2	6.7	8.2	10.6	11.4	8.4	8.1	8.4	9.7	15.2	11.6	13.2	11.8	10.4	8.3	11.4	11.4	11.8	10.4	7.7	6.1	5.0	15.2	9.3
Dec 11	7.2	5.0	4.5	2.2	1.3	0.8	1.4	5.6	11.9	11.1	14.8	15.9	15.8	16.0	15.9	14.8	13.7	13.7	13.5	14.2	11.9	11.6	9.4	9.2	0.8	16.0	8.3
Dec 12	11.0	9.4	9.1	7.2	6.0	8.3	9.0	8.3	8.0	5.4	3.9	4.2	3.9	4.3	4.7	1.9	1.8	3.7	5.1	5.1	4.9	4.5	6.0	7.3	1.8	11.0	2.7
Dec 13	7.6	9.9	9.2	10.1	9.5	9.3	9.4	9.0	9.3	10.0	10.6	8.0	8.5	8.7	7.3	4.9	5.1	5.6	6.3	3.7	3.4	3.1	2.7	4.7	2.7	10.6	6.1
Dec 14	2.4	4.1	4.7	5.2	9.4	16.6	14.2	11.3	12.2	10.4	11.6	11.7	12.8	12.3	12.0	7.6	6.1	3.7	5.1	2.9	4.2	4.5	3.2	2.8	2.4	16.6	7.7
Dec 15	2.7	1.5	3.1	2.5	2.8	2.8	4.3	2.9	3.1	3.1	3.0	2.1	1.3	2.5	3.3	1.7	0.3	1.1	1.5	1.9	3.2	2.3	1.7	2.5	0.3	4.3	1.3
Dec 16	3.5	4.0	6.5	8.4	8.0	8.6	7.6	9.2	7.8	6.6	6.7	6.9	5.4	5.2	7.6	7.8	9.2	6.6	3.6	2.3	8.9	4.9	5.1	4.6	2.3	9.2	5.5
Dec 17	4.2	4.7	5.0	7.8	6.1	6.2	7.0	8.7	8.9	8.8	8.1	7.7	7.2	8.0	6.5	6.6	6.6	7.6	6.6	6.0	7.3	7.1	6.5	5.9	4.2	8.9	6.8
Dec 18	5.7	5.4	5.2	5.2	5.8	3.9	3.7	3.8	3.8	2.7	4.4	5.1	4.4	7.3	6.3	9.6	6.0	6.3	6.9	6.3	7.5	5.6	5.9	5.3	2.7	9.6	5.1
Dec 19	5.9	6.5	7.4	5.8	3.6	4.0	5.0	5.2	4.5	4.6	6.5	7.2	6.3	6.2	5.6	6.1	7.0	7.3	8.4	7.2	6.0	6.6	7.1	6.4	3.6	8.4	5.1
Dec 20	5.2	5.4	3.9	4.4	6.3	4.8	4.9	4.4	4.7	3.4	5.1	5.7	5.5	5.0	4.9	6.3	5.8	5.7	4.7	4.8	4.6	4.2	7.2	3.4	7.2	5.0	
Dec 21	7.5	7.8	7.8	7.3	8.4	9.2	9.1	9.1	10.1	11.5	11.8	12.3	12.5	12.9	13.1	13.5	12.8	12.8	12.6	11.4	9.9	9.9	8.4	9.5	7.3	13.5	10.4
Dec 22	9.1	6.3	2.5	1.9	0.7	1.7	0.2	1.4	0.9	0.6	1.4	0.9	1.7	3.3	5.0	4.5	2.0	6.9	8.0	6.6	8.6	8.7	10.7	8.6	0.2	10.7	2.4
Dec 23	8.4	10.0	11.4	13.4	12.5	12.3	11.4	12.0	12.6	12.8	12.8	11.5	11.8	12.6	13.8	13.0	11.8	13.5	12.9	12.5	11.7	9.9	10.4	11.6	8.4	13.8	11.9
Dec 24	9.8	9.3	8.6	9.0	9.7	9.2	6.9	6.7	5.8	7.3	7.3	6.6	7.6	8.9	10.0	10.0	9.1	10.0	10.3	8.7	8.3	3.3	1.9	3.6	1.9	10.3	7.4
Dec 25	3.5	5.8	7.6	9.7	9.0	9.6	13.2	13.8	12.6	11.8	12.8	13.4	12.3	12.9	10.6	5.8	2.1	3.3	2.6	1.5	3.1	2.4	3.9	4.6	1.5	13.8	6.5
Dec 26	5.8	7.7	10.8	11.2	9.9	12.0	12.2	12.1	10.9	8.7	10.1	9.6	9.7	8.3	6.6	8.5	7.4	8.8	2.6	6.5	2.8	3.1	2.7	4.5	2.6	12.2	6.9
Dec 27	5.4	2.0	2.6	1.9	2.6	2.3	0.5	2.6	2.5	5.3	9.1	8.1	9.0	7.4	7.1	6.9	7.3	7.3	5.0	5.0	6.0	4.6	4.7	3.9	0.5	9.1	3.8
Dec 28	5.9	3.5	4.0	3.6	3.0	1.5	0.7	1.9	2.5	2.3	1.3	3.3	1.9	2.0	2.3	3.7	5.5	4.0	4.1	2.6	3.0	4.3	4.8	4.0	0.7	5.9	0.7
Dec 29	3.5	2.3	0.9	1.8	2.0	2.7	3.0	4.1	4.3	2.6	3.6	5.3	4.7	6.0	5.5	6.5	6.7	7.3	6.7	6.3	9.4	5.6	6.2	6.8	0.9	9.4	4.1
Dec 30	4.6	7.5	6.2	4.8	3.2	3.8	1.9	2.8	3.5	3.8	3.9	3.4	2.0	2.8	4.0	1.9	3.6	3.8	4.1	3.9	4.0	2.8	2.6	2.8	1.9	7.5	3.4
Dec 31	2.2	1.4	1.8	2.5	2.6	2.0	2.9	2.4	1.9	2.1	1.8	1.6	2.3	2.2	2.1	0.0	1.8	2.2	2.4	3.6	4.2	1.3	4.2	4.0	0.0	4.2	2.2
Diurnal Maximum	14	13	13	16	15	17	15	18	17	21	18	21	26	21	19	17	14	17	14	14	14	14	13	14			
Diurnal Average	6.0	5.9	6.0	6.2	6.2	6.2	6.3	6.4	6.6	6.4	7.1	7.3	7.6	7.7	7.9	7.2	6.7	6.9	6.5	6.1	6.6	6.0	6.0	6.2			

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

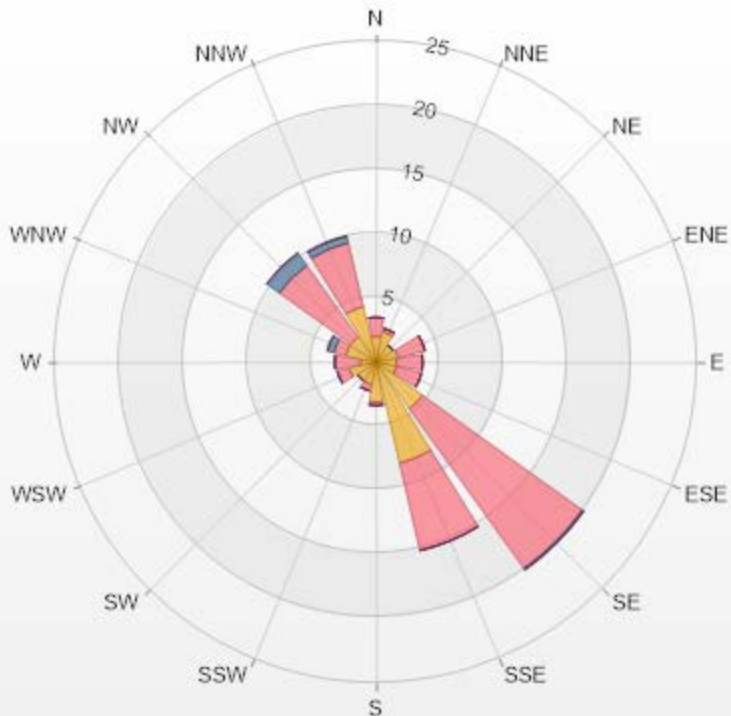
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

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



Wind: Lac La Biche Monitor: WDS [kph] Monthly: 12-2022 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 7.93% 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	2.02	1.48	0	0	0	3.5
NNE	2.42	0.27	0	0	0	2.69
NE	1.61	0	0	0	0	1.61
ENE	1.75	2.15	0	0	0	3.9
E	1.61	2.02	0	0	0	3.63
ESE	1.61	2.02	0	0	0	3.63
SE	4.44	15.32	0.13	0	0	19.89
SSE	8.06	6.99	0	0	0	15.05
S	3.09	0.27	0	0	0	3.36
SSW	1.75	0.54	0	0	0	2.29
SW	1.75	0	0	0	0	1.75
WSW	2.15	0.94	0	0	0	3.09
W	1.21	2.02	0	0	0	3.23
WNW	2.42	0.94	0.54	0	0	3.9
NW	2.42	6.85	1.21	0	0	10.48
NNW	4.44	5.11	0.54	0	0	10.09
Summary	42.75	46.92	2.42	0	0	92.09



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% Icon Classes (kph)

43

1.8-6.0

47

6.0-15.0

2

15.0-29.0

0

29.0-39.0

0

>39.0



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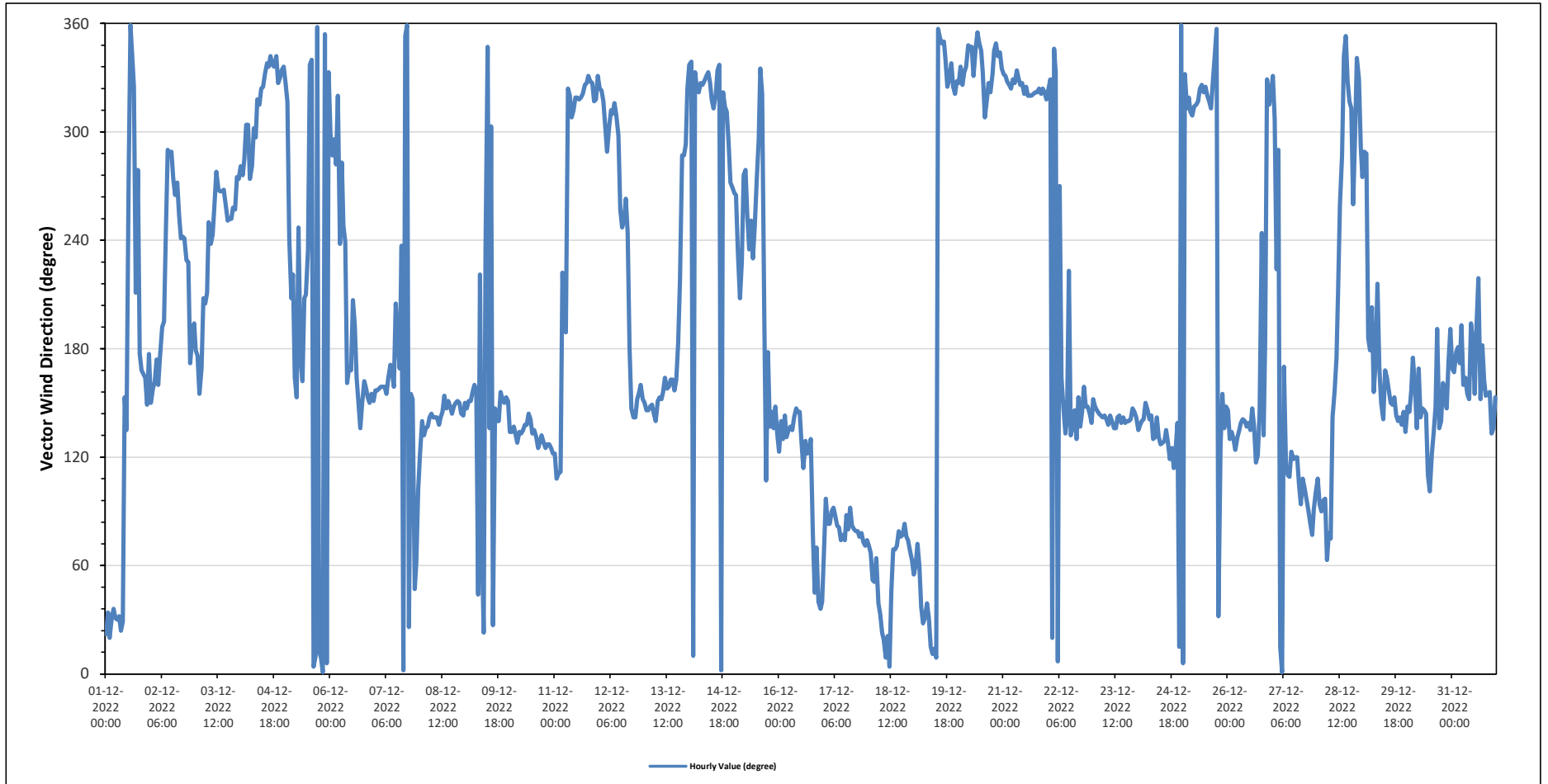
Lac La Biche Station - December 2022

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:		128 (SE) degree														Hours in Service:		744									
																Hours of Data:		744									
																Hours of Missing Data:		0									
																Hours of Calibration:		0									
																Operational Uptime:		100.0									
Day	Hourly Period Starting at (MST)																							Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant	
Dec 1	NNE	NE	NNE	NNE	NE	NNE	NNE	NNE	NNE	NNE	SSE	SE	W	N	NNW	NW	SSW	W	S	SSE	SSE	SSE	SSE	S	31	NNE	
Dec 2	SSE	SSE	SSE	S	SSE	S	S	SSW	WSW	WNW	WNW	WNW	W	W	W	WSW	WSW	WSW	WSW	WSW	SW	SW	S	S	SSW	229	SW
Dec 3	S	S	SSE	SSE	SSE	SSW	SSW	WSW	SW	WSW	WSW	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	250	WSW	
Dec 4	W	W	WNW	WNW	WNW	W	W	WNW	WNW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	317	NW	
Dec 5	NW	NW	WSW	SSW	SW	SSE	SSE	WSW	S	SSE	SSW	SSW	SW	NNW	NNW	N	N	N	NNE	N	N	N	NNW	346	NNW		
Dec 6	WNW	WNW	WNW	W	NW	SW	W	WSW	WSW	SSE	SSE	SSE	SSW	S	SSE	SSE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	169	SSE	
Dec 7	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	SSE	SSE	SSW	S	SSE	SW	N	N	N	NNE	SSE	SSE	NE	ENE	E	158	SSE	
Dec 8	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SSE	SSE	SE	144	SE	
Dec 9	SSE	SE	SSE	SSE	SSE	SSE	SSE	NE	SW	ENE	NNE	SW	NNW	SE	WNW	NNE	SE	SE	SE	SSE	SSE	SSE	SSE	SSE	151	SSE	
Dec 10	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	132	SE
Dec 11	ESE	ESE	ESE	ESE	SW	SSW	S	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	NNW	NW	NW	NW	NNW	323	NW	
Dec 12	NW	NW	NW	WNW	WNW	WNW	NW	NW	NW	NW	WNW	WSW	WSW	W	WSW	S	SE	SE	SSE	SSE	SSE	SSE	SSE	SSE	285	WNW	
Dec 13	SSE	SE	SE	SE	SSE	SE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	SW	WNW	WNW	WNW	NW	158	SSE	
Dec 14	NNW	NNW	N	NNW	NW	NW	NW	NW	NNW	NNW	NNW	NW	NW	NW	NNW	NNW	N	NW	NW	NNW	NW	WNW	W	W	325	NW	
Dec 15	W	W	SW	SSW	SW	W	W	WSW	SW	WSW	SW	WSW	W	WNW	NNW	NW	SSW	ESE	S	SE	SE	SE	SE	SE	238	SW	
Dec 16	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	SE	ESE	ESE	SE	ENE	NE	ENE	NE	NE	NE	122	ESE	
Dec 17	ENE	E	E	E	E	E	E	E	E	ENE	ENE	ENE	E	E	E	E	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	81	E	
Dec 18	ENE	ENE	NE	NE	ENE	NE	NNE	NNE	NNE	NNE	N	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	60	ENE	
Dec 19	NE	ENE	ENE	ENE	NE	NNE	NNE	NE	NNE	NNE	NNE	NNE	N	N	N	NNW	N	NNW	NW	NNW	NNW	NW	NW	NNW	5	N	
Dec 20	NW	NNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	NNW	NNW	NNW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	336	NNW	
Dec 21	NNW	NNW	NNW	NW	NW	NNW	NW	NNW	NNW	NW	NNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	324	NW	
Dec 22	NW	NNW	NNE	NNW	NNW	N	W	SSE	SE	SE	SE	SW	SE	SE	SE	SE	SSE	SE	SE	SSE	SE	SE	SE	SE	141	SE	
Dec 23	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	142	SE	
Dec 24	SE	SE	SE	SE	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	SE	ESE	ESE	ESE	SE	NNE	N	132	SE	
Dec 25	N	NNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	NNW	N	NNE	SE	SSE	SE	SE	SE	321	NW	
Dec 26	SE	SE	SE	SE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	ESE	SE	WSW	SE	S	NNW	NW	NW	136	SE		
Dec 27	NNW	NW	SW	WNW	NNE	N	SSE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	ESE	ESE	E	E	ENE	E	E	101	E		
Dec 28	ESE	E	E	E	E	ENE	ENE	ENE	SE	SSE	S	SSW	WSW	WNW	NNW	N	NNW	NW	NW	WSW	WNW	NNW	NNW	WNW	353	N	
Dec 29	W	WNW	WNW	S	S	SSW	SSE	S	SW	SSE	SSE	SE	SSE	SSE	SSE	SSE	SSE	SE	SE	SE	SE	SE	SE	SE	157	SSE	
Dec 30	SE	SE	SSE	S	SSE	SE	SSE	SE	SE	SE	ESE	E	ESE	SE	SE	S	SE	SE	SSE	SSE	SE	S	S	149	SSE		
Dec 31	SSE	SSE	S	S	S	S	SSE	SSE	SSE	SSE	SSW	S	SSE	S	SW	SSE	S	SSE	SSE	SSE	SSE	SE	SE	SSE	165	SSE	
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 (Machine Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																		
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																											
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																											

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





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - December 2022

Summary of Hourly Averages

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

WIND SPEED																											
Maximum Hourly Value:		25.8 kph on December 4 at hour 12										Hours in Service:		744													
Maximum Daily Value:		14.9 kph on December 4										Hours of Data:		744													
Minimum Hourly Value:		0.0 kph on December 31 at hour 15										Hours of Missing Data:		0													
Minimum Daily Value:		0.7 kph on December 28										Hours of Calibration:		0													
Monthly Average:		0.7 kph										Operational Uptime:		100													
WIND DIRECTION																											
Monthly Average:		128 (SE) 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			
Dec 1	3.6	3.7	3.4	3.5	3.7	3.7	2.6	0.9	2.6	1.8	2.6	4.1	1.0	4.2	5.3	3.9	1.8	1.2	0.6	1.1	0.9	2.1	2.5	2.7	0.6	5.3	1.1
	NNE	NE	NNE	NNE	NE	NNE	NNE	NNE	NNE	SSE	SE	W	N	NNW	NW	SSW	W	S	SSE	SSE	SSE	SSE	SSE	S			
Dec 2	4.1	5.2	5.3	5.0	4.5	4.1	3.8	1.0	2.5	4.2	6.5	7.5	7.9	8.7	8.4	6.9	4.7	5.2	5.4	3.1	3.9	4.2	5.0	6.3	1.0	8.7	3.5
	SSE	SSE	SSE	S	SSE	S	SSW	WSW	WNW	WNW	WNW	W	W	W	WSW	WSW	WSW	WSW	WSW	SW	SW	S	S	SSW			
Dec 3	5.5	4.9	5.8	5.6	6.3	6.3	6.2	4.5	5.0	7.2	10.6	13.0	13.9	12.6	9.4	8.9	8.2	8.2	7.8	6.9	8.0	10.3	12.9	13.5	4.5	13.9	7.2
	S	S	SSE	SSE	SSW	SSW	SSW	WSW	SW	WSW	WSW	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W			
Dec 4	14.1	13.4	12.7	15.5	15.1	12.2	14.7	18.2	16.8	21.3	17.9	21.1	25.8	21.0	19.3	16.7	13.9	16.6	13.5	11.4	13.9	14.1	10.6	12.7	10.6	25.8	14.9
	W	W	WNW	WNW	WNW	W	W	WNW	WNW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NNW	NNW			
Dec 5	8.4	6.6	2.3	3.1	2.7	2.4	2.7	1.0	3.7	2.4	2.1	2.5	3.6	4.7	13.3	12.5	12.7	10.3	8.1	7.1	5.7	6.8	6.1	4.7	1.0	13.3	3.4
	NW	NW	WSW	SSW	SW	SSE	SSE	WSW	S	SSE	SSW	SSW	SSW	NNW	NNW	N	N	NNE	N	N	N	N	N	NNW			
Dec 6	3.4	2.6	4.3	2.0	5.6	1.6	2.1	1.3	2.1	1.9	3.3	3.5	4.7	4.5	5.4	5.5	7.1	7.1	7.8	9.2	10.2	10.9	11.6	11.2	1.3	11.6	3.7
	WNW	WNW	WNW	W	NW	SW	W	WSW	WSW	SSE	SSE	SSW	S	SSE	SSE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE			
Dec 7	11.5	11.2	12.8	11.2	11.1	8.7	8.7	8.8	6.5	5.4	3.6	2.1	1.4	1.8	0.9	3.1	1.5	1.1	1.4	1.0	1.6	1.2	0.3	1.7	0.3	12.8	4.2
	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	SSE	SSE	SSW	S	SSE	SW	N	N	N	NNE	SSE	SSE	NE	ENE	E			
Dec 8	3.0	5.7	7.5	7.4	9.6	11.3	11.9	13.7	12.8	12.1	12.7	10.6	10.6	10.9	10.6	11.8	12.5	11.2	7.2	11.5	9.9	7.2	8.2	8.5	3.0	13.7	9.9
	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SE	SE	SE	SSE	SSE	SSE	SE	SE			
Dec 9	6.0	6.0	3.9	5.5	4.2	2.3	2.1	1.3	3.1	0.2	1.4	1.2	3.2	3.3	3.3	0.4	3.0	3.5	4.9	2.8	6.9	8.3	8.1	5.9	0.2	8.3	2.9
	SSE	SE	SSE	SSE	SSE	SSE	NE	SW	ENE	NNE	SW	NNW	SE	WNW	NNE	SE	SE	SE	SSE	SSE	SSE	SSE	SSE	SSE			
Dec 10	6.1	5.0	6.4	6.2	6.7	8.2	10.6	11.4	8.4	8.1	8.4	9.7	15.2	11.6	13.2	11.8	10.4	8.3	11.4	11.4	11.8	10.4	7.7	6.1	5.0	15.2	9.3
	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE			
Dec 11	7.2	5.0	4.5	2.2	1.3	0.8	1.4	5.6	11.9	11.1	14.8	15.9	15.8	16.0	15.9	14.8	13.7	13.7	13.5	14.2	11.9	11.6	9.4	9.2	0.8	16.0	8.3
	ESE	ESE	ESE	ESE	SW	SSW	S	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NNW			
Dec 12	11.0	9.4	9.1	7.2	6.0	8.3	9.0	8.3	8.0	5.4	3.9	4.2	3.9	4.3	4.7	1.9	1.8	3.7	5.1	5.1	4.9	4.5	6.0	7.3	1.8	11.0	2.7
	NW	NW	NW	WNW	WNW	WNW	NW	NW	NW	NNW	NNW	WSW	WSW	WSW	W	WSW	S	SE	SE	SE	SE	SSE	SSE	SSE			
Dec 13	7.6	9.9	9.2	10.1	9.5	9.3	9.4	9.0	9.3	10.0	10.6	8.0	8.5	8.7	7.3	4.9	5.1	5.6	6.3	3.7	3.4	3.1	2.7	4.7	2.7	10.6	6.1
	SSE	SE	SE	SE	SSE	SE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	SW	WNW	WNW	WNW	NW			
Dec 14	2.4	4.1	4.7	5.2	9.4	16.6	14.2	11.3	12.2	10.4	11.6	11.7	12.8	12.3	12.0	7.6	6.1	3.7	5.1	2.9	4.2	4.5	3.2	2.8	2.4	16.6	7.7
	NNW	NNW	N	NNW	NW	NW	NW	NW	NNW	NNW	NNW	NW	NW	NW	NW	NNW	NNW	N	NW	NW	NW	WNW	W	W			
Dec 15	2.7	1.5	3.1	2.5	2.8	2.8	4.3	2.9	3.1	3.1	3.0	2.1	1.3	2.5	3.3	1.7	0.3	1.1	1.5	1.9	3.2	2.3	1.7	2.5	0.3	4.3	1.3
	W	W	SW	SSW	SW	W	W	WSW	SW	WSW	SW	WSW	W	WNW	NNW	NW	SSW	ESE	S	SE	SE	SE	SE	SE			
Dec 16	3.5	4.0	6.5	8.4	8.0	8.6	7.6	9.2	7.8	6.6	6.7	6.9	5.4	5.2	7.6	7.8	9.2	6.6	3.6	2.3	8.9	4.9	5.1	4.6	2.3	9.2	5.5
	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	ESE	ESE	ESE	SE	ENE	ENE	ENE	ENE	ENE			
Dec 17	4.2	4.7	5.0	7.8	6.1	6.2	7.0	8.7	8.9	8.8	8.1	7.7	7.2	8.0	6.5	6.6	6.6	7.6	6.6	6.0	7.3	7.1	6.5	5.9	4.2	8.9	6.8
	ENE	E	E	E	E	E	E	E	E	ENE	ENE	ENE	E	E	E	E	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE			
Dec 18	5.7	5.4	5.2	5.2	5.8	3.9	3.7	3.8	3.8	2.7	4.4	5.1	4.4	7.3	6.3	9.6	6.0	6.3	6.9	6.3	7.5	5.6	5.9	5.3	2.7	9.6	5.1
	ENE	ENE	NE	NE	ENE	NE	NNE	NNE	NNE	N	NNE	N	NE	ENE	ENE	ENE	ENE	ENE	ENE	E	ENE	ENE	ENE	ENE			
Dec 19	5.9	6.5	7.4	5.8	3.6	4.0	5.0	5.2	4.5	4.6	6.5	7.2	6.3	6.2	5.6	6.1	7.0	7.3	8.4	7.2	6.0	6.6	7.1	6.4	3.6	8.4	5.1
	NE	ENE	ENE	ENE	NE	NNE	NNE	NE	NNE	NNE	NNE	NNE	N	N	N	NNW	N	NNW	NW	NNW	NNW	NW	NW	NNW			
Dec 20	5.2	5.4	3.9	4.4	6.3	4.8	4.9	4.4	4.7	3.4	5.1	5.7	5.7	5.5	5.0	4.9	6.3	5.8	5.7	4.7	4.8	4.6	4.2	7.2	3.4	7.2	5.0
	NW	NNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	NNW	NNW	NNW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW			



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - December 2022

Summary of Hourly Averages

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

WIND SPEED																																											
Maximum Hourly Value:	25.8 kph on December 4 at hour 12																																										
Maximum Daily Value:	14.9 kph on December 4																																										
Minimum Hourly Value:	0.0 kph on December 31 at hour 15																																										
Minimum Daily Value:	0.7 kph on December 28																																										
Monthly Average:	0.7 kph																																										
Hours in Service:	744																																										
Hours of Data:	744																																										
Hours of Missing Data:	0																																										
Hours of Calibration:	0																																										
Operational Uptime:	100																																										
WIND DIRECTION																																											
Monthly Average:	128 (SE) 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																			
Dec 21	7.5	7.8	7.8	7.3	8.4	9.2	9.1	9.1	10.1	11.5	11.8	12.3	12.5	12.9	13.1	13.5	12.8	12.8	12.6	11.4	9.9	9.9	8.4	9.5	7.3	13.5	10.4																
	NNW	NNW	NNW	NW	NW	NNW	NW	NNW	NNW	NW	NW	NNW	NW	NW	NNW	NW	NNW	NW	NNW	NW	NNW	NW	NNW	NW																			
Dec 22	9.1	6.3	2.5	1.9	0.7	1.7	0.2	1.4	0.9	0.6	1.4	0.9	1.7	3.3	5.0	4.5	2.0	6.9	8.0	6.6	8.6	8.7	10.7	8.6	0.2	10.7	2.4																
	NW	NNW	NNE	NNW	NNW	N	W	SSE	SE	SE	SE	SW	SE	SE	SE	SE	SSE	SE	SE	SSE	SE	SE	SE	SE																			
Dec 23	8.4	10.0	11.4	13.4	12.5	12.3	11.4	12.0	12.6	12.8	12.8	11.5	11.8	12.6	13.8	13.0	11.8	13.5	12.9	12.5	11.7	9.9	10.4	11.6	8.4	13.8	11.9																
	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE																			
Dec 24	9.8	9.3	8.6	9.0	9.7	9.2	6.9	6.7	5.8	7.3	7.3	6.6	7.6	8.9	10.0	10.0	9.1	10.0	10.3	8.7	8.3	3.3	1.9	3.6	1.9	10.3	7.4																
	SE	SE	SE	SE	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	SE	ESE	ESE	SE	NNE	N																			
Dec 25	3.5	5.8	7.6	9.7	9.0	9.6	13.2	13.8	12.6	11.8	12.8	13.4	12.3	12.9	10.6	5.8	2.1	3.3	2.6	1.5	3.1	2.4	3.9	4.6	1.5	13.8	6.5																
	N	NNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	NNW	N	NNE	SE	SSE	SE	SE																			
Dec 26	5.8	7.7	10.8	11.2	9.9	12.0	12.2	12.1	10.9	8.7	10.1	9.6	9.7	8.3	6.6	8.5	7.4	8.8	2.6	6.5	2.8	3.1	2.7	4.5	2.6	12.2	6.9																
	SE	SE	SE	SE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	ESE	SE	WSW	SE	S	NNW	NW	NW																			
Dec 27	5.4	2.0	2.6	1.9	2.6	2.3	0.5	2.6	2.5	5.3	9.1	8.1	9.0	7.4	7.1	6.9	7.3	7.3	5.0	5.0	6.0	4.6	4.7	3.9	0.5	9.1	3.8																
	NNW	NW	SW	WNW	NNE	N	SSE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	ESE	ESE	E	E	E	ENE	E	E																			
Dec 28	5.9	3.5	4.0	3.6	3.0	1.5	0.7	1.9	2.5	2.3	1.3	3.3	1.9	2.0	2.3	3.7	5.5	4.0	4.1	2.6	3.0	4.3	4.8	4.0	0.7	5.9	0.7																
	ESE	E	E	E	E	ENE	ENE	ENE	SE	SSE	S	SSW	WSW	WNW	NNW	N	NNW	NW	NW	WSW	WNW	NNW	NNW	WNW																			
Dec 29	3.5	2.3	0.9	1.8	2.0	2.7	3.0	4.1	4.3	2.6	3.6	5.3	4.7	6.0	5.5	6.5	6.7	7.3	6.7	6.3	9.4	5.6	6.2	6.8	0.9	9.4	4.1																
	W	WNW	WNW	S	S	SSW	SSE	S	SW	SSE	SSE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SE	SE	SE	SE	SE	SE																			
Dec 30	4.6	7.5	6.2	4.8	3.2	3.8	1.9	2.8	3.5	3.8	3.9	3.4	2.0	2.8	4.0	1.9	3.6	3.8	4.1	3.9	4.0	2.8	2.6	2.8	1.9	7.5	3.4																
	SE	SE	SSE	S	SSE	SE	SE	SE	SE	SE	SE	ESE	E	ESE	SE	SE	S	SE	SE	SSE	SSE	SE	S	S																			
Dec 31	2.2	1.4	1.8	2.5	2.6	2.0	2.9	2.4	1.9	2.1	1.8	1.6	2.3	2.2	2.1	0.0	1.8	2.2	2.4	3.6	4.2	1.3	4.2	4.0	0.0	4.2	2.2																
	SSE	SSE	S	S	S	S	SSE	SSE	SSE	SSE	SSW	S	SSE	S	SW	SSE	S	SSE	SSE	SSE	SSE	SE	SE	SSE																			
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	Unit/Maint (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 - December 2022

Summary of Hour Standard Deviations

STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

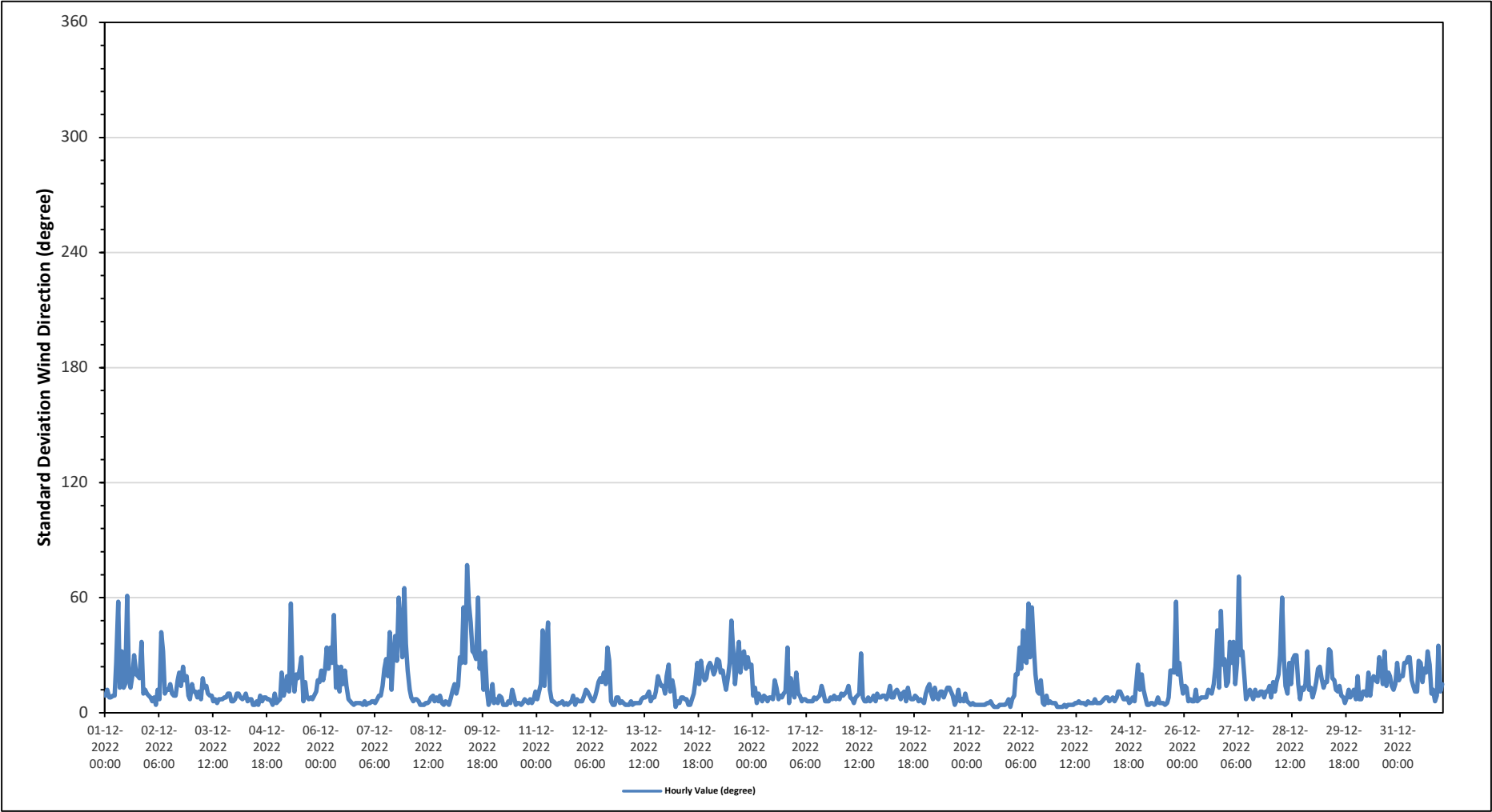
Maximum Hourly Value:	77 degree on December 9 at hour 9	Hours in Service:	744
Minimum Hourly Value:	3 degree on December 14 at hour 5	Hours of Data:	744
		Hours of Missing Data:	0
		Hours of Calibration:	0
		Operational Uptime:	100.0

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
Dec 1	9	12	8	8	9	9	26	58	13	32	13	15	61	17	13	20	30	20	19	18	37	10	12	10	8	61
Dec 2	9	8	6	8	4	12	7	42	32	10	12	12	15	10	9	9	17	21	14	24	17	19	9	7	4	42
Dec 3	15	11	11	8	11	7	18	13	14	10	9	9	6	7	5	7	7	7	8	8	10	10	6	6	5	18
Dec 4	7	10	10	8	7	8	10	6	7	7	4	4	6	4	9	6	8	8	7	7	6	4	10	5	4	10
Dec 5	6	7	21	9	13	19	11	57	19	11	20	18	23	29	6	16	8	7	8	7	9	11	17	16	6	57
Dec 6	22	17	22	34	23	34	26	51	13	24	11	24	15	22	14	7	6	5	4	5	5	5	4	4	4	51
Dec 7	6	4	5	5	6	6	5	7	9	9	14	23	28	19	42	12	30	40	27	60	45	29	65	36	4	65
Dec 8	22	12	8	6	7	7	6	4	4	4	5	5	6	8	9	6	8	6	9	5	4	6	5	4	4	22
Dec 9	8	12	15	10	14	29	26	55	26	77	57	47	32	31	28	60	23	31	12	32	11	4	7	15	4	77
Dec 10	5	7	5	9	8	4	4	4	6	5	12	9	4	5	5	4	5	7	6	5	7	5	7	11	4	12
Dec 11	7	11	15	43	14	34	47	12	6	6	5	4	5	5	6	4	5	4	5	6	9	4	7	6	4	47
Dec 12	6	6	9	12	11	9	7	6	8	11	16	18	16	21	15	34	27	6	4	4	8	8	5	6	4	34
Dec 13	5	4	4	4	6	4	5	5	5	7	8	8	9	11	6	8	8	11	19	16	14	14	10	4	4	19
Dec 14	19	25	11	17	12	3	6	5	8	8	7	7	4	4	7	10	17	26	15	27	20	17	18	24	3	27
Dec 15	26	24	20	22	28	27	21	22	16	12	19	26	48	30	15	27	37	21	31	32	23	29	24	25	12	48
Dec 16	9	13	5	10	8	6	9	8	6	8	8	7	17	13	7	9	8	10	11	34	5	18	11	8	5	34
Dec 17	21	10	9	6	7	7	6	6	6	6	8	7	8	9	14	11	6	6	8	7	9	7	8	8	6	21
Dec 18	7	10	9	10	11	14	8	7	5	8	9	10	31	8	6	6	8	6	7	9	6	10	8	8	5	31
Dec 19	9	9	7	9	14	8	8	11	12	10	7	10	11	6	13	8	7	7	9	8	6	7	6	5	5	14
Dec 20	10	13	15	10	7	13	8	7	11	11	8	11	13	13	11	9	4	6	12	6	7	6	10	6	4	15
Dec 21	5	4	5	4	4	4	4	4	4	4	5	5	6	4	3	3	3	4	4	4	4	5	7	3	3	7
Dec 22	7	9	20	20	34	23	43	27	26	57	29	55	33	20	11	10	17	5	4	9	5	6	5	5	4	57
Dec 23	5	3	3	3	3	4	3	4	4	4	4	5	5	6	5	5	5	4	6	5	5	5	7	5	3	7
Dec 24	5	5	6	7	8	8	6	7	8	6	8	11	11	9	7	7	8	5	6	8	6	16	25	12	5	25
Dec 25	20	12	8	4	4	5	5	4	5	8	5	5	5	4	5	8	22	22	21	58	20	26	15	10	4	58
Dec 26	14	13	6	7	6	6	12	6	7	8	8	8	8	12	11	10	15	24	43	13	53	25	28	14	6	53
Dec 27	16	37	26	37	15	26	71	30	32	20	7	9	12	10	7	12	9	9	11	11	8	11	11	14	7	71
Dec 28	8	16	11	16	20	30	60	28	14	10	26	15	28	30	30	15	7	13	12	15	32	12	13	8	7	60
Dec 29	12	16	23	24	18	13	16	16	33	32	18	17	12	11	14	9	8	5	8	12	8	10	12	7	5	33
Dec 30	19	7	7	11	11	9	21	9	17	19	17	16	29	24	15	32	14	21	19	14	12	15	26	17	7	32
Dec 31	19	19	26	26	29	29	17	14	11	11	27	26	16	23	21	32	25	10	12	6	9	35	11	15	6	35
Diurnal Minimum	5	3	3	3	3	3	3	4	4	4	4	4	4	4	3	3	3	4	4	4	4	4	5	3		
Diurnal Maximum	26	37	26	43	34	34	71	58	33	77	57	55	61	31	42	60	37	40	43	60	53	35	65	36		

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, 309 of 309, ends the December 2022 Monthly Ambient Air Quality Monitoring Report.



Lakeland Industry & Community Association

DECEMBER 2022

Ambient Air Monitoring Calibration Report

- COLD LAKE SOUTH STATION-

CAL-LICA-202212-01174

Station Operation and Maintenance:

Bureau Veritas Canada

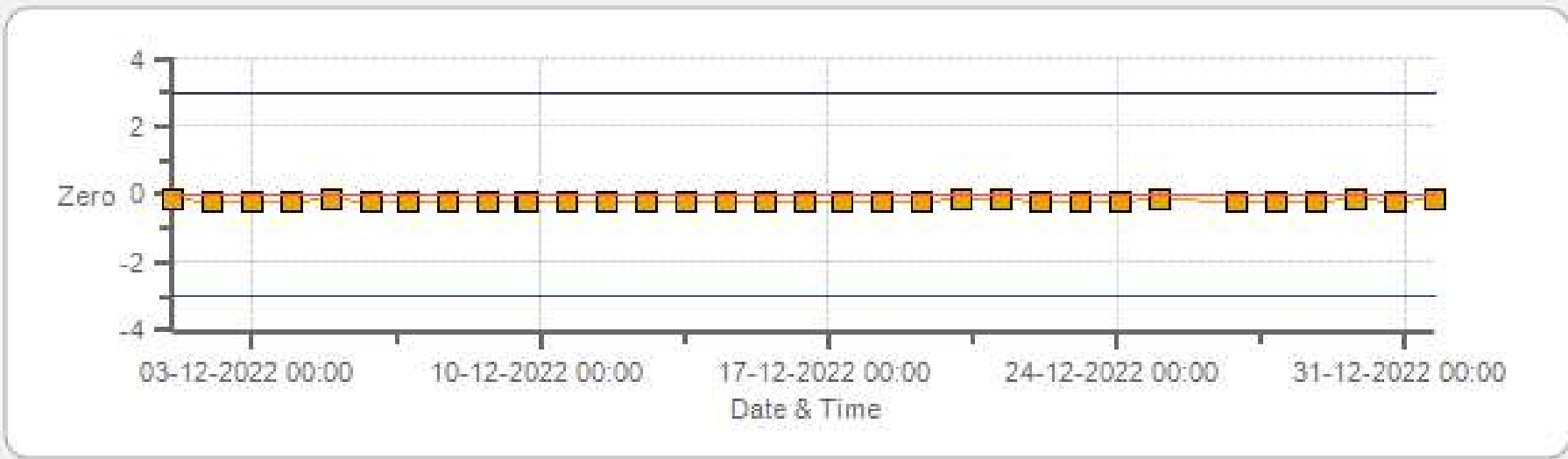
Data Validation and Report:

LICA / Bureau Veritas Canada

January 17, 2023

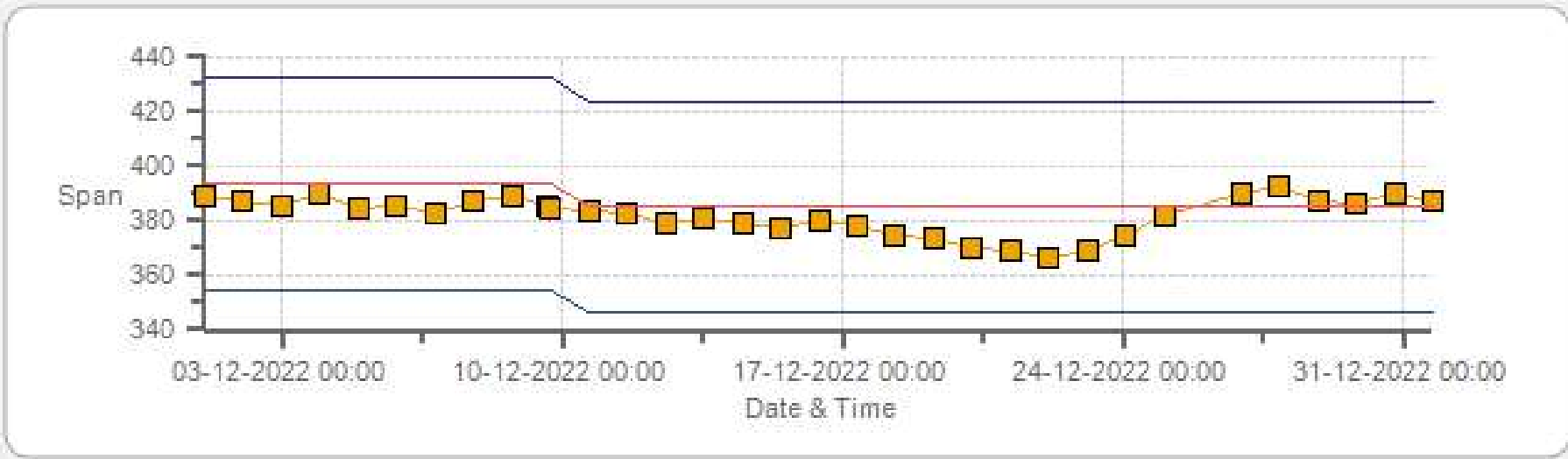
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Cold Lake South Monthly: 12-2022 Type: SpanAndZero - Zero



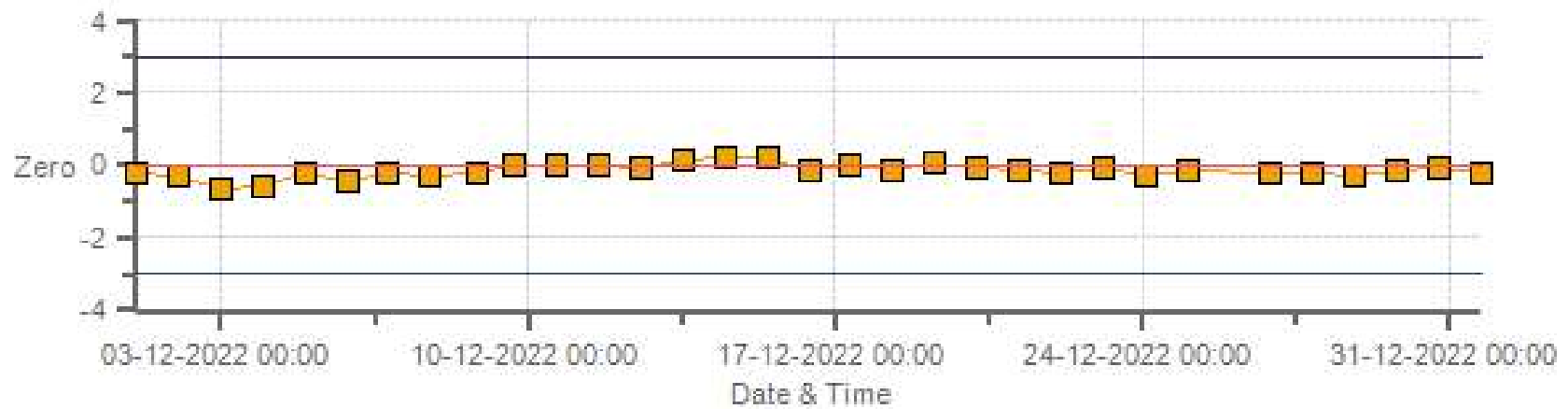
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: Cold Lake South Monthly: 12-2022 Type: SpanAndZero - Span



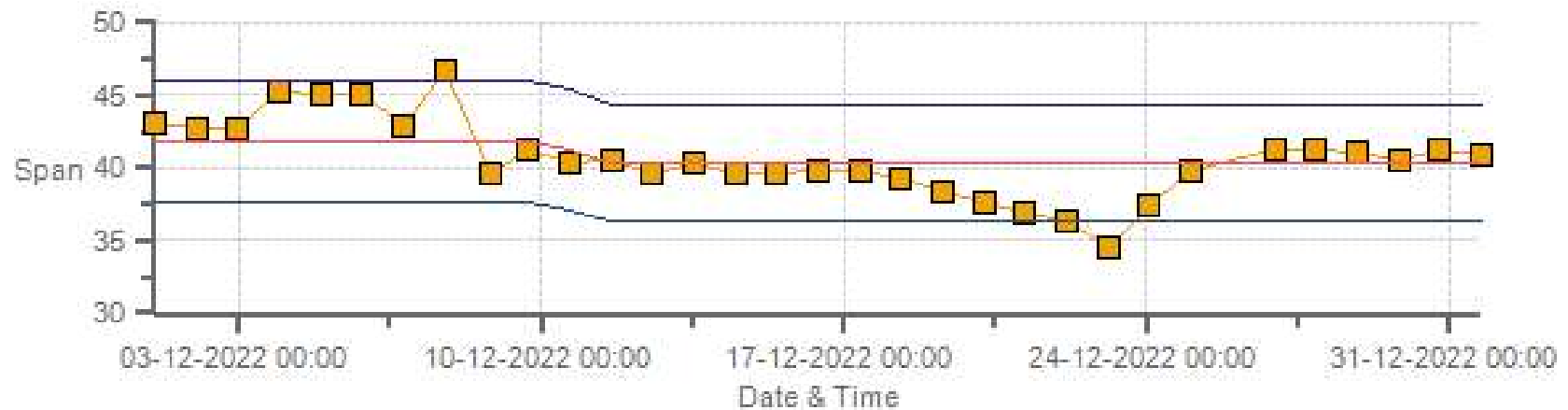
Span SpanRef Span Low Span High

TRS[ppb] Calibration: Cold Lake South Monthly: 12-2022 Type: SpanAndZero - Zero



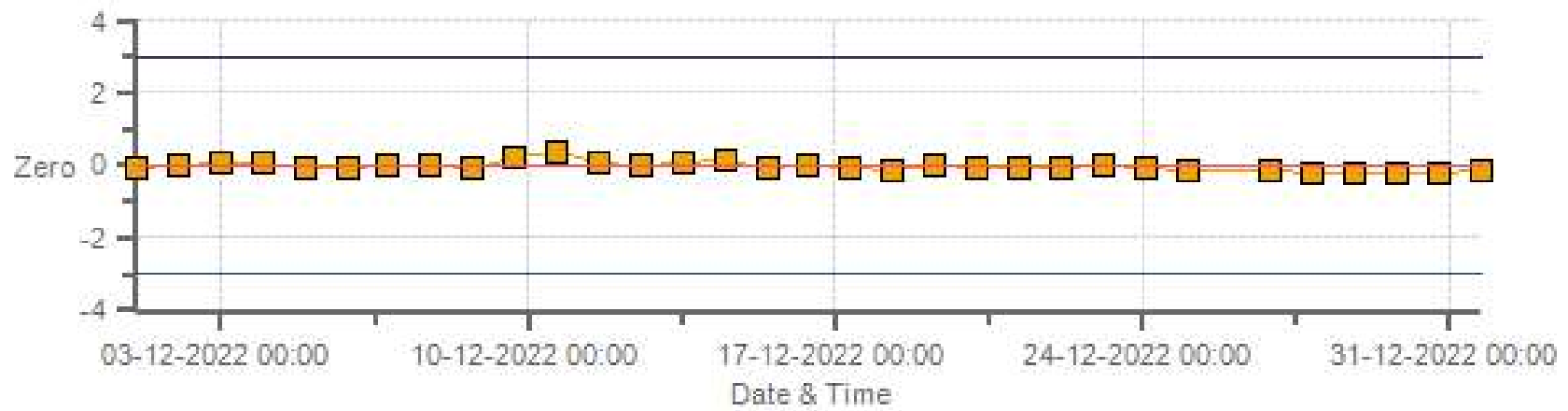
Zero Zero Ref Zero Low Zero High

TRS[ppb] Calibration: Cold Lake South Monthly: 12-2022 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NOX[ppb] Calibration: Cold Lake South Monthly: 12-2022 Type: SpanAndZero - Zero



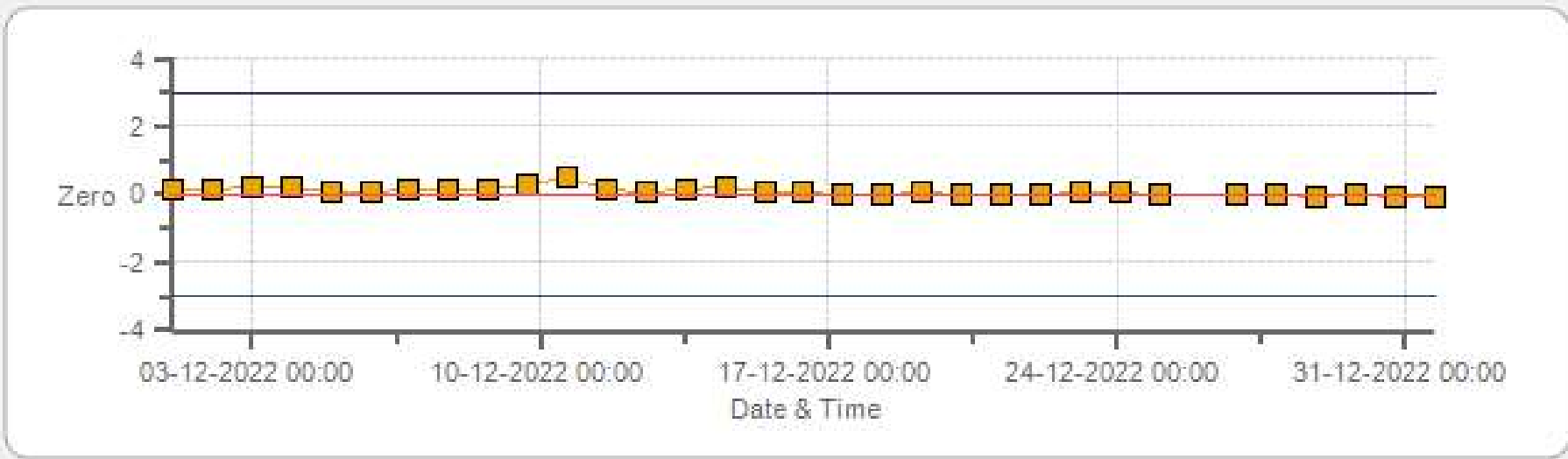
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: Cold Lake South Monthly: 12-2022 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

NO2[ppb] Calibration: Cold Lake South Monthly: 12-2022 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: Cold Lake South Monthly: 12-2022 Type: SpanAndZero - Span



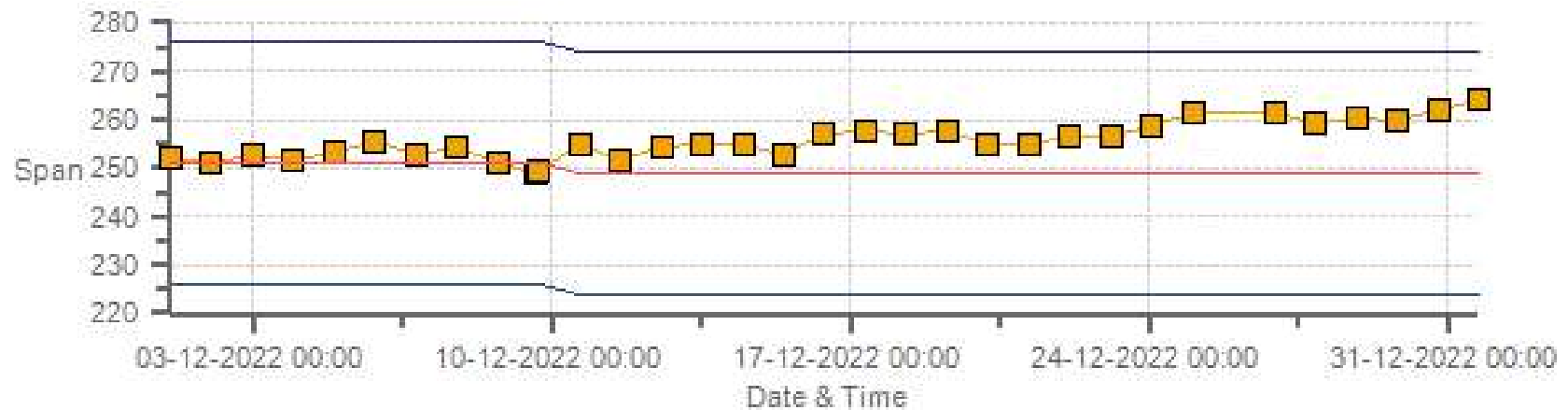
Span SpanRef Span Low Span High

O3[ppb] Calibration: Cold Lake South Monthly: 12-2022 Type: SpanAndZero - Zero



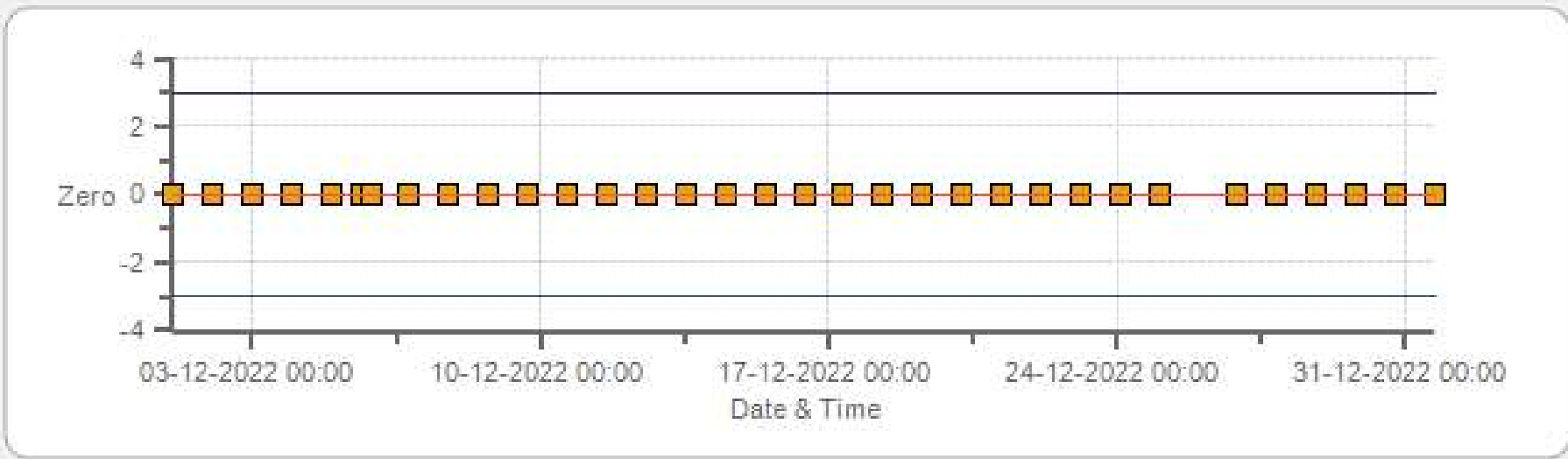
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: Cold Lake South Monthly: 12-2022 Type: SpanAndZero - Span



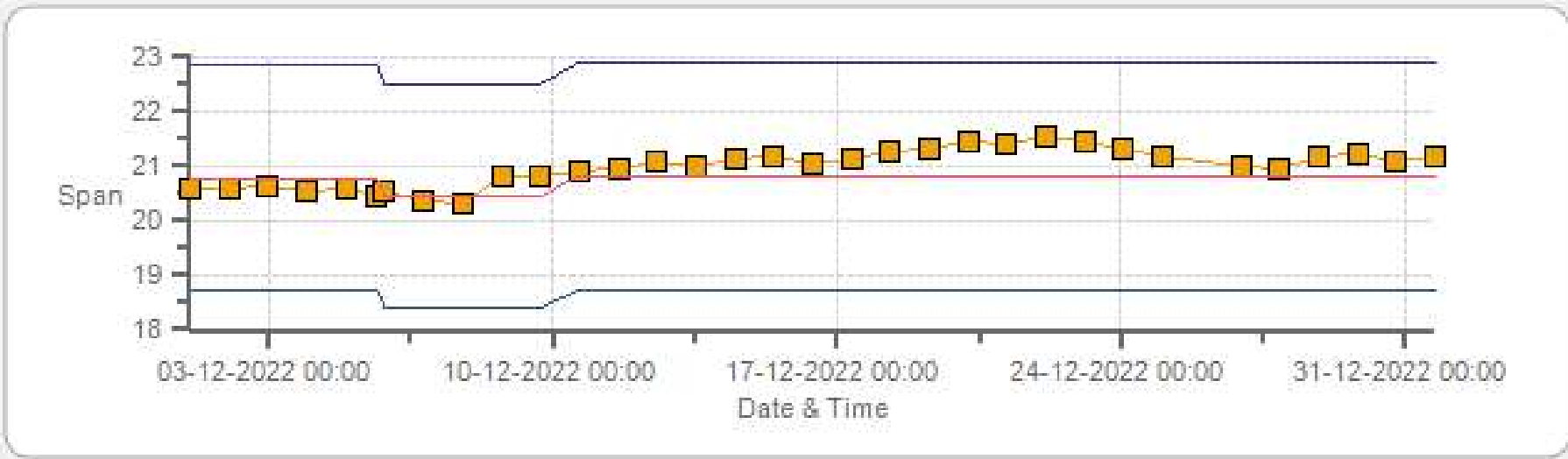
Span SpanRef Span Low Span High

THC55[ppm] Calibration: Cold Lake South Monthly: 12-2022 Type: SpanAndZero - Zero



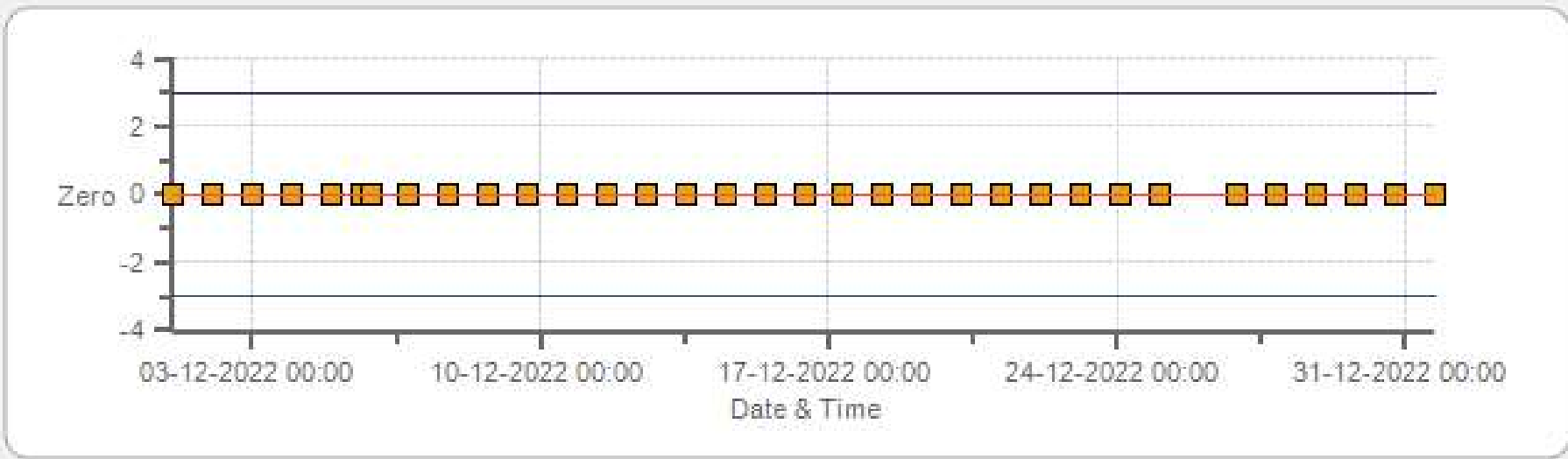
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: Cold Lake South Monthly: 12-2022 Type: SpanAndZero - Span



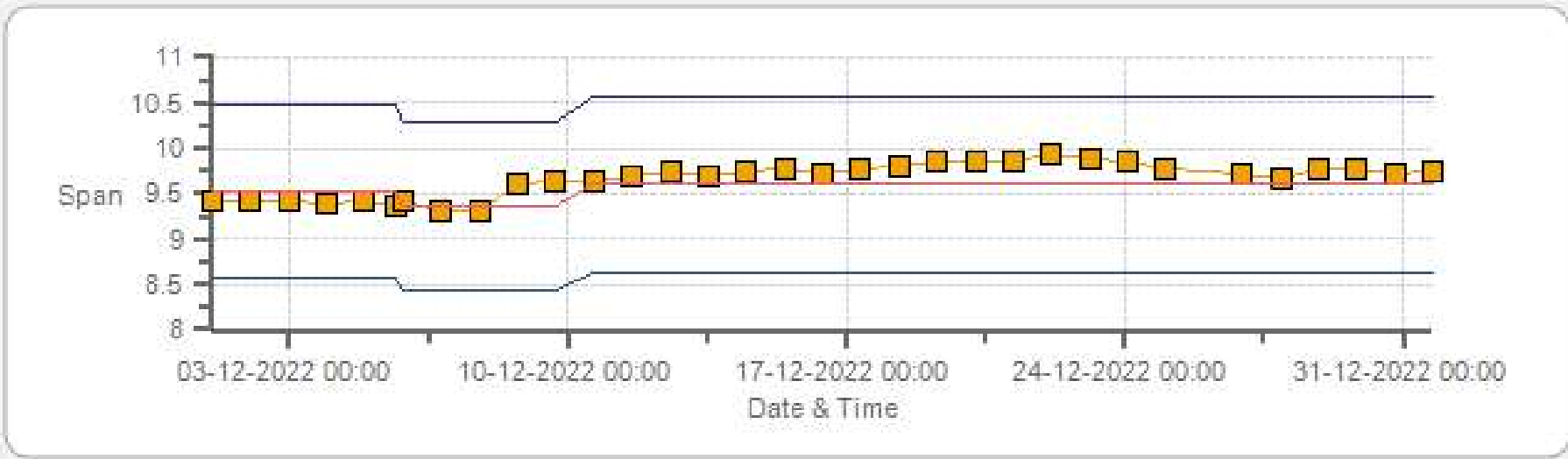
Span SpanRef Span Low Span High

CH4[ppm] Calibration: Cold Lake South Monthly: 12-2022 Type: SpanAndZero - Zero



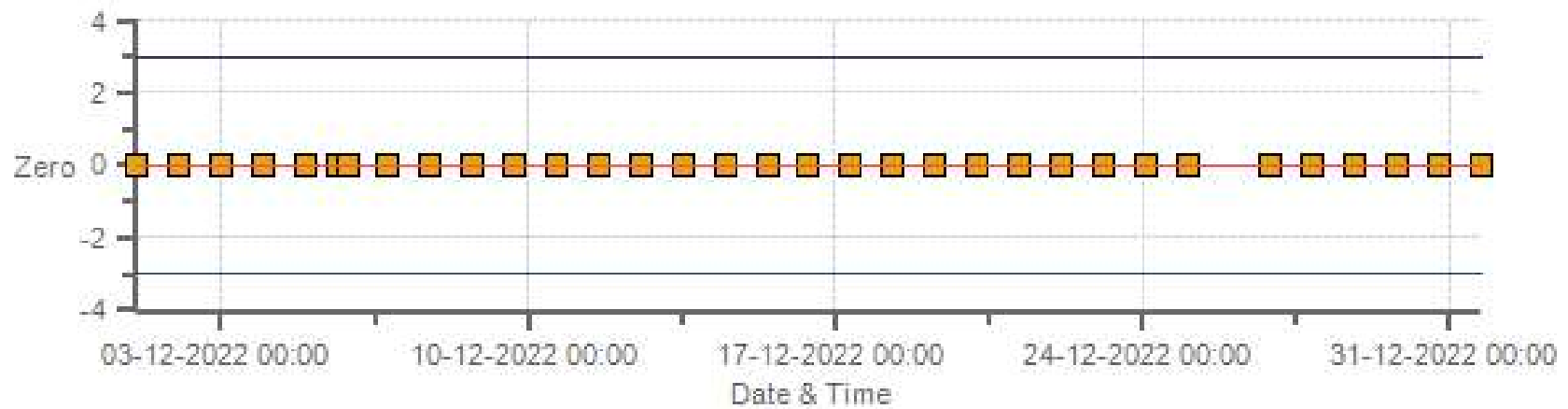
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: Cold Lake South Monthly: 12-2022 Type: SpanAndZero - Span



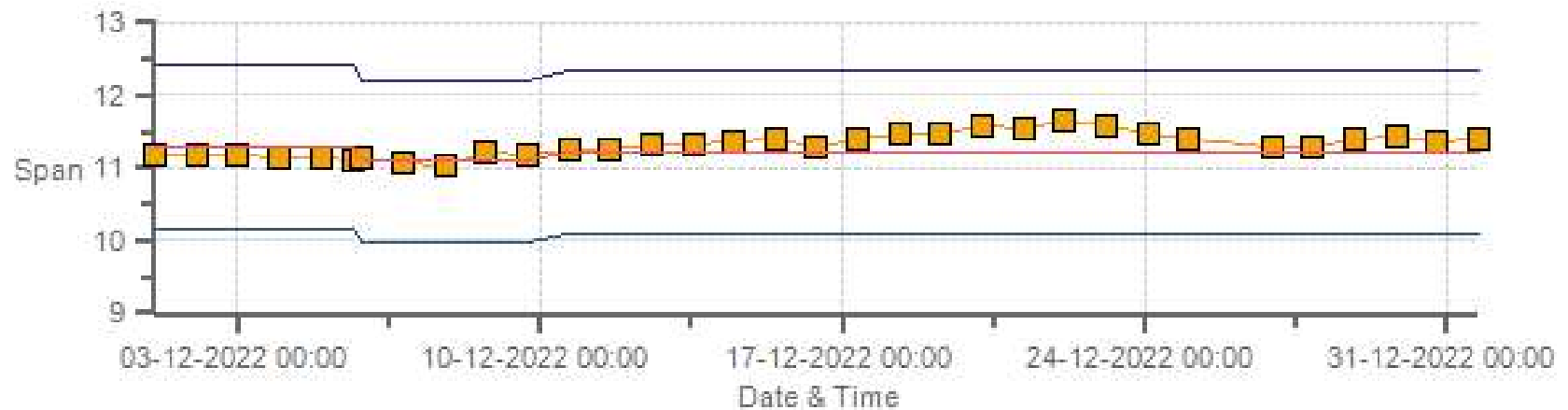
Span SpanRef Span Low Span High

NMHC[ppm] Calibration: Cold Lake South Monthly: 12-2022 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: Cold Lake South Monthly: 12-2022 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	09-Dec-2022	PREVIOUS CALIBRATION DATE:	22-Nov-2022
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	0.996
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	940
PURPOSE:	Routine	START TIME (MST):	09:53
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:38

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180260018	FLOW (mL/min)	434
INITIAL		FINAL	
BKG/OFFSET	2.46	BKG/OFFSET	2.47
COEF/SLOPE	1.02	COEF/SLOPE	1.008
Expected (reference) Value	393.6	Expected (reference) Value	385.1

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):	200	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:

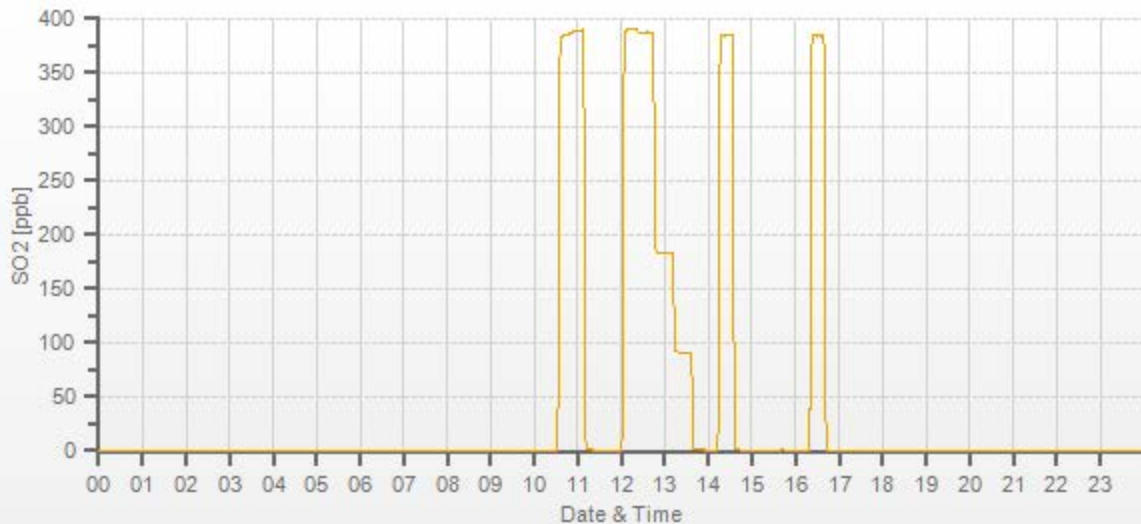
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	38.00	5000	0.00	-0.2	0	0.993	0.999
4962	38.00	5000	386.08	388.5	386.5	0.993	0.999
4982	18.00	5000	182.88	n/a	182.6	n/a	1.002
4991	9.00	5000	91.44	n/a	90.9	n/a	1.006

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	-0.1%

COMMENTS:

Sample inlet filter was changed.



TRS Analyzer Calibration by Dilution



DATE:	08-Dec-2022	PREVIOUS CALIBRATION DATE:	22-Nov-2022
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	0.995
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	945
PURPOSE:	Removal/Shut-down	START TIME (MST):	13:36
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:41

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	812728560	FLOW (mL/min)	412
INITIAL		FINAL	
BKG/OFFSET	25.3	BKG/OFFSET	n/a
COEF/SLOPE	1.136	COEF/SLOPE	n/a
Expected (reference) Value	41.9	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 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:	13:37	SO2 Conc (ppb)	380
END TIME:	13:52	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	n/a	0.995	n/a
7442	57.90	7500	77.97	85.5	n/a	0.911	n/a
7472	28.20	7500	37.98	42	n/a	0.902	n/a
7486	14.10	7500	18.99	20.1	n/a	0.940	n/a

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.101	-0.3%

COMMENTS:

Shutdown calibration was completed to rebuild a sample pump. Reason: sample flow dropped significantly.

TRS Analyzer Calibration by Dilution



DATE:	08-Dec-2022	PREVIOUS CALIBRATION DATE:	n/a
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	943
PURPOSE:	Install/Post-Repair	START TIME (MST):	16:04
PERFORMED BY:	Alex Yakupov	END TIME (MST):	19:47

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	812728560	FLOW (mL/min)	487
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	24.4
COEF/SLOPE	n/a	COEF/SLOPE	1.104
Expected (reference) Value	n/a	Expected (reference) Value	40.4

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):	1500	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:	n/a	SO2 Conc (ppb)	380
END TIME:	n/a	Analyzer Response (ppb)	0.0

CALIBRATION:

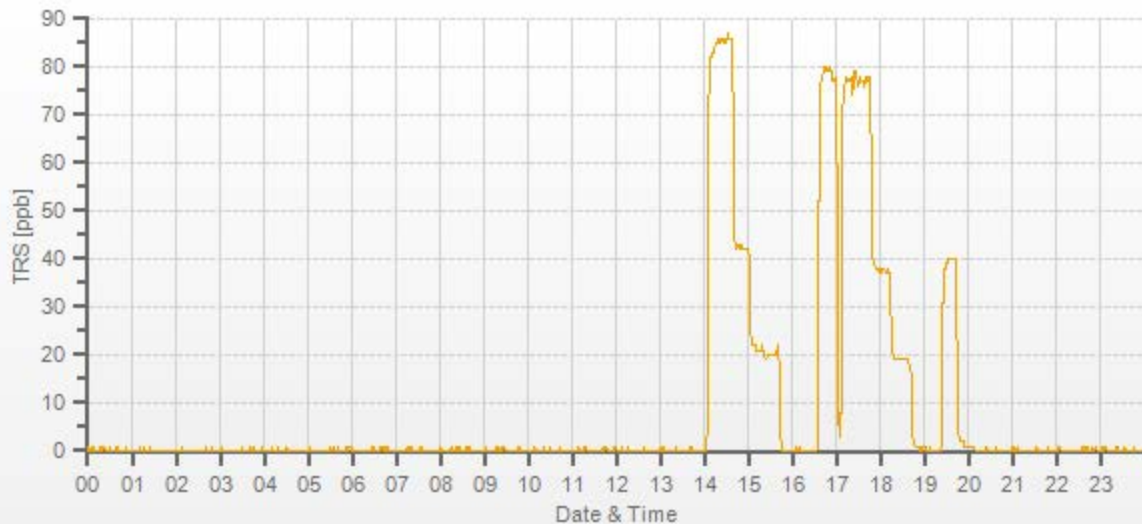
FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
7500	7500	7500	0.00	n/a	0	n/a	n/a
7442	57.90	7500	77.97	n/a	77.6	n/a	1.005
7472	28.20	7500	37.98	n/a	37.1	n/a	1.024
7486	14.10	7500	18.99	n/a	18.7	n/a	1.015

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.995	-0.2%

COMMENTS:

Sample inlet filter was changed.
Post-repair following sample pump rebuild.



NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	09-Dec-2022	PREVIOUS CALIBRATION DATE:	22-Nov-2022	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1505664393	NOx	0.998
LOCATION:	CLS	BAROMETRIC (mBar):	940	FLOW (mL/min)	713	NO	0.998
PURPOSE:	Routine	START TIME (MST):	09:52	RANGE (ppb)	500	NO2	0.998
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:39	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):	200	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:	5.1	4.9	n/a	BKG/OFFSET:	4.9	4.7	n/a
SLOPE/COEF/CE:	0.999	1.066	1.001	SLOPE/COEF/CE:	1.001	1.038	0.999

EXPECTED (REFERENCE) VALUE:

INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	299.6	3.1	296.5		285.6	2.9	282.7

CALIBRATION PARAMETERS:

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

NO/NOx CALIBRATION:

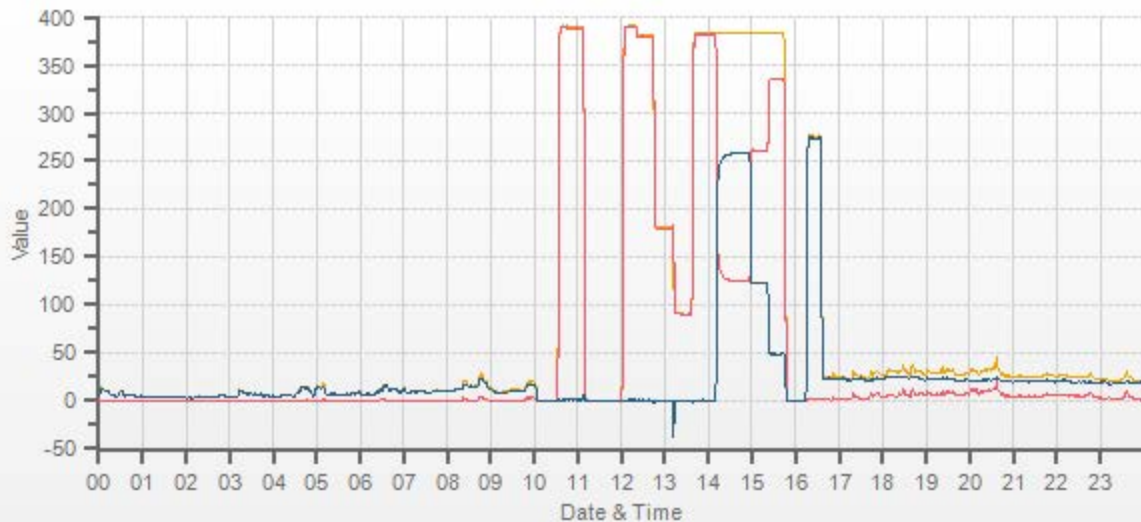
FLOW RATE			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000	38.00	5000	0.0	0.0	0.0	-0.1	0.0	0.1	0.0	0.0	0.0	0.979	0.977	0.998	0.998	0.999	0.999
4962	38.00	5000	380.0	380.8	0.8	388.1	389.6	1.5	379.5	381.0	1.4	0.979	0.977	0.998	0.998	0.999	0.999
4982	18.00	5000	180.0	180.4	0.4	n/a	n/a	n/a	180.3	180.8	0.5	n/a	n/a	0.998	0.998	0.999	0.999
4991	9.00	5000	90.0	90.2	0.2	n/a	n/a	n/a	90.4	90.5	0.0	n/a	n/a	0.996	0.996	0.999	0.999

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	38.00	5000	0	382.2	383.2	0.9	256.8	257.3	0.998	100.19%
AS-FOUND HIGH	38.00	5000	235	125.4	383.6	258.2	256.8	257.3	0.998	100.19%
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MID	38.00	5000	110	261.3	384.1	122.7	120.9	121.8	0.993	100.74%
LOW	38.00	5000	40	335.2	383.3	48.1	47	47.2	0.996	100.43%
NO2 adjustment not required.									AVERAGE:	100.45%

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	COMMENTS:
NO	1.000	0.998	0.06%	Sample inlet filter was changed.
NOx	1.000	1.000	0.03%	
NO2	1.000	1.001	0.08%	



CAL-LICA-202212-01174

Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	09-Dec-2022	PREVIOUS CALIBRATION DATE:	24-Nov-2022
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	940
PURPOSE:	Routine	START TIME (MST):	09:51
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:38

ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	12208316585	FLOW (mL/min)	1270
INITIAL		FINAL	
BKG/OFFSET	0.1	BKG/OFFSET	1.1
COEF/SLOPE	1.032	COEF/SLOPE	1.027
Expected (reference) Value	251	Expected (reference) Value	248.9

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 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:

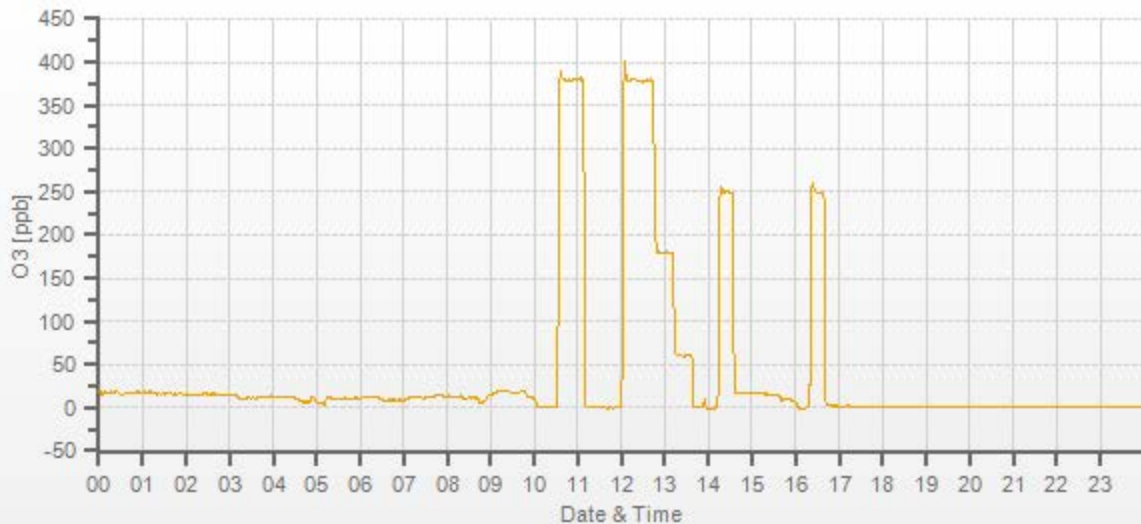
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	 	5000	0.0	0.7	0.0	 	
5000	 	5000	378.0	380.0	378.3	0.997	0.999
5000	 	5000	180.0	n/a	179.8	n/a	1.001
5000	 	5000	60.0	n/a	61.3	n/a	0.979

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.999	0.1%

COMMENTS:

Sample inlet filter was changed.



Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	08-Dec-2022	PREVIOUS CALIBRATION DATE:	23-Nov-2022	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1180930025	1138
LOCATION:	CLS	BAROMETRIC (mBar):	945	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	13:34	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:05	PREVIOUS CF:	1.001	0.999	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:	134	CYLINDER (psi):	1500	LOW ID:	n/a
MFC CALIBRATION DATE:	02-Sep-2022	OXIDIZER ID:	n/a	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:

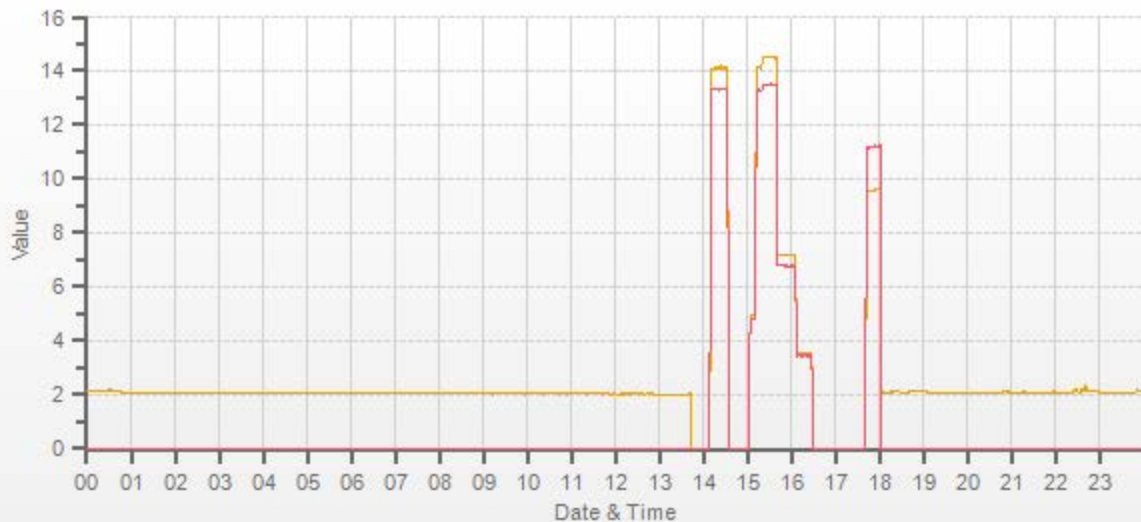
INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.52	11.28	20.79		9.60	11.23	20.83

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	14.12	13.31	27.44	14.52	13.48	28.01	1.028	1.014	1.021	0.999	1.001	1.000
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.18	6.77	13.95	n/a	n/a	n/a	1.011	0.997	1.004
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.57	3.46	7.03	n/a	n/a	n/a	1.013	0.973	0.993

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments:	
CH ₄	1.000	1.001	-0.2%	Sample inlet filter was changed.	
NMHC	1.000	0.996	0.2%		
THC	1.000	0.999	0.0%		
				Use Zero Chrom?	Yes



CAL-LICA-202212-01174



Teledyne T640 Audit/Calibration

Date/Previous Audit Date:	December 9, 2022	November 22, 2022	Weather Conditions:	A few clouds	
Company:	LICA		Start Time (mst):	15:57	
Station:	Cold Lake South		End Time (mst):	17:04	
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):	Yes	
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)	705.5	Ambient Temp (°C)	-12.2	ASC Heater Duty (%)	0.0
Box Temp (°C)	27.6	Current PMT HV (V)	1440	LED Temp (°C)	36.55
P3 Value	48	PMT Setting (V)	1444	Pump PWM (%)	87
Sample Flow (L/min)	5.00	Sample RH (%RH)	5.9	Sample Temp (°C)	24.5
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)	706.5	705.5	706.5	705.5	+/- 10 mm Hg
Ambient Temperature (°C)	-12.40	12.3	n/a		+/- 2°C
Sample Flow (L/min)	5.00	5	5.00	5	+/-5% of T640x (e.g., 4.75 – 5.25 lpm)
Additional Monthly Maintenance :					Completed
Inlet cleaned?					Yes
Sample tubing inspected (inner and outer)?					Yes
Quarterly Audit/Calibration:					
SpanDust™ Standard	Peak at Channel		Lot No:		Expiry:
	10.9		100128-050-032		16-Dec-2022
Item:	Verification:		Calibration (if needed):		Tolerance
	Reference	T640x	Reference	T640x	
Peak Channel	10.9	10.9	n/a	n/a	± 0.5
PMT Setting (V)	n/a	1444	n/a	n/a	n/a
Peak Channel Counts:	n/a	843	n/a	n/a	n/a
Comments:					
Alarm: Pump PWM over 80%. Pump requires renewal.					

Meteorological System Checklist



Date:	December 9, 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):	-14.4
Station - Ambient Temperature (°C):	-14.1
Temperature Difference (°C):	0.3

BAROMETRIC PRESSURE SENSOR CHECK

Reference Barometer ID:	Fisher Scientific / FB 61291 / #130168457/ Feb 17, 2023		
Reference Pressure - Units/Reading:	millibar		943
Station Pressure - Units/Reading:	millibar		942
Pressure Tolerance +/- 15% of error:	802 - 1084		0.11%

RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Reference Hygrometer ID:	Vaisala HMP76B #T1640130, Exp. Date: Jun 14, 2023		
Reference Hygrometer % RH- Reading:		79.40	
Station Hygrometer % RH- Reading:		82.70	
RH Tolerance +/- 15% of difference:	67.49 - 91.31		-4.2%

ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Previous check date:	November 22, 2022	Previous check date:	November 22, 2022
Wind Speed Observed (kph):	0 - 10	Wind Direction Observed:	SW
Wind speed on Data Logger (kph):	5	Wind Direction on Data Logger:	SW
	Annual audit: Jul 6, 2022	Wind Direction Pass/Fail?:	Pass

Comments

Station (Trailer) temperature vs Reference gauge: 22.2 vs 22.5, 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

DECEMBER 2022

Ambient Air Monitoring Calibration Report

- TAMARACK STATION-

CAL-LICA-202212-01248

Station Operation and Maintenance:

Bureau Veritas Canada

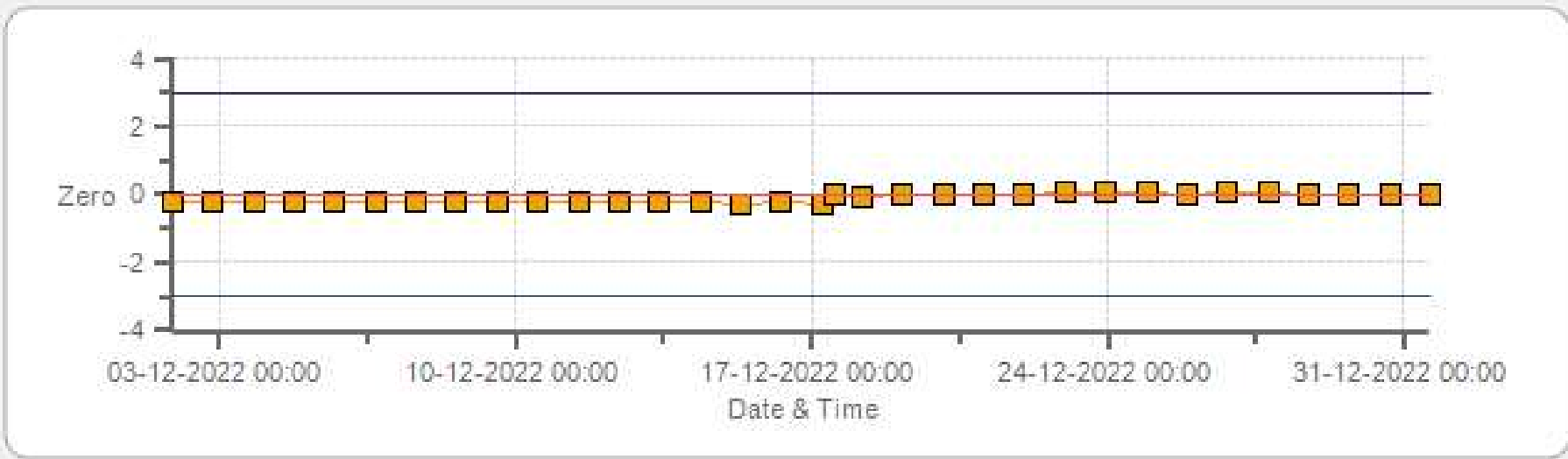
Data Validation and Report:

LICA / Bureau Veritas Canada

January 17, 2023

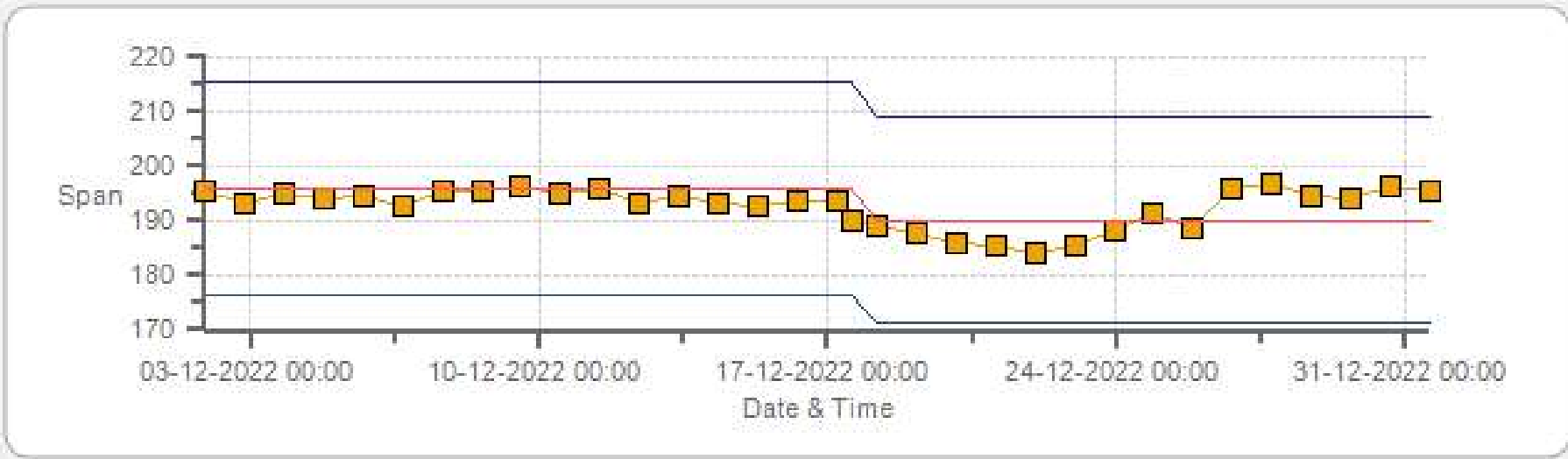
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Tamarack Monthly: 12-2022 Type: SpanAndZero - Zero



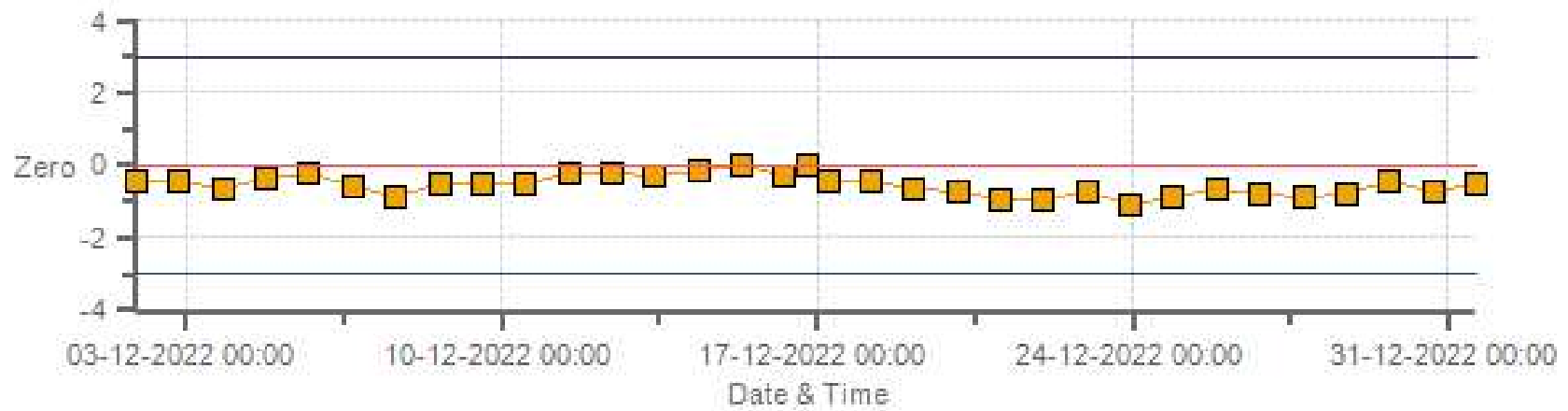
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: Tamarack Monthly: 12-2022 Type: SpanAndZero - Span



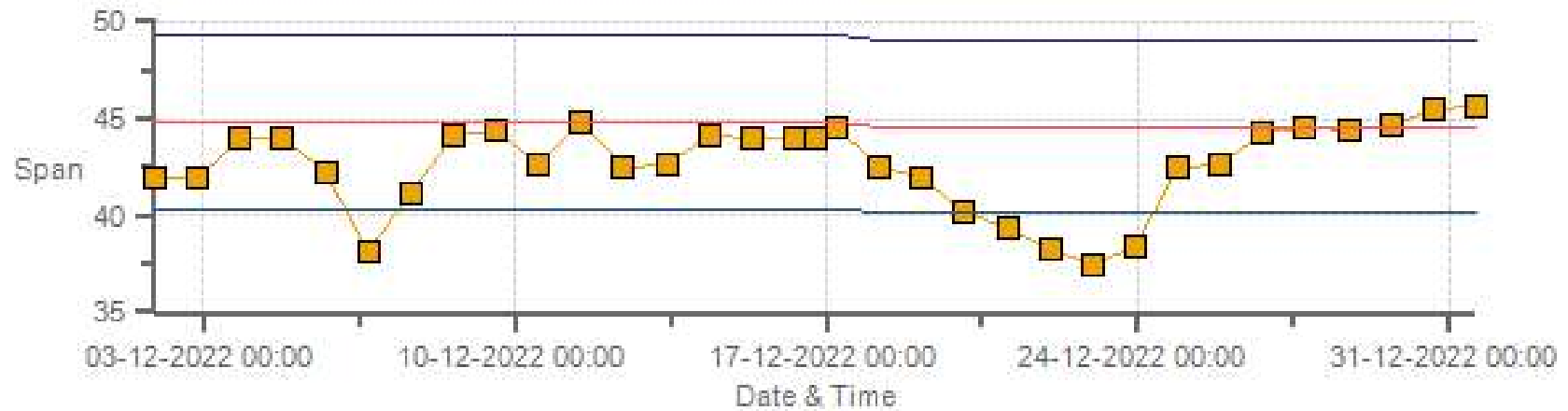
Span Span Ref Span Low Span High

H2S[ppb] Calibration: Tamarack Monthly: 12-2022 Type: SpanAndZero - Zero



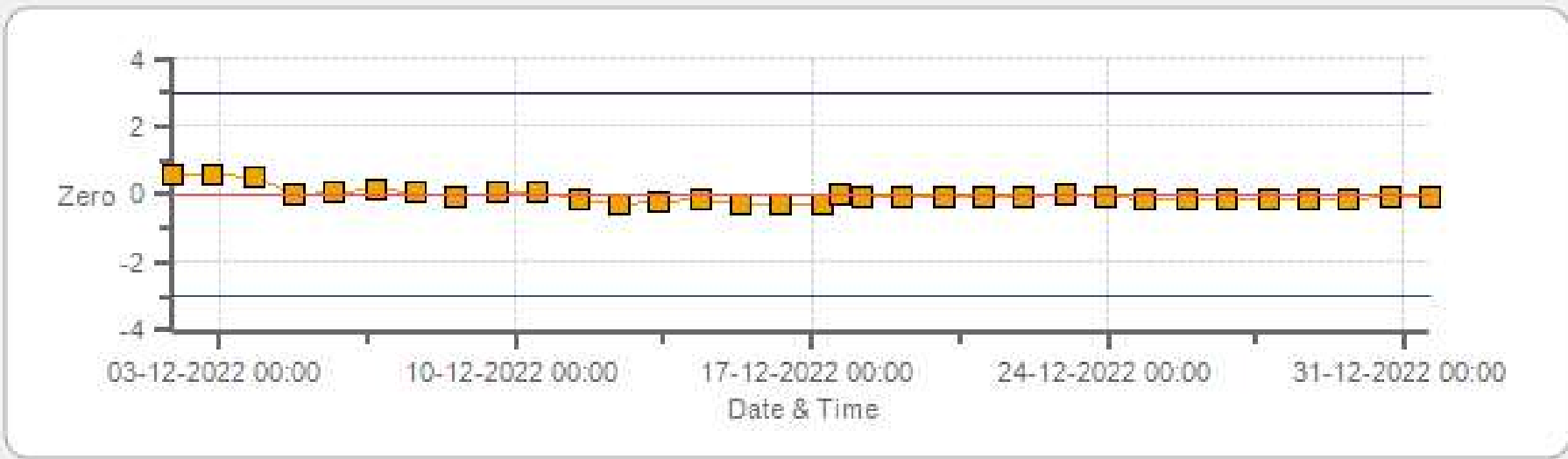
Zero Zero Ref Zero Low Zero High

H2S[ppb] Calibration: Tamarack Monthly: 12-2022 Type: SpanAndZero - Span



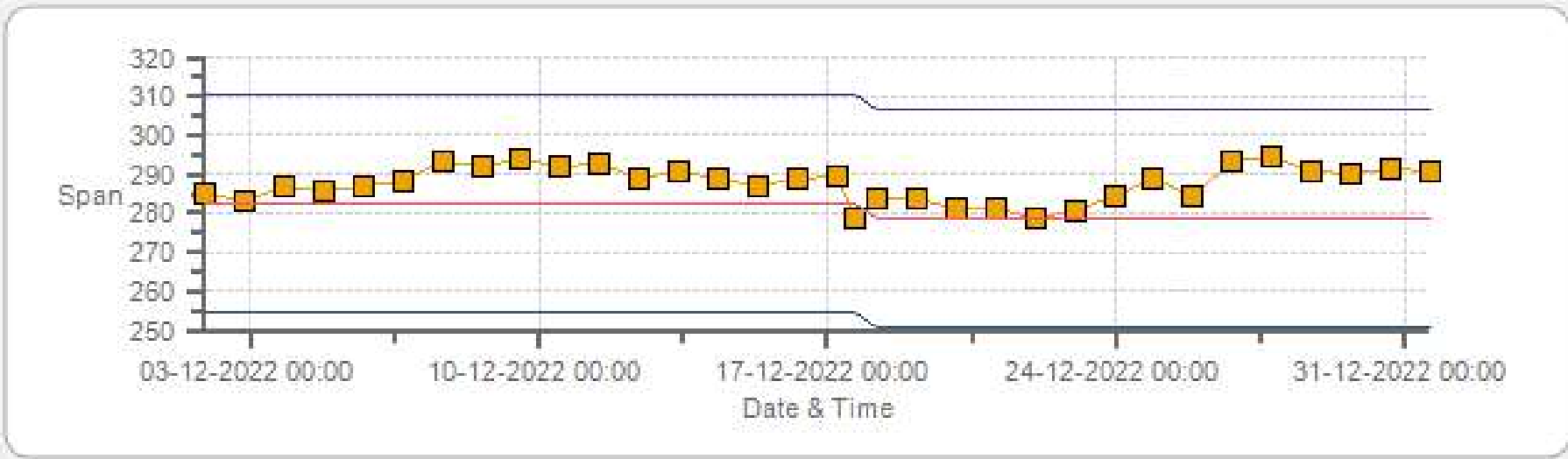
Span SpanRef Span Low Span High

NOX[ppb] Calibration: Tamarack Monthly: 12-2022 Type: SpanAndZero - Zero



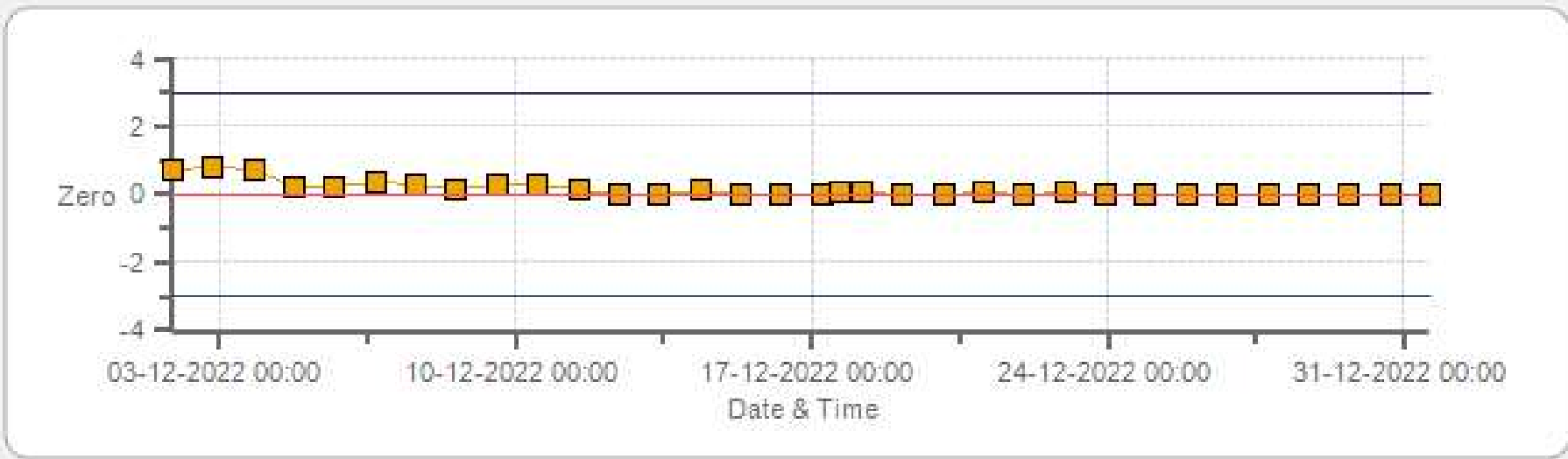
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: Tamarack Monthly: 12-2022 Type: SpanAndZero - Span



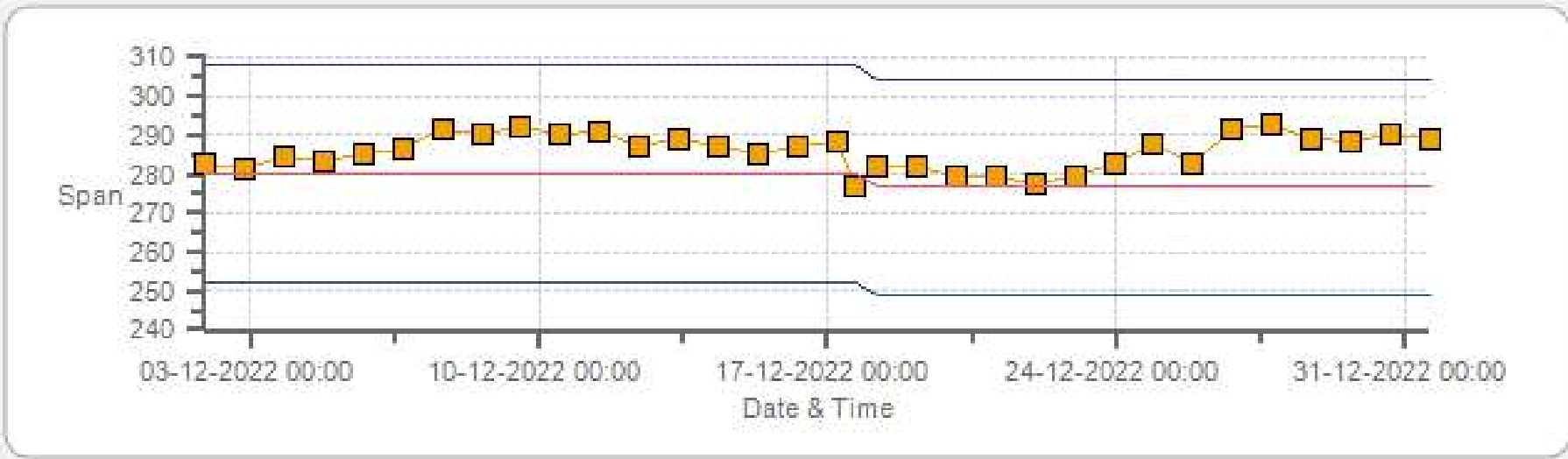
Span SpanRef Span Low Span High

NO2[ppb] Calibration: Tamarack Monthly: 12-2022 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: Tamarack Monthly: 12-2022 Type: SpanAndZero - Span



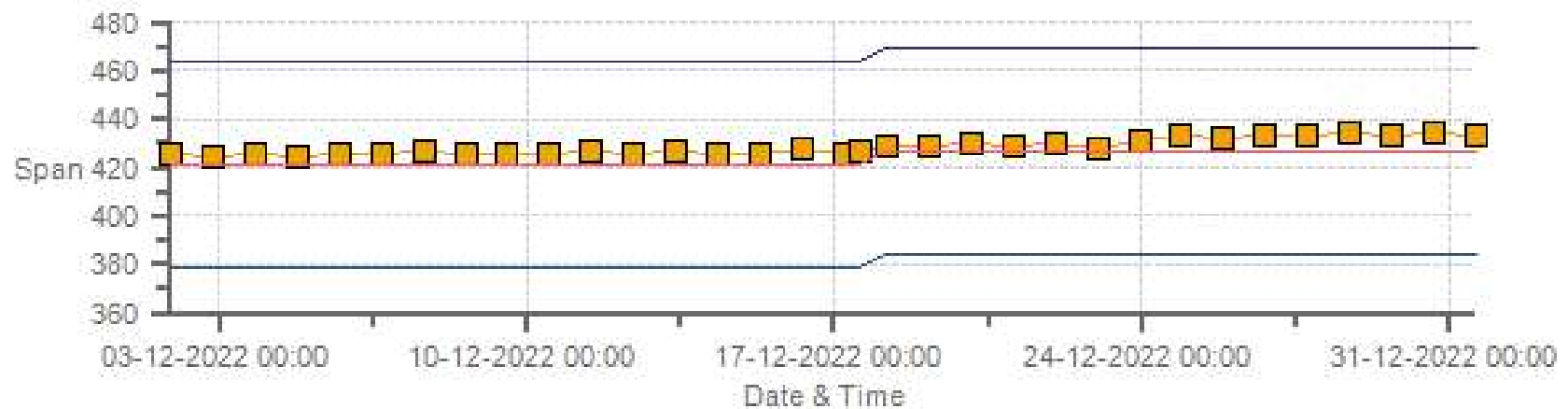
Span SpanRef Span Low Span High

O3[ppb] Calibration: Tamarack Monthly: 12-2022 Type: SpanAndZero - Zero



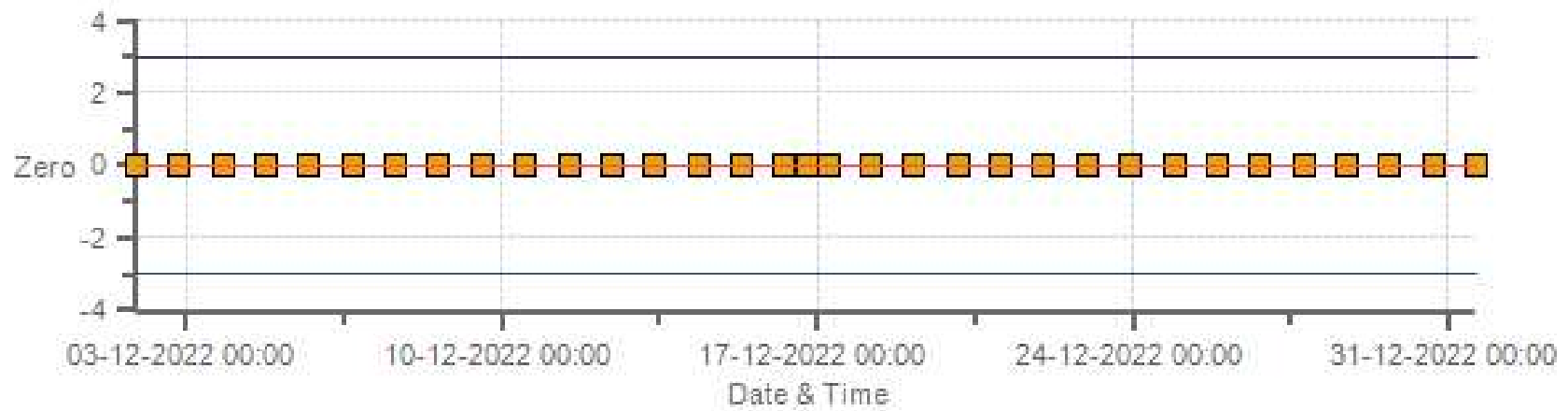
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: Tamarack Monthly: 12-2022 Type: SpanAndZero - Span



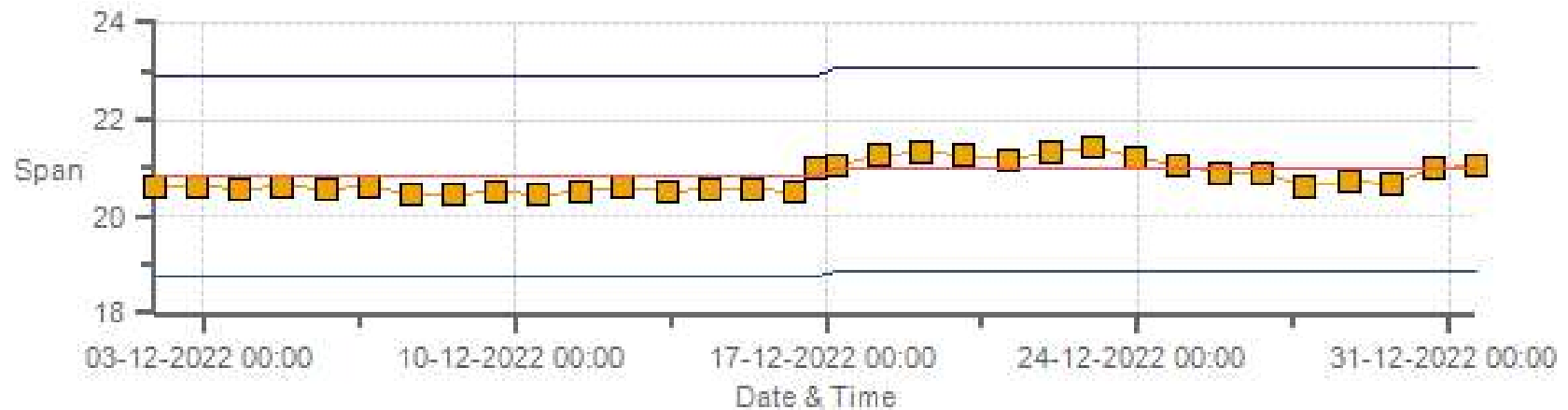
Span SpanRef Span Low Span High

THC55[ppm] Calibration: Tamarack Monthly: 12-2022 Type: SpanAndZero - Zero



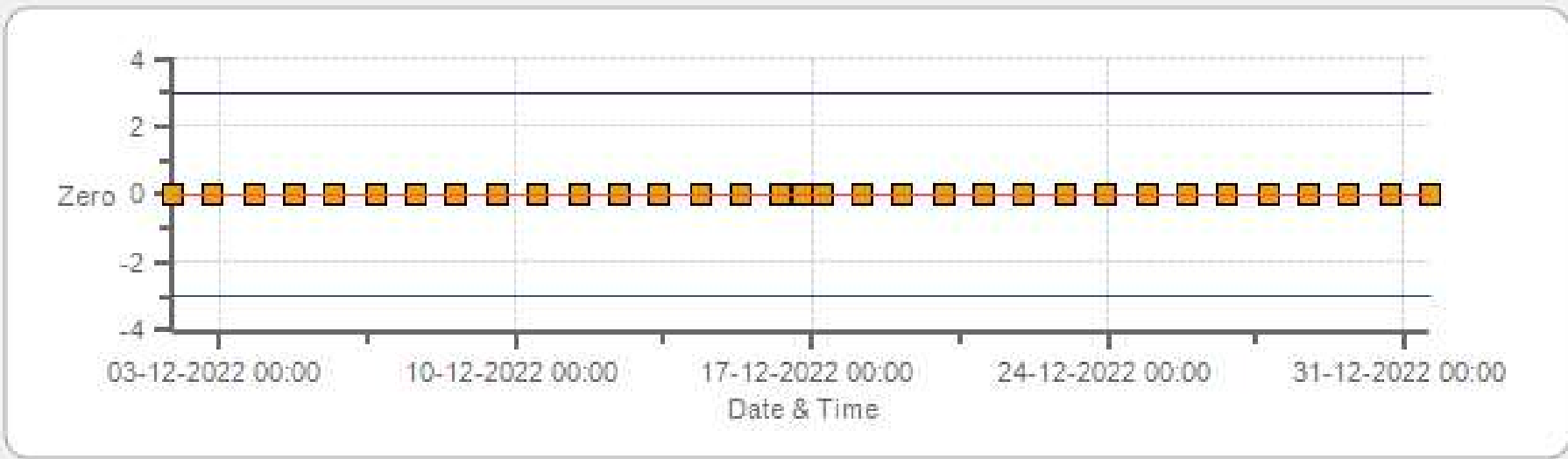
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: Tamarack Monthly: 12-2022 Type: SpanAndZero - Span



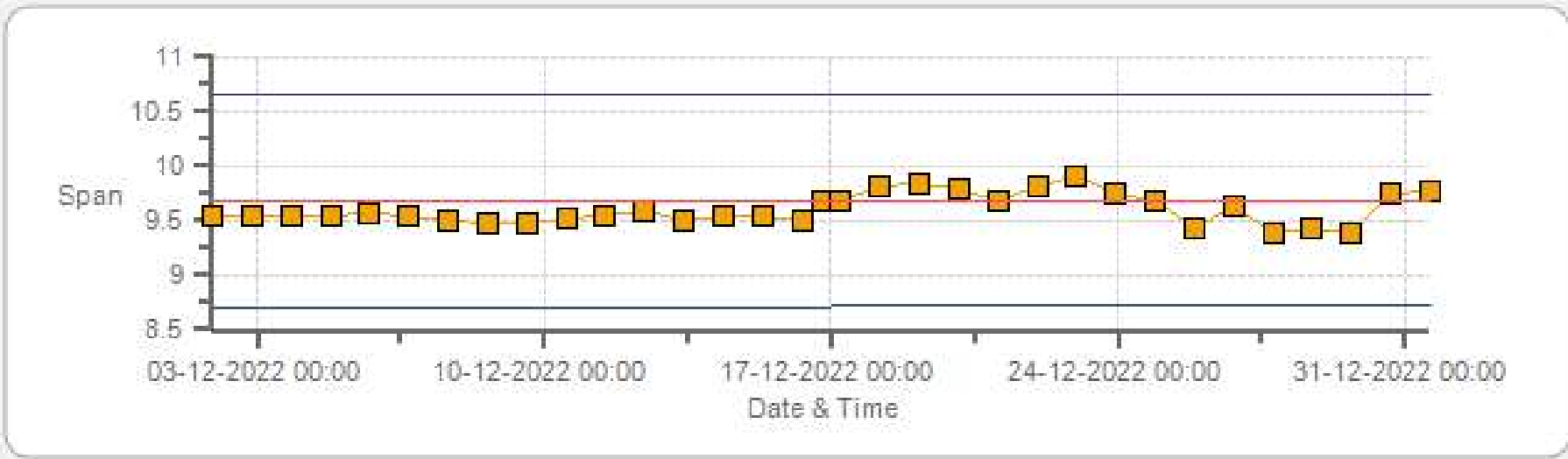
Span SpanRef Span Low Span High

CH4[ppm] Calibration: Tamarack Monthly: 12-2022 Type: SpanAndZero - Zero



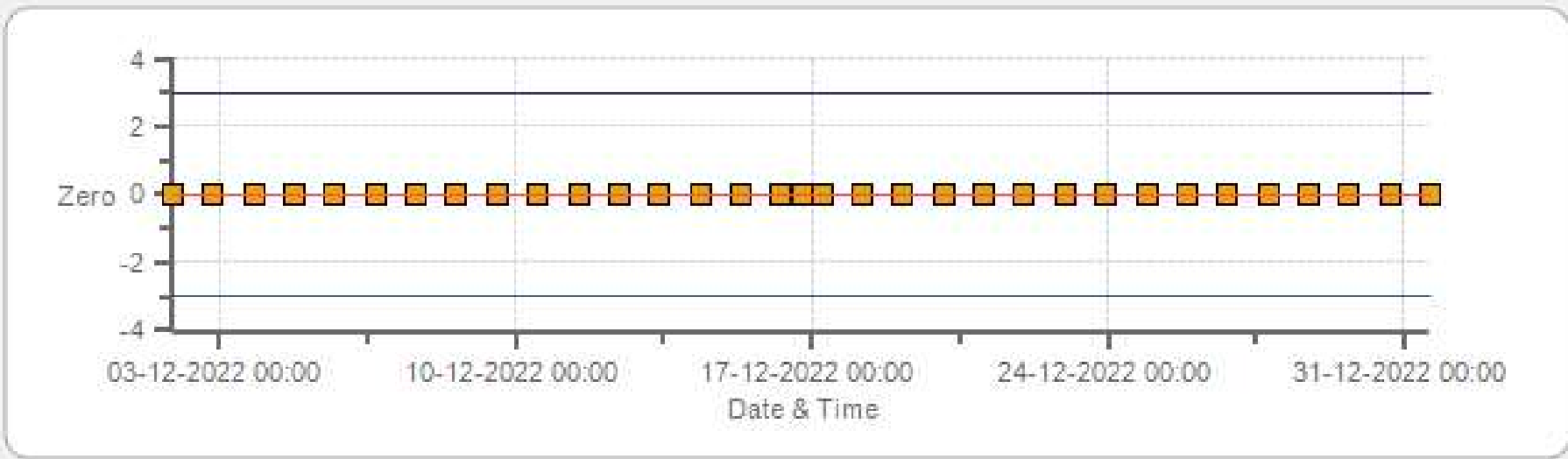
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: Tamarack Monthly: 12-2022 Type: SpanAndZero - Span



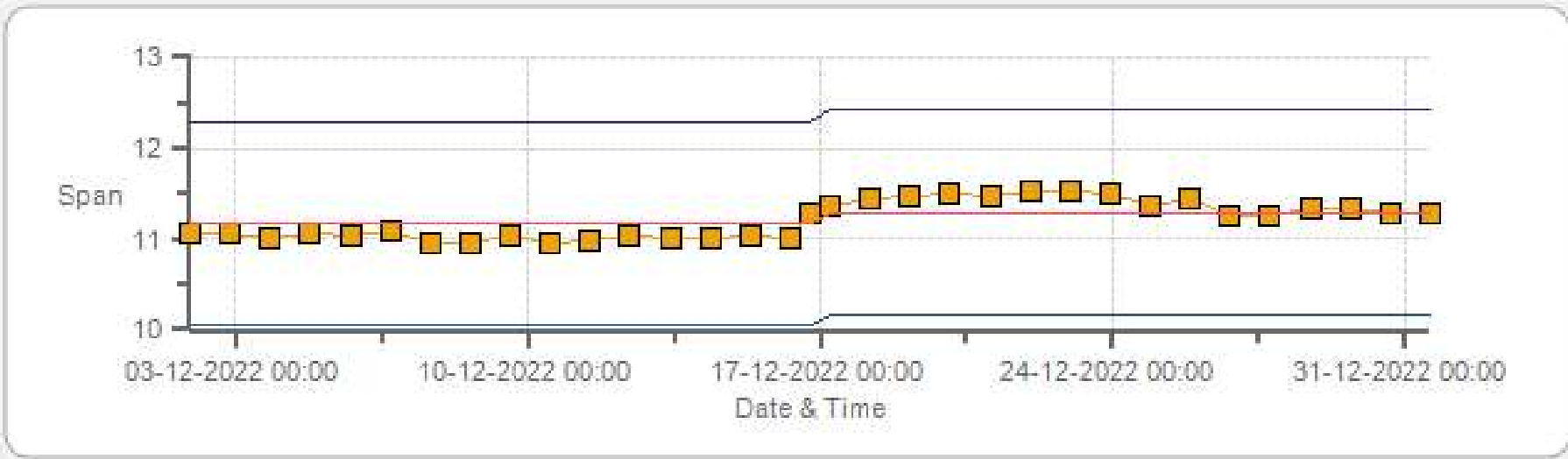
Span Span Ref Span Low Span High

NMHC[ppm] Calibration: Tamarack Monthly: 12-2022 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: Tamarack Monthly: 12-2022 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	17-Dec-2022	PREVIOUS CALIBRATION DATE:	18-Nov-2022
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	0.998
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	943
PURPOSE:	Routine	START TIME (MST):	09:56
PERFORMED BY:	Alex Yakupov	END TIME (MST):	13:55

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180930031	FLOW (mL/min)	448
INITIAL		FINAL	
BKG/OFFSET	2.93	BKG/OFFSET	2.69
COEF/SLOPE	1.032	COEF/SLOPE	1.02
Expected (reference) Value	196	Expected (reference) Value	190.2

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):	150	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	38.00	5000	0.00	-0.3	0	0.995	0.998
4962	38.00	5000	386.08	387.9	386.8	0.995	0.998
4982	18.00	5000	182.88	n/a	181.8	n/a	1.006
4991	9.00	5000	91.44	n/a	90.5	n/a	1.010

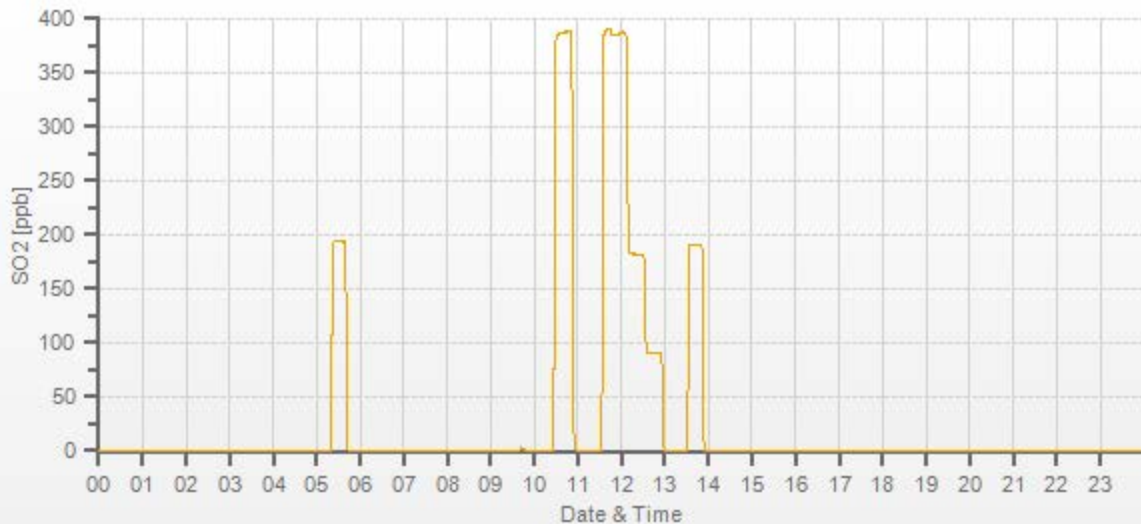
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.003	-0.1%

COMMENTS:

Sample inlet filter was changed.

SO2[ppb] Station: Tamarack Daily: 17-12-2022 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202212-01248

H2S Analyzer Calibration by Dilution



DATE:	16-Dec-2022	PREVIOUS CALIBRATION DATE:	17-Nov-2022
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	1.006
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	938
PURPOSE:	Routine	START TIME (MST):	14:10
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:34

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 17360005	FLOW (mL/min)	921
INITIAL		FINAL	
BKG/OFFSET	33.2	BKG/OFFSET	34.3
COEF/SLOPE	0.816	COEF/SLOPE	0.831
Expected (reference) Value	44.8	Expected (reference) Value	44.6

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	134
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:	14:12	SO2 Conc (ppb)	380
END TIME:	14:27	Analyzer Response (ppb)	0.0

CALIBRATION:

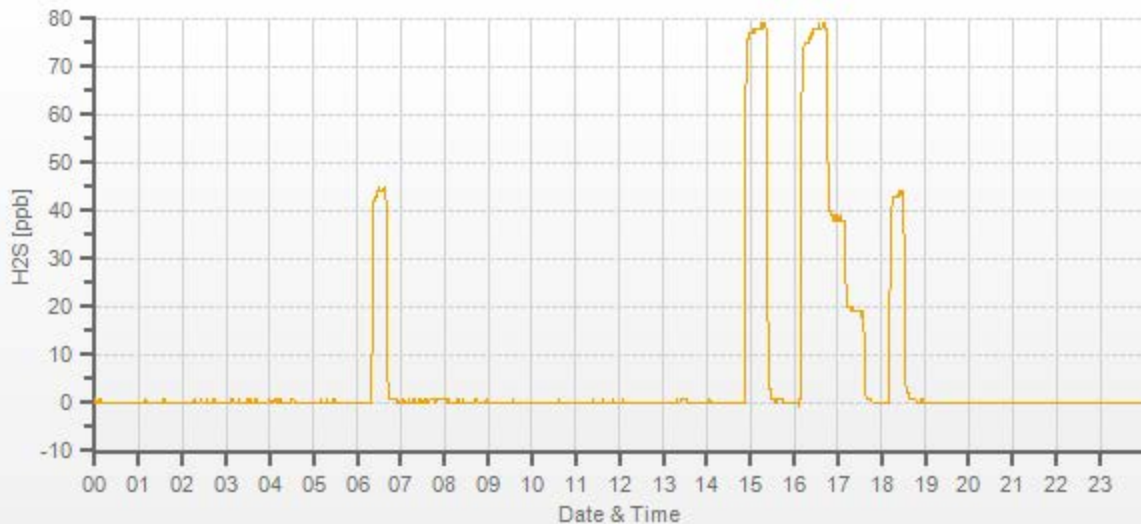
FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
7500	7500	7500	0.00	0.2	0	0.998	0.996
7442	57.90	7500	77.97	78.3	78.3	0.998	0.996
7472	28.20	7500	37.98	n/a	38.4	n/a	0.989
7486	14.10	7500	18.99	n/a	19.3	n/a	0.984

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.004	0.1%

COMMENTS:

Sample inlet filter was changed.



NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	17-Dec-2022	PREVIOUS CALIBRATION DATE:	18-Nov-2022	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930028	NOx	0.997
LOCATION:	Tamarack	BAROMETRIC (mBar):	943	FLOW (mL/min)	846	NO	0.999
PURPOSE:	Routine	START TIME (MST):	09:57	RANGE (ppb)	500	NO2	0.999
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:59	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:	134	CYLINDER (psi):	150	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	1.8	n/a	BKG/OFFSET:	1.8	1.7	n/a
SLOPE/COEF/CE:	1.003	1.031	1	SLOPE/COEF/CE:	1	1.019	1

EXPECTED (REFERENCE) VALUE:

INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	261.1	2.7	258.3		278.5	1.7	276.8

CALIBRATION PARAMETERS:

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

NO/NOx CALIBRATION:

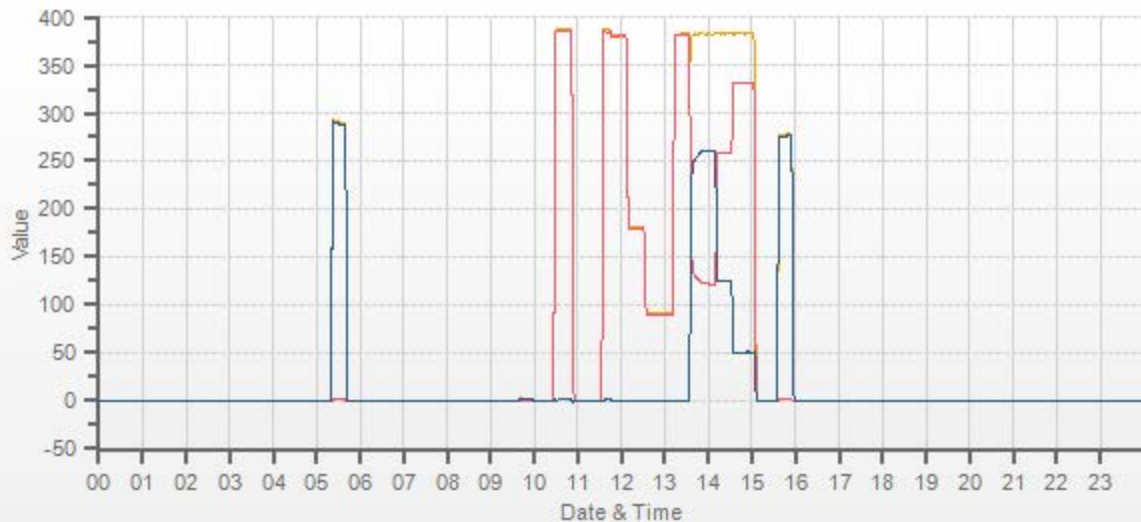
FLOW RATE (mL/min)			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000	38.00	5000	0.0	0.0	0.0	-0.2	-0.2	0.0	0.0	0.0	0.0	0.986	0.982	0.999	0.999	0.999	0.999
4962	38.00	5000	380.0	380.8	0.8	385.1	387.4	2.3	380.5	381.3	0.7	0.986	0.982	0.999	0.999	0.999	0.999
4982	18.00	5000	180.0	180.4	0.4	n/a	n/a	n/a	180.3	180.8	0.5	n/a	n/a	0.998	0.998	0.998	0.998
4991	9.00	5000	90.0	90.2	0.2	n/a	n/a	n/a	90.2	90.6	0.3	n/a	n/a	0.998	0.998	0.995	0.995

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	38.00	5000	0	382.2	382.3	0.1	260.3	260.2	1.000	99.96%
AS-FOUND HIGH	38.00	5000	240	121.9	382.3	260.3	260.3	260.2	1.000	99.96%
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MID	38.00	5000	125	257.9	382.7	124.8	124.3	124.7	0.997	100.32%
LOW	38.00	5000	45	331.7	382.9	51.2	50.5	51.1	0.988	101.19%
NO2 adjustment not required.									AVERAGE:	100.49%

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	COMMENTS:
NO	1.000	1.001	0.01%	Sample inlet filter was changed.
NOx	1.000	1.001	0.03%	
NO2	1.000	0.997	0.16%	



CAL-LICA-202212-01248

Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	17-Dec-2022	PREVIOUS CALIBRATION DATE:	18-Nov-2022
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.004
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	943
PURPOSE:	Routine	START TIME (MST):	09:55
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:28

ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	1202068570	FLOW (mL/min)	1380
INITIAL		FINAL	
BKG/OFFSET	2.8	BKG/OFFSET	2.2
COEF/SLOPE	1.023	COEF/SLOPE	1.031
Expected (reference) Value	421	Expected (reference) Value	426.4

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	134
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	-0.5	0.0	 	
5000	 	5000	378.0	375.3	377.7	1.006	1.001
5000	 	5000	180.0	n/a	180.8	n/a	0.996
5000	 	5000	61.0	n/a	61.8	n/a	0.987

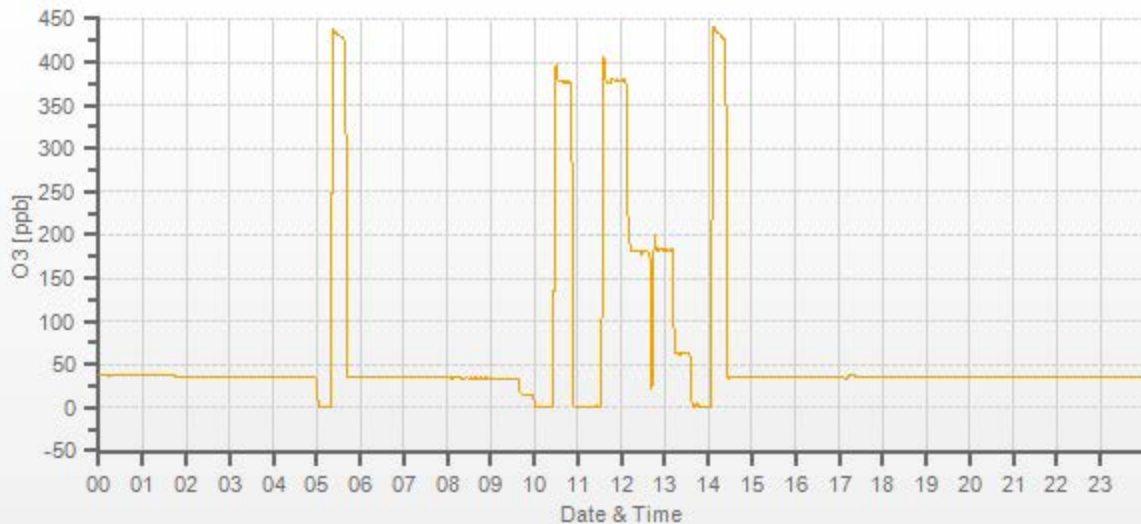
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.999	0.1%

COMMENTS:

Sample inlet filter was changed. 12:38 - calibrator was reset. Mid point was started from beginning.

O3[ppb] Station: Tamarack Daily: 17-12-2022 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202212-01248

Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	16-Dec-2022	PREVIOUS CALIBRATION DATE:	17-Nov-2022	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1314057759	1238
LOCATION:	Tamarack	BAROMETRIC (mBar):	938	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	14:08	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:34	PREVIOUS CF:	0.999	0.999	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):	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:

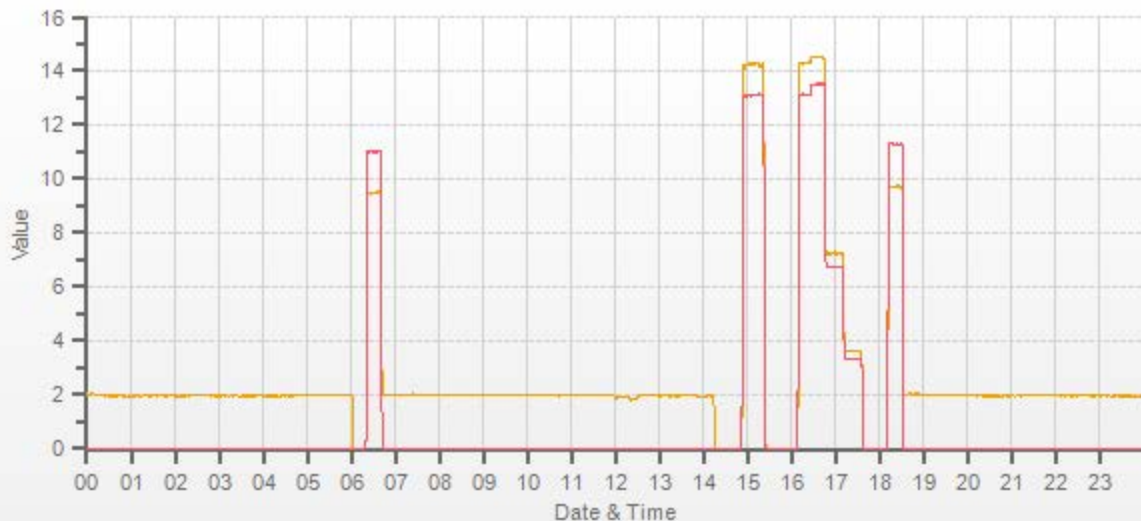
INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.68	11.17	20.84		9.69	11.29	20.99

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	14.29	13.13	27.43	14.53	13.52	28.05	1.015	1.028	1.021	0.999	0.999	0.999
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.26	6.72	13.98	n/a	n/a	n/a	0.999	1.004	1.002
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.62	3.34	6.96	n/a	n/a	n/a	0.999	1.008	1.003

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments:
CH ₄	1.000	1.001	0.0%	11:22 - 14:08 H2 generator was connected and tested.
NMHC	1.000	1.002	-0.1%	
THC	1.000	1.002	-0.1%	
Use Zero Chrom?				Yes



CAL-LICA-202212-01248

Thermo 5030 SHARP Monitor Monthly Check

Date: December 17, 2022
 Company: LICA
 Station Name/Location: Tamarack
 Previous Audit Date: November 18, 2022
 Parameter: PM 2.5

Performed By/Reviewer: Alex Yakupov | Chris Wesson
 Start Time (mst): 15:18
 End Time (mst): 15:56
 Calibration Purpose: routine monthly
 Weather Conditions: Mainly cloudy with snow

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>-17.0</u></p> <p>Reference °C: <u>-18.1</u></p> <p>Difference °C: <u>-1.1</u></p>	<p style="text-align: center;">Tolerance +/- 13.33 hPa</p> <p>SHARP P3 (hPa): <u>949.000</u></p> <p>Reference (hPa): <u>947.000</u></p> <p>Difference (hPa) : <u>2.000</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>-17.0</u></p> <p>Reference °C: <u>-18.1</u></p> <p>Difference °C: <u>-1.1</u></p>	<p style="text-align: center;">Tolerance +/- 13.33 hPa</p> <p>SHARP P3 (hPa): <u>949.000</u></p> <p>Reference (hPa): <u>947.000</u></p> <p>Difference : <u>2.000</u></p>
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As found flows:

<p>Targets: 1000 l/hr / <90%</p> <p>SHARP AirFlow l/hr <u>1000.00</u></p> <p>Pump Voltage (%) <u>55.60</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>16.71</u></p> <p>Difference (l/min) <u>0.04</u></p>
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As left flows (same as above if as found adequate):

<p>Targets: 1000 l/hr / <90%</p> <p>SHARP AirFlow l/hr <u>1000.00</u></p> <p>Pump Voltage (%) <u>55.60</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>16.71</u></p> <p>Difference (l/min) <u>0.04</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: 16.62 vs 16.69, 0.07 < 0.80 lpm, passed.

Meteorological System Checklist



Date:	December 17, 2022
Technician:	Alex Yakupov
Station:	Tamarack / Audit time: 15:58 - 16:41

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	The sample is sampling factual snow precipitation at the moment. No issues.
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	0.00

AMBIENT TEMPERATURE SENSOR CHECK

Parameter:	Temperature @ 2 metres
Reference Thermometer ID:	Vaisala HMP76B #T1640130, Exp. Date: Jun 14, 2023
Reference Temperature (°C):	-19.2
Station - Ambient Temperature (°C):	-18.7
Temperature Difference (°C):	0.5

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		948
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:	88.00		
Station Hygrometer % RH- Reading:	83.00		
RH Tolerance +/- 15% of difference:	74.80 - 101.20		5.7%

ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Previous check date:	November 18, 2022	Previous check date:	November 18, 2022
Wind Speed Observed (kph):	1 to 10	Wind Direction Observed:	NE
Wind speed on Data Logger (kph):	9.3	Wind Direction on Data Logger:	NE
	Annual audit: Jul 26, 2022	Wind Direction Pass/Fail?:	Pass

Comments

Station (Trailer) temperature vs Reference gauge temperature: 21.0 vs 21.2, difference = 0.2 => 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

DECEMBER 2022

Ambient Air Monitoring Calibration Report

- ST. LINA STATION-

CAL-LICA-202212-01250

Station Operation and Maintenance:

Bureau Veritas Canada

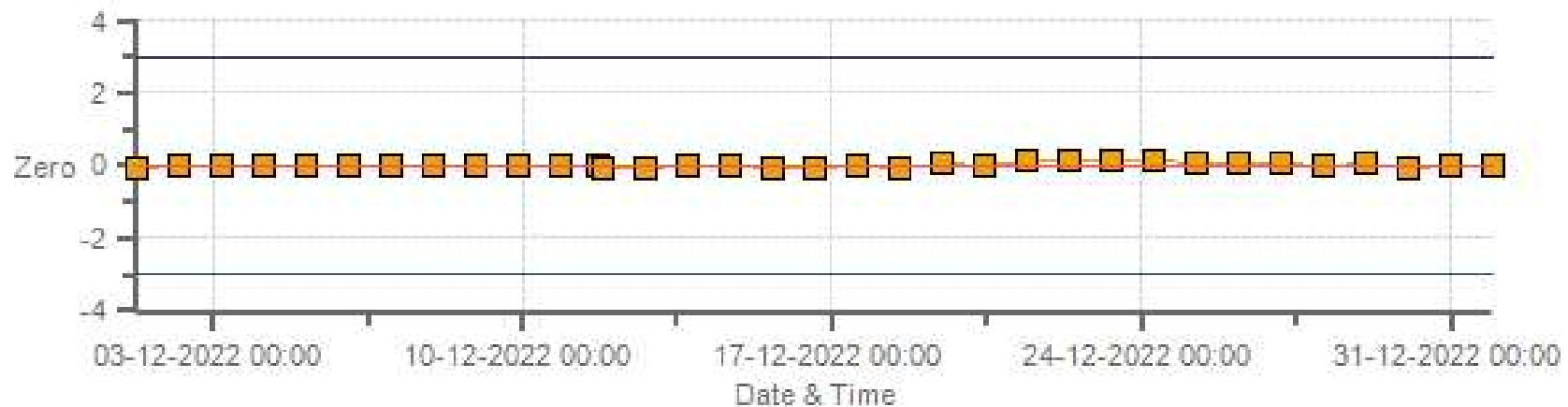
Data Validation and Report:

LICA / Bureau Veritas Canada

January 17, 2023

DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: St. Lina Monthly: 12-2022 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: St. Lina Monthly: 12-2022 Type: SpanAndZero - Span



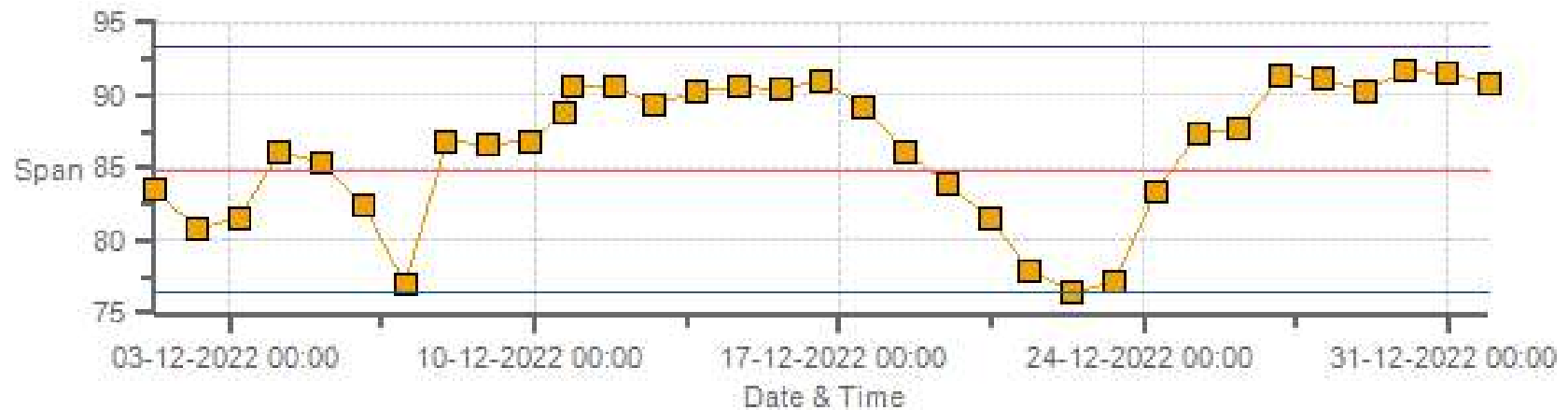
Span Span Ref Span Low Span High

H2S[ppb] Calibration: St. Lina Monthly: 12-2022 Type: SpanAndZero - Zero



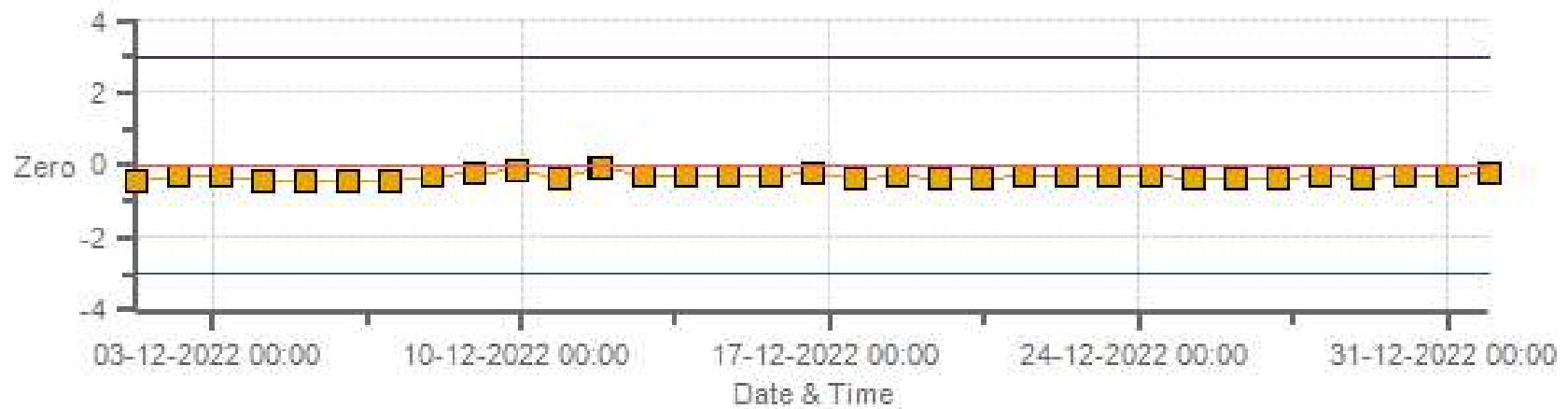
Zero Zero Ref Zero Low Zero High

H2S[ppb] Calibration: St. Lina Monthly: 12-2022 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NOX[ppb] Calibration: St. Lina Monthly: 12-2022 Type: SpanAndZero - Zero



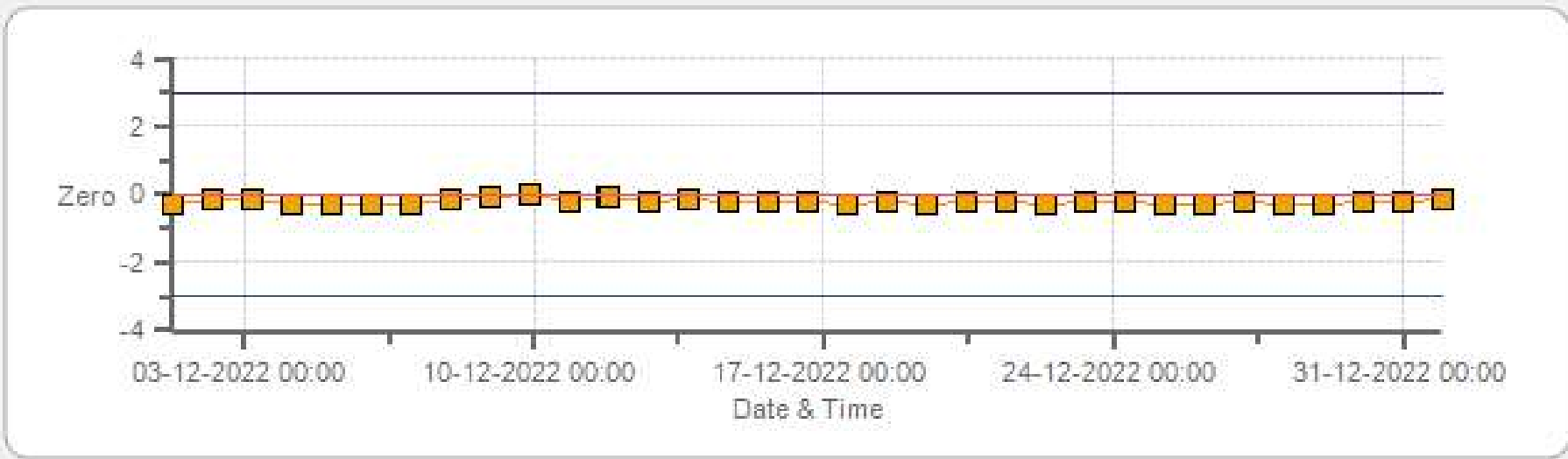
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NOX[ppb] Calibration: St. Lina Monthly: 12-2022 Type: SpanAndZero - Span



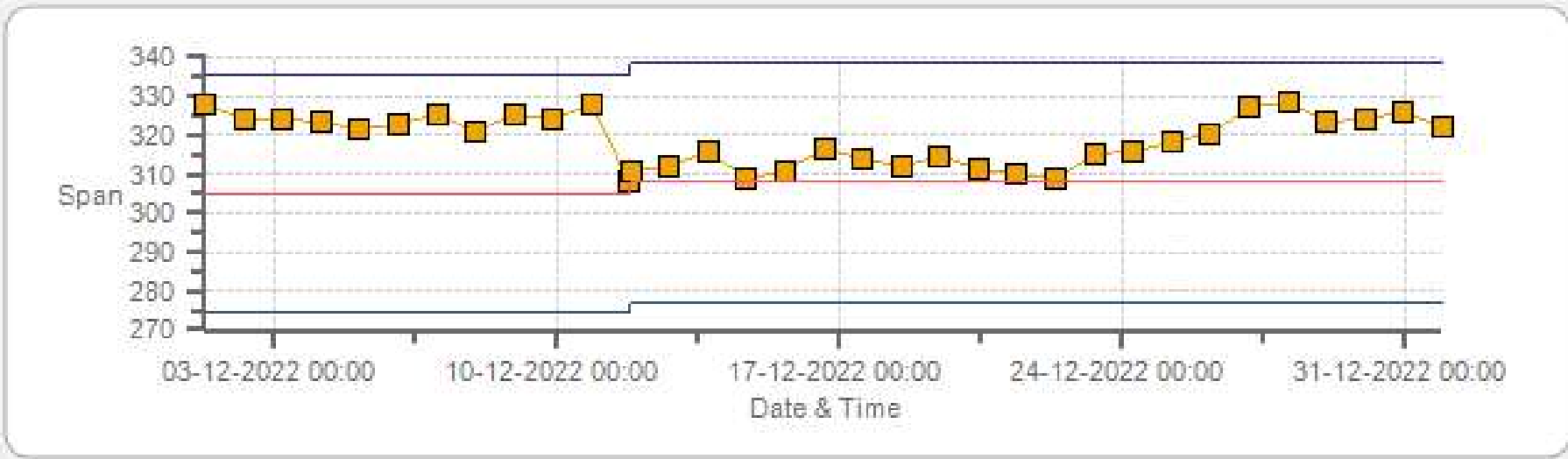
Span SpanRef Span Low Span High

NO2[ppb] Calibration: St. Lina Monthly: 12-2022 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: St. Lina Monthly: 12-2022 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

O3[ppb] Calibration: St. Lina Monthly: 12-2022 Type: SpanAndZero - Zero



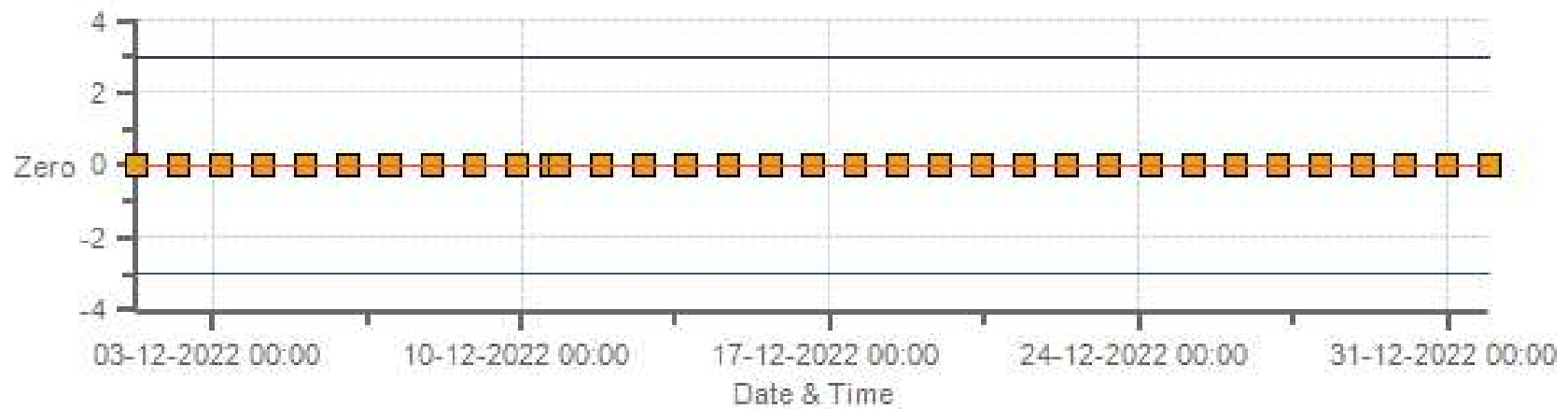
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: St. Lina Monthly: 12-2022 Type: SpanAndZero - Span



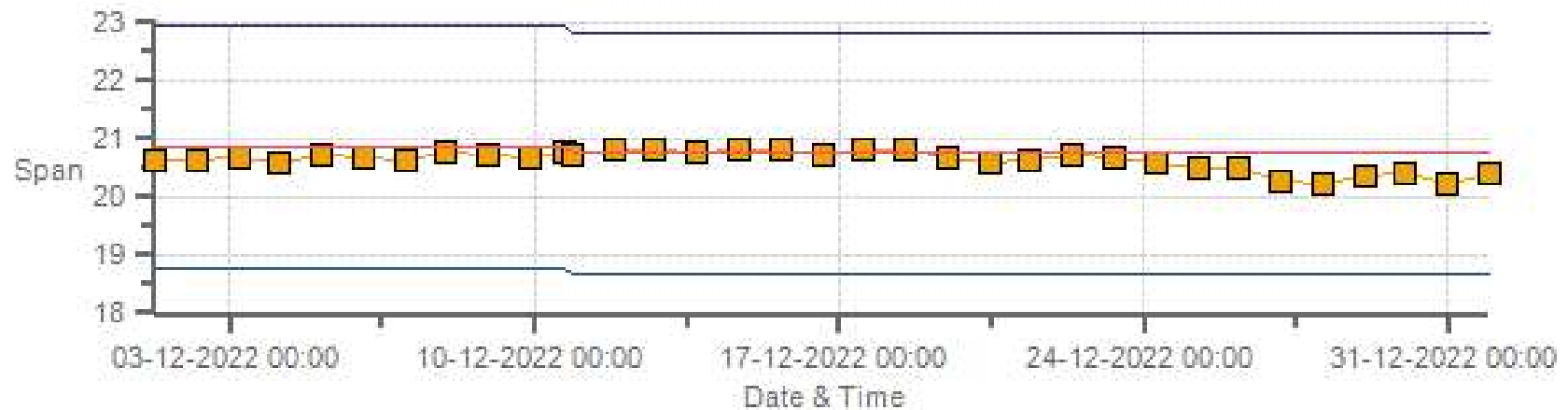
Span SpanRef Span Low Span High

THC55[ppm] Calibration: St. Lina Monthly: 12-2022 Type: SpanAndZero - Zero



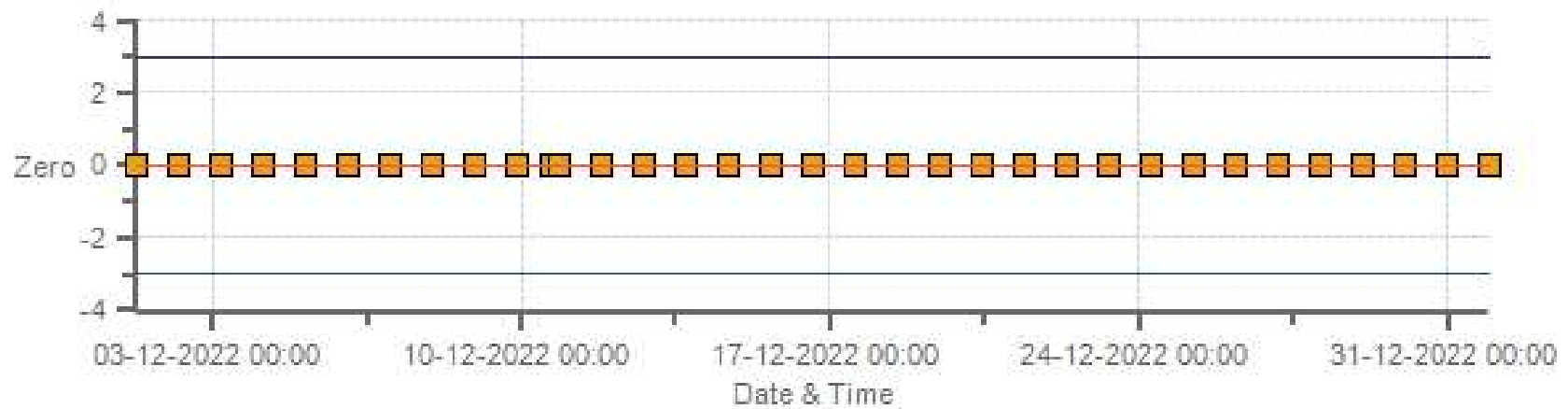
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: St. Lina Monthly: 12-2022 Type: SpanAndZero - Span



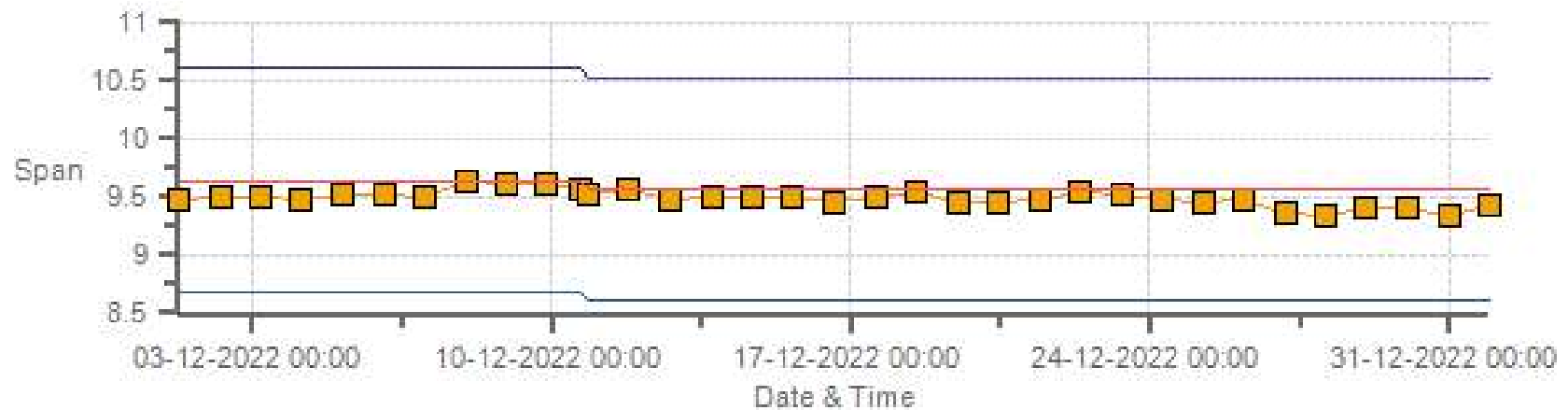
Span SpanRef Span Low Span High

CH4[ppm] Calibration: St. Lina Monthly: 12-2022 Type: SpanAndZero - Zero



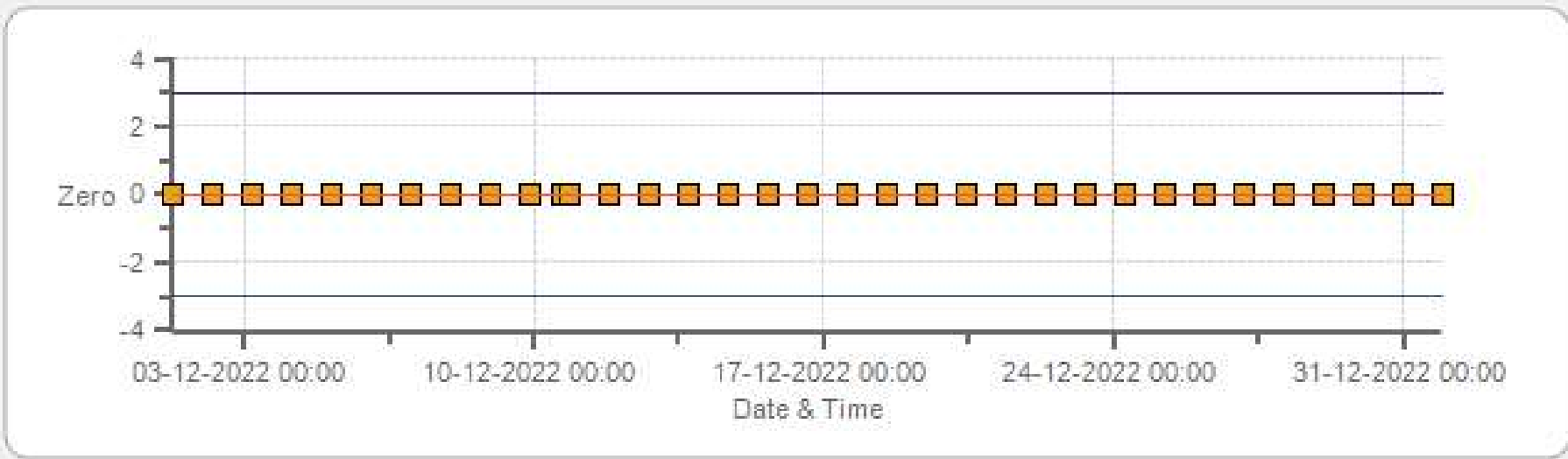
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: St. Lina Monthly: 12-2022 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

NMHC[ppm] Calibration: St. Lina Monthly: 12-2022 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: St. Lina Monthly: 12-2022 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	11-Dec-2022	PREVIOUS CALIBRATION DATE:	15-Nov-2022
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	914
PURPOSE:	Routine	START TIME (MST):	12:06
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:31

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180930030	FLOW (mL/min)	433
INITIAL		FINAL	
BKG/OFFSET	5.04	BKG/OFFSET	5.06
COEF/SLOPE	1.222	COEF/SLOPE	1.216
Expected (reference) Value	340.2	Expected (reference) Value	338.8

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):	200	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			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000	38.00	5000	0.00	-0.1	0	1.001	1.001
4959	38.00	4997	386.31	385.9	386.1	1.001	1.001
4981	18.00	4999	182.92	n/a	182	n/a	1.005
4990	9.00	4999	91.46	n/a	90.9	n/a	1.006

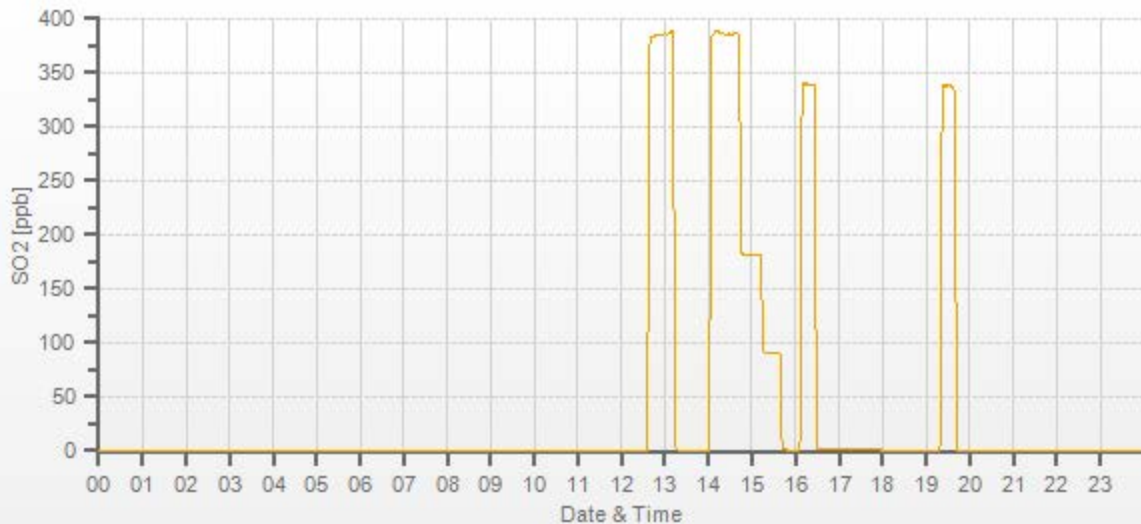
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	-0.1%

COMMENTS:

Sample inlet filter was changed.

SO2[ppb] Station: St. Lina Daily: 11-12-2022 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202212-01250

H2S Analyzer Calibration by Dilution



DATE:	10-Dec-2022	PREVIOUS CALIBRATION DATE:	15-Nov-2022
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	1.002
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	913
PURPOSE:	Routine	START TIME (MST):	12:28
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:34

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM18010058	FLOW (mL/min)	791
INITIAL		FINAL	
BKG/OFFSET	54	BKG/OFFSET	54.7
COEF/SLOPE	0.989	COEF/SLOPE	1.017
Expected (reference) Value	84.9	Expected (reference) Value	85

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:	12:32	SO2 Conc (ppb)	n/a
END TIME:	12:47	Analyzer Response (ppb)	n/a

CALIBRATION:

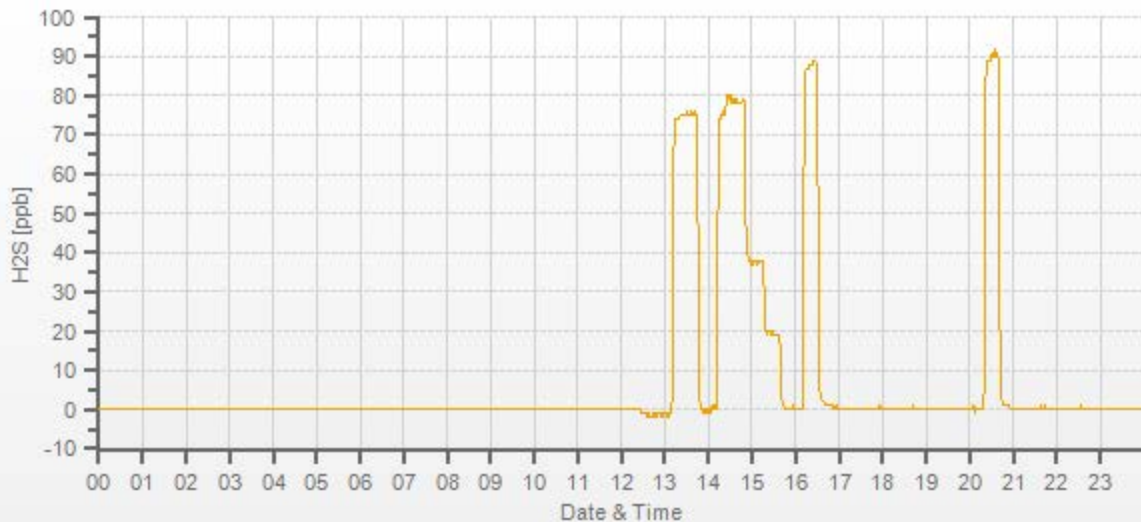
FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
7500	7500	7500	0.00	-1.2	0	1.018	0.996
7442	57.90	7500	77.97	75.4	78.3	1.018	0.996
7472	28.20	7500	37.98	n/a	37.9	n/a	1.002
7486	14.10	7500	18.99	n/a	19.5	n/a	0.974

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	0.1%

COMMENTS:

Sample inlet filter was changed.



NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	11-Dec-2022	PREVIOUS CALIBRATION DATE:	15-Nov-2022	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930029	NOx	1.002
LOCATION:	St. Lina	BAROMETRIC (mBar):	914	FLOW (mL/min)	800	NO	1.001
PURPOSE:	Routine	START TIME (MST):	12:07	RANGE (ppb)	500	NO2	0.998
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:41	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):	200	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:	4.6	4.2	n/a	BKG/OFFSET:	4.3	4	n/a
SLOPE/COEF/CE:	1.001	0.907	1	SLOPE/COEF/CE:	1.003	0.883	1

EXPECTED (REFERENCE) VALUE:

INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	307.0	1.7	305.3		309.4	1.5	307.9

CALIBRATION PARAMETERS:

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

NO/NOx CALIBRATION:

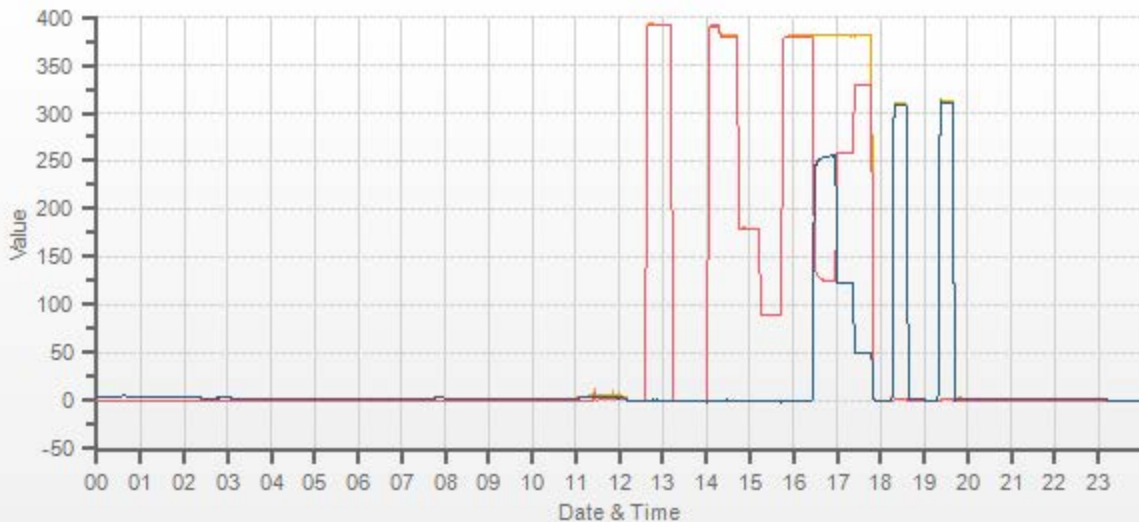
FLOW RATE (mL/min)			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000	38.00	5000	0.0	0.0	0.0	-0.1	-0.2	-0.1	0.0	0.0	0.0	0.972	0.972	1.000	1.000	1.000	1.000
4959	38.00	4997	380.2	381.0	0.8	391.0	391.8	0.8	380.1	381.0	0.9	0.972	0.972	1.000	1.000	1.000	1.000
4981	18.00	4999	180.0	180.4	0.4	n/a	n/a	n/a	179.2	180.0	0.8	n/a	n/a	1.005	1.002	1.002	1.002
4990	9.00	4999	90.0	90.2	0.2	n/a	n/a	n/a	89.8	89.9	0.1	n/a	n/a	1.002	1.003	1.003	1.003

GPT CALIBRATION:

Point	CALIBRATOR			INDICATED (ppb)			NO DROP / O3 Conc (ppb)	NO2 GAIN (ppb)	NO2 Corr. FACTOR	CONV. EFFICIENCY
	GAS	TOTAL	O3 SETPOINT	NO	NOx	NO2				
REFERENCE	38.00	4997	0	379.7	380.9	1.2	254.3	254.3	1.000	100.00%
AS-FOUND HIGH	38.00	4997	240	125.4	381.0	255.5	254.3	254.3	1.000	100.00%
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MID	38.00	4997	125	258.3	380.8	122.5	121.4	121.3	1.001	99.92%
LOW	38.00	4997	45	330.0	380.9	50.8	49.7	49.6	1.002	99.80%
NO2 adjustment not required.									AVERAGE:	99.91%

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	COMMENTS:
NO	1.000	1.000	-0.05%	Sample inlet filter was changed.
NOx	1.000	1.000	-0.04%	
NO2	1.000	1.001	-0.03%	



CAL-LICA-202212-01250

Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	11-Dec-2022	PREVIOUS CALIBRATION DATE:	14-Nov-2022
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	914
PURPOSE:	Routine	START TIME (MST):	12:05
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:31

ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	12208316586	FLOW (mL/min)	1310
INITIAL		FINAL	
BKG/OFFSET	0.5	BKG/OFFSET	0.3
COEF/SLOPE	1.027	COEF/SLOPE	1.018
Expected (reference) Value	265	Expected (reference) Value	267.9

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 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:

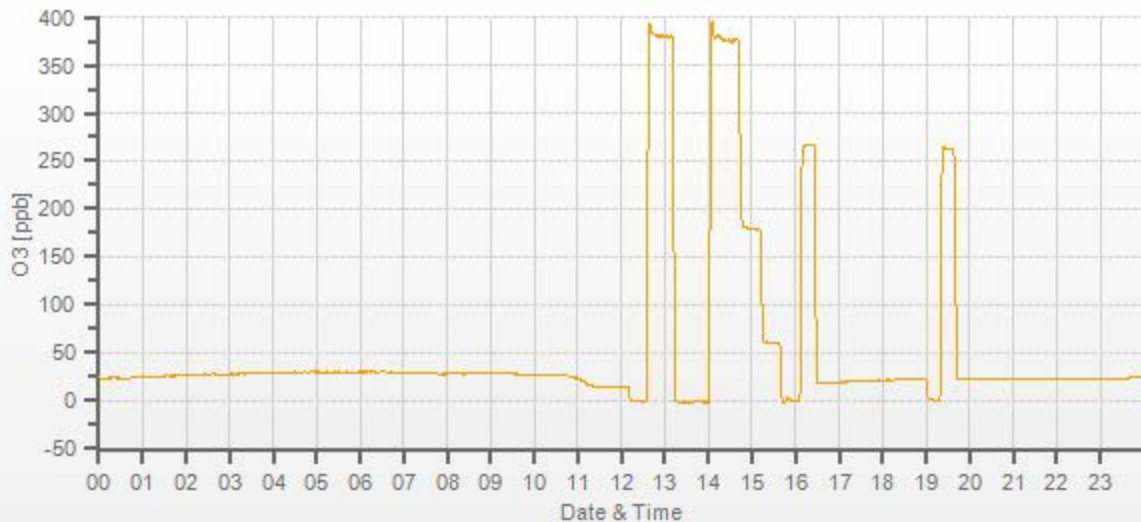
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	 	5000	0.0	0.1	0.0	 	
5000	 	5000	378.0	381.8	377.6	0.990	1.001
5000	 	5000	180.0	n/a	179.7	n/a	1.002
5000	 	5000	60.0	n/a	61.1	n/a	0.982

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.998	0.1%

COMMENTS:

Sampe inlet filter was changed.



Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	10-Dec-2022	PREVIOUS CALIBRATION DATE:	14-Nov-2022	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1180030034	1018
LOCATION:	St. Lina	BAROMETRIC (mBar):	913	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	12:27	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:34	PREVIOUS CF:	1.001	0.999	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:

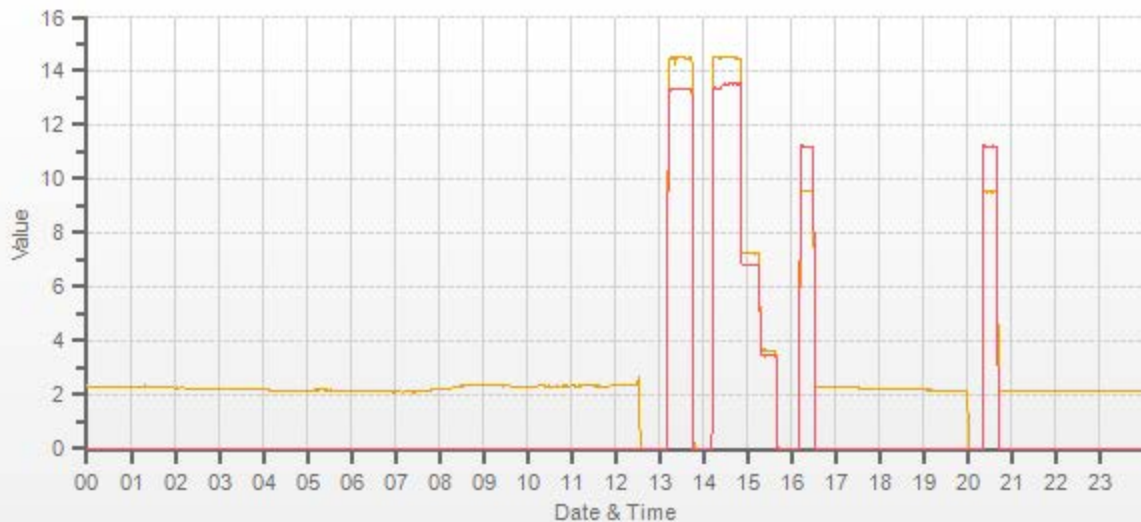
INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.64	11.21	20.85		9.57	11.20	20.76

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	14.48	13.34	27.82	14.50	13.53	28.03	1.002	1.012	1.007	1.001	0.998	0.999
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.28	6.81	14.09	n/a	n/a	n/a	0.997	0.991	0.994
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.66	3.47	7.13	n/a	n/a	n/a	0.989	0.970	0.980

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments:			
CH ₄	1.000	0.998	0.1%	Sample inlet filter was changed.			
NMHC	1.000	1.000	0.2%				
THC	1.000	0.999	0.2%				
Use Zero Chrom?							Yes



CAL-LICA-202212-01250

Thermo 5030i SHARP Monitor Monthly Check

Date: December 10, 2022
Company: LICA
Station Name/Location: St. Lina
Previous Audit Date: November 15, 2022
Parameter: PM 2.5

Performed By/Reviewer: Alex Yakupov | Chris Wesson
Start Time (mst): 16:47
End Time (mst): 17:37
Calibration Purpose: routine monthly
Weather Conditions: A few clouds

SHARP 5030i Information and Status:

Serial Number: CM 17091001 **Filter Tape Counter:** 26

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	-12.20	-13.1	0.9	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	89.80	88.3	1.5	> 5 %RH	Fail

Barometric Pressure (mmHg)

				Range	Action
As Found:				< ± 10 mmHg	OK
	Reference	SHARP	Difference	10-12 mmHg	Recalibrate
#1	684.8	684.9	-0.1	> 12 mmHg	Fail

Flow Audit (L/min)

				Range	Action
As Found:				< ± 4%	OK
	Reference	SHARP		4-5%	Recalibrate
#1	16.68	16.67	% Difference	>5%	Fail
#2	16.69	16.67	-0.10%		
#3	16.69	16.67			
Average	16.69	16.67			

Leak Check (L/min)

Without Leak Check Adapter			With leak Check Adapter			
	Reference	SHARP	Difference	Reference	SHARP	Difference
#1	16.69	16.67	0.02	16.56	16.63	-0.07
				LEAK RATE:		-0.09

Leak Limit: 0.80 L/min

Meteorological System Checklist



Date:	December 11, 2022		
Technician:	Alex Yakupov / Audit time: 18:49 - 19:24		
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 - tested with snow. 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	
1	0.10	OK	
AMBIENT TEMPERATURE SENSOR CHECK			
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	Vaisala / HM70 / #T1640130/ Jun 14, 2023		
Reference Temperature (°C):	-15.8		
Station - Ambient Temperature (°C):	-15.6		
Temperature Difference (°C):	0.2		
BAROMETRIC PRESSURE SENSOR CHECK			
Reference Barometer ID:	Fisher Scientific #130168457, Exp. Date: Feb 17, 2023		
Reference Pressure - Units/Reading:	millibar	920	
Station Pressure - Units/Reading:	millibar	919	
Pressure Tolerance +/- 15% of error:	782 - 1058	0.11%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Reference Hygrometer ID:	Vaisala / HM70 / #T1640130/ Jun 14, 2023		
Reference Hygrometer % RH- Reading:	82.80		
Station Hygrometer % RH- Reading:	82.20		
RH Tolerance +/- 15% of difference:	70.38 - 95.22	0.7%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	November 15, 2022	Previous check date:	November 15, 2022
Wind Speed Observed (kph):	1-10	Wind Direction Observed:	W
Wind speed on Data Logger (kph):	8.3	Wind Direction on Data Logger:	W
	Annual audit: Jul 22, 2022	Wind Direction Pass/Fail?:	Pass
Comments			
Station (Trailer) temperature vs Reference gauge temperature: 23.1 vs 23.4			



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

DECEMBER 2022

Ambient Air Monitoring Calibration Report

- LAC LA BICHE STATION-

CAL-LICA-202212-01690

Station Operation and Maintenance:

Bureau Veritas Canada

Data Validation and Report:

LICA / Bureau Veritas Canada

January 17, 2023

DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Lac La Biche Monthly: 12-2022 Type: SpanAndZero - Zero



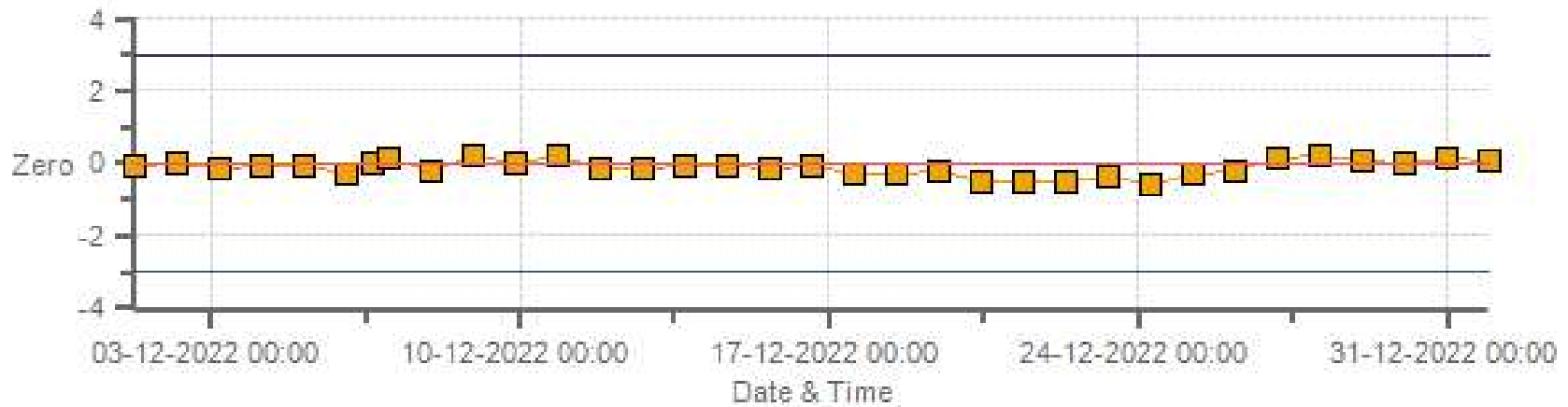
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: Lac La Biche Monthly: 12-2022 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

H2S[ppb] Calibration: Lac La Biche Monthly: 12-2022 Type: SpanAndZero - Zero



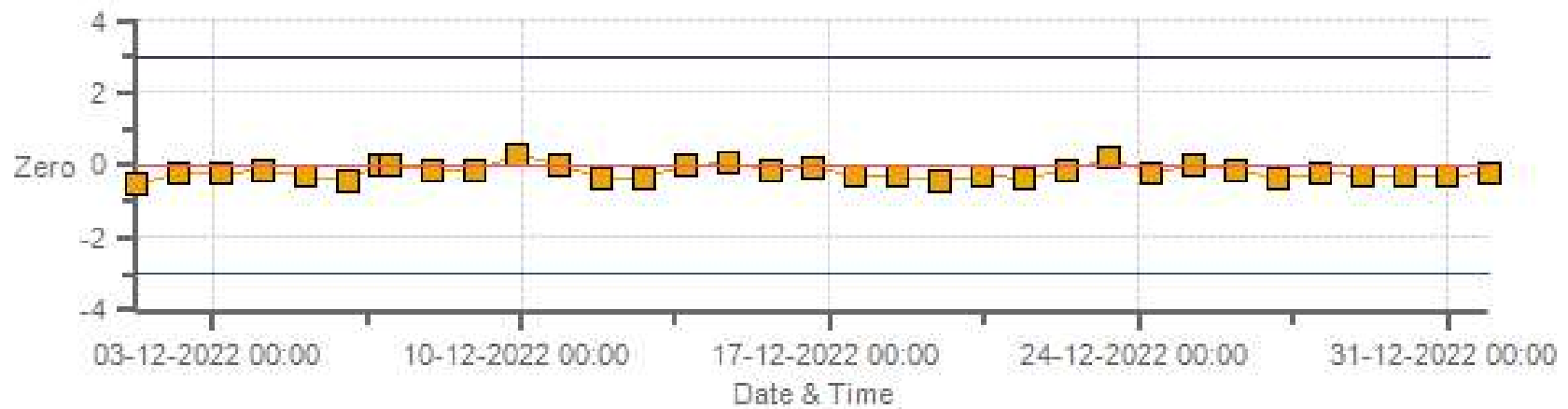
Zero Zero Ref Zero Low Zero High

H2S[ppb] Calibration: Lac La Biche Monthly: 12-2022 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NOX[ppb] Calibration: Lac La Biche Monthly: 12-2022 Type: SpanAndZero - Zero



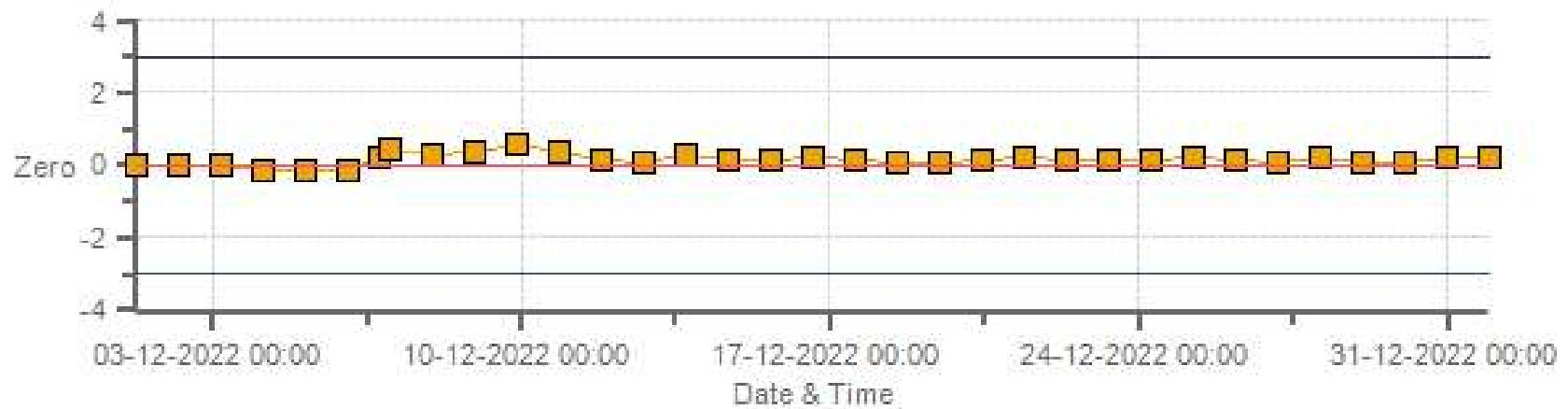
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: Lac La Biche Monthly: 12-2022 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NO2[ppb] Calibration: Lac La Biche Monthly: 12-2022 Type: SpanAndZero - Zero



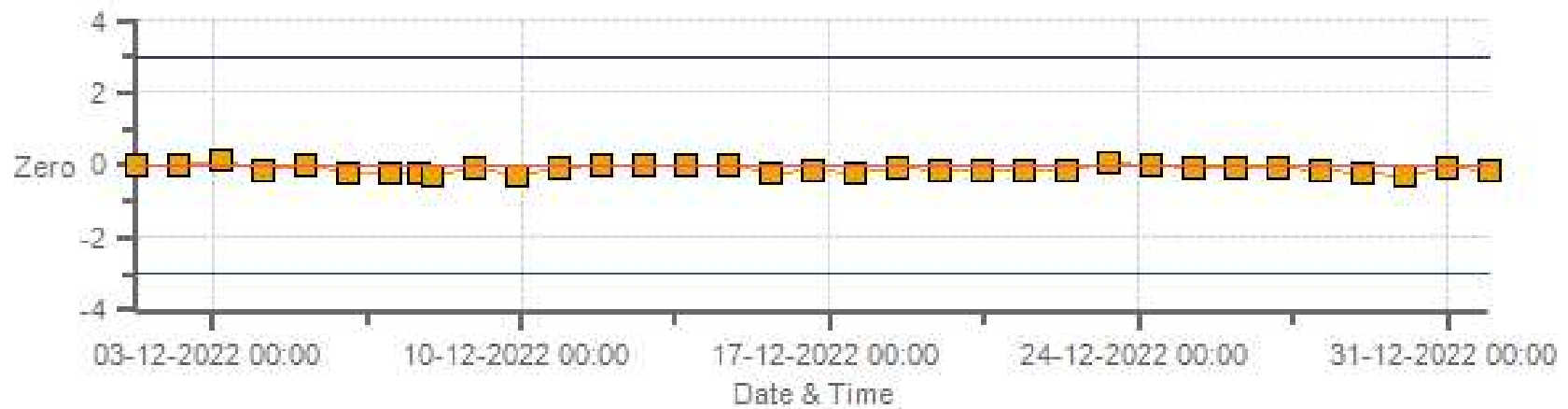
Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: Lac La Biche Monthly: 12-2022 Type: SpanAndZero - Span



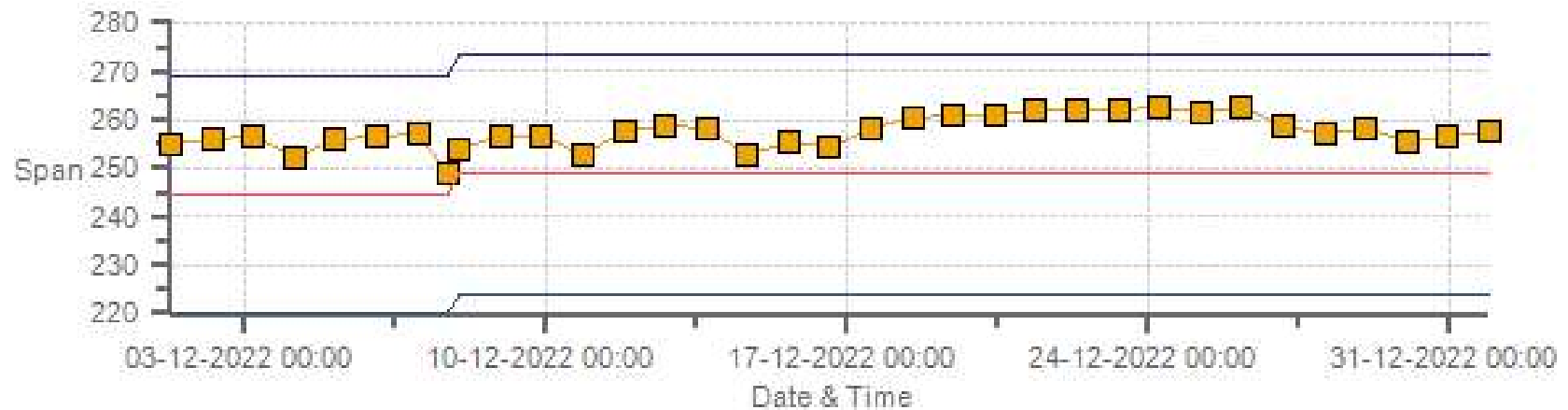
Span Span Ref Span Low Span High

O3[ppb] Calibration: Lac La Biche Monthly: 12-2022 Type: SpanAndZero - Zero



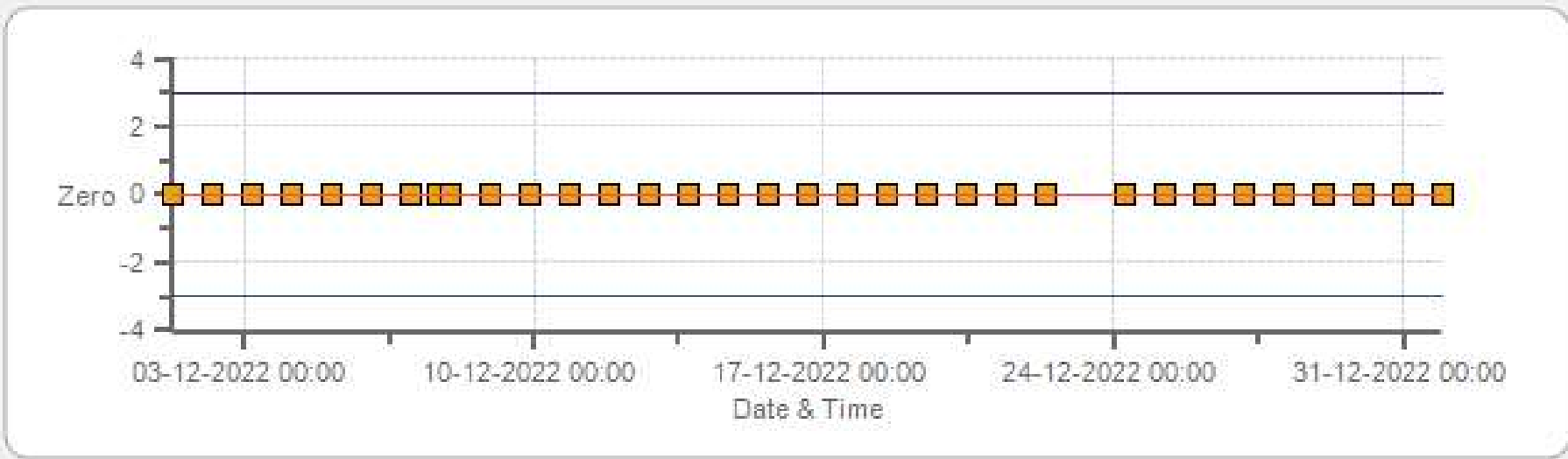
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: Lac La Biche Monthly: 12-2022 Type: SpanAndZero - Span



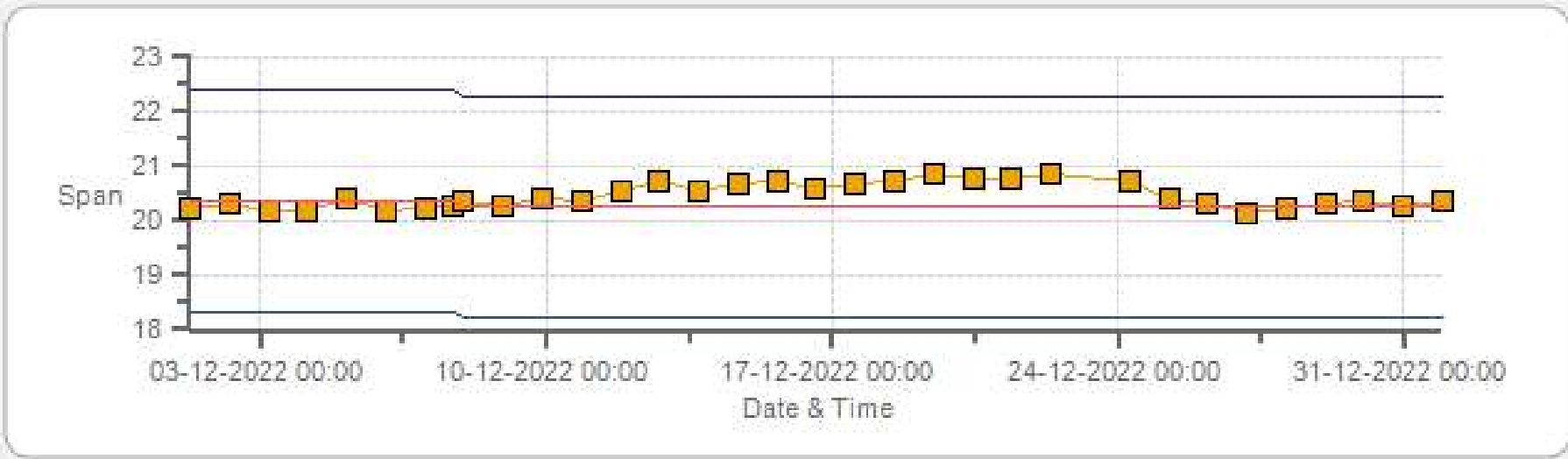
Span SpanRef Span Low Span High

THC55[ppm] Calibration: Lac La Biche Monthly: 12-2022 Type: SpanAndZero - Zero



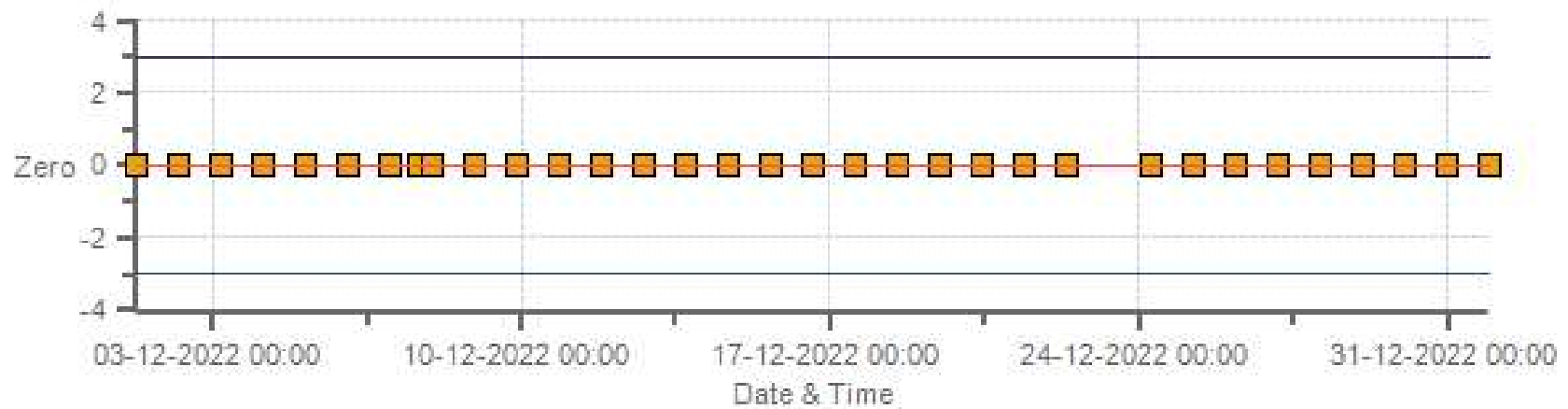
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: Lac La Biche Monthly: 12-2022 Type: SpanAndZero - Span



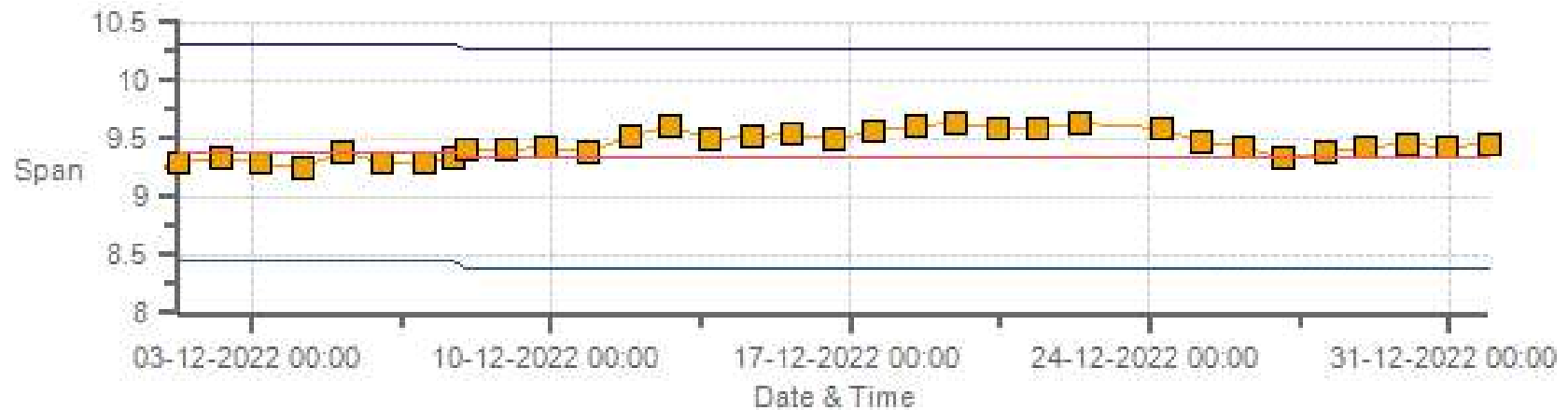
Span SpanRef Span Low Span High

CH4[ppm] Calibration: Lac La Biche Monthly: 12-2022 Type: SpanAndZero - Zero



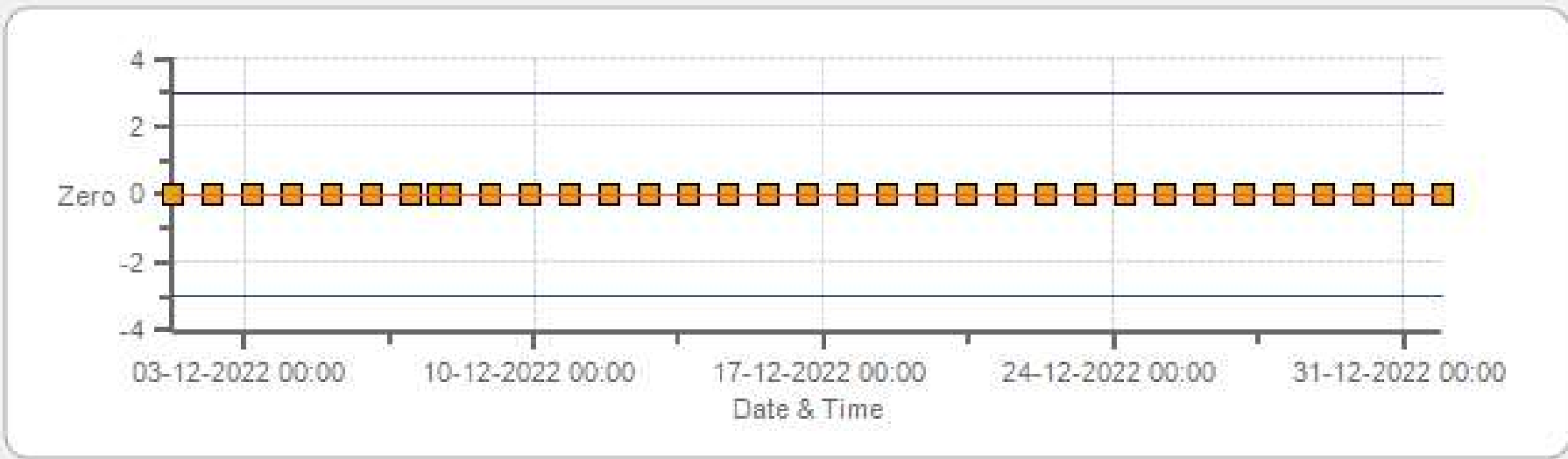
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: Lac La Biche Monthly: 12-2022 Type: SpanAndZero - Span



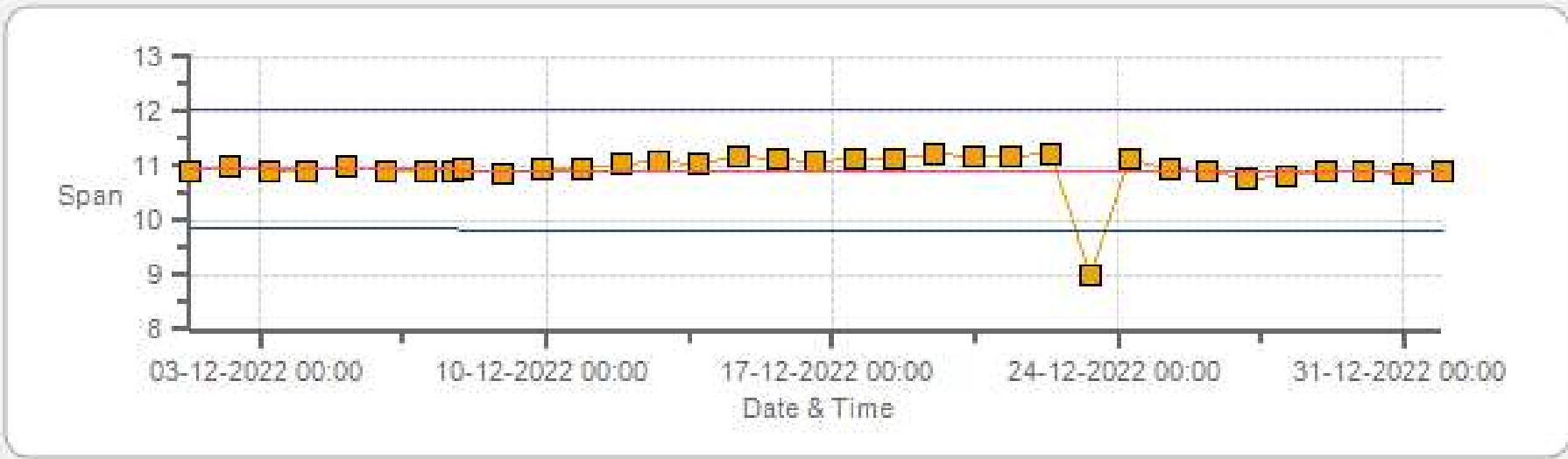
Span Span Ref Span Low Span High

NMHC[ppm] Calibration: Lac La Biche Monthly: 12-2022 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: Lac La Biche Monthly: 12-2022 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	06-Dec-2022	PREVIOUS CALIBRATION DATE:	09-Nov-2022
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	953
PURPOSE:	Routine	START TIME (MST):	11:59
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:30

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180320043	FLOW (mL/min)	459
INITIAL		FINAL	
BKG/OFFSET	6.76	BKG/OFFSET	6.76
COEF/SLOPE	1.185	COEF/SLOPE	1.185
Expected (reference) Value	451	Expected (reference) Value	452.2

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):	200	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:

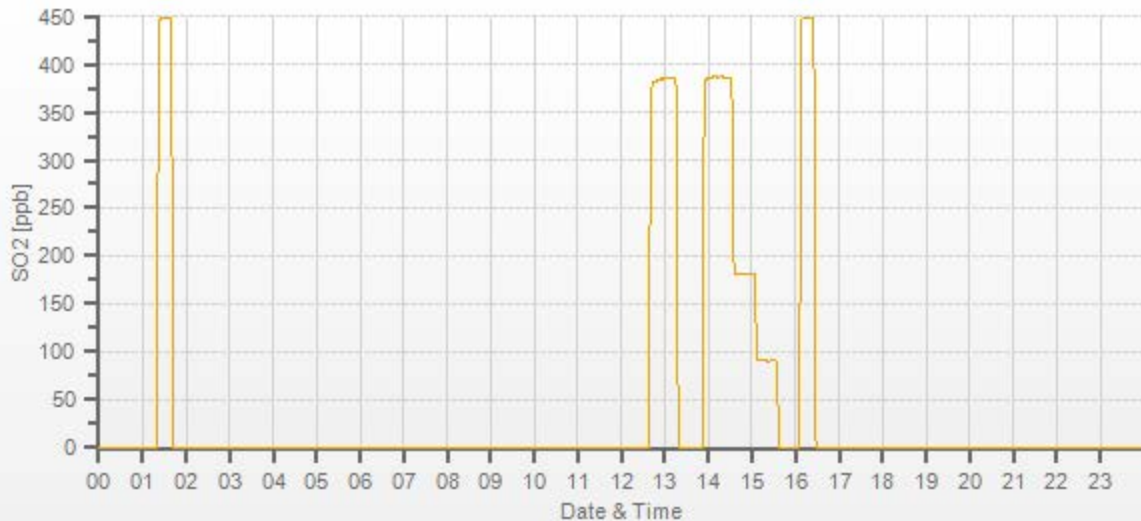
FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000	38.00	5000	0.00	-0.05	0	1.002	1.002
4962	38.00	5000	386.08	385.43	385.36	1.002	1.002
4982	18.00	5000	182.88	n/a	181.74	n/a	1.006
4991	9.00	5000	91.44	n/a	90.75	n/a	1.008

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.998	-0.1%

COMMENTS:

Sample inlet filter was changed.



H2S Analyzer Calibration by Dilution



DATE:	06-Dec-2022	PREVIOUS CALIBRATION DATE:	09-Nov-2022
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	0.998
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	953
PURPOSE:	Routine	START TIME (MST):	12:00
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:30

ANALYZER:

MAKE/MODEL	API 101A	RANGE	100 ppb
SERIAL #	324	FLOW (mL/min)	518
INITIAL		FINAL	
BKG/OFFSET	31.6	BKG/OFFSET	31.4
COEF/SLOPE	1.033	COEF/SLOPE	1.034
Expected (reference) Value	29.4	Expected (reference) Value	28.9

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):	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:	12:04	SO2 Conc (ppb)	380
END TIME:	12:19	Analyzer Response (ppb)	0.0

CALIBRATION:

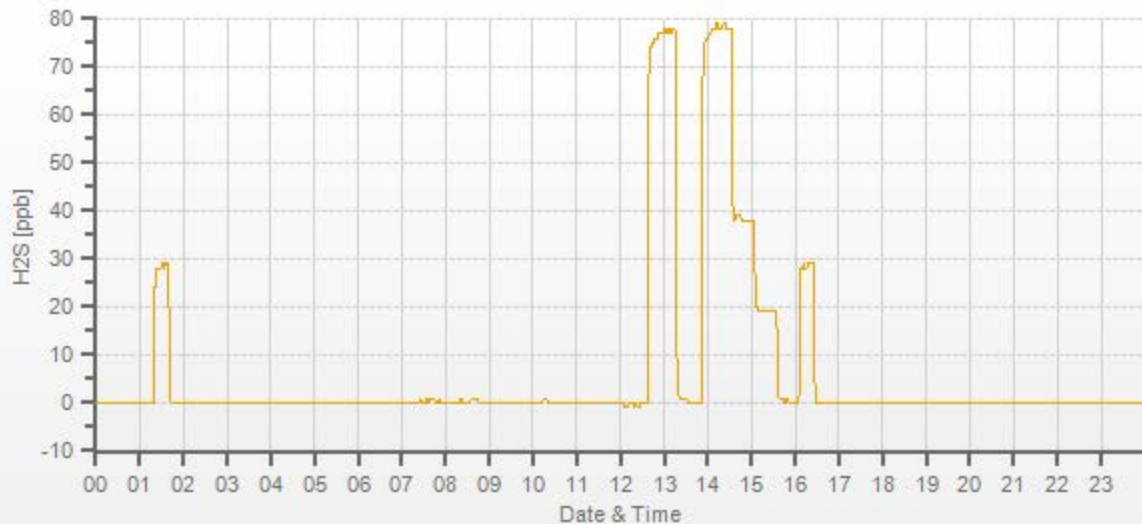
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	7500	7500	0.00	-0.5	0	1.000	0.998
7442	57.90	7500	77.97	77.5	78.1	1.000	0.998
7472	28.20	7500	37.98	n/a	38.1	n/a	0.997
7486	14.10	7500	18.99	n/a	18.8	n/a	1.010

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.003	-0.1%

COMMENTS:

Sample inlet filter was changed.



NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	06-Dec-2022	PREVIOUS CALIBRATION DATE:	09-Nov-2022	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930027	NOx	0.999
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	953	FLOW (mL/min)	711	NO	1.000
PURPOSE:	Routine	START TIME (MST):	11:58	RANGE (ppb)	500	NO2	1.002
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:30	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):	200	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:	8.8	8.5	n/a	BKG/OFFSET:	8.6	8.5	n/a
SLOPE/COEF/CE:	1.003	0.898	1	SLOPE/COEF/CE:	1.001	0.888	0.993

EXPECTED (REFERENCE) VALUE:

INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	351.8	2.9	348.9		358.8	2.3	348.9

CALIBRATION PARAMETERS:

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

NO/NOx CALIBRATION:

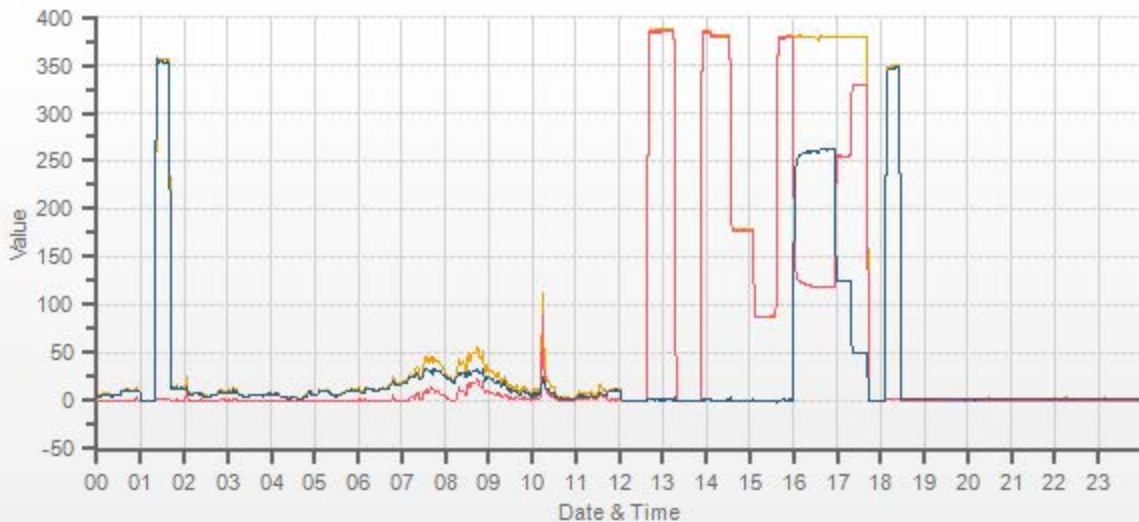
FLOW RATE (mL/min)			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000	38.00	5000	0.0	0.0	0.0	-0.1	-0.3	-0.2	0.0	0.0	0.0	0.986	0.982	1.001	0.999	1.009	1.010
4962	38.00	5000	380.0	380.8	0.8	385.3	387.4	2.1	379.7	381.1	1.4	0.986	0.982	1.001	0.999	1.009	1.010
4982	18.00	5000	180.0	180.4	0.4	n/a	n/a	n/a	178.4	178.6	0.1	n/a	n/a	1.009	1.010	1.024	1.021
4991	9.00	5000	90.0	90.2	0.2	n/a	n/a	n/a	87.9	88.3	0.4	n/a	n/a	1.024	1.021	1.024	1.021

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	38.00	4998	0	379.5	380.4	0.9	261.1	258.4	1.010	98.97%
AS-FOUND HIGH	38.00	4998	235	118.4	377.7	259.3	261.1	258.4	1.010	98.97%
ADJUSTED HIGH	38.00	4998	235	117.9	380.1	262.2	261.6	261.3	1.001	99.89%
MID	38.00	4998	110	255.1	380.2	125.1	124.4	124.2	1.002	99.84%
LOW	38.00	4998	40	330.0	379.5	49.5	49.5	48.6	1.019	98.18%
NO2 adjustment not required.									AVERAGE:	99.00%

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	COMMENTS:
NO	1.000	1.001	-0.22%	Sample inlet filter was changed.
NOx	1.000	1.002	-0.24%	
NO2	1.000	0.990	0.03%	



CAL-LICA-202212-01690

Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	07-Dec-2022	PREVIOUS CALIBRATION DATE:	08-Nov-2022
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	938
PURPOSE:	Routine	START TIME (MST):	13:04
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:14

ANALYZER:

MAKE/MODEL	Thermo 49i	RANGE	500 ppb
SERIAL #	1002240372	FLOW (mL/min)	1456
INITIAL		FINAL	
BKG/OFFSET	0	BKG/OFFSET	0
COEF/SLOPE	1.034	COEF/SLOPE	1.029
Expected (reference) Value	263.5	Expected (reference) Value	248.7

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:

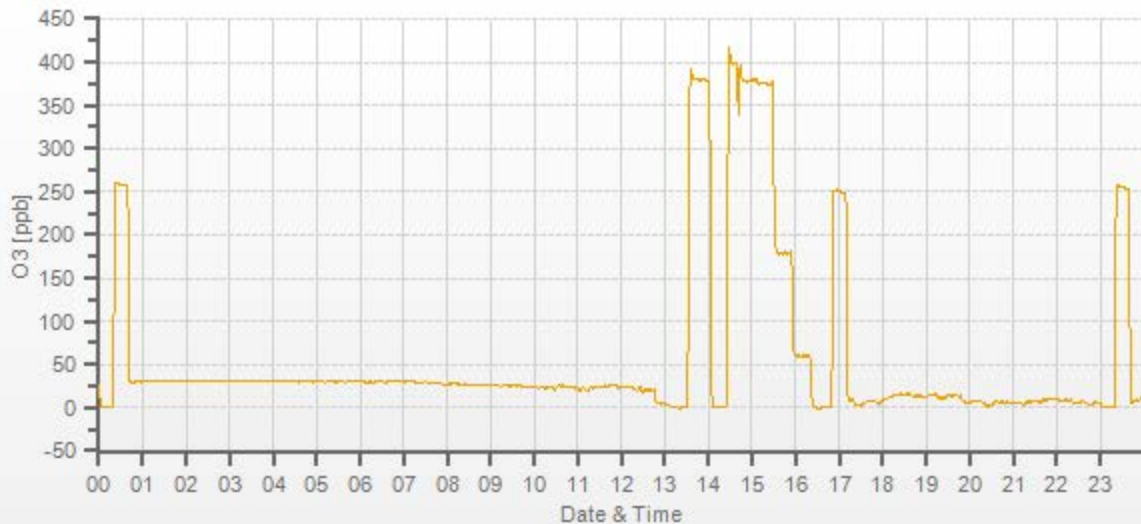
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	XXXX	5000	0.0	-0.1	0.0	XXXX	XXXX
5000	XXXX	5000	378.0	378.0	377.5	1.000	1.001
5000	XXXX	5000	180.0	n/a	178.4	n/a	1.009
5000	XXXX	5000	60.0	n/a	59.6	n/a	1.007

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.999	-0.1%

COMMENTS:

Sample inlet filter was changed. 14:40 - calibrator was reset.



Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	07-Dec-2022	PREVIOUS CALIBRATION DATE:	10-Nov-2022	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1180320044	1019
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	938	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	13:03	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:14	PREVIOUS CF:	0.999	0.995	0.997

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:	134	CYLINDER (psi):	1500	LOW ID:	n/a
MFC CALIBRATION DATE:	02-Sep-2022	OXIDIZER ID:	n/a	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:

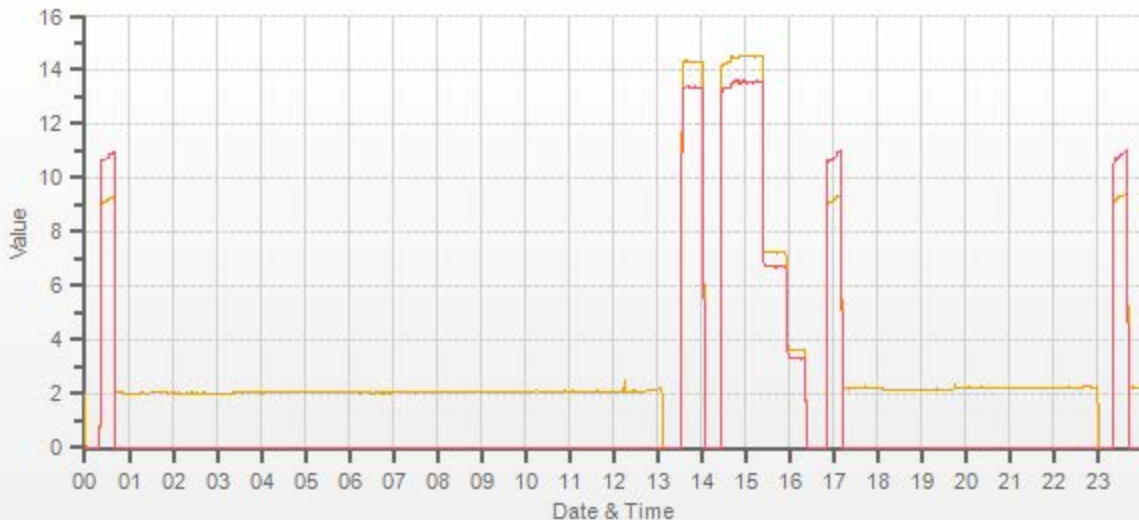
INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.39	10.97	20.36		9.33	10.93	20.26

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	14.27	13.36	27.63	14.51	13.58	28.08	1.017	1.010	1.014	1.000	0.994	0.998
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.23	6.74	13.97	n/a	n/a	n/a	1.004	1.001	1.003
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.61	3.32	6.93	n/a	n/a	n/a	1.002	1.014	1.008

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments:			
CH ₄	1.000	1.000	0.0%	Sample inlet filter was changed.			
NMHC	1.000	1.007	-0.2%				
THC	1.000	1.003	-0.1%				
Use Zero Chrom?							Yes



CAL-LICA-202212-01690

Thermo 5030i SHARP Monitor Monthly Check

Date: December 7, 2022
Company: LICA
Station Name/Location: Lac La Biche
Previous Audit Date: November 10, 2022
Parameter: PM 2.5

Performed By/Reviewer: Alex Yakupov | Chris Wesson
Start Time (mst): 16:34
End Time (mst): 17:21
Calibration Purpose: routine monthly
Weather Conditions: Mainly sunny

SHARP 5030i Information and Status:

Serial Number: CM 17071016 **Filter Tape Counter:** 169

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)

	Reference	SHARP	Difference	Range	Action
As Found:				< ± 2°C	OK
#1	-12.10	-12.0	-0.1	2-3 °C	Recalibrate
				> 3°C	Fail

Ambient Relative Humidity (%RH)

	Reference	SHARP	Difference	Range	Action
As Found:				< ± 2 %RH	OK
#1	84.60	83.8	0.8	2-5 %RH	Recalibrate
				> 5 %RH	Fail

Barometric Pressure (mmHg)

	Reference	SHARP	Difference	Range	Action
As Found:				< ± 10 mmHg	OK
#1	705.7	705.8	-0.1	10-12 mmHg	Recalibrate
				> 12 mmHg	Fail

Flow Audit (L/min)

	Reference	SHARP		% Difference		Range	Action
As Found:						< ± 4%	OK
#1	16.69	16.67		-0.08%		4-5%	Recalibrate
#2	16.68	16.67				>5%	Fail
#3	16.68	16.67					
Average	16.68	16.67					

Leak Check (L/min)

	Without Leak Check Adapter			With leak Check Adapter			
	Reference	SHARP	Difference	Reference	SHARP	Difference	
#1	16.68	16.67	0.01	16.53	16.62	-0.09	<i>Leak Limit: 0.80 L/min</i>
						LEAK RATE: -0.10	

Meteorological System Checklist



Date:	December 7, 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):	-10.4		
Station - Ambient Temperature (°C):	-11.6		
Temperature Difference (°C):	1.2		
BAROMETRIC PRESSURE SENSOR CHECK			
Reference Barometer ID:	Fisher Scientific / FB 61291 / #130168457/ Feb 17, 2023		
Reference Pressure - Units/Reading:	millibar	939	
Station Pressure - Units/Reading:	millibar	938	
Pressure Tolerance +/- 15% of error:	798 - 1080	0.11%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Reference Hygrometer ID:	Vaisala / HM70 / #T1640130/ Jun 14, 2023		
Reference Hygrometer % RH- Reading:	74.40		
Station Hygrometer % RH- Reading:	77.10		
RH Tolerance +/- 15% of difference:	63.24 - 85.56	-3.6%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	November 10, 2022	Previous check date:	November 10, 2022
Wind Speed Observed (kph):	0.0 / Calm	Wind Direction Observed:	SW
Wind speed on Data Logger (kph):	0	Wind Direction on Data Logger:	SW
	Annual audit: May 22, 2022	Wind Direction Pass/Fail?:	Pass
Comments			
Station (Trailer) temperature vs Reference gauge: 24.4 vs 23.9 - 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