



**Lakeland Industry & Community Association**

**AUGUST 2021**

**Monthly Ambient Air Quality Monitoring Report**

**LICA-202108**

**Operation and Maintenance:**

Bureau Veritas Canada

**Data Validation and Report:**

Lakeland Industry & Community Association

September 20, 2021

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**September 20, 2021**

Alberta Environment and Parks (AEP)

11th Floor, Oxbridge Place

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**RE: LICA – August 2021 Monthly Ambient Air Quality Monitoring Report**

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Enclosed is the August 2021 Monthly Ambient Air Quality Monitoring Report for the continuous ambient air quality monitoring stations of the Lakeland Industry & Community Association (LICA) regional air quality monitoring network.

The representative of the Person Responsible for this monitoring program is

LICA Airshed

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

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## LIST OF ACRONYMS

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

NETWORK STATION SUMMARY

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

Station Name		Cold Lake South	Tamarack	St. Lina
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 August 2021**

**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, except PM2.5. Four 24-hr exceedances were recorded this month. The exceedances recorded this month are believed to be the result of wildfire from British Columbia, given long range model predictions and the low local wind speeds.

Date	Time (MST)	Average Period	AAAQOs / AAAQGs (µg/m3)	Concentration (µg/m3)	Reference #
August 2	-	24-Hour	29	30.3	382026
August 4	-	24-Hour	29	36.2	382026
August 5	-	24-Hour	29	31.2	382026
August 15	-	24-Hour	29	33.0	382513

- **THC/CH4/NMHC:** Sporadic bad injections were noted commencing on August 20 hour 20. A successful shut-down calibration was completed before maintenance were performed on August 23. A post-repair calibration was completed afterwards. Seven hours of downtime were

recorded due to the additional quality checks. 1-minute data collected between August 22 hour 20 and August 23 were reviewed and invalidated if data quality were affected by the injection issues. No hourly data were invalidated as the 75% of valid 1-minute in an hour requirement were achieved.

**Tamarack (formerly Maskwa)**

- 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-hr exceedance was recorded this month. The exceedance recorded this month was likely due to road constructions in the vicinity of the stations.

Date	Time (MST)	Average Period	AAAQOs / AAAQGs (µg/m3)	Concentration (µg/m3)	Reference #
August 19	7	1-Hour	80	90	383128

- **SO2:** The analyzer failed the daily span check on August 11 and the repeat zero-span check on August 12. An as-found points check was completed to investigate the drift, which was concluded the permeation tube depletion. The permeation tube was replaced during the monthly calibration on August 18. Two hours of downtime were recorded due to additional quality checks.
- **H2S:** The sample pump failed on August 18 hour 20. It was repaired on August 19, and a post-repair calibration was completed afterwards. Twenty-two hours of downtime were recorded due to this event.
- **NOx/NO/NO2:** The sample pump failed on August 27 hour 16. A new pump was installed on August 28, and a post-repair calibration was completed afterwards. Twenty-six hours of downtime were recorded due to this event.
- **O3:** The analyzer initially exhibited a slow response during the monthly calibration check on August 19, but this was deemed non-critical. These analyzers are known to be affected by sudden changes in humidity caused by the calibration zero-air supply. An as-found points check was performed on August 24 to confirm the analyzer functionality as a result of the slow response noted during the monthly calibration. The check result met the AMD requirements. Two hours of downtime were recorded due to the additional quality check.

**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.
- 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-exceedance was recorded this month. The exceedances recorded this month are believed to be the result of wildfire from British Columbia, given long range model predictions and the low local wind speeds.

Date	Time (MST)	Average Period	AAQOs / AAQGs (µg/m3)	Concentration (µg/m3)	Reference #
August 15	-	24-Hour	29	30.9	382514

- **THC/CH4/NMHC:** A new span gas cylinder was installed on August 11 following a repeat zero-span check. One hour of downtime was recorded due to the additional quality check.
- **O3:**
  - An as-found points check was completed to investigate positive span drift on August 12. The analyzer passed the check requirements. Two hours of downtime were recorded due to the additional quality check.
  - A repeat multi-point calibration was completed to correct a persistent drift in zero-span response on August 26. Maintenance and testing were completed on the analyzer's zero air scrubber after the calibration was completed. Six hours of downtime were recorded due to the additional quality checks.
- **RH/TPX:** On August 20, the VAISALA HMP155A RH/TPX sensor, s/n: R2640785, was removed for factory maintenance and re-calibration. A replacement Campbell Scientific HC2-S3 TPX/RH sensor, s/n: 20221366, was installed and audited successfully. Three hours of downtime were recorded due to this event.

### Integrated Sampling

All the integrated sampling analytical results are included in the August 2021 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 North American Pollution Surveillance schedule (NAPS).
  - The XONTECK unit verification/calibration was completed on August 4. The unit passed the check requirements.
  - Five samples were collected this month: on August 2, 8, 16, 20 and 26.
- **PAHs Sampling System:**
  - The PAH sampler is programmed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - The TISCH PLUS sampler unit verification/calibration was completed on August 4. The unit passed the check requirements.
  - Five samples were collected this month: on August 2, 8, 16, 20 and 26.
- **Partisol Sampling System:**
  - The Partisol sampler is programmed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - The Partisol 2000i-D unit verification/calibration was completed on August 4. The unit passed the check requirements.
  - Five samples were collected this month: on August 2, 8, 16, 20 and 26.

- **Passive Sampling System:**
  - The passive sample filters were installed at the stations between July 28 and August 3, and were removed between August 30 and September 1.
  - A total of 9 duplicate samples were collected: 2 for H<sub>2</sub>S, 3 for SO<sub>2</sub>, 2 for NO<sub>2</sub> and 2 for O<sub>3</sub>.
- **PAC Sampling System:**
  - The PAC sampling program began in August 2019, and is designed to collect a 2-month integrated sample.
  - The PAC sampling program is temporary paused as the EC laboratory is currently closed.

### **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).

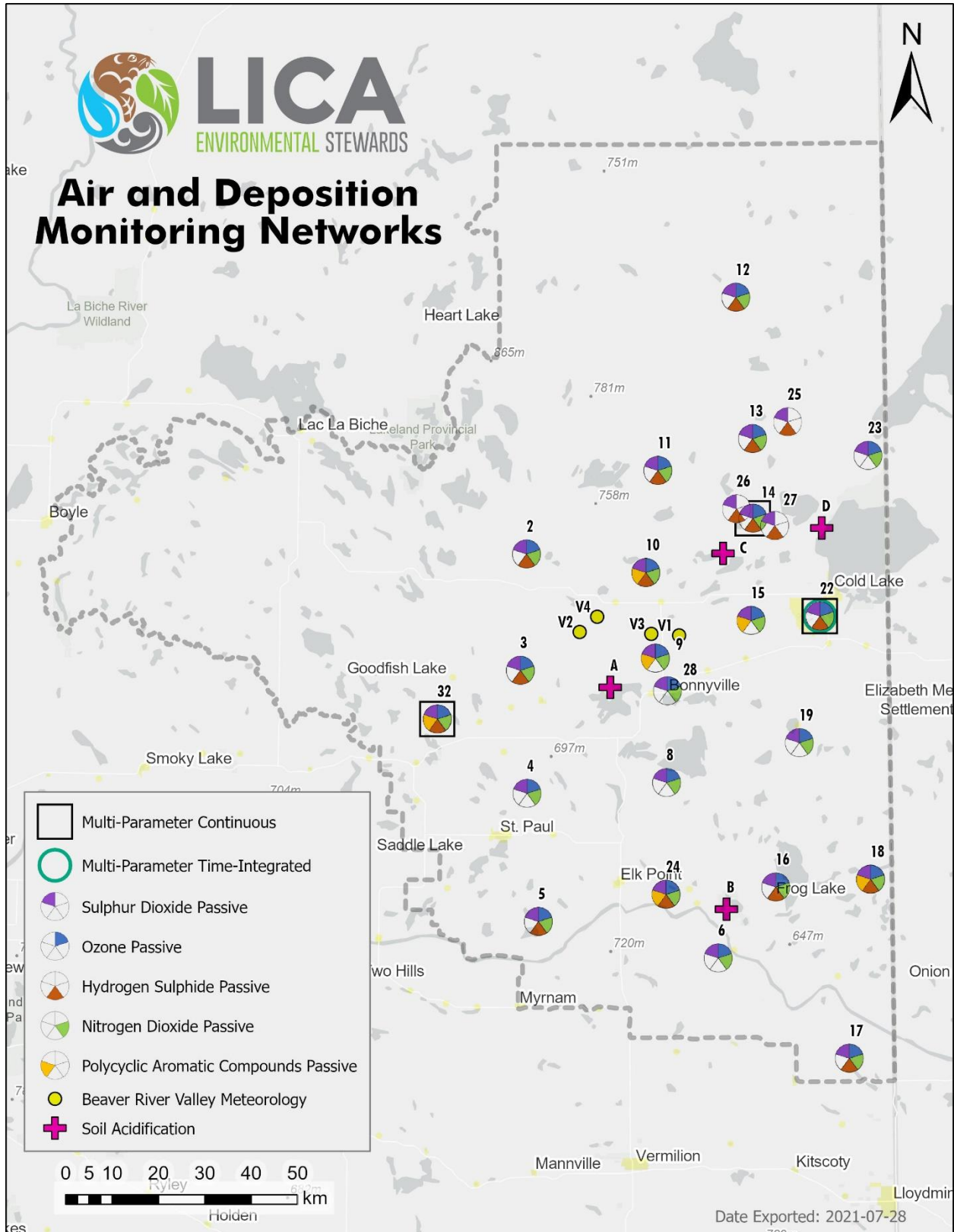
I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements. I also certify that at the time of this report's submission, all 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 August 2021 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

September 20, 2021

# 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
<b>Sulphur Dioxide (SO<sub>2</sub>)</b>	<b>Thermo / 43i-TLE</b>	<b>1180260018</b>	<b>August 16, 2021</b>
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			
<b>Total Reduced Sulphur (TRS)</b>	<b>Thermo / 450i</b>	<b>812728560</b>	<b>August 16, 2021</b>
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			
<b>Total Hydrocarbons / Methane/ Non-methane Hydrocarbons (THC/CH<sub>4</sub>/NMHC)</b>	<b>Thermo / 55i</b>	<b>1180030034</b>	<b>August 23, 2021</b>
<ul style="list-style-type: none"> <li>The monthly calibration was completed on August 13.</li> <li>Sporadic bad injections were noted commencing on August 20 hour 20. A successful shut-down calibration was completed before maintenance were performed on August 23. A post-repair calibration was completed afterwards. Seven hours of downtime were recorded due to the additional quality checks. 1-minute data collected between August 22 hour 20 and August 23 were reviewed and invalidated if data quality were affected by the injection issues. No hourly data were invalidated as the 75% of valid 1-minute in an hour requirement were achieved.</li> </ul>			
<b>Oxide of Nitrogen / Nitric Oxide/ Nitrogen Dioxide (NO<sub>x</sub>/NO/NO<sub>2</sub>)</b>	<b>Thermo / 42i</b>	<b>1505664393</b>	<b>August 16, 2021</b>
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			
<b>Ozone (O<sub>3</sub>)</b>	<b>Thermo / 49i</b>	<b>700419951</b>	<b>August 13, 2021</b>
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			

Parameter	Make / Model	Serial Number	Calibration Date
Particulate Matter 2.5 (PM2.5)	Teledyne T640	575	August 20, 2021
<ul style="list-style-type: none"> <li>The annual maintenance was completed on August 20.</li> <li>No issues were identified this month.</li> </ul>			
Parameter	Make / Model	Serial Number	System Check Date
Relative Humidity (RH)	Rotronic HC2A-S3	20257103	July 6, 2021
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			
Barometric Pressure (BP)	Met One / Part 092	Y23368	July 6, 2021
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			
Ambient Temperature (AT)	Rotronic HC2A-S3	20257103	July 6, 2021
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			
Station Temperature (ST)	BV-supplied	n/a	n/a
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			
Wind Speed (WS) / Wind Direction (WD)/ Stand Deviation Wind Direction (STDWD)	RM Young 05305AQ	177354	July 6, 2021
<ul style="list-style-type: none"> <li>Wind direction data contained in this report represents where the wind is coming from.</li> <li>The last wind system calibration was completed on April 20, 2021.</li> <li>No issues were identified this month.</li> </ul>			

### Monitored Data Summary for Cold Lake South Station

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.1	0	2	August 13 at hour 9	6.4	SW	0.3	August 1	100.0	94.9
TRS (ppb)	-	-	-	-	-	-	0.3	0	3	August 9 at hour 7	1.5	SSW	1.0	August 1	100.0	94.9
NOx (ppb)	-	-	-	-	-	-	1.9	0	10	August 28 at hour 7	5.8	WSW	3.3	August 4	100.0	94.6
NO (ppb)	-	-	-	-	-	-	0.2	0	5	August 28 at hour 7	5.8	WSW	0.9	August 28	100.0	94.6
NO2 (ppb)	159	-	-	0	-	-	1.7	0	6	August 4 at hour 3	1.8	WSW	2.9	August 4	100.0	94.6
O3 (ppb)	76	-	-	0	-	-	24.9	0.3	56.1	August 4 at hour 16	4.4	E	34.6	August 26	100.0	95.1
THC (ppm)	-	-	-	-	-	-	1.98	1.82	2.83	August 2 at hour 5	0.5	WSW	2.23	August 2	99.1	94.2
CH4 (ppm)	-	-	-	-	-	-	1.96	1.81	2.68	August 2 at hour 5	0.5	WSW	2.10	August 2	99.1	94.2
NMHC (ppm)	-	-	-	-	-	-	0.02	0.00	0.23	August 2 at hour 15	0.8	ESE	0.13	August 1	99.1	94.2
PM2.5 (µg/m3)	80	29	-	0	4	-	11.9	1	60	August 5 at hour 1	2.3	E	36.2	August 4	100.0	99.5
RH (%)	-	-	-	-	-	-	64.6	27	99	August 7 at hour 0	1.9	SSW	82.9	August 7	100.0	100.0
BP (millibar)	-	-	-	-	-	-	948	936	959	August 1 at hour 0	0.2	WNW	957	August 1	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	17.1	3.0	31.9	August 14 at hour 14	11.3	W	23.1	August 14	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	23.1	21.4	25.2	August 11 at hour 5	8.4	W	24.3	August 11	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	0.8	0.0	27.6	August 11 at hour 11	27.6	NW	12.9	August 11	100.0	100.0
WDV (sector)	-	-	-	-	-	-	276 (W)	-	-	-	-	-	-	-	100.0	100.0

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

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

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

Date	Time (MST)	Parameter	Average Period	AAQOs / AAQGs	Concentration	Wind speed	Wind Direction	Reference #
August 2	-	PM2.5	24-Hour	29 µg/m3	30.3 µg/m3	2.5 km/hr	53° (NE)	382026
August 4	-	PM2.5	24-Hour	29 µg/m4	36.2 µg/m4	0.7 km/hr	96° (E)	382026
August 5	-	PM2.5	24-Hour	29 µg/m5	31.2 µg/m5	2.7 km/hr	100° (E)	382026
August 15	-	PM2.5	24-Hour	29 µg/m6	33.0 µg/m6	3.0 km/hr	220° (SW)	382513

The possible source of the exceedances of the PM2.5 objective were likely due to wildfire from British Colombia.

## Tamarack Station

### Equipment Operation Summary

Parameter	Make / Model	Serial Number	Calibration Date
<b>Sulphur Dioxide (SO2)</b>	<b>Thermo / 43i-TLE</b>	<b>1180930031</b>	<b>August 18, 2021</b>
<ul style="list-style-type: none"> <li>The analyzer failed the daily span check on August 11 and the repeat zero-span check on August 12. An as-found points check was completed to investigate the drift, which was concluded the permeation tube depletion. The permeation tube was replaced during the monthly calibration on August 18. Two hours of downtime were recorded due to additional quality checks.</li> </ul>			
<b>Hydrogen Sulphide (H2S)</b>	<b>Thermo / 450i</b>	<b>CM17360005</b>	<b>August 19, 2021</b>
<ul style="list-style-type: none"> <li>The monthly calibration was completed on August 18.</li> <li>The sample pump failed on August 18 hour 20. It was repaired on August 19, and a post-repair calibration was completed afterwards. Twenty-two hours of downtime were recorded due to this event.</li> </ul>			
<b>Oxide of Nitrogen / Nitric Oxide/ Nitrogen Dioxide (NOx/NO/NO2)</b>	<b>Thermo / 42i</b>	<b>1180930028</b>	<b>August 28, 2021</b>
<ul style="list-style-type: none"> <li>The monthly calibration was completed on August 18.</li> <li>The sample pump failed on August 27 hour 16. A new Thomas 617CA32 pump was installed on August 28, and a post-repair calibration was completed afterwards. Twenty-six hours of downtime were recorded due to this event.</li> </ul>			
<b>Ozone (O3)</b>	<b>API / 400A</b>	<b>445</b>	<b>August 19, 2021</b>
<ul style="list-style-type: none"> <li>The analyzer initially exhibited a slow response during the monthly calibration check on August 19, but this was deemed non-critical. These analyzers are known to be affected by sudden changes in humidity caused by the calibration zero-air supply. An as-found points check was performed on August 24 to confirm the analyzer functionality because of the slow response noted during the monthly calibration. The check result met the AMD requirements. Two hours of downtime were recorded due to the additional quality check.</li> </ul>			
<b>Total Hydrocarbons / Methane/ Non-methane Hydrocarbons (THC/CH4/NMHC)</b>	<b>Thermo / 55i</b>	<b>1314057759</b>	<b>August 19, 2021</b>
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> <li>A new N2 gas cylinder was installed on August 28. A new H2 gas cylinder was installed on August 30.</li> </ul>			

Parameter	Make / Model	Serial Number	Calibration Date
<b>Particulate Matter 2.5 (PM2.5)</b>	<b>Thermo / Sharp 5030</b>	<b>CM 2209</b>	<b>August 24, 2021</b>
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			
Parameter	Make / Model	Serial Number	System Check Date
<b>Relative Humidity (RH)</b>	<b>Rotronic / HC2A-S3</b>	<b>20433166</b>	<b>April 13, 2021</b>
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> <li>The Rotronic HC2A-S3 TPX/RH probe, s/n: 61116376, which was installed on January 27 was removed after the shut-down audit on August 24. The probe was installed to test and confirm the Rotronic, s/n: 20433166, probe's functionality. The results from both probes were close.</li> </ul>			
<b>Ambient Temperature (AT)</b>	<b>Rotronic / HC2A-S3</b>	<b>20433166</b>	<b>April 13, 2021</b>
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			
<b>Barometric Pressure (BP)</b>	<b>Met One / Part 090D</b>	<b>F4997</b>	<b>February 2, 2021</b>
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			
<b>Station Temperature (ST)</b>	<b>BV-supplied</b>	<b>n/a</b>	<b>n/a</b>
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			
<b>Precipitation (PRECIP)</b>	<b>Met One / Part 387</b>	<b>F4481</b>	<b>February 2, 2021</b>
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			
<b>Wind Speed (WS) / Wind Direction (WD)/ Stand Deviation Wind Direction (STDWD)</b>	<b>RM Young / 05305VK</b>	<b>161465</b>	<b>February 2, 2021</b>
<ul style="list-style-type: none"> <li>Wind direction data contained in this report represents where the wind is coming from.</li> <li>The last wind system calibration was completed on September 10, 2020.</li> <li>No issues were identified this month.</li> </ul>			



## Monitored Data Summary for Tamarack Site

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.7	0	14	August 17 at hour 6	7.1	WNW	3.0	August 17	99.7	94.6
H2S (ppb)	10	3	-	0	0	-	0.1	0	3	August 1 at hour 4	0.5	E	0.7	August 1	97.0	92.0
NOx (ppb)	-	-	-	-	-	-	3.0	0	31	August 17 at hour 6	7.1	WNW	6.6	August 17	96.5	91.2
NO (ppb)	-	-	-	-	-	-	0.7	0	18	August 17 at hour 6	7.1	WNW	2.5	August 10	96.5	91.2
NO2 (ppb)	159	-	-	0	-	-	2.3	0	14	August 10 at hour 4	12.8	WNW	4.6	August 6	96.5	91.2
O3 (ppb)	76	-	-	0	-	-	23.2	0.4	53.5	August 5 at hour 16	5.6	SSW	33.6	August 26	99.7	94.6
THC (ppm)	-	-	-	-	-	-	1.95	1.81	3.48	August 6 at hour 16	12.2	WNW	2.10	August 1	100.0	95.0
CH4 (ppm)	-	-	-	-	-	-	1.94	1.81	2.51	August 9 at hour 5	1	SSW	2.03	August 1	100.0	95.0
NMHC (ppm)	-	-	-	-	-	-	0.01	0.00	1.16	August 6 at hour 16	12.2	WNW	0.07	August 1	100.0	95.0
PM2.5 (µg/m3)	80	29	-	1	0	-	8.8	1	90	August 19 at hour 7	4.3	SW	22.2	August 4	100.0	99.6
RH (%)	-	-	-	-	-	-	71.8	26	100	August 5 at hour 0	1.2	NE	95.6	August 22	100.0	100.0
BP (millibar)	-	-	-	-	-	-	936	924	947	August 1 at hour 0	0.6	E	945	August 1	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	16.1	2.5	30.3	August 14 at hour 14	14.6	WNW	23.2	August 14	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	23.2	22.4	24.0	August 19 at hour 11	5.4	SSW	23.5	August 10	100.0	100.0
Precipitation (mm)*	-	-	-	-	-	-	60.3	0.0	6.7	August 22 at hour 2	6.7	NE	27.6	August 22	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	1.1	0.0	17.9	August 11 at hour 11	17.9	NW	10.7	August 10	100.0	100.0
WDV (sector)	-	-	-	-	-	-	255 (WSW)	-	-	-	-	-	-	-	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 (AAAGs) Exceedances**

The following exceedance of AAAGs was observed at the Tamarack Site.

Date	Time (MST)	Parameter	Average Period	AAAQOs	Concentration	Wind speed	Wind Direction	Reference #
August 19	7	PM2.5	1-Hour	80 µg/m3	90 µg/m3	4.3 km/hr	223° (SW)	383128

The possible source of the exceedance of the PM2.5 guideline was likely due to constructions being performed around the station.

## St. Lina Station

### Equipment Operation Summary

Parameter	Make / Model	Serial Number	Calibration Date
<b>Sulphur Dioxide (SO<sub>2</sub>)</b>	<b>Thermo / 43i-TLE</b>	<b>1180930030</b>	<b>August 11, 2021</b>
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			
<b>Hydrogen Sulphide (H<sub>2</sub>S)</b>	<b>Thermo / 450i</b>	<b>CM18010058</b>	<b>August 11, 2021</b>
<ul style="list-style-type: none"> <li>Hourly data collected on August 22 hour 4 was invalidated as the analyzer was recovering from a power failure.</li> </ul>			
<b>Oxide of Nitrogen / Nitric Oxide/ Nitrogen Dioxide (NO<sub>x</sub>/NO/NO<sub>2</sub>)</b>	<b>Thermo / 42i</b>	<b>1180930029</b>	<b>August 11, 2021</b>
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			
<b>Total Hydrocarbons / Methane/ Non-methane Hydrocarbons (THC/CH<sub>4</sub>/NMHC)</b>	<b>Thermo / 55i</b>	<b>1236656107</b>	<b>August 06, 2021</b>
<ul style="list-style-type: none"> <li>A new N<sub>2</sub> gas cylinder was installed on August 6.</li> <li>A new span gas cylinder was installed on August 11 following a repeat zero-span check. One hour of downtime was recorded due to the additional quality check.</li> </ul>			
<b>Ozone (O<sub>3</sub>)</b>	<b>Thermo / 49i</b>	<b>1002240371</b>	<b>August 26, 2021</b>
<ul style="list-style-type: none"> <li>The monthly calibration was completed on August 6.</li> <li>An as-found points check was completed to investigate positive span drift on August 12. The analyzer passed the check requirements. Two hours of downtime were recorded due to the additional quality check.</li> <li>A repeat multi-point calibration was completed to correct a persistent drift in zero-span response on August 26. Maintenance and testing were completed on the analyzer's zero air scrubber after the calibration was completed. Six hours of downtime were recorded due to the additional quality checks.</li> </ul>			

Parameter	Make / Model	Serial Number	Calibration Date
Particulate Matter 2.5 (PM2.5)	Thermo / Sharp 5030i	CM17461021	August 20, 2021
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			
Parameter	Make / Model	Serial Number	System Check Date
Relative Humidity (RH)	Vaisala Oyj. HMP155 / Campbell ScientificHC2-S3	R2640785 / 20221366	August 20, 2021
<ul style="list-style-type: none"> <li>On August 20, the VAISALA HMP155A RH/TPX sensor, s/n: R2640785, was removed for factory maintenance and re-calibration. A replacement Campbell Scientific HC2-S3 TPX/RH sensor, s/n: 20221366, was installed and audited successfully. Three hours of downtime were recorded due to this event.</li> </ul>			
Ambient Temperature (AT)	Vaisala Oyj. HMP155 / Campbell ScientificHC2-S3	R2640785 / 20221366	August 20, 2021
<ul style="list-style-type: none"> <li>On August 20, the VAISALA HMP155A RH/TPX sensor, s/n: R2640785, was removed for factory maintenance and re-calibration. A replacement Campbell Scientific HC2-S3 TPX/RH sensor, s/n: 20221366, was installed and audited successfully. Three hours of downtime were recorded due to this event.</li> </ul>			
Barometric Pressure (BP)	Met One / Part 090D	F4998	December 23, 2020
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			
Station Temperature (ST)	BV-supplied	n/a	n/a
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			
Precipitation (PRECIP)	Met One / Part 387D	A23775	January 28, 2021
<ul style="list-style-type: none"> <li>No issues were identified this month.</li> </ul>			
Wind Speed (WS) / Wind Direction (WD)/ Stand Deviation Wind Direction (STDWD)	RM Young / 05305VK	161466	March 16, 2021
<ul style="list-style-type: none"> <li>Wind direction data contained in this report represents where the wind is coming from.</li> <li>The annual wind system calibration was completed on March 16, 2021.</li> <li>No issues were identified this month.</li> </ul>			

## Monitored Data Summary for St. Lina Site

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.1	0	3	August 7 at hour 9	6.4	SSW	0.5	August 29	100.0	94.9
H2S (ppb)	10	3	-	0	0	-	0.4	0	5	August 7 at hour 6	4.8	SW	1.1	August 7	100.0	94.9
NOx (ppb)	-	-	-	-	-	-	1.6	0	10	August 13 at hour 7	7.6	SW	3.7	August 2	100.0	94.6
NO (ppb)	-	-	-	-	-	-	0.0	0	4	August 13 at hour 7	7.6	SW	0.5	August 13	100.0	94.6
NO2 (ppb)	159	-	-	0	-	-	1.5	0	9	August 2 at hour 3	8.5	ENE	3.7	August 2	100.0	94.6
O3 (ppb)	76	-	-	0	-	-	25.4	2.8	52.3	August 4 at hour 13	4.6	WSW	35.3	August 4	98.9	93.9
THC (ppm)	-	-	-	-	-	-	1.95	1.81	2.53	August 2 at hour 4	9.5	E	2.22	August 2	99.9	94.9
CH4 (ppm)	-	-	-	-	-	-	1.94	1.80	2.50	August 2 at hour 4	9.5	E	2.19	August 2	99.9	94.9
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.14	August 1 at hour 17	1.1	SW	0.03	August 1	99.9	94.9
PM2.5 (µg/m3)	80	29	-	0	1	-	8.6	1	43	August 14 at hour 12	13.4	WNW	30.9	August 15	100.0	99.5
RH (%)	-	-	-	-	-	-	67.6	29	100	August 4 at hour 4	1.8	N	94.1	August 23	99.6	99.6
BP (millibar)	-	-	-	-	-	-	917	907	927	August 1 at hour 0	10.7	SSE	924	August 1	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	16.9	6.8	31.2	August 14 at hour 14	13.4	WNW	23.9	August 1	99.6	99.6
Stn. Temp. (°C)	-	-	-	-	-	-	21.8	20.6	23.7	August 27 at hour 10	1.1	ENE	23.3	August 27	100.0	100.0
Precipitation (mm)*	-	-	-	-	-	-	38.7	0.0	6.7	August 7 at hour 11	11.2	SW	13.9	August 7	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	2.2	1.1	26.8	August 10 at hour 11	26.8	WNW	16.9	August 10	100.0	100.0
WDV (sector)	-	-	-	-	-	-	274 (W)	-	-	-	-	-	-	-	100.0	100.0

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

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

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

The following exceedance of AAAQOs was observed at the St. Lina Site.

Date	Time (MST)	Parameter	Average Period	AAAOs / AAAQs	Concentration	Wind speed	Wind Direction	Reference #
August 15	-	PM2.5	24-Hour	29 µg/m3	30.9 µg/m3	6.7 km/hr	235° (SW)	382514

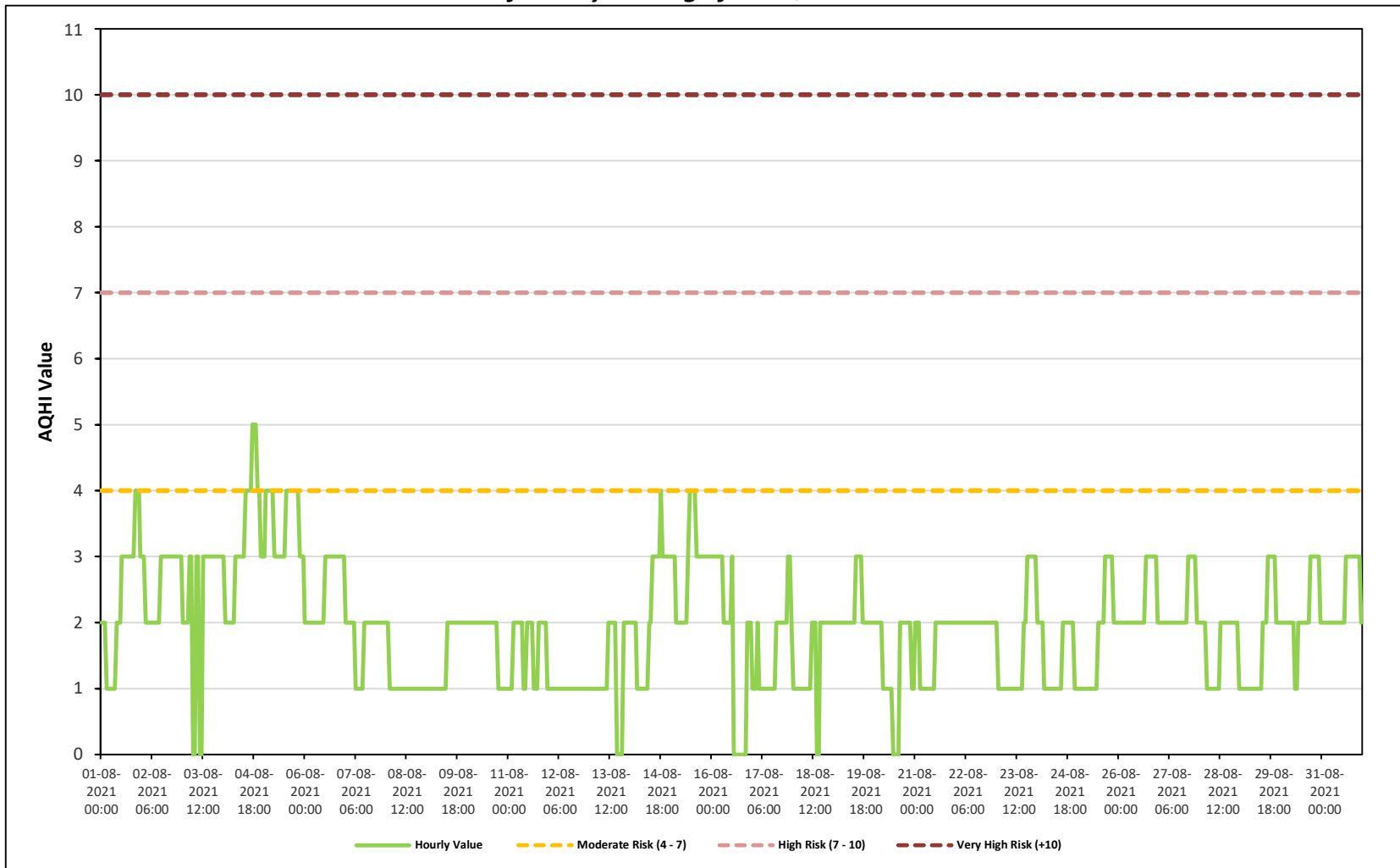
The possible source of the exceedance of the PM2.5 objective was likely due to wildfire from British Colombia.

## TABLES AND CHARTS

**COLD LAKE SOUTH STATION**



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





# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

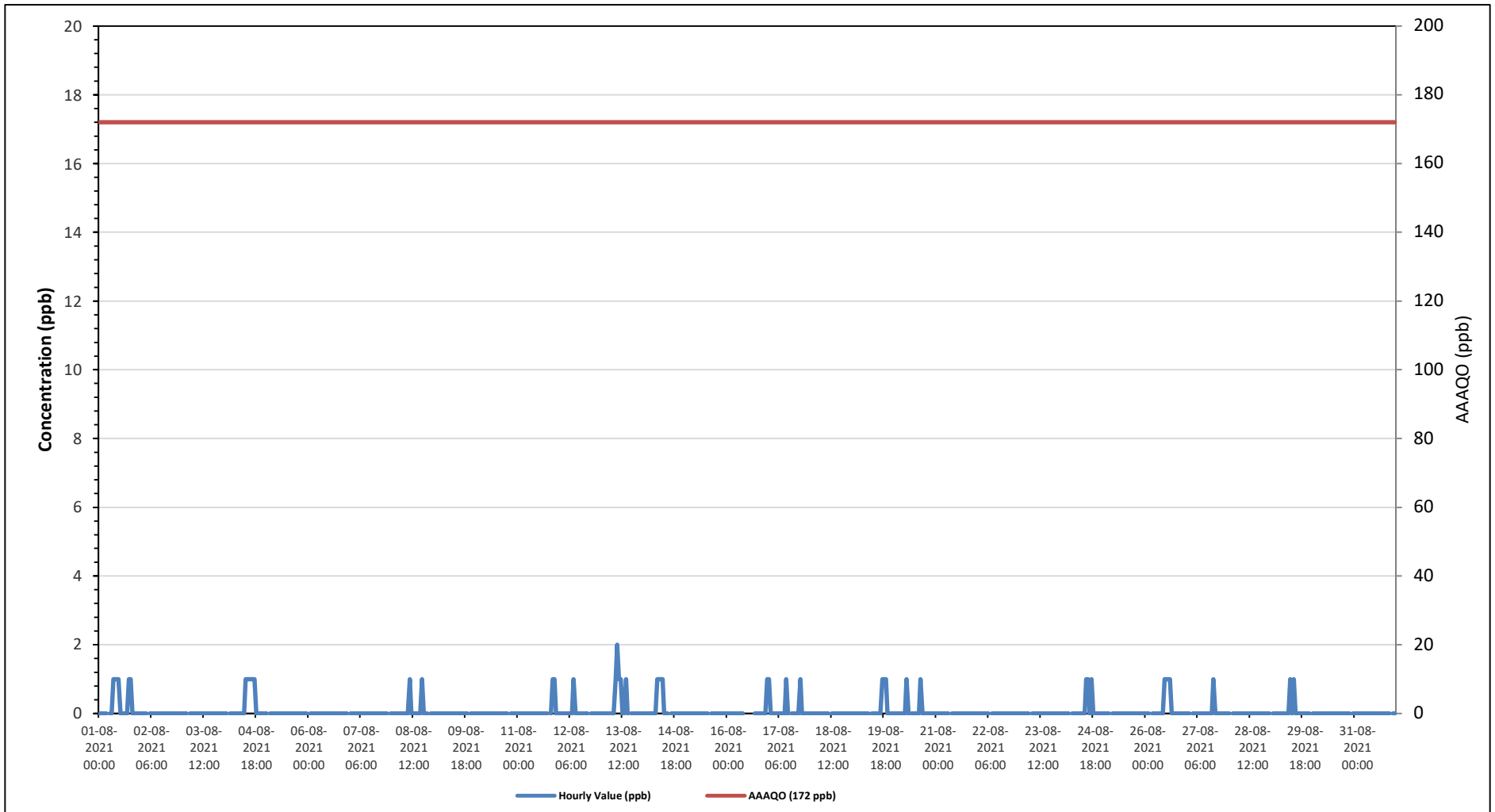
Cold Lake South Station - August 2021

Summary of Hourly Averages

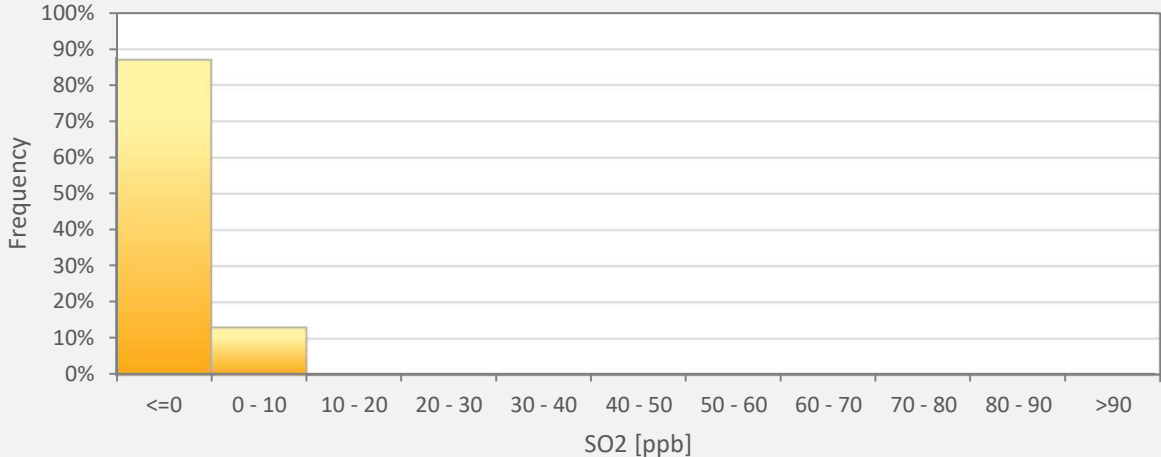
SULPHUR DIOXIDE (SO<sub>2</sub>) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																														
Number of 1-Hour Exceedences: 0					Number of 24-Hour Exceedences: 0					30-Day Exceedence: 0																				
Maximum Hourly Value: 2 ppb on August 13 at hour 9													Hours in Service: 744																	
Maximum Daily Value: 0.3 ppb on August 1													Hours of Data: 706																	
Minimum Hourly Value: 0 ppb on August 1 at hour 0													Hours of Missing Data: 0																	
Minimum Daily Value: 0.0 ppb on August 2													Hours of Calibration: 38																	
Monthly Average: 0.1 ppb													Operational Uptime: 100.0																	
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23			
Aug 1	0	0	0	0	0	S	0	0	1	1	1	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0.3	
Aug 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	
Aug 3	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Aug 4	0	0	S	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0.3		
Aug 5	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Aug 6	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.0	
Aug 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	S	0	0	0.0	
Aug 8	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	S	0	0	0	0	1	0.1	
Aug 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0	
Aug 10	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	
Aug 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	1	0	0	0	0	0	1	0.1	
Aug 12	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0.0	
Aug 13	0	0	0	0	0	0	0	0	1	2	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0.3		
Aug 14	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	1	0.2	
Aug 15	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	
Aug 16	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	1	0	0.1		
Aug 17	1	0	0	0	0	0	0	0	0	0	1	0	S	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0.1		
Aug 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	
Aug 19	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0.1	
Aug 20	0	0	0	0	0	0	0	1	0	S	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.1	
Aug 21	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	
Aug 22	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	
Aug 23	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	
Aug 24	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	1	0.1	
Aug 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	0.0	
Aug 26	0	0	0	S	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	
Aug 27	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.0	
Aug 28	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Aug 29	S	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.1	
Aug 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0	
Aug 31	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	
Diurnal Maximum	1	0	0	0	0	0	0	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1			
Daiurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.2	0.1	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 SO2 - Cold Lake South Station**



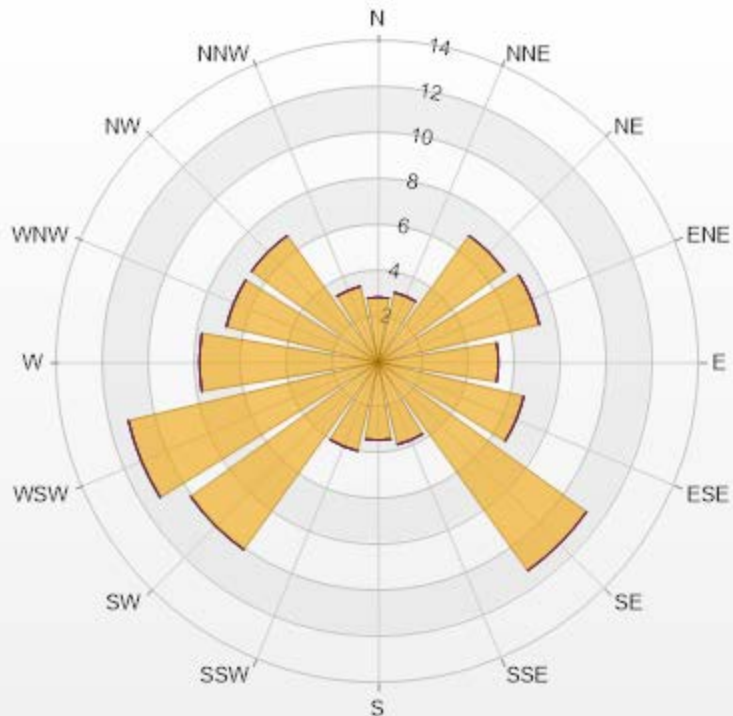
SO2[ppb] Histogram: Cold Lake South Monthly: 08-2021 1 Hr.



Classes	SO2
<=0	86.97%
0 - 10	13.03%
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: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	2.83	0	0	0	0	2.83
NNE	3.12	0	0	0	0	3.12
NE	6.8	0	0	0	0	6.8
ENE	7.22	0	0	0	0	7.22
E	5.24	0	0	0	0	5.24
ESE	6.52	0	0	0	0	6.52
SE	11.19	0	0	0	0	11.19
SSE	3.68	0	0	0	0	3.68
S	3.4	0	0	0	0	3.4
SSW	3.97	0	0	0	0	3.97
SW	10.06	0	0	0	0	10.06
WSW	11.19	0	0	0	0	11.19
W	7.79	0	0	0	0	7.79
WNW	6.8	0	0	0	0	6.8
NW	6.8	0	0	0	0	6.8
NNW	3.4	0	0	0	0	3.4
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100 0-10

0 10-50

0 50-100

0 100-172

0 >172.0



**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION**

**Cold Lake South Station - August 2021**

**Summary of Hourly Averages**

**TOTAL REDUCED SULPHUR (TRS) in ppb**

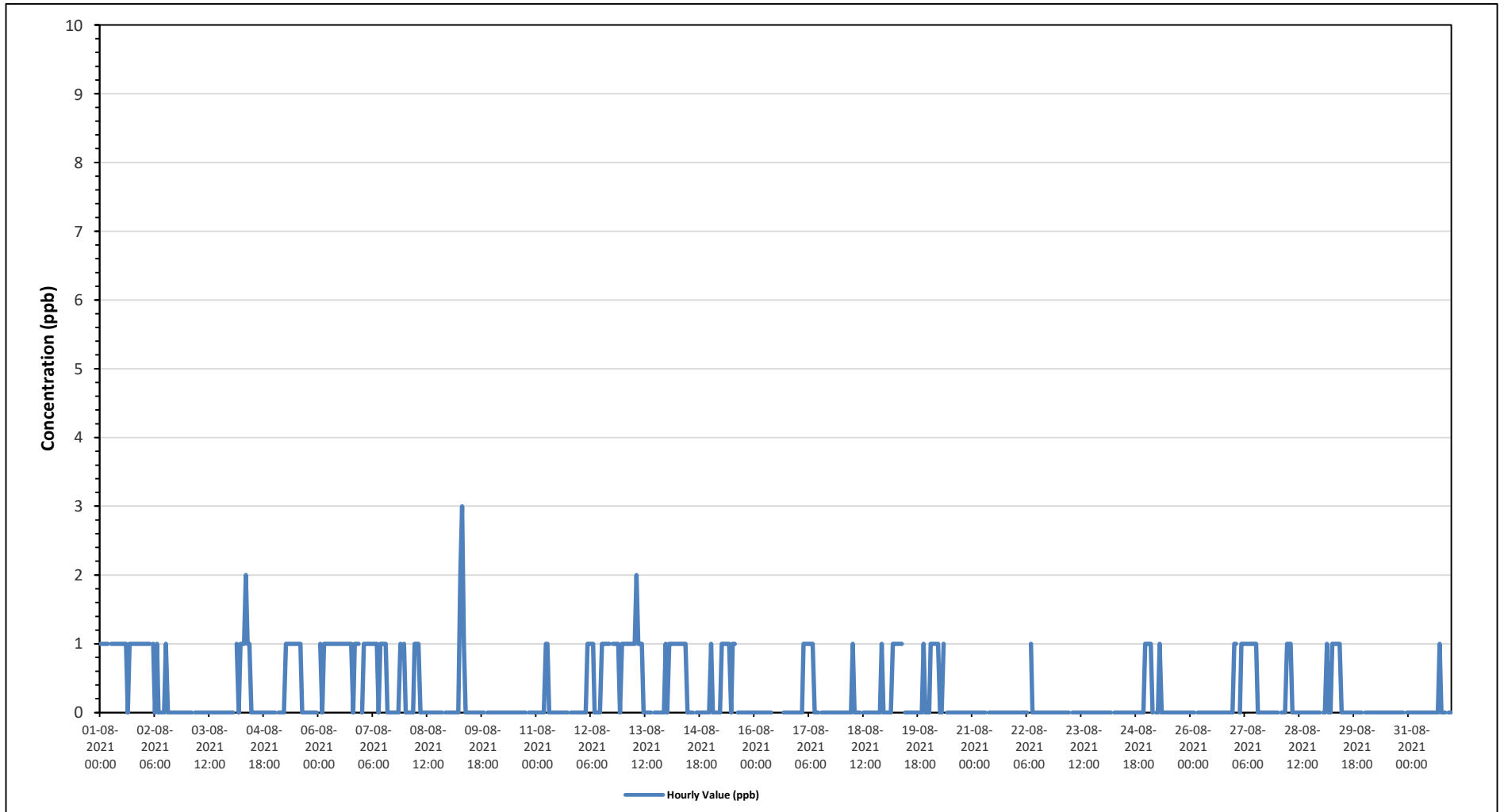
Maximum Hourly Value:	3 ppb on August 9 at hour 7	Hours in Service:	744
Maximum Daily Value:	1.0 ppb on August 1	Hours of Data:	706
Minimum Hourly Value:	0 ppb on August 1 at hour 15	Hours of Missing Data:	0
Minimum Daily Value:	0.0 ppb on August 3	Hours of Calibration:	38
Monthly Average:	0.3 ppb	Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
Aug 1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	
Aug 2	1	1	1	1	S	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
Aug 3	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Aug 4	0	0	S	1	0	1	1	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Aug 5	0	S	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	
Aug 6	S	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	
Aug 7	0	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0	0	0	0	0	0	1	S	1	0	
Aug 8	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	
Aug 9	0	0	0	0	0	0	2	3	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	
Aug 10	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	
Aug 11	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	
Aug 12	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	1	S	1	1	1	1	0	1	0	
Aug 13	1	1	1	1	1	1	1	2	1	1	1	0	0	0	0	0	S	0	0	0	0	0	0	1	0	
Aug 14	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	S	0	0	0	0	0	0	0	0	0	
Aug 15	1	0	0	0	0	0	1	1	1	1	1	0	1	1	S	0	0	0	0	0	0	0	0	0	0	
Aug 16	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	
Aug 17	0	0	0	1	1	1	1	1	1	0	0	S	S	0	0	0	0	0	0	0	0	0	0	0	0	
Aug 18	0	0	0	0	0	0	1	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	0	0	
Aug 19	0	0	0	0	1	1	1	1	1	1	S	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
Aug 20	0	1	1	1	1	1	0	0	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Aug 21	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	
Aug 22	0	0	0	0	0	0	0	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Aug 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	
Aug 24	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
Aug 25	1	1	1	0	S	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Aug 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	
Aug 27	1	1	S	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Aug 28	0	S	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Aug 29	S	0	0	1	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	
Aug 30	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	
Aug 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	
Diurnal Maximum	1.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	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	
Diurnal Average	0.21	0.31	0.24	0.34	0.34	0.48	0.63	0.70	0.53	0.33	0.34	0.17	0.28	0.20	0.14	0.07	0.10	0.10	0.10	0.07	0.10	0.17	0.10	0.17		

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

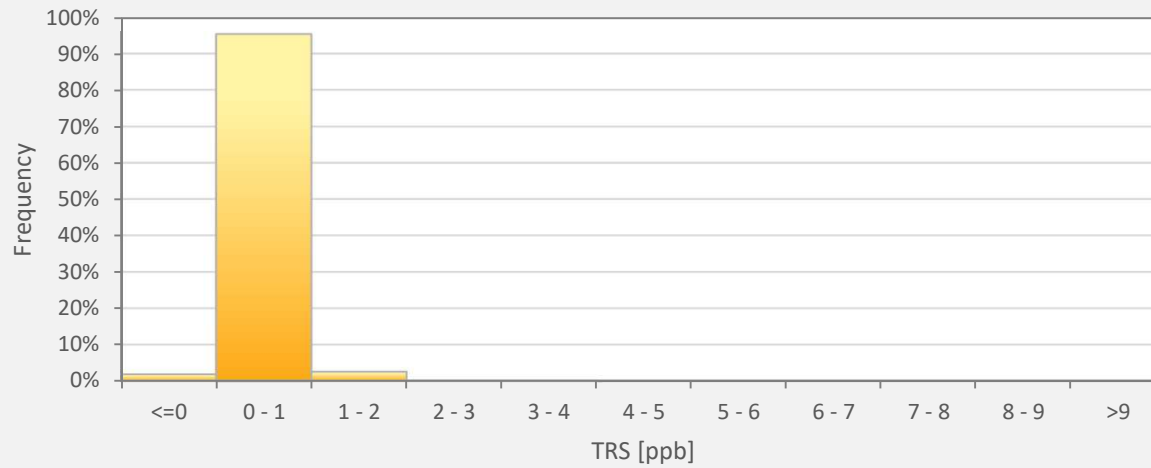
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

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





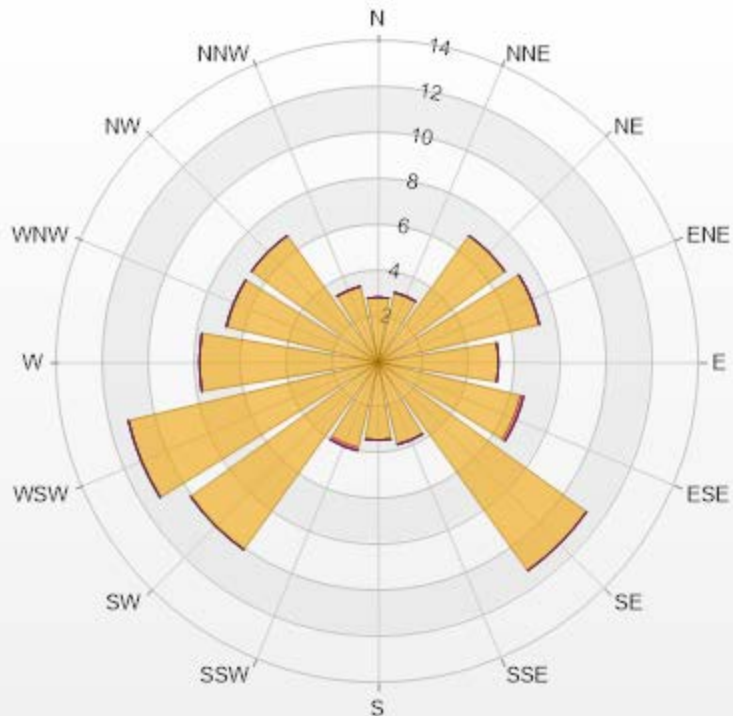
TRS[ppb] Histogram: Cold Lake South Monthly: 08-2021 1 Hr.



Classes	TRS
<=0	1.84%
0 - 1	95.33%
1 - 2	2.55%
2 - 3	0.14%
3 - 4	0.14%
4 - 5	0.00%
5 - 6	0.00%
6 - 7	0.00%
7 - 8	0.00%
8 - 9	0.00%
>9	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-TRS[ppb] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	2.83	0	0	0	0	2.83
NNE	3.12	0	0	0	0	3.12
NE	6.8	0	0	0	0	6.8
ENE	7.22	0	0	0	0	7.22
E	5.24	0	0	0	0	5.24
ESE	6.37	0.14	0	0	0	6.51
SE	11.19	0	0	0	0	11.19
SSE	3.68	0	0	0	0	3.68
S	3.4	0	0	0	0	3.4
SSW	3.82	0.14	0	0	0	3.96
SW	10.06	0	0	0	0	10.06
WSW	11.19	0	0	0	0	11.19
W	7.79	0	0	0	0	7.79
WNW	6.8	0	0	0	0	6.8
NW	6.8	0	0	0	0	6.8
NNW	3.4	0	0	0	0	3.4
Summary	100	0.28	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 - August 2021

Summary of Hourly Averages

OXIDES OF NITROGEN (NOx) in ppb

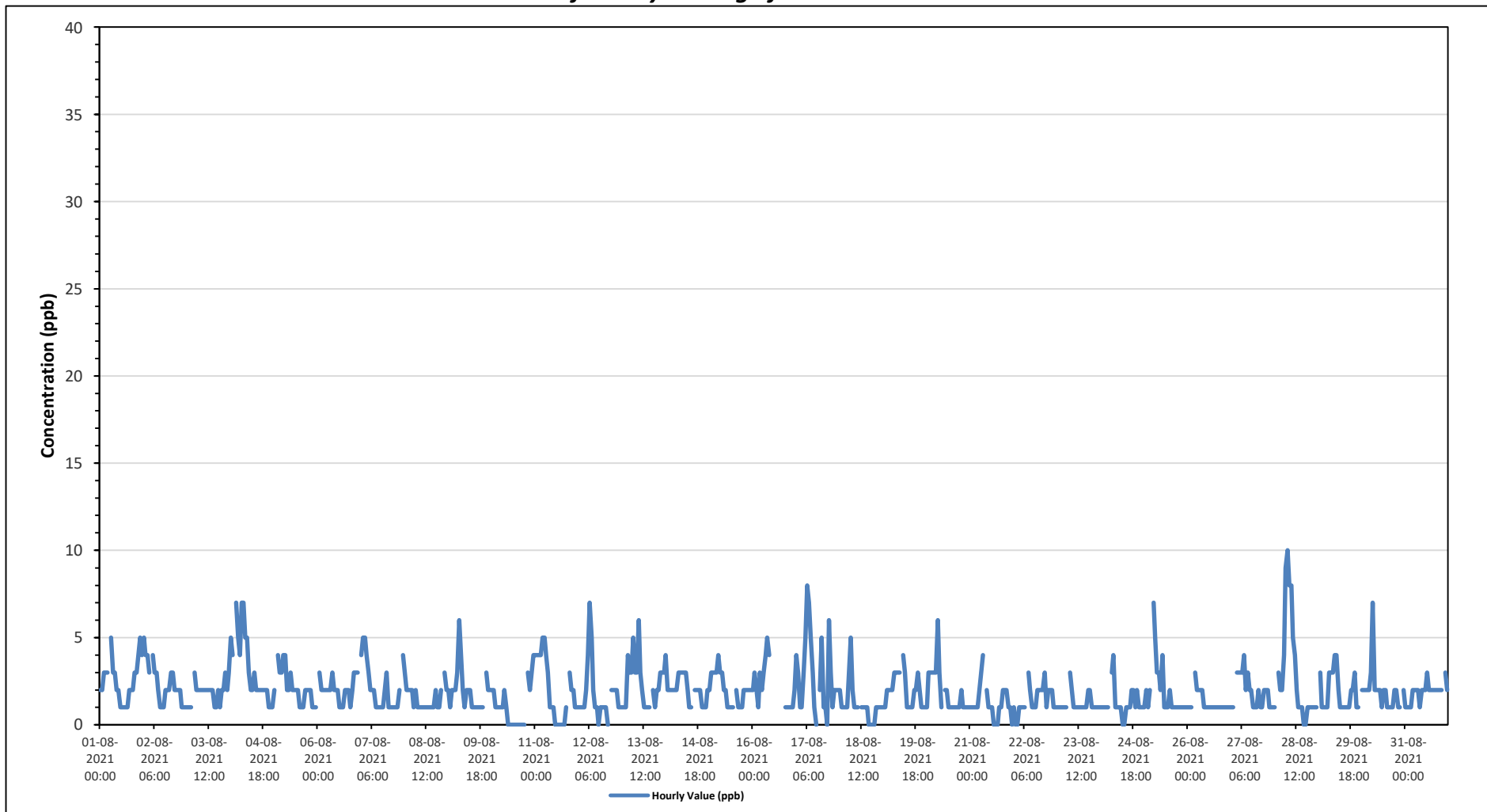
Maximum Hourly Value:	10 ppb on August 28 at hour 7	Hours in Service:	744
Maximum Daily Value:	3.3 ppb on August 4	Hours of Data:	704
Minimum Hourly Value:	0 ppb on August 10 at hour 9	Hours of Missing Data:	0
Minimum Daily Value:	1.0 ppb on August 10	Hours of Calibration:	40
Monthly Average:	1.9 ppb	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	
Aug 1	2	2	3	3	3	S	5	3	3	2	2	1	1	1	1	2	2	2	2	3	3	4	5	4	1	5	2.5	
Aug 2	5	4	4	3	S	4	3	3	2	1	1	2	2	2	2	3	3	2	2	2	2	2	1	1	1	1	5	2.3
Aug 3	1	1	1	S	3	2	2	2	2	2	2	2	2	2	1	1	2	1	2	1	2	2	3	2	3	1	3	1.9
Aug 4	5	4	S	7	5	4	7	7	5	5	3	2	2	3	2	2	2	2	2	2	2	1	1	1	1	7	3.3	
Aug 5	2	S	4	3	3	4	4	2	2	3	2	2	2	2	1	1	1	2	2	2	2	2	1	1	1	4	2.1	
Aug 6	S	3	2	2	2	2	2	2	3	2	2	2	1	1	1	2	2	2	1	2	3	3	3	1	3	1	3	2.0
Aug 7	4	5	5	4	3	2	2	2	1	1	1	1	1	2	3	1	1	1	1	1	1	2	S	4	1	5	2.1	
Aug 8	3	2	2	2	2	1	2	1	1	1	1	1	1	1	1	1	1	2	1	1	2	S	3	2	1	3	1.5	
Aug 9	2	1	2	2	2	3	6	4	2	1	2	2	2	1	1	1	1	1	1	1	S	3	2	2	1	6	2.0	
Aug 10	2	2	1	1	1	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0	S	3	2	3	4	0	4	1.0
Aug 11	4	4	4	4	5	5	4	3	1	1	1	0	0	0	0	0	0	1	S	3	2	2	1	1	0	5	2.0	
Aug 12	1	1	1	1	2	4	7	5	2	1	1	0	1	1	1	1	0	S	2	2	2	2	1	1	0	7	1.7	
Aug 13	1	1	1	4	3	3	5	3	3	6	3	2	1	1	1	1	S	2	1	2	2	2	3	3	3	1	6	2.4
Aug 14	4	2	2	2	2	2	2	3	3	3	3	3	2	1	1	S	2	2	2	2	2	1	1	1	2	1	4	2.1
Aug 15	2	3	3	3	3	4	3	3	2	2	1	1	1	1	S	2	1	1	1	2	2	2	2	2	2	1	4	2.0
Aug 16	2	3	2	1	3	2	3	4	5	4	C	C	C	C	C	C	C	C	C	1	1	1	1	2	1	5	-	
Aug 17	4	3	1	1	3	5	8	7	5	3	1	0	S	2	5	1	1	0	6	3	1	2	2	2	0	8	2.9	
Aug 18	2	1	1	1	1	3	5	2	1	1	1	S	1	1	1	1	0	0	0	0	1	1	1	1	0	5	1.2	
Aug 19	1	1	2	2	2	2	3	3	3	3	S	4	3	1	1	1	1	2	2	3	2	1	1	1	1	4	2.0	
Aug 20	1	3	3	3	3	6	3	1	S	2	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	6	1.9	
Aug 21	1	1	1	1	1	2	3	4	S	2	1	1	1	0	0	0	1	1	2	2	2	1	1	0	4	1.3		
Aug 22	1	0	0	1	1	1	S	3	2	1	1	1	2	2	2	2	3	1	2	2	2	2	1	1	0	3	1.4	
Aug 23	1	1	1	1	1	1	S	3	2	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	3	1.2	
Aug 24	1	1	1	1	1	S	3	4	1	1	1	0	0	1	1	1	1	2	2	1	2	1	1	1	0	4	1.3	
Aug 25	1	2	1	2	S	7	5	3	3	2	4	1	1	1	2	1	1	1	1	1	1	1	1	1	1	7	1.9	
Aug 26	1	1	1	S	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.3	
Aug 27	1	1	S	3	3	3	3	4	2	3	2	2	1	1	1	2	1	1	2	2	2	2	1	1	1	4	1.9	
Aug 28	1	S	3	2	2	4	9	10	8	8	5	4	2	1	1	1	0	0	1	1	1	1	1	1	0	10	2.9	
Aug 29	S	3	1	1	1	1	3	3	3	4	4	2	1	1	1	1	1	1	2	2	3	1	1	S	1	4	1.9	
Aug 30	2	2	2	2	2	3	7	2	2	2	2	1	2	2	1	1	1	1	1	2	2	1	1	S	2	7	2.0	
Aug 31	1	1	1	1	2	2	2	2	1	2	2	2	3	2	2	2	2	2	2	2	2	S	3	2	1	3	1.9	
Diurnal Maximum	5	5	5	7	5	7	9	10	8	8	5	4	3	3	5	3	3	3	6	3	3	4	5	4				
Diurnal Average	2.0	2.0	1.9	2.2	2.3	2.8	3.9	3.4	2.5	2.3	1.8	1.5	1.3	1.2	1.3	1.2	1.1	1.4	1.6	1.8	1.8	1.6	1.6	1.7				

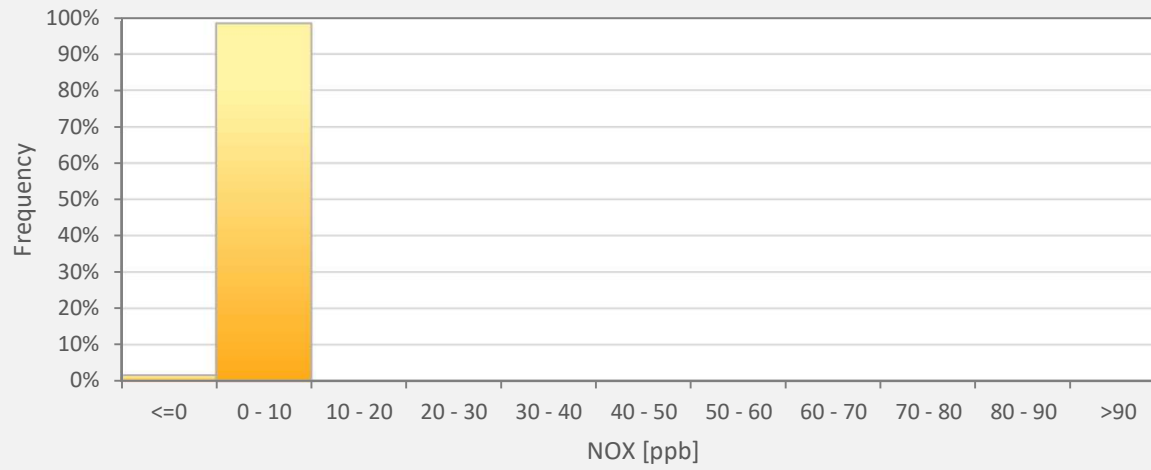
<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>N</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> InValid Data (Equipment Malfunction/Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span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

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

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



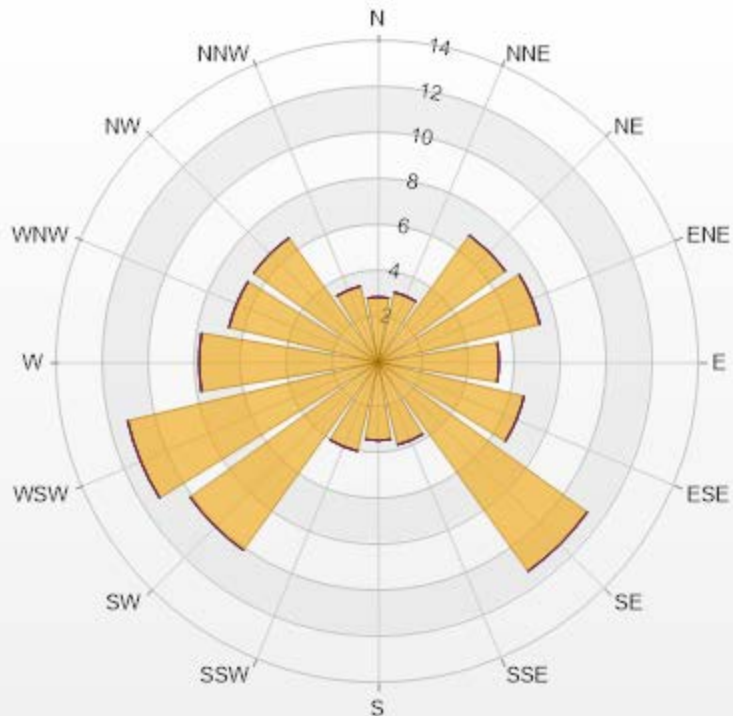
NOX[ppb] Histogram: Cold Lake South Monthly: 08-2021 1 Hr.



Classes	NOX
<=0	1.56%
0 - 10	98.44%
10 - 20	0.00%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-NOX[ppb] Monthly: 08-2021 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	2.84	0	0	0	0	2.84
NNE	3.13	0	0	0	0	3.13
NE	6.82	0	0	0	0	6.82
ENE	7.24	0	0	0	0	7.24
E	5.26	0	0	0	0	5.26
ESE	6.53	0	0	0	0	6.53
SE	11.22	0	0	0	0	11.22
SSE	3.69	0	0	0	0	3.69
S	3.41	0	0	0	0	3.41
SSW	3.98	0	0	0	0	3.98
SW	10.09	0	0	0	0	10.09
WSW	11.22	0	0	0	0	11.22
W	7.81	0	0	0	0	7.81
WNW	6.68	0	0	0	0	6.68
NW	6.68	0	0	0	0	6.68
NNW	3.41	0	0	0	0	3.41
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100  0-30

0  30-50

0  50-76

0  76-159

0  >159.0





## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - August 2021

Summary of Hourly Averages

NITRIC OXIDE (NO) in ppb

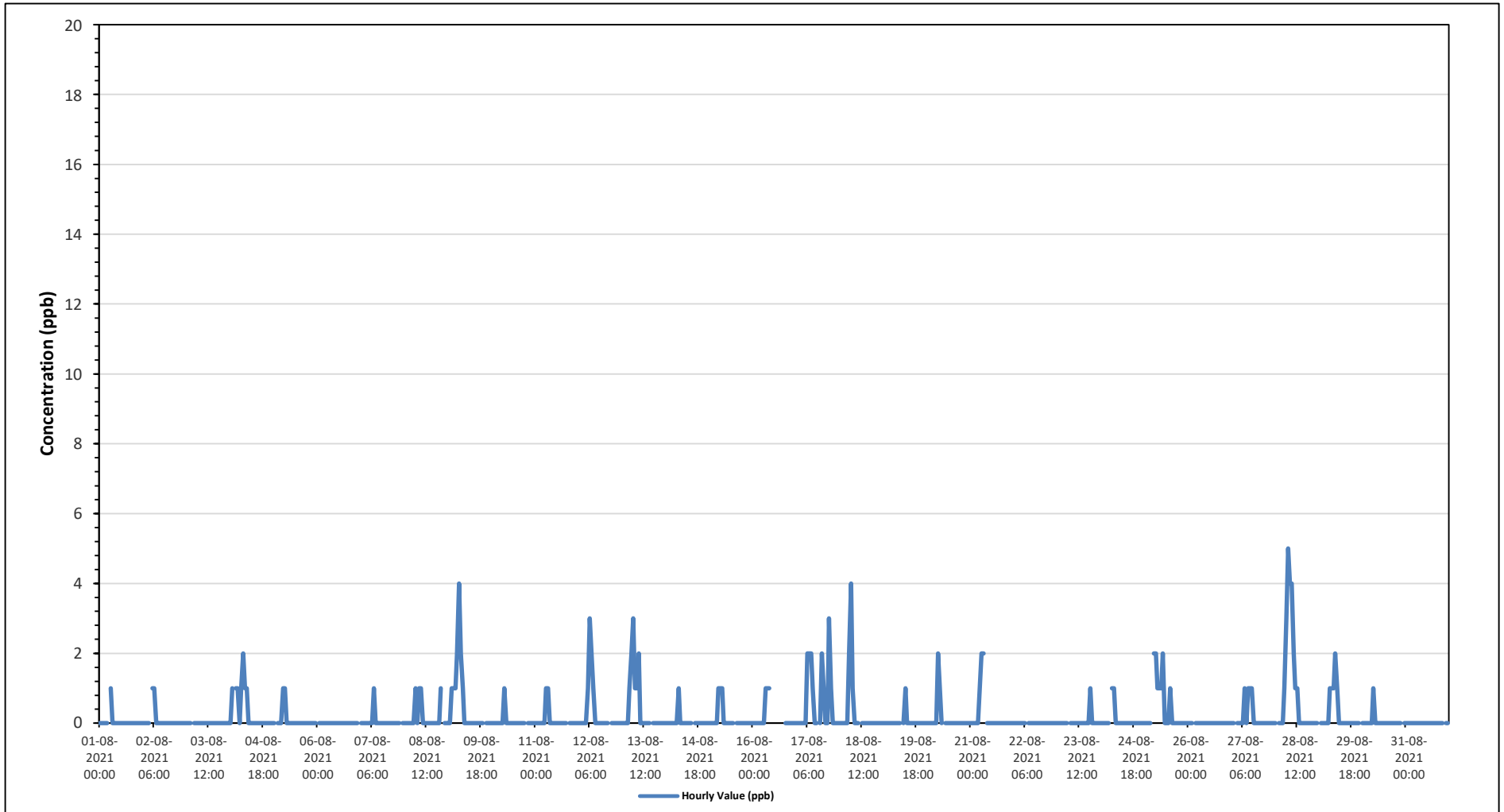
Maximum Hourly Value:	5 ppb on August 28 at hour 7	Hours in Service:	744
Maximum Daily Value:	0.9 ppb on August 28	Hours of Data:	704
Minimum Hourly Value:	0 ppb on August 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 ppb on August 3	Hours of Calibration:	40
Monthly Average:	0.2 ppb	Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
Aug 1	0	0	0	0	0	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Aug 2	0	0	0	0	S	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Aug 3	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Aug 4	0	1	S	1	1	0	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	
Aug 5	0	S	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	
Aug 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	S	0	0.0	
Aug 7	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	S	0	1	0.0	
Aug 8	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	S	0	0	0	0	1	1	0.2	
Aug 9	0	0	1	1	1	2	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	S	S	0	0	0	0	4	4	0.5	
Aug 10	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	1	0.0	
Aug 11	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	1	0.1	
Aug 12	0	0	0	0	0	1	3	2	1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	3	3	0.3	
Aug 13	0	0	0	0	1	2	3	1	1	2	0	0	0	0	0	0	S	S	0	0	0	0	0	0	0	0	0	3	3	0.4	
Aug 14	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	1	1	0.0	
Aug 15	0	0	0	0	0	1	1	1	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.1	
Aug 16	0	0	0	0	0	0	0	1	1	1	C	C	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	1	-	0.0	
Aug 17	0	0	0	0	0	0	2	2	2	1	0	0	S	S	0	2	1	0	0	0	3	1	0	0	0	0	0	3	3	0.6	
Aug 18	0	0	0	0	0	2	4	1	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0.3	
Aug 19	0	0	0	0	0	0	0	0	0	0	S	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.0	
Aug 20	0	0	0	0	0	0	2	1	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0.1	
Aug 21	0	0	0	0	0	1	2	2	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0.2	
Aug 22	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	
Aug 23	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0.0	
Aug 24	0	0	0	0	0	S	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.1	
Aug 25	0	0	0	0	S	2	2	1	1	1	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0.4	
Aug 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	
Aug 27	0	0	S	0	0	0	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	
Aug 28	0	S	0	0	0	1	3	5	4	4	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0.9	
Aug 29	S	0	0	0	0	0	1	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0.3	
Aug 30	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	1	1	0.0	
Aug 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	S	0	0	0	0.0	
Diurnal Maximum	0	1	1	1	1	2	4	5	4	4	2	1	1	0	2	1	0	0	3	1	1	0	0	0	0	0	0	0	0	0	
Diurnal Average	0.0	0.0	0.0	0.1	0.1	0.5	1.2	0.9	0.5	0.5	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

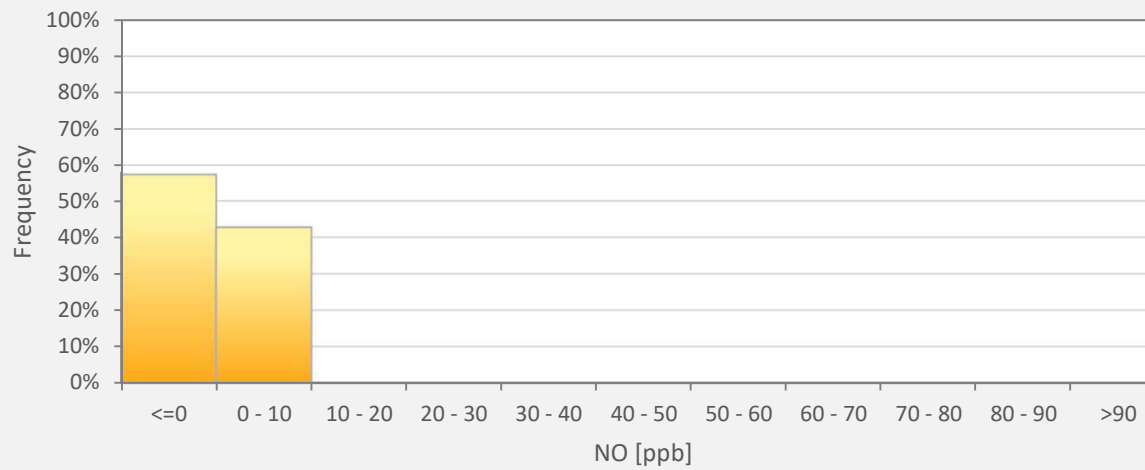
<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>N</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> InValid Data (Equipment Malfunction/Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span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

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

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



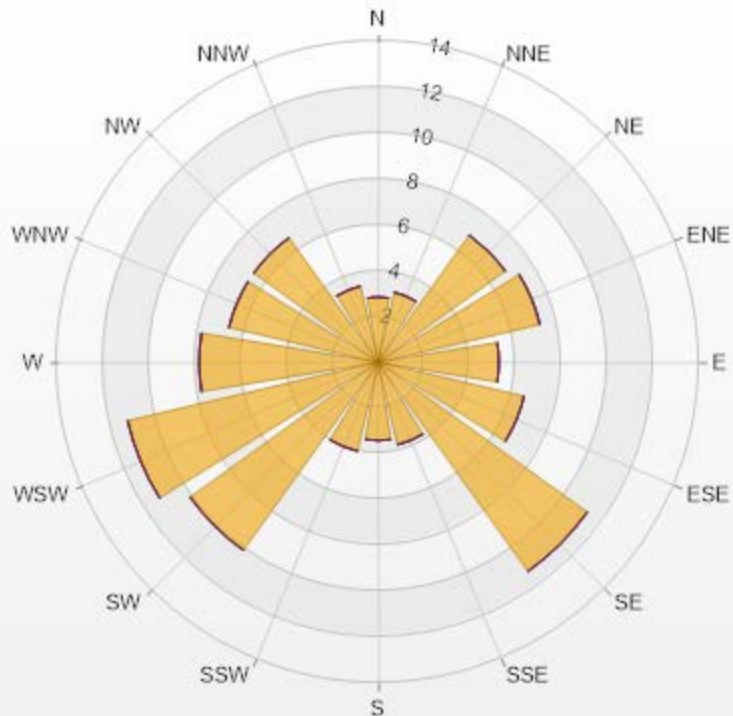
NO[ppb] Histogram: Cold Lake South Monthly: 08-2021 1 Hr.



Classes	NO
<=0	57.24%
0 - 10	42.76%
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-NO[ppb] Monthly: 08-2021 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	2.84	0	0	0	0	2.84
NNE	3.13	0	0	0	0	3.13
NE	6.82	0	0	0	0	6.82
ENE	7.24	0	0	0	0	7.24
E	5.26	0	0	0	0	5.26
ESE	6.53	0	0	0	0	6.53
SE	11.22	0	0	0	0	11.22
SSE	3.69	0	0	0	0	3.69
S	3.41	0	0	0	0	3.41
SSW	3.98	0	0	0	0	3.98
SW	10.09	0	0	0	0	10.09
WSW	11.22	0	0	0	0	11.22
W	7.81	0	0	0	0	7.81
WNW	6.68	0	0	0	0	6.68
NW	6.68	0	0	0	0	6.68
NNW	3.41	0	0	0	0	3.41
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100  0-30

0  30-50

0  50-76

0  76-159

0  >159.0



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - August 2021

Summary of Hourly Averages

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

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

Number of 1-Hour Exceedences: 0

Maximum Hourly Value:	6 ppb on August 4 at hour 3	Hours in Service:	744
Maximum Daily Value:	2.9 ppb on August 4	Hours of Data:	704
Minimum Hourly Value:	0 ppb on August 10 at hour 9	Hours of Missing Data:	0
Minimum Daily Value:	0.9 ppb on August 18	Hours of Calibration:	40
Monthly Average:	1.7 ppb	Operational Uptime:	100.0

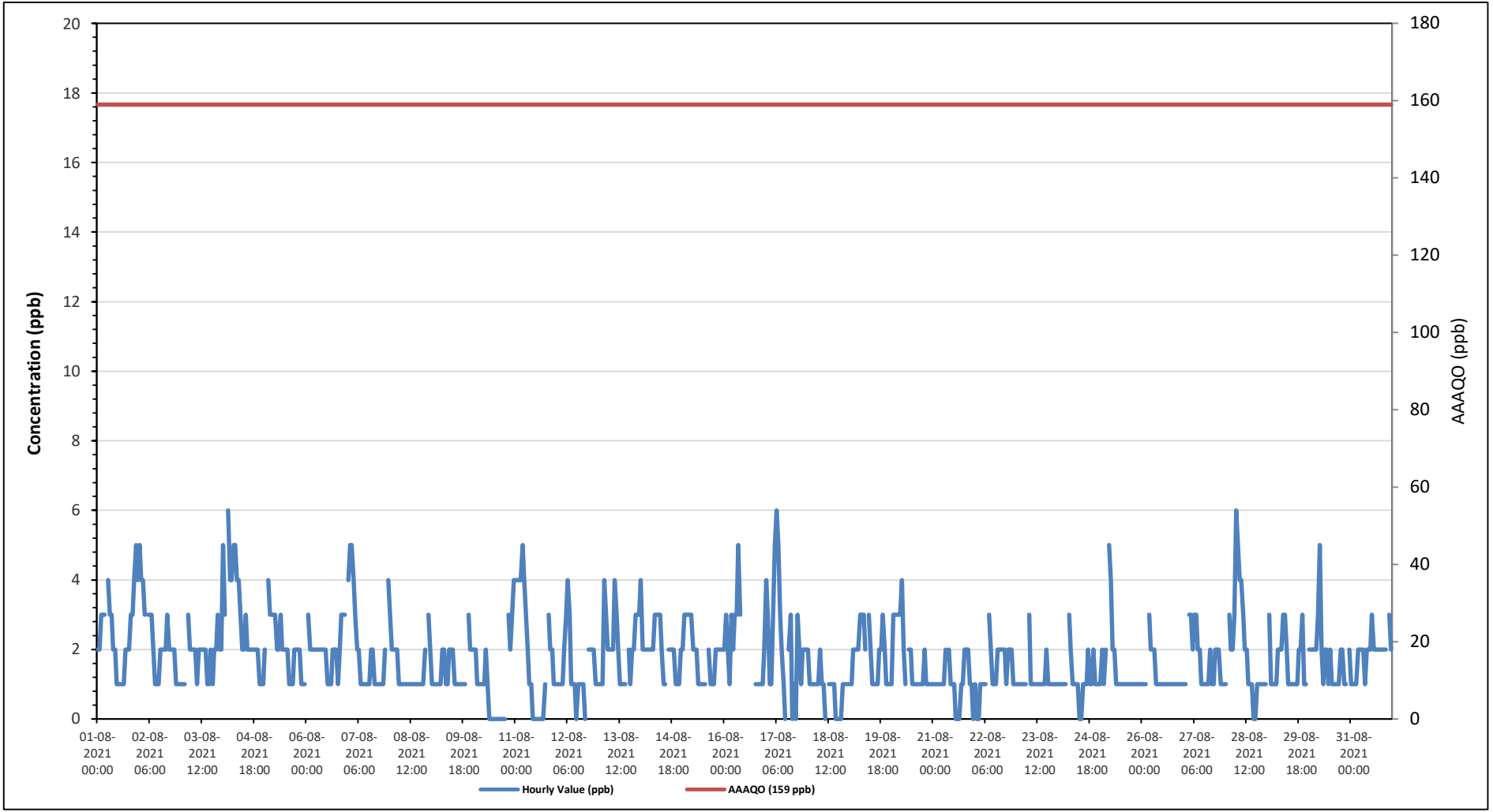
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Aug 1	2	2	3	3	3	S	4	3	3	2	2	1	1	1	1	1	2	2	2	3	3	4	5	4	1	5	2.5	
Aug 2	5	4	4	3	S	3	2	3	2	1	1	1	2	2	2	2	3	2	2	2	2	1	1	1	1	5	2.3	
Aug 3	1	1	1	S	3	2	2	2	2	1	2	2	2	2	1	1	2	2	1	2	2	3	2	2	1	3	1.8	
Aug 4	5	3	S	6	4	4	5	5	4	4	3	2	2	3	2	2	2	2	2	2	2	1	1	1	1	6	2.9	
Aug 5	2	S	4	3	3	3	3	2	2	3	2	2	2	2	1	1	1	2	2	2	2	1	1	1	1	4	2.0	
Aug 6	S	3	2	2	2	2	2	2	2	2	2	1	1	1	2	2	2	1	2	3	3	3	S	S	3	2.0		
Aug 7	4	5	5	4	3	2	2	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	S	4	1	5	2.0	
Aug 8	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	S	3	2	1	3	1.4	
Aug 9	1	1	1	1	1	1	2	2	1	1	2	2	2	1	1	1	1	1	1	1	S	3	2	2	1	3	1.4	
Aug 10	2	2	1	1	1	1	1	2	1	0	0	0	0	0	0	0	0	0	0	1	S	3	2	3	4	0	4	1.0
Aug 11	4	4	4	4	5	4	3	2	1	1	0	0	0	0	0	0	1	S	3	2	2	1	1	1	0	5	1.8	
Aug 12	1	1	1	1	2	3	4	3	1	1	1	0	1	1	1	1	0	S	2	2	2	2	1	1	0	4	1.4	
Aug 13	1	1	1	4	3	2	2	2	2	4	3	2	1	1	1	1	S	2	1	2	2	3	3	3	1	4	2.0	
Aug 14	4	2	2	2	2	2	2	2	3	3	3	3	2	1	1	S	2	2	2	2	1	1	1	2	1	4	2.0	
Aug 15	2	3	3	3	3	3	2	2	2	1	1	1	1	S	2	1	1	1	2	2	2	2	2	2	1	3	1.9	
Aug 16	2	3	2	1	3	2	3	3	5	3	C	C	C	C	C	C	C	C	1	1	1	1	1	2	1	5	-	
Aug 17	4	3	1	1	3	5	6	5	3	2	1	0	S	2	3	0	1	0	3	2	1	2	2	2	0	6	2.3	
Aug 18	2	1	1	1	1	1	1	2	1	1	0	S	1	1	1	1	0	0	0	0	1	1	1	1	0	2	0.9	
Aug 19	1	1	2	2	2	2	3	3	3	2	S	3	2	1	1	1	1	2	2	3	2	1	1	1	1	3	1.8	
Aug 20	1	3	3	3	3	3	4	2	1	S	2	2	1	1	1	1	1	1	1	2	1	1	1	1	1	4	1.7	
Aug 21	1	1	1	1	1	1	1	2	S	2	1	1	1	0	0	0	1	1	2	2	2	2	1	0	2	2	1.0	
Aug 22	1	0	0	1	1	1	1	S	3	2	1	1	1	2	2	2	2	2	1	2	2	2	1	1	0	3	1.4	
Aug 23	1	1	1	1	1	1	S	3	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	3	1.1	
Aug 24	1	1	1	1	1	S	3	2	1	1	1	1	0	0	1	1	1	2	1	1	2	1	1	1	0	3	1.1	
Aug 25	1	2	1	2	S	5	4	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	1.5	
Aug 26	1	1	1	S	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.2	
Aug 27	1	1	S	3	3	2	3	3	2	2	1	1	1	1	1	2	1	1	2	2	2	2	1	1	1	3	1.7	
Aug 28	1	S	3	2	2	3	6	5	4	4	3	2	2	1	1	1	0	0	1	1	1	1	1	1	0	6	2.0	
Aug 29	S	3	1	1	1	1	2	2	2	3	2	1	1	1	1	1	1	1	2	2	3	1	1	1	1	3	1.6	
Aug 30	2	2	2	2	2	3	5	2	1	2	2	1	2	1	1	1	1	1	2	2	1	1	S	2	1	5	1.8	
Aug 31	1	1	1	1	2	2	2	2	1	2	2	2	3	2	2	2	2	2	2	2	2	S	3	2	1	3	1.9	
Diurnal Maximum	5	5	5	6	5	5	6	5	5	4	3	3	3	3	3	2	3	2	3	3	3	4	5	4				
Diurnal Average	2.0	2.0	1.9	2.1	2.3	2.3	2.8	2.5	2.0	1.8	1.5	1.3	1.3	1.2	1.2	1.1	1.1	1.3	1.4	1.7	1.8	1.6	1.6	1.7				

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

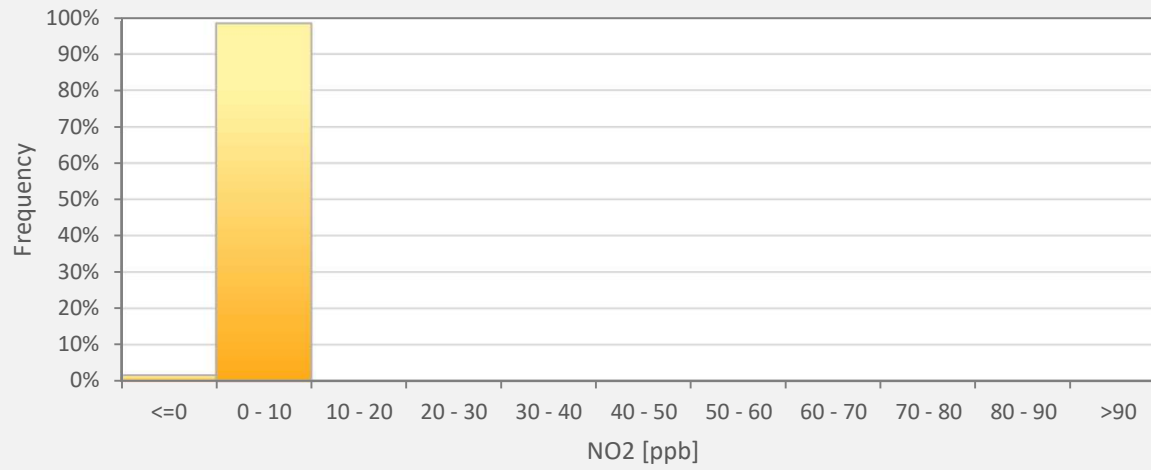
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

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



NO2[ppb] Histogram: Cold Lake South Monthly: 08-2021 1 Hr.

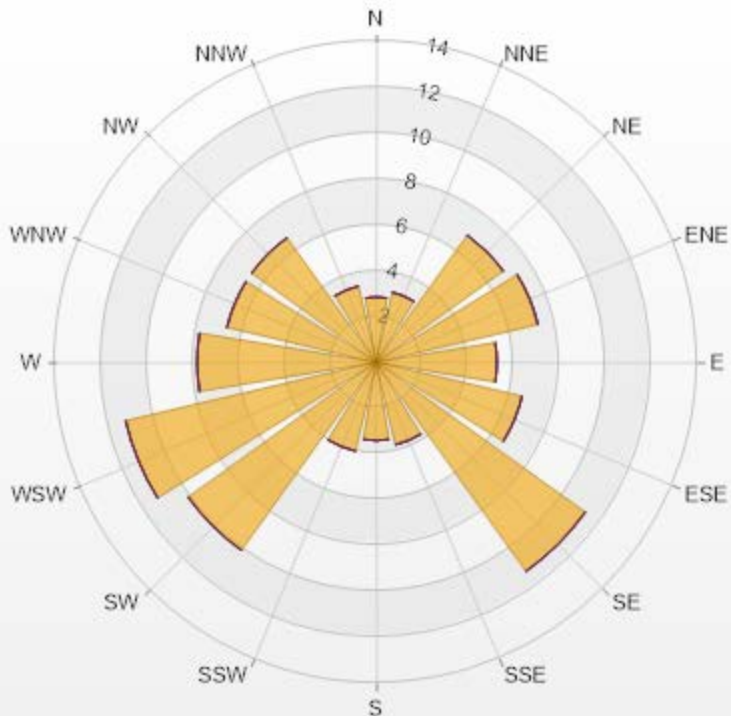


Classes	NO2
<=0	1.56%
0 - 10	98.44%
10 - 20	0.00%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%



Wind: Cold Lake South Poll.: Cold Lake South-NO2[ppb] Monthly: 08-2021 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	2.84	0	0	0	0	2.84
NNE	3.13	0	0	0	0	3.13
NE	6.82	0	0	0	0	6.82
ENE	7.24	0	0	0	0	7.24
E	5.26	0	0	0	0	5.26
ESE	6.53	0	0	0	0	6.53
SE	11.22	0	0	0	0	11.22
SSE	3.69	0	0	0	0	3.69
S	3.41	0	0	0	0	3.41
SSW	3.98	0	0	0	0	3.98
SW	10.09	0	0	0	0	10.09
WSW	11.22	0	0	0	0	11.22
W	7.81	0	0	0	0	7.81
WNW	6.68	0	0	0	0	6.68
NW	6.68	0	0	0	0	6.68
NNW	3.41	0	0	0	0	3.41
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100  0-30

0  30-50

0  50-76

0  76-159

0  >159.0



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - August 2021

Summary of Hourly Averages

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

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

Number of 1-Hour Exceedences: 0

Maximum Hourly Value:	56.1 ppb on August 4 at hour 16	Hours in Service:	744
Maximum Daily Value:	34.6 ppb on August 26	Hours of Data:	708
Minimum Hourly Value:	0.3 ppb on August 9 at hour 4	Hours of Missing Data:	0
Minimum Daily Value:	14.0 ppb on August 8	Hours of Calibration:	36
Monthly Average:	24.9 ppb	Operational Uptime:	100.0

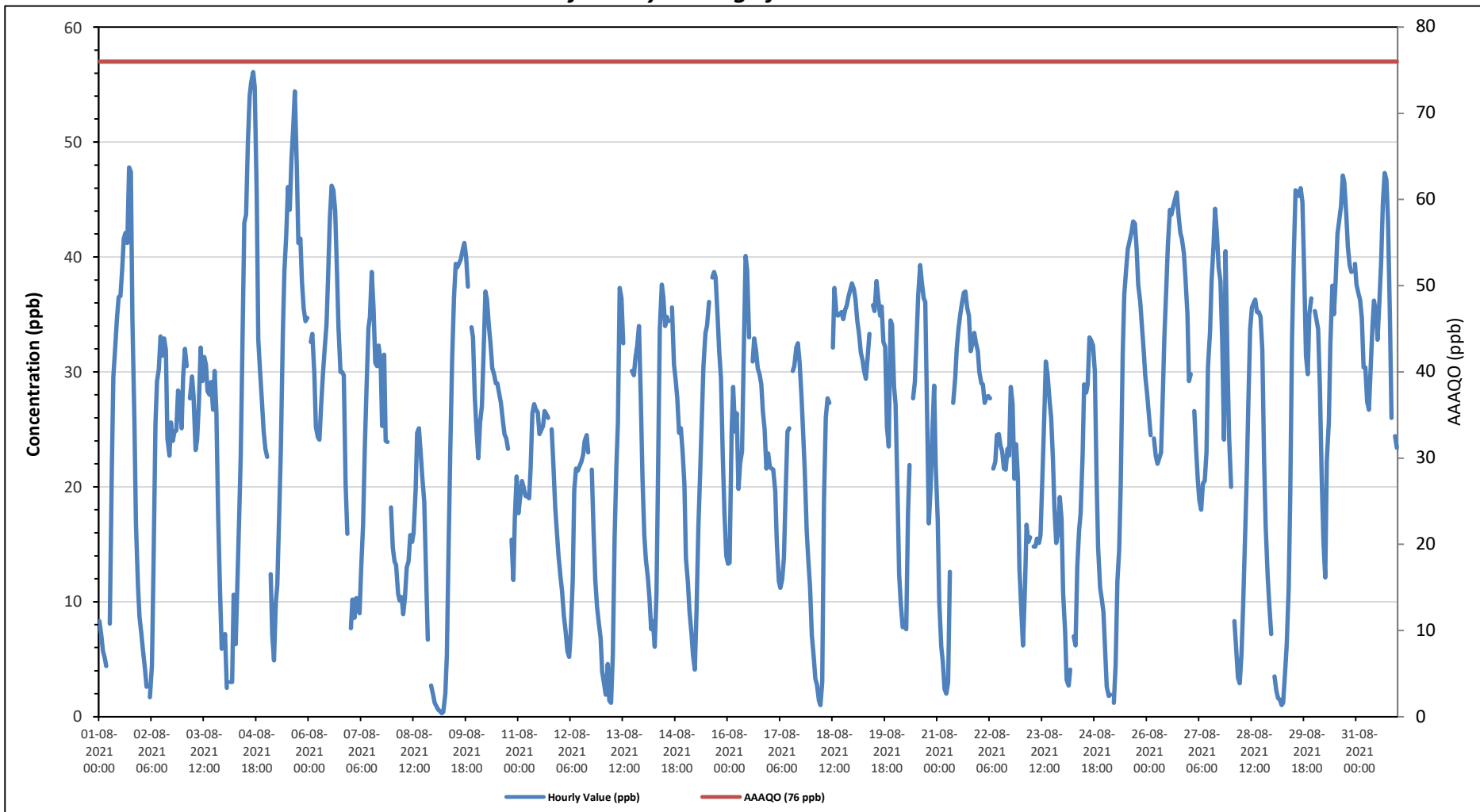
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Aug 1	8.3	7.2	5.7	5.1	4.4	S	8.1	21.6	29.6	32	34.6	36.5	36.6	39	41.6	42.1	41.2	47.8	47.4	34.7	25.7	16.8	11.4	8.7	4.4	47.8	25.5	
Aug 2	7.3	5.7	4.3	2.6	S	1.7	4.4	12.8	25.5	29.2	30.2	33.1	31.4	32.9	31.9	24.2	22.7	25.6	24	24.8	24.9	28.4	27.5	25.1	1.7	33.1	20.9	
Aug 3	29.6	32	30.5	S	27.7	29.6	27.9	23.2	24.1	27.3	32.1	29.2	31.3	30.6	28.3	28	29.1	26.7	30.1	26.5	17.4	11.2	5.9	6.1	5.9	32.1	25.4	
Aug 4	7.2	2.5	S	3	3	10.6	6.3	11	17.6	22.8	32.9	43	43.7	49.9	54	55.2	56.1	54.8	45.3	32.8	30.1	27.6	24.9	23.3	2.5	56.1	28.6	
Aug 5	22.6	S	12.4	7.1	4.9	9.9	11.5	18.1	23.3	33.5	38.8	41.8	46.1	44.1	48.6	51.4	54.4	47.7	41.2	41.6	37.9	35.5	34.4	34.7	4.9	54.4	32.2	
Aug 6	S	32.6	33.3	29.8	25.2	24.3	24.1	27.2	29.9	31.8	34.2	38.2	43.3	46.2	45.8	44	38.8	33.9	30	30	29.7	20.3	15.9	S	15.9	46.2	32.2	
Aug 7	7.7	10.2	8.6	10.3	10.3	9	13.2	16.7	23.6	28.9	33.8	34.8	38.7	35.6	30.8	30.5	32.3	31	25.3	31.5	24	23.9	S	18.2	7.7	38.7	23.0	
Aug 8	14.7	13.5	13.2	10.7	10.1	10.4	8.9	10.4	13	13.5	15.8	15.2	16	19.7	24.7	25.1	22.9	20.9	18.7	13.4	6.7	S	2.7	2	2.0	25.1	14.0	
Aug 9	1.2	0.9	0.6	0.5	0.3	0.4	2	5.3	14.9	23.7	31.2	36.4	39.4	39.1	39.5	39.8	40.7	41.2	40	37.4	S	33.9	33	27.9	0.3	41.2	23.0	
Aug 10	24.9	22.5	25.6	27	31.1	37	36.3	33.9	32.5	30.3	29.8	29	28	27.3	25.7	24.6	24.2	23.3	S	15.4	11.9	17.4	20.9	11.9	37.0	26.4		
Aug 11	17.7	19.1	20.5	20	19.2	19.2	19	21.6	26.4	27.2	26.7	26.5	24.6	24.9	25.3	26.6	26.3	26	S	25	21.8	18.2	15.9	14	14.0	27.2	22.2	
Aug 12	12.1	10.9	8.8	7.4	5.7	5.2	7.3	11.9	19.7	21.6	21.4	21.8	22.2	22.8	24	24.5	23	S	21.5	16.2	11.8	9.5	8.1	6.8	5.2	24.5	15.0	
Aug 13	3.9	2.8	1.9	4.6	1.4	1.2	5.4	15.6	21.8	25.6	37.3	36.4	32.5	C	C	C	C	C	30.1	29.7	31.2	32.3	34	27.8	20.6	1.2	37.3	19.8
Aug 14	15.8	13.7	12.1	10.4	7.6	8.3	6.1	10.7	22.8	33.7	37.6	36.5	34	34.8	34.4	S	35.6	30.6	29.4	27.7	24.7	25.1	23	20.2	6.1	37.6	23.3	
Aug 15	13.8	11.6	9.2	7.2	5.3	4.1	9.4	16.5	21.2	26.2	30.5	33.4	34	36.1	S	38.2	38.7	38.2	34.7	31.8	29.5	22.8	17.6	14	4.1	38.7	22.8	
Aug 16	13.3	13.4	24.7	28.7	24.8	26.4	19.8	22.1	23.1	31.8	40.1	38.9	33	S	30.9	32.9	31.9	30.3	29.8	28.9	26.6	25	21.6	22.9	13.3	40.1	27.0	
Aug 17	21.7	21.6	21.5	19.6	15.2	11.8	11.2	11.9	13.8	19.5	24.8	25.1	S	30.1	30.5	32.1	32.5	30.8	28	24.6	21.5	16.1	13.7	11.3	11.2	32.5	21.3	
Aug 18	7.1	5.3	3.3	2.8	1.4	1	3	18.9	26	27.7	27.3	S	32.1	37.3	35	34.9	35	35.2	34.6	35.4	35.8	36.5	37.2	37.7	1.0	37.7	23.9	
Aug 19	37.2	36.3	34.5	33.3	31.7	31	30.1	29.4	31.3	33.3	S	35.8	35.3	37.9	36.5	34.9	35.7	32.6	32.2	25.2	23.5	34.5	34.1	28.7	23.5	37.9	32.8	
Aug 20	27.2	19.1	12.4	9.7	7.8	7.9	7.6	17.7	21.9	S	27.7	29.1	33	36.6	39.3	37.9	36.4	36.1	26.6	16.8	19.9	24.9	28.8	21.9	7.6	39.3	23.8	
Aug 21	17.2	10.1	6.1	4.8	2.4	2	3	12.6	S	27.3	29.5	32	33.8	35	35.9	36.9	37	35.6	34.9	31.8	32.5	33.4	32.6	31.8	2.0	37.0	24.3	
Aug 22	30	29	28.9	27.3	27.8	27.9	27.7	S	21.6	22.2	24.5	24.6	23.6	23.1	21.6	21.5	23.3	22.7	28.7	27.2	20.7	23.7	20.7	12.9	12.9	30.0	24.4	
Aug 23	9	6.2	11.4	16.7	15.2	15.6	S	14.8	14.8	15.5	15.1	15.8	21.2	25.5	30.9	29.7	27.7	26	22.4	18.1	15.1	16	19.1	17.2	6.2	30.9	18.2	
Aug 24	10.8	7.4	3.2	2.7	4.1	S	7	6.2	13.1	16.2	17.7	22.8	28.9	28.2	28.9	33	32.7	32.3	30.1	20.7	14.7	11.2	10.3	9.1	2.7	33.0	17.0	
Aug 25	5.6	2.6	1.8	1.9	S	1.2	4.5	11.8	14.5	20.1	31.6	36.7	39.1	40.7	41.4	42.1	43.1	42.9	40.6	37.6	36.1	34.2	31.7	29.6	1.2	43.1	25.7	
Aug 26	28.1	26.3	24.5	S	24.2	22.7	22	22.5	23	28.1	33	37.5	41.1	44.1	43.7	44.4	45	45.6	43.6	42.1	41.6	40.3	38.2	35	22.0	45.6	34.6	
Aug 27	29.2	29.8	S	26.6	23.3	20.5	18.8	18	20.3	20.5	23	30.5	33.5	37.9	41.1	44.2	42	39.1	37.9	32.7	24.1	40.5	30.6	24.4	18.0	44.2	29.9	
Aug 28	20	S	8.3	5.9	3.4	2.9	5.5	9.4	15.6	20.4	27.3	33.7	35.6	36	36.3	35.2	35.2	34.8	31.9	22.3	16.7	12.3	9.9	7.2	2.9	36.3	20.3	
Aug 29	S	3.5	2.3	1.6	1.5	1	1.2	4	6.2	11.3	19.3	32.8	40.2	45.8	45.6	45.3	46	44.8	38.6	31.4	29.8	35	36.4	S	1.0	46.0	23.8	
Aug 30	35.3	34.6	33.7	28.5	20.8	15.1	12.1	22.3	25.6	32.4	37.5	35	38	42	43.2	44.4	47.1	46.5	43.6	40.9	39.3	38.7	S	39.4	12.1	47.1	34.6	
Aug 31	37.6	36.8	36.3	34.7	30.4	30.4	27.4	26.7	29.9	34	36.2	35.1	32.8	36	39.5	44.7	47.3	46.7	43.3	34.5	26	S	24.4	23.4	23.4	47.3	34.5	
Diurnal Maximum	38	37	36	35	32	37	36	34	33	34	40	43	46	50	54	55	56	55	47	42	42	41	38	39				
Diurnal Average	17.8	16.1	15.2	13.5	13.5	13.4	13.0	16.8	21.6	25.6	29.4	31.9	33.5	35.2	35.7	36.2	36.1	35.4	32.9	29.2	25.2	25.6	22.6	20.5				

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

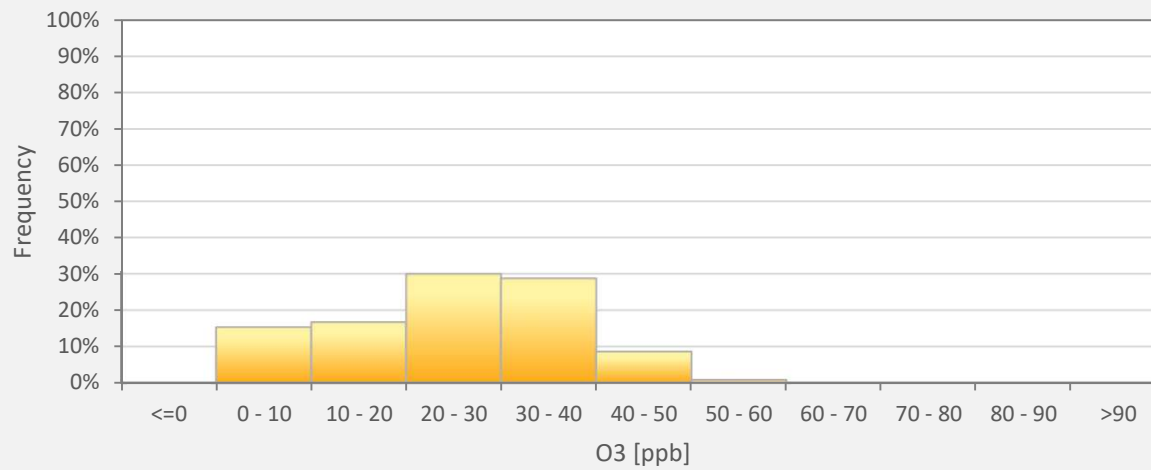
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

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



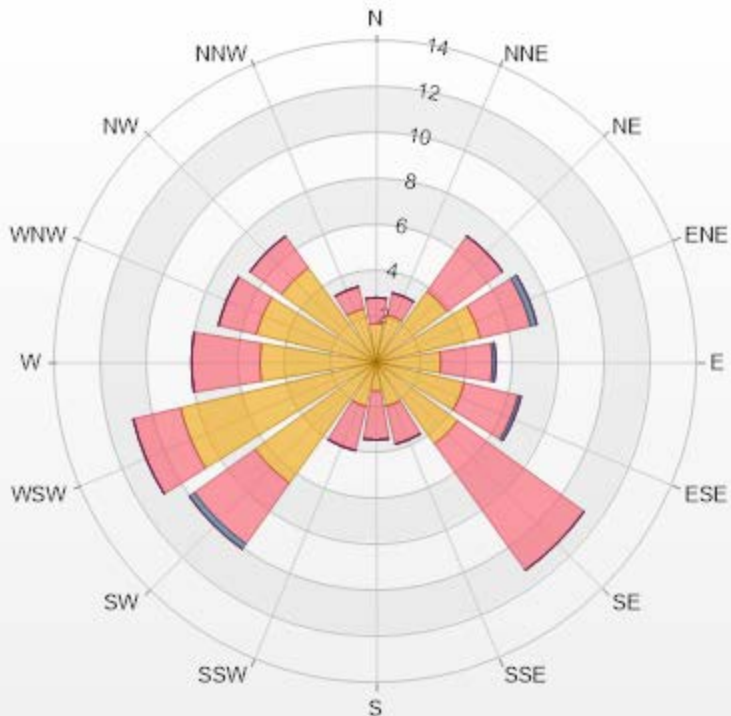
O3[ppb] Histogram: Cold Lake South Monthly: 08-2021 1 Hr.



Classes	O3
<=0	0.00%
0 - 10	15.25%
10 - 20	16.67%
20 - 30	29.94%
30 - 40	28.67%
40 - 50	8.62%
50 - 60	0.85%
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: 08-2021 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	1.69	1.13	0	0	0	2.82
NNE	2.12	0.99	0	0	0	3.11
NE	3.81	2.97	0	0	0	6.78
ENE	4.66	2.26	0.28	0	0	7.2
E	2.82	2.26	0.14	0	0	5.22
ESE	3.95	2.4	0.14	0	0	6.49
SE	4.38	6.78	0	0	0	11.16
SSE	1.98	1.69	0	0	0	3.67
S	1.27	2.12	0	0	0	3.39
SSW	1.98	1.98	0	0	0	3.96
SW	6.5	3.25	0.28	0	0	10.03
WSW	8.76	2.12	0	0	0	10.88
W	5.08	2.97	0	0	0	8.05
WNW	5.37	1.69	0	0	0	7.06
NW	5.08	1.69	0	0	0	6.77
NNW	2.4	0.99	0	0	0	3.39
Summary	61.85	37.29	0.84	0	0	100



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% Icon Classes (ppb)	62	0-30	37	30-50	1	50-76	0	76-159	0	>159.0
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## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - August 2021

Summary of Hourly Averages

TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	2.83 ppm on August 2 at hour 5	Hours in Service:	744
Maximum Daily Value:	2.23 ppm on August 2	Hours of Data:	701
Minimum Hourly Value:	1.82 ppm on August 13 at hour 12	Hours of Missing Data:	7
Minimum Daily Value:	1.87 ppm on August 10	Hours of Calibration:	36
Monthly Average:	1.98 ppm	Operational Uptime:	99.1

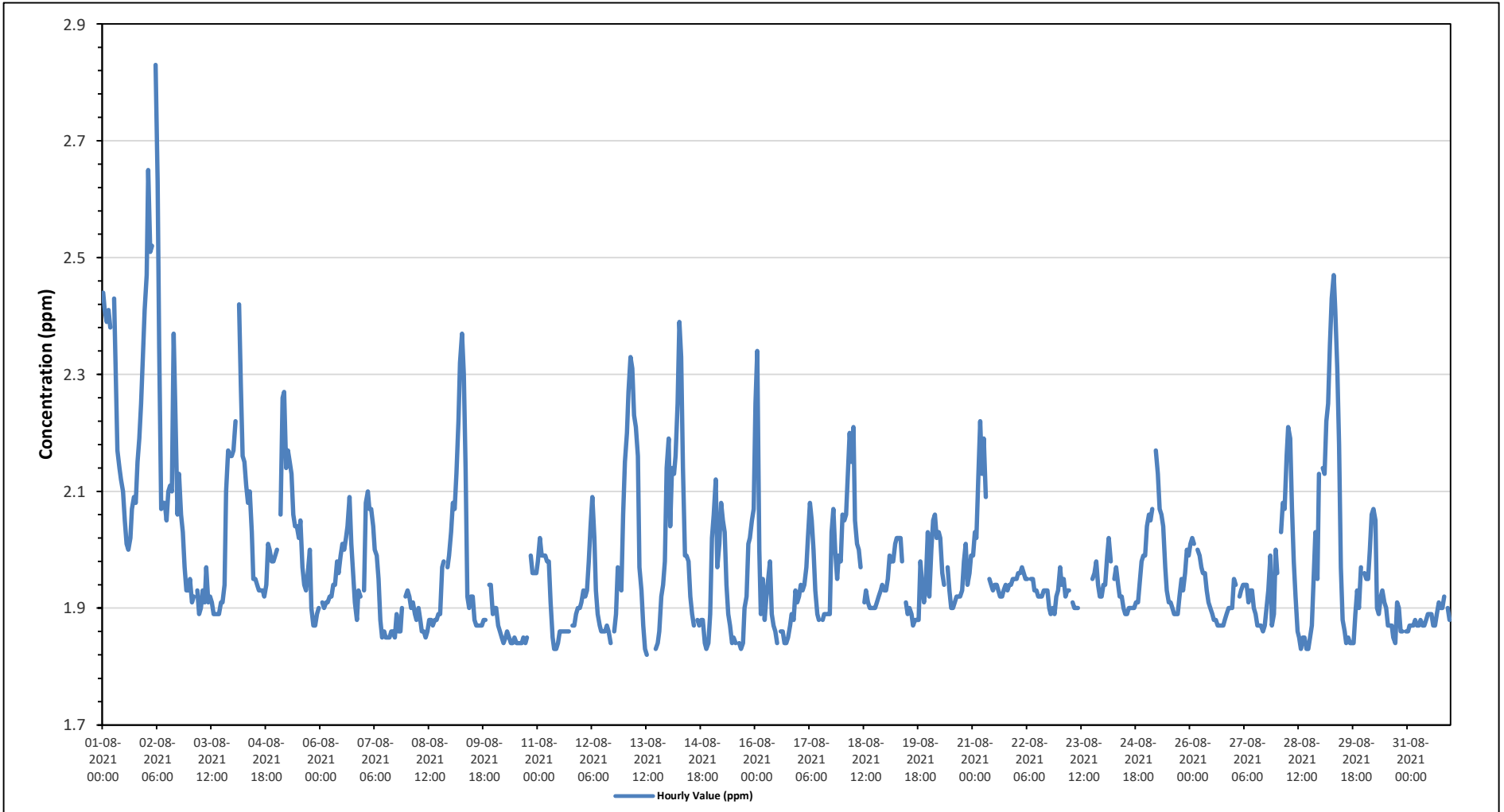
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Aug 1	2.44	2.41	2.39	2.41	2.38	S	2.43	2.31	2.17	2.14	2.12	2.10	2.05	2.01	2.00	2.02	2.07	2.09	2.08	2.15	2.19	2.25	2.33	2.41	2.00	2.44	2.22
Aug 2	2.47	2.65	2.51	2.52	S	2.83	2.63	2.35	2.07	2.08	2.08	2.05	2.10	2.11	2.10	2.37	2.23	2.06	2.13	2.06	2.03	1.97	1.93	1.93	1.93	2.83	2.23
Aug 3	1.95	1.91	1.92	S	1.93	1.89	1.90	1.93	1.91	1.97	1.91	1.92	1.91	1.89	1.89	1.89	1.89	1.91	1.91	1.94	2.10	2.17	2.16	2.16	1.89	2.17	1.95
Aug 4	2.17	2.22	S	2.42	2.28	2.16	2.15	2.11	2.08	2.10	2.03	1.95	1.95	1.94	1.93	1.93	1.93	1.92	1.94	2.01	2.00	1.98	1.98	1.99	1.92	2.42	2.05
Aug 5	2.00	S	2.06	2.26	2.27	2.14	2.17	2.15	2.13	2.06	2.04	2.04	2.02	2.05	1.97	1.94	1.93	1.96	2.00	1.90	1.87	1.87	1.89	1.90	1.87	2.27	2.03
Aug 6	S	1.91	1.90	1.91	1.91	1.92	1.92	1.94	1.94	1.98	1.96	1.99	2.01	2.00	2.02	2.04	2.09	2.01	1.96	1.91	1.88	1.93	1.92	S	1.88	2.09	1.96
Aug 7	1.93	2.08	2.10	2.07	2.07	2.04	2.00	1.99	1.95	1.88	1.85	1.86	1.85	1.85	1.86	1.86	1.85	1.86	1.85	1.89	1.86	1.86	1.90	S	1.92	1.85	2.10
Aug 8	1.93	1.92	1.90	1.91	1.89	1.88	1.90	1.88	1.86	1.86	1.85	1.86	1.88	1.88	1.87	1.88	1.88	1.89	1.89	1.97	1.98	S	1.97	1.99	1.85	1.99	1.90
Aug 9	2.03	2.08	2.07	2.13	2.22	2.32	2.37	2.30	2.14	1.92	1.90	1.92	1.88	1.87	1.87	1.87	1.87	1.88	1.88	S	1.94	1.94	1.89	1.89	1.87	2.37	2.01
Aug 10	1.90	1.90	1.87	1.86	1.85	1.84	1.85	1.86	1.85	1.84	1.84	1.85	1.84	1.84	1.84	1.85	1.84	1.85	1.84	1.85	S	1.99	1.96	1.96	1.84	1.99	1.87
Aug 11	1.98	2.02	1.99	1.99	1.99	1.98	1.98	1.91	1.85	1.83	1.83	1.84	1.86	1.86	1.86	1.86	1.86	1.86	1.86	S	1.87	1.87	1.89	1.90	1.90	1.83	2.02
Aug 12	1.91	1.93	1.92	1.93	1.98	2.04	2.09	2.02	1.93	1.89	1.87	1.86	1.86	1.86	1.86	1.86	1.84	S	1.86	1.89	1.97	1.95	1.93	2.06	1.84	2.09	1.93
Aug 13	2.15	2.20	2.27	2.33	2.31	2.23	2.21	2.16	1.97	1.93	1.87	1.83	1.82	C	C	C	C	1.83	1.84	1.86	1.92	1.94	1.98	2.14	1.82	2.33	2.04
Aug 14	2.19	2.04	2.14	2.13	2.16	2.25	2.39	2.33	2.14	1.99	1.99	1.98	1.92	1.89	1.87	S	1.88	1.87	1.88	1.88	1.84	1.83	1.84	1.89	1.83	2.39	2.01
Aug 15	2.02	2.06	2.12	1.97	2.01	2.08	2.05	2.03	1.94	1.89	1.87	1.84	1.85	1.84	S	1.84	1.83	1.84	1.90	1.92	2.01	2.02	2.05	2.07	1.83	2.12	1.96
Aug 16	2.25	2.34	2.00	1.89	1.95	1.88	1.92	1.95	1.98	1.89	1.87	1.86	1.84	S	1.86	1.86	1.84	1.84	1.85	1.87	1.89	1.88	1.93	1.91	1.84	2.34	1.93
Aug 17	1.92	1.94	1.93	1.94	1.97	2.02	2.08	2.05	2.00	1.93	1.89	1.88	S	1.88	1.89	1.89	1.89	1.89	2.03	2.07	2.00	1.95	1.99	1.98	1.88	2.08	1.96
Aug 18	2.06	2.05	2.06	2.13	2.20	2.15	2.21	2.05	2.01	2.00	1.97	S	1.91	1.93	1.91	1.90	1.90	1.90	1.90	1.91	1.92	1.93	1.94	1.93	1.90	2.21	1.99
Aug 19	1.93	1.95	1.99	1.98	1.98	2.01	2.02	2.02	2.02	1.98	S	1.91	1.89	1.90	1.89	1.87	1.88	1.88	1.88	1.98	1.94	1.91	1.94	2.03	1.87	2.03	1.95
Aug 20	1.92	2.00	2.05	2.06	2.02	2.03	2.02	1.96	1.94	S	1.97	1.93	1.90	1.90	1.91	1.92	1.92	1.92	1.93	1.98	2.01	1.94	1.96	1.99	1.90	2.06	1.96
Aug 21	1.99	2.03	2.02	2.13	2.22	2.13	2.19	2.09	S	1.95	1.94	1.93	1.94	1.94	1.93	1.92	1.92	1.93	1.94	1.93	1.94	1.94	1.95	1.95	1.92	2.22	1.99
Aug 22	1.95	1.96	1.96	1.97	1.96	1.95	1.95	S	1.95	1.95	1.93	1.93	1.92	1.92	1.92	1.93	1.93	1.93	1.90	1.89	1.90	1.89	1.92	1.93	1.89	1.97	1.93
Aug 23	1.97	1.94	1.95	1.92	1.93	1.93	S	1.91	1.90	1.90	1.90	NRM	NRM	NRM	NRM	NRM	NRM	NRM	1.95	1.96	1.98	1.94	1.92	1.92	1.90	1.98	-
Aug 24	1.94	1.94	1.99	2.02	1.98	S	1.95	1.97	1.94	1.92	1.92	1.90	1.89	1.89	1.90	1.90	1.90	1.91	1.91	1.91	1.94	1.98	1.99	1.99	1.89	2.02	1.94
Aug 25	2.04	2.06	2.05	2.07	S	2.17	2.13	2.07	2.06	2.04	1.97	1.93	1.91	1.91	1.90	1.89	1.89	1.89	1.92	1.95	1.93	1.96	2.00	1.99	1.89	2.17	1.99
Aug 26	2.01	2.02	2.01	S	2.00	1.99	1.97	1.96	1.96	1.93	1.91	1.90	1.89	1.88	1.88	1.87	1.87	1.87	1.87	1.88	1.89	1.90	1.90	1.90	1.87	2.02	1.92
Aug 27	1.95	1.94	S	1.92	1.93	1.94	1.94	1.94	1.91	1.93	1.93	1.90	1.89	1.87	1.87	1.86	1.87	1.86	1.87	1.90	1.93	1.99	1.87	1.89	2.00	1.86	2.00
Aug 28	1.96	S	2.03	2.08	2.07	2.16	2.21	2.19	2.07	1.98	1.92	1.86	1.85	1.83	1.85	1.85	1.83	1.83	1.85	1.87	1.95	2.03	1.95	2.13	1.83	2.21	1.97
Aug 29	S	2.14	2.13	2.22	2.25	2.35	2.43	2.47	2.41	2.31	2.18	1.97	1.88	1.86	1.84	1.85	1.84	1.84	1.84	1.89	1.93	1.90	1.97	S	1.84	2.47	2.07
Aug 30	1.96	1.95	1.95	2.00	2.06	2.07	2.05	1.90	1.89	1.92	1.93	1.91	1.90	1.87	1.87	1.87	1.85	1.84	1.91	1.90	1.86	1.86	S	1.86	1.84	2.07	1.92
Aug 31	1.86	1.87	1.87	1.87	1.88	1.87	1.87	1.88	1.87	1.87	1.88	1.89	1.89	1.87	1.87	1.87	1.89	1.91	1.90	1.92	S	1.90	1.88	1.86	1.92	1.86	1.88
Diurnal Maximum	2.47	2.65	2.51	2.52	2.38	2.83	2.63	2.47	2.41	2.31	2.18	2.10	2.10	2.11	2.10	2.37	2.23	2.09	2.13	2.15	2.19	2.25	2.33	2.41			
Diurnal Average	2.03	2.05	2.04	2.07	2.06	2.08	2.10	2.06	1.99	1.96	1.94	1.92	1.91	1.91	1.90	1.91	1.90	1.90	1.92	1.93	1.95	1.96	1.99				

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

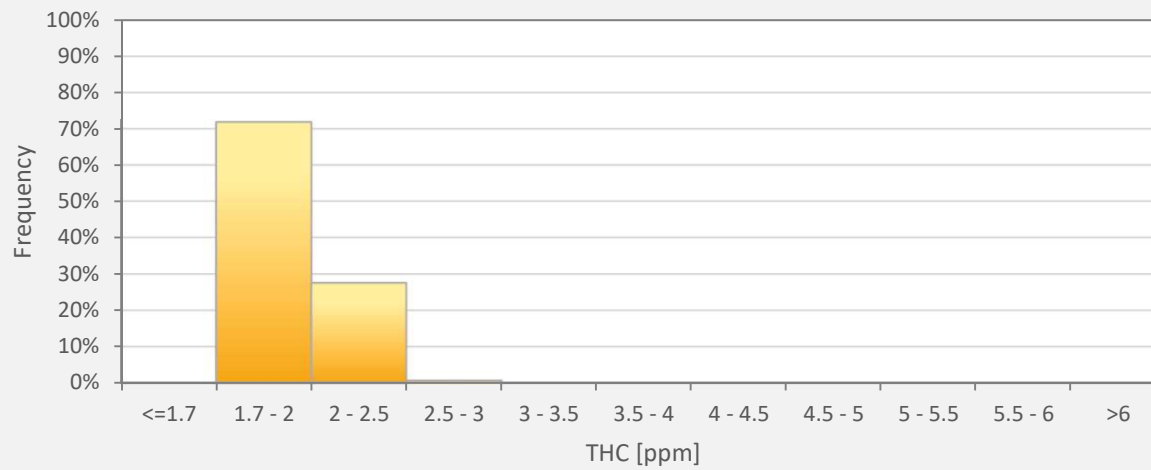
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



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



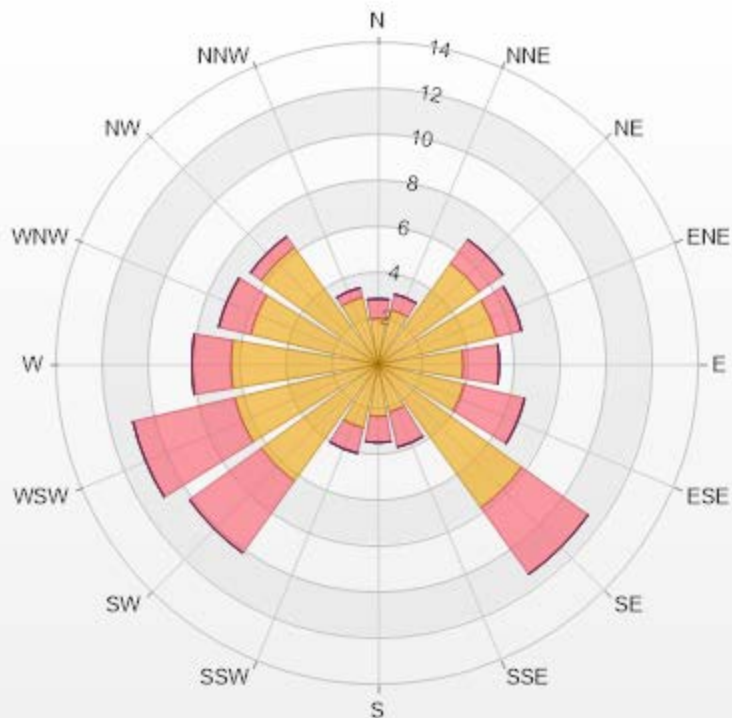
THC55[ppm] Histogram: Cold Lake South Monthly: 08-2021 1 Hr.



Classes	THC55
<=1.7	0.00%
1.7 - 2	71.75%
2 - 2.5	27.53%
2.5 - 3	0.71%
3 - 3.5	0.00%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-THC55[ppm] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.22% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	2	0.86	0	0	0	2.86
NNE	2.43	0.71	0	0	0	3.14
NE	5.42	1.28	0	0	0	6.7
ENE	5.28	1.14	0	0	0	6.42
E	3.71	1.57	0	0	0	5.28
ESE	3.85	2.71	0	0	0	6.56
SE	7.7	3.57	0	0	0	11.27
SSE	2.14	1.57	0	0	0	3.71
S	2.28	1.14	0	0	0	3.42
SSW	2.85	1.14	0	0	0	3.99
SW	6.28	3.85	0	0	0	10.13
WSW	6.42	4.56	0	0	0	10.98
W	6.42	1.71	0	0	0	8.13
WNW	5.71	1.43	0	0	0	7.14
NW	6.28	0.57	0	0	0	6.85
NNW	3	0.43	0	0	0	3.43
Summary	71.77	28.24	0	0	0	100



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% Icon Classes (ppm)

72 0-2

28 2-5

0 5-10

0 10-40

0 >40.0



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - August 2021

Summary of Hourly Averages

METHANE (CH4) in ppm

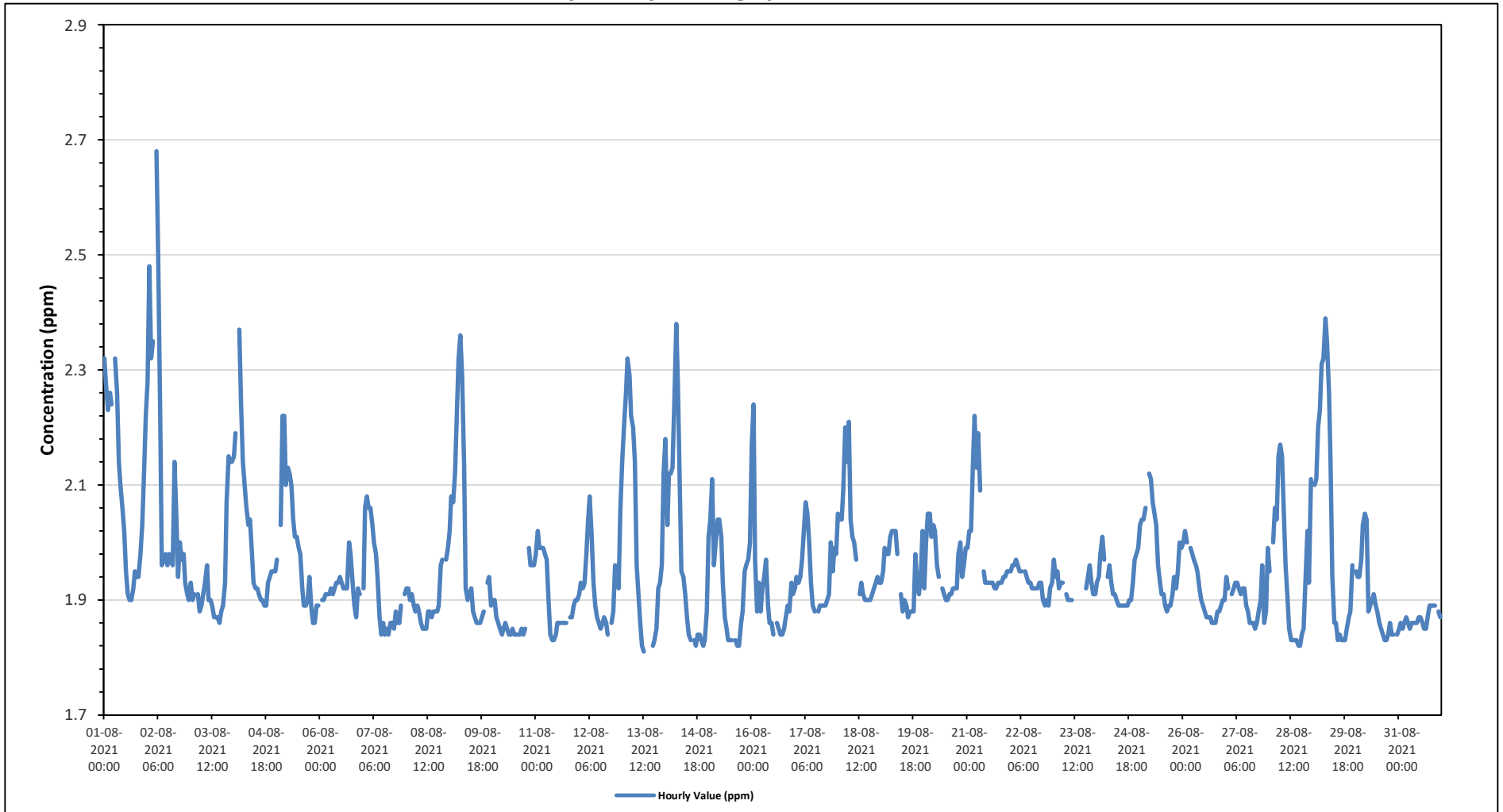
Maximum Hourly Value:	2.68 ppm on August 2 at hour 5	Hours in Service:	744
Maximum Daily Value:	2.10 ppm on August 2	Hours of Data:	701
Minimum Hourly Value:	1.81 ppm on August 13 at hour 12	Hours of Missing Data:	7
Minimum Daily Value:	1.87 ppm on August 31	Hours of Calibration:	36
Monthly Average:	1.96 ppm	Operational Uptime:	99.1

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Aug 1	2.32	2.27	2.23	2.26	2.24	S	2.32	2.26	2.14	2.10	2.06	2.02	1.95	1.91	1.90	1.92	1.95	1.94	1.94	1.98	2.03	2.12	2.22	1.90	2.32	2.09		
Aug 2	2.28	2.48	2.32	2.35	S	2.68	2.49	2.21	1.96	1.97	1.98	1.96	1.98	1.97	1.96	2.14	2.05	1.94	2.00	1.97	1.98	1.93	1.91	1.90	1.90	2.68	2.10	
Aug 3	1.93	1.90	1.91	S	1.91	1.88	1.89	1.91	1.93	1.96	1.90	1.90	1.89	1.87	1.87	1.86	1.88	1.89	1.93	2.07	2.15	2.14	2.14	1.86	2.15	1.94		
Aug 4	2.15	2.19	S	2.37	2.24	2.14	2.10	2.06	2.03	2.04	1.98	1.93	1.92	1.92	1.91	1.90	1.90	1.89	1.89	1.93	1.94	1.95	1.95	1.89	2.37	2.01		
Aug 5	1.97	S	2.03	2.22	2.22	2.10	2.13	2.12	2.10	2.04	2.01	2.01	1.99	1.98	1.92	1.89	1.89	1.90	1.94	1.89	1.86	1.86	1.89	1.89	1.86	2.22	1.99	
Aug 6	S	1.90	1.90	1.91	1.91	1.91	1.92	1.91	1.92	1.93	1.93	2.01	1.99	1.98	1.92	1.92	2.00	1.98	1.93	1.89	1.87	1.92	1.91	S	1.87	2.00	1.92	
Aug 7	1.92	2.06	2.08	2.06	2.06	2.03	2.00	1.98	1.94	1.87	1.84	1.86	1.84	1.85	1.84	1.86	1.86	1.85	1.88	1.86	1.86	1.89	S	1.91	1.84	2.08	1.92	
Aug 8	1.92	1.92	1.90	1.91	1.89	1.88	1.89	1.88	1.86	1.85	1.85	1.85	1.88	1.88	1.87	1.88	1.88	1.88	1.89	1.96	1.97	S	1.97	1.99	1.85	1.99	1.90	
Aug 9	2.02	2.08	2.07	2.12	2.22	2.32	2.36	2.29	2.13	1.92	1.90	1.91	1.92	1.88	1.87	1.86	1.86	1.86	1.87	1.88	S	1.93	1.94	1.89	1.86	2.36	2.00	
Aug 10	1.90	1.90	1.87	1.86	1.85	1.84	1.85	1.86	1.85	1.84	1.84	1.85	1.84	1.84	1.84	1.85	1.84	1.85	1.84	1.85	S	1.99	1.96	1.96	1.84	1.99	1.87	
Aug 11	1.98	2.02	1.99	1.99	1.99	1.98	1.97	1.90	1.84	1.83	1.83	1.84	1.86	1.86	1.86	1.86	1.86	1.86	1.86	S	1.87	1.87	1.89	1.90	1.90	1.83	2.02	1.90
Aug 12	1.91	1.93	1.92	1.93	1.98	2.04	2.08	2.01	1.93	1.89	1.87	1.86	1.85	1.86	1.87	1.86	1.84	1.85	S	1.86	1.88	1.96	1.95	1.92	2.06	1.84	2.08	1.92
Aug 13	2.14	2.20	2.26	2.32	2.29	2.22	2.20	2.14	1.96	1.91	1.86	1.82	1.81	C	C	C	C	1.82	1.83	1.85	1.92	1.93	1.96	2.12	1.81	2.32	2.03	
Aug 14	2.18	2.03	2.12	2.12	2.13	2.24	2.38	2.28	2.09	1.95	1.94	1.91	1.87	1.84	1.83	S	1.83	1.82	1.84	1.84	1.83	1.82	1.83	1.88	1.82	2.38	1.98	
Aug 15	2.01	2.04	2.11	1.96	2.00	2.04	2.04	2.01	1.93	1.87	1.85	1.83	1.83	1.83	S	1.83	1.82	1.82	1.86	1.88	1.95	1.96	1.97	2.00	1.82	2.11	1.93	
Aug 16	2.17	2.24	1.97	1.88	1.93	1.88	1.92	1.94	1.97	1.89	1.86	1.86	1.84	S	1.86	1.85	1.84	1.84	1.85	1.87	1.89	1.88	1.93	1.91	1.84	2.24	1.92	
Aug 17	1.92	1.94	1.93	1.94	1.97	2.02	2.07	2.05	2.00	1.93	1.89	1.88	S	1.88	1.89	1.89	1.89	1.89	1.90	1.91	2.00	1.95	1.99	1.98	1.88	2.07	1.94	
Aug 18	2.05	2.04	2.04	2.09	2.20	2.14	2.21	2.04	2.01	2.00	1.97	S	1.91	1.93	1.91	1.90	1.90	1.90	1.90	1.91	1.92	1.93	1.94	1.93	1.90	2.21	1.99	
Aug 19	1.93	1.95	1.99	1.98	1.98	2.01	2.02	2.02	2.02	1.98	S	1.91	1.88	1.90	1.89	1.87	1.88	1.88	1.88	1.98	1.93	1.91	1.94	2.02	1.87	2.02	1.95	
Aug 20	1.92	2.00	2.05	2.05	2.01	2.03	2.02	1.96	1.94	S	1.92	1.91	1.90	1.91	1.91	1.92	1.92	1.92	1.92	1.98	2.00	1.94	1.96	1.99	1.90	2.05	1.96	
Aug 21	1.99	2.02	2.02	2.13	2.22	2.13	2.19	2.09	S	1.95	1.93	1.93	1.93	1.93	1.93	1.92	1.92	1.93	1.93	1.94	1.94	1.95	1.95	1.92	1.92	2.22	1.99	
Aug 22	1.95	1.96	1.96	1.97	1.96	1.95	1.95	S	1.95	1.94	1.93	1.93	1.92	1.92	1.92	1.92	1.93	1.93	1.90	1.89	1.90	1.89	1.92	1.93	1.89	1.97	1.93	
Aug 23	1.97	1.94	1.95	1.92	1.93	1.93	S	1.91	1.90	1.90	1.90	NRM	NRM	NRM	NRM	NRM	NRM	NRM	1.92	1.94	1.96	1.93	1.91	1.91	1.90	1.97	-	
Aug 24	1.93	1.94	1.98	2.01	1.97	S	1.94	1.96	1.93	1.91	1.91	1.90	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.90	1.93	1.97	1.98	1.99	1.89	2.01	1.93	
Aug 25	2.03	2.04	2.04	2.06	S	2.12	2.11	2.07	2.05	2.03	1.96	1.93	1.91	1.91	1.89	1.88	1.89	1.89	1.91	1.94	1.92	1.95	2.00	1.99	1.88	2.12	1.98	
Aug 26	2.00	2.02	2.00	S	1.99	1.98	1.97	1.96	1.95	1.92	1.90	1.89	1.88	1.87	1.87	1.87	1.86	1.86	1.86	1.88	1.88	1.89	1.90	1.90	1.86	2.02	1.92	
Aug 27	1.94	1.92	S	1.91	1.92	1.93	1.93	1.92	1.91	1.92	1.92	1.89	1.88	1.86	1.86	1.85	1.86	1.88	1.90	1.96	1.86	1.88	1.99	1.85	1.99	1.90	1.90	
Aug 28	1.95	S	2.00	2.06	2.04	2.15	2.17	2.15	2.04	1.96	1.90	1.85	1.83	1.83	1.83	1.83	1.82	1.82	1.84	1.85	1.93	2.02	1.93	2.11	1.82	2.17	1.95	
Aug 29	S	2.10	2.11	2.20	2.23	2.31	2.32	2.39	2.35	2.26	2.14	1.94	1.86	1.86	1.83	1.84	1.83	1.83	1.85	1.87	1.88	1.96	S	1.83	2.39	2.04		
Aug 30	1.95	1.94	1.94	1.97	2.03	2.05	2.04	1.88	1.89	1.90	1.91	1.89	1.88	1.86	1.85	1.84	1.83	1.83	1.84	1.86	1.84	1.84	S	1.84	1.83	2.05	1.90	
Aug 31	1.85	1.86	1.85	1.86	1.87	1.86	1.85	1.86	1.86	1.86	1.86	1.87	1.87	1.86	1.85	1.85	1.87	1.89	1.89	1.89	1.89	S	1.88	1.87	1.85	1.89	1.87	
Diurnal Maximum	2.32	2.48	2.32	2.37	2.29	2.68	2.49	2.39	2.35	2.26	2.14	2.02	1.99	1.98	1.96	2.14	2.05	1.98	2.00	1.98	2.07	2.15	2.14	2.22				
Diurnal Average	2.01	2.03	2.02	2.05	2.04	2.06	2.08	2.03	1.98	1.94	1.92	1.90	1.89	1.89	1.88	1.88	1.88	1.88	1.89	1.90	1.93	1.93	1.95	1.97				

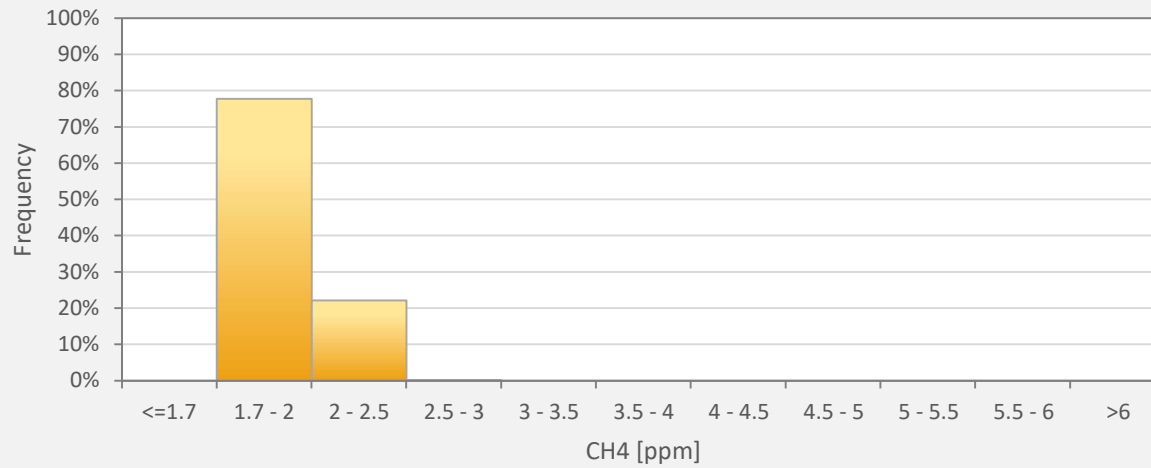
<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction/Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span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

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

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



CH4[ppm] Histogram: Cold Lake South Monthly: 08-2021 1 Hr.

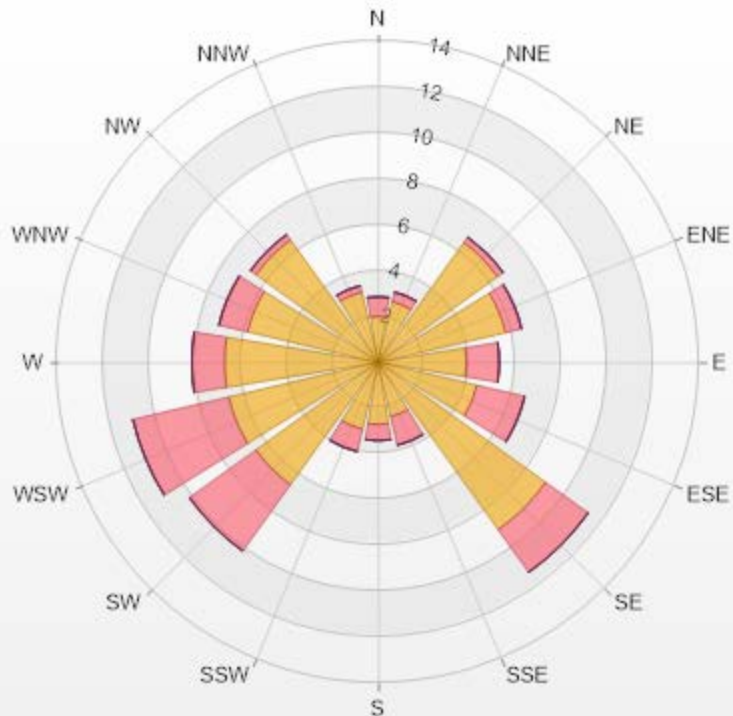


Classes	CH4
<=1.7	0.00%
1.7 - 2	77.75%
2 - 2.5	22.11%
2.5 - 3	0.14%
3 - 3.5	0.00%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-CH4[ppm] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.22% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	2	0.86	0	0	0	2.86
NNE	2.71	0.43	0	0	0	3.14
NE	6.42	0.29	0	0	0	6.71
ENE	5.71	0.71	0	0	0	6.42
E	3.85	1.43	0	0	0	5.28
ESE	4.42	2.14	0	0	0	6.56
SE	8.99	2.28	0	0	0	11.27
SSE	2.43	1.28	0	0	0	3.71
S	2.71	0.71	0	0	0	3.42
SSW	3	1	0	0	0	4
SW	6.56	3.57	0	0	0	10.13
WSW	6.7	4.28	0	0	0	10.98
W	6.7	1.43	0	0	0	8.13
WNW	5.85	1.28	0	0	0	7.13
NW	6.56	0.29	0	0	0	6.85
NNW	3.14	0.29	0	0	0	3.43
Summary	77.75	22.27	0	0	0	100





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% Icon Classes (ppm)

78 0-2

22 2-5

0 5-10

0 10-20

0 >20.0



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - August 2021

Summary of Hourly Averages

## NON-METHANE HYDROCARBONS (NMHC) in ppm

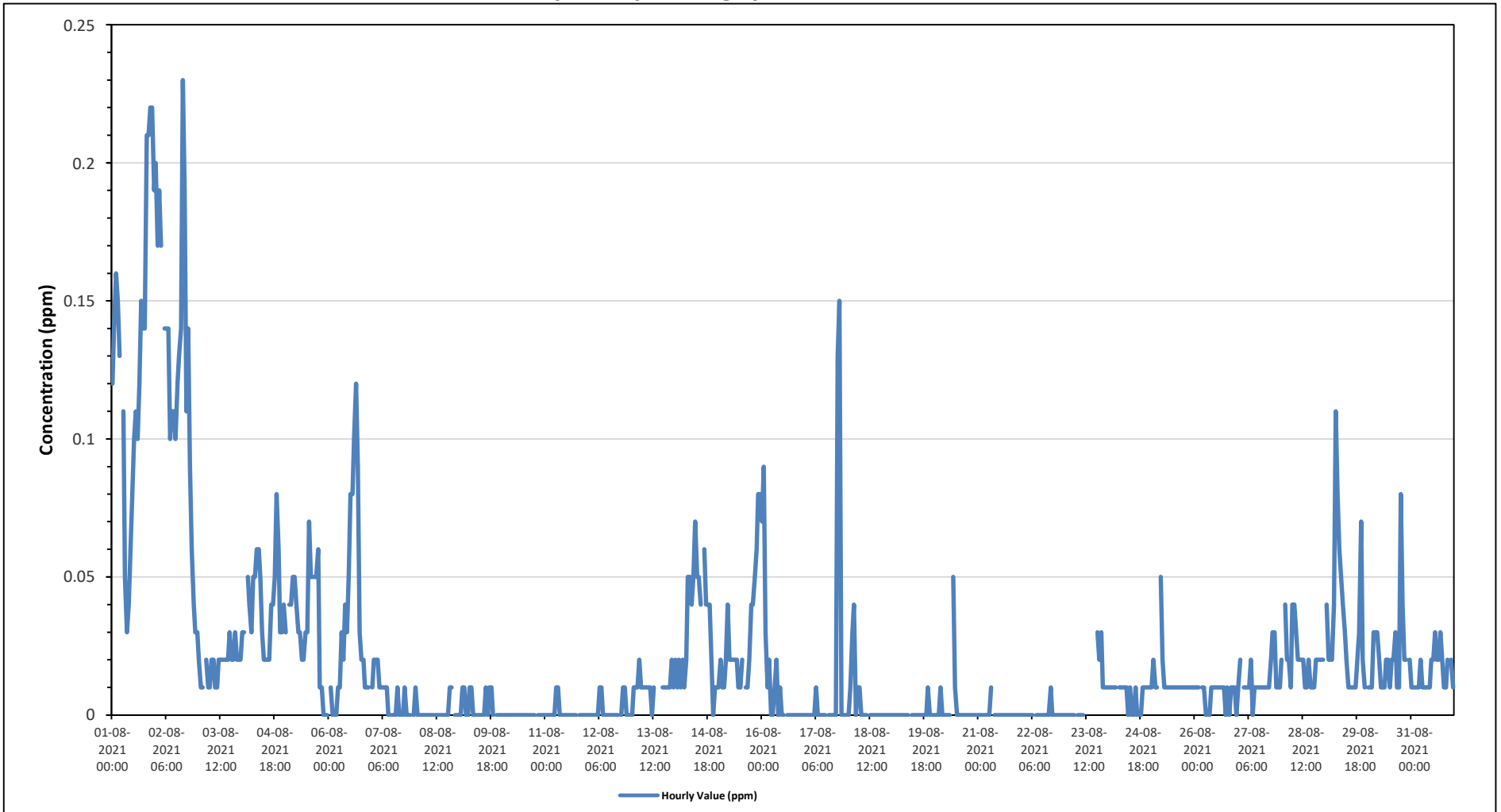
Maximum Hourly Value:	0.23 ppm on August 2 at hour 15	Hours in Service:	744
Maximum Daily Value:	0.13 ppm on August 1	Hours of Data:	701
Minimum Hourly Value:	0.00 ppm on August 5 at hour 21	Hours of Missing Data:	7
Minimum Daily Value:	0.00 ppm on August 10	Hours of Calibration:	36
Monthly Average:	0.02 ppm	Operational Uptime:	99.1

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Aug 1	0.12	0.14	0.16	0.15	0.13	S	0.11	0.05	0.03	0.04	0.06	0.08	0.10	0.11	0.10	0.12	0.15	0.14	0.14	0.21	0.21	0.22	0.22	0.19	0.03	0.22	0.13	
Aug 2	0.20	0.17	0.19	0.17	S	0.14	0.14	0.14	0.10	0.11	0.11	0.10	0.12	0.13	0.14	0.23	0.19	0.11	0.14	0.09	0.06	0.04	0.03	0.03	0.03	0.01	0.23	0.13
Aug 3	0.02	0.01	0.01	S	0.02	0.01	0.01	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.03	0.02	0.02	0.02	0.01	0.03	0.02	
Aug 4	0.03	0.03	S	0.05	0.04	0.03	0.05	0.05	0.06	0.06	0.05	0.03	0.02	0.02	0.02	0.02	0.04	0.04	0.05	0.08	0.06	0.03	0.03	0.04	0.02	0.08	0.04	
Aug 5	0.03	S	0.04	0.04	0.05	0.05	0.04	0.03	0.03	0.02	0.02	0.03	0.03	0.07	0.05	0.05	0.05	0.05	0.06	0.01	0.01	0.00	0.00	0.00	0.00	0.07	0.03	
Aug 6	S	0.01	0.00	0.00	0.00	0.01	0.01	0.03	0.02	0.04	0.03	0.05	0.08	0.08	0.10	0.12	0.09	0.03	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.12	0.04	
Aug 7	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	S	0.00	0.00	0.02	0.01	
Aug 8	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	S	0.00	0.00	0.00	0.01	0.00	
Aug 9	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	S	0.00	0.00	0.00	0.00	0.01	0.00	
Aug 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	
Aug 11	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	
Aug 12	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	
Aug 13	0.00	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	C	C	C	C	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.00	0.02	
Aug 14	0.02	0.01	0.02	0.01	0.02	0.01	0.02	0.05	0.05	0.04	0.05	0.07	0.05	0.05	0.04	S	0.06	0.04	0.04	0.04	0.02	0.00	0.01	0.01	0.00	0.07	0.03	
Aug 15	0.01	0.02	0.01	0.01	0.02	0.04	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	S	0.01	0.01	0.02	0.04	0.04	0.05	0.06	0.08	0.08	0.01	0.08	0.03	
Aug 16	0.07	0.09	0.03	0.01	0.02	0.00	0.00	0.01	0.02	0.00	0.01	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	
Aug 17	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.13	0.15	0.00	0.00	0.00	0.00	0.15	0.01	
Aug 18	0.00	0.01	0.03	0.04	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	
Aug 19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	
Aug 20	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	S	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	
Aug 21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	
Aug 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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	
Aug 23	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	0.03	0.02	0.03	0.01	0.01	0.01	0.03	-	
Aug 24	0.01	0.01	0.01	0.01	0.01	S	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
Aug 25	0.01	0.02	0.01	0.01	S	0.05	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	
Aug 26	0.01	0.01	0.01	S	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	
Aug 27	0.01	0.02	S	0.01	0.01	0.01	0.01	0.02	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.03	0.01	0.01	0.01	0.03	0.01	
Aug 28	0.02	S	0.04	0.02	0.02	0.01	0.04	0.04	0.03	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.04	0.02	
Aug 29	S	0.04	0.02	0.02	0.02	0.04	0.11	0.08	0.06	0.05	0.04	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.07	0.02	0.01	S	0.11		
Aug 30	0.01	0.01	0.01	0.03	0.03	0.03	0.02	0.01	0.01	0.01	0.02	0.02	0.01	0.02	0.02	0.03	0.01	0.01	0.08	0.04	0.02	0.02	S	0.02	0.01	0.08	0.02	
Aug 31	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.02	0.02	0.03	0.02	0.01	0.01	0.02	S	0.02	0.01	0.01	0.03	0.02	
Diurnal Maximum	0.20	0.17	0.19	0.17	0.13	0.14	0.14	0.14	0.10	0.11	0.11	0.10	0.12	0.13	0.14	0.23	0.19	0.14	0.14	0.21	0.21	0.22	0.22	0.19	0.03	0.22	0.13	
Diurnal Average	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.01	0.03	0.02	

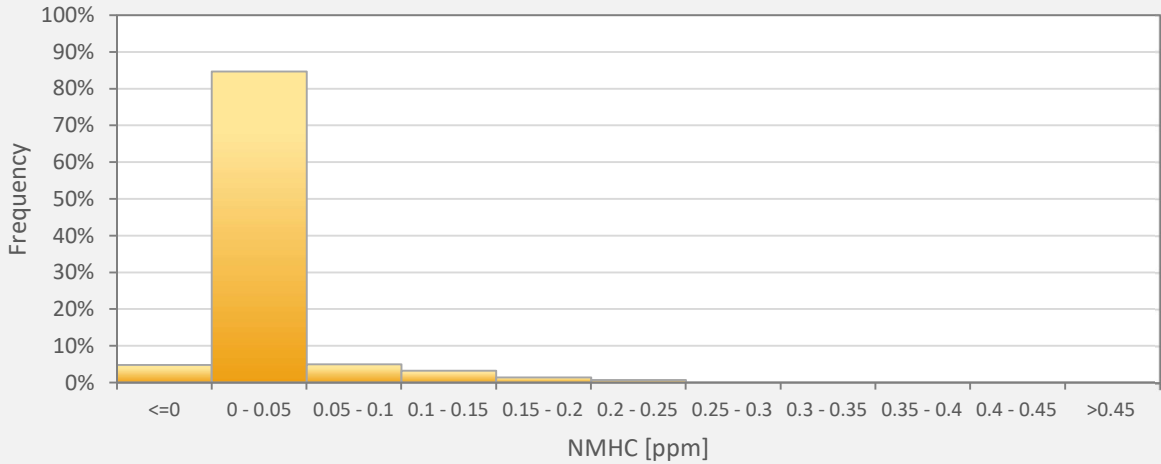
<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction/Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span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

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

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



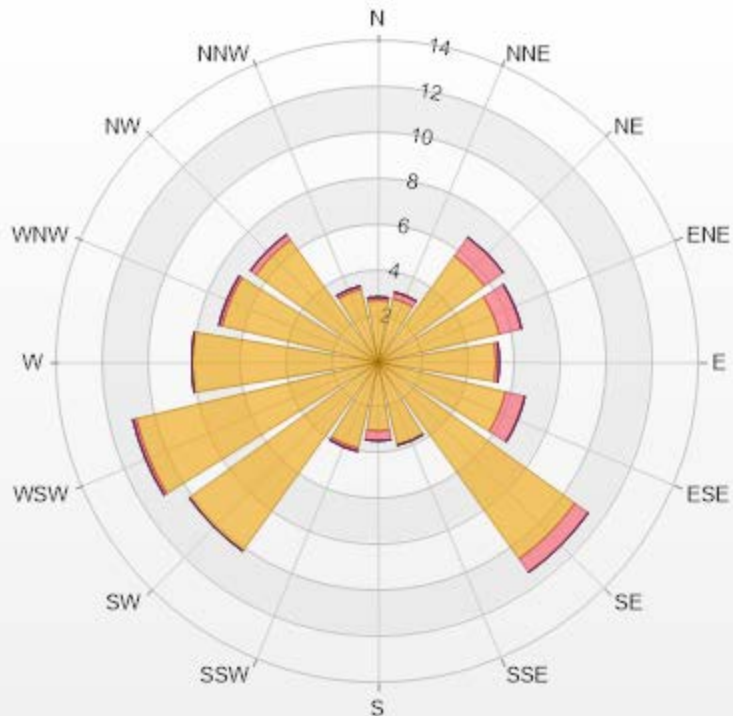
NMHC[ppm] Histogram: Cold Lake South Monthly: 08-2021 1 Hr.



Classes	NMHC
<=0	4.85%
0 - 0.05	84.74%
0.05 - 0.1	4.99%
0.1 - 0.15	3.28%
0.15 - 0.2	1.43%
0.2 - 0.25	0.71%
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: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.22% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	2.71	0.14	0	0	0	2.85
NNE	2.85	0.29	0	0	0	3.14
NE	5.71	1	0	0	0	6.71
ENE	5.42	1	0	0	0	6.42
E	5.14	0.14	0	0	0	5.28
ESE	5.71	0.86	0	0	0	6.57
SE	10.56	0.71	0	0	0	11.27
SSE	3.71	0	0	0	0	3.71
S	3	0.43	0	0	0	3.43
SSW	3.85	0.14	0	0	0	3.99
SW	10.13	0	0	0	0	10.13
WSW	10.84	0.14	0	0	0	10.98
W	8.13	0	0	0	0	8.13
WNW	6.99	0.14	0	0	0	7.13
NW	6.56	0.29	0	0	0	6.85
NNW	3.28	0.14	0	0	0	3.42
Summary	94.59	5.42	0	0	0	100



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% Icon Classes (ppm)

95 0-0.1

5 0.1-0.3

0 0.3-0.9

0 0.9-2

0 >2.0



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - August 2021

### Summary of Hourly Averages

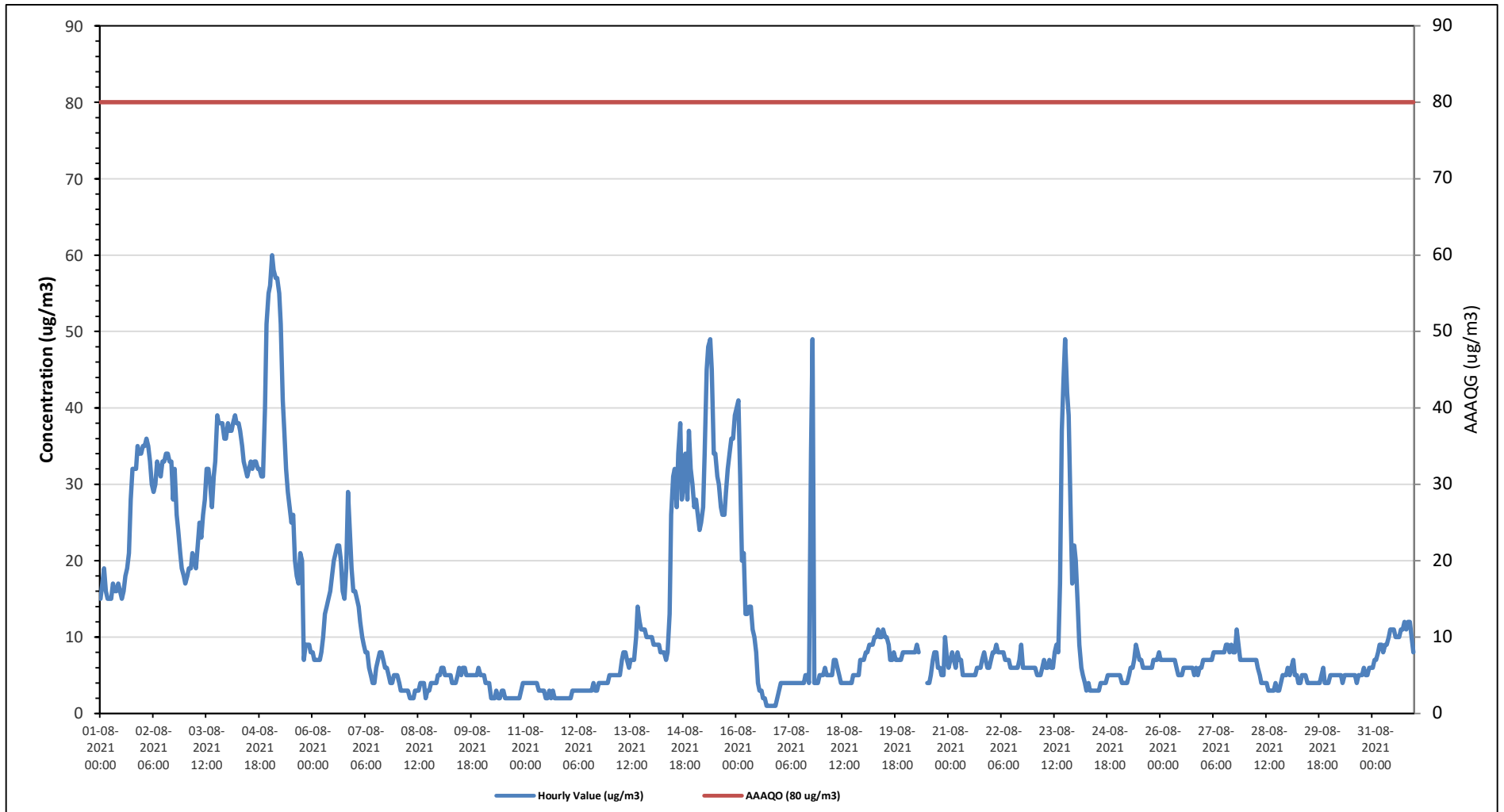
#### PARTICULATE MATTER 2.5 (PM<sub>2.5</sub>) in µg/m<sup>3</sup>

Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m <sup>3</sup> , Alberta Ambient Air Quality Objective (AAAO): 24-Hour 29 µg/m <sup>3</sup>																											
Number of 1-Hour Exceedences: 0										Number of 24-Hour Exceedences: 4																	
Maximum Hourly Value: 60 µg/m <sup>3</sup> on August 5 at hour 1										Hours in Service: 744																	
Maximum Daily Value: 36.2 µg/m <sup>3</sup> on August 4										Hours of Data: 740																	
Minimum Hourly Value: 1 µg/m <sup>3</sup> on August 16 at hour 17										Hours of Missing Data: 0																	
Minimum Daily Value: 3 µg/m <sup>3</sup> on August 10										Hours of Calibration: 4																	
Monthly Average: 11.9 µg/m <sup>3</sup>										Operational Uptime: 100.0																	
Day	Hourly Period Starting at (MST)																							Daily	Daily	Daily	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Aug 1	15	17	19	16	15	15	15	17	16	16	17	16	15	16	18	19	21	28	32	32	32	35	34	34	15	35	21.3
Aug 2	35	35	36	35	33	30	29	30	33	32	31	33	33	34	34	33	33	28	32	26	24	21	19	18	18	36	30.3
Aug 3	17	18	19	19	21	20	19	22	25	23	26	28	32	32	30	27	31	33	39	38	38	38	36	36	17	39	27.8
Aug 4	38	37	37	38	39	38	38	37	35	33	32	31	32	33	32	33	33	32	32	31	31	40	51	55	31	55	36.2
Aug 5	56	60	58	57	57	55	51	41	37	32	29	27	25	26	20	18	17	21	20	7	9	9	9	8	7	60	31.2
Aug 6	8	7	7	7	7	8	10	13	14	15	16	18	20	21	22	22	20	16	15	19	29	24	19	16	7	29	15.5
Aug 7	16	15	14	12	10	9	8	8	6	5	4	4	6	7	8	8	7	6	6	5	4	4	5	5	4	16	7.6
Aug 8	5	4	3	3	3	3	3	2	2	2	3	3	3	4	4	4	2	3	3	4	4	4	4	5	2	5	3.3
Aug 9	5	6	6	5	5	5	5	4	4	4	5	6	5	6	6	5	5	5	5	5	5	5	6	5	4	6	5.1
Aug 10	5	5	4	4	4	2	2	2	3	2	2	3	3	2	2	2	2	2	2	2	2	2	3	4	2	5	2.8
Aug 11	4	4	4	4	4	4	4	4	3	3	3	3	3	2	2	3	2	2	2	2	2	2	2	2	2	4	2.9
Aug 12	2	2	2	3	3	3	3	3	3	3	3	3	3	3	4	3	3	4	4	4	4	4	4	4	2	4	3.2
Aug 13	5	5	5	5	5	5	5	7	8	8	7	6	7	7	7	10	14	12	11	11	11	10	10	10	5	14	8.0
Aug 14	10	9	9	9	9	8	8	8	7	8	13	26	31	32	27	34	38	28	30	34	28	37	32	30	7	38	21.0
Aug 15	27	28	26	24	25	27	34	45	48	49	45	34	34	31	30	27	26	26	29	32	34	36	36	39	24	49	33.0
Aug 16	40	41	31	20	21	13	13	14	14	11	10	8	4	3	3	2	2	1	1	1	1	1	1	2	1	41	10.8
Aug 17	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	4	34	49	4	4	4	5	3	49	7.2
Aug 18	5	5	6	5	5	5	5	7	7	6	5	4	4	4	4	4	4	4	5	5	5	7	7	4	4	7	5.1
Aug 19	7	8	8	9	9	9	10	10	11	10	10	11	10	10	9	7	7	8	7	7	7	7	8	8	7	11	8.6
Aug 20	8	8	8	8	8	8	9	8	C	C	C	C	4	4	5	7	8	8	6	6	5	5	10	7	4	10	7.0
Aug 21	6	7	8	7	6	8	7	7	5	5	5	5	5	5	5	6	6	6	7	8	7	6	6	5	8	6.2	
Aug 22	7	8	8	9	8	8	8	8	7	7	7	6	6	6	6	6	7	9	6	6	6	6	6	6	6	9	7.0
Aug 23	6	6	5	5	5	6	7	6	6	7	6	6	8	9	8	17	37	44	49	42	39	26	17	22	5	49	16.2
Aug 24	20	14	9	6	5	4	3	4	3	3	3	3	3	4	4	4	4	5	5	5	5	5	5	3	20	5.4	
Aug 25	5	5	4	4	4	4	5	6	6	7	9	8	7	6	6	6	6	6	6	6	6	7	7	8	4	9	6.1
Aug 26	7	7	7	7	7	7	7	7	7	6	5	5	5	6	6	6	6	6	6	5	6	5	6	6	5	7	6.2
Aug 27	7	7	7	7	7	7	8	8	8	8	8	8	8	9	9	8	9	8	8	11	9	7	7	7	7	11	7.9
Aug 28	7	7	7	7	7	7	7	6	5	4	4	4	4	3	3	3	3	4	3	3	4	5	5	5	3	7	4.9
Aug 29	6	5	6	7	5	5	4	4	5	5	5	4	4	4	4	4	4	4	5	6	6	4	4	4	4	7	4.7
Aug 30	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	4	5	5	5	6	5	5	6	6	4	6	5.0
Aug 31	6	7	7	8	9	9	8	9	9	10	11	11	11	10	10	10	11	11	12	11	12	12	10	8	6	12	9.7
Diurnal Maximum	56	60	58	57	57	55	51	45	48	49	45	34	34	34	34	34	38	44	49	49	39	40	51	55			
Daiurnal Average	12.7	12.8	12.2	11.6	11.5	11.0	11.1	11.5	11.5	11.1	11.1	11.1	11.2	10.9	11.2	12.2	12.2	13.7	13.8	12.5	12.3	12.2	12.4				
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance										
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance							P	Power Failure		
X	InValid Data (Equipment Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																		

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

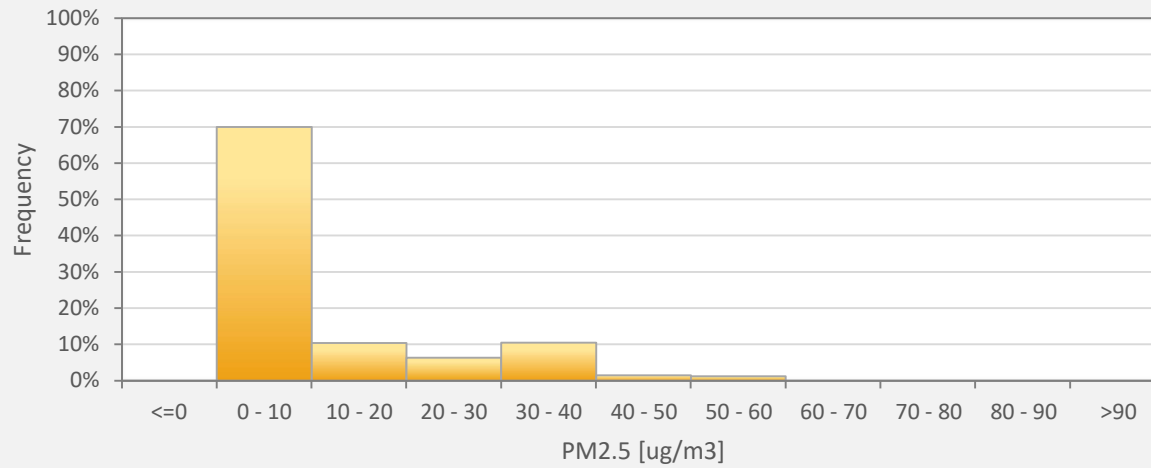
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

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





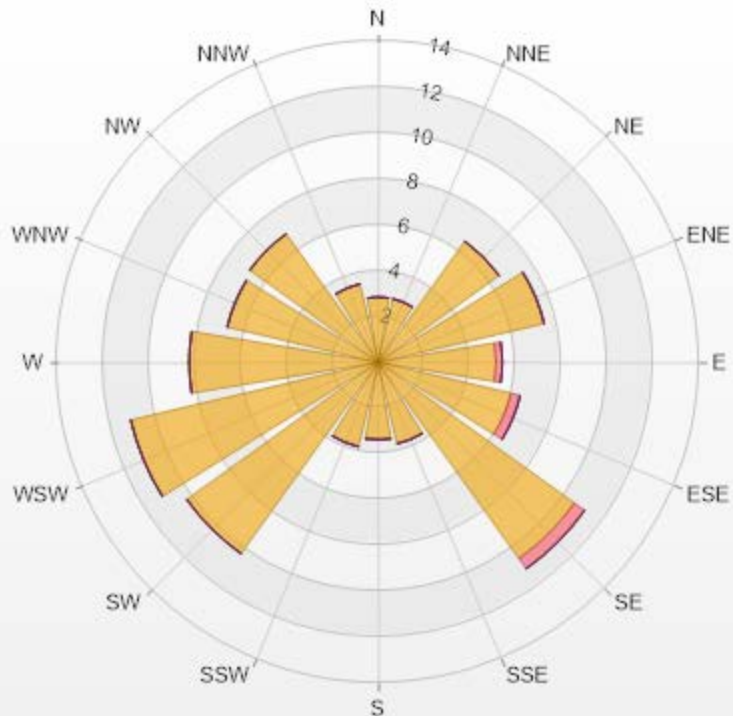
PM2.5[ug/m3(L)] Histogram: Cold Lake South Monthly: 08-2021 1 Hr.



Classes	PM2.5
<=0	0.00%
0 - 10	70.00%
10 - 20	10.41%
20 - 30	6.35%
30 - 40	10.54%
40 - 50	1.49%
50 - 60	1.22%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-PM2.5[ug/m3(L)] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 99.46% Calm Avg: 0.00 [ug/m3(L)]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	2.84	0	0	0	0	2.84
NNE	2.84	0	0	0	0	2.84
NE	6.49	0	0	0	0	6.49
ENE	7.43	0	0	0	0	7.43
E	5.14	0.27	0	0	0	5.41
ESE	5.95	0.41	0	0	0	6.36
SE	10.54	0.54	0	0	0	11.08
SSE	3.65	0	0	0	0	3.65
S	3.38	0	0	0	0	3.38
SSW	3.78	0	0	0	0	3.78
SW	10.27	0	0	0	0	10.27
WSW	11.08	0	0	0	0	11.08
W	8.24	0	0	0	0	8.24
WNW	6.76	0	0	0	0	6.76
NW	6.89	0	0	0	0	6.89
NNW	3.51	0	0	0	0	3.51
Summary	98.79	1.22	0	0	0	100



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% Icon Classes ( $\mu\text{g}/\text{m}^3(\text{L})$ )	99	1	0	0	0
0-50	99	1	0	0	0
50-80	0	1	0	0	0
80-120	0	0	0	0	0
120-240	0	0	0	0	0
>240.0	0	0	0	0	0



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - August 2021

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

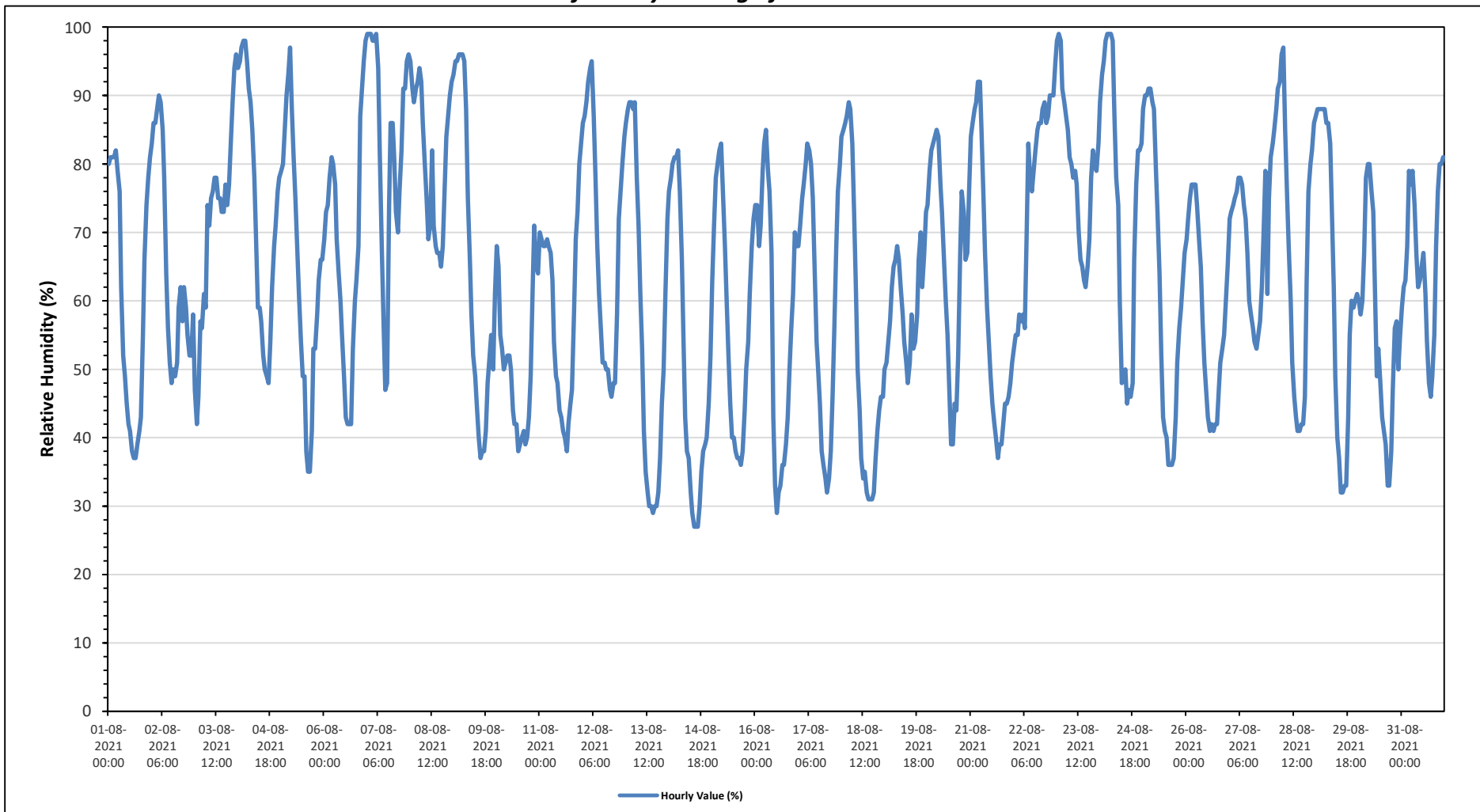
Maximum Hourly Value:	99 %	on August 7 at hour 0	Hours in Service:	744
Maximum Daily Value:	82.9 %	on August 7	Hours of Data:	744
Minimum Hourly Value:	27 %	on August 14 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	50.6 %	on August 14	Hours of Calibration:	0
Monthly Average:	64.6 %		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Aug 1	80	81	81	81	82	79	76	62	52	49	45	42	41	38	37	37	39	41	43	55	66	74	78	81	37	82	60.0
Aug 2	83	86	86	88	90	89	85	78	64	56	51	48	50	49	51	59	62	57	62	59	55	52	52	58	48	90	65.4
Aug 3	47	42	46	57	56	61	59	74	71	75	76	78	78	75	75	73	73	77	74	77	84	89	94	96	42	96	71.1
Aug 4	94	95	97	98	98	95	91	89	85	78	70	59	59	57	52	50	49	48	54	62	68	71	76	78	48	98	73.9
Aug 5	79	80	85	90	93	97	88	81	75	67	61	54	49	49	38	35	35	41	53	53	58	63	66	66	35	97	64.8
Aug 6	69	73	74	78	81	80	77	69	64	60	55	49	43	42	42	42	53	60	63	68	87	91	95	98	42	98	67.2
Aug 7	99	99	99	98	98	99	94	82	68	57	47	48	74	86	86	81	73	70	76	82	91	91	95	96	47	99	82.9
Aug 8	95	91	89	91	92	94	92	86	80	75	69	71	82	71	68	67	67	65	68	76	84	87	90	92	65	95	80.9
Aug 9	93	95	95	96	96	96	95	88	75	66	58	52	49	45	40	37	38	38	41	48	52	55	50	61	37	96	65.0
Aug 10	68	65	55	53	50	51	52	52	50	44	42	42	38	39	40	41	39	40	43	49	62	71	65	64	38	71	50.6
Aug 11	70	69	68	68	69	68	67	63	54	49	48	44	43	41	40	38	42	45	47	58	69	73	80	83	38	83	58.2
Aug 12	86	87	89	92	94	95	87	78	68	61	56	51	51	50	50	47	46	48	48	58	72	76	80	84	46	95	68.9
Aug 13	86	88	89	89	88	89	78	71	61	53	41	35	32	30	30	29	30	30	32	37	45	50	61	72	29	89	56.1
Aug 14	76	78	80	81	81	82	76	66	55	43	38	37	32	29	27	27	27	30	35	38	39	40	45	52	27	82	50.6
Aug 15	63	71	78	80	82	83	76	68	61	52	45	40	40	38	37	37	36	38	44	50	54	61	68	72	36	83	57.3
Aug 16	74	74	68	71	79	83	85	79	76	67	43	33	29	32	33	36	36	39	43	50	56	61	70	68	29	85	57.7
Aug 17	68	71	75	77	80	83	82	80	75	65	54	50	45	38	36	34	32	34	38	46	56	67	76	80	32	83	60.1
Aug 18	84	85	86	87	89	88	83	73	62	50	44	37	34	35	32	31	31	31	32	37	41	44	46	46	31	89	54.5
Aug 19	50	51	54	57	62	65	66	68	66	62	58	54	51	48	51	58	53	54	58	66	70	62	67	73	48	73	59.3
Aug 20	74	79	82	83	84	85	84	77	73	66	60	55	47	39	39	45	44	52	67	76	73	66	67	76	39	85	66.4
Aug 21	84	86	88	89	92	92	85	75	67	59	54	49	45	42	40	37	39	39	42	45	45	46	48	51	37	92	60.0
Aug 22	53	55	55	58	57	58	56	69	83	78	76	79	82	85	86	86	88	89	86	87	90	90	90	95	53	95	76.3
Aug 23	98	99	98	91	89	87	85	81	80	78	79	77	70	66	65	63	62	65	69	78	82	80	79	83	62	99	79.3
Aug 24	89	93	95	98	99	99	99	88	87	78	74	60	48	49	50	45	47	46	48	66	77	82	82	83	45	99	74.7
Aug 25	88	90	90	91	91	89	88	79	73	64	52	43	41	40	36	36	36	37	43	51	56	59	63	67	36	91	62.6
Aug 26	69	72	75	77	77	77	74	69	65	57	51	47	43	41	42	41	42	42	47	51	53	55	60	65	41	77	58.0
Aug 27	72	73	74	75	76	78	77	74	72	67	60	58	56	54	53	55	57	62	70	79	61	75	81	53	81	68.2	
Aug 28	83	85	88	91	92	96	97	85	75	68	60	51	46	43	41	41	42	42	46	63	76	80	82	86	41	97	69.1
Aug 29	87	88	88	88	88	88	86	86	83	74	62	49	40	37	32	32	33	33	43	55	60	59	60	61	32	88	63.0
Aug 30	60	58	60	67	78	80	80	76	73	61	49	53	48	43	41	39	33	33	38	47	56	57	50	55	33	80	55.6
Aug 31	59	62	63	68	79	77	79	74	67	62	63	65	67	61	54	48	46	49	55	68	76	80	80	81	46	81	66.0
Diurnal Maximum	99	99	99	98	99	99	99	98	87	78	79	79	82	86	86	86	88	89	86	87	91	91	95	98			
Diurnal Average	76.8	78.1	79.0	80.9	82.6	83.3	80.6	75.9	69.7	62.8	56.4	52.0	50.2	48.2	46.6	46.0	46.1	47.4	51.6	58.9	65.5	67.5	70.6	74.3			

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

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

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





## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - August 2021

Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

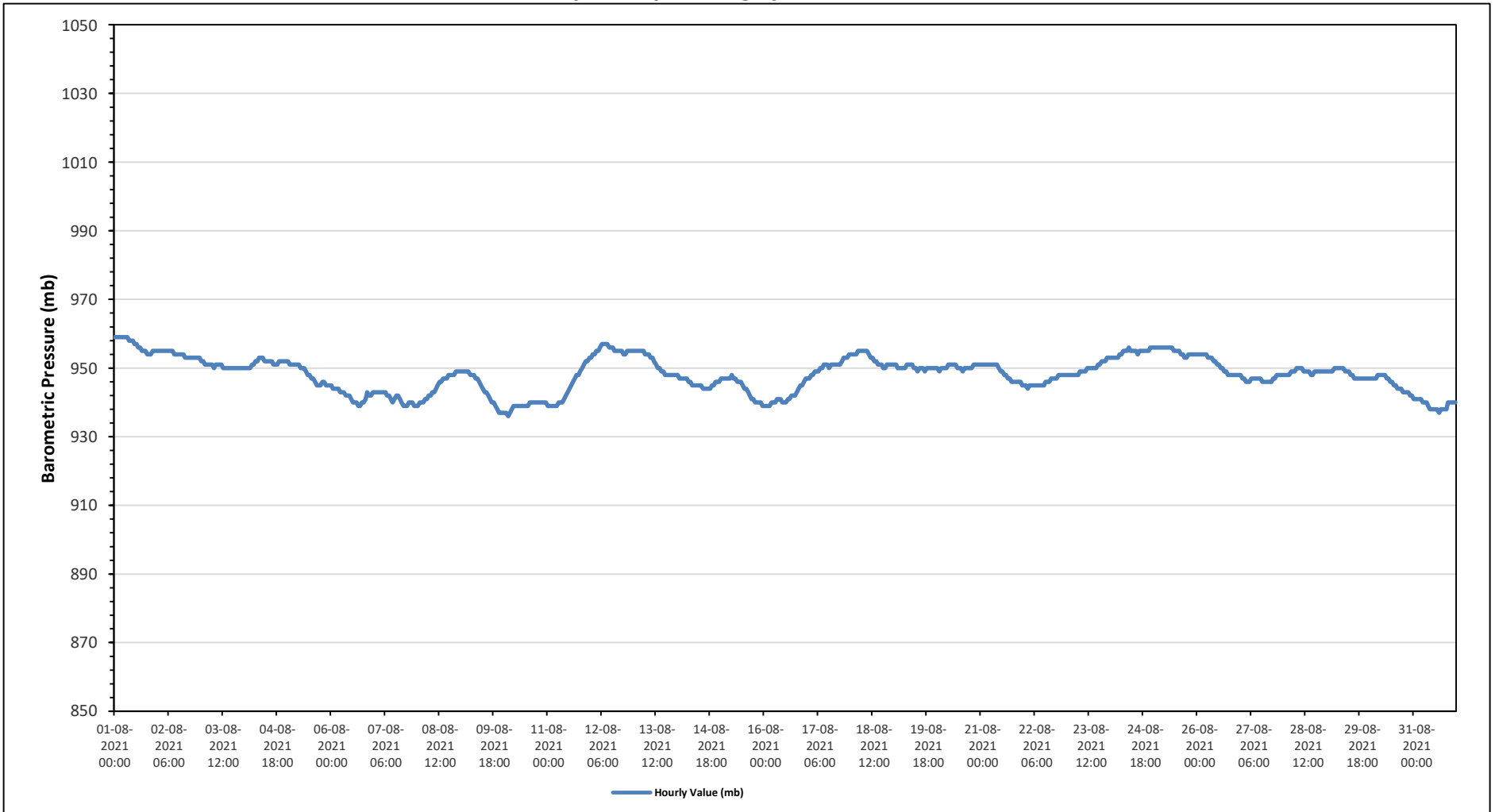
Maximum Hourly Value:	959 mb on August 1 at hour 0	Hours in Service:	744
Maximum Daily Value:	957 mb on August 1	Hours of Data:	744
Minimum Hourly Value:	936 mb on August 10 at hour 2	Hours of Missing Data:	0
Minimum Daily Value:	939 mb on August 10	Hours of Calibration:	0
Monthly Average:	948 mb	Operational Uptime:	100.0

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

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

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

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





# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

## Cold Lake South Station - August 2021

### Summary of Hourly Averages

### AMBIENT TEMPERATURE (AT) in Degree Celsius

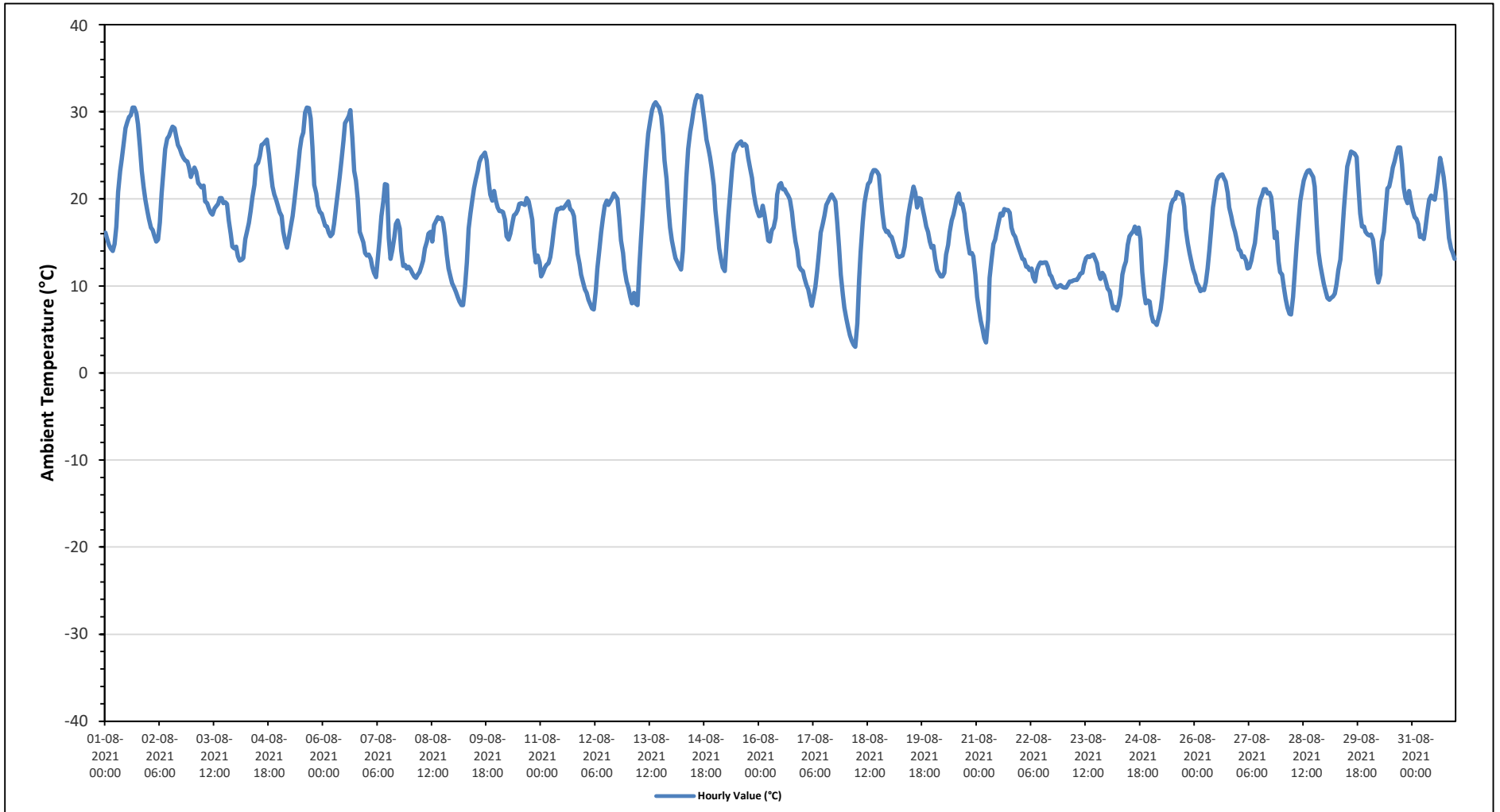
Maximum Hourly Value:	31.9 °C	on August 14 at hour 14	Hours in Service:	744
Maximum Daily Value:	23.1 °C	on August 14	Hours of Data:	744
Minimum Hourly Value:	3.0 °C	on August 18 at hour 5	Hours of Missing Data:	0
Minimum Daily Value:	11.5 °C	on August 24	Hours of Calibration:	0
Monthly Average:	17.1 °C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23			
Aug 1	16.1	15.4	14.7	14.3	14	14.8	16.8	20.8	23.2	24.5	26.4	28.1	28.8	29.4	29.6	30.5	30.5	29.8	28.6	25.9	23.2	21.4	19.9	18.6	14.0	30.5	22.7			
Aug 2	17.7	16.7	16.4	15.8	15.1	15.3	17.3	20.6	23.5	25.7	26.9	27.2	27.8	28.3	28.1	27.2	26.2	25.7	25.1	24.7	24.4	24.3	23.7	22.5	15.1	28.3	22.8			
Aug 3	23.1	23.6	23.1	21.8	21.6	21.3	21.5	19.7	19.5	18.9	18.4	18.2	18.9	19.1	19.4	20.1	20.1	19.5	19.6	19.4	17.5	15.9	14.5	14.3	14.3	23.6	19.5			
Aug 4	14.5	13.4	12.9	13	13.2	15.4	16.3	17.2	18.6	20.2	21.6	23.8	24.1	24.9	26.2	26.3	26.6	26.8	25.1	23.1	21.4	20.5	19.9	19.2	12.9	26.8	20.2			
Aug 5	18.5	18	16.3	15.1	14.4	15.5	16.7	18	19.5	21.6	23.5	25.6	27	27.6	29.9	30.5	30.4	29.2	25.9	21.6	20.6	19.2	18.5	18.3	14.4	30.5	21.7			
Aug 6	17.6	16.9	16.8	16.1	15.7	16	17.1	19.1	20.8	22.5	24.4	26.7	28.7	29.1	29.5	30.2	26.9	23.2	22.1	20	16.2	15.7	15	13.8	13.8	30.2	20.8			
Aug 7	13.5	13.6	13.1	12.2	11.5	11	13.2	15.4	18	19.8	21.7	21.6	15.5	13.1	14.1	15.6	17.1	17.5	16.6	14	12.3	12.4	12	12.2	11.0	21.7	14.9			
Aug 8	11.9	11.5	11.1	10.9	11.3	11.6	12.2	12.9	14.3	15.1	16	16.2	15.1	17	17.4	17.9	17.7	17.8	17.2	15.7	13.6	12	11	10.3	10.3	17.9	14.1			
Aug 9	9.8	9.3	8.7	8.2	7.8	7.8	10	12.7	16.6	18.3	19.8	21.2	22.2	23.2	24.2	24.8	25	25.3	24.4	21.9	20.5	19.8	20.9	19.9	7.8	25.3	17.6			
Aug 10	19	18.6	18.6	18.5	17.6	15.7	15.3	16	17.2	18.1	18.3	18.7	19.4	19.5	19.4	30.3	20.1	19.7	18.8	17.6	14.4	12.7	13.5	12.7	12.7	20.1	17.4			
Aug 11	11.1	11.5	12.1	12.4	12.6	13.3	14.7	16.5	18.2	18.8	18.8	19	18.9	19.1	19.4	19.7	18.8	18.6	18	15.9	13.7	12.5	11.3	10.4	10.4	19.7	15.6			
Aug 12	9.6	9.2	8.4	7.9	7.4	7.3	9.5	12	14.2	16.2	17.8	19.2	19.8	19.3	19.7	20.1	20.6	20.3	20	17.8	15.2	13.8	11.9	10.5	7.3	20.6	14.5			
Aug 13	9.8	8.8	8	9.2	8	7.8	12.1	15.6	18.8	22.2	25.5	29	30.2	30.8	31.1	30.7	30.5	29.5	27.3	24.4	22.3	19.1	16.7	7.8	31.1	20.6				
Aug 14	15.2	14	13.2	12.7	12.3	11.9	14	18.9	22.5	25.7	27.7	28.7	30.3	31.3	31.9	31.7	31.8	30.4	28.6	26.8	25.7	24.8	23.4	21.5	11.9	31.9	23.1			
Aug 15	18.7	16.5	14.3	13.1	12.1	11.7	14.5	18.1	20.6	23.2	25.2	25.7	26.2	26.4	26.6	26.1	26.3	26.1	24.7	23.6	22.4	20.8	19.4	18.6	11.7	26.6	20.9			
Aug 16	18	18.1	19.2	18.2	16.8	15.2	15.1	16.4	16.7	17.8	20.5	21.6	21.8	21.1	21.1	20.7	20.4	19.9	18.5	16.8	15.1	14.1	12.3	11.9	11.9	21.8	17.8			
Aug 17	11.7	10.9	10.1	9.6	8.6	7.7	8.8	9.9	11.7	14.1	16.1	17.1	18.1	19.3	19.7	20.2	20.5	20.1	19.7	17.3	14.5	11.3	9	7.5	7.5	20.5	13.9			
Aug 18	6.2	5.2	4.3	3.7	3.2	3	5.7	10.7	13.9	17.2	19.5	20.7	21.7	22	22.8	23.3	23.3	23.1	22.7	20.1	18.3	16.7	16.2	16.3	3.0	23.3	15.0			
Aug 19	15.8	15.6	14.9	14.2	13.4	13.3	13.4	13.5	14.5	16	17.9	19.3	20.2	21.4	20.7	19	20.1	20	19	17.9	16.8	16.2	15.1	14.4	13.3	21.4	16.8			
Aug 20	14.6	13.1	11.8	11.5	11.1	11.1	11.5	13.6	14.7	16.2	17.5	18.2	19.1	20.2	20.6	19.4	19.4	18.3	16.6	14.9	13.7	13.8	13.4	11.3	11.1	20.6	15.2			
Aug 21	8.7	7.3	6	5.1	4	3.5	6.1	10.9	13.1	14.8	15.3	16.4	17.5	18.3	18.1	18.8	18.7	18.7	18.4	16.7	16	15.6	15	14.3	3.5	18.8	13.2			
Aug 22	13.7	13.1	13	12.2	12.2	11.8	12	11	10.5	11.8	12.4	12.7	12.6	12.7	12.7	12.2	11.3	11.1	10.5	10	9.8	10	10.1	9.9	9.8	13.7	11.6			
Aug 23	9.8	9.8	10.1	10.5	10.5	10.6	10.7	10.7	11	11.4	11.5	12.4	13.2	13.4	13.3	13.5	13.6	13.2	12.6	11.4	10.8	11.5	11.2	10.4	9.8	13.6	11.5			
Aug 24	9.7	9.4	8.2	7.4	7.6	7.2	7.8	9	11.3	12.2	12.8	14.7	15.7	16	16.3	16.8	16	16.7	15.4	11.6	9.1	8	8.3	8.2	7.2	16.8	11.5			
Aug 25	6.7	5.9	5.8	5.5	6.3	7.3	8.6	10.9	12.8	15.7	18.2	19.4	19.9	20	20.8	20.7	20.5	20.5	19.1	16.6	14.9	13.8	12.8	11.9	5.5	20.8	13.9			
Aug 26	11.2	10.4	10	9.4	9.6	9.5	10.4	12	14.1	16.8	19	20.6	22.1	22.5	22.7	22.8	22.4	22	20.7	19	18	17	16.2	15.4	9.4	22.8	16.4			
Aug 27	14.2	14	13.3	13.4	12.9	12	12.1	12.9	13.9	14.9	16.8	18.9	19.9	20.5	21.1	21.1	20.6	20.7	20.2	18.3	15.5	16.2	12.8	11.6	11.6	21.1	16.2			
Aug 28	11.3	9.8	8.5	7.5	6.8	6.7	8.7	11.7	14.7	17.3	19.7	21.1	22.1	22.8	23.2	23.3	22.9	22.5	21.4	17.1	13.9	12.4	11.3	10.2	6.7	23.3	15.3			
Aug 29	9.4	8.6	8.4	8.6	8.8	9.1	10.2	11.8	13	15.4	18.9	21.5	23.7	24.6	25.4	25.3	25.2	24.8	21.8	18.3	16.8	16.8	16.2	15.9	8.4	25.4	16.6			
Aug 30	15.8	15.9	15.3	13.7	11.4	10.4	11.3	15.1	16.2	18.7	21.2	21.4	22.5	23.6	24.3	25.3	25.9	25.9	24	21.3	20.1	19.5	20.9	19.6	10.4	25.9	19.1			
Aug 31	18.6	17.9	17.7	17.1	15.6	15.8	15.4	16.6	18.5	19.9	20.4	20.1	19.9	21.3	22.9	24.7	23.7	22.5	20.7	17.6	15.5	14.3	13.8	13.1	13.1	24.7	18.5			
Diurnal Maximum	23.1	23.6	23.1	21.8	21.6	21.3	21.5	20.8	23.5	25.7	27.7	28.7	30.3	31.3	31.9	31.7	31.8	30.5	29.5	27.3	25.7	24.8	23.7	22.5						
Diurnal Average	13.6	13.0	12.4	11.9	11.4	11.3	12.5	14.5	16.3	18.1	19.7	20.8	21.3	21.8	22.3	22.5	22.4	21.9	20.8	18.7	16.9	16.0	15.1	14.2						
<b>C</b>	Monthly Calibration							<b>S</b>	Daily Zero-Span Check							<b>Q</b>	Quality Assurance													
<b>K</b>	Collection Error							<b>N</b>	No Data (Machine Not in Service)							<b>Y</b>	Routine Maintenance							<b>P</b>	Power Failure					
<b>X</b>	Invalid Data (Equipment Malfunction /Recovery)							<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																					

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



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





## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

### Cold Lake South Station - August 2021

#### Summary of Hourly Averages

#### STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:	25.2 °C	on August 11 at hour 5	Hours in Service:	744
Maximum Daily Value:	24.3 °C	on August 11	Hours of Data:	744
Minimum Hourly Value:	21.4 °C	on August 28 at hour 10	Hours of Missing Data:	0
Minimum Daily Value:	22.5 °C	on August 31	Hours of Calibration:	0
Monthly Average:	23.1 °C		Operational Uptime:	100.0

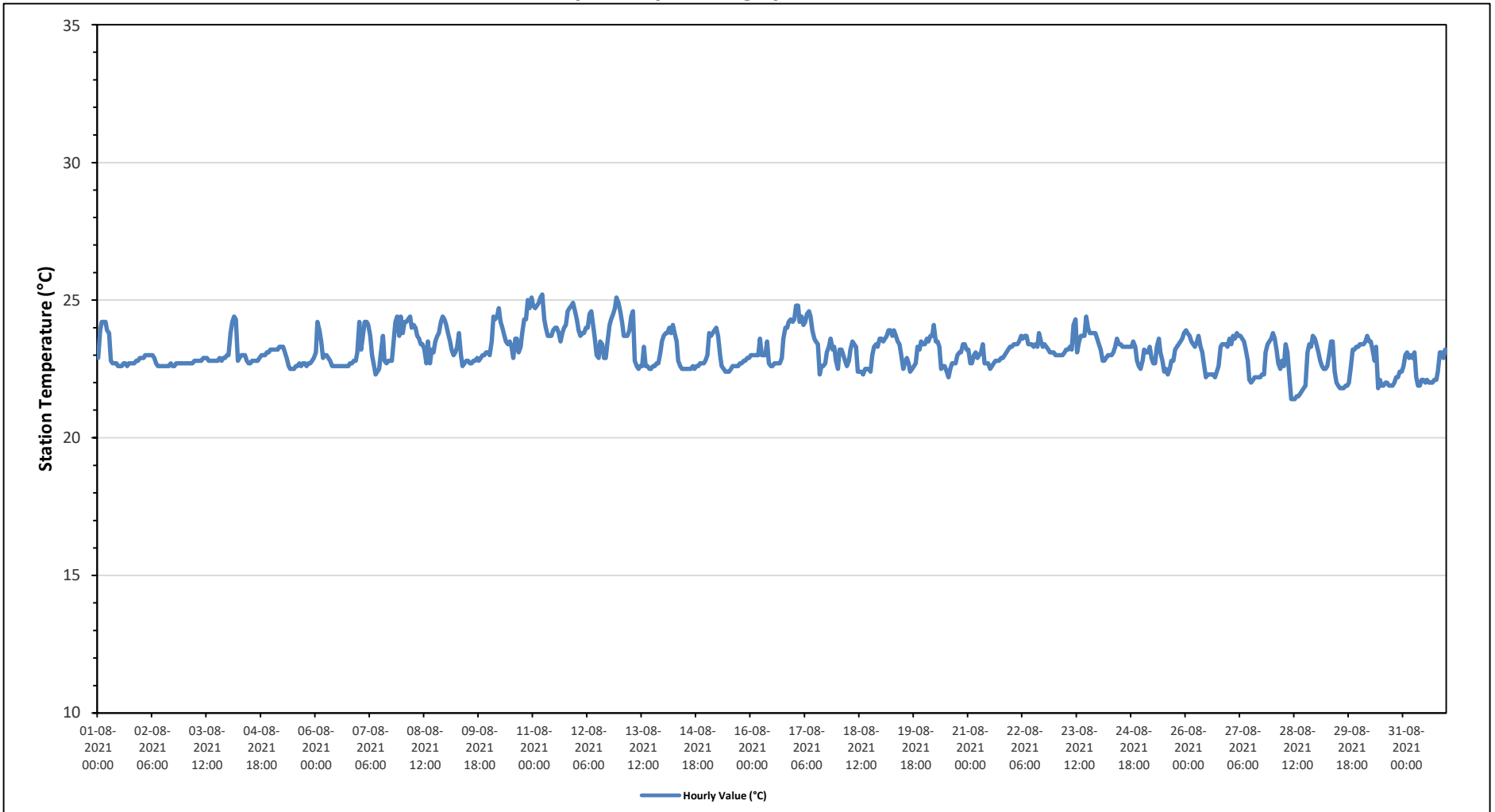
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Aug 1	22.9	23.9	24.2	24.2	24.2	23.9	23.8	22.8	22.7	22.7	22.7	22.6	22.6	22.6	22.7	22.7	22.6	22.7	22.7	22.7	22.8	22.8	22.9	22.6	24.2	23.0		
Aug 2	22.9	22.9	23.0	23.0	23.0	23.0	23.0	22.9	22.7	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.7	22.6	22.6	22.7	22.7	22.7	22.7	22.7	22.6	23.0	22.8	
Aug 3	22.7	22.7	22.7	22.7	22.7	22.8	22.8	22.8	22.8	22.8	22.9	22.9	22.9	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.9	22.8	22.9	22.9	23.0	22.7	22.8	
Aug 4	23.0	23.8	24.2	24.4	24.3	22.8	22.9	23.0	23.0	23.0	22.8	22.7	22.7	22.8	22.8	22.8	22.8	22.9	23.0	23.0	23.0	23.1	23.1	23.2	22.7	24.4	23.1	
Aug 5	23.2	23.2	23.2	23.2	23.3	23.3	23.3	23.1	22.9	22.6	22.5	22.5	22.5	22.6	22.6	22.7	22.6	22.7	22.7	22.6	22.7	22.7	22.8	22.9	22.5	23.3	22.9	
Aug 6	23.1	24.2	23.9	23.5	22.9	23.0	23.0	22.9	22.8	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.7	22.8	22.8	23.1	22.6	24.2	22.9	
Aug 7	24.2	23.2	23.7	24.2	24.2	24.1	23.7	23.0	22.7	22.3	22.4	22.5	23.1	23.7	22.8	22.7	22.8	22.8	22.8	23.6	24.2	24.4	23.7	24.4	22.3	24.4	23.4	
Aug 8	23.8	24.2	24.2	24.3	24.4	24.0	24.1	24.0	23.7	23.6	23.4	23.4	23.2	22.7	23.5	22.7	23.2	23.1	23.5	23.7	23.8	24.2	24.4	24.3	22.7	24.4	23.7	
Aug 9	24.1	23.8	23.5	23.2	23.0	23.1	23.3	23.8	23.0	22.6	22.7	22.8	22.8	22.7	22.7	22.8	22.8	22.9	22.8	22.9	23.0	23.0	23.1	23.1	22.6	24.1	23.1	
Aug 10	23.0	23.5	24.4	24.3	24.4	24.7	24.2	24.0	23.7	23.5	23.4	23.5	23.3	22.9	23.6	23.6	23.1	23.3	23.8	24.3	24.3	25.0	24.7	25.1	22.9	25.1	23.9	
Aug 11	24.8	24.7	24.8	24.9	25.1	25.2	24.3	24.0	23.7	23.7	23.7	23.9	24.0	24.0	23.8	23.5	23.8	24.0	24.1	24.6	24.7	24.8	24.9	24.6	23.5	25.2	24.3	
Aug 12	24.3	23.9	23.7	23.8	23.8	24.0	24.0	24.5	24.6	24.1	23.6	23.0	22.9	23.5	23.4	22.9	23.5	24.1	24.3	24.5	24.7	25.1	24.9	22.9	25.1	23.9		
Aug 13	24.6	24.2	23.7	23.7	23.7	23.9	24.4	24.6	22.8	22.6	22.5	22.6	23.3	22.6	22.6	22.5	22.5	22.6	22.6	22.7	22.7	23.1	23.5	22.5	24.6	23.1	23.2	
Aug 14	23.7	23.8	23.8	24.0	23.8	24.1	23.8	23.5	22.8	22.6	22.5	22.5	22.5	22.5	22.5	22.5	22.6	22.5	22.6	22.6	22.7	22.7	22.7	22.8	22.5	24.1	23.0	
Aug 15	23.0	23.8	23.7	23.8	23.9	24.0	23.7	23.0	22.6	22.5	22.4	22.4	22.4	22.5	22.6	22.6	22.6	22.6	22.7	22.7	22.8	22.8	22.9	22.9	22.4	24.0	23.0	
Aug 16	23.0	23.0	23.0	23.0	23.0	23.6	23.0	23.0	23.0	23.5	22.7	22.6	22.6	22.7	22.7	22.7	22.7	22.9	23.6	24.0	24.2	24.3	24.2	22.6	24.3	23.2		
Aug 17	24.3	24.8	24.8	24.0	24.2	24.4	24.1	24.2	24.5	24.6	24.4	23.9	23.6	23.5	23.4	22.3	22.6	22.6	22.7	23.1	23.3	23.6	23.2	23.3	22.8	22.3	24.8	23.7
Aug 18	22.5	23.2	23.2	23.0	22.8	22.6	22.8	23.2	23.5	23.4	23.3	22.4	22.4	22.4	22.3	22.5	22.5	22.5	22.4	23.0	23.3	23.4	23.3	23.6	22.3	23.6	22.9	
Aug 19	23.6	23.5	23.6	23.7	23.9	23.9	23.7	23.9	23.7	23.5	23.4	23.0	22.5	22.7	22.9	22.7	22.4	22.5	22.6	22.7	23.3	23.2	23.5	23.4	22.4	23.9	23.2	
Aug 20	23.4	23.6	23.5	23.7	23.7	24.1	23.5	23.5	23.3	22.5	22.6	22.6	22.4	22.2	22.5	22.7	22.7	22.7	23.0	23.1	23.1	23.4	23.4	23.2	22.2	24.1	23.1	
Aug 21	23.2	22.7	22.7	23.0	23.1	22.9	23.0	23.1	23.4	22.7	22.7	22.7	22.5	22.6	22.7	22.8	22.8	22.8	22.9	22.9	23.0	23.1	23.2	23.3	22.5	23.4	22.9	
Aug 22	23.3	23.4	23.4	23.4	23.5	23.7	23.6	23.7	23.7	23.4	23.4	23.4	23.3	23.4	23.3	23.8	23.5	23.3	23.4	23.3	23.2	23.1	23.1	23.1	23.1	23.8	23.4	
Aug 23	23.0	23.0	23.0	23.0	23.0	23.1	23.2	23.2	23.3	23.2	24.1	24.3	23.1	23.5	23.7	23.7	23.7	24.4	24.0	23.8	23.8	23.8	23.6	23.0	24.4	23.5		
Aug 24	23.4	23.2	22.8	22.8	22.9	23.0	23.0	23.1	23.2	23.3	23.6	23.4	23.4	23.3	23.3	23.3	23.3	23.3	23.3	23.5	23.3	22.8	22.6	22.5	22.5	23.6	23.1	
Aug 25	22.8	23.2	23.1	23.1	23.3	22.9	22.7	22.7	23.3	23.6	23.1	22.8	22.4	22.5	22.3	22.5	22.8	22.8	23.2	23.3	23.4	23.5	23.6	23.8	22.3	23.8	23.0	
Aug 26	23.9	23.8	23.7	23.5	23.4	23.3	23.5	23.7	23.3	23.1	22.7	22.2	22.3	22.3	22.3	22.2	22.4	22.6	23.3	23.4	23.4	23.4	23.3	22.2	23.9	23.1		
Aug 27	23.6	23.4	23.7	23.6	23.8	23.7	23.7	23.6	23.5	23.2	22.8	22.1	22.0	22.1	22.2	22.2	22.2	22.2	22.3	23.1	23.4	23.5	23.6	22.0	23.8	23.0		
Aug 28	23.8	23.6	23.2	22.7	22.5	22.8	22.6	23.4	23.1	22.3	21.4	21.4	21.4	21.5	21.5	21.6	21.7	21.8	21.9	23.1	23.4	23.3	23.7	23.6	21.4	23.8	22.6	
Aug 29	23.4	23.1	22.8	22.6	22.5	22.5	22.6	23.0	23.5	23.5	22.4	22.0	21.9	21.8	21.8	21.8	21.9	21.9	22.0	22.6	23.2	23.2	23.3	23.3	21.8	23.5	22.6	
Aug 30	23.4	23.4	23.4	23.5	23.7	23.5	23.5	23.2	22.8	23.3	21.8	22.1	21.9	21.9	22.0	22.0	21.9	21.9	22.0	22.2	22.2	22.4	22.4	21.8	23.7	22.6		
Aug 31	22.6	23.0	23.1	22.9	23.0	22.9	23.1	22.2	21.9	22.1	22.1	22.0	22.1	22.0	22.0	22.0	22.1	22.1	22.4	23.1	23.1	22.9	23.2	21.9	23.2	22.5		
Diurnal Maximum	24.8	24.8	24.8	24.9	25.1	25.2	24.4	24.6	24.6	24.4	24.1	24.3	24.0	24.0	23.8	23.8	23.8	24.4	24.1	24.6	24.7	25.0	25.1					
Diurnal Average	23.4	23.5	23.5	23.5	23.5	23.5	23.4	23.4	23.2	23.1	22.9	22.7	22.7	22.7	22.7	22.7	22.7	22.8	22.9	23.1	23.3	23.3	23.4	23.4				

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

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

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

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





## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - August 2021

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

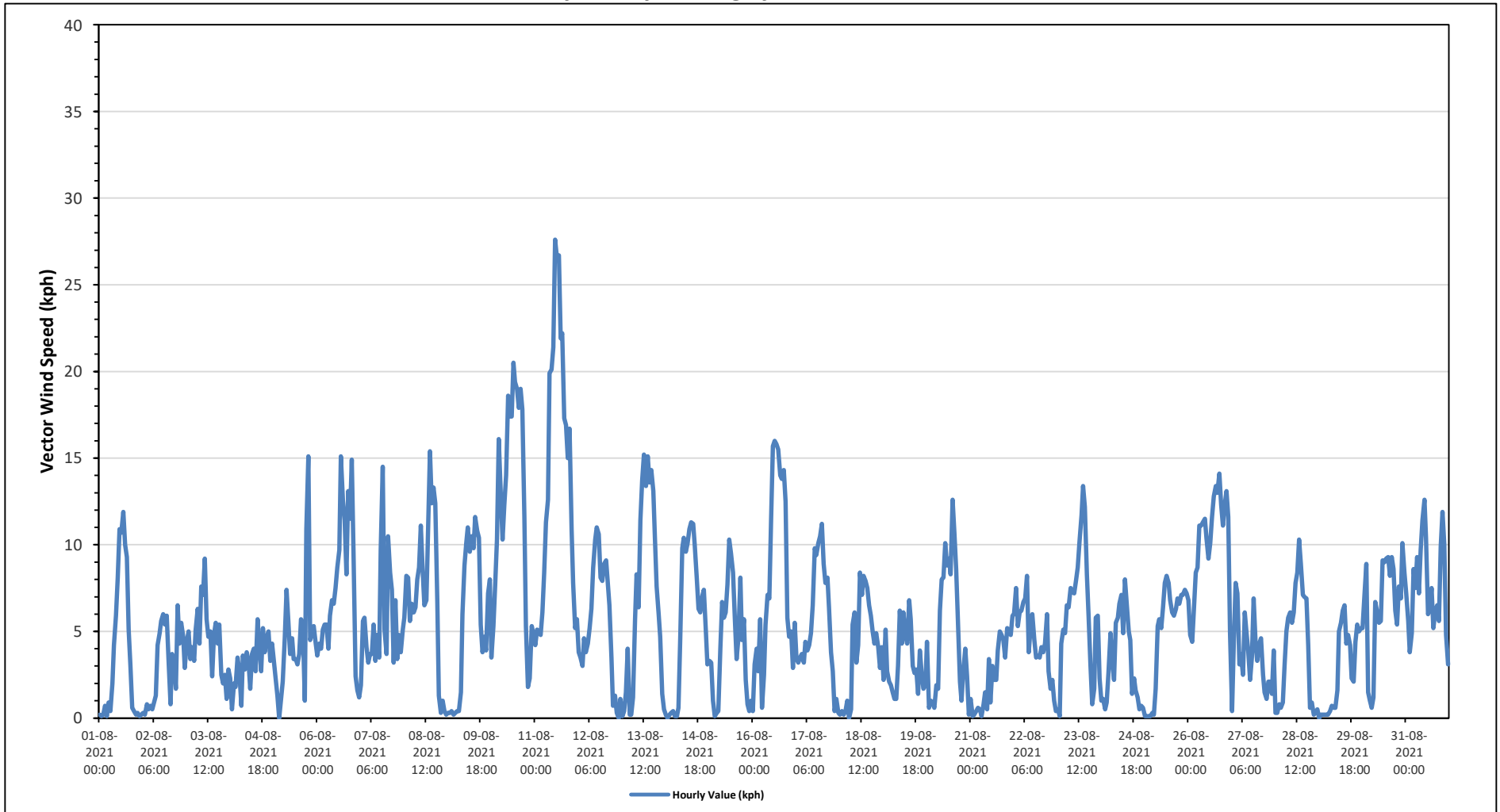
Maximum Hourly Value:	27.6 kph	on August 11 at hour 11	Hours in Service:	744
Maximum Daily Value:	12.9 kph	on August 11	Hours of Data:	744
Minimum Hourly Value:	0.0 kph	on August 5 at hour 3	Hours of Missing Data:	0
Minimum Daily Value:	0.7 kph	on August 4	Hours of Calibration:	0
Monthly Average:	0.8 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
Aug 1	0.2	0.1	0.2	0.7	0.1	0.9	0.4	2.0	4.2	5.9	8.1	10.9	10.7	11.9	10.0	9.3	5.1	3.0	0.6	0.4	0.2	0.3	0.1	0.2	0.1	11.9	3.4
Aug 2	0.3	0.2	0.8	0.5	0.7	0.5	0.9	1.3	4.2	4.9	5.6	6.0	5.4	5.9	3.4	0.8	3.7	3.2	1.7	6.5	4.3	5.5	4.7	2.9	0.2	6.5	2.5
Aug 3	4.4	5.0	3.4	4.1	3.3	5.1	6.3	4.3	7.6	7.1	9.2	5.7	4.7	5.0	2.4	4.8	5.5	4.3	5.4	2.5	2.0	2.5	1.1	2.8	1.1	9.2	3.7
Aug 4	2.3	0.5	2.0	1.8	3.5	2.7	0.7	3.6	2.8	3.8	3.3	1.7	3.7	4.0	2.7	5.7	4.4	2.7	5.2	3.8	4.6	5.0	3.3	4.3	0.5	5.7	0.7
Aug 5	3.3	2.3	1.3	0.0	1.2	2.1	4.6	7.4	5.6	3.7	4.6	3.4	3.1	3.7	5.7	5.4	1.0	10.9	15.1	4.5	4.9	5.3	4.3	0.0	15.1	2.7	
Aug 6	3.6	4.3	4.0	5.1	5.4	5.4	4.0	5.9	6.8	6.6	7.5	8.7	9.7	15.1	12.6	11.4	8.3	13.1	11.5	14.9	9.4	2.4	1.6	1.2	1.2	15.1	2.2
Aug 7	1.9	5.6	5.8	4.1	3.2	3.7	3.7	5.4	3.3	4.8	3.5	9.7	14.5	5.1	3.7	10.5	8.4	7.4	3.2	6.8	3.4	4.8	3.8	5.1	1.9	14.5	3.2
Aug 8	5.8	8.2	8.1	5.6	6.6	6.1	6.4	8.0	8.7	11.1	8.6	6.5	6.8	10.5	15.4	12.4	13.3	12.4	6.7	1.3	0.3	1.0	0.4	0.2	0.2	15.4	6.1
Aug 9	0.3	0.3	0.4	0.2	0.3	0.4	0.4	1.5	6.0	8.8	10.1	11.0	9.6	10.5	9.8	11.6	10.8	10.4	5.4	3.8	4.7	3.9	7.2	8.0	0.2	11.6	5.0
Aug 10	3.5	5.3	7.7	10.3	16.1	12.9	10.3	12.3	14.0	18.6	17.4	17.4	20.5	19.4	19.0	17.9	19.0	17.8	11.6	5.3	1.8	2.3	5.3	4.9	1.8	20.5	11.4
Aug 11	4.2	5.1	5.0	4.8	6.1	8.4	11.3	12.6	19.9	20.1	21.4	27.6	26.6	26.7	21.9	22.2	17.3	16.9	15.0	16.7	10.9	7.8	5.2	5.7	4.2	27.6	12.9
Aug 12	3.8	3.5	3.0	4.6	3.8	4.3	5.2	6.3	8.7	10.3	11.0	10.6	8.1	7.9	8.9	9.1	7.9	6.5	3.5	0.7	1.3	0.3	0.0	1.1	0.0	11.0	5.0
Aug 13	0.1	0.4	1.5	4.0	0.2	0.2	1.2	5.7	8.3	6.4	11.4	13.7	15.2	13.4	15.1	13.6	14.3	13.1	10.5	7.6	6.0	4.7	1.4	0.5	0.1	15.2	6.9
Aug 14	0.2	0.0	0.2	0.3	0.4	0.1	0.1	0.6	4.6	9.8	10.4	9.6	10.1	10.9	11.3	11.2	10.0	8.1	6.3	6.1	7.0	7.4	5.0	3.1	0.0	11.3	5.2
Aug 15	3.3	3.2	1.0	0.1	0.3	0.4	4.0	6.7	5.8	6.1	7.7	10.3	9.5	8.4	5.8	3.4	4.6	8.1	4.5	5.7	2.2	0.8	0.4	1.0	0.1	10.3	3.0
Aug 16	0.4	3.1	4.0	2.7	5.7	0.6	2.5	5.4	7.1	6.9	11.5	15.7	16.0	15.8	15.5	14.0	13.8	14.3	12.5	5.8	4.7	5.0	2.9	5.5	0.4	16.0	7.4
Aug 17	3.4	3.2	3.5	3.7	3.2	4.4	3.9	4.2	4.9	6.5	9.8	9.4	10.1	10.5	11.2	8.9	7.8	8.1	6.4	3.8	2.7	0.4	1.1	0.3	0.3	11.2	5.0
Aug 18	0.2	0.4	0.2	0.4	1.0	0.0	0.5	5.4	6.1	3.2	4.2	8.4	7.1	8.2	7.9	7.5	6.5	5.9	5.0	4.3	4.9	4.1	2.9	4.1	0.0	8.4	3.5
Aug 19	2.2	5.1	2.7	2.1	1.9	1.5	1.1	1.1	3.0	6.2	4.3	6.1	4.8	4.3	6.8	5.7	3.0	2.6	2.8	1.4	3.9	2.6	1.7	1.9	1.1	6.8	1.6
Aug 20	4.4	0.6	1.0	0.9	0.6	1.9	1.7	6.2	8.0	8.1	10.1	8.8	9.2	8.3	12.6	10.7	8.6	5.6	2.1	1.0	2.9	4.0	2.4	0.2	0.2	12.6	4.1
Aug 21	1.1	0.1	0.2	0.4	0.6	0.5	0.1	0.8	1.5	0.5	3.4	0.9	3.0	2.2	2.2	3.9	5.0	4.8	4.5	3.5	5.2	5.1	4.8	5.9	0.1	5.9	1.9
Aug 22	6.0	7.5	5.3	6.1	6.2	6.7	6.9	8.2	3.8	5.4	6.0	4.5	3.5	3.6	3.5	4.1	3.8	4.3	6.0	2.7	1.7	2.2	1.0	0.4	0.4	8.2	4.1
Aug 23	0.5	0.1	4.3	5.1	4.9	6.5	6.4	7.5	7.3	7.2	7.9	8.7	10.2	11.7	13.4	12.2	8.3	5.8	3.1	0.8	1.7	5.8	5.9	2.3	0.1	13.4	5.9
Aug 24	1.0	1.1	0.5	0.9	2.6	4.9	3.4	2.2	5.5	5.8	6.6	7.1	4.9	8.0	6.6	5.0	4.5	1.4	2.3	1.6	1.2	0.5	0.7	0.6	0.5	8.0	2.4
Aug 25	0.1	0.1	0.1	0.1	0.3	0.2	1.7	5.3	5.7	5.2	6.4	7.8	8.2	7.8	6.8	6.1	5.9	6.3	6.9	6.6	7.1	7.1	7.4	7.2	0.1	8.2	4.3
Aug 26	6.8	4.8	4.4	6.1	8.4	8.7	11.1	11.1	11.3	11.5	10.4	9.2	10.1	11.6	12.8	13.4	13.0	14.1	12.3	11.1	12.3	13.1	11.6	4.9	4.4	14.1	10.0
Aug 27	0.4	4.5	7.8	7.2	3.1	3.7	2.5	6.1	4.9	3.8	2.2	3.5	6.9	4.2	3.3	4.3	4.6	2.5	1.5	1.1	2.1	2.1	1.4	3.9	0.4	7.8	2.0
Aug 28	0.3	0.3	0.8	0.6	0.9	3.1	5.0	5.8	6.1	5.5	6.1	7.8	8.4	10.3	8.9	7.1	7.0	6.9	4.2	0.6	0.9	0.2	0.3	0.5	0.2	10.3	3.8
Aug 29	0.0	0.2	0.2	0.2	0.2	0.2	0.4	0.7	0.6	0.6	1.6	5.0	5.5	6.2	6.5	4.3	4.8	4.2	2.3	2.1	4.4	5.4	5.0	5.2	0.0	6.5	2.0
Aug 30	5.2	7.2	8.9	1.5	1.0	0.6	1.2	6.7	6.1	5.5	5.6	9.1	9.0	9.2	9.3	8.2	9.3	8.6	6.2	5.4	7.6	6.9	10.1	8.4	0.6	10.1	5.2
Aug 31	7.2	5.6	3.8	4.9	8.6	7.5	9.3	7.2	9.7	11.4	12.6	10.4	6.0	6.3	7.5	5.2	6.2	6.5	5.6	9.9	11.9	10.0	4.8	3.1	3.1	12.6	3.6
Diurnal Maximum	7	8	9	10	16	13	11	13	20	20	21	28	27	27	22	22	19	18	15	17	12	13	12	8			
Diurnal Average	2.5	2.8	3.0	2.9	3.2	3.4	3.8	5.4	6.5	7.1	8.0	8.9	9.1	9.2	9.0	8.7	8.1	7.4	6.0	5.1	4.4	4.1	3.5	3.2			

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

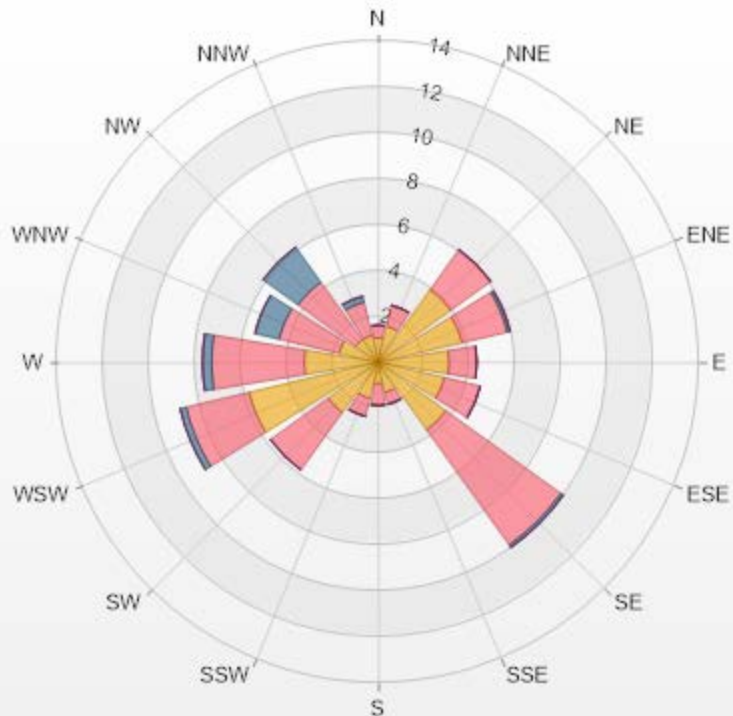
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

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



Wind: Cold Lake South Monitor: WDS [kph] Monthly: 08-2021 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 21.91% 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	1.08	0.54	0	0	0	1.62
NNE	1.61	0.94	0	0	0	2.55
NE	3.9	2.15	0	0	0	6.05
ENE	3.76	2.02	0.13	0	0	5.91
E	3.09	1.21	0	0	0	4.3
ESE	2.96	1.61	0	0	0	4.57
SE	3.63	6.18	0.13	0	0	9.94
SSE	1.34	0.54	0	0	0	1.88
S	0.94	0.94	0	0	0	1.88
SSW	1.61	0.81	0	0	0	2.42
SW	2.69	3.09	0	0	0	5.78
WSW	5.78	2.82	0.27	0	0	8.87
W	3.23	4.03	0.4	0	0	7.66
WNW	1.75	2.69	1.08	0	0	5.52
NW	1.21	3.09	1.88	0	0	6.18
NNW	1.21	1.48	0.27	0	0	2.96
Summary	39.79	34.14	4.16	0	0	78.09



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% Icon Classes (kph)

40  1.8-6.0

34  6.0-15.0

4  15.0-29.0

0  29.0-39.0

0  >39.0



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - August 2021

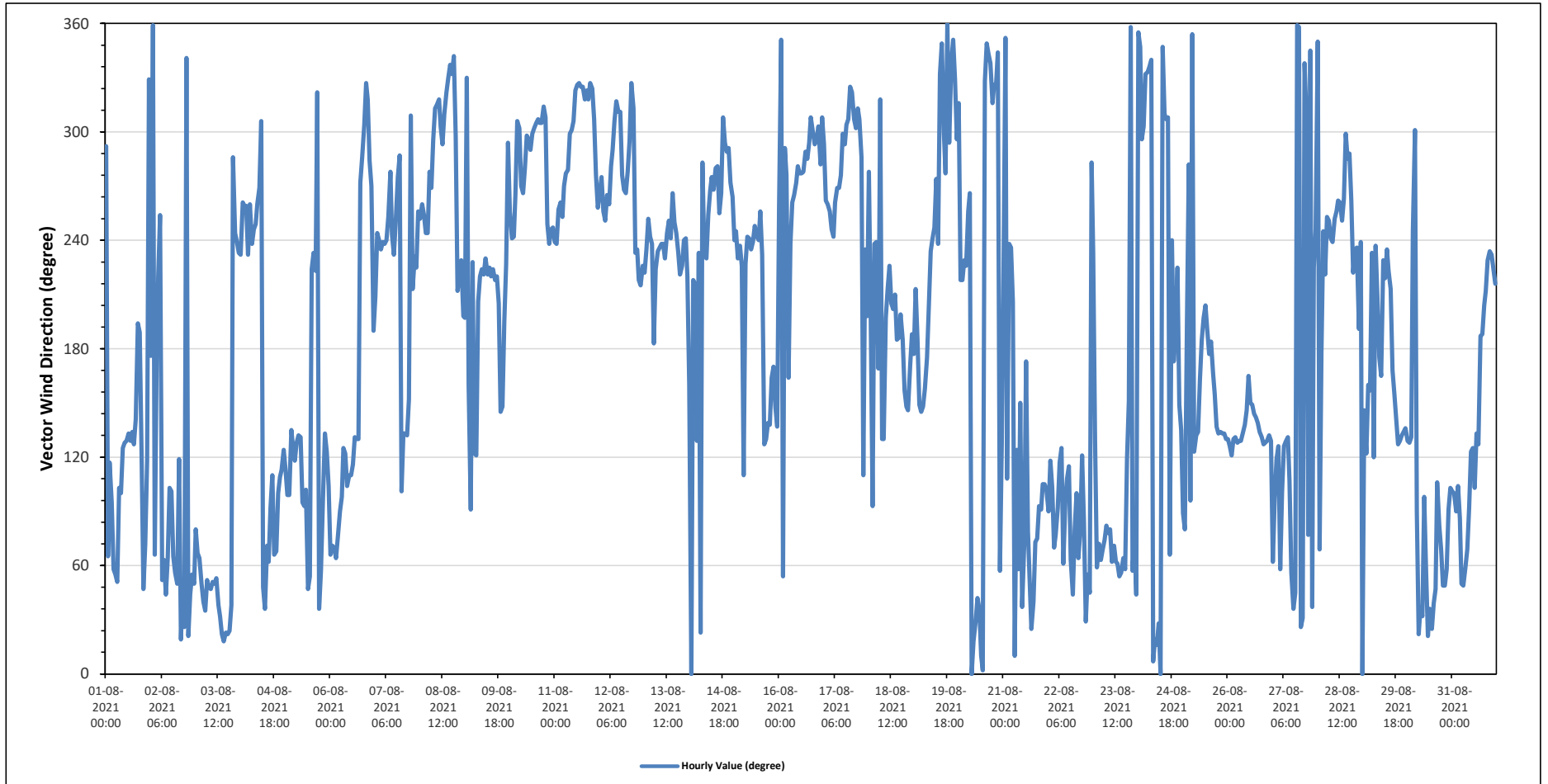
Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:		276 (W) 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
Aug 1	WNW	ENE	ESE	E	ENE	NE	NE	ESE	E	SE	SE	SE	SE	SE	SE	SE	SSW	S	ESE	NE	ENE	ESE	NNW	129	SE	
Aug 2	S	N	ENE	S	SW	WSW	NE	ENE	NE	ENE	ESE	E	ENE	NE	NE	ESE	NNE	NE	NNE	NNW	NNE	NE	NE	53	NE	
Aug 3	E	ENE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NNE	NNE	NNE	NNE	NNE	NE	WNW	WSW	WSW	SW	41	NE	
Aug 4	SW	W	WSW	WSW	SW	WSW	SW	WSW	WSW	WSW	W	NW	NE	NE	ENE	ENE	E	ESE	ENE	ENE	E	ESE	ESE	ESE	96	E
Aug 5	ESE	E	E	SE	SE	ESE	SE	SE	SE	E	E	E	NE	NE	SW	SW	NW	NE	ENE	E	SE	ESE	ESE	100	E	
Aug 6	ENE	ENE	ENE	ENE	ENE	E	E	SE	ESE	ESE	ESE	ESE	ESE	SE	SE	W	WNW	WNW	NW	NW	WNW	W	S	98	E	
Aug 7	SSW	WSW	WSW	SW	WSW	SW	WSW	WSW	W	WSW	SW	WSW	W	WNW	E	SE	SE	SE	SSE	NW	SSW	SW	SW	WSW	232	SW
Aug 8	WSW	WSW	WSW	WSW	WSW	W	W	WNW	NW	NW	NW	WNW	WNW	NW	NW	NNW	NNW	NNW	NNW	NNW	SSW	SW	SW	SSW	302	WNW
Aug 9	SSW	NNW	SSE	E	SW	ESE	ESE	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SSW	SE	SE	SSW	SW	WNW	W	220	SW	
Aug 10	WSW	WSW	WSW	W	NW	WNW	W	W	W	WNW	WNW	WNW	WNW	WNW	NW	WNW	WNW	NW	NW	WSW	SW	WSW	WSW	292	WNW	
Aug 11	WSW	SW	WSW	W	WSW	W	W	W	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	W	WSW	309	NW	
Aug 12	W	W	WSW	WSW	W	WSW	W	WNW	NW	NW	NW	NW	W	W	W	W	WNW	NW	NW	SW	SW	SSW	SW	288	WNW	
Aug 13	SW	SW	WSW	WSW	SW	S	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	W	WSW	WSW	SW	SW	SW	WSW	WSW	241	WSW	
Aug 14	SSE	N	SW	SW	SE	SW	NNE	W	SW	SW	WSW	W	W	W	W	WSW	W	NW	WNW	WNW	W	W	270	W		
Aug 15	WSW	WSW	SW	SW	SW	ESE	SW	WSW	WSW	SW	WSW	WSW	WSW	WSW	SW	SE	SE	SE	SE	SSE	SSE	SE	SE	220	SW	
Aug 16	WSW	N	NE	WNW	W	SSE	SW	W	W	W	W	W	W	W	WNW	WNW	WNW	NW	WNW	WNW	WNW	W	NW	287	WNW	
Aug 17	WNW	W	WSW	WSW	WSW	WSW	W	W	W	W	WNW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	ESE	SW	SSW	294	WNW	
Aug 18	W	SSW	E	SW	WSW	SSE	NW	SE	SE	SSW	SSW	SW	SSW	SSW	SSW	S	S	SSW	S	SSE	SE	SSE	S	186	S	
Aug 19	S	SSW	S	SSE	SE	SE	SSE	S	SSW	SW	WSW	WSW	W	SW	NNW	NNW	WNW	W	N	WNW	NNW	N	NNW	WNW	265	W
Aug 20	NW	SW	SW	SW	SW	WSW	W	N	NNE	NNE	NE	NE	N	N	NNW	NNW	NNW	NNW	NW	NW	NNW	ENE	SE	357	N	
Aug 21	SW	N	ESE	SW	SW	SSW	N	ESE	ENE	ENE	NE	ENE	S	ENE	NE	NNE	NE	ENE	ENE	E	E	ESE	E	82	E	
Aug 22	E	ESE	ESE	ENE	ENE	E	ESE	SE	ENE	E	ESE	ESE	ENE	NE	E	E	ENE	ENE	ESE	E	NNE	NE	NE	93	E	
Aug 23	SW	SE	ENE	ENE	ENE	ENE	ENE	E	ENE	E	ENE	ENE	ENE	NE	NE	ENE	ENE	ESE	SSE	N	ENE	ENE	NE	66	ENE	
Aug 24	N	NNW	WNW	WNW	NNW	NNW	NNW	NNW	N	NNE	NNE	NNE	N	NNW	NW	NW	ENE	WSW	S	S	SW	SSE	SE	346	NNW	
Aug 25	E	E	SSW	W	E	N	ESE	SE	SE	SSE	S	SSW	SSW	S	S	S	SSE	SSE	SE	SE	SE	SE	SE	158	SSE	
Aug 26	SE	SE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SSE	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SE	136	SE	
Aug 27	ENE	E	ESE	SE	ENE	E	SE	SE	SE	ESE	NE	NE	N	N	NNE	NNE	NNW	NNW	NNW	ENE	NNW	NE	SW	WSW	76	ENE
Aug 28	N	ENE	S	WSW	SW	WSW	WSW	WSW	WSW	WSW	W	W	WSW	W	WNW	WNW	WNW	W	SW	SW	SW	S	WSW	261	W	
Aug 29	N	SE	ESE	SSE	SSE	SW	ESE	SW	SSW	S	SSE	SW	SW	SW	SSW	SSE	SSE	SE	SE	SE	SE	SE	SE	178	S	
Aug 30	SE	SE	SE	WSW	WNW	E	NNE	NE	NNE	E	ENE	NNE	NE	NNE	NE	ENE	E	ENE	NE	NE	ENE	E	ESE	67	ENE	
Aug 31	E	E	E	ESE	E	NE	NE	ENE	ENE	E	ESE	SE	ESE	SE	SE	S	S	SSW	SSW	SW	SW	SW	SW	130	SE	
<b>C</b>	Monthly Calibration						<b>S</b>	Daily Zero-Span Check						<b>Q</b>	Quality Assurance											
<b>K</b>	Collection Error						<b>N</b>	No Data (Machine Not in Service)						<b>Y</b>	Routine Maintenance						<b>P</b>	Power Failure				
<b>X</b>	Invalid Data (Machine Malfunction /Recovery)						<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																		
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per 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 - August 2021

Summary of Hourly Averages

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

WIND SPEED																								Minimum	Maximum	Average	
Maximum Hourly Value:		27.6 kph on August 11 at hour 11										Hours in Service:										744					
Maximum Daily Value:		12.9 kph on August 11										Hours of Data:										744					
Minimum Hourly Value:		0.0 kph on August 5 at hour 3										Hours of Missing Data:										0					
Minimum Daily Value:		0.7 kph on August 4										Hours of Calibration:										0					
Monthly Average:		0.8 kph										Operational Uptime:										100					
WIND DIRECTION																								Minimum	Maximum	Average	
Monthly Average:		276 (W) degree																									
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
Aug 1	0.2	0.1	0.2	0.7	0.1	0.9	0.4	2.0	4.2	5.9	8.1	10.9	10.7	11.9	10.0	9.3	5.1	3.0	0.6	0.4	0.2	0.3	0.1	0.2	0.1	11.9	3.4
Aug 2	0.3	0.2	0.8	0.5	0.7	0.5	0.9	1.3	4.2	4.9	5.6	6.0	5.4	5.9	3.4	0.8	3.7	3.2	1.7	6.5	4.3	5.5	4.7	2.9	0.2	6.5	2.5
Aug 3	4.4	5.0	3.4	4.1	3.3	5.1	6.3	4.3	7.6	7.1	9.2	5.7	4.7	5.0	2.4	4.8	5.5	4.3	5.4	2.5	2.0	2.5	1.1	2.8	1.1	9.2	3.7
Aug 4	2.3	0.5	2.0	1.8	3.5	2.7	0.7	3.6	2.8	3.8	3.3	1.7	3.7	4.0	2.7	5.7	4.4	2.7	5.2	3.8	4.6	5.0	3.3	4.3	0.5	5.7	0.7
Aug 5	3.3	2.3	1.3	0.0	1.2	2.1	4.6	7.4	5.6	3.7	4.6	3.4	3.4	3.1	3.7	5.7	5.4	1.0	10.9	15.1	4.5	4.9	5.3	4.3	0.0	15.1	2.7
Aug 6	3.6	4.3	4.0	5.1	5.4	5.4	4.0	5.9	6.8	6.6	7.5	8.7	9.7	15.1	12.6	11.4	8.3	13.1	11.5	14.9	9.4	2.4	1.6	1.2	1.2	15.1	2.2
Aug 7	1.9	5.6	5.8	4.1	3.2	3.7	3.7	5.4	3.3	4.8	3.5	9.7	14.5	5.1	3.7	10.5	8.4	7.4	3.2	6.8	3.4	4.8	3.8	5.1	1.9	14.5	3.2
Aug 8	5.8	8.2	8.1	5.6	6.6	6.1	6.4	8.0	8.7	11.1	8.6	6.5	6.8	10.5	15.4	12.4	13.3	12.4	6.7	1.3	0.3	1.0	0.4	0.2	0.2	15.4	6.1
Aug 9	0.3	0.3	0.4	0.2	0.3	0.4	0.4	1.5	6.0	8.8	10.1	11.0	9.6	10.5	9.8	11.6	10.8	10.4	5.4	3.8	4.7	3.9	7.2	8.0	0.2	11.6	5.0
Aug 10	3.5	5.3	7.7	10.3	16.1	12.9	10.3	12.3	14.0	18.6	17.4	17.4	20.5	19.4	19.0	17.9	19.0	17.8	11.6	5.3	1.8	2.3	5.3	4.9	1.8	20.5	11.4
Aug 11	4.2	5.1	5.0	4.8	6.1	8.4	11.3	12.6	19.9	20.1	21.4	27.6	26.6	26.7	21.9	22.2	17.3	16.9	15.0	16.7	10.9	7.8	5.2	5.7	4.2	27.6	12.9
Aug 12	3.8	3.5	3.0	4.6	3.8	4.3	5.2	6.3	8.7	10.3	11.0	10.6	8.1	7.9	8.9	9.1	7.9	6.5	3.5	0.7	1.3	0.3	0.0	1.1	0.0	11.0	5.0
Aug 13	0.1	0.4	1.5	4.0	0.2	0.2	1.2	5.7	8.3	6.4	11.4	13.7	15.2	13.4	15.1	13.6	14.3	13.1	10.5	7.6	6.0	4.7	1.4	0.5	0.1	15.2	6.9
Aug 14	0.2	0.0	0.2	0.3	0.4	0.1	0.1	0.6	4.6	9.8	10.4	9.6	10.1	10.9	11.3	11.2	10.0	8.1	6.3	6.1	7.0	7.4	5.0	3.1	0.0	11.3	5.2
Aug 15	3.3	3.2	1.0	0.1	0.3	0.4	4.0	6.7	5.8	6.1	7.7	10.3	9.5	8.4	5.8	3.4	4.6	8.1	4.5	5.7	2.2	0.8	0.4	1.0	0.1	10.3	3.0
Aug 16	0.4	3.1	4.0	2.7	5.7	0.6	2.5	5.4	7.1	6.9	11.5	15.7	16.0	15.8	15.5	14.0	13.8	14.3	12.5	5.8	4.7	5.0	2.9	5.5	0.4	16.0	7.4
Aug 17	3.4	3.2	3.5	3.7	3.2	4.4	3.9	4.2	4.9	6.5	9.8	9.4	10.1	10.5	11.2	8.9	7.8	8.1	6.4	3.8	2.7	0.4	1.1	0.3	0.3	11.2	5.0
Aug 18	0.2	0.4	0.2	0.4	1.0	0.0	0.5	5.4	6.1	3.2	4.2	8.4	7.1	8.2	7.9	7.5	6.5	5.9	5.0	4.3	4.9	4.1	2.9	4.1	0.0	8.4	3.5
Aug 19	2.2	5.1	2.7	2.1	1.9	1.5	1.1	1.1	3.0	6.2	4.3	6.1	4.8	4.3	6.8	5.7	3.0	2.6	2.8	1.4	3.9	2.6	1.7	1.9	1.1	6.8	1.6
Aug 20	4.4	0.6	1.0	0.9	0.6	1.9	1.7	6.2	8.0	8.1	10.1	8.8	9.2	8.3	12.6	10.7	8.6	5.6	2.1	1.0	2.9	4.0	2.4	0.2	0.2	12.6	4.1



**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION**

**Cold Lake South Station - August 2021**

**Summary of Hourly Averages**

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

WIND SPEED																																				
Maximum Hourly Value:	27.6	kph	on August 11 at hour 11	Hours in Service:	744																															
Maximum Daily Value:	12.9	kph	on August 11	Hours of Data:	744																															
Minimum Hourly Value:	0.0	kph	on August 5 at hour 3	Hours of Missing Data:	0																															
Minimum Daily Value:	0.7	kph	on August 4	Hours of Calibration:	0																															
Monthly Average:	0.8	kph		Operational Uptime:	100																															
WIND DIRECTION																																				
Monthly Average:	276	(W)	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												
Aug 21	1.1	0.1	0.2	0.4	0.6	0.5	0.1	0.8	1.5	0.5	3.4	0.9	3.0	2.2	2.2	3.9	5.0	4.8	4.5	3.5	5.2	5.1	4.8	5.9	0.1	5.9	1.9									
	SW	N	ESE	SW	SW	SSW	N	ESE	ENE	SSE	NE	ENE	S	ENE	NNE	NE	ENE	ENE	E	E	ESE	ESE	E													
Aug 22	6.0	7.5	5.3	6.1	6.2	6.7	6.9	8.2	3.8	5.4	6.0	4.5	3.5	3.6	3.5	4.1	3.8	4.3	6.0	2.7	1.7	2.2	1.0	0.4	0.4	8.2	4.1									
	E	ESE	ESE	ENE	ENE	E	ESE	SE	ENE	E	ESE	ESE	ENE	NE	E	E	ENE	ENE	ESE	E	NNE	NE	NE	W												
Aug 23	0.5	0.1	4.3	5.1	4.9	6.5	6.4	7.5	7.3	7.2	7.9	8.7	10.2	11.7	13.4	12.2	8.3	5.8	3.1	0.8	1.7	5.8	5.9	2.3	0.1	13.4	5.9									
	SW	SE	ENE	ENE	ENE	ENE	E	ENE	E	ENE	ENE	ENE	ENE	NE	NE	ENE	ESE	SSE	N	ENE	ENE	NE	NE	E												
Aug 24	1.0	1.1	0.5	0.9	2.6	4.9	3.4	2.2	5.5	5.8	6.6	7.1	4.9	8.0	6.6	5.0	4.5	1.4	2.3	1.6	1.2	0.5	0.7	0.6	0.5	8.0	2.4									
	N	NNW	WNW	WNW	NNW	NNW	NNW	N	NNE	NNE	NNE	N	NNW	NW	NW	NW	ENE	WSW	S	S	SW	SSE	SE													
Aug 25	0.1	0.1	0.1	0.1	0.3	0.2	1.7	5.3	5.7	5.2	6.4	7.8	8.2	7.8	6.8	6.1	5.9	6.3	6.9	6.6	7.1	7.1	7.4	7.2	0.1	8.2	4.3									
	E	E	SSW	W	E	N	ESE	SE	SE	SSE	S	SSW	SSW	S	S	S	SSE	SSE	SE	SE	SE	SE	SE	SE												
Aug 26	6.8	4.8	4.4	6.1	8.4	8.7	11.1	11.1	11.3	11.5	10.4	9.2	10.1	11.6	12.8	13.4	13.0	14.1	12.3	11.1	12.3	13.1	11.6	4.9	4.4	14.1	10.0									
	SE	SE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SSE	SSE	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SE												
Aug 27	0.4	4.5	7.8	7.2	3.1	3.7	2.5	6.1	4.9	3.8	2.2	3.5	6.9	4.2	3.3	4.3	4.6	2.5	1.5	1.1	2.1	2.1	1.4	3.9	0.4	7.8	2.0									
	ENE	E	ESE	SE	ENE	E	SE	SE	SE	ESE	NE	NE	NE	N	N	NNE	NNE	NNW	NW	ENE	NNW	NE	SW	WSW												
Aug 28	0.3	0.3	0.8	0.6	0.9	3.1	5.0	5.8	6.1	5.5	6.1	7.8	8.4	10.3	8.9	7.1	7.0	6.9	4.2	0.6	0.9	0.2	0.3	0.5	0.2	10.3	3.8									
	N	ENE	S	WSW	SW	WSW	WSW	WSW	WSW	WSW	W	W	WSW	W	WSW	W	WNW	WNW	WNW	W	SW	SW	S	WSW												
Aug 29	0.0	0.2	0.2	0.2	0.2	0.2	0.4	0.7	0.6	0.6	1.6	5.0	5.5	6.2	6.5	4.3	4.8	4.2	2.3	2.1	4.4	5.4	5.0	5.2	0.0	6.5	2.0									
	N	SE	ESE	SSE	SSE	SW	ESE	SW	SSW	S	SSE	SW	SW	SW	SSW	SSE	SSE	SE	SE	SE	SE	SE	SE	SE												
Aug 30	5.2	7.2	8.9	1.5	1.0	0.6	1.2	6.7	6.1	5.5	5.6	9.1	9.0	9.2	9.3	8.2	9.3	8.6	6.2	5.4	7.6	6.9	10.1	8.4	0.6	10.1	5.2									
	SE	SE	SE	WSW	WNW	E	NNE	NE	NNE	E	ENE	NNE	NE	NNE	NE	NE	ESE	E	ENE	NE	NE	ENE	E	ESE												
Aug 31	7.2	5.6	3.8	4.9	8.6	7.5	9.3	7.2	9.7	11.4	12.6	10.4	6.0	6.3	7.5	5.2	6.2	6.5	5.6	9.9	11.9	10.0	4.8	3.1	3.1	12.6	3.6									
	E	E	E	ESE	E	NE	NE	ENE	ENE	E	ESE	SE	ESE	SE	SE	S	S	SSW	SSW	SW	SW	SW	SW	SW												
<b>C</b>	Monthly Calibration										<b>S</b>	Daily Zero-Span Check										<b>Q</b>	Quality Assurance													
<b>K</b>	Collection Error										<b>N</b>	No Data (Machine Not in Service)										<b>Y</b>	Routine Maintenance					<b>P</b>	Power Failure							
<b>X</b>	InValid Data (Equipment Malfunction/Recovery)										<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																								
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per 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 - August 2021**

**Summary of Hour Standard Deviations**

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

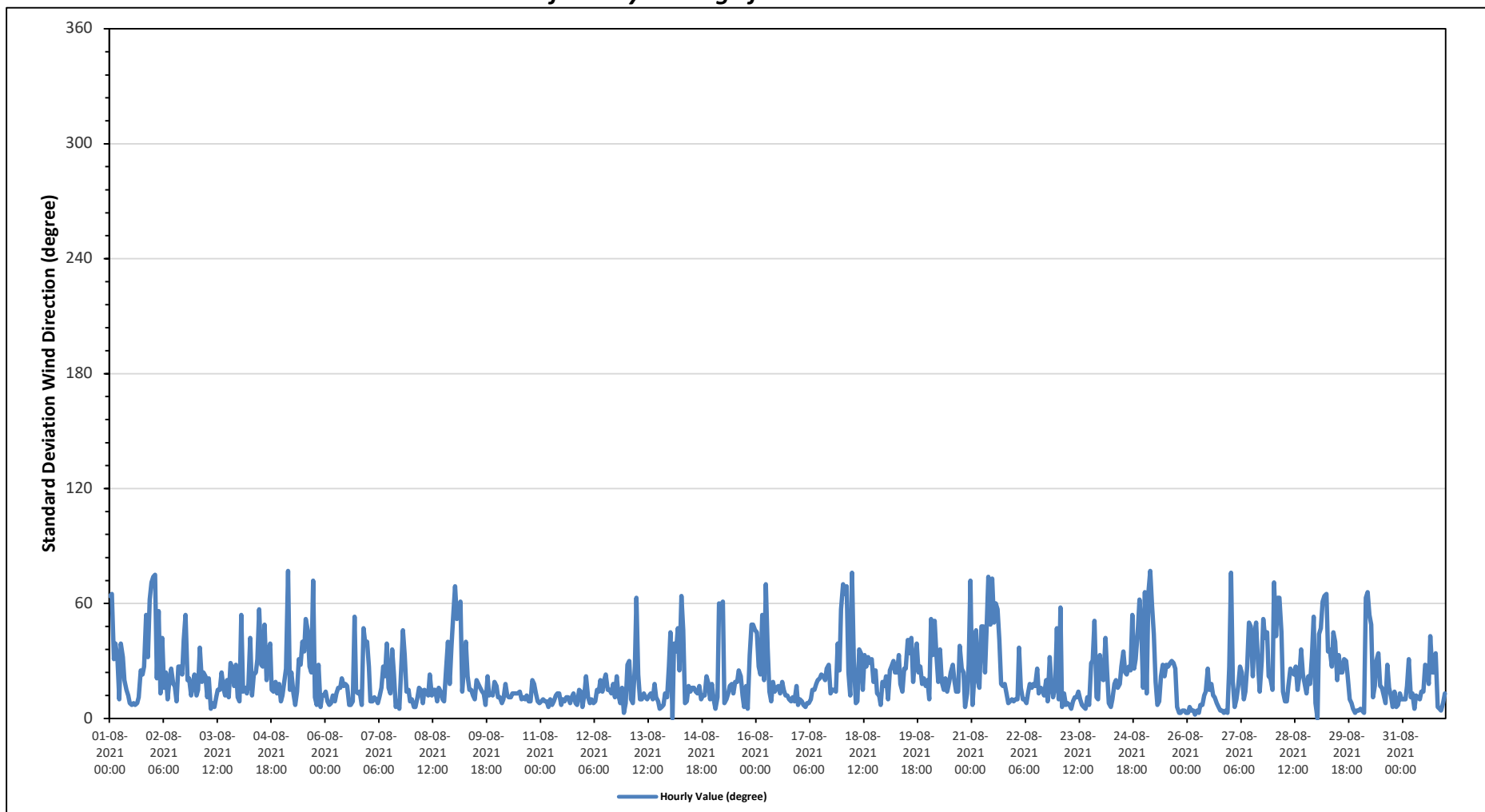
Maximum Hourly Value: 77 degree on August 5 at hour 3	Hours in Service: 744
	Hours of Data: 744
Minimum Hourly Value: 0 degree on August 14 at hour 1	Hours of Missing Data: 0
	Hours of Calibration: 0
	Operational Uptime: 100.0

Day	Hourly Period Starting at (MST)																							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	
Aug 1	64	65	31	39	31	10	39	32	20	15	12	8	7	8	7	8	11	25	23	27	54	32	62	71	7	71	
Aug 2	74	75	21	56	13	42	16	24	10	20	26	18	17	9	27	27	23	41	54	20	21	12	18	23	9	75	
Aug 3	12	15	37	19	24	22	11	21	5	8	6	11	15	15	24	16	12	20	11	29	26	17	28	11	5	37	
Aug 4	9	54	14	16	13	18	42	12	23	24	31	57	28	27	49	20	35	39	15	14	19	13	18	9	9	57	
Aug 5	12	20	26	77	15	24	13	7	14	31	28	40	35	52	46	27	24	72	11	7	28	6	12	12	6	77	
Aug 6	14	9	7	8	12	9	13	16	16	21	17	18	17	7	7	9	53	14	13	14	7	47	40	40	7	53	
Aug 7	27	9	9	11	10	8	11	16	27	22	39	16	13	36	23	6	9	5	25	46	33	14	15	9	5	46	
Aug 8	10	6	6	11	16	15	8	15	14	12	23	12	15	15	9	16	14	10	9	26	40	18	38	52	6	52	
Aug 9	69	52	53	61	14	27	40	22	15	15	12	10	20	18	16	14	13	7	22	12	13	12	19	17	7	69	
Aug 10	11	11	8	10	18	12	11	11	13	13	13	13	14	10	11	10	12	9	9	20	18	13	9	8	8	20	
Aug 11	9	10	9	9	6	10	7	9	12	13	13	7	10	9	11	11	8	11	13	8	7	15	14	6	6	15	
Aug 12	13	22	11	8	10	8	9	15	14	20	14	20	23	15	15	13	18	11	22	12	8	16	3	8	3	23	
Aug 13	28	30	10	8	27	63	23	10	10	13	11	10	12	13	10	18	11	9	5	6	7	13	11	27	5	63	
Aug 14	45	0	39	35	47	25	64	46	8	9	17	14	16	16	14	13	17	10	12	12	22	18	10	18	0	64	
Aug 15	10	5	11	60	59	61	8	10	13	17	18	13	19	19	25	22	12	6	17	5	33	49	49	46	5	61	
Aug 16	45	27	23	54	20	70	37	14	9	19	14	16	17	13	19	15	12	12	10	9	11	9	17	7	7	70	
Aug 17	10	9	7	6	8	8	10	15	15	18	20	21	23	22	20	26	28	13	15	15	14	39	25	57	6	57	
Aug 18	70	65	69	24	12	76	30	8	9	36	34	15	33	27	32	29	31	19	25	13	12	7	19	17	7	76	
Aug 19	22	10	25	27	30	24	24	33	18	14	26	26	41	34	42	19	29	39	24	27	18	21	17	20	10	42	
Aug 20	10	52	33	51	33	19	36	19	15	21	14	19	24	28	20	14	14	38	26	24	6	13	28	72	6	72	
Aug 21	7	19	46	20	16	48	48	24	50	74	49	73	50	60	57	41	18	17	18	13	8	9	10	9	7	74	
Aug 22	10	10	37	16	10	10	8	13	18	16	18	17	26	13	16	15	12	20	9	32	16	11	16	47	8	47	
Aug 23	10	58	6	13	7	8	7	5	9	11	11	14	10	7	6	5	11	7	29	30	51	11	10	33	5	58	
Aug 24	21	20	42	25	8	6	10	18	20	16	18	27	35	24	23	27	25	54	26	31	45	62	51	16	6	62	
Aug 25	66	13	66	77	59	44	19	7	9	22	28	22	28	27	29	30	29	26	6	3	3	4	4	3	3	77	
Aug 26	3	6	4	4	2	4	3	7	7	12	14	26	15	18	12	11	8	6	4	4	3	4	3	27	2	27	
Aug 27	76	19	6	10	17	27	24	10	14	27	50	48	22	44	50	27	14	30	52	42	45	22	21	15	6	76	
Aug 28	71	43	63	63	45	14	9	9	17	26	24	23	27	15	22	36	23	18	13	22	18	32	53	8	8	71	
Aug 29	0	44	47	61	64	65	35	36	27	45	40	20	33	24	24	31	30	22	10	8	5	3	4	4	0	65	
Aug 30	5	4	3	63	66	54	49	11	17	30	34	17	16	12	8	28	16	11	6	14	6	7	13	10	3	66	
Aug 31	10	10	17	31	11	13	5	12	11	10	14	14	28	27	18	43	24	24	34	6	5	4	8	13	4	43	
Diurnal Minimum	0	0	3	4	2	4	3	5	5	8	6	7	7	7	6	5	8	5	4	3	3	3	3	3	3	3	3
Diurnal Maximum	76	75	69	77	66	76	64	46	50	74	50	73	50	60	57	43	53	72	54	46	54	62	62	72	72	72	72

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

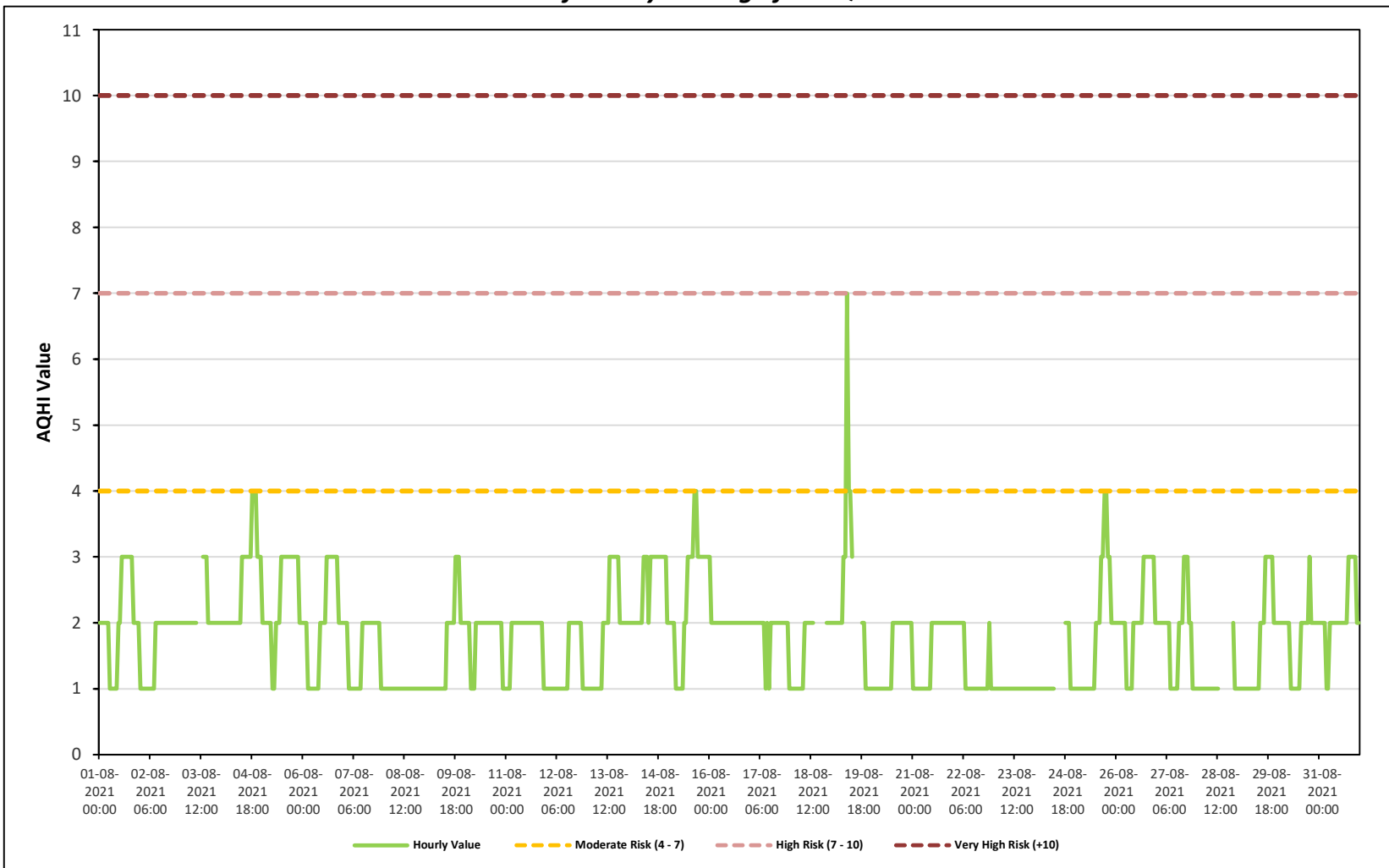
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

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



**TAMARACK STATION**

**Timeseries Chart of Hourly Average for AQHI - Tamarack Site**





**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION**

**Tamarack Site - August 2021**

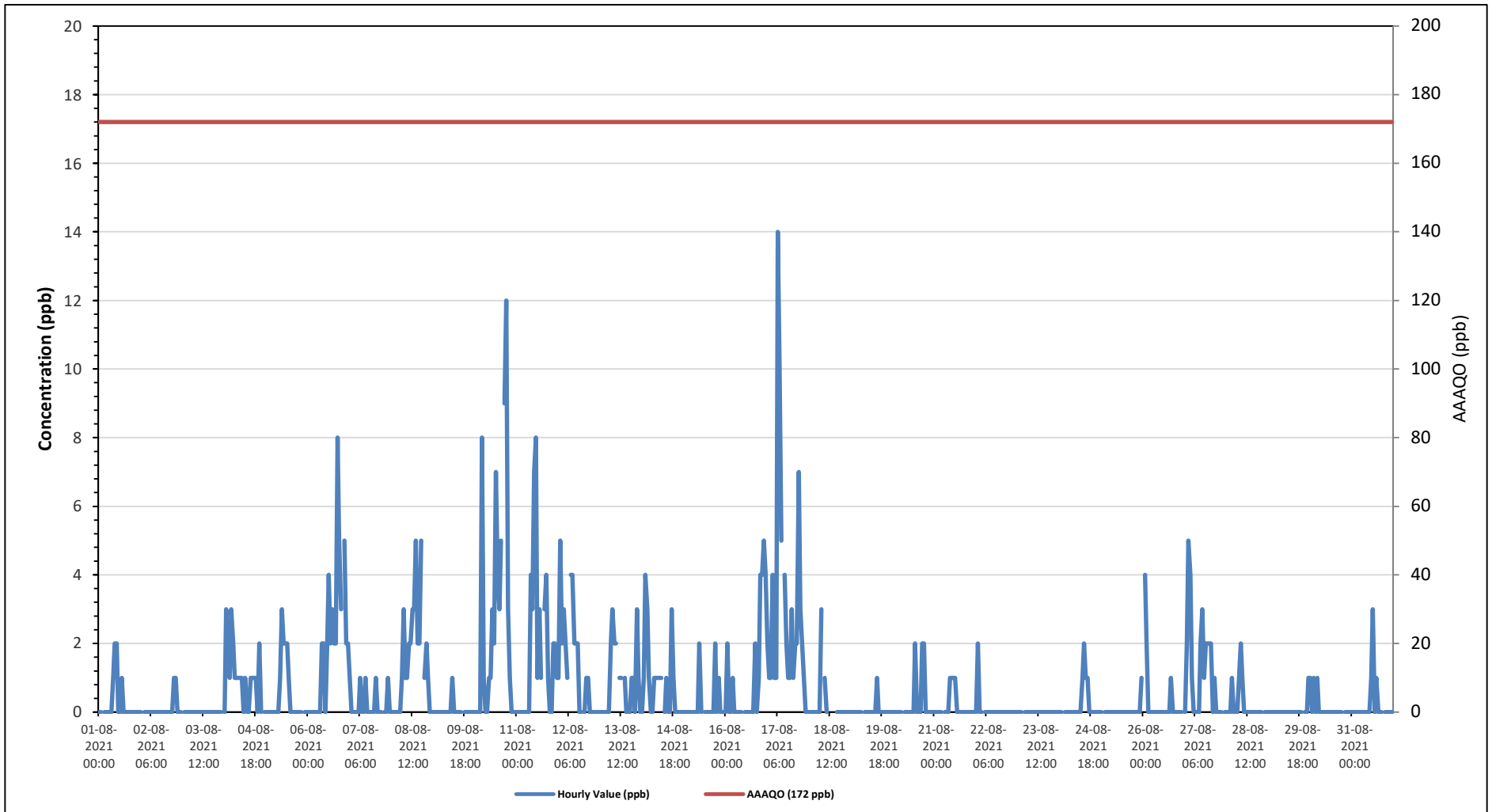
**Summary of Hourly Averages**

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

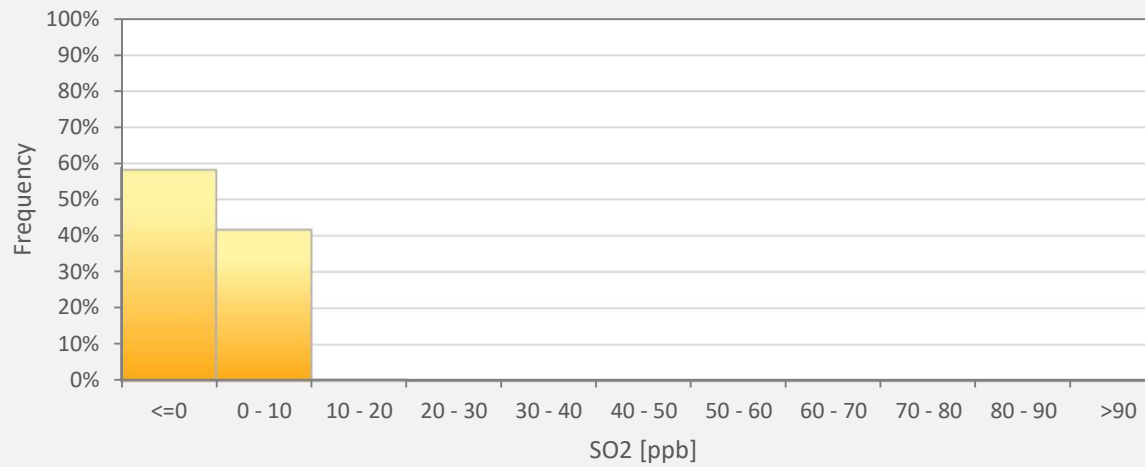
Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																																				
Number of 1-Hour Exceedences: 0					Number of 24-Hour Exceedences: 0					30-Day Exceedence: 0																										
Maximum Hourly Value: 14 ppb on August 17 at hour 6					Hours in Service: 744																															
Maximum Daily Value: 3.0 ppb on August 17					Hours of Data: 704																															
Minimum Hourly Value: 0 ppb on August 1 at hour 0					Hours of Missing Data: 2																															
Minimum Daily Value: 0.0 ppb on August 3					Hours of Calibration: 38																															
Monthly Average: 0.7 ppb					Operational Uptime: 99.7																															
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average										
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23									
Aug 1	0	0	S	0	0	0	0	0	1	2	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3
Aug 2	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0.1		
Aug 3	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	S	0	0	0	0.0		
Aug 4	0	3	2	1	3	2	1	1	1	1	1	0	1	0	0	1	1	1	1	1	0	2	0	S	0	0	0	0	0	0	0	0	3	1.0		
Aug 5	0	0	0	0	0	0	0	0	0	1	3	2	2	2	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	3	0.5		
Aug 6	0	0	0	0	0	0	0	0	2	2	0	2	4	2	3	2	2	8	5	3	S	S	5	2	2	0	0	0	0	0	0	8	1.9			
Aug 7	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	S	0	0	1	0	0	0	0	0	0	1	0	0.2			
Aug 8	0	0	0	0	0	0	1	3	1	1	2	2	3	3	5	2	2	5	S	1	2	1	0	0	0	0	0	0	0	0	5	1.5				
Aug 9	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	0.0				
Aug 10	0	0	0	0	8	1	0	0	1	3	2	7	4	3	5	S	9	12	3	1	0	0	0	0	0	0	0	0	0	0	12	2.6				
Aug 11	0	0	0	0	0	0	0	0	4	3	7	8	1	3	1	S	3	4	1	0	0	2	2	1	0	0	0	0	0	0	8	1.7				
Aug 12	1	5	2	3	2	1	NRM	4	4	2	2	2	0	0	S	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	5	1.4				
Aug 13	0	0	0	0	0	0	2	3	2	2	NRM	1	1	S	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	3	0.8				
Aug 14	0	1	4	3	1	0	0	1	1	1	1	S	0	1	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	4	0.8				
Aug 15	0	0	0	0	0	0	0	0	0	2	0	S	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	2	0.2				
Aug 16	0	2	0	0	1	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	2	0	1	4	4	5	4	0	0	5	1.0					
Aug 17	2	1	1	4	1	1	14	10	5	S	4	2	1	1	3	1	2	2	7	3	2	1	0	0	0	0	0	0	0	14	3.0					
Aug 18	0	0	0	0	0	0	0	3	S	1	0	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.2					
Aug 19	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0				
Aug 20	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	0	0	0	0	0	0	0	2	0.3				
Aug 21	0	0	0	0	0	0	S	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2				
Aug 22	0	2	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	2	0.1				
Aug 23	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			
Aug 24	0	0	S	0	0	0	0	0	0	0	0	0	0	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2				
Aug 25	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	1	0	0.0				
Aug 26	S	4	2	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	S	0	4	0.3				
Aug 27	0	2	5	4	1	0	0	0	0	2	3	1	2	2	2	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	5	1.2				
Aug 28	0	0	0	1	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2					
Aug 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	S	0	0	1	0	1	0.0					
Aug 30	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	0.1					
Aug 31	0	0	0	0	0	0	0	0	0	0	0	1	3	0	1	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	3	0.2				
Diurnal Maximum	2	5	5	4	8	2	14	10	5	3	7	8	7	4	5	3	9	12	3	4	4	5	5	4												
Daiurnal Average	0.2	0.7	0.6	0.5	0.6	0.2	0.7	0.9	0.8	0.9	1.0	0.9	0.9	0.7	0.8	0.6	0.4	1.3	1.1	0.4	0.4	0.6	0.4	0.3												
C	Monthly Calibration						S	Daily Zero-Span Check						Q	Quality Assurance																					
K	Collection Error						N	No Data (Machine Not in Service)						Y	Routine Maintenance						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 - Tamarack Site**



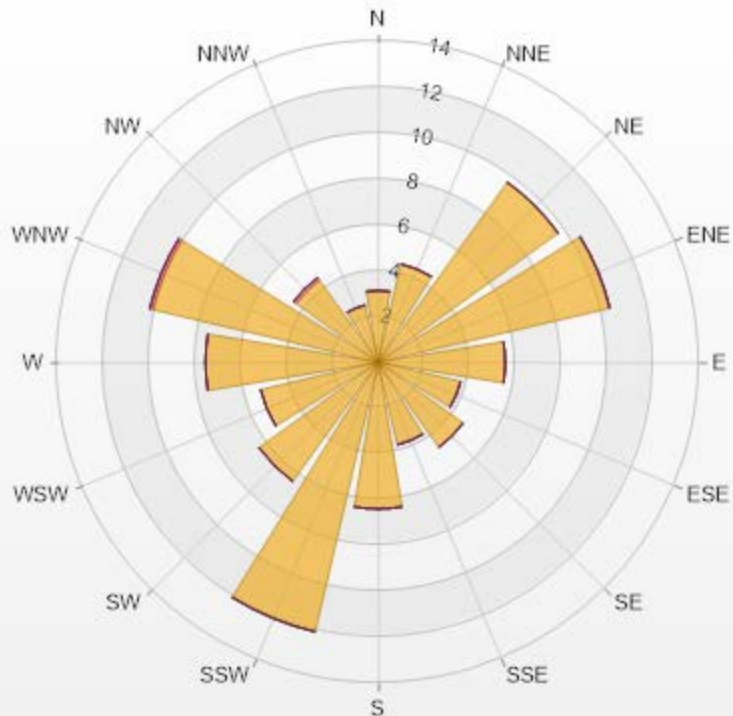
SO2[ppb] Histogram: Tamarack Monthly: 08-2021 1 Hr.



Classes	SO2
<=0	58.10%
0 - 10	41.62%
10 - 20	0.28%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Tamarack Poll.: Tamarack-SO2[ppb] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.62% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	3.13	0	0	0	0	3.13
NNE	4.4	0	0	0	0	4.4
NE	9.66	0	0	0	0	9.66
ENE	10.37	0	0	0	0	10.37
E	5.54	0	0	0	0	5.54
ESE	3.69	0	0	0	0	3.69
SE	4.55	0	0	0	0	4.55
SSE	3.69	0	0	0	0	3.69
S	6.39	0	0	0	0	6.39
SSW	12.07	0	0	0	0	12.07
SW	6.39	0	0	0	0	6.39
WSW	5.26	0	0	0	0	5.26
W	7.53	0	0	0	0	7.53
WNW	10.09	0.14	0	0	0	10.23
NW	4.4	0.14	0	0	0	4.54
NNW	2.56	0	0	0	0	2.56
Summary	100	0.28	0	0	0	100



LICA-202108

% Icon Classes (ppb)

100 0-10

0 10-50

0 50-100

0 100-172

0 >172.0



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - August 2021

Summary of Hourly Averages

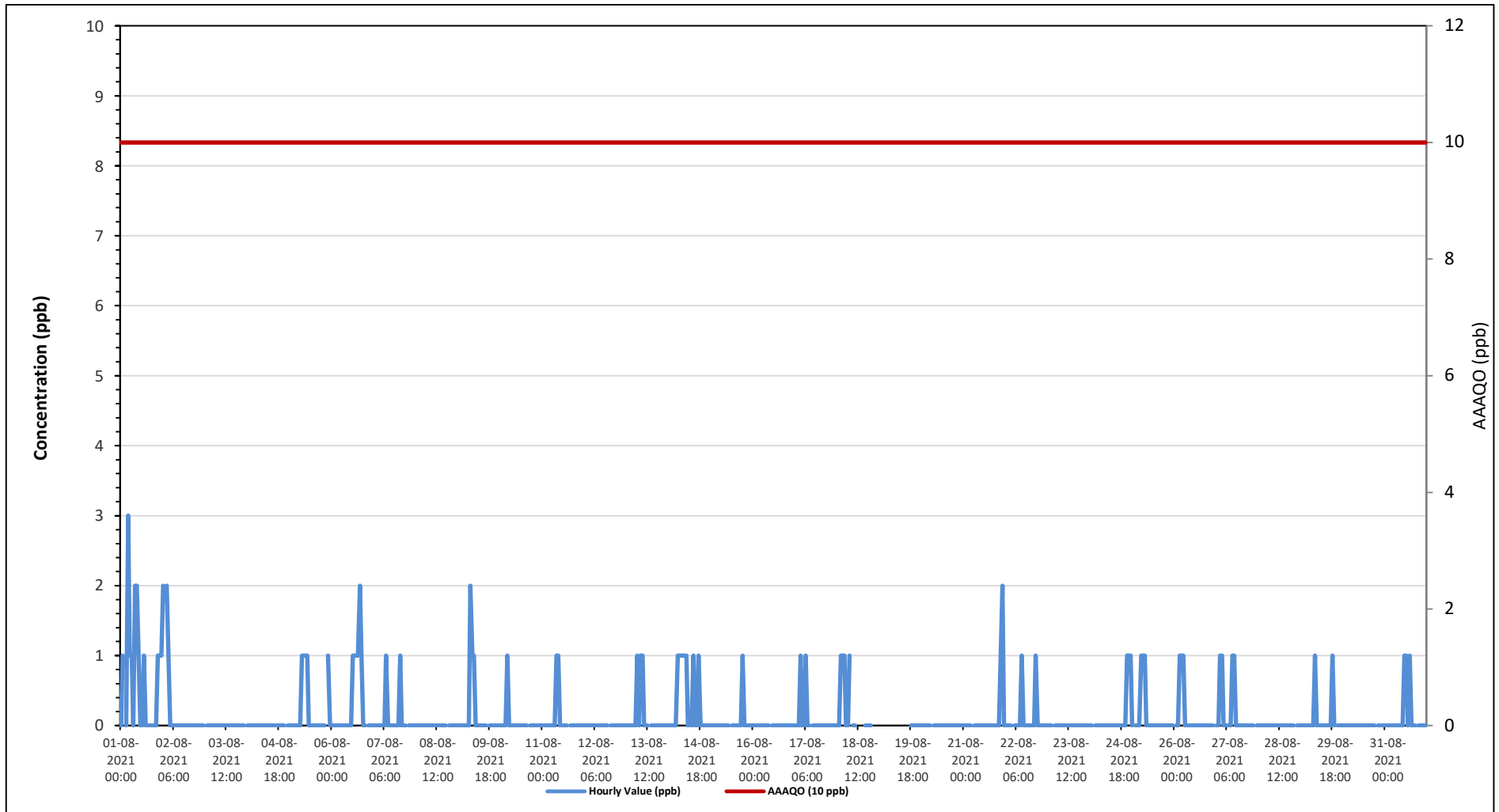
HYDROGEN SULPHIDE (H<sub>2</sub>S) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 10 ppb, 24-Hour 3 ppb																															
Number of 1-Hour Exceedances: 0					Number of 24-Hour Exceedances: 0																										
Maximum Hourly Value: 3 ppb on August 1 at hour 4					Hours in Service: 744																										
Maximum Daily Value: 0.7 ppb on August 1					Hours of Data: 685																										
Minimum Hourly Value: 0 ppb on August 1 at hour 0					Hours of Missing Data: 22																										
Minimum Daily Value: 0.0 ppb on August 3					Hours of Calibration: 37																										
Monthly Average: 0.1 ppb					Operational Uptime: 97.0																										
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23				
Aug 1	0	1	S	0	3	1	1	0	2	2	1	0	0	1	0	0	0	0	0	0	0	1	1	1	0	3	0.7				
Aug 2	2	S	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2				
Aug 3	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.0				
Aug 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0				
Aug 5	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	S	1	0	1	0.2				
Aug 6	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	1	0	0	0	0	S	0	0	0	2	0.3				
Aug 7	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	S	0	0	0	0	1	0.1				
Aug 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				
Aug 9	0	0	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	2	0.2				
Aug 10	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0.0				
Aug 11	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0.1				
Aug 12	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				
Aug 13	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1				
Aug 14	0	0	0	0	0	1	1	1	1	1	1	0	S	0	1	0	0	1	0	0	0	0	0	0	0	1	0.3				
Aug 15	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	0	0	0	0	0	1	0.0				
Aug 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				
Aug 17	0	0	0	1	0	0	1	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1				
Aug 18	0	0	1	1	1	0	0	1	S	0	0	C	C	C	C	C	0	0	0	0	X	X	X	X	0	1	-				
Aug 19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	NRM	NRM	NRM	NRM	0	0	0	0	0	0	0	0	-				
Aug 20	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				
Aug 21	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	2	0.1				
Aug 22	0	0	0	0	S	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0.1				
Aug 23	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				
Aug 24	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0.1				
Aug 25	0	S	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1				
Aug 26	S	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	0.1				
Aug 27	0	0	1	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	0.2				
Aug 28	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				
Aug 29	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	S	0	0	0	0	1	0.1				
Aug 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0				
Aug 31	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	S	0	0	0	0	0	0	0	1	0.1			
Diurnal Maximum	2	1	2	1	3	1	1	2	2	2	1	1	1	1	1	2	1	1	1	0	0	1	2	1							
Diurnal Average	0.1	0.0	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.3	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	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)																						

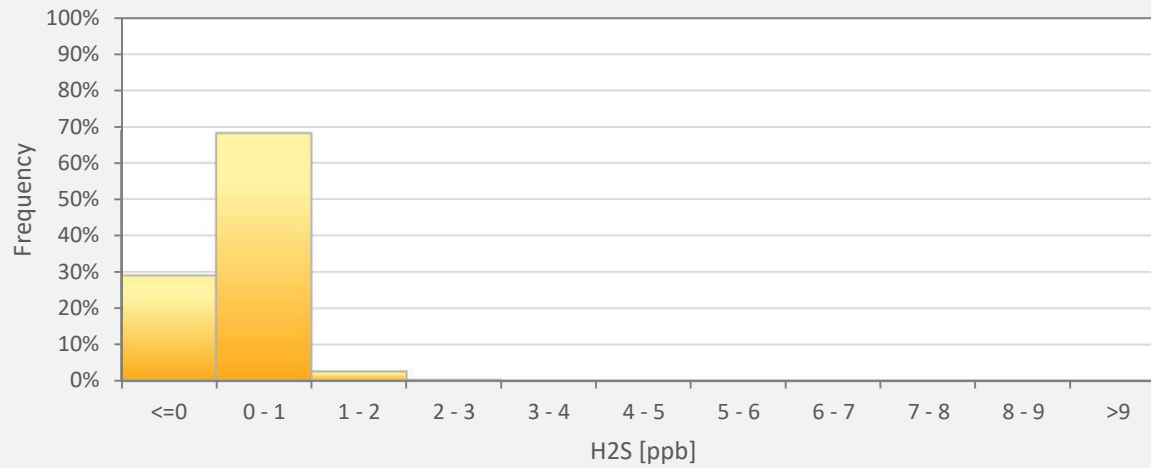
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

**Timeseries Chart of Hourly Average for H2S - Tamarack Site**



H2S[ppb] Histogram: Tamarack Monthly: 08-2021 1 Hr.

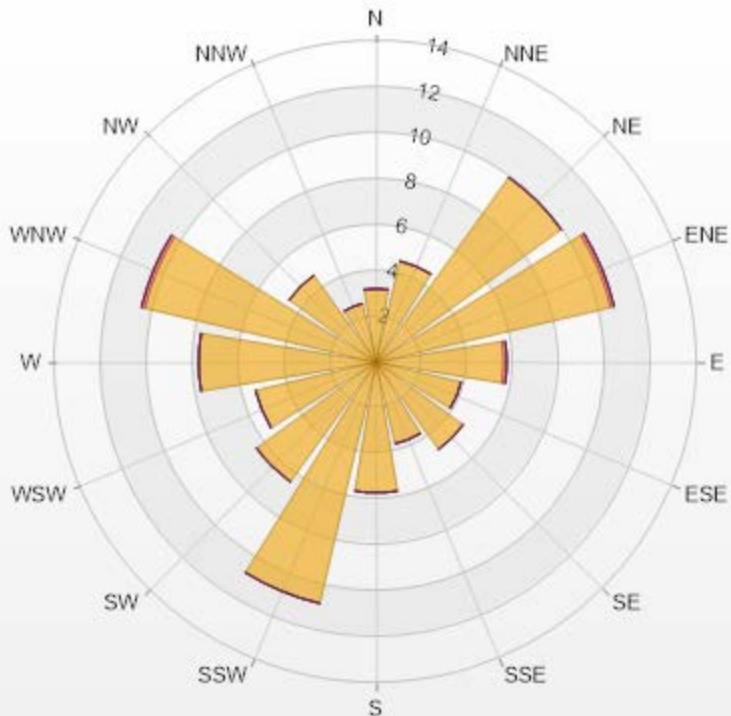


Classes	H2S
<=0	28.91%
0 - 1	68.18%
1 - 2	2.63%
2 - 3	0.29%
3 - 4	0.00%
4 - 5	0.00%
5 - 6	0.00%
6 - 7	0.00%
7 - 8	0.00%
8 - 9	0.00%
>9	0.00%

Wind: Tamarack Poll.: Tamarack-H2S[ppb] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 92.07% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	3.21	0	0	0	0	3.21
NNE	4.53	0	0	0	0	4.53
NE	9.93	0	0	0	0	9.93
ENE	10.51	0.15	0	0	0	10.66
E	5.55	0.15	0	0	0	5.7
ESE	3.8	0	0	0	0	3.8
SE	4.67	0	0	0	0	4.67
SSE	3.65	0	0	0	0	3.65
S	5.69	0	0	0	0	5.69
SSW	10.8	0	0	0	0	10.8
SW	6.42	0	0	0	0	6.42
WSW	5.4	0	0	0	0	5.4
W	7.74	0	0	0	0	7.74
WNW	10.36	0.15	0	0	0	10.51
NW	4.67	0	0	0	0	4.67
NNW	2.63	0	0	0	0	2.63
Summary	100	0.45	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 - August 2021  
Summary of Hourly Averages

### OXIDES OF NITROGEN (NOx) in ppb

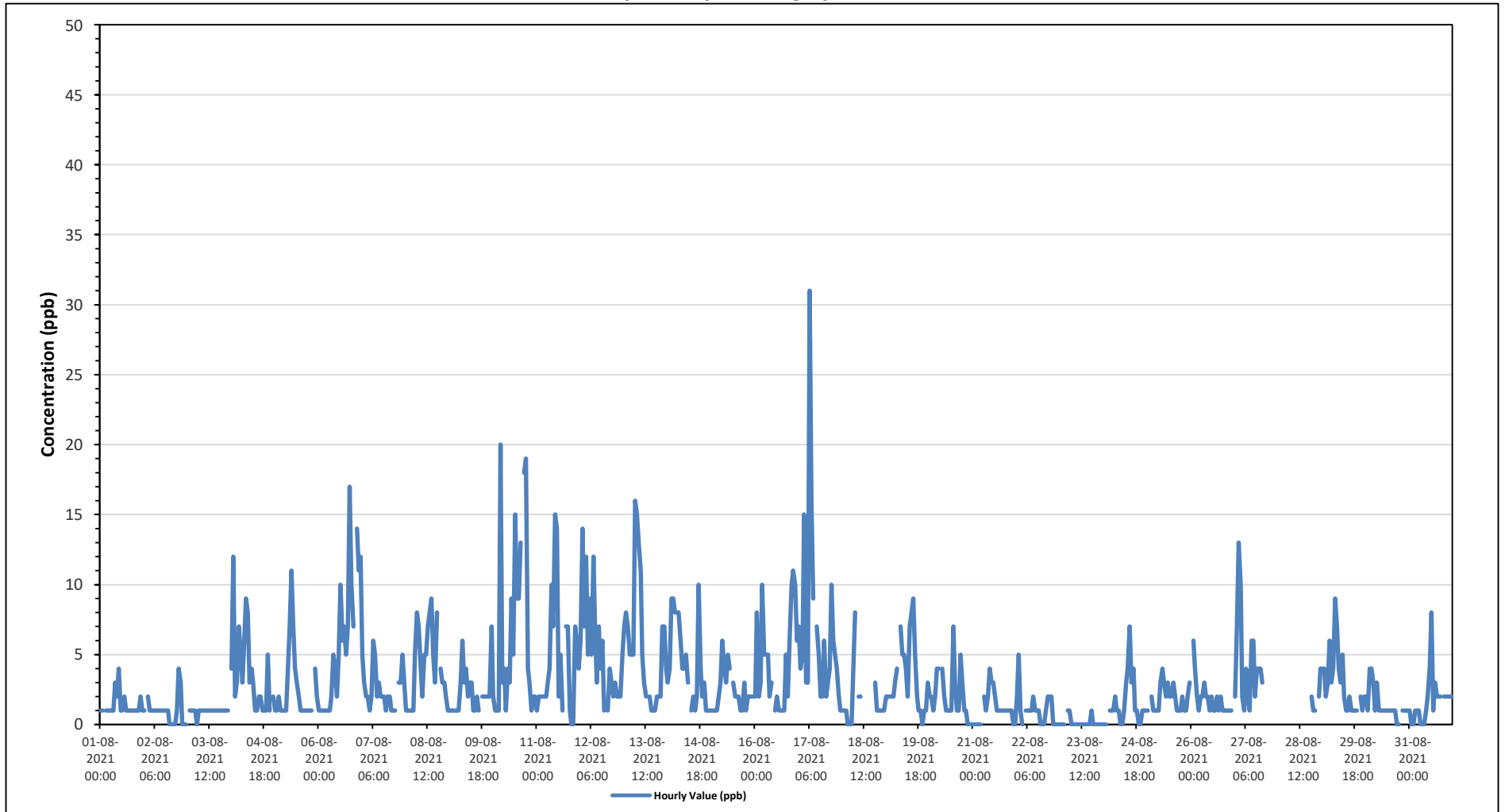
Maximum Hourly Value:	31 ppb on August 17 at hour 6	Hours in Service:	744
Maximum Daily Value:	6.6 ppb on August 17	Hours of Data:	679
Minimum Hourly Value:	0 ppb on August 2 at hour 14	Hours of Missing Data:	26
Minimum Daily Value:	0.1 ppb on August 23	Hours of Calibration:	39
Monthly Average:	3.0 ppb	Operational Uptime:	96.5

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		
Aug 1	1	1	S	1	1	1	1	1	3	2	4	1	1	2	1	1	1	1	1	1	1	1	2	1	1	4	1	1.3	
Aug 2	1	S	2	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	4	3	0	0	0	0	0	1.0		
Aug 3	S	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1.0		
Aug 4	4	12	2	3	7	5	3	6	9	8	3	4	3	1	1	2	2	1	1	1	5	1	S	2	1	12	3.7		
Aug 5	1	1	2	1	1	1	1	4	7	11	7	4	3	2	1	1	1	1	1	1	1	S	4	2	1	11	2.6		
Aug 6	1	1	1	1	1	1	1	2	5	4	2	5	10	6	7	5	7	17	10	7	S	14	11	12	1	17	5.7		
Aug 7	5	3	2	2	1	2	6	5	2	3	2	2	2	1	2	2	1	1	1	S	3	3	5	3	1	6	2.6		
Aug 8	1	1	1	1	1	5	8	7	4	2	5	5	7	8	9	5	3	8	S	4	3	3	2	1	1	9	4.1		
Aug 9	1	1	1	1	1	1	3	6	3	4	2	3	3	1	1	2	1	S	2	2	2	2	2	7	1	7	2.3		
Aug 10	2	1	1	1	20	3	4	1	4	3	9	5	15	9	9	13	S	18	19	4	3	1	2	2	1	20	6.5		
Aug 11	1	2	2	2	2	2	3	4	10	7	15	14	2	5	1	S	7	7	1	0	0	7	6	4	0	15	4.5		
Aug 12	6	14	7	12	5	9	5	12	7	3	7	4	6	1	S	1	4	3	2	3	2	2	2	5	1	14	5.3		
Aug 13	7	8	7	5	5	16	15	13	11	5	3	2	S	2	1	1	1	2	2	2	2	7	7	4	1	16	5.7		
Aug 14	3	4	9	9	8	8	8	6	4	4	5	3	S	1	2	1	2	10	4	2	3	1	1	1	1	10	4.3		
Aug 15	1	1	1	1	2	3	6	4	3	5	4	S	3	2	2	2	1	1	3	1	2	2	2	2	1	6	2.3		
Aug 16	2	8	2	3	10	5	5	2	3	S	1	2	1	1	1	1	5	2	1	5	2	6	10	11	10	6	1	11	4.4
Aug 17	7	4	5	15	3	3	31	16	9	S	7	5	2	2	6	2	3	4	10	6	5	4	2	1	1	31	6.6		
Aug 18	1	1	1	0	0	0	4	8	S	2	2	C	C	C	C	C	C	C	C	3	1	1	1	1	1	0	8	-	
Aug 19	2	2	2	2	2	3	4	S	7	5	5	4	2	7	8	9	5	2	1	1	0	1	1	3	0	9	3.4		
Aug 20	2	2	1	2	4	4	S	4	2	1	1	1	7	3	1	1	5	3	1	1	1	0	0	0	0	7	2.0		
Aug 21	0	0	0	0	0	S	2	1	2	4	3	3	2	1	1	1	1	1	1	1	1	1	0	0	0	4	1.1		
Aug 22	2	5	1	0	S	1	1	1	1	2	1	1	1	0	0	0	1	2	2	2	0	0	0	0	0	5	1.0		
Aug 23	0	0	0	S	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0.1		
Aug 24	0	0	S	1	1	1	2	1	1	0	0	1	3	4	7	3	4	1	1	0	0	1	1	1	0	7	1.5		
Aug 25	1	S	2	1	1	1	1	3	4	3	2	3	2	2	3	2	1	1	1	2	1	1	2	3	1	4	1.9		
Aug 26	S	6	4	2	1	2	2	3	2	2	1	2	1	1	2	1	2	1	1	1	1	1	1	S	1	6	1.8		
Aug 27	2	7	13	10	2	1	4	2	1	6	6	2	4	4	4	3	X	X	X	X	X	X	X	X	X	1	13	-	
Aug 28	X	X	X	X	X	X	X	X	X	X	X	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	2	1	1	S	2	4	1	4	-	
Aug 29	4	4	2	3	6	3	4	9	7	4	3	5	2	1	1	2	1	1	1	1	1	S	2	1	2	1	9	3.0	
Aug 30	2	1	4	4	3	1	3	1	1	1	1	1	1	1	1	1	1	0	0	S	1	1	1	1	0	4	1.4		
Aug 31	1	0	0	1	1	1	0	0	0	1	2	4	8	1	3	2	2	2	S	2	2	2	2	2	0	8	1.7		
Diurnal Maximum	7	14	13	15	20	9	31	16	13	11	15	14	15	9	9	13	7	18	19	7	10	14	11	12					
Diurnal Average	2.2	3.3	2.7	3.0	3.2	2.6	4.5	4.4	4.0	3.6	3.7	3.1	3.2	2.6	2.8	2.3	2.0	3.6	2.8	2.1	2.0	2.5	2.4	2.5					

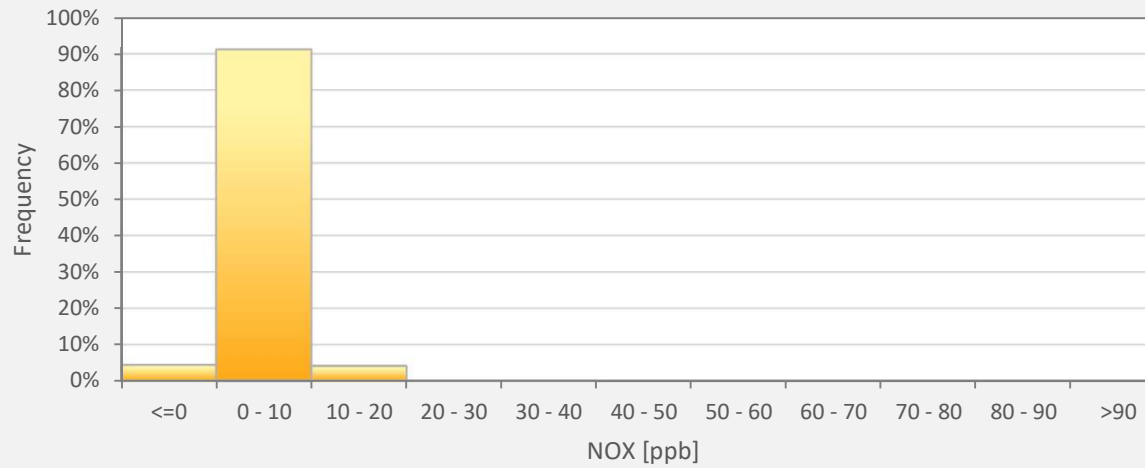
<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>N</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> InValid Data (Equipment Malfunction/Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span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

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

**Timeseries Chart of Hourly Average for NOx - Tamarack Site**



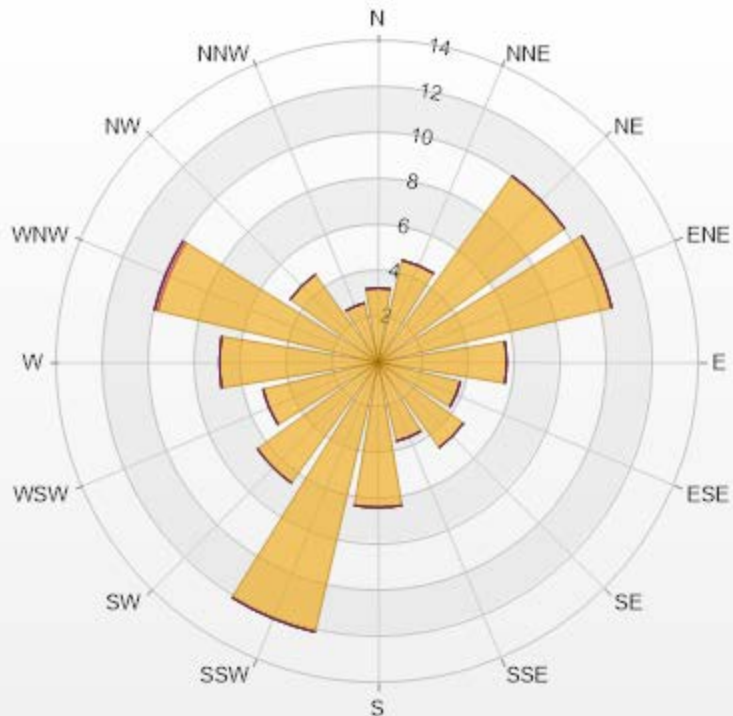
NOX[ppb] Histogram: Tamarack Monthly: 08-2021 1 Hr.



Classes	NOX
<=0	4.42%
0 - 10	91.16%
10 - 20	4.12%
20 - 30	0.15%
30 - 40	0.15%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Tamarack Poll.: Tamarack-NOX[ppb] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 91.26% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	3.24	0	0	0	0	3.24
NNE	4.57	0	0	0	0	4.57
NE	10.01	0	0	0	0	10.01
ENE	10.46	0	0	0	0	10.46
E	5.6	0	0	0	0	5.6
ESE	3.68	0	0	0	0	3.68
SE	4.57	0	0	0	0	4.57
SSE	3.53	0	0	0	0	3.53
S	6.33	0	0	0	0	6.33
SSW	12.08	0	0	0	0	12.08
SW	6.48	0	0	0	0	6.48
WSW	5.15	0	0	0	0	5.15
W	6.92	0	0	0	0	6.92
WNW	9.87	0.15	0	0	0	10.02
NW	4.71	0	0	0	0	4.71
NNW	2.65	0	0	0	0	2.65
Summary	100	0.15	0	0	0	100



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

Tamarack Site - August 2021

Summary of Hourly Averages

NITRIC OXIDE (NO) in ppb

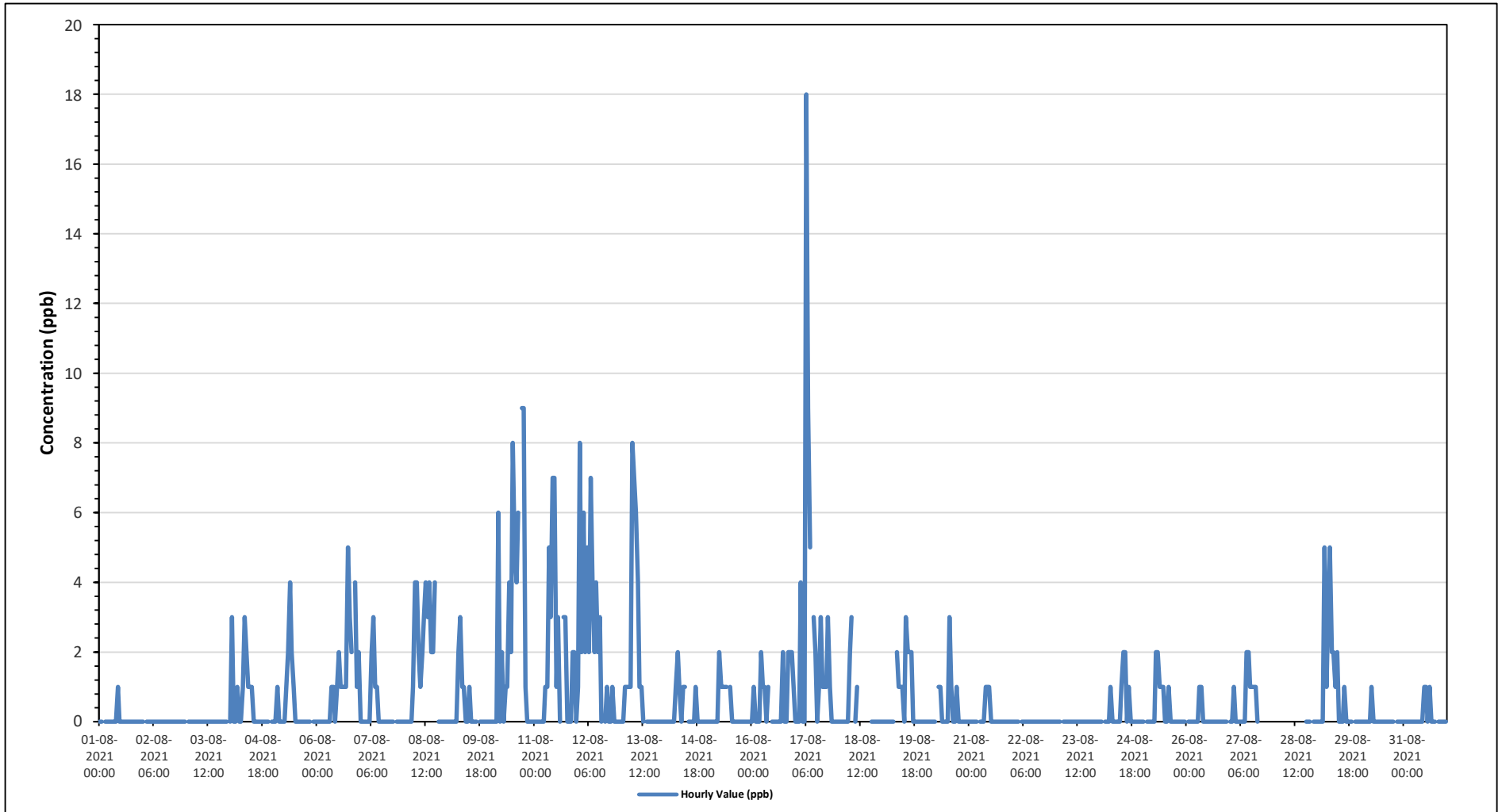
Summary statistics table including Maximum Hourly Value (18 ppb on August 17 at hour 6), Maximum Daily Value (2.5 ppb on August 10), Minimum Hourly Value (0 ppb on August 1 at hour 0), Minimum Daily Value (0.0 ppb on August 2), Monthly Average (0.7 ppb), Hours in Service (744), Hours of Data (679), Hours of Missing Data (26), Hours of Calibration (39), and Operational Uptime (96.5).

Main data table with columns for Day, Hourly Period Starting at (MST) from 0 to 23, and Daily Minimum, Maximum, and Average values. Rows represent days from Aug 1 to Aug 31, with various data points and status indicators (S, N, X, C, Q, Y, P) highlighted in colored cells.

Legend table defining status codes: 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)), and P (Power Failure).

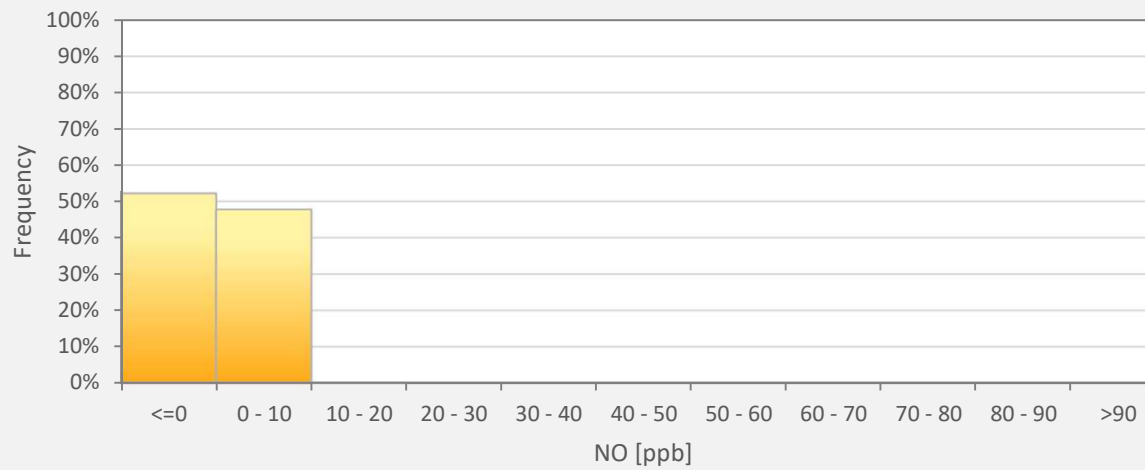
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met. Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

*Timeseries Chart of Hourly Average for NO - Tamarack Site*





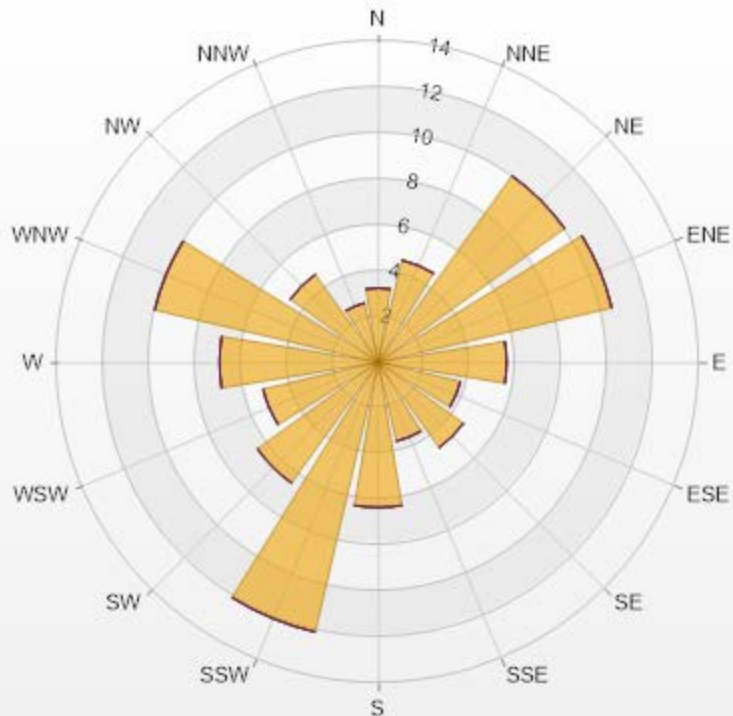
NO[ppb] Histogram: Tamarack Monthly: 08-2021 1 Hr.



Classes	NO
<=0	52.14%
0 - 10	47.72%
10 - 20	0.15%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Tamarack Poll.: Tamarack-NO[ppb] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 91.26% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	3.24	0	0	0	0	3.24
NNE	4.57	0	0	0	0	4.57
NE	10.01	0	0	0	0	10.01
ENE	10.46	0	0	0	0	10.46
E	5.6	0	0	0	0	5.6
ESE	3.68	0	0	0	0	3.68
SE	4.57	0	0	0	0	4.57
SSE	3.53	0	0	0	0	3.53
S	6.33	0	0	0	0	6.33
SSW	12.08	0	0	0	0	12.08
SW	6.48	0	0	0	0	6.48
WSW	5.15	0	0	0	0	5.15
W	6.92	0	0	0	0	6.92
WNW	10.01	0	0	0	0	10.01
NW	4.71	0	0	0	0	4.71
NNW	2.65	0	0	0	0	2.65
Summary	100	0	0	0	0	100




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% Icon Classes (ppb)

100  0-30

0  30-50

0  50-76

0  76-159

0  >159.0



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - August 2021

Summary of Hourly Averages

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

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

Number of 1-Hour Exceedences: 0

Maximum Hourly Value: 14 ppb on August 10 at hour 4

Hours in Service: 744

Maximum Daily Value: 4.6 ppb on August 6

Hours of Data: 679

Minimum Hourly Value: 0 ppb on August 2 at hour 14

Hours of Missing Data: 26

Minimum Daily Value: 0.1 ppb on August 23

Hours of Calibration: 39

Monthly Average: 2.3 ppb

Operational Uptime: 96.5

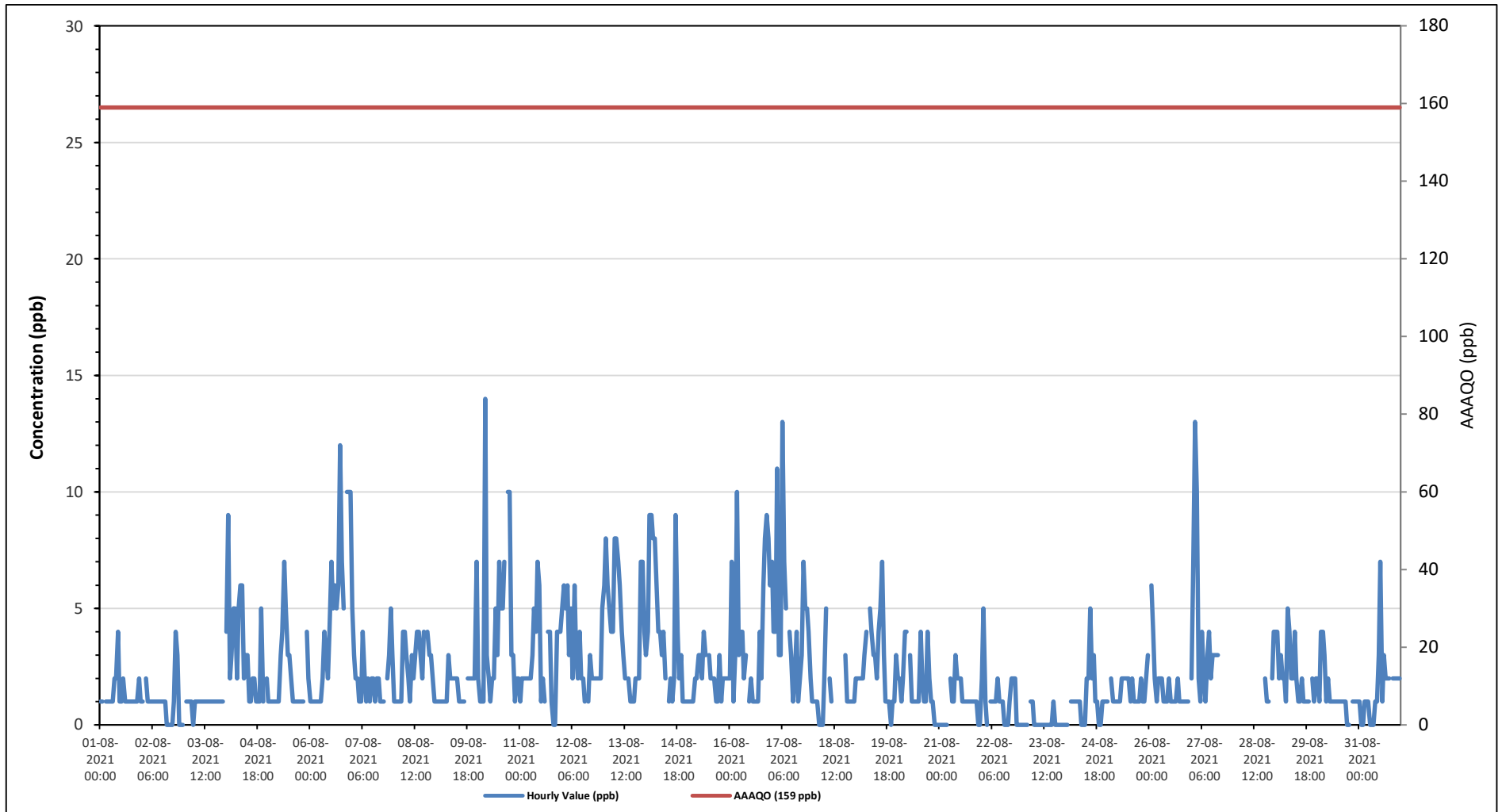
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Aug 1	1	1	S	1	1	1	1	1	2	2	4	1	1	2	1	1	1	1	1	1	1	2	1	1	4	1.3	
Aug 2	1	S	2	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	4	3	0	0	0	4	1.0	
Aug 3	S	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1.0	
Aug 4	4	9	2	3	5	5	2	5	6	6	2	3	3	1	1	2	2	1	1	1	5	1	S	2	9	3.1	
Aug 5	1	1	1	1	1	1	1	3	4	7	5	3	3	2	1	1	1	1	1	1	1	S	4	2	7	2.0	
Aug 6	1	1	1	1	1	1	1	2	4	3	2	4	7	5	6	5	6	12	7	5	S	10	10	10	12	4.6	
Aug 7	5	3	2	2	1	1	4	2	1	2	1	2	2	1	2	2	1	1	1	S	2	3	5	3	5	2.1	
Aug 8	1	1	1	1	1	4	4	3	2	1	3	2	3	4	4	3	2	4	S	4	3	3	2	1	4	2.5	
Aug 9	1	1	1	1	1	1	1	3	2	2	2	2	2	1	1	1	1	S	2	2	2	2	2	7	1	1.8	
Aug 10	2	1	1	1	14	3	2	1	2	2	5	3	7	5	5	7	S	10	10	3	3	1	2	2	14	4.0	
Aug 11	1	2	2	2	2	2	2	3	5	4	7	6	1	2	1	S	4	4	1	0	0	4	4	4	7	2.7	
Aug 12	5	6	5	6	3	5	2	6	3	2	4	2	2	1	S	1	3	2	2	2	2	2	2	5	6	3.2	
Aug 13	6	8	6	5	4	4	8	8	7	6	4	3	2	S	2	1	1	1	2	1	2	2	7	7	4	4.3	
Aug 14	3	4	9	9	8	8	6	4	4	3	4	2	S	1	2	1	2	9	4	2	3	1	1	1	9	4.0	
Aug 15	1	1	1	1	2	2	3	3	2	4	3	S	3	2	2	2	1	1	3	1	2	2	2	2	4	2.0	
Aug 16	2	7	1	3	10	3	4	4	2	3	S	1	2	1	1	1	1	4	2	6	8	9	8	6	10	3.9	
Aug 17	7	4	4	11	3	3	13	7	5	S	4	3	1	2	4	1	2	3	7	5	5	4	2	1	13	4.4	
Aug 18	1	1	1	0	0	0	2	5	S	2	1	C	C	C	C	C	C	C	3	1	1	1	1	1	0	5	-
Aug 19	2	2	2	2	2	3	4	S	5	4	3	3	2	4	5	7	3	1	1	1	0	1	1	3	7	2.7	
Aug 20	2	2	1	2	4	4	S	3	1	1	1	1	1	4	2	1	1	4	2	1	1	0	0	0	4	1.7	
Aug 21	0	0	0	0	0	S	2	1	1	3	2	2	2	1	1	1	1	1	1	1	1	1	0	0	3	1.0	
Aug 22	2	5	1	0	S	1	1	1	1	2	1	1	1	0	0	0	1	2	2	2	0	0	0	0	5	1.0	
Aug 23	0	0	0	S	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0.1	
Aug 24	0	0	S	1	1	1	1	1	1	1	0	0	2	2	5	2	3	1	1	0	0	1	1	1	5	1.1	
Aug 25	1	S	2	1	1	1	1	1	2	2	2	2	2	1	2	1	1	1	1	2	1	1	2	3	3	1.5	
Aug 26	S	6	4	2	1	2	2	2	1	1	1	2	1	1	1	1	2	1	1	1	1	1	1	S	6	1.6	
Aug 27	2	7	13	10	2	1	4	2	1	3	4	2	3	3	3	3	X	X	X	X	X	X	X	X	13	-	
Aug 28	X	X	X	X	X	X	X	X	X	X	X	NRM	NRM	NRM	NRM	NRM	NRM	NRM	2	1	1	S	2	4	1	-	
Aug 29	4	4	2	3	2	2	1	5	4	2	2	4	2	1	1	2	1	1	1	1	1	S	2	1	5	2.2	
Aug 30	2	1	4	4	3	1	2	1	1	1	1	1	1	1	1	1	0	0	S	1	1	1	1	1	4	1.3	
Aug 31	1	0	0	1	1	1	0	0	0	1	1	3	7	1	3	2	2	2	S	2	2	2	2	2	7	1.6	
Diurnal Maximum	7	9	13	11	14	8	13	8	7	7	7	6	7	5	6	7	6	12	10	6	8	10	10	10	10		
Daiurnal Average	2.1	2.8	2.5	2.6	2.7	2.2	2.6	2.7	2.4	2.4	2.4	2.1	2.3	1.8	2.1	1.8	1.7	2.6	2.2	1.9	1.9	2.2	2.3	2.4			

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

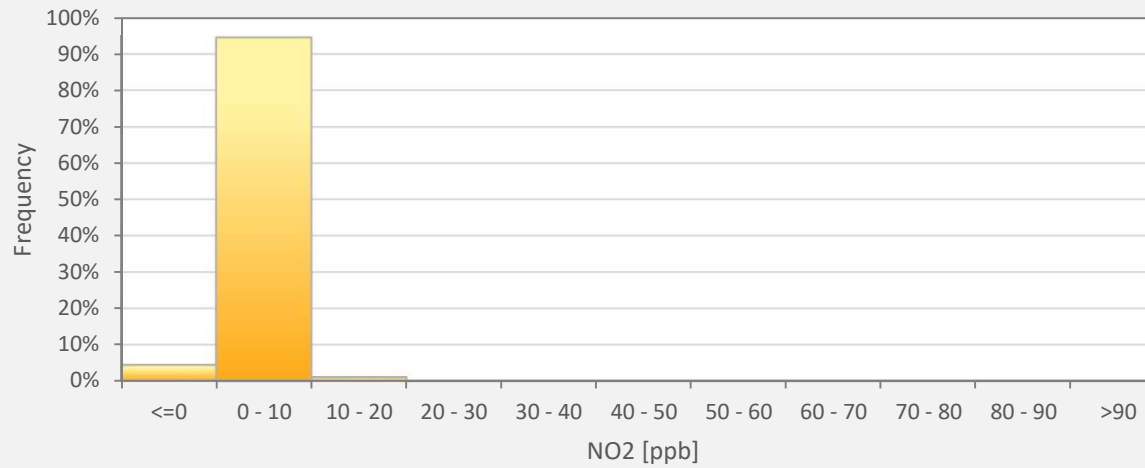
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

**Timeseries Chart of Hourly Average for NO2 - Tamarack Site**



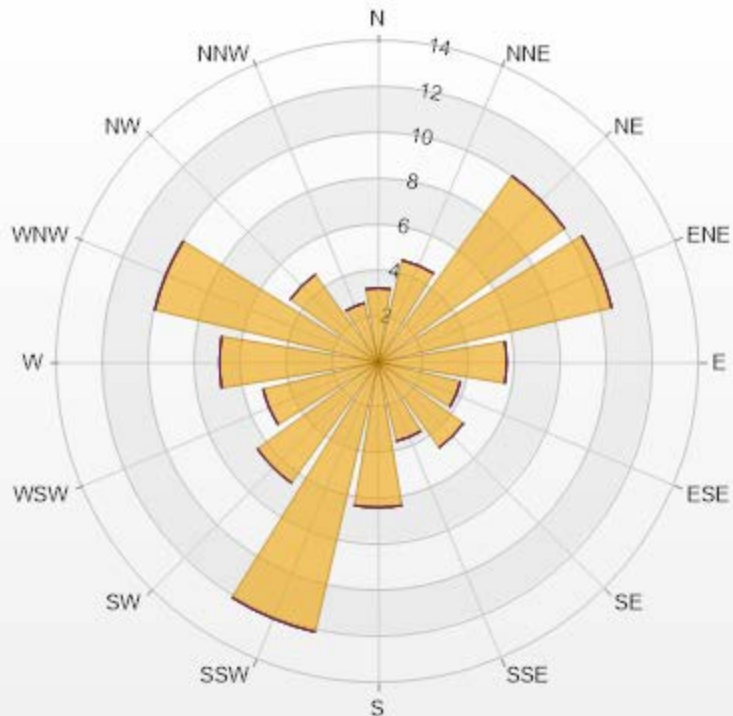
NO2[ppb] Histogram: Tamarack Monthly: 08-2021 1 Hr.



Classes	NO2
<=0	4.42%
0 - 10	94.55%
10 - 20	1.03%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Tamarack Poll.: Tamarack-NO2[ppb] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 91.26% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	3.24	0	0	0	0	3.24
NNE	4.57	0	0	0	0	4.57
NE	10.01	0	0	0	0	10.01
ENE	10.46	0	0	0	0	10.46
E	5.6	0	0	0	0	5.6
ESE	3.68	0	0	0	0	3.68
SE	4.57	0	0	0	0	4.57
SSE	3.53	0	0	0	0	3.53
S	6.33	0	0	0	0	6.33
SSW	12.08	0	0	0	0	12.08
SW	6.48	0	0	0	0	6.48
WSW	5.15	0	0	0	0	5.15
W	6.92	0	0	0	0	6.92
WNW	10.01	0	0	0	0	10.01
NW	4.71	0	0	0	0	4.71
NNW	2.65	0	0	0	0	2.65
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100

0-30

0

30-50

0

50-76

0

76-159

0

>159.0





### LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

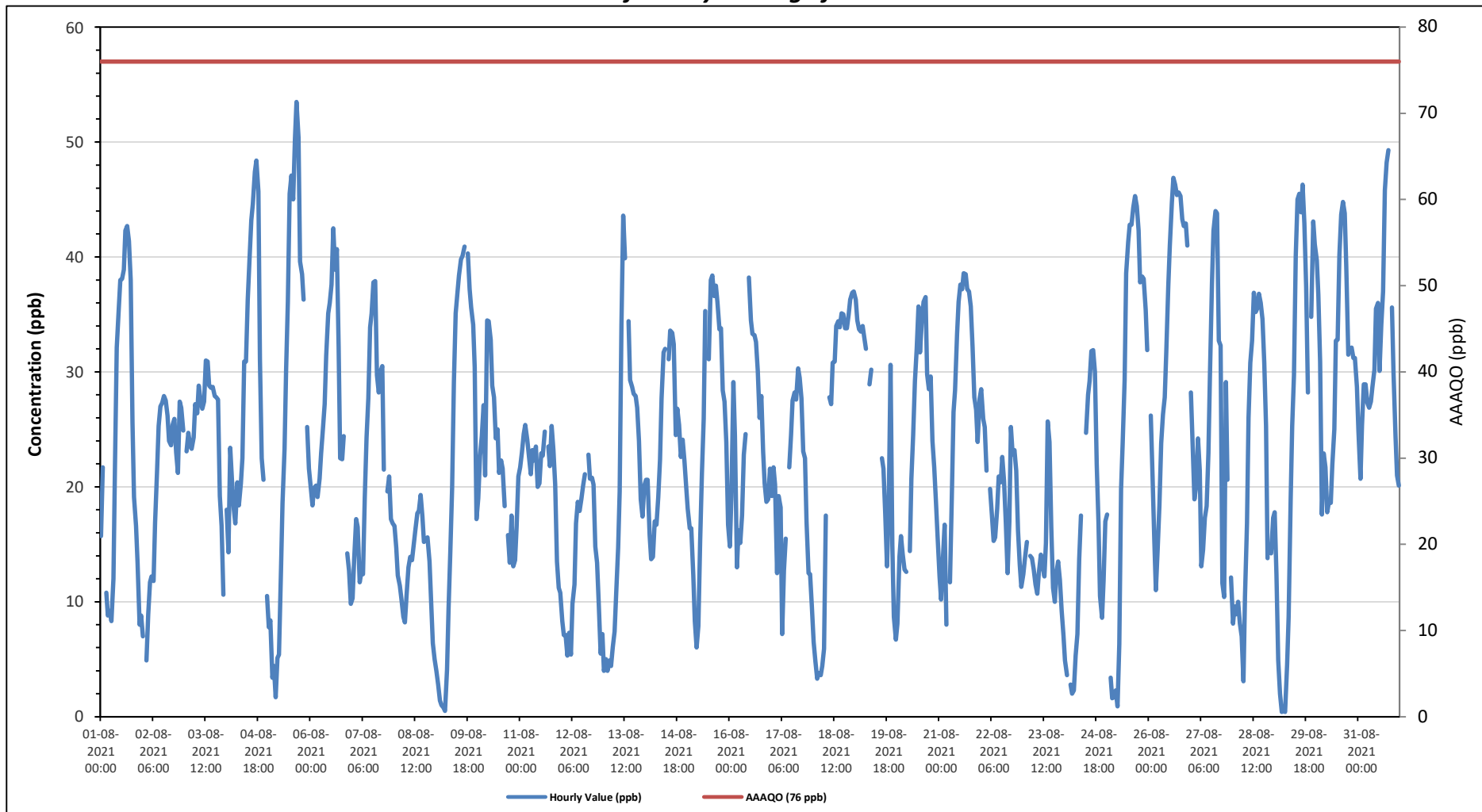
Tamarack Site - August 2021

Summary of Hourly Averages

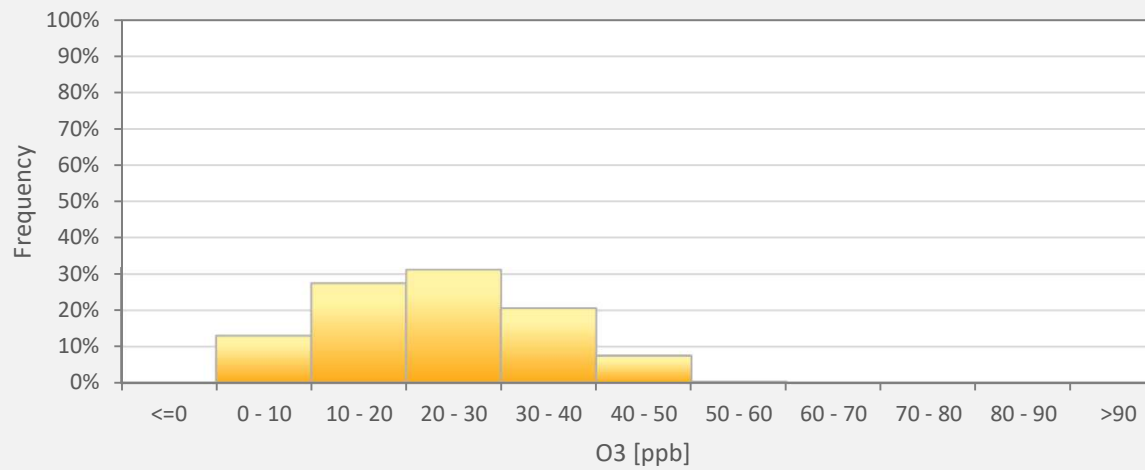
OZONE (O<sub>3</sub>) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb																													
Number of 1-Hour Exceedences: 0																													
Maximum Hourly Value: 53.5 ppb on August 5 at hour 16													Hours in Service: 744																
Maximum Daily Value: 33.6 ppb on August 26													Hours of Data: 704																
Minimum Hourly Value: 0.4 ppb on August 29 at hour 4													Hours of Missing Data: 2																
Minimum Daily Value: 13.2 ppb on August 8													Hours of Calibration: 38																
Monthly Average: 23.2 ppb													Operational Uptime: 99.7																
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23		
Aug 1	15.7	21.7	S	10.8	8.8	9.2	8.3	12	21.8	32.1	35.1	38	38.1	38.9	42.3	42.7	41.4	38	25.6	19.1	16.6	13.4	8	8.8	8.0	42.7	23.8		
Aug 2	7	S	4.9	8.9	11.7	12.2	11.8	16.9	21.5	25.3	27	27.3	27.9	27.5	26.2	24	23.6	25.4	25.9	23	21.2	27.4	26.9	24.9	4.9	27.9	20.8		
Aug 3	S	23.1	24.7	23.6	23.3	24.3	27.2	26.4	28.8	27.5	26.8	27.4	31	30.9	28.8	28.6	28.7	27.9	27.8	27.6	19.2	16.6	10.6	S	10.6	31.0	25.5		
Aug 4	18	14.3	23.4	20.5	18.1	16.8	20.4	18.4	20.3	22.5	30.9	30.9	36.3	39.8	43.2	44.6	47.4	48.4	45.7	31.1	22.5	20.6	S	10.5	10.5	48.4	28.0		
Aug 5	7.8	8.4	3.4	4.4	1.7	5.1	5.4	12.8	18.6	23.3	30.1	36.1	45.5	47.1	45	50.3	53.5	50.4	39.6	38.5	36.3	S	25.2	21.6	1.7	53.5	26.5		
Aug 6	20	18.4	19.9	20.1	19.1	20.7	22.9	25	27.2	31.4	35.1	36	37.6	42.5	38.9	40.7	32.2	22.5	22.4	34.4	S	14.2	12.7	9.8	9.8	42.5	25.8		
Aug 7	10.3	13.6	17.2	16.5	11.7	12.5	12.4	19.1	24.3	27.7	33.9	35.1	37.8	37.9	29.7	28.2	30	30.5	21.5	S	19.6	20.9	17.2	16.8	10.3	37.9	22.8		
Aug 8	16.6	14.7	12.3	11.4	10.3	8.7	8.2	10.7	13	13.9	13.6	15	16.2	17.7	17.9	19.3	17.4	15.2	S	15.6	13.5	10.2	6.4	5	5.0	19.3	13.2		
Aug 9	4	2.8	1.4	1	0.8	0.5	4.1	9.4	14.4	19.9	29.1	35.1	36.9	38.4	39.8	40.1	40.9	S	40.3	37.2	35.6	34.1	30.4	17.2	0.5	40.9	22.3		
Aug 10	19	22.7	24.4	27.1	21	34.5	34.4	32.8	28.8	27.8	24.2	25	21.2	22.3	21.6	18.3	S	15.8	13.4	17.5	13.1	13.6	16.5	20.9	13.1	34.5	22.4		
Aug 11	21.7	23	24.6	25.4	24.1	22.8	21.1	23.2	22.3	23.5	20	20.3	22.9	22.7	24.8	S	23.5	21.8	25.3	23.2	20.2	13.5	11.2	10.8	10.8	25.4	21.4		
Aug 12	8.3	7.1	7.1	5.3	7.3	5.4	9.8	11.5	16.8	18.7	17.9	18.9	20.1	21.1	S	22.8	20.7	20.8	20.2	14.8	13.4	9.6	5.5	7.2	5.3	22.8	13.5		
Aug 13	4	5	4	4.9	4.4	6.1	7.4	11.1	14.7	19.6	34.1	43.6	39.9	S	34.4	29.3	28.7	28.1	27.9	26.9	24	18.9	17.4	20.1	4.0	43.6	19.8		
Aug 14	20.6	20.6	15.8	13.7	13.9	17	16.7	19.1	22.4	27.7	31.7	32	S	31.1	33.6	33.4	32.4	24.5	26.8	25.4	22.6	24.1	22.3	20	13.7	33.6	23.8		
Aug 15	18.1	16.4	16.4	12.3	8.3	6	7.9	15.3	21.2	25.9	35.3	S	31.1	38	38.4	36.6	37.5	36.1	33.7	33.8	28.4	27.4	23.9	16.7	6.0	38.4	24.6		
Aug 16	14.8	19.1	29.1	24.4	13	16.2	15.1	17.5	22.8	24.6	S	38.2	34.5	33.3	33.2	32.6	30.1	26	27.9	23.1	20.3	18.7	18.9	21.6	13.0	38.2	24.1		
Aug 17	19.2	21.7	20.2	12.5	19.2	18.2	7.2	12.7	15.5	S	21.7	24.5	27.5	28.2	27.6	30.3	29.5	27.7	23.1	22.5	17	12.5	12.4	9.6	7.2	30.3	20.0		
Aug 18	6.5	4.8	3.3	3.8	3.6	4.4	5.9	17.5	S	27.8	27.2	30.8	30.9	34	34.4	33.9	35.1	35	33.8	33.8	35	36.3	36.9	37	3.3	37.0	24.0		
Aug 19	36.3	34.5	33.7	33.5	34	32.9	32	S	28.9	30.2	C	C	C	C	C	22.5	21.6	17.7	13.1	18.6	30.6	14.9	8.7	6.7	6.7	36.3	25.0		
Aug 20	8.1	13.9	15.7	14.1	12.8	12.6	S	14.4	20.7	24.5	29.2	32	35.7	31.7	34.7	36.1	36.5	29.8	28.5	29.6	24	21.7	18.6	15.8	8.1	36.5	23.5		
Aug 21	12.2	10.2	14.1	16.7	8	S	11.7	18.8	26.5	28.4	33.3	36.1	37.6	37.2	38.6	38.5	37.2	37	35.7	32.2	27.8	26.7	23.9	27.7	8.0	38.6	26.8		
Aug 22	28.5	25.9	25.2	21.4	S	19.8	17.6	15.3	15.6	18.1	20.9	20.4	22.6	20.5	16.9	12.5	17	25.2	22.8	23.2	21.4	16.2	13.2	11.3	11.3	28.5	19.6		
Aug 23	12.4	13.7	15.2	S	14	13.8	12.8	11.5	10.7	12.5	14.1	13.3	12.2	15.1	25.7	23.9	16.5	11.2	10	12.5	13.5	11.9	9.2	7.1	7.1	25.7	13.6		
Aug 24	4.9	3.6	S	2.8	2	2.3	5.3	7.2	13.7	17.5	NRM	NRM	24.7	28	29.2	31.8	31.9	30	22	16.9	10.5	8.6	11.8	17	2.0	31.9	15.3		
Aug 25	17.6	S	3.4	1.6	1.7	2.3	0.9	6.3	19.8	23.6	29.3	38.6	41.3	42.8	42.8	44.3	45.3	44.4	42.3	37.8	38.3	38.1	35.4	31.9	0.9	45.3	27.4		
Aug 26	S	26.2	20.9	15.3	11	14.5	18.4	23.8	26.3	27.8	31.7	37.5	41	44.7	46.9	46.3	45.4	45.6	45.3	43.3	42.7	42.9	41	S	11.0	46.9	33.6		
Aug 27	28.2	23.6	18.9	20.1	24.2	21.4	13.1	14.5	17.3	18.3	22.9	29.7	37.7	42.3	44	43.8	32.7	32.3	11.6	10.4	29.1	20.6	S	12.1	10.4	44.0	24.7		
Aug 28	8.1	9.6	8.9	10	8.1	7	3.1	10.4	16.8	26	30.8	32.7	36.9	35.2	35.5	36.8	36	34.6	30.8	25.3	13.8	S	14.2	17.3	3.1	36.9	21.2		
Aug 29	17.8	12.4	4.9	2	0.4	0.7	0.4	4.5	8.7	18.9	25.3	29.7	40.1	45	45.5	43.9	46.3	42.9	37.4	28.2	S	34.8	43.1	41.1	0.4	46.3	25.0		
Aug 30	39.7	36.7	30.9	17.6	22.9	21.7	17.8	18.6	18.6	21.9	25	32.7	32.8	40.2	43.7	44.8	43.8	39.2	31.5	S	32.1	31.2	31.2	28.7	17.6	44.8	30.6		
Aug 31	24.8	20.7	25.4	28.9	28.9	27.3	26.9	27.4	28.7	30.2	35.5	36	30.1	34.1	37	45.8	48.2	49.3	S	35.6	30	24.4	21	20.1	20.1	49.3	31.1		
Diurnal Maximum	40	37	34	34	34	35	34	33	29	32	36	44	46	47	47	50	54	50	46	43	43	43	43	41					
Diurnal Average	16.2	16.8	16.2	14.4	12.9	13.9	13.5	16.1	20.2	23.9	27.6	30.5	32.0	33.4	34.5	34.2	33.7	31.1	28.0	25.9	23.9	21.5	19.8	17.8					
C	Monthly Calibration						S	Daily Zero-Span Check						Q	Quality Assurance														
K	Collection Error						N	No Data (Machine Not in Service)						Y	Routine Maintenance						P	Power Failure							
X	InValid Data (Equipment Malfunction /Recovery)						NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																					
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																													
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																													

*Timeseries Chart of Hourly Average for O3 - Tamarack Site*



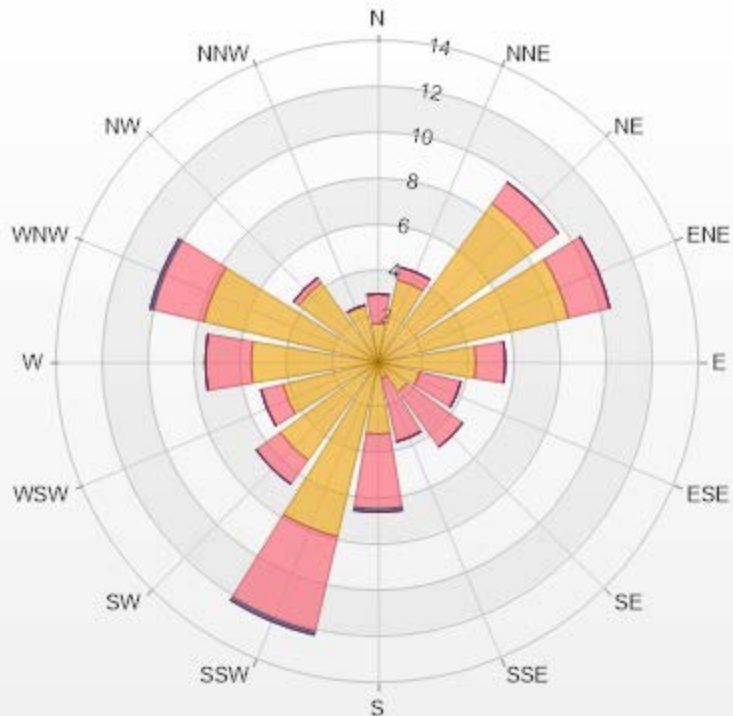
O3[ppb] Histogram: Tamarack Monthly: 08-2021 1 Hr.



Classes	O3
<=0	0.00%
0 - 10	12.93%
10 - 20	27.41%
20 - 30	31.11%
30 - 40	20.60%
40 - 50	7.53%
50 - 60	0.43%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Tamarack Poll.: Tamarack-O3[ppb] Monthly: 08-2021 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	1.7	1.28	0	0	0	2.98
NNE	3.69	0.57	0	0	0	4.26
NE	8.52	1.14	0	0	0	9.66
ENE	8.52	1.85	0	0	0	10.37
E	4.26	1.28	0	0	0	5.54
ESE	1.85	1.85	0	0	0	3.7
SE	1.56	2.98	0	0	0	4.54
SSE	0.71	2.84	0	0	0	3.55
S	3.13	3.27	0.14	0	0	6.54
SSW	7.81	4.26	0.14	0	0	12.21
SW	5.26	1.28	0	0	0	6.54
WSW	4.26	0.99	0	0	0	5.25
W	5.54	1.99	0	0	0	7.53
WNW	7.81	2.27	0.14	0	0	10.22
NW	4.26	0.28	0	0	0	4.54
NNW	2.56	0	0	0	0	2.56
Summary	71.44	28.13	0.42	0	0	100



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% Icon Classes (ppb)

71

0-30

28

30-50

0

50-76

0

76-159

0

>159.0



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

**Tamarack Site - August 2021**

**Summary of Hourly Averages**

### TOTAL HYDROCARBONS (THC) in ppm

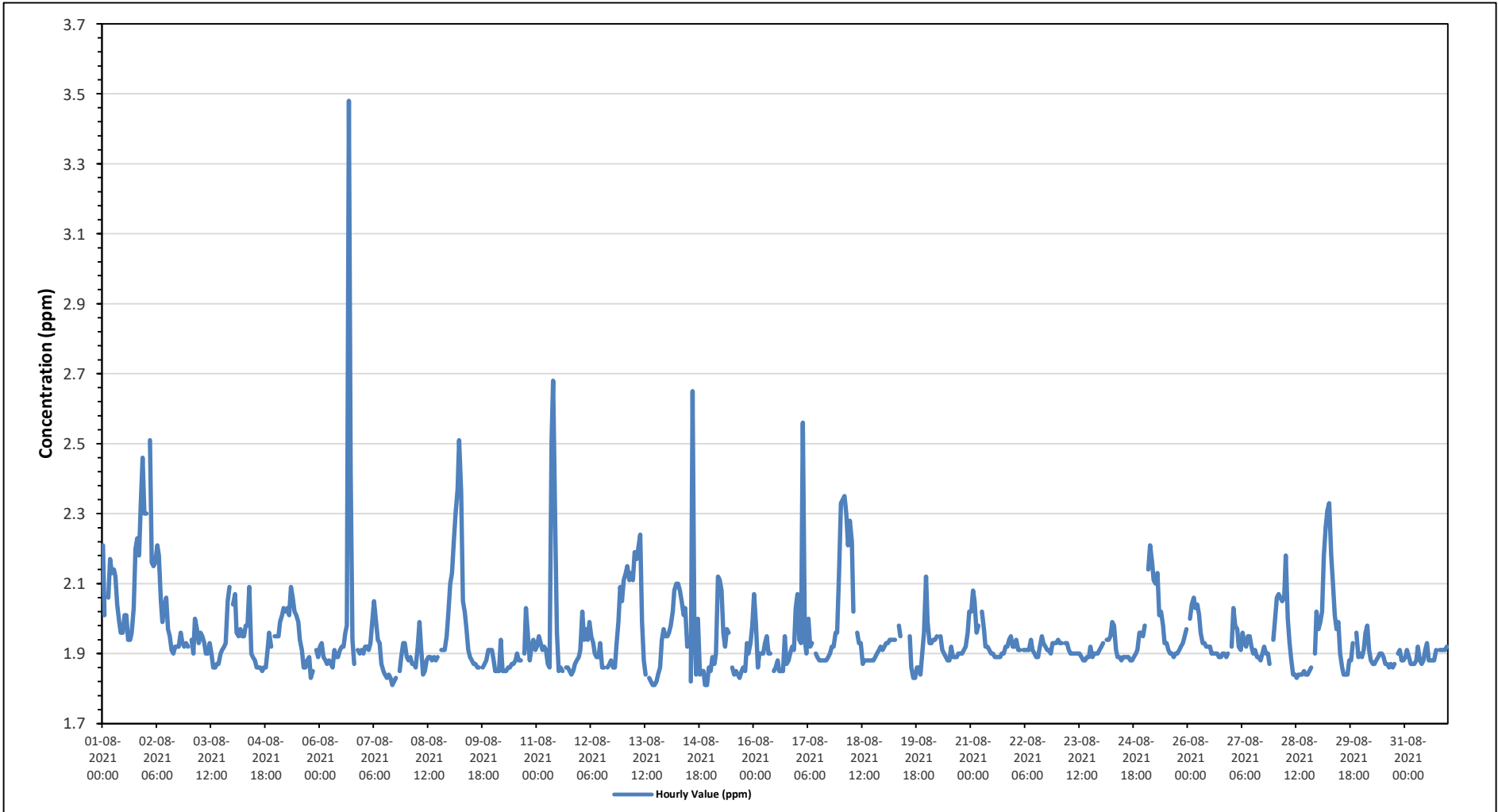
Maximum Hourly Value:	3.48 ppm on August 6 at hour 16	Hours in Service:	744
Maximum Daily Value:	2.10 ppm on August 1	Hours of Data:	707
Minimum Hourly Value:	1.81 ppm on August 7 at hour 16	Hours of Missing Data:	0
Minimum Daily Value:	1.89 ppm on August 10	Hours of Calibration:	37
Monthly Average:	1.95 ppm	Operational Uptime:	100.0

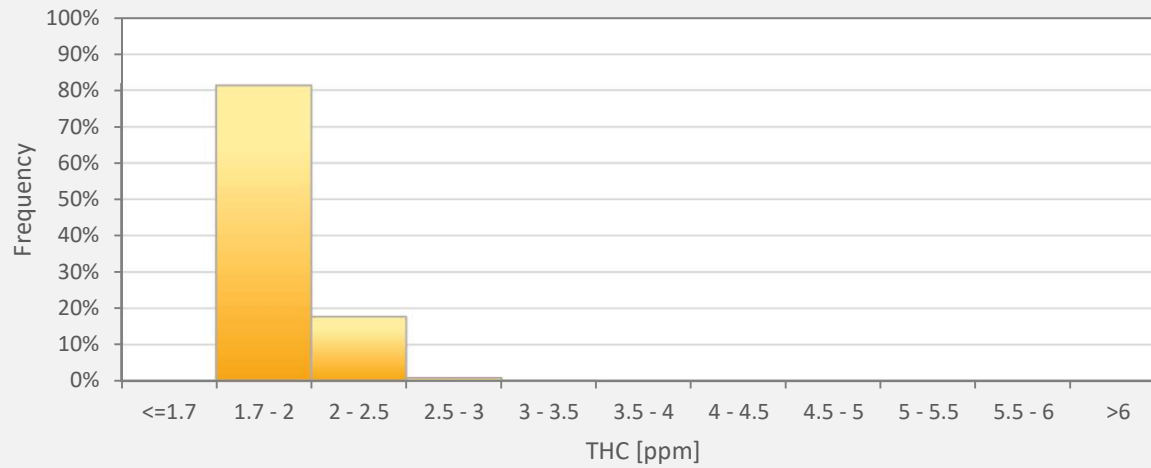
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average																					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23																				
Aug 1	2.21	2.01	S	2.06	2.17	2.13	2.14	2.12	2.04	1.99	1.96	1.96	2.01	2.01	1.94	1.94	1.96	2.03	2.20	2.23	2.18	2.33	2.46	2.30	1.94	2.46	2.10																				
Aug 2	2.30	S	1.94	2.51	2.16	2.15	2.16	2.21	2.18	2.05	1.99	2.04	2.06	1.97	1.95	1.91	1.90	1.92	1.92	1.96	1.93	1.92	1.93	1.92	1.90	2.51	2.04																				
Aug 3	S	1.94	1.90	2.00	1.97	1.93	1.96	1.95	1.93	1.96	1.90	1.90	1.93	1.90	1.86	1.86	1.87	1.87	1.90	1.91	1.92	1.93	2.05	2.09	S	1.86	2.09	1.93																			
Aug 4	2.04	2.07	1.96	1.95	1.97	1.95	1.95	1.98	1.98	2.09	1.90	1.89	1.88	1.86	1.86	1.86	1.85	1.86	1.86	1.91	1.96	1.92	S	1.95	1.85	2.09	1.93																				
Aug 5	1.95	1.95	1.99	2.01	2.03	2.02	2.03	2.01	2.09	2.06	2.02	2.01	1.99	1.94	1.91	1.86	1.86	1.88	1.89	1.83	1.85	S	1.91	1.89	1.83	2.09	1.96																				
Aug 6	1.92	1.93	1.89	1.88	1.87	1.88	1.87	1.86	1.91	1.89	1.89	1.91	1.92	1.92	1.96	1.98	3.48	2.42	1.94	1.87	S	1.91	1.90	1.91	1.86	3.48	2.00																				
Aug 7	1.90	1.92	1.92	1.91	1.93	2.00	2.05	1.99	1.94	1.93	1.87	1.85	1.84	1.83	1.84	1.83	1.81	1.82	1.83	S	1.85	1.89	1.93	1.93	1.81	2.05	1.90																				
Aug 8	1.89	1.88	1.89	1.87	1.87	1.86	1.92	1.99	1.92	1.84	1.85	1.88	1.89	1.89	1.88	1.89	1.88	1.89	1.88	S	1.91	1.91	1.91	1.95	2.01	1.84	2.01	1.90																			
Aug 9	2.10	2.13	2.22	2.30	2.37	2.51	2.36	2.05	2.02	1.97	1.91	1.89	1.88	1.87	1.87	1.86	1.86	S	1.86	1.87	1.88	1.91	1.91	1.91	1.86	2.51	2.02																				
Aug 10	1.88	1.85	1.85	1.85	1.94	1.85	1.85	1.85	1.85	1.86	1.86	1.87	1.87	1.88	1.90	1.88	1.88	S	1.90	2.03	1.95	1.88	1.92	1.94	1.91	1.85	2.03	1.89																			
Aug 11	1.92	1.95	1.93	1.91	1.92	1.91	1.87	1.86	2.51	2.68	2.28	1.96	1.85	1.86	1.85	S	1.86	1.86	1.85	1.84	1.85	1.87	1.88	1.89	1.84	2.68	1.96																				
Aug 12	1.91	2.02	1.94	1.97	1.94	1.99	1.95	1.93	1.90	1.89	1.89	1.93	1.86	1.86	S	1.86	1.87	1.88	1.86	1.86	1.93	1.99	2.09	2.05	1.86	2.09	1.93																				
Aug 13	2.11	2.13	2.15	2.11	2.13	2.11	2.19	2.17	2.20	2.24	1.99	1.88	1.84	S	1.83	1.82	1.81	1.81	1.82	1.84	1.86	1.94	1.97	1.95	1.81	2.24	2.00																				
Aug 14	1.95	1.96	1.98	2.02	2.08	2.10	2.10	2.08	2.05	2.01	2.03	1.92	S	1.82	2.65	1.97	1.84	2.00	1.84	1.85	1.85	1.81	1.81	1.86	1.81	2.65	1.98																				
Aug 15	1.85	1.89	1.87	1.90	2.12	2.11	2.08	1.96	1.92	1.97	1.96	S	1.86	1.84	1.85	1.84	1.83	1.85	1.86	1.85	1.93	1.90	1.93	1.98	1.83	2.12	1.92																				
Aug 16	2.07	1.99	1.86	1.90	1.90	1.90	1.93	1.95	1.90	1.90	S	1.85	1.86	1.88	1.85	1.85	1.85	1.95	1.87	1.88	1.90	1.92	1.91	2.03	1.85	2.07	1.91																				
Aug 17	2.07	1.94	1.93	2.56	1.94	1.90	2.00	1.92	1.93	S	1.90	1.89	1.88	1.88	1.88	1.88	1.88	1.89	1.90	1.92	1.92	1.96	1.96	2.14	1.88	2.56	1.96																				
Aug 18	2.33	2.34	2.35	2.30	2.21	2.28	2.22	2.02	S	1.96	1.93	1.93	1.87	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.89	1.90	1.91	1.92	1.91	1.87	2.35	2.02																			
Aug 19	1.92	1.93	1.93	1.94	1.94	1.94	1.94	S	1.98	1.95	C	C	C	C	1.95	1.86	1.83	1.83	1.86	1.86	1.84	1.90	1.96	2.12	1.83	2.12	1.92																				
Aug 20	1.99	1.93	1.93	1.94	1.94	1.95	S	1.95	1.91	1.90	1.89	1.88	1.88	1.92	1.89	1.89	1.89	1.90	1.90	1.90	1.91	1.92	1.96	2.02	1.88	2.02	1.92																				
Aug 21	2.02	2.08	2.05	1.96	1.98	S	2.02	1.97	1.92	1.92	1.91	1.90	1.90	1.89	1.89	1.89	1.89	1.90	1.90	1.92	1.92	1.94	1.95	1.92	1.89	2.08	1.94																				
Aug 22	1.92	1.94	1.91	1.91	S	1.91	1.91	1.91	1.91	1.94	1.91	1.90	1.89	1.89	1.92	1.95	1.93	1.92	1.91	1.91	1.90	1.93	1.93	1.93	1.89	1.95	1.92																				
Aug 23	1.94	1.93	1.93	S	1.93	1.93	1.91	1.90	1.90	1.90	1.90	1.90	1.89	1.88	1.88	1.89	1.89	1.92	1.89	1.90	1.90	1.90	1.91	1.88	1.94	1.91	1.91																				
Aug 24	1.92	1.93	S	1.94	1.94	1.95	1.99	1.98	1.91	1.89	1.89	1.88	1.89	1.89	1.89	1.89	1.88	1.88	1.89	1.90	1.91	1.96	1.96	1.95	1.88	1.99	1.92																				
Aug 25	1.98	S	2.14	2.21	2.16	2.11	2.10	2.13	2.01	2.02	1.98	1.93	1.93	1.91	1.90	1.90	1.89	1.90	1.90	1.91	1.92	1.93	1.95	1.97	1.89	2.21	1.99																				
Aug 26	S	2.00	2.04	2.06	2.03	2.04	2.01	1.96	1.93	1.93	1.92	1.92	1.92	1.90	1.90	1.90	1.90	1.89	1.89	1.90	1.90	1.89	1.90	S	1.89	2.06	1.94																				
Aug 27	1.92	2.03	1.98	1.97	1.92	1.91	1.96	1.93	1.92	1.95	1.95	1.92	1.90	1.91	1.89	1.89	1.88	1.90	1.92	1.90	1.90	1.87	S	1.94	1.87	2.03	1.92																				
Aug 28	1.99	2.06	2.07	2.06	2.05	2.06	2.18	2.00	1.93	1.88	1.84	1.84	1.83	1.84	1.84	1.84	1.85	1.84	1.84	1.84	1.85	1.86	S	1.90	2.02	1.83	2.18	1.93																			
Aug 29	1.97	1.99	2.02	2.18	2.26	2.31	2.33	2.18	2.11	2.01	1.97	1.99	1.90	1.86	1.84	1.84	1.84	1.88	1.88	1.93	S	1.96	1.89	1.90	1.84	2.33	2.00																				
Aug 30	1.89	1.91	1.96	1.98	1.91	1.88	1.87	1.87	1.88	1.89	1.90	1.90	1.89	1.87	1.87	1.86	1.87	1.86	1.87	1.86	S	1.90	1.91	1.88	1.88	1.86	1.98	1.89																			
Aug 31	1.89	1.91	1.89	1.87	1.87	1.88	1.88	1.92	1.88	1.87	1.88	1.91	1.93	1.88	1.88	1.88	1.88	1.91	S	1.91	1.91	1.91	1.91	1.92	1.87	1.93	1.89																				
Diurnal Maximum	2.33	2.34	2.51	2.56	2.37	2.51	2.36	2.18	2.51	2.68	2.28	2.06	2.01	2.01	2.65	1.98	3.48	2.42	2.20	2.23	2.18	2.33	2.46	2.30																							
Diurnal Average	1.99	1.98	2.00	2.02	2.01	2.02	2.03	1.99	1.98	1.97	1.94	1.91	1.89	1.89	1.91	1.88	1.92	1.91	1.90	1.90	1.91	1.93	1.95	1.97																							
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 THC - Tamarack Site**



THC55[ppm] Histogram: Tamarack Monthly: 08-2021 1 Hr.

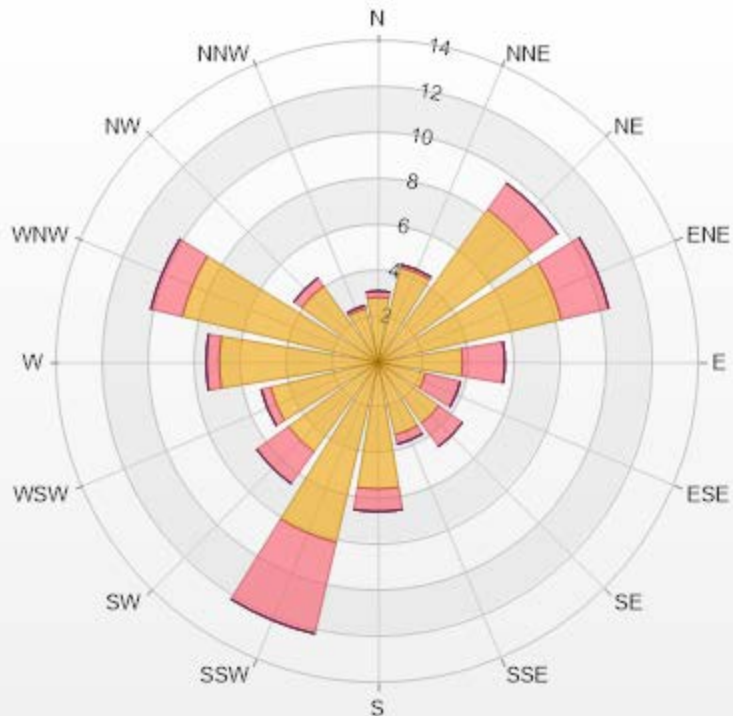


Classes	THC55
<=1.7	0.00%
1.7 - 2	81.33%
2 - 2.5	17.68%
2.5 - 3	0.85%
3 - 3.5	0.14%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%



Wind: Tamarack Poll.: Tamarack-THC55[ppm] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 95.03% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	2.83	0.28	0	0	0	3.11
NNE	4.24	0.14	0	0	0	4.38
NE	8.2	1.41	0	0	0	9.61
ENE	8.2	2.12	0	0	0	10.32
E	3.68	1.84	0	0	0	5.52
ESE	2.12	1.56	0	0	0	3.68
SE	3.25	1.27	0	0	0	4.52
SSE	3.25	0.42	0	0	0	3.67
S	5.52	0.99	0	0	0	6.51
SSW	8.06	4.1	0	0	0	12.16
SW	4.81	1.7	0	0	0	6.51
WSW	4.81	0.42	0	0	0	5.23
W	6.93	0.57	0	0	0	7.5
WNW	8.77	1.41	0	0	0	10.18
NW	4.1	0.42	0	0	0	4.52
NNW	2.4	0.14	0	0	0	2.54
Summary	81.17	18.79	0	0	0	100



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### LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - August 2021

Summary of Hourly Averages

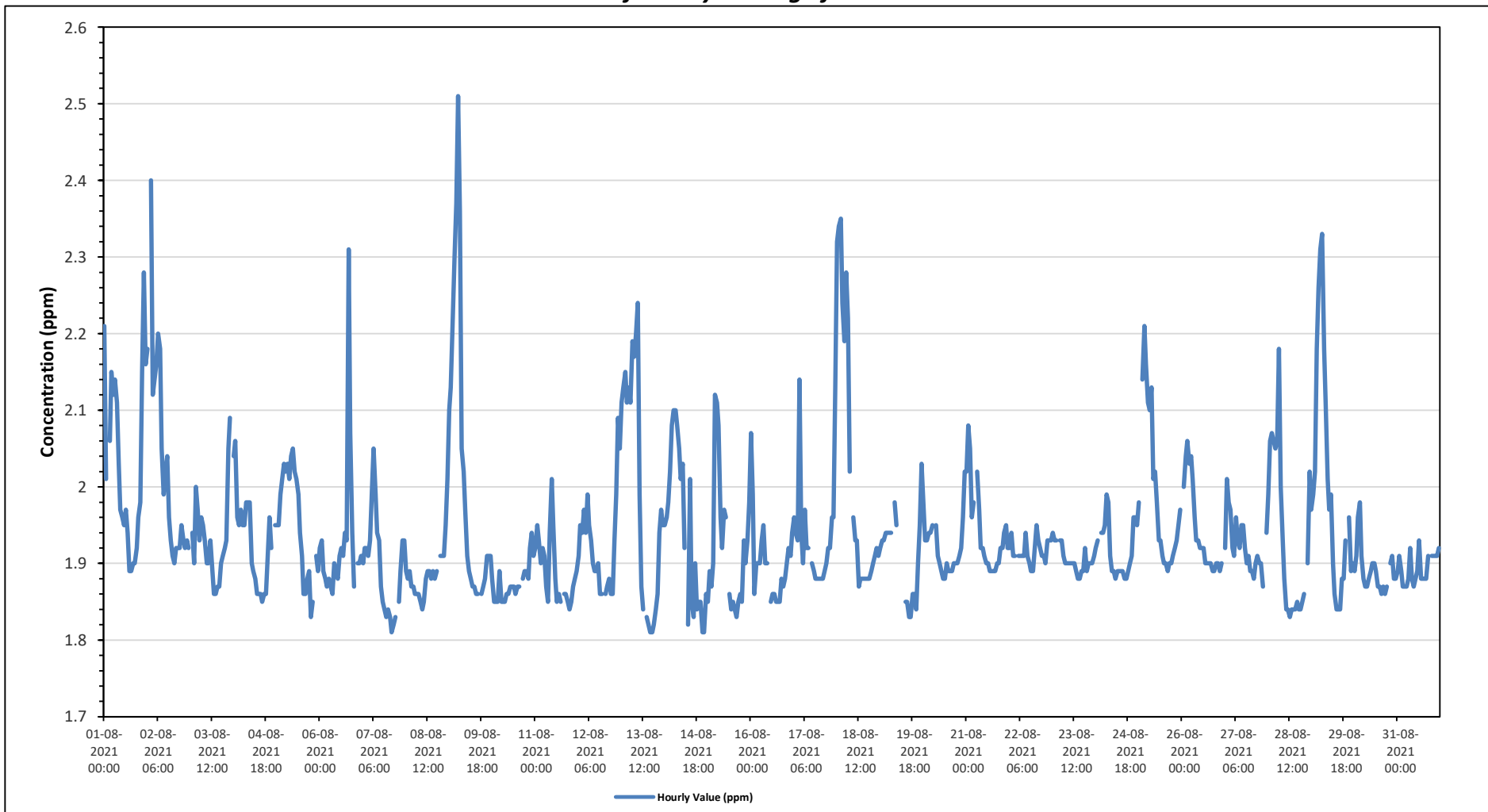
METHANE (CH4) in ppm

Maximum Hourly Value:	2.51 ppm on August 9 at hour 5	Hours in Service:	744
Maximum Daily Value:	2.03 ppm on August 1	Hours of Data:	707
Minimum Hourly Value:	1.81 ppm on August 7 at hour 16	Hours of Missing Data:	0
Minimum Daily Value:	1.87 ppm on August 10	Hours of Calibration:	37
Monthly Average:	1.94 ppm	Operational Uptime:	100.0

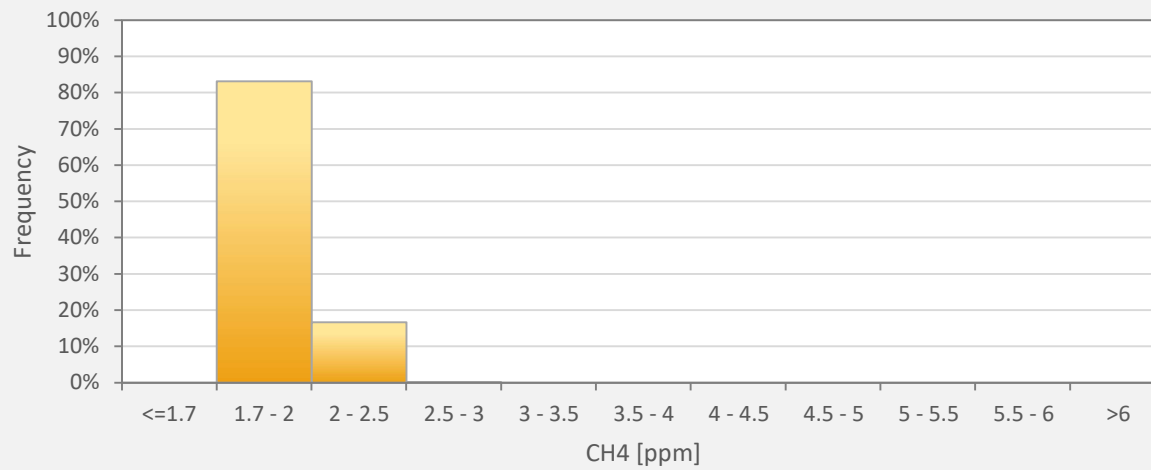
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Aug 1	2.21	2.01	S	2.06	2.15	2.12	2.14	2.11	2.03	1.97	1.96	1.95	1.97	1.94	1.89	1.89	1.90	1.90	1.92	1.96	1.98	2.15	2.28	2.16	1.89	2.28	2.03	
Aug 2	2.18	S	1.94	2.40	2.12	2.14	2.16	2.20	2.18	2.05	1.99	2.02	2.04	1.96	1.93	1.91	1.90	1.92	1.92	1.92	1.95	1.93	1.92	1.93	1.92	1.90	2.40	2.03
Aug 3	S	1.94	1.90	2.00	1.97	1.93	1.96	1.95	1.93	1.90	1.90	1.90	1.93	1.90	1.86	1.86	1.87	1.87	1.90	1.91	1.92	1.93	2.05	2.09	S	1.86	2.09	1.93
Aug 4	2.04	2.06	1.96	1.95	1.97	1.95	1.95	1.98	1.98	1.98	1.90	1.89	1.88	1.86	1.86	1.86	1.85	1.86	1.86	1.91	1.96	1.92	S	1.95	1.85	2.06	1.93	
Aug 5	1.95	1.95	1.99	2.01	2.03	2.02	2.03	2.01	2.04	2.05	2.02	2.01	1.99	1.94	1.91	1.86	1.86	1.88	1.89	1.83	1.85	S	1.91	1.89	1.83	2.05	1.95	
Aug 6	1.92	1.93	1.89	1.88	1.87	1.88	1.87	1.86	1.90	1.89	1.88	1.91	1.92	1.91	1.94	1.93	2.31	2.07	1.94	1.87	S	1.90	1.90	1.91	1.86	2.31	1.93	
Aug 7	1.90	1.92	1.92	1.91	1.93	2.00	2.05	1.99	1.94	1.93	1.87	1.85	1.84	1.83	1.84	1.83	1.81	1.82	1.83	S	1.85	1.89	1.93	1.93	1.81	2.05	1.90	
Aug 8	1.89	1.88	1.89	1.87	1.87	1.86	1.86	1.86	1.85	1.84	1.85	1.88	1.89	1.89	1.88	1.89	1.88	1.89	1.88	S	1.91	1.91	1.91	1.95	2.01	1.84	2.01	1.89
Aug 9	2.10	2.13	2.22	2.30	2.37	2.51	2.36	2.05	2.02	1.97	1.91	1.89	1.88	1.87	1.87	1.86	1.86	1.87	1.86	S	1.86	1.87	1.88	1.91	1.91	1.86	2.51	2.02
Aug 10	1.88	1.85	1.85	1.85	1.89	1.85	1.85	1.85	1.85	1.86	1.86	1.87	1.87	1.87	1.86	1.87	1.87	S	1.86	1.88	1.89	1.88	1.92	1.94	1.91	1.85	1.94	1.87
Aug 11	1.92	1.95	1.93	1.90	1.92	1.91	1.87	1.85	1.94	2.01	1.95	1.88	1.85	1.86	1.85	S	1.86	1.86	1.85	1.84	1.85	1.87	1.88	1.89	1.84	2.01	1.89	
Aug 12	1.91	1.95	1.94	1.97	1.94	1.99	1.95	1.93	1.90	1.89	1.89	1.90	1.86	1.86	S	1.86	1.87	1.88	1.86	1.86	1.86	1.93	1.99	2.09	2.05	1.86	2.09	1.92
Aug 13	2.11	2.13	2.15	2.11	2.13	2.11	2.19	2.17	2.20	2.24	1.99	1.87	1.84	S	1.83	1.82	1.81	1.81	1.82	1.84	1.86	1.94	1.97	1.95	1.81	2.24	2.00	
Aug 14	1.95	1.96	1.98	2.02	2.08	2.10	2.10	2.08	2.05	2.01	2.03	1.92	S	1.82	2.01	1.85	1.83	1.90	1.84	1.85	1.85	1.81	1.81	1.86	1.81	2.10	1.94	
Aug 15	1.85	1.89	1.87	1.90	2.12	2.11	2.08	1.96	1.92	1.97	1.96	S	1.86	1.84	1.85	1.84	1.83	1.85	1.86	1.85	1.93	1.90	1.93	1.98	1.83	2.12	1.92	
Aug 16	2.07	1.99	1.86	1.90	1.90	1.90	1.93	1.95	1.90	1.90	S	1.85	1.86	1.86	1.85	1.85	1.85	1.88	1.87	1.88	1.90	1.92	1.91	1.94	1.85	2.07	1.90	
Aug 17	1.96	1.94	1.93	2.14	1.94	1.90	1.97	1.92	1.92	S	1.90	1.89	1.88	1.88	1.88	1.88	1.88	1.89	1.90	1.92	1.92	1.96	1.96	2.13	1.88	2.14	1.93	
Aug 18	2.32	2.34	2.35	2.24	2.19	2.28	2.22	2.02	S	1.96	1.93	1.93	1.87	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.89	1.90	1.91	1.92	1.91	1.87	2.35	2.02
Aug 19	1.92	1.93	1.93	1.94	1.94	1.94	1.94	S	1.98	1.95	C	C	C	C	1.85	1.85	1.83	1.83	1.86	1.86	1.84	1.90	1.95	2.03	1.83	2.03	1.91	
Aug 20	1.98	1.93	1.93	1.94	1.94	1.95	S	1.95	1.91	1.90	1.89	1.88	1.88	1.90	1.89	1.89	1.89	1.90	1.90	1.90	1.90	1.91	1.92	1.96	2.02	1.88	2.02	1.92
Aug 21	2.02	2.08	2.05	1.96	1.98	S	2.02	1.97	1.92	1.92	1.91	1.90	1.90	1.89	1.89	1.89	1.89	1.90	1.90	1.92	1.92	1.94	1.95	1.92	1.89	2.08	1.94	
Aug 22	1.92	1.94	1.91	1.91	S	1.91	1.91	1.91	1.91	1.94	1.91	1.90	1.89	1.89	1.92	1.95	1.93	1.92	1.91	1.91	1.90	1.93	1.93	1.93	1.89	1.95	1.92	
Aug 23	1.94	1.93	1.93	S	1.93	1.93	1.91	1.90	1.90	1.90	1.90	1.90	1.89	1.88	1.88	1.89	1.89	1.92	1.89	1.92	1.89	1.90	1.90	1.91	1.88	1.94	1.91	
Aug 24	1.92	1.93	S	1.94	1.94	1.95	1.99	1.98	1.91	1.89	1.89	1.88	1.89	1.89	1.89	1.88	1.88	1.89	1.90	1.91	1.96	1.96	1.95	1.88	1.88	1.99	1.92	
Aug 25	1.98	S	2.14	2.21	2.16	2.11	2.10	2.13	2.01	2.02	1.98	1.93	1.93	1.91	1.90	1.90	1.89	1.90	1.90	1.91	1.92	1.93	1.95	1.97	1.89	2.21	1.99	
Aug 26	S	2.00	2.04	2.06	2.03	2.04	2.01	1.96	1.93	1.93	1.92	1.92	1.92	1.90	1.90	1.90	1.90	1.89	1.89	1.90	1.90	1.89	1.90	S	1.89	2.06	1.94	
Aug 27	1.92	2.01	1.98	1.97	1.92	1.91	1.96	1.93	1.92	1.95	1.95	1.92	1.90	1.91	1.89	1.89	1.88	1.90	1.91	1.90	1.90	1.87	S	1.94	1.87	2.01	1.92	
Aug 28	1.99	2.06	2.07	2.06	2.05	2.06	2.18	2.00	1.93	1.88	1.84	1.84	1.83	1.84	1.84	1.84	1.85	1.84	1.84	1.85	1.86	S	1.90	2.02	1.83	2.18	1.93	
Aug 29	1.97	1.99	2.02	2.18	2.26	2.31	2.33	2.18	2.11	2.01	1.97	1.99	1.90	1.86	1.84	1.84	1.84	1.88	1.88	1.93	S	1.96	1.89	1.90	1.84	2.33	2.00	
Aug 30	1.89	1.91	1.96	1.98	1.91	1.88	1.87	1.87	1.88	1.89	1.90	1.90	1.89	1.87	1.87	1.86	1.87	1.86	1.87	1.86	S	1.90	1.91	1.88	1.88	1.86	1.98	1.89
Aug 31	1.89	1.91	1.89	1.87	1.87	1.87	1.88	1.92	1.88	1.87	1.88	1.89	1.93	1.88	1.88	1.88	1.88	1.91	S	1.91	1.91	1.91	1.91	1.92	1.87	1.93	1.89	
Diurnal Maximum	2.32	2.34	2.40	2.30	2.37	2.51	2.36	2.18	2.20	2.24	2.03	2.04	1.99	1.94	2.01	1.95	2.31	2.07	1.94	1.96	1.98	2.15	2.28	2.16				
Diurnal Average	1.98	1.98	2.00	2.01	2.01	2.01	2.02	1.98	1.95	1.95	1.92	1.91	1.89	1.88	1.88	1.87	1.88	1.89	1.88	1.89	1.90	1.93	1.94	1.95				
C	Monthly Calibration					S	Daily Zero-Span Check					Q	Quality Assurance															
K	Collection Error					N	No Data (Machine Not in Service)					Y	Routine Maintenance					P	Power Failure									
X	Invalid Data (Equipment Malfunction/Recovery)					NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																					

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

**Timeseries Chart of Hourly Average for CH4 - Tamarack Site**



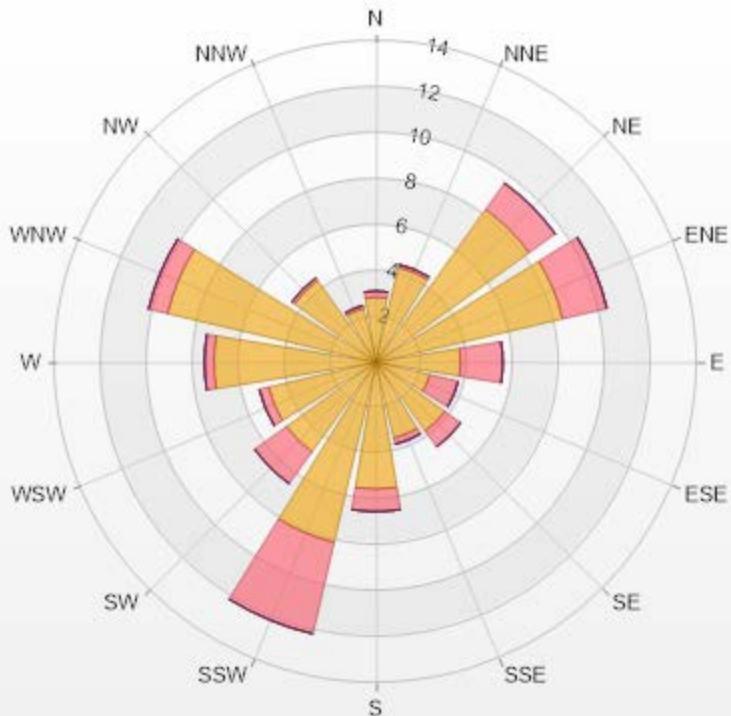
CH4[ppm] Histogram: Tamarack Monthly: 08-2021 1 Hr.



Classes	CH4
<=1.7	0.00%
1.7 - 2	83.17%
2 - 2.5	16.69%
2.5 - 3	0.14%
3 - 3.5	0.00%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: Tamarack Poll.: Tamarack-CH4[ppm] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 95.03% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	2.83	0.28	0	0	0	3.11
NNE	4.24	0.14	0	0	0	4.38
NE	8.2	1.41	0	0	0	9.61
ENE	8.35	1.98	0	0	0	10.33
E	3.68	1.84	0	0	0	5.52
ESE	2.4	1.27	0	0	0	3.67
SE	3.68	0.85	0	0	0	4.53
SSE	3.39	0.28	0	0	0	3.67
S	5.52	0.99	0	0	0	6.51
SSW	8.06	4.1	0	0	0	12.16
SW	4.81	1.7	0	0	0	6.51
WSW	4.81	0.42	0	0	0	5.23
W	7.07	0.42	0	0	0	7.49
WNW	9.34	0.85	0	0	0	10.19
NW	4.38	0.14	0	0	0	4.52
NNW	2.4	0.14	0	0	0	2.54
Summary	83.16	16.81	0	0	0	100



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% Icon Classes (ppm)

83

0-2

17

2-5

0

5-10

0

10-20

0

>20.0



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - August 2021  
Summary of Hourly Averages

## NON-METHANE HYDROCARBONS (NMHC) in ppm

Maximum Hourly Value:	1.16 ppm on August 6 at hour 16	Hours in Service:	744
Maximum Daily Value:	0.07 ppm on August 1	Hours of Data:	707
Minimum Hourly Value:	0.00 ppm on August 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.00 ppm on August 3	Hours of Calibration:	37
Monthly Average:	0.01 ppm	Operational Uptime:	100.0

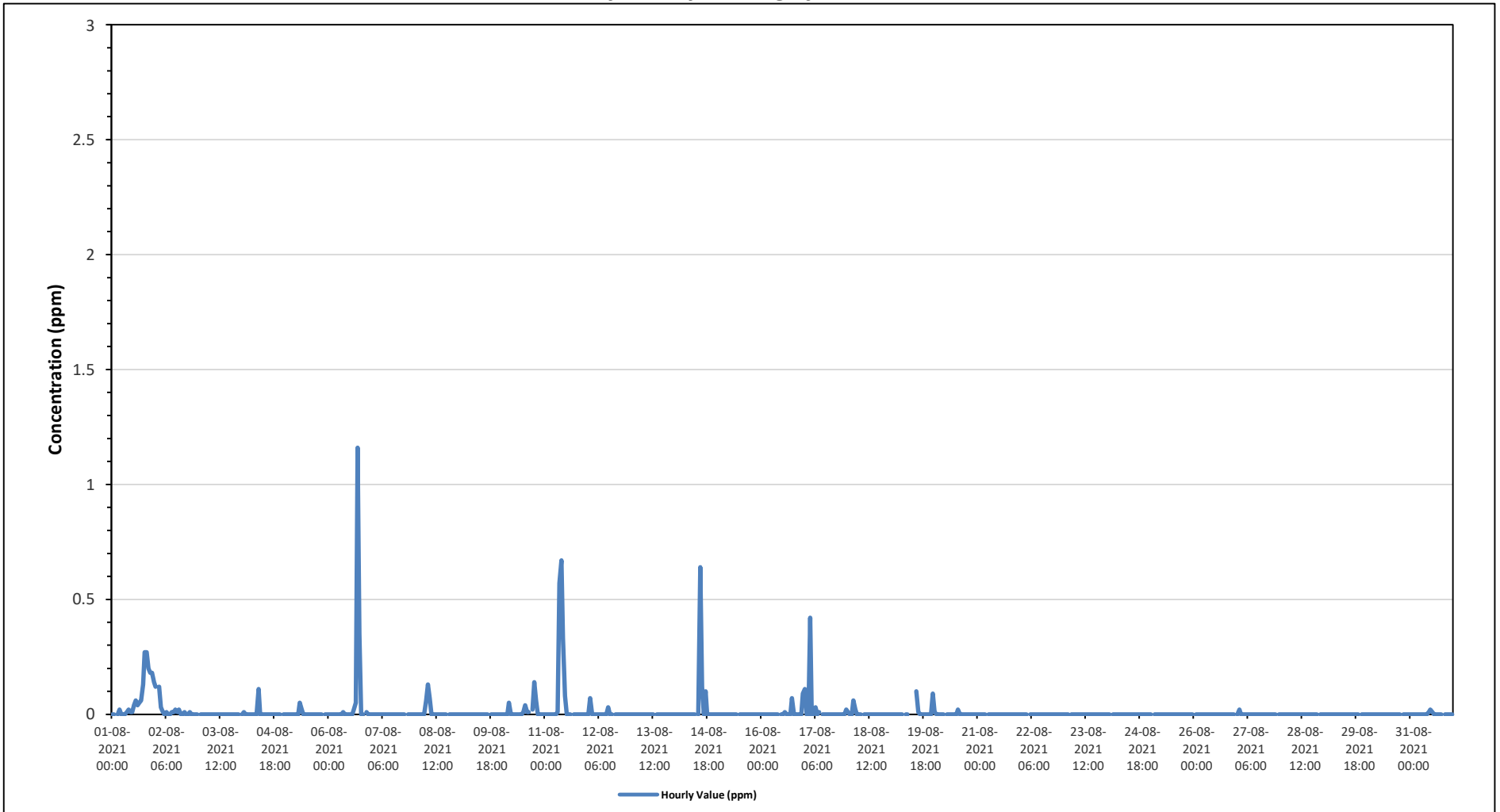
Day	Hourly Period Starting at (MST)																							Daily	Daily	Daily		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average	
Aug 1	0.00	0.00	S	0.00	0.02	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.04	0.06	0.04	0.05	0.06	0.13	0.27	0.27	0.20	0.18	0.18	0.14	0.00	0.27	0.07	
Aug 2	0.12	S	0.12	0.03	0.01	0.00	0.01	0.00	0.00	0.01	0.01	0.02	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.02
Aug 3	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	
Aug 4	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	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	S	0.00	0.11	0.01	
Aug 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.02	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	0.05	0.00	
Aug 6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.05	1.16	0.35	0.00	0.00	S	0.01	0.00	0.00	0.00	1.16	0.07	
Aug 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Aug 8	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.13	0.07	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	0.13	0.01	
Aug 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Aug 10	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.01	0.01	S	0.02	0.14	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.01	
Aug 11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.57	0.67	0.33	0.08	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	0.67	0.07	
Aug 12	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	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	0.07	0.00	
Aug 13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	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	
Aug 14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.64	0.12	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.04	
Aug 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	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	
Aug 16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.01	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.01	
Aug 17	0.11	0.00	0.00	0.42	0.00	0.00	0.03	0.00	0.01	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.42	0.03	
Aug 18	0.01	0.00	0.00	0.06	0.02	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	0.06	0.00	
Aug 19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	C	C	C	C	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.10	0.01	
Aug 20	0.01	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	
Aug 21	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Aug 22	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	
Aug 23	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	
Aug 24	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	
Aug 25	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	
Aug 26	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	S	0.00	0.00	
Aug 27	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.02	0.00	
Aug 28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	
Aug 29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	
Aug 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	S	0.00	0.00	0.00	0.00	0.00	0.00	
Aug 31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	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	0.02	0.00	
Diurnal Maximum	0.12	0.07	0.12	0.42	0.05	0.00	0.06	0.13	0.57	0.67	0.33	0.08	0.04	0.06	0.64	0.12	1.16	0.35	0.27	0.27	0.20	0.18	0.18	0.14	0.00	0.27	0.07	
Diurnal Average	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.03	0.01	0.01	0.00	0.01	0.03	0.01	0.04	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.02	0.01	

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

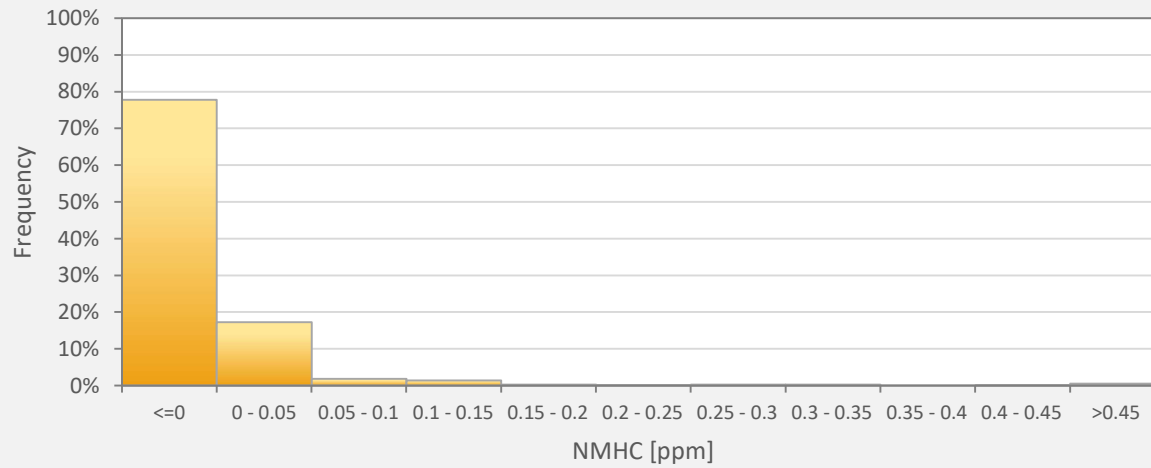
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Timeseries Chart of Hourly Average for NMHC - Tamarack Site



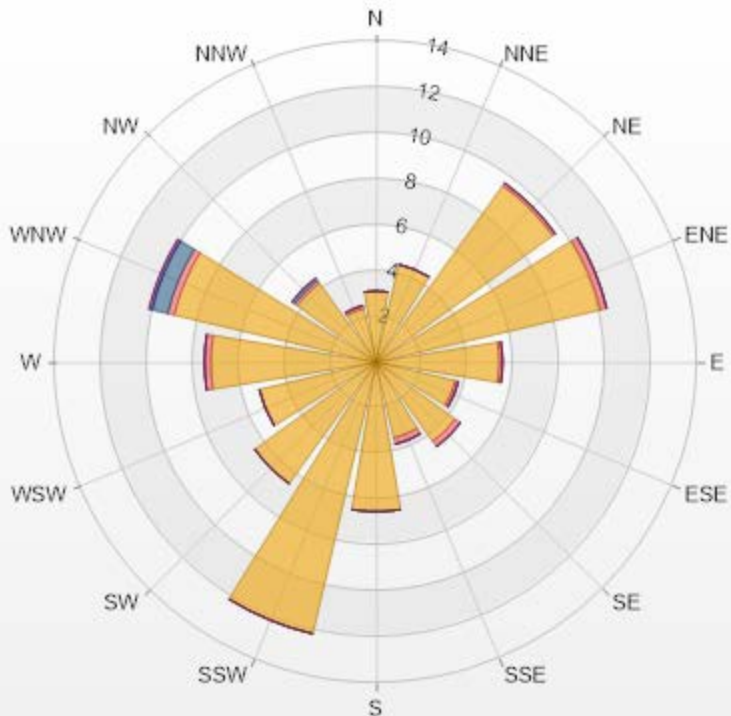
NMHC[ppm] Histogram: Tamarack Monthly: 08-2021 1 Hr.



Classes	NMHC
<=0	77.79%
0 - 0.05	17.26%
0.05 - 0.1	1.84%
0.1 - 0.15	1.41%
0.15 - 0.2	0.28%
0.2 - 0.25	0.14%
0.25 - 0.3	0.28%
0.3 - 0.35	0.28%
0.35 - 0.4	0.00%
0.4 - 0.45	0.14%
>0.45	0.57%

Wind: Tamarack Poll.: Tamarack-NMHC[ppm] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 95.03% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	3.11	0	0	0	0	3.11
NNE	4.38	0	0	0	0	4.38
NE	9.48	0.14	0	0	0	9.62
ENE	10.04	0.28	0	0	0	10.32
E	5.37	0.14	0	0	0	5.51
ESE	3.54	0.14	0	0	0	3.68
SE	4.24	0.28	0	0	0	4.52
SSE	3.39	0.28	0	0	0	3.67
S	6.51	0	0	0	0	6.51
SSW	12.16	0	0	0	0	12.16
SW	6.51	0	0	0	0	6.51
WSW	5.23	0	0	0	0	5.23
W	7.21	0.28	0	0	0	7.49
WNW	9.05	0.28	0.71	0.14	0	10.18
NW	4.24	0.14	0.14	0	0	4.52
NNW	2.4	0.14	0	0	0	2.54
Summary	96.86	2.1	0.85	0.14	0	100



LICA-202108

% Icon Classes (ppm)

97 0-0.1

2 0.1-0.3

1 0.3-0.9

0 0.9-2

0 >2.0



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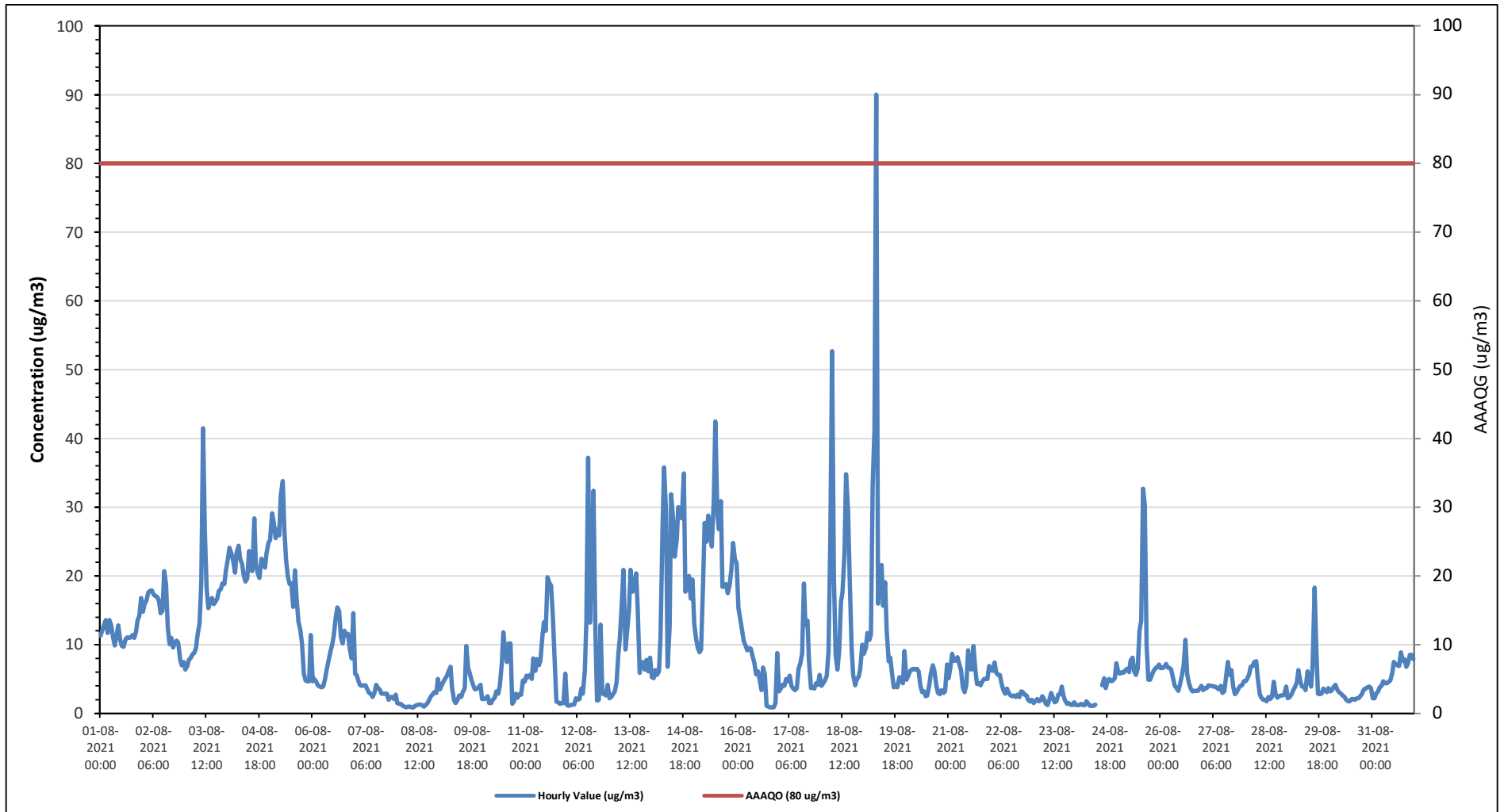
Tamarack Site - August 2021

Summary of Hourly Averages

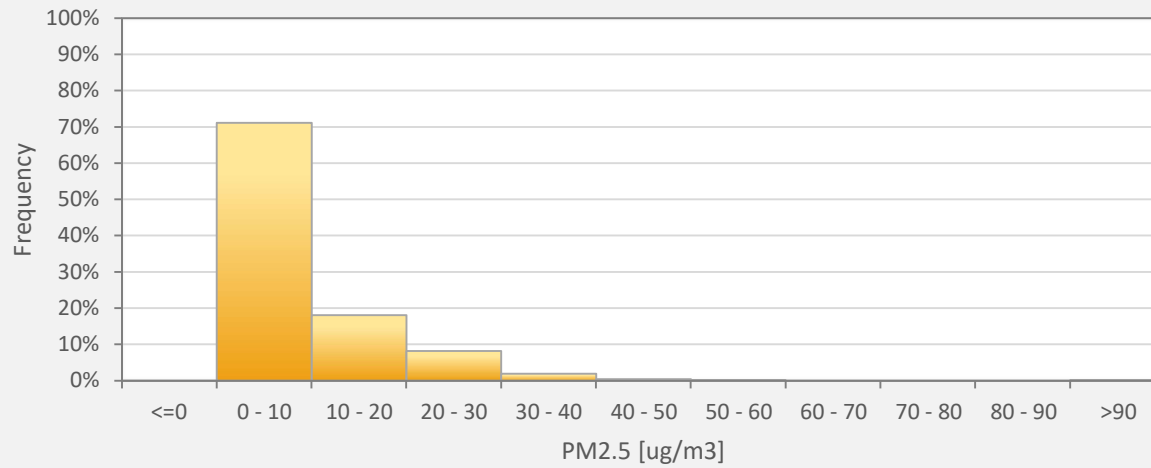
### PARTICULATE MATTER 2.5 (PM<sub>2.5</sub>) in µg/m<sup>3</sup>

Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m <sup>3</sup> , Alberta Ambient Air Quality Objective (AAAO): 24-Hour 29 µg/m <sup>3</sup>																															
Number of 1-Hour Exceedences: 1					Number of 24-Hour Exceedences: 0																										
Maximum Hourly Value: 90 µg/m <sup>3</sup> on August 19 at hour 7					Hours in Service: 744																										
Maximum Daily Value: 22.2 µg/m <sup>3</sup> on August 4					Hours of Data: 741																										
Minimum Hourly Value: 1 µg/m <sup>3</sup> on August 8 at hour 5					Hours of Missing Data: 0																										
Minimum Daily Value: 2 µg/m <sup>3</sup> on August 8					Hours of Calibration: 3																										
Monthly Average: 8.8 µg/m <sup>3</sup>					Operational Uptime: 100.0																										
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
Aug 1	11	12	13	14	12	14	13	11	10	11	13	11	10	10	11	11	11	11	11	11	12	14	14	17	10	17	11.9				
Aug 2	15	16	16	18	18	18	17	17	17	16	15	15	21	19	13	10	11	10	10	11	10	8	7	8	7	21	13.9				
Aug 3	6	7	8	8	9	9	10	12	13	19	42	27	18	15	16	17	16	16	17	18	18	19	19	21	6	42	15.7				
Aug 4	23	24	23	22	21	23	24	23	22	20	19	20	24	21	21	28	22	20	20	23	22	21	23	25	19	28	22.2				
Aug 5	25	29	28	26	27	26	32	34	27	22	20	19	19	16	21	16	13	12	10	6	5	5	5	11	5	34	18.9				
Aug 6	5	5	5	4	4	4	4	4	5	6	8	9	10	11	14	15	15	11	10	12	11	12	9	8	15	4	15	8.8			
Aug 7	6	6	5	4	4	4	4	4	3	3	2	3	4	4	4	3	3	3	3	2	2	2	2	3	2	6	3.4				
Aug 8	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	3	3	5	1	5	1.6				
Aug 9	4	4	5	5	6	6	7	4	2	2	2	3	2	3	4	10	7	6	5	4	4	4	4	4	2	10	4.3				
Aug 10	2	2	2	3	2	2	2	2	3	3	4	7	12	9	8	10	10	1	2	3	2	3	3	5	1	12	4.2				
Aug 11	5	6	5	6	5	8	6	8	7	8	11	13	12	20	19	19	14	8	2	2	1	2	2	6	1	20	8.0				
Aug 12	1	1	1	1	1	2	2	2	4	3	6	13	37	13	23	32	13	2	2	13	3	3	3	4	1	37	7.8				
Aug 13	2	2	3	3	5	9	11	16	21	9	12	15	21	18	18	20	16	6	8	7	6	8	6	8	2	21	10.4				
Aug 14	5	5	6	6	6	11	27	36	29	7	13	32	28	23	25	30	30	28	35	18	19	20	17	20	5	36	19.8				
Aug 15	13	11	10	9	9	19	28	25	29	27	24	31	43	29	27	31	18	19	19	18	19	21	25	23	9	43	21.8				
Aug 16	22	15	14	12	11	10	9	10	9	8	7	6	6	5	3	7	6	1	1	1	1	1	2	9	1	22	7.3				
Aug 17	3	4	4	4	5	5	6	4	4	3	4	7	7	9	19	13	14	8	4	4	4	4	4	6	3	19	6.1				
Aug 18	4	4	5	6	9	25	53	20	9	6	9	16	18	23	35	30	20	10	6	4	5	5	7	10	4	53	14.1				
Aug 19	9	10	12	11	12	33	41	90	16	19	22	16	19	12	8	8	6	4	4	4	5	5	4	9	4	90	15.7				
Aug 20	5	5	6	6	7	6	7	6	4	3	3	3	3	4	6	7	6	4	3	3	3	3	3	7	3	7	4.7				
Aug 21	5	7	9	8	8	8	7	6	4	3	4	9	7	6	10	7	4	4	4	5	5	5	7	3	10	6.1					
Aug 22	6	6	7	6	6	6	4	3	3	4	3	3	3	2	3	2	3	3	3	3	2	2	2	2	2	7	3.6				
Aug 23	2	2	2	2	2	3	2	1	1	2	3	2	2	2	3	3	4	3	2	1	2	1	1	2	1	4	2.0				
Aug 24	1	1	1	1	1	1	2	1	1	1	1	1	C	C	C	4	5	4	5	5	5	5	7	1	7	2.8					
Aug 25	6	6	6	6	6	7	6	8	8	6	6	7	12	14	33	30	10	5	5	6	6	7	7	7	5	33	9.0				
Aug 26	7	7	7	7	7	7	6	5	4	4	3	4	6	7	11	6	4	4	3	3	3	3	4	4	3	11	5.2				
Aug 27	3	4	4	4	4	4	4	4	4	4	4	3	3	5	8	6	6	4	3	3	4	4	4	5	3	8	4.1				
Aug 28	5	5	6	7	7	8	8	5	3	2	2	2	2	2	2	2	5	3	2	3	3	3	4	2	8	3.8					
Aug 29	2	2	3	3	4	5	6	5	4	4	3	6	5	4	7	18	10	3	3	3	4	3	4	2	18	4.7					
Aug 30	3	3	4	4	3	3	3	3	2	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4	2	4	2.9				
Aug 31	2	2	3	3	4	4	5	4	4	5	5	6	8	7	7	7	9	8	8	7	7	9	9	8	2	9	5.8				
Diurnal Maximum	25	29	28	26	27	33	53	90	29	27	42	32	43	29	35	32	30	28	35	23	22	21	25	25							
Daiurnal Average	6.7	6.9	7.2	7.1	7.1	9.3	11.5	12.1	8.8	7.6	8.8	10.0	12.1	10.7	12.6	13.1	10.0	7.2	6.9	6.6	6.4	6.6	6.6	8.6							
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 PM2.5 - Tamarack Site**



PM2.5[ug/m3(L)] Histogram: Tamarack Monthly: 08-2021 1 Hr.

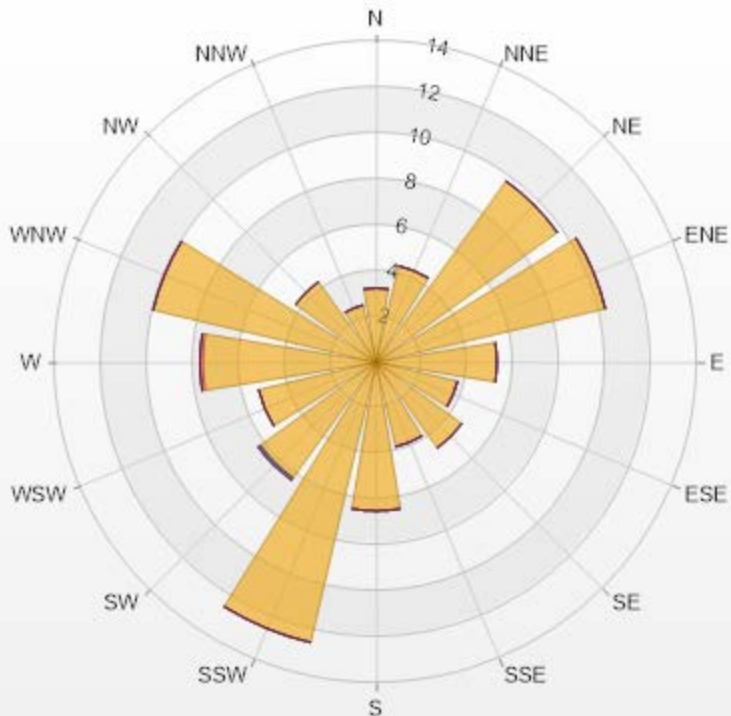


Classes	PM2.5
<=0	0.00%
0 - 10	71.12%
10 - 20	18.08%
20 - 30	8.23%
30 - 40	1.89%
40 - 50	0.40%
50 - 60	0.13%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.13%

Wind: Tamarack Poll.: Tamarack-PM2.5[ug/m3(L)] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 99.60% Calm Avg: 0.00 [ug/m3(L)]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	3.24	0	0	0	0	3.24
NNE	4.32	0	0	0	0	4.32
NE	9.72	0	0	0	0	9.72
ENE	10.26	0	0	0	0	10.26
E	5.26	0	0	0	0	5.26
ESE	3.64	0	0	0	0	3.64
SE	4.59	0	0	0	0	4.59
SSE	3.78	0	0	0	0	3.78
S	6.48	0	0	0	0	6.48
SSW	12.55	0	0	0	0	12.55
SW	6.21	0	0.13	0	0	6.34
WSW	5.26	0	0	0	0	5.26
W	7.56	0.13	0	0	0	7.69
WNW	9.99	0	0	0	0	9.99
NW	4.32	0	0	0	0	4.32
NNW	2.56	0	0	0	0	2.56
Summary	100	0.13	0.13	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



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Tamarack Site - August 2021

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

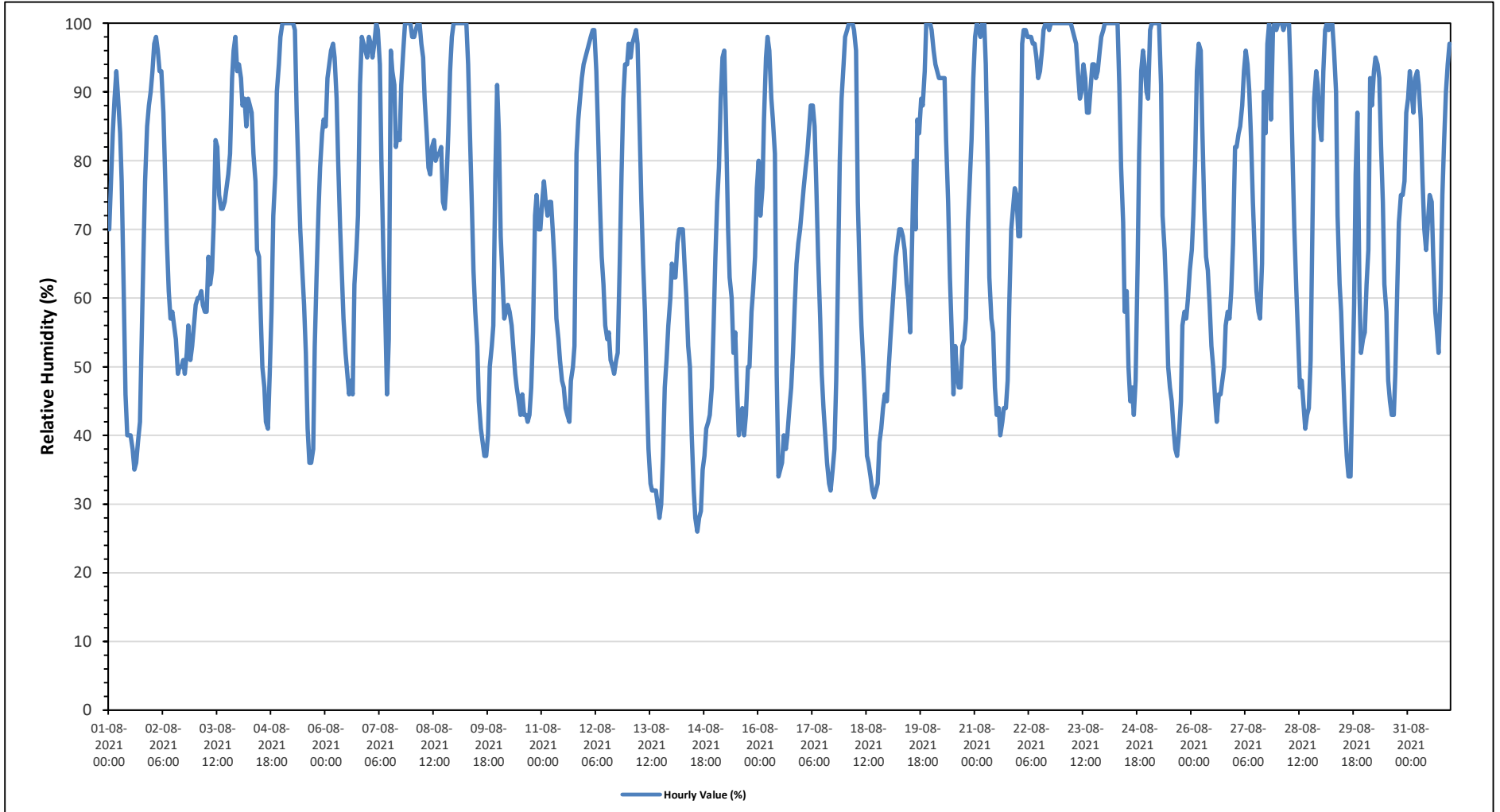
Maximum Hourly Value:	100 %	on August 5 at hour 0	Hours in Service:	744
Maximum Daily Value:	95.6 %	on August 22	Hours of Data:	744
Minimum Hourly Value:	26 %	on August 14 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	49.2 %	on August 14	Hours of Calibration:	0
Monthly Average:	71.8 %		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Aug 1	70	77	84	89	93	89	84	77	61	46	40	40	38	35	36	39	42	53	67	77	85	88	90	35	93	64.2		
Aug 2	93	97	98	96	93	93	87	79	68	61	57	58	56	54	49	50	50	51	49	52	56	51	53	56	49	98	67.0	
Aug 3	59	60	60	61	59	58	58	66	62	64	71	83	82	75	73	73	74	76	78	81	92	96	98	93	58	98	73.0	
Aug 4	94	92	88	89	85	89	88	87	81	77	67	66	57	50	47	42	41	49	58	72	78	90	94	98	41	98	74.1	
Aug 5	100	100	100	100	100	100	100	99	87	77	70	64	59	52	41	36	36	38	53	63	73	79	84	86	36	100	74.9	
Aug 6	85	92	94	96	97	95	89	80	70	63	57	52	49	46	48	46	62	67	72	91	98	97	96	95	46	98	76.5	
Aug 7	98	97	95	97	100	99	94	80	66	58	46	54	96	93	91	82	84	83	91	96	100	100	100	100	46	100	87.5	
Aug 8	98	98	99	100	100	97	95	89	84	79	78	82	83	80	81	81	82	74	73	77	84	93	98	100	73	100	87.7	
Aug 9	100	100	100	100	100	100	100	94	84	73	64	58	53	45	41	39	37	37	40	50	53	56	78	91	37	100	70.5	
Aug 10	84	69	63	57	58	59	58	56	53	49	47	45	43	46	43	43	42	43	47	55	72	75	70	70	42	84	56.1	
Aug 11	74	77	74	72	74	74	69	64	57	54	51	48	47	44	43	42	48	50	53	81	86	89	92	94	42	94	64.9	
Aug 12	95	96	97	98	99	99	93	84	74	66	62	56	54	55	51	50	49	51	52	65	78	89	94	94	49	99	75.0	
Aug 13	97	95	97	98	99	97	85	74	65	58	47	38	33	32	32	32	30	28	30	37	47	51	56	60	28	99	59.1	
Aug 14	65	63	63	68	70	70	70	64	60	53	50	40	32	28	26	28	29	35	37	41	42	43	47	56	26	70	49.2	
Aug 15	66	74	79	89	95	96	85	70	63	60	52	55	47	40	42	44	40	43	50	50	58	61	66	76	40	96	62.5	
Aug 16	80	72	76	86	95	98	96	89	86	81	49	34	35	36	40	38	40	44	47	52	59	65	68	70	34	98	64.0	
Aug 17	73	76	79	81	85	88	88	85	76	66	57	49	44	40	36	33	32	35	38	48	63	80	89	94	32	94	64.0	
Aug 18	98	99	100	100	100	99	96	74	64	56	50	45	37	36	34	32	31	32	33	39	41	44	46	45	31	100	59.6	
Aug 19	49	54	58	62	66	68	70	70	69	67	62	60	55	66	80	70	86	84	89	88	93	100	100	100	49	100	73.6	
Aug 20	99	96	94	93	92	92	92	92	83	74	63	55	46	53	49	47	47	53	54	57	71	77	83	92	46	99	73.1	
Aug 21	98	100	99	98	100	100	94	79	63	57	55	47	43	44	40	42	44	44	48	60	70	73	76	75	40	100	68.7	
Aug 22	69	69	97	99	99	98	98	98	97	97	95	92	93	96	99	100	100	99	100	100	100	100	100	100	69	100	95.6	
Aug 23	100	100	100	100	100	100	99	98	97	93	89	90	94	92	87	87	90	94	94	92	93	96	98	99	87	100	95.1	
Aug 24	100	100	100	100	100	100	100	100	100	91	79	71	58	61	50	45	47	43	48	65	81	93	96	94	90	43	100	79.7
Aug 25	89	99	100	100	100	100	100	100	91	72	67	60	50	47	45	41	38	37	40	45	56	58	57	60	64	37	100	67.3
Aug 26	67	72	80	93	97	96	85	73	66	64	59	53	50	45	42	46	46	48	50	56	58	57	61	68	42	97	63.8	
Aug 27	82	82	84	85	88	93	96	94	90	83	74	67	61	58	57	65	90	84	97	100	86	99	100	99	57	100	83.9	
Aug 28	100	100	100	99	100	100	100	92	79	70	61	55	47	48	45	41	43	44	51	70	89	93	91	85	41	100	75.1	
Aug 29	83	93	99	100	99	100	100	96	90	72	62	58	49	42	37	34	34	45	59	78	87	61	52	54	34	100	70.2	
Aug 30	55	62	67	92	88	93	95	94	92	82	74	62	58	48	45	43	43	49	62	71	75	75	77	87	43	95	70.4	
Aug 31	89	93	90	87	92	93	91	86	77	70	67	71	75	74	66	58	55	52	61	75	83	90	94	97	52	97	78.6	
Diurnal Maximum	100	100	100	100	100	100	100	100	97	97	95	92	96	96	99	100	100	99	100	100	100	100	100	100	100	100	100	100
Diurnal Average	84.2	85.6	87.5	89.8	91.1	91.4	88.9	83.0	75.1	68.3	61.5	57.6	55.7	53.3	51.2	49.8	51.7	53.6	59.0	67.8	74.6	78.0	80.7	83.2				

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

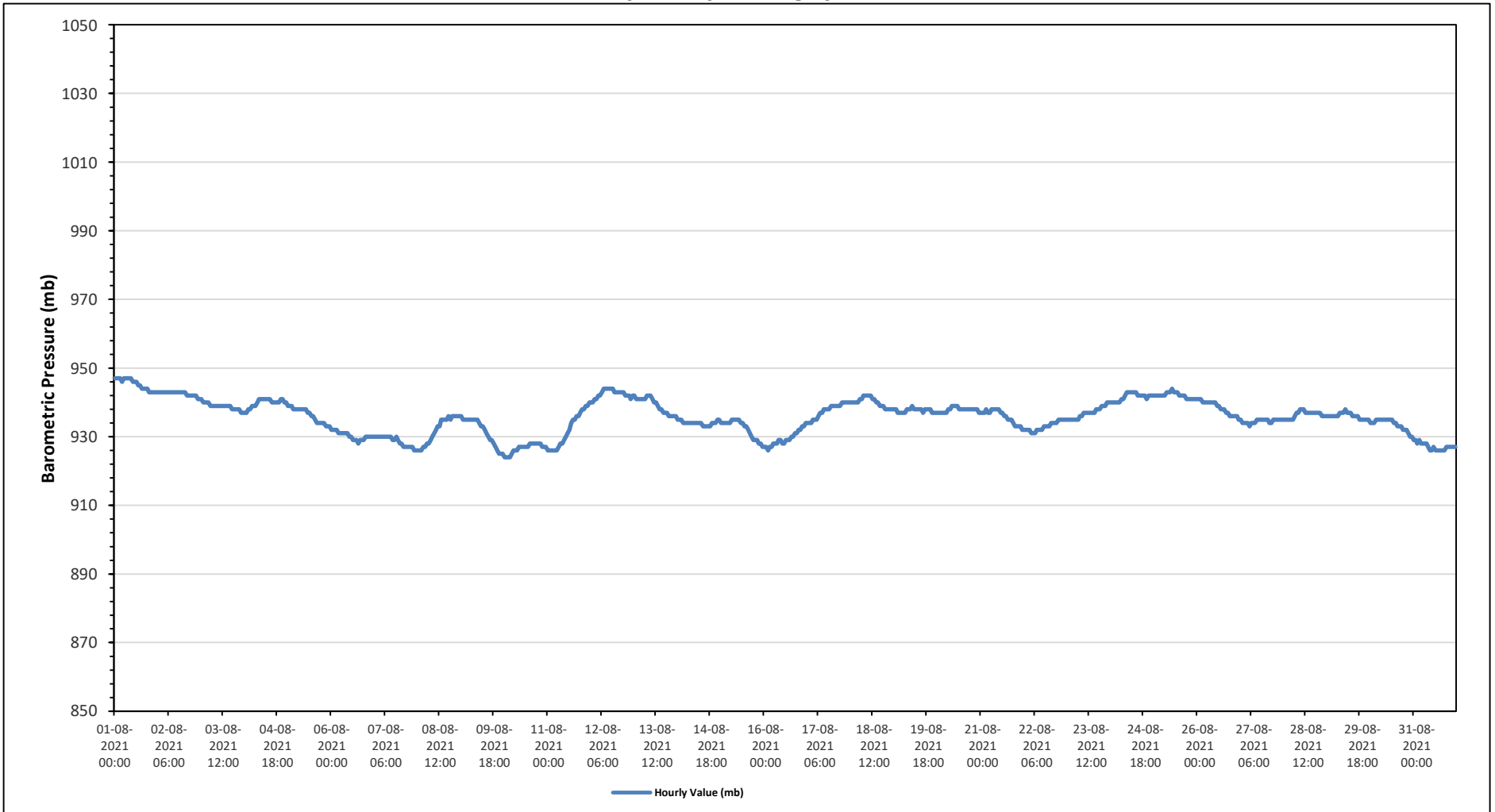
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

*Timeseries Chart of Hourly Average for RH - Tamarack Site*





*Timeseries Chart of Hourly Average for BP - Tamarack Site*





## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - August 2021  
Summary of Hourly Averages

### AMBIENT TEMPERATURE (AT) in Degree Celsius

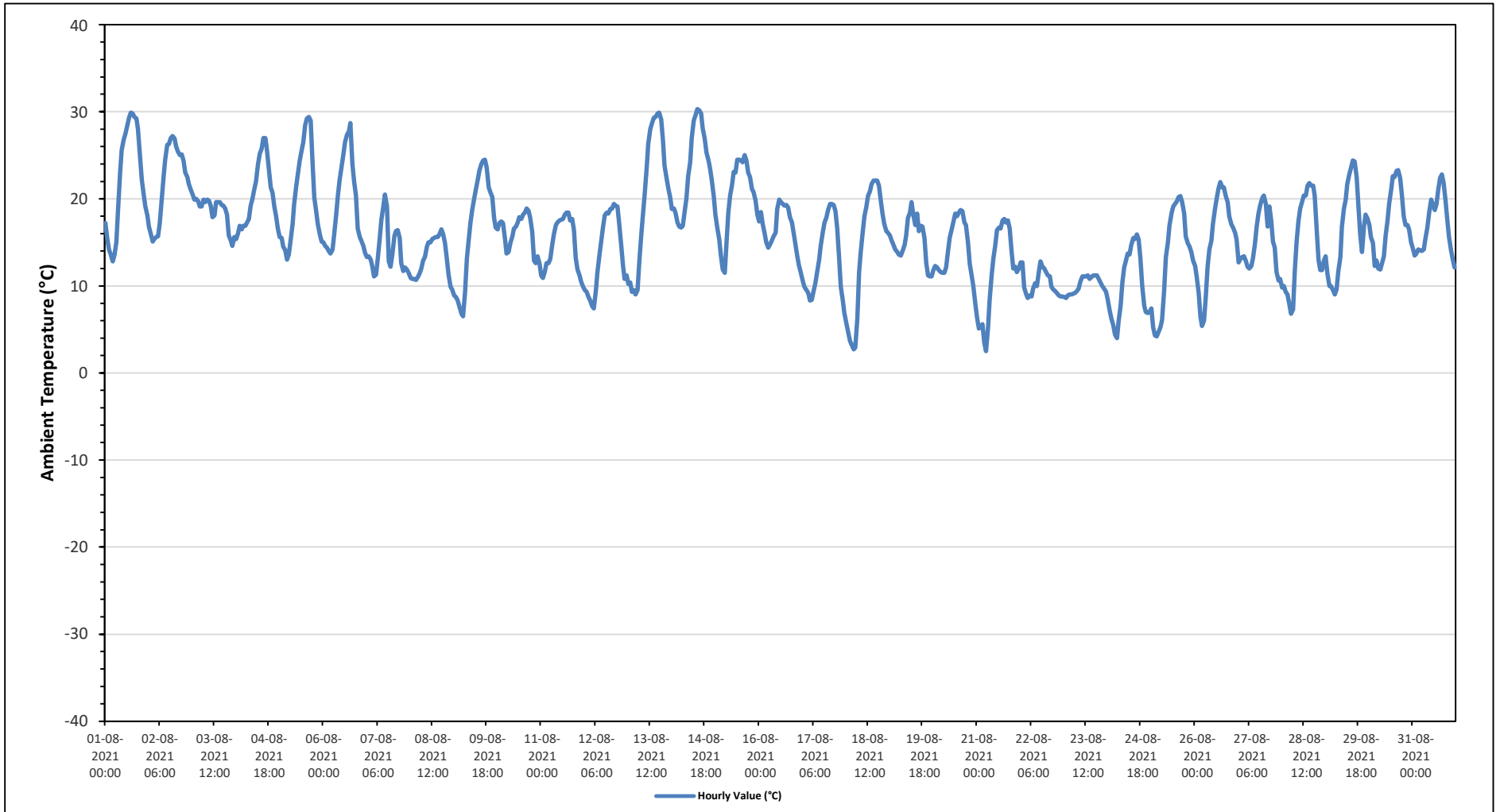
Maximum Hourly Value:	30.3 °C	on August 14 at hour 14	Hours in Service:	744
Maximum Daily Value:	23.2 °C	on August 14	Hours of Data:	744
Minimum Hourly Value:	2.5 °C	on August 21 at hour 5	Hours of Missing Data:	0
Minimum Daily Value:	10.0 °C	on August 24	Hours of Calibration:	0
Monthly Average:	16.1 °C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Aug 1	17.2	15.5	14.2	13.6	12.8	13.6	15	18.9	23.1	25.6	26.8	27.5	28.4	29.3	29.9	29.8	29.4	29.2	28	24.9	22.2	20.6	19.1	18.1	12.8	29.9	22.2
Aug 2	16.8	15.9	15.1	15.4	15.6	15.7	17.3	19.8	22.6	24.5	26.2	26.3	27	27.2	26.9	26	25.4	25	25.1	24.4	23	22.5	21.7	21	15.1	27.2	21.9
Aug 3	20.5	19.9	20	19.7	19.1	19.1	19.9	19.6	19.9	19.8	19.2	17.9	18.1	19.6	19.6	19.3	19.2	18.9	18.2	15.8	15.2	14.6	15.6	14.6	20.5	18.7	
Aug 4	15.4	16	16.9	16.5	16.9	16.9	17.3	17.7	19.2	20	21.2	22	24	25.2	25.7	27	27	25.6	23.3	21.3	20.7	19.1	18	16.6	15.4	27.0	20.4
Aug 5	15.6	15.5	14.5	14.1	13	13.6	15.2	17.1	19.4	21.4	22.9	24.4	25.5	26.5	28.4	29.2	29.4	29	24.4	20.2	18.5	17.1	15.9	15.1	13.0	29.4	20.2
Aug 6	15	14.6	14.4	14	13.7	14.2	15.8	18.1	20.4	22.2	23.6	25.2	26.5	27.4	27.7	28.7	24	21.9	20.4	16.6	15.6	15.2	14.6	13.8	13.7	28.7	19.3
Aug 7	13.3	13.4	13	12.3	11.1	11.3	13.2	15.3	17.6	19.2	20.5	19.1	12.8	12.2	13.6	15.7	16.3	16.4	15.5	12.6	11.7	12.1	11.9	11.5	11.1	20.5	14.2
Aug 8	10.9	10.8	10.8	10.7	11	11.4	12	12.9	13.3	14.5	15	15	15.4	15.5	15.6	15.6	15.9	16.5	15.9	14.9	13.2	11.3	9.9	9.6	9.6	16.5	13.2
Aug 9	8.9	8.7	8.3	7.6	6.8	6.5	9.3	13.1	15.2	17.2	18.7	19.9	21	22.2	23.2	24	24.4	24.5	23.6	21.3	20.8	20.2	17.8	16.7	6.5	24.5	16.7
Aug 10	16.5	17.2	17.4	17.2	15.4	13.7	13.9	14.9	15.7	16.6	16.8	17.3	17.9	17.7	18.2	18.4	18.9	18.6	17.8	16.2	12.9	12.6	13.4	12.5	12.5	18.9	16.2
Aug 11	11.2	10.9	11.7	12.6	12.6	13.1	14.6	15.9	17	17.3	17.5	17.6	17.7	18.2	18.4	18.4	17.5	17.7	16.4	13.2	11.9	11.2	10.5	9.9	9.9	18.4	14.7
Aug 12	9.5	9.3	8.7	8.3	7.7	7.4	9.4	11.5	13.5	15.1	16.7	18.1	18.4	18.3	18.8	18.9	19.4	19.2	19.1	17.1	14.9	12.3	10.8	11.2	7.4	19.4	13.9
Aug 13	10.2	10.4	9.3	9.5	9	9.5	12.8	15.6	18.1	20.5	23.6	26.3	28	28.7	29.3	29.4	29.8	29.9	29.1	26.7	23.8	22.4	21.2	20.2	9.0	29.9	20.6
Aug 14	18.8	18.9	18.4	17.3	16.8	16.7	16.9	18.7	20	22.6	24.2	27	29	29.6	30.3	30.2	29.8	28.1	26.9	25.3	24.4	23.5	22.1	20.2	16.7	30.3	23.2
Aug 15	18.2	16.6	15.4	13.4	11.9	11.5	14.6	18.5	20.4	21.5	23.1	23	24.5	24.5	24.4	24.2	25	24.4	23	22.5	21.1	20.8	19.8	18.2	11.5	25.0	20.0
Aug 16	17.4	18.5	17.1	16.1	15	14.4	14.7	15.2	15.7	16.1	18.8	19.9	19.6	19.4	19.2	19.3	19	17.9	17.3	16.2	14.7	13.4	12.3	11.5	11.5	19.9	16.6
Aug 17	10.5	9.9	9.5	9.2	8.3	8.4	9.4	10.3	11.6	13	14.6	16.1	17.3	17.8	18.7	19.4	19.4	19.3	18.6	16.6	13.4	9.9	8.3	6.9	6.9	19.4	13.2
Aug 18	5.7	4.7	3.7	3.2	2.7	2.9	6.2	11.6	13.8	16.1	18	19	20.3	20.9	21.7	22.1	22.1	22.1	21.5	19.6	18.3	17.1	16.3	16.1	2.7	22.1	14.4
Aug 19	15.8	15.2	14.7	14.2	13.9	13.6	13.5	14	14.7	15.8	17.8	18.4	19.6	18	17	18.3	16.3	16.9	16.8	15.5	12.6	11.2	11.1	11.1	11.1	19.6	15.3
Aug 20	11.8	12.3	12.1	11.8	11.6	11.5	11.5	12.1	14.1	15.5	16.5	17.4	18.3	18	18.4	18.7	18.6	17.3	17	15	12.5	11.1	10	7.9	7.9	18.7	14.2
Aug 21	6.3	5.1	5.3	5.6	3.5	2.5	5.3	8.3	11.2	13.2	14.6	16.4	16.7	16.6	17.5	17.7	17.3	17.5	16.6	14.1	12	12.2	11.6	12	2.5	17.7	11.6
Aug 22	12.7	12.7	9.8	9	8.6	8.9	8.8	9.7	10.3	10	11.7	12.8	12.2	12	11.6	11.2	11.1	9.9	9.6	9.4	9.2	8.9	8.8	8.8	8.6	12.8	10.3
Aug 23	8.7	8.6	8.9	9	9	9.1	9.2	9.4	9.7	10.5	11.1	11.1	11.1	11.2	10.8	11	11.2	11.2	11.2	10.8	10.4	10	9.7	9.3	8.6	11.2	10.1
Aug 24	8.5	7.2	6.2	5.5	4.4	4	5.9	7.7	10.4	12.1	12.9	13.7	13.6	14.7	15.5	15.4	15.9	15.3	13.1	10	7.7	7	6.9	7	4.0	15.9	10.0
Aug 25	7.4	5.2	4.3	4.2	4.7	5.3	6.1	9.4	13.3	15	16.9	18.3	19.1	19.4	19.7	20.2	20.3	19.6	18.3	15.7	14.9	14.5	13.9	12.9	4.2	20.3	13.3
Aug 26	12.3	11.1	9.2	6.4	5.4	6	8.8	12.2	14.2	15.2	17.1	18.8	20.1	21.2	21.9	21.3	21.3	20.4	19.6	18	17.1	16.7	16.1	15.3	5.4	21.9	15.2
Aug 27	12.7	13.1	13.3	13.4	12.8	12.2	12	12.3	13.1	14.8	16.8	18.3	19.3	20.1	20.4	19.4	16.8	19.1	17.5	15.1	14.4	11.6	10.6	10.8	10.6	20.4	15.0
Aug 28	9.8	10	9.3	9	7.8	6.8	7.3	11.8	15.1	17.4	18.9	19.7	20.4	20.4	21.5	21.8	21.5	20.4	16.4	13	11.8	11.8	12.9	6.8	21.8	14.8	
Aug 29	13.4	11.4	10	10	9.5	9	9.6	11.7	13.3	16.8	18.9	19.9	21.7	22.8	23.6	24.4	24.3	22.5	19.6	15.9	13.9	16.9	18.2	17.7	9.0	24.4	16.5
Aug 30	17	15.6	14.9	12.3	12.9	12	11.9	12.5	13.4	15.8	17.4	19.5	21.1	22.6	22.5	23.2	23.3	22.4	20.4	18	17	17	16.5	15	11.9	23.3	17.3
Aug 31	14.3	13.5	13.7	14.2	14.1	14	14.2	15.4	16.7	18.4	19.9	19.4	18.7	19.4	21.1	22.4	22.8	21.8	19.9	17.4	15.6	14.1	13	12.1	12.1	22.8	16.9
Diurnal Maximum	20.5	19.9	20.0	19.7	19.1	19.1	19.9	19.8	23.1	25.6	26.8	27.5	29.0	29.6	30.3	30.2	29.8	29.9	29.1	26.7	24.4	23.5	22.1	21.0			
Diurnal Average	13.0	12.5	11.9	11.5	10.9	10.8	12.0	13.9	15.7	17.2	18.6	19.5	20.1	20.5	21.0	21.3	21.1	20.6	19.5	17.4	15.7	14.8	14.1	13.5			

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

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

*Timeseries Chart of Hourly Average for AT - Tamarack Site*





## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - August 2021  
Summary of Hourly Averages

### STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:	24.0 °C	on August 19 at hour 11	Hours in Service:	744
Maximum Daily Value:	23.5 °C	on August 10	Hours of Data:	744
Minimum Hourly Value:	22.4 °C	on August 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	22.4 °C	on August 3	Hours of Calibration:	0
Monthly Average:	23.2 °C		Operational Uptime:	100.0

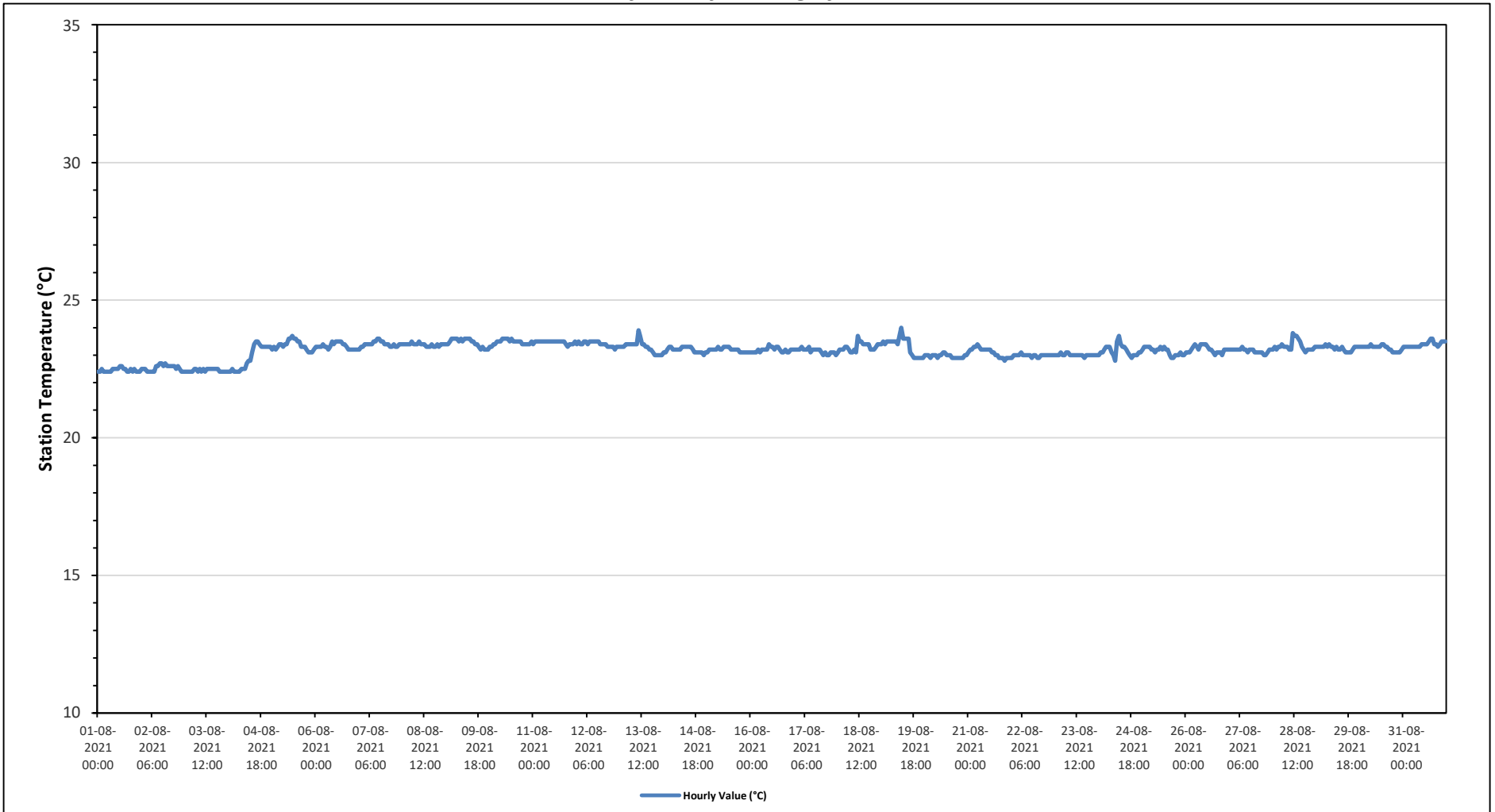
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23		
Aug 1	22.4	22.4	22.5	22.4	22.4	22.4	22.4	22.4	22.5	22.5	22.5	22.5	22.6	22.6	22.5	22.5	22.4	22.4	22.5	22.4	22.5	22.4	22.4	22.4	22.4	22.4	22.6	22.5	
Aug 2	22.5	22.5	22.5	22.4	22.4	22.4	22.4	22.4	22.6	22.6	22.7	22.7	22.6	22.7	22.6	22.6	22.6	22.6	22.6	22.5	22.6	22.5	22.4	22.4	22.4	22.4	22.4	22.7	22.5
Aug 3	22.4	22.4	22.4	22.4	22.4	22.5	22.5	22.4	22.5	22.4	22.5	22.4	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.5	22.4
Aug 4	22.4	22.4	22.5	22.4	22.4	22.4	22.4	22.5	22.5	22.5	22.7	22.8	22.8	23.1	23.4	23.5	23.5	23.4	23.3	23.3	23.3	23.3	23.3	23.3	23.3	23.3	23.3	23.5	22.9
Aug 5	23.2	23.3	23.2	23.3	23.4	23.4	23.3	23.4	23.4	23.6	23.6	23.7	23.6	23.6	23.5	23.5	23.3	23.3	23.3	23.2	23.2	23.1	23.1	23.1	23.2	23.1	23.2	23.4	
Aug 6	23.3	23.3	23.3	23.3	23.4	23.3	23.3	23.2	23.3	23.5	23.4	23.5	23.5	23.5	23.4	23.4	23.3	23.3	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.3	
Aug 7	23.2	23.3	23.3	23.4	23.4	23.4	23.4	23.4	23.5	23.5	23.6	23.6	23.5	23.5	23.4	23.4	23.4	23.3	23.3	23.4	23.3	23.3	23.4	23.4	23.4	23.4	23.2	23.4	
Aug 8	23.4	23.4	23.4	23.4	23.4	23.5	23.4	23.4	23.4	23.5	23.4	23.4	23.4	23.3	23.3	23.3	23.4	23.3	23.3	23.4	23.3	23.4	23.4	23.4	23.4	23.4	23.3	23.4	
Aug 9	23.4	23.4	23.5	23.6	23.6	23.6	23.6	23.5	23.6	23.5	23.6	23.6	23.6	23.6	23.5	23.5	23.4	23.4	23.3	23.2	23.3	23.2	23.2	23.2	23.2	23.2	23.2	23.5	
Aug 10	23.3	23.3	23.4	23.4	23.5	23.5	23.5	23.6	23.6	23.6	23.6	23.5	23.6	23.5	23.5	23.5	23.5	23.5	23.4	23.4	23.4	23.4	23.4	23.4	23.5	23.3	23.6	23.5	
Aug 11	23.4	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.4	23.3	23.4	23.4	23.4	23.5	23.3	23.5	23.5	
Aug 12	23.4	23.5	23.4	23.4	23.5	23.5	23.4	23.5	23.5	23.5	23.5	23.5	23.5	23.4	23.4	23.4	23.4	23.3	23.3	23.3	23.3	23.2	23.3	23.3	23.2	23.5	23.4	23.4	
Aug 13	23.3	23.3	23.3	23.4	23.4	23.4	23.4	23.4	23.4	23.4	23.9	23.7	23.4	23.4	23.3	23.3	23.2	23.2	23.1	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.9	23.3	
Aug 14	23.1	23.1	23.2	23.3	23.3	23.2	23.2	23.2	23.2	23.2	23.3	23.3	23.3	23.3	23.3	23.3	23.2	23.1	23.1	23.1	23.1	23.1	23.0	23.1	23.0	23.0	23.3	23.2	
Aug 15	23.1	23.2	23.2	23.2	23.2	23.2	23.3	23.2	23.2	23.3	23.3	23.3	23.3	23.2	23.2	23.2	23.2	23.2	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.3	23.2	
Aug 16	23.1	23.1	23.1	23.1	23.2	23.1	23.2	23.2	23.2	23.2	23.4	23.3	23.3	23.2	23.3	23.3	23.2	23.1	23.1	23.1	23.2	23.1	23.1	23.2	23.2	23.1	23.4	23.2	
Aug 17	23.2	23.2	23.2	23.2	23.3	23.2	23.2	23.2	23.3	23.1	23.2	23.2	23.2	23.2	23.2	23.1	23.0	23.1	23.0	23.0	23.1	23.1	23.1	23.1	23.0	23.0	23.3	23.2	
Aug 18	23.1	23.2	23.2	23.2	23.3	23.3	23.2	23.1	23.1	23.2	23.1	23.2	23.1	23.7	23.5	23.5	23.4	23.4	23.4	23.4	23.2	23.2	23.2	23.3	23.4	23.4	23.1	23.7	
Aug 19	23.4	23.5	23.4	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.4	23.7	24.0	23.6	23.6	23.6	23.6	23.1	23.0	22.9	22.9	22.9	22.9	22.9	22.9	22.9	24.0	23.3	
Aug 20	23.0	23.0	23.0	22.9	23.0	23.0	23.0	22.9	23.0	23.0	23.1	23.1	23.0	23.0	23.0	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9	23.0	23.0	22.9	23.1	23.0	
Aug 21	23.1	23.2	23.2	23.3	23.3	23.4	23.3	23.2	23.2	23.2	23.2	23.2	23.2	23.1	23.1	23.0	23.0	23.0	22.9	22.9	22.9	22.8	22.9	22.9	22.9	22.8	23.4	23.1	
Aug 22	22.9	23.0	23.0	23.0	23.0	23.1	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	22.9	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	22.9	23.1	23.0	
Aug 23	23.0	23.0	23.0	23.1	23.0	23.0	23.1	23.1	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	22.9	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	22.9	23.1	23.0	
Aug 24	23.0	23.1	23.1	23.2	23.3	23.3	23.3	23.1	23.0	22.8	23.5	23.7	23.4	23.3	23.3	23.2	23.1	23.0	22.9	23.0	23.0	23.0	23.1	23.1	23.1	22.8	23.7	23.2	
Aug 25	23.2	23.3	23.3	23.3	23.3	23.2	23.2	23.1	23.2	23.2	23.3	23.2	23.3	23.2	23.2	23.0	22.9	22.9	23.0	23.0	23.0	23.1	23.0	23.0	23.0	22.9	23.3	23.1	
Aug 26	23.1	23.1	23.1	23.2	23.3	23.4	23.3	23.2	23.4	23.4	23.4	23.4	23.3	23.2	23.2	23.1	23.0	23.1	23.1	23.1	23.1	23.0	23.2	23.2	23.2	23.0	23.4	23.2	
Aug 27	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.3	23.2	23.2	23.1	23.2	23.2	23.2	23.1	23.1	23.1	23.1	23.1	23.0	23.0	23.1	23.2	23.2	23.2	23.0	23.3	23.2	
Aug 28	23.2	23.3	23.2	23.3	23.3	23.4	23.3	23.3	23.3	23.2	23.2	23.8	23.7	23.7	23.6	23.5	23.3	23.2	23.1	23.2	23.2	23.2	23.2	23.3	23.1	23.8	23.3	23.3	
Aug 29	23.3	23.3	23.3	23.3	23.3	23.4	23.3	23.4	23.3	23.3	23.2	23.3	23.2	23.3	23.2	23.2	23.1	23.1	23.1	23.1	23.1	23.2	23.3	23.3	23.3	23.1	23.4	23.3	
Aug 30	23.3	23.3	23.3	23.3	23.3	23.3	23.4	23.3	23.3	23.3	23.3	23.3	23.3	23.4	23.4	23.3	23.3	23.2	23.2	23.1	23.1	23.1	23.1	23.1	23.2	23.1	23.4	23.3	
Aug 31	23.3	23.3	23.3	23.3	23.3	23.3	23.3	23.3	23.3	23.3	23.3	23.4	23.4	23.4	23.5	23.6	23.6	23.4	23.4	23.3	23.4	23.5	23.5	23.5	23.5	23.3	23.6	23.4	
Diurnal Maximum	23.4	23.5	23.5	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.9	24.0	23.7	23.7	23.6	23.6	23.6	23.5	23.4	23.4	23.4	23.5	23.5	23.5	23.5	23.3	23.6	23.4	
Diurnal Average	23.1	23.1	23.1	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.3	23.3	23.3	23.3	23.2	23.2	23.2	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	

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

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



*Timeseries Chart of Hourly Average for ST - Tamarack Site*





## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - August 2021  
Summary of Hourly Averages

### PRECIPITATION in mm

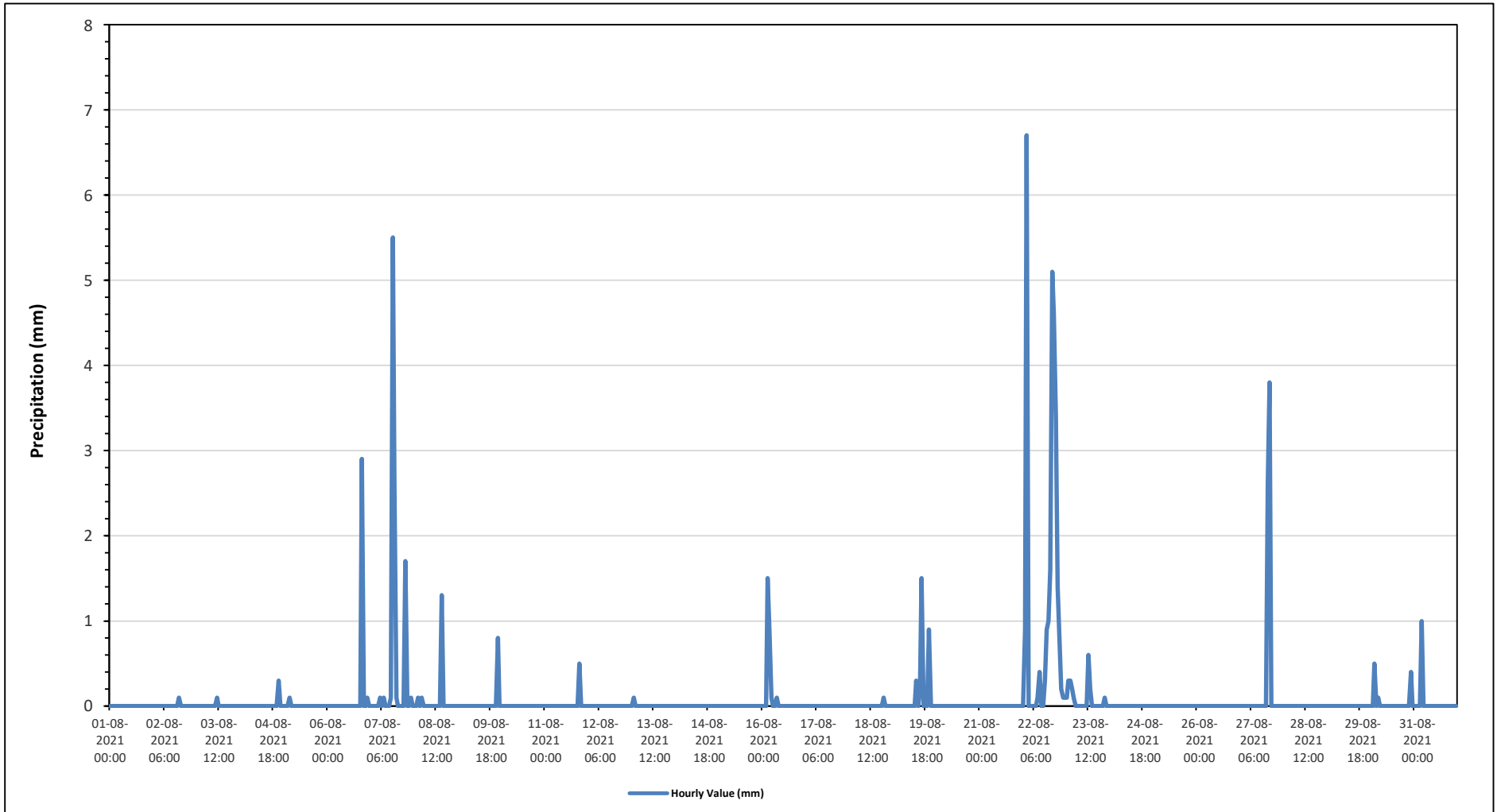
Maximum Hourly Value:	6.7 mm on August 22 at hour 2	Hours in Service:	744
Maximum Daily Value:	27.6 mm on August 22	Hours of Data:	744
Minimum Hourly Value:	0.0 mm on August 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 mm on August 1	Hours of Calibration:	0
Monthly Total:	60.3 mm	Operational 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
Aug 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
Aug 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0.0	0.1	0.1
Aug 3	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.1
Aug 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0	0.0	0.3	0.3
Aug 5	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	0.1	0.1
Aug 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.9	0	0	0.1	0	0.0	2.9	3.0
Aug 7	0	0	0	0	0	0.1	0	0.1	0	0	0	0.1	5.5	2.6	0.1	0	0	0	0	1.7	0	0	0.1	0	0.0	5.5	10.3
Aug 8	0	0	0.1	0	0.1	0	0	0	0	0	0	0	0	0	0	1.3	0	0	0	0	0	0	0	0	0.0	1.3	1.5
Aug 9	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	0.8	0.8
Aug 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
Aug 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0.0	0.5	0.5
Aug 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
Aug 13	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.1
Aug 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Aug 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
Aug 16	0	0	0	1.5	0.9	0.1	0	0	0.1	0	0	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	1.5	2.6
Aug 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
Aug 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0.0	0.1	0.1
Aug 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0	0.2	1.5	0	0	0	0.9	0	0	0	0.0	1.5	2.9
Aug 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Aug 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
Aug 22	0	0.9	6.7	0	0	0	0	0	0.1	0.4	0	0	0.3	0.9	1	1.6	5.1	4.6	3.4	1.4	0.8	0.2	0.1	0.1	0.0	6.7	27.6
Aug 23	0.1	0.3	0.3	0.2	0.1	0	0	0	0	0	0	0	0.6	0.2	0	0	0	0	0	0	0	0.1	0	0	0.0	0.6	1.9
Aug 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
Aug 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
Aug 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
Aug 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.6	3.8	0	0	0	0	0	0	0	0.0	3.8	6.4
Aug 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Aug 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
Aug 30	0	0	0.5	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0	0.0	0.5	1.0
Aug 31	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	1.0	1.0
Diurnal Maximum	0.1	0.9	6.7	1.5	1.0	0.1	0.0	0.1	0.1	0.4	0.0	0.1	5.5	2.6	1.0	2.6	5.1	4.6	3.4	2.9	0.9	0.3	0.8	0.1			
Diurnal Average	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.2	0.3	0.1	0.1	0.2	0.1	0.0	0.0	0.0			

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

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

**Timeseries Chart of Hourly Average for Precipitation - Tamarack Site**





## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - August 2021

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

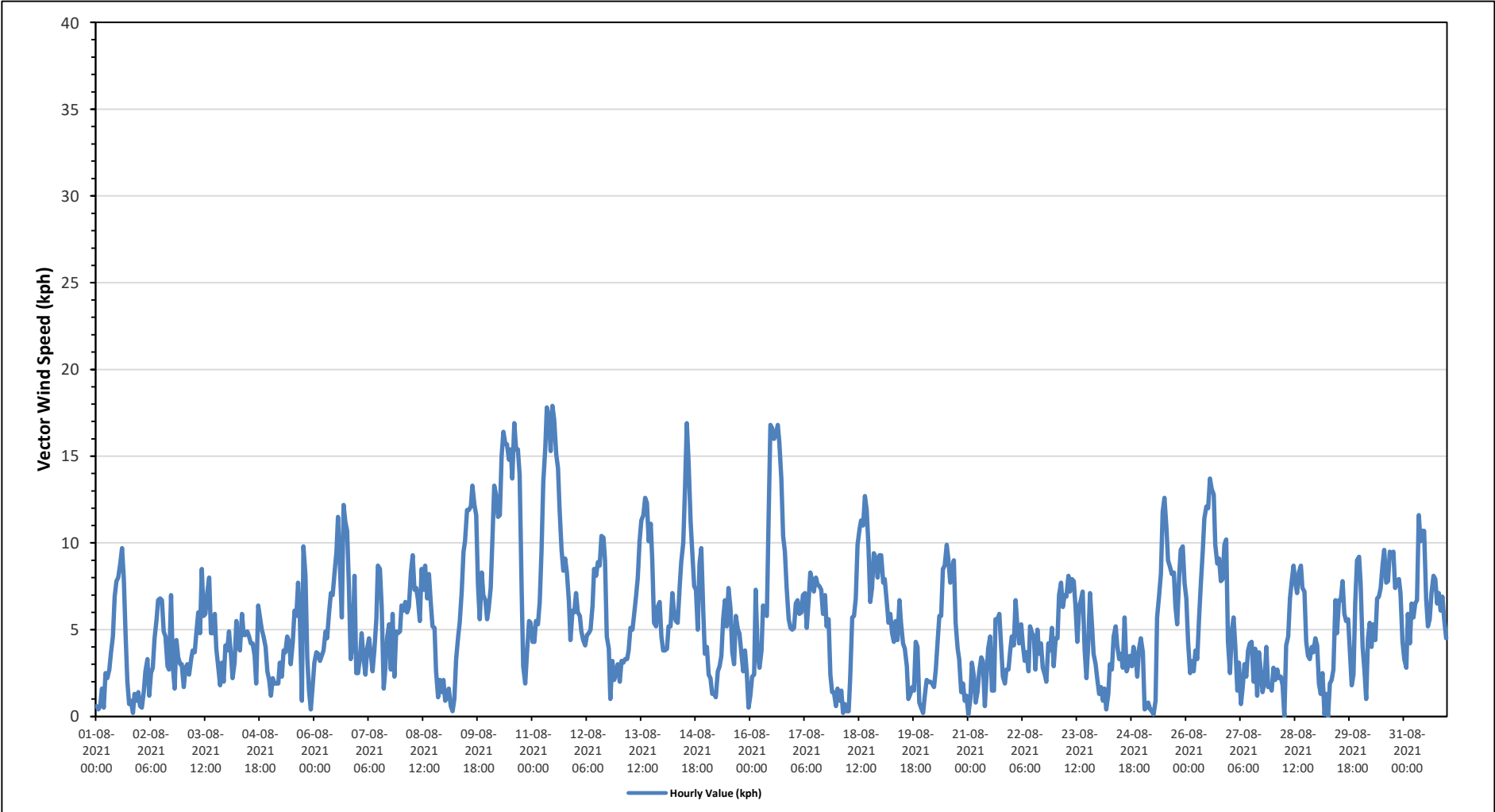
Maximum Hourly Value:	17.9 kph	on August 11 at hour 11	Hours in Service:	744
Maximum Daily Value:	10.7 kph	on August 10	Hours of Data:	744
Minimum Hourly Value:	0.0 kph	on August 28 at hour 6	Hours of Missing Data:	0
Minimum Daily Value:	0.4 kph	on August 24	Hours of Calibration:	0
Monthly Average:	1.1 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
Aug 1	0.6	0.4	0.6	1.6	0.5	2.5	2.2	2.7	3.6	4.6	6.9	7.8	8.0	8.8	9.7	7.9	4.7	2.0	0.7	0.9	0.2	1.3	0.9	1.4	0.2	9.7	3.0
Aug 2	0.6	0.5	1.5	2.6	3.3	1.2	2.5	2.8	4.5	5.6	6.7	6.8	6.7	4.9	4.6	2.9	2.7	7.0	2.9	1.6	4.4	3.4	3.0	3.0	0.5	7.0	3.2
Aug 3	1.7	2.8	3.0	2.4	3.3	3.8	3.7	4.9	6.0	4.8	8.5	5.8	5.9	7.2	8.0	4.8	4.8	5.9	3.9	2.8	1.8	3.1	2.0	4.1	1.7	8.5	3.3
Aug 4	3.8	4.9	3.5	2.2	3.1	5.5	4.0	3.8	5.9	4.7	4.7	4.9	4.6	4.2	4.2	3.5	1.9	6.4	5.7	5.0	4.6	4.0	2.6	2.1	1.9	6.4	1.4
Aug 5	1.2	2.2	1.9	1.9	1.9	3.1	2.3	3.8	3.7	4.6	4.3	3.0	4.3	6.1	5.8	7.7	5.6	0.9	9.8	8.1	3.4	1.5	0.4	1.9	0.4	9.8	2.1
Aug 6	3.1	3.7	3.6	3.2	3.5	3.8	4.9	4.5	6.0	7.1	7.0	8.2	9.5	11.5	8.5	5.7	12.2	11.2	10.7	7.5	3.3	4.2	8.1	2.5	2.5	12.2	1.8
Aug 7	2.5	3.5	4.8	3.3	2.4	3.9	4.5	3.6	2.6	3.8	5.6	8.7	8.5	6.3	1.6	2.7	4.6	5.3	2.7	5.9	2.3	4.9	4.8	4.9	1.6	8.7	3.0
Aug 8	6.4	6.1	6.6	6.0	6.3	8.3	9.3	7.3	7.4	6.7	5.5	8.5	7.3	8.7	6.8	8.2	6.6	5.2	5.1	2.6	1.1	2.1	1.4	2.1	1.1	9.3	4.9
Aug 9	0.9	1.2	1.6	0.6	0.3	1.0	3.3	4.6	5.4	7.2	9.5	10.1	11.9	11.9	12.1	13.3	12.2	11.6	7.6	5.6	8.3	7.0	6.7	5.6	0.3	13.3	6.2
Aug 10	6.2	7.4	10.3	13.3	12.8	11.5	11.6	15.0	16.4	15.7	15.7	14.8	15.4	13.7	16.9	15.4	15.4	13.9	7.2	2.9	1.9	3.7	5.5	5.4	1.9	16.9	10.7
Aug 11	4.3	4.3	5.5	5.3	6.6	9.5	13.5	15.5	17.8	17.3	15.3	17.9	17.1	15.1	14.3	12.0	9.6	8.4	9.1	8.3	6.6	4.4	6.1	6.0	4.3	17.9	9.6
Aug 12	7.1	6.0	5.8	4.9	4.4	4.1	4.7	4.8	5.0	6.4	8.5	8.1	8.9	8.7	10.4	10.3	9.0	4.6	3.9	1.0	3.2	2.1	2.6	3.0	1.0	10.4	5.1
Aug 13	2.0	3.2	3.1	3.3	3.3	3.8	5.1	5.0	5.8	6.9	8.0	10.1	11.3	11.6	12.6	12.3	10.1	11.1	9.0	5.4	5.2	6.3	6.6	4.6	2.0	12.6	6.4
Aug 14	3.8	3.8	3.9	5.2	5.2	7.1	5.8	5.5	5.4	7.5	8.9	10.0	13.2	16.9	14.6	11.2	9.6	7.5	7.3	5.0	8.8	9.7	5.9	3.6	3.6	16.9	6.7
Aug 15	4.0	2.4	2.2	1.3	1.3	1.1	2.6	2.9	3.5	5.6	6.7	5.2	7.4	6.2	3.7	3.0	5.8	5.0	4.8	3.6	2.6	3.8	2.5	0.5	0.5	7.4	2.8
Aug 16	1.2	2.3	2.4	7.3	3.6	2.8	3.8	6.4	6.0	5.8	11.5	16.8	16.6	16.0	16.2	16.8	15.8	13.7	10.4	9.5	7.4	5.6	5.1	5.0	1.2	16.8	8.1
Aug 17	5.1	6.5	6.7	5.9	6.0	7.0	7.1	5.1	6.6	8.3	7.8	7.2	8.0	7.6	7.5	7.3	5.9	7.0	5.2	5.6	2.4	1.4	1.4	0.6	0.6	8.3	5.3
Aug 18	1.6	0.9	1.5	0.2	0.7	0.3	0.3	2.2	5.7	5.8	6.8	9.9	10.8	11.3	11.0	12.7	11.9	9.8	6.6	7.4	9.4	9.1	8.0	9.3	0.2	12.7	6.0
Aug 19	9.3	7.7	7.9	6.6	5.4	5.9	4.8	4.3	5.5	4.4	6.7	5.4	4.2	3.9	2.9	1.0	1.3	1.7	1.5	4.3	4.0	0.8	0.5	0.2	0.2	9.3	3.4
Aug 20	1.1	2.1	2.0	2.0	1.9	1.7	2.7	4.3	5.8	5.8	8.5	8.7	9.9	9.1	7.7	8.5	9.0	5.4	3.9	3.3	1.4	1.9	0.9	1.2	0.9	9.9	4.2
Aug 21	0.1	1.0	3.1	2.3	0.8	1.4	2.6	3.4	3.2	0.6	2.4	3.9	4.6	1.5	1.5	5.6	5.6	5.9	4.1	2.3	1.9	2.7	2.7	3.8	0.1	5.9	1.6
Aug 22	4.6	4.1	6.7	5.2	4.2	5.3	4.1	3.2	3.7	2.6	5.2	4.8	4.6	2.7	5.0	3.6	4.2	2.8	2.4	2.0	4.2	3.8	5.1	2.9	2.0	6.7	3.6
Aug 23	4.5	4.5	7.0	7.7	6.3	7.0	6.9	8.1	7.2	7.9	7.8	6.3	4.3	6.4	6.7	7.2	3.8	2.2	4.2	7.1	5.2	3.6	3.0	2.1	2.1	8.1	5.6
Aug 24	1.3	1.7	0.9	1.6	0.4	1.3	3.0	2.7	4.6	5.2	4.1	3.3	3.6	2.8	5.7	2.6	2.9	3.5	2.9	4.0	3.5	2.3	3.9	4.5	0.4	5.7	0.4
Aug 25	3.7	0.4	0.5	0.8	0.4	0.3	0.1	0.9	5.7	7.0	8.2	11.8	12.6	10.8	9.0	8.6	8.2	8.3	6.4	5.3	8.1	9.6	9.8	7.7	0.1	12.6	5.6
Aug 26	6.8	4.3	2.5	3.2	2.6	3.8	3.3	5.6	7.6	9.6	11.4	12.1	12.0	13.7	13.1	12.8	9.9	8.8	9.1	7.8	7.9	9.9	10.2	4.3	2.5	13.7	7.2
Aug 27	2.5	4.9	5.7	4.0	1.5	3.1	0.7	1.7	3.0	2.3	3.8	4.2	4.3	2.0	3.9	1.2	3.7	2.5	1.4	2.0	4.0	1.7	1.8	1.5	0.7	5.7	1.9
Aug 28	2.8	2.1	2.7	2.2	2.3	1.8	0.0	4.1	4.6	6.8	7.8	8.7	7.7	7.1	8.3	8.7	7.4	7.2	4.3	3.5	3.3	4.0	3.7	4.5	0.0	8.7	4.0
Aug 29	4.1	1.9	1.3	2.5	0.1	1.3	0.0	1.9	2.1	2.7	6.7	4.8	6.7	6.7	7.8	5.9	5.5	5.6	4.0	1.8	2.4	6.6	9.0	9.2	0.0	9.2	3.7
Aug 30	7.7	4.0	2.7	1.0	4.5	5.4	4.0	5.3	4.4	6.8	6.9	7.4	8.8	9.6	7.7	7.8	9.5	9.3	9.5	7.4	7.8	7.9	7.1	4.3	1.0	9.6	5.5
Aug 31	3.3	2.8	5.9	4.2	6.5	5.7	6.5	6.7	11.6	10.1	10.7	10.7	6.8	5.2	5.6	7.1	8.1	7.9	6.5	7.1	6.1	6.9	5.6	4.5	2.8	11.6	3.2
Diurnal Maximum	9	8	10	13	13	12	14	16	18	17	16	18	17	17	17	16	14	11	10	9	10	10	9				
Diurnal Average	3.5	3.3	3.8	3.7	3.4	4.0	4.2	4.9	6.0	6.5	7.7	8.3	8.6	8.3	8.2	7.7	7.3	6.7	5.6	4.7	4.4	4.5	4.4	3.8			

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

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

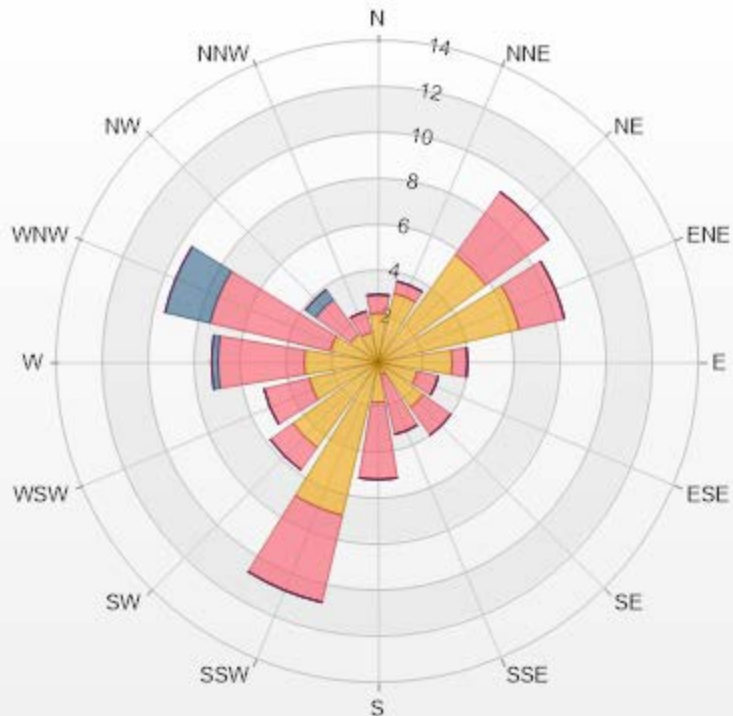
*Timeseries Chart of Hourly Average for VWS - Tamarack Site*



Wind: Tamarack Monitor: WDS [kph] Monthly: 08-2021 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.

Calm: 12.50% Valid Data: 100.00%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	2.15	0.81	0	0	0	2.96
NNE	3.09	0.54	0	0	0	3.63
NE	5.78	3.36	0	0	0	9.14
ENE	6.32	2.02	0	0	0	8.34
E	3.23	0.67	0	0	0	3.9
ESE	1.75	0.94	0	0	0	2.69
SE	2.42	1.48	0	0	0	3.9
SSE	0.54	2.69	0	0	0	3.23
S	1.75	3.36	0	0	0	5.11
SSW	6.85	3.9	0	0	0	10.75
SW	4.57	1.21	0	0	0	5.78
WSW	3.09	2.02	0	0	0	5.11
W	3.23	3.76	0.27	0	0	7.26
WNW	2.15	5.38	2.02	0	0	9.55
NW	1.48	1.88	0.54	0	0	3.9
NNW	1.34	0.94	0	0	0	2.28
Summary	49.74	34.96	2.83	0	0	87.53




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% Icon Classes (kph)

50  1.8-6.0

35  6.0-15.0

3  15.0-29.0

0  29.0-39.0

0  >39.0



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - August 2021

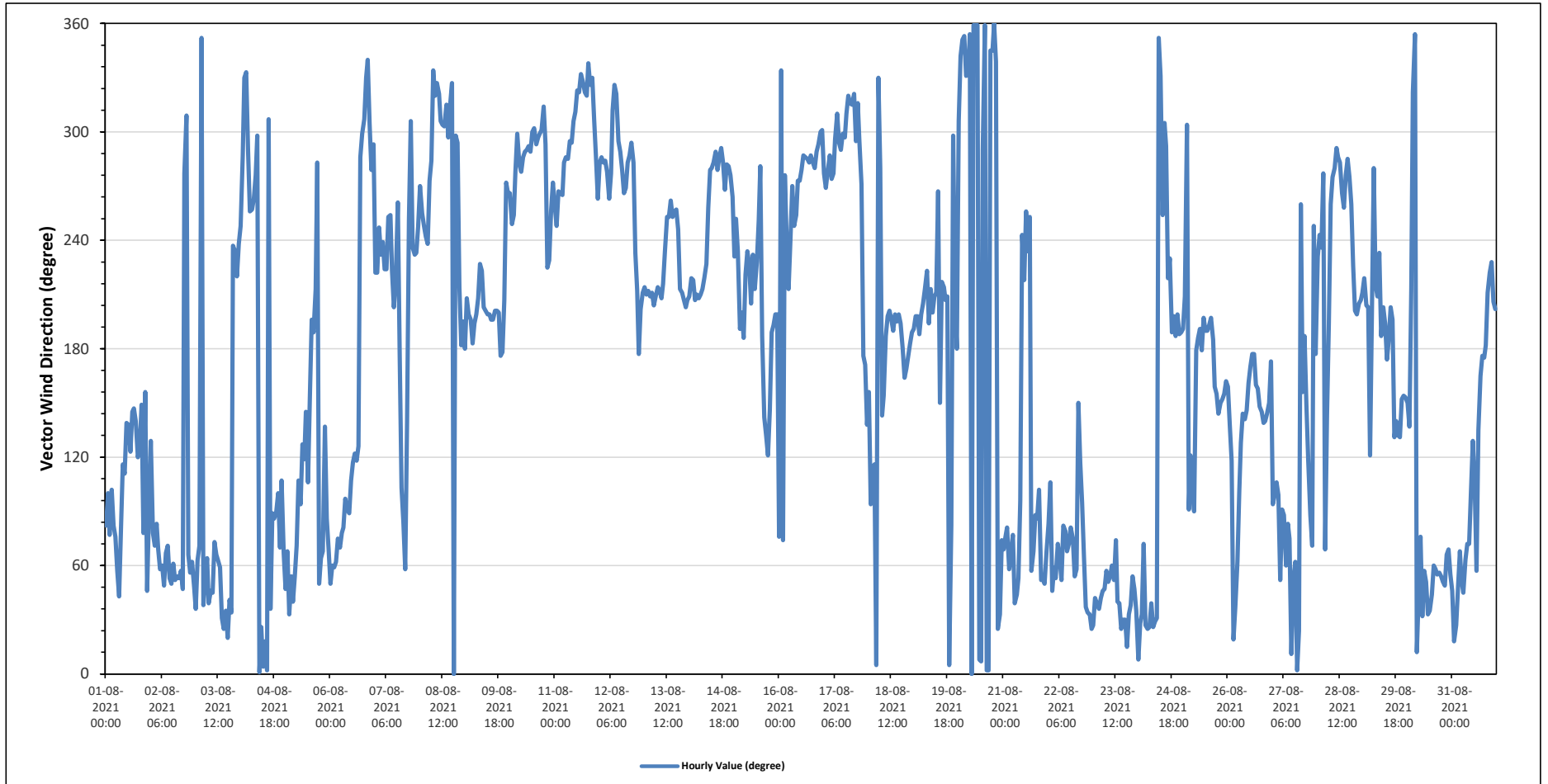
Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:		255 (WSW) 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	
Aug 1	E	E	ENE	E	E	ENE	ENE	NE	E	ESE	ESE	SE	SE	ESE	SE	SE	SE	ESE	SE	SSE	ENE	SSE	NE	E	122	ESE	
Aug 2	SE	ENE	ENE	E	ENE	ENE	ENE	NE	ENE	ENE	NE	NE	ENE	NE	NE	ENE	NE	W	NW	ENE	NE	ENE	NE	NE	56	NE	
Aug 3	NE	ENE	ENE	N	NE	NE	ENE	NE	NE	ENE	ENE	ENE	ENE	ENE	NNE	NNE	NE	NNE	NE	NE	SW	SW	SW	SW	46	NE	
Aug 4	WSW	WNW	NNW	NNW	WNW	WSW	WSW	W	W	WNW	N	NNE	N	NNE	N	NW	NE	E	E	E	E	ENE	ESE	ENE	352	N	
Aug 5	NE	ENE	NNE	NE	NE	NE	ENE	ESE	E	SE	ESE	SE	ESE	SSE	SSW	S	SSW	W	NE	ENE	ENE	SE	E	ENE	106	ESE	
Aug 6	NE	ENE	ENE	ENE	ENE	ENE	ENE	E	E	E	E	ESE	ESE	ESE	ESE	SE	WNW	WNW	NW	NNW	NNW	WNW	W	WNW	62	ENE	
Aug 7	SW	SW	WSW	SW	WSW	SW	SW	WSW	WSW	SW	SSW	SW	W	S	ESE	E	ENE	SE	WSW	NW	SW	SW	SW	WSW	228	SW	
Aug 8	W	WSW	WSW	WSW	SW	W	WNW	NNW	NW	NW	NW	NW	WNW	WNW	NW	WNW	NW	NW	N	WNW	WNW	SSW	S	SSW	294	WNW	
Aug 9	S	SSW	SSW	SSW	S	SSW	SSW	SSW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	SSW	W	W	W	204	SSW	
Aug 10	W	WSW	WSW	W	WNW	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	NW	WNW	SW	SW	WSW	W	287	WNW	
Aug 11	WSW	WSW	W	W	W	W	WNW	WNW	WNW	WNW	NW	NW	NW	NW	NNW	NNW	NW	NW	NNW	NW	NNW	NW	WNW	W	304	WNW	
Aug 12	W	WNW	W	WNW	W	W	W	NW	NW	NW	WNW	WNW	W	W	W	W	WNW	WNW	W	SW	SSW	S	SSW	SSW	281	W	
Aug 13	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	232	SW
Aug 14	SSW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	263	W
Aug 15	SW	WSW	SW	S	SSW	S	SW	SW	SSW	SW	SSW	SW	SSW	SW	WSW	W	S	SE	SE	ESE	SE	S	S	SSW	SSW	206	SSW
Aug 16	ENE	NNW	ENE	W	WSW	SSW	WSW	W	WSW	WSW	W	W	W	WNW	WNW	WNW	W	WNW	W	W	WNW	WNW	WNW	WNW	WNW	280	W
Aug 17	W	W	W	WNW	W	W	WNW	NW	WNW	WNW	WNW	WNW	NW	NW	NW	NW	NW	WNW	NW	WNW	W	S	S	SE	295	WNW	
Aug 18	SSE	E	ESE	ESE	N	NNW	W	SE	SSE	S	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	S	SSE	SSE	S	S	S	186	S	
Aug 19	S	SSW	SSW	S	SSW	SSW	SSW	SW	SSW	SSW	SSW	SSW	SSW	W	SSE	SW	SSW	SSW	SSW	N	E	WNW	SSW	S	202	SSW	
Aug 20	NW	NNW	N	N	NNW	NNW	N	N	N	N	N	N	N	N	WNW	N	N	N	NNW	NNW	N	NNW	NNE	NNE	ENE	354	N
Aug 21	ENE	ENE	E	ENE	ENE	ENE	NE	NE	NE	E	WSW	SW	WSW	ENE	ENE	ENE	E	E	E	NE	NE	NE	ENE	ENE	69	ENE	
Aug 22	E	ESE	NE	ENE	NE	ENE	ENE	NE	E	ENE	ENE	ENE	E	ENE	NE	ENE	SSE	ESE	E	ENE	NE	NE	NNE	NNE	67	ENE	
Aug 23	NNE	NE	NE	NE	NE	NE	NE	ENE	NE	NE	ENE	NE	ENE	NE	NNE	NNE	NNE	NNE	NNE	NE	NE	NE	NE	NE	43	NE	
Aug 24	N	NNE	NNE	ENE	NNE	NNE	NNE	NE	NNE	NNE	N	NNW	WSW	WNW	WNW	SW	S	SSW	S	SSW	S	SSW	S	S	316	NW	
Aug 25	S	SSW	WNW	E	ESE	ESE	E	S	S	S	S	SSW	S	S	S	SSW	S	SSE	SSE	SE	SSE	SSE	SSE	SSE	176	S	
Aug 26	SSE	SE	ESE	NNE	NE	ENE	E	SE	SE	SE	SE	SSE	SSE	S	S	SSE	SSE	SE	SE	SE	SE	SE	SE	SE	150	SSE	
Aug 27	E	E	ESE	E	NE	E	E	ENE	E	ENE	NNE	NE	ENE	N	NNE	WSW	SSE	S	SSE	ESE	E	ENE	WSW	S	85	E	
Aug 28	SW	WSW	SW	W	ENE	SE	SSW	WSW	W	W	WNW	WNW	W	W	WSW	W	WNW	W	WSW	SW	SSW	SSW	SSW	SSW	262	W	
Aug 29	SSW	SW	SSW	SSW	ESE	SSW	W	SSW	SSW	SW	S	SSW	SSW	S	S	SSW	SSW	SE	SE	SE	SE	SE	SSE	SSE	178	S	
Aug 30	SSE	SE	SSW	NW	N	NNE	NE	ENE	NNE	ENE	NE	NNE	NE	NE	ENE	ENE	NE	NE	NE	NE	NE	ENE	ENE	NE	54	NE	
Aug 31	NE	NNE	NNE	NE	ENE	NE	NE	ENE	ENE	ENE	E	SE	ESE	ENE	SE	SSE	S	S	S	SSW	SW	SW	SSW	SSW	115	ESE	
<b>C</b>	Monthly Calibration							<b>S</b>	Daily Zero-Span Check							<b>Q</b>	Quality Assurance										
<b>K</b>	Collection Error							<b>N</b>	No Data (Machine Not in Service)							<b>Y</b>	Routine Maintenance							<b>P</b>	Power Failure		
<b>X</b>	Invalid Data (Machine Malfunction /Recovery)							<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																		
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per 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 - August 2021

Summary of Hourly Averages

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

WIND SPEED																								Minimum	Maximum	Average		
Maximum Hourly Value:	17.9	kph	on August 11	at hour 11	Hours in Service:	744																		0.2	9.7	3.0		
Maximum Daily Value:	10.7	kph	on August 10																		0.5	7.0	3.2					
Minimum Hourly Value:	0.0	kph	on August 28	at hour 6	Hours of Data:	744																		1.7	8.5	3.3		
Minimum Daily Value:	0.4	kph	on August 24																		1.9	6.4	1.4					
Monthly Average:	1.1	kph																		0.4	9.8	2.1						
Hours of Missing Data:																								0				
Hours of Calibration:																								0				
Operational Uptime:																								100				
WIND DIRECTION																												
Monthly Average:																								255	(WSW degree)			
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	
Aug 1	0.6	0.4	0.6	1.6	0.5	2.5	2.2	2.7	3.6	4.6	6.9	7.8	8.0	8.8	9.7	7.9	4.7	2.0	0.7	0.9	0.2	1.3	0.9	1.4	0.2	9.7	3.0	
	E	E	ENE	E	E	ENE	ENE	NE	E	ESE	ESE	SE	ESE	SE	ESE	SE	SE	ESE	SE	SSE	ENE	SSE	NE	E				
Aug 2	0.6	0.5	1.5	2.6	3.3	1.2	2.5	2.8	4.5	5.6	6.7	6.8	6.7	4.9	4.6	2.9	2.7	7.0	2.9	1.6	4.4	3.4	3.0	3.0	0.5	7.0	3.2	
	SE	ENE	ENE	E	ENE	ENE	ENE	NE	ENE	ENE	NE	NE	ENE	NE	NE	NE	ENE	NE	W	NW	ENE	NE	ENE	NE				
Aug 3	1.7	2.8	3.0	2.4	3.3	3.8	3.7	4.9	6.0	4.8	8.5	5.8	5.9	7.2	8.0	4.8	4.8	5.9	3.9	2.8	1.8	3.1	2.0	4.1	1.7	8.5	3.3	
	NE	ENE	ENE	N	NE	NE	ENE	NE	NE	ENE	ENE	ENE	ENE	NNE	NNE	NE	NNE	NE	NE	SW	SW	SW	SW	SW				
Aug 4	3.8	4.9	3.5	2.2	3.1	5.5	4.0	3.8	5.9	4.7	4.7	4.9	4.6	4.2	4.2	3.5	1.9	6.4	5.7	5.0	4.6	4.0	2.6	2.1	1.9	6.4	1.4	
	WSW	WNW	NNW	NNW	WNW	WSW	WSW	W	W	WNW	N	NNE	N	NNE	N	NW	NE	E	E	E	E	ENE	ESE	ENE				
Aug 5	1.2	2.2	1.9	1.9	1.9	3.1	2.3	3.8	3.7	4.6	4.3	3.0	4.3	6.1	5.8	7.7	5.6	0.9	9.8	8.1	3.4	1.5	0.4	1.9	0.4	9.8	2.1	
	NE	ENE	NNE	NE	NE	ENE	ESE	E	ESE	ESE	SE	ESE	SSE	SSW	S	SSW	W	NE	ENE	ENE	SE	E	ENE	NE				
Aug 6	3.1	3.7	3.6	3.2	3.5	3.8	4.9	4.5	6.0	7.1	7.0	8.2	9.5	11.5	8.5	5.7	12.2	11.2	10.7	7.5	3.3	4.2	8.1	2.5	2.5	12.2	1.8	
	NE	ENE	ENE	ENE	ENE	ENE	E	E	E	E	ESE	ESE	ESE	ESE	SE	WNW	WNW	NW	NNW	NNW	NNW	WNW	W	WNW				
Aug 7	2.5	3.5	4.8	3.3	2.4	3.9	4.5	3.6	2.6	3.8	5.6	8.7	8.5	6.3	1.6	2.7	4.6	5.3	2.7	5.9	2.3	4.9	4.8	4.9	1.6	8.7	3.0	
	SW	SW	WSW	SW	WSW	SW	WSW	WSW	SW	SSW	SW	W	S	ESE	E	ENE	SE	WSW	NW	SW	SW	SW	SW	WSW				
Aug 8	6.4	6.1	6.6	6.0	6.3	8.3	9.3	7.3	7.4	6.7	5.5	8.5	7.3	8.7	6.8	8.2	6.6	5.2	5.1	2.6	1.1	2.1	1.4	2.1	1.1	9.3	4.9	
	W	WSW	WSW	WSW	SW	W	WNW	NNW	NW	NW	NW	WNW	WNW	NW	WNW	NW	NW	NW	N	WNW	WNW	SSW	S	SSW				
Aug 9	0.9	1.2	1.6	0.6	0.3	1.0	3.3	4.6	5.4	7.2	9.5	10.1	11.9	11.9	12.1	13.3	12.2	11.6	7.6	5.6	8.3	7.0	6.7	5.6	0.3	13.3	6.2	
	S	SSW	SSW	SSW	S	SSW	SSW	SSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	SSW	W	W				
Aug 10	6.2	7.4	10.3	13.3	12.8	11.5	11.6	15.0	16.4	15.7	15.7	14.8	15.4	13.7	16.9	15.4	15.4	13.9	7.2	2.9	1.9	3.7	5.5	5.4	1.9	16.9	10.7	
	W	WSW	WSW	W	WNW	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	NW	WNW	SW	SW	WSW	W				
Aug 11	4.3	4.3	5.5	5.3	6.6	9.5	13.5	15.5	17.8	17.3	15.3	17.9	17.1	15.1	14.3	12.0	9.6	8.4	9.1	8.3	6.6	4.4	6.1	6.0	4.3	17.9	9.6	
	WSW	WSW	W	W	W	W	WNW	WNW	WNW	WNW	NW	NW	NW	NW	NNW	NNW	NW	NW	NNW	NNW	NNW	NW	WNW	W				
Aug 12	7.1	6.0	5.8	4.9	4.4	4.1	4.7	4.8	5.0	6.4	8.5	8.1	8.9	8.7	10.4	10.3	9.0	4.6	3.9	1.0	3.2	2.1	2.6	3.0	1.0	10.4	5.1	
	W	WNW	W	WNW	W	W	W	NW	NW	NW	WNW	WNW	W	W	W	WNW	WNW	W	SW	SSW	S	SSW	SSW	SSW				
Aug 13	2.0	3.2	3.1	3.3	3.3	3.8	5.1	5.0	5.8	6.9	8.0	10.1	11.3	11.6	12.6	12.3	10.1	11.1	9.0	5.4	5.2	6.3	6.6	4.6	2.0	12.6	6.4	
	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW			
Aug 14	3.8	3.8	3.9	5.2	5.2	7.1	5.8	5.5	5.4	7.5	8.9	10.0	13.2	16.9	14.6	11.2	9.6	7.5	7.3	5.0	8.8	9.7	5.9	3.6	3.6	16.9	6.7	
	SSW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SW	WSW	W	W	WNW	W	WNW	WNW	W	W	W	W	W	W	W				
Aug 15	4.0	2.4	2.2	1.3	1.3	1.1	2.6	2.9	3.5	5.6	6.7	5.2	7.4	6.2	3.7	3.0	5.8	5.0	4.8	3.6	2.6	3.8	2.5	0.5	0.5	7.4	2.8	
	SW	WSW	SW	S	SSW	S	SW	SW	SW	SSW	SW	SSW	SW	WSW	W	S	SE	SE	ESE	SE	S	S	SSW	SSW				
Aug 16	1.2	2.3	2.4	7.3	3.6	2.8	3.8	6.4	6.0	5.8	11.5	16.8	16.6	16.0	16.2	16.8	15.8	13.7	10.4	9.5	7.4	5.6	5.1	5.0	1.2	16.8	8.1	
	ENE	NNW	ENE	W	WSW	SSW	WSW	W	WSW	WSW	W	W	WNW	WNW	WNW	W	WNW	W	W	WNW	WNW	WNW	WNW	WNW				
Aug 17	5.1	6.5	6.7	5.9	6.0	7.0	7.1	5.1	6.6	8.3	7.8	7.2	8.0	7.6	7.5	7.3	5.9	7.0	5.2	5.6	2.4	1.4	1.4	0.6	0.6	8.3	5.3	
	W	W	W	WNW	W	W	WNW	NW	WNW	WNW	WNW	WNW	NW	NW	NW	NW	WNW	WNW	NW	WNW	W	S	S	SE				
Aug 18	1.6	0.9	1.5	0.2	0.7	0.3	0.3	2.2	5.7	5.8	6.8	9.9	10.8	11.3	11.0	12.7	11.9	9.8	6.6	7.4	9.4	9.1	8.0	9.3	0.2	12.7	6.0	
	SSE	E	ESE	ESE	N	NNW	W	SE	SSE	S	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	S	SSE	SSE	S	S	S				
Aug 19	9.3	7.7	7.9	6.6	5.4	5.9	4.8	4.3	5.5	4.4	6.7	5.4	4.2	3.9	2.9	1.0	1.3	1.7	1.5	4.3	4.0	0.8	0.5	0.2	0.2	9.3	3.4	
	S	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	SSE	SSW	SSW	SSW	N	E	WNW	SSW	S				
Aug 20	1.1	2.1	2.0	2.0	1.9	1.7	2.7	4.3	5.8	5.8	8.5	8.7	9.9	9.1	7.7	8.5	9.0	5.4	3.9	3.3	1.4	1.9	0.9	1.2	0.9	9.9	4.2	
	NW	NNW	N	N	NNW	NNW	N	N	N	N	N	N	N	N	WNW	N	N	N	NNW	NNW	N	NNW	NNE	NNE	ENE			



**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION**

**Tamarack Site - August 2021**

**Summary of Hourly Averages**

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

WIND SPEED																																					
Maximum Hourly Value:	17.9	kph	on August 11 at hour 11													Hours in Service:	744																				
Maximum Daily Value:	10.7	kph	on August 10													Hours of Data:	744																				
Minimum Hourly Value:	0.0	kph	on August 28 at hour 6													Hours of Missing Data:	0																				
Minimum Daily Value:	0.4	kph	on August 24													Hours of Calibration:	0																				
Monthly Average:	1.1	kph														Operational Uptime:	100																				
WIND DIRECTION																																					
Monthly Average:	255 (WSW, 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													
Aug 21	0.1	1.0	3.1	2.3	0.8	1.4	2.6	3.4	3.2	0.6	2.4	3.9	4.6	1.5	1.5	5.6	5.6	5.9	4.1	2.3	1.9	2.7	2.7	3.8	0.1	5.9	1.6										
	ENE	ENE	E	ENE	ENE	ENE	ENE	NE	NE	E	WSW	SW	WSW	SW	WSW	ENE	ENE	E	E	NE	NE	NE	ENE														
Aug 22	4.6	4.1	6.7	5.2	4.2	5.3	4.1	3.2	3.7	2.6	5.2	4.8	4.6	2.7	5.0	3.6	4.2	2.8	2.4	2.0	4.2	3.8	5.1	2.9	2.0	6.7	3.6										
	E	ESE	NE	ENE	NE	ENE	ENE	NE	E	ENE	ENE	ENE	E	ENE	NE	ENE	SSE	ESE	E	ENE	NE	NE	NNE	NNE													
Aug 23	4.5	4.5	7.0	7.7	6.3	7.0	6.9	8.1	7.2	7.9	7.8	6.3	4.3	6.4	6.7	7.2	3.8	2.2	4.2	7.1	5.2	3.6	3.0	2.1	2.1	8.1	5.6										
	NNE	NE	NE	NE	NE	NE	NE	ENE	NE	NE	ENE	NE	ENE	NE	NE	NNE	NNE	NNE	NNE	NE	NE	NE	NE	NE													
Aug 24	1.3	1.7	0.9	1.6	0.4	1.3	3.0	2.7	4.6	5.2	4.1	3.3	3.6	2.8	5.7	2.6	2.9	3.5	2.9	4.0	3.5	2.3	3.9	4.5	0.4	5.7	0.4										
	N	NNE	NNE	ENE	NNE	NNE	NNE	NE	NNE	NNE	NNE	N	NNW	WSW	WNW	WNW	SW	SW	S	SSW	S	SSW	S	S													
Aug 25	3.7	0.4	0.5	0.8	0.4	0.3	0.1	0.9	5.7	7.0	8.2	11.8	12.6	10.8	9.0	8.6	8.2	8.3	6.4	5.3	8.1	9.6	9.8	7.7	0.1	12.6	5.6										
	S	SSW	WNW	E	ESE	ESE	E	S	S	S	S	SSW	S	S	S	SSW	S	SSE	SSE	SE	SSE	SSE	SSE	SSE													
Aug 26	6.8	4.3	2.5	3.2	2.6	3.8	3.3	5.6	7.6	9.6	11.4	12.1	12.0	13.7	13.1	12.8	9.9	8.8	9.1	7.8	7.9	9.9	10.2	4.3	2.5	13.7	7.2										
	SSE	SE	ESE	NNE	NE	ENE	E	SE	SE	SE	SSE	SSE	S	S	SSE	SSE	SE	SE	SE	SE	SE	SE	SSE	S													
Aug 27	2.5	4.9	5.7	4.0	1.5	3.1	0.7	1.7	3.0	2.3	3.8	4.2	4.3	2.0	3.9	1.2	3.7	2.5	1.4	2.0	4.0	1.7	1.8	1.5	0.7	5.7	1.9										
	E	E	ESE	E	NE	E	E	ENE	E	ENE	E	ENE	NNE	NE	ENE	N	NNE	WSW	SSE	S	SSE	ESE	E	ENE	WSW	S											
Aug 28	2.8	2.1	2.7	2.2	2.3	1.8	0.0	4.1	4.6	6.8	7.8	8.7	7.7	7.1	8.3	8.7	7.4	7.2	4.3	3.5	3.3	4.0	3.7	4.5	0.0	8.7	4.0										
	SW	WSW	SW	W	ENE	SE	SSW	WSW	W	W	WNW	WNW	W	W	WSW	W	WNW	W	WSW	SW	SSW	SSW	SSW	SSW													
Aug 29	4.1	1.9	1.3	2.5	0.1	1.3	0.0	1.9	2.1	2.7	6.7	4.8	6.7	6.7	7.8	5.9	5.5	5.6	4.0	1.8	2.4	6.6	9.0	9.2	0.0	9.2	3.7										
	SSW	SW	SSW	SSW	ESE	SSW	W	SSW	SSW	SW	S	SSW	SSW	S	S	SSW	SSW	SE	SE	SE	SE	SSE	SSE	SSE													
Aug 30	7.7	4.0	2.7	1.0	4.5	5.4	4.0	5.3	4.4	6.8	6.9	7.4	8.8	9.6	7.7	7.8	9.5	9.3	9.5	7.4	7.8	7.9	7.1	4.3	1.0	9.6	5.5										
	SSE	SE	SSW	NW	N	NNE	NE	ENE	NNE	ENE	NE	NNE	NE	NE	ENE	ENE	NE	NE	NE	NE	NE	ENE	ENE	NE													
Aug 31	3.3	2.8	5.9	4.2	6.5	5.7	6.5	6.7	11.6	10.1	10.7	10.7	6.8	5.2	5.6	7.1	8.1	7.9	6.5	7.1	6.1	6.9	5.6	4.5	2.8	11.6	3.2										
	NE	NNE	NNE	NE	ENE	NE	NE	ENE	ENE	ENE	E	SE	ESE	ENE	SE	SSE	S	S	S	SSW	SW	SSW	SSW	SSW													
<b>C</b>	Monthly Calibration													<b>S</b>	Daily Zero-Span Check							<b>Q</b>	Quality Assurance														
<b>K</b>	Collection Error													<b>N</b>	No Data (Machine Not in Service)							<b>Y</b>	Routine Maintenance							<b>P</b>	Power Failure						
<b>X</b>	Invalid Data (Equipment Malfunction/Recovery)													<b>NRM</b>	Unit/Maint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																						
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																					
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																					



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - August 2021

### Summary of Hour Standard Deviations

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

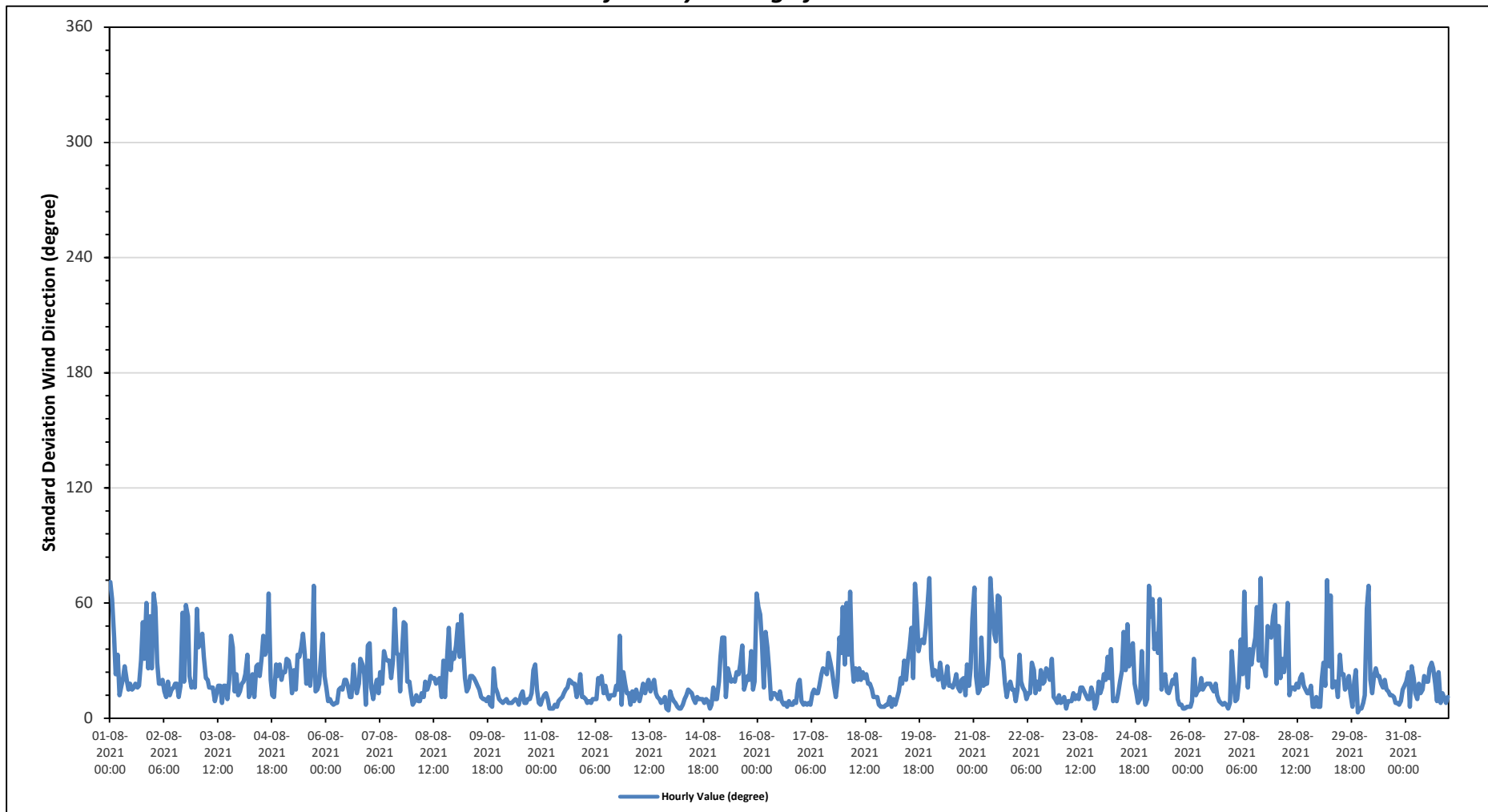
Maximum Hourly Value:	73 degree on August 19 at hour 23	Hours in Service:	744
Minimum Hourly Value:	3 degree on August 29 at hour 21	Hours of Data:	744
		Hours of Missing Data:	0
		Hours of Calibration:	0
		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily	Daily	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum
Aug 1	71	62	42	23	33	12	16	21	27	20	15	18	15	16	18	16	17	30	50	31	60	26	53	26	12	71
Aug 2	65	58	29	18	18	20	14	11	19	12	15	16	18	18	11	17	55	19	59	53	22	16	19	16	11	65
Aug 3	57	37	39	44	32	21	20	16	16	16	9	13	17	17	8	17	17	10	20	43	37	14	23	12	8	57
Aug 4	14	18	19	23	33	11	14	23	11	27	28	22	32	43	33	37	65	20	12	11	28	22	28	20	11	65
Aug 5	24	24	31	30	25	13	25	15	33	32	37	44	33	18	30	17	28	69	14	15	18	34	44	22	13	69
Aug 6	16	9	10	8	7	8	8	15	16	15	20	20	17	11	11	28	18	13	18	31	28	23	7	38	7	38
Aug 7	39	16	10	16	20	13	24	18	35	31	30	30	21	30	57	34	33	14	33	50	49	19	19	13	10	57
Aug 8	7	9	12	9	9	13	11	19	15	18	22	21	21	18	20	21	11	30	11	31	47	25	34	31	7	47
Aug 9	38	49	32	54	37	21	14	16	22	22	21	19	17	15	11	10	10	9	11	7	6	26	16	13	6	54
Aug 10	10	9	8	9	10	8	8	8	9	10	9	7	12	14	8	8	10	10	13	25	28	15	8	7	7	28
Aug 11	10	12	13	10	5	5	5	7	6	9	10	11	13	15	16	20	19	18	18	11	14	23	11	11	5	23
Aug 12	10	8	9	8	10	10	10	21	18	22	13	17	13	10	12	12	17	15	43	7	24	18	13	7	43	
Aug 13	13	7	14	9	15	12	9	13	18	13	17	20	14	17	20	13	11	10	8	9	11	5	4	14	4	20
Aug 14	11	9	8	6	5	5	7	10	12	15	14	13	10	8	11	10	10	10	8	10	9	5	7	16	5	16
Aug 15	10	10	19	32	42	42	11	26	22	19	20	19	24	23	28	38	15	18	22	20	35	15	19	65	10	65
Aug 16	58	54	39	16	45	37	25	10	13	13	12	10	14	9	7	8	6	9	7	7	9	8	18	20	6	58
Aug 17	9	7	8	7	8	7	13	15	13	13	17	23	26	25	23	34	29	24	17	11	19	42	34	58	7	58
Aug 18	28	60	33	66	30	19	26	20	26	20	24	21	23	18	18	15	11	11	11	7	6	6	6	7	6	66
Aug 19	7	11	6	10	7	10	14	21	18	30	20	29	37	47	21	70	58	35	40	41	39	47	59	73	6	73
Aug 20	31	22	25	24	20	29	22	16	20	27	17	17	16	19	23	16	14	20	21	12	28	17	26	52	12	52
Aug 21	68	22	13	15	42	17	18	18	31	73	56	44	40	64	63	32	30	18	11	17	19	15	15	9	9	73
Aug 22	15	33	19	16	14	10	13	13	29	25	13	19	15	25	18	19	26	24	20	31	11	10	8	12	8	33
Aug 23	8	9	11	5	9	9	9	13	10	12	10	16	16	14	12	10	10	16	12	5	8	19	13	16	5	19
Aug 24	23	20	32	21	36	9	10	9	13	19	25	45	25	49	27	33	39	18	13	8	10	35	15	7	7	49
Aug 25	10	69	53	62	36	44	34	62	15	20	23	14	13	16	20	18	23	10	7	7	5	5	6	6	5	69
Aug 26	6	9	31	12	14	15	21	15	17	18	18	18	16	14	18	12	9	8	7	8	7	5	8	35	5	35
Aug 27	21	9	10	19	41	23	66	26	16	36	28	36	42	58	30	73	27	26	22	48	45	42	53	59	9	73
Aug 28	18	48	21	31	24	33	60	12	16	16	15	18	16	21	23	17	15	13	13	17	6	6	11	6	6	60
Aug 29	6	20	29	17	72	27	64	16	19	19	11	33	23	23	15	17	22	13	6	19	25	3	5	5	3	72
Aug 30	8	12	57	69	20	13	22	26	22	22	18	16	20	15	14	12	12	11	8	8	7	9	15	17	7	69
Aug 31	19	24	6	27	21	13	10	18	13	15	22	19	19	26	29	26	18	9	24	8	13	11	8	11	6	29
Diurnal Minimum	6	7	6	5	5	5	5	7	6	9	9	7	10	8	7	8	6	8	6	5	5	3	4	5		
Diurnal Maximum	71	69	57	69	72	44	66	62	35	73	56	45	42	64	63	73	65	69	59	53	60	47	59	73		

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

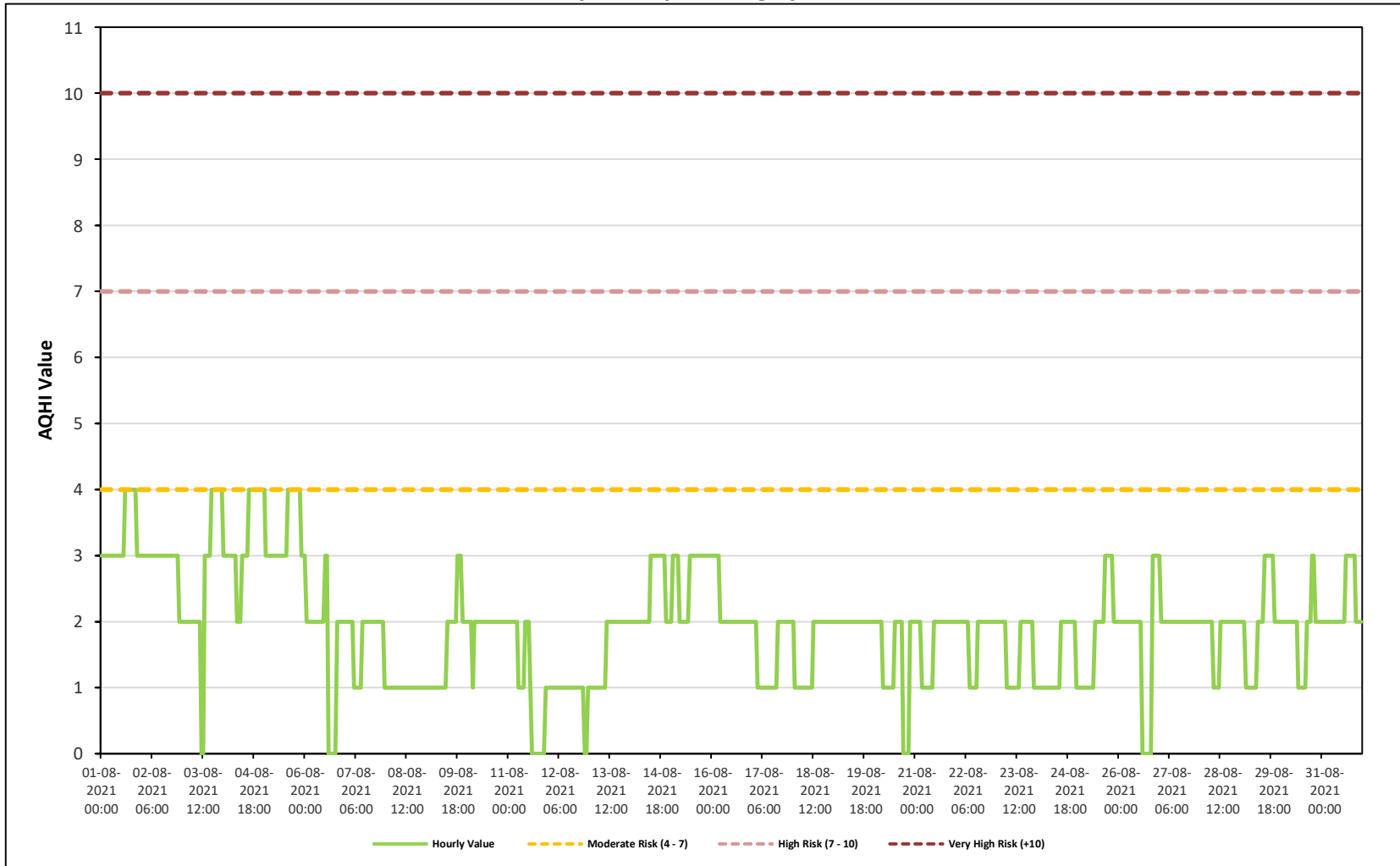
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

**Timeseries Chart of Hourly Average for STDWD - Tamarack Site**



**ST. LINA STATION**

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





# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - August 2021

Summary of Hourly Averages

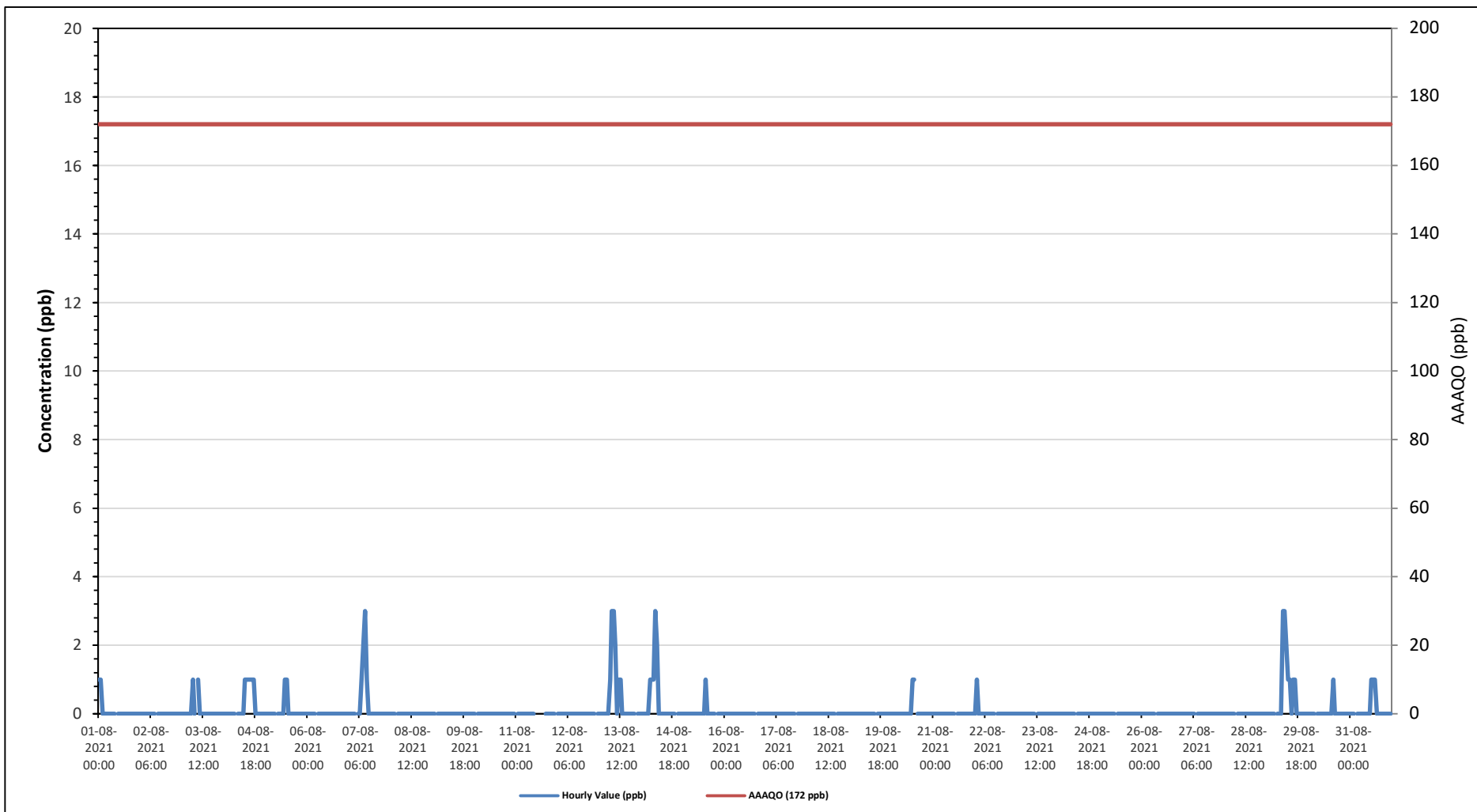
SULPHUR DIOXIDE (SO<sub>2</sub>) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																																			
Number of 1-Hour Exceedences:						0						Number of 24-Hour Exceedences:						0						30-Day Exceedence:					0						
Maximum Hourly Value:													3 ppb on August 7 at hour 9			Hours in Service:										744									
Maximum Daily Value:													0.5 ppb on August 29			Hours of Data:										706									
Minimum Hourly Value:													0 ppb on August 1 at hour 2			Hours of Missing Data:										0									
Minimum Daily Value:													0.0 ppb on August 2			Hours of Calibration:										38									
Monthly Average:													0.1 ppb			Operational Uptime:										100.0									
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average									
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23								
Aug 1	1	1	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	1	0.1	
Aug 2	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
Aug 3	0	0	0	0	0	0	1	0	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1		
Aug 4	0	0	0	0	0	0	0	S	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3		
Aug 5	0	0	0	0	0	0	S	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1		
Aug 6	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	
Aug 7	0	0	0	0	S	0	0	1	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.3		
Aug 8	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	
Aug 9	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	
Aug 10	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	
Aug 11	S	0	0	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	S	0	0	-		
Aug 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	S	0	0	0.0	
Aug 13	0	0	0	0	0	0	1	3	3	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.5		
Aug 14	0	0	0	0	0	1	1	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	3	0.3			
Aug 15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0.0			
Aug 16	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	
Aug 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0.0	
Aug 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0.0	
Aug 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0.0	
Aug 20	0	0	0	0	0	0	0	0	0	0	0	0	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1		
Aug 21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Aug 22	0	1	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	1	0.0			
Aug 23	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	
Aug 24	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Aug 25	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Aug 26	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Aug 27	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Aug 28	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Aug 29	0	0	0	0	0	S	0	0	0	3	3	2	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.5		
Aug 30	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0			
Aug 31	0	0	0	S	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1			
Diurnal Maximum	1	1	0	0	0	1	1	3	3	3	3	2	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Daiurnal Average	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.1	0.1	0.2	0.2	0.1	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	
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)																											

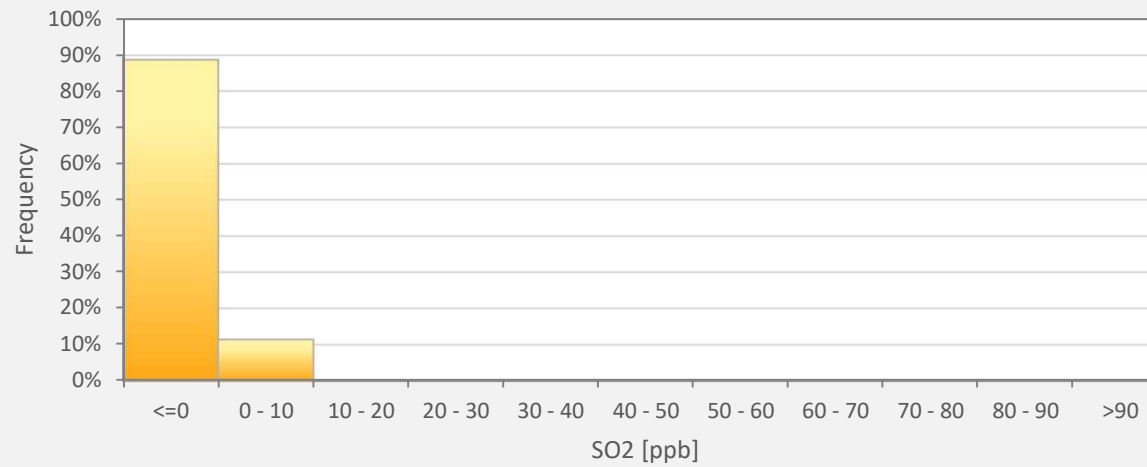
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



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



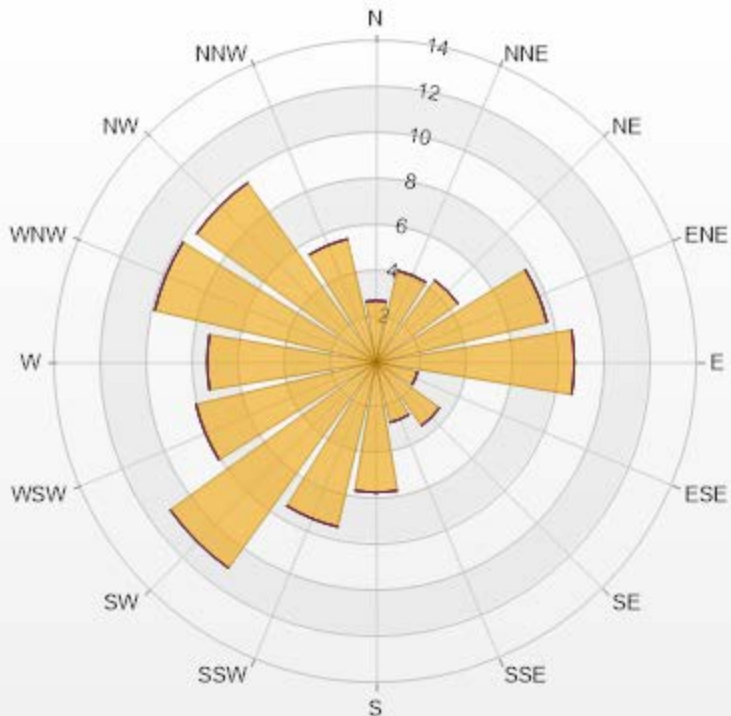
SO2[ppb] Histogram: St. Lina Monthly: 08-2021 1 Hr.



Classes	SO2
<=0	88.67%
0 - 10	11.33%
10 - 20	0.00%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: St. Lina Poll.: St. Lina-SO2[ppb] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	2.69	0	0	0	0	2.69
NNE	4.11	0	0	0	0	4.11
NE	4.39	0	0	0	0	4.39
ENE	7.65	0	0	0	0	7.65
E	8.64	0	0	0	0	8.64
ESE	1.84	0	0	0	0	1.84
SE	3.4	0	0	0	0	3.4
SSE	2.69	0	0	0	0	2.69
S	5.67	0	0	0	0	5.67
SSW	7.37	0	0	0	0	7.37
SW	11.05	0	0	0	0	11.05
WSW	8.07	0	0	0	0	8.07
W	7.37	0	0	0	0	7.37
WNW	9.92	0	0	0	0	9.92
NW	9.63	0	0	0	0	9.63
NNW	5.52	0	0	0	0	5.52
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100 0-10

0 10-50

0 50-100

0 100-172

0 >172.0



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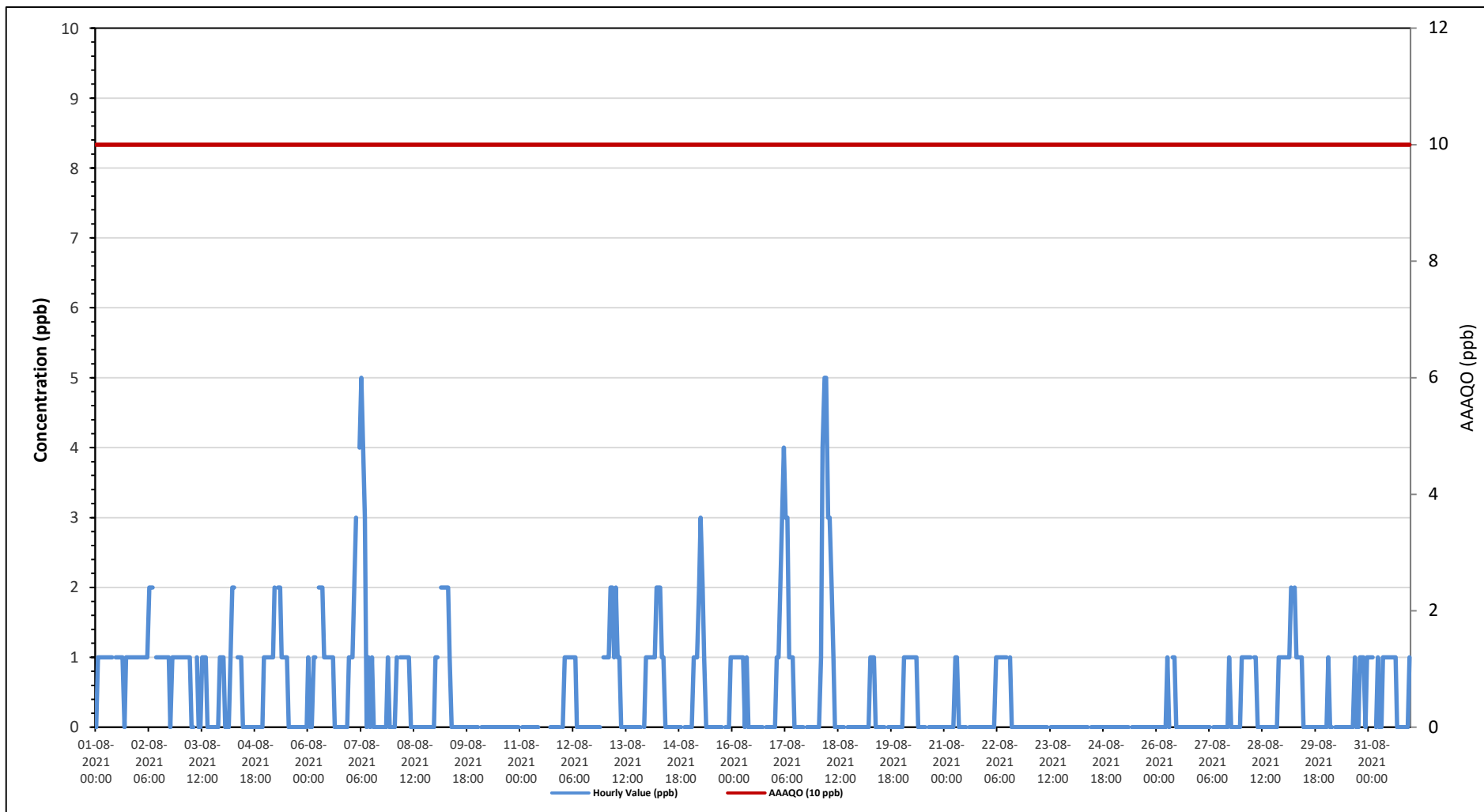
St. Lina Site - August 2021

Summary of Hourly Averages

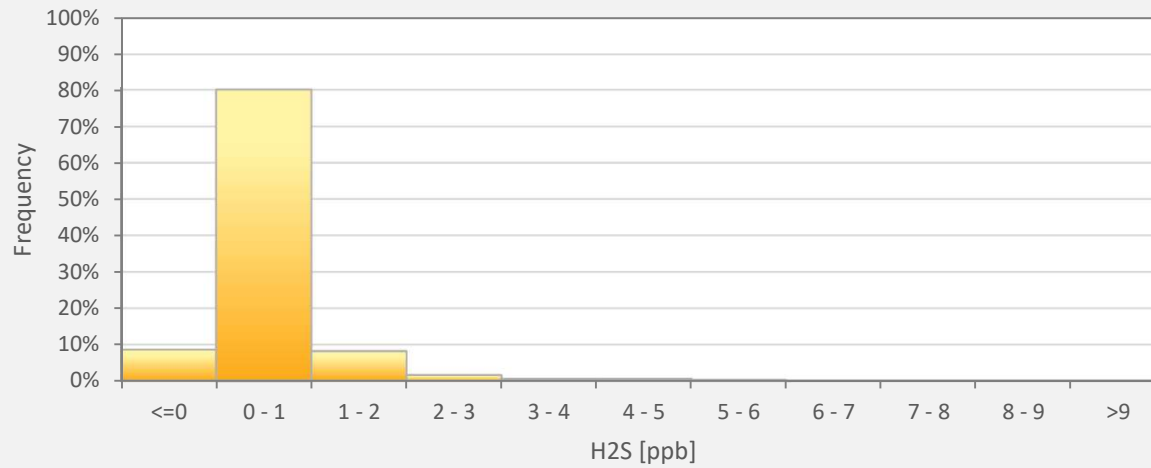
HYDROGEN SULPHIDE (H<sub>2</sub>S) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 10 ppb, 24-Hour 3 ppb																																		
Number of 1-Hour Exceedances: 0													Number of 24-Hour Exceedances: 0																					
Maximum Hourly Value: 5 ppb on August 7 at hour 6													Hours in Service: 744																					
Maximum Daily Value: 1.1 ppb on August 7													Hours of Data: 706																					
Minimum Hourly Value: 0 ppb on August 1 at hour 0													Hours of Missing Data: 0																					
Minimum Daily Value: 0.0 ppb on August 10													Hours of Calibration: 38																					
Monthly Average: 0.4 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							
Aug 1	0	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	0	1	0.9					
Aug 2	1	1	1	1	1	1	2	2	2	S	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1.1					
Aug 3	1	1	1	1	1	1	0	0	S	1	0	0	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	0.5					
Aug 4	1	0	0	0	1	2	2	S	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.4					
Aug 5	1	1	1	1	1	2	S	2	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7					
Aug 6	1	0	0	1	1	S	2	2	2	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.7					
Aug 7	1	1	2	3	S	4	5	4	3	0	1	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	5	1.1					
Aug 8	0	0	1	S	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3					
Aug 9	1	1	S	2	2	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6					
Aug 10	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					
Aug 11	S	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	S	0	-					
Aug 12	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	0.3					
Aug 13	1	1	1	2	2	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.6					
Aug 14	1	1	1	1	1	2	2	2	2	1	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	2	0.6				
Aug 15	0	0	1	1	1	2	3	2	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0	0.5					
Aug 16	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	0.3				
Aug 17	0	1	1	2	3	4	3	3	1	1	1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	4	0.9				
Aug 18	0	0	1	4	5	5	3	3	2	1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	5	1.0				
Aug 19	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0.1				
Aug 20	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0.3				
Aug 21	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0.1				
Aug 22	0	0	0	0	0	1	1	1	1	1	1	1	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3				
Aug 23	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				
Aug 24	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				
Aug 25	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				
Aug 26	0	0	0	0	0	0	1	0	S	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1				
Aug 27	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	1	0.0				
Aug 28	1	1	1	1	1	1	S	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0.5				
Aug 29	1	1	1	1	2	S	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.5				
Aug 30	0	1	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0	1	0	0.3				
Aug 31	1	1	1	S	0	1	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0.6				
Diurnal Maximum	1	1	2	4	5	5	4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
Diurnal Average	0.4	0.5	0.6	0.9	0.9	1.2	1.3	1.1	0.9	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.4				
C	Monthly Calibration													S	Daily Zero-Span Check						Q	Quality Assurance												
K	Collection Error													N	No Data (Machine Not in Service)						Y	Routine Maintenance						P	Power Failure					
X	InValid Data (Equipment Malfunction /Recovery)													NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																			
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																		
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																		

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



H2S[ppb] Histogram: St. Lina Monthly: 08-2021 1 Hr.

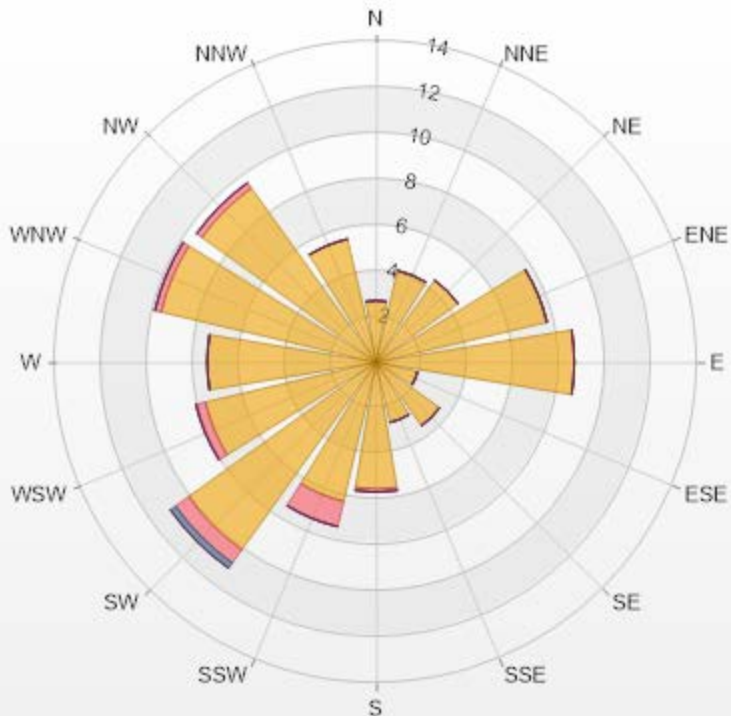


Classes	H2S
<=0	8.64%
0 - 1	80.03%
1 - 2	8.22%
2 - 3	1.70%
3 - 4	0.57%
4 - 5	0.57%
5 - 6	0.28%
6 - 7	0.00%
7 - 8	0.00%
8 - 9	0.00%
>9	0.00%

Wind: St. Lina Poll.: St. Lina-H2S[ppb] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	2.69	0	0	0	0	2.69
NNE	4.11	0	0	0	0	4.11
NE	4.39	0	0	0	0	4.39
ENE	7.65	0	0	0	0	7.65
E	8.64	0	0	0	0	8.64
ESE	1.84	0	0	0	0	1.84
SE	3.4	0	0	0	0	3.4
SSE	2.69	0	0	0	0	2.69
S	5.52	0.14	0	0	0	5.66
SSW	6.23	1.13	0	0	0	7.36
SW	10.06	0.71	0.28	0	0	11.05
WSW	7.65	0.42	0	0	0	8.07
W	7.37	0	0	0	0	7.37
WNW	9.63	0.28	0	0	0	9.91
NW	9.35	0.28	0	0	0	9.63
NNW	5.52	0	0	0	0	5.52
Summary	96.74	2.96	0.28	0	0	100





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% Icon Classes (ppb)

97 0-2

3 2-5

0 5-10

0 10-50

0 >50.0



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St. Lina Site - August 2021  
Summary of Hourly Averages

### OXIDES OF NITROGEN (NOx) in ppb

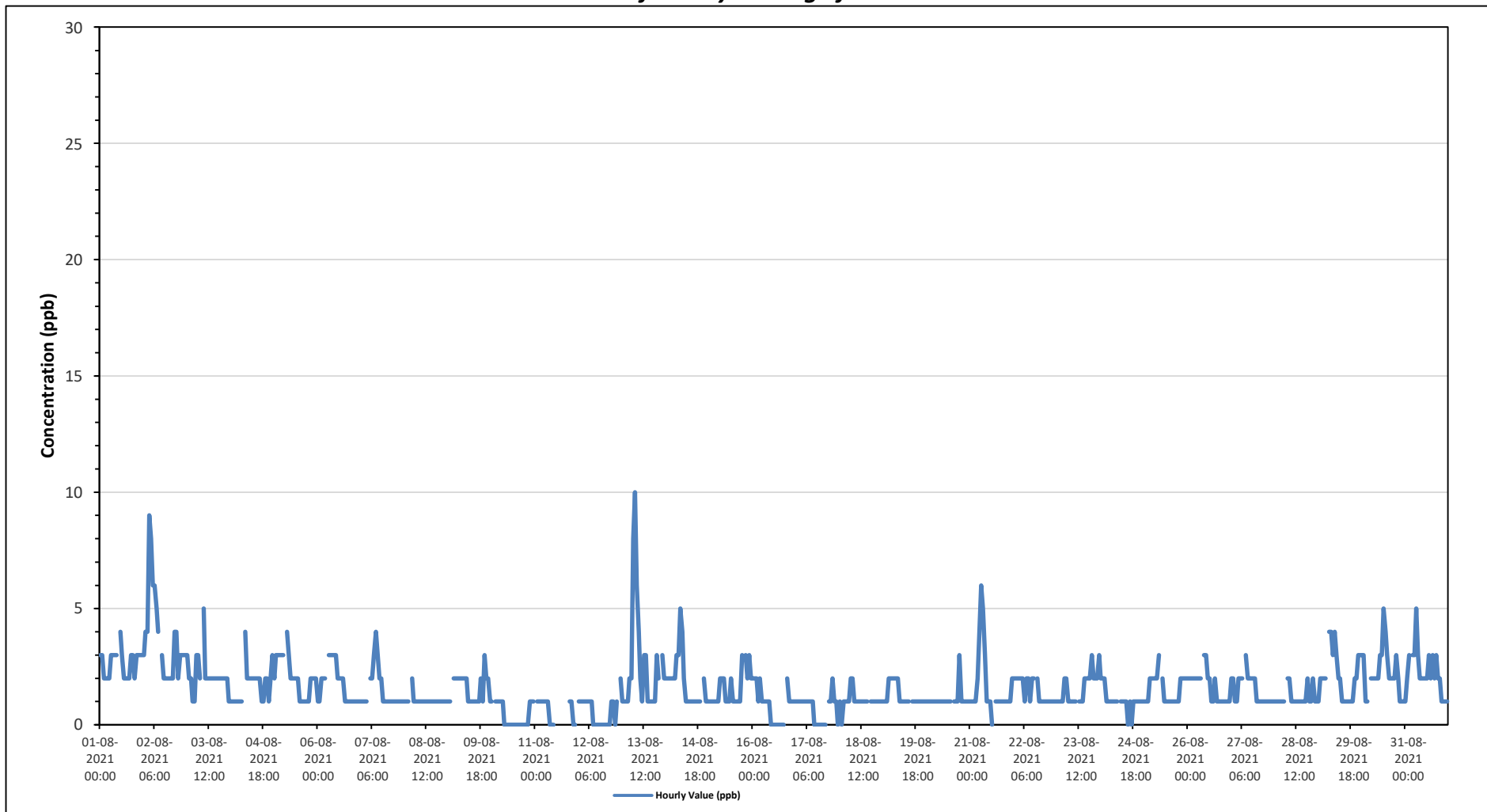
Maximum Hourly Value:	10 ppb on August 13 at hour 7	Hours in Service:	744
Maximum Daily Value:	3.7 ppb on August 2	Hours of Data:	704
Minimum Hourly Value:	0 ppb on August 10 at hour 7	Hours of Missing Data:	0
Minimum Daily Value:	0.4 ppb on August 10	Hours of Calibration:	40
Monthly Average:	1.6 ppb	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			
Aug 1	3	3	2	2	2	2	3	3	3	3	S	4	3	2	2	2	2	3	3	2	3	3	3	3	2	4	2.7
Aug 2	3	4	4	9	8	6	6	5	4	S	3	2	2	2	2	2	2	4	4	2	3	3	3	3	2	9	3.7
Aug 3	3	2	2	1	1	3	3	2	S	5	2	2	2	2	2	2	2	2	2	2	2	2	2	1	5	2.1	
Aug 4	1	1	1	1	1	1	1	S	4	2	2	2	2	2	2	2	2	1	1	2	2	1	2	3	4	1.7	
Aug 5	2	3	3	3	3	3	S	4	3	2	2	2	2	2	1	1	1	1	1	1	2	2	2	2	4	2.1	
Aug 6	1	1	2	2	2	S	3	3	3	3	3	2	2	2	2	1	1	1	1	1	1	1	1	1	3	1.7	
Aug 7	1	1	1	1	S	2	2	3	4	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	4	1.5	
Aug 8	1	1	1	S	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	
Aug 9	1	1	S	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2	1	3	2	2	1	3	1.6	
Aug 10	1	S	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0.4	
Aug 11	S	1	1	1	1	1	1	1	0	0	0	C	C	C	C	C	C	C	C	1	1	0	0	S	0	-	
Aug 12	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	S	2	0	0.6	
Aug 13	1	1	1	1	2	2	8	10	6	4	2	1	3	3	1	1	1	1	1	3	2	S	3	2	1	10	2.6
Aug 14	2	2	2	2	2	2	3	3	5	4	2	1	1	1	1	1	1	1	1	1	S	2	1	1	5	1.8	
Aug 15	1	1	1	1	1	1	2	2	2	1	1	1	2	1	1	1	1	1	3	S	3	2	3	2	3	1.5	
Aug 16	2	2	2	1	2	1	1	1	1	1	0	0	0	0	0	0	0	0	S	2	1	1	1	1	0	0.9	
Aug 17	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	S	1	1	2	1	1	0	2	0.7	
Aug 18	1	0	1	1	1	1	2	2	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	0	1.0	
Aug 19	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1.3	
Aug 20	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	3	1	1	1	1	1	3	1.1	
Aug 21	1	1	1	1	2	4	6	5	3	1	1	1	0	S	1	1	1	1	1	1	1	1	1	2	0	1.7	
Aug 22	2	2	2	2	2	2	1	2	2	1	2	2	S	2	1	1	1	1	1	1	1	1	1	1	1	2	1.5
Aug 23	1	1	1	1	2	2	1	1	1	1	1	S	1	1	1	2	2	2	2	3	2	2	2	3	1	1.6	
Aug 24	2	2	2	1	1	1	1	1	1	1	S	1	1	1	0	1	1	0	1	1	1	1	1	1	0	1.0	
Aug 25	1	1	1	2	2	2	2	2	3	S	2	1	1	1	1	1	1	1	1	1	2	2	2	2	1	3	1.5
Aug 26	2	2	2	2	2	2	2	2	S	3	3	2	2	1	1	2	1	1	1	1	1	1	1	1	1	3	1.7
Aug 27	2	2	1	1	2	2	2	S	3	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	3	1.5
Aug 28	1	1	1	1	1	1	S	2	2	1	1	1	1	1	1	1	1	1	2	1	1	2	1	1	1	2	1.2
Aug 29	1	2	2	2	2	S	4	4	3	4	3	2	2	1	1	1	1	1	1	1	2	2	3	3	1	4	2.1
Aug 30	3	3	1	1	S	2	2	2	2	2	3	3	5	4	3	2	2	2	2	3	2	1	1	1	1	5	2.3
Aug 31	1	2	3	S	3	3	5	3	2	2	2	2	3	2	3	2	3	2	3	2	1	1	1	1	5	2.2	
Diurnal Maximum	3	4	4	9	8	6	8	10	6	5	3	4	5	4	3	3	2	4	4	3	3	3	3	3	3	3	
Diurnal Average	1.5	1.6	1.5	1.7	1.9	1.9	2.4	2.4	2.2	1.8	1.6	1.4	1.4	1.4	1.1	1.1	1.1	1.2	1.5	1.4	1.5	1.4	1.5	1.5	1.5		

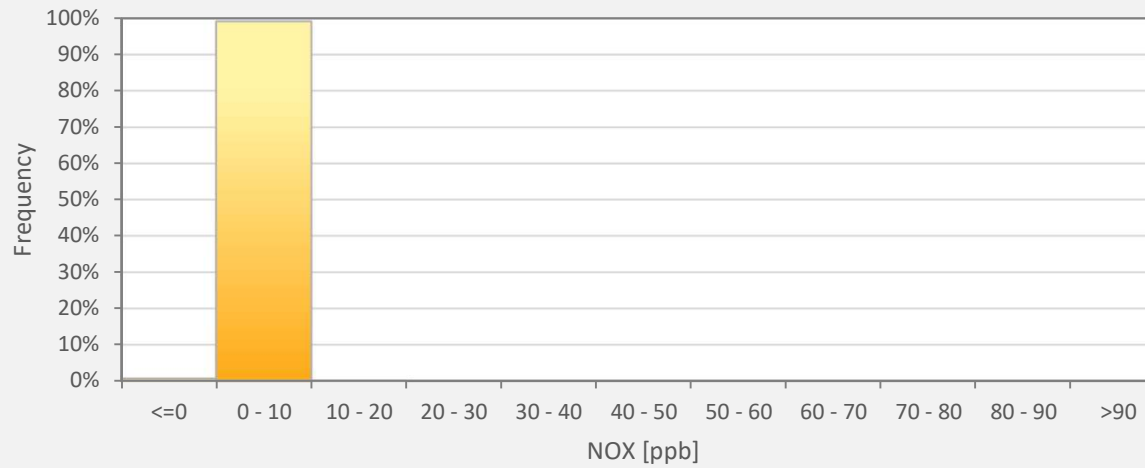
<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>N</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> InValid Data (Equipment Malfunction/Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span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

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

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



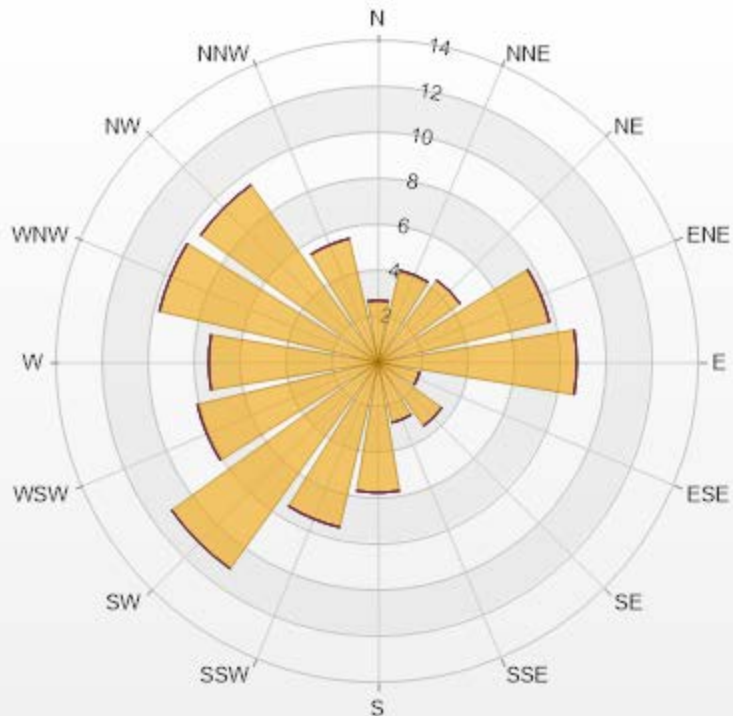
NOX[ppb] Histogram: St. Lina Monthly: 08-2021 1 Hr.



Classes	NOX
<=0	0.71%
0 - 10	99.15%
10 - 20	0.14%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: St. Lina Poll.: St. Lina-NOX[ppb] Monthly: 08-2021 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	2.7	0	0	0	0	2.7
NNE	4.12	0	0	0	0	4.12
NE	4.4	0	0	0	0	4.4
ENE	7.67	0	0	0	0	7.67
E	8.66	0	0	0	0	8.66
ESE	1.85	0	0	0	0	1.85
SE	3.41	0	0	0	0	3.41
SSE	2.7	0	0	0	0	2.7
S	5.68	0	0	0	0	5.68
SSW	7.39	0	0	0	0	7.39
SW	11.08	0	0	0	0	11.08
WSW	8.1	0	0	0	0	8.1
W	7.39	0	0	0	0	7.39
WNW	9.8	0	0	0	0	9.8
NW	9.52	0	0	0	0	9.52
NNW	5.54	0	0	0	0	5.54
Summary	100	0	0	0	0	100



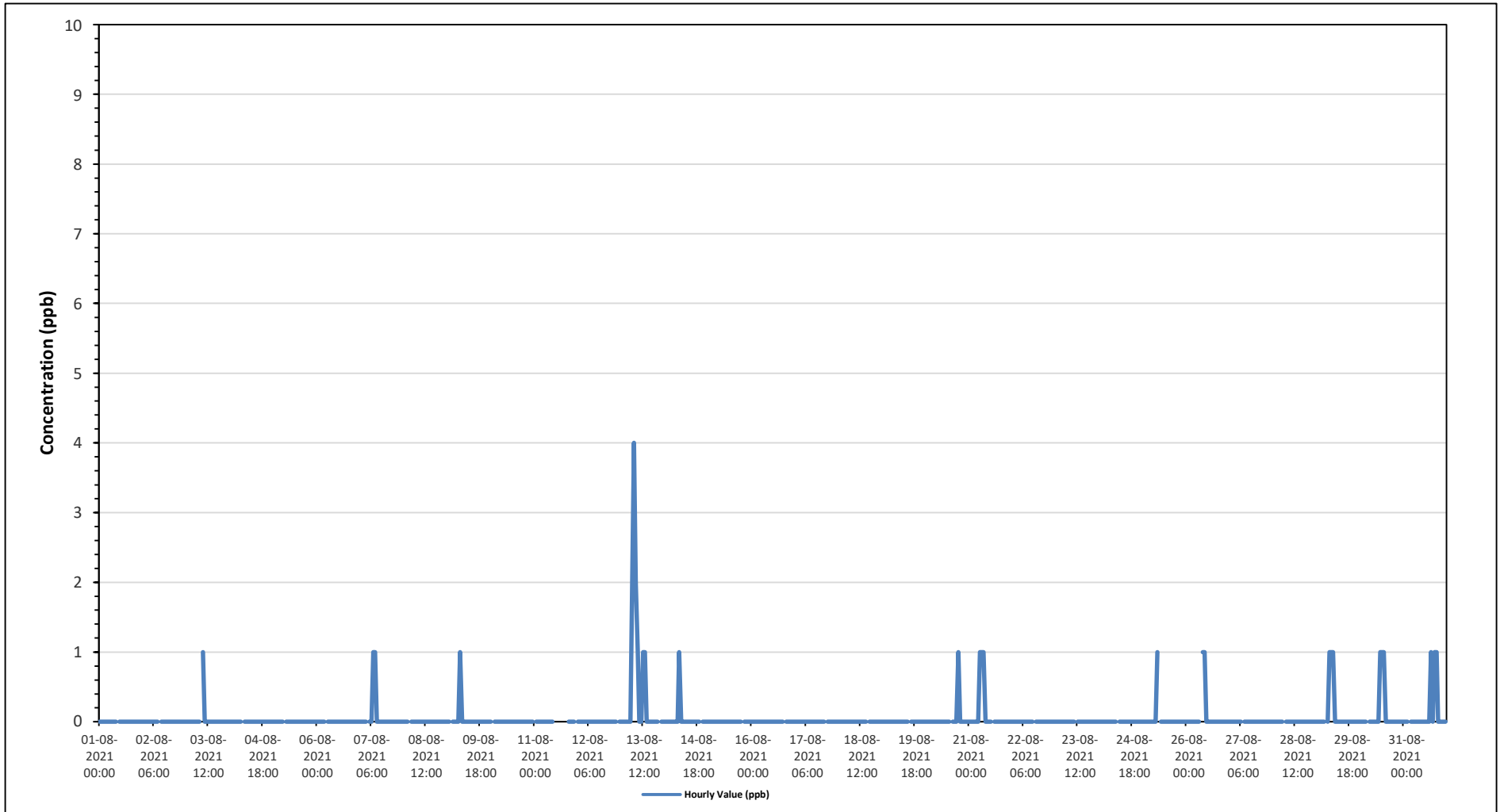
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% Icon Classes (ppb)	100	0-30	0	30-50	0	50-76	0	76-159	0	>159.0
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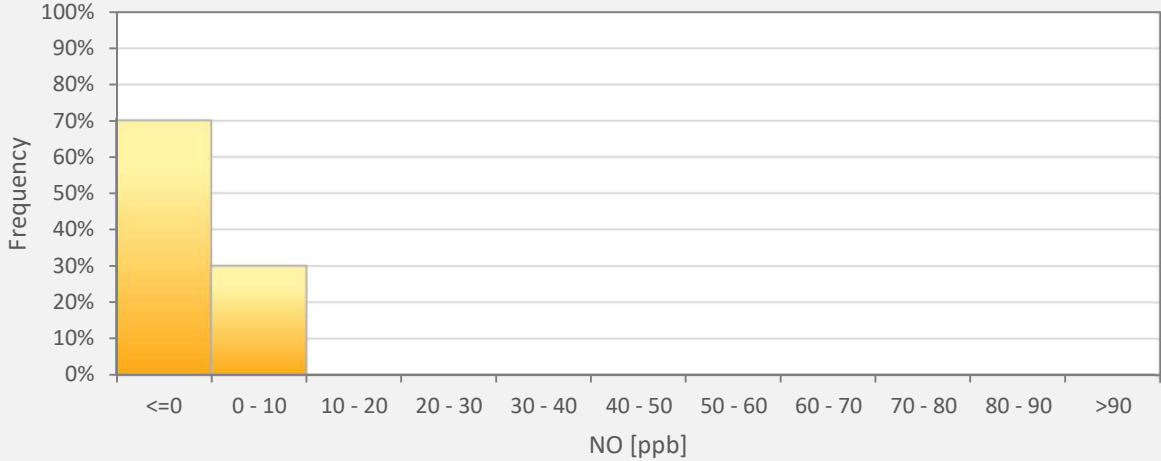


Timeseries Chart of Hourly Average for NO - St. Lina Site





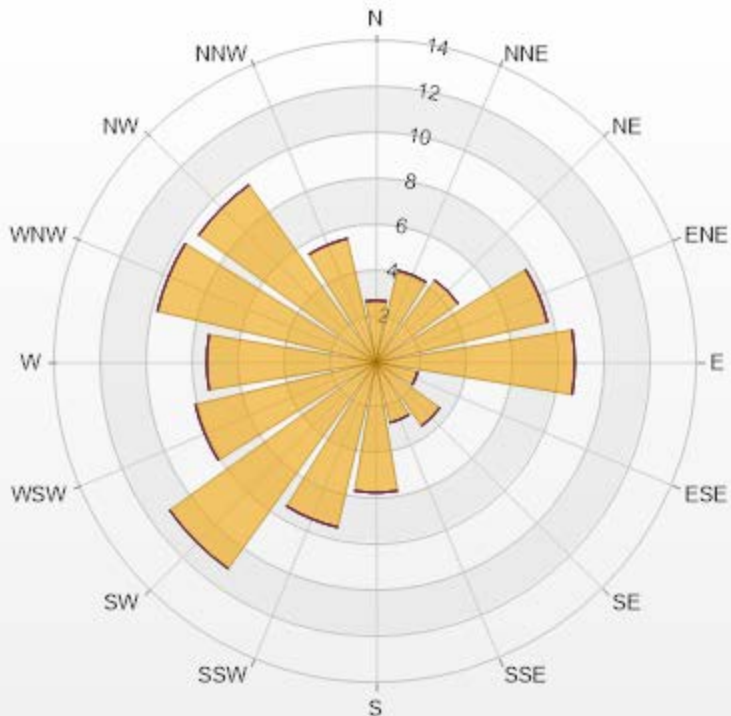
NO[ppb] Histogram: St. Lina Monthly: 08-2021 1 Hr.



Classes	NO
<=0	70.03%
0 - 10	29.97%
10 - 20	0.00%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: St. Lina Poll.: St. Lina-NO[ppb] Monthly: 08-2021 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	2.7	0	0	0	0	2.7
NNE	4.12	0	0	0	0	4.12
NE	4.4	0	0	0	0	4.4
ENE	7.67	0	0	0	0	7.67
E	8.66	0	0	0	0	8.66
ESE	1.85	0	0	0	0	1.85
SE	3.41	0	0	0	0	3.41
SSE	2.7	0	0	0	0	2.7
S	5.68	0	0	0	0	5.68
SSW	7.39	0	0	0	0	7.39
SW	11.08	0	0	0	0	11.08
WSW	8.1	0	0	0	0	8.1
W	7.39	0	0	0	0	7.39
WNW	9.8	0	0	0	0	9.8
NW	9.52	0	0	0	0	9.52
NNW	5.54	0	0	0	0	5.54
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100

0-30

0

30-50

0

50-76

0

76-159

0

>159.0



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - August 2021

Summary of Hourly Averages

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

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

Number of 1-Hour Exceedences: 0

Maximum Hourly Value: 9 ppb on August 2 at hour 3

Hours in Service: 744

Maximum Daily Value: 3.7 ppb on August 2

Hours of Data: 704

Minimum Hourly Value: 0 ppb on August 10 at hour 7

Hours of Missing Data: 0

Minimum Daily Value: 0.4 ppb on August 10

Hours of Calibration: 40

Monthly Average: 1.5 ppb

Operational Uptime: 100.0

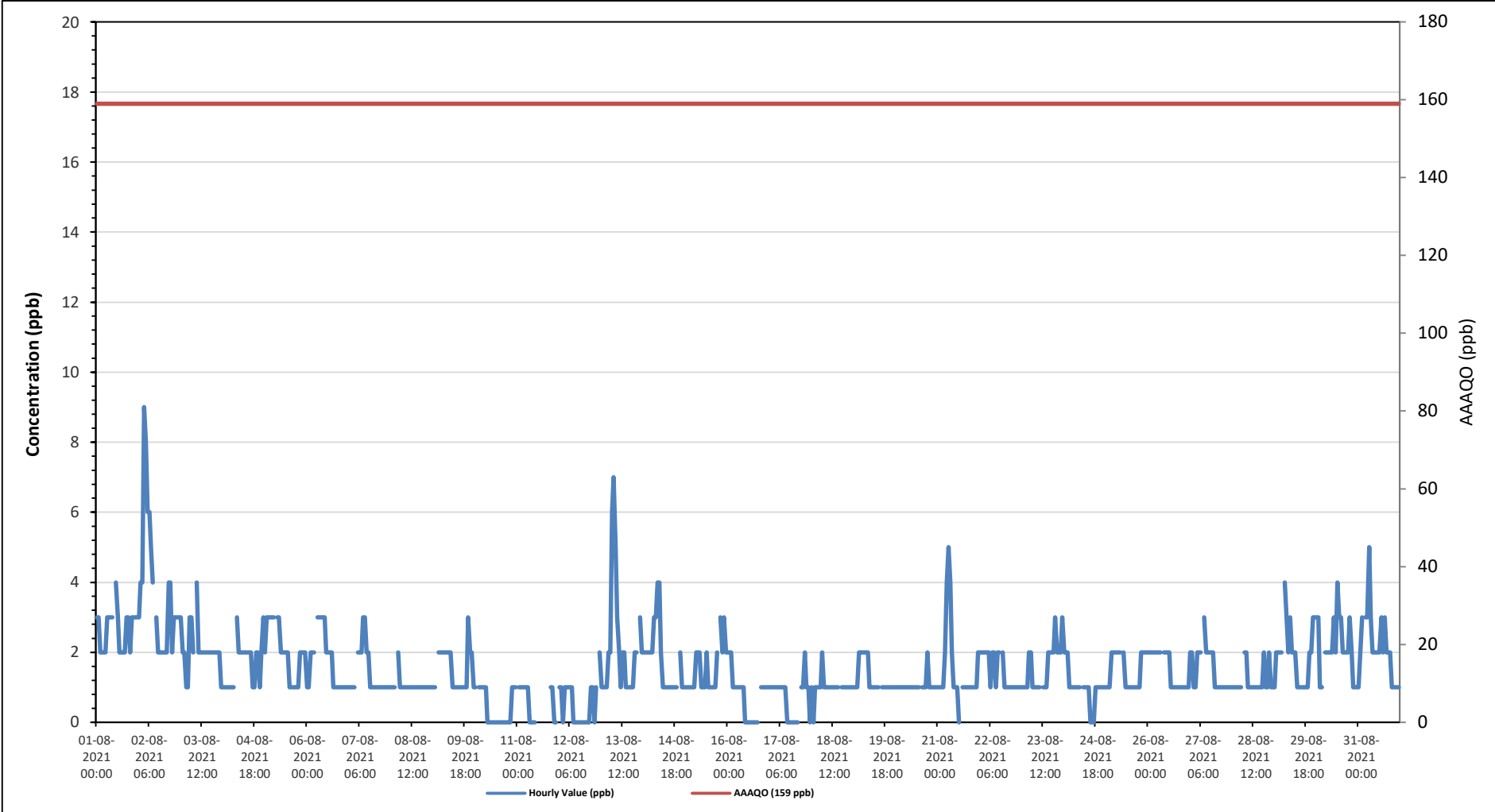
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Aug 1	3	3	2	2	2	2	3	3	3	3	S	4	3	2	2	2	2	3	3	2	3	3	3	3	2	4	2.7
Aug 2	3	4	4	9	8	6	6	5	4	S	3	2	2	2	2	2	2	4	4	2	3	3	3	3	2	9	3.7
Aug 3	3	2	2	1	1	3	3	2	S	4	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	4	2.1
Aug 4	1	1	1	1	1	1	1	S	3	2	2	2	2	2	2	2	1	1	2	2	1	2	3	1	3	1.7	
Aug 5	2	3	3	3	3	3	S	3	3	2	2	2	2	2	1	1	1	1	1	1	2	2	2	2	1	3	2.0
Aug 6	1	1	2	2	2	S	3	3	3	3	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	3	1.7
Aug 7	1	1	1	1	S	2	2	2	3	3	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	3	1.4
Aug 8	1	1	1	S	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0
Aug 9	1	1	S	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	3	2	2	1	1	3	1.5
Aug 10	1	S	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4
Aug 11	S	1	1	1	1	1	1	0	0	0	0	C	C	C	C	C	C	C	C	1	1	0	0	S	0	-	
Aug 12	1	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	S	2	0	0.5	
Aug 13	1	1	1	1	2	2	6	7	5	3	2	1	2	2	1	1	1	1	1	2	2	S	3	2	1	7	2.2
Aug 14	2	2	2	2	2	2	3	3	4	4	2	1	1	1	1	1	1	1	1	1	2	S	2	1	1	4	1.8
Aug 15	1	1	1	1	1	1	2	2	2	1	1	1	2	1	1	1	1	1	2	S	3	2	3	2	1	3	1.5
Aug 16	2	2	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	S	1	1	1	1	1	0	2	0.8
Aug 17	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	S	1	1	2	1	1	0	0	2	0.7
Aug 18	1	0	1	1	1	1	2	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	0	2	1.0
Aug 19	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	2	1.3
Aug 20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	2	1	1	1	1	1	1	2	1.0
Aug 21	1	1	1	1	2	4	5	4	2	1	1	0	S	1	1	1	1	1	1	1	1	1	1	2	0	5	1.5
Aug 22	2	2	2	2	2	2	1	2	2	1	2	2	S	2	1	1	1	1	1	1	1	1	1	1	1	2	1.5
Aug 23	1	1	1	1	2	2	1	1	1	1	1	S	1	1	1	2	2	2	2	2	3	2	2	2	3	1	1.6
Aug 24	2	2	2	1	1	1	1	1	1	1	S	1	1	1	1	0	0	0	1	1	1	1	1	1	0	2	1.0
Aug 25	1	1	1	2	2	2	2	2	2	S	2	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1.5
Aug 26	2	2	2	2	2	2	2	S	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1.5
Aug 27	2	2	1	1	2	2	2	S	3	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	3	1.5
Aug 28	1	1	1	1	1	1	S	3	2	1	1	1	1	1	1	1	1	1	2	1	1	2	1	1	2	1.2	
Aug 29	1	2	2	2	2	S	4	3	2	3	2	2	2	1	1	1	1	1	1	1	2	2	3	3	1	4	1.9
Aug 30	3	3	1	1	S	2	2	2	2	2	3	2	4	3	3	2	2	2	2	2	3	2	1	1	1	4	2.1
Aug 31	1	2	3	S	3	3	5	3	2	2	2	2	2	3	2	3	2	2	2	2	1	1	1	1	1	5	2.1
Diurnal Maximum	3	4	4	9	8	6	6	7	5	4	3	4	4	3	3	3	2	4	4	3	3	3	3	3	3	3	
Daiurnal Average	1.5	1.6	1.5	1.7	1.9	1.9	2.3	2.1	2.0	1.7	1.5	1.4	1.4	1.3	1.1	1.1	1.2	1.4	1.3	1.5	1.4	1.5	1.5				

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

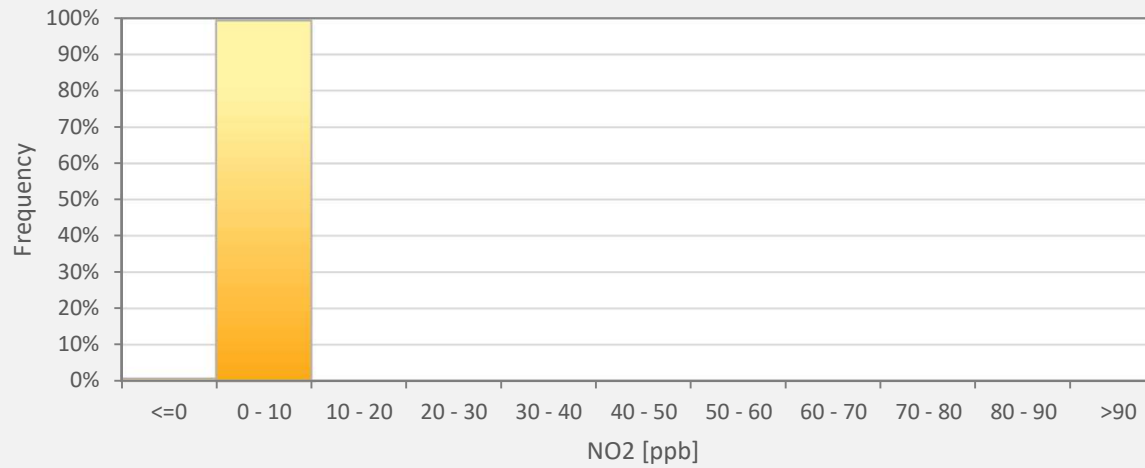
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

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



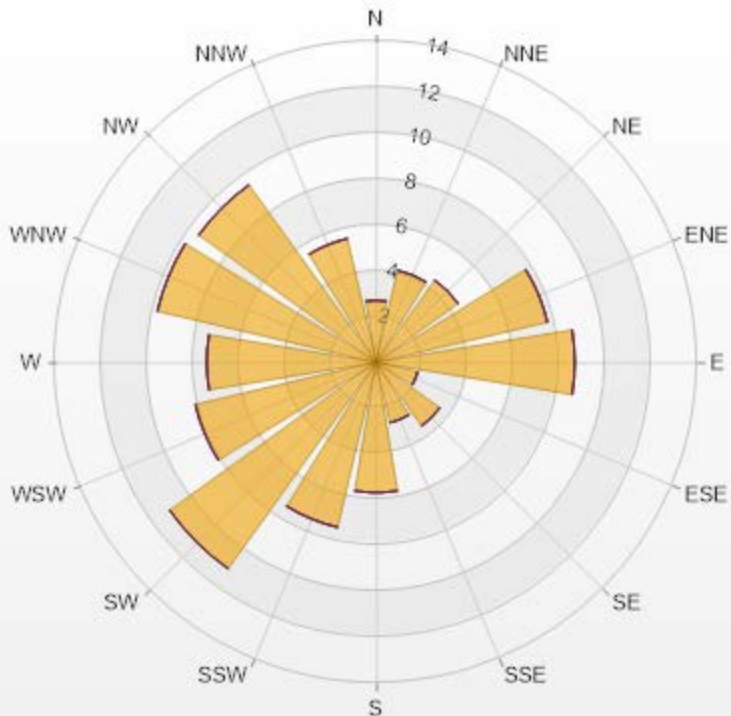
NO2[ppb] Histogram: St. Lina Monthly: 08-2021 1 Hr.



Classes	NO2
<=0	0.71%
0 - 10	99.29%
10 - 20	0.00%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: St. Lina Poll.: St. Lina-NO2[ppb] Monthly: 08-2021 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	2.7	0	0	0	0	2.7
NNE	4.12	0	0	0	0	4.12
NE	4.4	0	0	0	0	4.4
ENE	7.67	0	0	0	0	7.67
E	8.66	0	0	0	0	8.66
ESE	1.85	0	0	0	0	1.85
SE	3.41	0	0	0	0	3.41
SSE	2.7	0	0	0	0	2.7
S	5.68	0	0	0	0	5.68
SSW	7.39	0	0	0	0	7.39
SW	11.08	0	0	0	0	11.08
WSW	8.1	0	0	0	0	8.1
W	7.39	0	0	0	0	7.39
WNW	9.8	0	0	0	0	9.8
NW	9.52	0	0	0	0	9.52
NNW	5.54	0	0	0	0	5.54
Summary	100	0	0	0	0	100



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

## St. Lina Site - August 2021 Summary of Hourly Averages OZONE (O<sub>3</sub>) in ppb

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

Number of 1-Hour Exceedences: 0

Maximum Hourly Value:	52.3 ppb on August 4 at hour 13	Hours in Service:	744
Maximum Daily Value:	35.3 ppb on August 4	Hours of Data:	699
Minimum Hourly Value:	2.8 ppb on August 23 at hour 23	Hours of Missing Data:	8
Minimum Daily Value:	13.8 ppb on August 23	Hours of Calibration:	37
Monthly Average:	25.4 ppb	Operational Uptime:	98.9

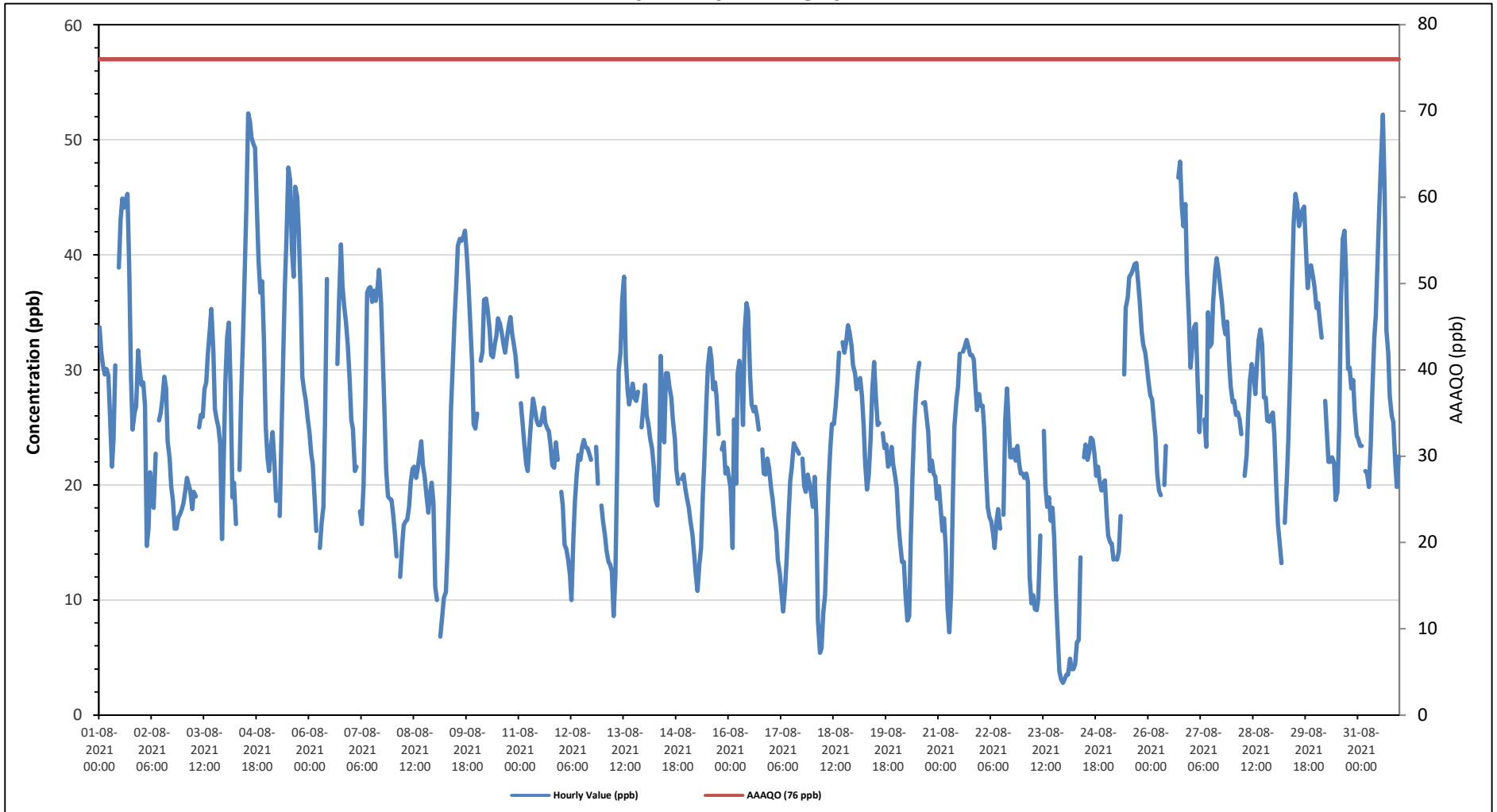
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Aug 1	33.7	31.5	30.3	29.6	30.1	29.5	26.2	21.6	23.9	30.4	S	38.9	43.1	44.9	44.1	44.7	45.3	38.7	29.3	24.8	26.3	26.8	31.7	30.1	21.6	45.3	32.8	
Aug 2	28.7	28.9	26.9	14.7	16.3	21.1	19	18	22.7	S	25.6	26.3	27.6	29.4	28.4	23.8	22.3	19.9	18.6	16.2	16.2	17.2	17.4	17.9	14.7	29.4	21.9	
Aug 3	18.4	19.4	20.6	20	19.5	17.9	19.4	19	S	25	26.1	25.9	28.3	28.9	31.3	33.5	35.3	31.6	26.6	25.7	25	23.5	15.3	22.5	15.3	35.3	24.3	
Aug 4	28.8	32.8	34.1	28.4	18.9	20.2	16.6	S	21.3	27.4	32.4	38.2	44.3	52.3	51.6	50.2	49.6	49.3	43.5	39.4	36.7	37.7	32.5	25.1	16.6	52.3	35.3	
Aug 5	22.4	21.2	23.4	24.6	22	18.6	S	17.3	23.4	31.3	37	41.7	47.6	46.5	40.5	38.1	45.9	45	42	36.2	29.4	28.2	27.3	25.8	17.3	47.6	32.0	
Aug 6	24.6	22.7	21.8	18.6	16	S	14.5	16.7	18.1	25.1	37.9	C	C	C	C	C	30.5	35.6	40.9	37.3	35.5	34.1	32.1	29.3	14.5	40.9	27.3	
Aug 7	25.6	24.9	21.2	21.6	S	17.7	16.6	20	27	36.7	37.1	37.2	35.9	36.9	36	37.2	38.7	35.8	31.6	25.8	21.3	19	18.8	18.7	16.6	38.7	27.9	
Aug 8	17.3	15.6	13.8	S	12	14.8	16.5	16.8	17	18.1	20.3	21.4	21.6	20.6	21.4	22.6	23.8	21.8	20.6	19.2	17.6	19.2	20.2	18.4	12.0	23.8	18.7	
Aug 9	11.1	10	S	6.8	8.7	10.2	10.7	14.1	19.5	26.6	30.4	34.4	37.5	40.8	41.4	41.2	41.6	42.1	40.1	37.3	34.4	30.6	25.3	24.9	6.8	42.1	26.9	
Aug 10	26.2	S	S	30.8	31.6	36.1	36.2	35.3	33.5	31.3	31.1	32.2	33	34.5	34	33.3	32.2	31.5	32.7	33.8	34.6	33.1	32.1	31.2	29.4	26.2	36.2	32.6
Aug 11	S	27.1	25.3	23.7	21.8	21.2	24	25.8	27.5	26.6	25.6	25.2	25.7	26.7	25.4	24.9	24.7	23.4	21.7	21.5	23.7	22.2	S	21.2	21.2	27.5	24.5	
Aug 12	19.4	18.2	14.8	14.4	13.5	12.2	10	15.6	18.7	21	22.6	22.2	23.3	23.9	23.3	23.2	22.8	22.2	NRM	NRM	23.3	20.1	S	18.2	10.0	23.9	19.2	
Aug 13	16.9	15.6	14.3	13.3	13.1	12.5	8.6	12.2	21.7	30	31.5	36.2	38.1	30.9	28.2	27	27.9	28.8	27.5	27.3	28.1	S	25	26.9	8.6	38.1	23.5	
Aug 14	28.7	26.1	25.1	24	23.2	21.6	18.7	18.2	21.8	31.2	26.3	23.7	29.7	29.7	28.6	27.6	25.7	24	21.3	20.1	S	20.5	20.9	19.7	18.2	31.2	24.2	
Aug 15	18.9	18	16.9	15.7	14.2	12.3	10.8	13	14.5	19.1	22.1	27.2	30.3	31.9	30.9	28.3	28.9	27.7	24.4	S	23.1	23.7	21	21.5	10.8	31.9	21.5	
Aug 16	20.6	19.7	14.5	25.7	20.1	29.7	30.8	29.5	25.2	33.5	35.8	35.1	29.5	27	26.4	26.8	26	24.8	S	23.1	21	20.9	22.3	21.4	14.5	35.8	25.6	
Aug 17	19.8	18.7	17.3	16	13.5	12.3	10.7	9	10.8	13.6	17.2	20.4	21.5	23.6	23.3	23	22.7	S	22.3	19.9	19.4	20.9	20.2	19.3	9.0	23.6	18.1	
Aug 18	18.1	20.7	17.1	8.2	5.4	5.8	8.9	10.4	15.4	20.2	23.3	25.3	26.7	29	31.5	S	32.4	31.5	32.4	33.9	33.3	32.1	30.4	5.4	33.9	22.5		
Aug 19	29.7	28.3	28.7	29.3	27.8	25.1	21.8	19.6	20.9	23.9	28.3	30.7	28	25.2	25.4	S	24.5	23.2	23.5	21.6	21.9	23.3	21.8	20.7	19.6	30.7	24.9	
Aug 20	19.7	16.3	14.8	13.3	13.3	10.3	8.2	8.6	15.1	20.8	25.2	27.9	29.8	30.6	S	27.1	27.2	26	24.6	21.2	22.1	21	20.7	18.8	8.2	30.6	20.1	
Aug 21	19.9	18.2	16	17.1	14.5	9.3	7.2	10.7	18.9	25.1	27.4	28.5	31.4	S	31.6	32.1	32.6	32	31.3	31.3	30.9	28.5	26.5	27.9	7.2	32.6	23.9	
Aug 22	26.9	26.9	25	21.3	18.1	17.2	16.8	15.8	14.5	16.9	17.9	16.2	S	17.4	25.7	28.4	25.1	22.4	22.4	23.1	22.1	23.4	21.8	21	14.5	28.4	21.1	
Aug 23	21	20.6	21	20.3	12	9.7	10.4	9.2	9.1	10.1	15.6	S	24.7	19.9	18.1	18.9	16.9	18	15.2	10.7	7.2	3.8	3.1	2.8	2.8	24.7	13.8	
Aug 24	3.1	3.5	3.5	4.9	4	4	4.4	6.3	6.5	13.7	S	22.4	23.5	22.2	22.8	24.1	23.9	22.7	20.8	21.6	20.4	19.5	20	20.4	3.1	24.1	14.7	
Aug 25	17.5	15.6	15	14.9	13.5	13.6	13.5	14.2	17.3	S	29.6	35.4	36.3	38.1	38.3	38.7	39.2	39.3	37.6	36	33.3	32.2	31.5	30.4	13.5	39.3	27.4	
Aug 26	28.9	27.8	27.4	25.6	24.2	21	19.5	19.1	S	20	23.4	NRM	NRM	NRM	NRM	NRM	NRM	NRM	46.7	48.1	44.1	42.5	44.4	38.5	34.3	19.1	48.1	-
Aug 27	30.2	32	33.7	34	29	24.6	27.7	S	25.7	23.3	35	32	32.3	35.9	38.6	39.7	38.6	37.2	35.8	33.9	33.1	34.2	30.7	28.6	23.3	39.7	32.4	
Aug 28	27.2	27.3	26.1	26.3	25.7	24.4	S	20.8	22.6	26.2	29.1	30.5	29.6	27.9	30.4	32.6	33.5	32.2	27.6	27.6	25.6	25.5	26	26.3	20.8	33.5	27.4	
Aug 29	24.3	20.1	16.6	14.9	13.2	S	16.7	20.5	24	30.4	36.9	42.8	45.3	44.4	42.5	43.2	43.9	44.2	40.6	37.1	38.7	39.1	38.1	37.2	13.2	45.3	32.8	
Aug 30	35.4	35.8	34.2	32.8	S	27.3	24.4	22	22	22.4	21.9	18.7	19.4	25	35.9	41.4	42.1	38.4	30.1	30.2	28.4	29.1	26.4	24.3	18.7	42.1	29.0	
Aug 31	24	23.4	23.4	S	21.2	21	19.8	23.4	27.8	32.7	34.7	40.1	44.2	48.4	52.2	45.4	33.4	31.5	27.7	26	25.5	21.8	19.8	22.5	19.8	52.2	30.0	
Diurnal Maximum	35	36	34	34	36	36	35	34	31	37	38	43	48	52	52	50	50	49	48	44	43	44	39	37				
Daiurnal Average	22.9	22.2	21.8	20.4	18.0	18.0	16.8	17.3	20.1	24.6	27.9	29.9	31.7	31.7	32.4	32.4	31.9	31.7	29.7	27.8	26.6	25.9	24.7	23.8				

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

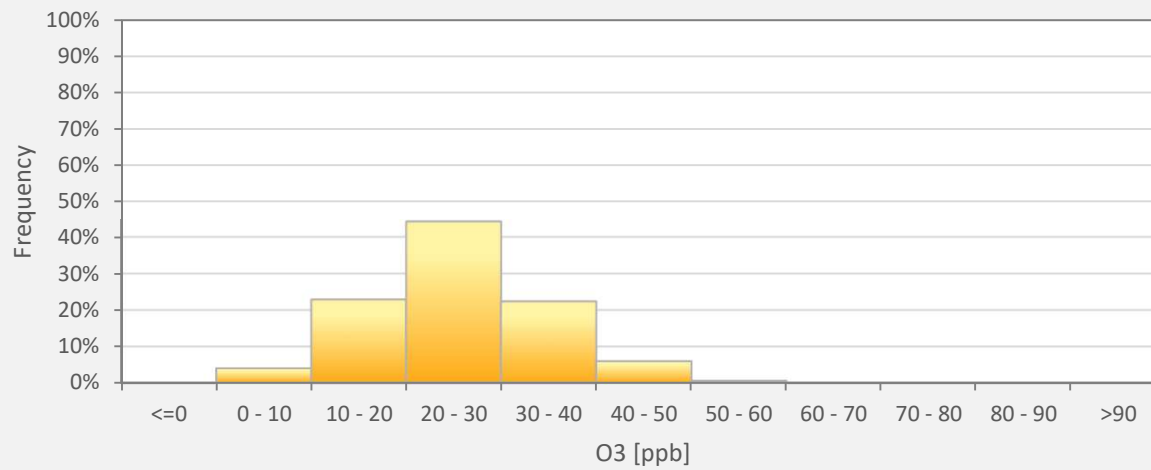
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

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



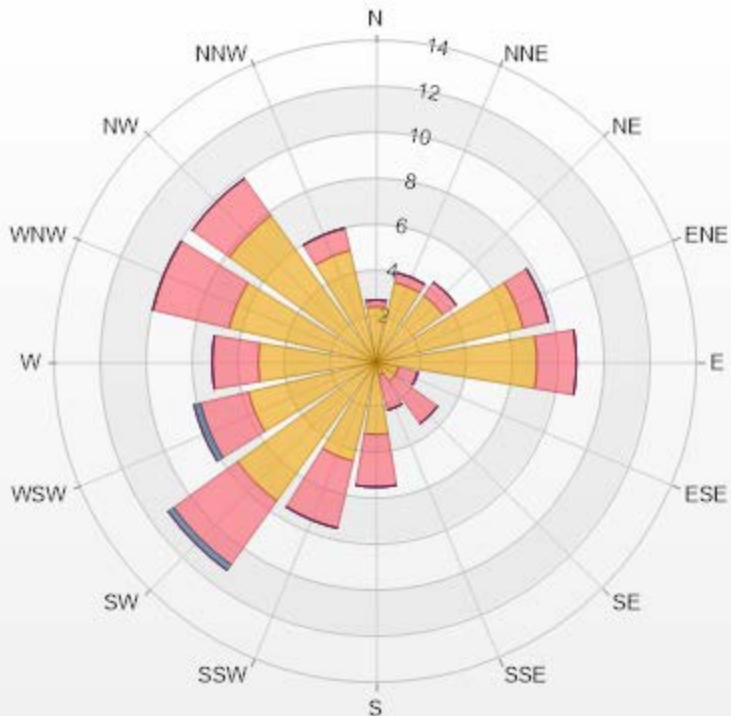
O3[ppb] Histogram: St. Lina Monthly: 08-2021 1 Hr.



Classes	O3
<=0	0.00%
0 - 10	4.01%
10 - 20	22.89%
20 - 30	44.21%
30 - 40	22.32%
40 - 50	6.01%
50 - 60	0.57%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: St. Lina Poll.: St. Lina-O3[ppb] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 93.95% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	2.43	0.29	0	0	0	2.72
NNE	3.58	0.43	0	0	0	4.01
NE	3.58	0.72	0	0	0	4.3
ENE	6.58	1.14	0	0	0	7.72
E	7.01	1.72	0	0	0	8.73
ESE	1	0.86	0	0	0	1.86
SE	1	2.29	0	0	0	3.29
SSE	0.57	1.57	0	0	0	2.14
S	3.15	2.29	0	0	0	5.44
SSW	4.43	3	0	0	0	7.43
SW	7.44	3.43	0.29	0	0	11.16
WSW	5.72	2.15	0.29	0	0	8.16
W	5.15	2	0	0	0	7.15
WNW	6.58	3.43	0	0	0	10.01
NW	7.87	2	0	0	0	9.87
NNW	5.01	1	0	0	0	6.01
Summary	71.1	28.32	0.58	0	0	100



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% Icon Classes (ppb)

71 0-30

28 30-50

1 50-76

0 76-159

0 >159.0



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## St. Lina Site - August 2021 Summary of Hourly Averages

### TOTAL HYDROCARBONS (THC) in ppm

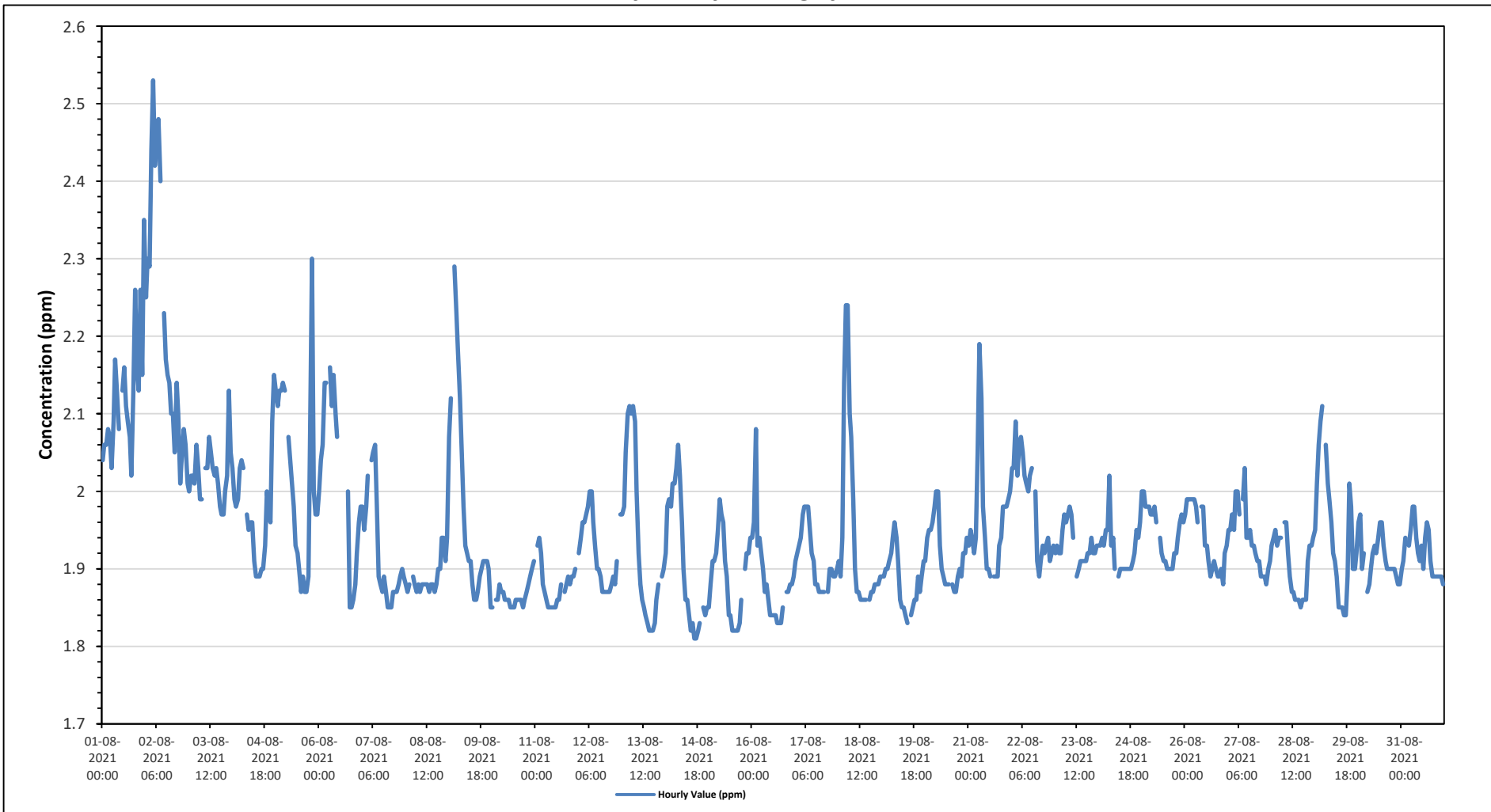
Maximum Hourly Value:	2.53 ppm on August 2 at hour 4	Hours in Service:	744
Maximum Daily Value:	2.22 ppm on August 2	Hours of Data:	706
Minimum Hourly Value:	1.81 ppm on August 14 at hour 16	Hours of Missing Data:	1
Minimum Daily Value:	1.87 ppm on August 10	Hours of Calibration:	37
Monthly Average:	1.95 ppm	Operational Uptime:	99.9

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23		
Aug 1	2.04	2.06	2.06	2.08	2.07	2.03	2.09	2.17	2.13	2.08	S	2.13	2.16	2.11	2.09	2.07	2.02	2.13	2.26	2.16	2.13	2.26	2.15	2.35	2.02	2.35	2.12		
Aug 2	2.25	2.30	2.29	2.44	2.53	2.42	2.46	2.48	2.40	S	2.23	2.17	2.15	2.14	2.10	2.10	2.05	2.14	2.10	2.01	2.05	2.08	2.06	2.01	2.01	2.53	2.22		
Aug 3	2.00	2.02	2.02	2.01	2.06	2.03	1.99	1.99	S	2.03	2.03	2.07	2.05	2.03	2.02	2.03	2.01	1.98	1.97	1.97	2.00	2.02	2.13	2.05	1.97	2.13	2.02		
Aug 4	2.03	1.99	1.98	1.99	2.03	2.04	2.03	S	1.97	1.95	1.96	1.96	1.91	1.89	1.89	1.89	1.90	1.90	1.93	2.00	1.98	1.96	2.09	2.15	1.89	2.15	1.97		
Aug 5	2.13	2.11	2.13	2.13	2.14	2.13	S	2.07	2.04	2.01	1.98	1.93	1.92	1.90	1.87	1.89	1.87	1.87	1.89	2.06	2.30	2.00	1.97	1.97	1.87	2.30	2.01		
Aug 6	2.00	2.04	2.06	2.14	2.14	S	2.16	2.11	2.15	2.10	2.07	C	C	C	C	C	2.00	1.85	1.85	1.86	1.88	1.92	1.96	1.98	1.85	2.16	2.02		
Aug 7	1.98	1.95	1.98	2.02	S	2.04	2.05	2.06	1.98	1.89	1.88	1.87	1.89	1.87	1.85	1.85	1.85	1.87	1.87	1.87	1.87	1.88	1.89	1.90	1.89	2.06	1.92		
Aug 8	1.88	1.87	1.88	S	1.89	1.88	1.87	1.88	1.87	1.88	1.88	1.88	1.88	1.87	1.88	1.88	1.87	1.88	1.90	1.90	1.94	1.94	1.91	1.94	1.87	1.94	1.89		
Aug 9	2.07	2.12	S	2.29	2.23	2.18	2.12	2.05	1.98	1.93	1.92	1.91	1.91	1.88	1.86	1.86	1.87	1.89	1.90	1.91	1.91	1.91	1.90	1.85	1.85	2.29	1.98		
Aug 10	1.85	S	1.86	1.86	1.88	1.87	1.87	1.86	1.86	1.86	1.85	1.85	1.85	1.86	1.86	1.86	1.86	1.85	1.86	1.87	1.88	1.89	1.90	1.91	1.85	1.91	1.87		
Aug 11	S	1.93	1.94	1.92	1.88	1.87	1.86	1.85	1.85	1.85	1.85	1.85	1.86	1.86	1.88	NRM	1.87	1.88	1.89	1.88	1.89	1.90	S	1.85	1.94	1.88			
Aug 12	1.92	1.94	1.96	1.96	1.97	1.98	2.00	2.00	1.96	1.93	1.90	1.90	1.89	1.87	1.87	1.87	1.87	1.87	1.88	1.89	1.88	1.91	S	1.97	1.87	2.00	1.92		
Aug 13	1.97	1.98	2.05	2.10	2.11	2.10	2.11	2.09	2.00	1.92	1.88	1.86	1.85	1.84	1.83	1.82	1.82	1.82	1.83	1.86	1.88	S	1.89	1.90	1.82	2.11	1.94		
Aug 14	1.92	1.98	1.99	1.98	2.01	2.01	2.03	2.06	2.02	1.96	1.90	1.86	1.86	1.84	1.82	1.83	1.81	1.81	1.82	1.83	S	1.85	1.84	1.85	1.81	2.06	1.91		
Aug 15	1.85	1.88	1.91	1.91	1.92	1.95	1.99	1.97	1.96	1.91	1.89	1.84	1.84	1.82	1.82	1.82	1.82	1.83	1.86	S	1.90	1.92	1.92	1.94	1.82	1.99	1.89		
Aug 16	1.94	1.96	2.08	1.93	1.94	1.92	1.90	1.87	1.88	1.86	1.84	1.84	1.84	1.84	1.83	1.83	1.83	1.83	1.85	S	1.87	1.87	1.88	1.88	1.83	2.08	1.89		
Aug 17	1.91	1.92	1.93	1.94	1.97	1.98	1.98	1.98	1.98	1.95	1.92	1.91	1.88	1.88	1.87	1.87	1.87	1.87	S	1.87	1.87	1.90	1.90	1.89	1.89	1.87	1.98	1.91	
Aug 18	1.91	1.89	1.94	2.14	2.24	2.24	2.10	2.07	1.99	1.90	1.87	1.87	1.86	1.86	1.86	1.86	1.86	S	1.86	1.87	1.87	1.88	1.88	1.88	1.89	1.86	2.24	1.94	
Aug 19	1.89	1.89	1.90	1.90	1.91	1.92	1.94	1.96	1.94	1.91	1.86	1.85	1.85	1.84	1.83	S	1.84	1.85	1.86	1.86	1.89	1.87	1.89	1.91	1.83	1.96	1.89		
Aug 20	1.91	1.94	1.95	1.95	1.96	1.98	2.00	2.00	1.93	1.90	1.89	1.88	1.88	S	1.88	1.87	1.87	1.89	1.90	1.89	1.92	1.92	1.94	1.87	2.00	1.92	1.92		
Aug 21	1.93	1.95	1.94	1.92	1.94	2.05	2.19	2.12	1.98	1.94	1.90	1.90	1.89	S	1.89	1.89	1.89	1.93	1.94	1.98	1.98	1.98	1.99	2.00	1.89	2.19	1.96		
Aug 22	2.03	2.03	2.09	2.02	2.06	2.07	2.05	2.02	2.01	2.00	2.02	2.03	S	2.00	1.91	1.89	1.91	1.93	1.92	1.93	1.92	1.93	1.94	1.91	1.92	1.93	1.89	2.09	1.98
Aug 23	1.92	1.93	1.92	1.92	1.95	1.97	1.96	1.97	1.98	1.97	1.94	S	1.89	1.90	1.91	1.91	1.91	1.91	1.92	1.92	1.94	1.92	1.92	1.93	1.89	1.98	1.93		
Aug 24	1.93	1.93	1.94	1.93	1.95	1.95	2.02	1.93	1.94	1.90	S	1.89	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.91	1.92	1.95	1.94	1.96	1.89	2.02	1.93	
Aug 25	2.00	2.00	1.98	1.98	1.98	1.97	1.97	1.98	1.96	S	1.94	1.92	1.91	1.91	1.90	1.90	1.90	1.90	1.90	1.92	1.92	1.94	1.96	1.97	1.96	1.90	2.00	1.95	
Aug 26	1.97	1.99	1.99	1.99	1.99	1.99	1.98	1.96	S	1.98	1.98	1.93	1.93	1.91	1.89	1.90	1.91	1.90	1.90	1.89	1.89	1.90	1.88	1.92	1.93	1.88	1.99	1.94	
Aug 27	1.95	1.95	1.97	1.95	2.00	2.00	1.97	S	1.99	2.03	1.94	1.94	1.95	1.93	1.93	1.92	1.91	1.89	1.89	1.89	1.89	1.88	1.90	1.91	1.88	2.03	1.94		
Aug 28	1.93	1.94	1.95	1.93	1.94	1.94	S	1.96	1.96	1.92	1.89	1.87	1.87	1.86	1.86	1.86	1.85	1.86	1.86	1.86	1.86	1.91	1.93	1.93	1.94	1.85	1.96	1.91	
Aug 29	1.95	2.01	2.06	2.09	2.11	S	2.06	2.01	1.99	1.96	1.92	1.91	1.89	1.85	1.85	1.85	1.84	1.84	1.89	2.01	1.98	1.90	1.90	1.92	1.84	2.11	1.95		
Aug 30	1.96	1.97	1.90	1.92	S	1.87	1.88	1.90	1.92	1.93	1.92	1.94	1.96	1.96	1.93	1.91	1.90	1.90	1.90	1.90	1.90	1.89	1.88	1.88	1.87	1.97	1.91		
Aug 31	1.90	1.91	1.94	S	1.93	1.95	1.98	1.98	1.94	1.92	1.91	1.93	1.90	1.94	1.96	1.95	1.91	1.89	1.89	1.89	1.89	1.89	1.89	1.88	1.88	1.98	1.92	1.92	
Diurnal Maximum	2.25	2.30	2.29	2.44	2.53	2.42	2.46	2.48	2.40	2.10	2.23	2.17	2.16	2.14	2.10	2.10	2.05	2.14	2.26	2.16	2.30	2.26	2.15	2.35	2.02	2.35	2.12		
Diurnal Average	1.96	1.98	1.99	2.01	2.03	2.01	2.02	2.01	1.98	1.94	1.93	1.92	1.91	1.90	1.90	1.90	1.89	1.90	1.91	1.92	1.94	1.93	1.94	1.95	1.88	1.98	1.92		

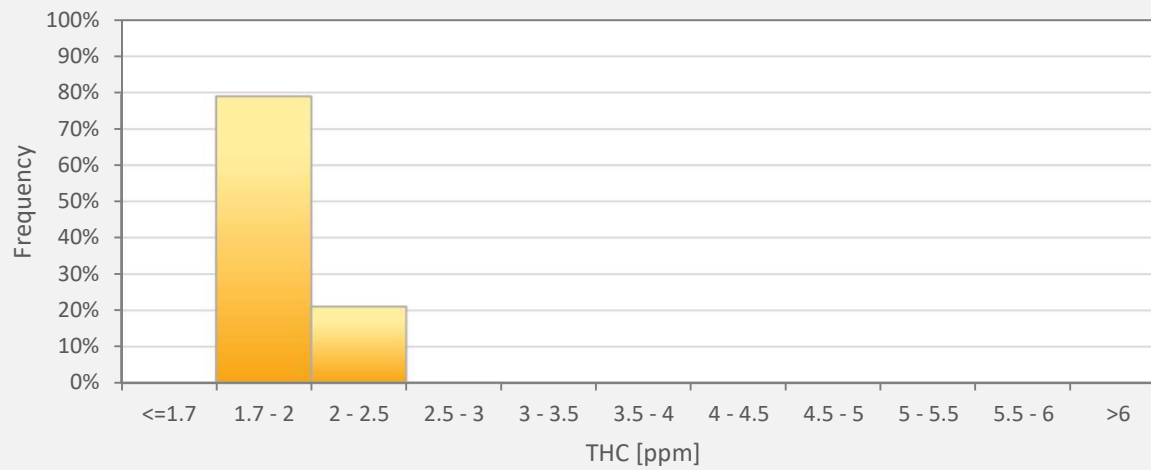
<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction/Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span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

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

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



THC55[ppm] Histogram: St. Lina Monthly: 08-2021 1 Hr.

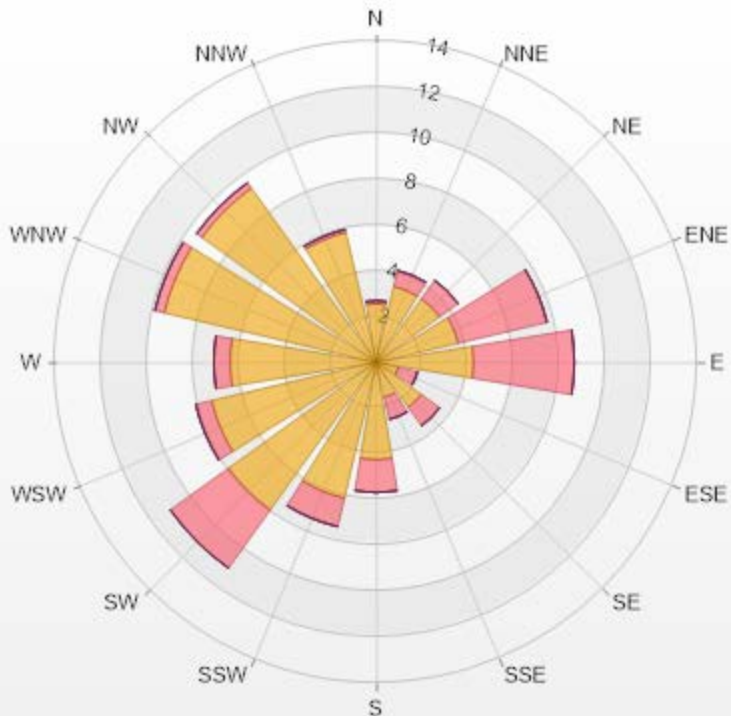


Classes	THC55
<=1.7	0.00%
1.7 - 2	78.90%
2 - 2.5	20.96%
2.5 - 3	0.14%
3 - 3.5	0.00%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%



Wind: St. Lina Poll.: St. Lina-THC55[ppm] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	2.55	0.14	0	0	0	2.69
NNE	3.4	0.71	0	0	0	4.11
NE	3.4	0.99	0	0	0	4.39
ENE	3.68	3.97	0	0	0	7.65
E	4.25	4.39	0	0	0	8.64
ESE	0.99	0.85	0	0	0	1.84
SE	2.41	0.99	0	0	0	3.4
SSE	1.56	0.99	0	0	0	2.55
S	4.25	1.42	0	0	0	5.67
SSW	6.09	1.27	0	0	0	7.36
SW	7.93	3.12	0	0	0	11.05
WSW	7.37	0.71	0	0	0	8.08
W	6.37	0.71	0	0	0	7.08
WNW	9.49	0.42	0	0	0	9.91
NW	9.35	0.28	0	0	0	9.63
NNW	5.81	0.14	0	0	0	5.95
Summary	78.9	21.1	0	0	0	100



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% Icon Classes (ppm)

79 0-2

21 2-5

0 5-10

0 10-40

0 >40.0



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

### St. Lina Site - August 2021 Summary of Hourly Averages

#### METHANE (CH4) in ppm

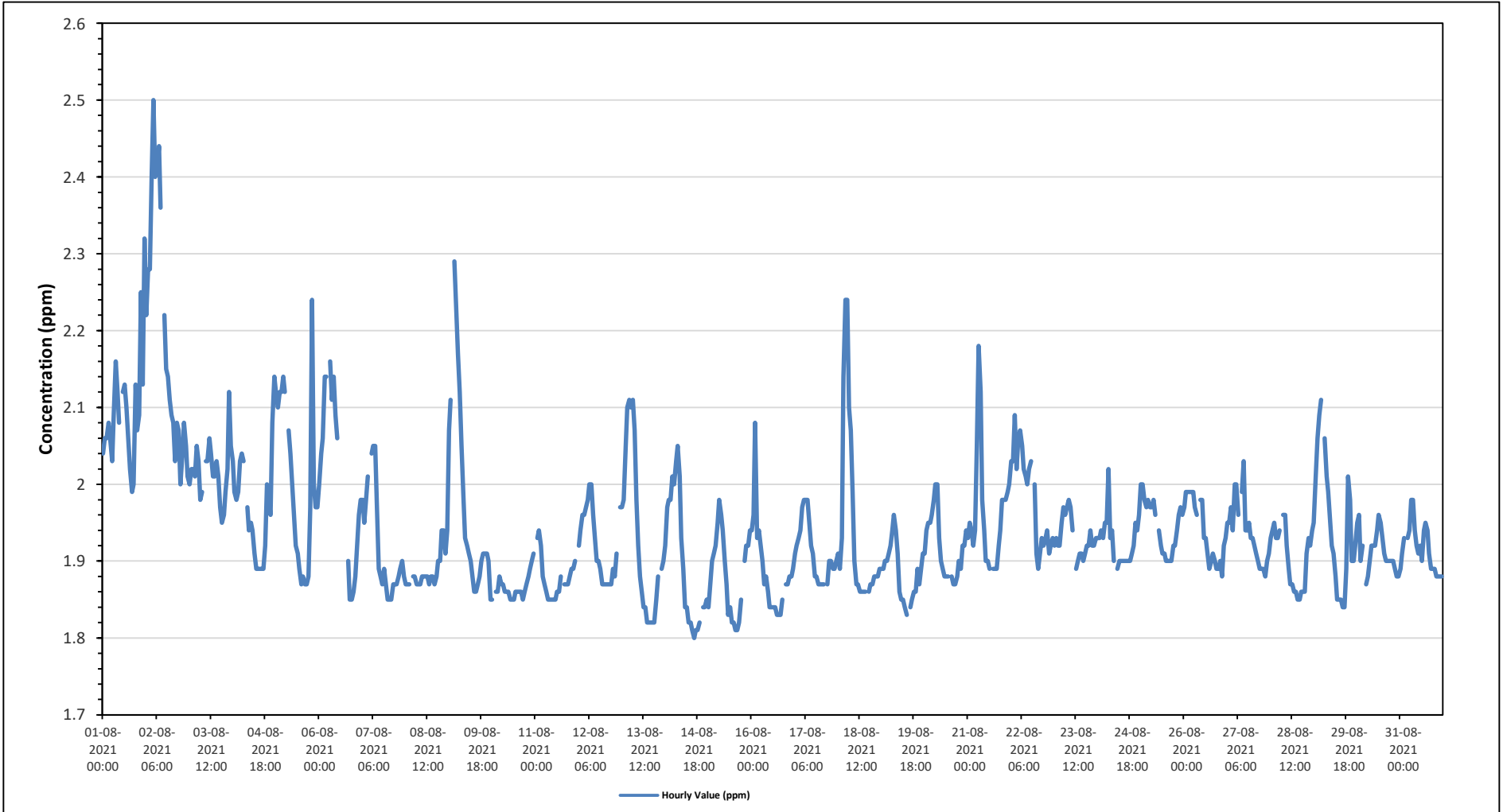
Maximum Hourly Value: 2.50 ppm on August 2 at hour 4	Hours in Service: 744
Maximum Daily Value: 2.19 ppm on August 2	Hours of Data: 706
Minimum Hourly Value: 1.80 ppm on August 14 at hour 16	Hours of Missing Data: 1
Minimum Daily Value: 1.87 ppm on August 10	Hours of Calibration: 37
Monthly Average: 1.94 ppm	Operational Uptime: 99.9

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Aug 1	2.04	2.06	2.06	2.08	2.06	2.03	2.09	2.16	2.12	2.08	S	2.12	2.13	2.10	2.06	2.02	1.99	2.00	2.13	2.07	2.09	2.25	2.13	2.32	1.99	2.32	2.10
Aug 2	2.22	2.28	2.28	2.40	2.50	2.40	2.41	2.44	2.36	S	2.22	2.15	2.14	2.11	2.09	2.08	2.03	2.08	2.07	2.00	2.04	2.08	2.05	2.01	2.00	2.50	2.19
Aug 3	2.00	2.02	2.02	2.01	2.05	2.03	1.98	1.99	S	2.03	2.03	2.06	2.04	2.01	2.01	2.03	2.01	1.97	1.95	1.96	1.99	2.02	2.12	2.05	1.95	2.12	2.02
Aug 4	2.03	1.99	1.98	1.99	2.03	2.04	2.03	S	1.97	1.94	1.95	1.94	1.91	1.89	1.89	1.89	1.89	1.89	1.92	2.00	1.98	1.96	2.08	2.14	1.89	2.14	1.97
Aug 5	2.12	2.10	2.12	2.12	2.14	2.12	S	2.07	2.04	2.00	1.96	1.92	1.91	1.89	1.87	1.88	1.87	1.87	1.88	1.97	2.24	2.00	1.97	1.97	1.87	2.24	2.00
Aug 6	2.00	2.04	2.06	2.14	2.14	S	2.16	2.11	2.14	2.09	2.06	C	C	C	C	C	1.90	1.85	1.85	1.86	1.88	1.92	1.96	1.98	1.85	2.16	2.01
Aug 7	1.98	1.95	1.98	2.01	S	2.04	2.05	2.05	1.98	1.89	1.88	1.87	1.89	1.87	1.85	1.85	1.85	1.87	1.87	1.87	1.88	1.89	1.90	1.88	1.85	2.05	1.92
Aug 8	1.87	1.87	1.87	S	1.88	1.88	1.87	1.87	1.87	1.88	1.88	1.88	1.88	1.87	1.88	1.88	1.87	1.88	1.90	1.90	1.94	1.94	1.91	1.94	1.87	1.94	1.89
Aug 9	2.07	2.11	S	2.29	2.23	2.17	2.12	2.05	1.98	1.93	1.92	1.91	1.90	1.88	1.86	1.86	1.87	1.88	1.90	1.91	1.91	1.91	1.90	1.85	1.85	2.29	1.97
Aug 10	1.85	S	1.86	1.86	1.88	1.87	1.87	1.86	1.86	1.86	1.85	1.85	1.85	1.86	1.86	1.86	1.86	1.85	1.86	1.87	1.88	1.89	1.90	1.91	1.85	1.91	1.87
Aug 11	S	1.93	1.94	1.92	1.88	1.87	1.86	1.85	1.85	1.85	1.85	1.85	1.86	1.86	1.88	NRM	1.87	1.87	1.87	1.88	1.89	1.89	1.90	S	1.85	1.94	1.88
Aug 12	1.92	1.94	1.96	1.96	1.97	1.98	2.00	2.00	1.96	1.93	1.90	1.90	1.89	1.87	1.87	1.87	1.87	1.87	1.87	1.89	1.88	1.91	S	1.97	1.87	2.00	1.92
Aug 13	1.97	1.98	2.05	2.10	2.11	2.10	2.11	2.07	1.98	1.92	1.88	1.86	1.84	1.84	1.82	1.82	1.82	1.82	1.82	1.85	1.88	S	1.89	1.90	1.82	2.11	1.93
Aug 14	1.92	1.97	1.98	1.98	2.01	2.00	2.03	2.05	2.01	1.93	1.89	1.84	1.84	1.82	1.82	1.81	1.80	1.81	1.81	1.82	S	1.84	1.84	1.85	1.80	2.05	1.90
Aug 15	1.84	1.87	1.90	1.91	1.92	1.95	1.98	1.96	1.94	1.90	1.87	1.83	1.84	1.82	1.82	1.81	1.81	1.82	1.85	S	1.90	1.92	1.92	1.94	1.81	1.98	1.88
Aug 16	1.94	1.96	2.08	1.93	1.94	1.92	1.90	1.87	1.88	1.86	1.84	1.84	1.84	1.84	1.83	1.83	1.83	1.85	S	1.87	1.87	1.88	1.88	1.89	1.83	2.08	1.89
Aug 17	1.91	1.92	1.93	1.94	1.97	1.98	1.98	1.98	1.95	1.92	1.91	1.88	1.88	1.87	1.87	1.87	1.87	1.87	S	1.87	1.90	1.90	1.89	1.89	1.87	1.98	1.91
Aug 18	1.91	1.89	1.93	2.14	2.24	2.24	2.10	2.07	1.99	1.90	1.87	1.87	1.86	1.86	1.86	1.86	1.86	S	1.86	1.87	1.87	1.88	1.88	1.89	1.86	2.24	1.94
Aug 19	1.89	1.89	1.90	1.90	1.91	1.92	1.94	1.96	1.94	1.91	1.86	1.85	1.85	1.84	1.83	S	1.84	1.85	1.86	1.86	1.89	1.87	1.89	1.91	1.83	1.96	1.89
Aug 20	1.91	1.94	1.95	1.95	1.96	1.98	2.00	2.00	1.93	1.90	1.89	1.88	1.88	S	1.88	1.87	1.87	1.88	1.90	1.89	1.92	1.92	1.94	1.96	1.87	2.00	1.92
Aug 21	1.93	1.95	1.94	1.92	1.94	2.05	2.18	2.12	1.98	1.94	1.90	1.90	1.89	S	1.89	1.89	1.89	1.92	1.94	1.98	1.98	1.98	1.99	2.00	1.89	2.18	1.96
Aug 22	2.03	2.03	2.09	2.02	2.06	2.07	2.05	2.02	2.01	2.00	2.02	2.03	S	2.00	1.91	1.89	1.91	1.93	1.92	1.93	1.94	1.91	1.92	1.93	1.89	2.09	1.98
Aug 23	1.92	1.93	1.92	1.92	1.95	1.97	1.96	1.97	1.98	1.97	1.94	S	1.89	1.90	1.91	1.91	1.90	1.91	1.92	1.92	1.94	1.92	1.92	1.93	1.89	1.98	1.93
Aug 24	1.93	1.93	1.94	1.93	1.95	1.95	2.02	1.93	1.94	1.90	S	1.89	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.91	1.92	1.95	1.94	1.96	1.89	2.00	1.93
Aug 25	2.00	2.00	1.98	1.97	1.98	1.97	1.97	1.98	1.96	S	1.94	1.92	1.91	1.91	1.90	1.90	1.90	1.90	1.92	1.92	1.94	1.96	1.97	1.96	1.90	2.02	1.95
Aug 26	1.97	1.99	1.99	1.99	1.99	1.99	1.97	1.96	S	1.98	1.98	1.93	1.93	1.91	1.89	1.90	1.91	1.90	1.89	1.89	1.90	1.88	1.92	1.93	1.88	1.99	1.94
Aug 27	1.95	1.95	1.97	1.94	2.00	2.00	1.96	S	1.99	2.03	1.94	1.94	1.95	1.93	1.93	1.92	1.91	1.90	1.89	1.89	1.89	1.88	1.90	1.91	1.88	2.03	1.94
Aug 28	1.93	1.94	1.95	1.93	1.93	1.94	S	1.96	1.96	1.92	1.89	1.87	1.87	1.86	1.86	1.85	1.85	1.86	1.86	1.86	1.91	1.93	1.92	1.94	1.85	1.96	1.90
Aug 29	1.95	2.01	2.06	2.09	2.11	S	2.06	2.01	1.99	1.95	1.92	1.91	1.88	1.85	1.85	1.85	1.84	1.84	1.89	2.01	1.98	1.90	1.90	1.92	1.84	2.11	1.95
Aug 30	1.95	1.96	1.90	1.92	S	1.87	1.88	1.90	1.92	1.92	1.92	1.94	1.96	1.95	1.93	1.91	1.90	1.90	1.90	1.90	1.89	1.88	1.88	1.88	1.87	1.96	1.91
Aug 31	1.89	1.91	1.93	S	1.93	1.94	1.98	1.98	1.94	1.92	1.91	1.92	1.90	1.94	1.95	1.94	1.91	1.89	1.89	1.88	1.88	1.88	1.88	1.88	1.88	1.98	1.92
Diurnal Maximum	2.22	2.28	2.28	2.40	2.50	2.40	2.41	2.44	2.36	2.09	2.22	2.15	2.14	2.11	2.09	2.08	2.03	2.08	2.03	2.07	2.24	2.25	2.13	2.32	1.99	2.32	2.10
Diurnal Average	1.96	1.98	1.98	2.01	2.02	2.01	2.02	2.01	1.98	1.94	1.93	1.92	1.91	1.90	1.89	1.89	1.88	1.89	1.90	1.91	1.93	1.93	1.94	1.95	1.88	1.98	1.92

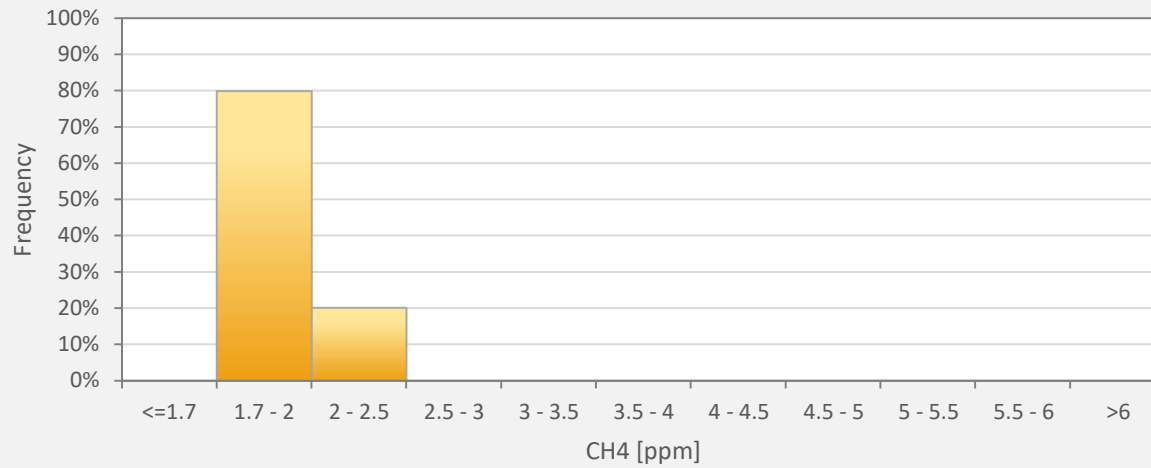
<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance	
<b>K</b> Collection Error	<b>N</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance	<b>P</b> Power Failure
<b>X</b> InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration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

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

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



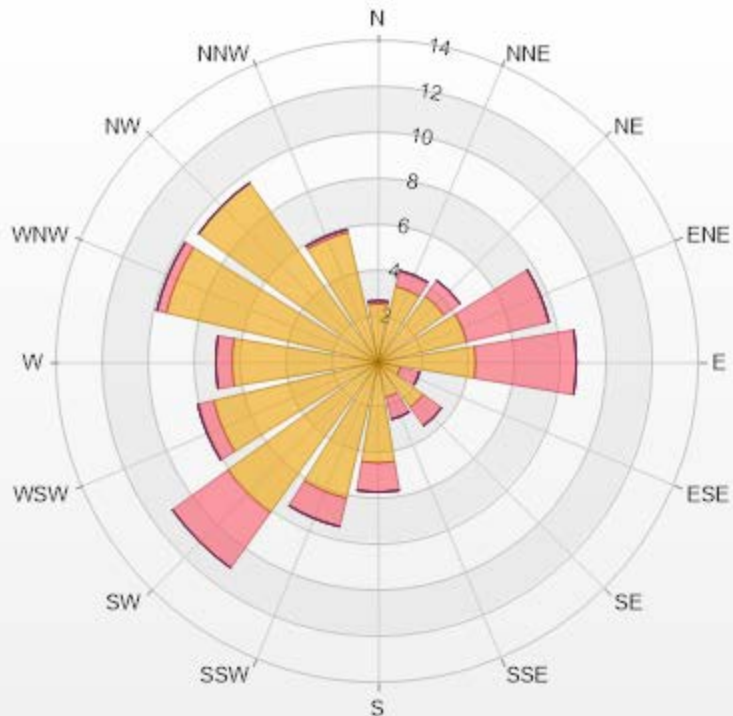
CH4[ppm] Histogram: St. Lina Monthly: 08-2021 1 Hr.



Classes	CH4
<=1.7	0.00%
1.7 - 2	79.89%
2 - 2.5	20.11%
2.5 - 3	0.00%
3 - 3.5	0.00%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: St. Lina Poll.: St. Lina-CH4[ppm] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	2.55	0.14	0	0	0	2.69
NNE	3.4	0.71	0	0	0	4.11
NE	3.54	0.85	0	0	0	4.39
ENE	3.97	3.68	0	0	0	7.65
E	4.25	4.39	0	0	0	8.64
ESE	0.99	0.85	0	0	0	1.84
SE	2.41	0.99	0	0	0	3.4
SSE	1.56	0.99	0	0	0	2.55
S	4.39	1.27	0	0	0	5.66
SSW	6.09	1.27	0	0	0	7.36
SW	8.07	2.97	0	0	0	11.04
WSW	7.37	0.71	0	0	0	8.08
W	6.37	0.71	0	0	0	7.08
WNW	9.49	0.42	0	0	0	9.91
NW	9.63	0	0	0	0	9.63
NNW	5.81	0.14	0	0	0	5.95
Summary	79.89	20.09	0	0	0	100



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% Icon Classes (ppm)

80

0-2

20

2-5

0

5-10

0

10-20

0

>20.0



**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION**

**St. Lina Site - August 2021**  
**Summary of Hourly Averages**

**NON-METHANE HYDROCARBONS (NMHC) in ppm**

Maximum Hourly Value:	0.14 ppm on August 1 at hour 17	Hours in Service:	744
Maximum Daily Value:	0.03 ppm on August 1	Hours of Data:	706
Minimum Hourly Value:	0.00 ppm on August 1 at hour 0	Hours of Missing Data:	1
Minimum Daily Value:	0.00 ppm on August 10	Hours of Calibration:	37
Monthly Average:	0.00 ppm	Operational Uptime:	99.9

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Aug 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	S	0.01	0.02	0.02	0.03	0.05	0.03	0.14	0.13	0.09	0.04	0.02	0.02	0.03	0.00	0.14	0.03
Aug 2	0.02	0.02	0.02	0.04	0.03	0.02	0.05	0.04	0.04	S	0.01	0.03	0.02	0.03	0.01	0.03	0.02	0.06	0.03	0.01	0.01	0.00	0.01	0.00	0.00	0.06	0.02
Aug 3	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	S	0.01	0.00	0.01	0.00	0.02	0.01	0.03	0.02	0.01	0.02	0.01	0.01	0.00	0.01	0.01	0.00	0.02	0.01
Aug 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.02	0.00
Aug 5	0.01	0.01	0.01	0.00	0.00	0.01	S	0.00	0.01	0.00	0.02	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.01	0.09	0.05	0.00	0.00	0.00	0.00	0.09	0.01
Aug 6	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.01	0.00	0.01	C	C	C	C	C	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
Aug 7	0.00	0.00	0.00	0.01	S	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Aug 8	0.00	0.00	0.00	S	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Aug 9	0.00	0.00	S	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Aug 10	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
Aug 11	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	NRM	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	S	0.02	0.00
Aug 12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00
Aug 13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.03	0.00
Aug 14	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.01	0.02	0.02	0.01	0.02	0.01	0.00	0.00	0.01	S	0.00	0.00	0.00	0.00	0.02	0.01
Aug 15	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	S	0.00	0.00	0.00	0.01	0.00	0.02	0.00
Aug 16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aug 17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aug 18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aug 19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aug 20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Aug 21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Aug 22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Aug 23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Aug 24	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
Aug 25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aug 26	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
Aug 27	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	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Aug 28	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
Aug 29	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Aug 30	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Aug 31	0.01	0.00	0.01	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Diurnal Maximum	0.02	0.02	0.02	0.04	0.03	0.02	0.05	0.04	0.04	0.02	0.02	0.03	0.02	0.03	0.03	0.05	0.10	0.14	0.13	0.09	0.05	0.02	0.02	0.03	0.00	0.01	0.00
Diurnal Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

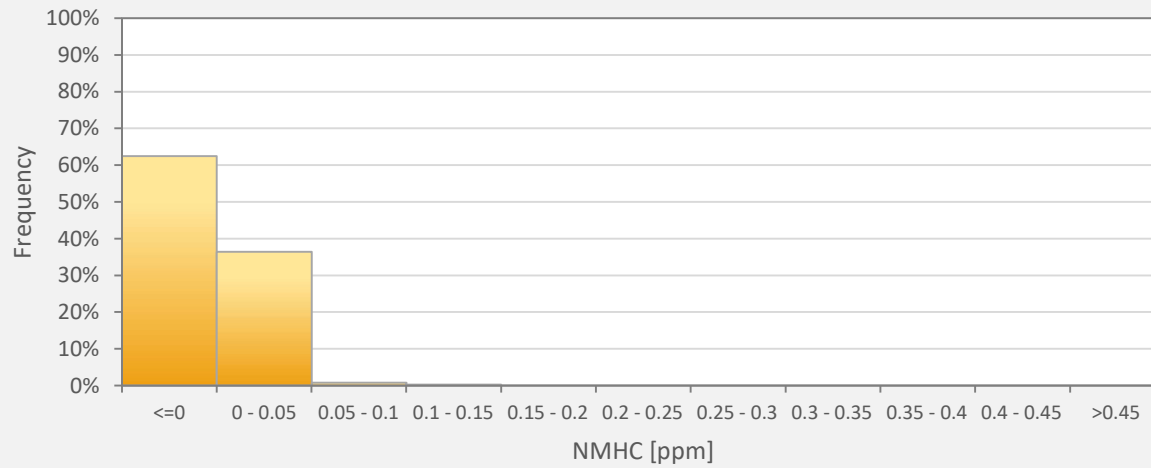
<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction/Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span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

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





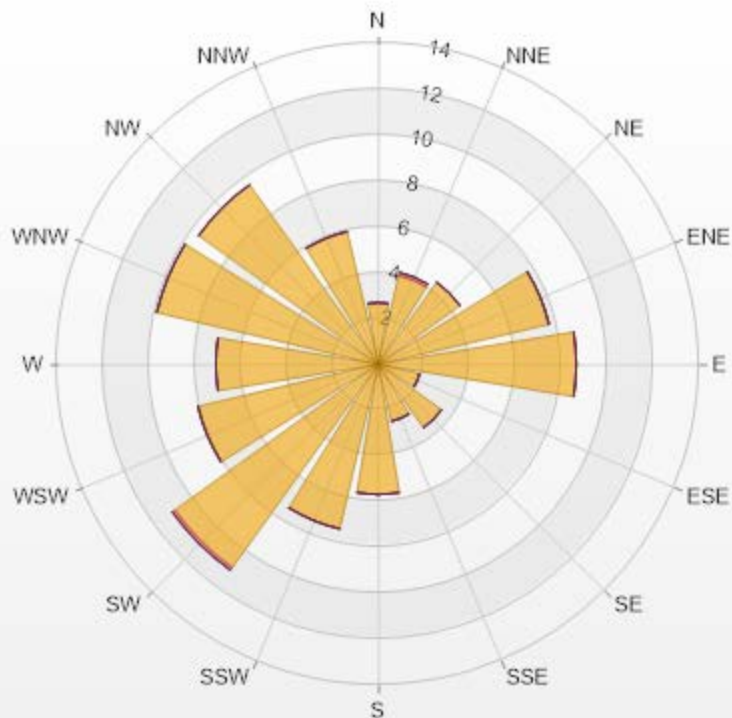
NMHC[ppm] Histogram: St. Lina Monthly: 08-2021 1 Hr.



Classes	NMHC
<=0	62.46%
0 - 0.05	36.40%
0.05 - 0.1	0.85%
0.1 - 0.15	0.28%
0.15 - 0.2	0.00%
0.2 - 0.25	0.00%
0.25 - 0.3	0.00%
0.3 - 0.35	0.00%
0.35 - 0.4	0.00%
0.4 - 0.45	0.00%
>0.45	0.00%

Wind: St. Lina Poll.: St. Lina-NMHC[ppm] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	2.69	0	0	0	0	2.69
NNE	3.97	0.14	0	0	0	4.11
NE	4.39	0	0	0	0	4.39
ENE	7.65	0	0	0	0	7.65
E	8.64	0	0	0	0	8.64
ESE	1.84	0	0	0	0	1.84
SE	3.4	0	0	0	0	3.4
SSE	2.55	0	0	0	0	2.55
S	5.67	0	0	0	0	5.67
SSW	7.37	0	0	0	0	7.37
SW	10.91	0.14	0	0	0	11.05
WSW	8.07	0	0	0	0	8.07
W	7.08	0	0	0	0	7.08
WNW	9.92	0	0	0	0	9.92
NW	9.63	0	0	0	0	9.63
NNW	5.95	0	0	0	0	5.95
Summary	100	0.28	0	0	0	100




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% Icon Classes (ppm)

100  0-0.1

0  0.1-0.3

0  0.3-0.9

0  0.9-2

0  >2.0



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - August 2021

Summary of Hourly Averages

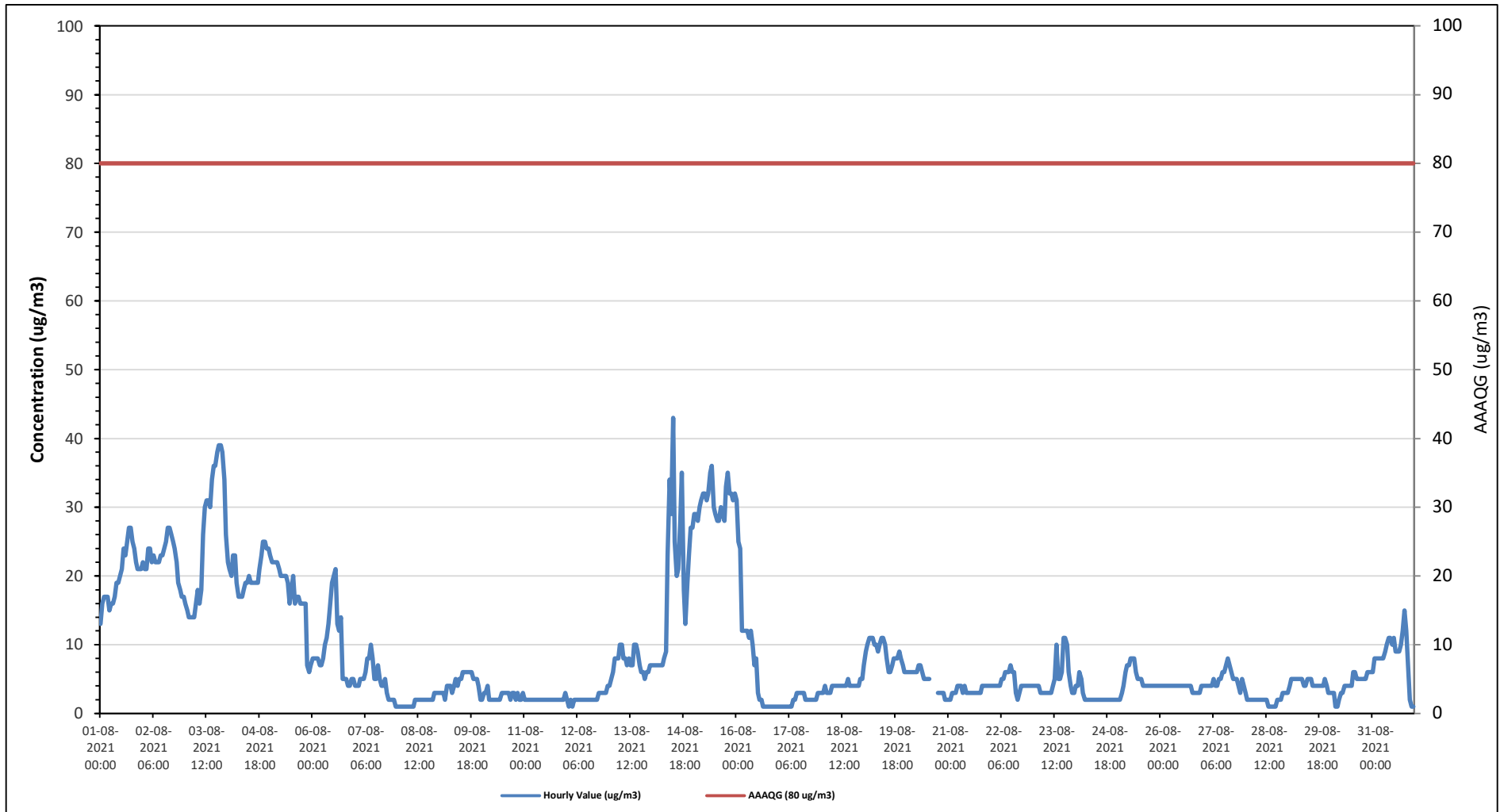
### PARTICULATE MATTER 2.5 (PM<sub>2.5</sub>) in µg/m<sup>3</sup>

Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m <sup>3</sup> , Alberta Ambient Air Quality Objective (AAAO): 24-Hour 29 µg/m <sup>3</sup>																															
Number of 1-Hour Exceedences: 0										Number of 24-Hour Exceedences: 1																					
Maximum Hourly Value: 43 µg/m <sup>3</sup> on August 14 at hour 12										Hours in Service: 744																					
Maximum Daily Value: 30.9 µg/m <sup>3</sup> on August 15										Hours of Data: 740																					
Minimum Hourly Value: 1 µg/m <sup>3</sup> on August 7 at hour 23										Hours of Missing Data: 0																					
Minimum Daily Value: 2 µg/m <sup>3</sup> on August 8										Hours of Calibration: 4																					
Monthly Average: 8.6 µg/m <sup>3</sup>										Operational Uptime: 100.0																					
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23				
Aug 1	13	16	17	17	17	15	16	16	17	19	19	20	21	24	23	25	27	27	25	24	22	21	21	21	13	27	20.1				
Aug 2	22	21	21	24	24	22	23	22	22	22	23	24	25	27	27	26	25	24	22	19	18	17	17	17	17	27	22.5				
Aug 3	16	15	14	14	14	14	16	18	16	18	26	30	31	31	30	34	36	36	38	39	39	38	34	26	14	39	26.0				
Aug 4	22	21	20	23	23	19	17	17	17	18	19	19	20	19	19	19	19	19	21	23	25	25	24	24	17	25	20.5				
Aug 5	23	22	22	22	22	21	20	20	20	20	19	16	18	20	16	17	17	16	16	16	16	7	6	7	6	23	17.5				
Aug 6	8	8	8	8	7	7	8	10	11	13	16	19	20	21	13	12	14	5	5	5	4	4	5	5	4	21	9.8				
Aug 7	4	4	4	5	5	5	6	8	8	10	8	5	5	7	5	4	4	5	3	2	2	2	1	1	1	10	4.8				
Aug 8	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	3	3	3	1	3	1.7				
Aug 9	3	3	3	2	4	4	4	3	4	5	4	5	5	6	6	6	6	6	6	5	5	5	4	2	2	6	4.4				
Aug 10	2	3	3	4	2	2	2	2	2	2	2	3	3	3	3	2	3	3	2	3	2	2	3	2	4	2.5					
Aug 11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	3	2.0					
Aug 12	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	4	1	4	2.2				
Aug 13	4	5	6	8	8	8	10	10	8	8	7	8	7	7	10	10	9	7	6	6	5	6	6	7	4	10	7.3				
Aug 14	7	7	7	7	7	7	7	8	9	23	34	29	43	25	20	21	28	35	18	13	19	23	27	27	7	43	18.8				
Aug 15	29	29	28	30	31	32	32	31	32	35	36	30	29	28	28	30	29	28	33	35	32	32	31	32	28	36	30.9				
Aug 16	31	25	24	12	12	12	12	11	12	10	7	8	3	2	2	1	1	1	1	1	1	1	1	1	1	31	8.0				
Aug 17	1	1	1	1	1	1	1	1	2	2	3	3	3	3	3	2	2	2	2	2	2	2	3	3	1	3	2.0				
Aug 18	3	3	4	3	3	3	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4	5	5	3	5	3.9				
Aug 19	7	9	10	11	11	11	10	10	9	10	11	11	10	8	6	6	7	8	8	8	9	8	7	6	6	11	8.8				
Aug 20	6	6	6	6	6	6	6	7	7	6	5	5	5	5	C	C	C	C	3	3	3	3	2	2	2	7	4.9				
Aug 21	2	2	3	3	3	4	4	4	3	4	3	3	3	3	3	3	3	3	3	4	4	4	4	4	2	4	3.3				
Aug 22	4	4	4	4	4	4	5	5	6	6	6	7	6	6	3	2	3	4	4	4	4	4	4	4	2	7	4.5				
Aug 23	4	4	4	4	3	3	3	3	3	3	3	4	5	10	5	5	6	11	11	10	6	4	3	3	3	11	5.0				
Aug 24	4	4	6	5	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	6	2.5				
Aug 25	2	2	3	4	6	7	7	8	8	8	6	5	5	5	4	4	4	4	4	4	4	4	4	4	2	8	4.8				
Aug 26	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	4	3	3	4	3.8				
Aug 27	4	4	4	4	4	4	5	4	4	5	5	6	6	7	8	7	6	5	5	5	4	3	5	4	3	8	4.9				
Aug 28	3	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2	2	3	3	3	1	3	2.0					
Aug 29	3	4	5	5	5	5	5	5	5	4	4	5	5	5	4	4	4	4	4	4	4	5	4	3	3	5	4.4				
Aug 30	3	3	3	1	1	2	3	3	4	4	4	4	4	6	6	5	5	5	5	5	5	6	6	6	1	6	4.1				
Aug 31	6	8	8	8	8	8	8	9	10	11	11	10	11	9	9	9	10	12	15	12	7	2	1	1	1	15	8.5				
Diurnal Maximum	31	29	28	30	31	32	32	31	32	35	36	30	43	31	30	34	36	36	38	39	39	38	34	32							
Daiurnal Average	7.9	7.8	8.0	7.9	7.9	8.0	8.1	8.3	8.3	9.1	9.6	9.5	10.0	9.7	9.0	9.1	9.5	9.6	9.1	8.8	8.5	8.0	7.9	7.6							
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)																						

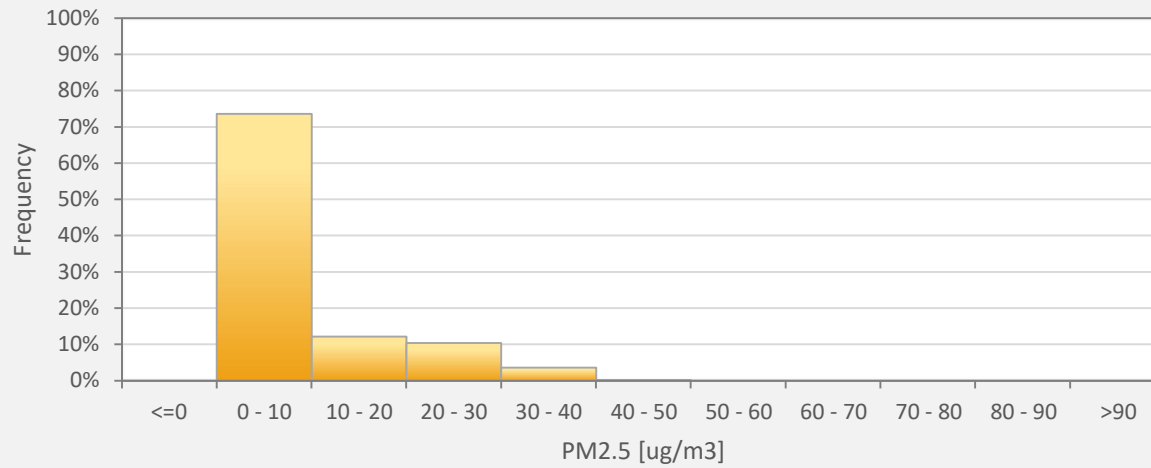
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

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



PM2.5[ug/m3(L)] Histogram: St. Lina Monthly: 08-2021 1 Hr.

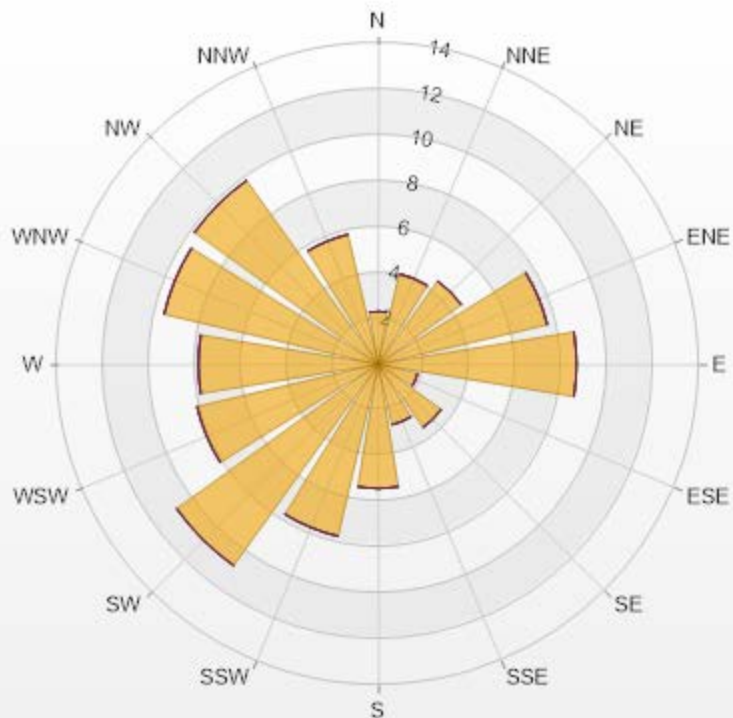


Classes	PM2.5
<=0	0.00%
0 - 10	73.65%
10 - 20	12.16%
20 - 30	10.41%
30 - 40	3.65%
40 - 50	0.14%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: St. Lina Poll.: St. Lina-PM2.5[ug/m3(L)] Monthly: 08-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 99.46% Calm Avg: 0.00 [ug/m3(L)]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	2.3	0	0	0	0	2.3
NNE	4.05	0	0	0	0	4.05
NE	4.46	0	0	0	0	4.46
ENE	7.57	0	0	0	0	7.57
E	8.65	0	0	0	0	8.65
ESE	1.76	0	0	0	0	1.76
SE	3.38	0	0	0	0	3.38
SSE	2.7	0	0	0	0	2.7
S	5.41	0	0	0	0	5.41
SSW	7.7	0	0	0	0	7.7
SW	10.81	0	0	0	0	10.81
WSW	8.11	0	0	0	0	8.11
W	7.84	0	0	0	0	7.84
WNW	9.59	0	0	0	0	9.59
NW	9.86	0	0	0	0	9.86
NNW	5.81	0	0	0	0	5.81
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 - August 2021

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

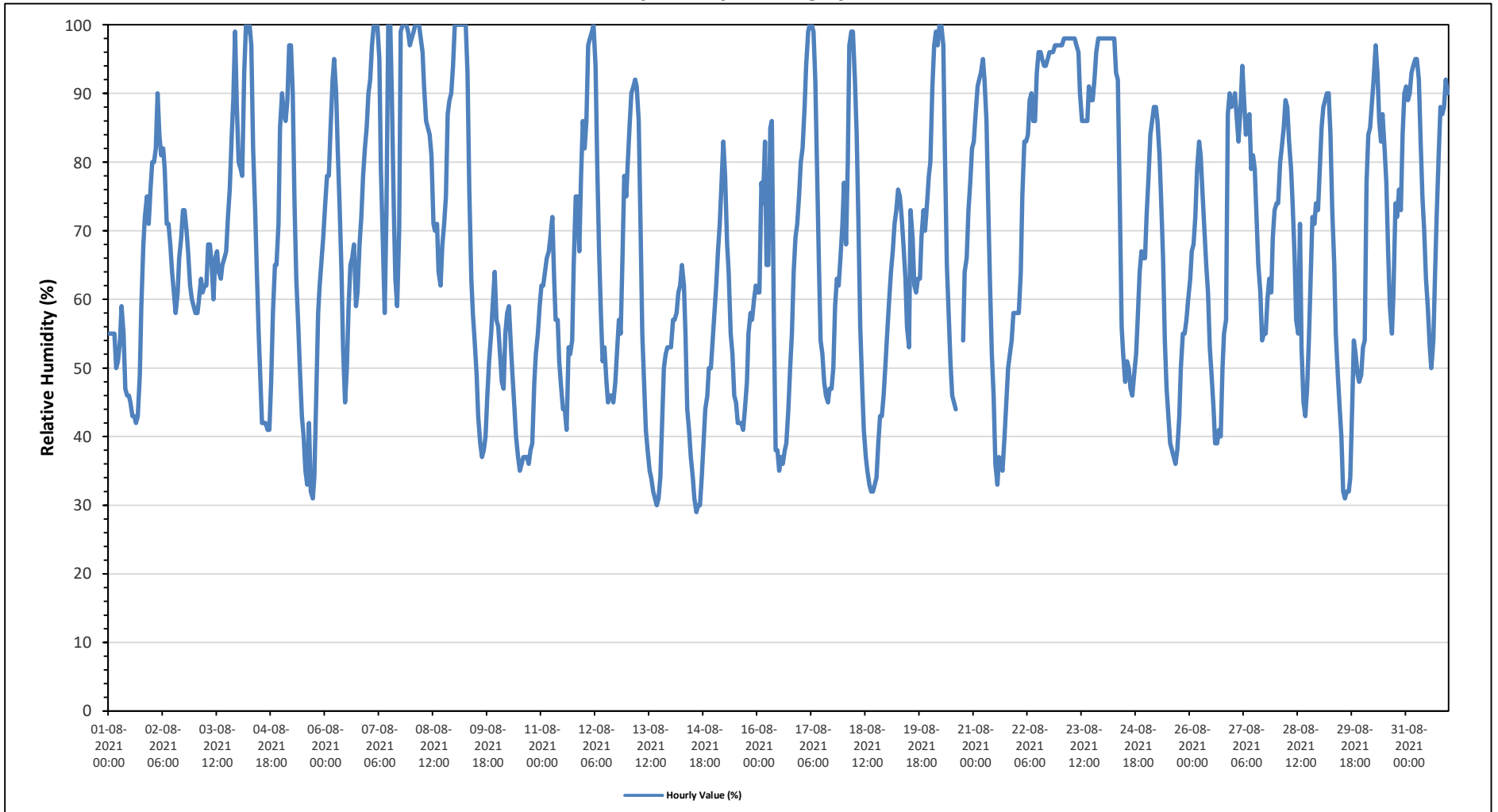
Maximum Hourly Value:	100 %	on August 4 at hour 4	Hours in Service:	744
Maximum Daily Value:	94.1 %	on August 23	Hours of Data:	741
Minimum Hourly Value:	29 %	on August 14 at hour 14	Hours of Missing Data:	3
Minimum Daily Value:	46.1 %	on August 10	Hours of Calibration:	0
Monthly Average:	67.6 %		Operational 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
Aug 1	55	55	55	55	50	51	54	59	55	47	46	46	45	43	43	42	43	49	59	68	72	75	71	76	42	76	54.8
Aug 2	80	80	82	90	84	81	82	79	71	71	68	64	61	58	61	66	69	73	73	70	67	62	60	59	58	90	71.3
Aug 3	58	58	60	63	61	62	62	68	68	65	60	66	67	64	63	65	66	67	72	76	84	89	99	88	58	99	68.8
Aug 4	80	79	78	93	100	99	100	97	82	73	65	55	48	42	42	42	41	41	48	58	65	65	71	85	41	100	68.7
Aug 5	90	87	86	89	97	97	90	74	63	56	50	43	40	35	33	42	32	31	34	45	58	62	66	69	31	97	61.2
Aug 6	74	78	78	85	92	95	90	82	73	64	53	45	50	59	65	66	68	59	61	68	72	78	82	85	45	95	71.8
Aug 7	90	92	97	100	100	100	95	79	68	58	73	100	100	90	73	63	59	70	99	100	100	100	99	97	58	100	87.6
Aug 8	98	99	100	100	100	98	96	91	86	85	84	81	71	70	71	64	62	68	71	75	87	89	90	94	62	100	84.6
Aug 9	100	100	100	100	100	100	100	93	76	63	58	54	49	43	39	37	38	40	46	51	55	59	64	57	37	100	67.6
Aug 10	56	52	48	47	55	58	59	53	49	44	40	37	35	36	37	37	37	36	38	39	48	52	55	59	35	59	46.1
Aug 11	62	62	64	66	67	69	72	63	57	57	51	47	44	44	41	53	52	54	65	75	75	67	78	86	41	86	61.3
Aug 12	82	86	97	98	99	100	94	79	67	58	51	53	48	45	46	46	45	48	52	57	55	66	78	75	45	100	67.7
Aug 13	80	86	90	91	92	91	86	71	55	48	41	38	35	34	32	31	30	31	34	42	50	52	53	53	30	92	56.1
Aug 14	53	57	57	58	61	62	65	62	55	44	41	37	34	31	29	30	30	34	39	44	46	50	50	54	29	65	46.8
Aug 15	58	62	67	71	77	83	78	68	64	55	52	46	45	42	42	42	41	44	48	55	58	57	60	62	41	83	57.4
Aug 16	61	61	77	74	83	65	65	85	86	57	38	35	37	36	38	39	44	50	55	64	69	71	75	35	86	58.5	
Aug 17	80	82	88	94	99	100	100	99	92	79	64	54	52	48	46	45	47	47	50	59	63	62	66	71	45	100	70.3
Aug 18	77	68	80	97	99	99	92	84	71	56	47	41	37	35	33	32	32	33	34	39	43	43	46	51	32	99	57.0
Aug 19	55	60	64	67	71	73	76	75	72	68	63	56	53	73	69	62	61	63	63	69	73	70	74	78	53	78	67.0
Aug 20	80	91	97	99	97	100	100	97	82	65	58	51	46	45	44	Y	Y	Y	54	64	66	73	77	82	44	100	74.7
Aug 21	83	87	91	92	93	95	92	86	75	62	52	46	36	33	37	36	35	40	45	50	52	54	58	58	33	95	62.0
Aug 22	58	58	64	75	83	83	84	89	90	86	86	93	96	96	95	94	94	95	96	96	96	97	97	97	58	97	87.4
Aug 23	97	97	98	98	98	98	98	98	98	98	97	96	90	86	86	86	91	89	89	92	96	98	98	98	86	98	94.1
Aug 24	98	98	98	98	98	98	98	93	92	76	56	52	48	51	50	47	46	49	52	57	64	67	66	66	46	98	71.6
Aug 25	72	78	84	86	88	88	86	81	75	66	54	47	43	39	38	37	36	38	43	50	55	55	57	60	36	88	60.7
Aug 26	63	67	68	72	79	83	81	75	70	65	61	53	49	44	39	39	41	40	50	55	57	87	90	88	39	90	63.2
Aug 27	89	90	86	83	88	94	89	84	86	87	79	81	79	71	65	61	54	55	55	60	63	61	69	73	54	94	75.1
Aug 28	74	74	80	82	85	89	88	83	79	74	66	57	55	71	53	45	43	47	54	63	72	71	74	73	43	89	68.8
Aug 29	79	85	88	89	90	90	84	73	65	55	49	45	40	32	31	32	32	34	45	54	52	49	48	49	31	90	57.9
Aug 30	53	54	77	84	85	89	92	97	93	86	83	87	82	77	67	59	55	61	74	72	76	73	84	90	53	97	77.1
Aug 31	91	89	90	93	94	95	95	92	83	75	70	63	59	53	50	54	64	72	81	88	87	88	92	90	50	95	79.5
Diurnal Maximum	100	100	100	100	100	100	100	99	98	97	96	100	100	96	95	94	94	95	99	100	100	100	99	98			
Diurnal Average	75.0	76.5	80.3	83.5	86.0	86.6	85.3	80.9	74.1	65.9	59.8	57.0	53.8	52.5	50.2	49.8	49.4	51.7	57.2	62.8	66.8	69.0	72.4	74.1			

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

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

*Timeseries Chart of Hourly Average for RH - St. Lina Site*





## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - August 2021  
Summary of Hourly Averages

### BAROMETRIC PRESSURE (BP) in millibar

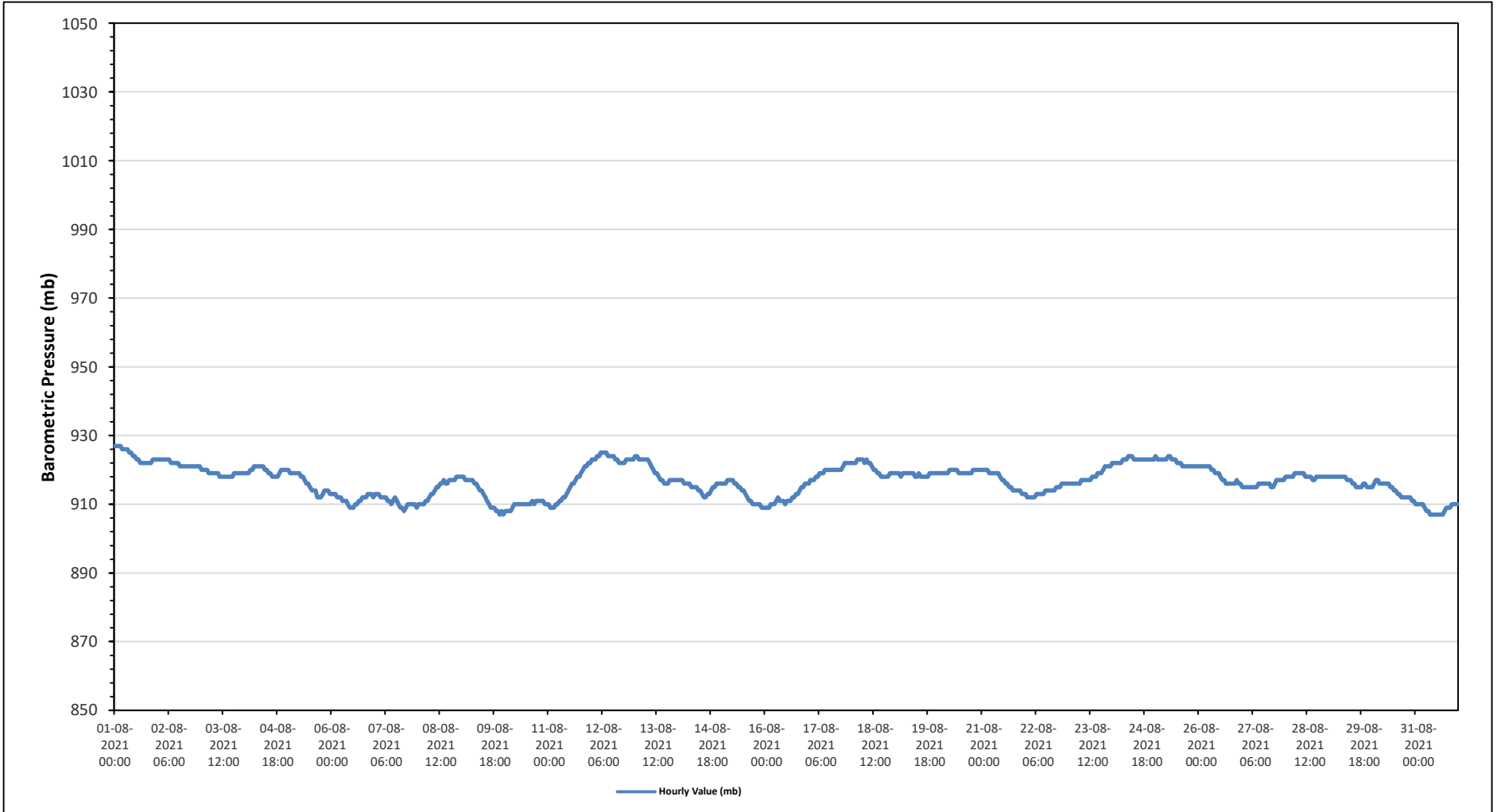
Maximum Hourly Value:	927 mb on August 1 at hour 0	Hours in Service:	744
Maximum Daily Value:	924 mb on August 1	Hours of Data:	744
Minimum Hourly Value:	907 mb on August 9 at hour 21	Hours of Missing Data:	0
Minimum Daily Value:	909 mb on August 31	Hours of Calibration:	0
Monthly Average:	917 mb	Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily	Daily	Daily		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average	
Aug 1	927	927	927	927	926	926	926	926	925	925	924	924	923	923	922	922	922	922	922	922	922	923	923	923	922	927	924	
Aug 2	923	923	923	923	923	923	923	922	922	922	922	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	923	922
Aug 3	920	920	920	920	919	919	919	919	919	919	919	918	918	918	918	918	918	918	918	919	919	919	919	919	919	919	920	919
Aug 4	919	919	919	920	920	921	921	921	921	921	921	920	920	919	919	918	918	918	918	918	919	920	920	920	920	921	920	920
Aug 5	920	919	919	919	919	919	919	919	918	918	917	916	916	915	914	914	914	912	912	912	913	914	914	914	913	920	916	
Aug 6	913	913	913	912	912	912	912	911	911	911	910	909	909	910	910	911	911	912	912	912	912	913	913	913	912	909	913	911
Aug 7	913	913	913	912	912	912	912	911	911	910	911	912	911	910	909	909	908	909	910	910	910	910	910	909	908	913	911	
Aug 8	910	910	910	910	911	911	912	913	913	914	915	915	916	916	917	916	916	917	917	917	917	918	918	918	918	910	918	914
Aug 9	918	918	917	917	917	917	917	916	916	915	914	914	913	912	911	910	909	909	909	908	908	907	908	907	907	918	913	
Aug 10	908	908	908	908	909	910	910	910	910	910	910	910	910	910	911	910	911	911	911	911	911	911	911	910	910	908	911	910
Aug 11	910	909	909	909	910	910	911	911	912	912	913	914	915	916	916	917	918	918	919	920	921	921	922	922	922	922	922	915
Aug 12	923	923	923	924	924	925	925	925	925	924	924	924	923	923	922	922	922	922	922	923	923	923	923	923	922	925	923	
Aug 13	924	924	923	923	923	923	923	923	922	921	920	919	919	918	917	917	916	916	916	917	917	917	917	917	917	916	924	920
Aug 14	917	917	917	916	916	916	916	915	915	915	915	914	914	913	912	912	913	913	914	915	915	916	916	916	912	917	915	
Aug 15	916	916	916	917	917	917	917	916	916	915	915	914	914	913	912	911	911	910	910	910	910	910	909	909	909	917	913	
Aug 16	909	909	909	910	910	910	911	912	911	911	910	911	911	911	911	912	912	913	913	914	915	915	916	916	909	916	912	
Aug 17	916	917	917	917	918	918	919	919	919	920	920	920	920	920	920	920	920	920	920	921	922	922	922	922	916	922	920	
Aug 18	922	922	922	923	923	923	923	922	923	922	922	922	921	920	920	919	919	918	918	918	918	918	919	919	918	923	921	
Aug 19	919	919	919	918	919	919	919	919	919	919	919	918	918	919	918	918	918	918	918	919	919	919	919	919	918	919	919	
Aug 20	919	919	919	919	919	919	920	920	920	920	919	919	919	919	919	919	919	919	919	920	920	920	920	920	919	920	919	
Aug 21	920	920	920	920	919	919	919	919	919	919	918	917	917	916	916	915	915	914	914	914	914	914	913	913	913	920	917	
Aug 22	913	912	912	912	912	912	913	913	913	913	913	914	914	914	914	914	915	915	915	915	916	916	916	916	912	916	914	
Aug 23	916	916	916	916	916	916	916	917	917	917	917	917	917	918	918	918	919	919	919	920	921	921	921	921	916	921	918	
Aug 24	922	922	922	922	922	922	923	923	923	923	924	924	923	923	923	923	923	923	923	923	923	923	923	923	922	924	923	
Aug 25	924	923	923	923	923	923	923	924	924	923	923	923	922	922	921	921	921	921	921	921	921	921	921	921	921	924	922	
Aug 26	921	921	921	921	921	921	921	920	920	919	919	919	918	917	917	916	916	916	916	916	916	916	917	916	916	921	918	
Aug 27	915	915	915	915	915	915	915	915	915	916	916	916	916	916	916	915	915	916	917	917	917	917	917	917	915	917	916	
Aug 28	918	918	918	918	918	919	919	919	919	919	918	918	918	918	917	917	918	918	918	918	918	918	918	918	917	919	918	
Aug 29	918	918	918	918	918	918	918	918	918	918	918	917	917	917	916	916	915	915	915	916	916	915	915	915	915	918	917	
Aug 30	915	916	917	917	916	916	916	916	916	916	915	915	914	914	913	913	912	912	912	912	912	912	911	911	911	917	914	
Aug 31	910	910	910	910	910	909	908	908	907	907	907	907	907	907	907	908	909	909	909	909	910	910	910	910	907	910	909	
Diurnal Maximum	927	927	927	927	926	926	926	926	925	925	924	924	924	923	923	923	923	923	923	923	923	923	923	923	923	923	923	
Diurnal Average	917	917	917	917	917	918	917	917	917	917	917	917	917	916	916	916	916	916	916	916	916	917	917	917	917	917	917	

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

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

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





## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - August 2021

### Summary of Hourly Averages

#### AMBIENT TEMPERATURE (AT) in Degree Celsius

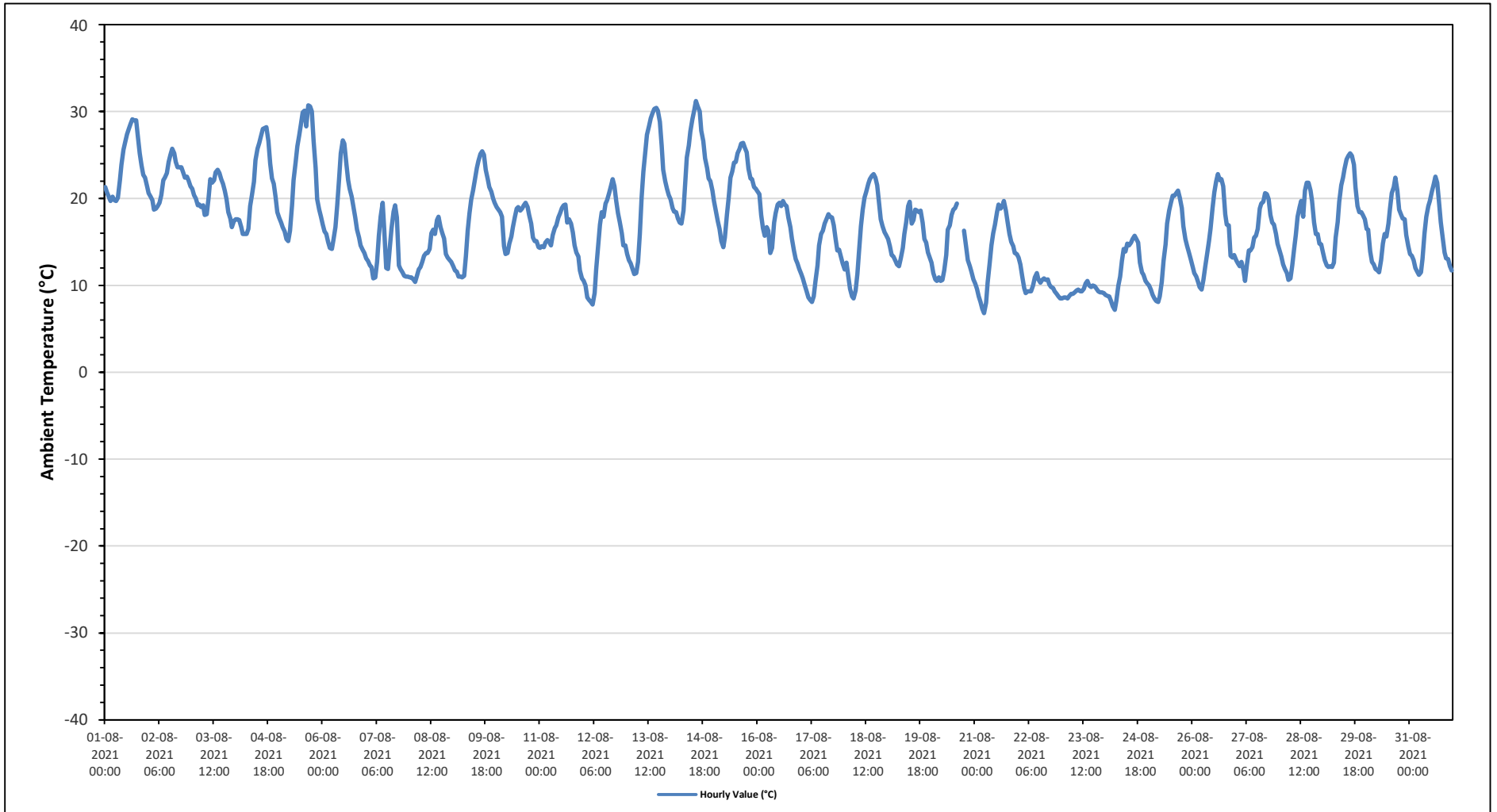
Maximum Hourly Value:	31.2 °C	on August 14 at hour 14	Hours in Service:	744
Maximum Daily Value:	23.9 °C	on August 1	Hours of Data:	741
Minimum Hourly Value:	6.8 °C	on August 21 at hour 5	Hours of Missing Data:	3
Minimum Daily Value:	9.3 °C	on August 23	Hours of Calibration:	0
Monthly Average:	16.9 °C		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
Aug 1	21.3	20.7	20.2	19.7	20.2	19.8	19.7	20.1	22.1	23.9	25.6	26.5	27.4	28	28.6	29.1	29	29	27.3	25.2	23.8	22.7	22.4	21.4	19.7	29.1	23.9
Aug 2	20.6	20.2	19.8	18.7	18.8	19.1	19.5	20.4	22.1	22.4	22.9	24.2	25	25.7	25.2	24.2	23.6	23.6	23.6	23	22.4	22.5	22.1	21.4	18.7	25.7	22.1
Aug 3	21.1	20.4	20	19.2	19.3	19	19.2	18.1	18.2	20	22.2	21.8	22.1	23	23.3	22.9	22.2	21.7	20.9	19.9	18.4	17.7	16.7	17.4	16.7	23.3	20.2
Aug 4	17.6	17.6	17.5	16.7	15.9	15.9	15.9	16.5	19.1	20.4	21.9	24.4	25.7	26.4	27.2	28	28.1	28.2	26.6	24	22.3	21.7	20.2	18.4	15.9	28.2	21.5
Aug 5	17.8	17.2	16.7	16.2	15.3	15.1	16.3	19.2	22.1	24.1	26	27.2	28.5	29.9	30.1	28.3	30.7	30.6	30	26.6	23.5	19.9	18.7	17.9	15.1	30.7	22.8
Aug 6	17	16.2	15.9	15	14.3	14.2	15.2	16.7	19.2	22.1	25.2	26.7	26.3	24	22.1	21.1	20.2	19	17.8	16.4	15.5	14.6	14.1	13.7	13.7	26.7	18.4
Aug 7	13.1	12.8	12.3	12.1	10.8	10.9	12.7	15.7	17.9	19.5	16.5	12	11.9	14.3	16.6	18.5	19.2	17.8	12.3	11.9	11.5	11.1	11	11	10.8	19.5	13.9
Aug 8	10.9	10.9	10.7	10.4	11.1	11.8	12.1	12.7	13.4	13.7	13.7	14.2	16	16.4	15.9	17.5	17.9	16.7	16	15.4	13.6	13.2	12.9	12.7	10.4	17.9	13.7
Aug 9	12.2	11.7	11.6	11	11	10.9	11.1	13.4	16.3	18.3	19.9	20.9	22.1	23.5	24.3	25.1	25.4	25	23.3	22.2	21.3	20.8	20	19.5	10.9	25.4	18.4
Aug 10	19	18.7	18.4	17.9	14.5	13.6	13.7	14.8	15.6	16.7	17.9	18.8	19	18.6	18.8	19.2	19.5	19	18.1	17.1	15.5	15.1	15.1	14.4	13.6	19.5	17.0
Aug 11	14.3	14.5	14.4	14.9	15.2	15	14.6	15.8	16.6	16.9	17.8	18.3	18.9	19.2	19.3	17.2	17.6	17.1	16.1	14.6	13.8	13.3	11.7	10.8	10.8	19.3	15.7
Aug 12	10.5	10	8.6	8.3	8.1	7.8	9.1	11.8	14.6	17	18.4	17.9	19.4	19.8	20.6	21.4	22.2	21.4	19.7	18.3	17.3	16	14.6	14.6	7.8	22.2	15.3
Aug 13	13.6	12.9	12.5	11.8	11.3	11.4	12.7	15.9	20.1	23.1	25.5	27.3	28.3	29.2	29.8	30.3	30.4	30.1	28.8	26.1	23.3	22	21.1	20.4	11.3	30.4	21.6
Aug 14	19.9	18.9	18.5	18.4	17.7	17.2	17.1	18.6	21.4	24.7	26.1	27.7	29.1	30.1	31.2	30.6	30	27.8	26.6	24.6	23.5	22.3	22	20.9	17.1	31.2	23.5
Aug 15	19.7	18.5	17.4	16.5	15.1	14.4	15.5	18.1	20.1	22.4	23.1	24.1	24.2	25.2	25.7	26.3	26.4	25.8	25.3	23.4	22.3	22.2	21.3	21.1	14.4	26.4	21.4
Aug 16	20.8	20.5	18.1	16.6	15.7	16.7	16.3	13.7	14.3	17.2	18.3	19.3	19.5	19.1	19.7	19.3	19.1	17.8	16.7	15.4	14	13	12.5	11.9	11.9	20.8	16.9
Aug 17	11.3	10.8	10	9.3	8.6	8.3	8.1	8.7	10.5	12.3	14.6	15.9	16.3	17.1	17.6	18.2	17.9	17.8	16.9	15.4	14	14.1	13.2	12.5	8.1	18.2	13.3
Aug 18	11.8	12.6	11.1	9.6	8.7	8.5	9.4	11.3	13.7	16.8	18.7	20.1	20.8	21.7	22.2	22.6	22.8	22.4	21.5	19.3	17.6	16.8	16.1	15.8	8.5	22.8	16.3
Aug 19	15.3	14.5	13.5	13.3	12.8	12.4	12.2	13.1	14.3	15.9	17.2	19.1	19.6	17.1	17.5	18.7	18.6	18.4	18.6	17.2	15.3	14.9	13.8	13.2	12.2	19.6	15.7
Aug 20	12.6	11.4	10.7	10.5	10.9	10.5	10.6	11.7	13.5	16.4	16.9	18.1	18.7	18.9	19.4	Y	Y	Y	16.3	14.5	12.9	12.2	11.6	10.7	10.5	19.4	13.8
Aug 21	10.2	9.6	8.7	8.1	7.3	6.8	8	10.3	12.5	14.6	16	17	18.4	19.3	18.8	19.1	19.7	18.6	17.2	15.9	15	14.5	13.7	13.6	6.8	19.7	13.9
Aug 22	13.2	12.4	11.1	9.7	9.1	9.3	9.3	9.3	10	10.9	11.4	10.7	10.3	10.6	10.8	10.6	10.7	10.1	9.8	9.7	9.3	9	8.7	8.5	8.5	13.2	10.2
Aug 23	8.5	8.6	8.6	8.5	8.8	9	9	9.2	9.4	9.5	9.3	9.6	10.2	10.5	10	9.8	10	9.9	9.6	9.3	9.2	9.2	9.1	8.5	8.5	10.5	9.3
Aug 24	8.9	8.8	8.7	8.2	7.6	7.2	8.2	10	11	12.8	14.2	13.9	14.8	14.6	14.9	15.3	15.7	15.3	14.9	12.6	11.5	11.2	10.5	10.2	7.2	15.7	11.7
Aug 25	10	9.5	8.9	8.5	8.2	8.1	8.7	10.4	12.8	14.7	17.1	18.6	19.5	20.3	20.3	20.6	20.9	20.1	18.9	16.8	15.3	14.5	13.8	13	8.1	20.9	14.6
Aug 26	12.1	11.4	11	10.4	9.8	9.5	10.6	12.1	13.5	15.1	16.5	18.9	20.7	21.9	22.8	22.1	22.2	21.4	18.2	17	16.9	13.4	13.2	13.5	9.5	22.8	15.6
Aug 27	12.9	12.5	12.2	12.7	11.7	10.5	12.3	14	14	14.4	15.5	15.7	16.5	18.8	19.4	19.6	20.6	20.5	19.9	18.1	17.2	17	15.9	14.8	10.5	20.6	15.7
Aug 28	14	13.3	12.4	11.9	11.4	10.6	10.8	12.3	14.1	15.8	17.9	19	19.7	17.9	20.9	21.8	21.8	20.9	19.7	17.2	15.9	15.9	14.8	14.7	10.6	21.8	16.0
Aug 29	13.8	12.9	12.3	12.1	12.2	12.1	12.6	15.5	17.3	19.6	21.5	22.4	23.4	24.5	24.9	25.2	24.9	23.9	21.3	19.1	18.4	18.4	18.1	17.6	12.1	25.2	18.5
Aug 30	16.5	16.4	13.9	12.7	12.4	11.9	11.7	11.5	12.9	14.8	15.9	15.6	17.1	18.8	20.6	21.3	22.4	20.9	18.7	18.2	17.7	17.6	15.8	14.5	11.5	22.4	16.2
Aug 31	13.6	13.4	12.9	12	11.6	11.2	11.5	13	16	17.9	19.1	19.7	20.8	21.6	22.5	21.8	19.6	17.3	15.6	13.8	13.1	13	12.2	11.7	11.2	22.5	15.6
Diurnal Maximum	21.3	20.7	20.2	19.7	20.2	19.8	19.7	20.4	22.1	24.7	26.1	27.7	29.1	30.1	31.2	30.6	30.7	30.6	30.0	26.6	23.8	22.7	22.4	21.4			
Diurnal Average	14.6	14.2	13.5	12.9	12.4	12.2	12.7	14.0	15.8	17.5	18.8	19.5	20.3	20.8	21.3	21.5	21.6	20.9	19.6	18.0	16.8	16.1	15.4	14.9			

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

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

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





## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - August 2021  
Summary of Hourly Averages

### STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:	23.7 °C	on August 27 at hour 10	Hours in Service:	744
Maximum Daily Value:	23.3 °C	on August 27	Hours of Data:	744
Minimum Hourly Value:	20.6 °C	on August 5 at hour 3	Hours of Missing Data:	0
Minimum Daily Value:	20.8 °C	on August 3	Hours of Calibration:	0
Monthly Average:	21.8 °C		Operational Uptime:	100.0

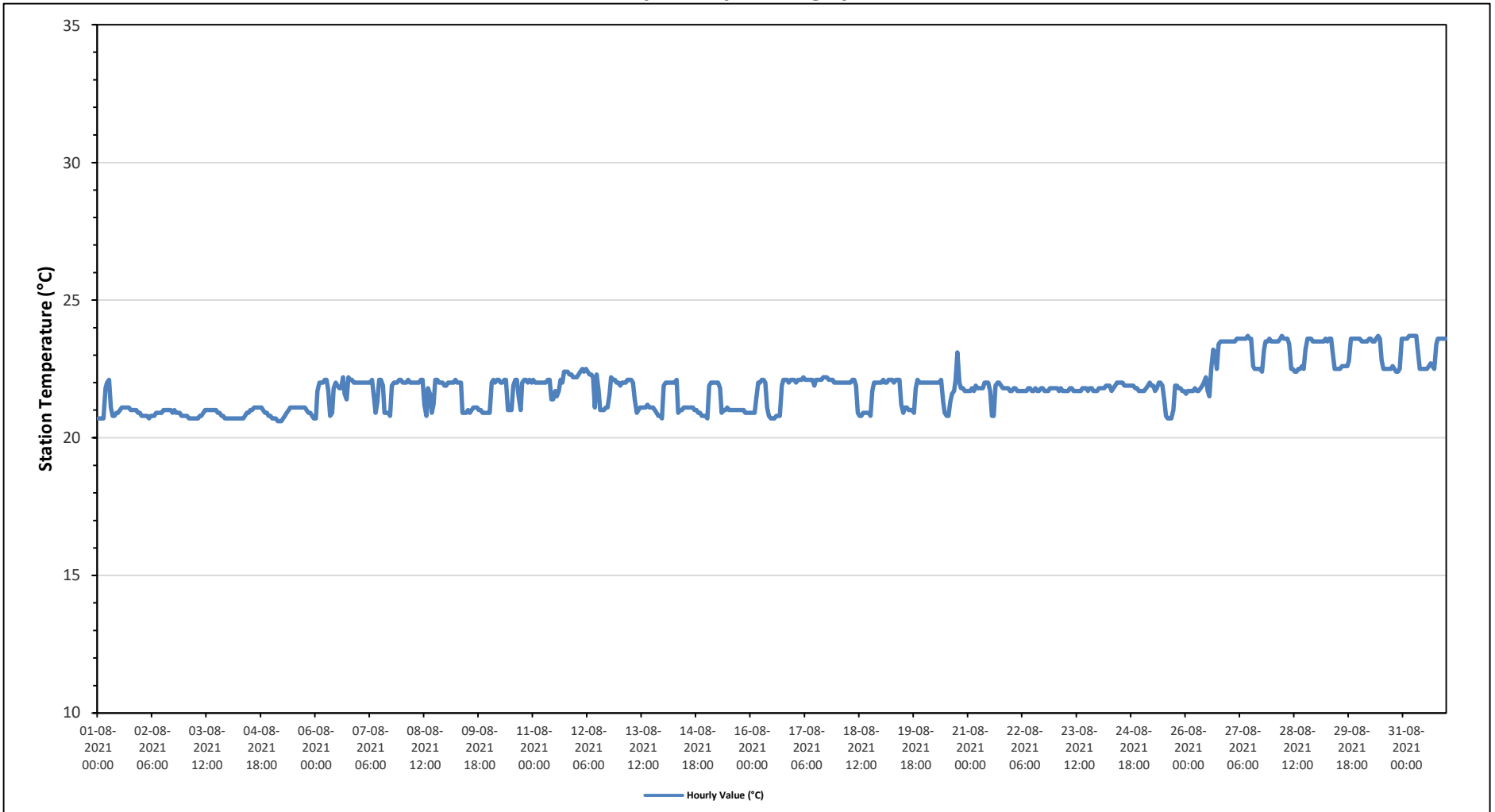
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23		
Aug 1	20.7	20.7	20.7	20.7	21.8	22.0	22.1	21.1	20.8	20.8	20.9	20.9	21.0	21.1	21.1	21.1	21.1	21.1	21.0	21.0	21.0	20.9	20.9	20.9	20.7	22.1	21.1		
Aug 2	20.8	20.8	20.8	20.8	20.7	20.8	20.8	20.8	20.9	20.9	20.9	20.9	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	20.9	20.9	20.9	20.8	20.8	20.7	20.7	21.0	20.9
Aug 3	20.8	20.8	20.7	20.7	20.7	20.7	20.7	20.7	20.8	20.8	20.9	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	20.9	20.9	20.8	20.8	20.7	20.7	21.0	20.8	
Aug 4	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.8	20.9	20.9	21.0	21.0	21.1	21.1	21.1	21.1	21.1	21.1	21.0	20.9	20.9	20.8	20.8	20.7	20.7	21.1	20.9
Aug 5	20.7	20.7	20.7	20.6	20.6	20.6	20.7	20.8	20.9	21.0	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.0	20.9	20.9	20.8	20.7	20.6	21.1	20.9	
Aug 6	20.7	21.7	22.0	22.0	22.0	22.1	22.1	21.7	20.8	20.9	21.8	22.0	21.9	21.8	21.8	22.2	21.6	21.4	22.2	22.1	22.1	22.0	22.0	22.0	20.7	20.7	22.2	21.8	
Aug 7	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.1	21.6	20.9	21.3	22.1	22.1	21.9	20.9	20.9	20.9	20.8	21.9	22.0	22.0	22.0	22.1	22.1	20.8	20.8	22.1	21.7	
Aug 8	22.0	22.0	22.0	22.1	22.0	22.0	22.0	22.0	22.0	22.0	22.1	22.1	21.2	20.8	21.8	21.6	20.9	21.2	22.1	22.1	22.0	22.0	22.0	21.9	20.8	20.8	22.1	21.8	
Aug 9	21.9	22.0	22.0	22.0	22.0	22.1	22.0	22.0	22.0	20.9	20.9	21.0	20.9	21.0	20.9	21.1	21.1	21.1	21.0	21.0	20.9	20.9	20.9	20.9	20.9	20.9	20.9	22.1	21.4
Aug 10	20.9	22.0	22.1	22.0	22.1	22.1	22.0	22.0	22.1	22.1	21.0	21.0	21.9	22.1	22.1	21.5	21.0	22.0	22.1	22.1	22.0	22.1	22.0	22.0	20.9	20.9	22.1	21.8	
Aug 11	22.1	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.1	22.1	21.4	21.4	21.7	21.5	21.7	22.1	22.0	22.4	22.4	22.4	22.3	22.3	22.2	22.2	21.4	22.4	22.4	22.0	
Aug 12	22.2	22.3	22.4	22.5	22.4	22.5	22.4	22.3	22.3	22.2	21.1	22.3	21.7	21.0	21.0	21.1	21.1	21.1	21.1	21.1	21.6	22.2	22.1	22.1	22.0	21.0	22.5	21.9	
Aug 13	21.9	22.0	22.0	22.0	22.1	22.1	22.1	22.0	21.4	20.9	21.0	21.1	21.1	21.1	21.1	21.2	21.1	21.1	21.1	21.1	21.0	20.9	20.8	20.8	20.7	20.7	22.1	21.4	
Aug 14	21.9	22.0	22.0	22.0	22.0	22.0	22.0	22.1	20.9	21.0	21.0	21.1	21.1	21.1	21.1	21.1	21.1	21.0	21.0	20.9	20.9	20.8	20.8	20.8	20.8	20.8	22.1	21.3	
Aug 15	20.7	21.9	22.0	22.0	22.0	22.0	22.0	21.8	20.9	21.0	21.0	21.1	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	20.9	20.9	20.9	20.7	22.0	21.3		
Aug 16	20.9	20.9	20.9	21.4	22.0	22.0	22.1	22.1	22.0	21.1	20.8	20.7	20.7	20.8	20.8	20.8	20.8	21.9	22.1	22.1	22.1	22.0	22.1	22.1	20.7	22.1	22.1	21.5	
Aug 17	22.1	22.0	22.1	22.1	22.1	22.2	22.1	22.1	22.1	22.1	22.1	21.9	22.1	22.1	22.1	22.1	22.1	22.2	22.2	22.2	22.1	22.1	22.1	22.0	22.0	21.9	22.2	22.1	
Aug 18	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.1	22.1	21.9	20.9	20.8	20.8	20.9	20.9	20.9	20.9	20.8	21.7	22.0	22.0	22.0	22.0	20.8	22.1	21.6		
Aug 19	22.0	22.1	22.0	22.0	22.1	22.1	22.1	22.0	22.1	22.1	22.1	21.2	20.9	21.1	21.1	21.0	21.0	21.0	21.0	20.9	21.8	22.1	22.0	22.0	20.9	22.1	21.7	21.7	
Aug 20	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.1	21.3	20.9	20.8	20.8	21.3	21.6	21.7	22.1	23.1	22.0	21.8	21.8	21.7	21.7	20.8	23.1	21.8		
Aug 21	21.7	21.7	21.8	21.7	21.9	21.8	21.8	21.8	21.8	22.0	22.0	22.0	21.7	20.8	20.8	21.9	22.0	22.0	21.9	21.8	21.8	21.8	21.8	21.7	20.8	22.0	21.8		
Aug 22	21.7	21.8	21.8	21.7	21.7	21.7	21.7	21.7	21.7	21.8	21.8	21.7	21.7	21.8	21.7	21.7	21.8	21.8	21.7	21.8	21.7	21.7	21.7	21.8	21.8	21.8	21.7	21.7	
Aug 23	21.8	21.8	21.7	21.8	21.7	21.7	21.7	21.7	21.8	21.8	21.7	21.7	21.7	21.7	21.7	21.8	21.8	21.8	21.7	21.8	21.8	21.7	21.7	21.7	21.7	21.7	21.8	21.7	
Aug 24	21.8	21.8	21.8	21.8	21.9	21.9	21.9	21.7	21.8	21.9	22.0	22.0	22.0	22.0	21.9	21.9	21.9	21.9	21.9	21.9	21.8	21.8	21.7	21.7	21.7	22.0	21.9	21.9	
Aug 25	21.7	21.7	21.8	21.9	22.0	21.9	21.9	21.7	21.8	22.0	22.0	21.9	21.4	20.8	20.7	20.7	21.0	21.9	21.9	21.8	21.8	21.7	21.7	21.7	20.7	22.0	21.6		
Aug 26	21.6	21.7	21.7	21.7	21.7	21.8	21.7	21.7	21.8	21.9	22.0	22.2	21.7	21.5	22.5	23.2	23.1	22.5	23.4	23.5	23.5	23.5	23.5	23.5	21.5	23.5	22.4	22.4	
Aug 27	23.5	23.5	23.5	23.5	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.7	23.6	23.6	22.6	22.5	22.5	22.5	22.5	22.4	23.2	23.5	23.5	23.6	22.4	23.7	23.3	23.2	
Aug 28	23.5	23.5	23.5	23.5	23.6	23.7	23.6	23.6	23.6	23.4	22.5	22.5	22.4	22.4	22.5	22.5	22.6	22.5	23.2	23.6	23.6	23.6	23.5	23.5	22.4	23.7	23.2		
Aug 29	23.5	23.5	23.5	23.5	23.5	23.6	23.5	23.6	23.6	23.6	23.1	22.5	22.5	22.5	22.5	22.6	22.6	22.6	22.6	22.8	23.6	23.6	23.6	23.6	22.5	23.6	23.2		
Aug 30	23.6	23.5	23.5	23.5	23.5	23.6	23.6	23.5	23.5	23.6	23.7	23.6	22.8	22.5	22.5	22.5	22.5	22.5	22.6	22.5	22.4	22.4	22.5	22.4	22.4	23.7	23.1	23.1	
Aug 31	23.6	23.6	23.6	23.7	23.7	23.7	23.7	23.7	23.7	23.6	23.6	23.7	23.6	23.6	22.6	22.6	23.2	23.1	22.6	23.4	23.6	23.6	23.6	23.6	22.5	23.7	23.2	23.2	
Diurnal Maximum	23.6	23.6	23.6	23.7	23.7	23.7	23.7	23.7	23.6	23.6	23.7	23.6	23.6	22.6	22.6	23.2	23.1	22.6	23.4	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	
Diurnal Average	21.8	22.0	22.0	22.0	22.1	22.1	22.1	22.0	21.9	21.8	21.7	21.7	21.6	21.4	21.5	21.6	21.6	21.6	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	

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

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



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





## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

### St. Lina Site - August 2021 Summary of Hourly Averages

#### PRECIPITATION in mm

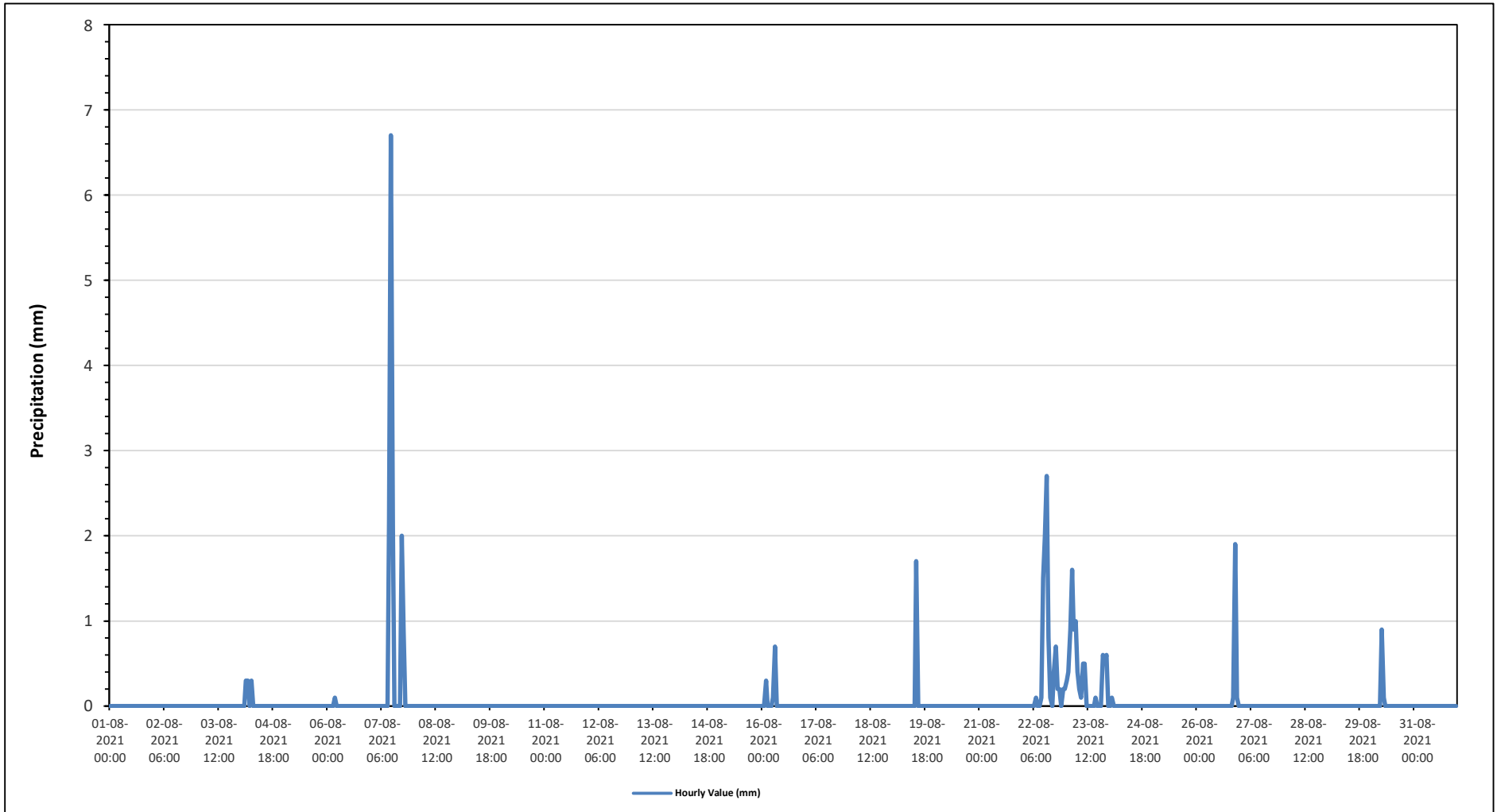
Maximum Hourly Value:	6.7 mm on August 7 at hour 11	Hours in Service:	744
Maximum Daily Value:	13.9 mm on August 7	Hours of Data:	744
Minimum Hourly Value:	0.0 mm on August 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 mm on August 1	Hours of Calibration:	0
Monthly Total:	38.7 mm	Operational 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	
Aug 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	
Aug 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	
Aug 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	
Aug 4	0	0	0	0.3	0.3	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.3	0.9	
Aug 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	
Aug 6	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	0.1	0.1	
Aug 7	0	0	0	0	0	0	0	0	0	0	2.2	6.7	2.1	0	0	0	0	2	0.9	0	0	0	0	0	0.0	6.7	13.9	
Aug 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	
Aug 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	
Aug 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	
Aug 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	
Aug 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	
Aug 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Aug 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Aug 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	
Aug 16	0	0	0.3	0	0	0	0.1	0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.7	1.1	
Aug 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	
Aug 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	
Aug 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	1.7	1.7	
Aug 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Aug 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	
Aug 22	0	0	0	0	0	0	0	0.1	0	0	0.1	1.5	2	2.7	0.8	0.1	0	0.4	0.7	0.2	0.2	0	0.2	0.2	0.0	2.7	9.2	
Aug 23	0.3	0.4	0.9	1.6	0.9	1	0.4	0.2	0.1	0.5	0.5	0	0	0	0	0	0.1	0	0	0	0.6	0.5	0.6	0	0.0	1.6	8.6	
Aug 24	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.1	
Aug 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	
Aug 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	1.9	0.1	0	0.0	1.9	2.1
Aug 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	
Aug 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Aug 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	
Aug 30	0	0	0	0	0	0	0.9	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.9	1.0	
Aug 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Diurnal Maximum	0.3	0.4	0.9	1.6	0.9	1.0	0.9	0.7	0.1	0.5	2.2	6.7	2.1	2.7	0.8	0.1	0.1	2.0	0.9	0.2	0.6	1.9	0.6	0.2				
Diurnal Average	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.3	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0				

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

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

**Timeseries Chart of Hourly Average for Precipitation - St. Lina Site**





## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

### St. Lina Site - August 2021 Summary of Hourly Averages

#### VECTOR WIND SPEED (VWS) in km/hr

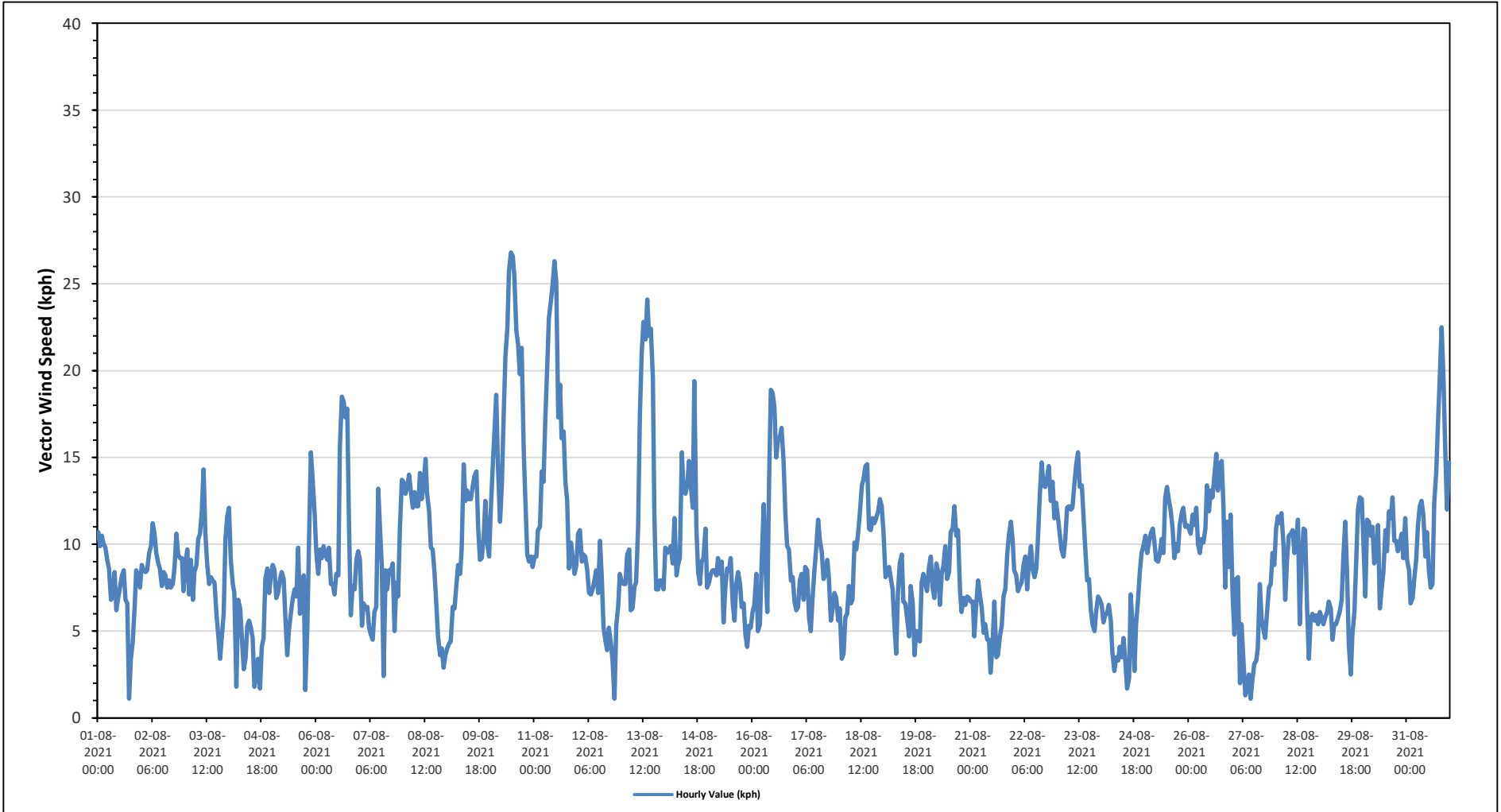
Maximum Hourly Value:	26.8 kph	on August 10 at hour 11	Hours in Service:	744
Maximum Daily Value:	16.9 kph	on August 10	Hours of Data:	744
Minimum Hourly Value:	1.1 kph	on August 1 at hour 17	Hours of Missing Data:	0
Minimum Daily Value:	0.6 kph	on August 24	Hours of Calibration:	0
Monthly Average:	2.2 kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Aug 1	10.7	9.9	10.5	10.0	9.8	9.1	8.6	6.8	7.0	8.4	6.2	6.9	7.5	8.2	8.5	6.8	6.6	1.1	3.4	4.3	6.4	8.5	8.2	7.5	1.1	10.7	5.7
Aug 2	8.8	8.5	8.4	8.5	9.5	9.9	11.2	10.6	9.5	8.9	8.6	7.6	8.4	8.2	7.5	7.9	7.5	7.7	8.7	10.6	9.4	9.2	9.2	7.3	7.3	11.2	8.5
Aug 3	8.9	9.7	7.1	9.1	6.8	8.4	8.8	10.3	10.6	11.9	14.3	10.6	8.9	7.7	8.1	7.9	7.8	5.9	4.9	3.4	4.7	6.0	10.3	11.6	3.4	14.3	5.6
Aug 4	12.1	9.1	7.7	7.2	1.8	6.8	6.3	4.8	2.8	3.4	5.3	5.6	5.2	4.6	1.8	2.4	3.4	1.7	4.1	4.6	8.0	8.6	7.2	8.2	1.7	12.1	1.4
Aug 5	8.8	8.5	6.9	7.2	8.0	8.4	8.0	5.7	3.6	5.1	6.1	6.8	7.4	7.0	9.8	6.0	7.4	8.2	1.6	5.2	10.4	15.3	13.7	11.7	1.6	15.3	3.9
Aug 6	9.6	8.3	9.7	9.2	9.9	9.4	9.1	9.8	7.7	7.7	7.1	8.3	8.2	15.6	18.5	18.2	17.3	17.8	11.1	5.9	7.6	7.4	9.1	9.6	5.9	18.5	2.6
Aug 7	9.1	5.3	6.6	6.3	6.4	5.2	4.8	4.5	6.1	6.4	13.2	11.2	8.7	2.4	8.5	7.4	8.5	8.5	8.9	5.0	7.8	7.0	10.9	13.7	2.4	13.7	5.4
Aug 8	13.6	12.9	13.3	14.0	13.1	12.1	13.0	12.2	12.2	14.1	12.6	13.4	14.9	12.9	11.9	9.8	9.7	8.4	6.4	4.7	3.6	4.0	2.9	3.6	2.9	14.9	9.3
Aug 9	4.0	4.3	4.4	6.4	6.3	7.6	8.8	8.3	9.7	14.6	12.5	13.1	12.6	12.6	13.4	13.9	14.2	10.9	9.1	9.2	10.5	12.5	10.0	9.3	4.0	14.6	8.9
Aug 10	11.8	14.4	16.5	18.6	14.4	11.3	13.4	17.3	20.8	22.5	25.7	26.8	26.6	25.5	22.3	21.5	19.8	21.3	15.5	12.8	9.4	9.0	9.3	8.7	8.7	26.8	16.9
Aug 11	9.3	9.3	10.8	11.0	14.2	13.6	17.2	20.4	23.0	24.0	25.0	26.3	25.1	17.3	19.2	16.1	16.5	13.6	12.5	8.6	10.1	9.3	8.3	8.8	8.3	26.3	14.5
Aug 12	10.6	10.8	9.0	9.4	9.3	8.5	7.2	7.1	7.4	8.0	8.5	7.2	10.2	8.1	5.2	4.4	3.9	5.2	4.3	3.4	1.1	5.3	6.5	8.3	1.1	10.8	5.3
Aug 13	7.8	7.7	7.7	9.4	9.7	6.2	6.3	7.6	7.8	11.0	17.5	21.0	22.8	21.8	24.1	22.0	22.4	19.6	11.6	7.4	7.4	7.9	7.9	7.4	6.2	24.1	12.3
Aug 14	9.8	9.5	9.7	9.9	8.9	11.5	8.2	8.8	9.2	15.3	13.3	12.9	13.4	14.8	13.4	12.1	19.4	11.0	8.4	7.7	9.0	9.2	10.9	7.5	7.5	19.4	9.7
Aug 15	7.8	8.3	8.5	8.5	8.2	9.2	8.3	9.0	5.5	7.5	8.6	8.5	9.2	6.6	5.6	7.7	8.4	7.7	6.4	6.6	4.8	4.1	5.3	5.2	4.1	9.2	6.7
Aug 16	6.1	6.5	8.3	5.0	5.4	9.0	12.3	9.1	6.1	13.6	18.9	18.7	17.9	15.0	16.0	16.2	16.7	14.8	11.8	9.9	9.7	7.9	8.1	6.7	5.0	18.9	10.8
Aug 17	6.2	6.4	7.9	8.3	6.8	8.7	8.5	5.8	5.0	6.9	8.6	9.7	11.4	10.2	9.6	8.0	8.2	9.1	8.1	5.6	6.3	7.2	6.9	5.6	5.0	11.4	7.5
Aug 18	6.3	3.4	3.7	5.8	6.0	7.6	6.6	6.8	10.1	9.7	10.6	11.8	13.4	13.7	14.5	14.6	10.9	10.8	11.5	11.2	11.5	11.9	12.6	12.2	3.4	14.6	9.3
Aug 19	10.7	8.1	8.3	8.7	8.0	7.4	5.3	3.7	7.3	8.9	9.4	6.7	6.6	5.7	4.7	7.6	6.6	3.6	5.0	4.9	4.4	7.8	8.3	7.7	3.6	10.7	4.5
Aug 20	7.3	8.7	9.3	7.5	6.9	8.9	8.4	6.5	8.3	8.8	9.9	8.0	8.4	10.7	10.9	12.2	10.5	10.8	7.3	6.1	6.9	6.5	7.0	6.9	6.1	12.2	8.0
Aug 21	6.7	6.7	4.7	6.6	7.9	7.1	6.4	4.9	5.4	4.5	4.5	2.6	4.2	6.7	3.5	3.6	4.7	5.3	7.0	7.4	9.5	10.5	11.3	10.2	2.6	11.3	3.9
Aug 22	8.5	8.2	7.3	7.6	7.8	8.8	9.3	7.4	9.0	9.9	8.6	8.1	8.6	10.2	12.9	14.7	13.4	13.3	13.9	14.5	12.5	13.6	11.5	12.4	7.3	14.7	10.3
Aug 23	11.4	10.5	9.7	9.3	10.3	12.1	12.2	12.0	12.1	13.5	14.6	15.3	13.3	13.4	11.8	9.9	7.9	8.0	6.3	5.4	5.0	6.1	7.0	6.8	5.0	15.3	9.8
Aug 24	6.5	5.5	6.0	6.0	6.5	5.6	3.8	2.7	3.5	3.3	4.1	3.5	4.6	3.3	1.7	2.3	7.1	5.5	2.7	5.3	6.8	8.4	9.5	9.9	1.7	9.9	0.6
Aug 25	10.5	9.5	10.1	10.6	10.9	10.2	9.1	9.0	9.4	10.3	9.5	12.7	13.3	12.5	12.0	10.9	9.2	10.0	9.6	11.1	11.8	12.1	11.0	11.1	9.0	13.3	10.1
Aug 26	10.9	10.6	11.7	11.1	12.1	10.0	9.5	10.3	10.1	10.9	13.4	11.9	13.1	12.7	13.9	15.2	13.1	14.6	14.8	12.2	7.5	11.3	8.7	11.7	7.5	15.2	10.0
Aug 27	7.1	4.8	8.0	8.1	2.0	5.4	3.2	1.3	1.7	2.5	1.1	2.2	3.1	3.3	4.0	7.7	5.7	5.0	4.6	6.2	7.5	7.7	9.5	8.8	1.1	9.5	1.8
Aug 28	10.9	11.6	11.2	11.8	10.0	6.8	9.1	10.5	10.6	10.8	9.5	10.1	11.4	5.4	8.9	10.9	10.8	6.3	3.4	5.7	6.0	5.6	5.9	5.4	3.4	11.8	7.8
Aug 29	6.1	5.8	5.4	5.8	6.1	6.7	6.3	4.5	5.4	5.4	5.8	6.1	6.8	9.4	11.3	8.4	4.2	2.5	4.8	6.1	9.0	12.0	12.7	12.6	2.5	12.7	4.6
Aug 30	10.3	7.0	11.4	11.3	10.5	11.0	8.9	9.5	11.1	6.3	7.4	8.4	10.8	9.6	11.9	11.5	12.7	10.2	10.2	9.6	10.0	10.6	9.2	11.5	6.3	12.7	8.1
Aug 31	9.1	8.5	6.6	6.9	8.1	9.1	11.1	12.2	12.5	11.7	9.3	10.7	8.5	7.5	7.7	12.4	14.2	17.1	19.7	22.5	19.7	15.6	12.0	14.7	6.6	22.5	2.6
Diurnal Maximum	14	14	17	19	14	14	17	20	23	24	26	27	26	24	22	22	22	21	20	23	20	16	14	15			
Diurnal Average	8.9	8.3	8.6	8.9	8.4	8.8	8.7	8.4	8.7	9.9	10.6	10.7	11.1	10.4	10.7	10.7	10.6	9.5	8.3	7.8	8.2	9.0	9.1	9.1			

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

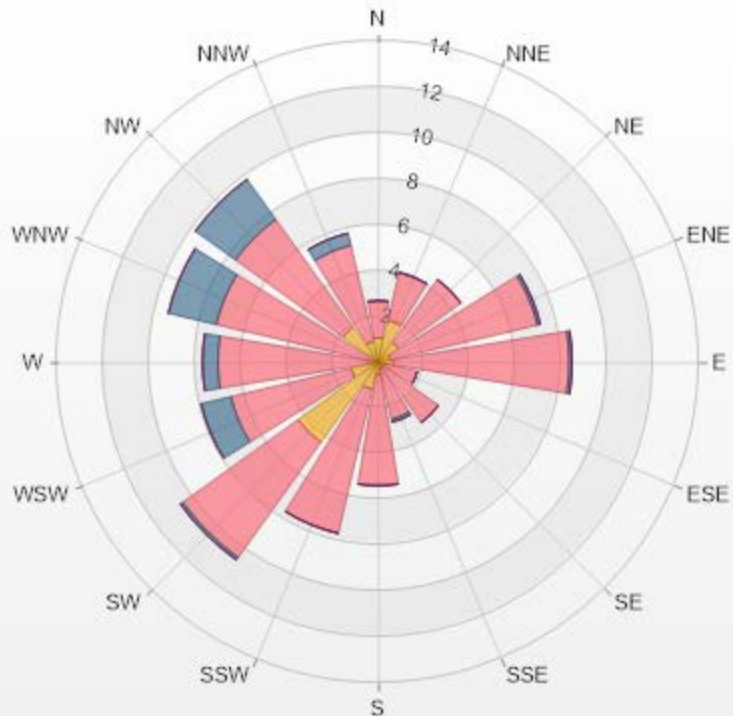
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

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



Wind: St. Lina Monitor: WDS [kph] Monthly: 08-2021 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 1.21% 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	1.08	1.61	0	0	0	2.69
NNE	1.88	2.15	0	0	0	4.03
NE	1.08	3.36	0	0	0	4.44
ENE	0.54	6.59	0.13	0	0	7.26
E	0.67	7.66	0.13	0	0	8.46
ESE	0.27	1.48	0	0	0	1.75
SE	0.27	2.96	0	0	0	3.23
SSE	0.27	2.28	0.13	0	0	2.68
S	0.54	4.84	0	0	0	5.38
SSW	1.21	6.45	0	0	0	7.66
SW	4.3	6.18	0.13	0	0	10.61
WSW	1.21	5.38	1.34	0	0	7.93
W	0.4	6.59	0.67	0	0	7.66
WNW	0.13	7.12	2.15	0	0	9.4
NW	1.88	5.78	2.15	0	0	9.81
NNW	0.94	4.3	0.54	0	0	5.78
Summary	16.67	74.73	7.37	0	0	98.77



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% Icon Classes (kph)

17 1.8-6.0

75 6.0-15.0

7 15.0-29.0

0 29.0-39.0

0 >39.0



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

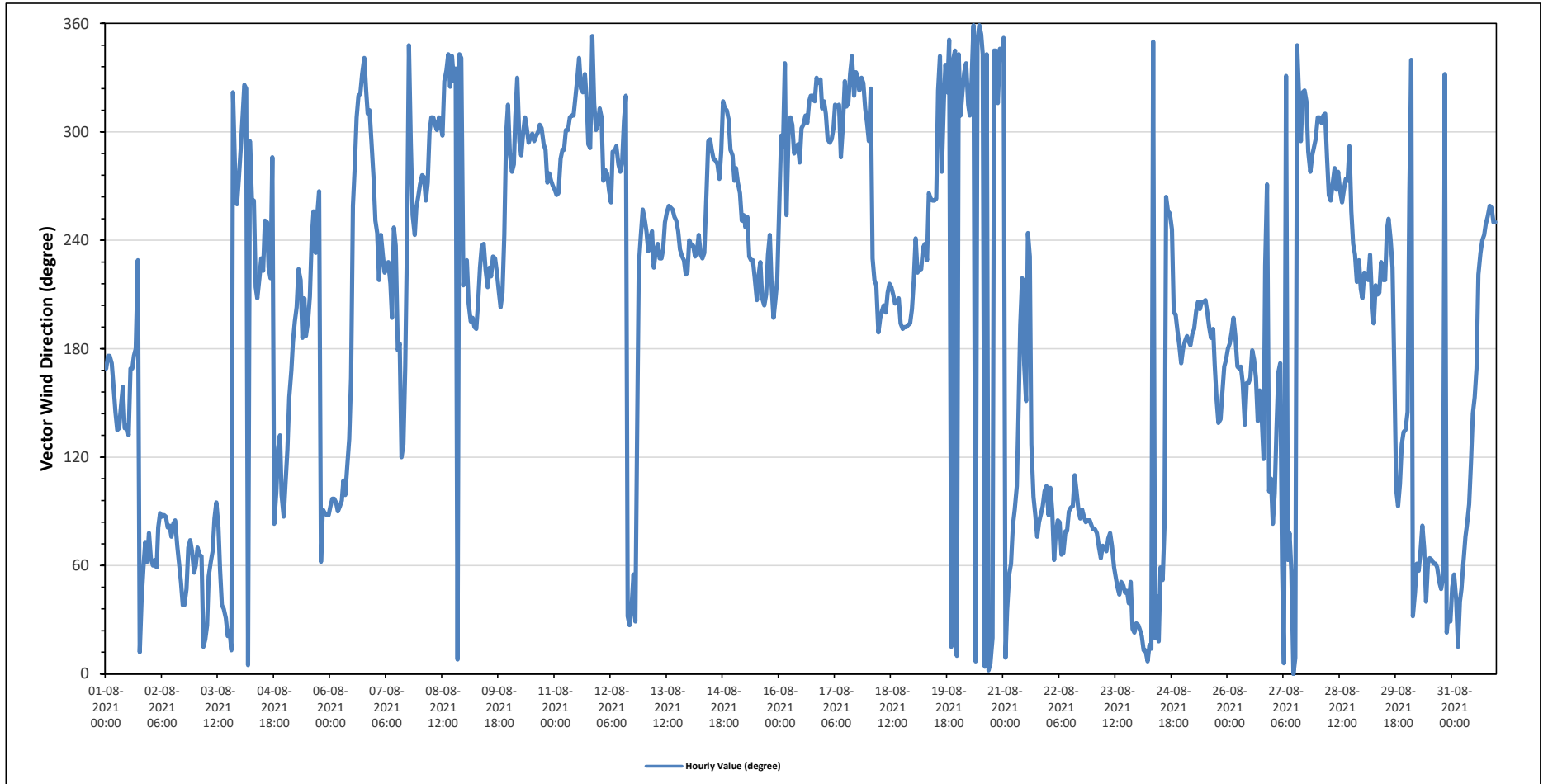
St. Lina Site - August 2021  
Summary of Hourly Averages

### WIND DIRECTION (VWD) in sector

Monthly Average:		274 (W) 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	
Aug 1	SSE	S	S	S	SSE	SE	SE	SE	SE	SSE	SE	SE	SE	SSE	SSE	S	S	SW	NNE	NE	ENE	ENE	ENE	ENE	144	SE	
Aug 2	ENE	ENE	ENE	ENE	E	E	E	E	E	E	E	E	E	ENE	ENE	NE	NE	NE	NE	NE	ENE	ENE	ENE	NE	70	ENE	
Aug 3	ENE	ENE	ENE	ENE	NNE	NNE	NNE	NE	ENE	ENE	E	E	E	ENE	NE	NNE	NNE	NNE	NNE	NW	W	WSW	W	46	NE		
Aug 4	WNW	NW	NW	NW	N	WNW	W	W	SSW	SSW	SW	SW	SW	WSW	WSW	SW	SW	WNW	E	E	SE	SE	E	E	255	WSW	
Aug 5	ESE	ESE	SSE	SSE	S	SSW	SSW	SW	SW	S	SSW	S	SSW	SSW	WSW	WSW	SW	WSW	W	ENE	E	E	E	165	SSE		
Aug 6	E	E	E	E	E	E	E	ESE	E	ESE	SE	SSE	SSW	W	NW	NW	NNW	NNW	NW	NW	NW	WNW	W	352	N		
Aug 7	WSW	WSW	SW	WSW	SW	SW	SW	SW	SW	SSW	WSW	SW	S	S	ESE	SE	SSE	WSW	NNW	WNW	WSW	WSW	WSW	W	232	SW	
Aug 8	W	W	W	W	W	WNW	NW	NW	WNW	WNW	NW	WNW	NNW	NNW	NNW	NW	NNW	NNW	NNW	N	NNW	NNW	SSW	304	WNW		
Aug 9	SW	SW	SSW	SSW	SSW	S	S	SSW	SW	SW	SW	SW	SSW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	WNW	NW	225	SW		
Aug 10	WNW	W	W	NW	NNW	WNW	WNW	WNW	NW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W	W	W	W	296	WNW	
Aug 11	W	W	W	WNW	WNW	WNW	WNW	WNW	NW	NW	NW	NW	NNW	NNW	NW	NW	NNW	NW	WNW	WNW	N	NW	WNW	WNW	309	NW	
Aug 12	NW	NW	W	W	W	W	W	WNW	WNW	WNW	W	W	NW	NW	NNE	NNE	NE	NE	NE	SE	SW	WSW	WSW	290	WNW		
Aug 13	WSW	WSW	SW	WSW	WSW	SW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	245	WSW		
Aug 14	WSW	SW	SW	SW	SW	WSW	SW	SW	SW	W	WNW	WNW	WNW	WNW	W	W	WNW	NW	NW	NW	NW	WNW	WNW	272	W		
Aug 15	W	W	W	W	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SSW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	235	SW	
Aug 16	WSW	WNW	WNW	NNW	WSW	WNW	NW	WNW	WNW	WNW	WNW	W	WNW	WNW	NW	WNW	NW	NW	NW	NNW	NW	NNW	NW	305	WNW		
Aug 17	NW	NW	WNW	WNW	WNW	WNW	NW	NW	NW	WNW	NNW	NW	NW	NNW	NNW	NW	NNW	NNW	NNW	NW	NW	WNW	WNW	316	NW		
Aug 18	WNW	NW	SW	SW	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	S	S	SSW	SSW	205	SSW	
Aug 19	SW	WSW	SW	SW	SW	SW	SW	SW	W	W	W	W	W	NW	NNW	W	NW	NNW	NW	N	NNE	NNW	NNW	N	275	W	
Aug 20	NNW	NW	NW	NNW	NNW	NW	NNW	NW	N	N	N	N	NNW	N	NNW	N	N	NNE	NNW	NNW	NW	NNW	NNW	344	NNW		
Aug 21	N	N	NE	NE	ENE	E	E	ESE	SE	S	SW	S	SSE	WSW	SW	SE	E	E	ENE	E	E	E	ESE	93	E		
Aug 22	E	ESE	E	ENE	ENE	E	E	ENE	ENE	ENE	ENE	E	E	E	ESE	E	E	E	E	E	E	E	E	87	E		
Aug 23	E	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NNE	NNE	NNE	60	ENE		
Aug 24	NNE	NNE	NNE	NNE	NNE	N	NNE	NNE	N	NNE	NE	NNE	ENE	NE	E	W	WSW	WSW	WSW	SSW	SSW	S	S	S	15	NNE	
Aug 25	S	S	S	S	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	S	S	SSE	SE	SE	SSE	SSE	S	183	S	
Aug 26	S	S	S	SSW	S	SSE	SSE	SSE	SSE	SE	SSE	SSE	SSE	S	S	SSE	SE	SSE	SE	ESE	SW	W	E	165	SSE		
Aug 27	E	E	SE	SSE	S	ENE	N	NNW	ENE	ENE	ENE	N	N	NNW	NW	WNW	NW	NW	WNW	W	WNW	WNW	WNW	319	NW		
Aug 28	NW	NW	WNW	NW	NW	WNW	W	W	W	W	W	W	W	W	W	W	W	WNW	WSW	SW	SW	SW	SSW	276	W		
Aug 29	SSW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	WSW	WSW	WSW	SW	SSE	E	E	ESE	SE	193	S		
Aug 30	SE	W	NNW	NNE	NE	ENE	ENE	ENE	E	ENE	NE	ENE	ENE	ENE	ENE	ENE	NE	NE	NE	NNW	NNE	NE	NNE	49	NE		
Aug 31	NE	NE	NE	NNE	NE	NE	ENE	ENE	E	E	ESE	SE	SSE	SSE	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	227	SW		
<b>C</b>	Monthly Calibration										<b>S</b>	Daily Zero-Span Check										<b>Q</b>	Quality Assurance				
<b>K</b>	Collection Error										<b>N</b>	No Data (Machine Not in Service)										<b>Y</b>	Routine Maintenance		<b>P</b>	Power Failure	
<b>X</b>	InValid Data (Machine Malfunction /Recovery)										<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)															
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per 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 - August 2021

Summary of Hourly Averages

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

WIND SPEED																												
Maximum Hourly Value:	26.8	kph	on August 10	at hour 11	Hours in Service:	744																						
Maximum Daily Value:	16.9	kph	on August 10																				Hours of Data:	744				
Minimum Hourly Value:	1.1	kph	on August 1	at hour 17	Hours of Missing Data:	0																						
Minimum Daily Value:	0.6	kph	on August 24																				Hours of Calibration:	0				
Monthly Average:	2.2	kph																				Operational Uptime:	100					
WIND DIRECTION																												
Monthly Average:	274	(W)	degree																							Daily Minimum	Daily Maximum	Daily Average
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Minimum	Daily Maximum	Daily Average	
Aug 1	10.7	9.9	10.5	10.0	9.8	9.1	8.6	6.8	7.0	8.4	6.2	6.9	7.5	8.2	8.5	6.8	6.6	1.1	3.4	4.3	6.4	8.5	8.2	7.5	1.1	10.7	5.7	
Aug 2	8.8	8.5	8.4	8.5	9.5	9.9	11.2	10.6	9.5	8.9	8.6	7.6	8.4	8.2	7.5	7.9	7.5	7.7	8.7	10.6	9.4	9.2	9.2	7.3	7.3	11.2	8.5	
Aug 3	8.9	9.7	7.1	9.1	6.8	8.4	8.8	10.3	10.6	11.9	14.3	10.6	8.9	7.7	8.1	7.9	7.8	5.9	4.9	3.4	4.7	6.0	10.3	11.6	3.4	14.3	5.6	
Aug 4	12.1	9.1	7.7	7.2	1.8	6.8	6.3	4.8	2.8	3.4	5.3	5.6	5.2	4.6	1.8	2.4	3.4	1.7	4.1	4.6	8.0	8.6	7.2	8.2	1.7	12.1	1.4	
Aug 5	8.8	8.5	6.9	7.2	8.0	8.4	8.0	5.7	3.6	5.1	6.1	6.8	7.4	7.0	9.8	6.0	7.4	8.2	1.6	5.2	10.4	15.3	13.7	11.7	1.6	15.3	3.9	
Aug 6	9.6	8.3	9.7	9.2	9.9	9.4	9.1	9.8	7.7	7.7	7.1	8.3	8.2	15.6	18.5	18.2	17.3	17.8	11.1	5.9	7.6	7.4	9.1	9.6	5.9	18.5	2.6	
Aug 7	9.1	5.3	6.6	6.3	6.4	5.2	4.8	4.5	6.1	6.4	13.2	11.2	8.7	2.4	8.5	7.4	8.5	8.5	8.9	5.0	7.8	7.0	10.9	13.7	2.4	13.7	5.4	
Aug 8	13.6	12.9	13.3	14.0	13.1	12.1	13.0	12.2	12.2	14.1	12.6	13.4	14.9	12.9	11.9	9.8	9.7	8.4	6.4	4.7	3.6	4.0	2.9	3.6	2.9	14.9	9.3	
Aug 9	4.0	4.3	4.4	6.4	6.3	7.6	8.8	8.3	9.7	14.6	12.5	13.1	12.6	12.6	13.4	13.9	14.2	10.9	9.1	9.2	10.5	12.5	10.0	9.3	4.0	14.6	8.9	
Aug 10	11.8	14.4	16.5	18.6	14.4	11.3	13.4	17.3	20.8	22.5	25.7	26.8	26.6	25.5	22.3	21.5	19.8	21.3	15.5	12.8	9.4	9.0	9.3	8.7	8.7	26.8	16.9	
Aug 11	9.3	9.3	10.8	11.0	14.2	13.6	17.2	20.4	23.0	24.0	25.0	26.3	25.1	17.3	19.2	16.1	16.5	13.6	12.5	8.6	10.1	9.3	8.3	8.8	8.3	26.3	14.5	
Aug 12	10.6	10.8	9.0	9.4	9.3	8.5	7.2	7.1	7.4	8.0	8.5	7.2	10.2	8.1	5.2	4.4	3.9	5.2	4.3	3.4	1.1	5.3	6.5	8.3	1.1	10.8	5.3	
Aug 13	7.8	7.7	7.7	9.4	9.7	6.2	6.3	7.6	7.8	11.0	17.5	21.0	22.8	21.8	24.1	22.0	22.4	19.6	11.6	7.4	7.4	7.9	7.9	7.4	6.2	24.1	12.3	
Aug 14	9.8	9.5	9.7	9.9	8.9	11.5	8.2	8.8	9.2	15.3	13.3	12.9	13.4	14.8	13.4	12.1	19.4	11.0	8.4	7.7	9.0	9.2	10.9	7.5	7.5	19.4	9.7	
Aug 15	7.8	8.3	8.5	8.5	8.2	9.2	8.3	9.0	5.5	7.5	8.6	8.5	9.2	6.6	5.6	7.7	8.4	7.7	6.4	6.6	4.8	4.1	5.3	5.2	4.1	9.2	6.7	
Aug 16	6.1	6.5	8.3	5.0	5.4	9.0	12.3	9.1	6.1	13.6	18.9	18.7	17.9	15.0	16.0	16.2	16.7	14.8	11.8	9.9	9.7	7.9	8.1	6.7	5.0	18.9	10.8	
Aug 17	6.2	6.4	7.9	8.3	6.8	8.7	8.5	5.8	5.0	6.9	8.6	9.7	11.4	10.2	9.6	8.0	8.2	9.1	8.1	5.6	6.3	7.2	6.9	5.6	5.0	11.4	7.5	
Aug 18	6.3	3.4	3.7	5.8	6.0	7.6	6.6	6.8	10.1	9.7	10.6	11.8	13.4	13.7	14.5	14.6	10.9	10.8	11.5	11.2	11.5	11.9	12.6	12.2	3.4	14.6	9.3	
Aug 19	10.7	8.1	8.3	8.7	8.0	7.4	5.3	3.7	7.3	8.9	9.4	6.7	6.6	5.7	4.7	7.6	6.6	3.6	5.0	4.9	4.4	7.8	8.3	7.7	3.6	10.7	4.5	
Aug 20	7.3	8.7	9.3	7.5	6.9	8.9	8.4	6.5	8.3	8.8	9.9	8.0	8.4	10.7	10.9	12.2	10.5	10.8	7.3	6.1	6.9	6.5	7.0	6.9	6.1	12.2	8.0	
	NNW	NW	NW	NNW	NNW	NW	NW	NNW	N	N	N	N	N	NNW	N	NNW	N	N	NNE	NNW	NNW	NW	NNW	NNW				



**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION**

**St. Lina Site - August 2021**

**Summary of Hourly Averages**

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

WIND SPEED																																				
Maximum Hourly Value:	26.8	kph	on August 10 at hour 11													Hours in Service:	744																			
Maximum Daily Value:	16.9	kph	on August 10													Hours of Data:	744																			
Minimum Hourly Value:	1.1	kph	on August 1 at hour 17													Hours of Missing Data:	0																			
Minimum Daily Value:	0.6	kph	on August 24													Hours of Calibration:	0																			
Monthly Average:	2.2	kph														Operational Uptime:	100																			
WIND DIRECTION																																				
Monthly Average:	274	(W)	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												
Aug 21	6.7	6.7	4.7	6.6	7.9	7.1	6.4	4.9	5.4	4.5	4.5	2.6	4.2	6.7	3.5	3.6	4.7	5.3	7.0	7.4	9.5	10.5	11.3	10.2	2.6	11.3	3.9									
	N	N	NE	ENE	ENE	E	E	ESE	SE	S	SW	S	SSE	WSW	SW	SE	E	E	ENE	E	E	E	ESE													
Aug 22	8.5	8.2	7.3	7.6	7.8	8.8	9.3	7.4	9.0	9.9	8.6	8.1	8.6	10.2	12.9	14.7	13.4	13.3	13.9	14.5	12.5	13.6	11.5	12.4	7.3	14.7	10.3									
	E	ESE	E	ENE	ENE	E	E	ENE	ENE	ENE	ENE	E	E	ESE	E	E	E	E	E	E	E	E	E	E												
Aug 23	11.4	10.5	9.7	9.3	10.3	12.1	12.2	12.0	12.1	13.5	14.6	15.3	13.3	13.4	11.8	9.9	7.9	8.0	6.3	5.4	5.0	6.1	7.0	6.8	5.0	15.3	9.8									
	E	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NNE	NNE	NNE	NNE												
Aug 24	6.5	5.5	6.0	6.0	6.5	5.6	3.8	2.7	3.5	3.3	4.1	3.5	4.6	3.3	1.7	2.3	7.1	5.5	2.7	5.3	6.8	8.4	9.5	9.9	1.7	9.9	0.6									
	NNE	NNE	NNE	NNE	NNE	N	NNE	NNE	N	NNE	NE	NNE	ENE	NE	E	W	WSW	WSW	WSW	SSW	SSW	S	S	S												
Aug 25	10.5	9.5	10.1	10.6	10.9	10.2	9.1	9.0	9.4	10.3	9.5	12.7	13.3	12.5	12.0	10.9	9.2	10.0	9.6	11.1	11.8	12.1	11.0	11.1	9.0	13.3	10.1									
	S	S	S	S	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	S	S	SSE	SE	SE	SSE	SSE	S												
Aug 26	10.9	10.6	11.7	11.1	12.1	10.0	9.5	10.3	10.1	10.9	13.4	11.9	13.1	12.7	13.9	15.2	13.1	14.6	14.8	12.2	7.5	11.3	8.7	11.7	7.5	15.2	10.0									
	S	S	S	SSW	S	SSE	SSE	SSE	SSE	SE	SSE	SSE	S	S	SSE	SE	SSE	SE	ESE	SW	W	E	ESE	ESE												
Aug 27	7.1	4.8	8.0	8.1	2.0	5.4	3.2	1.3	1.7	2.5	1.1	2.2	3.1	3.3	4.0	7.7	5.7	5.0	4.6	6.2	7.5	7.7	9.5	8.8	1.1	9.5	1.8									
	E	E	SE	SSE	S	ENE	N	NNW	ENE	ENE	ENE	N	N	NNW	NW	WNW	NW	NW	WNW	W	WNW	WNW	WNW	WNW												
Aug 28	10.9	11.6	11.2	11.8	10.0	6.8	9.1	10.5	10.6	10.8	9.5	10.1	11.4	5.4	8.9	10.9	10.8	6.3	3.4	5.7	6.0	5.6	5.9	5.4	3.4	11.8	7.8									
	NW	NW	WNW	NW	NW	WNW	W	W	W	W	W	W	W	W	W	W	W	WNW	WSW	SW	SW	SW	SW	SSW												
Aug 29	6.1	5.8	5.4	5.8	6.1	6.7	6.3	4.5	5.4	5.4	5.8	6.1	6.8	9.4	11.3	8.4	4.2	2.5	4.8	6.1	9.0	12.0	12.7	12.6	2.5	12.7	4.6									
	SSW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	WSW	WSW	WSW	SW	SSE	E	E	ESE	SE	SE	SE												
Aug 30	10.3	7.0	11.4	11.3	10.5	11.0	8.9	9.5	11.1	6.3	7.4	8.4	10.8	9.6	11.9	11.5	12.7	10.2	10.2	9.6	10.0	10.6	9.2	11.5	6.3	12.7	8.1									
	SE	W	NNW	NNE	NE	ENE	ENE	ENE	E	ENE	NE	ENE	ENE	ENE	ENE	ENE	ENE	NE	NE	NE	NNW	NNE	NE	NNE												
Aug 31	9.1	8.5	6.6	6.9	8.1	9.1	11.1	12.2	12.5	11.7	9.3	10.7	8.5	7.5	7.7	12.4	14.2	17.1	19.7	22.5	19.7	15.6	12.0	14.7	6.6	22.5	2.6									
	NE	NE	NE	NNE	NE	NE	ENE	ENE	E	E	ESE	SE	SSE	SSE	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW												
<b>C</b>	Monthly Calibration										<b>S</b>	Daily Zero-Span Check										<b>Q</b>	Quality Assurance													
<b>K</b>	Collection Error										<b>N</b>	No Data (Machine Not in Service)										<b>Y</b>	Routine Maintenance					<b>P</b>	Power Failure							
<b>X</b>	Invalid Data (Equipment Malfunction/Recovery)										<b>NRM</b>	Unit/Maint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																								
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																				
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																				



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - August 2021

### Summary of Hour Standard Deviations

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

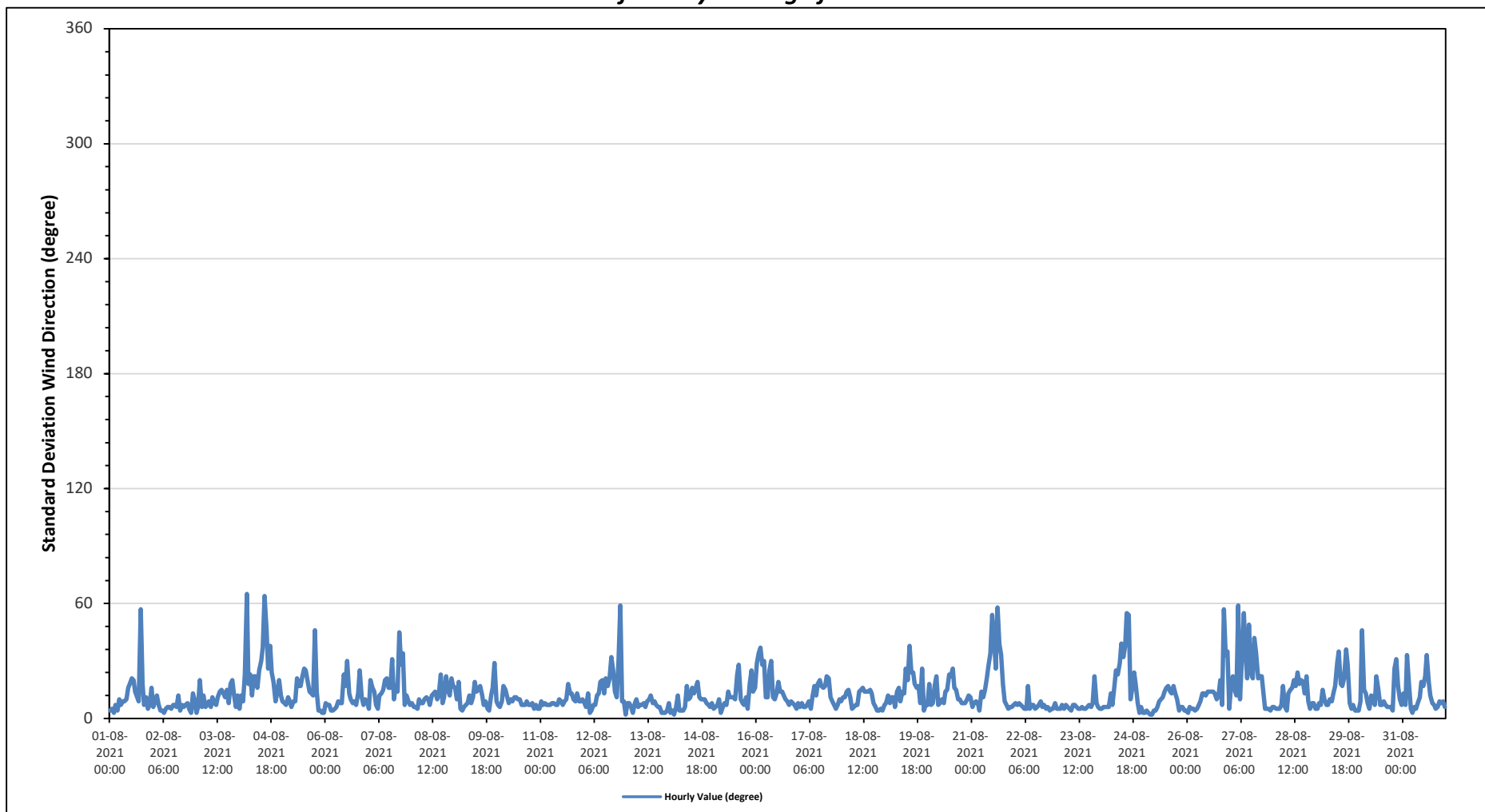
Maximum Hourly Value:	65 degree on August 4 at hour 4	Hours in Service:	744
Minimum Hourly Value:	2 degree on August 12 at hour 23	Hours of Data:	744
		Hours of Missing Data:	0
		Hours of Calibration:	0
		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily		
	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
Aug 1	4	5	3	7	4	10	7	9	9	10	16	18	21	20	14	11	9	57	18	7	11	5	7	16	3	57
Aug 2	6	9	12	7	4	4	3	5	6	6	5	7	7	6	12	4	7	6	7	8	5	3	13	10	3	13
Aug 3	3	6	20	6	12	6	7	9	6	11	8	7	11	14	15	13	11	15	8	18	20	12	6	12	3	20
Aug 4	5	12	9	23	65	18	23	12	22	22	16	25	30	37	64	46	26	38	24	19	9	13	20	12	5	65
Aug 5	9	8	7	11	9	6	9	9	21	17	17	22	26	25	19	14	13	12	46	14	4	4	3	3	3	46
Aug 6	8	7	7	4	4	5	6	9	8	8	23	17	30	13	10	8	9	7	13	25	11	7	10	9	4	30
Aug 7	5	20	16	14	7	5	12	13	15	20	21	16	16	31	10	17	14	45	28	34	7	12	9	7	5	45
Aug 8	8	6	6	5	10	8	8	10	11	10	7	12	13	14	10	12	23	8	11	22	15	12	21	17	5	23
Aug 9	16	10	19	5	4	6	7	8	12	8	11	19	14	15	17	12	7	9	5	4	12	16	29	9	4	29
Aug 10	7	6	9	17	15	11	8	10	9	11	11	10	10	7	7	7	9	7	7	8	5	7	5	5	5	17
Aug 11	9	7	8	7	7	7	8	8	7	7	10	9	7	9	10	18	13	13	10	9	13	9	9	10	7	18
Aug 12	8	6	13	3	4	7	7	12	13	19	20	13	21	17	21	32	25	14	11	30	59	9	9	2	2	59
Aug 13	8	8	6	3	8	10	6	7	7	8	6	9	10	12	8	9	7	6	6	3	3	4	8	3	12	12
Aug 14	3	4	2	6	12	4	4	4	6	17	10	11	16	13	16	19	11	10	10	10	8	7	6	8	2	19
Aug 15	5	6	7	10	3	6	8	7	14	11	11	11	10	23	28	10	8	7	11	5	18	25	14	16	3	28
Aug 16	29	34	37	28	30	11	11	25	30	11	10	13	19	14	14	12	10	9	7	9	8	7	5	8	5	37
Aug 17	6	8	6	6	7	9	5	11	17	12	18	20	17	16	17	22	21	11	9	7	5	7	10	9	5	22
Aug 18	11	11	14	15	11	5	6	7	7	14	15	16	14	14	14	15	13	8	6	4	4	5	4	7	4	16
Aug 19	8	12	8	11	11	6	14	16	9	14	13	26	20	38	24	24	18	16	17	8	26	4	7	7	4	38
Aug 20	18	7	8	17	22	7	8	10	8	14	15	23	22	26	16	15	10	10	8	8	8	10	12	11	7	26
Aug 21	6	8	9	8	4	14	11	15	21	27	34	54	43	26	58	39	33	18	9	7	5	6	6	7	4	58
Aug 22	8	7	8	7	6	5	5	17	5	7	7	5	6	7	9	6	7	5	6	4	5	5	8	5	4	17
Aug 23	5	5	7	5	7	6	5	4	7	7	6	5	5	6	5	6	7	6	8	22	8	6	5	4	22	
Aug 24	5	6	6	6	6	13	7	17	25	23	29	39	32	38	55	54	10	16	24	18	8	3	6	3	3	55
Aug 25	3	4	3	2	2	4	4	6	9	10	11	14	16	17	14	13	17	13	10	4	6	6	4	4	2	17
Aug 26	3	6	5	5	4	5	7	9	13	13	12	14	14	14	13	10	12	20	7	57	33	35	5	3	57	
Aug 27	17	22	15	12	59	10	30	55	36	21	49	24	21	42	34	21	22	22	14	5	5	5	4	6	4	59
Aug 28	6	5	5	5	7	17	6	4	13	15	16	20	17	24	18	20	19	13	22	9	5	8	8	5	4	24
Aug 29	5	8	7	15	10	7	7	10	9	13	17	29	35	18	17	21	36	28	8	5	7	4	4	4	4	36
Aug 30	9	46	15	13	8	5	12	11	7	22	15	7	7	9	7	6	6	6	4	26	31	17	10	7	4	46
Aug 31	13	7	33	19	5	3	6	5	8	11	19	17	22	33	19	12	8	7	5	6	9	8	9	6	3	33
Diurnal Minimum	3	4	2	2	2	3	3	4	5	6	5	5	5	6	5	4	6	5	4	3	3	3	3	2		
Diurnal Maximum	29	46	37	28	65	18	30	55	36	27	49	54	43	42	64	54	36	57	46	34	59	33	35	17		

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

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

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



END OF REPORT

This page, 240 of 240, ends the August 2021 Monthly Ambient Air Quality Monitoring Report.



**Lakeland Industry & Community Association**

**AUGUST 2021**

**Ambient Air Monitoring Calibration Report**

**- COLD LAKE SOUTH STATION-**

**CAL-LICA-202108-01174**

**Station Operation and Maintenance:**

Bureau Veritas Canada

**Data Validation and Report:**

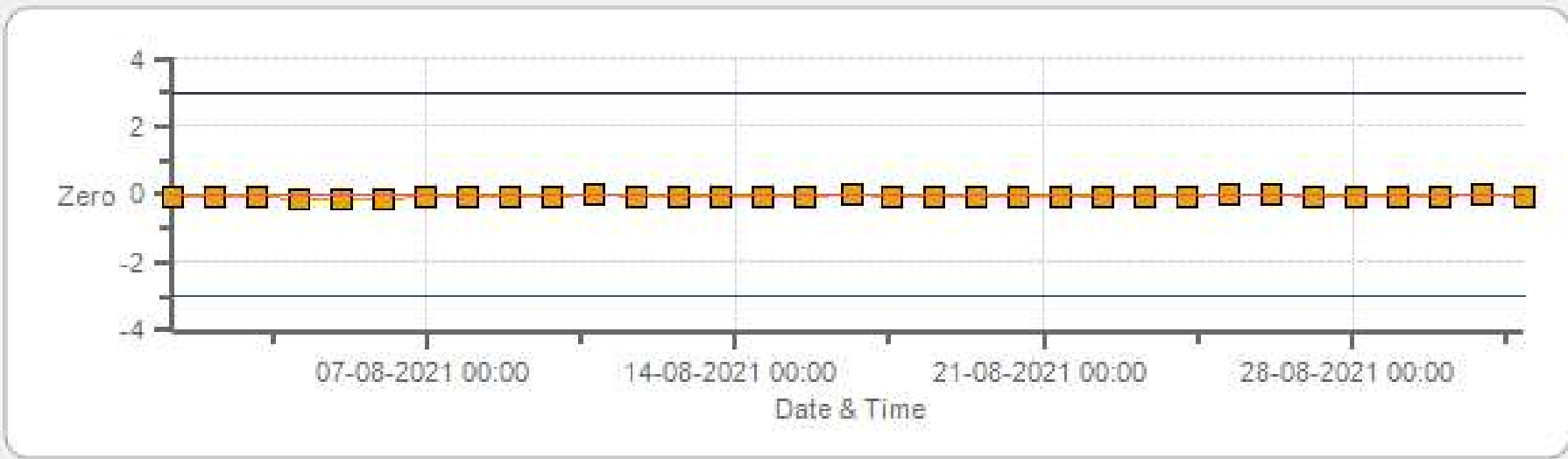
LICA / Bureau Veritas Canada

September 17, 2021

# DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

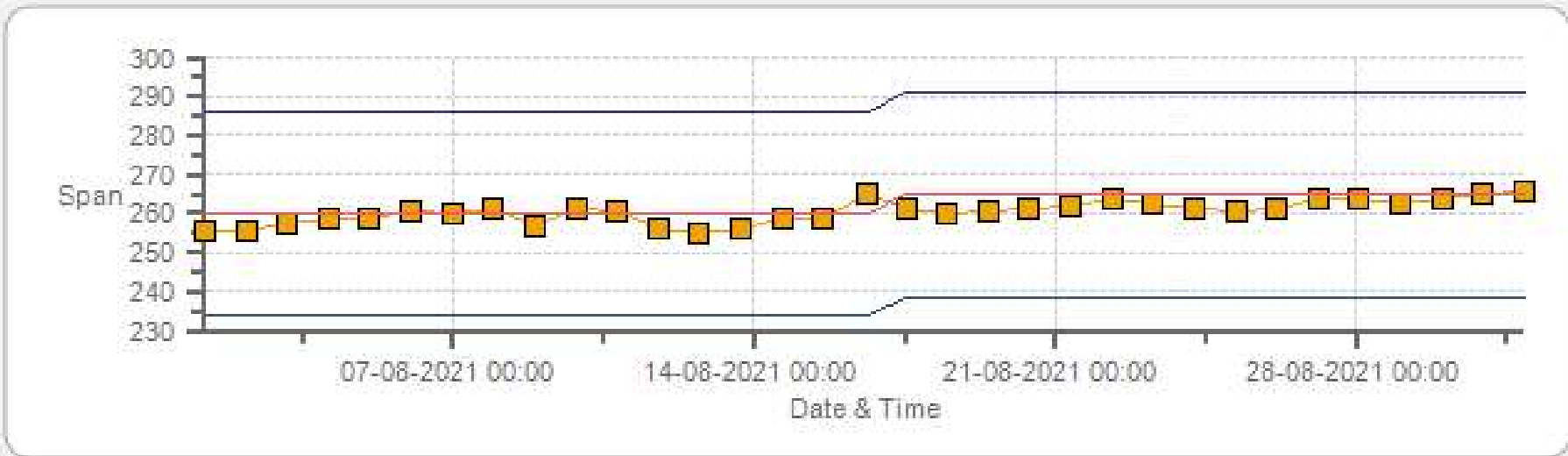


SO2[ppb] Calibration: Cold Lake South Monthly: 08-2021 Type: SpanAndZero - Zero



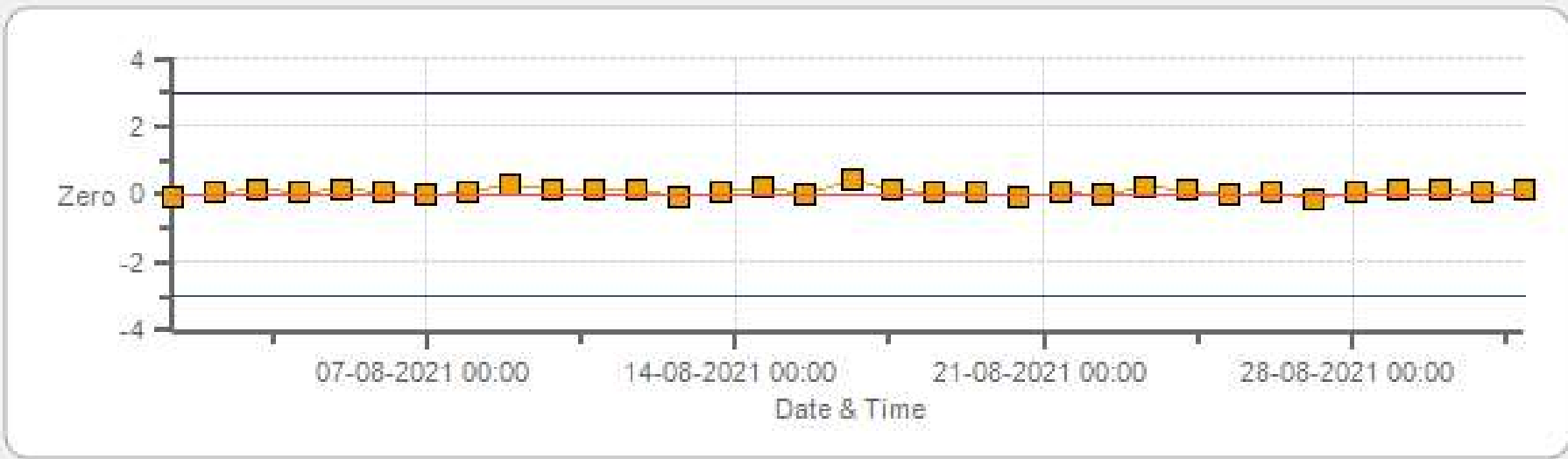
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: Cold Lake South Monthly: 08-2021 Type: SpanAndZero - Span



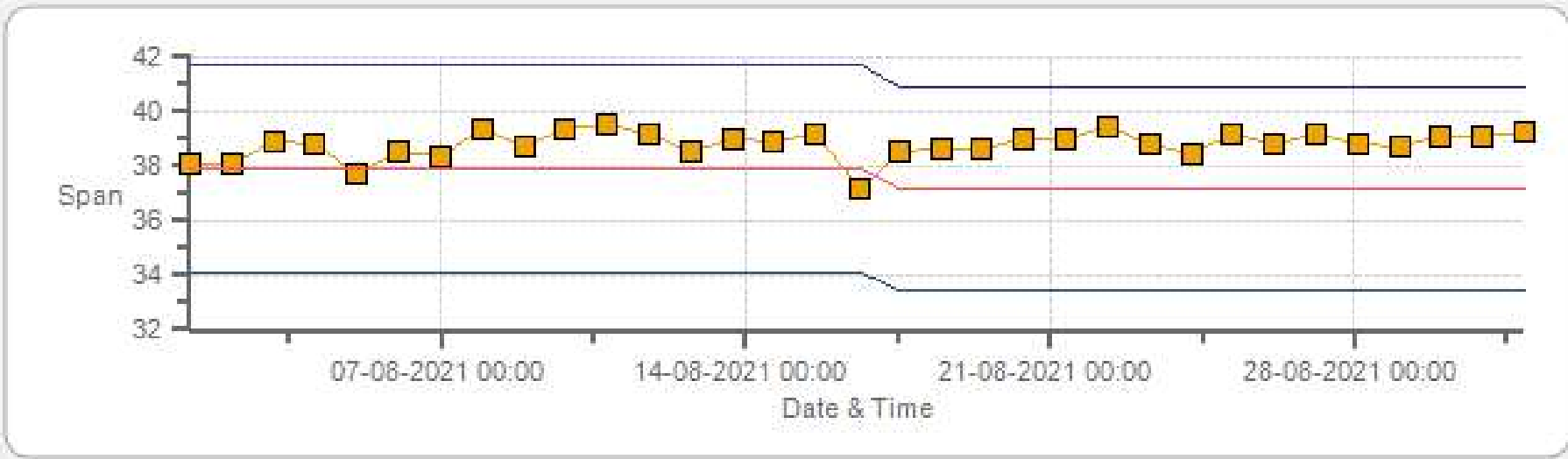
Span SpanRef Span Low Span High

TRS[ppb] Calibration: Cold Lake South Monthly: 08-2021 Type: SpanAndZero - Zero



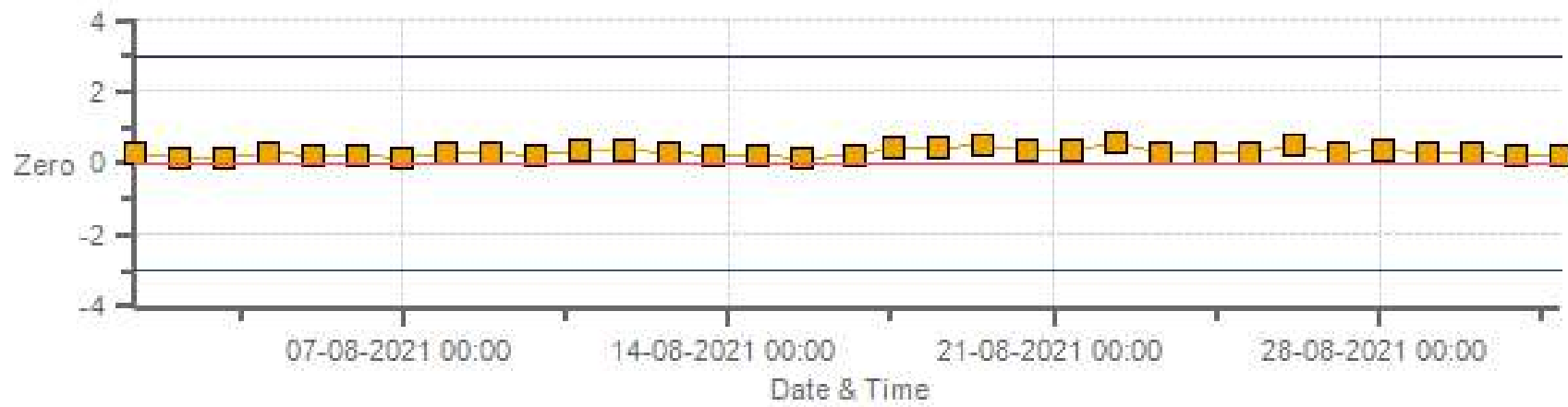
Zero Zero Ref Zero Low Zero High

TRS[ppb] Calibration: Cold Lake South Monthly: 08-2021 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NOX[ppb] Calibration: Cold Lake South Monthly: 08-2021 Type: SpanAndZero - Zero



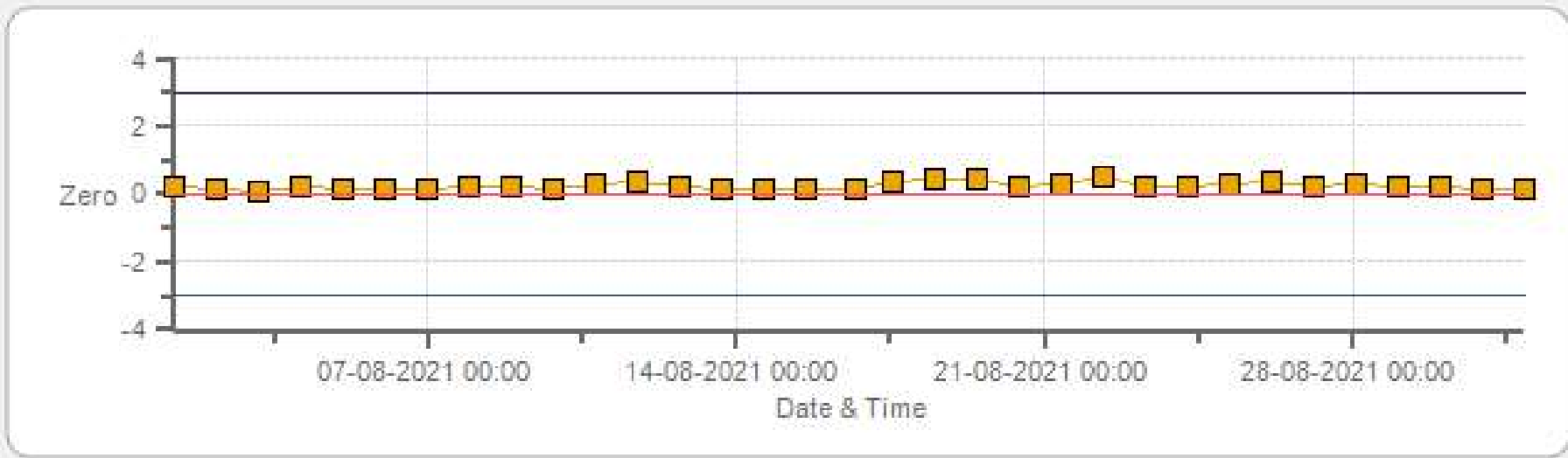
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: Cold Lake South Monthly: 08-2021 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NO2[ppb] Calibration: Cold Lake South Monthly: 08-2021 Type: SpanAndZero - Zero



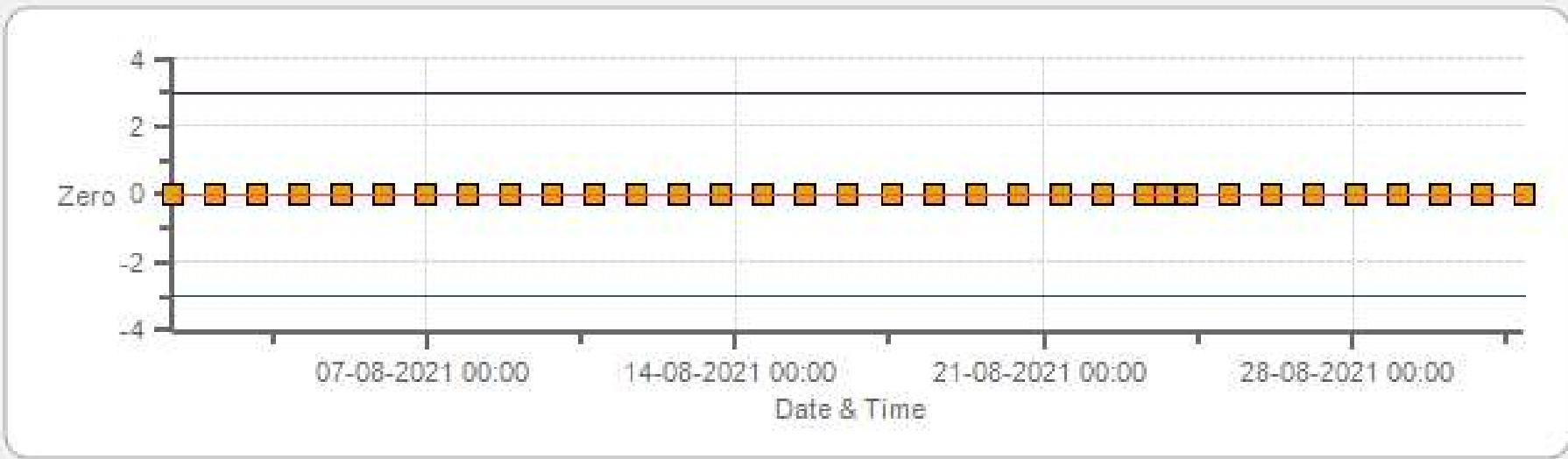
Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: Cold Lake South Monthly: 08-2021 Type: SpanAndZero - Span



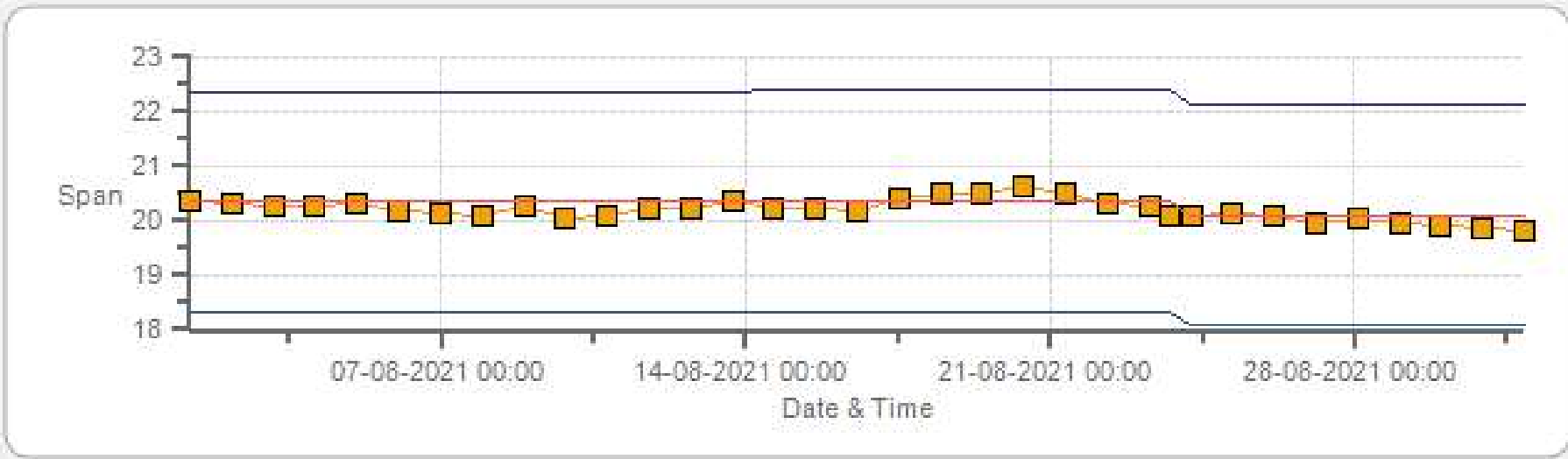
Span Span Ref Span Low Span High

THC55[ppm] Calibration: Cold Lake South Monthly: 08-2021 Type: SpanAndZero - Zero



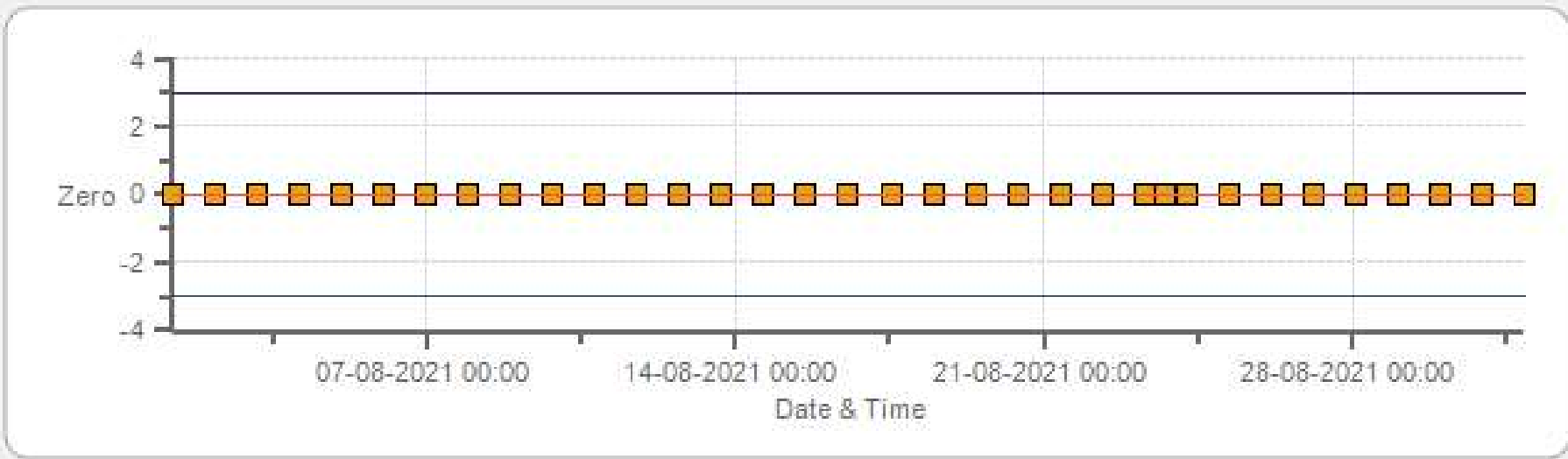
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: Cold Lake South Monthly: 08-2021 Type: SpanAndZero - Span



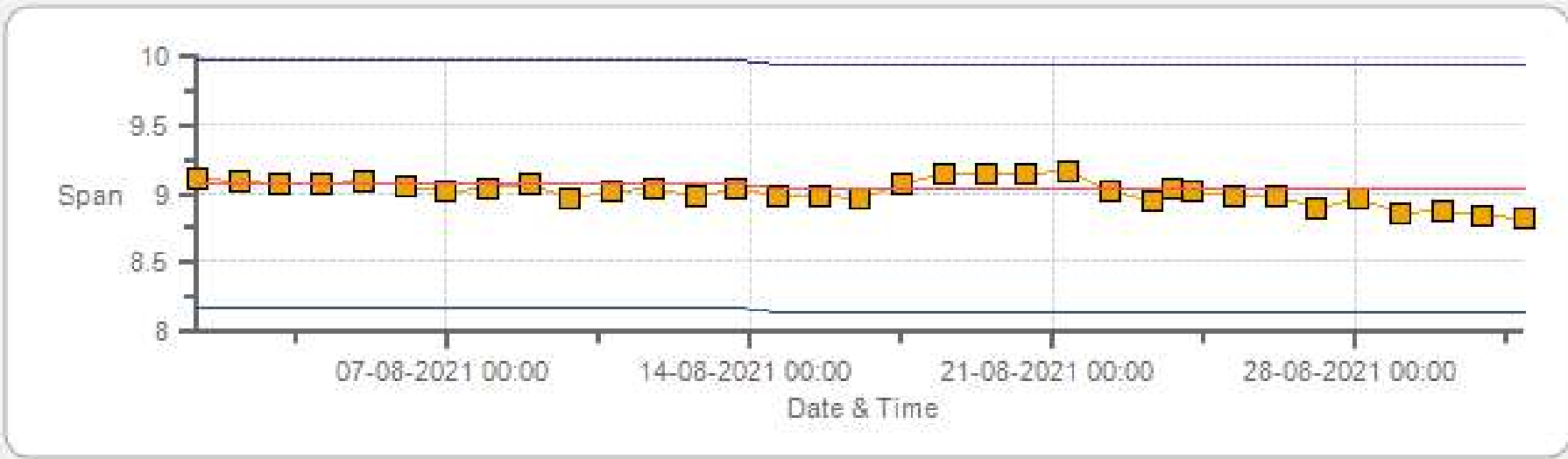
Span SpanRef Span Low Span High

CH4[ppm] Calibration: Cold Lake South Monthly: 08-2021 Type: SpanAndZero - Zero



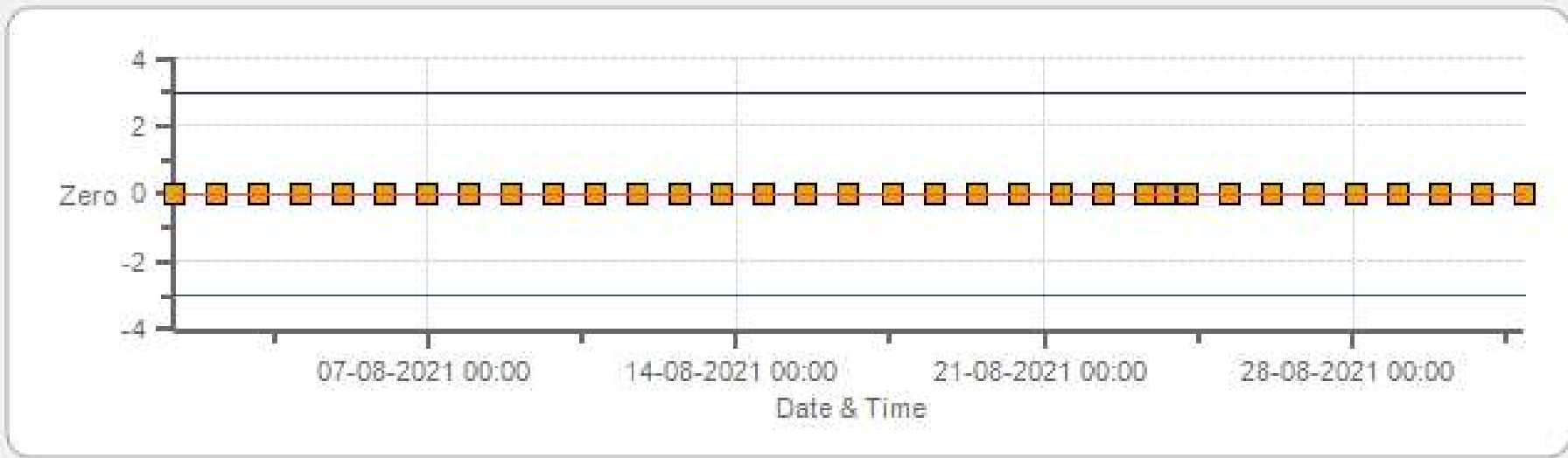
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: Cold Lake South Monthly: 08-2021 Type: SpanAndZero - Span



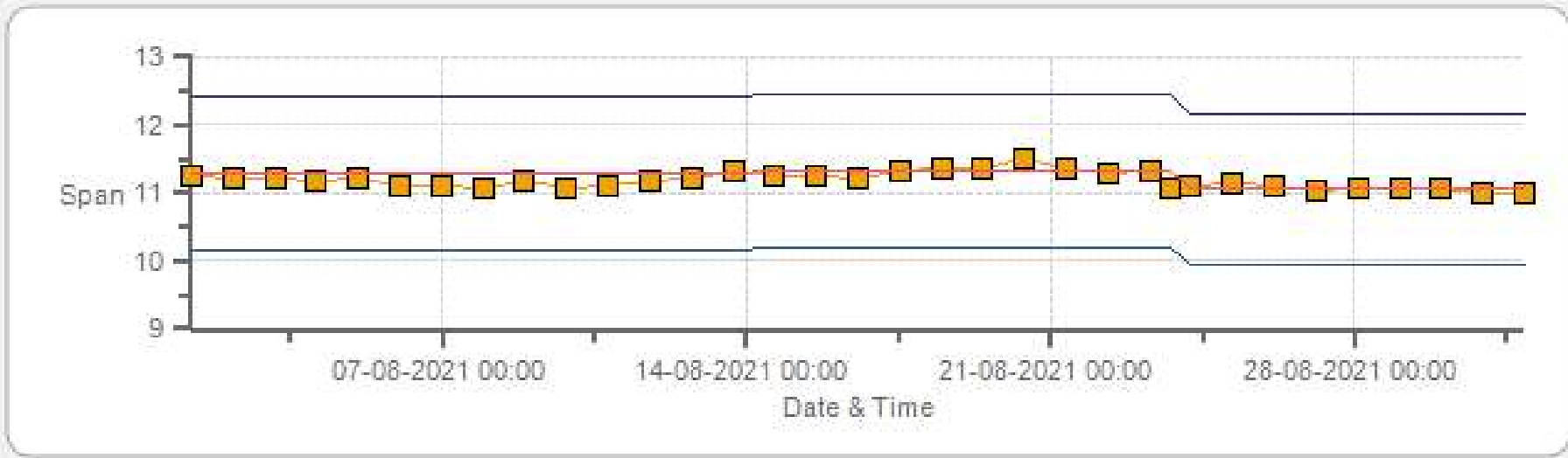
Span Span Ref Span Low Span High

NMHC[ppm] Calibration: Cold Lake South Monthly: 08-2021 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: Cold Lake South Monthly: 08-2021 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

# MULTI-POINT CALIBRATION RECORDS



# SO2 Analyzer Calibration by Dilution



DATE:	16-Aug-2021	PREVIOUS CALIBRATION DATE:	07-Jul-2021
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	940
PURPOSE:	Routine	START TIME (MST):	10:26
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:42

## ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180260018	FLOW (mL/min)	441
INITIAL		FINAL	
BKG/OFFSET	1.89	BKG/OFFSET	1.94
COEF/SLOPE	0.935	COEF/SLOPE	0.957
Expected (reference) Value	260	Expected (reference) Value	264.9

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	26801218	ID:	132
MFC CALIBRATION DATE:	09-Apr-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):	1700	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:

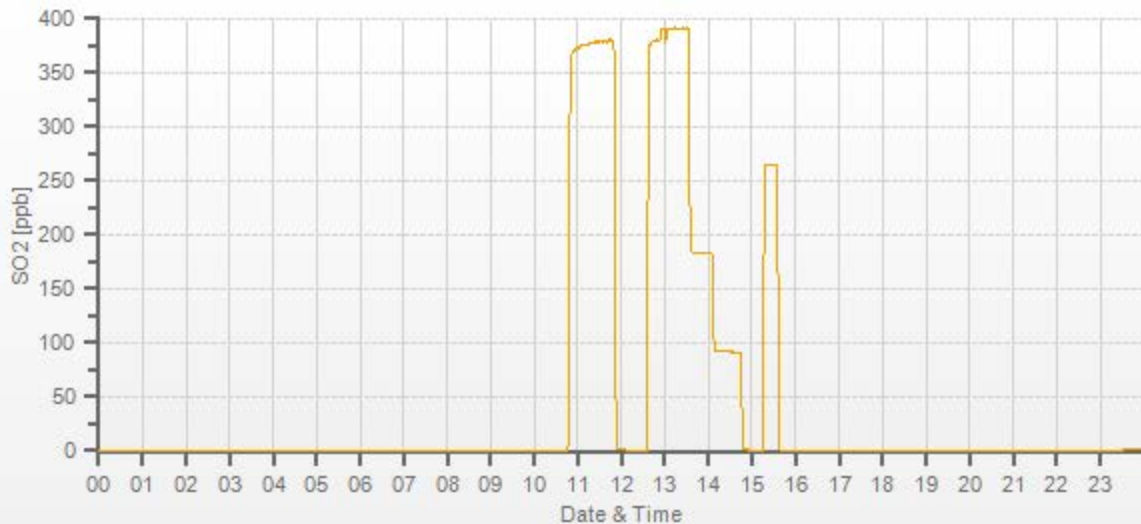
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	<del>38.50</del>	5000	0.00	0	0	<del>1.031</del>	<del>1.000</del>
4962	38.50	5000	391.16	379.4	391.2	1.031	1.000
4982	18.00	5000	182.88	n/a	183.3	n/a	0.998
4991	9.00	5000	91.44	n/a	91.3	n/a	1.002

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.0%

## COMMENTS:

Sample inlet filter was changed.  
13:00 - Daily ZS, adjusted high restarted.



# TRS Analyzer Calibration by Dilution



DATE:	16-Aug-2021	PREVIOUS CALIBRATION DATE:	07-Jul-2021
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	0.996
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	940
PURPOSE:	Routine	START TIME (MST):	10:23
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:42

## ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	812728560	FLOW (mL/min)	492
INITIAL		FINAL	
BKG/OFFSET	21.8	BKG/OFFSET	21.7
COEF/SLOPE	1.061	COEF/SLOPE	1.047
Expected (reference) Value	37.9	Expected (reference) Value	37.2

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	09-Apr-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 19174	HIGH ID	n/a
CONC (ppm):	10.00	EXPIRY DATE	n/a
CYLINDER (psi):	300	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:	10:28	SO2 Conc (ppb)	380
END TIME:	10:43	Analyzer Response (ppb)	0.0

## CALIBRATION:

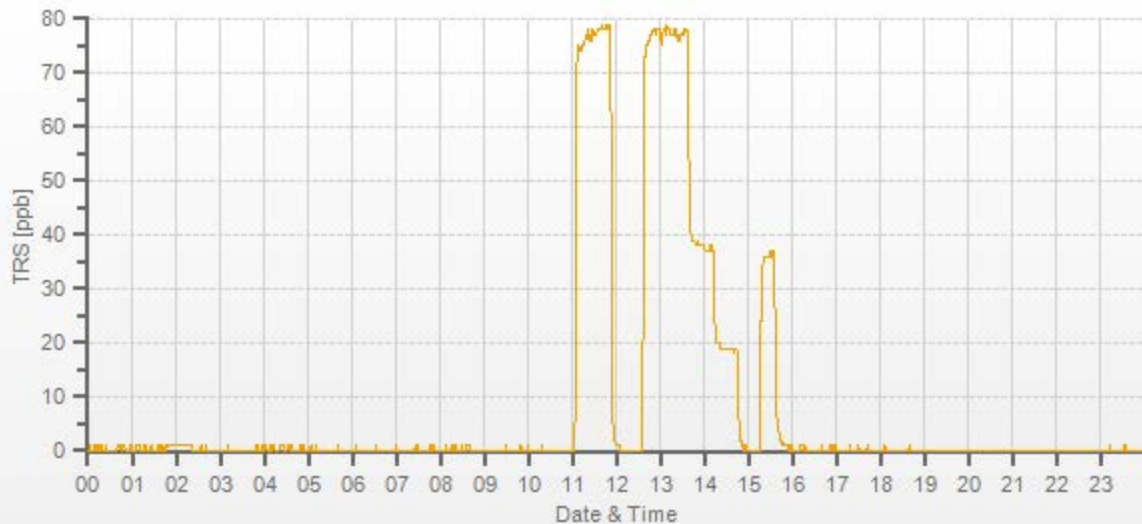
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	<del>7500</del>	7500	0.00	0	0	<del>0.996</del>	<del>1.003</del>
7442	58.50	7500	78.00	78.7	77.8	0.991	1.003
7472	28.50	7500	38.00	n/a	38.2	n/a	0.995
7486	14.20	7500	18.93	n/a	19.4	n/a	0.976

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.996	0.3%

## COMMENTS:

Sample inlet filter was changed.  
13:00 = daily ZS. Adjusted high restarted.



# NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	16-Aug-2021	PREVIOUS CALIBRATION DATE:	07-Jul-2021	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1505664393	NOx	0.999
LOCATION:	CLS	BAROMETRIC (mBar):	940	FLOW (mL/min)	767	NO	1.000
PURPOSE:	Routine	START TIME (MST):	10:27	RANGE (ppb)	500	NO2	0.998
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:30	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):	1700	LOW ID:	n/a
MFC CALIBRATION DATE:	09-Apr-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	4.1	n/a	BKG/OFFSET:	4.3	4.2	n/a
SLOPE/COEF/CE:	1.005	0.958	0.998	SLOPE/COEF/CE:	1	0.968	1.006

EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	256.1	2.9	253.3		240.5	3.9	236.6

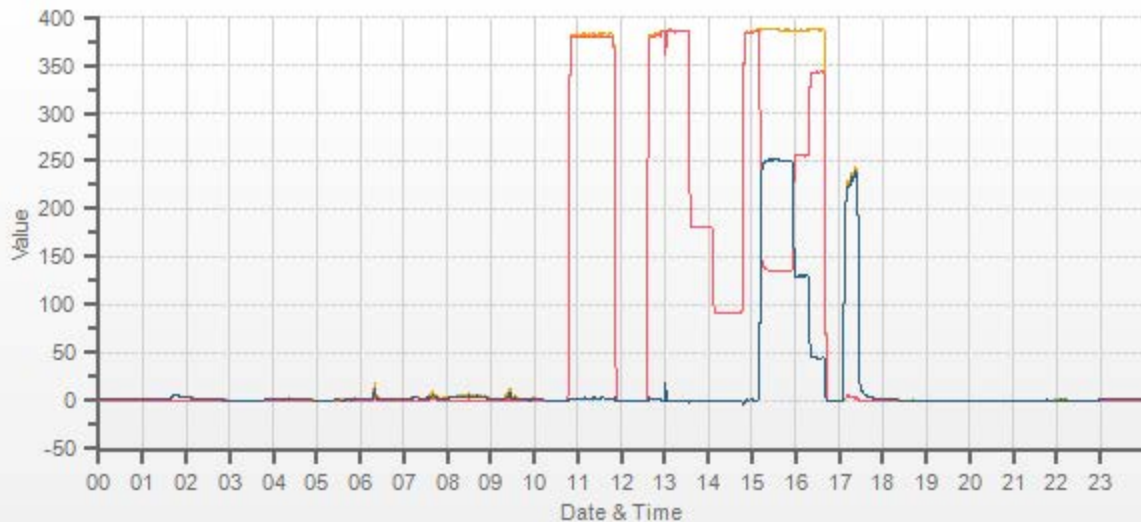
CALIBRATION PARAMETERS:				
POINT	NO TARGET (PPB)	NO2 TARGET (PPB)	NO2 RANGE	O3 POINT
HIGH	380	250	230-265	n/a
MID	180	125	115-150	n/a
LOW	90	45	40-55	n/a
EXTRA 1	n/a	n/a	n/a	n/a

FLOW RATE			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000	<del>38.50</del>	5000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<del>1.016</del>	<del>1.009</del>	<del>0.993</del>	<del>1.000</del>	<del>0.995</del>	<del>0.988</del>
4962	38.50	5000	385.0	385.8	0.8	379.0	382.4	3.4	385.0	385.7	0.7	1.016	1.009	0.993	1.000	0.995	0.988
4982	18.00	5000	180.0	180.4	0.4	n/a	n/a	n/a	181.2	181.3	0.0	n/a	n/a	n/a	0.993	0.995	0.988
4991	9.00	5000	90.0	90.2	0.2	n/a	n/a	n/a	91.2	91.3	0.0	n/a	n/a	n/a	0.987	0.988	0.988

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	384.0	385.6	1.6	<del>248.3</del>	<del>250.3</del>	<del>0.992</del>	<del>100.81%</del>
AS-FOUND HIGH	38.50	5000	240	135.7	387.6	251.9	248.3	250.3	0.992	100.81%
ADJUSTED HIGH	38.50	5000	240	135.4	386.6	251.1	248.6	249.5	0.996	100.36%
MID	38.50	5000	125	255.6	386.3	130.7	128.4	129.1	0.995	100.55%
LOW	38.50	5000	45	342.4	386.9	44.5	41.6	42.9	0.970	103.13%
NO2 COEF/CONVERTER EFFICIENCY ADJUSTED									AVERAGE:	101.34%

LINEAR REGRESSION ANALYSIS:				COMMENTS:
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	0.999	0.15%	
NOx	1.000	0.999	0.13%	
NO2	1.000	0.998	0.24%	

Sample inlet filter was changed.  
13:00 = Daily ZS. Adjusted High point restarted.



CAL-LICA-202108-01174

# Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	13-Aug-2021	PREVIOUS CALIBRATION DATE:	06-Jul-2021
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.005
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	950
PURPOSE:	Routine	START TIME (MST):	12:50
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:45

## ANALYZER:

MAKE/MODEL	Thermo 49i	RANGE	500 ppb
SERIAL #	700419951	FLOW (mL/min)	1467
INITIAL		FINAL	
BKG/OFFSET	0	BKG/OFFSET	0
COEF/SLOPE	1.043	COEF/SLOPE	1.047
Expected (reference) Value	390.7	Expected (reference) Value	412.2

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	09-Apr-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:

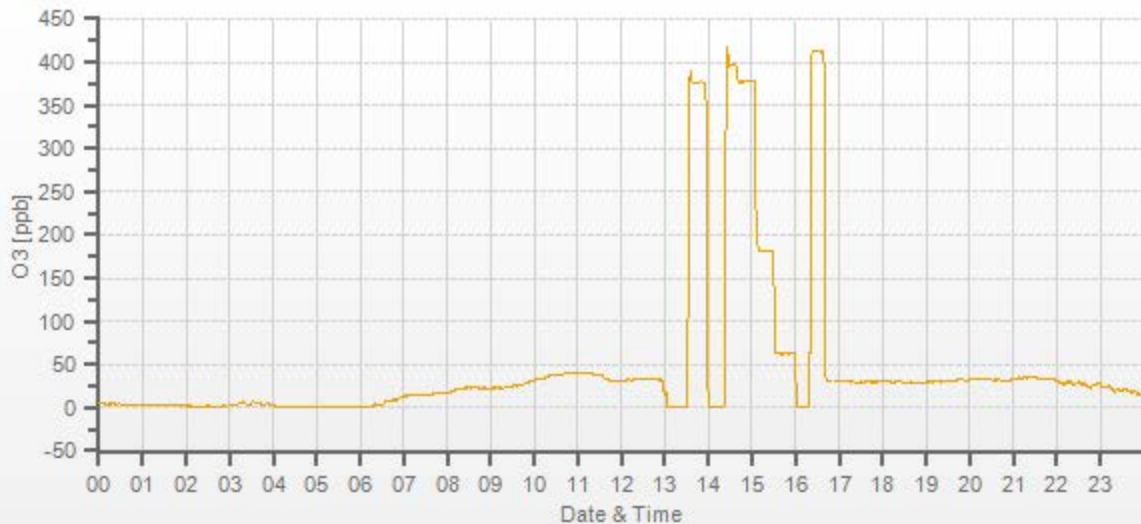
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	<del>XXXX</del>	5000	0.0	0.0	0.0	<del>XXXX</del>	<del>XXXX</del>
5000	<del>XXXX</del>	5000	378.0	376.3	377.3	1.005	1.002
5000	<del>XXXX</del>	5000	180.0	n/a	181.2	n/a	0.993
5000	<del>XXXX</del>	5000	61.0	n/a	62.7	n/a	0.973

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.997	0.2%

## COMMENTS:

Sample inlet filter was changed.





# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	13-Aug-2021	PREVIOUS CALIBRATION DATE:	13-Jul-2021	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1180030034	965
LOCATION:	CLS	BAROMETRIC (mBar):	950	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	12:52	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:45	PREVIOUS CF:	1.002	1.002	1.001

## 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 <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	914.0   307.0	HIGH EXPIRY:	n/a
ID:	26801218	ID:	132	CYLINDER (psi):	1000	LOW ID:	n/a
MFC CALIBRATION DATE:	09-Apr-2021	OXIDIZER ID:	115	EXPIRY DATE	21-Jan-2028	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

POINT (CH <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE	
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>	844.3
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>	1758.3

## EXPECTED (REFERENCE) VALUE:

INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	9.07	11.28	20.35		9.04	11.32	20.36

## CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3100	<del>X</del>	3100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>
3051	49.40	3100	14.57	13.45	28.02	14.29	13.34	27.63	14.45	13.45	27.91	1.019	1.009	1.014	1.008	1.000	1.004
3075	24.70	3100	7.28	6.73	14.01	n/a	n/a	n/a	7.22	6.67	13.90	n/a	n/a	n/a	1.009	1.009	1.008
3088	12.40	3100	3.66	3.38	7.03	n/a	n/a	n/a	3.58	3.27	6.85	n/a	n/a	n/a	1.021	1.033	1.027

## LINEAR REGRESSION ANALYSIS:

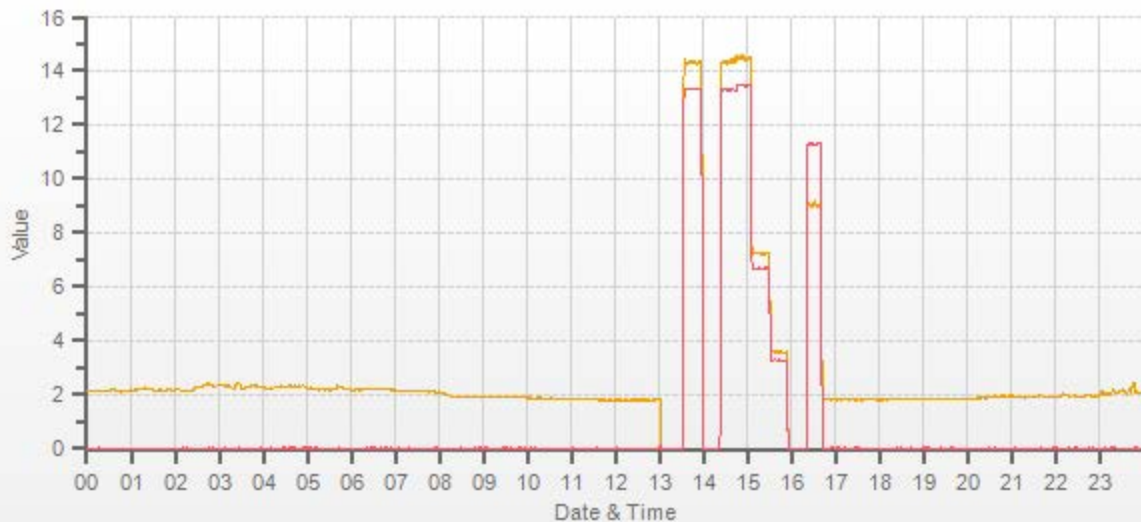
	CORRELATION	SLOPE	INTERCEPT
CH <sub>4</sub>	1.000	0.993	-0.1%
NMHC	1.000	1.002	-0.3%
THC	1.000	0.998	-0.2%

## Comments:

Sample inlet filter was changed.

Use Zero Chrom?

Yes



CAL-LICA-202108-01174

# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	23-Aug-2021	PREVIOUS CALIBRATION DATE:	13-Aug-2021	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1180030034	965
LOCATION:	CLS	BAROMETRIC (mBar):	949	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Removal/Shut-down	START TIME (MST):	11:30	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	13:30	PREVIOUS CF:	1.008	1.000	1.004

## 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 <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	914.0   307.0	HIGH EXPIRY:	n/a
ID:	26801218	ID:	132	CYLINDER (psi):	1000	LOW ID:	n/a
MFC CALIBRATION DATE:	09-Apr-2021	OXIDIZER ID:	115	EXPIRY DATE:	21-Jan-2028	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

POINT (CH <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE	
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>	844.3
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>	1758.3

## EXPECTED (REFERENCE) VALUE:

INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	9.04	11.32	20.36		n/a	n/a	n/a

## CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3100	<del>3100</del>	3100	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a	<del>1.000</del>	<del>0.985</del>	<del>0.992</del>	<del>n/a</del>	<del>n/a</del>	<del>n/a</del>
3051	49.40	3100	14.57	13.45	28.02	14.57	13.66	28.25	n/a	n/a	n/a	1.000	0.985	0.992	n/a	n/a	n/a
3075	24.70	3100	7.28	6.73	14.01	7.30	6.78	14.08	n/a	n/a	n/a	0.998	0.992	0.995	n/a	n/a	n/a
3088	12.40	3100	3.66	3.38	7.03	3.65	3.33	6.98	n/a	n/a	n/a	1.002	1.014	1.008	n/a	n/a	n/a

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
CH <sub>4</sub>	1.000	1.001	0.0%
NMHC	1.000	1.017	-0.2%
THC	1.000	1.009	-0.1%

## Comments:

Shutdown calibration was completed to fix a "bad injections" issue

Use Zero Chrom?

Yes

# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	23-Aug-2021	PREVIOUS CALIBRATION DATE:	n/a	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1180030034	965
LOCATION:	CLS	BAROMETRIC (mBar):	949	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Install/Post-Repair	START TIME (MST):	14:30	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:04	PREVIOUS CF:	n/a	n/a	n/a

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 168375	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	914.0   307.0	HIGH EXPIRY:	n/a
ID:	26801218	ID:	132	CYLINDER (psi):	1000	LOW ID:	n/a
MFC CALIBRATION DATE:	09-Apr-2021	OXIDIZER ID:	115	EXPIRY DATE:	21-Jan-2028	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

POINT (CH <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE	
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>	844.3
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>	1758.3

## EXPECTED (REFERENCE) VALUE:

INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	n/a	n/a	n/a		n/a	9.04	11.07

## CALIBRATION:

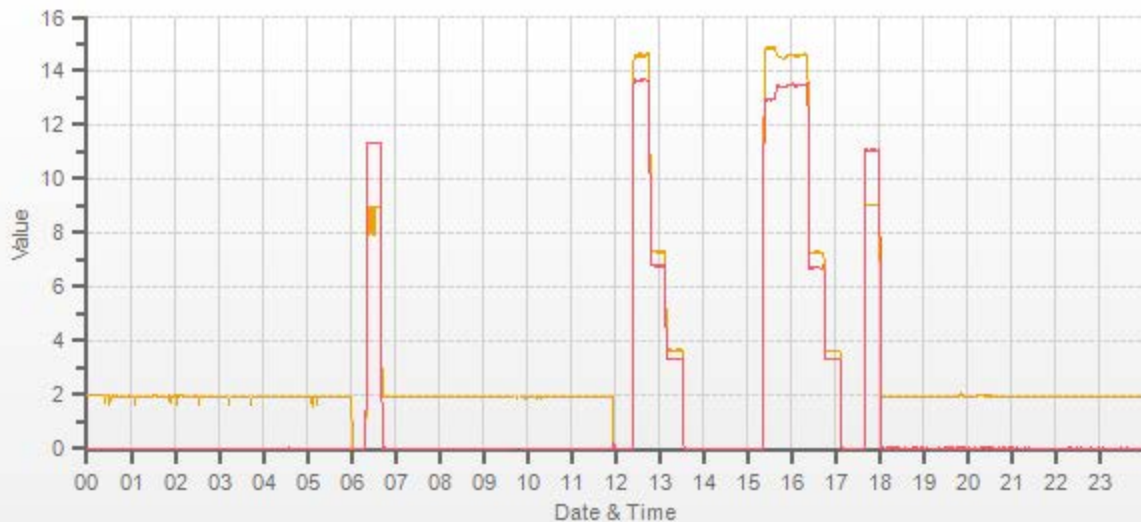
FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3100	<del>X</del>	3100	0.00	0.00	0.00	n/a	n/a	n/a	0.00	0.00	0.00	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>
3051	49.40	3100	14.57	13.45	28.02	n/a	n/a	n/a	14.59	13.48	28.08	n/a	n/a	n/a	0.998	0.998	0.998
3075	24.70	3100	7.28	6.73	14.01	n/a	n/a	n/a	7.29	6.73	14.00	n/a	n/a	n/a	0.999	1.000	1.001
3088	12.40	3100	3.66	3.38	7.03	n/a	n/a	n/a	3.62	3.34	6.96	n/a	n/a	n/a	1.010	1.011	1.010

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
CH <sub>4</sub>	1.000	1.003	-0.1%
NMHC	1.000	1.003	-0.1%
THC	1.000	1.003	-0.1%

## Comments:

<b>N2 pressure was increased (+2 psi), Zero Chromatogram was completed. New SPAN gas cylinder was connected.</b>	
<b>Use Zero Chrom?</b>	<b>Yes</b>



CAL-LICA-202108-01174



# Teledyne T640 Audit/Calibration

<b>Date/Previous Audit Date:</b>	August 20, 2021	July 30, 2021	<b>Weather Conditions:</b>	Mainly sunny
<b>Company:</b>	LICA		<b>Start Time (mst):</b>	8:33
<b>Station:</b>	Cold Lake South		<b>End Time (mst):</b>	12:08
<b>Parameter:</b>	PM 2.5	<b>Performed By/Reviewer:</b>	Alex Yakupov	Chris Wesson

<b>Instrument Data:</b>			
<b>Make/Model:</b>	Teledyne T640	<b>Serial Number:</b>	575
<b>Owner:</b>	LICA	<b>Alarms (detail in comments):</b>	Yes

<b>Reference Standards/I.D./Expiry Date:</b>			
<b>Flow Standard:</b>	DeltaCal DC1 S/N177246 / Jul 12, 2022	<b>Temperature:</b>	VAISALA HMP76B / SN: 170286131
<b>Digital Manometer:</b>	DeltaCal DC1 S/N177246 / Jul 12, 2022	<b>Pressure:</b>	FS FB61291 / SN: T1640130 / Feb 17, 2022

<b>DIAGNOSTICS:</b>					
Ambient Pressure (mmHg)	712.1	Ambient Temp (°C)	15.7	ASC Heater Duty (%)	0.0
Box Temp (°C)	28.0	Current PMT HV (V)	1439	LED Temp (°C)	37.89
P3 Value	48	PMT Setting (V)	1442	Pump PWM (%)	46
Sample Flow (L/min)	5.00	Sample RH (%RH)	34.0	Sample Temp (°C)	26.6

<b>Monthly Audit/Calibration:</b>					
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)	712.5	712.4	711.8	711.9	+/- 10 mm Hg
Ambient Temperature (°C)	15.90	15.7	n/a		+/- 2°C
Sample Flow (L/min)	5.05	5	5.04	5	+/-5% of T640x (e.g., 4.75 – 5.25 lpm)

<b>Additional Monthly Maintenance :</b>				<b>Completed</b>
			Inlet cleaned?	Yes
			Sample tubing inspected (inner and outer)?	Yes

<b>Quarterly Audit/Calibration:</b>					
SpanDust™ Standard	Peak at Channel		Lot No:		Expiry:
	10.9		100128-050-032		16-Dec-2022
Item:	Verification:		Calibration (if needed):		Tolerance
	Reference	T640x	Reference	T640x	
Peak Channel	10.9	10.7	10.9	10.9	± 0.5
PMT Setting (V)	n/a	1442	n/a	1444	n/a
Peak Channel Counts:	n/a	844	n/a	844	n/a

<b>Additional Checks and Maintenance:</b>				<b>Completed</b>
Every 6 Months	1. Clean Optical Chamber			Yes
	2. Clean RH Sensor			Yes
	3. Clean Temp Sensor			Yes
Every 12 months <small>(or if valve or pump PWM value approaches 80%)</small>	1. New internal Disposable Filter Unit (DFU) [inside front panel]			Yes

**Comments:**

Alarm: "Trigger: Span Dev Track value outside specified range"  
Annual maintenance completed.

# End of Report



**Lakeland Industry & Community Association**

**AUGUST 2021**

**Ambient Air Monitoring Calibration Report**

**- TAMARACK STATION-**

**(Formerly Maskwa Station)**

**CAL-LICA-202108-01248**

**Station Operation and Maintenance:**

Bureau Veritas Canada

**Data Validation and Report:**

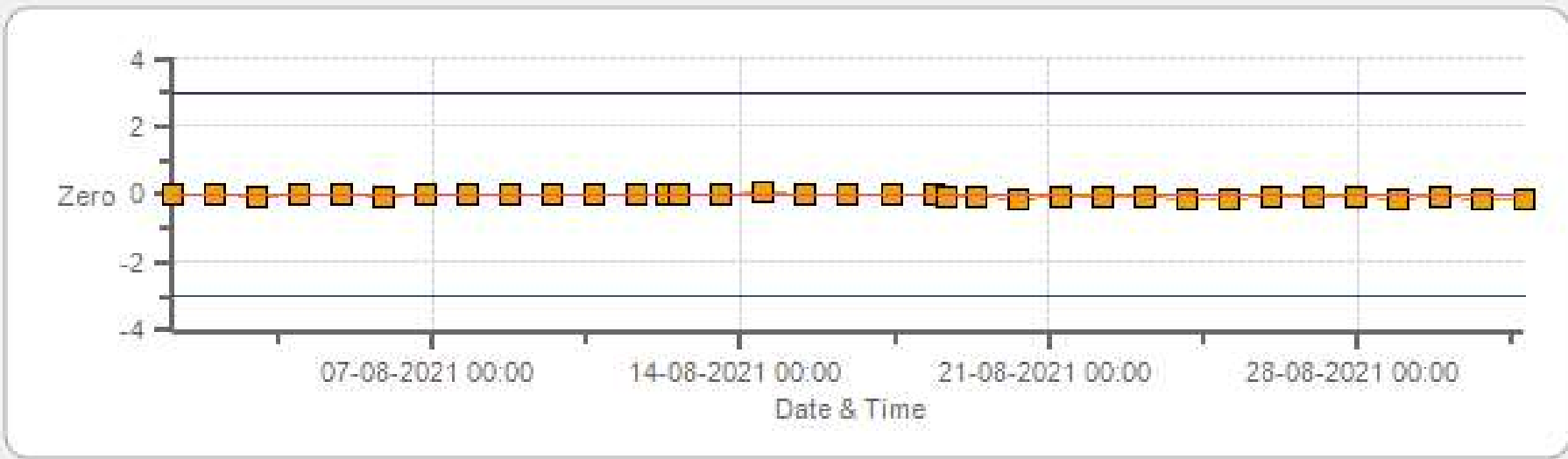
LICA / Bureau Veritas Canada

September 17, 2021



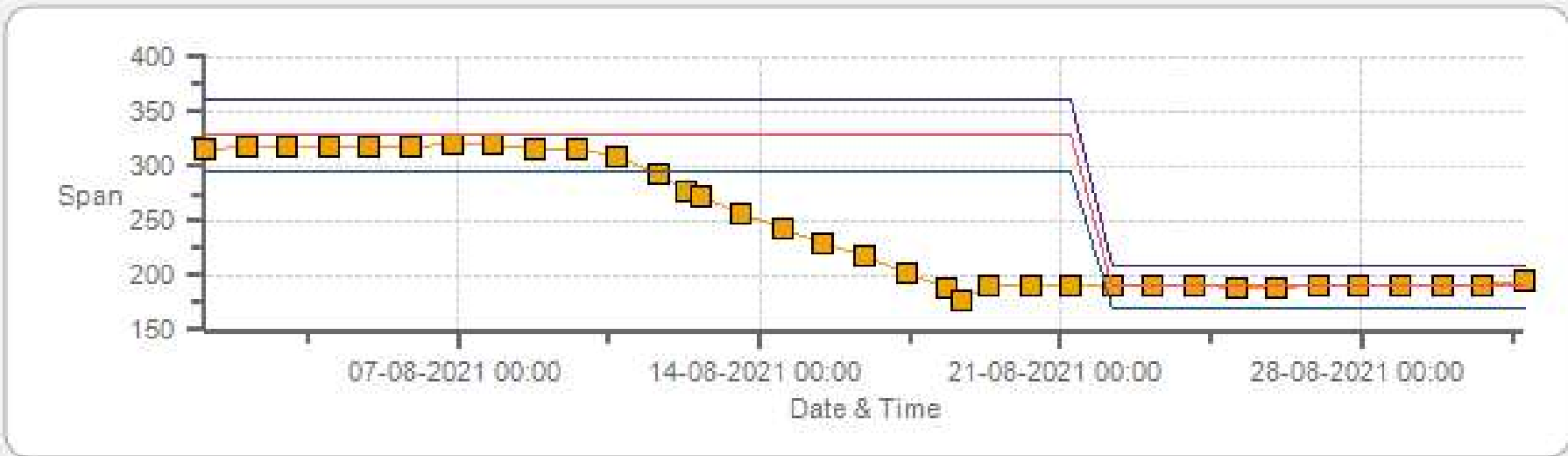
# DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Tamarack Monthly: 08-2021 Type: SpanAndZero - Zero



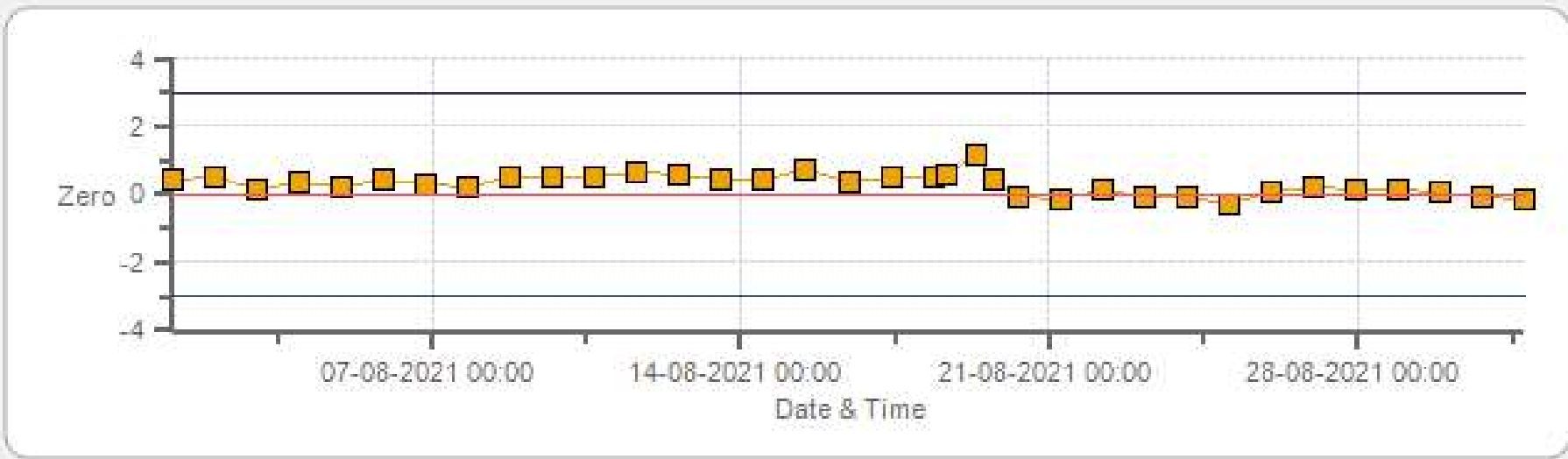
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: Tamarack Monthly: 08-2021 Type: SpanAndZero - Span



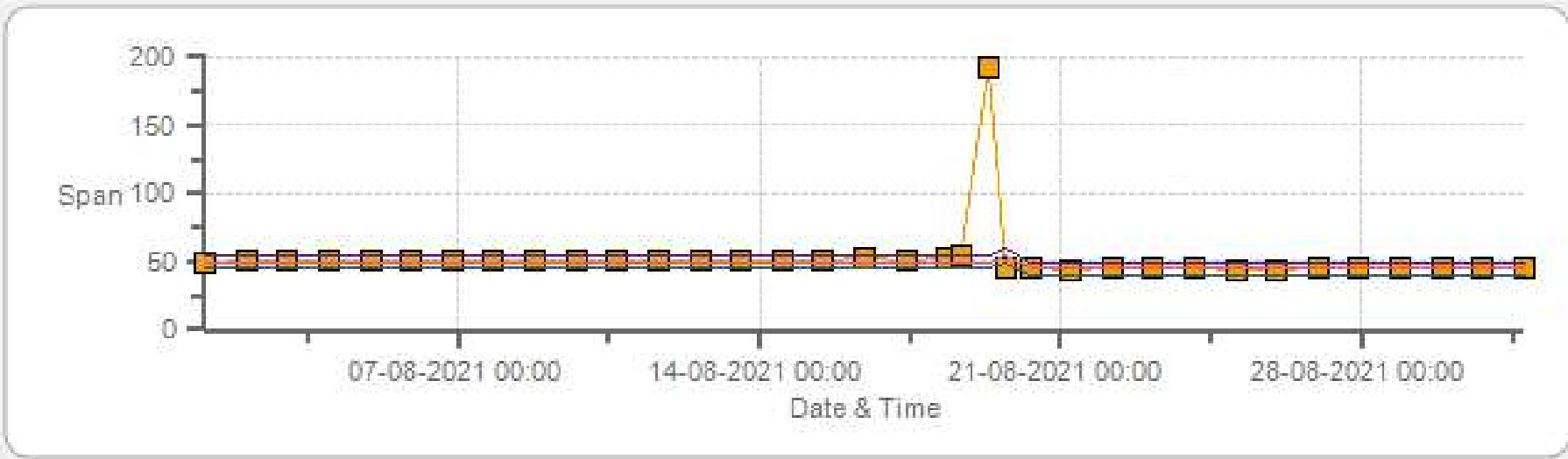
Span SpanRef Span Low Span High

H2S[ppb] Calibration: Tamarack Monthly: 08-2021 Type: SpanAndZero - Zero



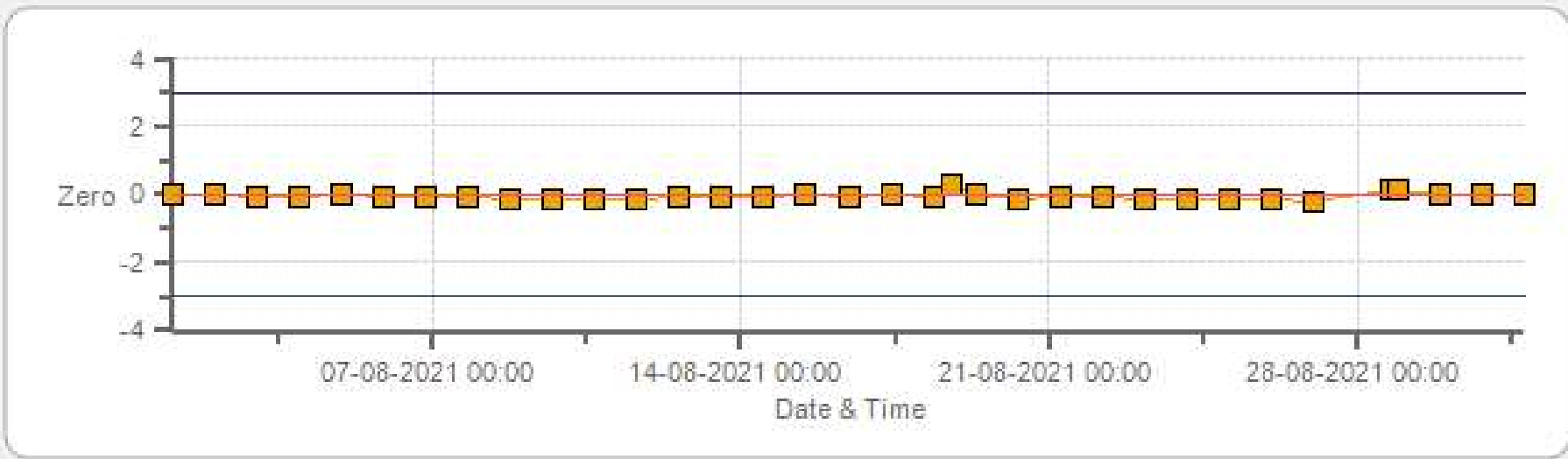
Zero Zero Ref Zero Low Zero High

H2S[ppb] Calibration: Tamarack Monthly: 08-2021 Type: SpanAndZero - Span



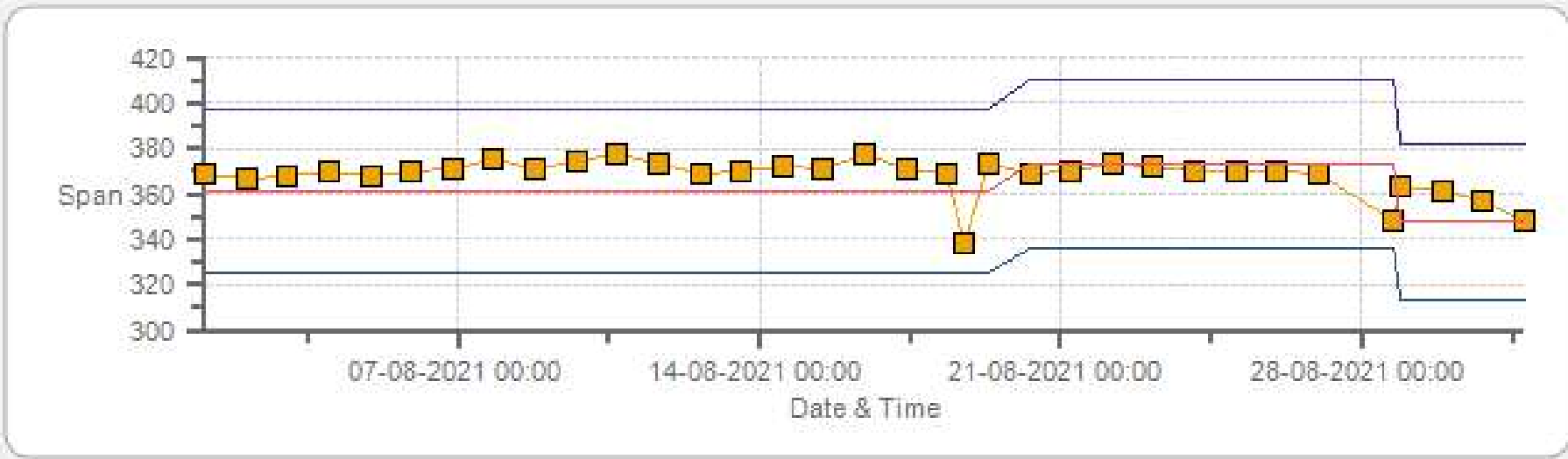
Span SpanRef Span Low Span High

NOX[ppb] Calibration: Tamarack Monthly: 08-2021 Type: SpanAndZero - Zero



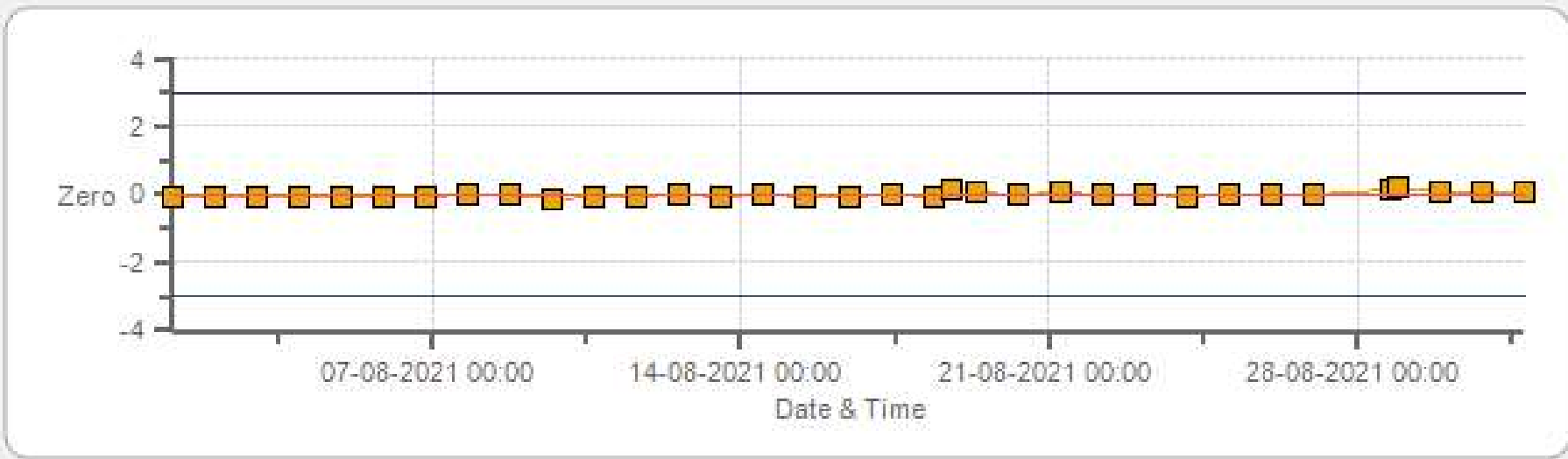
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: Tamarack Monthly: 08-2021 Type: SpanAndZero - Span



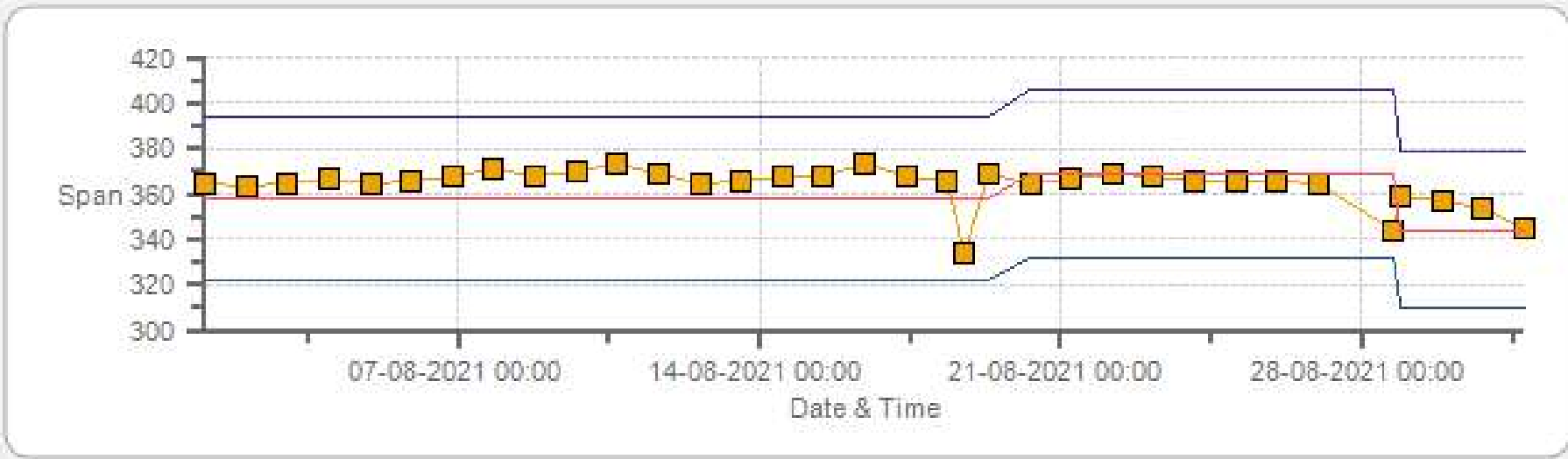
Span SpanRef Span Low Span High

NO2[ppb] Calibration: Tamarack Monthly: 08-2021 Type: SpanAndZero - Zero



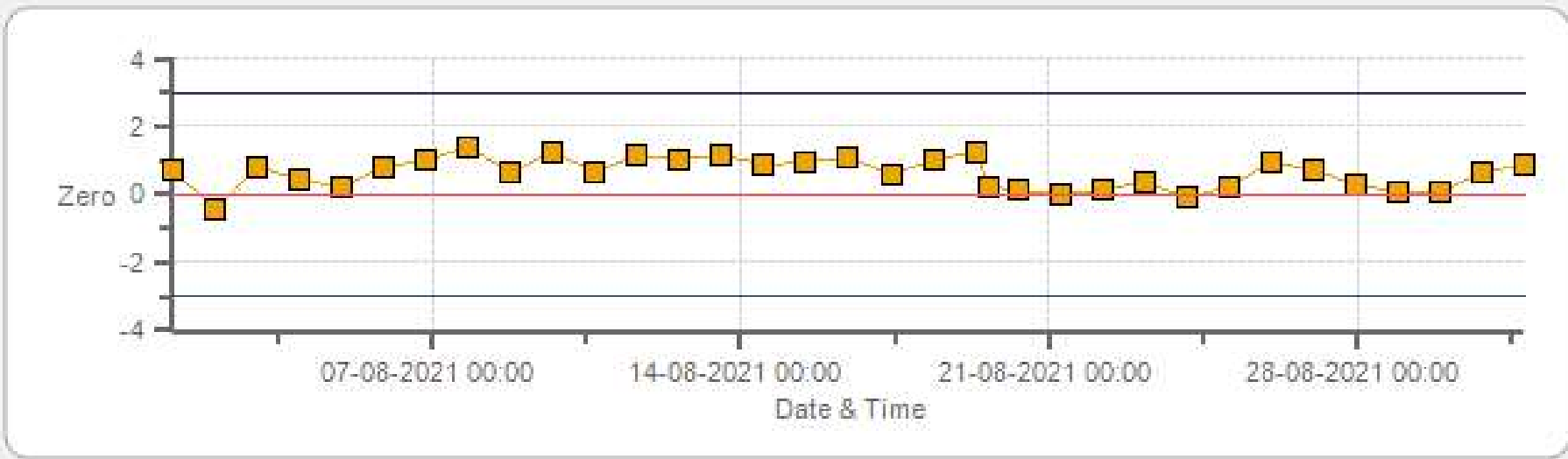
Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: Tamarack Monthly: 08-2021 Type: SpanAndZero - Span



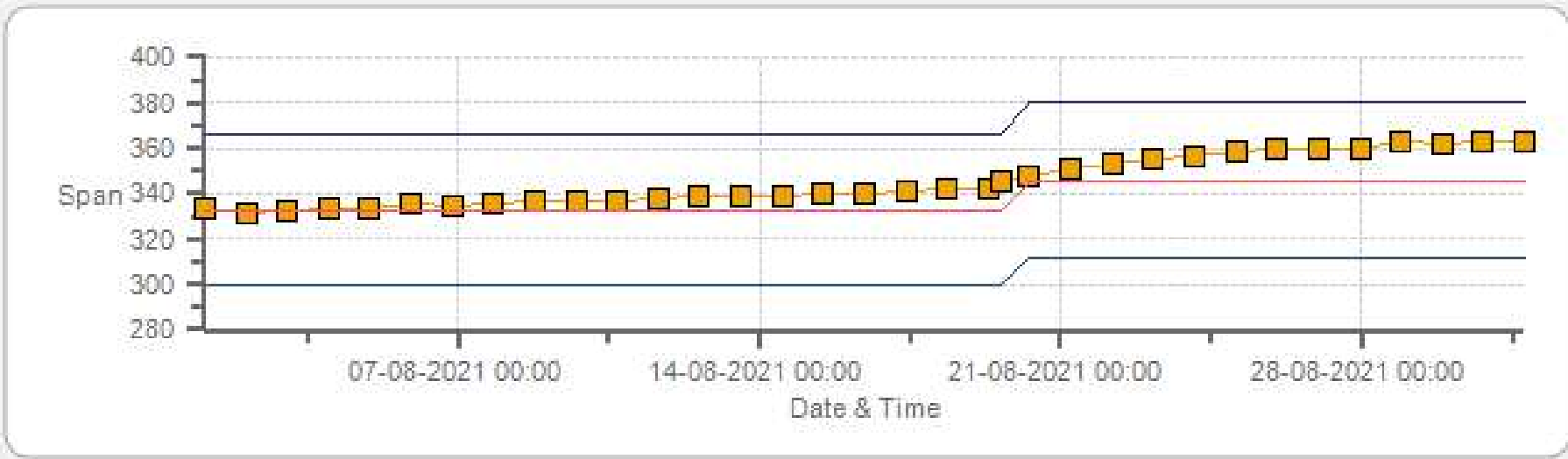
Span SpanRef Span Low Span High

O3[ppb] Calibration: Tamarack Monthly: 08-2021 Type: SpanAndZero - Zero



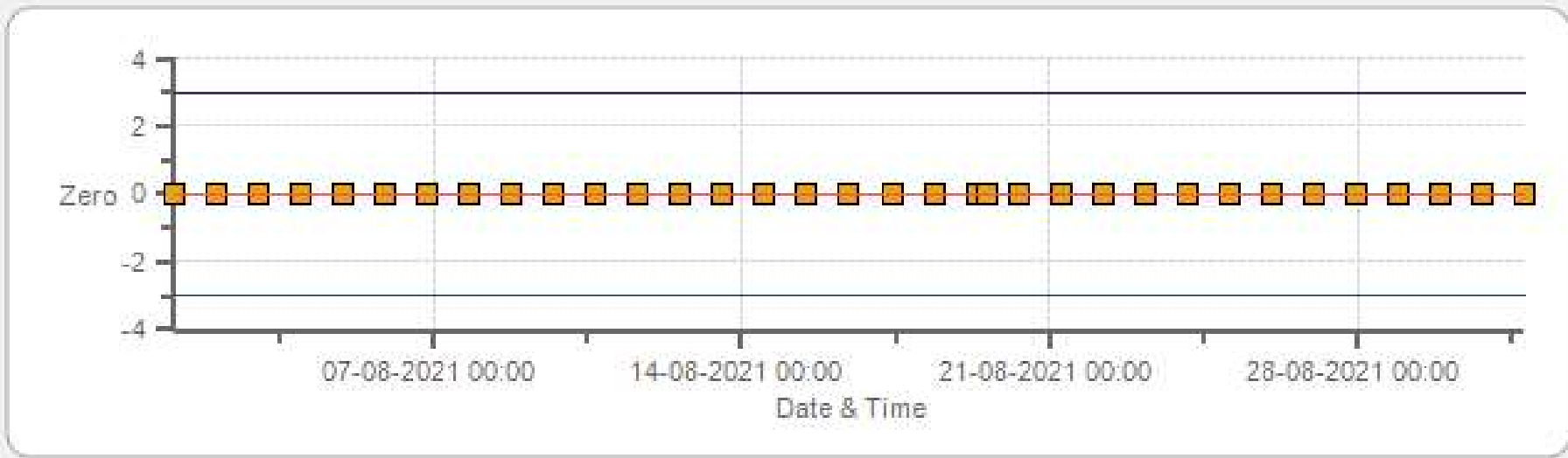
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: Tamarack Monthly: 08-2021 Type: SpanAndZero - Span



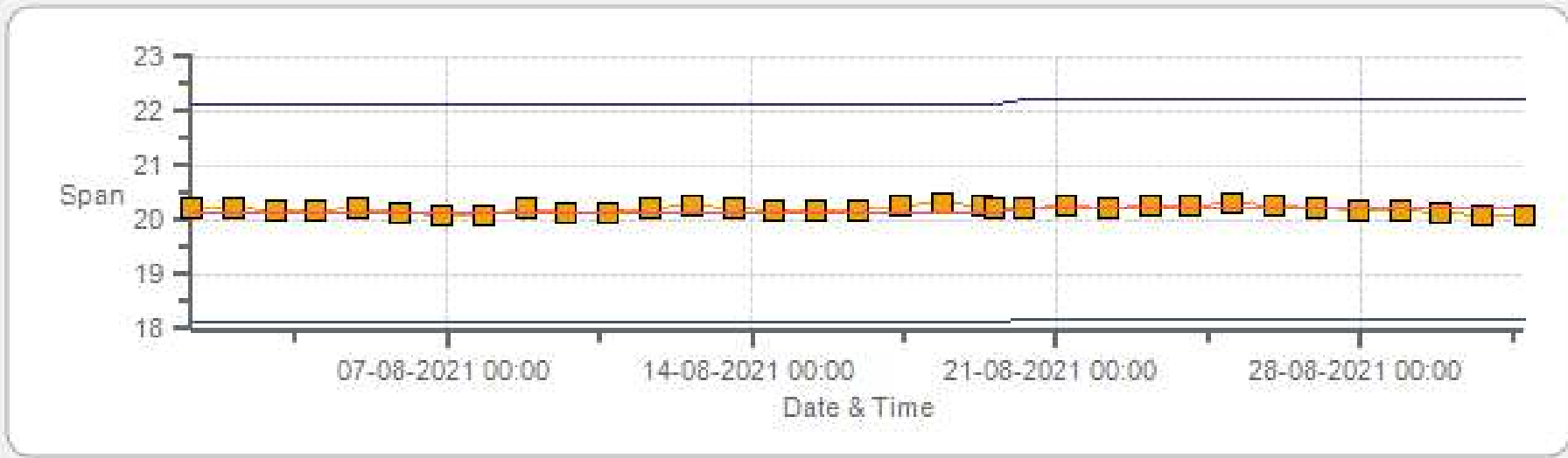
Span SpanRef Span Low Span High

THC55[ppm] Calibration: Tamarack Monthly: 08-2021 Type: SpanAndZero - Zero



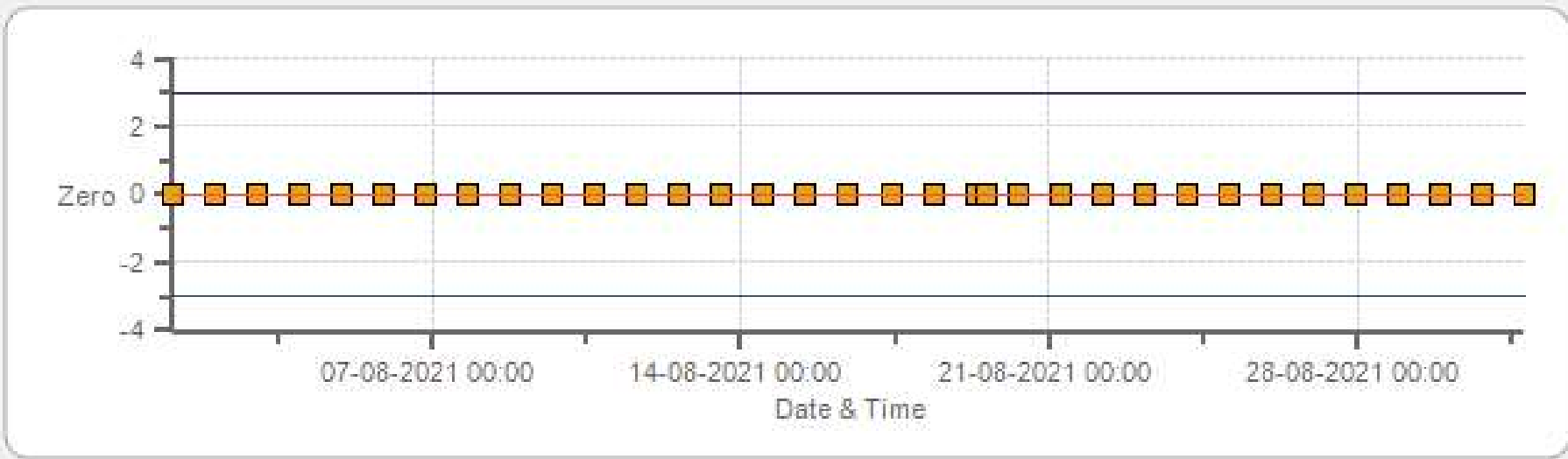
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: Tamarack Monthly: 08-2021 Type: SpanAndZero - Span



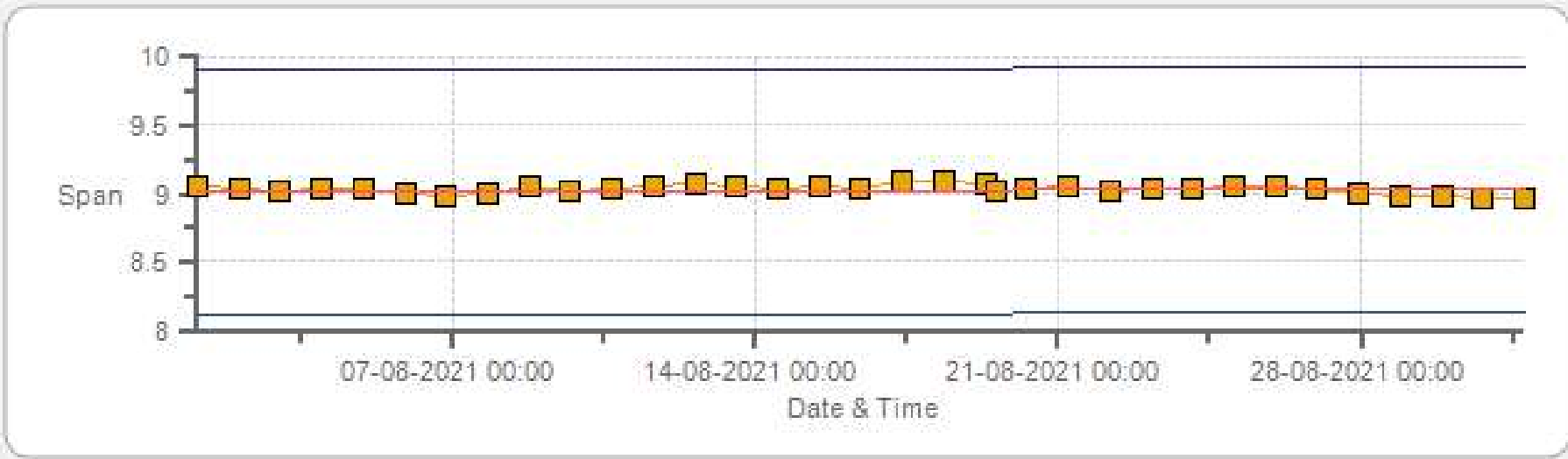
Span Span Ref Span Low Span High

CH4[ppm] Calibration: Tamarack Monthly: 08-2021 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

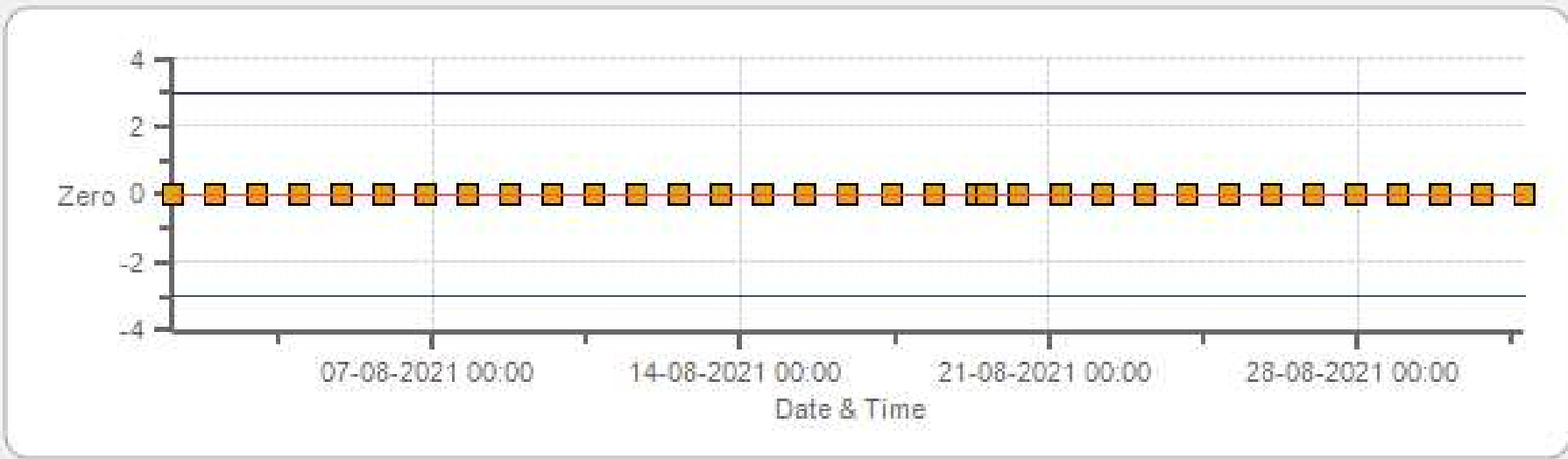
CH4[ppm] Calibration: Tamarack Monthly: 08-2021 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

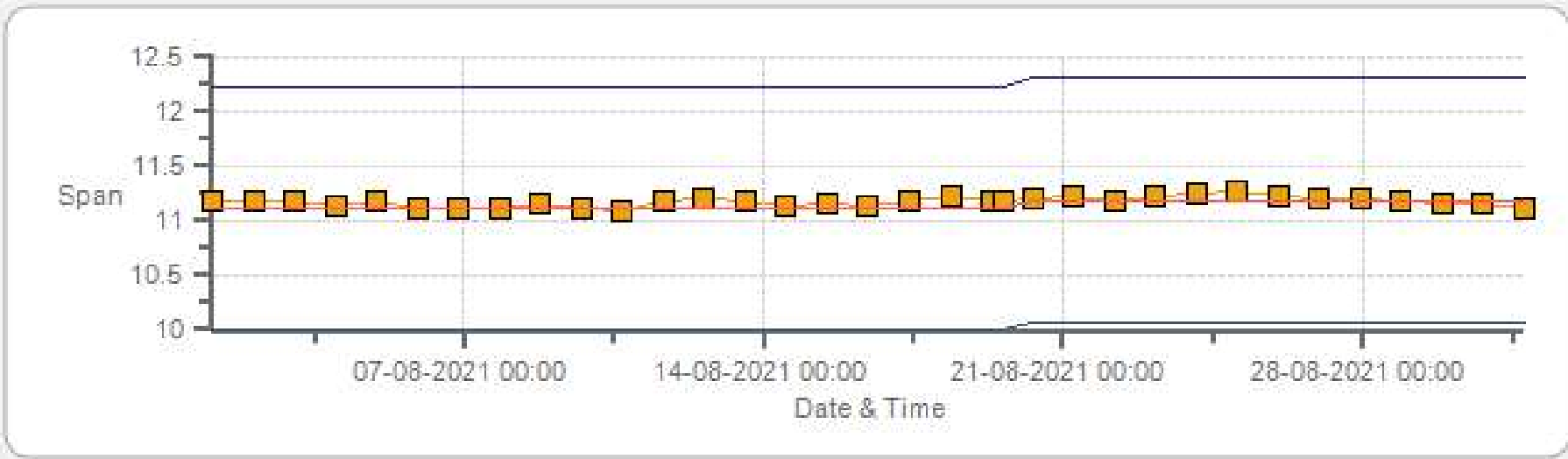


NMHC[ppm] Calibration: Tamarack Monthly: 08-2021 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: Tamarack Monthly: 08-2021 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

# MULTI-POINT CALIBRATION RECORDS

# SO2 Analyzer Calibration by Dilution



DATE:	13-Aug-2021	PREVIOUS CALIBRATION DATE:	23-Jul-2021
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	941
PURPOSE:	As-Found	START TIME (MST):	10:01
PERFORMED BY:	Alex Yakupov	END TIME (MST):	11:04

## ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180930031	FLOW (mL/min)	454
INITIAL		FINAL	
BKG/OFFSET	2.39	BKG/OFFSET	2.39
COEF/SLOPE	0.946	COEF/SLOPE	0.946
Expected (reference) Value	328.8	Expected (reference) Value	328.8

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	26801218	ID:	132
MFC CALIBRATION DATE:	09-Apr-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):	1700	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		
4000	<del>29.90</del>	4000	0.00	0	n/a	<del>1.014</del>	<del>n/a</del>
3970	29.90	4000	379.73	374.5	n/a	1.014	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

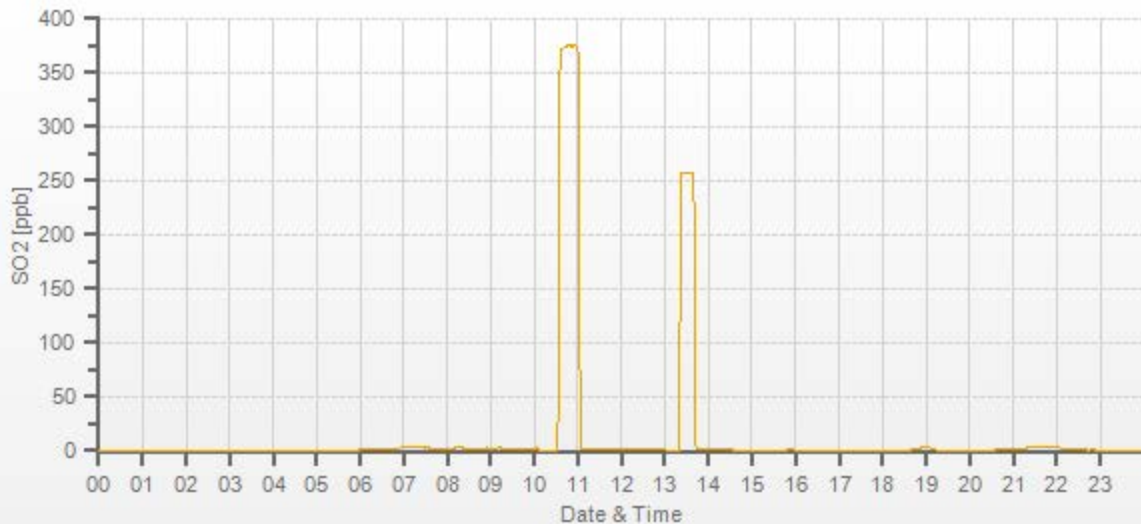
## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	n/a	n/a	n/a

## COMMENTS:

As-Found calibration was completed to check the span response. Reason: span drifted over 10%.

SO2[ppb] Station: Tamarack Daily: 13-08-2021 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202108-01248

# SO2 Analyzer Calibration by Dilution



DATE:	18-Aug-2021	PREVIOUS CALIBRATION DATE:	23-Jul-2021
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	942
PURPOSE:	Routine	START TIME (MST):	11:31
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:10

## ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180930031	FLOW (mL/min)	453
INITIAL		FINAL	
BKG/OFFSET	2.39	BKG/OFFSET	2.51
COEF/SLOPE	0.946	COEF/SLOPE	0.95
Expected (reference) Value	328.8	Expected (reference) Value	328.8

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	26801218	ID:	132
MFC CALIBRATION DATE:	09-Apr-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):	1700	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:

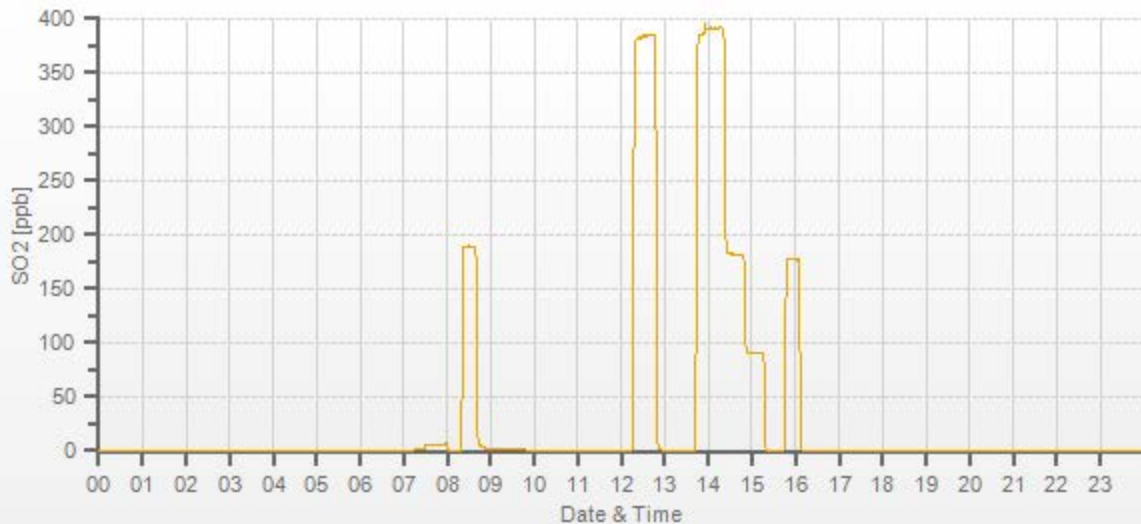
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	<del>38.50</del>	5000	0.00	0	0	<del>1.014</del>	<del>0.999</del>
4962	38.50	5000	391.16	385.9	391.7	1.014	0.999
4982	18.00	5000	182.88	n/a	181.8	n/a	1.006
4991	9.00	5000	91.44	n/a	90.6	n/a	1.009

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	-0.1%

## COMMENTS:

Sample inlet filter was changed.  
New perm tube installed - EV will be updated once stable.



# H2S Analyzer Calibration by Dilution



DATE:	18-Aug-2021	PREVIOUS CALIBRATION DATE:	23-Jul-2021
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	0.997
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	942
PURPOSE:	Routine	START TIME (MST):	11:30
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:10

## ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 17360005	FLOW (mL/min)	790
INITIAL		FINAL	
BKG/OFFSET	27.9	BKG/OFFSET	27.8
COEF/SLOPE	0.804	COEF/SLOPE	0.802
Expected (reference) Value	49.5	Expected (reference) Value	54.6

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	09-Apr-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 19174	HIGH ID	n/a
CONC (ppm):	10.00	EXPIRY DATE	n/a
CYLINDER (psi):	300	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:	11:34	SO2 Conc (ppb)	380
END TIME:	11:49	Analyzer Response (ppb)	0.0

## CALIBRATION:

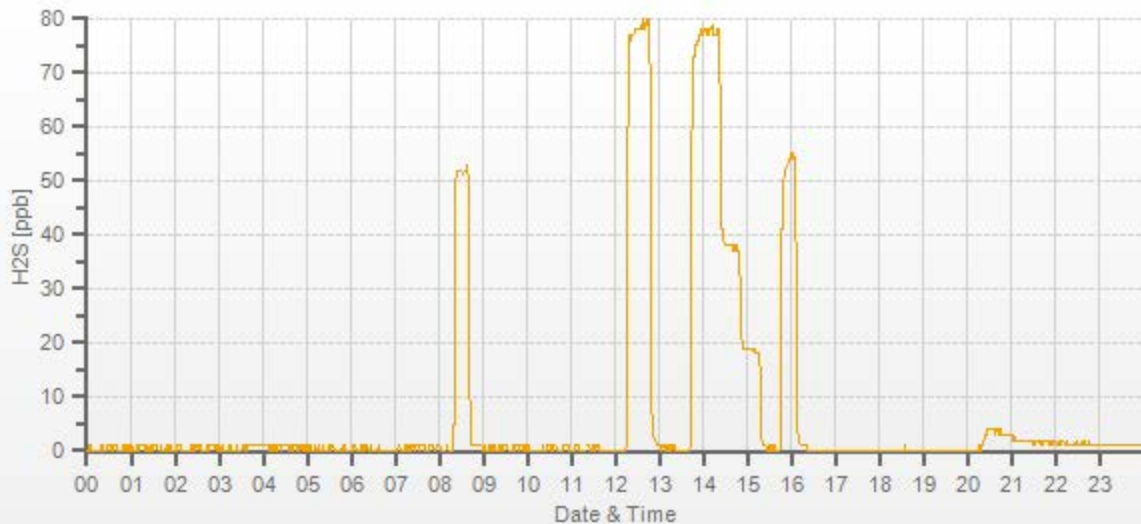
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	<del>7500</del>	7500	0.00	0.6	0	<del>0.997</del>	<del>1.004</del>
7442	58.50	7500	78.00	79.6	77.7	0.987	1.004
7472	28.50	7500	38.00	n/a	37.9	n/a	1.003
7486	14.20	7500	18.93	n/a	18.8	n/a	1.007

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.996	0.0%

## COMMENTS:

Sample inlet filter was changed.





# H2S Analyzer Calibration by Dilution



DATE:	19-Aug-2021	PREVIOUS CALIBRATION DATE:	18-Aug-2021
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	1.004
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	942
PURPOSE:	Install/Post-Repair	START TIME (MST):	14:24
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:30

## ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 17360005	FLOW (mL/min)	941
INITIAL		FINAL	
BKG/OFFSET	27.8	BKG/OFFSET	27.6
COEF/SLOPE	0.802	COEF/SLOPE	0.768
Expected (reference) Value	n/a	Expected (reference) Value	44.8

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	09-Apr-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 19174	HIGH ID	n/a
CONC (ppm):	10.00	EXPIRY DATE	n/a
CYLINDER (psi):	300	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:

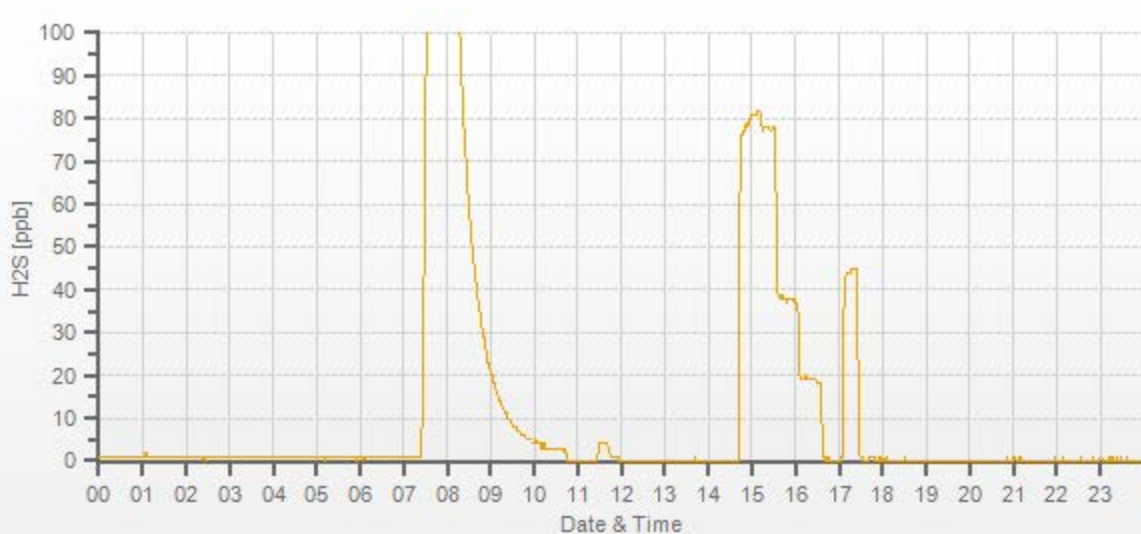
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	<del>7500</del>	7500	0.00	n/a	0	<del>n/a</del>	<del>n/a</del>
7442	58.50	7500	78.00	n/a	78	n/a	1.000
7472	28.50	7500	38.00	n/a	37.8	n/a	1.005
7486	14.20	7500	18.93	n/a	18.8	n/a	1.007

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	-0.1%

## COMMENTS:

Sample pump failed. It was repaired and a post-repair calibration was completed. 10:43 - the channel was flagged "M" for repair. (The flow was Zero, no shutdown calibration was possible)



# NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	18-Aug-2021	PREVIOUS CALIBRATION DATE:	23-Jul-2021	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930028	NOx	0.999
LOCATION:	Tamarack	BAROMETRIC (mBar):	942	FLOW (mL/min)	472	NO	1.002
PURPOSE:	Routine	START TIME (MST):	11:32	RANGE (ppb)	500	NO2	1.002
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:12	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):	1700	LOW ID:	n/a
MFC CALIBRATION DATE:	09-Apr-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:	3.1	2.9	n/a	BKG/OFFSET:	3.2	3.1	n/a
SLOPE/COEF/CE:	1.005	1.04	1	SLOPE/COEF/CE:	1.001	1.051	1

EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	361.4	3.8	357.6		373.0	4.1	369.0

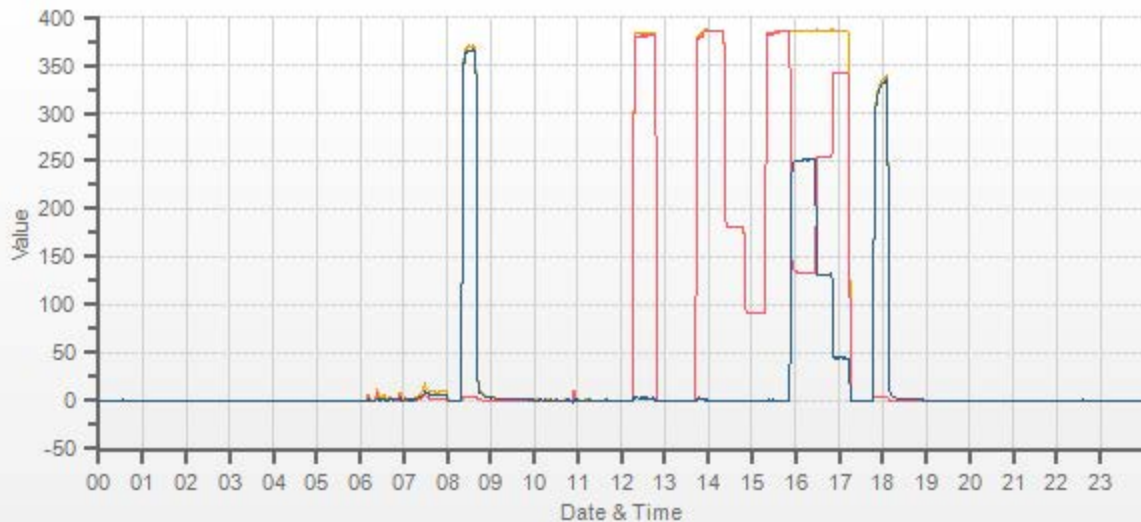
CALIBRATION PARAMETERS:				
POINT	NO TARGET (PPB)	NO2 TARGET (PPB)	NO2 RANGE	O3 POINT
HIGH	380	250	230-265	n/a
MID	180	125	115-150	n/a
LOW	90	45	40-55	n/a
EXTRA 1	n/a	n/a	n/a	n/a

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	<del>38.50</del>	5000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<del>1.011</del>	<del>1.005</del>	<del>n/a</del>	<del>1.000</del>	<del>1.000</del>	<del>n/a</del>
4962	38.50	5000	385.0	385.8	0.8	380.7	383.9	3.2	385.1	385.6	-0.1	1.011	1.005	n/a	1.000	1.000	n/a
4982	18.00	5000	180.0	180.4	0.4	n/a	n/a	n/a	181.3	181.4	0.2	n/a	n/a	n/a	0.993	0.994	n/a
4991	9.00	5000	90.0	90.2	0.2	n/a	n/a	n/a	91.1	91.4	0.3	n/a	n/a	n/a	0.988	0.987	n/a

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	385.4	385.6	0.2	<del>n/a</del>	<del>n/a</del>	<del>n/a</del>	<del>n/a</del>
AS-FOUND HIGH	38.50	5000	240	133.5	385.3	251.8	251.9	251.6	1.001	99.88%
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	254.4	386.2	131.8	131	131.6	0.995	100.46%
LOW	38.50	5000	45	341.4	385.9	44.6	44	44.4	0.991	100.91%
NO2 adjustment not required.									AVERAGE:	100.42%

LINEAR REGRESSION ANALYSIS:				COMMENTS: Sample inlet filter was changed.
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	1.000	0.14%	
NOx	1.000	0.999	0.15%	
NO2	1.000	0.996	0.15%	

Station: Tamarack Daily: 18-08-2021 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202108-01248

NOX [ppb] NO [ppb] NO2 [ppb]

# NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	28-Aug-2021	PREVIOUS CALIBRATION DATE:	n/a	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930028	NOx	n/a
LOCATION:	Tamarack	BAROMETRIC (mBar):	937	FLOW (mL/min)	922	NO	n/a
PURPOSE:	Install/Post-Repair	START TIME (MST):	10:40	RANGE (ppb)	500	NO2	n/a
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:45	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):	1700	LOW ID:	n/a
MFC CALIBRATION DATE:	09-Apr-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:	n/a	n/a	n/a	BKG/OFFSET:	1.5	1.5	n/a
SLOPE/COEF/CE:	n/a	n/a	n/a	SLOPE/COEF/CE:	1.001	0.513	1.008

EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	n/a	n/a	n/a		347.6	3.7	343.9

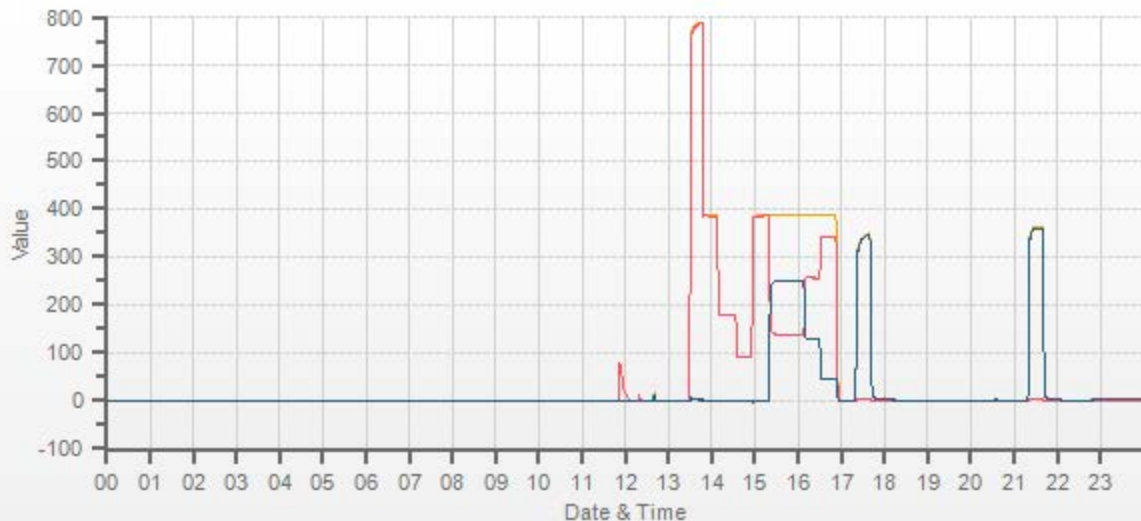
CALIBRATION PARAMETERS:				
POINT	NO TARGET (PPB)	NO2 TARGET (PPB)	NO2 RANGE	O3 POINT
HIGH	380	250	230-265	n/a
MID	180	125	115-150	n/a
LOW	90	45	40-55	n/a
EXTRA 1	n/a	n/a	n/a	n/a

FLOW RATE			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000	<del>38.50</del>	5000	0.0	0.0	0.0	n/a	n/a	n/a	0.0	0.0	0.0	<del>n/a</del>	<del>n/a</del>	<del>n/a</del>	<del>n/a</del>	<del>n/a</del>	<del>n/a</del>
4962	38.50	5000	385.0	385.8	0.8	n/a	n/a	n/a	384.8	385.9	1.1	n/a	n/a	<del>n/a</del>	1.001	1.000	<del>n/a</del>
4982	18.00	5000	180.0	180.4	0.4	n/a	n/a	n/a	180.8	181.3	0.5	n/a	n/a	<del>n/a</del>	0.996	0.995	<del>n/a</del>
4991	9.00	5000	90.0	90.2	0.2	n/a	n/a	n/a	90.7	90.9	0.2	n/a	n/a	<del>n/a</del>	0.992	0.992	<del>n/a</del>

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	385.7	386.7	1.0	<del>n/a</del>	<del>n/a</del>	<del>n/a</del>	<del>n/a</del>
AS-FOUND HIGH	38.50	5000	240	136.9	388.0	251.1	248.8	250.1	0.995	100.52%
ADJUSTED HIGH	38.50	5000	240	136.2	386.3	250.1	249.5	249.1	1.002	99.84%
MID	38.50	5000	125	256.5	387.0	130.5	129.2	129.5	0.998	100.23%
LOW	38.50	5000	45	343.3	388.7	45.4	42.4	44.4	0.955	104.72%
NO2 adjustment not required.									AVERAGE:	101.82%

LINEAR REGRESSION ANALYSIS:				COMMENTS:
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	0.999	0.10%	
NOx	1.000	1.000	0.09%	
NO2	1.000	0.997	0.31%	

Post-repair calibration was completed after a new pump Thomas 617CA32 was installed. Reason: sample pump failed. Flow was zero. No shutdown calibration was possible.



CAL-LICA-202108-01248

# Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	19-Aug-2021	PREVIOUS CALIBRATION DATE:	23-Jul-2021
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.001
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	938
PURPOSE:	Routine	START TIME (MST):	10:14
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:01

## ANALYZER:

MAKE/MODEL	API 400A	RANGE	500 ppb
SERIAL #	445	FLOW (mL/min)	820
INITIAL		FINAL	
BKG/OFFSET	-2.3	BKG/OFFSET	-1.9
COEF/SLOPE	0.983	COEF/SLOPE	1.026
Expected (reference) Value	332.4	Expected (reference) Value	345.9

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	09-Apr-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:

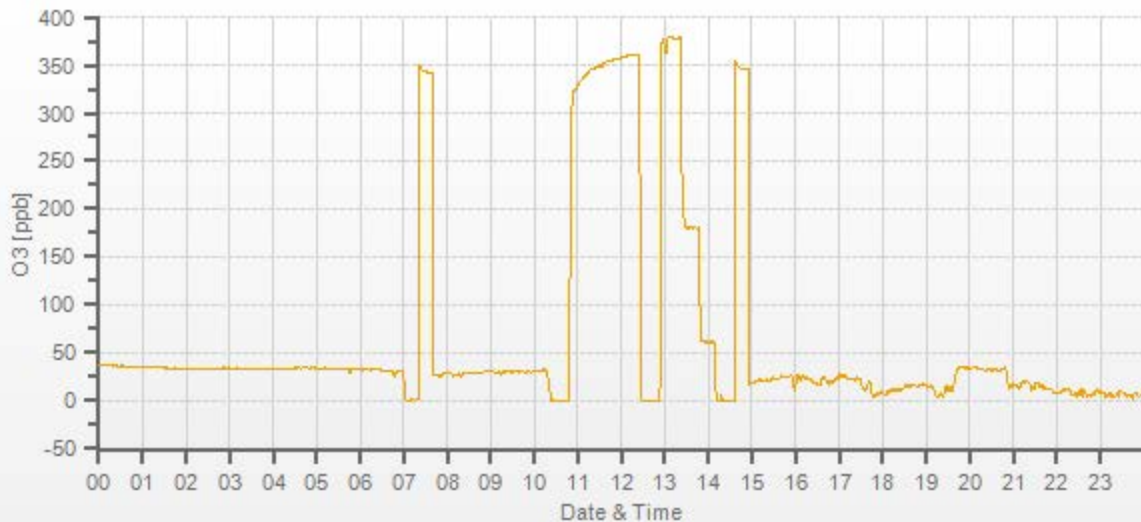
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	<del>XXXX</del>	5000	0.0	0.7	0.0	<del>XXXX</del>	<del>XXXX</del>
5000	<del>XXXX</del>	5000	378.0	360.9	377.9	1.049	1.000
5000	<del>XXXX</del>	5000	180.0	n/a	180.4	n/a	0.998
5000	<del>XXXX</del>	5000	61.0	n/a	60.5	n/a	1.008

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.0%

## COMMENTS:

Sample inlet filter was changed.





# Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	24-Aug-2021	PREVIOUS CALIBRATION DATE:	19-Aug-2021
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	942
PURPOSE:	As-Found	START TIME (MST):	10:14
PERFORMED BY:	Alex Yakupov	END TIME (MST):	11:40

## ANALYZER:

MAKE/MODEL	API 400A	RANGE	500 ppb
SERIAL #	445	FLOW (mL/min)	822
INITIAL		FINAL	
BKG/OFFSET	-1.9	BKG/OFFSET	-1.9
COEF/SLOPE	1.026	COEF/SLOPE	1.026
Expected (reference) Value	345.9	Expected (reference) Value	345.9

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	09-Apr-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:

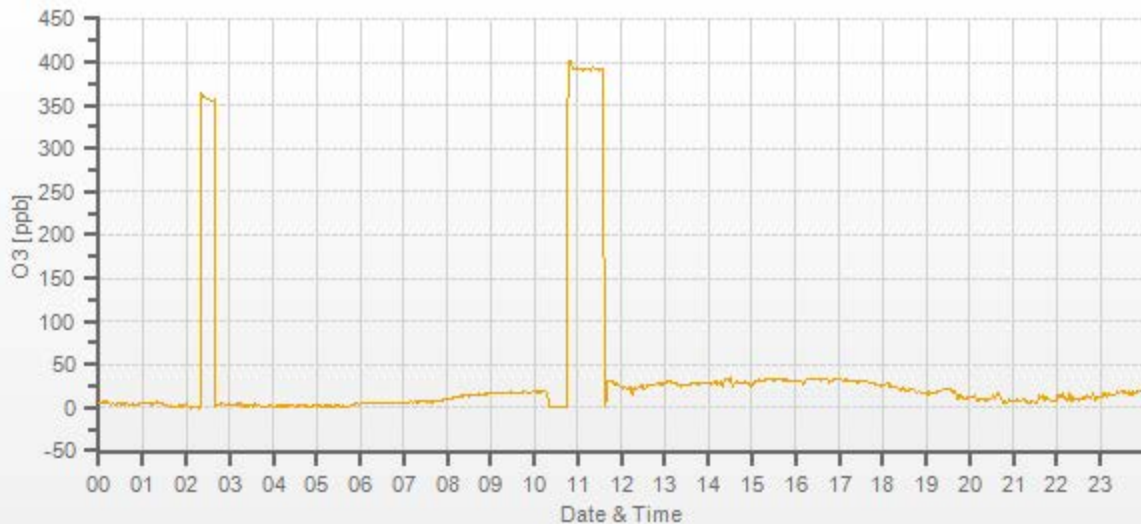
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	<del>5000</del>	5000	0.0	-0.1	n/a	<del>0.971</del>	<del>n/a</del>
5000	<del>5000</del>	5000	380.0	391.1	n/a	0.971	n/a
5000	<del>5000</del>	5000	n/a	n/a	n/a	n/a	n/a
5000	<del>5000</del>	5000	n/a	n/a	n/a	n/a	n/a

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	n/a	n/a	n/a

## COMMENTS:

As-Found was completed to verify analyzer performance following slow response during monthly calibration.



# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	19-Aug-2021	PREVIOUS CALIBRATION DATE:	22-Jul-2021	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1314057759	1015
LOCATION:	Tamarach	BAROMETRIC (mBar):	938	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	10:15	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:13	PREVIOUS CF:	1.000	1.002	1.001

## 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 <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	914.0   307.0	HIGH EXPIRY:	n/a
ID:	26801218	ID:	132	CYLINDER (psi):	1000	LOW ID:	n/a
MFC CALIBRATION DATE:	09-Apr-2021	OXIDIZER ID:	115	EXPIRY DATE	21-Jan-2028	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

POINT (CH <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE	
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>	844.3
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>	1758.3

## EXPECTED (REFERENCE) VALUE:

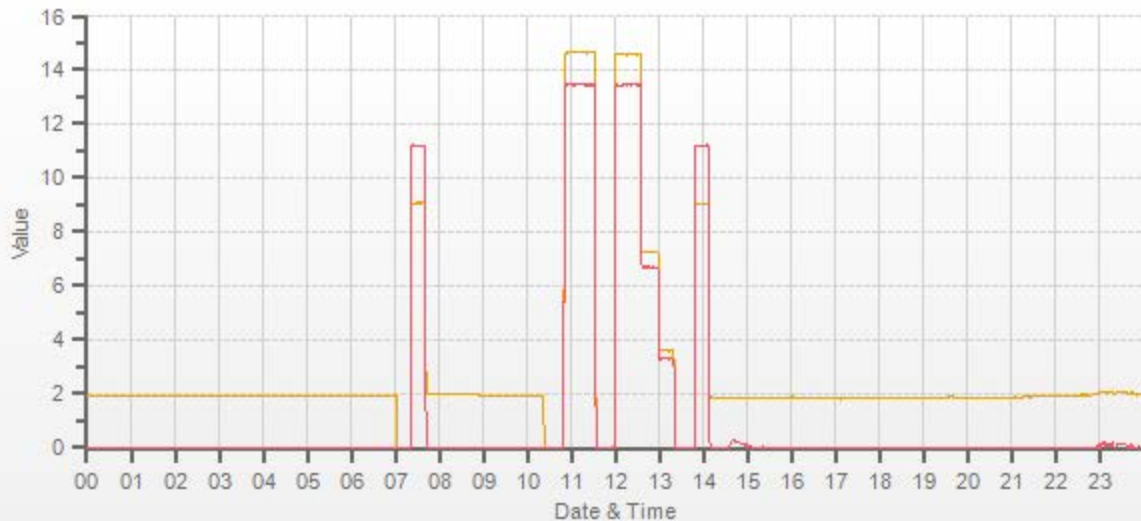
INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	9.01	11.12	20.13		9.03	11.19	20.22

## CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3100	<del>X</del>	3100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>
3051	49.40	3100	14.57	13.45	28.02	14.64	13.46	28.09	14.57	13.47	28.04	0.995	1.000	0.997	1.000	0.999	0.999
3075	24.70	3100	7.28	6.73	14.01	n/a	n/a	n/a	7.26	6.70	13.96	n/a	n/a	n/a	1.003	1.004	1.004
3088	12.40	3100	3.66	3.38	7.03	n/a	n/a	n/a	3.60	3.32	6.91	n/a	n/a	n/a	1.016	1.017	1.018

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments:	
CH <sub>4</sub>	1.000	1.001	-0.1%	Sample inlet filter was changed.	
NMHC	1.000	1.002	-0.2%		
THC	1.000	1.002	-0.2%		
				Use Zero Chrom?	Yes





# Thermo 5030 SHARP Monitor Calibration

Date:	August 24, 2021	Performed By/Reviewer:	Alex Yakupov	Chris Wesson
Company:	LICA	Start Time (mst):	11:59	
Station Name/Location:	Tamarack	End Time (mst):	14:25	
Previous Audit Date:	July 27, 2021	Calibration Purpose:	quarterly	
Parameter:	PM 2.5	Weather Conditions:	Mix of sun and clouds	

**SHARP Information and Status:**

Serial Number/Owner:	CM - 2209	LICA	Status Code	0
Approx. % Tape Reaming	2/10	Error Code	0	

**Reference Standards/I.D./Cert. Date:**

High Flow:	DeltaCal / DC-1 / s/n 177246 / July 12, 2021
Digital Manometer:	DeltaCal / DC-1 / s/n 177246 / July 12, 2021
Temperature:	VAISALA / HMP76B / T1640130 / April 22, 2021
Pressure:	FS / FB61291 / s/n 130168457 / Feb 17, 2021

**As Found Temperatures, Pressure, Humidity:**

	T1 (°C)	T2 (°C)	T3 (°C)	T4 (°C)	P3 (hPa)	RH (%)
SHARP:	15	23	23	24	944	26
Reference:	16.0	22.0	23.0	23.0	944.0	27.0
Difference:	1.0	1.0	0.0	1.0	0.0	1.0

Temp Limit: ± 4 °C  
Pressure Limit: ± 13.33 hPa  
RH Limit: ± 2%

**As Left Temperature and Pressure (same as above if as found adequate):**

	T1 (°C)	T2 (°C)	T3 (°C)	T4 (°C)	P3 (hPa)	RH (%)
SHARP:	16	23	23	24	944	26
Reference:	16.0	22.0	23.0	23.0	944.0	27.0
Difference:	0.0	1.0	0.0	1.0	0.0	3.7%

Temp Limit: ± 4 °C  
Pressure Limit: ± 13.33 hPa  
RH Limit: ± 2%

**Mass Foil Calibration:**

Mass Foil ID:	9015	QLF:	17	OLD:	6981
Spanfoil Value (µg):	1294	CONFID:	9	NEW:	6976

**Nephelometer Zero:**

	As Found	As Left
Analog	163.00	163.00
NEPH	0.10	0.10
C14	3.80	3.80
Conc	0.00	0.00

**Flow rate:**

	As Found	As Left
SHARP AirFlow l/hr	1000	1000
Reference AirFlow (l/min)	16.79	16.67
Reference AirFlow (l/hr)	1007	1000
% Difference:	-0.7%	0.0%

$%D = 100 \times \frac{Q_m - Q_i}{Q_i}$   
Tolerance +/- 5%

**Inlet Assembly:**

	Yes/No?	If no, explain:
PM10 Inlet Cleaned	yes	
PM2.5 Cyclone Cleaned	yes	

**Pump Assembly:**

	Yes/No?	If no, explain:
Pump Inspected / Cleaned	yes	
Pump Vanes Replaced	no	Not required

**Comments:**

Leak check: 16.65 vs 16.55, 0.10 < 0.80 lpm, passed.

# Meteorological System Checklist



Date:	August 24, 2021		
Technician:	Alex Yakupov		
Station:	Tamarack		
<b>Unit:</b>	<b>Make:</b>	<b>Model:</b>	<b>Serial #:</b>
Temperature Sensor:	Rotronic	HC2A-S3	61116376
Relative Humidity Sensor:	Rotronic	HC2A-S3	61116376
<b>AMBIENT TEMPERATURE SENSOR CHECK</b>			
Previous check date:	April 13, 2021		
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	VAISALA / HMP76B / T1640130 / expires April 22, 2022		
Reference Temperature (°C):	17.1		
Station - Ambient Temperature (°C):	16.4		
Temperature Difference (°C):	0.7		
<b>RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK</b>			
Previous check date:	April 13, 2021		
Reference Hygrometer ID:	VAISALA / HMP76B / T1640130 / April 22, 2021		
Reference Hygrometer % RH- Reading:	39.70		
Station Hygrometer % RH- Reading:	40.80		
RH Tolerance +/- 15% of difference:	33.75 - 45.66	-2.8%	

Second TPX/RH sensor (BV owned) was removed.



# Meteorological Sensor Audit/Calibration

## Location Information

Company: LICA Performed By: Alex Yakupov  
 Audit Location: Maskwa Reviewed By: Chris Wesson  
 Audit Date: September 10, 2020 Start/End Time (mst): 14:51 / 17:06  
 Calibration Purpose: routine annual Weather Conditions: Mix of sun and clouds

## Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1
Sensor Model:	05305VK	Velocity Unit Output Range:	0-200
Serial #:	161465	Direction Voltage Output Range:	0-1
Previous Cal/Audit Date:	September 19, 2019	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	0.0	0.0	-
1000	18.4	18.5	18.5	0.996
2000	36.9	36.9	36.9	0.999
3000	55.3	55.4	55.4	0.998
4000	73.7	73.9	73.9	0.998
5000	92.2	92.4	92.5	0.997
6000	110.6	111.0	111.0	0.996
7000	129.0	129.5	129.5	0.996
8000	147.4	148.1	148.1	0.996
9000	165.9	166.7	166.7	0.995
10000	184.3	185.2	185.2	0.995
The audit meets AMD requirements.			Average Correction Factor=	0.997

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

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	1	355	1.1	-0.1	0.6
30	330	32	330	-2.1	-0.4	1.2
60	300	64	301	-3.8	-1.0	2.4
90	270	93	272	-3.0	-1.9	2.4
120	240	123	243	-2.7	-2.7	2.7
150	210	152	213	-2.0	-3.2	2.6
180	180	183	183	-3.3	-3.1	3.2
210	150	212	153	-1.8	-3.2	2.5
240	120	241	124	-1.3	-3.7	2.5
270	90	271	94	-0.8	-4.0	2.4
300	60	300	65	0.1	-4.6	2.4
330	30	330	34	-0.4	-4.1	2.2
355	0	355	2	-0.1	1.5	0.8
The audit meets AMD requirements.				Average Absolute Degrees Difference=		2.2

### Comments:

n/a

# End of Report





**Lakeland Industry & Community Association**

**AUGUST 2021**

**Ambient Air Monitoring Calibration Report**

**- ST. LINA STATION-**

**CAL-LICA-202108-01250**

**Station Operation and Maintenance:**

Bureau Veritas Canada

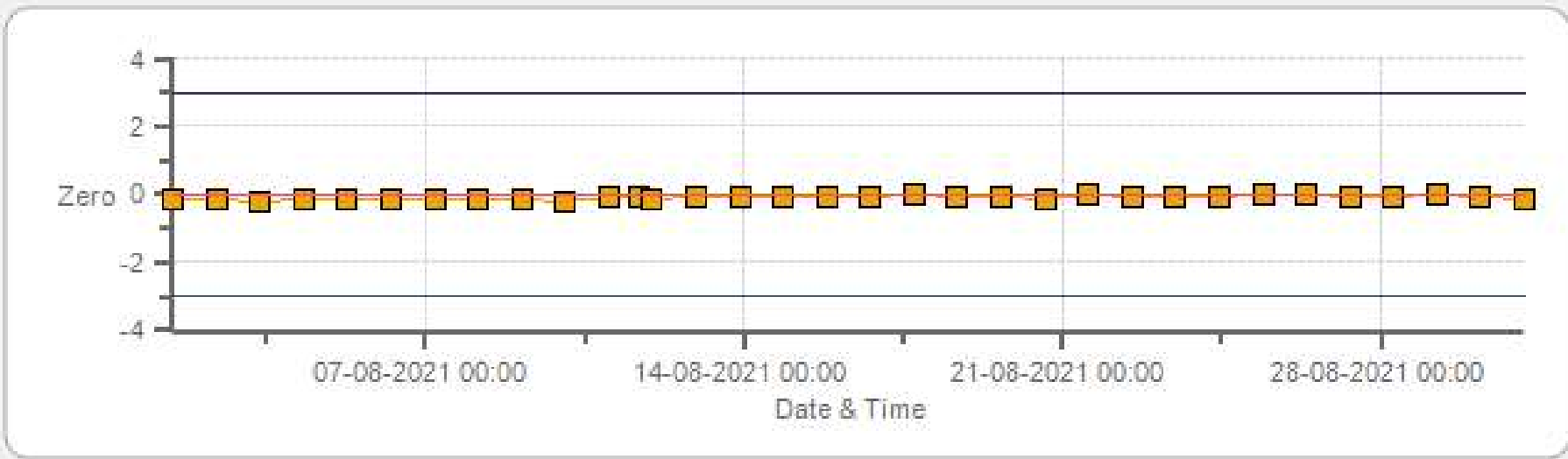
**Data Validation and Report:**

LICA / Bureau Veritas Canada

September 17, 2021

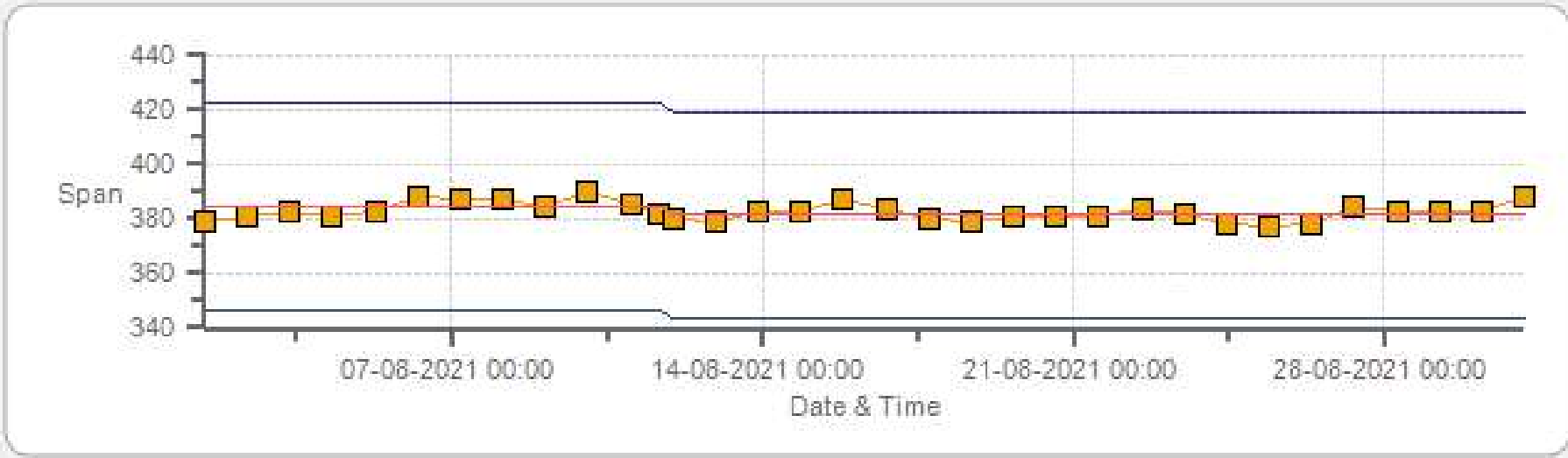
# DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: St. Lina Monthly: 08-2021 Type: SpanAndZero - Zero



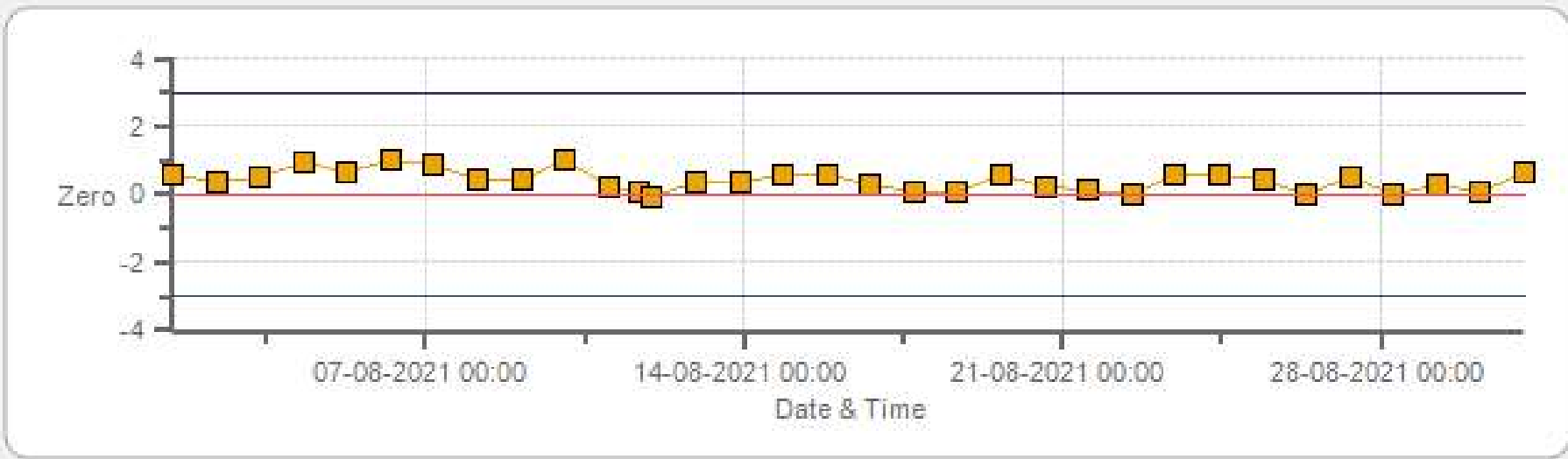
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: St. Lina Monthly: 08-2021 Type: SpanAndZero - Span



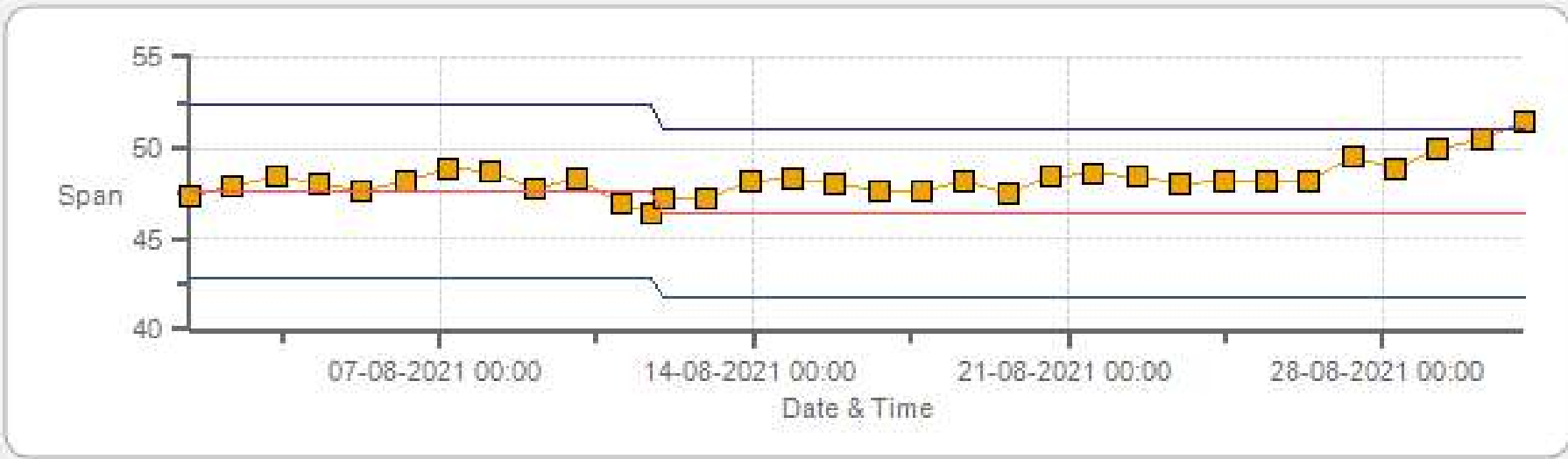
Span SpanRef Span Low Span High

H2S[ppb] Calibration: St. Lina Monthly: 08-2021 Type: SpanAndZero - Zero



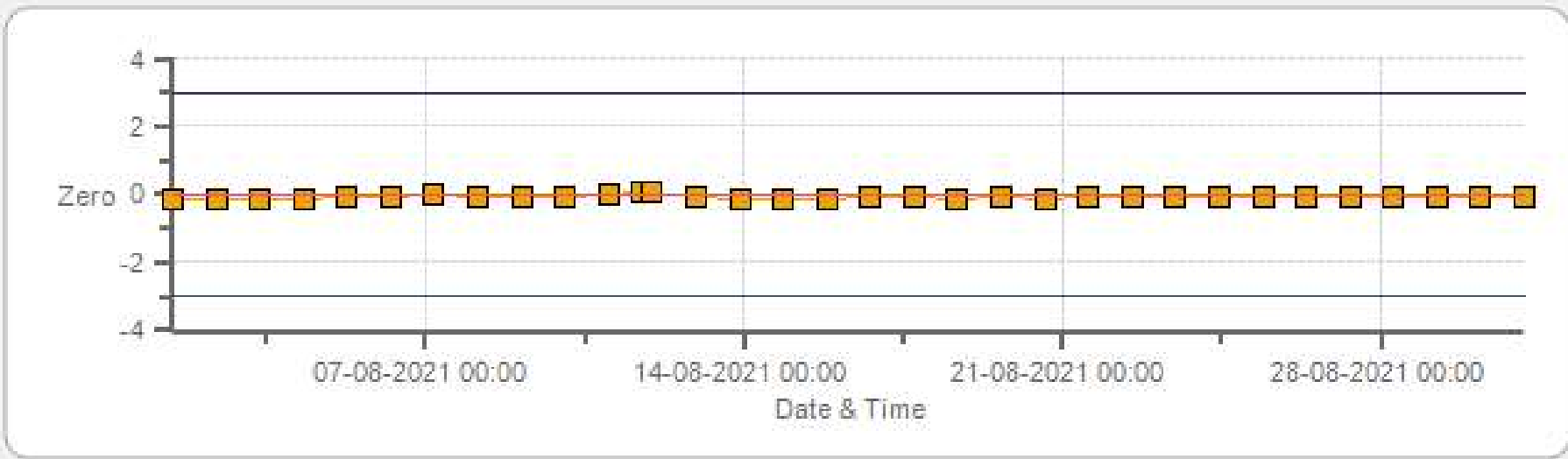
Zero Zero Ref Zero Low Zero High

H2S[ppb] Calibration: St. Lina Monthly: 08-2021 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NOX[ppb] Calibration: St. Lina Monthly: 08-2021 Type: SpanAndZero - Zero



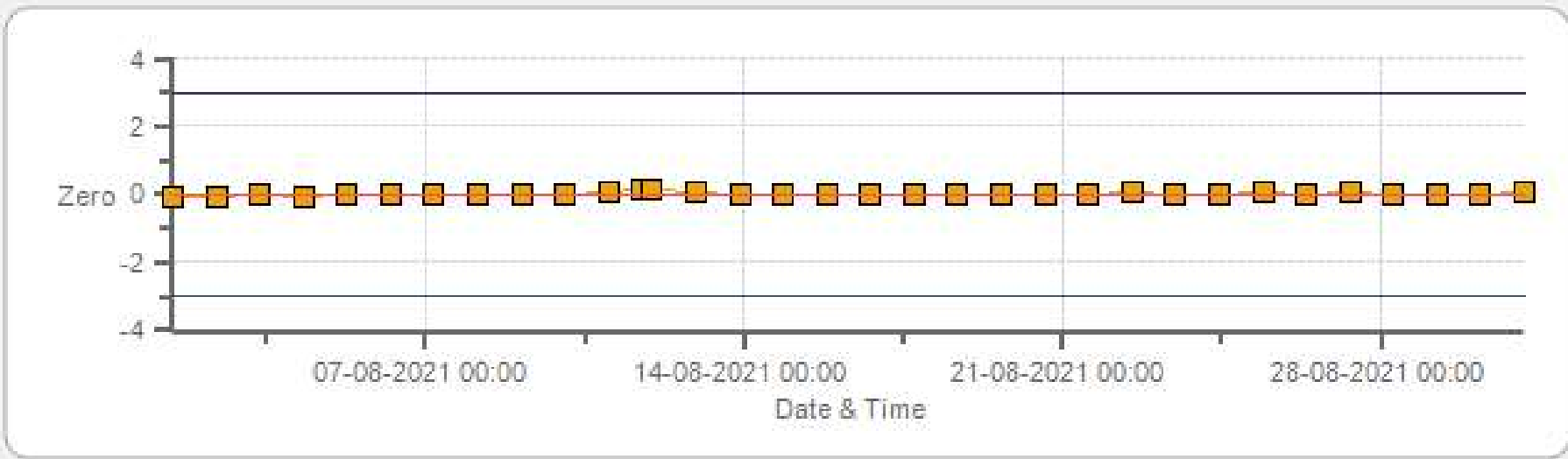
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: St. Lina Monthly: 08-2021 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NO2[ppb] Calibration: St. Lina Monthly: 08-2021 Type: SpanAndZero - Zero



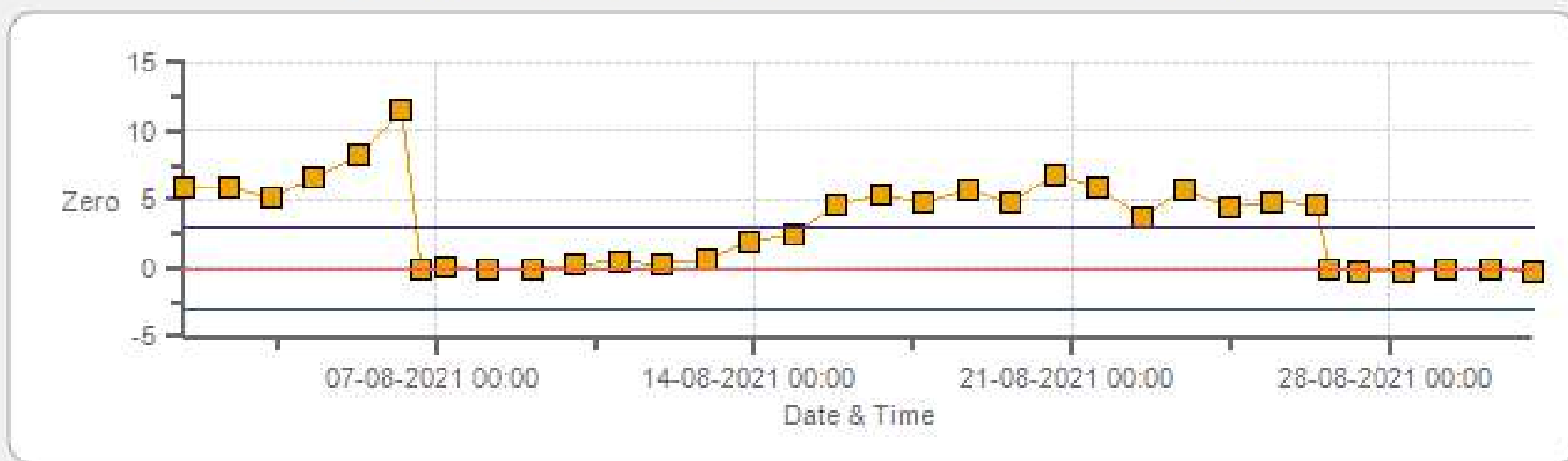
Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: St. Lina Monthly: 08-2021 Type: SpanAndZero - Span



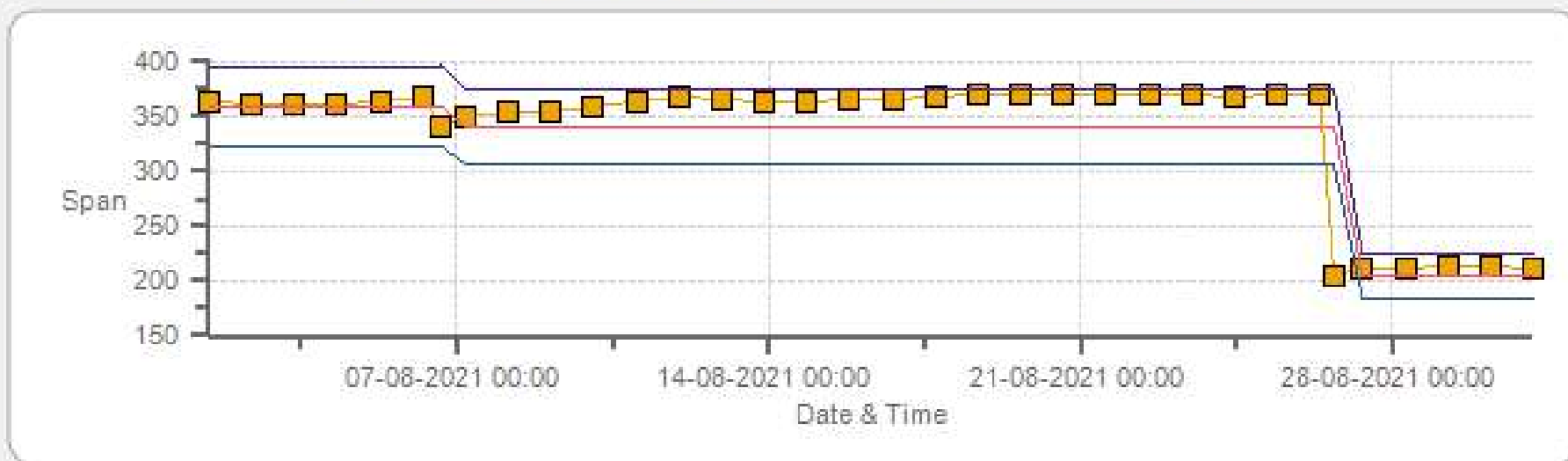
Span SpanRef Span Low Span High

O3[ppb] Calibration: St. Lina Monthly: 08-2021 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: St. Lina Monthly: 08-2021 Type: SpanAndZero - Span

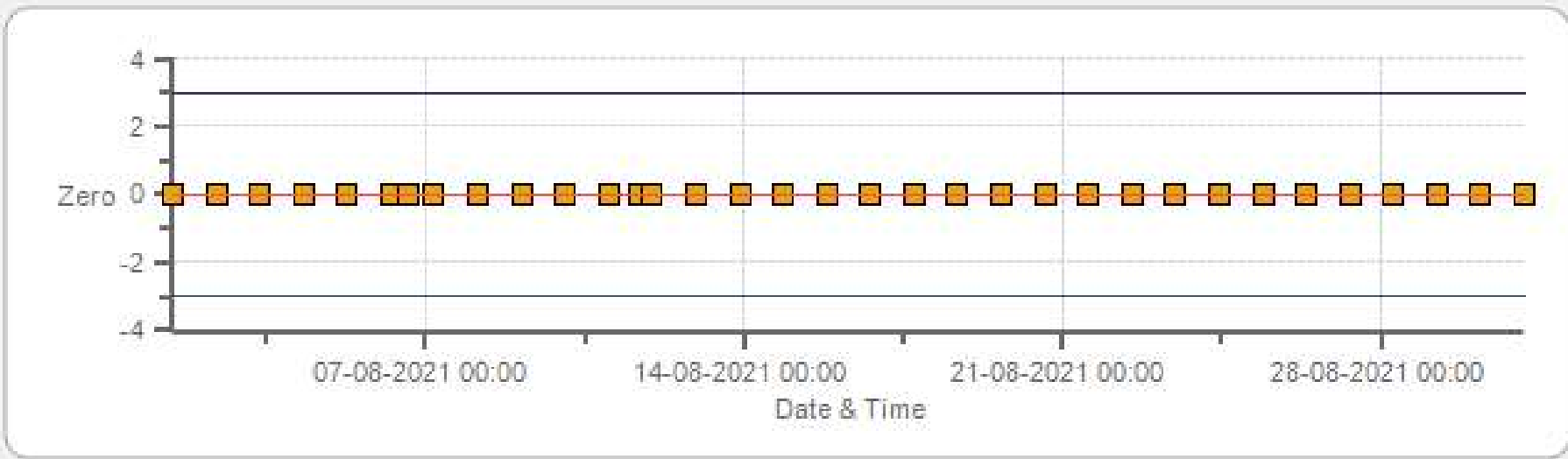


Span Span Ref Span Low Span High



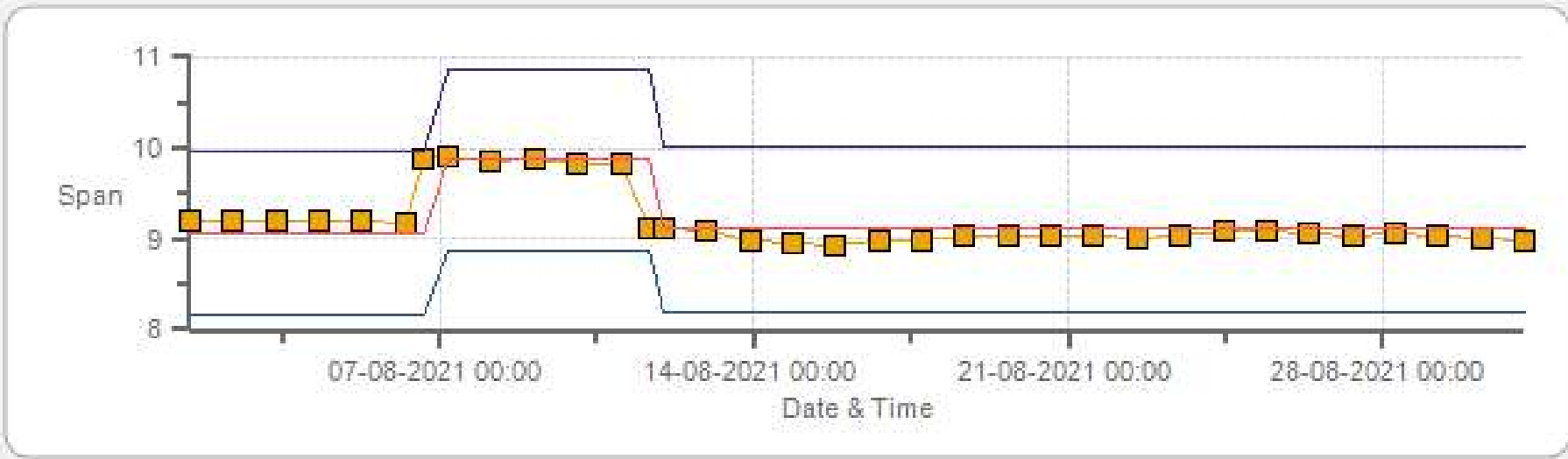


CH4[ppm] Calibration: St. Lina Monthly: 08-2021 Type: SpanAndZero - Zero



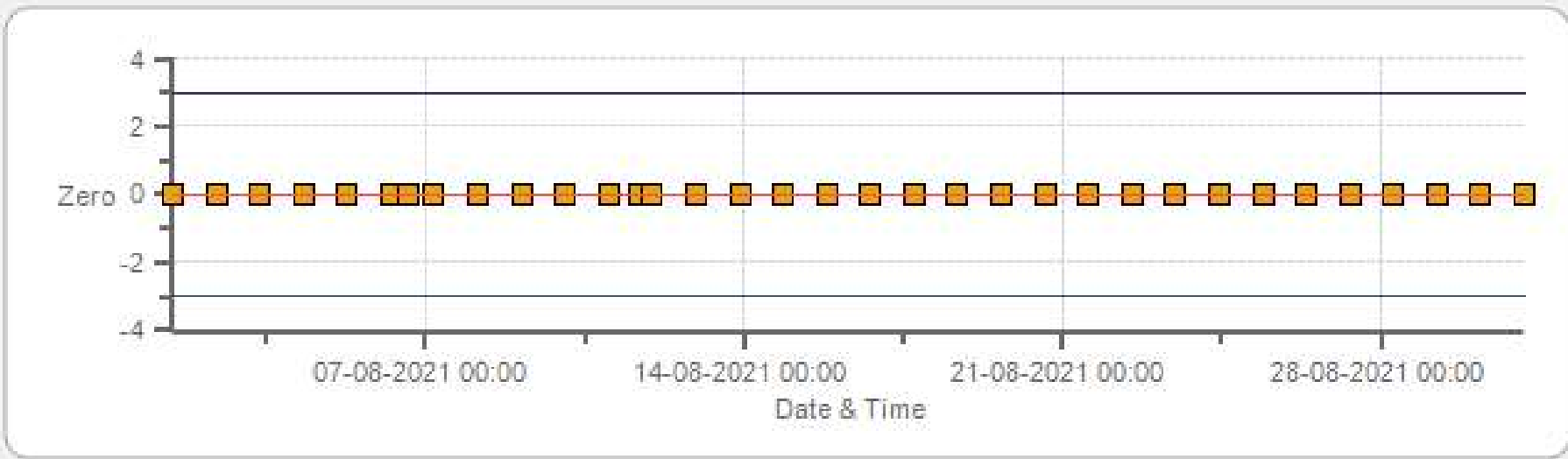
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: St. Lina Monthly: 08-2021 Type: SpanAndZero - Span



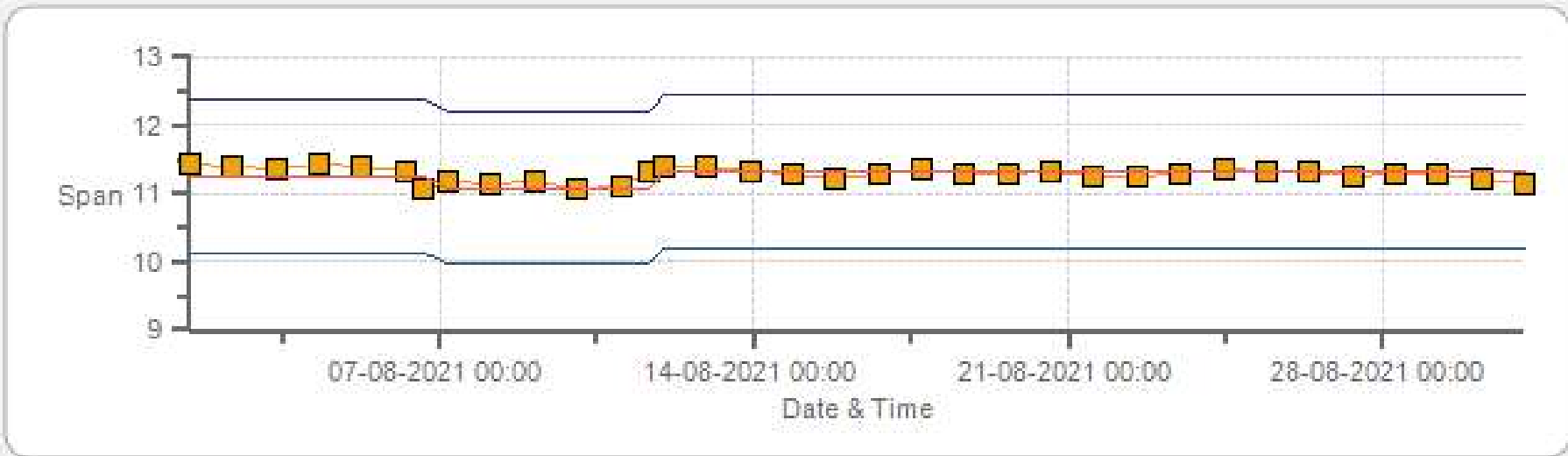
Span SpanRef Span Low Span High

NMHC[ppm] Calibration: St. Lina Monthly: 08-2021 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: St. Lina Monthly: 08-2021 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

# MULTI-POINT CALIBRATION RECORDS

# SO2 Analyzer Calibration by Dilution



DATE:	11-Aug-2021	PREVIOUS CALIBRATION DATE:	14-Jul-2021
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.001
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	913
PURPOSE:	Routine	START TIME (MST):	11:33
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:40

## ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180930030	FLOW (mL/min)	422
INITIAL		FINAL	
BKG/OFFSET	4.22	BKG/OFFSET	4.15
COEF/SLOPE	1.117	COEF/SLOPE	1.119
Expected (reference) Value	384.4	Expected (reference) Value	381.4

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	26801218	ID:	132
MFC CALIBRATION DATE:	09-Apr-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):	1700	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:

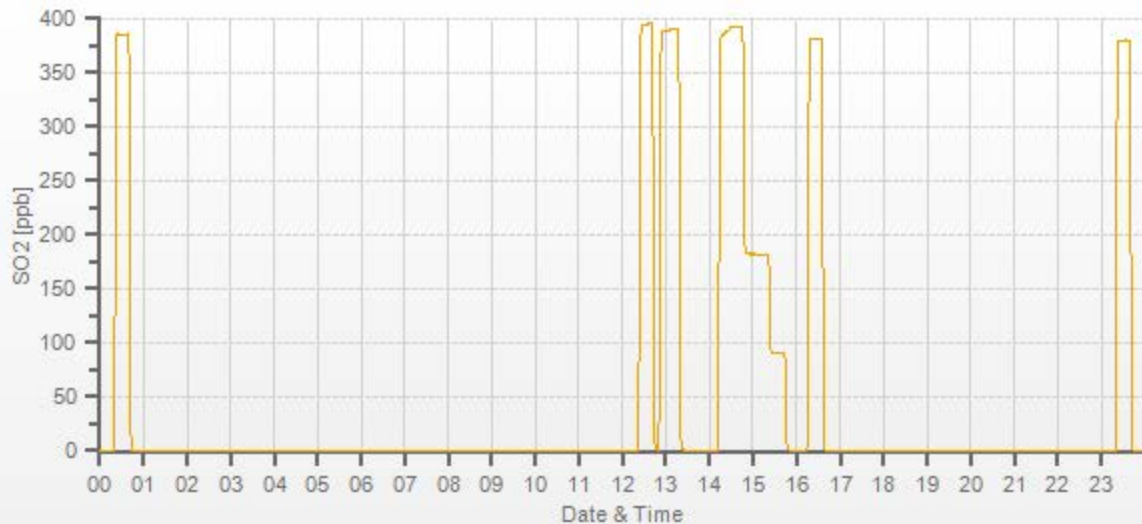
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	<del>38.50</del>	5000	0.00	-0.1	0	<del>1.003</del>	<del>0.996</del>
4959	38.50	4997	391.39	390.1	393	1.003	0.996
4981	18.00	4999	182.92	n/a	181.8	n/a	1.006
4990	9.00	4999	91.46	n/a	90.9	n/a	1.006

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.005	-0.2%

## COMMENTS:

Sample inlet filter was changed.  
12:22-12:50 = Incorrect target set, calibrator adjusted and as-found restarted.



# H2S Analyzer Calibration by Dilution



DATE:	11-Aug-2021	PREVIOUS CALIBRATION DATE:	14-Jul-2021
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	1.003
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	913
PURPOSE:	Routine	START TIME (MST):	11:34
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:40

## ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 18010058	FLOW (mL/min)	813
INITIAL		FINAL	
BKG/OFFSET	56.3	BKG/OFFSET	57.8
COEF/SLOPE	0.842	COEF/SLOPE	0.863
Expected (reference) Value	47.7	Expected (reference) Value	46.4

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	09-Apr-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 19174	HIGH ID	n/a
CONC (ppm):	10.00	EXPIRY DATE	n/a
CYLINDER (psi):	300	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:	11:43	SO2 Conc (ppb)	380
END TIME:	11:58	Analyzer Response (ppb)	0.0

## CALIBRATION:

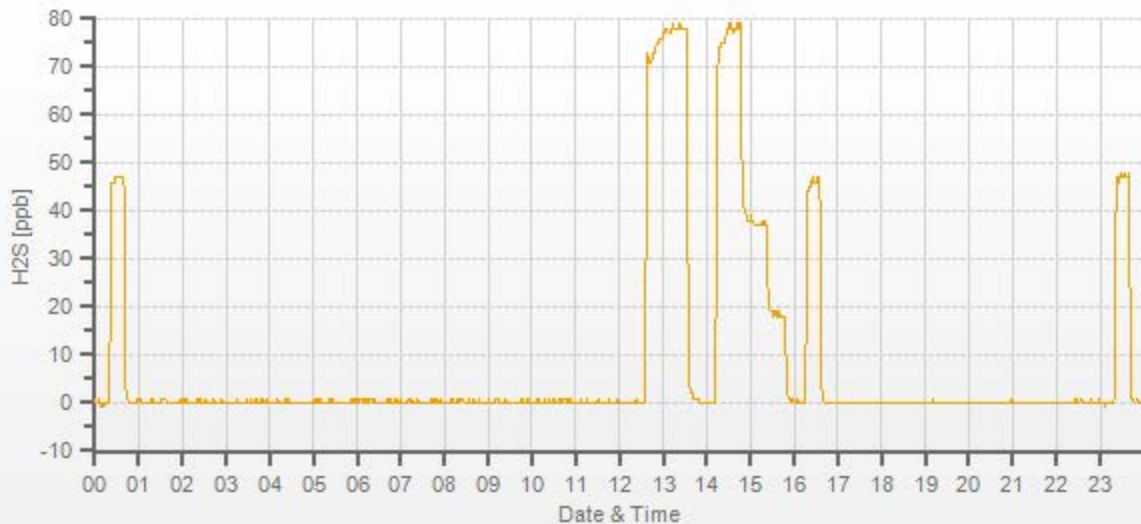
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	<del>7500</del>	7500	0.00	0.1	0	<del>0.997</del>	<del>1.001</del>
7442	58.50	7500	78.00	78.3	77.9	0.997	1.001
7472	28.50	7500	38.00	n/a	37.2	n/a	1.022
7486	14.30	7500	19.07	n/a	18.3	n/a	1.042

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.001	-0.5%

## COMMENTS:

Sample inlet filter was changed.



# NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	11-Aug-2021	PREVIOUS CALIBRATION DATE:	14-Jul-2021	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930029	NOx	0.999
LOCATION:	St. Lina	BAROMETRIC (mBar):	913	FLOW (mL/min)	816	NO	1.000
PURPOSE:	Routine	START TIME (MST):	11:36	RANGE (ppb)	500	NO2	1.003
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:24	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):	1700	LOW ID:	n/a
MFC CALIBRATION DATE:	09-Apr-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	3.8	n/a	BKG/OFFSET:	4	3.9	n/a
SLOPE/COEF/CE:	1.004	0.834	1.002	SLOPE/COEF/CE:	1.003	0.83	1.002

EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	297.0	2.3	294.0		294.4	2.6	291.8

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

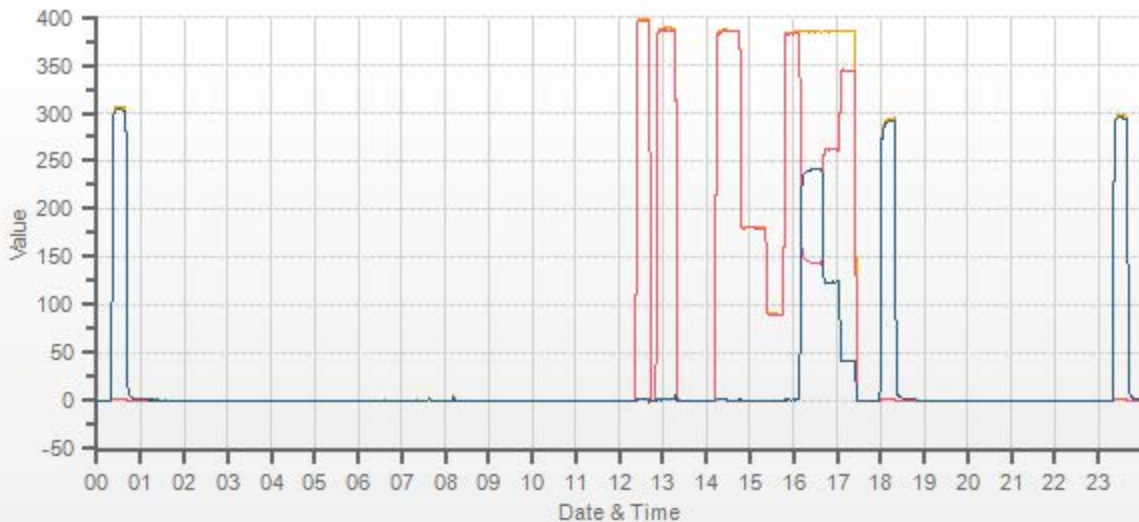
FLOW RATE			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000	<del>38.50</del>	5000	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	<del>0.997</del>	<del>0.993</del>	<del>0.999</del>	<del>0.999</del>	<del>0.999</del>	<del>0.996</del>
4959	38.50	4997	385.2	386.0	0.8	386.2	388.5	2.2	385.7	386.2	0.5	0.997	0.993	0.999	0.999	0.999	0.996
4981	18.00	4999	180.0	180.4	0.4	n/a	n/a	n/a	180.3	181.1	0.7	n/a	n/a	0.999	0.999	0.996	0.996
4990	9.00	4999	90.0	90.2	0.2	n/a	n/a	n/a	90.2	90.7	0.5	n/a	n/a	0.998	0.998	0.994	0.994

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	383.2	384.9	1.8	<del>240</del>	<del>240</del>	<del>1.000</del>	<del>100.00%</del>
AS-FOUND HIGH	38.50	4997	235	143.2	384.9	241.8	240	240	1.000	100.00%
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MID	38.50	4997	120	261.7	385.4	123.6	121.5	121.8	0.998	100.25%
LOW	38.50	4997	40	344.0	385.2	41.2	39.2	39.4	0.995	100.51%
NO2 adjustment not required.									AVERAGE:	100.25%

LINEAR REGRESSION ANALYSIS:				COMMENTS:
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	1.001	0.01%	
NOx	1.000	1.000	0.06%	
NO2	1.000	0.999	0.06%	

Sample inlet filter was changed.  
12:22-12:50 = Incorrect target set (parallel SO2), calibrator adjusted and as-found restarted.





CAL-LICA-202108-01250

# Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	06-Aug-2021	PREVIOUS CALIBRATION DATE:	27-Jul-2021
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.002
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	909
PURPOSE:	Routine	START TIME (MST):	11:32
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:00

## ANALYZER:

MAKE/MODEL	Thermo 49i	RANGE	500 ppb
SERIAL #	1002240371	FLOW (mL/min)	1486
INITIAL		FINAL	
BKG/OFFSET	-0.2	BKG/OFFSET	-0.1
COEF/SLOPE	1.007	COEF/SLOPE	1.005
Expected (reference) Value	359	Expected (reference) Value	341.1

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	09-Apr-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	<del> </del>	5000	0.0	0.1	0.0	<del> </del>	<del> </del>
5000	<del> </del>	5000	378.0	379.0	378.4	0.998	0.999
5000	<del> </del>	5000	180.0	n/a	181.0	n/a	0.994
5000	<del> </del>	5000	61.0	n/a	62.4	n/a	0.978

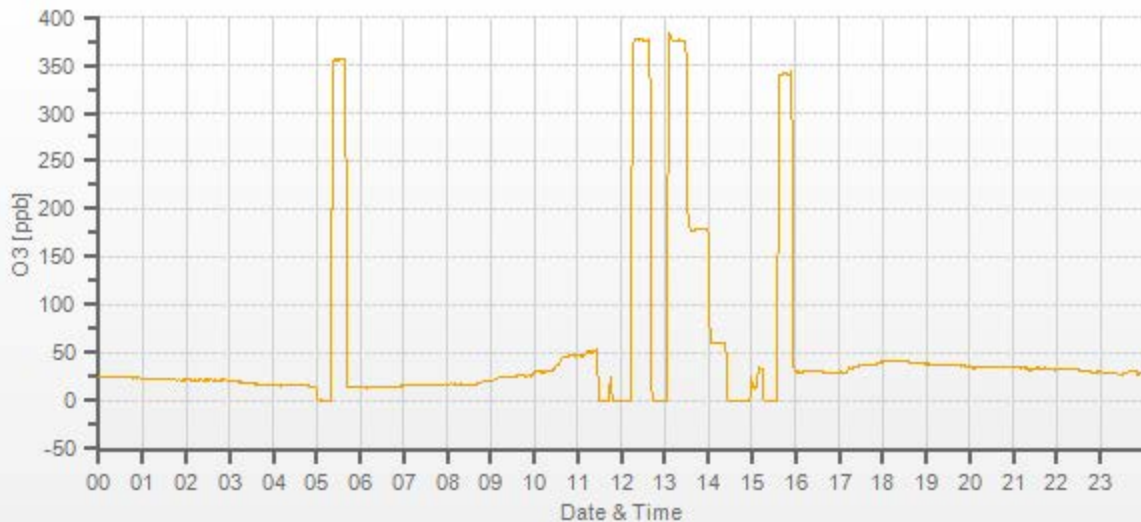
## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.1%

## COMMENTS:

Sample inlet filter was changed.  
11:32 - 11:51 = Zero Air (internal zero/span) testing and checks. Scrubber replaced.

O3[ppb] Station: St. Lina Daily: 06-08-2021 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202108-01250

# Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	12-Aug-2021	PREVIOUS CALIBRATION DATE:	06-Aug-2021
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	0.999
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	922
PURPOSE:	As-Found	START TIME (MST):	18:32
PERFORMED BY:	Alex Yakupov	END TIME (MST):	19:27

## ANALYZER:

MAKE/MODEL	Thermo 49i	RANGE	500 ppb
SERIAL #	1002240371	FLOW (mL/min)	1502
INITIAL		FINAL	
BKG/OFFSET	-0.1	BKG/OFFSET	-0.1
COEF/SLOPE	1.005	COEF/SLOPE	1.005
Expected (reference) Value	341.1	Expected (reference) Value	341.1

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	09-Apr-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:

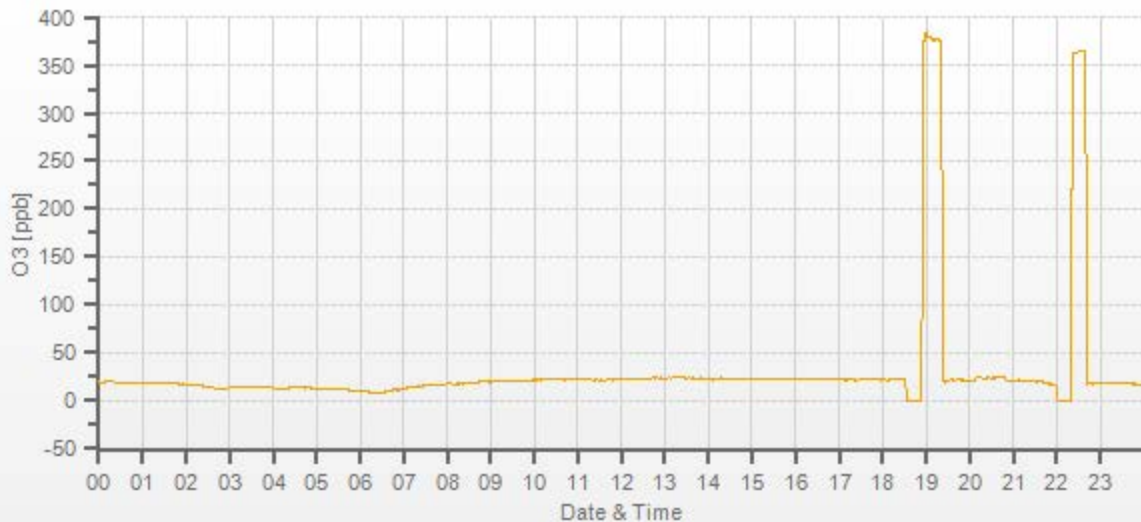
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	<del>          </del>	5000	0.0	0.1	n/a	<del>          </del>	<del>          </del>
5000	<del>          </del>	5000	378.0	376.8	n/a	1.003	n/a
5000	<del>          </del>	5000	180.0	n/a	n/a	n/a	n/a
5000	<del>          </del>	5000	61.0	n/a	n/a	n/a	n/a

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	n/a	n/a	n/a

## COMMENTS:

As Found calibration was completed because of the span value drifted over 5%



# Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	26-Aug-2021	PREVIOUS CALIBRATION DATE:	06-Aug-2021
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	0.999
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	918
PURPOSE:	Repeat	START TIME (MST):	11:42
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:32

## ANALYZER:

MAKE/MODEL	Thermo 49i	RANGE	500 ppb
SERIAL #	1002240371	FLOW (mL/min)	1495
INITIAL		FINAL	
BKG/OFFSET	-0.1	BKG/OFFSET	0.1
COEF/SLOPE	1.005	COEF/SLOPE	1.009
Expected (reference) Value	341.1	Expected (reference) Value	205.1

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	09-Apr-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:

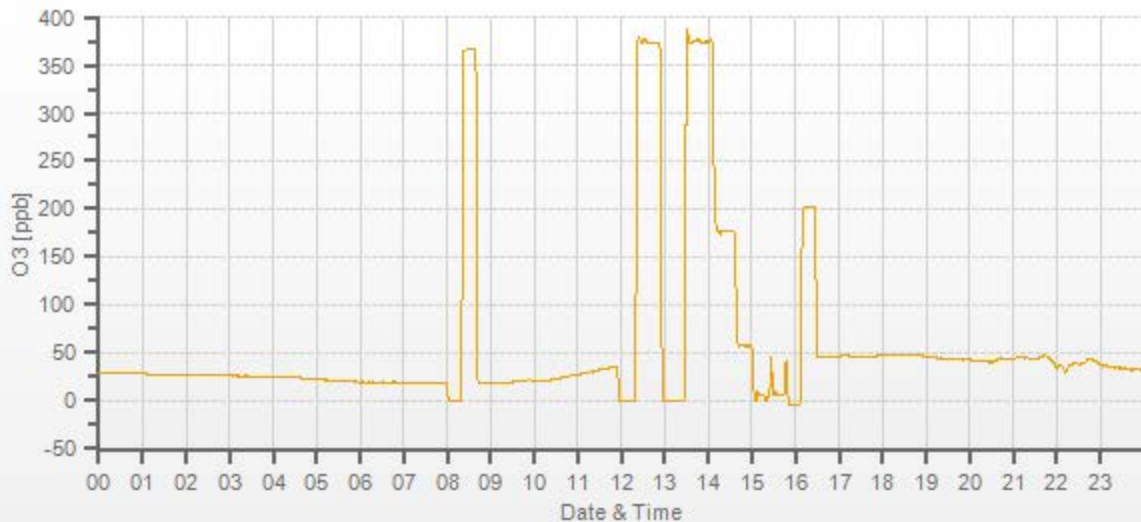
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	<del>          </del>	5000	0.0	0.0	0.0	<del>          </del>	<del>          </del>
5000	<del>          </del>	5000	378.0	376.6	378.1	1.004	1.000
5000	<del>          </del>	5000	180.0	n/a	180.1	n/a	0.999
5000	<del>          </del>	5000	60.0	n/a	60.7	n/a	0.988

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.1%

## COMMENTS:

Repeat calibration due to unstable zero (daily ZS). Charcoal scrubber was renewed.  
Post-calibration ZS check was aborted several times to rebuild and test a zero air system.



# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	06-Aug-2021	PREVIOUS CALIBRATION DATE:	13-Jul-2021	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1236656107	1200
LOCATION:	St. Lina	BAROMETRIC (mBar):	909	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	11:32	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:36	PREVIOUS CF:	1.000	0.998	0.999

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 168375	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	914.0   307.0	HIGH EXPIRY:	n/a
ID:	26801218	ID:	132	CYLINDER (psi):	1000	LOW ID:	n/a
MFC CALIBRATION DATE:	09-Apr-2021	OXIDIZER ID:	115	EXPIRY DATE	21-Jan-2028	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

POINT (CH <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE	
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>	844.3
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>	1758.3

## EXPECTED (REFERENCE) VALUE:

INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	9.06	11.27	20.33		9.87	11.08	20.95

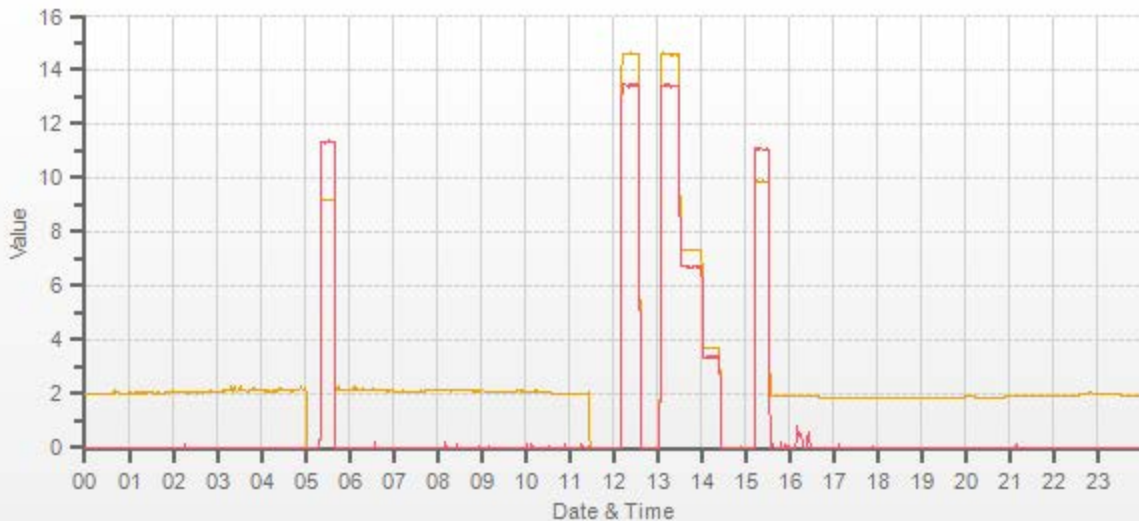
## CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3100	<del>X</del>	3100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>
3051	49.40	3100	14.57	13.45	28.02	14.61	13.45	28.06	14.56	13.41	27.97	0.997	1.000	0.999	1.000	1.003	1.002
3075	24.70	3100	7.28	6.73	14.01	n/a	n/a	n/a	7.33	6.70	14.02	n/a	n/a	n/a	0.994	1.004	0.999
3088	12.40	3100	3.66	3.38	7.03	n/a	n/a	n/a	3.67	3.38	7.05	n/a	n/a	n/a	0.996	0.999	0.998

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments:
CH <sub>4</sub>	1.000	1.000	0.1%	<b>Sample inlet filter was changed. New N2 gas cylinder was connected. A different SPAN gas cylinder was connected.</b>
NMHC	1.000	0.996	0.0%	
THC	1.000	0.998	0.0%	
				<b>Use Zero Chrom? Yes</b>





CAL-LICA-202108-01250

# Thermo 5030i SHARP Monitor Calibration

Date: August 20, 2021	Performed By/Reviewer: Alex Yakupov   Chris Wesson
Company: LICA	Start Time (mst): 14:19
Station Name/Location: St. Lina	End Time (mst): 17:31
Previous Audit Date: July 27, 2021	Calibration Purpose: Quarterly
Parameter: PM 2.5	Weather Conditions: Mainly sunny

<b>SHARP 5030i Information and Status:</b>		
Serial Number: CM 17461021	Filter Tape Counter	215

<b>Reference Standards: Air Flow</b>					
	<b>Manometer</b>	<b>Orifice</b>	<b>Pressure:</b>	<b>Temp / RH:</b>	
Make:	DeltaCal	DeltaCal	Fisher Scientific		VAISALA
Model:	DC1	DC1	FB 61291		HMP76B
Serial Number:	177246	177246	130168457		SN: 170286131
Expiry Date:	July 12, 2022	July 12, 2022	February 17, 2022		April 22, 2022

<b>Ambient Temperature (°C)</b>						
As Found:			As Left: (same as found if acceptable)			
	Reference	SHARP	Difference	Reference	SHARP	Difference
#1	19.40	18.9	0.5	19.40	18.9	0.5
#2	19.40	18.9	0.5	19.40	18.9	0.5
#3	19.30	18.9	0.4	19.30	18.9	0.4
Average	19.4	18.9	0.5	19.4	18.9	0.5
<i>Temp Limit: ± 2°C</i>						

<b>Ambient Relative Humidity (%RH)</b>						
As Found:			As Left: (same as found if acceptable)			
	Reference	SHARP	Offset (ZERO)	Reference	SHARP	Offset (ZERO)
#1	43.20	43.3	-0.1	43.20	43.3	-0.1
#2	43.60	43.7	-0.1	43.60	43.7	-0.1
#3	43.70	43.7	0.0	43.70	43.7	0.0
Average	43.5	43.6	-0.1	43.5	43.6	-0.1
<i>RH Limit: ± 2 %RH</i>						

<b>Flow Temperature (°C)</b>						
As Found:			As Left: (same as found if acceptable)			
	Reference	SHARP	Difference	Reference	SHARP	Difference
#1	22.30	22.1	0.2	22.30	22.1	0.2
#2	21.90	21.8	0.1	21.90	21.8	0.1
#3	21.60	21.4	0.2	21.60	21.4	0.2
Average	21.9	21.8	0.2	21.9	21.8	0.2
<i>Temp Limit: ± 2°C</i>						

<b>Barometric Pressure (mmHg)</b>						
As Found:			As Left: (same as found if acceptable)			
	Reference	SHARP	Difference	Reference	SHARP	Difference
#1	698.0	698.0	0.0	698.0	698.0	0.0
<i>BP Limit: ± 2 mmHg</i>						

<b>Nephelometer Relative Humidity (%RH)</b>						
As Found:			As Left: (same as found if acceptable)			
	Reference	SHARP	Difference	Reference	SHARP	Difference
#1	33.60	32.8	0.8	33.60	32.8	0.8
<i>RH Limit: ± 2 %RH</i>						

<b>Nephelometer Temperature (%RH)</b>						
As Found:			As Left: (same as found if acceptable)			
	Reference	SHARP	Difference	Reference	SHARP	Difference
#1	22.00	21.8	0.2	22.00	21.8	0.2
<i>Temp Limit: ± 2°C</i>						

<b>Nephelometer Source Level</b>						
As Found:			As Left: (same as found if acceptable)			
	Variable	Value		Variable	Value	
	IRED	64		IRED	64	
	SRC LEVEL	53		SRC LEVEL	53	
<i>IRED Limit (as found): 60-70 mA Adjusted IRED Limit (as left): 65 mA</i>						

<b>Detector Calibration (Auto)</b>						
Detector Auto Calibration Completed:			As Left:			
	Variable	Value		Variable	Value	
YES	HIGH VOLT	1520		BETA REF TH	500	
	ALPHA TH	1610		DIFF HV	4	

<b>Mass Coefficient (Auto)</b>						
Zero			Span			
	Variable	Value		Variable	Value	
	MASS COEF	7222.4		MASS COEF	7062.1	
	FOIL VALUE	1045		FOIL VALUE	1045	
	Beta Avg	10495		Beta Avg	9052	
	difference	Foil set # 4804		difference	-2.2	
<b>Foil Set: CM1597</b>						

<b>Flow Calibration (L/min)</b>						
As Found:			As Left: (same as found if acceptable)			
	Reference	SHARP	Difference	Reference	SHARP	Difference
#1	16.72	16.65	0.07	16.67	16.67	0.00
#2	16.74	16.66	0.08	16.67	16.67	0.00
#3	16.74	16.66	0.08	6.67	16.67	-10.00
Average	16.73	16.66	0.08	13.34	16.67	-3.33
<i>Flow Limit: 16.67 ± 0.33 L/min</i>						

<b>Leak Check (L/min)</b>						
Without Leak Check Adapter			With leak Check Adapter			
	Reference	SHARP	Difference	Reference	SHARP	Difference
#1	16.67	16.67	0.00	16.62	16.63	-0.01
<i>Leak Limit: 0.08 L/min</i>						
						<b>LEAK RATE: -0.01</b>

# Meteorological System Checklist



Date:	August 20, 2021		
Technician:	Alex Yakupov		
Station:	St. Lina		
<b>Unit:</b>	<b>Make:</b>	<b>Model:</b>	<b>Serial #:</b>
Temperature Sensor:	VAISALA	HMP 155A	R2640785
Relative Humidity Sensor:	VAISALA	HMP 155A	R2640785
<b>AMBIENT TEMPERATURE SENSOR CHECK</b>			
Previous check date:	June 9, 2021		
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	VAISALA, HMP76B, SN: 170286131, expires Apr 22, 2022		
Reference Temperature (°C):	19.3		
Station - Ambient Temperature (°C):	19.1		
Temperature Difference (°C):	0.2		
<b>RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK</b>			
Previous check date:	June 9, 2021		
Reference Hygrometer ID:	VAISALA, HMP76B, SN: 170286131, expires Apr 22, 2022		
Reference Hygrometer % RH- Reading:	43.60		
Station Hygrometer % RH- Reading:	42.00		
RH Tolerance +/- 15% of difference:	37.06 - 50.14	3.7%	
Comments			
TPX/RH sensor shutdown audit was completed to remove the sensor for factory maintenance, calibration and re-certification.			

# Meteorological System Checklist



Date:	August 20, 2021		
Technician:	Alex Yakupov		
Station:	St. Lina		
<b>Unit:</b>	<b>Make:</b>	<b>Model:</b>	<b>Serial #:</b>
Temperature Sensor:	Campbell Scientific	HC2-S3	20221366
Relative Humidity Sensor:	Campbell Scientific	HC2-S3	20221366
<b>AMBIENT TEMPERATURE SENSOR CHECK</b>			
Previous check date:	June 7, 2021 (calibrated and certified at a factory)		
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	VAISALA, HMP76B, SN: 170286131, expires Apr 22, 2022		
Reference Temperature (°C):	18.1		
Station - Ambient Temperature (°C):	17.2		
Temperature Difference (°C):	0.9		
<b>RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK</b>			
Previous check date:	June 7, 2021 (calibrated and certified at a factory)		
Reference Hygrometer ID:	VAISALA, HMP76B, SN: 170286131, expires Apr 22, 2022		
Reference Hygrometer % RH- Reading:	47.50		
Station Hygrometer % RH- Reading:	49.80		
RH Tolerance +/- 15% of difference:	40.38 - 54.63	-4.8%	
Comments			
TPX/RH sensor installation audit was completed to replace the previous sensor for factory calibration.			



# 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