



Lakeland Industry & Community Association

MARCH 2022

Monthly Ambient Air Quality Monitoring Report

LICA-202203

Operation and Maintenance:

Bureau Veritas Canada

Data Validation and Report:

Lakeland Industry & Community Association

April 19, 2022

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April 19, 2022

Alberta Environment and Parks (AEP)

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

Enclosed is the March 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
Station ID		1174	1248	1250
Coordinates		54.41402,	54.604935,	54.215961,
		-110.23316	-110.452637	-111.503304
Continuous Monitoring Parameter	SO2	√	√	√
	TRS	√		
	H2S		√	√
	THC	√	√	√
	CH4	√	√	√
	NMHC	√	√	√
	NOX	√	√	√
	NO	√	√	√
	NO2	√	√	√
	O3	√		√
	PM2.5	√		√
	TPX	√	√	√
	RH	√	√	√
	BP		√	√
	PRECIPITATION		√	√
	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

Monitoring Notes during the Month of March 2022

Cold Lake South

- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- All parameters met the 90% operational uptime requirement.
- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) where applicable.
- No major 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, except PM2.5. One 1-Hour exceedances of PM2.5 was recorded on March 23 hour 7. The cause was believed to be the result of local building up of emission, likely be spring road sweeping, given the low wind speeds recorded at the time. **AEP reference #: 388926.**
- 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.
- All parameters met the 90% operational uptime requirement, except H2S (86.2%). **AEP reference #: 389551.**

- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) where applicable.
- **H2S:**
 - The analyzer failed the daily span check on March 1 and 2. On March 3, the Thermo 450i H2S analyzer, s/n: CM18010058, was removed following a successful shut-down calibration, and the Thermo 450i H2S analyzer, s/n: CM17360002, was installed. An installation calibration was completed on March 4. Twenty hours of downtime were recorded due to this event.
 - The analyzer failed daily zero-span check on March 8 and 9. A repeat multi-point calibration was completed to correct the drift. Seven hours of downtime were recorded due to this additional quality check.
 - The analyzer failed daily zero-span checks on March 15. The issue was traced to unstable internal temperature inside the analyzer's housing. An additional fan was added to the station to improve air circulation around the analyzer on March 17. The analyzer failed the as-found zero point check on March 17. The drift was corrected, and a repeat multi-point calibration was completed. Data were invalidated back to the last valid zero-span check, which was March 14 hour 16. Seventy-five hours of downtime were recorded due to this event.

Integrated Sampling

All the integrated sampling analytical results are included in the March 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).
 - The Xonteck sampler was checked on March 23.
 - Five samples were collected this month: on March 6, 12, 18, 24 and 30.
- **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).
 - The PUF sampler was audited on March 23.
 - Five samples were collected this month: on March 6, 12, 18, 24 and 30.
- **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).
 - The Partisol sampler was audited on March 25.
 - Five samples were collected this month: on March 6, 12, 18, 24 and 30.
- **Passive Sampling System:**
 - The passive sample filters were installed at the stations between February 28 and March 2, and were removed between March 30 and April 1.
 - A total of 9 duplicate samples were collected: 2 for H2S, 3 for SO2, 2 for NO2 and 2 for O3.
- **PAC Sampling System:**
 - The PAC sampling program began in March 2019, and is designed to collect a 2-month integrated sample.
 - The sample medias for March and April 2022 will be collected in the end of April.

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 Mike Bisaga in accordance with Chapter 9 of the Air Monitoring Directive (AMD 2016).

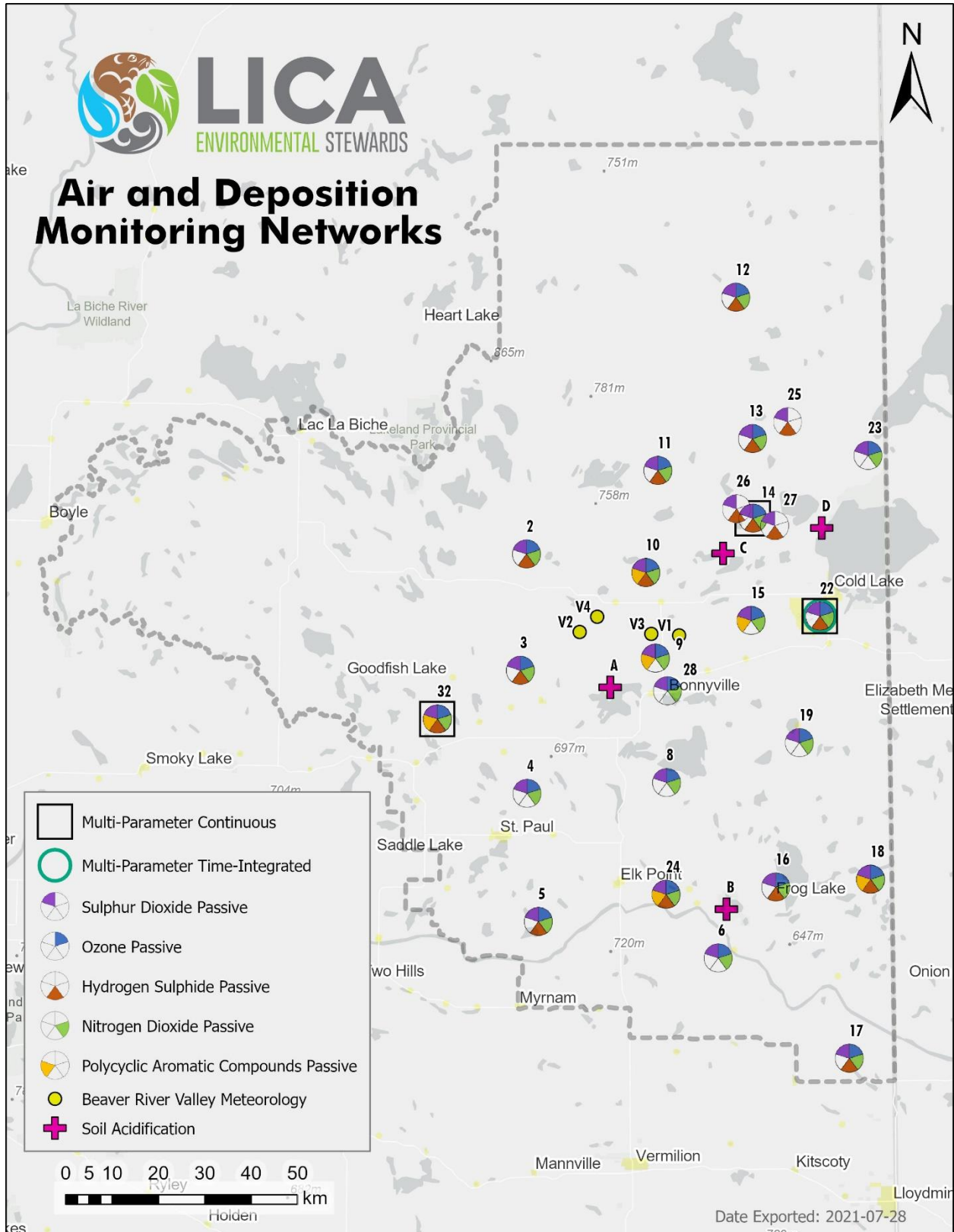
I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements. I also certify that at the time of this report's submission, all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

April 19, 2022

Map of LICA Continuous Monitoring Network



CONTINUOUS NETWORK EQUIPMENT AND MONITORING RESULTS SUMMARY

Cold Lake South Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	Calibration Date
Sulphur Dioxide (SO ₂)	Thermo / 43i-TLE	1180260018	March 9, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Total Reduced Sulphur (TRS)	Thermo / 450i	812728560	March 9, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Total Hydrocarbons / Methane/ Non-methane Hydrocarbons (THC/CH ₄ /NMHC)	Thermo / 55i	1180930025	March 8, 2022
<ul style="list-style-type: none"> The analyzer showed multiple flameouts, starting March 28 hour 14, due to unstable hydrogen pressure caused by a generator error. The issue was corrected, and an additional zero-span check was completed to confirm the analyzer's functionality on March 29. Twenty hours of downtime were recorded due to this event. 			
Oxide of Nitrogen / Nitric Oxide/ Nitrogen Dioxide (NO _x /NO/NO ₂)	Thermo / 42i	1505664393	March 9, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Ozone (O ₃)	Thermo / 49i	700419951	March 8, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Particulate Matter 2.5 (PM _{2.5})	Teledyne T640	575	March 8, 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	202571103	March 9, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			

Parameter	Make / Model	Serial Number	System Check Date
Barometric Pressure (BP)	Met One / Part 092	Y23368	March 9, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Ambient Temperature (AT)	Rotronic HC2A-S3	202571103	March 9, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Station Temperature (ST)	BV-supplied	n/a	March 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	March 9, 2022
<ul style="list-style-type: none"> Wind direction data contained in this report represents where the wind is coming from. The last wind system calibration was completed on April 20, 2021. No issues were identified this month. 			

Monitored Data Summary for Cold Lake South Station

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.2	0	3	March 9 at hour 2	4.3	NW	1.0	March 8	100.0	95.0
TRS (ppb)	-	-	-	-	-	-	0.1	0	1	March 2 at hour 0	6.9	NE	0.3	March 22	100.0	95.0
NOx (ppb)	-	-	-	-	-	-	4.8	1	53	March 11 at hour 8	0.4	NE	16.1	March 15	100.0	94.7
NO (ppb)	-	-	-	-	-	-	0.6	0	28	March 11 at hour 8	0.4	NE	2.7	March 15	100.0	94.7
NO2 (ppb)	159	-	-	0	-	-	4.2	1	27	March 15 at hour 3	0.5	E	13.4	March 15	100.0	94.7
O3 (ppb)	76	-	-	0	-	-	38.8	3.4	58.4	March 22 at hour 15	8.8	WSW	48.6	March 20	100.0	95.0
THC (ppm)	-	-	-	-	-	-	1.89	1.78	2.15	March 6 at hour 5	0.4	WSW	2.03	March 15	97.3	92.6
CH4 (ppm)	-	-	-	-	-	-	1.89	1.78	2.15	March 6 at hour 5	0.4	WSW	2.03	March 15	97.3	92.6
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.01	March 13 at hour 19	5.2	NE	0.00	March 13	97.3	92.6
PM2.5 (µg/m3)	80	29	-	0	0	-	4.2	0	45	March 23 at hour 6	0.6	E	10.8	March 15	100.0	99.7
RH (%)	-	-	-	-	-	-	65.1	28	98	March 20 at hour 23	4.8	NW	83.8	March 28	100.0	100.0
BP (millibar)	-	-	-	-	-	-	950	933	965	March 2 at hour 7	5.6	NE	964	March 2	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-5.2	-32.1	12.6	March 23 at hour 13	7.1	SW	5.5	March 23	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	24.0	21.9	26.3	March 19 at hour 18	6	SE	25.1	March 19	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	1.8	0.0	29.0	March 7 at hour 18	29	NNW	16.4	March 7	100.0	100.0
WDV (sector)	-	-	-	-	-	-	328 (NNW)	-	-	-	-	-	-	-	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 (SO ₂)	Thermo / 43i-TLE	1180930031	March 18, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Hydrogen Sulphide (H ₂ S)	Thermo / 450i	CM17360005	March 14, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Oxide of Nitrogen / Nitric Oxide/ Nitrogen Dioxide (NO _x /NO/NO ₂)	Thermo / 42i	1180930028	March 18, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Ozone (O ₃)	Thermo 49iQ	1202068570	March 18, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Total Hydrocarbons / Methane/ Non-methane Hydrocarbons (THC/CH ₄ /NMHC)	Thermo / 55i	1314057759	March 14, 2022
<ul style="list-style-type: none"> The methane concentrations started drifting low due to low hydrogen pressure on March 13 hour 20. Both the hydrogen cylinder and the span gas cylinder were replaced during the monthly calibration on March 14. Sixteen hours of downtime were recorded due to this event. 			
Particulate Matter 2.5 (PM _{2.5})	Thermo / Sharp 5030	CM 2209	March 21, 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	March 21, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Ambient Temperature (AT)	Rotronic / HC2A-S3	20433166	March 21, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			

Parameter	Make / Model	Serial Number	System Check Date
Ambient Temperature (AT)	Rotronic / HC2A-S3	20433166	March 21, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Barometric Pressure (BP)	Met One / Part 090D	F4997	March 21, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Station Temperature (ST)	BV-supplied	n/a	March 21, 2022
<ul style="list-style-type: none"> No issues were identified this month. 			
Precipitation (PRECIP)	Met One / Part 387	F4481	March 21, 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	March 21, 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 September 20, 2021. 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	12	March 7 at hour 8	12.7	NW	3.2	March 16	100.0	95.1
H2S (ppb)	10	3	-	0	0	-	0.0	0	1	March 5 at hour 7	3.0	W	0.1	March 5	100.0	95.0
NOx (ppb)	-	-	-	-	-	-	4.1	0	40	March 5 at hour 7	3.0	W	8.9	March 15	100.0	94.9
NO (ppb)	-	-	-	-	-	-	0.6	0	20	March 15 at hour 7	0.3	NNE	2.3	March 15	100.0	94.9
NO2 (ppb)	159	-	-	0	-	-	3.4	0	28	March 5 at hour 7	3.0	W	7.6	March 16	100.0	94.9
O3 (ppb)	76	-	-	0	-	-	37.3	5.3	56.0	March 22 at hour 17	7.6	SSW	44.1	March 4	100.0	95.1
THC (ppm)	-	-	-	-	-	-	1.91	1.79	2.91	March 11 at hour 8	0.8	WSW	2.00	March 23	97.8	93.0
CH4 (ppm)	-	-	-	-	-	-	1.91	1.79	2.23	March 11 at hour 8	0.8	WSW	1.99	March 23	97.8	93.0
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.68	March 11 at hour 8	0.8	WSW	0.03	March 11	97.8	93.0
PM2.5 (µg/m3)	80	29	-	1	0	-	3.3	0	167	March 23 at hour 7	0.8	S	15.8	March 25	100.0	99.7
RH (%)	-	-	-	-	-	-	70.5	33	100	March 20 at hour 15	4.6	NNE	92.2	March 28	100.0	100.0
BP (millibar)	-	-	-	-	-	-	936	918	949	March 2 at hour 10	3.6	NE	948	March 2	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-5.4	-32.6	11.7	March 23 at hour 13	8.2	SSW	5.5	March 23	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	22.3	20.6	25.4	March 18 at hour 12	12.0	W	23.9	March 19	100.0	100.0
Precipitation (mm)*	-	-	-	-	-	-	4.4	0.0	0.5	March 14 at hour 11	8.3	ESE	1.9	March 14	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	1.1	0.0	18.6	March 7 at hour 10	18.6	NW	10.4	March 7	100.0	100.0
WDV (sector)	-	-	-	-	-	-	315 (NW)	-	-	-	-	-	-	-	100.0	100.0

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

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

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

The following exceedances of AAAQGs were observed at the Tamarack Site.

Date	Time (MST)	Parameter	Average Period	AAAQGs	Concentration	Wind speed	Wind Direction	Reference #
March 23	7	PM2.5	1-Hour	80 µg/m3	167 µg/m3	0.8 km/hr	176° (S)	388926

- The exceedance of the PM2.5 guideline is believed to be the result of local buildup of emissions, given the low wind speeds recorded at the time.

St. Lina Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	Calibration Date
Sulphur Dioxide (SO₂)	Thermo / 43i-TLE	1180930030	March 4, 2022
<ul style="list-style-type: none"> No issues were identified this month. Data recorded on March 28 hour 9 was discarded as the data quality was affected by a power outage. One hour of downtime was recorded as a result. 			
Hydrogen Sulphide (H₂S)	Thermo / 450i	CM18010058 / CM17360002	March 17, 2022
<ul style="list-style-type: none"> The analyzer failed the daily span check on March 1 and 2. On March 3, the Thermo 450i H₂S analyzer, s/n: CM18010058, was removed following a successful shut-down calibration, and the Thermo 450i H₂S analyzer, s/n: CM17360002, was installed. An installation calibration was completed on March 4. Twenty hours of downtime were recorded due to this event. The permeation oven temperature was adjusted during the installation calibration. The expected span value was adjusted on March 7. The analyzer failed daily zero-span check on March 8 and 9. A repeat multi-point calibration was completed to correct the drift. Seven hours of downtime were recorded due to this additional quality check. The analyzer failed daily zero-span checks on March 15. The issue was traced to unstable internal temperature inside the analyzer's housing. An additional fan was added to the station to improve air circulation around the analyzer on March 17. The analyzer failed the as-found zero point check on March 17. The drift was corrected, and a repeat multi-point calibration was completed. Data were invalidated back to the last valid zero-span check, which was March 14 hour 16. Seventy-five hours of downtime were recorded due to this event. Data recorded on March 28 hour 9 was discarded as the data quality was affected by a power outage. One hour of downtime was recorded as a result. 			
Total Hydrocarbons / Methane/ Non-methane Hydrocarbons (THC/CH₄/NMHC)	Thermo / 55i	1505664392	March 3, 2022
<ul style="list-style-type: none"> The analyzer failed the daily span check on March 7, suspected a span valve error. A repeat zero-span check was completed on March 8 hour. The check results were within the acceptable limit. No further actions are required. One hour of downtime was recorded due to additional quality check. The N₂ gas cylinder was replaced on March 21. Data recorded on March 28 hour 9 was discarded as the data quality was affected by a power outage. Data recorded on March 28 hour 10 was also invalidated as the analyzer was recovering from the power outage. Two hours of downtime were recorded as a result. 			

Parameter	Make / Model	Serial Number	Calibration Date
Oxide of Nitrogen / Nitric Oxide/ Nitrogen Dioxide (NOx/NO/NO2)	Thermo / 42i	1180930029	March 4, 2022
<ul style="list-style-type: none"> No issues were identified this month. Data recorded on March 28 hour 9 was discarded as the data quality was affected by a power outage. One hour of downtime was recorded as a result. 			
Ozone (O3)	Thermo / 49i	1002240371	March 4, 2022
<ul style="list-style-type: none"> No issues were identified this month. Data recorded on March 28 hour 9 was discarded as the data quality was affected by a power outage. One hour of downtime was recorded as a result. 			
Particulate Matter 2.5 (PM2.5)	Thermo / Sharp 5030i	CM17091001	March 7, 2022
<ul style="list-style-type: none"> No issues were identified this month. Data recorded on March 28 hour 9 was discarded as the data quality was affected by a power outage. One hour of downtime was recorded as a result. 			
Parameter	Make / Model	Serial Number	System Check Date
Relative Humidity (RH)	Rotonic HC2-S3	20221366	March 7, 2022
<ul style="list-style-type: none"> No issues were identified this month. Data recorded on March 28 hour 9 was discarded as the data quality was affected by a power outage. One hour of downtime was recorded as a result. 			
Ambient Temperature (AT)	Rotonic HC2-S3	20221366	March 7, 2022
<ul style="list-style-type: none"> No issues were identified this month. Data recorded on March 28 hour 9 was discarded as the data quality was affected by a power outage. One hour of downtime was recorded as a result. 			

Parameter	Make / Model	Serial Number	System Check Date
Barometric Pressure (BP)	Met One / Part 090D	F4998	March 7, 2022
<ul style="list-style-type: none"> No issues were identified this month. Data recorded on March 28 hour 9 was discarded as the data quality was affected by a power outage. One hour of downtime was recorded as a result. 			
Station Temperature (ST)	BV-supplied	n/a	March 7, 2022
<ul style="list-style-type: none"> No issues were identified this month. Data recorded on March 28 hour 9 was discarded as the data quality was affected by a power outage. One hour of downtime was recorded as a result. 			
Precipitation (PRECIP)	Met One / Part 387D	A23775	March 7, 2022
<ul style="list-style-type: none"> No issues were identified this month. Data recorded on March 28 hour 9 was discarded as the data quality was affected by a power outage. One hour of downtime was recorded as a result. 			
Wind Speed (WS) / Wind Direction (WD)/ Stand Deviation Wind Direction (STDWD)	RM Young / 05305VK	161466	March 7, 2022
<ul style="list-style-type: none"> Wind direction data contained in this report represents where the wind is coming from. The annual wind system calibration was completed on March 16, 2021. No issues were identified this month. Data recorded on March 28 hour 9 was discarded as the data quality was affected by a power outage. One hour of downtime was recorded as a result. 			

Monitored Data Summary for St. Lina Site

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.2	0	7	March 21 at hour 11	16.2	WSW	0.8	March 13	99.9	94.9
H2S (ppb)	10	3	-	0	0	-	0.1	0	2	March 4 at hour 19	4.3	NNE	1.0	March 1	86.2	81.4
NOx (ppb)	-	-	-	-	-	-	2.1	0	16	March 5 at hour 19	9.4	W	5.8	March 15	99.9	94.6
NO (ppb)	-	-	-	-	-	-	0.1	0	2	March 3 at hour 11	12.2	ESE	0.4	March 17	99.9	94.6
NO2 (ppb)	159	-	-	0	-	-	2.0	0	16	March 5 at hour 19	9.4	W	5.5	March 15	99.9	94.6
O3 (ppb)	76	-	-	0	-	-	42.4	24.3	58.1	March 22 at hour 16	13.1	SW	49.4	March 20	99.9	94.7
THC (ppm)	-	-	-	-	-	-	1.91	1.81	2.16	March 15 at hour 12	9.1	ESE	2.07	March 15	99.6	94.3
CH4 (ppm)	-	-	-	-	-	-	1.91	1.81	2.16	March 15 at hour 12	9.1	ESE	2.07	March 15	99.6	94.3
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.00	March 1 at hour 0	4.2	SSW	0.00	March 1	99.6	94.3
PM2.5 (µg/m3)	80	29	-	0	0	-	3.1	0	27	March 5 at hour 19	9.4	W	10.1	March 15	99.9	99.7
RH (%)	-	-	-	-	-	-	76.3	35	100	March 1 at hour 7	3.7	SE	100.0	March 28	99.9	99.9
BP (millibar)	-	-	-	-	-	-	918	903	931	March 8 at hour 22	8.2	N	929	March 8	99.9	99.9
Ext. Temp. (°C)	-	-	-	-	-	-	-4.7	-23.0	10.2	March 23 at hour 15	10.4	SSW	5.9	March 23	99.9	99.9
Stn. Temp. (°C)	-	-	-	-	-	-	22.0	20.7	25.4	March 4 at hour 13	14.4	ENE	24.1	March 4	99.9	99.9
Precipitation (mm)*	-	-	-	-	-	-	30.9	0.0	3.2	March 20 at hour 11	13.3	NNE	11.8	March 20	99.9	99.7
WSV (km/hr)	-	-	-	-	-	-	1.7	1.3	35.1	March 7 at hour 15	35.1	NNW	22.0	March 7	99.9	99.9
WDV (sector)	-	-	-	-	-	-	291 (WNW)	-	-	-	-	-	-	-	99.9	99.9

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

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

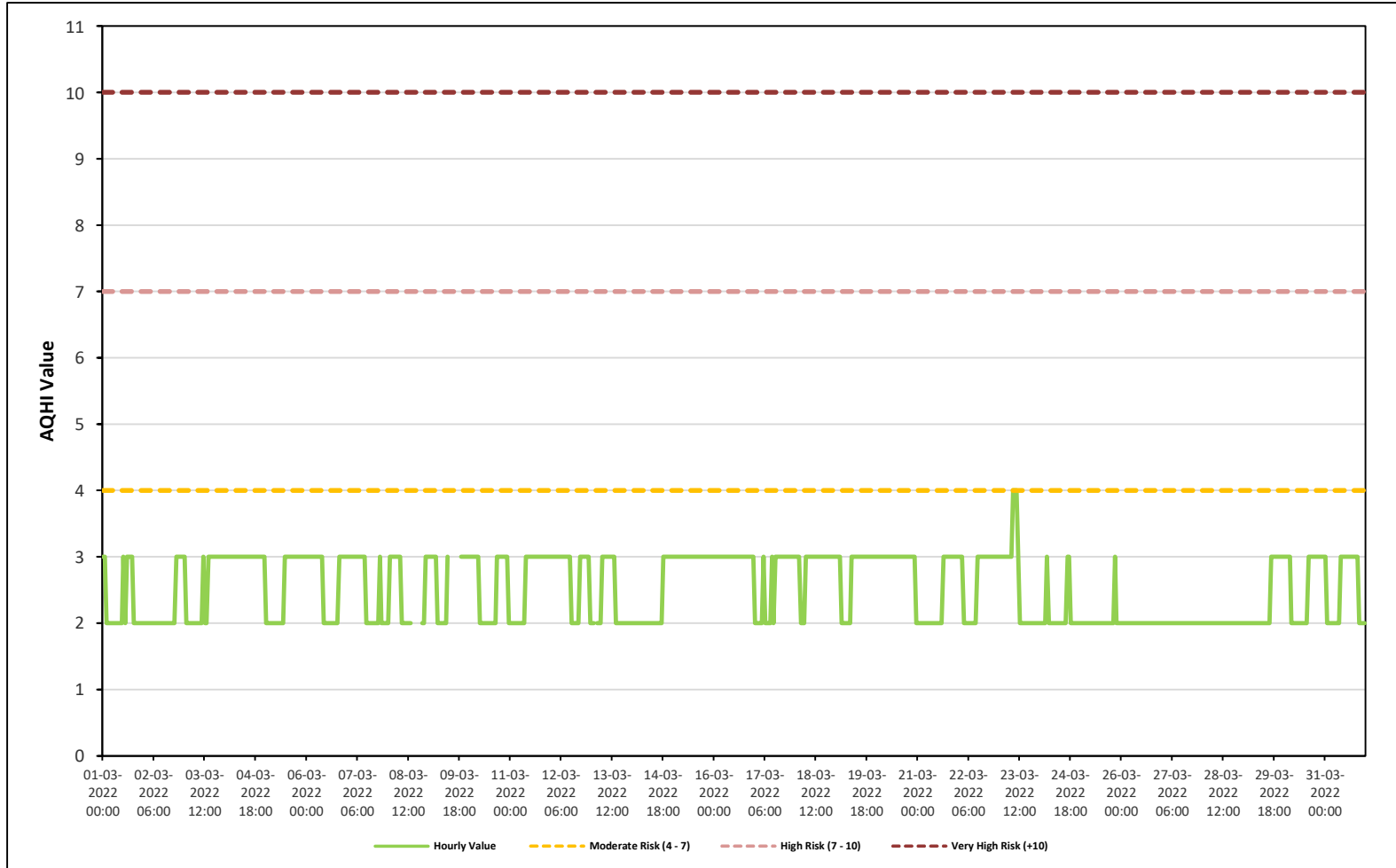
Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) Exceedances

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

TABLES AND CHARTS

COLD LAKE SOUTH STATION

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





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

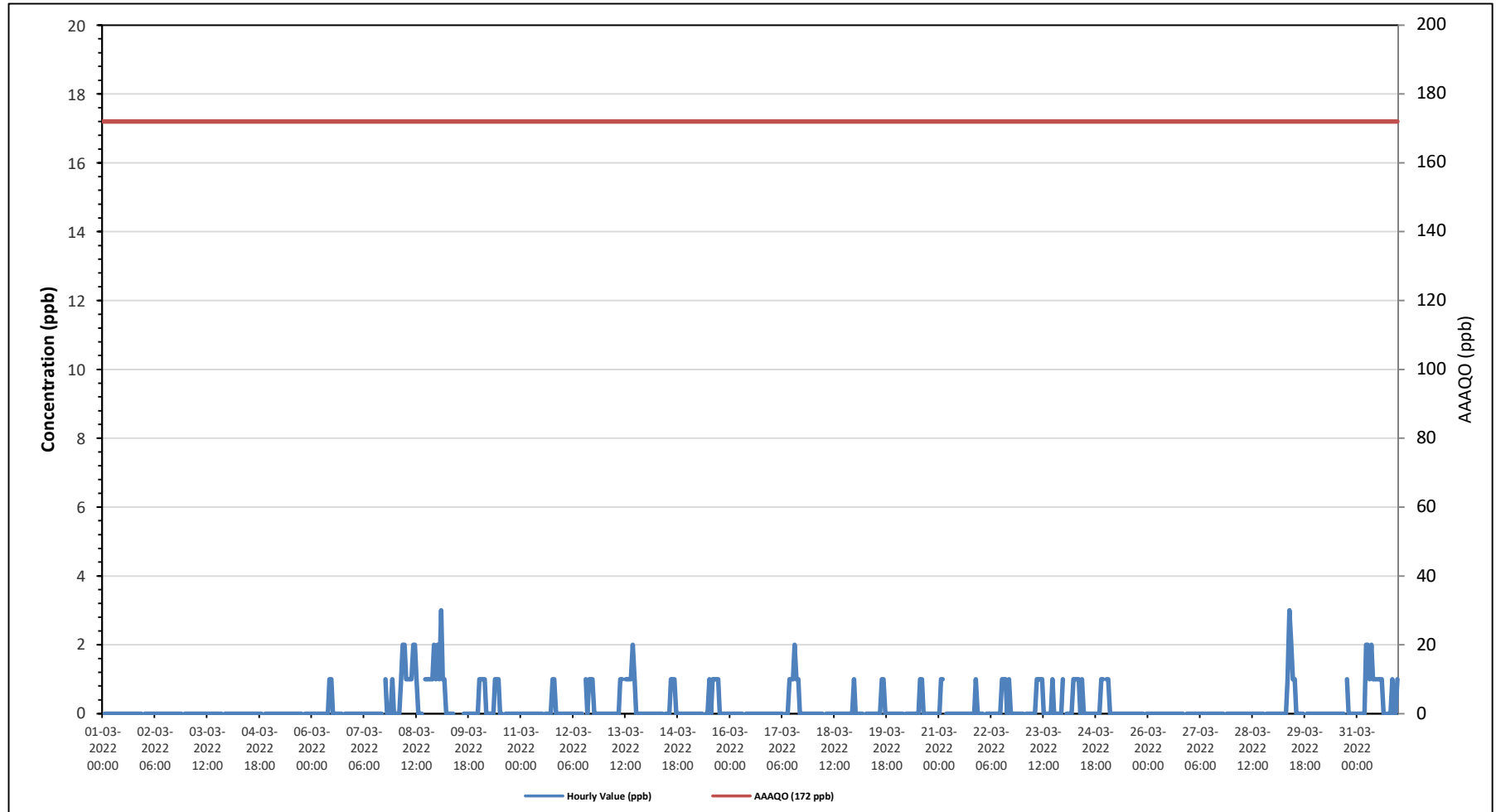
Cold Lake South Station - March 2022

Summary of Hourly Averages

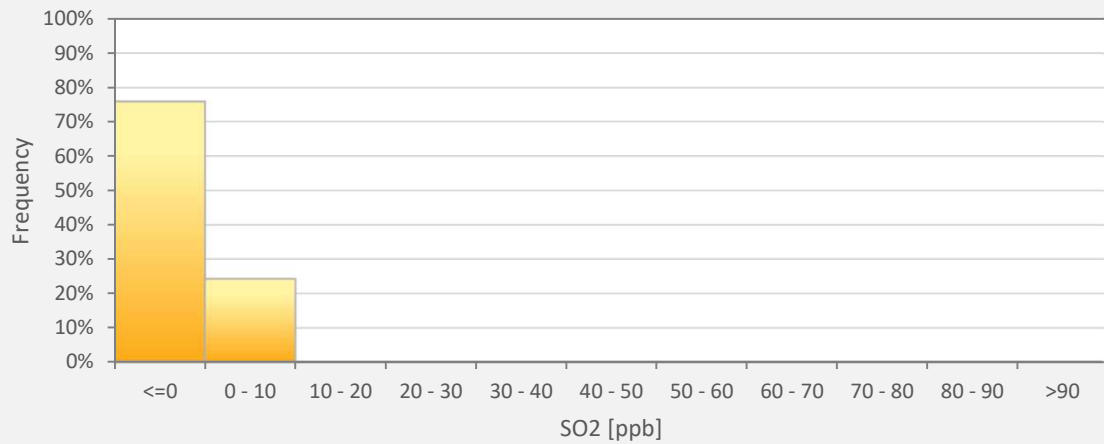
SULPHUR DIOXIDE (SO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																																															
Number of 1-Hour Exceedances: 0						Number of 24-Hour Exceedances: 0						30-Day Exceedence: 0																																			
Maximum Hourly Value: 3 ppb on March 9 at hour 2												Hours in Service: 744																																			
Maximum Daily Value: 1.0 ppb on March 8												Hours of Data: 707																																			
Minimum Hourly Value: 0 ppb on March 1 at hour 1												Hours of Missing Data: 0																																			
Minimum Daily Value: 0.0 ppb on March 1												Hours of Calibration: 37																																			
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																				
Mar 1	S	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																				
Mar 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																				
Mar 3	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																				
Mar 4	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																				
Mar 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0																				
Mar 6	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.1																				
Mar 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	0	0	0	1	0	0	0.1																				
Mar 8	0	0	0	1	2	2	1	1	1	1	2	2	1	0	0	0	S	1	1	1	1	1	2	1	0	2	1.0																				
Mar 9	2	1	3	1	1	0	0	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	3	0.4																				
Mar 10	1	1	1	1	0	0	0	0	0	1	1	1	0	0	S	0	0	0	0	0	0	0	0	0	0	1	0.3																				
Mar 11	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	1	0	0	0	0	0	1	0.1																				
Mar 12	0	0	0	0	0	0	0	0	0	0	0	0	S	1	0	1	1	1	0	0	0	0	0	0	0	1	0.2																				
Mar 13	0	0	0	0	0	0	0	0	0	1	1	S	1	1	1	1	2	1	0	0	0	0	0	0	0	2	0.4																				
Mar 14	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0.1																				
Mar 15	0	0	0	0	0	0	0	0	0	0	S	0	0	1	0	1	1	0	0	0	0	0	0	0	0	1	0.2																				
Mar 16	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																				
Mar 17	0	0	0	0	0	0	0	S	0	0	1	1	1	2	1	1	0	0	0	0	0	0	0	0	0	2	0.3																				
Mar 18	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.0																				
Mar 19	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0.1																				
Mar 20	0	0	0	0	S	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0.1																				
Mar 21	0	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.1																				
Mar 22	0	0	S	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	0	0	0	0	1	0.2																				
Mar 23	0	S	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0.3																				
Mar 24	S	0	0	0	0	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	S	0	0.3																				
Mar 25	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	0.1																				
Mar 26	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																				
Mar 27	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																				
Mar 28	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																				
Mar 29	0	0	0	0	0	0	0	0	1	3	2	1	1	0	0	0	0	0	0	S	0	0	0	0	0	3	0.3																				
Mar 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	0	0	0	0	1	0.0																				
Mar 31	0	0	0	0	2	2	1	2	1	1	1	1	1	1	1	0	S	0	0	0	1	0	0	1	0	2	0.7																				
Diurnal Maximum	2	1	3	1	2	2	2	1	2	3	2	2	1	2	1	1	2	1	1	1	1	1	1	2	1																						
Diurnal Average	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1																						
C	Monthly Calibration											S	Daily Zero-Span Check											Q	Quality Assurance																						
K	Collection Error											N	No Data (Machine Not in Service)											Y	Routine Maintenance											P	Power Failure										
X	InValid Data (Equipment Malfunction /Recovery)											NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																																		
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																															
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																															

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



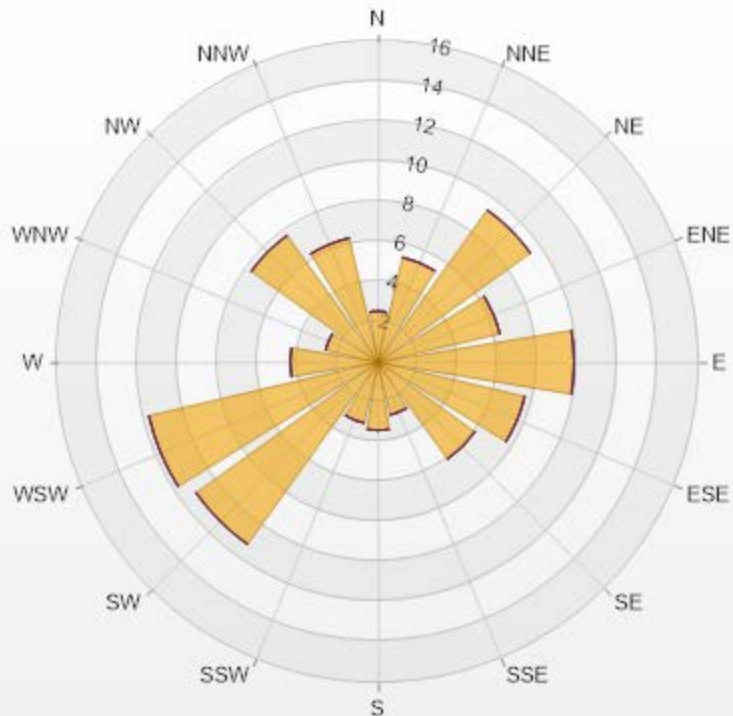
SO2[ppb] Histogram: Cold Lake South Monthly: 03-2022 1 Hr.



Classes	SO2
<=0	75.81%
0 - 10	24.19%
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: Cold Lake South Poll.: Cold Lake South-SO2[ppb] Monthly: 03-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.03% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	2.55	0	0	0	0	2.55
NNE	5.37	0	0	0	0	5.37
NE	9.34	0	0	0	0	9.34
ENE	6.22	0	0	0	0	6.22
E	9.76	0	0	0	0	9.76
ESE	7.5	0	0	0	0	7.5
SE	5.94	0	0	0	0	5.94
SSE	2.69	0	0	0	0	2.69
S	3.39	0	0	0	0	3.39
SSW	3.11	0	0	0	0	3.11
SW	11.17	0	0	0	0	11.17
WSW	11.74	0	0	0	0	11.74
W	4.38	0	0	0	0	4.38
WNW	2.69	0	0	0	0	2.69
NW	7.78	0	0	0	0	7.78
NNW	6.36	0	0	0	0	6.36
Summary	100	0	0	0	0	100



LICA-202203

% Icon Classes (ppb)

100 0-10

0 10-50

0 50-100

0 100-172

0 >172.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - March 2022

Summary of Hourly Averages

TOTAL REDUCED SULPHUR (TRS) in ppb

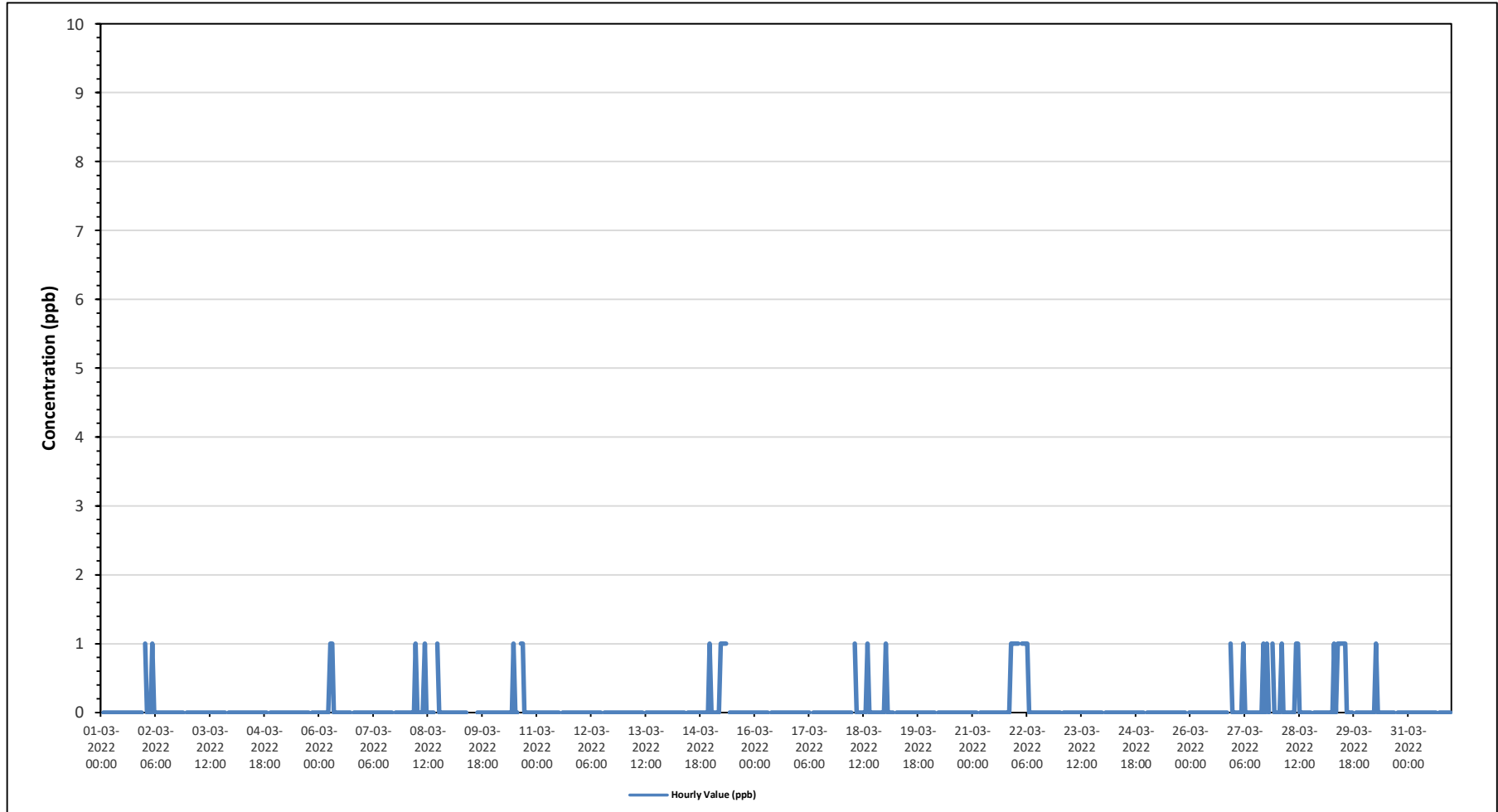
Maximum Hourly Value:	1 ppb on March 2 at hour 0	Hours in Service:	744
Maximum Daily Value:	0.3 ppb on March 22	Hours of Data:	707
Minimum Hourly Value:	0 ppb on March 1 at hour 1	Hours of Missing Data:	0
Minimum Daily Value:	0.0 ppb on March 1	Hours of Calibration:	37
Monthly Average:	0.1 ppb	Operational Uptime:	100.0

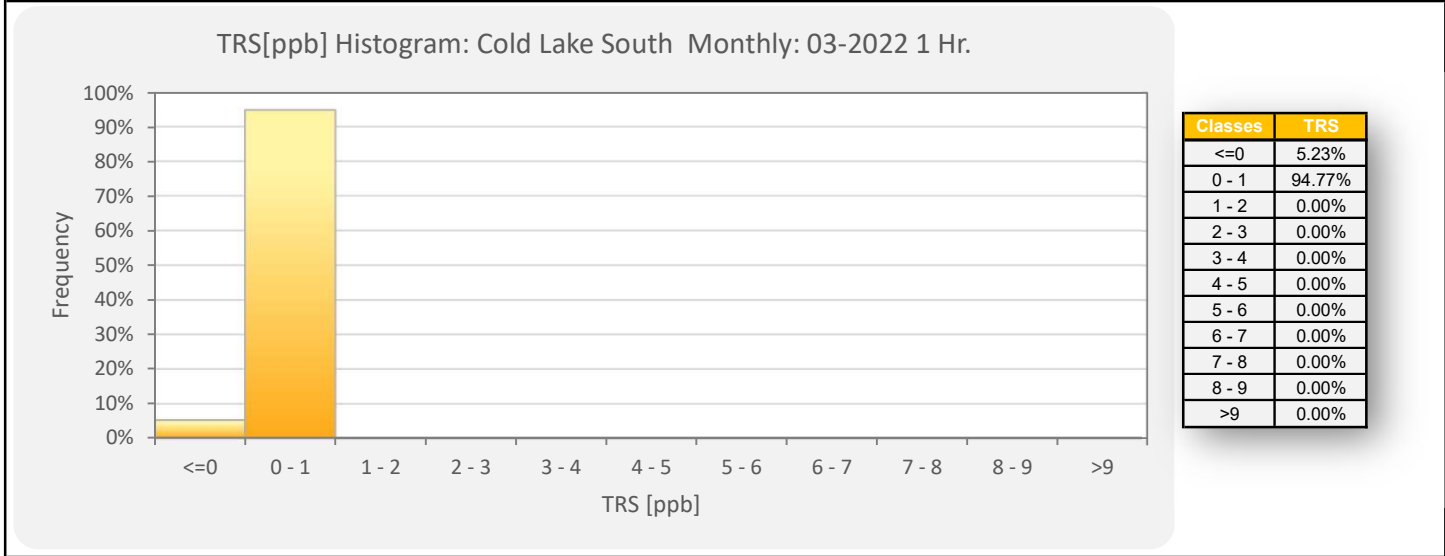
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
Mar 1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0
Mar 2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.1
Mar 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0	
Mar 4	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	
Mar 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0.0	
Mar 6	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0	0.1	
Mar 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0	0	0.0	
Mar 8	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	S	1	0	0	0	0	0	0	0	0.1	
Mar 9	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	
Mar 10	0	0	0	0	0	0	0	0	0	0	0	1	0	0	S	1	1	0	0	0	0	0	0	0	0.1	
Mar 11	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	
Mar 12	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	
Mar 13	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	
Mar 14	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	1	0	0.0	
Mar 15	0	0	0	0	0	1	1	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	
Mar 16	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	
Mar 17	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	
Mar 18	0	0	0	0	0	0	S	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.1	
Mar 19	1	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Mar 20	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	
Mar 21	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0.1	
Mar 22	1	1	S	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	
Mar 23	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	
Mar 24	S	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	
Mar 25	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	
Mar 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	0	0	0.0	
Mar 27	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	S	1	0	0	0	0.2	
Mar 28	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0.1	
Mar 29	0	0	0	0	0	0	0	1	0	1	1	1	1	1	0	0	0	0	S	0	0	0	0	0	0.3	
Mar 30	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0	
Mar 31	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	
Diurnal Maximum	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00		
Diurnal Average	0.10	0.03	0.03	0.03	0.07	0.13	0.13	0.13	0.03	0.03	0.10	0.10	0.03	0.03	0.03	0.07	0.03	0.03	0.03	0.00	0.00	0.07	0.07	0.07		

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

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

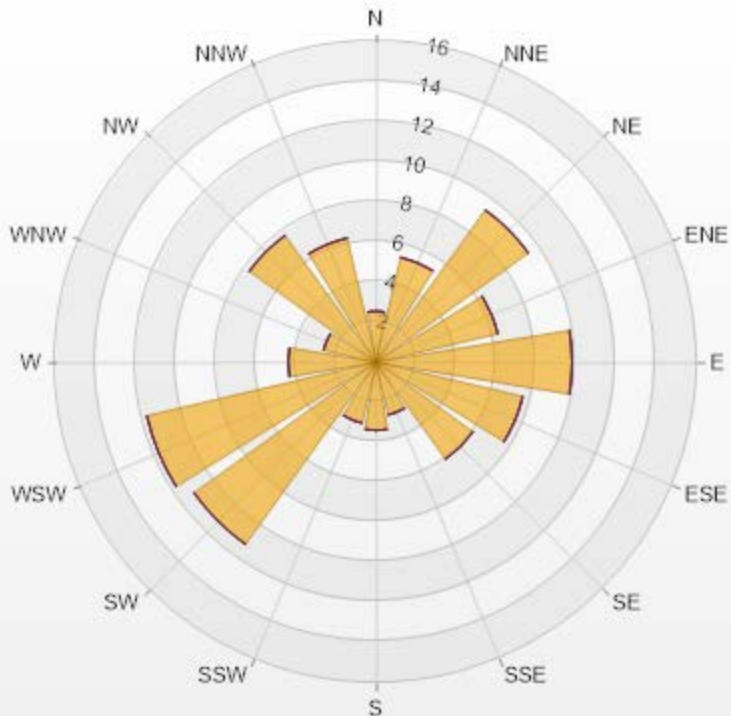
Timeseries Chart of Hourly Average for TRS - Cold Lake South Station





Wind: Cold Lake South Poll.: Cold Lake South-TRS[ppb] Monthly: 03-2022 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	2.55	0	0	0	0	2.55
NNE	5.37	0	0	0	0	5.37
NE	9.34	0	0	0	0	9.34
ENE	6.22	0	0	0	0	6.22
E	9.76	0	0	0	0	9.76
ESE	7.5	0	0	0	0	7.5
SE	5.94	0	0	0	0	5.94
SSE	2.69	0	0	0	0	2.69
S	3.39	0	0	0	0	3.39
SSW	3.11	0	0	0	0	3.11
SW	11.17	0	0	0	0	11.17
WSW	11.74	0	0	0	0	11.74
W	4.38	0	0	0	0	4.38
WNW	2.69	0	0	0	0	2.69
NW	7.78	0	0	0	0	7.78
NNW	6.36	0	0	0	0	6.36
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

Cold Lake South Station - March 2022

Summary of Hourly Averages

OXIDES OF NITROGEN (NOx) in ppb

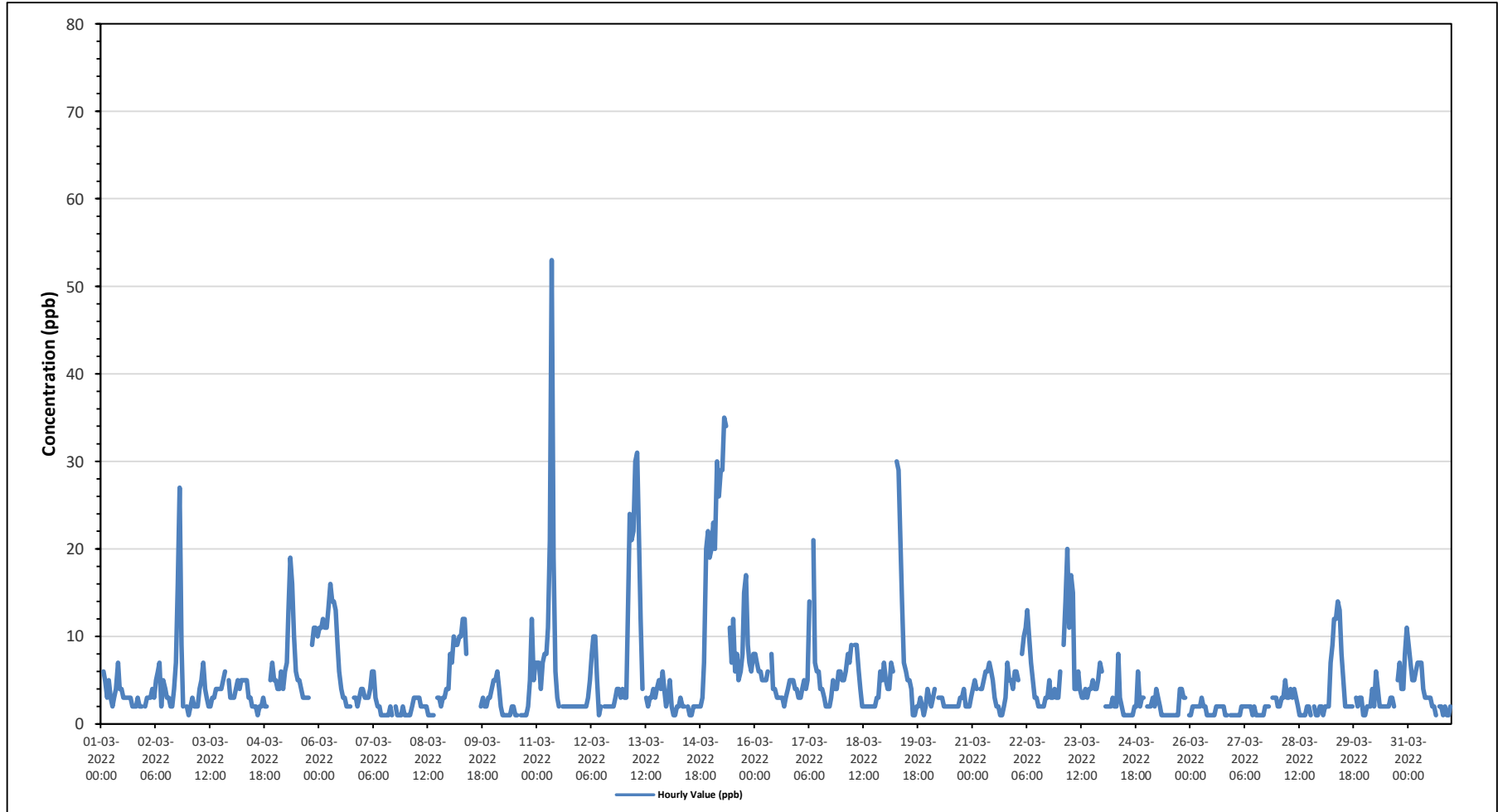
Maximum Hourly Value:	53 ppb on March 11 at hour 8	Hours in Service:	744
Maximum Daily Value:	16.1 ppb on March 15	Hours of Data:	705
Minimum Hourly Value:	1 ppb on March 3 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	1.6 ppb on March 26	Hours of Calibration:	39
Monthly Average:	4.8 ppb	Operational Uptime:	100.0

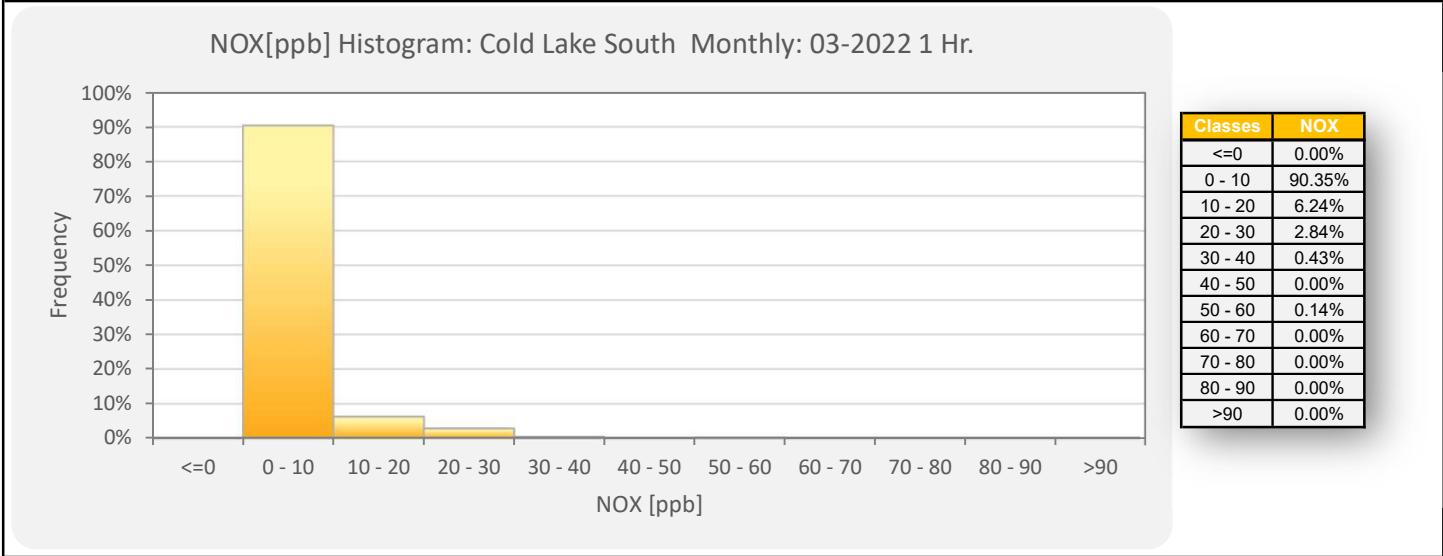
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
Mar 1	S	6	5	3	5	3	2	3	4	7	4	4	3	3	3	3	3	2	2	3	2	2	S	2	7	3.4
Mar 2	2	3	3	3	4	3	5	6	7	2	5	4	3	3	2	2	4	7	16	27	9	2	S	2	27	5.4
Mar 3	1	2	3	2	2	2	4	5	7	4	3	2	2	3	3	4	4	4	4	5	6	S	5	7	3.5	
Mar 4	3	3	4	5	4	5	5	5	5	3	3	2	2	2	1	2	2	3	2	2	S	5	7	5	3.5	
Mar 5	5	4	4	6	4	6	7	13	19	16	10	6	5	5	4	3	3	3	3	S	9	11	11	10	7.3	
Mar 6	11	11	12	11	11	13	16	14	14	13	9	6	4	3	3	2	2	2	S	3	3	2	3	4	7.5	
Mar 7	4	3	3	3	4	6	6	3	2	2	1	1	1	1	1	2	1	S	2	1	1	1	2	1	2.3	
Mar 8	1	1	1	2	3	3	3	3	2	2	2	2	1	1	1	1	S	3	3	2	3	3	4	4	2.2	
Mar 9	8	7	10	9	9	10	10	12	12	8	C	C	C	C	C	C	C	2	3	2	2	3	3	4	-	
Mar 10	5	5	6	4	2	1	1	1	1	1	2	2	1	1	S	1	1	1	1	2	5	12	5	7	3.0	
Mar 11	7	7	4	7	8	8	11	21	53	19	6	3	2	S	2	2	2	2	2	2	2	2	2	2	7.7	
Mar 12	2	2	2	2	3	5	8	10	10	5	1	2	S	2	2	2	2	2	2	2	3	4	4	3	3.6	
Mar 13	3	3	14	24	21	22	30	31	21	12	4	S	3	2	3	3	4	3	4	5	4	6	4	2	9.9	
Mar 14	3	5	2	1	1	2	2	3	2	2	S	2	1	1	2	2	2	2	2	3	7	20	22	19	4.7	
Mar 15	20	23	20	30	26	29	29	35	34	S	11	7	12	6	8	5	6	8	15	17	9	7	6	8	16.1	
Mar 16	8	7	6	6	5	5	5	6	S	8	4	4	3	3	3	2	3	4	5	5	5	4	4	4	4.7	
Mar 17	3	3	4	5	4	5	14	S	21	7	6	6	4	4	3	2	2	2	3	5	4	4	6	6	5.3	
Mar 18	5	5	6	8	7	9	S	9	9	6	4	2	2	2	2	2	2	2	2	3	3	6	5	7	4.7	
Mar 19	5	4	4	7	6	S	30	29	22	14	7	6	5	5	4	1	1	2	2	3	2	1	2	4	7.2	
Mar 20	3	2	3	4	S	3	3	3	2	2	2	2	2	2	2	2	3	3	4	2	2	2	3	2	2.5	
Mar 21	4	5	4	S	4	4	5	6	6	7	6	5	3	2	2	1	1	2	3	7	5	5	4	6	4.2	
Mar 22	6	5	S	8	10	11	13	10	7	5	3	3	2	2	2	2	3	3	5	3	3	4	3	3	5.0	
Mar 23	6	S	9	14	20	11	17	15	4	4	6	4	3	3	4	3	4	4	5	4	4	5	7	6	7.0	
Mar 24	S	2	2	2	2	3	2	2	8	3	2	1	1	1	1	1	1	2	2	6	2	3	3	S	8	2.4
Mar 25	2	2	2	3	2	4	3	2	1	1	1	1	1	1	1	1	1	1	4	4	3	3	S	1	2.0	
Mar 26	1	2	2	2	2	2	3	2	2	1	1	1	1	1	1	2	2	2	2	2	1	1	S	1	1	1.6
Mar 27	1	1	1	1	2	2	2	2	2	2	1	2	1	1	1	1	1	2	2	2	S	3	3	3	1	1.7
Mar 28	2	2	3	3	5	3	3	4	3	4	3	2	1	1	1	1	2	2	2	S	2	1	1	2	1	2.3
Mar 29	2	1	2	2	2	7	9	12	12	14	13	8	5	2	2	2	2	S	3	2	3	3	1	1	14	4.8
Mar 30	1	2	2	2	4	2	6	4	2	2	2	2	2	2	3	3	2	S	5	7	4	4	8	11	3.6	
Mar 31	9	7	5	5	6	7	7	7	4	3	3	3	2	2	1	S	2	2	1	2	1	1	2	1	2	3.7
Diurnal Maximum	20	23	20	30	26	29	30	35	53	19	13	8	12	6	8	5	6	8	16	27	9	20	22	19		
Diurnal Average	4.6	4.5	4.9	6.1	6.3	6.5	8.7	9.3	9.9	6.0	4.3	3.3	2.7	2.3	2.4	2.1	2.3	2.7	3.7	4.6	3.8	4.5	4.6	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
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.

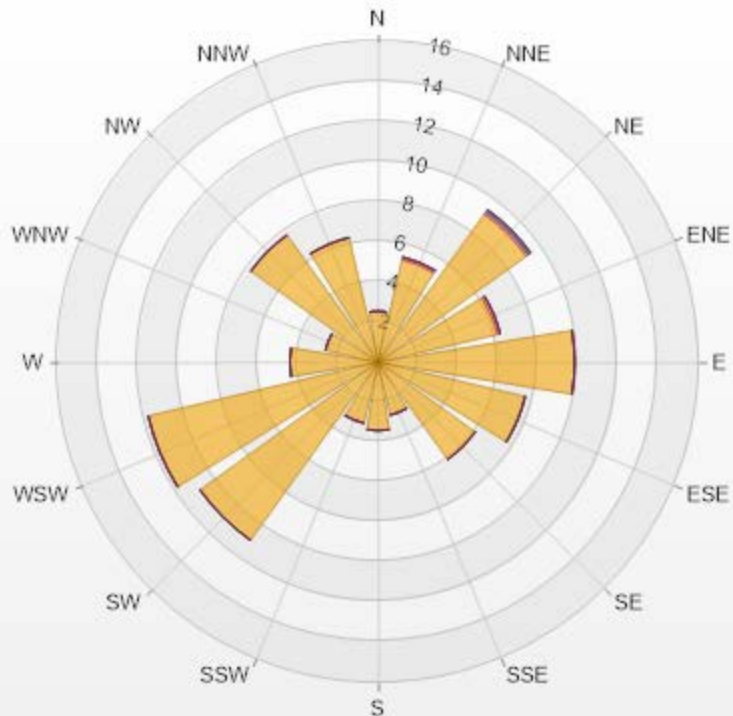
Timeseries Chart of Hourly Average for NOx - Cold Lake South Station





Wind: Cold Lake South Poll.: Cold Lake South-NOX[ppb] Monthly: 03-2022 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	2.55	0	0	0	0	2.55
NNE	5.25	0.14	0	0	0	5.39
NE	9.08	0.14	0.14	0	0	9.36
ENE	6.1	0.14	0	0	0	6.24
E	9.79	0	0	0	0	9.79
ESE	7.52	0	0	0	0	7.52
SE	5.96	0	0	0	0	5.96
SSE	2.7	0	0	0	0	2.7
S	3.4	0	0	0	0	3.4
SSW	3.12	0	0	0	0	3.12
SW	10.92	0	0	0	0	10.92
WSW	11.77	0	0	0	0	11.77
W	4.4	0	0	0	0	4.4
WNW	2.7	0	0	0	0	2.7
NW	7.8	0	0	0	0	7.8
NNW	6.38	0	0	0	0	6.38
Summary	99.44	0.42	0.14	0	0	100




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% Icon Classes (ppb)

99  0-30

0  30-50

0  50-76

0  76-159

0  >159.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - March 2022

Summary of Hourly Averages

NITRIC OXIDE (NO) in ppb

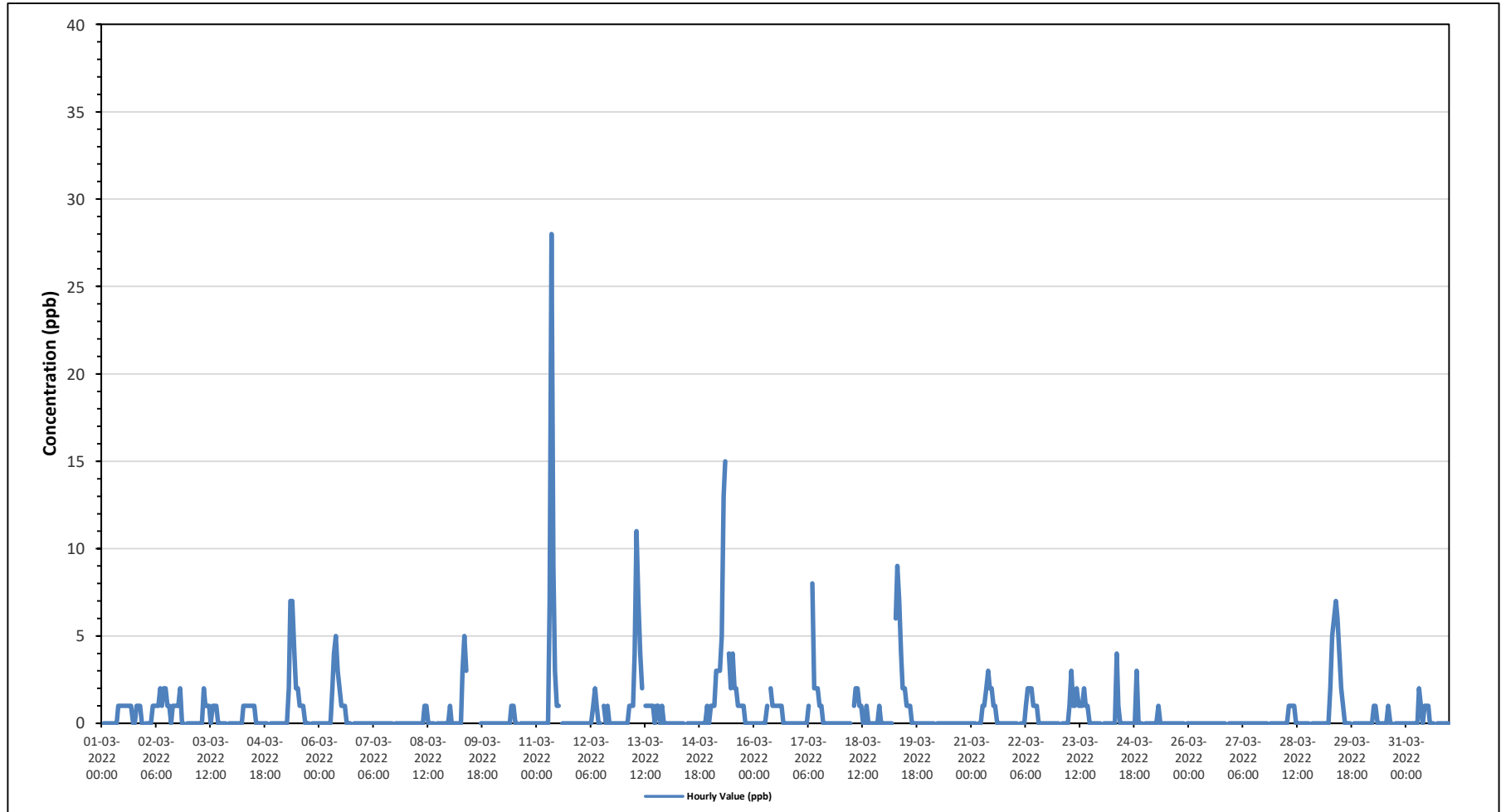
Maximum Hourly Value:	28 ppb on March 11 at hour 8	Hours in Service:	744
Maximum Daily Value:	2.7 ppb on March 15	Hours of Data:	705
Minimum Hourly Value:	0 ppb on March 1 at hour 1	Hours of Missing Data:	0
Minimum Daily Value:	0.0 ppb on March 7	Hours of Calibration:	39
Monthly Average:	0.6 ppb	Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Mar 1	S	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	1	1	1	0	S	0	0	1	0.5
Mar 2	0	0	0	0	1	1	1	1	2	1	2	2	1	1	0	1	1	1	1	2	0	0	S	0	0	2	0.8
Mar 3	0	0	0	0	0	0	0	0	2	1	1	1	0	1	1	0	0	0	0	0	0	S	0	0	0	2	0.3
Mar 4	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0.3
Mar 5	0	0	0	0	0	0	0	2	7	7	4	2	2	1	1	0	0	0	0	S	0	0	0	0	0	7	1.2
Mar 6	0	0	0	0	0	0	0	2	4	5	3	2	1	1	1	0	0	0	S	0	0	0	0	0	0	5	0.8
Mar 7	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
Mar 8	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0.1
Mar 9	1	0	0	0	0	0	0	3	5	3	C	C	C	C	C	C	C	0	0	0	0	0	0	0	0	5	-
Mar 10	0	0	0	0	0	0	0	0	0	0	1	1	0	0	S	0	0	0	0	0	0	0	0	0	0	1	0.1
Mar 11	0	0	0	0	0	0	7	28	9	3	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	28	2.1
Mar 12	0	0	0	0	0	0	0	1	2	1	0	0	S	1	0	1	0	0	0	0	0	0	0	0	0	2	0.3
Mar 13	0	0	0	1	1	1	4	11	7	4	2	S	1	1	1	1	1	0	1	1	0	1	0	0	11	1.7	
Mar 14	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.0	
Mar 15	1	1	1	3	3	3	5	13	15	S	4	2	4	2	2	1	1	1	0	0	0	0	0	0	15	2.7	
Mar 16	0	0	0	0	0	0	0	1	S	2	1	1	1	1	1	0	0	0	0	0	0	0	0	0	2	0.4	
Mar 17	0	0	0	0	0	0	1	S	8	2	2	2	1	1	0	0	0	0	0	0	0	0	0	0	8	0.7	
Mar 18	0	0	0	0	0	0	0	1	2	2	1	1	0	0	1	0	0	0	0	0	0	1	0	0	2	0.4	
Mar 19	0	0	0	0	0	S	6	9	7	4	2	2	1	1	1	0	0	0	0	0	0	0	0	0	9	1.4	
Mar 20	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
Mar 21	0	0	0	S	0	0	1	1	2	3	2	2	1	1	0	0	0	0	0	0	0	0	0	0	3	0.6	
Mar 22	0	0	S	0	0	0	1	2	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0.4	
Mar 23	0	S	0	0	0	0	1	3	1	1	2	1	1	1	2	1	1	0	0	0	0	0	0	0	3	0.7	
Mar 24	S	0	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	4	0.4	
Mar 25	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	0.0	
Mar 26	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	
Mar 27	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
Mar 28	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	S	0	0	0	0	1	0.2	
Mar 29	0	0	0	0	0	0	2	5	6	7	6	4	2	1	0	0	0	0	S	0	0	0	0	0	7	1.4	
Mar 30	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	S	0	0	0	0	0	1	0.1	
Mar 31	0	0	0	0	0	0	0	2	1	0	1	1	0	0	0	S	0	0	0	0	0	0	0	0	2	0.3	
Diurnal Maximum	1	1	1	3	3	3	6	13	28	9	6	4	4	2	2	1	1	1	1	3	1	1	1	0			
Diurnal Average	0.1	0.0	0.0	0.1	0.2	0.2	0.8	2.3	3.6	1.9	1.4	1.0	0.7	0.5	0.4	0.3	0.2	0.1	0.1	0.2	0.0	0.1	0.0	0.0			

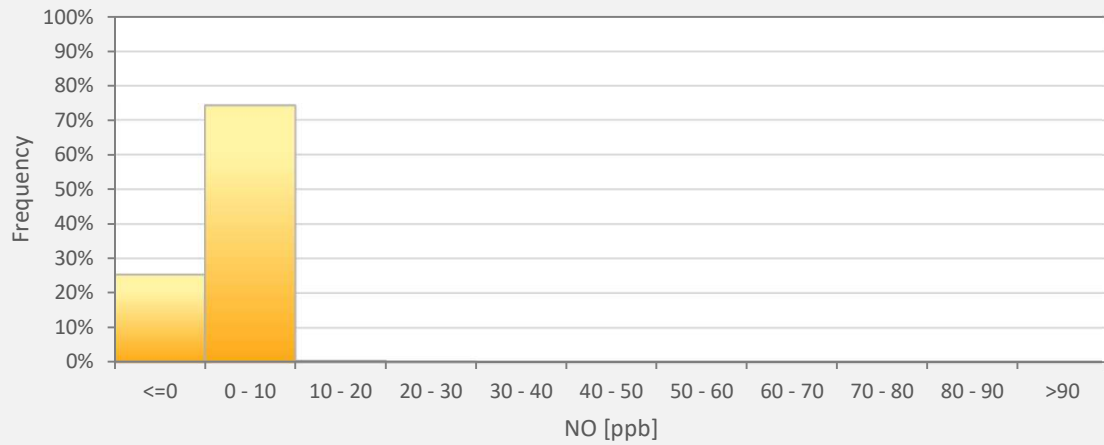
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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 NO - Cold Lake South Station



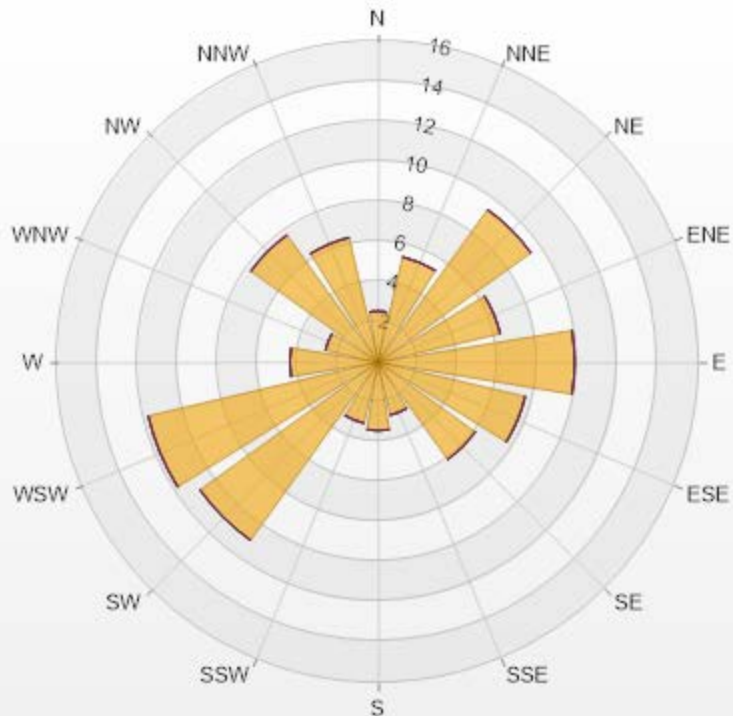
NO[ppb] Histogram: Cold Lake South Monthly: 03-2022 1 Hr.



Classes	NO
<=0	25.25%
0 - 10	74.18%
10 - 20	0.43%
20 - 30	0.14%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-NO[ppb] Monthly: 03-2022 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	2.55	0	0	0	0	2.55
NNE	5.39	0	0	0	0	5.39
NE	9.36	0	0	0	0	9.36
ENE	6.24	0	0	0	0	6.24
E	9.79	0	0	0	0	9.79
ESE	7.52	0	0	0	0	7.52
SE	5.96	0	0	0	0	5.96
SSE	2.7	0	0	0	0	2.7
S	3.4	0	0	0	0	3.4
SSW	3.12	0	0	0	0	3.12
SW	10.92	0	0	0	0	10.92
WSW	11.77	0	0	0	0	11.77
W	4.4	0	0	0	0	4.4
WNW	2.7	0	0	0	0	2.7
NW	7.8	0	0	0	0	7.8
NNW	6.38	0	0	0	0	6.38
Summary	100	0	0	0	0	100




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% Icon Classes (ppb)

100  0-30

0  30-50

0  50-76

0  76-159

0  >159.0



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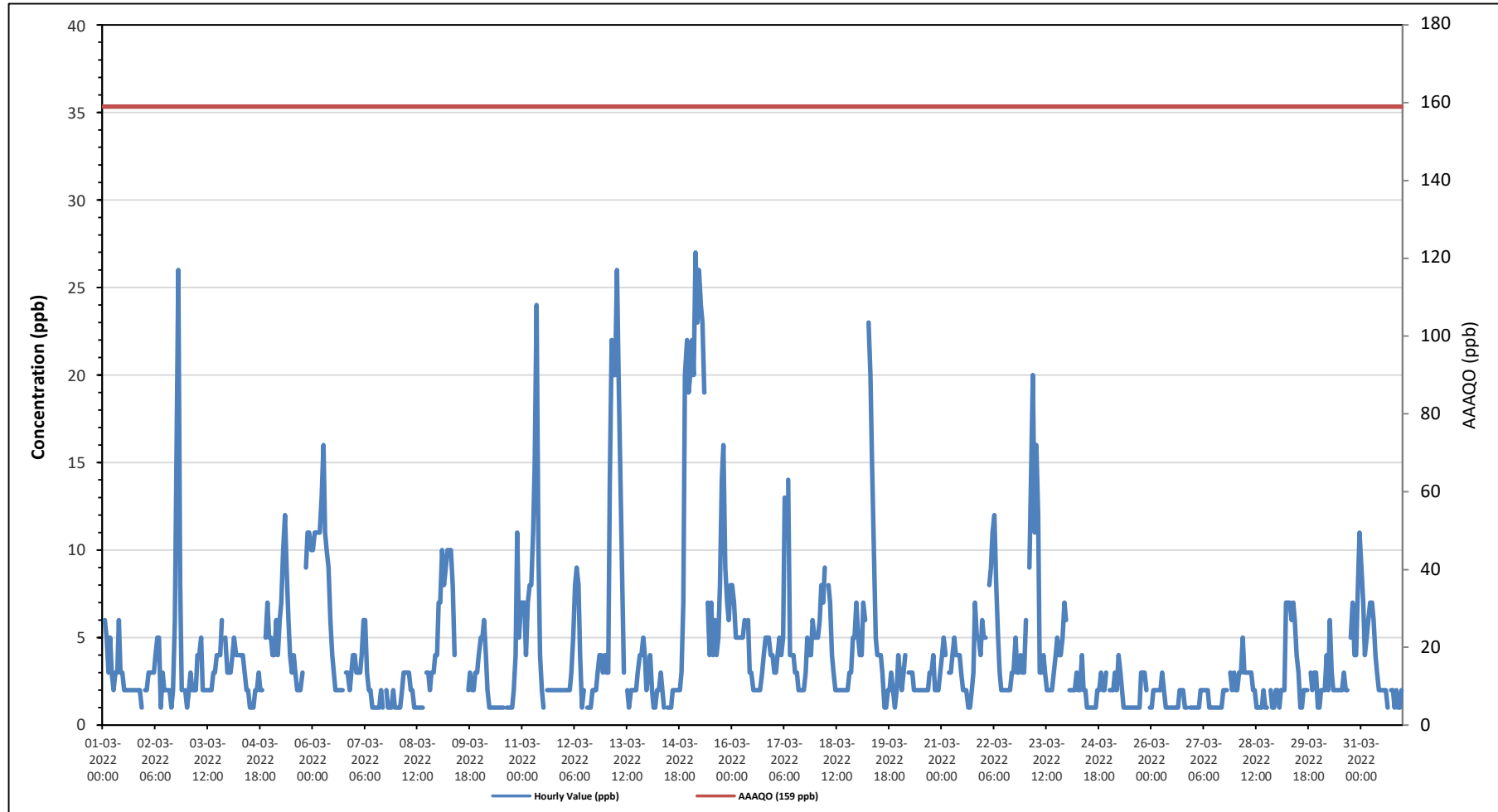
Cold Lake South Station - March 2022

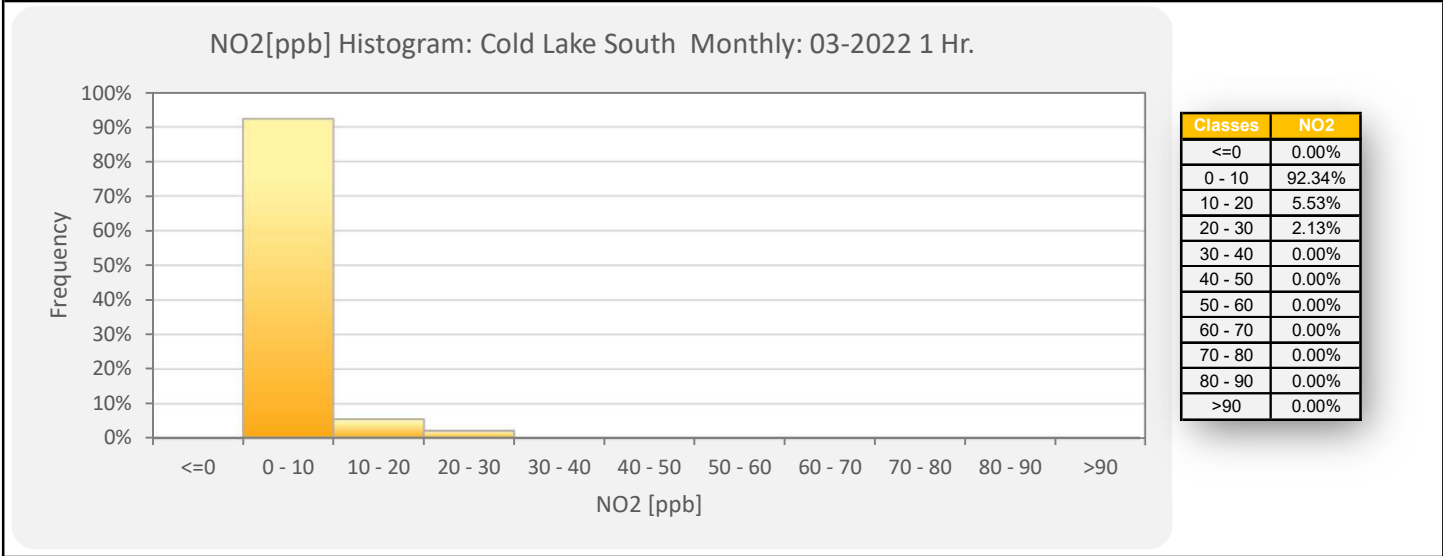
Summary of Hourly Averages

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 March 15 at hour 3												Hours in Service: 744																			
Maximum Daily Value: 13.4 ppb on March 15												Hours of Data: 705																			
Minimum Hourly Value: 1 ppb on March 1 at hour 22												Hours of Missing Data: 0																			
Minimum Daily Value: 1.5 ppb on March 26												Hours of Calibration: 39																			
Monthly Average: 4.2 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				
Mar 1	S	6	5	3	5	3	2	3	3	6	3	3	2	2	2	2	2	2	2	2	2	2	S								
Mar 2	2	2	3	3	3	3	4	5	5	1	3	2	2	2	2	1	2	6	15	26	8	2	S								
Mar 3	1	2	3	2	2	2	4	4	5	2	2	2	2	2	3	3	4	4	4	6	S	5	3								
Mar 4	3	3	4	5	4	4	4	4	4	3	2	2	1	1	2	2	3	2	2	S	5	7	5								
Mar 5	5	4	4	6	4	6	7	10	12	9	6	4	3	4	3	2	2	3	S	S	9	11	11								
Mar 6	10	11	11	11	11	13	16	11	10	9	6	4	3	2	2	2	2	2	S	3	2	3	4								
Mar 7	4	3	3	3	4	6	6	3	2	2	1	1	1	1	1	2	1	S	2	1	1	2	1								
Mar 8	1	1	1	2	3	3	3	2	2	2	1	1	1	1	1	S	3	3	2	3	3	4	4								
Mar 9	7	7	10	8	9	10	10	10	8	4	C	C	C	C	C	C	C	2	3	2	3	3	4								
Mar 10	5	5	6	4	2	1	1	1	1	1	1	1	1	S	1	1	1	1	1	2	4	11	5								
Mar 11	7	7	4	7	8	8	11	15	24	10	4	2	1	S	2	2	2	2	2	2	2	2	2								
Mar 12	2	2	2	2	3	5	8	9	8	4	1	2	S	1	1	1	2	2	2	3	4	4	3								
Mar 13	3	3	14	22	20	20	26	20	14	8	3	S	2	1	2	2	2	2	3	4	4	5	4								
Mar 14	3	4	2	1	1	2	2	3	2	1	S	1	1	1	2	2	2	2	3	7	20	22									
Mar 15	20	22	20	27	23	26	24	23	19	S	7	4	7	4	6	4	5	8	14	16	9	7	6								
Mar 16	8	7	5	5	5	5	5	6	S	6	3	3	2	2	2	2	3	4	5	5	5	4	4								
Mar 17	3	3	4	5	4	5	13	S	14	4	4	4	3	3	2	2	2	3	5	4	4	6	5								
Mar 18	5	5	6	8	7	9	S	8	7	4	3	2	2	2	2	2	2	3	5	4	6	5	2								
Mar 19	5	4	4	7	6	S	23	20	15	10	5	4	4	4	3	1	1	2	2	3	2	1	2								
Mar 20	3	2	3	4	S	3	3	3	2	2	2	2	2	2	2	2	3	3	4	2	2	2	3								
Mar 21	4	5	4	S	3	3	4	5	4	4	4	3	2	2	1	1	2	3	7	5	5	4	6								
Mar 22	5	5	S	8	9	11	12	8	5	3	2	2	2	2	2	3	3	5	3	3	4	3	3								
Mar 23	6	S	9	14	20	11	16	12	3	3	4	3	2	2	2	2	3	4	5	4	4	5	7								
Mar 24	S	2	2	2	2	3	2	2	4	2	2	1	1	1	1	1	1	2	2	3	2	2	S								
Mar 25	2	2	2	3	2	4	3	2	1	1	1	1	1	1	1	1	1	3	3	3	2	S	1								
Mar 26	1	2	2	2	2	3	2	1	1	1	1	1	1	1	1	1	2	2	2	1	1	S	1								
Mar 27	1	1	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	S	3	2	3								
Mar 28	2	2	3	3	5	3	3	3	3	2	2	1	1	1	1	2	1	1	S	2	1	1	2								
Mar 29	2	1	2	2	2	7	7	7	6	7	6	4	3	1	1	2	2	2	S	3	2	3	1								
Mar 30	1	2	2	2	4	2	6	3	2	2	2	2	2	2	3	2	2	S	5	7	4	8	11								
Mar 31	9	7	4	5	6	7	7	6	4	3	2	2	2	2	1	S	2	2	1	2	1	1	2								
Diurnal Maximum	20	22	20	27	23	26	26	23	24	10	7	4	7	4	6	4	5	8	15	26	9	20	22	19							
Diurnal Average	4.5	4.4	4.8	5.9	6.0	6.3	7.9	7.1	6.4	3.9	2.9	2.3	2.0	1.8	1.9	1.7	2.0	2.6	3.5	4.3	3.7	4.3	4.5	4.6							
C	Monthly Calibration										S	Daily Zero-Span Check										Q	Quality Assurance								
K	Collection Error										N	No Data (Machine Not in Service)										Y	Routine Maintenance				P	Power Failure			
X	Invalid Data (Equipment Malfunction /Recovery)										NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																			
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																															
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																															

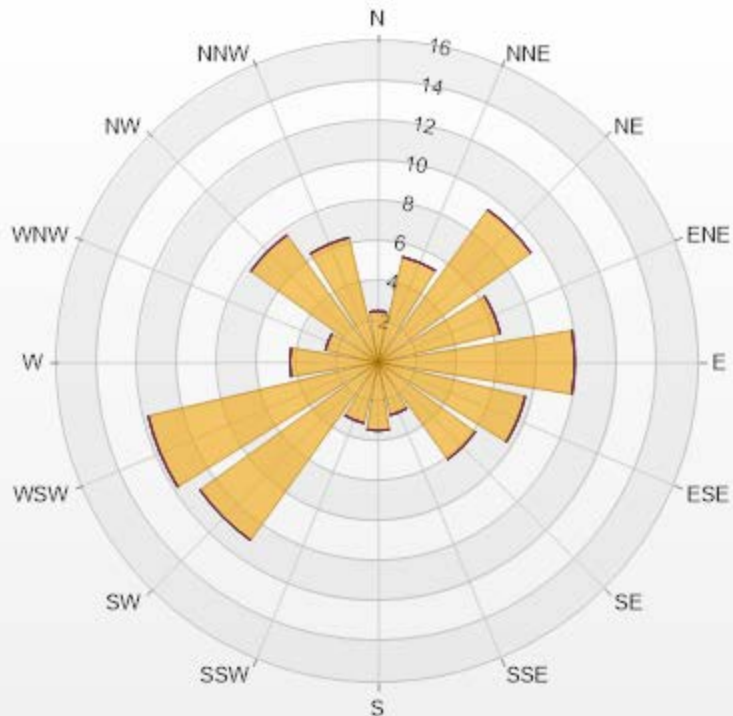
Timeseries Chart of Hourly Average for NO2 - Cold Lake South Station





Wind: Cold Lake South Poll.: Cold Lake South-NO2[ppb] Monthly: 03-2022 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	2.55	0	0	0	0	2.55
NNE	5.39	0	0	0	0	5.39
NE	9.36	0	0	0	0	9.36
ENE	6.24	0	0	0	0	6.24
E	9.79	0	0	0	0	9.79
ESE	7.52	0	0	0	0	7.52
SE	5.96	0	0	0	0	5.96
SSE	2.7	0	0	0	0	2.7
S	3.4	0	0	0	0	3.4
SSW	3.12	0	0	0	0	3.12
SW	10.92	0	0	0	0	10.92
WSW	11.77	0	0	0	0	11.77
W	4.4	0	0	0	0	4.4
WNW	2.7	0	0	0	0	2.7
NW	7.8	0	0	0	0	7.8
NNW	6.38	0	0	0	0	6.38
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100  0-30

0  30-50

0  50-76

0  76-159

0  >159.0



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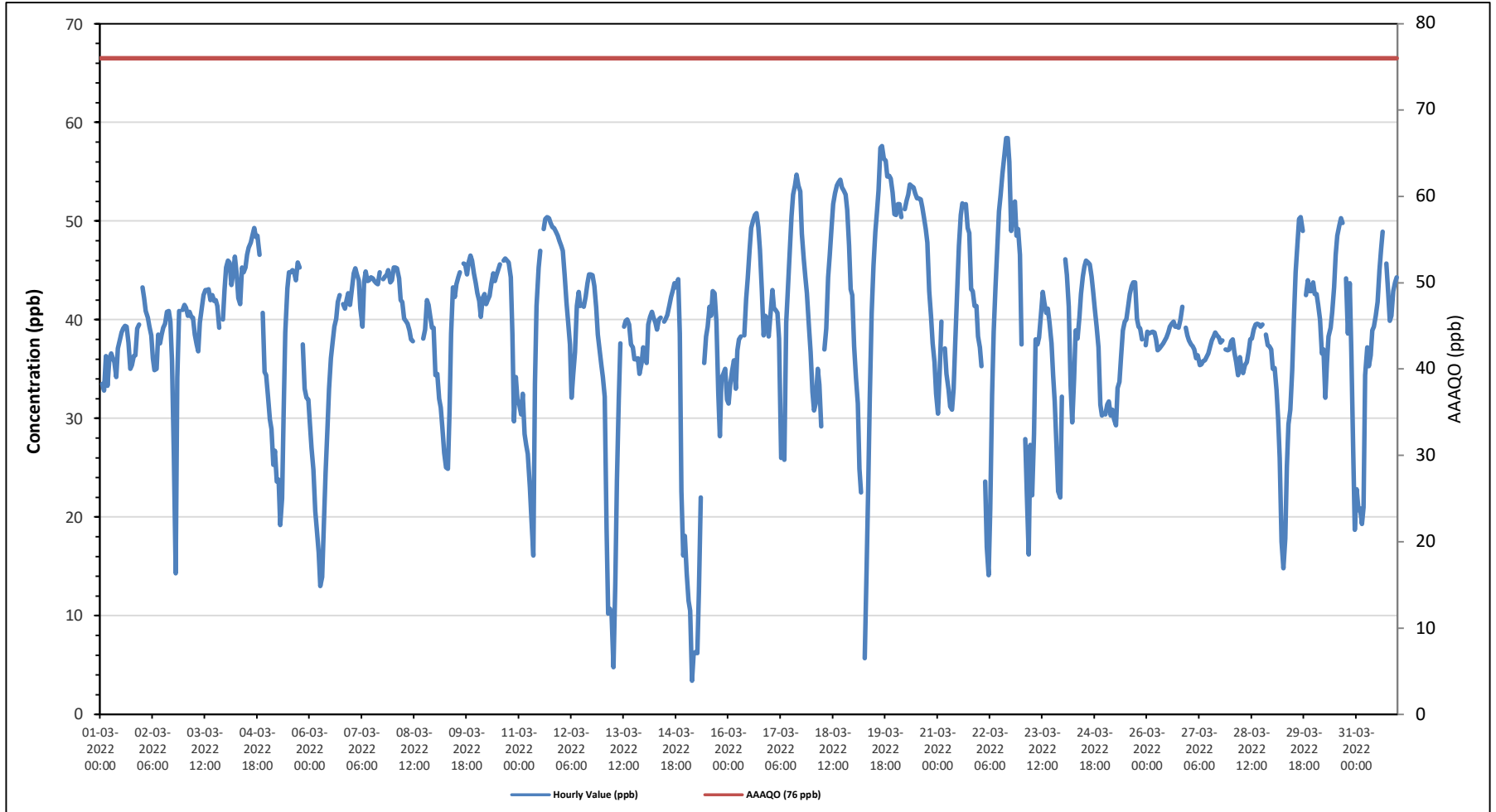
Cold Lake South Station - March 2022

Summary of Hourly Averages

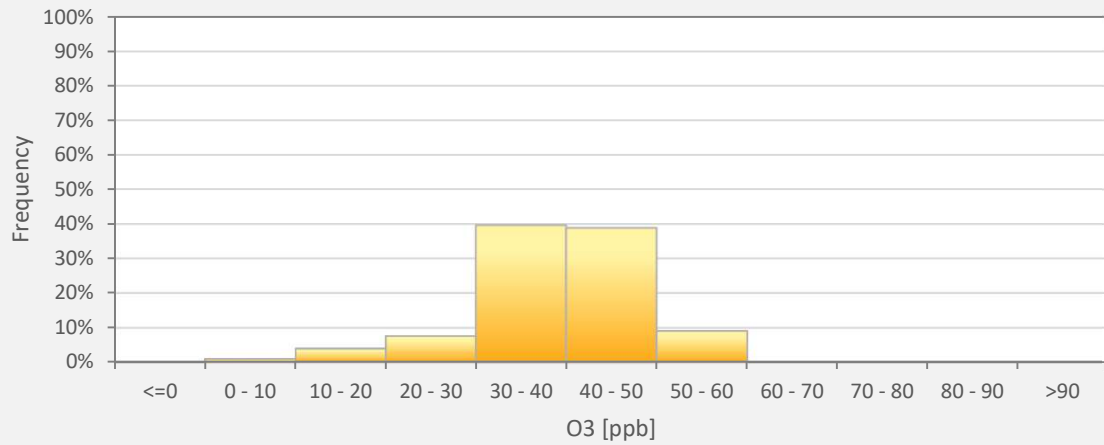
OZONE (O3) in ppb

Table with columns for Day, Hourly Period (0-23 MST), and Daily (Minimum, Maximum, Average). Includes summary statistics for Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb and a legend for status codes (C, K, X, S, NRM, Q, Y, P).

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



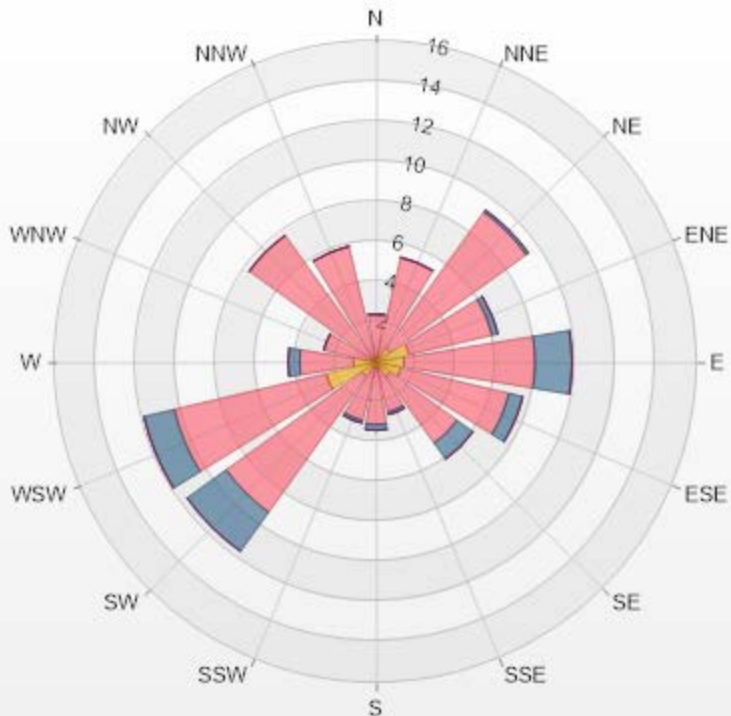
O3[ppb] Histogram: Cold Lake South Monthly: 03-2022 1 Hr.



Classes	O3
<=0	0.00%
0 - 10	0.99%
10 - 20	3.96%
20 - 30	7.64%
30 - 40	39.60%
40 - 50	38.76%
50 - 60	9.05%
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: 03-2022 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	0.14	2.26	0	0	0	2.4
NNE	0.28	5.09	0	0	0	5.37
NE	0.85	8.35	0.14	0	0	9.34
ENE	1.7	4.24	0.28	0	0	6.22
E	1.41	6.51	1.84	0	0	9.76
ESE	1.27	5.52	0.71	0	0	7.5
SE	0.85	4.1	0.99	0	0	5.94
SSE	0.28	2.26	0.14	0	0	2.68
S	0.28	2.83	0.28	0	0	3.39
SSW	0.28	2.69	0.14	0	0	3.11
SW	0.85	8.35	2.4	0	0	11.6
WSW	2.55	7.78	1.56	0	0	11.89
W	1.13	2.69	0.57	0	0	4.39
WNW	0.28	2.4	0	0	0	2.68
NW	0.14	7.64	0	0	0	7.78
NNW	0.28	5.66	0	0	0	5.94
Summary	12.57	78.37	9.05	0	0	100

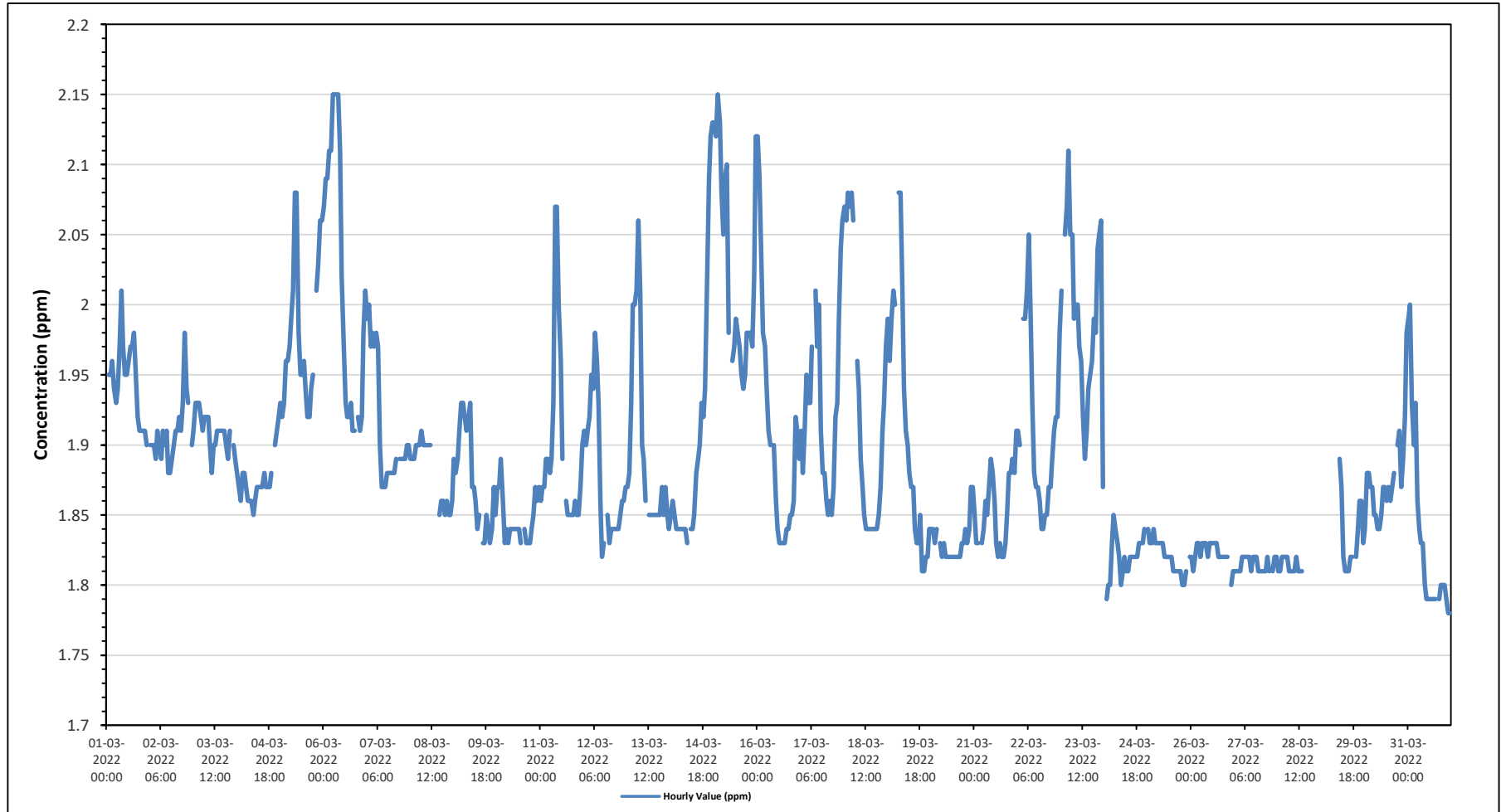


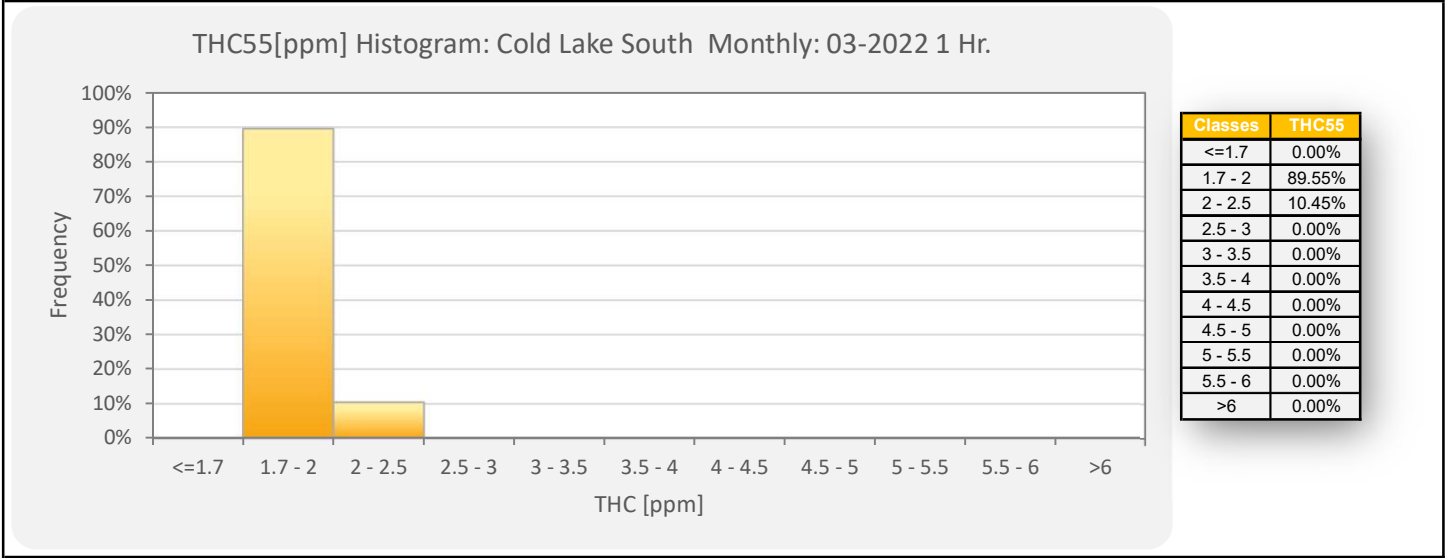
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% Icon Classes (ppb)	13	0-30	78	30-50	9	50-76	0	76-159	0	>159.0

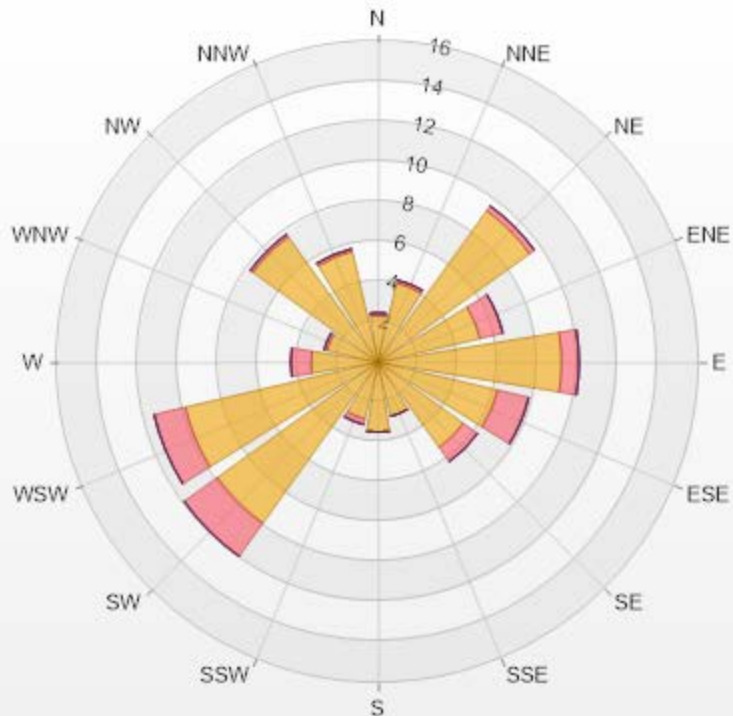
Timeseries Chart of Hourly Average for THC - Cold Lake South Station





Wind: Cold Lake South Poll.: Cold Lake South-THC55[ppm] Monthly: 03-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 92.61% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	2.32	0.15	0	0	0	2.47
NNE	4.06	0.15	0	0	0	4.21
NE	9.29	0.29	0	0	0	9.58
ENE	5.22	1.16	0	0	0	6.38
E	9.14	0.87	0	0	0	10.01
ESE	6.1	1.6	0	0	0	7.7
SE	5.22	0.87	0	0	0	6.09
SSE	2.76	0	0	0	0	2.76
S	3.48	0	0	0	0	3.48
SSW	2.9	0.29	0	0	0	3.19
SW	9.87	2.03	0	0	0	11.9
WSW	9.87	1.6	0	0	0	11.47
W	3.34	1.02	0	0	0	4.36
WNW	2.61	0.15	0	0	0	2.76
NW	7.69	0.15	0	0	0	7.84
NNW	5.66	0.15	0	0	0	5.81
Summary	89.53	10.48	0	0	0	100



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% Icon Classes (ppm)

90

0-2

10

2-5

0

5-10

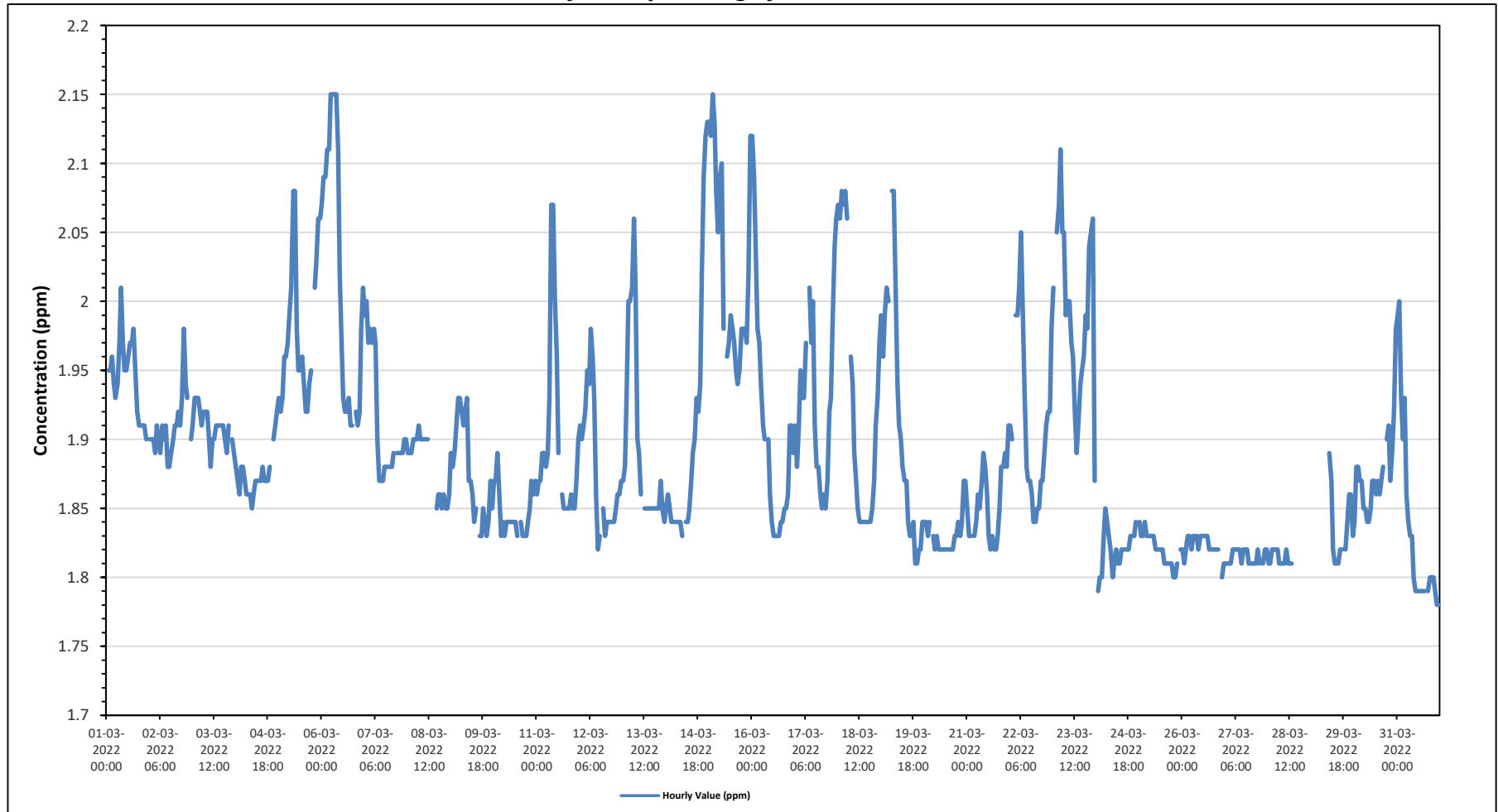
0

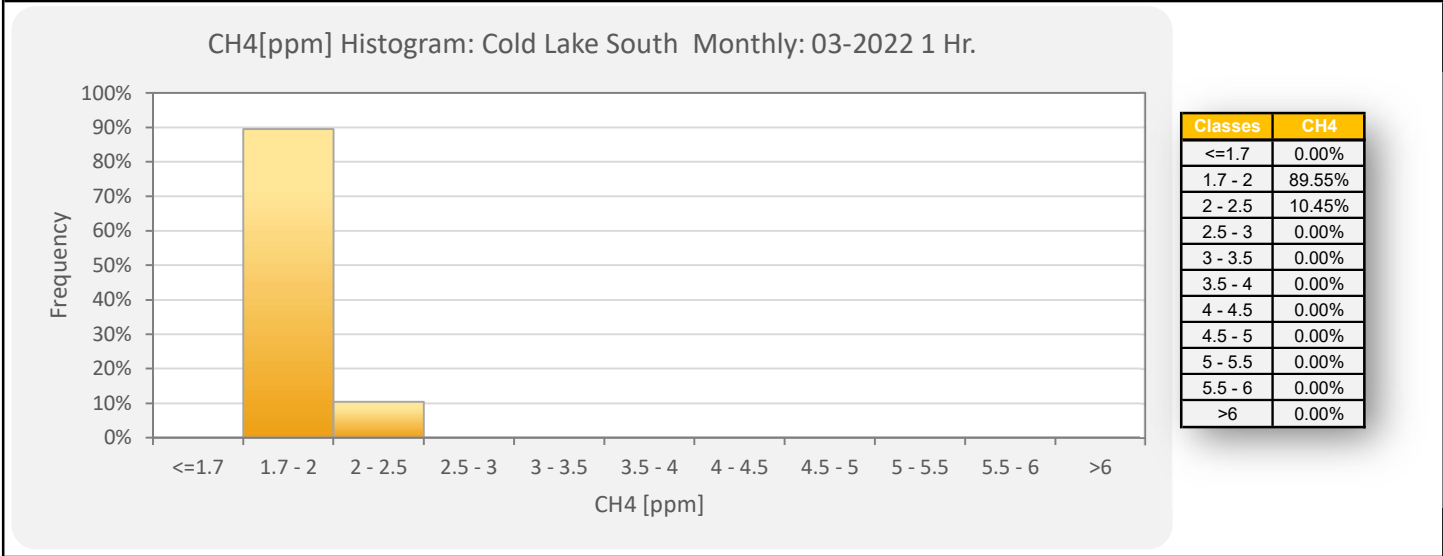
10-40

0

>40.0

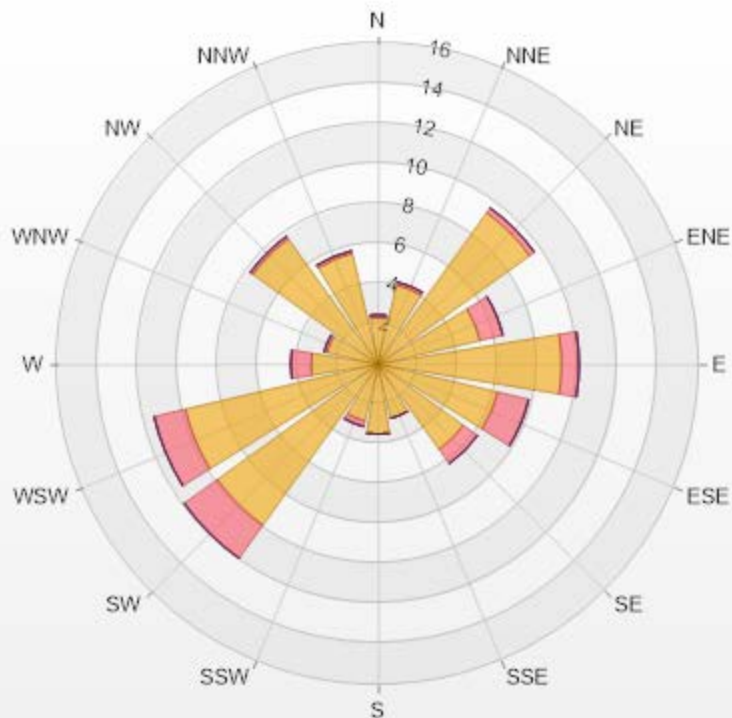
Timeseries Chart of Hourly Average for CH4 - Cold Lake South Station





Wind: Cold Lake South Poll.: Cold Lake South-CH4[ppm] Monthly: 03-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 92.61% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	2.32	0.15	0	0	0	2.47
NNE	4.06	0.15	0	0	0	4.21
NE	9.29	0.29	0	0	0	9.58
ENE	5.22	1.16	0	0	0	6.38
E	9.14	0.87	0	0	0	10.01
ESE	6.1	1.6	0	0	0	7.7
SE	5.22	0.87	0	0	0	6.09
SSE	2.76	0	0	0	0	2.76
S	3.48	0	0	0	0	3.48
SSW	2.9	0.29	0	0	0	3.19
SW	9.87	2.03	0	0	0	11.9
WSW	9.87	1.6	0	0	0	11.47
W	3.34	1.02	0	0	0	4.36
WNW	2.61	0.15	0	0	0	2.76
NW	7.69	0.15	0	0	0	7.84
NNW	5.66	0.15	0	0	0	5.81
Summary	89.53	10.48	0	0	0	100



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% Icon Classes (ppm)

90 0-2

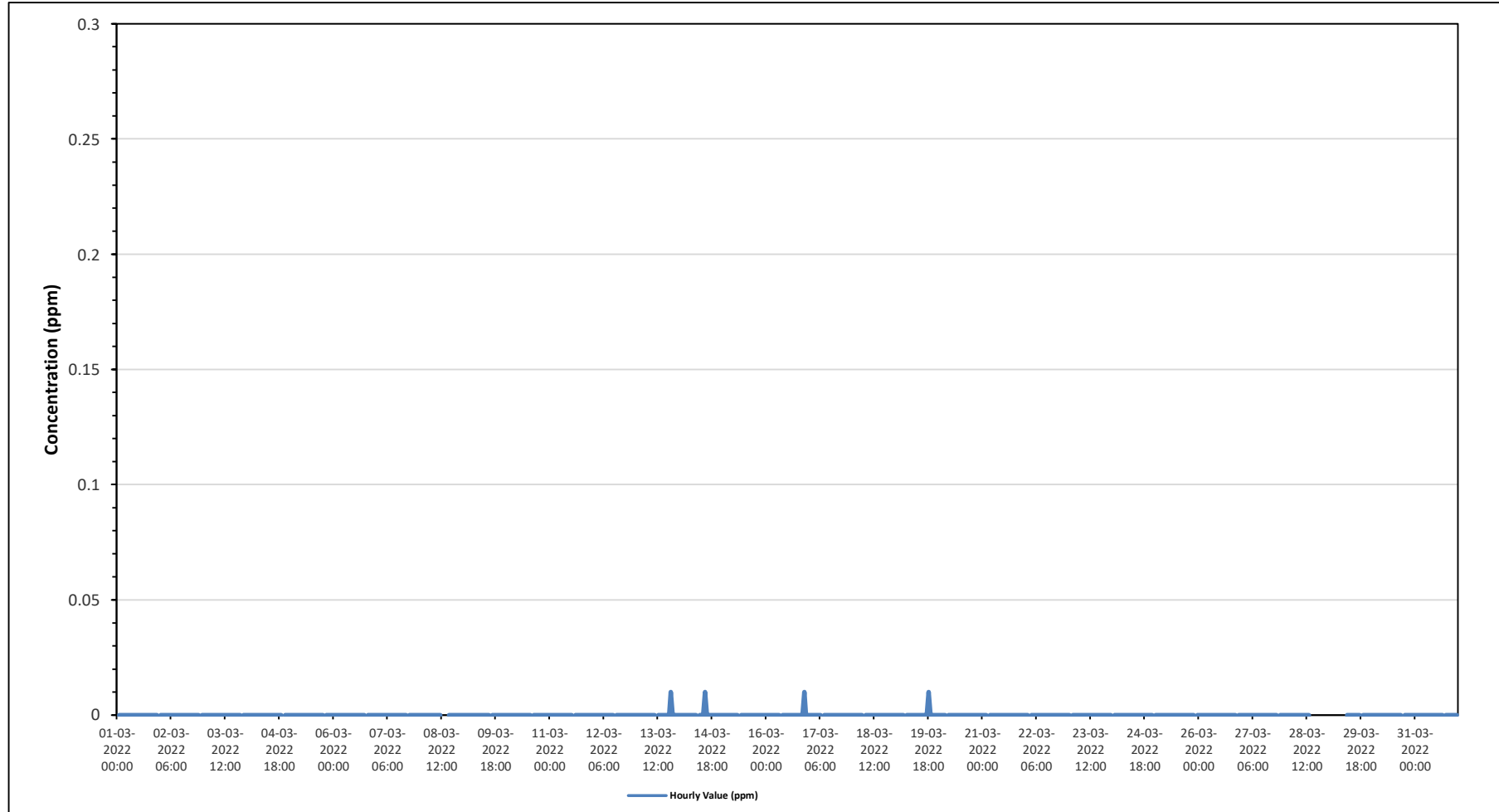
10 2-5

0 5-10

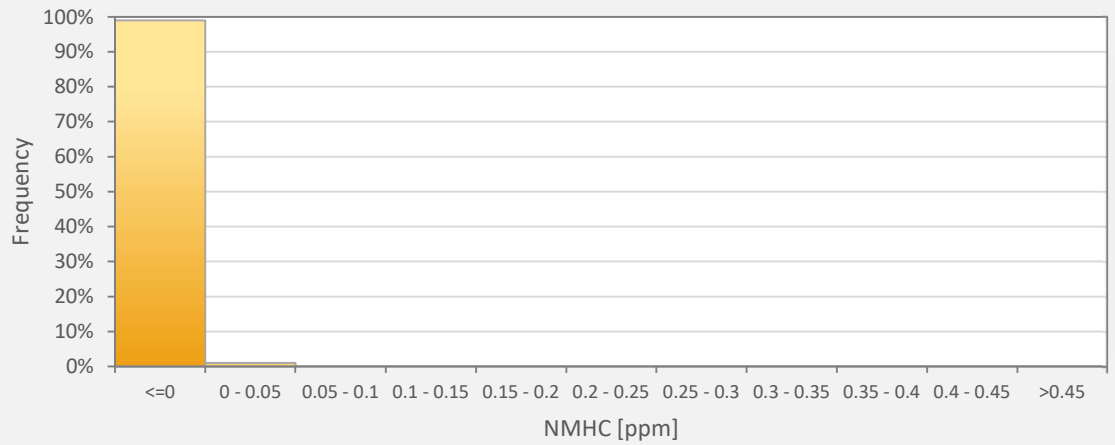
0 10-20

0 >20.0

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



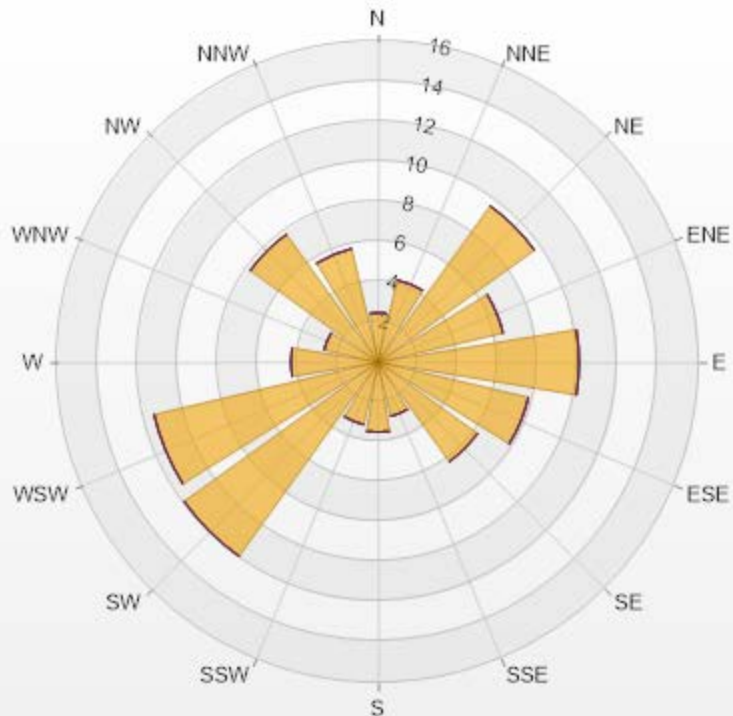
NMHC[ppm] Histogram: Cold Lake South Monthly: 03-2022 1 Hr.



Classes	NMHC
<=0	98.98%
0 - 0.05	1.02%
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: Cold Lake South Poll.: Cold Lake South-NMHC[ppm] Monthly: 03-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 92.61% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	2.47	0	0	0	0	2.47
NNE	4.21	0	0	0	0	4.21
NE	9.58	0	0	0	0	9.58
ENE	6.39	0	0	0	0	6.39
E	10.01	0	0	0	0	10.01
ESE	7.69	0	0	0	0	7.69
SE	6.1	0	0	0	0	6.1
SSE	2.76	0	0	0	0	2.76
S	3.48	0	0	0	0	3.48
SSW	3.19	0	0	0	0	3.19
SW	11.9	0	0	0	0	11.9
WSW	11.47	0	0	0	0	11.47
W	4.35	0	0	0	0	4.35
WNW	2.76	0	0	0	0	2.76
NW	7.84	0	0	0	0	7.84
NNW	5.81	0	0	0	0	5.81
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 - March 2022

Summary of Hourly Averages

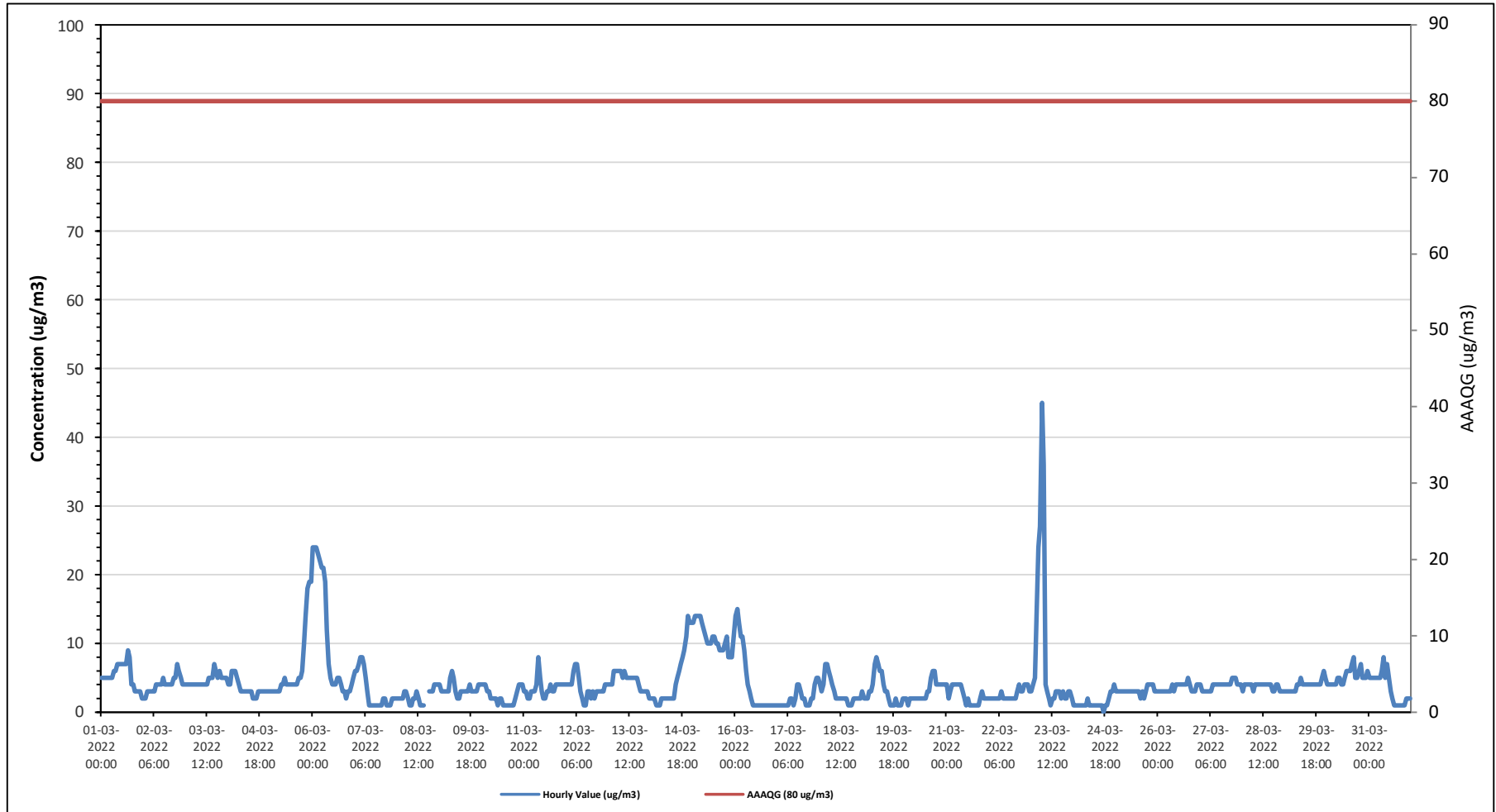
PARTICULATE MATTER 2.5 (PM_{2.5}) in µg/m³

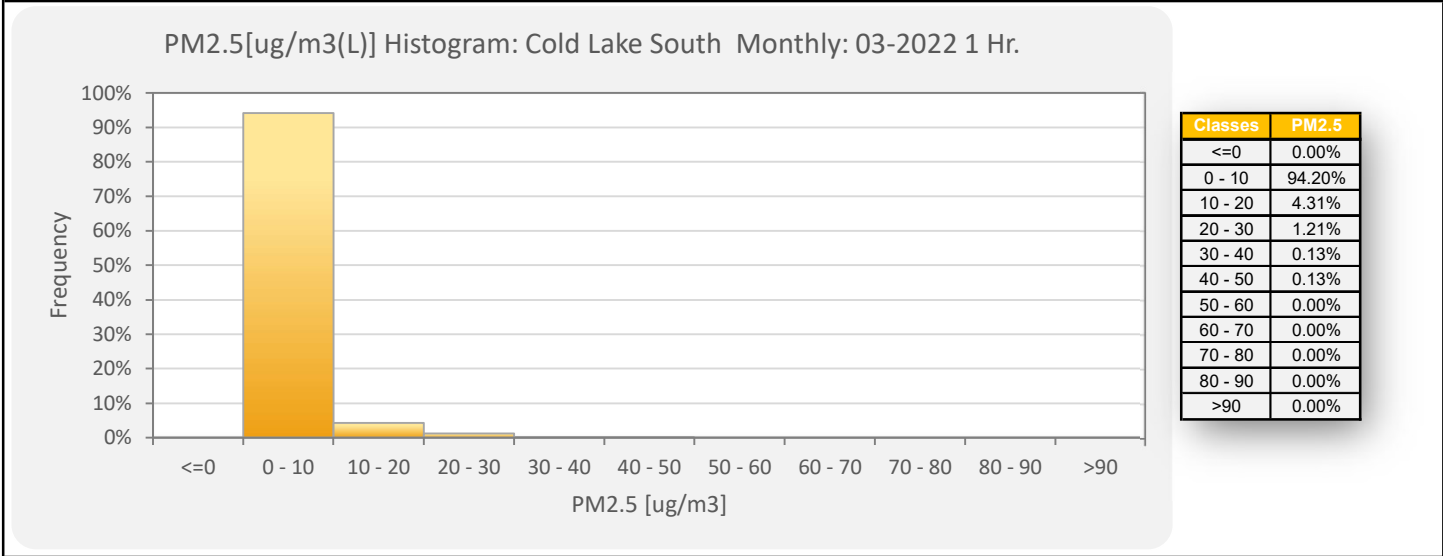
Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m ³ , Alberta Ambient Air Quality Objective (AAAQO): 24-Hour 29 µg/m ³																											
Number of 1-Hour Exceedances: 0													Number of 24-Hour Exceedances: 0														
Maximum Hourly Value: 45 µg/m ³ on March 23 at hour 6													Hours in Service: 744														
Maximum Daily Value: 10.8 µg/m ³ on March 15													Hours of Data: 742														
Minimum Hourly Value: 0 µg/m ³ on March 24 at hour 17													Hours of Missing Data: 0														
Minimum Daily Value: 1 µg/m ³ on March 24													Hours of Calibration: 2														
Monthly Average: 4.2 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			
Mar 1	5	5	5	5	5	5	5	6	6	7	7	7	7	7	9	8	4	4	3	3	3	3	3	2	2	9	5.3
Mar 2	2	2	3	3	3	3	3	4	4	4	4	4	4	4	4	4	5	5	7	6	5	4	4	4	2	7	4.0
Mar 3	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	7	6	5	5	5	5	5	5	5	4	7	4.6
Mar 4	4	4	6	6	6	5	4	3	3	3	3	3	3	3	2	2	2	3	3	3	3	3	3	3	2	6	3.5
Mar 5	3	3	3	3	3	3	4	4	5	4	4	4	4	4	4	5	5	6	10	14	18	19	19	3	19	6.5	
Mar 6	24	24	24	23	22	21	21	19	12	7	5	4	4	4	5	4	3	3	2	3	3	4	5	2	24	10.5	
Mar 7	6	6	7	8	8	7	5	3	1	1	1	1	1	1	1	2	2	1	1	1	2	2	2	1	8	3.0	
Mar 8	2	2	2	2	3	3	2	1	1	2	2	3	2	1	1	C	C	3	3	3	4	4	4	1	4	2.3	
Mar 9	4	3	3	3	3	3	5	6	5	3	2	2	3	3	3	3	4	3	3	3	3	3	4	2	6	3.4	
Mar 10	4	4	4	3	3	2	2	2	2	1	2	2	1	1	1	1	1	1	2	3	4	4	4	1	4	2.3	
Mar 11	3	3	2	2	3	3	3	4	8	5	3	2	2	3	3	4	3	3	4	4	4	4	4	2	8	3.5	
Mar 12	4	4	4	4	6	7	7	5	3	2	1	1	3	3	2	3	2	3	3	3	3	3	4	1	7	3.5	
Mar 13	4	4	4	6	6	6	6	6	5	6	5	5	5	5	5	5	4	3	3	3	3	3	2	2	6	4.5	
Mar 14	2	2	2	1	1	1	2	2	2	2	2	2	2	2	4	5	6	7	8	9	11	14	13	13	14	4.8	
Mar 15	13	14	14	14	14	13	12	11	10	10	10	11	11	10	10	9	9	9	10	11	8	8	8	8	11	14	10.8
Mar 16	14	15	13	11	11	9	6	4	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	4.3	
Mar 17	1	1	1	1	1	1	1	2	2	1	2	4	4	3	2	2	1	1	1	2	2	4	5	5	1	5	2.1
Mar 18	4	3	4	7	7	6	5	4	3	2	2	2	2	2	2	1	1	1	1	2	2	2	2	2	7	2.9	
Mar 19	3	2	2	2	3	3	4	7	8	7	6	6	4	3	3	2	1	1	1	2	1	1	1	2	8	3.1	
Mar 20	2	2	1	2	2	2	2	2	2	2	2	2	3	3	5	6	6	4	4	4	4	4	4	1	6	3.0	
Mar 21	4	2	3	4	4	4	4	4	4	3	2	1	2	1	1	1	1	1	2	3	2	2	2	1	4	2.4	
Mar 22	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	3	4	3	3	4	4	4	3	2	4	2.5	
Mar 23	3	4	5	14	24	27	45	36	4	3	2	1	2	2	3	3	3	2	3	2	2	3	2	1	45	8.3	
Mar 24	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	0	1	1	2	3	3	4	0	4	1.3	
Mar 25	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	4	4	4	4	4	3	3	2	4	3.1	
Mar 26	3	3	3	3	3	3	3	3	4	3	4	4	4	4	4	4	5	4	3	3	3	4	4	3	5	3.5	
Mar 27	4	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	5	5	5	4	4	4	3	5	3.9	
Mar 28	3	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	3	3	4	4	3	3	3	3	4	3.7	
Mar 29	3	3	3	3	3	3	3	4	4	5	4	4	4	4	4	4	4	4	4	4	5	6	5	3	6	3.9	
Mar 30	4	4	4	4	4	4	5	5	4	4	5	6	6	6	7	8	5	5	6	7	5	5	5	4	8	5.2	
Mar 31	5	5	5	5	5	5	5	6	8	5	7	5	3	2	1	1	1	1	1	2	2	2	2	1	8	3.5	
Diurnal Maximum	24	24	24	23	24	27	45	36	12	10	10	11	11	10	10	9	9	9	10	11	14	18	19	19			
Diurnal Average	4.6	4.5	4.6	5.0	5.5	5.4	5.8	5.5	4.3	3.6	3.4	3.4	3.4	3.3	3.3	3.5	3.4	3.4	3.4	3.8	3.9	4.3	4.4	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					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.

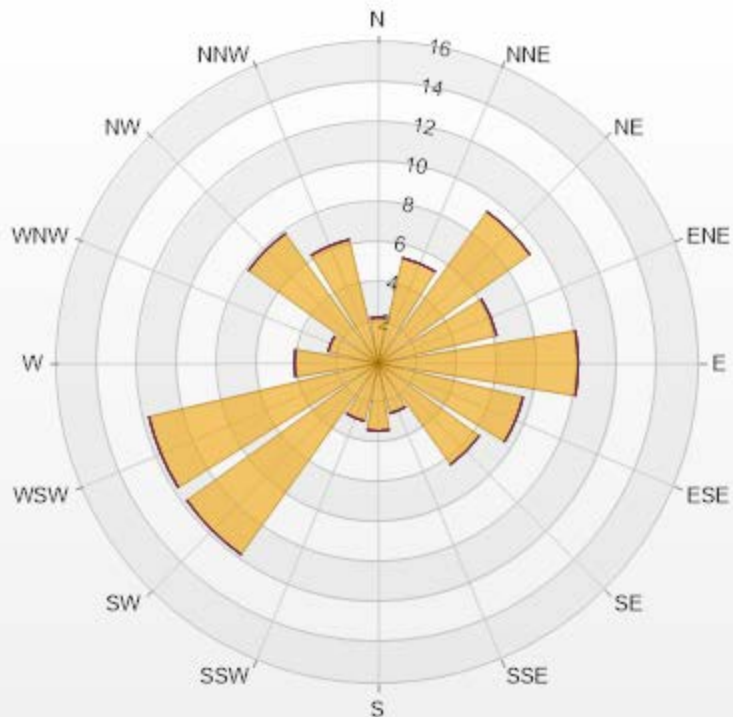
Timeseries Chart of Hourly Average for PM2.5 - Cold Lake South Station





Wind: Cold Lake South Poll.: Cold Lake South-PM2.5[ug/m3(L)] Monthly: 03-2022 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	2.29	0	0	0	0	2.29
NNE	5.39	0	0	0	0	5.39
NE	9.3	0	0	0	0	9.3
ENE	6.06	0	0	0	0	6.06
E	9.97	0	0	0	0	9.97
ESE	7.41	0	0	0	0	7.41
SE	6.2	0	0	0	0	6.2
SSE	2.56	0	0	0	0	2.56
S	3.37	0	0	0	0	3.37
SSW	2.96	0	0	0	0	2.96
SW	11.73	0	0	0	0	11.73
WSW	11.73	0	0	0	0	11.73
W	4.18	0	0	0	0	4.18
WNW	2.56	0	0	0	0	2.56
NW	7.95	0	0	0	0	7.95
NNW	6.33	0	0	0	0	6.33
Summary	100	0	0	0	0	100



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% Icon Classes (ug/m3(L))

100 0-50

0 50-80

0 80-120

0 120-240

0 >240.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - March 2022

Summary of Hourly Averages

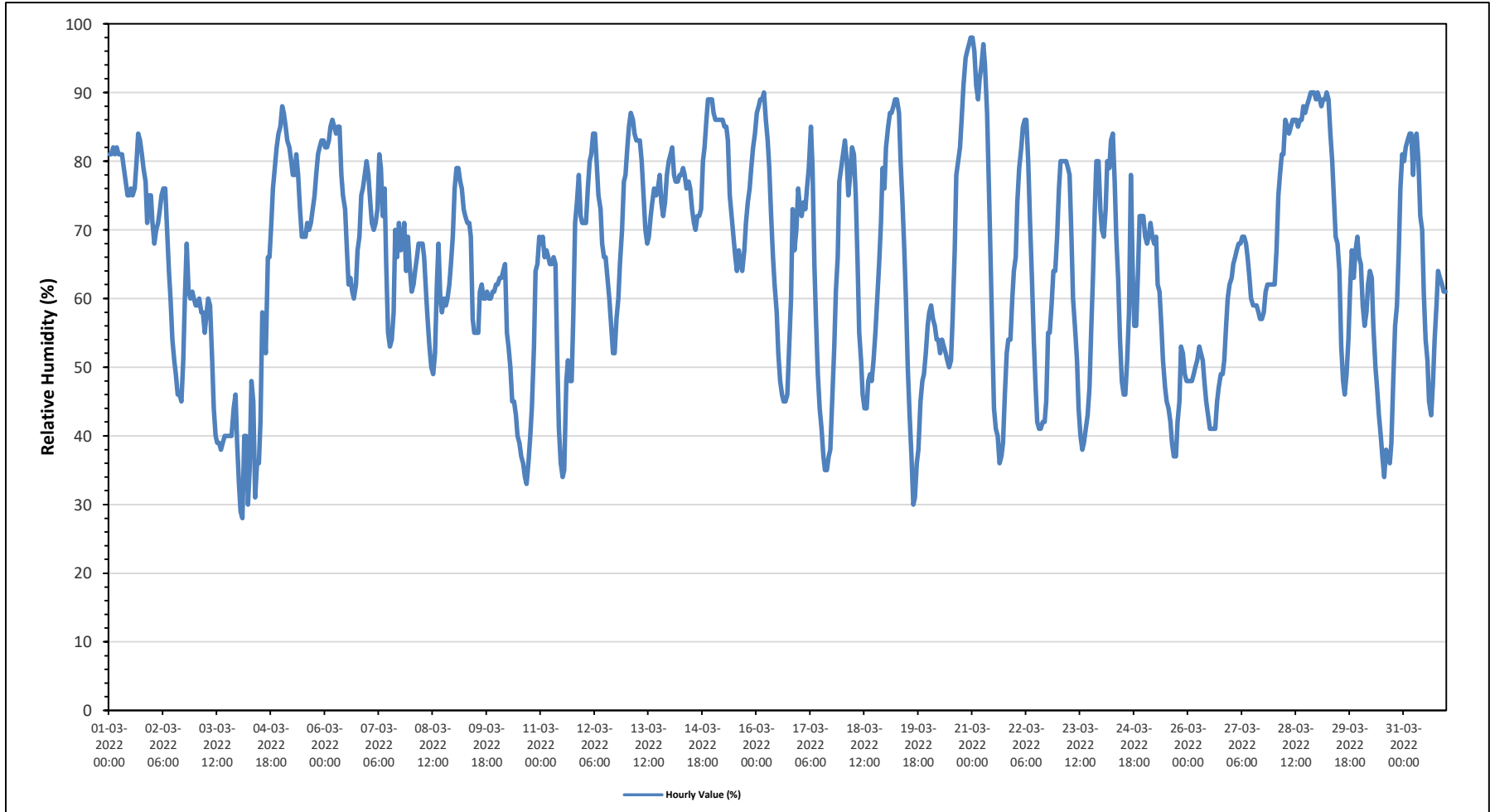
RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	98	%	on March 20 at hour 23	Hours in Service:	744
Maximum Daily Value:	83.8	%	on March 28	Hours of Data:	744
Minimum Hourly Value:	28	%	on March 4 at hour 2	Hours of Missing Data:	0
Minimum Daily Value:	47.7	%	on March 3	Hours of Calibration:	0
Monthly Average:	65.1	%		Operational Uptime:	100.0

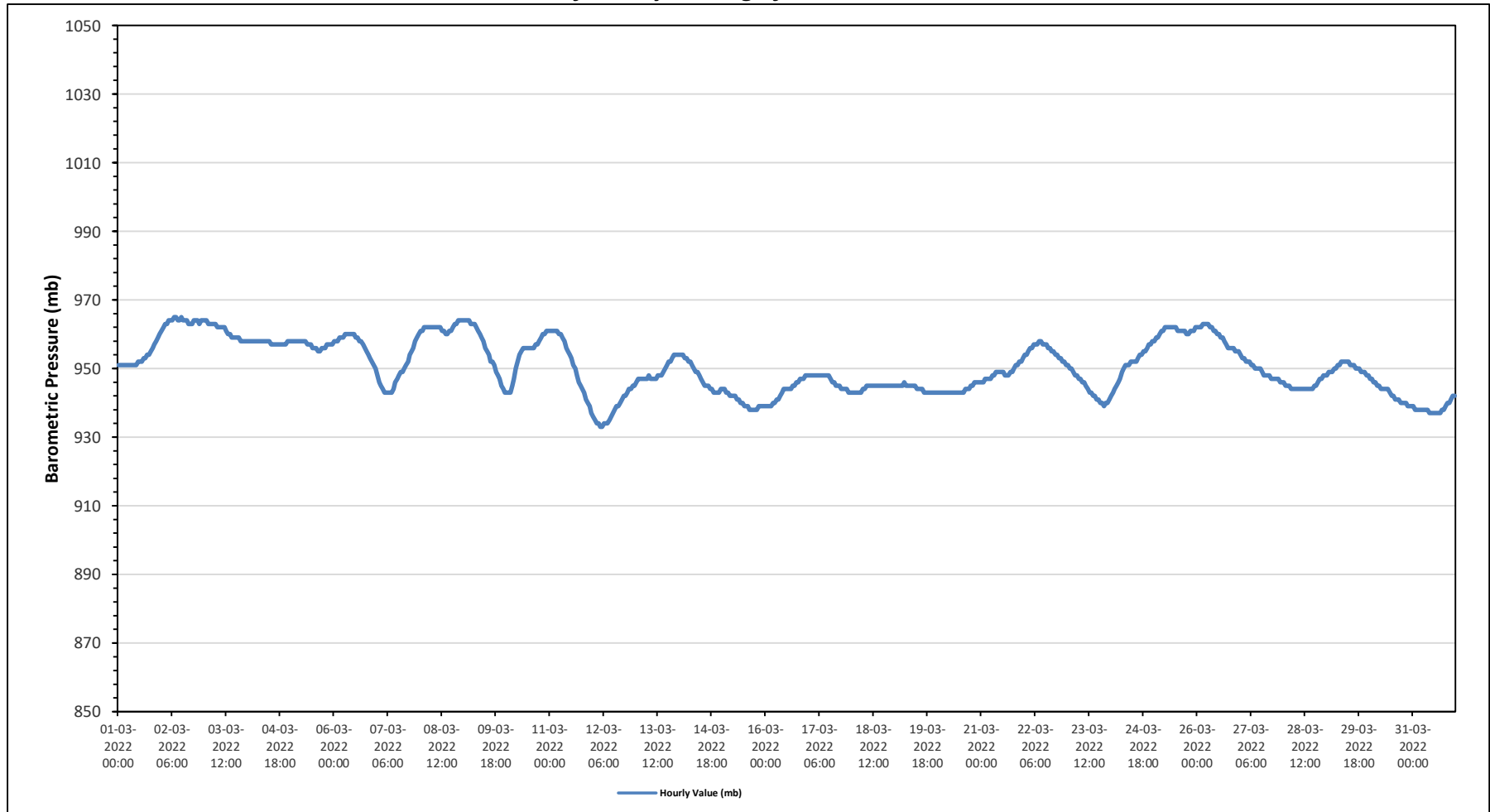
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Mar 1	81	81	82	81	82	81	81	81	79	77	75	75	76	75	76	80	84	83	81	79	77	71	75	75	71	84	78.7
Mar 2	71	68	70	71	73	75	76	76	70	64	60	54	51	49	46	46	45	51	60	68	61	60	61	60	45	76	61.9
Mar 3	59	59	60	58	58	55	58	60	59	51	44	40	39	39	38	39	40	40	40	40	40	44	46	39	38	60	47.7
Mar 4	33	29	28	40	40	30	35	48	45	31	36	36	42	58	56	52	66	66	71	76	79	82	84	85	28	85	52.0
Mar 5	88	87	85	83	82	80	78	78	81	78	73	69	69	69	71	70	71	73	75	78	81	82	83	83	69	88	77.8
Mar 6	82	82	83	85	86	85	84	85	85	78	75	73	67	62	63	61	60	62	67	69	75	76	78	80	60	86	75.1
Mar 7	78	74	71	70	71	73	81	79	72	76	65	55	53	54	58	70	66	71	67	68	71	64	69	65	53	81	68.4
Mar 8	61	62	64	66	68	68	68	66	61	57	53	50	49	52	62	68	60	58	60	59	60	62	65	69	49	69	61.2
Mar 9	76	79	79	77	76	73	72	71	71	69	57	55	55	55	61	62	60	60	61	60	60	61	61	62	55	79	65.5
Mar 10	62	63	63	64	65	55	53	50	45	45	43	40	39	37	36	34	33	36	40	44	53	64	65	69	33	69	49.9
Mar 11	68	69	66	67	66	65	65	66	65	51	41	36	34	35	48	51	48	48	57	71	74	78	72	71	34	78	58.8
Mar 12	71	71	76	80	81	84	84	80	75	73	68	66	66	63	60	56	52	52	57	60	65	70	77	78	52	84	69.4
Mar 13	82	85	87	86	84	83	83	83	80	75	70	68	69	72	74	76	75	76	78	74	72	74	78	80	68	87	77.7
Mar 14	81	82	78	77	77	78	78	79	78	76	77	76	73	71	70	72	72	73	80	82	86	89	89	89	70	89	78.5
Mar 15	87	86	86	86	86	86	85	85	83	75	72	69	66	64	67	65	64	67	71	74	76	79	82	84	64	87	76.9
Mar 16	87	88	89	89	90	86	83	79	72	66	62	58	52	48	46	45	45	46	53	60	73	67	70	76	45	90	67.9
Mar 17	73	72	74	73	76	79	85	79	65	57	49	44	41	37	35	35	37	38	46	53	61	66	77	79	35	85	59.6
Mar 18	81	83	80	75	78	82	81	75	65	55	51	46	44	44	48	49	48	51	55	60	65	71	79	76	44	83	64.3
Mar 19	82	85	87	87	88	89	89	87	80	74	67	60	50	43	37	30	31	36	38	45	48	49	52	56	30	89	62.1
Mar 20	58	59	57	56	54	54	52	54	53	52	51	50	51	57	67	78	80	82	86	91	95	96	97	98	50	98	67.8
Mar 21	98	96	91	89	92	94	97	94	87	76	66	54	44	41	40	36	37	39	46	52	54	54	60	64	36	98	66.7
Mar 22	66	74	79	82	85	86	86	80	71	63	54	47	42	41	41	42	42	45	55	55	59	64	64	69	41	86	62.2
Mar 23	76	80	80	80	80	79	78	69	60	56	51	44	40	38	39	41	43	47	56	63	73	80	80	73	38	80	62.8
Mar 24	70	69	73	80	79	83	84	77	69	63	54	48	46	46	51	58	78	64	56	64	72	72	72	46	84	66.0	
Mar 25	69	68	69	71	69	68	69	62	61	56	51	47	45	44	42	39	37	37	42	45	53	52	49	48	37	71	53.9
Mar 26	48	48	48	49	50	51	53	52	51	48	45	43	41	41	41	41	45	47	49	49	51	56	60	62	41	62	48.7
Mar 27	63	65	66	67	68	68	69	69	68	66	63	60	59	59	58	57	57	57	58	61	62	62	62	62	57	69	62.8
Mar 28	62	67	75	78	81	81	86	85	84	85	86	86	86	85	86	86	88	87	88	89	90	90	90	89	62	90	83.8
Mar 29	90	89	88	89	89	90	89	84	80	74	69	68	64	53	48	46	49	54	61	67	63	67	69	66	46	90	71.1
Mar 30	65	59	56	58	62	64	63	56	50	47	43	40	37	34	38	37	36	39	48	56	59	67	76	81	34	81	53.0
Mar 31	80	82	83	84	84	78	83	84	80	72	70	61	54	51	45	43	48	54	59	64	63	62	61	61	43	84	66.9
Diurnal Maximum	98	96	91	89	92	94	97	94	87	85	86	86	86	85	86	86	88	87	88	91	95	96	97	98			
Diurnal Average	72.5	72.9	73.3	74.1	74.8	74.3	75.1	73.3	69.2	64.1	59.4	55.4	53.0	52.2	53.2	53.7	54.7	56.1	60.0	63.5	66.5	68.7	71.1	71.6			
C	Monthly Calibration		S	Daily Zero-Span Check		Q	Quality Assurance																				
K	Collection Error		N	No Data (Machine Not in Service)		Y	Routine Maintenance																				
X	Invalid Data (Equipment Malfunction /Recovery)		NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)		P	Power Failure																				

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

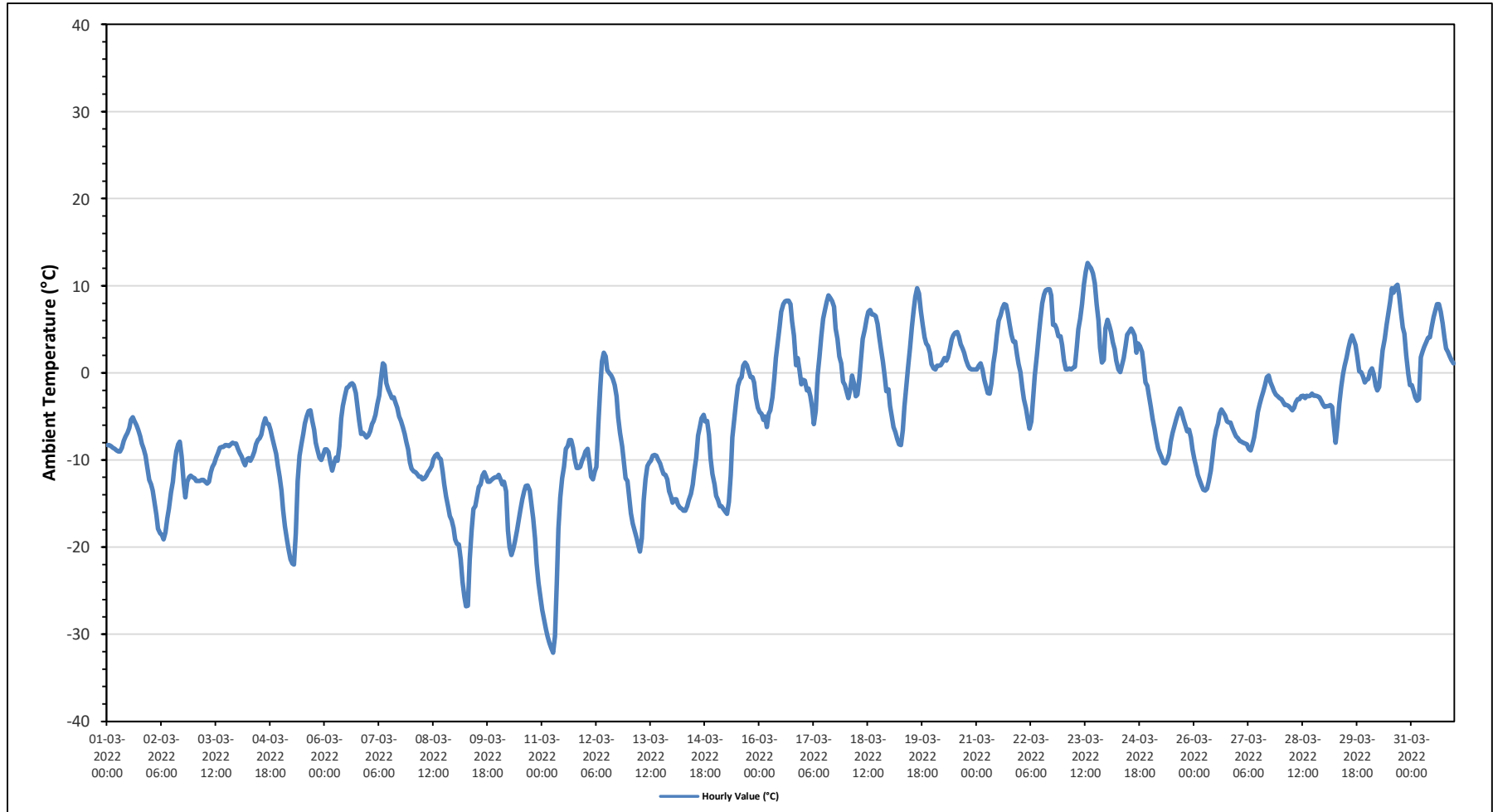
Timeseries Chart of Hourly Average for RH - Cold Lake South Station



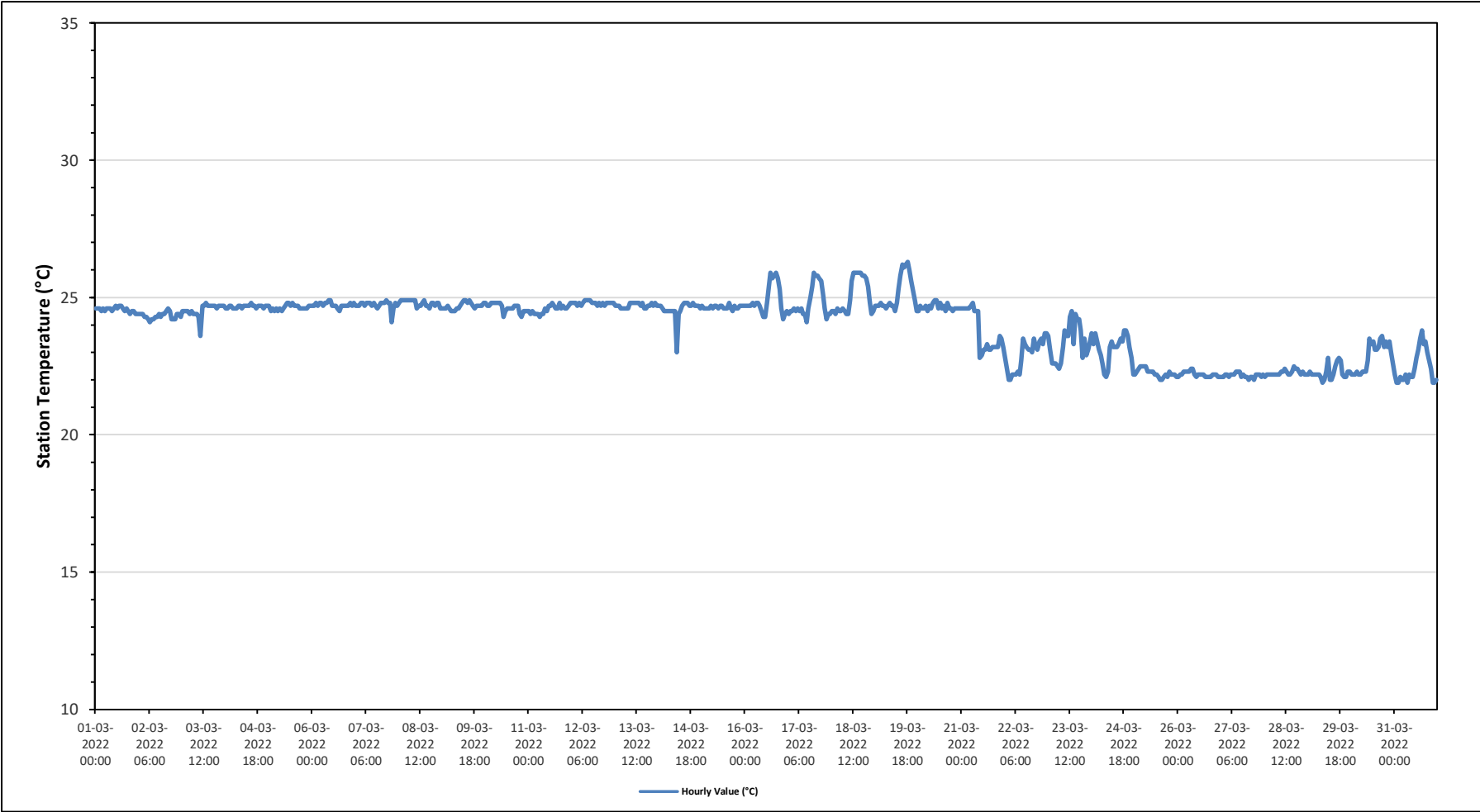
Timeseries Chart of Hourly Average for BP - Cold Lake South Station



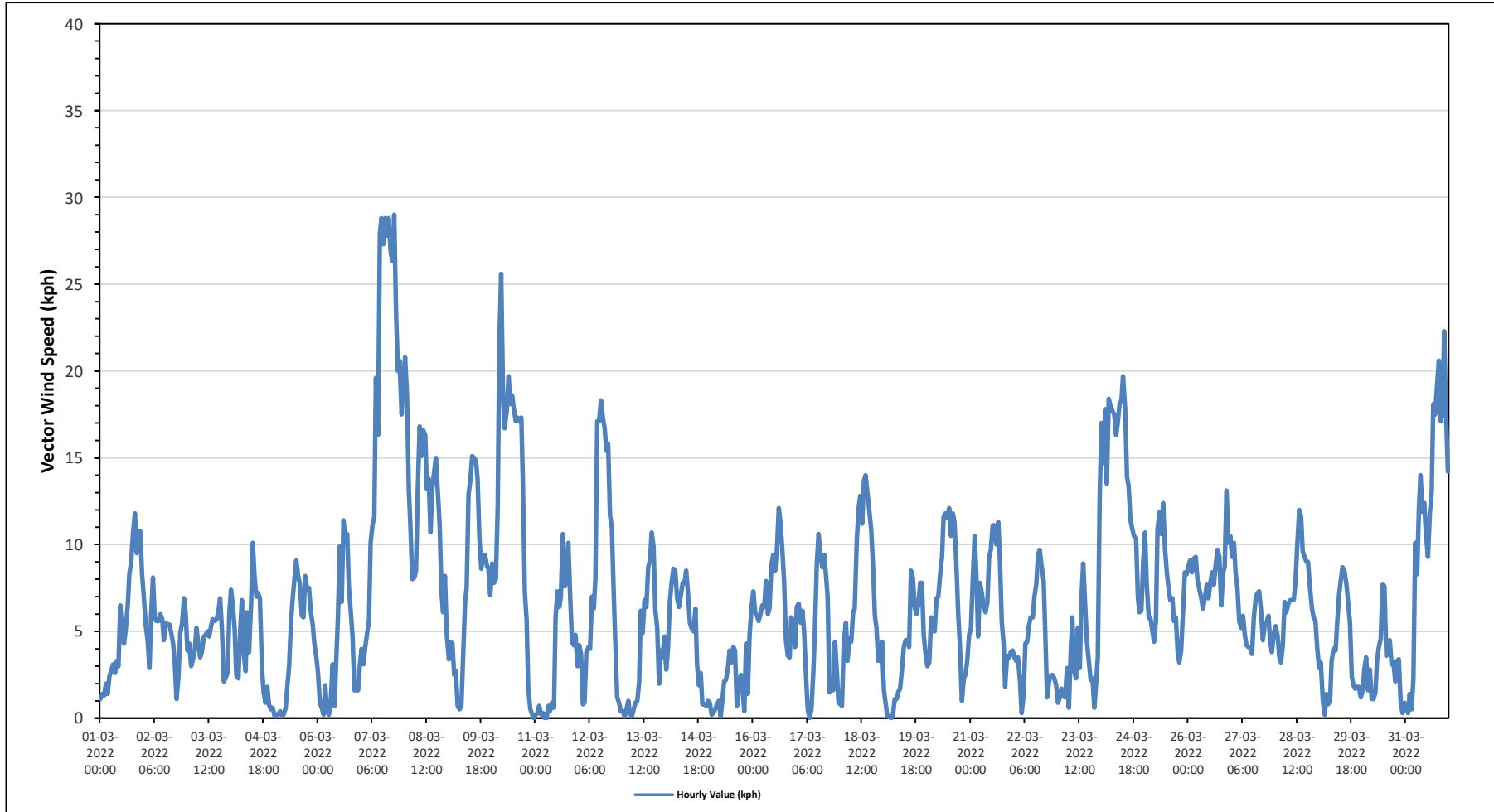
Timeseries Chart of Hourly Average for AT - Cold Lake South Station



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



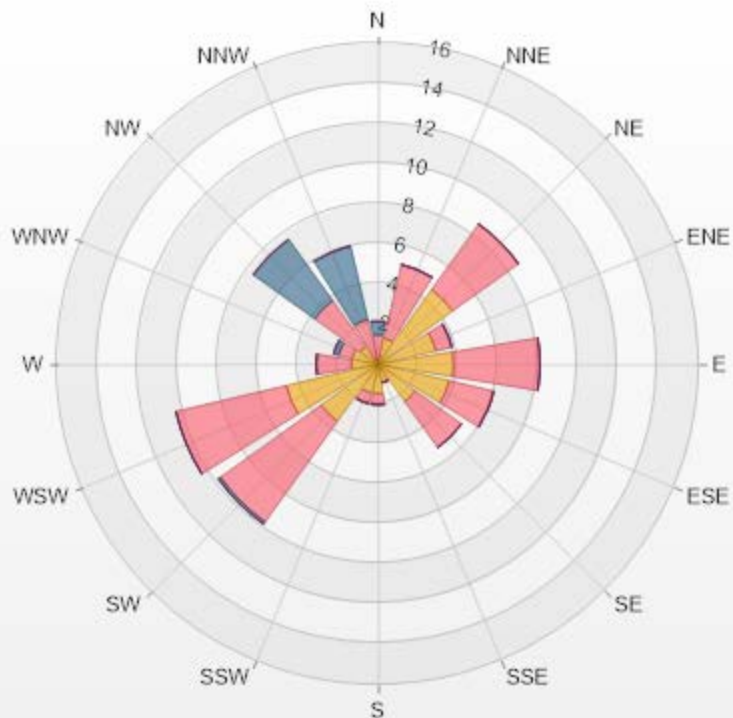
Timeseries Chart of Hourly Average for VWS - Cold Lake South Station



Wind: Cold Lake South Monitor: WDS [kph] Monthly: 03-2022 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	0.27	1.21	0.67	0	0	2.15
NNE	1.34	3.76	0	0	0	5.1
NE	4.57	4.03	0	0	0	8.6
ENE	2.96	0.81	0	0	0	3.77
E	3.76	4.3	0	0	0	8.06
ESE	3.63	2.28	0	0	0	5.91
SE	2.28	2.82	0	0	0	5.1
SSE	0.94	0	0	0	0	0.94
S	1.48	0.54	0	0	0	2.02
SSW	1.48	0.54	0	0	0	2.02
SW	3.49	6.18	0.13	0	0	9.8
WSW	4.7	5.65	0	0	0	10.35
W	1.34	1.75	0	0	0	3.09
WNW	1.34	0.67	0.27	0	0	2.28
NW	1.08	2.82	3.76	0	0	7.66
NNW	0.27	2.02	3.76	0	0	6.05
Summary	34.93	39.38	8.59	0	0	82.9



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% Icon Classes (kph)

35 1.8-6.0

39 6.0-15.0

9 15.0-29.0

0 29.0-39.0

0 >39.0



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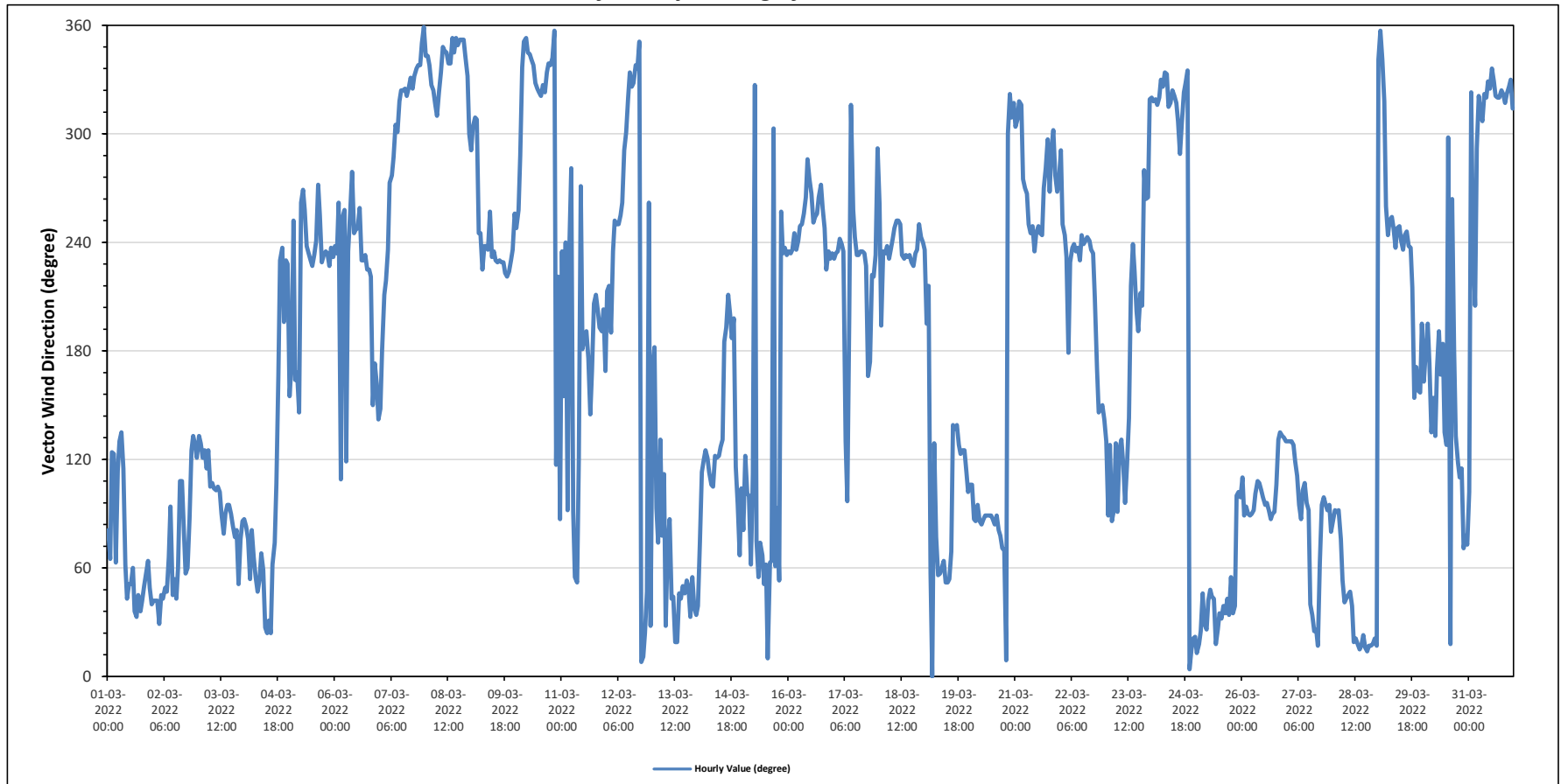
Cold Lake South Station - March 2022

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:		328 (NNW) 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	
Mar 1	E	ENE	ESE	ESE	ENE	ESE	SE	SE	ESE	ENE	NE	NE	NE	ENE	NE	NNE	NE	NE	NE	NE	ENE	NE	NE	NE	55	NE	
Mar 2	NE	NE	NE	NNE	NE	NE	NE	NE	ENE	E	NE	NE	NE	ENE	ESE	ESE	E	ENE	ENE	E	SE	SE	SE	ESE	71	ENE	
Mar 3	SE	SE	ESE	SE	ESE	SE	ESE	ESE	ESE	ESE	ESE	E	E	ENE	E	E	E	E	E	ENE	E	NE	ENE	E	98	E	
Mar 4	E	E	ENE	NE	E	ENE	NE	NE	NE	ENE	ENE	NNE	NNE	NNE	ENE	ENE	ESE	SSE	SW	SW	SSW	SW	SW	SW	58	ENE	
Mar 5	SSE	S	WSW	SSE	SSE	SE	W	W	WSW	SW	SW	SW	SW	WSW	W	WSW	SW	SW	SW	SW	SW	SW	SW	SW	237	SW	
Mar 6	SW	SW	W	ESE	WSW	WSW	ESE	SW	WSW	W	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	SSE	S	SSE	SE	232	SW	
Mar 7	SE	S	SSW	SW	SW	W	W	WNW	WNW	WNW	NW	NW	NW	NW	NW	NW	NNW	NW	NNW	NNW	NNW	NNW	N	N	322	NW	
Mar 8	NNW	NNW	NNW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	N	NNW	N	N	NNW	NNW	NNW	NNW	NNW	NNW	340	NNW	
Mar 9	WNW	WNW	NW	NW	WSW	WSW	SW	SW	SW	SW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	237	SW	
Mar 10	WSW	WSW	WNW	NNW	N	N	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	N	ESE	SW	E	332	NNW	
Mar 11	SW	SSE	WSW	E	WSW	W	E	NE	NE	ESE	W	S	S	S	S	SE	SSE	SSW	SSW	SSW	S	S	SSW	SSE	186	S	
Mar 12	SSW	SW	S	SW	WSW	WSW	WSW	WSW	W	WNW	WNW	NW	NNW	NW	NNW	NNW	NNW	N	N	NNE	NE	W	NNE	320	NW		
Mar 13	S	S	E	ENE	SE	ENE	ESE	NNE	ENE	E	NE	NE	NNE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	44	NE	
Mar 14	NE	ENE	ESE	ESE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	S	S	SSW	SSW	S	SSW	ESE	E	ENE	ESE	128	SE	
Mar 15	E	ESE	E	E	ENE	ESE	NW	ENE	NE	ENE	ENE	NE	ENE	N	ENE	ENE	WNW	ENE	E	NE	WSW	SW	SW	SW	53	NE	
Mar 16	SW	SW	SW	WSW	WSW	SW	WSW	WSW	WSW	WSW	W	WNW	W	W	WSW	WSW	WSW	W	W	WSW	WSW	SW	SW	SW	SW	253	WSW
Mar 17	SW	SW	SW	WSW	WSW	SW	SE	E	SSW	NW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	SSE	S	SW	SW	SW	WNW	235	SW
Mar 18	W	SSW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	238	SW	
Mar 19	SW	SSW	SW	ENE	N	SE	ENE	NE	ENE	ENE	NE	NE	NE	ENE	SE	SE	SE	ESE	ESE	SE	ESE	E	ESE	E	110	ESE	
Mar 20	ESE	ESE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	ENE	ENE	ENE	N	WNW	NW	NW	NW	82	E
Mar 21	WNW	NW	NW	NW	W	W	W	WSW	WSW	WSW	SW	WSW	WSW	WSW	WSW	W	W	WNW	W	WNW	WNW	W	W	W	W	270	W
Mar 22	WNW	WSW	WSW	SW	S	SW	WSW	WSW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SSW	SSE	SE	SE	SSE	SE	234	SW
Mar 23	SE	E	SE	E	E	SE	E	SE	SE	ESE	E	ESE	SE	SW	WSW	SW	SSW	S	SSW	SSW	W	W	W	NW	194	SSW	
Mar 24	NW	NW	NW	NW	NW	NNW	NW	NNW	NNW	NW	NW	NW	NW	NW	NNW	NW	NNW	NW	NNW	NW	NNE	NNE	NNE	NNE	324	NW	
Mar 25	NNE	NNE	NNE	NE	NNE	NNE	NE	NE	NE	NE	NNE	NNE	NE	NE	NE	NE	NE	NE	NE	NE	E	E	E	E	41	NE	
Mar 26	ESE	E	E	E	E	E	E	E	ESE	ESE	ESE	E	E	E	E	E	E	E	ESE	SE	SE	SE	SE	SE	SE	105	ESE
Mar 27	SE	SE	SE	SE	ESE	ESE	E	ESE	ESE	E	NE	NE	NE	NNE	NNE	NNE	ENE	E	E	E	E	E	E	E	90	E	
Mar 28	E	E	E	E	ENE	NE	NE	NE	NE	NE	NNE	NNE	NE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	32	NNE	
Mar 29	NNW	N	NNW	NW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SSW	SSE	S	SSE	SSE	SSW	242	WSW	
Mar 30	SSE	S	SSW	S	SE	SSE	SE	SSE	S	SE	S	SE	SE	W/NW	NNE	W	S	SE	ESE	ESE	ESE	ENE	ENE	ENE	153	SSE	
Mar 31	E	NW	WSW	SSW	WNW	NW	NW	NW	NW	NW	NNW	NW	NNW	NNW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	NW	322	NW	
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 - March 2022

Summary of Hourly Averages

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

WIND SPEED					
Maximum Hourly Value:	29.0 kph on March 7 at hour 18				
Maximum Daily Value:	16.4 kph on March 7				
Minimum Hourly Value:	0.0 kph on March 10 at hour 23				
Minimum Daily Value:	0.5 kph on March 15				
Monthly Average:	1.8 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:	328 (NNW) degree				
Day	Hourly Period Starting at (MST)	Daily Minimum	Daily Maximum	Daily Average	
Mar 21	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	1.8	11.3	6.3	
Mar 22	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	0.3	9.7	4.0	
Mar 23	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	0.6	12.7	1.4	
Mar 24	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	6.1	19.7	13.5	
Mar 25	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	3.2	12.4	6.7	
Mar 26	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	6.3	13.1	8.1	
Mar 27	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	3.7	10.1	4.7	
Mar 28	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	3.2	12.0	6.5	
Mar 29	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	0.2	8.7	3.1	
Mar 30	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	0.3	7.7	1.9	
Mar 31	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	0.3	22.3	11.6	
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.					



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - March 2022

Summary of Hour Standard Deviations

STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

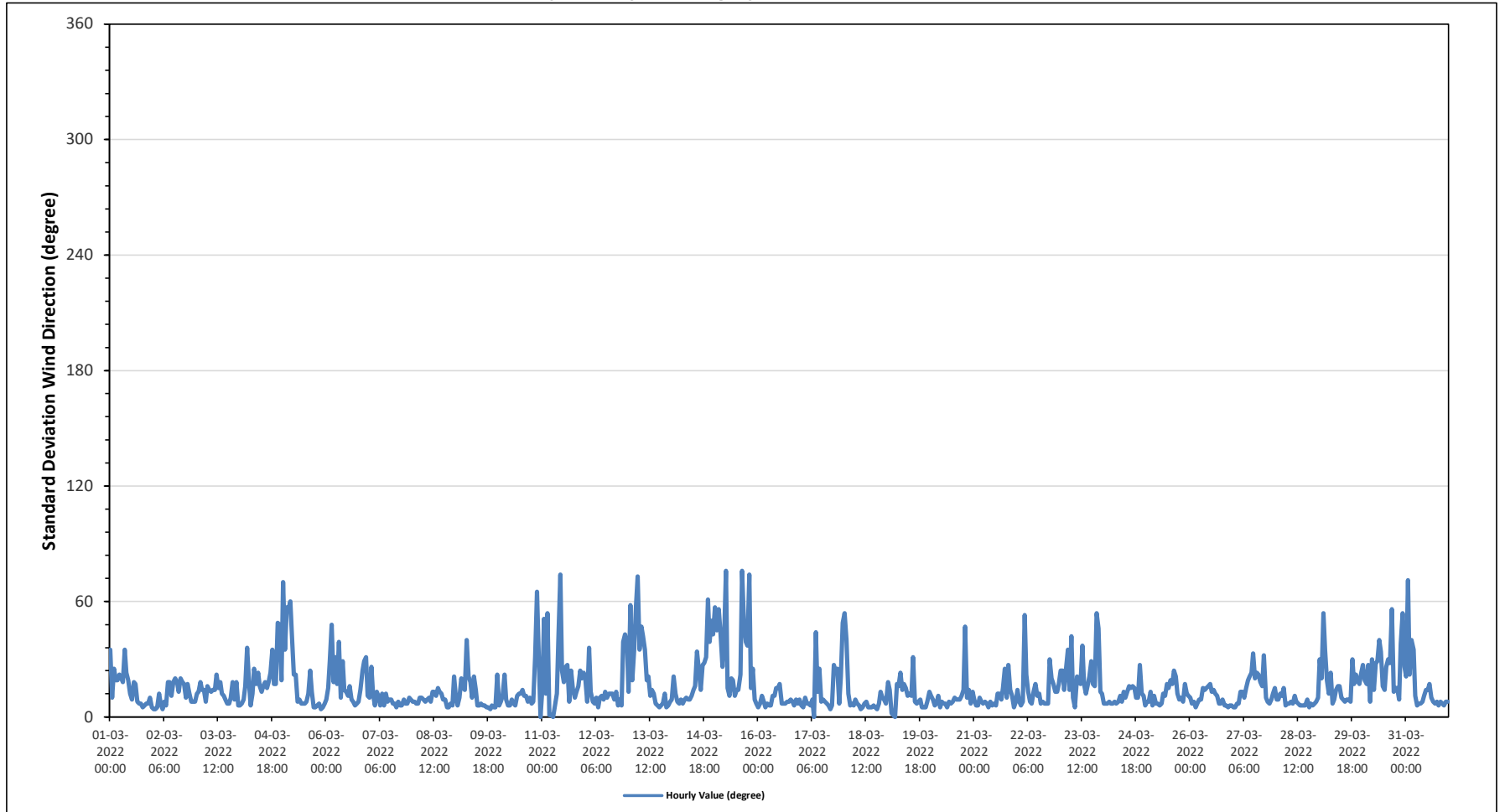
Maximum Hourly Value:	76 degree on March 15 at hour 6	Hours in Service:	744
Minimum Hourly Value:	0 degree on March 10 at hour 23	Hours of Data:	744
		Hours of Missing Data:	0
		Hours of Calibration:	0
		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			23
Mar 1	35	10	25	19	19	22	20	18	35	23	19	12	9	18	17	8	7	7	5	6	7	7	10	5	5	35
Mar 2	4	4	5	12	7	4	8	6	18	18	11	18	20	18	13	20	18	17	10	17	12	8	8	8	4	20
Mar 3	12	13	18	14	14	8	16	14	13	14	14	22	15	18	12	11	9	7	7	10	18	9	18	6	6	22
Mar 4	6	7	9	16	36	18	6	12	25	17	23	16	13	16	18	15	18	23	35	17	17	49	48	19	6	49
Mar 5	70	35	57	56	60	42	22	22	8	9	7	7	7	8	12	24	13	5	5	6	7	4	5	7	4	70
Mar 6	9	15	29	48	18	31	17	39	10	29	14	13	11	16	9	8	6	7	8	14	24	29	31	11	6	48
Mar 7	10	26	12	6	13	11	6	12	6	12	8	9	9	7	7	5	8	6	6	9	7	7	10	9	5	26
Mar 8	8	8	7	7	10	10	9	8	9	10	8	13	13	11	15	13	12	9	9	5	5	7	6	21	5	21
Mar 9	10	6	10	20	15	14	40	21	18	10	21	14	6	6	7	6	6	5	5	4	6	5	5	22	4	40
Mar 10	6	8	11	22	9	6	6	9	7	6	11	12	12	14	11	11	8	10	7	8	31	65	34	0	0	65
Mar 11	15	51	12	54	1	1	0	6	12	42	74	24	18	26	27	8	24	14	10	13	16	24	20	23	0	74
Mar 12	20	8	36	13	8	7	10	5	10	11	9	13	10	12	12	12	9	13	6	9	6	39	43	38	5	43
Mar 13	13	58	19	35	58	73	35	47	42	35	19	21	11	14	12	7	6	5	6	7	12	5	6	8	5	73
Mar 14	9	21	12	8	7	9	7	9	10	9	9	11	14	16	34	23	14	27	28	31	61	39	50	43	7	61
Mar 15	57	45	56	43	26	40	76	15	11	20	19	11	14	14	22	76	49	39	37	74	15	25	9	7	7	76
Mar 16	5	7	11	8	5	7	6	6	11	11	15	15	17	7	7	7	8	8	9	8	6	9	7	9	5	17
Mar 17	6	5	10	7	7	6	9	0	44	13	25	8	9	8	7	6	4	6	27	23	25	7	21	49	0	49
Mar 18	54	40	12	6	7	6	9	7	6	4	5	7	8	5	5	6	5	4	7	13	10	9	7	4	54	54
Mar 19	18	14	2	1	0	17	16	23	14	17	15	11	12	11	31	8	7	8	9	5	5	5	8	13	0	31
Mar 20	11	9	6	7	11	5	8	7	7	5	8	7	8	10	9	9	9	11	14	47	10	14	7	13	5	47
Mar 21	9	6	6	10	8	7	8	7	5	8	6	7	6	12	12	9	15	25	10	27	14	11	5	8	5	27
Mar 22	14	8	6	8	53	22	13	8	7	13	17	11	12	7	8	7	7	7	30	20	17	13	13	17	6	53
Mar 23	24	24	14	25	35	14	42	10	5	21	19	17	37	17	12	16	21	29	17	16	54	46	13	12	5	54
Mar 24	7	7	7	8	7	7	8	7	8	11	8	13	10	13	16	15	16	15	10	10	27	12	11	6	6	27
Mar 25	8	8	13	6	11	7	7	6	7	12	11	17	15	19	17	24	21	12	9	10	8	17	12	11	6	24
Mar 26	10	7	8	5	7	9	9	15	14	15	16	17	13	14	12	11	7	7	9	6	6	5	6	6	5	17
Mar 27	5	5	7	7	13	13	10	15	19	21	23	33	20	23	22	18	16	32	10	8	7	9	12	15	5	33
Mar 28	9	9	12	11	15	6	7	7	8	7	11	8	7	6	6	6	6	9	5	7	6	7	8	10	5	15
Mar 29	30	20	54	35	19	12	23	7	9	14	16	16	10	9	8	9	9	8	30	17	22	19	17	23	7	54
Mar 30	27	19	17	27	8	30	14	28	29	40	34	16	14	26	30	28	56	13	15	15	9	38	54	26	8	56
Mar 31	21	71	22	40	35	11	6	7	7	8	11	14	14	17	10	8	7	8	6	8	7	6	8	8	6	71
Diurnal Minimum	4	4	2	1	0	1	0	0	5	4	5	7	6	5	5	5	4	5	4	4	5	4	5	0		
Diurnal Maximum	70	71	57	56	60	73	76	47	44	42	74	33	37	26	34	76	56	39	37	74	61	65	54	49		

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

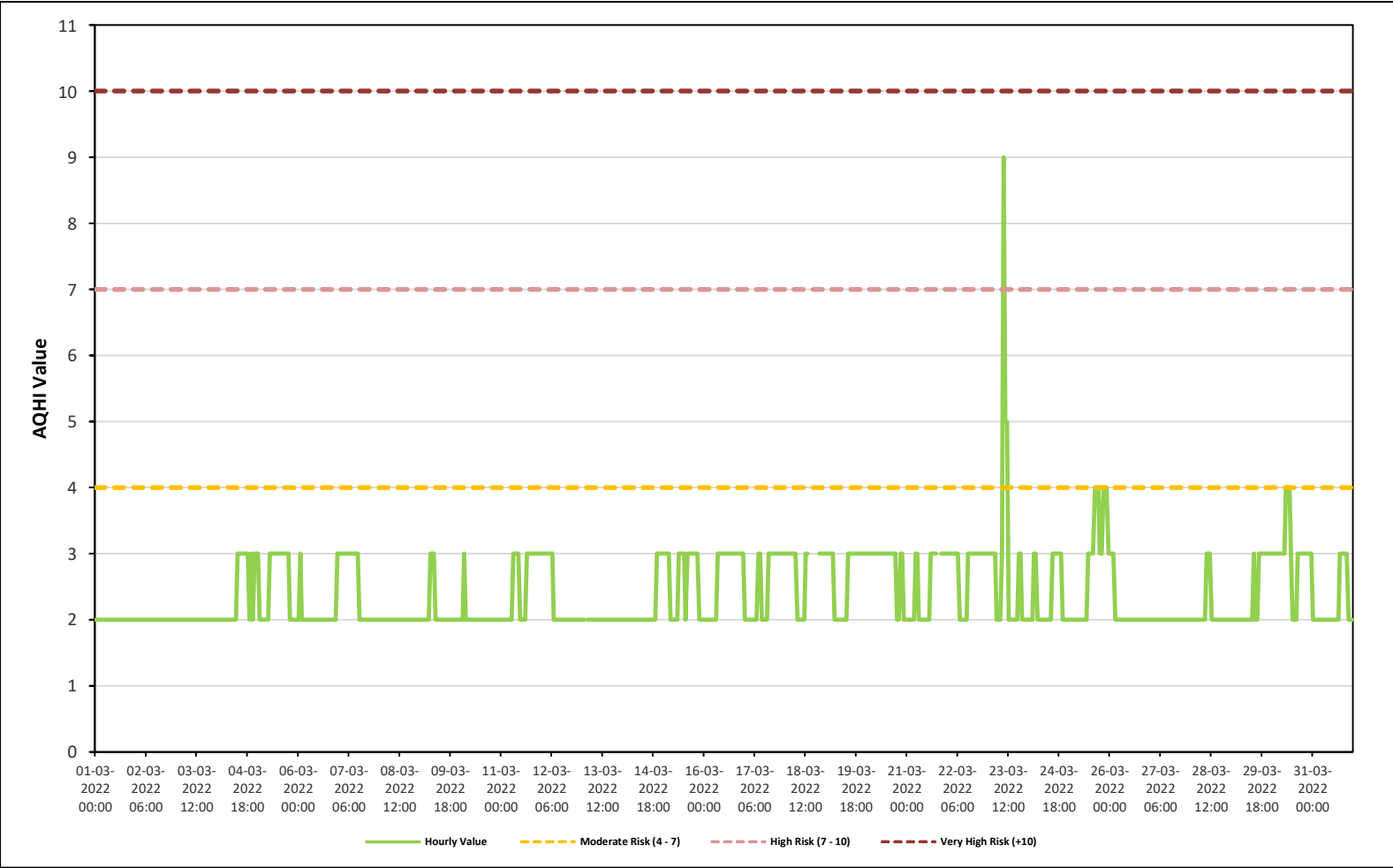
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

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



TAMARACK STATION

Timeseries Chart of Hourly Average for AQHI - Tamarack Site





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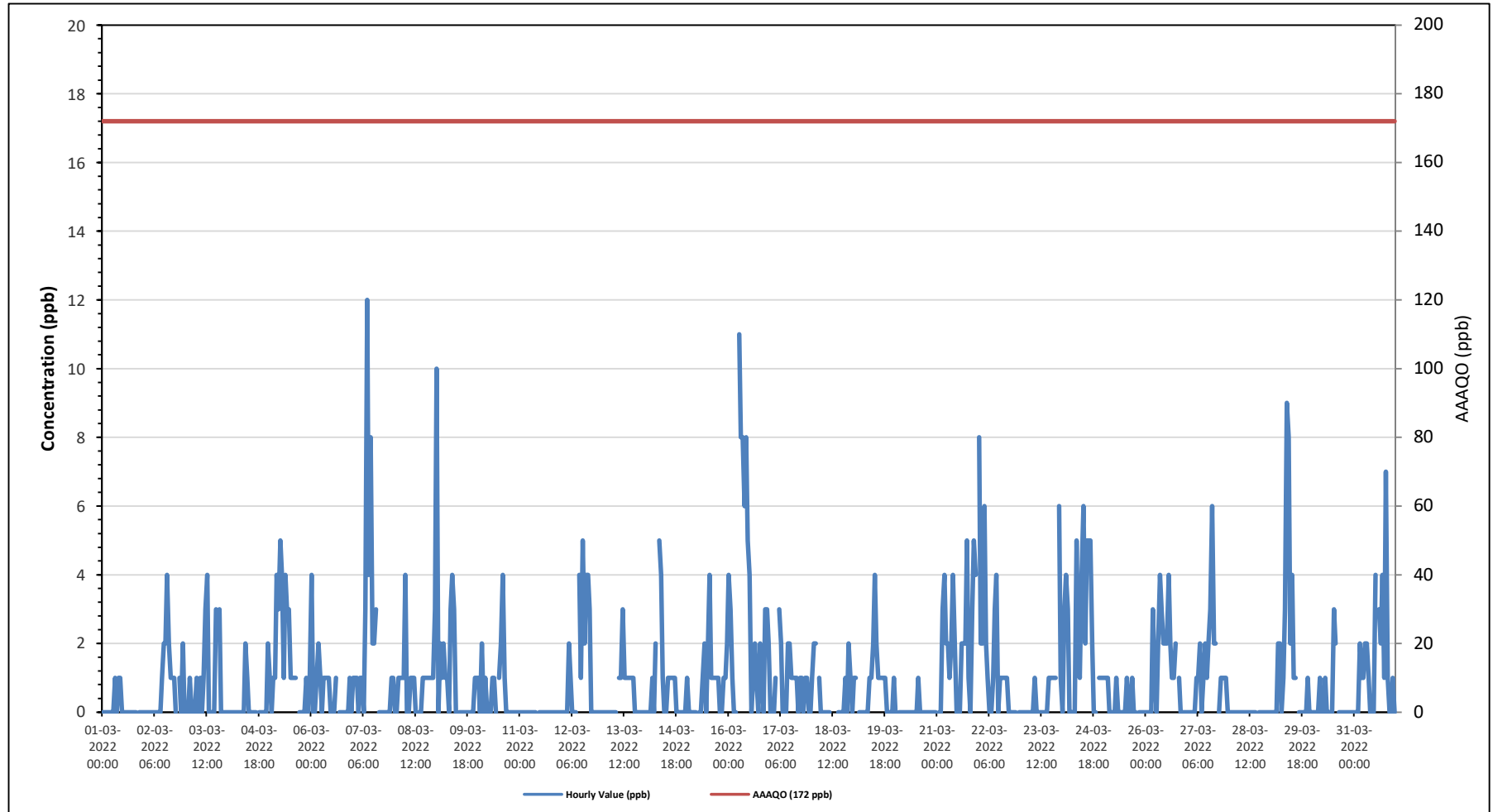
Tamarack Site - March 2022

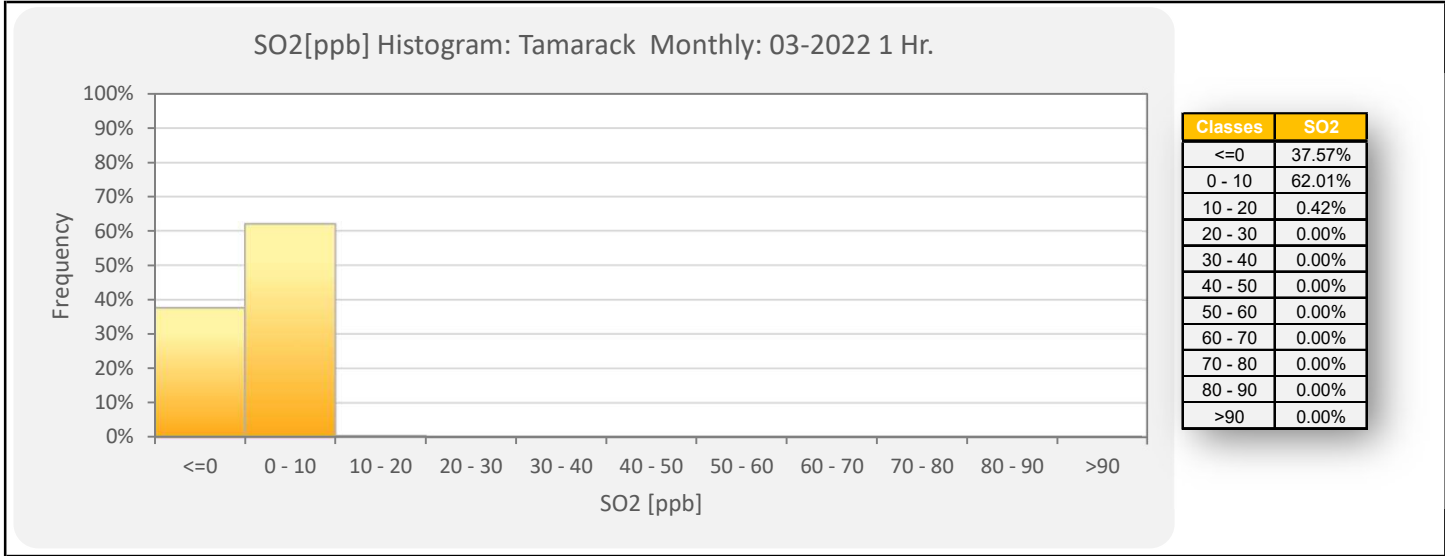
Summary of Hourly Averages

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:													12 ppb on March 7 at hour 8													Hours in Service:						744					
Maximum Daily Value:													3.2 ppb on March 16													Hours of Data:						708					
Minimum Hourly Value:													0 ppb on March 1 at hour 0													Hours of Missing Data:						0					
Minimum Daily Value:													0.0 ppb on March 11													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													
Mar 1	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	0.1										
Mar 2	0	0	0	0	0	0	0	0	0	0	1	2	2	4	2	1	1	1	0	S	1	0	2	0	0	4	0.7										
Mar 3	0	0	1	0	0	0	1	0	1	0	1	3	4	0	0	0	0	3	S	3	0	0	0	0	0	4	0.7										
Mar 4	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	S	0	0	0	0	0	2	0	2	0.2										
Mar 5	1	0	1	1	4	3	5	4	1	4	3	3	1	1	1	1	S	0	0	0	0	1	0	1	0	5	1.6										
Mar 6	4	0	0	1	2	1	0	1	1	1	1	0	0	0	1	S	0	0	0	0	0	0	1	0	0	4	0.6										
Mar 7	1	1	1	0	1	1	0	3	12	4	8	2	2	3	S	0	0	0	0	0	0	0	1	1	0	12	1.8										
Mar 8	0	0	1	1	1	1	4	0	0	1	1	1	0	S	0	0	1	1	1	1	1	1	1	3	0	4	0.9										
Mar 9	10	0	2	1	2	1	1	0	3	4	3	0	S	0	0	0	0	0	0	0	0	0	1	1	0	10	1.3										
Mar 10	1	0	2	0	1	0	0	0	1	1	0	S	1	2	4	1	0	0	0	0	0	0	0	0	0	4	0.6										
Mar 11	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										
Mar 12	0	0	0	0	2	1	0	0	0	S	4	1	5	2	4	4	3	0	0	0	0	0	0	0	0	5	1.1										
Mar 13	0	0	0	0	0	0	0	S	1	1	3	1	1	1	1	1	1	1	0	0	0	0	0	0	0	3	0.5										
Mar 14	0	0	0	0	1	0	2	S	5	4	1	0	0	1	1	1	1	1	0	0	0	0	0	0	0	5	0.8										
Mar 15	1	0	0	0	0	0	S	0	0	1	2	0	2	4	1	1	1	1	1	0	0	1	1	2	0	4	0.8										
Mar 16	4	3	1	0	0	S	11	8	8	6	8	5	4	0	1	2	1	0	2	1	0	3	3	2	0	11	3.2										
Mar 17	0	0	0	1	S	3	2	0	0	0	2	2	1	1	1	1	0	1	1	0	1	1	0	0	0	3	0.8										
Mar 18	1	2	2	S	1	0	0	0	0	0	C	C	C	C	0	0	0	0	1	0	2	1	0	0	0	2	0.5										
Mar 19	1	1	S	0	0	0	0	0	0	1	1	2	4	2	1	1	1	1	1	0	0	0	0	1	0	4	0.8										
Mar 20	0	S	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0										
Mar 21	S	0	0	3	4	2	2	1	2	4	2	0	0	0	2	2	2	5	1	0	3	5	4	S	0	5	2.0										
Mar 22	8	2	2	6	2	1	0	0	1	3	4	0	1	1	1	1	1	0	0	0	0	0	S	0	0	8	1.5										
Mar 23	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1	1	S	6	1	0	6	0.6										
Mar 24	0	3	4	3	0	0	0	0	5	2	1	4	6	2	5	5	5	2	0	0	S	1	1	1	0	6	2.2										
Mar 25	1	1	1	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	S	0	0	0	0	0	1	0.3										
Mar 26	0	0	0	0	3	1	0	2	4	3	2	2	2	4	2	1	1	2	S	1	0	0	0	0	0	4	1.3										
Mar 27	0	0	0	0	0	1	1	2	0	1	2	1	2	3	6	2	2	S	0	1	1	1	1	0	0	6	1.2										
Mar 28	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										
Mar 29	0	0	0	0	2	2	0	1	3	9	8	2	4	1	1	S	0	0	0	0	0	1	0	0	0	9	1.5										
Mar 30	0	0	0	0	1	0	0	1	0	0	0	0	3	2	S	0	0	0	0	0	0	0	0	0	0	3	0.3										
Mar 31	0	0	0	2	1	1	2	2	1	0	0	4	S	3	2	4	1	7	1	0	0	1	0	0	0	7	1.4										
Diurnal Maximum	10	3	4	6	4	3	11	8	12	9	8	5	6	4	6	5	5	5	7	3	3	5	6	3													
Diurnal Average	1.1	0.4	0.6	0.6	0.9	0.6	1.0	0.9	1.6	1.7	2.0	1.2	1.7	1.3	1.4	0.9	0.9	0.7	0.5	0.3	0.3	0.6	0.8	0.5													
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.																																					

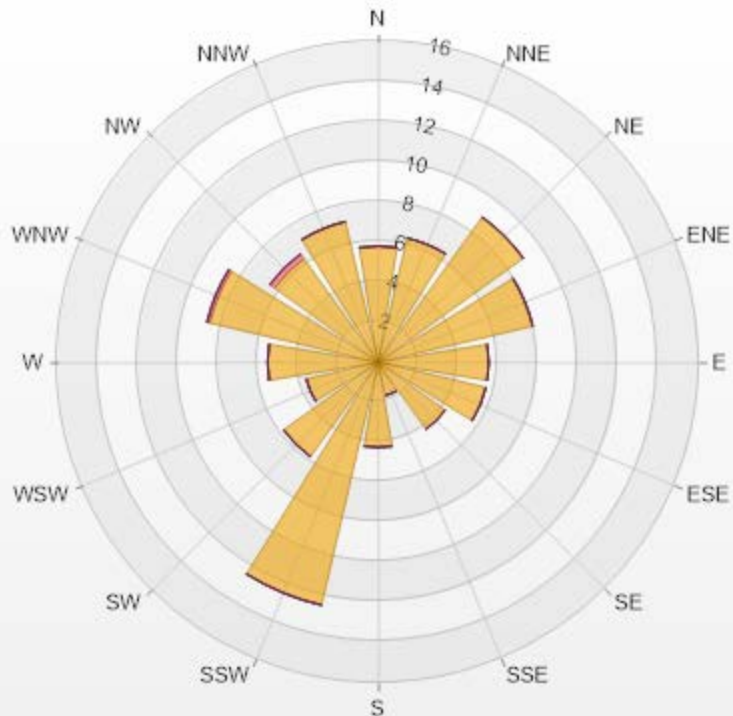
Timeseries Chart of Hourly Average for SO₂ - Tamarack Site





Wind: Tamarack Poll.: Tamarack-SO2[ppb] Monthly: 03-2022 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	5.79	0	0	0	0	5.79
NNE	6.36	0	0	0	0	6.36
NE	8.9	0	0	0	0	8.9
ENE	7.91	0	0	0	0	7.91
E	5.51	0	0	0	0	5.51
ESE	5.51	0	0	0	0	5.51
SE	4.1	0	0	0	0	4.1
SSE	1.69	0	0	0	0	1.69
S	4.24	0	0	0	0	4.24
SSW	12.43	0	0	0	0	12.43
SW	5.79	0	0	0	0	5.79
WSW	3.67	0	0	0	0	3.67
W	5.51	0	0	0	0	5.51
WNW	8.62	0.14	0	0	0	8.76
NW	6.36	0.28	0	0	0	6.64
NNW	7.2	0	0	0	0	7.2
Summary	100	0.42	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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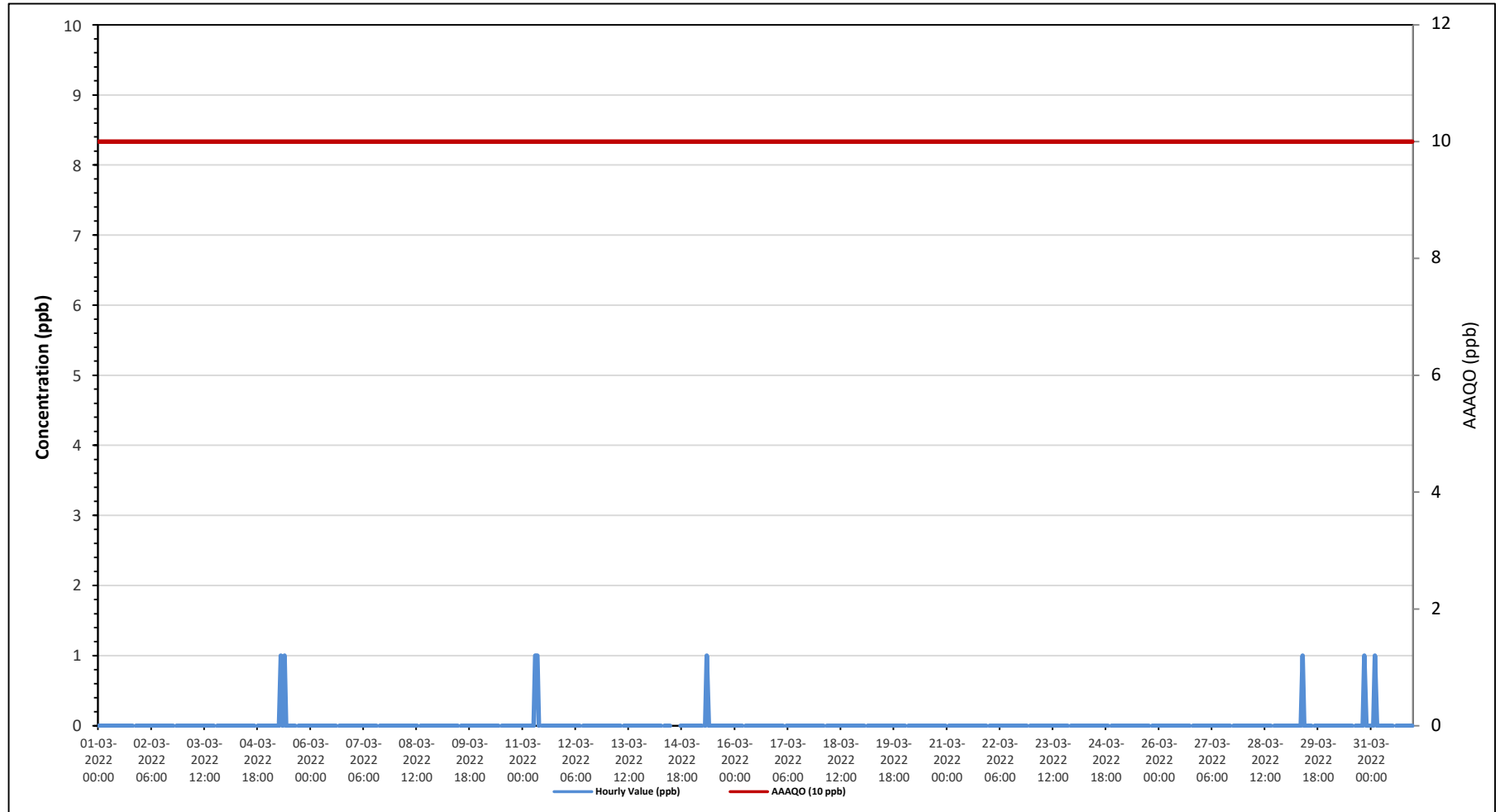
**Tamarack Site - March 2022
Summary of Hourly Averages**

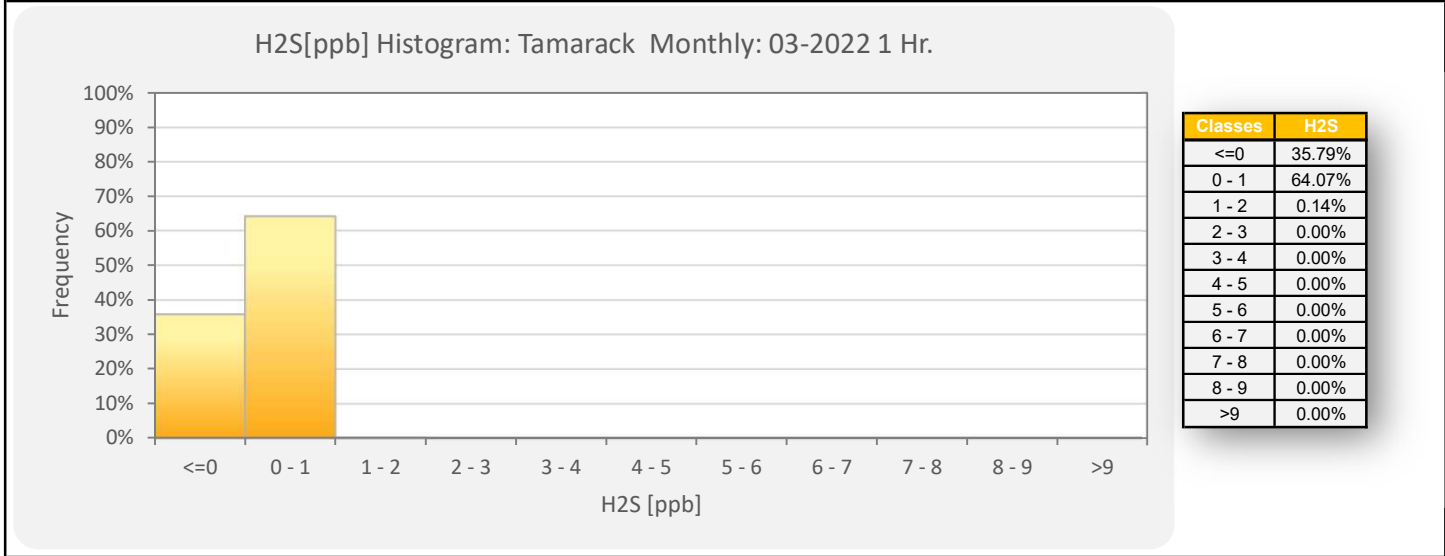
HYDROGEN SULPHIDE (H₂S) in ppb

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 March 5 at hour 7												Hours in Service: 744															
Maximum Daily Value: 0.1 ppb on March 5												Hours of Data: 707															
Minimum Hourly Value: 0 ppb on March 1 at hour 0												Hours of Missing Data: 0															
Minimum Daily Value: 0.0 ppb on March 1												Hours of Calibration: 37															
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
Mar 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0			
Mar 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0			
Mar 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0			
Mar 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0			
Mar 5	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0			
Mar 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0			
Mar 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0			
Mar 8	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0			
Mar 9	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0			
Mar 10	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0			
Mar 11	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Mar 12	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Mar 13	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Mar 14	0	0	0	0	0	0	0	S	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	0			
Mar 15	0	0	0	0	0	0	0	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Mar 16	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Mar 17	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Mar 18	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Mar 19	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Mar 20	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Mar 21	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0			
Mar 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0			
Mar 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0			
Mar 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0			
Mar 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0			
Mar 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0			
Mar 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0			
Mar 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0			
Mar 29	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	S	0	0	0	0	0	0	0	0			
Mar 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0			
Mar 31	0	0	1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0			
Diurnal Maximum	0	0	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0			
Diurnal Average	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	0.0	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.

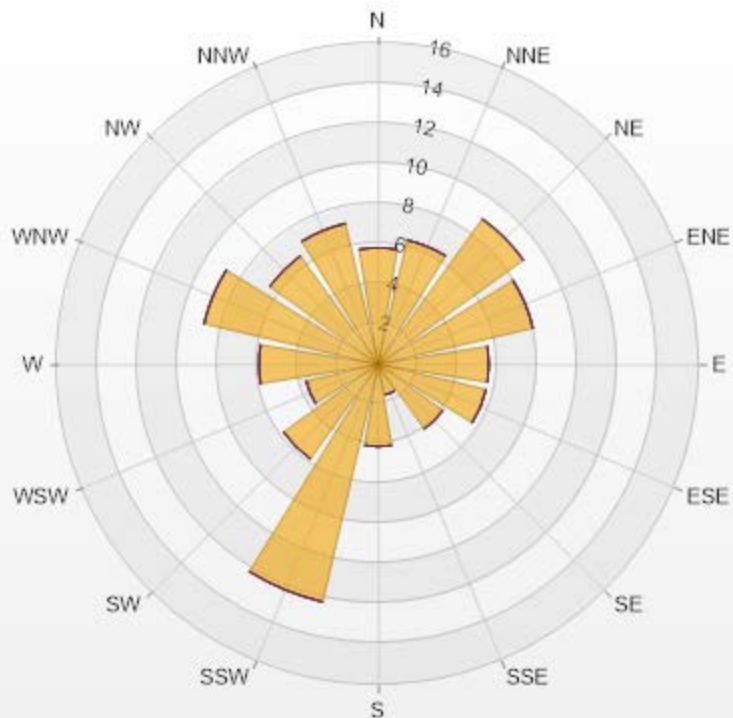
Timeseries Chart of Hourly Average for H2S - Tamarack Site





Wind: Tamarack Poll.: Tamarack-H2S[ppb] Monthly: 03-2022 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	5.8	0	0	0	0	5.8
NNE	6.36	0	0	0	0	6.36
NE	8.91	0	0	0	0	8.91
ENE	7.92	0	0	0	0	7.92
E	5.52	0	0	0	0	5.52
ESE	5.52	0	0	0	0	5.52
SE	3.96	0	0	0	0	3.96
SSE	1.56	0	0	0	0	1.56
S	4.1	0	0	0	0	4.1
SSW	12.16	0	0	0	0	12.16
SW	5.8	0	0	0	0	5.8
WSW	3.68	0	0	0	0	3.68
W	5.94	0	0	0	0	5.94
WNW	8.91	0	0	0	0	8.91
NW	6.65	0	0	0	0	6.65
NNW	7.21	0	0	0	0	7.21
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

Tamarack Site - March 2022

Summary of Hourly Averages

OXIDES OF NITROGEN (NOx) in ppb

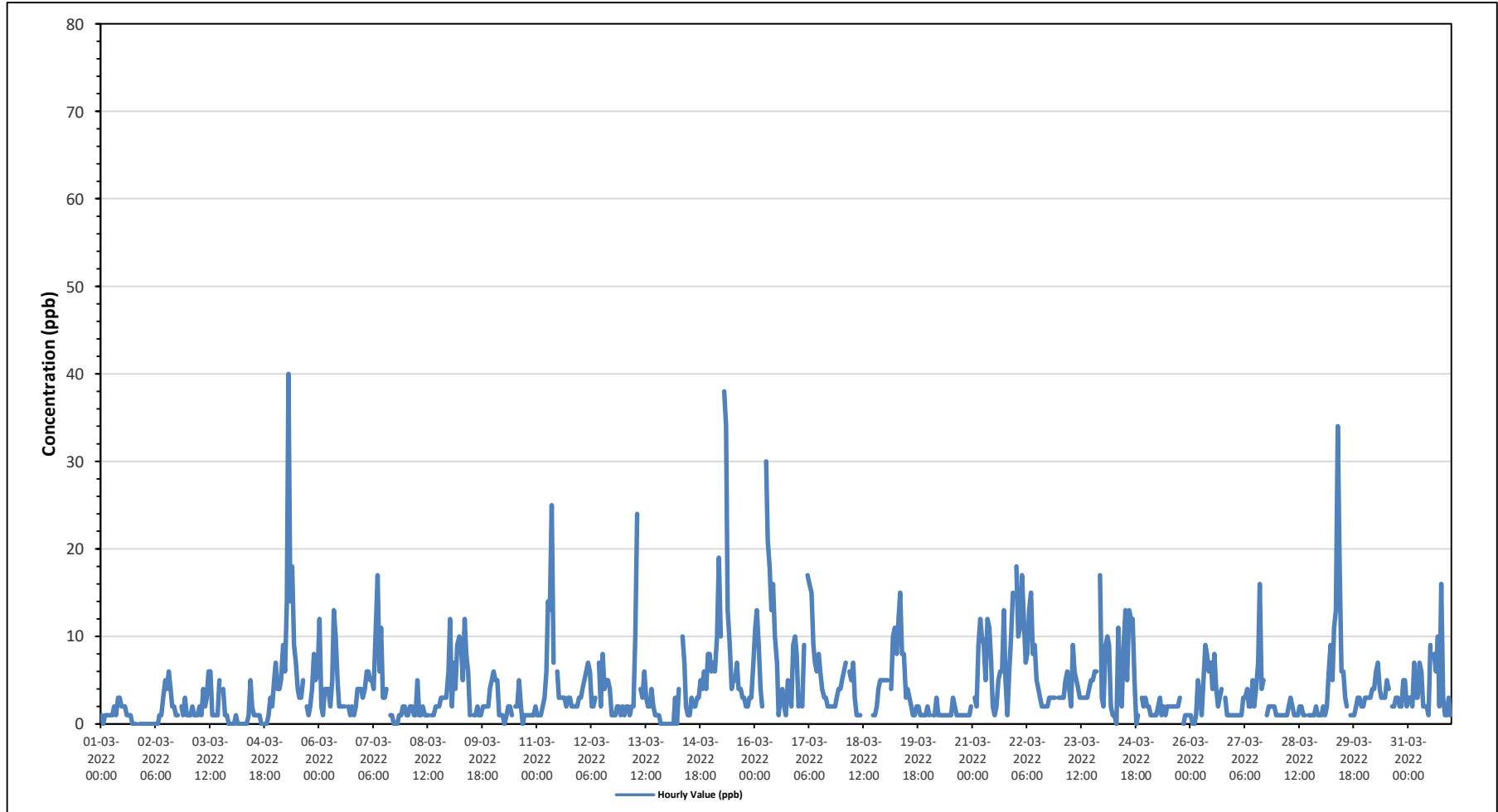
Maximum Hourly Value:	40 ppb on March 5 at hour 7	Hours in Service:	744
Maximum Daily Value:	8.9 ppb on March 15	Hours of Data:	706
Minimum Hourly Value:	0 ppb on March 1 at hour 1	Hours of Missing Data:	0
Minimum Daily Value:	1.0 ppb on March 1	Hours of Calibration:	38
Monthly Average:	4.1 ppb	Operational Uptime:	100.0

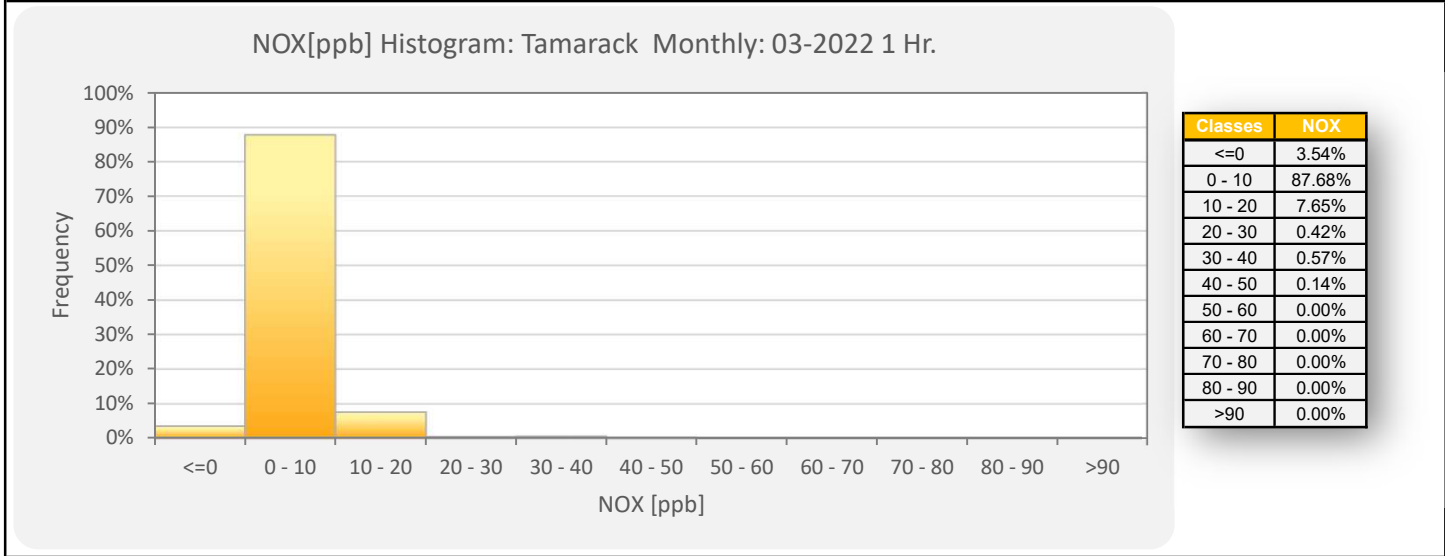
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Mar 1	1	0	1	1	1	1	1	2	1	3	3	2	2	2	1	1	1	0	0	0	S	0	0	0	0	3	1.0	
Mar 2	0	0	0	0	0	0	0	0	1	1	3	5	4	6	4	2	2	1	1	S	2	1	3	1	0	6	1.6	
Mar 3	1	1	2	1	1	1	2	1	4	2	3	6	6	1	1	1	1	5	S	4	1	1	0	0	0	6	2.0	
Mar 4	0	0	1	0	0	0	0	0	0	0	1	5	2	1	1	1	1	0	S	0	0	1	3	2	5	0	5	1.0
Mar 5	7	4	4	5	9	6	14	40	14	18	9	7	4	3	3	5	S	2	1	2	4	8	5	6	1	40	7.8	
Mar 6	12	2	1	4	4	4	2	5	13	10	5	2	2	2	2	S	2	1	2	1	2	4	4	4	1	13	3.9	
Mar 7	3	4	6	6	5	5	4	10	17	6	11	3	3	4	S	1	1	0	0	0	0	1	1	2	2	0	17	4.1
Mar 8	1	1	2	2	1	1	5	1	2	1	1	1	S	1	1	2	2	2	3	3	3	3	3	6	1	6	2.0	
Mar 9	12	2	7	4	9	10	9	5	12	8	6	1	S	1	1	2	1	1	2	2	2	2	4	5	1	12	4.7	
Mar 10	6	5	5	1	1	1	0	1	2	2	1	S	2	2	5	2	0	1	1	1	1	1	1	2	0	6	1.9	
Mar 11	1	1	1	2	3	6	14	13	25	7	S	6	3	3	3	2	3	3	2	3	2	2	2	3	1	25	4.8	
Mar 12	3	4	5	6	7	6	2	2	3	S	7	2	8	4	5	5	4	1	1	1	2	2	1	2	1	8	3.6	
Mar 13	1	2	2	1	2	2	10	24	S	4	3	6	3	2	2	4	2	1	1	1	0	0	0	0	0	24	3.2	
Mar 14	0	0	0	0	3	0	4	S	10	7	2	1	1	3	2	2	3	3	5	4	6	4	8	8	0	10	3.3	
Mar 15	6	7	6	10	19	10	S	38	34	13	9	4	5	5	7	4	4	3	3	2	2	3	7	2	38	8.9		
Mar 16	11	13	9	4	2	S	30	21	18	13	16	10	7	1	3	4	2	1	5	4	2	9	10	8	1	30	8.8	
Mar 17	2	3	2	9	S	17	16	15	9	7	6	8	6	4	3	3	2	2	2	2	2	3	4	4	2	17	5.7	
Mar 18	5	6	7	S	6	5	7	3	1	1	1	C	C	C	C	C	C	1	1	2	4	5	5	5	1	7	-	
Mar 19	5	5	S	4	10	11	8	12	15	8	8	3	4	3	2	1	1	2	2	1	1	1	1	2	1	15	4.8	
Mar 20	1	S	1	1	3	1	1	1	1	1	1	1	1	3	2	1	1	1	1	1	1	1	1	2	1	3	1.3	
Mar 21	S	3	2	9	12	10	9	5	12	11	7	2	1	2	5	6	6	13	5	1	6	10	15	S	1	15	6.9	
Mar 22	18	10	11	17	12	7	8	13	15	8	9	5	4	3	2	2	2	2	3	3	3	3	S	3	2	18	7.1	
Mar 23	3	3	3	5	6	4	2	9	6	5	4	3	3	3	3	3	4	5	5	6	6	S	17	3	2	17	4.8	
Mar 24	2	9	10	9	2	1	1	0	11	4	2	9	13	5	13	12	12	5	0	1	S	3	2	3	0	13	5.6	
Mar 25	2	2	1	1	1	1	2	3	1	2	1	2	2	2	2	2	2	3	S	0	1	1	1	1	0	3	1.6	
Mar 26	1	0	0	1	5	3	1	5	9	8	6	7	4	8	4	2	3	4	S	3	1	1	1	1	0	9	3.4	
Mar 27	1	1	1	1	1	3	3	4	2	2	5	2	4	7	16	4	5	S	1	2	2	2	2	1	1	16	3.1	
Mar 28	1	1	1	1	1	1	2	3	2	1	1	2	2	1	1	1	1	S	1	1	1	1	2	1	1	3	1.3	
Mar 29	1	2	1	2	6	9	5	11	13	34	18	6	6	3	2	S	1	1	1	1	2	3	3	2	2	1	34	5.8
Mar 30	3	3	3	3	4	4	6	7	4	3	3	3	5	4	S	2	2	3	2	2	5	5	2	2	2	7	3.5	
Mar 31	3	3	2	7	3	3	7	6	2	2	2	1	9	S	8	6	10	2	16	3	1	1	3	1	1	16	4.4	
Diurnal Maximum	18	13	11	17	19	17	30	40	34	34	18	10	13	8	16	12	12	13	16	6	6	10	17	8				
Diurnal Average	3.8	3.2	3.2	3.9	4.6	4.4	5.8	8.7	8.6	6.5	5.3	3.8	4.0	3.2	3.7	3.0	2.8	2.4	2.4	2.0	2.2	2.8	3.6	3.0				

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.

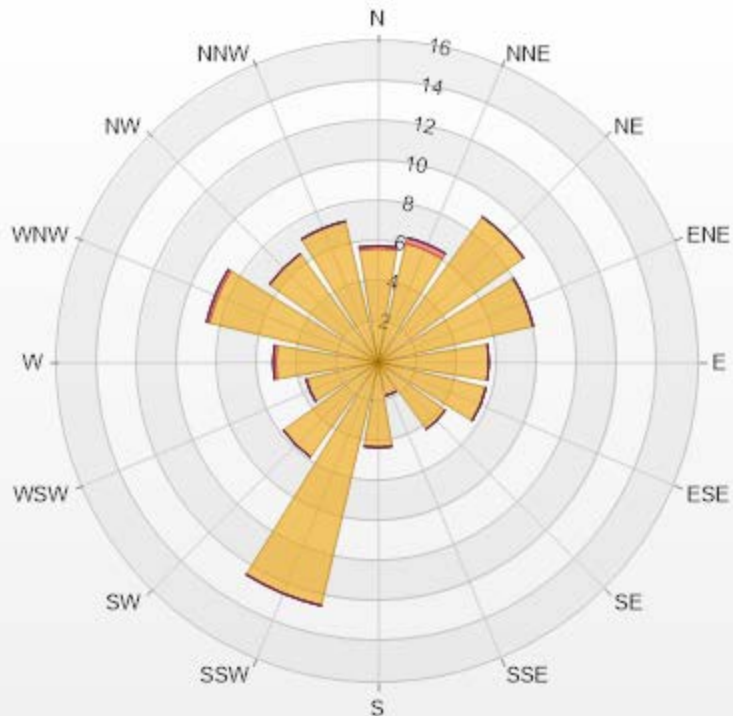
Timeseries Chart of Hourly Average for NOx - Tamarack Site





Wind: Tamarack Poll.: Tamarack-NOX[ppb] Monthly: 03-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

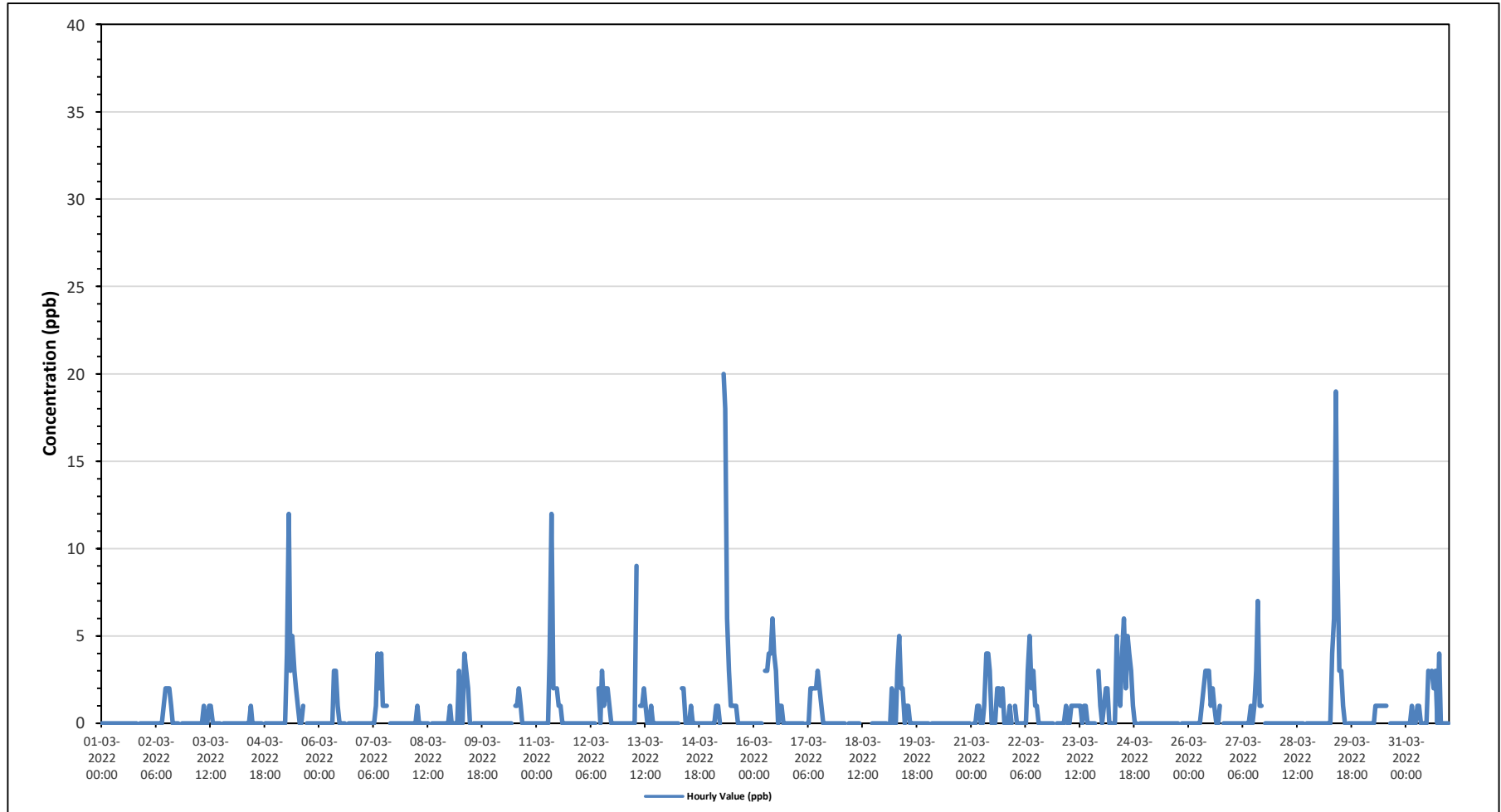
Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	5.67	0.14	0	0	0	5.81
NNE	6.09	0.28	0	0	0	6.37
NE	8.92	0	0	0	0	8.92
ENE	7.93	0	0	0	0	7.93
E	5.52	0	0	0	0	5.52
ESE	5.52	0	0	0	0	5.52
SE	4.11	0	0	0	0	4.11
SSE	1.7	0	0	0	0	1.7
S	4.25	0	0	0	0	4.25
SSW	12.46	0	0	0	0	12.46
SW	5.81	0	0	0	0	5.81
WSW	3.68	0	0	0	0	3.68
W	5.1	0.14	0	0	0	5.24
WNW	8.64	0.14	0	0	0	8.78
NW	6.66	0	0	0	0	6.66
NNW	7.22	0	0	0	0	7.22
Summary	99.28	0.7	0	0	0	100

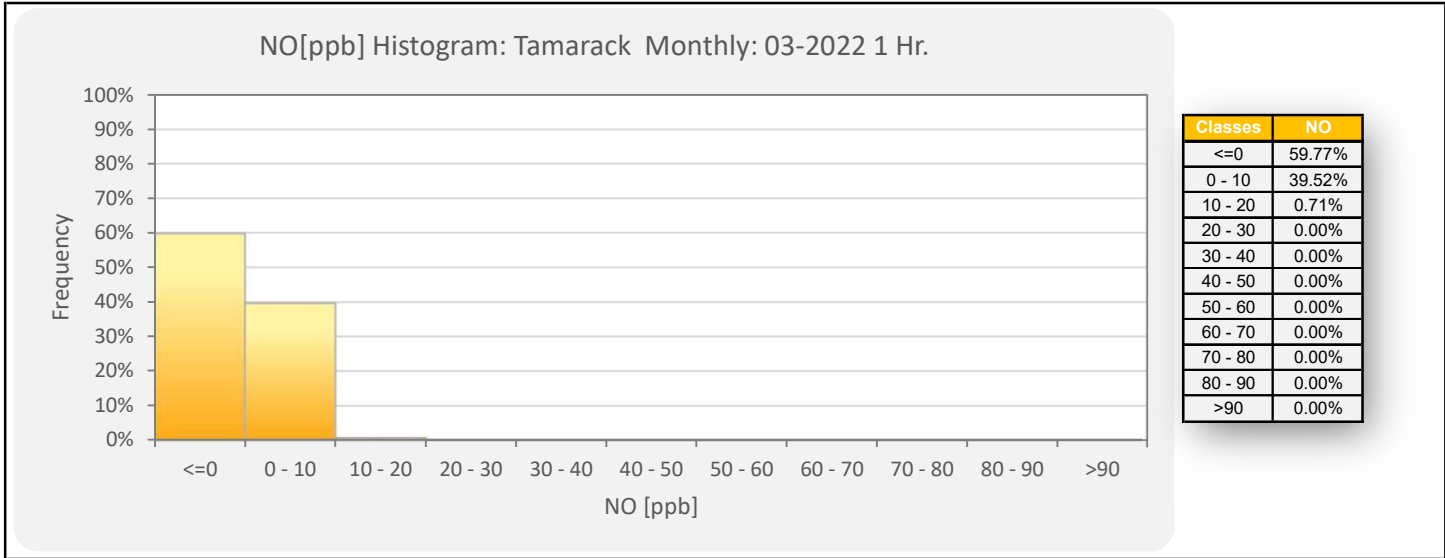


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% Icon Classes (ppb)	99	0-30	1	30-50	0	50-76	0	76-159	0	>159.0

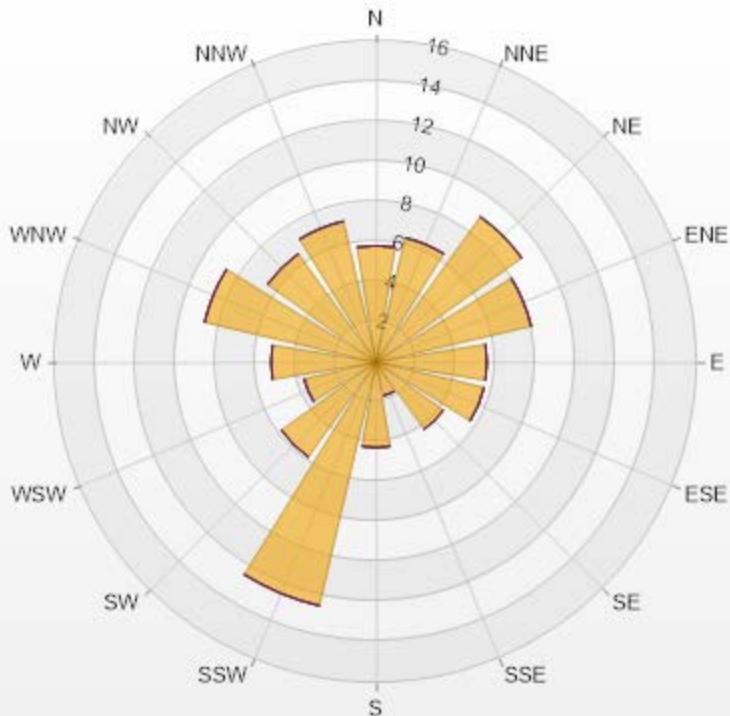
Timeseries Chart of Hourly Average for NO - Tamarack Site





Wind: Tamarack Poll.: Tamarack-NO[ppb] Monthly: 03-2022 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	5.81	0	0	0	0	5.81
NNE	6.37	0	0	0	0	6.37
NE	8.92	0	0	0	0	8.92
ENE	7.93	0	0	0	0	7.93
E	5.52	0	0	0	0	5.52
ESE	5.52	0	0	0	0	5.52
SE	4.11	0	0	0	0	4.11
SSE	1.7	0	0	0	0	1.7
S	4.25	0	0	0	0	4.25
SSW	12.46	0	0	0	0	12.46
SW	5.81	0	0	0	0	5.81
WSW	3.68	0	0	0	0	3.68
W	5.24	0	0	0	0	5.24
WNW	8.78	0	0	0	0	8.78
NW	6.66	0	0	0	0	6.66
NNW	7.22	0	0	0	0	7.22
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100

0-30

0

30-50

50-76

0

76-159

0

>159.0



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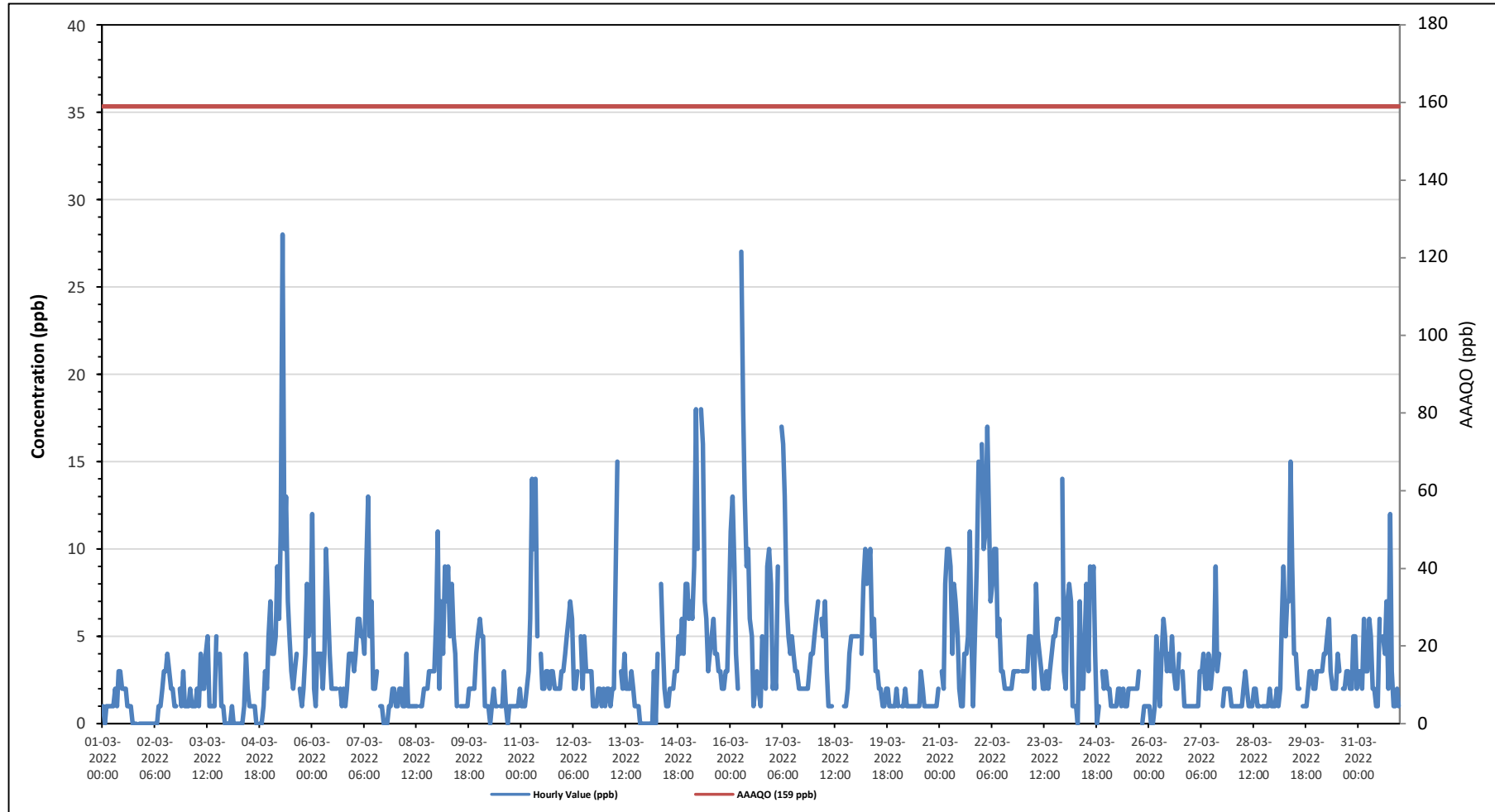
Tamarack Site - March 2022

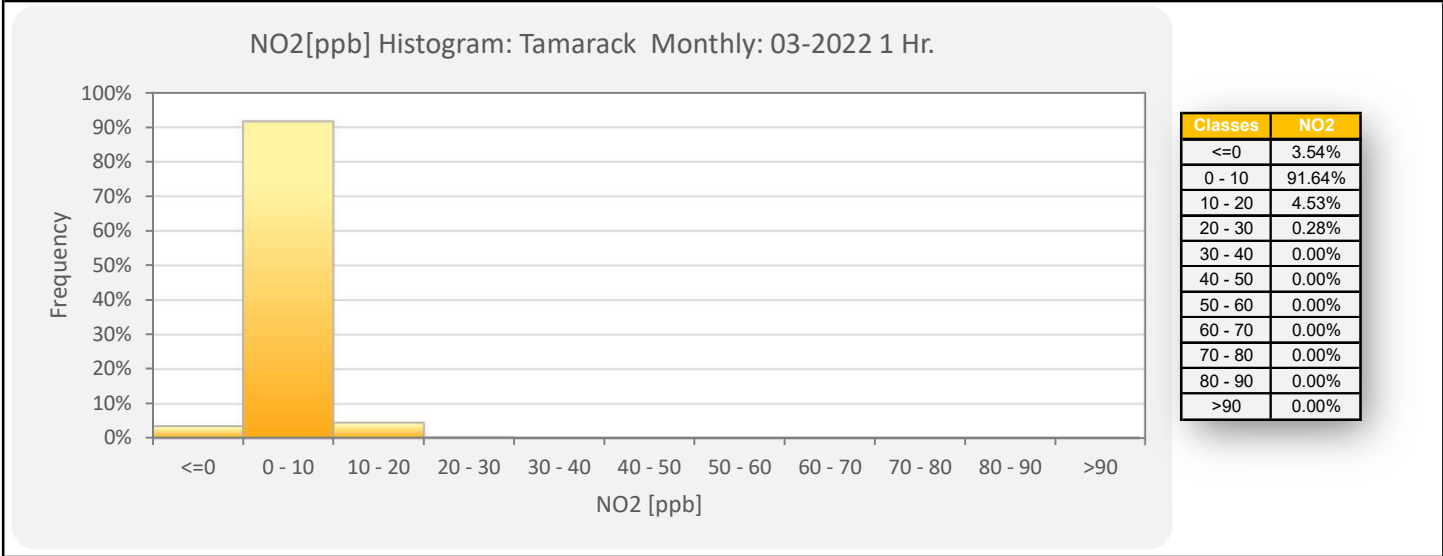
Summary of Hourly Averages

NITROGEN DIOXIDE (NO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb																															
Number of 1-Hour Exceedances: 0																															
Maximum Hourly Value: 28 ppb on March 5 at hour 7												Hours in Service: 744																			
Maximum Daily Value: 7.6 ppb on March 16												Hours of Data: 706																			
Minimum Hourly Value: 0 ppb on March 1 at hour 1												Hours of Missing Data: 0																			
Minimum Daily Value: 1.0 ppb on March 4												Hours of Calibration: 38																			
Monthly Average: 3.4 ppb												Operational Uptime: 100.0																			
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23				
Mar 1	1	0	1	1	1	1	1	2	1	3	2	2	2	1	1	1	0	0	0	S	0	0	0	0	0	3	1.0				
Mar 2	0	0	0	0	0	0	0	0	1	1	2	3	3	4	3	2	2	1	1	S	2	1	3	1	0	4	1.3				
Mar 3	1	1	2	1	1	1	2	1	4	2	2	4	5	1	1	1	1	5	S	4	1	1	0	0	0	5	1.8				
Mar 4	0	0	1	0	0	0	0	0	0	1	4	2	1	1	1	1	0	S	0	0	1	3	2	5	0	5	1.0				
Mar 5	7	4	4	5	9	6	11	28	10	13	7	5	3	2	3	4	S	2	1	2	4	8	5	6	1	28	6.5				
Mar 6	12	2	1	4	4	2	4	10	7	4	2	2	2	2	S	2	1	2	1	2	4	4	4	4	1	12	3.6				
Mar 7	3	4	6	6	5	5	4	9	13	5	7	2	2	3	S	1	1	0	0	0	1	1	2	2	0	13	3.6				
Mar 8	1	1	2	2	1	1	4	1	1	1	1	1	S	1	1	2	2	2	3	3	3	3	6	1	6	1.9					
Mar 9	11	2	7	4	9	7	9	5	8	5	4	1	S	1	1	1	1	2	2	2	2	4	5	1	11	4.1					
Mar 10	6	5	5	1	1	1	0	1	2	1	1	S	1	1	3	1	0	1	1	1	1	1	2	0	6	1.7					
Mar 11	1	1	1	2	3	6	14	10	14	S	4	2	2	3	3	2	3	3	2	2	2	2	3	1	14	3.9					
Mar 12	3	4	5	6	7	6	2	2	3	S	5	2	5	3	3	3	1	1	1	2	2	1	2	1	7	3.1					
Mar 13	1	2	2	1	2	2	9	15	S	3	2	4	2	2	2	3	2	1	1	1	0	0	0	0	15	2.5					
Mar 14	0	0	0	0	3	0	4	S	8	5	2	1	1	2	2	2	3	3	5	4	6	4	8	0	8	3.1					
Mar 15	6	7	6	9	18	10	S	18	16	7	6	3	4	5	6	4	4	3	3	2	2	3	7	2	18	6.6					
Mar 16	11	13	9	4	2	S	27	18	13	9	10	6	5	1	2	3	2	1	5	4	2	9	10	8	1	27	7.6				
Mar 17	2	3	2	9	S	17	16	13	7	5	4	5	4	3	3	2	2	2	2	2	2	3	4	4	2	17	5.0				
Mar 18	5	6	7	S	6	5	7	3	1	1	1	C	C	C	C	C	C	1	1	2	4	5	5	5	1	7	-				
Mar 19	5	5	S	4	8	10	8	9	10	5	6	3	3	2	2	1	1	2	2	1	1	1	2	1	10	4.0					
Mar 20	1	S	1	1	2	1	1	1	1	1	1	1	1	3	2	1	1	1	1	1	1	1	2	1	3	1.2					
Mar 21	S	3	2	8	10	10	9	4	8	7	5	2	1	1	4	4	5	11	5	1	5	9	15	S	1	15	5.9				
Mar 22	16	10	11	17	12	7	8	10	10	5	6	3	3	2	2	2	2	2	3	3	3	S	3	2	17	6.2					
Mar 23	3	3	3	5	5	4	2	8	5	4	3	2	2	3	2	3	4	5	5	6	6	S	14	3	2	14	4.3				
Mar 24	2	7	8	7	1	1	1	0	7	2	2	5	8	3	9	8	9	4	0	1	S	3	2	3	0	9	4.0				
Mar 25	2	2	1	1	1	1	2	2	1	2	1	1	2	2	2	2	2	2	2	3	S	0	1	1	0	3	1.5				
Mar 26	1	0	0	1	5	3	1	4	6	5	3	4	3	5	3	2	2	4	S	3	1	1	1	1	0	6	2.6				
Mar 27	1	1	1	1	1	3	3	4	2	2	4	2	3	4	9	3	4	S	1	2	2	2	2	1	1	9	2.5				
Mar 28	1	1	1	1	1	1	2	3	2	1	1	1	2	2	1	1	S	1	1	1	1	2	1	1	1	3	1.3				
Mar 29	1	2	1	2	6	9	5	7	7	15	9	4	4	2	2	S	1	1	1	2	3	3	2	2	1	15	4.0				
Mar 30	3	3	3	3	4	4	5	6	3	2	2	2	4	3	S	2	2	3	3	2	2	5	5	2	2	6	3.2				
Mar 31	3	3	2	6	3	3	6	5	2	2	1	1	6	S	5	4	7	2	12	3	1	1	2	1	1	12	3.5				
Diurnal Maximum	16	13	11	17	18	17	27	28	16	15	10	6	8	5	9	8	9	11	12	6	6	9	15	8							
Diurnal Average	3.7	3.2	3.2	3.7	4.4	4.3	5.5	6.4	5.9	4.2	3.6	2.7	2.9	2.4	2.9	2.4	2.4	2.3	2.3	2.0	2.2	2.8	3.5	3.0							
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.																															

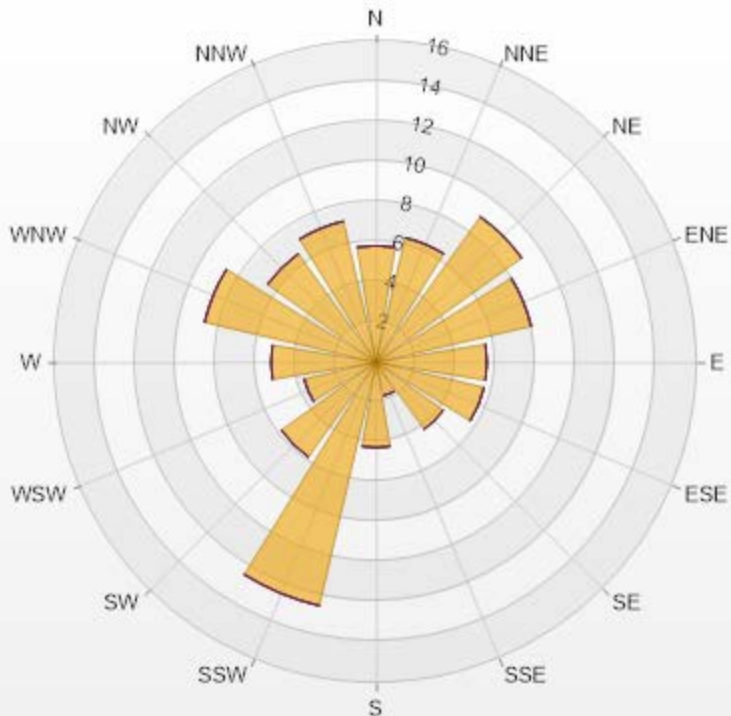
Timeseries Chart of Hourly Average for NO2 - Tamarack Site





Wind: Tamarack Poll.: Tamarack-NO2[ppb] Monthly: 03-2022 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	5.81	0	0	0	0	5.81
NNE	6.37	0	0	0	0	6.37
NE	8.92	0	0	0	0	8.92
ENE	7.93	0	0	0	0	7.93
E	5.52	0	0	0	0	5.52
ESE	5.52	0	0	0	0	5.52
SE	4.11	0	0	0	0	4.11
SSE	1.7	0	0	0	0	1.7
S	4.25	0	0	0	0	4.25
SSW	12.46	0	0	0	0	12.46
SW	5.81	0	0	0	0	5.81
WSW	3.68	0	0	0	0	3.68
W	5.24	0	0	0	0	5.24
WNW	8.78	0	0	0	0	8.78
NW	6.66	0	0	0	0	6.66
NNW	7.22	0	0	0	0	7.22
Summary	100	0	0	0	0	100

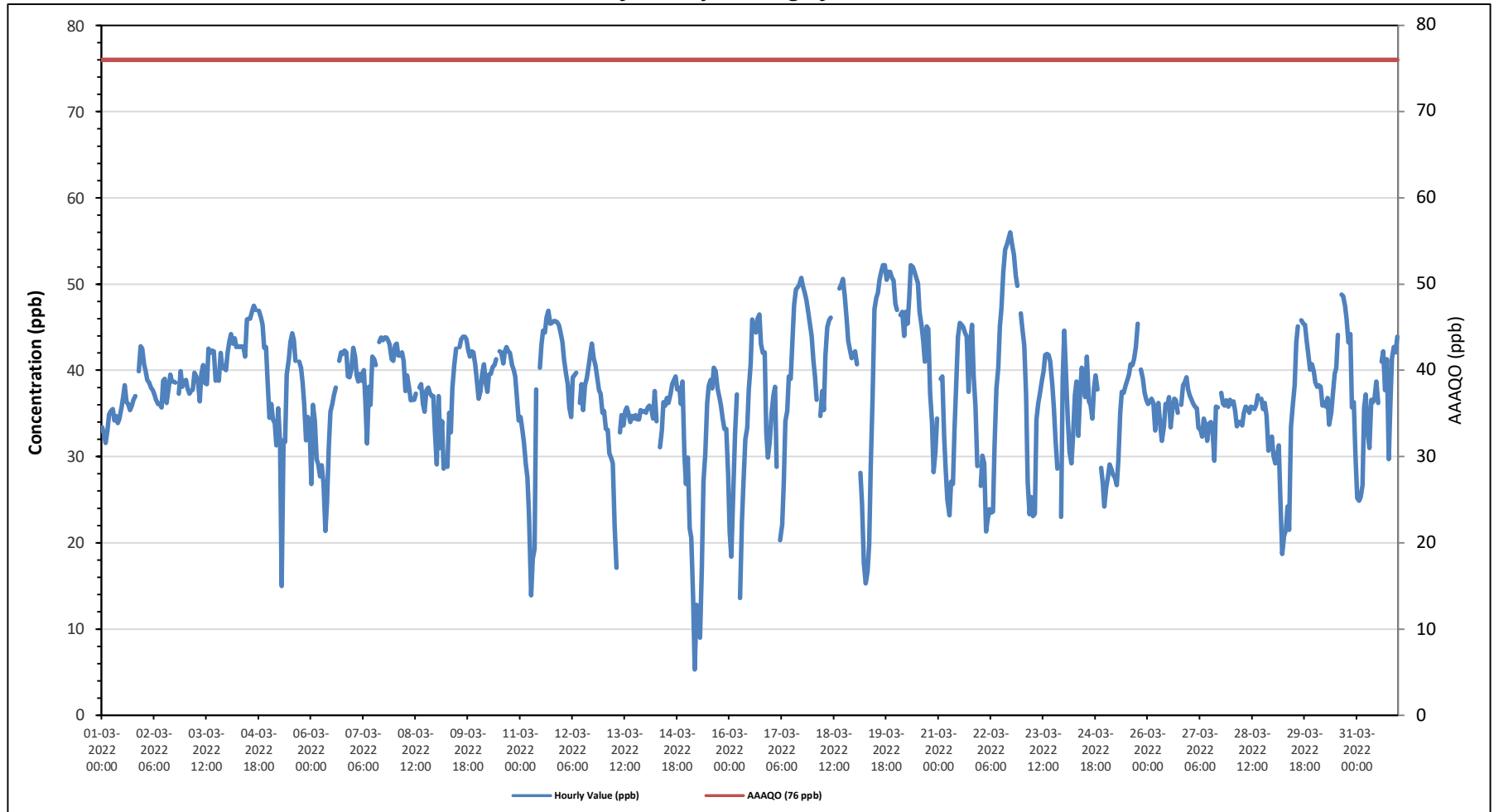


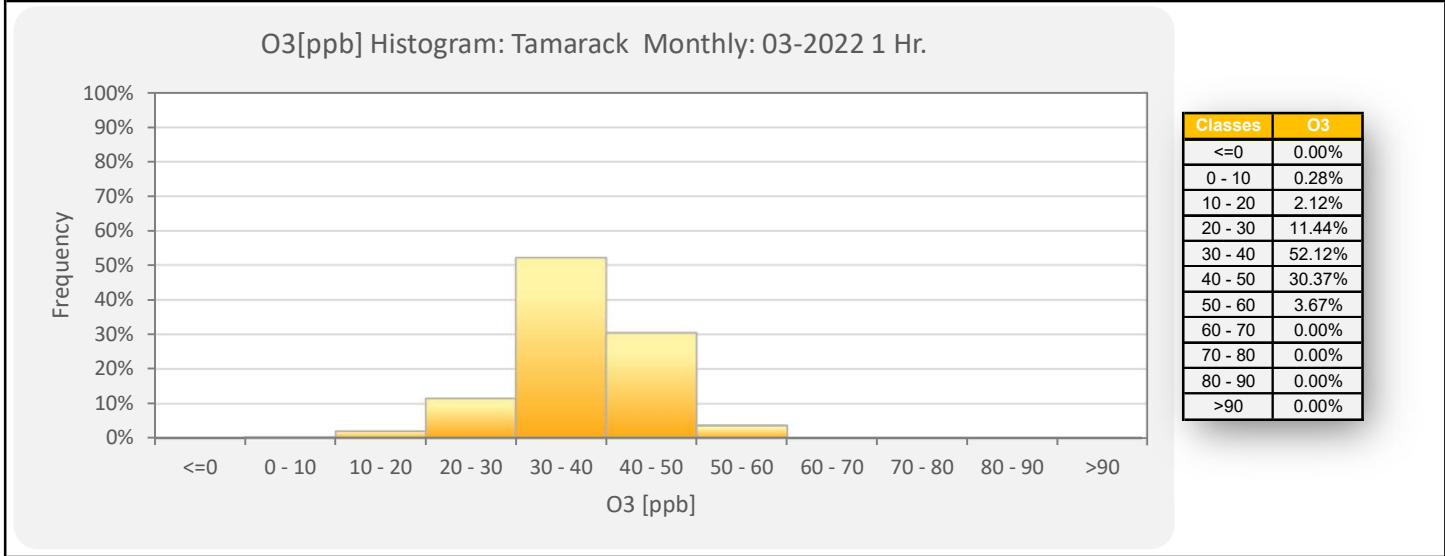
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% Icon Classes (ppb)	100	0-30	0	30-50	0	50-76	0	76-159	0	>159.0
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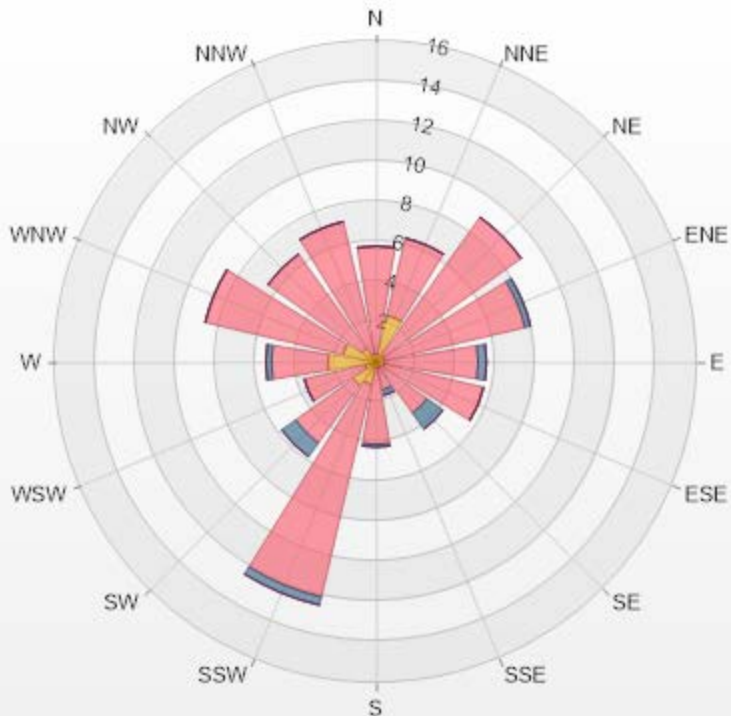
Timeseries Chart of Hourly Average for O3 - Tamarack Site





Wind: Tamarack Poll.: Tamarack-O3[ppb] Monthly: 03-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.16% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	0.42	5.37	0	0	0	5.79
NNE	2.4	3.95	0	0	0	6.35
NE	0.42	8.47	0	0	0	8.89
ENE	0.42	7.2	0.28	0	0	7.9
E	0.42	4.66	0.42	0	0	5.5
ESE	0.42	5.08	0	0	0	5.5
SE	0.28	2.82	0.99	0	0	4.09
SSE	0.28	1.13	0.28	0	0	1.69
S	0.28	3.81	0.14	0	0	4.23
SSW	1.13	10.88	0.42	0	0	12.43
SW	1.41	3.53	0.85	0	0	5.79
WSW	0.56	3.11	0	0	0	3.67
W	2.4	2.82	0.28	0	0	5.5
WNW	1.69	7.06	0	0	0	8.75
NW	0.85	5.79	0	0	0	6.64
NNW	0.42	6.78	0	0	0	7.2
Summary	13.8	82.46	3.66	0	0	100

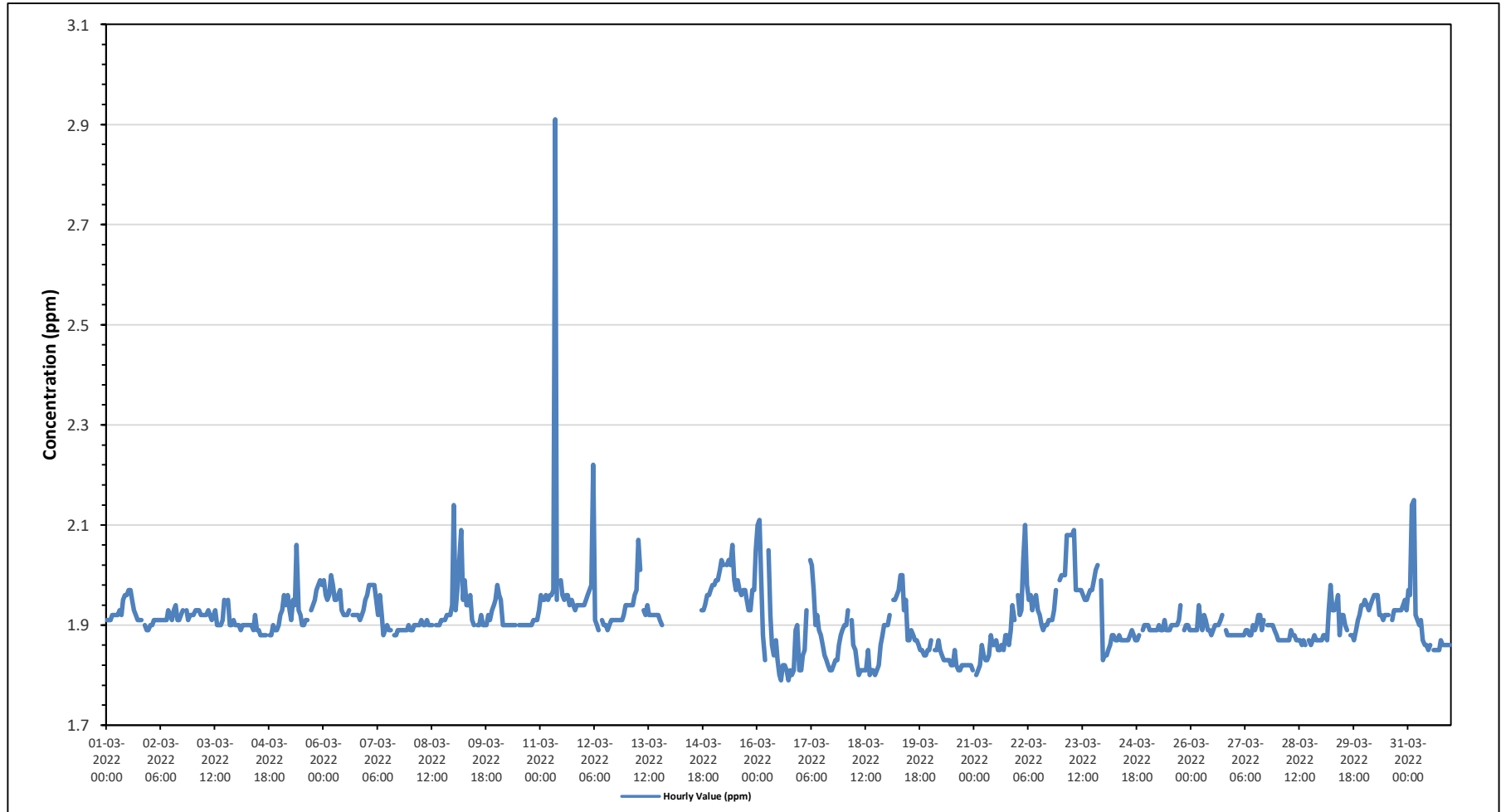


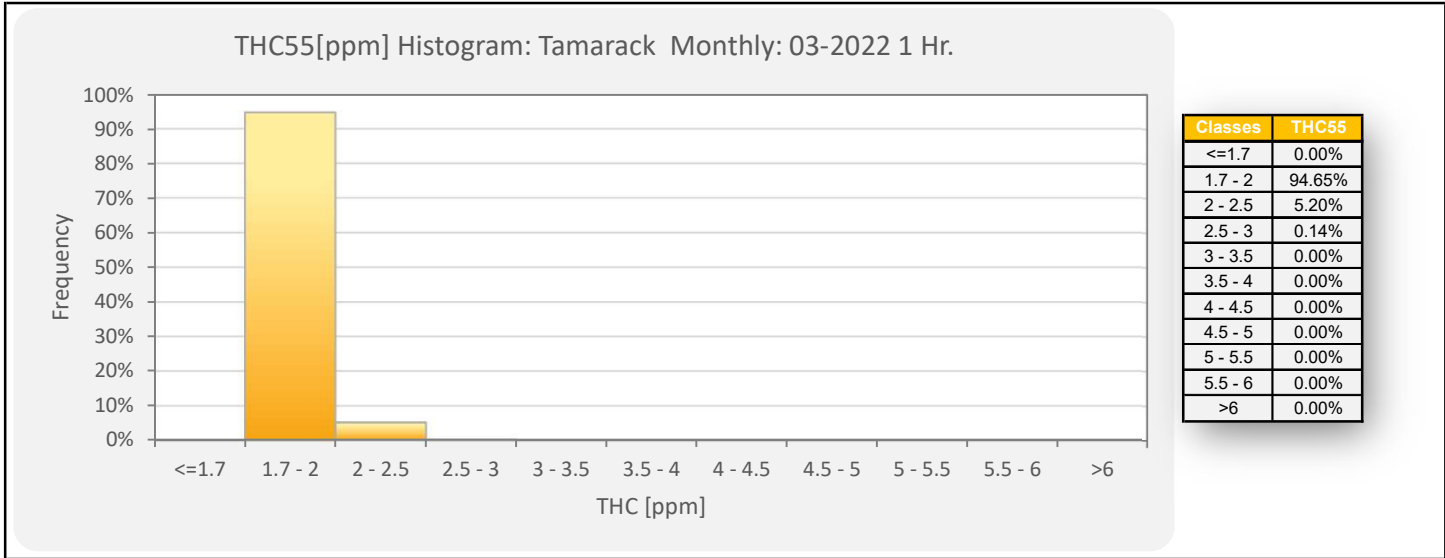
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% Icon Classes (ppb)	14	0-30	82	30-50	4	50-76	0	76-159	0	>159.0
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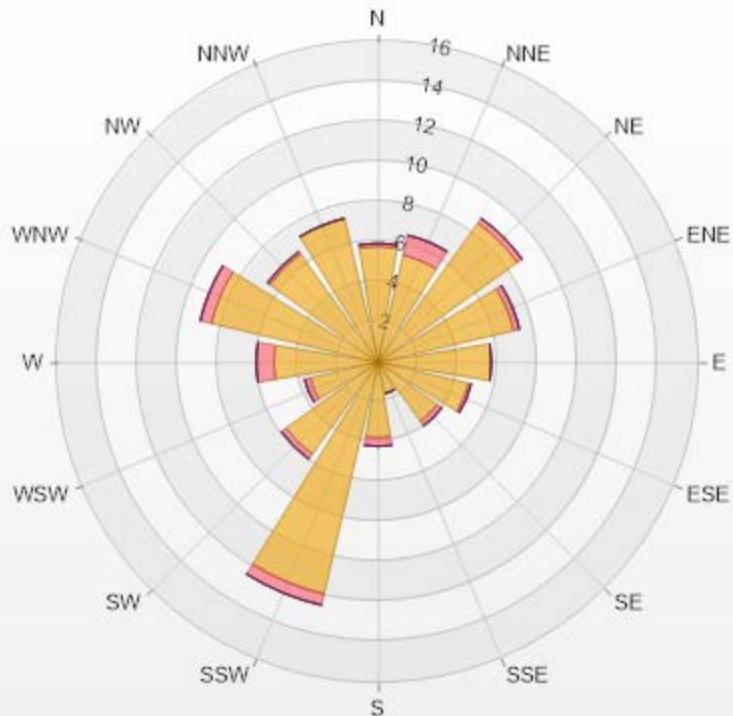
Timeseries Chart of Hourly Average for THC - Tamarack Site





Wind: Tamarack Poll.: Tamarack-THC55[ppm] Monthly: 03-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 93.01% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	5.78	0.14	0	0	0	5.92
NNE	5.49	1.01	0	0	0	6.5
NE	8.53	0.29	0	0	0	8.82
ENE	6.94	0.29	0	0	0	7.23
E	5.64	0	0	0	0	5.64
ESE	4.62	0.14	0	0	0	4.76
SE	3.61	0.29	0	0	0	3.9
SSE	1.59	0	0	0	0	1.59
S	3.76	0.43	0	0	0	4.19
SSW	11.85	0.58	0	0	0	12.43
SW	5.64	0.29	0	0	0	5.93
WSW	3.47	0.29	0	0	0	3.76
W	5.2	0.87	0	0	0	6.07
WNW	8.53	0.58	0	0	0	9.11
NW	6.65	0.14	0	0	0	6.79
NNW	7.37	0	0	0	0	7.37
Summary	94.67	5.34	0	0	0	100



LICA-202203

% Icon Classes (ppm)

95 0-2

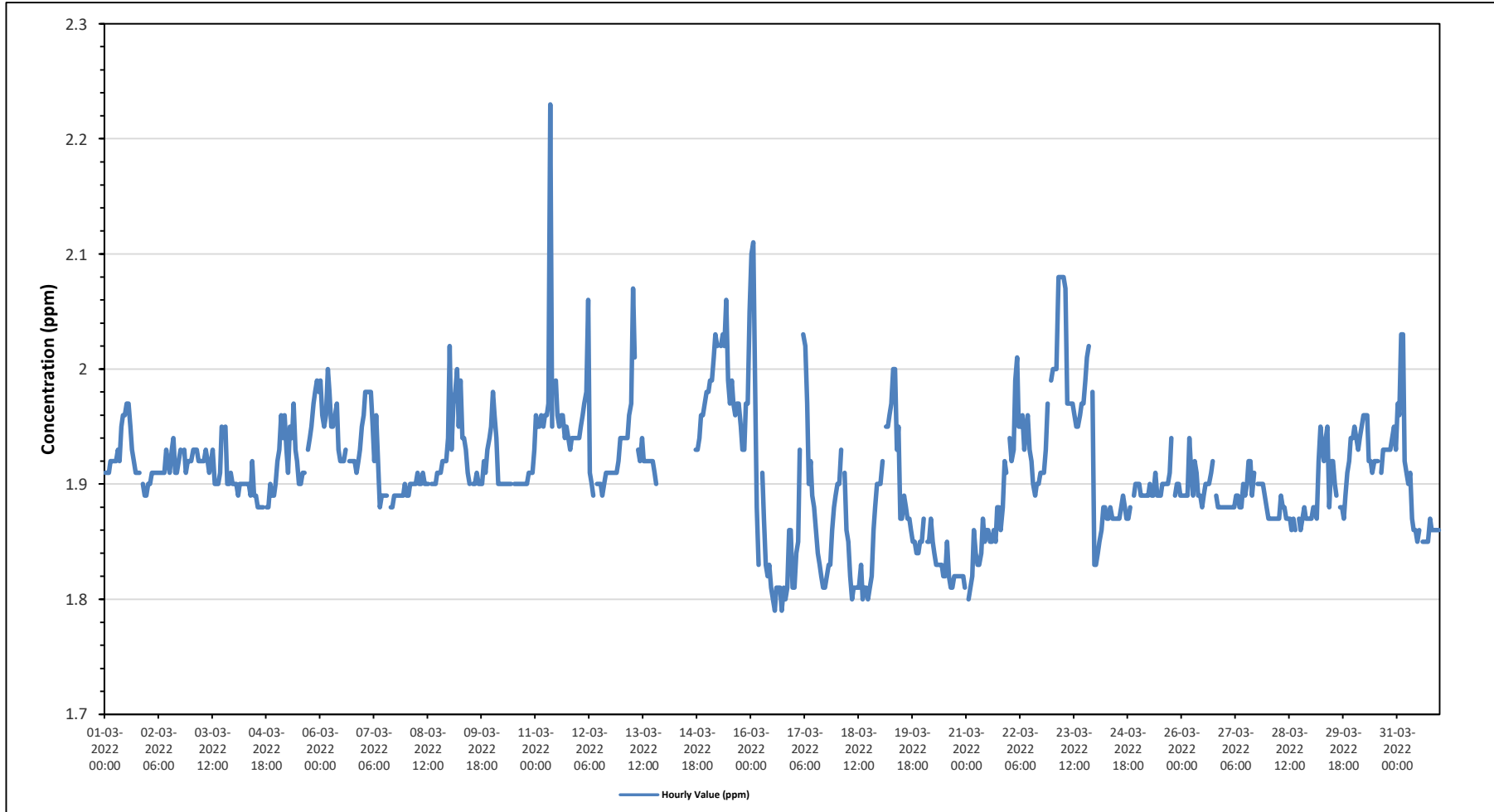
5 2-5

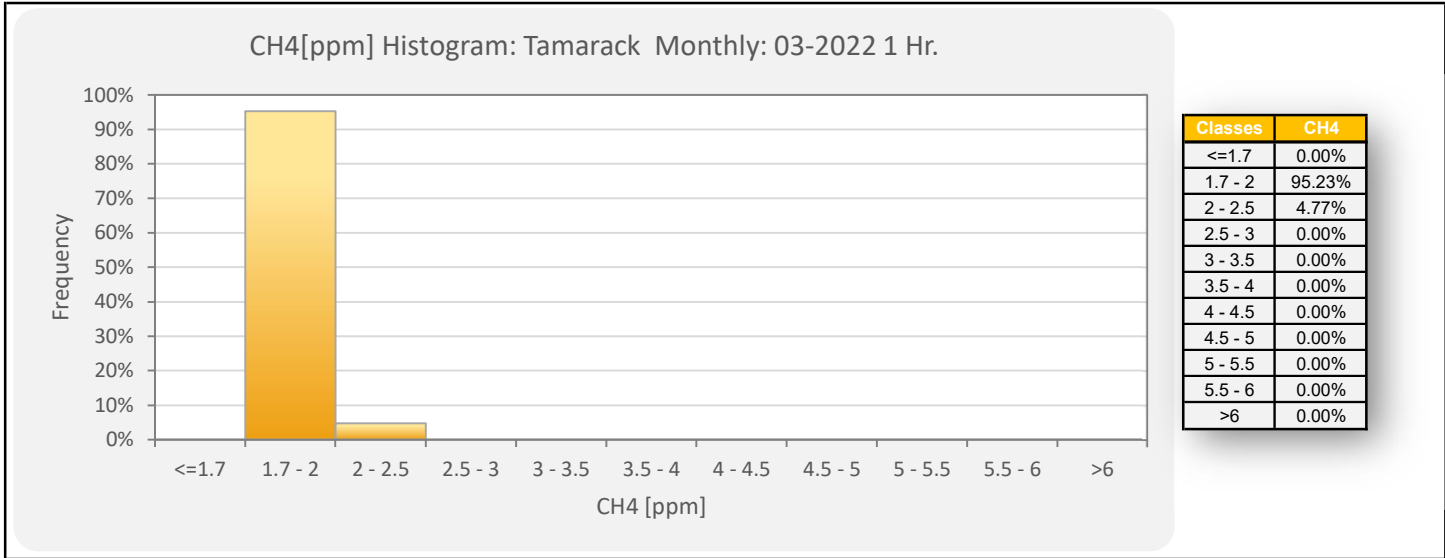
0 5-10

0 10-40

0 >40.0

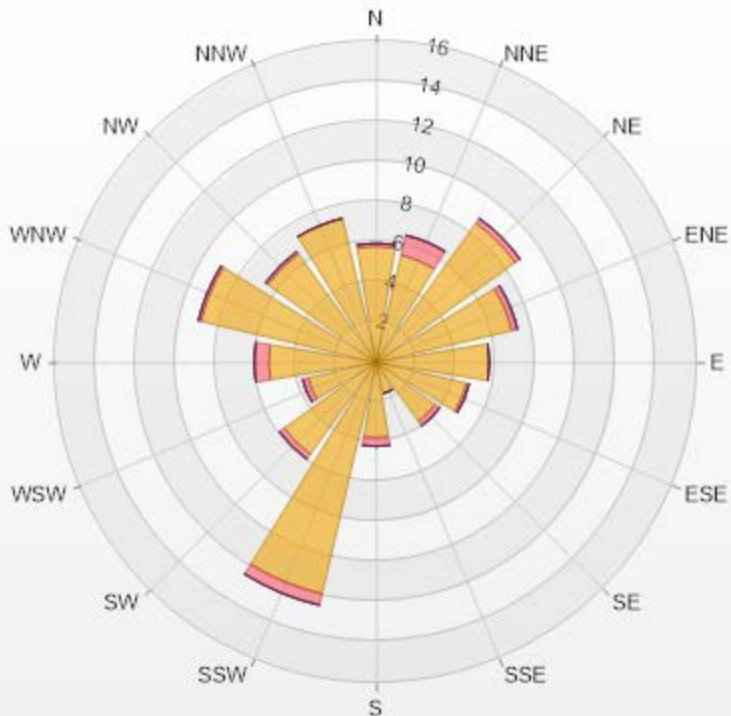
Timeseries Chart of Hourly Average for CH4 - Tamarack Site





Wind: Tamarack Poll.: Tamarack-CH4[ppm] Monthly: 03-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 93.01% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	5.78	0.14	0	0	0	5.92
NNE	5.49	1.01	0	0	0	6.5
NE	8.53	0.29	0	0	0	8.82
ENE	6.94	0.29	0	0	0	7.23
E	5.64	0	0	0	0	5.64
ESE	4.62	0.14	0	0	0	4.76
SE	3.61	0.29	0	0	0	3.9
SSE	1.59	0	0	0	0	1.59
S	3.76	0.43	0	0	0	4.19
SSW	11.85	0.58	0	0	0	12.43
SW	5.64	0.29	0	0	0	5.93
WSW	3.47	0.29	0	0	0	3.76
W	5.35	0.72	0	0	0	6.07
WNW	8.96	0.14	0	0	0	9.1
NW	6.65	0.14	0	0	0	6.79
NNW	7.37	0	0	0	0	7.37
Summary	95.25	4.75	0	0	0	100



LICA-202203

% Icon Classes (ppm)

95 0-2

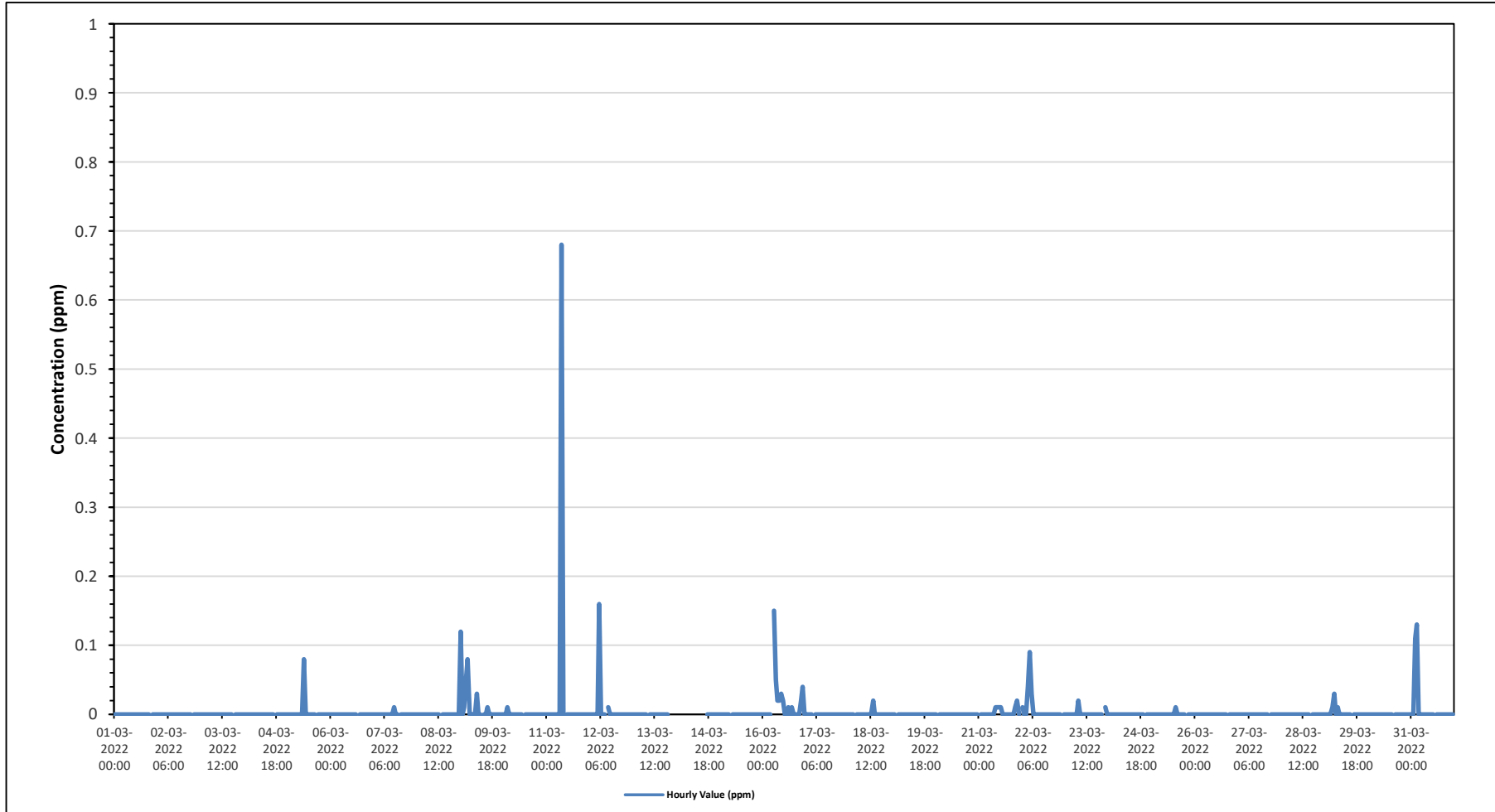
5 2-5

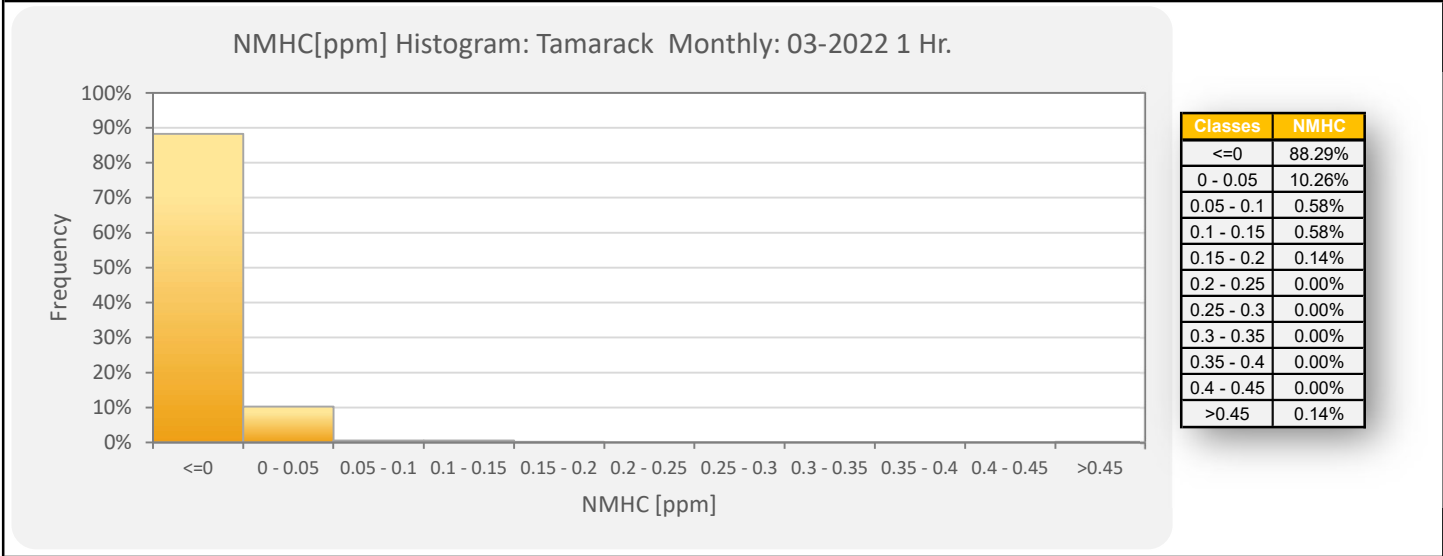
0 5-10

0 10-20

0 >20.0

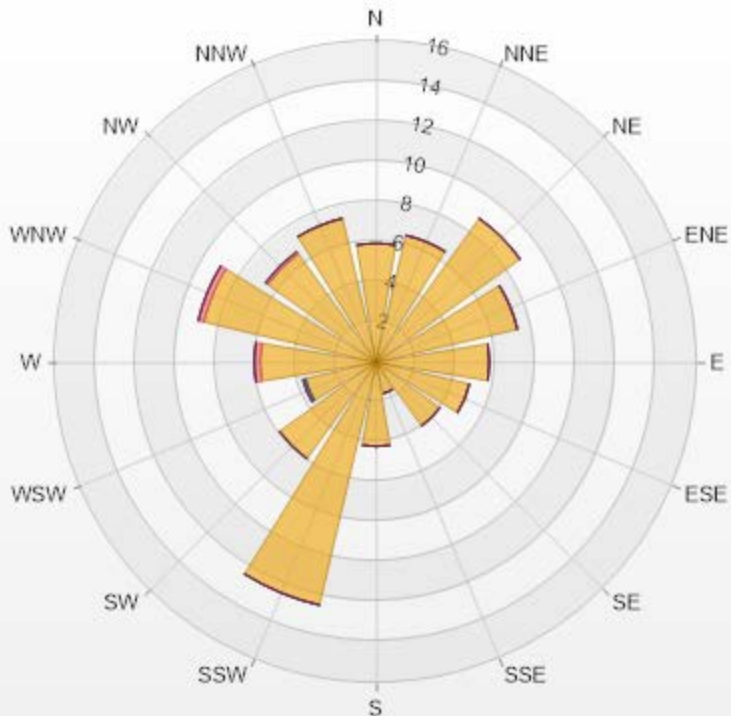
Timeseries Chart of Hourly Average for NMHC - Tamarack Site





Wind: Tamarack Poll.: Tamarack-NMHC[ppm] Monthly: 03-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 93.01% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	5.92	0	0	0	0	5.92
NNE	6.5	0	0	0	0	6.5
NE	8.82	0	0	0	0	8.82
ENE	7.23	0	0	0	0	7.23
E	5.64	0	0	0	0	5.64
ESE	4.77	0	0	0	0	4.77
SE	3.9	0	0	0	0	3.9
SSE	1.59	0	0	0	0	1.59
S	4.19	0	0	0	0	4.19
SSW	12.43	0	0	0	0	12.43
SW	5.92	0	0	0	0	5.92
WSW	3.61	0	0.14	0	0	3.75
W	5.78	0.29	0	0	0	6.07
WNW	8.82	0.29	0	0	0	9.11
NW	6.65	0.14	0	0	0	6.79
NNW	7.37	0	0	0	0	7.37
Summary	99.14	0.72	0.14	0	0	100



LICA-202203

% 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 - March 2022

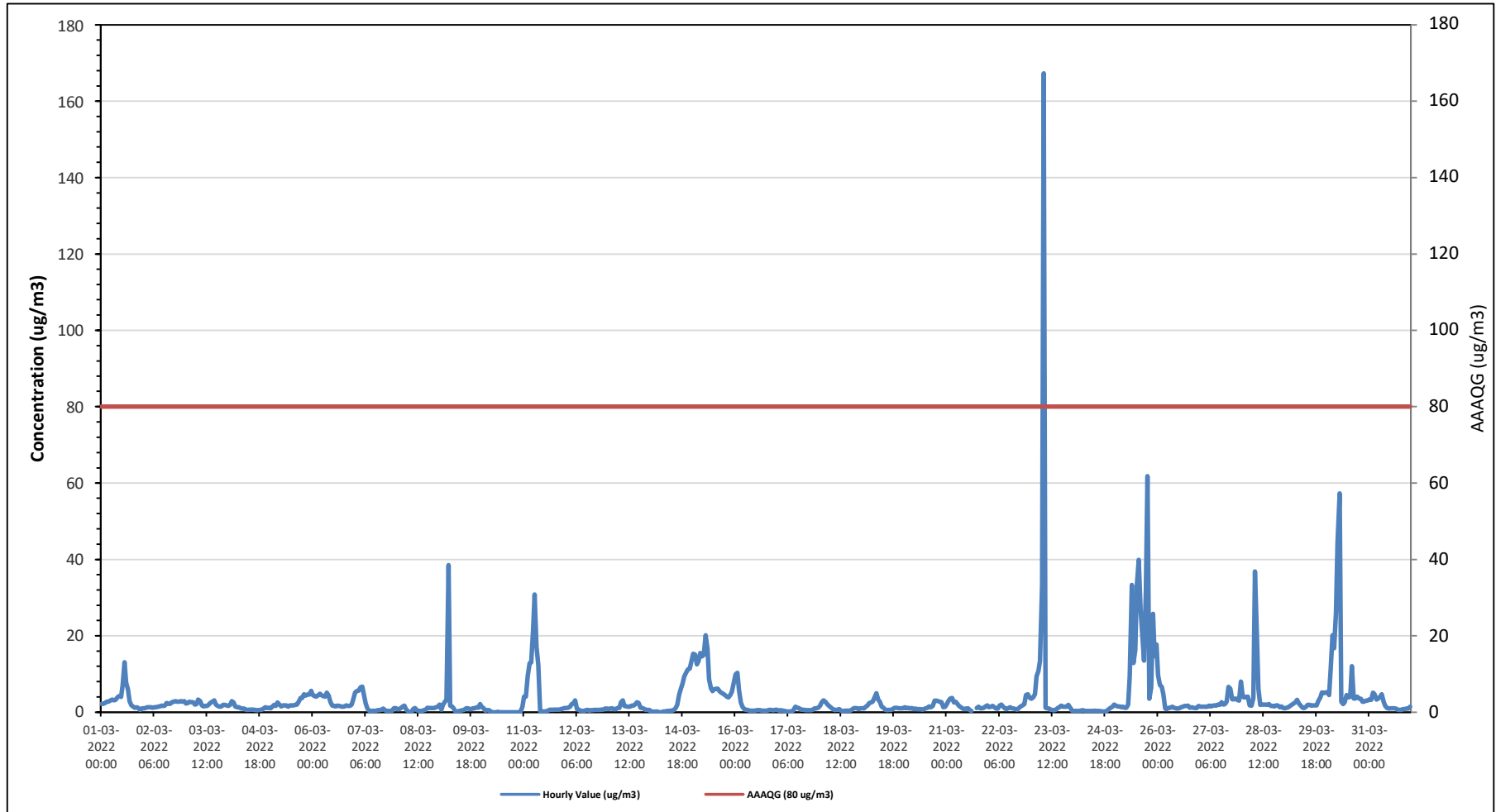
Summary of Hourly Averages

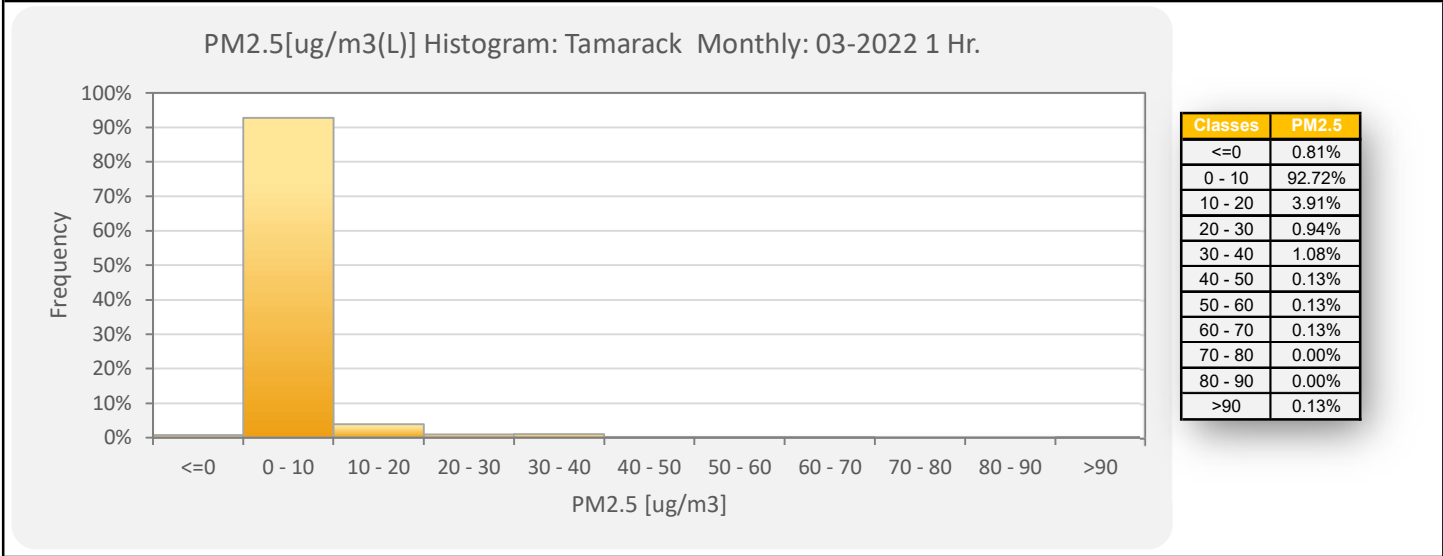
PARTICULATE MATTER 2.5 (PM_{2.5}) in µg/m³

Alberta Ambient Air Quality Guideline (AAQG): 1-Hour 80 µg/m ³ , Alberta Ambient Air Quality Objective (AAQO): 24-Hour 29 µg/m ³																															
Number of 1-Hour Exceedances: 1												Number of 24-Hour Exceedances: 0																			
Maximum Hourly Value: 167 µg/m ³ on March 23 at hour 7												Hours in Service: 744																			
Maximum Daily Value: 15.8 µg/m ³ on March 25												Hours of Data: 742																			
Minimum Hourly Value: 0 µg/m ³ on March 8 at hour 7												Hours of Missing Data: 0																			
Minimum Daily Value: 0 µg/m ³ on March 10												Hours of Calibration: 2																			
Monthly Average: 3.3 µg/m ³												Operational Uptime: 100.0																			
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23				
Mar 1	2	2	2	3	3	3	3	3	3	4	4	4	7	13	8	6	3	2	1	1	1	1	1	1	1	1	13	3.4			
Mar 2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	2.0			
Mar 3	2	2	3	3	3	2	2	3	3	2	2	2	2	2	3	3	3	2	2	1	2	2	2	2	2	3	2.2				
Mar 4	2	2	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.1			
Mar 5	1	1	2	2	3	2	2	2	2	2	1	2	2	2	2	2	3	4	4	5	4	5	5	6	6	6	2.6				
Mar 6	5	4	4	4	5	4	4	4	5	4	3	2	2	2	2	2	2	1	2	2	2	2	2	3	3	5	2.9				
Mar 7	5	6	6	7	7	5	2	1	0	0	0	0	0	1	1	1	1	1	0	0	0	0	1	1	1	7	1.9				
Mar 8	1	1	1	2	2	1	0	0	0	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	2	0.8				
Mar 9	2	1	2	3	3	39	2	2	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	2	2	39	2.7				
Mar 10	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.2				
Mar 11	4	4	10	13	13	21	31	17	12	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	31	5.6				
Mar 12	1	1	1	2	2	3	1	1	0	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	3	0.9				
Mar 13	1	1	1	1	1	1	1	3	3	2	2	1	1	2	2	2	3	2	1	1	1	1	1	1	1	3	1.4				
Mar 14	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	5	6	8	9	10	11	11	13	13	3.3					
Mar 15	15	15	13	13	16	15	15	20	17	9	6	6	6	6	6	5	5	5	5	4	4	5	5	8	8	20	9.2				
Mar 16	10	10	6	3	1	1	1	1	0	0	0	0	1	1	1	0	0	0	0	1	1	1	1	1	1	10	1.6				
Mar 17	1	0	1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6				
Mar 18	2	3	3	3	2	2	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	1	3	1.1				
Mar 19	1	1	1	2	2	3	3	4	5	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	1.7				
Mar 20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	3	3	3	3	3	3	1	1	3	1.4				
Mar 21	2	3	4	4	3	3	2	2	1	1	1	1	1	1	0	C	C	1	1	1	1	1	2	2	2	4	1.6				
Mar 22	1	1	2	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	2	2	2	5	5	4	4	5	1.7				
Mar 23	4	4	5	9	11	13	33	167	1	1	1	1	1	1	1	1	1	2	1	1	1	2	1	0	0	167	11.0				
Mar 24	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	2	2	2	0.5				
Mar 25	2	2	2	1	1	1	1	2	10	33	13	16	33	40	27	20	14	32	62	4	6	26	15	18	18	15.8					
Mar 26	10	7	7	5	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	2	2	10	2.2				
Mar 27	1	1	1	1	1	2	2	2	2	2	2	2	3	2	2	3	7	6	3	3	4	3	3	8	8	2.8					
Mar 28	4	4	4	4	2	2	4	37	21	6	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	37	4.6				
Mar 29	1	1	1	2	2	2	3	3	2	2	1	1	1	2	2	2	2	2	2	3	4	5	5	5	5	5	2.3				
Mar 30	5	5	11	20	17	26	45	57	3	2	3	5	4	4	12	4	4	4	4	4	4	3	3	3	3	57	10.3				
Mar 31	3	3	5	5	3	4	4	5	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	2.0				
Diurnal Maximum	15	15	13	20	17	39	45	167	21	33	13	16	33	40	27	20	14	32	62	9	10	26	15	18	18	18	18				
Diurnal Average	2.9	2.9	3.3	3.8	3.5	5.1	5.4	11.0	3.3	2.7	1.7	1.8	2.5	2.9	2.6	2.2	2.1	2.8	3.6	1.9	2.0	2.9	2.5	3.1	3.1	3.1	3.1				
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance														
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance							P	Power Failure						
X	Invalid Data (Equipment Malfunction/Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																						

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

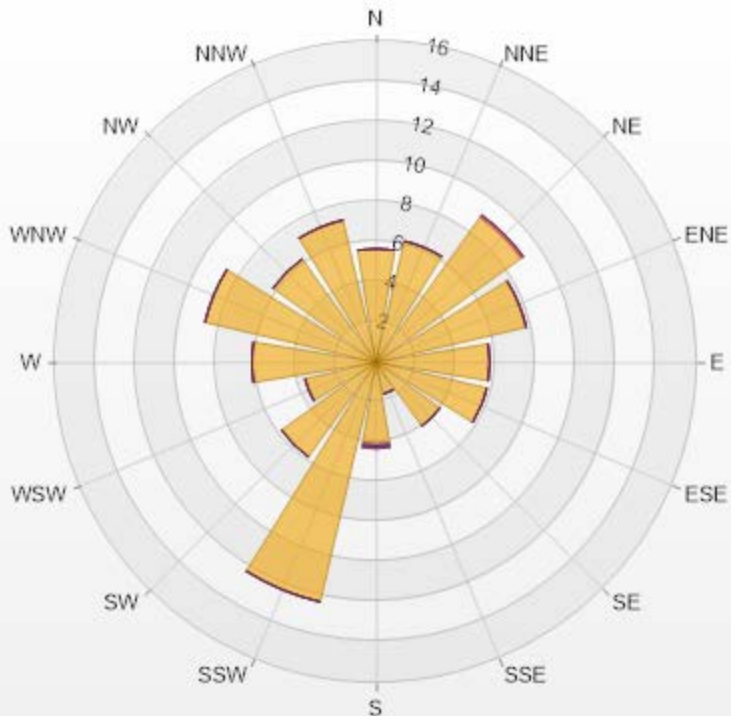
Timeseries Chart of Hourly Average for PM2.5 - Tamarack Site





Wind: Tamarack Poll.: Tamarack-PM2.5[ug/m3(L)] Monthly: 03-2022 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	5.66	0	0	0	0	5.66
NNE	6.2	0	0	0	0	6.2
NE	8.89	0.13	0	0	0	9.02
ENE	7.68	0	0	0	0	7.68
E	5.66	0	0	0	0	5.66
ESE	5.66	0	0	0	0	5.66
SE	3.91	0	0	0	0	3.91
SSE	1.62	0	0	0	0	1.62
S	4.04	0.13	0	0.13	0	4.3
SSW	12.26	0	0	0	0	12.26
SW	5.8	0	0	0	0	5.8
WSW	3.64	0	0	0	0	3.64
W	6.2	0	0	0	0	6.2
WNW	8.76	0	0	0	0	8.76
NW	6.33	0	0	0	0	6.33
NNW	7.28	0	0	0	0	7.28
Summary	100	0.26	0	0.13	0	100



LICA-202203

% Icon Classes (ug/m3(L))

100 0-50

0 50-80

0 80-120

0 120-240

0 >240.0



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Tamarack Site - March 2022

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

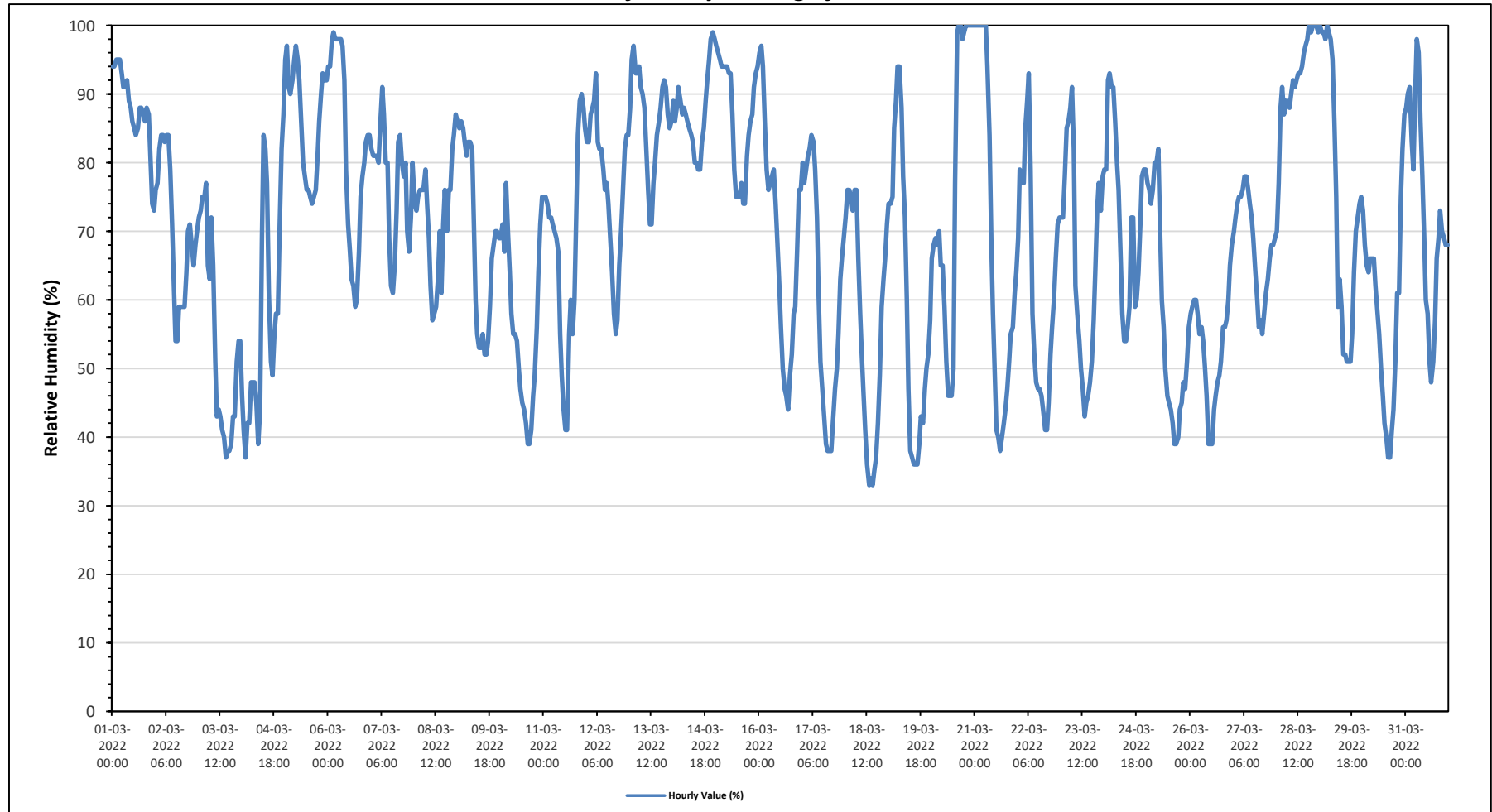
Maximum Hourly Value:	100 %	on March 20 at hour 15	Hours in Service:	744
Maximum Daily Value:	92.2 %	on March 28	Hours of Data:	744
Minimum Hourly Value:	33 %	on March 18 at hour 13	Hours of Missing Data:	0
Minimum Daily Value:	53.0 %	on March 26	Hours of Calibration:	0
Monthly Average:	70.5 %		Operational 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	
Mar 1	94	94	95	95	95	93	91	91	92	89	88	86	85	84	85	88	88	87	86	88	87	81	74	73	73	95	87.9	
Mar 2	76	77	82	84	84	83	84	84	79	71	63	54	54	59	59	59	64	70	71	68	65	68	70	54	84	70.3		
Mar 3	72	73	75	75	77	65	63	72	65	51	43	44	43	41	40	37	38	38	39	43	43	51	54	54	37	77	54.0	
Mar 4	46	41	37	42	42	48	48	48	45	39	44	69	84	82	77	61	51	49	55	58	58	71	82	87	37	87	56.8	
Mar 5	95	97	91	90	92	95	97	95	92	86	80	78	76	76	75	74	75	76	81	86	90	93	92	92	74	97	86.4	
Mar 6	94	94	98	99	98	98	98	98	97	92	79	71	67	63	62	59	60	67	75	78	80	83	84	84	59	99	82.4	
Mar 7	82	81	81	81	80	86	91	87	80	80	69	62	61	65	73	83	84	80	78	80	70	67	72	80	61	91	77.2	
Mar 8	74	73	75	76	76	76	79	74	69	62	57	58	59	63	70	61	71	76	70	76	76	82	84	87	57	87	71.8	
Mar 9	86	85	86	85	83	81	83	83	82	72	60	55	53	53	55	52	52	54	59	66	68	70	70	69	52	86	69.3	
Mar 10	69	71	67	77	70	64	58	55	55	54	50	47	45	44	42	39	39	41	46	49	56	64	71	75	39	77	56.2	
Mar 11	75	75	74	72	72	71	70	69	67	55	49	44	41	41	55	60	55	60	71	84	89	90	88	85	41	90	67.2	
Mar 12	83	83	87	88	89	93	83	82	82	79	76	77	74	69	64	58	55	57	65	70	75	82	84	84	55	93	76.6	
Mar 13	88	95	97	93	93	94	91	90	88	82	76	71	71	77	80	84	86	88	91	92	91	87	85	86	71	97	86.5	
Mar 14	89	86	88	91	89	87	88	87	86	85	84	83	80	80	79	79	83	85	89	92	95	98	99	98	79	99	87.5	
Mar 15	97	96	95	94	94	94	94	93	93	87	79	75	75	75	77	74	74	81	84	86	87	91	93	94	74	97	86.8	
Mar 16	96	97	94	86	79	76	77	78	79	74	69	62	56	50	47	46	44	49	52	58	59	67	76	76	44	97	68.6	
Mar 17	80	77	79	81	82	84	83	79	72	61	51	47	43	39	38	38	38	42	47	50	55	63	66	69	38	84	61.0	
Mar 18	72	76	76	75	73	76	76	66	58	52	46	41	36	33	34	33	35	37	42	49	59	63	66	71	33	76	56.0	
Mar 19	74	74	75	85	89	94	94	88	78	72	60	47	38	37	36	36	36	39	43	42	47	50	52	57	36	94	60.1	
Mar 20	66	68	69	68	70	65	65	59	51	46	46	46	50	77	99	100	100	98	99	100	100	100	100	100	46	100	76.8	
Mar 21	100	100	100	100	100	100	100	94	84	68	58	49	41	40	38	40	42	44	47	51	55	56	61	64	38	100	68.0	
Mar 22	69	79	77	77	85	89	93	79	58	52	48	47	47	46	44	41	41	45	52	56	60	66	71	72	41	93	62.3	
Mar 23	72	72	78	85	86	88	91	82	62	58	54	50	47	43	45	46	48	51	57	64	73	77	73	78	43	91	65.8	
Mar 24	79	79	92	93	91	91	86	80	76	67	58	54	54	56	59	72	72	59	60	64	71	78	79	79	54	93	72.9	
Mar 25	77	76	74	76	80	80	82	71	60	56	50	46	45	44	42	39	39	40	44	45	48	47	51	56	39	82	57.0	
Mar 26	58	59	60	60	58	55	56	54	50	46	39	39	39	44	46	48	49	51	56	56	57	60	65	68	39	68	53.0	
Mar 27	70	72	74	75	75	76	78	78	76	74	72	69	64	60	56	57	55	58	61	63	66	68	68	69	55	78	68.1	
Mar 28	70	77	88	91	87	89	89	88	90	92	91	92	93	93	94	96	97	98	100	99	100	100	100	99	70	100	92.2	
Mar 29	100	99	99	98	100	99	98	95	86	75	59	63	59	52	52	51	51	51	55	64	70	72	74	75	51	100	74.9	
Mar 30	73	68	65	64	66	66	66	62	58	55	50	46	42	40	37	37	41	44	51	61	61	75	82	87	37	87	58.2	
Mar 31	88	90	91	83	79	90	98	96	86	78	69	60	58	51	48	51	57	66	69	73	70	69	68	68	48	98	73.2	
Diurnal Maximum	100	100	100	100	100	100	100	98	97	92	91	92	93	93	99	100	100	98	100	100	100	100	100	100	100	100	100	100
Diurnal Average	79.5	80.1	81.3	81.9	81.7	82.1	82.3	79.3	74.1	68.1	61.8	59.1	57.4	57.3	58.3	58.0	58.5	60.5	64.3	68.2	70.5	73.7	75.9	77.6	48	98	73.2	

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

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

Timeseries Chart of Hourly Average for RH - Tamarack Site





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

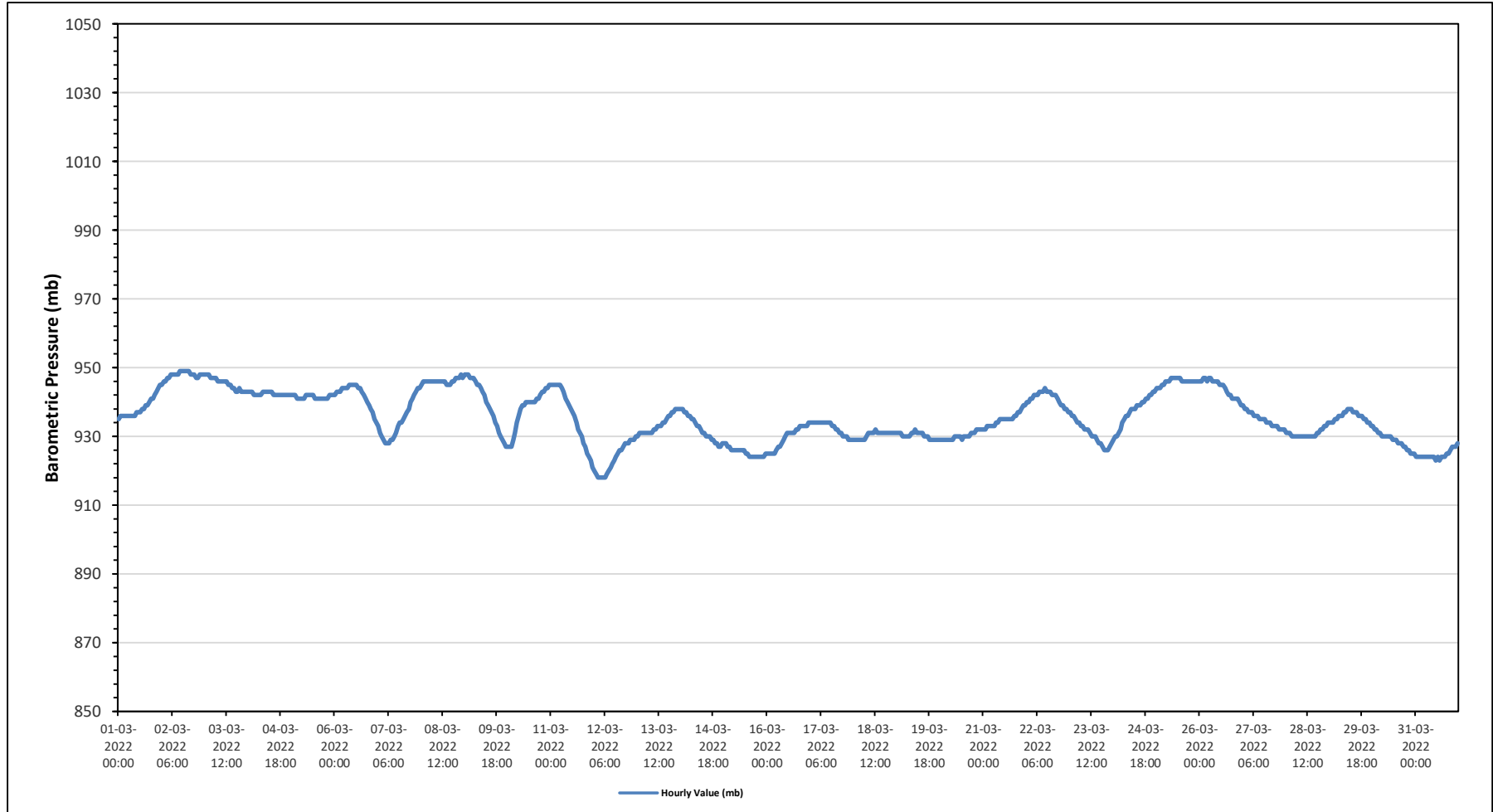
Tamarack Site - March 2022

Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

Summary of Hourly Averages table including Maximum/Minimum Hourly and Daily Values, Monthly Average, and a detailed hourly data grid for March 2022. Includes a legend for error codes (C, K, X, S, N, NRM, Q, Y, P) and a note about data completeness criteria.

Timeseries Chart of Hourly Average for BP - Tamarack Site





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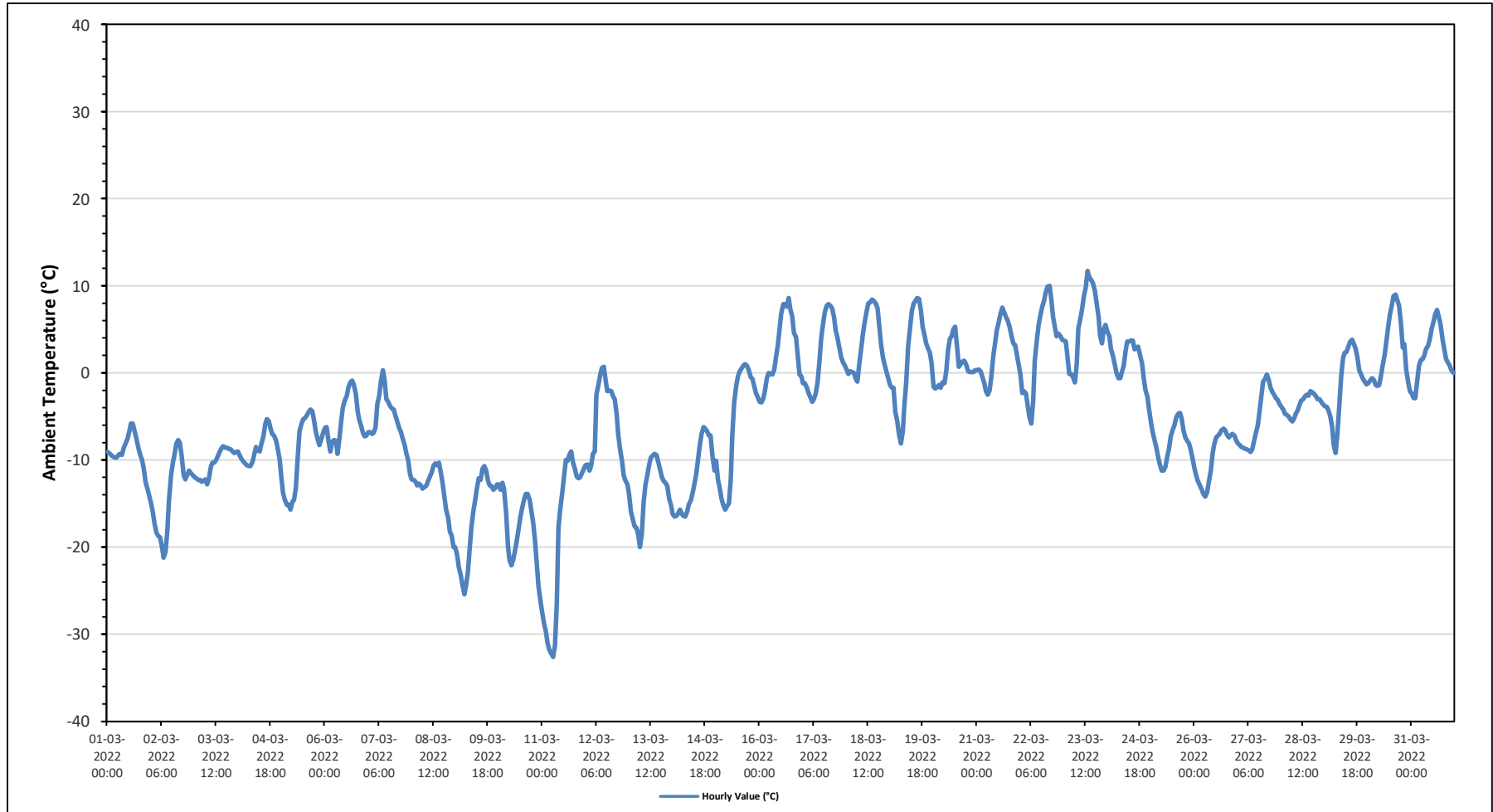
Tamarack Site - March 2022

Summary of Hourly Averages

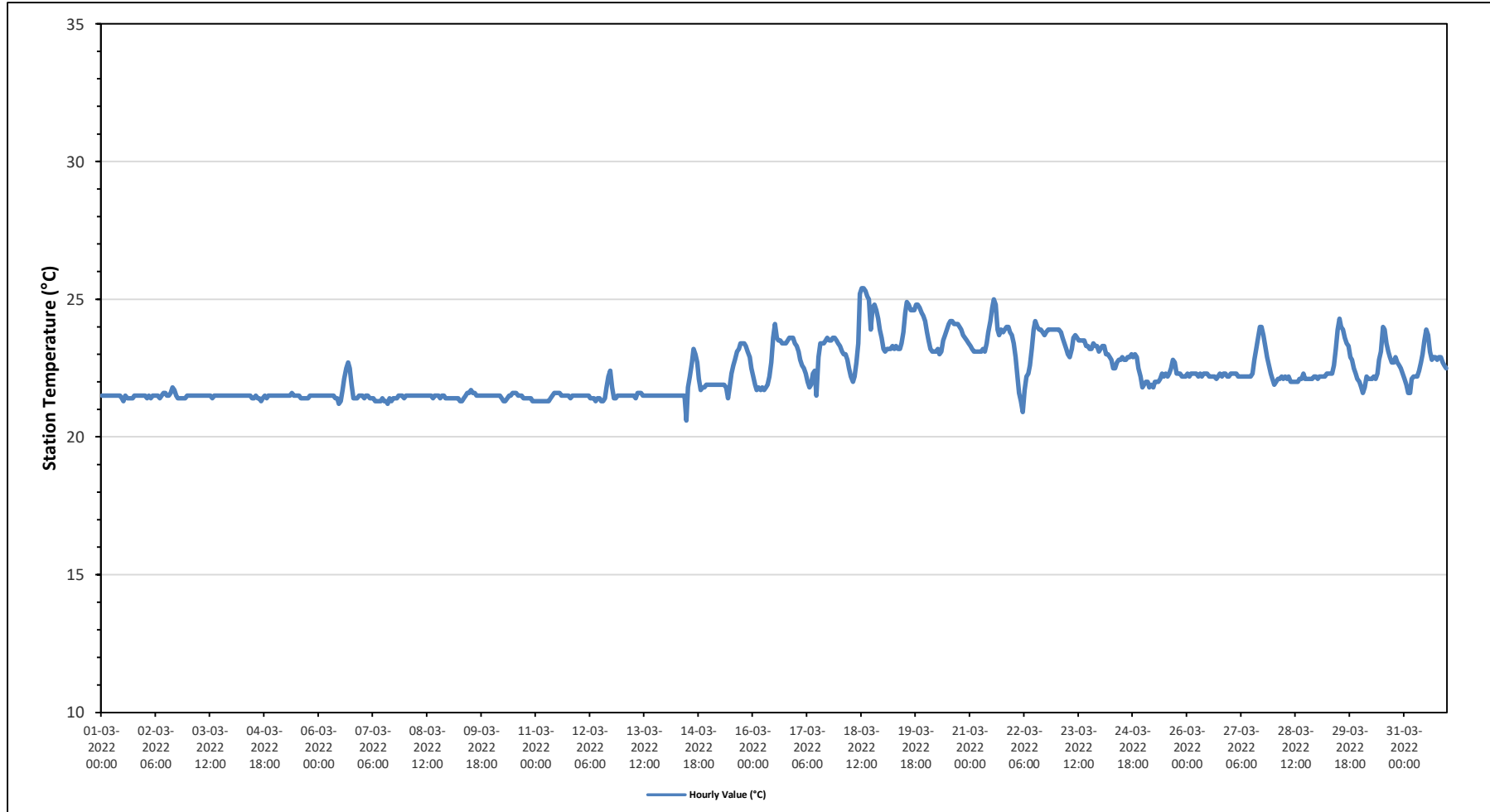
AMBIENT TEMPERATURE (AT) in Degree Celsius

Maximum Hourly Value:	11.7 °C	on March 23 at hour 13										Hours in Service:	744														
Maximum Daily Value:	5.5 °C	on March 23										Hours of Data:	744														
Minimum Hourly Value:	-32.6 °C	on March 11 at hour 6										Hours of Missing Data:	0														
Minimum Daily Value:	-18.7 °C	on March 11										Hours of Calibration:	0														
Monthly Average:	-5.4 °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			
Mar 1	-9.1	-9.2	-9.4	-9.6	-9.7	-9.7	-9.4	-9.3	-9.4	-8.6	-8.1	-7.6	-6.7	-5.8	-5.8	-6.7	-7.6	-8.6	-9.4	-9.9	-10.9	-12.5	-13.3	-14.1	-14.1	-5.8	-9.2
Mar 2	-15	-15.9	-17.3	-18.3	-18.7	-18.9	-20	-21.2	-20.6	-18.2	-14.8	-11.8	-10.3	-9.4	-8.1	-7.7	-8	-9.5	-11.8	-12.2	-11.7	-11.2	-11.5	-11.7	-21.2	-7.7	-13.9
Mar 3	-12	-12.1	-12.3	-12.3	-12.5	-12.4	-12.2	-12.8	-12.1	-10.8	-10.3	-10.3	-10	-9.5	-9	-8.6	-8.4	-8.6	-8.6	-8.7	-8.8	-9	-9.2	-9.1	-12.8	-8.4	-10.4
Mar 4	-9	-9.5	-9.9	-10.2	-10.4	-10.6	-10.7	-10.7	-10.2	-9.3	-8.5	-8.9	-9	-8.2	-7.3	-5.9	-5.3	-5.5	-6.4	-7	-7.2	-7.8	-8.7	-9.9	-10.7	-5.3	-8.6
Mar 5	-12.1	-13.8	-14.6	-15.2	-15.1	-15.7	-14.8	-14.6	-13.3	-9.8	-6.7	-5.9	-5.3	-5.2	-4.9	-4.5	-4.2	-4.4	-5.5	-6.7	-7.6	-8.3	-7.6	-6.9	-15.7	-4.2	-9.3
Mar 6	-6.3	-6.2	-7.8	-9	-7.9	-7.7	-7.8	-9.3	-7.6	-5.5	-4	-3.1	-2.6	-1.7	-1.1	-0.9	-1.3	-2.4	-4.4	-5.4	-6.1	-6.9	-7.3	-7.2	-9.3	-0.9	-5.4
Mar 7	-6.8	-6.8	-7	-6.9	-6.3	-3.6	-2.6	-0.9	0.3	-0.7	-3	-3.3	-3.8	-4.1	-4.2	-4.9	-5.6	-6.3	-6.8	-7.6	-8.3	-9.2	-10	-11.6	-11.6	0.3	-5.4
Mar 8	-12.2	-12.3	-12.5	-12.9	-12.7	-12.9	-13.3	-13.1	-12.9	-12.4	-11.9	-11.4	-10.7	-10.4	-10.6	-10.3	-11.4	-12.7	-14.1	-15.7	-16.7	-18.2	-18.7	-20	-20.0	-10.3	-13.3
Mar 9	-20	-20.8	-22.3	-23.2	-24.4	-25.4	-24.4	-22.9	-20.1	-17.5	-15.8	-14.5	-13.2	-12.1	-12.3	-11	-10.7	-11.2	-12.3	-12.9	-13	-13.4	-13.2	-12.8	-25.4	-10.7	-16.6
Mar 10	-12.8	-13.4	-12.6	-13.3	-16	-19.9	-21.5	-22.1	-21.4	-20.5	-19.1	-17.7	-16.5	-15.4	-14.5	-13.9	-13.9	-14.6	-15.8	-17.2	-19.3	-21.7	-24.5	-26.3	-26.3	-12.6	-17.7
Mar 11	-27.5	-28.8	-29.7	-31	-31.8	-32.2	-32.6	-31.3	-26.4	-17.8	-15.6	-13.9	-11.9	-10	-10.1	-9.4	-9	-10.3	-11	-11.9	-12.1	-12	-11.5	-11	-32.6	-9.0	-18.7
Mar 12	-10.6	-10.5	-11.2	-10.7	-9.3	-9	-2.5	-1.3	-0.1	0.6	0.7	-0.9	-2.1	-2	-2.1	-2.6	-3	-4.6	-7	-8.7	-10.2	-11.8	-12.4	-12.8	-12.8	0.7	-6.0
Mar 13	-13.9	-15.9	-16.8	-17.6	-17.8	-18.6	-20	-18.5	-14.8	-12.8	-11.7	-10.5	-9.7	-9.5	-9.3	-9.4	-10.2	-11.1	-11.9	-12.4	-12.6	-13	-14.4	-15.2	-20.0	-9.3	-13.7
Mar 14	-16.2	-16.5	-16.4	-16.2	-15.7	-16.2	-16.4	-16.5	-15.9	-15.1	-14.6	-13.7	-12.8	-11.6	-9.9	-8.4	-7	-6.2	-6.4	-6.7	-7.2	-7.2	-9.5	-11.2	-16.5	-6.2	-12.2
Mar 15	-10.1	-12.3	-13.3	-14.4	-15.2	-15.7	-15.3	-15	-12.2	-7.1	-3.4	-1.6	-0.4	0.2	0.5	0.8	1	0.8	0.3	-0.5	-0.7	-1.5	-2.3	-2.8	-15.7	1.0	-5.8
Mar 16	-3.3	-3.4	-2.9	-2	-0.6	0	-0.1	-0.2	0.4	1.7	3.1	5.1	6.8	7.9	7.9	7.6	8.6	7.2	6.6	4.6	4.1	2.1	-0.2	-0.4	-3.4	8.6	2.5
Mar 17	-1.2	-1.2	-1.7	-2.3	-2.8	-3.3	-3	-2.4	-1.1	1.3	4.1	5.7	6.9	7.7	7.9	7.7	7.4	6.4	4.9	4	2.9	1.8	1.2	0.8	-3.3	7.9	2.2
Mar 18	0.4	-0.1	0.2	0.1	0	-0.7	-1	1	2.7	4.3	5.9	7.1	8	8.1	8.4	8.3	8	7.4	5.5	3.3	1.8	1	0.2	-0.7	-1.0	8.4	3.3
Mar 19	-1.4	-1.7	-1.7	-4.5	-5.5	-7.1	-8.1	-6.7	-3.7	-1	3	5.1	7.1	8	8.2	8.6	8.5	7.2	5.2	4.3	3.4	2.8	2.3	1.2	-8.1	8.6	1.4
Mar 20	-1.6	-1.8	-1.6	-1.4	-1.7	-1.1	-1.2	0.3	2.5	3.9	4.2	5	5.3	2.8	0.7	1	1.3	1.4	1	0.2	0.1	0.1	0.1	0.3	-1.8	5.3	0.8
Mar 21	0.3	0.4	0.2	-0.5	-1.2	-2.1	-2.5	-2	-0.3	2	3.5	4.9	5.8	6.8	7.5	6.9	6.4	6	5.3	4.3	3.4	3.2	2	1	-2.5	7.5	2.6
Mar 22	-0.2	-2.3	-2.1	-2.4	-3.9	-5.1	-5.8	-3.2	1.4	3.8	5.6	6.6	7.6	8.3	9.2	9.9	10	8.5	6.4	5.2	4.2	4.5	4.2	3.8	-5.8	10.0	3.1
Mar 23	3.7	3.6	1.9	-0.1	-0.1	-0.5	-1.1	1	5.1	6.1	7.3	8.8	9.8	11.7	11	10.7	10.3	9.5	8	6.5	4.3	3.4	5	5.5	-1.1	11.7	5.5
Mar 24	4.7	4.2	2.7	2	1	0.1	-0.6	-0.6	0.1	0.8	2.5	3.6	3.6	3.7	3.7	2.7	2.8	3	2.1	1.1	-0.5	-2	-2.7	-4.1	-4.1	4.7	1.4
Mar 25	-5.6	-6.8	-7.7	-8.6	-9.7	-10.5	-11.2	-11.2	-10.8	-9.6	-8.6	-7.6	-6.6	-6	-5.1	-4.7	-4.6	-5.2	-6.6	-7.4	-7.8	-8.1	-8.9	-9.8	-11.2	-4.6	-7.9
Mar 26	-10.9	-11.8	-12.4	-12.9	-13.4	-13.9	-14.2	-13.7	-12.6	-11.2	-9.2	-8.2	-7.4	-7.2	-7	-6.6	-6.4	-6.6	-7.1	-7.4	-7.2	-7	-7.2	-7.7	-14.2	-6.4	-9.6
Mar 27	-8.1	-8.3	-8.5	-8.6	-8.7	-8.8	-8.9	-9.1	-8.8	-7.8	-6.9	-6	-4.3	-2.5	-1	-0.7	-0.2	-0.8	-1.7	-2.2	-2.5	-2.9	-3.1	-3.6	-9.1	-0.2	-5.2
Mar 28	-3.9	-4.2	-4.7	-4.8	-5	-5.3	-5.6	-5.2	-4.7	-4.3	-3.7	-3.2	-3	-2.7	-2.5	-2.6	-2.1	-2.2	-2.4	-2.7	-3	-3	-3.3	-3.6	-5.6	-2.1	-3.7
Mar 29	-3.8	-3.9	-4.3	-5	-6.2	-8.3	-9.2	-6.9	-3.7	-0.4	1.7	2.3	2.4	3	3.6	3.8	3.3	2.8	1.8	0.3	-0.2	-0.7	-1	-1.3	-9.2	3.8	-1.2
Mar 30	-1.2	-0.9	-0.6	-0.8	-1.4	-1.5	-1.4	-0.3	0.8	2.1	3.8	5.3	6.8	7.8	8.8	9	8.3	7.7	5.7	2.9	3.3	0.3	-1.2	-2.1	-2.1	9.0	2.6
Mar 31	-2.4	-2.9	-2.9	-1	0.8	1.5	1.6	2	2.8	3.1	3.9	5.1	5.9	6.7	7.2	6.4	5.4	3.8	2.6	1.6	1.2	0.8	0.3	0	-2.9	7.2	2.2
Diurnal Maximum	4.7	4.2	2.7	2.0	1.0	1.5	1.6	2.0	5.1	6.1	7.3	8.8	9.8	11.7	11.0	10.7	10.3	9.5	8.0	6.5	4.3	4.5	5.0	5.5			
Diurnal Average	-7.4	-7.9	-8.4	-8.8	-9.1	-9.5	-9.5	-8.9	-7.3	-5.5	-4.1	-3.1	-2.3	-1.6	-1.3	-1.1	-1.2	-1.9	-3.0	-4.0	-4.7	-5.4	-6.0	-6.6			
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 - Tamarack Site



Timeseries Chart of Hourly Average for ST - Tamarack Site





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - March 2022

Summary of Hourly Averages

PRECIPITATION in mm

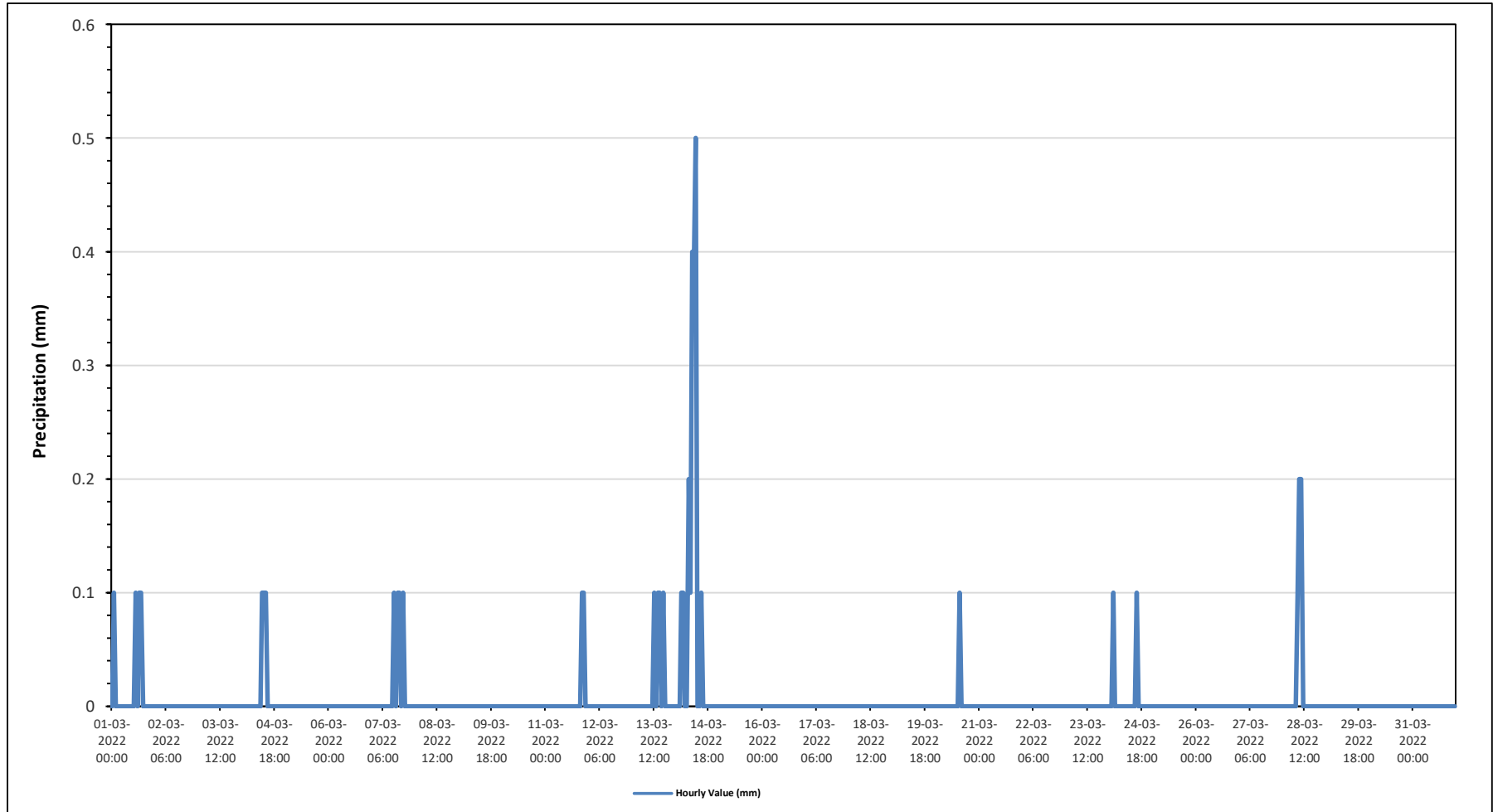
Maximum Hourly Value:	0.5 mm on March 14 at hour 11	Hours in Service:	744
Maximum Daily Value:	1.9 mm on March 14	Hours of Data:	744
Minimum Hourly Value:	0.0 mm on March 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 mm on March 2	Hours of Calibration:	0
Monthly Total:	4.4 mm	Operational 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	
Mar 1	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1	0.1	0	0	0	0	0	0	0	0	0.0	0.1	0.4
Mar 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
Mar 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
Mar 4	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	0	0	0.0	0.1	0.3
Mar 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
Mar 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
Mar 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1	0.1	0	0.1	0	0	0	0	0	0	0.0	0.1	0.4
Mar 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
Mar 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
Mar 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
Mar 11	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	0.1	0.2
Mar 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
Mar 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1	0.1	0	0.1	0	0	0	0	0	0	0.0	0.1	0.4
Mar 14	0	0	0	0.1	0.1	0	0	0.2	0.1	0.4	0.4	0.5	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0.0	0.5	1.9
Mar 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
Mar 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Mar 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Mar 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Mar 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Mar 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	0.1	0.1
Mar 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
Mar 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
Mar 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
Mar 24	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0.0	0.1	0.2
Mar 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Mar 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Mar 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
Mar 28	0	0	0	0	0	0	0	0	0	0.1	0.2	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.2	0.5
Mar 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	0.0
Mar 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
Mar 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	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.1	0.4	0.4	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0			
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

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

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

Timeseries Chart of Hourly Average for Precipitation - Tamarack Site





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - March 2022

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

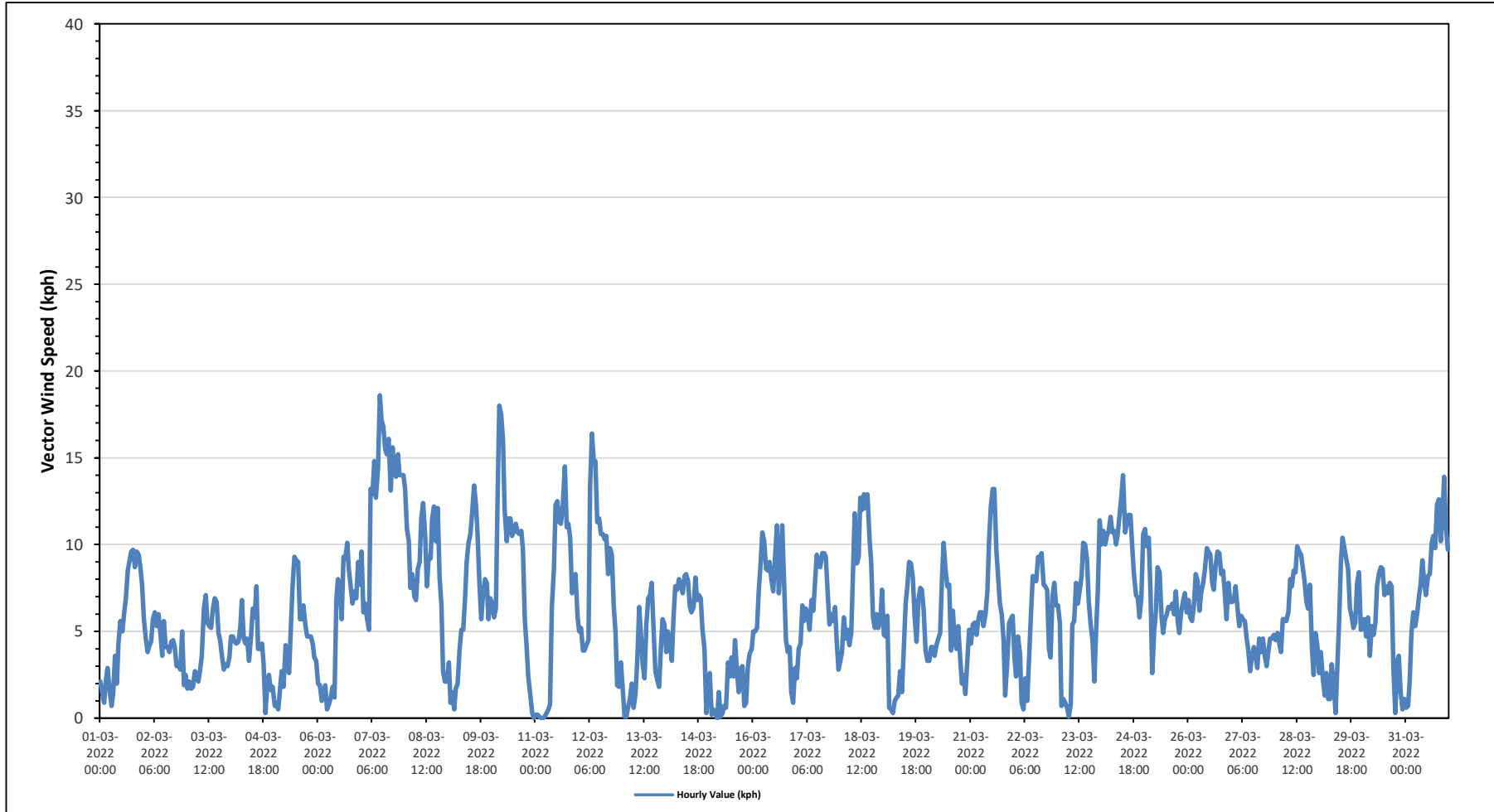
Maximum Hourly Value:	18.6 kph on March 7 at hour 10	Hours in Service:	744
Maximum Daily Value:	10.4 kph on March 7	Hours of Data:	744
Minimum Hourly Value:	0.0 kph on March 10 at hour 23	Hours of Missing Data:	0
Minimum Daily Value:	0.4 kph on March 15	Hours of Calibration:	0
Monthly Average:	1.1 kph	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
Mar 1	2.1	1.4	0.9	2.2	2.9	1.7	0.7	1.4	3.6	2.0	4.3	5.6	5.0	6.0	6.9	8.5	9.0	9.6	9.7	8.7	9.6	9.4	8.8	7.7	0.7	9.7	5.2
Mar 2	5.7	4.6	3.8	4.2	4.4	5.7	6.1	5.3	6.0	4.9	3.6	5.6	4.1	4.1	3.8	4.4	4.5	4.1	3.0	3.1	2.8	5.0	1.9	2.5	1.9	6.1	3.6
Mar 3	1.7	2.1	1.7	1.8	2.7	2.6	2.1	2.8	3.6	6.3	7.1	5.5	5.3	5.2	6.2	6.9	6.7	4.9	4.5	3.6	2.8	3.1	3.0	3.5	1.7	7.1	3.6
Mar 4	4.7	4.7	4.4	4.3	4.4	5.2	6.8	4.6	4.3	4.6	3.3	4.8	6.3	5.8	7.6	4.0	4.0	4.3	3.1	0.3	2.1	2.5	1.6	1.8	0.3	7.6	3.4
Mar 5	0.7	0.9	0.5	1.7	2.7	1.8	4.2	3.0	2.6	5.4	7.6	9.3	9.1	9.0	5.7	5.7	6.5	5.4	4.7	4.7	4.7	4.3	3.5	3.3	0.5	9.3	4.3
Mar 6	2.0	1.9	1.0	1.2	1.9	0.5	0.8	1.2	1.8	1.2	6.8	8.0	7.7	5.7	9.3	9.2	10.1	8.6	7.6	6.6	7.3	6.9	9.0	7.7	0.5	10.1	4.2
Mar 7	9.6	6.1	6.6	5.7	5.1	13.2	12.9	14.8	12.7	14.4	18.6	17.2	16.8	15.5	15.2	16.1	13.1	15.6	14.2	13.9	15.2	14.0	14.0	14.0	5.1	18.6	10.4
Mar 8	13.2	10.9	10.2	7.5	8.3	7.0	6.8	8.6	9.0	11.5	12.4	10.4	7.6	9.3	9.2	11.5	12.2	10.2	12.1	8.1	6.5	2.7	2.1	2.1	2.1	13.2	8.6
Mar 9	3.2	0.9	1.5	0.5	1.7	2.0	3.9	5.1	5.1	6.9	9.0	10.1	10.6	11.9	13.4	12.3	10.6	7.8	5.7	7.2	8.0	7.8	5.7	6.9	0.5	13.4	5.8
Mar 10	6.6	5.8	6.3	13.1	18.0	17.5	16.0	12.0	10.2	11.5	11.5	10.5	10.8	11.2	10.7	10.6	10.8	9.7	5.7	4.1	2.4	1.3	0.3	0.0	0.0	18.0	8.1
Mar 11	0.2	0.2	0.1	0.0	0.0	0.1	0.3	0.5	0.8	6.4	8.7	12.3	12.5	11.3	11.2	12.2	14.5	11.0	11.2	10.4	7.2	7.8	8.3	5.8	0.0	14.5	6.2
Mar 12	5.0	5.2	3.9	3.9	4.2	4.5	13.3	16.4	14.8	14.8	11.3	11.5	10.6	10.6	10.3	10.5	8.3	9.8	9.4	6.5	4.9	1.9	1.8	3.2	1.8	16.4	6.1
Mar 13	1.7	0.1	0.1	0.7	1.1	2.0	0.6	1.4	3.4	6.4	5.0	3.1	2.3	5.4	6.9	7.1	7.8	5.2	2.7	2.2	1.8	4.1	5.7	5.4	0.1	7.8	3.3
Mar 14	3.8	5.0	4.2	3.3	5.7	7.6	7.4	8.0	7.7	7.2	8.2	8.3	7.9	6.4	6.1	6.4	8.1	6.8	7.1	6.9	5.2	4.0	0.3	1.7	0.3	8.3	4.2
Mar 15	2.6	0.2	0.5	0.3	0.0	1.5	0.1	0.3	0.7	0.6	3.2	2.4	3.5	2.4	4.5	2.8	1.5	2.9	3.0	0.7	0.9	2.9	3.7	4.0	0.0	4.5	0.4
Mar 16	5.0	5.0	5.2	7.2	8.8	10.7	10.2	8.6	8.5	9.0	8.0	7.3	9.3	11.1	7.2	8.7	11.1	7.8	4.5	3.8	4.1	1.5	0.9	2.9	0.9	11.1	6.5
Mar 17	2.3	4.0	4.3	6.5	5.6	6.3	6.0	5.1	6.8	6.2	7.7	9.4	9.0	8.7	9.5	9.5	9.3	7.3	5.4	6.0	5.6	6.4	4.5	2.8	2.3	9.5	6.4
Mar 18	3.3	3.8	5.8	4.6	5.1	4.2	4.9	8.6	11.8	8.9	9.3	12.7	12.0	12.9	12.1	12.9	10.3	9.0	5.8	5.2	6.0	5.2	5.7	7.4	3.3	12.9	6.9
Mar 19	4.8	4.7	5.9	0.6	0.5	0.3	1.0	1.2	1.3	2.7	1.5	4.0	6.6	7.7	9.0	8.9	8.1	5.8	4.4	6.8	7.5	7.4	6.2	3.9	0.3	9.0	3.7
Mar 20	3.3	3.3	4.1	4.1	3.6	4.2	4.6	4.9	8.1	10.1	8.6	7.6	7.7	3.9	6.2	4.6	4.0	5.3	3.8	2.0	2.5	1.4	3.2	5.1	1.4	10.1	4.1
Mar 21	4.3	5.4	5.5	4.8	5.6	6.1	6.1	5.3	6.0	7.3	10.1	12.2	13.2	13.2	9.6	8.0	6.6	6.0	4.5	1.3	3.0	5.5	5.7	5.9	1.3	13.2	6.3
Mar 22	3.5	2.4	4.7	3.7	0.9	0.5	2.3	1.0	3.1	5.6	8.2	7.9	7.9	9.3	9.2	9.5	7.7	7.6	7.4	4.0	3.5	7.0	7.8	6.5	0.5	9.5	5.0
Mar 23	6.5	5.5	0.7	1.1	0.9	0.6	0.1	0.8	5.4	5.6	7.8	6.6	7.4	8.2	10.1	10.0	9.2	6.7	5.4	4.5	2.1	4.8	7.3	11.4	0.1	11.4	3.8
Mar 24	10.0	10.8	10.0	10.5	10.8	11.6	10.7	10.8	10.0	10.6	11.7	12.8	14.0	10.7	11.3	11.7	11.7	9.8	8.3	7.1	6.9	5.8	6.9	10.6	5.8	14.0	9.5
Mar 25	10.9	9.9	10.4	7.0	2.6	4.9	6.2	8.7	8.4	5.9	4.9	5.7	6.0	6.4	6.3	6.6	6.0	7.3	5.6	4.9	6.1	6.8	7.2	6.1	2.6	10.9	6.0
Mar 26	6.8	5.8	5.6	6.5	8.3	7.9	6.2	7.3	7.7	8.5	9.8	9.6	9.4	7.8	7.4	8.8	9.6	9.5	8.3	8.5	7.3	5.7	7.8	6.7	5.6	9.8	7.4
Mar 27	6.7	6.8	7.6	6.4	5.3	5.9	5.7	5.6	4.7	3.9	2.7	3.6	4.1	3.5	2.9	4.6	3.8	4.6	3.6	3.0	3.9	4.6	4.6	4.8	2.7	7.6	4.0
Mar 28	4.5	4.9	4.3	3.8	5.7	5.7	5.6	6.1	8.0	7.6	8.5	8.4	9.9	9.6	9.4	8.7	7.9	6.7	6.3	7.7	4.0	2.5	4.9	4.2	2.5	9.9	6.3
Mar 29	2.6	3.8	2.3	1.3	2.6	1.1	1.1	3.1	2.1	0.3	2.8	5.5	9.0	10.4	9.8	9.1	8.6	6.3	5.8	5.2	5.5	7.8	8.4	5.1	0.3	10.4	3.9
Mar 30	5.2	5.7	4.7	5.8	3.6	5.3	4.8	5.5	7.6	8.3	8.7	8.6	7.1	7.6	7.2	7.8	7.6	2.7	0.3	3.3	3.6	1.5	0.5	1.1	0.3	8.7	4.6
Mar 31	0.6	0.7	2.1	5.0	6.1	5.3	6.0	7.0	7.7	9.1	7.8	7.1	8.2	8.3	10.1	10.5	9.8	12.3	12.6	10.2	11.9	13.9	10.9	9.7	0.6	13.9	7.8
Diurnal Maximum	13	11	10	13	18	18	16	16	15	15	19	17	17	16	15	16	15	16	14	14	15	14	14	14			
Diurnal Average	4.6	4.3	4.2	4.2	4.5	5.0	5.3	5.6	6.2	6.9	7.7	8.2	8.4	8.4	8.5	8.6	8.4	7.4	6.3	5.5	5.3	5.3	5.2	5.3			

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

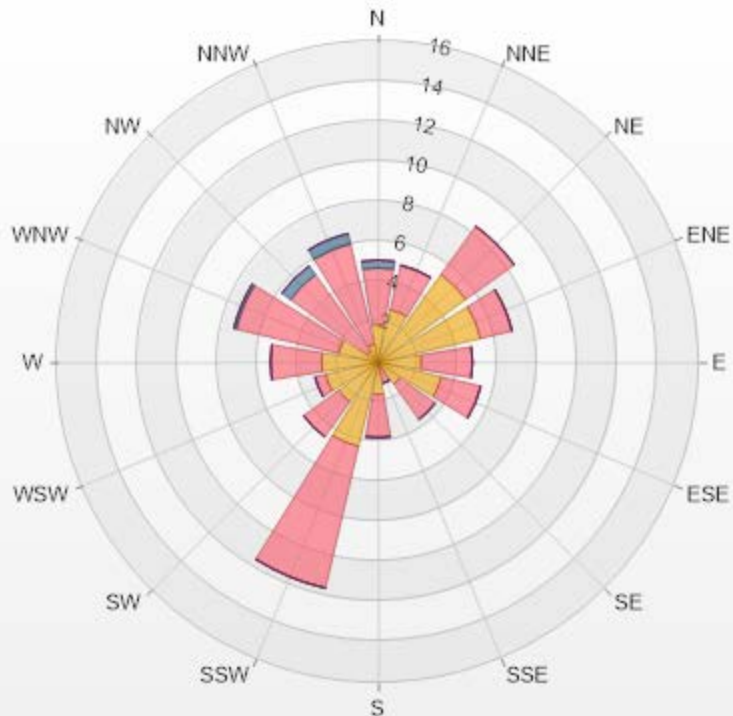
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

Timeseries Chart of Hourly Average for VWS - Tamarack Site



Wind: Tamarack Monitor: WDS [kph] Monthly: 03-2022 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 11.83% 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	1.88	2.82	0.4	0	0	5.1
NNE	2.69	2.28	0	0	0	4.97
NE	5.38	2.96	0	0	0	8.34
ENE	5.24	1.61	0	0	0	6.85
E	2.15	2.55	0	0	0	4.7
ESE	3.23	2.02	0	0	0	5.25
SE	1.34	2.15	0	0	0	3.49
SSE	0.13	0.94	0	0	0	1.07
S	1.61	2.15	0	0	0	3.76
SSW	4.3	7.26	0	0	0	11.56
SW	2.42	2.15	0	0	0	4.57
WSW	2.69	0.54	0	0	0	3.23
W	2.82	2.55	0	0	0	5.37
WNW	2.02	5.24	0.13	0	0	7.39
NW	0.67	4.7	0.54	0	0	5.91
NNW	0.94	5.11	0.54	0	0	6.59
Summary	39.51	47.03	1.61	0	0	88.15



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% Icon Classes (kph)

40  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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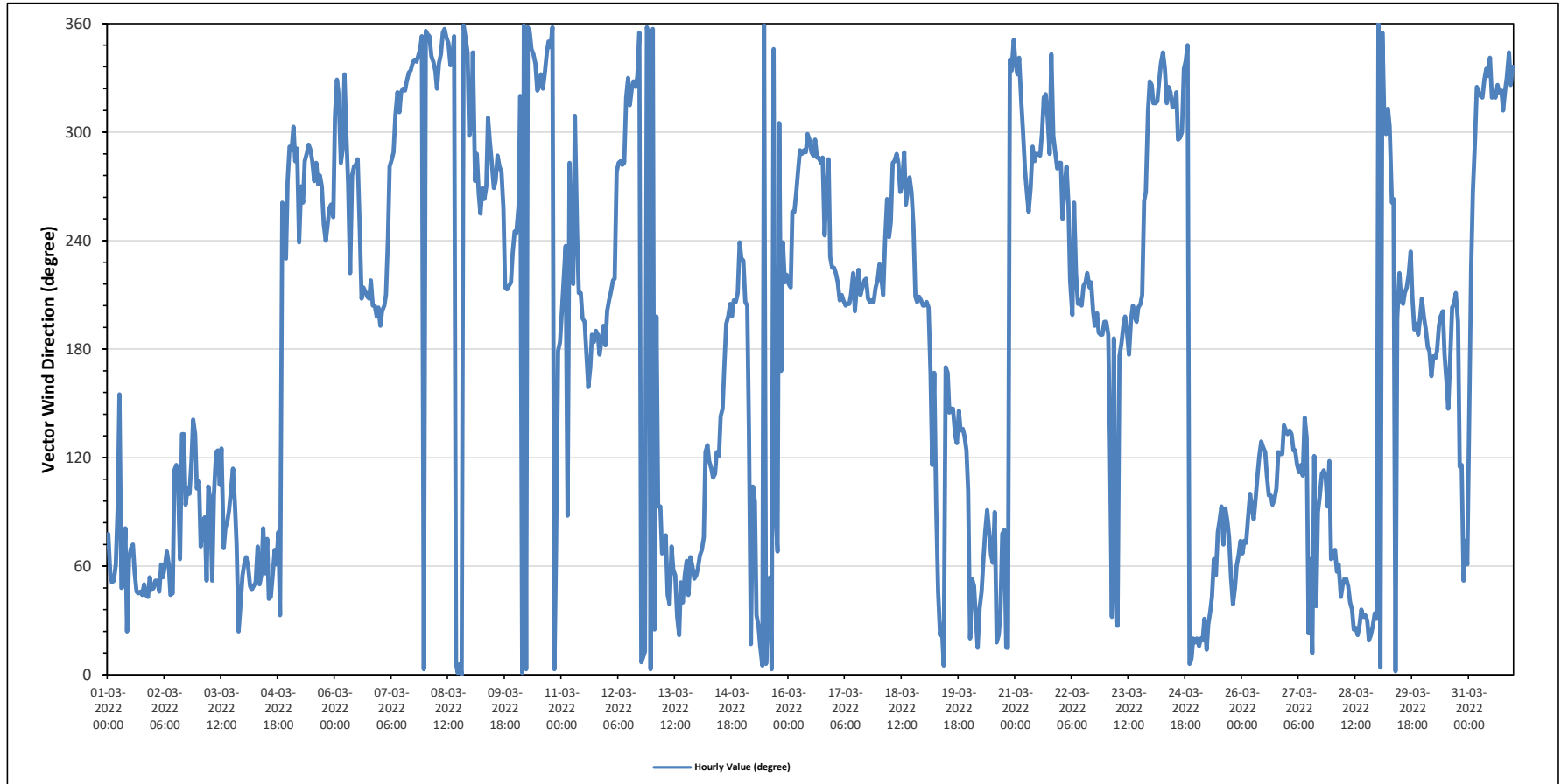
Tamarack Site - March 2022

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:		315 (NW) 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	
Mar 1	ENE	NE	NE	NE	ENE	E	SSE	NE	NE	E	NNE	ENE	ENE	ENE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	52	NE	
Mar 2	NE	NE	NE	NE	ENE	NE	ENE	ENE	ENE	NE	NE	ESE	ESE	ESE	ENE	SE	SE	E	ESE	E	ESE	SE	SE	ESE	81	E	
Mar 3	ESE	ENE	E	E	NE	ESE	E	NE	E	ESE	ESE	ESE	SE	ENE	E	E	E	E	ESE	E	ENE	NNE	NE	NE	91	E	
Mar 4	ENE	ENE	ENE	NE	NE	NE	NE	ENE	NE	E	NE	ENE	NE	NE	NE	ENE	ENE	ENE	ENE	NNE	W	WSW	SW	W	56	NE	
Mar 5	WNW	WNW	WNW	WNW	WNW	WSW	W	W	WNW	WNW	WNW	WNW	WNW	W	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	273	W	
Mar 6	NW	NNW	NW	W	WNW	NNW	WNW	W	SW	W	W	W	WNW	WSW	SSW	SSW	SSW	SSW	SSW	SW	SSW	SSW	SSW	SSW	229	SW	
Mar 7	S	SSW	SSW	SSW	WSW	W	WNW	WNW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	319	NW	
Mar 8	N	N	N	NNW	NNW	NNW	NNW	NNW	NNW	N	N	NNW	NNW	NNW	NNW	N	N	N	N	N	N	NNW	WNW	N	350	N	
Mar 9	WNW	NNW	W	WNW	W	WSW	W	W	W	NW	WNW	W	W	W	WNW	W	W	WSW	SSW	SSW	SSW	SW	SW	WSW	265	W	
Mar 10	WSW	WSW	NW	N	N	N	N	NNW	NNW	NNW	NW	NW	NNW	NW	NNW	NW	NNW	NNW	N	ENE	S	S	S	S	342	NNW	
Mar 11	SSW	SW	SW	E	W	SW	NW	WSW	SSW	SSW	SSW	SSW	S	SSE	SSE	S	S	S	S	S	S	S	S	S	187	S	
Mar 12	SSW	SSW	SSW	SW	SW	W	W	WNW	W	W	NW	NNW	NW	NNW	NW	NNW	NW	NNW	N	N	N	NNW	N	N	309	NW	
Mar 13	N	NNE	SSW	E	E	ENE	ENE	ENE	NE	NE	ENE	ENE	NE	NNE	NNE	NE	NE	NE	NE	ENE	ENE	ENE	NE	NE	49	NE	
Mar 14	ENE	ENE	ENE	ENE	ESE	SE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	SSE	SSW	SSW	SSW	SSW	SSW	SSW	SSW	WSW	SW	144	SE	
Mar 15	SW	SSW	SSW	SE	NNE	ESE	E	NNE	NNE	NNE	N	N	N	NNE	NE	N	NNW	E	ENE	WNW	SSE	WSW	SW	SW	20	NNE	
Mar 16	SW	SSW	WSW	WSW	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WSW	W	WNW	SW	SW	279	W
Mar 17	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	212	SSW
Mar 18	SW	SW	SSW	WSW	W	WSW	WSW	W	WNW	WNW	W	W	WNW	WSW	W	W	WSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	258	WSW
Mar 19	SSW	SSW	SSW	SSE	ESE	SSE	E	NE	NNE	NNE	N	SSE	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	E	145	SE	
Mar 20	NNE	NE	NE	NNE	NNE	NE	NE	ENE	ENE	E	ENE	ENE	ENE	E	NNE	NNE	NNE	ENE	E	NNE	NNE	NNW	NNW	N	51	NE	
Mar 21	NNW	NNW	NNW	NW	WNW	W	W	WSW	W	WNW	WNW	WNW	WNW	WNW	WNW	NW	NW	NW	WNW	NNW	WNW	WNW	W	W	295	WNW	
Mar 22	W	WSW	W	W	WSW	SW	SSW	W	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	S	S	S	SSW	213	SSW	
Mar 23	SSW	S	SE	NNE	S	NE	NNE	S	S	S	SSW	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	W	NW	NNW	208	SSW
Mar 24	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	N	N	NNE	NNE	NNE	327	NW	
Mar 25	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NE	NE	ENE	NE	ENE	E	E	ENE	E	E	ENE	NE	NE	ENE	ENE	ENE	ENE	51	NE	
Mar 26	ENE	ENE	ENE	E	E	E	E	E	E	ESE	ESE	SE	SE	ESE	ESE	E	E	E	E	ESE	ESE	ESE	ESE	SE	SE	107	ESE
Mar 27	SE	SE	SE	ESE	ESE	ESE	ESE	ESE	SE	SE	NNE	ENE	NNE	ENE	NE	E	E	ESE	ESE	ESE	ESE	E	ESE	ENE	107	ESE	
Mar 28	ENE	ENE	ENE	ENE	NE	NE	NE	NE	NE	NE	NNE	ENE	NNE	NNE	NNE	NE	NNE	NNE	NNE	NNE	NNE	NNE	NE	NE	37	NE	
Mar 29	N	N	N	NW	WNW	NW	WNW	W	W	N	SSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	S	SSW	SSW	SSW	216	SW	
Mar 30	SSW	S	S	SSE	S	S	S	S	S	SSW	SSW	S	SSE	SE	S	SSW	SSW	SSW	SSW	SSW	ESE	ENE	ENE	ENE	180	S	
Mar 31	SE	SW	W	WNW	NW	NW	NW	NW	NNW	NNW	NNW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	NNW	NW	NNW	NNW	325	NW	
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 - March 2022

Summary of Hourly Averages

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

WIND SPEED																											
Maximum Hourly Value:		18.6 kph on March 7 at hour 10														Hours in Service:		744									
Maximum Daily Value:		10.4 kph on March 7														Hours of Data:		744									
Minimum Hourly Value:		0.0 kph on March 10 at hour 23														Hours of Missing Data:		0									
Minimum Daily Value:		0.4 kph on March 15														Hours of Calibration:		0									
Monthly Average:		1.1 kph														Operational Uptime:		100									
WIND DIRECTION																											
Monthly Average:		315 (NW) degree																									
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Mar 1	2.1	1.4	0.9	2.2	2.9	1.7	0.7	1.4	3.6	2.0	4.3	5.6	5.0	6.0	6.9	8.5	9.0	9.6	9.7	8.7	9.6	9.4	8.8	7.7	0.7	9.7	5.2
Mar 2	5.7	4.6	3.8	4.2	4.4	5.7	6.1	5.3	6.0	4.9	3.6	5.6	4.1	4.1	3.8	4.4	4.5	4.1	3.0	3.1	2.8	5.0	1.9	2.5	1.9	6.1	3.6
Mar 3	1.7	2.1	1.7	1.8	2.7	2.6	2.1	2.8	3.6	6.3	7.1	5.5	5.3	5.2	6.2	6.9	6.7	4.9	4.5	3.6	2.8	3.1	3.0	3.5	1.7	7.1	3.6
Mar 4	4.7	4.7	4.4	4.3	4.4	5.2	6.8	4.6	4.3	4.6	3.3	4.8	6.3	5.8	7.6	4.0	4.0	4.3	3.1	0.3	2.1	2.5	1.6	1.8	0.3	7.6	3.4
Mar 5	0.7	0.9	0.5	1.7	2.7	1.8	4.2	3.0	2.6	5.4	7.6	9.3	9.1	9.0	5.7	5.7	6.5	5.4	4.7	4.7	4.7	4.3	3.5	3.3	0.5	9.3	4.3
Mar 6	2.0	1.9	1.0	1.2	1.9	0.5	0.8	1.2	1.8	1.2	6.8	8.0	7.7	5.7	9.3	10.1	10.1	8.6	7.6	6.6	7.3	6.9	9.0	7.7	0.5	10.1	4.2
Mar 7	9.6	6.1	6.6	5.7	5.1	13.2	12.9	14.8	12.7	14.4	18.6	17.2	16.8	15.5	15.2	16.1	13.1	15.6	14.2	13.9	15.2	14.0	14.0	14.0	5.1	18.6	10.4
Mar 8	13.2	10.9	10.2	7.5	8.3	7.0	6.8	8.6	9.0	11.5	12.4	10.4	7.6	9.3	9.2	11.5	12.2	10.2	12.1	8.1	6.5	2.7	2.1	2.1	2.1	13.2	8.6
Mar 9	3.2	0.9	1.5	0.5	1.7	2.0	3.9	5.1	5.1	6.9	9.0	10.1	10.6	11.9	13.4	12.3	10.6	7.8	5.7	7.2	8.0	7.8	5.7	6.9	0.5	13.4	5.8
Mar 10	6.6	5.8	6.3	13.1	18.0	17.5	16.0	12.0	10.2	11.5	11.5	10.5	10.8	11.2	10.7	10.6	10.8	9.7	5.7	4.1	2.4	1.3	0.3	0.0	0.0	18.0	8.1
Mar 11	0.2	0.2	0.1	0.0	0.0	0.1	0.3	0.5	0.8	6.4	8.7	12.3	12.5	11.3	11.2	12.2	14.5	11.0	11.2	10.4	7.2	7.8	8.3	5.8	0.0	14.5	6.2
Mar 12	5.0	5.2	3.9	3.9	4.2	4.5	13.3	16.4	14.8	14.8	11.3	11.5	10.6	10.6	10.3	10.5	8.3	9.8	9.4	6.5	4.9	1.9	1.8	3.2	1.8	16.4	6.1
Mar 13	1.7	0.1	0.1	0.7	1.1	2.0	0.6	1.4	3.4	6.4	5.0	3.1	2.3	5.4	6.9	7.1	7.8	5.2	2.7	2.2	1.8	4.1	5.7	5.4	0.1	7.8	3.3
Mar 14	3.8	5.0	4.2	3.3	5.7	7.6	7.4	8.0	7.7	7.2	8.2	8.3	7.9	6.4	6.1	6.4	8.1	6.8	7.1	6.9	5.2	4.0	0.3	1.7	0.3	8.3	4.2
Mar 15	2.6	0.2	0.5	0.3	0.0	1.5	0.1	0.3	0.7	0.6	3.2	2.4	3.5	2.4	4.5	2.8	1.5	2.9	3.0	0.7	0.9	2.9	3.7	4.0	0.0	4.5	0.4
Mar 16	5.0	5.0	5.2	7.2	8.8	10.7	10.2	8.6	8.5	9.0	8.0	7.3	9.3	11.1	7.2	8.7	11.1	7.8	4.5	3.8	4.1	1.5	0.9	2.9	0.9	11.1	6.5
Mar 17	2.3	4.0	4.3	6.5	5.6	6.3	6.0	5.1	6.8	6.2	7.7	9.4	9.0	8.7	9.5	9.5	9.3	7.3	5.4	6.0	5.6	6.4	4.5	2.8	2.3	9.5	6.4
Mar 18	3.3	3.8	5.8	4.6	5.1	4.2	4.9	8.6	11.8	8.9	9.3	12.7	12.0	12.9	12.1	12.9	10.3	9.0	5.8	5.2	6.0	5.2	5.7	7.4	3.3	12.9	6.9
Mar 19	4.8	4.7	5.9	0.6	0.5	0.3	1.0	1.2	1.3	2.7	1.5	4.0	6.6	7.7	9.0	8.9	8.1	5.8	4.4	6.8	7.5	7.4	6.2	3.9	0.3	9.0	3.7
Mar 20	3.3	3.3	4.1	4.1	3.6	4.2	4.6	4.9	8.1	10.1	8.6	7.6	7.7	3.9	6.2	4.6	4.0	5.3	3.8	2.0	2.5	1.4	3.2	5.1	1.4	10.1	4.1
	NNE	NE	NE	NNE	NNE	NE	NE	ENE	ENE	E	ENE	ENE	ENE	E	NNE	NNE	ENE	E	NNE	NNE	NNW	NNW	N				



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - March 2022

Summary of Hourly Averages

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

WIND SPEED																														
Maximum Hourly Value: 18.6 kph on March 7 at hour 10										Hours in Service: 744																				
Maximum Daily Value: 10.4 kph on March 7										Hours of Data: 744																				
Minimum Hourly Value: 0.0 kph on March 10 at hour 23										Hours of Missing Data: 0																				
Minimum Daily Value: 0.4 kph on March 15										Hours of Calibration: 0																				
Monthly Average: 1.1 kph										Operational Uptime: 100																				
WIND DIRECTION																														
Monthly Average: 315 (NW) degree																														
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
Mar 21	4.3	5.4	5.5	4.8	5.6	6.1	6.1	5.3	6.0	7.3	10.1	12.2	13.2	13.2	9.6	8.0	6.6	6.0	4.5	1.3	3.0	5.5	5.7	5.9	1.3	13.2	6.3			
	NNW	NNW	NNW	NW	WNW	W	W	WSW	W	WNW	WNW	WNW	WNW	WNW	NW	NW	NW	WNW	NNW	WNW	WNW	W	W							
Mar 22	3.5	2.4	4.7	3.7	0.9	0.5	2.3	1.0	3.1	5.6	8.2	7.9	7.9	9.3	9.2	9.5	7.7	7.6	7.4	4.0	3.5	7.0	7.8	6.5	0.5	9.5	5.0			
	W	WSW	W	W	WSW	SW	SSW	W	SW	SSW	SSW	SSW	SSW	SW	SW	SSW	SW	SSW	S	SSW	S	S	S	SSW						
Mar 23	6.5	5.5	0.7	1.1	0.9	0.6	0.1	0.8	5.4	5.6	7.8	6.6	7.4	8.2	10.1	10.0	9.2	6.7	5.4	4.5	2.1	4.8	7.3	11.4	0.1	11.4	3.8			
	SSW	S	SE	NNE	S	NE	NNE	S	S	S	SSW	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	W	NW	NNW						
Mar 24	10.0	10.8	10.0	10.5	10.8	11.6	10.7	10.8	10.0	10.6	11.7	12.8	14.0	10.7	11.3	11.7	11.7	9.8	8.3	7.1	6.9	5.8	6.9	10.6	5.8	14.0	9.5			
	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NW	NW	NNW	WNW	WNW	NNW	NNW	NNW	N	N	NNE	NNE						
Mar 25	10.9	9.9	10.4	7.0	2.6	4.9	6.2	8.7	8.4	5.9	4.9	5.7	6.0	6.4	6.3	6.6	6.0	7.3	5.6	4.9	6.1	6.8	7.2	6.1	2.6	10.9	6.0			
	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NE	NE	ENE	NE	ENE	E	E	ENE	E	E	ENE	NE	NE	ENE	ENE	ENE	ENE						
Mar 26	6.8	5.8	5.6	6.5	8.3	7.9	6.2	7.3	7.7	8.5	9.8	9.6	9.4	7.8	7.4	8.8	9.6	9.5	8.3	8.5	7.3	5.7	7.8	6.7	5.6	9.8	7.4			
	ENE	ENE	ENE	E	E	E	E	E	ESE	ESE	SE	SE	ESE	ESE	E	E	E	E	ESE	ESE	ESE	ESE	SE	SE						
Mar 27	6.7	6.8	7.6	6.4	5.3	5.9	5.7	5.6	4.7	3.9	2.7	3.6	4.1	3.5	2.9	4.6	3.8	4.6	3.6	3.0	3.9	4.6	4.6	4.8	2.7	7.6	4.0			
	SE	SE	SE	ESE	ESE	ESE	ESE	ESE	SE	SE	NNE	ENE	NNE	ESE	NE	E	E	ESE	ESE	ESE	E	ESE	ESE	ENE						
Mar 28	4.5	4.9	4.3	3.8	5.7	5.7	5.6	6.1	8.0	7.6	8.5	8.4	9.9	9.6	9.4	8.7	7.9	6.7	6.3	7.7	4.0	2.5	4.9	4.2	2.5	9.9	6.3			
	ENE	ENE	ENE	ENE	NE	NE	NE	NE	NE	NE	NNE	NNE	NNE	NNE	NE	NNE	NNE	NNE	NNE	NNE	NNE	NE	NE	NNE						
Mar 29	2.6	3.8	2.3	1.3	2.6	1.1	1.1	3.1	2.1	0.3	2.8	5.5	9.0	10.4	9.8	9.1	8.6	6.3	5.8	5.2	5.5	7.8	8.4	5.1	0.3	10.4	3.9			
	N	N	N	NW	WNW	NW	WNW	W	W	N	SSW	SW	SSW	SSW	SSW	SSW	SW	SW	SSW	S	SSW	S	SSW	SSW						
Mar 30	5.2	5.7	4.7	5.8	3.6	5.3	4.8	5.5	7.6	8.3	8.7	8.6	7.1	7.6	7.2	7.8	7.6	2.7	0.3	3.3	3.6	1.5	0.5	1.1	0.3	8.7	4.6			
	SSW	S	S	S	SSE	S	S	S	S	SSW	SSW	S	SSE	SE	S	SSW	SSW	SSW	SSW	SSW	ESE	NE	ENE	ENE						
Mar 31	0.6	0.7	2.1	5.0	6.1	5.3	6.0	7.0	7.7	9.1	7.8	7.1	8.2	8.3	10.1	10.5	9.8	12.3	12.6	10.2	11.9	13.9	10.9	9.7	0.6	13.9	7.8			
	SE	SW	W	WNW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	NNW	NW	NNW						
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.																														



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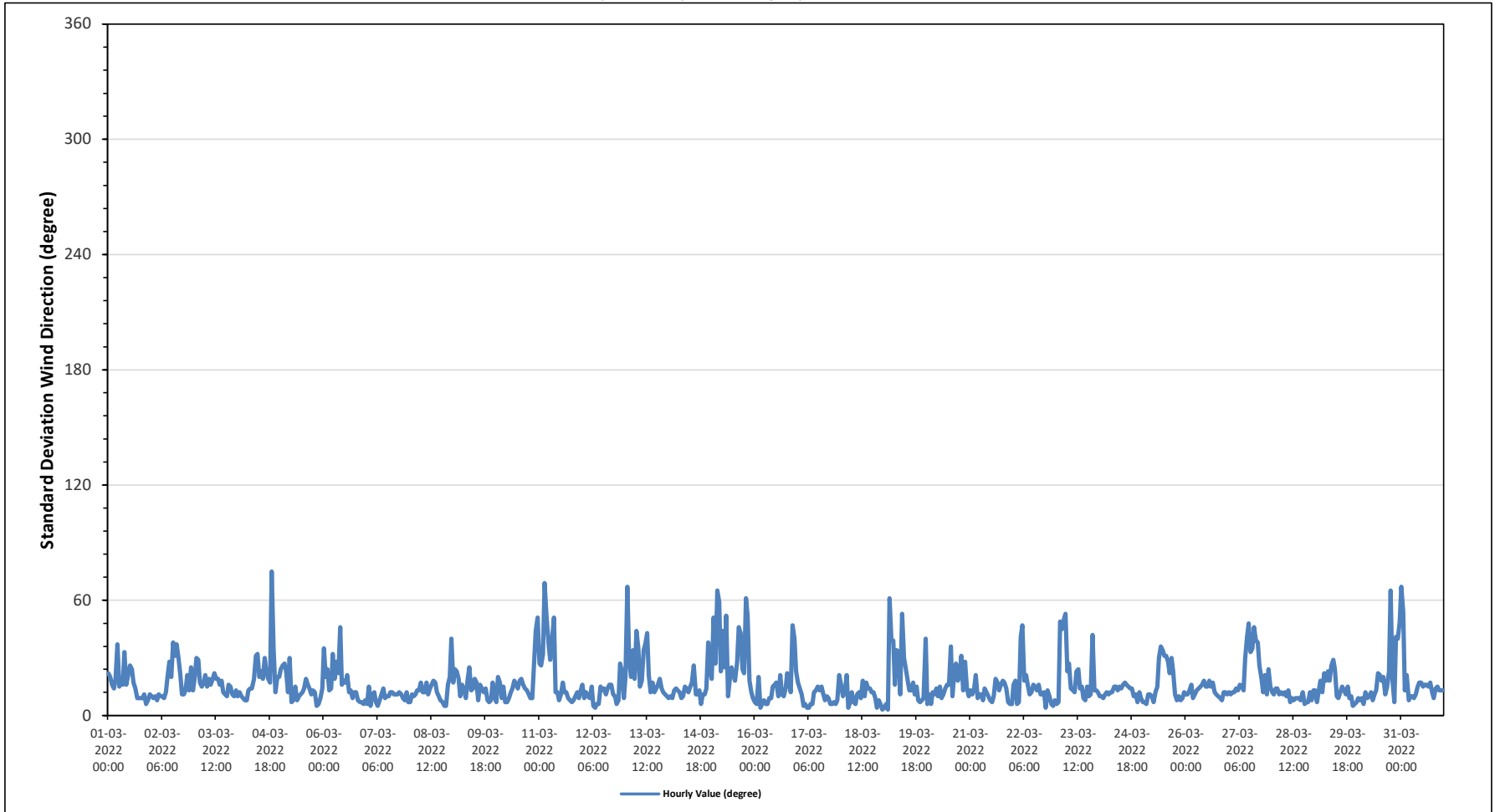
Tamarack Site - March 2022

Summary of Hour Standard Deviations

STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

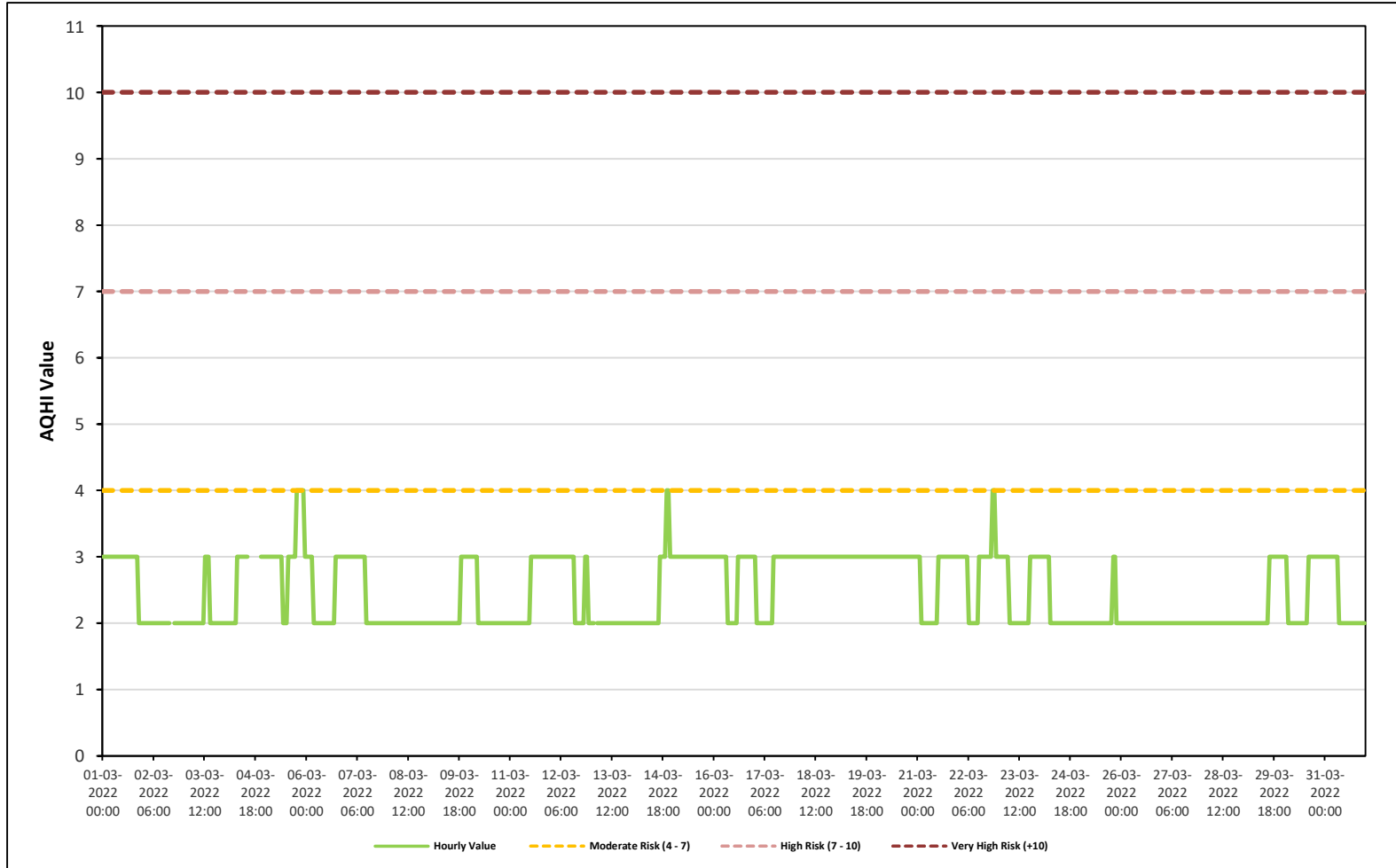
Maximum Hourly Value: 75 degree on March 4 at hour 19		Hours in Service: 744																																									
Minimum Hourly Value: 3 degree on March 18 at hour 23		Hours of Data: 744																																									
		Hours of Missing Data: 0																																									
		Hours of Calibration: 0																																									
		Operational Uptime: 100.0																																									
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum																		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			23																	
Mar 1	22	20	16	14	19	37	15	17	16	33	16	21	26	24	17	14	9	9	9	11	6	8	11	6	37																		
Mar 2	10	9	10	8	11	10	10	9	12	20	28	20	38	31	37	30	21	11	11	13	21	13	25	13	8	38																	
Mar 3	20	30	29	17	15	17	21	15	19	16	19	22	19	19	16	18	12	11	10	16	15	11	10	13	10	30																	
Mar 4	10	12	10	9	8	8	13	14	14	19	31	32	20	23	19	30	23	19	17	75	35	12	20	20	8	75																	
Mar 5	24	26	27	23	12	30	7	8	15	8	10	11	12	14	19	16	14	11	13	12	5	6	9	14	5	30																	
Mar 6	35	20	24	13	14	32	19	28	22	46	16	18	17	21	12	13	9	12	12	8	7	7	6	8	6	46																	
Mar 7	6	15	5	11	12	7	5	8	11	14	9	10	10	12	12	11	11	12	11	9	8	12	7	5	15	15																	
Mar 8	7	11	10	11	13	13	17	12	12	17	11	14	16	18	17	12	10	8	7	5	5	16	20	40	5	40																	
Mar 9	17	24	23	19	10	16	13	9	19	25	13	14	19	17	8	16	14	12	14	8	7	8	17	10	7	25																	
Mar 10	7	20	17	9	15	7	7	9	12	14	18	16	14	18	19	16	14	13	11	9	9	28	44	51	7	51																	
Mar 11	27	26	32	69	52	37	29	40	51	12	12	8	11	17	12	12	9	8	7	8	10	12	9	13	7	69																	
Mar 12	16	9	12	10	9	15	5	4	6	6	15	13	14	11	14	16	16	11	10	6	8	27	23	9	4	27																	
Mar 13	20	67	28	20	34	19	44	35	15	18	34	37	43	21	12	17	12	14	16	19	14	12	11	10	10	67																	
Mar 14	9	10	9	13	14	13	12	9	10	15	14	12	15	17	26	11	11	13	6	11	11	14	38	24	6	38																	
Mar 15	19	51	27	65	59	23	44	25	52	10	18	25	21	18	28	46	43	24	22	61	52	18	12	9	9	65																	
Mar 16	7	6	20	4	6	8	6	6	9	9	15	16	17	10	21	11	10	14	22	17	12	47	40	23	4	47																	
Mar 17	17	14	11	5	6	4	4	6	6	12	13	15	13	15	11	8	10	9	6	6	7	6	8	21	4	21																	
Mar 18	16	10	12	21	4	7	12	7	6	11	12	9	18	10	17	14	14	12	12	9	4	8	6	3	3	21																	
Mar 19	4	6	3	61	39	39	16	34	33	11	53	30	24	18	13	13	17	11	15	8	7	8	9	40	3	61																	
Mar 20	6	11	6	12	11	14	10	15	9	11	14	16	16	36	10	23	27	18	22	31	13	28	14	10	6	36																	
Mar 21	13	11	14	21	9	11	11	8	14	12	10	8	7	10	19	17	13	16	18	17	14	7	6	6	6	21																	
Mar 22	16	18	6	7	41	47	18	21	16	11	12	16	15	13	16	11	11	12	4	13	10	6	5	8	4	47																	
Mar 23	6	7	49	45	50	53	23	27	14	13	12	23	24	14	15	9	8	15	10	11	42	13	13	12	6	53																	
Mar 24	10	10	9	11	12	11	12	12	15	15	13	15	14	16	17	16	15	14	14	10	11	7	12	9	7	17																	
Mar 25	7	7	6	11	11	10	7	12	15	30	36	34	31	31	28	22	30	23	11	8	10	8	9	12	6	36																	
Mar 26	11	11	13	16	9	11	13	14	15	16	18	15	15	18	15	17	12	11	10	9	8	12	12	11	8	18																	
Mar 27	12	11	12	12	14	13	16	15	13	30	41	48	33	35	46	39	38	26	19	12	21	11	24	15	11	48																	
Mar 28	12	11	14	14	11	12	11	12	10	13	7	9	8	9	9	9	8	12	6	7	7	12	8	13	6	14																	
Mar 29	13	7	13	18	12	22	18	23	18	26	29	24	10	9	12	15	13	11	15	9	10	5	6	7	5	29																	
Mar 30	9	8	9	6	12	9	10	12	8	11	13	22	21	18	20	11	15	23	65	18	7	41	40	49	6	65																	
Mar 31	67	54	13	21	8	10	10	9	11	15	17	17	15	16	16	15	17	12	9	14	15	13	13	13	8	67																	
Diurnal Minimum	4	6	3	4	4	4	4	4	6	6	7	8	7	9	8	8	8	8	4	5	4	5	5	3																			
Diurnal Maximum	67	67	49	69	59	53	44	40	52	46	53	48	43	36	46	46	43	26	65	75	52	47	44	51																			
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 STDWD - Tamarack Site

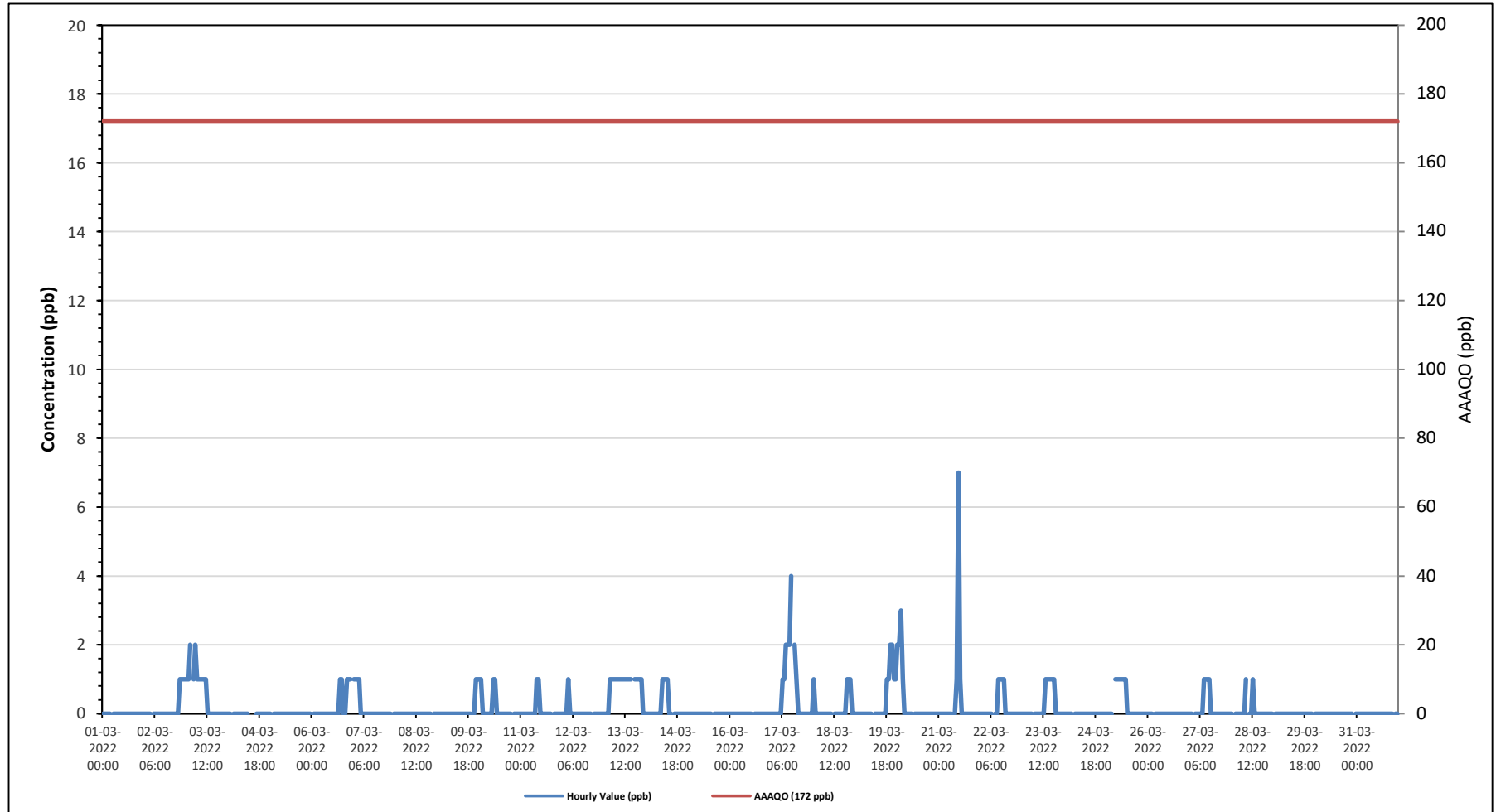


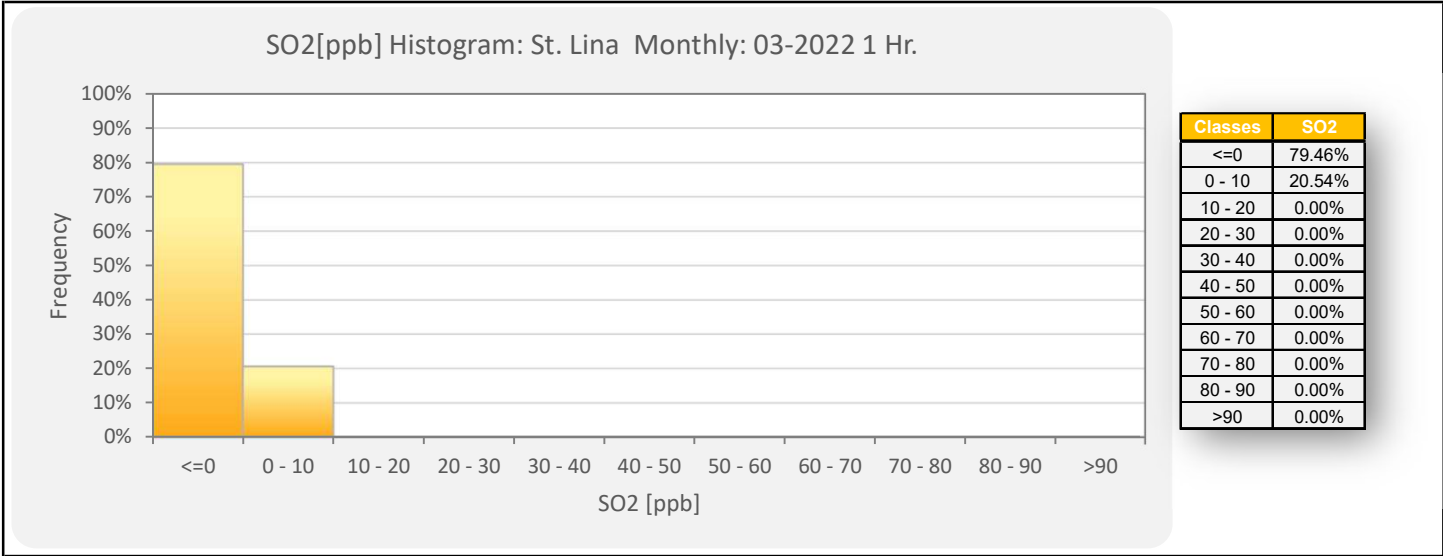
ST. LINA STATION

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



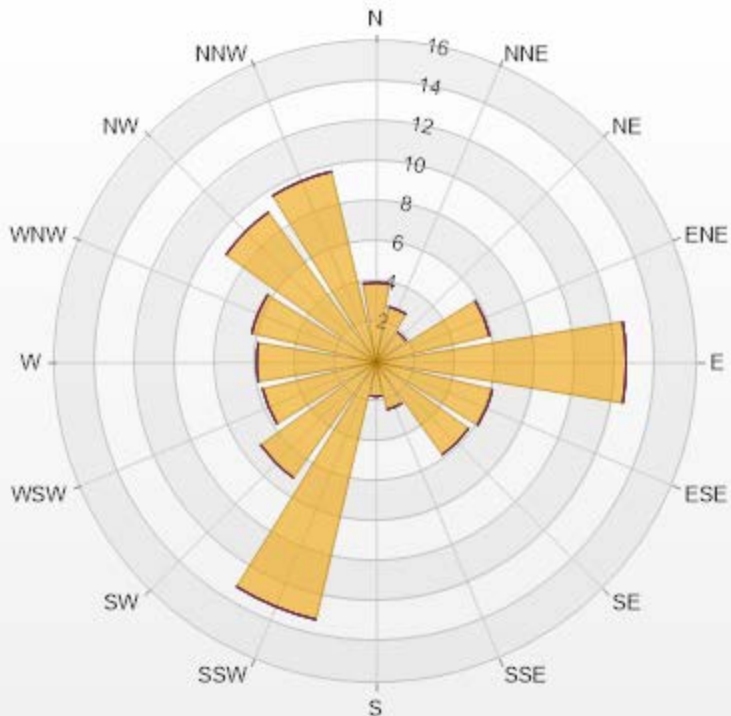
Timeseries Chart of Hourly Average for SO2 - St. Lina Site





Wind: St. Lina Poll.: St. Lina-SO2[ppb] Monthly: 03-2022 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	2.83	0	0	0	0	2.83
NE	1.84	0	0	0	0	1.84
ENE	5.81	0	0	0	0	5.81
E	12.46	0	0	0	0	12.46
ESE	5.95	0	0	0	0	5.95
SE	5.67	0	0	0	0	5.67
SSE	2.41	0	0	0	0	2.41
S	1.7	0	0	0	0	1.7
SSW	13.17	0	0	0	0	13.17
SW	7.08	0	0	0	0	7.08
WSW	5.81	0	0	0	0	5.81
W	5.95	0	0	0	0	5.95
WNW	6.37	0	0	0	0	6.37
NW	9.21	0	0	0	0	9.21
NNW	9.77	0	0	0	0	9.77
Summary	100	0	0	0	0	100



LICA-202203

% Icon Classes (ppb)

100 0-10

0 10-50

0 50-100

0 100-172

0 >172.0



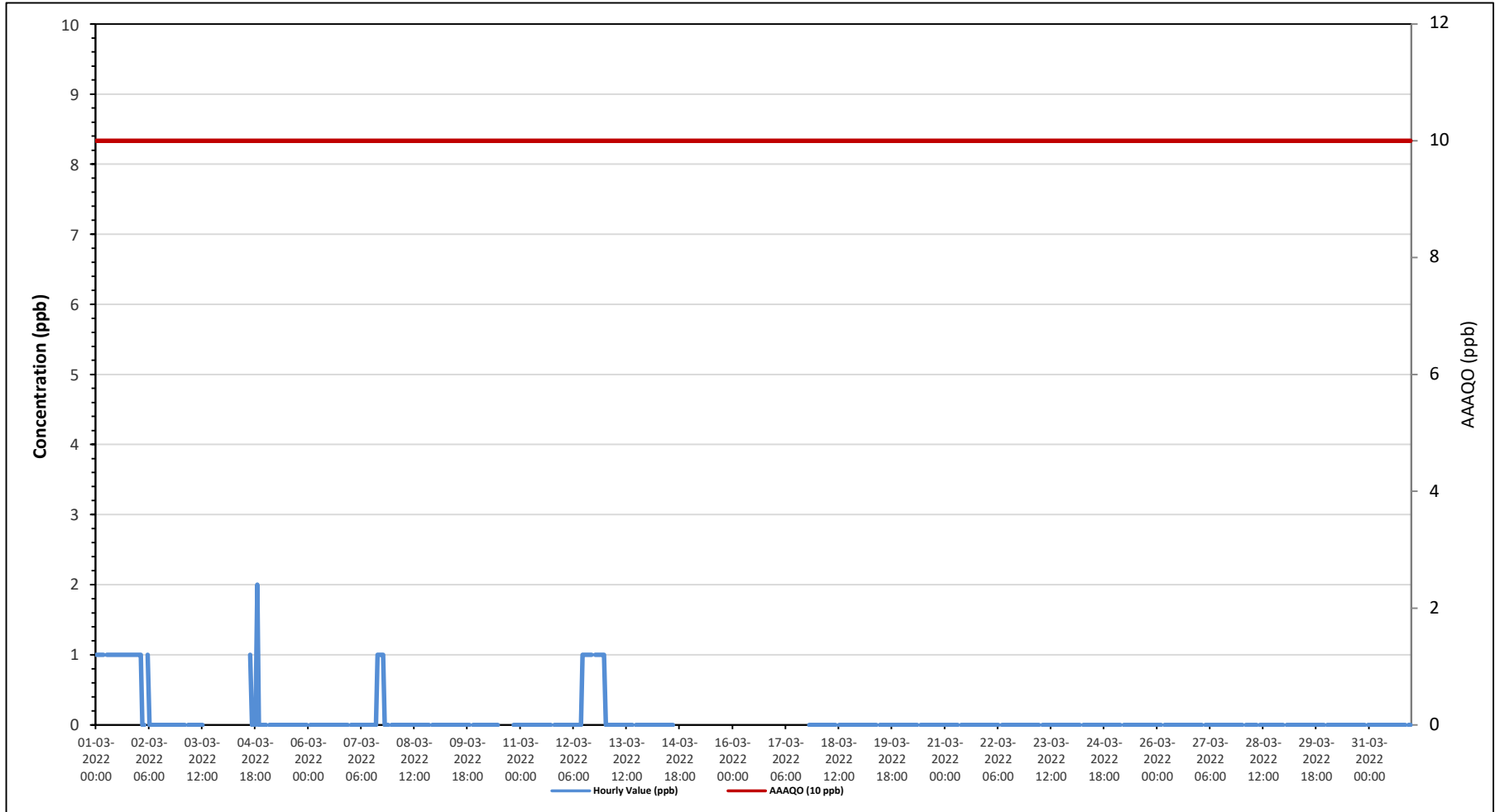
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

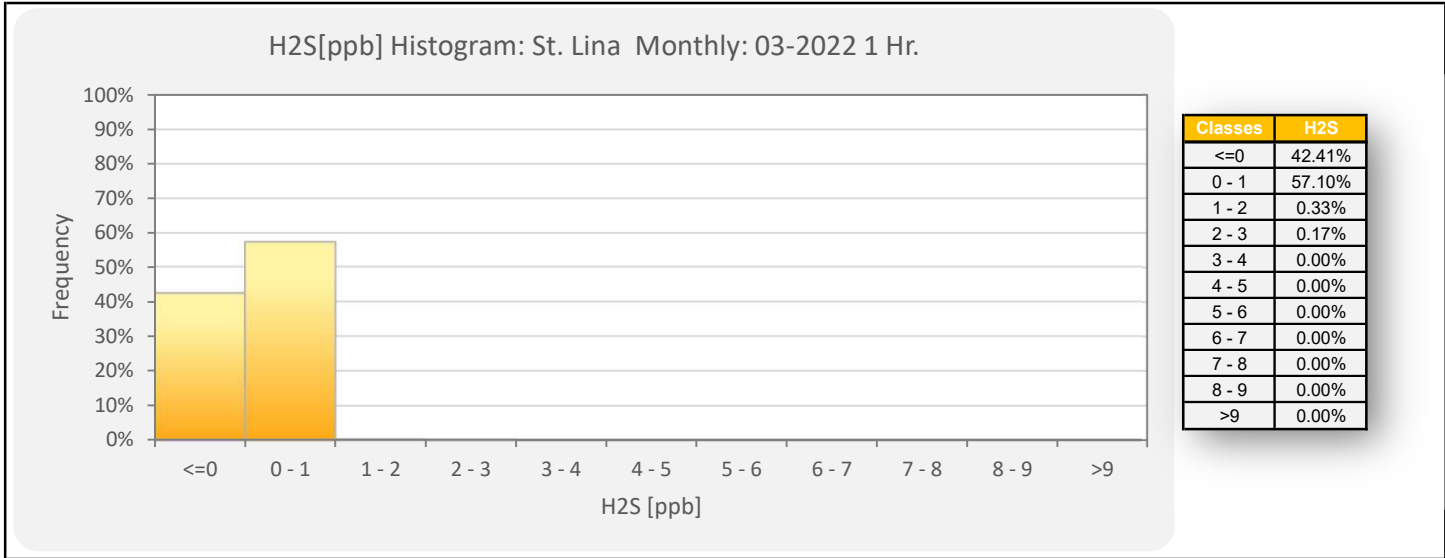
St. Lina Site - March 2022
Summary of Hourly Averages

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:	2 ppb on March 4 at hour 19										Hours in Service:					744											
Maximum Daily Value:	1.0 ppb on March 1										Hours of Data:					606											
Minimum Hourly Value:	0 ppb on March 2 at hour 2										Hours of Missing Data:					103											
Minimum Daily Value:	0.0 ppb on March 5										Hours of Calibration:					35											
Monthly Average:	0.1 ppb										Operational Uptime:					86.2											
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Mar 1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Mar 2	1	1	0	0	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Mar 3	0	0	0	S	0	0	0	0	0	0	0	0	0	C	C	C	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	0	0	-
Mar 4	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	C	C	C	1	0	0	0	2	0	0	0	0	0	2	-
Mar 5	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Mar 6	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0
Mar 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	S	0	0	1	0.2
Mar 8	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
Mar 9	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
Mar 10	0	0	0	0	0	0	0	0	0	0	0	0	NRM	NRM	NRM	NRM	NRM	NRM	NRM	S	0	0	0	0	0	0	-
Mar 11	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
Mar 12	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	S	1	1	1	1	1	0	1	0.5
Mar 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0.0
Mar 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	X	X	X	X	X	X	X	X	0	0	-
Mar 15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
Mar 16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
Mar 17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	NRM	NRM	NRM	NRM	NRM	0	0	0	0	0	0	0	-
Mar 18	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Mar 19	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Mar 20	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Mar 21	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
Mar 22	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
Mar 23	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
Mar 24	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Mar 25	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
Mar 26	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
Mar 27	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
Mar 28	0	S	0	0	0	0	0	0	0	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Mar 29	S	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
Mar 30	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
Mar 31	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
Diurnal Maximum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1			
Diurnal Average	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1			
C	Monthly Calibration										S Daily Zero-Span Check					Q Quality Assurance											
K	Collection Error										N No Data (Machine Not in Service)					Y Routine Maintenance											
X	Invalid Data (Equipment Malfunction /Recovery)										NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)					P Power Failure											
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																											
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																											

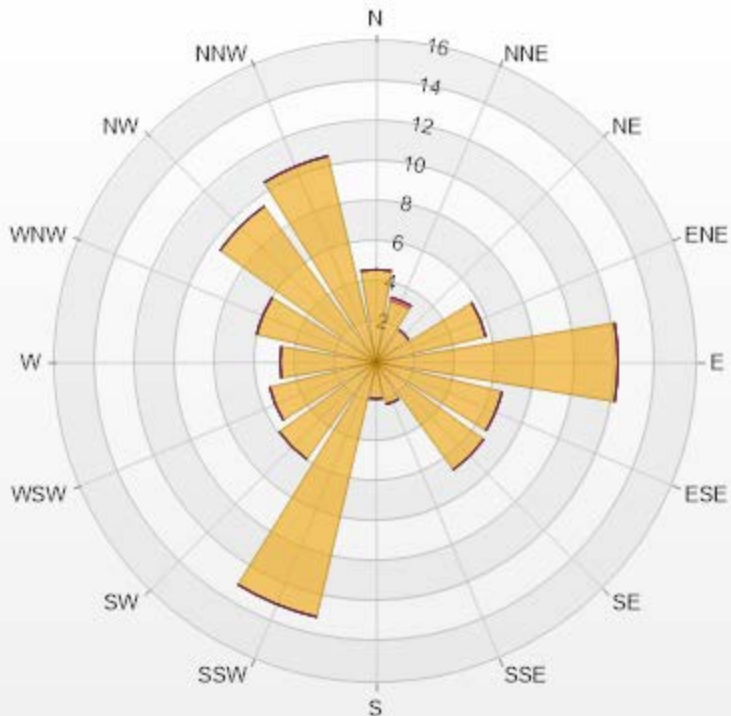
Timeseries Chart of Hourly Average for H2S - St. Lina Site





Wind: St. Lina Poll.: St. Lina-H2S[ppb] Monthly: 03-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 81.45% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	4.62	0	0	0	0	4.62
NNE	3.14	0.17	0	0	0	3.31
NE	1.98	0	0	0	0	1.98
ENE	5.61	0	0	0	0	5.61
E	12.05	0	0	0	0	12.05
ESE	6.44	0	0	0	0	6.44
SE	6.6	0	0	0	0	6.6
SSE	2.15	0	0	0	0	2.15
S	1.82	0	0	0	0	1.82
SSW	13.04	0	0	0	0	13.04
SW	5.94	0	0	0	0	5.94
WSW	5.45	0	0	0	0	5.45
W	4.79	0	0	0	0	4.79
WNW	6.11	0	0	0	0	6.11
NW	9.57	0	0	0	0	9.57
NNW	10.56	0	0	0	0	10.56
Summary	100	0.17	0	0	0	100



LICA-202203

% Icon Classes (ppb)

100 0-2

0 2-5

0 5-10

0 10-50

0 >50.0



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St. Lina Site - March 2022

Summary of Hourly Averages

OXIDES OF NITROGEN (NOx) in ppb

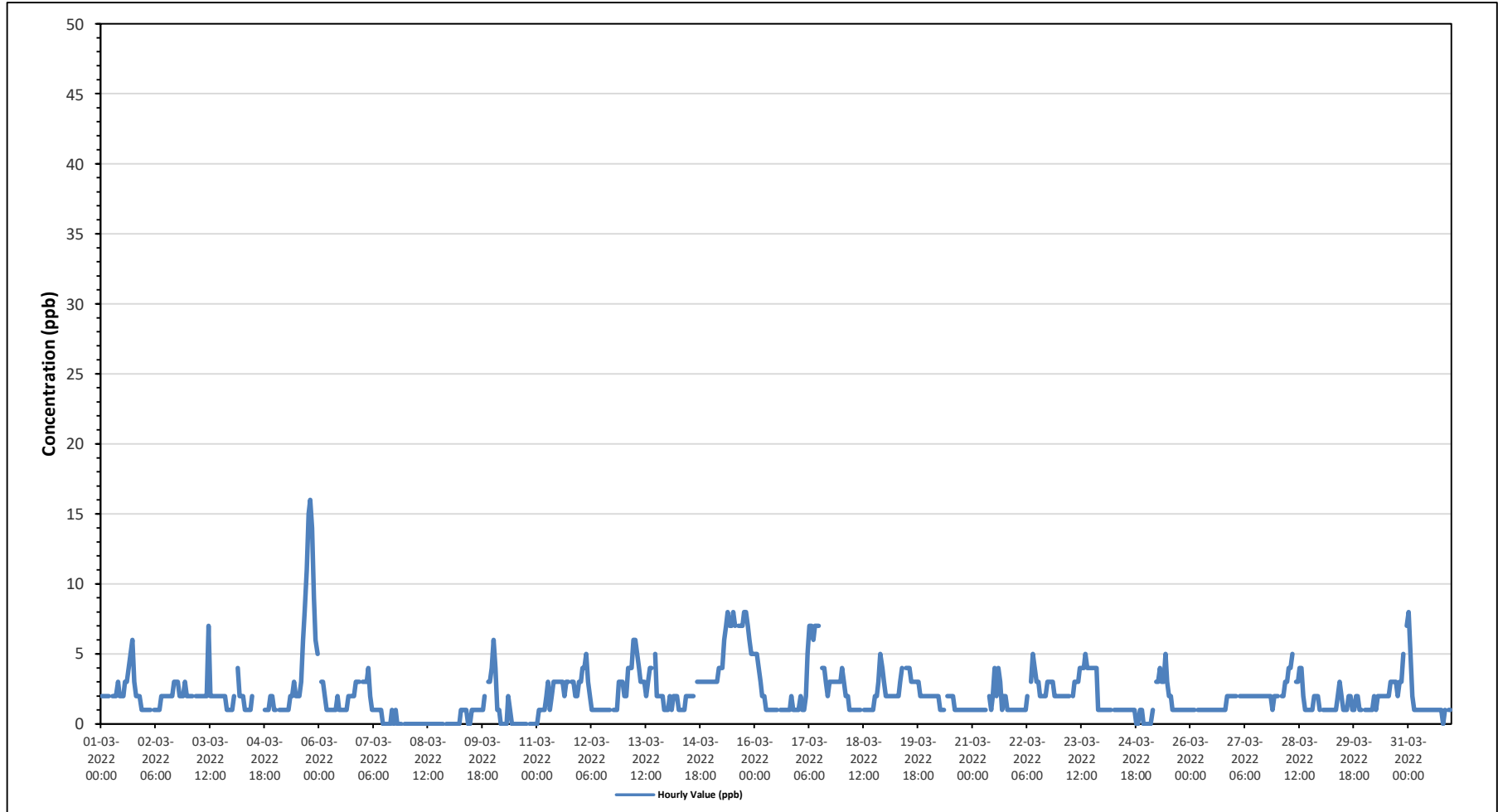
Maximum Hourly Value:	16 ppb on March 5 at hour 19	Hours in Service:	744
Maximum Daily Value:	5.8 ppb on March 15	Hours of Data:	704
Minimum Hourly Value:	0 ppb on March 7 at hour 11	Hours of Missing Data:	1
Minimum Daily Value:	0.0 ppb on March 8	Hours of Calibration:	39
Monthly Average:	2.1 ppb	Operational Uptime:	99.9

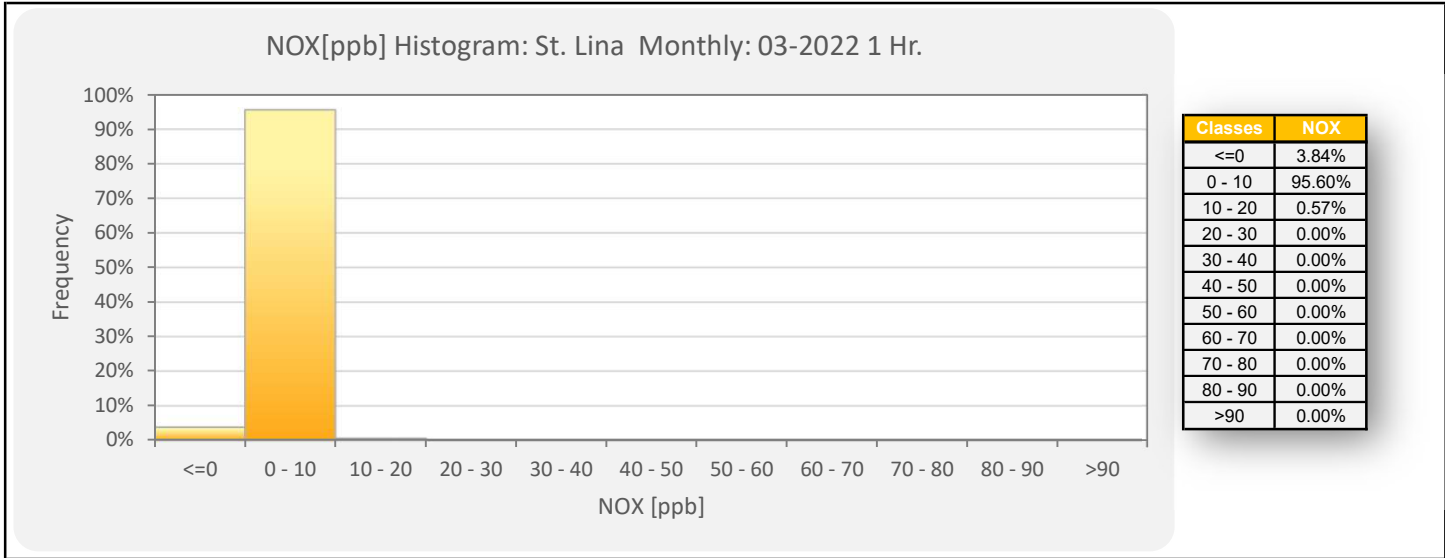
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Mar 1	2	2	2	2	2	S	2	2	2	3	2	2	2	3	3	4	5	6	3	2	2	2	1	1	1	6	2.5	
Mar 2	1	1	1	1	S	1	1	1	1	2	2	2	2	2	2	3	3	3	3	2	2	2	3	2	1	3	1.8	
Mar 3	2	2	2	S	2	2	2	2	2	2	2	7	2	2	2	2	2	2	2	2	2	1	1	1	1	7	2.1	
Mar 4	1	2	S	4	2	2	2	1	1	1	1	2	C	C	C	C	C	C	1	1	1	2	2	1	1	4	-	
Mar 5	1	S	1	1	1	1	1	1	2	2	3	2	2	2	3	6	8	11	15	16	14	9	6	5	1	16	4.9	
Mar 6	S	3	3	2	1	1	1	1	1	1	2	1	1	1	1	2	2	2	2	2	3	3	3	S	1	3	1.7	
Mar 7	3	3	3	4	2	1	1	1	1	1	1	0	0	0	0	0	1	0	1	0	0	0	S	0	0	4	1.0	
Mar 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0.0	
Mar 9	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1	1	2	S	3	4	0	4	1.0	
Mar 10	6	4	1	1	0	0	0	0	2	1	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	6	0.7	
Mar 11	0	1	1	1	1	2	3	1	2	3	3	3	3	3	2	3	3	S	S	3	3	2	2	3	0	3	2.2	
Mar 12	3	4	4	5	3	2	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	3	3	3	1	5	1.9	
Mar 13	2	2	4	4	4	6	6	5	4	3	3	3	2	3	4	4	S	5	2	2	2	2	1	1	1	6	3.2	
Mar 14	1	2	1	2	2	2	1	1	1	1	2	2	2	2	S	3	3	3	3	3	3	3	3	3	1	3	2.1	
Mar 15	3	3	3	3	4	4	4	6	7	8	7	7	8	7	S	7	7	8	8	7	6	5	5	3	8	5.8		
Mar 16	5	5	4	3	2	2	1	1	1	1	1	1	1	S	1	1	1	1	1	1	2	1	1	1	1	5	1.7	
Mar 17	1	2	1	1	2	5	7	7	6	7	7	7	S	4	4	3	2	3	3	3	3	3	3	3	1	7	3.8	
Mar 18	4	3	2	2	1	1	1	1	1	1	1	S	1	1	1	1	1	1	2	2	3	5	4	3	1	5	1.9	
Mar 19	2	2	2	2	2	2	2	3	4	S	4	4	4	3	3	3	3	3	3	2	2	2	2	2	2	2	4	2.6
Mar 20	2	2	2	2	2	2	1	1	1	S	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2	1.4	
Mar 21	1	1	1	1	1	1	1	1	S	2	1	2	4	2	4	3	1	2	2	1	1	1	1	1	1	4	1.6	
Mar 22	1	1	1	1	1	1	2	S	3	5	4	3	3	2	2	2	3	3	3	3	3	2	2	2	1	5	2.3	
Mar 23	2	2	2	2	2	2	S	2	3	3	3	4	4	4	4	5	4	4	4	4	4	4	1	1	1	5	2.9	
Mar 24	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	0	1	0.8		
Mar 25	0	0	0	1	S	3	3	4	3	3	5	3	2	2	1	1	1	1	1	1	1	1	1	1	0	5	1.7	
Mar 26	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1.2	
Mar 27	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2.0	
Mar 28	2	S	2	2	3	3	4	4	5	P	3	3	4	4	2	1	1	1	1	1	2	2	2	1	1	5	2.4	
Mar 29	S	1	1	1	1	1	1	1	1	2	3	2	1	1	1	2	2	1	1	2	2	1	1	S	1	3	1.4	
Mar 30	1	1	1	1	1	2	1	2	2	2	2	2	2	2	3	3	3	3	2	3	3	5	S	7	1	7	2.3	
Mar 31	8	5	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	S	1	1	1	0	8	1.5	
Diurnal Maximum	8	5	4	5	4	6	7	7	7	8	7	7	8	7	5	7	8	11	15	16	14	9	6	7				
Diurnal Average	2.0	2.0	1.7	1.8	1.6	1.8	1.8	1.8	2.1	2.2	2.2	2.3	2.0	2.1	1.9	2.1	2.2	2.5	2.3	2.4	2.4	2.3	2.0	2.0				

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.

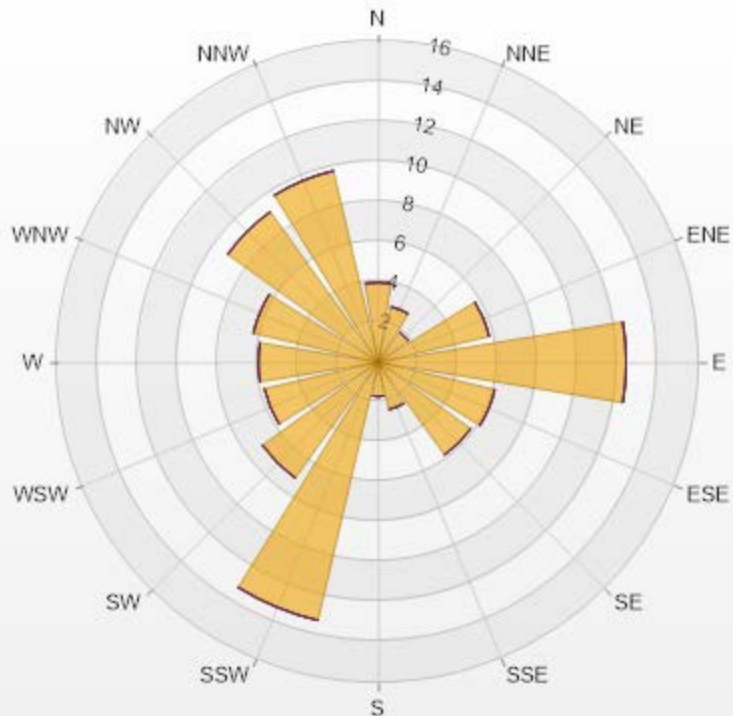
Timeseries Chart of Hourly Average for NOx - St. Lina Site





Wind: St. Lina Poll.: St. Lina-NOX[ppb] Monthly: 03-2022 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	2.84	0	0	0	0	2.84
NE	1.85	0	0	0	0	1.85
ENE	5.68	0	0	0	0	5.68
E	12.36	0	0	0	0	12.36
ESE	5.97	0	0	0	0	5.97
SE	5.68	0	0	0	0	5.68
SSE	2.41	0	0	0	0	2.41
S	1.7	0	0	0	0	1.7
SSW	13.21	0	0	0	0	13.21
SW	7.1	0	0	0	0	7.1
WSW	5.82	0	0	0	0	5.82
W	5.97	0	0	0	0	5.97
WNW	6.39	0	0	0	0	6.39
NW	9.23	0	0	0	0	9.23
NNW	9.8	0	0	0	0	9.8
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100

0-30

0

30-50

0

50-76

0

76-159

0

>159.0



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St. Lina Site - March 2022
Summary of Hourly Averages

NITRIC OXIDE (NO) in ppb

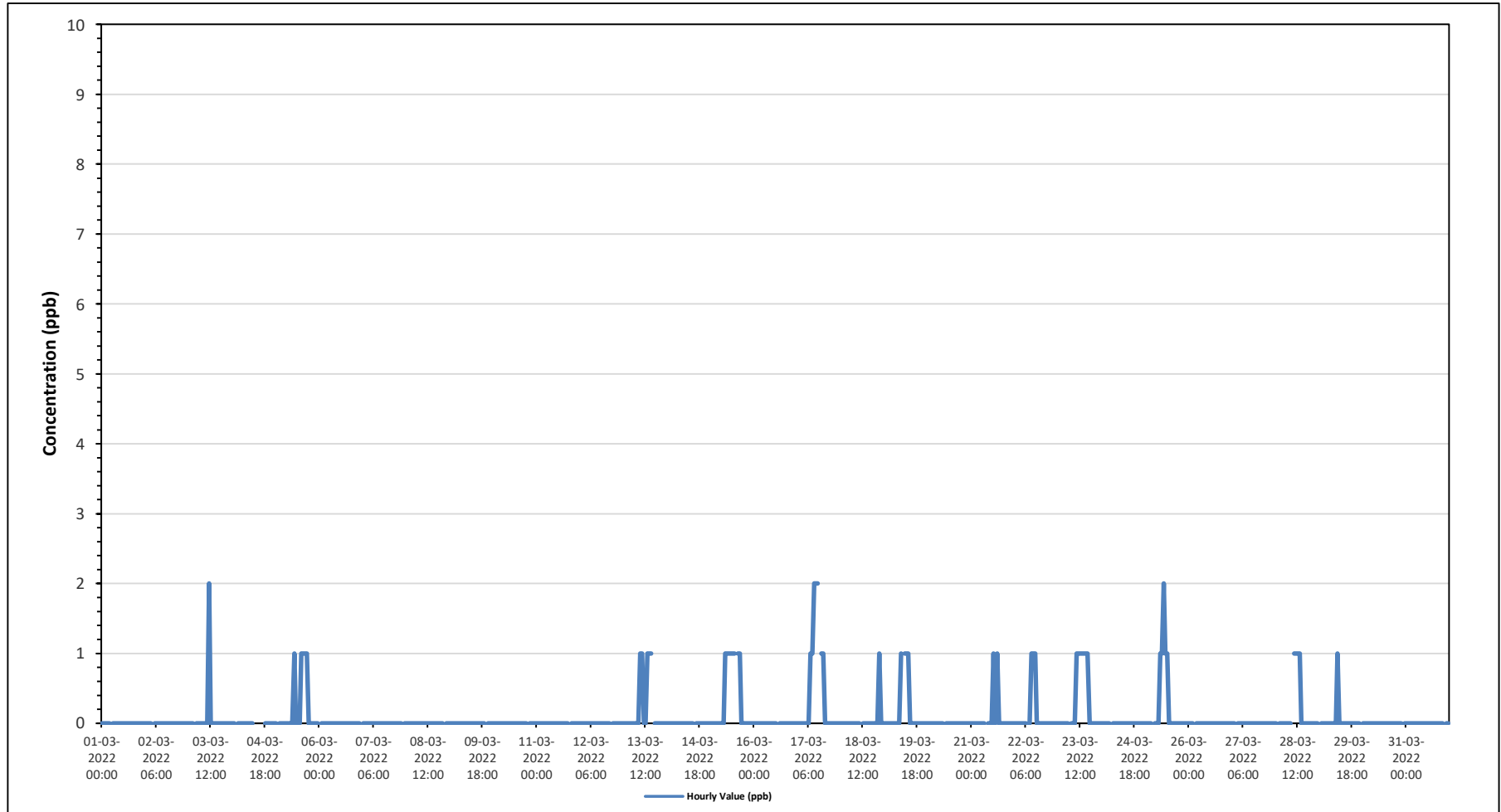
Maximum Hourly Value:	2 ppb on March 3 at hour 11	Hours in Service:	744
Maximum Daily Value:	0.4 ppb on March 17	Hours of Data:	704
Minimum Hourly Value:	0 ppb on March 1 at hour 0	Hours of Missing Data:	1
Minimum Daily Value:	0.0 ppb on March 1	Hours of Calibration:	39
Monthly Average:	0.1 ppb	Operational Uptime:	99.9

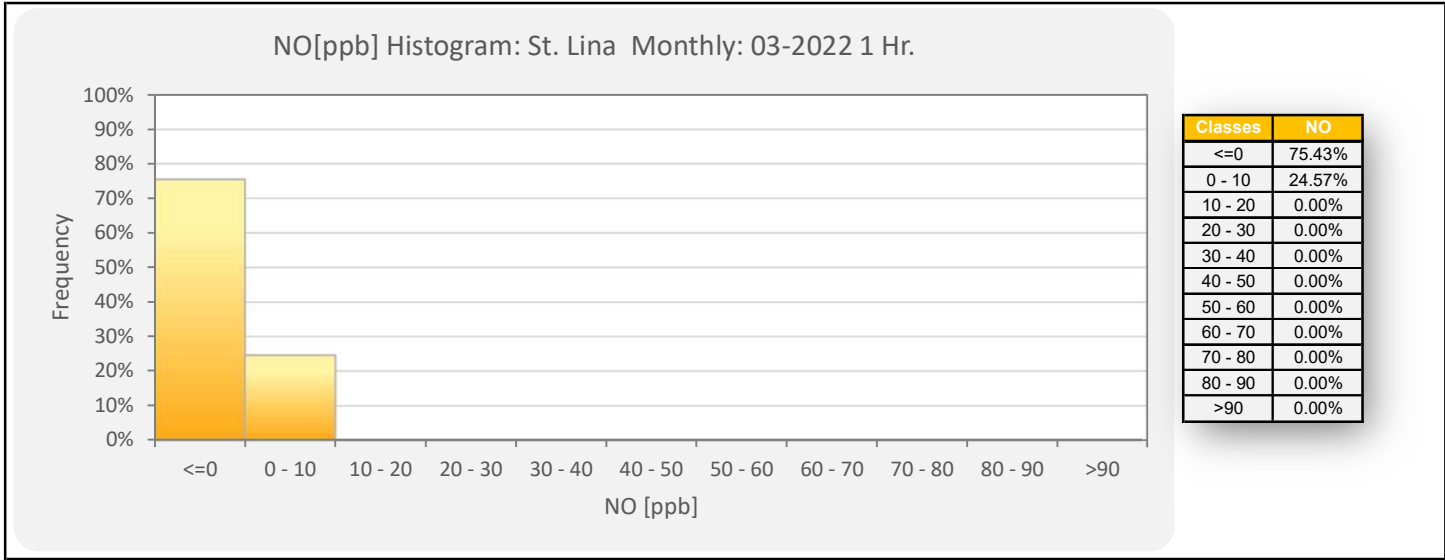
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average											
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23										
Mar 1	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar 2	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mar 3	0	0	0	S	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1
Mar 4	0	0	S	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	
Mar 5	0	S	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	
Mar 6	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0		
Mar 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	S	0	0	0	0		
Mar 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	S	0	0	0	0	0	0	0		
Mar 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	0	0	0	0	0	0	0	0		
Mar 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	
Mar 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mar 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mar 13	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2		
Mar 14	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	
Mar 15	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3		
Mar 16	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	
Mar 17	0	0	0	0	0	0	0	1	1	2	2	2	S	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4		
Mar 18	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mar 19	0	0	0	0	0	0	0	0	0	1	S	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mar 20	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mar 21	0	0	0	0	0	0	0	0	S	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	1	0.1	
Mar 22	0	0	0	0	0	0	0	S	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mar 23	0	0	0	0	0	0	S	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mar 24	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mar 25	0	0	0	0	S	0	0	0	1	1	2	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	
Mar 26	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	
Mar 27	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	
Mar 28	0	S	0	0	0	0	0	0	0	0	P	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mar 29	S	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mar 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	0	0	0	0	0	
Mar 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	S	0	0	0	0	0	0	0	0	
Diurnal Maximum	0	0	0	0	0	0	0	1	1	2	2	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.3	0.2	0.2	0.2	0.1	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	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.

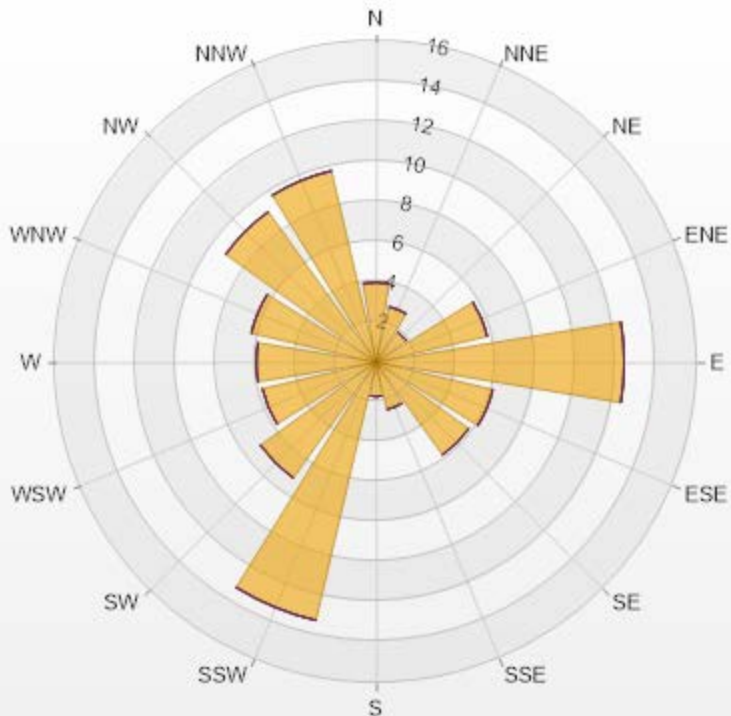
Timeseries Chart of Hourly Average for NO - St. Lina Site





Wind: St. Lina Poll.: St. Lina-NO[ppb] Monthly: 03-2022 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	2.84	0	0	0	0	2.84
NE	1.85	0	0	0	0	1.85
ENE	5.68	0	0	0	0	5.68
E	12.36	0	0	0	0	12.36
ESE	5.97	0	0	0	0	5.97
SE	5.68	0	0	0	0	5.68
SSE	2.41	0	0	0	0	2.41
S	1.7	0	0	0	0	1.7
SSW	13.21	0	0	0	0	13.21
SW	7.1	0	0	0	0	7.1
WSW	5.82	0	0	0	0	5.82
W	5.97	0	0	0	0	5.97
WNW	6.39	0	0	0	0	6.39
NW	9.23	0	0	0	0	9.23
NNW	9.8	0	0	0	0	9.8
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100

0-30

0

30-50

0

50-76

0

76-159

0

>159.0



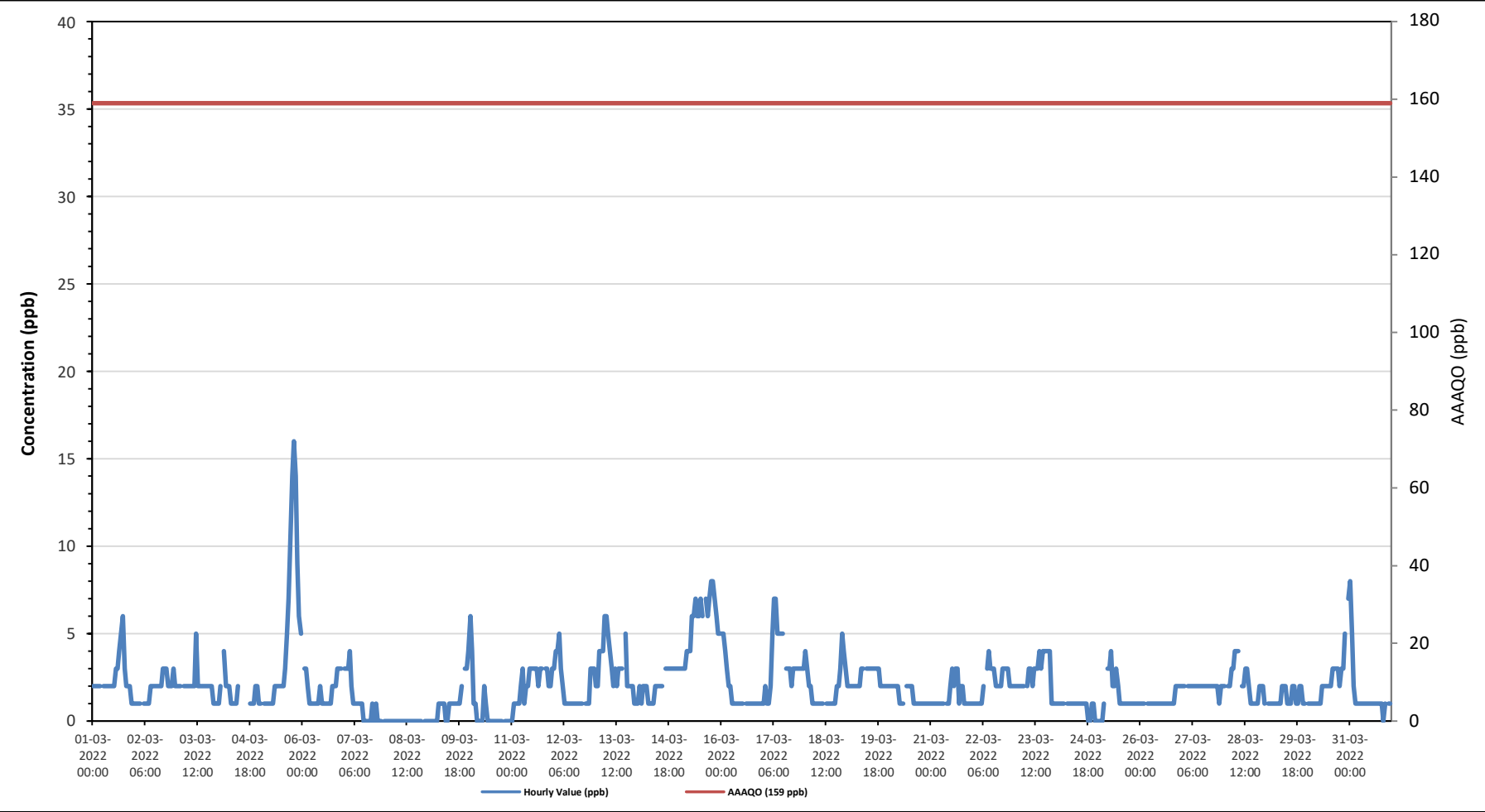
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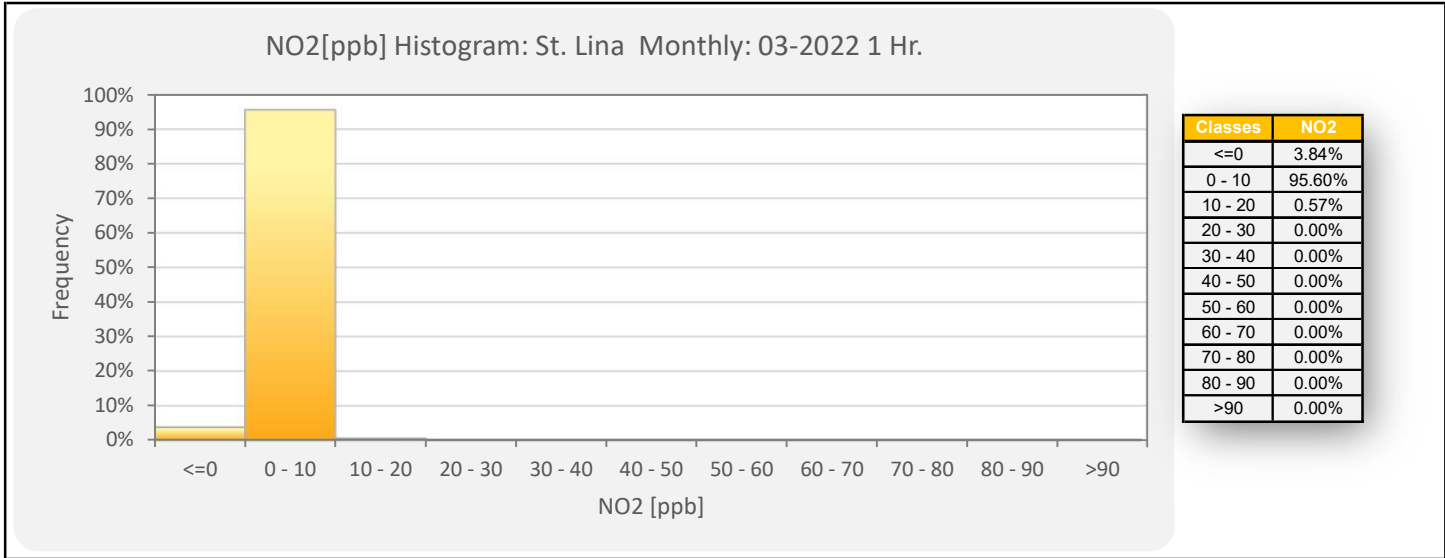
St. Lina Site - March 2022
Summary of Hourly Averages

NITROGEN DIOXIDE (NO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb																												
Number of 1-Hour Exceedances: 0																												
Maximum Hourly Value: 16 ppb on March 5 at hour 19												Hours in Service: 744																
Maximum Daily Value: 5.5 ppb on March 15												Hours of Data: 704																
Minimum Hourly Value: 0 ppb on March 7 at hour 11												Hours of Missing Data: 1																
Minimum Daily Value: 0.0 ppb on March 8												Hours of Calibration: 39																
Monthly Average: 2.0 ppb												Operational Uptime: 99.9																
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
Mar 1	2	2	2	2	2	S	2	2	2	2	2	2	3	3	4	5	6	3	2	2	2	1	1	1	1	1	6	2.4
Mar 2	1	1	1	1	S	1	1	1	1	2	2	2	2	2	2	3	3	3	2	2	2	3	2	2	1	3	1.8	
Mar 3	2	2	2	S	2	2	2	2	2	2	2	5	2	2	2	2	2	2	2	2	2	1	1	1	1	5	2.0	
Mar 4	1	2	S	4	2	2	2	1	1	1	1	2	C	C	C	C	C	C	1	1	1	2	2	1	1	4	-	
Mar 5	1	S	1	1	1	1	1	1	2	2	2	2	2	3	5	7	10	14	16	14	9	6	5	1	16	4.7		
Mar 6	S	3	3	2	1	1	1	1	1	1	2	1	1	1	1	1	2	2	2	3	3	3	3	S	1	3	1.7	
Mar 7	3	3	3	4	2	1	1	1	1	1	1	0	0	0	0	0	1	0	1	0	0	0	S	0	0	4	1.0	
Mar 8	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	
Mar 9	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1	1	2	S	3	3	4	0	4	1.0	
Mar 10	6	4	1	1	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	6	0.7	
Mar 11	0	1	1	1	1	2	3	1	2	2	3	3	3	3	3	2	3	3	S	3	3	2	2	3	0	3	2.2	
Mar 12	3	4	4	5	3	2	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	3	3	3	1	5	1.9	
Mar 13	2	2	4	4	4	6	6	5	4	3	2	3	2	3	3	S	5	2	2	2	2	1	1	1	1	6	3.1	
Mar 14	1	2	1	2	2	2	1	1	1	1	2	2	2	2	2	S	3	3	3	3	3	3	3	3	1	3	2.1	
Mar 15	3	3	3	3	4	4	4	6	6	7	6	6	7	6	S	7	6	7	8	8	7	6	5	5	3	8	5.5	
Mar 16	5	5	4	3	2	2	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	5	1.7	
Mar 17	1	2	1	1	2	5	7	7	5	5	5	5	S	3	3	3	2	3	3	3	3	3	3	3	1	7	3.4	
Mar 18	4	3	2	2	1	1	1	1	1	1	S	1	1	1	1	1	1	1	2	2	3	5	4	3	1	5	1.9	
Mar 19	2	2	2	2	2	2	2	3	3	S	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	3	2.4
Mar 20	2	2	2	2	2	2	1	1	1	S	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1.4
Mar 21	1	1	1	1	1	1	1	1	S	1	1	2	3	2	3	3	1	2	2	1	1	1	1	1	1	1	3	1.4
Mar 22	1	1	1	1	1	1	2	S	3	4	3	3	3	2	2	2	2	3	3	3	2	2	2	2	1	4	2.2	
Mar 23	2	2	2	2	2	2	S	2	3	3	2	3	3	3	4	3	4	4	4	4	4	1	1	1	1	4	2.7	
Mar 24	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	0	0	1	0.8	
Mar 25	0	0	0	1	S	3	3	4	2	2	3	2	1	1	1	1	1	1	1	1	1	1	1	1	0	4	1.4	
Mar 26	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1.2	
Mar 27	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	1	2	2.0	
Mar 28	2	S	2	2	3	4	4	4	4	P	2	2	3	3	2	1	1	1	1	1	2	2	2	1	1	4	2.2	
Mar 29	S	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	2	1	1	2	2	1	1	S	1	2	1.3	
Mar 30	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	2	3	3	5	S	7	1	7	2.3	
Mar 31	8	5	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	S	1	1	0	8	1.5		
Diurnal Maximum	8	5	4	5	4	6	7	7	6	7	6	6	7	6	4	7	7	10	14	16	14	9	6	7				
Diurnal Average	2.0	2.0	1.7	1.8	1.6	1.8	1.8	1.8	1.9	1.9	1.8	2.0	1.8	1.9	1.8	2.0	2.1	2.4	2.3	2.4	2.4	2.3	2.0	2.0				
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.																												

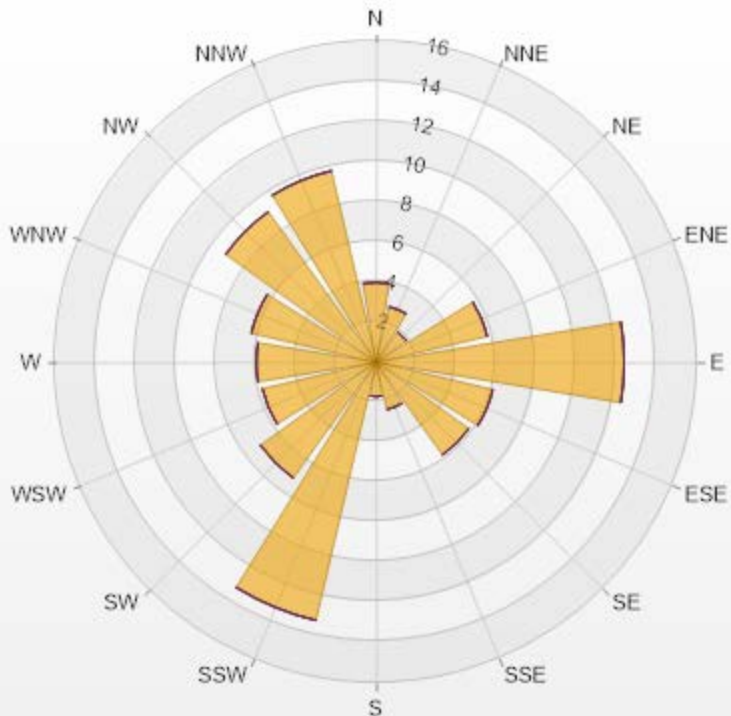
Timeseries Chart of Hourly Average for NO2 - St. Lina Site





Wind: St. Lina Poll.: St. Lina-NO2[ppb] Monthly: 03-2022 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	2.84	0	0	0	0	2.84
NE	1.85	0	0	0	0	1.85
ENE	5.68	0	0	0	0	5.68
E	12.36	0	0	0	0	12.36
ESE	5.97	0	0	0	0	5.97
SE	5.68	0	0	0	0	5.68
SSE	2.41	0	0	0	0	2.41
S	1.7	0	0	0	0	1.7
SSW	13.21	0	0	0	0	13.21
SW	7.1	0	0	0	0	7.1
WSW	5.82	0	0	0	0	5.82
W	5.97	0	0	0	0	5.97
WNW	6.39	0	0	0	0	6.39
NW	9.23	0	0	0	0	9.23
NNW	9.8	0	0	0	0	9.8
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100

0-30

0

30-50

0

50-76

0

76-159

0

>159.0



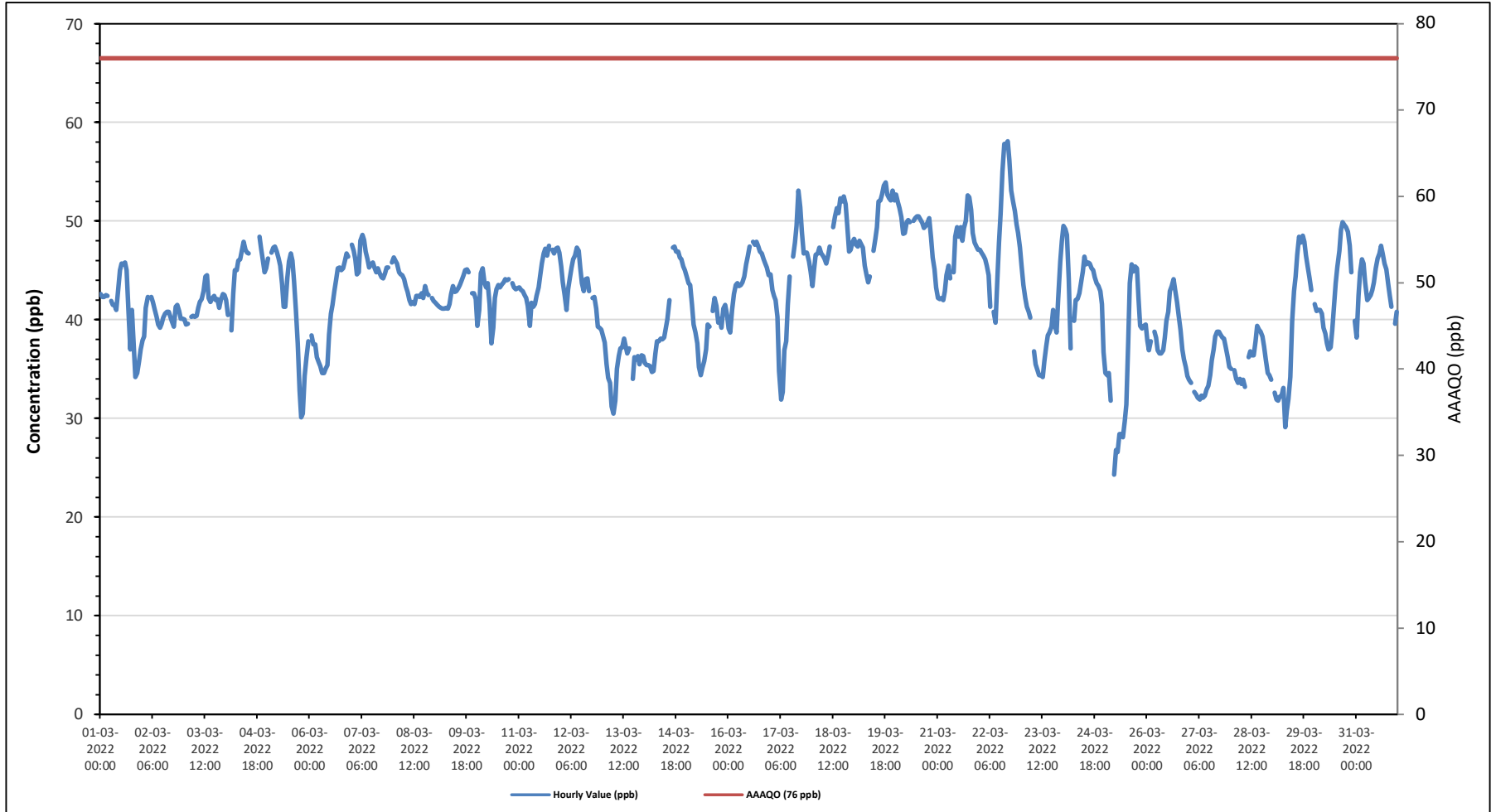
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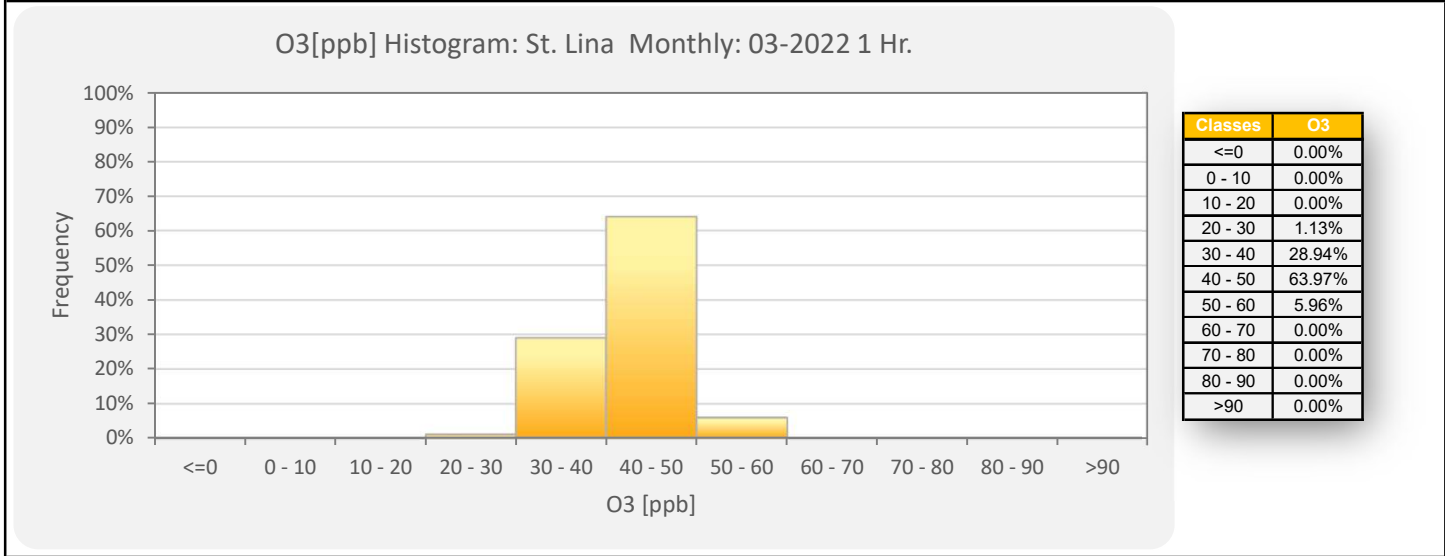
St. Lina Site - March 2022
Summary of Hourly Averages

OZONE (O₃) in ppb

Alberta Ambient Air Quality Objectives (AAAO): 1-Hour 76 ppb																																	
Number of 1-Hour Exceedances:															0																		
Maximum Hourly Value:	58.1	ppb	on March 22 at hour 16												Hours in Service:	744																	
Maximum Daily Value:	49.4	ppb	on March 20												Hours of Data:	705																	
Minimum Hourly Value:	24.3	ppb	on March 25 at hour 5												Hours of Missing Data:	1																	
Minimum Daily Value:	35.1	ppb	on March 27												Hours of Calibration:	38																	
Monthly Average:	42.4	ppb													Operational Uptime:	99.9																	
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23									
Mar 1	42.6	42.3	42.3	42.5	42.4	S	41.9	41.5	41.5	41	42.7	45	45.7	45.6	45.8	45	40.9	37	41	37.3	34.2	34.6	35.8	37	34.2	45.8	41.1						
Mar 2	37.9	38.3	41.2	42.3	S	42.3	41.8	41.1	40.3	39.5	39.2	39.6	40.2	40.6	40.8	40.8	40.3	39.8	39.3	41.3	41.5	40.9	40.1	40.1	37.9	42.3	40.4						
Mar 3	40	39.5	39.6	S	40.3	40.4	40.3	40.4	41.2	41.8	42.1	42.9	44.4	44.5	42.2	41.8	42.2	42.4	42	42.1	41.2	42	42.6	42.5	39.5	44.5	41.7						
Mar 4	42	40.5	S	38.9	42.7	45	45	46	46.1	47.1	47.9	47.1	46.8	46.7	C	C	C	C	C	48.4	47.2	46.1	44.8	45.2	38.9	48.4	45.2						
Mar 5	46.2	S	46.8	47.3	47.4	46.9	46.2	45.5	43.6	41.3	41.3	44.3	45.9	46.7	46	43.9	41	37.6	32.8	30.1	30.5	34.3	36.2	37.8	30.1	47.4	41.7						
Mar 6	S	38.4	37.5	37.5	36.2	35.7	35.3	34.6	34.6	35	35.4	38.5	40.6	41.5	42.9	44.1	45.2	45.3	45	45.2	46	46.7	46.4	S	34.6	46.7	40.3						
Mar 7	47.6	47	46.1	44.6	44.8	48	48.6	48.1	46.9	46.1	45.3	45.6	45.8	45.3	44.8	45.2	44.7	44.3	44.2	44.7	45.3	45.3	S	45.8	44.2	48.6	45.8						
Mar 8	46.3	46	45.7	44.8	44.6	44.5	44.1	43.4	42.8	42	41.6	41.8	41.6	42.4	42.4	42.3	42.7	42.2	43.4	42.7	42.5	S	42.2	41.9	41.6	46.3	43.2						
Mar 9	41.7	41.5	41.3	41.2	41.1	41.1	41.2	41.1	41.6	42.6	43.4	42.8	42.9	43.2	43.5	44	44.5	45	45.1	44.8	S	42.7	42.7	42.1	41.1	45.1	42.7						
Mar 10	39.4	41	44.7	45.2	43.7	43.3	43.7	41.6	37.6	39.2	42.2	43.1	43.5	43.3	43.6	43.8	44.1	44	44.1	S	43.7	43.3	43.1	43.2	37.6	45.2	42.8						
Mar 11	43.3	43	42.9	42.5	42.2	41.4	39.4	41.7	41.3	41.6	42.4	43.3	44.5	45.7	46.7	47.2	46.5	47.5	S	47.1	46.7	47.2	47.3	46.8	39.4	47.5	44.3						
Mar 12	45.4	43.8	42.5	41	43.1	44.3	45.3	46.1	46.5	47.3	47	45.2	43.7	42.9	44.1	44.2	42.9	S	42.2	42.3	41.1	39.3	39.2	39	39.0	47.3	43.4						
Mar 13	38.4	37.7	35.5	34.1	33.6	31.2	30.5	31.8	35	36.3	37.1	37.2	38.1	37.3	36.6	37.1	S	34	36.2	36	36.3	35.5	36.4	36.3	30.5	38.4	35.6						
Mar 14	35.6	35.4	35.4	35.3	34.7	34.8	36.6	37.8	37.8	38.1	38	38.2	39.1	40	42	S	47.3	47.4	46.9	46.9	46.3	46.1	45.4	45	34.7	47.4	40.4						
Mar 15	44.4	43.7	43.5	41.5	39.5	38.7	37.6	35.2	34.4	35.1	35.8	37	39.5	39.3	S	40.9	42.2	41.4	39.7	40.1	39.2	41.1	41.5	40.5	34.4	44.4	39.6						
Mar 16	39.1	38.7	41	42.6	43.5	43.7	43.4	43.5	43.8	44.4	45.6	46.4	47.4	S	47.9	47.6	47.9	47.4	46.9	46.7	46.1	45.7	45.3	44.5	38.7	47.9	44.7						
Mar 17	44.6	43	42.4	42	40.3	34.8	31.9	32.7	36.9	37.8	41.5	44.4	S	46.4	47.8	49.5	53.1	51.4	48.9	46.7	46.8	46.8	45.9	44.9	31.9	53.1	43.5						
Mar 18	43.4	45.1	46.6	46.7	47.3	46.7	46.5	46.2	45.7	46.5	47.4	S	49.4	50.5	51.3	50.8	52.3	52	52.5	51.7	49.6	46.9	47.1	47.8	43.4	52.5	48.3						
Mar 19	48.2	47.6	47.4	48	47.7	47.3	45.5	43.8	44.4	S	47	48.2	49.4	52	52.1	52.7	53.6	53.9	52.7	52.3	52.1	53.1	52.1	52.1	43.8	53.9	49.4						
Mar 20	52.7	51.9	51.3	50.4	48.7	48.8	49.9	50.1	49.9	S	50	50.3	50.5	50.5	50.1	49.8	49.3	49.5	49.8	50.3	48.3	46.3	45.1	43.3	43.3	52.7	49.4						
Mar 21	42.2	42.1	42.2	42	42.9	44.5	45.5	44.2	S	44.8	48.4	49.4	48.4	49.4	48	49.3	50	52.6	52.4	51.1	48.8	47.8	47.4	47.1	42.0	52.6	47.0						
Mar 22	47.1	46.8	46.5	46.1	45.5	44.5	41.3	S	40.8	39.7	44.2	47.8	50.7	55	57.8	57.8	58.1	56.2	53.1	52	51	49.7	48.8	47.3	39.7	58.1	49.0						
Mar 23	45.5	43.5	42.2	41.3	40.8	40.2	S	36.8	35.5	34.9	34.4	34.4	34.2	35.8	37.3	38.4	38.7	39.3	41	39.5	38.7	42.1	45.9	48	34.2	48.0	39.5						
Mar 24	49.5	49.2	48.6	44.1	37.1	S	39.9	42	42.1	42.7	43.7	44.9	46.4	45.6	45.8	45.7	45.2	45	44.3	43.7	43.4	42.9	41.6	36.7	36.7	49.5	43.9						
Mar 25	34.6	34.4	34.6	31.8	S	24.3	26.8	26.6	28.4	28.4	28.1	29.7	31.4	37.7	43.7	45.6	44.9	45.4	45.2	42.1	39.4	39.1	39.4	39.5	24.3	45.6	35.7						
Mar 26	37.9	36.9	37.8	S	38.8	38.2	36.9	36.6	36.6	36.9	38.2	39.9	40.8	42.9	43.4	44.1	43	41.8	40.5	39	37	36	35.2	34.3	34.3	44.1	38.8						
Mar 27	33.9	33.6	S	32.7	32.4	32.1	31.9	32.3	32.1	32.3	32.3	32.9	33.3	34.4	35.9	37	38.3	38.8	38.8	38.5	38.2	38.1	37.3	36.2	31.9	38.8	35.1						
Mar 28	35	S	34.9	34	33.6	34	33.5	33.9	33.2	P	36.2	36.8	36.4	36.4	37.8	39.4	39	38.8	38.3	37.3	35.9	34.6	34.4	33.9	33.2	39.4	35.8						
Mar 29	S	32.6	31.9	31.8	32.2	32.3	33.1	29.1	30.8	32	34.2	39.9	42.9	44.4	46.6	48.4	47.8	48.5	47.9	46.5	45.3	44.3	43	S	29.1	48.5	39.3						
Mar 30	41.6	40.9	41	41	40.6	39.2	38.6	37.6	37	37.2	38.9	41.5	43.7	45.3	47	49.1	49.9	49.6	49.4	48.9	47.5	44.8	S	39.9	37.0	49.9	43.1						
Mar 31	38.2	42.4	44.8	46.1	45.7	43.8	42	42.2	42.5	43	43.8	45.2	46.2	46.7	47.5	46.7	45.7	45.1	43.6	42.4	41.3	S	39.6	40.8	38.2	47.5	43.7						
Diurnal Maximum	53	52	51	50	49	49	50	50	50	47	50	50	51	55	58	58	58	56	54	53	52	52	53	52									
Diurnal Average	42.2	41.6	42.0	41.4	41.2	40.4	40.1	39.8	39.7	40.0	41.0	42.1	43.1	43.9	44.9	45.3	45.5	44.9	44.4	43.9	43.0	42.8	42.5	42.0									
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.																																	

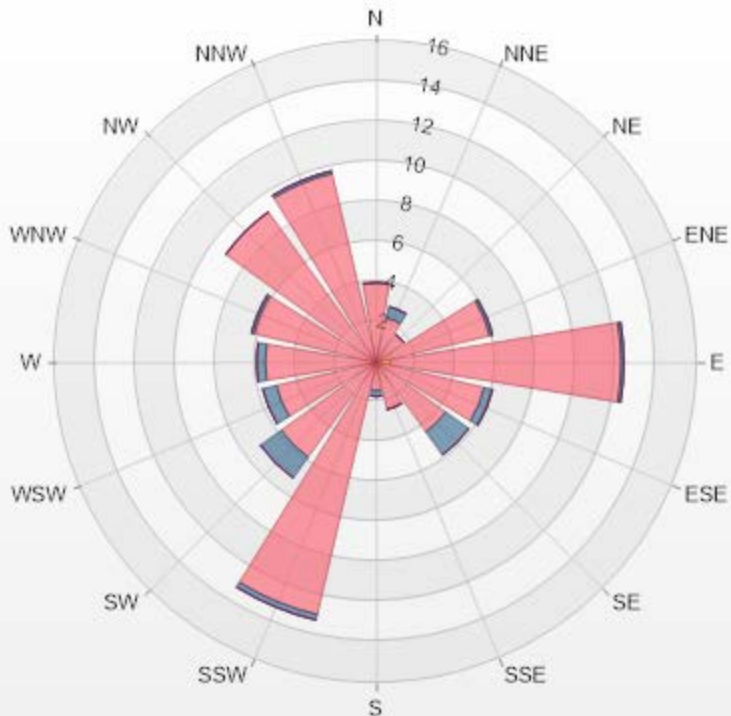
Timeseries Chart of Hourly Average for O3 - St. Lina Site





Wind: St. Lina Poll.: St. Lina-O3[ppb] Monthly: 03-2022 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	0	3.97	0	0	0	3.97
NNE	0	2.27	0.57	0	0	2.84
NE	0	1.7	0	0	0	1.7
ENE	0.28	5.53	0.14	0	0	5.95
E	0.71	11.49	0.14	0	0	12.34
ESE	0	5.53	0.43	0	0	5.96
SE	0	4.26	1.42	0	0	5.68
SSE	0	2.41	0	0	0	2.41
S	0	1.42	0.28	0	0	1.7
SSW	0	12.91	0.28	0	0	13.19
SW	0	5.82	1.28	0	0	7.1
WSW	0.14	4.96	0.71	0	0	5.81
W	0	5.53	0.43	0	0	5.96
WNW	0	6.24	0.14	0	0	6.38
NW	0	9.22	0	0	0	9.22
NNW	0	9.65	0.14	0	0	9.79
Summary	1.13	92.91	5.96	0	0	100



LICA-202203

% Icon Classes (ppb)

1

0-30

93

30-50

6

50-76

0

76-159

0

>159.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - March 2022

Summary of Hourly Averages

TOTAL HYDROCARBONS (THC) in ppm

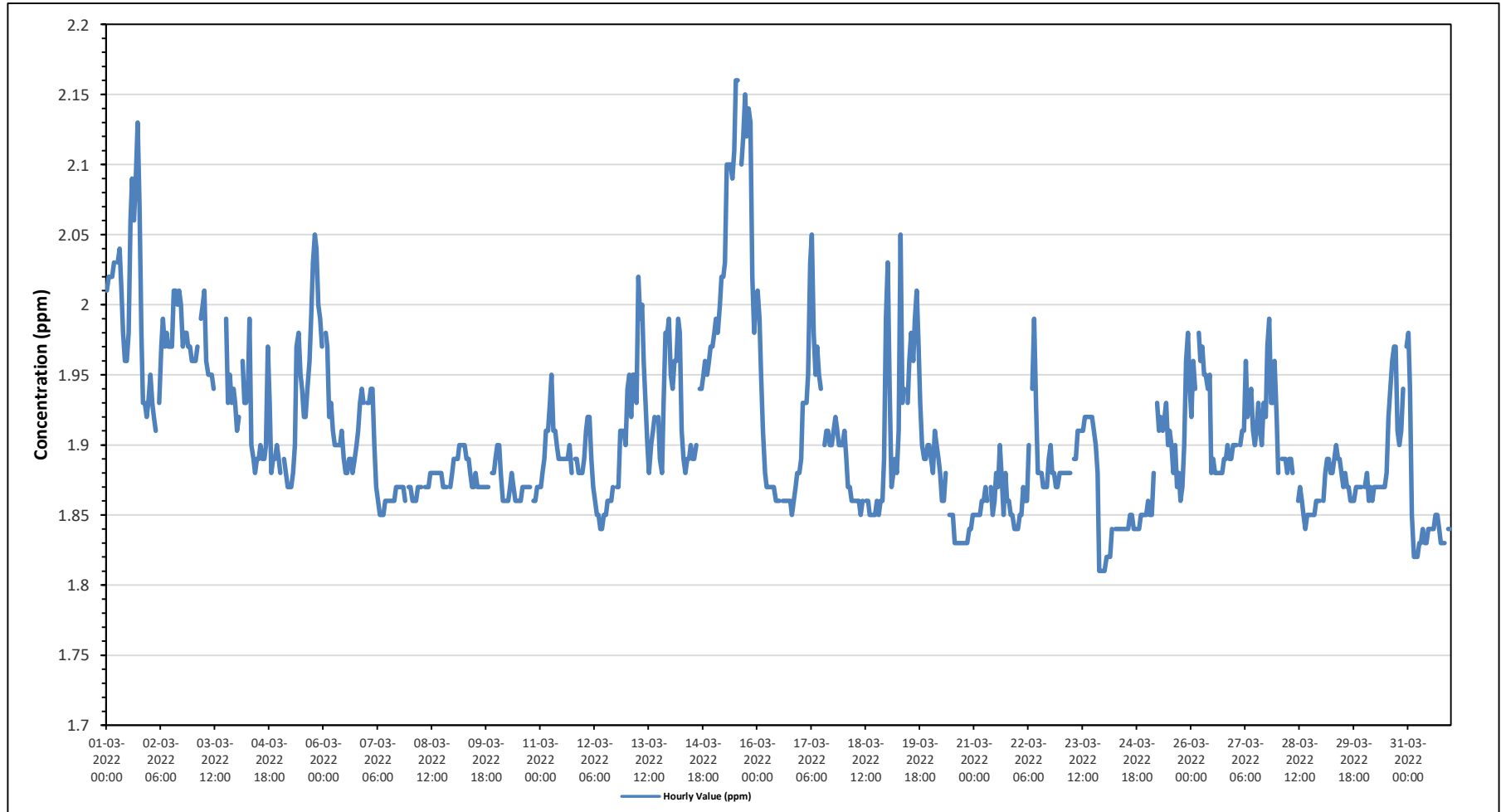
Maximum Hourly Value:	2.16 ppm on March 15 at hour 12	Hours in Service:	744
Maximum Daily Value:	2.07 ppm on March 15	Hours of Data:	702
Minimum Hourly Value:	1.81 ppm on March 23 at hour 21	Hours of Missing Data:	3
Minimum Daily Value:	1.84 ppm on March 24	Hours of Calibration:	39
Monthly Average:	1.91 ppm	Operational Uptime:	99.6

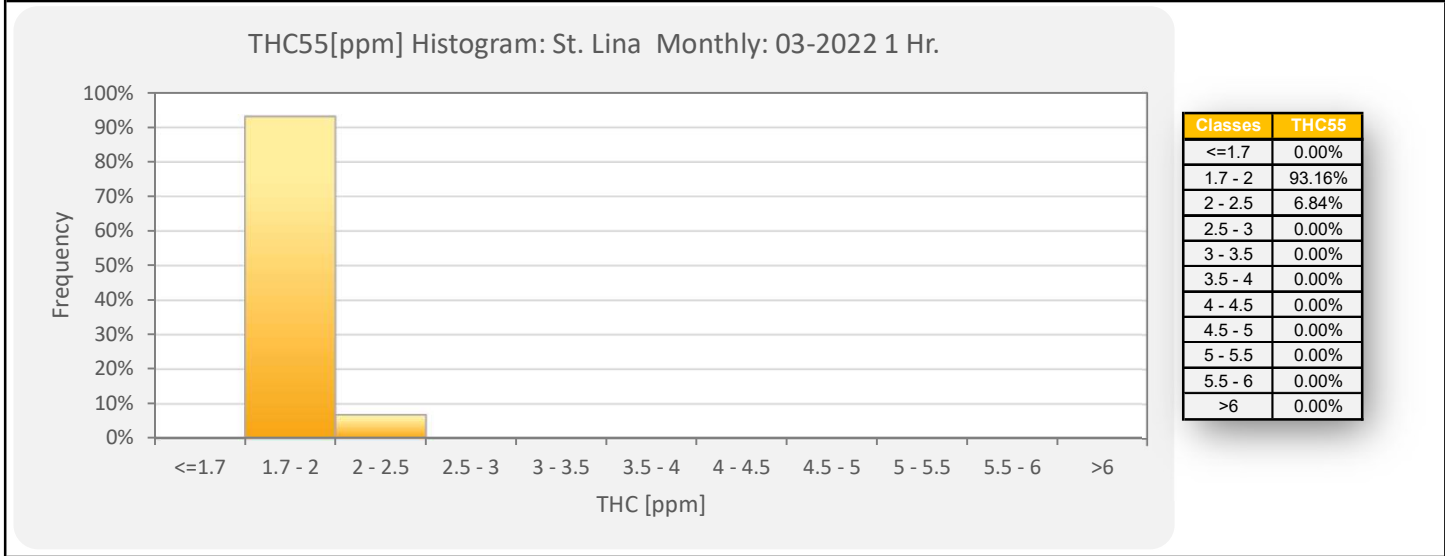
Day	Hourly Period Starting at (MST)																							Daily	Daily	Daily		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average	
Mar 1	2.01	2.02	2.02	2.02	2.03	S	2.03	2.04	2.01	1.98	1.96	1.98	2.06	2.09	2.06	2.09	2.13	2.07	1.98	1.93	1.93	1.92	1.93	1.92	1.93	1.92	2.13	2.01
Mar 2	1.95	1.93	1.92	1.91	S	1.93	1.97	1.99	1.97	1.98	1.97	1.97	1.97	2.01	2.01	2.00	2.01	1.97	1.98	1.98	1.97	1.97	1.96	1.91	2.01	1.97	1.96	
Mar 3	1.96	1.96	1.97	S	1.99	2.00	2.01	1.96	1.95	1.95	1.95	1.94	C	C	C	C	C	C	1.99	1.93	1.95	1.93	1.94	1.93	1.93	2.01	-	
Mar 4	1.91	1.92	S	1.96	1.93	1.93	1.94	1.99	1.90	1.89	1.88	1.89	1.89	1.90	1.89	1.89	1.90	1.97	1.93	1.88	1.89	1.89	1.90	1.89	1.88	1.99	1.91	
Mar 5	1.88	S	1.89	1.88	1.87	1.87	1.87	1.88	1.90	1.97	1.98	1.85	1.94	1.92	1.92	1.94	1.96	1.99	2.03	2.05	2.04	2.00	1.99	1.97	1.87	2.05	1.94	
Mar 6	S	1.98	1.97	1.92	1.93	1.91	1.90	1.90	1.90	1.90	1.91	1.89	1.88	1.88	1.89	1.89	1.88	1.89	1.90	1.91	1.93	1.94	1.93	S	1.88	1.98	1.91	
Mar 7	1.93	1.93	1.94	1.94	1.90	1.87	1.86	1.85	1.85	1.85	1.86	1.86	1.86	1.86	1.86	1.86	1.87	1.87	1.87	1.87	1.87	1.86	S	1.87	1.85	1.94	1.88	
Mar 8	1.87	1.86	1.86	1.86	1.87	1.87	1.87	NRM	1.87	1.87	1.87	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.87	1.87	1.87	1.87	1.87	S	1.87	1.88	1.87	
Mar 9	1.89	1.89	1.89	1.90	1.90	1.90	1.90	1.89	1.89	1.88	1.87	1.87	1.88	1.87	1.87	1.87	1.87	1.87	1.87	1.87	S	1.88	1.88	1.89	1.87	1.90	1.88	
Mar 10	1.90	1.90	1.88	1.86	1.86	1.86	1.86	1.87	1.88	1.87	1.86	1.86	1.86	1.86	1.87	1.87	1.87	1.87	1.87	S	1.86	1.86	1.87	1.87	1.86	1.90	1.87	
Mar 11	1.87	1.88	1.89	1.91	1.91	1.93	1.95	1.91	1.91	1.90	1.89	1.89	1.89	1.89	1.89	1.89	1.90	1.88	S	1.89	1.89	1.88	1.88	1.88	1.87	1.95	1.90	
Mar 12	1.89	1.91	1.92	1.92	1.89	1.87	1.86	1.85	1.85	1.84	1.84	1.85	1.85	1.86	1.86	1.87	S	1.87	1.87	1.91	1.91	1.88	1.91	1.91	1.90	1.84	1.92	
Mar 13	1.94	1.95	1.92	1.95	1.95	1.93	2.02	1.99	2.00	1.96	1.93	1.90	1.88	1.90	1.91	1.92	S	1.92	1.89	1.88	1.93	1.98	1.98	1.99	1.88	2.02	1.94	
Mar 14	1.95	1.94	1.96	1.96	1.99	1.98	1.91	1.89	1.88	1.89	1.89	1.90	1.89	1.89	1.90	S	1.94	1.94	1.95	1.96	1.95	1.96	1.97	1.97	1.88	1.99	1.93	
Mar 15	1.98	1.99	1.98	2.00	2.02	2.02	2.03	2.10	2.10	2.10	2.09	2.11	2.16	2.16	S	2.10	2.12	2.15	2.12	2.14	2.13	2.02	1.98	2.00	1.98	2.07	2.07	
Mar 16	2.01	1.99	1.95	1.91	1.88	1.87	1.87	1.87	1.87	1.87	1.86	1.86	1.86	S	1.86	1.86	1.86	1.86	1.86	1.85	1.86	1.87	1.88	1.88	1.85	2.01	1.88	
Mar 17	1.89	1.93	1.93	1.93	1.95	2.03	2.05	1.98	1.95	1.97	1.95	1.94	S	1.90	1.91	1.91	1.90	1.90	1.91	1.92	1.91	1.90	1.90	1.90	1.89	2.05	1.93	
Mar 18	1.91	1.89	1.87	1.87	1.86	1.86	1.86	1.86	1.85	1.86	S	1.86	1.86	1.85	1.85	1.85	1.85	1.86	1.85	1.86	1.86	1.89	1.89	1.99	1.85	1.99	1.87	
Mar 19	2.03	1.94	1.87	1.88	1.89	1.88	1.91	2.05	1.93	1.94	S	1.93	1.96	1.98	1.96	1.99	2.01	1.97	1.93	1.90	1.89	1.89	1.90	1.90	1.87	2.05	1.94	
Mar 20	1.89	1.88	1.91	1.90	1.89	1.88	1.86	1.86	1.88	S	1.85	1.85	1.85	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.84	1.84	1.85	1.83	1.91	1.86	
Mar 21	1.85	1.85	1.85	1.85	1.86	1.86	1.87	1.86	S	1.87	1.85	1.86	1.88	1.87	1.90	1.88	1.85	1.88	1.86	1.86	1.85	1.85	1.84	1.84	1.84	1.90	1.86	
Mar 22	1.84	1.85	1.85	1.87	1.86	1.86	1.90	S	1.94	1.99	1.93	1.88	1.88	1.88	1.87	1.87	1.89	1.90	1.88	1.88	1.87	1.87	1.88	1.84	1.99	1.88		
Mar 23	1.88	1.88	1.88	1.88	1.88	1.88	S	1.89	1.89	1.91	1.91	1.91	1.91	1.92	1.92	1.92	1.92	1.92	1.91	1.90	1.88	1.81	1.81	1.81	1.81	1.92	1.89	
Mar 24	1.81	1.82	1.82	1.82	1.84	S	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.85	1.85	1.84	1.84	1.84	1.84	1.85	1.85	1.85	1.81	1.85	1.84		
Mar 25	1.86	1.85	1.85	1.88	S	1.93	1.91	1.92	1.91	1.92	1.93	1.90	1.91	1.90	1.88	1.90	1.87	1.88	1.86	1.87	1.90	1.96	1.98	1.94	1.85	1.98	1.90	
Mar 26	1.92	1.96	1.94	S	1.98	1.96	1.97	1.95	1.95	1.94	1.95	1.88	1.89	1.88	1.88	1.88	1.88	1.88	1.89	1.89	1.90	1.89	1.89	1.90	1.88	1.98	1.92	
Mar 27	1.90	1.90	S	1.90	1.91	1.91	1.96	1.92	1.93	1.94	1.91	1.90	1.91	1.93	1.91	1.90	1.93	1.92	1.97	1.99	1.93	1.93	1.96	1.92	1.90	1.99	1.93	
Mar 28	1.88	S	1.89	1.89	1.89	1.88	1.89	1.89	1.88	P	X	1.86	1.87	1.86	1.85	1.84	1.85	1.85	1.85	1.85	1.85	1.86	1.86	1.86	1.84	1.89	1.87	
Mar 29	S	1.86	1.88	1.89	1.89	1.88	1.88	1.89	1.90	1.89	1.89	1.88	1.87	1.88	1.87	1.87	1.86	1.86	1.86	1.87	1.87	1.87	1.87	S	1.86	1.90	1.88	
Mar 30	1.87	1.88	1.86	1.87	1.86	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.88	1.92	1.94	1.96	1.97	1.97	1.91	1.90	1.91	1.94	S	1.97	1.86	1.97	1.90	
Mar 31	1.98	1.94	1.85	1.82	1.82	1.82	1.83	1.83	1.84	1.83	1.83	1.84	1.84	1.84	1.85	1.85	1.84	1.83	1.83	1.83	S	1.84	1.84	1.84	1.82	1.98	1.85	
Diurnal Maximum	2.03	2.02	2.02	2.02	2.03	2.03	2.05	2.10	2.10	2.10	2.09	2.11	2.16	2.16	2.09	2.10	2.12	2.15	2.12	2.14	2.13	2.02	1.99	2.00				
Diurnal Average	1.91	1.91	1.90	1.90	1.91	1.90	1.92	1.92	1.91	1.91	1.90	1.90	1.90	1.90	1.90	1.90	1.91	1.91	1.91	1.90	1.90	1.90	1.90	1.91				

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.

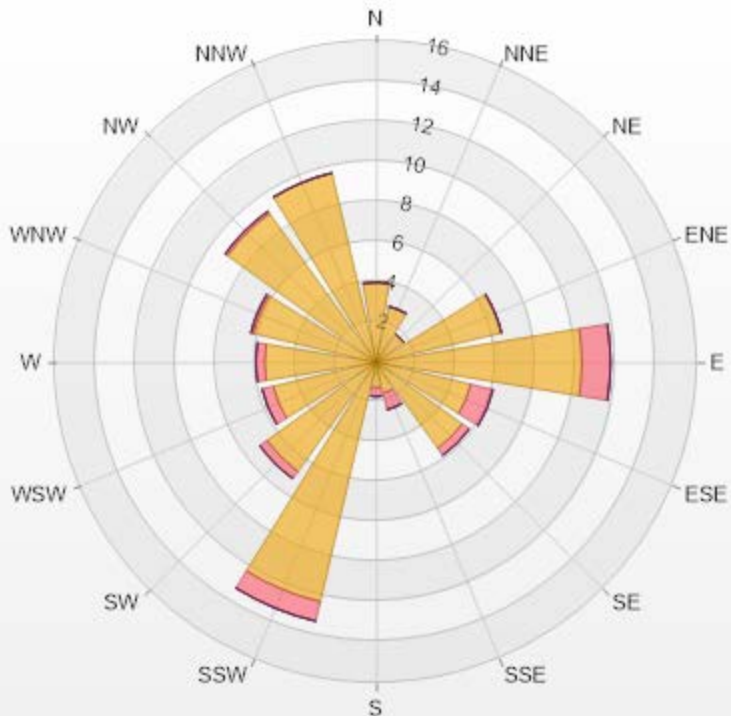
Timeseries Chart of Hourly Average for THC - St. Lina Site





Wind: St. Lina Poll.: St. Lina-THC55[ppm] Monthly: 03-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.35% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	3.99	0	0	0	0	3.99
NNE	2.85	0	0	0	0	2.85
NE	1.71	0	0	0	0	1.71
ENE	6.41	0	0	0	0	6.41
E	10.26	1.42	0	0	0	11.68
ESE	4.84	1.14	0	0	0	5.98
SE	5.27	0.43	0	0	0	5.7
SSE	1.57	0.85	0	0	0	2.42
S	1.28	0.43	0	0	0	1.71
SSW	12.25	1	0	0	0	13.25
SW	6.7	0.43	0	0	0	7.13
WSW	5.27	0.57	0	0	0	5.84
W	5.56	0.43	0	0	0	5.99
WNW	6.27	0.14	0	0	0	6.41
NW	9.12	0.14	0	0	0	9.26
NNW	9.69	0	0	0	0	9.69
Summary	93.04	6.98	0	0	0	100



LICA-202203

% Icon Classes (ppm)

93 0-2

7 2-5

0 5-10

0 10-40

0 >40.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - March 2022 Summary of Hourly Averages

METHANE (CH4) in ppm

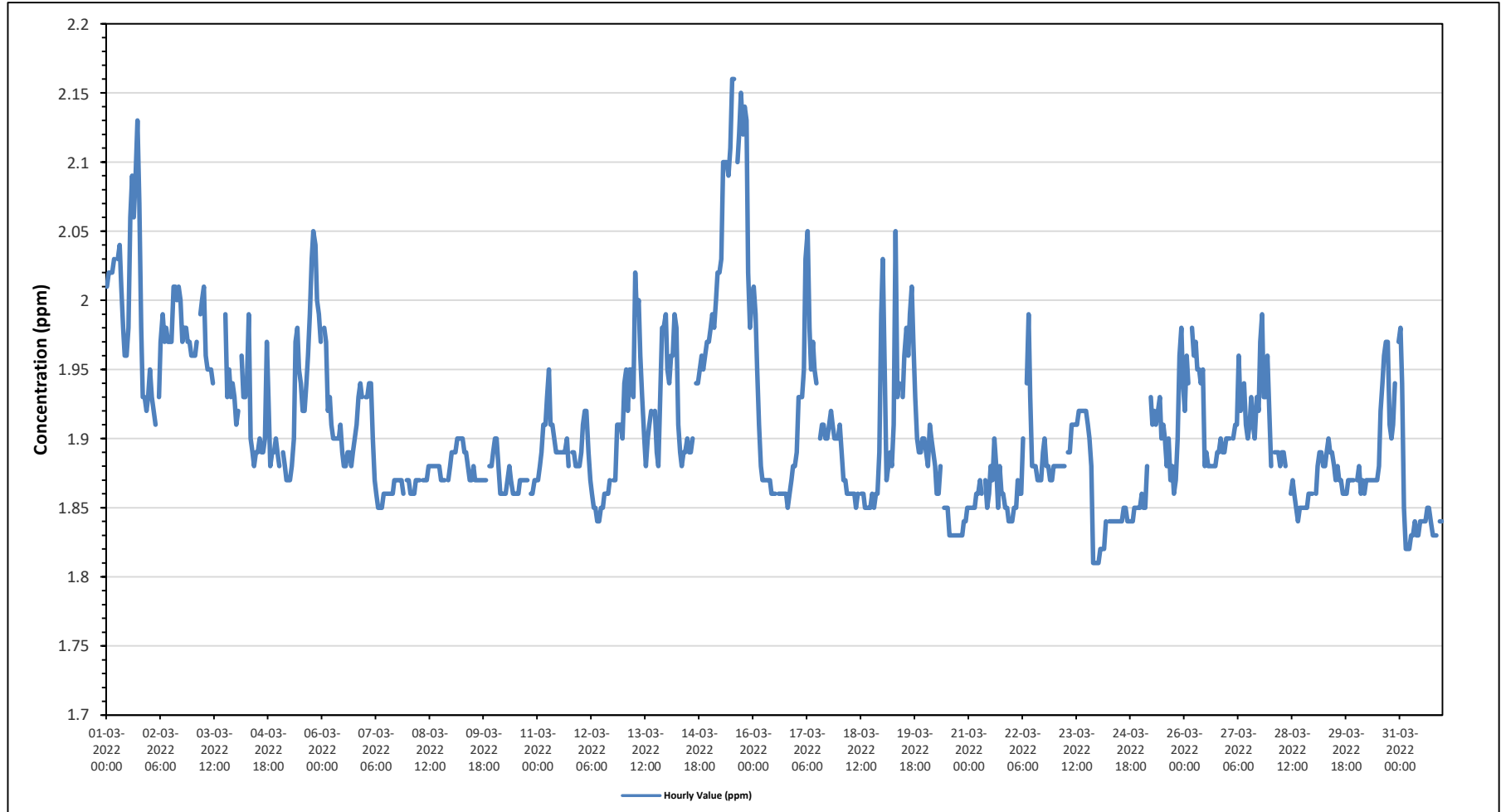
Maximum Hourly Value:	2.16 ppm	on March 15 at hour 12	Hours in Service:	744
Maximum Daily Value:	2.07 ppm	on March 15	Hours of Data:	702
Minimum Hourly Value:	1.81 ppm	on March 23 at hour 21	Hours of Missing Data:	3
Minimum Daily Value:	1.84 ppm	on March 24	Hours of Calibration:	39
Monthly Average:	1.91 ppm		Operational Uptime:	99.6

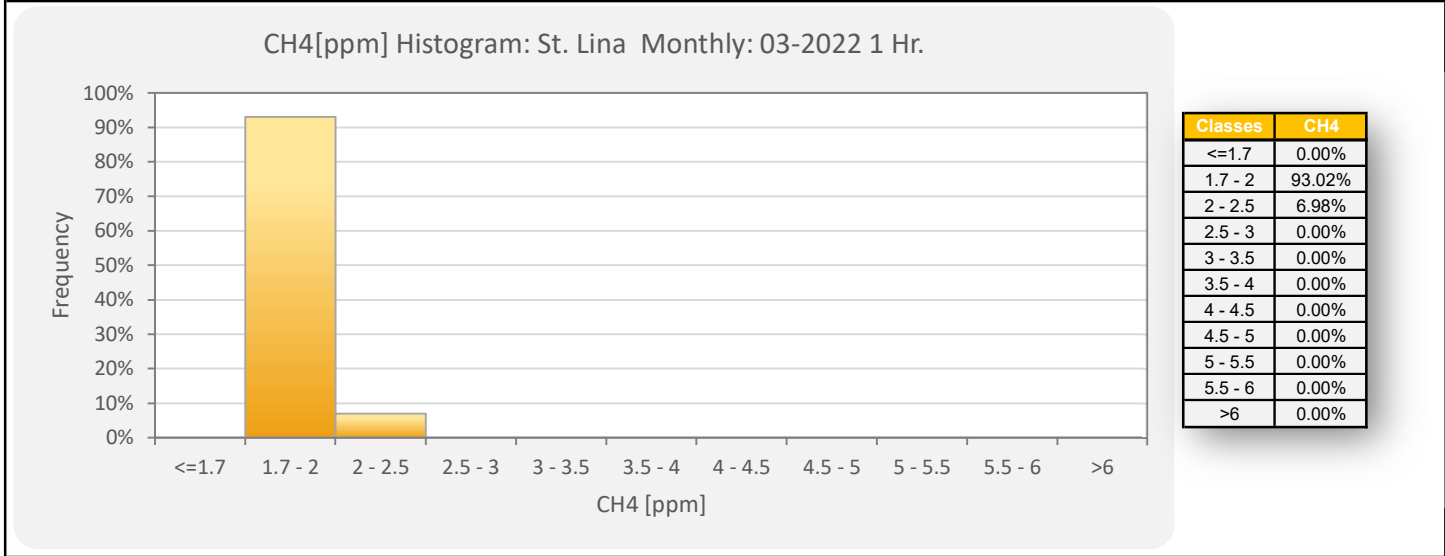
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Mar 1	2.01	2.02	2.02	2.02	2.03	S	2.03	2.04	2.01	1.98	1.96	1.98	2.06	2.09	2.06	2.09	2.13	2.07	1.98	1.93	1.93	1.92	1.93	1.92	2.13	2.01		
Mar 2	1.95	1.93	1.92	1.91	S	1.93	1.97	1.99	1.97	1.98	1.97	1.97	2.01	2.01	2.00	2.01	2.00	1.97	1.98	1.98	1.97	1.97	1.96	1.91	2.01	1.97		
Mar 3	1.96	1.96	1.97	S	1.99	2.00	2.01	1.96	1.95	1.95	1.95	1.94	C	C	C	C	C	C	1.99	1.93	1.95	1.93	1.94	1.93	1.93	2.01	-	
Mar 4	1.91	1.92	S	1.96	1.93	1.93	1.94	1.99	1.90	1.89	1.88	1.89	1.89	1.90	1.89	1.89	1.90	1.97	1.93	1.88	1.89	1.89	1.90	1.89	1.88	1.99	1.91	
Mar 5	1.88	S	1.89	1.88	1.87	1.87	1.87	1.88	1.90	1.97	1.98	1.85	1.94	1.92	1.92	1.94	1.96	1.99	2.03	2.05	2.04	2.00	1.99	1.97	1.87	2.05	1.94	
Mar 6	S	1.98	1.97	1.92	1.93	1.91	1.90	1.90	1.90	1.90	1.91	1.89	1.88	1.88	1.89	1.89	1.88	1.89	1.90	1.91	1.93	1.94	1.93	S	1.88	1.98	1.91	
Mar 7	1.93	1.93	1.94	1.94	1.90	1.87	1.86	1.85	1.85	1.85	1.86	1.86	1.86	1.86	1.86	1.86	1.87	1.87	1.87	1.87	1.87	1.86	S	1.87	1.85	1.94	1.88	
Mar 8	1.87	1.86	1.86	1.86	1.87	1.87	1.87	NRM	1.87	1.87	1.87	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.87	1.87	1.87	S	1.87	1.88	1.86	1.88	1.87	
Mar 9	1.89	1.89	1.89	1.90	1.90	1.90	1.90	1.89	1.89	1.88	1.87	1.87	1.88	1.87	1.87	1.87	1.87	1.87	1.87	1.87	S	1.88	1.88	1.89	1.87	1.90	1.88	
Mar 10	1.90	1.90	1.88	1.86	1.86	1.86	1.86	1.87	1.88	1.87	1.86	1.86	1.86	1.86	1.87	1.87	1.87	1.87	1.87	S	1.86	1.86	1.87	1.87	1.86	1.90	1.87	
Mar 11	1.87	1.88	1.89	1.91	1.91	1.93	1.95	1.91	1.91	1.90	1.89	1.89	1.89	1.89	1.89	1.89	1.90	1.88	S	1.89	1.89	1.88	1.88	1.88	1.87	1.95	1.90	
Mar 12	1.89	1.91	1.92	1.92	1.89	1.87	1.86	1.85	1.85	1.84	1.84	1.85	1.85	1.86	1.86	1.86	1.87	S	1.87	1.87	1.91	1.88	1.91	1.91	1.90	1.84	1.92	1.88
Mar 13	1.94	1.95	1.92	1.95	1.95	1.93	2.02	1.99	2.00	1.96	1.93	1.90	1.88	1.90	1.91	1.92	S	1.92	1.89	1.88	1.93	1.98	1.98	1.99	1.88	2.02	1.94	
Mar 14	1.95	1.94	1.96	1.96	1.99	1.98	1.91	1.89	1.88	1.89	1.89	1.89	1.89	1.89	1.90	S	1.94	1.94	1.95	1.96	1.95	1.96	1.97	1.97	1.88	1.99	1.93	
Mar 15	1.98	1.99	1.98	2.00	2.02	2.02	2.03	2.10	2.10	2.10	2.09	2.11	2.16	2.16	S	2.10	2.12	2.15	2.12	2.14	2.13	2.02	1.98	2.00	1.98	2.16	2.07	
Mar 16	2.01	1.99	1.95	1.91	1.88	1.87	1.87	1.87	1.87	1.87	1.86	1.86	1.86	S	1.86	1.86	1.86	1.86	1.86	1.85	1.86	1.87	1.88	1.88	1.85	2.01	1.88	
Mar 17	1.89	1.93	1.93	1.93	1.95	2.03	2.05	1.98	1.95	1.97	1.95	1.94	S	1.90	1.91	1.91	1.90	1.90	1.91	1.92	1.91	1.90	1.90	1.90	1.89	2.05	1.93	
Mar 18	1.91	1.89	1.87	1.87	1.86	1.86	1.86	1.86	1.86	1.85	1.86	S	1.86	1.86	1.85	1.85	1.85	1.86	1.85	1.86	1.86	1.86	1.89	1.99	1.85	1.99	1.87	
Mar 19	2.03	1.94	1.87	1.88	1.89	1.88	1.91	2.05	1.93	1.94	S	1.93	1.96	1.98	1.96	1.99	2.01	1.97	1.93	1.90	1.89	1.89	1.90	1.90	1.87	2.05	1.94	
Mar 20	1.89	1.88	1.91	1.90	1.89	1.88	1.86	1.86	1.88	S	1.85	1.85	1.85	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.84	1.84	1.85	1.83	1.91	1.86	
Mar 21	1.85	1.85	1.85	1.85	1.86	1.86	1.87	1.86	S	1.87	1.85	1.86	1.88	1.87	1.90	1.88	1.85	1.88	1.86	1.86	1.85	1.85	1.84	1.84	1.84	1.90	1.86	
Mar 22	1.84	1.85	1.85	1.87	1.86	1.86	1.90	S	1.94	1.99	1.93	1.88	1.88	1.88	1.87	1.87	1.89	1.90	1.88	1.88	1.87	1.87	1.88	1.84	1.99	1.88		
Mar 23	1.88	1.88	1.88	1.88	1.88	1.88	S	1.89	1.89	1.91	1.91	1.91	1.91	1.92	1.92	1.92	1.92	1.92	1.91	1.90	1.88	1.81	1.81	1.81	1.81	1.92	1.89	
Mar 24	1.81	1.82	1.82	1.82	1.84	S	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.85	1.85	1.84	1.84	1.84	1.84	1.85	1.85	1.85	1.81	1.85	1.84		
Mar 25	1.86	1.85	1.85	1.88	S	1.93	1.91	1.92	1.91	1.92	1.93	1.90	1.91	1.90	1.88	1.90	1.87	1.88	1.86	1.87	1.90	1.96	1.98	1.94	1.85	1.98	1.90	
Mar 26	1.92	1.96	1.94	S	1.98	1.96	1.97	1.95	1.95	1.94	1.95	1.88	1.89	1.88	1.88	1.88	1.88	1.88	1.89	1.89	1.90	1.89	1.89	1.90	1.88	1.98	1.92	
Mar 27	1.90	1.90	S	1.90	1.91	1.91	1.96	1.92	1.93	1.94	1.91	1.90	1.91	1.93	1.91	1.90	1.93	1.92	1.97	1.99	1.93	1.93	1.96	1.92	1.90	1.99	1.93	
Mar 28	1.88	S	1.89	1.89	1.89	1.88	1.89	1.89	1.88	P	X	1.86	1.87	1.86	1.85	1.84	1.85	1.85	1.85	1.85	1.85	1.86	1.86	1.86	1.84	1.89	1.87	
Mar 29	S	1.86	1.88	1.89	1.89	1.88	1.88	1.89	1.90	1.89	1.89	1.88	1.87	1.88	1.87	1.87	1.86	1.86	1.86	1.87	1.87	1.87	1.87	S	1.86	1.90	1.88	
Mar 30	1.87	1.88	1.86	1.87	1.86	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.88	1.92	1.94	1.96	1.97	1.97	1.91	1.90	1.91	1.94	S	1.97	1.86	1.97	1.90	
Mar 31	1.98	1.94	1.85	1.82	1.82	1.82	1.83	1.83	1.84	1.83	1.83	1.84	1.84	1.84	1.84	1.85	1.85	1.84	1.83	1.83	1.83	S	1.84	1.84	1.82	1.98	1.85	
Diurnal Maximum	2.03	2.02	2.02	2.02	2.03	2.03	2.05	2.10	2.10	2.10	2.09	2.11	2.16	2.16	2.09	2.10	2.12	2.15	2.12	2.14	2.13	2.02	1.99	2.00				
Diurnal Average	1.91	1.91	1.90	1.90	1.91	1.90	1.92	1.92	1.91	1.91	1.90	1.90	1.90	1.90	1.90	1.90	1.91	1.91	1.91	1.90	1.90	1.90	1.91	1.91				

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.

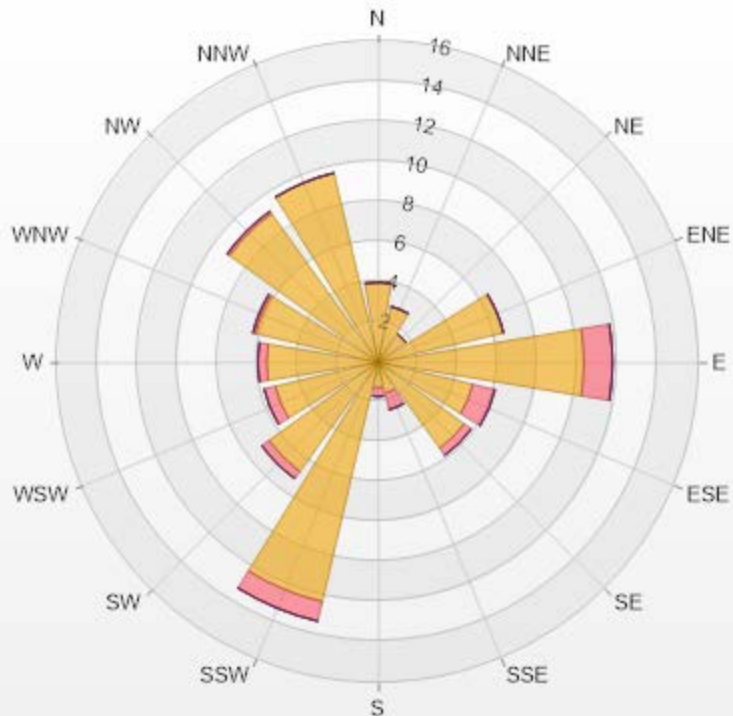
Timeseries Chart of Hourly Average for CH4 - St. Lina Site





Wind: St. Lina Poll.: St. Lina-CH4[ppm] Monthly: 03-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.35% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	3.99	0	0	0	0	3.99
NNE	2.85	0	0	0	0	2.85
NE	1.71	0	0	0	0	1.71
ENE	6.41	0	0	0	0	6.41
E	10.26	1.42	0	0	0	11.68
ESE	4.84	1.14	0	0	0	5.98
SE	5.27	0.43	0	0	0	5.7
SSE	1.57	0.85	0	0	0	2.42
S	1.28	0.43	0	0	0	1.71
SSW	12.25	1	0	0	0	13.25
SW	6.7	0.43	0	0	0	7.13
WSW	5.27	0.57	0	0	0	5.84
W	5.56	0.43	0	0	0	5.99
WNW	6.27	0.14	0	0	0	6.41
NW	9.12	0.14	0	0	0	9.26
NNW	9.69	0	0	0	0	9.69
Summary	93.04	6.98	0	0	0	100



LICA-202203

% Icon Classes (ppm)

93 0-2

7 2-5

0 5-10

0 10-20

0 >20.0



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - March 2022

Summary of Hourly Averages

NON-METHANE HYDROCARBONS (NMHC) in ppm

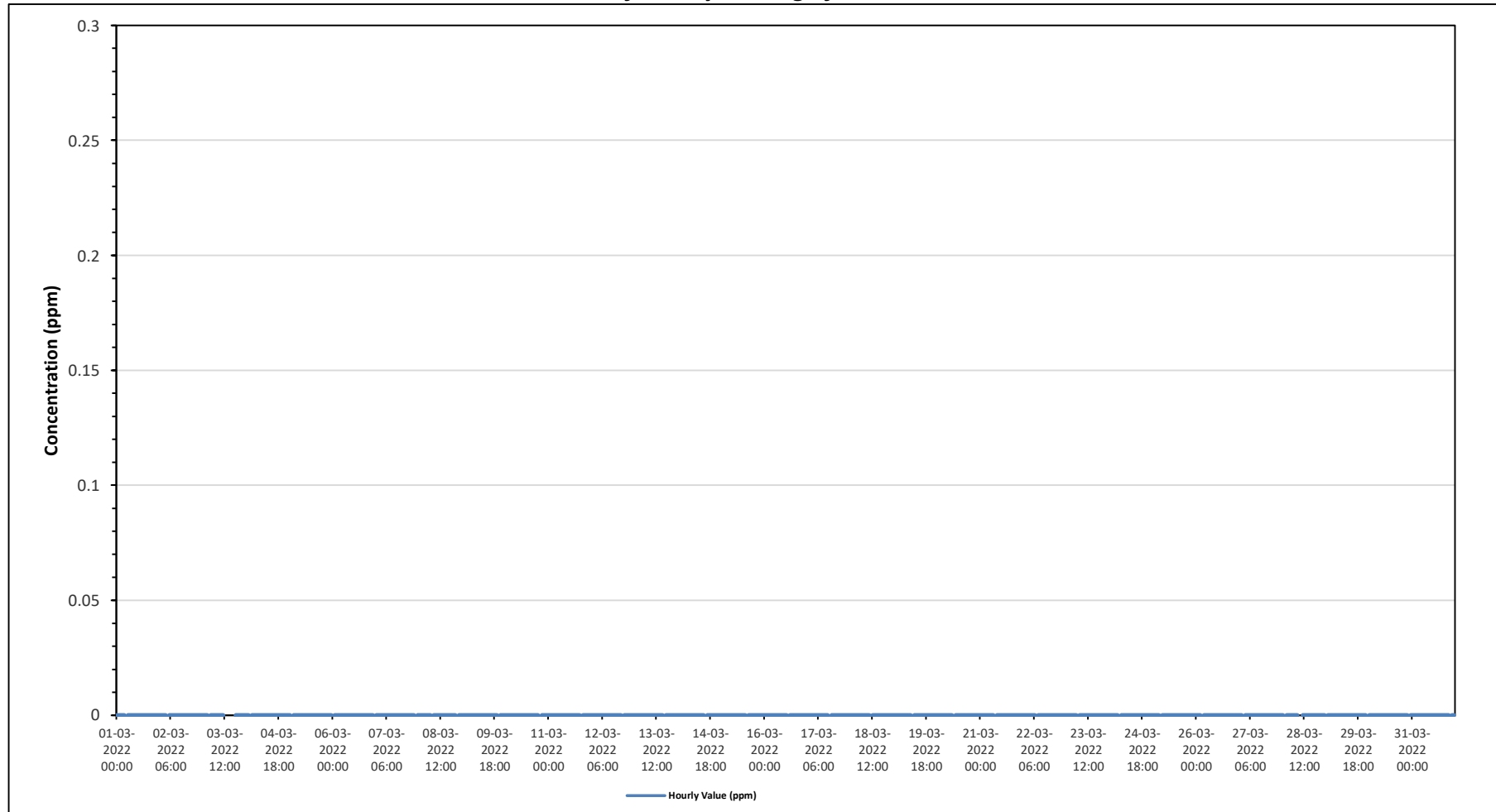
Maximum Hourly Value:	0.00 ppm on March 1 at hour 0	Hours in Service:	744
Maximum Daily Value:	0.00 ppm on March 1	Hours of Data:	702
Minimum Hourly Value:	0.00 ppm on March 1 at hour 0	Hours of Missing Data:	3
Minimum Daily Value:	0.00 ppm on March 1	Hours of Calibration:	39
Monthly Average:	0.00 ppm	Operational Uptime:	99.6

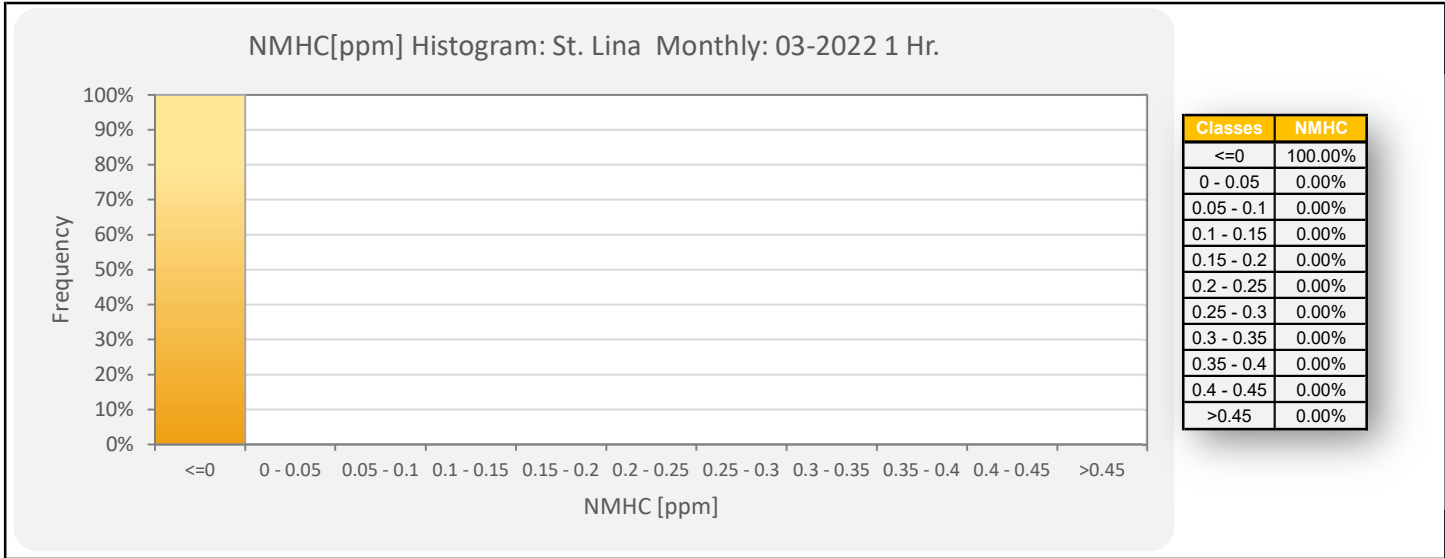
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average						
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23					
Mar 1	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00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

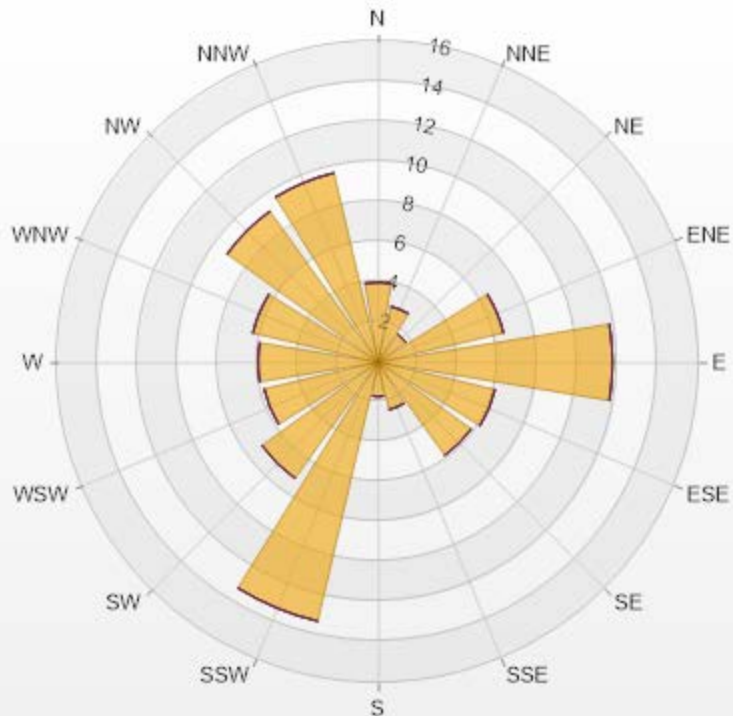
Timeseries Chart of Hourly Average for NMHC - St. Lina Site





Wind: St. Lina Poll.: St. Lina-NMHC[ppm] Monthly: 03-2022 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.35% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	3.99	0	0	0	0	3.99
NNE	2.85	0	0	0	0	2.85
NE	1.71	0	0	0	0	1.71
ENE	6.41	0	0	0	0	6.41
E	11.68	0	0	0	0	11.68
ESE	5.98	0	0	0	0	5.98
SE	5.7	0	0	0	0	5.7
SSE	2.42	0	0	0	0	2.42
S	1.71	0	0	0	0	1.71
SSW	13.25	0	0	0	0	13.25
SW	7.12	0	0	0	0	7.12
WSW	5.84	0	0	0	0	5.84
W	5.98	0	0	0	0	5.98
WNW	6.41	0	0	0	0	6.41
NW	9.26	0	0	0	0	9.26
NNW	9.69	0	0	0	0	9.69
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



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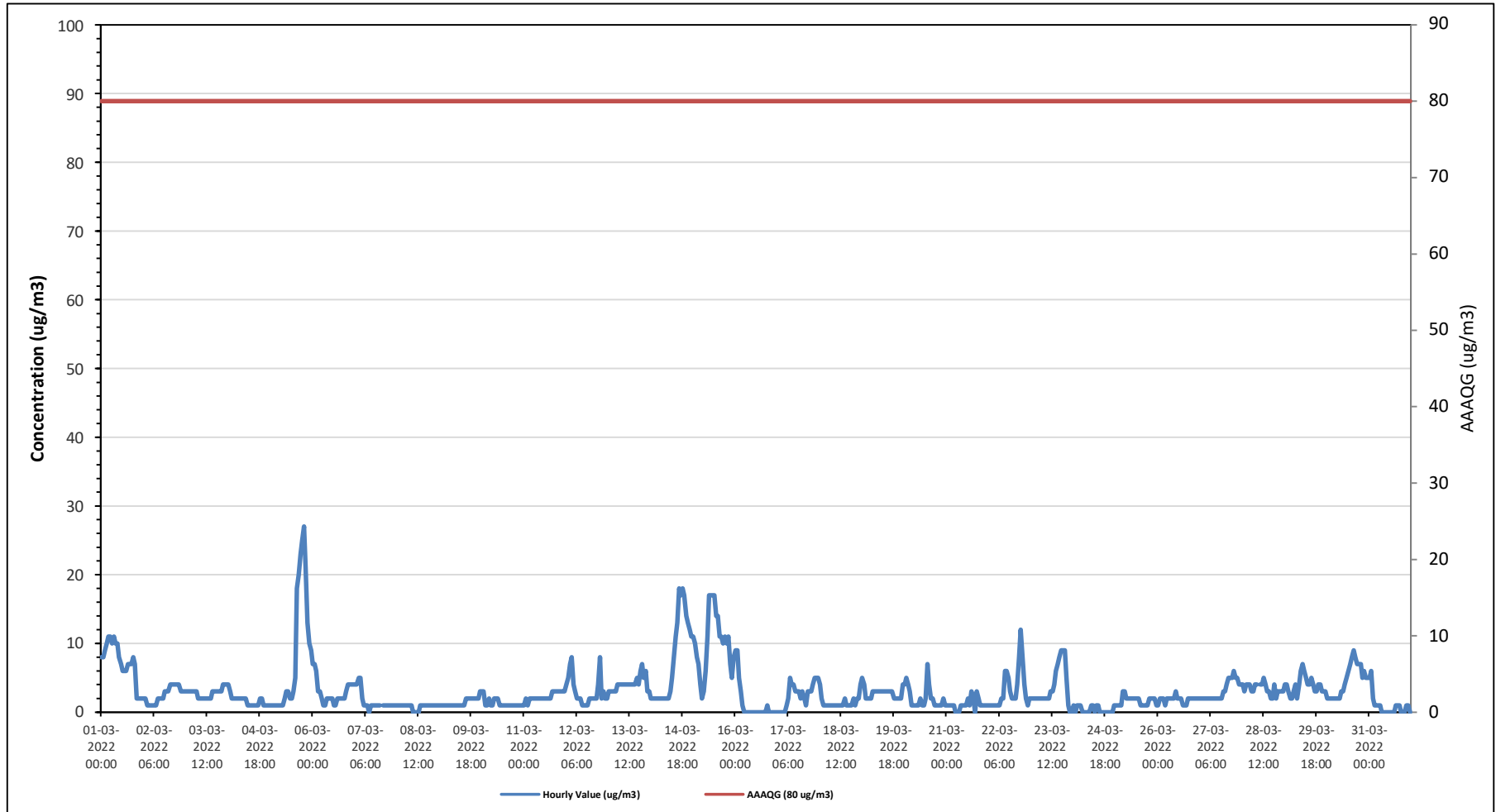
**St. Lina Site - March 2022
Summary of Hourly Averages**

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

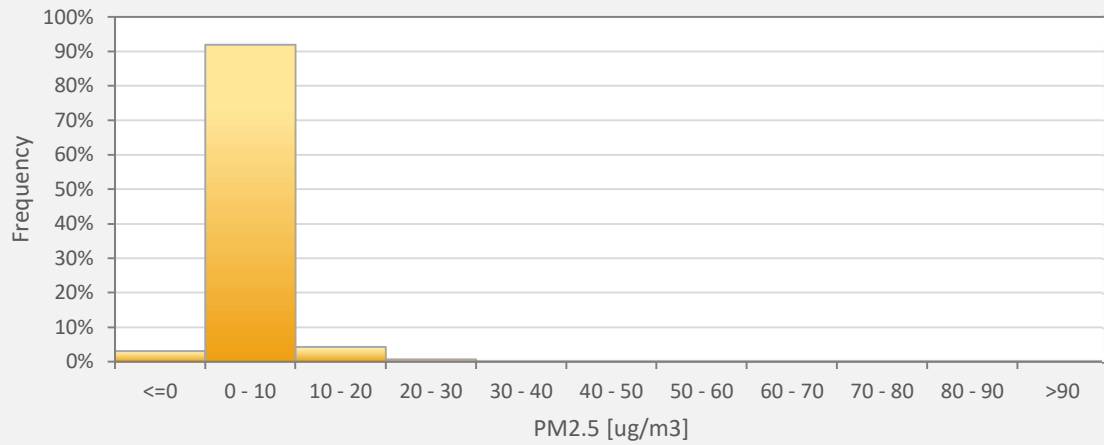
Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m ³ , Alberta Ambient Air Quality Objective (AAAQO): 24-Hour 29 µg/m ³																												
Number of 1-Hour Exceedances: 0												Number of 24-Hour Exceedances: 0																
Maximum Hourly Value: 27 µg/m ³ on March 5 at hour 19												Hours in Service: 744																
Maximum Daily Value: 10.1 µg/m ³ on March 15												Hours of Data: 742																
Minimum Hourly Value: 0 µg/m ³ on March 7 at hour 8												Hours of Missing Data: 1																
Minimum Daily Value: 0 µg/m ³ on March 24												Hours of Calibration: 1																
Monthly Average: 3.1 µg/m ³												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	
Mar 1	8	8	9	10	11	11	10	11	10	10	8	7	6	6	6	7	7	7	8	7	2	2	2	2	2	2	11	7.3
Mar 2	2	2	1	1	1	1	1	1	2	2	2	2	3	3	3	4	4	4	4	4	4	3	3	3	3	1	4	2.5
Mar 3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	2	4	2.8
Mar 4	4	3	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	4	1.7
Mar 5	1	1	1	1	1	1	1	1	2	3	3	2	2	3	5	18	20	23	25	27	21	13	10	9	1	27	8.1	
Mar 6	7	7	6	3	3	2	1	1	2	2	2	2	1	1	2	2	2	2	2	3	4	4	4	4	1	7	2.9	
Mar 7	4	4	5	5	2	1	1	1	0	1	1	1	1	1	1	C	1	1	1	1	1	1	1	1	0	5	1.6	
Mar 8	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0.8
Mar 9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	1	3	1.4	
Mar 10	3	3	1	1	2	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.3
Mar 11	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	1	3	2.3	
Mar 12	4	5	7	8	4	3	2	2	2	1	1	1	2	2	2	2	2	4	8	2	3	2	2	2	1	8	3.0	
Mar 13	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	5	4	6	7	5	6	3	3	3	3	7	4.1	
Mar 14	2	2	2	2	2	2	2	2	2	2	2	3	5	8	11	13	18	17	18	17	14	13	12	11	2	18	7.6	
Mar 15	11	10	8	7	4	2	3	6	11	17	17	17	14	14	11	11	10	11	10	11	7	5	8	2	17	10.1		
Mar 16	9	9	5	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	9	1.2	
Mar 17	0	0	0	0	0	1	2	5	4	4	3	3	3	2	3	2	1	3	3	3	4	5	5	5	0	5	2.5	
Mar 18	4	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	2	2	4	1	4	1.5	
Mar 19	5	4	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	4	2	5	2.8	
Mar 20	4	5	4	3	1	1	1	1	1	2	1	1	2	7	4	2	2	1	1	1	1	1	2	1	1	7	2.1	
Mar 21	1	1	1	1	1	0	0	0	1	1	1	1	2	1	3	2	0	3	2	1	1	1	1	1	0	3	1.1	
Mar 22	1	1	1	1	1	1	1	2	2	6	6	5	3	2	2	4	8	12	8	4	2	1	2	1	1	12	3.3	
Mar 23	2	2	2	2	2	2	2	2	2	2	2	3	3	4	6	7	8	9	9	9	5	1	0	0	0	9	3.6	
Mar 24	1	0	1	1	1	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0.4	
Mar 25	1	1	1	1	3	3	2	2	2	2	2	2	2	1	1	1	1	1	2	2	2	2	1	1	1	3	1.7	
Mar 26	1	2	2	2	1	2	2	2	2	2	3	2	2	2	1	1	1	2	2	2	2	2	2	2	1	3	1.8	
Mar 27	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4	5	5	5	6	5	5	4	4	2	6	3.1	
Mar 28	4	3	4	4	4	3	3	4	4	P	4	4	5	4	3	3	2	2	4	2	3	3	3	3	2	5	3.4	
Mar 29	4	4	3	2	2	3	4	2	4	6	7	6	5	4	4	5	4	3	3	4	4	3	3	3	2	7	3.8	
Mar 30	2	2	2	2	2	2	2	2	3	3	4	5	6	7	8	9	8	7	7	7	5	6	5	5	2	9	4.6	
Mar 31	5	6	2	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	1	0	0	6	0.9	
Diurnal Maximum	11	10	9	10	11	11	10	11	11	17	17	17	14	14	18	20	23	25	27	21	13	12	11					
Diurnal Average	3.3	3.2	2.7	2.5	2.2	2.0	2.0	2.2	2.5	2.8	2.8	2.7	2.8	3.0	3.2	3.8	3.9	4.2	4.6	4.7	3.7	3.2	2.8	3.0				
C Monthly Calibration																												
K Collection Error																												
X InValid Data (Equipment Malfunction/Recovery)																												
S Daily Zero-Span Check																												
N No Data (Machine Not in Service)																												
NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																												
Q Quality Assurance																												
Y Routine Maintenance																												
P Power Failure																												

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

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



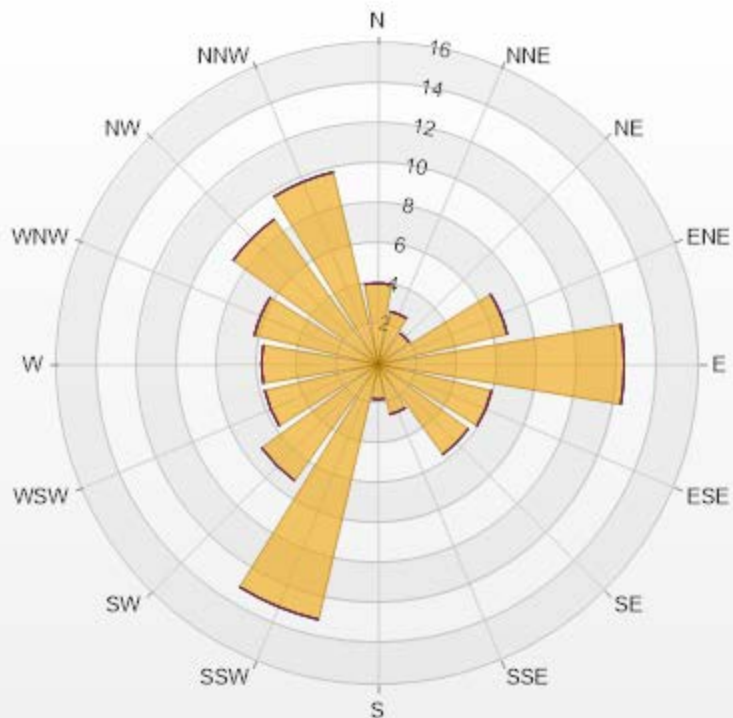
PM2.5[ug/m3(L)] Histogram: St. Lina Monthly: 03-2022 1 Hr.



Classes	PM2.5
<=0	3.10%
0 - 10	91.91%
10 - 20	4.31%
20 - 30	0.67%
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: 03-2022 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	4.04	0	0	0	0	4.04
NNE	2.7	0	0	0	0	2.7
NE	1.89	0	0	0	0	1.89
ENE	6.6	0	0	0	0	6.6
E	12.26	0	0	0	0	12.26
ESE	5.8	0	0	0	0	5.8
SE	5.53	0	0	0	0	5.53
SSE	2.56	0	0	0	0	2.56
S	1.75	0	0	0	0	1.75
SSW	13.07	0	0	0	0	13.07
SW	7.14	0	0	0	0	7.14
WSW	5.8	0	0	0	0	5.8
W	5.8	0	0	0	0	5.8
WNW	6.33	0	0	0	0	6.33
NW	8.89	0	0	0	0	8.89
NNW	9.84	0	0	0	0	9.84
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

St. Lina Site - March 2022

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

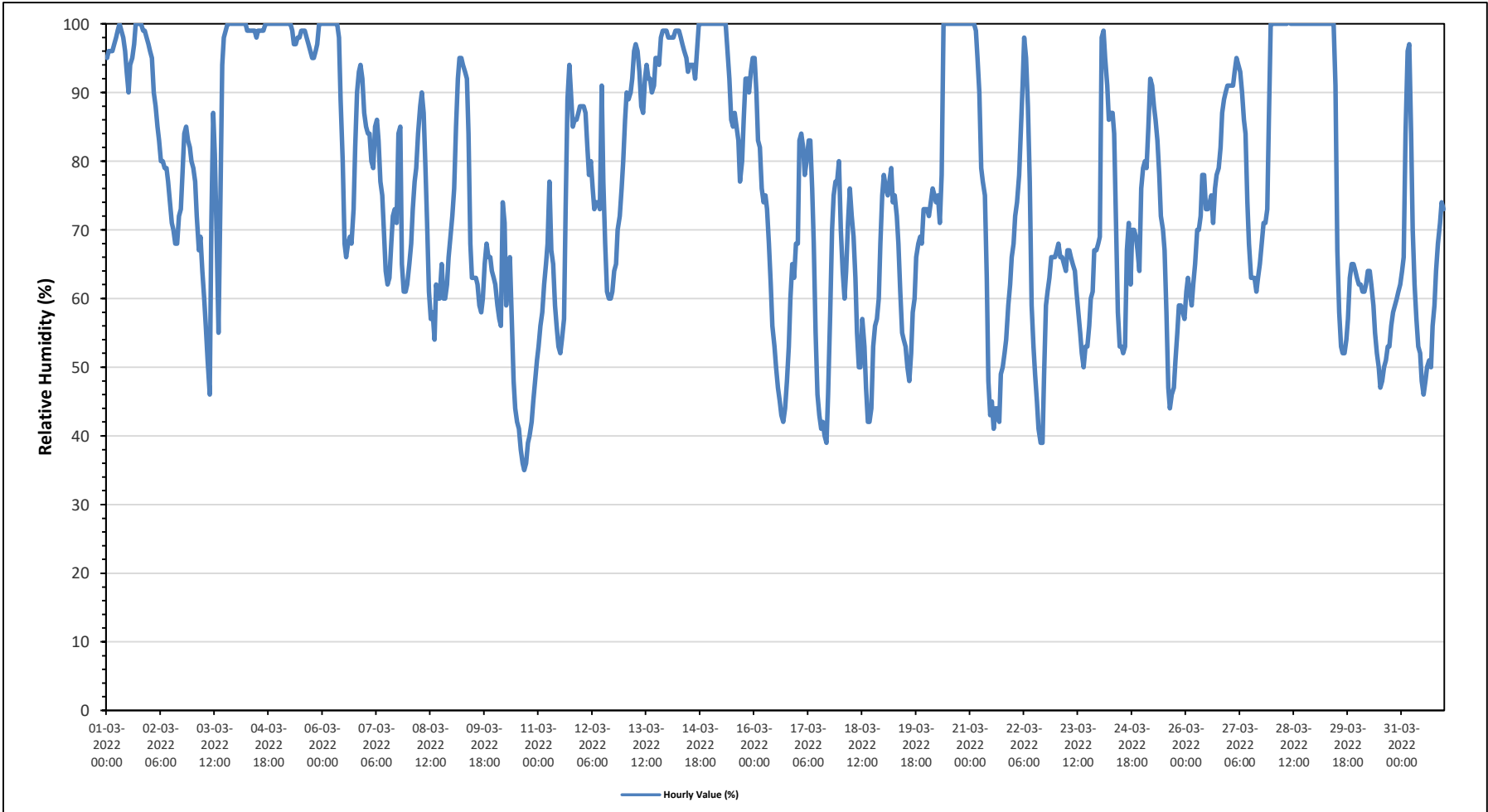
Maximum Hourly Value:	100 %	on March 1 at hour 7	Hours in Service:	744
Maximum Daily Value:	#### %	on March 28	Hours of Data:	743
Minimum Hourly Value:	35 %	on March 10 at hour 16	Hours of Missing Data:	1
Minimum Daily Value:	50.4 %	on March 10	Hours of Calibration:	0
Monthly Average:	76.3 %		Operational 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	
Mar 1	95	96	96	96	97	98	99	100	99	98	96	93	90	94	95	97	100	100	100	100	99	99	98	97	90	100	97.2	
Mar 2	96	95	90	88	85	83	80	80	79	79	77	74	71	70	68	68	72	73	78	84	85	83	82	80	68	96	80.0	
Mar 3	79	77	72	67	69	64	60	56	51	46	71	87	81	69	55	74	94	98	99	100	100	100	100	100	46	100	77.9	
Mar 4	100	100	100	100	100	100	99	99	99	99	99	98	99	99	99	99	100	100	100	100	100	100	100	100	98	100	99.5	
Mar 5	100	100	100	100	100	100	100	100	99	97	98	98	99	99	99	98	97	96	95	95	96	97	100	100	95	100	98.3	
Mar 6	100	100	100	100	100	100	100	100	100	98	89	80	68	66	68	69	68	73	82	90	93	94	92	87	66	100	88.2	
Mar 7	85	84	84	80	79	85	86	83	77	75	70	64	62	63	68	72	73	71	84	85	65	61	61	62	61	86	74.1	
Mar 8	65	68	73	77	79	84	88	90	87	80	71	61	57	58	54	62	60	60	65	60	60	62	66	69	54	90	69.0	
Mar 9	72	76	85	92	95	95	94	93	92	84	68	63	63	63	62	59	58	60	65	68	66	66	64	63	58	95	73.6	
Mar 10	62	59	57	56	74	71	59	63	66	57	48	44	42	41	38	36	35	36	39	40	42	45	48	51	35	74	50.4	
Mar 11	53	56	58	62	65	68	77	67	65	59	56	53	52	54	57	73	89	94	90	85	86	86	87	88	52	94	70.0	
Mar 12	88	88	87	82	78	80	76	73	74	74	73	91	77	68	61	60	60	61	64	65	70	72	76	80	60	91	74.1	
Mar 13	86	90	89	90	92	96	97	96	93	88	87	92	94	92	92	90	91	95	95	94	98	99	99	99	86	99	93.1	
Mar 14	98	98	98	98	99	99	99	98	97	96	95	93	94	94	94	92	96	100	100	100	100	100	100	100	92	100	97.4	
Mar 15	100	100	100	100	100	100	100	100	100	96	92	86	85	87	85	83	77	80	86	92	92	90	93	95	77	100	92.5	
Mar 16	95	90	83	82	76	74	75	73	68	62	56	53	50	47	45	43	42	44	48	53	60	65	63	68	42	95	63.1	
Mar 17	68	83	84	82	78	80	83	83	76	68	55	46	43	41	42	40	39	46	58	70	75	77	77	80	39	84	65.6	
Mar 18	70	64	60	64	71	76	72	69	63	55	50	50	57	53	47	42	42	44	53	56	57	60	68	75	42	76	59.1	
Mar 19	78	76	75	77	79	74	75	72	68	61	55	54	53	50	48	52	58	60	66	68	69	68	73	73	48	79	65.9	
Mar 20	73	72	74	76	75	74	75	71	78	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	71	100	90.3	
Mar 21	100	100	100	99	95	90	79	77	75	63	48	43	45	41	44	44	42	49	50	52	54	59	62	66	41	100	65.7	
Mar 22	68	72	74	78	84	91	98	95	88	77	59	53	49	45	41	39	39	49	59	61	63	66	66	66	39	98	65.8	
Mar 23	67	68	66	66	65	64	67	67	66	65	64	61	58	55	52	50	53	53	56	60	61	67	67	68	50	68	61.9	
Mar 24	69	98	99	95	91	86	87	87	84	71	58	53	53	52	53	67	71	62	70	69	67	64	76	52	99	73.0		
Mar 25	79	80	79	85	92	91	88	86	83	78	72	70	67	58	47	44	46	47	51	55	59	59	58	57	44	92	68.0	
Mar 26	61	63	61	59	62	65	70	70	72	78	78	73	73	74	75	71	76	78	79	82	87	89	90	91	59	91	74.0	
Mar 27	91	91	91	93	95	94	93	90	86	84	74	68	63	63	63	61	63	65	68	71	71	73	86	100	61	100	79.0	
Mar 28	100	100	100	100	100	100	100	100	100	100	P	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100.0
Mar 29	100	100	100	100	100	100	100	100	100	100	100	91	67	58	53	52	52	54	57	63	65	65	64	63	52	100	79.3	
Mar 30	62	62	61	61	62	64	64	62	59	55	52	50	47	48	50	51	53	53	56	58	59	60	61	62	47	64	57.2	
Mar 31	64	66	84	96	97	84	70	62	57	53	52	48	46	48	50	51	50	56	59	64	68	71	74	73	46	97	64.3	
Diurnal Maximum	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Diurnal Average	81.4	83.0	83.2	83.9	85.0	84.8	84.2	82.6	80.6	76.5	73.0	70.6	67.9	66.1	64.7	65.8	67.6	69.6	73.3	75.5	76.4	77.4	78.7	80.3				

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 RH - St. Lina Site





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - March 2022

Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

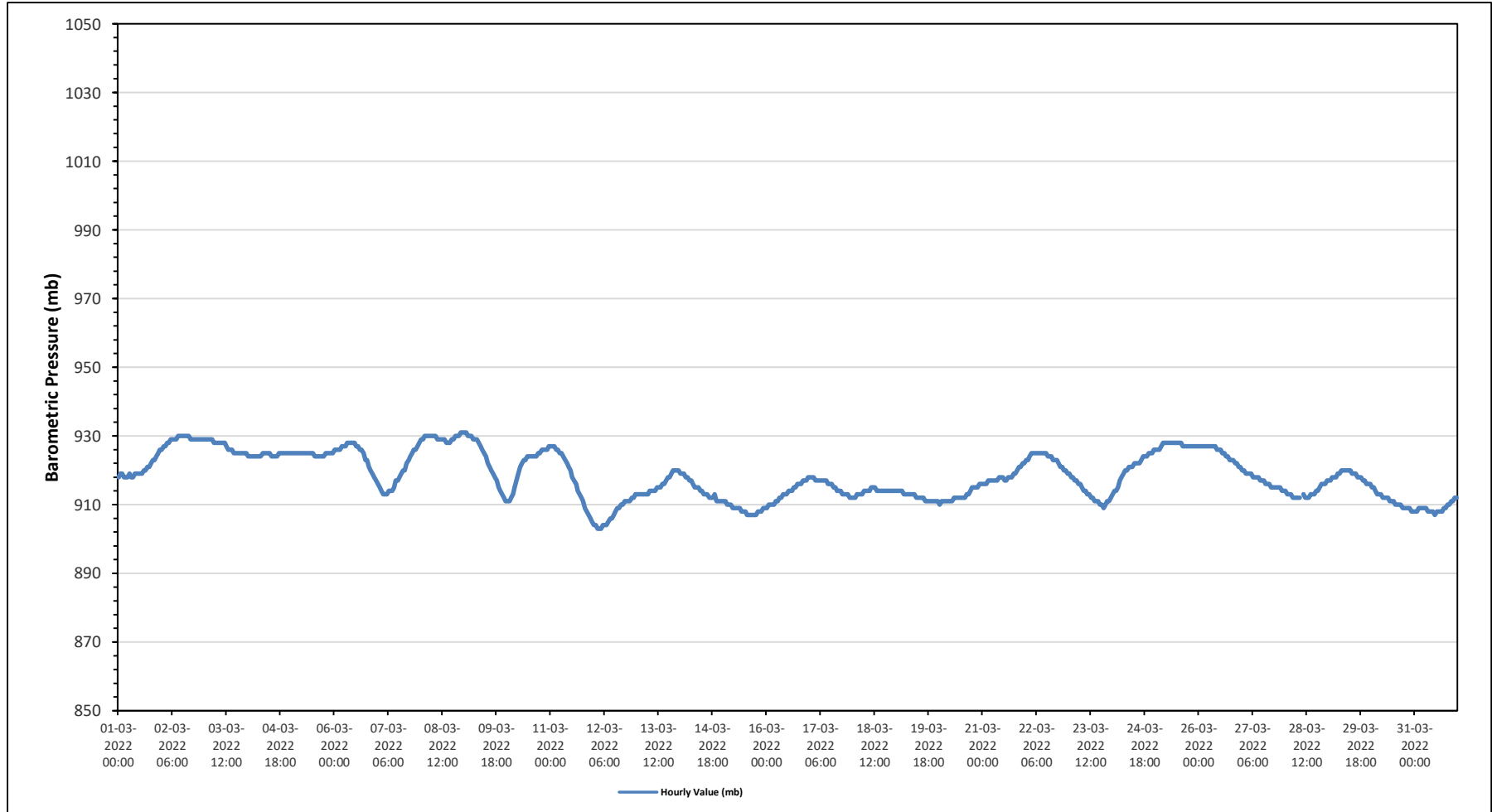
Maximum Hourly Value:	931	mb	on March 8 at hour 22	Hours in Service:	744
Maximum Daily Value:	929	mb	on March 8	Hours of Data:	743
Minimum Hourly Value:	903	mb	on March 12 at hour 2	Hours of Missing Data:	1
Minimum Daily Value:	908	mb	on March 12	Hours of Calibration:	0
Monthly Average:	918	mb		Operational 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	
Mar 1	918	919	919	918	918	918	919	918	918	919	919	919	919	920	920	921	921	922	923	923	924	925	926	918	926	920		
Mar 2	926	927	927	928	928	929	929	929	929	930	930	930	930	930	930	929	929	929	929	929	929	929	929	926	930	929		
Mar 3	929	929	929	929	929	928	928	928	928	928	928	928	927	926	926	926	925	925	925	925	925	925	925	925	929	927	927	
Mar 4	924	924	924	924	924	924	924	924	924	925	925	925	925	924	924	924	924	925	925	925	925	925	924	925	925	925	925	
Mar 5	925	925	925	925	925	925	925	925	925	925	925	925	925	924	924	924	924	924	925	925	925	925	924	925	925	925	925	
Mar 6	926	926	926	926	927	927	927	928	928	928	928	927	927	926	926	925	923	923	921	920	919	918	917	917	928	925	925	
Mar 7	916	915	914	913	913	913	914	914	914	915	917	917	918	919	920	920	922	923	924	925	926	926	927	928	913	928	919	
Mar 8	929	929	930	930	930	930	930	930	930	929	929	929	929	928	928	928	929	929	930	930	930	931	931	928	931	929	929	
Mar 9	931	931	930	930	930	929	929	929	930	927	926	925	924	922	921	920	919	918	917	915	914	913	912	911	911	931	923	923
Mar 10	911	911	912	913	915	917	919	921	922	923	923	924	924	924	924	924	924	925	925	926	926	926	926	927	911	927	921	
Mar 11	927	927	927	926	926	925	925	924	923	922	921	920	918	917	916	914	913	912	911	909	908	907	906	905	905	927	918	
Mar 12	904	904	903	903	903	904	904	904	904	905	906	906	907	908	909	910	910	911	911	911	912	912	913	903	913	908	908	
Mar 13	913	913	913	913	913	913	913	914	914	914	914	915	915	915	916	916	917	918	918	919	920	920	920	920	913	920	916	
Mar 14	919	919	919	918	918	917	917	916	915	915	915	914	914	913	913	912	912	912	913	911	911	911	911	911	911	919	915	
Mar 15	911	911	910	910	910	909	909	909	909	909	908	908	908	907	907	907	907	907	908	908	908	909	909	909	907	911	909	
Mar 16	909	910	910	910	910	911	911	912	912	913	913	913	914	914	914	915	915	916	916	916	917	917	917	918	909	918	913	
Mar 17	918	918	918	917	917	917	917	917	917	917	916	916	916	915	915	914	914	914	913	913	913	912	912	912	912	918	915	
Mar 18	912	912	913	913	913	913	914	914	914	914	915	915	915	914	914	914	914	914	914	914	914	914	914	914	912	915	914	
Mar 19	914	914	914	914	913	913	913	913	913	913	913	912	912	912	912	912	911	911	911	911	911	911	911	911	911	914	912	
Mar 20	910	911	911	911	911	911	911	911	912	912	912	912	912	912	912	913	913	914	915	915	915	915	916	916	910	916	913	
Mar 21	916	916	916	917	917	917	917	917	917	918	918	918	917	917	918	918	918	919	919	920	921	921	922	922	916	922	918	
Mar 22	923	923	924	925	925	925	925	925	925	925	925	925	924	924	924	923	923	923	922	921	921	920	919	919	925	923	923	
Mar 23	919	918	918	917	917	916	916	915	914	914	913	913	912	912	911	911	911	910	910	909	910	911	911	912	909	919	913	
Mar 24	913	914	914	915	917	918	919	920	920	921	921	921	922	922	922	922	923	924	924	925	925	925	926	913	926	921		
Mar 25	926	926	926	927	928	928	928	928	928	928	928	928	928	928	927	927	927	927	927	927	927	927	927	926	928	927	927	
Mar 26	927	927	927	927	927	927	927	927	927	927	926	926	926	925	925	924	924	923	923	923	922	922	921	921	921	927	925	
Mar 27	920	920	919	919	919	919	918	918	918	918	917	917	917	916	916	915	915	915	915	915	915	914	914	914	914	920	917	
Mar 28	914	913	913	913	912	912	912	912	912	P	913	912	912	912	912	913	913	914	914	915	916	916	917	912	917	913	913	
Mar 29	917	917	918	918	918	919	919	920	920	920	920	920	919	919	919	918	918	918	917	917	916	916	916	916	916	920	918	
Mar 30	915	915	914	913	913	913	912	912	912	912	911	911	911	910	910	910	909	909	909	909	909	908	908	908	908	915	911	
Mar 31	908	908	909	909	909	909	909	908	908	908	907	908	908	908	908	908	909	909	910	910	911	912	912	907	912	909	909	
Diurnal Maximum	931	931	930	930	930	930	930	930	930	930	930	930	930	930	930	930	929	929	929	930	930	930	931	931	918	926	920	
Diurnal Average	918	918	918	918	919	919	919	919	919	919	919	919	919	918	918	918	918	918	918	918	918	918	918	918	918	918	926	920

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

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

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





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - March 2022
Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

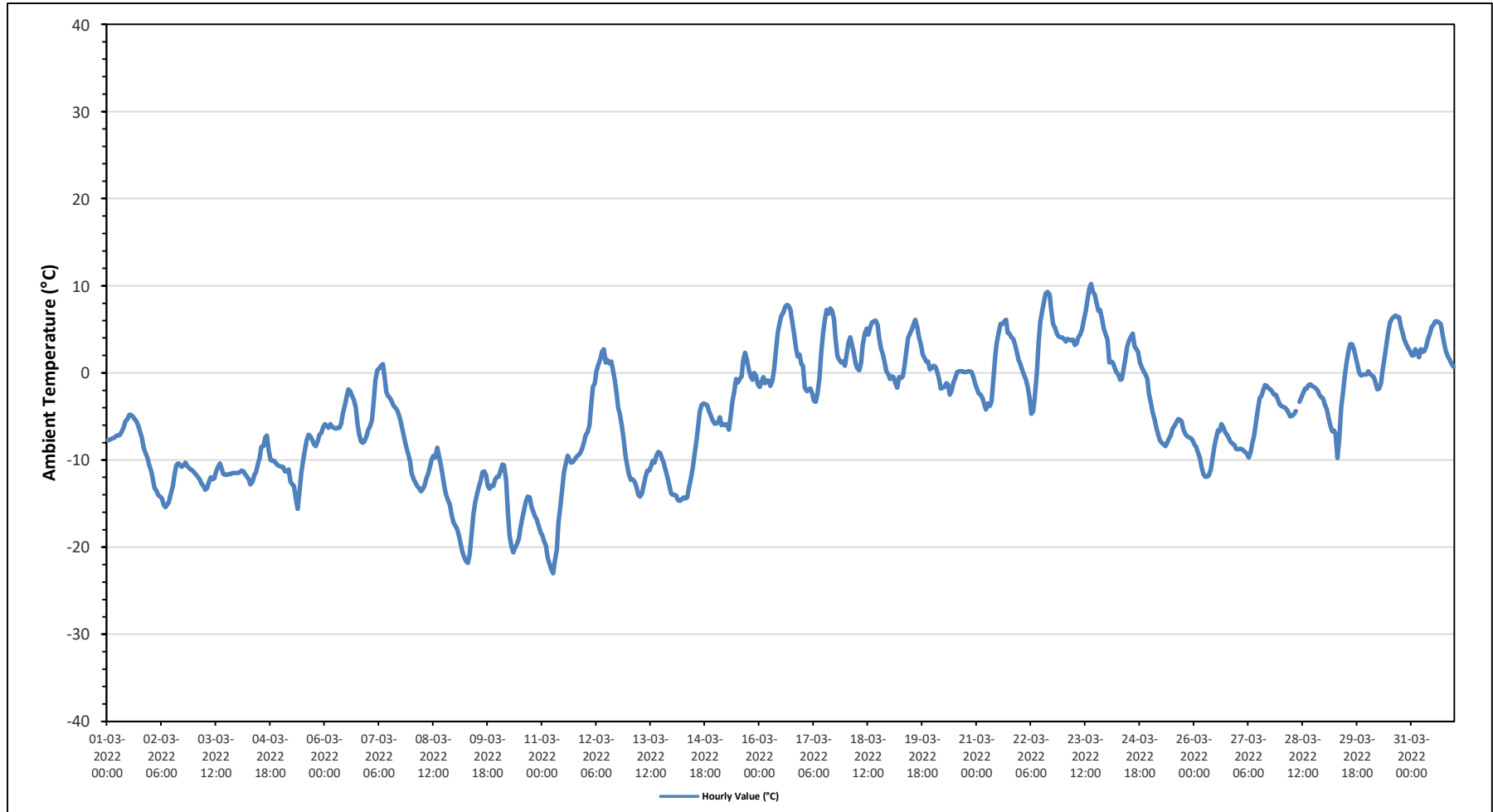
Maximum Hourly Value:	10.2 °C	on March 23 at hour 15	Hours in Service:	744
Maximum Daily Value:	5.9 °C	on March 23	Hours of Data:	743
Minimum Hourly Value:	-23.0 °C	on March 11 at hour 6	Hours of Missing Data:	1
Minimum Daily Value:	-16.0 °C	on March 10	Hours of Calibration:	0
Monthly Average:	-4.7 °C		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
Mar 1	-7.7	-7.7	-7.6	-7.5	-7.4	-7.2	-7.2	-7.1	-6.7	-6.2	-5.5	-5.3	-4.8	-4.8	-5	-5.3	-5.6	-6.1	-6.8	-7.4	-8.6	-9.2	-9.7	-10.6	-10.6	-4.8	-7.0
Mar 2	-11.2	-12.1	-13.2	-13.5	-14	-14.2	-14.4	-15.1	-15.4	-15.1	-14.8	-13.8	-13	-11.7	-10.6	-10.4	-10.5	-10.8	-10.6	-10.3	-10.7	-10.9	-11.1	-11.2	-15.4	-10.3	-12.4
Mar 3	-11.5	-11.7	-12	-12.3	-12.7	-13	-13.4	-13.2	-12.5	-12	-12.2	-12.1	-11.3	-10.8	-10.4	-11	-11.6	-11.7	-11.7	-11.6	-11.6	-11.5	-11.5	-11.5	-13.4	-10.4	-11.9
Mar 4	-11.5	-11.4	-11.2	-11.3	-11.6	-11.9	-12.2	-12.8	-12.5	-11.7	-11.4	-10.5	-9.7	-8.5	-8.4	-7.4	-7.2	-8.9	-10	-10.1	-10.1	-10.4	-10.6	-10.7	-12.8	-7.2	-10.5
Mar 5	-10.8	-10.8	-11.3	-11.3	-11.1	-12.5	-12.8	-13	-14.4	-15.6	-13.6	-11.4	-10	-8.9	-7.7	-7.1	-7.3	-7.7	-8.2	-8.4	-7.9	-7.1	-6.9	-6.2	-15.6	-6.2	-10.1
Mar 6	-5.9	-6.1	-6.3	-5.9	-6.2	-6.3	-6.4	-6.3	-6.3	-5.8	-4.7	-3.7	-2.7	-1.9	-2.1	-2.7	-3	-4	-6	-7.1	-7.9	-8	-7.8	-7.3	-8.0	-1.9	-5.4
Mar 7	-6.5	-6.1	-5.4	-3.4	-0.8	0.3	0.5	0.8	1	-0.4	-2.2	-2.7	-2.9	-3.3	-3.8	-4	-4.3	-4.9	-5.7	-6.7	-7.7	-8.5	-9.3	-10.1	-10.1	1.0	-4.0
Mar 8	-11.5	-12.2	-12.6	-13	-13.2	-13.6	-13.4	-12.9	-12.1	-11.6	-10.8	-9.9	-9.5	-9.7	-8.6	-9.5	-10.5	-11.8	-13	-14	-14.7	-15.1	-16.3	-17.2	-17.2	-8.6	-12.4
Mar 9	-17.5	-17.9	-18.6	-19.6	-20.6	-21.2	-21.6	-21.8	-20.8	-18.5	-16.2	-14.8	-14	-13.1	-12.4	-11.4	-11.3	-11.8	-13	-13.3	-12.9	-13	-12.2	-11.9	-21.8	-11.3	-15.8
Mar 10	-11.9	-11.2	-10.5	-10.6	-12.3	-16.1	-18.7	-19.9	-20.6	-20.1	-19.6	-19	-17.8	-16.7	-15.7	-14.8	-14.2	-14.3	-15.3	-15.9	-16.5	-16.8	-17.5	-18.3	-20.6	-10.5	-16.0
Mar 11	-18.6	-19.3	-19.8	-21.1	-21.9	-22.5	-23	-21.5	-20.3	-17.2	-15.4	-13.4	-11.4	-10.4	-9.5	-9.9	-10.3	-10.2	-9.9	-9.6	-9.4	-9.2	-8.7	-8	-23.0	-8.0	-14.6
Mar 12	-7.2	-6.8	-6	-3.8	-1.6	-1.2	0.2	1	1.6	2.4	2.7	1.2	1.5	1.1	1.3	0.4	-0.8	-2.3	-4	-4.8	-6.3	-7.7	-9.6	-10.8	-8.0	2.7	-2.5
Mar 13	-11.7	-12.3	-12.2	-12.5	-13.1	-14	-14.2	-13.9	-12.9	-11.9	-11.2	-11.2	-10.8	-10.1	-10.3	-9.5	-9.1	-9.2	-9.7	-10.3	-11.1	-11.9	-12.8	-13.8	-14.2	-9.1	-11.7
Mar 14	-14	-14	-14.1	-14.6	-14.7	-14.5	-14.3	-14.4	-14.3	-13.3	-12.1	-10.9	-9.5	-8	-6.2	-4.5	-3.7	-3.5	-3.6	-3.7	-4.4	-4.8	-5.4	-5.8	-14.7	-3.5	-9.5
Mar 15	-5.8	-5.7	-5.1	-6	-5.9	-6	-5.9	-6.5	-4.9	-3.3	-2.2	-0.7	-1.1	-0.7	-0.4	1.5	2.3	1.5	0.4	-0.4	-0.8	0	-0.3	-1.3	-6.5	2.3	-2.4
Mar 16	-1.6	-1	-0.5	-1.2	-0.9	-0.9	-1.5	-0.9	0.6	2.5	4.6	5.7	6.5	6.9	7.6	7.8	7.7	7.2	6	4.6	2.8	1.9	2.1	1	-1.6	7.8	2.8
Mar 17	0.8	-1.7	-2.1	-1.9	-1.8	-2.4	-3.2	-3.3	-2.3	-0.6	2.4	4.6	6	7.2	6.8	7.4	7.1	6.1	3.8	1.9	1.5	1.2	1.3	0.8	-3.3	7.4	1.7
Mar 18	2	3.4	4.1	3.2	2.2	1	0.5	0.3	1.2	3.2	4.5	5.1	4.4	5.2	5.8	5.9	6	5.5	4	2.8	2.1	1.3	0.2	-0.2	-0.2	6.0	3.1
Mar 19	-0.7	-0.4	-0.5	-1.2	-1.7	-0.5	-0.6	-0.4	0.7	2.4	4	4.5	5	5.6	6.1	5.3	4.1	3.3	2.1	1.7	1.3	1.3	0.4	0.5	-1.7	6.1	1.8
Mar 20	0.8	0.7	0.2	-0.6	-1.8	-1.7	-1.6	-1.2	-1.3	-2.5	-2	-1.2	-0.6	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	-0.5	-1.2	-2.5	0.8	-0.5
Mar 21	-1.8	-2.4	-2.5	-2.9	-3.6	-4.2	-3.5	-3.8	-3.3	-0.8	1.9	3.5	4.6	5.6	5.6	5.9	6.1	4.6	4.5	4.1	3.9	3.2	2.3	1.5	-4.2	6.1	1.2
Mar 22	1	0.3	-0.2	-0.8	-1.7	-2.8	-4.7	-4.4	-2.8	0.1	3.7	5.9	7.1	8.2	9.1	9.3	9	7.2	5.6	5.2	4.6	4.2	4.1	4.1	-4.7	9.3	3.0
Mar 23	3.9	3.6	3.9	3.8	3.7	3.8	3.2	3.4	4.1	4.4	5	6.1	7.1	8.5	9.6	10.2	9.3	9	8	7.1	7.2	6.2	5.1	4.5	3.2	10.2	5.9
Mar 24	3.8	1.2	1.3	1.2	0.6	0.1	-0.2	-0.8	-0.7	0.5	1.8	3	3.7	4.2	4.5	3	2.7	2.4	1.2	0.6	0.2	-0.2	-0.7	-2.4	-2.4	4.5	1.3
Mar 25	-3.4	-4.5	-5.3	-6.3	-7.1	-7.7	-8	-8.2	-8.4	-8	-7.5	-7.2	-6.4	-6.1	-5.7	-5.3	-5.4	-5.6	-6.5	-7	-7.3	-7.4	-7.5	-7.7	-8.4	-3.4	-6.6
Mar 26	-8.2	-8.5	-9.1	-9.8	-10.9	-11.6	-11.9	-11.9	-11.8	-11.1	-9.7	-8.5	-7.5	-6.6	-6.7	-5.9	-6.3	-6.8	-7.1	-7.5	-7.9	-8.1	-8.3	-8.7	-11.9	-5.9	-8.8
Mar 27	-8.8	-8.7	-8.7	-8.9	-9.1	-9.3	-9.7	-9.1	-8.1	-7.2	-5.7	-4.2	-2.9	-2.6	-2	-1.4	-1.5	-1.8	-1.9	-2.2	-2.5	-2.5	-3	-3.6	-9.7	-1.4	-5.2
Mar 28	-3.8	-3.9	-4	-4.2	-4.6	-5	-4.9	-4.7	-4.4	P	-3.3	-2.9	-2.3	-1.8	-1.8	-1.4	-1.3	-1.5	-1.6	-1.8	-2	-2.5	-2.8	-2.9	-5.0	-1.3	-3.0
Mar 29	-3.6	-4.2	-5.1	-6	-6.7	-6.6	-7	-9.8	-7.4	-4	-2.2	-0.5	1.1	2.4	3.3	3.3	2.7	1.9	1	0	-0.3	-0.2	-0.2	-0.2	-9.8	3.3	-2.0
Mar 30	0.2	-0.1	-0.3	-0.5	-1.2	-1.9	-1.8	-1.2	0.3	1.9	3.4	4.7	5.8	6.2	6.4	6.6	6.4	6.4	5.3	4.5	3.8	3.3	2.8	2.5	-1.9	6.6	2.6
Mar 31	2	2	2.7	2.4	1.8	2.7	2.4	2.5	3	3.9	4.5	5.3	5.5	5.9	5.9	5.8	5.6	4.4	3.2	2.4	1.9	1.5	1.1	0.7	0.7	5.9	3.3
Diurnal Maximum	3.9	3.6	4.1	3.8	3.7	3.8	3.2	3.4	4.1	4.4	5.0	6.1	7.1	8.5	9.6	10.2	9.3	9.0	8.0	7.1	7.2	6.2	5.1	4.5			
Diurnal Average	-5.8	-6.1	-6.2	-6.5	-6.8	-7.1	-7.4	-7.4	-6.8	-5.9	-4.6	-3.7	-2.9	-2.2	-1.8	-1.6	-1.8	-2.4	-3.2	-3.8	-4.2	-4.5	-4.9	-5.4			

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

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

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





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - March 2022

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

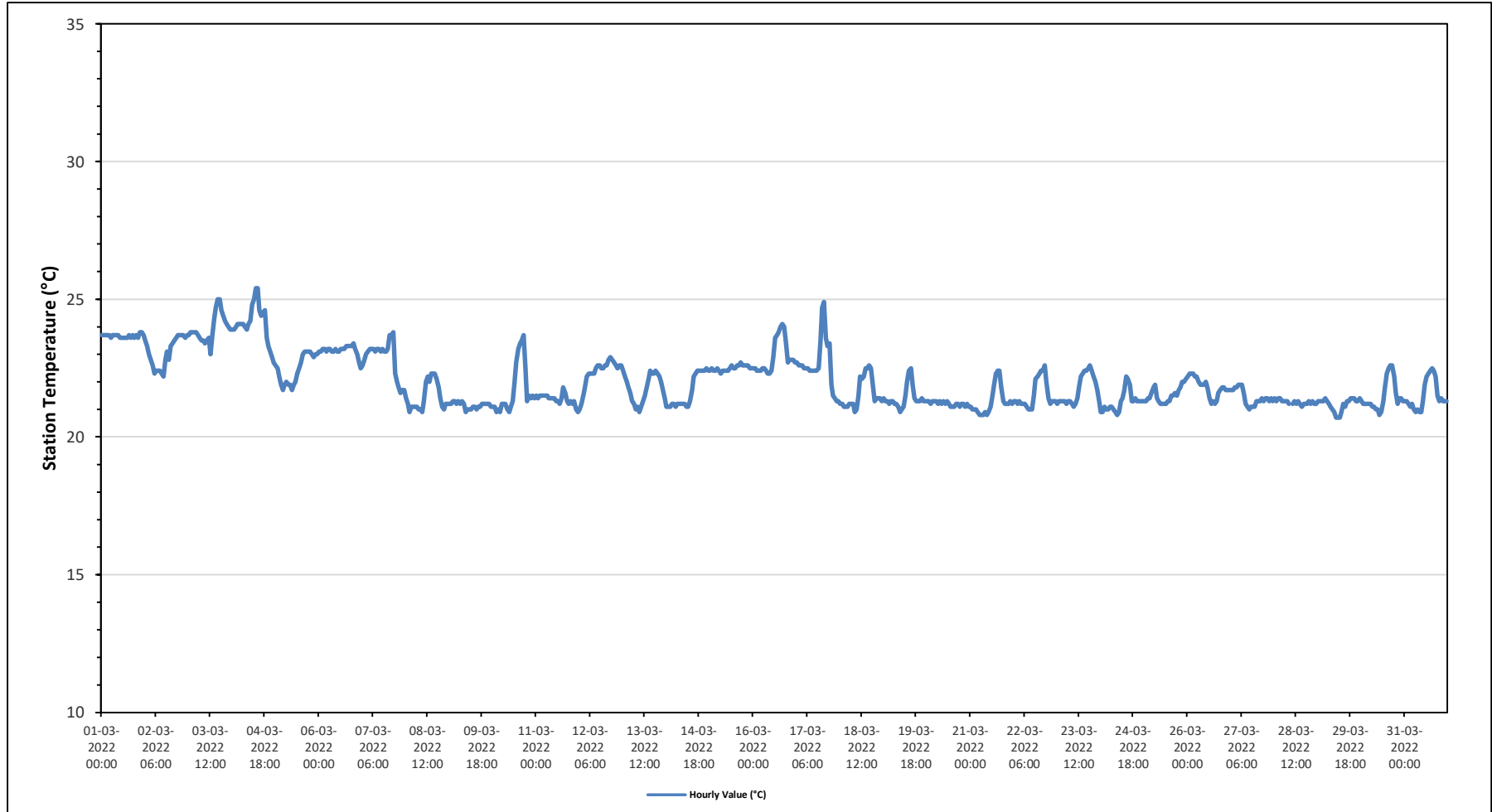
Maximum Hourly Value:	25.4 °C	on March 4 at hour 13	Hours in Service:	744
Maximum Daily Value:	24.1 °C	on March 4	Hours of Data:	743
Minimum Hourly Value:	20.7 °C	on March 29 at hour 10	Hours of Missing Data:	1
Minimum Daily Value:	21.2 °C	on March 9	Hours of Calibration:	0
Monthly Average:	22.0 °C		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		
Mar 1	23.7	23.7	23.7	23.7	23.7	23.6	23.7	23.7	23.7	23.7	23.6	23.6	23.6	23.6	23.6	23.7	23.6	23.7	23.6	23.7	23.6	23.8	23.8	23.7	23.6	23.7	23.6	23.8	23.7
Mar 2	23.5	23.3	23.0	22.8	22.6	22.3	22.4	22.4	22.4	22.3	22.2	22.8	23.1	22.8	23.3	23.4	23.5	23.6	23.7	23.7	23.7	23.7	23.6	23.7	22.2	23.7	23.1	23.1	
Mar 3	23.7	23.8	23.8	23.8	23.8	23.7	23.6	23.5	23.5	23.4	23.5	23.6	23.0	23.7	24.3	24.7	25.0	25.0	24.6	24.4	24.2	24.1	24.0	23.9	23.0	25.0	23.9	23.9	
Mar 4	23.9	23.9	24.0	24.1	24.1	24.1	24.1	24.0	23.9	24.1	24.2	24.8	25.0	25.4	25.4	24.6	24.4	24.5	24.6	23.6	23.3	23.1	22.9	22.7	22.7	25.4	24.1	24.1	
Mar 5	22.6	22.5	22.2	21.9	21.7	21.9	22.0	21.9	21.9	21.7	21.9	22.0	22.3	22.5	22.7	23.0	23.1	23.1	23.1	23.1	23.0	22.9	23.0	23.0	21.7	23.1	22.5	22.5	
Mar 6	23.1	23.1	23.2	23.2	23.1	23.2	23.2	23.1	23.1	23.2	23.1	23.1	23.2	23.2	23.2	23.3	23.3	23.3	23.3	23.3	23.4	23.2	23.0	22.7	22.5	22.5	23.4	23.1	
Mar 7	22.6	22.8	23.0	23.1	23.2	23.2	23.2	23.1	23.2	23.2	23.1	23.2	23.1	23.2	23.7	23.7	23.8	22.3	22.0	21.8	21.6	21.7	21.7	21.6	23.8	22.9	22.9	21.5	
Mar 8	21.4	21.2	20.9	21.1	21.1	21.1	21.1	21.0	20.9	21.3	22.0	22.2	22.0	22.3	22.3	22.1	21.8	21.4	21.1	21.0	21.2	21.2	21.2	20.9	22.3	21.5	21.5	21.5	
Mar 9	21.2	21.2	21.3	21.3	21.2	21.3	21.2	21.3	21.2	21.0	20.9	21.0	21.0	21.1	21.0	21.1	21.0	21.1	21.2	21.2	21.2	21.2	21.2	20.9	21.3	21.3	21.2	21.2	
Mar 10	21.1	21.1	20.9	21.0	20.9	21.2	21.2	21.2	21.0	20.9	21.1	21.3	22.0	22.7	23.2	23.4	23.5	23.7	22.5	21.3	21.5	21.4	21.5	21.4	20.9	23.7	21.7	21.7	
Mar 11	21.5	21.4	21.5	21.5	21.5	21.5	21.5	21.4	21.4	21.4	21.4	21.3	21.2	21.4	21.8	21.6	21.3	21.2	21.3	21.2	21.3	21.0	20.9	20.9	21.8	21.8	21.4	21.4	
Mar 12	21.0	21.2	21.5	21.8	22.2	22.3	22.3	22.3	22.3	22.5	22.6	22.6	22.5	22.5	22.6	22.8	22.9	22.8	22.7	22.6	22.5	22.6	22.6	21.0	22.9	22.3	22.3	22.3	
Mar 13	22.4	22.2	22.0	21.8	21.6	21.3	21.2	21.0	21.1	20.9	21.1	21.3	21.5	21.8	22.1	22.4	22.3	22.3	22.4	22.3	22.2	22.0	21.7	21.4	20.9	22.4	21.8	21.8	
Mar 14	21.1	21.1	21.1	21.2	21.2	21.1	21.2	21.2	21.2	21.2	21.2	21.1	21.1	21.3	21.7	22.2	22.3	22.4	22.4	22.4	22.4	22.4	22.5	22.4	21.1	22.5	21.6	21.6	
Mar 15	22.4	22.5	22.4	22.4	22.5	22.4	22.3	22.4	22.4	22.4	22.4	22.5	22.6	22.5	22.5	22.6	22.7	22.6	22.6	22.6	22.6	22.6	22.5	22.5	22.3	22.7	22.5	22.5	
Mar 16	22.5	22.5	22.4	22.4	22.4	22.5	22.5	22.4	22.3	22.3	22.4	22.9	23.6	23.7	23.8	24.0	24.1	24.0	23.4	22.7	22.8	22.8	22.8	22.7	22.3	24.1	22.9	22.9	
Mar 17	22.7	22.6	22.6	22.6	22.5	22.5	22.5	22.4	22.4	22.4	22.4	22.4	22.5	23.5	24.7	24.9	23.6	23.3	23.4	21.9	21.5	21.4	21.3	21.3	21.3	24.9	22.6	22.6	
Mar 18	21.2	21.2	21.1	21.1	21.1	21.2	21.2	21.2	20.9	21.0	21.5	22.2	22.1	22.2	22.5	22.5	22.6	22.5	21.9	21.3	21.4	21.4	21.4	21.3	20.9	22.6	21.6	21.6	
Mar 19	21.4	21.3	21.3	21.2	21.3	21.3	21.2	21.2	21.1	20.9	21.0	21.1	21.5	22.0	22.4	22.5	21.9	21.4	21.3	21.3	21.3	21.4	21.3	21.3	20.9	22.5	21.4	21.4	
Mar 20	21.3	21.3	21.2	21.3	21.3	21.3	21.2	21.3	21.2	21.3	21.2	21.3	21.2	21.1	21.1	21.1	21.2	21.2	21.1	21.2	21.1	21.2	21.1	21.1	21.1	21.3	21.2	21.2	
Mar 21	21.1	21.0	21.0	21.0	20.9	20.8	20.8	20.8	20.9	20.8	20.9	21.1	21.5	21.9	22.3	22.4	22.4	21.8	21.3	21.2	21.2	21.2	21.3	21.2	20.8	22.4	21.3	21.3	
Mar 22	21.3	21.3	21.2	21.3	21.2	21.2	21.2	21.1	21.0	21.0	21.0	21.5	22.1	22.2	22.3	22.4	22.4	22.6	22.0	21.4	21.2	21.3	21.3	21.3	21.0	22.6	21.5	21.5	
Mar 23	21.2	21.3	21.3	21.3	21.3	21.2	21.3	21.3	21.2	21.1	21.2	21.4	21.8	22.2	22.3	22.4	22.4	22.5	22.6	22.4	22.2	22.0	21.7	21.3	21.1	22.6	21.7	21.7	
Mar 24	20.9	20.9	21.1	21.0	21.0	21.1	21.1	21.0	20.9	20.8	20.9	21.3	21.4	21.7	22.2	22.1	21.9	21.3	21.3	21.4	21.3	21.3	21.3	20.8	22.2	21.3	21.3	21.3	
Mar 25	21.3	21.3	21.4	21.4	21.6	21.8	21.9	21.4	21.3	21.2	21.2	21.2	21.3	21.3	21.5	21.5	21.6	21.5	21.7	21.8	22.0	22.0	22.1	21.2	22.2	22.1	21.5	21.5	
Mar 26	22.2	22.3	22.3	22.3	22.2	22.2	22.0	21.9	21.9	21.9	22.0	21.8	21.4	21.2	21.3	21.2	21.3	21.6	21.7	21.8	21.8	21.7	21.7	21.7	21.2	22.3	21.8	21.8	
Mar 27	21.7	21.7	21.8	21.8	21.9	21.9	21.9	21.6	21.2	21.1	21.0	21.1	21.1	21.1	21.3	21.3	21.3	21.4	21.3	21.4	21.4	21.3	21.4	21.0	21.9	21.4	21.4	21.4	
Mar 28	21.4	21.3	21.4	21.4	21.3	21.3	21.3	21.3	21.2	P	21.2	21.3	21.2	21.3	21.2	21.1	21.2	21.2	21.2	21.3	21.2	21.3	21.2	21.2	21.1	21.4	21.3	21.3	
Mar 29	21.3	21.3	21.3	21.3	21.4	21.3	21.2	21.1	21.0	20.9	20.7	20.7	20.7	20.9	21.2	21.1	21.3	21.3	21.4	21.4	21.4	21.3	21.3	21.4	20.7	21.4	21.2	21.2	
Mar 30	21.3	21.2	21.2	21.2	21.2	21.2	21.1	21.1	21.0	21.0	20.8	20.9	21.3	21.8	22.3	22.5	22.6	22.6	22.2	21.6	21.2	21.4	21.4	21.3	20.8	22.6	21.5	21.5	
Mar 31	21.3	21.3	21.2	21.1	21.2	21.0	20.9	21.0	20.9	20.9	21.3	21.9	22.2	22.3	22.4	22.5	22.6	22.2	21.5	21.3	21.4	21.3	21.3	20.9	22.5	21.5	21.5	21.5	
Diurnal Maximum	23.9	23.9	24.0	24.1	24.1	24.1	24.1	24.0	23.9	24.1	24.2	24.8	25.0	25.4	25.4	24.9	25.0	25.0	24.6	24.4	24.2	24.1	24.0	23.9					
Diurnal Average	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.8	21.7	21.7	21.8	21.9	22.1	22.3	22.5	22.6	22.6	22.5	22.3	22.1	22.0	21.9	21.9					

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 ST - St. Lina Site





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - March 2022
Summary of Hourly Averages

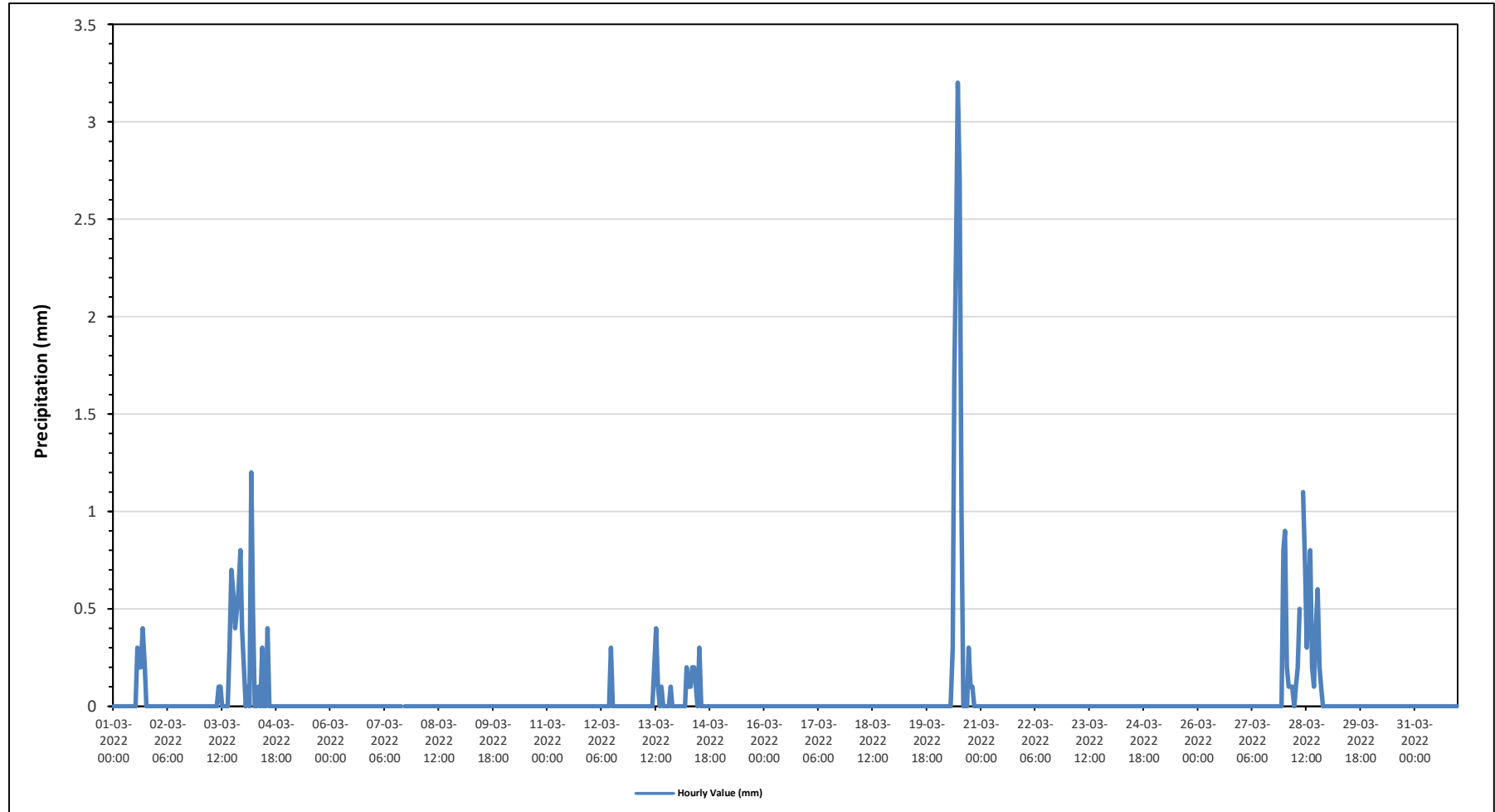
PRECIPITATION in mm

Maximum Hourly Value:	3.2 mm on March 20 at hour 11	Hours in Service:	744
Maximum Daily Value:	11.8 mm on March 20	Hours of Data:	742
Minimum Hourly Value:	0.0 mm on March 1 at hour 0	Hours of Missing Data:	1
Minimum Daily Value:	0.0 mm on March 2	Hours of Calibration:	1
Monthly Total:	30.9 mm	Operational Uptime:	99.9

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																
Mar 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.2	0.2	0.4	0.2	0	0	0	0	0	0	0	0.0	0.4	1.3															
Mar 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															
Mar 3	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0	0	0	0	0.3	0.7	0.6	0.4	0.5	0.6	0.8	0.4	0.0	0.8	4.5																
Mar 4	0.2	0	0.1	0	1.2	0.5	0	0	0.1	0	0.3	0	0	0.4	0	0	0	0	0	0	0	0	0	0	0.0	1.2	2.8																
Mar 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																
Mar 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																
Mar 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C	0	0	0	0	0	0	0	0.0	0.0	0.0																
Mar 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																
Mar 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																
Mar 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																
Mar 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																
Mar 12	0	0	0	0	0	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.3	0.3																
Mar 13	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4	0.1	0	0.1	0	0	0	0	0.1	0	0	0	0.0	0.4	0.9																
Mar 14	0	0	0	0	0	0.2	0.1	0.1	0.2	0.2	0.1	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0.0	0.3	1.2																
Mar 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																
Mar 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																
Mar 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																
Mar 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																
Mar 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																
Mar 20	0	0	0	0	0	0	0	0	0.3	1.7	2.4	3.2	2.7	1	0	0	0	0.3	0.1	0.1	0	0	0	0	0.0	3.2	11.8																
Mar 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																
Mar 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																
Mar 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																
Mar 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																
Mar 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																
Mar 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																
Mar 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	0.0	0.8	0.8																
Mar 28	0.9	0.2	0.1	0.1	0.1	0	0.1	0.2	0.5	P	1.1	0.7	0.3	0.6	0.8	0.2	0.1	0.4	0.6	0.2	0.1	0	0	0	0.0	1.1	7.3																
Mar 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																
Mar 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																
Mar 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																
Diurnal Maximum	0.9	0.2	0.1	0.1	1.2	0.5	0.1	0.2	0.5	1.7	2.4	3.2	2.7	1.0	0.8	0.2	0.4	0.7	0.6	0.4	0.5	0.6	0.8	0.8																			
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	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 Precipitation - St. Lina Site





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - March 2022

Summary of Hourly Averages

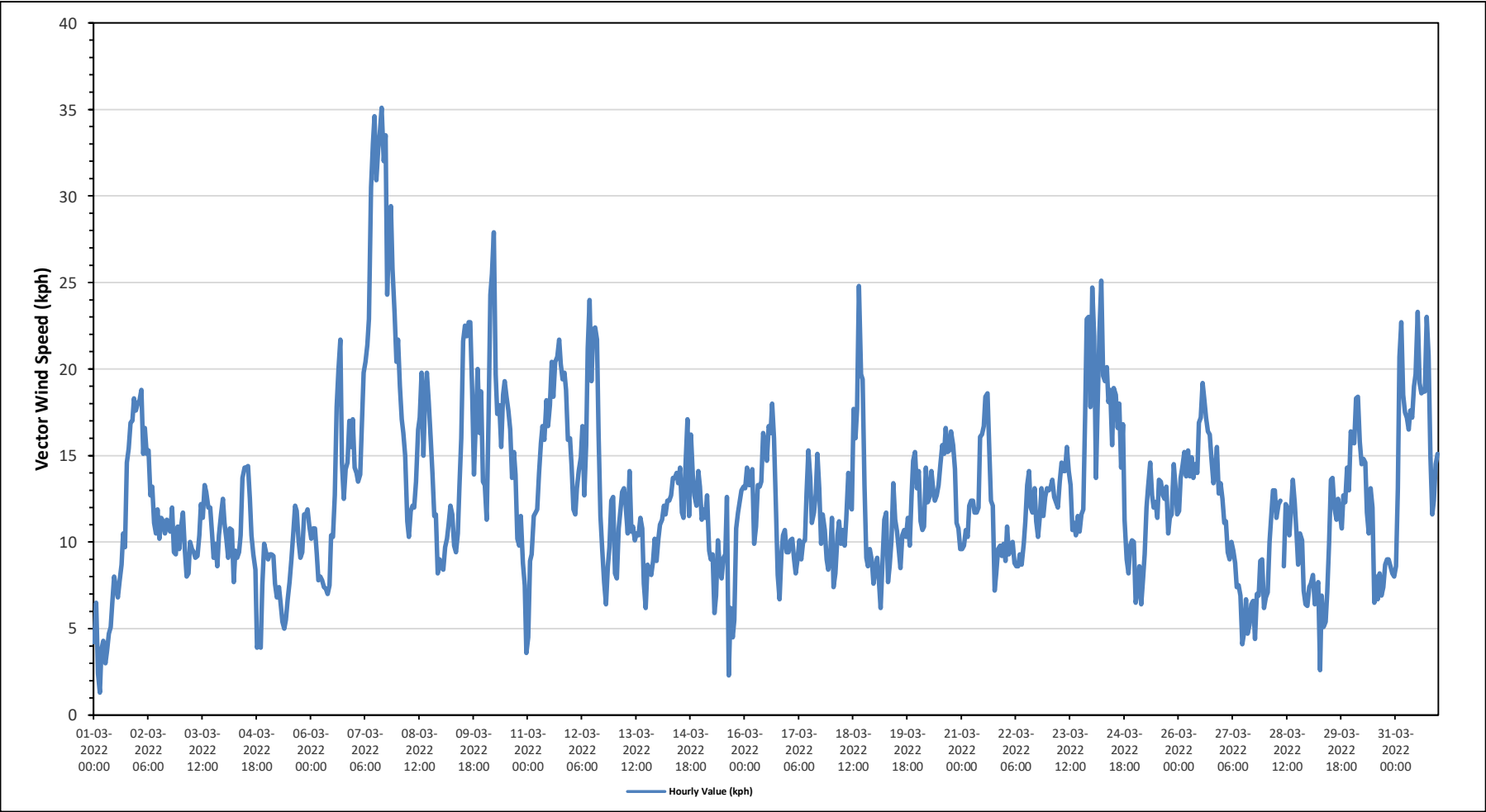
VECTOR WIND SPEED (VWS) in km/hr

Maximum Hourly Value:	35.1 kph on March 7 at hour 15	Hours in Service:	744
Maximum Daily Value:	22.0 kph on March 7	Hours of Data:	743
Minimum Hourly Value:	1.3 kph on March 1 at hour 3	Hours of Missing Data:	1
Minimum Daily Value:	5.4 kph on March 15	Hours of Calibration:	0
Monthly Average:	1.7 kph	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
Mar 1	4.2	6.5	2.4	1.3	3.8	4.3	3.0	3.7	4.7	5.1	6.5	8.0	7.3	6.8	7.8	8.7	10.5	9.7	14.6	15.4	16.9	17.0	18.3	17.6	1.3	18.3	6.2
Mar 2	18.0	18.2	18.8	15.1	16.6	15.1	15.3	12.7	13.2	11.1	10.5	11.9	10.2	11.4	11.2	10.5	11.3	10.8	10.6	12.0	9.4	9.3	10.9	9.6	9.3	18.8	12.1
Mar 3	10.9	11.7	9.6	8.0	8.2	10.0	9.6	9.4	9.1	9.2	10.4	12.2	11.4	13.3	12.9	12.0	12.0	10.5	9.1	9.9	8.6	10.4	11.6	12.5	8.0	13.3	9.8
Mar 4	11.1	10.2	9.1	10.8	10.7	7.7	9.5	9.1	9.4	10.4	13.7	14.3	14.3	14.4	12.5	10.4	9.3	8.4	3.9	4.3	3.9	7.5	9.9	9.4	3.9	14.4	8.2
Mar 5	9.0	9.3	9.3	9.2	7.6	6.8	7.4	6.5	5.4	5.0	5.5	6.7	7.7	9.0	10.5	12.1	11.8	10.1	9.1	9.4	11.6	11.6	11.9	10.9	5.0	12.1	7.8
Mar 6	10.2	10.8	10.8	9.3	7.8	8.0	7.8	7.4	7.3	7.0	7.5	10.4	10.3	12.7	17.8	20.0	21.7	14.6	12.5	14.2	14.6	17.0	15.5	17.1	7.0	21.7	8.2
Mar 7	14.3	14.0	13.5	13.9	17.1	19.8	20.4	21.4	22.9	30.5	33.0	34.6	30.9	32.7	33.6	35.1	32.0	33.5	24.3	27.6	29.4	25.8	23.2	20.4	13.5	35.1	22.0
Mar 8	21.7	19.0	17.1	16.3	15.0	11.2	10.3	11.8	12.1	12.0	13.5	16.5	17.2	19.8	15.0	18.3	19.8	18.1	16.1	14.0	11.5	11.6	8.2	9.0	8.2	21.7	14.5
Mar 9	8.5	8.4	9.7	10.2	11.0	12.1	11.6	9.8	9.4	10.5	13.2	16.0	21.6	22.5	21.9	22.7	22.7	18.8	13.9	17.0	20.0	16.3	18.7	13.5	8.4	22.7	13.8
Mar 10	13.3	11.3	17.0	24.3	25.5	27.9	19.7	17.4	17.9	15.5	18.5	19.3	18.4	17.6	16.5	13.7	15.2	13.9	10.2	9.8	11.5	8.8	7.5	3.6	3.6	27.9	14.4
Mar 11	4.5	8.9	9.3	11.5	11.7	11.9	14.0	15.7	16.7	15.9	18.2	16.7	17.9	20.4	18.4	20.4	20.7	21.7	20.3	19.4	19.8	18.8	15.9	16.0	4.5	21.7	15.9
Mar 12	14.4	11.9	11.6	13.1	14.1	14.9	16.7	12.7	15.6	21.2	24.0	19.3	22.3	22.4	21.7	16.2	11.5	9.5	7.7	6.4	8.6	9.7	12.4	12.6	6.4	24.0	9.0
Mar 13	8.2	7.9	10.8	11.9	12.9	13.1	12.0	10.5	14.1	10.6	10.9	10.1	10.5	10.4	11.4	10.8	7.6	6.2	8.7	8.4	8.1	8.9	10.2	8.9	6.2	14.1	9.6
Mar 14	10.2	11.0	11.3	12.1	11.6	12.4	12.4	12.7	13.7	13.7	14.0	13.4	14.3	11.7	11.4	14.6	17.1	11.5	16.2	13.9	12.7	12.1	14.1	13.2	10.2	17.1	8.5
Mar 15	11.3	11.9	11.4	12.7	9.5	9.0	9.3	5.9	6.9	10.1	8.3	7.9	9.1	9.3	12.6	2.3	6.2	4.5	5.5	10.8	11.7	12.3	13.0	13.2	2.3	13.2	5.4
Mar 16	13.1	14.3	13.3	13.3	14.2	9.9	10.9	13.3	13.2	13.5	16.3	15.7	14.7	16.7	16.3	18.0	16.0	12.2	8.1	6.7	9.3	10.4	10.7	9.4	6.7	18.0	12.2
Mar 17	9.4	10.1	10.2	9.0	8.2	9.0	10.1	9.0	10.0	10.1	12.8	15.3	13.7	11.1	11.7	12.8	15.1	13.1	9.9	11.6	10.7	9.0	8.4	9.0	8.2	15.3	10.4
Mar 18	11.4	7.4	8.2	10.4	11.2	9.9	10.7	9.8	11.3	14.0	12.1	11.9	17.7	16.0	17.7	24.8	19.7	19.4	13.3	9.1	8.6	9.6	8.9	7.6	7.4	24.8	11.0
Mar 19	8.4	9.1	7.9	6.2	8.8	11.3	11.7	7.7	8.6	10.1	13.4	11.3	10.6	9.5	8.5	10.4	10.7	10.3	11.4	9.8	12.7	14.7	15.2	13.1	6.2	15.2	9.5
Mar 20	14.1	11.2	10.7	10.9	14.3	12.3	12.6	14.1	13.0	12.4	12.7	13.3	14.5	15.6	15.1	16.6	15.2	15.3	16.4	15.6	14.2	11.1	10.8	9.6	9.6	16.6	8.6
Mar 21	9.6	9.8	10.7	10.3	12.1	12.4	12.4	11.7	11.7	12.0	16.1	16.2	16.7	18.4	18.6	15.2	12.4	12.1	7.2	8.2	9.6	9.8	9.2	9.9	7.2	18.6	11.5
Mar 22	8.9	10.9	9.3	9.9	10.0	8.8	8.6	8.6	9.3	8.7	9.9	11.2	13.3	14.1	12.0	11.7	13.1	11.2	10.3	11.5	13.1	11.5	12.6	13.1	8.6	14.1	9.4
Mar 23	13.0	13.2	13.6	12.6	12.3	12.0	13.5	14.6	14.1	14.1	15.5	14.1	13.3	10.7	11.1	10.4	11.5	10.6	11.6	11.9	17.3	22.9	23.0	17.8	10.4	23.0	9.4
Mar 24	24.7	21.9	13.7	17.7	22.1	25.1	19.6	19.3	20.1	18.1	18.8	15.6	18.9	18.5	16.6	18.0	14.3	16.8	11.3	9.0	8.2	9.8	10.1	10.0	8.2	25.1	16.1
Mar 25	6.5	7.1	8.6	6.4	7.7	9.3	12.0	13.2	14.6	12.7	12.0	12.3	11.4	13.6	13.5	12.7	12.5	13.2	10.5	11.4	11.6	14.5	13.3	11.6	6.4	14.6	10.6
Mar 26	11.8	13.7	14.4	15.2	13.8	15.3	13.8	14.9	13.7	14.5	14.0	16.9	17.2	19.2	18.3	17.2	16.4	16.2	14.7	13.4	14.1	15.5	12.8	13.4	11.8	19.2	14.4
Mar 27	12.5	11.1	11.2	9.4	9.0	10.0	9.5	8.8	7.4	7.5	6.9	4.1	4.8	6.7	4.7	5.2	6.4	6.6	4.4	7.0	6.9	8.9	9.0	6.2	4.1	12.5	7.3
Mar 28	6.8	7.1	10.0	11.4	13.0	13.0	11.4	12.2	12.4	P	8.6	12.2	12.0	10.4	12.1	13.6	12.3	10.5	8.7	10.5	10.1	7.2	6.4	6.3	6.3	13.6	9.4
Mar 29	7.4	7.6	8.1	6.4	7.3	7.7	2.6	6.9	5.1	5.4	7.1	9.9	13.6	13.7	12.0	11.3	12.5	11.6	10.8	12.7	12.3	14.3	13.0	16.4	2.6	16.4	6.4
Mar 30	15.8	15.7	18.3	18.4	15.8	14.5	14.8	14.6	11.7	10.5	13.1	12.0	6.5	8.0	6.7	8.2	6.9	7.4	8.7	9.0	9.0	8.6	8.2	8.0	6.5	18.4	6.3
Mar 31	8.6	13.1	20.7	22.7	18.5	17.5	17.2	16.5	17.6	17.2	19.0	19.7	23.3	19.2	18.6	18.7	18.7	23.0	20.8	15.0	11.6	12.4	14.5	15.1	8.6	23.3	17.2
Diurnal Maximum	25	22	21	24	26	28	20	21	23	31	33	35	31	33	34	35	32	34	24	28	29	26	23	20			
Diurnal Average	11.3	11.4	11.6	11.9	12.3	12.3	11.9	11.7	12.0	12.3	13.4	13.8	14.4	14.7	14.5	14.6	14.3	13.3	11.6	11.8	12.2	12.5	12.5	11.7			
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)																			

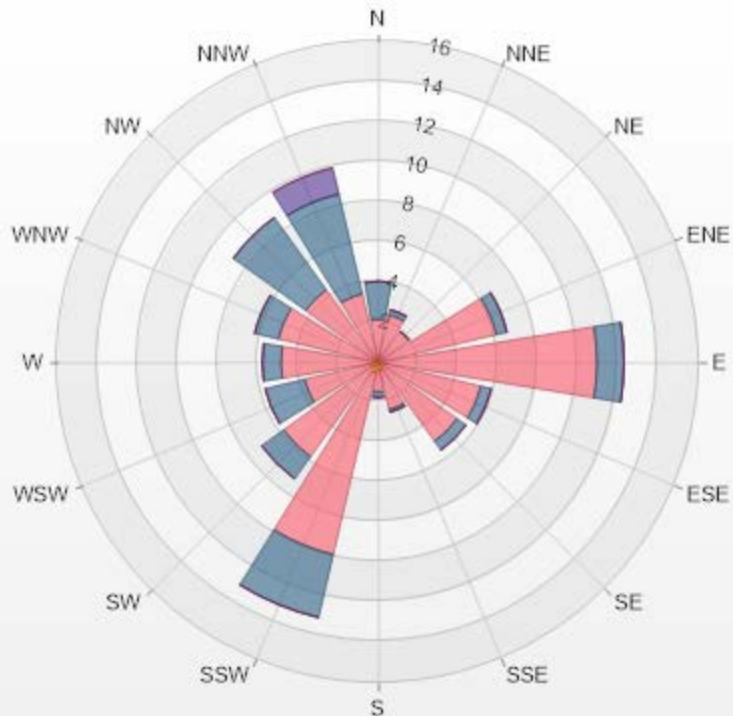
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

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



Wind: St. Lina Monitor: WDS [kph] Monthly: 03-2022 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.13% Valid Data: 99.87%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	0.27	1.88	1.88	0	0	4.03
NNE	0.13	2.29	0.27	0	0	2.69
NE	0.13	1.75	0	0	0	1.88
ENE	0.13	5.92	0.54	0	0	6.59
E	0.4	10.5	1.35	0	0	12.25
ESE	0.27	4.98	0.54	0	0	5.79
SE	0.13	4.71	0.54	0	0	5.38
SSE	0.4	2.02	0.13	0	0	2.55
S	0.4	1.08	0.27	0	0	1.75
SSW	0.54	9.29	3.23	0	0	13.06
SW	0.27	5.52	1.35	0	0	7.14
WSW	0.4	3.36	2.02	0	0	5.78
W	0.13	4.71	0.94	0	0	5.78
WNW	0	5.11	1.21	0	0	6.32
NW	0.13	4.31	4.44	0	0	8.88
NNW	0	3.5	5.11	1.35	0	9.96
Summary	3.73	70.93	23.82	1.35	0	100



LICA-202203

% Icon Classes (kph)	4	1.8-6.0	71	6.0-15.0	24	15.0-29.0	1	29.0-39.0	0	>39.0
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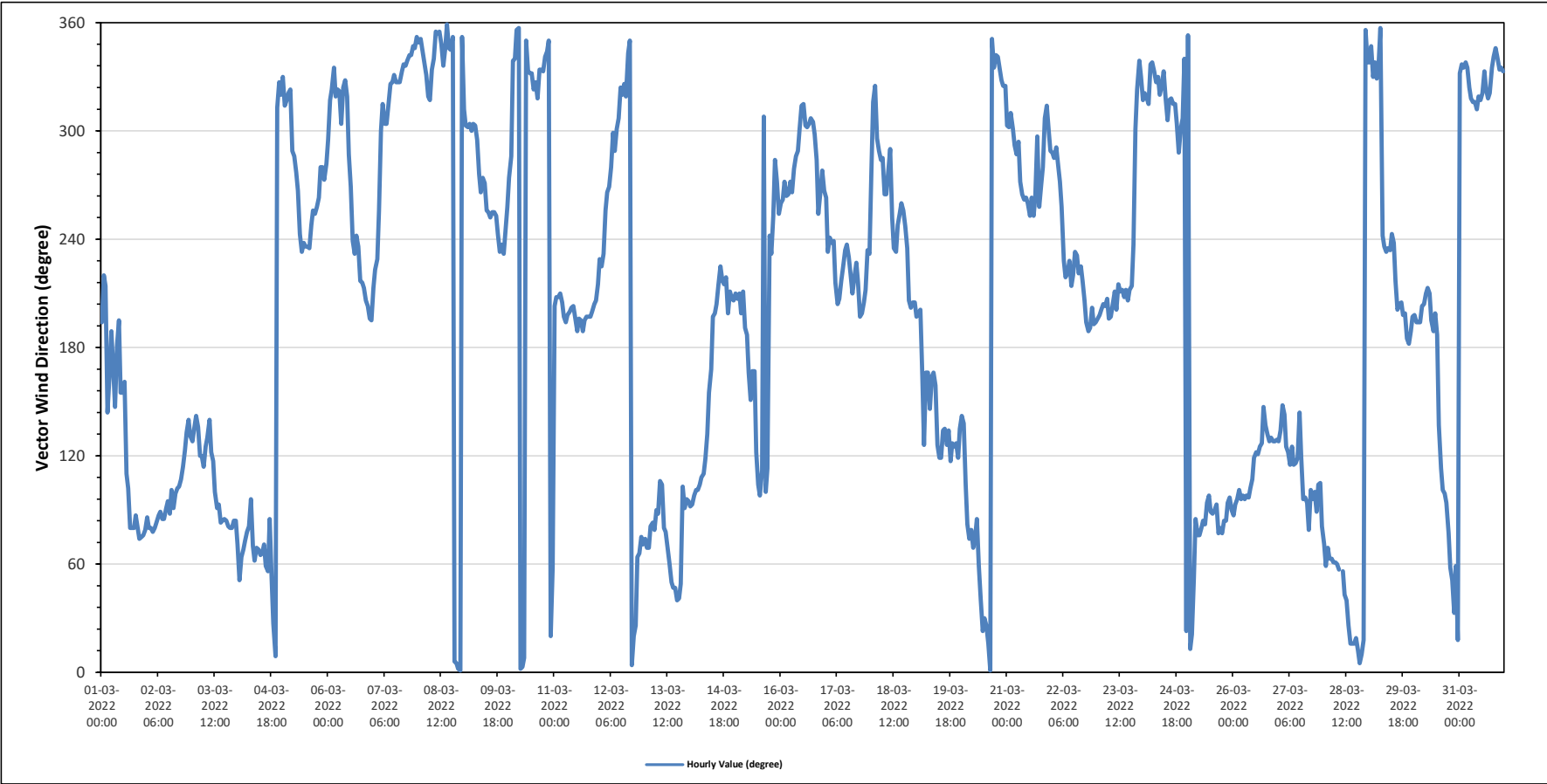
St. Lina Site - March 2022

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:		291 (WNW) degree														Hours in Service:		744																	
																Hours of Data:		743																	
																Hours of Missing Data:		1																	
																Hours of Calibration:		0																	
																Operational Uptime:		99.9																	
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									
Mar 1	SSW	SW	SSW	SE	SSE	S	SSE	SE	S	SSW	SSE	SSE	SSE	ESE	E	E	E	E	E	E	ENE	ENE	ENE	ENE	103	ESE									
Mar 2	E	E	E	ENE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	ESE	ESE	ESE	ESE	SE	SE	95	E								
Mar 3	SE	SE	SE	SE	ESE	ESE	ESE	SE	SE	SE	ESE	ESE	E	E	E	E	E	E	E	E	E	E	E	E	105	ESE									
Mar 4	ENE	NE	ENE	ENE	ENE	ENE	E	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	E	NE	NNE	N	NW	NW	NW	W	W	59	ENE								
Mar 5	NNW	NW	NW	NW	NW	WNW	WNW	W	W	WSW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	W	W	W	W	W	W	273	W									
Mar 6	WNW	NW	NW	NNW	NW	NW	NW	WNW	NW	NNW	NW	WNW	W	WSW	SW	WSW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	252	WSW									
Mar 7	SSW	SW	SW	WSW	WNW	NW	WNW	WNW	NW	NW	NNW	NW	NW	NNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	324	NW									
Mar 8	NNW	N	NNW	NNW	NNW	NW	NW	NNW	NNW	N	N	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	N	N	N	N	347	NNW									
Mar 9	NW	WNW	WNW	WNW	WNW	WNW	WNW	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	WSW	WSW	263	W										
Mar 10	W	WNW	NNW	NNW	N	N	N	N	N	NNW	NNW	NNW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	N	NNE	ENE	341	NNW									
Mar 11	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	199	SSW									
Mar 12	SW	SW	SW	WSW	W	W	W	WNW	WNW	WNW	NW	NW	NW	NW	NNW	N	N	NNE	NNE	ENE	ENE	ENE	ENE	ENE	311	NW									
Mar 13	ENE	ENE	ENE	E	E	ENE	E	ESE	ESE	E	ENE	ENE	ENE	ENE	NE	NE	NE	NE	NE	ESE	E	E	E	E	76	ENE									
Mar 14	E	E	E	E	E	ESE	ESE	ESE	ESE	SE	SSE	SSE	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	168	SSE									
Mar 15	SSW	SSW	SSW	SSW	SSW	S	S	SSE	SSE	SSE	SSE	ESE	ESE	E	ESE	NW	E	ESE	WSW	SW	WSW	WNW	W	WSW	197	SSW									
Mar 16	WSW	W	W	W	W	W	W	WNW	WNW	WNW	NW	NW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W	W	286	WNW									
Mar 17	W	SW	WSW	SW	WSW	SW	SSW	SSW	SW	SW	SW	SW	SW	SW	SSW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SW	SW	223	SW								
Mar 18	W	NW	NW	WNW	WNW	WNW	WNW	W	W	WNW	WSW	SW	SW	WSW	WSW	WSW	WSW	WSW	SW	SSW	SSW	SSW	SSW	SSW	258	WSW									
Mar 19	SSW	SSW	SSW	SSE	SE	SSE	SSE	SE	SSE	SSE	SE	ESE	ESE	SE	SE	SE	SE	SE	ESE	SE	SE	ESE	SE	SE	143	SE									
Mar 20	SE	SE	ESE	E	ENE	ENE	ENE	ENE	E	ENE	NE	NNE	NNE	NNE	NNE	N	N	NNW	NNW	NNW	NNW	NNW	NW	NW	30	NNE									
Mar 21	WNW	WNW	NW	WNW	WNW	WNW	WNW	W	W	W	W	WSW	WSW	W	WSW	W	WNW	WSW	W	W	NW	WNW	WNW	WNW	278	W									
Mar 22	WNW	WNW	WNW	W	W	WSW	SW	SW	SW	SSW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	S	S	SSW	S	SSW	S	SSW	226	SW								
Mar 23	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	WNW	NW	NNW	NNW	225	SW								
Mar 24	NW	NW	NW	NW	NNW	NNW	NNW	NW	NNW	NW	NNW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNE	323	NW									
Mar 25	N	NNE	NNE	NE	E	ENE	ENE	E	E	E	E	E	E	E	E	ENE	E	ENE	E	ENE	E	E	E	E	81	E									
Mar 26	E	E	E	E	E	E	E	E	E	E	E	ESE	ESE	ESE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	115	ESE								
Mar 27	SE	SE	SE	SE	SE	ESE	ESE	SE	ESE	ESE	ESE	SE	ESE	E	E	ENE	E	E	E	E	E	ESE	ESE	E	115	ESE									
Mar 28	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	P	NE	NE	NE	NNE	NNE	NNE	NNE	NNE	N	N	NNE	N	NNW	NNW	37	NE									
Mar 29	NNW	NNW	NNW	NNW	NNW	NNW	N	WSW	SW	SW	SW	SW	WSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	S	SSW	225	SW									
Mar 30	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	S	SE	ESE	E	E	E	ENE	ENE	NNE	ENE	ENE	NNE	176	S									
Mar 31	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	328	NNW									
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 - St. Lina Site





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - March 2022

Summary of Hourly Averages

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

WIND SPEED																											
Maximum Hourly Value: 35.1 kph on March 7 at hour 15													Hours in Service: 744														
Maximum Daily Value: 22.0 kph on March 7													Hours of Data: 743														
Minimum Hourly Value: 1.3 kph on March 1 at hour 3													Hours of Missing Data: 1														
Minimum Daily Value: 5.4 kph on March 15													Hours of Calibration: 0														
Monthly Average: 1.7 kph													Operational Uptime: 99.9														
WIND DIRECTION																											
Monthly Average: 291 (WNW degree)																											
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Mar 1	4.2	6.5	2.4	1.3	3.8	4.3	3.0	3.7	4.7	5.1	6.5	8.0	7.3	6.8	7.8	8.7	10.5	9.7	14.6	15.4	16.9	17.0	18.3	17.6	1.3	18.3	6.2
Mar 2	18.0	18.2	18.8	15.1	16.6	15.1	15.3	12.7	13.2	11.1	10.5	11.9	10.2	11.4	11.2	10.5	11.3	10.8	10.6	12.0	9.4	9.3	10.9	9.6	9.3	18.8	12.1
Mar 3	10.9	11.7	9.6	8.0	8.2	10.0	9.6	9.4	9.1	9.2	10.4	12.2	11.4	13.3	12.9	12.0	10.5	9.1	9.9	8.6	10.4	11.6	12.5	8.0	13.3	9.8	
Mar 4	11.1	10.2	9.1	10.8	10.7	7.7	9.5	9.1	9.4	10.4	13.7	14.3	14.3	14.4	12.5	10.4	9.3	8.4	3.9	4.3	3.9	7.5	9.9	9.4	3.9	14.4	8.2
Mar 5	9.0	9.3	9.3	9.2	7.6	6.8	7.4	6.5	5.4	5.0	5.5	6.7	7.7	9.0	10.5	12.1	11.8	10.1	9.1	9.4	11.6	11.6	11.9	10.9	5.0	12.1	7.8
Mar 6	10.2	10.8	10.8	9.3	7.8	8.0	7.8	7.4	7.3	7.0	7.5	10.4	10.3	12.7	17.8	20.0	21.7	14.6	12.5	14.2	14.6	17.0	15.5	17.1	7.0	21.7	8.2
Mar 7	14.3	14.0	13.5	13.9	17.1	19.8	20.4	21.4	22.9	30.5	33.0	34.6	30.9	32.7	33.6	35.1	32.0	33.5	24.3	27.6	29.4	25.8	23.2	20.4	13.5	35.1	22.0
Mar 8	21.7	19.0	17.1	16.3	15.0	11.2	10.3	11.8	12.1	12.0	13.5	16.5	17.2	19.8	15.0	18.3	19.8	18.1	16.1	14.0	11.5	11.6	8.2	9.0	8.2	21.7	14.5
Mar 9	8.5	8.4	9.7	10.2	11.0	12.1	11.6	9.8	9.4	10.5	13.2	16.0	21.6	22.5	21.9	22.7	22.7	18.8	13.9	17.0	20.0	16.3	18.7	13.5	8.4	22.7	13.8
Mar 10	13.3	11.3	17.0	24.3	25.5	27.9	19.7	17.4	17.9	15.5	18.5	19.3	18.4	17.6	16.5	13.7	15.2	13.9	10.2	9.8	11.5	8.8	7.5	3.6	3.6	27.9	14.4
Mar 11	4.5	8.9	9.3	11.5	11.7	11.9	14.0	15.7	16.7	15.9	18.2	16.7	17.9	20.4	18.4	20.4	20.7	21.7	20.3	19.4	19.8	18.8	15.9	16.0	4.5	21.7	15.9
Mar 12	14.4	11.9	11.6	13.1	14.1	14.9	16.7	12.7	15.6	21.2	24.0	19.3	22.3	22.4	21.7	16.2	11.5	9.5	7.7	6.4	8.6	9.7	12.4	12.6	6.4	24.0	9.0
Mar 13	8.2	7.9	10.8	11.9	12.9	13.1	12.0	10.5	14.1	10.6	10.9	10.1	10.5	10.4	11.4	10.8	7.6	6.2	8.7	8.4	8.1	8.9	10.2	8.9	6.2	14.1	9.6
Mar 14	10.2	11.0	11.3	12.1	11.6	12.4	12.4	12.7	13.7	13.7	14.0	13.4	14.3	11.7	11.4	14.6	17.1	11.5	16.2	13.9	12.7	12.1	14.1	13.2	10.2	17.1	8.5
Mar 15	11.3	11.9	11.4	12.7	9.5	9.0	9.3	5.9	6.9	10.1	8.3	7.9	9.1	9.3	12.6	2.3	6.2	4.5	5.5	10.8	11.7	12.3	13.0	13.2	2.3	13.2	5.4
Mar 16	13.1	14.3	13.3	13.3	14.2	9.9	10.9	13.3	13.2	13.5	16.3	15.7	14.7	16.7	16.3	18.0	16.0	12.2	8.1	6.7	9.3	10.4	10.7	9.4	6.7	18.0	12.2
Mar 17	9.4	10.1	10.2	9.0	8.2	9.0	10.1	9.0	10.0	10.1	12.8	15.3	13.7	11.1	11.7	12.8	15.1	13.1	9.9	11.6	10.7	9.0	8.4	9.0	8.2	15.3	10.4
Mar 18	11.4	7.4	8.2	10.4	11.2	9.9	10.7	9.8	11.3	14.0	12.1	11.9	17.7	16.0	17.7	24.8	19.7	19.4	13.3	9.1	8.6	9.6	8.9	7.6	7.4	24.8	11.0
Mar 19	8.4	9.1	7.9	6.2	8.8	11.3	11.7	7.7	8.6	10.1	13.4	11.3	10.6	9.5	8.5	10.4	10.7	10.3	11.4	9.8	12.7	14.7	15.2	13.1	6.2	15.2	9.5
Mar 20	14.1	11.2	10.7	10.9	14.3	12.3	12.6	14.1	13.0	12.4	12.2	13.3	14.5	15.6	15.1	16.6	15.2	15.3	16.4	15.6	14.2	11.1	10.8	9.6	9.6	16.6	8.6
	SE	SE	ESE	E	ENE	ENE	ENE	E	ENE	NE	NNE	NNE	NNE	NNE	N	N	NNW	NNW	NNW	NNW	NNW	NW	NW				



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - March 2022

Summary of Hourly Averages

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

WIND SPEED		Maximum Hourly Value: 35.1 kph on March 7 at hour 15		Hours in Service: 744																														
WIND DIRECTION		Maximum Daily Value: 22.0 kph on March 7		Hours of Data: 743																														
		Minimum Hourly Value: 1.3 kph on March 1 at hour 3		Hours of Missing Data: 1																														
		Minimum Daily Value: 5.4 kph on March 15		Hours of Calibration: 0																														
		Monthly Average: 1.7 kph		Operational Uptime: 99.9																														
Monthly Average: 291 (WNW degree)																																		
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average								
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23										
Mar 21	9.6	9.8	10.7	10.3	12.1	12.4	12.4	11.7	11.7	12.0	16.1	16.2	16.7	18.4	18.6	15.2	12.4	12.1	7.2	8.2	9.6	9.8	9.2	9.9	7.2	18.6	11.5							
Mar 22	8.9	10.9	9.3	9.9	10.0	8.8	8.6	8.6	9.3	8.7	9.9	11.2	13.3	14.1	12.0	11.7	13.1	11.2	10.3	11.5	13.1	11.5	12.6	13.1	8.6	14.1	9.4							
Mar 23	13.0	13.2	13.6	12.6	12.3	12.0	13.5	14.6	14.1	14.1	15.5	14.1	13.3	10.7	11.1	10.4	11.5	10.6	11.6	11.9	17.3	22.9	23.0	17.8	10.4	23.0	9.4							
Mar 24	24.7	21.9	13.7	17.7	22.1	25.1	19.6	19.3	20.1	18.1	18.8	15.6	18.9	18.5	16.6	18.0	14.3	16.8	11.3	9.0	8.2	9.8	10.1	10.0	8.2	25.1	16.1							
Mar 25	6.5	7.1	8.6	6.4	7.7	9.3	12.0	13.2	14.6	12.7	12.0	12.3	11.4	13.6	13.5	12.7	12.5	13.2	10.5	11.4	11.6	14.5	13.3	11.6	6.4	14.6	10.6							
Mar 26	11.8	13.7	14.4	15.2	13.8	15.3	13.8	14.9	13.7	14.5	14.0	16.9	17.2	19.2	18.3	17.2	16.4	16.2	14.7	13.4	14.1	15.5	12.8	13.4	11.8	19.2	14.4							
Mar 27	12.5	11.1	11.2	9.4	9.0	10.0	9.5	8.8	7.4	7.5	6.9	4.1	4.8	6.7	4.7	5.2	6.4	6.6	4.4	7.0	6.9	8.9	9.0	6.2	4.1	12.5	7.3							
Mar 28	6.8	7.1	10.0	11.4	13.0	13.0	11.4	12.2	12.4	P	8.6	12.2	12.0	10.4	12.1	13.6	12.3	10.5	8.7	10.5	10.1	7.2	6.4	6.3	6.3	13.6	9.4							
Mar 29	7.4	7.6	8.1	6.4	7.3	7.7	2.6	6.9	5.1	5.4	7.1	9.9	13.6	13.7	12.0	11.3	12.5	11.6	10.8	12.7	12.3	14.3	13.0	16.4	2.6	16.4	6.4							
Mar 30	15.8	15.7	18.3	18.4	15.8	14.5	14.8	14.6	11.7	10.5	13.1	12.0	6.5	8.0	6.7	8.2	6.9	7.4	8.7	9.0	9.0	8.6	8.2	8.0	6.5	18.4	6.3							
Mar 31	8.6	13.1	20.7	22.7	18.5	17.5	17.2	16.5	17.6	17.2	19.0	19.7	23.3	19.2	18.6	18.7	18.7	23.0	20.8	15.0	11.6	12.4	14.5	15.1	8.6	23.3	17.2							
C	Monthly Calibration									S	Daily Zero-Span Check									Q	Quality Assurance													
K	Collection Error									N	No Data (Machine Not in Service)									Y	Routine Maintenance					P	Power Failure							
X	Invalid Data (Equipment Malfunction/Recovery)									NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																							

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



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - March 2022

Summary of Hour Standard Deviations

STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

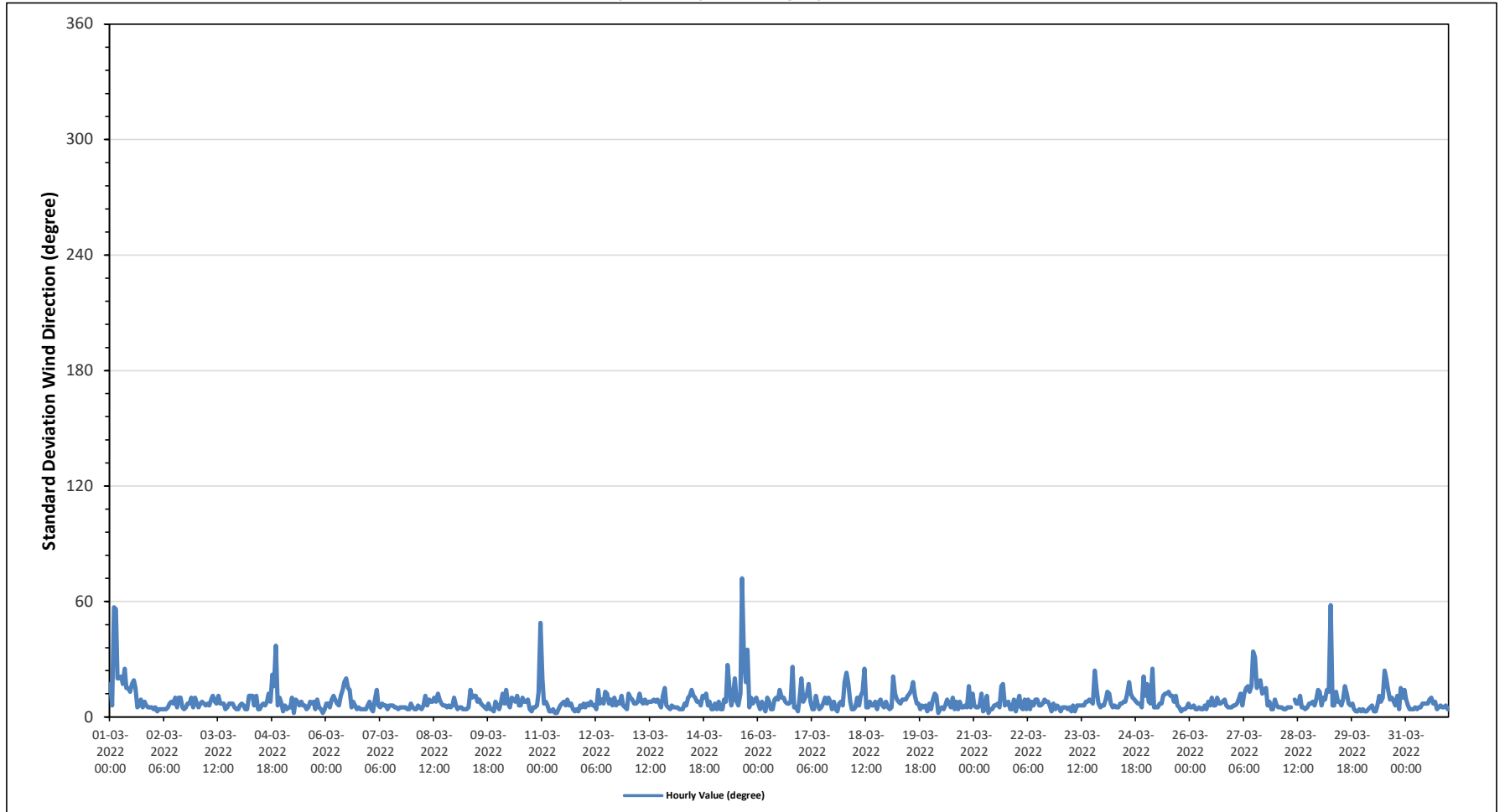
Maximum Hourly Value:	72 degree on March 15 at hour 15	Hours in Service:	744
Minimum Hourly Value:	2 degree on March 5 at hour 6	Hours of Data:	743
		Hours of Missing Data:	1
		Hours of Calibration:	0
		Operational Uptime:	99.9

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			23	
Mar 1	17	6	57	56	20	20	21	17	25	15	15	13	17	19	15	5	6	9	5	8	6	5	5	5	5	5	5
Mar 2	4	5	3	4	4	4	4	4	4	4	5	7	8	7	10	5	10	10	5	4	5	7	10	5	10	3	10
Mar 3	7	5	7	8	7	6	7	6	9	11	8	7	11	7	7	7	4	5	7	7	7	5	4	4	4	4	11
Mar 4	6	7	6	4	4	11	11	11	6	11	4	4	6	7	6	8	12	8	22	16	37	6	10	7	4	37	
Mar 5	3	6	4	5	5	10	2	9	8	6	8	6	6	4	5	8	7	8	4	9	5	4	2	4	2	10	
Mar 6	7	7	5	9	11	9	7	6	11	14	18	20	15	14	5	8	6	4	5	4	4	4	4	6	4	20	
Mar 7	8	4	3	9	14	6	5	7	6	6	4	6	6	6	5	5	4	5	5	5	5	4	4	7	3	14	
Mar 8	5	4	4	6	5	4	6	11	6	9	8	8	10	8	12	9	7	6	6	5	6	5	6	10	4	12	
Mar 9	6	4	5	5	4	4	4	5	14	10	11	11	8	9	7	6	5	4	7	4	4	3	8	6	3	14	
Mar 10	4	7	12	7	14	7	5	10	9	8	11	6	6	10	8	8	9	4	3	5	5	6	13	49	3	49	
Mar 11	20	7	8	6	3	3	4	2	2	4	6	7	8	6	9	6	7	4	3	4	3	6	5	7	2	20	
Mar 12	5	7	6	8	6	6	4	14	7	9	7	13	12	7	9	6	10	6	8	7	11	6	5	4	4	14	
Mar 13	12	10	9	7	7	8	12	8	7	9	7	8	8	8	9	8	9	7	5	11	15	6	5	4	4	15	
Mar 14	6	5	5	5	4	4	4	7	6	10	11	14	11	10	8	8	6	11	10	12	6	8	4	4	4	14	
Mar 15	7	4	8	4	4	9	8	27	15	6	10	20	8	6	12	72	30	18	35	5	10	7	9	10	4	72	
Mar 16	7	4	8	5	3	10	8	4	4	9	10	9	14	10	10	8	7	7	8	26	5	5	3	9	3	26	
Mar 17	20	8	10	12	17	8	4	4	11	7	4	5	7	10	7	10	8	4	8	4	3	7	8	6	3	20	
Mar 18	18	23	17	8	4	4	5	10	6	11	13	25	5	5	8	6	6	8	4	8	9	6	5	8	4	25	
Mar 19	5	4	5	21	12	9	8	7	9	9	9	11	12	14	18	11	7	7	4	6	5	6	3	7	3	21	
Mar 20	4	9	12	11	2	4	5	4	6	9	7	5	10	4	8	4	8	5	5	6	5	16	5	12	2	16	
Mar 21	6	5	5	6	12	3	4	11	2	4	4	6	6	7	5	16	17	6	7	8	4	4	9	3	2	17	
Mar 22	7	11	5	4	9	4	9	4	8	6	9	9	6	6	7	9	8	8	6	3	7	4	6	5	3	11	
Mar 23	3	5	5	5	4	5	3	6	3	6	6	6	6	6	8	8	9	8	7	24	14	7	5	6	3	24	
Mar 24	6	9	13	12	7	5	6	5	5	7	7	8	8	12	18	12	10	9	8	7	7	5	21	11	5	21	
Mar 25	17	8	7	25	5	5	5	7	7	11	12	12	13	11	11	8	11	6	5	3	4	4	5	7	3	25	
Mar 26	5	5	6	4	4	5	4	4	6	4	8	6	10	6	6	10	7	7	8	9	6	5	5	5	4	10	
Mar 27	6	6	7	9	12	6	12	15	16	13	16	34	31	15	18	19	12	14	15	6	8	4	4	9	4	34	
Mar 28	6	5	5	5	4	4	5	5	5	P	9	7	7	11	5	5	4	5	7	7	8	6	9	14	4	14	
Mar 29	13	6	10	9	14	13	58	6	6	13	8	8	6	9	16	12	7	6	7	4	3	3	4	3	3	58	
Mar 30	4	3	3	4	5	6	3	3	6	11	8	10	24	20	14	9	10	8	6	11	4	15	10	14	3	24	
Mar 31	9	6	4	4	4	5	4	5	5	7	7	7	7	9	10	7	8	4	5	6	5	5	6	4	4	10	
Diurnal Minimum	3	3	3	4	2	3	2	2	2	4	4	4	5	4	5	4	4	4	3	3	3	3	2	3			
Diurnal Maximum	20	23	57	56	20	20	58	27	25	15	18	34	31	20	18	72	30	18	35	26	37	16	21	49			

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



END OF REPORT

This page, 238 of 238, ends the March 2022 Monthly Ambient Air Quality Monitoring Report.



Lakeland Industry & Community Association

MARCH 2022

Ambient Air Monitoring Calibration Report

- COLD LAKE SOUTH STATION-

CAL-LICA-202203-01174

Station Operation and Maintenance:

Bureau Veritas Canada

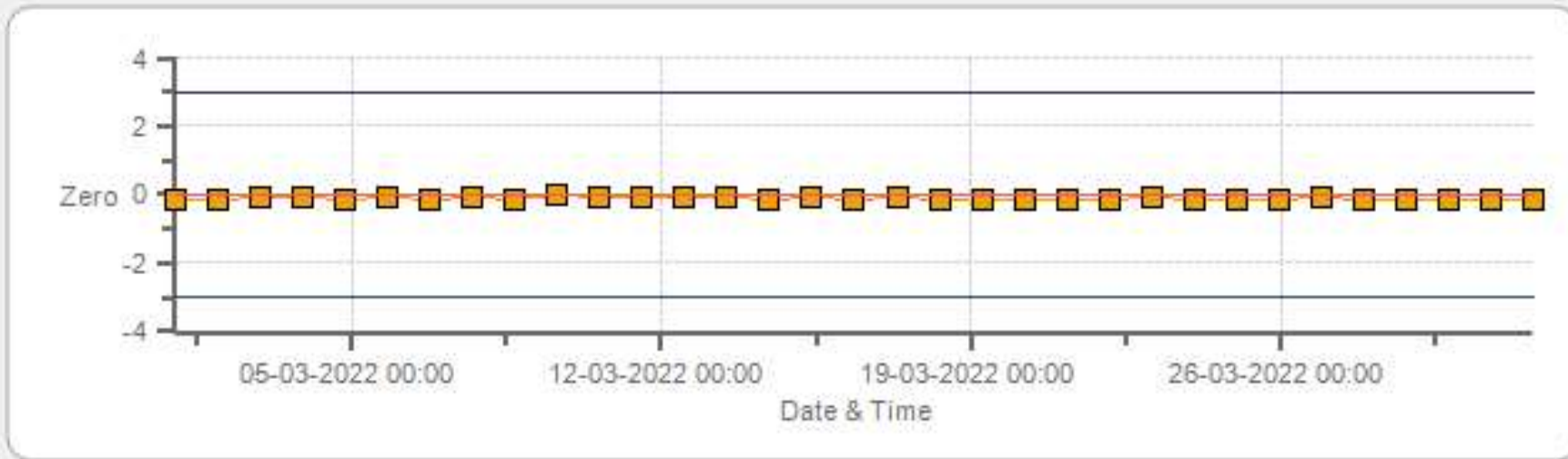
Data Validation and Report:

LICA / Bureau Veritas Canada

April 19, 2022

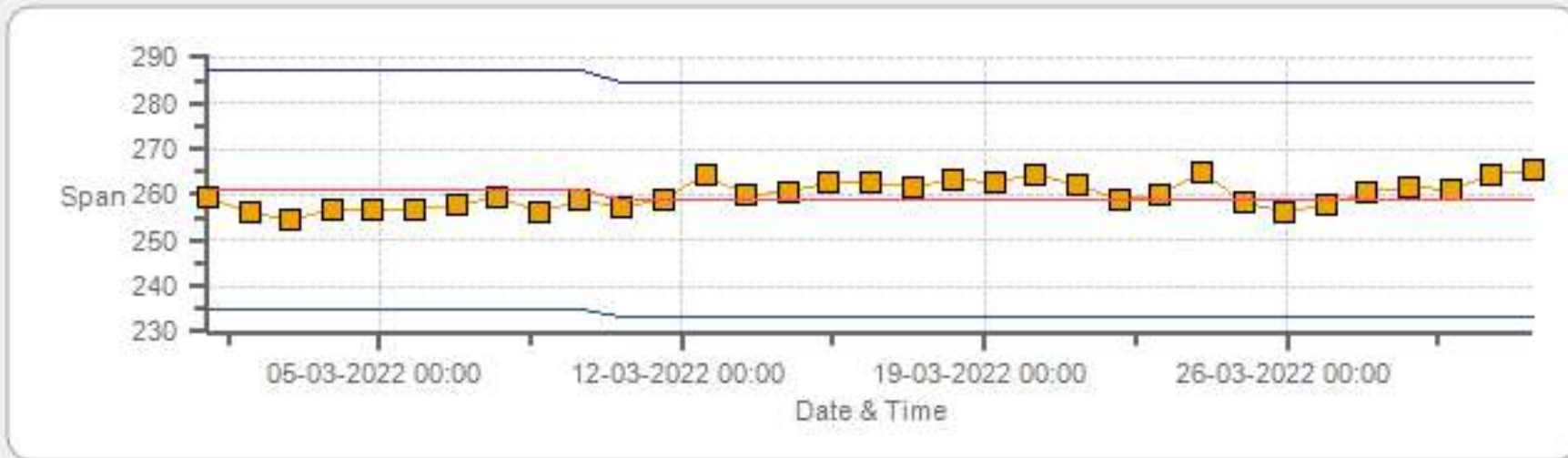
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Cold Lake South Monthly: 03-2022 Type: SpanAndZero - Zero



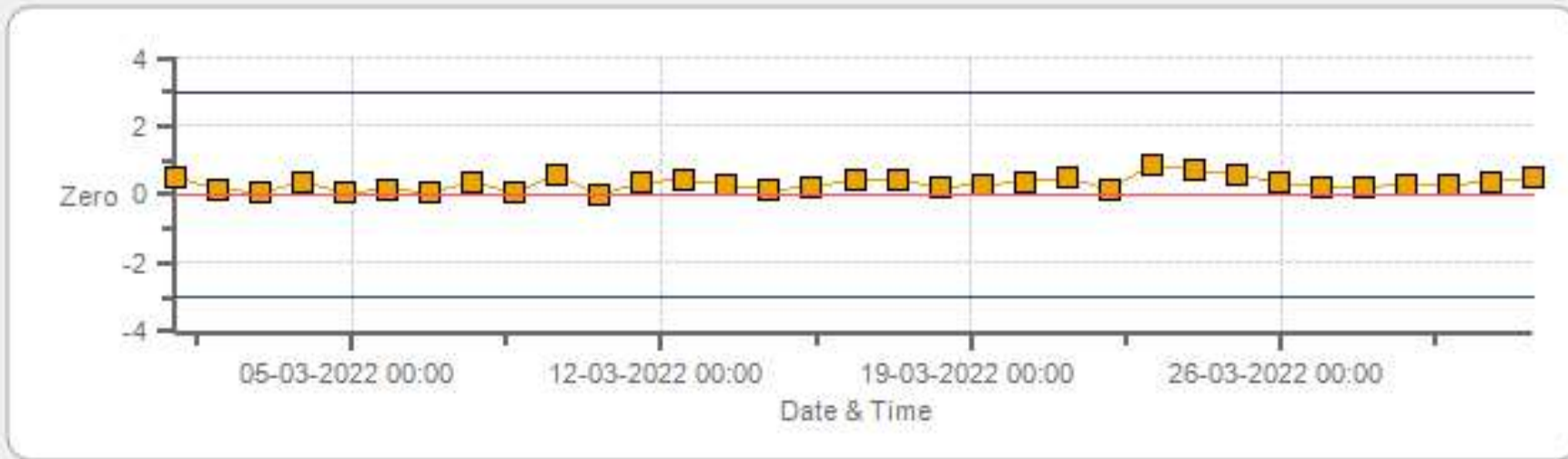
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: Cold Lake South Monthly: 03-2022 Type: SpanAndZero - Span



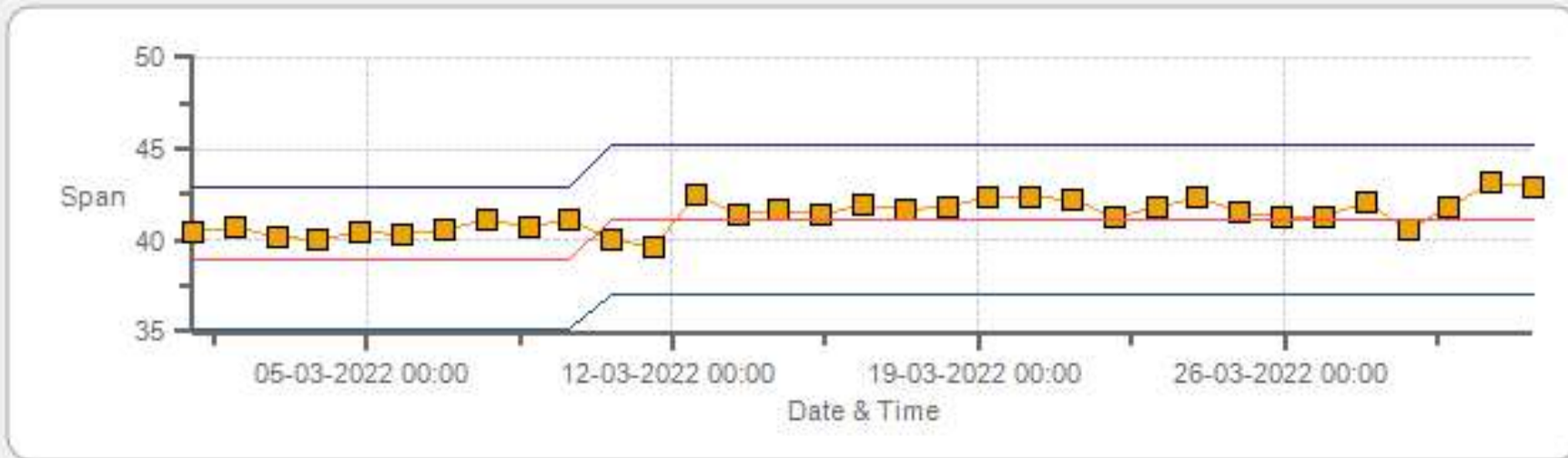
Span SpanRef Span Low Span High

TRS[ppb] Calibration: Cold Lake South Monthly: 03-2022 Type: SpanAndZero - Zero



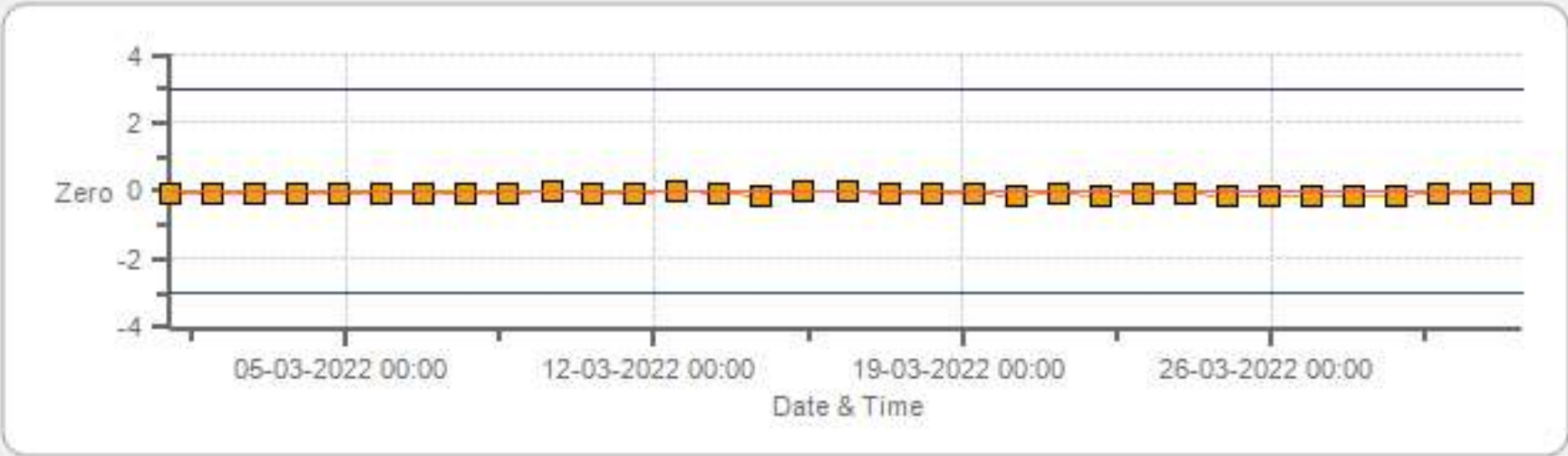
Zero Zero Ref Zero Low Zero High

TRS[ppb] Calibration: Cold Lake South Monthly: 03-2022 Type: SpanAndZero - Span



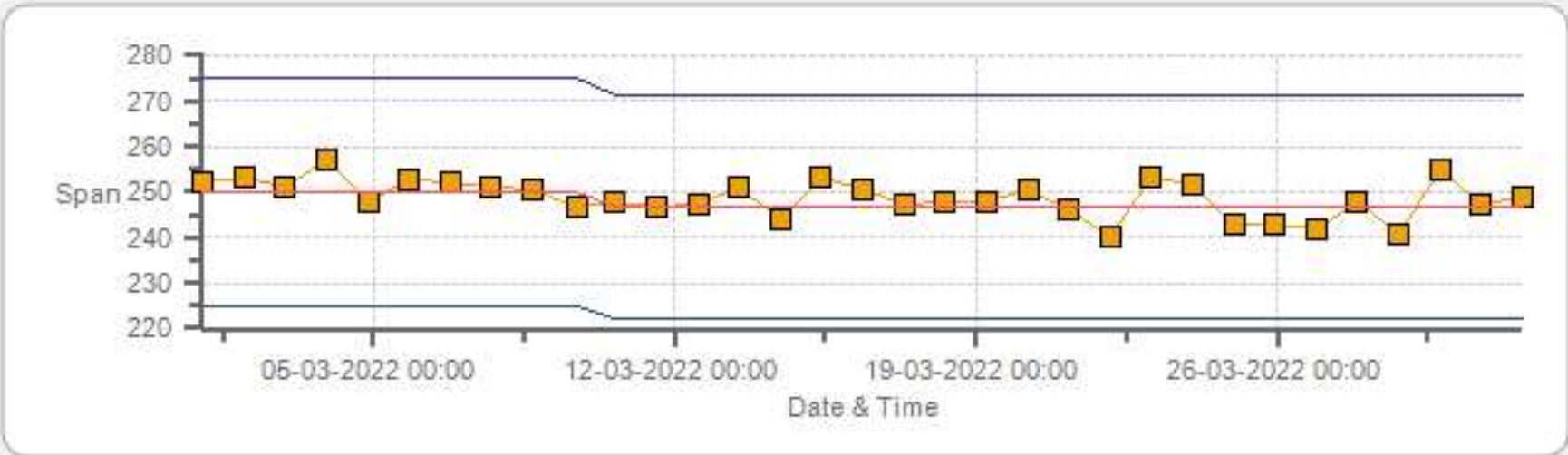
Span SpanRef Span Low Span High

NOX[ppb] Calibration: Cold Lake South Monthly: 03-2022 Type: SpanAndZero - Zero



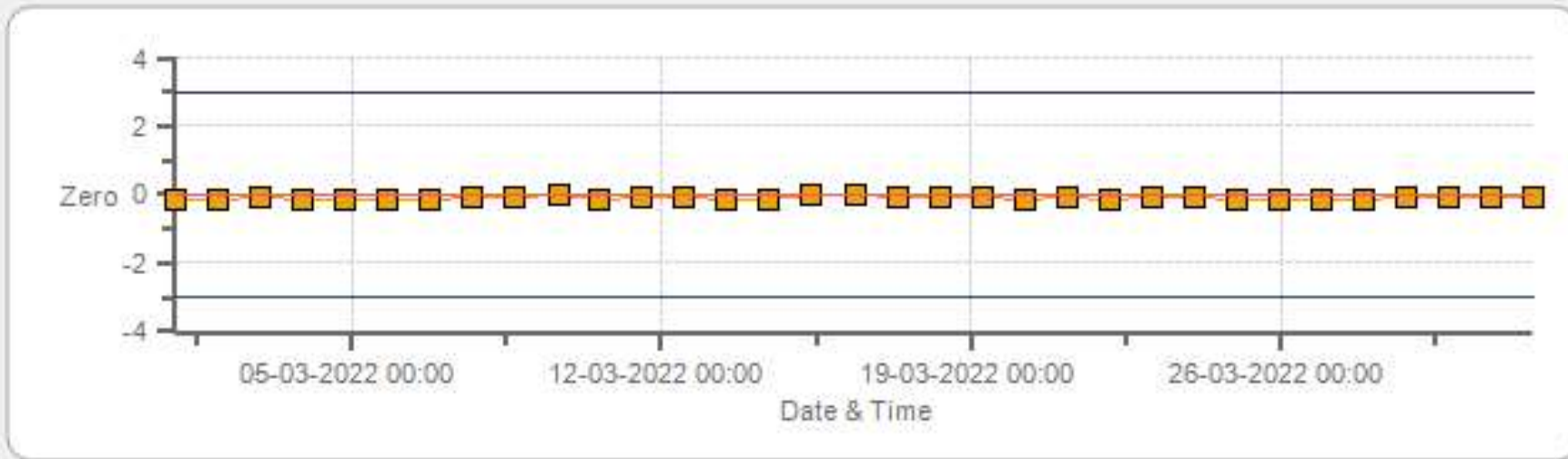
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: Cold Lake South Monthly: 03-2022 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NO2[ppb] Calibration: Cold Lake South Monthly: 03-2022 Type: SpanAndZero - Zero



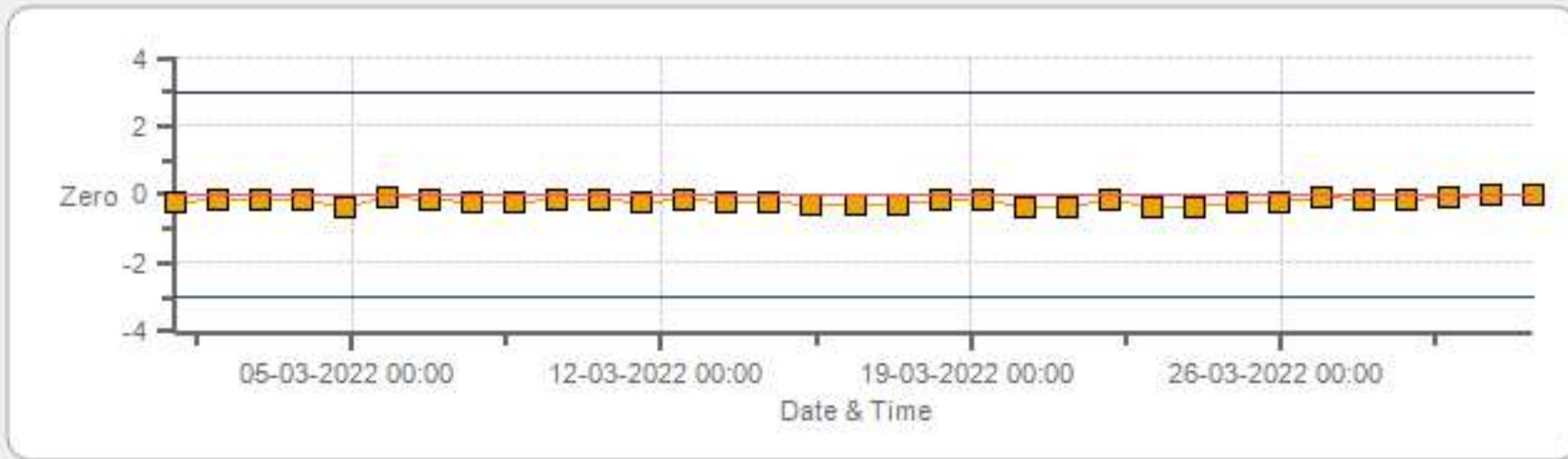
Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: Cold Lake South Monthly: 03-2022 Type: SpanAndZero - Span



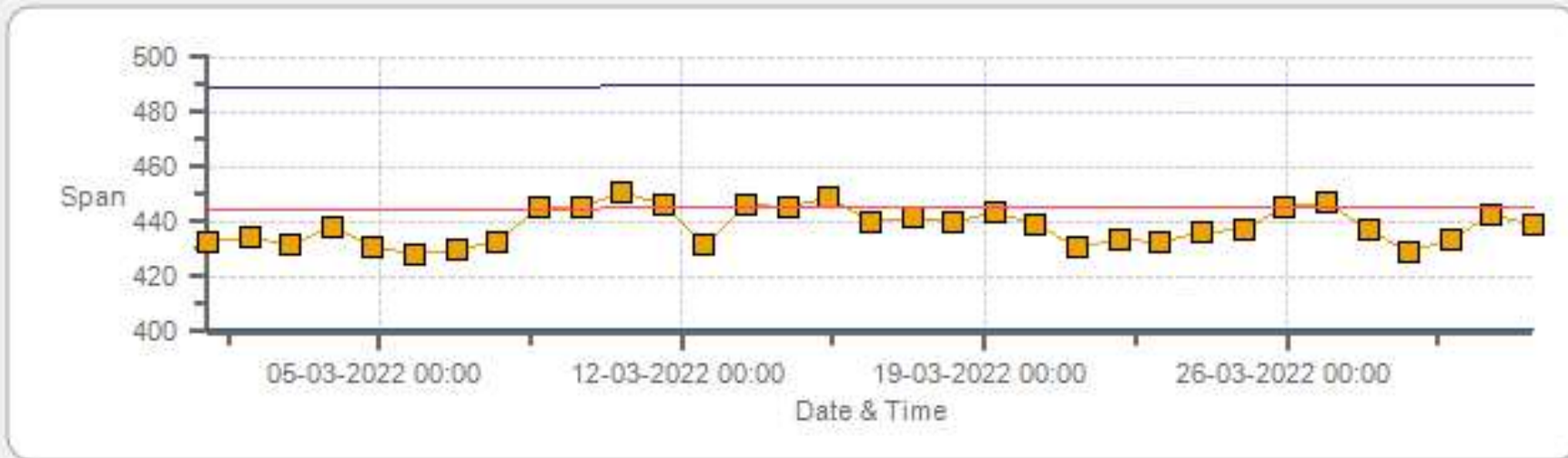
Span SpanRef Span Low Span High

O3[ppb] Calibration: Cold Lake South Monthly: 03-2022 Type: SpanAndZero - Zero



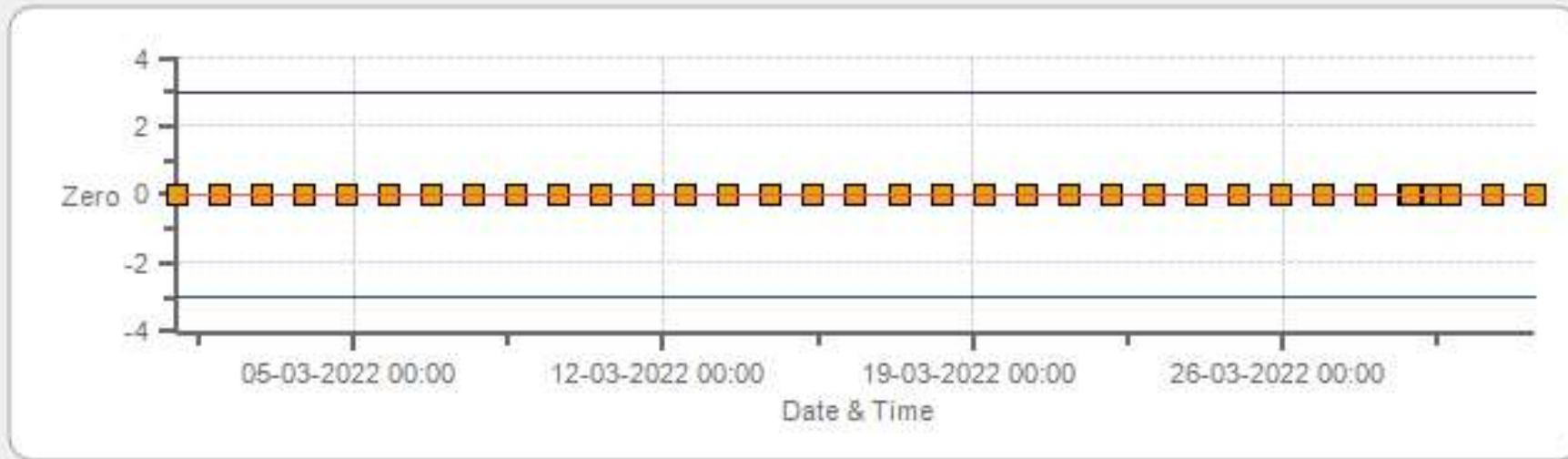
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: Cold Lake South Monthly: 03-2022 Type: SpanAndZero - Span



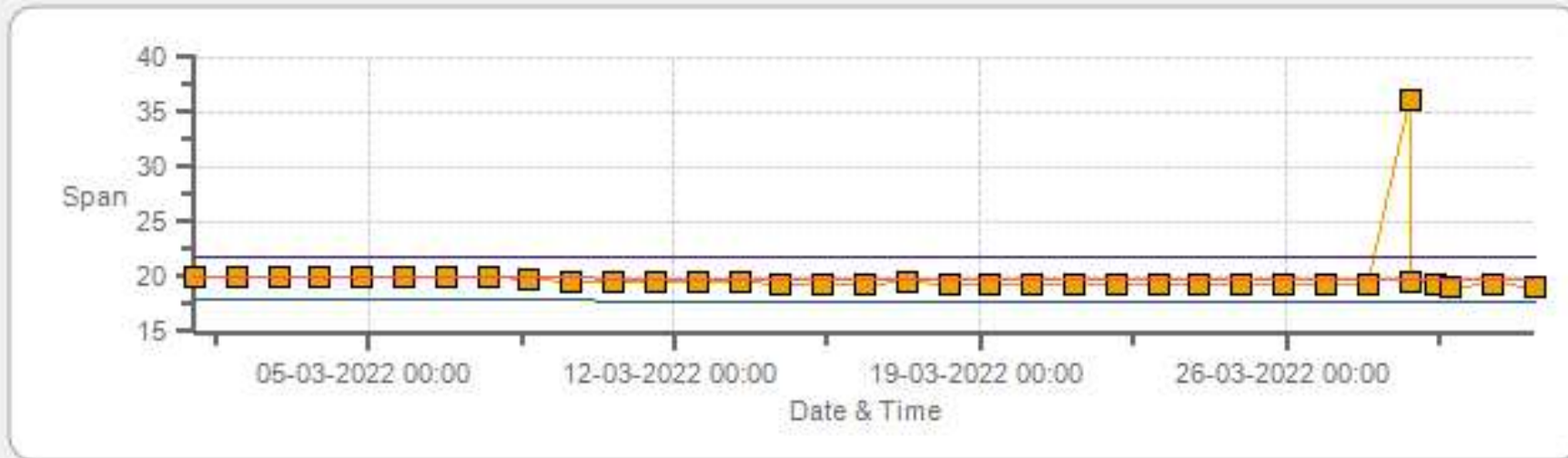
Span SpanRef Span Low Span High

THC55[ppm] Calibration: Cold Lake South Monthly: 03-2022 Type: SpanAndZero - Zero



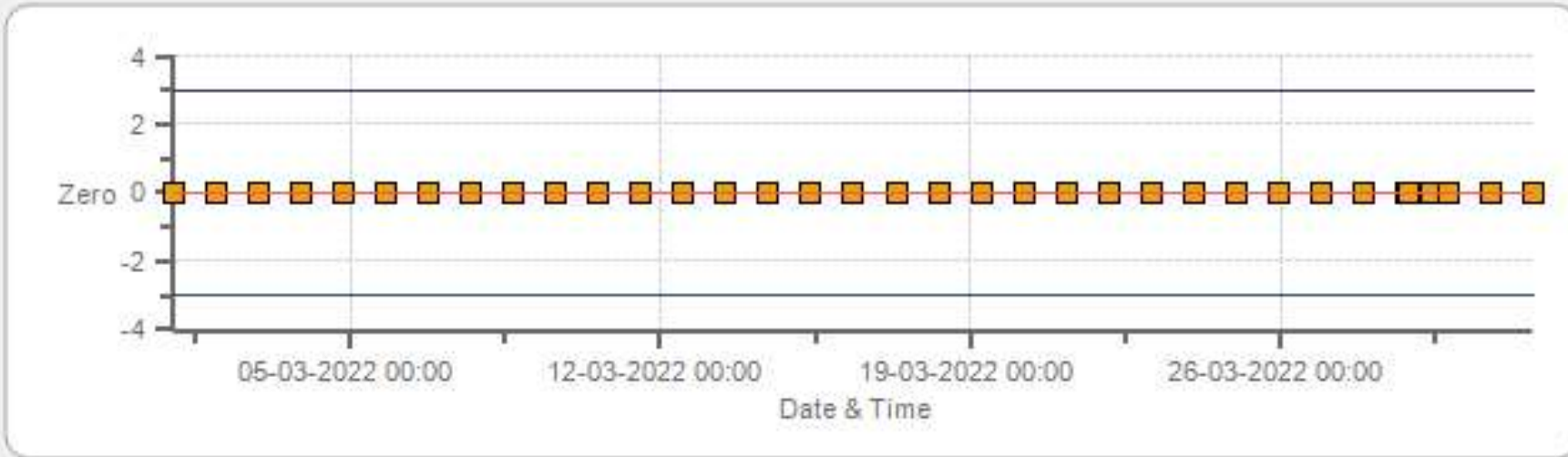
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: Cold Lake South Monthly: 03-2022 Type: SpanAndZero - Span



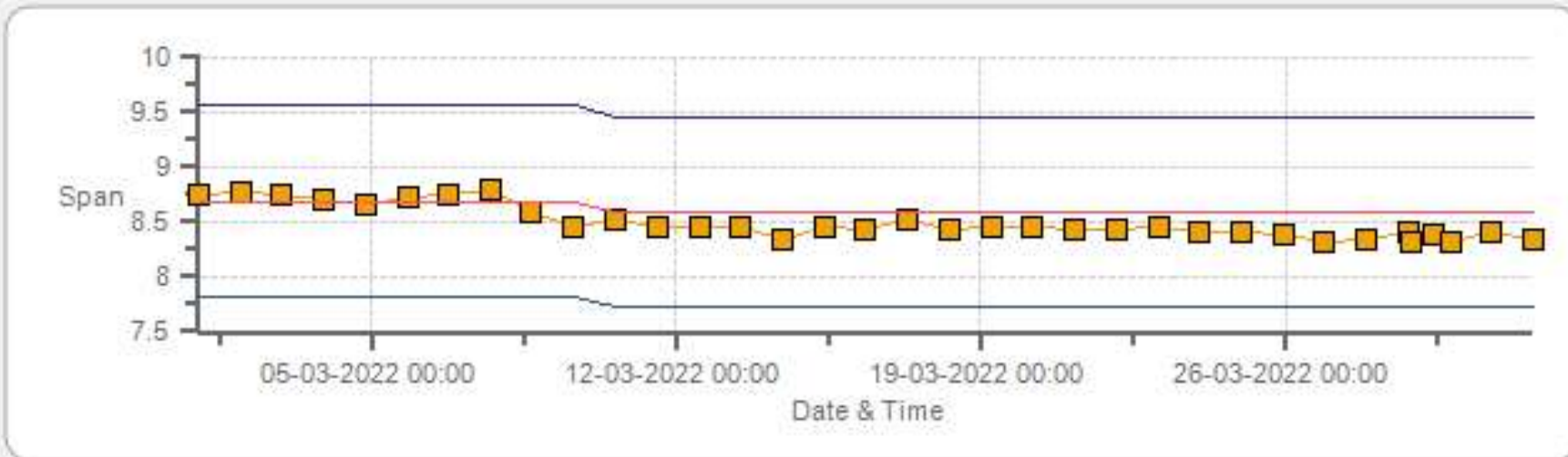
Span SpanRef Span Low Span High

CH4[ppm] Calibration: Cold Lake South Monthly: 03-2022 Type: SpanAndZero - Zero



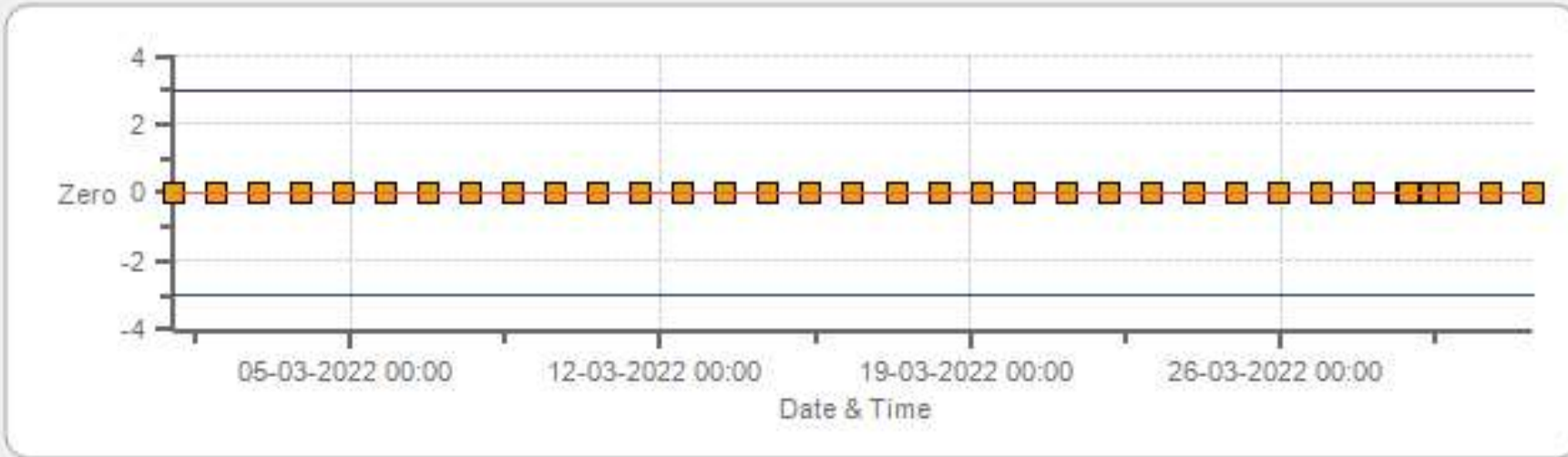
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: Cold Lake South Monthly: 03-2022 Type: SpanAndZero - Span



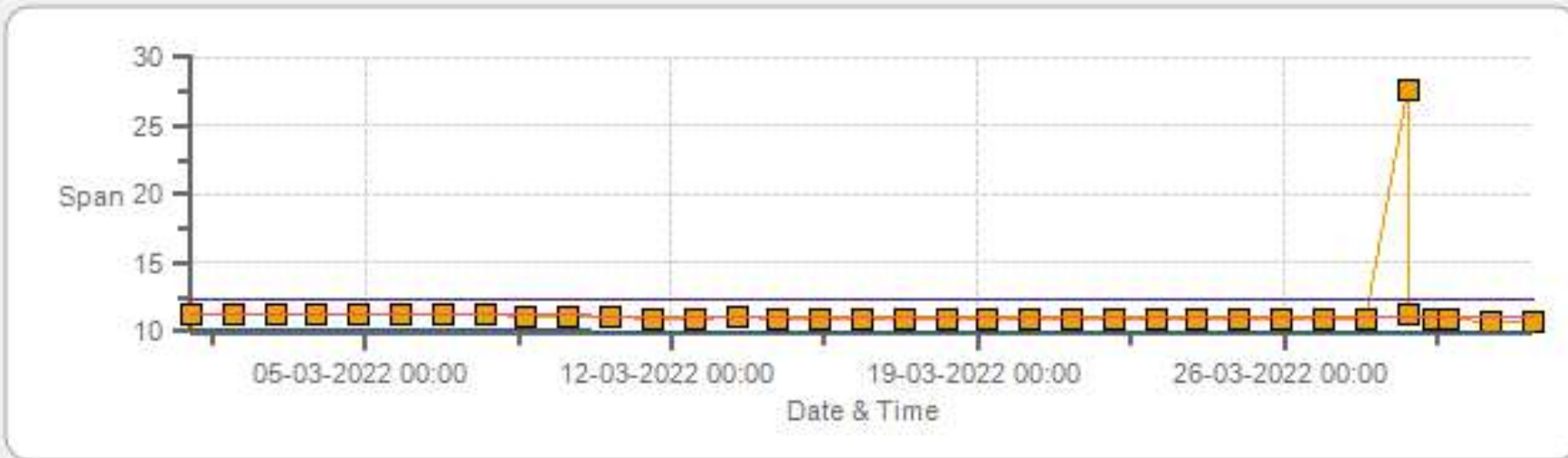
Span SpanRef Span Low Span High

NMHC[ppm] Calibration: Cold Lake South Monthly: 03-2022 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: Cold Lake South Monthly: 03-2022 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	09-Mar-2022	PREVIOUS CALIBRATION DATE:	15-Feb-2022
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	0.999
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	959
PURPOSE:	Routine	START TIME (MST):	10:40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:10

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180260018	FLOW (mL/min)	444
INITIAL		FINAL	
BKG/OFFSET	2.23	BKG/OFFSET	2.23
COEF/SLOPE	0.983	COEF/SLOPE	0.986
Expected (reference) Value	261.1	Expected (reference) Value	258.9

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	26801218	ID:	132
MFC CALIBRATION DATE:	19-Oct-2021	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):	1000	LOW ID	n/a
EXPIRY DATE	09-Jun-2029	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	38.50	5000	0.00	0	0	1.010	0.998
4962	38.50	5000	391.16	387.2	392.1	1.010	0.998
4982	18.00	5000	182.88	n/a	183.8	n/a	0.995
4991	9.00	5000	91.44	n/a	92.1	n/a	0.993

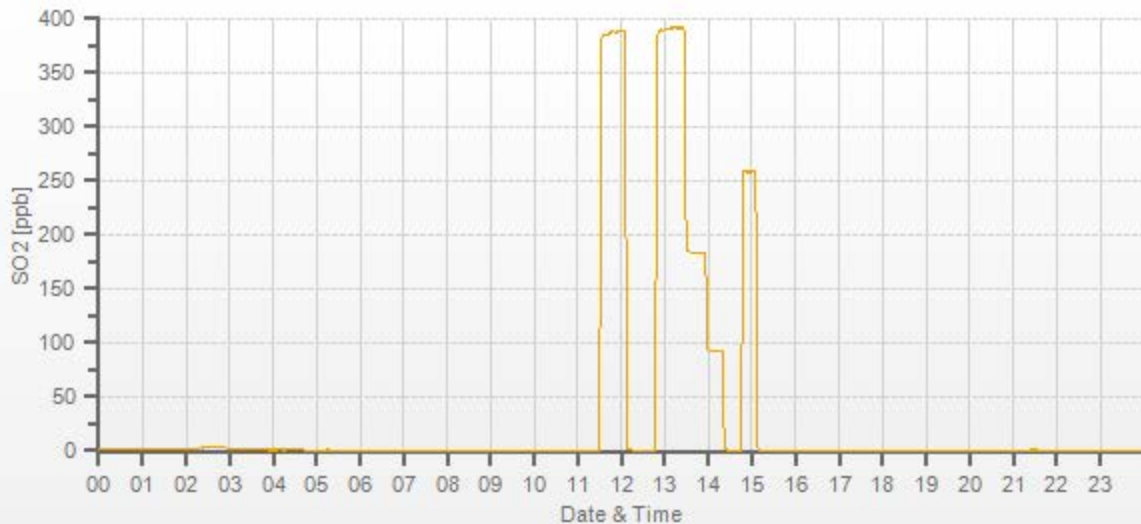
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	0.1%

COMMENTS:

Sample inlet filter was changed.

SO2[ppb] Station: Cold Lake South Daily: 09-03-2022 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202203-01174

TRS Analyzer Calibration by Dilution



DATE:	09-Mar-2022	PREVIOUS CALIBRATION DATE:	15-Feb-2022
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	0.997
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	959
PURPOSE:	Routine	START TIME (MST):	10:39
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:10

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	812728560	FLOW (mL/min)	500
INITIAL		FINAL	
BKG/OFFSET	23.1	BKG/OFFSET	23.3
COEF/SLOPE	1.115	COEF/SLOPE	1.127
Expected (reference) Value	39	Expected (reference) Value	41.1

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	19-Oct-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0000644	HIGH ID	n/a
CONC (ppm):	10.00	EXPIRY DATE	n/a
CYLINDER (psi):	500	LOW ID	n/a
EXPIRY DATE	16-Jul-2022	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

START TIME:	10:54	SO2 Conc (ppb)	380
END TIME:	11:09	Analyzer Response (ppb)	0.0

CALIBRATION:

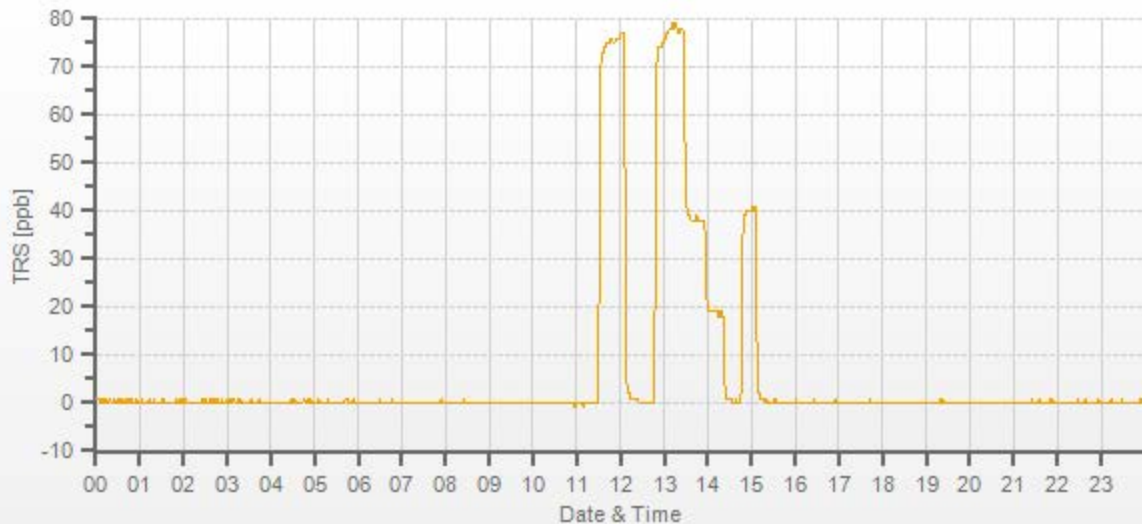
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	7500	7500	0.00	0.2	0	1.022	1.003
7442	58.50	7500	78.00	76.5	77.8	1.022	1.003
7472	28.50	7500	38.00	n/a	38.2	n/a	0.995
7486	14.20	7500	18.93	n/a	19	n/a	0.996

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.997	0.1%

COMMENTS:

Sample inlet filter was changed.



NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	09-Mar-2022	PREVIOUS CALIBRATION DATE:	15-Feb-2022	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1505664393	NOx	0.999
LOCATION:	CLS	BAROMETRIC (mBar):	959	FLOW (mL/min)	794	NO	0.999
PURPOSE:	Routine	START TIME (MST):	10:41	RANGE (ppb)	500	NO2	0.999
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:07	GPT FOR O3?		No	

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):	1000	LOW ID:	n/a
MFC CALIBRATION DATE:	19-Oct-2021	OXIDIZER ID:	n/a	EXPIRY DATE	09-Jun-2029	LOW EXPIRY:	n/a

CALIBRATION SETTINGS:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	4.4	4.2	n/a	BKG/OFFSET:	4.3	4.1	n/a
SLOPE/COEF/CE:	0.999	0.949	1.003	SLOPE/COEF/CE:	0.999	0.938	0.999

EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	250.0	2.3	247.7		246.8	2.1	244.7

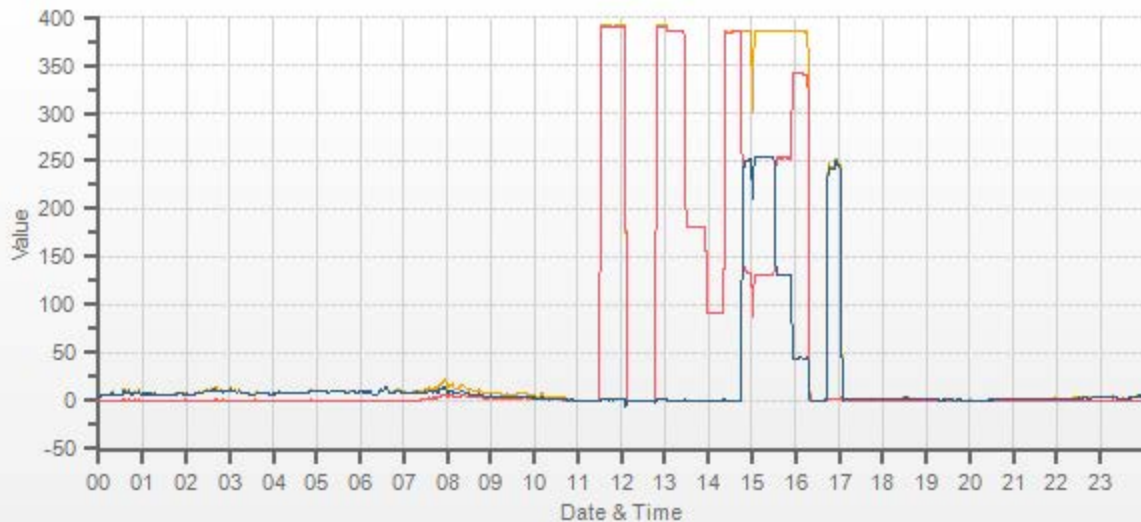
CALIBRATION PARAMETERS:				
POINT	NO TARGET (PPB)	NO2 TARGET (PPB)	NO2 RANGE	O3 POINT
HIGH	380	250	230-265	n/a
MID	180	125	115-150	n/a
LOW	90	45	40-55	n/a
EXTRA 1	n/a	n/a	n/a	n/a

FLOW RATE			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000	38.50	5000	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0	0.0	0.0	0.990	0.986	0.986	1.000	1.000	0.999
4962	38.50	5000	385.0	385.8	0.8	389.0	391.1	2.1	384.9	385.6	0.7	0.990	0.986	0.986	1.000	1.000	0.999
4982	18.00	5000	180.0	180.4	0.4	n/a	n/a	n/a	181.4	181.2	-0.1	n/a	n/a	0.986	0.992	0.995	0.999
4991	9.00	5000	90.0	90.2	0.2	n/a	n/a	n/a	91.6	91.6	0.0	n/a	n/a	0.986	0.983	0.984	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	38.50	5000	0	385.2	385.0	-0.1	254.2	254.6	0.998	100.16%
AS-FOUND HIGH	38.50	5000	240	131.0	385.6	254.5	254.2	254.6	0.998	100.16%
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MID	38.50	5000	125	253.6	385.4	131.8	131.6	131.9	0.998	100.23%
LOW	38.50	5000	45	340.7	385.2	44.5	44.5	44.6	0.998	100.22%
NO2 adjustment not required.									AVERAGE:	100.20%

LINEAR REGRESSION ANALYSIS:				COMMENTS:
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	0.999	0.19%	
NOx	1.000	0.998	0.16%	
NO2	1.000	1.001	0.01%	

Sample inlet filter was changed.
15:00 - scheduled ZS check interfered with the calibration.



CAL-LICA-202203-01174

Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	08-Mar-2022	PREVIOUS CALIBRATION DATE:	16-Feb-2022
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.002
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	961
PURPOSE:	Routine	START TIME (MST):	12:14
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:25

ANALYZER:

MAKE/MODEL	Thermo 49i	RANGE	500 ppb
SERIAL #	700419951	FLOW (mL/min)	1476
INITIAL		FINAL	
BKG/OFFSET	0	BKG/OFFSET	0
COEF/SLOPE	1.113	COEF/SLOPE	1.138
Expected (reference) Value	445	Expected (reference) Value	445.3

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	19-Oct-2021	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

CALIBRATION PARAMETERS:

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

CALIBRATION:

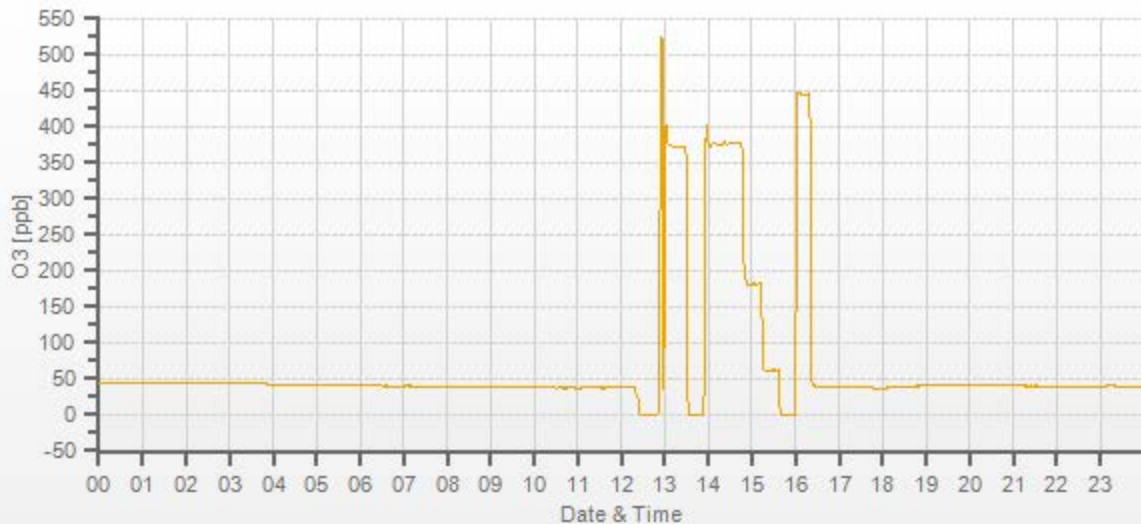
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	XXXX	5000	0.0	0.0	0.0	XXXX	XXXX
5000	XXXX	5000	378.0	372.2	376.9	1.016	1.003
5000	XXXX	5000	180.0	n/a	181.1	n/a	0.994
5000	XXXX	5000	60.0	n/a	62.4	n/a	0.962

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.995	0.3%

COMMENTS:

Sample inlet filter was changed. 12:52-12:58 operator's error (vent of the calibrator was not opened). As Four



Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	08-Mar-2022	PREVIOUS CALIBRATION DATE:	16-Feb-2022	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1180930025	1152
LOCATION:	CLS	BAROMETRIC (mBar):	961	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	12:15	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:12	PREVIOUS CF:	0.996	0.997	0.996

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 168375	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH ₄ /C ₃ H ₈ (ppm):	914.0 307.0	HIGH EXPIRY:	n/a
ID:	26801218	ID:	132	CYLINDER (psi):	400	LOW ID:	n/a
MFC CALIBRATION DATE:	19-Oct-2021	OXIDIZER ID:	115	EXPIRY DATE	21-Jan-2028	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	844.3
RANGE	12 - 16	6 - 8	2 - 4	THC as CH ₄	1758.3

EXPECTED (REFERENCE) VALUE:

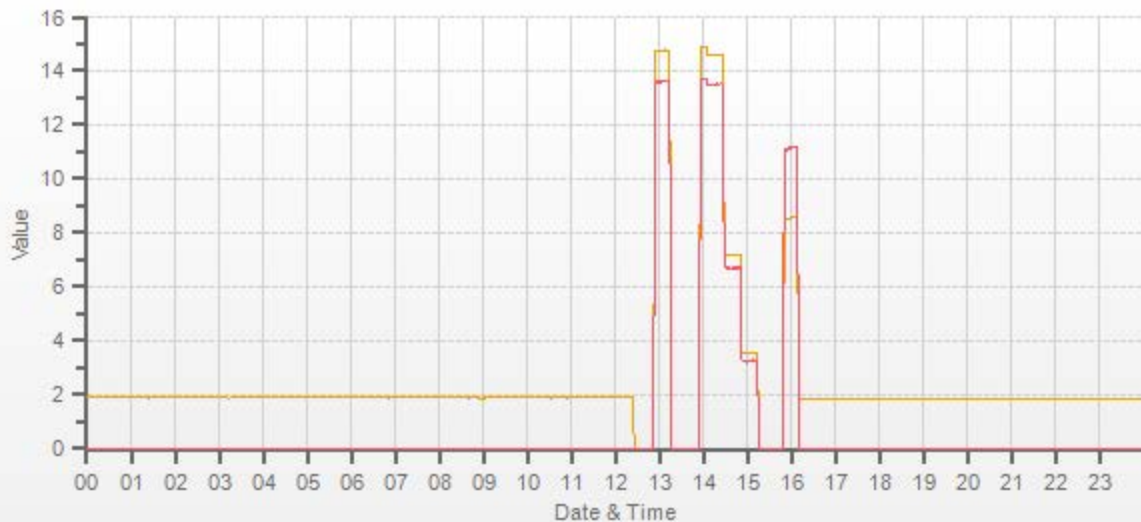
INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	8.69	11.23	19.92		8.59	11.18	19.77

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
3051	49.40	3100	14.57	13.45	28.02	14.76	13.61	28.37	14.58	13.49	28.07	0.987	0.989	0.988	0.999	0.997	0.998
3075	24.70	3100	7.28	6.73	14.01	n/a	n/a	n/a	7.17	6.69	13.87	n/a	n/a	n/a	1.016	1.005	1.010
3088	12.40	3100	3.66	3.38	7.03	n/a	n/a	n/a	3.53	3.28	6.82	n/a	n/a	n/a	1.036	1.030	1.031

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments:	
CH ₄	1.000	1.003	-0.4%	Sample inlet filter was changed.	
NMHC	1.000	1.005	-0.3%		
THC	1.000	1.004	-0.3%		
				Use Zero Chrom?	Yes



CAL-LICA-202203-01174



Teledyne T640 Audit/Calibration

Date/Previous Audit Date:	March 8, 2022	February 16, 2022	Weather Conditions:	Light snow	
Company:	LICA		Start Time (mst):	16:34	
Station:	Cold Lake South		End Time (mst):	17:42	
Parameter:	PM 2.5		Performed By/Reviewer:	Alex Yakupov	Chris Wesson
Instrument Data:					
Make/Model:	Teledyne T640		Serial Number:	575	
Owner:	LICA		Alarms (detail in comments):	No	
Reference Standards/I.D./Expiry Date:					
Flow Standard: DeltaCal DC1 S/N177246 / Jul 12, 2022			Temperature: VAISALA HMP76B / SN: T1640130 / Apr 22, 2022		
Digital Manometer: DeltaCal DC1 S/N177246 / Jul 12, 2022			Pressure: DeltaCal DC1 S/N177246 / Jul 12, 2022		
DIAGNOSTICS:					
Ambient Pressure (mmHg)	719.6	Ambient Temp (°C)	-9.7	ASC Heater Duty (%)	0.0
Box Temp (°C)	29.6	Current PMT HV (V)	1443	LED Temp (°C)	38.81
P3 Value	47	PMT Setting (V)	1444	Pump PWM (%)	84
Sample Flow (L/min)	5.03	Sample RH (%RH)	4.7	Sample Temp (°C)	26.7
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)	720.0	719.6	720	719	+/- 10 mm Hg
Ambient Temperature (°C)	-10.10	-9.7	n/a		+/- 2°C
Sample Flow (L/min)	5.04	5.01	5.04	5.01	+/-5% of T640x (e.g., 4.75 – 5.25 lpm)
Additional Monthly Maintenance :					Completed
Inlet cleaned?					Yes
Sample tubing inspected (inner and outer)?					Yes
Comments:					
n/a					

Meteorological System Checklist



Date:	March 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

Previous check date:	February 16, 2022		
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	Vaisala HMP76B #T1640130, Exp. Date: April 22, 2022		
Reference Temperature (°C):	-11.5		
Station - Ambient Temperature (°C):	-11.6		
Temperature Difference (°C):	0.1		

BAROMETRIC PRESSURE SENSOR CHECK

Previous check date:	February 16, 2022		
Reference Barometer ID:	Vaisala HMP76B #T1640130, Exp. Date: April 22, 2022		
Reference Pressure - Units/Reading:	millibar	952	
Station Pressure - Units/Reading:	millibar	950	
Pressure Tolerance +/- 15% of error:	809 - 1095	0.21%	

RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Previous check date:	February 16, 2022		
Reference Hygrometer ID:	Vaisala HMP76B #T1640130, Exp. Date: April 22, 2022		
Reference Hygrometer % RH- Reading:	57.00		
Station Hygrometer % RH- Reading:	59.70		
RH Tolerance +/- 15% of difference:	48.45 - 65.55	-4.7%	

ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Previous check date:	February 16, 2022	Previous check date:	February 16, 2022
Wind Speed Observed (kph):	0-10	Wind Direction Observed:	NW
Wind speed on Data Logger (kph):	8.4	Wind Direction on Data Logger:	NW
	Annual audit: April 20, 2021	Wind Direction Pass/Fail?:	Pass

Comments

Station (Trailer) temperature vs Reference gauge: 24.0 vs 23.6, passed.



Meteorological Sensor Audit/Calibration

Location Information

Company: LICA
 Audit Location: Cold Lake South
 Audit Date: April 20, 2021
 Calibration Purpose: installation

Performed By: Alex Yakupov
 Reviewed By: Chris Wesson
 Start/End Time (mst): 10:19 / 14:44
 Weather Conditions: Mix of sun and 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:	0-180
Serial #:	177354	Direction Voltage Output Range:	n/a
Previous Cal/Audit Date:	September 25, 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	92.0	92.0	1.002
6000	110.6	110.4	110.4	1.002
7000	129.0	128.8	128.8	1.002
8000	147.4	147.3	147.3	1.001
9000	165.9	165.7	165.7	1.001
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	28	328	1.6	1.7	1.7
60	300	58	299	1.6	1.5	1.6
90	270	89	267	0.6	3.0	1.8
120	240	120	237	0.5	3.3	1.9
150	210	148	207	1.6	3.2	2.4
180	180	177	179	2.9	1.4	2.2
210	150	206	149	3.8	1.3	2.6
240	120	237	119	3.1	0.7	1.9
270	90	267	89	2.8	0.7	1.8
300	60	297	58	2.8	1.7	2.3
330	30	328	28	1.7	2.0	1.8
355	0	355	0	0.0	0.1	0.1
The audit meets AMD requirements.				Average Absolute Degrees Difference=		1.7

Comments:

Bearing Torque was also tested. Still at minimum threshold (like new) = No problem.

End of Report



Lakeland Industry & Community Association

MARCH 2022

Ambient Air Monitoring Calibration Report

- TAMARACK STATION-

CAL-LICA-202203-01248

Station Operation and Maintenance:

Bureau Veritas Canada

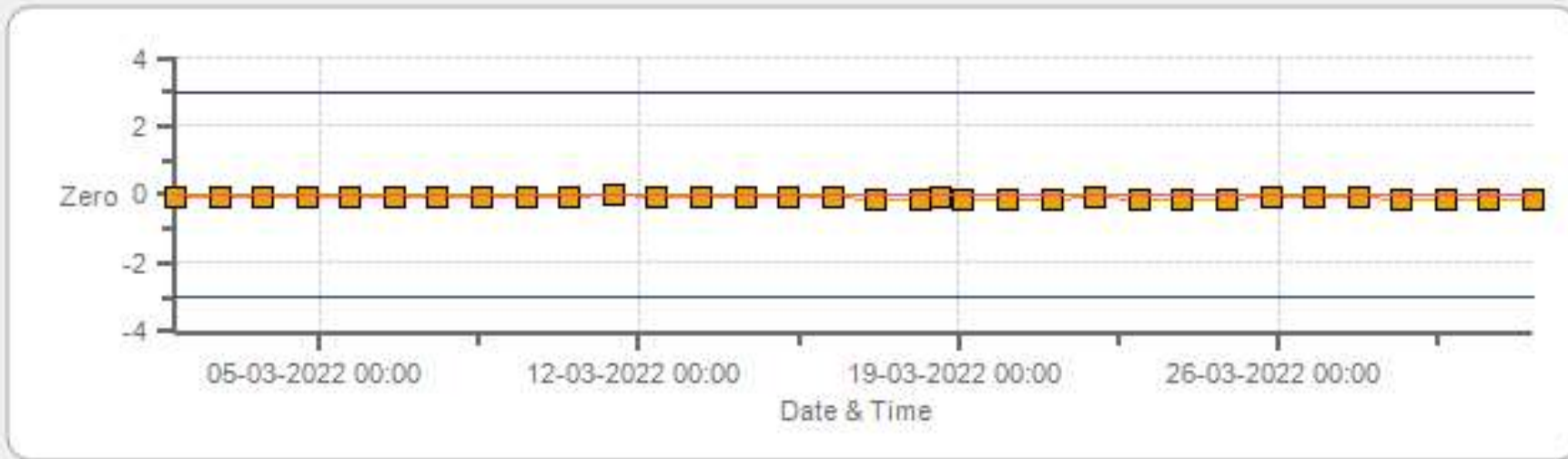
Data Validation and Report:

LICA / Bureau Veritas Canada

April 19, 2022

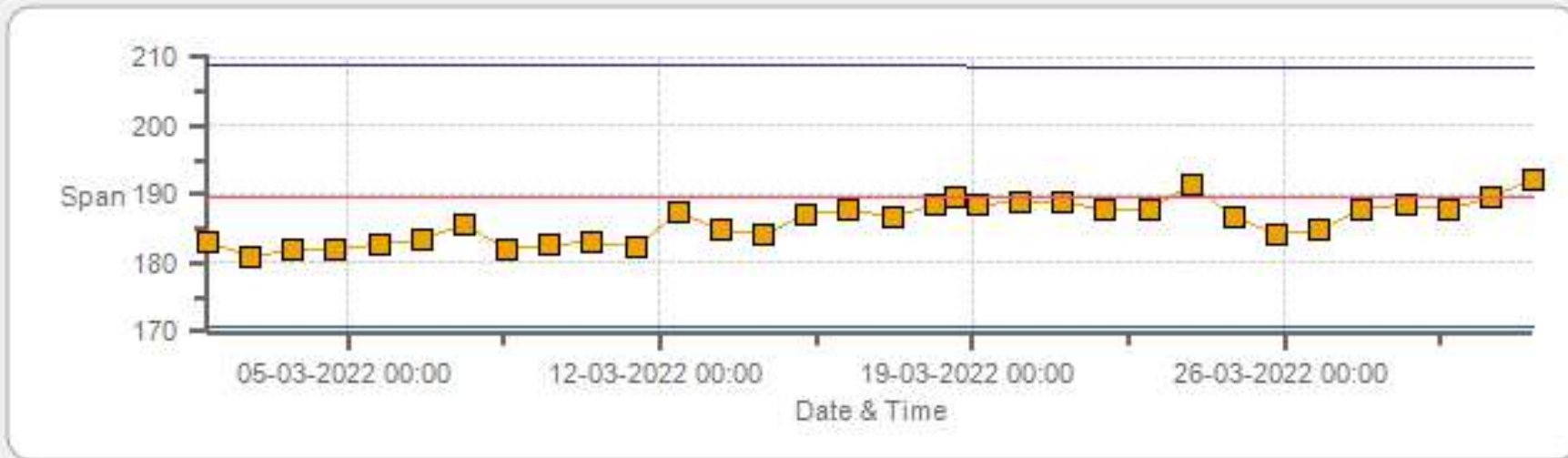
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Tamarack Monthly: 03-2022 Type: SpanAndZero - Zero



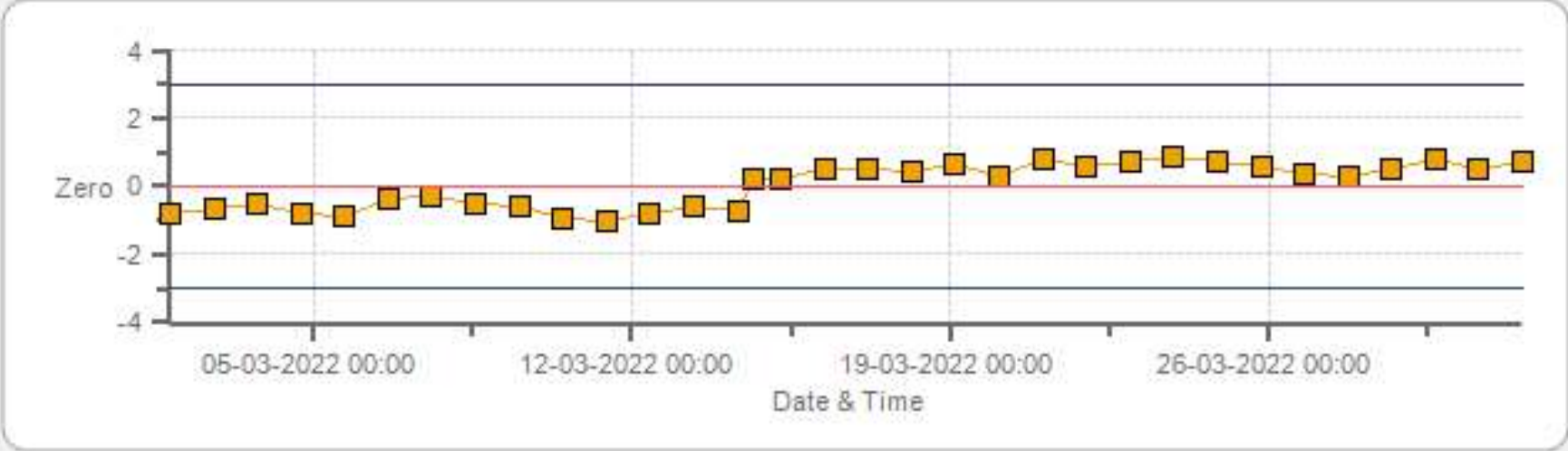
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: Tamarack Monthly: 03-2022 Type: SpanAndZero - Span



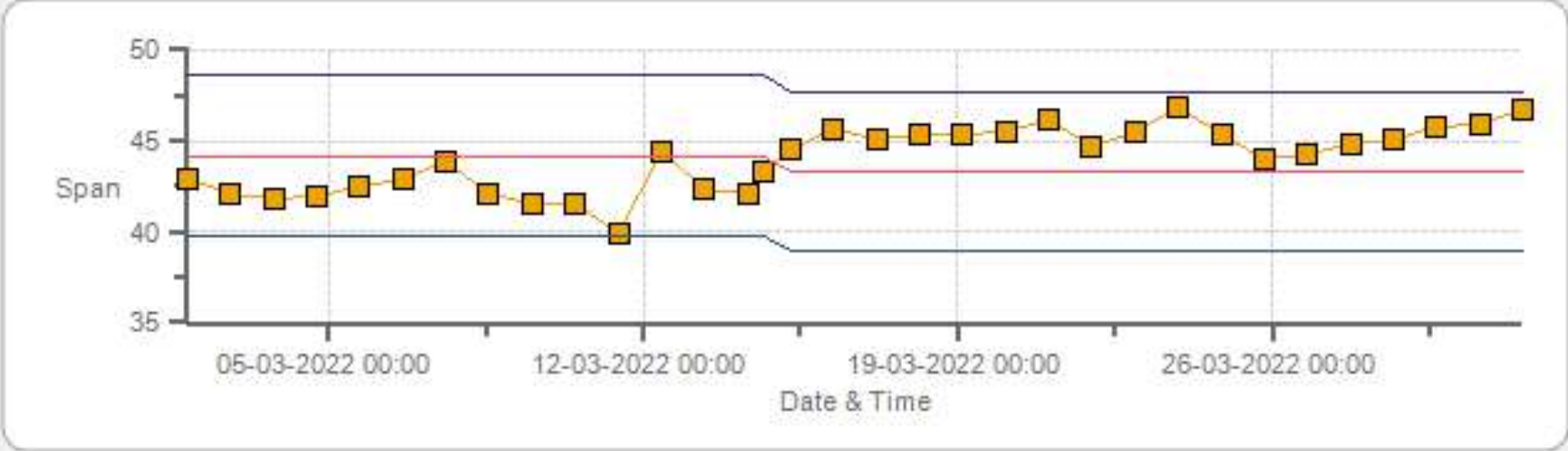
Span SpanRef Span Low Span High

H2S[ppb] Calibration: Tamarack Monthly: 03-2022 Type: SpanAndZero - Zero



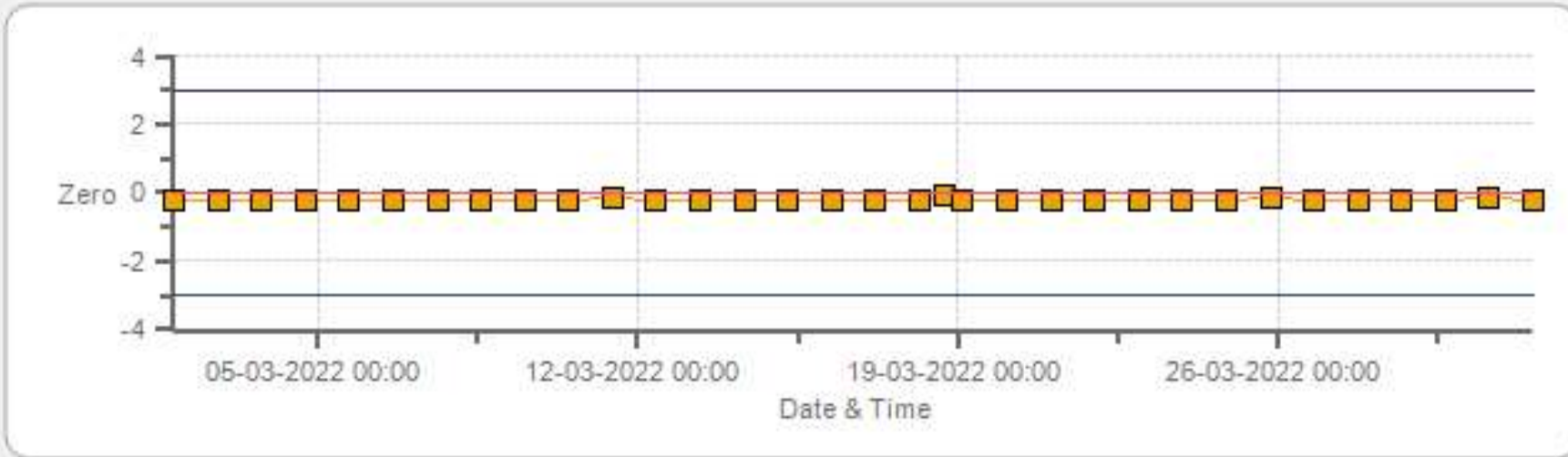
Zero Zero Ref Zero Low Zero High

H2S[ppb] Calibration: Tamarack Monthly: 03-2022 Type: SpanAndZero - Span



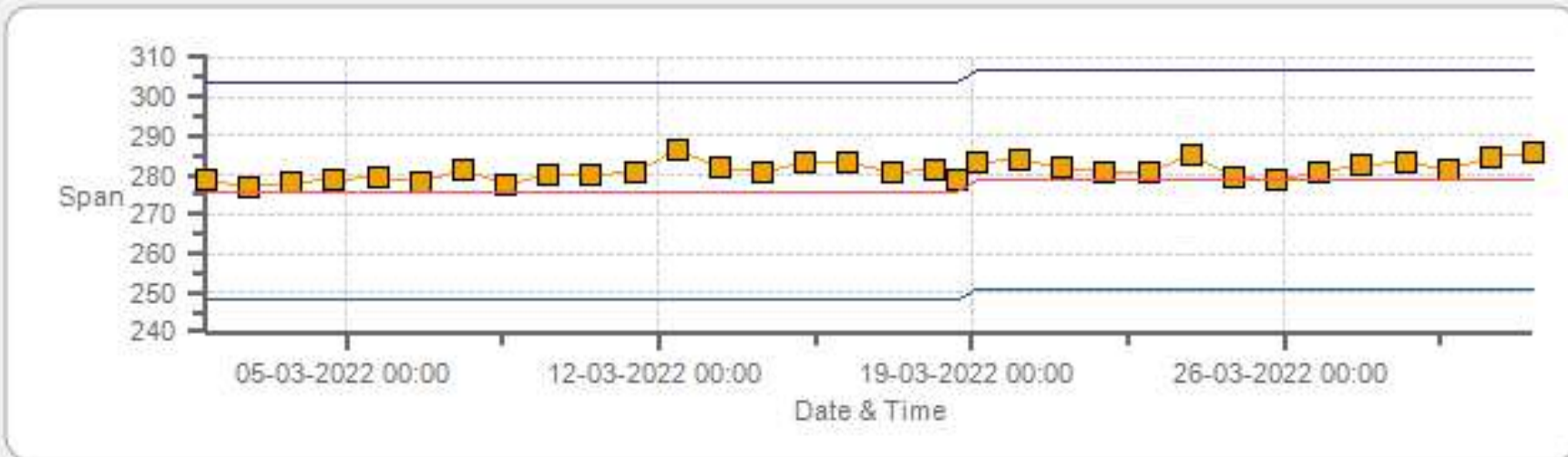
Span SpanRef Span Low Span High

NOX[ppb] Calibration: Tamarack Monthly: 03-2022 Type: SpanAndZero - Zero



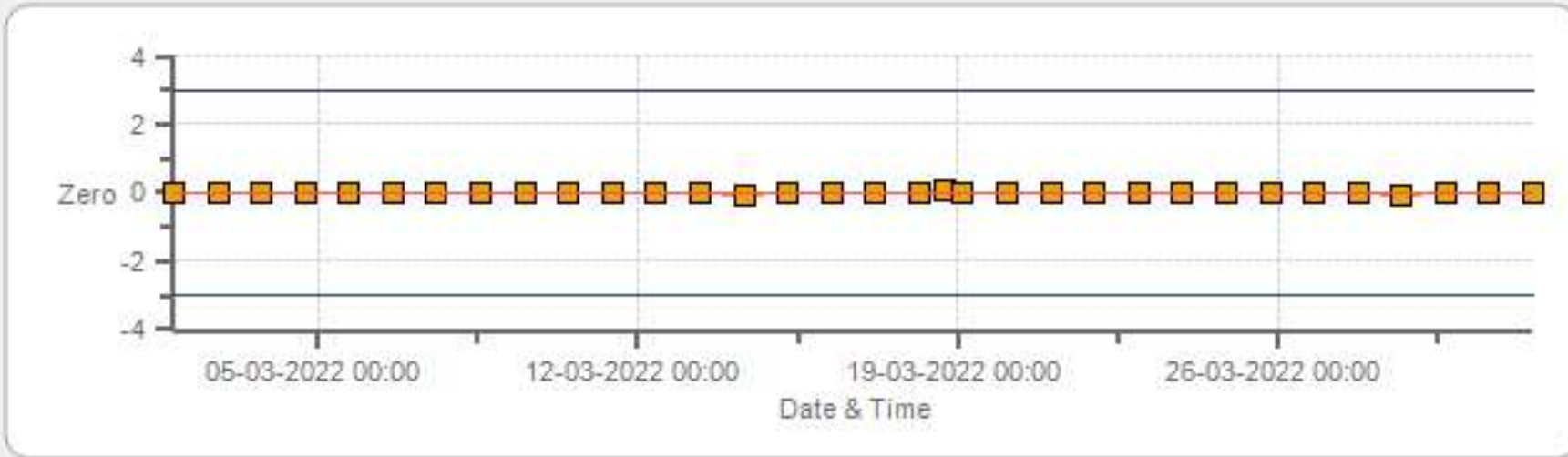
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: Tamarack Monthly: 03-2022 Type: SpanAndZero - Span



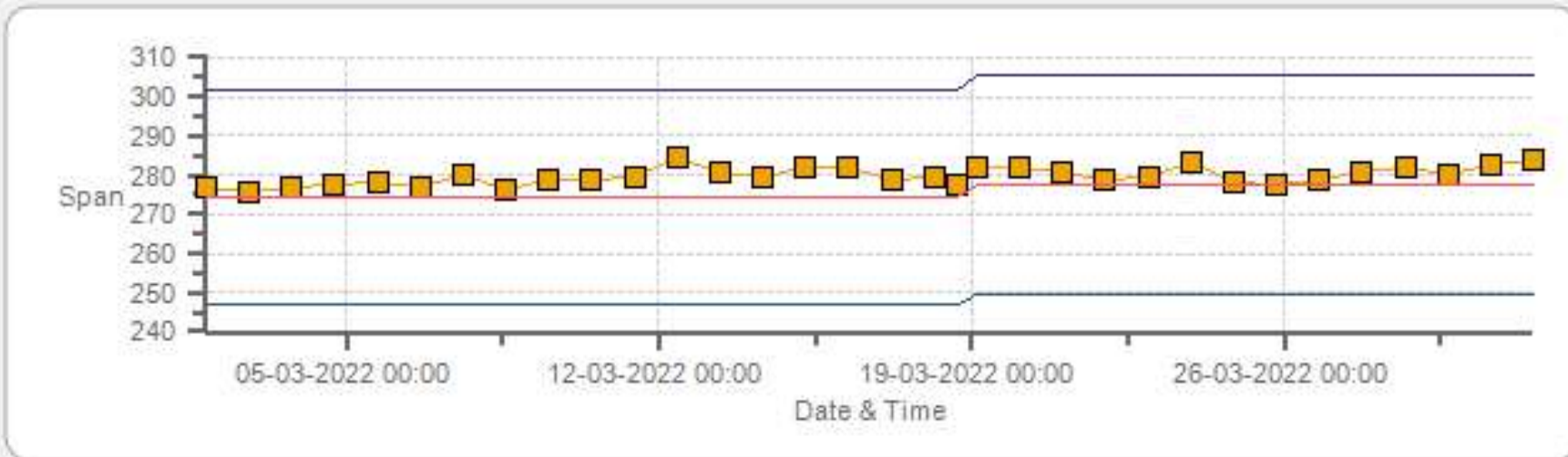
Span SpanRef Span Low Span High

NO2[ppb] Calibration: Tamarack Monthly: 03-2022 Type: SpanAndZero - Zero



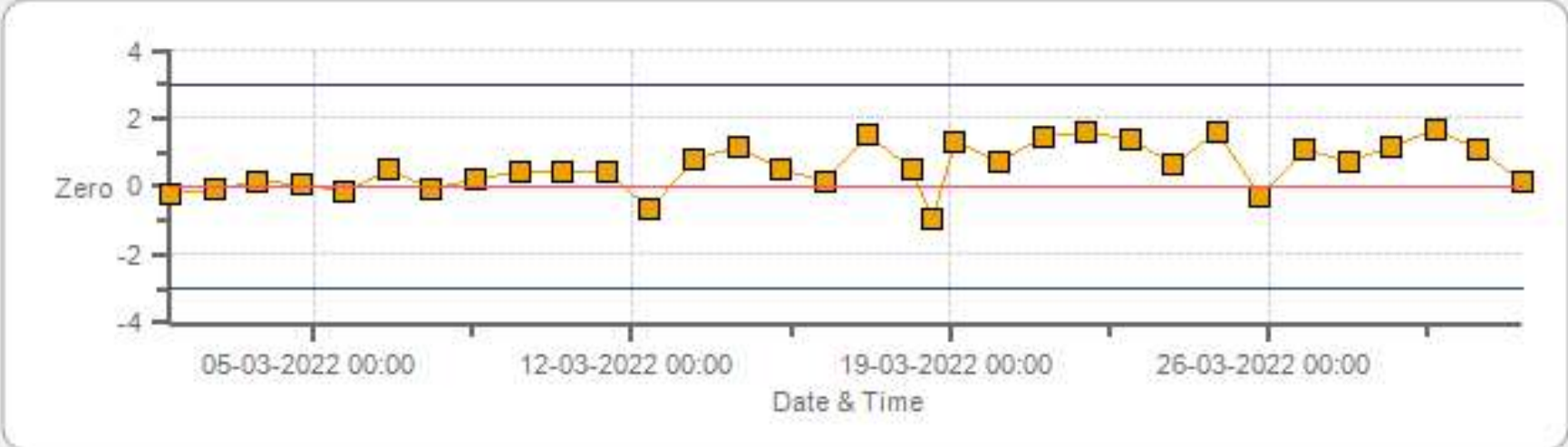
Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: Tamarack Monthly: 03-2022 Type: SpanAndZero - Span



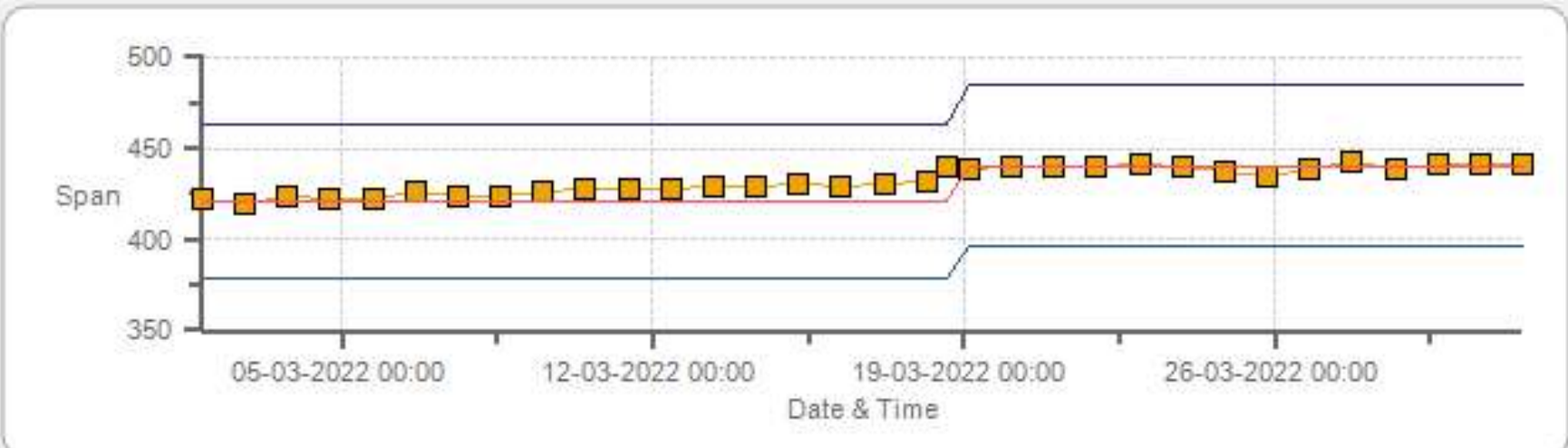
Span SpanRef Span Low Span High

O3[ppb] Calibration: Tamarack Monthly: 03-2022 Type: SpanAndZero - Zero



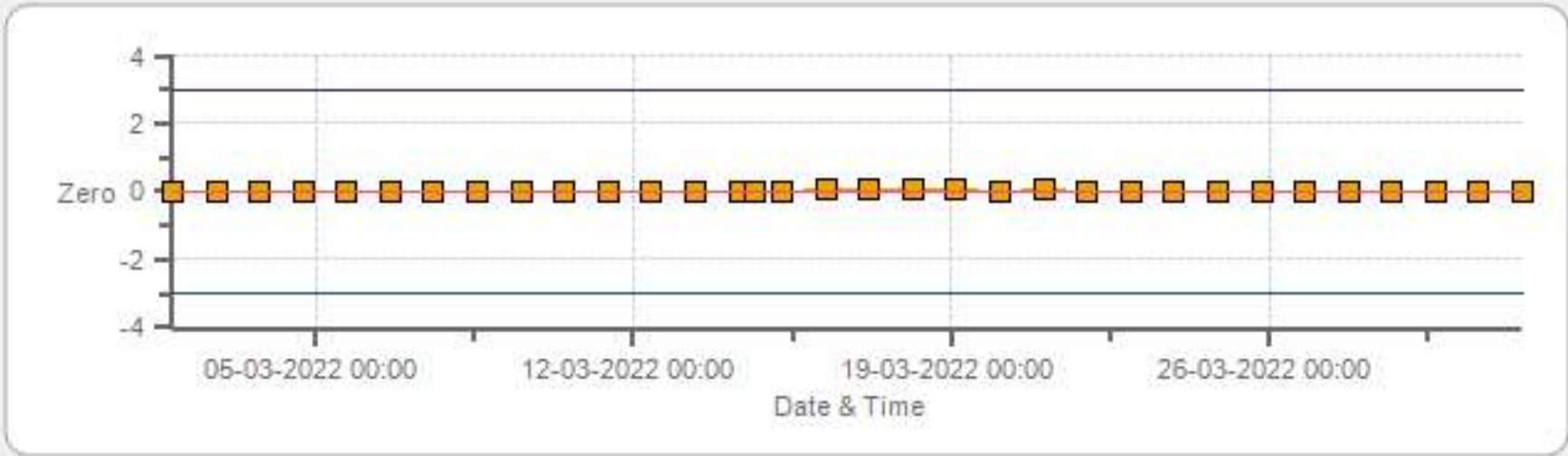
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: Tamarack Monthly: 03-2022 Type: SpanAndZero - Span



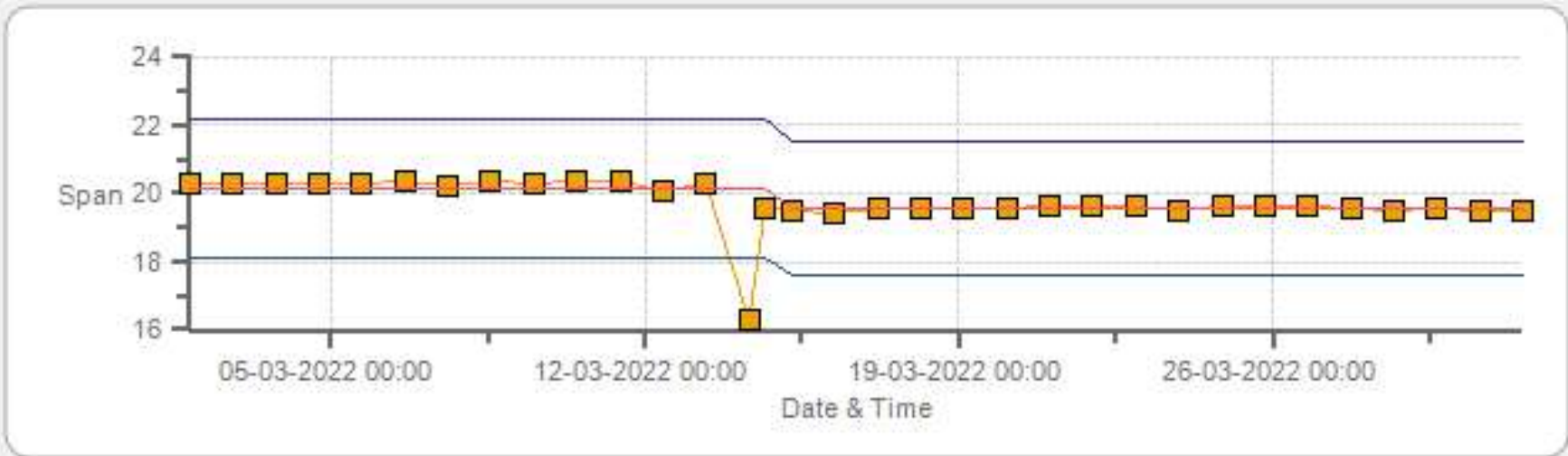
Span SpanRef Span Low Span High

THC55[ppm] Calibration: Tamarack Monthly: 03-2022 Type: SpanAndZero - Zero



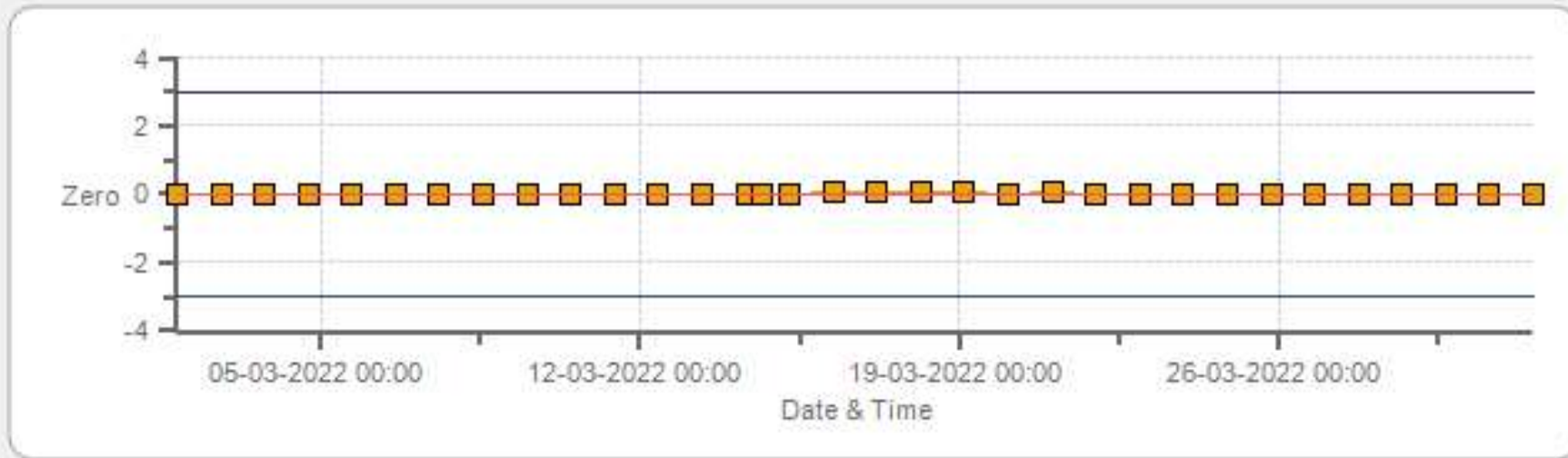
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: Tamarack Monthly: 03-2022 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

CH4[ppm] Calibration: Tamarack Monthly: 03-2022 Type: SpanAndZero - Zero



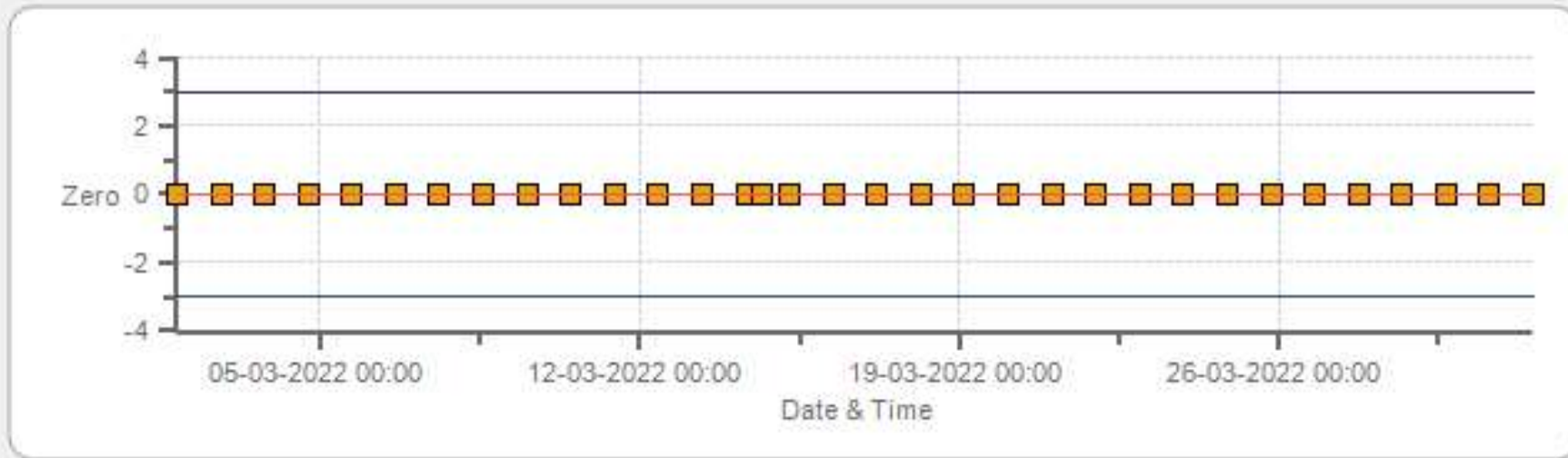
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: Tamarack Monthly: 03-2022 Type: SpanAndZero - Span



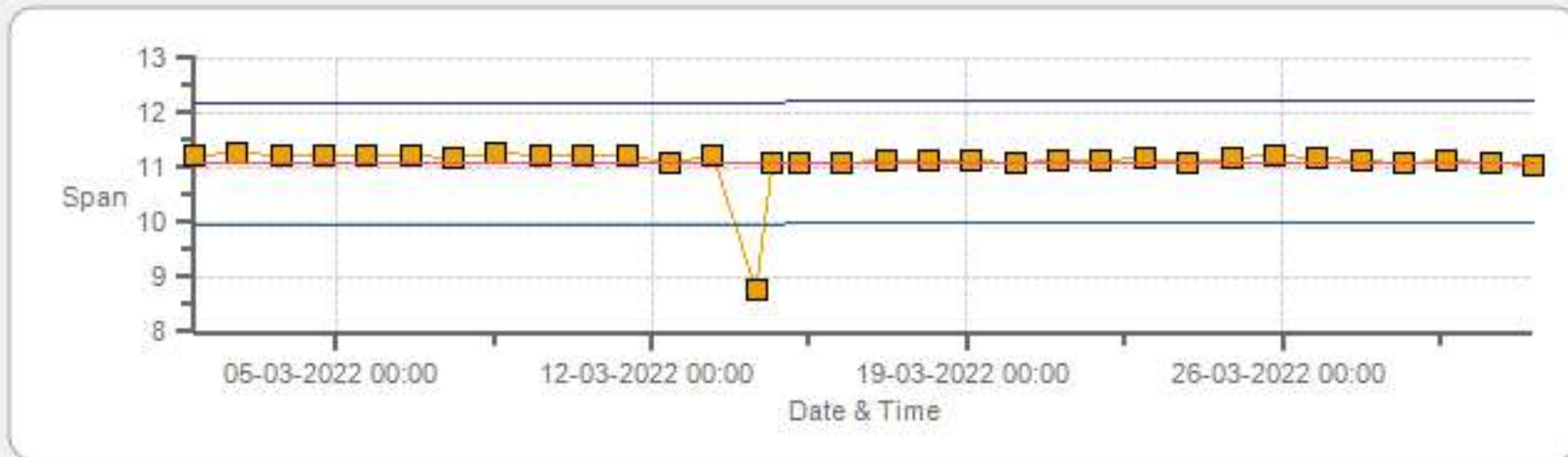
Span SpanRef Span Low Span High

NMHC[ppm] Calibration: Tamarack Monthly: 03-2022 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: Tamarack Monthly: 03-2022 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	18-Mar-2022	PREVIOUS CALIBRATION DATE:	09-Feb-2022
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	931
PURPOSE:	Routine	START TIME (MST):	10:47
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:35

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180930031	FLOW (mL/min)	447
INITIAL		FINAL	
BKG/OFFSET	2.7	BKG/OFFSET	2.7
COEF/SLOPE	0.97	COEF/SLOPE	0.975
Expected (reference) Value	189.8	Expected (reference) Value	189.6

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	26801218	ID:	132
MFC CALIBRATION DATE:	19-Oct-2021	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):	1100	LOW ID	n/a
EXPIRY DATE	09-Jun-2029	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

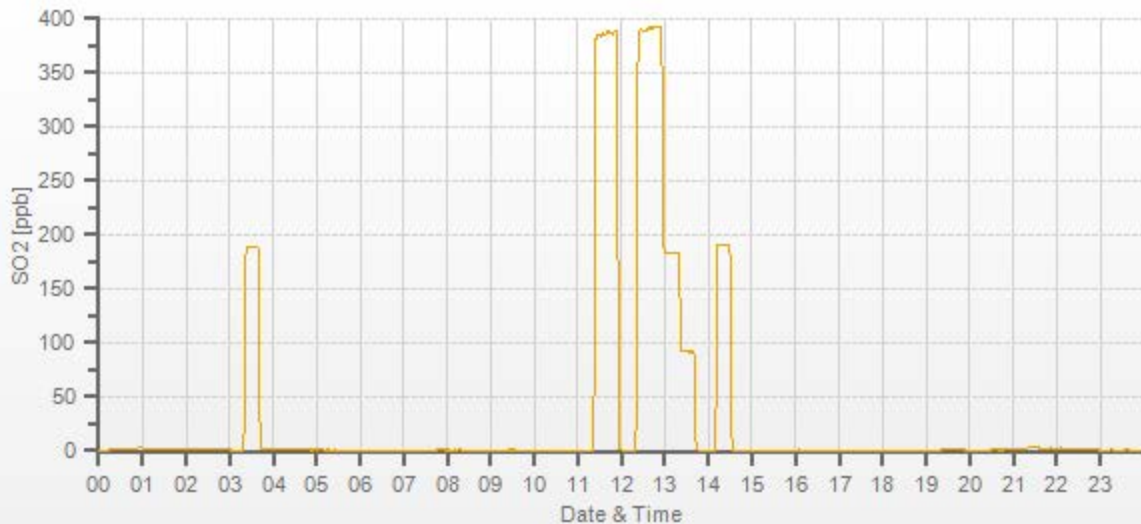
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	38.50	5000	0.00	-0.1	0	1.011	0.998
4962	38.50	5000	391.16	386.8	391.9	1.011	0.998
4982	18.00	5000	182.88	n/a	183.1	n/a	0.999
4991	9.00	5000	91.44	n/a	91.4	n/a	1.000

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	0.0%

COMMENTS:

Sample inlet filter was changed.



H2S Analyzer Calibration by Dilution



DATE:	14-Mar-2022	PREVIOUS CALIBRATION DATE:	09-Feb-2022
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	0.995
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	931
PURPOSE:	Routine	START TIME (MST):	12:09
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:25

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 17360005	FLOW (mL/min)	927
INITIAL		FINAL	
BKG/OFFSET	30	BKG/OFFSET	29.5
COEF/SLOPE	0.81	COEF/SLOPE	0.819
Expected (reference) Value	44.2	Expected (reference) Value	43.3

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	19-Oct-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0000644	HIGH ID	n/a
CONC (ppm):	10.00	EXPIRY DATE	n/a
CYLINDER (psi):	600	LOW ID	n/a
EXPIRY DATE	16-Jun-2022	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:	12:12	SO2 Conc (ppb)	380
END TIME:	12:27	Analyzer Response (ppb)	0.0

CALIBRATION:

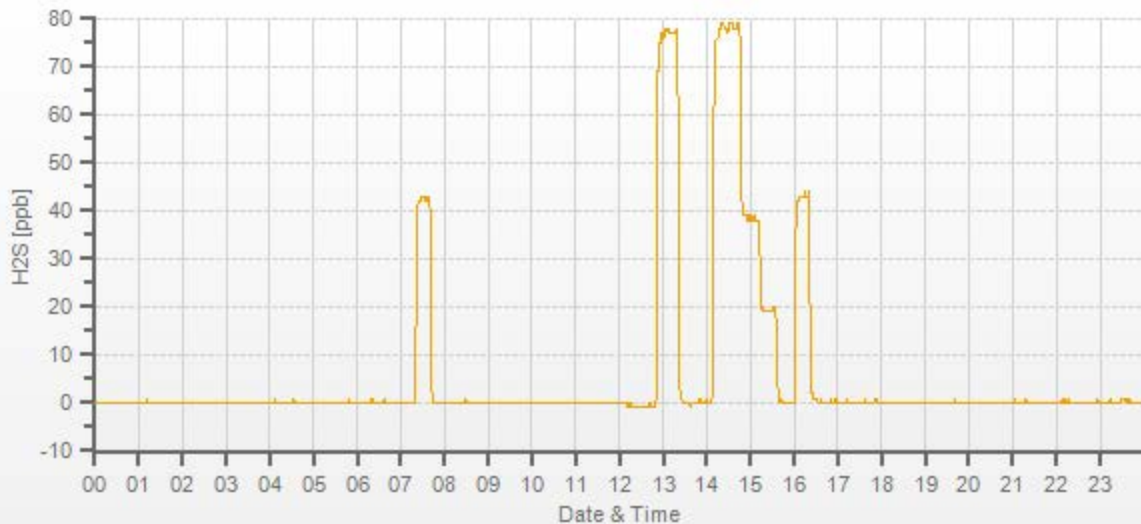
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	7500	7500	0.00	-0.8	0	1.003	0.992
7442	58.50	7500	78.00	77	78.6	1.003	0.992
7472	28.50	7500	38.00	n/a	38.4	n/a	0.990
7486	14.20	7500	18.93	n/a	19.4	n/a	0.976

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.006	0.2%

COMMENTS:

Sample inlet filter was changed.



NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	18-Mar-2022	PREVIOUS CALIBRATION DATE:	09-Feb-2022	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930028	NOx	1.000
LOCATION:	Tamarack	BAROMETRIC (mBar):	931	FLOW (mL/min)	848	NO	1.000
PURPOSE:	Routine	START TIME (MST):	10:48	RANGE (ppb)	500	NO2	1.004
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:26	GPT FOR O3?		No	

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):	1000	LOW ID:	n/a
MFC CALIBRATION DATE:	19-Oct-2021	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:	1.7	1.7	n/a	BKG/OFFSET:	1.8	1.7	n/a
SLOPE/COEF/CE:	1.001	0.976	1.005	SLOPE/COEF/CE:	1.002	0.987	1.005

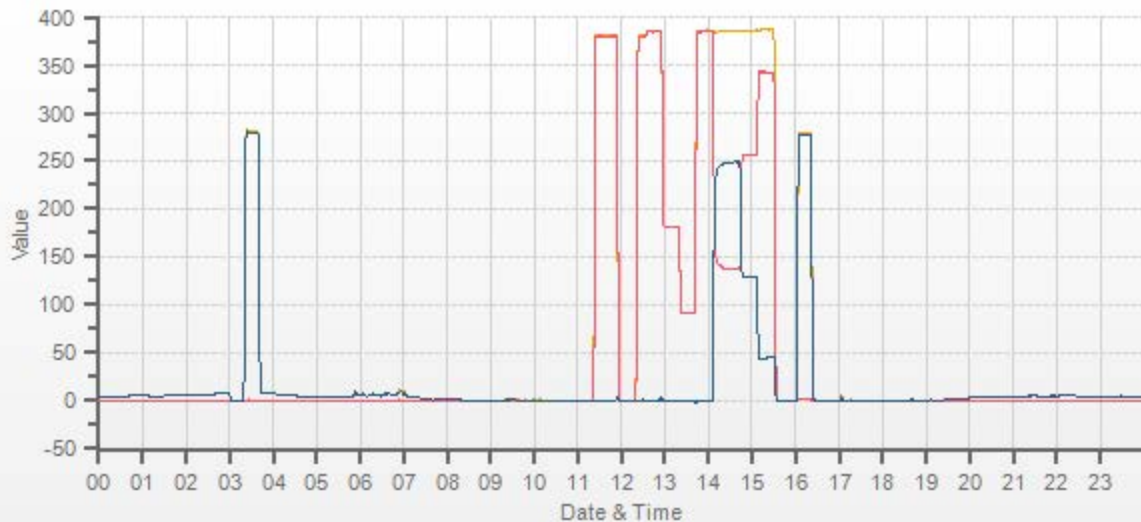
EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	275.9	1.7	274.2		279.0	1.6	277.5

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

FLOW RATE (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	38.50	5000	0.0	0.0	0.0	-0.2	-0.1	0.0	0.0	0.0	0.0	1.012	1.011	0.994	0.993	0.986	0.984
4962	38.50	5000	385.0	385.8	0.8	380.4	381.5	1.1	385.0	385.7	0.7	1.012	1.011	0.994	0.993	0.986	0.984
4982	18.00	5000	180.0	180.4	0.4	n/a	n/a	n/a	181.1	181.7	0.6	n/a	n/a	n/a	n/a	n/a	n/a
4991	9.00	5000	90.0	90.2	0.2	n/a	n/a	n/a	91.3	91.6	0.3	n/a	n/a	n/a	n/a	n/a	n/a

Point	CALIBRATOR			INDICATED (ppb)			NO DROP / O3 Conc (ppb)	NO2 GAIN (ppb)	NO2 Corr. FACTOR	CONV. EFFICIENCY
	GAS	TOTAL	O3 SETPOINT	NO	NOx	NO2				
REFERENCE	38.50	5000	0	385.3	386.3	1.0	248.5	247.8	1.003	99.72%
AS-FOUND HIGH	38.50	5000	240	136.8	385.6	248.8	248.5	247.8	1.003	99.72%
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MID	38.50	5000	125	256.2	386.2	129.9	129.1	128.9	1.002	99.85%
LOW	38.50	5000	45	342.1	387.0	44.9	43.2	43.9	0.984	101.62%
NO2 adjustment not required.									AVERAGE:	100.39%

LINEAR REGRESSION ANALYSIS:				COMMENTS: Sample inlet filter was changed.
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	0.999	0.15%	
NOx	1.000	0.999	0.17%	
NO2	1.000	0.993	0.17%	



CAL-LICA-202203-01248

Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	18-Mar-2022	PREVIOUS CALIBRATION DATE:	10-Feb-2022
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.004
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	931
PURPOSE:	Routine	START TIME (MST):	10:50
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:35

ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	1202068570	FLOW (mL/min)	1350
INITIAL		FINAL	
BKG/OFFSET	3.4	BKG/OFFSET	3.5
COEF/SLOPE	1.018	COEF/SLOPE	1.031
Expected (reference) Value	421.4	Expected (reference) Value	440.3

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	19-Oct-2021	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

CALIBRATION PARAMETERS:

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

CALIBRATION:

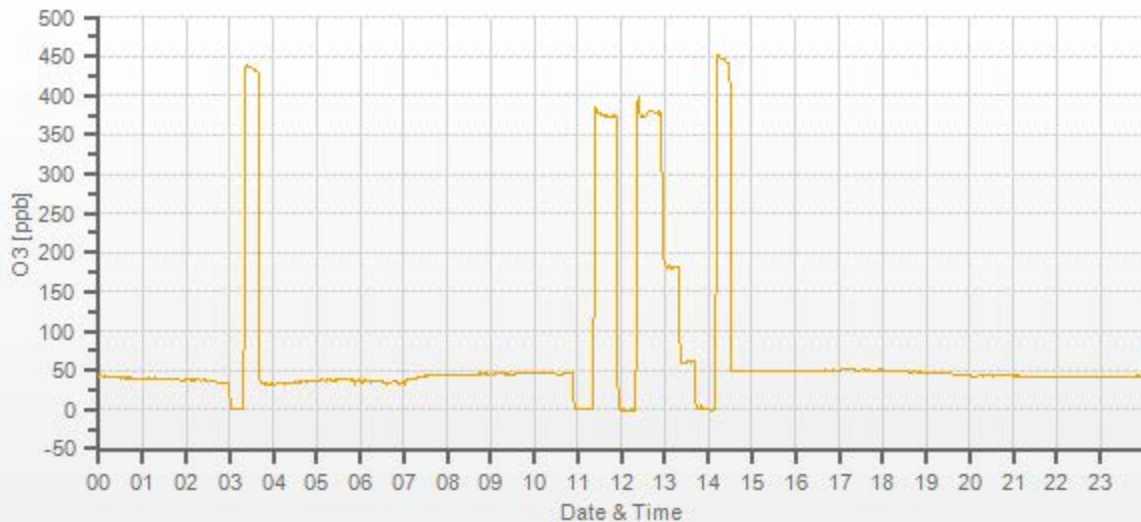
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	XXXX	5000	0.0	0.0	0.0	XXXX	XXXX
5000	XXXX	5000	378.0	372.7	377.3	1.014	1.002
5000	XXXX	5000	181.0	n/a	179.8	n/a	1.007
5000	XXXX	5000	60.0	n/a	60.6	n/a	0.990

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.997	0.0%

COMMENTS:

Sample inlet filter ws changed.



Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	14-Mar-2022	PREVIOUS CALIBRATION DATE:	10-Feb-2022	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1314057759	1012
LOCATION:	Tamarack	BAROMETRIC (mBar):	931	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	12:11	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:25	PREVIOUS CF:	1.000	1.000	1.000

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 168375	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH ₄ /C ₃ H ₈ (ppm):	914.0 307.0	HIGH EXPIRY:	n/a
ID:	26801218	ID:	132	CYLINDER (psi):	500	LOW ID:	n/a
MFC CALIBRATION DATE:	19-Oct-2021	OXIDIZER ID:	115	EXPIRY DATE	21-Jan-2028	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	844.3
RANGE	12 - 16	6 - 8	2 - 4	THC as CH ₄	1758.3

EXPECTED (REFERENCE) VALUE:

INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.07	11.08	20.15		8.45	11.10	19.54

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
3051	49.40	3100	14.57	13.45	28.02	14.74	13.76	28.50	14.57	13.47	28.04	0.988	0.978	0.983	1.000	0.999	0.999
3075	24.70	3100	7.28	6.73	14.01	n/a	n/a	n/a	7.29	6.73	14.02	n/a	n/a	n/a	0.999	1.000	0.999
3088	12.40	3100	3.66	3.38	7.03	n/a	n/a	n/a	3.63	3.37	6.99	n/a	n/a	n/a	1.007	1.002	1.006

LINEAR REGRESSION ANALYSIS:

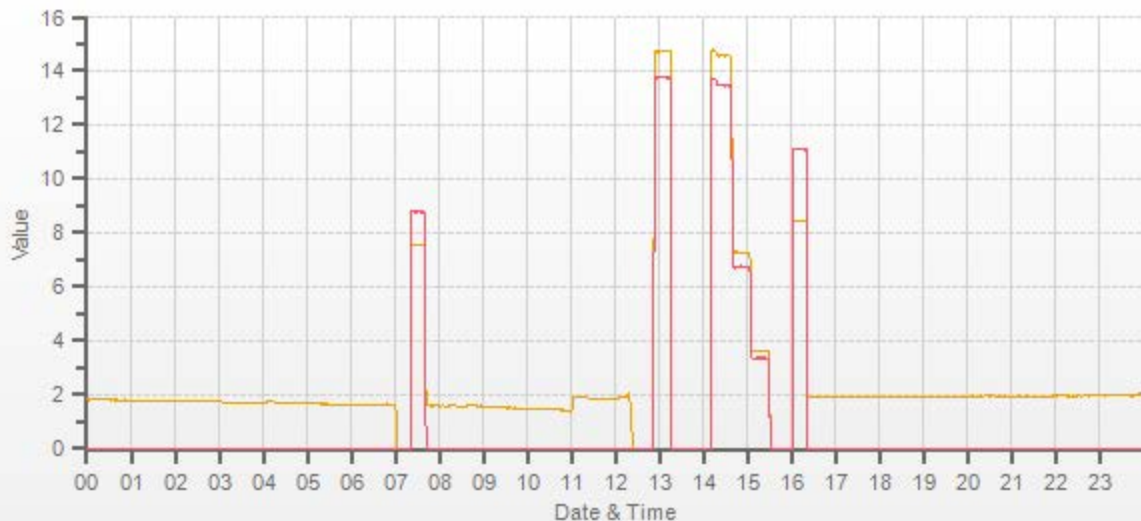
	CORRELATION	SLOPE	INTERCEPT
CH ₄	1.000	1.001	0.0%
NMHC	1.000	1.001	0.0%
THC	1.000	1.001	0.0%

Comments:

Sample inlet filter was changed. New span and H₂ gas cylinders were connected

Use Zero Chrom?

Yes



CAL-LICA-202203-01248

Thermo 5030 SHARP Monitor Monthly Check

Date: <u>March 21, 2022</u>	Performed By/Reviewer: <u>Alex Yakupov Chris Wesson</u>
Company: <u>LICA</u>	Start Time (mst): <u>15:01</u>
Station Name/Location: <u>Tamarack</u>	End Time (mst): <u>16:20</u>
Previous Audit Date: <u>February 17, 2022</u>	Calibration Purpose: <u>routine monthly</u>
Parameter: <u>PM 2.5</u>	Weather Conditions: <u>A few clouds</u>

SHARP Information and Status:

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

Reference Standards:

Air Flow

	Manometer	Orifice	Pressure:	Temperature:
Make:	Mesa Labs	Mesa Labs	Mesa Labs	VAISALA
Model:	DeltaCal DC1	DeltaCal DC1	DeltaCal DC1	HMP76B
Serial Number:	177246	177246	177246	T1640130
Calibration Expiration Date:	July 12, 2022	July 12, 2022	July 12, 2022	April 22, 2022

As found temperature and pressure:

Tolerance +/- 4°C	Tolerance +/- 13.33 hPa
SHARP T1 °C: <u>7.0</u>	SHARP P3 (hPa): <u>937.000</u>
Reference °C: <u>7.4</u>	Reference (hPa): <u>935.000</u>
Difference °C: <u>0.4</u>	Difference (hPa) : <u>2.000</u>

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

Tolerance +/- 4°C	Tolerance +/- 13.33 hPa
SHARP T1 °C: <u>7.0</u>	SHARP P3 (hPa): <u>937.000</u>
Reference °C: <u>7.4</u>	Reference (hPa): <u>935.000</u>
Difference °C: <u>0.4</u>	Difference : <u>2.000</u>

As found flows:

Targets: 1000 l/hr / <90% SHARP AirFlow l/hr <u>1000.00</u> Pump Voltage (%) <u>49.30</u>	Flow Tolerance 16.67 lpm +/- 0.67 lpm SHARP Airflow (l/min) <u>16.67</u> Reference AirFlow (l/min) <u>16.72</u> Difference (l/min) <u>0.05</u>
---	--

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

Targets: 1000 l/hr / <90% SHARP AirFlow l/hr <u>1000.00</u> Pump Voltage (%) <u>49.30</u>	Flow Tolerance 16.67 lpm +/- 0.67 lpm SHARP Airflow (l/min) <u>16.67</u> Reference AirFlow (l/min) <u>16.72</u> Difference (l/min) <u>0.05</u>
---	--

Inlet Assembly:

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

Comments:

Leak check: 16.72 vs 16.63, 0.09 < 0.80 lpm, passed.

Meteorological System Checklist



Date:	March 21, 2022		
Technician:	Alex Yakupov		
Station:	Tamarack		
Unit:	Make:	Model:	Serial #:
Precipitation Sampler:	Met One	387	F4481
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	Removed for winter
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

Previous check date:	February 10, 2021		
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	Vaisala HMP76B #T1640130, Exp. Date: April 22, 2022		
Reference Temperature (°C):	7.4		
Station - Ambient Temperature (°C):	7.1		
Temperature Difference (°C):	0.3		

BAROMETRIC PRESSURE SENSOR CHECK

Previous check date:	February 10, 2022		
Reference Barometer ID:	DeltaCal DC1 #177246, Exp. Date: Jul 12, 2022		
Reference Pressure - Units/Reading:	millibar	935	
Station Pressure - Units/Reading:	millibar	938	
Pressure Tolerance +/- 15% of error:	795 - 1075	-0.32%	

RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Previous check date:	February 10, 2022		
Reference Hygrometer ID:	Vaisala HMP76B #T1640130, Exp. Date: April 22, 2022		
Reference Hygrometer % RH- Reading:	44.00		
Station Hygrometer % RH- Reading:	39.60		
RH Tolerance +/- 15% of difference:	37.40 - 50.60	10.0%	

ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Previous check date:	February 10, 2022	Previous check date:	February 10, 2022
Wind Speed Observed (kph):	1 to 10	Wind Direction Observed:	NW
Wind speed on Data Logger (kph):	5.8	Wind Direction on Data Logger:	NW
	Annual audit: Sep 20, 2021	Wind Direction Pass/Fail?:	Pass

Comments

Station (Trailer) temperature vs Reference gauge temperature: 25.1 vs 23.9, difference = 1.1 => Passed.



Meteorological Sensor Audit/Calibration

Location Information

Company: LICA
 Audit Location: Tamarack
 Audit Date: September 20, 2021
 Calibration Purpose: routine annual

Performed By: Alex Yakupov
 Reviewed By: Chris Wesson
 Start/End Time (mst): 14:10 / 15:19
 Weather Conditions: Mainly sunny

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1
Sensor Model:	05305VK	Velocity Unit Output Range:	0-200
Serial #:	161465	Direction Voltage Output Range:	0-1
Previous Cal/Audit Date:	September 10, 2020	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	37.0	37.0	0.996
3000	55.3	55.5	55.5	0.996
4000	73.7	74.0	74.0	0.996
5000	92.2	92.5	92.5	0.996
6000	110.6	111.0	111.0	0.996
7000	129.0	129.6	129.6	0.995
8000	147.4	148.2	148.1	0.995
9000	165.9	166.8	166.8	0.994
10000	184.3	185.3	185.4	0.994
The audit meets AMD requirements.			Average Correction Factor=	0.996

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

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	0	354	0.4	0.9	0.6
30	330	32	330	-1.6	0.2	0.9
60	300	63	300	-3.1	0.1	1.6
90	270	93	270	-3.4	0.0	1.7
120	240	123	241	-3.4	-1.3	2.4
150	210	153	212	-2.8	-2.3	2.6
180	180	181	183	-1.1	-2.9	2.0
210	150	212	153	-2.3	-3.4	2.9
240	120	241	124	-1.2	-3.8	2.5
270	90	269	94	0.6	-4.0	2.3
300	60	299	64	0.6	-3.9	2.3
330	30	329	33	0.6	-2.7	1.7
355	0	354	1	0.9	0.7	0.8
The audit meets AMD requirements.				Average Absolute Degrees Difference=		1.9

Comments:

n/a

End of Report



Lakeland Industry & Community Association

MARCH 2022

Ambient Air Monitoring Calibration Report

- ST. LINA STATION-

CAL-LICA-202203-01250

Station Operation and Maintenance:

Bureau Veritas Canada

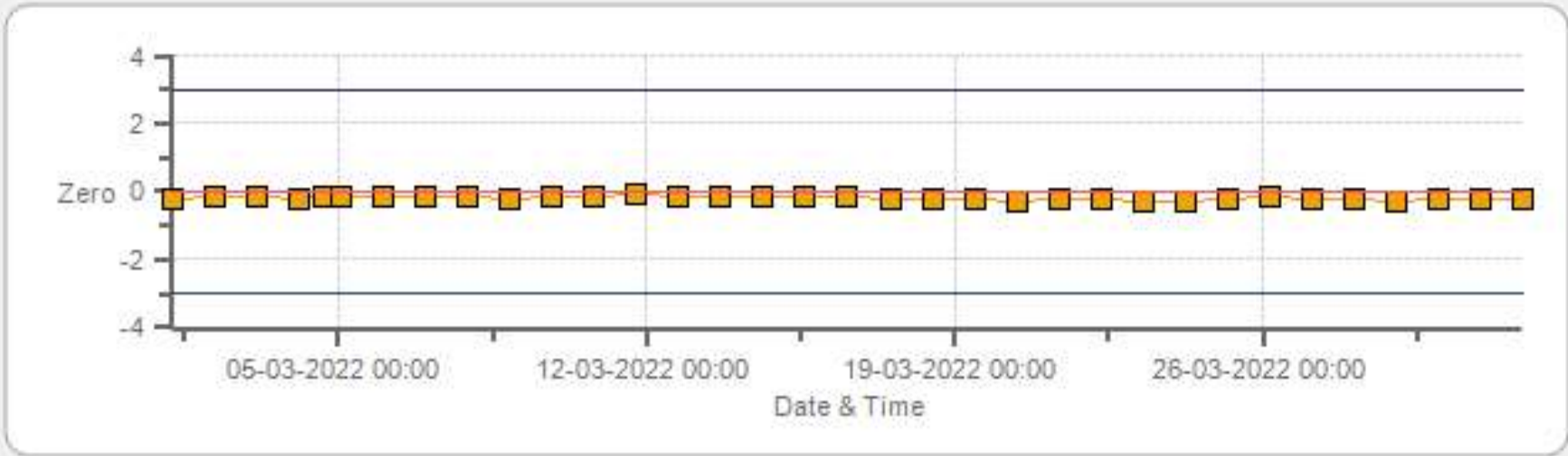
Data Validation and Report:

LICA / Bureau Veritas Canada

April 19, 2022

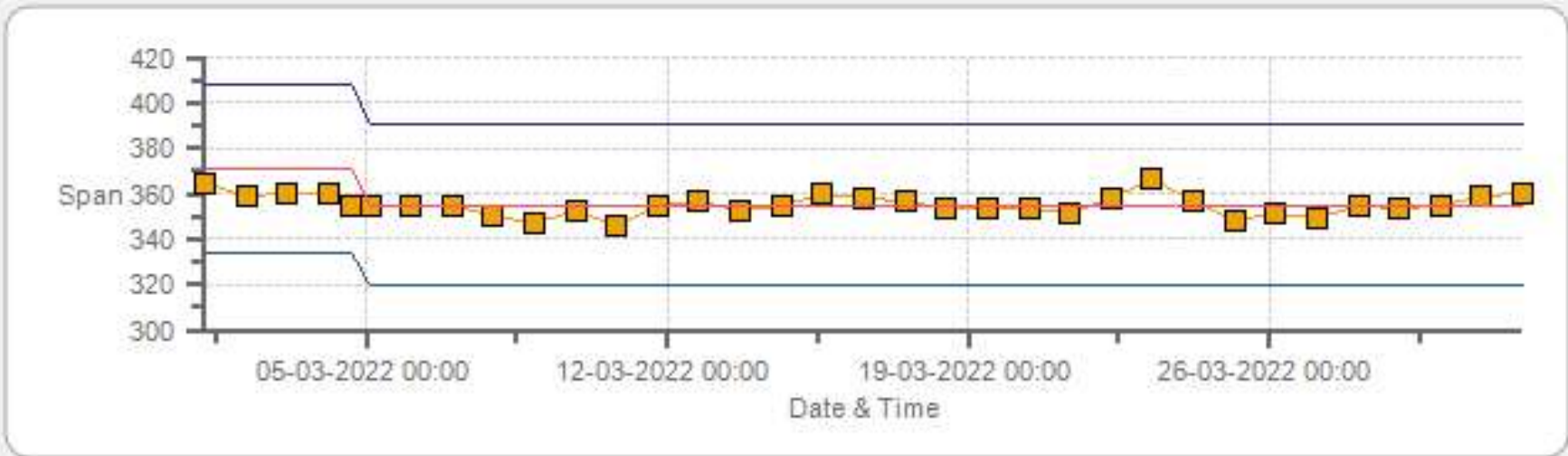
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: St. Lina Monthly: 03-2022 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: St. Lina Monthly: 03-2022 Type: SpanAndZero - Span



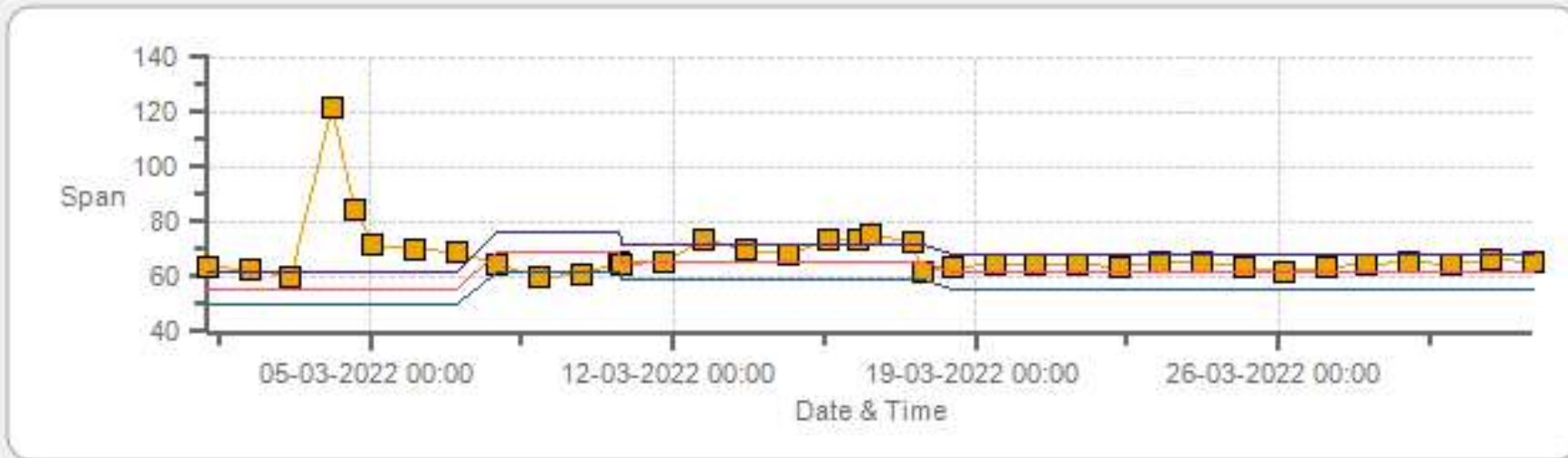
Span SpanRef Span Low Span High

H2S[ppb] Calibration: St. Lina Monthly: 03-2022 Type: SpanAndZero - Zero



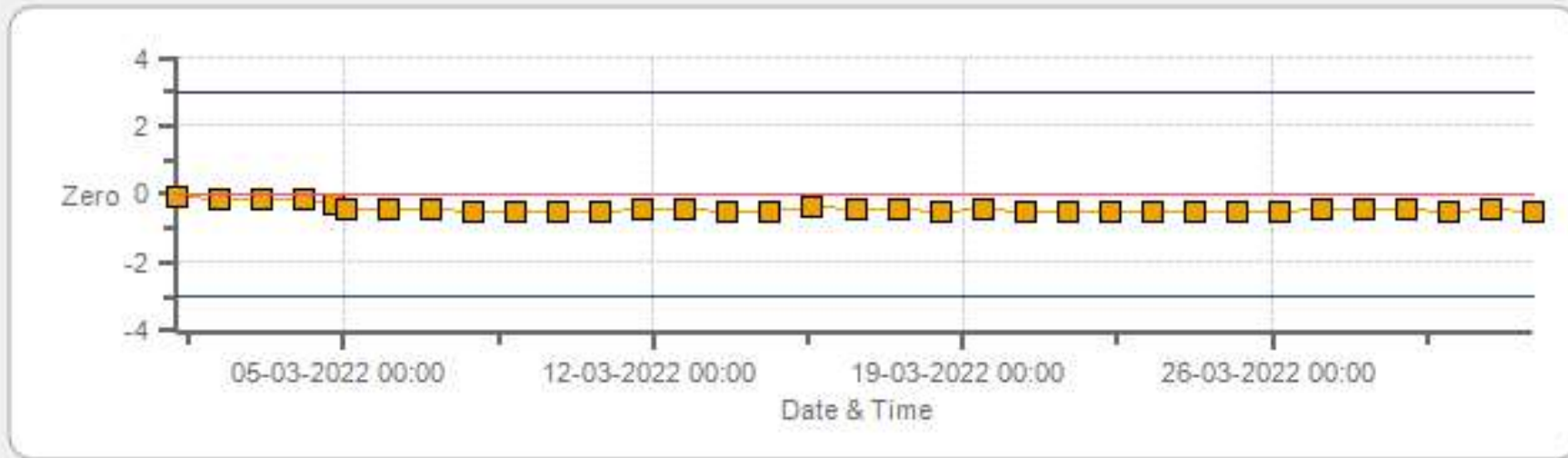
Zero Zero Ref Zero Low Zero High

H2S[ppb] Calibration: St. Lina Monthly: 03-2022 Type: SpanAndZero - Span



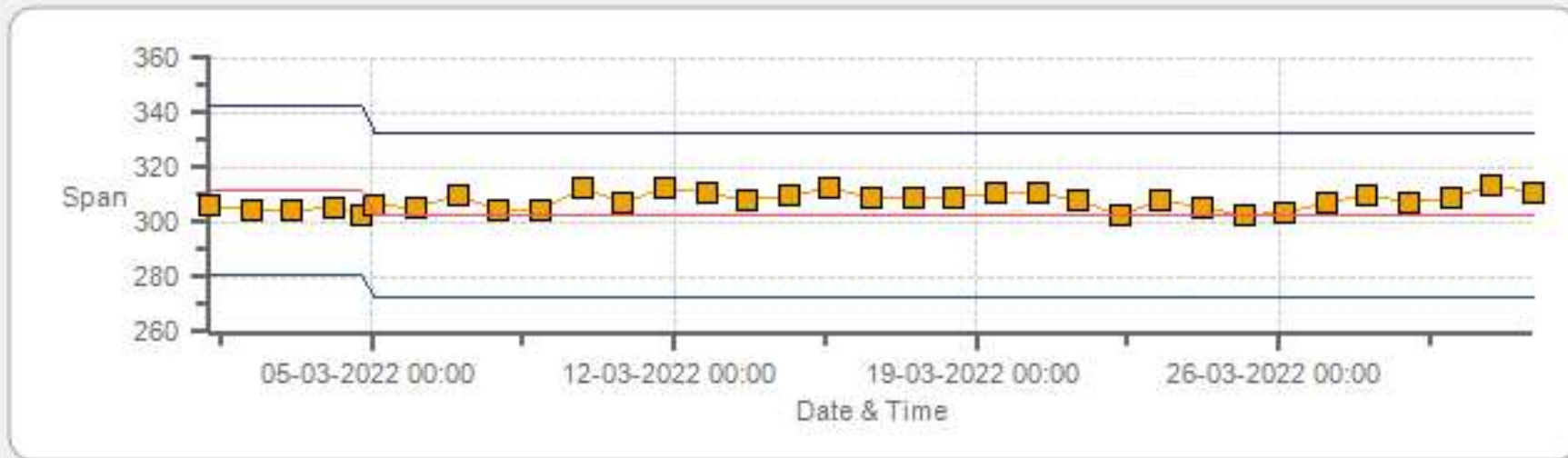
Span SpanRef Span Low Span High

NOX[ppb] Calibration: St. Lina Monthly: 03-2022 Type: SpanAndZero - Zero



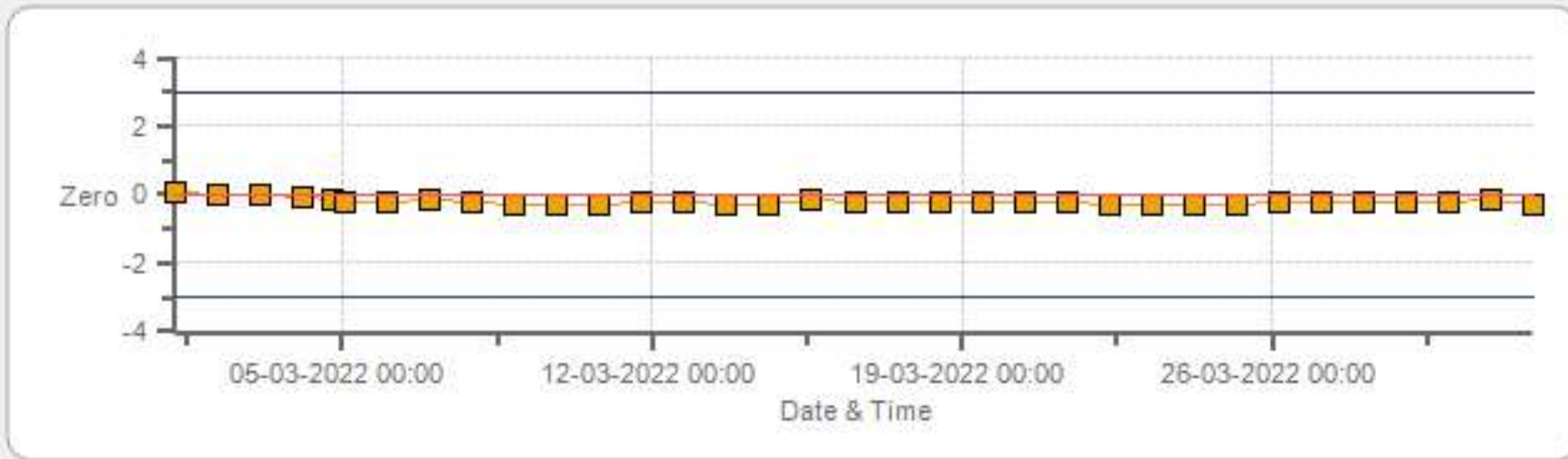
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: St. Lina Monthly: 03-2022 Type: SpanAndZero - Span



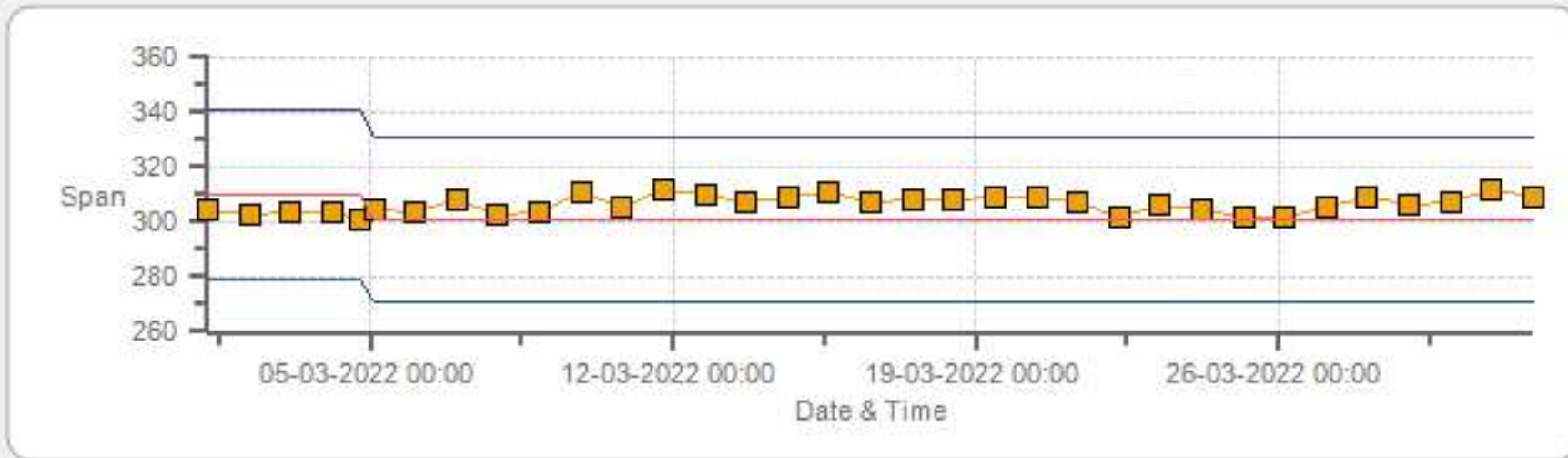
Span SpanRef Span Low Span High

NO2[ppb] Calibration: St. Lina Monthly: 03-2022 Type: SpanAndZero - Zero



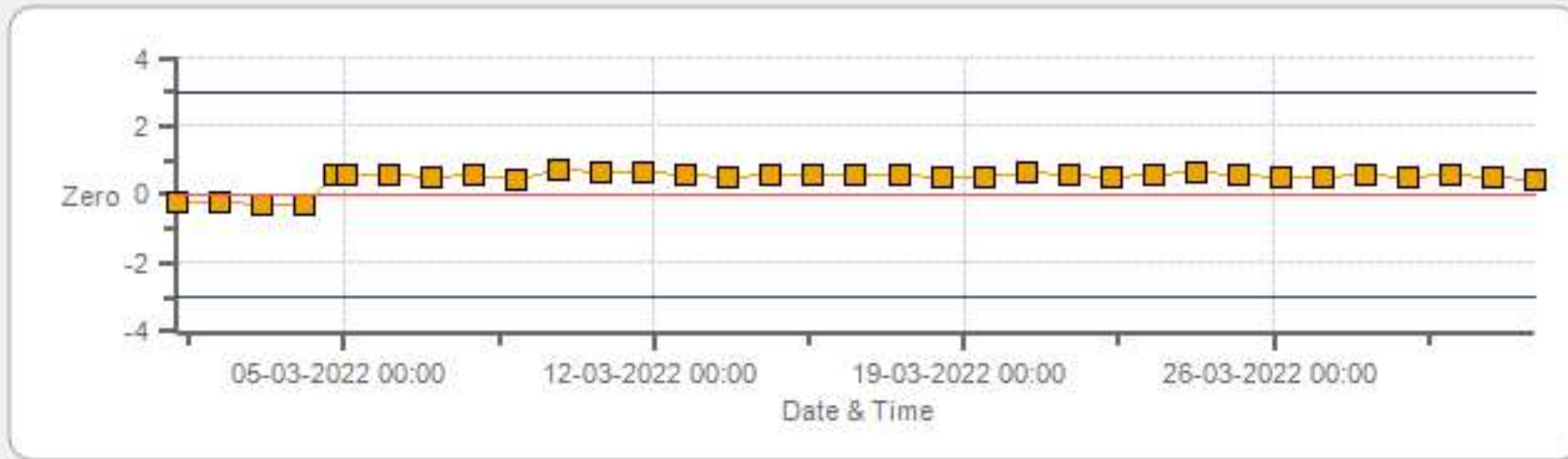
Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: St. Lina Monthly: 03-2022 Type: SpanAndZero - Span



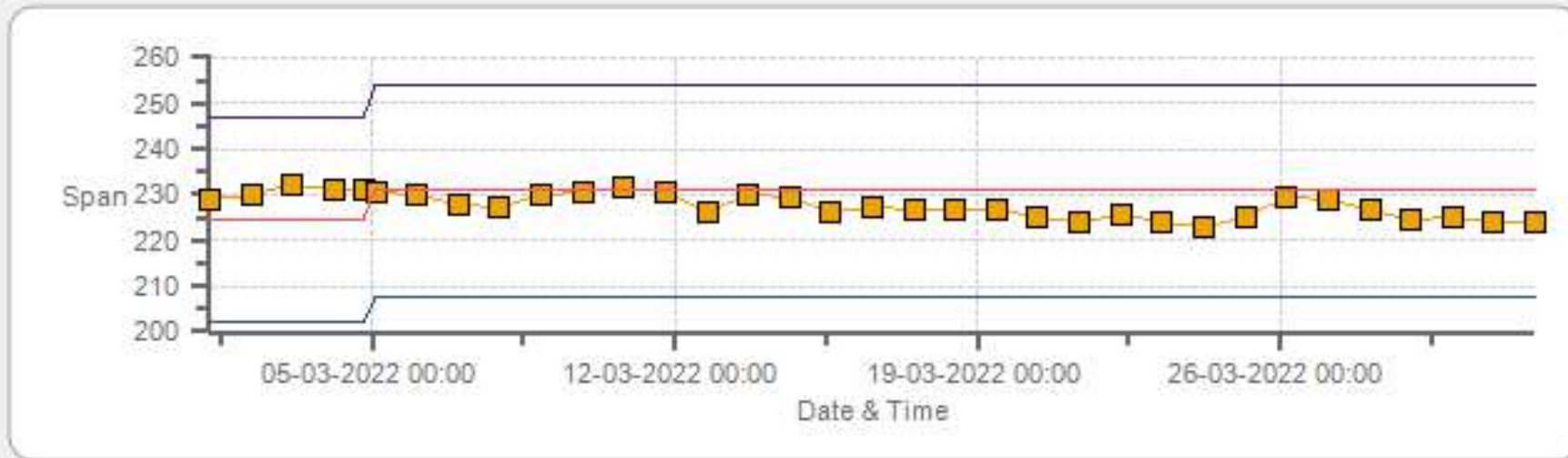
Span SpanRef Span Low Span High

O3[ppb] Calibration: St. Lina Monthly: 03-2022 Type: SpanAndZero - Zero



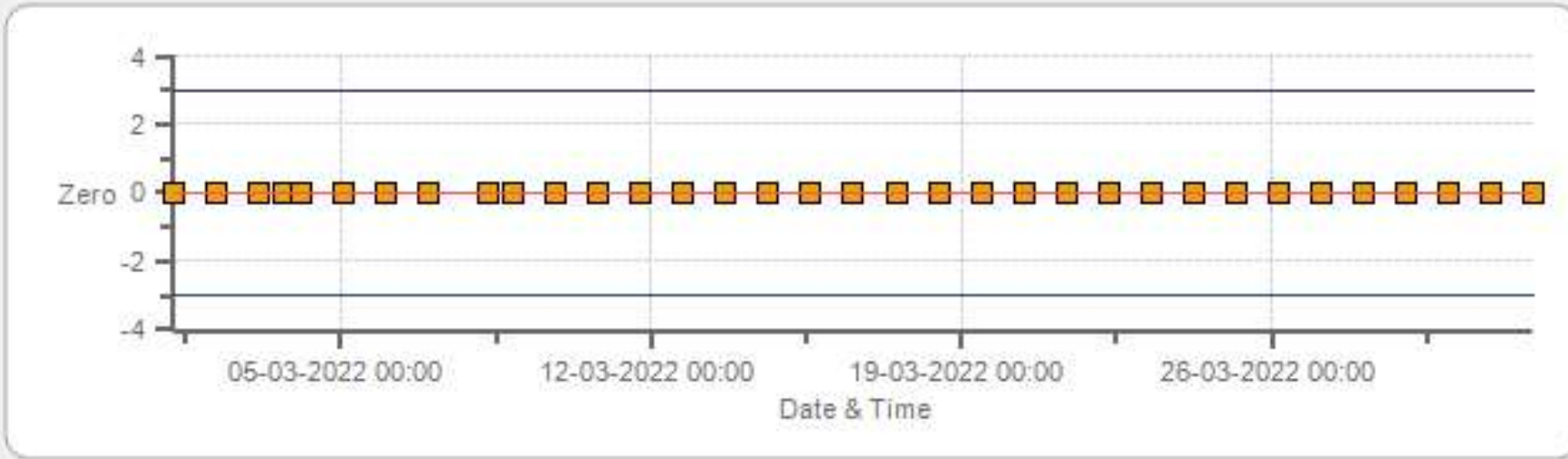
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: St. Lina Monthly: 03-2022 Type: SpanAndZero - Span



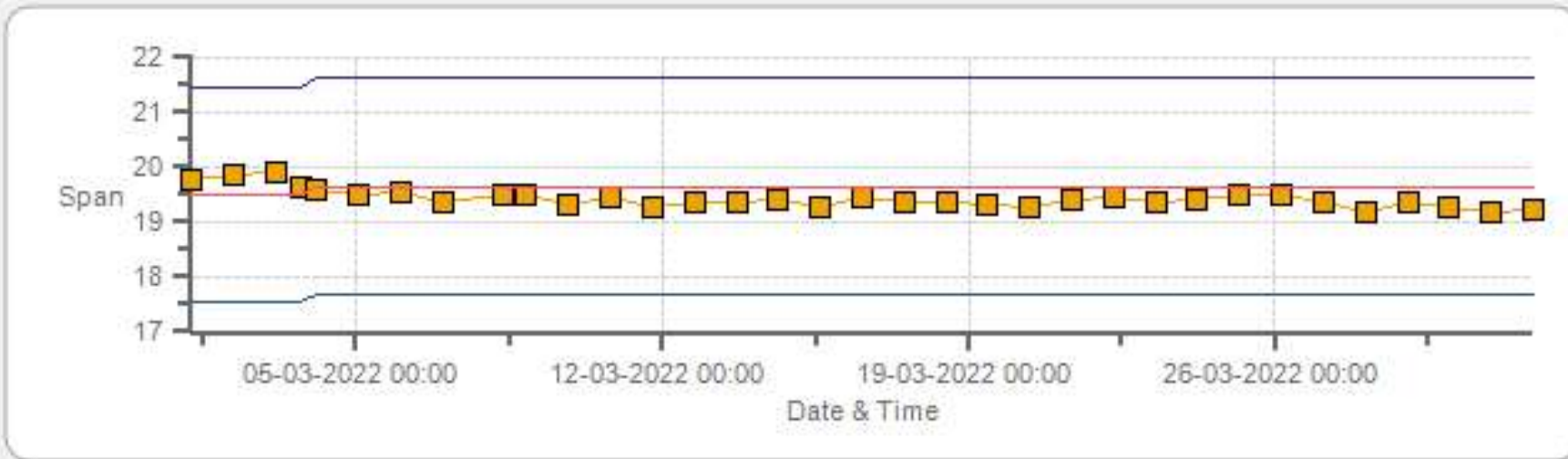
Span SpanRef Span Low Span High

THC55[ppm] Calibration: St. Lina Monthly: 03-2022 Type: SpanAndZero - Zero



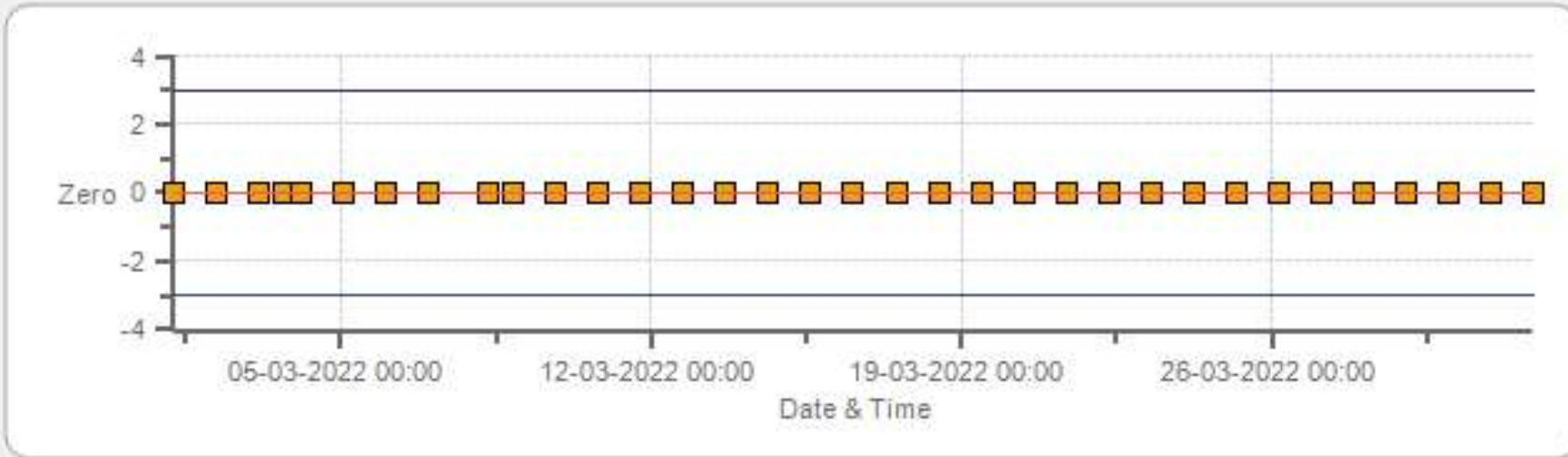
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: St. Lina Monthly: 03-2022 Type: SpanAndZero - Span



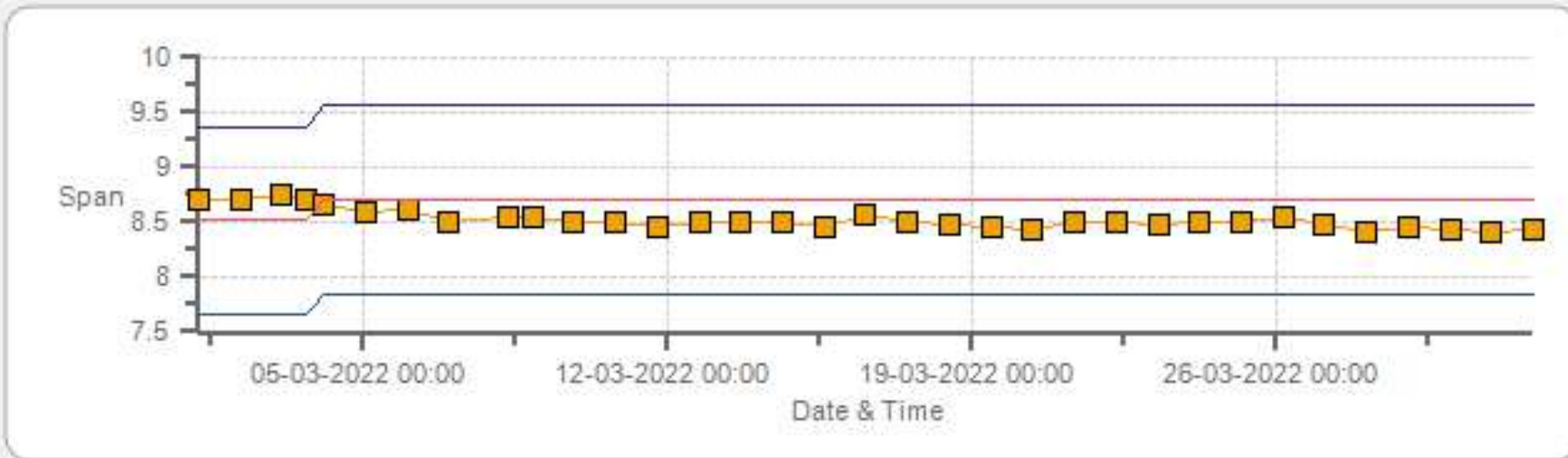
Span SpanRef Span Low Span High

CH4[ppm] Calibration: St. Lina Monthly: 03-2022 Type: SpanAndZero - Zero



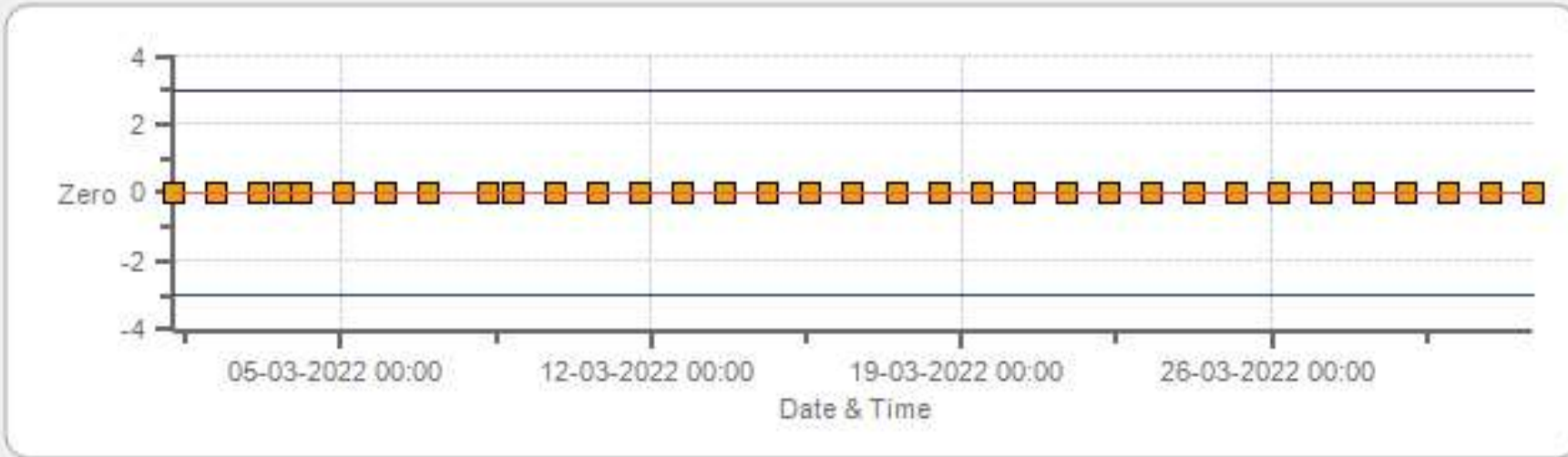
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: St. Lina Monthly: 03-2022 Type: SpanAndZero - Span

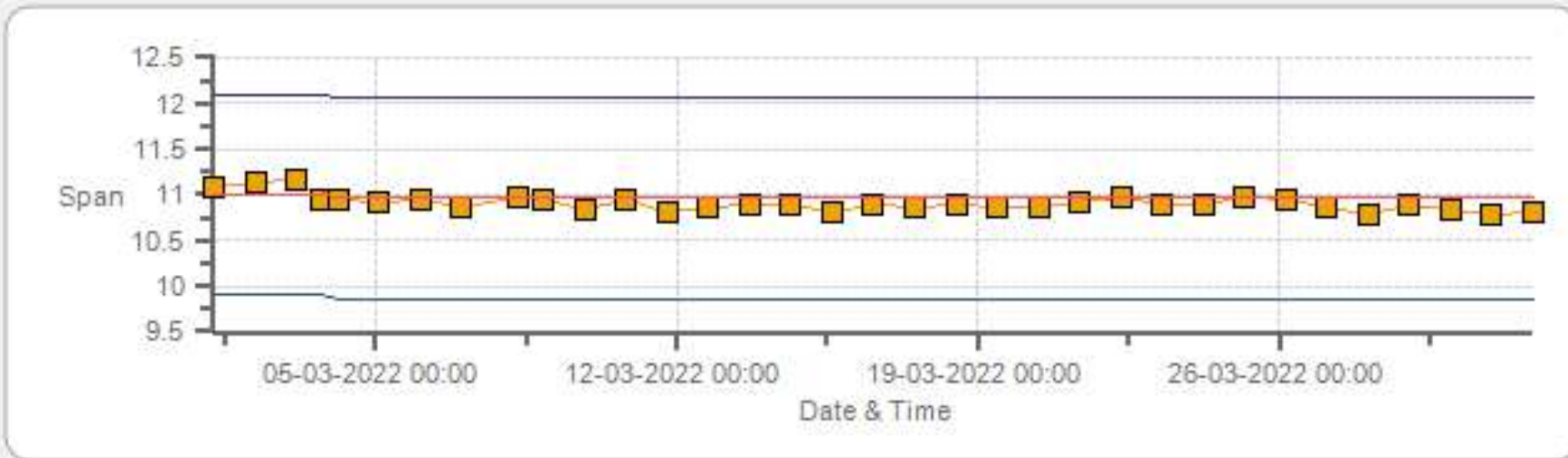


Span Span Ref Span Low Span High

NMHC[ppm] Calibration: St. Lina Monthly: 03-2022 Type: SpanAndZero - Zero



NMHC[ppm] Calibration: St. Lina Monthly: 03-2022 Type: SpanAndZero - Span



MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	04-Mar-2022	PREVIOUS CALIBRATION DATE:	03-Feb-2022
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	0.998
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	924
PURPOSE:	Routine	START TIME (MST):	11:52
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:54

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180930030	FLOW (mL/min)	436
INITIAL		FINAL	
BKG/OFFSET	4.81	BKG/OFFSET	4.79
COEF/SLOPE	1.179	COEF/SLOPE	1.171
Expected (reference) Value	360	Expected (reference) Value	354.8

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	26801218	ID:	132
MFC CALIBRATION DATE:	19-Oct-2021	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):	1000	LOW ID	n/a
EXPIRY DATE	09-Jun-2029	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

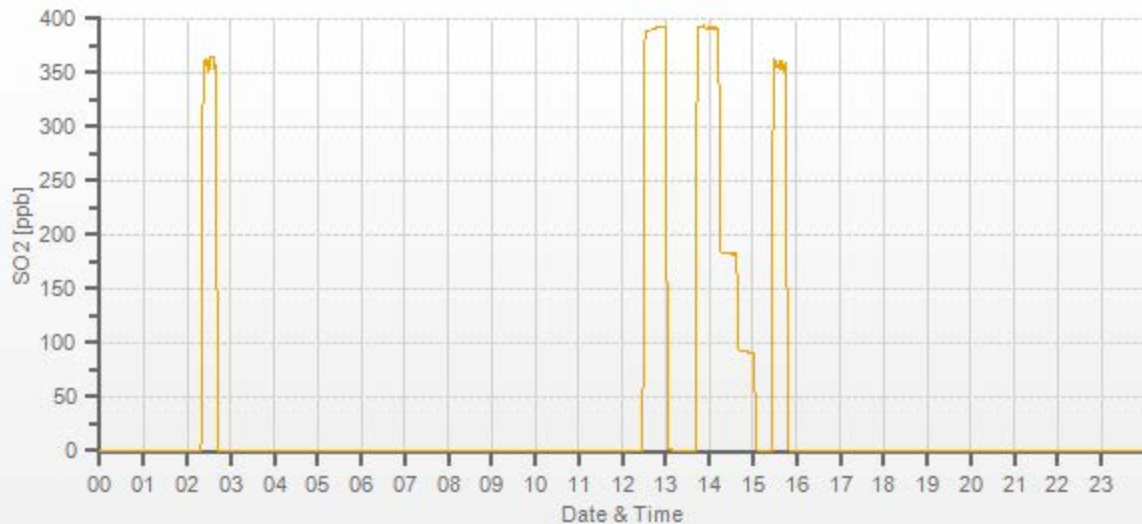
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	38.50	5000	0.00	-0.1	0	0.998	1.000
4959	38.50	4997	391.39	392.1	391.4	0.998	1.000
4981	18.00	4999	182.92	n/a	182.5	n/a	1.002
4990	9.00	4999	91.46	n/a	91.2	n/a	1.003

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.0%

COMMENTS:

Sample inlet filter was changed.



H2S Analyzer Calibration by Dilution



DATE:	03-Mar-2022	PREVIOUS CALIBRATION DATE:	14-Feb-2022
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	926
PURPOSE:	Removal/Shut-down	START TIME (MST):	13:33
PERFORMED BY:	Alex Yakupov	END TIME (MST):	13:51

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 18010058	FLOW (mL/min)	816
INITIAL		FINAL	
BKG/OFFSET	53.8	BKG/OFFSET	n/a
COEF/SLOPE	0.858	COEF/SLOPE	n/a
Expected (reference) Value	55.9	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:	19-Oct-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0000644	HIGH ID	n/a
CONC (ppm):	10.00	EXPIRY DATE	n/a
CYLINDER (psi):	500	LOW ID	n/a
EXPIRY DATE	16-Jul-2022	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:	13:38	SO2 Conc (ppb)	380
END TIME:	13:53	Analyzer Response (ppb)	0.0

CALIBRATION:

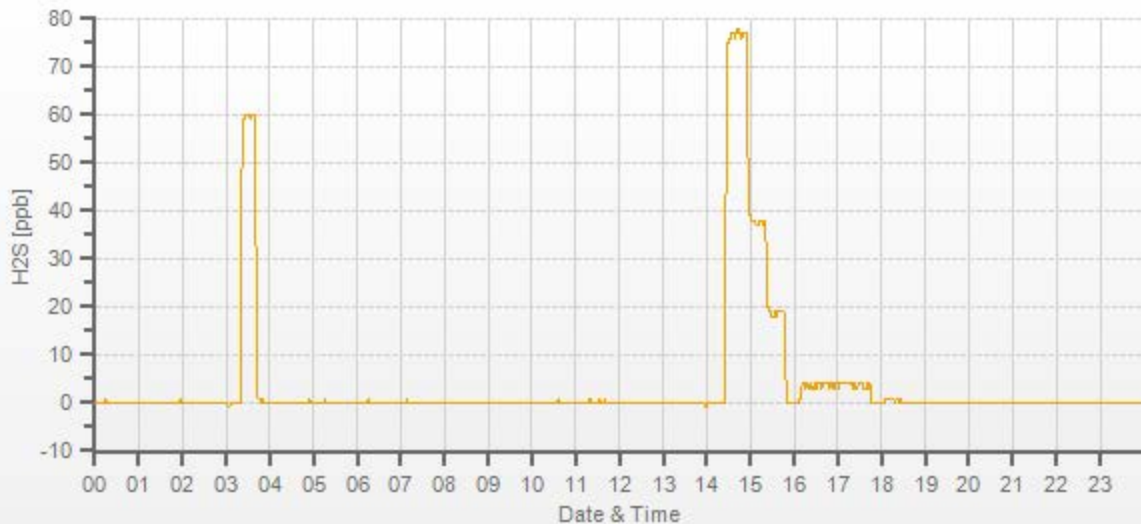
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	7500	7500	0.00	-0.4	n/a	1.000	1.000
7442	58.50	7500	78.00	76.3	n/a	1.017	n/a
7472	28.50	7500	38.00	37.1	n/a	1.013	n/a
7486	14.30	7500	19.07	18.1	n/a	1.031	n/a

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.985	-0.5%

COMMENTS:

Shutdown calibration was completed to remove the analyzer for maintenance.
Reason - significant zero/span drift.



H2S Analyzer Calibration by Dilution



DATE:	04-Mar-2022	PREVIOUS CALIBRATION DATE:	n/a
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	924
PURPOSE:	Install/Post-Repair	START TIME (MST):	11:46
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:10

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 17360002	FLOW (mL/min)	816
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	40.9
COEF/SLOPE	n/a	COEF/SLOPE	1.137
Expected (reference) Value	n/a	Expected (reference) Value	55.9

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	19-Oct-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0000644	HIGH ID	n/a
CONC (ppm):	10.00	EXPIRY DATE	n/a
CYLINDER (psi):	500	LOW ID	n/a
EXPIRY DATE	16-Jul-2022	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

START TIME:	11:49	SO2 Conc (ppb)	380
END TIME:	12:04	Analyzer Response (ppb)	0.0

CALIBRATION:

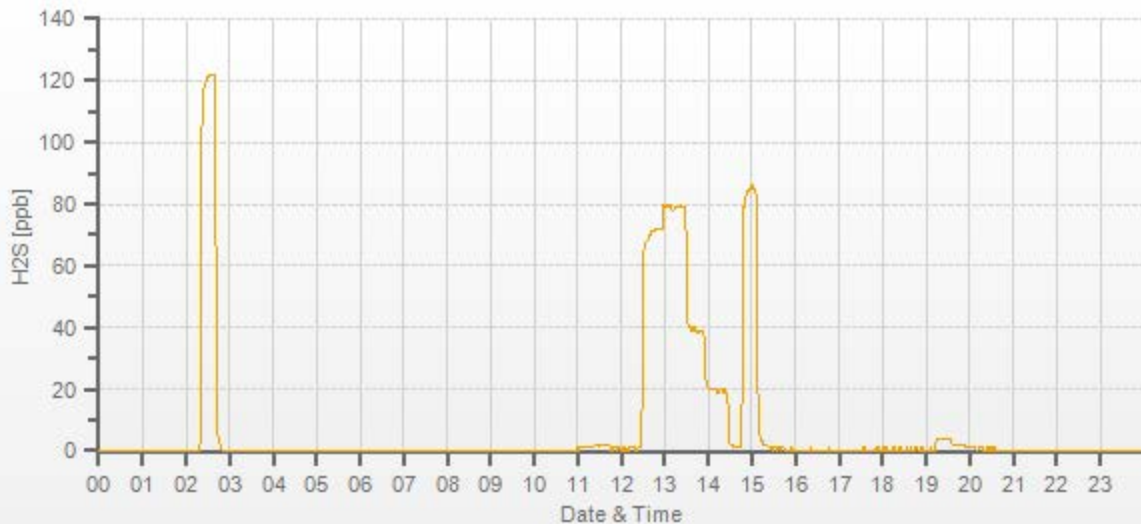
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	7500	7500	0.00	n/a	-0.1	n/a	n/a
7442	58.50	7500	78.00	n/a	78.4	n/a	0.994
7472	28.50	7500	38.00	n/a	37.9	n/a	1.000
7486	14.30	7500	19.07	n/a	19	n/a	0.998

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.006	-0.2%

COMMENTS:

Sample inlet filter was changed.



H2S Analyzer Calibration by Dilution



DATE:	10-Mar-2022	PREVIOUS CALIBRATION DATE:	04-Mar-2022
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	0.994
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	924
PURPOSE:	Repeat	START TIME (MST):	12:39
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:16

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 17360002	FLOW (mL/min)	740
INITIAL		FINAL	
BKG/OFFSET	40.9	BKG/OFFSET	43.4
COEF/SLOPE	1.137	COEF/SLOPE	1.222
Expected (reference) Value	60.8	Expected (reference) Value	65.6

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	19-Oct-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0000644	HIGH ID	n/a
CONC (ppm):	10.00	EXPIRY DATE	n/a
CYLINDER (psi):	500	LOW ID	n/a
EXPIRY DATE	16-Jul-2022	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

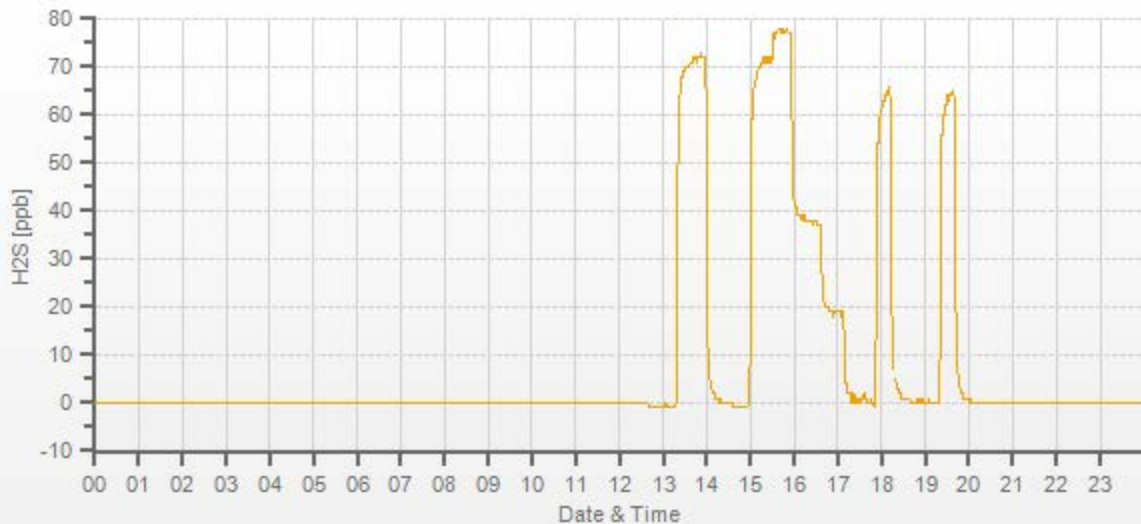
FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
7500	7500	7500	0.00	-0.4	0	1.000	1.000
7442	58.50	7500	78.00	72.6	78	1.068	1.000
7472	28.50	7500	38.00	n/a	38	n/a	1.000
7486	14.30	7500	19.07	n/a	19.4	n/a	0.983

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.999	0.1%

COMMENTS:

Repeat calibration to correct the EV drift.



H2S Analyzer Calibration by Dilution



DATE:	17-Mar-2022	PREVIOUS CALIBRATION DATE:	10-Mar-2022
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	0.994
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	915
PURPOSE:	Repeat	START TIME (MST):	13:41
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:51

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 17360002	FLOW (mL/min)	742
INITIAL		FINAL	
BKG/OFFSET	43.4	BKG/OFFSET	45.5
COEF/SLOPE	1.222	COEF/SLOPE	1.158
Expected (reference) Value	65.6	Expected (reference) Value	61.9

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	19-Oct-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0000644	HIGH ID	n/a
CONC (ppm):	10.00	EXPIRY DATE	n/a
CYLINDER (psi):	500	LOW ID	n/a
EXPIRY DATE	16-Jul-2022	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

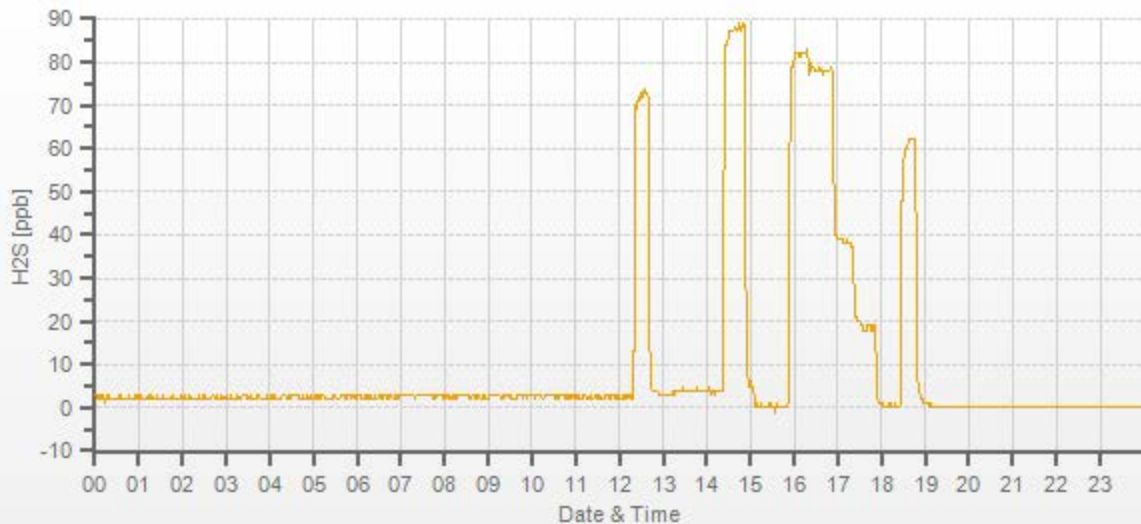
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	7500	7500	0.00	3.5	0	0.994	1.000
7442	58.50	7500	78.00	87.5	77.9	0.929	1.001
7472	28.50	7500	38.00	n/a	37.5	n/a	1.013
7486	14.30	7500	19.07	n/a	18.6	n/a	1.025

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	-0.3%

COMMENTS:

Repeat calibration due to zero/span EV drift.
As-found zero fails but validates daily zero check. Data will be valid after baseline correction.



NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	04-Mar-2022	PREVIOUS CALIBRATION DATE:	03-Feb-2022	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930029	NOx	1.000
LOCATION:	St. Lina	BAROMETRIC (mBar):	924	FLOW (mL/min)	838	NO	1.001
PURPOSE:	Routine	START TIME (MST):	11:54	RANGE (ppb)	500	NO2	0.996
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:09	GPT FOR O3?		No	

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):	1000	LOW ID:	n/a
MFC CALIBRATION DATE:	19-Oct-2021	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	3.9	n/a	BKG/OFFSET:	4.3	4	n/a
SLOPE/COEF/CE:	1.002	0.842	0.997	SLOPE/COEF/CE:	1.002	0.852	1.006

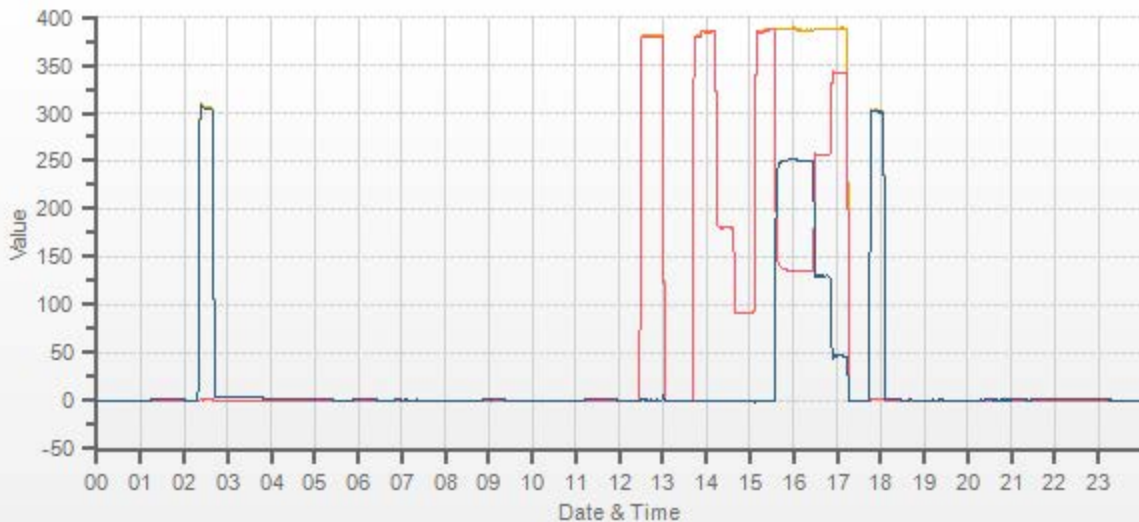
EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	311.7	1.6	310.1		302.7	1.5	301.2

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

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	38.50	5000	0.0	0.0	0.0	-0.1	0.2	0.3	-0.1	0.0	-0.1	1.016	1.014	0.996	1.001	1.002	0.996
4959	38.50	4997	385.2	386.0	0.8	379.2	380.9	1.4	384.6	385.4	0.8	1.016	1.014	0.996	1.001	1.002	0.996
4981	18.00	4999	180.0	180.4	0.4	n/a	n/a	n/a	180.7	181.2	0.5	n/a	n/a	0.996	0.996	0.996	0.996
4990	9.00	4999	90.0	90.2	0.2	n/a	n/a	n/a	91.0	91.0	0.0	n/a	n/a	0.996	0.988	0.991	0.996

GPT CALIBRATION:										
Point	CALIBRATOR			INDICATED (ppb)			NO DROP / O3 Conc (ppb)	NO2 GAIN (ppb)	NO2 Corr. FACTOR	CONV. EFFICIENCY
	GAS	TOTAL	O3 SETPOINT	NO	NOx	NO2				
REFERENCE	38.50	4997	0	385.7	386.4	0.7	249.9	251.6	0.993	100.68%
AS-FOUND HIGH	38.50	4997	240	135.8	388.1	252.3	249.9	251.6	0.993	100.68%
ADJUSTED HIGH	38.50	4997	240	135.6	386.0	250.4	250.1	249.7	1.002	99.84%
MID	38.50	4997	125	256.7	387.1	130.4	129	129.7	0.995	100.54%
LOW	38.50	4997	45	341.6	388.2	46.6	44.1	45.9	0.961	104.08%
NO2 COEF/CONVERTER EFFICIENCY ADJUSTED									AVERAGE:	101.49%

LINEAR REGRESSION ANALYSIS:				COMMENTS:
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	0.998	0.12%	
NOx	1.000	0.998	0.12%	
NO2	1.000	0.989	0.44%	Sample inlet filter was changed.



CAL-LICA-202203-01250

Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	04-Mar-2022	PREVIOUS CALIBRATION DATE:	03-Feb-2022
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.001
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	924
PURPOSE:	Routine	START TIME (MST):	14:40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:59

ANALYZER:

MAKE/MODEL	Thermo 49i	RANGE	500 ppb
SERIAL #	1002240371	FLOW (mL/min)	1503
INITIAL		FINAL	
BKG/OFFSET	0.2	BKG/OFFSET	-0.6
COEF/SLOPE	1.01	COEF/SLOPE	1.008
Expected (reference) Value	234	Expected (reference) Value	230.9

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	19-Oct-2021	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:

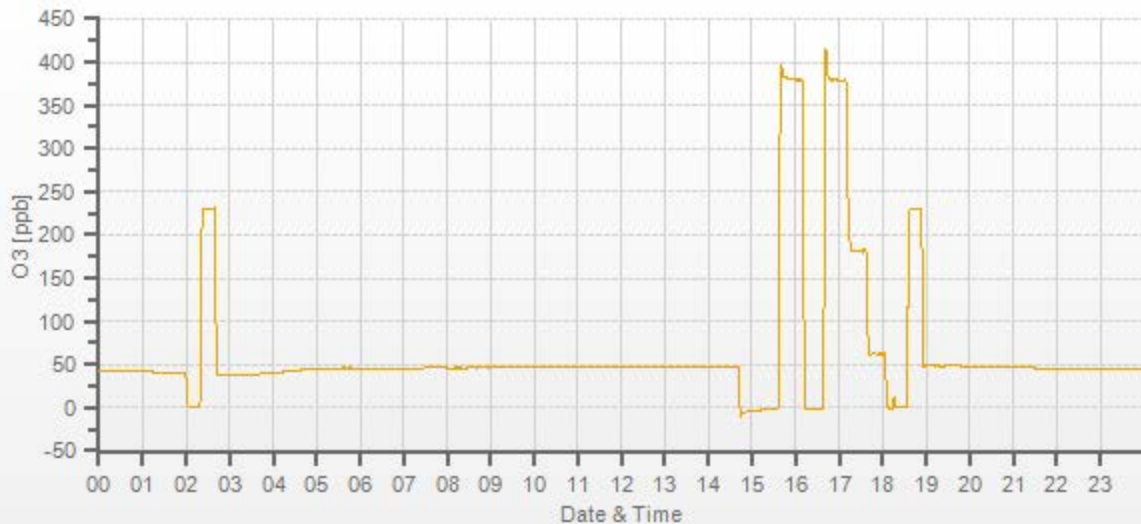
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	XXXX	5000	0.0	-1.4	0.1	XXXX	XXXX
5000	XXXX	5000	378.0	379.8	378.9	0.992	0.998
5000	XXXX	5000	180.0	n/a	182.1	n/a	0.989
5000	XXXX	5000	61.0	n/a	62.6	n/a	0.976

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.001	0.2%

COMMENTS:

Sample inlet filter was changed.



Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	03-Mar-2022	PREVIOUS CALIBRATION DATE:	04-Feb-2022	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1505664392	1208
LOCATION:	St. Lina	BAROMETRIC (mBar):	926	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	13:22	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:23	PREVIOUS CF:	1.002	1.003	1.003

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 168375	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH ₄ /C ₃ H ₈ (ppm):	914.0 307.0	HIGH EXPIRY:	n/a
ID:	26801218	ID:	132	CYLINDER (psi):	500	LOW ID:	n/a
MFC CALIBRATION DATE:	19-Oct-2021	OXIDIZER ID:	115	EXPIRY DATE	21-Jan-2028	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	844.3
RANGE	12 - 16	6 - 8	2 - 4	THC as CH ₄	1758.3

EXPECTED (REFERENCE) VALUE:

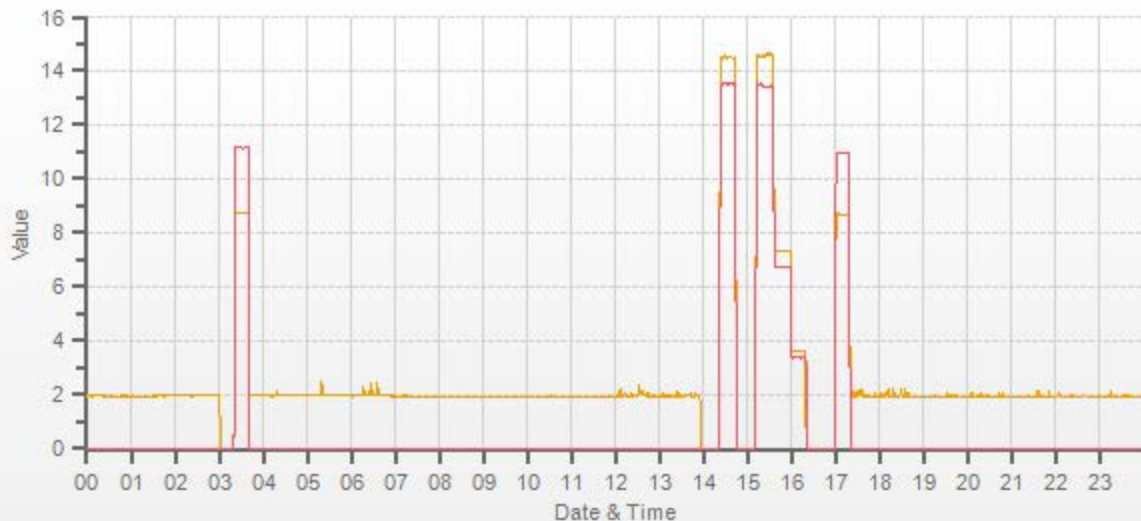
INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	8.52	11.00	19.52		8.70	10.96	19.65

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
3051	49.40	3100	14.57	13.45	28.02	14.50	13.52	28.02	14.61	13.42	28.03	1.004	0.995	1.000	0.997	1.002	1.000
3075	24.70	3100	7.28	6.73	14.01	n/a	n/a	n/a	7.34	6.74	14.07	n/a	n/a	n/a	0.992	0.998	0.996
3088	12.40	3100	3.66	3.38	7.03	n/a	n/a	n/a	3.65	3.39	7.04	n/a	n/a	n/a	1.002	0.996	0.999

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments:	
CH ₄	1.000	1.004	0.0%	Sample inlet filter was changed.	
NMHC	1.000	0.997	0.1%		
THC	1.000	1.001	0.0%		
				Use Zero Chrom?	Yes



CAL-LICA-202203-01250

Thermo 5030i SHARP Monitor Monthly Check

Date: March 7, 2022
Company: LICA
Station Name/Location: St. Lina
Previous Audit Date: February 24, 2022
Parameter: PM 2.5

Performed By/Reviewer: Alex Yakupov | Chris Wesson
Start Time (mst): 15:07
End Time (mst): 16:05
Calibration Purpose: routine monthly
Weather Conditions: Light snow

SHARP 5030i Information and Status:

Serial Number: CM 17091001 **Filter Tape Counter** 252

Reference Standards:

Air Flow

	Manometer	Orifice	Pressure:	Temp / RH:
Make:	Delta Cal	Delta Cal	Delta Cal	VAISALA
Model:	DC1	DC1	DC1	HMP76B
Serial Number:	177246	177246	177246	T1640130
Calibration Expiration Date:	July 12, 2022	July 12, 2022	July 12, 2022	April 22, 2022

Ambient Temperature (°C)

	Reference	SHARP	Difference	Range	Action
As Found:				< ± 2°C	OK
#1	-3.80	-3.3	-0.5	2-3 °C	Recalibrate
				> 3°C	Fail

Ambient Relative Humidity (%RH)

	Reference	SHARP	Difference	Range	Action
As Found:				< ± 2 %RH	OK
#1	68.70	69.0	-0.3	2-5 %RH	Recalibrate
				> 5 %RH	Fail

Barometric Pressure (mmHg)

	Reference	SHARP	Difference	Range	Action
As Found:				< ± 10 mmHg	OK
#1	698.0	695.0	3.0	10-12 mmHg	Recalibrate
				> 12 mmHg	Fail

Flow Audit (L/min)

	Reference	SHARP		Range	Action
As Found:				< ± 4%	OK
#1	16.64	16.67	% Difference 0.14%	4-5%	Recalibrate
#2	16.65	16.67		>5%	Fail
#3	16.64	16.66			
Average	16.64	16.67			

Leak Check (L/min)

	Without Leak Check Adapter			With leak Check Adapter			
	Reference	SHARP	Difference	Reference	SHARP	Difference	
#1	16.64	16.67	-0.03	16.58	16.64	-0.06	<i>Leak Limit: 0.80 L/min</i>
						LEAK RATE: -0.03	

Meteorological System Checklist



Date:	March 7, 2022
Technician:	Alex Yakupov
Reviewer:	Chris Wesson
Station:	St. Lina

Unit:	Make:	Model:	Serial #:
Temperature Sensor:	Rotronic	HC2-S3	20221366
Barometric Pressure Sensor:	Met One	O90D	F4498
Relative Humidity Sensor:	Rotronic	HC2-S3	20221366
Anemometer:	RM Young	05305VK	161466

PRECIPITATION SENSOR CHECK

Checklist:	Reply:	Comments:
Is the sensor Level?	yes	n/a
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	Removed for winter
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

Previous check date:	January 10, 2021
Parameter:	Temperature @ 2 metres
Reference Thermometer ID:	Vaisala HMP76B #T1640130, Exp. Date: April 22, 2022
Reference Temperature (°C):	-4.1
Station - Ambient Temperature (°C):	-4.2
Temperature Difference (°C):	0.1

BAROMETRIC PRESSURE SENSOR CHECK

Previous check date:	January 10, 2022
Reference Barometer ID:	Fisher Scientific #130168457, Exp. Date: Feb 17, 2022
Reference Pressure - Units/Reading:	millibar 921
Station Pressure - Units/Reading:	millibar 924
Pressure Tolerance +/- 15% of error:	783 - 1059 -0.33%

RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Previous check date:	
Reference Hygrometer ID:	Vaisala HMP76B #T1640130, Exp. Date: April 22, 2022
Reference Hygrometer % RH- Reading:	71.00
Station Hygrometer % RH- Reading:	73.00
RH Tolerance +/- 15% of difference:	60.35 - 81.65 -2.8%

ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Previous check date:	January 10, 2022	Previous check date:	January 10, 2022
Wind Speed Observed (kph):	40-60	Wind Direction Observed:	NW
Wind speed on Data Logger (kph):	54	Wind Direction on Data Logger:	NW
	Annual audit: Mar 16, 2021	Wind Direction Pass/Fail?:	Pass

Comments

Station (Trailer) temperature vs Reference gauge temperature: 23.7 vs 24.2 , passed.



Meteorological Sensor Audit/Calibration

Location Information

Company: LICA
 Audit Location: St. Lina
 Audit Date: March 16, 2021
 Calibration Purpose: routine annual

Performed By: Alex Yakupov
 Reviewed By: Chris Wesson
 Start/End Time (mst): 12:17 / 14:32
 Weather Conditions: Mainly sunny

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1
Sensor Model:	05305VK	Velocity Unit Output Range:	0-200
Serial #:	161466	Direction Voltage Output Range:	0-1
Previous Cal/Audit Date:	February 26, 2020	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	37.0	37.0	0.996
3000	55.3	55.5	55.5	0.996
4000	73.7	74.0	74.1	0.996
5000	92.2	92.6	92.6	0.995
6000	110.6	111.2	111.2	0.994
7000	129.0	129.7	129.7	0.995
8000	147.4	148.3	148.3	0.994
9000	165.9	167.0	167.0	0.993
10000	184.3	185.6	185.6	0.993
The audit meets AMD requirements.			Average Correction Factor=	0.995

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

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	1	355	0.8	0.0	0.4
30	330	31	331	-0.6	-0.9	0.7
60	300	61	300	-1.4	-0.4	0.9
90	270	93	270	-2.8	0.0	1.4
120	240	123	242	-3.2	-1.8	2.5
150	210	153	212	-2.7	-2.3	2.5
180	180	183	183	-2.6	-2.9	2.8
210	150	212	154	-1.7	-3.8	2.8
240	120	241	124	-1.2	-4.1	2.6
270	90	270	94	-0.1	-4.0	2.1
300	60	301	64	-0.6	-3.6	2.1
330	30	330	32	0.3	-2.2	1.3
355	0	355	1	0.0	1.3	0.7
The audit meets AMD requirements.				Average Absolute Degrees Difference=		1.7

Comments:

n/a

End of Report