



Lakeland Industry & Community Association

MAY 2023

Monthly Ambient Air Quality Monitoring Report

LICA-202305

Operation and Maintenance:

Bureau Veritas Canada

Data Validation and Report:

Lakeland Industry & Community Association

June 29, 2023

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June 29, 2023

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

Enclosed is the May 2023 Monthly Ambient Air Quality Monitoring Report for the continuous ambient air quality monitoring stations of the Lakeland Industry & Community Association (LICA) regional air quality monitoring network.

The representative of the Person Responsible for this monitoring program is

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

TABLE OF CONTENTS

COVER LETTER.....	3
TABLE OF CONECTCS	4
LIST OF ACRONYMS.....	5
NETWORK STATION SUMMARY	6
Listing of Continuous Monitoring Stations and Integrated Sampling Stations.....	6
List of Contractors performing air monitoring activities	7
Monitoring Notes during the Month of May 2023	7
Cold Lake South	7
Tamarack	9
St. Lina Station	11
Lac La Biche Station	13
Integrated Sampling	16
Revisions to Alberta’s Ambient Air Quality Data Warehouse.....	17
Deviations from Authorized Monitoring Methods	17
Disclaimer.....	17
Certification.....	18
Map of LICA Continuous Monitoring Network	19
CONTINUOUS NETWORK EQUIPMENT AND MONITORING RESULTS SUMMARY	20
Cold Lake South Station	20
Tamarack Station	23
St. Lina Station	34
Lac La Biche Station.....	40
TABLES AND CHARTS.....	46
COLD LAKE SOUTH STATION	47
TAMARACK STATION.....	78
ST. LINA STATION	110
LAC LA BICHE STATION.....	142
END OF REPORT	173

LIST OF ACRONYMS

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

NETWORK STATION SUMMARY

Listing of Continuous Monitoring Stations and Integrated Sampling Stations

Station Name		Cold Lake South	Tamarack	St. Lina	Lac La Biche
Station ID		1174	1248	1250	1690
Coordinates		54.41402	54.604935	54.215961	54.76516
		-110.23316	-110.452637	-111.503304	-111.9714490
Continuous Monitoring Parameter	SO2	√	√	√	√
	H2S		√	√	√
	TRS	√			
	NOX	√	√	√	√
	NOX	√	√	√	√
	NO2	√	√	√	√
	O3	√	√	√	√
	THC	√	√	√	√
	CH4	√	√	√	√
	NMHC	√	√	√	√
	RH	√	√	√	√
	BP	√	√	√	√
	AT	√	√	√	√
	ST	√	√	√	√
	PRECEIPITATION		√	√	
	WS	√	√	√	√
	WD	√	√	√	√
STDWD	√	√	√	√	
Integrated Sampling	VOCs	√			
	PAHs	√			
	Partisol	√			
	Passive	√			√
	NMHC Canister				√
	PAC			√	

List of Contractors performing air monitoring activities

Sampling Program	Monitoring Activities Conducted By	Sample Analysis Conducted By	Data/Report Prepared By	Electronic Submission Conducted By
Continuous Monitoring Station	Bureau Veritas Canada	Bureau Veritas Canada	LICA / Bureau Veritas Canada	LICA
Intermittent (VOCs/PAHs)	Bureau Veritas Canada	InnoTech Alberta Inc	InnoTech Alberta Inc	LICA
Partisol	Bureau Veritas Canada	InnoTech Alberta Inc	InnoTech Alberta Inc	LICA
Passive	Bureau Veritas Canada	Bureau Veritas Canada	Bureau Veritas Canada	LICA
PAC	Bureau Veritas Canada	ECCC	AEP	Not Applicable
NMHC Canister	Bureau Veritas Canada	InnoTech Alberta Inc	InnoTech Alberta Inc	Not Applicable

Monitoring Notes during the Month of May 2023

Cold Lake South

- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- All parameters met the 90% operational uptime requirement.
- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) where applicable, except O3 and PM2.5. One 1-hour ozone exceedance, fifty-four 1-hour and six 24-hour PM2.5 exceedances were recorded this month.
- Ozone concentrations were high at monitoring stations throughout Alberta in May. Conditions were favourable for the formation of ground-level ozone due in part to warm temperatures and the presence of The cause of the exceedance of the ozone objective was due to Alberta wildfires smoke. Large amounts of volatile, and semi-volatile organic materials, and nitrogen oxides and other precursor substances were emitted from wildfires, and react in the presence of with the sunlight and heat to form excessive ground -level ozone.

Date	Time (MST)	Parameter	Average Period	Concentration (ppb)	Wind speed (km/hr)	Wind Direction	Reference #
04-May	18	O3	1-Hour	77.2	8.7	121° (ESE)	412525

- The PM2.5 objective and guideline were exceeded due to wildfire smoke.

Date	Time (MST)	Parameter	Average Period	Concentration (µg/m3)	Wind speed (km/hr)	Wind Direction	Reference #
04-May	19	PM2.5	1-Hour	81	6.4	107° (ESE)	415195
12-May	6	PM2.5	1-Hour	81	3.1	57° (ENE)	413092
12-May	7	PM2.5	1-Hour	126	2.7	39° (NE)	413092
12-May	8	PM2.5	1-Hour	154	3.0	31° (NNE)	413092
12-May	9	PM2.5	1-Hour	147	3.9	36° (NE)	413092
12-May	10	PM2.5	1-Hour	102	3.6	45° (NE)	413092
12-May	-	PM2.5	24-Hour	51	2.5	66° (ENE)	413092
16-May	8	PM2.5	1-Hour	153	13.8	340° (NNW)	413527
16-May	21	PM2.5	1-Hour	122	4.7	284° (WNW)	413527
19-May	21	PM2.5	1-Hour	181	4.4	14° (NNE)	413527
19-May	22	PM2.5	1-Hour	671	6.2	16° (NNE)	413527
19-May	23	PM2.5	1-Hour	564	9.1	190° (SSW)	413527
19-May	-	PM2.5	24-Hour	87	4.7	203° (SSW)	413527
20-May	0	PM2.5	1-Hour	391	4.0	7° (N)	413527
20-May	1	PM2.5	1-Hour	405	0.2	32° (NNE)	413527
20-May	2	PM2.5	1-Hour	384	1.0	242° (WSW)	413527
20-May	3	PM2.5	1-Hour	363	1.2	313° (NW)	413527
20-May	4	PM2.5	1-Hour	348	0.6	279° (W)	413527
20-May	5	PM2.5	1-Hour	329	0.3	20° (NNE)	413527
20-May	6	PM2.5	1-Hour	411	4.2	41° (NE)	413527
20-May	7	PM2.5	1-Hour	569	6.6	42° (NE)	413527
20-May	8	PM2.5	1-Hour	665	5.9	35° (NE)	413527
20-May	9	PM2.5	1-Hour	726	9.3	42° (NE)	413527
20-May	10	PM2.5	1-Hour	674	8.7	40° (NE)	413527
20-May	11	PM2.5	1-Hour	621	6.7	57° (ENE)	413527
20-May	12	PM2.5	1-Hour	579	5.6	39° (NE)	413527
20-May	13	PM2.5	1-Hour	509	5.4	58° (ENE)	413527
20-May	14	PM2.5	1-Hour	279	7.5	103° (ESE)	413527
20-May	15	PM2.5	1-Hour	151	7.6	104° (ESE)	413527
20-May	16	PM2.5	1-Hour	100	8.7	98° (E)	413527
20-May	21	PM2.5	1-Hour	151	6.4	94° (E)	413527
20-May	22	PM2.5	1-Hour	159	5.6	101° (E)	413527
20-May	23	PM2.5	1-Hour	120	9.3	57° (NE)	413527
20-May	-	PM2.5	24-Hour	338	5.3	71° (ENE)	413527
21-May	-	PM2.5	24-Hour	51	5.6	91° (E)	413527
22-May	18	PM2.5	1-Hour	165	20.1	50° (NE)	413933
22-May	19	PM2.5	1-Hour	527	17.8	52° (NE)	413933

Date	Time (MST)	Parameter	Average Period	Concentration ($\mu\text{g}/\text{m}^3$)	Wind speed (km/hr)	Wind Direction	Reference #
22-May	20	PM2.5	1-Hour	571	14.2	56° (NE)	413933
22-May	21	PM2.5	1-Hour	281	16.9	87° (E)	413933
22-May	22	PM2.5	1-Hour	235	16.1	87° (E)	413933
22-May	23	PM2.5	1-Hour	280	9.7	51° (ENE)	413933
22-May	-	PM2.5	24-Hour	116	10.9	57° (ENE)	413933
23-May	0	PM2.5	1-Hour	209	14.2	81° (E)	413933
23-May	1	PM2.5	1-Hour	193	12.9	75° (ENE)	413933
23-May	2	PM2.5	1-Hour	180	14.1	76° (ENE)	413933
23-May	3	PM2.5	1-Hour	160	14.1	85° (E)	413933
23-May	4	PM2.5	1-Hour	142	15.2	90° (E)	413933
23-May	5	PM2.5	1-Hour	124	13.8	95° (E)	413933
23-May	6	PM2.5	1-Hour	117	13.1	97° (E)	413933
23-May	7	PM2.5	1-Hour	91	13.2	100° (E)	413933
23-May	-	PM2.5	24-Hour	66	13.5	102° (E)	413933
31-May	6	PM2.5	1-Hour	101	6.1	32° (NNE)	414423
31-May	7	PM2.5	1-Hour	169	4.8	37° (NE)	414423
31-May	8	PM2.5	1-Hour	209	4.9	21° (NNE)	414423
31-May	9	PM2.5	1-Hour	258	7.2	17° (NNE)	414423
31-May	10	PM2.5	1-Hour	248	6.5	45° (NE)	414423
31-May	11	PM2.5	1-Hour	144	6.9	28° (NNE)	414423
31-May	12	PM2.5	1-Hour	96	6.5	11° (NNE)	414423
31-May	13	PM2.5	1-Hour	85	9.0	350° (N)	414423
31-May	14	PM2.5	1-Hour	146	10.1	25° (NNE)	414423

- No major events were identified this month.

Tamarack

- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- All parameters met the 90% operational uptime requirement.
- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) where applicable, except PM2.5. Fifty-one 1-hour and seven 24-hour PM2.5 exceedances were recorded this month. The source of the exceedance of the PM2.5 objective and guideline were due to wildfire smoke.

Date	Time (MST)	Parameter	Average Period	Concentration ($\mu\text{g}/\text{m}^3$)	Wind speed (km/hr)	Wind Direction	Reference #
02-May	6	PM2.5	1-Hour	116.3	1.9	279° (W)	412784
02-May	7	PM2.5	1-Hour	101.2	2.3	353° (N)	412784
12-May	6	PM2.5	1-Hour	82.4	2.3	47° (NE)	413091
12-May	7	PM2.5	1-Hour	102.4	3.8	41° (NE)	413091
12-May	-	PM2.5	24-Hour	35.7	2.9	77° (ENE)	413091

Date	Time (MST)	Parameter	Average Period	Concentration (µg/m3)	Wind speed (km/hr)	Wind Direction	Reference #
16-May	6	PM2.5	1-Hour	103.2	7.4	348° (NNW)	413524
16-May	7	PM2.5	1-Hour	180.9	10.3	2° (N)	413524
16-May	8	PM2.5	1-Hour	103.7	11.1	354° (N)	413524
19-May	17	PM2.5	1-Hour	80.2	4.8	256° (WSW)	413524
19-May	21	PM2.5	1-Hour	100.5	4.5	360° (N)	413524
19-May	22	PM2.5	1-Hour	119	5.6	8° (N)	413524
19-May	23	PM2.5	1-Hour	156.4	10.5	200° (SSW)	413524
19-May	-	PM2.5	24-Hour	48.7	7.1	199° (SSW)	413524
20-May	0	PM2.5	1-Hour	132.2	5.6	7° (N)	413524
20-May	1	PM2.5	1-Hour	102.9	2.7	31° (NNE)	413524
20-May	2	PM2.5	1-Hour	98.2	1.3	289° (WNW)	413524
20-May	3	PM2.5	1-Hour	91.1	2.7	294° (WNW)	413524
20-May	4	PM2.5	1-Hour	92.4	1.8	355° (N)	413524
20-May	5	PM2.5	1-Hour	95.7	2.1	16° (NNE)	413524
20-May	6	PM2.5	1-Hour	251.1	3.5	31° (NNE)	413524
20-May	7	PM2.5	1-Hour	462.3	5.0	53° (NE)	413524
20-May	8	PM2.5	1-Hour	473.8	7.4	46° (NE)	413524
20-May	9	PM2.5	1-Hour	509.4	8.6	50° (NE)	413524
20-May	10	PM2.5	1-Hour	489.7	8.1	50° (NE)	413524
20-May	11	PM2.5	1-Hour	424.6	8.6	38° (NE)	413524
20-May	12	PM2.5	1-Hour	335.7	5.9	88° (E)	413524
20-May	13	PM2.5	1-Hour	302.7	7.0	88° (E)	413524
20-May	14	PM2.5	1-Hour	252.9	5.7	88° (E)	413524
20-May	15	PM2.5	1-Hour	210.4	7.5	127° (SE)	413524
20-May	16	PM2.5	1-Hour	105.1	6.7	125° (SE)	413524
20-May	17	PM2.5	1-Hour	82.2	9.2	119° (ESE)	413524
20-May	22	PM2.5	1-Hour	82.1	4.6	91° (E)	413524
20-May	23	PM2.5	1-Hour	83.2	8.6	38° (E)	413524
20-May	-	PM2.5	24-Hour	202.7	5.5	77° (ENE)	413524
21-May	-	PM2.5	24-Hour	39	3.7	114° (ESE)	413524
22-May	15	PM2.5	1-Hour	82.3	19.7	50° (NE)	413925
22-May	16	PM2.5	1-Hour	240.4	17.7	54° (NE)	413925
22-May	17	PM2.5	1-Hour	302.7	18.0	53° (NE)	413925
22-May	18	PM2.5	1-Hour	376.7	14.9	69° (ENE)	413925
22-May	19	PM2.5	1-Hour	420.5	14.2	60° (ENE)	413925
22-May	20	PM2.5	1-Hour	424.3	12.9	70° (ENE)	413925

Date	Time (MST)	Parameter	Average Period	Concentration ($\mu\text{g}/\text{m}^3$)	Wind speed (km/hr)	Wind Direction	Reference #
22-May	21	PM2.5	1-Hour	460.7	12.1	79° (ENE)	413925
22-May	22	PM2.5	1-Hour	398	11.2	78° (ENE)	413925
22-May	23	PM2.5	1-Hour	297.7	9.8	50° (NE)	413925
22-May	-	PM2.5	24-Hour	144.3	10.3	59° (ENE)	413925
23-May	0	PM2.5	1-Hour	293	8.8	73° (ENE)	413925
23-May	1	PM2.5	1-Hour	208.9	8.8	74° (ENE)	413925
23-May	2	PM2.5	1-Hour	89.9	10.4	72° (ENE)	413925
23-May	-	PM2.5	24-Hour	40.7	10.5	90° (E)	413925
31-May	6	PM2.5	1-Hour	173.7	4.2	64° (ENE)	414427
31-May	7	PM2.5	1-Hour	332.5	5.7	36° (NE)	414427
31-May	8	PM2.5	1-Hour	264.3	5.7	56° (NE)	414427
31-May	9	PM2.5	1-Hour	223.4	8.5	43° (NE)	414427
31-May	10	PM2.5	1-Hour	160	8.3	71° (ENE)	414427
31-May	11	PM2.5	1-Hour	114.8	8.8	49° (NE)	414427
31-May	12	PM2.5	1-Hour	113.9	0.6	51° (NE)	414427
31-May	19	PM2.5	1-Hour	81.7	5.1	14° (NNE)	414427
31-May	-	PM2.5	24-Hour	91.9	5.6	36° (NE)	414427

- No major events were identified this month.

St. Lina Station

- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- All parameters met the 90% operational uptime requirement.
- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) where applicable, except PM2.5. Sixty 1-hour and six 24-hour PM2.5 exceedances were recorded this month. The source of the exceedance of the PM2.5 objective and guideline were due to wildfire smoke.

Date	Time (MST)	Parameter	Average Period	Concentration ($\mu\text{g}/\text{m}^3$)	Wind speed (km/hr)	Wind Direction	Reference #
19-May	16	PM2.5	1-Hour	143	15.0	281° (W)	413525
19-May	17	PM2.5	1-Hour	209	7.9	306° (NW)	413525
19-May	18	PM2.5	1-Hour	196	9.5	304° (WNW)	413525
19-May	19	PM2.5	1-Hour	211	7.6	313° (NW)	413525
19-May	20	PM2.5	1-Hour	247	8.4	330° (NNW)	413525
19-May	21	PM2.5	1-Hour	261	9.2	337° (NNW)	413525
19-May	22	PM2.5	1-Hour	267	8.4	331° (NNW)	413525
19-May	23	PM2.5	1-Hour	268	17.6	219° (SW)	413525
19-May	-	PM2.5	24-Hour	95	12.9	227° (SW)	413525

Date	Time (MST)	Parameter	Average Period	Concentration (µg/m3)	Wind speed (km/hr)	Wind Direction	Reference #
20-May	0	PM2.5	1-Hour	239	7.2	6° (N)	413525
20-May	1	PM2.5	1-Hour	191	6.8	7° (N)	413525
20-May	2	PM2.5	1-Hour	155	7.2	4° (N)	413525
20-May	3	PM2.5	1-Hour	144	6.2	351° (N)	413525
20-May	4	PM2.5	1-Hour	126	7.4	1° (N)	413525
20-May	5	PM2.5	1-Hour	108	7.6	22° (NNE)	413525
20-May	6	PM2.5	1-Hour	99	7.0	45° (NE)	413525
20-May	7	PM2.5	1-Hour	102	8.6	62° (ENE)	413525
20-May	8	PM2.5	1-Hour	150	7.5	77° (ENE)	413525
20-May	9	PM2.5	1-Hour	192	4.4	76° (ENE)	413525
20-May	10	PM2.5	1-Hour	251	3.0	76° (ENE)	413525
20-May	11	PM2.5	1-Hour	304	3.9	71° (ENE)	413525
20-May	12	PM2.5	1-Hour	296	4.2	92° (E)	413525
20-May	13	PM2.5	1-Hour	358	5.5	76° (ENE)	413525
20-May	14	PM2.5	1-Hour	410	9.4	87° (E)	413525
20-May	15	PM2.5	1-Hour	493	9.6	85° (E)	413525
20-May	16	PM2.5	1-Hour	373	9.9	91° (E)	413525
20-May	17	PM2.5	1-Hour	273	10.5	103° (ESE)	413525
20-May	18	PM2.5	1-Hour	190	10.7	109° (ESE)	413525
20-May	19	PM2.5	1-Hour	137	8.1	106° (ESE)	413525
20-May	20	PM2.5	1-Hour	113	8.9	101° (E)	413525
20-May	21	PM2.5	1-Hour	81	9.1	93° (E)	413525
20-May	-	PM2.5	24-Hour	203	7.6	71° (ENE)	413525
21-May	3	PM2.5	1-Hour	98	10.0	133° (SE)	413525
21-May	4	PM2.5	1-Hour	95	7.6	116° (ESE)	413525
21-May	5	PM2.5	1-Hour	105	8.1	116° (ESE)	413525
21-May	6	PM2.5	1-Hour	121	6.7	136° (SE)	413525
21-May	7	PM2.5	1-Hour	114	6.2	129° (SE)	413525
21-May	8	PM2.5	1-Hour	107	6.8	167° (SSE)	413525
21-May	9	PM2.5	1-Hour	102	6.8	160° (SSE)	413525
21-May	10	PM2.5	1-Hour	93	5.5	162° (SSE)	413525
21-May	11	PM2.5	1-Hour	85	5.9	139° (SE)	413525
21-May	-	PM2.5	24-Hour	65	8.1	111° (ESE)	413525
22-May	17	PM2.5	1-Hour	107	22.6	68° (ENE)	413928
22-May	18	PM2.5	1-Hour	164	23.2	71° (ENE)	413928
22-May	19	PM2.5	1-Hour	188	25.4	78° (ENE)	413928
22-May	20	PM2.5	1-Hour	276	25.9	82° (E)	413928
22-May	21	PM2.5	1-Hour	285	15.0	94° (E)	413928
22-May	22	PM2.5	1-Hour	198	12.7	81° (E)	413928

Date	Time (MST)	Parameter	Average Period	Concentration (µg/m3)	Wind speed (km/hr)	Wind Direction	Reference #
22-May	23	PM2.5	1-Hour	112	13.8	85° (E)	413928
22-May	-	PM2.5	24-Hour	79	15.4	77° (ENE)	413928
23-May	0	PM2.5	1-Hour	119	21.3	82° (E)	413928
23-May	1	PM2.5	1-Hour	139	22.2	88° (E)	413928
23-May	2	PM2.5	1-Hour	136	23.1	88° (E)	413928
23-May	3	PM2.5	1-Hour	140	21.7	90° (E)	413928
23-May	4	PM2.5	1-Hour	139	20.0	92° (E)	413928
23-May	5	PM2.5	1-Hour	136	20.3	98° (E)	413928
23-May	6	PM2.5	1-Hour	125	19.2	103° (ESE)	413928
23-May	7	PM2.5	1-Hour	111	15.9	100° (E)	413928
23-May	-	PM2.5	24-Hour	62	18.2	108° (ESE)	413928
31-May	13	PM2.5	1-Hour	94	11.3	41° (NE)	414425
31-May	14	PM2.5	1-Hour	118	11.0	47° (NE)	414425
31-May	15	PM2.5	1-Hour	116	10.3	51° (NE)	414425
31-May	16	PM2.5	1-Hour	110	10.0	44° (NE)	414425
31-May	17	PM2.5	1-Hour	100	9.4	38° (NE)	414425
31-May	18	PM2.5	1-Hour	89	9.3	29° (NNE)	414425
31-May	-	PM2.5	24-Hour	46	9.2	23° (NNE)	414425

- **THC/CH4/NMHC:** Due to frequent bad injections, the Thermo 55i analyzer, s/n: 1236656107, was removed and the Thermo 55i analyzer, s/n: 1180030034, was installed on May 5. The analyzer was allowed to stabilize overnight for column conditioning. An installation calibration was completed on May 6. Twenty-four hours of downtime were recorded due to this event.

Lac La Biche Station

- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- All parameters met the 90% operational uptime requirement.
- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) where applicable, except PM2.5. Sixty-six 1-hour and six 24-hour PM2.5 exceedances were recorded this month. The source of the exceedance of the PM2.5 objective and guideline were due to wildfire smoke.

Date	Time (MST)	Parameter	Average Period	Concentration (µg/m3)	Wind speed (km/hr)	Wind Direction	Reference #
19-May	16	PM2.5	1-Hour	167.9	8.9	277° (W)	413526
19-May	17	PM2.5	1-Hour	227.6	8.6	300° (WNW)	413526
19-May	18	PM2.5	1-Hour	262.9	11.8	320° (NW)	413526
19-May	19	PM2.5	1-Hour	291.1	9.2	321° (NW)	413526
19-May	20	PM2.5	1-Hour	265.6	6.3	319° (NW)	413526
19-May	21	PM2.5	1-Hour	237.6	4.6	330° (NNW)	413526
19-May	22	PM2.5	1-Hour	238.3	3.4	2° (N)	413526

Date	Time (MST)	Parameter	Average Period	Concentration (µg/m3)	Wind speed (km/hr)	Wind Direction	Reference #
19-May	23	PM2.5	1-Hour	200	7.1	187° (S)	413526
19-May	-	PM2.5	24-Hour	100	7.6	204° (SSW)	413526
20-May	0	PM2.5	1-Hour	151.2	3.9	348° (NNW)	413526
20-May	1	PM2.5	1-Hour	134	4.8	347° (NNW)	413526
20-May	2	PM2.5	1-Hour	147.3	3.8	336° (NNW)	413526
20-May	3	PM2.5	1-Hour	119.3	4.2	353° (N)	413526
20-May	4	PM2.5	1-Hour	103.3	2.8	23° (NNE)	413526
20-May	5	PM2.5	1-Hour	100.5	4.4	17° (NNE)	413526
20-May	6	PM2.5	1-Hour	93.2	3.3	26° (NNE)	413526
20-May	7	PM2.5	1-Hour	89.8	2.1	15° (NNE)	413526
20-May	8	PM2.5	1-Hour	89.4	3.5	322° (NW)	413526
20-May	9	PM2.5	1-Hour	96.4	3.8	4° (N)	413526
20-May	10	PM2.5	1-Hour	124.9	4.9	340° (NNW)	413526
20-May	11	PM2.5	1-Hour	138.9	4.9	336° (NNW)	413526
20-May	12	PM2.5	1-Hour	172.6	3.7	356° (N)	413526
20-May	13	PM2.5	1-Hour	184.5	3.4	7° (N)	413526
20-May	14	PM2.5	1-Hour	215.9	1.5	121° (ESE)	413526
20-May	15	PM2.5	1-Hour	256.7	7.0	139° (SE)	413526
20-May	16	PM2.5	1-Hour	404.5	5.4	121° (ESE)	413526
20-May	17	PM2.5	1-Hour	410.5	6.2	109° (ESE)	413526
20-May	18	PM2.5	1-Hour	248.4	7.1	115° (ESE)	413526
20-May	19	PM2.5	1-Hour	176.3	4.2	128° (SE)	413526
20-May	20	PM2.5	1-Hour	135.6	4.2	127° (SE)	413526
20-May	-	PM2.5	24-Hour	155.8	4.9	72° (ENE)	413526
21-May	5	PM2.5	1-Hour	93.3	8.6	132° (SE)	413526
21-May	6	PM2.5	1-Hour	100.3	7.1	143° (SE)	413526
21-May	7	PM2.5	1-Hour	104.1	8.4	137° (SE)	413526
21-May	8	PM2.5	1-Hour	106.1	6.0	144° (SE)	413526
21-May	9	PM2.5	1-Hour	106.3	5.2	124° (ESE)	413526
21-May	10	PM2.5	1-Hour	104.4	5.4	106° (ESE)	413526
21-May	11	PM2.5	1-Hour	100.3	7.5	127° (SE)	413526
21-May	13	PM2.5	1-Hour	91	6.7	107° (ESE)	413526
21-May	14	PM2.5	1-Hour	93.4	5.5	104° (ESE)	413526
21-May	15	PM2.5	1-Hour	101	5.9	109° (ESE)	413526
21-May	16	PM2.5	1-Hour	104.4	5.7	147° (SE)	413526

Date	Time (MST)	Parameter	Average Period	Concentration (µg/m ³)	Wind speed (km/hr)	Wind Direction	Reference #
21-May	17	PM2.5	1-Hour	94.9	6.6	125° (SE)	413526
21-May	18	PM2.5	1-Hour	85.1	5.8	128° (SE)	413526
21-May	19	PM2.5	1-Hour	80.2	3.1	110° (ESE)	413526
21-May	-	PM2.5	24-Hour	84.6	6.9	127° (SE)	413526
22-May	13	PM2.5	1-Hour	88	11.6	42° (NE)	413932
22-May	14	PM2.5	1-Hour	143.8	15.8	47° (NE)	413932
22-May	15	PM2.5	1-Hour	146.8	15.1	54° (NE)	413932
22-May	16	PM2.5	1-Hour	184.1	18.0	61° (ENE)	413932
22-May	17	PM2.5	1-Hour	240	18.4	65° (ENE)	413932
22-May	18	PM2.5	1-Hour	250.9	19.7	71° (ENE)	413932
22-May	19	PM2.5	1-Hour	281.2	19.6	75° (ENE)	413932
22-May	20	PM2.5	1-Hour	319.9	16.9	80° (E)	413932
22-May	21	PM2.5	1-Hour	351	11.0	90° (E)	413932
22-May	22	PM2.5	1-Hour	380.5	8.1	88° (E)	413932
22-May	23	PM2.5	1-Hour	370	6.7	46° (NE)	413932
22-May	-	PM2.5	24-Hour	143.5	10.2	65° (ENE)	413932
23-May	0	PM2.5	1-Hour	343.9	13.4	75° (ENE)	413932
23-May	1	PM2.5	1-Hour	331.6	12.4	80° (E)	413932
23-May	2	PM2.5	1-Hour	225.9	12.4	85° (E)	413932
23-May	3	PM2.5	1-Hour	139.8	11.0	91° (E)	413932
23-May	4	PM2.5	1-Hour	111	12.2	97° (E)	413932
23-May	5	PM2.5	1-Hour	103.8	12.9	102° (E)	413932
23-May	6	PM2.5	1-Hour	97.2	15.7	110° (ESE)	413932
23-May	7	PM2.5	1-Hour	94.2	14.6	109° (ESE)	413932
23-May	8	PM2.5	1-Hour	83.3	14.8	108° (ESE)	413932
23-May	-	PM2.5	24-Hour	80.4	12.9	102° (E)	413932
31-May	11	PM2.5	1-Hour	87.2	4.6	285° (WNW)	414424
31-May	12	PM2.5	1-Hour	85.4	8.3	64° (ENE)	414424
31-May	15	PM2.5	1-Hour	91.5	6.5	339° (NNW)	414424
31-May	-	PM2.5	24-Hour	39.7	6.0	357° (N)	414424

- H2S:** On May 18, the BV's API 101A analyzer, s/n: 324, was removed, and the LICA's Thermo 450i analyzer, s/n: CM17360002, was installed. The analyzer was allowed time to stabilize overnight. A successful installation calibration was completed on May 19. Twenty-one hours of downtime were recorded due to this event.

Integrated Sampling

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

- **VOCs Sampling System:**
 - The VOC sampler is programmed to collect a 24-hour sample of air every sixth day as per the National Air Pollution Surveillance schedule (NAPS).
 - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
 - The Xonteck VOC sampler verification/calibration was completed on May 20. The sampler passed the check requirement.
 - Five samples were collected this month: on May 6, 12, 18, 24 and 30.
- **PAHs Sampling System:**
 - The PUF sampler is programmed to collect a 24-hour sample of air every sixth day as per the National Air Pollution Surveillance schedule (NAPS).
 - Five samples were collected this month: on May 6, 12, 18, 24 and 30.
- **Partisol Sampling System:**
 - The Partisol sampler is programmed to collect a 24-hour sample of air every sixth day as per National Air Pollution Surveillance schedule (NAPS).
 - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
 - The Partisol 2000p-D Partisol sampler audit was completed on May 20. The sampler passed the audit requirements.
 - Five samples were collected this month: on May 6, 12, 18, 24 and 30.
- **Passive Sampling System:**
 - There were no exceedances of the AAAQOs for all monitored parameters at any of the passive stations during this month.
 - The passive sample filters were installed at the stations March 30 and May 1, and were removed between May 28 and May 30.
 - A total of 13 duplicate samples were collected: 2 for H₂S, 3 for SO₂, 2 for NO₂, 2 for O₃, 2 for HNO₃ and 2 for NH₃.
 - Station 18: The sample media for the SO₂ and H₂S were destroyed, likely by a bear. As a result, no analytical results were reported.
- **PAC Sampling System:**
 - The PAC sampling program began in December 2019, and is designed to collect a 2-month integrated sample.
 - The media for the May/June monitoring period were installed between May 28 and May 30. They are scheduled to be replaced in late June or early July.
- **NMHC canister Sampling System:**
 - The canister sampling program collects a 1-hour sample of air when the continuously non-methane hydrocarbon (NMHC) concentration reaches a specified trigger point. The current trigger point is 0.3 ppm and is based on real-time monitoring data that are averaged over a 5-minute period.
 - One canister event was recorded on May 25 at 07:35, at concentration of 0.47ppm. However, the canister event was missed during the daily data review. The sample therefore passed the sample hold time and became invalid. Investigation is being conducted to determine the root cause to prevent future occurrences.

Revisions to Alberta's Ambient Air Quality Data Warehouse

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

Deviations from Authorized Monitoring Methods

No deviations from authorized monitoring methods were recorded this month.

Disclaimer

Baseline correction were performed on the 1-minute data. 5-minute and hourly data were calculated based on the post-baseline correction 1-minute data set. Data verification/validation were then performed on the 5-minute and hourly data. Hourly data that are included in this report are the post-validation hourly data set.

Equipment calibration / maintenance records were provided by Bureau Veritas Canada.

Certification

This report was prepared and submitted by Lily Lin in accordance with Chapter 9 of the Air Monitoring Directive (AMD 2016).



Lily Lin, Data & Reporting Specialist, LICA Airshed

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

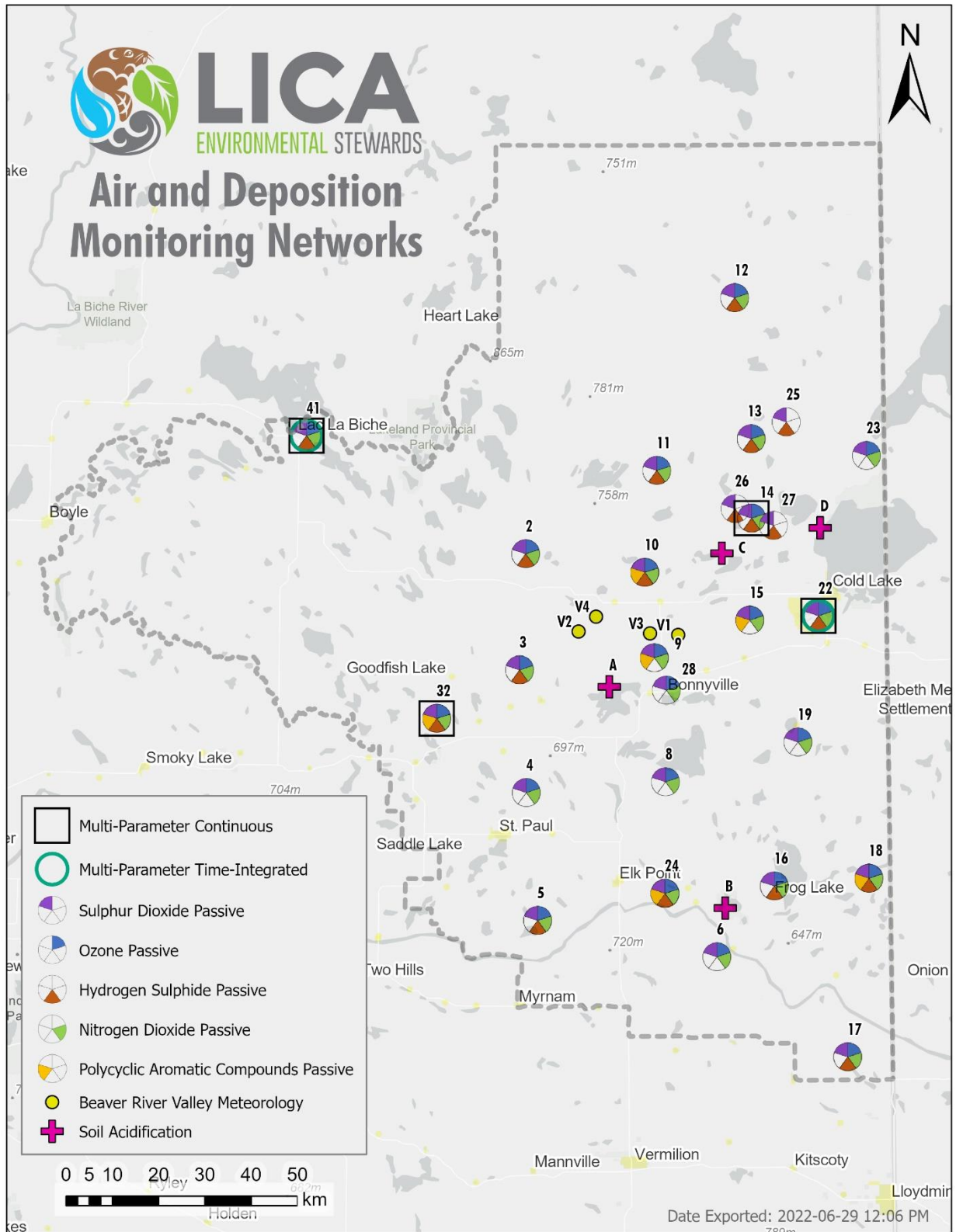
I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements. I also certify that at the time of this report's submission, all air data have been electronically uploaded to Alberta's Ambient Air Quality Data Warehouse as required by the AMD. Uploading of VOC data from the canister sampling program was not required at the time of completing this report.



Michael Bisaga, Monitoring Programs Manager, LICA Airshed

June 29, 2023

Map of LICA Continuous Monitoring Network



CONTINUOUS NETWORK EQUIPMENT AND MONITORING RESULTS SUMMARY

Cold Lake South Station

Equipment Operation Summary

Parameter	Calibration Date	Equipment Operational Summary
SO2 Thermo 43i-TLE #1180260018	May 8, 2023	<ul style="list-style-type: none"> • Due to datalogger error (stalled updated) on May 31, no data were collected between hour 15 and hour 23. The problem was corrected on June 1. Nine hours of downtime were recorded.
TRS Thermo 450i #812728560 TRS convertor CD Nova CDN-101 #501	May 8, 2023	<ul style="list-style-type: none"> • Due to datalogger error (stalled updated) on May 31, no data were collected between hour 15 and hour 23. The problem was corrected on June 1. Nine hours of downtime were recorded.
NOx/NO/NO2 Thermo 42i #1505664393	May 8, 2023	<ul style="list-style-type: none"> • Hourly data collected on May 8 hour 16 was discarded due to a tech error. One hour of downtime was recorded. • Due to datalogger error (stalled updated) on May 31, no data were collected between hour 15 and hour 23. The problem was corrected on June 1. Nine hours of downtime were recorded.
O3 Thermo 49iQ #12208316585	May 25, 2023	<ul style="list-style-type: none"> • The monthly calibration was completed on May 7. • The analyzer showed span drifts after the May 7's calibration and failed the May 24's daily span check. A repeat calibration was completed on May 25 to correct the drift. Seven hours of downtime were recorded due to the additional quality check. • Due to datalogger error (stalled updated) on May 31, no data were collected between hour 15 and hour 23. The problem was corrected on June 1. Nine hours of downtime were recorded.
THC/CH4/NMHC Thermo 55i #1180930025 H2 Generator HG300 #210567071	May 7, 2023	<ul style="list-style-type: none"> • A new span gas cylinder was connected on May 7. • Maintenance was performed on the hydrogen generator to install a new desiccant cartridge on May 26. Two hours of downtime were recorded due to this event. • Due to datalogger error (stalled updated) on May 31, no data were collected between hour 15 and hour 23. The problem was corrected on June 1. Nine hours of downtime were recorded.

Parameter	Calibration Date	Equipment Operational Summary
PM2.5 Teledyne T640 #575	May 7, 2023	<ul style="list-style-type: none"> Due to datalogger error (stalled updated) on May 31, no data were collected between hour 15 and hour 23. The problem was corrected on June 1. Nine hours of downtime were recorded.
Parameter	Verification Date	Equipment Operational Summary
RH Rotronic HC2A-S3 #20257103	May 8, 2023	<ul style="list-style-type: none"> Due to datalogger error (stalled updated) on May 31, no data were collected between hour 15 and hour 23. The problem was corrected on June 1. Nine hours of downtime were recorded.
BP Met One 092 #Y23368	May 8, 2023	<ul style="list-style-type: none"> Due to datalogger error (stalled updated) on May 31, no data were collected between hour 15 and hour 23. The problem was corrected on June 1. Nine hours of downtime were recorded.
AT Rotronic HC2A-S3 #20257103	May 8, 2023	<ul style="list-style-type: none"> Due to datalogger error (stalled updated) on May 31, no data were collected between hour 15 and hour 23. The problem was corrected on June 1. Nine hours of downtime were recorded.
ST COMET #NA	May 8, 2023	<ul style="list-style-type: none"> Due to datalogger error (stalled updated) on May 31, no data were collected between hour 15 and hour 23. The problem was corrected on June 1. Nine hours of downtime were recorded.
WS/WD/STDWD RM Young 05305AQ #177354	May 8, 2023	<ul style="list-style-type: none"> Wind direction data contained in this report represents where the wind is coming from. An annual wind system calibration was completed on July 6, 2022. Due to datalogger error (stalled updated) on May 31, no data were collected between hour 15 and hour 23. The problem was corrected on June 1. Nine hours of downtime were recorded.

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	3	May 26 at hr 8	4	NNW	0.5	May 17	98.8	93.8
TRS (ppb)	-	-	-	-	-	-	0.4	0	2	May 19 at hr 22	6.2	NNE	1.1	May 22	98.8	93.8
NOx (ppb)	-	-	-	-	-	-	2.6	1	15	May 31 at hr 9	7.2	NNE	4.9	May 20	98.7	93.4
NO (ppb)	-	-	-	-	-	-	0.1	0	8	May 31 at hr 9	7.2	NNE	0.3	May 26	98.7	93.4
NO2 (ppb)	159	-	-	0	-	-	2.5	1	11	May 19 at hr 22	6.2	NNE	4.9	May 20	98.7	93.4
O3 (ppb)	76	-	-	1	-	-	40.6	2.2	77.2	May 4 at hr 18	8.7	ESE	59.8	May 4	97.8	92.8
THC (ppm)	-	-	-	-	-	-	1.98	1.88	2.41	May 13 at hr 13	8	SW	2.05	May 13	98.5	93.5
CH4 (ppm)	-	-	-	-	-	-	1.98	1.88	2.38	May 16 at hr 1	0.4	SW	2.05	May 20	98.5	93.5
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.45	May 13 at hr 13	8	SW	0.02	May 13	98.5	93.5
PM2.5 (µg/m3)	80	29	-	54	6	-	37.0	3	726	May 20 at hr 9	9.3	NE	338.3	May 20	98.8	98.5
RH (%)	-	-	-	-	-	-	54.7	16	100	May 28 at hr 22	1.9	SSW	80.4	May 23	98.8	98.8
BP (millibar)	-	-	-	-	-	-	952	939	968	May 14 at hr 5	0.2	WSW	966	May 13	98.8	98.8
Ext. Temp. (°C)	-	-	-	-	-	-	15.3	1.9	29.3	May 4 at hr 13	11.5	SE	22.1	May 4	98.8	98.8
Stn. Temp. (°C)	-	-	-	-	-	-	22.8	22.1	24.4	May 1 at hr 4	8.7	SE	23.4	May 1	98.8	98.8
WSV (km/hr)	-	-	-	-	-	-	2.8	0.0	21.7	May 16 at hr 16	21.7	NNW	13.5	May 23	98.8	98.8
WDV (sector)	-	-	-	-	-	-	101 (E)	-	-	-	-	-	-	-	98.8	98.8

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

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

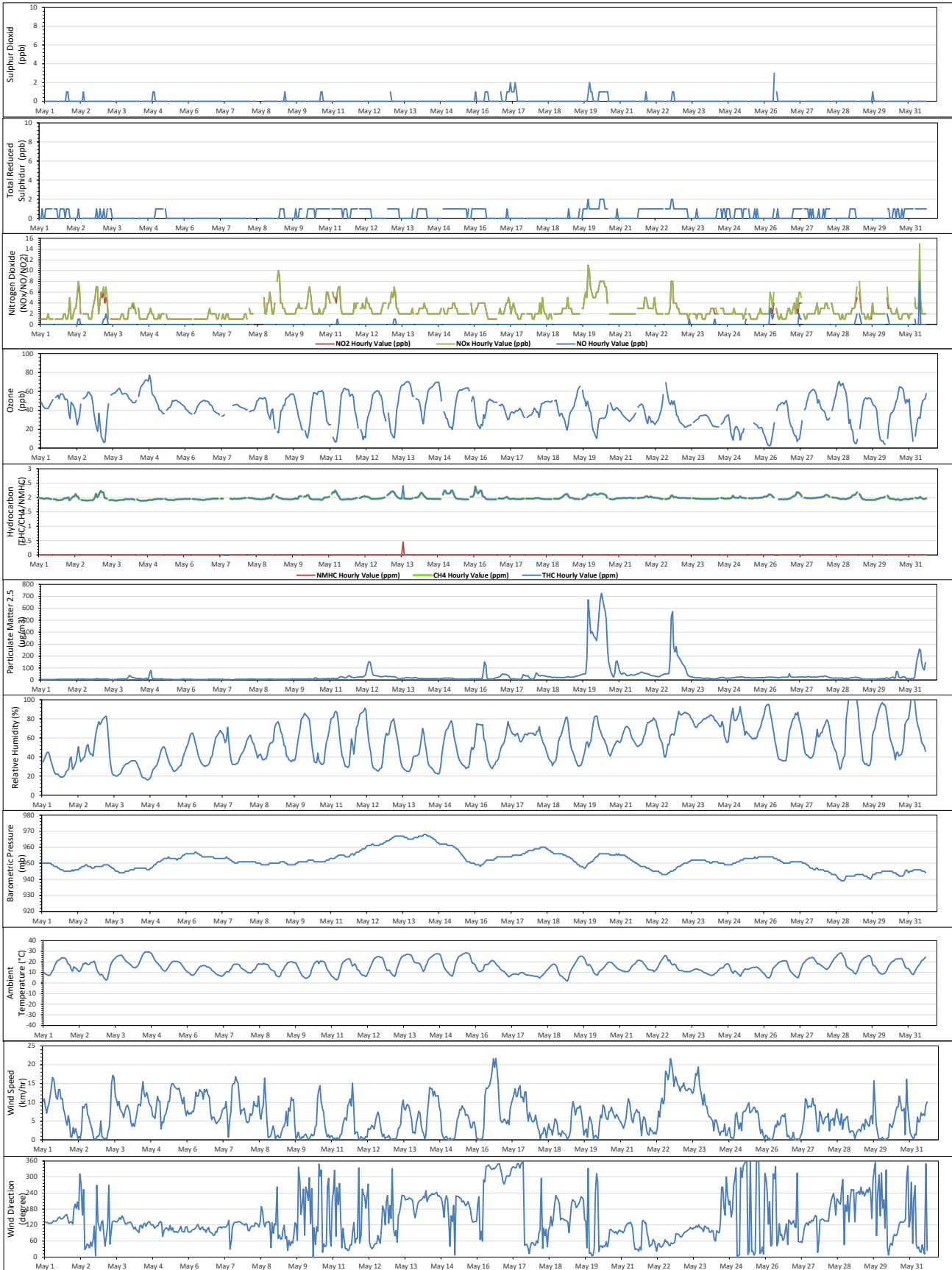
The following exceedances of AAAQOs were observed at the Cold Lake South Station.

Date	Time (MST)	Parameter	Average Period	AAAQOs / AAAGs	Concentration	Wind speed	Wind Direction	Reference #
May 4	18	O3	1-Hour	76 ppb	77.2 ppb	8.7 km/hr	121° (ESE)	412525
May 4	19	PM2.5	1-Hour	80 µg/m3	81 µg/m3	6.4 km/hr	107° (ESE)	415195
May 12	6	PM2.5	1-Hour	80 µg/m3	81 µg/m3	3.1 km/hr	57° (ENE)	413092
May 12	7	PM2.5	1-Hour	80 µg/m3	126 µg/m3	2.7 km/hr	39° (NE)	413092
May 12	8	PM2.5	1-Hour	80 µg/m3	154 µg/m3	3.0 km/hr	31° (NNE)	413092
May 12	9	PM2.5	1-Hour	80 µg/m3	147 µg/m3	3.9 km/hr	36° (NE)	413092
May 12	10	PM2.5	1-Hour	80 µg/m3	102 µg/m3	3.6 km/hr	45° (NE)	413092
May 12	-	PM2.5	24-Hour	29 µg/m3	51 µg/m3	2.5 km/hr	66° (ENE)	413092
May 16	8	PM2.5	1-Hour	80 µg/m3	153 µg/m3	13.8 km/hr	340° (NNW)	413527
May 16	21	PM2.5	1-Hour	80 µg/m3	122 µg/m3	4.7 km/hr	284° (WNW)	413527
May 19	21	PM2.5	1-Hour	80 µg/m3	181 µg/m3	4.4 km/hr	14° (NNE)	413527
May 19	22	PM2.5	1-Hour	80 µg/m3	671 µg/m3	6.2 km/hr	16° (NNE)	413527
May 19	23	PM2.5	1-Hour	80 µg/m3	564 µg/m3	9.1 km/hr	190° (SSW)	413527
May 19	-	PM2.5	24-Hour	29 µg/m3	87 µg/m3	4.7 km/hr	203° (SSW)	413527
May 20	0	PM2.5	1-Hour	80 µg/m3	391 µg/m3	4.0 km/hr	7° (N)	413527
May 20	1	PM2.5	1-Hour	80 µg/m3	405 µg/m3	0.2 km/hr	32° (NNE)	413527
May 20	2	PM2.5	1-Hour	80 µg/m3	384 µg/m3	1.0 km/hr	242° (WSW)	413527
May 20	3	PM2.5	1-Hour	80 µg/m3	363 µg/m3	1.2 km/hr	313° (NW)	413527
May 20	4	PM2.5	1-Hour	80 µg/m3	348 µg/m3	0.6 km/hr	279° (W)	413527
May 20	5	PM2.5	1-Hour	80 µg/m3	329 µg/m3	0.3 km/hr	20° (NNE)	413527
May 20	6	PM2.5	1-Hour	80 µg/m3	411 µg/m3	4.2 km/hr	41° (NE)	413527
May 20	7	PM2.5	1-Hour	80 µg/m3	569 µg/m3	6.6 km/hr	42° (NE)	413527
May 20	8	PM2.5	1-Hour	80 µg/m3	665 µg/m3	5.9 km/hr	35° (NE)	413527
May 20	9	PM2.5	1-Hour	80 µg/m3	726 µg/m3	9.3 km/hr	42° (NE)	413527
May 20	10	PM2.5	1-Hour	80 µg/m3	674 µg/m3	8.7 km/hr	40° (NE)	413527
May 20	11	PM2.5	1-Hour	80 µg/m3	621 µg/m3	6.7 km/hr	57° (ENE)	413527
May 20	12	PM2.5	1-Hour	80 µg/m3	579 µg/m3	5.6 km/hr	39° (NE)	413527
May 20	13	PM2.5	1-Hour	80 µg/m3	509 µg/m3	5.4 km/hr	58° (ENE)	413527
May 20	14	PM2.5	1-Hour	80 µg/m3	279 µg/m3	7.5 km/hr	103° (ESE)	413527
May 20	15	PM2.5	1-Hour	80 µg/m3	151 µg/m3	7.6 km/hr	104° (ESE)	413527
May 20	16	PM2.5	1-Hour	80 µg/m3	100 µg/m3	8.7 km/hr	98° (E)	413527
May 20	21	PM2.5	1-Hour	80 µg/m3	151 µg/m3	6.4 km/hr	94° (E)	413527
May 20	22	PM2.5	1-Hour	80 µg/m3	159 µg/m3	5.6 km/hr	101° (E)	413527

Date	Time (MST)	Parameter	Average Period	AAAOs / AAAGs	Concentration	Wind speed	Wind Direction	Reference #
May 20	23	PM2.5	1-Hour	80 µg/m3	120 µg/m3	9.3 km/hr	57° (NE)	413527
May 20	-	PM2.5	24-Hour	29 µg/m3	338 µg/m3	5.3 km/hr	71° (ENE)	413527
May 21	-	PM2.5	24-Hour	29 µg/m3	51 µg/m3	5.6 km/hr	91° (E)	413527
May 22	18	PM2.5	1-Hour	80 µg/m3	165 µg/m3	20.1 km/hr	50° (NE)	413933
May 22	19	PM2.5	1-Hour	80 µg/m3	527 µg/m3	17.8 km/hr	52° (NE)	413933
May 22	20	PM2.5	1-Hour	80 µg/m3	571 µg/m3	14.2 km/hr	56° (NE)	413933
May 22	21	PM2.5	1-Hour	80 µg/m3	281 µg/m3	16.9 km/hr	87° (E)	413933
May 22	22	PM2.5	1-Hour	80 µg/m3	235 µg/m3	16.1 km/hr	87° (E)	413933
May 22	23	PM2.5	1-Hour	80 µg/m3	280 µg/m3	9.7 km/hr	51° (ENE)	413933
May 22	-	PM2.5	24-Hour	29 µg/m3	116 µg/m3	10.9 km/hr	57° (ENE)	413933
May 23	0	PM2.5	1-Hour	80 µg/m3	209 µg/m3	14.2 km/hr	81° (E)	413933
May 23	1	PM2.5	1-Hour	80 µg/m3	193 µg/m3	12.9 km/hr	75° (ENE)	413933
May 23	2	PM2.5	1-Hour	80 µg/m3	180 µg/m3	14.1 km/hr	76° (ENE)	413933
May 23	3	PM2.5	1-Hour	80 µg/m3	160 µg/m3	14.1 km/hr	85° (E)	413933
May 23	4	PM2.5	1-Hour	80 µg/m3	142 µg/m3	15.2 km/hr	90° (E)	413933
May 23	5	PM2.5	1-Hour	80 µg/m3	124 µg/m3	13.8 km/hr	95° (E)	413933
May 23	6	PM2.5	1-Hour	80 µg/m3	117 µg/m3	13.1 km/hr	97° (E)	413933
May 23	7	PM2.5	1-Hour	80 µg/m3	91 µg/m3	13.2 km/hr	100° (E)	413933
May 23	-	PM2.5	24-Hour	29 µg/m3	66 µg/m3	13.5 km/hr	102° (E)	413933
May 31	6	PM2.5	1-Hour	80 µg/m3	101 µg/m3	6.1 km/hr	32° (NNE)	414423
May 31	7	PM2.5	1-Hour	80 µg/m3	169 µg/m3	4.8 km/hr	37° (NE)	414423
May 31	8	PM2.5	1-Hour	80 µg/m3	209 µg/m3	4.9 km/hr	21° (NNE)	414423
May 31	9	PM2.5	1-Hour	80 µg/m3	258 µg/m3	7.2 km/hr	17° (NNE)	414423
May 31	10	PM2.5	1-Hour	80 µg/m3	248 µg/m3	6.5 km/hr	45° (NE)	414423
May 31	11	PM2.5	1-Hour	80 µg/m3	144 µg/m3	6.9 km/hr	28° (NNE)	414423
May 31	12	PM2.5	1-Hour	80 µg/m3	96 µg/m3	6.5 km/hr	11° (NNE)	414423
May 31	13	PM2.5	1-Hour	80 µg/m3	85 µg/m3	9.0 km/hr	350° (N)	414423
May 31	14	PM2.5	1-Hour	80 µg/m3	146 µg/m3	10.1 km/hr	25° (NNE)	414423

The cause of the exceedance of the ozone objective was due to Alberta wildfires. Large amounts of volatile and semi-volatile organic materials and nitrogen oxides were emitted from wildfires, and react with the sun and heat to form excessive ground-level ozone.
The source of the exceedance of the PM2.5 objectives and guidelines were due to Alberta wildfires.

Timeseries Chart of Hourly Average for the month of May 2023 - Cold Lake South Station



Tamarack Station

Equipment Operation Summary

Parameter	Calibration Date	Equipment Operational Summary
SO2 Thermo 43i-TLE #1180930031	May 11, 2023	<ul style="list-style-type: none"> Hourly data collected on May 12 hour 9 was discarded due to Intermittent polling issues. No data were collected between May 16 hour 11 and May 17 hour 9 as the station's UPS failed to restart after a planned power outage. The station's network was reconfigured to improve its stability and bring the UPS online. The UPS firmware was also updated. A zero-span check was completed to confirm the analyzer's functionality. Twenty-five hours of downtime were recorded due to this event.
H2S Thermo 450i #CM17360005	May 11, 2023	<ul style="list-style-type: none"> Hourly data collected on May 12 hour 9 was discarded due to Intermittent polling issues. No data were collected between May 16 hour 11 and May 17 hour 9 as the station's UPS failed to restart after a planned power outage. The station's network was reconfigured to improve its stability and bring the UPS online. The UPS firmware was also updated. A zero-span check was completed to confirm the analyzer's functionality. Twenty-five hours of downtime were recorded due to this event.
NOx/NO/NO2 Thermo 42i #1180930028	May 11, 2023	<ul style="list-style-type: none"> Hourly data collected on May 12 hour 9 was discarded due to Intermittent polling issues. No data were collected between May 16 hour 11 and May 17 hour 9 as the station's UPS failed to restart after a planned power outage. The station's network was reconfigured to improve its stability and bring the UPS online. The UPS firmware was also updated. A zero-span check was completed to confirm the analyzer's functionality. Twenty-five hours of downtime were recorded due to this event.
O3 Thermo 49iQ #1202068570	May 12, 2023	<ul style="list-style-type: none"> An error with the datalogger affected the data collection on May 11 hour 11. The polling software and datalogger were restarted at hour 12 to correct the issue. Two hours of downtime were recorded. No data were collected between May 16 hour 11 and May 17 hour 9 as the station's UPS failed to restart after a planned power outage. The station's network was reconfigured to improve its stability and bring the UPS online. The UPS firmware was also updated. A zero-span check was completed to confirm the analyzer's functionality. Twenty-five hours of downtime were recorded due to this event.

Parameter	Calibration Date	Equipment Operational Summary
THC/CH4/NMHC Thermo 55i #1180930026	May 12, 2023	<ul style="list-style-type: none"> • An error with the datalogger affected the data collection on May 11 hour 11. The polling software and datalogger were restarted at hour 12 to correct the issue. Two hours of downtime were recorded. • A new N2 gas cylinder was installed on May 12. • No data were collected between May 16 hour 11 and May 17 hour 9 as the station's UPS failed to restart after a planned power outage. The station's network was reconfigured to improve its stability and bring the UPS online. The UPS firmware was also updated. A zero-span check was completed to confirm the analyzer's functionality. Twenty-five hours of downtime were recorded due to this event.
PM2.5 Thermo Sharp 5030 #CM2209	May 12, 2023	<ul style="list-style-type: none"> • An error with the datalogger affected the data collection on May 11 hour 11. The polling software and datalogger were restarted at hour 12 to correct the issue. Two hours of downtime were recorded. • Hourly data collected on May 12 hour 9 was discarded due to Intermittent polling issues. • No data were collected between May 16 hour 11 and May 17 hour 9 as the station's UPS failed to restart after a planned power outage. The station's network was reconfigured to improve its stability and bring the UPS online. The UPS firmware was also updated. Twenty-four hours of downtime were recorded due to this event.
Parameter	Verification Date	Equipment Operational Summary
RH Rotronic HC2A-S3 #20433166	May 12, 2023	<ul style="list-style-type: none"> • An error with the datalogger affected the data collection on May 11 hour 11. The polling software and datalogger were restarted at hour 12 to correct the issue. Two hours of downtime were recorded. • Hourly data collected on May 12 hour 9 was discarded due to Intermittent polling issues. • No data were collected between May 16 hour 11 and May 17 hour 9 as the station's UPS failed to restart after a planned power outage. The station's network was reconfigured to improve its stability and bring the UPS online. The UPS firmware was also updated. Twenty-four hours of downtime were recorded due to this event.

Parameter	Verification Date	Equipment Operational Summary
BP Met One 090D #F4497	May 12, 2023	<ul style="list-style-type: none"> • An error with the datalogger affected the data collection on May 11 hour 11. The polling software and datalogger were restarted at hour 12 to correct the issue. Two hours of downtime were recorded. • Hourly data collected on May 12 hour 9 was discarded due to Intermittent polling issues. • No data were collected between May 16 hour 11 and May 17 hour 9 as the station's UPS failed to restart after a planned power outage. The station's network was reconfigured to improve its stability and bring the UPS online. The UPS firmware was also updated. Twenty-four hours of downtime were recorded due to this event.
AT Rotronic HC2A-S3 #20433166	May 12, 2023	<ul style="list-style-type: none"> • An error with the datalogger affected the data collection on May 11 hour 11. The polling software and datalogger were restarted at hour 12 to correct the issue. Two hours of downtime were recorded. • Hourly data collected on May 12 hour 9 was discarded due to Intermittent polling issues. • No data were collected between May 16 hour 11 and May 17 hour 9 as the station's UPS failed to restart after a planned power outage. The station's network was reconfigured to improve its stability and bring the UPS online. The UPS firmware was also updated. Twenty-four hours of downtime were recorded due to this event.
ST COMET #NA	May 12, 2023	<ul style="list-style-type: none"> • An error with the datalogger affected the data collection on May 11 hour 11. The polling software and datalogger were restarted at hour 12 to correct the issue. Two hours of downtime were recorded. • Hourly data collected on May 12 hour 9 was discarded due to Intermittent polling issues. • No data were collected between May 16 hour 11 and May 17 hour 9 as the station's UPS failed to restart after a planned power outage. The station's network was reconfigured to improve its stability and bring the UPS online. The UPS firmware was also updated. Twenty-four hours of downtime were recorded due to this event.

Parameter	Verification Date	Equipment Operational Summary
<p>Precipitation</p> <p>MetOne 387 #C13580</p>	<p>May 12, 2023</p>	<ul style="list-style-type: none"> • An error with the datalogger affected the data collection on May 11 hour 11. The polling software and datalogger were restarted at hour 12 to correct the issue. Two hours of downtime were recorded. • Hourly data collected on May 12 hour 9 was discarded due to Intermittent polling issues. • No data were collected between May 16 hour 11 and May 17 hour 9 as the station's UPS failed to restart after a planned power outage. The station's network was reconfigured to improve its stability and bring the UPS online. The UPS firmware was also updated. Twenty-four hours of downtime were recorded due to this event.
<p>WS/WD/STDWD</p> <p>RM Young 05305VK #161465</p>	<p>May 12, 2023</p>	<ul style="list-style-type: none"> • Wind direction data contained in this report represents where the wind is coming from. • An annual wind system calibration was completed on July 26, 2022. • An error with the datalogger affected the data collection on May 11 hour 11. The polling software and datalogger were restarted at hour 12 to correct the issue. Two hours of downtime were recorded. • Hourly data collected on May 12 hour 9 was discarded due to Intermittent polling issues. • No data were collected between May 16 hour 11 and May 17 hour 9 as the station's UPS failed to restart after a planned power outage. The station's network was reconfigured to improve its stability and bring the UPS online. The UPS firmware was also updated. Twenty-four hours of downtime were recorded due to this event.

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	0.8	0	12	May 7 at hr 0	6.6	ESE	3.5	May 7	96.5	91.5
H2S (ppb)	10	3	-	0	0	-	0.1	0	2	May 4 at hr 7	8.3	ESE	1.0	May 27	96.5	91.5
NOx (ppb)	-	-	-	-	-	-	3.9	1	44	May 3 at hr 5	1.2	ENE	8.4	May 7	96.5	91.2
NO (ppb)	-	-	-	-	-	-	0.3	0	28	May 3 at hr 5	1.2	ENE	1.3	May 3	96.5	91.2
NO2 (ppb)	159	-	-	0	-	-	3.5	1	25	May 4 at hr 19	8.7	ESE	7.4	May 7	96.5	91.2
O3 (ppb)	76	-	-	0	-	-	37.6	0.4	70.1	May 28 at hr 13	7.4	SW	52.4	May 15	96.4	91.5
THC (ppm)	-	-	-	-	-	-	2.00	1.93	2.42	May 13 at hr 5	0.7	NNE	2.06	May 20	96.4	91.5
CH4 (ppm)	-	-	-	-	-	-	2.00	1.93	2.42	May 13 at hr 5	0.7	NNE	2.06	May 20	96.4	91.5
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.13	May 10 at hr 6	1.1	NW	0.01	May 10	96.4	91.5
PM2.5 (µg/m3)	80	29	-	51	7	-	30.6	2	509	May 20 at hr 9	8.6	NE	202.7	May 20	96.4	96.2
RH (%)	-	-	-	-	-	-	56.2	13	100	May 3 at hr 3	0.4	NNE	92.8	May 23	96.4	96.4
BP (millibar)	-	-	-	-	-	-	939	928	956	May 13 at hr 9	5.7	SSW	954	May 13	96.4	96.4
Ext. Temp. (°C)	-	-	-	-	-	-	14.8	2.4	28.9	May 4 at hr 14	11.4	ESE	21.2	May 15	96.4	96.4
Stn. Temp. (°C)	-	-	-	-	-	-	22.0	20.4	23.1	May 3 at hr 9	8.3	SSE	22.6	May 3	96.4	96.4
Precipitation (mm)*	-	-	-	-	-	-	19.8	0.0	4.0	May 31 at hr 20	7	WNW	4.1	May 31	96.4	96.4
WSV (km/hr)	-	-	-	-	-	-	2.7	0.0	19.7	May 22 at hr 15	19.7	NE	10.5	May 23	96.4	96.4
WDV (sector)	-	-	-	-	-	-	124 (ESE)	-	-	-	-	-	-	-	96.4	96.4

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

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

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

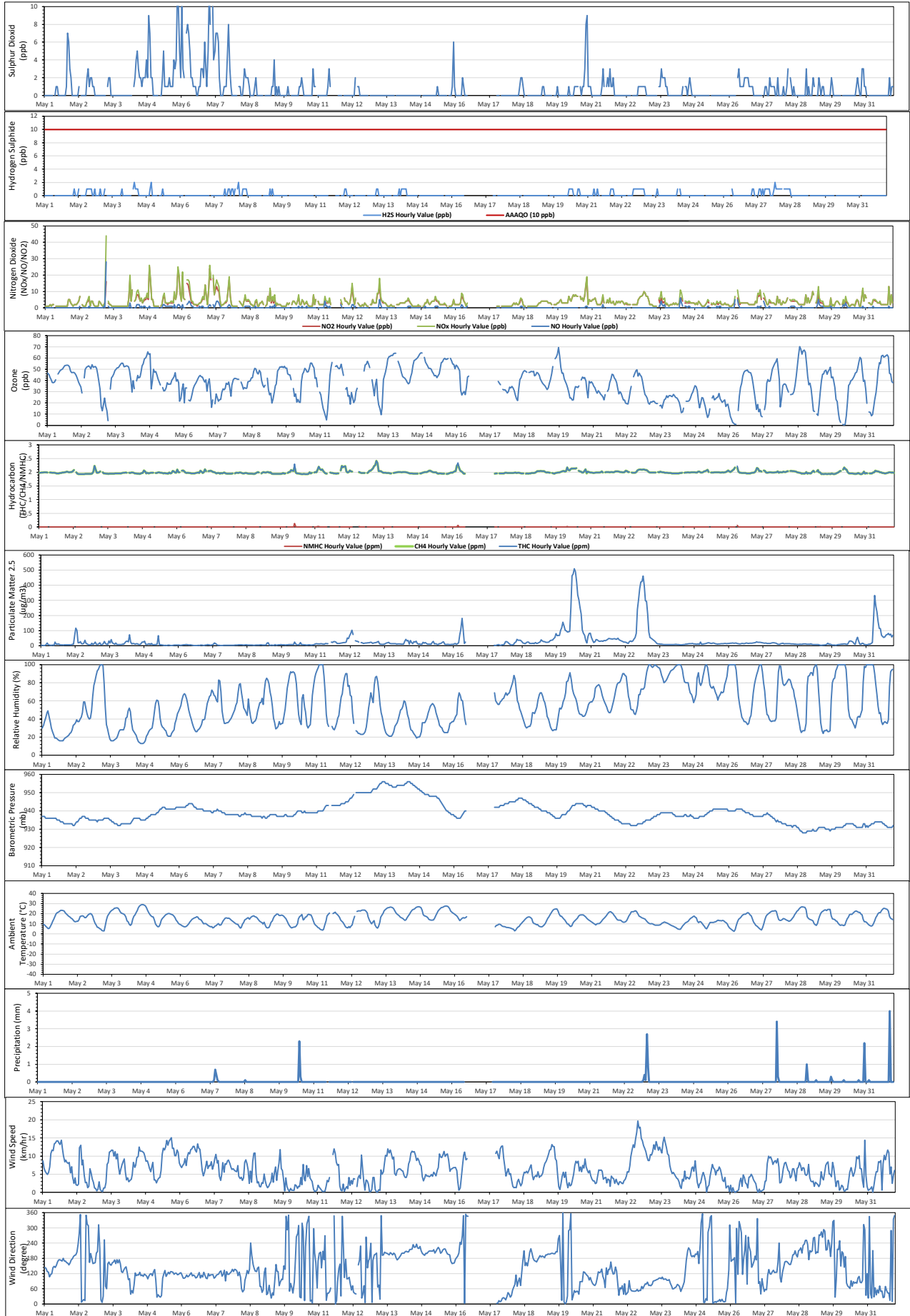
The following exceedances of AAQO and AAQG were observed at the Tamarack Site.

Date	Time (MST)	Parameter	Average Period	AAQOs / AAQGs	Concentration	Wind speed	Wind Direction	Reference #
May 2	6	PM2.5	1-Hour	80 µg/m3	116.3 µg/m3	1.9 km/hr	279° (W)	412784
May 2	7	PM2.5	1-Hour	80 µg/m3	101.2 µg/m3	2.3 km/hr	353° (N)	412784
May 12	6	PM2.5	1-Hour	80 µg/m3	82.4 µg/m3	2.3 km/hr	47° (NE)	413091
May 12	7	PM2.5	1-Hour	80 µg/m3	102.4 µg/m3	3.8 km/hr	41° (NE)	413091
May 12	-	PM2.5	24-Hour	29 µg/m3	35.7 µg/m3	2.9 km/hr	77° (ENE)	413091
May 16	6	PM2.5	1-Hour	80 µg/m3	103.2 µg/m3	7.4 km/hr	348° (NNW)	413524
May 16	7	PM2.5	1-Hour	80 µg/m3	180.9 µg/m3	10.3 km/hr	2° (N)	413524
May 16	8	PM2.5	1-Hour	80 µg/m3	103.7 µg/m3	11.1 km/hr	354° (N)	413524
May 19	17	PM2.5	1-Hour	80 µg/m3	80.2 µg/m3	4.8 km/hr	256° (WSW)	413524
May 19	21	PM2.5	1-Hour	80 µg/m3	100.5 µg/m3	4.5 km/hr	360° (N)	413524
May 19	22	PM2.5	1-Hour	80 µg/m3	119 µg/m3	5.6 km/hr	8° (N)	413524
May 19	23	PM2.5	1-Hour	80 µg/m3	156.4 µg/m3	10.5 km/hr	200° (SSW)	413524
May 19	-	PM2.5	24-Hour	29 µg/m3	48.7 µg/m3	7.1 km/hr	199° (SSW)	413524
May 20	0	PM2.5	1-Hour	80 µg/m3	132.2 µg/m3	5.6 km/hr	7° (N)	413524
May 20	1	PM2.5	1-Hour	80 µg/m3	102.9 µg/m3	2.7 km/hr	31° (NNE)	413524
May 20	2	PM2.5	1-Hour	80 µg/m3	98.2 µg/m3	1.3 km/hr	289° (WNW)	413524
May 20	3	PM2.5	1-Hour	80 µg/m3	91.1 µg/m3	2.7 km/hr	294° (WNW)	413524
May 20	4	PM2.5	1-Hour	80 µg/m3	92.4 µg/m3	1.8 km/hr	355° (N)	413524
May 20	5	PM2.5	1-Hour	80 µg/m3	95.7 µg/m3	2.1 km/hr	16° (NNE)	413524
May 20	6	PM2.5	1-Hour	80 µg/m3	251.1 µg/m3	3.5 km/hr	31° (NNE)	413524
May 20	7	PM2.5	1-Hour	80 µg/m3	462.3 µg/m3	5.0 km/hr	53° (NE)	413524
May 20	8	PM2.5	1-Hour	80 µg/m3	473.8 µg/m3	7.4 km/hr	46° (NE)	413524
May 20	9	PM2.5	1-Hour	80 µg/m3	509.4 µg/m3	8.6 km/hr	50° (NE)	413524
May 20	10	PM2.5	1-Hour	80 µg/m3	489.7 µg/m3	8.1 km/hr	50° (NE)	413524
May 20	11	PM2.5	1-Hour	80 µg/m3	424.6 µg/m3	8.6 km/hr	38° (NE)	413524
May 20	12	PM2.5	1-Hour	80 µg/m3	335.7 µg/m3	5.9 km/hr	88° (E)	413524
May 20	13	PM2.5	1-Hour	80 µg/m3	302.7 µg/m3	7.0 km/hr	88° (E)	413524
May 20	14	PM2.5	1-Hour	80 µg/m3	252.9 µg/m3	5.7 km/hr	88° (E)	413524
May 20	15	PM2.5	1-Hour	80 µg/m3	210.4 µg/m3	7.5 km/hr	127° (SE)	413524
May 20	16	PM2.5	1-Hour	80 µg/m3	105.1 µg/m3	6.7 km/hr	125° (SE)	413524
May 20	17	PM2.5	1-Hour	80 µg/m3	82.2 µg/m3	9.2 km/hr	119° (ESE)	413524
May 20	22	PM2.5	1-Hour	80 µg/m3	82.1 µg/m3	4.6 km/hr	91° (E)	413524
May 20	23	PM2.5	1-Hour	80 µg/m3	83.2 µg/m3	8.6 km/hr	38° (E)	413524
May 20	-	PM2.5	24-Hour	29 µg/m3	202.7 µg/m3	5.5 km/hr	77° (ENE)	413524
May 21	-	PM2.5	24-Hour	29 µg/m3	39 µg/m3	3.7 km/hr	114° (ESE)	413524
May 22	15	PM2.5	1-Hour	80 µg/m3	82.3 µg/m3	19.7 km/hr	50° (NE)	413925

Date	Time (MST)	Parameter	Average Period	AAAOs / AAQGs	Concentration	Wind speed	Wind Direction	Reference #
May 22	16	PM2.5	1-Hour	80 µg/m3	240.4 µg/m3	17.7 km/hr	54° (NE)	413925
May 22	17	PM2.5	1-Hour	80 µg/m3	302.7 µg/m3	18.0 km/hr	53° (NE)	413925
May 22	18	PM2.5	1-Hour	80 µg/m3	376.7 µg/m3	14.9 km/hr	69° (ENE)	413925
May 22	19	PM2.5	1-Hour	80 µg/m3	420.5 µg/m3	14.2 km/hr	60° (ENE)	413925
May 22	20	PM2.5	1-Hour	80 µg/m3	424.3 µg/m3	12.9 km/hr	70° (ENE)	413925
May 22	21	PM2.5	1-Hour	80 µg/m3	460.7 µg/m3	12.1 km/hr	79° (ENE)	413925
May 22	22	PM2.5	1-Hour	80 µg/m3	398 µg/m3	11.2 km/hr	78° (ENE)	413925
May 22	23	PM2.5	1-Hour	80 µg/m3	297.7 µg/m3	9.8 km/hr	50° (NE)	413925
May 22	-	PM2.5	24-Hour	29 µg/m3	144.3 µg/m3	10.3 km/hr	59° (ENE)	413925
May 23	0	PM2.5	1-Hour	80 µg/m3	293 µg/m3	8.8 km/hr	73° (ENE)	413925
May 23	1	PM2.5	1-Hour	80 µg/m3	208.9 µg/m3	8.8 km/hr	74° (ENE)	413925
May 23	2	PM2.5	1-Hour	80 µg/m3	89.9 µg/m3	10.4 km/hr	72° (ENE)	413925
May 23	-	PM2.5	24-Hour	29 µg/m3	40.7 µg/m3	10.5 km/hr	90° (E)	413925
May 31	6	PM2.5	1-Hour	80 µg/m3	173.7 µg/m3	4.2 km/hr	64° (ENE)	414427
May 31	7	PM2.5	1-Hour	80 µg/m3	332.5 µg/m3	5.7 km/hr	36° (NE)	414427
May 31	8	PM2.5	1-Hour	80 µg/m3	264.3 µg/m3	5.7 km/hr	56° (NE)	414427
May 31	9	PM2.5	1-Hour	80 µg/m3	223.4 µg/m3	8.5 km/hr	43° (NE)	414427
May 31	10	PM2.5	1-Hour	80 µg/m3	160 µg/m3	8.3 km/hr	71° (ENE)	414427
May 31	11	PM2.5	1-Hour	80 µg/m3	114.8 µg/m3	8.8 km/hr	49° (NE)	414427
May 31	12	PM2.5	1-Hour	80 µg/m3	113.9 µg/m3	0.6 km/hr	51° (NE)	414427
May 31	19	PM2.5	1-Hour	80 µg/m3	81.7 µg/m3	5.1 km/hr	14° (NNE)	414427
May 31	-	PM2.5	24-Hour	29 µg/m3	91.9 µg/m3	5.6 km/hr	36° (NE)	414427

The source of the exceedances of the PM2.5 objective and guideline were due to Alberta wildfires.

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



St. Lina Station

Equipment Operation Summary

Parameter	Calibration Date	Equipment Operational Summary
SO2 Thermo 43i-TLE #1180930030	May 06, 2023	<ul style="list-style-type: none"> No issues were identified this month.
H2S Thermo 450i #CM18010058	May 06, 2023	<ul style="list-style-type: none"> No issues were identified this month.
NOx/NO/NO2 Thermo 42i #1180930029	May 06, 2023	<ul style="list-style-type: none"> No issues were identified this month.
O3 Thermo 49iQ #12208316586	May 05, 2023	<ul style="list-style-type: none"> No issues were identified this month.
THC/CH4/NMHC Thermo 55i #1236656107 #1180030034	May 06, 2023	<ul style="list-style-type: none"> Multiple bad injections were recorded, beginning on May 4 hour 9. Data was reviewed and discarded if data quality was affected by injection issues. Three hours of data were invalidated between May 4 and 5 as a result. A successful shut-down calibration was completed on the Thermo 55i analyzer, s/n: 1236656107, on May 5. The replacement Thermo 551 analyzer, s/n: 1180030034, was installed afterwards. The analyzer was allowed time to stabilize and column conditioning. A successful installation calibration was completed on May 6. Twenty-hours of downtime were recorded due to this event. The span gas cylinder was replaced following by an additional zero-span check to obtain a new expected span value on May 29. Two hours of downtime were recorded due to additional quality check.
PM2.5 Thermo Sharp 5030i #CM17091001	May 05, 2023	<ul style="list-style-type: none"> No issues were identified this month.
Parameter	Verification Date	Equipment Operational Summary
RH Rotronic HC2A-S3 #20404750	May 06, 2023	<ul style="list-style-type: none"> No issues were identified this month.

Parameter	Verification Date	Equipment Operational Summary
BP Met One 090D #F4498	May 06, 2023	<ul style="list-style-type: none"> No issues were identified this month.
AT Rotronic HC2A-S3 #20404750	May 06, 2023	<ul style="list-style-type: none"> No issues were identified this month.
ST COMET #NA	May 06, 2023	<ul style="list-style-type: none"> No issues were identified this month.
Precipitation MetOne 387D #A23775	May 06, 2023	<ul style="list-style-type: none"> No issues were identified this month.
WS/WD/STDWD RM Young 05305VK #161466	May 06, 2023	<ul style="list-style-type: none"> Wind direction data contained in this report represents where the wind is coming from. An annual wind system calibration was completed on July 22, 2022. No issues were identified this month.

Monitored Data Summary for St. Lina 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	1	May 4 at hr 21	16.3	SE	0.8	May 20	100.0	95.1
H2S (ppb)	10	3	-	0	0	-	0.1	0	6	May 23 at hr 7	15.9	E	1.0	May 6	100.0	95.3
NOx (ppb)	-	-	-	-	-	-	2.2	0	9	May 19 at hr 17	7.9	NW	5.4	May 20	100.0	95.0
NO (ppb)	-	-	-	-	-	-	0.0	0	2	May 12 at hr 7	2.8	WSW	0.2	May 28	100.0	95.0
NO2 (ppb)	159	-	-	0	-	-	2.2	0	9	May 19 at hr 17	7.9	NW	5.4	May 20	100.0	95.0
O3 (ppb)	76	-	-	0	-	-	43.7	14.6	76.0	May 19 at hr 15	20.3	WSW	54.0	May 13	100.0	95.1
THC (ppm)	-	-	-	-	-	-	2.02	1.90	2.25	May 20 at hr 15	9.6	E	2.15	May 20	96.5	91.6
CH4 (ppm)	-	-	-	-	-	-	2.02	1.90	2.25	May 20 at hr 15	9.6	E	2.15	May 20	96.5	91.6
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.01	May 1 at hr 18	16	SSE	0.00	May 1	96.5	91.6
PM2.5 (µg/m3)	80	29	-	60	6	-	25.6	1	493	May 20 at hr 15	9.6	E	202.8	May 20	100.0	99.7
RH (%)	-	-	-	-	-	-	54.7	14	99	May 24 at hr 5	6.8	ENE	79.4	May 23	100.0	100.0
BP (millibar)	-	-	-	-	-	-	920	909	935	May 14 at hr 2	10.4	SSW	933	May 13	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	15.7	3.1	29.4	May 4 at hr 15	12.5	SE	22.1	May 4	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	23.9	22.5	24.9	May 24 at hr 0	11.4	ESE	24.6	May 25	100.0	100.0
Precipitation (mm)*	-	-	-	-	-	-	13.1	0.0	4.3	May 22 at hr 22	12.7	E	12.0	May 22	100.0	99.9
WSV (km/hr)	-	-	-	-	-	-	4.3	0.6	25.9	May 22 at hr 20	25.9	E	18.2	May 23	100.0	100.0
WDV (sector)	-	-	-	-	-	-	135 (SE)	-	-	-	-	-	-	-	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 (AAAQGs) Exceedances

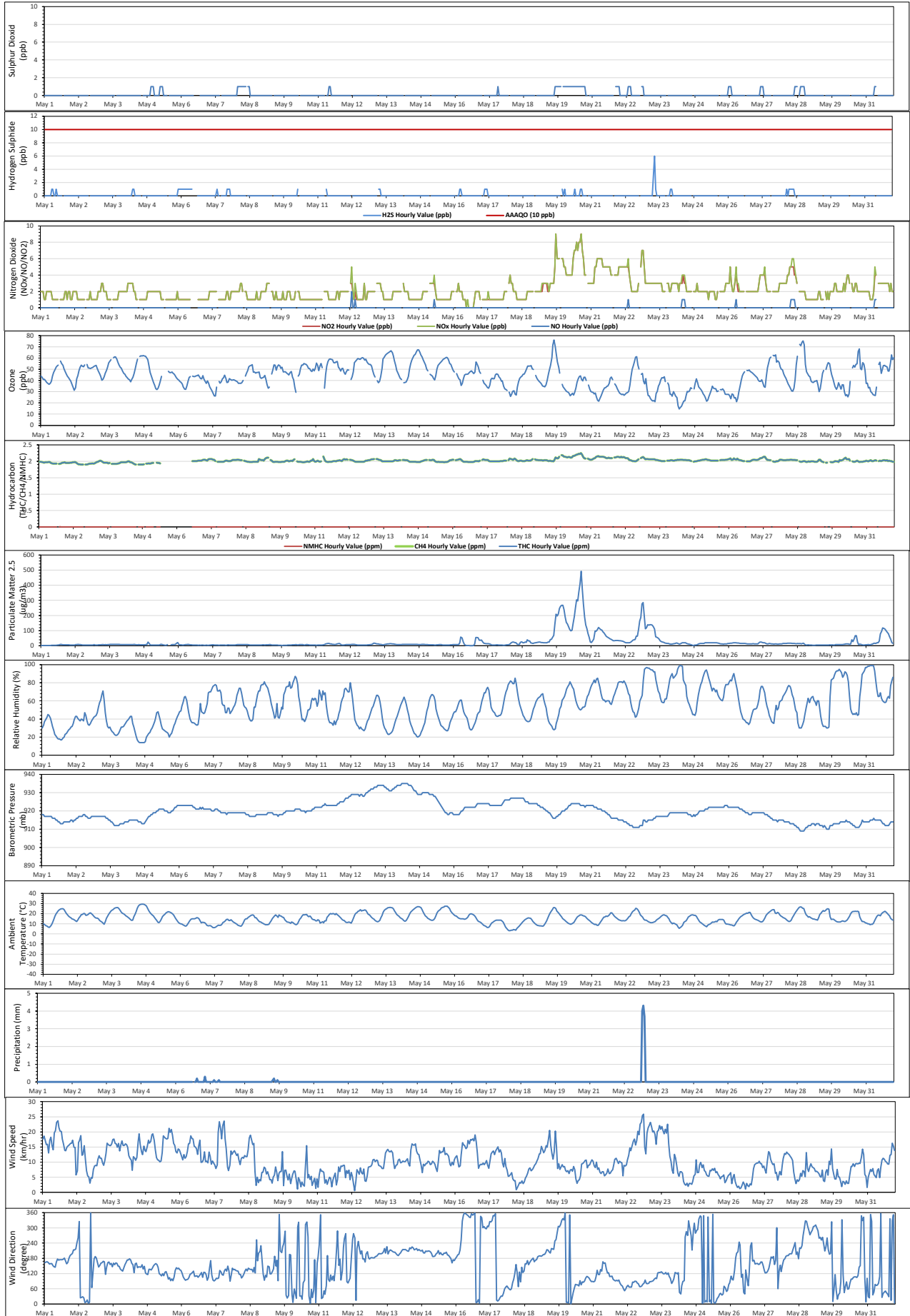
The following exceedances of AAAQOs were observed at the St. Lina Site.

Date	Time (MST)	Parameter	Average Period	AAAOs / AAAQGs	Concentration	Wind speed	Wind Direction	Reference #
May 19	16	PM2.5	1-Hour	80 µg/m3	143 µg/m3	15.0 km/hr	281° (W)	413525
May 19	17	PM2.5	1-Hour	80 µg/m3	209 µg/m3	7.9 km/hr	306° (NW)	413525
May 19	18	PM2.5	1-Hour	80 µg/m3	196 µg/m3	9.5 km/hr	304° (WNW)	413525
May 19	19	PM2.5	1-Hour	80 µg/m3	211 µg/m3	7.6 km/hr	313° (NW)	413525
May 19	20	PM2.5	1-Hour	80 µg/m3	247 µg/m3	8.4 km/hr	330° (NNW)	413525
May 19	21	PM2.5	1-Hour	80 µg/m3	261 µg/m3	9.2 km/hr	337° (NNW)	413525
May 19	22	PM2.5	1-Hour	80 µg/m3	267 µg/m3	8.4 km/hr	331° (NNW)	413525
May 19	23	PM2.5	1-Hour	80 µg/m3	268 µg/m3	17.6 km/hr	219° (SW)	413525
May 19	-	PM2.5	24-Hour	29 µg/m3	95 µg/m3	12.9 km/hr	227° (SW)	413525
May 20	0	PM2.5	1-Hour	80 µg/m3	239 µg/m3	7.2 km/hr	6° (N)	413525
May 20	1	PM2.5	1-Hour	80 µg/m3	191 µg/m3	6.8 km/hr	7° (N)	413525
May 20	2	PM2.5	1-Hour	80 µg/m3	155 µg/m3	7.2 km/hr	4° (N)	413525
May 20	3	PM2.5	1-Hour	80 µg/m3	144 µg/m3	6.2 km/hr	351° (N)	413525
May 20	4	PM2.5	1-Hour	80 µg/m3	126 µg/m3	7.4 km/hr	1° (N)	413525
May 20	5	PM2.5	1-Hour	80 µg/m3	108 µg/m3	7.6 km/hr	22° (NNE)	413525
May 20	6	PM2.5	1-Hour	80 µg/m3	99 µg/m3	7.0 km/hr	45° (NE)	413525
May 20	7	PM2.5	1-Hour	80 µg/m3	102 µg/m3	8.6 km/hr	62° (ENE)	413525
May 20	8	PM2.5	1-Hour	80 µg/m3	150 µg/m3	7.5 km/hr	77° (ENE)	413525
May 20	9	PM2.5	1-Hour	80 µg/m3	192 µg/m3	4.4 km/hr	76° (ENE)	413525
May 20	10	PM2.5	1-Hour	80 µg/m3	251 µg/m3	3.0 km/hr	76° (ENE)	413525
May 20	11	PM2.5	1-Hour	80 µg/m3	304 µg/m3	3.9 km/hr	71° (ENE)	413525
May 20	12	PM2.5	1-Hour	80 µg/m3	296 µg/m3	4.2 km/hr	92° (E)	413525
May 20	13	PM2.5	1-Hour	80 µg/m3	358 µg/m3	5.5 km/hr	76° (ENE)	413525
May 20	14	PM2.5	1-Hour	80 µg/m3	410 µg/m3	9.4 km/hr	87° (E)	413525
May 20	15	PM2.5	1-Hour	80 µg/m3	493 µg/m3	9.6 km/hr	85° (E)	413525
May 20	16	PM2.5	1-Hour	80 µg/m3	373 µg/m3	9.9 km/hr	91° (E)	413525
May 20	17	PM2.5	1-Hour	80 µg/m3	273 µg/m3	10.5 km/hr	103° (ESE)	413525
May 20	18	PM2.5	1-Hour	80 µg/m3	190 µg/m3	10.7 km/hr	109° (ESE)	413525
May 20	19	PM2.5	1-Hour	80 µg/m3	137 µg/m3	8.1 km/hr	106° (ESE)	413525
May 20	20	PM2.5	1-Hour	80 µg/m3	113 µg/m3	8.9 km/hr	101° (E)	413525
May 20	21	PM2.5	1-Hour	80 µg/m3	81 µg/m3	9.1 km/hr	93° (E)	413525
May 20	-	PM2.5	24-Hour	29 µg/m3	203 µg/m3	7.6 km/hr	71° (ENE)	413525
May 21	3	PM2.5	1-Hour	80 µg/m3	98 µg/m3	10.0 km/hr	133° (SE)	413525
May 21	4	PM2.5	1-Hour	80 µg/m3	95 µg/m3	7.6 km/hr	116° (ESE)	413525
May 21	5	PM2.5	1-Hour	80 µg/m3	105 µg/m3	8.1 km/hr	116° (ESE)	413525
May 21	6	PM2.5	1-Hour	80 µg/m3	121 µg/m3	6.7 km/hr	136° (SE)	413525

Date	Time (MST)	Parameter	Average Period	AAAOs / AAQGs	Concentration	Wind speed	Wind Direction	Reference #
May 21	7	PM2.5	1-Hour	80 µg/m3	114 µg/m3	6.2 km/hr	129° (SE)	413525
May 21	8	PM2.5	1-Hour	80 µg/m3	107 µg/m3	6.8 km/hr	167° (SSE)	413525
May 21	9	PM2.5	1-Hour	80 µg/m3	102 µg/m3	6.8 km/hr	160° (SSE)	413525
May 21	10	PM2.5	1-Hour	80 µg/m3	93 µg/m3	5.5 km/hr	162° (SSE)	413525
May 21	11	PM2.5	1-Hour	80 µg/m3	85 µg/m3	5.9 km/hr	139° (SE)	413525
May 21	-	PM2.5	24-Hour	29 µg/m3	65 µg/m3	8.1 km/hr	111° (ESE)	413525
May 22	17	PM2.5	1-Hour	80 µg/m3	107 µg/m3	22.6 km/hr	68° (ENE)	413928
May 22	18	PM2.5	1-Hour	80 µg/m3	164 µg/m3	23.2 km/hr	71° (ENE)	413928
May 22	19	PM2.5	1-Hour	80 µg/m3	188 µg/m3	25.4 km/hr	78° (ENE)	413928
May 22	20	PM2.5	1-Hour	80 µg/m3	276 µg/m3	25.9 km/hr	82° (E)	413928
May 22	21	PM2.5	1-Hour	80 µg/m3	285 µg/m3	15.0 km/hr	94° (E)	413928
May 22	22	PM2.5	1-Hour	80 µg/m3	198 µg/m3	12.7 km/hr	81° (E)	413928
May 22	23	PM2.5	1-Hour	80 µg/m3	112 µg/m3	13.8 km/hr	85° (E)	413928
May 22	-	PM2.5	24-Hour	29 µg/m3	79 µg/m3	15.4 km/hr	77° (ENE)	413928
May 23	0	PM2.5	1-Hour	80 µg/m3	119 µg/m3	21.3 km/hr	82° (E)	413928
May 23	1	PM2.5	1-Hour	80 µg/m3	139 µg/m3	22.2 km/hr	88° (E)	413928
May 23	2	PM2.5	1-Hour	80 µg/m3	136 µg/m3	23.1 km/hr	88° (E)	413928
May 23	3	PM2.5	1-Hour	80 µg/m3	140 µg/m3	21.7 km/hr	90° (E)	413928
May 23	4	PM2.5	1-Hour	80 µg/m3	139 µg/m3	20.0 km/hr	92° (E)	413928
May 23	5	PM2.5	1-Hour	80 µg/m3	136 µg/m3	20.3 km/hr	98° (E)	413928
May 23	6	PM2.5	1-Hour	80 µg/m3	125 µg/m3	19.2 km/hr	103° (ESE)	413928
May 23	7	PM2.5	1-Hour	80 µg/m3	111 µg/m3	15.9 km/hr	100° (E)	413928
May 23	-	PM2.5	24-Hour	29 µg/m3	62 µg/m3	18.2 km/hr	108° (ESE)	413928
May 31	13	PM2.5	1-Hour	80 µg/m3	94 µg/m3	11.3 km/hr	41° (NE)	414425
May 31	14	PM2.5	1-Hour	80 µg/m3	118 µg/m3	11.0 km/hr	47° (NE)	414425
May 31	15	PM2.5	1-Hour	80 µg/m3	116 µg/m3	10.3 km/hr	51° (NE)	414425
May 31	16	PM2.5	1-Hour	80 µg/m3	110 µg/m3	10.0 km/hr	44° (NE)	414425
May 31	17	PM2.5	1-Hour	80 µg/m3	100 µg/m3	9.4 km/hr	38° (NE)	414425
May 31	18	PM2.5	1-Hour	80 µg/m3	89 µg/m3	9.3 km/hr	29° (NNE)	414425
May 31	-	PM2.5	24-Hour	29 µg/m3	46 µg/m3	9.2 km/hr	23° (NNE)	414425

The source of the exceedance of the PM2.5 objectives and guidelines were due to Alberta wildfires.

Timeseries Chart of Hourly Average for the month of May 2023 - St. Lina Site



Lac La Biche Station

Equipment Operation Summary

Parameter	Calibration Date	Equipment Operational Summary
SO2 Thermo 43i-TLE #1180320043	May 18, 2023	<ul style="list-style-type: none"> The May 17's scheduled daily zero-span check (at hour 23) was interrupted and was not completed. A repeat zero-span check was completed on May 18. The check results met the AQM check requirement. One hour of downtime was recorded.
H2S API 101A #324 Thermo 450i #CM17360002	May 30, 2023	<ul style="list-style-type: none"> The May 17's scheduled daily zero-span check (at hour 23) was interrupted and was not completed. A repeat zero-span check was completed on May 18. The check results met the AQM check requirement. One hour of downtime was recorded. Following a successful shut-down calibration on May 18, the BVs APIA analyzer, s/n: 324, was removed. The LICA's Thermo 450i analyzer, s/n: CM17360002, was installed afterwards. The analyzer was allowed time to stabilize overnight. A successful installation calibration was completed on May 19. As-left zero-span check was run at hour 20. Twenty-one hours of downtime was recorded due to this event. The analyzer span low on May 20 and May 21. A higher output permeation tube was installed on May 21. The expected span value was adjusted on May 23. The analyzer failed the daily zero check on May 29. An additional zero-span check was completed on May 30 to investigate the drift. A repeat multi-point calibration was completed afterwards to correct the zero drift. Eight hours of downtime were recorded due to the additional quality checks.
NOx/NO/NO2 Thermo 42i #1180930027	May 18, 2023	<ul style="list-style-type: none"> The May 17's scheduled daily zero-span check (at hour 23) was interrupted and was not completed. A repeat zero-span check was completed on May 18. The check results met the AQM check requirement. One hour of downtime was recorded.
O3 Thermo 49i #1002240372	May 19, 2023	<ul style="list-style-type: none"> The May 17's scheduled daily zero-span check (at hour 23) was interrupted and was not completed. A repeat zero-span check was completed on May 18. The check results met the AQM check requirement. One hour of downtime was recorded.

Parameter	Calibration Date	Equipment Operational Summary
THC/CH4/NMHC Thermo 55i #1180030044	May 19, 2023	<ul style="list-style-type: none"> The May 17's scheduled daily zero-span check (at hour 23) was interrupted and was not completed. A repeat zero-span check was completed on May 18. The check results met the AQM check requirement. One hour of downtime was recorded. The span gas cylinder was replaced on May 30. A repeat zero-span check was completed afterwards to obtain a new expected span value. One hour of downtime was recorded.
PM2.5 Thermo Sharp 5030i #CM17071016	May 21, 2023	<ul style="list-style-type: none"> No operational issues were recorded this month.
Parameter	Verification Date	Equipment Operational Summary
RH Rotronic HC2A-S3 #0020357518	May 21, 2023	<ul style="list-style-type: none"> No operational issues were recorded this month.
BP Met One 092 #Y23360	May 21, 2023	<ul style="list-style-type: none"> No operational issues were recorded this month.
AT Rotronic HC2A-S3 #0020357518	May 21, 2023	<ul style="list-style-type: none"> No operational issues were recorded this month.
ST COMET #NA	May 21, 2023	<ul style="list-style-type: none"> No operational issues were recorded this month.
WS/WD/STDWD RM Young 05305VK #56778	May 21, 2023	<ul style="list-style-type: none"> Wind direction data contained in this report represents where the wind is coming from. The last annual wind system calibration was completed on May 9, 2022. No operational issues were recorded this month.
STATION NETWORK		<ul style="list-style-type: none"> On May 17, the station network was reconfigured to improve its stability. The UPS's firmware was also updated. No data were affected by this service.

Monitored Data Summary for Lac La Biche Station

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.1	0	2	May 13 at hr 8	6.9	S	1.0	May 20	99.9	94.7
H2S (ppb)	10	3	-	0	0	-	0.1	0	1	May 11 at hr 5	1	SSE	1.0	May 22	96.0	91.0
NOx (ppb)	-	-	-	-	-	-	3.4	1	22	May 11 at hr 5	1	SSE	7.3	May 20	99.9	94.5
NO (ppb)	-	-	-	-	-	-	0.3	0	12	May 11 at hr 5	1	SSE	1.0	May 30	99.9	94.5
NO2 (ppb)	159	-	-	0	-	-	3.1	1	16	May 2 at hr 3	3.8	NNW	6.6	May 20	99.9	94.5
O3 (ppb)	76	-	-	0	-	-	40.1	3.0	66.4	May 27 at hr 17	7.9	S	54.0	May 4	99.9	95.0
THC (ppm)	-	-	-	-	-	-	2.00	1.90	2.22	May 26 at hr 5	3.2	SSE	2.08	May 20	99.7	94.9
CH4 (ppm)	-	-	-	-	-	-	2.00	1.90	2.22	May 26 at hr 5	3.2	SSE	2.08	May 20	99.7	94.9
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.04	May 25 at hr 7	9.2	NW	0.00	May 25	99.7	94.9
PM2.5 (µg/m3)	80	29	-	66	6	-	27.2	1	411	May 20 at hr 17	6.2	ESE	155.8	May 20	100.0	99.9
RH (%)	-	-	-	-	-	-	55.3	12	100	May 10 at hr 2	2.2	NNE	86.3	May 31	100.0	100.0
BP (millibar)	-	-	-	-	-	-	948	937	963	May 13 at hr 8	6.9	S	962	May 13	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	16.0	0.8	31.0	May 4 at hr 15	11.5	ESE	23.2	May 4	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	21.9	18.8	26.1	May 19 at hr 14	6.5	WSW	23.5	May 19	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	3.4	0.1	19.7	May 22 at hr 18	19.7	ENE	13.6	May 1	100.0	100.0
WDV (sector)	-	-	-	-	-	-	130 (SE)	-	-	-	-	-	-	-	100.0	100.0

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

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

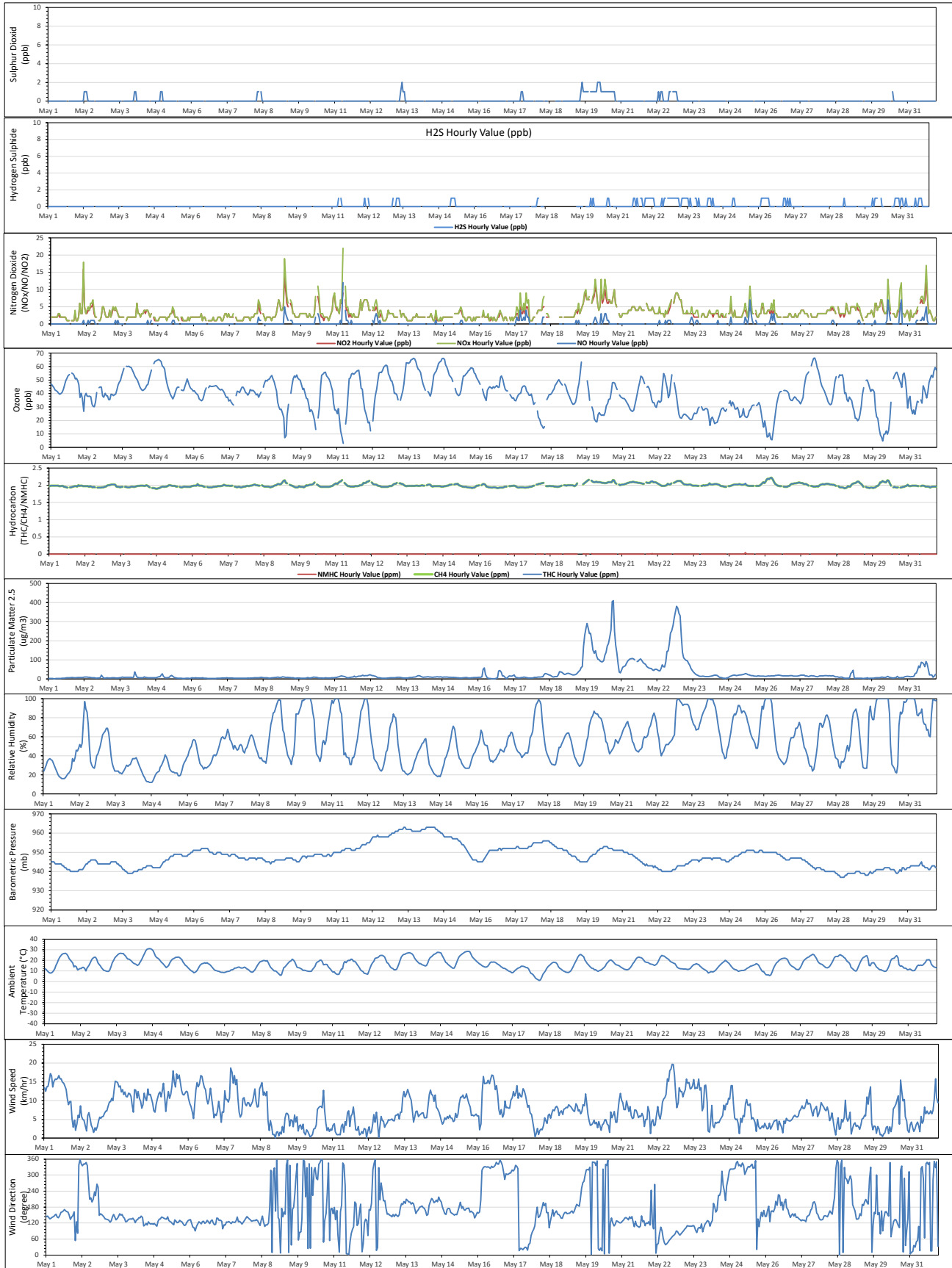
The following exceedances of AAAQO and AAAQG were observed at the Lac La Biche Station.

Date	Time (MST)	Parameter	Average Period	AAAOs / AAAQGs	Concentration	Wind speed	Wind Direction	Reference #
May 19	16	PM2.5	1-Hour	80 µg/m3	168 µg/m3	8.9 km/hr	277° (W)	413526
May 19	17	PM2.5	1-Hour	80 µg/m3	228 µg/m3	8.6 km/hr	300° (WNW)	413526
May 19	18	PM2.5	1-Hour	80 µg/m3	263 µg/m3	11.8 km/hr	320° (NW)	413526
May 19	19	PM2.5	1-Hour	80 µg/m3	291 µg/m3	9.2 km/hr	321° (NW)	413526
May 19	20	PM2.5	1-Hour	80 µg/m3	266 µg/m3	6.3 km/hr	319° (NW)	413526
May 19	21	PM2.5	1-Hour	80 µg/m3	238 µg/m3	4.6 km/hr	330° (NNW)	413526
May 19	22	PM2.5	1-Hour	80 µg/m3	238 µg/m3	3.4 km/hr	2° (N)	413526
May 19	23	PM2.5	1-Hour	80 µg/m3	200 µg/m3	7.1 km/hr	187° (S)	413526
May 19	-	PM2.5	24-Hour	29 µg/m3	100 µg/m3	7.6 km/hr	204° (SSW)	413526
May 20	0	PM2.5	1-Hour	80 µg/m3	151 µg/m3	3.9 km/hr	348° (NNW)	413526
May 20	1	PM2.5	1-Hour	80 µg/m3	134 µg/m3	4.8 km/hr	347° (NNW)	413526
May 20	2	PM2.5	1-Hour	80 µg/m3	147 µg/m3	3.8 km/hr	336° (NNW)	413526
May 20	3	PM2.5	1-Hour	80 µg/m3	119 µg/m3	4.2 km/hr	353° (N)	413526
May 20	4	PM2.5	1-Hour	80 µg/m3	103 µg/m3	2.8 km/hr	23° (NNE)	413526
May 20	5	PM2.5	1-Hour	80 µg/m3	101 µg/m3	4.4 km/hr	17° (NNE)	413526
May 20	6	PM2.5	1-Hour	80 µg/m3	93 µg/m3	3.3 km/hr	26° (NNE)	413526
May 20	7	PM2.5	1-Hour	80 µg/m3	90 µg/m3	2.1 km/hr	15° (NNE)	413526
May 20	8	PM2.5	1-Hour	80 µg/m3	89 µg/m3	3.5 km/hr	322° (NW)	413526
May 20	9	PM2.5	1-Hour	80 µg/m3	96 µg/m3	3.8 km/hr	4° (N)	413526
May 20	10	PM2.5	1-Hour	80 µg/m3	125 µg/m3	4.9 km/hr	340° (NNW)	413526
May 20	11	PM2.5	1-Hour	80 µg/m3	139 µg/m3	4.9 km/hr	336° (NNW)	413526
May 20	12	PM2.5	1-Hour	80 µg/m3	173 µg/m3	3.7 km/hr	356° (N)	413526
May 20	13	PM2.5	1-Hour	80 µg/m3	185 µg/m3	3.4 km/hr	7° (N)	413526
May 20	14	PM2.5	1-Hour	80 µg/m3	216 µg/m3	1.5 km/hr	121° (ESE)	413526
May 20	15	PM2.5	1-Hour	80 µg/m3	257 µg/m3	7.0 km/hr	139° (SE)	413526
May 20	16	PM2.5	1-Hour	80 µg/m3	405 µg/m3	5.4 km/hr	121° (ESE)	413526
May 20	17	PM2.5	1-Hour	80 µg/m3	411 µg/m3	6.2 km/hr	109° (ESE)	413526
May 20	18	PM2.5	1-Hour	80 µg/m3	248 µg/m3	7.1 km/hr	115° (ESE)	413526
May 20	19	PM2.5	1-Hour	80 µg/m3	176 µg/m3	4.2 km/hr	128° (SE)	413526
May 20	20	PM2.5	1-Hour	80 µg/m3	136 µg/m3	4.2 km/hr	127° (SE)	413526
May 20	-	PM2.5	24-Hour	29 µg/m3	155.8 µg/m3	4.9 km/hr	72° (ENE)	413526
May 21	5	PM2.5	1-Hour	80 µg/m3	93 µg/m3	8.6 km/hr	132° (SE)	413526
May 21	6	PM2.5	1-Hour	80 µg/m3	100 µg/m3	7.1 km/hr	143° (SE)	413526
May 21	7	PM2.5	1-Hour	80 µg/m3	104 µg/m3	8.4 km/hr	137° (SE)	413526
May 21	8	PM2.5	1-Hour	80 µg/m3	106 µg/m3	6.0 km/hr	144° (SE)	413526
May 21	9	PM2.5	1-Hour	80 µg/m3	106 µg/m3	5.2 km/hr	124° (ESE)	413526

Date	Time (MST)	Parameter	Average Period	AAAOs / AAQGs	Concentration	Wind speed	Wind Direction	Reference #
May 21	10	PM2.5	1-Hour	80 µg/m3	104 µg/m3	5.4 km/hr	106° (ESE)	413526
May 21	11	PM2.5	1-Hour	80 µg/m3	100 µg/m3	7.5 km/hr	127° (SE)	413526
May 21	13	PM2.5	1-Hour	80 µg/m3	91 µg/m3	6.7 km/hr	107° (ESE)	413526
May 21	14	PM2.5	1-Hour	80 µg/m3	93 µg/m3	5.5 km/hr	104° (ESE)	413526
May 21	15	PM2.5	1-Hour	80 µg/m3	101 µg/m3	5.9 km/hr	109° (ESE)	413526
May 21	16	PM2.5	1-Hour	80 µg/m3	104 µg/m3	5.7 km/hr	147° (SE)	413526
May 21	17	PM2.5	1-Hour	80 µg/m3	95 µg/m3	6.6 km/hr	125° (SE)	413526
May 21	18	PM2.5	1-Hour	80 µg/m3	85 µg/m3	5.8 km/hr	128° (SE)	413526
May 21	19	PM2.5	1-Hour	80 µg/m3	80 µg/m3	3.1 km/hr	110° (ESE)	413526
May 21	-	PM2.5	24-Hour	29 µg/m3	84.6 µg/m3	6.9 km/hr	127° (SE)	413526
May 22	13	PM2.5	1-Hour	80 µg/m3	88 µg/m3	11.6 km/hr	42° (NE)	413932
May 22	14	PM2.5	1-Hour	80 µg/m3	144 µg/m3	15.8 km/hr	47° (NE)	413932
May 22	15	PM2.5	1-Hour	80 µg/m3	147 µg/m3	15.1 km/hr	54° (NE)	413932
May 22	16	PM2.5	1-Hour	80 µg/m3	184 µg/m3	18.0 km/hr	61° (ENE)	413932
May 22	17	PM2.5	1-Hour	80 µg/m3	240 µg/m3	18.4 km/hr	65° (ENE)	413932
May 22	18	PM2.5	1-Hour	80 µg/m3	251 µg/m3	19.7 km/hr	71° (ENE)	413932
May 22	19	PM2.5	1-Hour	80 µg/m3	281 µg/m3	19.6 km/hr	75° (ENE)	413932
May 22	20	PM2.5	1-Hour	80 µg/m3	320 µg/m3	16.9 km/hr	80° (E)	413932
May 22	21	PM2.5	1-Hour	80 µg/m3	351 µg/m3	11.0 km/hr	90° (E)	413932
May 22	22	PM2.5	1-Hour	80 µg/m3	381 µg/m3	8.1 km/hr	88° (E)	413932
May 22	23	PM2.5	1-Hour	80 µg/m3	370 µg/m3	6.7 km/hr	46° (NE)	413932
May 22	-	PM2.5	24-Hour	29 µg/m3	143.5 µg/m3	10.2 km/hr	65° (ENE)	413932
May 23	0	PM2.5	1-Hour	80 µg/m3	344 µg/m3	13.4 km/hr	75° (ENE)	413932
May 23	1	PM2.5	1-Hour	80 µg/m3	332 µg/m3	12.4 km/hr	80° (E)	413932
May 23	2	PM2.5	1-Hour	80 µg/m3	226 µg/m3	12.4 km/hr	85° (E)	413932
May 23	3	PM2.5	1-Hour	80 µg/m3	140 µg/m3	11.0 km/hr	91° (E)	413932
May 23	4	PM2.5	1-Hour	80 µg/m3	111 µg/m3	12.2 km/hr	97° (E)	413932
May 23	5	PM2.5	1-Hour	80 µg/m3	104 µg/m3	12.9 km/hr	102° (E)	413932
May 23	6	PM2.5	1-Hour	80 µg/m3	97 µg/m3	15.7 km/hr	110° (ESE)	413932
May 23	7	PM2.5	1-Hour	80 µg/m3	94 µg/m3	14.6 km/hr	109° (ESE)	413932
May 23	8	PM2.5	1-Hour	80 µg/m3	83 µg/m3	14.8 km/hr	108° (ESE)	413932
May 23	-	PM2.5	24-Hour	29 µg/m3	80.4 µg/m3	12.9 km/hr	102° (E)	413932
May 31	11	PM2.5	1-Hour	80 µg/m3	87 µg/m3	4.6 km/hr	285° (WNN)	414424
May 31	12	PM2.5	1-Hour	80 µg/m3	85 µg/m3	8.3 km/hr	64° (ENE)	414424
May 31	15	PM2.5	1-Hour	80 µg/m3	92 µg/m3	6.5 km/hr	339° (NNW)	414424
May 31	-	PM2.5	24-Hour	29 µg/m3	39.7 µg/m3	6.0 km/hr	357° (N)	414424

The source of the exceedance of the PM2.5 objective and guideline were due to Alberta wildfires.

Timeseries Chart of Hourly Average for the month of May 2023 - Lac La Biche Station



TABLES AND CHARTS

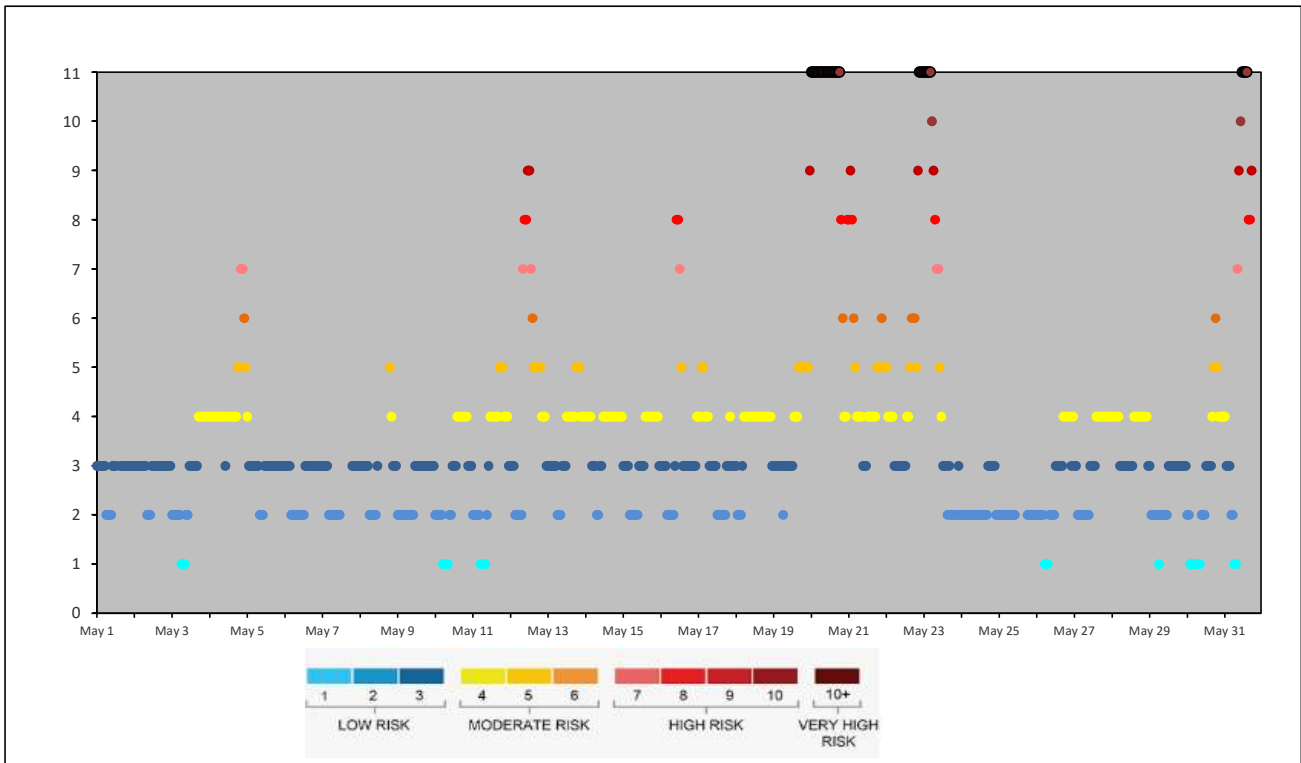
COLD LAKE SOUTH STATION

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - May 2023

AIR QUALITY HEALTH INDEX

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

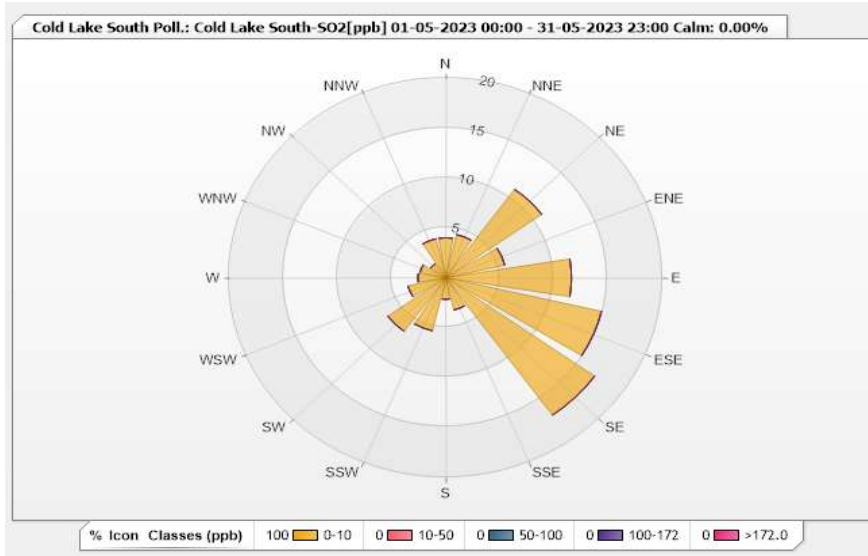


Station: Cold Lake South Poll.: Cold Lake South-SO2[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 93.82% Calm Avg: 0.00 [ppm]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	4.01	0	0	0	0	4.01
NNE	4.44	0	0	0	0	4.44
NE	10.89	0	0	0	0	10.89
ENE	5.59	0	0	0	0	5.59
E	11.6	0	0	0	0	11.6
ESE	14.76	0	0	0	0	14.76
SE	16.91	0	0	0	0	16.91
SSE	3.3	0	0	0	0	3.3
S	2.15	0	0	0	0	2.15
SSW	5.44	0	0	0	0	5.44
SW	6.59	0	0	0	0	6.59
WSW	3.58	0	0	0	0	3.58
W	2.58	0	0	0	0	2.58
WNW	2.44	0	0	0	0	2.44
NW	1.72	0	0	0	0	1.72
NNW	4.01	0	0	0	0	4.01
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Cold Lake South Station - May 2023

Summary of Hourly Averages

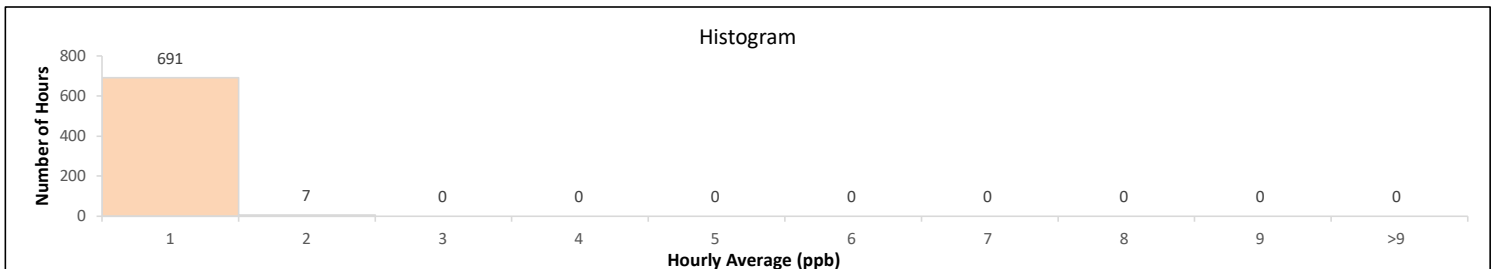
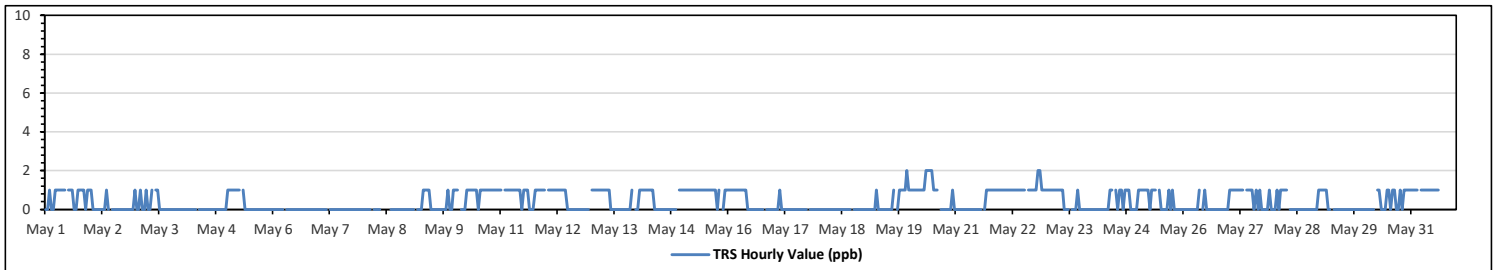
TOTAL REDUCED SULPHUR (TRS) in ppb

Maximum Hourly Value:	2 ppb	on May 19 at hr 22	Hours in Service:	744
Maximum Daily Value:	1.1 ppb	on May 22	Hours of Data:	698
Minimum Hourly Value:	0 ppb	on May 1 at hr 0	Hours of Missing Data:	9
Minimum Daily Value:	0.0 ppb	on May 4	Hours of Calibration:	37
Monthly Average:	0.4 ppb		Operational Uptime:	98.8

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average													
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23												
May 1	0	0	1	0	0	1	1	1	1	1	1	1	S	1	1	1	0	0	1	1	1	1	0	1	1	0	1	1	0	1	1	0	1	0.7					
May 2	1	0	0	0	0	0	0	0	1	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.1					
May 3	0	0	1	0	0	1	0	0	0	1	S	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.2				
May 4	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0				
May 5	1	1	1	1	1	1	1	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3				
May 6	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0				
May 7	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0				
May 8	0	0	0	0	S	0	0	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0				
May 9	0	0	0	S	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.3			
May 10	1	1	S	0	0	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0.8			
May 11	1	S	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0.8			
May 12	S	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	0.5			
May 13	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	S	0	0	1	0.5	
May 14	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	0	1	0.4		
May 15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	S	0	1	S	0	1	1	1	1	1	1	1	1	0	1	0.9		
May 16	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	0	0.4	
May 17	0	0	0	1	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	1	0	0.0	
May 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
May 19	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
May 20	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9	
May 21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0.3	
May 22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	2	1.1	
May 23	1	1	1	1	1	1	1	1	1	1	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	0.4
May 24	0	0	0	0	0	0	0	0	0	0	0	1	1	S	1	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0.3
May 25	1	1	1	1	1	1	1	1	1	1	1	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5
May 26	0	0	0	0	0	0	0	0	0	0	1	S	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
May 27	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7
May 28	0	1	0	1	1	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	
May 29	1	1	1	1	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	
May 30	0	0	0	0	0	S	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5
May 31	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	NA	
Diurnal Maximum	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	2	1	2	1	2	1	2	1	2	1	2	1	0		
Diurnal Average	0.5	0.5	0.5	0.5	0.4	0.6	0.6	0.6	0.7	0.5	0.5	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4		

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

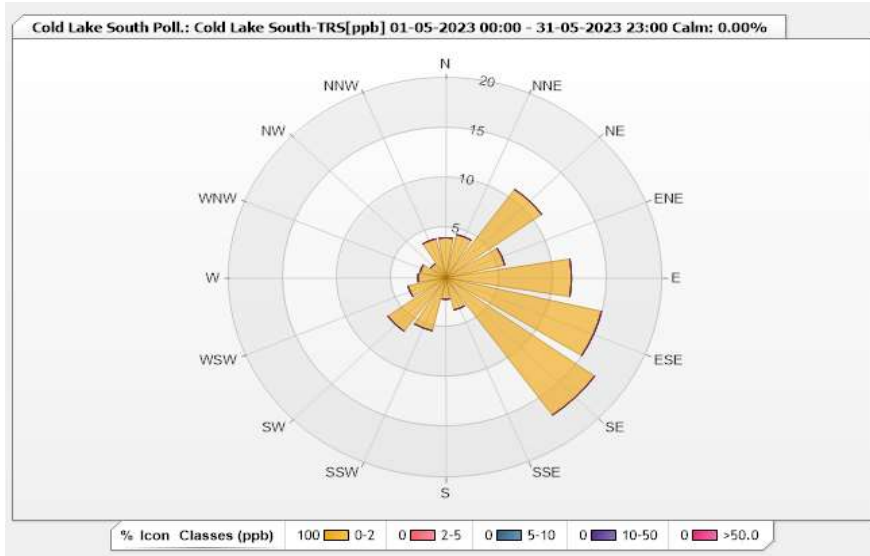


Station: Cold Lake South Poll.: Cold Lake South-TRS[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 93.82% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	4.01	0	0	0	0	4.01
NNE	4.44	0	0	0	0	4.44
NE	10.89	0	0	0	0	10.89
ENE	5.59	0	0	0	0	5.59
E	11.6	0	0	0	0	11.6
ESE	14.76	0	0	0	0	14.76
SE	16.91	0	0	0	0	16.91
SSE	3.3	0	0	0	0	3.3
S	2.15	0	0	0	0	2.15
SSW	5.44	0	0	0	0	5.44
SW	6.59	0	0	0	0	6.59
WSW	3.58	0	0	0	0	3.58
W	2.58	0	0	0	0	2.58
WNW	2.44	0	0	0	0	2.44
NW	1.72	0	0	0	0	1.72
NNW	4.01	0	0	0	0	4.01
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Cold Lake South Station - May 2023

Summary of Hourly Averages

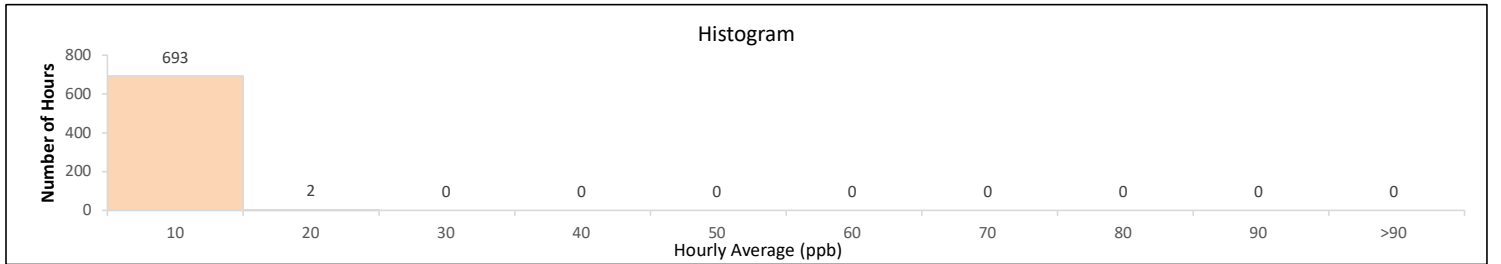
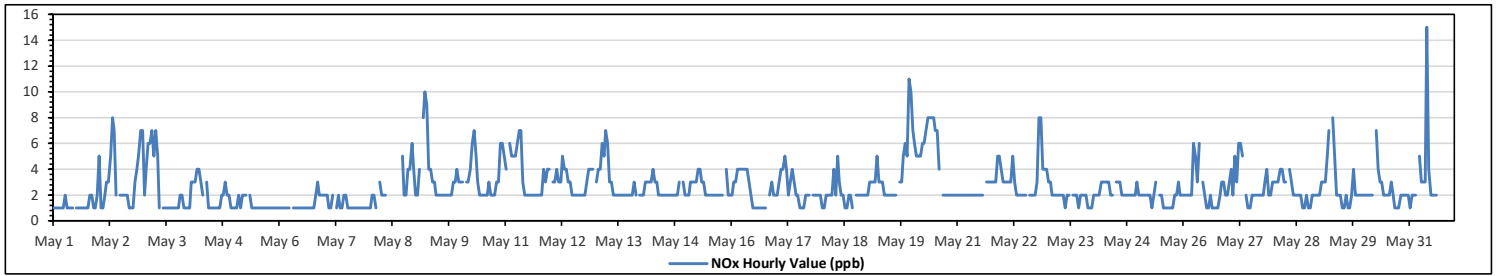
OXIDES OF NITROGEN (NOx) in ppb

Maximum Hourly Value:	15 ppb	on May 31 at hr 9	Hours in Service:	744
Maximum Daily Value:	4.9 ppb	on May 20	Hours of Data:	695
Minimum Hourly Value:	1 ppb	on May 1 at hr 0	Hours of Missing Data:	10
Minimum Daily Value:	1.2 ppb	on May 1	Hours of Calibration:	39
Monthly Average:	2.6 ppb		Operational Uptime:	98.7

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				
May 1	1	1	1	1	1	1	2	1	1	1	1	S	1	1	1	1	1	1	1	2	2	1	1	2	1	2	1	2	1	2	1.2
May 2	5	1	1	2	3	3	5	8	7	2	S	2	2	2	2	2	1	1	1	3	4	5	7	7	1	8	3.3				
May 3	2	4	6	6	7	5	7	5	1	S	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	7	2.6				
May 4	1	3	3	3	4	4	3	2	S	3	1	1	1	1	1	1	1	1	2	2	3	2	2	1	1	4	2.0				
May 5	1	1	2	1	2	2	2	S	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.2				
May 6	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	2	3	2	2	2	1	3	1.3				
May 7	2	2	1	1	2	S	1	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.3				
May 8	1	2	2	1	S	3	2	2	2	C	C	C	C	C	C	C	X	5	2	2	4	4	6	4	1	6	NA				
May 9	2	2	4	S	8	10	9	4	4	3	3	2	2	2	2	2	2	2	2	2	2	3	3	4	3	2	10	3.5			
May 10	3	3	S	3	3	4	6	7	5	3	2	2	2	2	2	2	3	2	2	2	3	3	6	6	5	2	7	3.4			
May 11	4	S	6	5	5	5	6	7	7	3	2	2	2	2	2	2	2	2	2	2	2	4	3	4	4	2	7	3.6			
May 12	S	3	3	4	3	3	5	4	4	3	3	2	2	2	2	2	2	2	2	2	3	4	4	4	S	2	5	3.0			
May 13	3	4	4	6	5	7	6	3	3	2	2	2	2	2	2	2	2	2	2	2	2	3	2	S	2	2	7	3.0			
May 14	2	2	3	3	3	3	4	3	3	2	2	2	2	2	2	2	2	2	2	2	2	3	2	S	3	2	4	2.4			
May 15	2	2	3	3	3	3	4	4	3	3	2	2	2	2	2	2	2	2	2	2	2	S	4	2	2	2	4	2.5			
May 16	2	3	3	4	4	4	4	4	4	3	2	1	1	1	1	1	1	1	1	1	S	2	3	2	2	1	4	2.3			
May 17	2	3	4	4	5	4	2	3	4	3	2	2	1	1	1	2	2	2	2	S	2	2	2	2	2	1	5	2.5			
May 18	1	1	2	2	2	2	4	2	5	3	2	2	1	1	1	2	2	1	S	2	2	2	2	2	2	1	5	2.0			
May 19	2	3	3	3	3	5	3	3	3	2	2	2	2	2	2	2	2	S	3	3	5	6	5	11	10	2	11	3.7			
May 20	7	6	5	5	5	6	6	7	8	8	8	8	7	7	4	S	2	2	2	2	2	2	2	2	2	2	8	4.9			
May 21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	S	3	3	3	3	3	3	5	5	4	2	5	2.6				
May 22	3	3	3	3	3	5	3	2	2	2	2	2	2	S	2	2	2	2	2	3	8	8	4	4	4	2	8	3.2			
May 23	3	3	2	2	2	2	2	2	2	1	2	2	S	2	2	2	1	2	2	2	2	2	1	1	1	1	3	1.9			
May 24	2	2	2	2	3	3	3	3	3	2	2	S	3	3	3	2	2	2	2	2	2	2	2	2	3	2	3	2.4			
May 25	2	2	2	2	2	2	2	1	2	3	S	2	2	1	1	1	1	1	1	2	2	3	2	2	1	3	1.8				
May 26	2	2	2	2	2	6	5	3	6	S	3	2	1	1	2	1	1	1	1	1	2	3	3	2	2	1	6	2.4			
May 27	3	4	2	5	3	6	6	5	S	2	1	1	2	2	2	2	2	2	2	2	3	4	2	2	3	1	6	2.9			
May 28	3	3	3	4	4	3	3	S	4	3	2	2	2	2	2	1	1	2	1	1	2	2	2	2	1	4	2.3				
May 29	2	3	3	3	5	7	S	8	5	2	2	2	1	1	1	2	1	1	2	4	2	2	2	2	2	1	8	2.8			
May 30	2	2	2	2	2	S	7	4	3	3	2	2	2	2	3	2	1	1	1	2	2	2	2	2	1	7	2.3				
May 31	1	2	2	2	S	5	3	3	3	15	4	2	2	2	2	N	N	N	N	N	N	N	N	N	N	1	15	NA			
Diurnal Maximum	7	6	6	6	8	10	9	8	8	15	8	7	7	4	3	3	5	4	8	8	6	11	10								
Diurnal Average	2.3	2.5	2.7	2.9	3.3	4.0	4.0	3.6	3.4	2.9	2.2	2.0	1.8	1.8	1.8	1.7	1.5	1.8	1.8	2.4	2.9	2.7	3.0	2.8							

C	Month Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	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.

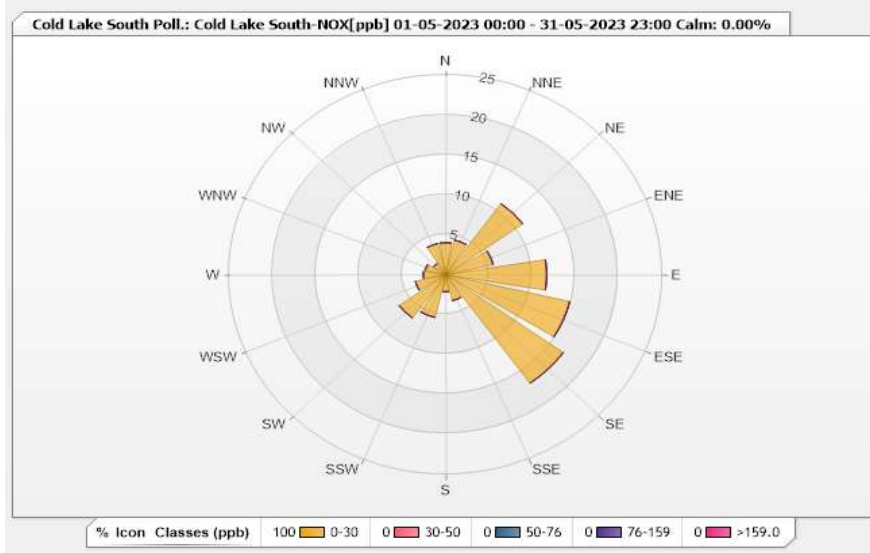


Station: Cold Lake South Poll.: Cold Lake South-NOX[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 93.41% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	4.03	0	0	0	0	4.03
NNE	4.46	0	0	0	0	4.46
NE	10.94	0	0	0	0	10.94
ENE	5.61	0	0	0	0	5.61
E	11.65	0	0	0	0	11.65
ESE	14.68	0	0	0	0	14.68
SE	16.69	0	0	0	0	16.69
SSE	3.31	0	0	0	0	3.31
S	2.16	0	0	0	0	2.16
SSW	5.47	0	0	0	0	5.47
SW	6.62	0	0	0	0	6.62
WSW	3.6	0	0	0	0	3.6
W	2.59	0	0	0	0	2.59
WNW	2.45	0	0	0	0	2.45
NW	1.73	0	0	0	0	1.73
NNW	4.03	0	0	0	0	4.03
Summary	100	0	0	0	0	100

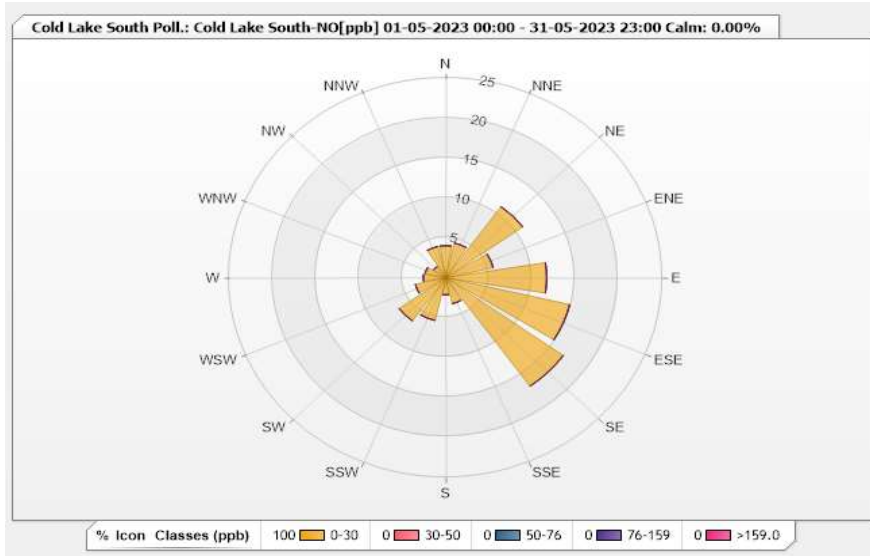


Station: Cold Lake South Poll.: Cold Lake South-NO[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 93.41% Calm Avg: 0.00 [ppm]

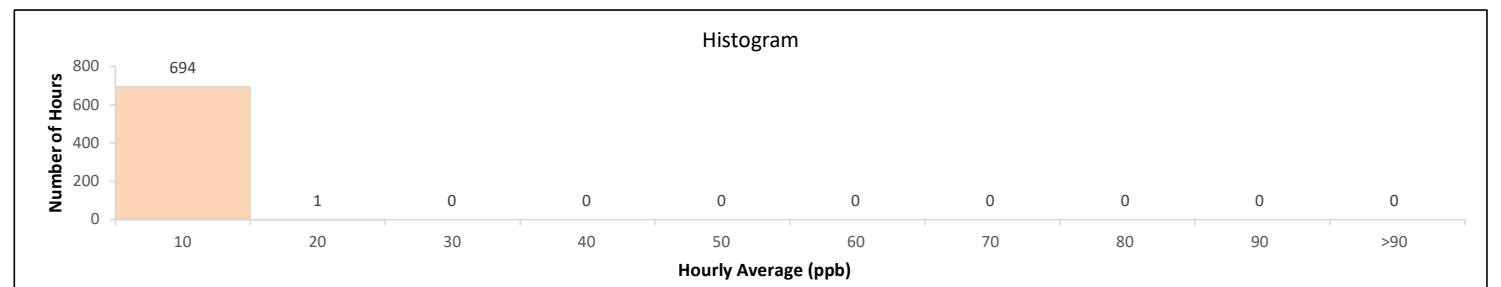
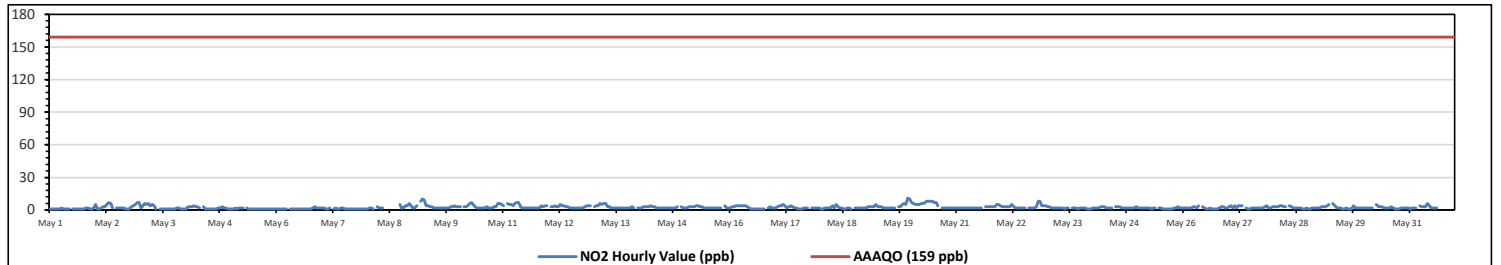
Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	4.03	0	0	0	0	4.03
NNE	4.46	0	0	0	0	4.46
NE	10.94	0	0	0	0	10.94
ENE	5.61	0	0	0	0	5.61
E	11.65	0	0	0	0	11.65
ESE	14.68	0	0	0	0	14.68
SE	16.69	0	0	0	0	16.69
SSE	3.31	0	0	0	0	3.31
S	2.16	0	0	0	0	2.16
SSW	5.47	0	0	0	0	5.47
SW	6.62	0	0	0	0	6.62
WSW	3.6	0	0	0	0	3.6
W	2.59	0	0	0	0	2.59
WNW	2.45	0	0	0	0	2.45
NW	1.73	0	0	0	0	1.73
NNW	4.03	0	0	0	0	4.03
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association
Cold Lake South Station - May 2023
Summary of Hourly Averages
NITROGEN DIOXIDE (NO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb																																																			
Number of 1-Hour Exceedances: 0																																																			
Maximum Hourly Value: 11 ppb on May 19 at hr 22												Hours in Service: 744																																							
Maximum Daily Value: 4.9 ppb on May 20												Hours of Data: 695																																							
Minimum Hourly Value: 1 ppb on May 1 at hr 0												Hours of Missing Data: 10																																							
Minimum Daily Value: 1.2 ppb on May 1												Hours of Calibration: 39																																							
Monthly Average: 2.5 ppb												Operational Uptime: 98.7																																							
Day	Hourly Period Starting at (MST)																							Daily	Daily	Daily																									
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average																								
May 1	1	1	1	1	1	1	2	1	1	1	1	S	1	1	1	1	1	1	1	2	2	1	1	2	1	2	1.2																								
May 2	5	1	1	2	3	3	5	7	6	2	S	2	2	2	2	1	1	1	1	3	4	5	7	7	1	7	3.2																								
May 3	2	4	6	5	6	4	5	4	1	S	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	6	2.3																								
May 4	1	3	3	3	4	3	3	2	S	3	1	1	1	1	1	1	1	2	2	3	2	2	1	1	1	4	2.0																								
May 5	1	1	2	1	2	2	2	S	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.2																								
May 6	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	2	3	2	2	2	1	3	1.3																								
May 7	2	2	1	1	2	S	1	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.3																								
May 8	1	2	2	1	S	3	2	2	2	C	C	C	C	C	C	C	X	5	2	2	4	4	6	4	1	6	NA																								
May 9	2	2	4	S	8	10	9	4	4	3	3	2	2	2	2	2	2	2	2	2	3	3	4	3	2	10	3.5																								
May 10	3	3	S	3	3	4	6	7	5	3	2	2	2	2	2	3	2	2	2	3	3	6	6	5	2	7	3.4																								
May 11	4	S	6	5	5	4	6	7	7	3	2	2	2	2	2	2	2	2	2	2	4	3	4	4	2	7	3.6																								
May 12	S	3	3	4	3	3	5	4	4	3	3	2	2	2	2	2	2	2	2	2	3	4	4	4	S	2	5	3.0																							
May 13	3	4	4	6	5	6	6	3	3	2	2	2	2	2	2	2	2	2	2	2	3	2	S	2	2	6	3.0																								
May 14	2	2	3	3	3	3	4	3	3	2	2	2	2	2	2	2	2	2	2	2	2	S	S	3	2	4	2.4																								
May 15	2	2	3	3	3	3	4	4	3	3	2	2	2	2	2	2	2	2	2	2	S	4	2	2	2	4	2.5																								
May 16	2	3	3	4	4	4	4	4	4	3	2	1	1	1	1	1	1	1	1	1	S	2	3	2	2	4	2.3																								
May 17	2	3	4	4	5	4	2	3	4	3	2	2	1	1	1	2	2	2	S	2	2	2	2	2	2	5	2.5																								
May 18	1	1	2	2	2	2	4	2	5	3	2	2	1	1	2	2	1	S	2	2	2	2	2	2	2	5	2.0																								
May 19	2	3	3	3	3	5	3	3	3	2	2	2	2	2	2	2	S	3	3	5	6	5	11	10	2	11	3.7																								
May 20	7	6	5	5	5	6	6	7	8	8	8	8	7	7	4	S	2	2	2	2	2	2	2	2	2	8	4.9																								
May 21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	S	3	3	3	3	3	3	5	5	4	2	5	2.6																								
May 22	3	3	3	3	3	5	3	2	2	2	2	2	2	S	2	2	2	2	3	8	8	4	4	4	2	8	3.2																								
May 23	3	3	2	2	2	2	2	2	2	1	2	2	S	2	2	2	2	2	2	2	2	1	1	1	1	3	1.9																								
May 24	2	2	2	2	3	3	3	2	2	2	S	3	3	3	2	2	2	2	2	2	2	2	2	3	2	3	2.3																								
May 25	2	2	2	2	2	2	2	1	2	2	S	2	2	1	1	1	1	1	1	2	2	3	2	2	1	3	1.7																								
May 26	2	2	2	2	2	3	3	2	4	S	3	2	1	1	2	1	1	1	1	2	3	3	2	2	1	4	2.0																								
May 27	3	4	2	4	2	4	4	4	S	2	1	1	2	2	2	2	2	2	2	3	4	2	2	3	1	4	2.6																								
May 28	3	3	3	4	4	3	3	S	4	3	2	2	2	2	2	1	1	2	1	1	2	2	2	2	1	4	2.3																								
May 29	2	3	3	3	4	5	S	6	4	2	2	2	1	1	2	1	1	1	4	2	2	2	2	2	1	6	2.5																								
May 30	2	2	2	2	2	S	5	3	3	3	2	2	2	2	2	1	1	1	2	2	2	2	2	2	1	5	2.2																								
May 31	1	2	2	2	2	S	4	3	3	3	6	4	2	2	2	N	N	N	N	N	N	N	N	N	1	6	NA																								
Diurnal Maximum	7	6	6	6	8	10	9	7	8	8	8	8	7	7	4	3	3	5	4	8	8	6	11	10																											
Diurnal Average	2.3	2.5	2.7	2.8	3.2	3.6	3.8	3.3	3.3	2.6	2.2	2.0	1.8	1.8	1.8	1.7	1.5	1.8	1.8	2.4	2.9	2.7	3.0	2.8																											
C	Monthly Calibration												S	Daily Zero-Span Check												Q	Quality Assurance																								
K	Collection Error												ND	No Data (Machine Not in Service)												Y	Routine Maintenance												P	Power Failure											
X	Invalid Data (Equipment Malfunction/Recovery)												NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																																					

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

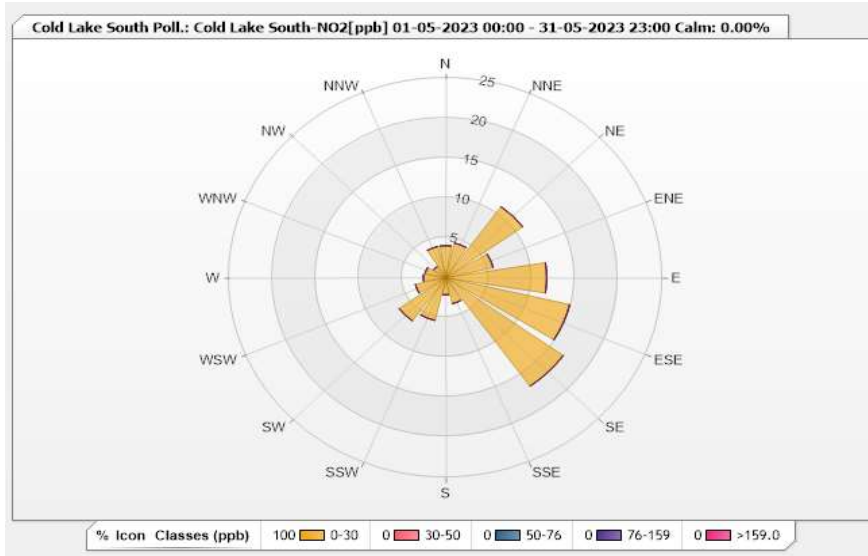


Station: Cold Lake South Poll.: Cold Lake South-NO2[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 93.41% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	4.03	0	0	0	0	4.03
NNE	4.46	0	0	0	0	4.46
NE	10.94	0	0	0	0	10.94
ENE	5.61	0	0	0	0	5.61
E	11.65	0	0	0	0	11.65
ESE	14.68	0	0	0	0	14.68
SE	16.69	0	0	0	0	16.69
SSE	3.31	0	0	0	0	3.31
S	2.16	0	0	0	0	2.16
SSW	5.47	0	0	0	0	5.47
SW	6.62	0	0	0	0	6.62
WSW	3.6	0	0	0	0	3.6
W	2.59	0	0	0	0	2.59
WNW	2.45	0	0	0	0	2.45
NW	1.73	0	0	0	0	1.73
NNW	4.03	0	0	0	0	4.03
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

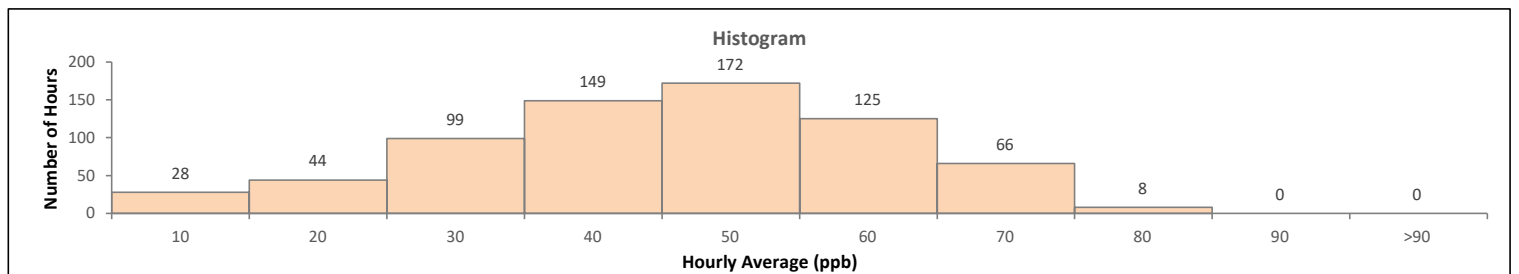
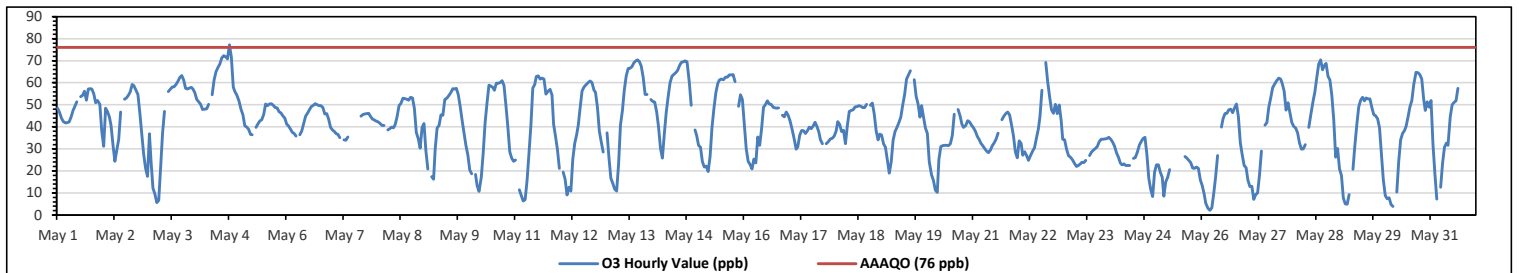
Cold Lake South Station - May 2023

Summary of Hourly Averages

OZONE (O₃) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb																											
Number of 1-Hour Exceedances: 1																											
Maximum Hourly Value: 77.2 ppb on May 4 at hr 18										Hours in Service: 744																	
Maximum Daily Value: 59.8 ppb on May 4										Hours of Data: 691																	
Minimum Hourly Value: 2.2 ppb on May 26 at hr 4										Hours of Missing Data: 16																	
Minimum Daily Value: 25.6 ppb on May 24										Hours of Calibration: 37																	
Monthly Average: 40.6 ppb										Operational Uptime: 97.8																	
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
May 1	48.5	46.6	44	42.3	41.8	41.9	42.2	44.5	47.2	49.3	51.4	S	53.7	54.3	56.2	52.1	57.1	57.3	57.2	55	51	52	50.3	38	38.0	57.3	49.3
May 2	31.2	48.5	46.9	44.3	40.7	32	24.4	29.5	34.4	46.7	S	52.5	53.1	54.3	55.8	59.3	58.9	56.6	54.8	46.3	36.8	27.6	21.2	17.6	17.6	59.3	42.3
May 3	36.8	24.4	12.2	9.5	5.7	6.6	21.7	37.1	47	S	56.1	57	58.1	58.2	59.3	60.7	62.4	63.3	61.2	57.4	57.2	57.7	57.9	57.1	5.7	63.3	44.5
May 4	55.4	52.4	51.3	50.1	47.9	48.1	48.2	50.3	S	54.6	61.2	65.1	66.9	68.5	71.2	72.3	71.8	70.9	77.2	71.6	58	56.1	54.4	51.6	47.9	77.2	59.8
May 5	48.1	45.5	40.5	39.9	38.9	36.6	36.4	S	39.8	41.3	42.7	43.3	45.5	50.4	49.6	50.4	50.6	49.8	48.7	48.6	46.8	46.3	45	43.9	36.4	50.6	44.7
May 6	41.2	40.4	38.9	37.5	37	35.9	S	36.4	38.1	41.6	44.8	46.5	48.1	49.2	49.8	50.6	50	49.6	49.6	48.8	45.8	46	43.6	39.8	35.9	50.6	43.9
May 7	38.6	37.9	37	36.6	35.1	S	34	33.9	35.4	C	C	C	C	C	C	44.9	45.5	45.8	46.1	46.2	44.7	43.6	43.2	42.7	33.9	46.2	NA
May 8	42.2	41.6	40.7	40.6	S	38.5	39.2	39.9	39.6	41.1	44.7	49.6	50.7	52.9	52.8	52.5	52.1	53.4	53.2	48.3	37.5	54.7	30.3	39.8	30.3	53.4	44.2
May 9	41.4	29	20.8	S	17.4	16.2	30.1	39.5	40.6	45.4	45.3	52.4	53.1	54.3	55.6	57.3	57.1	57.4	54.8	49.3	43.1	37.2	31.5	27.3	16.2	57.4	41.6
May 10	20.5	18.8	S	18.4	13.3	10.7	17.1	28.1	41.9	51	59	58.5	57.9	56.6	59.8	59.8	60.1	61	58.7	49.7	40	28.6	25.9	24.4	10.7	61.0	40.0
May 11	24.9	S	11.5	8.9	6.3	6.9	15.4	27.9	40.5	57.6	59.3	62.8	63.2	61.8	62.1	61.8	54.9	56.1	57	54.4	41.2	35.6	29.7	21.1	6.3	63.2	40.0
May 12	S	19.4	16.2	9.1	12.5	10.9	25.4	32.5	36.4	40.7	48.7	56.3	58.1	59.3	60.1	60.8	60	56.7	55.5	48.9	38	33.1	28.5	S	9.1	60.8	39.4
May 13	37.3	26	16.6	14.4	11.8	10.8	22.9	40.9	47.4	56.8	63.2	66.5	66.6	67.3	69.1	70	70.5	69.7	67.6	62.4	54.7	54.8	S	52.4	10.8	70.5	48.7
May 14	51.5	51.2	46.8	39.9	30.3	25.8	36.8	46.6	53.7	60.1	62.9	63.9	64.7	65.7	67.7	69.2	69.5	69.9	69.6	60.3	49.8	S	38.5	36.2	25.8	69.9	53.5
May 15	31.6	30.8	24.2	21.8	22.2	19.7	26.6	39.8	48.3	55.4	59.6	61.3	61.7	61.4	62.6	62.5	63.6	63.6	63.7	60.5	S	49.4	54.5	52.4	19.7	63.7	47.7
May 16	41.1	30	24.3	23	20.8	25.3	23.7	35.4	31.7	39.2	48.9	50	51.8	50.4	50.3	49	48.6	48.4	48.6	S	45.3	44.6	46.7	45.3	20.8	51.8	40.1
May 17	42.6	38.4	34.3	29.9	30.9	36.1	38.3	38.3	36.9	38.1	39.9	39.2	40.4	42.1	40.1	37.6	34.1	32.4	S	32.3	33.4	34.6	34.8	35.9	29.9	42.6	36.5
May 18	38.2	42.3	41	37.9	38.4	32.4	40.6	47	47.5	47.8	49.1	49.2	49.6	49.3	48.7	48.8	50.2	S	49.8	50.8	45.8	38.2	34.1	36.7	32.4	50.8	44.1
May 19	36.3	32.3	30.8	25	19	24	33.9	37.9	39.8	42	44.5	49.9	54.8	61.6	63.6	65.5	S	61.4	53.8	50.4	44.5	49.6	44.4	39.5	19.0	65.5	43.7
May 20	37	24	18.2	15.7	11.4	10.3	25.1	31	31.4	31.7	31.4	32.4	36.1	45.7	S	47.9	45.2	41.2	39.8	40.6	42.8	42.2	40.8	10.3	47.9	32.8	
May 21	39.6	38	35.6	34.2	32.6	31.4	30.2	29.1	28.2	29.5	31.4	32.7	34.6	37.1	S	43.3	44.9	46	46.7	45.4	40.9	36	28.7	26	26.0	46.7	35.7
May 22	33.6	32.5	27.2	28.7	27	24.8	26.8	28.7	30.6	35	39.2	44.8	56.6	S	69.2	60.6	53.7	47.7	46.2	50.1	46.1	49.9	43.2	34.5	24.8	69.2	40.7
May 23	34	29.8	27	26.1	25	23.4	22.1	22.4	23.2	23.9	23.8	24.8	S	27	28.5	29.4	30.2	31	33.3	34.5	34.6	34.7	35.3	22.1	35.3	28.6	
May 24	34.4	33.1	31.2	28.3	26.3	23.6	22.7	23.2	24.2	22.5	22.5	S	25.6	26.1	28.4	31.9	33.2	34.7	35.2	27.6	16.6	11.6	8.5	19.4	8.5	35.2	25.6
May 25	22.7	22.7	19.4	17.1	8.6	15.1	17.1	20.6	NRM	NRM	NRM	NRM	NRM	NRM	NRM	26.6	25.7	24.8	23.8	21.3	21.1	21.8	21.1	16	8.6	26.6	NA
May 26	13.3	9.5	5.3	3	2.2	3.3	9.8	17.5	26.9	S	39.9	43.7	45.9	46.2	47.8	48.1	46.4	48.6	50.4	44.6	32.8	27.3	22.5	21.4	2.2	50.4	28.5
May 27	15.7	12.9	13.1	7	9.2	9.9	18.3	29	S	40.8	41.9	48.9	53.1	57.8	59.4	60.8	62.1	61.8	59.6	56.2	47.6	51	46.5	41.9	7.0	62.1	39.3
May 28	40.1	39.5	37.4	32.6	29.8	30	32	S	39.7	45.3	51.4	55.9	62.4	68.5	70.5	65.8	67.7	68.7	63	61.2	54.2	43.2	26.3	30.2	26.3	70.5	48.5
May 29	20.8	17.9	7.7	5.1	4.9	9.2	S	20.7	31.7	40.9	49.1	52.1	53.4	51.9	53.1	52.6	52.7	48.7	45.6	45	43.7	39.6	25.5	15.9	4.9	53.4	34.3
May 30	8.9	7.4	7.8	4.8	3.9	S	10.4	24.3	34	37	38.3	40.3	44.5	49.1	52	59.3	64.8	64.5	63.7	61.7	52.5	47.5	51.3	49	3.9	64.8	38.1
May 31	52	32.2	18.9	7.2	S	12.6	23.5	30.8	32.6	31.6	44.6	50	51.1	51.9	57.5	N	N	N	N	N	N	N	N	N	7.2	57.5	NA
Diurnal Maximum	55.4	52.4	51.3	50.1	47.9	48.1	48.2	50.3	53.7	60.1	63.2	66.5	66.9	68.5	71.2	72.3	71.8	70.9	77.2	71.6	58.0	57.7	57.9	57.1			
Diurnal Average	35.3	31.8	27.6	24.6	22.4	22.5	27.4	33.2	37.4	42.5	46.3	49.9	52.1	52.5	55.2	53.9	53.3	53.3	53.0	49.3	42.9	40.5	36.7	35.6			
C	Monthly Calibration										S	Daily Zero-Span Check					Q	Quality Assurance									
K	Collection Error										ND	No Data (Machine Not in Service)					Y	Routine Maintenance									
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 "S" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "N" if minimum data completeness criteria of 75% of days per month is not met.

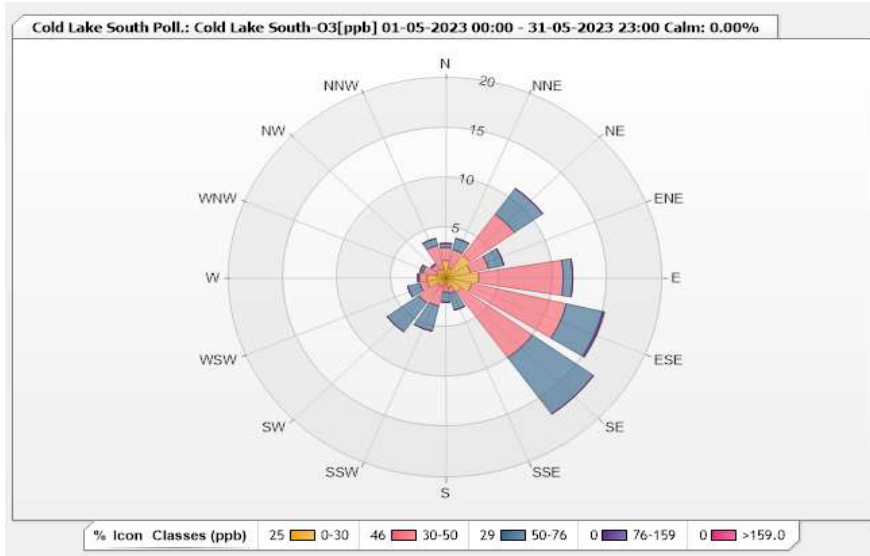


Station: Cold Lake South Poll.: Cold Lake South-O3[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 92.88% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	1.74	1.3	0.43	0	0	3.47
NNE	1.01	1.88	1.16	0	0	4.05
NE	2.75	5.07	3.18	0	0	11
ENE	2.32	1.74	1.45	0	0	5.51
E	3.04	7.81	0.87	0	0	11.72
ESE	2.46	8.97	3.47	0.14	0	15.04
SE	1.74	8.1	6.95	0	0	16.79
SSE	1.01	0.58	1.74	0	0	3.33
S	0.58	0.87	1.01	0	0	2.46
SSW	0.87	2.03	2.6	0	0	5.5
SW	0.87	2.17	3.62	0	0	6.66
WSW	1.74	0.72	1.16	0	0	3.62
W	1.74	0.72	0.14	0	0	2.6
WNW	0.87	1.3	0.29	0	0	2.46
NW	1.01	0.58	0.14	0	0	1.73
NNW	0.87	2.46	0.72	0	0	4.05
Summary	24.62	46.3	28.93	0.14	0	100



Lakeland Industry & Community Association

Cold Lake South Station - May 2023

Summary of Hourly Averages

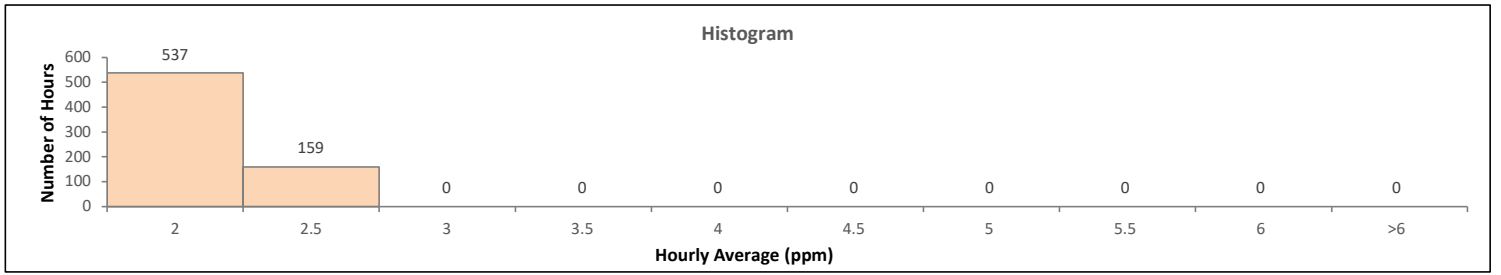
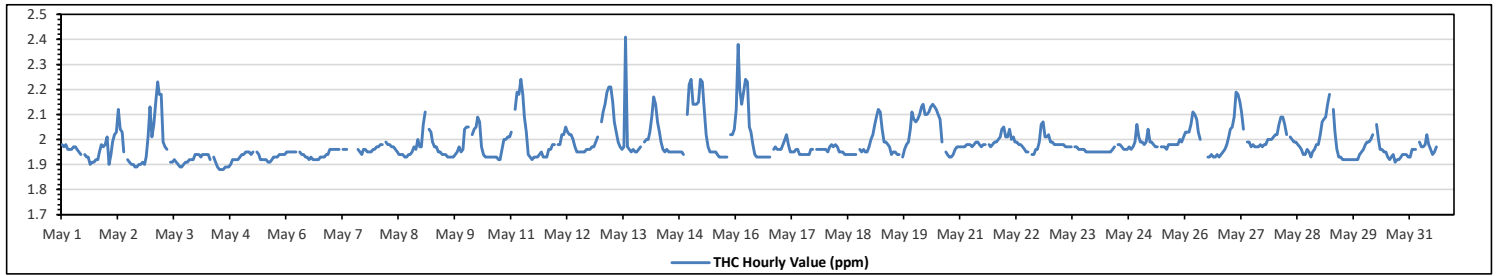
TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	2.41 ppm	on May 13 at hr 13	Hours in Service:	744
Maximum Daily Value:	2.05 ppm	on May 13	Hours of Data:	696
Minimum Hourly Value:	1.88 ppm	on May 4 at hr 12	Hours of Missing Data:	11
Minimum Daily Value:	1.91 ppm	on May 4	Hours of Calibration:	37
Monthly Average:	1.98 ppm		Operational Uptime:	98.5

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	
May 1	1.98	1.97	1.98	1.96	1.96	1.96	1.97	1.97	1.96	1.95	1.94	S	1.94	1.93	1.93	1.90	1.91	1.91	1.92	1.92	1.95	1.98	1.97	1.98	1.90	1.98	1.95	
May 2	2.01	1.90	1.94	1.99	2.02	2.03	2.12	2.04	2.03	1.95	S	1.92	1.91	1.90	1.90	1.89	1.89	1.90	1.91	1.90	1.93	2.01	2.13	1.89	2.13	1.89	2.13	1.96
May 3	2.01	2.06	2.15	2.23	2.18	2.18	1.99	1.97	1.96	S	1.91	1.91	1.92	1.91	1.90	1.89	1.89	1.90	1.91	1.91	1.92	1.92	1.92	1.92	1.92	1.89	2.23	1.98
May 4	1.94	1.94	1.93	1.94	1.94	1.94	1.94	1.92	S	1.93	1.91	1.89	1.88	1.88	1.88	1.89	1.89	1.89	1.90	1.92	1.92	1.92	1.92	1.92	1.93	1.88	1.94	1.91
May 5	1.94	1.94	1.95	1.95	1.95	1.94	1.95	S	1.95	1.94	1.92	1.92	1.92	1.92	1.91	1.91	1.92	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.91	1.95	1.93	
May 6	1.95	1.95	1.95	1.95	1.95	1.95	S	1.95	1.94	1.94	1.93	1.93	1.92	1.93	1.92	1.92	1.92	1.92	1.93	1.93	1.93	1.94	1.94	1.94	1.96	1.92	1.96	1.94
May 7	1.96	1.96	1.96	1.96	1.96	S	1.96	1.96	1.96	C	C	C	C	C	1.96	1.95	1.94	1.96	1.96	1.95	1.95	1.95	1.96	1.96	1.94	1.96	1.96	
May 8	1.97	1.97	1.98	1.98	S	1.99	1.98	1.98	1.97	1.97	1.96	1.95	1.94	1.94	1.94	1.93	1.93	1.94	1.94	1.95	1.97	1.96	2.00	1.97	1.93	2.00	1.96	
May 9	1.97	2.06	2.11	S	2.04	2.03	1.99	1.97	1.97	1.95	1.95	1.94	1.94	1.94	1.93	1.93	1.93	1.93	1.94	1.95	1.97	1.95	1.96	2.04	1.93	2.11	1.97	
May 10	2.05	2.05	S	2.02	2.04	2.05	2.09	2.07	1.97	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.92	1.92	1.96	2.00	2.00	2.01	2.01	1.92	2.09	1.98	
May 11	2.03	S	2.12	2.19	2.18	2.24	2.18	2.09	2.03	1.94	1.93	1.92	1.93	1.93	1.93	1.94	1.95	1.93	1.93	1.93	1.96	2.00	1.96	1.98	1.98	1.92	2.24	2.01
May 12	S	1.98	1.98	2.02	2.02	2.05	2.03	2.02	2.02	2.00	1.97	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.97	1.97	1.99	2.01	S	1.95	2.05	1.98	
May 13	2.07	2.11	2.14	2.19	2.21	2.21	2.15	2.07	2.03	1.99	1.97	1.96	1.97	2.41	1.97	1.96	1.95	1.96	1.95	1.95	1.95	1.96	1.97	S	1.99	1.95	2.41	2.05
May 14	2.00	2.00	2.03	2.09	2.17	2.14	2.07	2.03	1.99	1.96	1.95	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.94	S	2.10	2.22	1.94	2.22	2.01	
May 15	2.24	2.14	2.14	2.14	2.15	2.24	2.23	2.12	2.02	1.97	1.95	1.95	1.95	1.95	1.94	1.93	1.93	1.93	1.93	1.93	1.93	S	2.02	2.02	2.04	1.93	2.24	2.04
May 16	2.12	2.38	2.20	2.14	2.19	2.24	2.23	2.05	2.03	1.98	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	S	1.96	1.97	1.96	1.96	1.93	2.38	2.03	
May 17	1.96	1.98	2.00	2.02	1.98	1.95	1.95	1.95	1.96	1.96	1.94	1.94	1.94	1.94	1.94	1.94	1.96	1.96	S	1.96	1.96	1.96	1.96	1.96	1.94	2.02	1.96	
May 18	1.96	1.95	1.97	1.98	1.97	1.98	1.97	1.95	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	S	1.96	1.95	1.96	1.95	1.95	1.95	1.97	1.94	1.98	1.95
May 19	2.00	2.02	2.06	2.09	2.12	2.11	2.04	1.99	1.99	1.98	1.97	1.94	1.95	1.95	1.94	1.94	S	1.93	1.96	1.98	1.99	2.04	2.11	2.08	1.93	2.12	2.01	
May 20	2.07	2.08	2.10	2.13	2.14	2.10	2.10	2.11	2.13	2.14	2.13	2.12	2.10	2.08	1.99	S	1.95	1.94	1.93	1.93	1.94	1.96	1.97	1.97	1.93	2.14	2.05	
May 21	1.97	1.97	1.97	1.98	1.98	1.98	1.97	1.98	1.99	1.99	1.98	1.97	1.98	1.98	S	1.98	1.97	1.98	1.99	1.99	2.00	2.01	2.04	2.05	1.97	2.05	1.99	
May 22	2.01	2.01	2.04	2.00	2.01	1.99	1.99	1.98	1.98	1.97	1.96	1.95	1.95	S	1.94	1.94	1.96	1.96	1.99	2.06	2.07	2.01	2.01	2.02	1.94	2.07	1.99	
May 23	1.99	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.97	1.97	1.97	1.97	S	1.97	1.97	1.96	1.96	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.95	1.99	1.97	
May 24	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.97	S	1.97	1.98	1.98	1.97	1.96	1.96	1.96	1.97	1.96	1.97	1.99	2.06	2.01	1.95	2.06	1.97
May 25	1.99	1.99	1.98	1.99	2.04	1.99	1.99	1.98	1.97	1.97	S	1.97	1.97	1.97	1.96	1.98	1.98	1.98	1.98	1.98	1.98	2.00	1.99	2.01	1.96	2.04	1.98	
May 26	2.03	2.03	2.03	2.06	2.11	2.10	2.08	2.03	2.00	Y	Y	S	1.93	1.93	1.94	1.93	1.93	1.94	1.93	1.94	1.94	1.95	1.96	1.98	2.01	1.93	2.11	1.99
May 27	2.04	2.05	2.09	2.19	2.18	2.15	2.11	2.04	S	1.99	1.99	1.97	1.98	1.97	1.97	1.97	1.98	1.97	1.98	1.98	2.00	2.00	2.01	1.97	1.97	2.19	2.03	
May 28	2.02	2.02	2.06	2.09	2.09	2.06	2.02	S	2.01	2.00	1.99	1.99	1.98	1.97	1.96	1.94	1.94	1.96	1.95	1.93	1.95	1.96	1.98	1.98	1.93	2.09	1.99	
May 29	2.02	2.07	2.08	2.09	2.14	2.18	S	2.12	2.03	1.96	1.93	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.94	1.95	1.96	1.92	2.18	1.99	
May 30	1.98	1.99	1.99	2.00	2.02	S	2.06	2.00	1.96	1.96	1.95	1.95	1.93	1.92	1.93	1.94	1.91	1.92	1.92	1.93	1.94	1.94	1.94	1.93	1.91	2.06	1.96	
May 31	1.93	1.96	1.96	1.96	S	1.99	1.97	1.97	1.98	2.02	1.98	1.96	1.94	1.95	1.97	N	N	N	N	N	N	N	N	N	1.93	2.02	NA	
Diurnal Maximum	2.24	2.38	2.20	2.23	2.21	2.24	2.23	2.12	2.13	2.14	2.13	2.12	2.10	2.41	1.99	1.98	1.98	1.98	1.99	2.06	2.07	2.04	2.11	2.22				
Diurnal Average	2.01	2.02	2.03	2.04	2.06	2.06	2.04	2.01	1.99	1.97	1.96	1.95	1.95	1.96	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.96	1.97	1.99	2.00			

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

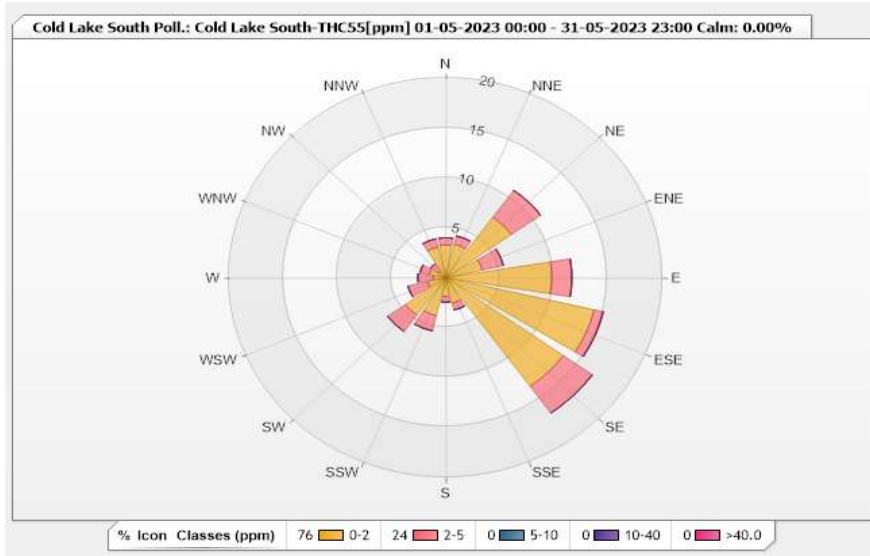


Station: Cold Lake South Poll.: Cold Lake South-THC55[ppm] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 93.55% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	3.3	0.72	0	0	0	4.02
NNE	3.45	0.86	0	0	0	4.31
NE	7.47	3.3	0	0	0	10.77
ENE	3.45	2.01	0	0	0	5.46
E	9.77	1.87	0	0	0	11.64
ESE	14.08	0.86	0	0	0	14.94
SE	13.36	3.3	0	0	0	16.66
SSE	2.59	0.72	0	0	0	3.31
S	1.87	0.57	0	0	0	2.44
SSW	3.88	1.58	0	0	0	5.46
SW	4.6	2.01	0	0	0	6.61
WSW	1.72	1.87	0	0	0	3.59
W	1.15	1.44	0	0	0	2.59
WNW	1.58	0.86	0	0	0	2.44
NW	0.86	0.86	0	0	0	1.72
NNW	3.16	0.86	0	0	0	4.02
Summary	76.29	23.69	0	0	0	100



Lakeland Industry & Community Association

Cold Lake South Station - May 2023

Summary of Hourly Averages

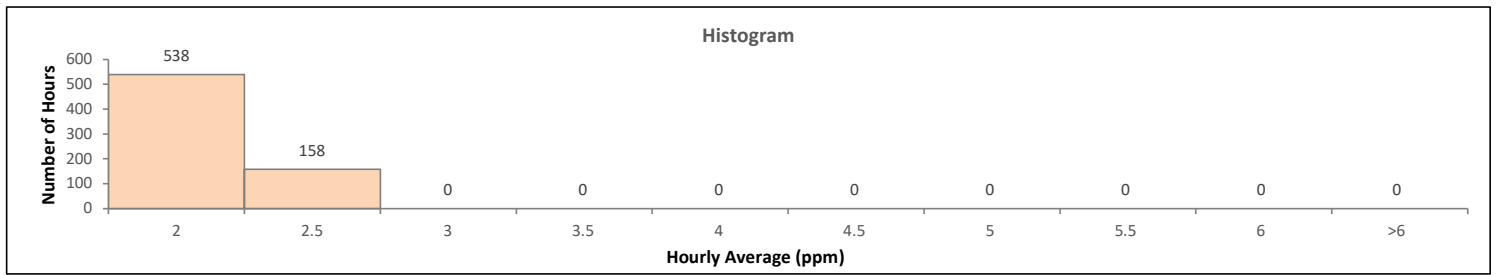
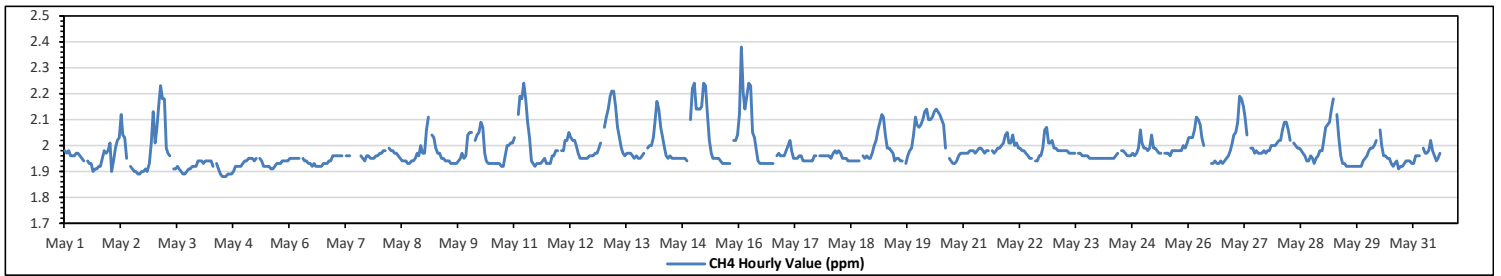
METHANE (CH4) in ppm

Maximum Hourly Value:	2.38 ppm	on May 16 at hr 1	Hours in Service:	744
Maximum Daily Value:	2.05 ppm	on May 20	Hours of Data:	696
Minimum Hourly Value:	1.88 ppm	on May 4 at hr 12	Hours of Missing Data:	11
Minimum Daily Value:	1.91 ppm	on May 4	Hours of Calibration:	37
Monthly Average:	1.98 ppm		Operational Uptime:	98.5

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	
May 1	1.98	1.97	1.98	1.96	1.96	1.96	1.97	1.97	1.96	1.95	1.94	S	1.94	1.93	1.93	1.90	1.91	1.91	1.92	1.92	1.95	1.98	1.97	1.98	1.90	1.98	1.95	
May 2	2.01	1.90	1.94	1.99	2.02	2.03	2.12	2.04	2.03	1.95	S	1.92	1.91	1.90	1.90	1.89	1.89	1.90	1.91	1.90	1.93	2.01	2.13	1.89	2.13	1.89	2.13	1.96
May 3	2.01	2.06	2.15	2.23	2.18	2.18	1.99	1.97	1.96	S	1.91	1.91	1.92	1.91	1.90	1.89	1.89	1.90	1.91	1.91	1.92	1.92	1.92	1.92	1.92	1.89	2.23	1.98
May 4	1.94	1.94	1.93	1.94	1.94	1.94	1.94	1.92	S	1.93	1.91	1.89	1.88	1.88	1.88	1.89	1.89	1.89	1.90	1.92	1.92	1.92	1.92	1.92	1.93	1.88	1.94	1.91
May 5	1.94	1.94	1.95	1.95	1.95	1.94	1.95	S	1.95	1.94	1.92	1.92	1.92	1.92	1.91	1.91	1.92	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.91	1.95	1.93	
May 6	1.95	1.95	1.95	1.95	1.95	1.95	S	1.95	1.94	1.94	1.93	1.93	1.92	1.93	1.92	1.92	1.92	1.92	1.93	1.93	1.93	1.94	1.94	1.94	1.96	1.92	1.96	1.94
May 7	1.96	1.96	1.96	1.96	1.96	S	1.96	1.96	1.96	C	C	C	C	C	1.96	1.95	1.94	1.96	1.96	1.95	1.95	1.95	1.96	1.96	1.94	1.96	1.96	
May 8	1.97	1.97	1.98	1.98	S	1.99	1.98	1.98	1.97	1.97	1.96	1.95	1.94	1.94	1.94	1.93	1.93	1.94	1.94	1.95	1.97	1.96	2.00	1.97	1.93	2.00	1.96	
May 9	1.97	2.06	2.11	S	2.04	2.03	1.99	1.97	1.97	1.95	1.95	1.94	1.94	1.94	1.93	1.93	1.93	1.93	1.94	1.95	1.97	1.95	1.96	2.04	1.93	2.11	1.97	
May 10	2.05	2.05	S	2.02	2.04	2.05	2.09	2.07	1.97	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.92	1.92	1.96	2.00	2.00	2.01	2.01	1.92	2.09	1.98	
May 11	2.03	S	2.12	2.19	2.18	2.24	2.18	2.09	2.03	1.94	1.93	1.92	1.93	1.93	1.93	1.94	1.95	1.93	1.93	1.93	1.96	1.96	1.98	1.98	1.92	2.24	2.01	
May 12	S	1.98	1.98	2.02	2.02	2.05	2.03	2.02	2.02	2.00	1.97	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.97	1.97	1.99	2.01	S	1.95	2.05	1.98	
May 13	2.07	2.11	2.14	2.19	2.21	2.21	2.15	2.07	2.03	1.99	1.97	1.96	1.97	1.97	1.97	1.96	1.95	1.96	1.95	1.95	1.95	1.96	1.97	S	1.99	1.95	2.21	2.03
May 14	2.00	2.00	2.03	2.09	2.17	2.14	2.07	2.03	1.99	1.96	1.95	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.94	S	2.10	2.22	1.94	2.22	2.01	
May 15	2.24	2.14	2.14	2.14	2.15	2.24	2.23	2.12	2.02	1.97	1.95	1.95	1.95	1.95	1.94	1.93	1.93	1.93	1.93	1.93	1.93	S	2.02	2.02	2.04	1.93	2.24	2.04
May 16	2.12	2.38	2.20	2.14	2.19	2.24	2.23	2.05	2.03	1.98	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	S	1.96	1.97	1.96	1.96	1.93	2.38	2.03	
May 17	1.96	1.98	2.00	2.02	1.98	1.95	1.95	1.95	1.96	1.96	1.94	1.94	1.94	1.94	1.94	1.94	1.96	1.96	S	1.96	1.96	1.96	1.96	1.96	1.94	2.02	1.96	
May 18	1.96	1.95	1.97	1.98	1.97	1.98	1.97	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	S	1.96	1.95	1.96	1.95	1.95	1.97	1.94	1.98	1.95	
May 19	2.00	2.02	2.06	2.09	2.12	2.11	2.04	1.99	1.99	1.98	1.97	1.94	1.95	1.95	1.94	1.94	S	1.93	1.96	1.98	1.99	2.04	2.11	2.08	1.93	2.12	2.01	
May 20	2.07	2.08	2.10	2.13	2.14	2.10	2.10	2.11	2.13	2.14	2.13	2.12	2.10	2.08	1.99	S	1.95	1.94	1.93	1.93	1.94	1.96	1.97	1.97	1.93	2.14	2.05	
May 21	1.97	1.97	1.97	1.98	1.98	1.98	1.97	1.98	1.99	1.99	1.98	1.97	1.98	1.98	S	1.98	1.97	1.98	1.99	1.99	2.00	2.01	2.04	2.05	1.97	2.05	1.99	
May 22	2.01	2.01	2.04	2.00	2.01	1.99	1.99	1.98	1.98	1.97	1.96	1.95	1.95	S	1.94	1.94	1.96	1.96	1.96	1.99	2.06	2.07	2.01	2.01	2.02	1.94	2.07	1.99
May 23	1.99	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.97	1.97	1.97	1.97	S	1.97	1.97	1.96	1.96	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.99	1.97
May 24	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.97	S	1.97	1.98	1.98	1.97	1.96	1.96	1.96	1.97	1.96	1.97	1.99	2.06	2.01	1.95	2.06	1.97
May 25	1.99	1.99	1.98	1.99	2.04	1.99	1.99	1.98	1.97	1.97	S	1.97	1.97	1.97	1.96	1.98	1.98	1.98	1.98	1.98	1.98	2.00	1.99	2.01	1.96	2.04	1.98	
May 26	2.03	2.03	2.03	2.06	2.11	2.10	2.08	2.03	2.00	Y	Y	S	1.93	1.93	1.94	1.93	1.93	1.94	1.93	1.94	1.95	1.96	1.98	2.01	1.93	2.11	1.99	
May 27	2.04	2.05	2.09	2.19	2.18	2.15	2.11	2.04	S	1.99	1.99	1.97	1.98	1.97	1.97	1.97	1.98	1.97	1.98	1.98	2.00	2.00	2.01	1.97	1.97	2.19	2.03	
May 28	2.02	2.02	2.06	2.09	2.09	2.08	2.02	S	2.01	2.00	1.99	1.99	1.98	1.97	1.96	1.94	1.96	1.95	1.93	1.95	1.96	1.98	1.98	1.93	1.93	2.09	1.99	
May 29	2.02	2.07	2.08	2.09	2.14	2.18	S	2.12	2.03	1.96	1.93	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.94	1.95	1.96	1.92	2.18	1.99	
May 30	1.98	1.99	1.99	2.00	2.02	S	2.06	2.00	1.96	1.96	1.95	1.95	1.93	1.92	1.93	1.94	1.91	1.92	1.92	1.93	1.94	1.94	1.94	1.93	1.91	2.06	1.96	
May 31	1.93	1.96	1.96	1.96	S	1.99	1.97	1.97	1.98	2.02	1.98	1.96	1.94	1.95	1.97	N	N	N	N	N	N	N	N	N	1.93	2.02	NA	
Diurnal Maximum	2.24	2.38	2.20	2.23	2.21	2.24	2.23	2.12	2.13	2.14	2.13	2.12	2.10	2.08	1.99	1.98	1.98	1.98	1.99	2.06	2.07	2.04	2.11	2.22				
Diurnal Average	2.01	2.02	2.03	2.04	2.06	2.06	2.04	2.01	1.99	1.97	1.96	1.95	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.96	1.97	1.99	2.00			

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

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

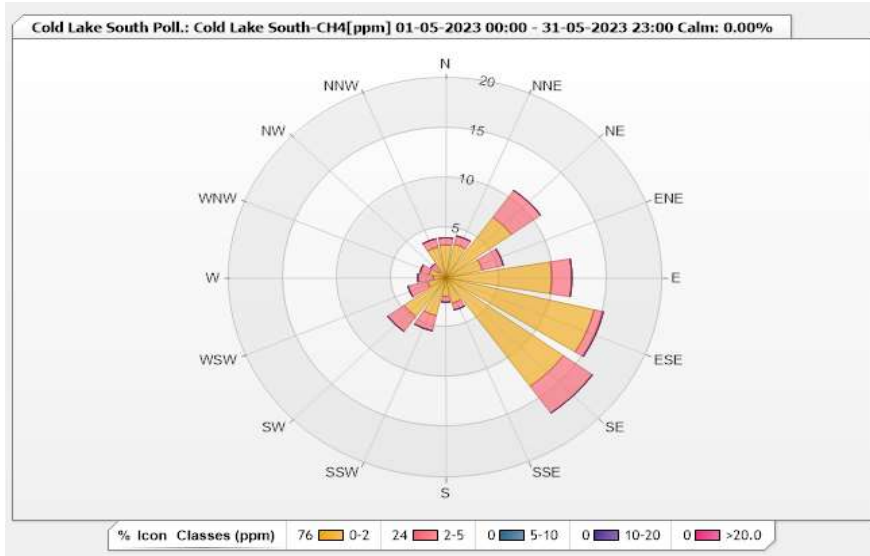


Station: Cold Lake South Poll.: Cold Lake South-CH4[ppm] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 93.55% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	3.3	0.72	0	0	0	4.02
NNE	3.45	0.86	0	0	0	4.31
NE	7.47	3.3	0	0	0	10.77
ENE	3.45	2.01	0	0	0	5.46
E	9.77	1.87	0	0	0	11.64
ESE	14.08	0.86	0	0	0	14.94
SE	13.36	3.3	0	0	0	16.66
SSE	2.59	0.72	0	0	0	3.31
S	1.87	0.57	0	0	0	2.44
SSW	3.88	1.58	0	0	0	5.46
SW	4.74	1.87	0	0	0	6.61
WSW	1.72	1.87	0	0	0	3.59
W	1.15	1.44	0	0	0	2.59
WNW	1.58	0.86	0	0	0	2.44
NW	0.86	0.86	0	0	0	1.72
NNW	3.16	0.86	0	0	0	4.02
Summary	76.43	23.55	0	0	0	100

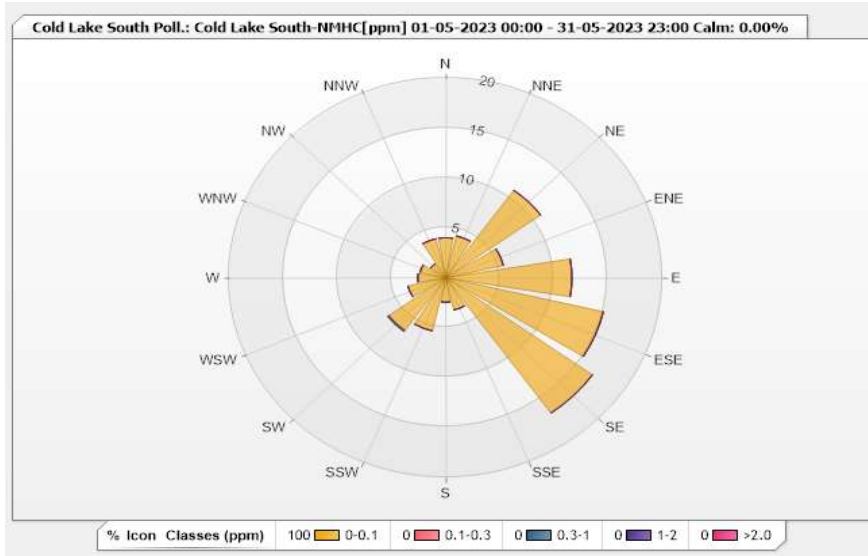


Station: Cold Lake South Poll.: Cold Lake South-NMHC[ppm] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 93.55% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	4.02	0	0	0	0	4.02
NNE	4.31	0	0	0	0	4.31
NE	10.78	0	0	0	0	10.78
ENE	5.46	0	0	0	0	5.46
E	11.64	0	0	0	0	11.64
ESE	14.94	0	0	0	0	14.94
SE	16.67	0	0	0	0	16.67
SSE	3.3	0	0	0	0	3.3
S	2.44	0	0	0	0	2.44
SSW	5.46	0	0	0	0	5.46
SW	6.47	0	0.14	0	0	6.61
WSW	3.59	0	0	0	0	3.59
W	2.59	0	0	0	0	2.59
WNW	2.44	0	0	0	0	2.44
NW	1.72	0	0	0	0	1.72
NNW	4.02	0	0	0	0	4.02
Summary	100	0	0.14	0	0	100



Lakeland Industry & Community Association

Cold Lake South Station - May 2023

Summary of Hourly Averages

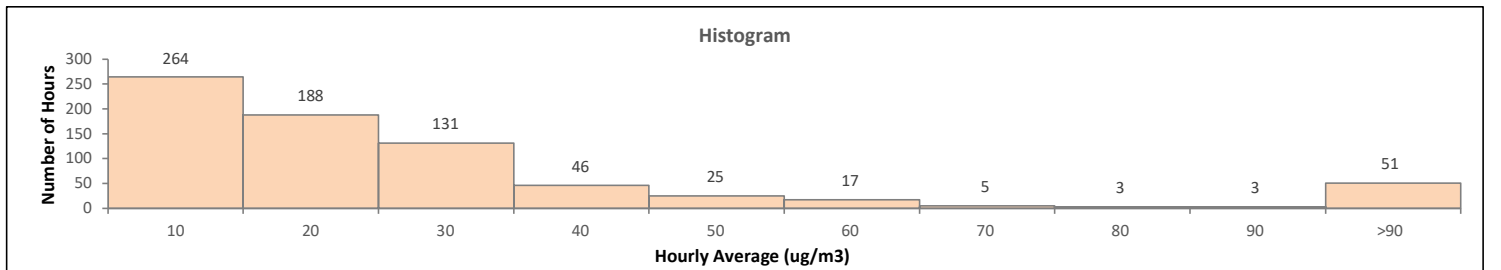
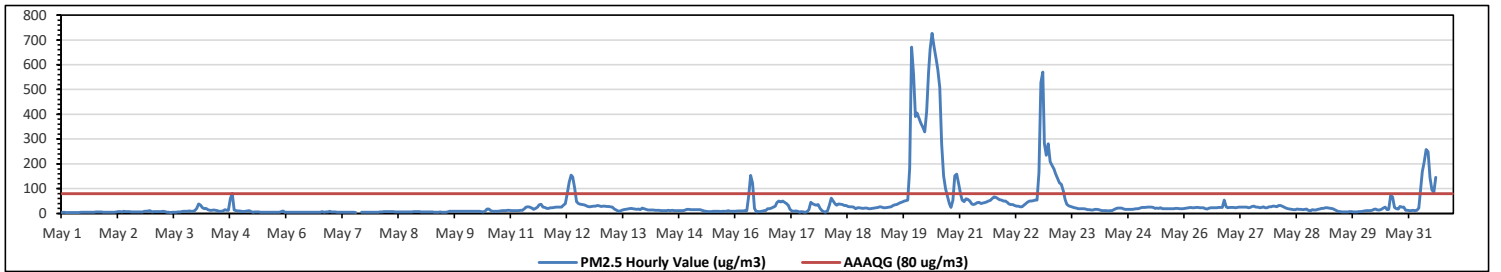
PARTICULATE MATTER 2.5 (PM_{2.5}) in µg/m³

Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m ³ , Alberta Ambient Air Quality Objective (AAAQO): 24-Hour 29 µg/m ³			
Number of 1-Hour Exceedances:	54	Number of 24-Hour Exceedances:	6
Maximum Hourly Value:	726 µg/m ³ on May 20 at hr 9	Hours in Service:	744
Maximum Daily Value:	338.3 µg/m ³ on May 20	Hours of Data:	733
Minimum Hourly Value:	3 µg/m ³ on May 1 at hr 0	Hours of Missing Data:	9
Minimum Daily Value:	4 µg/m ³ on May 1	Hours of Calibration:	2
Monthly Average:	37.0 µg/m ³	Operational Uptime:	98.8

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
May 1	3	4	3	3	3	3	3	3	3	3	4	4	4	5	5	5	5	6	6	6	6	5	5	3	6	4.3	
May 2	5	5	5	5	5	6	7	7	6	8	7	7	7	6	6	6	6	6	6	6	8	9	10	12	5	12	6.7
May 3	6	7	7	7	7	7	8	7	5	4	3	4	4	4	6	6	7	8	9	8	10	9	8	12	3	12	6.8
May 4	20	38	33	23	19	20	15	13	13	14	13	12	8	8	10	15	13	13	59	81	14	12	10	10	8	81	20.3
May 5	8	7	8	10	11	7	5	6	6	6	5	5	5	4	4	4	4	4	4	4	4	7	10	5	4	11	6.0
May 6	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	7	5	6	6	4	8	4.8
May 7	6	6	6	5	5	4	5	5	4	4	4	4	4	3	C	C	4	5	5	5	5	5	5	3	6	4.7	
May 8	5	5	6	6	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	7	7	7	7	5	7	6.3
May 9	6	6	6	6	6	6	6	5	5	5	6	5	5	5	6	8	8	8	8	8	8	8	8	8	5	8	6.5
May 10	8	8	8	8	8	8	9	9	7	6	8	17	17	12	9	9	8	9	10	11	11	12	13	13	6	17	9.9
May 11	12	12	12	12	12	13	13	18	25	27	26	21	16	20	26	34	37	25	24	20	22	23	24	12	12	37	20.6
May 12	25	25	26	26	33	40	81	126	154	147	102	48	39	37	35	34	32	28	27	28	29	30	32	31	25	154	50.6
May 13	28	29	29	28	28	27	25	17	14	10	9	13	15	16	17	19	20	19	17	16	17	15	21	19	9	29	19.5
May 14	16	14	14	14	14	13	13	13	12	12	12	13	12	13	12	12	11	11	11	12	14	16	16	11	16	13.0	
May 15	15	15	15	15	15	13	10	8	7	7	7	8	8	8	8	7	8	8	8	8	11	9	9	7	15	10.1	
May 16	9	10	10	10	10	11	11	72	153	122	20	6	7	7	8	11	12	18	19	21	26	29	43	50	6	153	29.0
May 17	46	49	45	39	32	16	10	8	10	9	5	7	6	5	6	15	45	39	35	33	36	20	11	7	5	49	22.3
May 18	4	10	33	62	49	38	33	38	37	35	32	32	28	27	27	25	19	22	23	21	20	21	21	19	4	62	28.2
May 19	19	20	21	22	24	27	26	23	23	24	25	27	32	34	36	39	44	47	50	51	53	181	671	564	19	671	86.8
May 20	391	405	384	363	348	329	411	569	665	726	674	621	579	509	279	151	100	69	40	24	52	151	159	120	24	726	338.3
May 21	79	54	48	59	56	49	38	35	38	43	45	39	42	44	47	50	52	60	66	65	60	55	54	50	35	79	51.2
May 22	50	45	38	35	35	32	29	30	27	27	33	40	46	49	50	51	53	53	165	527	571	281	235	280	27	571	115.9
May 23	209	193	180	160	142	124	117	91	55	37	31	28	26	23	21	18	18	19	19	17	15	15	14	14	14	209	66.1
May 24	16	16	15	13	12	11	11	10	11	12	15	18	21	21	21	18	16	16	16	16	16	17	18	19	10	21	15.6
May 25	21	24	24	24	25	25	24	20	21	20	22	19	18	18	18	18	18	19	20	20	19	19	19	19	18	25	20.8
May 26	20	21	22	24	23	23	24	24	22	22	22	18	17	21	22	23	23	23	24	24	24	53	27	23	17	53	23.7
May 27	24	24	24	23	24	25	26	26	26	25	23	24	28	29	25	25	23	24	27	22	23	27	27	29	22	29	25.1
May 28	29	27	32	32	29	25	21	18	17	16	15	15	17	16	15	16	17	13	10	15	14	14	16	10	32	19.0	
May 29	17	20	20	22	23	21	20	18	15	11	7	7	6	6	6	7	7	6	6	6	7	7	9	6	23	11.7	
May 30	10	11	12	12	13	16	17	14	14	16	21	25	15	16	72	66	24	18	17	28	26	26	13	13	10	72	21.5
May 31	11	11	13	12	13	21	101	169	209	258	248	144	96	85	146	N	N	N	N	N	N	N	N	N	11	258	NA
Diurnal Maximum	391	405	384	363	348	329	411	569	665	726	674	621	579	509	279	151	100	69	40	24	52	151	159	120	24	726	338.3
Diurnal Average	36.2	36.3	35.6	35.0	33.4	31.4	36.6	45.8	52.1	53.8	46.8	40.1	36.8	34.2	31.8	24.2	21.4	20.3	24.8	37.0	37.7	36.2	50.5	47.2			

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

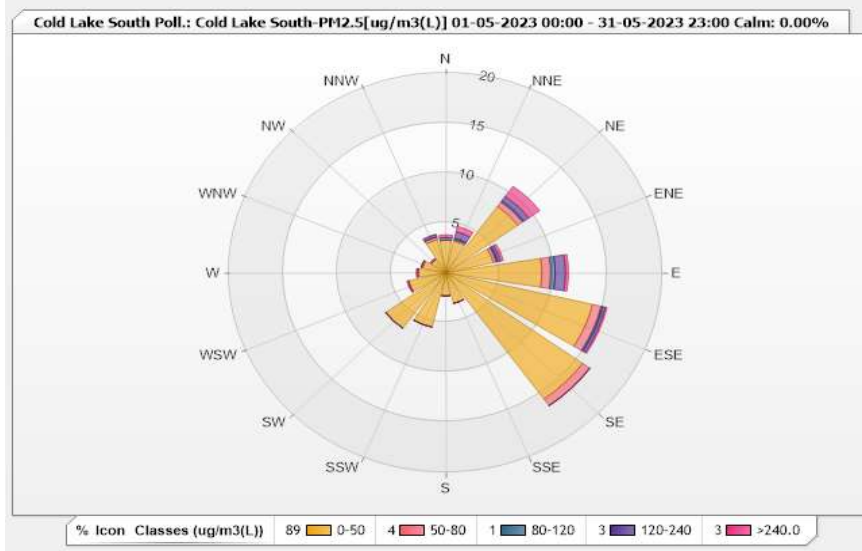


Station: Cold Lake South Poll.: Cold Lake South-PM2.5[ug/m3(L)] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 98.52% Calm Avg: 0.00 [ppm]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	3.27	0	0.27	0	0.27	3.81
NNE	3.27	0.14	0.14	0.68	0.55	4.78
NE	8.19	0.55	0.14	0.55	1.23	10.66
ENE	4.5	0.27	0.14	0.27	0.27	5.45
E	8.87	0.82	0.41	0.95	0.27	11.32
ESE	13.92	0.82	0.14	0.27	0.14	15.29
SE	15.55	0.82	0	0	0	16.37
SSE	3.14	0	0	0	0	3.14
S	2.32	0	0	0	0	2.32
SSW	5.59	0	0	0	0	5.59
SW	6.82	0	0	0	0	6.82
WSW	3.55	0	0	0	0.14	3.69
W	2.59	0	0	0	0.14	2.73
WNW	2.18	0.14	0	0	0	2.32
NW	1.64	0	0	0	0.14	1.78
NNW	3.41	0.27	0	0.27	0	3.95
Summary	88.81	3.83	1.24	2.99	3.15	100



Lakeland Industry & Community Association

Cold Lake South Station - May 2023

Summary of Hourly Averages

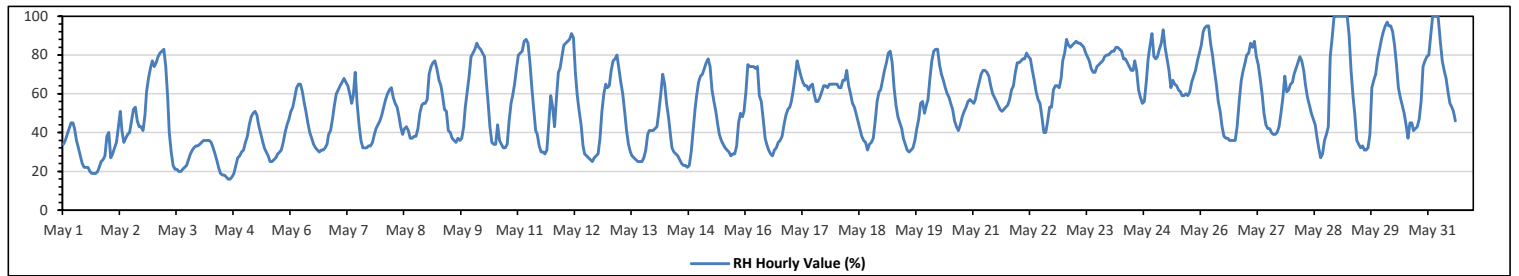
RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	100 %	on May 28 at hr 22	Hours in Service:	744
Maximum Daily Value:	80.4 %	on May 23	Hours of Data:	735
Minimum Hourly Value:	16 %	on May 4 at hr 15	Hours of Missing Data:	9
Minimum Daily Value:	26.5 %	on May 4	Hours of Calibration:	0
Monthly Average:	54.7 %		Operational Uptime:	98.8

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average																																																																					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23																																																																				
May 1	34	36	39	42	45	45	42	36	32	28	24	22	22	22	20	19	19	19	20	22	25	26	28	38	19	45	29.4																																																																				
May 2	40	27	29	32	35	43	51	41	35	37	39	40	46	52	53	46	43	43	41	49	61	68	73	77	27	77	45.9																																																																				
May 3	74	76	79	81	82	83	74	58	40	30	23	21	21	20	20	21	22	23	26	29	31	32	33	33	20	83	43.0																																																																				
May 4	34	35	36	36	36	36	35	32	29	26	22	19	18	18	17	16	16	17	19	23	27	28	30	31	16	36	26.5																																																																				
May 5	35	38	44	48	50	51	49	44	40	36	32	30	28	25	25	26	27	29	30	31	35	40	44	47	25	51	36.8																																																																				
May 6	51	53	58	63	65	65	61	55	51	45	40	37	34	32	31	30	31	31	32	34	39	41	47	54	30	65	45.0																																																																				
May 7	60	62	64	66	68	66	64	60	55	59	71	55	44	36	32	32	32	33	33	35	39	42	44	46	32	71	49.9																																																																				
May 8	49	53	57	60	62	63	58	55	53	48	43	39	42	43	41	37	37	38	38	42	50	54	55	55	37	63	48.8																																																																				
May 9	57	70	74	76	77	73	67	64	59	52	51	41	40	37	36	35	37	36	37	43	53	61	69	79	35	79	55.2																																																																				
May 10	81	83	86	84	83	81	79	66	54	43	35	34	34	44	36	34	32	32	34	46	55	59	65	73	32	86	56.4																																																																				
May 11	80	81	82	87	88	86	76	63	52	41	39	33	30	30	29	31	45	59	53	43	58	71	73	79	29	88	58.7																																																																				
May 12	85	86	87	88	91	89	71	59	51	44	33	29	28	27	26	25	27	28	29	37	51	60	65	63	25	91	53.3																																																																				
May 13	64	72	77	78	80	73	66	60	51	41	34	30	28	27	26	25	25	25	27	31	39	41	41	41	25	80	45.9																																																																				
May 14	42	43	51	60	70	65	55	48	39	32	30	29	28	26	24	23	23	22	23	30	41	52	59	66	22	70	40.9																																																																				
May 15	69	70	73	76	78	74	62	56	51	44	39	36	34	32	31	30	28	29	29	33	45	50	48	51	28	78	48.7																																																																				
May 16	61	75	74	74	74	73	74	59	56	47	37	34	31	29	28	31	32	35	36	38	44	49	52	53	28	75	49.8																																																																				
May 17	56	62	69	77	73	69	66	64	64	62	64	65	60	56	56	58	61	64	64	63	65	65	65	65	56	77	63.9																																																																				
May 18	65	63	63	67	67	72	64	60	55	53	50	46	42	38	36	35	31	34	35	37	46	56	61	62	31	72	51.6																																																																				
May 19	67	72	76	81	82	76	63	54	48	45	42	37	34	31	30	31	32	36	42	47	55	56	50	54	30	82	51.7																																																																				
May 20	57	68	77	82	83	83	75	70	67	63	60	58	55	52	46	43	41	44	48	51	53	56	57	56	41	83	60.2																																																																				
May 21	55	57	62	66	70	72	72	71	69	64	60	58	56	54	52	51	52	53	54	57	62	64	71	76	51	76	61.6																																																																				
May 22	76	77	78	78	81	79	78	72	67	61	57	55	48	40	40	46	53	53	62	64	64	63	68	77	40	81	64.0																																																																				
May 23	81	88	85	84	85	86	87	86	86	85	84	81	79	77	73	71	71	74	75	76	77	79	80	80	71	88	80.4																																																																				
May 24	81	82	82	84	84	83	82	78	78	76	74	72	72	77	72	62	58	55	56	66	78	85	91	79	55	91	75.3																																																																				
May 25	78	79	83	86	93	84	78	72	63	67	65	64	62	61	59	59	60	59	61	66	69	72	77	81	59	93	70.8																																																																				
May 26	85	92	94	95	95	86	80	72	65	56	51	43	38	37	36	36	36	36	43	57	67	72	76	36	95	61.9																																																																					
May 27	80	81	86	84	87	79	75	68	60	50	44	42	42	40	39	39	40	43	50	58	69	61	62	65	39	87	60.2																																																																				
May 28	66	70	73	76	79	77	72	64	58	54	50	47	44	37	32	27	29	36	39	43	79	89	100	100	27	100	60.0																																																																				
May 29	100	100	100	100	100	100	90	72	59	49	36	34	32	33	31	31	32	39	63	67	70	78	83	88	31	100	66.1																																																																				
May 30	92	95	97	95	95	92	85	75	63	58	54	50	44	37	45	45	41	42	43	47	56	74	77	79	37	97	65.9																																																																				
May 31	80	90	100	100	100	100	87	77	72	68	61	55	53	51	46	N	N	N	N	N	N	N	N	N	46	100	NA																																																																				
Diurnal Maximum	100	100	100	100	100	100	90	86	86	85	84	81	79	77	73	71	71	74	75	76	79	89	100	100																																																																							
Diurnal Average	65.6	68.9	72.1	74.4	76.1	74.3	69.0	61.6	55.5	50.5	46.6	43.1	40.9	39.4	37.7	36.5	37.1	38.9	41.2	45.0	53.1	58.0	61.3	64.1																																																																							
C	Monthly Calibration																							S	Daily Zero-Span Check																							Q	Quality Assurance																																														
K	Collection Error																							ND	No Data (Machine Not in Service)																							Y	Routine Maintenance																							P	Power Failure																						
X	Invalid Data (Equipment Malfunction /Recovery)																							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																																																																						

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

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



Lakeland Industry & Community Association

Cold Lake South Station - May 2023

Summary of Hourly Averages

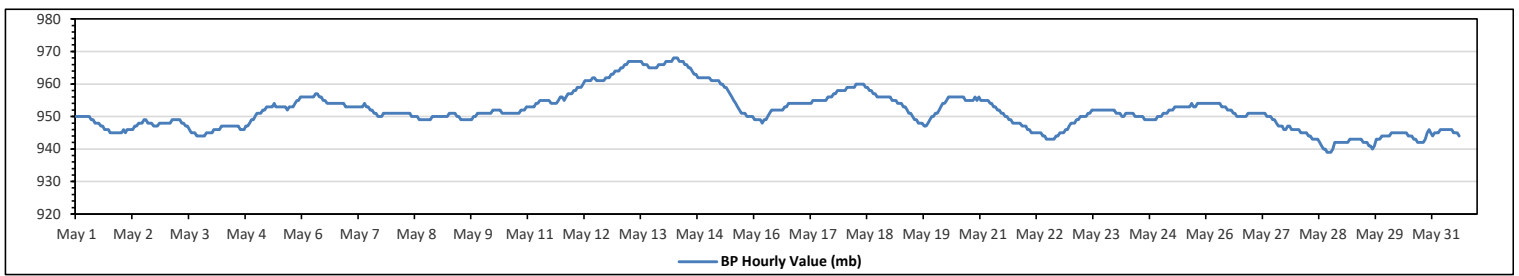
BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	968	mb	on May 14 at hr 5	Hours in Service:	744
Maximum Daily Value:	966	mb	on May 13	Hours of Data:	735
Minimum Hourly Value:	939	mb	on May 28 at hr 16	Hours of Missing Data:	9
Minimum Daily Value:	942	mb	on May 29	Hours of Calibration:	0
Monthly Average:	952	mb		Operational Uptime:	98.8

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
May 1	950	950	950	950	950	950	950	950	949	949	948	948	947	947	946	946	946	946	945	945	945	945	945	945	945	945	945	948
May 2	945	946	945	946	946	946	946	947	947	948	948	948	949	949	948	948	948	947	947	947	948	948	948	948	948	948	948	947
May 3	948	948	948	949	949	949	949	949	949	948	948	947	947	946	945	945	945	944	944	944	944	944	945	945	945	945	946	947
May 4	945	946	946	946	946	947	947	947	947	947	947	947	947	947	947	946	946	946	947	947	948	949	949	950	950	950	950	947
May 5	951	951	951	952	952	953	953	953	953	954	953	953	953	953	953	953	952	953	953	953	953	954	955	955	956	956	956	953
May 6	956	956	956	956	956	956	956	957	957	956	956	955	955	954	954	954	954	954	954	954	954	954	954	953	953	953	953	955
May 7	953	953	953	953	953	953	953	953	953	954	953	953	953	952	952	951	951	950	950	950	950	951	951	951	951	951	951	952
May 8	951	951	951	951	951	951	951	951	951	951	950	950	950	950	949	949	949	949	949	949	949	949	950	950	950	950	950	950
May 9	950	950	950	950	950	950	951	951	951	951	951	950	950	949	949	949	949	949	949	949	949	950	950	951	951	951	951	950
May 10	951	951	951	951	951	952	952	952	952	952	951	951	951	951	951	951	951	951	951	951	951	952	952	952	952	953	953	951
May 11	953	953	953	953	954	954	955	955	955	955	955	955	954	954	954	954	955	956	956	956	955	956	957	957	957	957	957	955
May 12	958	958	959	959	959	960	961	961	961	961	962	962	961	961	961	961	961	962	962	962	962	963	963	964	964	964	964	961
May 13	964	965	965	966	966	967	967	967	967	967	967	967	967	966	966	966	965	965	965	965	965	965	966	966	966	966	966	965
May 14	966	967	967	967	967	968	968	968	967	967	967	966	966	966	965	965	964	963	963	962	962	962	962	962	962	962	962	965
May 15	962	961	961	961	961	961	960	960	959	959	958	957	956	955	954	953	952	951	951	951	951	950	950	950	950	950	950	956
May 16	949	949	949	949	948	949	949	950	951	952	952	952	952	952	952	952	953	953	954	954	954	954	954	954	954	954	952	952
May 17	954	954	954	954	954	954	954	955	955	955	955	955	955	955	955	956	956	956	957	957	958	958	958	958	958	958	958	956
May 18	958	959	959	959	959	959	960	960	960	960	960	959	959	958	958	957	957	956	956	956	956	956	956	956	956	956	956	958
May 19	956	955	955	955	954	954	954	953	953	952	951	951	950	949	949	948	948	948	947	947	948	949	950	950	950	950	950	951
May 20	951	951	952	953	954	954	955	956	956	956	956	956	956	956	956	956	955	955	955	955	955	955	956	956	956	956	956	955
May 21	955	955	955	955	955	954	954	953	953	952	952	951	951	950	950	949	949	948	948	948	948	948	948	947	947	947	947	951
May 22	947	946	946	945	945	945	945	945	944	944	944	943	943	943	943	943	944	944	944	945	945	945	946	946	947	947	945	
May 23	948	948	948	949	949	950	950	950	950	951	951	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	951
May 24	951	951	951	950	950	951	951	951	951	951	950	950	950	950	950	949	949	949	949	949	949	949	949	950	950	950	950	950
May 25	950	951	951	951	952	952	952	953	953	953	953	953	953	953	953	953	954	953	953	953	954	954	954	954	954	954	954	953
May 26	954	954	954	954	954	954	954	954	953	953	953	952	952	952	951	951	950	950	950	950	950	950	951	951	951	951	951	952
May 27	951	951	951	951	951	951	951	951	950	950	950	949	949	948	947	947	947	946	946	947	947	946	946	946	946	946	946	949
May 28	946	946	945	945	945	945	944	944	943	943	943	943	942	941	940	940	939	939	939	940	942	942	942	942	942	942	942	943
May 29	942	942	942	942	943	943	943	943	943	943	943	942	942	942	941	941	940	941	943	943	943	944	944	944	944	944	944	942
May 30	944	944	945	945	945	945	945	945	945	945	944	944	944	943	943	942	942	942	942	942	943	945	946	946	946	946	946	944
May 31	944	945	945	945	946	946	946	946	946	946	945	945	945	944	N	N	N	N	N	N	N	N	N	N	N	N	NA	
Diurnal Maximum	966	967	967	967	967	968	968	968	967	967	967	967	967	966	966	966	965	965	965	965	965	966	966	966	966	966	966	966
Diurnal Average	952	952	952	952	952	952	953	953	952	952	952	952	951	951	951	951	951	951	951	951	951	952	952	952	952	952	952	952

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

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



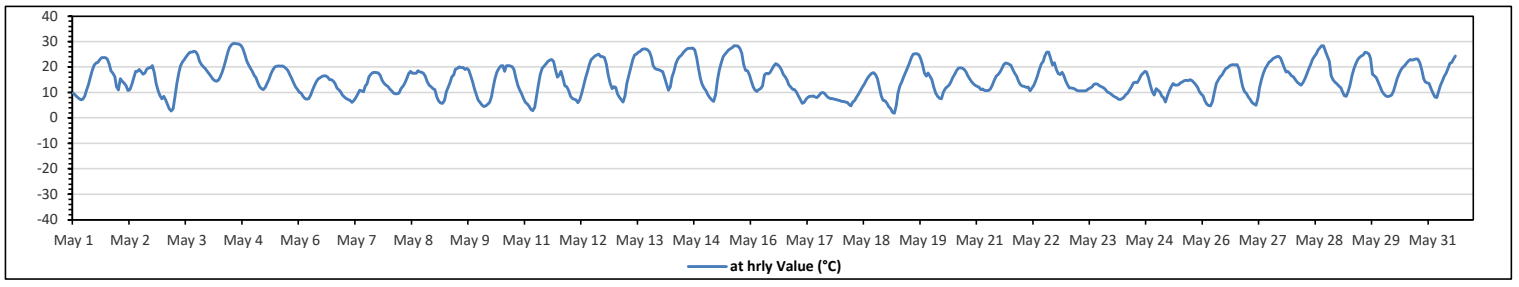
Lakeland Industry & Community Association
Cold Lake South Station - May 2023
Summary of Hourly Averages
AMBIENT TEMPERATURE (AT) in Degree Celsius

Maximum Hourly Value:	29.3 °C	on May 4 at hr 13	Hours in Service:	744
Maximum Daily Value:	22.1 °C	on May 4	Hours of Data:	735
Minimum Hourly Value:	1.9 °C	on May 19 at hr 4	Hours of Missing Data:	9
Minimum Daily Value:	8.1 °C	on May 17	Hours of Calibration:	0
Monthly Average:	15.3 °C		Operational Uptime:	98.8

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
May 1	9.7	9	8.3	7.6	7.1	7.4	8.7	10.8	13	15.8	18.6	20.7	21.5	21.8	22.9	23.8	23.8	23.8	23.2	21.3	18.5	17.6	16.2	12.3	7.1	23.8	16.0
May 2	11	15.4	14.4	13.7	12.6	10.8	11.1	13.2	15.8	18.4	18.3	19	18.2	17.2	17.7	19.1	19.7	19.7	20.6	17.9	13.5	10.7	8.8	7.5	7.5	20.6	15.2
May 3	8.5	7	5.1	3.7	2.7	3.7	8.5	13.8	17.8	20.4	21.9	22.9	24.1	25.1	25.8	25.9	26.3	26	24.7	22.5	21.1	20.2	19.4	18.5	2.7	26.3	17.3
May 4	17.4	16.4	15.3	14.6	14.5	14.9	16	17.9	20.2	22.9	25.8	27.6	28.8	29.3	29.3	29.2	29.1	28.5	27.3	25	22.5	20.8	19.4	18.5	14.5	29.3	22.1
May 5	16.8	15.9	13.8	12.4	11.6	11.2	12	13.6	15.3	17.4	18.9	20.1	20.3	20.4	20.3	20.5	20	19.5	18.6	17	15.4	13.7	12.1	11.1	11.1	20.5	16.2
May 6	10.2	9.7	8.5	7.6	7.4	7.7	9.1	10.8	12.5	14.2	15.3	15.9	16.3	16.6	16.5	16	15	15.1	14.5	13.5	11.8	11	10.4	9.1	7.4	16.6	12.3
May 7	8.2	7.6	7.2	6.8	6.2	6.8	7.9	9.3	10.9	10.6	10.3	12.4	13.4	16.1	17.2	17.8	17.9	17.8	17.7	16.8	14.8	13.6	13	12.4	6.2	17.9	12.2
May 8	11.4	10.6	9.7	9.5	9.5	9.8	11.5	12.4	13.6	15.4	17.4	18.3	17.6	17.6	17.5	18.6	18.1	17.9	17.5	16.4	14.3	12.9	12.2	11.5	9.5	18.6	14.2
May 9	11.2	8.3	6.6	5.9	5.7	6.9	10.5	11.9	13.8	16.2	16.9	19.2	19.4	20	19.9	19.9	19	19.4	18.8	16.5	14.2	11.3	9.1	7.1	5.7	20.0	13.7
May 10	6.1	5.1	4.5	4.8	5.3	6.1	8.4	12.5	15.6	18.1	19.5	20.5	20.6	18.3	20.5	20.6	20.5	20.2	19	15.9	13	11	9.5	7.7	4.5	20.6	13.5
May 11	6.2	5.4	4.5	3.4	2.8	4.2	8	12.7	16.9	19.4	20.3	21.2	22.2	22.7	23	22.2	18.8	16	16.9	18.3	15.8	12.7	12.2	10.8	2.8	23.0	14.0
May 12	8.5	7.6	7.4	7.1	6	7.2	9.7	12.8	15.8	18.3	20.7	22.8	23.6	24.4	24.8	25.1	24.1	24.1	23.8	21.1	16.7	13.5	11.5	12.2	6.0	25.1	16.2
May 13	12	9.4	8.2	7.2	6.3	8.7	13.6	16.7	19.8	22.7	24.7	25.2	25.9	26.2	27	27.1	27.1	26.7	25.9	23.7	20.6	19.4	19.1	18.9	6.3	27.1	19.3
May 14	18.6	18.2	15.9	13.3	10.9	12.2	16	18.4	21.3	23.1	24.1	24.8	25.8	26.6	27.3	27.4	27.4	27.5	26.7	23.8	19.3	15.5	13.3	11.8	10.9	27.5	20.4
May 15	10.7	9.2	8	7.1	6.5	9	14.7	18.9	21.7	24	25.2	25.8	26.7	27.3	27.7	28.3	28.3	28.2	27.4	25.4	21	18.7	18.6	17	6.5	28.3	19.8
May 16	14.4	12.1	11	10.4	11.1	11.6	12.6	16.9	17.5	17.3	17.8	19	20.5	21.3	21	20.2	18.9	17.1	16.3	15.1	13.1	12.1	11.3	11.1	10.4	21.3	15.4
May 17	10.1	8.7	7.3	5.7	6.2	7.4	8.1	8.5	8.5	8.6	8.3	7.9	8.8	9.8	10	9.6	8.7	8	7.6	7.6	7.4	7.2	7	6.8	5.7	10.1	8.1
May 18	6.5	6.5	6.3	6.1	5.3	4.7	6.3	6.9	8.3	9.4	10.8	12.1	13.3	14.8	15.9	16.8	17.6	17.8	17.1	15.5	12	8.6	6.9	6.7	4.7	17.8	10.5
May 19	5.7	4.5	3.8	2.3	1.9	5	9.6	12.5	14.2	16.1	18	19.7	21.6	23.8	25.1	25.3	25.3	24.7	23.4	20.8	17.5	16.4	17.7	16.4	1.9	25.3	15.5
May 20	15.1	12.1	9.7	8.5	7.8	7.5	10.1	11.6	12.2	13	14.1	15.8	17.1	18.6	19.6	19.7	19.6	19	18.1	16.7	15.5	14.3	13.4	12.8	7.5	19.7	14.2
May 21	12.4	12	11.2	11.4	10.7	10.7	10.7	11.4	12.9	14.8	16.4	17.1	18.1	19.4	20.9	21.5	21.4	21.1	20.7	19	17.5	16.4	14.5	13.1	10.7	21.5	15.6
May 22	12.5	12.4	12	12.1	10.6	11.8	12.6	14.4	16.6	19	21.2	22.3	24.4	25.9	25.8	23.5	20.9	21.7	19	17.4	17.1	18	16.8	14.6	10.6	25.9	17.6
May 23	13.1	11.8	11.8	11.7	11.3	10.8	10.6	10.6	10.6	10.8	11.4	11.8	12.3	13.2	13.4	13.3	12.7	12.2	11.9	11.3	10.3	9.9	9.4	9.4	4.7	13.4	11.5
May 24	8.8	8.2	8	7.4	7.2	7.6	8.1	9.2	9.8	11	12.3	13.8	14.1	13.9	15.2	16.8	17.6	18.3	18.1	15.9	12.8	10.3	9	11.5	7.2	18.3	11.9
May 25	10.9	10.1	8.5	7.9	6.3	8.6	10.6	12.2	13.5	12.9	12.9	13.1	13.8	14.2	14.6	14.8	14.6	15.1	14.6	13.9	13.1	11.9	10.4	9.4	6.3	15.1	12.0
May 26	8.7	6.9	5.4	4.9	4.7	6.5	10.1	13.5	14.9	16.1	17	18.3	19.5	19.9	20.4	20.8	21	20.9	21	19.3	15.4	12.4	10.5	9.6	4.7	21.0	14.1
May 27	8.3	7.2	6	5.4	5	7.8	11.9	15	17.6	19.4	20.7	22	22.5	23.4	23.7	24	24.2	23.5	21.8	19.9	18.1	18.4	17.5	16.6	5.0	24.2	16.7
May 28	16.1	15	14.1	13.4	13	13.9	15.4	17.3	19.3	21.1	22.8	24	25.2	26.7	27.6	28.4	28.3	26.2	24.2	22.4	16.6	14.9	14	13.4	13.0	28.4	19.7
May 29	12.5	11.9	10.5	8.8	8.5	10.4	13.1	16.7	19.3	21.3	22.9	23.7	24.4	24.7	25.8	25.6	25.2	23.4	17.2	16.5	15.9	14.1	12.3	10.5	8.5	25.8	17.3
May 30	9.3	8.6	8.4	8.7	9	10.6	12.8	15.4	17.3	18.7	19.9	20.5	21.4	22.4	22.9	22.7	22.9	23.2	23.1	21.7	18.9	15.5	14.2	13.8	8.4	23.2	16.7
May 31	13.5	11.5	9.8	8.3	8	10.2	12.7	14.5	16.3	17.5	19.4	21.4	21.8	23.1	24.4	N	N	N	N	N	N	N	N	N	8.0	24.4	NA
Diurnal Maximum	18.6	18.2	15.9	14.6	14.5	14.9	16.0	18.9	21.7	24.0	25.8	27.6	28.8	29.3	29.3	29.2	29.1	28.5	27.4	25.4	22.5	20.8	19.4	18.9			
Diurnal Average	11.1	10.1	9.1	8.3	7.8	8.8	11.0	13.3	15.3	16.9	18.2	19.3	20.1	20.8	21.4	21.5	21.2	20.8	19.9	18.3	15.8	14.1	13.0	12.1			

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

Summary of Hourly Averages

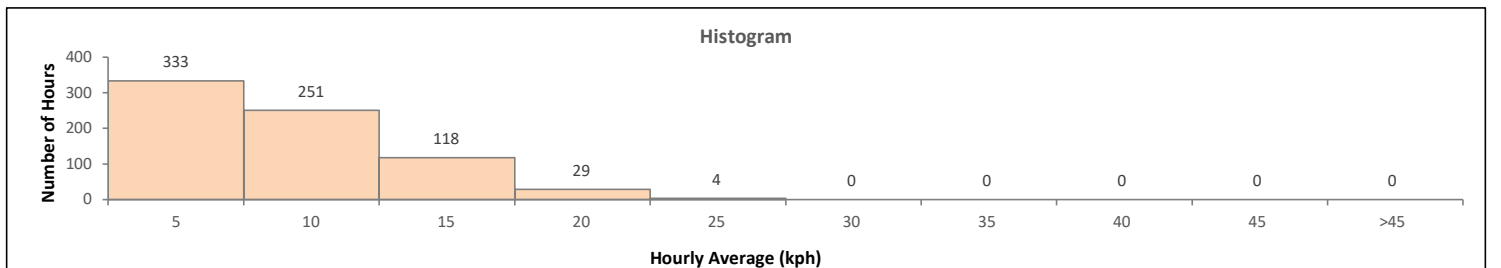
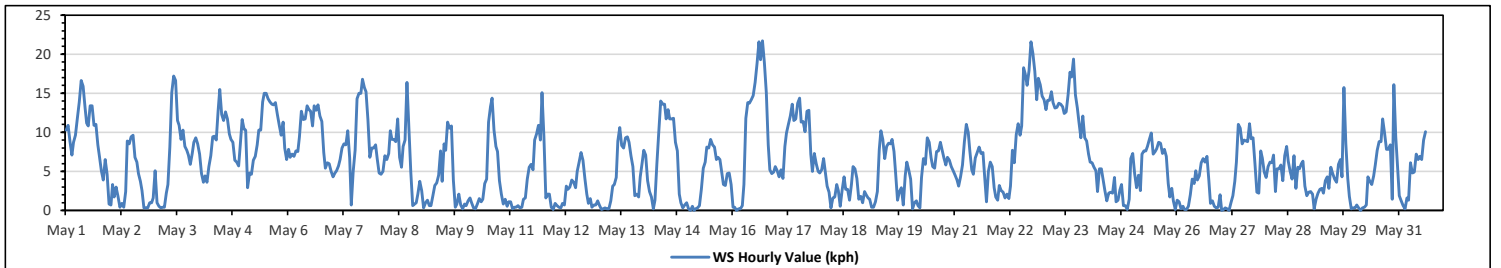
VECTOR WIND SPEED (VWS) in km/hr

Maximum Hourly Value:	21.7	kph	on May 16 at hr 16	Hours in Service:	744
Maximum Daily Value:	13.5	kph	on May 23	Hours of Data:	735
Minimum Hourly Value:	0.0	kph	on May 15 at hr 1	Hours of Missing Data:	9
Minimum Daily Value:	2.5	kph	on May 12	Hours of Calibration:	0
Monthly Average:	2.8	kph		Operational Uptime:	98.8

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
May 1	10.3	10.9	8.8	7.1	8.7	9.6	11.8	13.9	16.6	15.9	13.2	11.2	10.8	13.4	13.4	10.9	11.0	8.4	6.9	5.1	3.9	6.5	4.6	0.8	0.8	16.6	9.7	
May 2	0.7	3.3	1.7	3.0	1.8	0.4	0.9	0.4	2.4	8.9	8.5	9.4	9.6	6.8	6.2	4.7	3.7	2.5	0.3	0.3	1.0	1.0	1.6	1.0	1.6	0.3	9.6	3.3
May 3	5.1	1.0	0.5	0.3	0.4	0.4	2.2	3.3	8.1	15.1	17.2	16.6	11.5	10.9	9.1	10.3	8.2	7.7	7.1	5.9	7.3	8.7	9.3	8.5	0.3	17.2	7.3	
May 4	7.2	4.7	3.6	4.4	3.6	5.6	7.0	9.4	9.5	9.0	12.8	15.5	12.3	11.5	12.6	11.7	9.8	9.1	8.7	6.4	6.2	5.7	8.3	11.6	3.6	15.5	8.6	
May 5	10.4	10.3	2.9	4.8	4.6	6.4	6.9	8.4	10.3	10.3	13.9	15.0	15.0	14.3	13.9	13.6	13.5	13.8	12.3	10.9	9.6	11.3	8.0	6.5	2.9	15.0	10.3	
May 6	7.8	6.8	7.2	6.9	7.6	7.5	9.4	12.7	11.6	11.7	13.4	12.9	12.7	10.8	13.4	12.8	13.5	12.1	11.4	7.4	5.4	6.1	6.0	5.0	5.0	13.5	9.7	
May 7	4.3	4.8	5.1	5.7	6.5	8.0	8.5	8.4	10.2	6.7	0.7	5.0	7.7	14.3	15.0	15.0	16.8	15.7	15.2	11.6	6.8	8.0	8.0	8.4	0.7	16.8	9.0	
May 8	6.6	4.8	4.6	5.0	7.0	6.5	7.3	10.2	9.1	9.1	8.8	11.7	6.8	5.5	8.2	9.0	16.4	10.6	4.9	0.6	0.8	1.0	2.1	3.7	0.6	16.4	6.7	
May 9	2.5	0.3	1.0	1.3	0.6	0.6	1.9	3.2	3.5	4.5	7.6	3.7	8.5	7.7	11.3	10.5	10.8	3.9	0.4	0.8	2.1	0.7	0.2	0.8	0.2	11.3	3.7	
May 10	0.6	1.2	1.6	1.0	0.3	0.2	0.8	1.5	1.1	1.4	3.4	4.0	11.3	13.3	14.4	10.3	8.2	7.5	3.8	2.1	0.8	1.4	0.5	1.1	0.2	14.4	3.8	
May 11	1.1	0.2	0.4	0.4	0.6	0.3	0.4	1.4	1.6	4.0	5.5	5.9	5.2	9.0	9.8	10.9	9.0	15.1	9.4	1.6	2.1	2.1	0.4	0.1	0.1	15.1	4.0	
May 12	0.9	0.6	0.4	0.3	0.9	0.7	3.1	2.7	3.0	3.9	3.6	2.9	5.0	6.2	7.4	6.4	4.1	2.1	0.9	1.5	0.4	0.7	0.7	1.2	0.3	7.4	2.5	
May 13	0.6	0.1	0.2	0.3	0.2	0.2	1.2	3.1	3.3	4.2	8.9	10.6	8.3	8.0	9.3	9.4	8.7	7.0	5.6	1.9	2.1	1.7	4.3	6.1	0.1	10.6	4.4	
May 14	7.7	7.1	3.8	2.4	1.7	0.2	1.3	6.0	10.1	14.0	13.6	13.6	11.7	12.9	11.7	11.7	11.8	8.7	7.6	2.1	1.0	0.3	0.7	1.0	0.2	14.0	6.8	
May 15	0.2	0.0	0.5	0.0	0.2	0.3	0.6	2.7	5.4	6.2	8.1	8.0	9.1	8.4	8.1	6.5	6.8	6.5	5.1	3.3	3.2	4.7	4.8	3.3	0.0	9.1	4.3	
May 16	0.4	0.4	0.0	0.2	0.2	0.6	3.3	11.8	13.8	13.7	14.2	14.7	16.4	18.8	21.6	19.3	21.7	18.9	15.1	8.4	5.2	4.7	4.9	5.6	0.0	21.7	9.7	
May 17	5.1	4.3	5.2	4.1	8.2	9.9	11.0	12.1	13.6	11.5	11.7	13.7	14.4	11.3	11.4	10.1	12.7	12.8	7.2	5.0	7.3	6.0	5.0	4.8	4.1	14.4	9.1	
May 18	5.2	6.6	4.7	3.1	2.3	0.3	1.6	1.7	3.3	2.5	0.5	2.6	4.3	2.7	2.7	1.3	3.3	5.6	5.3	4.1	1.4	1.8	1.0	2.4	0.3	6.6	2.9	
May 19	2.0	1.6	1.4	0.4	0.4	1.1	2.4	7.8	10.2	9.1	6.6	8.2	8.6	8.5	9.1	7.5	4.8	1.3	2.4	2.9	0.7	4.4	6.2	5.2	0.4	10.2	4.7	
May 20	4.0	0.2	1.0	1.2	0.6	0.3	4.2	6.6	5.9	9.3	8.7	6.7	5.6	5.4	7.5	7.6	8.7	7.6	6.7	5.8	6.8	6.4	5.6	5.1	0.2	9.3	5.3	
May 21	4.5	3.9	3.1	4.3	5.8	8.8	11.0	10.0	7.6	5.2	4.6	6.7	7.4	8.1	7.3	7.4	4.5	1.1	5.0	6.2	5.6	2.9	1.7	1.3	1.1	11.0	5.6	
May 22	3.2	2.5	2.3	1.6	2.1	1.5	3.1	7.7	6.1	9.7	11.1	9.6	10.8	18.3	17.5	16.0	17.9	21.6	20.1	17.8	14.2	16.9	16.1	14.6	1.5	21.6	10.9	
May 23	14.2	12.9	14.1	14.1	15.2	13.8	13.1	13.2	13.7	13.6	13.3	12.4	12.6	14.8	17.7	17.1	19.4	14.8	13.1	11.3	9.3	12.1	9.3	8.9	8.9	19.4	13.5	
May 24	7.2	6.2	6.1	5.5	5.1	2.4	5.3	5.3	3.8	2.5	1.2	2.2	2.3	2.2	4.2	1.1	1.3	2.6	3.3	0.6	0.6	0.1	1.4	6.6	0.1	7.2	3.3	
May 25	7.3	4.7	2.9	4.5	2.5	7.2	7.6	7.6	8.2	9.1	9.9	7.2	7.5	7.9	8.7	8.6	7.3	7.8	6.9	3.4	1.7	2.8	1.2	0.1	0.1	9.9	5.9	
May 26	1.3	1.1	0.2	0.5	0.1	0.1	0.5	2.0	4.0	3.4	5.1	3.9	4.4	6.1	6.6	6.2	6.9	3.8	0.9	1.2	0.5	0.3	0.4	2.0	0.1	6.9	2.6	
May 27	0.0	0.1	0.3	0.2	0.0	1.0	1.9	3.7	6.2	11.0	10.5	8.5	9.0	8.9	8.8	11.1	9.2	9.3	6.0	2.3	2.2	7.6	6.7	4.9	0.0	11.1	5.4	
May 28	4.2	5.6	6.2	6.1	7.1	2.4	5.3	5.3	3.8	3.8	7.0	8.2	6.3	5.0	4.0	7.0	2.8	5.5	5.3	6.0	6.3	3.1	1.9	2.3	1.9	8.2	5.1	
May 29	2.4	2.1	0.2	1.4	2.2	2.7	2.8	2.2	3.8	4.3	2.8	5.5	4.7	4.0	3.6	5.9	6.5	4.3	15.7	8.5	4.1	1.8	0.2	0.3	0.2	15.7	3.8	
May 30	0.3	0.7	0.3	0.0	0.3	0.4	0.7	4.3	3.7	3.3	4.4	5.8	7.7	8.8	8.8	11.7	9.9	7.8	7.8	8.4	1.4	16.1	9.4	5.3	0.0	16.1	5.3	
May 31	1.9	1.2	0.6	0.2	1.6	1.3	6.1	4.8	4.9	7.2	6.5	6.9	6.5	9.0	10.1	N	N	N	N	N	N	N	N	N	0.2	10.1	NA	
Diurnal Maximum	14.2	12.9	14.1	14.1	15.2	13.8	13.1	13.9	16.6	15.9	17.2	16.6	16.4	18.8	21.6	19.3	21.7	21.6	20.1	17.8	14.2	16.9	16.1	14.6				
Diurnal Average	4.2	3.6	2.9	2.9	3.2	3.2	4.6	6.2	7.1	7.9	8.3	8.7	8.8	9.4	10.1	9.7	9.6	8.5	7.3	5.1	4.0	4.9	4.3	4.3				

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

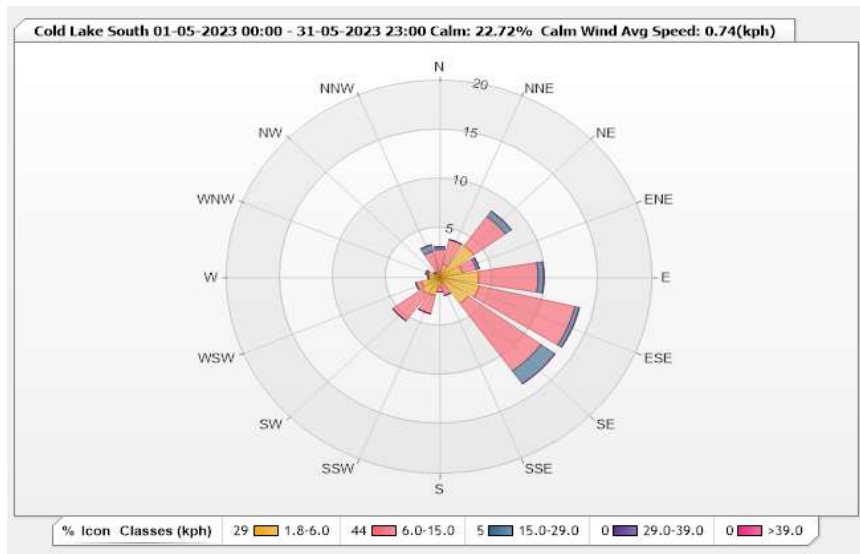


Station: Cold Lake South Monitor: WDS [kph] Monthly: 05-2023

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

Calm (WS<1.8kph): 22.72% Valid Data: 98.79%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	0.54	2.31	0.27	0	0	3.12
NNE	1.36	2.59	0	0	0	3.95
NE	3.95	3.67	0.68	0	0	8.3
ENE	2.18	1.36	0.27	0	0	3.81
E	3.67	5.58	0.54	0	0	9.79
ESE	3.81	9.25	0.41	0	0	13.47
SE	3.27	8.44	1.63	0	0	13.34
SSE	0.54	1.36	0	0	0	1.9
S	0.95	0.54	0	0	0	1.49
SSW	1.9	1.9	0	0	0	3.8
SW	2.04	3.4	0	0	0	5.44
WSW	1.77	0.54	0	0	0	2.31
W	1.09	0	0	0	0	1.09
WNW	1.09	0.14	0.14	0	0	1.37
NW	0.41	0.14	0.14	0	0	0.69
NNW	0.41	2.31	0.68	0	0	3.4
Summary	28.98	43.53	4.76	0	0	77.27



Lakeland Industry & Community Association

Cold Lake South Station - May 2023

Summary of Hourly Averages

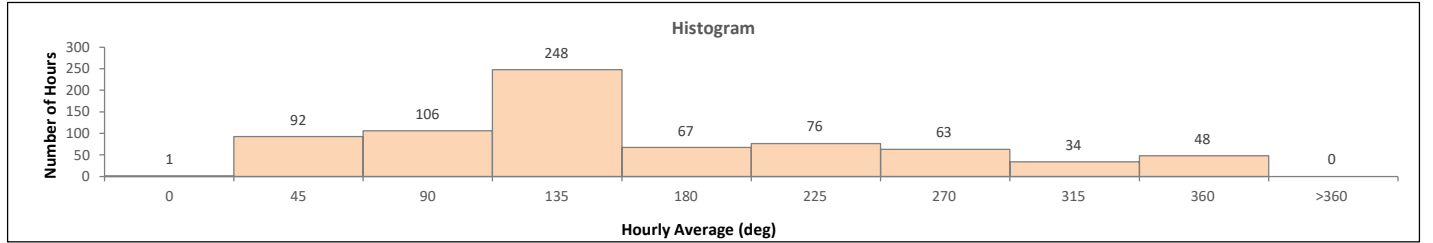
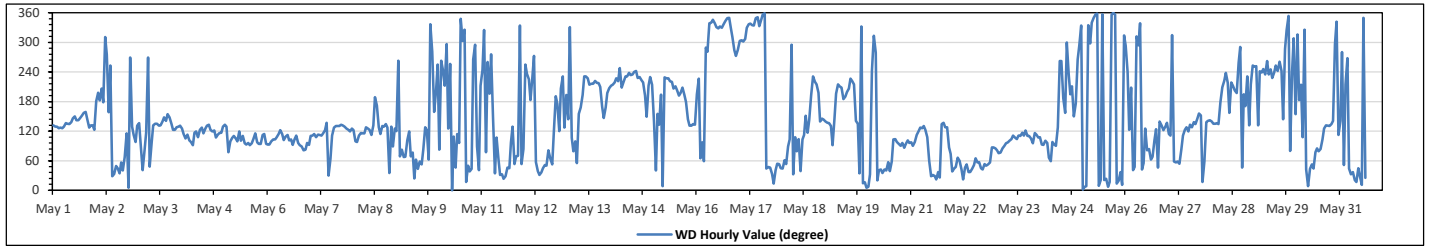
WIND DIRECTION (VWD) in sector

Monthly Average:	101 (E)	degree	Hours in Service:	744
			Hours of Data:	735
			Hours of Missing Data:	0
			Hours of Calibration:	0
			Operational Uptime:	98.8

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	
May 1	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SE	SE	SE	SSE	SSE	SSE	SE	SE	SE	SE	ESE	138	SE	
May 2	S	SSW	S	SSW	S	NW	W	SSE	WSW	NNE	NNE	NE	NE	NE	NE	ENE	ENE	ENE	ENE	SE	SE	SE	SE	ESE	53	NE	
May 3	SE	E	NE	E	ESE	W	NE	E	SE	SE	SE	SE	SE	SE	SE	SSE	SE	SE	ESE	ESE	ESE	ESE	SE	SE	133	SE	
May 4	SE	ESE	ESE	ESE	E	E	E	ESE	ESE	ESE	SE	ESE	SE	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	119	ESE	
May 5	SE	SE	ENE	E	ESE	ESE	ESE	E	ESE	E	ESE	E	E	E	E	ESE	ESE	E	E	E	ESE	ESE	E	104	ESE		
May 6	E	E	E	ESE	ESE	ESE	ESE	ESE	E	ESE	ESE	E	ESE	E	ESE	ESE	E	E	E	E	E	E	E	E	102	E	
May 7	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	NNE	ENE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	ESE	SE	122	ESE	
May 8	ESE	E	E	ESE	ESE	ESE	ESE	SE	SE	ESE	ESE	S	S	SE	ESE	SE	SE	SE	NE	SE	E	E	E	125	SE		
May 9	ESE	W	ENE	E	ENE	ENE	E	ESE	ENE	ENE	ENE	NE	ENE	NE	E	SE	ESE	ENE	NNW	W	SSE	SSW	WSW	74	ENE		
May 10	E	W	WSW	SSW	WNW	SE	WSW	N	ESE	NE	ESE	E	NNW	WNW	NNW	NNW	NNW	NNW	NNW	W	WNW	E	NE	SSW	359	N	
May 11	WSW	NW	ENE	WSW	SSW	W	SE	NE	ESE	ENE	NNE	NNE	NNE	NE	NE	E	SE	NE	ENE	ENE	NNW	NE	E	60	ENE		
May 12	WSW	SW	SW	S	SW	W	ENE	NE	NNE	NE	NE	NE	E	ENE	NE	ESE	S	S	ESE	SSW	SW	SE	S	66	ENE		
May 13	SE	NNW	ESE	ENE	E	NE	SSE	SSE	S	SW	SW	SW	SSW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	212	SSW		
May 14	SSW	SSW	SW	SW	SW	WSW	SSW	SW	SW	SW	SW	SW	SSW	WSW	WSW	SW	SW	SW	SW	S	SSE	SSW	SW	SSW	229	SW	
May 15	SE	NE	SSE	SE	SSW	N	SW	SW	SW	SW	SW	SSW	SSW	S	SSW	SSW	S	S	SE	SE	SE	SE	SE	194	SSW		
May 16	SSW	SW	ENE	E	ENE	WNW	W	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	333	NNW		
May 17	WNW	WNW	WNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	N	NE	NE	NNE	NNE	NE	NE	NE	NE	358	N		
May 18	NE	ENE	NE	E	ESE	WNW	NNE	ESE	ENE	ESE	NE	ESE	ESE	SSE	ESE	SE	S	SW	SW	SSW	SSW	SE	SE	118	ESE		
May 19	SE	SE	SE	E	SE	SSW	SSW	SSW	SSW	S	S	SSW	SSW	SW	SW	SSW	SE	SE	NE	NNW	NNE	NNE	N	203	SSW		
May 20	N	NNE	WSW	NW	W	NNE	NE	NE	NE	NE	NE	ENE	NE	ENE	ESE	E	E	E	E	E	E	E	E	71	ENE		
May 21	E	E	E	ESE	ESE	SE	SE	SE	ESE	ESE	ENE	NNE	NNE	NNE	NE	NE	NE	NE	SE	SE	SE	E	ENE	NE	91	E	
May 22	NE	NE	ENE	ENE	NE	NNE	NE	NE	NE	NE	NE	ENE	NE	ENE	NE	NE	NE	NE	NE	NE	NE	E	E	57	ENE		
May 23	E	ENE	ENE	E	E	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	102	E		
May 24	ESE	E	E	E	E	ENE	ENE	E	E	E	SE	W	W	S	SSE	WNW	SW	SSW	SSW	SSE	S	W	WNW	NNW	104	ESE	
May 25	N	N	N	NNW	WNW	NNW	N	N	N	NNE	N	NNE	NNE	N	NNE	N	N	N	NNE	NNE	NE	NNE	NW	3	N		
May 26	WNW	WSW	ESE	SSW	NE	NE	NW	WNW	NNW	NE	NE	SE	E	E	ENE	ENE	E	ESE	NE	SE	SE	ESE	SE	78	ENE		
May 27	ESE	ESE	NW	ENE	NE	ENE	NE	E	ESE	ESE	SE	ESE	SE	SE	SE	SE	SSE	SSE	NNE	ENE	SE	SE	SE	129	SE		
May 28	SE	SE	SE	SE	SE	S	SSW	SW	SW	SW	SSE	SW	SSW	SSW	SSW	WSW	WNW	NE	SSW	S	SW	SE	SSW	190	S		
May 29	WSW	WSW	SE	WSW	WSW	WSW	SW	W	SW	WSW	SW	WSW	WSW	WSW	W	WSW	SE	WNW	NW	N	E	WSW	NW	SSE	265	W	
May 30	NW	S	SSW	ESE	NW	NE	N	NE	NE	ENE	E	ENE	E	ESE	SE	SE	SE	SE	SE	SE	SE	WNW	NNW	ESE	96	E	
May 31	SE	W	NE	SSW	W	NE	NNE	NE	NNE	NE	NNE	NNE	N	NNE	N	N	N	N	N	N	N	N	N	NA	NA	NA	NA

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

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



Lakeland Industry & Community Association

Cold Lake South Station - May 2023

Summary of Hourly Averages

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

WIND SPEED					
Maximum Hourly Value:	21.7	kph	on May 16 at hr 16	Hours in Service:	744
Maximum Daily Value:	13.5	kph	on May 23	Hours of Data:	735
Minimum Hourly Value:	0.0	kph	on May 15 at hr 1	Hours of Missing Data:	9
Minimum Daily Value:	2.5	kph	on May 12	Hours of Calibration:	0
Monthly Average:	2.8	kph		Operational Uptime:	98.8

WIND DIRECTION	
Monthly Average:	101 degree (E)

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
May 1	10.3	10.9	8.8	7.1	8.7	9.6	11.8	13.9	16.6	15.9	13.2	11.2	10.8	13.4	13.4	10.9	11.0	8.4	6.9	5.1	3.9	6.5	4.6	0.8	0.8	16.6	9.7
May 2	0.7	3.3	1.7	3.0	1.8	0.4	0.9	0.4	2.4	8.9	8.5	9.4	9.6	6.8	6.2	4.7	3.7	2.5	0.3	0.3	1.0	1.0	1.6	0.3	9.6	3.3	
May 3	5.1	1.0	0.5	0.3	0.4	0.4	2.2	3.3	8.1	15.1	17.2	16.6	11.5	10.9	9.1	10.3	8.2	7.7	7.1	5.9	7.3	8.7	9.3	8.5	0.3	17.2	7.3
May 4	7.2	4.7	3.6	4.4	3.6	5.6	7.0	9.4	9.5	9.0	12.8	15.5	12.3	11.5	12.6	11.7	9.8	9.1	8.7	6.4	6.2	5.7	8.3	11.6	3.6	15.5	8.6
May 5	10.4	10.3	2.9	4.8	4.6	6.4	6.9	8.4	10.3	10.3	13.9	15.0	15.0	14.3	13.9	13.6	13.5	13.8	12.3	10.9	9.6	11.3	8.0	6.5	2.9	15.0	10.3
May 6	7.8	6.8	7.2	6.9	7.6	7.5	9.4	12.7	11.6	11.7	13.4	12.9	12.7	10.8	13.4	12.8	13.5	12.1	11.4	7.4	5.4	6.1	6.0	5.0	5.0	13.5	9.7
May 7	4.3	4.8	5.1	5.7	6.5	8.0	8.5	8.4	10.2	6.7	0.7	5.0	7.7	14.3	15.0	15.0	16.8	15.7	15.2	11.6	6.8	8.0	8.0	8.4	0.7	16.8	9.0
May 8	6.6	4.8	4.6	5.0	7.0	6.5	7.3	10.2	9.1	9.1	8.8	11.7	6.8	5.5	8.2	9.0	16.4	10.6	4.9	0.6	0.8	1.0	2.1	3.7	0.6	16.4	6.7
May 9	2.5	0.3	1.0	1.3	0.6	0.6	1.9	3.2	3.5	4.5	7.6	3.7	8.5	7.7	11.3	10.5	10.8	3.9	0.4	0.8	2.1	0.7	0.2	0.8	0.2	11.3	3.7
May 10	0.6	1.2	1.6	1.0	0.3	0.2	0.8	1.5	1.1	1.4	3.4	4.0	11.3	13.3	14.4	10.3	8.2	7.5	3.8	2.1	0.8	1.4	0.5	1.1	0.2	14.4	3.8
May 11	1.1	0.2	0.4	0.4	0.6	0.3	0.4	1.4	1.6	4.0	5.5	5.9	5.2	9.0	9.8	10.9	9.0	15.1	9.4	1.6	2.1	2.1	0.4	0.1	0.1	15.1	4.0
May 12	0.9	0.6	0.4	0.3	0.9	0.7	3.1	2.7	3.0	3.9	3.6	2.9	5.0	6.2	7.4	6.4	4.1	2.1	0.9	1.5	0.4	0.7	1.2	2.5	0.3	7.4	2.5
May 13	0.6	0.1	0.2	0.3	0.2	0.2	1.2	3.1	3.3	4.2	8.9	10.6	8.3	8.0	9.3	9.4	8.7	7.0	5.6	1.9	2.1	1.7	4.3	6.1	0.1	10.6	4.4
May 14	7.7	7.1	3.8	2.4	1.7	0.2	1.3	6.0	10.1	14.0	13.6	13.6	11.7	12.9	11.7	11.7	11.8	8.7	7.6	2.1	1.0	0.3	0.7	1.0	0.2	14.0	6.8
May 15	0.2	0.0	0.5	0.0	0.2	0.3	0.6	2.7	5.4	6.2	8.1	8.0	9.1	8.4	8.1	6.5	6.8	6.5	5.1	3.3	3.2	4.7	4.8	3.3	0.0	9.1	4.3
May 16	0.4	0.4	0.0	0.2	0.2	0.6	3.3	11.8	13.8	13.7	14.2	14.7	16.4	18.8	21.6	19.3	21.7	18.9	15.1	8.4	5.2	4.7	4.9	5.6	0.0	21.7	9.7
May 17	5.1	4.3	5.2	4.1	8.2	9.9	11.0	12.1	13.6	11.5	11.7	13.7	14.4	11.3	11.4	10.1	12.7	12.8	7.2	5.0	7.3	6.0	5.0	4.8	4.1	14.4	9.1
May 18	5.2	6.6	4.7	3.1	2.3	0.3	1.6	1.7	3.3	2.5	0.5	2.6	4.3	2.7	2.7	1.3	3.3	5.6	5.3	4.1	1.4	1.8	1.0	2.4	0.3	6.6	2.9
May 19	2.0	1.6	1.4	0.4	0.4	1.1	2.4	7.8	10.2	9.1	6.6	8.2	8.6	8.5	9.1	7.5	4.8	1.3	2.4	2.9	0.7	4.4	6.2	5.2	0.4	10.2	4.7
May 20	4.0	0.2	1.0	1.2	0.6	0.3	4.2	6.6	5.9	9.3	8.7	6.7	5.6	5.4	7.5	7.6	8.7	7.6	6.7	5.8	6.8	6.4	5.6	5.1	0.2	9.3	5.3
May 21	4.5	3.9	3.1	4.3	5.8	8.8	11.0	10.0	7.6	5.2	4.6	6.7	7.4	8.1	7.3	7.4	4.5	1.1	5.0	6.2	5.6	2.9	1.7	1.3	1.1	11.0	5.6
May 22	3.2	2.5	2.3	1.6	2.1	1.5	3.1	7.7	6.1	9.7	11.1	9.6	10.8	18.3	17.5	16.0	17.9	21.6	20.1	17.8	14.2	16.9	16.1	14.6	1.5	21.6	10.9
May 23	14.2	12.9	14.1	14.1	15.2	13.8	13.1	13.2	13.7	13.6	13.3	12.4	12.6	14.8	17.7	17.1	19.4	14.8	13.1	11.3	9.3	12.1	9.3	8.9	8.9	19.4	13.5
May 24	7.2	6.2	6.1	5.5	5.1	2.4	5.3	5.3	3.8	2.5	1.2	2.2	2.3	2.2	4.2	1.1	1.3	2.6	3.3	0.6	0.1	1.4	6.6	0.1	7.2	3.3	
May 25	7.3	4.7	2.9	4.5	2.5	7.2	7.6	7.6	8.2	9.1	9.9	7.2	7.5	7.9	8.7	8.6	7.3	7.8	6.9	3.4	1.7	2.8	1.2	0.1	0.1	9.9	5.9
May 26	1.3	1.1	0.2	0.5	0.1	0.1	0.5	2.0	4.0	3.4	5.1	3.9	4.4	6.1	6.6	6.2	6.9	3.8	0.9	1.2	0.5	0.3	0.4	2.0	0.1	6.9	2.6
May 27	0.0	0.1	0.3	0.2	0.0	1.0	1.9	3.7	6.2	11.0	10.5	8.5	9.0	8.9	8.8	11.1	9.2	9.3	6.0	2.3	2.2	7.6	6.7	4.9	0.0	11.1	5.4
May 28	4.2	5.6	6.2	6.1	7.1	2.4	5.3	5.3	5.8	3.8	7.0	8.2	6.3	5.0	4.0	7.0	2.8	5.5	5.3	6.0	6.3	3.1	1.9	2.3	1.9	8.2	5.1
May 29	2.4	2.1	0.2	1.4	2.2	2.7	2.8	2.2	3.8	4.3	2.8	5.5	4.7	4.0	3.6	5.9	6.5	4.3	15.7	8.5	4.1	1.8	0.2	0.3	0.2	15.7	3.8
May 30	0.3	0.7	0.3	0.0	0.3	0.4	0.7	4.3	3.7	3.3	4.4	5.8	7.7	8.8	8.8	11.7	9.9	7.8	7.8	8.4	1.4	16.1	9.4	5.3	0.0	16.1	5.3
May 31	1.9	1.2	0.6	0.2	1.6	1.3	6.1	4.8	4.9	7.2	6.5	6.9	6.5	9.0	10.1	N	N	N	N	N	N	N	N	N	0.2	10.1	NA

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

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

Lakeland Industry & Community Association
Cold Lake South Station - May 2023
Summary of Hour Standard Deviations

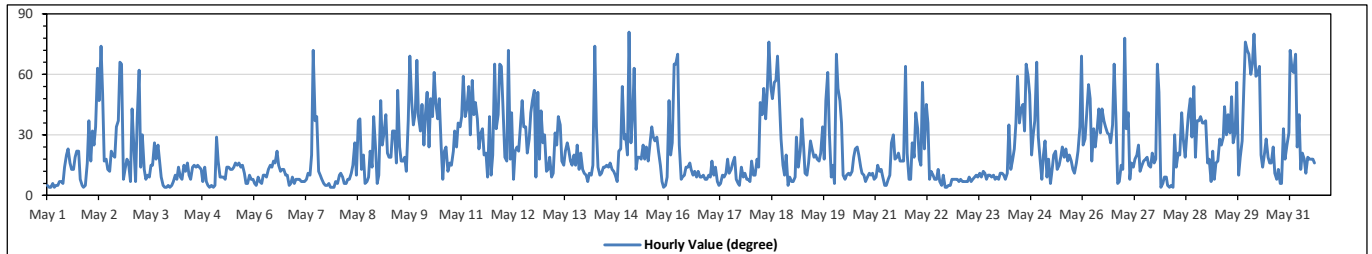
STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

Maximum Hourly Value: 81 degree on May 15 at hr 1		Hours in Service: 744	
Minimum Hourly Value: 4 degree on May 1 at hr 1		Hours of Data: 735	
		Hours of Missing Data: 9	
		Hours of Calibration: 0	
		Operational Uptime: 98.8	

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			23
May 1	5	4	4	6	4	5	5	7	7	6	14	20	23	16	13	13	19	22	22	8	5	4	5	16	4	23
May 2	37	17	32	25	34	63	47	74	50	17	18	13	12	22	20	19	34	37	66	65	8	13	18	16	8	74
May 3	7	43	26	7	38	62	14	30	13	8	10	9	15	15	26	18	25	17	9	5	4	4	5	4	4	62
May 4	5	7	10	8	14	9	8	15	12	16	10	8	14	15	14	15	14	13	7	14	7	5	4	5	4	16
May 5	4	5	29	17	9	9	9	8	14	14	13	13	14	16	15	16	14	15	11	6	6	10	8	8	4	29
May 6	6	5	9	7	6	10	10	9	13	15	14	17	16	22	15	12	13	13	10	10	5	6	9	6	5	22
May 7	8	8	8	7	7	7	8	11	10	20	72	37	39	12	10	8	6	5	5	6	4	4	4	7	4	72
May 8	6	10	11	9	6	6	8	8	11	15	26	10	37	38	13	20	6	7	9	22	14	39	23	6	6	39
May 9	10	47	25	32	40	21	19	19	32	32	16	52	24	17	17	19	12	37	69	46	35	41	67	39	10	69
May 10	32	45	25	41	51	24	48	39	61	46	38	48	24	8	22	24	12	16	15	22	32	24	36	34	8	61
May 11	39	59	39	43	54	30	57	40	46	38	23	31	33	20	21	9	39	10	20	65	33	40	65	64	9	65
May 12	44	19	17	72	18	41	8	22	24	22	33	47	34	34	21	28	41	47	52	9	51	18	42	26	8	72
May 13	30	12	13	19	9	11	31	25	39	35	17	15	22	26	23	17	15	20	15	25	13	21	13	11	9	39
May 14	10	7	11	10	15	74	34	14	10	11	14	14	15	14	16	13	12	10	7	22	23	54	28	30	7	74
May 15	20	81	26	43	63	13	19	19	18	25	18	24	17	25	34	29	27	29	22	15	7	4	5	9	4	81
May 16	47	20	26	65	65	70	25	8	9	10	14	14	16	13	10	12	9	12	9	9	10	8	8	10	8	70
May 17	9	17	10	14	7	5	6	10	9	11	18	11	13	16	19	8	6	5	14	9	11	8	8	7	5	19
May 18	17	10	10	18	14	46	40	53	38	52	76	54	48	56	57	69	47	28	15	10	20	5	9	7	5	76
May 19	7	9	29	14	22	38	23	11	10	16	27	23	19	20	18	17	21	34	18	47	61	31	9	15	7	61
May 20	6	70	53	47	36	10	8	10	11	10	12	19	23	24	20	14	11	10	7	9	11	10	11	8	6	70
May 21	9	15	12	13	9	5	5	8	10	26	30	18	19	21	17	17	64	21	8	8	26	19	41	5	64	
May 22	33	18	15	56	23	45	36	8	12	10	8	8	13	7	5	10	4	4	5	5	8	8	8	8	4	56
May 23	7	8	7	7	7	7	9	7	8	9	10	9	11	9	12	11	8	10	10	9	10	8	9	8	7	12
May 24	11	11	10	8	11	35	13	17	23	36	59	36	43	45	32	65	59	50	20	30	37	66	29	17	8	66
May 25	8	20	27	9	18	6	14	20	22	13	15	19	24	19	23	17	20	17	13	11	16	22	34	69	6	69
May 26	25	28	40	55	48	17	33	24	33	43	31	43	37	34	31	30	26	35	65	36	6	7	15	13	6	65
May 27	78	33	41	8	16	14	18	20	25	12	15	17	18	19	15	14	21	16	18	65	51	4	6	9	4	78
May 28	9	5	4	5	4	30	14	21	20	41	28	19	30	40	48	29	54	19	37	37	39	36	36	37	4	54
May 29	16	18	7	22	8	16	17	28	25	29	44	30	40	31	49	26	31	56	10	19	27	52	76	72	7	76
May 30	70	60	65	80	59	60	64	20	14	21	28	19	16	16	24	11	8	13	6	6	33	18	25	31	6	80
May 31	72	62	61	70	24	40	13	21	18	11	19	18	18	18	16	N	N	N	N	N	N	N	N	N	11	72
Diurnal Minimum	4	4	4	5	4	5	5	7	7	6	8	8	11	7	5	8	4	4	5	5	4	4	4	4	4	4
Diurnal Maximum	78	81	65	80	65	74	64	74	61	52	76	54	48	56	57	69	59	64	69	65	61	66	76	72		

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

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



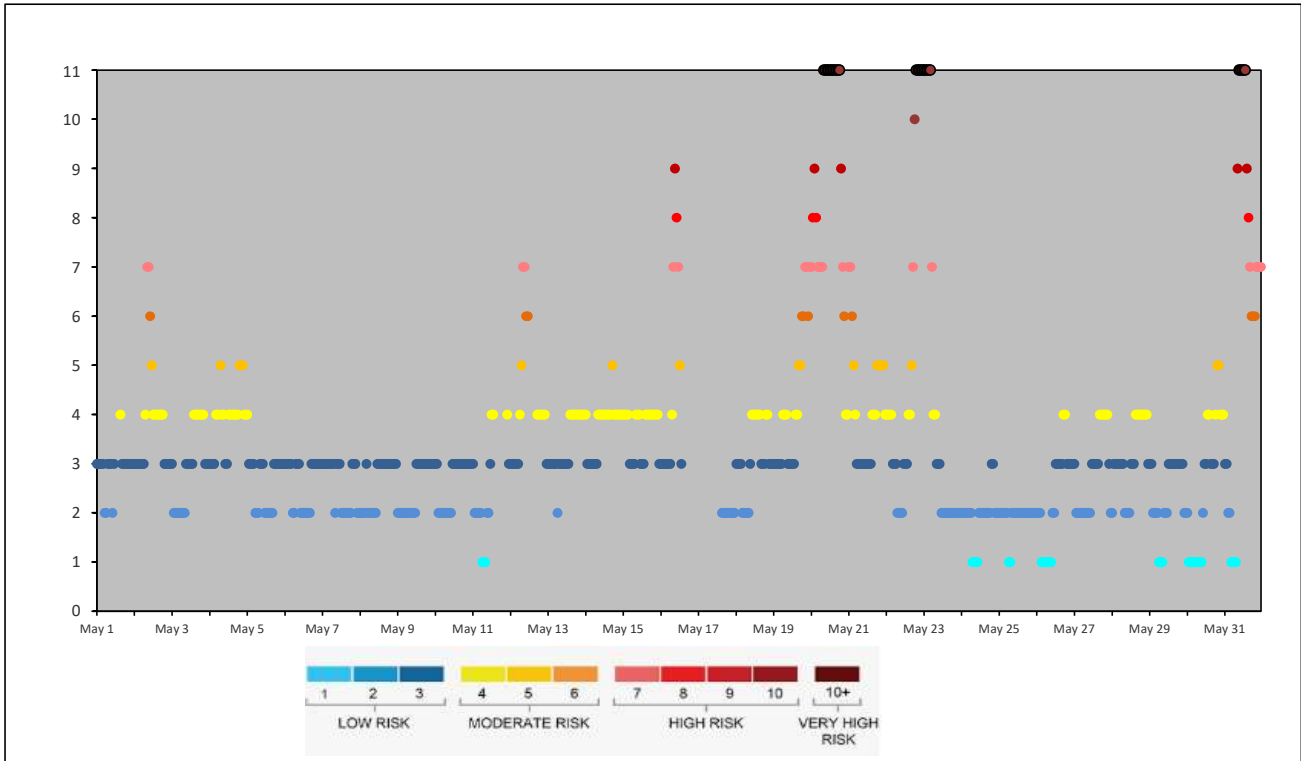
TAMARACK STATION

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Tamarack Site - May 2023

AIR QUALITY HEALTH INDEX

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



Lakeland Industry & Community Association

Tamarack Site - May 2023

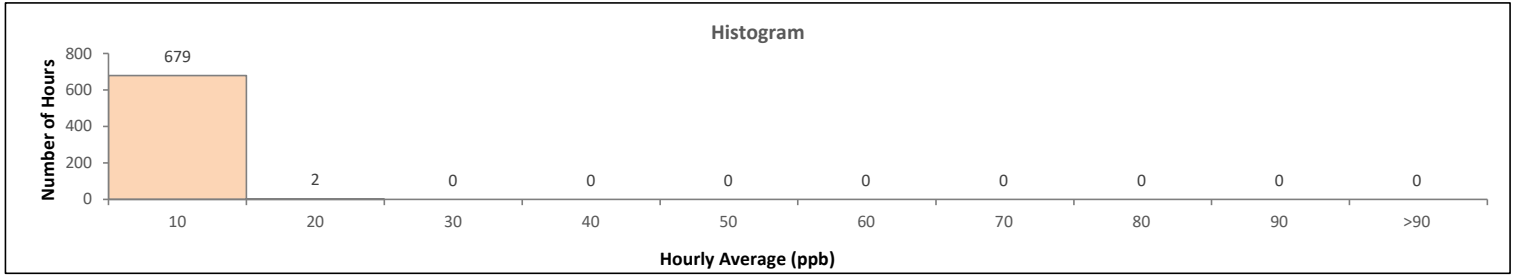
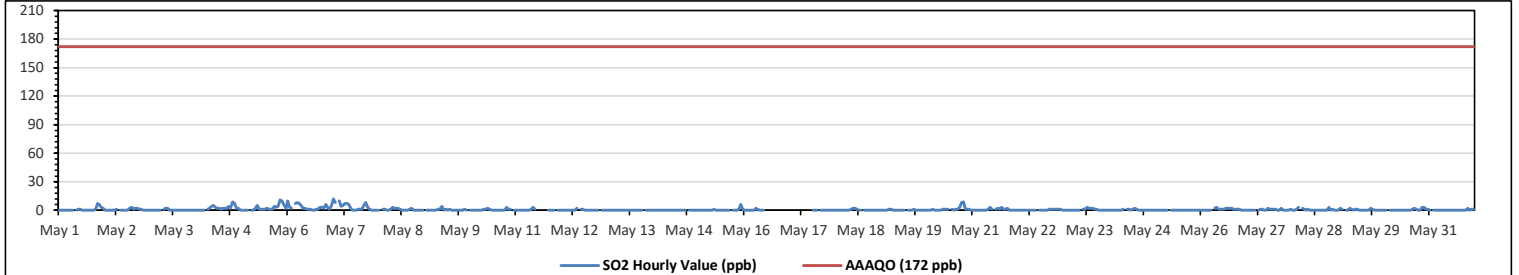
Summary of Hourly Averages

SULPHUR DIOXIDE (SO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																																			
Number of 1-Hour Exceedances:						0						Number of 24-Hour Exceedances:						0						30-Day Exceedence:						0					
Maximum Hourly Value:												12 ppb on May 7 at hr 0												Hours in Service:						744					
Maximum Daily Value:												3.5 ppb on May 7												Hours of Data:						681					
Minimum Hourly Value:												0 ppb on May 1 at hr 0												Hours of Missing Data:						26					
Minimum Daily Value:												0.0 ppb on May 13												Hours of Calibration:						37					
Monthly Average:												0.8 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											
May 1	0	0	0	0	0	0	0	0	0	S	0	1	1	0	0	0	0	0	0	1	7	6	3	2	0	7	0.9								
May 2	0	0	0	0	0	0	0	1	S	0	0	0	0	2	3	1	2	2	1	1	0	0	0	0	0	0	3	0.6							
May 3	0	0	0	0	0	0	0	S	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2								
May 4	0	0	0	0	0	0	S	1	2	4	5	3	2	2	1	2	2	4	2	9	7	2	2	0	9	2.3									
May 5	0	0	0	0	0	S	0	0	2	5	1	1	1	1	1	1	4	3	4	11	10	5	2	0	11	2.4									
May 6	10	3	2	S	7	8	7	5	2	2	1	1	1	0	0	1	1	3	2	6	3	1	5	0	10	3.2									
May 7	12	8	S	10	4	5	7	7	6	2	0	0	0	1	1	1	5	8	3	1	0	0	0	0	12	3.5									
May 8	0	S	1	1	0	0	1	3	2	2	2	1	0	0	0	0	1	2	0	0	0	0	0	0	0	3	0.7								
May 9	S	0	0	0	0	0	0	1	1	4	0	1	0	1	0	0	0	0	0	0	1	0	S	0	4	0.4									
May 10	0	0	0	0	0	0	0	1	1	2	1	0	0	0	0	0	0	0	0	3	1	1	S	0	3	0.4									
May 11	0	0	0	0	0	0	0	0	1	3	1	C	C	C	C	C	C	0	0	0	0	S	0	0	3	NA									
May 12	0	0	0	0	0	0	0	0	2	K	1	1	0	0	0	0	0	0	0	0	S	0	0	0	2	0.2									
May 13	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								
May 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0								
May 15	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	S	0	0	0	1	6	1	0	6	0.4								
May 16	0	0	0	0	0	0	2	1	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	0	2	NA								
May 17	N	N	N	N	N	N	N	N	N	N	Y	NRM	0	0	0	S	0	0	0	0	0	0	0	0	0	0	NA								
May 18	0	0	0	0	0	0	0	0	1	2	2	1	0	0	S	0	0	0	0	0	0	0	0	0	0	2	0.3								
May 19	0	0	0	0	1	1	0	0	0	0	0	0	0	S	0	0	0	1	0	0	0	0	0	0	0	1	0.1								
May 20	0	0	0	1	0	0	0	0	1	1	1	1	S	1	0	1	1	3	8	9	1	1	1	0	9	1.3									
May 21	0	0	0	0	0	0	0	0	1	3	1	S	1	2	1	3	1	1	2	0	0	0	0	0	0	3	0.7								
May 22	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	1	1	1	1	1	0	0	1	0.3									
May 23	0	0	0	0	0	0	0	0	0	0	S	1	1	3	2	2	2	1	1	0	0	0	0	0	0	3	0.6								
May 24	0	0	0	0	0	0	0	1	S	1	1	0	1	2	1	0	0	0	0	0	0	0	0	0	0	2	0.3								
May 25	0	0	0	0	0	0	0	0	S	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0								
May 26	0	0	0	0	0	0	S	2	3	1	1	1	1	2	2	2	2	1	1	1	1	1	0	0	0	3	0.9								
May 27	0	0	0	0	0	0	S	0	1	1	0	0	2	1	1	1	0	0	2	0	0	0	1	0	2	0.5									
May 28	0	0	1	3	S	2	1	0	1	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	3	0.5									
May 29	0	2	1	S	0	0	2	1	0	1	1	0	0	0	0	0	2	1	0	0	0	0	0	0	2	0.5									
May 30	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	0	0	3	3	1	1	0	3	0.5								
May 31	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	1	0	2	0.2									
Diurnal Maximum	12	8	2	10	7	8	7	7	6	5	3	2	3	2	3	3	5	8	8	9	11	10	6	5											
Diurnal Average	0.8	0.5	0.2	0.5	0.4	0.6	0.8	1.0	1.3	1.1	0.7	0.5	0.4	0.6	0.5	0.6	0.7	1.2	0.9	1.2	1.4	1.0	0.7	0.4											

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

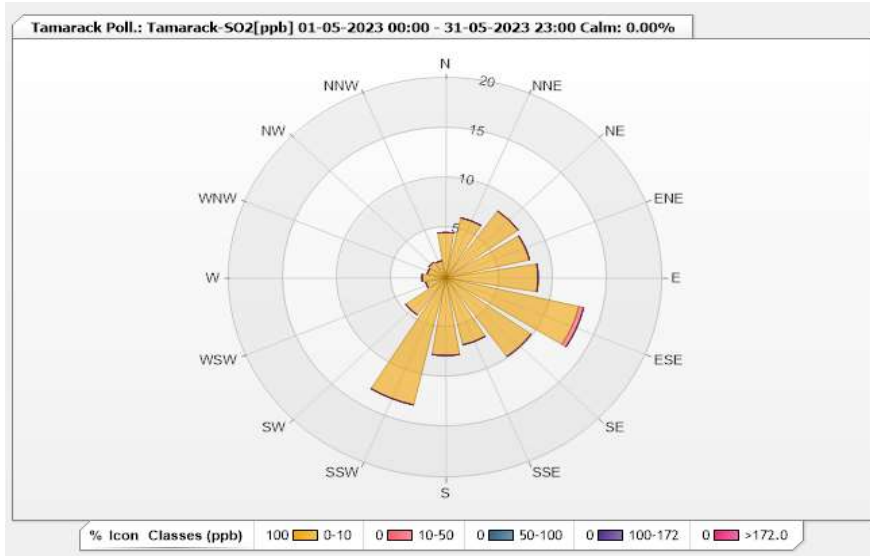


Station: Tamarack Poll.: Tamarack-SO2[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 91.53% Calm Avg: 0.00 [ppm]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	4.55	0	0	0	0	4.55
NNE	6.17	0	0	0	0	6.17
NE	8.22	0	0	0	0	8.22
ENE	7.93	0	0	0	0	7.93
E	8.52	0	0	0	0	8.52
ESE	12.63	0.44	0	0	0	13.07
SE	9.69	0	0	0	0	9.69
SSE	6.9	0	0	0	0	6.9
S	7.78	0	0	0	0	7.78
SSW	13.07	0	0	0	0	13.07
SW	4.55	0	0	0	0	4.55
WSW	1.91	0	0	0	0	1.91
W	2.2	0	0	0	0	2.2
WNW	1.76	0	0	0	0	1.76
NW	1.91	0	0	0	0	1.91
NNW	1.76	0	0	0	0	1.76
Summary	100	0.44	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - May 2023

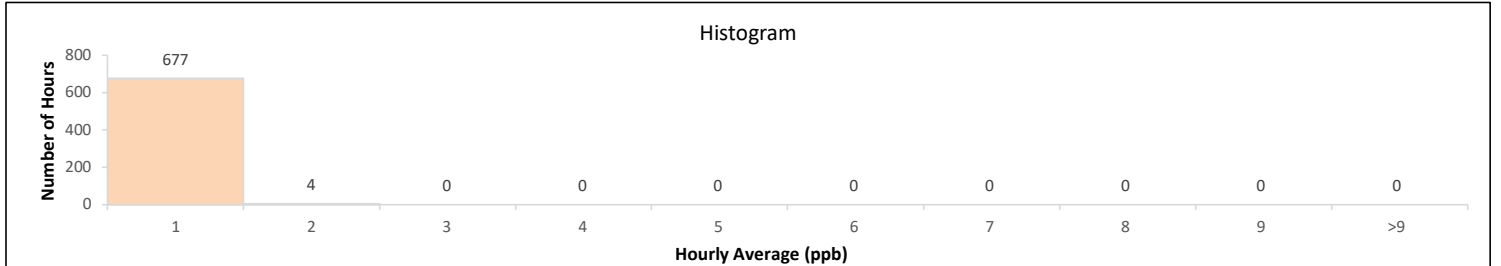
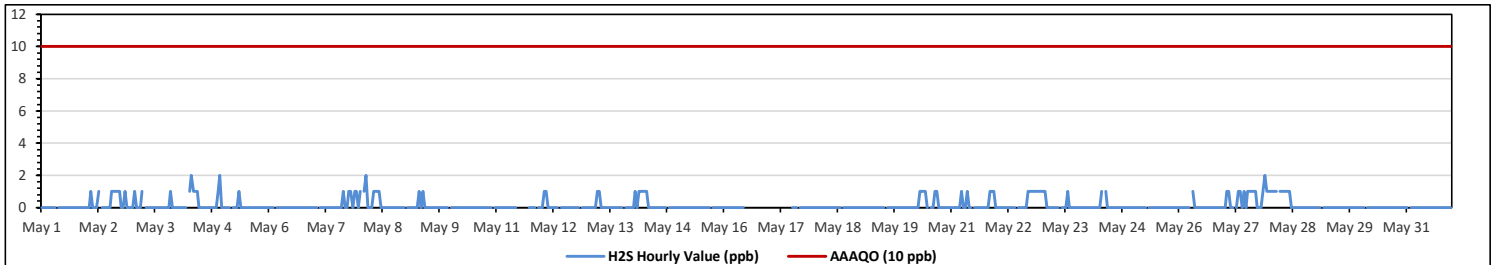
Summary of Hourly Averages

HYDROGEN SULPHIDE (H₂S) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 10 ppb, 24-Hour 3 ppb																																		
Number of 1-Hour Exceedances:										0															Number of 24-Hour Exceedances:					0				
Maximum Hourly Value:										2 ppb on May 4 at hr 7										Hours in Service:					744									
Maximum Daily Value:										1.0 ppb on May 27										Hours of Data:					681									
Minimum Hourly Value:										0 ppb on May 1 at hr 0										Hours of Missing Data:					26									
Minimum Daily Value:										0.0 ppb on May 1										Hours of Calibration:					37									
Monthly Average:										0.1 ppb										Operational Uptime:					96.5									
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							
May 1	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
May 2	0	0	1	0	0	0	0	1	S	0	0	0	0	0	1	1	1	1	0	0	1	0	0	0	0	0	1	0.0						
May 3	0	1	0	0	0	0	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0.0						
May 4	0	0	0	0	0	S	1	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	2	0.0						
May 5	0	0	0	0	S	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0						
May 6	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
May 7	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0						
May 8	1	S	1	2	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.0						
May 9	S	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	0.0						
May 10	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						
May 11	0	0	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	0	0	0	0	S	0	0	0	0	-						
May 12	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	0.0						
May 13	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0.0						
May 14	0	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0	0	1	0.0						
May 15	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						
May 16	0	0	0	0	0	0	0	0	0	0	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	0	-						
May 17	N	N	N	N	N	N	N	N	N	N	Y	NRM	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	-					
May 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						
May 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
May 20	0	0	0	0	0	0	0	1	1	1	1	0	S	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0.0					
May 21	0	0	0	0	0	1	0	0	1	0	0	0	S	0	0	0	0	0	0	0	1	1	1	1	0	0	1	0.0						
May 22	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	1	1	1	1	1	1	1	0	0	1	0.0						
May 23	1	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	1	0.0					
May 24	0	0	0	0	0	0	0	1	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0					
May 25	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					
May 26	0	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	1	0.0					
May 27	0	1	1	0	0	S	0	1	1	0	1	0	1	1	1	1	1	0	0	0	1	2	1	1	0	0	2	1.0						
May 28	1	1	1	1	S	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0					
May 29	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0					
May 30	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0					
May 31	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					
Diurnal Maximum	1	1	1	2	1	1	1	2	1	1	1	0	1	1	1	1	1	1	1	1	1	1	2	2	1									
Diurnal Average	0.1	0.2	0.2	0.1	0.0	0.2	0.2	0.4	0.3	0.2	0.2	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1									

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

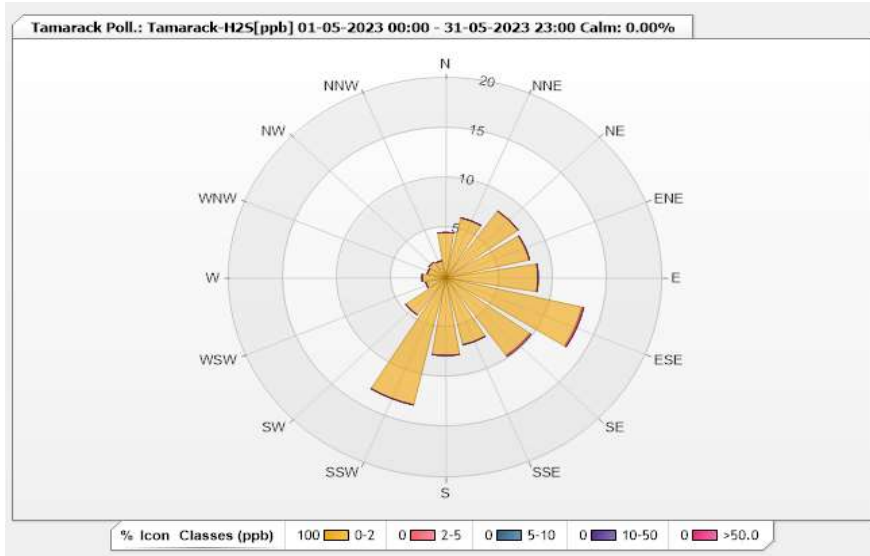


Station: Tamarack Poll.: Tamarack-H2S[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 91.53% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	4.55	0	0	0	0	4.55
NNE	6.17	0	0	0	0	6.17
NE	8.22	0	0	0	0	8.22
ENE	7.93	0	0	0	0	7.93
E	8.52	0	0	0	0	8.52
ESE	12.92	0.15	0	0	0	13.07
SE	9.54	0.15	0	0	0	9.69
SSE	6.9	0	0	0	0	6.9
S	7.78	0	0	0	0	7.78
SSW	13.07	0	0	0	0	13.07
SW	4.55	0	0	0	0	4.55
WSW	1.91	0	0	0	0	1.91
W	2.2	0	0	0	0	2.2
WNW	1.76	0	0	0	0	1.76
NW	1.91	0	0	0	0	1.91
NNW	1.76	0	0	0	0	1.76
Summary	100	0.3	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - May 2023

Summary of Hourly Averages

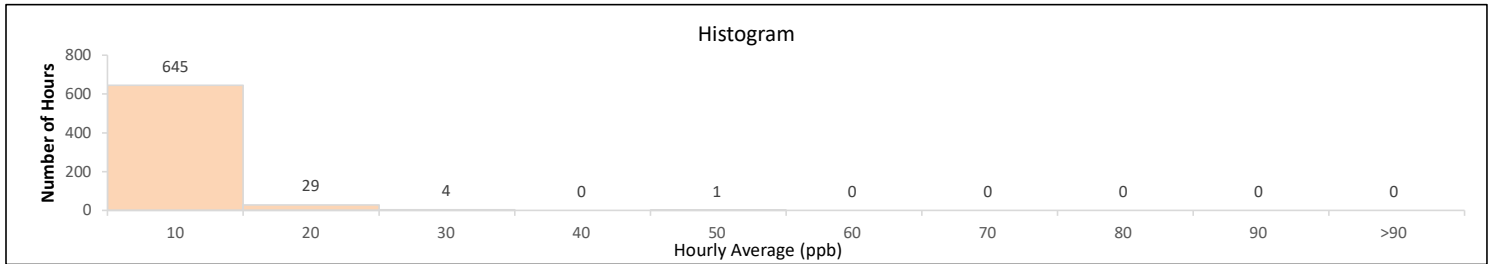
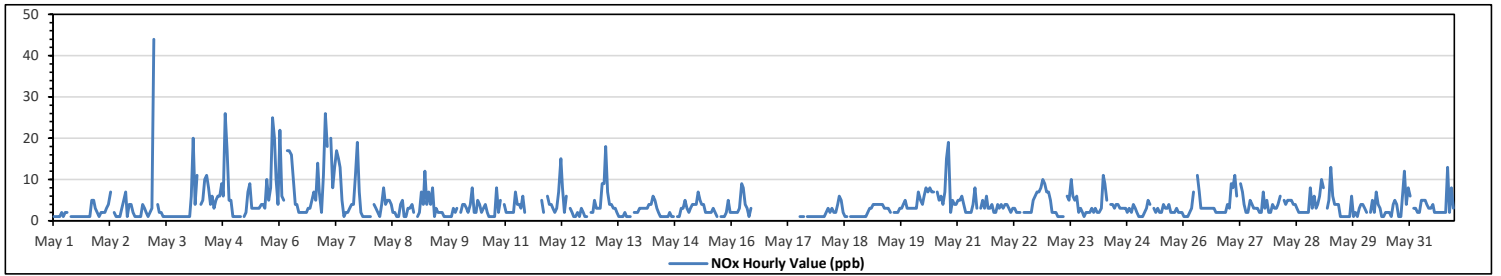
OXIDES OF NITROGEN (NOx) in ppb

Maximum Hourly Value:	44 ppb	on May 3 at hr 5	Hours in Service:	744
Maximum Daily Value:	8.4 ppb	on May 7	Hours of Data:	679
Minimum Hourly Value:	1 ppb	on May 1 at hr 0	Hours of Missing Data:	26
Minimum Daily Value:	1.6 ppb	on May 1	Hours of Calibration:	39
Monthly Average:	3.9 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					
May 1	1	1	1	1	2	1	2	2	S	1	1	1	1	1	1	1	1	1	1	1	5	5	3	2	1	5	1.6		
May 2	1	2	2	2	3	4	7	S	2	1	1	1	3	5	7	1	4	4	2	1	1	1	1	4	1	7	2.6		
May 3	3	2	1	2	3	4	4	4	4	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	44	3.3		
May 4	1	6	20	4	11	S	4	5	10	11	8	4	6	3	5	6	6	9	6	26	17	5	5	1	1	26	7.8		
May 5	1	1	1	1	S	1	2	7	9	3	3	3	3	3	4	4	3	10	5	8	25	20	10	4	1	25	5.7		
May 6	22	6	5	S	17	17	16	10	4	4	2	2	2	2	2	3	3	5	7	5	14	7	2	11	2	22	7.3		
May 7	26	18	S	20	8	13	17	15	13	5	1	2	2	2	3	4	4	11	19	7	2	1	1	1	1	26	8.4		
May 8	1	S	4	3	2	1	4	8	4	5	5	4	2	2	1	1	4	5	1	1	3	3	4	2	1	8	3.0		
May 9	S	1	2	7	4	12	4	7	4	8	1	3	2	2	2	1	1	1	1	1	1	3	2	3	S	1	12	3.3	
May 10	2	4	4	3	2	4	8	2	2	5	4	2	3	4	2	1	1	1	1	8	2	5	S	4	1	8	3.2		
May 11	2	2	2	2	2	7	4	4	3	6	2	C	C	C	C	C	C	C	C	5	2	S	6	4	2	7	NA		
May 12	4	3	2	3	7	15	8	2	6	K	3	2	1	1	2	1	3	2	1	1	1	S	2	2	5	1	15	3.5	
May 13	3	3	3	9	9	18	7	4	4	3	3	2	1	1	1	1	2	1	1	1	1	S	2	2	3	1	18	3.7	
May 14	3	3	3	3	4	4	6	5	3	2	1	1	1	1	1	2	1	1	1	S	1	1	3	3	5	1	6	2.5	
May 15	3	2	3	4	4	4	7	5	4	4	2	2	2	2	3	2	1	S	1	1	1	1	2	5	2	1	7	2.9	
May 16	2	2	2	2	3	9	8	4	3	1	3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	9	NA	
May 17	N	N	N	N	N	N	N	N	N	N	Y	NRM	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	NA
May 18	1	1	2	3	2	3	2	2	4	6	5	2	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	6	1.9
May 19	2	3	3	4	4	4	4	4	4	3	3	3	2	S	7	2	2	3	3	4	5	3	3	3	2	5	3.2		
May 20	3	3	3	7	5	4	6	8	7	8	7	7	S	7	5	6	4	7	15	19	2	5	4	4	2	19	6.3		
May 21	5	5	6	4	2	2	2	2	4	8	3	S	3	5	3	6	3	3	4	2	2	4	3	4	2	8	3.7		
May 22	3	4	4	3	2	3	3	2	2	2	S	2	2	2	2	2	5	6	7	7	8	10	9	7	2	10	4.2		
May 23	7	5	2	2	2	1	1	1	1	S	6	5	10	6	5	6	2	3	2	1	2	2	2	3	1	10	3.3		
May 24	2	3	2	2	3	11	9	5	S	4	4	3	4	4	3	3	3	3	3	2	3	2	4	3	2	2	11	3.7	
May 25	1	1	1	2	3	5	4	S	3	2	3	2	2	4	3	3	4	2	2	2	3	2	2	2	1	5	2.5		
May 26	1	1	1	2	3	7	S	11	7	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	1	11	3.2		
May 27	3	9	8	11	6	S	9	7	4	2	2	5	4	3	3	3	2	2	7	3	5	2	2	4	2	11	4.6		
May 28	3	3	4	6	S	5	4	5	5	5	4	4	3	2	2	2	2	2	2	8	3	6	3	4	2	8	3.8		
May 29	6	10	8	S	3	5	13	6	4	4	4	1	1	1	1	1	1	6	1	2	1	3	4	4	1	13	3.9		
May 30	3	2	S	2	5	2	7	4	3	1	1	2	2	2	1	4	5	4	1	1	6	12	4	8	1	12	3.6		
May 31	6	S	3	3	2	2	5	5	5	4	3	3	4	2	2	2	2	2	2	2	2	13	2	8	3	2	13	3.7	
Diurnal Maximum	26	18	20	20	17	44	17	15	13	11	8	7	10	7	7	6	11	19	15	26	25	20	10	11					
Diurnal Average	4.2	3.8	3.6	4.2	4.4	7.4	6.2	5.2	4.5	4.0	3.1	2.7	2.6	2.6	2.6	2.6	2.8	3.8	3.1	4.1	4.6	4.1	3.4	3.6					

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

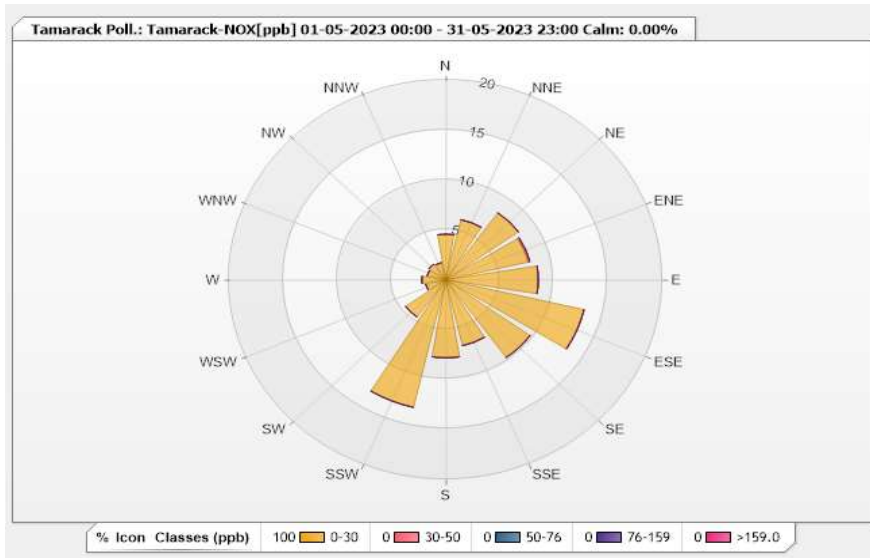


Station: Tamarack Poll.: Tamarack-NOX[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 91.26% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	4.57	0	0	0	0	4.57
NNE	6.19	0	0	0	0	6.19
NE	8.25	0	0	0	0	8.25
ENE	7.81	0.15	0	0	0	7.96
E	8.54	0	0	0	0	8.54
ESE	13.11	0	0	0	0	13.11
SE	9.57	0	0	0	0	9.57
SSE	6.77	0	0	0	0	6.77
S	7.81	0	0	0	0	7.81
SSW	13.11	0	0	0	0	13.11
SW	4.57	0	0	0	0	4.57
WSW	1.91	0	0	0	0	1.91
W	2.21	0	0	0	0	2.21
WNW	1.77	0	0	0	0	1.77
NW	1.91	0	0	0	0	1.91
NNW	1.77	0	0	0	0	1.77
Summary	100	0.15	0	0	0	100

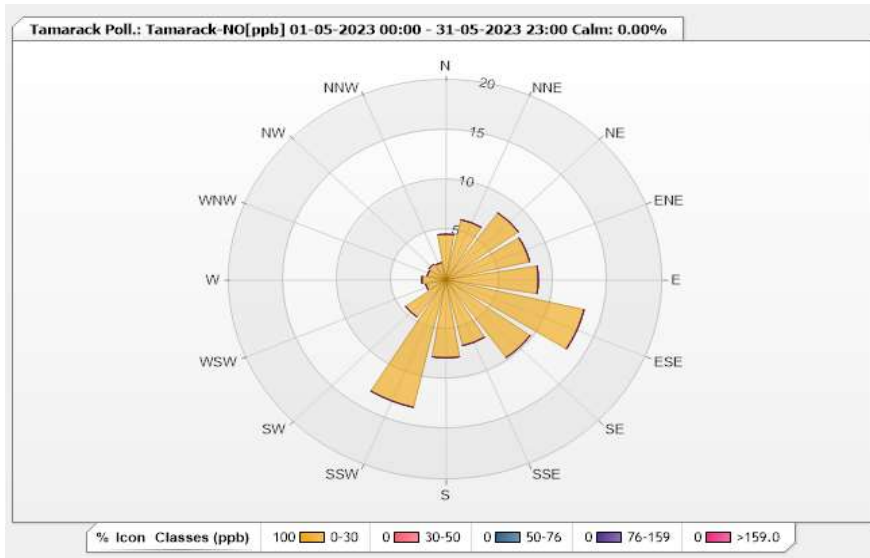


Station: Tamarack Poll.: Tamarack-NO[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 91.26% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	4.57	0	0	0	0	4.57
NNE	6.19	0	0	0	0	6.19
NE	8.25	0	0	0	0	8.25
ENE	7.95	0	0	0	0	7.95
E	8.54	0	0	0	0	8.54
ESE	13.11	0	0	0	0	13.11
SE	9.57	0	0	0	0	9.57
SSE	6.77	0	0	0	0	6.77
S	7.81	0	0	0	0	7.81
SSW	13.11	0	0	0	0	13.11
SW	4.57	0	0	0	0	4.57
WSW	1.91	0	0	0	0	1.91
W	2.21	0	0	0	0	2.21
WNW	1.77	0	0	0	0	1.77
NW	1.91	0	0	0	0	1.91
NNW	1.77	0	0	0	0	1.77
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - May 2023

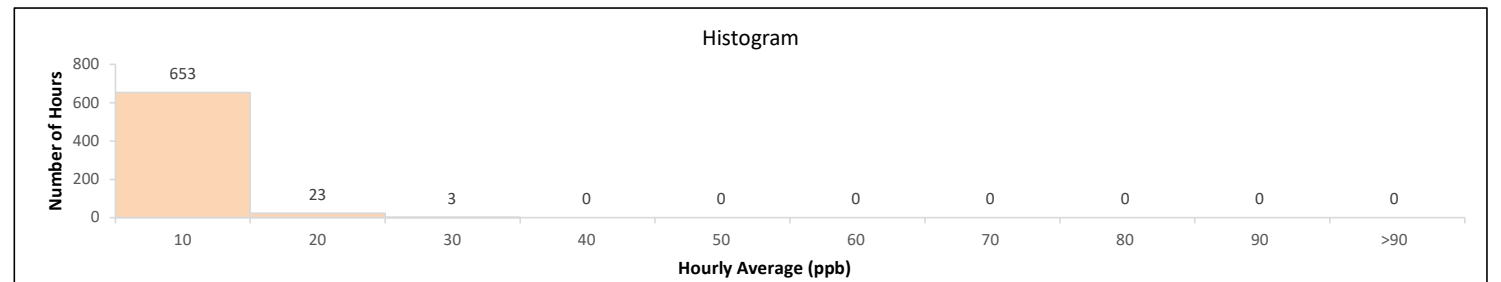
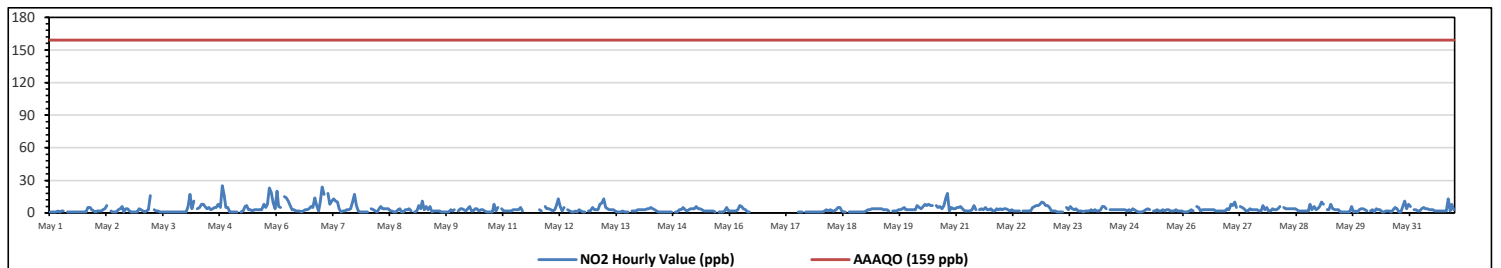
Summary of Hourly Averages

NITROGEN DIOXIDE (NO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb																																																			
Number of 1-Hour Exceedances: 0																																																			
Maximum Hourly Value: 25 ppb on May 4 at hr 19												Hours in Service: 744																																							
Maximum Daily Value: 7.4 ppb on May 7												Hours of Data: 679																																							
Minimum Hourly Value: 1 ppb on May 1 at hr 0												Hours of Missing Data: 26																																							
Minimum Daily Value: 1.6 ppb on May 1												Hours of Calibration: 39																																							
Monthly Average: 3.5 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																											
May 1	1	1	1	1	2	1	2	2	S	1	1	1	1	1	1	1	1	1	1	1	5	5	3	2	1	5	1.6																								
May 2	1	2	2	2	3	4	7	S	2	1	1	1	3	4	6	1	4	4	2	1	1	1	1	4	1	7	2.5																								
May 3	3	2	1	2	3	16	S	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16	2.1																								
May 4	1	6	17	4	11	S	4	5	8	8	6	4	5	3	4	5	5	8	5	25	16	5	5	1	1	25	7.0																								
May 5	1	1	1	1	S	1	2	6	7	3	2	3	3	3	3	3	3	8	5	8	23	19	9	4	1	23	5.2																								
May 6	20	6	5	S	15	14	11	7	3	3	2	2	2	1	2	3	3	4	6	5	14	7	2	10	1	20	6.4																								
May 7	24	17	S	18	8	11	13	11	10	4	1	2	2	3	3	4	10	17	7	2	1	1	1	1	1	24	7.4																								
May 8	1	S	4	3	2	1	4	6	4	4	4	4	2	2	1	1	3	4	1	1	3	3	4	2	1	6	2.8																								
May 9	S	1	2	7	4	11	3	6	3	6	1	2	2	2	2	1	1	1	1	1	3	2	3	S	1	11	3.0																								
May 10	2	4	4	3	2	4	6	2	2	4	4	2	3	3	2	1	1	1	1	8	2	5	S	4	1	8	3.0																								
May 11	2	2	2	2	2	3	3	3	3	3	5	2	C	C	C	C	C	C	C	3	2	S	6	4	2	6	NA																								
May 12	4	3	2	3	7	13	6	2	5	K	3	2	1	1	2	1	3	2	1	1	S	2	2	5	1	13	3.2																								
May 13	3	3	3	8	9	13	5	4	3	3	3	2	1	1	1	2	1	1	1	S	2	2	2	3	1	13	3.3																								
May 14	3	3	3	3	4	4	5	4	3	2	1	1	1	1	1	1	1	1	S	1	1	3	3	5	1	5	2.4																								
May 15	3	2	3	4	4	4	6	4	4	3	2	2	2	2	2	1	S	1	1	1	1	2	5	2	1	6	2.7																								
May 16	2	2	2	2	3	7	6	4	3	1	1	N	N	N	N	N	N	N	N	N	N	N	N	N	1	7	NA																								
May 17	N	N	N	N	N	N	N	N	N	N	Y	NRM	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	NA																							
May 18	1	1	2	3	2	3	2	2	3	5	5	2	1	1	S	1	1	1	1	1	1	1	1	1	1	1	5	1.8																							
May 19	2	3	3	4	4	4	4	4	4	3	3	2	2	S	2	2	2	3	3	4	5	3	3	3	2	5	3.2																								
May 20	3	3	3	7	5	4	6	8	7	8	7	7	S	7	5	6	4	7	14	18	2	5	4	4	2	18	6.3																								
May 21	5	5	6	4	2	2	2	2	3	7	3	S	3	4	3	5	3	3	4	2	2	4	3	4	2	7	3.5																								
May 22	3	4	4	3	2	3	2	2	2	2	S	2	2	2	2	2	5	6	7	7	8	10	9	7	2	10	4.2																								
May 23	7	5	2	2	2	1	1	1	1	S	5	3	6	4	3	4	2	2	2	1	2	2	2	3	1	7	2.7																								
May 24	2	3	2	2	3	6	6	4	S	3	3	3	3	3	3	3	3	3	3	2	3	2	4	3	2	6	3.1																								
May 25	1	1	1	2	3	4	3	S	2	2	3	2	2	3	2	3	3	2	2	2	3	2	2	2	1	4	2.3																								
May 26	1	1	1	2	3	2	S	6	5	2	3	3	3	3	3	3	3	2	2	2	2	2	2	4	1	6	2.6																								
May 27	3	8	7	10	5	S	6	5	4	2	2	4	3	3	3	3	3	2	2	7	3	5	2	4	2	10	4.1																								
May 28	3	3	4	6	S	5	4	4	4	4	4	4	3	2	2	2	2	2	2	8	3	6	3	4	2	8	3.7																								
May 29	6	10	8	S	3	3	8	4	3	3	3	1	1	1	1	1	1	6	1	2	1	3	4	4	1	10	3.4																								
May 30	3	2	S	2	3	1	4	3	3	1	1	2	2	2	1	3	5	4	1	1	6	11	4	8	1	11	3.2																								
May 31	6	S	3	3	2	2	4	5	4	4	3	3	2	2	2	2	2	2	2	13	2	8	3	2	13	3.6																									
Diurnal Maximum	24	17	17	18	15	16	13	11	10	8	7	7	6	7	6	6	10	17	14	25	23	19	9	10																											
Diurnal Average	4.0	3.7	3.5	4.0	4.2	5.3	4.8	4.3	3.8	3.4	2.8	2.5	2.3	2.4	2.3	2.4	2.7	3.5	3.0	4.0	4.5	4.0	3.4	3.5																											
C	Monthly Calibration												S	Daily Zero-Span Check												Q	Quality Assurance																								
K	Collection Error												ND	No Data (Machine Not in Service)												Y	Routine Maintenance												P	Power Failure											
X	InValid Data (Equipment Malfunction /Recovery)												NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																																					

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

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

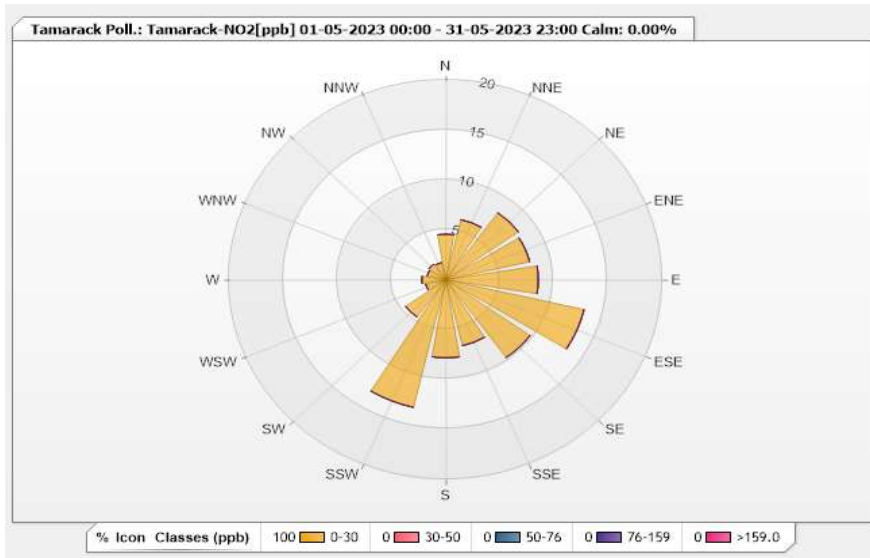


Station: Tamarack Poll.: Tamarack-NO2[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 91.26% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	4.57	0	0	0	0	4.57
NNE	6.19	0	0	0	0	6.19
NE	8.25	0	0	0	0	8.25
ENE	7.95	0	0	0	0	7.95
E	8.54	0	0	0	0	8.54
ESE	13.11	0	0	0	0	13.11
SE	9.57	0	0	0	0	9.57
SSE	6.77	0	0	0	0	6.77
S	7.81	0	0	0	0	7.81
SSW	13.11	0	0	0	0	13.11
SW	4.57	0	0	0	0	4.57
WSW	1.91	0	0	0	0	1.91
W	2.21	0	0	0	0	2.21
WNW	1.77	0	0	0	0	1.77
NW	1.91	0	0	0	0	1.91
NNW	1.77	0	0	0	0	1.77
Summary	100	0	0	0	0	100



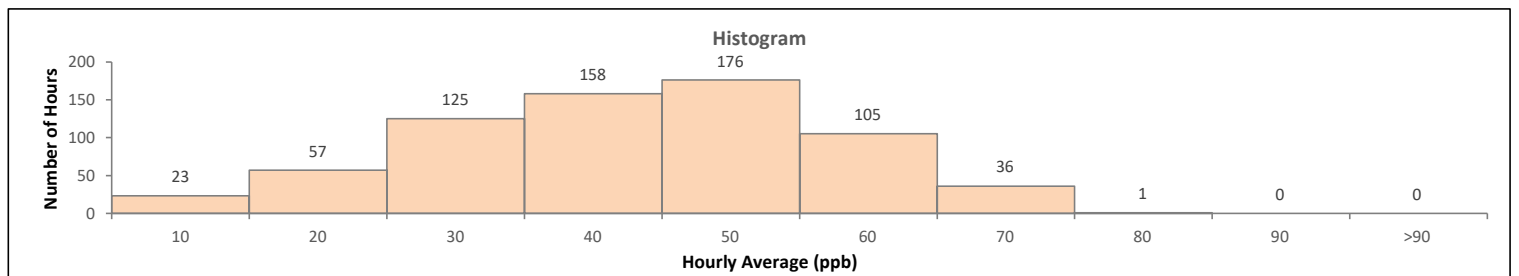
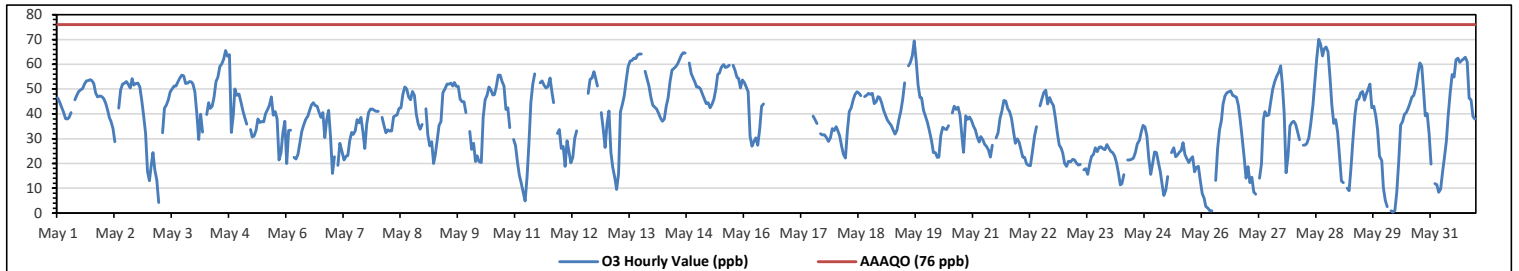
Lakeland Industry & Community Association

Tamarack Site - May 2023
Summary of Hourly Averages

OZONE (O₃) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb																																						
Number of 1-Hour Exceedances: 0																																						
Maximum Hourly Value: 70.1 ppb on May 28 at hr 13												Hours in Service: 744																										
Maximum Daily Value: 52.4 ppb on May 15												Hours of Data: 681																										
Minimum Hourly Value: 0.4 ppb on May 30 at hr 4												Hours of Missing Data: 27																										
Minimum Daily Value: 19.8 ppb on May 25												Hours of Calibration: 36																										
Monthly Average: 37.6 ppb												Operational Uptime: 96.4																										
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average												
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23														
May 1	46.5	45	42.9	40.8	38.1	38	38.6	40.6	S	45.7	47.4	49	49.6	50.2	51.9	53.3	53.5	53.7	53.4	52.3	48.4	46.8	47.2	47	38.0	53.7	47.0											
May 2	46.2	44.4	41.7	38.5	36.8	34.2	28.8	S	42.3	49.7	51.9	52.4	53	51.8	50.4	54.1	51.6	52.2	52.4	50.9	45.4	39	32.2	16.8	16.8	54.1	44.2											
May 3	13	18.5	24.4	17.3	13.2	4.2	S	32.3	42.3	43.6	45.7	48.9	50	51.2	51.3	52.9	54.4	55.6	55.4	52.3	52.4	53.1	52.9	52	4.2	55.6	40.7											
May 4	48.9	40.3	29.7	39.8	32.6	S	39.7	44.5	42.2	43	46.8	53	54.9	59.1	60.1	62.1	65.5	63.2	63.9	32.4	39.5	50	47.4	48	29.7	65.5	48.1											
May 5	44.8	41.2	38.5	35.9	S	33.7	30.7	31.1	33.3	37.9	36.5	36.8	36.7	40.2	41.6	43.4	46.9	39.4	40.9	37.9	21.4	24.2	32.3	37	21.4	46.9	36.6											
May 6	20	33.3	33.4	S	22.4	21.8	23.6	28.1	32.9	35.5	37.6	39.1	41.5	43.5	44.5	43.3	43.1	40.7	38.6	40.5	30.4	37.6	41.4	30.6	20.0	44.5	34.9											
May 7	15.9	22.7	S	19.2	28	24.6	21.4	22.8	23.2	29.3	32.4	31.7	33.2	37.7	36.4	38.6	32.9	26	35.9	40.7	41.9	41.9	41.4	41	15.9	41.9	31.3											
May 8	41	S	38.6	35.3	32.3	33.6	33	33.2	38.8	39.2	39.6	42.2	42.5	47.9	50.8	50.1	46.9	45.7	49	47.4	39.9	35.9	33.8	35.7	32.3	50.8	40.5											
May 9	S	42	31.5	27.1	28.7	19.9	23.3	29.1	35.4	36.8	48.5	49.9	52	51.9	52.4	51.3	52.6	51.1	51.1	45.9	45	44.9	40.5	S	19.9	52.6	41.4											
May 10	32.9	25.7	28.1	20.7	23.1	20.7	20.4	38.7	45.6	47.5	50.9	49.6	47.6	47.7	51	55.6	55.6	53.1	51.2	41.8	42.4	34.4	S	29.7	20.4	55.6	39.7											
May 11	27.2	20.6	15.2	12	8.4	4.8	14.4	28.2	44.7	52	56.1	K	K	52.5	53.3	51.6	50.5	51	54.4	48.6	44.5	S	32.2	33.7	4.8	56.1	36.0											
May 12	26	26.8	18.8	29.1	24.7	20.2	22.4	30.1	33.1	C	C	C	C	C	48.3	53.9	54.4	57.1	54.6	51.3	S	40.5	34	26.4	18.8	57.1	36.2											
May 13	36.1	41.1	24.5	18.3	14.5	9.5	15.8	40.9	43.8	47.5	53.6	59.1	61.3	61.5	62.4	62.3	63.8	64.2	64.2	S	57.2	54.2	51.2	46.7	9.5	64.2	45.8											
May 14	43.5	42.7	41.9	40.3	38.3	37	37.9	43	46.6	53.2	57.7	58.3	59.1	60.2	61.9	63.6	64.6	64.5	S	60.5	56.2	54.4	52.7	50.8	37.0	64.6	51.7											
May 15	50.8	50	48	46	44.1	44.5	42.4	43.8	45.9	50.1	55.9	56.4	58.7	59.9	58.7	59	59.6	S	59.7	57.6	54.7	54.3	50.5	53.6	42.4	59.9	52.4											
May 16	52.7	50.9	48.9	31	26.9	28.9	30.2	27.4	33.8	43.1	44	N	N	N	N	N	N	N	N	N	N	N	N	N	26.9	52.7	NA											
May 17	N	N	N	N	N	N	N	N	N	N	Y	NRM	39.1	37.7	36.2	S	32	31.5	31.6	30.5	28.9	30.3	34.1	33.3	28.9	39.1	NA											
May 18	34.8	33.3	31.1	26.9	23.7	22.2	33	40.8	42.5	45.5	47.8	48.9	48.4	47.3	S	47	47.4	48.2	47.8	48.2	44.1	45	47	46.6	22.2	48.9	41.2											
May 19	44.5	41.5	39.4	37.5	36.4	35.3	33.6	31.9	33.4	37.7	41	45.9	52.5	S	59.4	60.7	63.5	69.4	61.6	51.5	46.6	46.5	41.4	39	31.9	69.4	45.7											
May 20	36.6	33.4	29.2	24.4	24.4	22.4	22.6	31.2	34.5	34	33.7	35.2	S	40.4	43.1	41.8	42.7	39.5	31.1	24.5	39.2	37.8	38.7	37.3	22.4	43.1	33.8											
May 21	35	33.5	30.6	28.6	30.8	29.7	27.8	26.8	25.4	22.6	27.3	S	30.3	32.3	38.2	41.1	45.4	45.1	42.2	40.9	38.2	33	28	30	22.6	45.4	33.2											
May 22	28.5	25.3	22.5	22.4	19.8	19.2	19.1	24.3	31.1	34.8	S	43.2	46	48.7	49.5	44	46.6	44.6	43.3	38.5	32.4	27.5	26.1	24.2	19.1	49.5	33.1											
May 23	19.9	18.8	20.9	20.6	21.6	21.5	20.1	19.4	19.5	S	17.4	17.9	15.5	19.5	22.8	23.6	26.3	24.7	26.5	26.7	25.9	25.6	27.6	26.1	15.5	27.6	22.1											
May 24	24.9	24.3	23.1	20.4	16.2	11.3	11.8	15.4	S	21.5	21.4	21.6	22.1	24.3	27.9	29.4	32.5	35.3	34.6	31.1	22	15.6	19.9	24.6	11.3	35.3	23.1											
May 25	24.4	20.4	16.6	11.1	7	9.1	14.7	S	24.3	26.3	22.7	23.5	24.6	25.2	28.4	23.7	21.9	20.4	21.7	22.7	16.7	18.4	18.8	13	7.0	28.4	19.8											
May 26	7.9	5.9	2.6	1.9	0.8	0.9	S	13.1	25.9	33.6	37.4	43.9	47.2	48.5	48.9	49.3	47.5	47.1	46.7	43.3	37.1	30.1	22.4	14.1	0.8	49.3	28.5											
May 27	18.7	12.2	14.4	8.5	7.6	S	14	19.7	37.7	40.8	39.2	39.6	45	49.8	52.8	55	56.8	59.4	52.5	40.6	16.3	23	35.1	36.5	7.6	59.4	33.7											
May 28	37	35.8	32.7	29.6	S	27.3	27.5	28.1	30.3	35.9	43.6	53.2	62.6	70.1	68	63.4	66.2	67	65	55.2	43.6	36.1	37.6	32.6	27.3	70.1	45.6											
May 29	23	12.9	12.3	S	10.1	8.9	18.5	29.7	39.4	45.4	46	48.4	49.1	45.5	47.7	49.8	51.9	42.4	43.1	39.4	33.6	23	21.2	10.3	8.9	51.9	32.7											
May 30	5.1	2.5	S	0.9	0.4	1	8.5	20.7	35.5	36.9	39.8	40.4	42	44.2	46.7	47.4	51	56.2	60.5	59.2	48.8	39.2	40.1	32	0.4	60.5	33.0											
May 31	19.7	S	11.9	11.5	8.4	9.7	16.5	22.5	29.1	38.5	48.8	55.8	54.9	61.9	62.4	60.7	61.5	62.2	62.8	61	46.3	45.7	38.9	37.9	8.4	62.8	40.4											
Diurnal Maximum	52.7	50.9	48.9	46.0	44.1	44.5	42.4	44.5	46.6	53.2	57.7	59.1	62.6	70.1	68.0	63.6	66.2	69.4	65.0	61.0	57.2	54.4	52.9	53.6														
Diurnal Average	31.2	30.2	28.3	24.8	22.1	21.2	24.7	29.9	35.4	39.6	41.8	44.0	45.2	46.8	48.5	49.4	49.6	48.6	48.1	43.9	39.3	37.5	36.8	34.0														
C	Monthly Calibration												S	Daily Zero-Span Check												Q	Quality Assurance											
K	Collection Error												ND	No Data (Machine Not in Service)												Y	Routine Maintenance											
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 "S" if minimum data completeness criteria of 75% or 18 hours per day is not met.
Monthly Average is shown "S" if minimum data completeness criteria of 75% of days per month is not met.

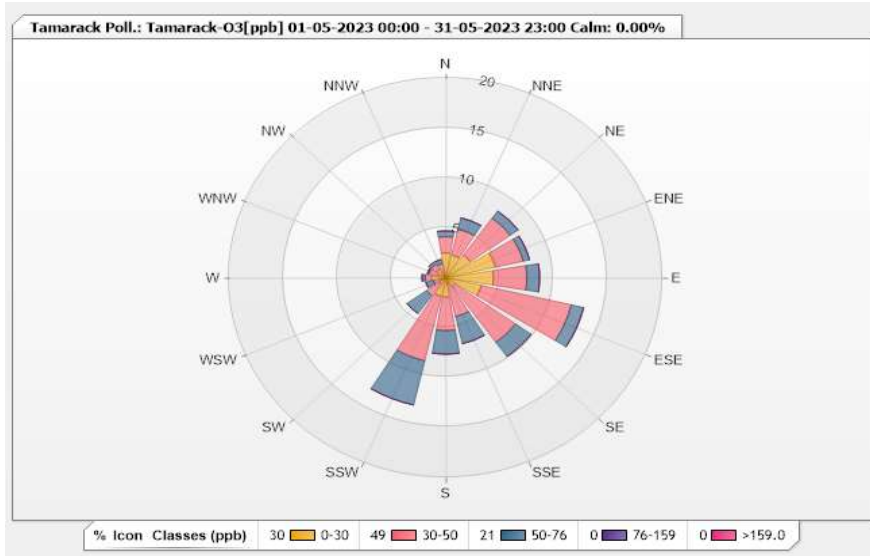


Station: Tamarack Poll.: Tamarack-O3[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 91.53% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	2.5	1.62	0.59	0	0	4.71
NNE	2.35	2.64	1.17	0	0	6.16
NE	2.79	4.55	0.88	0	0	8.22
ENE	4.7	2.64	0.59	0	0	7.93
E	4.41	3.08	1.17	0	0	8.66
ESE	3.38	8.52	1.17	0	0	13.07
SE	1.03	6.9	1.76	0	0	9.69
SSE	0.59	3.38	2.79	0	0	6.76
S	1.91	3.38	2.35	0	0	7.64
SSW	1.91	6.61	4.55	0	0	13.07
SW	0.73	1.47	2.2	0	0	4.4
WSW	0.44	0.73	0.73	0	0	1.9
W	1.32	0.59	0.29	0	0	2.2
WNW	0.73	0.88	0.15	0	0	1.76
NW	1.03	0.59	0.29	0	0	1.91
NNW	0.29	1.17	0.44	0	0	1.9
Summary	30.11	48.75	21.12	0	0	100



Lakeland Industry & Community Association

Tamarack Site - May 2023

Summary of Hourly Averages

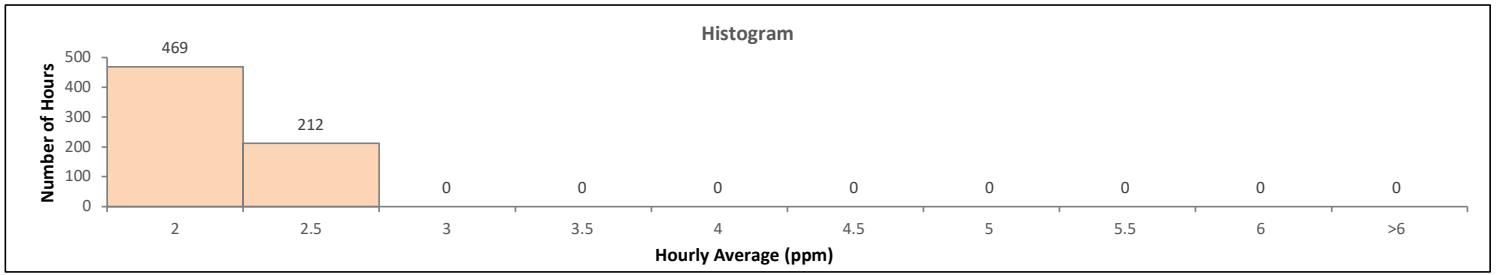
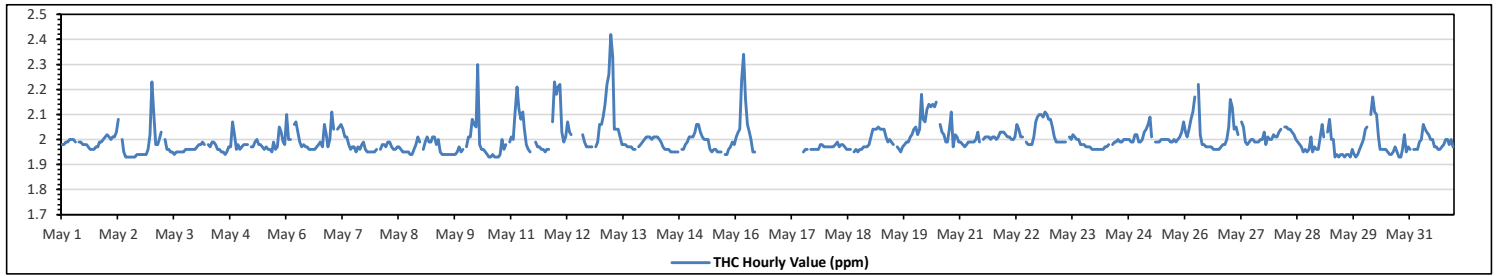
TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	2.42 ppm	on May 13 at hr 5	Hours in Service:	744
Maximum Daily Value:	2.06 ppm	on May 20	Hours of Data:	681
Minimum Hourly Value:	1.93 ppm	on May 2 at hr 10	Hours of Missing Data:	27
Minimum Daily Value:	1.97 ppm	on May 9	Hours of Calibration:	36
Monthly Average:	2.00 ppm		Operational Uptime:	96.4

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
May 1	1.98	1.98	1.99	1.99	2.00	2.00	2.00	1.99	S	1.99	1.99	1.98	1.98	1.98	1.97	1.96	1.96	1.96	1.97	1.97	1.99	1.99	2.00	2.01	1.96	2.01	1.98	
May 2	2.02	2.01	2.00	2.01	2.01	2.03	2.08	S	2.00	1.95	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.96	2.02	1.93	2.08	1.97		
May 3	2.23	2.10	1.98	1.98	2.00	2.03	S	2.00	1.96	1.96	1.95	1.95	1.94	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.94	2.23	1.98	
May 4	1.97	1.98	1.98	1.99	1.98	S	1.98	1.97	1.99	1.99	1.98	1.96	1.96	1.95	1.95	1.94	1.95	1.97	1.97	2.07	2.02	1.96	1.98	1.96	1.94	2.07	1.98	
May 5	1.97	1.98	1.98	1.98	S	1.97	1.97	1.99	2.00	1.98	1.98	1.97	1.96	1.97	1.96	1.96	1.95	1.99	1.96	1.97	2.05	2.03	1.99	1.98	1.95	2.05	1.98	
May 6	2.10	2.00	2.00	S	2.06	2.07	2.03	1.99	1.97	1.98	1.97	1.97	1.96	1.96	1.96	1.96	1.97	1.98	1.99	1.97	2.06	2.02	1.97	2.00	1.96	2.10	2.00	
May 7	2.11	2.04	S	2.04	2.05	2.06	2.04	2.01	2.01	1.98	1.96	1.97	1.97	1.95	1.97	1.96	1.98	1.99	1.96	1.95	1.95	1.95	1.95	1.95	1.95	2.11	1.99	
May 8	1.96	S	1.96	1.98	1.98	1.97	1.99	1.99	1.97	1.96	1.96	1.97	1.97	1.96	1.95	1.95	1.95	1.95	1.94	1.94	1.96	1.98	2.01	1.99	1.94	2.01	1.97	
May 9	S	1.96	1.99	2.01	1.99	1.99	2.01	2.01	1.98	2.00	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.97	1.95	1.96	S	1.94	2.01	1.97	
May 10	1.97	2.01	2.01	2.08	2.06	2.05	2.30	1.98	1.96	1.96	1.95	1.94	1.93	1.93	1.94	1.93	1.93	1.93	1.94	2.00	1.96	1.98	S	1.99	1.93	2.30	1.99	
May 11	2.01	2.00	2.11	2.21	2.12	2.08	2.11	2.04	1.98	1.96	1.95	K	K	K	1.99	1.97	1.96	1.96	1.95	1.96	1.96	S	2.07	2.23	1.95	2.23	2.03	
May 12	2.18	2.21	2.22	2.03	1.99	2.01	2.07	2.03	2.02	C	C	C	C	C	2.02	1.99	1.97	1.97	1.97	1.97	1.97	S	1.97	1.99	2.06	1.97	2.22	2.04
May 13	2.06	2.09	2.14	2.22	2.26	2.42	2.33	2.04	2.04	2.04	2.01	1.98	1.98	1.98	1.97	1.97	1.97	1.96	1.96	S	1.97	1.98	1.99	2.00	1.96	2.42	2.06	
May 14	2.01	2.01	2.01	2.00	2.01	2.01	2.01	2.00	1.99	1.97	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.95	1.95	S	1.96	1.96	1.98	1.99	2.01	1.95	2.01	1.98
May 15	2.01	2.01	2.03	2.06	2.06	2.03	2.01	2.00	2.00	2.00	1.96	1.95	1.96	1.96	1.95	1.95	1.95	S	1.94	1.94	1.96	1.97	1.99	1.98	1.94	2.06	1.99	
May 16	2.01	2.03	2.04	2.24	2.34	2.16	2.06	2.03	2.00	1.95	1.95	N	N	N	N	N	N	N	N	N	N	N	N	N	1.95	2.34	NA	
May 17	N	N	N	N	N	N	N	N	N	N	Y	NRM	1.95	1.96	1.96	S	1.96	1.96	1.96	1.96	1.96	1.96	1.98	1.98	1.97	1.95	1.98	NA
May 18	1.97	1.97	1.97	1.97	1.97	1.98	1.99	1.97	1.98	1.98	1.97	1.96	1.96	1.96	S	1.95	1.96	1.95	1.96	1.96	1.96	1.97	1.97	1.98	1.95	1.99	1.97	
May 19	2.01	2.04	2.04	2.04	2.05	2.04	2.04	2.04	2.01	1.99	2.00	1.99	1.98	S	1.97	1.96	1.95	1.97	1.98	1.99	1.99	2.01	2.02	2.04	1.95	2.05	2.01	
May 20	2.05	2.02	2.04	2.18	2.08	2.07	2.12	2.14	2.13	2.14	2.13	2.15	S	2.06	2.03	2.02	1.99	1.99	2.04	2.11	1.97	2.02	2.01	1.99	1.97	2.18	2.06	
May 21	1.99	1.98	1.97	1.98	1.99	1.99	1.99	2.00	2.03	1.99	S	2.00	2.01	2.01	2.01	2.00	2.01	2.00	2.01	2.00	2.01	2.03	2.03	2.03	1.97	2.03	2.00	
May 22	2.02	2.01	2.01	2.00	2.00	2.01	2.06	2.04	2.01	2.01	S	1.99	1.98	1.98	1.98	2.01	2.07	2.09	2.10	2.10	2.09	2.11	2.10	2.08	1.98	2.11	2.04	
May 23	2.08	2.05	2.01	1.99	1.99	1.99	1.99	1.99	1.99	S	2.01	2.00	2.02	2.01	2.00	2.00	1.98	1.98	1.98	1.97	1.97	1.97	1.96	1.96	1.96	1.96	2.08	2.00
May 24	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.98	S	1.98	1.99	1.99	2.00	1.99	1.99	2.00	2.00	2.00	2.00	1.99	1.99	2.02	2.02	1.99	1.96	2.02	1.99	
May 25	1.99	2.00	2.03	2.04	2.06	2.09	2.01	S	1.99	1.99	1.99	2.00	2.00	2.00	2.00	2.00	1.99	1.99	2.00	1.99	2.00	2.01	2.03	2.07	1.99	2.09	2.01	
May 26	2.03	2.01	2.04	2.08	2.11	2.17	S	2.22	2.02	1.98	1.98	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.96	1.97	1.98	1.98	2.00	2.05	1.96	2.22	2.01	
May 27	2.16	2.13	2.04	2.05	2.02	S	2.07	2.05	1.99	1.98	1.99	2.00	1.99	1.99	1.99	1.99	2.00	2.00	2.03	1.98	2.01	2.00	2.02	1.98	2.16	2.02		
May 28	2.01	2.01	2.03	2.04	S	2.05	2.05	2.04	2.04	2.03	2.02	2.00	1.99	1.98	1.97	1.95	1.96	1.95	1.96	2.01	1.95	1.97	1.96	1.96	1.95	2.05	2.00	
May 29	2.01	2.06	2.01	S	2.03	2.08	2.00	2.00	1.93	1.94	1.93	1.94	1.93	1.94	1.94	1.93	1.96	1.94	1.93	1.94	1.96	1.98	2.00	1.93	2.08	1.97		
May 30	2.04	2.05	S	2.10	2.17	2.11	2.10	2.01	1.96	1.96	1.96	1.94	1.95	1.94	1.94	1.95	1.97	1.95	1.93	1.93	1.96	2.02	1.95	1.97	1.93	2.17	1.99	
May 31	1.96	S	1.96	1.96	1.96	1.99	2.00	2.06	2.04	2.03	2.02	2.00	2.00	1.97	1.97	1.96	1.96	1.97	1.98	2.00	2.00	1.98	2.00	1.97	1.96	2.06	1.99	
Diurnal Maximum	2.23	2.21	2.22	2.24	2.34	2.42	2.33	2.22	2.13	2.14	2.13	2.15	2.02	2.06	2.03	2.02	2.07	2.09	2.10	2.11	2.09	2.11	2.10	2.23				
Diurnal Average	2.03	2.03	2.02	2.04	2.05	2.05	2.05	2.02	2.00	1.99	1.98	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.99	1.99	2.01				

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

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

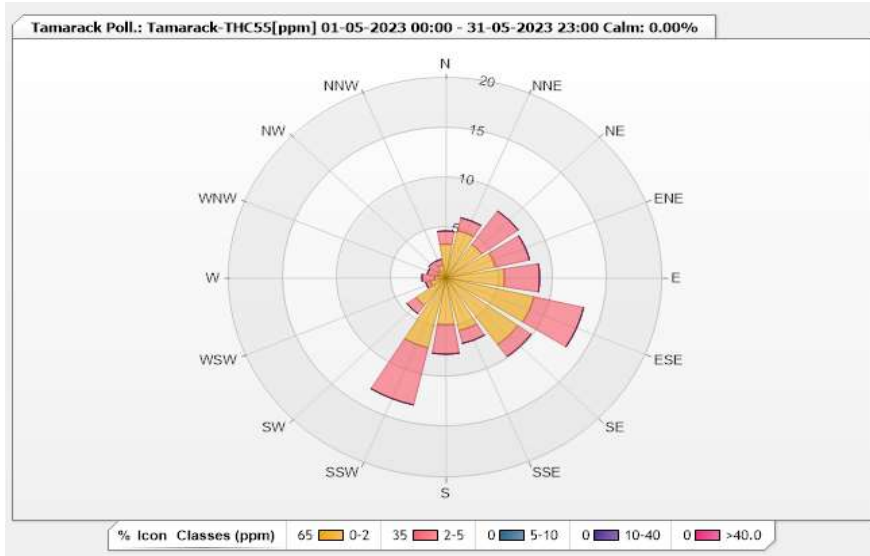


Station: Tamarack Poll.: Tamarack-THC55[ppm] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 91.53% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	3.38	1.32	0	0	0	4.7
NNE	4.85	1.32	0	0	0	6.17
NE	4.11	4.11	0	0	0	8.22
ENE	4.7	3.23	0	0	0	7.93
E	5.43	3.23	0	0	0	8.66
ESE	8.37	4.7	0	0	0	13.07
SE	8.22	1.47	0	0	0	9.69
SSE	5.43	1.32	0	0	0	6.75
S	4.7	2.94	0	0	0	7.64
SSW	7.2	5.87	0	0	0	13.07
SW	3.38	1.03	0	0	0	4.41
WSW	1.47	0.44	0	0	0	1.91
W	1.03	1.17	0	0	0	2.2
WNW	0.73	1.03	0	0	0	1.76
NW	0.88	1.03	0	0	0	1.91
NNW	1.32	0.59	0	0	0	1.91
Summary	65.2	34.8	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - May 2023
Summary of Hourly Averages

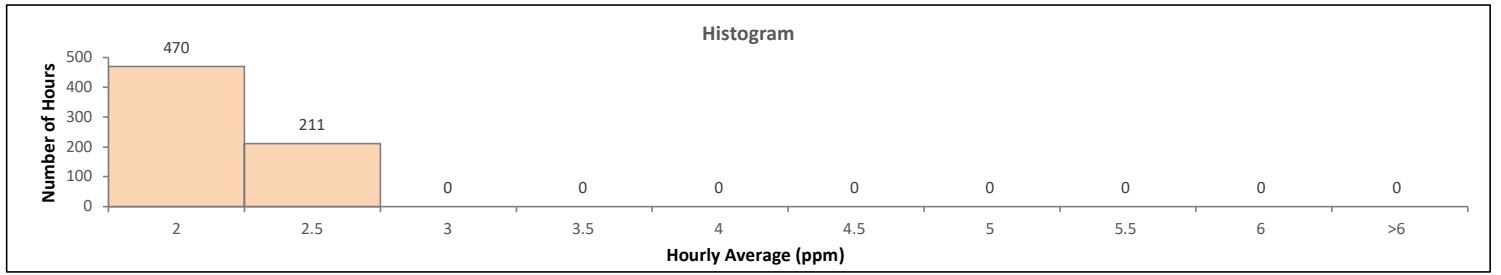
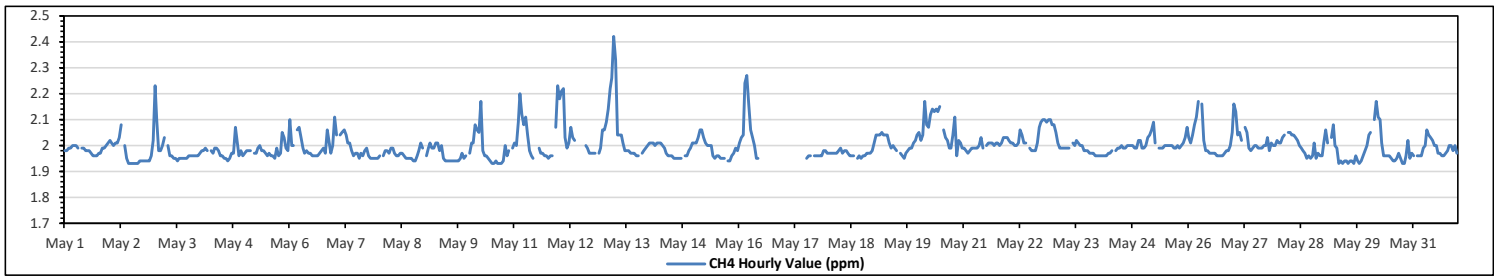
METHANE (CH4) in ppm

Maximum Hourly Value:	2.42 ppm	on May 13 at hr 5	Hours in Service:	744
Maximum Daily Value:	2.06 ppm	on May 20	Hours of Data:	681
Minimum Hourly Value:	1.93 ppm	on May 2 at hr 10	Hours of Missing Data:	27
Minimum Daily Value:	1.97 ppm	on May 9	Hours of Calibration:	36
Monthly Average:	2.00 ppm		Operational Uptime:	96.4

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23		
May 1	1.98	1.98	1.99	1.99	2.00	2.00	2.00	1.99	S	1.99	1.99	1.98	1.98	1.98	1.97	1.96	1.96	1.96	1.97	1.97	1.99	1.99	2.00	2.01	1.96	2.01	1.98		
May 2	2.02	2.01	2.00	2.01	2.01	2.03	2.08	S	2.00	1.95	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.96	1.96	2.02	1.93	2.08	1.97		
May 3	2.23	2.10	1.98	1.98	2.00	2.03	S	2.00	1.96	1.96	1.95	1.95	1.94	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.94	2.23	1.98		
May 4	1.97	1.98	1.98	1.99	1.98	S	1.98	1.97	1.99	1.99	1.98	1.96	1.96	1.95	1.95	1.94	1.95	1.97	1.97	2.07	2.02	1.96	1.98	1.96	1.94	2.07	1.98		
May 5	1.97	1.98	1.98	1.98	S	1.97	1.97	1.99	2.00	1.98	1.98	1.97	1.96	1.97	1.96	1.96	1.95	1.99	1.96	1.97	2.05	2.03	1.99	1.98	1.95	2.05	1.98		
May 6	2.10	2.00	2.00	S	2.06	2.07	2.03	1.99	1.97	1.98	1.97	1.97	1.96	1.96	1.96	1.96	1.97	1.98	1.99	1.97	2.06	2.02	1.97	2.00	1.96	2.10	2.00		
May 7	2.11	2.04	S	2.04	2.05	2.06	2.04	2.01	2.01	1.98	1.96	1.97	1.97	1.95	1.97	1.96	1.98	1.99	1.96	1.95	1.95	1.95	1.95	1.95	1.95	2.11	1.99		
May 8	1.96	S	1.96	1.98	1.98	1.97	1.99	1.99	1.97	1.96	1.96	1.97	1.97	1.96	1.95	1.95	1.95	1.95	1.94	1.94	1.96	1.98	2.01	1.99	1.94	2.01	1.97		
May 9	S	1.96	1.99	2.01	1.99	1.99	2.01	2.01	1.98	2.00	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.97	1.95	1.96	S	1.94	2.01	1.97			
May 10	1.97	2.01	2.01	2.08	2.06	2.05	2.17	1.98	1.96	1.96	1.95	1.94	1.93	1.93	1.94	1.93	1.93	1.93	1.94	2.00	1.96	1.98	S	1.99	1.93	2.17	1.98		
May 11	2.01	2.00	2.09	2.20	2.12	2.08	2.11	2.04	1.98	1.96	1.95	K	K	K	1.99	1.97	1.96	1.96	1.95	1.96	1.96	S	2.07	2.23	1.95	2.23	2.03		
May 12	2.18	2.21	2.22	2.03	1.99	2.01	2.07	2.03	2.02	C	C	C	C	C	2.00	1.99	1.97	1.97	1.97	1.97	1.97	S	1.97	1.99	2.06	1.97	2.22	2.04	
May 13	2.06	2.09	2.14	2.22	2.26	2.42	2.33	2.04	2.04	2.04	2.01	1.98	1.98	1.98	1.97	1.97	1.97	1.96	1.96	S	S	1.97	1.98	1.99	2.00	1.96	2.42	2.06	
May 14	2.01	2.01	2.01	2.00	2.01	2.01	2.01	2.00	1.99	1.97	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.95	1.95	S	S	1.96	1.96	1.98	1.99	2.01	1.95	2.01	1.98
May 15	2.01	2.01	2.03	2.06	2.06	2.03	2.01	2.00	2.00	2.00	1.96	1.95	1.96	1.96	1.95	1.95	1.95	S	1.94	1.94	1.96	1.97	1.99	1.98	1.94	2.06	1.99	1.98	
May 16	2.01	2.03	2.04	2.24	2.27	2.16	2.06	2.03	2.00	1.95	1.95	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1.95	2.27	NA	
May 17	N	N	N	N	N	N	N	N	N	N	Y	NRM	1.95	1.96	1.96	S	1.96	1.96	1.96	1.96	1.96	1.96	1.98	1.98	1.97	1.95	1.98	NA	
May 18	1.97	1.97	1.97	1.97	1.97	1.98	1.99	1.97	1.98	1.98	1.97	1.96	1.96	1.96	S	1.95	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.98	1.95	1.99	1.97	
May 19	2.01	2.04	2.04	2.04	2.05	2.04	2.04	2.04	2.01	1.99	2.00	1.99	1.98	S	1.97	1.96	1.95	1.97	1.98	1.99	1.99	2.01	2.02	2.04	1.95	2.05	2.01		
May 20	2.05	2.02	2.04	2.17	2.08	2.07	2.12	2.14	2.13	2.14	2.13	2.15	S	2.06	2.03	2.02	1.99	1.99	2.04	2.11	1.96	2.02	2.01	1.99	1.96	2.17	2.06		
May 21	1.99	1.98	1.97	1.98	1.99	1.99	1.99	1.99	2.00	2.03	1.99	S	2.00	2.01	2.01	2.00	2.01	2.01	2.01	2.00	2.01	2.03	2.03	2.03	1.97	2.03	2.00		
May 22	2.02	2.01	2.01	2.00	2.00	2.01	2.06	2.04	2.01	2.01	S	1.99	1.98	1.98	1.98	2.01	2.07	2.09	2.10	2.10	2.09	2.10	2.10	2.08	1.98	2.10	2.04		
May 23	2.08	2.05	2.01	1.99	1.99	1.99	1.99	1.99	S	2.01	2.00	2.02	2.01	2.00	2.00	1.98	1.98	1.98	1.97	1.97	1.97	1.96	1.96	1.96	1.96	2.08	2.00		
May 24	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.98	S	1.98	1.99	1.99	2.00	1.99	1.99	2.00	2.00	2.00	2.00	1.99	1.99	2.02	2.02	1.99	1.96	2.02	1.99		
May 25	1.99	2.00	2.03	2.04	2.06	2.09	2.01	S	1.99	1.99	1.99	2.00	2.00	2.00	2.00	1.99	1.99	2.00	1.99	2.00	2.01	2.03	2.07	1.99	2.09	2.01			
May 26	2.03	2.01	2.04	2.08	2.11	2.17	S	2.16	2.02	1.98	1.98	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.97	1.98	1.98	2.00	2.05	1.96	2.17	2.01			
May 27	2.16	2.13	2.04	2.05	2.02	S	2.07	2.05	1.99	1.98	1.99	2.00	1.99	1.99	1.99	2.00	2.00	2.03	1.98	2.01	2.00	2.00	2.02	1.98	2.16	2.02			
May 28	2.01	2.01	2.03	2.04	S	2.05	2.05	2.04	2.04	2.03	2.02	2.00	1.99	1.98	1.97	1.95	1.96	1.95	1.96	2.01	1.95	1.97	1.96	1.96	1.95	2.05	2.00		
May 29	2.01	2.06	2.01	S	2.03	2.08	2.00	1.99	1.93	1.94	1.93	1.94	1.93	1.94	1.94	1.93	1.96	1.94	1.93	1.94	1.96	1.98	2.00	1.93	2.08	1.97			
May 30	2.04	2.05	S	2.10	2.17	2.11	2.10	2.01	1.96	1.96	1.96	1.96	1.95	1.94	1.94	1.95	1.97	1.95	1.93	1.93	1.96	2.02	1.95	1.97	1.93	2.17	1.99		
May 31	1.96	S	1.96	1.96	1.96	1.99	2.00	2.06	2.04	2.03	2.02	2.00	2.00	1.97	1.97	1.96	1.96	1.97	1.98	2.00	2.00	1.98	2.00	1.97	1.96	2.06	1.99		
Diurnal Maximum	2.23	2.21	2.22	2.24	2.27	2.42	2.33	2.16	2.13	2.14	2.13	2.15	2.02	2.06	2.03	2.02	2.07	2.09	2.10	2.11	2.09	2.10	2.10	2.10	2.23				
Diurnal Average	2.03	2.03	2.02	2.04	2.04	2.05	2.04	2.02	2.00	1.99	1.98	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.99	1.99	2.01					

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

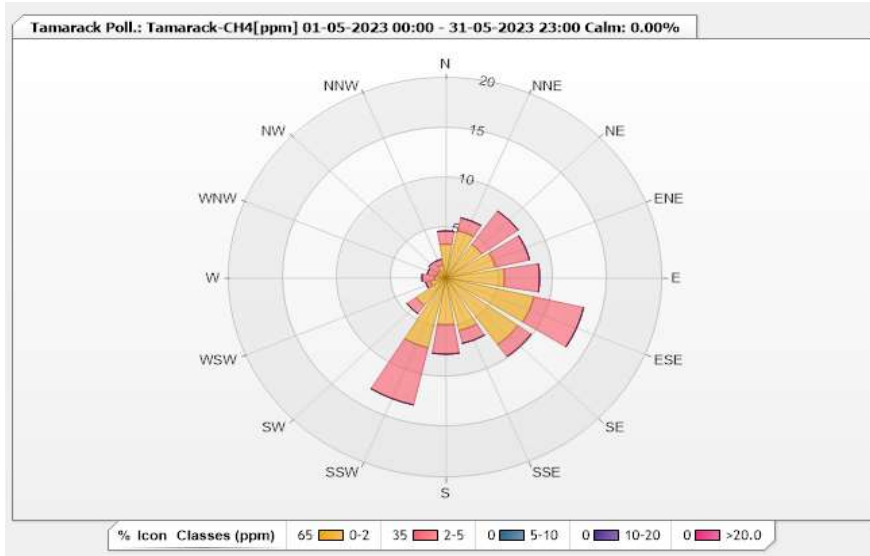


Station: Tamarack Poll.: Tamarack-CH4[ppm] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 91.53% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	3.38	1.32	0	0	0	4.7
NNE	4.85	1.32	0	0	0	6.17
NE	4.11	4.11	0	0	0	8.22
ENE	4.7	3.23	0	0	0	7.93
E	5.43	3.23	0	0	0	8.66
ESE	8.37	4.7	0	0	0	13.07
SE	8.22	1.47	0	0	0	9.69
SSE	5.43	1.32	0	0	0	6.75
S	4.7	2.94	0	0	0	7.64
SSW	7.2	5.87	0	0	0	13.07
SW	3.38	1.03	0	0	0	4.41
WSW	1.47	0.44	0	0	0	1.91
W	1.03	1.17	0	0	0	2.2
WNW	0.88	0.88	0	0	0	1.76
NW	0.88	1.03	0	0	0	1.91
NNW	1.32	0.59	0	0	0	1.91
Summary	65.35	34.65	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - May 2023

Summary of Hourly Averages

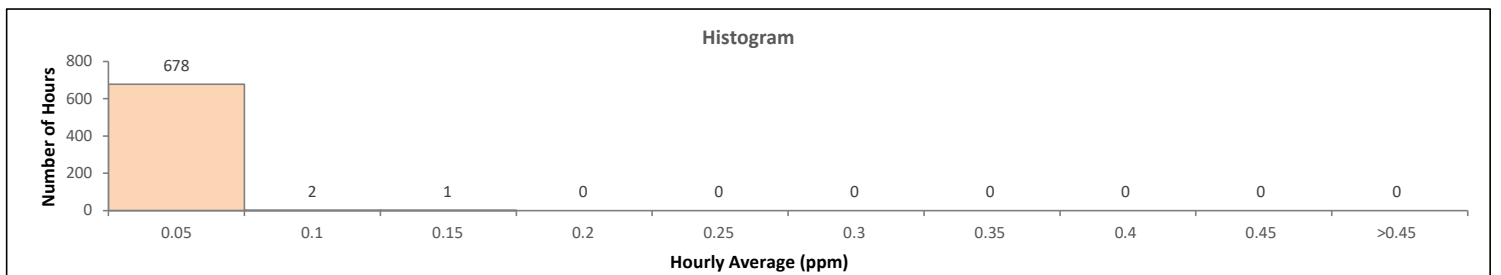
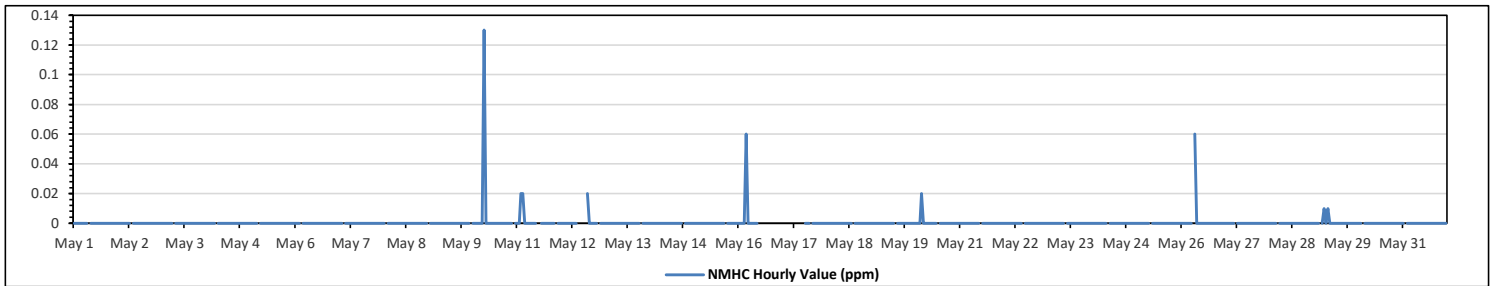
NON-METHANE HYDROCARBONS (NMHC) in ppm

Maximum Hourly Value:	0.13 ppm	on May 10 at hr 6	Hours in Service:	744
Maximum Daily Value:	0.01 ppm	on May 10	Hours of Data:	681
Minimum Hourly Value:	0.00 ppm	on May 1 at hr 0	Hours of Missing Data:	27
Minimum Daily Value:	0.00 ppm	on May 1	Hours of Calibration:	36
Monthly Average:	0.00 ppm		Operational Uptime:	96.4

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

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

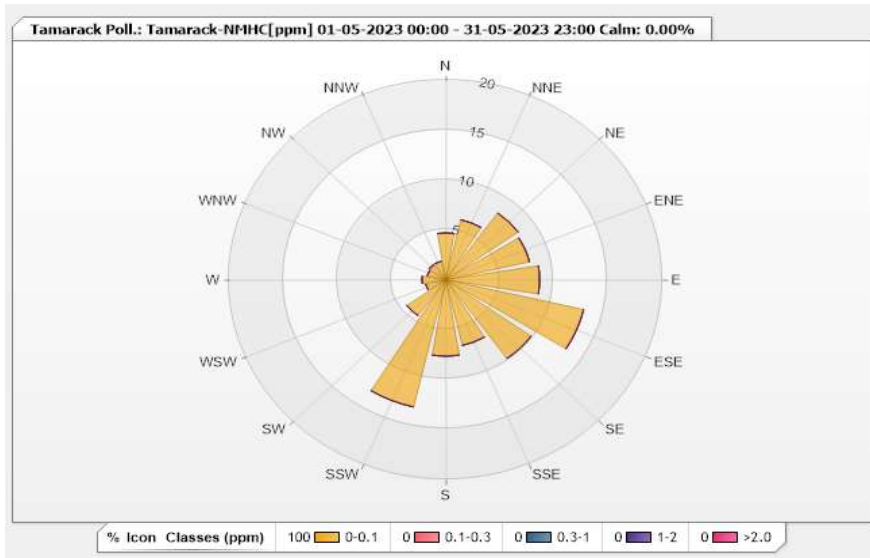


Station: Tamarack Poll.: Tamarack-NMHC[ppm] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 91.53% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	4.7	0	0	0	0	4.7
NNE	6.17	0	0	0	0	6.17
NE	8.22	0	0	0	0	8.22
ENE	7.93	0	0	0	0	7.93
E	8.66	0	0	0	0	8.66
ESE	13.07	0	0	0	0	13.07
SE	9.69	0	0	0	0	9.69
SSE	6.75	0	0	0	0	6.75
S	7.64	0	0	0	0	7.64
SSW	13.07	0	0	0	0	13.07
SW	4.41	0	0	0	0	4.41
WSW	1.91	0	0	0	0	1.91
W	2.2	0	0	0	0	2.2
WNW	1.76	0	0	0	0	1.76
NW	1.76	0.15	0	0	0	1.91
NNW	1.91	0	0	0	0	1.91
Summary	100	0.15	0	0	0	100



Lakeland Industry & Community Association

Tamarack Site - May 2023
Summary of Hourly Averages

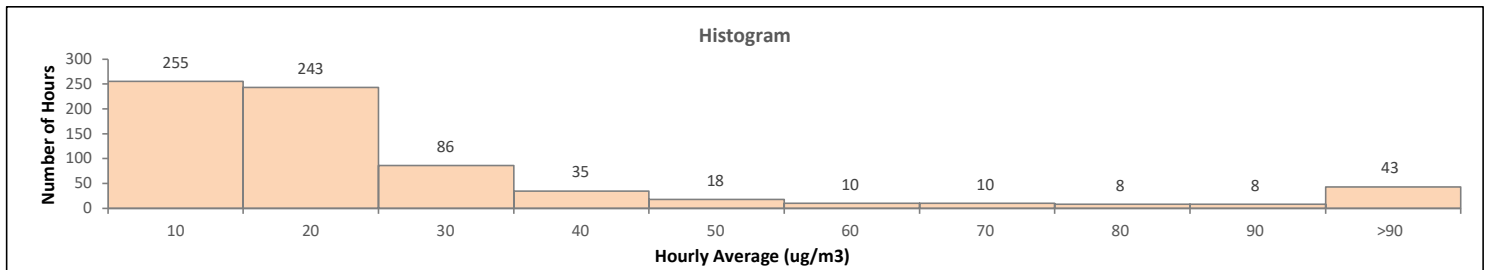
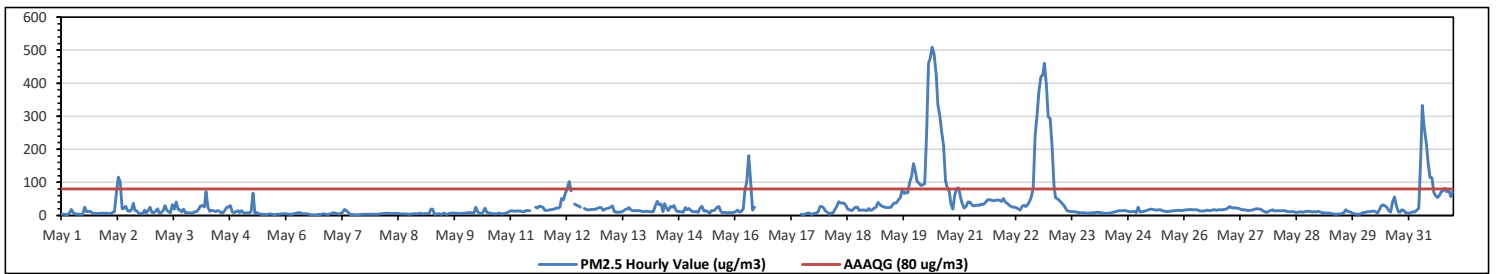
PARTICULATE MATTER 2.5 (PM_{2.5}) in µg/m³

Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m ³ , Alberta Ambient Air Quality Objective (AAAQO): 24-Hour 29 µg/m ³	
Number of 1-Hour Exceedances:	51
Number of 24-Hour Exceedances:	7
Maximum Hourly Value:	509 µg/m ³ on May 20 at hr 9
Maximum Daily Value:	202.7 µg/m ³ on May 20
Minimum Hourly Value:	2 µg/m ³ on May 6 at hr 13
Minimum Daily Value:	4 µg/m ³ on May 6
Monthly Average:	30.6 µg/m ³
Hours in Service:	744
Hours of Data:	716
Hours of Missing Data:	27
Hours of Calibration:	1
Operational Uptime:	96.4

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
May 1	4	3	3	3	7	18	9	5	3	4	4	3	25	11	11	13	9	5	6	5	6	6	6	6	3	25	7.1
May 2	6	6	5	10	11	68	116	101	20	21	28	14	12	17	36	15	13	6	6	5	16	7	14	24	5	116	24.1
May 3	10	8	13	20	6	9	14	29	15	10	9	32	19	40	18	16	10	18	7	8	8	8	8	11	6	40	14.4
May 4	12	19	29	30	26	73	25	13	15	14	11	14	13	9	8	15	25	24	30	10	9	11	14	9	8	73	18.9
May 5	15	8	6	8	8	11	68	5	8	5	4	2	3	2	3	5	4	3	3	4	4	5	5	5	2	68	8.0
May 6	4	3	4	4	6	6	8	8	6	5	6	4	3	2	2	2	2	3	2	5	5	4	2	5	2	8	4.1
May 7	5	8	6	5	4	7	9	18	15	9	3	2	2	2	3	3	3	3	3	3	3	3	3	4	2	18	5.2
May 8	4	4	5	5	6	6	6	6	5	5	6	6	5	5	5	5	4	4	4	5	5	5	5	7	4	7	5.0
May 9	6	5	5	5	5	18	19	4	3	5	4	3	7	3	4	7	6	8	6	7	6	5	6	6	3	19	6.4
May 10	8	9	8	8	7	25	12	6	5	10	22	9	7	6	6	5	6	6	4	5	6	8	13	4	25	8.5	
May 11	15	13	12	13	13	13	12	11	15	14	14	K	K	24	22	28	27	24	15	15	16	17	18	20	11	28	16.9
May 12	21	22	25	51	47	66	82	102	74	Y	34	31	29	25	C	21	20	16	17	18	18	19	21	24	16	102	35.7
May 13	24	16	18	21	22	24	29	12	11	10	10	10	14	18	20	24	16	14	14	14	15	14	12	12	10	29	16.3
May 14	13	13	11	11	11	29	42	32	35	12	36	22	15	27	25	30	16	11	12	10	10	24	17	21	10	42	20.0
May 15	15	12	11	12	10	22	28	13	14	11	6	14	15	16	25	26	11	8	10	9	8	9	9	9	6	28	13.4
May 16	11	16	10	12	20	74	103	181	104	16	25	N	N	N	N	N	N	N	N	N	N	N	N	N	10	181	NA
May 17	N	N	N	N	N	N	N	N	N	N	Y	3	2	4	6	8	4	3	7	7	11	27	27	23	2	27	NA
May 18	13	9	4	6	8	20	27	42	37	37	37	28	18	16	14	20	24	24	15	16	16	16	14	21	4	42	20.1
May 19	16	17	22	24	39	32	28	27	24	23	24	25	35	37	39	47	54	80	66	68	68	101	119	156	16	156	48.7
May 20	132	103	98	91	92	96	251	462	474	509	490	425	336	303	253	210	105	82	70	35	18	63	82	83	18	509	202.7
May 21	55	36	22	27	40	40	33	29	30	31	30	35	33	36	43	48	47	46	44	46	47	45	42	51	22	55	39.0
May 22	40	37	32	28	25	24	23	19	16	27	31	28	33	43	55	82	240	303	377	421	424	461	398	298	16	461	144.3
May 23	293	209	90	54	50	45	39	32	24	16	13	12	12	11	10	9	8	7	8	7	7	7	8	8	7	293	40.7
May 24	8	9	9	9	7	7	6	7	7	9	10	11	13	14	14	14	15	13	12	11	11	12	9	25	6	25	11.0
May 25	10	11	12	14	16	18	19	18	16	16	18	17	14	13	12	13	12	13	14	14	16	15	14	15	10	19	14.6
May 26	16	17	17	18	16	17	18	16	13	13	13	15	16	15	15	18	16	15	16	17	17	18	20	21	13	21	16.3
May 27	27	23	23	23	21	21	18	17	18	15	15	15	16	18	20	20	19	17	13	10	9	13	15	17	9	27	17.6
May 28	13	14	14	14	14	15	13	12	12	11	11	10	9	10	11	10	12	12	13	12	10	12	10	12	9	15	11.8
May 29	12	8	8	8	7	7	4	3	3	5	6	9	17	11	12	8	5	5	4	4	5	8	3	17	7	17	7.0
May 30	8	10	12	11	12	13	11	7	18	30	32	29	24	14	10	40	56	30	11	9	17	15	9	7	7	56	18.1
May 31	7	9	11	10	16	22	174	333	264	223	160	115	114	69	61	54	60	72	74	82	71	77	57	71	7	333	91.9
Diurnal Maximum	293	209	98	91	92	96	251	462	474	509	490	425	336	303	253	210	105	82	70	35	18	63	82	83	18	509	202.7
Diurnal Average	27.3	22.5	18.2	18.4	19.1	28.1	41.5	52.3	43.4	36.9	32.3	29.2	27.3	26.4	27.2	28.5	29.3	29.5	29.3	29.3	34.3	32.5	33.0				

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

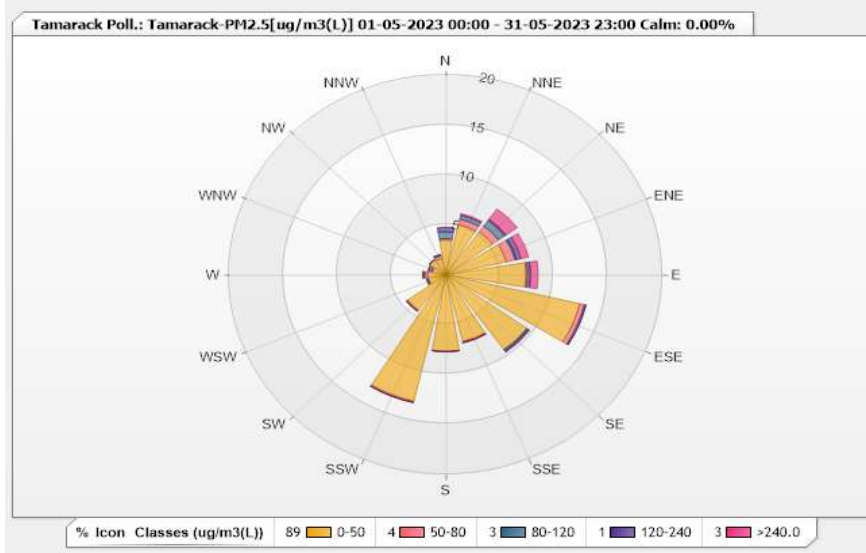


Station: Tamarack Poll.: Tamarack-PM2.5[ug/m3(L)] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 96.24% Calm Avg: 0.00 [ppm]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	3.49	0.14	0.7	0.42	0	4.75
NNE	5.17	0.56	0.42	0	0.14	6.29
NE	5.31	0.7	0.7	0.14	1.26	8.11
ENE	5.73	0.84	0.14	0.42	0.7	7.83
E	7.4	0.14	0.28	0	0.7	8.52
ESE	12.71	0.42	0.14	0	0	13.27
SE	9.22	0	0.14	0.14	0	9.5
SSE	6.84	0.14	0	0	0	6.98
S	7.68	0	0	0	0	7.68
SSW	12.99	0.14	0	0	0	13.13
SW	4.33	0.14	0	0	0	4.47
WSW	1.68	0	0.14	0	0	1.82
W	1.68	0.28	0.14	0	0	2.1
WNW	1.26	0.14	0.28	0	0	1.68
NW	1.82	0	0	0	0	1.82
NNW	1.68	0.28	0.14	0	0	2.1
Summary	88.99	3.92	3.22	1.12	2.8	100



Lakeland Industry & Community Association

Tamarack Site - May 2023

Summary of Hourly Averages

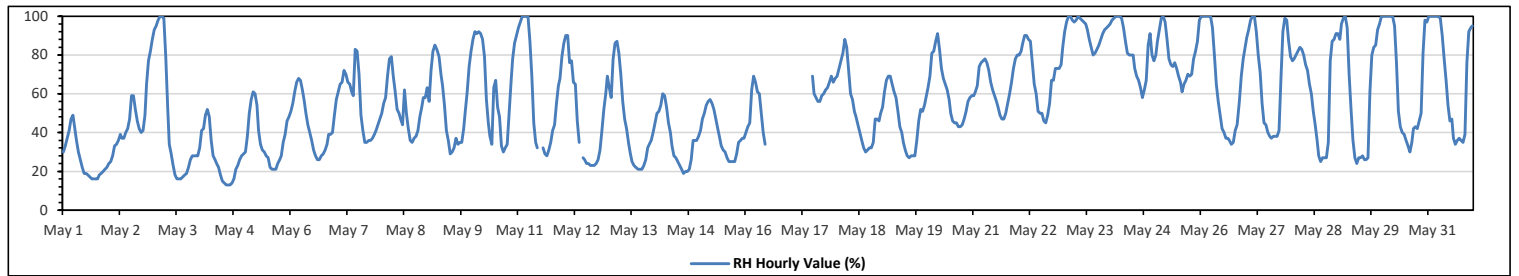
RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	100 %	on May 3 at hr 3	Hours in Service:	744
Maximum Daily Value:	92.8 %	on May 23	Hours of Data:	717
Minimum Hourly Value:	13 %	on May 4 at hr 14	Hours of Missing Data:	27
Minimum Daily Value:	26.3 %	on May 1	Hours of Calibration:	0
Monthly Average:	56.2 %		Operational Uptime:	96.4

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23		
May 1	30	33	37	41	47	49	43	36	30	26	22	19	19	18	17	16	16	16	16	18	19	20	21	22	16	49	26.3		
May 2	24	25	28	33	34	36	39	37	37	40	42	47	59	59	52	46	42	40	41	49	65	77	82	88	24	88	46.8		
May 3	93	95	98	100	100	99	79	53	34	29	23	18	16	16	16	17	18	19	22	26	28	28	28	28	16	100	45.1		
May 4	32	41	42	49	52	48	36	28	26	24	22	18	15	14	13	13	13	14	16	21	23	26	28	29	13	52	26.8		
May 5	30	38	50	57	61	60	54	41	34	31	30	28	27	22	21	21	21	24	26	28	35	39	46	48	21	61	36.3		
May 6	51	55	61	66	68	67	62	56	50	44	40	36	31	28	26	26	28	29	31	34	39	39	40	49	26	68	44.0		
May 7	57	61	65	66	72	70	66	65	61	59	83	82	70	49	41	35	35	36	36	37	39	41	44	47	35	83	54.9		
May 8	50	55	58	69	78	79	69	61	52	50	47	44	62	50	42	36	35	37	38	41	48	53	58	58	35	79	52.9		
May 9	63	56	72	82	85	83	79	70	64	54	41	36	29	30	32	37	34	35	35	42	51	61	74	82	29	85	55.3		
May 10	88	92	91	92	91	88	79	57	45	38	34	63	67	53	48	33	30	32	34	50	66	78	86	90	30	92	63.5		
May 11	94	97	100	100	100	100	87	69	45	35	32	K	K	32	29	28	31	35	41	44	55	64	68	79	28	100	62.0		
May 12	86	90	90	76	77	66	65	46	35	K	27	26	24	24	23	23	23	24	26	31	41	52	60	69	23	90	48.0		
May 13	63	58	78	86	87	81	70	56	47	42	35	29	25	23	22	21	21	21	23	26	32	34	36	40	21	87	44.0		
May 14	45	50	51	54	60	59	53	45	40	33	28	27	25	23	21	19	20	20	21	26	36	36	36	38	19	60	36.1		
May 15	41	47	50	54	56	57	55	52	47	42	38	33	31	30	27	25	25	25	25	29	35	36	37	37	25	57	38.9		
May 16	40	43	45	62	69	66	61	60	50	40	34	N	N	N	N	N	N	N	N	N	N	N	N	N	34	69	NA		
May 17	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	69	60	58	56	59	60	62	63	66	69	66	68	56	69	NA
May 18	69	73	77	81	88	84	72	60	57	51	48	44	40	36	32	30	31	32	32	35	47	47	46	50	30	88	52.6		
May 19	53	61	67	69	69	65	61	58	51	43	40	35	31	28	27	28	28	28	36	46	52	51	54	59	27	69	47.5		
May 20	63	69	81	82	87	91	83	73	68	65	62	57	50	46	45	45	43	43	44	47	51	56	58	59	43	91	61.2		
May 21	59	61	64	74	76	77	78	76	72	66	62	59	56	53	49	47	47	50	55	60	66	73	78	80	47	80	64.1		
May 22	80	82	86	90	90	88	87	76	65	60	51	50	50	46	45	49	55	67	67	73	73	73	75	84	45	90	69.3		
May 23	92	97	100	100	98	97	98	100	99	98	97	96	93	88	84	80	81	83	85	88	91	93	94	95	80	100	92.8		
May 24	96	98	99	100	100	100	99	94	87	81	80	80	80	73	69	67	63	58	62	67	85	91	80	77	58	100	82.8		
May 25	80	87	93	99	100	97	88	78	75	74	76	73	69	66	61	65	67	70	69	70	78	82	87	98	61	100	79.3		
May 26	100	100	100	100	100	100	94	80	65	56	49	42	40	37	37	36	34	35	41	44	56	69	78	84	34	100	65.7		
May 27	89	93	98	100	100	92	80	71	55	45	44	40	38	37	38	38	38	41	68	92	99	98	87	79	37	100	69.2		
May 28	77	78	80	82	84	83	80	75	72	65	60	51	44	36	28	25	27	27	27	35	77	87	88	91	25	91	61.6		
May 29	91	88	96	99	100	94	70	52	36	27	24	27	27	27	28	26	27	61	80	84	85	93	96	100	24	100	64.0		
May 30	100	100	100	100	100	100	95	76	51	43	40	39	36	33	30	35	42	43	42	46	50	81	98	97	30	100	65.7		
May 31	100	100	100	100	100	100	99	90	78	67	54	46	47	37	34	36	37	36	35	39	76	92	94	95	34	100	70.5		
Diurnal Maximum	100	100	100	100	100	100	99	100	99	98	97	96	93	88	84	80	81	83	85	92	99	98	98	100					
Diurnal Average	67.9	70.8	75.2	78.8	81.0	79.2	72.7	63.0	54.3	49.2	45.5	45.3	43.5	39.1	36.4	35.3	35.7	38.0	41.2	46.4	55.5	61.3	64.1	67.3					

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
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 days is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



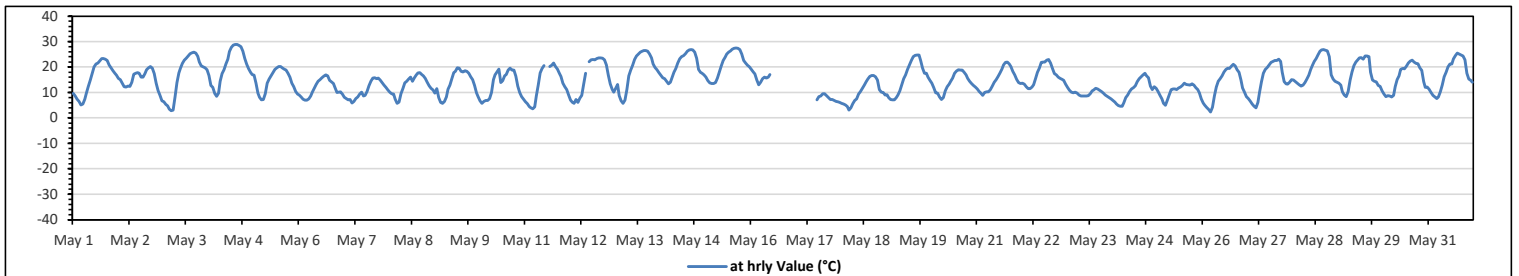
Lakeland Industry & Community Association
Tamarack Site - May 2023
Summary of Hourly Averages
AMBIENT TEMPERATURE (AT) in Degree Celsius

Maximum Hourly Value:	28.9 °C	on May 4 at hr 14	Hours in Service:	744
Maximum Daily Value:	21.2 °C	on May 15	Hours of Data:	717
Minimum Hourly Value:	2.4 °C	on May 26 at hr 4	Hours of Missing Data:	27
Minimum Daily Value:	9.7 °C	on May 23	Hours of Calibration:	0
Monthly Average:	14.8 °C		Operational Uptime:	96.4

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
May 1	9.6	8.6	7.4	6.5	5.2	5.4	7.4	9.7	12.4	14.8	17.4	20	21.2	21.5	22.5	23.3	23.4	23.1	22.6	20.9	19.7	18.6	17.5	16.8	5.2	23.4	15.6	
May 2	15.6	15	13.7	12.2	12.1	12.5	12.4	14.1	17.2	17.6	17.8	17.5	16	16	17.4	18.9	19.7	20.2	19.6	17.4	13.6	10.7	8.9	6.7	6.7	20.2	15.1	
May 3	6.4	5.3	4.7	3.5	2.8	3.1	8.3	13.9	17.7	19.6	21.4	22.7	23.5	24.3	25.3	25.6	25.8	25.5	24.2	22	20.5	20.1	19.7	18.9	2.8	25.8	16.9	
May 4	16.7	12.8	12	9.6	8.5	9.7	14.5	17.4	18.9	21.2	23.1	26.1	27.8	28.6	28.9	28.9	28.5	28	26.2	23.4	21.1	19.3	17.9	17.1	8.5	28.9	20.3	
May 5	16.8	13.6	9.8	8.1	7.1	7.3	9.5	13.6	15.3	16.6	17.8	19	19.7	20.2	20.2	19.8	19.2	18.8	17.6	16	13.6	12.2	10.4	9.4	7.1	20.2	14.7	
May 6	9	8.2	7.4	7	7	7.5	8.7	10.1	11.7	13.2	14.5	15.1	15.8	16.4	16.9	16.5	14.7	14.2	13.5	11.9	10	10.2	10.3	9.3	7.0	16.9	11.6	
May 7	8.1	7.6	7.1	7.2	5.9	6.5	7.7	8.3	9.3	10.2	8.6	8.9	10.5	12.6	14.5	15.7	15.9	15.5	15.7	14.9	13.9	12.9	12	11	5.9	15.9	10.9	
May 8	10.2	9.5	9.4	7.4	5.7	6.3	9.5	11.6	13.8	14.5	15.3	16	14.5	15.9	16.9	17.7	17.8	17.1	16.5	15.6	14	12.6	11.7	11	5.7	17.8	12.9	
May 9	9.8	11.5	7.9	6.2	5.8	6.5	8.3	11.3	12.9	15.4	17.8	18.4	19.7	19.6	18.4	18.1	18.6	18.3	17.6	16.1	15.1	12.8	9.9	8.4	5.8	19.7	13.5	
May 10	6.7	5.8	6.5	6.8	6.8	7.6	10	15	17	18.1	19.2	13.9	14.6	16.5	17.1	18.8	19.6	18.8	18.8	16.4	12.5	10	8.4	7.4	5.8	19.6	13.0	
May 11	6.4	5.6	4.5	4	3.6	4.4	8.7	13	17.7	19.5	20.6	K	K	20.2	20.7	21.5	20.2	19.2	17.6	16.3	13.6	12.3	11.2	9.1	3.6	21.5	13.2	
May 12	7	6.2	5.8	7.2	6.1	7.8	8.9	13.3	17.5	K	22.1	22.8	22.9	22.8	23.4	23.6	23.6	23.5	22.8	20.9	16.8	13.4	11.3	10.1	5.8	23.6	15.6	
May 13	11.7	13.2	8.8	6.7	5.7	7	11.2	16.5	18.8	20.7	22.9	24.3	25.2	25.8	26.2	26.5	26.5	26.2	25.1	23.6	21.2	19.9	18.9	17.8	5.7	26.5	18.8	
May 14	16.8	15.9	15.5	14.5	13.4	14	15.9	17.9	19.4	21.6	23.2	24	24.5	25.3	26.3	26.7	26.9	26.7	25.9	23.5	19.1	17.9	17.6	17	13.4	26.9	20.4	
May 15	16	14.6	13.8	13.5	13.5	13.9	15.7	18.1	20.4	22.6	23.9	25.1	25.9	26.4	27	27.4	27.5	27.4	26.9	25.2	22.6	21.6	20.7	20	13.5	27.5	21.2	
May 16	19.1	18.1	17.3	14.9	13.1	14	15.5	16	15.7	16	17.1	N	N	N	N	N	N	N	N	N	N	N	N	N	13.1	19.1	NA	
May 17	N	N	N	N	N	N	N	N	N	N	N	Y	7.1	8.4	8.7	9.5	8.8	8	7.3	7.2	6.8	6.5	6.4	6.1	6.1	9.5	NA	NA
May 18	5.8	5.4	5.1	4.5	3.1	3.9	5.6	6.9	7.5	9.3	10.4	11.7	13	14.3	15.3	16.3	16.7	16.7	16.2	14.9	11.2	10.2	10	9	3.1	16.7	10.1	
May 19	9.2	7.9	7.2	7.1	7.1	8	9.1	10.6	13.1	15.4	17	19	20.8	22.6	24	24.6	24.7	24.8	22.6	19.6	17.6	17.5	16	14.7	7.1	24.8	15.8	
May 20	13.6	11.9	9.9	9.7	8.2	7.2	8	10.6	12.2	13.3	14.4	15.7	17.6	18.5	18.9	18.8	18.8	18	16.9	15.6	14.5	13.5	12.8	12.1	7.2	18.9	13.8	
May 21	11.4	10.5	9.7	8.9	10	10.3	10.3	11.1	12.5	14	15.1	16.3	17.7	19.2	20.8	21.8	22	21.2	20.2	18.4	17	15.2	13.9	13.5	8.9	22.0	15.0	
May 22	13.7	13.3	12.3	11.6	11.6	12.1	13.1	15.5	18	19.6	21.8	22	21.9	22.7	22.9	21.5	19.5	17.4	17	16	15.6	15.2	14.7	13.3	11.6	22.9	16.8	
May 23	12	10.9	10.2	9.9	10.2	9.7	9	8.6	8.6	8.7	8.6	8.8	9.5	10.6	11	11.7	11.4	10.9	10.5	9.8	9	8.5	8	7.5	7.5	12.0	9.7	
May 24	6.9	6.3	5.5	4.9	4.6	4.6	6	7.9	9.1	10.5	11.4	11.9	12.6	14.3	15.4	16.1	17	17.6	16.6	15.9	12.5	11.1	12.2	11.7	4.6	17.6	10.9	
May 25	10.4	8.9	7.5	5.7	5	7	9.2	11.2	11.4	11.4	11.2	11.8	12.1	12.8	13.7	13.2	13.1	12.9	13.4	13	11.9	11.1	9.9	7.5	5.0	13.7	10.6	
May 26	5.9	5	4.1	3.3	2.4	4.2	8.6	12.1	14.5	15.5	16.6	18.1	19.1	19.6	19.4	20.3	21.1	20.4	18.9	17.9	14.9	11.8	10.2	8.4	2.4	21.1	13.0	
May 27	7.6	6.6	5.5	4.6	3.9	6.2	10	14.2	17.5	19.1	19.9	20.9	21.8	22.3	22.6	22.6	23.1	22.2	17.9	14.3	13.4	13.3	14	15.1	3.9	23.1	14.9	
May 28	14.9	14.3	13.7	13.1	12.5	12.9	13.9	15.3	16.8	19	20.6	22.3	23.4	24.9	26.2	26.7	26.8	26.6	26.4	24	16.9	15.3	14.5	14	12.5	26.8	19.0	
May 29	13.6	12.9	10.3	9	8.4	10.5	14.8	18.1	20.6	21.9	22.8	23.6	23.7	23.1	24.3	24.3	24.1	18	14.9	14.4	14.2	12.8	12.4	10.6	8.4	24.3	16.8	
May 30	9.3	8.4	8.8	8.6	8.3	8.9	12.3	15	16.6	19	19.4	19.3	20.3	21.5	22.4	22.7	22	21.4	21.3	19.8	18.7	14.3	12	12.1	8.3	22.7	15.9	
May 31	11.3	10	8.9	8.2	7.7	8.3	10.3	12.9	16.1	18	20.1	21.2	21.2	23.2	24.5	25.4	25.1	24.8	24.3	22.8	17.5	15.3	14.8	14	7.7	25.4	16.9	
Diurnal Maximum	19.1	18.1	17.3	14.9	13.5	14.0	15.9	18.1	20.6	22.6	23.9	26.1	27.8	28.6	28.9	28.9	28.5	28.0	26.9	25.2	22.6	21.6	20.7	20.0				
Diurnal Average	11.1	10.1	9.0	8.1	7.5	8.2	10.4	13.0	15.0	16.4	17.7	18.1	18.8	19.7	20.4	20.8	20.7	20.1	19.2	17.6	15.3	13.9	12.9	12.0				

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
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 days is not met.
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



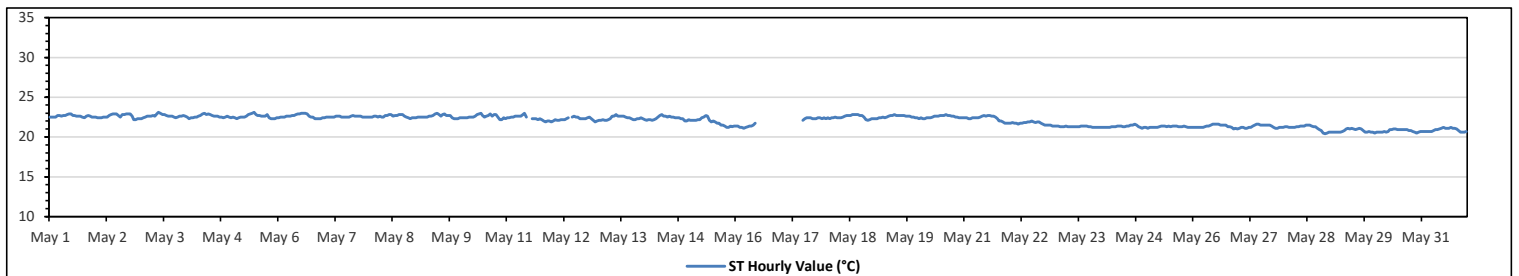
Lakeland Industry & Community Association
Tamarack Site - May 2023
Summary of Hourly Averages
STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:	23.1 °C	on May 3 at hr 9	Hours in Service:	744
Maximum Daily Value:	22.6 °C	on May 3	Hours of Data:	717
Minimum Hourly Value:	20.4 °C	on May 28 at hr 21	Hours of Missing Data:	27
Minimum Daily Value:	20.8 °C	on May 30	Hours of Calibration:	0
Monthly Average:	22.0 °C		Operational Uptime:	96.4

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23			
May 1	22.5	22.5	22.5	22.5	22.7	22.7	22.6	22.7	22.7	22.8	22.9	22.9	22.7	22.7	22.6	22.6	22.6	22.5	22.4	22.6	22.7	22.6	22.5	22.5	22.4	22.4	22.2	22.9	22.6	
May 2	22.5	22.4	22.4	22.4	22.5	22.5	22.5	22.7	22.8	22.9	22.9	22.9	22.7	22.5	22.8	22.8	22.9	22.9	22.9	22.6	22.2	22.2	22.3	22.3	22.2	22.2	22.2	22.3	22.3	
May 3	22.3	22.4	22.5	22.6	22.6	22.6	22.7	22.6	22.9	23.1	23.0	22.8	22.8	22.7	22.6	22.6	22.6	22.5	22.4	22.5	22.6	22.6	22.7	22.6	22.3	22.3	22.3	22.3	22.3	
May 4	22.5	22.3	22.4	22.4	22.5	22.5	22.6	22.7	22.9	23.0	22.8	22.9	22.8	22.7	22.6	22.6	22.6	22.5	22.5	22.4	22.5	22.6	22.5	22.4	22.5	22.6	22.7	22.6	22.6	
May 5	22.5	22.4	22.3	22.4	22.5	22.5	22.5	22.6	22.8	22.9	23.0	23.1	22.8	22.7	22.7	22.6	22.6	22.6	22.8	22.4	22.3	22.3	22.3	22.4	22.4	22.3	22.3	22.3	22.6	
May 6	22.4	22.5	22.5	22.5	22.6	22.6	22.6	22.7	22.7	22.8	22.9	22.9	23.0	23.0	23.0	22.9	22.6	22.5	22.5	22.3	22.3	22.3	22.3	22.3	22.3	22.4	22.3	22.3	22.6	
May 7	22.4	22.5	22.5	22.5	22.5	22.5	22.6	22.6	22.6	22.6	22.5	22.5	22.5	22.5	22.6	22.7	22.6	22.6	22.6	22.5	22.5	22.5	22.5	22.5	22.5	22.4	22.7	22.5	22.5	
May 8	22.5	22.5	22.6	22.6	22.5	22.6	22.5	22.5	22.7	22.7	22.8	22.8	22.6	22.7	22.7	22.8	22.8	22.8	22.6	22.5	22.4	22.3	22.4	22.4	22.3	22.4	22.4	22.3	22.8	22.6
May 9	22.4	22.5	22.5	22.5	22.5	22.5	22.5	22.6	22.6	22.7	22.9	23.0	22.8	22.6	22.8	22.9	22.7	22.7	22.7	22.4	22.3	22.3	22.3	22.4	22.3	22.3	22.3	22.3	22.6	22.6
May 10	22.4	22.4	22.4	22.4	22.5	22.5	22.5	22.6	22.8	22.9	23.0	22.7	22.5	22.6	22.7	22.9	22.6	22.8	22.8	22.5	22.2	22.2	22.4	22.4	22.3	22.2	22.2	22.4	22.3	22.6
May 11	22.4	22.4	22.5	22.5	22.6	22.6	22.6	22.6	22.8	23.0	22.5	K	K	22.3	22.3	22.3	22.2	22.3	22.2	22.0	21.9	22.0	22.0	21.9	21.9	21.9	21.9	23.0	22.4	22.4
May 12	22.0	22.2	22.1	22.1	22.2	22.2	22.2	22.3	22.4	K	22.5	22.6	22.5	22.5	22.3	22.3	22.3	22.3	22.4	22.5	22.0	21.9	22.0	21.9	21.9	21.9	21.9	22.6	22.3	22.3
May 13	22.1	22.1	22.2	22.1	22.1	22.2	22.3	22.6	22.6	22.8	22.6	22.6	22.6	22.6	22.5	22.4	22.4	22.3	22.2	22.2	22.3	22.3	22.4	22.4	22.3	22.1	22.8	22.4	22.4	22.4
May 14	22.2	22.1	22.2	22.2	22.1	22.2	22.3	22.5	22.7	22.8	22.6	22.6	22.5	22.6	22.5	22.5	22.4	22.4	22.4	22.4	22.3	22.3	22.0	22.0	22.2	22.0	22.8	22.4	22.4	22.4
May 15	22.1	22.1	22.1	22.1	22.2	22.2	22.4	22.5	22.7	22.6	22.1	21.9	22.0	21.9	21.7	21.7	21.5	21.5	21.4	21.2	21.2	21.4	21.3	21.4	21.2	21.2	22.7	21.9	21.9	21.9
May 16	21.4	21.4	21.2	21.2	21.1	21.2	21.3	21.4	21.4	21.5	21.7	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	21.1	21.7	NA	NA
May 17	N	N	N	N	N	N	N	N	N	N	Y	22.1	22.3	22.4	22.4	22.4	22.3	22.3	22.3	22.4	22.4	22.3	22.4	22.3	22.4	22.3	22.1	22.4	NA	NA
May 18	22.4	22.3	22.4	22.4	22.5	22.4	22.4	22.4	22.5	22.6	22.7	22.7	22.7	22.8	22.8	22.8	22.8	22.7	22.7	22.5	22.2	22.1	22.2	22.3	22.1	22.8	22.5	22.5	22.5	22.5
May 19	22.3	22.3	22.3	22.4	22.4	22.5	22.4	22.5	22.6	22.7	22.7	22.8	22.7	22.7	22.7	22.7	22.7	22.6	22.6	22.5	22.5	22.4	22.4	22.3	22.3	22.3	22.8	22.8	22.8	22.8
May 20	22.3	22.4	22.3	22.3	22.4	22.4	22.4	22.5	22.6	22.6	22.6	22.7	22.7	22.7	22.8	22.7	22.7	22.6	22.6	22.5	22.5	22.4	22.4	22.4	22.3	22.3	22.8	22.8	22.8	22.8
May 21	22.4	22.4	22.3	22.3	22.4	22.4	22.4	22.5	22.6	22.7	22.6	22.7	22.7	22.7	22.6	22.6	22.5	22.3	22.0	21.9	21.7	21.7	21.7	21.7	21.7	21.7	22.7	22.7	22.3	22.3
May 22	21.7	21.8	21.7	21.7	21.6	21.7	21.7	21.8	21.8	21.9	21.9	22.0	21.9	21.8	21.9	21.9	21.7	21.6	21.5	21.5	21.5	21.4	21.4	21.4	21.4	21.4	22.0	21.7	21.7	21.7
May 23	21.4	21.4	21.3	21.3	21.3	21.4	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.4	21.4	21.4	21.4	21.3	21.3	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.4	21.4	21.3	21.3
May 24	21.2	21.2	21.2	21.2	21.2	21.3	21.3	21.3	21.4	21.4	21.4	21.3	21.3	21.4	21.4	21.5	21.5	21.6	21.5	21.3	21.2	21.1	21.2	21.2	21.2	21.1	21.6	21.6	21.3	21.3
May 25	21.1	21.2	21.2	21.2	21.2	21.2	21.3	21.4	21.4	21.4	21.3	21.4	21.3	21.4	21.4	21.4	21.3	21.3	21.3	21.4	21.3	21.2	21.2	21.2	21.2	21.1	21.4	21.4	21.3	21.3
May 26	21.2	21.2	21.2	21.2	21.2	21.2	21.3	21.4	21.4	21.5	21.6	21.6	21.6	21.6	21.5	21.5	21.5	21.5	21.3	21.3	21.2	21.0	21.1	21.0	21.0	21.0	21.6	21.6	21.3	21.3
May 27	21.1	21.2	21.2	21.1	21.1	21.2	21.2	21.4	21.5	21.6	21.6	21.5	21.5	21.5	21.5	21.5	21.5	21.4	21.2	21.1	21.1	21.2	21.2	21.2	21.1	21.6	21.6	21.3	21.3	21.3
May 28	21.3	21.3	21.2	21.2	21.2	21.2	21.3	21.3	21.4	21.4	21.4	21.5	21.5	21.5	21.4	21.3	21.3	21.1	20.9	20.8	20.5	20.4	20.5	20.6	20.4	21.5	21.1	21.1	21.1	21.1
May 29	20.6	20.6	20.6	20.6	20.6	20.6	20.7	20.8	21.0	21.1	21.0	21.1	21.0	20.9	21.0	21.1	21.0	20.9	20.8	20.6	20.6	20.7	20.6	20.6	20.5	20.5	21.1	20.8	20.8	20.8
May 30	20.6	20.6	20.6	20.6	20.7	20.6	20.7	20.9	20.9	21.0	21.0	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.8	20.8	20.7	20.6	20.5	20.6	20.7	20.5	21.0	20.8	20.8	20.8
May 31	20.7	20.7	20.7	20.7	20.7	20.7	20.8	20.9	20.9	21.0	21.1	21.2	21.1	21.1	21.1	21.2	21.1	21.1	21.0	20.8	20.6	20.6	20.6	20.7	20.5	21.0	20.8	20.8	20.8	20.8
Diurnal Maximum	22.5	22.5	22.6	22.6	22.7	22.7	22.7	22.7	22.9	23.1	23.0	23.1	23.0	23.0	23.0	22.9	22.9	22.9	22.9	22.6	22.7	22.6	22.7	22.6	22.6	22.6	22.6	22.6	22.6	
Diurnal Average	21.9	21.9	21.9	21.9	21.9	22.0	22.1	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.1	22.1	22.0	21.9	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8

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

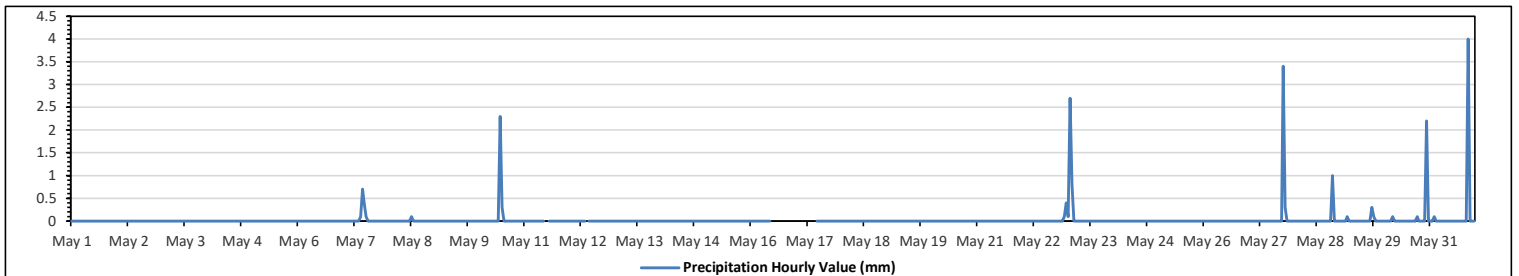
PRECIPITATION in mm

Maximum Hourly Value:	4.0 mm on May 31 at hr 20	Hours in Service:	744
Maximum Daily Value:	4.1 mm on May 31	Hours of Data:	717
Minimum Hourly Value:	0.0 mm on May 1 at hr 0	Hours of Missing Data:	27
Minimum Daily Value:	0.0 mm on May 1	Hours of Calibration:	0
Monthly Total:	19.8 mm	Operational Uptime:	96.4

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
May 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
May 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
May 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
May 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
May 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
May 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
May 7	0	0	0	0	0	0	0	0	0	0	0.1	0.7	0.4	0.1	0	0	0	0	0	0	0	0	0	0	0.0	0.7	1.3
May 8	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.1
May 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
May 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
May 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
May 12	0	0	0	0	0	0	0	0	0	0	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
May 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
May 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
May 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
May 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
May 17	N	N	N	N	N	N	N	N	N	N	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	NA
May 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
May 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
May 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
May 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
May 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.4	0.0	0.4	0.5
May 23	0.1	2.7	0.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	2.7	3.6
May 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
May 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
May 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
May 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.4	0.3	0	0	0	0.0	3.4	3.7
May 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.0	1.0	1.0
May 29	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.1	0	0	0	0	0	0.0	0.3	0.5
May 30	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	2.2	0	0.0	2.2	2.4
May 31	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0.0	4.0	4.1
Diurnal Maximum	0.1	2.7	0.8	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.7	2.3	0.3	0.0	0.0	0.0	0.0	0.3	3.4	0.3	4.0	0.0	2.2	0.4	0.0	4.0	4.1
Diurnal Average	0.0	0.1	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	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0

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

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



Lakeland Industry & Community Association

Tamarack Site - May 2023

Summary of Hourly Averages

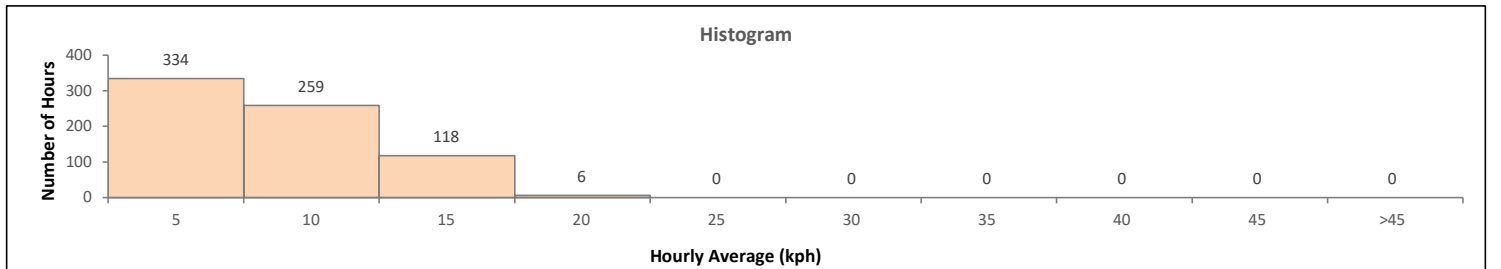
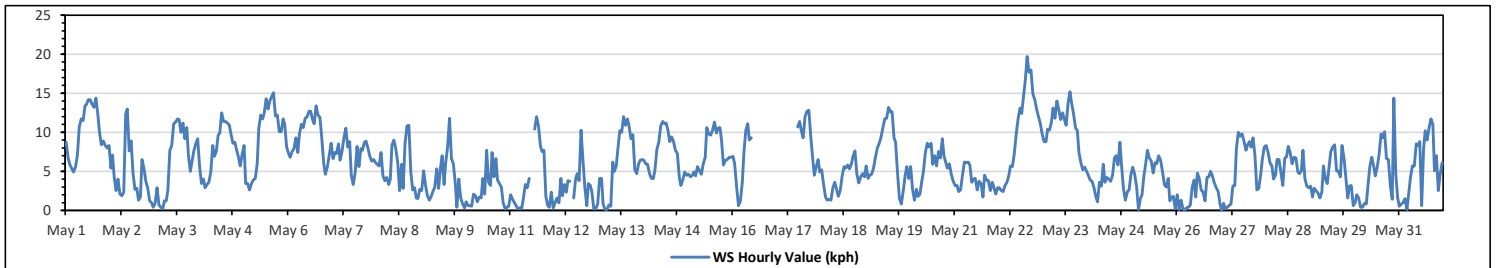
VECTOR WIND SPEED (VWS) in km/hr

Maximum Hourly Value:	19.7 kph	on May 22 at hr 15	Hours in Service:	744
Maximum Daily Value:	10.5 kph	on May 23	Hours of Data:	717
Minimum Hourly Value:	0.0 kph	on May 26 at hr 4	Hours of Missing Data:	27
Minimum Daily Value:	2.3 kph	on May 26	Hours of Calibration:	0
Monthly Average:	2.7 kph		Operational Uptime:	96.4

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
May 1	8.7	6.7	5.8	5.3	4.9	5.5	7.0	10.7	11.7	11.5	13.4	13.6	14.2	14.2	13.6	13.2	14.4	12.3	10.1	8.4	8.9	8.3	8.0	8.3	4.9	14.4	9.9	
May 2	5.4	7.1	4.3	2.5	4.0	2.1	1.9	2.3	12.3	13.0	7.6	8.9	4.7	2.7	2.8	1.3	1.7	6.5	5.4	3.7	2.8	1.2	1.0	0.4	0.4	13.0	4.4	
May 3	0.9	2.9	0.7	0.4	0.2	1.2	1.2	2.7	7.7	8.3	11.1	11.3	11.7	11.6	10.0	11.2	9.2	10.6	7.1	5.0	6.4	7.6	8.5	9.2	0.2	11.7	6.5	
May 4	5.6	3.4	4.0	2.9	3.3	3.6	4.9	8.3	6.9	7.5	9.6	9.9	12.5	11.4	11.4	11.2	10.9	9.8	8.6	8.7	7.7	6.7	5.7	7.2	2.9	12.5	7.6	
May 5	8.3	3.4	3.4	2.6	3.4	3.9	4.1	6.0	10.5	12.2	11.7	12.5	14.3	13.0	14.1	14.6	15.1	12.1	12.2	10.1	10.1	11.7	11.0	8.1	2.6	15.1	9.5	
May 6	7.3	6.8	7.5	7.9	9.3	7.4	9.8	11.0	10.6	11.8	12.0	12.7	12.7	11.6	11.1	13.4	12.2	11.9	9.2	6.0	4.6	5.5	7.0	8.6	4.6	13.4	9.5	
May 7	6.6	7.4	7.3	8.5	6.4	7.5	9.3	10.5	8.1	8.8	4.5	3.3	4.8	8.2	5.6	7.9	7.7	8.7	8.9	8.0	6.9	6.3	6.5	6.1	3.3	10.5	7.2	
May 8	5.9	5.7	7.4	4.4	3.8	4.2	3.3	4.0	8.3	9.0	7.9	6.2	2.5	5.9	2.8	8.5	10.8	10.9	4.9	2.6	2.9	1.6	1.5	2.7	1.5	10.9	5.3	
May 9	2.5	5.1	3.2	1.9	1.3	1.7	2.4	3.0	5.3	2.8	5.5	7.0	3.3	6.1	8.1	11.8	6.6	6.0	3.5	0.4	1.0	1.6	0.8	0.3	0.3	11.8	3.9	
May 10	1.1	0.6	0.6	0.5	2.1	1.9	1.1	1.7	1.6	4.1	2.1	7.7	3.6	3.2	7.4	4.3	6.6	3.9	3.4	3.0	0.9	0.2	0.4	0.5	0.2	7.7	2.6	
May 11	2.0	1.4	1.0	0.6	0.2	0.3	0.3	1.6	3.3	2.9	4.1	K	K	K	10.4	12.0	10.8	8.3	7.5	7.7	1.8	0.6	0.4	2.3	0.3	0.2	12.0	3.6
May 12	1.0	1.6	1.0	4.1	1.9	3.3	2.3	3.8	3.7	K	1.6	4.0	4.7	3.8	10.3	6.4	2.9	0.6	3.4	3.2	2.3	0.2	0.2	0.8	0.2	10.3	2.9	
May 13	4.1	4.1	0.8	0.1	0.1	0.7	0.5	6.2	5.0	5.7	7.8	10.2	10.0	12.0	10.9	11.7	10.8	9.2	9.7	5.2	4.7	6.0	6.4	6.5	0.1	12.0	6.2	
May 14	6.4	6.0	5.9	4.7	4.1	4.1	5.2	7.8	8.7	10.8	11.4	11.1	11.2	10.2	8.8	9.4	8.8	7.7	7.3	4.3	3.2	3.9	4.9	4.5	3.2	11.4	7.1	
May 15	4.6	4.3	4.5	4.9	4.4	5.6	5.1	4.6	6.0	6.8	10.6	9.8	9.6	10.3	11.3	9.9	10.5	10.6	9.0	5.8	6.4	6.5	6.8	6.8	4.3	11.3	7.3	
May 16	6.9	6.0	3.1	0.6	1.2	3.6	7.4	10.3	11.1	9.0	9.3	N	N	N	N	N	N	N	N	N	N	N	N	N	0.6	11.1	NA	
May 17	N	N	N	N	N	N	N	N	N	N	Y	10.7	11.4	10.3	9.3	12.0	12.7	12.8	9.4	7.1	4.5	5.6	6.5	4.9	4.5	12.8	NA	
May 18	5.2	3.3	1.7	1.3	1.4	1.3	2.9	3.6	2.6	1.8	2.5	4.4	5.6	5.4	5.8	5.3	6.0	6.9	7.6	4.6	3.5	4.3	4.7	4.3	1.3	7.6	4.0	
May 19	5.7	4.1	4.5	4.6	5.4	6.8	8.0	8.6	9.3	10.5	11.7	11.8	13.2	12.6	12.6	9.3	8.7	4.8	1.5	0.8	2.5	4.5	5.6	4.1	0.8	13.2	7.1	
May 20	5.6	2.7	1.3	2.7	1.8	2.1	3.5	5.0	7.4	8.6	8.1	8.6	5.9	7.0	5.7	7.5	6.7	9.2	7.0	6.1	5.4	6.0	4.6	3.7	1.3	9.2	5.5	
May 21	3.2	3.2	2.4	2.6	4.5	6.2	6.1	6.2	5.8	3.6	4.0	4.1	2.6	3.7	3.4	1.7	4.5	3.9	3.8	2.5	3.6	2.8	2.1	2.9	1.7	6.2	3.7	
May 22	2.9	2.5	2.4	3.2	3.6	4.5	5.7	5.6	7.3	9.8	11.8	13.1	12.4	14.7	16.5	19.7	17.7	18.0	14.9	14.2	12.9	12.1	11.2	9.8	2.4	19.7	10.3	
May 23	8.8	8.8	10.4	10.3	11.3	13.1	11.8	14.0	12.9	11.6	12.5	11.7	10.9	13.7	15.2	13.7	12.4	10.6	10.2	7.4	6.1	5.2	5.5	5.0	5.0	5.0	15.2	10.5
May 24	4.4	3.9	3.7	2.9	1.7	1.1	3.6	3.1	5.9	3.6	4.2	4.0	3.7	4.5	6.7	7.0	5.8	8.7	5.8	2.8	1.3	2.3	2.7	4.5	1.1	8.7	4.1	
May 25	5.5	4.6	3.1	0.1	1.5	2.0	4.4	6.1	7.7	6.7	6.3	4.8	6.1	6.0	7.0	6.4	5.0	3.3	3.0	4.1	1.2	1.7	1.8	0.2	0.1	7.7	4.1	
May 26	2.0	0.1	1.3	0.2	0.0	0.3	0.4	0.7	3.0	3.9	1.7	4.8	4.1	2.6	2.3	1.2	4.2	4.3	5.0	4.4	3.5	2.9	2.4	0.8	0.0	5.0	2.3	
May 27	0.0	0.9	0.2	0.4	0.6	0.8	3.1	3.2	7.9	10.0	9.5	9.8	8.8	7.7	8.4	8.8	8.1	9.3	7.0	2.6	2.8	4.6	6.5	8.1	0.0	10.0	5.4	
May 28	8.3	7.4	6.1	5.7	4.0	4.5	6.5	6.5	4.9	3.2	6.6	6.9	8.2	7.4	6.0	6.8	6.7	4.9	4.7	5.1	7.7	4.1	3.1	2.9	2.9	8.3	5.8	
May 29	3.1	1.7	2.8	2.5	2.2	1.6	2.3	5.7	4.0	3.4	5.3	7.5	8.1	8.4	5.1	5.0	4.3	8.3	6.8	4.2	1.6	3.1	3.2	0.6	0.6	8.4	4.2	
May 30	1.0	2.0	1.6	0.4	0.4	0.9	0.8	3.1	5.6	6.8	5.7	4.4	5.5	7.2	9.8	9.3	10.1	6.6	6.5	3.2	1.4	14.4	4.7	1.6	0.4	14.4	4.7	
May 31	0.5	0.8	1.0	1.5	0.1	2.0	4.2	5.7	5.7	8.5	8.3	8.8	0.6	7.9	10.2	9.0	10.5	11.7	11.0	5.1	7.0	2.5	4.7	6.1	0.1	11.7	5.6	
Diurnal Maximum	8.8	8.8	10.4	10.3	11.3	13.1	11.8	14.0	12.9	13.0	13.4	13.6	14.3	14.7	16.5	19.7	17.7	18.0	14.9	14.2	12.9	14.4	11.2	9.8				
Diurnal Average	4.5	4.0	3.4	3.0	3.0	3.5	4.3	5.7	7.0	7.5	7.6	8.4	7.8	8.5	8.8	8.9	8.7	8.4	7.2	5.0	4.6	4.8	4.7	4.3				

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

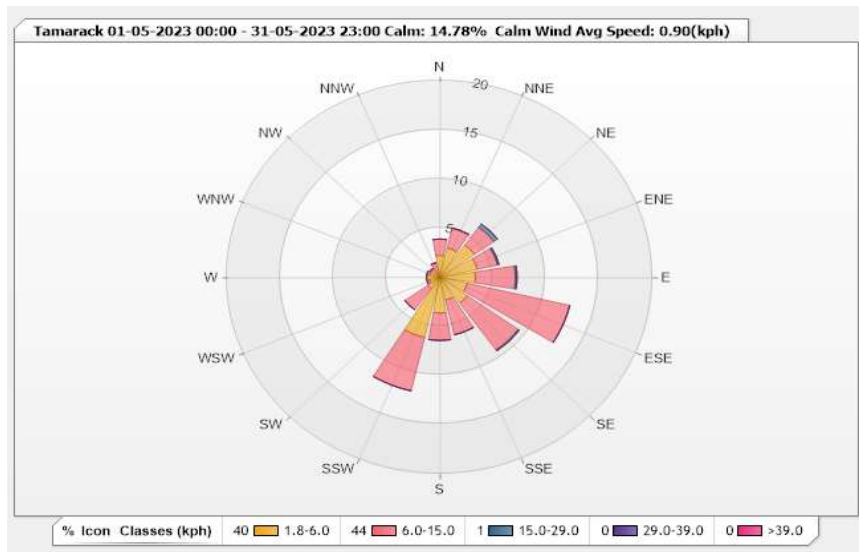


Station: Tamarack Monitor: WDS [kph] Monthly: 05-2023

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

Calm (WS<1.8kph): 14.78% Valid Data: 96.37%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	2.23	1.67	0	0	0	3.9
NNE	3.07	2.09	0	0	0	5.16
NE	4.04	2.23	0.42	0	0	6.69
ENE	3.63	1.95	0.14	0	0	5.72
E	3.35	3.77	0.14	0	0	7.26
ESE	2.65	9.9	0	0	0	12.55
SE	3.21	5.86	0.14	0	0	9.21
SSE	2.37	3.63	0	0	0	6
S	3.63	2.79	0	0	0	6.42
SSW	6.28	5.58	0	0	0	11.86
SW	1.39	2.65	0	0	0	4.04
WSW	0.98	0.28	0	0	0	1.26
W	1.26	0	0	0	0	1.26
WNW	0.98	0.28	0	0	0	1.26
NW	0.98	0.14	0	0	0	1.12
NNW	0.42	1.12	0	0	0	1.54
Summary	40.47	43.94	0.84	0	0	85.25



Lakeland Industry & Community Association

Tamarack Site - May 2023

Summary of Hourly Averages

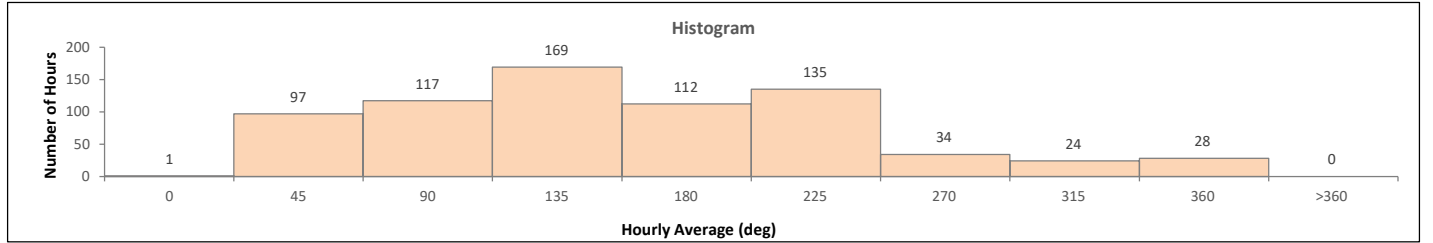
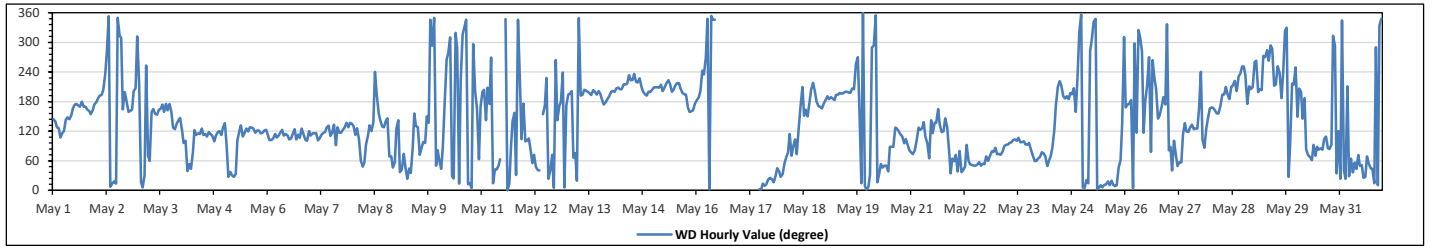
WIND DIRECTION (VWD) in sector

Monthly Average:	124 (ESE) degree	Hours in Service:	744
		Hours of Data:	717
		Hours of Missing Data:	4
		Hours of Calibration:	0
		Operational Uptime:	96.4

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
May 1	SE	SE	SE	SE	ESE	ESE	ESE	SE	SE	SE	SSE	SSE	S	S	S	SSE	S	SSE	SSE	SSE	SSE	SSE	S	157	SSE	
May 2	S	S	S	S	SSW	SW	W	N	N	NNE	NNE	NNE	N	NW	NW	SSE	SSW	S	SSE	SSE	SSE	SSW	SSW	NW	345	NNW
May 3	SW	NNE	N	NNE	WSW	ENE	ENE	SSE	SSE	SSE	SSE	SSE	S	SSE	S	SSE	S	SSE	SE	ESE	SE	SE	SE	SE	156	SSE
May 4	ESE	E	E	NE	NE	NE	ENE	ESE	ESE	ESE	ESE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	110	ESE
May 5	SE	E	NNE	NE	NNE	NNE	NNE	E	ESE	SE	ESE	ESE	SE	ESE	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	116	ESE
May 6	ESE	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	111	ESE
May 7	ESE	ESE	ESE	ESE	E	ESE	ESE	ESE	ESE	SE	SE	ESE	ESE	SE	E	SE	ESE	ESE	ESE	SE	SE	SE	SE	SE	120	ESE
May 8	SE	ESE	SE	ESE	ENE	NE	NE	E	ESE	SE	ESE	SE	WSW	S	SSE	SE	SE	SE	SE	ENE	ENE	NE	NE	NE	121	ESE
May 9	SE	SE	NE	NE	ENE	NE	NNE	NE	NE	E	SSE	SE	ENE	E	E	E	SSE	SE	NNW	NNW	N	NE	E	96	E	
May 10	ENE	NE	E	S	W	W	NW	NNE	NNE	NW	NNW	NNE	SW	NW	NNW	NNW	NNE	N	NNW	SSW	SSE	ENE	SSE	341	NNW	
May 11	SSW	SSW	SE	SSW	S	W	NW	NE	NE	NE	ENE	K	K	NNW	N	NNE	E	SE	SSE	NNE	NNW	SW	ESE	48	NE	
May 12	E	E	ESE	E	NE	ENE	NE	NE	NE	K	SSE	S	SW	NNE	NE	ENE	N	W	SE	S	S	WSW	N	77	ENE	
May 13	SSW	SSW	SSW	ENE	ENE	NNE	NNW	S	SSW	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	S	S	S	S	195	SSW	
May 14	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	214	SSW
May 15	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	200	SSW
May 16	S	S	SSW	WSW	SW	W	NNW	N	N	NNW	NNW	N	N	N	N	N	N	N	N	N	N	N	N	N	NA	NA
May 17	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	NNE	NNE	NNE	NNE	NNE	NE	NE	NNE	NA	NA
May 18	NNE	NE	ENE	ENE	ESE	ENE	E	ESE	ENE	ESE	S	SSW	SSE	SSE	SSE	S	SSW	SW	SSW	S	S	SSE	SSE	161	SSE	
May 19	S	S	S	S	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	WSW	W	SSE	NNE	N	N	199	SSW	
May 20	N	NNE	WNW	WNW	N	NNE	NNE	NE	NE	NE	NE	E	E	E	SE	SE	ESE	ESE	ESE	E	ESE	E	E	77	ENE	
May 21	ENE	ENE	E	E	SE	ESE	SE	ESE	E	ENE	SE	ESE	SE	SE	SE	SE	ESE	ESE	SE	SE	E	NE	ENE	114	ESE	
May 22	ENE	ENE	NE	E	NE	NE	NE	E	ENE	NE	NE	NE	NE	ENE	NE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	59	ENE
May 23	ENE	ENE	ENE	ENE	E	E	E	E	E	ESE	E	ESE	E	E	E	E	E	E	E	ENE	ENE	ENE	ENE	ENE	90	E
May 24	ENE	ENE	ENE	ENE	NE	ENE	ENE	E	ESE	S	SSW	SW	SSW	S	S	S	S	SSW	SSW	SSW	SSE	SW	NW	N	168	SSE
May 25	N	N	NNE	NNE	W	WNW	NNW	NNW	N	N	N	NNE	NNE	NNE	N	NNE	NNE	N	NE	ENE	SE	NW	N	7	N	
May 26	SSE	S	S	S	N	WNW	ESE	NW	NW	W	ESE	S	SSW	W	ENE	W	SW	SSW	SE	SSE	SSE	S	S	NNW	194	SSW
May 27	E	E	NE	E	ENE	NE	ENE	NE	ESE	SE	ESE	SE	SE	ESE	SE	SE	SSE	WSW	ESE	E	SE	SE	SSE	129	SE	
May 28	SSE	SSE	SSE	SSE	S	SSW	SSW	SSW	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	SSW	SSW	199	SSW
May 29	WSW	W	SSW	SSW	SSW	W	WNW	W	WNW	WNW	SSW	SSW	SSW	WSW	SW	S	SW	NW	NNW	NNE	E	SW	SSW	WSW	254	WSW
May 30	SSE	SSW	SSW	SE	S	E	ENE	ENE	E	ENE	E	E	E	E	E	ESE	E	E	E	NW	WNW	NE	ESE	83	E	
May 31	NNE	NNW	NE	NNE	SSW	NNE	ENE	NE	NE	ENE	NE	NE	NNE	NNE	ENE	NE	NE	NE	NNE	NNW	N	NNW	NNW	36	NE	

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

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



Lakeland Industry & Community Association

Tamarack Site - May 2023

Summary of Hourly Averages

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

WIND SPEED		
Maximum Hourly Value:	19.7 kph on May 22 at hr 15	Hours in Service: 744
Maximum Daily Value:	10.5 kph on May 23	Hours of Data: 717
Minimum Hourly Value:	0.0 kph on May 26 at hr 4	Hours of Missing Data: 27
Minimum Daily Value:	2.3 kph on May 26	Hours of Calibration: 0
Monthly Average:	2.7 kph	Operational Uptime: 96.4

WIND DIRECTION		
Monthly Average:	124 degree (ESE)	

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
May 1	8.7	6.7	5.8	5.3	4.9	5.5	7.0	10.7	11.7	11.5	13.4	13.6	14.2	14.2	13.6	13.2	14.4	12.3	10.1	8.4	8.9	8.3	8.0	8.3	4.9	14.4	9.9
May 2	5.4	7.1	4.3	2.5	4.0	2.1	1.9	2.3	12.3	13.0	7.6	8.9	4.7	2.7	2.8	1.3	1.7	6.5	5.4	3.7	2.8	1.2	1.0	0.4	0.4	13.0	4.4
May 3	0.9	2.9	0.7	0.4	0.2	1.2	1.2	2.7	7.7	8.3	11.1	11.3	11.7	11.6	10.0	11.2	9.2	10.6	7.1	5.0	6.4	7.6	8.5	9.2	0.2	11.7	6.5
May 4	5.6	3.4	4.0	2.9	3.3	3.6	4.9	8.3	6.9	7.5	9.6	9.9	12.5	11.4	11.4	11.2	10.9	9.8	8.6	8.7	7.7	6.7	5.7	7.2	2.9	12.5	7.6
May 5	8.3	3.4	3.4	2.6	3.4	3.9	4.1	6.0	10.5	12.2	11.7	12.5	14.3	13.0	14.1	14.6	15.1	12.1	12.2	10.1	10.1	11.7	11.0	8.1	2.6	15.1	9.5
May 6	7.3	6.8	7.5	7.9	9.3	7.4	9.8	11.0	10.6	11.8	12.0	12.7	12.7	11.6	11.1	13.4	12.2	11.9	9.2	6.0	4.6	5.5	7.0	8.6	4.6	13.4	9.5
May 7	6.6	7.4	7.3	8.5	6.4	7.5	9.3	10.5	8.1	8.8	4.5	3.3	4.8	8.2	5.6	7.9	7.7	8.7	8.9	8.0	6.9	6.3	6.5	6.1	3.3	10.5	7.2
May 8	5.9	5.7	7.4	4.4	3.8	4.2	3.3	4.0	8.3	9.0	7.9	6.2	2.5	5.9	2.8	8.5	10.8	10.9	4.9	2.6	2.9	1.6	1.5	2.7	1.5	10.9	5.3
May 9	2.5	5.1	3.2	1.9	1.3	1.7	2.4	3.0	5.3	2.8	5.5	7.0	3.3	6.1	8.1	11.8	6.6	6.0	3.5	0.4	4.0	1.6	0.8	0.3	0.3	11.8	3.9
May 10	1.1	0.6	0.6	0.5	2.1	1.9	1.1	1.7	1.6	4.1	2.1	7.7	3.6	3.2	7.4	4.3	6.6	3.9	3.4	3.0	0.9	0.2	0.4	0.5	0.2	7.7	2.6
May 11	2.0	1.4	1.0	0.6	0.2	0.3	0.3	1.6	3.3	2.9	4.1	K	K	10.4	12.0	10.8	8.3	7.5	7.7	1.8	0.6	0.4	2.3	0.3	0.2	12.0	3.6
May 12	1.0	1.6	1.0	4.1	1.9	3.3	2.3	3.8	3.7	K	1.6	4.0	4.7	3.8	10.3	6.4	2.9	0.6	3.4	3.2	2.3	0.2	0.2	0.8	0.2	10.3	2.9
May 13	4.1	4.1	0.8	0.1	0.1	0.7	0.5	6.2	5.0	5.7	7.8	10.2	10.0	12.0	10.9	11.7	10.8	9.2	9.7	5.2	4.7	6.0	6.4	6.5	0.1	12.0	6.2
May 14	6.4	6.0	5.9	4.7	4.1	4.1	5.2	7.8	8.7	10.8	11.4	11.1	11.2	10.2	8.8	9.4	8.8	7.7	7.3	4.3	3.2	3.9	4.9	4.5	3.2	11.4	7.1
May 15	4.6	4.3	4.5	4.9	4.4	5.6	5.1	4.6	6.0	6.8	10.6	9.8	9.6	10.3	11.3	9.9	10.5	10.6	9.0	5.8	6.4	6.5	6.8	6.8	4.3	11.3	7.3
May 16	6.9	6.0	3.1	0.6	1.2	3.6	7.4	10.3	11.1	9.0	9.3	N	N	N	N	N	N	N	N	N	N	N	N	N	0.6	11.1	NA
May 17	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	4.5	12.8	NA
May 18	5.2	3.3	1.7	1.3	1.4	1.3	2.9	3.6	2.6	1.8	2.5	4.4	5.6	5.4	5.8	5.3	6.0	6.9	7.6	4.6	3.5	4.3	4.7	4.3	1.3	7.6	4.0
May 19	5.7	4.1	4.5	4.6	5.4	6.8	8.0	8.6	9.3	10.5	11.7	11.8	13.2	12.6	12.6	9.3	8.7	4.8	1.5	0.8	2.5	4.5	5.6	4.1	0.8	13.2	7.1
May 20	5.6	2.7	1.3	2.7	1.8	2.1	3.5	5.0	7.4	8.6	8.1	8.6	5.9	7.0	5.7	7.5	6.7	9.2	7.0	6.1	5.4	6.0	4.6	3.7	1.3	9.2	5.5
May 21	3.2	3.2	2.4	2.6	4.5	6.2	6.1	6.2	5.8	3.6	4.0	4.1	2.6	3.7	3.4	1.7	4.5	3.9	3.8	2.5	3.6	2.8	2.1	2.9	1.7	6.2	3.7
May 22	2.9	2.5	2.4	3.2	3.6	4.5	5.7	5.6	7.3	9.8	11.8	13.1	12.4	14.7	16.5	19.7	17.7	18.0	14.9	14.2	12.9	12.1	11.2	9.8	2.4	19.7	10.3
May 23	8.8	8.8	10.4	10.3	11.3	13.1	11.8	14.0	12.9	11.6	12.5	11.7	10.9	13.7	15.2	13.7	12.4	10.6	10.2	7.4	6.1	5.2	5.5	5.0	5.0	15.2	10.5
May 24	4.4	3.9	3.7	2.9	1.7	1.1	3.6	3.1	5.9	3.6	4.2	4.0	3.7	4.5	6.7	7.0	5.8	8.7	5.8	2.8	1.3	2.3	2.7	4.5	1.1	8.7	4.1
May 25	5.5	4.6	3.1	0.1	1.5	2.0	4.4	6.1	7.7	6.7	6.3	4.8	6.1	6.0	7.0	6.4	5.0	3.3	3.0	4.1	1.2	1.7	1.8	0.2	0.1	7.7	4.1
May 26	2.0	0.1	1.3	0.2	0.0	0.3	0.4	0.7	3.0	3.9	1.7	4.8	4.1	2.6	2.3	1.2	4.2	4.3	5.0	4.4	3.5	2.9	2.4	0.8	0.0	5.0	2.3
May 27	0.0	0.9	0.2	0.4	0.6	0.8	3.1	3.2	7.9	10.0	9.5	9.8	8.8	7.7	8.4	8.8	8.1	9.3	7.0	2.6	2.8	4.6	6.5	8.1	0.0	10.0	5.4
May 28	8.3	7.4	6.1	5.7	4.0	4.5	6.5	6.5	4.9	3.2	6.6	6.9	8.2	7.4	6.0	6.8	6.7	4.9	4.7	5.1	7.7	4.1	3.1	2.9	2.9	8.3	5.8
May 29	3.1	1.7	2.8	2.5	2.2	1.6	2.3	5.7	4.0	3.4	5.3	7.5	8.1	8.4	5.1	5.0	4.3	8.3	6.8	4.2	1.6	3.1	3.2	0.6	0.6	8.4	4.2
May 30	1.0	2.0	1.6	0.4	0.4	0.9	0.8	3.1	5.6	6.8	5.7	4.4	5.5	7.2	9.8	9.3	10.1	6.6	6.5	3.2	1.4	14.4	4.7	1.6	0.4	14.4	4.7
May 31	0.5	0.8	1.0	1.5	0.1	2.0	4.2	5.7	5.7	8.5	8.3	8.8	0.6	7.9	10.2	9.0	10.5	11.7	11.0	5.1	7.0	2.5	4.7	6.1	0.1	11.7	5.6

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

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

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

Lakeland Industry & Community Association
Tamarack Site - May 2023
Summary of Hour Standard Deviations

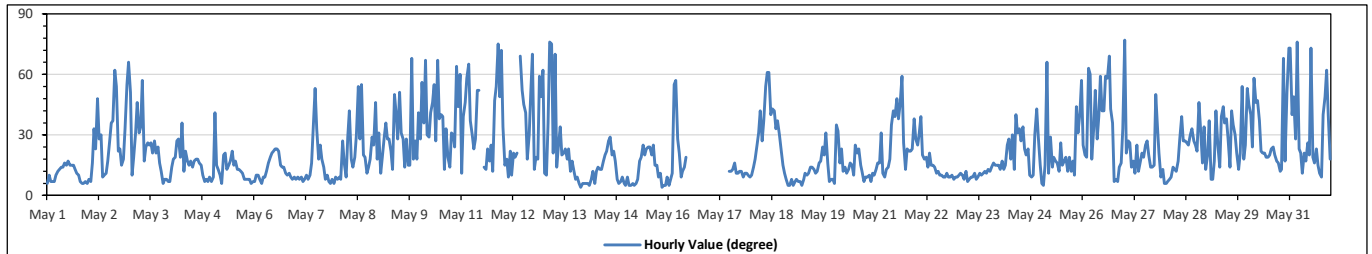
STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

Maximum Hourly Value: 77 degree on May 27 at hr 0		Hours in Service: 744	
Minimum Hourly Value: 4 degree on May 13 at hr 21		Hours of Data: 717	
		Hours of Missing Data: 27	
		Hours of Calibration: 0	
		Operational Uptime: 96.4	

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			23	
May 1	6	10	7	7	7	10	12	13	14	14	16	15	17	15	15	15	13	11	10	7	6	6	7	6	6	17	
May 2	8	7	16	33	23	48	28	30	9	10	11	17	27	36	37	62	54	22	23	15	18	33	55	66	7	66	
May 3	51	10	19	31	46	31	34	57	17	24	26	25	26	21	27	21	24	16	12	6	8	8	7	7	6	57	
May 4	14	18	19	27	28	19	36	12	22	17	15	17	14	17	18	18	16	15	10	7	8	7	9	7	7	36	
May 5	9	41	15	13	10	6	20	21	13	15	17	22	15	17	13	13	12	11	8	8	8	8	6	7	6	41	
May 6	7	10	10	8	6	9	9	12	16	19	21	22	23	23	22	15	14	14	11	10	11	9	8	9	6	23	
May 7	8	9	8	9	7	8	10	8	10	16	33	53	33	18	25	18	14	8	10	7	6	8	6	9	6	53	
May 8	8	9	8	27	16	9	29	42	18	14	19	30	54	28	55	20	19	11	14	18	29	25	46	18	8	55	
May 9	31	11	19	29	36	28	28	22	13	50	39	28	51	31	28	14	28	15	15	68	18	27	18	41	11	68	
May 10	28	56	36	67	30	29	41	46	55	27	67	38	40	39	13	33	19	14	31	30	24	64	44	60	13	67	
May 11	11	39	46	58	65	37	30	23	28	52	52	K	K	K	14	13	23	17	25	12	47	54	75	49	72	11	75
May 12	34	15	18	9	22	10	21	19	21	K	69	52	45	41	18	30	51	70	13	19	18	59	49	62	9	70	
May 13	11	10	36	76	75	21	70	14	24	34	20	21	23	18	23	12	17	12	8	9	6	4	6	6	4	76	
May 14	6	6	5	8	12	6	12	14	13	13	17	20	22	27	29	20	22	17	8	6	7	9	6	5	5	29	
May 15	9	5	5	6	5	6	8	17	19	25	20	23	24	24	20	25	15	15	9	11	4	5	5	9	4	25	
May 16	5	8	11	55	57	28	21	9	12	14	19	N	N	N	N	N	N	N	N	N	N	N	N	N	N	5	57
May 17	N	N	N	N	N	N	N	N	N	N	Y	12	12	13	16	11	11	12	12	9	11	11	10	9	9	16	9
May 18	10	14	18	25	31	42	27	37	54	61	61	40	43	42	33	37	30	23	15	11	8	5	5	8	5	61	
May 19	5	7	8	7	7	5	8	11	10	11	14	14	13	11	12	16	17	24	20	31	16	7	8	8	5	31	
May 20	6	35	32	16	23	12	14	11	13	16	15	10	25	21	23	15	12	7	9	9	10	7	11	10	6	35	
May 21	13	16	16	31	11	9	13	14	18	35	42	39	48	38	45	59	26	13	23	22	22	23	38	28	9	59	
May 22	25	31	39	20	18	19	14	21	15	15	14	11	12	10	10	9	9	11	9	10	8	9	9	8	8	39	
May 23	10	11	10	8	12	7	8	9	9	11	8	9	11	10	11	12	11	13	12	14	16	15	15	15	7	16	
May 24	13	17	13	15	25	28	18	30	13	40	31	33	27	34	23	20	23	10	9	10	30	43	29	15	9	43	
May 25	6	5	15	66	11	29	14	19	17	16	12	26	15	17	19	12	19	12	17	10	44	31	41	57	5	66	
May 26	25	20	19	63	60	18	33	52	28	39	59	42	42	59	58	69	43	36	7	8	7	14	16	33	7	69	
May 27	77	21	27	26	14	17	11	25	12	16	21	19	25	27	20	14	14	15	50	35	21	9	13	6	6	77	
May 28	6	7	8	9	14	13	12	17	28	39	27	27	26	25	30	33	27	25	22	46	33	16	34	13	6	46	
May 29	20	37	8	8	17	42	25	14	39	44	36	38	28	14	42	35	30	21	13	21	54	18	25	53	8	54	
May 30	45	40	24	58	46	47	37	22	21	21	19	19	20	23	24	20	17	16	12	13	68	17	51	73	12	73	
May 31	73	40	49	28	76	23	21	11	21	17	26	20	73	19	16	23	15	11	9	40	49	62	40	18	9	76	
Diurnal Minimum	5	5	5	6	5	5	8	8	9	10	8	9	11	10	10	9	9	7	7	6	4	4	4	5	5		
Diurnal Maximum	77	56	49	76	76	48	70	57	61	69	53	73	59	58	69	54	70	50	68	68	75	55	73				

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

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



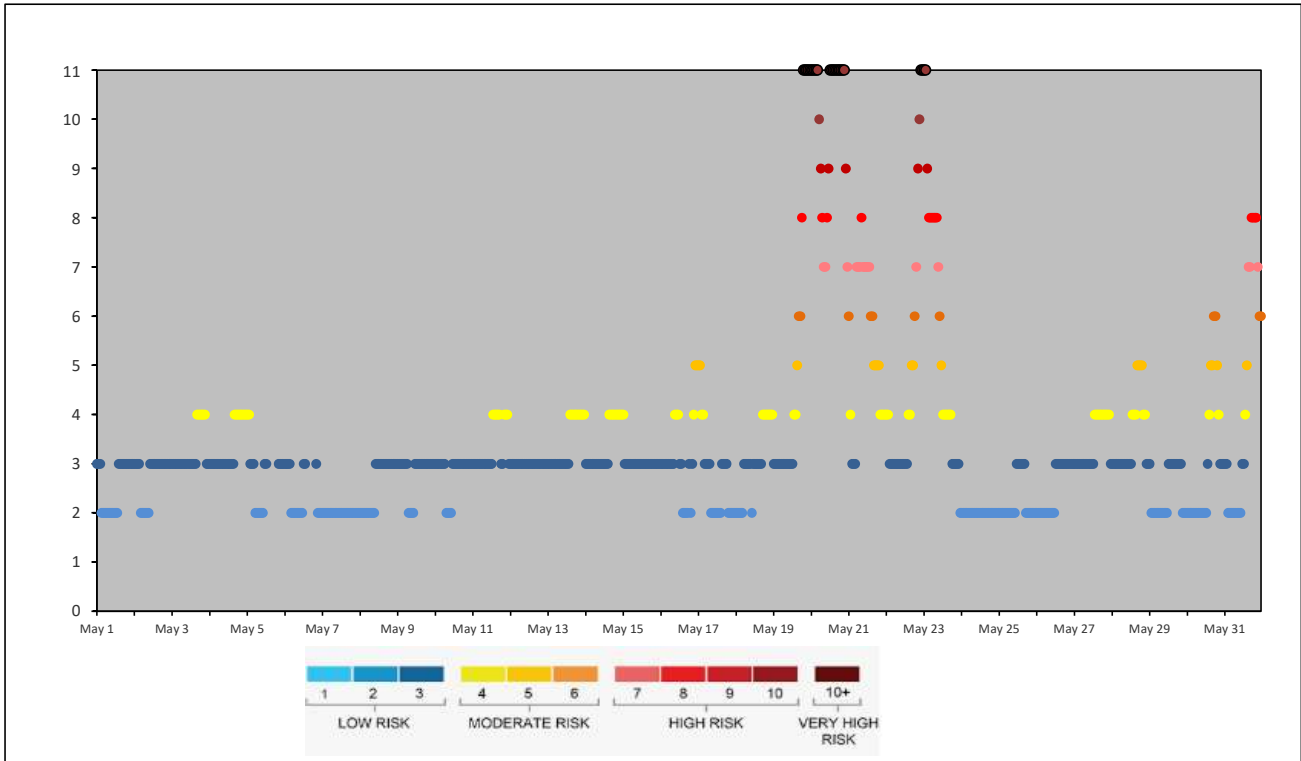
ST. LINA STATION

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - May 2023

AIR QUALITY HEALTH INDEX

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

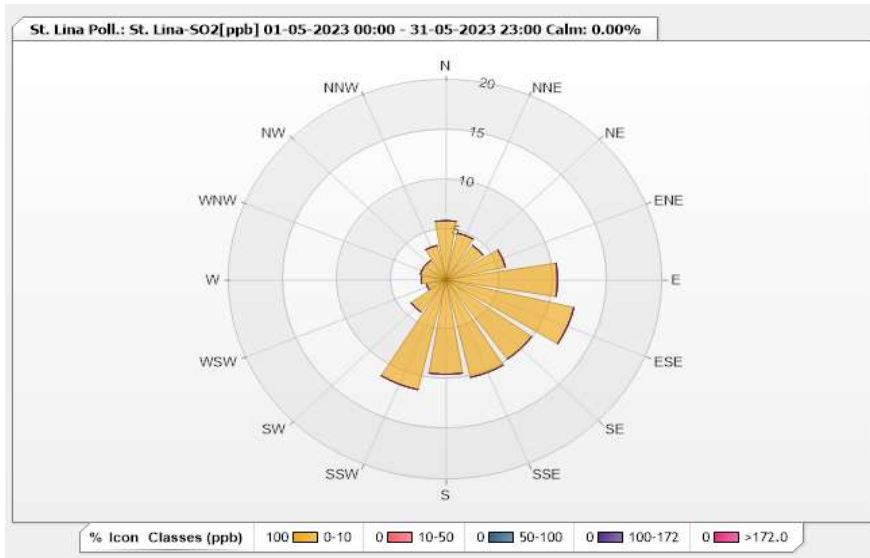


Station: St. Lina Poll.: St. Lina-SO2[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 95.16% Calm Avg: 0.00 [ppm]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	5.93	0	0	0	0	5.93
NNE	4.8	0	0	0	0	4.8
NE	4.24	0	0	0	0	4.24
ENE	5.65	0	0	0	0	5.65
E	10.31	0	0	0	0	10.31
ESE	12.15	0	0	0	0	12.15
SE	9.75	0	0	0	0	9.75
SSE	10.03	0	0	0	0	10.03
S	9.46	0	0	0	0	9.46
SSW	11.3	0	0	0	0	11.3
SW	3.95	0	0	0	0	3.95
WSW	1.84	0	0	0	0	1.84
W	2.26	0	0	0	0	2.26
WNW	2.4	0	0	0	0	2.4
NW	2.4	0	0	0	0	2.4
NNW	3.53	0	0	0	0	3.53
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - May 2023

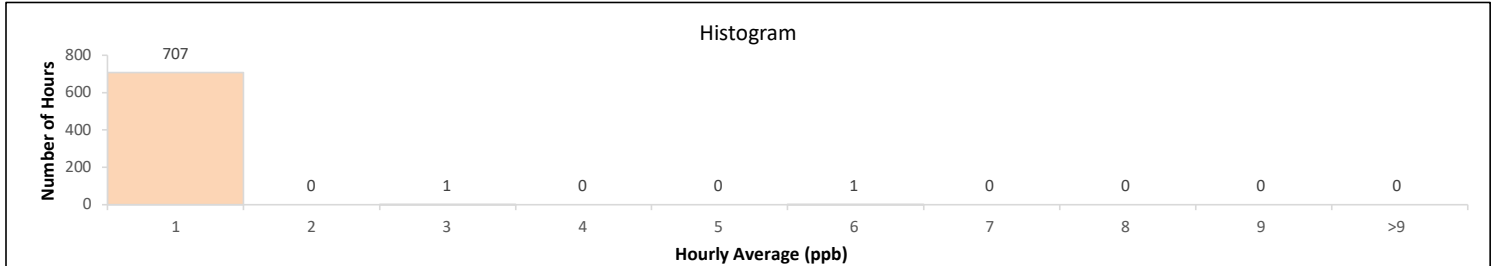
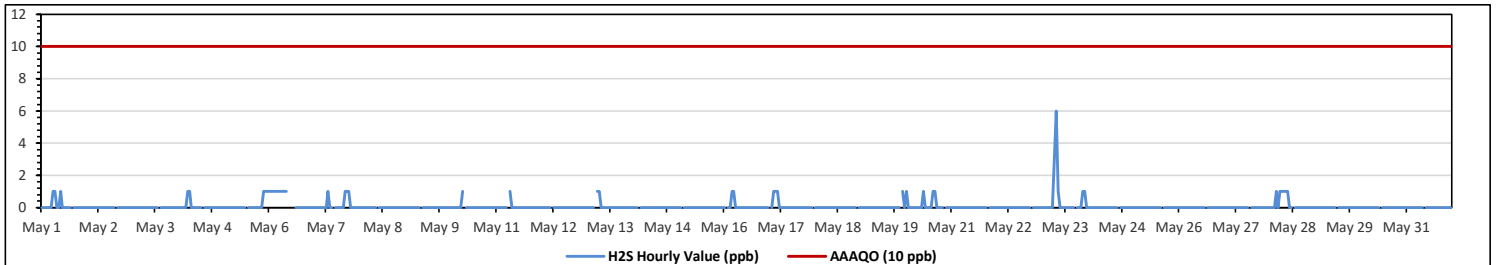
Summary of Hourly Averages

HYDROGEN SULPHIDE (H₂S) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 10 ppb, 24-Hour 3 ppb																																							
Number of 1-Hour Exceedances:										0															Number of 24-Hour Exceedances:										0				
Maximum Hourly Value:										6 ppb on May 23 at hr 7										Hours in Service:										744									
Maximum Daily Value:										1.0 ppb on May 6										Hours of Data:										709									
Minimum Hourly Value:										0 ppb on May 1 at hr 0										Hours of Missing Data:										0									
Minimum Daily Value:										0.0 ppb on May 1										Hours of Calibration:										35									
Monthly Average:										0.1 ppb										Operational Uptime:										100.0									
Day	Hourly Period Starting at (MST)																							Daily	Daily	Daily													
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average												
May 1	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0											
May 2	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											
May 3	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											
May 4	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0											
May 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	1	1	1	0											
May 6	1	1	1	1	1	1	1	1	1	1	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0											
May 7	0	0	0	0	0	0	0	1	0	0	S	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1											
May 8	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											
May 9	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											
May 10	0	0	0	0	0	0	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1											
May 11	0	0	0	0	0	0	S	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1											
May 12	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											
May 13	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											
May 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											
May 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											
May 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0											
May 17	S	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1											
May 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											
May 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0											
May 20	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1											
May 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											
May 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0											
May 23	0	0	0	0	0	0	3	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	6												
May 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											
May 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											
May 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											
May 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											
May 28	0	0	0	0	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1											
May 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											
May 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0											
May 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											
Diurnal Maximum	1	1	1	1	1	1	3	6	1	1	1	0	0	0	1	1	1	1	1	0	0	0	1	1	1	1	1	1											
Diurnal Average	0.1	0.0	0.1	0.1	0.2	0.3	0.4	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	0.1	0.1	0.0	0.0	0.0	0.0											

C Monthly Calibration **S** Daily Zero-Span Check **Q** Quality Assurance
K Collection Error **ND** 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.

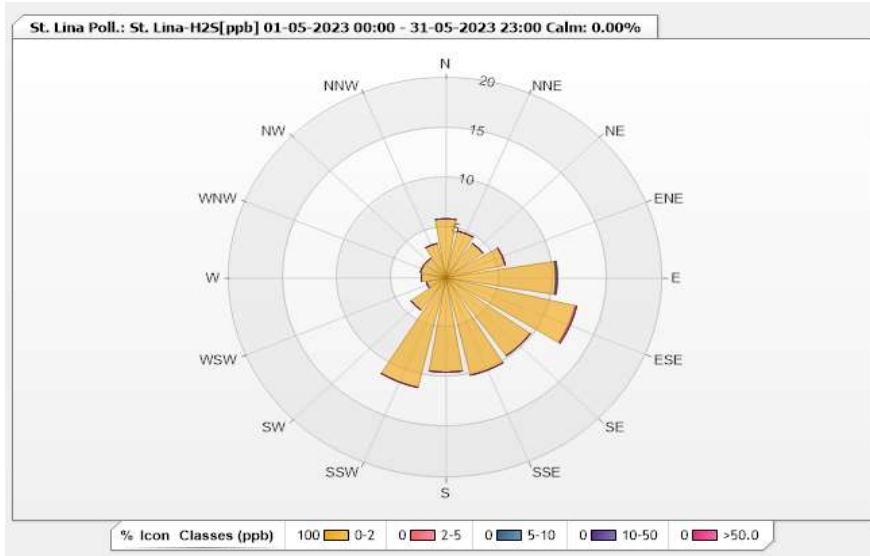


Station: St. Lina Poll.: St. Lina-H2S[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 95.30% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	5.92	0	0	0	0	5.92
NNE	4.8	0	0	0	0	4.8
NE	4.23	0	0	0	0	4.23
ENE	5.64	0	0	0	0	5.64
E	10.16	0	0.14	0	0	10.3
ESE	12.27	0.14	0	0	0	12.41
SE	9.59	0	0	0	0	9.59
SSE	10.01	0	0	0	0	10.01
S	9.45	0	0	0	0	9.45
SSW	11.28	0	0	0	0	11.28
SW	3.95	0	0	0	0	3.95
WSW	1.83	0	0	0	0	1.83
W	2.26	0	0	0	0	2.26
WNW	2.4	0	0	0	0	2.4
NW	2.4	0	0	0	0	2.4
NNW	3.53	0	0	0	0	3.53
Summary	100	0.14	0.14	0	0	100



Lakeland Industry & Community Association

St. Lina Site - May 2023

Summary of Hourly Averages

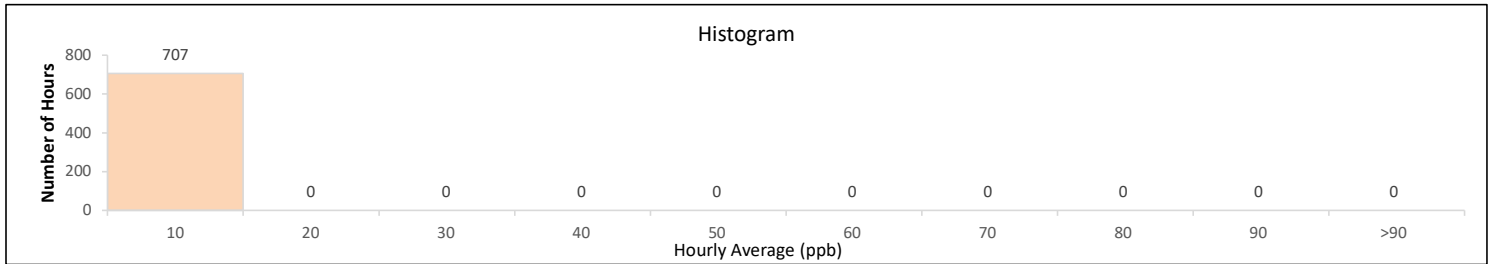
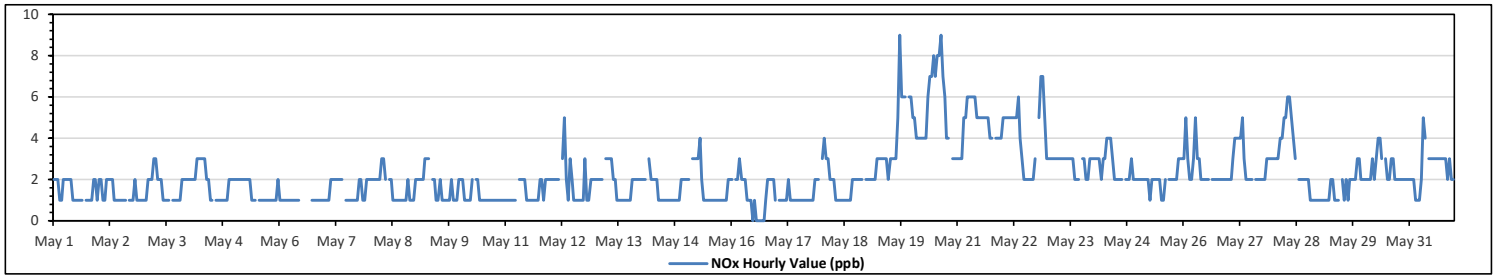
OXIDES OF NITROGEN (NOx) in ppb

Maximum Hourly Value:	9 ppb	on May 19 at hr 17	Hours in Service:	744
Maximum Daily Value:	5.4 ppb	on May 20	Hours of Data:	707
Minimum Hourly Value:	0 ppb	on May 16 at hr 11	Hours of Missing Data:	0
Minimum Daily Value:	1.0 ppb	on May 6	Hours of Calibration:	37
Monthly Average:	2.2 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	
May 1	2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	S	1	1	1	1	2	2	1	1	2	1	1.4
May 2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	S	1	1	1	2	1	1	1	1	1	2	1.3
May 3	1	1	2	2	2	3	3	2	2	1	1	1	1	1	S	1	1	1	1	1	2	2	2	2	1	3	1.6	
May 4	2	2	2	2	3	3	3	3	3	2	2	1	1	S	1	1	1	1	1	1	1	2	2	2	2	1	3	1.8
May 5	2	2	2	2	2	2	2	2	2	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1.4
May 6	1	1	1	1	1	1	1	1	1	1	1	S	C	C	C	C	C	1	1	1	1	1	1	1	1	1	1.0	
May 7	1	1	1	2	2	2	2	2	2	2	S	1	1	1	1	1	1	1	1	2	2	1	1	2	2	1	2	1.5
May 8	2	2	2	2	2	2	3	3	3	S	2	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	3	1.6
May 9	2	2	2	2	2	3	3	3	S	2	2	1	1	2	1	1	1	1	1	1	2	1	1	1	2	1	3	1.7
May 10	2	2	1	1	1	1	2	S	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.2	
May 11	1	1	1	1	1	1	S	3	5	2	1	3	2	1	1	1	1	1	1	1	2	2	1	2	2	2	1.4	
May 12	2	2	2	2	2	S	3	3	3	5	2	1	3	2	1	1	1	1	1	1	3	1	1	2	2	2	1.9	
May 13	2	2	2	2	S	3	3	3	3	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	3	1.8
May 14	2	2	2	S	3	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1.5	
May 15	2	2	S	3	3	3	3	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1.7	
May 16	2	S	2	2	3	2	2	2	1	1	0	1	0	1	0	0	0	0	0	1	2	2	2	2	1	0	3	1.3
May 17	S	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	S	1	2	1.2
May 18	3	4	3	3	2	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	S	S	2	1	4	1.8
May 19	2	2	2	2	2	3	3	3	3	3	3	2	3	3	3	3	5	9	6	6	6	6	S	6	6	2	9	3.7
May 20	5	5	4	4	4	4	4	4	6	7	7	8	7	8	8	9	7	6	4	4	S	S	3	3	3	3	9	5.4
May 21	3	3	3	5	5	6	6	6	6	6	5	5	5	5	5	5	4	4	4	4	S	4	4	4	4	3	6	4.7
May 22	5	5	5	5	5	5	5	6	4	3	2	2	2	2	2	2	2	2	2	S	5	7	7	5	3	2	7	4.1
May 23	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	S	3	3	3	2	2	3	3	2	3	2.8
May 24	3	3	3	3	2	3	3	4	4	4	3	2	2	2	2	2	S	2	2	2	2	2	3	2	2	2	4	2.6
May 25	2	2	2	2	2	2	1	2	2	2	2	1	1	2	S	2	2	2	2	2	2	2	3	3	3	1	3	2.0
May 26	3	5	3	2	2	3	5	3	3	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	2	5	2.5
May 27	2	2	3	4	4	4	4	5	3	2	2	2	2	2	S	2	2	2	2	2	2	2	3	3	3	2	5	2.7
May 28	3	3	3	4	4	5	5	6	6	5	4	3	S	2	2	2	2	2	2	2	1	1	1	1	1	1	6	3.0
May 29	1	1	1	1	1	1	2	2	1	1	1	S	2	1	2	1	2	2	2	2	2	3	3	2	2	1	3	1.6
May 30	2	2	2	2	3	2	3	4	4	3	S	3	2	2	3	3	2	2	2	2	2	2	2	2	2	2	4	2.4
May 31	2	2	2	1	1	1	2	5	4	S	3	3	3	3	3	3	3	3	3	3	3	3	2	3	2	2	5	2.6
Diurnal Maximum	5	5	5	5	5	6	6	6	6	7	7	8	7	8	8	9	7	9	6	6	6	7	7	6	6	6	6	
Diurnal Average	2.2	2.3	2.2	2.3	2.4	2.6	2.9	3.1	2.7	2.3	2.1	1.9	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.2	2.1	2.1	2.1	

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

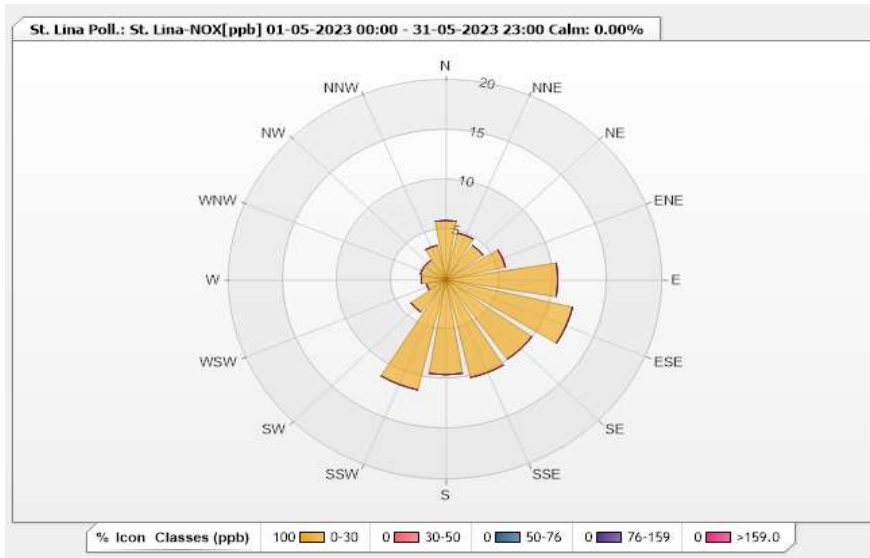


Station: St. Lina Poll.: St. Lina-NOX[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 95.03% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	5.94	0	0	0	0	5.94
NNE	4.81	0	0	0	0	4.81
NE	4.24	0	0	0	0	4.24
ENE	5.66	0	0	0	0	5.66
E	10.33	0	0	0	0	10.33
ESE	12.02	0	0	0	0	12.02
SE	9.76	0	0	0	0	9.76
SSE	10.04	0	0	0	0	10.04
S	9.48	0	0	0	0	9.48
SSW	11.32	0	0	0	0	11.32
SW	3.96	0	0	0	0	3.96
WSW	1.84	0	0	0	0	1.84
W	2.26	0	0	0	0	2.26
WNW	2.4	0	0	0	0	2.4
NW	2.4	0	0	0	0	2.4
NNW	3.54	0	0	0	0	3.54
Summary	100	0	0	0	0	100

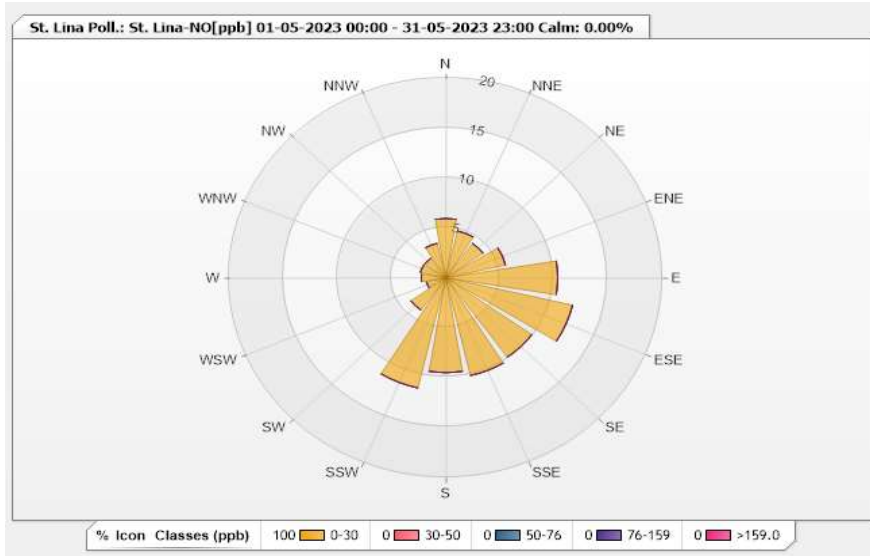


Station: St. Lina Poll.: St. Lina-NO[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 95.03% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	5.94	0	0	0	0	5.94
NNE	4.81	0	0	0	0	4.81
NE	4.24	0	0	0	0	4.24
ENE	5.66	0	0	0	0	5.66
E	10.33	0	0	0	0	10.33
ESE	12.02	0	0	0	0	12.02
SE	9.76	0	0	0	0	9.76
SSE	10.04	0	0	0	0	10.04
S	9.48	0	0	0	0	9.48
SSW	11.32	0	0	0	0	11.32
SW	3.96	0	0	0	0	3.96
WSW	1.84	0	0	0	0	1.84
W	2.26	0	0	0	0	2.26
WNW	2.4	0	0	0	0	2.4
NW	2.4	0	0	0	0	2.4
NNW	3.54	0	0	0	0	3.54
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - May 2023

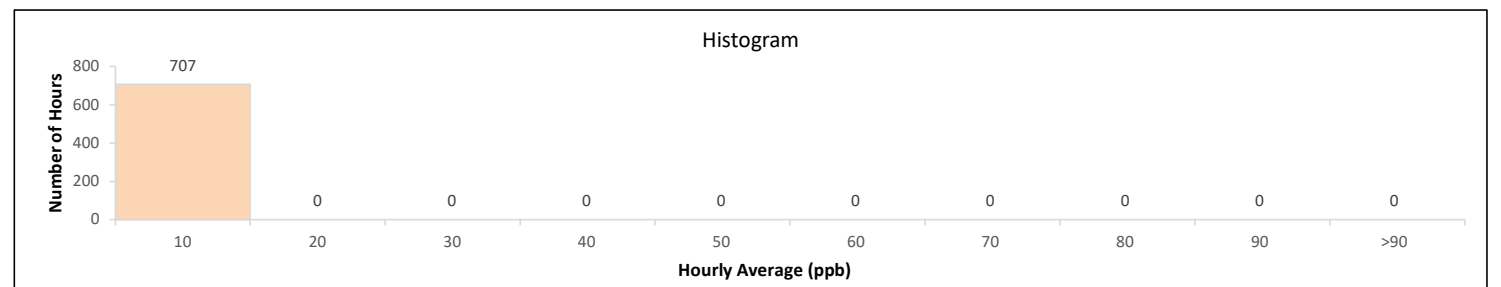
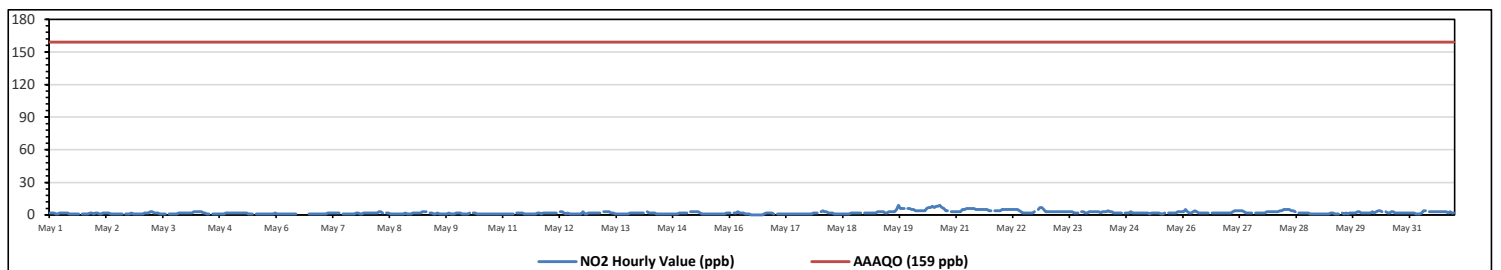
Summary of Hourly Averages

NITROGEN DIOXIDE (NO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb																												
Number of 1-Hour Exceedances: 0																												
Maximum Hourly Value: 9 ppb on May 19 at hr 17										Hours in Service: 744																		
Maximum Daily Value: 5.4 ppb on May 20										Hours of Data: 707																		
Minimum Hourly Value: 0 ppb on May 16 at hr 11										Hours of Missing Data: 0																		
Minimum Daily Value: 1.0 ppb on May 6										Hours of Calibration: 37																		
Monthly Average: 2.2 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				
May 1	2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	S	1	1	1	1	2	2	1	1	2	1.4	
May 2	2	2	1	1	2	2	2	2	1	1	1	1	1	1	1	S	1	1	1	2	1	1	1	1	1	1	1.3	
May 3	1	1	2	2	2	3	3	2	2	2	1	1	1	1	S	1	1	1	1	2	2	2	2	2	1	3	1.6	
May 4	2	2	2	2	3	3	3	3	3	2	2	1	1	S	1	1	1	1	1	1	1	2	2	2	1	3	1.8	
May 5	2	2	2	2	2	2	2	2	2	1	1	1	S	1	1	1	1	1	1	1	1	1	1	2	1	2	1.4	
May 6	1	1	1	1	1	1	1	1	1	1	S	C	C	C	C	C	C	1	1	1	1	1	1	1	1	1	1.0	
May 7	1	1	1	2	2	2	2	2	2	S	1	1	1	1	1	1	1	1	2	2	1	1	2	2	1	2	1.5	
May 8	2	2	2	2	2	2	3	3	2	S	2	2	1	1	1	1	1	1	1	2	1	1	1	1	1	3	1.6	
May 9	2	2	2	2	2	3	3	3	S	S	2	2	1	1	2	1	1	1	1	2	1	1	1	2	1	3	1.7	
May 10	2	2	1	1	1	1	2	3	S	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.2	
May 11	1	1	1	1	1	1	S	2	2	2	2	1	1	1	1	1	1	1	1	2	2	1	2	2	2	1	1.4	
May 12	2	2	2	2	2	S	3	3	3	2	1	2	1	1	1	1	1	1	3	1	1	2	2	2	1	3	1.7	
May 13	2	2	2	2	S	3	3	3	3	3	2	2	1	1	1	1	1	1	1	2	2	2	2	2	1	3	1.8	
May 14	2	2	2	S	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	3	1.5	
May 15	2	2	S	3	3	3	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	3	1.7	
May 16	2	S	2	2	3	2	2	2	1	1	0	0	0	0	0	0	0	0	1	2	2	2	2	1	0	3	1.2	
May 17	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	S	1	1.1	
May 18	3	4	3	3	2	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	S	2	1	4	1.8	
May 19	2	2	2	2	2	2	3	3	3	3	2	2	3	3	3	3	5	9	6	6	6	S	6	6	2	9	3.7	
May 20	5	5	4	4	4	4	4	4	6	7	7	8	7	8	8	9	7	6	4	4	S	3	3	3	3	9	5.4	
May 21	3	3	3	5	5	6	6	6	6	5	5	5	5	5	5	5	4	4	S	4	4	4	4	4	3	6	4.7	
May 22	5	5	5	5	5	5	5	5	5	4	3	2	2	2	2	2	3	S	5	7	7	5	3	2	7	4.1		
May 23	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	S	S	3	3	2	2	3	3	2	3	2.8	
May 24	3	3	3	3	2	3	3	3	3	4	3	3	2	2	2	2	S	2	2	2	3	2	2	2	2	4	2.5	
May 25	2	2	2	2	2	2	1	2	2	2	2	2	1	1	2	S	2	2	2	2	2	2	3	3	3	1	3	2.0
May 26	3	5	3	2	2	3	4	3	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	5	2.4	
May 27	2	2	3	4	4	4	4	4	3	2	2	2	2	2	S	2	2	2	2	2	2	3	3	3	2	4	2.7	
May 28	3	3	3	4	4	5	5	5	5	4	4	3	S	2	2	2	2	2	2	2	1	1	1	1	1	5	2.8	
May 29	1	1	1	1	1	1	2	2	1	1	1	S	2	1	2	1	2	2	2	2	2	3	3	2	2	1	3	1.6
May 30	2	2	2	2	3	2	3	4	4	3	S	3	2	2	3	3	2	2	2	2	2	2	2	2	2	4	2.4	
May 31	2	2	2	1	1	1	2	4	4	S	3	3	3	3	3	3	3	3	3	3	2	3	2	2	1	4	2.5	
Diurnal Maximum	5	5	5	5	5	6	6	6	6	7	8	7	8	8	8	9	7	9	6	6	7	7	6	6				
Diurnal Average	2.2	2.3	2.2	2.3	2.4	2.5	2.8	2.8	2.6	2.2	2.1	1.9	1.8	1.8	1.8	1.8	1.9	1.9	1.9	2.0	2.0	2.1	2.2	2.1				

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

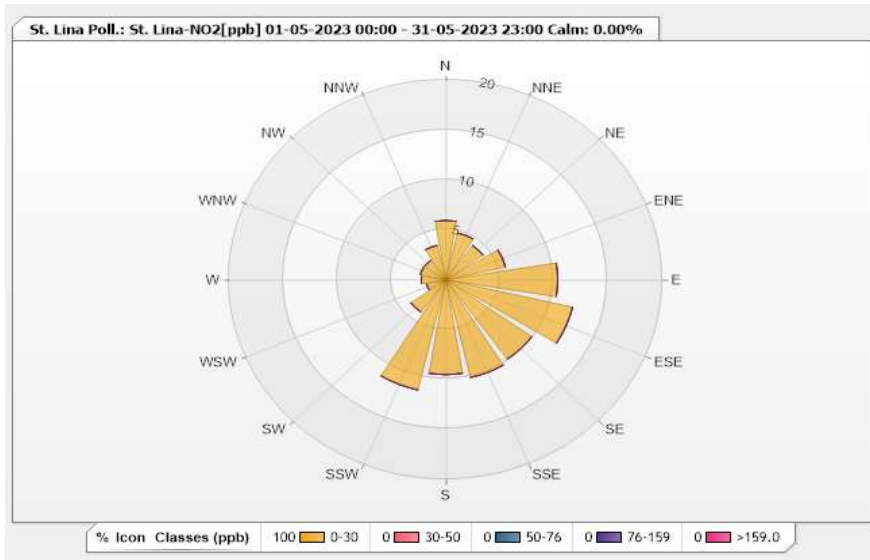


Station: St. Lina Poll.: St. Lina-NO2[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 95.03% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	5.94	0	0	0	0	5.94
NNE	4.81	0	0	0	0	4.81
NE	4.24	0	0	0	0	4.24
ENE	5.66	0	0	0	0	5.66
E	10.33	0	0	0	0	10.33
ESE	12.02	0	0	0	0	12.02
SE	9.76	0	0	0	0	9.76
SSE	10.04	0	0	0	0	10.04
S	9.48	0	0	0	0	9.48
SSW	11.32	0	0	0	0	11.32
SW	3.96	0	0	0	0	3.96
WSW	1.84	0	0	0	0	1.84
W	2.26	0	0	0	0	2.26
WNW	2.4	0	0	0	0	2.4
NW	2.4	0	0	0	0	2.4
NNW	3.54	0	0	0	0	3.54
Summary	100	0	0	0	0	100



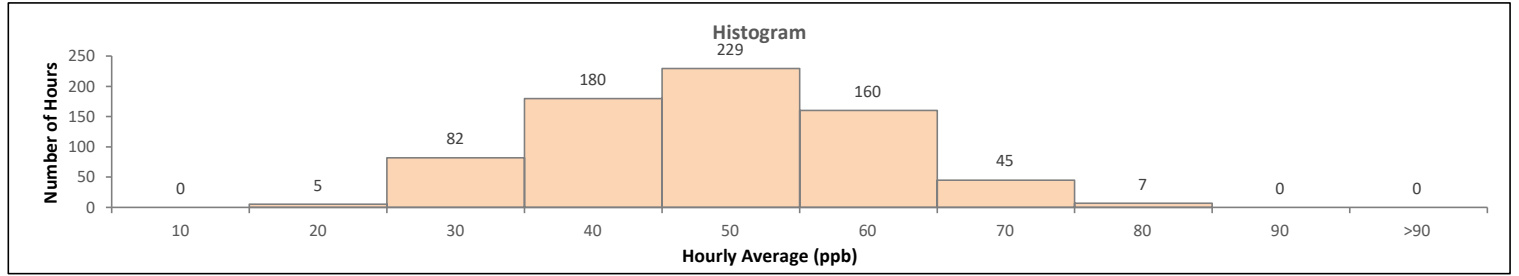
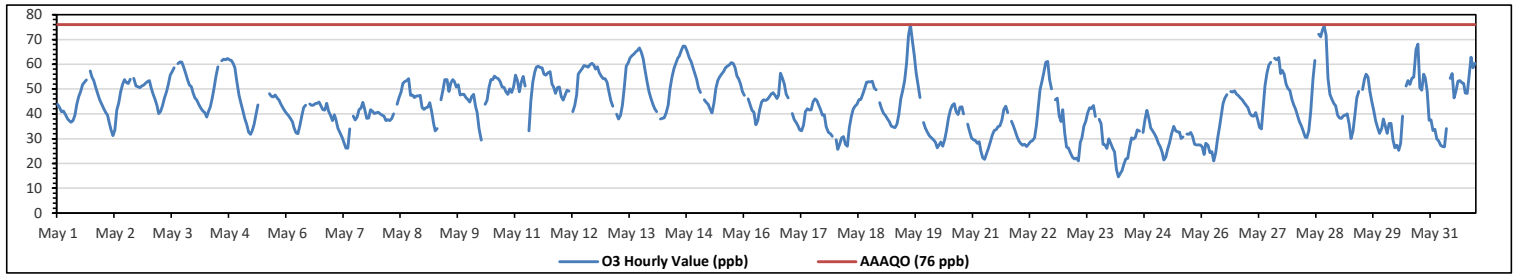
Lakeland Industry & Community Association

St. Lina Site - May 2023
Summary of Hourly Averages
OZONE (O₃) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb																												
Number of 1-Hour Exceedances: 0																												
Maximum Hourly Value: 76.0 ppb on May 19 at hr 15												Hours in Service: 744																
Maximum Daily Value: 54.0 ppb on May 13												Hours of Data: 708																
Minimum Hourly Value: 14.6 ppb on May 24 at hr 4												Hours of Missing Data: 0																
Minimum Daily Value: 27.8 ppb on May 24												Hours of Calibration: 36																
Monthly Average: 43.7 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				
May 1	43.8	42.6	40.9	41.1	39.6	38.1	37.3	36.6	37.3	39.3	43.9	47	49.1	51.7	52.8	53.6	S	57.3	55	53.4	50.7	48.2	45.5	43.9	36.6	57.3	45.6	
May 2	42.2	40.7	39.4	36.1	33.5	31.2	33.5	41.5	44.4	48.9	51.8	53.7	52.7	52.3	53.9	S	54.3	51.2	51	50.6	51.2	51.5	52.4	53	31.2	54.3	46.6	
May 3	53.5	50.7	48.1	46.1	43.6	40.2	41	43.3	46.5	48.8	51.8	55.7	57.1	58.5	S	60.2	60.9	60.9	58.8	56.3	53.8	51.5	51	48.6	40.2	60.9	51.6	
May 4	46.4	45.5	43.8	42.5	41.2	40.5	38.7	41.1	42.8	46.2	50.5	55.2	58.9	S	61.4	62.1	61.9	62.3	61.9	61.6	60.2	58.5	53.2	47.4	38.7	62.3	51.5	
May 5	44.3	41.3	38.1	35.7	32.6	31.8	33.2	35.8	39.7	43.6	C	C	C	C	C	C	48.1	47.1	46.9	47.6	46.5	45.5	43.8	42.4	41.1	31.8	48.1	41.3
May 6	40.2	39.2	38.1	36.7	34.3	32.3	32	35.2	39.1	42.6	43.5	S	44	43.5	43.5	44.1	44.3	44.8	43.2	41.6	41.5	44.3	41	39.3	32.0	44.8	40.4	
May 7	37.3	39.6	37.5	34.2	32.4	30.6	28.4	26.2	26.2	34	S	39.1	37.5	38.7	41.6	42.3	44.7	41.6	38.2	38.3	41.6	41	40.2	40.4	26.2	44.7	37.0	
May 8	40.7	40	39.4	39	37.3	37.6	37.3	38.1	40	S	43.8	46.6	48.7	52.2	53.1	53.4	54.1	47.4	47.6	46.6	47.2	47.2	47.5	42.6	37.3	54.1	44.7	
May 9	41.8	42.4	42.8	44.5	40.9	36.1	33.2	34.1	S	45.7	49.4	53.8	53.7	49.1	52.5	53.8	53	50.9	51.7	47.6	47.8	47.8	46.6	45.8	33.2	53.8	46.3	
May 10	44.8	47	47.9	43.1	40.7	34.1	29.4	S	43.8	45.4	50.6	53.7	53.7	55.2	54.6	54.2	53	50.8	50.7	48.9	47.9	50.1	48.6	51	29.4	55.2	47.8	
May 11	55.6	53.5	48.9	52.8	55.1	51.3	S	33.1	45.3	52.8	56.7	58.8	59.2	58.7	58.5	55.9	55.7	56.5	57	51.9	50.8	48.3	50.6	50.8	33.1	59.2	52.9	
May 12	47	45.5	47.6	49.5	49.2	S	40.9	43.3	47.6	55.9	57.2	58.2	59.5	59.2	58.8	59.9	60.3	59.7	58	58.9	56.5	55.2	54.2	54.2	40.9	60.3	53.8	
May 13	52.8	48.9	45.3	43	S	39.9	38	39.3	43.4	50.8	59.2	60.5	62.6	63.5	64.2	65	65.6	66.6	64.9	62.2	57.5	53.1	49	46.3	38.0	66.6	54.0	
May 14	44	42	40.8	S	38	38.2	38.5	40.5	43.5	50.3	54.8	58.1	60.3	62.4	63.3	65.5	67.3	67.2	65.3	62.6	61	58.4	56	53.9	38.0	67.3	53.6	
May 15	50.3	48.6	S	45.6	44.6	43.9	41.9	40.4	44.3	50.2	53.5	54.7	55.8	57	58.6	59.2	59.8	60.6	60.3	58.7	55.2	54.2	52.1	49	40.4	60.6	52.1	
May 16	47.5	S	46.1	43.7	41.4	40.7	35.6	37.3	41.7	44.8	45.6	45.4	45.8	46.8	48	48.5	47.4	46.2	47.4	47.4	56.4	54.4	52	47.9	35.6	56.4	46.0	
May 17	S	40.2	37.6	36.5	35.4	33.6	33.1	35.5	40.8	42	41.5	41.7	45	46	45.3	43.3	41.8	39.4	39.6	34.7	32.5	32	S	31.0	46.0	38.6		
May 18	29.6	25.7	27.8	30.2	30.8	27.7	26.9	34.3	38.7	41.8	43	43.9	45.6	45.8	47.8	50.2	52.8	52.9	52.9	53.2	50.5	49.7	S	44.5	25.7	53.2	41.1	
May 19	42	40.3	39.3	38.1	36.9	35.1	34.7	34.4	35.9	39.9	46	49.4	53.4	60.4	71.5	76	69.7	63.7	56.5	51.6	46.6	S	36.5	34.2	34.2	76.0	47.5	
May 20	32.6	31.2	30.2	29.6	28.6	26.3	27.4	28.6	26.9	29.5	33.4	38.4	41.5	43.4	44.1	40.8	39.7	42.8	42.9	40	S	35.9	32.8	30.3	26.3	44.1	34.6	
May 21	29.5	29.3	28	28.8	25.1	22.3	21.6	24	26.2	28.8	31.5	33.3	33.7	34.8	35.2	37.5	41.8	43	40.6	S	37	35.1	32.8	30.6	21.6	43.0	31.8	
May 22	28.9	27.9	27.3	27.7	26.8	27.8	28.2	29.2	30.2	35.5	43.2	49.7	53.1	56.8	60.8	61.2	53.8	50.1	S	45.6	46.3	39.1	36.9	41.7	26.8	61.2	40.4	
May 23	32.5	26.6	26.1	23.9	22.4	21.8	22.1	21.1	28.5	30.2	34.9	37	40.4	42.5	42.2	43.3	38.9	S	37.8	36	27.8	27.5	26	30	21.1	43.3	31.3	
May 24	28	26.1	24.6	17.5	14.6	16	17.1	19.5	21.8	22	26.5	30.2	29.8	30.6	33.5	33	S	32.4	37.6	41.4	38.4	34.3	33.1	31.9	14.6	41.4	27.8	
May 25	30.2	28	26.7	24.3	21.4	22.5	25.8	28.4	31.9	34.9	33.1	32.7	32.6	30.1	30.7	S	31.9	31.7	32.5	30.8	27.8	27.5	27.5	21.4	34.9	29.2	21.4	
May 26	26.7	23.7	28	27.4	24.3	24.8	21	24.2	30.1	34.7	39.9	44.1	46.4	47.7	S	49	48.8	49.3	48	47.3	46.5	45.6	44.5	43.4	21.0	49.3	37.6	
May 27	42.5	40.1	39.2	39.1	40.5	37.8	34.5	33.9	43.5	51.2	56.2	59.7	60.8	S	62.4	61.9	62.7	56.2	57.6	56	52	50.2	49.4	45.9	33.9	62.7	49.3	
May 28	43.6	41.8	39.2	36.7	35	32.9	30.6	30.4	33.1	40.8	53.9	61.6	S	72.2	71	73.9	75.3	71.7	54.3	47.8	45.9	44.2	43.2	39.5	30.4	75.3	48.6	
May 29	38.3	38.2	39.2	39.4	40	36	30.1	32.8	39.5	46.4	49	S	49.8	54	55.9	54.9	49	45	41.3	37.1	34.4	32.1	34.2	37.9	30.1	55.9	41.5	
May 30	35	32.2	36.2	36.2	29.6	26.3	27.3	25.3	28	39.1	S	51.2	53.5	51.8	54.3	54.9	65.9	68.2	50.6	49.5	55.9	54.5	49	37.4	25.3	68.2	44.0	
May 31	37.5	33.3	33.8	30	29	27.3	26.8	26.7	34.1	S	54.3	56.2	46.4	49.3	53.2	53.5	52.6	52.2	48.4	48.3	55.4	62.8	58.6	60.4	26.7	62.8	44.8	
Diurnal Maximum	55.6	53.5	48.9	52.8	55.1	51.3	41.9	43.3	47.6	55.9	59.2	61.6	62.6	72.2	71.5	76.0	75.3	71.7	65.3	62.6	61.0	62.8	58.6	60.4				
Diurnal Average	40.3	38.4	37.6	36.6	34.8	32.8	31.6	33.1	37.2	41.9	46.4	48.9	49.3	50.5	52.6	53.8	53.6	52.3	50.0	48.7	47.3	45.9	43.8	43.0				

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

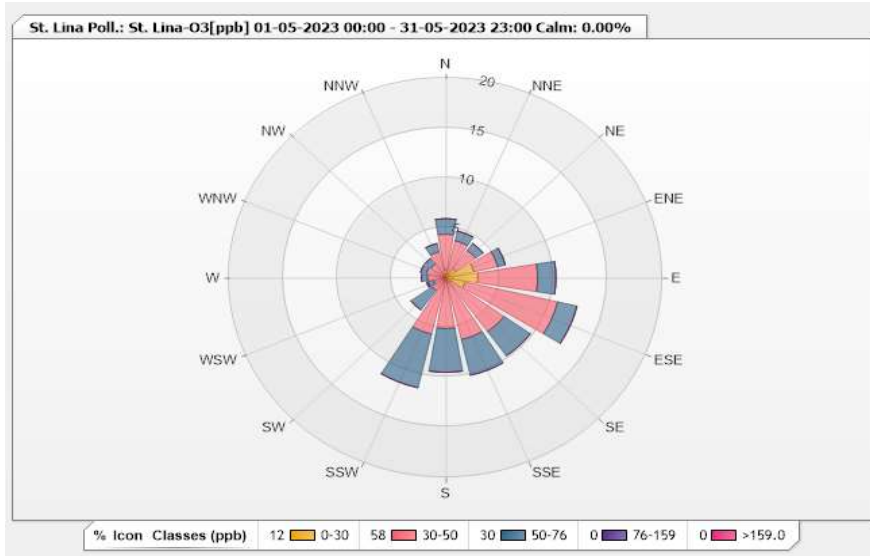


Station: St. Lina Poll.: St. Lina-O3[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 95.16% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	0.85	3.53	1.55	0	0	5.93
NNE	0.42	3.39	0.99	0	0	4.8
NE	1.13	2.26	0.85	0	0	4.24
ENE	2.68	2.26	0.71	0	0	5.65
E	2.97	5.51	1.69	0	0	10.17
ESE	1.84	8.76	1.84	0	0	12.44
SE	0.56	6.07	2.97	0	0	9.6
SSE	0.28	6.07	3.67	0	0	10.02
S	0.14	4.94	4.38	0	0	9.46
SSW	0.28	5.51	5.51	0	0	11.3
SW	0	1.55	2.4	0	0	3.95
WSW	0.14	0.99	0.56	0.14	0	1.83
W	0.28	1.41	0.56	0	0	2.25
WNW	0.28	1.55	0.56	0	0	2.39
NW	0.14	1.55	0.71	0	0	2.4
NNW	0.14	2.54	0.85	0	0	3.53
Summary	12.13	57.89	29.8	0.14	0	100



Lakeland Industry & Community Association

St. Lina Site - May 2023

Summary of Hourly Averages

TOTAL HYDROCARBONS (THC) in ppm

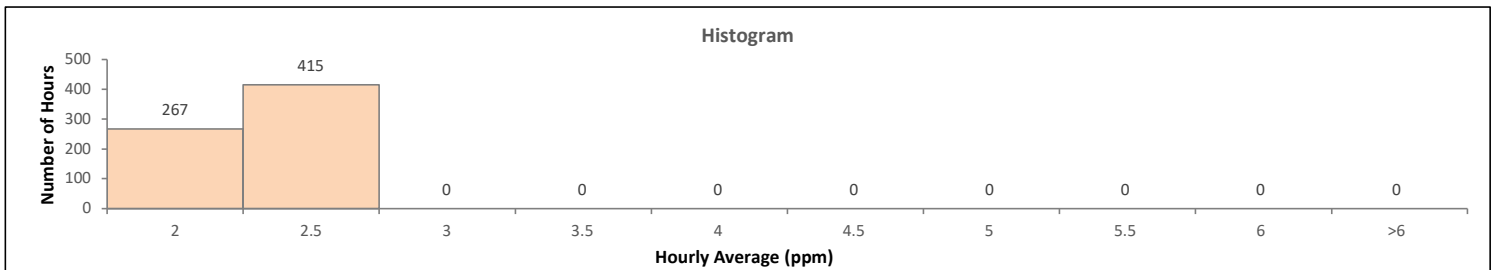
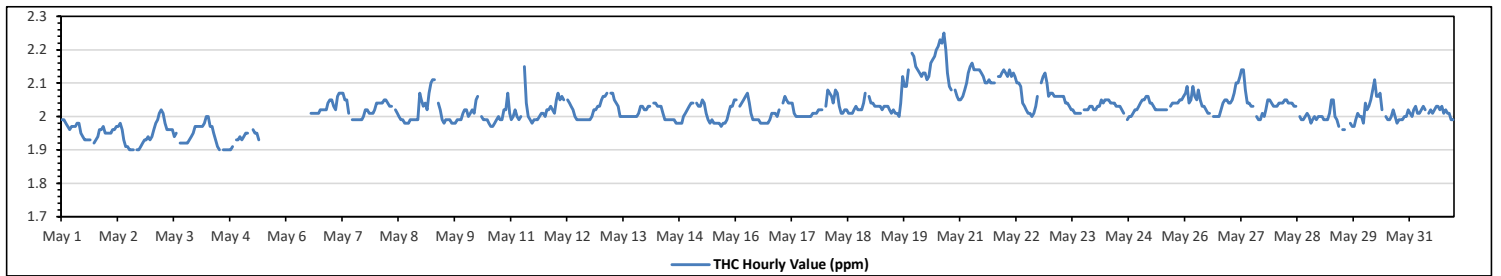
Maximum Hourly Value:	2.25 ppm	on May 20 at hr 15	Hours in Service:	744
Maximum Daily Value:	2.15 ppm	on May 20	Hours of Data:	682
Minimum Hourly Value:	1.90 ppm	on May 2 at hr 12	Hours of Missing Data:	26
Minimum Daily Value:	1.93 ppm	on May 2	Hours of Calibration:	36
Monthly Average:	2.02 ppm		Operational 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	
May 1	1.99	1.99	1.98	1.97	1.96	1.97	1.97	1.97	1.98	1.98	1.95	1.94	1.93	1.93	1.93	1.93	S	1.92	1.93	1.94	1.96	1.96	1.97	1.95	1.92	1.99	1.96	
May 2	1.95	1.95	1.95	1.96	1.96	1.97	1.97	1.98	1.96	1.93	1.91	1.91	1.90	1.90	1.90	S	1.90	1.90	1.91	1.92	1.93	1.93	1.94	1.93	1.90	1.98	1.93	
May 3	1.94	1.96	1.98	1.99	2.01	2.02	2.01	1.98	1.96	1.96	1.96	1.96	1.94	1.95	S	1.92	1.92	1.92	1.92	1.93	1.94	1.95	1.97	1.92	2.02	1.96		
May 4	1.97	1.97	1.97	1.97	1.98	2.00	2.00	1.97	1.97	1.95	1.93	1.91	1.90	S	1.90	1.90	1.90	1.90	1.90	1.91	X	1.93	1.93	1.94	1.90	2.00	1.94	
May 5	1.93	1.94	1.95	1.95	X	X	1.96	1.95	1.95	1.93	C	C	C	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	1.93	1.96	NA		
May 6	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	C	C	C	S	1.99	1.99	1.99	1.99	1.99	2.00	2.02	2.01	2.01	2.01	2.02	2.05	NA	
May 7	2.05	2.03	2.02	2.06	2.07	2.07	2.07	2.05	2.05	2.01	S	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.02	2.02	2.01	2.01	2.01	2.02	2.05	2.02	
May 8	2.04	2.04	2.04	2.04	2.05	2.05	2.04	2.03	2.03	S	2.02	2.01	2.00	1.99	1.99	1.98	1.98	1.98	1.99	1.99	1.99	1.99	1.99	2.01	2.02	1.98	2.07	2.01
May 9	2.05	2.03	2.04	2.02	2.07	2.10	2.11	2.11	S	2.04	2.02	1.99	1.98	1.99	1.99	1.99	1.98	1.98	1.98	1.99	1.99	1.99	1.99	2.01	2.02	1.98	2.11	2.02
May 10	2.02	2.00	2.01	2.02	2.01	2.05	2.06	S	2.00	1.99	1.99	1.99	1.98	1.97	1.97	1.98	1.99	2.00	1.99	1.99	2.02	2.02	2.02	2.07	2.01	1.97	2.07	2.01
May 11	1.99	2.00	2.02	2.00	1.99	2.00	S	2.15	2.04	2.00	1.99	1.98	1.99	1.99	1.99	2.00	2.01	2.01	2.00	2.02	2.02	2.02	2.02	2.01	1.98	2.15	2.01	
May 12	2.05	2.07	2.05	2.06	2.05	S	2.05	2.04	2.03	2.02	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.02	2.02	2.03	2.03	1.99	2.07	2.02	
May 13	2.05	2.06	2.06	2.07	S	2.07	2.07	2.05	2.04	2.03	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.03	2.03	2.02	2.00	2.07	2.03	2.01	
May 14	2.02	2.03	2.03	S	2.04	2.04	2.03	2.03	2.03	2.01	1.99	1.99	1.99	1.99	1.99	1.99	1.98	1.98	1.98	1.98	2.00	2.01	2.02	2.03	1.98	2.04	2.03	
May 15	2.04	2.04	S	2.04	2.03	2.03	2.05	2.04	2.01	1.99	1.98	1.99	1.98	1.98	1.98	1.98	1.97	1.98	1.98	1.99	2.01	2.03	2.03	2.05	1.97	2.05	2.01	
May 16	2.05	S	2.03	2.04	2.05	2.06	2.07	2.04	2.01	1.99	1.99	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.99	2.01	2.01	2.01	2.00	2.02	1.98	2.07	2.01	
May 17	S	2.04	2.06	2.05	2.04	2.04	2.04	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.02	2.02	2.02	2.02	S	2.00	2.06	2.02	
May 18	2.03	2.08	2.07	2.06	2.04	2.08	2.07	2.03	2.01	2.01	2.02	2.02	2.01	2.01	2.01	2.02	2.03	2.02	2.02	2.02	2.04	2.07	S	2.06	2.01	2.08	2.04	
May 19	2.04	2.04	2.03	2.03	2.03	2.03	2.02	2.03	2.03	2.03	2.02	2.01	2.02	2.01	2.01	2.00	2.04	2.12	2.09	2.09	2.14	S	2.19	2.18	2.00	2.19	2.05	
May 20	2.15	2.14	2.13	2.12	2.13	2.13	2.11	2.12	2.16	2.17	2.18	2.20	2.21	2.23	2.22	2.25	2.20	2.13	2.09	2.08	S	2.08	2.06	2.05	2.05	2.25	2.15	
May 21	2.05	2.06	2.08	2.10	2.13	2.15	2.16	2.14	2.14	2.14	2.14	2.13	2.12	2.10	2.10	2.11	2.10	2.10	2.10	S	2.12	2.12	2.13	2.14	2.05	2.16	2.12	
May 22	2.13	2.12	2.14	2.12	2.13	2.12	2.10	2.09	2.04	2.03	2.02	2.01	2.01	2.00	2.01	2.03	2.06	S	2.10	2.12	2.13	2.10	2.06	2.00	2.14	2.08	2.04	
May 23	2.07	2.07	2.06	2.06	2.06	2.06	2.06	2.04	2.04	2.03	2.02	2.02	2.01	2.01	2.01	2.01	S	2.02	2.02	2.02	2.03	2.03	2.02	2.01	2.07	2.04	2.08	
May 24	2.02	2.03	2.03	2.05	2.04	2.05	2.05	2.05	2.04	2.04	2.04	2.03	2.03	2.03	2.02	2.01	S	1.99	2.00	2.00	2.01	2.02	2.02	2.03	1.99	2.05	2.03	
May 25	2.04	2.05	2.05	2.06	2.04	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02	S	2.03	2.04	2.04	2.04	2.04	2.05	2.05	2.05	2.02	2.06	2.04	2.04	
May 26	2.07	2.09	2.04	2.05	2.09	2.06	2.05	2.08	2.05	2.03	2.03	2.02	2.01	2.01	S	2.00	2.00	2.00	2.02	2.04	2.05	2.05	2.04	2.00	2.09	2.04	2.04	
May 27	2.04	2.05	2.07	2.10	2.10	2.12	2.14	2.14	2.08	2.04	2.04	2.03	2.03	S	2.00	1.99	1.99	2.01	2.00	2.02	2.05	2.05	2.04	2.03	1.99	2.14	2.05	
May 28	2.03	2.03	2.04	2.04	2.04	2.05	2.05	2.04	2.04	2.03	2.03	S	2.00	1.99	1.99	2.00	2.01	2.00	1.98	1.99	2.00	1.99	2.00	1.99	2.00	1.98	2.05	2.02
May 29	2.00	2.00	1.99	1.99	1.99	2.01	2.05	2.05	2.00	1.99	1.97	S	1.96	1.96	NRM	NRM	1.98	1.97	1.97	1.99	2.01	2.00	2.00	1.98	1.96	2.05	1.99	
May 30	2.04	2.02	2.03	2.05	2.08	2.11	2.06	2.06	2.07	2.02	S	2.00	1.99	1.99	2.00	2.02	2.00	1.98	1.99	1.99	1.99	2.00	2.00	2.02	1.98	2.11	2.02	
May 31	2.01	2.00	2.02	2.03	2.01	2.01	2.02	2.03	2.02	S	2.01	2.02	2.01	2.02	2.03	2.03	2.02	2.03	2.01	2.02	2.01	2.01	1.99	1.99	1.99	2.03	2.02	
Diurnal Maximum	2.15	2.14	2.14	2.12	2.13	2.15	2.16	2.15	2.16	2.17	2.18	2.20	2.21	2.23	2.22	2.25	2.20	2.13	2.10	2.10	2.14	2.13	2.19	2.18	2.00	2.25	2.12	
Diurnal Average	2.03	2.03	2.03	2.04	2.04	2.05	2.05	2.03	2.02	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.02	2.02	2.02	2.02	2.02	2.03	2.03	

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

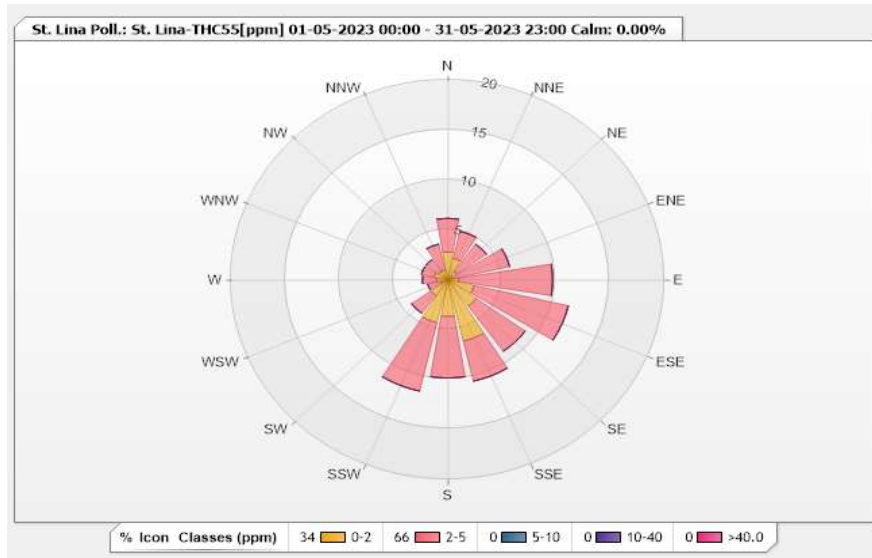


Station: St. Lina Poll.: St. Lina-THC55[ppm] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 91.67% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	2.79	3.37	0	0	0	6.16
NNE	2.2	2.79	0	0	0	4.99
NE	1.03	3.37	0	0	0	4.4
ENE	0.44	5.43	0	0	0	5.87
E	1.03	8.65	0	0	0	9.68
ESE	2.49	8.94	0	0	0	11.43
SE	3.23	5.57	0	0	0	8.8
SSE	6.3	4.11	0	0	0	10.41
S	3.67	6.16	0	0	0	9.83
SSW	4.4	7.04	0	0	0	11.44
SW	1.91	2.2	0	0	0	4.11
WSW	0.59	1.32	0	0	0	1.91
W	1.03	1.32	0	0	0	2.35
WNW	1.32	1.17	0	0	0	2.49
NW	1.03	1.47	0	0	0	2.5
NNW	1.03	2.64	0	0	0	3.67
Summary	34.49	65.55	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - May 2023

Summary of Hourly Averages

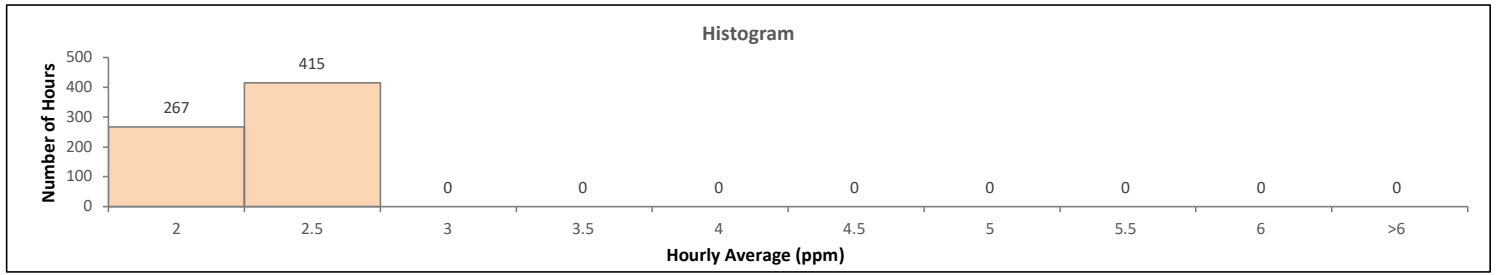
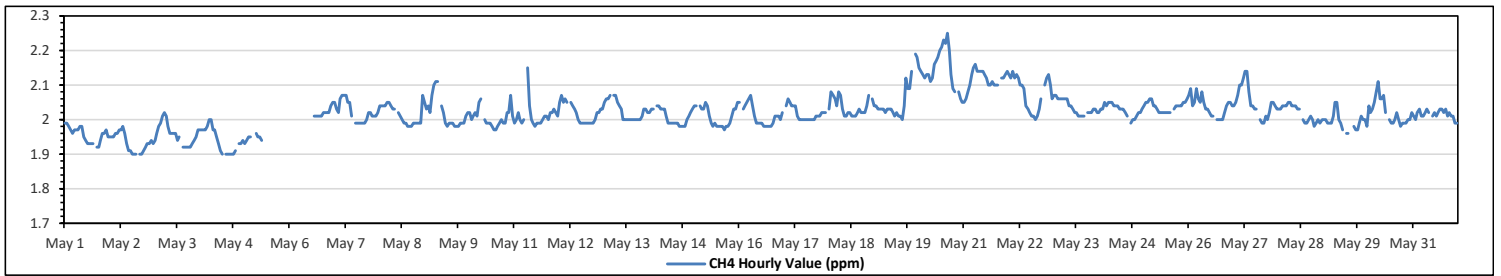
METHANE (CH4) in ppm

Maximum Hourly Value:	2.25 ppm	on May 20 at hr 15	Hours in Service:	744
Maximum Daily Value:	2.15 ppm	on May 20	Hours of Data:	682
Minimum Hourly Value:	1.90 ppm	on May 2 at hr 12	Hours of Missing Data:	26
Minimum Daily Value:	1.93 ppm	on May 2	Hours of Calibration:	36
Monthly Average:	2.02 ppm		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
May 1	1.99	1.99	1.98	1.97	1.96	1.97	1.97	1.97	1.98	1.98	1.95	1.94	1.93	1.93	1.93	S	1.92	1.92	1.94	1.96	1.96	1.97	1.95	1.92	1.99	1.96	
May 2	1.95	1.95	1.95	1.96	1.96	1.97	1.97	1.98	1.96	1.93	1.91	1.91	1.90	1.90	1.90	S	1.90	1.91	1.92	1.93	1.93	1.94	1.93	1.90	1.98	1.93	
May 3	1.94	1.96	1.98	1.99	2.01	2.02	2.01	1.98	1.96	1.96	1.96	1.96	1.94	1.95	S	1.92	1.92	1.92	1.92	1.93	1.94	1.95	1.97	1.92	2.02	1.96	
May 4	1.97	1.97	1.97	1.97	1.98	2.00	2.00	1.97	1.97	1.95	1.93	1.91	1.90	S	1.90	1.90	1.90	1.90	1.90	1.91	X	1.93	1.93	1.94	1.90	2.00	1.94
May 5	1.93	1.94	1.95	1.95	X	X	1.96	1.95	1.95	1.94	C	C	C	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	1.93	1.96	NA	
May 6	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	C	C	C	S	2.01	2.01	2.01	2.01	2.01	2.02	2.02	2.02	2.02	2.01	2.05	NA	
May 7	2.05	2.03	2.02	2.06	2.07	2.07	2.07	2.05	2.05	2.01	S	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.02	2.02	2.01	2.01	2.01	2.02	1.99	2.07	2.02
May 8	2.04	2.04	2.04	2.04	2.05	2.05	2.04	2.03	2.03	S	2.02	2.01	2.00	1.99	1.99	1.98	1.98	1.98	1.99	1.99	1.99	1.99	1.99	2.07	1.98	2.07	2.01
May 9	2.05	2.03	2.04	2.02	2.07	2.10	2.11	2.11	S	2.04	2.02	1.99	1.98	1.99	1.99	1.98	1.98	1.98	1.99	1.99	1.99	1.99	2.01	2.02	1.98	2.11	2.02
May 10	2.02	2.00	2.01	2.02	2.01	2.05	2.06	S	2.00	1.99	1.99	1.99	1.98	1.97	1.97	1.98	1.99	2.00	1.99	1.99	2.02	2.02	2.07	2.01	1.97	2.07	2.01
May 11	1.99	2.00	2.02	2.00	1.99	2.00	S	2.15	2.04	2.00	1.99	1.98	1.99	1.99	1.99	2.00	2.01	2.01	2.00	2.02	2.02	2.03	2.02	2.01	1.98	2.15	2.01
May 12	2.05	2.07	2.05	2.06	2.05	S	2.05	2.04	2.03	2.02	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.02	2.02	2.03	2.03	1.99	2.07	2.02
May 13	2.05	2.06	2.06	2.07	S	2.07	2.07	2.05	2.04	2.03	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.03	2.03	2.02	2.00	2.07	2.03	2.03
May 14	2.02	2.03	2.03	S	2.04	2.04	2.03	2.03	2.03	2.01	1.99	1.99	1.99	1.99	1.99	1.98	1.98	1.98	1.98	1.98	2.00	2.01	2.02	2.03	1.98	2.04	2.01
May 15	2.04	2.04	S	2.04	2.03	2.03	2.05	2.04	2.01	1.99	1.98	1.99	1.98	1.98	1.98	1.98	1.97	1.98	1.98	1.99	2.01	2.03	2.03	2.05	1.97	2.05	2.01
May 16	2.05	S	2.03	2.04	2.05	2.06	2.07	2.04	2.01	1.99	1.99	1.99	1.99	1.98	1.98	1.98	1.98	1.98	1.99	2.01	2.01	2.01	2.00	2.02	1.98	2.07	2.01
May 17	S	2.04	2.06	2.05	2.04	2.04	2.04	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.02	2.02	2.02	2.02	S	2.00	2.06	2.02
May 18	2.03	2.08	2.07	2.06	2.04	2.08	2.07	2.03	2.01	2.01	2.02	2.02	2.01	2.01	2.01	2.02	2.03	2.02	2.02	2.02	2.04	2.07	S	2.06	2.01	2.08	2.04
May 19	2.04	2.04	2.03	2.03	2.03	2.03	2.02	2.03	2.03	2.03	2.02	2.01	2.02	2.01	2.01	2.00	2.04	2.12	2.09	2.09	2.14	S	2.19	2.18	2.00	2.19	2.05
May 20	2.15	2.14	2.13	2.12	2.13	2.13	2.11	2.12	2.16	2.17	2.18	2.20	2.21	2.23	2.22	2.25	2.20	2.13	2.09	2.08	S	2.08	2.06	2.05	2.05	2.25	2.15
May 21	2.05	2.06	2.08	2.10	2.13	2.15	2.16	2.14	2.14	2.14	2.14	2.13	2.12	2.10	2.10	2.11	2.10	2.10	2.10	S	2.12	2.12	2.13	2.14	2.05	2.16	2.12
May 22	2.13	2.12	2.14	2.12	2.13	2.12	2.10	2.10	2.09	2.04	2.03	2.02	2.01	2.01	2.00	2.01	2.03	2.06	S	2.10	2.12	2.13	2.10	2.06	2.00	2.14	2.08
May 23	2.07	2.07	2.06	2.06	2.06	2.06	2.06	2.06	2.04	2.04	2.03	2.02	2.02	2.01	2.01	2.01	2.01	S	2.02	2.02	2.02	2.03	2.02	2.01	2.07	2.04	2.04
May 24	2.02	2.03	2.03	2.05	2.04	2.05	2.05	2.05	2.04	2.04	2.04	2.03	2.03	2.03	2.02	2.01	S	1.99	2.00	2.00	2.01	2.02	2.02	2.03	1.99	2.05	2.03
May 25	2.04	2.05	2.05	2.06	2.04	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	S	2.03	2.04	2.04	2.04	2.04	2.05	2.05	2.06	2.02	2.06	2.04
May 26	2.07	2.09	2.04	2.05	2.09	2.06	2.05	2.08	2.05	2.03	2.03	2.02	2.01	2.01	S	2.00	2.00	2.00	2.02	2.02	2.04	2.05	2.05	2.04	2.00	2.09	2.04
May 27	2.04	2.05	2.07	2.10	2.10	2.12	2.14	2.14	2.08	2.04	2.04	2.03	2.03	S	2.00	1.99	1.99	2.01	2.00	2.02	2.05	2.05	2.04	2.03	1.99	2.14	2.05
May 28	2.03	2.03	2.04	2.04	2.04	2.05	2.05	2.04	2.04	2.04	2.03	2.03	S	2.00	1.99	1.99	2.00	2.01	2.00	1.98	1.99	2.00	1.99	2.00	1.98	2.05	2.02
May 29	2.00	2.00	1.99	1.99	1.99	2.01	2.05	2.05	2.00	1.99	1.97	S	1.96	1.96	NRM	NRM	1.98	1.97	1.97	1.99	2.01	2.00	2.00	1.98	1.96	2.05	1.99
May 30	2.04	2.02	2.03	2.05	2.08	2.11	2.06	2.06	2.07	2.02	S	2.00	1.99	1.99	2.00	2.02	2.00	1.98	1.99	1.99	1.99	2.00	2.00	2.02	1.98	2.11	2.02
May 31	2.01	2.00	2.02	2.03	2.01	2.01	2.02	2.03	2.02	S	2.01	2.02	2.01	2.02	2.03	2.03	2.02	2.03	2.01	2.02	2.01	2.01	1.99	1.99	1.99	2.03	2.02
Diurnal Maximum	2.15	2.14	2.14	2.12	2.13	2.15	2.16	2.15	2.16	2.17	2.18	2.20	2.21	2.23	2.22	2.25	2.20	2.13	2.10	2.10	2.14	2.13	2.19	2.18			
Diurnal Average	2.03	2.03	2.03	2.04	2.04	2.05	2.05	2.03	2.02	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.02	2.02	2.02	2.02	2.03		

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

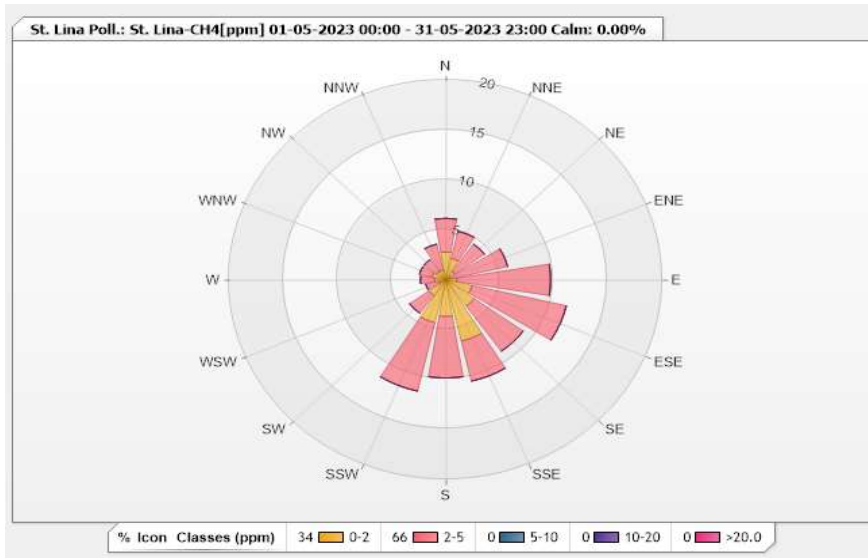


Station: St. Lina Poll.: St. Lina-CH4[ppm] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 91.67% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	2.79	3.37	0	0	0	6.16
NNE	2.2	2.79	0	0	0	4.99
NE	1.03	3.37	0	0	0	4.4
ENE	0.44	5.43	0	0	0	5.87
E	1.03	8.65	0	0	0	9.68
ESE	2.49	8.94	0	0	0	11.43
SE	3.23	5.57	0	0	0	8.8
SSE	6.3	4.11	0	0	0	10.41
S	3.67	6.16	0	0	0	9.83
SSW	4.4	7.04	0	0	0	11.44
SW	1.91	2.2	0	0	0	4.11
WSW	0.59	1.32	0	0	0	1.91
W	1.03	1.32	0	0	0	2.35
WNW	1.32	1.17	0	0	0	2.49
NW	1.03	1.47	0	0	0	2.5
NNW	1.03	2.64	0	0	0	3.67
Summary	34.49	65.55	0	0	0	100

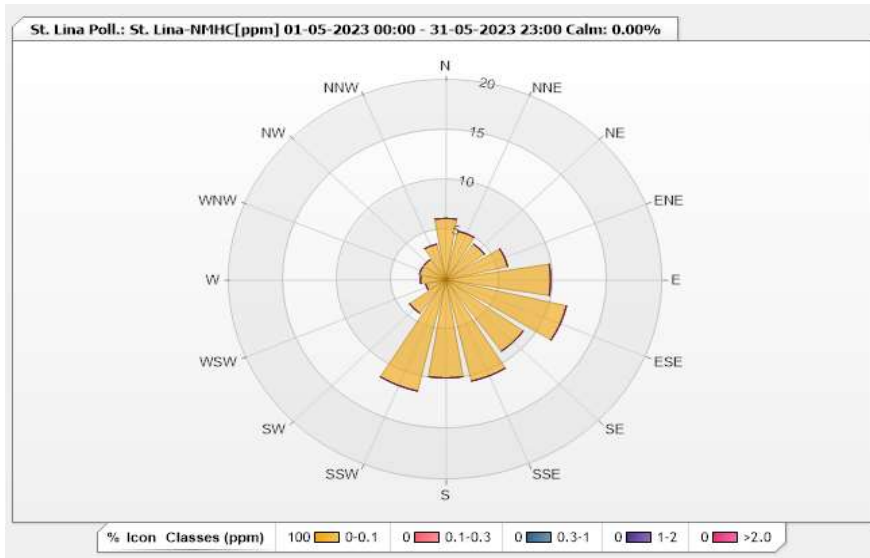


Station: St. Lina Poll.: St. Lina-NMHC[ppm] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 91.67% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	6.16	0	0	0	0	6.16
NNE	4.99	0	0	0	0	4.99
NE	4.4	0	0	0	0	4.4
ENE	5.87	0	0	0	0	5.87
E	9.68	0	0	0	0	9.68
ESE	11.44	0	0	0	0	11.44
SE	8.8	0	0	0	0	8.8
SSE	10.41	0	0	0	0	10.41
S	9.82	0	0	0	0	9.82
SSW	11.44	0	0	0	0	11.44
SW	4.11	0	0	0	0	4.11
WSW	1.91	0	0	0	0	1.91
W	2.35	0	0	0	0	2.35
WNW	2.49	0	0	0	0	2.49
NW	2.49	0	0	0	0	2.49
NNW	3.67	0	0	0	0	3.67
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

St. Lina Site - May 2023

Summary of Hourly Averages

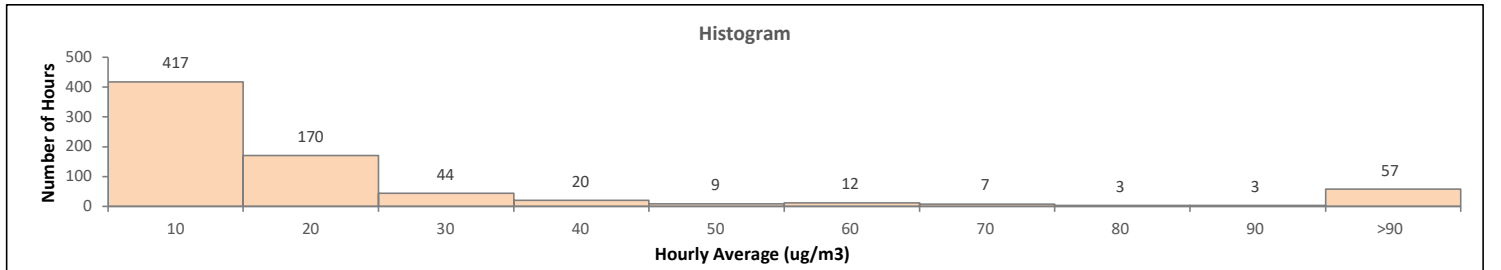
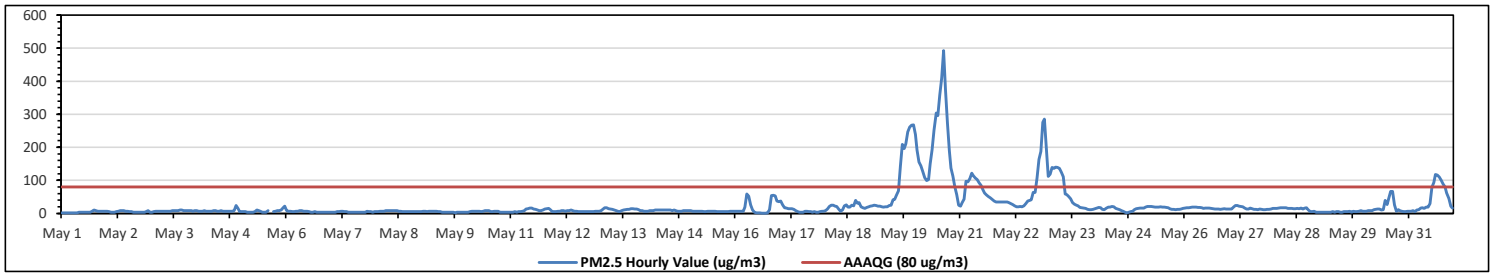
PARTICULATE MATTER 2.5 (PM_{2.5}) in µg/m³

Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m ³ , Alberta Ambient Air Quality Objective (AAAQO): 24-Hour 29 µg/m ³	
Number of 1-Hour Exceedances:	60
Number of 24-Hour Exceedances:	6
Maximum Hourly Value:	493 µg/m ³ on May 20 at hr 15
Maximum Daily Value:	202.8 µg/m ³ on May 20
Minimum Hourly Value:	1 µg/m ³ on May 16 at hr 14
Minimum Daily Value:	4 µg/m ³ on May 1
Monthly Average:	25.6 µg/m ³
Hours in Service:	744
Hours of Data:	742
Hours of Missing Data:	0
Hours of Calibration:	2
Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
May 1	2	2	2	2	2	2	2	2	2	2	2	3	3	3	4	4	4	7	10	8	6	6	6	6	2	10	4.0
May 2	6	5	4	4	4	5	7	8	9	8	7	6	5	5	4	4	4	4	4	4	4	5	8	4	4	9	5.3
May 3	4	5	6	6	6	7	7	6	7	6	7	8	9	9	9	10	10	9	9	9	9	8	7	8	4	10	7.5
May 4	8	7	7	7	8	7	7	7	7	9	8	6	6	8	6	6	6	6	6	7	8	24	15	5	5	24	8.0
May 5	5	5	5	4	4	4	4	5	10	9	6	4	3	3	8	C	C	5	7	8	8	10	17	22	3	22	7.1
May 6	8	6	6	5	5	6	7	8	9	7	6	6	5	4	4	5	4	3	4	3	4	4	3	3	3	9	5.2
May 7	4	3	3	5	5	6	6	5	5	4	4	3	4	4	4	4	3	4	6	5	5	5	4	5	3	6	4.4
May 8	5	5	6	7	7	8	8	8	8	8	8	8	7	6	5	5	5	5	5	5	5	5	5	5	5	8	6.2
May 9	5	6	6	5	6	6	6	7	7	5	5	4	4	4	4	3	3	3	2	3	3	3	3	4	2	7	4.5
May 10	4	4	5	6	6	6	7	6	5	7	8	8	8	5	5	7	7	6	4	4	4	4	4	4	4	8	5.6
May 11	3	4	5	4	5	5	6	8	13	14	16	16	13	12	10	9	8	10	13	14	15	11	5	5	3	16	9.3
May 12	5	6	7	8	8	7	8	9	10	9	7	6	5	5	5	5	5	5	5	5	5	6	6	7	5	10	6.4
May 13	8	13	17	17	14	13	12	10	9	7	5	8	10	11	12	12	14	14	13	13	11	9	8	7	5	17	11.1
May 14	7	7	8	9	9	10	10	10	10	10	10	10	10	10	9	10	9	7	7	7	9	9	9	8	7	10	8.9
May 15	8	7	6	6	6	6	6	5	5	6	6	7	7	7	5	5	5	5	5	5	5	6	6	7	5	8	5.9
May 16	7	7	7	7	7	19	58	52	26	10	3	2	2	2	1	1	1	2	11	54	55	53	37	36	1	58	19.2
May 17	38	26	17	16	14	14	14	12	9	5	4	4	4	6	6	5	5	4	5	3	3	5	6	6	3	38	9.6
May 18	8	13	21	25	25	22	21	13	7	10	23	26	19	19	25	23	39	31	32	20	17	15	18	20	7	39	20.5
May 19	22	23	25	24	22	22	20	19	20	20	24	25	41	42	56	68	143	209	196	211	247	261	267	268	19	268	94.8
May 20	239	191	155	144	126	108	99	102	150	192	251	304	296	358	410	493	373	273	190	137	113	81	57	25	25	493	202.8
May 21	22	32	43	98	95	105	121	114	107	102	93	85	72	62	56	51	47	42	38	34	34	35	35	35	22	121	64.9
May 22	34	34	33	30	27	23	20	20	21	20	23	29	37	39	41	63	63	107	164	188	276	285	198	112	20	285	78.6
May 23	119	139	136	140	139	136	125	111	59	57	51	44	33	28	25	23	18	17	16	15	12	11	11	12	11	140	61.5
May 24	14	16	18	17	12	11	16	19	19	21	20	15	13	11	9	6	3	2	4	5	6	11	14	15	2	21	12.4
May 25	16	16	16	19	21	21	21	20	19	19	19	19	19	18	17	14	12	12	11	12	12	13	15	15	11	21	16.7
May 26	16	17	17	18	19	19	19	18	18	17	15	16	16	16	15	14	13	13	13	12	13	14	13	13	12	19	15.6
May 27	13	13	19	24	24	22	21	20	16	13	13	16	14	12	12	11	13	12	11	11	12	12	13	15	11	24	15.1
May 28	15	15	16	17	17	17	17	15	15	15	14	14	14	15	14	16	13	16	17	10	5	5	6	4	4	17	13.0
May 29	4	3	3	3	4	4	4	5	4	5	5	4	4	5	5	6	4	6	5	5	7	8	7	3	8	4.8	
May 30	7	7	8	8	9	11	12	13	13	10	11	39	27	45	67	66	26	6	11	9	6	5	5	6	5	67	17.8
May 31	6	7	8	5	10	11	16	17	15	19	19	30	79	94	118	116	110	100	89	80	61	45	22	16	5	118	45.5
Diurnal Maximum	239	191	155	144	139	136	125	114	150	192	251	304	296	358	410	493	373	273	196	211	276	285	267	268			
Diurnal Average	21.4	20.8	20.5	22.3	21.5	21.4	22.8	21.7	20.5	20.9	22.4	25.0	25.5	28.0	31.4	35.5	32.7	30.5	29.2	29.0	31.5	31.4	26.7	22.7			

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

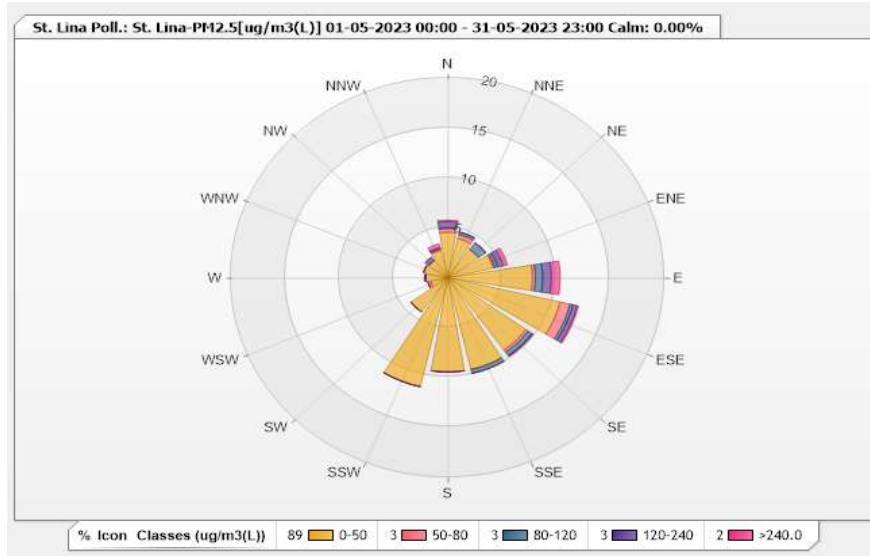


Station: St. Lina Poll.: St. Lina-PM2.5[ug/m3(L)] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 99.73% Calm Avg: 0.00 [ppm]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	4.58	0.4	0	0.67	0.13	5.78
NNE	4.04	0.4	0.27	0	0	4.71
NE	3.5	0	0.81	0	0	4.31
ENE	4.31	0.13	0.27	0.54	0.4	5.65
E	7.82	0.27	0.67	0.81	0.81	10.38
ESE	10.65	0.94	0.27	0.4	0.13	12.39
SE	8.89	0.27	0.4	0.13	0	9.69
SSE	9.43	0	0.4	0	0	9.83
S	9.43	0	0	0	0	9.43
SSW	11.19	0	0	0	0	11.19
SW	4.18	0	0	0	0	4.18
WSW	1.62	0.27	0	0	0	1.89
W	2.02	0	0	0.13	0	2.15
WNW	2.29	0	0	0	0	2.29
NW	2.16	0	0	0.4	0	2.56
NNW	2.83	0.13	0.13	0	0.4	3.49
Summary	88.94	2.81	3.22	3.08	1.87	100



Lakeland Industry & Community Association

St. Lina Site - May 2023

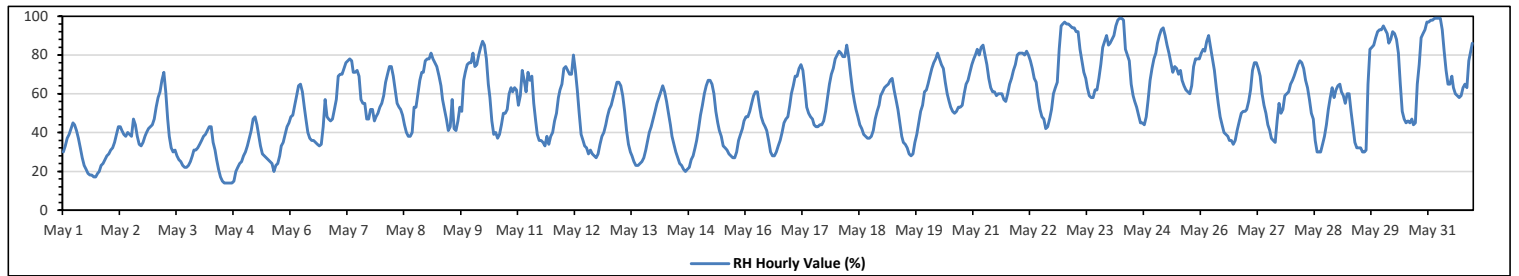
Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	99 %	on May 24 at hr 5	Hours in Service:	744
Maximum Daily Value:	79.4 %	on May 23	Hours of Data:	744
Minimum Hourly Value:	14 %	on May 4 at hr 13	Hours of Missing Data:	0
Minimum Daily Value:	26.0 %	on May 4	Hours of Calibration:	0
Monthly Average:	54.7 %		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average																																																																					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23																																																																				
May 1	30	33	37	39	42	45	44	41	37	32	27	23	21	19	18	18	17	17	19	20	23	24	26	28	17	45	28.3																																																																				
May 2	29	31	32	35	39	43	43	41	39	38	40	39	38	47	44	38	34	33	35	38	40	42	43	44	29	47	38.5																																																																				
May 3	47	53	58	61	67	71	61	47	38	32	30	31	28	26	25	23	22	22	23	25	28	31	31	32	22	71	38.0																																																																				
May 4	34	36	38	39	41	43	43	35	31	26	21	17	15	14	14	14	14	14	15	20	22	24	25	28	14	43	26.0																																																																				
May 5	30	33	37	41	47	48	44	39	33	29	28	27	26	25	24	20	23	24	28	33	35	39	43	45	20	48	33.4																																																																				
May 6	48	49	54	59	64	65	61	53	47	40	37	36	36	35	34	33	34	43	57	48	47	46	47	52	33	65	46.9																																																																				
May 7	57	69	70	70	73	76	77	78	77	71	71	72	69	57	55	55	47	47	52	52	46	48	50	53	46	78	62.2																																																																				
May 8	55	59	66	70	74	74	69	62	55	53	52	49	44	40	38	38	40	53	53	60	67	71	71	77	38	77	57.9																																																																				
May 9	78	78	81	78	76	74	69	64	57	52	47	41	43	57	42	41	46	53	51	67	71	75	76	76	41	81	62.2																																																																				
May 10	81	74	75	80	84	87	85	78	65	58	46	39	40	37	39	44	50	50	52	60	63	61	63	62	37	87	61.4																																																																				
May 11	54	59	72	67	61	71	67	69	55	46	39	36	36	35	33	38	34	38	40	46	50	58	62	65	33	72	51.3																																																																				
May 12	73	74	72	70	70	80	72	62	50	39	36	33	32	29	31	29	28	27	29	34	38	40	44	48	27	80	47.5																																																																				
May 13	52	54	58	62	66	66	64	59	51	41	34	30	28	25	23	23	24	25	27	31	36	40	43	47	23	66	42.0																																																																				
May 14	51	55	58	61	64	61	56	50	44	38	34	30	27	24	23	21	20	21	22	26	28	32	36	42	20	64	38.5																																																																				
May 15	49	54	60	64	67	67	65	60	51	45	41	38	33	32	31	29	28	27	27	30	36	39	42	46	27	67	44.2																																																																				
May 16	48	48	51	55	59	61	61	54	48	45	43	41	36	30	28	28	30	33	36	40	45	47	48	54	28	61	44.5																																																																				
May 17	60	64	69	69	73	75	72	63	53	50	48	47	44	43	43	44	44	46	51	58	65	70	73	78	43	78	58.4																																																																				
May 18	80	82	81	79	79	85	79	70	62	56	52	48	44	42	39	38	37	37	38	41	47	51	54	59	37	85	57.5																																																																				
May 19	61	63	64	65	67	68	62	57	52	45	38	35	34	32	29	28	29	35	39	45	51	54	61	62	28	68	49.0																																																																				
May 20	65	69	73	76	78	81	78	75	73	66	60	56	53	51	50	51	53	53	54	60	65	67	71	75	50	81	64.7																																																																				
May 21	78	80	83	80	84	85	80	75	68	63	61	61	59	60	60	60	57	56	60	65	68	72	75	80	56	85	69.6																																																																				
May 22	81	81	81	80	82	80	77	73	68	66	58	52	48	47	42	43	47	52	60	63	66	83	95	96	42	96	67.5																																																																				
May 23	97	96	96	95	94	94	92	92	83	77	71	68	63	59	58	58	62	62	68	75	84	87	90	85	58	97	79.4																																																																				
May 24	86	88	90	95	98	99	99	98	83	80	77	65	59	56	53	49	45	45	44	48	57	67	73	78	44	99	72.2																																																																				
May 25	81	86	90	93	94	90	85	81	76	71	74	73	70	72	67	64	62	61	60	64	74	78	78	78	60	94	75.9																																																																				
May 26	81	83	82	87	90	84	78	72	63	55	48	44	40	39	38	36	36	34	36	41	46	50	51	51	34	90	56.9																																																																				
May 27	52	56	62	72	76	76	73	69	60	54	50	44	41	37	36	35	46	55	50	52	59	60	61	65	35	76	55.9																																																																				
May 28	67	69	72	75	77	76	73	67	63	57	50	47	36	30	30	30	34	38	44	52	58	63	58	62	30	77	55.3																																																																				
May 29	64	65	61	59	55	60	60	51	43	35	32	32	30	30	30	31	65	83	84	85	89	92	93	93	30	93	59.3																																																																				
May 30	95	93	91	86	88	92	91	88	81	65	51	47	45	46	45	47	44	45	65	75	89	91	93	97	44	97	72.9																																																																				
May 31	97	98	98	99	99	99	99	93	82	72	65	65	69	63	60	59	58	59	63	65	63	77	82	86	58	99	77.9																																																																				
Diurnal Maximum	97	98	98	99	99	99	99	98	83	80	77	73	70	72	67	64	65	83	84	85	89	92	95	97																																																																							
Diurnal Average	63.3	65.5	68.1	69.7	71.9	73.4	70.3	65.0	57.7	51.5	47.1	44.1	41.6	40.0	38.1	37.6	39.0	41.5	44.6	49.0	53.4	57.4	59.9	62.7																																																																							
C	Monthly Calibration																							S	Daily Zero-Span Check																							Q	Quality Assurance																																														
K	Collection Error																							ND	No Data (Machine Not in Service)																							Y	Routine Maintenance																							P	Power Failure																						
X	Invalid Data (Equipment Malfunction /Recovery)																							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																																																																						

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



Lakeland Industry & Community Association

St. Lina Site - May 2023

Summary of Hourly Averages

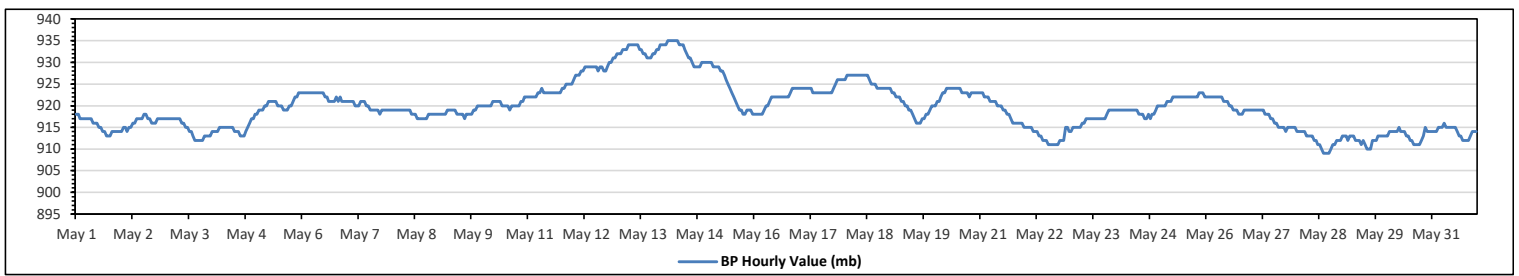
BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	935	mb	on May 14 at hr 2	Hours in Service:	744
Maximum Daily Value:	933	mb	on May 13	Hours of Data:	744
Minimum Hourly Value:	909	mb	on May 28 at hr 14	Hours of Missing Data:	0
Minimum Daily Value:	912	mb	on May 28	Hours of Calibration:	0
Monthly Average:	920	mb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
May 1	918	918	917	917	917	917	917	917	916	916	916	915	915	914	914	913	913	913	913	914	914	914	914	914	913	918	915
May 2	914	915	915	914	915	915	916	916	917	917	917	917	918	918	917	917	916	916	916	917	917	917	917	917	917	914	916
May 3	917	917	917	917	917	917	917	917	916	916	916	915	915	914	914	913	912	912	912	912	912	913	913	913	913	912	915
May 4	914	914	914	914	915	915	915	915	915	915	915	915	914	914	914	913	913	913	914	915	916	917	917	918	913	915	
May 5	918	919	919	919	920	920	921	921	921	921	921	920	920	920	919	919	919	920	920	921	922	922	923	923	918	920	
May 6	923	923	923	923	923	923	923	923	923	923	923	922	922	921	921	921	921	921	922	921	922	921	921	921	921	922	
May 7	921	921	921	921	920	920	920	921	921	921	920	920	919	919	919	919	919	918	919	919	919	919	919	919	918	920	
May 8	919	919	919	919	919	919	919	919	919	919	918	918	918	917	917	917	917	917	917	918	918	918	918	918	917	918	
May 9	918	918	918	918	918	919	919	919	919	919	918	918	918	917	917	918	918	918	918	919	919	920	920	920	917	919	
May 10	920	920	920	920	920	921	921	921	921	921	920	920	920	920	919	920	920	920	920	920	921	921	922	922	919	922	
May 11	922	922	922	922	922	923	923	924	923	923	923	923	923	923	923	923	923	923	924	924	925	925	925	922	923		
May 12	926	927	927	927	928	928	929	929	929	929	929	929	928	928	929	929	928	929	930	930	931	931	932	926	929		
May 13	932	932	933	933	933	934	934	934	934	934	934	933	933	932	932	931	931	931	932	932	933	933	934	931	933		
May 14	934	934	935	935	935	935	935	934	934	934	934	933	932	931	931	930	929	929	929	929	930	930	930	929	935		
May 15	930	930	929	929	929	929	928	928	927	926	925	924	923	922	921	920	919	919	918	918	919	919	919	918	930		
May 16	918	918	918	918	918	919	920	920	921	922	922	922	922	922	922	922	922	922	922	923	924	924	924	918	924		
May 17	924	924	924	924	924	924	924	923	923	923	923	923	923	923	923	923	923	923	924	925	926	926	926	923	926		
May 18	926	927	927	927	927	927	927	927	927	927	927	927	926	925	925	925	924	924	924	924	924	924	924	924	927		
May 19	924	923	923	922	922	922	921	921	920	919	919	918	917	916	916	916	917	917	918	918	919	920	920	916	924		
May 20	920	921	921	922	923	923	924	924	924	924	924	924	924	923	923	923	923	922	923	923	923	923	923	920	924		
May 21	923	923	922	922	922	921	921	921	921	920	920	919	919	918	918	917	916	916	916	916	916	916	915	915	923		
May 22	915	915	915	915	914	914	914	913	913	912	912	912	911	911	911	911	911	912	912	912	912	915	915	911	913		
May 23	914	915	915	915	915	915	916	916	917	917	917	917	917	917	917	917	917	917	918	919	919	919	919	914	917		
May 24	919	919	919	919	919	919	919	919	919	919	919	918	918	918	918	917	917	918	918	918	919	920	920	917	920		
May 25	920	920	920	921	921	921	922	922	922	922	922	922	922	922	922	922	922	922	922	922	923	923	922	920	923		
May 26	922	922	922	922	922	922	922	922	921	921	921	920	920	919	919	919	918	918	918	919	919	919	919	918	922		
May 27	919	919	919	919	919	919	919	918	918	918	917	917	916	916	915	915	915	914	915	915	915	915	915	914	919		
May 28	914	914	914	914	914	913	913	913	913	912	912	911	911	910	909	909	909	909	910	911	911	912	912	909	914		
May 29	913	913	913	912	913	913	913	912	912	911	911	911	910	910	910	910	912	912	912	913	913	913	913	910	913		
May 30	913	914	914	914	914	914	915	914	914	914	913	913	912	912	911	911	911	911	912	913	915	914	914	911	915		
May 31	914	914	914	915	915	915	916	915	915	915	915	915	914	913	913	912	912	912	912	913	914	914	914	912	916		
Diurnal Maximum	934	934	935	935	935	935	935	934	934	934	933	933	932	932	931	931	931	931	932	932	933	933	934	934			
Diurnal Average	920	920	920	920	921	921	921	921	921	920	920	919	919	919	919	918	918	919	920	920	920	920	920				

C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	ND 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 days is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



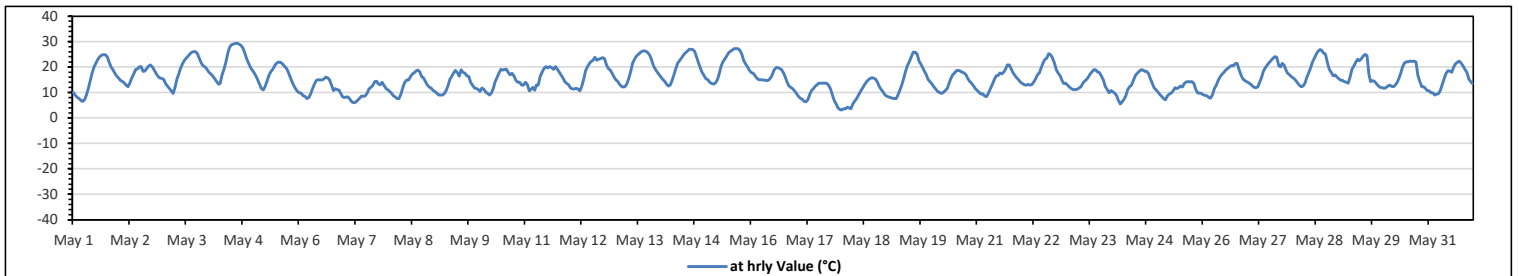
Lakeland Industry & Community Association
St. Lina Site - May 2023
Summary of Hourly Averages
AMBIENT TEMPERATURE (AT) in Degree Celsius

Maximum Hourly Value:	29.4 °C	on May 4 at hr 15	Hours in Service:	744
Maximum Daily Value:	22.1 °C	on May 4	Hours of Data:	744
Minimum Hourly Value:	3.1 °C	on May 18 at hr 0	Hours of Missing Data:	0
Minimum Daily Value:	9.7 °C	on May 17	Hours of Calibration:	0
Monthly Average:	15.7 °C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
May 1	10	9	8.1	7.6	6.9	6.5	7.4	9	11.6	14.6	17.7	20	21.6	23.1	24	24.7	24.9	24.9	24	22	20.1	18.9	17.5	16.6	6.5	24.9	16.3
May 2	15.8	14.7	14.4	13.8	12.9	12.3	13.8	15.8	17.3	19	19.3	20.1	20.2	18.3	18.5	19.3	20.3	20.8	20	18.8	17.4	16.3	15.7	15.6	12.3	20.8	17.1
May 3	15	13.4	12.4	11.7	10.6	9.6	12	15.3	17.4	19.5	21.2	22.6	23.5	24.3	25.3	25.8	26.1	26	25	23.3	21.6	20.4	20	19	9.6	26.1	19.2
May 4	18	17.3	16.4	15.5	14.3	13.3	13.5	16.9	19.2	21.9	25.4	27.7	28.7	29.1	29.3	29.4	29.1	28.5	27.5	25.4	23.2	21.4	19.9	18.8	13.3	29.4	22.1
May 5	17.8	16.4	14.7	13.3	11.5	11	12.5	14.6	17	18.3	19.2	20.7	21.6	22	21.8	21.3	20.5	19.8	18.4	16.3	14.4	12.8	11.4	10.4	10.4	22.0	16.6
May 6	9.9	9.8	8.8	8.5	7.7	8	9.5	11.3	13.2	14.6	15	14.9	14.9	15.3	16	15.9	14.9	12.9	10.8	11.5	11.2	11	9.9	8.4	7.7	16.0	11.8
May 7	7.9	8.3	8.2	7.2	6.3	6	6.3	7	7.8	8.6	8.5	8.6	9.6	11.4	12	12.8	14.3	14.5	13.4	13.1	14.1	12.8	11.7	11	6.0	14.5	10.1
May 8	10.4	9.6	8.6	8.2	7.6	7.7	9.3	12	14.1	14.9	14.9	16.3	17.3	17.8	18.6	18.8	18.1	16.1	15.9	14.4	13.1	12.1	11.8	10.9	7.6	18.8	13.3
May 9	10.4	9.8	9	9.1	9.1	9.6	11	12.7	15.2	16.4	17.8	18.7	18	16.4	18.9	18	17.5	16.5	16.3	13.9	12.8	11.8	11.6	11.3	9.0	18.9	13.8
May 10	10.4	11.8	11.3	10.2	9.6	9.1	9.9	11.8	14.2	15.9	17.5	19.1	18.8	19	19.2	18	17	17.6	16.6	14.7	14.1	14	12.9	13	9.1	19.2	14.4
May 11	14	13.2	10.6	11.2	12	10.9	13	12.9	16.3	17.9	19.5	20.2	19.7	20.2	19.9	19	20.2	19	17.9	17	15.8	14.3	13.5	13.1	10.6	20.2	15.9
May 12	11.8	11.4	11.4	11.7	11.4	10.6	12.4	15.2	18.6	20.2	21.2	22.3	22.6	23.9	22.7	23.1	23.3	23.7	23.3	21	19.4	18.8	17.5	16.3	10.6	23.9	18.1
May 13	15.1	14.4	13.4	12.5	12.1	12.2	13.4	15.6	18.3	21.5	23.1	24.4	25	25.7	26.2	26.4	26.2	25.7	24.7	23	20.9	19.3	18.2	17.2	12.1	26.4	19.8
May 14	16.2	15.2	14.4	13.3	12.5	13.1	14.6	17	19.5	21.5	22.6	23.6	24.8	25.6	26.3	27	27	26.8	26.1	23.9	21.6	19.5	18	16.7	12.5	27.0	20.3
May 15	15.4	15	14.1	13.5	13.3	13.8	15.1	17.6	20.6	22.3	23.4	24.3	25.6	26.3	26.6	27.3	27.3	27.3	26.6	25.1	22.6	21.2	20	18.7	13.3	27.3	21.0
May 16	17.8	17.6	16.7	15.7	15.1	15	14.9	14.9	14.6	14.7	15.4	16.5	18.6	19.7	19.9	19.5	19.1	17.8	16.4	14.3	12.7	12	11.6	10.6	10.6	19.9	15.9
May 17	9.6	8.5	7.8	7.4	6.5	6.4	7.3	9.2	10.8	11.5	12.4	13.1	13.6	13.6	13.7	13.7	13.6	12.9	11.6	9.2	6.8	5.4	4.1	3.3	3.3	13.7	9.7
May 18	3.1	3.6	3.7	4.2	4	3.6	5.4	6.6	7.7	9.1	10.5	11.7	13	14	14.7	15.4	15.8	15.7	15.3	14.1	12.2	11.1	10.1	9	3.1	15.8	9.7
May 19	8.5	8.2	7.9	7.8	7.6	7.6	9.1	10.9	13	15.6	18.3	20.7	22.3	24	25.9	25.9	25.1	22.4	21.3	19.9	18.3	16.9	15.2	14.3	7.6	25.9	16.1
May 20	13.4	12.3	11.4	10.5	10	9.6	10	10.7	11.5	13.7	15.5	16.9	17.7	18.6	18.7	18.5	18	17.7	16.9	15.6	14.4	13.7	12.6	11.6	9.6	18.7	14.1
May 21	10.7	10	9.3	9.5	8.7	8.4	9.8	11.6	13.2	15	16.5	16.7	17.7	17.3	18	19	20.8	20.9	19.6	17.9	16.8	15.8	15	14	8.4	20.9	14.7
May 22	13.5	13.1	13	13.2	12.9	13.2	14.1	15.3	17	17.7	19.9	21.7	22.9	23.5	25.3	24.9	23.6	21.6	18.9	17.6	16.6	14.6	13.5	13.7	12.9	25.3	17.6
May 23	13	12.1	11.5	11.1	11.1	11.3	11.8	12.2	13.7	14.5	15.1	16	17.3	18.2	18.9	18.9	18.1	17.8	16.4	14.9	12.4	11.1	9.9	10.7	9.9	18.9	14.1
May 24	10.3	9.6	8.9	6.8	5.5	6.4	7.3	8.7	11.2	12.2	13	14.8	16.7	17.5	18.4	18.9	18.8	18.4	18.3	17.4	15.4	13.5	11.8	11	5.5	18.9	13.0
May 25	10.2	9.2	8.4	7.6	7.1	8.6	9.3	9.8	10.6	11.9	11.6	11.9	12.5	12.1	13.5	14.2	14.3	14.2	14.3	13.5	11.1	9.8	9.8	9.6	7.1	14.3	11.0
May 26	9.2	8.9	8.8	8.1	7.8	9.2	11.5	12.9	14.8	16.1	17.2	18	18.9	19.4	20	20.6	20.4	21.3	21.4	19.1	16.9	15.6	14.8	14.3	7.8	21.4	15.2
May 27	13.9	13.4	12.7	12	11.9	12.3	13.9	15.9	18.3	19.8	20.9	21.7	22.6	23.5	24	23.9	20.6	20.1	21.4	20.7	18.7	17.6	16.9	16.2	11.9	24.0	18.0
May 28	15.7	14.9	13.9	12.9	12.2	12.5	13.7	16	17.8	19.9	21.8	23.3	25	26.3	26.8	26.6	25.4	25.2	21.8	19.1	17.9	16.6	17	16	12.2	26.8	19.1
May 29	15.4	14.7	14.7	14.3	14.1	13.7	16	19.2	20.4	22	23.1	22.5	23.2	24.4	25	24.5	17.1	14.3	14.6	14.4	13.5	12.6	12	11.9	11.9	25.0	17.4
May 30	11.7	11.9	12.5	12.9	12.4	12.3	12.9	13.9	15.7	17.4	20	21.6	22.1	22.1	22.4	22.2	22.4	21.9	16.7	14.3	12.3	12.2	11.7	10.8	10.8	22.4	16.1
May 31	10.6	9.9	9.9	9.1	9.4	9.5	10.7	13.2	15.5	17.5	18.6	18.5	18	19.9	21.2	21.8	22.4	21.5	20.4	19	17.9	15.3	14.3	13.5	9.1	22.4	15.7
Diurnal Maximum	18.0	17.6	16.7	15.7	15.1	15.0	16.0	19.2	20.6	22.3	25.4	27.7	28.7	29.1	29.3	29.4	29.1	28.5	27.5	25.4	23.2	21.4	20.0	19.0			
Diurnal Average	12.4	11.8	11.2	10.7	10.1	10.1	11.3	13.1	15.0	16.6	17.9	19.0	19.8	20.4	21.0	21.1	20.7	20.1	19.1	17.6	16.0	14.8	13.9	13.1			

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
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 days is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



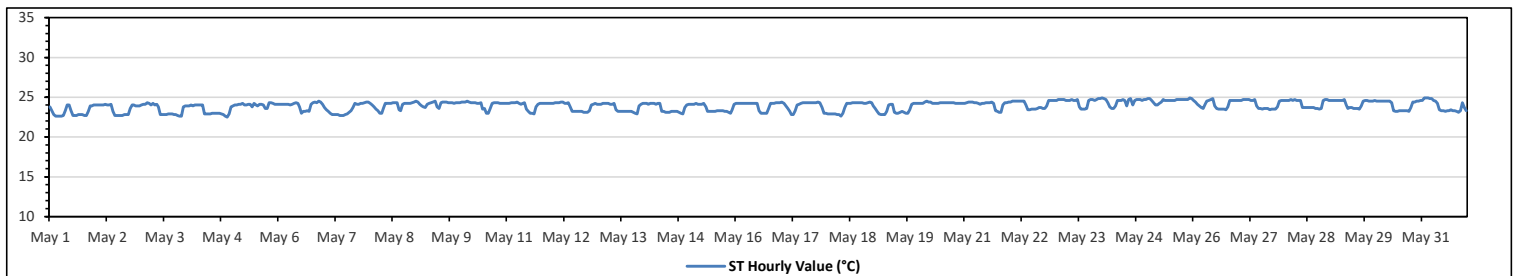
Lakeland Industry & Community Association
St. Lina Site - May 2023
Summary of Hourly Averages
STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:	24.9	°C	on May 24 at hr 0	Hours in Service:	744
Maximum Daily Value:	24.6	°C	on May 25	Hours of Data:	744
Minimum Hourly Value:	22.5	°C	on May 4 at hr 21	Hours of Missing Data:	0
Minimum Daily Value:	23.1	°C	on May 1	Hours of Calibration:	0
Monthly Average:	23.9	°C		Operational Uptime:	100.0

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

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

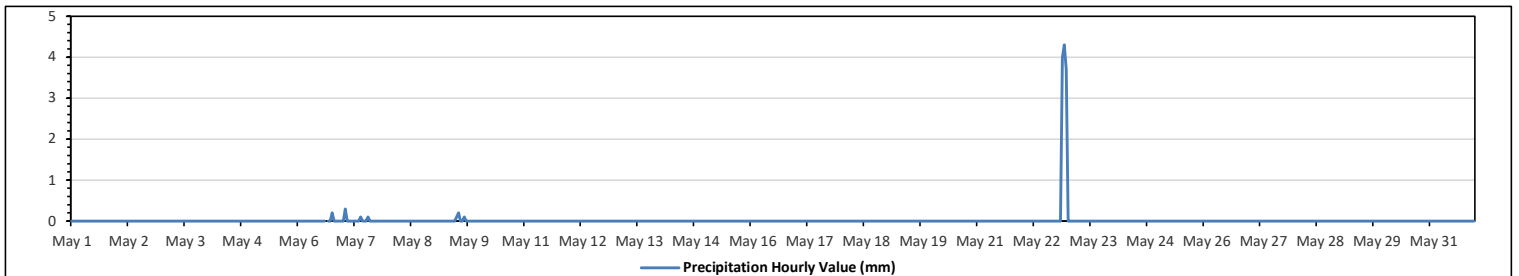
PRECIPITATION in mm

Maximum Hourly Value:	4.3 mm on May 22 at hr 22	Hours in Service:	744
Maximum Daily Value:	12.0 mm on May 22	Hours of Data:	743
Minimum Hourly Value:	0.0 mm on May 1 at hr 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 mm on May 1	Hours of Calibration:	1
Monthly Total:	13.1 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
May 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
May 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
May 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
May 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
May 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
May 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.2	0.2
May 7	0	0.3	0	0	0	0	0	0	0	0.1	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0.0	0.3	0.5
May 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
May 9	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	0	0	0.1	0	0	0	0	0	0	0	0.0	0.2	0.4
May 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
May 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
May 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
May 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
May 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
May 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
May 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
May 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
May 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
May 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
May 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
May 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
May 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4.3	3.7	0.0	4.3	12.0
May 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
May 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
May 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
May 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
May 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
May 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
May 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
May 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
May 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	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.0	0.2	0.0	0.0	4.0	4.3	3.7			
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1			

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

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



Lakeland Industry & Community Association

St. Lina Site - May 2023

Summary of Hourly Averages

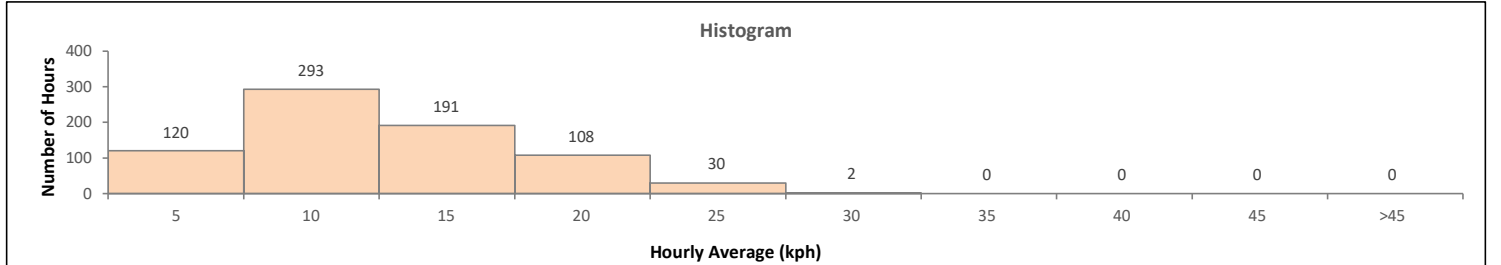
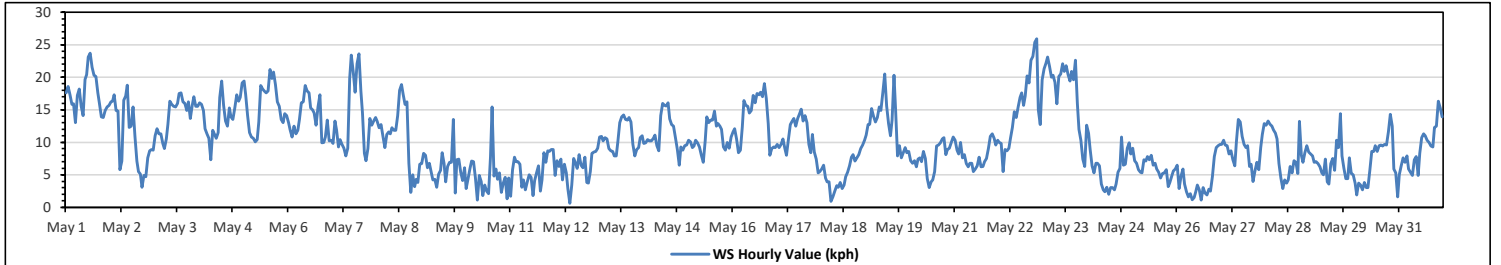
VECTOR WIND SPEED (VWS) in km/hr

Maximum Hourly Value:	25.9 kph	on May 22 at hr 20	Hours in Service:	744
Maximum Daily Value:	18.2 kph	on May 23	Hours of Data:	744
Minimum Hourly Value:	0.6 kph	on May 12 at hr 8	Hours of Missing Data:	0
Minimum Daily Value:	4.0 kph	on May 26	Hours of Calibration:	0
Monthly Average:	4.3 kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
May 1	17.6	18.6	17.3	15.8	15.9	13.0	17.2	18.2	15.5	14.1	19.7	20.4	23.1	23.7	21.5	20.3	20.1	17.6	16.0	13.9	13.8	14.9	15.4	15.7	13.0	23.7	17.5
May 2	16.2	16.3	17.3	14.9	14.8	5.8	7.1	16.5	17.1	18.8	12.3	12.5	15.4	10.9	7.1	5.5	5.1	3.1	4.9	4.7	7.6	8.7	8.9	8.8	3.1	18.8	10.8
May 3	11.0	12.1	11.3	11.3	9.8	9.0	10.5	12.8	16.3	15.8	15.5	15.4	16.0	17.5	17.6	16.2	16.0	14.9	16.2	13.7	15.7	17.0	15.5	15.5	9.0	17.6	14.3
May 4	16.1	15.8	14.9	12.1	11.3	10.6	7.3	11.8	11.3	10.6	11.5	16.9	19.4	15.7	13.3	12.5	15.3	13.9	13.5	15.3	17.3	16.3	16.9	19.1	7.3	19.4	14.1
May 5	19.4	17.3	14.1	11.5	10.8	10.6	10.1	10.4	13.1	18.7	18.2	17.9	17.6	17.9	21.2	19.8	20.8	18.9	16.2	15.5	13.5	13.0	14.4	14.1	10.1	21.2	15.6
May 6	13.0	11.9	10.8	12.5	11.3	11.8	13.5	16.1	16.2	18.7	17.9	17.6	15.3	15.0	14.5	12.6	15.4	17.3	9.9	10.0	10.8	13.4	10.2	10.3	9.9	18.7	13.6
May 7	9.8	13.3	11.9	9.3	10.4	9.7	9.1	7.9	9.1	19.8	23.4	20.9	17.7	22.1	23.6	17.9	14.5	8.3	7.2	9.0	13.7	12.6	13.3	13.8	7.2	23.6	13.7
May 8	13.2	12.2	12.7	10.9	9.2	11.2	11.6	11.3	12.2	11.8	11.8	14.1	18.0	18.9	17.4	15.8	16.2	6.8	2.3	5.0	3.2	4.3	3.8	6.6	2.3	18.9	10.9
May 9	6.7	8.3	8.0	6.1	6.8	5.6	4.2	4.3	3.1	5.1	5.7	8.4	6.7	3.9	6.3	6.9	6.9	13.5	2.2	7.3	7.4	5.4	4.1	6.1	2.2	13.5	6.2
May 10	2.9	4.4	6.0	7.1	7.0	4.5	1.1	4.9	4.0	1.8	3.4	2.5	2.1	7.7	15.4	4.8	5.9	4.3	5.3	2.3	3.7	4.6	1.3	4.5	1.1	15.4	4.6
May 11	1.7	5.8	7.7	7.0	7.0	6.6	3.1	4.2	2.7	3.9	5.0	4.6	1.8	4.1	5.3	6.4	2.5	4.2	8.4	6.9	8.7	8.6	8.9	8.9	1.7	8.9	5.6
May 12	4.9	7.2	6.3	7.4	4.2	6.6	5.3	2.8	0.6	3.4	7.5	6.8	6.0	8.1	6.5	6.1	7.7	3.8	3.7	5.5	8.3	8.5	8.6	9.1	0.6	9.1	6.0
May 13	10.8	10.9	10.2	10.7	10.5	9.0	8.7	8.6	7.9	7.9	10.1	13.0	13.9	14.2	13.5	13.4	13.8	13.1	9.7	7.9	8.9	9.2	10.7	11.0	7.9	14.2	10.7
May 14	9.8	9.9	10.4	10.2	10.2	10.6	11.1	9.5	8.7	14.1	16.0	15.7	15.6	16.1	13.6	12.7	12.5	10.7	8.9	6.5	9.3	8.8	9.5	9.6	6.5	16.1	11.3
May 15	10.3	10.1	9.2	9.4	10.3	9.9	9.3	8.0	6.9	10.2	13.9	13.0	13.4	13.4	14.8	12.5	12.9	12.5	12.0	9.3	8.8	10.0	9.1	10.8	6.9	14.8	10.8
May 16	11.6	12.1	10.5	8.4	8.8	12.4	16.4	15.7	15.5	14.5	14.9	17.2	16.1	17.5	17.3	17.7	17.0	19.0	16.7	12.9	8.0	9.0	9.3	9.2	8.0	19.0	13.7
May 17	9.7	9.2	9.7	10.5	9.0	8.0	10.4	12.7	13.3	13.7	12.5	13.7	14.4	15.1	13.3	14.1	13.0	9.7	8.4	11.2	8.5	7.4	5.3	5.5	5.3	15.1	10.8
May 18	5.9	6.5	4.5	3.9	3.9	0.9	1.6	2.5	3.3	3.1	3.8	2.9	3.4	4.7	5.4	6.4	7.7	8.1	7.1	7.6	8.1	9.0	9.6	10.3	0.9	10.3	5.4
May 19	11.1	12.7	12.8	15.2	14.0	13.1	13.8	15.4	14.9	17.6	20.5	15.6	12.9	11.0	13.4	20.3	15.0	7.9	9.5	7.6	8.4	9.2	8.4	8.6	7.6	20.5	12.9
May 20	7.2	6.8	7.2	6.2	7.4	7.6	7.0	8.6	7.5	4.4	3.0	3.9	4.2	5.5	9.4	9.6	9.9	10.5	10.7	8.1	8.9	9.1	10.0	10.8	3.0	10.8	7.6
May 21	10.3	8.8	8.2	10.0	7.6	8.1	6.7	6.2	6.8	6.8	5.5	5.9	6.4	7.7	6.2	6.3	7.0	7.5	9.0	10.9	11.3	10.6	9.6	10.3	5.5	11.3	8.1
May 22	10.0	9.8	5.5	8.9	8.7	9.1	10.6	12.3	14.7	13.8	15.4	16.9	17.6	15.7	17.1	20.2	19.1	22.6	23.2	25.4	25.9	15.0	12.7	19.6	5.5	25.9	15.4
May 23	21.3	22.2	23.1	21.7	20.0	20.3	19.2	15.9	20.1	20.5	22.1	20.9	21.8	20.4	19.4	20.9	19.6	22.6	16.0	12.0	10.3	7.4	6.3	12.6	6.3	23.1	18.2
May 24	11.4	8.9	6.4	5.3	6.8	6.8	6.4	3.6	2.7	2.4	3.1	2.0	3.0	3.0	2.7	3.6	5.4	6.0	10.8	6.5	6.6	9.1	9.9	8.2	2.0	11.4	5.9
May 25	9.1	7.2	6.8	5.8	5.4	5.3	7.3	7.1	7.8	7.3	8.0	6.5	6.8	5.9	5.4	4.5	5.2	5.3	5.8	3.2	3.8	4.8	5.6	5.9	3.2	9.1	6.1
May 26	6.5	2.9	4.8	5.9	3.6	2.4	1.6	2.1	1.2	1.5	2.4	3.4	2.7	1.1	3.0	2.2	1.9	2.8	2.5	4.7	7.8	9.2	9.5	9.7	1.1	9.7	4.0
May 27	9.7	10.3	9.6	9.5	8.2	8.7	7.3	6.4	10.1	13.5	13.1	10.9	9.7	9.2	9.5	6.3	6.6	4.0	5.6	6.9	5.8	9.2	11.2	12.9	4.0	13.5	8.9
May 28	12.6	13.3	12.8	12.5	11.9	11.4	10.5	6.7	4.5	2.9	4.2	3.7	4.2	6.3	5.3	7.2	6.9	5.2	13.2	8.0	6.9	8.4	9.5	8.5	2.9	13.3	8.2
May 29	8.2	7.9	6.9	7.0	6.7	6.2	5.3	5.0	7.4	3.9	3.6	6.7	7.5	5.7	10.3	9.2	14.4	7.9	6.0	4.4	4.4	7.6	5.2	5.0	3.6	14.4	6.8
May 30	3.7	1.9	3.7	3.4	2.7	3.8	3.0	3.0	5.7	8.6	8.6	9.5	8.6	9.5	9.6	9.4	9.7	9.6	11.6	14.3	12.5	5.9	5.3	1.6	1.6	14.3	6.9
May 31	5.0	6.4	7.6	6.9	7.9	5.9	5.4	4.9	7.3	7.8	4.9	8.3	10.7	11.3	11.0	10.3	10.0	9.4	9.3	12.3	12.5	16.3	15.3	13.9	4.9	16.3	9.2
Diurnal Maximum	21.3	22.2	23.1	21.7	20.0	20.3	19.2	18.2	20.1	20.5	23.4	20.9	23.1	23.7	23.6	20.9	20.8	22.6	23.2	25.4	25.9	17.0	16.9	19.6			
Diurnal Average	10.2	10.4	9.9	9.6	9.1	8.5	8.4	8.9	9.3	10.2	10.9	11.2	11.4	11.6	11.9	11.3	11.4	10.4	9.7	9.3	9.7	9.8	9.5	10.2			

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

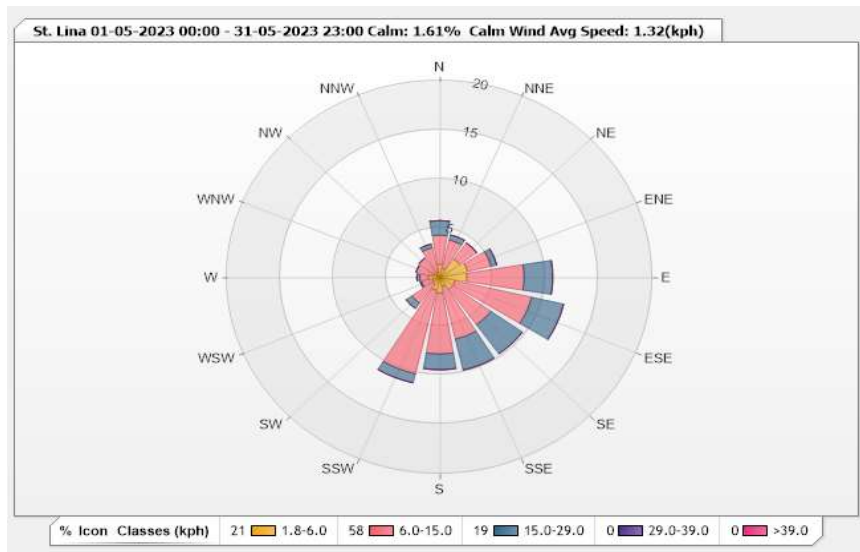


Station: St. Lina Monitor: WDS [kph] Monthly: 05-2023

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

Calm (WS<1.8kph): 1.61% 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	1.34	2.96	1.48	0	0	5.78
NNE	0.94	2.96	0.54	0	0	4.44
NE	2.28	2.02	0	0	0	4.3
ENE	2.69	2.28	0.54	0	0	5.51
E	2.55	5.38	2.69	0	0	10.62
ESE	1.48	7.39	3.09	0	0	11.96
SE	1.48	4.44	3.63	0	0	9.55
SSE	0.94	5.51	3.23	0	0	9.68
S	1.61	6.18	1.61	0	0	9.4
SSW	1.34	8.74	0.94	0	0	11.02
SW	0.81	2.42	0.67	0	0	3.9
WSW	0.67	1.08	0.13	0	0	1.88
W	1.08	0.81	0.27	0	0	2.16
WNW	0.67	1.61	0	0	0	2.28
NW	0.4	2.02	0	0	0	2.42
NNW	0.54	2.55	0.4	0	0	3.49
Summary	20.82	58.35	19.22	0	0	98.39



Lakeland Industry & Community Association

St. Lina Site - May 2023

Summary of Hourly Averages

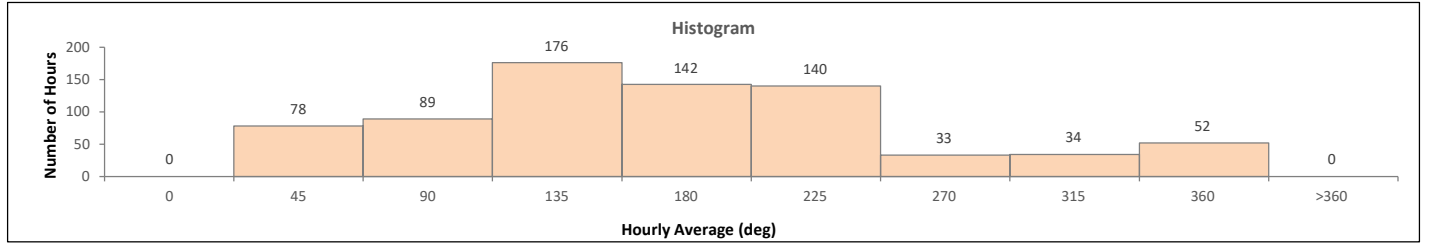
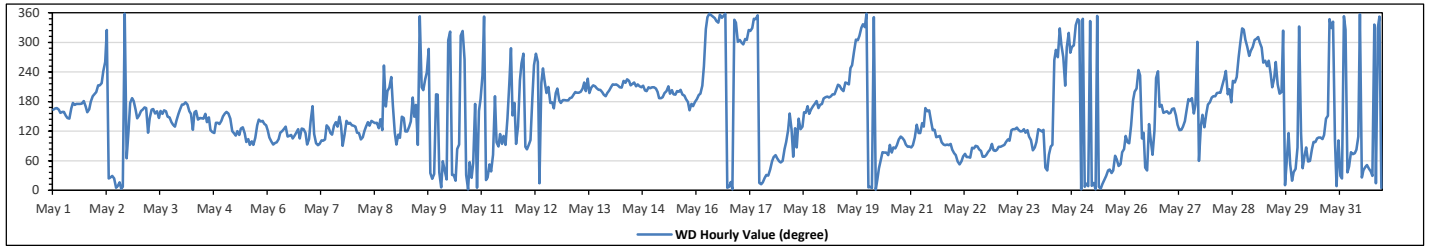
WIND DIRECTION (VWD) in sector

Monthly Average:	135 (SE) degree	Hours in Service:	744
		Hours of Data:	744
		Hours of Missing Data:	0
		Hours of Calibration:	0
		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant
May 1	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	SE	SSE	S	S	S	S	S	S	SSE	SSE	SSE	S	S	SSW	169	SSE	
May 2	SSW	SSW	SSW	SW	WSW	WSW	NW	NNE	NNE	NNE	NNE	N	N	NNE	N	N	N	ENE	ESE	S	S	S	SSE	SE	341	NNW
May 3	SSE	SSE	SSE	SSE	SSE	ESE	SE	SSE	SSE	SSE	SSE	SE	SSE	SSE	SSE	SSE	SSE	SE	SE	SE	SE	SE	SSE	SSE	153	SSE
May 4	S	S	S	S	SSE	SSE	ESE	SSE	SSE	SE	SE	SE	SE	SSE	SE	SE	ESE	ESE	SE	SE	SE	SE	SE	SSE	147	SE
May 5	SSE	SSE	SSE	SE	ESE	ESE	ESE	ESE	SE	SE	ESE	E	ESE	E	E	E	ESE	SE	SE	SE	SE	SE	SE	SE	123	ESE
May 6	ESE	ESE	E	E	E	E	ESE	ESE	ESE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	ESE	ESE	E	ESE	112	ESE
May 7	SE	S	ESE	E	E	E	E	ESE	SE	SE	ESE	SE	SE	SE	SE	SE	SE	E	ESE	SE	SE	SE	SE	SE	125	SE
May 8	SE	SE	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	WSW	SSE	SSW	SSW	SW	S	ESE	134	SE
May 9	E	ESE	ESE	SSE	SE	ESE	ESE	SE	SE	S	SSE	S	E	N	SSW	SSW	SW	WSW	WNW	NE	NNE	NNE	SSW	SSW	148	SE
May 10	NE	N	ENE	NE	NNE	WNW	NW	NNE	NNE	NNE	E	E	NW	NW	N	NNE	N	ENE	NNE	NE	S	N	SSE	S	11	NNE
May 11	SW	N	NNE	NNE	NE	NE	ENE	S	E	E	ESE	E	ESE	E	SE	SW	WNW	SSE	S	E	SE	SW	WSW	W	115	ESE
May 12	E	E	E	E	S	WSW	W	WSW	NNE	SW	WSW	SW	SSW	SSW	S	S	SSE	SSW	SSW	S	S	S	S	S	186	S
May 13	S	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	213	SSW
May 14	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	213	SSW
May 15	SSW	SSW	SSW	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	SSE	S	S	S	S	193	S
May 16	S	S	SSW	SSW	WSW	NW	N	N	N	NNW	NNW	NNW	N	N	N	N	N	N	NNE	N	NNW	NNW	NNW	NNW	345	NNW
May 17	WNW	WNW	WNW	NW	WNW	NW	NW	NNW	NNW	NNW	N	NNE	NNE	NNE	NNE	NNE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	4	N
May 18	ENE	E	E	ESE	SSE	ESE	ENE	SE	E	SE	ESE	SE	SSE	S	SSE	SSE	S	S	SSE	S	S	SSE	S	S	153	SSE
May 19	S	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	227	SW
May 20	N	N	N	N	N	NNE	NE	ENE	ENE	ENE	ENE	E	ENE	E	E	E	ESE	ESE	ESE	E	E	E	E	E	71	ENE
May 21	E	E	ESE	SE	ESE	ESE	SE	SE	SSE	SSE	SE	ESE	ESE	ESE	ESE	ESE	ESE	E	E	E	E	E	E	E	111	ESE
May 22	ENE	ENE	ENE	NE	ENE	ENE	ENE	ENE	ENE	E	E	E	E	E	E	E	ENE	ENE	ENE	ENE	E	E	E	E	77	ENE
May 23	E	E	E	E	E	E	ESE	ESE	ESE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	E	E	E	ESE	108	ESE
May 24	ESE	ESE	ESE	NE	NE	ENE	E	E	W	WNW	W	NNW	WNW	W	SSW	WNW	NW	W	WNW	WNW	NNW	NNW	NNW	N	354	N
May 25	NNW	N	NNE	N	NNW	N	NNE	N	N	N	N	NNE	NNE	NNE	NE	NE	NE	NE	ENE	ENE	NE	ENE	E	E	22	NNE
May 26	ESE	E	E	SE	S	SSW	SSW	WSW	SW	ESE	ESE	NE	NE	SE	E	ENE	ESE	SW	WSW	SSE	S	SSE	SSE	SSE	147	SE
May 27	SSE	SSE	SSE	SSE	SSE	SE	ESE	ESE	SE	SE	SSE	S	S	S	SSE	S	WNW	ENE	SE	SSE	SE	SSE	S	S	157	SSE
May 28	S	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SW	SW	W	WNW	NNW	NW	NW	WNW	W	W	WNW	W	234	SW
May 29	WNW	NW	NW	WNW	WNW	WSW	W	WSW	W	SW	SSW	SW	WSW	SSW	SSW	SSW	NW	N	NE	ESE	NE	NNE	NE	NE	286	WNW
May 30	E	NNW	ESE	NE	ENE	E	ENE	ENE	E	E	ESE	ESE	ESE	ESE	ESE	SE	SSE	NNW	NNW	NNW	E	N	E	E	281	E
May 31	NNE	NNE	N	NW	NE	NE	ENE	ENE	E	ESE	N	NNE	NE	NE	NE	NE	NE	NE	NNE	NNW	NNE	NNW	N	N	23	NNE

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

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



Lakeland Industry & Community Association

St. Lina Site - May 2023

Summary of Hourly Averages

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

WIND SPEED			
Maximum Hourly Value:	25.9 kph	on May 22 at hr 20	Hours in Service: 744
Maximum Daily Value:	18.2 kph	on May 23	Hours of Data: 744
Minimum Hourly Value:	0.6 kph	on May 12 at hr 8	Hours of Missing Data: 0
Minimum Daily Value:	4.0 kph	on May 26	Hours of Calibration: 0
Monthly Average:	4.3 kph		Operational Uptime: 100.0

WIND DIRECTION			
Monthly Average:	135 degree (SE)		

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	
May 1	17.6	18.6	17.3	15.8	15.9	13.0	17.2	18.2	15.5	14.1	19.7	20.4	23.1	23.7	21.5	20.3	20.1	17.6	16.0	13.9	13.8	14.9	15.4	15.7	13.0	23.7	17.5	
May 2	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	SE	SSE	S	S	S	S	S	S	SSE	SSE	SSE	S	S	SSW	3.1	18.8	10.8		
May 3	16.2	16.3	17.3	14.9	14.8	5.8	7.1	16.5	17.1	18.8	12.3	12.5	15.4	10.9	7.1	5.5	5.1	3.1	4.9	4.7	7.6	8.7	8.9	8.8	9.0	17.6	14.3	
May 4	11.0	12.1	11.3	11.3	9.8	9.0	10.5	12.8	16.3	15.8	15.5	15.4	16.0	17.5	17.6	16.2	16.0	14.9	16.2	13.7	15.7	17.0	15.5	15.5	7.3	19.4	14.1	
May 5	SSE	SSE	SSE	SSE	SSE	ESE	SE	SSE	SSE	SSE	SE	SSE	SE	SE	SE	SE	SE	ESE	ESE	ESE	SE	SE	SE	SSE	10.1	21.2	15.6	
May 6	19.4	17.3	14.1	11.5	10.8	10.6	10.1	10.4	13.1	18.7	18.2	17.9	17.6	17.9	21.2	19.8	20.8	18.9	16.2	15.5	13.5	13.0	14.4	14.1	9.9	18.7	13.6	
May 7	SSE	SSE	SSE	SE	ESE	ESE	ESE	ESE	ESE	SE	ESE	E	ESE	E	E	E	ESE	SE	SE	SE	SE	SE	SE	SSE	7.2	23.6	13.7	
May 8	ESE	ESE	E	E	E	E	ESE	ESE	ESE	ESE	SE	SE	ESE	SE	SE	SE	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	2.3	18.9	10.9	
May 9	SE	SE	ESE	ESE	ESE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	WSW	SSE	SSW	SSW	SSW	S	ESE	2.2	13.5	6.2	
May 10	6.7	8.3	8.0	6.1	6.8	5.6	4.2	4.3	3.1	5.1	5.7	8.4	6.7	3.9	6.3	6.9	6.9	13.5	2.2	7.3	7.4	5.4	4.1	6.1	1.1	15.4	4.6	
May 11	E	ESE	ESE	SSE	SE	ESE	SE	SE	S	SSE	S	E	N	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	1.7	8.9	5.6	
May 12	2.9	4.4	6.0	7.1	7.0	4.5	1.1	4.9	4.0	1.8	3.4	2.5	2.1	7.7	15.4	4.8	5.9	4.3	5.3	2.3	3.7	4.6	1.3	4.5	0.6	9.1	6.0	
May 13	NE	N	ENE	NE	NNE	WNW	NW	NNE	NNE	NNE	E	NW	NW	W	NNE	N	ENE	NNE	NE	S	N	SSE	S	S	7.9	14.2	10.7	
May 14	1.7	5.8	7.7	7.0	7.0	6.6	3.1	4.2	2.7	3.9	5.0	4.6	1.8	4.1	5.3	6.4	2.5	4.2	8.4	6.9	8.7	8.6	8.9	8.9	1.7	8.9	5.6	
May 15	SW	N	NNE	NNE	NE	NE	ENE	S	E	ESE	E	ESE	E	ESE	E	SE	SW	WNW	SSE	S	E	SE	SW	WSW	W	0.6	9.1	6.0
May 16	4.9	7.2	6.3	7.4	4.2	6.6	5.3	2.8	0.6	3.4	7.5	6.8	6.0	8.1	6.5	6.1	7.7	3.8	3.7	5.5	8.3	8.5	8.6	9.1	7.9	14.2	10.7	
May 17	E	E	E	E	S	WSW	W	WSW	NNE	SW	WSW	SW	SSW	SSW	S	SSE	SSW	SSW	S	S	S	S	S	S	0.6	9.1	6.0	
May 18	10.8	10.9	10.2	10.7	10.5	9.0	8.7	8.6	7.9	7.9	10.1	13.0	13.9	14.2	13.5	13.4	13.8	13.1	9.7	7.9	8.9	9.2	10.7	11.0	7.9	14.2	10.7	
May 19	S	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	7.9	14.2	10.7	
May 20	9.8	9.9	10.4	10.2	10.2	10.6	11.1	9.5	8.7	14.1	16.0	15.7	15.6	16.1	13.6	12.7	12.5	10.7	8.9	6.5	9.3	8.8	9.5	9.6	6.5	16.1	11.3	
May 21	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	6.5	16.1	11.3	
May 22	10.3	10.1	9.2	9.4	10.3	9.9	9.3	8.0	6.9	10.2	13.9	13.0	13.4	13.4	14.8	12.5	12.9	12.5	12.0	9.3	8.8	10.0	9.1	10.8	6.9	14.8	10.8	
May 23	SSW	SSW	SSW	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	SSE	S	S	S	6.9	14.8	10.8	
May 24	11.6	12.1	10.5	8.4	8.8	12.4	16.4	15.7	15.5	14.5	14.9	17.2	16.1	17.5	17.3	17.7	17.0	19.0	16.7	12.9	8.0	9.0	9.3	9.2	8.0	19.0	13.7	
May 25	S	S	SSW	SSW	WSW	NW	N	N	N	NNW	NNW	NNW	N	N	N	N	N	N	N	NNE	N	NNW	NNW	NNW	5.3	15.1	10.8	
May 26	9.7	9.2	9.7	10.5	9.0	8.0	10.4	12.7	13.3	13.7	12.5	13.7	14.4	15.1	13.3	14.1	13.0	9.7	8.4	11.2	8.5	7.4	5.3	5.5	0.9	10.3	5.4	
May 27	WNW	WNW	WNW	NW	NNW	NW	NNW	NNW	NNW	NNW	N	NNE	NNE	NNE	NNE	NNE	NNE	NE	ENE	ENE	ENE	ENE	ENE	ENE	0.9	10.3	5.4	
May 28	5.9	6.5	4.5	3.9	3.9	0.9	1.6	2.5	3.3	3.1	3.8	2.9	3.4	4.7	5.4	6.4	7.7	8.1	7.1	7.6	8.1	9.0	9.6	10.3	0.9	10.3	5.4	
May 29	ENE	E	E	ESE	SSE	ESE	ENE	SE	E	SE	ESE	SE	SSE	SSE	S	SSE	SSE	S	S	S	S	S	S	S	7.6	20.5	12.9	
May 30	11.1	12.7	12.8	15.2	14.0	13.1	13.8	15.4	14.9	17.6	20.5	15.6	12.9	11.0	13.4	20.3	15.0	7.9	9.5	7.6	8.4	9.2	8.4	8.6	7.6	20.5	12.9	
May 31	S	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	7.6	20.5	12.9	
May 1	7.2	6.8	7.2	6.2	7.4	7.6	7.0	8.6	7.5	4.4	3.0	3.9	4.2	5.5	9.4	9.6	9.9	10.5	10.7	8.1	8.9	9.1	10.0	10.8	3.0	10.8	7.6	
May 2	N	N	N	N	NNE	NE	ENE	ENE	ENE	ENE	ENE	E	ENE	E	E	ESE	ESE	E	E	ESE	ESE	E	E	E	3.0	10.8	7.6	
May 3	10.3	8.8	8.2	10.0	7.6	8.1	6.7	6.2	6.8	6.8	5.5	5.9	6.4	7.7	6.2	6.3	7.0	7.5	9.0	10.9	11.3	10.6	9.6	10.3	5.5	11.3	8.1	
May 4	E	E	ESE	SE	ESE	ESE	SE	SE	SSE	SSE	SE	ESE	ESE	ESE	ESE	ESE	ESE	E	E	E	E	E	E	E	5.5	11.3	8.1	
May 5	10.0	9.8	5.5	8.9	8.7	9.1	10.6	12.3	14.7	13.8	15.4	16.9	17.6	15.7	17.1	20.2	19.1	22.6	23.2	25.4	25.9	15.0	12.7	19.6	5.5	25.9	15.4	
May 6	ENE	ENE	ENE	NE	ENE	ENE	ENE	ENE	ENE	E	E	E	E	E	E	E	E	ENE	ENE	ENE	ENE	E	E	E	5.5	25.9	15.4	
May 7	21.3	22.2	23.1	21.7	20.0	20.3	19.2	15.9	20.1	20.5	22.1	20.9	21.8	20.4	19.4	20.9	19.6	22.6	16.0	12.0	10.3	7.4	6.3	12.6	6.3	23.1	18.2	
May 8	E	E	E	E	E	ESE	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	6.3	23.1	18.2	
May 9	11.4	8.9	6.4	5.3	6.8	6.8	6.4	3.6	2.7	2.4	3.1	2.0	3.0	3.0	2.7	3.6	5.4	6.0	10.8	6.5	6.6	9.1	9.9	8.2	2.0	11.4	5.9	
May 10	ESE	ESE	ESE	NE	NE	ENE	E	W	WNW	W	NNW	WNW	W	SSW	WNW	W	SSW	WNW	W	WNW	WNW	NNW	NNW	NNW	2.0	11.4	5.9	
May 11	9.1	7.2	6.8	5.8	5.4	5.3	7.3	7.1	7.8	7.3	8.0	6.5	6.8	5.9	5.4	4.5	5.2	5.3	5.8	3.2	3.8	4.8	5.6	5.9	3.2	9.1	6.1	
May 12	NNW	N	NNE	N	NNW	N	NNE	N	N	N	N	NNE	NNE	NNE	NE	NE	NE	NE	NE	ENE	ENE	NE	ENE	ENE	3.2	9.1	6.1	
May 13	6.5	2.9	4.8	5.9	3.6	2.4	1.6	2.1	1.2	1.5	2.4	3.4	2.7	1.1	3.0	2.2	1.9	2.8	2.5	4.7	7.8	9.2	9.5	9.7	1.1	9.7	4.0	
May 14	ESE	E	E	SE	S	SSW	SSW	WSW	SE	ESE	NE	SE	ESE	NE	SE	E	ENE	ESE	SW	WSW	SSE	S	SSE	SSE	1.1	9.7	4.0	
May 15	9.7	10.3	9.6	9.5	8.2	8.7	7.3	6.4	10.1	13.5	13.1	10.9	9.7	9.2	9.5	6.3	6.6	4.0	5.6	6.9	5.8	9.2	11.2	12.9	4.0	13.5	8.9	
May 16	SSE	SSE	SSE	SSE	SSE	SE	ESE	ESE	SE	SSE	S	S	SSE	S	SSE	S	WNW	ENE	SE	SSE	SE	SSE	S	S	4.0	13.5	8.9	
May 17	12.6	13.3	12.8	12.5	11.9	11.4	10.5	6.7	4.5	2.9	4.2	3.7	4.2	6.3	5.3	7.2	6.9	5.2	13.2	8.0	6.9	8.4	9.5	8.5	2.9	13.3	8.2	
May 18	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	2.9	13.3	8.2	
May 19	8.2	7.9	6.9	7.0	6.7	6.2	5.3	5.0	7.4	3.9	3.6	6.7	7.5	5.7	10.3	9.2	14.4	7.9	6.0	4.4	4.4	7.6	5.2	5.0	3.6	14.4	6.8	
May 20	WNW	NW	NW	WNW	WNW	WSW	W	WSW	W	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	N	NE	ESE	NE	NNE	NE	NE	3.6	14.4	6.8
May 21	3.7	1.9	3.7	3.4	2.7	3.8	3.0	3.0	5.7	8.6	8.6	9.5	8.6	9.5	9.6	9.4	9.7	9.6	11.6	14.3	12.5	5.9	5.3	1.6	1.6	14.3	6.9	
May 22	E	NNW	ESE	NE	ENE	E	ENE	ENE	E	E	ESE	ESE	ESE															

Lakeland Industry & Community Association
St. Lina Site - May 2023
Summary of Hour Standard Deviations

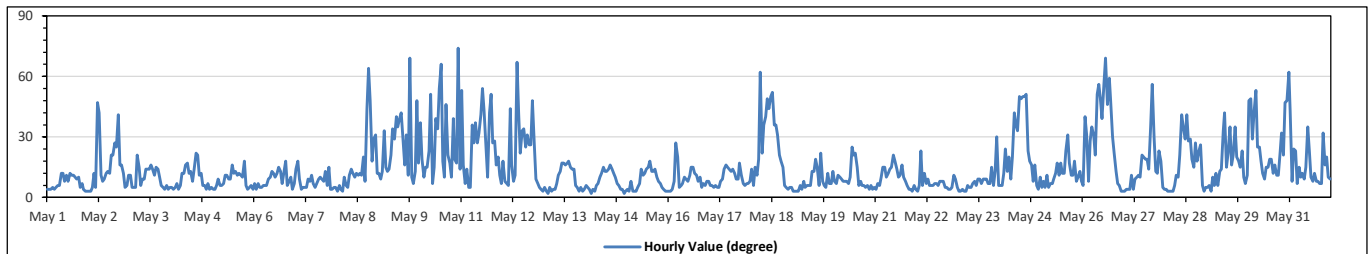
STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

Maximum Hourly Value: 74 degree on May 10 at hr 22		Hours in Service: 744	
Minimum Hourly Value: 2 degree on May 13 at hr 3		Hours of Data: 744	
		Hours of Missing Data: 0	
		Hours of Calibration: 0	
		Operational Uptime: 100.0	

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			23	
May 1	4	4	4	5	4	5	6	6	12	12	8	11	8	12	11	11	10	9	10	5	7	4	3	3	3	12	
May 2	3	3	5	12	5	47	42	11	8	9	12	13	12	21	21	27	25	41	16	16	12	5	6	11	3	47	
May 3	11	5	5	5	21	15	6	9	9	14	14	14	16	14	11	15	14	10	6	5	4	6	4	5	4	21	
May 4	5	4	5	7	4	6	12	12	16	17	12	13	8	14	22	21	11	12	6	6	4	7	4	5	4	22	
May 5	4	4	6	9	6	6	7	11	11	9	9	16	12	13	11	12	11	10	18	6	4	5	6	4	4	18	
May 6	7	4	7	5	5	6	6	6	9	10	13	12	10	12	15	13	7	12	18	6	8	10	4	7	4	18	
May 7	14	18	9	4	5	5	9	8	11	7	5	7	9	10	9	8	13	6	15	4	4	5	5	4	4	18	
May 8	3	6	4	3	10	6	5	11	14	12	10	12	11	12	11	20	8	44	64	48	18	29	31	12	3	64	
May 9	12	9	13	33	15	13	14	21	34	29	40	35	39	42	28	16	31	11	69	10	7	13	48	17	7	69	
May 10	37	19	10	15	15	23	51	7	15	39	34	54	66	18	10	46	21	17	10	39	19	17	74	14	7	74	
May 11	53	16	7	14	5	5	36	27	37	27	32	41	54	43	25	10	42	51	27	28	16	20	11	7	5	54	
May 12	18	8	7	6	44	16	8	11	67	42	22	33	34	25	31	26	26	48	26	9	7	5	4	3	3	67	
May 13	5	3	2	5	3	4	4	7	11	13	17	17	16	17	18	15	14	14	6	5	3	5	3	4	2	18	
May 14	6	5	4	2	4	3	6	7	10	12	15	13	13	14	16	14	12	10	7	6	4	4	2	3	2	16	
May 15	4	3	8	3	3	3	5	7	14	11	12	14	15	18	13	13	14	10	8	7	5	4	3	3	3	18	
May 16	3	3	4	8	27	20	5	6	7	10	9	8	11	15	12	11	8	10	5	7	6	8	8	3	3	27	
May 17	6	6	5	6	5	5	8	9	14	16	15	14	13	14	12	9	9	17	11	7	6	7	7	8	5	17	
May 18	14	6	15	11	19	62	22	36	40	49	44	50	52	36	36	31	21	18	15	6	5	4	5	5	4	62	
May 19	3	3	3	3	6	4	8	5	6	6	6	13	13	19	15	6	22	8	6	5	12	7	7	13	3	22	
May 20	8	7	11	10	9	8	8	7	10	25	21	22	15	6	8	6	6	5	6	4	6	4	5	4	5	25	
May 21	4	7	6	10	15	15	10	12	14	15	21	18	14	10	11	16	10	8	6	4	4	3	6	4	3	21	
May 22	3	6	23	6	12	7	9	6	6	6	7	7	6	8	8	5	5	4	4	5	11	9	5	3	3	23	
May 23	3	3	4	3	3	6	5	5	7	8	6	9	9	7	9	9	7	7	15	6	13	30	6	3	3	30	
May 24	6	6	12	24	13	20	9	20	42	36	33	50	49	50	50	51	23	18	16	8	16	6	4	10	4	51	
May 25	5	8	5	11	5	7	7	9	12	17	11	17	12	23	31	17	11	11	18	8	10	13	8	5	3	31	
May 26	6	40	31	8	28	35	31	21	51	56	49	39	56	69	46	59	48	30	22	13	7	6	3	3	3	69	
May 27	3	4	4	4	11	4	9	10	11	10	21	10	21	19	19	14	35	56	29	13	12	23	18	5	4	3	56
May 28	4	3	3	3	3	6	11	10	21	41	35	29	41	28	29	19	15	27	18	23	26	6	3	5	3	41	
May 29	5	6	3	10	6	12	6	13	14	33	42	15	22	35	16	21	35	20	18	15	23	10	7	11	3	42	
May 30	48	49	29	42	53	25	25	18	12	9	15	15	19	19	12	16	11	11	23	32	21	47	48	62	9	62	
May 31	43	8	24	23	7	15	10	12	9	15	35	23	10	8	12	8	8	7	7	32	16	20	10	9	7	43	
Diurnal Minimum	3	3	2	2	3	3	4	5	6	6	6	5	6	6	6	5	5	4	4	4	3	3	2	3	3	3	
Diurnal Maximum	53	49	31	42	53	62	51	36	67	56	49	54	66	69	50	59	56	51	69	48	26	47	74	62	62	62	

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

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



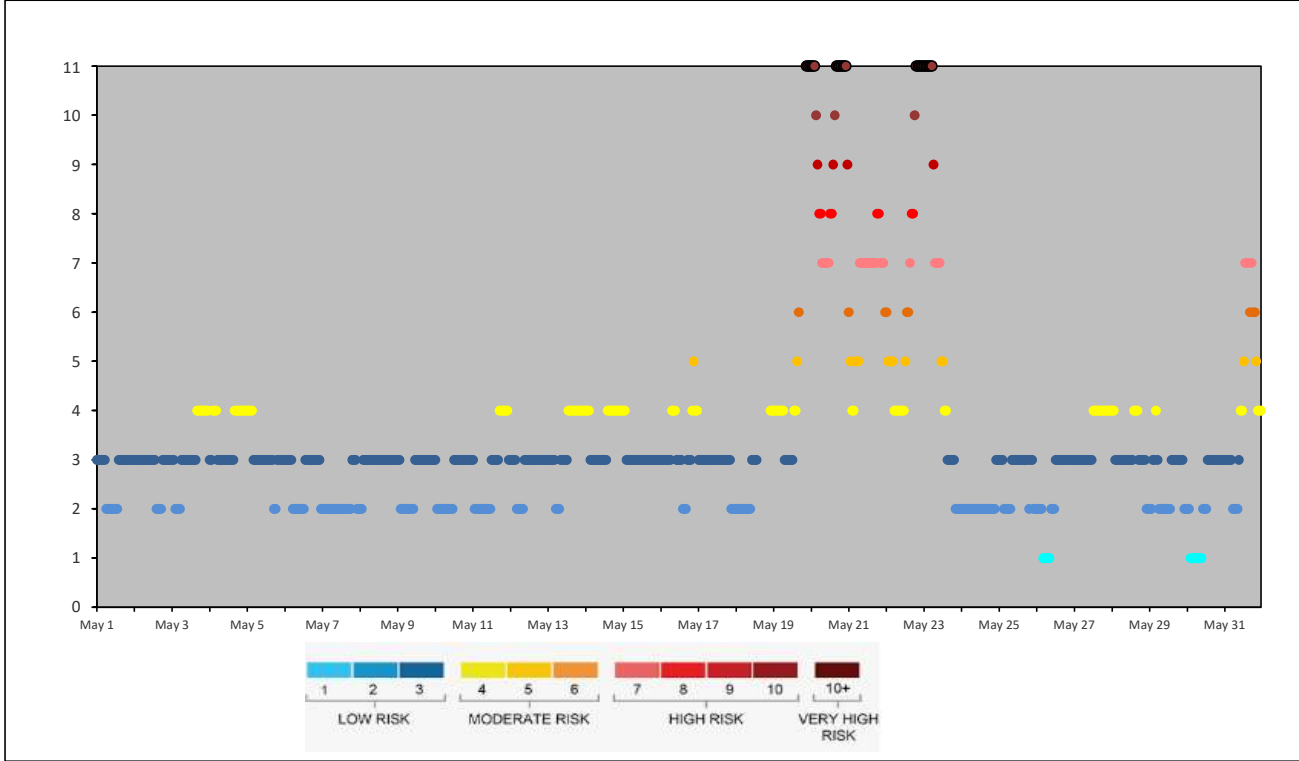
LAC LA BICHE STATION

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Station - May 2023

AIR QUALITY HEALTH INDEX

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

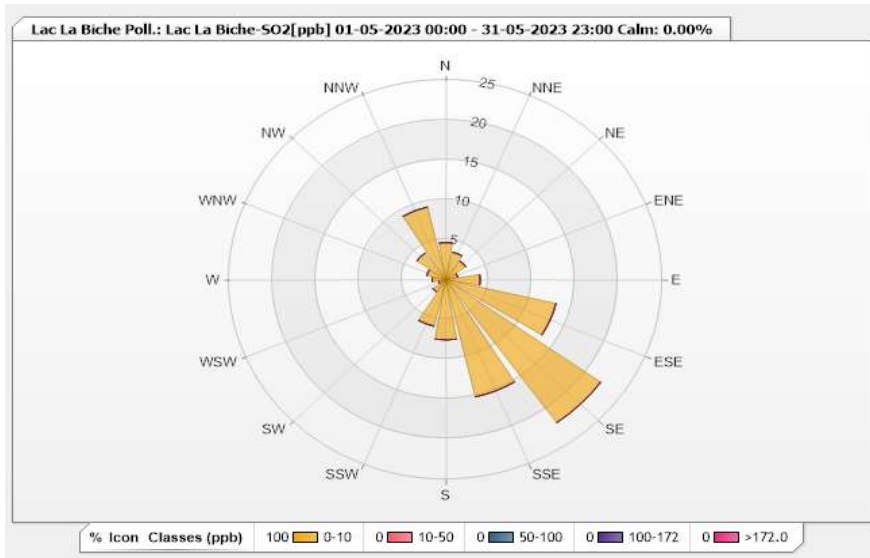


Station: Lac La Biche Poll.: Lac La Biche-SO2[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 94.76% Calm Avg: 0.00 [ppm]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	4.68	0	0	0	0	4.68
NNE	3.55	0	0	0	0	3.55
NE	2.84	0	0	0	0	2.84
ENE	1.42	0	0	0	0	1.42
E	3.97	0	0	0	0	3.97
ESE	13.05	0	0	0	0	13.05
SE	21.99	0	0	0	0	21.99
SSE	15.04	0	0	0	0	15.04
S	7.52	0	0	0	0	7.52
SSW	5.96	0	0	0	0	5.96
SW	1.84	0	0	0	0	1.84
WSW	0.85	0	0	0	0	0.85
W	1.56	0	0	0	0	1.56
WNW	2.27	0	0	0	0	2.27
NW	4.11	0	0	0	0	4.11
NNW	9.36	0	0	0	0	9.36
Summary	100	0	0	0	0	100

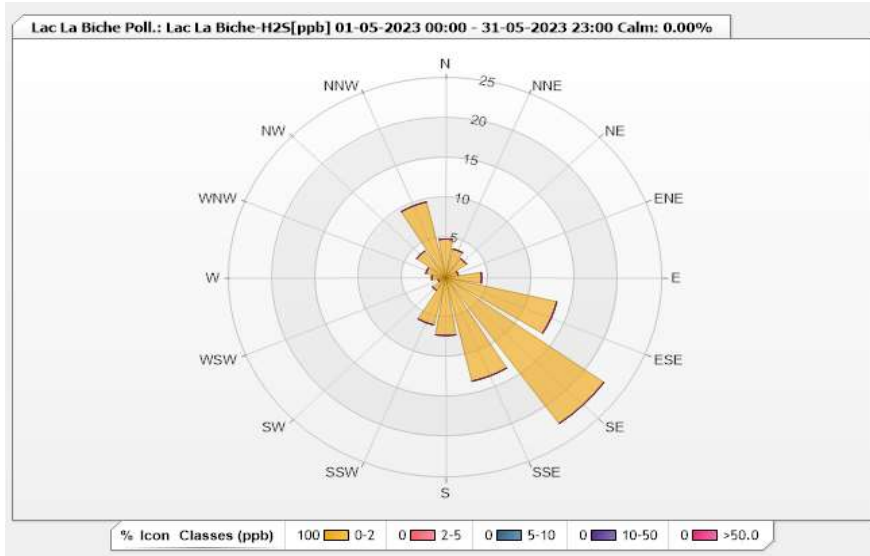


Station: Lac La Biche Poll.: Lac La Biche-H2S[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 90.99% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	4.87	0	0	0	0	4.87
NNE	3.69	0	0	0	0	3.69
NE	2.95	0	0	0	0	2.95
ENE	1.48	0	0	0	0	1.48
E	4.14	0	0	0	0	4.14
ESE	13.15	0	0	0	0	13.15
SE	22.45	0	0	0	0	22.45
SSE	13.29	0	0	0	0	13.29
S	7.24	0	0	0	0	7.24
SSW	6.06	0	0	0	0	6.06
SW	1.92	0	0	0	0	1.92
WSW	0.89	0	0	0	0	0.89
W	1.62	0	0	0	0	1.62
WNW	2.36	0	0	0	0	2.36
NW	4.14	0	0	0	0	4.14
NNW	9.75	0	0	0	0	9.75
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - May 2023

Summary of Hourly Averages

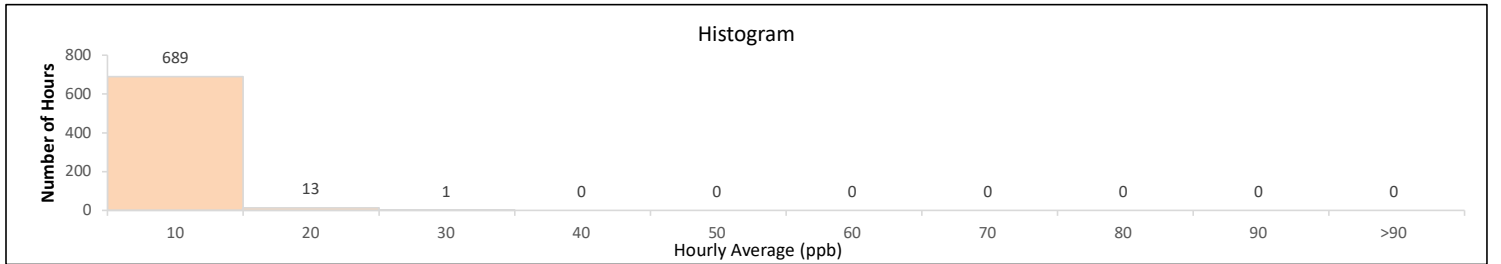
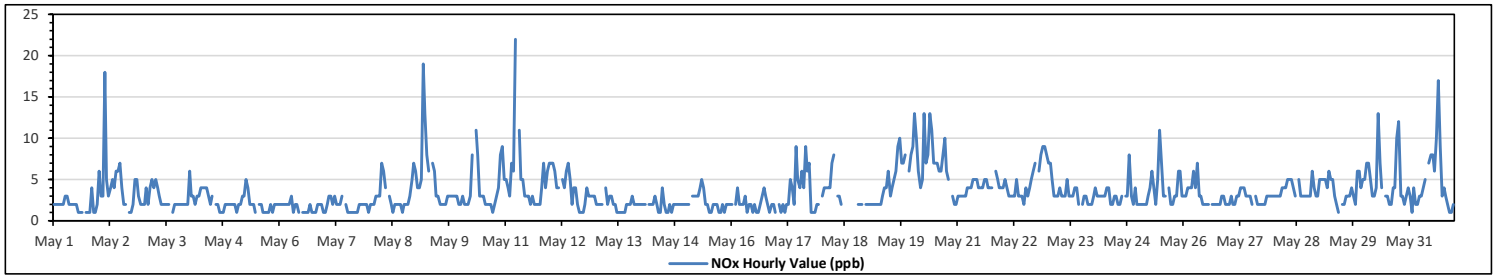
OXIDES OF NITROGEN (NOx) in ppb

Maximum Hourly Value:	22	ppb	on May 11 at hr 5	Hours in Service:	744
Maximum Daily Value:	7.3	ppb	on May 20	Hours of Data:	703
Minimum Hourly Value:	1	ppb	on May 1 at hr 13	Hours of Missing Data:	1
Minimum Daily Value:	1.6	ppb	on May 6	Hours of Calibration:	40
Monthly Average:	3.4	ppb		Operational Uptime:	99.9

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
May 1	2	2	2	2	2	2	3	3	2	2	2	2	1	1	1	1	S	1	1	1	4	1	1	2	1	4	1.8
May 2	6	3	3	18	5	3	4	5	4	6	7	4	2	2	2	S	1	1	2	5	5	3	2	2	1	18	4.3
May 3	2	4	2	4	5	4	5	4	3	2	2	2	2	2	S	1	2	2	2	2	2	2	2	2	1	5	2.6
May 4	6	3	3	2	3	3	4	4	4	4	3	2	3	S	2	2	1	1	1	2	2	2	2	2	1	6	2.7
May 5	2	1	2	2	3	3	5	4	2	2	2	1	S	2	2	1	1	1	1	1	2	1	2	2	1	5	2.0
May 6	2	2	2	2	2	2	3	1	2	2	1	S	1	1	1	1	2	1	1	1	2	2	2	1	1	3	1.6
May 7	1	2	3	3	2	3	2	2	2	3	S	2	1	1	1	1	1	1	2	2	2	2	2	1	1	3	1.8
May 8	2	2	2	3	3	3	7	6	4	S	3	2	1	2	2	2	2	1	2	2	2	3	5	7	1	7	3.0
May 9	6	4	4	5	19	13	8	6	4	S	7	6	3	3	2	2	2	2	3	3	3	3	3	2	2	19	4.9
May 10	2	3	2	2	2	3	8	S	11	8	3	3	3	2	2	2	2	1	2	3	4	8	9	5	1	11	3.9
May 11	5	4	3	7	6	22	S	11	5	5	3	3	3	2	3	2	2	2	2	4	7	4	6	7	2	22	5.1
May 12	7	7	6	4	4	S	5	4	6	7	5	2	4	4	2	1	1	1	2	4	3	3	3	3	1	7	3.8
May 13	2	2	2	2	S	4	2	3	3	2	2	1	1	1	1	1	2	2	2	3	2	2	2	2	1	4	2.0
May 14	2	2	2	S	3	2	2	3	2	1	1	4	2	1	1	2	1	2	2	2	2	2	2	2	1	4	1.9
May 15	2	2	S	3	3	3	3	4	5	4	2	2	1	1	2	2	2	1	1	2	1	2	2	2	1	5	2.3
May 16	2	S	2	4	2	2	2	3	1	2	2	1	2	1	1	2	3	4	3	2	1	2	2	1	1	4	2.0
May 17	S	2	1	2	1	2	2	5	4	2	9	5	4	6	4	9	6	7	1	1	1	2	2	S	1	9	3.5
May 18	3	4	4	4	4	7	8	NRM	3	3	2	C	C	C	C	C	C	C	C	2	2	2	S	2	2	8	NA
May 19	2	2	2	2	2	2	2	2	3	4	4	6	3	4	5	6	9	10	7	7	8	S	6	8	2	10	4.6
May 20	9	13	10	6	4	5	13	7	8	13	11	7	7	7	6	8	10	6	5	S	S	3	2	2	2	13	7.3
May 21	3	3	3	3	3	4	4	4	5	5	4	4	4	5	5	4	4	4	4	S	6	5	4	4	3	6	4.1
May 22	4	5	4	3	3	3	3	5	3	3	3	2	4	3	4	5	6	7	S	6	8	9	9	8	2	9	4.8
May 23	7	7	5	3	3	3	4	3	3	3	5	3	3	3	4	4	2	S	2	3	3	2	2	2	2	7	3.4
May 24	3	4	3	3	3	3	3	4	4	2	2	3	3	2	2	3	S	3	3	8	3	2	4	2	2	8	3.1
May 25	2	2	2	2	2	3	4	6	4	2	5	11	7	3	S	S	4	2	2	3	3	6	6	3	2	11	3.8
May 26	3	3	4	4	4	6	4	7	3	3	2	2	2	2	S	2	2	2	2	2	3	3	2	2	2	7	3.0
May 27	2	3	2	2	3	3	4	4	4	3	3	3	2	S	3	2	2	2	2	2	3	3	3	3	2	4	2.7
May 28	3	3	3	3	4	4	4	5	5	4	3	S	5	3	3	3	3	3	3	3	6	4	3	3	3	6	3.7
May 29	5	5	5	5	4	6	5	5	3	2	1	S	2	2	3	3	3	4	3	2	6	6	4	5	1	6	3.9
May 30	5	7	7	5	3	3	4	13	7	4	S	3	3	2	2	4	4	10	12	3	3	2	3	4	2	13	4.9
May 31	3	1	4	2	2	3	3	4	5	S	7	8	8	6	10	17	9	3	4	3	2	1	1	2	1	17	4.7
Diurnal Maximum	9	13	10	18	19	22	13	13	11	13	11	11	8	7	10	17	9	10	12	8	8	9	9	8			
Diurnal Average	3.5	3.6	3.3	3.7	3.6	4.3	4.3	4.7	4.0	3.8	3.7	3.5	3.0	2.6	2.8	3.3	3.1	3.2	2.8	3.0	3.3	3.1	3.3	3.1			

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

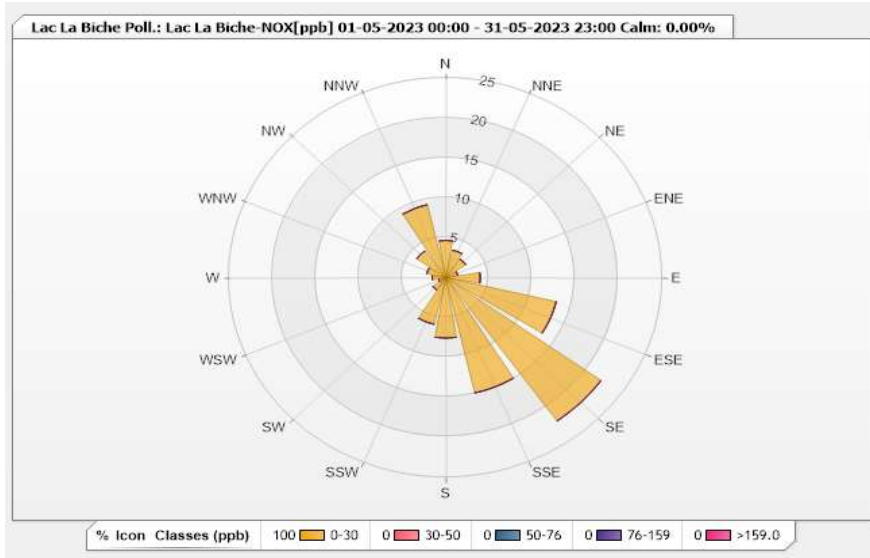


Station: Lac La Biche Poll.: Lac La Biche-NOX[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 94.49% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	4.69	0	0	0	0	4.69
NNE	3.56	0	0	0	0	3.56
NE	2.84	0	0	0	0	2.84
ENE	1.42	0	0	0	0	1.42
E	3.98	0	0	0	0	3.98
ESE	13.09	0	0	0	0	13.09
SE	22.05	0	0	0	0	22.05
SSE	14.79	0	0	0	0	14.79
S	7.54	0	0	0	0	7.54
SSW	5.97	0	0	0	0	5.97
SW	1.85	0	0	0	0	1.85
WSW	0.85	0	0	0	0	0.85
W	1.56	0	0	0	0	1.56
WNW	2.28	0	0	0	0	2.28
NW	4.13	0	0	0	0	4.13
NNW	9.39	0	0	0	0	9.39
Summary	100	0	0	0	0	100

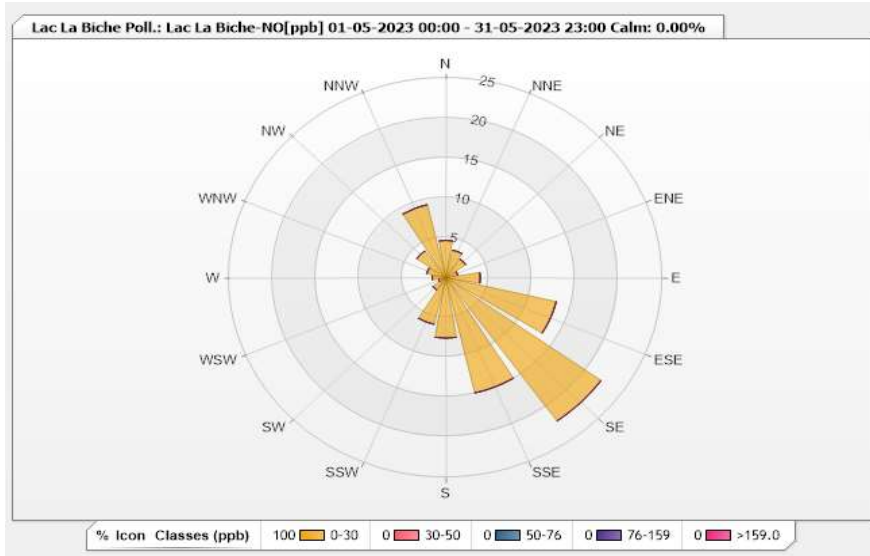


Station: Lac La Biche Poll.: Lac La Biche-NO[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 94.49% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	4.69	0	0	0	0	4.69
NNE	3.56	0	0	0	0	3.56
NE	2.84	0	0	0	0	2.84
ENE	1.42	0	0	0	0	1.42
E	3.98	0	0	0	0	3.98
ESE	13.09	0	0	0	0	13.09
SE	22.05	0	0	0	0	22.05
SSE	14.79	0	0	0	0	14.79
S	7.54	0	0	0	0	7.54
SSW	5.97	0	0	0	0	5.97
SW	1.85	0	0	0	0	1.85
WSW	0.85	0	0	0	0	0.85
W	1.56	0	0	0	0	1.56
WNW	2.28	0	0	0	0	2.28
NW	4.13	0	0	0	0	4.13
NNW	9.39	0	0	0	0	9.39
Summary	100	0	0	0	0	100

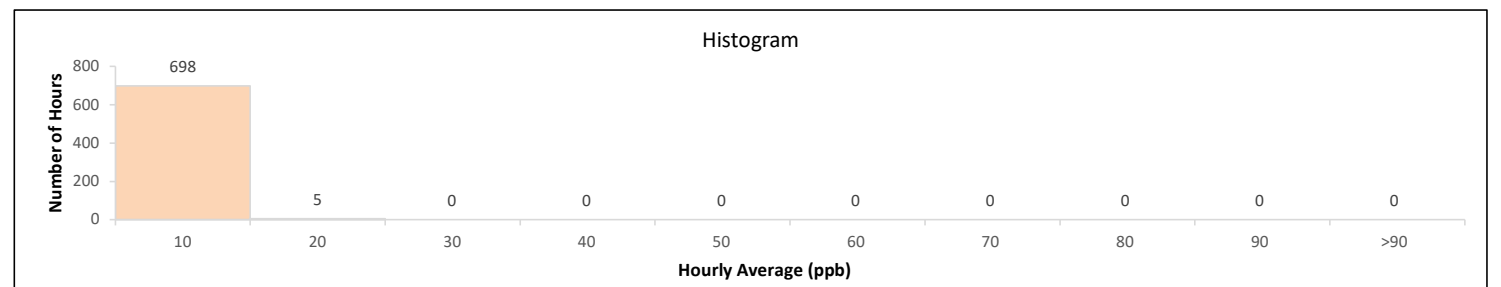
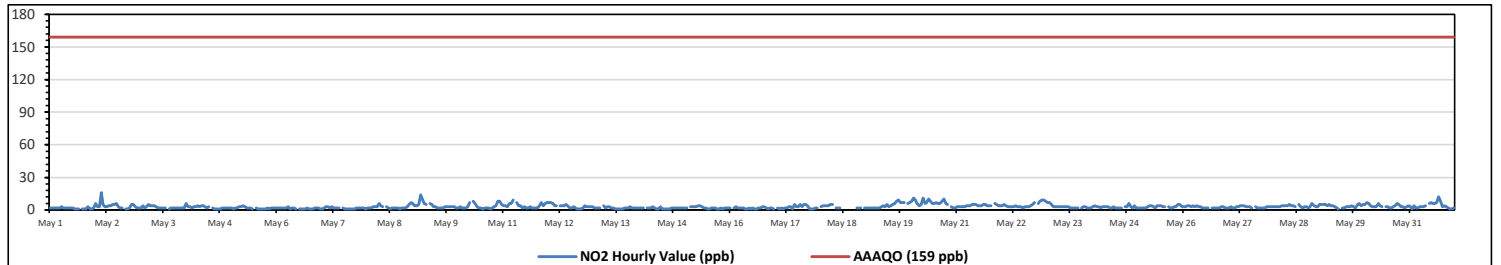


Lakeland Industry & Community Association
Lac La Biche Station - May 2023
Summary of Hourly Averages
NITROGEN DIOXIDE (NO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb																											
Number of 1-Hour Exceedances: 0																											
Maximum Hourly Value: 16 ppb on May 2 at hr 3												Hours in Service: 744															
Maximum Daily Value: 6.6 ppb on May 20												Hours of Data: 703															
Minimum Hourly Value: 1 ppb on May 1 at hr 13												Hours of Missing Data: 1															
Minimum Daily Value: 1.6 ppb on May 6												Hours of Calibration: 40															
Monthly Average: 3.1 ppb												Operational Uptime: 99.9															
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
May 1	2	2	2	2	2	2	3	2	2	2	2	2	2	1	1	1	S	1	1	1	3	1	1	2	1	3	1.7
May 2	6	3	3	16	5	3	3	4	4	5	6	3	2	2	S	S	1	1	2	5	5	3	2	2	1	16	4.0
May 3	2	4	2	3	5	4	4	4	3	2	2	2	2	2	S	1	2	2	2	2	2	2	2	2	1	5	2.5
May 4	6	3	3	2	3	3	4	3	4	4	3	2	3	S	2	1	1	1	1	2	2	2	2	2	1	6	2.6
May 5	2	1	2	2	3	3	4	3	2	2	2	1	S	2	1	1	1	1	1	2	1	2	2	2	1	4	1.9
May 6	2	2	2	2	2	2	3	1	2	2	1	S	1	1	1	1	2	1	1	1	2	2	2	1	1	3	1.6
May 7	1	2	3	3	2	3	2	2	2	S	S	2	1	1	1	1	1	1	2	2	2	2	2	1	1	3	1.8
May 8	2	2	2	3	3	3	6	4	3	S	3	2	1	2	2	2	2	1	2	2	2	3	5	7	1	7	2.8
May 9	6	4	4	5	14	10	6	5	S	S	6	5	3	3	2	2	2	3	3	3	3	3	3	2	2	14	4.3
May 10	2	3	2	2	3	7	S	8	6	3	2	2	1	2	2	2	2	1	2	3	4	8	8	5	1	8	3.5
May 11	4	4	3	6	6	9	S	7	4	4	2	3	2	2	3	2	2	2	2	4	7	4	6	7	2	9	4.1
May 12	7	7	6	4	4	S	4	4	4	5	4	2	2	3	2	1	1	1	2	4	3	3	3	3	1	7	3.4
May 13	2	2	2	2	S	4	2	3	3	2	2	1	1	1	1	1	2	2	2	3	2	2	2	2	1	4	2.0
May 14	2	2	2	S	2	2	2	3	2	1	3	1	1	1	1	1	2	2	2	2	2	2	2	2	1	3	1.8
May 15	2	2	S	3	3	3	3	4	4	3	2	2	1	1	2	2	2	1	1	2	1	2	2	2	1	4	2.2
May 16	2	S	2	3	2	2	2	2	1	1	2	1	2	1	1	2	2	3	3	2	1	2	2	1	1	3	1.8
May 17	S	2	1	2	1	2	2	3	3	1	5	3	3	5	3	5	5	4	1	1	1	2	2	S	1	5	2.6
May 18	3	4	4	4	4	5	5	NRM	2	2	2	C	C	C	C	C	C	C	C	2	2	2	S	2	2	5	NA
May 19	2	2	2	2	2	2	2	2	3	4	3	5	3	4	5	6	8	9	7	7	7	S	6	7	2	9	4.3
May 20	8	11	9	6	4	5	11	6	7	10	8	6	6	7	6	6	8	10	6	5	S	3	2	2	2	11	6.6
May 21	3	3	3	3	3	4	4	4	5	5	4	4	4	4	5	5	4	4	4	S	6	5	4	4	3	6	4.1
May 22	4	5	4	3	3	3	3	4	3	3	3	2	3	3	3	4	5	7	S	6	8	9	9	8	2	9	4.6
May 23	7	7	5	3	3	3	3	3	3	3	3	2	2	2	2	2	S	S	2	3	3	2	2	2	2	7	3.0
May 24	3	4	3	3	2	3	3	3	3	2	2	3	2	2	2	2	S	3	3	6	3	2	4	2	2	6	2.8
May 25	2	2	2	2	3	4	4	4	3	2	4	4	4	3	3	S	3	2	2	3	3	5	5	3	2	5	3.0
May 26	3	3	4	4	3	4	3	4	3	3	2	2	2	2	S	2	2	2	2	2	3	3	2	2	2	4	2.7
May 27	2	3	2	2	3	3	4	4	4	3	3	3	2	S	3	2	2	2	2	2	3	3	3	3	2	4	2.7
May 28	3	3	3	3	4	4	4	4	5	4	4	3	S	5	3	2	3	3	3	2	3	6	4	3	2	6	3.5
May 29	5	5	5	4	5	4	4	4	3	2	1	S	2	2	3	3	3	4	3	2	5	6	4	5	1	6	3.7
May 30	5	7	6	4	3	3	3	6	4	3	S	3	3	2	2	3	4	6	5	3	3	2	3	4	2	7	3.8
May 31	3	1	4	2	2	3	3	3	4	S	6	7	6	6	7	12	8	3	4	3	2	1	1	2	1	12	4.0
Diurnal Maximum	8	11	9	16	14	10	11	7	8	10	8	7	6	7	7	12	8	10	7	7	8	9	9	8			
Diurnal Average	3.4	3.5	3.2	3.5	3.4	3.6	3.8	3.6	3.4	3.2	3.1	2.9	2.5	2.5	2.5	2.7	2.9	2.9	2.5	2.9	3.2	3.1	3.2	3.1			

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

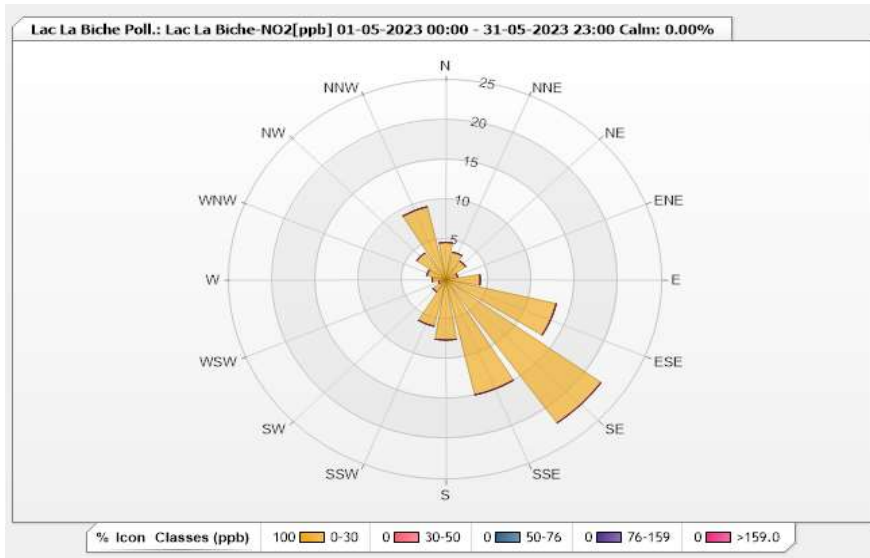


Station: Lac La Biche Poll.: Lac La Biche-NO2[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 94.49% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	4.69	0	0	0	0	4.69
NNE	3.56	0	0	0	0	3.56
NE	2.84	0	0	0	0	2.84
ENE	1.42	0	0	0	0	1.42
E	3.98	0	0	0	0	3.98
ESE	13.09	0	0	0	0	13.09
SE	22.05	0	0	0	0	22.05
SSE	14.79	0	0	0	0	14.79
S	7.54	0	0	0	0	7.54
SSW	5.97	0	0	0	0	5.97
SW	1.85	0	0	0	0	1.85
WSW	0.85	0	0	0	0	0.85
W	1.56	0	0	0	0	1.56
WNW	2.28	0	0	0	0	2.28
NW	4.13	0	0	0	0	4.13
NNW	9.39	0	0	0	0	9.39
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - May 2023

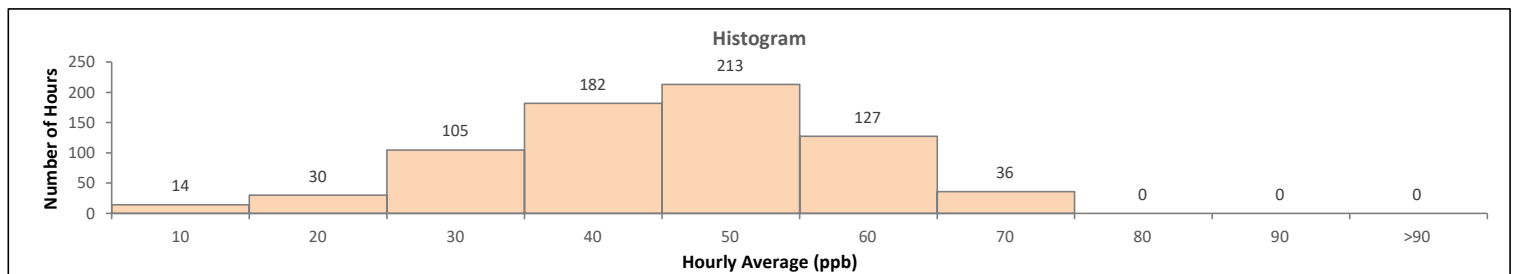
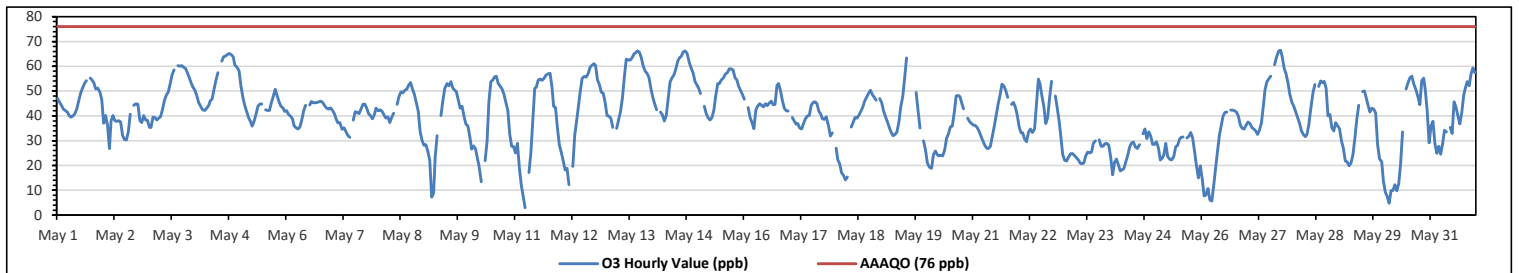
Summary of Hourly Averages

OZONE (O₃) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb																											
Number of 1-Hour Exceedances: 0																											
Maximum Hourly Value: 66.4 ppb on May 27 at hr 17										Hours in Service: 744																	
Maximum Daily Value: 54.0 ppb on May 4										Hours of Data: 707																	
Minimum Hourly Value: 3.0 ppb on May 11 at hr 5										Hours of Missing Data: 1																	
Minimum Daily Value: 25.1 ppb on May 23										Hours of Calibration: 36																	
Monthly Average: 40.1 ppb										Operational Uptime: 99.9																	
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
May 1	47	45.5	44.3	42.7	42.1	41.4	40.1	39.4	40	40.9	42.9	46	49.2	51.2	53.1	54.2	S	55.2	54.6	53.4	50.8	51.3	49.6	46.6	39.4	55.2	47.0
May 2	37	40.1	36.3	26.8	38	40.2	38.1	37.8	38.1	37.5	32.2	30.4	30.2	33.6	40.7	S	44.3	44.9	44.7	38.2	37.2	40.2	38.4	38.2	26.8	44.9	37.5
May 3	35.4	35.4	39.5	39.3	38.4	39.1	39.7	42.8	46.3	48.4	49.6	53.1	56.6	58.6	S	60.2	60	60.2	59.6	59.1	57.3	55.3	53.1	51.6	35.4	60.2	49.5
May 4	50.3	48.1	45.3	43.8	42.4	42.2	43.1	44.1	46	46.8	50.8	54.4	57.4	S	62.1	63.9	64.2	64.8	65.2	64.6	63.7	60.4	59.8	58.1	42.2	65.2	54.0
May 5	51.9	47.5	44.1	41.6	39.2	37.6	35.9	37.8	40.7	43.8	44.8	44.8	S	42.5	42.2	42.2	45.2	47.9	50.7	48.1	45.6	43.8	43.2	41.8	35.9	51.9	43.6
May 6	42	40.6	39.8	38.8	36	35.2	34.6	35.5	38.3	42	44.2	S	44.4	45.8	45.2	45.3	45.4	45.6	45.9	45.3	44	43.1	42.7	43.2	34.6	45.9	41.9
May 7	42.2	40.9	38.8	37.1	37.3	34.5	35.2	33.7	32.1	31.4	S	38.4	41.7	41.4	40.8	42.8	44.7	44.8	43.1	40.9	40	38.8	40.5	43	31.4	44.8	39.3
May 8	42	42.4	41.8	40.4	39	39.6	37.2	39.3	41	S	44.7	47.8	49.7	49.3	50.3	50.7	52.4	53.4	50.8	48.6	45.3	41.9	33.5	30.1	30.1	53.4	44.0
May 9	28.1	28.4	25.7	22	7.2	8.8	23.5	32	S	40.1	46.2	51.1	53.1	52.1	53.8	51.3	50.4	49.8	46.5	43	43.9	39.8	36.6	36	7.2	53.8	37.8
May 10	31.8	26.5	27.9	26.7	23.5	19.7	13.4	S	21.9	29.5	46	53.7	54.5	55.6	55.9	53.1	52	50.8	48.6	45.2	42.2	32.5	27.7	27.6	13.4	55.9	37.7
May 11	25	28.9	19.1	12.1	7.4	3	S	17.2	25.2	38.2	51.1	51.5	54.4	54.9	54.3	55.1	56.4	56.9	57.2	51.6	43.9	43.5	35	28.2	3.0	57.2	37.8
May 12	25.3	21.9	18.2	18.8	12.3	S	19.5	32.2	38.1	43.2	49.5	55.1	55.8	55.6	57	59.6	60.4	61	60.4	54.6	52.7	49.5	49.2	45.4	12.3	61.0	43.3
May 13	40.2	39.9	38.9	35.3	S	34.9	38.4	41.7	47.1	55.5	62.8	62.6	62.4	63.4	64.9	65.5	66.2	65.7	63.5	60.1	58	57.2	55.5	51.1	34.9	66.2	53.5
May 14	47.4	44.8	42.4	S	41.5	40.4	38	40.2	46.9	53.6	55.4	56.5	58.9	62.1	63.3	64	65.8	66.2	65.3	61.5	59.3	57.3	53.7	52.6	38.0	66.2	53.8
May 15	51.3	49	S	43.9	40.8	39.2	38.3	39.3	42.4	48.4	53.1	53.1	54.5	55.4	56.9	57.5	58.9	59	58.4	55.4	54.5	51.9	50.3	48.6	38.0	59.0	50.4
May 16	46.7	S	43.3	39.3	37.2	34.8	42.3	44	45	44.3	43.6	45	44.1	45.1	45.9	44.5	44.7	52.2	53	50.2	46.2	43.1	42	41.9	34.8	53.0	44.3
May 17	S	39.3	37.9	36.6	36.9	35	34.6	36.8	38.8	40	40.1	44.2	45.4	45.7	45	41.8	40.8	38.8	38.6	39.6	36	31.9	33.2	S	31.9	45.7	39.0
May 18	27	22.3	20.6	17.1	16	14.2	15.3	NRM	35.5	37.2	39.3	39.1	40.3	41.8	43.4	45.9	47.5	49.1	50.3	48.6	47.4	46.3	S	47	14.2	50.3	36.0
May 19	45.4	42.1	39.7	37.7	35.4	33.3	32	32.4	33.6	37.5	43.7	47.7	55.2	63.3	C	C	C	C	49.4	42.1	35	S	30	26.4	26.4	63.3	40.1
May 20	21.1	19.4	18.9	24.3	25.8	24.4	23.8	24.1	23.8	26.1	31	32.7	35.6	35.9	41.2	48	48.2	47.7	45	42.9	S	39	37.6	36.8	18.9	48.2	32.8
May 21	36.3	36.2	35.2	33.7	32	30.1	28.2	27	26.8	27.8	31.7	35.7	40.1	44.6	48.3	52.8	52.1	50.2	47.4	S	44.6	45.4	43.4	40.3	26.8	52.8	38.7
May 22	35.5	33.2	33.1	30.6	29.6	33.4	34.6	33.3	34.6	44.8	54.8	52.9	48	43.9	36.8	39.3	47.2	53.9	S	48	43.1	37.6	30.6	24.4	24.4	54.8	39.3
May 23	22	21.7	23.4	24.7	24.7	23.9	23.1	22.2	20.9	20.6	21	23.8	25.4	25	25.4	29	29.9	S	30.2	27.8	27.8	28.8	28.9	28.1	20.6	30.2	25.1
May 24	23.2	16.3	21.3	22.6	20.2	17.7	18.2	18.7	21.4	23.9	27.4	29	29.4	27.5	26.8	28.3	S	31.7	34.6	30.8	33.6	31.9	28.5	28.5	16.3	34.6	25.8
May 25	29.6	27.1	22.2	22.9	24.2	28.9	23.6	22.5	22.2	23.6	27.5	28	30.5	31.3	31.5	S	31.1	31.8	33.3	31.1	25.7	19.8	15	19.8	15.0	33.3	26.2
May 26	14.6	7.7	8	10.7	6.1	5.7	12.1	19.2	26	32.5	36.5	39.9	41.4	41.5	S	42.3	42.3	42.1	41.5	39.9	36.3	34.9	34.7	36.3	5.7	42.3	28.4
May 27	37.5	36.8	35.4	34.7	33.9	32.4	34.3	37.1	44	50.4	53.6	55	56	S	60.6	63.6	66.2	66.4	63.8	59.3	56.9	53.3	48.5	45.5	32.4	66.4	48.9
May 28	43.9	41.7	39.3	37	34	32.5	31.6	32.3	36.4	42.8	49.3	52.6	S	51.8	54	53.4	53.9	51.2	40	40.5	35.2	34	37.3	36	31.6	54.0	41.8
May 29	34.8	30	27	21.7	21.5	19.8	21.1	24.3	30.9	38.6	44.3	S	49.8	50	47.5	44.4	41.5	43	42.7	41.1	28.3	22.7	21.4	13.8	13.8	50.0	33.1
May 30	9.3	7.5	4.7	9.8	9.9	12.3	9.8	12.6	20.7	33.5	S	50.9	53.3	55.4	55.9	52.9	50.4	47.7	44.5	54.2	55.2	50.4	41.9	29.1	4.7	55.9	33.6
May 31	36	37.8	28.9	24.9	27.7	24.5	28.6	34.2	33.6	S	35.3	32.8	45.7	43.5	40	36.7	41.3	48.2	51.1	53.7	52.1	56.9	59.4	57.5	24.5	59.4	40.5
Diurnal Maximum	51.9	49.0	45.3	43.9	42.4	42.2	43.1	44.1	47.1	55.5	62.8	62.6	62.4	63.4	64.9	65.5	66.2	66.4	65.3	64.6	63.7	60.4	59.8	58.1			
Diurnal Average	35.3	33.3	31.4	29.9	28.7	28.6	29.6	32.2	34.6	38.7	43.2	45.1	47.0	47.2	48.0	49.6	50.1	51.1	49.3	47.3	44.7	42.7	40.0	38.5			
C	Monthly Calibration										S	Daily Zero-Span Check										Q	Quality Assurance				
K	Collection Error										ND	No Data (Machine Not in Service)										Y	Routine Maintenance				
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 "S" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

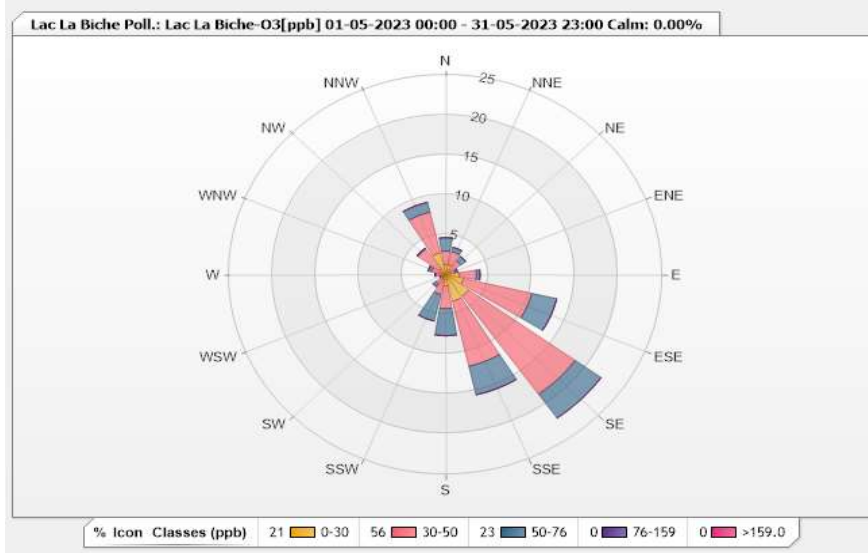


Station: Lac La Biche Poll.: Lac La Biche-O3[ppb] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 95.03% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	1.27	1.7	1.7	0	0	4.67
NNE	1.27	1.7	0.57	0	0	3.54
NE	0.57	1.56	0.71	0	0	2.84
ENE	0.57	0.57	0.28	0	0	1.42
E	1.56	1.98	0.42	0	0	3.96
ESE	2.12	8.06	2.97	0	0	13.15
SE	3.25	15.13	3.68	0	0	22.06
SSE	3.39	8.35	3.68	0	0	15.42
S	1.41	2.83	3.39	0	0	7.63
SSW	0.57	1.98	3.39	0	0	5.94
SW	0.42	0.99	0.42	0	0	1.83
WSW	0.28	0.42	0	0	0	0.7
W	0.28	0.85	0.14	0	0	1.27
WNW	0.42	1.27	0.42	0	0	2.11
NW	0.85	3.11	0.14	0	0	4.1
NNW	2.83	5.23	1.27	0	0	9.33
Summary	21.06	55.73	23.18	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - May 2023

Summary of Hourly Averages

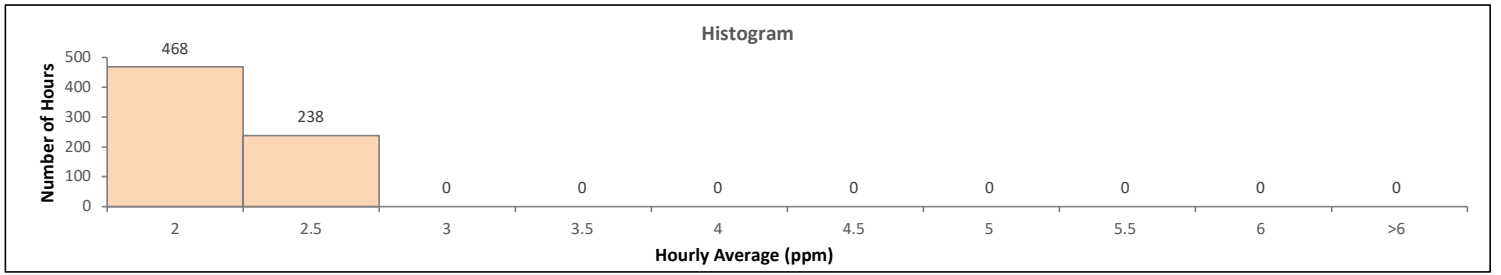
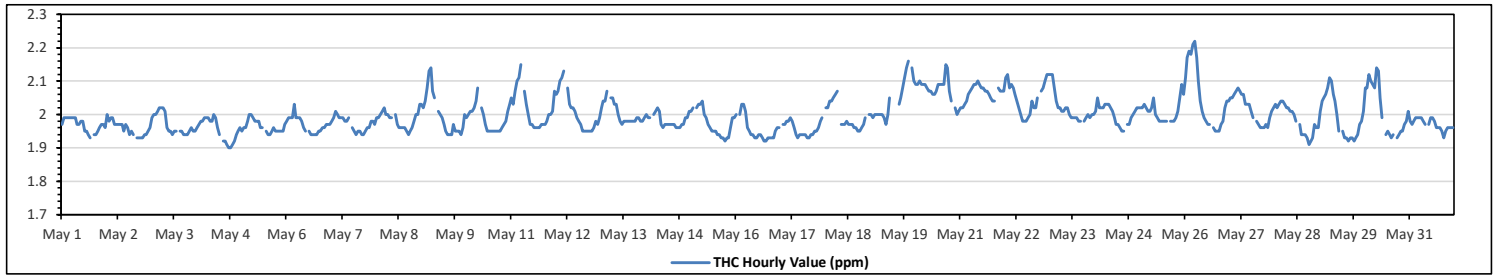
TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	2.22 ppm	on May 26 at hr 5	Hours in Service:	744
Maximum Daily Value:	2.08 ppm	on May 20	Hours of Data:	706
Minimum Hourly Value:	1.90 ppm	on May 4 at hr 17	Hours of Missing Data:	2
Minimum Daily Value:	1.95 ppm	on May 4	Hours of Calibration:	36
Monthly Average:	2.00 ppm		Operational Uptime:	99.7

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
May 1	1.97	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.97	1.97	1.98	1.98	1.95	1.95	1.94	1.93	S	1.94	1.94	1.95	1.96	1.97	1.97	1.96	1.93	1.99	1.97	
May 2	2.00	1.98	1.99	1.99	1.97	1.97	1.97	1.97	1.95	1.97	1.96	1.94	1.95	1.94	1.94	S	1.93	1.93	1.93	1.93	1.94	1.94	1.95	1.96	1.96	1.93	2.00	1.96
May 3	1.99	2.00	2.00	2.01	2.02	2.02	2.02	2.01	1.96	1.95	1.95	1.94	1.95	1.95	S	1.95	1.95	1.94	1.94	1.94	1.95	1.96	1.95	1.95	1.94	2.02	1.97	
May 4	1.96	1.97	1.98	1.98	1.99	1.99	1.99	1.98	1.98	2.00	1.99	1.96	1.94	S	1.92	1.92	1.91	1.90	1.90	1.91	1.92	1.94	1.95	1.96	1.90	2.00	1.95	
May 5	1.95	1.96	1.96	1.98	2.00	2.00	1.99	1.98	1.98	1.98	1.96	1.96	S	1.95	1.94	1.94	1.95	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.94	2.00	1.96	
May 6	1.98	1.99	1.99	1.99	2.03	1.99	1.99	1.99	1.98	1.96	1.95	S	1.95	1.94	1.94	1.94	1.94	1.95	1.95	1.96	1.96	1.97	1.97	1.97	1.94	2.03	1.97	
May 7	1.98	1.99	2.01	2.00	1.99	1.99	1.99	1.98	1.98	1.99	S	1.96	1.95	1.94	1.95	1.94	1.94	1.95	1.96	1.96	1.96	1.98	1.98	1.97	1.94	2.01	1.97	
May 8	1.99	1.99	2.00	2.01	2.02	2.00	2.00	1.99	1.99	S	2.00	1.97	1.96	1.96	1.96	1.96	1.95	1.94	1.95	1.96	1.98	2.00	2.00	2.03	1.94	2.03	1.98	
May 9	2.03	2.02	2.04	2.08	2.13	2.14	2.07	2.05	S	2.01	2.00	1.99	1.97	1.95	1.94	1.94	1.94	1.94	1.97	1.95	1.95	1.95	1.94	1.96	2.00	1.94	2.14	2.00
May 10	1.99	2.00	2.01	2.01	2.02	2.04	2.08	S	2.02	2.00	1.97	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.97	1.98	2.01	2.03	1.95	2.08	1.99	
May 11	2.05	2.03	2.07	2.10	2.11	2.15	S	2.07	2.03	2.00	1.97	1.97	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.98	2.00	2.00	2.01	2.07	1.96	2.15	2.02	
May 12	2.06	2.07	2.10	2.11	2.13	S	2.08	2.03	2.02	2.02	2.01	1.99	1.98	1.97	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.98	1.97	1.99	1.95	2.13	2.01	
May 13	2.02	2.04	2.04	2.07	S	2.05	2.05	2.03	2.03	2.00	1.98	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.99	1.99	1.98	1.98	1.99	1.97	2.07	2.00	
May 14	2.00	1.99	1.99	S	2.00	2.01	2.02	2.01	1.97	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.96	1.97	1.97	1.99	2.01	1.96	2.02	1.98	
May 15	2.01	2.02	S	2.02	2.03	2.03	2.04	2.00	1.99	1.97	1.96	1.95	1.95	1.94	1.94	1.94	1.93	1.93	1.92	1.93	1.93	1.96	1.99	1.99	1.92	2.04	1.97	
May 16	2.00	S	2.00	2.03	2.03	2.01	1.96	1.95	1.94	1.94	1.93	1.93	1.94	1.94	1.93	1.92	1.92	1.93	1.93	1.93	1.95	1.96	1.96	1.96	1.92	2.03	1.95	
May 17	S	1.97	1.97	1.98	1.98	1.99	1.98	1.96	1.94	1.93	1.94	1.94	1.94	1.93	1.93	1.94	1.94	1.94	1.95	1.95	1.96	1.98	1.99	S	1.93	1.99	1.96	
May 18	2.02	2.02	2.04	2.04	2.05	2.06	2.07	NRM	1.97	1.97	1.97	1.98	1.97	1.97	1.97	1.96	1.96	1.95	1.95	1.96	1.97	1.99	S	2.00	1.95	2.07	1.99	
May 19	2.00	1.99	2.00	2.00	2.00	2.00	1.99	1.97	2.00	2.05	C	C	C	C	2.03	2.05	2.08	2.11	2.14	2.16	S	2.14	2.10	1.97	2.16	2.16	2.04	
May 20	2.09	2.09	2.10	2.09	2.09	2.09	2.08	2.07	2.07	2.06	2.06	2.07	2.09	2.09	2.09	2.09	2.15	2.14	2.07	2.04	S	2.02	2.00	2.01	2.00	2.15	2.08	
May 21	2.02	2.02	2.03	2.04	2.06	2.07	2.08	2.09	2.09	2.10	2.09	2.08	2.08	2.07	2.07	2.06	2.05	2.04	2.04	S	2.08	2.07	2.07	2.07	2.02	2.10	2.06	
May 22	2.11	2.12	2.08	2.09	2.08	2.06	2.04	2.02	2.00	1.98	1.98	1.99	2.00	2.04	2.02	2.02	2.05	S	2.07	2.08	2.10	2.12	2.12	1.98	2.12	2.12	2.05	
May 23	2.12	2.12	2.08	2.04	2.02	2.02	2.01	2.01	2.02	2.02	2.00	1.99	1.99	1.99	1.98	1.98	S	1.98	1.99	2.00	1.99	2.00	2.00	2.00	1.98	2.12	2.01	
May 24	2.01	2.05	2.02	2.02	2.02	2.03	2.03	2.03	2.02	2.01	1.99	1.97	1.97	1.96	1.95	1.95	S	1.97	1.97	1.99	2.00	2.01	2.02	2.02	1.95	2.05	2.00	
May 25	2.02	2.02	2.03	2.02	2.01	2.01	2.02	2.05	2.00	1.99	1.98	1.98	1.98	1.98	S	1.98	1.98	1.98	1.99	2.01	2.05	2.09	2.06	1.98	2.09	2.01	2.02	
May 26	2.11	2.17	2.19	2.18	2.21	2.22	2.17	2.10	2.04	2.01	1.99	1.98	1.97	1.97	S	1.96	1.95	1.95	1.95	1.97	1.98	2.02	2.04	2.04	1.95	2.22	2.05	
May 27	2.05	2.05	2.06	2.07	2.08	2.07	2.06	2.06	2.03	2.03	2.03	2.01	1.99	S	1.98	1.97	1.96	1.96	1.96	1.97	1.96	1.99	2.01	2.02	1.96	2.08	2.02	
May 28	2.03	2.02	2.03	2.04	2.04	2.03	2.02	2.02	2.01	2.01	2.00	1.98	S	1.97	1.94	1.94	1.94	1.93	1.91	1.92	1.93	1.97	1.96	1.96	1.91	2.04	1.98	
May 29	2.01	2.04	2.05	2.06	2.08	2.11	2.10	2.06	2.04	2.00	1.95	S	1.95	1.93	1.93	1.92	1.93	1.93	1.92	1.93	1.94	1.97	1.98	2.01	1.92	2.11	1.99	
May 30	2.08	2.08	2.12	2.10	2.09	2.08	2.14	2.13	2.05	1.99	S	1.94	1.95	1.94	1.93	1.94	NRM	1.93	1.94	1.95	1.95	1.97	1.98	2.01	1.93	2.14	2.01	
May 31	1.98	1.97	1.98	1.99	1.99	1.99	1.98	1.97	S	1.97	1.99	1.99	1.98	1.96	1.96	1.96	1.96	1.95	1.93	1.95	1.96	1.96	1.96	1.96	1.93	1.99	1.97	
Diurnal Maximum	2.12	2.17	2.19	2.18	2.21	2.22	2.17	2.13	2.09	2.10	2.09	2.08	2.09	2.09	2.09	2.09	2.15	2.14	2.11	2.14	2.16	2.10	2.14	2.12				
Diurnal Average	2.02	2.03	2.03	2.04	2.04	2.03	2.02	2.00	1.99	1.99	1.98	1.97	1.97	1.96	1.96	1.97	1.96	1.96	1.97	1.98	1.99	2.00	2.01					

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

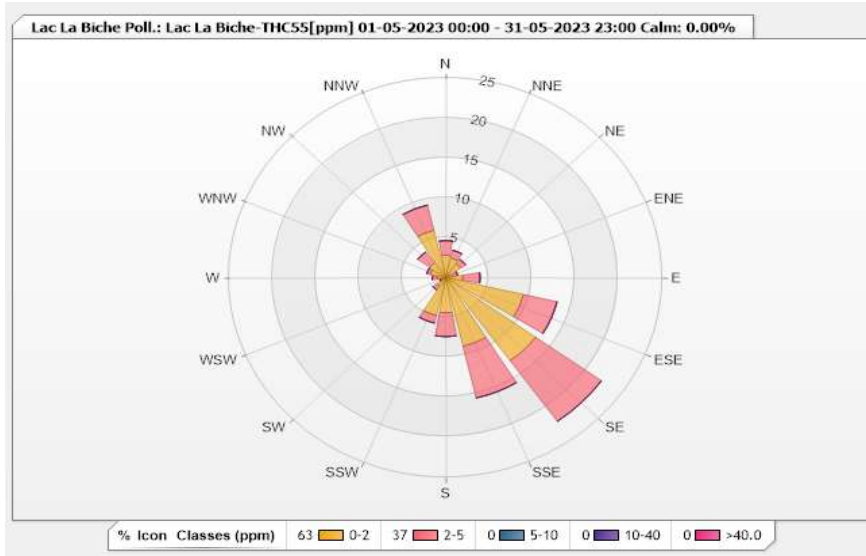


Station: Lac La Biche Poll.: Lac La Biche-THC55[ppm] Monthly: 05-2023

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

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	2.83	1.84	0	0	0	4.67
NNE	2.55	0.99	0	0	0	3.54
NE	2.12	0.71	0	0	0	2.83
ENE	0.42	0.99	0	0	0	1.41
E	1.98	1.98	0	0	0	3.96
ESE	9.21	3.97	0	0	0	13.18
SE	12.75	9.35	0	0	0	22.1
SSE	8.78	6.66	0	0	0	15.44
S	4.39	2.97	0	0	0	7.36
SSW	4.82	0.99	0	0	0	5.81
SW	1.27	0.57	0	0	0	1.84
WSW	0.57	0.14	0	0	0	0.71
W	0.99	0.57	0	0	0	1.56
WNW	1.84	0.42	0	0	0	2.26
NW	2.27	1.7	0	0	0	3.97
NNW	6.09	3.26	0	0	0	9.35
Summary	62.88	37.11	0	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - May 2023

Summary of Hourly Averages

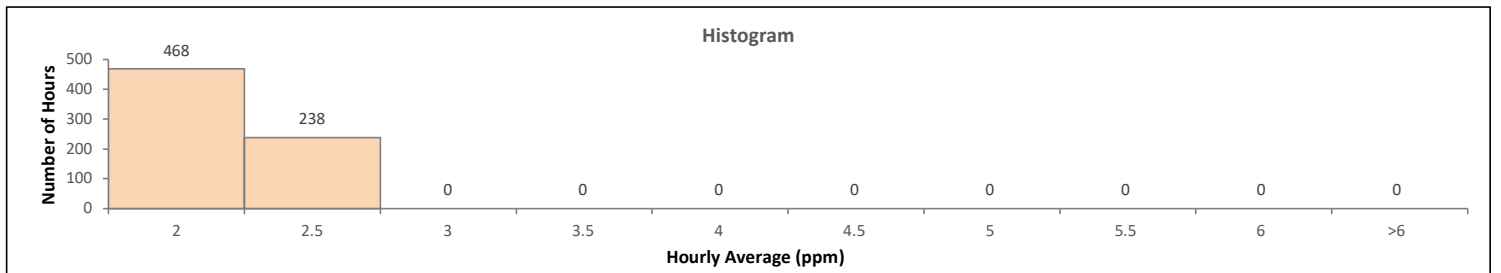
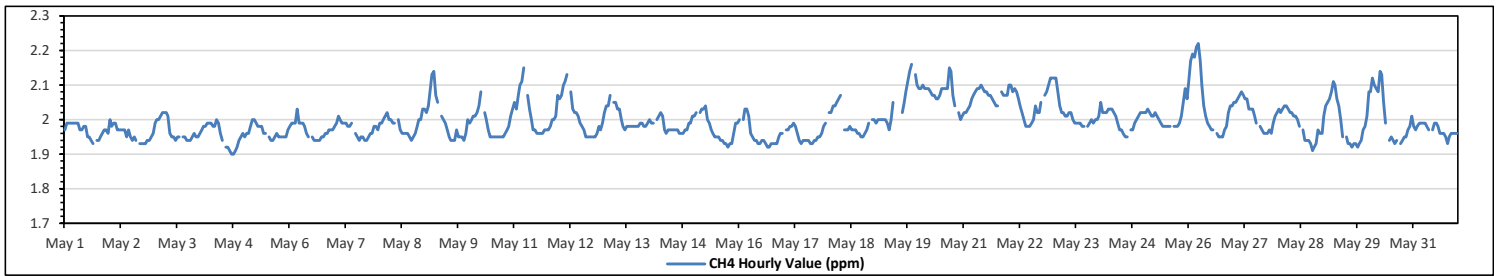
METHANE (CH4) in ppm

Maximum Hourly Value:	2.22	ppm	on May 26 at hr 5	Hours in Service:	744
Maximum Daily Value:	2.08	ppm	on May 20	Hours of Data:	706
Minimum Hourly Value:	1.90	ppm	on May 4 at hr 17	Hours of Missing Data:	2
Minimum Daily Value:	1.95	ppm	on May 4	Hours of Calibration:	36
Monthly Average:	2.00	ppm		Operational Uptime:	99.7

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
May 1	1.97	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.97	1.97	1.98	1.98	1.95	1.95	1.94	1.93	S	1.94	1.94	1.95	1.96	1.97	1.97	1.96	1.93	1.99	1.97	
May 2	2.00	1.98	1.99	1.99	1.97	1.97	1.97	1.97	1.95	1.97	1.95	1.97	1.95	1.94	1.95	1.94	S	1.93	1.93	1.93	1.94	1.94	1.95	1.96	1.93	2.00	1.96	
May 3	1.99	2.00	2.00	2.01	2.02	2.02	2.02	2.01	1.96	1.95	1.95	1.94	1.95	1.95	S	1.95	1.95	1.94	1.94	1.94	1.95	1.96	1.95	1.95	1.94	2.02	1.97	
May 4	1.96	1.97	1.98	1.98	1.99	1.99	1.99	1.98	1.98	2.00	1.99	1.96	1.94	S	1.92	1.92	1.91	1.90	1.90	1.91	1.92	1.94	1.95	1.96	1.90	2.00	1.95	
May 5	1.95	1.96	1.96	1.98	2.00	2.00	1.99	1.98	1.98	1.98	1.96	1.96	S	1.95	1.94	1.94	1.95	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.94	2.00	1.96	
May 6	1.98	1.99	1.99	1.99	2.03	1.99	1.99	1.99	1.98	1.96	1.95	S	1.95	1.94	1.94	1.94	1.94	1.95	1.95	1.96	1.96	1.97	1.97	1.97	1.94	2.03	1.97	
May 7	1.98	1.99	2.01	2.00	1.99	1.99	1.99	1.98	1.98	1.99	S	1.96	1.95	1.94	1.95	1.94	1.95	1.94	1.94	1.95	1.96	1.96	1.98	1.98	1.97	1.94	2.01	1.97
May 8	1.99	1.99	2.00	2.01	2.02	2.00	2.00	1.99	1.99	S	2.00	1.97	1.96	1.96	1.96	1.96	1.95	1.94	1.95	1.96	1.98	2.00	2.00	2.03	1.94	2.03	1.98	
May 9	2.03	2.02	2.04	2.08	2.13	2.14	2.07	2.05	S	2.01	2.00	1.99	1.97	1.95	1.94	1.94	1.94	1.94	1.94	1.97	1.95	1.95	1.94	1.96	2.00	1.94	2.14	2.00
May 10	1.99	2.00	2.01	2.01	2.02	2.04	2.08	S	2.02	2.00	1.97	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.97	1.98	2.01	2.03	1.95	2.08	1.99
May 11	2.05	2.03	2.07	2.10	2.11	2.15	S	2.07	2.03	2.00	1.97	1.97	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.98	2.00	2.00	2.01	2.07	1.96	2.15	2.02	
May 12	2.06	2.07	2.10	2.11	2.13	S	2.08	2.03	2.02	2.02	2.01	1.99	1.98	1.97	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.98	1.97	1.99	1.95	2.13	2.01
May 13	2.02	2.04	2.04	2.07	S	2.05	2.05	2.03	2.03	2.00	1.98	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.99	1.99	1.98	1.98	1.99	1.97	2.07	2.00	
May 14	2.00	1.99	1.99	S	2.00	2.01	2.02	2.01	1.97	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.96	1.97	1.97	1.99	2.01	1.96	2.02	1.98	
May 15	2.01	2.02	S	2.02	2.03	2.03	2.04	2.00	1.99	1.97	1.96	1.95	1.95	1.94	1.94	1.94	1.93	1.93	1.92	1.93	1.93	1.96	1.99	1.99	1.92	2.04	1.97	
May 16	2.00	S	2.00	2.03	2.03	2.01	1.96	1.95	1.94	1.94	1.93	1.93	1.94	1.94	1.93	1.92	1.92	1.93	1.93	1.93	1.95	1.96	1.96	1.96	1.92	2.03	1.95	
May 17	S	1.97	1.97	1.98	1.98	1.99	1.98	1.96	1.94	1.93	1.94	1.94	1.94	1.93	1.93	1.93	1.94	1.94	1.95	1.95	1.96	1.98	1.99	S	1.93	1.99	1.96	
May 18	2.02	2.02	2.04	2.04	2.05	2.06	2.07	NRM	1.97	1.97	1.97	1.94	1.94	1.94	1.93	1.93	1.96	1.94	1.95	1.95	1.96	1.97	1.99	S	2.00	1.95	2.07	1.99
May 19	2.00	1.99	2.00	2.00	2.00	2.00	2.00	1.99	1.97	2.00	2.05	C	C	C	C	2.02	2.05	2.08	2.11	2.14	2.16	S	2.13	2.10	1.97	2.16	2.04	
May 20	2.09	2.09	2.10	2.09	2.09	2.09	2.08	2.07	2.07	2.06	2.06	2.07	2.09	2.09	2.09	2.09	2.15	2.14	2.07	2.04	S	2.02	2.00	2.01	2.00	2.15	2.08	
May 21	2.02	2.02	2.03	2.04	2.06	2.07	2.08	2.09	2.09	2.10	2.09	2.08	2.08	2.07	2.07	2.06	2.05	2.04	2.04	S	2.08	2.07	2.07	2.07	2.02	2.10	2.06	
May 22	2.10	2.10	2.08	2.09	2.08	2.06	2.04	2.02	2.00	1.98	1.98	1.98	1.99	2.00	2.04	2.02	2.02	2.05	S	2.07	2.08	2.10	2.12	2.12	1.98	2.12	2.05	
May 23	2.12	2.12	2.08	2.04	2.02	2.02	2.01	2.01	2.02	2.02	2.00	1.99	1.99	1.99	1.99	1.98	1.98	S	1.98	1.99	2.00	1.99	2.00	2.00	1.98	2.12	2.01	
May 24	2.01	2.05	2.02	2.02	2.02	2.03	2.03	2.03	2.02	2.01	1.99	1.97	1.97	1.96	1.95	1.95	S	1.97	1.97	1.99	2.00	2.01	2.02	2.02	1.95	2.05	2.00	
May 25	2.02	2.02	2.03	2.02	2.01	2.01	2.02	2.01	2.00	1.99	1.98	1.98	1.98	1.98	S	1.98	1.98	1.98	1.99	2.01	2.05	2.09	2.06	1.98	2.09	2.01	2.02	
May 26	2.11	2.17	2.19	2.18	2.21	2.22	2.17	2.10	2.04	2.01	1.99	1.98	1.97	1.97	S	1.96	1.95	1.95	1.95	1.97	1.98	2.02	2.04	2.04	1.95	2.22	2.05	
May 27	2.05	2.05	2.06	2.07	2.08	2.07	2.06	2.06	2.03	2.03	2.03	2.01	1.99	S	1.98	1.97	1.96	1.96	1.96	1.97	1.96	1.99	2.01	2.02	1.96	2.08	2.02	
May 28	2.03	2.02	2.03	2.04	2.04	2.03	2.02	2.02	2.01	2.01	2.00	1.98	S	1.97	1.94	1.94	1.94	1.93	1.91	1.92	1.93	1.97	1.96	1.96	1.91	2.04	1.98	
May 29	2.01	2.04	2.05	2.06	2.08	2.11	2.10	2.06	2.04	2.00	1.95	S	1.95	1.93	1.93	1.92	1.93	1.93	1.92	1.93	1.94	1.97	1.98	2.01	1.92	2.11	1.99	
May 30	2.08	2.08	2.12	2.10	2.09	2.08	2.14	2.13	2.05	1.99	S	1.94	1.95	1.94	1.93	1.94	1.93	NRM	1.93	1.94	1.95	1.95	1.97	1.98	2.01	1.93	2.14	2.01
May 31	1.98	1.97	1.98	1.99	1.99	1.99	1.98	1.97	S	1.97	1.99	1.99	1.98	1.96	1.96	1.96	1.96	1.95	1.93	1.95	1.96	1.96	1.96	1.96	1.93	1.99	1.97	
Diurnal Maximum	2.12	2.17	2.19	2.18	2.21	2.22	2.17	2.13	2.09	2.10	2.09	2.08	2.09	2.09	2.09	2.09	2.15	2.14	2.11	2.14	2.16	2.10	2.13	2.12				
Diurnal Average	2.02	2.03	2.03	2.04	2.04	2.03	2.02	2.00	1.99	1.99	1.98	1.97	1.97	1.96	1.96	1.97	1.96	1.96	1.97	1.98	1.99	2.00	2.01					

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

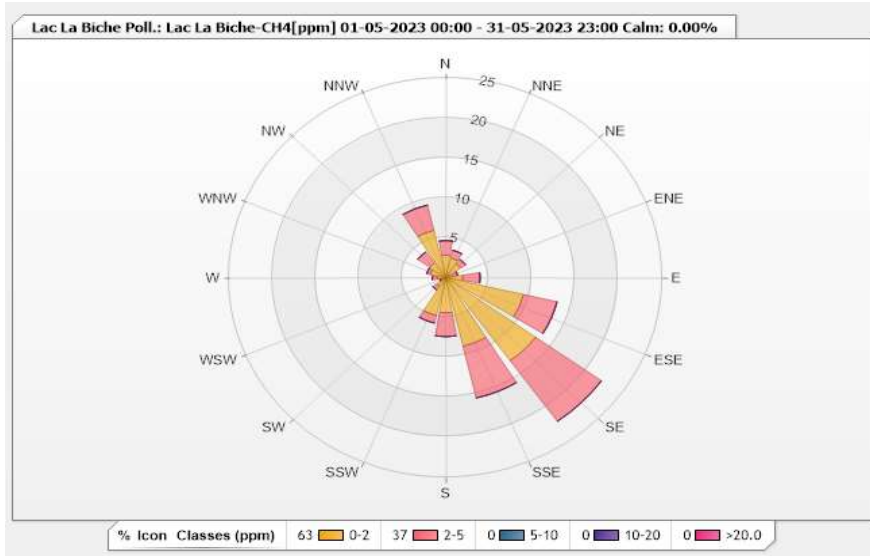


Station: Lac La Biche Poll.: Lac La Biche-CH4[ppm] Monthly: 05-2023

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

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	2.83	1.84	0	0	0	4.67
NNE	2.55	0.99	0	0	0	3.54
NE	2.12	0.71	0	0	0	2.83
ENE	0.42	0.99	0	0	0	1.41
E	1.98	1.98	0	0	0	3.96
ESE	9.21	3.97	0	0	0	13.18
SE	12.75	9.35	0	0	0	22.1
SSE	8.78	6.66	0	0	0	15.44
S	4.39	2.97	0	0	0	7.36
SSW	4.82	0.99	0	0	0	5.81
SW	1.27	0.57	0	0	0	1.84
WSW	0.57	0.14	0	0	0	0.71
W	0.99	0.57	0	0	0	1.56
WNW	1.84	0.42	0	0	0	2.26
NW	2.27	1.7	0	0	0	3.97
NNW	6.09	3.26	0	0	0	9.35
Summary	62.88	37.11	0	0	0	100

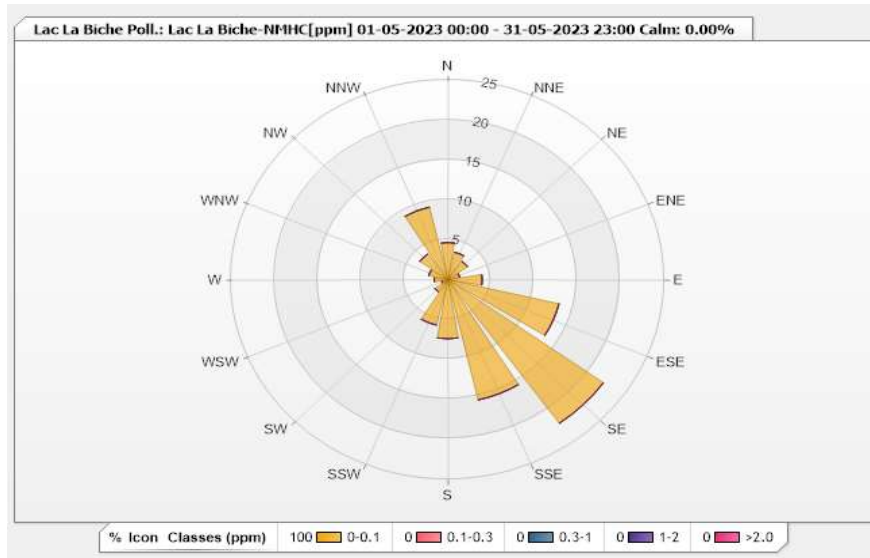


Station: Lac La Biche Poll.: Lac La Biche-NMHC[ppm] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	4.67	0	0	0	0	4.67
NNE	3.54	0	0	0	0	3.54
NE	2.83	0	0	0	0	2.83
ENE	1.42	0	0	0	0	1.42
E	3.97	0	0	0	0	3.97
ESE	13.17	0	0	0	0	13.17
SE	22.1	0	0	0	0	22.1
SSE	15.44	0	0	0	0	15.44
S	7.37	0	0	0	0	7.37
SSW	5.81	0	0	0	0	5.81
SW	1.84	0	0	0	0	1.84
WSW	0.71	0	0	0	0	0.71
W	1.56	0	0	0	0	1.56
WNW	2.27	0	0	0	0	2.27
NW	3.97	0	0	0	0	3.97
NNW	9.35	0	0	0	0	9.35
Summary	100	0	0	0	0	100



Lakeland Industry & Community Association

Lac La Biche Station - May 2023

Summary of Hourly Averages

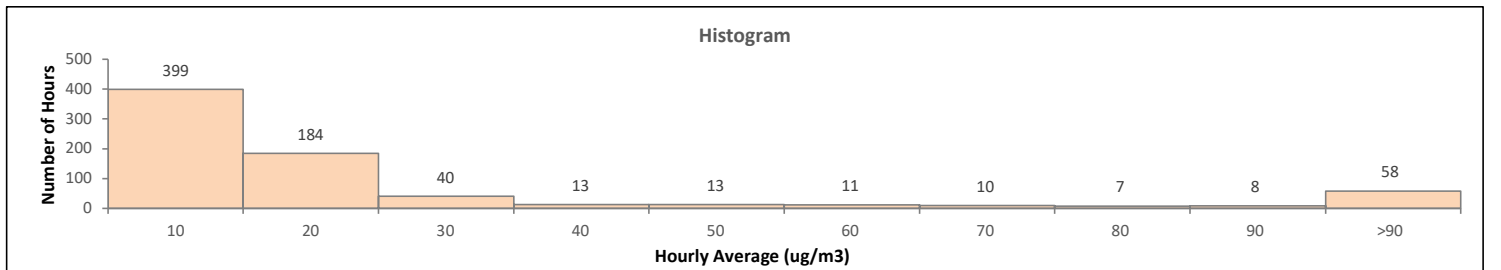
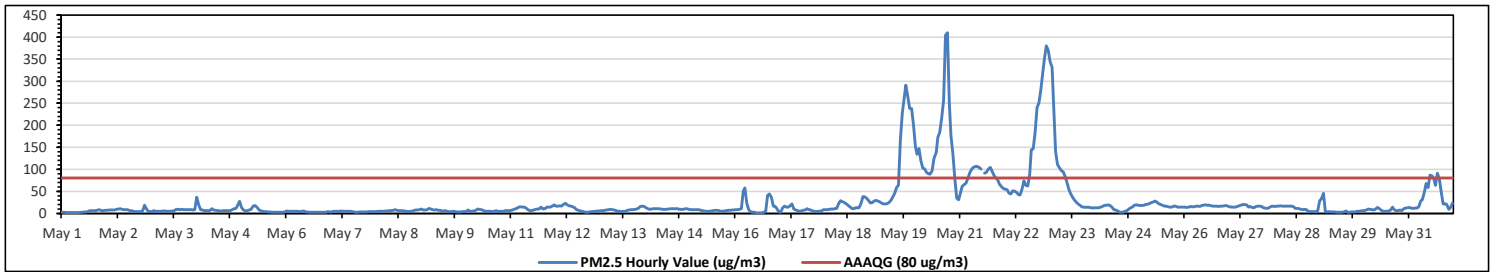
PARTICULATE MATTER 2.5 (PM_{2.5}) in µg/m³

Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m ³ , Alberta Ambient Air Quality Objective (AAAQO): 24-Hour 29 µg/m ³	
Number of 1-Hour Exceedances:	66
Number of 24-Hour Exceedances:	6
Maximum Hourly Value:	411 µg/m ³ on May 20 at hr 17
Maximum Daily Value:	155.8 µg/m ³ on May 20
Minimum Hourly Value:	1 µg/m ³ on May 16 at hr 12
Minimum Daily Value:	4 µg/m ³ on May 6
Monthly Average:	27.2 µg/m ³
Hours in Service:	744
Hours of Data:	743
Hours of Missing Data:	0
Hours of Calibration:	1
Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
May 1	2	2	2	2	2	2	2	2	2	2	2	3	3	3	4	7	7	7	6	8	8	7	7	7	2	8	4.0	
May 2	7	8	8	8	8	9	10	10	10	9	9	8	7	6	5	4	4	4	4	6	19	11	4	4	4	4	19	7.5
May 3	4	6	5	5	5	5	6	6	5	5	5	5	7	9	9	8	9	8	9	8	8	8	8	8	4	9	6.7	
May 4	37	20	9	8	7	7	6	7	11	8	7	6	6	5	6	6	6	7	6	9	11	11	20	27	5	37	10.5	
May 5	14	8	5	6	8	9	16	18	14	9	6	5	4	4	3	3	2	3	3	3	3	3	3	4	2	18	6.5	
May 6	6	5	5	5	5	5	4	4	5	4	3	3	3	3	3	3	3	2	2	2	3	4	4	4	2	6	3.7	
May 7	3	5	5	5	5	5	5	5	4	4	5	4	3	3	3	4	4	4	4	4	4	4	4	4	3	5	4.1	
May 8	4	4	4	5	5	5	6	6	7	7	8	7	7	7	6	5	5	4	5	5	6	8	8	9	4	9	5.9	
May 9	10	8	8	8	11	10	8	8	8	7	7	6	6	6	4	4	4	5	4	3	4	4	4	4	3	11	6.2	
May 10	4	8	5	5	6	7	10	9	9	7	5	4	5	5	4	5	6	4	4	5	5	7	7	7	4	10	5.9	
May 11	7	8	10	12	14	15	14	14	12	9	7	7	8	9	10	10	15	10	11	14	14	15	16	19	7	19	11.6	
May 12	16	17	17	17	20	23	20	17	17	15	13	8	7	5	5	4	3	3	3	4	4	5	5	6	3	23	10.5	
May 13	6	6	7	8	9	9	9	8	6	5	4	4	5	5	7	8	8	9	9	10	12	16	17	16	4	17	8.4	
May 14	13	10	9	10	10	11	11	10	10	9	9	10	10	11	11	11	11	11	9	9	9	11	10	9	9	13	10.1	
May 15	9	8	8	8	8	8	7	6	5	4	4	6	6	7	7	5	5	6	6	6	7	7	8	8	4	9	6.7	
May 16	9	9	9	11	51	58	23	8	3	2	2	2	1	1	1	3	4	41	44	37	16	16	10	4	1	58	15.3	
May 17	3	12	16	14	15	17	21	10	8	7	5	5	7	8	10	9	8	6	5	4	4	4	7	8	3	21	8.8	
May 18	8	9	10	10	10	11	12	23	29	27	24	21	19	15	12	10	13	13	12	23	38	34	29	8	38	18.6		
May 19	24	25	28	29	28	26	23	21	21	23	25	30	38	45	58	65	168	228	263	291	266	238	238	200	21	291	100.0	
May 20	151	134	147	119	103	101	93	90	89	96	125	139	173	185	216	257	405	411	248	176	136	80	35	31	31	411	155.8	
May 21	47	61	65	69	80	93	100	104	106	106	104	100	C	91	93	101	104	95	85	80	76	66	61	57	47	106	84.6	
May 22	55	54	47	44	51	51	47	43	42	55	74	63	62	88	144	147	184	240	251	281	320	351	381	370	42	381	143.5	
May 23	344	332	226	140	111	104	97	94	83	71	56	45	37	31	25	22	18	15	14	14	14	14	12	12	12	344	80.4	
May 24	12	13	13	14	16	18	19	20	18	14	9	8	6	3	3	5	7	10	13	15	18	19	19	3	20	12.1		
May 25	18	18	19	20	21	23	24	26	28	26	22	21	18	17	17	15	14	14	16	16	15	15	15	14	14	28	18.8	
May 26	14	14	14	16	15	15	16	16	16	18	19	19	19	18	17	16	16	16	16	16	16	16	17	18	17	14	19	16.4
May 27	15	14	15	15	15	17	19	20	19	15	15	13	12	16	17	16	16	13	12	11	13	16	16	17	11	20	15.4	
May 28	16	16	17	17	17	16	17	16	16	17	15	12	11	11	9	8	9	9	4	4	4	4	3	6	3	17	11.4	
May 29	28	34	45	4	4	4	4	4	3	3	3	3	3	6	2	3	3	3	3	3	4	5	5	6	2	45	7.7	
May 30	6	8	10	9	8	8	10	13	10	7	5	5	5	6	8	14	8	7	7	8	7	11	12	13	5	14	8.5	
May 31	13	12	12	12	12	15	28	31	47	68	59	87	85	79	64	92	79	49	22	21	21	9	14	23	9	92	39.7	
Diurnal Maximum	344	332	226	140	111	104	100	104	106	106	125	139	173	185	216	257	405	411	263	291	320	351	381	370				
Diurnal Average	29.2	28.6	25.7	21.0	21.8	22.8	22.2	21.5	21.4	21.2	21.3	19.4	22.6	25.4	28.0	36.9	40.3	35.4	35.3	34.9	32.8	32.4	30.9					

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

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

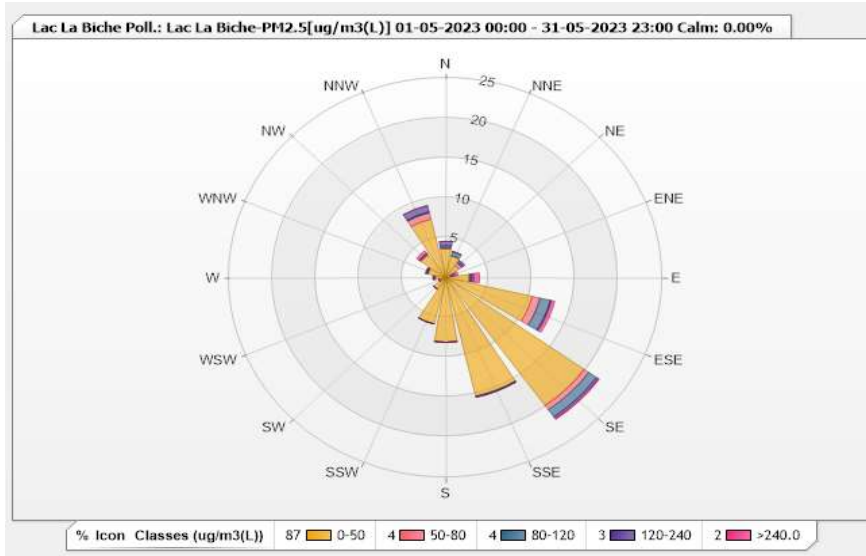


Station: Lac La Biche Poll.: Lac La Biche-PM2.5[ug/m3(L)] Monthly: 05-2023

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

Calm: 0.00% Valid Data: 99.87% Calm Avg: 0.00 [ppm]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	3.63	0.13	0.27	0.54	0	4.57
NNE	2.83	0	0.54	0	0	3.37
NE	1.88	0.4	0.13	0.27	0	2.68
ENE	0.54	0.13	0.13	0.27	0.4	1.47
E	2.69	0.13	0.13	0.27	0.67	3.89
ESE	10.23	0.94	1.21	0.13	0.4	12.91
SE	19.65	0.67	1.08	0.27	0.13	21.8
SSE	15.21	0	0.13	0	0	15.34
S	8.08	0	0	0	0	8.08
SSW	5.92	0	0	0	0	5.92
SW	1.75	0	0	0	0	1.75
WSW	0.54	0.27	0	0	0	0.81
W	1.21	0.13	0	0.13	0	1.47
WNW	2.15	0	0.13	0.13	0	2.41
NW	3.5	0.13	0.13	0	0.4	4.16
NNW	7.54	0.81	0.13	0.81	0	9.29
Summary	87.35	3.74	4.01	2.82	2	100



Lakeland Industry & Community Association

Lac La Biche Station - May 2023

Summary of Hourly Averages

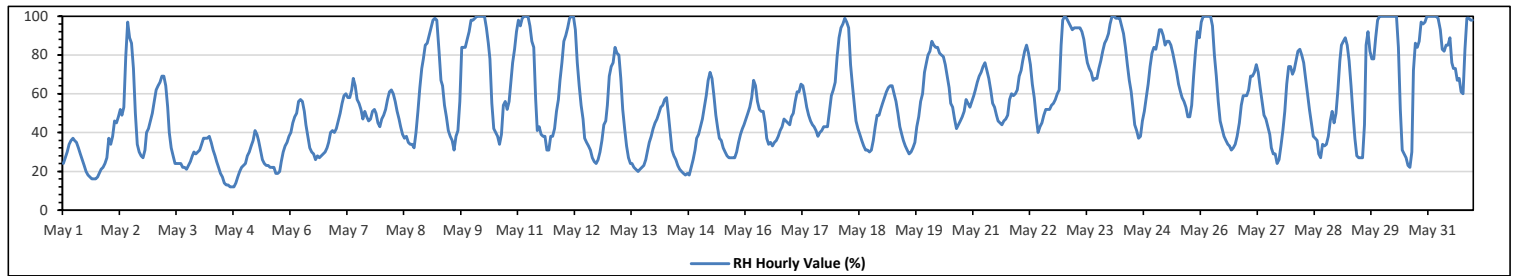
RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	100 %	on May 10 at hr 2	Hours in Service:	744
Maximum Daily Value:	86.3 %	on May 31	Hours of Data:	744
Minimum Hourly Value:	12 %	on May 4 at hr 16	Hours of Missing Data:	0
Minimum Daily Value:	23.5 %	on May 4	Hours of Calibration:	0
Monthly Average:	55.3 %		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
May 1	24	27	30	34	36	37	36	35	32	29	26	23	20	18	17	16	16	16	17	19	21	22	24	27	16	37	25.1
May 2	37	34	38	46	45	48	52	49	53	79	97	89	86	73	50	34	30	28	27	31	40	42	46	50	27	97	50.2
May 3	56	62	64	66	69	69	64	53	40	32	28	24	24	24	24	22	22	21	23	25	28	30	29	30	21	69	38.7
May 4	31	34	37	37	37	38	35	31	28	25	22	19	17	14	13	13	12	12	12	14	17	20	22	23	12	38	23.5
May 5	24	28	30	33	36	41	39	36	31	26	24	23	23	22	22	19	19	20	25	30	33	35	38	19	41	28.3	
May 6	40	45	48	50	56	57	56	51	44	38	32	30	29	26	28	27	28	29	30	32	35	40	41	40	26	57	38.8
May 7	42	46	50	55	59	60	58	58	62	68	64	57	55	52	47	51	48	46	47	51	52	50	45	43	42	68	52.8
May 8	47	49	52	57	61	62	60	56	51	47	43	39	37	38	35	34	34	32	40	51	63	73	78	85	32	85	51.0
May 9	86	90	94	98	99	98	82	67	64	54	48	41	38	36	31	38	41	56	84	84	84	88	92	98	31	99	70.5
May 10	98	99	100	100	100	100	100	94	86	78	55	42	40	38	34	39	54	56	52	56	67	76	83	92	34	100	72.5
May 11	98	95	99	100	100	100	95	87	84	57	41	43	39	38	38	31	31	38	38	42	51	57	67	76	31	100	64.4
May 12	87	90	94	99	100	100	93	76	64	54	47	37	35	33	31	27	25	24	26	30	36	44	46	54	24	100	56.3
May 13	69	74	76	84	81	80	68	52	42	33	27	24	24	22	21	20	21	22	23	26	31	35	38	42	20	84	43.1
May 14	45	47	50	53	54	57	58	49	39	31	28	26	23	21	20	19	18	19	18	22	26	31	37	39	18	58	34.6
May 15	43	47	53	59	67	71	68	59	49	42	37	36	32	30	28	27	27	27	27	30	35	39	42	44	27	71	42.5
May 16	47	50	53	58	67	64	56	52	51	51	45	37	34	35	33	35	36	38	41	43	47	46	45	44	33	67	46.2
May 17	48	50	56	61	61	65	64	59	53	49	46	44	43	41	38	40	41	43	43	43	51	59	62	66	38	66	51.1
May 18	79	89	94	96	99	97	94	75	64	54	46	42	39	36	33	31	31	30	31	36	43	49	49	52	30	99	57.9
May 19	55	58	61	63	64	64	60	56	50	43	39	36	33	31	29	30	32	35	43	48	56	60	71	76	29	76	49.7
May 20	80	82	87	85	84	84	81	80	79	75	69	63	55	53	47	42	44	46	48	51	57	55	53	56	42	87	64.8
May 21	59	62	66	69	71	74	76	72	68	62	55	53	49	46	45	44	46	47	49	57	60	59	60	62	44	76	58.8
May 22	69	72	77	82	85	81	75	65	58	48	40	43	45	49	52	52	52	54	55	57	60	62	85	98	40	98	63.2
May 23	100	99	97	95	93	94	94	94	94	92	88	81	76	73	71	67	68	68	73	77	82	86	88	91	67	100	85.0
May 24	96	100	100	99	99	99	95	91	84	75	67	61	52	44	41	37	38	46	51	58	65	74	81	84	37	100	72.4
May 25	83	87	93	93	90	85	87	87	85	81	76	71	65	61	58	56	53	48	48	54	69	82	92	89	48	93	74.7
May 26	97	100	100	100	100	100	95	80	69	56	46	42	38	36	34	33	31	32	34	38	45	54	59	59	31	100	61.6
May 27	59	62	69	69	71	75	71	63	56	49	47	43	39	32	29	29	24	26	33	41	51	65	74	74	24	75	52.1
May 28	70	72	77	82	83	80	76	68	60	52	45	38	37	36	29	27	34	33	34	38	46	51	45	50	27	83	52.6
May 29	62	77	85	87	89	85	77	64	50	37	28	27	27	27	27	44	85	92	82	78	89	98	100	100	27	100	69.5
May 30	100	100	100	100	100	100	100	100	84	52	31	29	27	23	22	30	72	86	84	87	97	96	97	100	22	100	75.7
May 31	100	100	100	100	100	99	93	83	82	85	85	89	76	73	73	67	68	61	60	83	99	99	98	98	60	100	86.3
Diurnal Maximum	100	100	100	100	100	100	100	94	92	97	89	86	73	73	85	92	86	84	87	99	99	100	100				
Diurnal Average	65.5	68.6	71.9	74.5	76.0	76.3	72.8	65.9	59.9	53.4	47.5	43.6	40.5	38.1	36.0	36.3	38.3	39.4	41.6	46.0	52.7	57.3	60.8	63.9			

C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	ND No Data (Machine Not in Service)	Y Routine Maintenance
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 days is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Lakeland Industry & Community Association

Lac La Biche Station - May 2023

Summary of Hourly Averages

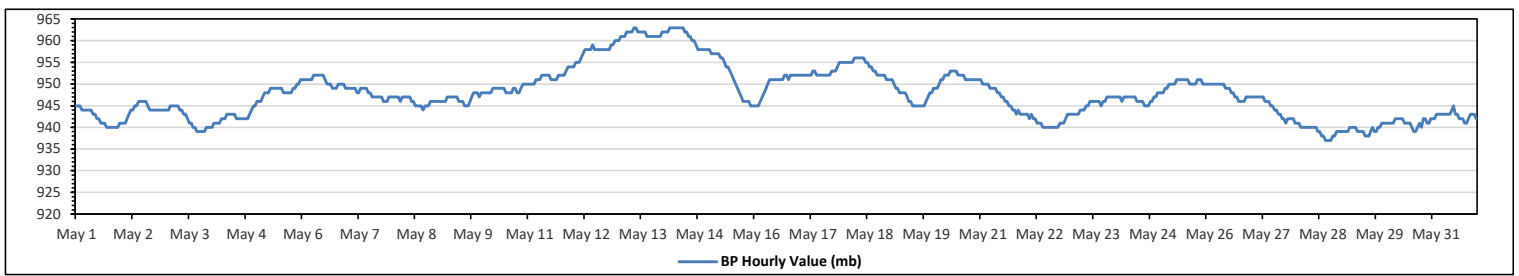
BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	963	mb	on May 13 at hr 8	Hours in Service:	744
Maximum Daily Value:	962	mb	on May 13	Hours of Data:	744
Minimum Hourly Value:	937	mb	on May 28 at hr 15	Hours of Missing Data:	0
Minimum Daily Value:	939	mb	on May 28	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			
May 1	945	945	945	944	944	944	944	944	944	943	943	942	942	941	941	941	940	940	940	940	940	940	941	940	945	942
May 2	941	941	941	942	943	944	944	945	945	946	946	946	946	945	944	944	944	944	944	944	944	944	944	941	946	944
May 3	944	944	945	945	945	945	945	944	944	943	943	942	941	941	940	940	939	939	939	939	939	940	940	939	945	942
May 4	940	941	941	941	941	942	942	942	943	943	943	943	942	942	942	942	942	942	942	942	942	943	944	945	945	942
May 5	946	946	946	947	948	948	948	949	949	949	949	949	949	949	948	948	948	948	948	949	949	950	950	951	946	948
May 6	951	951	951	951	951	951	952	952	952	952	952	952	951	950	950	950	949	949	949	949	950	950	950	949	949	951
May 7	949	949	949	949	949	948	948	949	949	949	949	948	948	947	947	947	947	947	947	946	946	946	947	947	946	948
May 8	947	947	947	947	946	947	947	947	947	947	946	946	945	945	945	945	944	945	945	945	946	946	946	946	944	946
May 9	946	946	946	946	946	947	947	947	947	947	947	946	946	946	945	945	945	946	947	948	948	948	947	948	945	947
May 10	948	948	948	948	948	949	949	949	949	949	949	949	948	948	948	948	948	949	949	948	948	949	950	950	948	949
May 11	950	950	950	950	951	951	951	952	952	952	952	952	951	951	951	951	952	952	952	952	952	953	954	954	950	952
May 12	954	955	955	955	956	957	958	958	958	958	959	958	958	958	958	958	958	958	958	958	958	959	959	960	954	958
May 13	960	961	961	961	962	962	962	962	963	963	962	962	962	962	962	961	961	961	961	961	961	961	961	962	960	963
May 14	962	962	962	963	963	963	963	963	963	963	962	962	961	961	960	960	959	958	958	958	958	958	958	958	958	958
May 15	958	957	957	957	957	956	956	955	954	954	953	952	951	950	949	948	947	946	946	946	946	946	945	945	945	952
May 16	945	945	945	946	947	948	949	950	951	951	951	951	951	951	951	952	952	951	952	952	952	952	952	952	945	950
May 17	952	952	952	952	952	952	953	953	953	952	952	952	952	952	952	952	953	953	953	953	954	955	955	955	952	953
May 18	955	955	955	955	955	956	956	956	956	956	956	955	955	954	954	953	952	952	952	952	952	951	951	951	951	954
May 19	951	951	950	949	949	948	948	948	947	946	946	945	945	945	945	945	945	946	947	948	948	949	949	949	945	947
May 20	949	949	950	951	951	952	952	952	953	953	953	953	952	952	952	952	951	951	951	951	951	951	951	951	949	951
May 21	951	950	950	950	950	949	949	949	949	948	948	947	947	946	946	945	944	944	943	944	944	943	943	943	943	947
May 22	943	943	942	943	942	942	941	941	941	940	940	940	940	940	940	940	940	941	941	941	941	942	943	943	940	941
May 23	943	943	943	943	943	944	944	944	945	945	946	946	946	946	946	946	945	946	946	946	947	947	947	947	943	945
May 24	947	947	947	946	947	947	947	947	947	947	946	946	946	946	946	945	945	945	946	946	947	947	948	948	945	947
May 25	948	948	949	949	950	950	950	950	951	951	951	951	951	951	950	950	950	950	951	951	951	951	951	950	948	950
May 26	950	950	950	950	950	950	950	950	950	949	949	948	948	947	947	946	946	946	946	946	946	947	947	947	946	948
May 27	947	947	947	947	947	947	947	946	946	946	945	945	944	944	943	943	942	942	941	942	942	942	941	941	941	944
May 28	941	941	940	940	940	940	940	940	940	940	939	939	938	938	938	937	937	937	937	938	938	939	939	939	937	939
May 29	939	939	939	939	940	940	940	940	939	939	939	938	938	938	939	940	939	939	940	940	941	941	941	941	938	941
May 30	941	941	941	941	942	942	942	942	941	941	941	941	940	939	939	940	941	940	942	942	941	941	942	942	939	941
May 31	942	942	943	943	943	943	943	943	943	944	945	943	943	942	942	942	941	941	942	943	943	943	942	941	945	943
Diurnal Maximum	962	962	962	963	963	963	963	963	963	963	962	962	962	962	961	961	961	961	961	961	961	961	961	962	962	962
Diurnal Average	948	948	948	948	948	949	949	949	949	949	948	948	947	947	947	947	947	947	947	947	947	948	948	948	948	948

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

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



Lakeland Industry & Community Association

Lac La Biche Station - May 2023

Summary of Hourly Averages

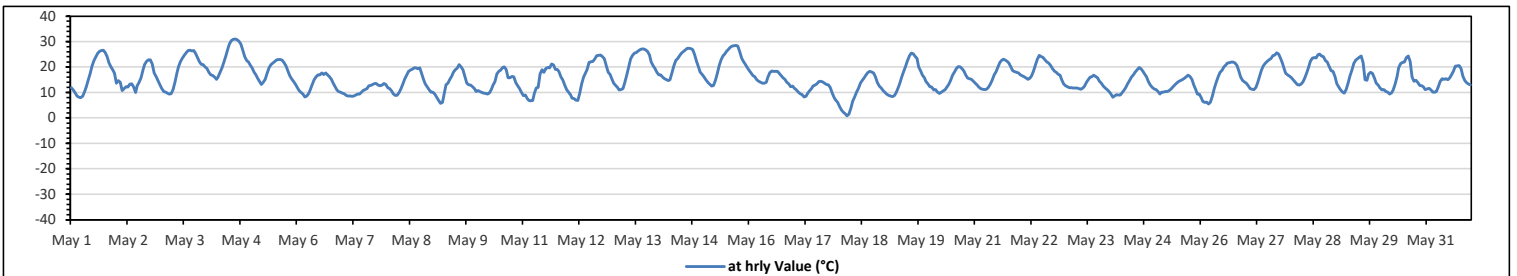
AMBIENT TEMPERATURE (AT) in Degree Celsius

Maximum Hourly Value:	31.0 °C	on May 4 at hr 15	Hours in Service:	744
Maximum Daily Value:	23.2 °C	on May 4	Hours of Data:	744
Minimum Hourly Value:	0.8 °C	on May 18 at hr 4	Hours of Missing Data:	0
Minimum Daily Value:	10.5 °C	on May 18	Hours of Calibration:	0
Monthly Average:	16.0 °C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
May 1	11.9	11	9.9	8.7	8.1	8	8.6	10.1	12.2	14.9	17.4	20.4	22.6	24.1	25.5	26.2	26.5	26.6	25.7	24	21.5	20.1	18.8	17.5	8.0	26.6	17.5
May 2	13.7	14.6	14	10.8	11.5	12.2	12.1	13.3	13.4	12.1	10	12.6	14.1	15.9	18.8	21	22.2	22.8	22.8	21.2	17.7	16.3	14.6	13.1	10.0	22.8	15.5
May 3	11.6	10.5	10.2	9.8	9.4	9.5	11.1	14	17.5	20	22.1	23.5	24.6	25.6	26.5	26.6	26.4	26.5	25.3	23.9	22.2	21.1	21	20.1	9.4	26.6	19.1
May 4	19.4	18	17	16.7	16	15.2	16.1	18	19.7	21.9	24.4	26.6	29	30.4	30.9	31	30.7	30.2	29.1	26.6	24	22.6	22	20.8	15.2	31.0	23.2
May 5	19.7	18.1	17	15.7	14.5	13.2	14	15.2	17.5	19.8	21	21.6	22.2	22.8	22.9	23	22.7	21.7	20.4	18.5	16.6	15.3	14.3	13.2	13.2	23.0	18.4
May 6	12	10.8	10	9.4	8.2	8.7	9.6	11.1	13.2	15	16.2	16.9	17	17.7	17.1	17.7	16.9	16.2	15.2	13.8	12.4	11	10.4	10.2	8.2	17.7	13.2
May 7	9.7	9.5	8.9	8.6	8.6	8.5	8.7	9.1	9.4	9.4	10.1	10.8	11.1	11.6	12.6	12.8	13.2	13.5	13.5	13	12.6	12.9	13.5	13.2	8.5	13.5	11.0
May 8	11.9	11.5	10.6	9.5	8.9	8.9	9.9	11.4	13.3	15.3	16.8	18.4	18.8	19.2	19.7	19.8	19.3	19.7	17.8	15.4	13.4	12.2	11.1	10.1	8.9	19.8	14.3
May 9	10.1	9.3	8.1	6.9	5.8	6.2	9.9	13.1	13.7	15.2	16.4	18	18.9	19.6	21	20.1	18.9	16.3	13.6	13.1	12.9	12.2	11.5	10.5	5.8	21.0	13.4
May 10	10.7	10.5	10	9.8	9.6	9.4	9.9	11.3	13	14.3	17.3	18.4	18.8	19.9	20.1	19	15.8	15.9	16.3	16.1	13.9	12.7	11.5	10	9.4	20.1	13.9
May 11	8.8	9	7.7	6.8	6.7	6.9	9.6	11.8	12	17.3	18.9	17.9	19.5	19.9	19.7	21.2	20.9	19.1	19.1	18.2	16.1	14.9	12.9	11.2	6.7	21.2	14.4
May 12	10.1	9.2	7.8	7.6	7	6.9	9.8	13.4	16	17.7	19.1	21.8	22.1	22.3	23.2	24.5	24.6	24.7	24.1	23.2	20.4	17.9	17.1	15.4	6.9	24.7	16.9
May 13	13.6	12.8	12.1	11	11.1	11.5	14	16.9	20.1	23.2	24.6	25.4	25.7	26.4	26.8	27.1	27.1	26.7	26.1	24.7	22.1	20.6	19.4	18	11.0	27.1	20.3
May 14	16.9	16.9	16	15.5	15.1	14.6	15.1	17.7	20.5	22.6	23.4	24.5	25.5	26.1	26.7	27.4	27.4	27.3	26.9	24.9	22.3	20.1	18.1	17.2	14.6	27.4	21.2
May 15	16.1	15.1	14.1	13.3	12.5	12.8	14.8	17.6	20.7	23	24.5	25.2	26.2	27	27.8	28.2	28.4	28.5	28.2	26	23.5	22.1	21	19.8	12.5	28.5	21.5
May 16	18.6	17.6	16.7	16.2	15.1	14.5	14	13.6	13.7	14.1	16	17.8	18.5	18.3	18.4	18.3	17.4	16.6	15.9	15.2	14	13.4	12.3	12.5	12.3	18.6	15.8
May 17	11.7	11	10.2	9.5	9.2	8.3	8.5	9.6	10.6	11.5	12.5	12.9	13.4	14.3	14.5	14.2	13.7	13.2	13.1	11.9	9.8	7.9	7	6.2	6.2	14.5	11.0
May 18	4.5	3.1	2.3	1.6	0.8	1.5	3.8	6.6	8.3	10.1	11.7	13.7	14.8	15.8	16.8	17.8	18.3	18.1	17.7	16.2	13.9	12.5	11.8	10.8	0.8	18.3	10.5
May 19	10	9.4	8.9	8.6	8.4	8.8	9.8	11.5	13.5	16	18.2	20.2	22.5	24.4	25.5	25.3	24.2	23.3	20.1	18.6	16.8	15.8	14.3	13.4	8.4	25.5	16.1
May 20	12.3	12.1	11	11.1	10.2	9.6	10.2	10.6	11.2	12.2	13.2	14.7	16.8	18.1	19.4	20.2	20.1	19.3	18.3	16.9	15.7	15.5	15.2	14.5	9.6	20.2	14.5
May 21	13.6	12.9	12.1	11.5	11.3	11.2	11.3	12	13.3	14.9	16.9	18.2	20	21.8	22.6	23.1	22.7	22.3	21.6	20.1	18.6	18.2	18	17.7	11.2	23.1	16.9
May 22	16.9	16.5	16.2	15.7	15.2	15.7	16.6	18.5	20.8	23.1	24.6	24.1	23.9	23	22.1	21.6	20.7	19.4	18.5	18	17.2	16.8	15	13.4	13.4	24.6	18.9
May 23	12.7	12.2	11.9	11.9	11.8	11.8	11.6	11.3	11.7	12.4	13.9	15.1	16	16.2	16.8	16.3	15.9	14.5	13.6	12.5	11.8	11.2	10.4	10.4	16.8	13.1	
May 24	9.4	8.1	8.7	9.2	9.1	9.1	9.7	10.7	11.9	13.4	14.6	16	16.9	18.1	18.9	19.9	19.3	18.3	17.3	16.1	14.3	12.9	12	11.4	8.1	19.9	13.6
May 25	11.1	10.4	9.4	10.1	10.2	10.4	10.4	10.7	11.4	12.2	12.9	13.6	14.3	14.6	15	15.6	16.1	16.8	16.3	15.2	13	11.1	9.3	9.4	9.3	16.8	12.5
May 26	7.9	6.5	6.1	6.3	5.5	6.3	8.6	11.7	14.1	16.2	17.9	18.7	20	20.8	21.6	21.7	22	22	21.5	20.6	18.3	16.2	14.8	14.2	5.5	22.0	15.0
May 27	13.6	12.7	11.6	11.3	11.2	12	13.7	16.1	18.7	20.5	21.4	22.2	22.8	23.4	24.5	24.8	25.6	25.1	23.7	21.8	19.4	17.6	16.9	16.4	11.2	25.6	18.6
May 28	15.9	14.9	14	13.2	12.9	13.3	14.2	15.9	17.8	20	22.3	23.5	23.7	23.6	24.9	25.2	24.3	24	22.6	22	20.2	18.6	18.3	16.3	12.9	25.2	19.2
May 29	13.4	12.1	11.1	10.3	9.8	11.1	13.7	16.5	18.8	21.4	22.7	23.2	23.9	24.4	21.7	15.1	14.8	17.2	17.9	17.6	15.8	13.7	12.9	11.8	9.8	24.4	16.3
May 30	11	11.1	10.4	10.1	9.4	9.9	11	13.3	16.1	19.7	21.3	21.8	21.9	23.7	24.3	22.3	16	14.4	14.7	13.9	12.8	12.7	12.2	11.1	9.4	24.3	15.2
May 31	11.4	11.7	11	10.2	10.2	10.4	12.2	14.5	15.5	15.2	15.5	15	15.8	17	18.3	20.3	20.4	20.6	19.5	16.3	14.6	13.8	13.3	13.1	10.2	20.6	14.8
Diurnal Maximum	19.7	18.1	17.0	16.7	16.0	15.7	16.6	18.5	20.8	23.2	24.6	26.6	29.0	30.4	30.9	31.0	30.7	30.2	29.1	26.6	24.0	22.6	22.0	20.8			
Diurnal Average	12.6	11.9	11.1	10.5	10.1	10.2	11.4	13.1	14.8	16.6	17.9	19.1	20.0	20.8	21.4	21.5	21.1	20.7	19.9	18.6	16.7	15.5	14.6	13.6			

C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	ND No Data (Machine Not in Service)	Y Routine Maintenance
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 days is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



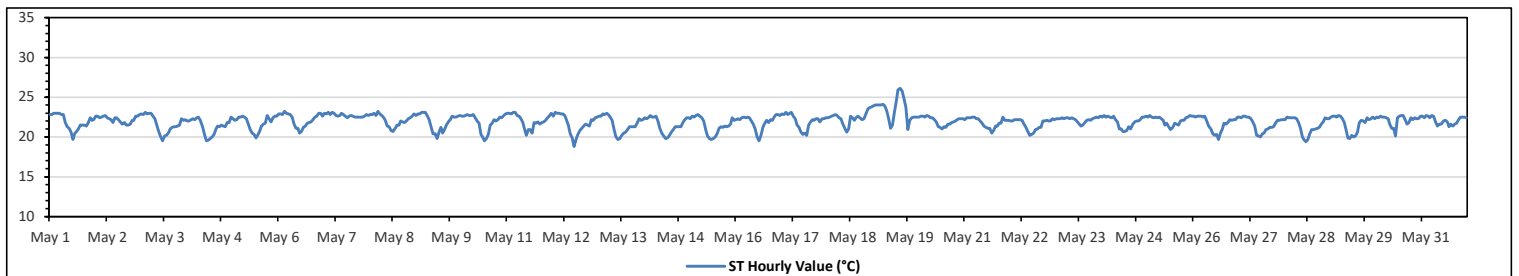
Lakeland Industry & Community Association
Lac La Biche Station - May 2023
Summary of Hourly Averages
STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:	26.1 °C	on May 19 at hr 14	Hours in Service:	744
Maximum Daily Value:	23.5 °C	on May 19	Hours of Data:	744
Minimum Hourly Value:	18.8 °C	on May 12 at hr 11	Hours of Missing Data:	0
Minimum Daily Value:	21.4 °C	on May 4	Hours of Calibration:	0
Monthly Average:	21.9 °C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
May 1	22.8	22.8	23.0	23.0	23.0	23.0	22.8	22.8	21.8	21.3	21.1	20.6	19.7	20.4	20.7	21.0	21.5	21.5	21.5	21.4	21.8	22.4	22.1	22.2	19.7	23.0	21.8
May 2	22.6	22.6	22.4	22.5	22.6	22.7	22.4	22.3	22.2	21.8	22.4	22.4	22.2	21.9	21.6	21.8	21.5	21.5	21.6	22.1	22.1	22.6	22.6	22.8	21.5	22.8	22.2
May 3	22.9	22.8	23.1	22.9	23.0	23.0	22.6	22.3	21.5	20.8	20.1	19.5	20.1	20.2	20.5	21.0	21.2	21.3	21.3	21.4	21.5	22.3	22.1	22.2	19.5	23.1	21.7
May 4	22.0	22.0	22.2	22.3	22.2	22.4	22.5	22.1	21.3	20.3	19.5	19.6	19.8	20.0	20.3	21.0	21.4	21.3	21.5	21.4	21.3	21.8	21.8	22.5	19.5	22.5	21.4
May 5	22.3	22.1	22.2	22.5	22.5	22.6	22.5	22.3	21.6	20.9	20.5	20.3	19.9	20.2	20.7	21.4	21.6	21.7	22.7	22.3	21.9	22.4	22.6	22.6	19.9	22.7	21.8
May 6	22.9	22.9	22.8	23.2	23.0	22.9	22.8	22.5	21.6	21.1	21.1	20.5	20.7	21.2	21.4	21.7	21.8	21.9	22.2	22.5	22.6	23.0	23.0	22.6	20.5	23.2	22.2
May 7	23.0	22.9	23.1	22.8	23.1	23.0	22.7	22.6	22.7	23.0	22.8	22.6	22.4	22.6	22.7	22.6	22.5	22.5	22.5	22.5	22.6	23.0	22.8	22.7	22.4	23.1	22.7
May 8	22.8	22.8	23.0	22.7	23.2	22.9	22.7	22.5	22.1	21.4	21.3	20.8	20.7	21.1	21.5	21.5	22.0	21.9	21.8	22.0	22.3	22.4	22.6	22.9	20.7	23.2	22.1
May 9	22.7	22.9	22.9	23.1	23.1	23.1	22.7	22.2	21.3	20.4	20.4	19.8	20.6	21.2	20.5	20.9	21.5	21.9	22.2	22.6	22.5	22.5	22.6	22.7	19.8	23.1	21.9
May 10	22.6	22.6	22.7	22.8	22.7	22.7	22.8	22.4	22.0	21.7	20.3	20.0	19.5	19.8	20.3	21.5	21.7	22.2	22.0	22.2	22.5	22.4	22.6	22.9	19.5	22.9	21.9
May 11	23.0	23.0	22.9	23.1	23.1	22.7	22.6	22.3	21.8	21.0	20.2	20.9	20.9	20.5	21.8	21.7	21.9	21.6	21.8	21.9	22.1	22.4	22.6	23.0	20.2	23.1	22.0
May 12	22.6	23.1	23.0	23.0	22.9	22.9	22.7	22.2	21.5	20.4	19.9	18.8	19.7	20.3	20.8	21.1	21.4	21.6	21.5	21.4	22.2	22.1	22.4	22.5	18.8	23.1	21.7
May 13	22.6	22.6	22.9	22.8	23.0	22.8	22.5	22.1	20.9	20.0	19.7	19.8	20.2	20.5	20.6	20.9	21.3	21.3	21.3	21.3	21.7	22.3	22.1	22.2	19.7	23.0	21.6
May 14	22.4	22.3	22.4	22.7	22.5	22.5	22.6	22.0	21.1	20.5	20.1	19.8	19.9	20.2	20.6	20.9	21.3	21.3	21.3	21.3	21.8	22.2	22.4	22.4	19.8	22.7	21.5
May 15	22.3	22.6	22.5	22.7	22.8	22.6	22.4	22.0	20.8	20.1	19.8	19.7	19.8	20.0	20.4	21.1	21.3	21.2	21.4	21.3	21.4	21.6	22.4	22.1	19.7	22.8	21.4
May 16	22.2	22.3	22.2	22.4	22.5	22.4	22.5	22.4	22.0	21.6	21.0	20.0	19.5	20.2	21.2	21.7	22.1	21.8	22.2	22.1	22.5	22.8	22.8	22.7	19.5	22.8	21.9
May 17	22.9	22.8	23.1	22.8	23.0	23.1	22.6	22.3	21.5	21.2	20.6	20.3	20.5	20.2	21.5	21.9	22.2	22.1	22.3	22.3	21.9	22.3	22.3	22.4	20.2	23.1	22.0
May 18	22.4	22.5	22.6	22.7	22.8	22.7	22.4	22.3	21.6	21.1	20.6	21.0	22.6	22.4	22.1	22.4	22.6	22.4	22.2	22.3	22.9	23.5	23.7	23.8	20.6	23.8	22.4
May 19	23.9	24.0	24.0	24.0	24.0	24.1	23.9	23.3	22.3	21.1	21.5	23.1	24.5	25.9	26.1	25.8	24.8	23.7	20.9	22.1	22.4	22.5	22.5	22.5	20.9	26.1	23.5
May 20	22.5	22.6	22.6	22.5	22.7	22.6	22.4	22.4	22.2	21.9	21.3	21.2	21.0	21.3	21.2	21.6	21.6	21.8	21.9	22.0	22.2	22.3	22.3	22.3	21.0	22.7	22.0
May 21	22.2	22.4	22.4	22.4	22.5	22.5	22.3	22.3	22.0	21.7	21.4	21.2	21.1	21.1	20.5	20.8	21.4	21.4	21.7	22.1	22.5	22.1	22.1	22.1	20.5	22.5	21.8
May 22	22.0	22.0	22.2	22.2	22.2	22.2	22.1	21.6	21.2	20.7	20.2	20.3	20.5	20.9	21.0	21.2	21.2	22.0	22.0	22.1	22.0	22.0	22.3	22.2	20.2	22.3	21.6
May 23	22.3	22.3	22.3	22.4	22.3	22.4	22.4	22.3	22.4	22.3	22.2	21.9	21.6	21.4	21.5	21.8	22.1	22.2	22.1	22.3	22.4	22.5	22.4	22.6	21.4	22.6	22.2
May 24	22.5	22.7	22.5	22.6	22.5	22.4	22.6	22.2	21.9	21.0	21.0	20.7	20.7	20.8	21.3	21.0	21.6	21.9	22.0	22.0	22.2	22.5	22.5	22.6	20.7	22.7	21.9
May 25	22.5	22.7	22.5	22.4	22.5	22.4	22.5	22.3	22.1	21.5	21.7	21.3	20.9	21.2	21.7	21.6	21.5	22.0	22.1	22.1	22.4	22.5	22.7	22.6	20.9	22.7	22.1
May 26	22.6	22.5	22.6	22.6	22.6	22.5	22.6	22.0	21.4	21.0	20.4	20.2	20.3	19.7	20.5	21.0	21.7	21.6	21.8	22.2	22.1	22.2	22.2	22.2	19.7	22.6	21.7
May 27	22.5	22.4	22.6	22.6	22.5	22.5	22.3	21.9	21.4	20.2	20.1	20.0	20.4	20.5	20.9	21.0	21.2	21.2	21.3	21.7	22.1	22.1	22.2	22.2	20.0	22.6	21.6
May 28	22.2	22.5	22.4	22.4	22.4	22.4	22.3	21.8	21.1	20.0	19.6	19.4	19.7	20.4	20.9	20.9	21.0	21.1	21.2	21.6	21.9	22.4	22.3	22.3	19.4	22.5	21.4
May 29	22.5	22.6	22.6	22.5	22.7	22.6	22.3	21.8	20.8	19.9	19.8	20.2	20.0	20.1	20.6	21.8	22.1	22.0	21.8	22.4	22.2	22.3	22.5	22.3	19.8	22.7	21.7
May 30	22.5	22.4	22.6	22.5	22.5	22.4	22.3	21.6	21.1	21.1	20.1	22.4	22.6	22.7	22.7	22.1	21.6	21.8	22.4	22.2	22.4	22.3	22.3	22.6	20.1	22.7	22.1
May 31	22.6	22.4	22.7	22.6	22.4	22.7	22.6	21.9	21.4	21.6	21.6	22.0	22.1	21.9	21.3	21.6	21.4	21.6	21.7	22.2	22.5	22.5	22.5	22.4	21.3	22.7	22.1
Diurnal Maximum	23.9	24.0	24.0	24.0	24.0	24.1	23.9	23.3	22.7	23.0	22.8	23.1	24.5	25.9	26.1	25.8	24.8	23.7	22.7	22.6	22.9	23.5	23.7	23.8			
Diurnal Average	22.6	22.6	22.7	22.7	22.7	22.6	22.2	21.6	21.1	20.7	20.7	20.8	21.0	21.3	21.6	21.7	21.8	21.8	22.0	22.2	22.4	22.5	22.5				

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

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



Lakeland Industry & Community Association

Lac La Biche Station - May 2023

Summary of Hourly Averages

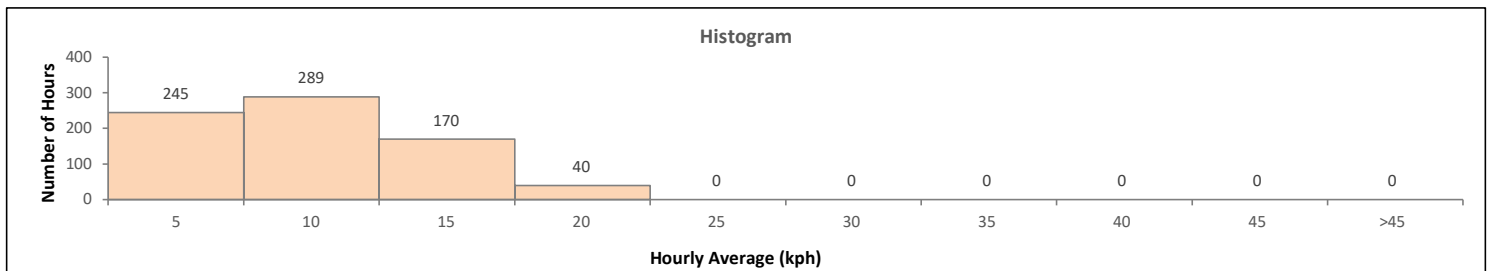
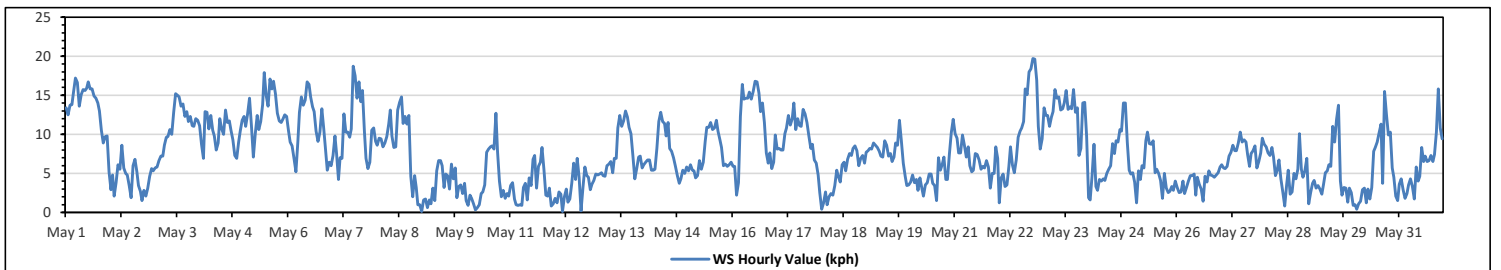
VECTOR WIND SPEED (VWS) in km/hr

Maximum Hourly Value:	19.7 kph	on May 22 at hr 18	Hours in Service:	744
Maximum Daily Value:	13.6 kph	on May 1	Hours of Data:	744
Minimum Hourly Value:	0.1 kph	on May 9 at hr 0	Hours of Missing Data:	0
Minimum Daily Value:	3.3 kph	on May 12	Hours of Calibration:	0
Monthly Average:	3.4 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
May 1	13.4	12.5	13.7	13.8	15.4	17.2	16.6	13.6	15.1	15.7	15.6	15.9	16.7	15.8	15.8	14.9	14.6	14.0	13.0	10.5	8.9	9.7	9.8	5.2	5.2	17.2	13.6
May 2	2.9	4.8	2.1	3.8	6.1	5.5	8.6	5.7	5.0	4.8	3.4	1.9	6.0	6.8	5.2	3.4	2.7	1.5	2.8	2.1	3.1	4.6	5.6	5.3	1.5	8.6	4.3
May 3	5.7	5.8	6.6	7.2	7.2	8.6	9.6	9.7	10.6	10.0	12.8	15.2	15.0	14.8	13.6	13.9	12.3	12.9	11.6	12.3	11.1	11.0	12.0	11.8	5.7	15.2	10.9
May 4	11.1	8.7	6.9	12.9	12.8	10.7	12.4	10.5	9.8	8.0	8.9	12.0	10.7	10.0	13.1	11.5	11.7	10.5	9.3	7.3	6.9	9.0	10.4	11.8	6.9	13.1	10.3
May 5	12.3	11.0	12.6	14.6	11.1	7.1	10.1	12.4	10.6	11.6	13.8	17.9	15.0	13.6	17.1	15.8	16.8	15.2	12.7	11.7	11.5	12.0	12.5	12.3	7.1	17.9	13.0
May 6	10.4	9.0	8.5	6.9	5.2	9.0	12.8	14.8	13.7	14.4	16.7	16.4	14.8	13.5	12.9	10.4	9.1	10.3	13.3	10.7	8.3	5.4	6.4	6.0	5.2	16.7	10.8
May 7	7.3	9.8	7.5	4.2	7.0	6.9	12.6	10.3	10.3	9.6	10.7	18.7	17.5	14.6	16.7	14.2	15.6	10.4	6.9	5.6	6.4	10.5	10.8	9.1	4.2	18.7	10.6
May 8	8.6	9.5	9.4	8.4	8.9	9.7	11.3	13.1	9.8	8.3	8.4	13.1	14.1	14.8	11.4	12.3	11.3	12.4	4.6	2.0	4.7	3.2	1.0	1.0	1.0	14.8	8.8
May 9	0.1	1.6	1.7	0.6	1.6	1.1	3.1	1.5	5.3	6.6	6.6	6.0	3.2	4.9	4.7	3.0	6.2	4.3	5.7	1.9	3.3	3.5	2.4	3.7	0.1	6.6	3.4
May 10	1.5	0.9	2.2	1.8	1.1	0.3	0.6	1.0	2.4	2.6	3.5	7.7	8.1	8.4	8.5	8.1	12.7	7.8	4.0	2.0	2.8	1.8	2.4	2.1	0.3	12.7	3.9
May 11	3.4	3.8	1.7	1.0	0.9	1.0	0.9	3.2	3.7	1.6	4.4	3.4	6.8	7.3	3.1	5.9	6.4	8.3	5.5	2.2	2.1	3.1	0.8	1.1	0.8	8.3	3.4
May 12	1.8	1.2	2.6	2.3	0.1	2.0	3.0	1.3	1.7	3.7	6.3	4.2	6.9	4.5	0.2	3.2	5.8	4.7	4.5	2.9	3.6	4.1	4.9	4.8	0.1	6.9	3.3
May 13	4.9	5.1	4.7	4.6	6.0	6.2	6.5	5.1	6.9	6.9	10.8	12.4	11.0	11.7	13.0	12.2	10.9	10.1	7.3	4.3	5.6	7.1	7.2	5.7	4.3	13.0	7.8
May 14	6.1	6.4	6.7	6.7	5.4	5.4	5.5	8.2	11.6	12.8	11.6	11.4	9.8	11.5	8.2	7.8	7.0	5.9	4.7	3.7	4.3	5.4	5.0	5.8	3.7	12.8	7.4
May 15	5.3	6.1	5.4	5.3	4.4	4.7	6.6	5.5	6.4	9.1	10.9	10.9	11.5	10.6	10.8	11.8	10.4	9.3	8.3	6.0	6.2	5.9	6.1	6.4	4.4	11.8	7.7
May 16	5.9	5.9	2.2	3.8	12.3	16.4	14.5	14.6	14.6	15.4	14.5	15.5	16.8	16.7	15.3	12.9	14.0	11.5	7.6	6.3	7.6	5.6	6.4	9.9	2.2	16.8	11.1
May 17	8.1	8.2	8.0	8.0	10.1	10.8	12.4	11.2	12.0	14.0	10.6	12.0	11.1	11.0	13.2	12.6	11.5	9.8	8.2	8.7	6.7	6.3	4.8	2.5	2.5	14.0	9.7
May 18	0.4	1.2	2.6	1.0	2.0	2.4	2.2	3.4	5.4	4.6	3.9	6.1	6.4	5.3	6.8	7.5	7.3	8.2	8.5	7.9	6.0	6.9	7.3	6.3	0.4	8.5	5.0
May 19	7.7	7.9	8.2	8.1	8.9	8.6	8.3	7.8	7.2	7.1	9.2	8.6	7.2	7.5	6.5	7.1	8.9	8.6	11.8	9.2	6.3	4.6	3.4	3.5	3.4	11.8	7.6
May 20	3.9	4.8	3.8	4.2	2.8	4.4	3.3	2.1	3.5	3.8	4.9	4.9	3.7	3.4	1.5	7.0	5.4	6.2	7.1	4.2	4.2	7.4	10.2	11.9	1.5	11.9	4.9
May 21	10.1	9.5	7.6	7.6	9.9	8.6	7.1	8.4	6.0	5.2	5.4	7.5	7.4	6.7	5.5	5.9	5.7	6.6	5.8	3.1	5.0	5.0	8.4	6.9	3.1	10.1	6.9
May 22	1.2	4.4	4.9	3.3	3.5	5.9	8.4	6.1	5.1	6.7	9.6	10.4	10.8	11.6	15.8	15.1	18.0	18.4	19.7	19.6	16.9	11.0	8.1	9.4	1.2	19.7	10.2
May 23	13.4	12.4	12.4	11.0	12.2	12.9	15.7	14.6	14.8	13.1	13.3	14.0	15.6	13.2	13.5	13.3	15.7	12.8	13.4	7.3	8.2	14.0	14.1	9.7	7.3	15.7	12.9
May 24	1.9	1.6	4.7	8.7	3.3	2.8	4.2	4.0	4.3	4.1	5.0	5.5	6.0	8.8	7.5	9.2	9.0	10.6	10.4	14.0	14.0	9.0	5.4	4.9	1.6	14.0	6.6
May 25	5.1	3.9	1.2	5.3	4.2	6.0	5.7	9.2	10.3	8.8	8.7	9.2	5.1	5.5	5.0	4.1	1.8	5.0	3.1	2.5	2.7	3.3	2.8	4.0	1.2	10.3	5.1
May 26	3.2	2.5	2.6	4.0	2.4	3.2	4.0	4.7	4.7	4.9	2.2	4.5	3.6	3.0	1.4	4.6	3.9	5.3	4.8	4.7	4.5	4.8	5.1	5.8	1.4	5.8	3.9
May 27	6.1	5.7	5.6	5.9	7.2	7.7	8.6	7.9	7.9	8.9	10.3	9.0	9.3	9.0	7.4	5.9	7.5	7.9	8.5	5.7	6.5	7.6	9.5	8.7	5.6	10.3	7.7
May 28	8.4	7.6	7.3	8.3	7.1	4.7	5.3	6.7	4.3	2.6	0.8	3.5	5.4	2.3	2.6	5.0	4.3	5.5	10.1	5.5	4.5	5.3	6.9	1.1	0.8	10.1	5.2
May 29	2.5	3.7	4.1	3.1	3.4	3.0	2.3	3.5	5.1	5.3	6.1	5.9	11.0	9.0	11.9	13.7	4.0	2.2	3.2	3.1	1.3	3.1	2.5	0.9	0.9	13.7	4.7
May 30	1.0	0.4	1.1	1.4	2.9	3.1	1.2	3.0	1.7	3.2	7.8	8.3	9.0	10.2	11.3	3.7	15.5	12.5	9.9	10.3	5.7	4.5	2.1	1.5	0.4	15.5	5.5
May 31	3.6	4.3	2.9	1.8	2.4	3.5	4.3	3.3	1.7	5.8	4.0	4.6	8.3	6.5	7.2	6.5	6.6	7.3	6.5	7.4	10.3	15.8	10.8	9.4	1.7	15.8	6.0
Diurnal Maximum	13.4	12.5	13.7	14.6	15.4	17.2	16.6	14.8	15.1	15.7	16.7	18.7	17.5	16.7	17.1	15.8	18.0	18.4	19.7	19.6	16.9	15.8	14.1	12.3			
Diurnal Average	5.7	5.8	5.5	5.8	6.1	6.4	7.3	7.3	7.5	7.7	8.4	9.6	9.8	9.4	9.2	9.1	9.4	8.9	8.2	6.6	6.4	6.8	6.6	6.1			

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

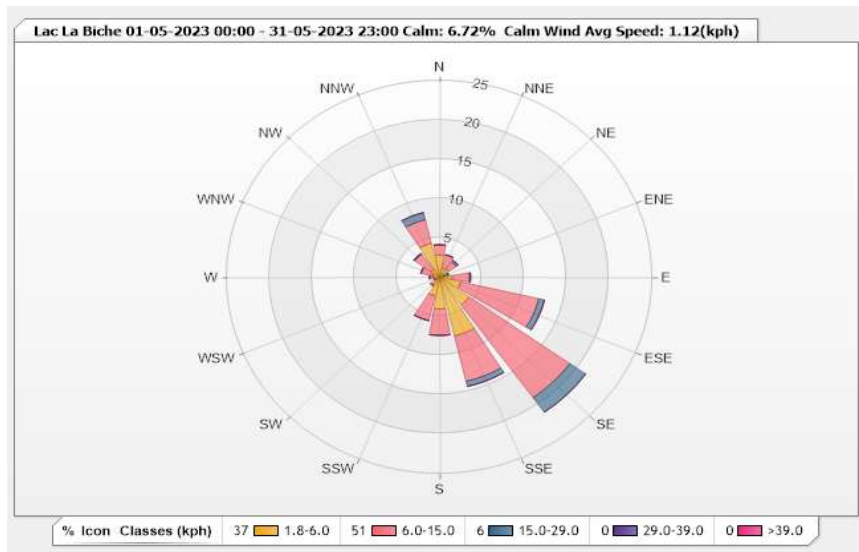


Station: Lac La Biche Monitor: WDS [kph] Monthly: 05-2023

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

Calm (WS<1.8kph): 6.72% 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	2.82	1.34	0	0	0	4.16
NNE	1.21	1.75	0	0	0	2.96
NE	1.34	1.08	0.27	0	0	2.69
ENE	0	0.54	0.54	0	0	1.08
E	1.48	2.02	0.13	0	0	3.63
ESE	2.55	9.41	0.67	0	0	12.63
SE	4.3	14.52	2.28	0	0	21.1
SSE	7.66	5.91	0.67	0	0	14.24
S	4.03	3.36	0	0	0	7.39
SSW	2.42	3.23	0	0	0	5.65
SW	1.08	0.27	0	0	0	1.35
WSW	0.4	0.27	0	0	0	0.67
W	0.81	0.4	0	0	0	1.21
WNW	0.81	1.48	0	0	0	2.29
NW	1.21	2.42	0.13	0	0	3.76
NNW	4.44	3.09	0.94	0	0	8.47
Summary	36.56	51.09	5.63	0	0	93.28



Lakeland Industry & Community Association

Lac La Biche Station - May 2023

Summary of Hourly Averages

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

WIND SPEED					
Maximum Hourly Value:	19.7	kph	on May 22 at hr 18	Hours in Service:	744
Maximum Daily Value:	13.6	kph	on May 1	Hours of Data:	744
Minimum Hourly Value:	0.1	kph	on May 9 at hr 0	Hours of Missing Data:	0
Minimum Daily Value:	3.3	kph	on May 12	Hours of Calibration:	0
Monthly Average:	3.4	kph		Operational Uptime:	100.0

WIND DIRECTION			
Monthly Average:	130 degree (SE)		

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
May 1	13.4	12.5	13.7	13.8	15.4	17.2	16.6	13.6	15.1	15.7	15.6	15.9	16.7	15.8	15.8	14.9	14.6	14.0	13.0	10.5	8.9	9.7	9.8	5.2	5.2	17.2	13.6
May 2	2.9	4.8	2.1	3.8	6.1	5.5	8.6	5.7	5.0	4.8	3.4	1.9	6.0	6.8	5.2	3.4	2.7	1.5	2.8	2.1	3.1	4.6	5.6	5.3	1.5	8.6	4.3
May 3	5.7	5.8	6.6	7.2	7.2	8.6	9.6	9.7	10.6	10.0	12.8	15.2	15.0	14.8	13.6	13.9	12.3	12.9	11.6	12.3	11.1	11.0	12.0	11.8	5.7	15.2	10.9
May 4	11.1	8.7	6.9	12.9	12.8	10.7	12.4	10.5	9.8	8.0	8.9	12.0	10.7	10.0	13.1	11.5	11.7	10.5	9.3	7.3	6.9	9.0	10.4	11.8	6.9	13.1	10.3
May 5	12.3	11.0	12.6	14.6	11.1	7.1	10.1	12.4	10.6	11.6	13.8	17.9	15.0	13.6	17.1	15.8	16.8	15.2	12.7	11.7	11.5	12.0	12.5	12.3	7.1	17.9	13.0
May 6	10.4	9.0	8.5	6.9	5.2	9.0	12.8	14.8	13.7	14.4	16.7	16.4	14.8	13.5	12.9	10.4	9.1	10.3	13.3	10.7	8.3	5.4	6.4	6.0	5.2	16.7	10.8
May 7	7.3	9.8	7.5	4.2	7.0	6.9	12.6	10.3	10.3	9.6	10.7	18.7	17.5	14.6	16.7	14.2	15.6	10.4	6.9	5.6	6.4	10.5	10.8	9.1	4.2	18.7	10.6
May 8	8.6	9.5	9.4	8.4	8.9	9.7	11.3	13.1	9.8	8.3	8.4	13.1	14.1	14.8	11.4	12.3	11.3	12.4	4.6	2.0	4.7	3.2	1.0	1.0	1.0	14.8	8.8
May 9	0.1	1.6	1.7	0.6	1.6	1.1	3.1	1.5	5.3	6.6	6.6	6.0	3.2	4.9	4.7	3.0	6.2	4.3	5.7	1.9	3.3	3.5	2.4	3.7	0.1	6.6	3.4
May 10	1.5	0.9	2.2	1.8	1.1	0.3	0.6	1.0	2.4	2.6	3.5	7.7	8.1	8.4	8.5	8.1	12.7	7.8	4.0	2.0	2.8	1.8	2.4	2.1	0.3	12.7	3.9
May 11	3.4	3.8	1.7	1.0	0.9	1.0	0.9	3.2	3.7	1.6	4.4	3.4	6.8	7.3	3.1	5.9	6.4	8.3	5.5	2.2	2.1	3.1	0.8	1.1	0.8	8.3	3.4
May 12	1.8	1.2	2.6	2.3	0.1	2.0	3.0	1.3	1.7	3.7	6.3	4.2	6.9	4.5	0.2	3.2	5.8	4.7	4.5	2.9	3.6	4.1	4.9	4.8	0.1	6.9	3.3
May 13	4.9	5.1	4.7	4.6	6.0	6.2	6.5	5.1	6.9	6.9	10.8	12.4	11.0	11.7	13.0	12.2	10.9	10.1	7.3	4.3	5.6	7.1	7.2	5.7	4.3	13.0	7.8
May 14	6.1	6.4	6.7	6.7	5.4	5.4	5.5	8.2	11.6	12.8	11.6	11.4	9.8	11.5	8.2	7.8	7.0	5.9	4.7	3.7	4.3	5.4	5.0	5.8	3.7	12.8	7.4
May 15	5.3	6.1	5.4	5.3	4.4	4.7	6.6	5.5	6.4	9.1	10.9	10.9	11.5	10.6	10.8	11.8	10.4	9.3	8.3	6.0	6.2	5.9	6.1	6.4	4.4	11.8	7.7
May 16	5.9	5.9	2.2	3.8	12.3	16.4	14.5	14.6	14.6	15.4	14.5	15.5	16.8	16.7	15.3	12.9	14.0	11.5	7.6	6.3	7.6	5.6	6.4	9.9	2.2	16.8	11.1
May 17	8.1	8.2	8.0	8.0	10.1	10.8	12.4	11.2	12.0	14.0	10.6	12.0	11.1	11.0	13.2	12.6	11.5	9.8	8.2	8.7	6.7	6.3	4.8	2.5	2.5	14.0	9.7
May 18	0.4	1.2	2.6	1.0	2.0	2.4	2.2	3.4	5.4	4.6	3.9	6.1	6.4	5.3	6.8	7.5	7.3	8.2	8.5	7.9	6.0	6.9	7.3	6.3	0.4	8.5	5.0
May 19	7.7	7.9	8.2	8.1	8.9	8.6	8.3	7.8	7.2	7.1	9.2	8.6	7.2	7.5	6.5	7.1	8.9	8.6	11.8	9.2	6.3	4.6	3.4	3.5	3.4	11.8	7.6
May 20	3.9	4.8	3.8	4.2	2.8	4.4	3.3	2.1	3.5	3.8	4.9	4.9	3.7	3.4	1.5	7.0	5.4	6.2	7.1	4.2	4.2	7.4	10.2	11.9	1.5	11.9	4.9
May 21	10.1	9.5	7.6	7.6	9.9	8.6	7.1	8.4	6.0	5.2	5.4	7.5	7.4	6.7	5.5	5.9	5.7	6.6	5.8	3.1	5.0	5.0	8.4	6.9	3.1	10.1	6.9
May 22	1.2	4.4	4.9	3.3	3.5	5.9	8.4	6.1	5.1	6.7	9.6	10.4	10.8	11.6	15.8	15.1	18.0	18.4	19.7	19.6	16.9	11.0	8.1	9.4	1.2	19.7	10.2
May 23	13.4	12.4	12.4	11.0	12.2	12.9	15.7	14.6	14.8	13.1	13.3	14.0	15.6	13.2	13.5	13.3	15.7	12.8	13.4	7.3	8.2	14.0	14.1	9.7	7.3	15.7	12.9
May 24	1.9	1.6	4.7	8.7	3.3	2.8	4.2	4.0	4.3	4.1	5.0	5.5	6.0	8.8	7.5	9.2	10.0	10.6	10.4	14.0	14.0	9.0	5.4	4.9	1.6	14.0	6.6
May 25	5.1	3.9	1.2	5.3	4.2	6.0	5.7	9.2	10.3	8.8	8.7	9.2	5.1	5.5	5.0	4.1	1.8	5.0	3.1	2.5	2.7	3.3	2.8	4.0	1.2	10.3	5.1
May 26	3.2	2.5	2.6	4.0	2.4	3.2	4.0	4.7	4.9	2.2	4.5	3.6	3.0	1.4	4.6	3.9	5.3	4.8	4.7	4.5	4.8	5.1	5.8	3.9	1.4	5.8	3.9
May 27	6.1	5.7	5.6	5.9	7.2	7.7	8.6	7.9	7.9	8.9	10.3	9.0	9.3	9.0	7.4	5.9	7.5	7.9	8.5	5.7	6.5	7.6	9.5	8.7	5.6	10.3	7.7
May 28	8.4	7.6	7.3	8.3	7.1	4.7	5.3	6.7	4.3	2.6	0.8	3.5	5.4	2.3	2.6	5.0	4.3	5.5	10.1	5.5	4.5	5.3	6.9	1.1	0.8	10.1	5.2
May 29	2.5	3.7	4.1	3.1	3.4	3.0	2.3	3.5	5.1	5.3	6.1	5.9	11.0	9.0	11.9	13.7	4.0	2.2	3.2	3.1	1.3	3.1	2.5	0.9	0.9	13.7	4.7
May 30	1.0	0.4	1.1	1.4	2.9	3.1	1.2	3.0	1.7	3.2	7.8	8.3	9.0	10.2	11.3	3.7	15.5	12.5	9.9	10.3	5.7	4.5	2.1	1.5	0.4	15.5	5.5
May 31	3.6	4.3	2.9	1.8	2.4	3.5	4.3	3.3	1.7	5.8	4.0	4.6	8.3	6.5	7.2	6.5	6.6	7.3	6.5	7.4	10.3	15.8	10.8	9.4	1.7	15.8	6.0

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

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

Lakeland Industry & Community Association
Lac La Biche Station - May 2023
Summary of Hour Standard Deviations

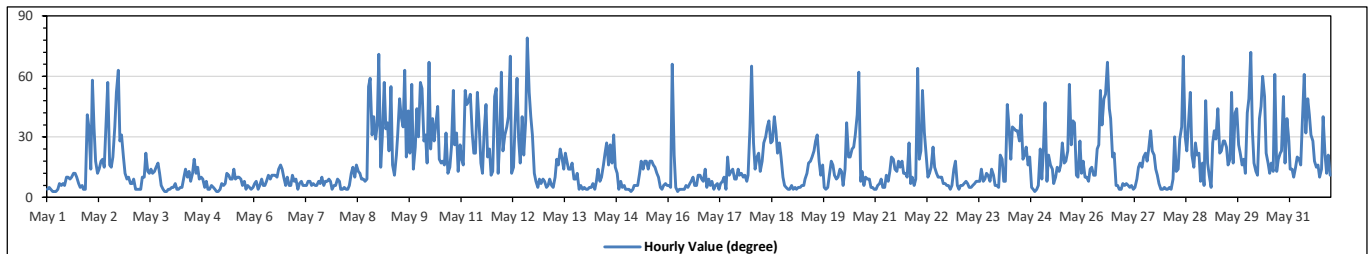
STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

Maximum Hourly Value: 79 degree on May 12 at hr 14		Hours in Service: 744	
Minimum Hourly Value: 3 degree on May 1 at hr 3		Hours of Data: 744	
		Hours of Missing Data: 0	
		Hours of Calibration: 0	
		Operational Uptime: 100.0	

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			23
May 1	4	5	4	3	3	3	4	7	6	7	6	10	10	9	10	12	12	10	7	5	6	4	4	41	3	41
May 2	35	14	58	35	18	12	14	18	19	15	38	57	16	15	20	35	52	63	28	31	20	12	9	10	9	63
May 3	7	7	9	4	4	4	4	10	10	22	13	12	14	12	13	15	17	12	6	4	3	3	4	4	3	22
May 4	5	5	7	4	4	5	5	10	14	10	13	8	12	19	12	15	9	10	9	5	8	4	4	6	4	19
May 5	5	4	3	3	4	7	6	7	12	11	9	9	14	9	10	10	9	6	8	4	6	5	4	5	3	14
May 6	7	8	4	6	9	6	6	8	11	9	11	11	11	10	14	16	14	10	6	10	6	6	11	8	4	16
May 7	9	4	7	8	6	6	6	8	8	6	7	6	6	8	7	10	6	8	8	9	8	4	6	6	4	10
May 8	9	8	4	4	5	4	4	6	12	15	10	16	13	12	9	9	8	9	55	59	31	40	29	36	4	59
May 9	71	15	30	57	34	37	23	55	16	11	21	31	49	40	35	63	20	43	22	56	14	25	44	30	11	71
May 10	57	54	28	31	17	67	24	39	28	36	45	19	17	18	16	32	12	15	25	53	26	32	13	26	12	67
May 11	19	16	53	46	48	51	32	22	22	52	38	17	12	32	46	20	24	11	13	50	54	12	29	62	11	62
May 12	23	31	35	40	70	12	15	37	59	29	17	40	21	38	79	52	40	31	12	8	5	9	7	9	5	79
May 13	8	5	6	9	6	5	10	19	16	24	20	14	22	17	14	14	17	9	9	12	4	6	4	5	4	24
May 14	4	4	5	5	7	4	8	14	8	10	16	22	27	16	26	17	31	15	12	4	8	5	6	4	4	31
May 15	4	4	3	4	6	6	6	12	18	14	18	14	18	18	16	15	12	10	5	4	6	7	6	3	18	
May 16	6	5	66	21	5	3	4	4	4	4	6	5	7	8	10	6	6	11	11	9	8	14	5	9	3	66
May 17	6	8	4	6	7	4	7	8	10	4	20	11	13	14	9	9	14	11	12	10	11	8	11	35	4	35
May 18	65	27	14	20	22	13	18	27	30	35	38	27	28	40	33	22	27	20	10	6	5	4	4	6	4	65
May 19	4	5	4	5	5	6	6	9	12	17	18	20	23	28	31	18	11	16	5	4	5	11	18	16	4	31
May 20	11	9	10	14	13	6	14	37	20	20	24	25	31	41	62	8	13	6	10	9	9	5	5	4	4	62
May 21	4	6	7	9	5	5	11	8	13	20	19	14	13	18	15	18	12	12	10	27	7	10	6	9	4	27
May 22	64	19	23	53	32	20	10	12	15	25	15	12	10	10	7	7	6	6	4	6	14	18	6	4	64	
May 23	4	6	6	7	8	7	5	5	6	7	8	8	14	8	9	12	11	8	14	11	6	6	5	4	4	14
May 24	21	19	8	8	46	36	19	35	34	33	33	28	41	19	21	25	16	20	5	4	3	4	6	24	3	46
May 25	9	24	47	8	21	16	14	7	10	15	13	16	27	17	18	23	56	26	38	37	11	10	28	12	7	56
May 26	18	10	10	8	14	15	11	11	24	26	53	36	49	51	67	44	39	20	22	6	6	4	4	7	4	67
May 27	6	7	6	5	6	4	5	9	15	17	15	20	22	18	24	33	23	21	14	11	7	4	4	5	4	33
May 28	4	4	5	4	9	30	13	14	29	35	70	30	23	36	52	21	15	27	21	22	8	17	6	48	4	70
May 29	17	11	5	27	33	29	44	22	23	28	28	25	16	19	52	17	42	44	26	22	16	19	12	42	5	52
May 30	49	72	33	17	13	11	39	45	60	50	22	17	12	17	13	61	13	19	22	23	50	17	39	28	11	72
May 31	14	14	10	15	20	19	16	37	61	32	49	41	31	28	18	15	16	10	14	40	21	12	21	11	10	61
Diurnal Minimum	4	4	3	3	3	3	4	4	4	4	6	5	6	8	7	6	6	6	5	4	3	3	4	4	4	4
Diurnal Maximum	71	72	66	57	70	67	44	55	61	52	70	57	49	51	79	63	56	63	55	59	54	40	44	62	62	

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

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



END OF REPORT

This page, 173 of 173 ends the May 2023 Monthly Ambient Air Quality Monitoring Report.



Lakeland Industry & Community Association

MAY 2023

Ambient Air Monitoring Calibration Report

- COLD LAKE SOUTH STATION-

CAL-LICA-202305-01174

Station Operation and Maintenance:

Bureau Veritas Canada

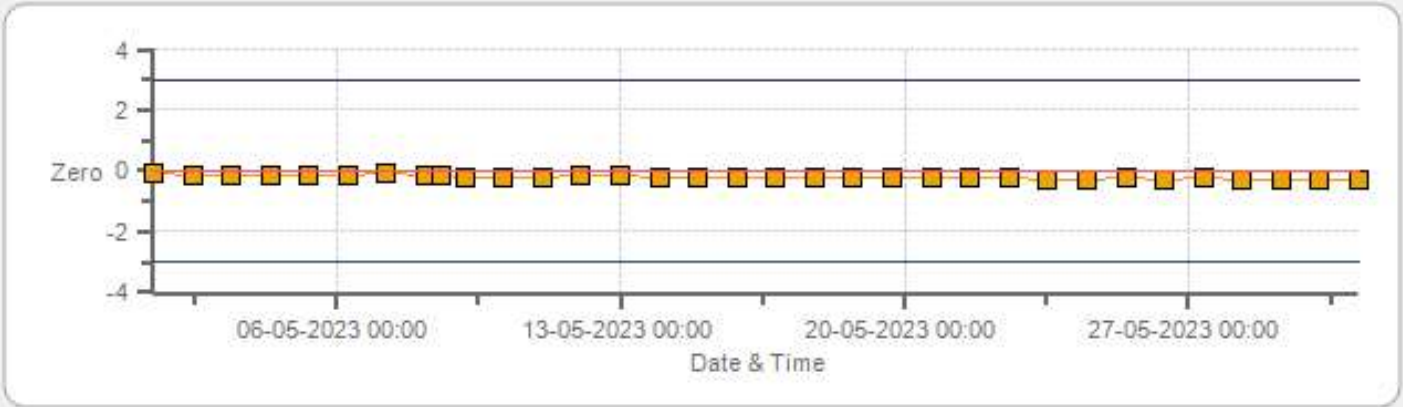
Data Validation and Report:

LICA / Bureau Veritas Canada

June 26, 2023

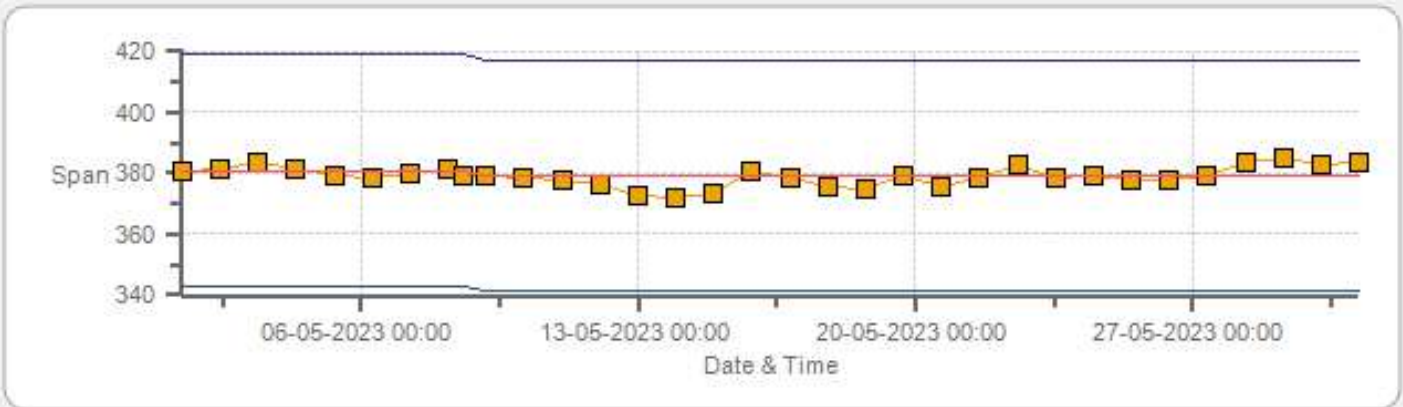
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Cold Lake South Monthly: 05-2023 Type: SpanAndZero - Zero



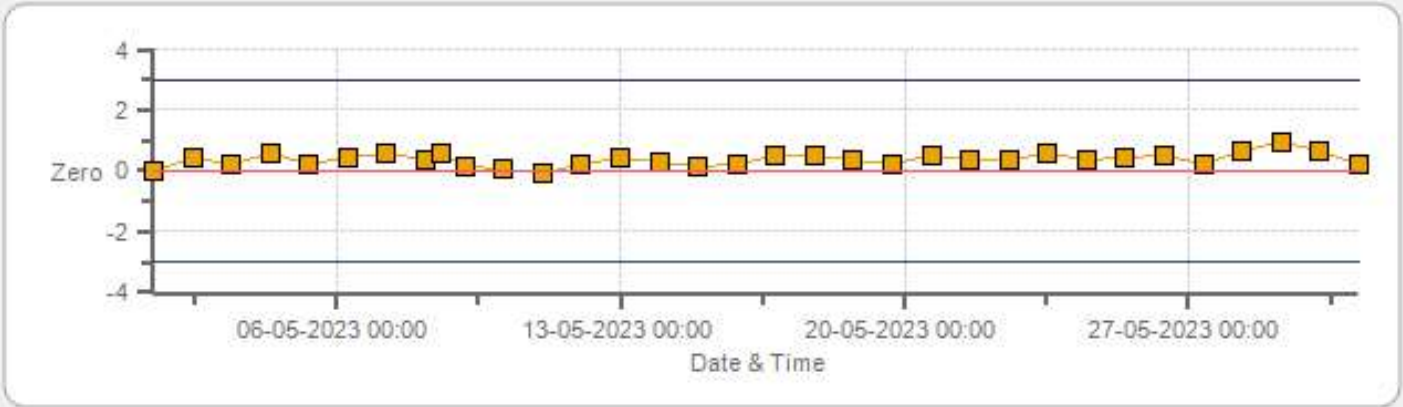
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: Cold Lake South Monthly: 05-2023 Type: SpanAndZero - Span



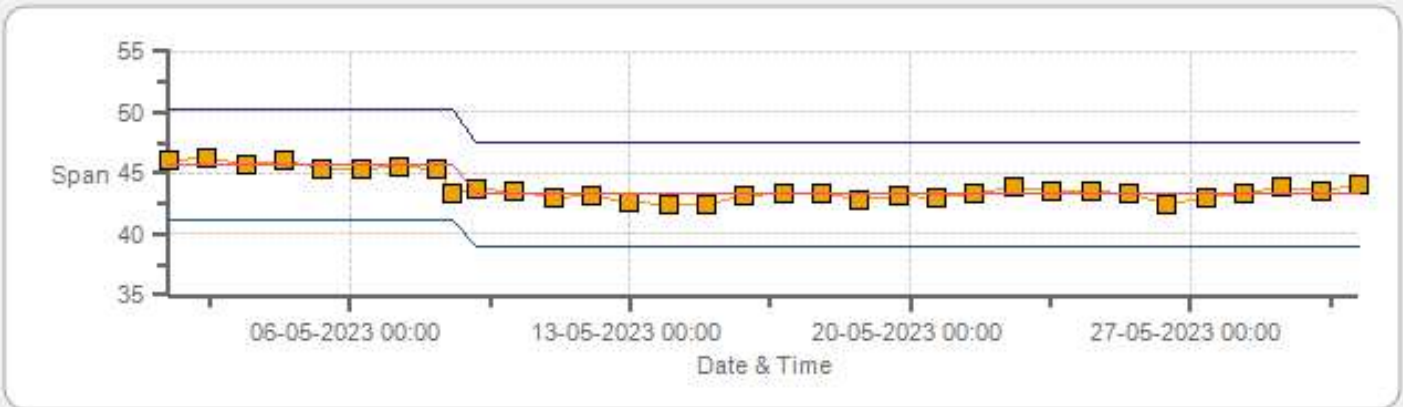
Span SpanRef Span Low Span High

TRS[ppb] Calibration: Cold Lake South Monthly: 05-2023 Type: SpanAndZero - Zero



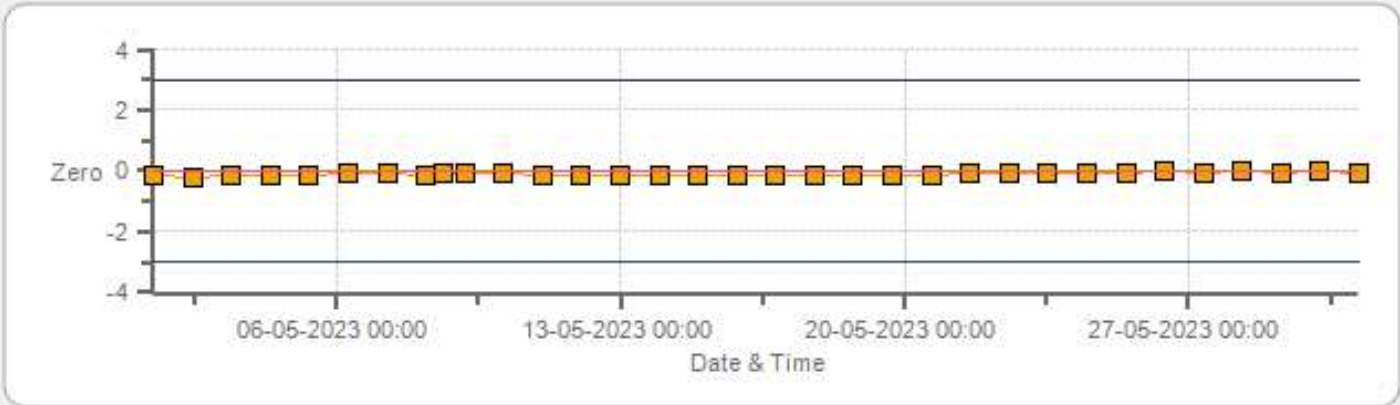
Zero Zero Ref Zero Low Zero High

TRS[ppb] Calibration: Cold Lake South Monthly: 05-2023 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NOX[ppb] Calibration: Cold Lake South Monthly: 05-2023 Type: SpanAndZero - Zero



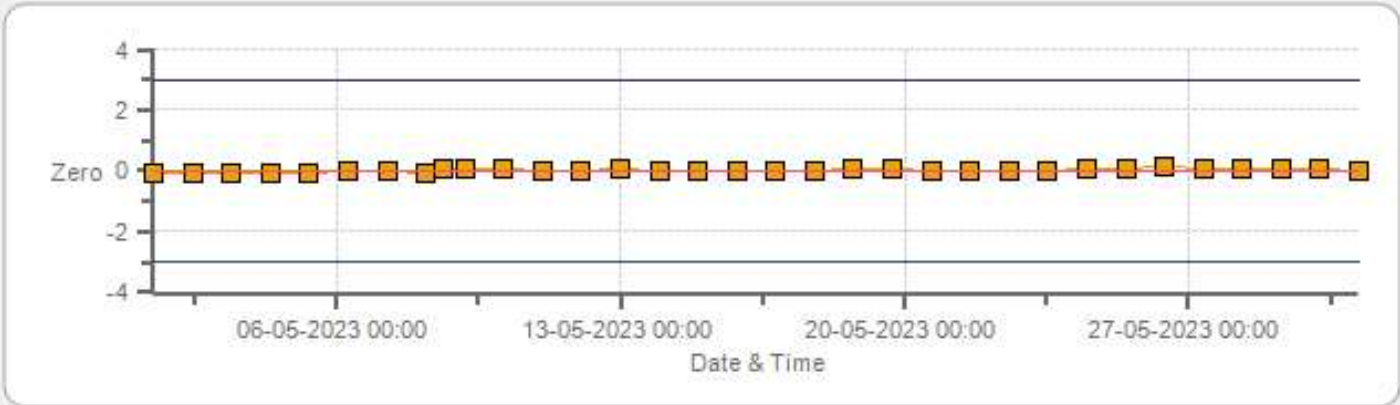
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: Cold Lake South Monthly: 05-2023 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

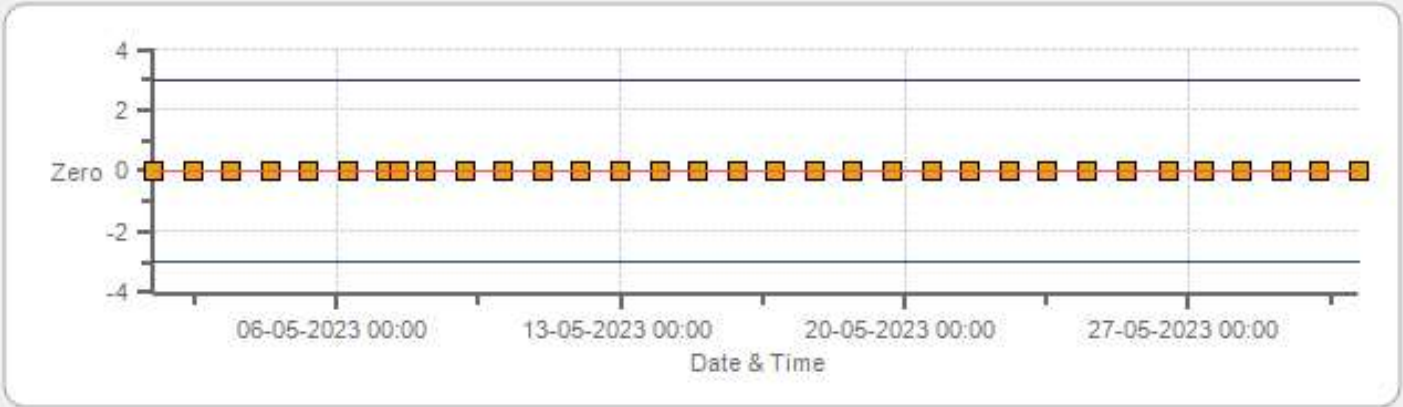
NO2[ppb] Calibration: Cold Lake South Monthly: 05-2023 Type: SpanAndZero - Zero



NO2[ppb] Calibration: Cold Lake South Monthly: 05-2023 Type: SpanAndZero - Span

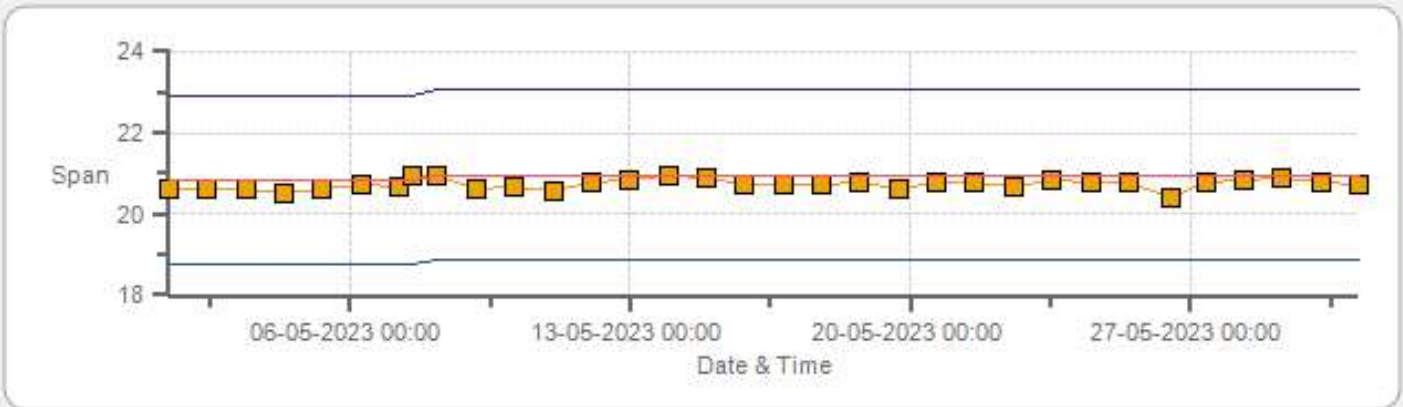


THC55[ppm] Calibration: Cold Lake South Monthly: 05-2023 Type: SpanAndZero - Zero



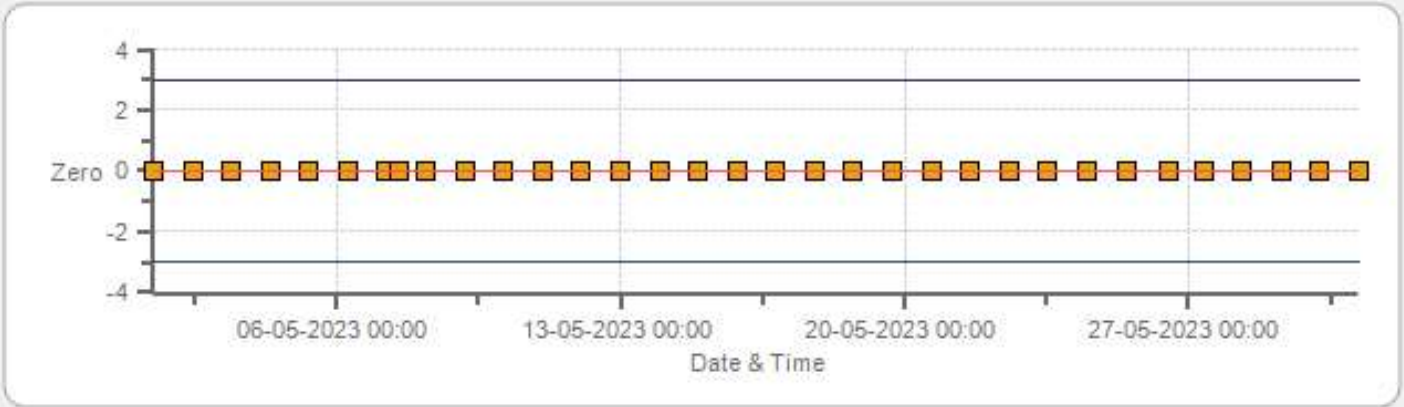
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: Cold Lake South Monthly: 05-2023 Type: SpanAndZero - Span



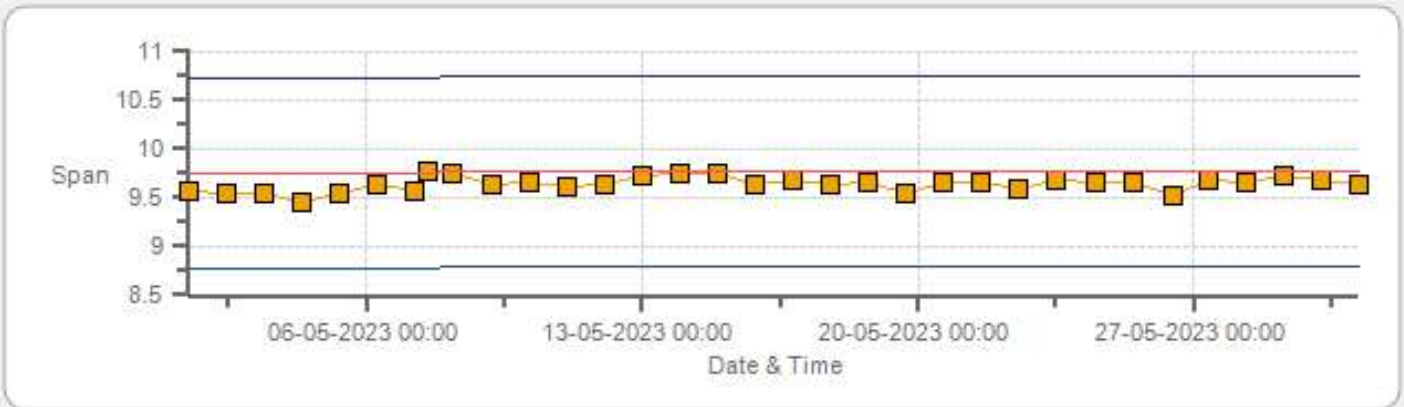
Span SpanRef Span Low Span High

CH4[ppm] Calibration: Cold Lake South Monthly: 05-2023 Type: SpanAndZero - Zero



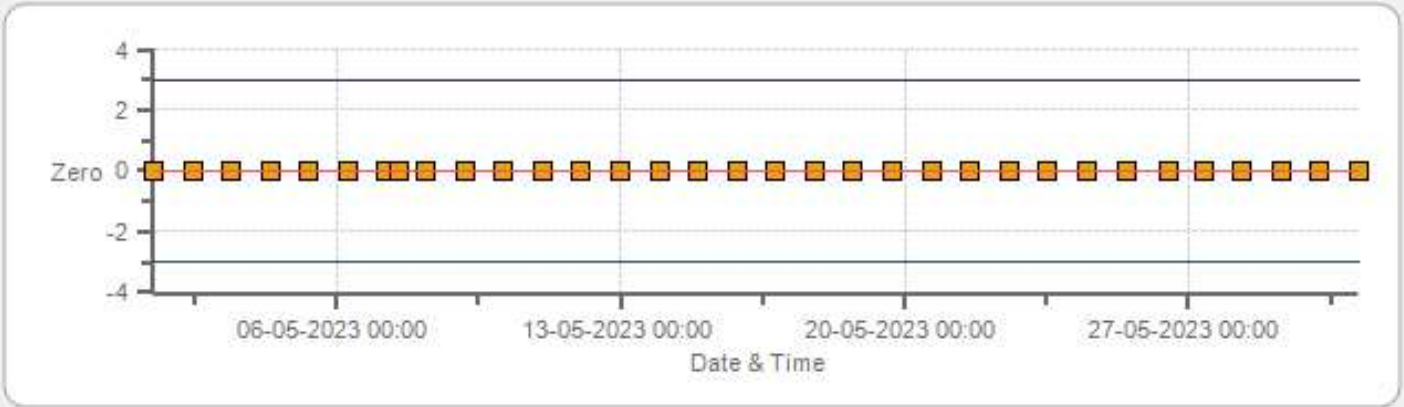
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: Cold Lake South Monthly: 05-2023 Type: SpanAndZero - Span



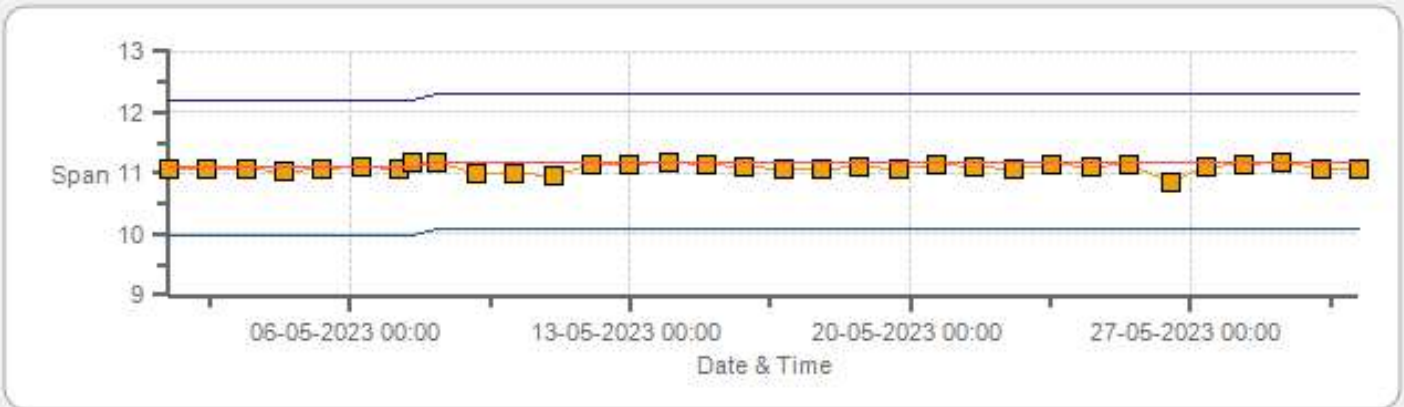
Span SpanRef Span Low Span High

NMHC[ppm] Calibration: Cold Lake South Monthly: 05-2023 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: Cold Lake South Monthly: 05-2023 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	08-May-2023	PREVIOUS CALIBRATION DATE:	09-Apr-2023
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.004
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	951
PURPOSE:	Routine	START TIME (MST):	09:04
PERFORMED BY:	Alex Yakupov	END TIME (MST):	13:41

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180260018	FLOW (mL/min)	433
INITIAL		FINAL	
BKG/OFFSET	2.31	BKG/OFFSET	2.35
COEF/SLOPE	0.996	COEF/SLOPE	0.991
Expected (reference) Value	381	Expected (reference) Value	379

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	17100415	ID:	132
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 127895	HIGH ID	n/a
CONC (ppm):	50.40	EXPIRY DATE	n/a
CYLINDER (psi):	1500	LOW ID	n/a
EXPIRY DATE	27-Oct-2030	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

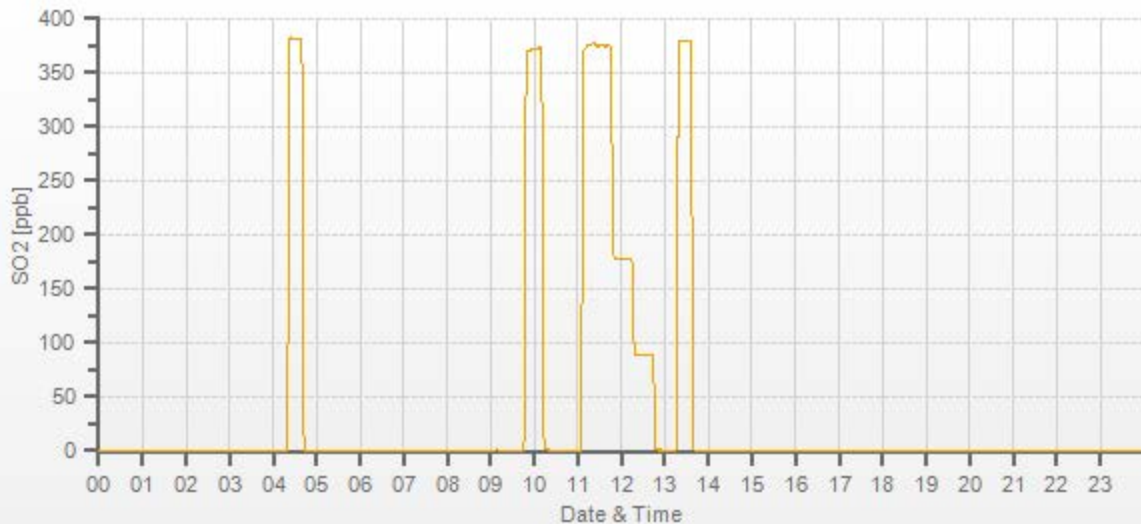
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	37.20	5000	0.00	-0.1	0	1.006	1.000
4961	37.20	4998	375.13	372.8	375.1	1.006	1.000
4982	17.60	5000	177.41	n/a	177.1	n/a	1.002
4990	8.80	4999	88.72	n/a	88.1	n/a	1.007

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	-0.1%

COMMENTS:

Sample inlet filter was changed.



TRS Analyzer Calibration by Dilution



DATE:	08-May-2023	PREVIOUS CALIBRATION DATE:	09-Apr-2023
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	0.996
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	951
PURPOSE:	Routine	START TIME (MST):	09:03
PERFORMED BY:	Alex Yakupov	END TIME (MST):	13:40

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	812728560	FLOW (mL/min)	495
INITIAL		FINAL	
BKG/OFFSET	27.6	BKG/OFFSET	26.4
COEF/SLOPE	1.233	COEF/SLOPE	1.174
Expected (reference) Value	45.7	Expected (reference) Value	43.3

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0002287	HIGH ID	n/a
CONC (ppm):	10.10	EXPIRY DATE	n/a
CYLINDER (psi):	700	LOW ID	n/a
EXPIRY DATE	14-Sep-2024	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

START TIME:	09:06	SO2 Conc (ppb)	380
END TIME:	09:21	Analyzer Response (ppb)	0.0

CALIBRATION:

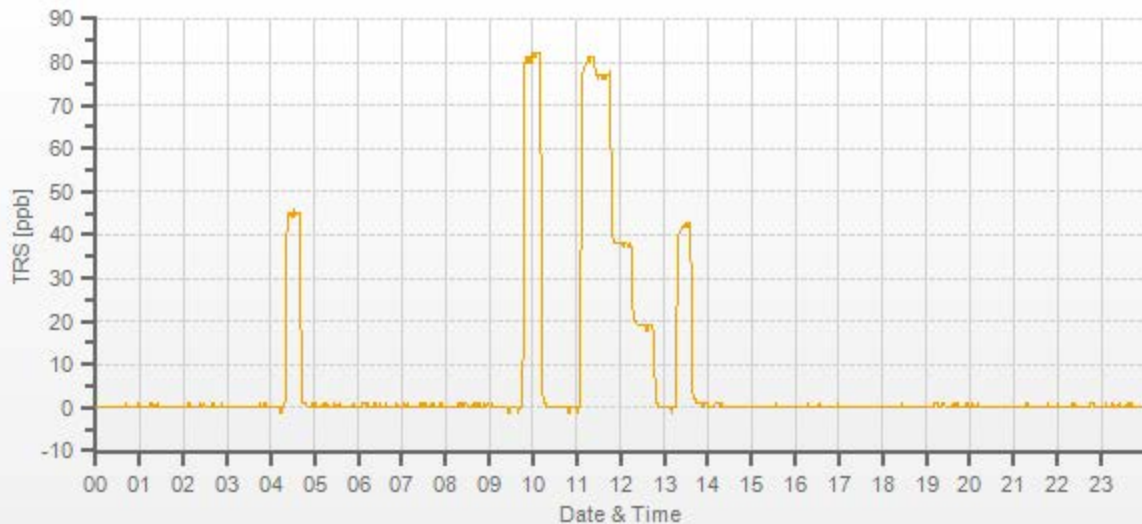
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	7500	7500	0.00	-0.1	0	0.949	1.007
7442	57.90	7500	77.97	82.1	77.4	0.949	1.007
7472	28.20	7500	37.98	n/a	38.2	n/a	0.994
7486	14.10	7500	18.99	n/a	19	n/a	0.999

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.993	0.2%

COMMENTS:

Sample inlet filter was changed.



NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	08-May-2023	PREVIOUS CALIBRATION DATE:	09-Apr-2023	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1505664393	NOx	1.003
LOCATION:	CLS	BAROMETRIC (mBar):	951	FLOW (mL/min)	675	NO	1.002
PURPOSE:	Routine	START TIME (MST):	09:05	RANGE (ppb)	500	NO2	1.000
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:30	GPT FOR O3?		No	

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 127895	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	NO/NOx (PPM):	51.1 51.6	HIGH EXPIRY:	n/a
ID:	17100415	ID:	132	CYLINDER (psi):	1500	LOW ID:	n/a
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a	EXPIRY DATE	27-Oct-2030	LOW EXPIRY:	n/a

CALIBRATION SETTINGS:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	5.1	4.9	n/a	BKG/OFFSET:	5	4.9	n/a
SLOPE/COEF/CE:	1.007	1.047	0.999	SLOPE/COEF/CE:	1.007	1.051	0.999

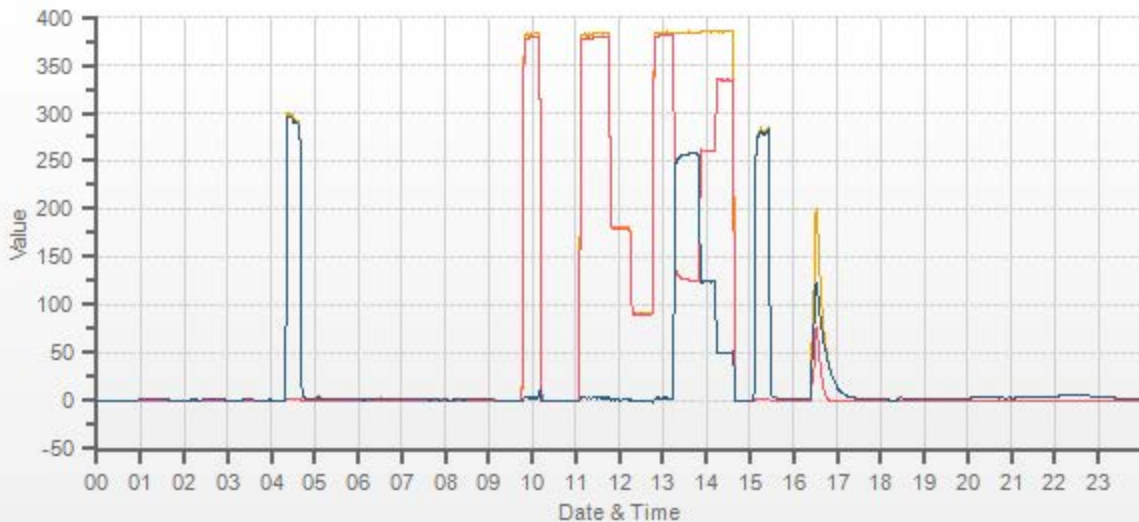
EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	286.7	2.5	284.2		284.0	2.9	281.0

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	37.20	5000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.004	1.005	0.998	1.003	1.004	0.997
4961	37.20	4998	380.3	384.1	3.7	378.8	382.3	3.5	379.2	382.6	3.3	1.004	1.005	0.998	1.003	1.004	0.997
4982	17.60	5000	179.9	181.6	1.8	n/a	n/a	n/a	180.3	182.1	1.8	n/a	n/a	0.998	0.998	0.997	0.997
4990	8.80	4999	90.0	90.8	0.9	n/a	n/a	n/a	90.0	90.8	0.8	n/a	n/a	0.998	0.999	1.000	0.997

GPT CALIBRATION:											
Point	CALIBRATOR			INDICATED (ppb)			NO DROP / O3 Conc (ppb)	NO2 GAIN (ppb)	NO2 Corr. FACTOR	CONV. EFFICIENCY	
	GAS	TOTAL	O3 SETPOINT	NO	NOx	NO2					
REFERENCE	37.20	4998	0	380.9	384.2	3.3	255.1	255.2	1.000	100.04%	
AS-FOUND HIGH	37.20	4998	235	125.8	384.3	258.5	255.1	255.2	1.000	100.04%	
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
MID	37.20	4998	110	260.9	384.5	123.6	120	120.3	0.998	100.25%	
LOW	37.20	4998	40	334.5	385.2	50.7	46.4	47.4	0.979	102.16%	
NO2 adjustment not required.									AVERAGE:	100.81%	

LINEAR REGRESSION ANALYSIS:				COMMENTS:
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	0.997	0.07%	
NOx	1.000	0.996	0.07%	
NO2	1.000	0.996	0.20%	



CAL-LICA-202305-01174

Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	07-May-2023	PREVIOUS CALIBRATION DATE:	10-Apr-2023
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.007
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	953
PURPOSE:	Routine	START TIME (MST):	09:43
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:30

ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	12208316585	FLOW (mL/min)	1.31
INITIAL		FINAL	
BKG/OFFSET	0.2	BKG/OFFSET	2.3
COEF/SLOPE	1.168	COEF/SLOPE	1.139
Expected (reference) Value	281.7	Expected (reference) Value	272

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

CALIBRATION PARAMETERS:

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

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	 	5000	0.0	2.0	0.0	 	
5000	 	5000	380.0	393.8	378.3	0.970	1.004
5000	 	5000	180.0	n/a	181.6	n/a	0.991
5000	 	5000	60.0	n/a	60.6	n/a	0.990

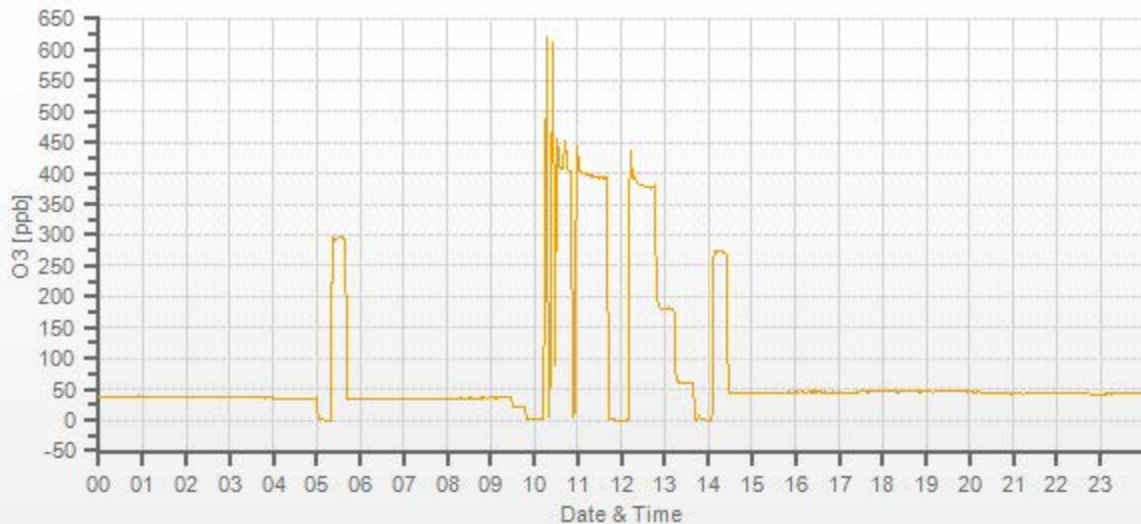
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.995	0.2%

COMMENTS:

10:13 - 10:53 = operator/calibrator error. As Found High starts at 10:56

O3[ppb] Station: Cold Lake South Daily: 07-05-2023 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202305-01174

Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	25-May-2023	PREVIOUS CALIBRATION DATE:	07-May-2023
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.004
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	CLS	BAROMETRIC (mBar):	950
PURPOSE:	Routine	START TIME (MST):	08:39
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:19

ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	12208316585	FLOW (mL/min)	1.31
INITIAL		FINAL	
BKG/OFFSET	2.3	BKG/OFFSET	0.7
COEF/SLOPE	1.139	COEF/SLOPE	1.047
Expected (reference) Value	272	Expected (reference) Value	270

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

CALIBRATION PARAMETERS:

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

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	XXXXXXXXXX	5000	0.0	-1.7	0.0	XXXXXXXXXX	XXXXXXXXXX
5000	XXXXXXXXXX	5000	380.0	414.0	376.9	0.914	1.008
5000	XXXXXXXXXX	5000	180.0	n/a	180.0	n/a	1.000
5000	XXXXXXXXXX	5000	60.0	n/a	60.3	n/a	0.995

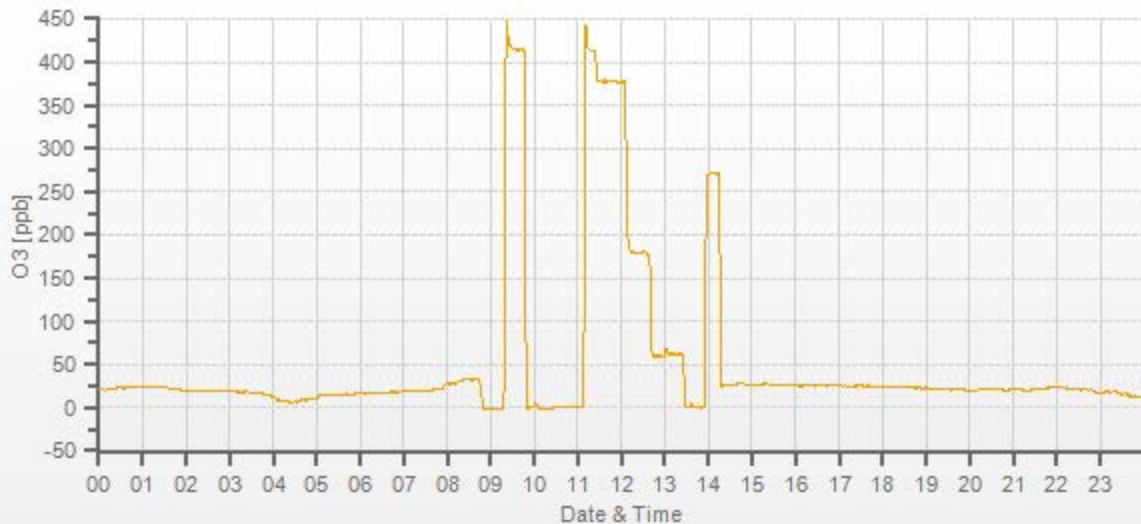
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.991	0.1%

COMMENTS:

Repeat calibration to correct EV drift.
10:00 = Daily ZS. Adjusted zero restarted.

O3[ppb] Station: Cold Lake South Daily: 25-05-2023 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202305-01174

Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	07-May-2023	PREVIOUS CALIBRATION DATE:	10-Apr-2023	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1180930025	1100
LOCATION:	CLS	BAROMETRIC (mBar):	953	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	09:45	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	13:27	PREVIOUS CF:	1.001	1.004	1.002

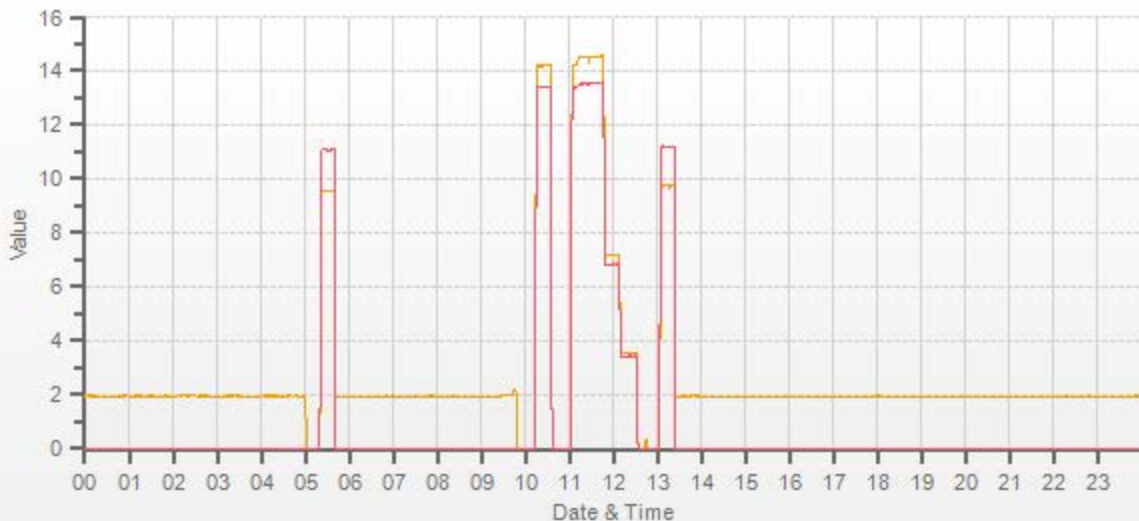
CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 23593	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH ₄ /C ₃ H ₈ (ppm):	603.0 204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	134	CYLINDER (psi):	1100	LOW ID:	n/a
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

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

EXPECTED (REFERENCE) VALUE:							
INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.75	11.10	20.85		9.77	11.20	20.96

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3100	74.60	3100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.021	1.007	1.015	0.998	0.997	0.997
3025	74.60	3100	14.51	13.50	28.01	14.21	13.40	27.61	14.54	13.54	28.09	1.021	1.007	1.015	0.998	0.997	0.997
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.19	6.83	14.03	n/a	n/a	n/a	1.009	0.988	0.998
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.57	3.42	6.99	n/a	n/a	n/a	1.013	0.984	0.999

LINEAR REGRESSION ANALYSIS:				Comments:			
	CORRELATION	SLOPE	INTERCEPT	H2 = AMA HG300, #210567071 Sample inlet filter was changed. A new span gas cylinder was connected.			
CH ₄	1.000	1.003	-0.2%				
NMHC	1.000	1.002	0.1%				
THC	1.000	1.003	0.0%	Use Zero Chrom?		Yes	



CAL-LICA-202305-01174



Teledyne T640 Audit/Calibration

Date/Previous Audit Date:	May 7, 2023	April 10, 2023	Weather Conditions:	Mainly sunny
Company:	LICA		Start Time (mst):	14:39
Station:	Cold Lake South		End Time (mst):	16:01
Parameter:	PM 2.5		Performed By/Reviewer:	Alex Yakupov Chris Wesson
Instrument Data:				
Make/Model:	Teledyne T640		Serial Number:	575
Owner:	LICA		Alarms (detail in comments):	No
Reference Standards/I.D./Expiry Date:				
Flow Standard: DeltaCal DC1 S/N 177246 / Sep 03, 2023			Temperature: Vaisala / HM70 / #T1640130/ Jun 14, 2023	
Digital Manometer: DeltaCal DC1 S/N 177246 / Sep 03, 2023			Pressure: Fisher / FB 61291/ #130168457/ Mar 20, 2024	

DIAGNOSTICS:					
Ambient Pressure (mmHg)	712.0	Ambient Temp (°C)	13.3	ASC Heater Duty (%)	0.0
Box Temp (°C)	27.6	Current PMT HV (V)	1429	LED Temp (°C)	37.09
P3 Value	51	PMT Setting (V)	1432	Pump PWM (%)	41
Sample Flow (L/min)	5.00	Sample RH (%RH)	17.5	Sample Temp (°C)	25.1

Monthly Audit/Calibration:					
Item:	As-found		As-left		Tolerance
	Reference	T640x	Reference	T640x	
Zero Test (Leak Check)	PM10	0.0	PM10	0.0	0.0 to 0.2
	PM2.5	0.0	PM2.5	0.0	
Ambient Pressure (mmHg)	712.0	712.0	712	712	+/- 10 mm Hg
Ambient Temperature (°C)	9.10	9.6	n/a		+/- 2°C
Sample Flow (L/min)	5.00	5	5.00	5	+/-5% of T640x (e.g., 4.75 – 5.25 lpm)
Additional Monthly Maintenance :					Completed
Inlet cleaned?					Yes
Sample tubing inspected (inner and outer)?					Yes

Comments:

No issues.

Meteorological System Checklist



Date:	May 8, 2023		
Technician:	Alex Yakupov		
Station:	Cold Lake South		
Unit:	Make:	Model:	Serial #:
Temperature Sensor:	Rotronic	HC2A-S3	20257103
Barometric Pressure Sensor:	MetOne	92	Y23368
Relative Humidity Sensor:	Rotronic	HC2A-S3	20257103
Anemometer:	RM Young	05305AQ	177354
AMBIENT TEMPERATURE SENSOR CHECK			
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	Vaisala / HM70 / #T1640130/ Jun 14, 2023		
Reference Temperature (°C):	19.4		
Station - Ambient Temperature (°C):	18.6		
Temperature Difference (°C):	0.9		
BAROMETRIC PRESSURE SENSOR CHECK			
Reference Barometer ID:	Fisher / FB 61291/ #130168457/ Mar 20, 2024		
Reference Pressure - Units/Reading:	millibar	947	
Station Pressure - Units/Reading:	millibar	949	
Pressure Tolerance +/- 15% of error:	805 - 1089	-0.21%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Reference Hygrometer ID:	Vaisala / HM70 / #T1640130, Exp. Date: Jun 14, 2023		
Reference Hygrometer % RH- Reading:	31.30		
Station Hygrometer % RH- Reading:	37.70		
RH Tolerance +/- 15% of difference:	26.61 - 36.00	-20.4%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	April 10, 2023	Previous check date:	April 10, 2023
Wind Speed Observed (kph):	0 - 10	Wind Direction Observed:	SE
Wind speed on Data Logger (kph):	8.6	Wind Direction on Data Logger:	SE
	Annual audit: Jul 6, 2022	Wind Direction Pass/Fail?:	Pass

Comments

Station (Trailer) temperature vs Reference gauge: 22.7 vs 22.7, Difference = 0.0 degrees. Passed. Wind system: Model 05305AQ. Signal box # 32400



Meteorological Sensor Audit/Calibration

Location Information

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

Performed By: Alex Yakupov
 Reviewed By: Chris Wesson
 Start/End Time (mst): 15:54 / 17:48
 Weather Conditions: A few clouds

Wind Sensor Information

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

Wind Calibrator Information

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

Wind Speed Audit Data ****+/- 2% of the average correction factor is the limit****

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.0	0.0	-
1000	18.4	18.2	18.2	1.013
2000	36.9	36.6	36.6	1.007
3000	55.3	55.1	55.1	1.003
4000	73.7	73.5	73.5	1.003
5000	92.2	92.1	92.0	1.001
6000	110.6	110.4	110.3	1.002
7000	129.0	128.8	128.8	1.002
8000	147.4	147.3	147.3	1.001
9000	165.9	165.6	165.6	1.002
10000	184.3	184.2	184.2	1.001
The audit meets AMD requirements.			Average Correction Factor=	1.003

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

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	0	355	0.1	0.0	0.1
30	330	27	329	2.7	1.4	2.0
60	300	58	298	2.4	1.9	2.1
90	270	89	268	1.1	2.1	1.6
120	240	119	239	0.9	1.1	1.0
150	210	148	208	1.6	2.1	1.8
180	180	178	180	2.4	-0.2	1.3
210	150	208	149	2.3	1.1	1.7
240	120	239	119	1.3	0.6	1.0
270	90	268	91	2.2	-1.2	1.7
300	60	298	58	2.3	1.9	2.1
330	30	329	28	1.3	2.5	1.9
355	0	355	0	-0.1	0.1	0.1
The audit meets AMD requirements.				Average Absolute Degrees Difference=		1.4

Comments:

Output via RMY32400 Serial Interface

End of Report



Lakeland Industry & Community Association

MAY 2023

Ambient Air Monitoring Calibration Report

- TAMARACK STATION-

CAL-LICA-202305-01248

Station Operation and Maintenance:

Bureau Veritas Canada

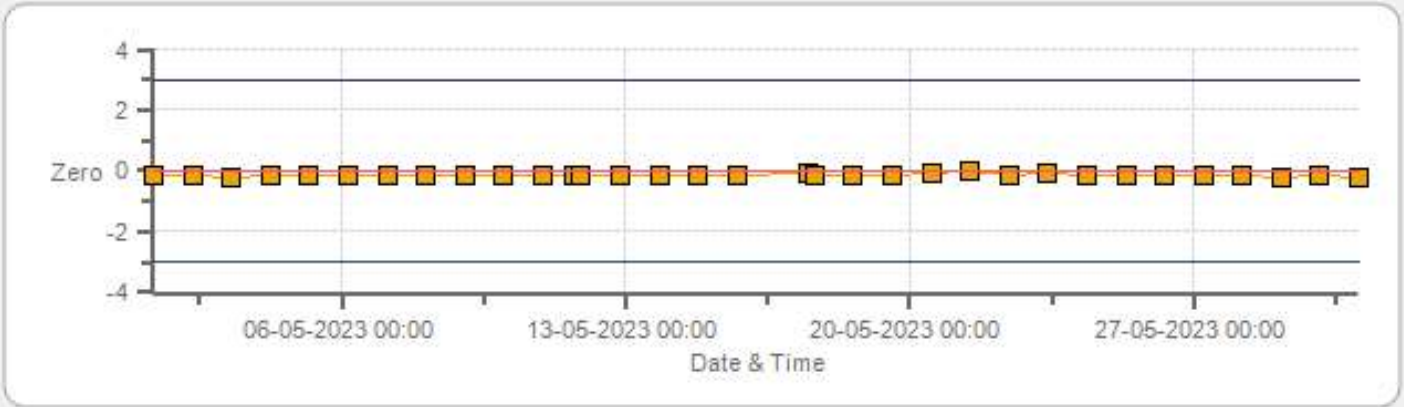
Data Validation and Report:

LICA / Bureau Veritas Canada

June 26, 2023

DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Tamarack Monthly: 05-2023 Type: SpanAndZero - Zero



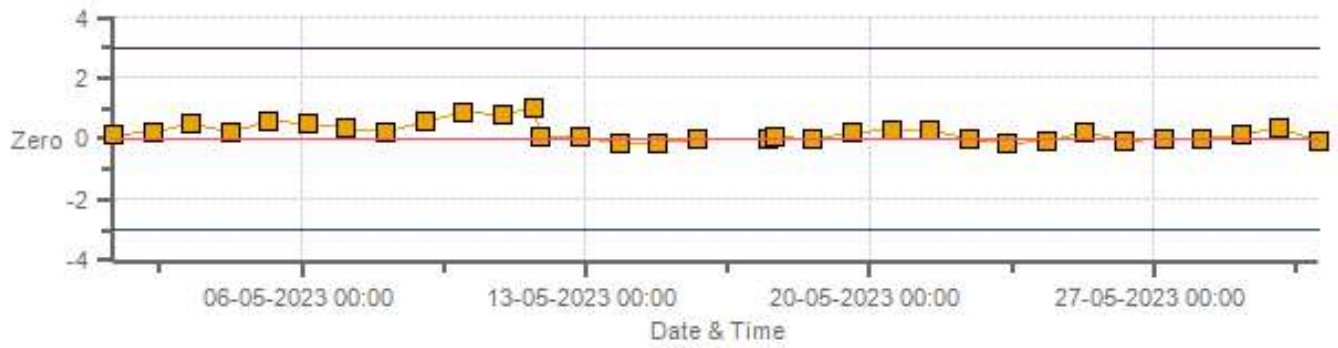
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: Tamarack Monthly: 05-2023 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

H2S[ppb] Calibration: Tamarack Monthly: 05-2023 Type: SpanAndZero - Zero



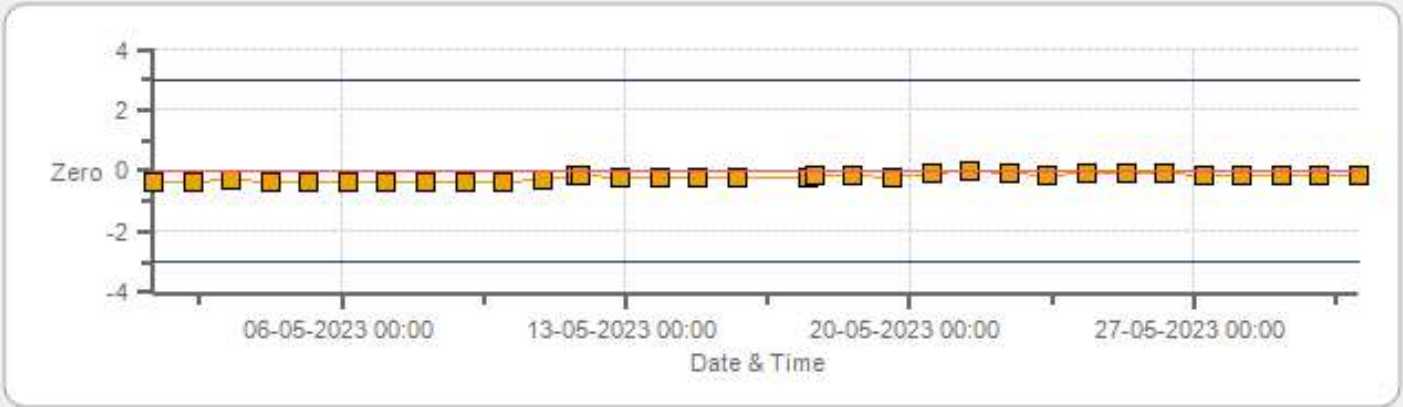
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H2S[ppb] Calibration: Tamarack Monthly: 05-2023 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NOX[ppb] Calibration: Tamarack Monthly: 05-2023 Type: SpanAndZero - Zero



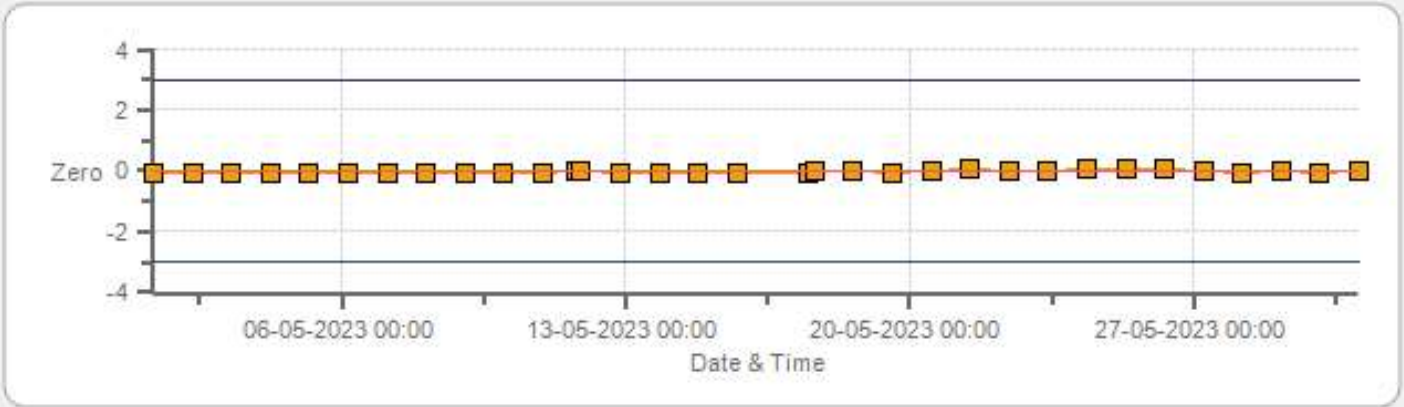
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: Tamarack Monthly: 05-2023 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NO2[ppb] Calibration: Tamarack Monthly: 05-2023 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: Tamarack Monthly: 05-2023 Type: SpanAndZero - Span



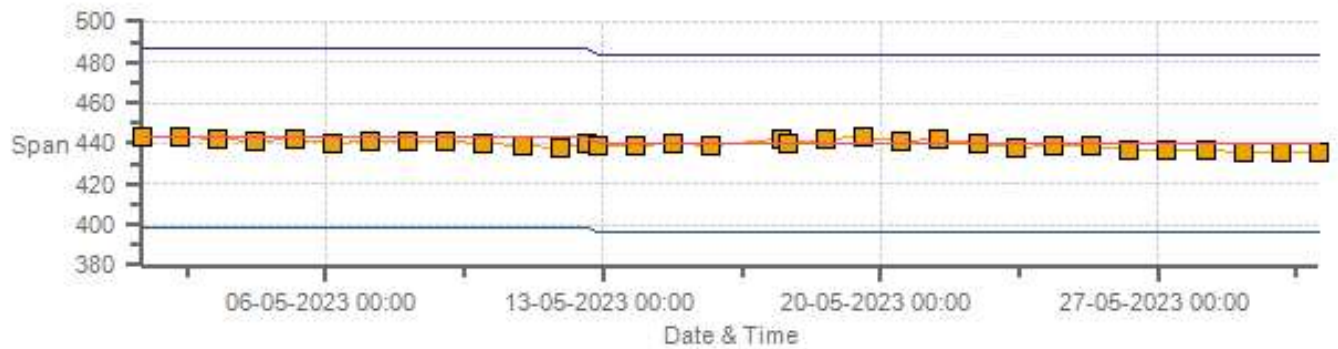
Span SpanRef Span Low Span High

O3[ppb] Calibration: Tamarack Monthly: 05-2023 Type: SpanAndZero - Zero



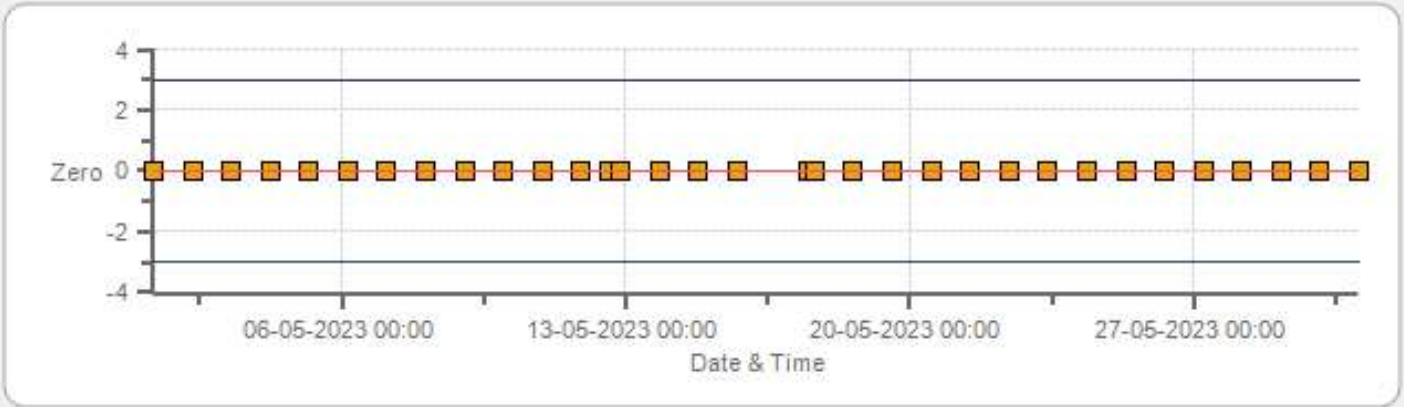
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: Tamarack Monthly: 05-2023 Type: SpanAndZero - Span



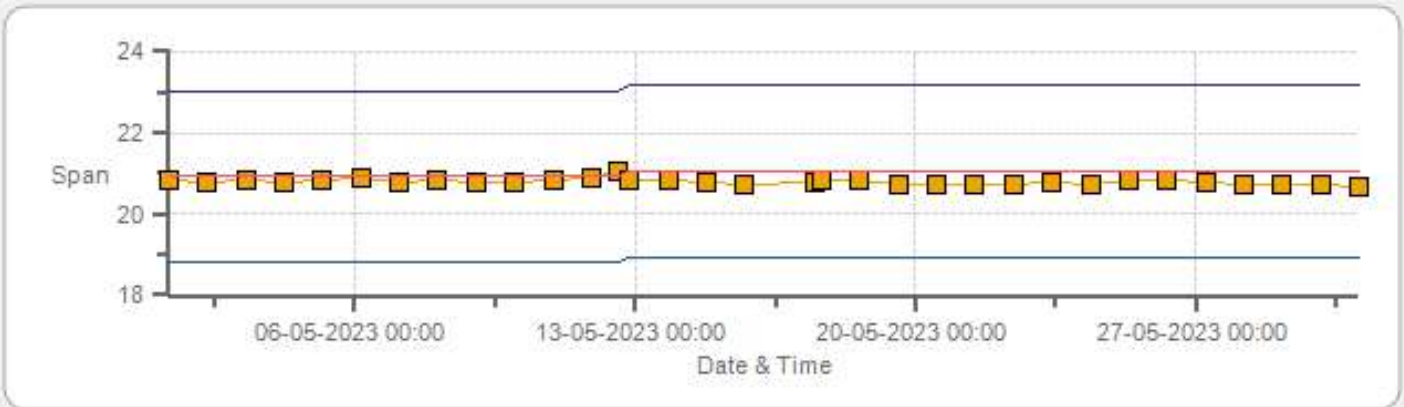
Span SpanRef Span Low Span High

THC55[ppm] Calibration: Tamarack Monthly: 05-2023 Type: SpanAndZero - Zero



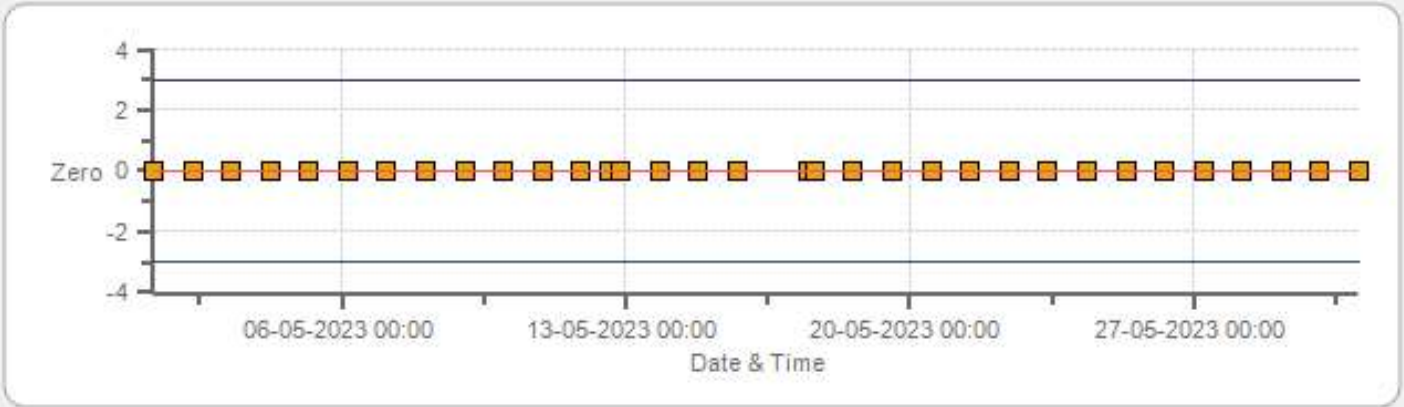
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: Tamarack Monthly: 05-2023 Type: SpanAndZero - Span



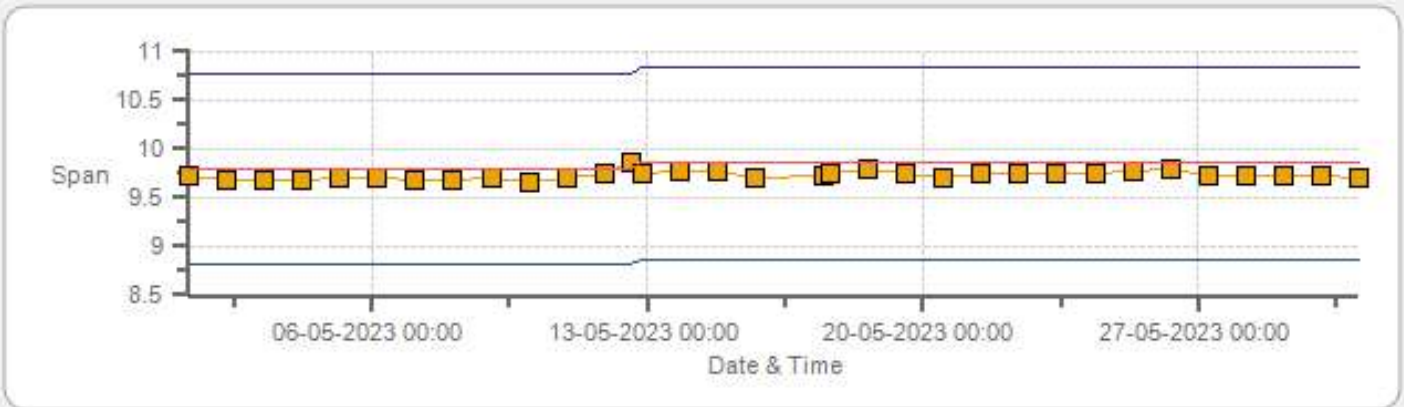
Span SpanRef Span Low Span High

CH4[ppm] Calibration: Tamarack Monthly: 05-2023 Type: SpanAndZero - Zero



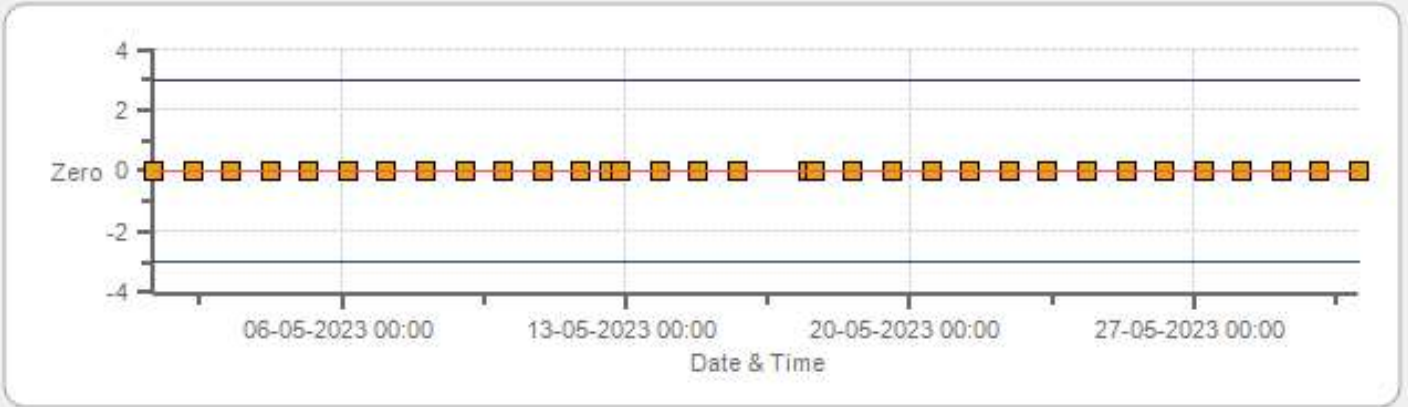
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: Tamarack Monthly: 05-2023 Type: SpanAndZero - Span



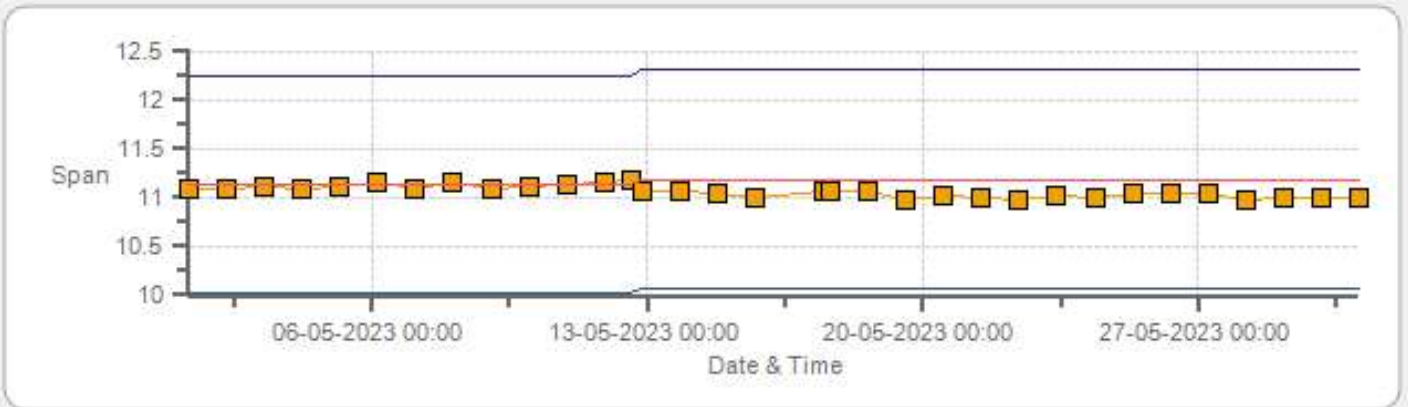
Span SpanRef Span Low Span High

NMHC[ppm] Calibration: Tamarack Monthly: 05-2023 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: Tamarack Monthly: 05-2023 Type: SpanAndZero - Span



MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	11-May-2023	PREVIOUS CALIBRATION DATE:	15-Apr-2023
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	0.997
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	943
PURPOSE:	Routine	START TIME (MST):	10:55
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:59

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180930031	FLOW (mL/min)	446
INITIAL		FINAL	
BKG/OFFSET	2.77	BKG/OFFSET	2.71
COEF/SLOPE	1.021	COEF/SLOPE	1
Expected (reference) Value	192.3	Expected (reference) Value	189.2

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	17100415	ID:	132
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 127895	HIGH ID	n/a
CONC (ppm):	50.40	EXPIRY DATE	n/a
CYLINDER (psi):	1400	LOW ID	n/a
EXPIRY DATE	27-Oct-2030	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000	 	5000	0.00	0.1	0	 	
4961	37.20	4998	375.13	379.6	375.1	0.988	1.000
4982	17.60	5000	177.41	n/a	176.5	n/a	1.005
4990	8.80	4999	88.72	n/a	88.6	n/a	1.001

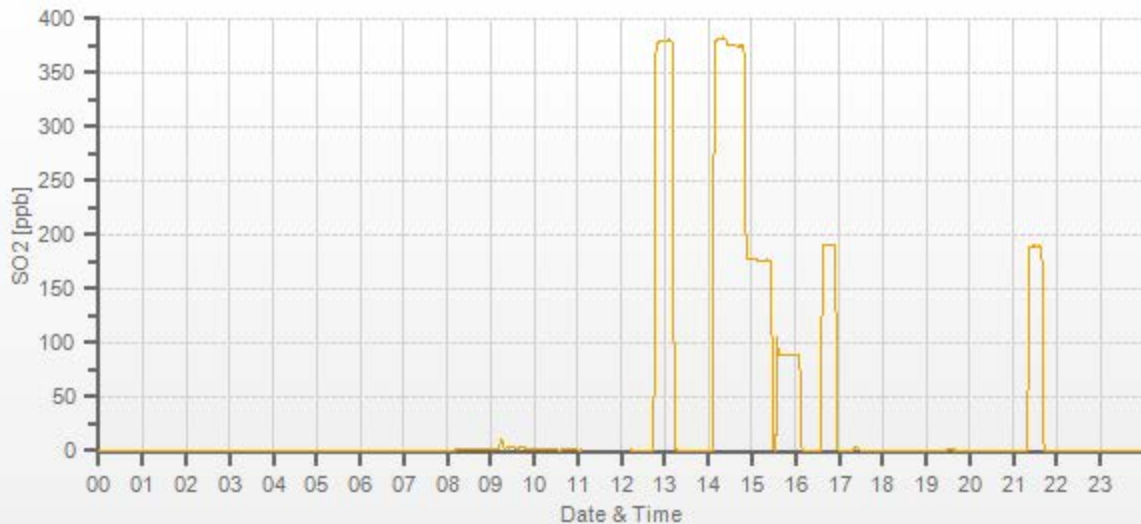
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.0%

COMMENTS:

Sample inlet filter was changed.
 Calibration was restarted at 12:23. An issue with the datalogger caused no data to be recorded. Logger rebooted.
 15:27 - calibrator issue

SO2[ppb] Station: Tamarack Daily: 11-05-2023 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202305-01248

H2S Analyzer Calibration by Dilution



DATE:	11-May-2023	PREVIOUS CALIBRATION DATE:	15-Apr-2023
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	0.998
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	943
PURPOSE:	Routine	START TIME (MST):	10:53
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:00

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 17360005	FLOW (mL/min)	915
INITIAL		FINAL	
BKG/OFFSET	33.8	BKG/OFFSET	35
COEF/SLOPE	0.798	COEF/SLOPE	0.813
Expected (reference) Value	43.4	Expected (reference) Value	44.4

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	134
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0002287	HIGH ID	n/a
CONC (ppm):	10.10	EXPIRY DATE	n/a
CYLINDER (psi):	800	LOW ID	n/a
EXPIRY DATE	14-Sep-2024	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

START TIME:	12:23	SO2 Conc (ppb)	380
END TIME:	12:38	Analyzer Response (ppb)	0.0

CALIBRATION:

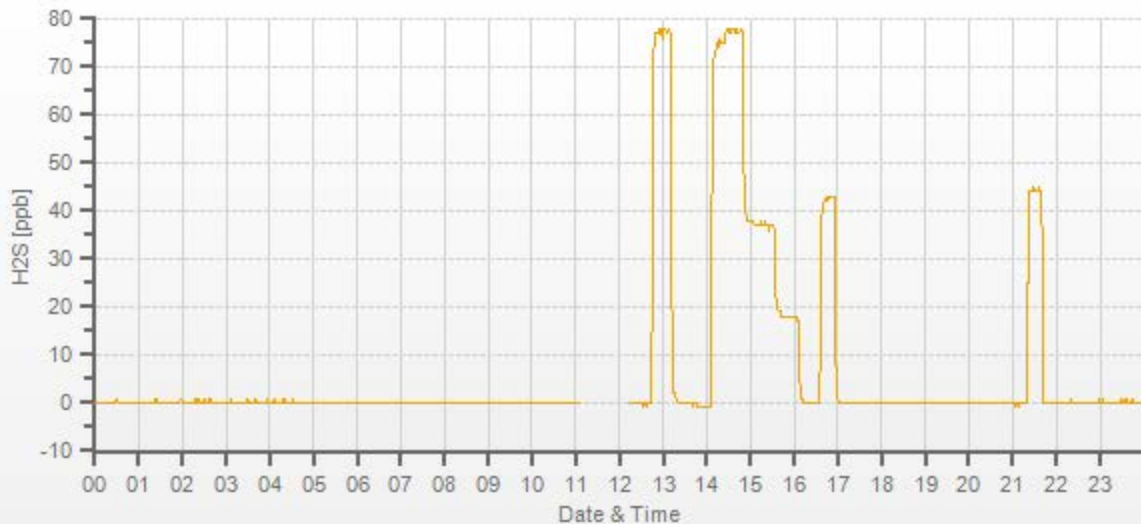
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	7500	7500	0.00	0.6	0	1.000	0.993
7442	57.90	7500	77.97	78.6	78.5	1.000	0.993
7472	28.20	7500	37.98	n/a	38.3	n/a	0.992
7486	14.10	7500	18.99	n/a	19	n/a	0.999

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.007	0.0%

COMMENTS:

Sample inlet filter was changed.
Calibration was restarted at 12:23. An issue with the datalogger caused no data to be recorded. Logger rebooted.



NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	11-May-2023	PREVIOUS CALIBRATION DATE:	15-Apr-2023	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930028	NOx	1.000
LOCATION:	Tamarack	BAROMETRIC (mBar):	943	FLOW (mL/min)	826	NO	0.999
PURPOSE:	Routine	START TIME (MST):	10:56	RANGE (ppb)	500	NO2	1.002
PERFORMED BY:	Alex Yakupov	END TIME (MST):	19:04	GPT FOR O3?		No	

CALIBRATION SYSTEM:							
CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 127895	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	NO/NOx (PPM):	51.1 51.6	HIGH EXPIRY:	n/a
ID:	17100415	ID:	134	CYLINDER (psi):	1400	LOW ID:	n/a
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a	EXPIRY DATE	27-Oct-2030	LOW EXPIRY:	n/a

CALIBRATION SETTINGS:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	2	1.9	n/a	BKG/OFFSET:	2	1.8	n/a
SLOPE/COEF/CE:	1.008	1.022	1	SLOPE/COEF/CE:	1.009	1.033	1

EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	278.7	1.4	277.2		275.4	1.7	273.8

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

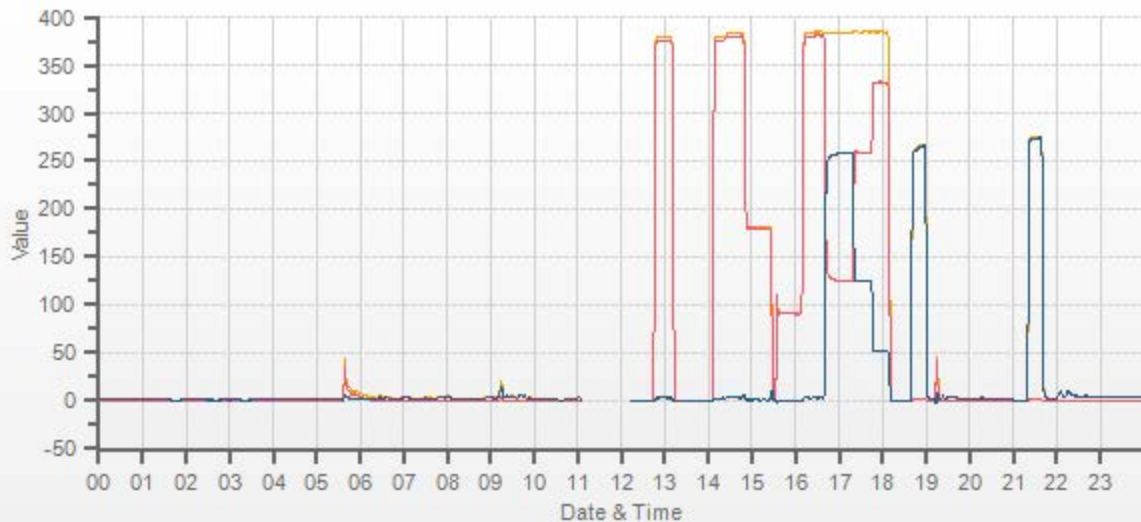
FLOW RATE			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000	37.20	5000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.014	1.014	0.997	1.001	1.000	0.998
4961	37.20	4998	380.3	384.1	3.7	375.0	378.8	3.8	379.9	384.0	4.1	1.014	1.014	0.997	1.001	1.000	0.998
4982	17.60	5000	179.9	181.6	1.8	n/a	n/a	n/a	180.4	182.0	1.7	n/a	n/a	0.997	0.997	0.998	0.998
4990	8.80	4999	90.0	90.8	0.9	n/a	n/a	n/a	90.7	91.7	1.0	n/a	n/a	0.997	0.992	0.991	0.998

GPT CALIBRATION:										
Point	CALIBRATOR			INDICATED (ppb)			NO DROP / O3 Conc (ppb)	NO2 GAIN (ppb)	NO2 Corr. FACTOR	CONV. EFFICIENCY
	GAS	TOTAL	O3 SETPOINT	NO	NOx	NO2				
REFERENCE	37.20	4998	0	380.3	384.0	3.7	252.8	252.4	1.002	99.84%
AS-FOUND HIGH	37.20	4998	235	127.5	383.6	256.1	252.8	252.4	1.002	99.84%
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MID	37.20	4998	110	258.5	383.7	125.2	121.8	121.5	1.002	99.75%
LOW	37.20	4998	40	331.7	384.3	52.2	48.6	48.5	1.002	99.79%
NO2 adjustment not required.									AVERAGE:	99.80%

LINEAR REGRESSION ANALYSIS:				COMMENTS:
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	0.998	0.10%	
NOx	1.000	0.999	0.09%	
NO2	1.000	0.999	-0.01%	

Sample inlet filter was changed.
 Calibration was restarted at 12:23. An issue with the datalogger caused no data to be recorded. Logger rebooted.
 15:27 - calibrator issue

AS-LEFT DIAGNOSTICS:



CAL-LICA-202305-01248

Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	12-May-2023	PREVIOUS CALIBRATION DATE:	16-Apr-2023
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.002
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Tamarack	BAROMETRIC (mBar):	950
PURPOSE:	Routine	START TIME (MST):	09:24
PERFORMED BY:	Alex Yakupov	END TIME (MST):	13:46

ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	1202068570	FLOW (mL/min)	1370
INITIAL		FINAL	
BKG/OFFSET	4.7	BKG/OFFSET	4.8
COEF/SLOPE	1.029	COEF/SLOPE	1.033
Expected (reference) Value	443	Expected (reference) Value	440

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	134
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

CALIBRATION PARAMETERS:

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

CALIBRATION:

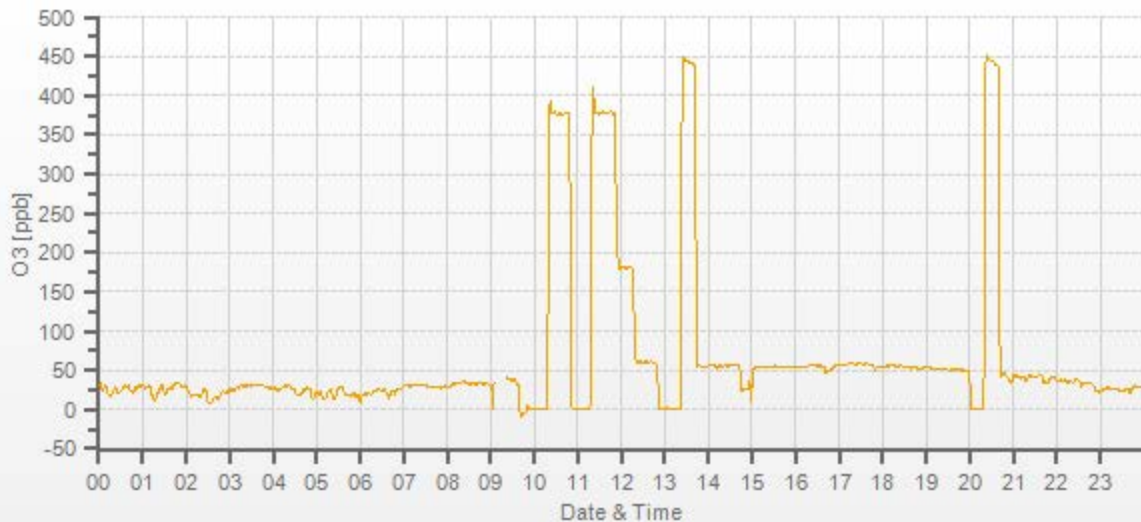
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	XXXXXXXXXX	5000	0.0	-0.1	0.0	XXXXXXXXXX	XXXXXXXXXX
5000	XXXXXXXXXX	5000	378.0	376.7	377.7	1.003	1.001
5000	XXXXXXXXXX	5000	180.0	n/a	180.6	n/a	0.997
5000	XXXXXXXXXX	5000	60.0	n/a	60.1	n/a	0.998

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.999	0.0%

COMMENTS:

Sample inlet filter was changed.



Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	12-May-2023	PREVIOUS CALIBRATION DATE:	16-Apr-2023	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1180930026	1190
LOCATION:	Tamarack	BAROMETRIC (mBar):	950	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Routine	START TIME (MST):	09:23	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	13:46	PREVIOUS CF:	1.000	0.999	0.999

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 23593	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH ₄ /C ₃ H ₈ (ppm):	603.0 204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	132	CYLINDER (psi):	1100	LOW ID:	n/a
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	115	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

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

EXPECTED (REFERENCE) VALUE:

INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.79	11.13	20.92		9.86	11.19	21.05

CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3100	X	3100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	X	X	X	X	X
3025	74.60	3100	14.51	13.50	28.01	14.27	13.46	27.73	14.48	13.47	27.95	1.017	1.003	1.010	1.002	1.002	1.002
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.25	6.72	13.97	n/a	n/a	n/a	1.001	1.004	1.003
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.64	3.35	6.99	n/a	n/a	n/a	0.994	1.005	0.999

LINEAR REGRESSION ANALYSIS:

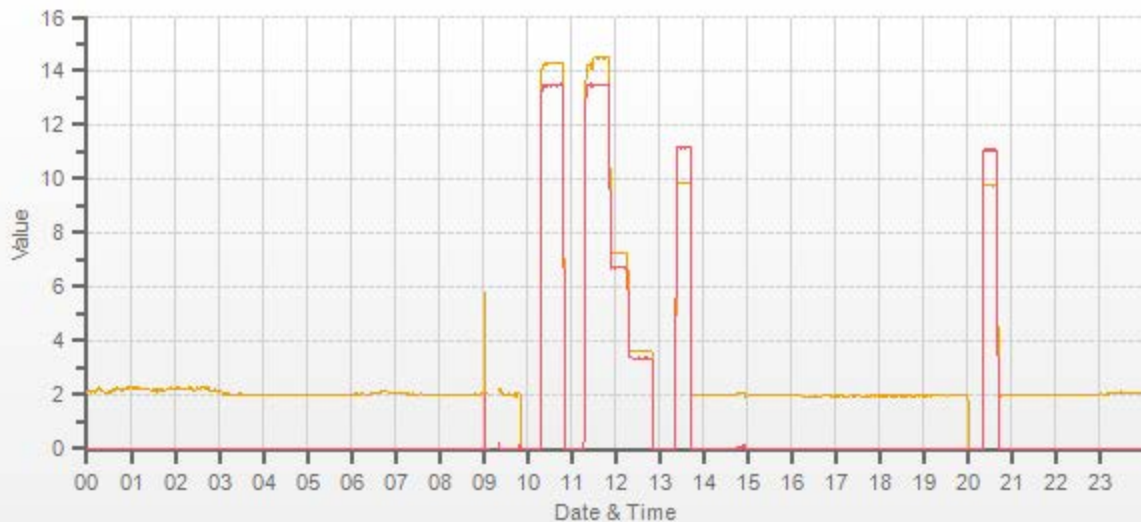
	CORRELATION	SLOPE	INTERCEPT
CH ₄	1.000	0.997	0.1%
NMHC	1.000	0.998	0.0%
THC	1.000	0.998	0.0%

Comments:

Sample inlet filter was changed. A new N₂ gas cylinder was installed.

Use Zero Chrom?

Yes



CAL-LICA-202305-01248

Thermo 5030 SHARP Monitor Monthly Check

Date: May 12, 2023
 Company: LICA
 Station Name/Location: Tamarack
 Previous Audit Date: April 16, 2023
 Parameter: PM 2.5

Performed By/Reviewer: Alex Yakupov | Chris Wesson
 Start Time (mst): 13:56
 End Time (mst): 15:01
 Calibration Purpose: routine monthly
 Weather Conditions: Mainly sunny

SHARP Information and Status:

Serial Number: CM-2209 Status: 0.00
 Approx Tape remaining: 5/10 Error Code: 0.00

Reference Standards:

Air Flow

	Manometer	Orifice	Pressure:	Temperature:
Make:	DeltaCal	DeltaCal	Fisher	Vaisala
Model:	DC1	DC1	FB61291	HM70
Serial Number:	177246	177246	130168457	T1640130
Calibration Expiration Date:	September 7, 2023	September 7, 2023	March 20, 2024	June 14, 2023

As found temperature and pressure:

Tolerance +/- 4°C SHARP T1 °C: <u>23.0</u> Reference °C: <u>23.5</u> Difference °C: <u>0.5</u>	Tolerance +/- 13.33 hPa SHARP P3 (hPa): <u>950.000</u> Reference (hPa): <u>950.000</u> Difference (hPa): <u>0.000</u>
---	--

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

Tolerance +/- 4°C SHARP T1 °C: <u>23.0</u> Reference °C: <u>23.5</u> Difference °C: <u>0.5</u>	Tolerance +/- 13.33 hPa SHARP P3 (hPa): <u>951.000</u> Reference (hPa): <u>950.000</u> Difference : <u>1.000</u>
---	---

As found flows:

Targets: 1000 l/hr / <90% SHARP AirFlow l/hr <u>1000.00</u> Pump Voltage (%) <u>52.50</u>	Flow Tolerance 16.67 lpm +/- 0.67 lpm SHARP Airflow (l/min) <u>16.67</u> Reference AirFlow (l/min) <u>16.65</u> Difference (l/min) <u>-0.02</u>
---	--

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

Targets: 1000 l/hr / <90% SHARP AirFlow l/hr <u>1000.00</u> Pump Voltage (%) <u>52.50</u>	Flow Tolerance 16.67 lpm +/- 0.67 lpm SHARP Airflow (l/min) <u>16.67</u> Reference AirFlow (l/min) <u>16.65</u> Difference (l/min) <u>-0.02</u>
---	--

Inlet Assembly:

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

Comments:

Leak check: 16.65 vs 16.54, 0.11 < 0.80 lpm, passed.

Meteorological System Checklist



Date:	May 12, 2023
Technician:	Alex Yakupov
Station:	Tamarack / Audit time: 15:06 - 16:12

Unit:	Make:	Model:	Serial #:
Precipitation Sampler:	Met One	387 D	C 13580
Temperature Sensor:	Rotronic	HC2A-S3	20433166
Barometric Pressure Sensor:	MetOne	Part 090D	F4497
Relative Humidity Sensor:	Rotronic	HC2A-S3	20433166
Anemometer:	RM Young	05305VK	161465

PRECIPITATION SENSOR CHECK

Checklist:	Reply:	Comments:
Is the sensor Level?	yes	
Is the heater operating properly?	yes	
Are the bucket drain holes clean?	yes	tested 15:06-15:15
Is the screen on the housing? (screen should be on between July and September)	no	15:11 - water test. Response is timely and accurate. Battery was renewed.
Is the housing clean?	yes	
Is the area around the housing clean and free from obstacles?	yes	

TIP TEST - Slowly pour water until 10 tip are heard. (10 tips = 1 mm)

# of Tips	Data Logger Response (mm):	Manual Specification = +/- 0.2 mm
10	1.00	0.00

AMBIENT TEMPERATURE SENSOR CHECK

Parameter:	Temperature @ 2 metres
Reference Thermometer ID:	Vaisala HMP76B #T1640130, Exp. Date: Jun 14, 2023
Reference Temperature (°C):	23.5
Station - Ambient Temperature (°C):	23.1
Temperature Difference (°C):	0.7

BAROMETRIC PRESSURE SENSOR CHECK

Reference Barometer ID:	Fisher / FB 61291/ #130168457/ Mar 20, 2024		
Reference Pressure - Units/Reading:	millibar	951	
Station Pressure - Units/Reading:	millibar	950	
Pressure Tolerance +/- 15% of error:	808 - 1094	0.11%	

RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Reference Hygrometer ID:	Vaisala HMP76B #T1640130, Exp. Date: Jun 14, 2023		
Reference Hygrometer % RH- Reading:	24.00		
Station Hygrometer % RH- Reading:	23.95		
RH Tolerance +/- 15% of difference:	20.40 - 27.60	0.2%	

ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Previous check date:	April 16, 2023	Previous check date:	April 16, 2023
Wind Speed Observed (kph):	0 to 10	Wind Direction Observed:	NE
Wind speed on Data Logger (kph):	7.8	Wind Direction on Data Logger:	NE
	Annual audit: Jul 26, 2022	Wind Direction Pass/Fail?:	Pass

Comments

Station (Trailer) temperature vs Reference gauge temperature: 22.2 vs 22.2 degrees, difference = 0.0 => Passed.



Meteorological Sensor Audit/Calibration

Location Information

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

Performed By: Alex Yakupov
 Reviewed By: Chris Wesson
 Start/End Time (mst): 16:01 / 17:14
 Weather Conditions: Mix of sun and clouds

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1
Sensor Model:	05305VK	Velocity Unit Output Range:	0-200
Serial #:	161465	Direction Voltage Output Range:	0-1
Previous Cal/Audit Date:	September 20, 2021	Direction Unit Output Range:	0-360

Wind Calibrator Information

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

Wind Speed Audit Data ****+/- 2% of the average correction factor is the limit****

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.1	0.1	-
1000	18.4	18.5	18.5	0.996
2000	36.9	36.9	36.9	0.999
3000	55.3	55.4	55.4	0.998
4000	73.7	73.9	73.9	0.998
5000	92.2	92.5	92.4	0.997
6000	110.6	111.0	111.0	0.996
7000	129.0	129.5	129.5	0.996
8000	147.4	148.1	148.1	0.996
9000	165.9	166.7	166.7	0.995
10000	184.3	185.2	185.2	0.995
The audit meets AMD requirements.			Average Correction Factor=	0.997

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

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	3	355	2.7	-0.1	1.4
30	330	34	331	-4.1	-1.3	2.7
60	300	64	301	-4.3	-1.0	2.7
90	270	95	272	-4.7	-1.5	3.1
120	240	125	242	-4.6	-2.2	3.4
150	210	154	213	-4.4	-3.4	3.9
180	180	184	185	-4.4	-4.6	4.5
210	150	213	153	-2.7	-3.2	2.9
240	120	242	125	-1.6	-4.6	3.1
270	90	270	94	-0.1	-4.0	2.1
300	60	300	63	0.2	-3.3	1.7
330	30	330	32	-0.4	-1.6	1.0
355	0	355	3	-0.1	2.7	1.4
The audit meets AMD requirements.				Average Absolute Degrees Difference=		2.6

Comments:

n/a

End of Report



Lakeland Industry & Community Association

MAY 2023

Ambient Air Monitoring Calibration Report

- ST. LINA STATION-

CAL-LICA-202305-01250

Station Operation and Maintenance:

Bureau Veritas Canada

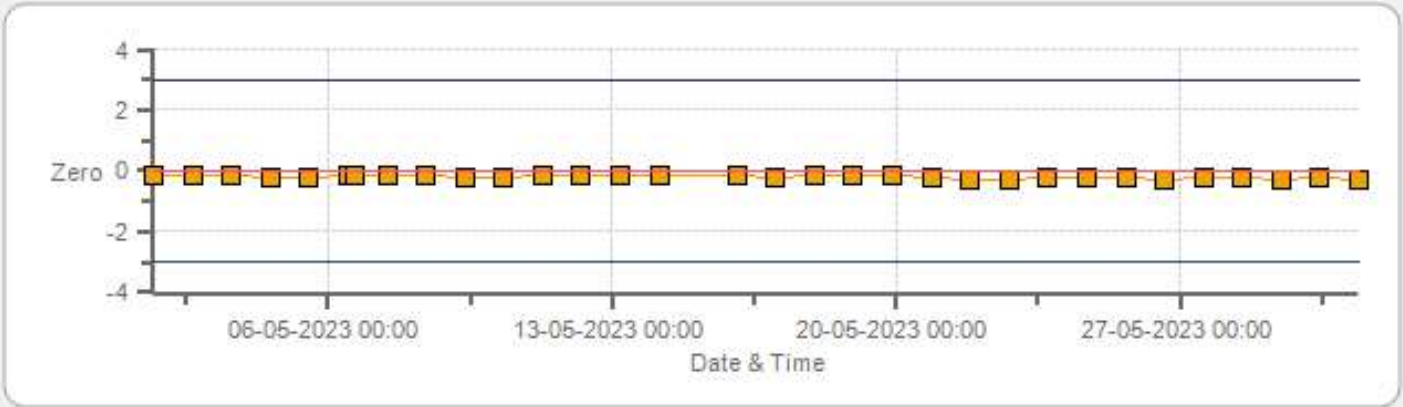
Data Validation and Report:

LICA / Bureau Veritas Canada

June 26, 2023

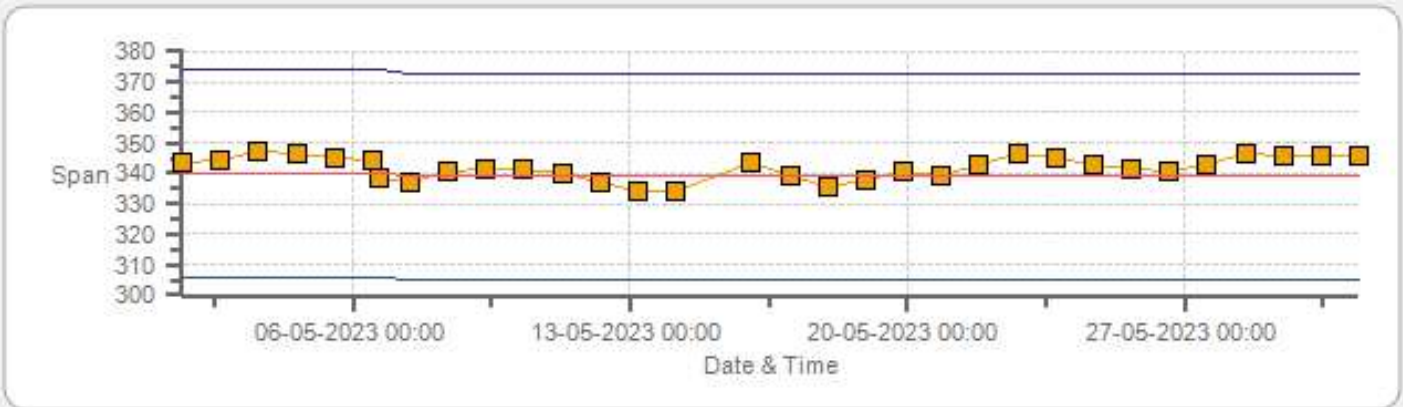
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: St. Lina Monthly: 05-2023 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: St. Lina Monthly: 05-2023 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

H2S[ppb] Calibration: St. Lina Monthly: 05-2023 Type: SpanAndZero - Zero



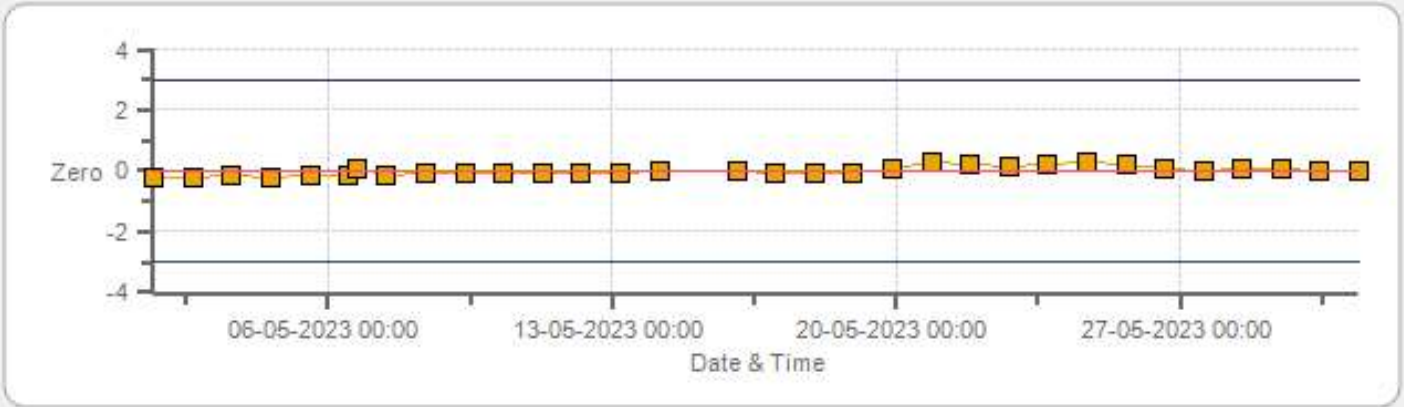
Zero Zero Ref Zero Low Zero High

H2S[ppb] Calibration: St. Lina Monthly: 05-2023 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NO2[ppb] Calibration: St. Lina Monthly: 05-2023 Type: SpanAndZero - Zero



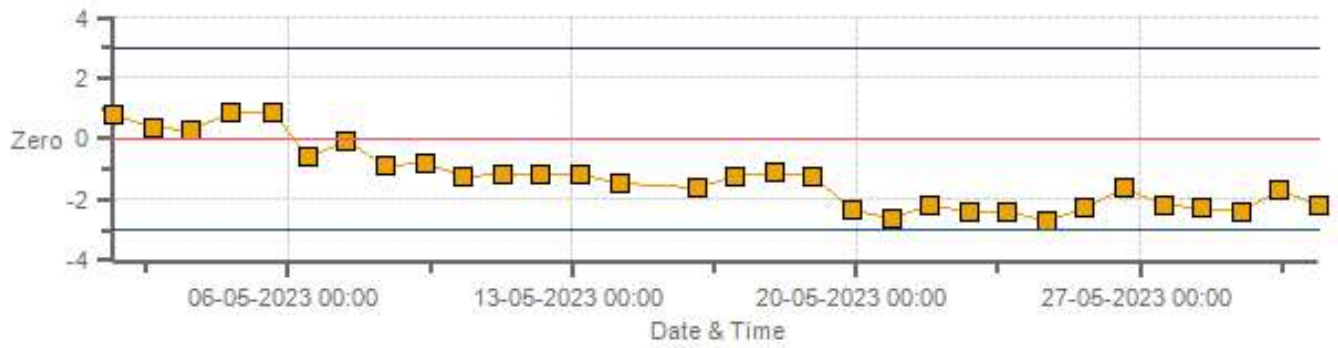
Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: St. Lina Monthly: 05-2023 Type: SpanAndZero - Span



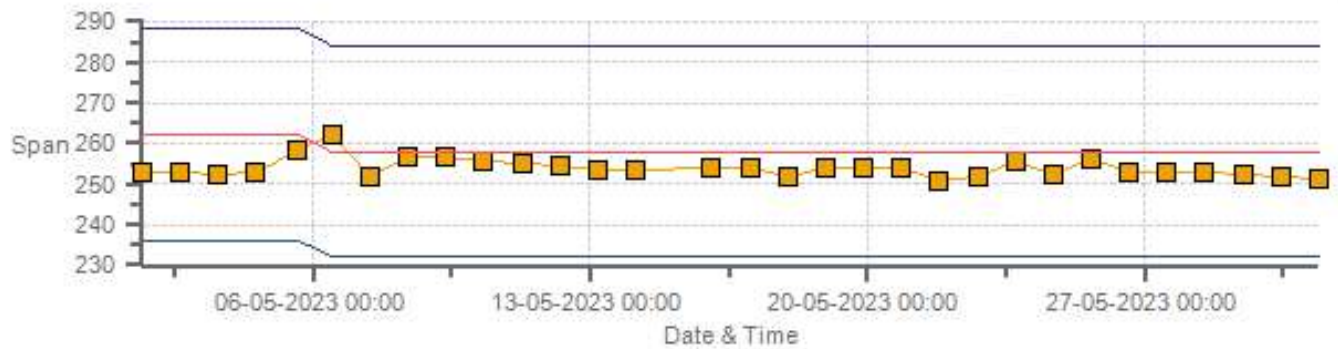
Span SpanRef Span Low Span High

O3[ppb] Calibration: St. Lina Monthly: 05-2023 Type: SpanAndZero - Zero



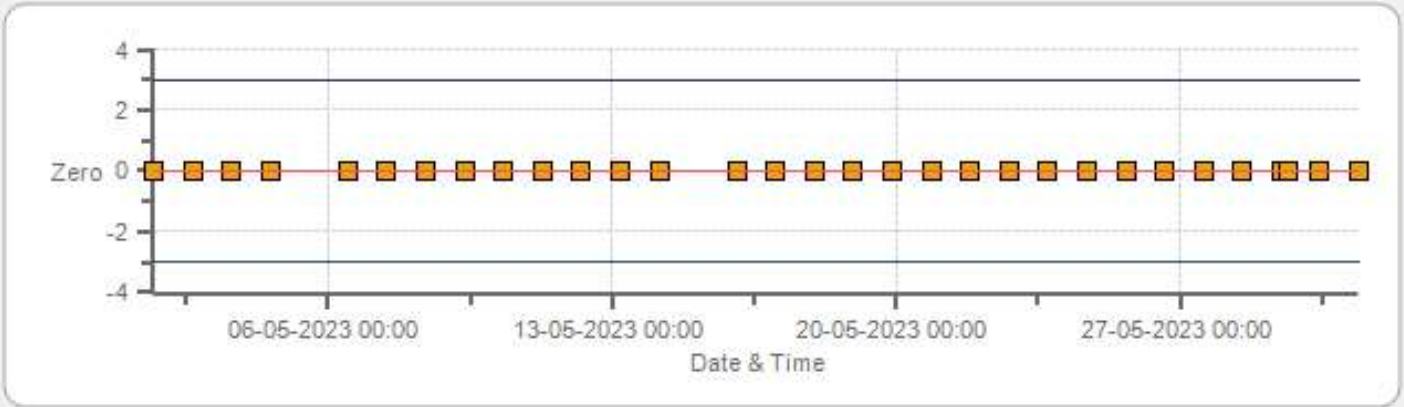
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: St. Lina Monthly: 05-2023 Type: SpanAndZero - Span



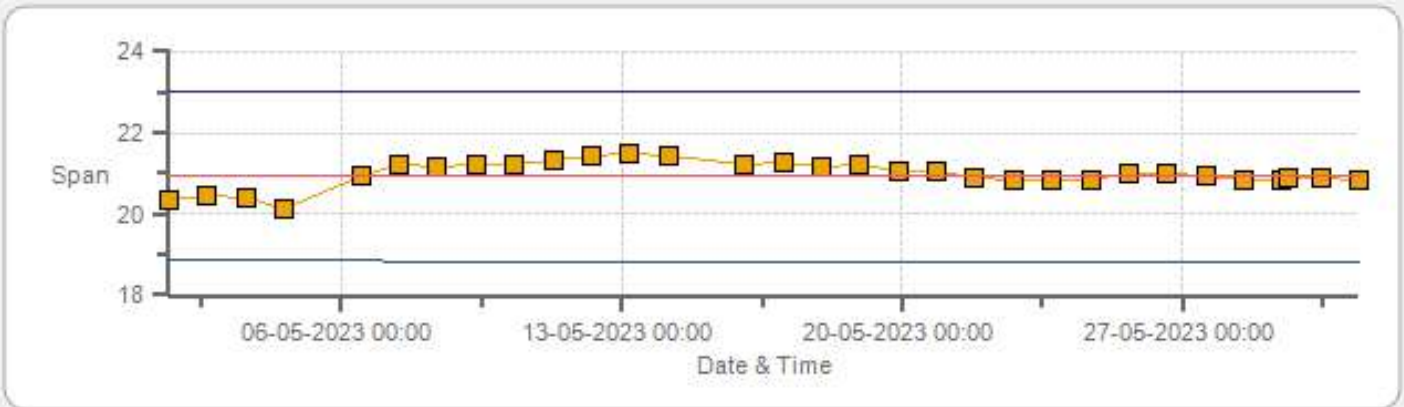
Span SpanRef Span Low Span High

THC55[ppm] Calibration: St. Lina Monthly: 05-2023 Type: SpanAndZero - Zero



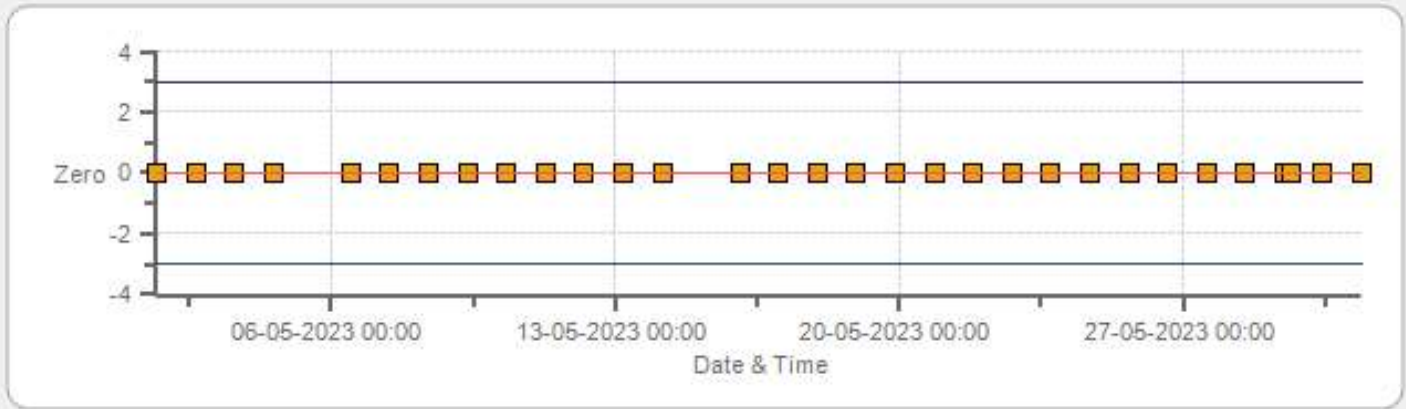
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: St. Lina Monthly: 05-2023 Type: SpanAndZero - Span



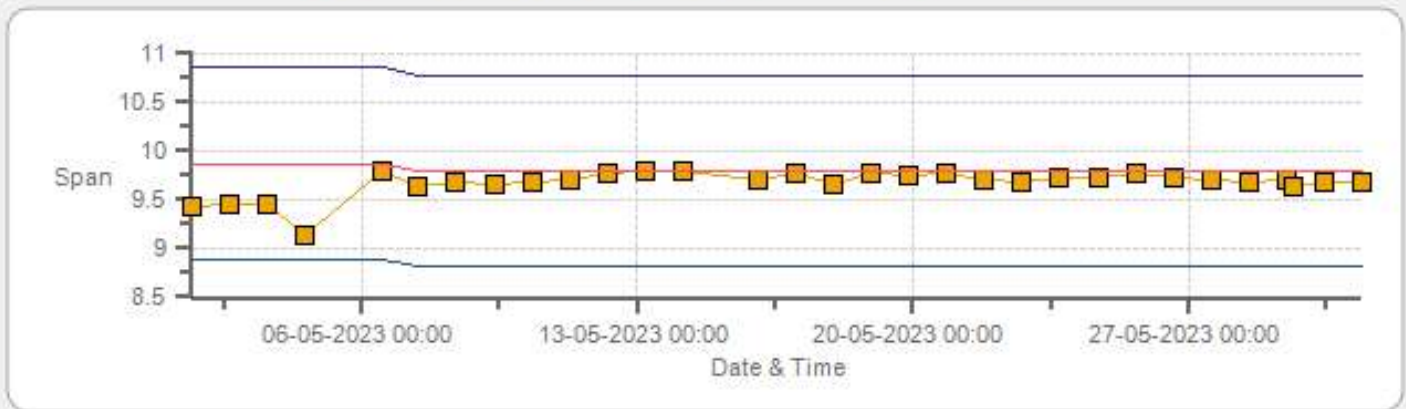
Span Span Ref Span Low Span High

CH4[ppm] Calibration: St. Lina Monthly: 05-2023 Type: SpanAndZero - Zero



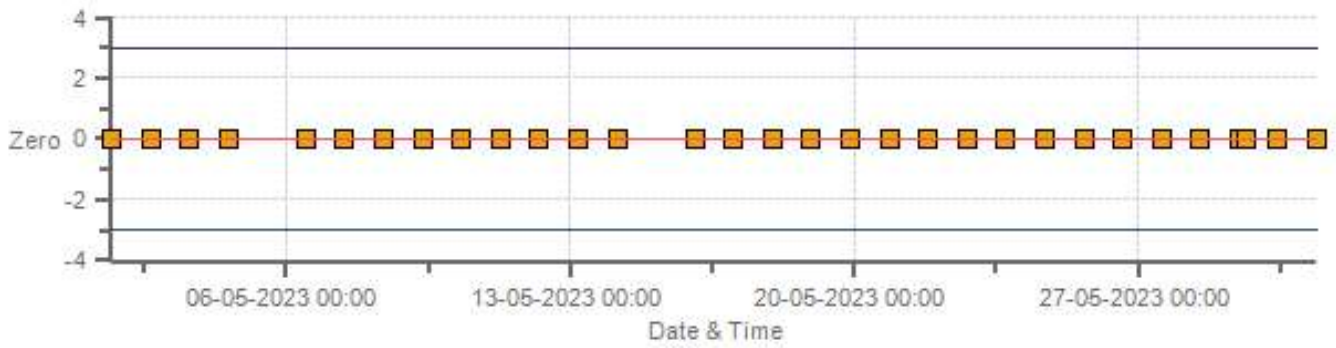
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: St. Lina Monthly: 05-2023 Type: SpanAndZero - Span



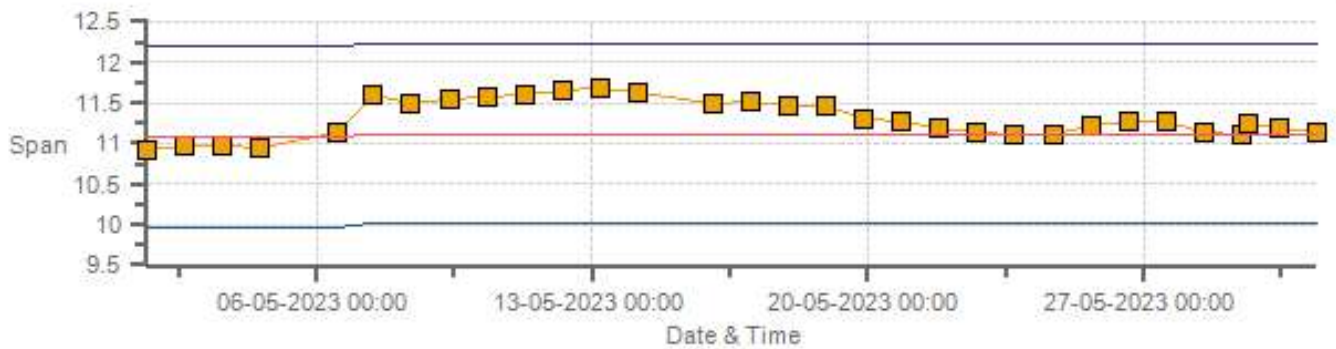
Span SpanRef Span Low Span High

NMHC[ppm] Calibration: St. Lina Monthly: 05-2023 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: St. Lina Monthly: 05-2023 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	06-May-2023	PREVIOUS CALIBRATION DATE:	06-Apr-2023
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	0.995
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	936
PURPOSE:	Routine	START TIME (MST):	12:04
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:36

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180930030	FLOW (mL/min)	432
INITIAL		FINAL	
BKG/OFFSET	5.09	BKG/OFFSET	4.92
COEF/SLOPE	1.221	COEF/SLOPE	1.197
Expected (reference) Value	340	Expected (reference) Value	339

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	17100415	ID:	132
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 127895	HIGH ID	n/a
CONC (ppm):	50.40	EXPIRY DATE	n/a
CYLINDER (psi):	1400	LOW ID	n/a
EXPIRY DATE	27-Oct-2030	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

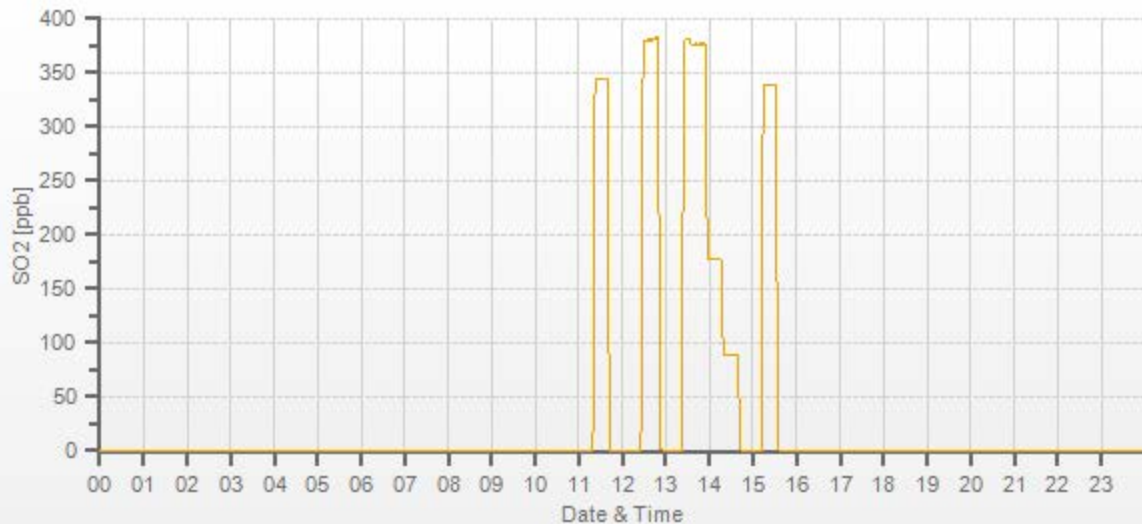
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	37.20	5000	0.00	-0.2	0	0.984	0.999
4961	37.20	4998	375.13	381.2	375.4	0.984	0.999
4982	17.60	5000	177.41	n/a	177.4	n/a	1.000
4990	8.80	4999	88.72	n/a	87.9	n/a	1.009

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	-0.1%

COMMENTS:

Sample inlet filter was changed.



H2S Analyzer Calibration by Dilution



DATE:	06-May-2023	PREVIOUS CALIBRATION DATE:	06-Apr-2023
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	1.001
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	936
PURPOSE:	Routine	START TIME (MST):	10:03
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:11

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM18010058	FLOW (mL/min)	791
INITIAL		FINAL	
BKG/OFFSET	54.1	BKG/OFFSET	55.6
COEF/SLOPE	1.008	COEF/SLOPE	1
Expected (reference) Value	88.7	Expected (reference) Value	90.2

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0002287	HIGH ID	n/a
CONC (ppm):	10.10	EXPIRY DATE	n/a
CYLINDER (psi):	800	LOW ID	n/a
EXPIRY DATE	14-Sep-2024	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

START TIME:	10:27	SO2 Conc (ppb)	380
END TIME:	10:42	Analyzer Response (ppb)	0.0

CALIBRATION:

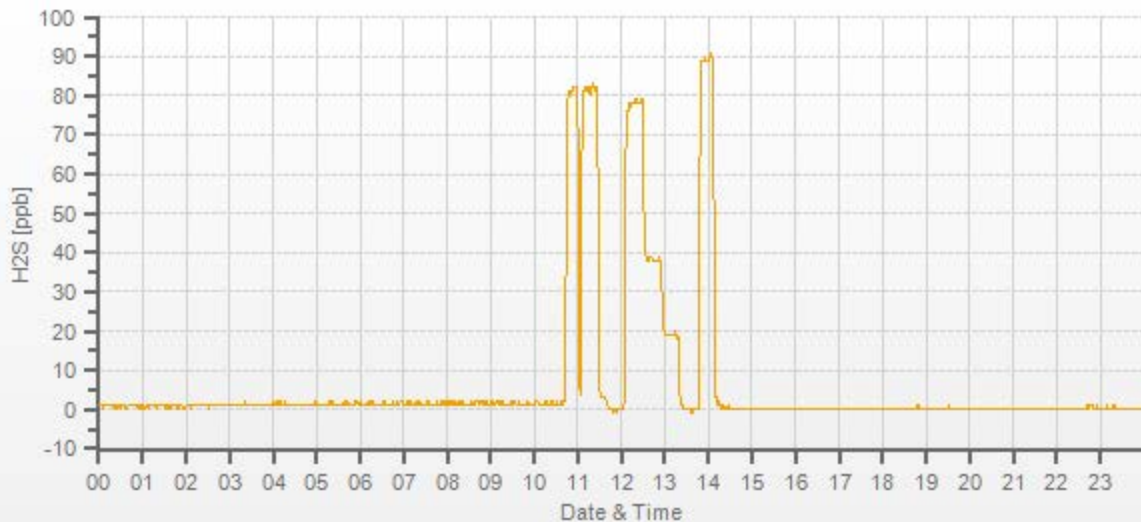
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	7500	7500	0.00	1.5	0	0.973	0.995
7442	57.90	7500	77.97	81.6	78.4	0.973	0.995
7472	28.20	7500	37.98	n/a	37.9	n/a	1.002
7486	14.10	7500	18.99	n/a	19.1	n/a	0.994

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.005	-0.1%

COMMENTS:

Sample inlet filter was changed.
11:00 = daily ZS. As Found High Point restarted.



NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	06-May-2023	PREVIOUS CALIBRATION DATE:	06-Apr-2023	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930029	NOx	1.000
LOCATION:	St. Lina	BAROMETRIC (mBar):	936	FLOW (mL/min)	821	NO	1.001
PURPOSE:	Routine	START TIME (MST):	12:06	RANGE (ppb)	500	NO2	1.000
PERFORMED BY:	Alex Yakupov	END TIME (MST):	17:06	GPT FOR O3?	No		

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 127895	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	NO/NOx (PPM):	51.1 51.6	HIGH EXPIRY:	n/a
ID:	17100415	ID:	132	CYLINDER (psi):	1400	LOW ID:	n/a
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a	EXPIRY DATE	27-Oct-2030	LOW EXPIRY:	n/a

CALIBRATION SETTINGS:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	4.6	4.3	n/a	BKG/OFFSET:	4.4	4.2	n/a
SLOPE/COEF/CE:	1.01	0.877	1	SLOPE/COEF/CE:	1.008	0.877	1

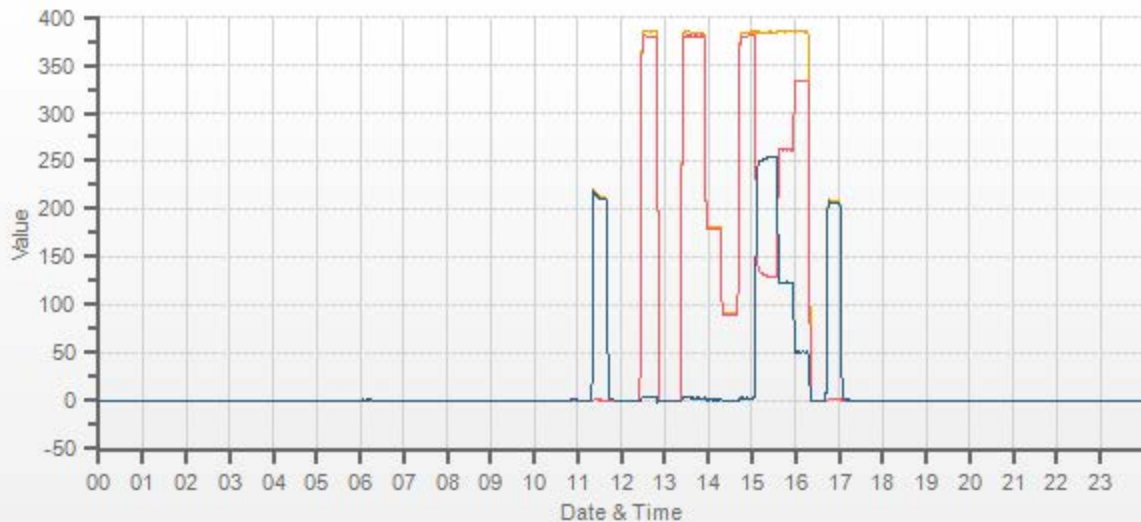
EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	216.0	1.0	215.0		208.0	1.6	206.0

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	37.20	5000	0.0	0.0	0.0	-0.2	-0.3	-0.1	0.0	0.0	0.0	1.000	0.999	n/a	1.000	1.001	n/a
4961	37.20	4998	380.3	384.1	3.7	380.1	384.1	4.0	380.3	383.8	3.4	1.000	0.999	n/a	1.000	1.001	n/a
4982	17.60	5000	179.9	181.6	1.8	n/a	n/a	n/a	180.0	181.6	1.6	n/a	n/a	n/a	0.999	1.000	n/a
4990	8.80	4999	90.0	90.8	0.9	n/a	n/a	n/a	89.8	90.7	0.9	n/a	n/a	n/a	1.002	1.001	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	37.20	4998	0	381.0	384.1	3.1	n/a	n/a	n/a	n/a	
AS-FOUND HIGH	37.20	4998	240	129.5	384.2	254.7	251.5	251.6	1.000	100.04%	
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
MID	37.20	4998	125	261.5	384.7	123.2	119.5	120.1	0.995	100.50%	
LOW	37.20	4998	45	333.2	384.6	51.4	47.8	48.3	0.990	101.05%	
NO2 adjustment not required.									AVERAGE:	100.53%	

LINEAR REGRESSION ANALYSIS:				COMMENTS:
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	1.000	-0.01%	
NOx	1.000	0.999	0.00%	
NO2	1.000	0.998	0.14%	



CAL-LICA-202305-01250

Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	05-May-2023	PREVIOUS CALIBRATION DATE:	08-Apr-2023
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.003
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	920
PURPOSE:	Routine	START TIME (MST):	10:34
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:11

ANALYZER:

MAKE/MODEL	Thermo 49iQ	RANGE	500 ppb
SERIAL #	12208316586	FLOW (mL/min)	1320
INITIAL		FINAL	
BKG/OFFSET	1	BKG/OFFSET	1
COEF/SLOPE	1.017	COEF/SLOPE	1.021
Expected (reference) Value	262	Expected (reference) Value	258

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

CALIBRATION PARAMETERS:

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

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	 	5000	0.0	0.2	0.0	 	
5000	 	5000	378.0	378.5	378.4	0.999	0.999
5000	 	5000	180.0	n/a	180.6	n/a	0.997
5000	 	5000	60.0	n/a	61.1	n/a	0.982

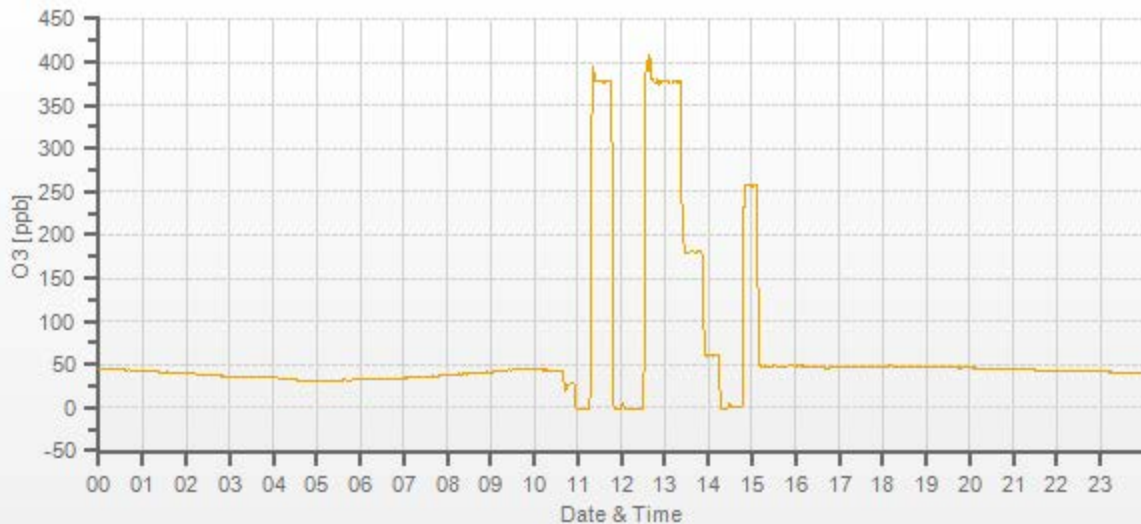
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.1%

COMMENTS:

Sample inlet filter was changed.

O3[ppb] Station: St. Lina Daily: 05-05-2023 Type: AVG 1 Min. [1 Min.]



CAL-LICA-202305-01250

Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	05-May-2023	PREVIOUS CALIBRATION DATE:	08-Apr-2023	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1236656107	1012
LOCATION:	St. Lina	BAROMETRIC (mBar):	920	PARAMETER:	CH4	NMHC	THC
PURPOSE	Removal/Shut-down	START TIME (MST):	10:35	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	12:37	PREVIOUS CF:	0.999	0.999	0.999

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 23593	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH ₄ /C ₃ H ₈ (ppm):	603.0 204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	132	CYLINDER (psi):	1100	LOW ID:	n/a
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	115	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

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

EXPECTED (REFERENCE) VALUE:

INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.87	11.08	20.95		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 ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3100	74.60	3100	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a	1.034	1.004	1.019	n/a	n/a	n/a
3025	74.60	3100	14.51	13.50	28.01	14.04	13.44	27.49	n/a	n/a	n/a	1.034	1.004	1.019	n/a	n/a	n/a
3063	37.30	3100	7.26	6.75	14.01	6.97	6.71	13.66	n/a	n/a	n/a	1.041	1.006	1.025	n/a	n/a	n/a
3081	18.60	3100	3.62	3.37	6.98	3.53	3.32	6.86	n/a	n/a	n/a	1.025	1.014	1.018	n/a	n/a	n/a

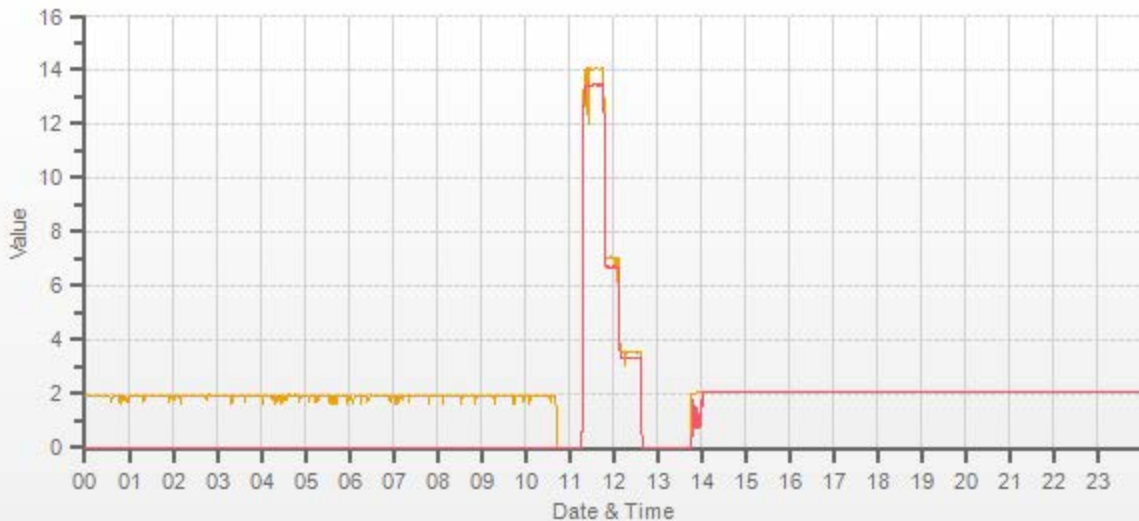
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
CH ₄	1.000	0.966	0.0%
NMHC	1.000	0.996	-0.1%
THC	1.000	0.981	0.0%

Comments:

Shutdown calibration was completed to remove the analyzer for repair.
Reason: frequent bad injections

Use Zero Chrom? **Yes**



CAL-LICA-202305-01250

Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	06-May-2023	PREVIOUS CALIBRATION DATE:	n/a	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1180030034	1193
LOCATION:	St. Lina	BAROMETRIC (mBar):	936	PARAMETER:	CH4	NMHC	THC
PURPOSE	Install/Post-Repair	START TIME (MST):	10:00	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	12:30	PREVIOUS CF:	n/a	n/a	n/a

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 23593	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH ₄ /C ₃ H ₈ (ppm):	603.0 204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	132	CYLINDER (psi):	1100	LOW ID:	n/a
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	115	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

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

EXPECTED (REFERENCE) VALUE:

INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	n/a	n/a	n/a		9.80	11.12	20.92

CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3100	X	3100	0.00	0.00	0.00	n/a	n/a	n/a	0.00	0.00	0.00	X	X	X	X	X	X
3025	74.60	3100	14.51	13.50	28.01	n/a	n/a	n/a	14.50	13.58	28.08	n/a	n/a	n/a	1.001	0.994	0.998
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.26	6.87	14.13	n/a	n/a	n/a	0.999	0.983	0.991
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.64	3.53	7.17	n/a	n/a	n/a	0.994	0.954	0.974

LINEAR REGRESSION ANALYSIS:

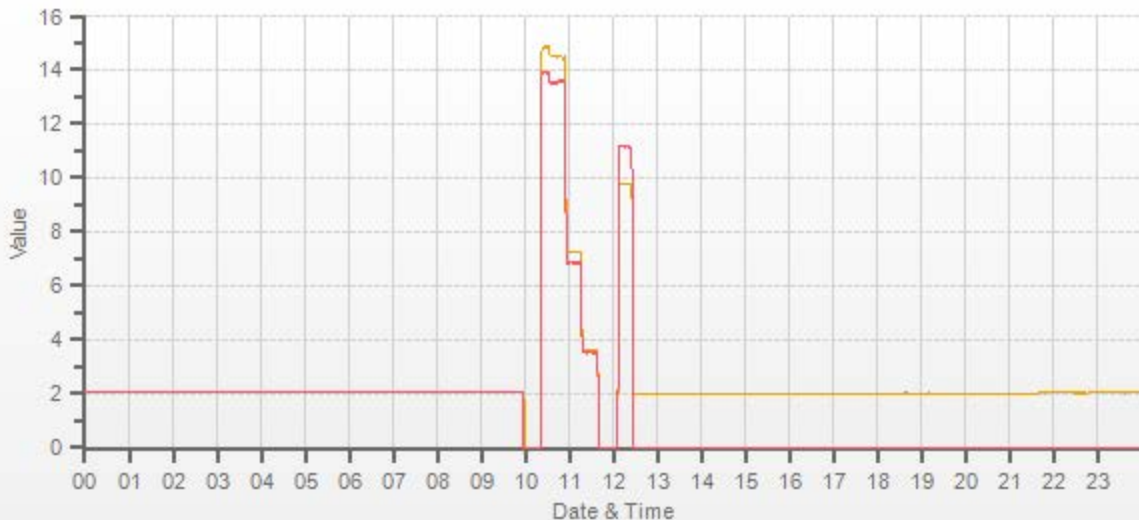
	CORRELATION	SLOPE	INTERCEPT
CH ₄	1.000	0.999	0.1%
NMHC	1.000	1.003	0.4%
THC	1.000	1.001	0.2%

Comments:

Sample inlet filter was changed.

Use Zero Chrom?

Yes



CAL-LICA-202305-01250

Thermo 5030i SHARP Monitor Monthly Check

Date: May 5, 2023	Performed By/Reviewer: Alex Yakupov Chris Wesson
Company: LICA	Start Time (mst): 15:23
Station Name/Location: St. Lina	End Time (mst): 17:03
Previous Audit Date: April 8, 2023	Calibration Purpose: routine monthly
Parameter: PM 2.5	Weather Conditions: Mainly sunny

SHARP 5030i Information and Status:	
Serial Number: CM 17091001	Filter Tape Counter: 175

Reference Standards:				
Air Flow				
	Manometer	Orifice	Pressure:	Temp / RH:
Make:	DeltaCal	DeltaCal	Fisher	Vaisala HM70
Model:	DC1	DC1	FB61291	HMP 76B
Serial Number:	177246	177246	130168457	T1640130
Calibration Expiration Date:	September 7, 2023	September 7, 2023	March 20, 2024	June 14, 2023

Ambient Temperature (°C)				Range	Action
				< ± 2°C	OK
Reference	SHARP	Difference		2-3 °C	Recalibrate
#1	22.10	22.0	0.1	> 3°C	Fail

Ambient Relative Humidity (%RH)				Range	Action
As Found:				< ± 2 %RH	OK
Reference	SHARP	Difference		2-5 %RH	Recalibrate
#1	19.23	19.3	-0.1	> 5 %RH	Fail

Barometric Pressure (mmHg)				Range	Action
As Found:				< ± 10 mmHg	OK
Reference	SHARP	Difference		10-12 mmHg	Recalibrate
#1	699.0	699.0	0.0	> 12 mmHg	Fail

Flow Audit (L/min)						Range	Action
As Found:						< ± 4%	OK
Reference	SHARP			% Difference	0.02%	4-5%	Recalibrate
#1	16.66	16.67			0.02%	>5%	Fail
#2	16.67	16.67					
#3	16.67	16.67					
Average	16.67	16.67					

Leak Check (L/min)						
Without Leak Check Adapter			With leak Check Adapter			
	Reference	SHARP	Difference	Reference	SHARP	Difference
#1	16.67	16.67	0.00	16.12	16.64	-0.52
						<i>Leak Limit: 0.80 L/min</i>
LEAK RATE:						-0.52

Meteorological System Checklist



Date:	May 6, 2023
Technician:	Alex Yakupov / Audit time: 14:42 - 16:03
Reviewer:	Chris Wesson
Station:	St. Lina

Unit:	Make:	Model:	Serial #:
Temperature Sensor:	Rotronic	HC2-S3	20404750
Barometric Pressure Sensor:	Met One	O90D	F4498
Relative Humidity Sensor:	Rotronic	HC2-S3	20404750
Anemometer:	RM Young	05305VK	161466

PRECIPITATION SENSOR CHECK

Checklist:	Reply:	Comments:
Is the sensor Level?	yes	
Is the heater operating properly?	yes	
Are the bucket drain holes clean?	yes	tested 15:08-16:02
Is the screen on the housing? (screen should be on between July and September)	no	16:01 - tests with water (1.0 mm for water).
Is the housing clean?	yes	No issues. Response is timely and accurate.
Is the area around the housing clean and free from obstacles?	yes	

TIP TEST - Slowly pour water until 10 tip are heard. (10 tips = 1 mm)

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

AMBIENT TEMPERATURE SENSOR CHECK

Parameter:	Temperature @ 2 metres
Reference Thermometer ID:	Vaisala / HM70 / #T1640130/ Jun 14, 2023
Reference Temperature (°C):	16.6
Station - Ambient Temperature (°C):	15.6
Temperature Difference (°C):	1.0

BAROMETRIC PRESSURE SENSOR CHECK

Reference Barometer ID:	Fisher / FB 61291/ #130168457/ Mar 20, 2024		
Reference Pressure - Units/Reading:	millibar	934	
Station Pressure - Units/Reading:	millibar	921	
Pressure Tolerance +/- 15% of error:	794 - 1074	1.39%	

RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Reference Hygrometer ID:	Vaisala / HM70 / #T1640130/ Jun 14, 2023		
Reference Hygrometer % RH- Reading:	31.40		
Station Hygrometer % RH- Reading:	33.50		
RH Tolerance +/- 15% of difference:	26.69 - 36.11	-6.7%	

ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Previous check date:	April 8, 2023	Previous check date:	April 8, 2023
Wind Speed Observed (kph):	10-20	Wind Direction Observed:	E
Wind speed on Data Logger (kph):	14.9	Wind Direction on Data Logger:	E
	Annual audit: Jul 22, 2022	Wind Direction Pass/Fail?:	Pass

Comments

Station (Trailer) temperature vs Reference gauge temperature: 23.8 vs 23.8. Difference: 0.0 degrees. Passed



Meteorological Sensor Audit/Calibration

Location Information

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

Performed By: Alex Yakupov
 Reviewed By: Chris Wesson
 Start/End Time (mst): 15:07 / 16:23
 Weather Conditions: A few clouds

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1
Sensor Model:	05305VK	Velocity Unit Output Range:	0-200
Serial #:	161466	Direction Voltage Output Range:	0-1
Previous Cal/Audit Date:	March 16, 2021	Direction Unit Output Range:	0-360

Wind Calibrator Information

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

Wind Speed Audit Data ****+/- 2% of the average correction factor is the limit****

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.1	0.1	-
1000	18.4	18.5	18.5	0.996
2000	36.9	36.9	37.0	0.998
3000	55.3	55.4	55.5	0.997
4000	73.7	74.1	74.1	0.995
5000	92.2	92.5	92.4	0.997
6000	110.6	111.0	111.0	0.996
7000	129.0	129.4	129.4	0.997
8000	147.4	148.1	148.1	0.996
9000	165.9	166.6	166.6	0.996
10000	184.3	185.1	185.1	0.996
The audit meets AMD requirements.			Average Correction Factor=	0.996

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

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	0	355	0.4	0.0	0.2
30	330	31	331	-0.6	-0.8	0.7
60	300	62	301	-2.1	-0.6	1.4
90	270	93	270	-2.7	-0.1	1.4
120	240	123	241	-2.9	-1.2	2.1
150	210	152	212	-2.1	-2.1	2.1
180	180	182	183	-2.0	-2.9	2.5
210	150	211	153	-1.2	-2.8	2.0
240	120	241	123	-0.8	-3.1	2.0
270	90	270	93	-0.3	-3.0	1.7
300	60	301	62	-0.8	-2.3	1.6
330	30	331	30	-0.5	-0.4	0.4
355	0	355	1	0.0	0.5	0.3
The audit meets AMD requirements.				Average Absolute Degrees Difference=		1.4

Comments:

n/a

End of Report



Lakeland Industry & Community Association

MAY 2023

Ambient Air Monitoring Calibration Report

- LAC LA BICHE STATION-

CAL-LICA-202305-01690

Station Operation and Maintenance:

Bureau Veritas Canada

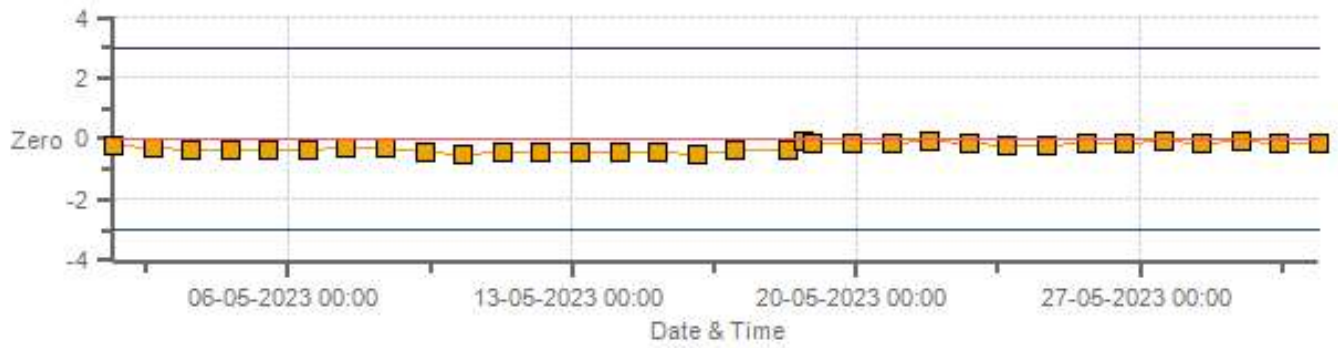
Data Validation and Report:

LICA / Bureau Veritas Canada

June 26, 2023

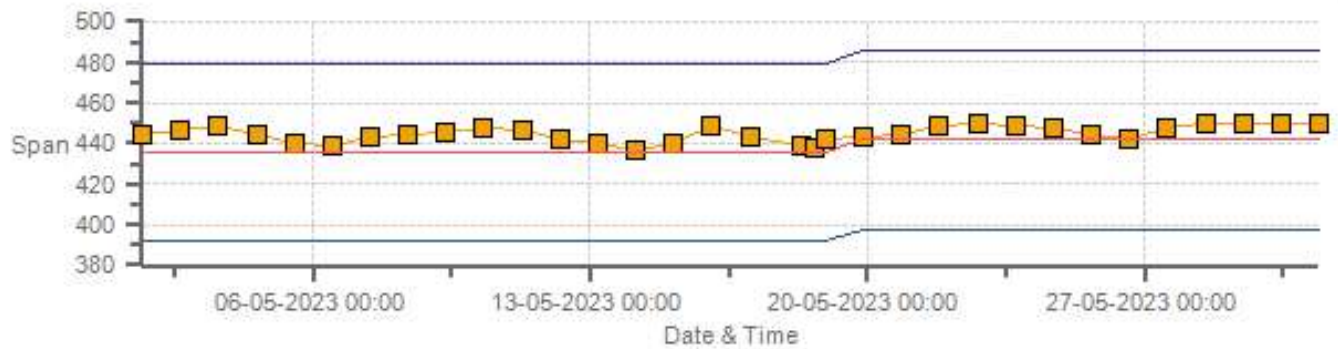
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Lac La Biche Monthly: 05-2023 Type: SpanAndZero - Zero



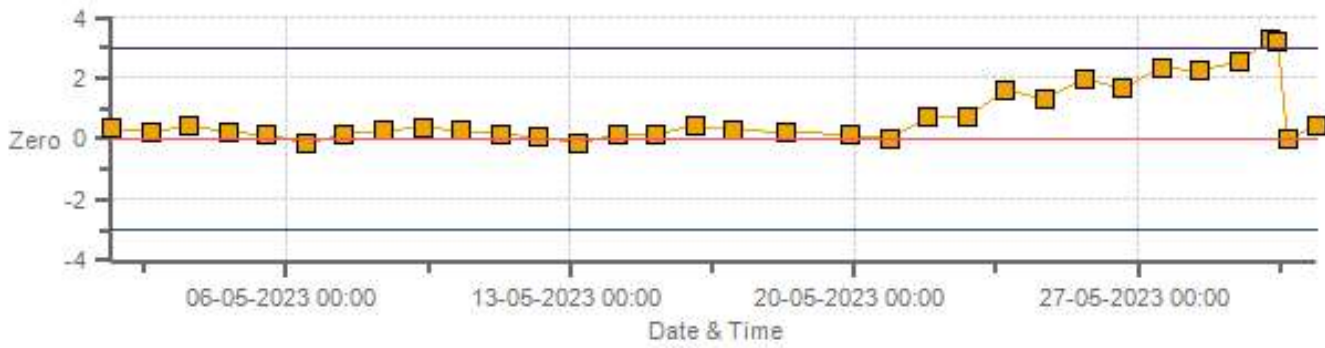
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: Lac La Biche Monthly: 05-2023 Type: SpanAndZero - Span



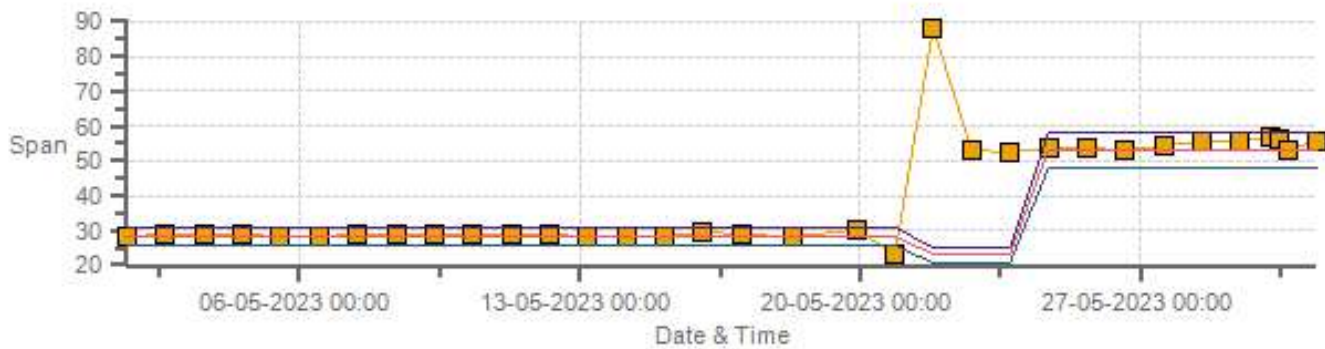
Span SpanRef Span Low Span High

H2S[ppb] Calibration: Lac La Biche Monthly: 05-2023 Type: SpanAndZero - Zero



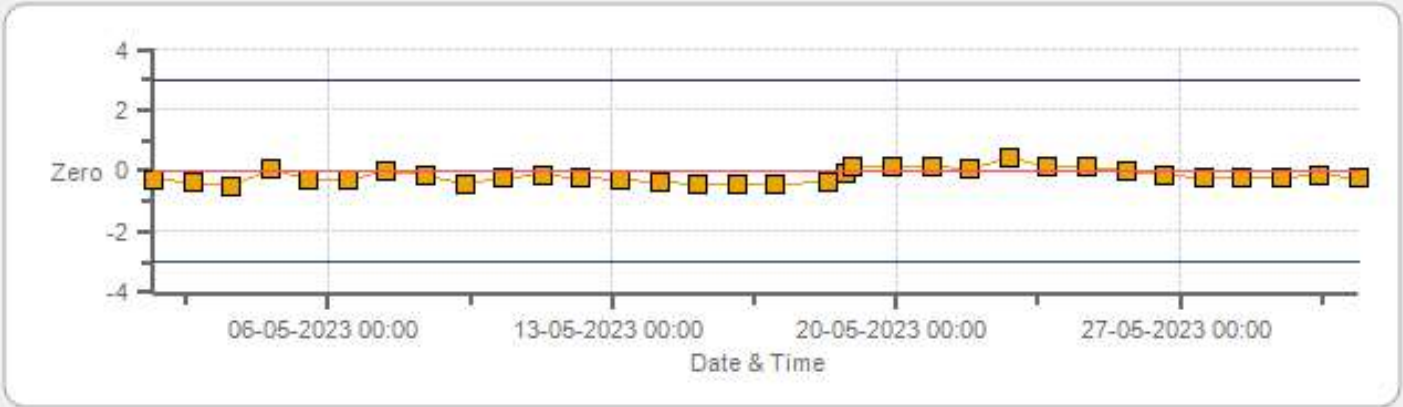
Zero Zero Ref Zero Low Zero High

H2S[ppb] Calibration: Lac La Biche Monthly: 05-2023 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NOX[ppb] Calibration: Lac La Biche Monthly: 05-2023 Type: SpanAndZero - Zero



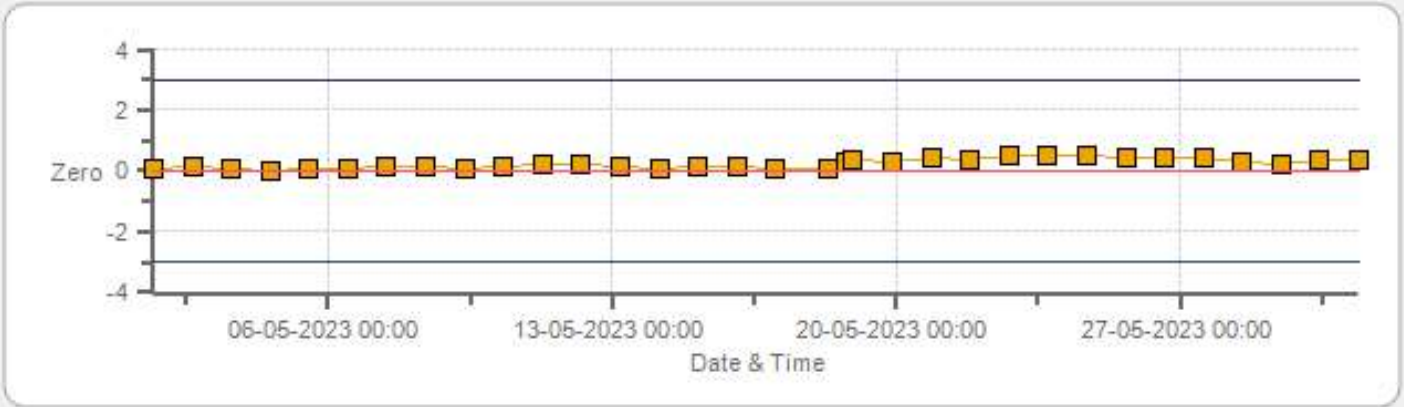
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: Lac La Biche Monthly: 05-2023 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NO2[ppb] Calibration: Lac La Biche Monthly: 05-2023 Type: SpanAndZero - Zero



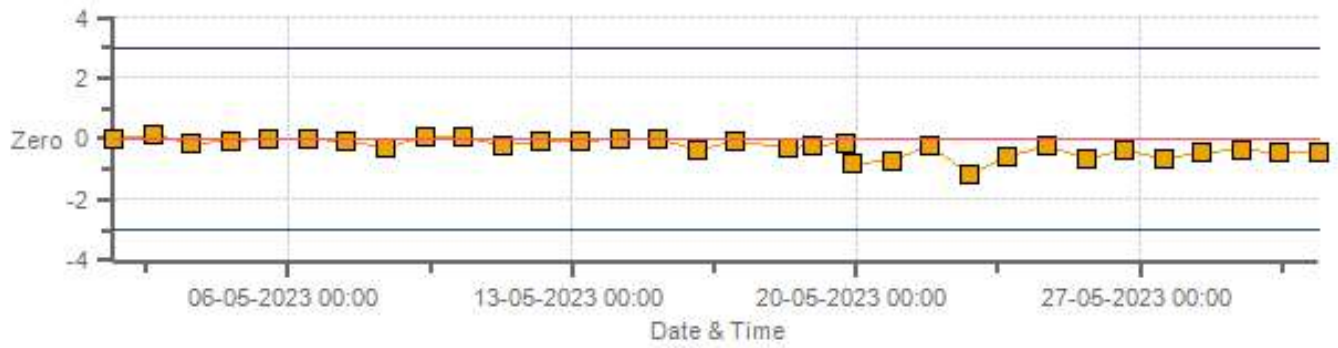
Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: Lac La Biche Monthly: 05-2023 Type: SpanAndZero - Span



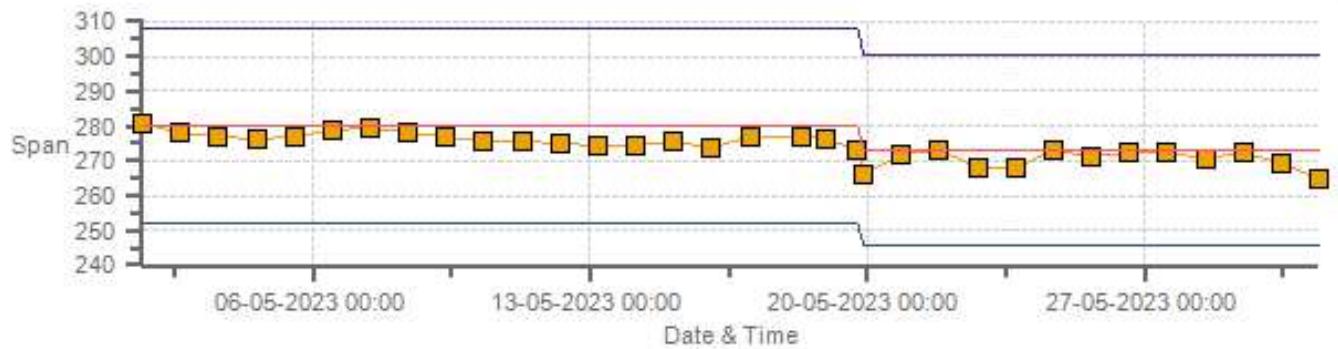
Span SpanRef Span Low Span High

O3[ppb] Calibration: Lac La Biche Monthly: 05-2023 Type: SpanAndZero - Zero



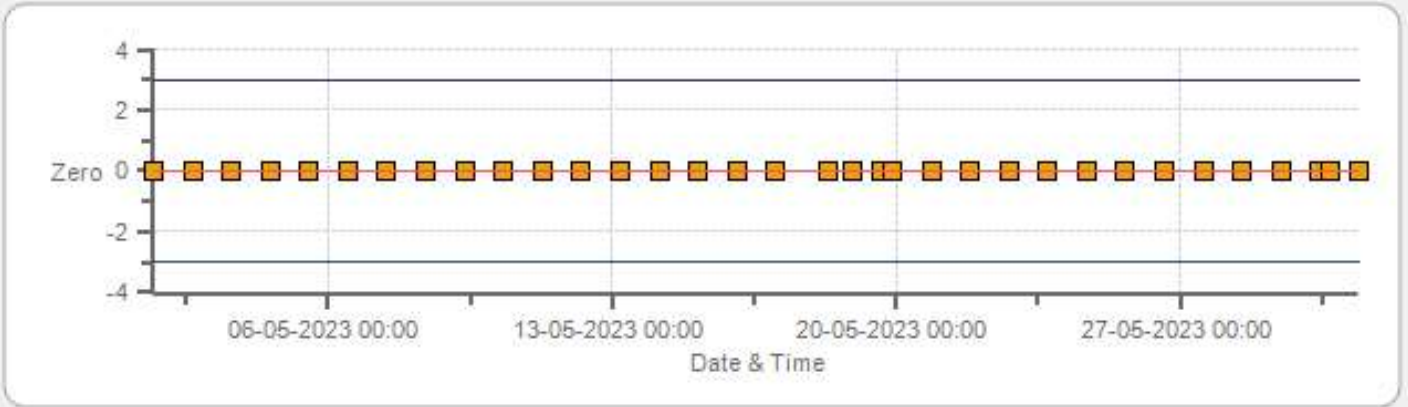
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: Lac La Biche Monthly: 05-2023 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

THC55[ppm] Calibration: Lac La Biche Monthly: 05-2023 Type: SpanAndZero - Zero



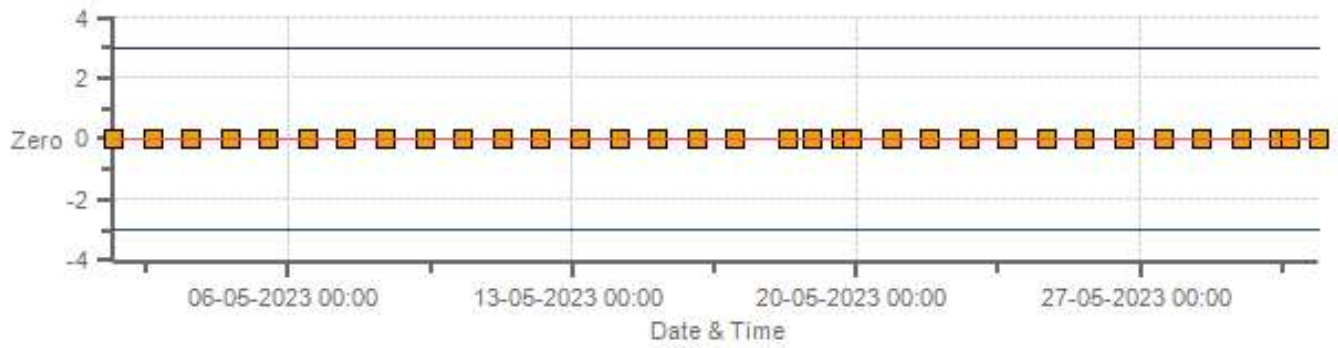
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: Lac La Biche Monthly: 05-2023 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

CH4[ppm] Calibration: Lac La Biche Monthly: 05-2023 Type: SpanAndZero - Zero



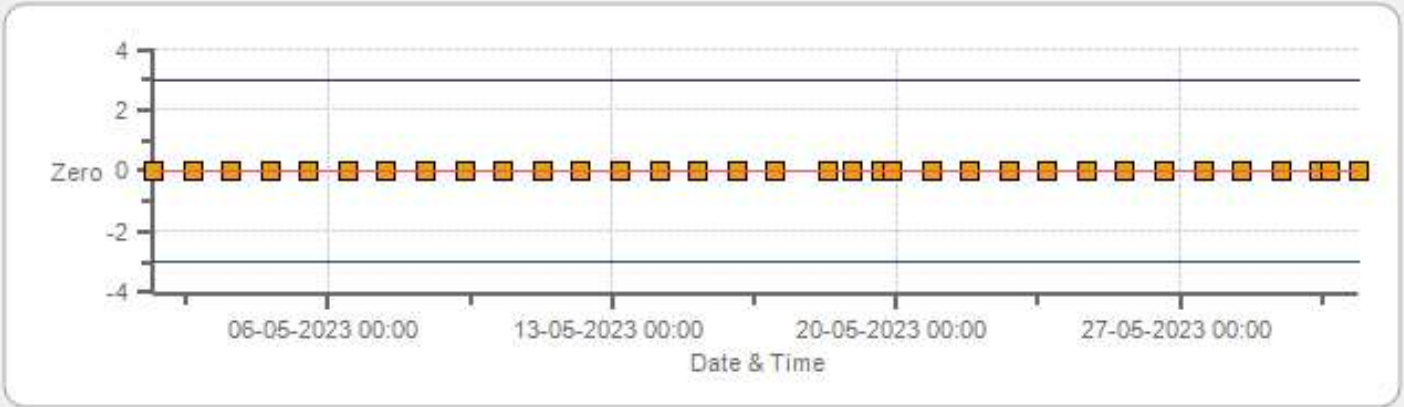
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: Lac La Biche Monthly: 05-2023 Type: SpanAndZero - Span



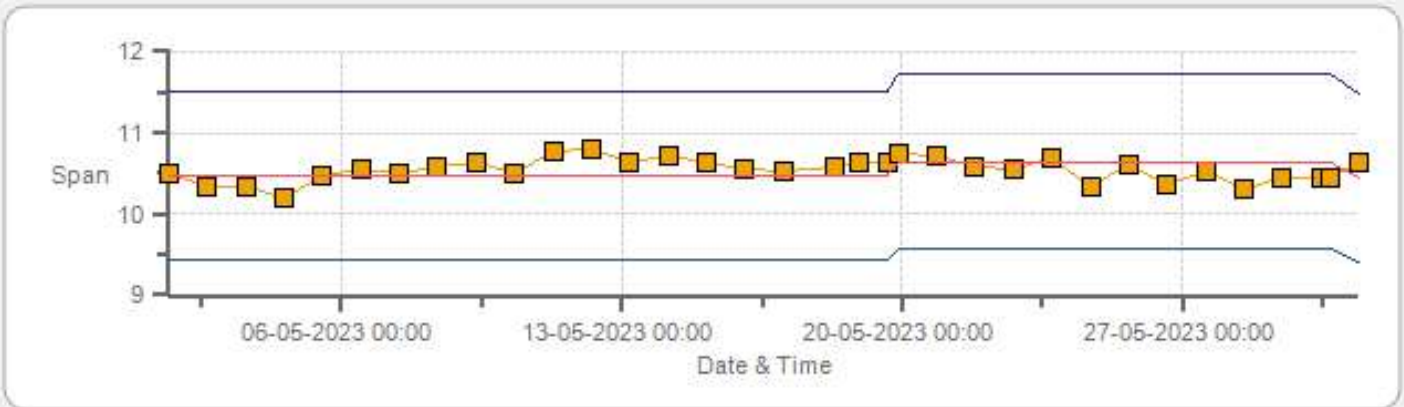
Span SpanRef Span Low Span High

NMHC[ppm] Calibration: Lac La Biche Monthly: 05-2023 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: Lac La Biche Monthly: 05-2023 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	18-May-2023	PREVIOUS CALIBRATION DATE:	21-Apr-2023
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	955
PURPOSE:	Routine	START TIME (MST):	11:32
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:20

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180320043	FLOW (mL/min)	459
INITIAL		FINAL	
BKG/OFFSET	6.77	BKG/OFFSET	6.51
COEF/SLOPE	1.349	COEF/SLOPE	1.345
Expected (reference) Value	436	Expected (reference) Value	442

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	T701
ID:	17100415	ID:	132
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 127895	HIGH ID	n/a
CONC (ppm):	50.40	EXPIRY DATE	n/a
CYLINDER (psi):	1400	LOW ID	n/a
EXPIRY DATE	27-Oct-2030	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

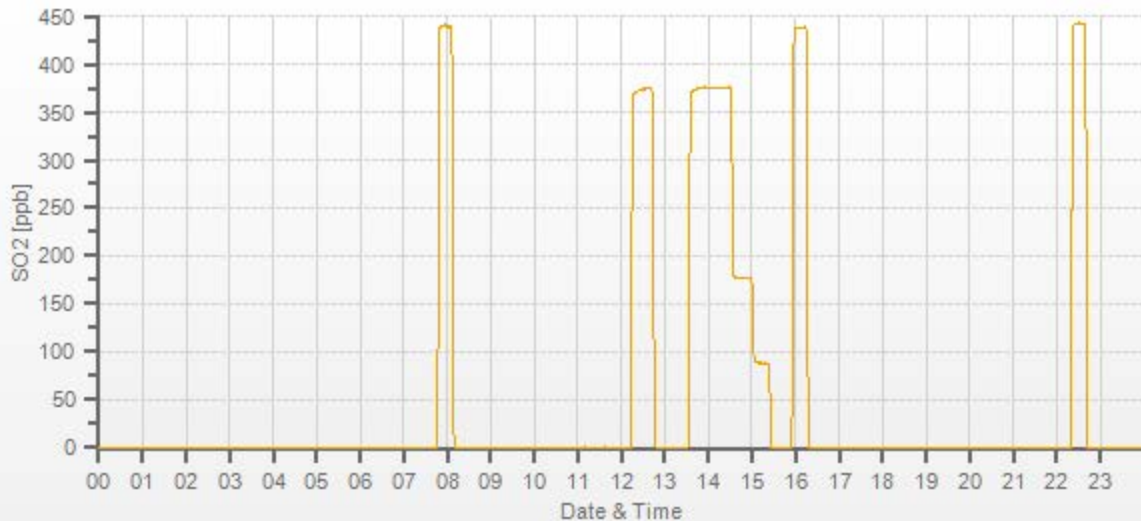
FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000	37.20	5000	0.00	-0.4	0	1.003	0.999
4961	37.20	4998	375.13	373.54	375.64	1.003	0.999
4982	17.60	5000	177.41	n/a	177.17	n/a	1.001
4990	8.80	4999	88.72	n/a	88.39	n/a	1.004

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	-0.1%

COMMENTS:

Sample inlet filter was changed.



H2S Analyzer Calibration by Dilution



DATE:	18-May-2023	PREVIOUS CALIBRATION DATE:	27-Apr-2023
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	1.002
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	955
PURPOSE:	Removal/Shut-down	START TIME (MST):	11:28
PERFORMED BY:	Alex Yakupov	END TIME (MST):	13:46

ANALYZER:

MAKE/MODEL	API 101A	RANGE	100 ppb
SERIAL #	324	FLOW (mL/min)	528
INITIAL		FINAL	
BKG/OFFSET	31.3	BKG/OFFSET	n/a
COEF/SLOPE	1.06	COEF/SLOPE	n/a
Expected (reference) Value	28.3	Expected (reference) Value	n/a

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0002287	HIGH ID	n/a
CONC (ppm):	10.10	EXPIRY DATE	n/a
CYLINDER (psi):	700	LOW ID	n/a
EXPIRY DATE	14-Sep-2024	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

START TIME:	11:32	SO2 Conc (ppb)	380
END TIME:	11:47	Analyzer Response (ppb)	0.0

CALIBRATION:

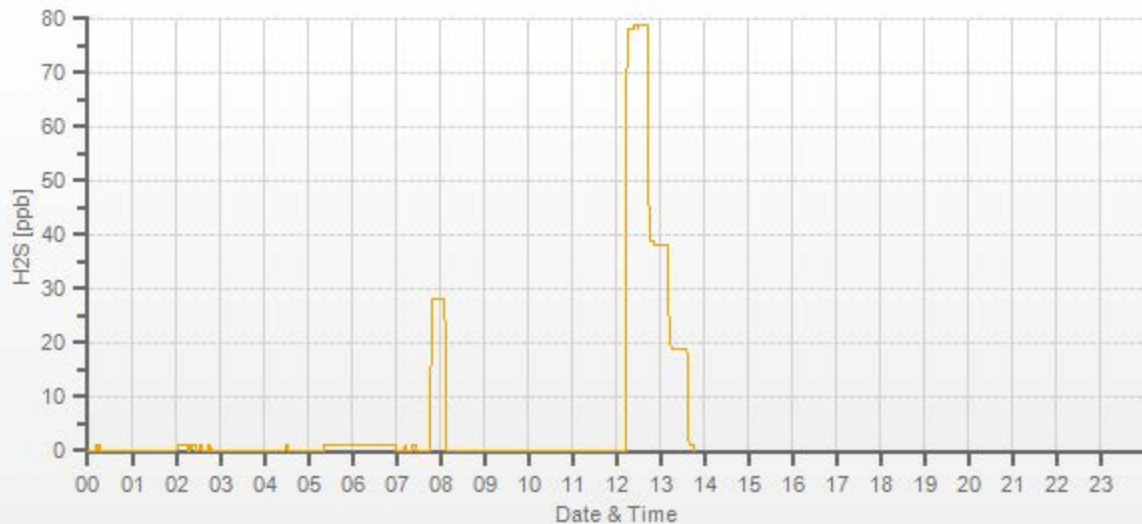
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	7500	7500	0.00	0.1	n/a	0.987	n/a
7442	57.90	7500	77.97	79.1	n/a	0.987	n/a
7472	28.20	7500	37.98	38.2	n/a	0.997	n/a
7486	14.10	7500	18.99	19.2	n/a	0.994	n/a

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.013	0.0%

COMMENTS:

Shutdown prior to removal of BV analyzer.



H2S Analyzer Calibration by Dilution



DATE:	19-May-2023	PREVIOUS CALIBRATION DATE:	n/a
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	946
PURPOSE:	Install/Post-Repair	START TIME (MST):	10:49
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:12

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM17360002	FLOW (mL/min)	938
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	67.5
COEF/SLOPE	n/a	COEF/SLOPE	0.946
Expected (reference) Value	n/a	Expected (reference) Value	23

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0002287	HIGH ID	n/a
CONC (ppm):	10.10	EXPIRY DATE	n/a
CYLINDER (psi):	700	LOW ID	n/a
EXPIRY DATE	14-Sep-2024	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

START TIME:	10:48	SO2 Conc (ppb)	380
END TIME:	11:03	Analyzer Response (ppb)	0.0

CALIBRATION:

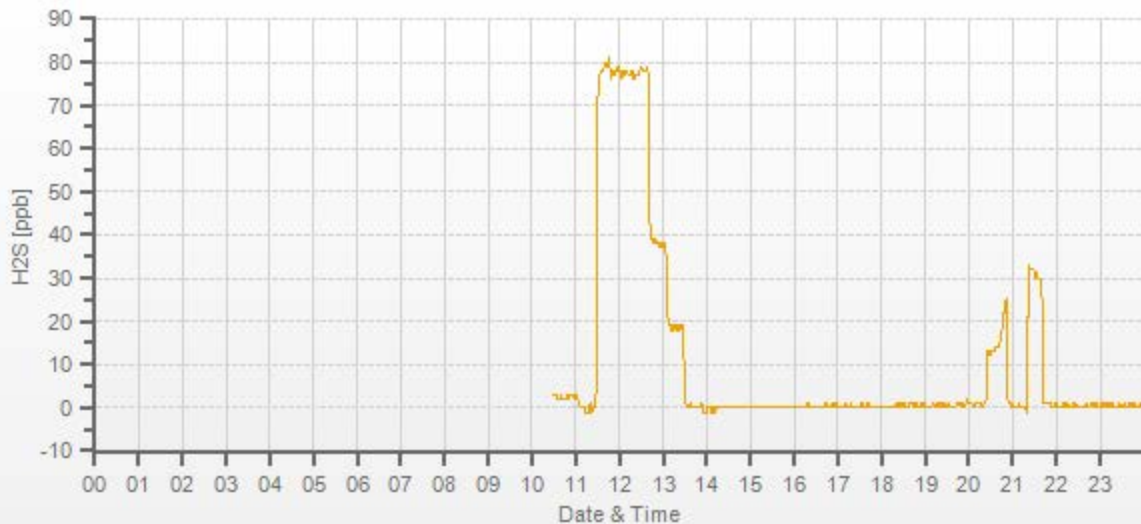
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	7500	7500	0.00	n/a	0	n/a	n/a
7442	57.90	7500	77.97	n/a	78.6	n/a	0.992
7472	28.20	7500	37.98	n/a	37.8	n/a	1.005
7486	14.10	7500	18.99	n/a	19	n/a	0.999

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.008	-0.2%

COMMENTS:

Installation calibration for LICA analyzer following repair.
--



H2S Analyzer Calibration by Dilution



DATE:	30-May-2023	PREVIOUS CALIBRATION DATE:	19-May-2023
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	0.992
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	941
PURPOSE:	Repeat	START TIME (MST):	11:23
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:08

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM17360002	FLOW (mL/min)	930
INITIAL		FINAL	
BKG/OFFSET	67.5	BKG/OFFSET	73.1
COEF/SLOPE	0.946	COEF/SLOPE	0.979
Expected (reference) Value	53	Expected (reference) Value	53.1

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0002287	HIGH ID	n/a
CONC (ppm):	10.10	EXPIRY DATE	n/a
CYLINDER (psi):	600	LOW ID	n/a
EXPIRY DATE	14-Sep-2024	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

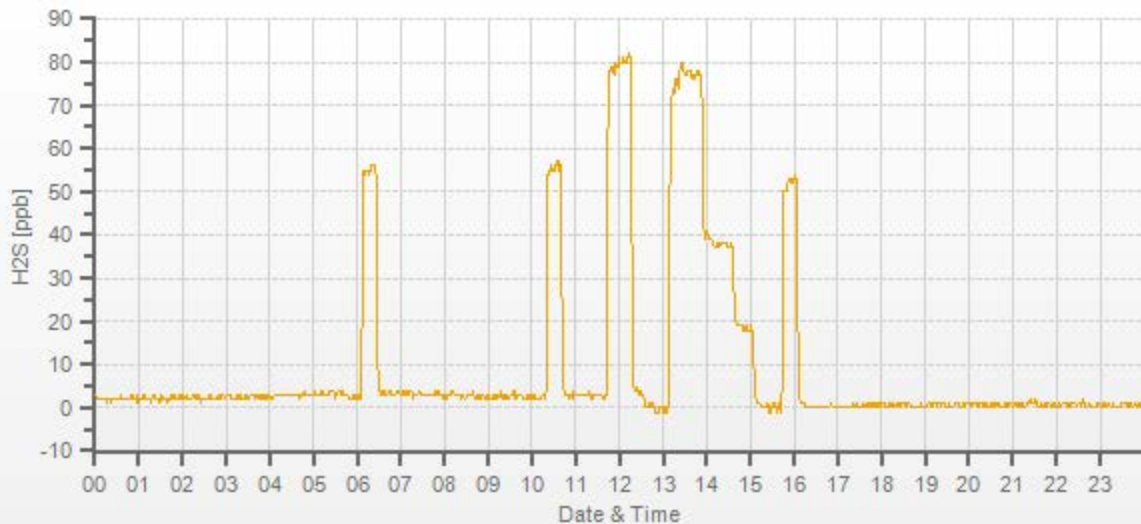
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	 	7500	0.00	3	0	 	
7442	57.90	7500	77.97	80.8	77.7	1.002	1.004
7472	28.20	7500	37.98	n/a	38.2	n/a	0.994
7486	14.10	7500	18.99	n/a	18.4	n/a	1.032

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.999	-0.1%

COMMENTS:

Repeat calibration was completed to correct the zero drift
--



NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	18-May-2023	PREVIOUS CALIBRATION DATE:	21-Apr-2023	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930027	NOx	1.001
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	955	FLOW (mL/min)	770	NO	0.998
PURPOSE:	Routine	START TIME (MST):	11:35	RANGE (ppb)	500	NO2	1.000
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:22	GPT FOR O3?		No	

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 127895	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	NO/NOx (PPM):	51.1 51.6	HIGH EXPIRY:	n/a
ID:	17100415	ID:	132	CYLINDER (psi):	1400	LOW ID:	n/a
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a	EXPIRY DATE	27-Oct-2030	LOW EXPIRY:	n/a

CALIBRATION SETTINGS:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	8.6	8.6	n/a	BKG/OFFSET:	8.5	8.5	n/a
SLOPE/COEF/CE:	1.005	0.84	1.002	SLOPE/COEF/CE:	1.007	0.837	0.993

EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	336.4	1.9	334.5		353.6	2.4	351.2

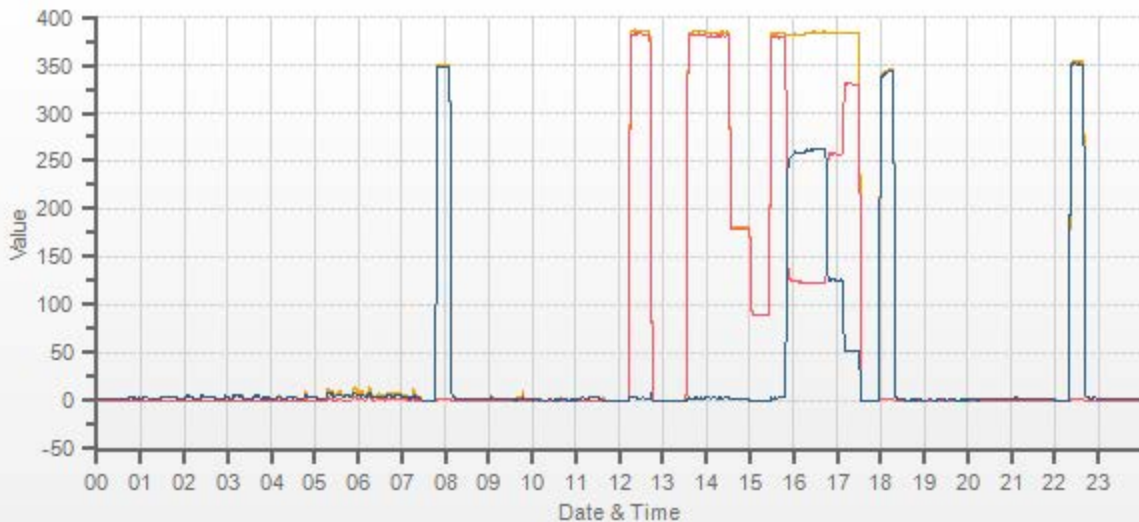
CALIBRATION PARAMETERS:							
POINT	NO TARGET (PPB)		NO2 TARGET (PPB)		NO2 RANGE		O3 POINT
HIGH	380		250		230-265		n/a
MID	180		125		115-150		n/a
LOW	90		45		40-55		n/a
EXTRA 1	n/a		n/a		n/a		n/a

FLOW RATE			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	37.20	5000	0.0	0.0	0.0	-0.1	-0.3	0.1	0.0	0.0	0.0	0.995	0.997	1.000	1.000	1.005	1.004
4961	37.20	4998	380.3	384.1	3.7	382.2	384.8	2.5	380.5	384.2	3.8	0.995	0.997	1.000	1.000	1.005	1.004
4982	17.60	5000	179.9	181.6	1.8	n/a	n/a	n/a	178.9	180.9	2.0	n/a	n/a	1.005	1.004	1.000	1.000
4990	8.80	4999	90.0	90.8	0.9	n/a	n/a	n/a	88.9	89.9	0.9	n/a	n/a	1.012	1.010	1.000	1.000

GPT CALIBRATION:											
Point	CALIBRATOR			INDICATED (ppb)			NO DROP / O3 Conc (ppb)	NO2 GAIN (ppb)	NO2 Corr. FACTOR	CONV. EFFICIENCY	
	GAS	TOTAL	O3 SETPOINT	NO	NOx	NO2					
REFERENCE	37.20	4998	0	378.6	382.8	4.2	255.5	254.4	1.004	99.57%	
AS-FOUND HIGH	37.20	4998	235	123.1	381.7	258.6	255.5	254.4	1.004	99.57%	
ADJUSTED HIGH	37.20	4998	235	122.3	383.8	261.5	256.3	257.3	0.996	100.39%	
MID	37.20	4998	110	257.3	383.1	125.8	121.3	121.6	0.998	100.25%	
LOW	37.20	4998	40	330.3	383.3	53.0	48.3	48.8	0.990	101.04%	
NO2 COEF/CONVERTER EFFICIENCY ADJUSTED									AVERAGE:	100.56%	

LINEAR REGRESSION ANALYSIS:				COMMENTS:
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	1.001	-0.13%	
NOx	1.000	1.001	-0.11%	
NO2	1.000	1.003	0.04%	

Sample inlet filter was changed.



CAL-LICA-202305-01690

Ozone Calibration by Photometer (Varying UV Lamp)



DATE:	19-May-2023	PREVIOUS CALIBRATION DATE:	21-Apr-2023
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	946
PURPOSE:	Routine	START TIME (MST):	14:19
PERFORMED BY:	Alex Yakupov	END TIME (MST):	18:04

ANALYZER:

MAKE/MODEL	Thermo 49i	RANGE	500 ppb
SERIAL #	1002240372	FLOW (mL/min)	1438
INITIAL		FINAL	
BKG/OFFSET	-0.1	BKG/OFFSET	0.1
COEF/SLOPE	1.054	COEF/SLOPE	1.038
Expected (reference) Value	280	Expected (reference) Value	273

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

CALIBRATION PARAMETERS:

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

CALIBRATION:

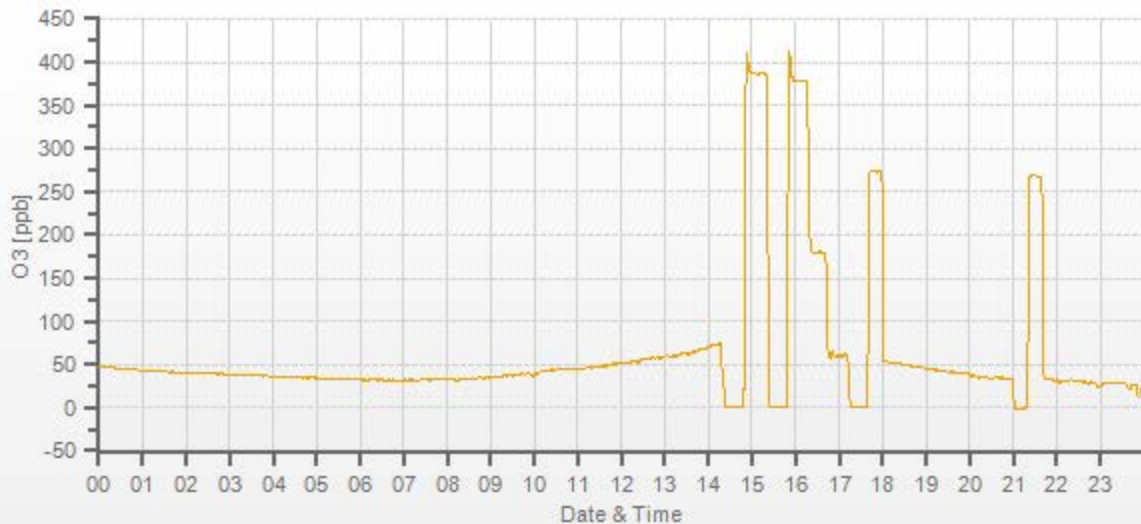
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	XXXXXXXXXX	5000	0.0	0.1	0.0	XXXXXX	XXXXXX
5000	XXXXXXXXXX	5000	378.0	386.5	377.7	0.978	1.001
5000	XXXXXXXXXX	5000	180.0	n/a	179.4	n/a	1.003
5000	XXXXXXXXXX	5000	60.0	n/a	59.8	n/a	1.003

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.999	0.0%

COMMENTS:

Sample inlet filter was changed.



Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	19-May-2023	PREVIOUS CALIBRATION DATE:	22-Apr-2023	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	LICA	TEMPERATURE (°C):	22.0		Thermo 55i	1180320044	1018
LOCATION:	Lac La Biche	BAROMETRIC (mBar):	946	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	10:51	RANGE (ppm):	20	20	40
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:56	PREVIOUS CF:	0.999	0.993	0.997

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	LL 23593	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH ₄ /C ₃ H ₈ (ppm):	603.0 204.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	134	CYLINDER (psi):	1200	LOW ID:	n/a
MFC CALIBRATION DATE:	12-Apr-2023	OXIDIZER ID:	n/a	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

POINT (CH4/NMHC)	HIGH	MID	LOW	CH4 EQUIVILANCE	
TARGET	14	7	3.5	C ₃ H ₈ as CH ₄	561.0
RANGE	12 - 16	6 - 8	2 - 4	THC as CH ₄	1164.0

EXPECTED (REFERENCE) VALUE:

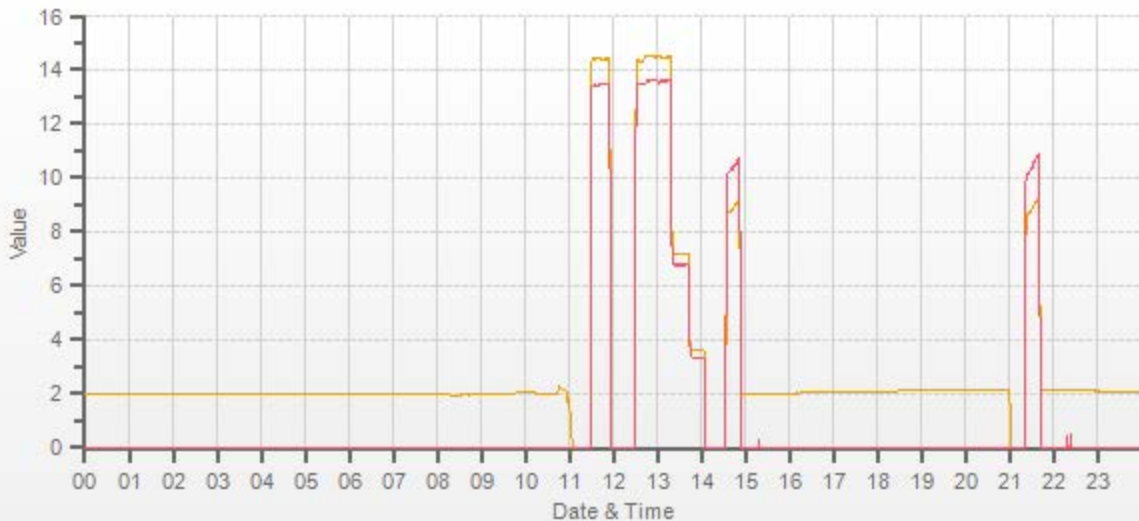
INITIAL	CH4	NMHC	THC	FINAL	CH4	NMHC	THC
	8.85	10.47	19.32		9.09	10.65	19.73

CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC
3100	X	3100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	X	X	X	X	X
3025	74.60	3100	14.51	13.50	28.01	14.40	13.45	27.86	14.48	13.60	28.08	1.008	1.004	1.005	1.002	0.993	0.998
3063	37.30	3100	7.26	6.75	14.01	n/a	n/a	n/a	7.21	6.78	13.99	n/a	n/a	n/a	1.006	0.996	1.001
3081	18.60	3100	3.62	3.37	6.98	n/a	n/a	n/a	3.62	3.35	6.97	n/a	n/a	n/a	0.999	1.005	1.002

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments: Sample inlet filter was changed.	
CH4	1.000	0.997	0.0%		
NMHC	1.000	1.008	-0.1%		
THC	1.000	1.003	-0.1%		
				Use Zero Chrom?	Yes



CAL-LICA-202305-01690

Thermo 5030i SHARP Monitor Monthly Check

Date: May 21, 2023	Performed By/Reviewer: Alex Yakupov Chris Wesson
Company: LICA	Start Time (mst): 12:24
Station Name/Location: Lac La Biche	End Time (mst): 12:59
Previous Audit Date: April 22, 2023	Calibration Purpose: routine monthly
Parameter: PM 2.5	Weather Conditions: Mainly sunny

SHARP 5030i Information and Status:			
Serial Number:	CM 17071016	Filter Tape Counter	341

Reference Standards:				
Air Flow				
	Manometer	Orifice	Pressure:	Temp / RH:
Make:	DeltaCal	DeltaCal	Fisher Scientific	Vaisala HMP76B
Model:	DC1	DC1	FB 61291	HMP 76B
Serial Number:	177246	177246	130168457	T1640130
Calibration Expiration Date:	September 7, 2023	September 7, 2023	March 20, 2024	June 14, 2023

Ambient Temperature (°C)				Range	Action
				< ± 2°C	OK
Reference	SHARP	Difference		2-3 °C	Recalibrate
#1	21.80	20.9	0.9	> 3°C	Fail

Ambient Relative Humidity (%RH)				Range	Action
				< ± 2 %RH	OK
As Found:					
Reference	SHARP	Difference		2-5 %RH	Recalibrate
#1	43.50	42.0	1.5	> 5 %RH	Fail

Barometric Pressure (mmHg)				Range	Action
				< ± 10 mmHg	OK
As Found:					
Reference	SHARP	Difference		10-12 mmHg	Recalibrate
#1	708.0	708.0	0.0	> 12 mmHg	Fail

Flow Audit (L/min)						Range	Action
						< ± 4%	OK
As Found:							
Reference	SHARP			% Difference		4-5%	Recalibrate
#1	16.66	16.67			0.06%	>5%	Fail
#2	16.66	16.67					
#3	16.66	16.67					
Average	16.66	16.67					

Leak Check (L/min)						
Without Leak Check Adapter			With leak Check Adapter			
	Reference	SHARP	Difference	Reference	SHARP	Difference
#1	16.66	16.67	-0.01	16.53	16.67	-0.14
						<i>Leak Limit: 0.80 L/min</i>
LEAK RATE:						-0.13

Meteorological System Checklist



Date:	May 21, 2023		
Technician:	Alex Yakupov		
Station:	Lac La Biche		
Unit:	Make:	Model:	Serial #:
Temperature Sensor:	Rotronic	HC2A-S3	20357518
Barometric Pressure Sensor:	MetOne	92	Y23360
Relative Humidity Sensor:	Rotronic	HC2A-S3	20357518
Anemometer:	RM Young	05305VK	56778
AMBIENT TEMPERATURE SENSOR CHECK			
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	Vaisala / HM70 / #T1640130/ Jun 14, 2023		
Reference Temperature (°C):	20.0		
Station - Ambient Temperature (°C):	18.2		
Temperature Difference (°C):	1.8		
BAROMETRIC PRESSURE SENSOR CHECK			
Reference Barometer ID:	Fisher Scientific / FB 61291 / #130168457/ Mar 20, 2024		
Reference Pressure - Units/Reading:	millibar	944	
Station Pressure - Units/Reading:	millibar	947.5	
Pressure Tolerance +/- 15% of error:	802 - 1086	-0.37%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Reference Hygrometer ID:	Vaisala / HM70 / #T1640130/ Jun 14, 2023		
Reference Hygrometer % RH- Reading:	44.50		
Station Hygrometer % RH- Reading:	52.80		
RH Tolerance +/- 15% of difference:	37.83 - 51.18	-18.7%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	April 22, 2023	Previous check date:	April 22, 2023
Wind Speed Observed (kph):	10-20	Wind Direction Observed:	SE
Wind speed on Data Logger (kph):	12.8	Wind Direction on Data Logger:	SE
	Annual audit: May 9, 2022	Wind Direction Pass/Fail?:	Pass
Comments			
Station (Trailer) temperature vs Reference gauge: 20.3 vs 20.4 - passed.			



Meteorological Sensor Audit/Calibration

Location Information

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

Performed By: Alex Yakupov
 Reviewed By: Chris Wesson
 Start/End Time (mst): 17:47/18:45
 Weather Conditions: A few clouds

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1
Sensor Model:	05305VK	Velocity Unit Output Range:	0-200
Serial #:	56778	Direction Voltage Output Range:	0-1
Previous Cal/Audit Date:	n/a	Direction Unit Output Range:	0-360

Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 id# CA 4744 expires August 6, 2022

Wind Speed Audit Data ****+/- 2% of the average correction factor is the limit****

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.1	0.1	-
1000	18.4	18.4	18.4	1.002
2000	36.9	36.9	36.9	0.999
3000	55.3	55.3	55.3	1.000
4000	73.7	73.8	73.8	0.999
5000	92.2	92.2	92.2	0.999
6000	110.6	110.6	110.6	1.000
7000	129.0	129.1	129.1	0.999
8000	147.4	147.5	147.5	1.000
9000	165.9	165.9	166.0	1.000
10000	184.3	184.3	184.4	1.000
The audit meets AMD requirements.			Average Correction Factor=	1.000

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

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	1	356	1.0	-1.0	1.0
30	330	30	331	-0.4	-1.4	0.9
60	300	61	301	-1.1	-1.2	1.2
90	270	92	272	-2.1	-1.7	1.9
120	240	121	240	-1.4	-0.2	0.8
150	210	152	211	-2.1	-1.3	1.7
180	180	182	181	-2.0	-1.3	1.7
210	150	212	153	-2.1	-2.5	2.3
240	120	241	122	-1.4	-2.3	1.9
270	90	271	92	-1.4	-2.1	1.7
300	60	300	61	-0.1	-1.2	0.7
330	30	330	31	-0.2	-1.2	0.7
355	0	356	1	-1.0	0.6	0.8
The audit meets AMD requirements.				Average Absolute Degrees Difference=		1.3

Comments:

No issues.

End of Report

Parameter	Method & Procedure
SULPHUR DIOXIDE (SO₂)	Bureau Veritas EMS SOP-00209: Ambient Sulphur Monitoring
HYDROGEN SULPHIDE (H₂S)	Bureau Veritas EMS SOP-00209: Ambient Sulphur Monitoring
TOTAL HYDROCARBONS (THC), METHANE (CH₄), NON-METHANE(NMHC)	Bureau Veritas EMS SOP-00001: Methane, Non-Methane Hydrocarbon Analyzer Monitoring
OXIDES OF NITROGEN (NO_x), NITRIC OXIDE (NO) & NITROGEN DIOXIDE (NO₂)	Bureau Veritas EMS SOP-00213: Ambient NO/NO₂/NO_x Monitoring
OZONE (O₃)	Bureau Veritas EMS SOP-00212: Ambient O₃ Monitoring
PARTICULATE MATTER < 2.5 MICRONS (PM_{2.5})	Bureau Veritas EMS SOP-00010: Thermo Model 5030 SHARP Monitor & EMS SOP-00015: Teledyne API PM Monitor Model T640
WIND SPEED (WS) & WIND DIRECTION (WD)	Bureau Veritas EMS SOP-00013: RM Young Wind Monitor Calibration
RELATIVE HUMIDITY (RH)	Operation Manual
BAROMETRIC PRESSURE (BP)	Operation Manual
AMBIENT TEMPERATURE (AmbTPX)	Operation Manual
STATION TEMPERATURE (StnTPX)	Operation Manual
PRECIPITATION	Bureau Veritas EMS SOP-00242: Precipitation Collector Installation / Maintenance