Lakeland Industry & Community Association

MARCH 2019

Monthly Ambient Air Quality Monitoring Report

LICA-201903

Operation and Maintenance:

Maxxam Analytics

Data Validation and Report:

Maxxam Analytics

May 2, 2019

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Lakeland Industry & Community Association
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May 2, 2019

Alberta Environment and Parks (AEP)
11th Floor, Oxbridge Place
9820 106 Street
Edmonton, AB, T5K 2J6
Emailed to: Air.Reporting@gov.ab.ca

RE: LICA – March 2019 Monthly Ambient Air Quality Monitoring Report

Enclosed is the March 2019 Monthly Ambient Air Quality Monitoring Report for the continuous ambient air quality monitoring stations of the Lakeland Industry & Community Association (LICA) regional air quality monitoring network.

The representative of the Person Responsible for this monitoring program is

LICA Airshed
Michael Bisaga, Technical Program Manager
5107 50 Street
Bonnyville, AB, T9N 2J7
Phone #: 780-226-7068
E-mail: monitoring@lica.ca

This report has been prepared by Maxxam Analytics, and has been reviewed and submitted by Michael Bisaga & Lily Lin of the LICA Airshed

NETWORK STATION SUMMARY

Listing of Continuous Monitoring Stations and Integrated Sampling Stations

Station Name		Cold Lake South	Maskwa	St. Lina	Bonnyville East
Station ID		1174	1248	1250	1608
Coordinates		54.41402, -110.23316	54.604935, -110.452637	54.215961, -111.503304	54.252747, -110.690611
Continuous Monitoring Parameter	SO2	√	√	√	√
	TRS	√			
	H2S		√	√	√
	THC	√	√	√	√
	CH4	√	√	√	√
	NMHC	√	√	√	√
	NOX	√	√	√	√
	NO	√	√	√	√
	NO2	√	√	√	√
	O3	√		√	√
	PM2.5	√		√	√
	TPX	√	√	√	√
	RH	√	√	√	√
	BP		√	√	
	PRECIPTATION		√	√	
	WS	√	√	√	√
	WD	√	√	√	√
	STDWD	√	√	√	√
Integrated Sampling	VOCs	√			
	PAHs	√			
	Partisol	√			
	Passive	√			
	NMHC Canister				√

List of Contractors who performed the air monitoring activities

Sampling Program	Monitoring Activities Conducted By	Sample Analysis Conducted By	Data/Report Prepared By	Electronic Submission Conducted By
Continuous Monitoring Station	Maxxam Analytics	Maxxam Analytics	Maxxam Analytics	Maxxam Analytics
Intermittent (VOCs/PAHs)	Maxxam Analytics	InnoTech Alberta Inc	InnoTech Alberta Inc	Maxxam Analytics
Partisol	Maxxam Analytics	InnoTech Alberta Inc	InnoTech Alberta Inc	Maxxam Analytics
Passive	Maxxam Analytics	Maxxam Analytics	Maxxam Analytics	Maxxam Analytics
NMHC Canister	Maxxam Analytics	InnoTech Alberta Inc	InnoTech Alberta Inc	Not Applicable

Monitoring Notes during the Month of March 2019

Cold Lake South:

- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- All parameters met the 90% operational uptime requirement, with an exception of THC/CH4/NMHC (66.0%). AEP Ref #: 350887.
- **THC/CH4/NMHC:**
    - In response to frequent poor sample injections, the resident AEP-supplied Thermo 55i analyzer, s/n: 1180030034, was removed on February 28. The LICA-owned Thermo 55i analyzer (s/n: 1236656107) was installed and successfully calibrated on March 1. Eight hours of downtime were recorded due to this event.
    - Between March 14 and March 19, the replacement analyzer exhibited frequent faulty sample injections which prompted several site visits. Additional quality checks and maintenance activities were performed, however, the issue remained. On March 26, the LICA-owned Thermo 55i analyzer, s/n: 1236656107, was removed and a Maxxam- supplied Thermo 55i analyzer, s/n: 1236656188, was installed. A successful installation calibration was completed on March 27. A total of 245 hours of downtime were incurred due to these events.
- The VOCs, PAHs and Partisol samples were processed for analysis by InnoTech and the results will be provided in the 2019, Q1 Integrated Report.
- The passive samples were processed for analysis by Maxxam Analytics and the results will be provided in the 2019, Q1 Integrated Report.

Maskwa:

- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- All parameters met the 90% operational uptime requirement.
- **H2S:** Six hours of downtime were recorded during the month due to additional quality checks and proactive measures performed to assure daily internal span check response.
- **THC/CH4/NMHC:** The analyzer failed the daily zero-span check scheduled for hour 01:00, on March 12, as the span gas was depleted. The span gas bottle was replaced the same day and a successful zero-span check was completed afterwards. One hour of downtime was recorded due to this event.
- **NOx/NO/NO2:** One hour of downtime was recorded on March 20 due to an additional quality check performed to assess a biased high drift in the daily internal span check response.

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) where applicable, with an exception of O3. Four 1-hour exceedances for O3 were recorded this month.

Date	Time	Parameter	Avg. Period	Reading (ppb)	AEP Ref #
Mar-20	15:00	O3	1-hr	77.7	350886
Mar-20	16:00	O3	1-hr	79.1	350886
Mar-20	17:00	O3	1-hr	79.4	350886
Mar-20	18:00	O3	1-hr	77.3	350886

- **H2S:** Six hours of downtime were recorded this month due to additional quality checks and proactive measures performed to assure daily internal span response.
- **NOx/NO/NO2:** Four hours of downtime were recorded between March 23 and March 25 due to additional quality checks performed to assess a biased low drift in daily internal span check response.

Bonnyville East 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) where applicable, with exceptions of H2S and O3. Nine 1-hr and one 24-hr exceedances for H2S, and two 1-hr exceedances for O3 were recorded this month.

Date	Time	Parameter	Avg. Period	Reading (ppb)	AEP Ref #
Mar-20	5:00	H2S	1-hr	12	350818
Mar-20	6:00	H2S	1-hr	13	350818
Mar-20	16:00	O3	1-hr	76.8	350818
Mar-20	17:00	O3	1-hr	77.3	350818
Mar-20	23:00	H2S	1-hr	17	350818
Mar-21	1:00	H2S	1-hr	21	350884
Mar-21	7:00	H2S	1-hr	16	350884
Mar-22	20:00	H2S	1-hr	12	351024
Mar-22	23:00	H2S	1-hr	28	351024
Mar-23	0:00	H2S	1-hr	38	351025
Mar-23	1:00	H2S	1-hr	9	351025
Mar-23	-	H2S	24-hr	4.0	351025

- H2S: Six hours of downtime were recorded during the month due to additional quality checks and corrective actions performed to address drifts in daily internal zero and span check responses.
- NMHC Canister System: Three canister events were recorded this month. The samples were processed for analysis by InnoTech and the results will be provided in the 2019, Q1 Integrated Report.

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

At the Maskwa station, nearby trees exceed the height allowed under section 2.3 of the wind speed and wind direction siting criteria in Chapter 3 of the AMD. This non-conformance was documented in the updated station site documents. Further actions are being considered including siting the wind sensor so that it meets AMD Chapter 3 siting requirements, or obtaining written authorization from "The Director" to deviate from AMD Siting requirements.

At the Cold Lake South station, the height of the existing wind sensor tower is shorter than the AMD requirements listed in section 2.3 of the wind speed and wind direction siting criteria in Chapter 3 of the AMD. This non-conformance was documented in the updated station site documents. Further actions are being considered including siting the wind sensor so that it meets AMD Chapter 3 siting requirements, or obtaining written authorization from "The Director" to deviate from AMD Siting requirements.

Certification

As the LICA Environmental Program Manager and Data & Reporting Specialist, we 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. We also verify all air data that are required by the AMD to be electronically submitted to AEP and Alberta's Ambient Air Quality Data Warehouse have been submitted by the time of this report submission, with the exception of electronic submission for the results of intermittent samples, Partisol samples and passive samples. Electronic submission for the intermittent sample, Partisol sample and passive sample results will be performed during the preparation of the 2019 Q1 integrated sampling report.

Should you have any questions, please don't hesitate to contact us.

Respectfully,

Michael Bisaga
Technical Program Manager
Lakeland Industry & Community Association
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Lily Lin
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MARCH 1 - 31, 2019
MONTHLY AMBIENT AIR QUALITY MONITORING REPORT
Project #: 2833-2019-03-23-C
LICA-201903

Prepared for:

Lakeland Industry & Community Association

Mike Bisaga

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Monitoring Station

Cold Lake South Continuous Monitoring Station

Date of Report Issuance: April 29, 2019

Report Preparation By:

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Lakeland Industry & Community Association

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Bonnyville, Alberta T9N 2J7

Attention: Mike Bisaga

Date: April 29, 2019

Subject: MONTHLY AMBIENT AIR QUALITY MONITORING REPORT for MARCH 1 - 31, 2019

In March 2019, Maxxam Analytics was contracted to manage the ambient air quality monitoring and maintenance activities at the Cold Lake South Continuous Monitoring Station near Cold Lake, Alberta. The monitoring program provides measurements of ambient air pollutants and meteorological data to satisfy the reporting requirements of the Alberta airshed.

Network Parameters for Continuous Monitoring:

This monthly report, where applicable, was prepared in accordance with Chapter 9 of the Air Monitoring Directive (AMD, 2016). The report summarizes the continuous monitoring results for pollutant and meteorological parameters and presents the hourly statistics, graphs and rose charts for the month. Calibration records are provided in a separate PDF document in order to comply with AMD requirements Chapter 9, 13.1.7, RC 13-R. The station is equipped with analyzers to measure SO_2, TRS, THC, CH_4, NMHC, NOx, NO, NO_2, $PM_{2.5}$ and O_3. The meteorological sensors and equipment capture data for WS, WD, RH, AmbTPX and STDWD.

Exceedance & Performance Reporting:

Non-Conformance: The operational time of 66.6% for THC/CH_4/NMHC did not meet the equipment uptime specifications as per AMD, Chapter 9, 4.0, RC 4-C. This contravention was reported to AEP under reference number: 350887. For all the remaining parameters, the data capture rates for all continuous ambient air analyzers, meteorological systems and data acquisition systems were above the 90% requirement, as per the Alberta Air Monitoring Directive (AMD, Chapter 6, DQ 4-C, 2016).

All measured ambient air concentrations were below the Alberta Ambient Air Quality Objectives and Guidelines (AAAQO, January 2019). Comparisons of these concentrations to the corresponding AAAQOs were done in accordance with Chapter 9, 15.3.2, RC 15-P. Accordingly, the averaging specifications and data completeness criteria, as defined in the Alberta Ambient Air Quality Objective Calculation Guidelines, were applied (Chapter 9, Appendix A, AMD 2016).

Specific to the content and purpose of this report, there were no instances where the requirements of the AMD (2016) were contravened.

Monthly Monitoring Overview:

In relation to the previous month, there were no changes made to the scope or management of the ambient air monitoring program. The evaluation of data collected in the month of March did not reveal any errors or omissions that would require resubmission of air data to AEP's airdata warehouse.

During this monitoring period, there were no scheduled audits that Maxxam Analytics was privy to.

THC/CH_4/NMHC: Operational time for the monitoring period was 66.0%, equivalent to 253 hours of downtime. The AMD 90% data completeness criteria (Chapter 6, DQ 4-C) was not met this month.

- In response to frequent poor sample injections, the resident AEP-supplied analyzer was removed on February 28. LICA's Thermo 55i analyzer (s/n: 1236656107) was installed and successfully calibrated on March 1. Eight hours of downtime were recorded in the March monitoring period due to this event.
- Between March 14 and March 19, the replacement analyzer exhibited frequent faulty sample injections which prompted several site visits. Additional quality checks and maintenance activities were performed, however, the issue was not resolved. On March 19, the channels were placed offline while arrangements were made for a replacement analyzer. LICA's Thermo 55i analyzer (s/n: 1236656107) was removed on March 26 and a Maxxam- supplied analyzer, Thermo 55i analyzer (s/n: 1236656188), was installed. A successful installation calibration was completed on March 27. A total of 245 hours of downtime were incurred due to these events.

Should you have any questions concerning the results or if we can be of further assistance, please contact your Maxxam representative indicated below.

Reviewed by:

Wunmi Adekanmbi, M.Sc., EPt, PMP

Project Team Lead, Customer Service, Air Services

403-219-3677

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. Certification of submitted information is specific to the contents of this report and is not intended to represent the onus of the Person Responsible, as outlined in Chapter 9, RC 12-E.

TABLE OF CONTENTS

List of Acronyms

AAAQO	Alberta Ambient Air Quality Objectives and Guidelines Summary
AEP	Alberta Environment and Parks
AMBTPX	Ambient Temperature
AMD	Air Monitoring Directive
CH_4	Methane
DAS	Data acquisition system
hr	Hour
hrs	Hours
IZS	Internal zero-span
kph	Kilometers per hour
NO	Nitric Oxide
NO_2	Nitrogen dioxide
NOx	Total oxides of nitrogen
O_3	Ozone
NMHC	Non-Methane Hydrocarbon
$PM_{2.5}$	Particulate matter less than or equal to 2.5 microns in diameter
ppb	Parts per billion
ppm	Parts per million
QA	Quality Assurance
QC	Quality Control
RH	Relative Humidity
SHARP	Synchronized Hybrid Ambient Real-time Particulate Monitor
SOP	Standard Operating Procedure
SO_2	Sulphur Dioxide
STDWD	Standard Deviation Wind Direction
THC	Total hydrocarbons
TRS	Total Reduced Sulphur
$\mu g/m^3$	Microgram per cubic meter
WS	Wind Speed
WD	Wind Direction
°C	Degrees Celsius

AAAQO Exceedance Summary Report

SO_2 1-Hour Exceedances
Measured concentrations of sulphur dioxide were below the 1-hour AAAQO of 172 ppb.

SO_2 24-Hour Exceedances
Measured concentrations of sulphur dioxide were below the 24-hour AAAQO of 48.0 ppb.

NO_2 1-Hour Exceedances
Measured concentrations of nitrogen dioxide were below the 1-hour AAAQO of 159 ppb.

$PM_{2.5}$ 1-Hour Exceedances
Measured concentrations of fine particulate matter were below the 1-hour AAAQG of 80 µg/m³.

$PM_{2.5}$ 24-Hour Exceedances
Measured concentrations of fine particulate matter were below the 24-hour AAAQO of 29 µg/m³.

O_3 1-Hour Exceedances
Measured concentrations of ozone were below the 1-hour AAAQO of 76 ppb.

In accordance with EPEA and the Substance Release Regulation
In accordance with A Guide to Release Reporting and the Alberta Ambient Air Quality Objectives and Guidelines Summary

MONTHLY CONTINUOUS DATA SUMMARY

Lakeland Industry & Community Association Cold Lake South Continuous Monitoring Station						MAXIMUM VALUES							OPERATIONAL TIME (%)
						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDANCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (kph)	WIND DIRECTION (sector)	READING	DAY	
	1-hr	24-hr	1-hr	24-hr									
SO_2 (ppb)	172	48	0	0	0	4	20	11	9.2	SW	1	1	100.0
TRS (ppb)	-	-	-	-	0	1	5	14	10.6	N	0	1	100.0
THC (ppm)	-	-	-	-	2.07	3.08	30	6	1.3	W	2.20	11	66.0
CH_4 (ppm)	-	-	-	-	2.07	3.08	30	6	1.3	W	2.20	11	66.0
NMHC (ppm)	-	-	-	-	0.00	0.01	9	21	1.0	W	0.00	2	66.0
NO_2 (ppb)	159	-	0	-	5	28	17	6	0.5	E	10	20	100.0
NO (ppb)	-	-	-	-	1	38	20	6	0.7	SE	4	20	100.0
NOx (ppb)	-	-	-	-	6	64	20	6	0.7	SE	14	20	100.0
O_3 (ppb)	76	-	0	-	37.9	75.6	20	17	8.2	SW	49.3	11	100.0
$PM_{2.5}$ ($\mu g/m^3$)	80	29	0	0	4	22	26	2	6.0	WSW	9	26	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	63	98	26	22	1.5	W	90	26	100.0
AMBIENT TEMPERATURE (°C)	-	-	-	-	-3.8	14.5	22	14	7.3	SW	5.7	21	100.0
VECTOR WS (kph)	-	-	-	-	2.6	20.5	30	12	-	NNW	10.8	2	100.0
VECTOR WD (sec)	-	-	-	-	267 (W)	-	-	-	-	-	-	-	100.0

OPERATIONAL SUMMARY

Parameter	Equipment	Method & Procedure	Operational Notes
SULPHUR DIOXIDE (SO_2)	**Thermo 43i TLE Pulsed Fluorescence Analyzer**	**Maxxam AIR SOP-00209: Ambient Sulphur Monitoring**	• Operational time was 100% and there were no performance issues identified. • The routine monthly calibration was performed on March 14, between the hours of 09:00 and 13:00.
TOTAL REDUCED SULPHUR (TRS)	**Thermo 450i UV Fluorescence Analyzer**	**Maxxam AIR SOP-00209: Ambient Sulphur Monitoring**	• Operational time was 100% and there were no performance issues identified. • The routine monthly calibration was performed on March 14, between the hours of 09:00 and 13:00.
TOTAL HYDROCARBONS (THC), METHANE (CH_4) & NON-METHANE HYDROCARBONS (NMHC)	**Thermo 55i FID Analyzer**	**Maxxam AIR SOP-00001: Methane, Non-Methane Hydrocarbon Analyzer Monitoring**	• Operational time for the monitoring period was 66.0%, equivalent to 253 hours of downtime. The AMD 90% data completeness criteria (Chapter 6, DQ 4-C) was not met this month. • In response to frequent poor sample injections, the resident AEP-supplied analyzer was removed on February 28. LICA's Thermo 55i analyzer (s/n: 1236656107) was installed and column conditioning was run overnight. A successful installation calibration was completed on March 1. Eight hours of downtime were recorded in the March monitoring period due to this event. • For unknown reasons, an anomalous NMHC spike was recorded on March 02, at 01:19. Impacted THC/CH_4/NMHC minute data were therefore excluded and the corresponding THCmax/CH4max/NMHCmax hourly data invalidated. • On March 14, the replacement analyzer began exhibiting frequent faulty sample injections, prompting an immediate site visit. On March 15, a shut-down calibration was attempted but was aborted due to the frequency of poor injections. The actuator was realigned and the zero air pressure was adjusted. A successful post-repair calibration was completed afterwards. Data was invalidated back to the point of failed performance, determined as hour, 19:00 on March 14. Twenty-three hours of downtime were incurred as a result.

OPERATIONAL SUMMARY

Parameter	Equipment	Method & Procedure	Operational Notes
TOTAL HYDROCARBONS (THC), METHANE (CH_4) & NON-METHANE HYDROCARBONS (NMHC)	Thermo 55i FID Analyzer	Maxxam AIR SOP-00001: Methane, Non-Methane Hydrocarbon Analyzer Monitoring	• Poor injections were again observed on March 17, prompting another site visit. As with the prior poor injection event, a shut-down calibration was not possible. The actuator was realigned on March 18, followed by the completion of a successful post-repair calibration. However, the analyzer began recording poor injection samples again at hour 08:00 on March 19. The channels were therefore placed offline while AEP was engaged in deliberations about the performance and reliability of Thermo 55i analyzers. AEP could not provide a suitable replacement analyzer at the time. On March 26, LICA's Thermo 55i analyzer (s/n: 1236656107) was removed and a Maxxam-supplied analyzer, Thermo 55i analyzer (s/n: 1236656188), was installed. Column conditioning was run overnight and a successful installation calibration was completed on March 27. A total of 222 hours of downtime were attributed to these events. • Minute data for the month was reviewed. CH_4 minute concentrations recorded lower than 1.80 ppm, along with the corresponding THC and NMHC values, were excluded and the corresponding hourly averages were re-calculated. The following hourly averages were re-calculated: March 17, hour 12:00; and March 19, hours 06:00 - 07:00.
OXIDES OF NITROGEN (NOx), NITRIC OXIDE (NO) & NITROGEN DIOXIDE (NO_2)	Thermo 42i Chemiluminescent Analyzer	Maxxam AIR SOP-00213: Ambient $NO/NO_2/NOx$ Monitoring	• Operational time was 100% and there were no performance issues identified. • The routine monthly calibration was performed on March 14, between the hours of 09:00 and 16:00.
OZONE (O_3)	Thermo 49i Photometric Analyzer	Maxxam AIR SOP-00212: Ambient O_3 Monitoring	• Operational time was 100% and there were no performance issues identified. • The routine monthly calibration was performed on March 15, between the hours of 11:00 and 16:00.
PARTICULATE MATTER < 2.5 MICRONS ($PM_{2.5}$)	Thermo SHARP 5030 Unit	Maxxam AIR SOP-00014: Measurement of Particulate Concentration Using the THERMO SHARP	• Operational time was 100% and there were no performance issues identified. • The routine quarterly audit was performed on March 8, between the hours of 10:00 and 12:00.
WIND SPEED (WS), WIND DIRECTION (WD) & STANDARD DEVIATION WIND DIRECTION (STDWD)	Met One Unit	Maxxam AIR SOP-00013: RM Young Wind Monitor Calibration	• Operational time was 100% and there were no performance issues identified. • For undetermined reasons, anomalous WS spikes were recorded on March 15, at 16:07 – 16:10. Impacted WS minute data were therefore excluded and the corresponding WSmax hourly data invalidated. • Wind data is reported as vector wind speed and vector wind direction. Wind direction is defined as the direction from which the wind is blowing from and is measured in degrees from true north.
RELATIVE HUMIDITY (RH)	Rotronic Hygroclip Unit	Operations Manual	• Operational time was 100% and there were no performance issues identified.
AMBIENT TEMPERATURE (AmbTPX)	Rotronic Hygroclip Unit	Operations Manual	• Operational time was 100% and there were no performance issues identified.
Datalogger	EnvistaUltimate Unit	Operations Manual	• There were no performance issues identified.

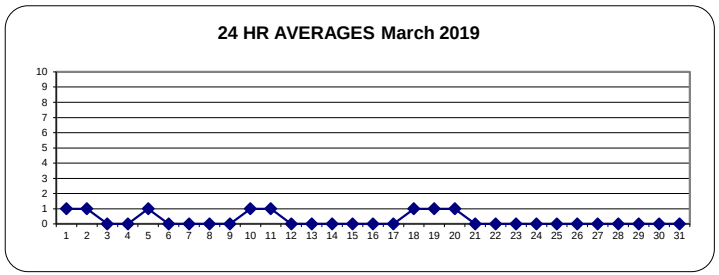
SUMMARY TABLES, GRAPHS AND ROSES

SULPHUR DIOXIDE Hourly Averages (SO_2 ppb)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	0	0	0	0	0	0	0	0	1	1	0	0	1	1	1	S	1	2	1	1	1	1	1	1	0	2	1	24
2	1	0	0	0	0	0	0	0	0	0	0	1	2	1	S	1	1	1	2	2	1	2	1	0	0	2	1	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	1	0	0	0	0	0	1	0	24
4	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	0	0	0	0	0	0	0	1	0	24
5	0	0	0	0	0	0	0	0	0	1	3	S	2	2	2	2	2	1	1	0	0	0	0	0	0	3	1	24
6	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
7	0	0	0	0	0	0	0	0	0	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	24
8	1	1	0	0	0	1	1	1	S	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
9	0	0	0	0	0	0	0	S	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	1	0	24
10	0	0	0	0	0	0	S	0	0	0	1	1	1	1	2	2	1	2	1	1	1	1	1	1	0	2	1	24
11	1	1	1	0	0	S	0	0	1	1	1	2	2	1	1	1	1	1	0	0	0	0	0	0	0	2	1	24
12	0	1	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	24
13	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	1	0	2	0	24
14	1	0	S	0	0	0	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	1	0	24
15	0	S	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
16	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	24
17	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	S	0	0	1	0	24
18	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	1	S	2	1	0	2	1	24
19	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	1	24
20	0	0	0	0	0	0	0	0	0	1	1	4	4	3	2	2	1	1	1	S	0	0	0	0	0	4	1	24
21	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	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	S	0	0	0	0	0	0	0	1	0	24
23	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	24
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	0	0	0	0	0	1	0	24
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	0	1	0	0	0	0	0	0	0	1	0	24
27	0	0	0	0	0	0	1	1	1	1	0	0	S	0	0	0	0	1	1	0	0	0	0	0	0	1	0	24
28	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
29	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	24
30	0	0	0	0	0	0	0	0	0	S	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	1	0	24
31	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	1	0	24
HOURLY MAX	1	1	1	1	1	1	1	1	1	1	3	4	4	3	2	2	2	2	2	2	1	2	2	1				
HOURLY AVG	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	0	0	0	0	0				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

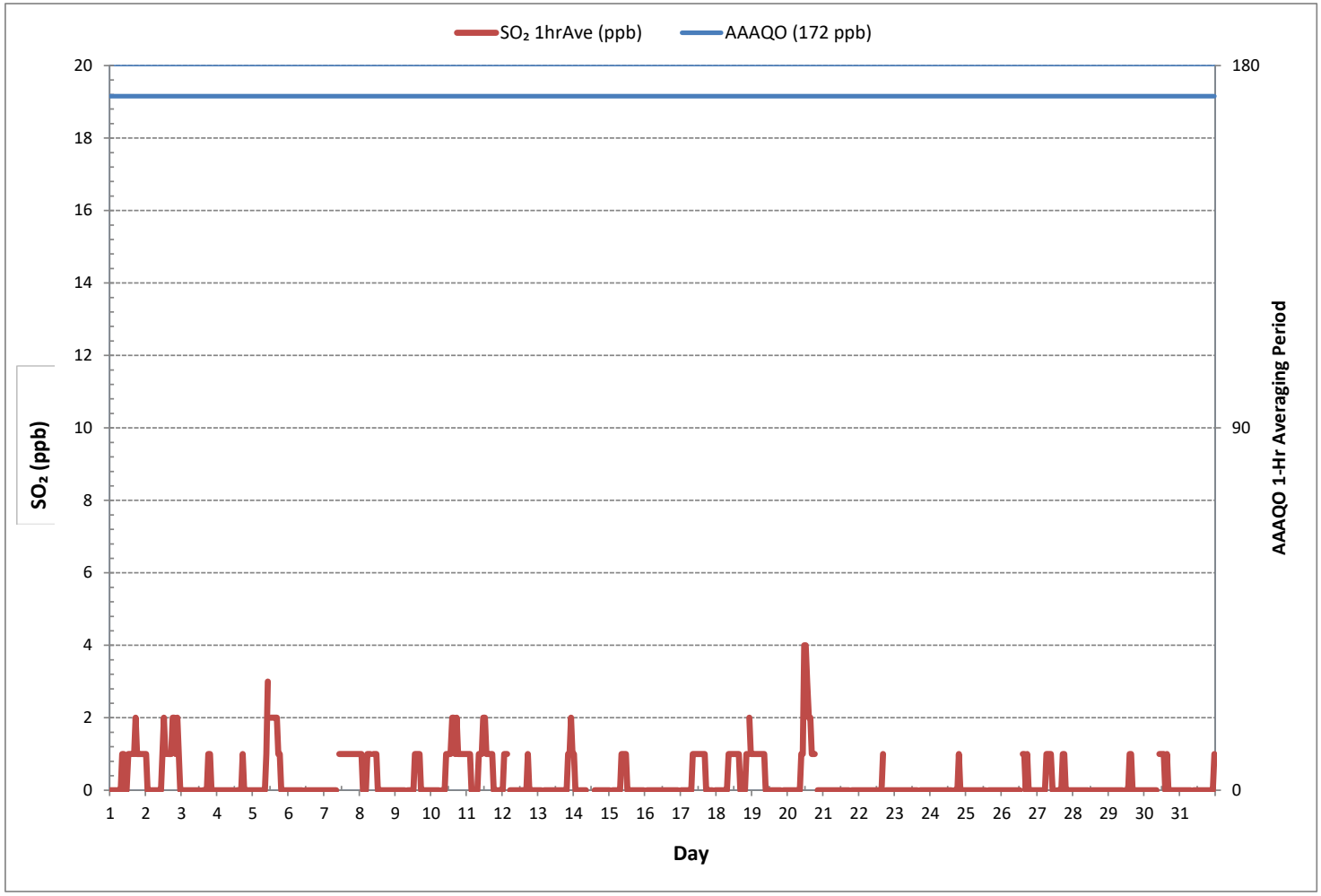


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 ppb | 24-HR 48 ppb

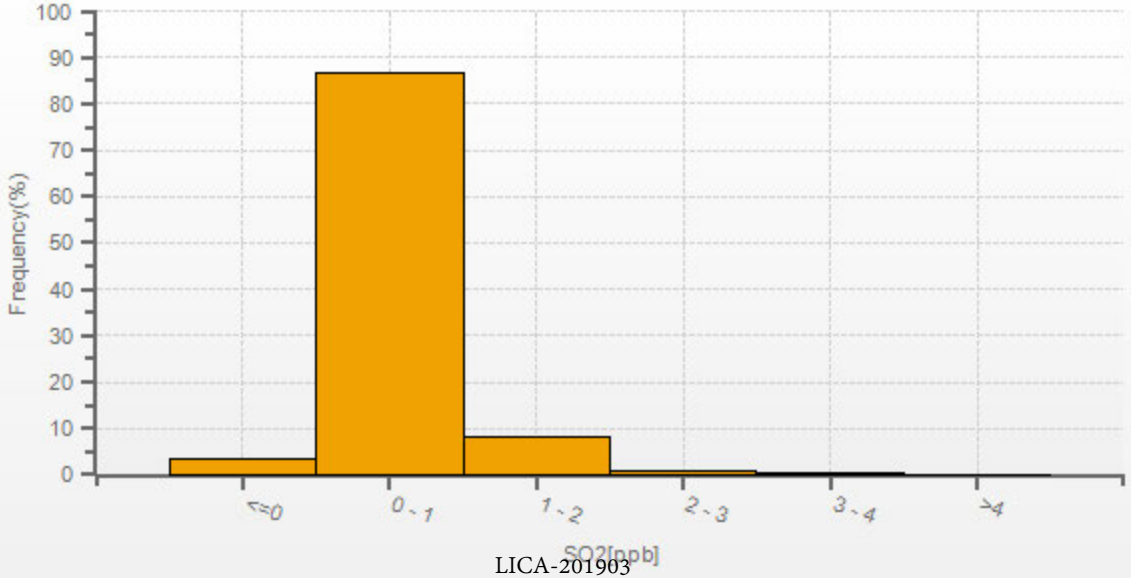
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:	0					
NUMBER OF 24-HR EXCEEDANCES:	0					
NUMBER OF NON-ZERO READINGS:	161					
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	0	ON DAY	1
MAXIMUM 1-HR AVERAGE:	4	ppb	@ HOUR	11	ON DAY	20
MAXIMUM 24-HR AVERAGE:	1	ppb			ON DAY	1
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:		744	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	1		MONTHLY AVERAGE:		0	ppb

SULPHUR DIOXIDE Hourly Averages (SO_2 ppb)

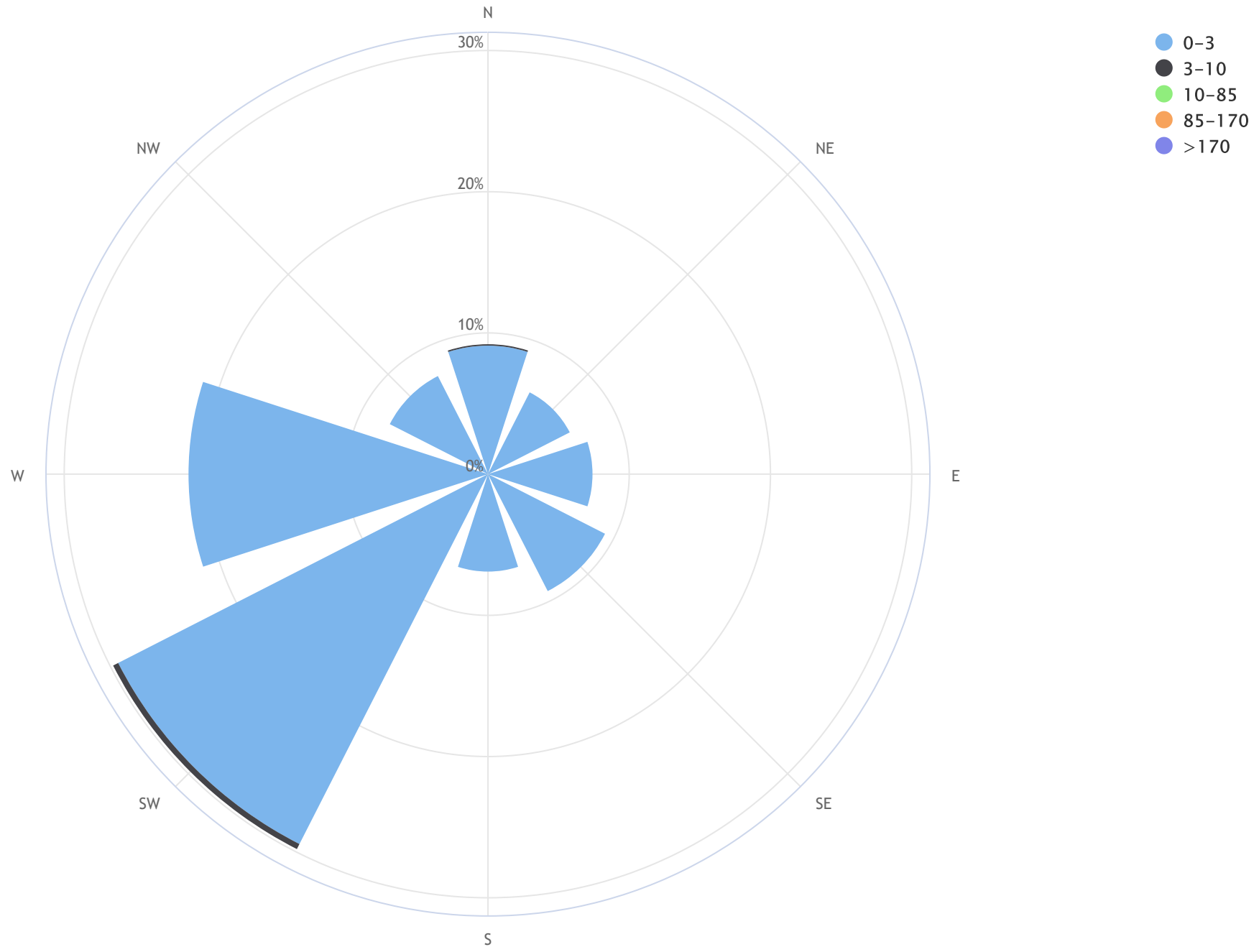


SO2[ppb] Histogram: LICA COLD LAKE SOUTH Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Cold Lake South Continuous Monitoring Station_SO_2 (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 0.0, CALM % = 1.8%



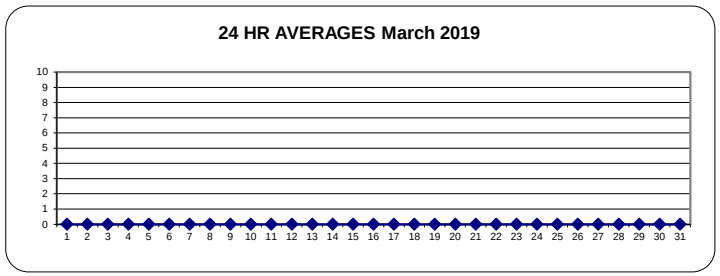
Direction	0-3	3-10	10-85	85-170	>170	TOTAL
N	9.1	0.1	0.0	0.0	0.0	9.2
NE	6.5	0.0	0.0	0.0	0.0	6.5
E	7.4	0.0	0.0	0.0	0.0	7.4
SE	9.3	0.0	0.0	0.0	0.0	9.3
S	6.9	0.0	0.0	0.0	0.0	6.9
SW	29.4	0.4	0.0	0.0	0.0	29.8
W	21.2	0.0	0.0	0.0	0.0	21.2
NW	7.8	0.0	0.0	0.0	0.0	7.8
Summary	97.6	0.6	0.0	0.0	0.0	98.2
CALM	1.8	0.0	0.0	0.0	0.0	1.8

TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	24
4	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
5	0	0	0	0	0	0	0	0	0	0	0	S	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	24
6	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
7	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	24
8	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	24
9	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	24
10	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	24
11	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	24
12	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	24
13	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	24
14	0	0	S	0	0	0	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	24
15	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	24
16	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	S	0	1	0	24
17	1	1	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	1	0	24
18	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	24
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	S	1	1	0	0	1	0	24
20	1	0	0	1	1	1	1	1	1	0	0	0	1	0	0	0	0	0	0	S	0	0	0	0	0	1	0	24
21	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	24
22	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	24
23	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	24
24	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	24
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	24
27	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
28	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
29	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	24
30	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	24
31	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	24
HOURLY MAX	1	1	0	1	1	1	1	1	1	0	0	0	1	0	1	0	0	1	1	1	0	1	1	0				
HOURLY AVG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

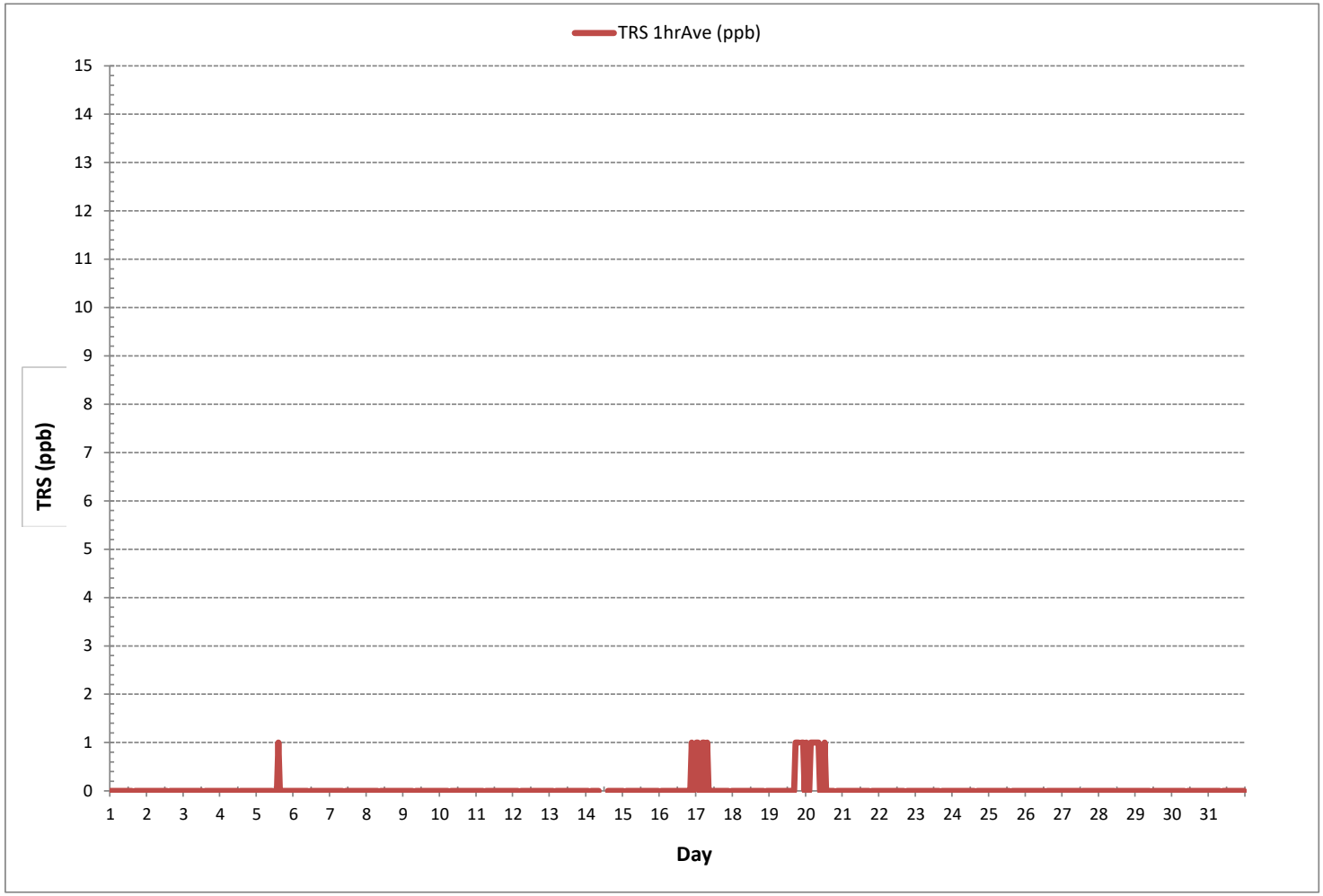


MONTHLY SUMMARY

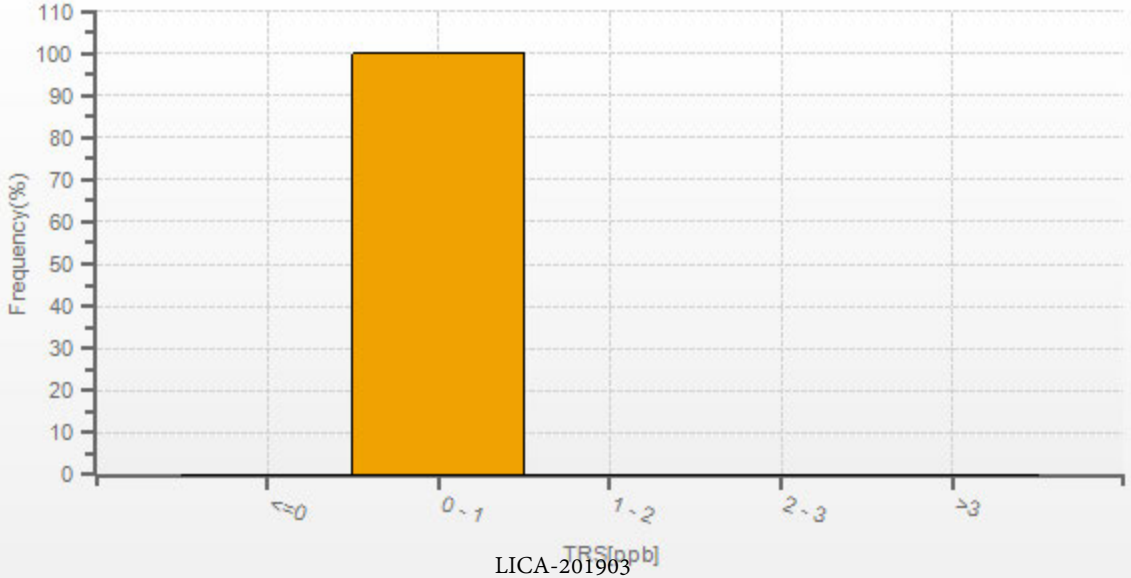
NUMBER OF NON-ZERO READINGS:		20				
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	0	ON DAY	1
MAXIMUM 1-HR AVERAGE:	1	ppb	@ HOUR	14	ON DAY	5
MAXIMUM 24-HR AVERAGE:	0	ppb			ON DAY	1

IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	744	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0		MONTHLY AVERAGE:	0	ppb

TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

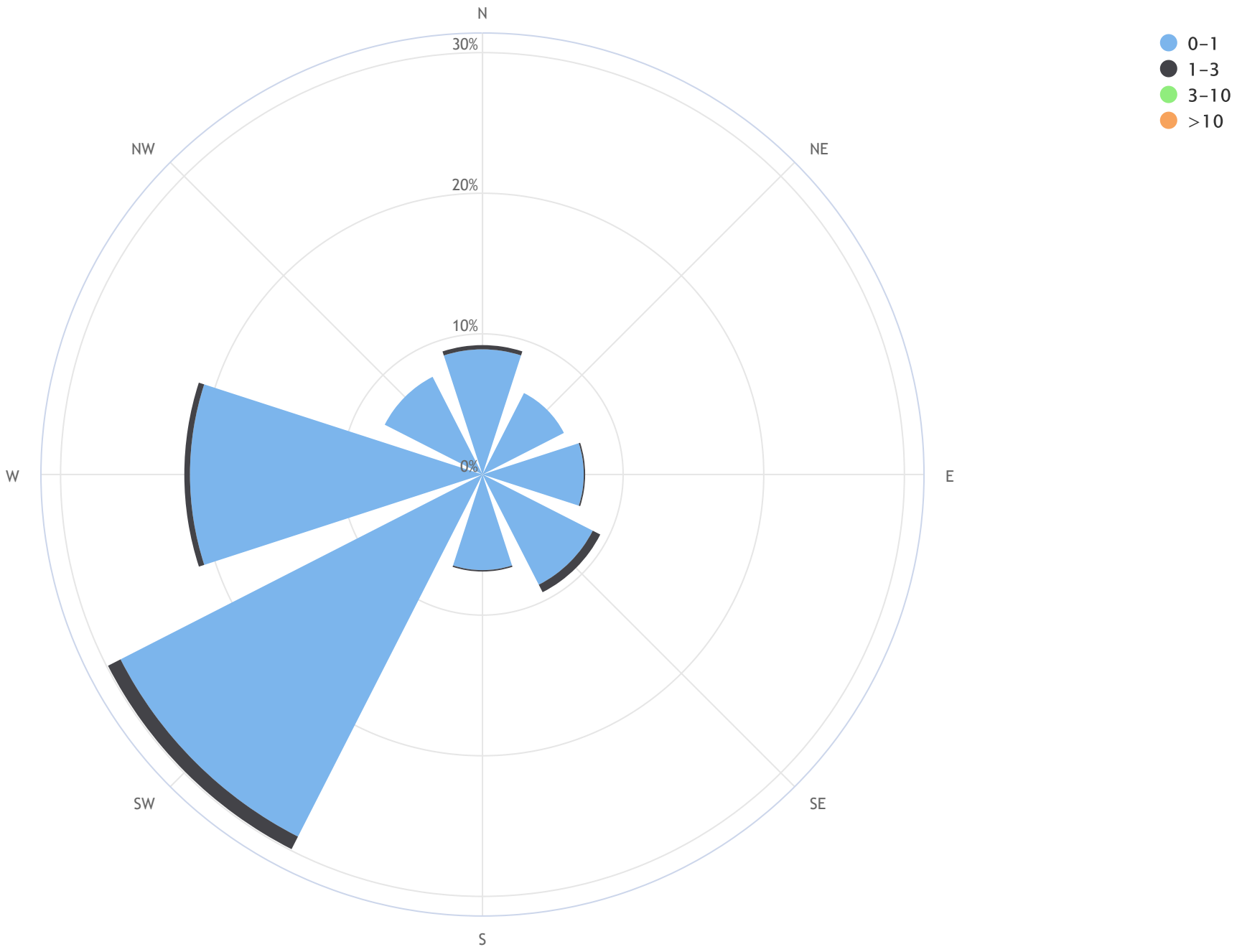


TRS[ppb] Histogram: LICA COLD LAKE SOUTH Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Cold Lake South Continuous Monitoring Station_TRS (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 0.2, CALM % = 1.8%



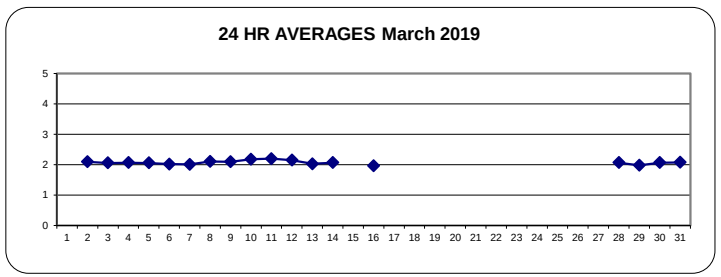
Direction	0-1	1-3	3-10	>10	TOTAL
N	8.9	0.3	0.0	0.0	9.2
NE	6.5	0.0	0.0	0.0	6.5
E	7.2	0.1	0.0	0.0	7.4
SE	8.8	0.6	0.0	0.0	9.3
S	6.8	0.1	0.0	0.0	6.9
SW	28.9	1.0	0.0	0.0	29.8
W	20.8	0.4	0.0	0.0	21.2
NW	7.8	0.0	0.0	0.0	7.8
Summary	95.6	2.5	0.0	0.0	98.2
CALM	1.6	0.3	0.0	0.0	1.8

TOTAL HYDROCARBONS Hourly Averages (THC ppm)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	1.99	2.01	2.02	2.01	S	2.02	2.02	2.01	2.02	2.06	2.07	2.15	2.08	1.99	2.15	-	16
2	2.10	2.15	2.20	2.23	2.32	2.28	2.28	2.18	2.14	2.12	2.07	2.03	2.01	2.01	S	2.01	2.01	2.01	2.01	2.03	2.02	2.02	2.03	2.03	2.01	2.32	2.10	24
3	2.01	2.03	2.03	2.03	2.12	2.11	2.07	2.08	2.06	2.07	2.06	2.05	2.03	S	2.04	2.03	2.05	2.04	2.04	2.03	2.03	2.04	2.17	2.15	2.01	2.17	2.06	24
4	2.15	2.18	2.19	2.14	2.12	2.09	2.08	2.12	2.07	2.09	2.05	2.00	S	2.00	1.97	1.97	1.97	1.97	2.03	2.05	2.08	2.09	2.09	2.10	1.97	2.19	2.07	24
5	2.11	2.13	2.15	2.16	2.18	2.23	2.28	2.29	2.17	1.99	1.98	S	1.97	1.97	1.99	1.98	1.97	1.97	1.98	1.98	1.97	1.97	1.98	1.97	1.97	2.29	2.06	24
6	1.97	1.97	1.97	1.97	1.97	1.98	1.99	1.97	1.97	1.97	S	1.97	1.97	2.00	2.01	2.02	2.04	2.05	2.04	2.06	2.10	2.20	2.09	2.07	1.97	2.20	2.02	24
7	2.07	2.06	2.09	2.07	2.08	2.10	2.03	2.03	2.02	S	2.01	2.00	2.00	1.98	1.97	1.97	1.97	1.98	1.97	1.97	1.97	1.97	1.97	2.00	1.97	2.10	2.01	24
8	2.02	2.03	2.24	2.38	2.39	2.31	2.29	2.26	S	2.27	2.24	2.04	1.99	1.95	1.95	1.94	1.94	1.94	1.95	1.99	2.00	2.04	2.09	2.19	1.94	2.39	2.11	24
9	2.29	2.36	2.39	2.40	2.37	2.22	2.16	S	2.00	1.96	1.96	1.95	1.95	2.01	2.05	2.02	1.99	1.95	1.98	1.98	2.02	2.10	2.09	2.11	1.95	2.40	2.10	24
10	2.19	2.17	2.11	2.14	2.25	2.26	S	2.27	2.23	2.19	2.18	2.17	2.20	2.12	2.14	2.16	2.20	2.24	2.13	2.13	2.12	2.14	2.15	2.17	2.11	2.27	2.18	24
11	2.19	2.18	2.17	2.19	2.23	S	2.25	2.29	2.30	2.32	2.26	2.20	2.11	2.07	2.01	2.08	2.15	2.20	2.15	2.15	2.18	2.26	2.27	2.35	2.01	2.35	**2.20**	24
12	2.36	2.43	2.42	2.50	S	2.50	2.58	2.58	2.40	2.25	2.14	2.00	1.93	1.92	1.92	1.91	1.91	1.92	1.92	1.94	1.94	1.95	1.96	1.98	1.91	2.58	2.15	24
13	2.00	1.98	2.03	S	2.03	2.16	2.21	2.16	2.11	2.09	2.10	2.06	2.04	1.99	1.97	1.95	1.97	1.97	1.96	1.96	1.98	1.98	2.00	2.03	1.95	2.21	2.03	24
14	2.03	2.06	S	2.19	2.13	2.16	2.19	2.24	2.27	2.19	2.15	2.04	2.00	1.95	1.94	1.93	1.94	1.94	1.96	X	X	X	X	X	1.93	2.27	2.07	19
15	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	C1	C1	C1	C1	1.98	2.00	2.08	2.07	2.08	2.08	1.98	2.08	-	6
16	S	2.06	2.02	2.00	1.98	1.98	1.98	1.96	1.98	1.98	1.96	1.96	1.94	1.91	1.89	1.88	1.87	**1.86**	1.87	1.94	2.05	2.06	2.11	S	**1.86**	2.11	1.97	24
17	2.04	2.20	2.16	2.15	2.11	2.15	2.23	2.12	2.11	2.09	1.93	1.89	1.87	X	X	X	X	X	X	X	X	X	X	X	1.87	2.23	-	13
18	X	X	X	X	X	X	X	X	X	X	C1	C1	C1	C1	2.02	2.02	2.03	2.02	2.03	2.06	2.07	S	2.05	2.01	2.01	2.07	-	10
19	2.02	2.04	2.05	2.05	2.04	2.06	2.05	2.06	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.02	2.06	-	8
20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	X	X	X	X	-	-	-	0
26	X	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
27	Y	Y	Y	Y	Y	Y	Y	Y	Y	C1	C1	C1	C1	1.92	1.92	1.91	1.91	1.92	1.94	1.95	1.98	2.01	2.05	2.07	1.91	2.07	-	11
28	2.09	2.13	2.15	2.40	2.30	2.32	2.24	2.22	2.21	2.20	2.04	S	1.95	1.94	1.94	1.93	1.93	1.93	1.95	1.97	1.97	1.99	1.95	1.94	1.93	2.40	2.07	24
29	1.94	1.96	1.98	2.02	2.02	1.99	1.99	1.95	1.94	1.94	S	1.94	1.94	1.95	1.95	1.95	1.96	1.98	1.97	2.02	2.08	2.04	2.03	2.06	1.94	2.08	1.98	24
30	2.08	2.09	2.11	2.13	2.17	2.29	**3.08**	2.45	2.07	S	1.97	1.93	1.93	1.93	1.93	1.93	1.94	1.93	1.94	1.94	1.94	1.95	1.95	1.95	1.93	**3.08**	2.07	24
31	2.00	2.04	2.48	2.35	2.48	2.40	2.30	2.15	S	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.95	1.96	1.98	2.02	1.99	2.00	2.04	2.05	1.94	2.48	2.08	24
HOURLY MAX	2.36	2.43	2.48	2.50	2.48	2.50	3.08	2.58	2.40	2.32	2.26	2.20	2.20	2.12	2.14	2.16	2.20	2.24	2.15	2.15	2.18	2.26	2.27	2.35				
HOURLY AVG	2.09	2.11	2.15	2.18	2.17	2.19	2.23	2.18	2.12	2.10	2.06	2.01	1.99	1.98	1.98	1.98	1.99	1.99	1.99	2.01	2.03	2.05	2.06	2.07				

STATUS FLAG CODES

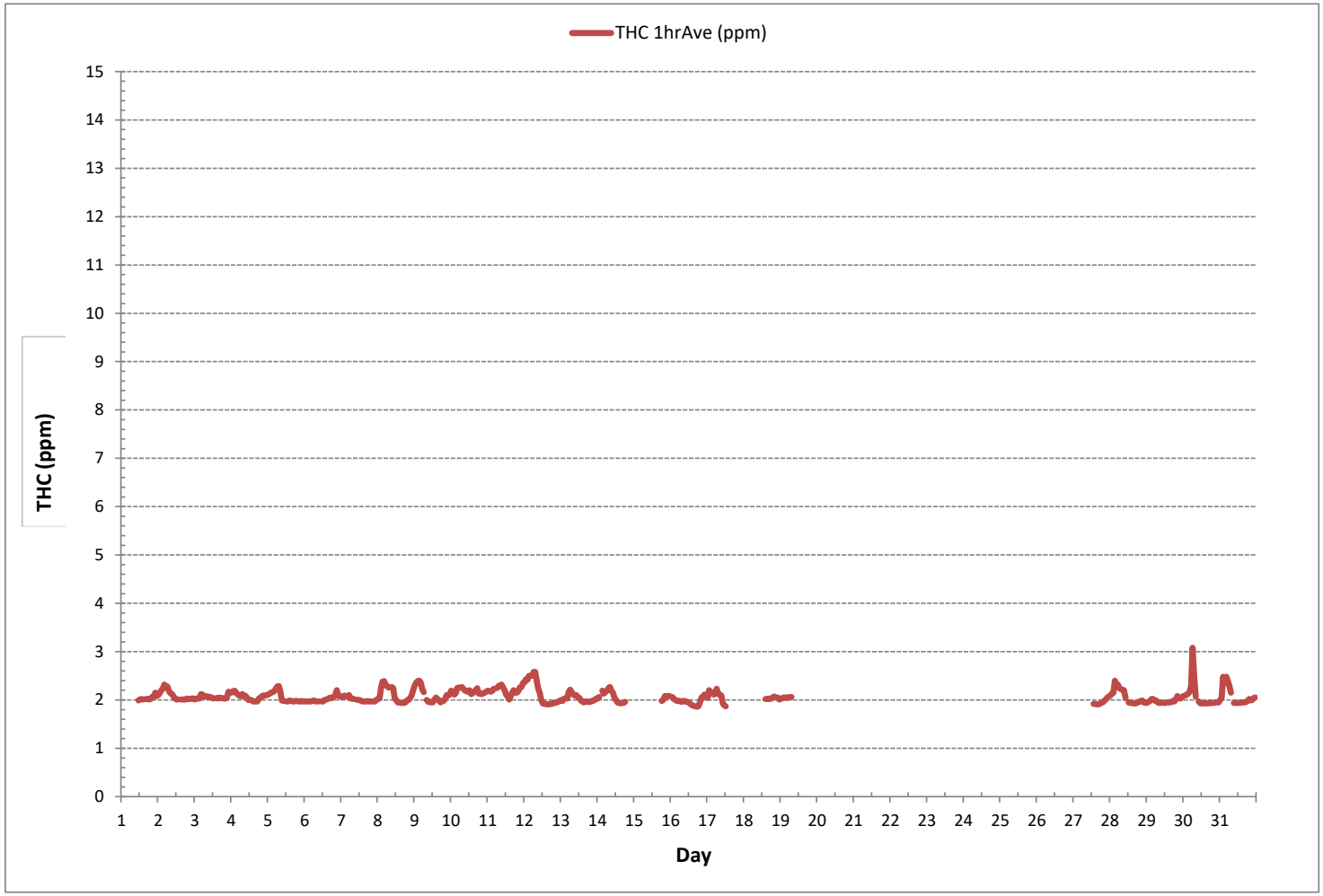
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



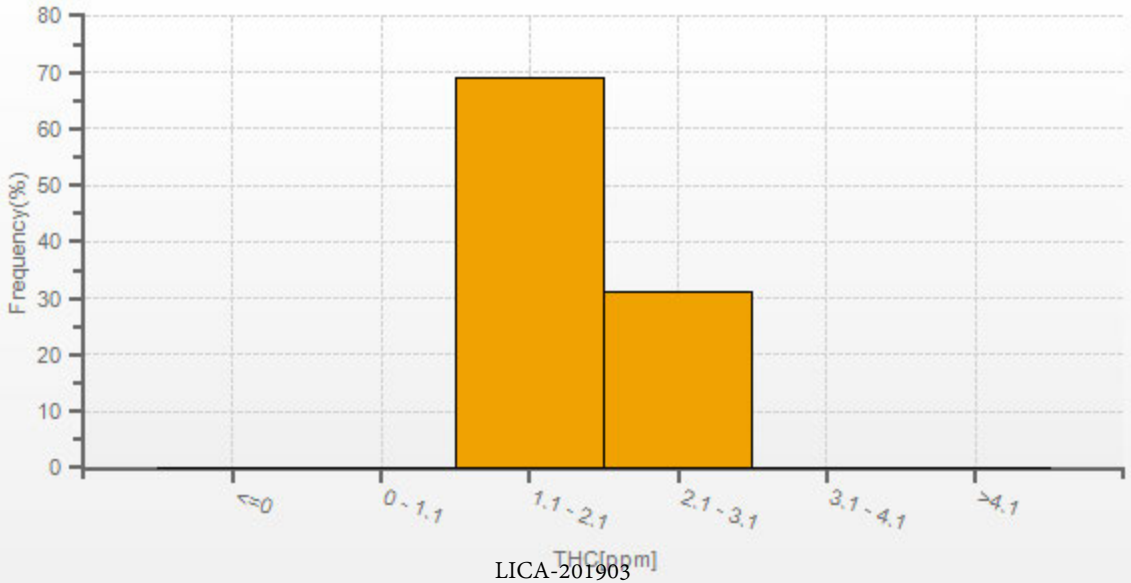
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			467				
MINIMUM 1-HR AVERAGE	1.86	ppm	@ HOUR	17	ON DAY	16	
MAXIMUM 1-HR AVERAGE:	3.08	ppm	@ HOUR	6	ON DAY	30	
MAXIMUM 24-HR AVERAGE:	2.20	ppm			ON DAY	11	
IZS CALIBRATION TIME:	21	hrs	OPERATIONAL TIME:			491	hrs
MONTHLY CALIBRATION TIME:	3	hrs	AMD OPERATION UPTIME:			66.0	%
STANDARD DEVIATION:	0.14		MONTHLY AVERAGE:			2.07	ppm

TOTAL HYDROCARBONS Hourly Averages (THC ppm)

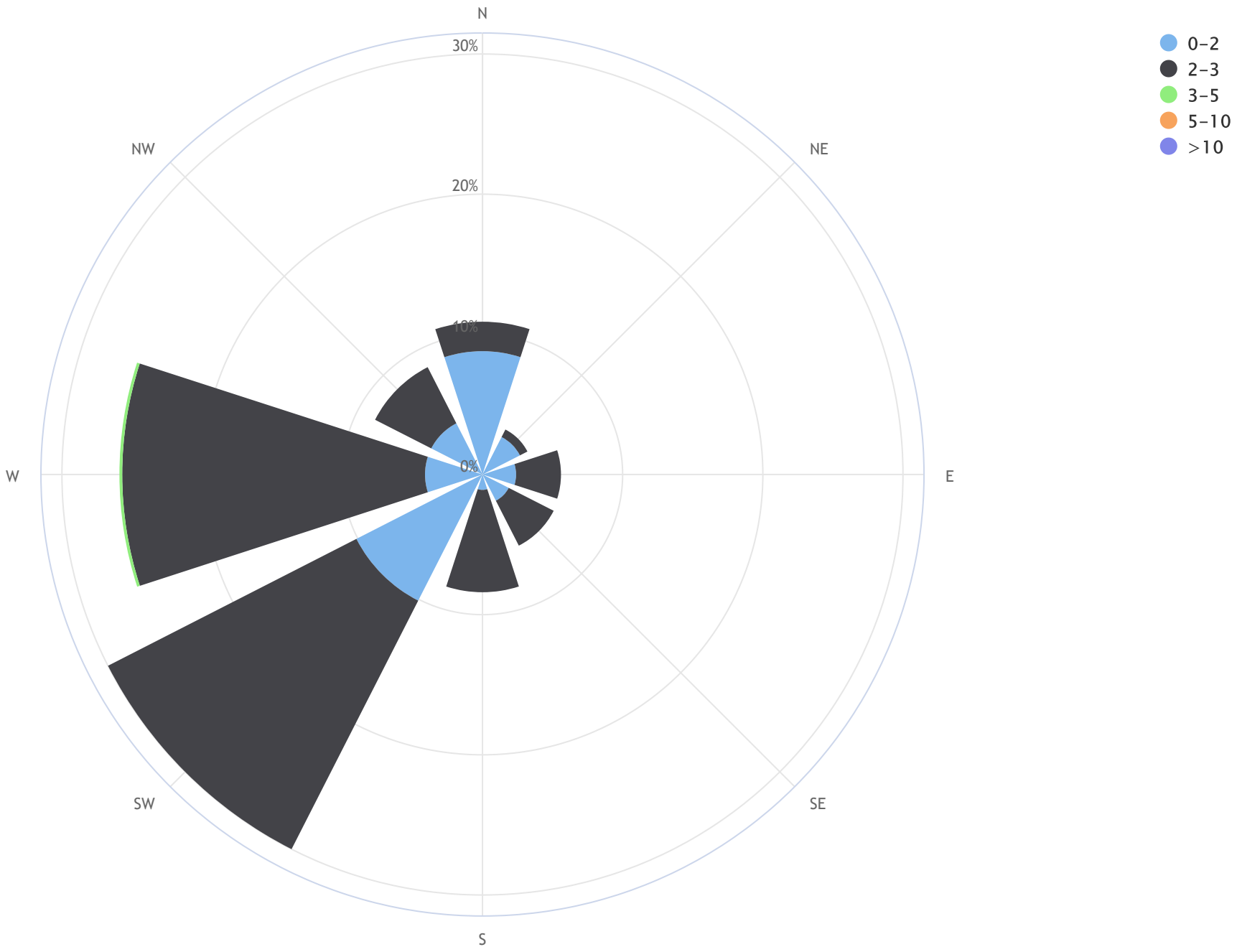


THC[ppm] Histogram: LICA COLD LAKE SOUTH Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Cold Lake South Continuous Monitoring Station_THC (ppm)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 2.2, CALM % = 1.3%



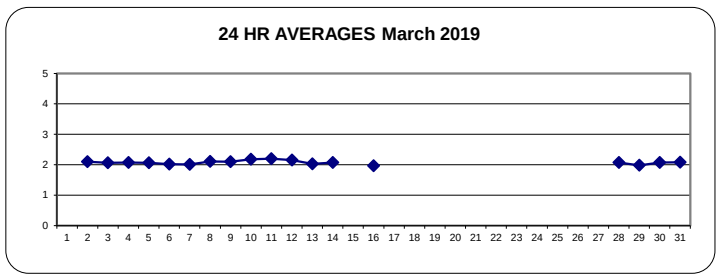
Direction	0-2	2-3	3-5	5-10	>10	TOTAL
N	8.8	2.1	0.0	0.0	0.0	10.9
NE	3.0	0.6	0.0	0.0	0.0	3.6
E	2.4	3.2	0.0	0.0	0.0	5.6
SE	2.1	3.6	0.0	0.0	0.0	5.8
S	1.1	7.3	0.0	0.0	0.0	8.4
SW	10.1	19.9	0.0	0.0	0.0	30.0
W	4.1	21.6	0.2	0.0	0.0	25.9
NW	4.1	4.5	0.0	0.0	0.0	8.6
Summary	35.6	63.0	0.2	0.0	0.0	98.7
CALM	0.0	1.3	0.0	0.0	0.0	1.3

METHANE Hourly Averages (CH_4 ppm)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	1.99	2.01	2.02	2.01	S	2.02	2.02	2.01	2.02	2.06	2.07	2.15	2.08	1.99	2.15	-	16
2	2.10	2.15	2.20	2.23	2.32	2.28	2.28	2.18	2.14	2.12	2.07	2.03	2.01	2.01	S	2.01	2.01	2.01	2.01	2.03	2.02	2.02	2.03	2.03	2.01	2.32	2.10	24
3	2.01	2.03	2.03	2.03	2.12	2.11	2.07	2.08	2.06	2.07	2.06	2.05	2.03	S	2.04	2.03	2.05	2.04	2.04	2.03	2.03	2.04	2.17	2.15	2.01	2.17	2.06	24
4	2.15	2.18	2.19	2.14	2.12	2.09	2.08	2.12	2.07	2.09	2.05	2.00	S	2.00	1.97	1.97	1.97	1.97	2.03	2.05	2.08	2.09	2.09	2.10	1.97	2.19	2.07	24
5	2.11	2.13	2.15	2.16	2.18	2.23	2.28	2.29	2.17	1.99	1.98	S	1.97	1.97	1.99	1.98	1.97	1.97	1.98	1.98	1.97	1.97	1.98	1.97	1.97	2.29	2.06	24
6	1.97	1.97	1.97	1.97	1.97	1.98	1.99	1.97	1.97	1.97	S	1.97	1.97	2.00	2.01	2.02	2.04	2.05	2.04	2.06	2.10	2.19	2.09	2.07	1.97	2.19	2.02	24
7	2.07	2.06	2.09	2.07	2.08	2.09	2.03	2.03	2.02	S	2.01	2.00	2.00	1.98	1.97	1.97	1.97	1.98	1.97	1.97	1.97	1.97	1.97	2.00	1.97	2.09	2.01	24
8	2.02	2.03	2.24	2.38	2.39	2.31	2.29	2.26	S	2.27	2.24	2.04	1.99	1.95	1.95	1.94	1.94	1.94	1.95	1.99	2.00	2.04	2.09	2.19	1.94	2.39	2.11	24
9	2.29	2.36	2.39	2.40	2.37	2.22	2.16	S	2.00	1.96	1.96	1.95	1.95	2.01	2.05	2.02	1.99	1.95	1.98	1.98	2.02	2.10	2.09	2.11	1.95	2.40	2.10	24
10	2.19	2.17	2.11	2.14	2.24	2.26	S	2.26	2.23	2.19	2.18	2.17	2.20	2.12	2.14	2.16	2.20	2.24	2.13	2.13	2.12	2.14	2.15	2.17	2.11	2.26	2.18	24
11	2.19	2.18	2.17	2.19	2.23	S	2.25	2.29	2.30	2.32	2.26	2.20	2.11	2.07	2.01	2.08	2.15	2.20	2.15	2.15	2.17	2.26	2.27	2.35	2.01	2.35	**2.20**	24
12	2.36	2.43	2.42	2.50	S	2.50	2.58	2.57	2.40	2.25	2.14	2.00	1.93	1.92	1.92	1.91	1.91	1.92	1.92	1.94	1.94	1.95	1.96	1.98	1.91	2.58	2.15	24
13	2.00	1.98	2.03	S	2.03	2.16	2.21	2.16	2.11	2.09	2.10	2.06	2.04	1.99	1.96	1.95	1.97	1.97	1.96	1.96	1.98	1.98	2.00	2.03	1.95	2.21	2.03	24
14	2.03	2.06	S	2.19	2.13	2.16	2.19	2.24	2.27	2.19	2.15	2.04	2.00	1.95	1.94	1.93	1.93	1.94	1.96	X	X	X	X	X	1.93	2.27	2.07	19
15	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	C1	C1	C1	C1	1.98	2.00	2.08	2.07	2.08	2.08	1.98	2.08	-	6
16	S	2.06	2.02	2.00	1.98	1.98	1.98	1.96	1.98	1.98	1.96	1.96	1.94	1.91	1.89	1.88	1.87	**1.86**	1.87	1.94	2.05	2.06	2.11	S	**1.86**	2.11	1.97	24
17	2.04	2.20	2.16	2.15	2.10	2.14	2.22	2.12	2.11	2.09	1.93	1.89	1.86	X	X	X	X	X	X	X	X	X	X	X	1.86	2.22	-	13
18	X	X	X	X	X	X	X	X	X	X	C1	C1	C1	C1	2.02	2.02	2.03	2.02	2.03	2.06	2.07	S	2.05	2.01	2.01	2.07	-	10
19	2.02	2.04	2.05	2.05	2.04	2.06	2.05	2.06	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.02	2.06	-	8
20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	X	X	X	X	-	-	-	0
26	X	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
27	Y	Y	Y	Y	Y	Y	Y	Y	Y	C1	C1	C1	C1	1.92	1.92	1.91	1.91	1.92	1.94	1.95	1.98	2.01	2.05	2.07	1.91	2.07	-	11
28	2.09	2.13	2.15	2.40	2.30	2.32	2.24	2.22	2.21	2.20	2.04	S	1.95	1.94	1.94	1.93	1.93	1.93	1.95	1.97	1.97	1.99	1.95	1.94	1.93	2.40	2.07	24
29	1.94	1.96	1.98	2.02	2.02	1.99	1.99	1.95	1.94	1.94	S	1.94	1.94	1.95	1.95	1.95	1.96	1.98	1.97	2.02	2.08	2.04	2.03	2.06	1.94	2.08	1.98	24
30	2.08	2.09	2.11	2.13	2.17	2.29	**3.08**	2.45	2.07	S	1.97	1.93	1.93	1.93	1.93	1.93	1.94	1.93	1.94	1.94	1.94	1.95	1.95	1.95	1.93	**3.08**	2.07	24
31	2.00	2.04	2.48	2.35	2.48	2.40	2.30	2.15	S	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.95	1.96	1.98	2.02	1.99	2.00	2.04	2.05	1.94	2.48	2.08	24
HOURLY MAX	2.36	2.43	2.48	2.50	2.48	2.50	3.08	2.57	2.40	2.32	2.26	2.20	2.20	2.12	2.14	2.16	2.20	2.24	2.15	2.15	2.17	2.26	2.27	2.35				
HOURLY AVG	2.09	2.11	2.15	2.18	2.17	2.19	2.22	2.18	2.12	2.10	2.06	2.01	1.99	1.98	1.98	1.98	1.99	1.99	1.99	2.01	2.03	2.05	2.06	2.07				

STATUS FLAG CODES

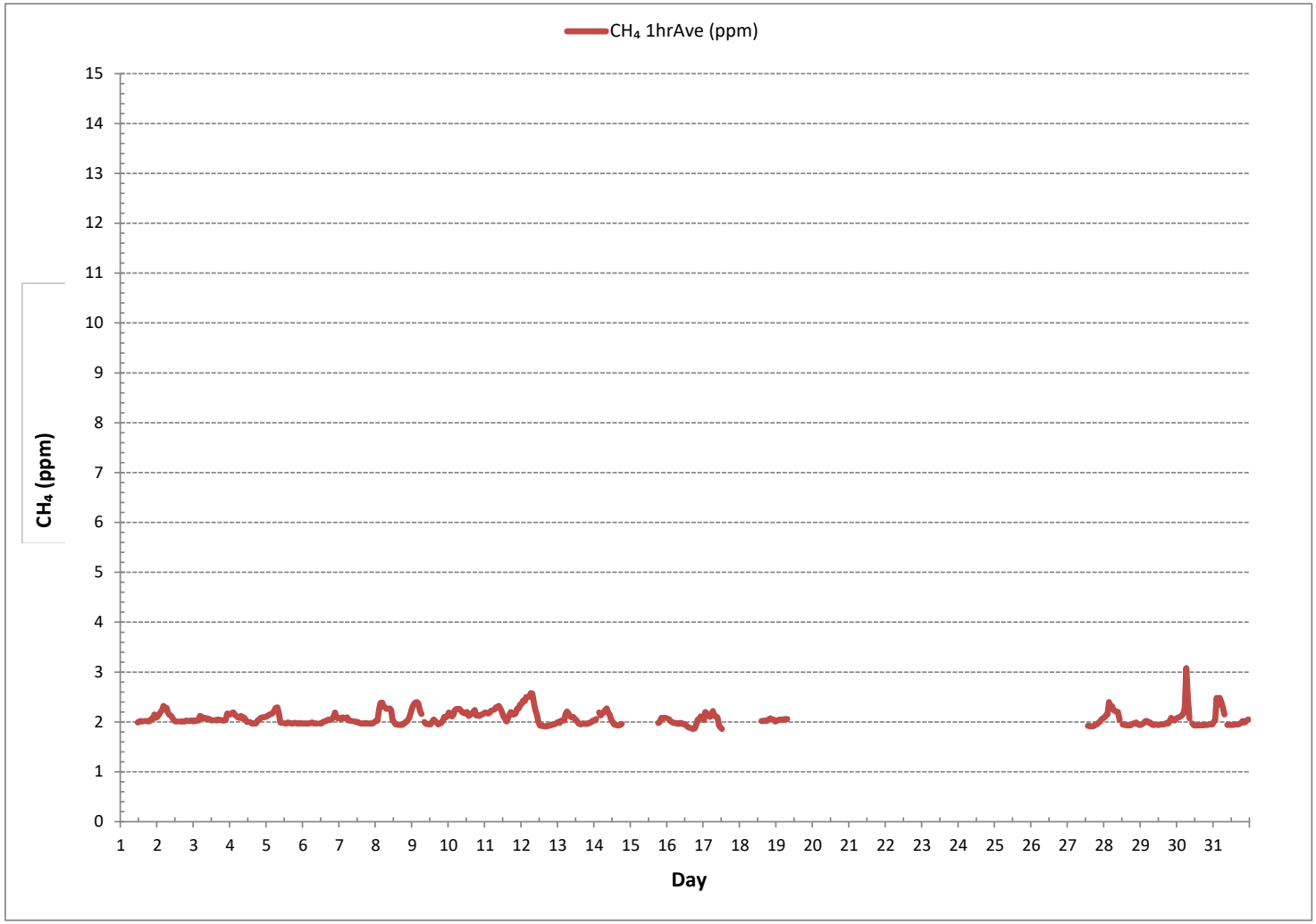
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



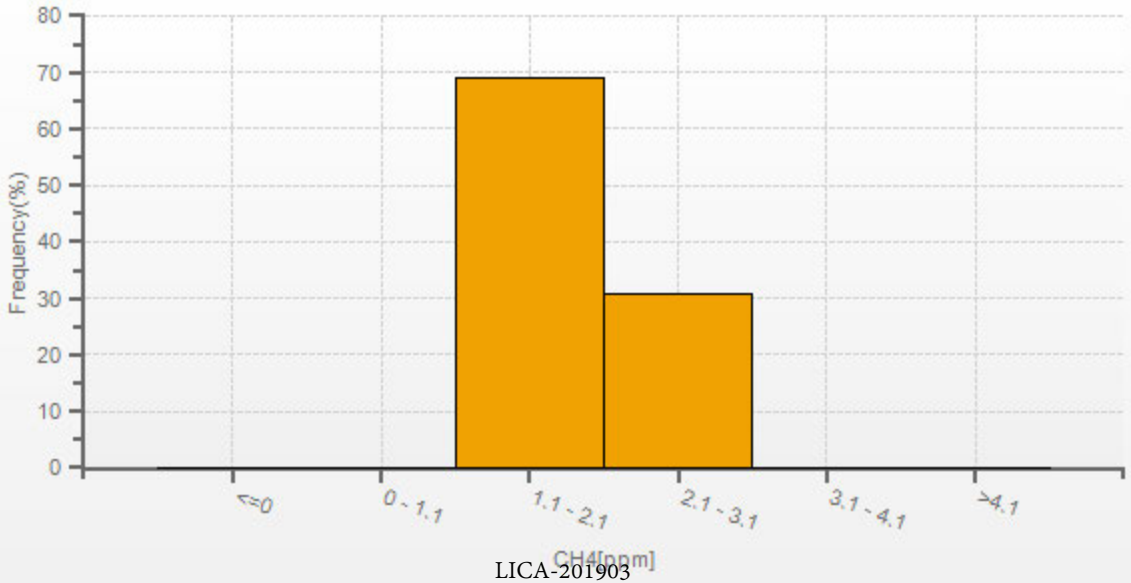
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			467				
MINIMUM 1-HR AVERAGE	1.86	ppm	@ HOUR	17	ON DAY	16	
MAXIMUM 1-HR AVERAGE:	3.08	ppm	@ HOUR	6	ON DAY	30	
MAXIMUM 24-HR AVERAGE:	2.20	ppm			ON DAY	11	
IZS CALIBRATION TIME:	21	hrs	OPERATIONAL TIME:			491	hrs
MONTHLY CALIBRATION TIME:	3	hrs	AMD OPERATION UPTIME:			66.0	%
STANDARD DEVIATION:	0.14		MONTHLY AVERAGE:			2.07	ppm

METHANE Hourly Averages (CH_4 ppm)

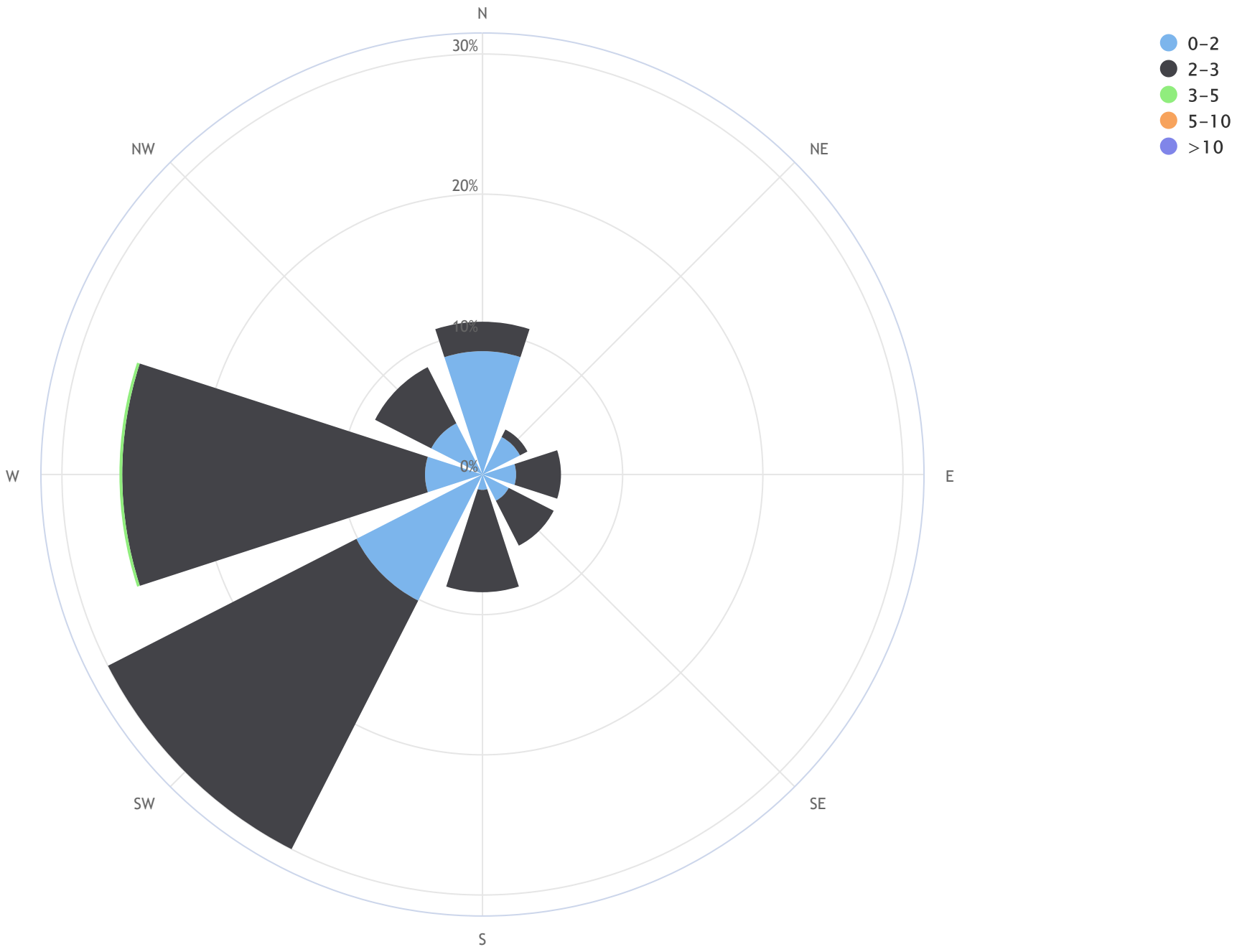


CH4[ppm] Histogram: LICA COLD LAKE SOUTH Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Cold Lake South Continuous Monitoring Station_CH_4 (ppm)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 2.2, CALM % = 1.3%



Direction	0-2	2-3	3-5	5-10	>10	TOTAL
N	8.8	2.1	0.0	0.0	0.0	10.9
NE	3.0	0.6	0.0	0.0	0.0	3.6
E	2.4	3.2	0.0	0.0	0.0	5.6
SE	2.1	3.6	0.0	0.0	0.0	5.8
S	1.1	7.3	0.0	0.0	0.0	8.4
SW	10.1	19.9	0.0	0.0	0.0	30.0
W	4.1	21.6	0.2	0.0	0.0	25.9
NW	4.1	4.5	0.0	0.0	0.0	8.6
Summary	35.6	63.0	0.2	0.0	0.0	98.7
CALM	0.0	1.3	0.0	0.0	0.0	1.3

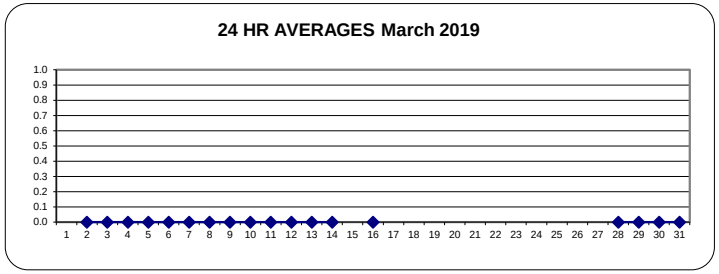
Maxxam
A Bureau Veritas Group Company

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	**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	-	16
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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**	24
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	24
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	24
5	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	24
6	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	24
7	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	24
8	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	24
9	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	**0.01**	0.00	0.00	0.00	**0.01**	0.00	24
10	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	24
11	0.00	0.00	0.00	0.00	0.00	S	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	24
12	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	24
13	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	24
14	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	X	X	X	X	X	0.00	0.00	0.00	19
15	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	C1	C1	C1	C1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	6
16	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	S	0.00	0.00	0.00	24
17	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	X	X	X	X	X	X	X	X	X	X	X	0.00	0.01	-	13
18	X	X	X	X	X	X	X	X	X	X	C1	C1	C1	C1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	-	10
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.00	0.00	-	8
20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	X	X	X	X	-	-	-	0
26	X	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
27	Y	Y	Y	Y	Y	Y	Y	Y	Y	C1	C1	C1	C1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	11
28	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	24
29	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	24
30	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	24
31	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	24
HOURLY MAX	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00				
HOURLY AVG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				

STATUS FLAG CODES

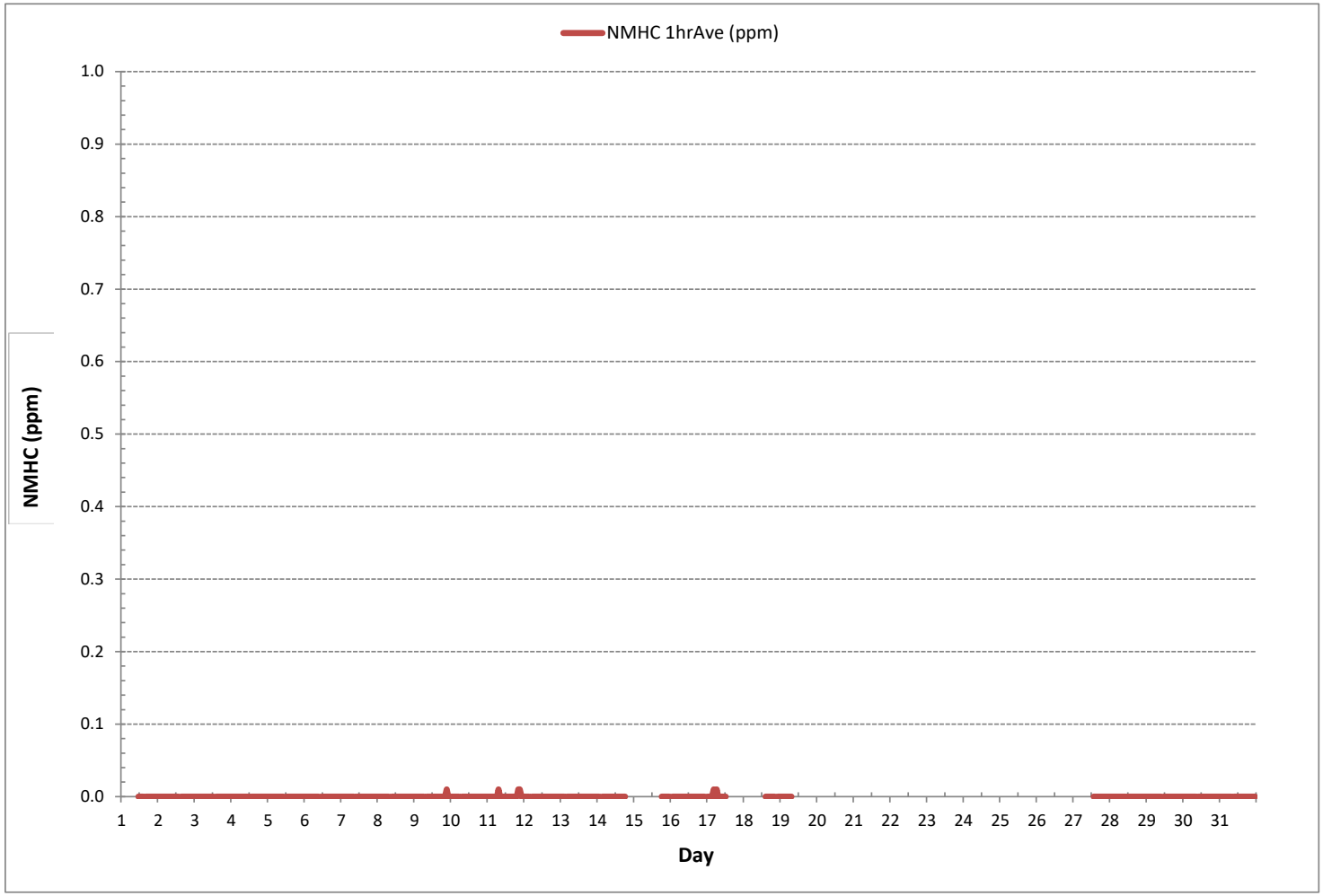
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



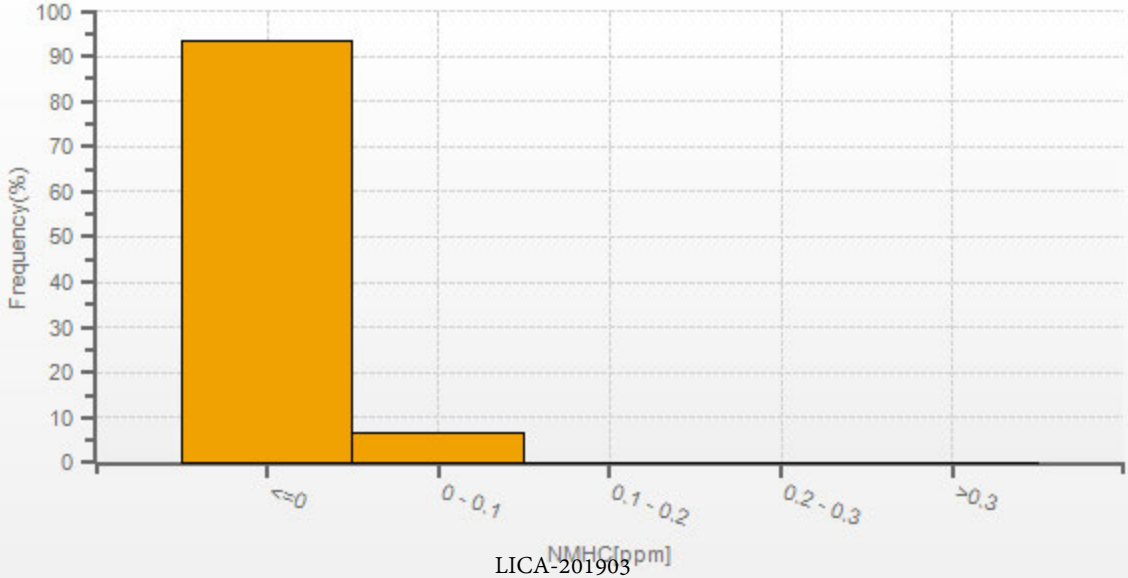
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			6				
MINIMUM 1-HR AVERAGE	0.00	ppm	@ HOUR	11	ON DAY	1	
MAXIMUM 1-HR AVERAGE:	0.01	ppm	@ HOUR	21	ON DAY	9	
MAXIMUM 24-HR AVERAGE:	0.00	ppm			ON DAY	2	
IZS CALIBRATION TIME:	21	hrs	OPERATIONAL TIME:			491	hrs
MONTHLY CALIBRATION TIME:	3	hrs	AMD OPERATION UPTIME:			66.0	%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:			0.00	ppm

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

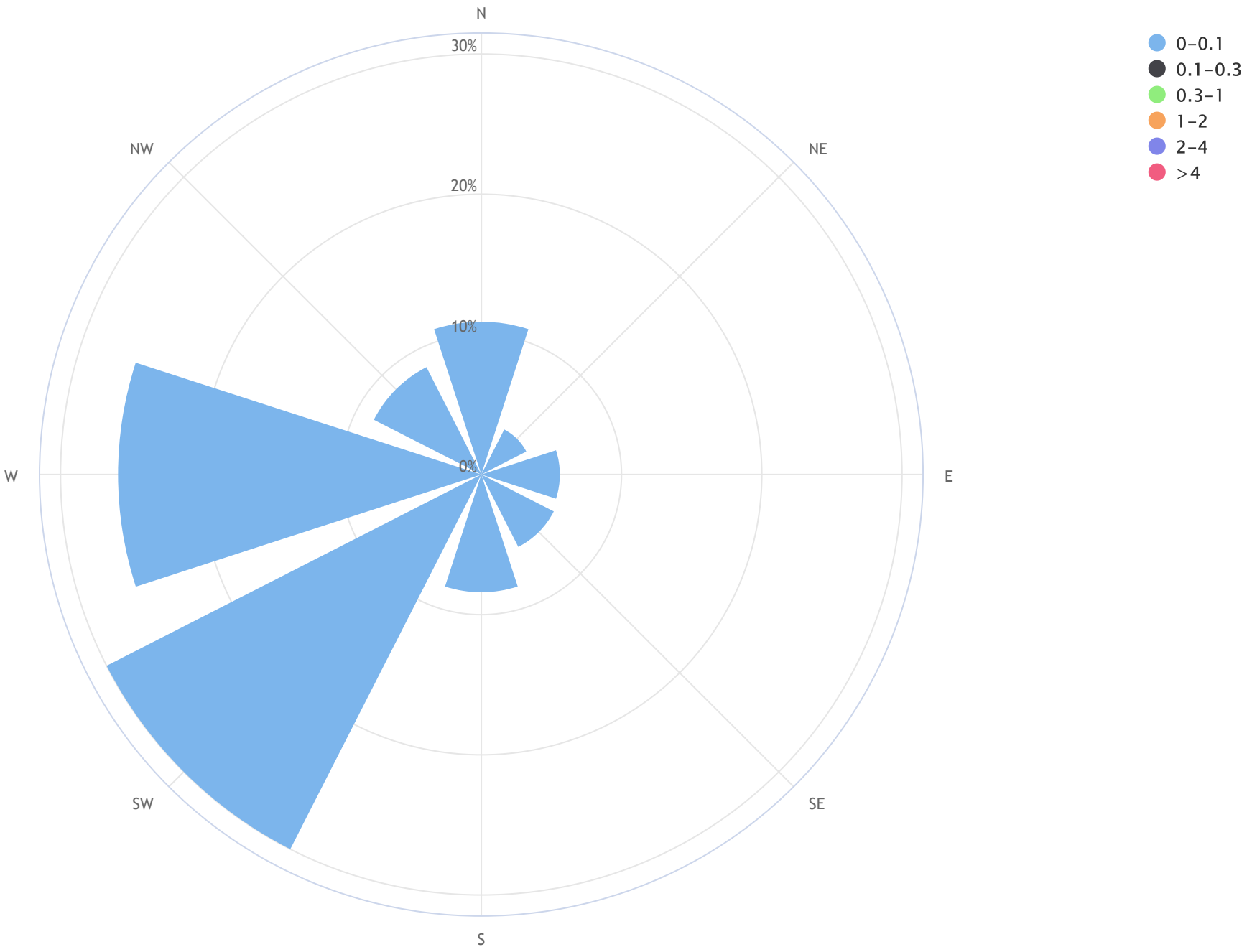


NMHC[ppm] Histogram: LICA COLD LAKE SOUTH Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Cold Lake South Continuous Monitoring Station_NMHC (ppm)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 0.0, CALM % = 1.3%



Direction	0-0.1	0.1-0.3	0.3-1	1-2	2-4	>4	TOTAL
N	10.9	0.0	0.0	0.0	0.0	0.0	10.9
NE	3.6	0.0	0.0	0.0	0.0	0.0	3.6
E	5.6	0.0	0.0	0.0	0.0	0.0	5.6
SE	5.8	0.0	0.0	0.0	0.0	0.0	5.8
S	8.4	0.0	0.0	0.0	0.0	0.0	8.4
SW	30.0	0.0	0.0	0.0	0.0	0.0	30.0
W	25.9	0.0	0.0	0.0	0.0	0.0	25.9
NW	8.6	0.0	0.0	0.0	0.0	0.0	8.6
Summary	98.7	0.0	0.0	0.0	0.0	0.0	98.7
CALM	1.3	0.0	0.0	0.0	0.0	0.0	1.3

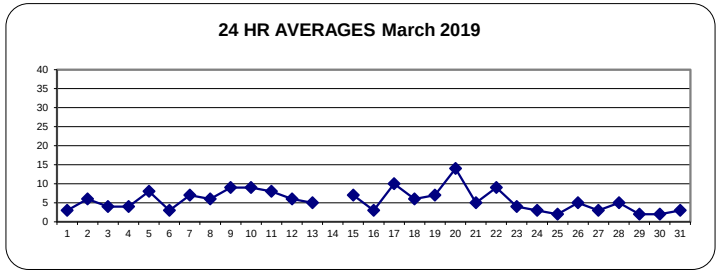
Maxxam
A Bureau Veritas Group Company

OXIDES OF NITROGEN Hourly Averages (NO_x ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	**1**	1	1	1	1	2	2	2	2	1	1	1	2	3	2	**S**	3	3	3	4	5	6	9	9	**1**	9	3	24
2	6	6	9	10	10	11	10	8	8	6	4	4	3	3	**S**	3	2	3	3	4	3	4	4	2	2	11	6	24
3	2	2	3	4	5	5	5	5	4	3	3	2	2	**S**	2	2	3	3	3	2	3	3	7	7	2	7	4	24
4	6	7	8	7	6	4	5	6	4	3	3	3	**S**	3	2	2	2	2	3	4	5	5	5	6	2	8	4	24
5	5	6	7	7	8	9	10	14	10	4	7	**S**	5	7	32	12	3	3	4	4	3	6	5	4	3	32	8	24
6	4	3	3	1	1	1	1	1	1	1	**S**	1	1	1	2	2	2	2	4	4	5	10	4	8	1	10	3	24
7	5	5	10	15	13	19	14	13	10	**S**	3	3	4	3	3	4	4	5	6	7	5	6	5	5	3	19	7	24
8	4	4	6	9	9	8	8	10	**S**	9	8	4	3	3	2	2	2	2	3	5	6	8	13	13	2	13	6	24
9	10	11	13	16	12	10	8	**S**	5	4	3	2	2	6	7	5	5	4	11	16	13	19	21	14	2	21	9	24
10	12	10	19	11	12	17	**S**	24	34	4	4	4	5	3	5	5	4	5	4	4	4	4	4	4	3	34	9	24
11	4	4	4	4	5	**S**	6	8	6	7	9	9	7	5	4	6	5	4	4	8	7	22	16	20	4	22	8	24
12	12	7	5	5	**S**	7	17	16	13	11	8	5	3	3	3	2	3	3	3	4	3	3	3	3	2	17	6	24
13	3	3	4	**S**	4	5	9	10	10	10	7	6	5	4	3	2	3	3	2	3	4	5	5	5	2	10	5	24
14	6	6	**S**	7	7	7	11	14	15	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	3	3	5	4	5	8	7	3	15	-	24
15	8	**S**	14	7	10	17	19	18	8	7	6	5	4	3	3	3	3	2	5	4	4	4	5	5	2	19	7	24
16	**S**	5	3	3	3	3	4	5	5	5	4	4	4	3	2	2	2	2	3	3	4	4	4	**S**	2	5	3	24
17	9	8	11	17	41	22	39	11	5	6	6	5	5	5	4	5	4	4	3	3	4	4	**S**	5	3	41	10	24
18	5	6	5	6	7	9	10	14	11	10	9	8	6	5	4	3	3	3	4	7	3	**S**	5	5	3	14	6	24
19	5	5	6	6	7	7	9	10	9	9	8	7	5	4	4	4	4	5	5	8	**S**	8	8	14	4	14	7	24
20	9	9	6	13	23	33	**64**	37	15	9	7	8	8	6	6	4	4	4	5	**S**	13	15	12	9	4	**64**	**14**	24
21	10	8	6	8	9	10	8	12	10	3	2	2	2	2	1	1	2	1	**S**	1	1	2	3	3	1	12	5	24
22	3	10	10	14	17	12	27	23	4	3	3	3	3	3	3	3	4	**S**	8	6	8	14	14	14	3	27	9	24
23	10	11	13	9	4	4	3	3	2	2	2	2	2	1	1	2	**S**	2	2	2	2	2	2	2	1	13	4	24
24	2	2	3	4	6	6	5	3	2	2	1	1	1	1	1	**S**	1	2	3	3	3	3	2	2	1	6	3	24
25	2	2	2	2	2	2	2	2	2	2	2	2	2	2	**S**	2	2	2	2	2	2	2	2	2	2	2	2	24
26	2	2	2	2	3	3	3	3	4	4	6	6	5	**S**	9	9	7	8	7	7	7	6	6	4	2	9	5	24
27	2	1	1	1	2	2	3	3	2	2	2	2	**S**	2	2	1	2	2	5	6	6	6	8	9	1	9	3	24
28	5	6	15	17	10	6	8	14	4	4	4	**S**	1	1	1	1	2	1	2	2	2	4	2	2	1	17	5	24
29	2	3	3	4	3	3	3	3	2	1	**S**	1	1	2	3	2	2	1	1	3	3	2	1	2	1	4	2	24
30	2	2	2	2	3	6	3	4	3	**S**	3	2	1	1	1	1	1	2	2	2	2	2	2	2	1	6	2	24
31	2	2	2	8	7	6	10	20	**S**	1	2	1	1	1	1	1	1	1	1	2	2	2	3	4	1	20	3	24
HOURLY MAX	12	11	19	17	41	33	64	37	34	11	9	9	8	7	32	12	7	8	11	16	13	22	21	20				
HOURLY AVG	5	5	7	7	8	9	11	11	7	5	5	4	3	3	4	3	3	3	4	5	5	6	6	6				

STATUS FLAG CODES

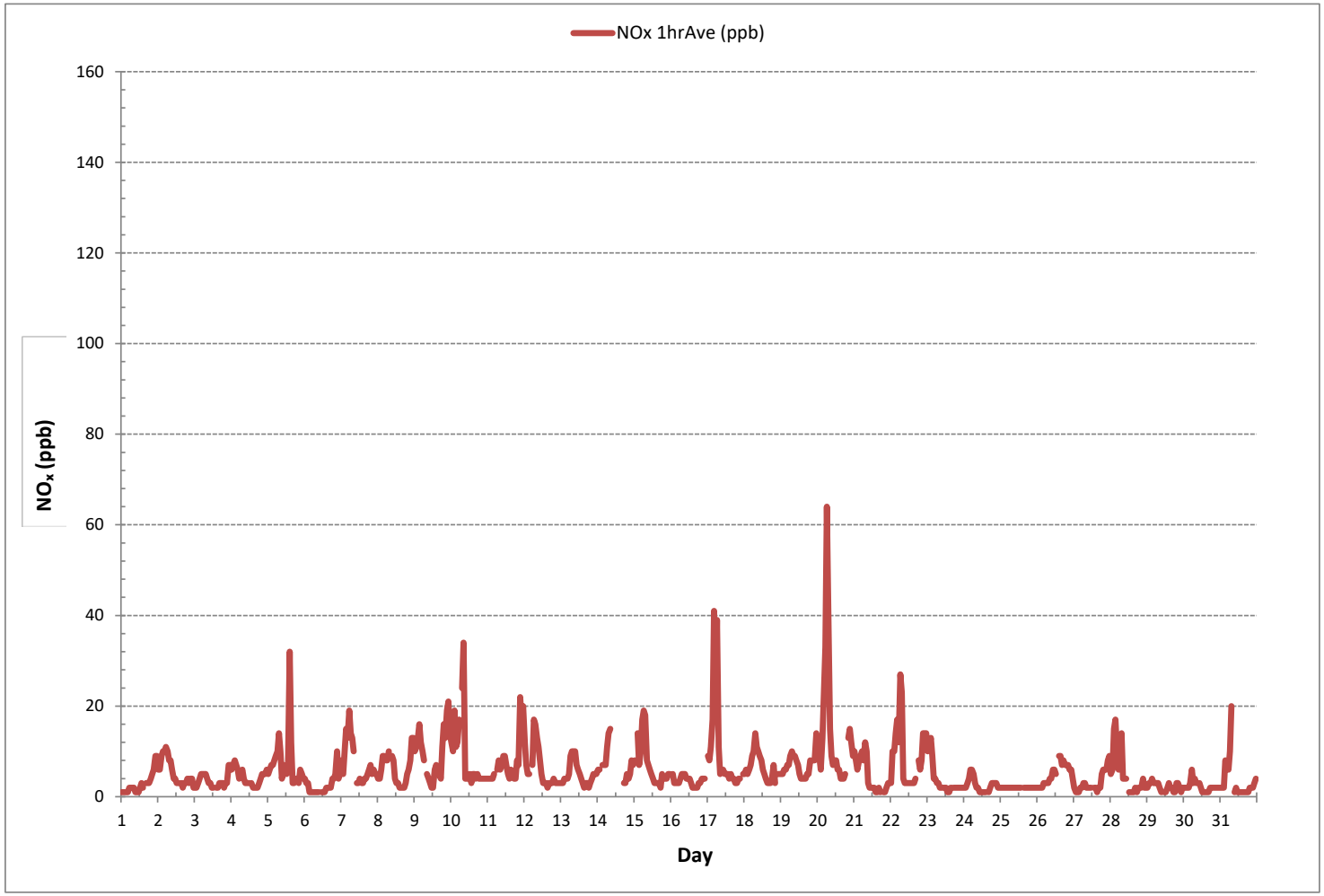
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



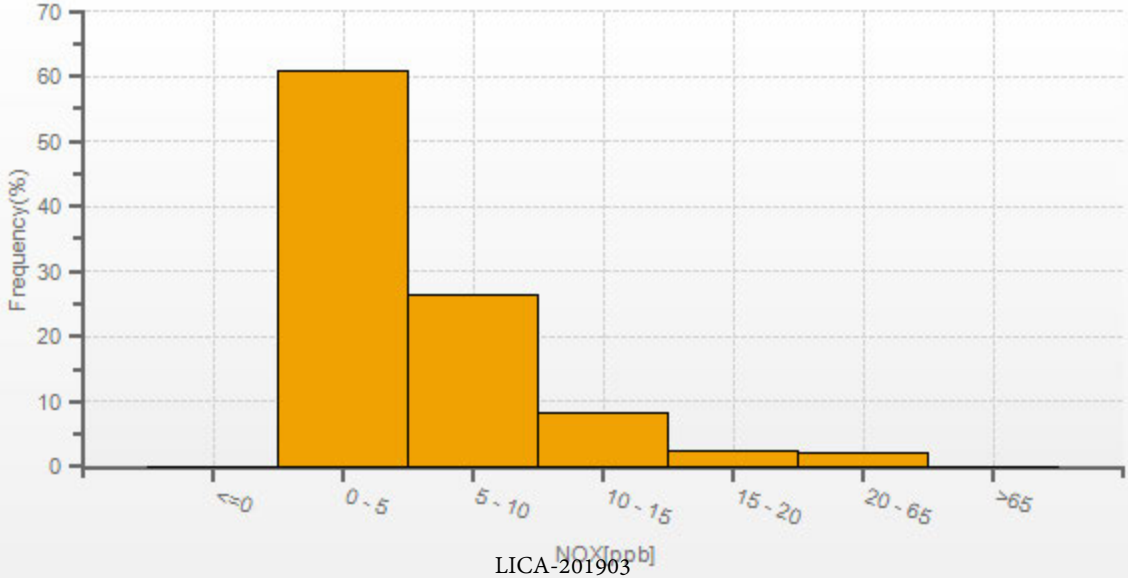
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		704					
MINIMUM 1-HR AVERAGE	1	ppb	@ HOUR	0	ON DAY	1	
MAXIMUM 1-HR AVERAGE:	64	ppb	@ HOUR	6	ON DAY	20	
MAXIMUM 24-HR AVERAGE:	14	ppb			ON DAY	20	
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:			744	hrs
MONTHLY CALIBRATION TIME:	8	hrs	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	5		MONTHLY AVERAGE:			6	ppb

OXIDES OF NITROGEN Hourly Averages (NO_x ppb)

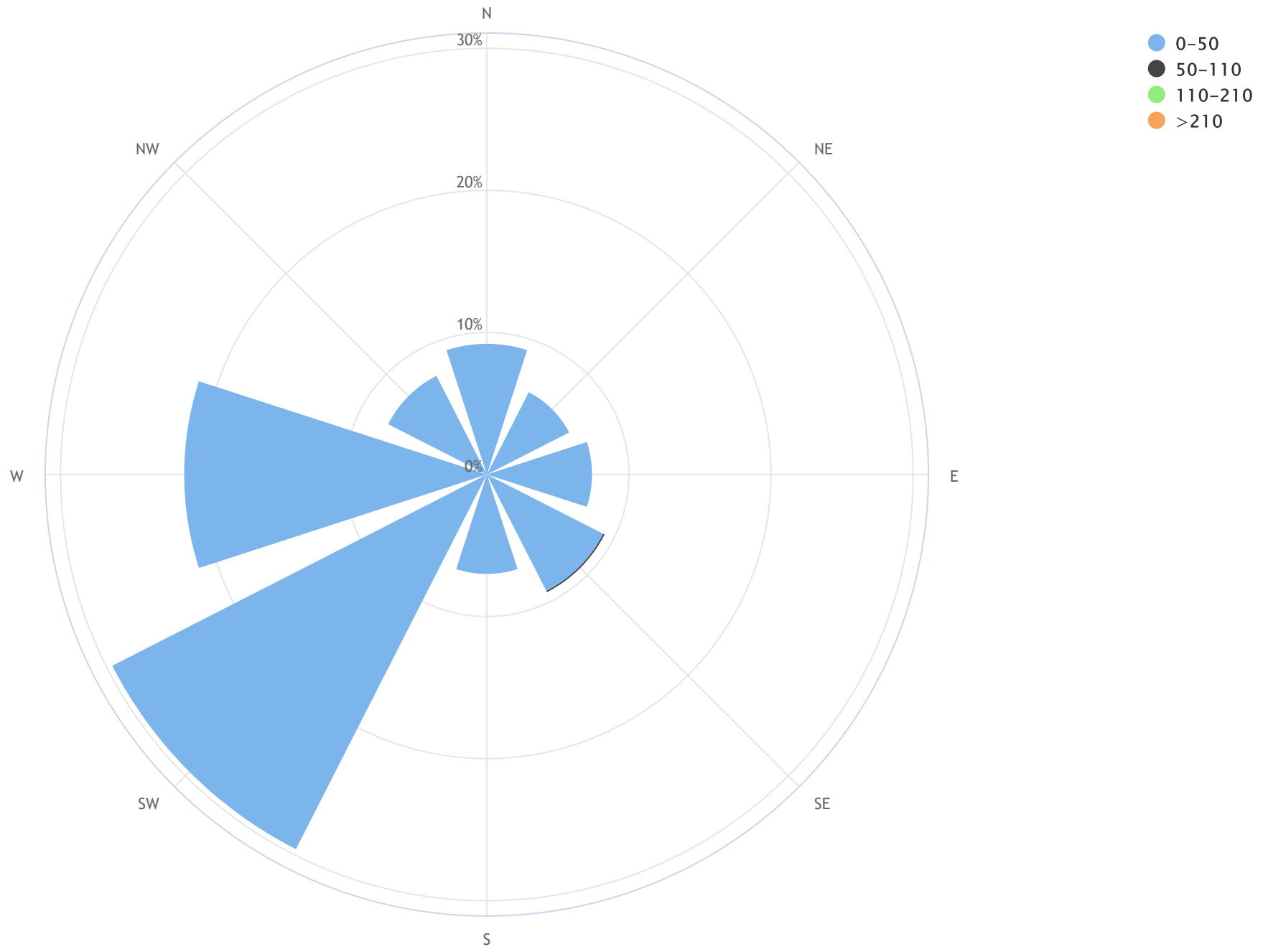


NOX[ppb] Histogram: LICA COLD LAKE SOUTH Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Cold Lake South Continuous Monitoring Station_NO_X (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 9.2, CALM % = 1.8%



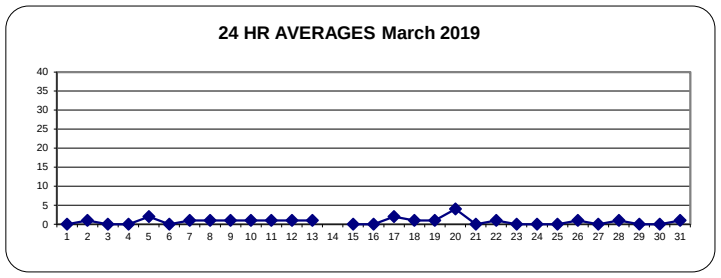
Direction	0-50	50-110	110-210	>210	TOTAL
N	9.2	0.0	0.0	0.0	9.2
NE	6.5	0.0	0.0	0.0	6.5
E	7.4	0.0	0.0	0.0	7.4
SE	9.2	0.1	0.0	0.0	9.4
S	7.0	0.0	0.0	0.0	7.0
SW	29.6	0.0	0.0	0.0	29.6
W	21.3	0.0	0.0	0.0	21.3
NW	7.8	0.0	0.0	0.0	7.8
Summary	98.0	0.1	0.0	0.0	98.2
CALM	1.9	0.0	0.0	0.0	1.9

NITRIC OXIDE Hourly Averages (NO ppb)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	**0**	0	0	0	0	0	0	0	0	0	0	1	1	1	1	**S**	1	0	0	0	0	0	1	0	**0**	1	0	24
2	0	0	1	0	0	1	1	1	2	2	2	2	2	1	**S**	1	0	0	0	0	0	0	0	0	0	2	1	24
3	0	0	0	0	0	0	0	1	1	1	1	1	1	**S**	0	1	1	0	0	0	0	0	0	0	0	1	0	24
4	0	0	0	0	0	0	0	1	1	1	1	1	**S**	1	0	0	0	0	0	0	0	0	0	0	0	1	0	24
5	0	0	0	0	0	0	0	2	3	1	3	**S**	2	4	24	7	1	0	0	0	0	1	0	1	0	24	2	24
6	1	1	0	0	0	0	0	0	0	0	**S**	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	24
7	0	0	0	1	0	3	2	2	3	**S**	1	1	2	1	1	1	1	1	0	0	0	0	0	0	0	3	1	24
8	0	0	0	0	0	0	0	2	**S**	3	3	1	0	1	0	0	0	0	0	0	0	0	0	1	0	3	1	24
9	0	0	0	0	1	0	0	**S**	1	1	1	1	1	2	2	2	1	1	1	1	0	2	2	0	0	2	1	24
10	0	0	1	0	0	1	**S**	7	16	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	16	1	24
11	0	0	0	0	0	**S**	0	1	1	1	2	2	2	1	1	1	0	0	0	0	0	1	0	0	0	2	1	24
12	0	0	0	0	**S**	0	0	2	3	3	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	3	1	24
13	0	0	0	**S**	0	0	0	1	3	3	3	2	1	1	1	0	0	0	0	0	0	0	0	0	0	3	1	24
14	0	0	**S**	0	0	0	1	3	5	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	0	0	0	0	0	0	0	0	5	-	24
15	0	**S**	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	24
16	**S**	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	**S**	0	1	0	24
17	0	0	0	1	20	3	11	2	1	1	2	1	1	1	1	1	0	0	0	0	0	0	**S**	0	0	20	2	24
18	0	0	0	0	0	0	0	2	3	3	3	2	2	1	1	0	0	0	0	0	0	**S**	0	0	0	3	1	24
19	0	0	0	0	0	0	0	1	2	2	2	2	1	1	1	1	1	0	0	0	**S**	0	0	0	0	2	1	24
20	0	0	0	1	4	12	**38**	19	5	2	2	2	2	1	1	0	0	0	0	**S**	0	0	0	0	0	**38**	**4**	24
21	0	0	0	0	1	1	1	2	3	1	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	3	0	24
22	0	0	0	0	1	1	9	9	1	1	1	1	1	0	0	0	1	**S**	1	0	0	1	1	0	0	9	1	24
23	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	1	0	24
24	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	1	0	24
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	24
26	0	0	0	0	0	0	0	0	0	1	2	2	1	**S**	3	3	1	2	1	0	0	0	0	0	0	3	1	24
27	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	1	0	24
28	0	1	4	4	1	1	2	6	1	1	1	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1	24
29	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	24
30	0	0	0	0	0	0	0	1	1	**S**	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
31	0	0	0	0	0	0	2	8	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	1	24
HOURLY MAX	1	1	4	4	20	12	38	19	16	3	3	2	2	4	24	7	1	2	1	1	0	2	2	1				
HOURLY AVG	0	0	0	0	1	1	2	3	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

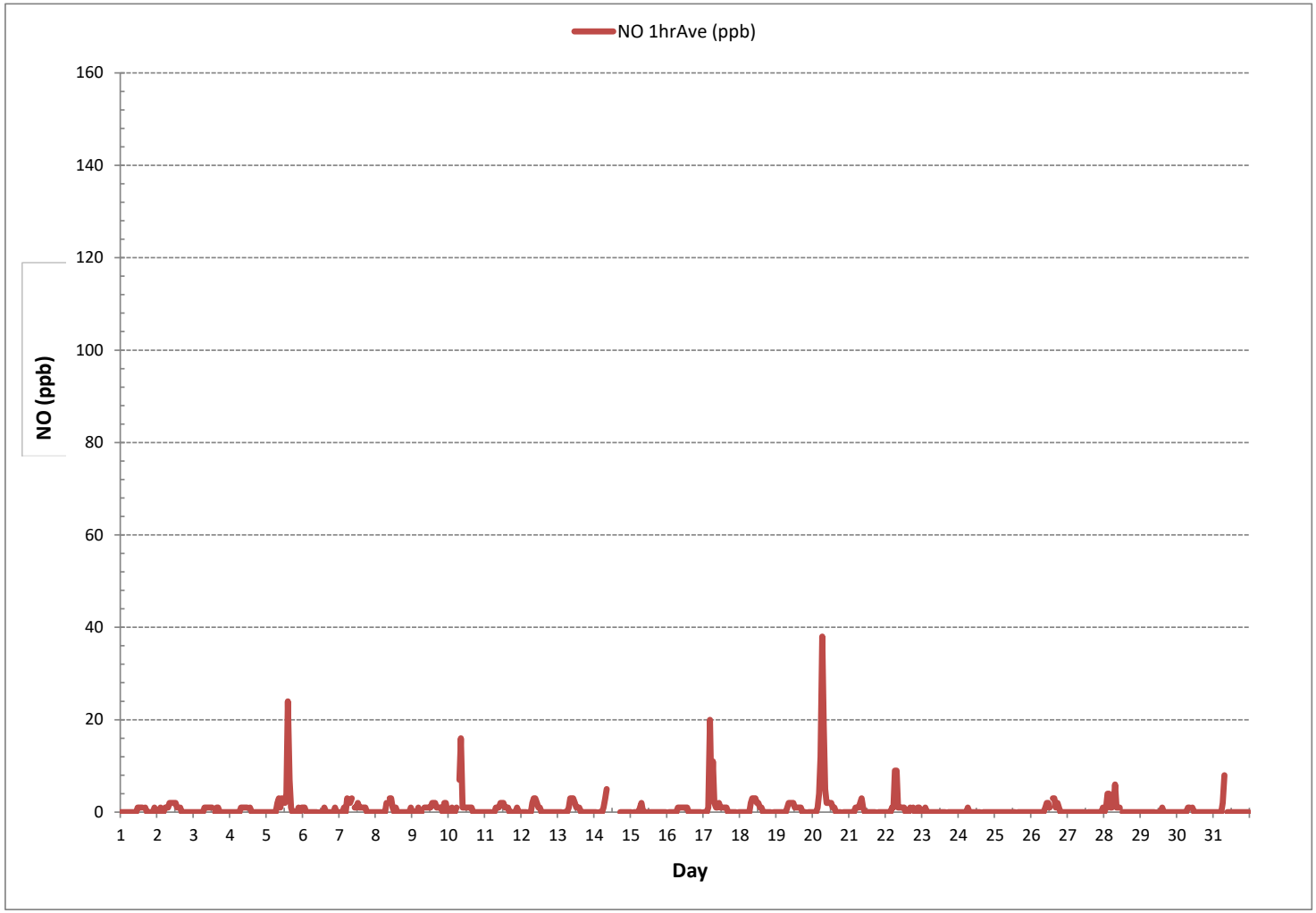


MONTHLY SUMMARY

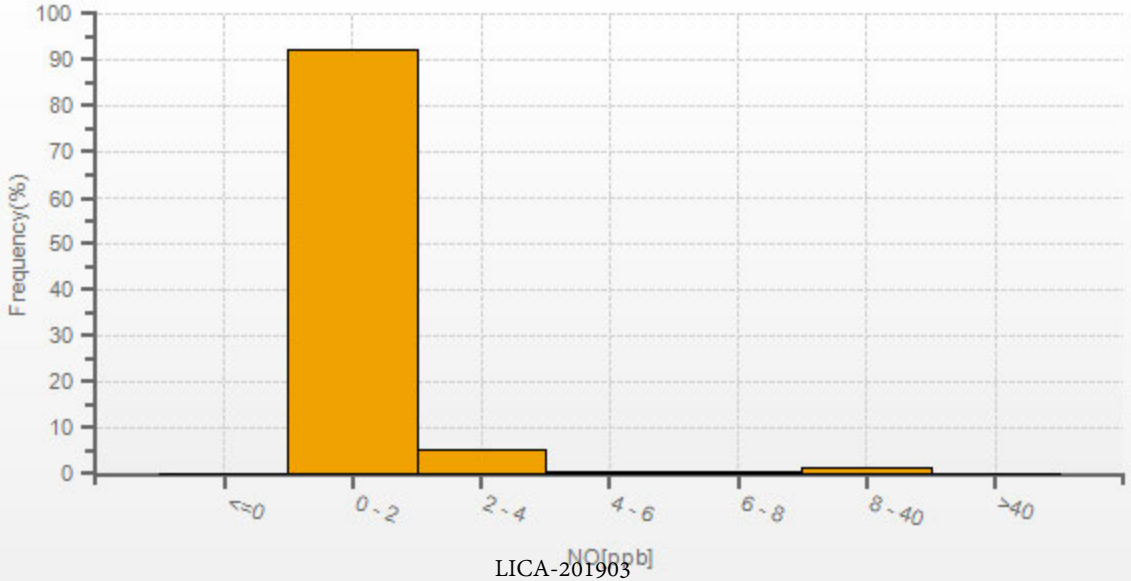
NUMBER OF NON-ZERO READINGS:		217				
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	0	ON DAY	1
MAXIMUM 1-HR AVERAGE:	38	ppb	@ HOUR	6	ON DAY	20
MAXIMUM 24-HR AVERAGE:	4	ppb			ON DAY	20

IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	744	hrs
MONTHLY CALIBRATION TIME:	8	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	2		MONTHLY AVERAGE:	1	ppb

NITRIC OXIDE Hourly Averages (NO ppb)

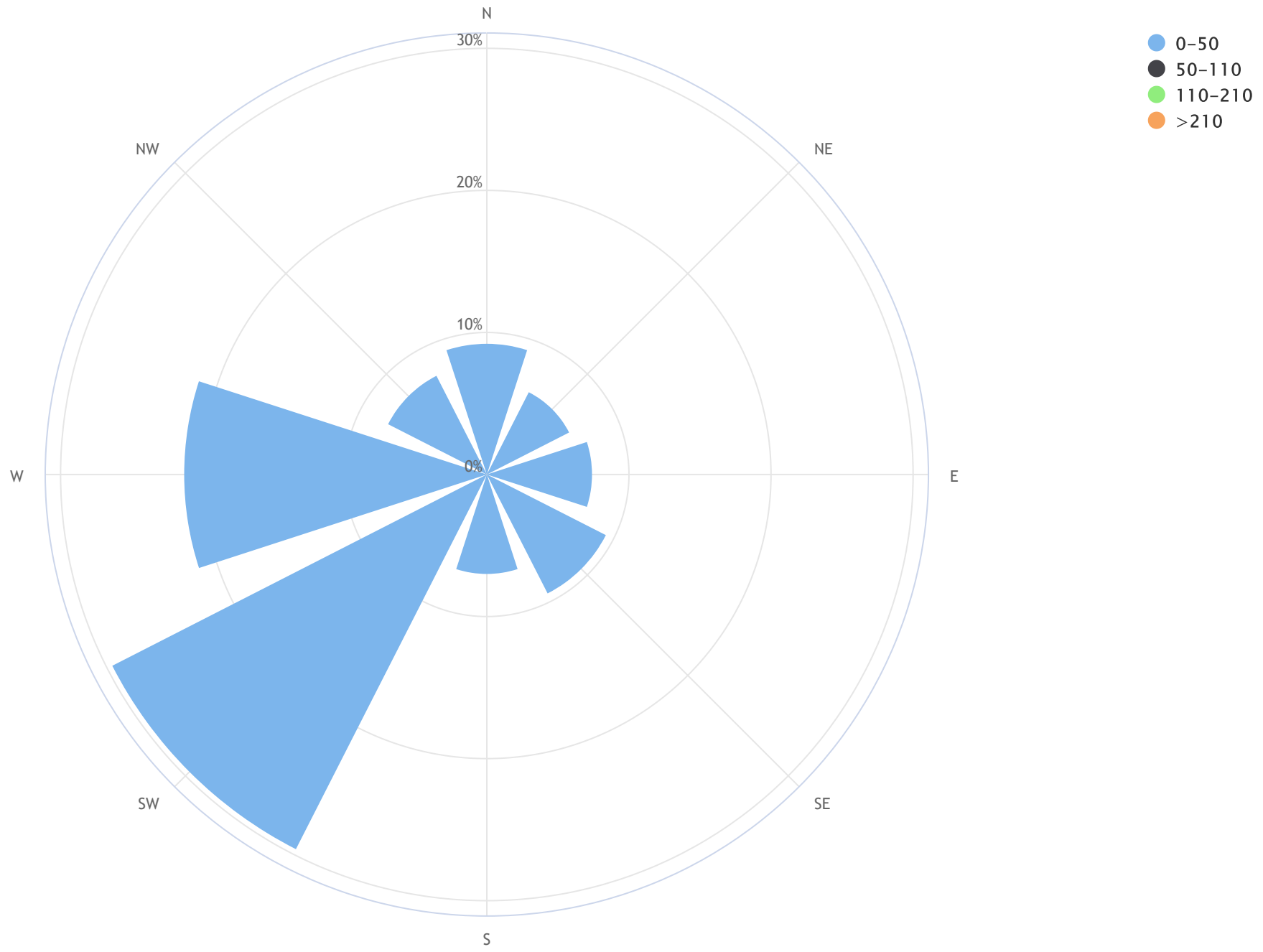


NO[ppb] Histogram: LICA COLD LAKE SOUTH Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Cold Lake South Continuous Monitoring Station_NO (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 0.5, CALM % = 1.8%



Direction	0-50	50-110	110-210	>210	TOTAL
N	9.2	0.0	0.0	0.0	9.2
NE	6.5	0.0	0.0	0.0	6.5
E	7.4	0.0	0.0	0.0	7.4
SE	9.4	0.0	0.0	0.0	9.4
S	7.0	0.0	0.0	0.0	7.0
SW	29.6	0.0	0.0	0.0	29.6
W	21.3	0.0	0.0	0.0	21.3
NW	7.8	0.0	0.0	0.0	7.8
Summary	98.2	0.0	0.0	0.0	98.2
CALM	1.9	0.0	0.0	0.0	1.9

NITROGEN DIOXIDE Hourly Averages (NO_2 ppb)

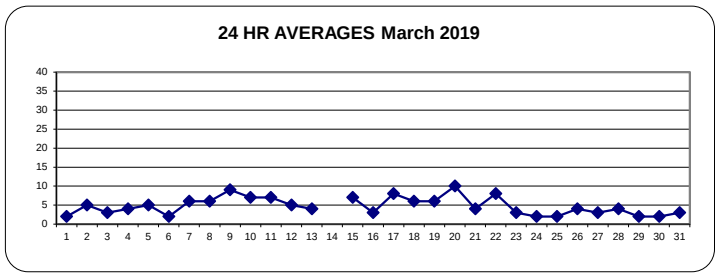
HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	1	1	1	**0**	1	1	2	2	2	1	1	1	1	2	1	**S**	2	2	3	3	5	5	9	9	**0**	9	2	24
2	6	5	8	9	10	11	10	7	5	4	2	2	2	2	**S**	2	2	3	3	4	3	4	4	2	2	11	5	24
3	2	2	3	4	5	5	4	4	3	2	2	1	1	**S**	1	1	2	2	3	2	3	3	7	7	1	7	3	24
4	5	6	7	6	6	4	4	5	3	2	2	2	**S**	2	1	1	2	2	3	4	4	5	5	5	1	7	4	24
5	5	6	7	7	8	9	10	12	7	2	4	**S**	3	3	8	5	3	3	4	4	2	5	5	3	2	12	5	24
6	3	2	2	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	2	4	4	5	10	4	8	1	10	2	24
7	5	4	9	14	13	16	12	11	7	**S**	2	2	2	2	2	3	4	5	5	7	5	6	5	5	2	16	6	24
8	4	4	6	9	8	8	8	8	**S**	7	5	3	2	2	2	2	2	2	3	5	5	8	13	12	2	13	6	24
9	10	11	12	16	12	9	8	**S**	4	3	2	1	2	4	4	4	4	4	10	15	13	17	20	14	1	20	9	24
10	12	10	18	11	12	16	**S**	17	18	3	3	3	4	3	4	4	4	4	4	4	4	4	4	4	3	18	7	24
11	4	4	4	4	5	**S**	6	7	6	6	7	6	5	4	3	5	4	4	4	8	7	21	16	20	3	21	7	24
12	12	7	5	5	**S**	7	16	14	10	8	6	4	3	2	2	2	3	3	4	3	2	2	3	2	16	5	24
13	3	3	4	**S**	4	5	8	8	7	7	5	4	3	3	2	2	2	2	2	3	3	5	5	5	2	8	4	24
14	5	6	**S**	7	7	7	9	11	11	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	3	3	4	4	5	7	7	3	11	-	24
15	8	**S**	13	7	9	17	17	17	7	6	6	5	4	3	3	2	3	2	4	4	4	4	5	5	2	17	7	24
16	**S**	4	3	3	3	3	4	5	4	3	3	3	3	2	2	2	2	1	3	3	4	4	4	**S**	1	5	3	24
17	9	8	11	16	21	19	**28**	9	5	4	4	4	4	4	4	4	4	3	3	3	3	3	**S**	4	3	**28**	8	24
18	5	5	5	6	7	9	10	12	8	7	6	6	4	4	3	3	2	2	4	7	3	**S**	5	5	2	12	6	24
19	5	5	6	6	6	7	9	9	7	6	6	5	4	3	4	3	3	4	5	8	**S**	7	8	13	3	13	6	24
20	9	8	6	13	19	22	26	17	10	6	5	6	6	5	5	3	4	4	5	**S**	13	15	12	9	3	26	**10**	24
21	10	8	6	7	8	10	7	10	8	3	1	1	1	2	1	1	1	1	**S**	1	1	2	3	3	1	10	4	24
22	3	10	10	13	16	11	18	14	3	2	2	3	3	3	2	3	4	**S**	8	6	8	13	14	14	2	18	8	24
23	10	11	12	9	4	3	3	2	2	2	2	1	1	1	1	1	**S**	2	2	2	2	2	1	2	1	12	3	24
24	2	2	2	3	5	5	4	2	1	1	1	1	1	1	1	**S**	1	2	3	3	3	2	2	2	1	5	2	24
25	2	2	2	2	2	2	2	2	2	2	1	2	1	1	**S**	2	2	2	2	2	2	2	2	2	1	2	2	24
26	2	2	2	2	2	2	3	3	4	3	4	4	3	**S**	6	6	6	7	7	7	7	6	6	4	2	7	4	24
27	2	1	1	1	2	2	2	2	2	2	2	1	**S**	1	1	1	1	2	4	5	5	6	7	8	1	8	3	24
28	4	5	11	13	9	6	6	8	3	3	3	**S**	1	1	1	1	1	1	2	2	2	3	2	1	1	13	4	24
29	2	3	2	3	3	3	3	2	1	1	**S**	1	1	1	2	2	1	1	1	2	3	2	1	2	1	3	2	24
30	2	2	2	2	3	6	3	3	3	**S**	2	1	1	1	1	1	1	1	1	2	2	2	2	2	1	6	2	24
31	2	2	2	8	7	6	8	12	**S**	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	1	12	3	24
HOURLY MAX	12	11	18	16	21	22	28	17	18	8	7	6	6	5	8	6	6	7	10	15	13	21	20	20				
HOURLY AVG	5	5	6	7	7	8	8	8	5	4	3	3	2	2	2	2	2	3	4	4	4	6	6	6				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR 159 ppb

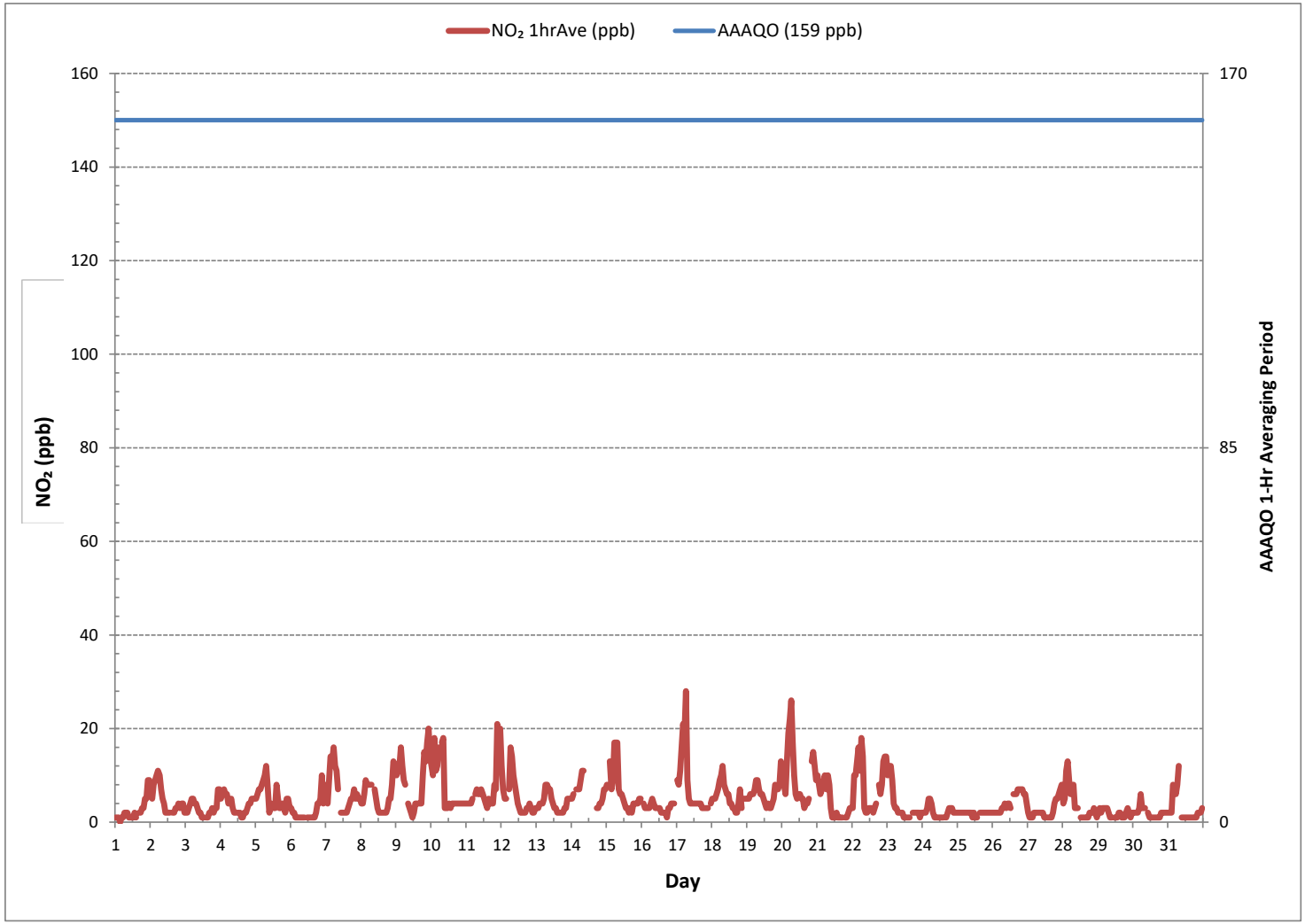


MONTHLY SUMMARY

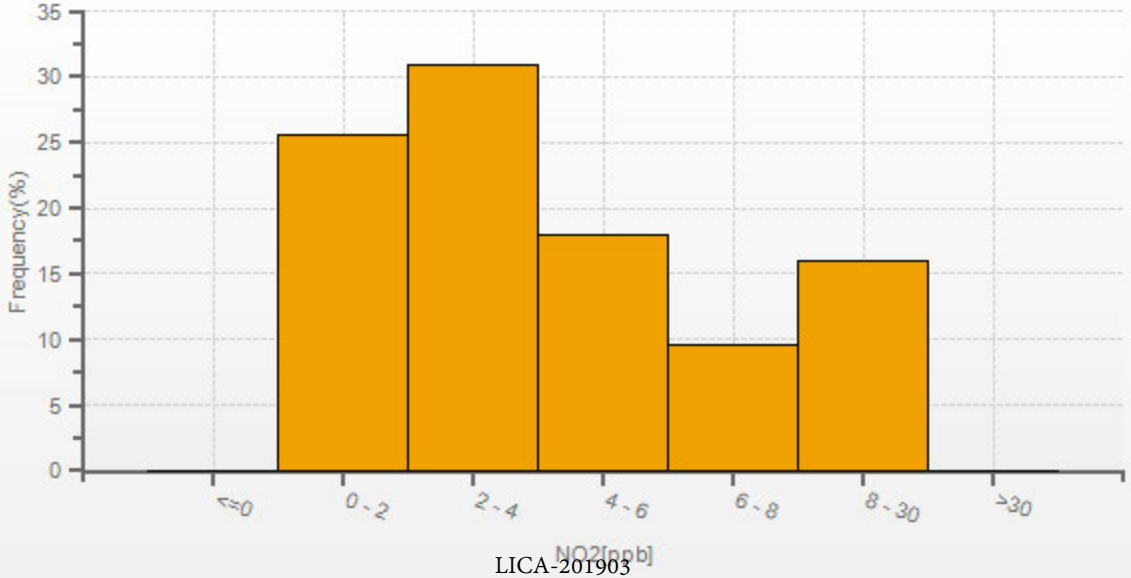
NUMBER OF 1-HR EXCEEDANCES:		0				
NUMBER OF NON-ZERO READINGS:		703				
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	3	ON DAY	1
MAXIMUM 1-HR AVERAGE:	28	ppb	@ HOUR	6	ON DAY	17
MAXIMUM 24-HR AVERAGE:	10	ppb			ON DAY	20

IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	744	hrs
MONTHLY CALIBRATION TIME:	8	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	4		MONTHLY AVERAGE:	5	ppb

NITROGEN DIOXIDE Hourly Averages (NO_2 ppb)

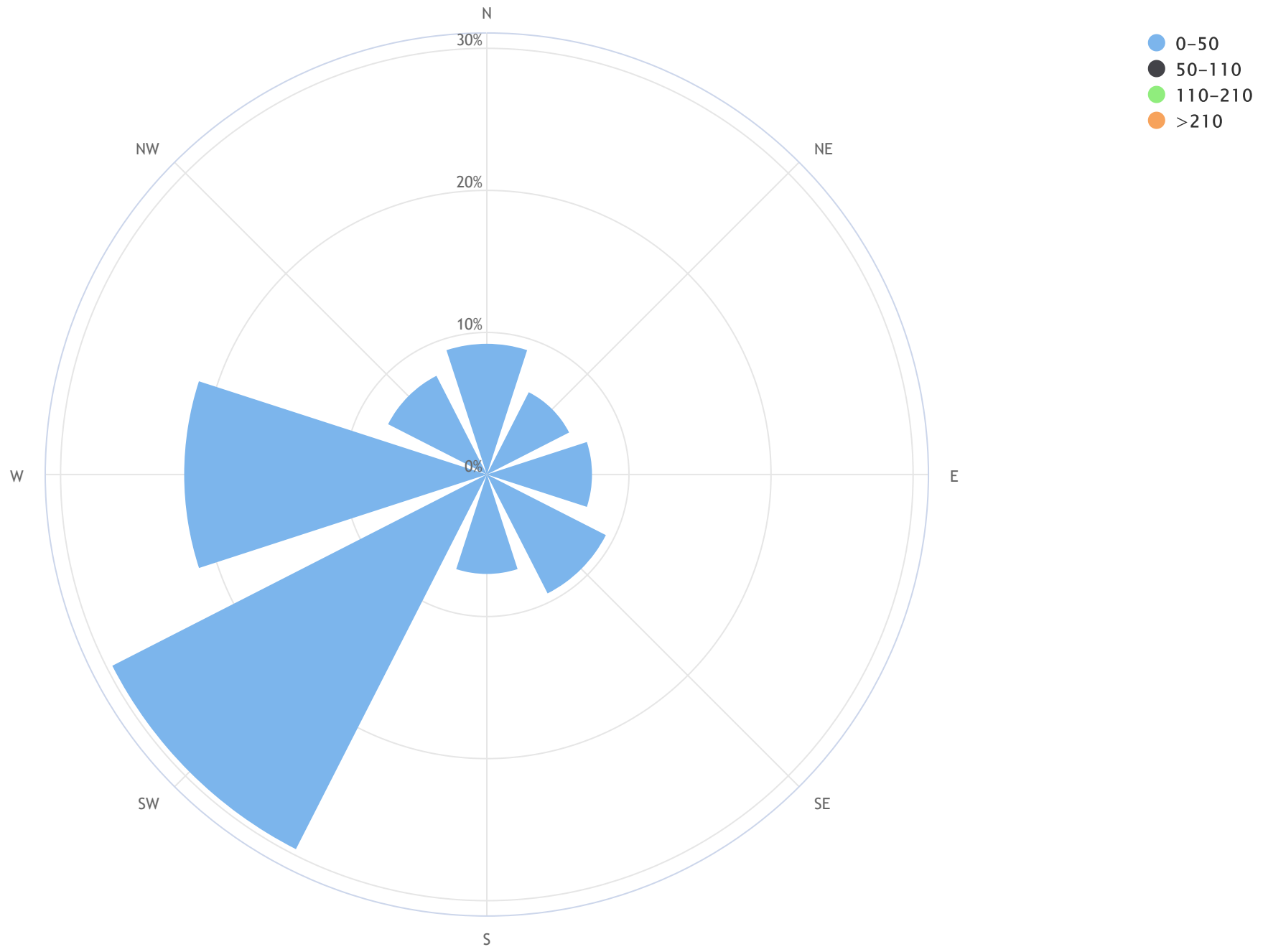


NO2[ppb] Histogram: LICA COLD LAKE SOUTH Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Cold Lake South Continuous Monitoring Station_NO_2 (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 8.6, CALM % = 1.8%



Direction	0-50	50-110	110-210	>210	TOTAL
N	9.2	0.0	0.0	0.0	9.2
NE	6.5	0.0	0.0	0.0	6.5
E	7.4	0.0	0.0	0.0	7.4
SE	9.4	0.0	0.0	0.0	9.4
S	7.0	0.0	0.0	0.0	7.0
SW	29.6	0.0	0.0	0.0	29.6
W	21.3	0.0	0.0	0.0	21.3
NW	7.8	0.0	0.0	0.0	7.8
Summary	98.2	0.0	0.0	0.0	98.2
CALM	1.9	0.0	0.0	0.0	1.9

OZONE Hourly Averages (O_3 ppb)

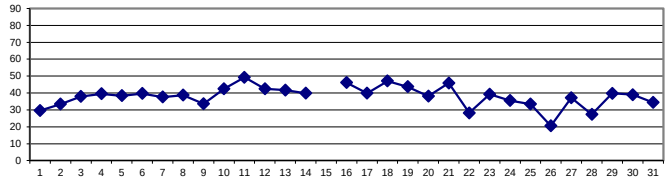
HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																											
1	21.6	22.5	22.6	21.1	20.9	24.5	27.6	31.2	32.3	33.8	34.2	34.4	34.5	35.1	35.7	S	35.8	35.0	33.8	31.8	30.2	30.0	25.6	26.2	20.9	35.8	29.6	24
2	28.8	28.3	26.3	24.9	24.2	23.4	24.3	27.2	29.7	32.4	34.6	36.7	38.7	39.5	S	40.2	40.9	40.4	39.0	38.4	38.5	37.3	36.6	38.4	23.4	40.9	33.4	24
3	39.3	39.1	38.1	37.0	34.7	34.6	35.7	35.9	36.7	37.0	37.6	38.2	39.7	S	40.9	41.1	39.6	40.3	41.2	41.4	39.4	38.8	33.7	33.3	33.3	41.4	38.0	24
4	35.3	34.4	33.8	34.6	34.6	35.9	35.9	35.1	37.9	39.4	39.8	41.2	S	44.3	45.6	46.5	46.3	45.9	43.2	41.2	41.3	39.4	38.4	38.7	33.8	46.5	39.5	24
5	38.5	37.0	35.0	35.0	33.2	31.6	29.5	27.6	33.8	39.6	39.4	S	42.3	42.3	38.6	43.4	44.8	44.0	43.1	42.6	42.9	39.9	39.1	39.9	27.6	44.8	38.4	24
6	40.1	39.7	39.3	40.2	40.3	41.0	41.0	41.4	41.7	41.7	S	41.7	41.9	42.0	42.4	42.5	43.1	42.2	38.7	35.8	36.5	29.4	38.0	32.5	29.4	43.1	39.7	24
7	35.5	37.5	31.2	28.2	27.6	25.8	30.5	32.4	36.1	S	41.3	41.4	41.7	42.4	43.5	43.5	42.6	41.8	42.1	39.2	40.9	40.3	40.0	39.3	25.8	43.5	37.6	24
8	40.6	39.9	35.6	30.3	30.7	30.8	30.1	30.2	S	33.3	35.6	44.1	41.6	46.9	48.4	48.5	48.2	47.7	45.1	42.2	41.7	38.3	30.3	30.0	30.0	48.5	38.7	24
9	31.8	28.7	24.9	16.6	23.7	29.0	30.1	S	39.6	42.8	43.8	45.1	45.5	43.6	43.0	44.6	44.6	44.8	37.2	29.6	27.0	18.7	17.3	20.5	16.6	45.5	33.6	24
10	18.7	20.7	15.1	19.1	16.6	12.0	S	13.3	19.7	43.9	46.5	50.9	53.2	55.8	53.9	55.3	58.6	60.6	61.6	61.1	60.9	60.5	60.4	59.2	12.0	61.6	42.5	24
11	58.2	57.9	57.2	55.1	49.8	S	49.0	46.8	49.1	49.7	49.2	49.5	52.3	54.5	55.3	53.7	53.9	55.9	56.6	48.4	45.8	28.9	31.6	24.9	24.9	58.2	**49.3**	24
12	32.0	42.1	49.0	47.4	S	36.7	25.1	29.6	39.0	40.0	42.5	45.0	46.7	45.9	45.8	46.8	47.3	47.5	46.3	43.7	45.2	45.6	45.2	43.6	25.1	49.0	42.5	24
13	42.1	39.7	33.2	S	26.0	27.0	30.5	31.6	34.1	36.8	40.1	42.1	44.4	47.9	51.3	51.1	51.3	49.8	49.4	46.3	48.2	47.8	44.9	43.6	26.0	51.3	41.7	24
14	41.7	39.2	S	34.1	33.2	27.3	30.1	28.9	30.8	33.7	36.5	38.9	42.7	46.2	49.5	50.9	52.4	52.3	49.8	45.8	46.8	43.3	32.3	31.0	27.3	52.4	39.9	24
15	23.6	S	24.2	32.6	22.0	13.9	22.4	28.6	42.3	43.9	45.6	C	C	C	C	C	C	46.3	37.1	27.4	35.0	40.1	41.9	41.2	13.9	46.3	-	24
16	S	42.4	44.9	45.1	46.0	46.0	44.5	43.8	44.5	45.7	46.8	48.0	50.3	53.1	54.4	54.9	53.0	50.5	45.4	40.0	39.2	37.7	37.9	S	37.7	54.9	46.1	24
17	22.2	19.7	17.4	10.4	8.0	10.5	2.4	37.3	47.3	48.9	50.4	51.6	52.4	54.1	57.2	58.1	59.1	58.9	55.7	53.8	52.8	49.5	S	41.0	2.4	59.1	39.9	24
18	39.0	40.3	40.7	40.0	39.3	35.2	35.8	31.8	39.8	42.4	45.3	48.1	50.5	53.7	57.7	59.4	59.3	57.7	53.8	52.6	56.5	S	52.5	51.3	31.8	59.4	47.1	24
19	49.1	47.2	44.6	42.9	40.7	39.1	36.8	38.1	41.0	43.2	45.3	49.3	54.0	57.7	57.8	57.1	54.9	52.8	48.9	38.1	S	26.5	22.0	17.3	17.3	57.8	43.7	24
20	19.8	17.8	16.7	7.0	2.1	1.8	1.7	7.3	29.1	43.3	49.7	54.7	56.6	59.5	67.1	73.5	75.2	**75.6**	73.5	S	39.1	29.4	32.6	43.4	1.7	**75.6**	38.1	24
21	36.8	41.4	42.7	38.4	38.6	38.6	40.9	37.1	40.0	47.7	48.6	49.4	50.3	51.6	53.2	53.7	52.6	51.7	S	52.0	50.7	49.4	47.6	43.6	36.8	53.7	45.9	24
22	38.0	25.3	23.3	17.3	11.1	13.3	3.6	17.0	32.8	34.0	36.6	37.0	39.8	42.8	48.7	50.7	48.2	S	38.8	33.9	23.9	13.8	10.8	7.8	3.6	50.7	28.2	24
23	8.8	7.4	6.9	27.2	43.8	46.4	46.6	46.3	45.8	45.9	46.5	47.6	50.3	50.8	49.6	49.5	S	45.8	41.0	38.6	38.3	38.7	40.6	40.8	6.9	50.8	39.3	24
24	39.6	38.7	36.7	34.4	31.8	32.0	33.3	35.2	36.4	36.4	36.7	37.7	38.2	38.9	41.1	S	42.5	38.7	35.0	33.3	31.0	30.5	31.3	27.1	27.1	42.5	35.5	24
25	25.1	20.5	28.1	29.8	32.1	35.5	34.9	34.4	33.9	33.6	35.8	35.7	38.6	41.3	S	42.0	39.1	38.2	37.4	36.2	34.5	32.3	24.3	24.5	20.5	42.0	33.4	24
26	25.2	26.3	26.3	26.1	25.6	25.9	25.4	24.7	22.3	22.3	22.3	23.1	23.3	S	20.5	21.7	21.7	18.4	16.7	14.4	8.1	7.0	4.9	21.6	4.9	26.3	20.6	24
27	34.4	37.3	37.5	38.1	39.4	40.1	38.4	41.6	44.2	44.0	45.3	46.3	S	47.6	47.0	46.4	44.9	43.0	39.2	32.1	25.2	20.1	15.0	9.2	9.2	47.6	37.2	24
28	9.4	8.0	1.6	**1.3**	2.4	4.3	5.6	12.2	26.0	32.3	37.2	S	41.3	41.7	42.7	43.6	43.1	43.5	40.2	39.5	38.3	35.8	38.4	39.6	**1.3**	43.6	27.3	24
29	38.4	30.1	30.6	33.0	32.7	34.9	33.8	36.7	40.8	42.7	S	42.9	43.7	44.2	44.3	44.5	46.6	47.0	44.6	40.9	39.9	40.7	40.9	40.9	30.1	47.0	39.8	24
30	39.0	40.1	39.4	36.8	33.7	25.9	21.4	26.4	32.9	S	39.2	43.4	44.6	45.4	45.7	45.5	45.4	43.9	43.5	42.7	42.1	41.2	40.0	39.3	21.4	45.7	39.0	24
31	35.7	30.4	24.5	16.3	14.1	13.7	12.7	15.8	S	42.9	42.8	43.8	44.7	46.1	46.5	46.4	46.8	44.9	42.7	39.1	37.9	36.5	34.0	33.4	12.7	46.8	34.4	24
HOURLY MAX	58.2	57.9	57.2	55.1	49.8	46.4	49.0	46.8	49.1	49.7	50.4	54.7	56.6	59.5	67.1	73.5	75.2	75.6	73.5	61.1	60.9	60.5	60.4	59.2				
HOURLY AVG	32.9	32.7	30.9	30.0	28.6	27.9	28.7	30.9	36.5	39.8	41.2	43.1	44.4	47.0	47.4	48.4	47.6	46.8	44.0	40.1	39.3	35.6	34.3	34.1				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 76 ppb

24 HR AVERAGES March 2019

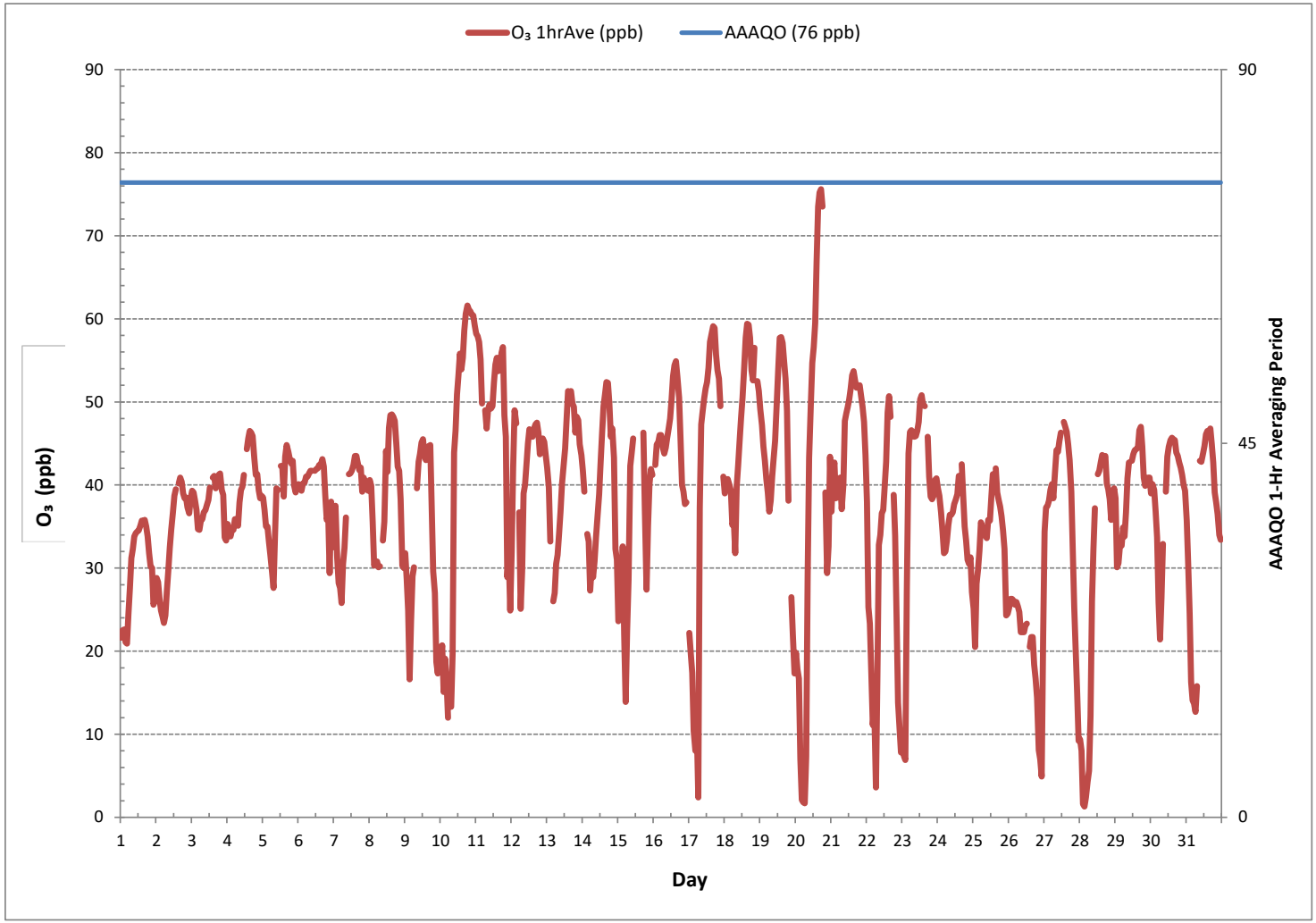


MONTHLY SUMMARY

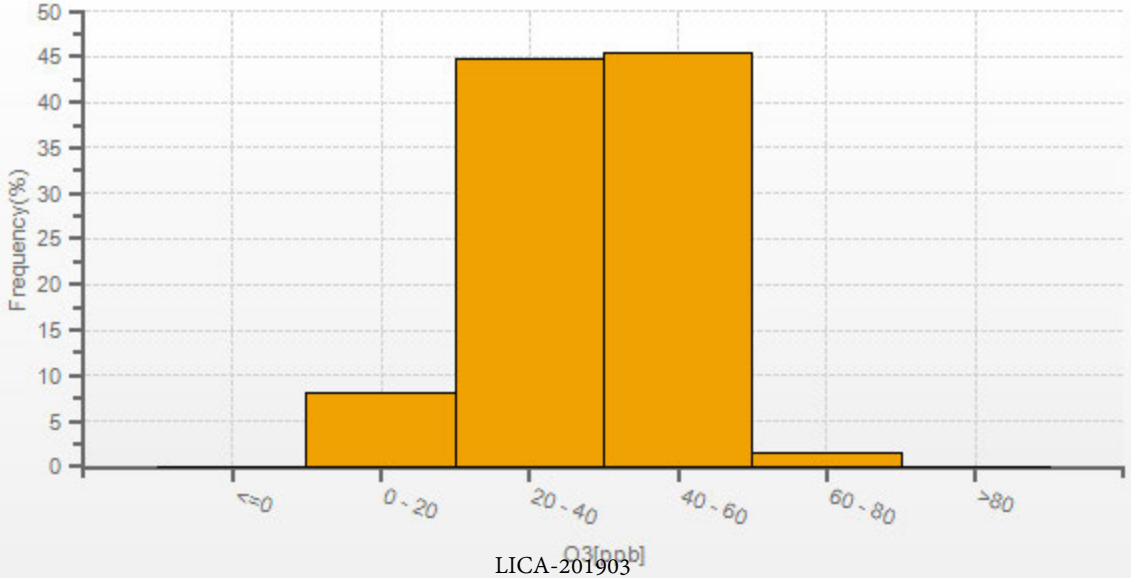
NUMBER OF 1-HR EXCEEDANCES:	0					
NUMBER OF NON-ZERO READINGS:	706					
MINIMUM 1-HR AVERAGE	1.3	ppb	@ HOUR	3	ON DAY	28
MAXIMUM 1-HR AVERAGE:	75.6	ppb	@ HOUR	17	ON DAY	20
MAXIMUM 24-HR AVERAGE:	49.3	ppb			ON DAY	11

IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	744	hrs
MONTHLY CALIBRATION TIME:	6	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	11.9		MONTHLY AVERAGE:	37.9	ppb

OZONE Hourly Averages (O_3 ppb)

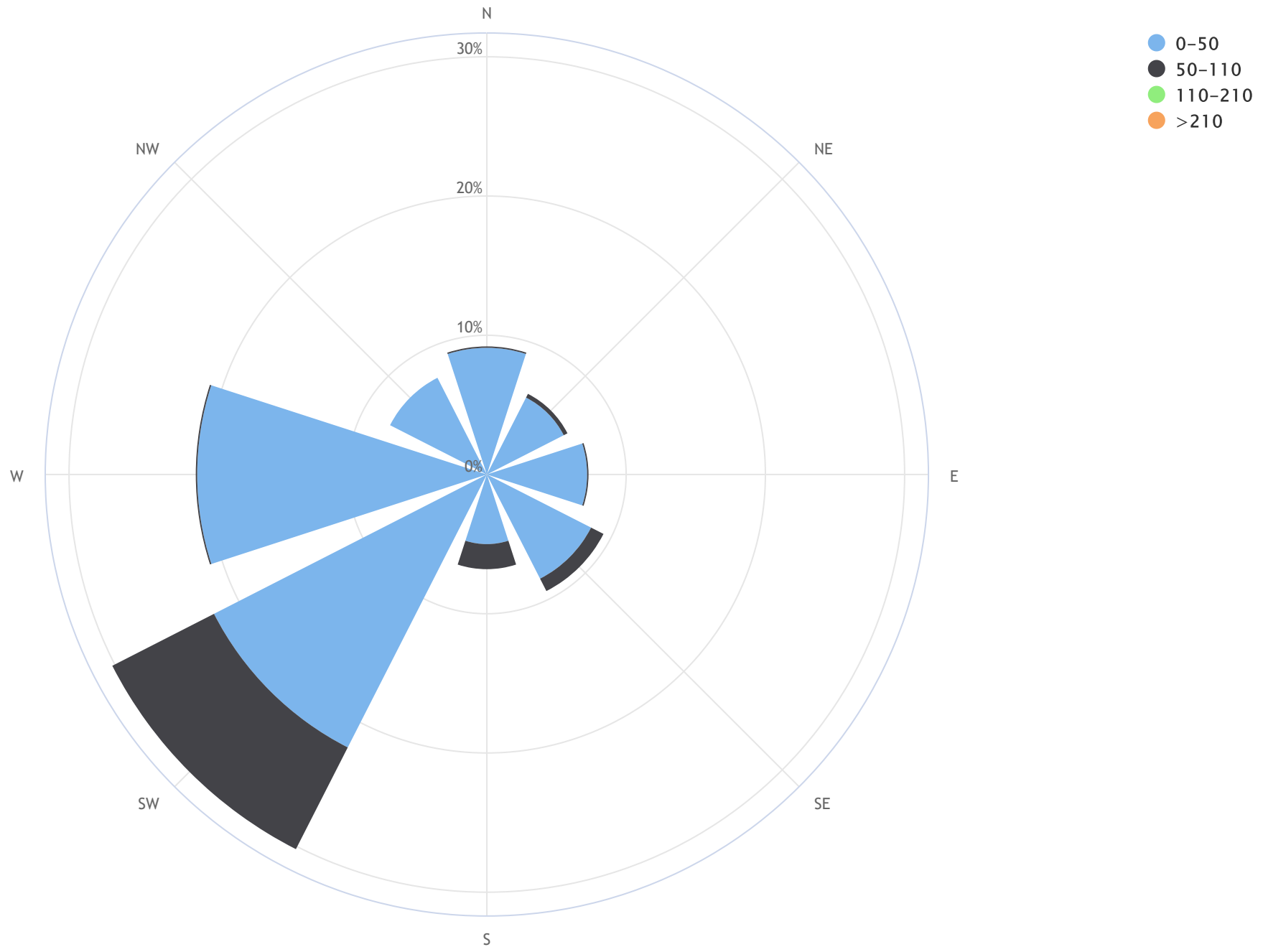


O3[ppb] Histogram: LICA COLD LAKE SOUTH Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Cold Lake South Continuous Monitoring Station_O_3 (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 17.9, CALM % = 1.8%



Direction	0-50	50-110	110-210	>210	TOTAL
N	9.1	0.1	0.0	0.0	9.2
NE	6.2	0.3	0.0	0.0	6.5
E	7.2	0.1	0.0	0.0	7.4
SE	8.4	1.0	0.0	0.0	9.4
S	5.0	1.8	0.0	0.0	6.8
SW	22.0	8.2	0.0	0.0	30.2
W	20.8	0.1	0.0	0.0	21.0
NW	7.8	0.0	0.0	0.0	7.8
Summary	86.4	11.8	0.0	0.0	98.2
CALM	1.8	0.0	0.0	0.0	1.8

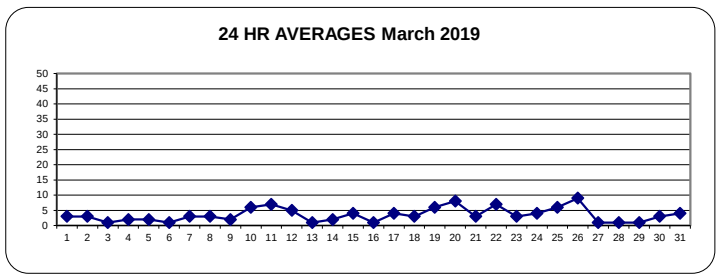
PARTICULATE MATTER < 2.5 MICRONS Hourly Averages ($PM_{2.5}$ µg/m^3)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	4	5	5	6	5	5	4	2	2	2	2	2	2	2	2	2	2	3	2	3	3	3	3	4	2	6	3	24
2	5	4	4	4	4	4	4	4	4	4	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	5	3	24
3	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	2	1	1	1	1	1	2	1	1	2	1	24
4	2	2	2	2	2	2	3	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	3	2	24
5	1	2	1	2	2	2	2	2	2	2	3	3	2	3	4	3	3	2	2	1	1	2	1	2	1	4	2	24
6	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	1	3	1	24
7	3	3	6	17	3	3	3	5	2	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	1	17	3	24
8	4	5	5	6	6	5	5	5	5	4	**C**	**C**	**C**	1	1	1	1	1	1	1	1	1	2	2	1	6	3	24
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	4	3	3	5	5	8	1	8	2	24
10	8	5	7	5	5	5	6	9	5	4	4	5	5	4	3	4	4	6	9	10	10	9	9	8	3	10	6	24
11	8	9	9	10	10	12	13	14	13	12	9	6	4	2	1	1	1	2	3	3	3	6	5	6	1	14	7	24
12	7	10	14	15	13	14	15	15	10	4	1	1	**0**	0	0	0	0	0	0	0	0	0	0	0	**0**	15	5	24
13	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	3	3	3	3	0	3	1	24
14	3	3	2	2	2	2	2	2	2	2	2	1	2	2	2	1	2	2	2	1	2	2	2	2	1	3	2	24
15	2	5	6	5	5	6	6	7	9	8	8	6	3	1	1	1	1	1	1	2	1	1	1	1	1	9	4	24
16	1	1	1	1	1	1	2	2	2	1	1	1	2	1	1	1	1	1	1	2	1	1	2	2	1	2	1	24
17	4	3	4	6	6	6	8	6	5	4	5	5	5	6	5	4	3	3	2	2	2	2	2	2	2	8	4	24
18	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	2	2	2	4	4	5	6	8	11	1	11	3	24
19	14	16	16	15	12	10	8	6	4	2	2	2	1	2	1	1	1	2	3	7	5	6	6	10	1	16	6	24
20	10	8	7	9	10	10	17	9	6	5	4	5	4	3	3	3	3	4	5	7	15	15	11	8	3	17	8	24
21	7	6	5	4	4	4	3	3	3	2	2	2	2	1	2	2	2	2	2	2	2	3	5	5	1	7	3	24
22	5	6	8	6	7	6	7	9	8	7	6	5	4	3	2	3	5	8	8	8	9	11	13	13	2	13	7	24
23	10	12	11	6	4	4	3	3	3	2	2	1	1	1	0	1	1	1	4	3	2	2	2	2	0	12	3	24
24	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	4	6	8	10	10	10	11	1	11	4	24
25	12	11	10	9	7	5	6	7	8	8	5	3	2	2	2	3	4	4	4	3	4	4	5	6	2	12	6	24
26	7	14	**22**	21	22	21	16	13	10	8	7	3	2	2	2	4	5	5	5	6	6	7	7	4	2	**22**	**9**	24
27	1	0	0	1	1	1	2	1	1	2	2	1	1	0	0	0	0	0	1	1	1	1	1	1	0	2	1	24
28	1	1	2	2	2	2	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	24
29	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	2	3	4	3	3	3	3	0	4	1	24
30	4	3	3	3	4	4	3	3	3	3	2	2	2	2	1	2	3	4	5	5	5	5	5	6	1	6	3	24
31	5	6	5	6	6	5	6	6	2	1	2	2	2	2	3	3	3	3	4	4	6	7	7	8	1	8	4	24
HOURLY MAX	14	16	22	21	22	21	17	15	13	12	9	6	5	6	5	4	5	8	9	10	15	15	13	13				
HOURLY AVG	4	5	5	5	5	5	5	5	4	3	3	2	2	2	2	2	2	2	3	3	4	4	4	4				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

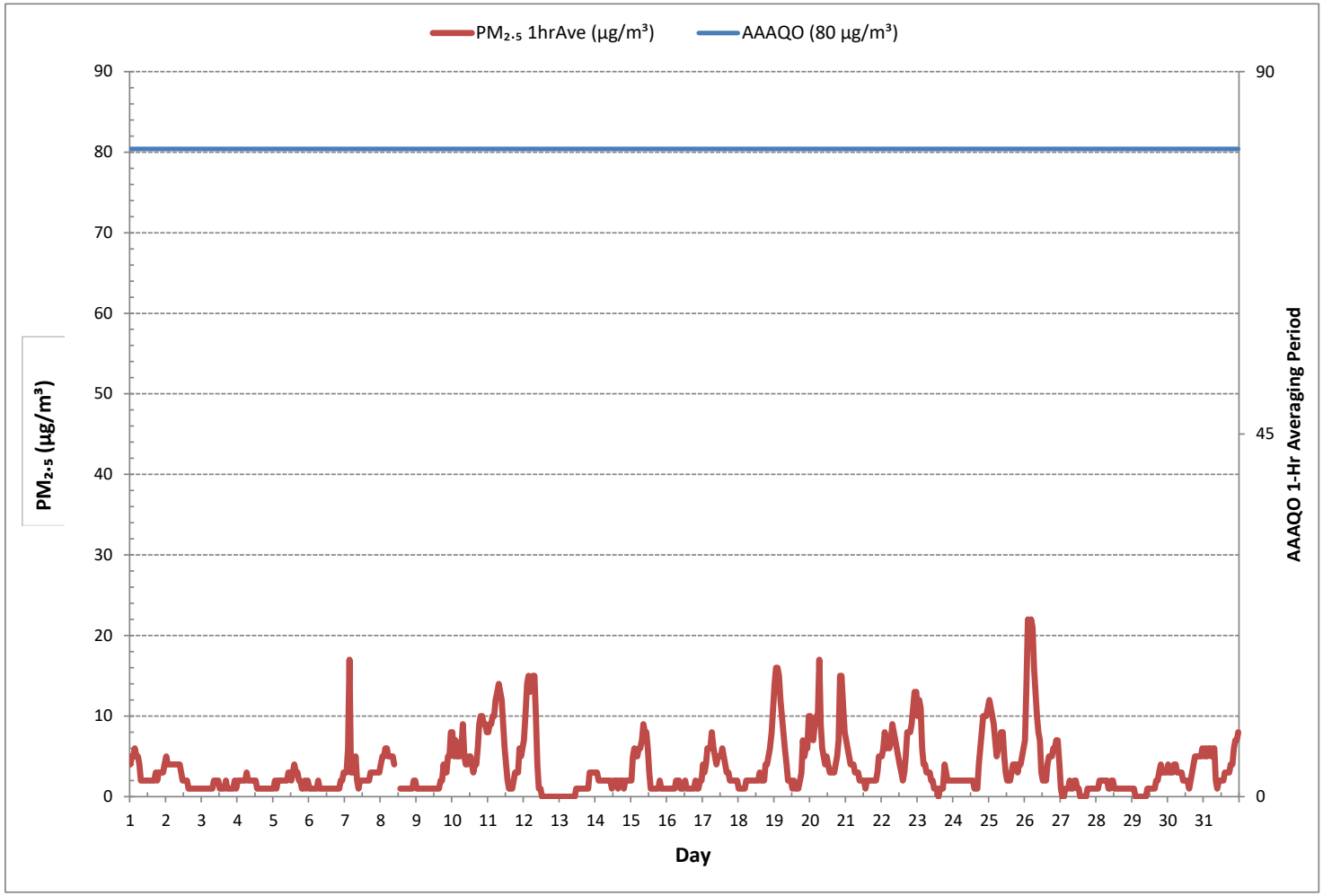
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 80 µg/m^3 | 24-HR 29 µg/m^3



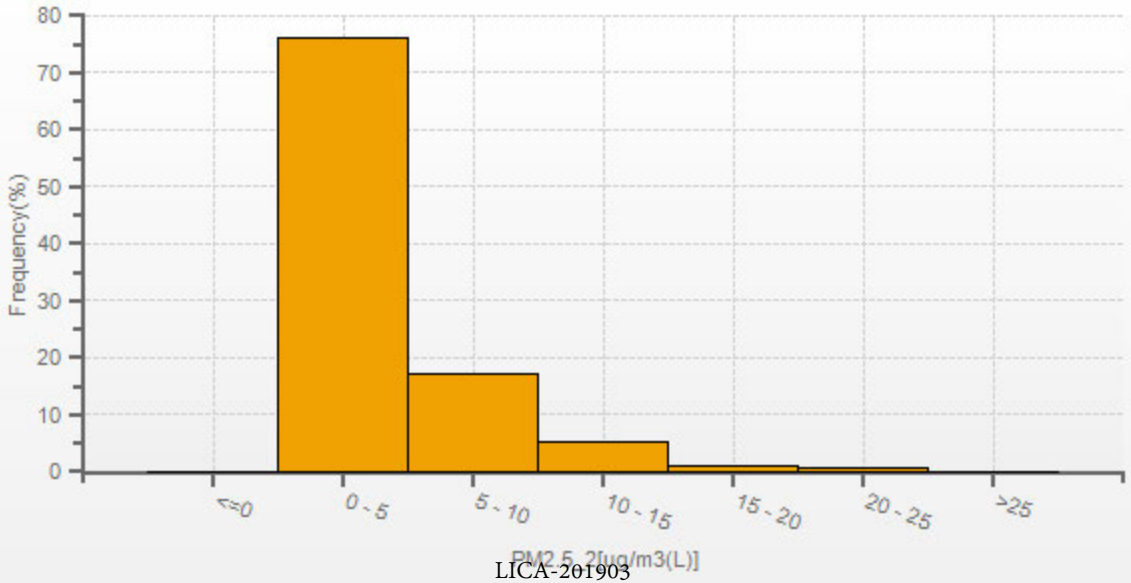
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:		0				
NUMBER OF 24-HR EXCEEDANCES:		0				
NUMBER OF NON-ZERO READINGS:		702				
MINIMUM 1-HR AVERAGE	0	µg/m^3	@ HOUR	12	ON DAY	12
MAXIMUM 1-HR AVERAGE:	22	µg/m^3	@ HOUR	2	ON DAY	26
MAXIMUM 24-HR AVERAGE:	9	µg/m^3			ON DAY	26
			OPERATIONAL TIME:			744 hrs
MONTHLY CALIBRATION TIME:	3	hrs	AMD OPERATION UPTIME:			100.0 %
STANDARD DEVIATION:	3		MONTHLY AVERAGE:			4 µg/m^3

PARTICULATE MATTER < 2.5 MICRONS Hourly Averages ($PM_{2.5}$ µg/m³)

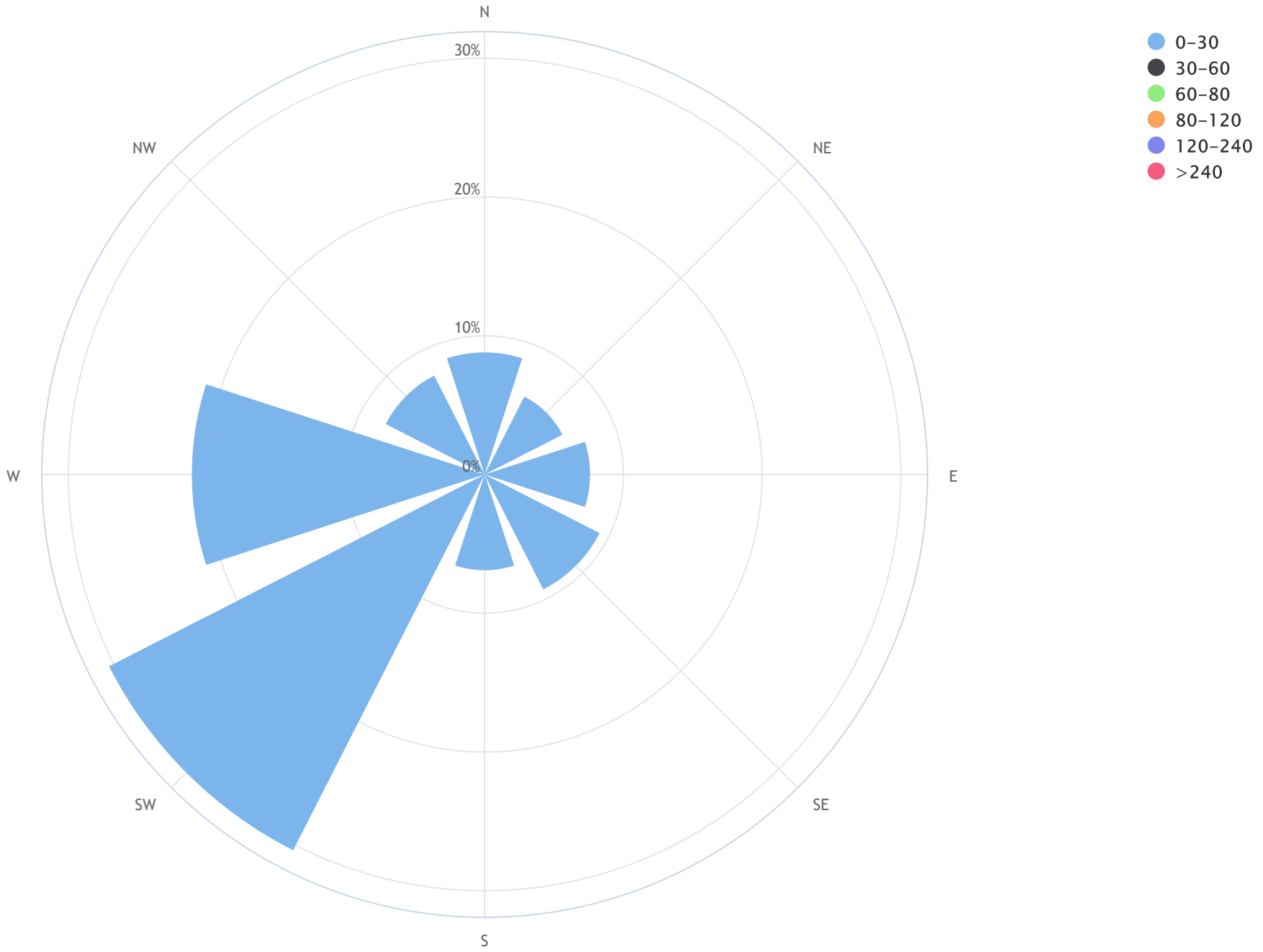


PM2.5_2[ug/m3(L)] Histogram: LICA COLD LAKE SOUTH Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Cold Lake South Continuous Monitoring Station_$PM_{2.5}$ ($\mu g/m^3$)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 6.1, CALM % = 1.8%



Direction	0-30	30-60	60-80	80-120	120-240	>240	TOTAL
N	8.8	0.0	0.0	0.0	0.0	0.0	8.8
NE	6.3	0.0	0.0	0.0	0.0	0.0	6.3
E	7.6	0.0	0.0	0.0	0.0	0.0	7.6
SE	9.3	0.0	0.0	0.0	0.0	0.0	9.3
S	6.9	0.0	0.0	0.0	0.0	0.0	6.9
SW	30.4	0.0	0.0	0.0	0.0	0.0	30.4
W	21.1	0.0	0.0	0.0	0.0	0.0	21.1
NW	8.0	0.0	0.0	0.0	0.0	0.0	8.0
Summary	98.2	0.0	0.0	0.0	0.0	0.0	98.2
CALM	1.8	0.0	0.0	0.0	0.0	0.0	1.8

Maxxam
A Bureau Veritas Group Company

WIND SPEED Hourly Averages (WS kph)

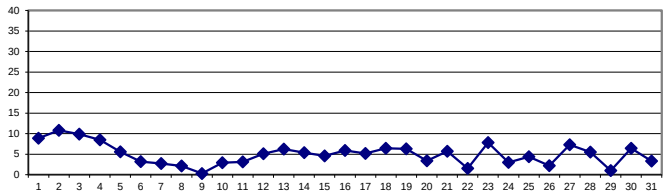
HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	9.4	9.4	11.6	10.2	11.3	10.5	10.5	10.0	11.4	11.0	8.6	11.1	11.5	12.5	11.7	11.5	10.9	8.5	6.1	8.1	10.1	9.1	4.4	4.7	4.4	12.5	8.9	24
2	7.7	10.9	12.4	9.3	7.8	7.6	10.1	10.3	8.4	11.6	11.8	10.3	14.9	14.7	17.3	16.3	14.5	13.1	13.9	13.5	13.6	8.3	8.6	10.2	7.6	17.3	**10.8**	24
3	10.7	10.6	11.4	8.8	7.1	11.8	14.4	13.1	11.4	12.8	9.6	9.3	9.4	10.4	9.7	10.2	10.7	6.9	9.3	11.2	10.8	6.1	9.9	12.5	6.1	14.4	9.9	24
4	11.3	8.3	9.3	12.7	11.6	12.0	11.0	12.7	9.2	9.3	7.9	8.1	10.5	9.3	9.6	11.7	13.8	13.4	4.7	3.1	6.3	3.9	4.9	6.5	3.1	13.8	8.5	24
5	6.1	9.2	6.5	6.2	7.4	11.2	8.5	7.3	7.0	10.4	13.0	12.6	11.6	11.3	10.6	13.0	11.4	8.0	7.7	6.4	6.1	3.2	3.3	6.3	3.2	13.0	5.6	24
6	6.3	6.0	3.9	4.8	2.4	5.2	6.0	6.4	5.5	5.7	5.2	5.6	5.9	3.7	4.8	5.0	7.1	2.9	2.8	5.2	1.7	2.0	4.0	4.6	1.7	7.1	3.2	24
7	3.0	3.0	2.0	3.4	3.2	2.6	4.1	4.1	4.4	4.0	5.6	4.5	4.7	5.6	5.6	4.6	4.3	4.2	3.0	2.2	3.1	1.6	1.7	0.9	0.9	5.6	2.7	24
8	0.6	2.0	3.3	5.4	4.6	2.5	4.1	4.3	4.7	3.5	6.1	7.0	5.9	8.3	6.0	5.9	5.7	4.5	2.1	3.3	4.6	3.8	4.8	4.8	0.6	8.3	2.1	24
9	4.4	3.6	2.3	1.3	2.7	3.9	3.8	1.5	5.7	6.0	6.2	5.6	1.5	8.1	5.2	3.7	5.1	4.1	4.3	2.4	0.6	1.0	0.9	0.5	0.5	8.1	0.3	24
10	1.1	2.9	2.6	3.7	0.5	0.3	0.6	0.9	1.5	2.7	2.7	7.8	6.7	6.1	7.9	7.0	5.9	6.4	5.3	4.2	3.3	4.2	2.8	2.6	0.3	7.9	2.9	24
11	2.2	3.6	2.7	1.9	1.6	2.1	2.0	1.5	4.3	4.4	6.5	8.5	8.6	9.0	7.0	2.9	4.2	5.4	2.5	1.3	1.4	1.4	0.6	0.9	0.6	9.0	3.1	24
12	0.8	1.6	1.8	0.9	0.9	1.0	0.9	3.6	4.4	6.3	9.3	11.4	12.3	14.2	14.1	11.2	10.0	5.6	3.4	5.1	5.9	6.5	6.2	4.5	0.8	14.2	5.1	24
13	3.8	3.7	1.8	1.1	0.7	3.9	5.2	5.9	6.0	6.0	6.8	6.9	10.4	9.9	10.9	10.7	9.4	8.3	7.9	6.8	6.1	6.0	5.8	7.1	0.7	10.9	6.2	24
14	5.9	5.8	5.0	3.5	2.0	1.3	5.2	3.8	5.0	6.1	5.5	3.5	9.3	10.7	11.0	10.4	9.2	7.9	6.0	5.5	5.9	2.8	0.4	1.4	0.4	11.0	5.4	24
15	**0.1**	1.0	0.8	0.9	0.3	0.5	1.7	3.8	7.4	9.2	9.5	10.4	11.7	11.8	13.1	12.5	1.3	2.0	1.3	1.8	4.5	4.4	5.4	5.8	**0.1**	13.1	4.6	24
16	6.4	6.9	7.1	7.3	7.3	8.4	7.5	6.7	5.6	5.2	7.8	9.6	9.1	9.9	9.5	8.1	2.7	3.0	2.0	2.4	4.5	3.4	4.6	2.2	2.0	9.9	5.9	24
17	0.8	0.3	0.8	0.3	1.0	1.0	0.5	1.2	1.9	6.3	11.0	10.7	9.4	10.6	11.4	10.4	9.8	8.6	6.4	7.4	6.7	4.9	3.5	5.6	0.3	11.4	5.2	24
18	5.9	6.5	4.9	5.3	4.4	4.1	4.6	3.3	3.6	6.6	7.1	6.9	8.2	10.7	10.4	9.2	8.4	7.2	5.0	6.1	6.9	6.7	5.7	6.3	3.3	10.7	6.4	24
19	6.8	6.7	6.8	7.3	6.7	7.2	6.8	5.6	6.8	8.4	7.8	8.0	11.0	11.6	11.9	10.3	7.8	6.7	5.1	1.0	1.0	0.8	0.3	0.8	0.3	11.9	6.3	24
20	1.0	0.3	0.9	0.5	0.6	0.6	0.7	0.9	2.1	3.8	4.4	9.2	9.0	10.6	10.3	9.8	8.7	8.2	6.4	2.9	1.1	0.7	1.3	1.3	0.3	10.6	3.4	24
21	2.6	2.5	1.8	2.5	3.8	4.2	4.0	1.8	3.7	6.3	9.5	7.2	7.1	11.0	13.3	14.7	12.2	9.9	11.0	7.6	6.6	3.6	4.9	4.2	1.8	14.7	5.7	24
22	2.0	1.6	1.4	1.4	1.3	0.8	0.6	3.6	5.1	0.3	1.5	6.7	6.5	3.1	7.3	7.7	9.1	4.7	2.5	1.4	0.4	1.4	1.2	0.9	0.3	9.1	1.5	24
23	0.5	0.3	1.0	3.0	4.8	7.0	6.8	8.7	8.6	8.7	8.3	9.6	13.1	14.6	13.6	12.0	11.9	12.6	9.5	10.0	6.8	8.2	9.4	8.9	0.3	14.6	7.8	24
24	6.9	6.5	5.7	4.1	3.3	4.5	3.7	4.4	5.2	4.7	4.4	4.5	5.3	5.2	5.0	4.7	4.7	7.1	7.7	5.4	4.4	2.3	1.8	0.8	0.8	7.7	3.0	24
25	0.3	0.8	1.5	1.9	2.5	4.7	6.5	4.5	6.8	7.0	3.7	5.6	5.5	9.9	8.8	7.9	7.6	6.6	6.2	3.8	2.9	6.3	4.9	4.4	0.3	9.9	4.4	24
26	4.3	6.2	6.0	4.5	4.7	3.7	3.0	2.4	2.2	1.1	1.4	2.5	2.3	0.8	2.1	2.0	2.6	4.7	3.8	2.0	0.6	2.9	1.5	3.7	0.6	6.2	2.2	24
27	4.3	9.0	8.3	9.5	9.8	7.3	7.9	8.7	10.3	10.1	12.2	11.1	11.1	9.8	11.3	11.2	11.3	8.3	5.7	2.4	1.5	0.8	0.9	0.3	0.3	12.2	7.3	24
28	0.7	0.5	0.8	0.5	1.0	0.7	0.6	2.3	3.8	7.2	10.1	11.9	13.9	13.2	15.1	14.4	11.4	11.4	7.9	7.6	7.4	2.2	6.6	6.6	0.5	15.1	5.5	24
29	4.0	0.5	3.5	4.4	5.7	5.2	4.0	8.3	10.2	7.9	7.9	3.5	1.4	2.6	1.6	6.4	4.2	4.3	2.6	3.0	2.4	2.7	3.0	3.0	0.5	10.2	1.0	24
30	2.1	3.2	4.9	2.9	1.8	1.0	1.3	4.3	6.5	7.3	10.0	18.0	**20.5**	18.8	17.3	17.0	15.7	11.6	10.7	6.4	5.7	4.9	5.4	5.1	1.0	**20.5**	6.4	24
31	1.7	1.3	1.9	0.1	1.0	0.6	0.1	2.4	3.2	3.6	2.5	3.3	3.7	6.2	9.3	9.5	9.4	8.2	5.8	4.8	7.2	5.5	7.1	9.4	0.1	9.5	3.3	24
HOURLY MAX	11.3	10.9	12.4	12.7	11.6	12.0	14.4	13.1	11.4	12.8	13.0	18.0	20.5	18.8	17.3	17.0	15.7	13.4	13.9	13.5	13.6	9.1	9.9	12.5				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION:	November 9, 2017
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

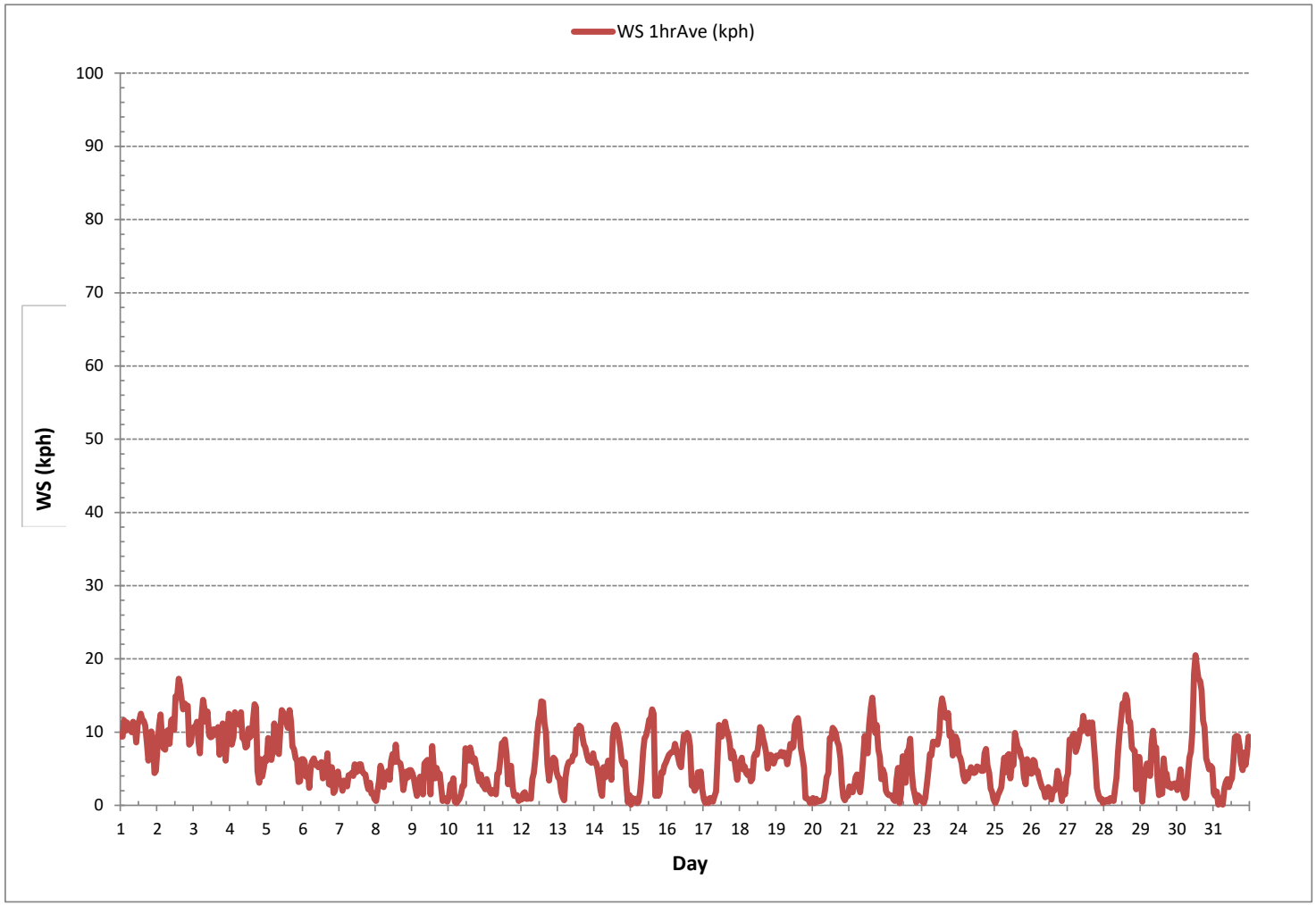
24 HR AVERAGES March 2019



MONTHLY SUMMARY

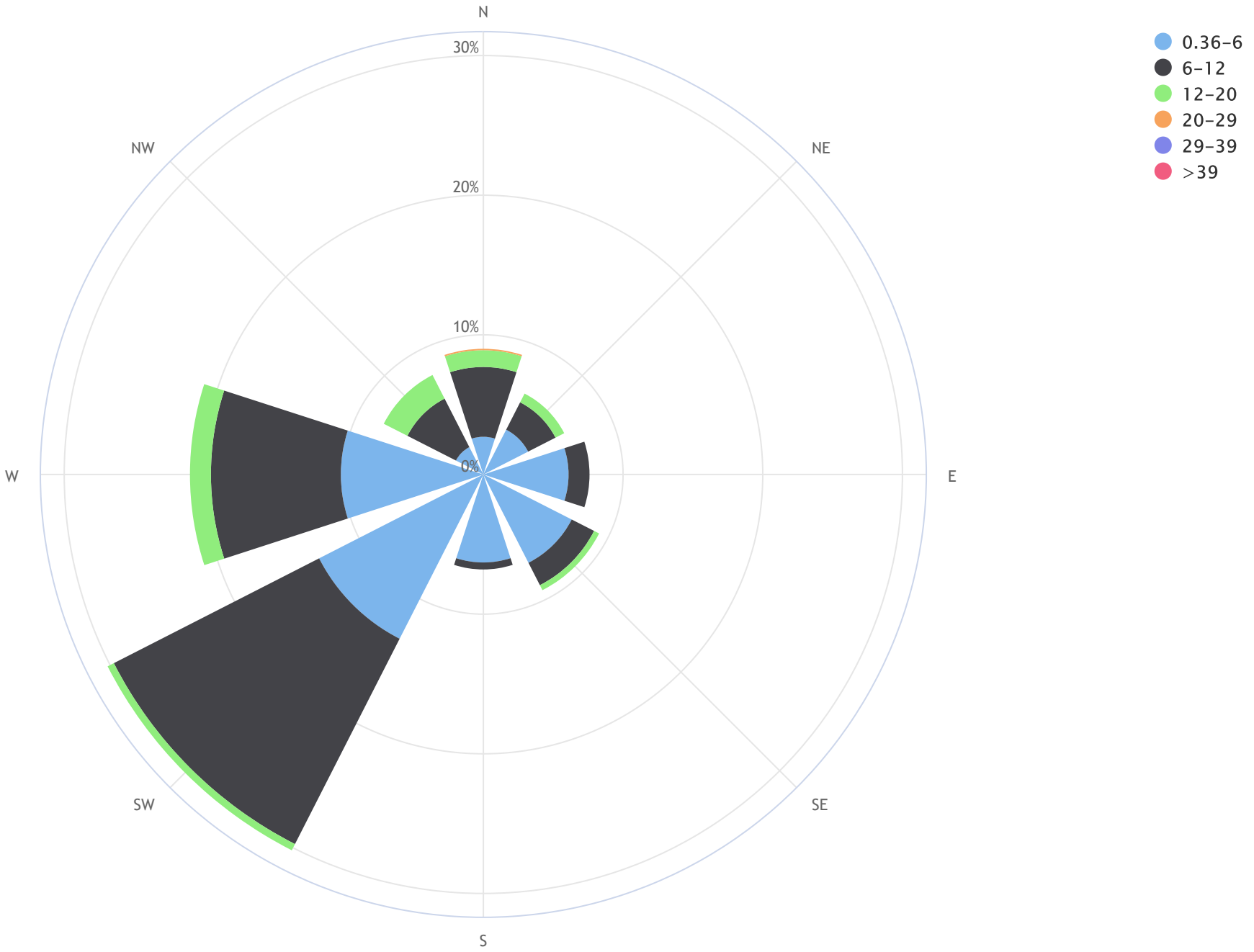
NUMBER OF NON-ZERO READINGS:		744				
MINIMUM 1-HR AVERAGE	0.1	kph	@ HOUR	0	ON DAY	15
MAXIMUM 1-HR AVERAGE:	20.5	kph	@ HOUR	12	ON DAY	30
MAXIMUM 24-HR AVERAGE:	10.8	kph			ON DAY	2
OPERATIONAL TIME:						744 hrs
MONTHLY CALIBRATION TIME:	0	hrs	AMD OPERATION UPTIME:			100.0 %
STANDARD DEVIATION:	3.8		MONTHLY AVERAGE:			2.6 kph

WIND SPEED Hourly Averages (WS kph)



Lakeland Industry & Community Association_Cold Lake South Continuous Monitoring Station_19/03

Wind Rose_Wind Frequency (Blowing From)_CALM Avg = 0.3_CALM % = 1.7%



Direction	0.36-6	6-12	12-20	20-29	29-39	>39	TOTAL
N	2.7	5.0	1.2	0.1	0.0	0.0	9.0
NE	3.6	2.2	0.7	0.0	0.0	0.0	6.5
E	6.1	1.5	0.0	0.0	0.0	0.0	7.5
SE	7.1	1.8	0.4	0.0	0.0	0.0	9.3
S	6.3	0.5	0.0	0.0	0.0	0.0	6.9
SW	13.2	16.5	0.5	0.0	0.0	0.0	30.2
W	10.2	9.3	1.5	0.0	0.0	0.0	21.0
NW	2.2	3.9	1.9	0.0	0.0	0.0	7.9
Summary	51.4	40.6	6.2	0.1	0.0	0.0	98.3
CALM	1.8	0.0	0.0	0.0	0.0	0.0	1.8

WIND DIRECTION Hourly Averages (WD)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR AVG	24-HR
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	QUADRANT	RDGS.
DAY																										
1	N	NNE	N	NNW	NW	NW	NNW	NNW	NNW	N	N	NNW	NNW	NNW	N	NNW	NNW	N	NNW	WNW	WNW	WNW	W	WSW	NNW	24
2	W	WSW	W	W	W	W	W	W	W	W	W	W	WNW	NW	NW	NW	NW	NW	NW	WNW	NW	NW	W	WNW	WNW	24
3	WNW	WNW	WNW	W	WSW	W	W	W	W	W	W	W	W	W	W	W	WSW	W	NW	NW	WNW	W	WSW	WSW	W	24
4	WSW	WSW	W	WSW	WSW	W	W	W	W	W	WSW	W	W	W	W	NW	NW	NW	WNW	WSW	WSW	SW	SW	WSW	W	24
5	WSW	WSW	WSW	WSW	W	W	W	W	W	NNW	N	N	N	NNW	N	N	N	NNW	N	N	NNE	NNE	ENE	ENE	NNW	24
6	ENE	E	E	SE	SE	SE	SE	SE	SSE	SE	SSE	SE	SSE	WSW	SE	SE	SE	SSW	SW	WSW	SE	SW	SW	W	SSE	24
7	SE	SE	ENE	ENE	E	E	ENE	ENE	E	ESE	SE	ESE	ESE	NE	NNE	NNE	NNE	E	E	NE	NE	NE	W	NNW	ENE	24
8	N	SW	WSW	SW	WSW	W	SW	SW	SW	W	N	NNE	NNE	N	NNE	NNE	N	NW	W	W	W	WSW	WSW	WSW	WNW	24
9	WSW	WSW	W	W	WNW	WNW	W	SW	NNW	NE	ENE	ENE	E	WSW	SW	ESE	E	E	ENE	NE	SSE	W	WNW	SE	N	24
10	ENE	W	W	W	NE	NNE	ESE	ENE	ESE	SSW	W	SW	SSE	S	SSE	S	S	SSW	S	S	SW	SW	SSW	S	SSW	24
11	SSE	SW	SSW	SW	SSE	S	SSW	SSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SSW	S	S	SW	SSW	ENE	WNW	S	SW	24
12	SSE	SSE	SSE	S	S	WNW	WSW	WSW	W	WSW	W	W	WNW	NW	NW	WNW	NW	NW	W	W	W	WNW	WNW	WNW	WNW	24
13	W	WSW	SW	SSW	SSW	SW	WSW	WSW	SW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	SW	SW	24
14	WSW	WSW	WSW	WSW	WSW	SW	WSW	WSW	WSW	SW	SW	W	WSW	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	SE	SE	WSW	24
15	WNW	ESE	SSE	SW	NNW	SE	SSW	WSW	SW	SW	SW	SW	WSW	WSW	WSW	W	SSW	WSW	SSE	SSW	WSW	SW	SW	SW	WSW	24
16	SW	SW	SW	SW	SW	WSW	SW	SW	SW	WSW	SW	SW	SW	SW	SW	SW	WSW	N	SW	SW	WSW	WSW	WSW	WSW	SW	24
17	SW	SE	ESE	W	ESE	ESE	E	SSW	S	WSW	WSW	WSW	SW	SW	SW	SW	WSW	SW	SW	WSW	WSW	SW	WSW	WSW	SW	24
18	WSW	WSW	WSW	WSW	W	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	SW	SW	WSW	WSW	WSW	24
19	SW	WSW	SW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	SW	SSE	ESE	SW	24
20	SW	SW	W	NNE	ESE	ENE	SE	W	W	WSW	SW	SW	WSW	SW	SW	SW	WSW	SW	WSW	WSW	SE	ENE	NE	NNE	WSW	24
21	ENE	ENE	ENE	ENE	NE	NE	NE	NE	ENE	ESE	SE	ESE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	24
22	SE	E	NE	E	ESE	E	ESE	SE	SE	ESE	WSW	SE	SE	SE	SW	WSW	SW	SW	SSW	SW	NE	SE	ENE	WSW	S	24
23	ENE	SSE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	ENE	E	ESE	E	NE	24
24	E	E	E	E	E	E	E	ESE	ESE	ESE	E	ESE	ESE	SE	SE	SE	SE	SW	WSW	SW	SW	SSW	SE	S	SE	24
25	SE	S	SSE	SSE	SSW	SSW	SW	SSW	SE	SE	S	SE	S	SW	SSW	SW	SSW	SW	SW	SSW	SSW	SW	WSW	WSW	SSW	24
26	WSW	WSW	WSW	WSW	WNW	W	NW	W	WSW	WSW	WSW	WNW	WSW	WNW	NNE	ESE	S	WSW	W	WNW	W	WSW	W	NNE	W	24
27	N	N	N	NNW	NNW	NNW	NNW	NW	NNW	NNW	NNW	NNW	NW	NNW	NNW	N	NNW	NW	NW	WNW	SW	SW	SSW	SW	NNW	24
28	WSW	SW	ESE	SSE	SW	S	NW	SW	W	WSW	SW	SW	SW	WSW	WSW	WSW	WSW	W	SW	WSW	WSW	N	N	NNE	WSW	24
29	NE	SSW	WNW	WNW	NW	NW	NNW	NNW	N	N	ENE	NNE	ENE	S	SW	SSW	SSW	SW	SE	SE	SSE	SSE	S	SSW	NNW	24
30	S	SSW	SSW	SSE	SE	SSE	W	WSW	W	NW	NNW	NNW	NNW	NNW	N	NNW	N	NNE	N	NNE	NNE	N	NNW	N	NNW	24
31	N	NW	WSW	WSW	WSW	SSE	WNW	ENE	E	E	ESE	WNW	WSW	W	WSW	WSW	WSW	WSW	SW	SW	WSW	WSW	WSW	W	WSW	24

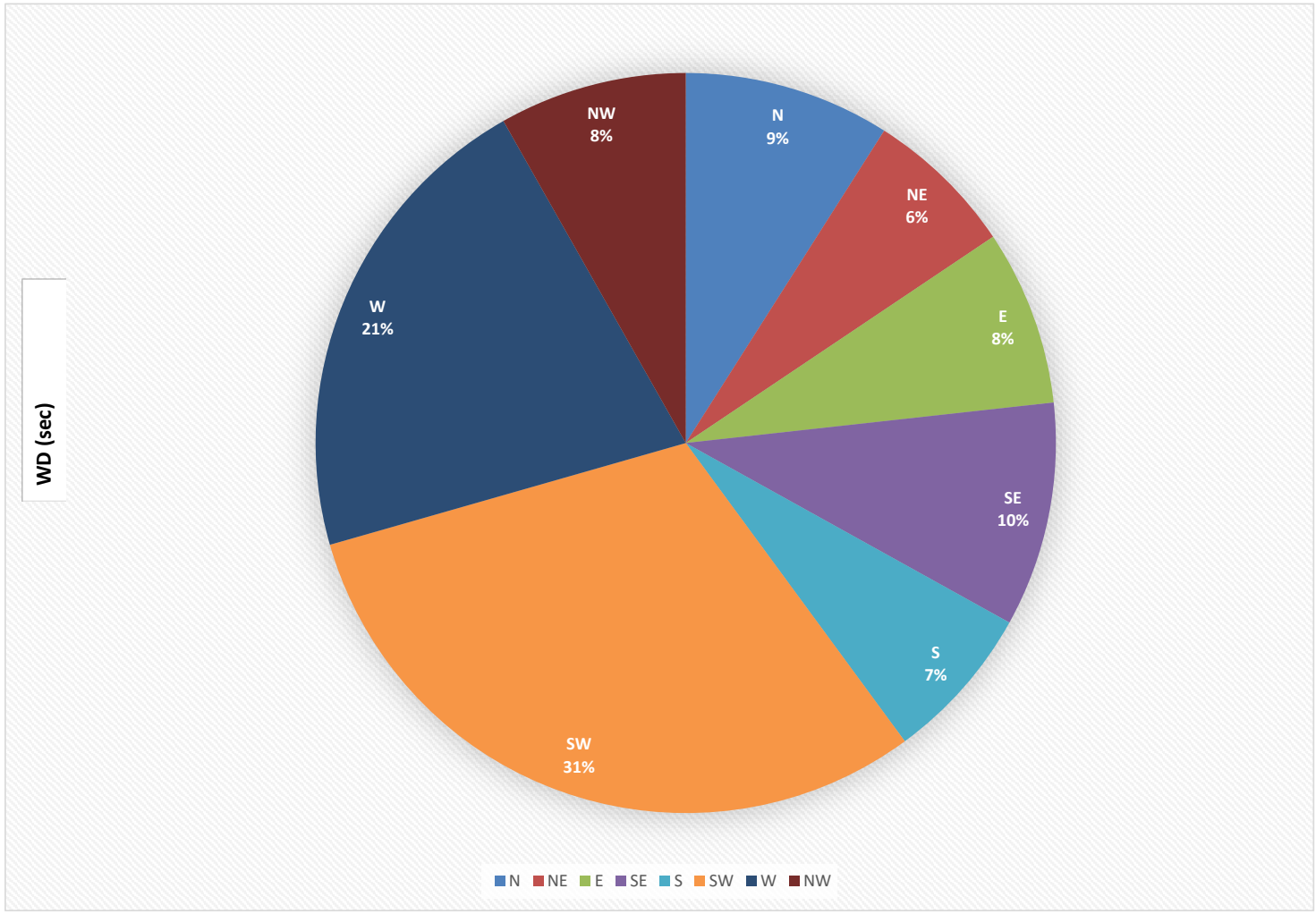
STATUS FLAG CODES

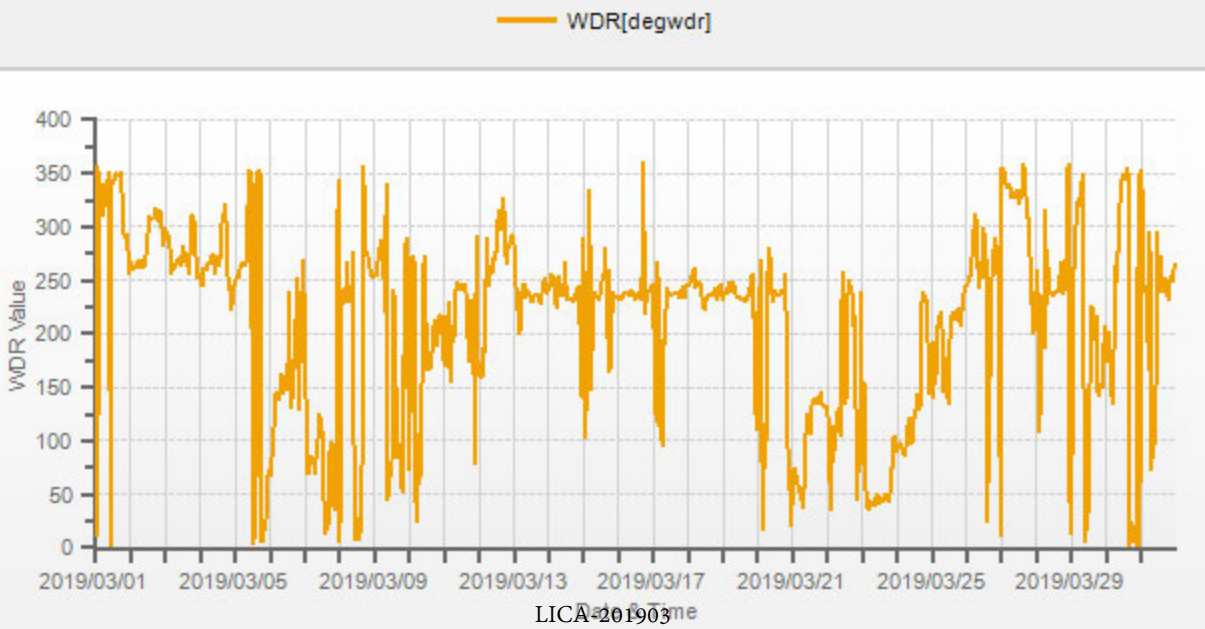
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION:	November 9, 2017
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	744	hrs
STANDARD DEVIATION:	88		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	267 (W)	

WIND DIRECTION Hourly Averages (WD)




WDR[degwdr] Station: LICA COLD LAKE SOUTH Monthly: 19/03 Type: AVG 1 Hr. [1 Hr.]
WDR[degwdr]
WDR Value
400
350
300
250
200
150
100
50
0
2019/03/01
2019/03/05
2019/03/09
2019/03/13
2019/03/17
2019/03/21
2019/03/25
2019/03/29
Date & Time

STANDARD DEVIATION WIND DIRECTION Hourly Averages (STDWD deg)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	
DAY																									
1	14	7	5	7	7	12	15	8	12	15	21	11	16	15	19	19	17	8	14	8	5	5	9	8	24
2	5	4	2	5	8	9	9	4	7	6	7	18	14	13	9	8	7	7	8	6	6	14	7	6	24
3	6	8	5	13	6	5	3	6	5	8	13	11	27	8	13	7	5	24	8	7	6	17	4	3	24
4	6	6	4	4	5	4	4	4	9	11	12	10	8	11	11	18	6	8	44	20	10	14	10	8	24
5	7	5	3	6	7	4	4	8	11	22	12	15	15	14	14	13	11	8	5	12	9	31	19	10	24
6	11	14	23	20	22	16	9	22	30	28	28	30	29	47	26	23	12	52	15	15	35	45	21	12	24
7	37	40	45	10	15	21	14	5	18	15	15	20	26	23	17	23	20	16	19	37	11	29	25	39	24
8	64	14	14	8	9	20	11	10	16	33	26	18	19	13	21	14	23	15	23	12	6	11	5	4	24
9	11	6	25	43	22	17	15	30	11	28	13	15	64	16	24	36	22	25	9	20	51	53	63	51	24
10	16	22	21	23	51	72	54	41	48	32	52	24	32	33	30	18	20	14	17	18	26	21	26	31	24
11	25	15	25	39	25	36	33	36	17	20	9	10	8	10	11	43	28	16	34	38	43	46	67	52	24
12	52	33	41	51	46	48	57	16	15	18	13	9	12	15	11	15	15	23	12	12	10	9	7	11	24
13	18	9	37	49	49	9	8	9	9	7	10	11	10	10	5	7	7	7	5	6	8	8	5	7	24
14	11	8	10	20	30	44	7	13	9	9	16	35	12	9	8	8	9	6	5	7	7	13	59	38	24
15	76	34	51	58	68	72	41	18	5	5	6	6	11	6	5	33	56	62	54	23	7	8	5	6	24
16	5	5	6	5	4	4	4	4	5	9	10	9	8	8	8	9	45	22	24	32	8	8	7	14	24
17	46	69	41	69	38	39	64	47	32	17	6	6	8	8	6	5	6	4	8	12	9	7	16	6	24
18	6	4	6	6	7	5	5	9	14	7	7	10	12	6	6	5	6	5	6	4	7	6	12	6	24
19	5	7	5	4	7	6	6	9	8	4	6	6	6	5	3	5	8	4	6	56	47	50	70	59	24
20	54	68	57	57	55	54	46	46	31	28	16	8	7	6	5	5	8	7	7	35	35	58	44	39	24
21	26	19	15	11	9	4	5	15	18	15	9	12	11	15	5	3	5	5	5	6	7	9	5	5	24
22	20	26	27	32	27	57	63	20	9	76	62	15	10	47	22	9	6	10	22	45	66	25	47	56	24
23	65	67	36	13	7	6	6	5	6	9	11	8	9	8	5	5	6	7	6	6	9	7	9	5	24
24	7	9	8	7	7	10	13	16	18	22	27	25	28	26	27	22	17	30	6	5	6	23	26	42	24
25	60	36	23	23	24	16	9	30	15	17	46	19	40	17	15	13	13	11	9	14	22	10	10	15	24
26	13	11	14	18	19	23	30	26	34	28	49	63	36	69	51	33	28	9	9	40	60	12	36	21	24
27	17	9	8	18	6	10	8	11	9	10	12	12	15	14	17	14	16	15	19	27	50	42	54	66	24
28	52	62	56	62	51	33	55	26	33	10	7	8	8	9	7	7	10	12	6	6	6	48	14	10	24
29	15	68	15	7	6	6	12	8	17	30	18	48	66	57	68	29	38	22	13	12	14	14	21	19	24
30	33	24	13	24	39	56	34	16	15	22	18	15	11	10	14	15	19	13	7	9	6	8	10	14	24
31	31	21	13	75	39	54	72	10	30	35	56	47	42	27	15	17	13	10	7	11	6	6	6	10	24

STATUS FLAG CODES

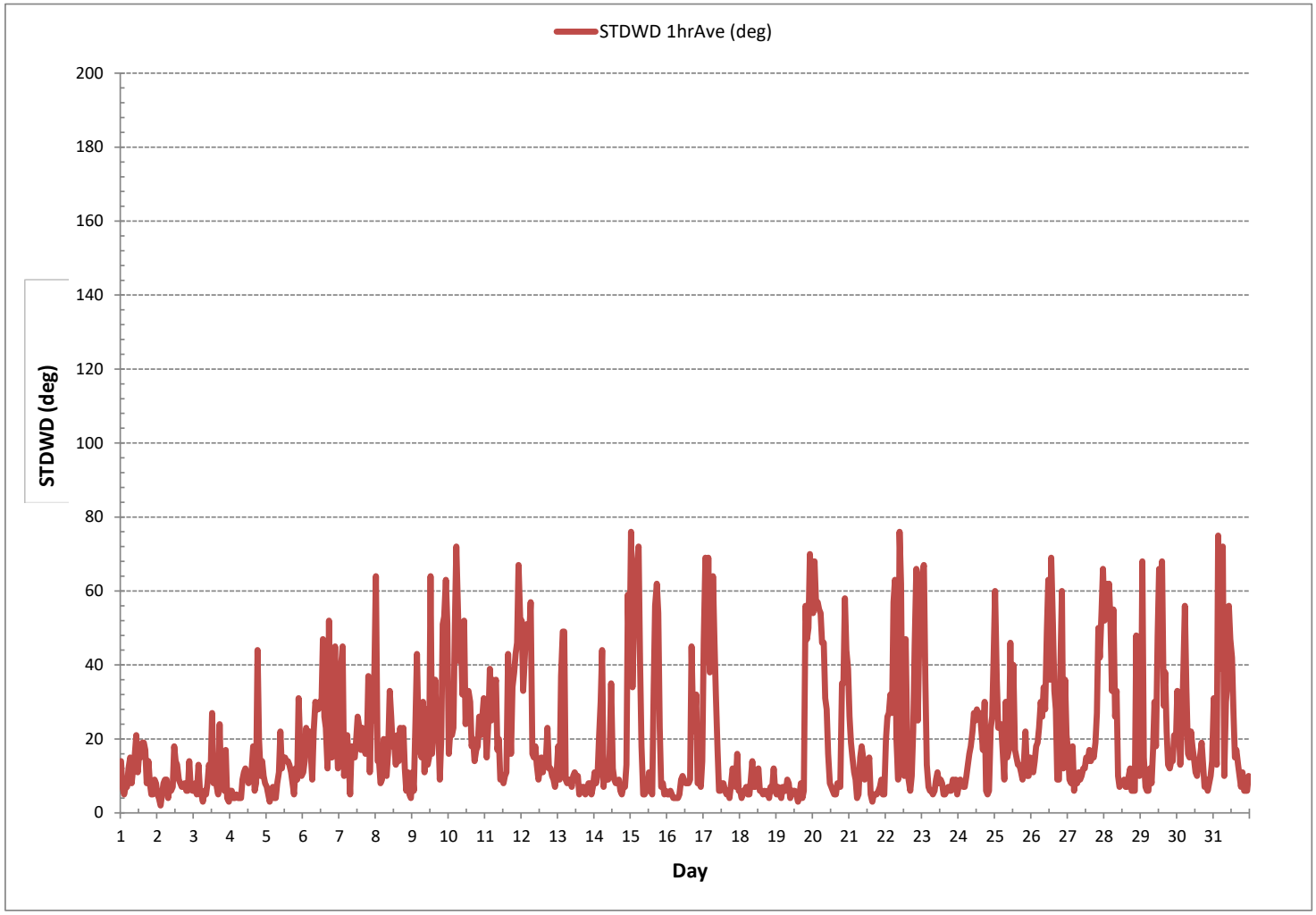
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION: November 9, 2017

CALIBRATION TIME: 0 hrs

OPERATIONAL TIME: 744 hrs

STANDARD DEVIATION WIND DIRECTION Hourly Averages (STDWD deg)



RELATIVE HUMIDITY Hourly Averages (RH %)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	69	66	66	64	65	65	64	63	61	56	53	49	49	46	45	44	44	47	52	58	61	63	66	68	44	69	58	24
2	69	70	71	71	71	70	70	70	68	63	56	51	47	42	41	41	44	45	47	49	51	53	56	58	41	71	57	24
3	59	61	62	64	68	69	68	67	64	58	53	48	43	41	38	38	42	42	43	42	43	48	57	58	38	69	53	24
4	57	60	61	59	60	58	58	56	51	46	45	39	35	32	29	29	29	29	38	46	46	52	58	54	29	61	47	24
5	57	58	61	63	65	67	69	69	63	60	59	57	57	55	52	52	51	53	58	61	64	69	72	67	51	72	61	24
6	71	73	74	74	75	76	76	76	75	73	70	67	61	55	52	50	49	53	61	68	71	76	77	77	49	77	68	24
7	78	78	78	79	78	78	77	77	73	67	64	62	59	58	59	58	57	53	53	60	65	64	64	64	53	79	67	24
8	66	65	71	73	72	71	72	71	69	66	60	66	68	70	72	76	71	74	72	71	73	74	76	74	60	76	70	24
9	70	74	80	81	78	80	81	81	70	62	62	60	54	51	49	48	51	56	62	69	76	80	80	80	48	81	68	24
10	80	78	78	76	76	75	74	74	73	69	60	50	47	42	39	38	40	46	54	60	63	64	64	64	38	80	62	24
11	65	65	64	66	73	72	68	68	58	48	42	37	33	29	27	28	31	37	38	51	61	65	66	68	27	73	52	24
12	69	67	68	71	78	81	82	80	66	56	51	51	53	53	52	49	47	42	47	55	58	65	64	67	42	82	61	24
13	69	74	79	84	86	88	88	86	77	66	57	53	53	50	49	47	49	51	53	54	59	63	66	67	47	88	65	24
14	69	70	70	71	77	81	80	75	66	59	54	50	52	50	46	45	44	47	53	58	59	64	72	77	44	81	62	24
15	80	82	76	70	75	78	80	75	66	62	56	51	47	44	45	48	84	78	86	92	83	72	70	67	44	92	69	24
16	62	63	63	64	64	64	66	63	55	48	45	44	42	41	38	37	28	**22**	42	61	65	69	67	73	**22**	73	54	24
17	79	80	81	84	84	85	85	68	53	46	48	50	51	52	51	50	52	57	63	67	71	76	79	81	46	85	66	24
18	78	72	71	73	74	79	78	73	63	57	50	46	43	42	38	37	37	44	53	56	58	62	68	70	37	79	59	24
19	71	72	72	73	73	74	73	66	57	51	46	40	37	36	35	34	34	36	49	62	69	74	78	81	34	81	58	24
20	84	86	88	88	89	89	89	82	64	51	40	34	32	30	27	24	24	26	30	46	59	66	66	71	24	89	58	24
21	72	69	66	70	68	67	67	60	52	43	40	37	33	30	29	29	30	32	36	41	47	56	63	70	29	72	50	24
22	76	82	85	88	89	91	91	83	79	66	61	56	51	44	41	41	47	49	60	73	80	83	86	88	41	91	70	24
23	90	90	91	89	81	77	75	72	68	60	51	44	36	34	36	36	40	50	59	64	68	69	72	72	34	91	63	24
24	74	76	78	75	75	75	73	68	64	62	59	56	54	51	49	47	46	58	71	77	83	85	87	89	46	89	68	24
25	90	91	91	89	87	84	85	88	91	90	77	64	55	51	49	53	62	64	66	68	71	74	81	83	49	91	75	24
26	84	84	85	85	86	88	90	90	94	95	94	94	89	86	87	84	85	88	92	94	96	97	**98**	92	84	**98**	**90**	24
27	77	74	75	75	72	69	67	61	58	59	57	54	51	45	43	49	74	62	63	73	83	86	89	90	43	90	67	24
28	91	92	92	92	91	91	90	87	82	71	63	58	53	53	51	50	48	43	56	62	64	65	61	62	43	92	69	24
29	68	79	82	76	77	76	76	71	62	57	53	50	46	43	38	39	38	39	44	49	50	51	52	52	38	82	57	24
30	54	54	57	62	68	75	79	70	66	61	48	41	40	38	36	37	40	46	47	52	54	56	61	63	36	79	54	24
31	68	76	82	84	86	87	87	82	64	50	48	45	42	38	38	39	39	45	51	58	65	70	74	71	38	87	62	24
HOURLY MAX	91	92	92	92	91	91	91	90	94	95	94	94	89	86	87	84	85	88	92	94	96	97	98	92				
HOURLY AVG	72	74	75	75	76	77	77	73	67	61	56	52	49	46	45	44	47	49	55	61	65	68	71	72				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
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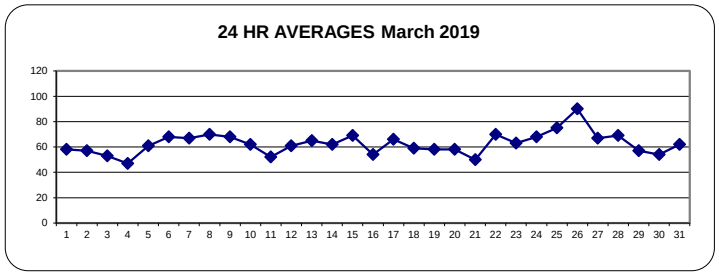
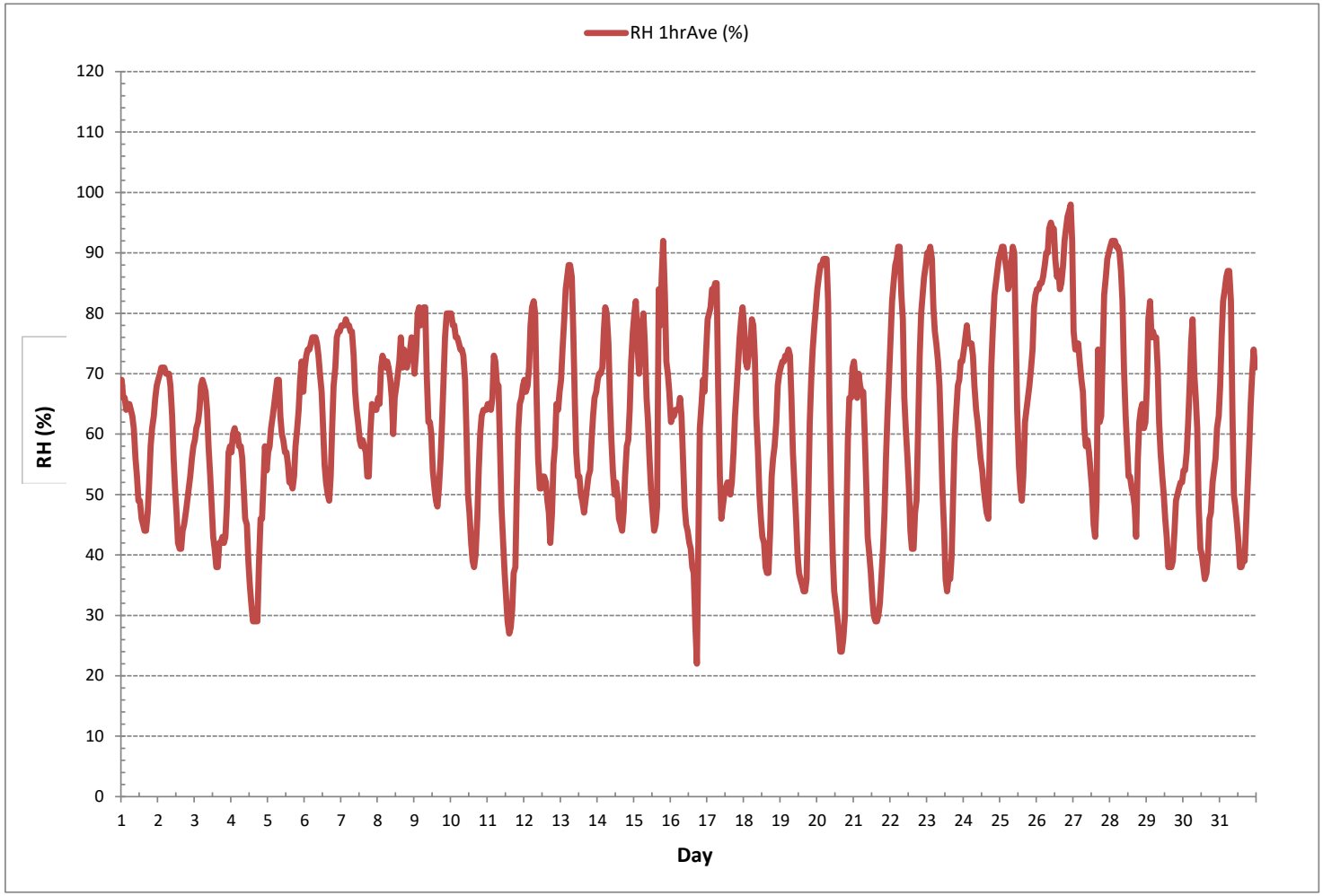


MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	22	%	@ HOUR	17	ON DAY	16	
MAXIMUM 1-HR AVERAGE:	98	%	@ HOUR	22	ON DAY	26	
MAXIMUM 24-HR AVERAGE:	90	%			ON DAY	26	
			OPERATIONAL TIME:			744	hrs
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	16		MONTHLY AVERAGE:			63	%

RELATIVE HUMIDITY Hourly Averages (RH %)



Maxxam
A Bureau Veritas Group Company

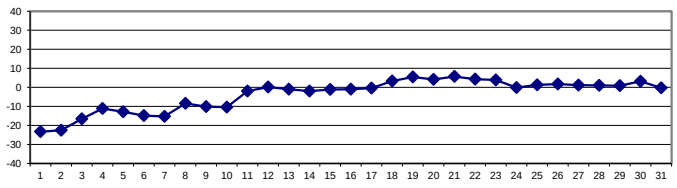
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																											
1	-19.6	-20.6	-21.7	-22.4	-23.3	-24.4	-25.1	-25.8	-25.5	-24.7	-23.7	-22.7	-22.0	-21.5	-20.9	-20.5	-20.5	-21.5	-22.9	-24.6	-25.1	-25.7	-27.3	-27.6	-27.6	-19.6	-23.3	24
2	-28.2	-29.2	-29.5	**-29.7**	-29.4	-29.1	-29.0	-28.3	-27.2	-25.1	-22.7	-20.3	-18.6	-17.3	-16.4	-15.6	-15.6	-16.0	-17.0	-17.6	-18.1	-18.8	-19.9	-20.4	**-29.7**	-15.6	-22.5	24
3	-20.3	-20.7	-20.8	-21.3	-23.2	-22.7	-21.9	-21.3	-20.2	-18.6	-17.0	-15.2	-13.1	-11.9	-10.5	-9.9	-10.7	-11.3	-12.0	-12.7	-13.3	-14.8	-17.4	-17.6	-23.2	-9.9	-16.6	24
4	-17.7	-19.2	-18.7	-18.2	-18.6	-18.4	-18.1	-17.6	-15.6	-13.6	-12.3	-9.6	-7.0	-4.3	-3.1	-2.6	-2.7	-3.2	-4.5	-5.7	-6.2	-8.4	-10.8	-11.0	-19.2	-2.6	-11.1	24
5	-12.5	-13.5	-14.8	-15.5	-16.3	-17.4	-18.2	-18.0	-14.7	-12.8	-12.5	-11.6	-10.4	-9.5	-8.5	-8.0	-7.7	-8.3	-10.0	-11.3	-12.7	-14.5	-16.0	-15.7	-18.2	-7.7	-12.9	24
6	-16.1	-16.0	-16.1	-16.2	-16.2	-16.2	-16.1	-16.0	-15.7	-15.3	-14.8	-14.2	-12.9	-11.5	-10.7	-10.2	-10.1	-10.9	-13.6	-16.1	-17.2	-18.6	-18.4	-19.4	-19.4	-10.1	-14.9	24
7	-20.0	-19.7	-20.8	-21.5	-22.2	-22.4	-21.7	-21.5	-19.1	-17.3	-16.2	-14.9	-13.5	-12.4	-11.9	-11.2	-10.7	-9.9	-9.7	-9.9	-10.3	-10.0	-9.7	-9.7	-22.4	-9.7	-15.3	24
8	-9.8	-9.8	-10.2	-10.6	-11.0	-10.8	-11.0	-11.2	-10.8	-9.8	-8.1	-8.0	-7.5	-6.8	-6.5	-6.2	-5.3	-5.2	-5.3	-5.9	-6.6	-7.4	-9.1	-9.8	-11.2	-5.2	-8.4	24
9	-9.1	-10.5	-13.2	-13.4	-12.6	-14.1	-15.6	-16.0	-11.2	-8.8	-8.0	-7.0	-5.3	-4.9	-4.2	-3.5	-4.1	-5.3	-7.2	-9.5	-12.1	-14.3	-15.8	-17.1	-17.1	-3.5	-10.1	24
10	-18.4	-19.5	-19.8	-20.9	-21.5	-21.9	-22.4	-21.5	-16.1	-10.5	-7.5	-4.2	-2.7	-1.3	-0.9	-0.6	-1.0	-2.6	-4.5	-5.8	-6.3	-6.5	-6.5	-6.7	-22.4	-0.6	-10.4	24
11	-6.9	-7.1	-6.9	-7.7	-9.5	-9.5	-8.6	-8.4	-6.1	-2.9	-0.8	1.9	4.5	6.4	7.7	8.1	6.2	3.7	2.2	-0.7	-2.9	-3.2	-3.3	-3.9	-9.5	8.1	-2.0	24
12	-4.3	-4.0	-4.1	-4.9	-6.9	-8.3	-9.1	-8.0	-3.0	0.4	3.4	5.3	6.0	5.6	5.3	6.0	6.1	6.2	4.0	2.3	2.5	1.9	1.6	0.2	-9.1	6.2	0.2	24
13	-1.1	-2.6	-4.0	-5.9	-7.3	-7.7	-6.4	-5.7	-3.8	-1.3	1.2	2.6	3.1	4.2	4.9	5.5	4.8	4.0	2.3	0.7	-0.9	-1.8	-2.7	-3.5	-7.7	5.5	-0.9	24
14	-4.5	-5.1	-5.2	-5.4	-7.5	-8.8	-8.5	-7.3	-4.9	-2.6	-0.5	2.5	2.6	3.3	4.3	4.7	4.5	3.6	1.5	-0.2	-1.1	-2.5	-3.8	-5.3	-8.8	4.7	-1.9	24
15	-6.3	-6.2	-5.0	-3.9	-4.4	-5.0	-6.1	-5.6	-3.4	-2.4	-0.2	2.3	4.1	5.8	6.1	5.7	2.0	2.6	1.4	-1.0	-1.2	-1.3	-2.2	-2.7	-6.3	6.1	-1.1	24
16	-2.9	-3.8	-4.5	-5.0	-5.5	-5.8	-6.4	-5.9	-3.6	-0.6	0.6	1.5	3.4	4.7	6.0	6.3	7.4	7.1	2.2	-1.5	-2.8	-3.9	-4.3	-5.9	-6.4	7.4	-1.0	24
17	-7.4	-7.9	-8.5	-9.2	-9.7	-10.1	-10.0	-4.6	-0.7	1.6	2.6	3.7	4.5	5.4	6.4	7.2	7.3	6.5	5.0	3.9	2.7	1.4	0.1	-0.7	-10.1	7.3	-0.4	24
18	-0.7	0.1	-0.1	-1.0	-1.5	-2.5	-2.5	-1.6	1.2	3.2	5.3	6.9	8.1	8.3	9.1	9.5	9.2	7.6	5.2	4.2	4.1	3.4	2.3	2.1	-2.5	9.5	3.3	24
19	1.6	1.2	1.2	0.9	0.6	0.5	0.6	2.2	4.5	6.6	8.4	10.4	11.5	12.3	12.6	13.3	13.6	12.5	8.3	4.6	2.1	0.6	-0.4	-1.1	-1.1	13.6	5.4	24
20	-1.8	-2.6	-3.4	-3.9	-4.2	-4.5	-4.7	-2.6	2.2	5.8	9.5	11.3	12.8	13.9	14.1	14.2	14.0	12.9	10.5	6.0	2.6	0.8	-0.3	-0.7	-4.7	14.2	4.2	24
21	-0.8	-0.3	0.2	-0.9	-0.9	-0.7	-0.8	1.2	4.2	7.5	8.6	10.4	11.9	13.0	13.0	12.7	12.4	11.4	9.7	8.1	6.6	4.9	3.5	2.1	-0.9	13.0	**5.7**	24
22	0.7	-0.9	-1.6	-2.1	-2.6	-2.6	-3.4	-0.2	2.9	6.2	7.6	9.1	11.2	13.7	**14.5**	14.3	12.3	11.6	8.2	4.2	2.2	0.7	-0.4	-1.2	-3.4	**14.5**	4.3	24
23	-2.0	-2.2	-2.3	-0.8	0.7	0.8	0.9	1.1	2.5	4.8	7.3	9.5	11.1	11.1	10.8	10.7	9.8	7.5	5.2	3.9	2.4	1.8	0.0	-0.9	-2.3	11.1	3.9	24
24	-1.5	-2.1	-2.9	-3.5	-4.0	-4.6	-4.7	-3.9	-2.7	-1.1	0.3	1.9	3.3	4.5	5.3	6.0	6.3	5.0	2.3	0.6	-0.7	-1.7	-2.4	-3.1	-4.7	6.3	-0.1	24
25	-3.8	-4.4	-3.5	-3.0	-2.7	-2.6	-2.7	-2.5	-2.2	-1.6	0.8	3.5	5.7	6.7	6.8	6.5	5.4	4.8	4.4	4.0	3.6	3.1	2.6	2.5	-4.4	6.8	1.3	24
26	2.3	2.1	1.9	1.8	1.5	1.2	0.9	0.9	0.6	1.2	1.3	1.3	2.5	3.0	2.9	3.6	3.6	3.2	2.4	2.1	1.6	0.6	-0.1	0.9	-0.1	3.6	1.8	24
27	1.8	1.8	1.7	1.4	0.9	0.8	0.9	1.3	1.5	1.4	1.7	2.1	2.6	3.5	4.4	4.2	2.0	3.0	2.6	0.2	-1.7	-2.6	-3.5	-4.2	-4.2	4.4	1.2	24
28	-5.0	-5.7	-6.2	-6.5	-6.9	-7.0	-6.6	-3.8	-1.1	1.6	3.6	5.1	6.1	6.7	7.1	7.3	7.7	7.9	5.5	4.1	3.5	2.7	2.6	2.0	-7.0	7.9	1.0	24
29	0.6	-1.6	-2.5	-2.4	-2.8	-2.9	-3.1	-2.0	-1.1	-0.6	0.4	1.5	2.4	3.3	4.5	4.4	4.7	4.3	3.5	2.6	2.4	2.2	2.0	2.1	-3.1	4.7	0.9	24
30	2.0	2.3	2.1	1.3	0.1	-1.4	-2.0	0.7	2.4	3.8	6.9	8.3	8.2	8.3	8.2	7.9	7.1	4.9	3.4	1.9	1.0	0.2	-0.5	-1.2	-2.0	8.3	3.2	24
31	-2.1	-3.5	-4.6	-5.4	-5.8	-6.0	-5.8	-4.1	-1.6	-0.1	0.7	2.0	2.9	3.6	3.9	4.3	4.4	4.0	3.4	2.0	1.4	0.7	0.6	1.4	-6.0	4.4	-0.2	24
HOURLY MAX	2.3	2.3	2.1	1.8	1.5	1.2	0.9	2.2	4.5	7.5	9.5	11.3	12.8	13.9	14.5	14.3	14.0	12.9	10.5	8.1	6.6	4.9	3.5	2.5				
HOURLY AVG	-6.9	-7.5	-7.9	-8.3	-8.8	-9.2	-9.3	-8.3	-6.1	-4.1	-2.4	-0.8	0.5	1.5	2.1	2.4	2.0	1.3	-0.4	-2.2	-3.2	-4.2	-5.1	-5.7				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

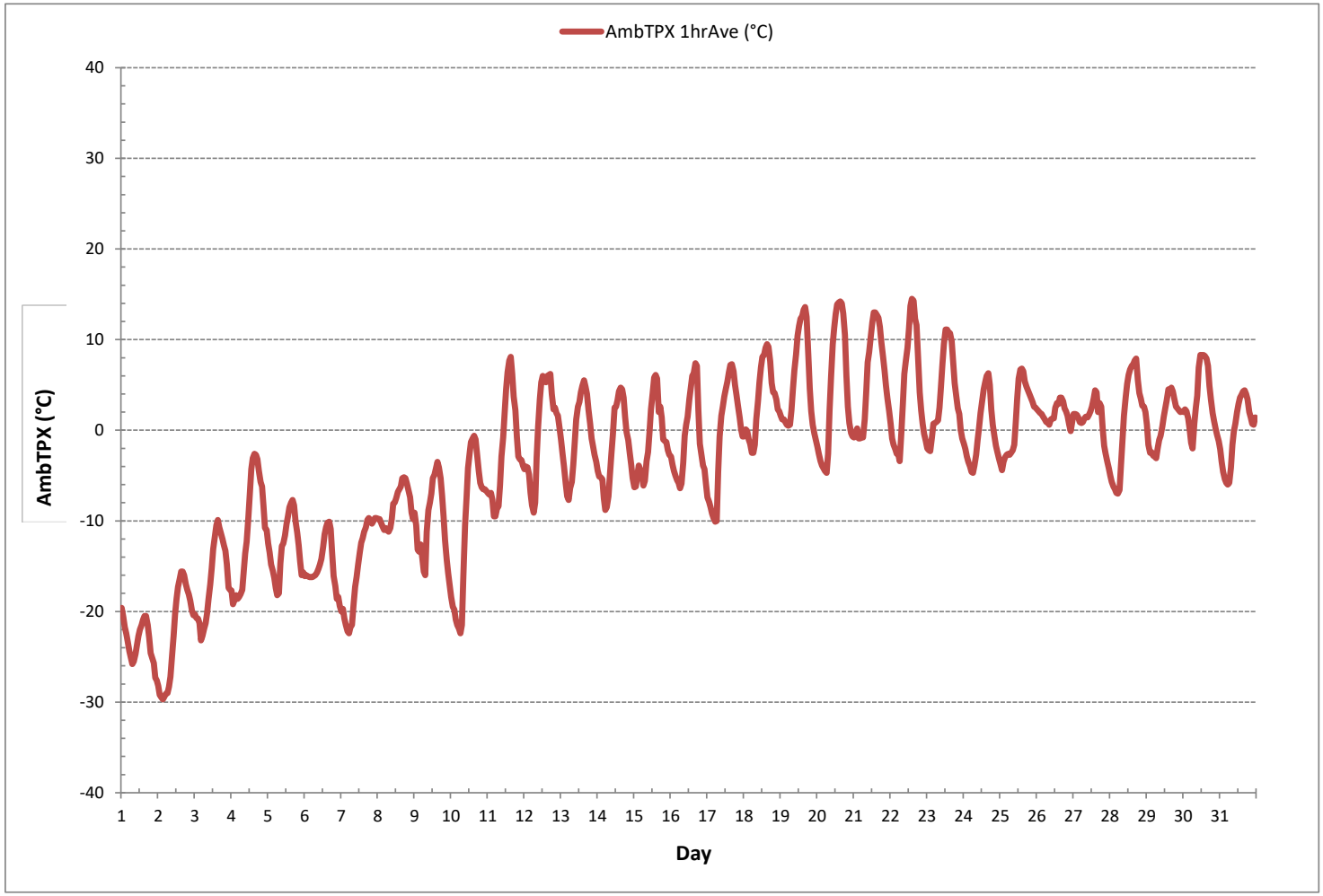
24 HR AVERAGES March 2019



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-29.7	°C	@ HOUR	3	ON DAY	2	
MAXIMUM 1-HR AVERAGE:	14.5	°C	@ HOUR	14	ON DAY	22	
MAXIMUM 24-HR AVERAGE:	5.7	°C			ON DAY	21	
			OPERATIONAL TIME:			744	hrs
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	9.4		MONTHLY AVERAGE:			-3.8	°C

AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



SULPHUR DIOXIDE Instantaneous Maximum (SO_2 ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	0	0	0	0	0	0	0	0	1	1	0	0	1	1	1	S	1	2	1	1	1	1	2	2	0	2	1	24
2	1	0	0	0	0	0	0	0	0	0	1	2	2	2	S	1	1	2	2	2	2	2	2	0	0	2	1	24
3	0	0	1	1	0	0	0	0	0	0	0	0	1	S	0	0	0	1	1	1	1	1	0	0	0	1	0	24
4	0	0	0	0	0	0	0	0	0	0	0	1	S	0	1	1	1	1	1	0	1	0	0	0	0	1	0	24
5	0	0	0	0	0	0	0	0	0	2	3	S	2	2	3	3	2	1	1	0	0	0	0	0	0	3	1	24
6	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
7	0	0	0	0	0	0	0	0	0	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	24
8	1	1	0	0	1	1	1	1	S	1	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	24
9	0	0	0	0	0	0	0	S	1	1	0	0	0	2	2	1	1	0	0	0	0	0	0	0	0	2	0	24
10	0	0	0	0	0	0	S	0	0	1	1	2	2	2	3	2	1	2	1	1	1	1	1	1	0	3	1	24
11	1	1	1	0	0	S	1	1	1	1	2	2	2	2	1	1	1	1	1	0	0	0	0	0	0	2	1	24
12	0	1	1	1	S	0	0	0	1	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	1	0	24
13	0	0	0	S	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	2	2	0	2	0	24
14	1	1	S	0	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	1	-	24
15	0	S	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
16	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	24
17	0	0	0	0	1	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	S	0	0	1	1	24
18	0	0	0	0	0	0	0	0	1	2	1	1	1	1	1	1	0	0	0	0	1	S	2	1	0	2	1	24
19	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	1	24
20	0	0	0	0	0	0	1	0	0	0	2	5	4	3	3	1	1	1	1	S	0	0	0	0	0	5	1	24
21	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	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	S	0	0	0	0	0	0	0	1	0	24
23	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	24
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	1	0	0	0	0	1	0	24
25	0	0	0	0	0	0	0	0	0	0	0	0	1	1	S	0	0	0	0	0	0	0	0	0	0	1	0	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	0	0	0	0	0	0	0	0	0	1	0	24
27	0	0	0	0	0	1	1	1	1	1	0	0	S	0	0	0	0	1	1	1	0	0	0	0	0	1	0	24
28	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
29	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	24
30	0	0	0	0	0	0	0	0	0	S	1	1	1	1	0	1	1	0	0	0	0	0	0	1	0	1	0	24
31	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	24
HOURLY MAX	1	1	1	1	1	1	1	1	1	2	3	5	4	3	3	3	2	2	2	2	2	2	2	2				
HOURLY AVG	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

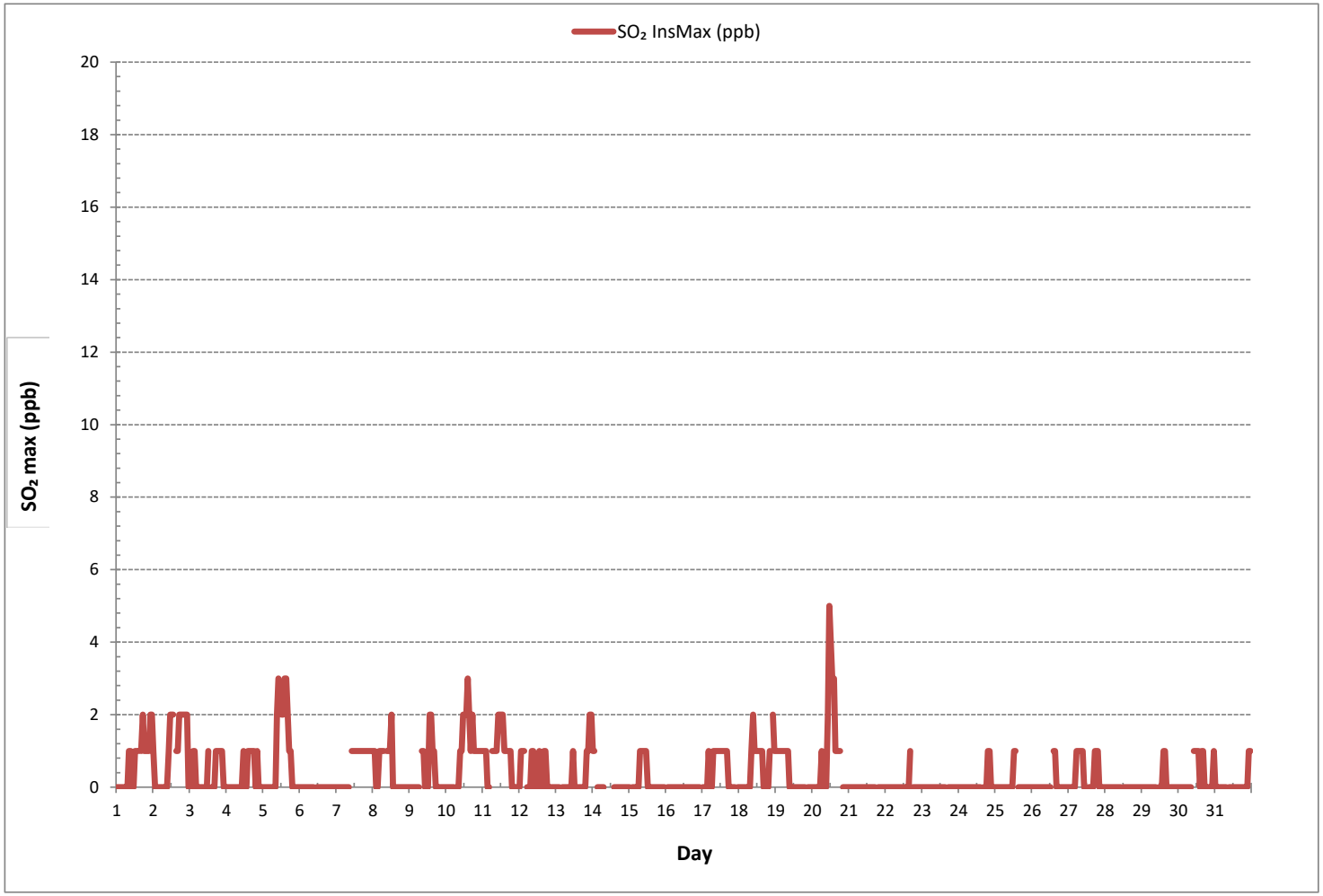
NUMBER OF NON-ZERO READINGS: 198

MAXIMUM INSTANTANEOUS VALUE: 5 ppb @ HOUR 11 ON DAY 20

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 6 hrs
STANDARD DEVIATION: 1

OPERATIONAL TIME: 744 hrs

SULPHUR DIOXIDE Instantaneous Maximum (SO_2 ppb)



TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	24
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	24
3	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	24
4	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
5	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
6	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
7	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
8	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
9	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
10	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
11	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
12	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	24
13	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	24
14	1	1	S	1	1	1	1	1	C	C	C	C	C	C	1	1	1	1	1	1	1	1	1	1	1	1	-	24
15	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	24
16	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	24
17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	24
18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	24
19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	24
20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	24
21	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	24
22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	24
23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	24
24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	24
25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	24
26	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	24
27	1	1	1	1	1	1	1	1	1	1	0	1	S	1	1	1	1	1	1	1	1	1	1	1	0	1	1	24
28	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
29	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
30	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
31	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
HOURLY MAX	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
HOURLY AVG	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

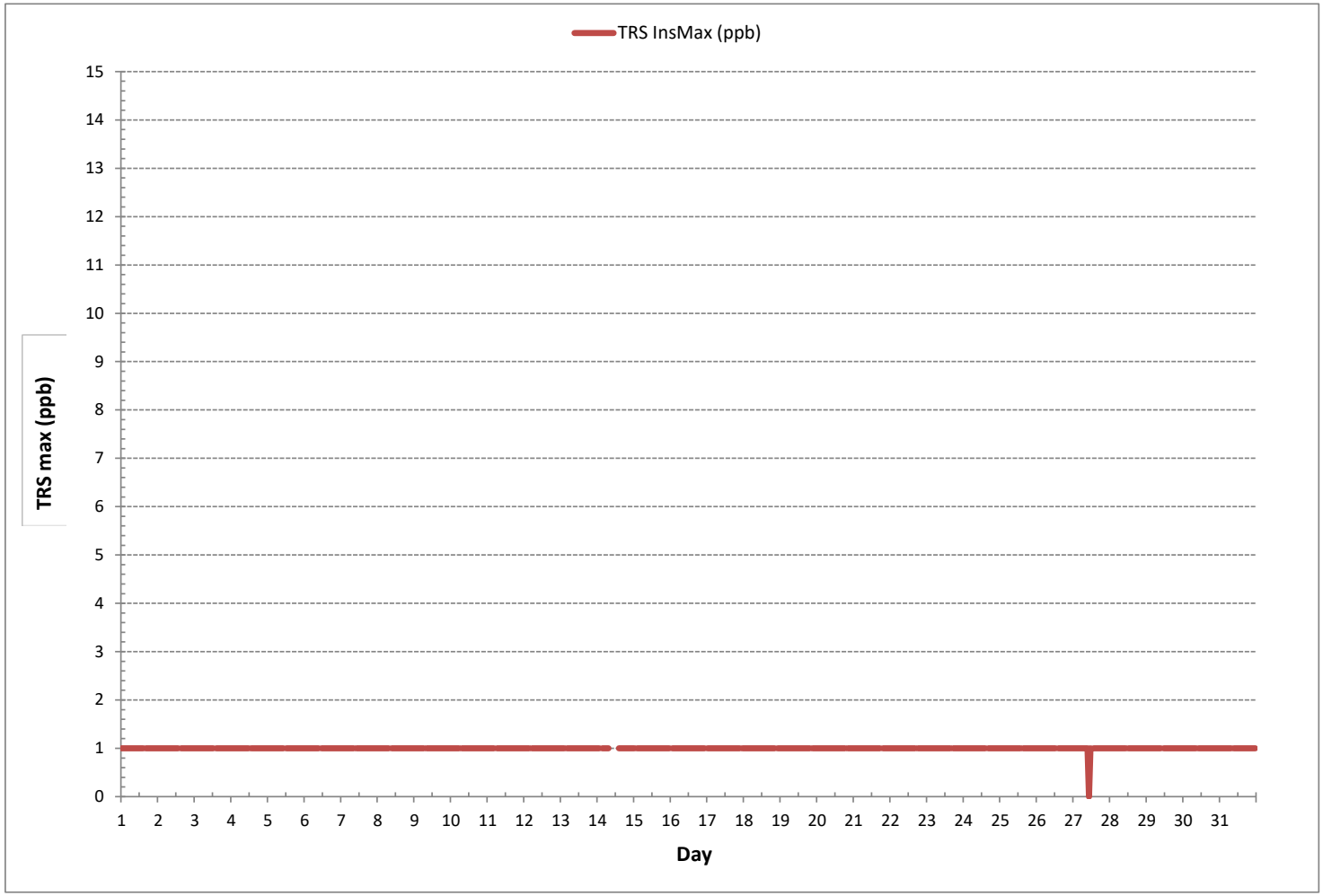
NUMBER OF NON-ZERO READINGS: 705

MAXIMUM INSTANTANEOUS VALUE: 1 ppb @ HOUR 0 ON DAY 1

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 6 hrs
STANDARD DEVIATION: 0

OPERATIONAL TIME: 744 hrs

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)



TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	2.06	2.02	2.05	S	2.05	2.04	2.05	2.08	2.10	2.11	2.19	2.14	2.02	2.19	-	16
2	2.14	X	2.24	2.29	2.36	2.33	2.31	2.26	2.18	2.14	2.10	2.06	2.04	2.02	S	2.03	2.02	2.03	2.02	2.05	2.02	2.05	2.05	2.06	2.02	2.36	2.13	24
3	2.03	2.05	2.05	2.09	2.14	2.14	2.10	2.10	2.09	2.12	2.15	2.08	2.07	S	2.05	2.06	2.06	2.07	2.06	2.06	2.05	2.10	2.21	2.19	2.03	2.21	2.09	24
4	2.18	2.21	2.22	2.17	2.15	2.11	2.11	2.14	2.09	2.14	2.11	2.03	S	2.12	2.07	1.97	1.98	2.00	2.12	2.08	2.14	2.11	2.14	2.11	1.97	2.22	2.11	24
5	2.13	2.16	2.20	2.17	2.24	2.27	2.30	2.34	2.28	2.07	1.99	S	1.98	2.01	2.06	2.04	1.98	1.98	2.01	2.00	1.98	1.98	2.01	1.98	1.98	2.34	2.09	24
6	2.00	2.01	1.98	2.01	1.99	2.02	2.01	2.01	2.11	2.01	S	2.01	2.02	2.02	2.05	2.04	2.08	2.07	2.10	2.15	2.25	2.32	2.30	2.13	1.98	2.32	2.07	24
7	2.17	2.12	2.13	2.13	2.14	2.34	2.05	2.09	2.06	S	2.06	2.02	2.05	2.01	2.02	1.98	2.01	1.99	2.00	2.02	2.00	1.98	2.00	2.04	1.98	2.34	2.06	24
8	2.06	2.08	2.38	2.55	2.53	2.38	2.33	2.28	S	2.30	2.33	2.31	2.07	1.98	1.99	1.98	1.95	1.96	1.97	2.03	2.01	2.08	2.12	2.27	1.95	2.55	2.17	24
9	2.34	2.40	2.42	2.51	2.75	2.36	2.22	S	2.14	1.97	2.01	2.00	1.97	2.07	2.06	2.07	2.04	2.01	2.01	2.03	2.07	2.63	2.15	2.20	1.97	2.75	2.19	24
10	2.28	2.26	2.19	2.25	2.43	2.34	S	2.34	2.46	2.23	2.21	2.36	2.24	2.15	2.16	2.19	2.24	2.29	2.17	2.14	2.17	2.17	2.20	2.21	2.14	2.46	2.25	24
11	2.24	2.21	2.20	2.24	2.32	S	2.30	2.68	2.34	2.40	2.30	2.23	2.16	2.16	2.04	2.16	2.19	2.24	2.18	2.20	2.58	2.44	2.41	2.50	2.04	2.68	2.29	24
12	2.45	2.60	2.65	2.58	S	2.54	2.85	2.65	2.54	2.29	2.19	2.11	1.96	1.93	1.94	1.93	1.93	1.95	1.94	2.00	1.97	1.97	1.97	2.02	1.93	2.85	2.22	24
13	2.03	2.03	2.11	S	2.22	2.33	2.25	2.26	2.16	2.11	2.13	2.08	2.07	2.03	2.22	1.97	1.99	1.98	1.97	1.98	2.00	2.00	2.04	2.07	1.97	2.33	2.09	24
14	2.06	2.10	S	2.23	2.20	2.28	2.25	2.30	2.32	2.23	2.23	2.15	2.05	1.99	1.99	1.96	2.10	1.98	2.00	X	X	X	X	X	1.96	2.32	2.13	19
15	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	C1	C1	C1	C1	2.12	2.12	2.28	2.14	2.16	2.12	2.12	2.28	-	6
16	S	2.14	2.08	2.04	2.06	2.07	2.13	2.07	2.07	2.02	1.98	2.02	2.15	1.95	1.90	1.93	1.89	1.90	1.95	2.06	2.20	2.31	2.37	S	1.89	2.37	2.06	24
17	2.11	2.51	2.29	2.44	2.44	2.30	2.36	2.34	2.17	2.21	2.02	2.00	1.89	X	X	X	X	X	X	X	X	X	X	X	1.89	2.51	-	13
18	X	X	X	X	X	X	X	X	X	X	C1	C1	C1	C1	2.06	2.04	2.07	2.07	2.10	2.10	2.27	S	2.18	2.13	2.04	2.27	-	10
19	2.08	2.07	2.07	2.18	2.08	2.21	2.08	2.16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.07	2.21	-	8
20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	X	X	X	X	-	-	-	0
26	X	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
27	Y	Y	Y	Y	Y	Y	Y	Y	Y	C1	C1	C1	C1	1.93	1.95	1.93	1.94	1.96	1.96	1.97	2.10	2.03	2.15	2.12	1.93	2.15	-	11
28	2.23	2.17	2.24	2.58	2.35	2.37	2.34	2.28	2.26	2.25	2.16	S	1.97	1.97	1.96	1.95	1.96	1.96	1.98	1.98	2.00	2.03	1.97	1.96	1.95	2.58	2.13	24
29	1.97	2.06	2.01	2.06	2.06	2.02	2.03	1.98	1.97	1.96	S	1.96	1.96	1.96	1.97	1.97	2.01	2.04	1.99	2.09	2.12	2.11	2.17	2.15	1.96	2.17	2.03	24
30	2.22	2.31	2.17	2.21	2.42	2.88	**4.37**	3.49	2.26	S	2.03	1.95	1.95	1.95	1.94	1.95	1.96	1.96	1.96	1.96	1.97	1.97	1.98	2.00	1.94	**4.37**	2.25	24
31	2.16	2.26	3.77	2.89	3.46	2.59	2.58	2.38	S	1.96	1.97	1.96	1.97	1.97	1.99	1.99	1.99	2.01	2.06	2.21	2.05	2.07	2.08	2.07	1.96	3.77	2.28	24
HOURLY MAX	2.45	2.60	3.77	2.89	3.46	2.88	4.37	3.49	2.54	2.40	2.33	2.36	2.24	2.16	2.22	2.19	2.24	2.29	2.18	2.21	2.58	2.63	2.41	2.50				
HOURLY AVG	2.15	2.20	2.28	2.30	2.33	2.31	2.37	2.32	2.21	2.14	2.12	2.08	2.03	2.01	2.02	2.01	2.02	2.02	2.03	2.06	2.11	2.13	2.14	2.12				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

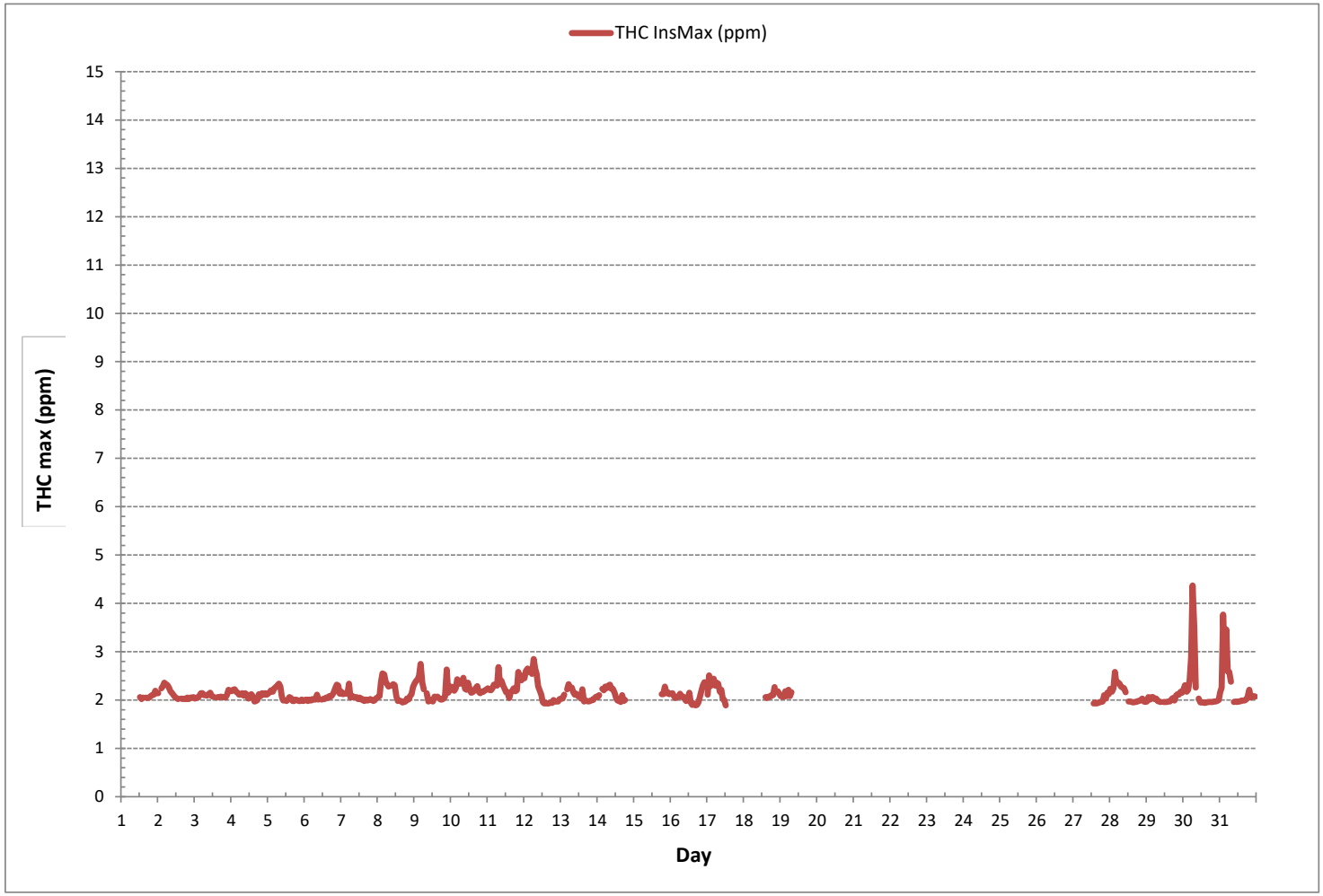
NUMBER OF NON-ZERO READINGS: 465

MAXIMUM INSTANTANEOUS VALUE: 4.37 ppm @ HOUR 6 ON DAY 30

IZS CALIBRATION TIME: 21 hrs
MONTHLY CALIBRATION TIME: 4 hrs
STANDARD DEVIATION: 0.23

OPERATIONAL TIME: 491 hrs

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)



METHANE MAX Instantaneous Maximum (CH_4 ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	2.06	2.02	2.05	S	2.05	2.04	2.05	2.08	2.10	2.11	2.19	2.14	2.02	2.19	-	16
2	2.14	X	2.24	2.29	2.36	2.33	2.31	2.26	2.18	2.14	2.10	2.06	2.04	2.02	S	2.03	2.02	2.03	2.02	2.05	2.02	2.05	2.05	2.06	2.02	2.36	2.13	24
3	2.03	2.05	2.05	2.09	2.14	2.14	2.10	2.10	2.09	2.12	2.15	2.08	2.07	S	2.05	2.06	2.06	2.07	2.06	2.06	2.05	2.10	2.21	2.19	2.03	2.21	2.09	24
4	2.18	2.21	2.22	2.17	2.15	2.11	2.11	2.14	2.09	2.14	2.11	2.03	S	2.12	2.07	1.97	1.98	2.00	2.12	2.08	2.14	2.11	2.14	2.11	1.97	2.22	2.11	24
5	2.13	2.16	2.20	2.17	2.24	2.27	2.30	2.34	2.28	2.07	1.99	S	1.98	2.01	2.06	2.04	1.98	1.98	2.01	2.00	1.98	1.98	2.01	1.98	1.98	2.34	2.09	24
6	2.00	2.01	1.98	2.01	1.99	2.02	2.01	2.01	1.98	2.01	S	2.01	2.02	2.02	2.05	2.04	2.08	2.07	2.10	2.15	2.25	2.30	2.30	2.13	1.98	2.30	2.07	24
7	2.17	2.12	2.13	2.13	2.14	2.17	2.05	2.09	2.06	S	2.06	2.02	2.05	2.01	2.02	1.98	2.01	1.99	2.00	2.02	2.00	1.98	2.00	2.04	1.98	2.17	2.05	24
8	2.06	2.08	2.38	2.55	2.53	2.38	2.33	2.28	S	2.30	2.33	2.31	2.07	1.98	1.99	1.98	1.95	1.96	1.97	2.03	2.01	2.08	2.12	2.27	1.95	2.55	2.17	24
9	2.34	2.40	2.42	2.51	2.66	2.36	2.22	S	2.14	1.97	2.01	2.00	1.97	2.07	2.06	2.07	2.04	2.01	2.01	2.03	2.07	2.23	2.15	2.20	1.97	2.66	2.17	24
10	2.28	2.26	2.19	2.24	2.36	2.34	S	2.34	2.34	2.23	2.21	2.36	2.24	2.15	2.16	2.19	2.24	2.29	2.17	2.14	2.17	2.17	2.20	2.21	2.14	2.36	2.24	24
11	2.24	2.21	2.20	2.24	2.32	S	2.30	2.33	2.34	2.40	2.30	2.23	2.16	2.16	2.04	2.16	2.19	2.24	2.18	2.20	2.23	2.43	2.37	2.50	2.04	2.50	2.26	24
12	2.45	2.60	2.65	2.54	S	2.54	2.85	2.62	2.54	2.29	2.19	2.11	1.96	1.93	1.94	1.93	1.93	1.95	1.94	2.00	1.97	1.97	1.97	2.02	1.93	2.85	2.21	24
13	2.03	2.03	2.11	S	2.22	2.33	2.25	2.26	2.16	2.11	2.13	2.08	2.07	2.03	1.99	1.97	1.99	1.98	1.97	1.98	2.00	2.00	2.04	2.07	1.97	2.33	2.08	24
14	2.06	2.10	S	2.23	2.20	2.28	2.25	2.30	2.32	2.23	2.23	2.15	2.05	1.99	1.99	1.96	1.94	1.98	2.00	X	X	X	X	X	1.94	2.32	2.12	19
15	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	C1	C1	C1	C1	2.12	2.12	2.28	2.14	2.16	2.12	2.12	2.28	-	6
16	S	2.14	2.08	2.04	2.06	2.07	2.13	2.07	2.07	2.02	1.98	2.02	2.01	1.95	1.90	1.93	1.89	1.90	1.95	2.06	2.20	2.31	2.37	S	1.89	2.37	2.05	24
17	2.11	2.51	2.28	2.44	2.44	2.30	2.32	2.34	2.17	2.21	2.02	2.00	1.89	X	X	X	X	X	X	X	X	X	X	X	1.89	2.51	-	13
18	X	X	X	X	X	X	X	X	X	X	C1	C1	C1	C1	2.06	2.04	2.07	2.07	2.10	2.10	2.27	S	2.18	2.13	2.04	2.27	-	10
19	2.08	2.07	2.07	2.18	2.08	2.21	2.08	2.16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.07	2.21	-	8
20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	X	X	X	X	-	-	-	0
26	X	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
27	Y	Y	Y	Y	Y	Y	Y	Y	Y	C1	C1	C1	C1	1.93	1.95	1.93	1.94	1.96	1.96	1.97	2.10	2.03	2.15	2.12	1.93	2.15	-	11
28	2.23	2.17	2.24	2.58	2.35	2.37	2.34	2.28	2.26	2.25	2.16	S	1.97	1.97	1.96	1.95	1.96	1.96	1.98	1.98	2.00	2.03	1.97	1.96	1.95	2.58	2.13	24
29	1.97	2.06	2.01	2.06	2.06	2.02	2.03	1.98	1.97	1.96	S	1.96	1.96	1.96	1.97	1.97	2.01	2.04	1.99	2.09	2.12	2.11	2.17	2.15	1.96	2.17	2.03	24
30	2.22	2.31	2.17	2.21	2.42	2.88	**4.37**	3.49	2.26	S	2.03	1.95	1.95	1.95	1.94	1.95	1.96	1.96	1.96	1.96	1.97	1.97	1.98	2.00	1.94	**4.37**	2.25	24
31	2.16	2.26	3.77	2.89	3.46	2.59	2.58	2.38	S	1.96	1.97	1.96	1.97	1.97	1.99	1.99	1.99	2.01	2.06	2.21	2.05	2.07	2.08	2.07	1.96	3.77	**2.28**	24
HOURLY MAX	2.45	2.60	3.77	2.89	3.46	2.88	4.37	3.49	2.54	2.40	2.33	2.36	2.24	2.16	2.16	2.19	2.24	2.29	2.18	2.21	2.28	2.43	2.37	2.50				
HOURLY AVG	2.15	2.20	2.28	2.29	2.33	2.30	2.36	2.30	2.19	2.14	2.12	2.08	2.03	2.01	2.01	2.01	2.01	2.02	2.03	2.06	2.09	2.11	2.13	2.12				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

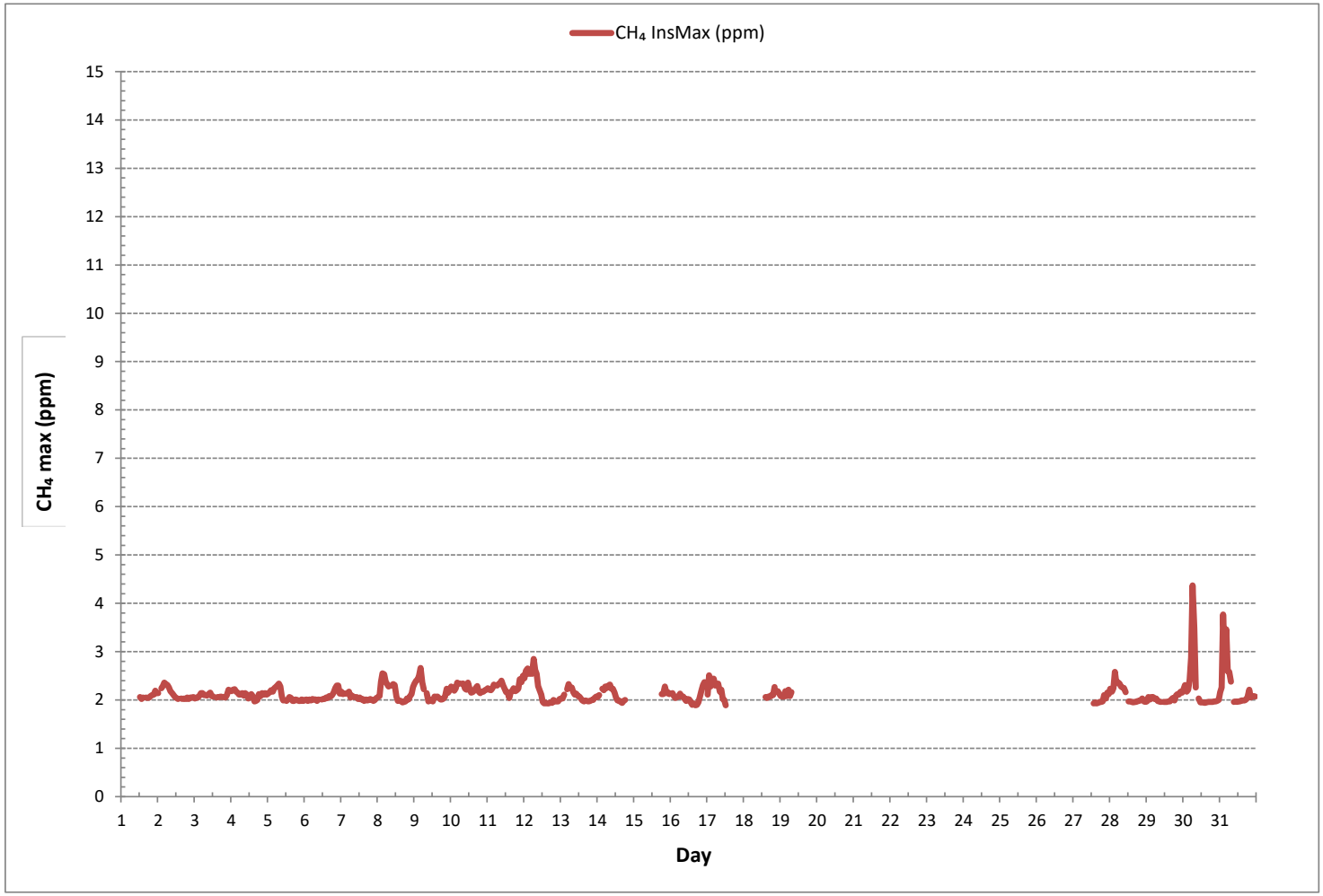
NUMBER OF NON-ZERO READINGS: 465

MAXIMUM INSTANTANEOUS VALUE: 4.37 ppm @ HOUR 6 ON DAY 30

IZS CALIBRATION TIME: 21 hrs
MONTHLY CALIBRATION TIME: 4 hrs
STANDARD DEVIATION: 0.22

OPERATIONAL TIME: 491 hrs

METHANE MAX Instantaneous Maximum (CH_4 ppm)



NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	16
2	0.00	X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	24
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	24
5	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	24
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.13	0.01	24
7	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.01	24
8	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	24
9	0.00	0.00	0.00	0.08	0.09	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	**0.40**	0.00	0.00	0.00	**0.40**	0.02	24
10	0.00	0.00	0.00	0.01	0.07	0.00	S	0.04	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.01	24
11	0.00	0.00	0.00	0.00	0.00	S	0.00	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.09	0.08	0.00	0.00	0.37	0.04	24
12	0.04	0.00	0.00	0.07	S	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01	24
13	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	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.01	24
14	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	0.15	0.00	0.00	X	X	X	X	X	0.00	0.15	0.01	19
15	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	C1	C1	C1	C1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	6
16	S	0.00	0.00	0.00	0.00	0.00	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	S	0.00	0.13	0.01	24
17	0.00	0.04	0.04	0.06	0.13	0.08	0.09	0.00	0.00	0.00	0.00	0.00	0.04	X	X	X	X	X	X	X	X	X	X	X	0.00	0.13	-	13
18	X	X	X	X	X	X	X	X	X	X	C1	C1	C1	C1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	-	10
19	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.00	0.08	-	8
20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	X	X	X	X	-	-	-	0
26	X	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
27	Y	Y	Y	Y	Y	Y	Y	Y	Y	C1	C1	C1	C1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	11
28	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	24
29	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	24
30	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	24
31	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	24
HOURLY MAX	0.04	0.04	0.04	0.08	0.13	0.19	0.09	0.37	0.20	0.00	0.00	0.00	0.13	0.00	0.25	0.00	0.15	0.00	0.00	0.00	0.36	0.40	0.08	0.00				
HOURLY AVG	0.00	0.00	0.00	0.01	0.02	0.02	0.00	0.03	0.02	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.03	0.00	0.00				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

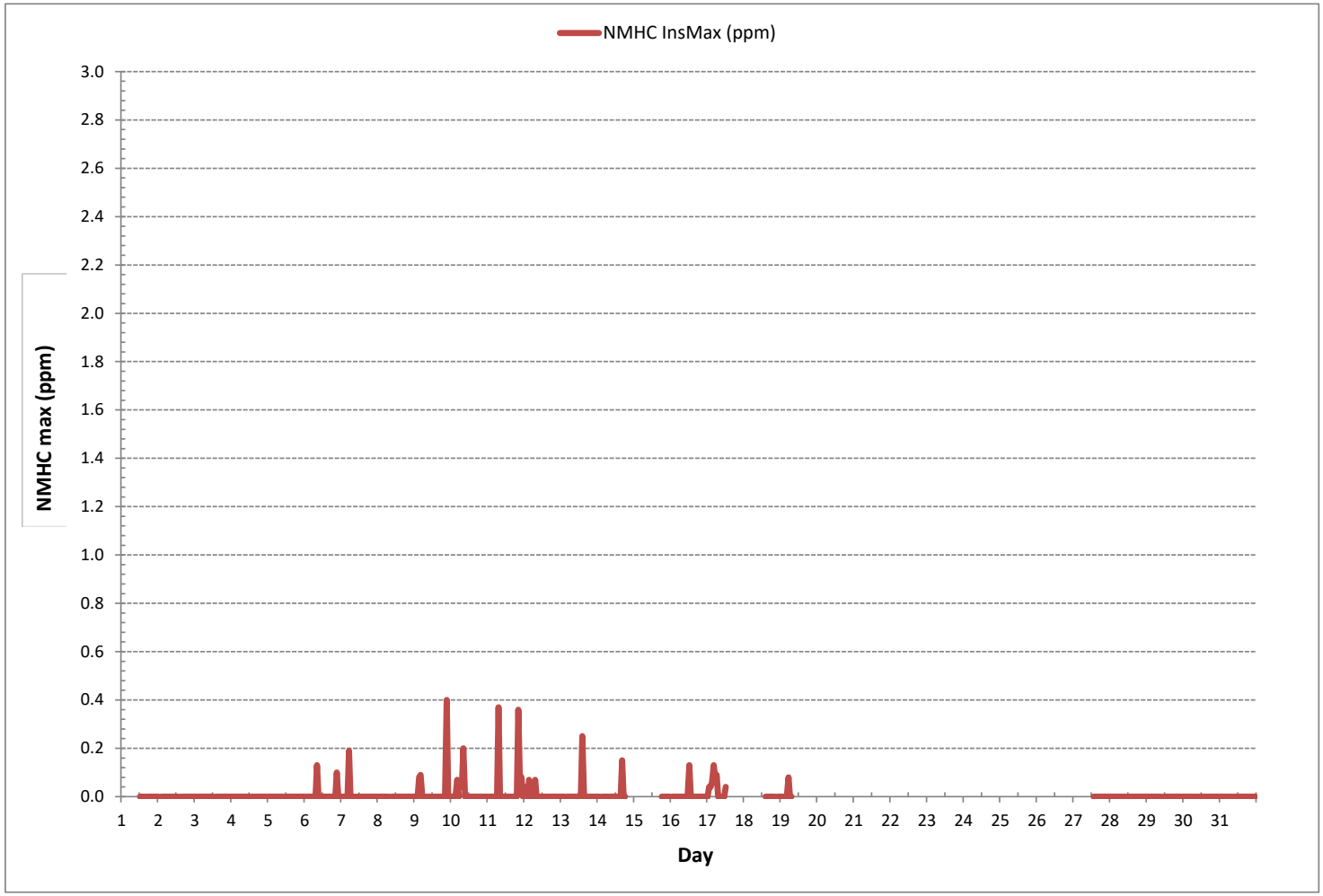
NUMBER OF NON-ZERO READINGS: 28

MAXIMUM INSTANTANEOUS VALUE: 0.40 ppm @ HOUR 21 ON DAY 9

IZS CALIBRATION TIME: 21 hrs
MONTHLY CALIBRATION TIME: 4 hrs
STANDARD DEVIATION: 0.04

OPERATIONAL TIME: 491 hrs

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)



OXIDES OF NITROGEN Instantaneous Maximum (NO_x ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	2	2	2	1	2	2	2	3	3	2	3	10	3	5	4	S	3	4	6	6	9	10	14	12	1	14	5	24
2	10	11	13	13	13	18	12	12	9	8	5	5	4	4	S	3	3	4	4	5	4	6	8	4	3	18	8	24
3	2	3	4	7	7	8	6	7	5	4	4	4	3	S	3	3	4	5	4	3	6	9	9	10	2	10	5	24
4	7	9	10	9	9	6	7	7	5	5	6	4	S	5	2	2	3	3	6	6	7	8	7	9	2	10	6	24
5	10	9	8	11	13	12	16	21	17	9	14	S	9	58	125	96	4	5	6	16	4	20	8	6	4	125	22	24
6	7	8	7	3	3	4	4	2	3	1	S	3	1	4	5	5	5	6	7	9	16	26	7	14	1	26	7	24
7	12	9	22	29	19	73	29	19	16	S	11	6	21	6	4	14	8	9	9	10	8	15	10	7	4	73	16	24
8	8	5	8	10	14	12	10	60	S	11	10	9	6	11	7	4	4	3	6	7	9	13	20	18	3	60	11	24
9	13	14	18	24	24	13	15	S	9	5	7	6	4	8	10	20	10	10	26	32	21	55	48	23	4	55	18	24
10	15	14	28	16	19	31	S	38	52	9	5	5	9	4	6	6	5	5	5	5	5	11	5	6	4	52	13	24
11	5	5	5	9	11	S	14	19	8	9	11	11	9	8	5	33	6	5	8	17	21	37	31	35	5	37	14	24
12	20	14	7	10	S	17	29	24	20	13	10	8	4	4	3	3	3	5	5	5	5	4	4	5	3	29	10	24
13	5	4	8	S	5	9	11	11	12	12	11	11	6	8	4	3	5	6	3	6	6	8	8	7	3	12	7	24
14	9	7	S	9	19	14	28	18	C	C	C	C	C	C	C	C	C	4	4	6	5	5	12	12	4	28	-	24
15	12	S	18	9	13	22	32	34	11	7	7	6	5	3	3	3	5	4	13	5	6	6	6	7	3	34	10	24
16	S	6	5	4	4	4	5	7	10	8	5	5	4	3	4	2	2	2	4	9	8	5	7	S	2	10	5	24
17	18	13	21	28	206	38	49	28	6	7	7	6	6	5	5	5	4	4	4	4	5	5	S	7	4	206	21	24
18	7	7	6	9	11	14	15	19	16	11	10	12	9	9	7	4	4	3	6	14	4	S	7	6	3	19	9	24
19	6	6	7	8	9	10	13	14	9	10	9	8	7	5	11	8	8	6	6	17	S	10	11	19	5	19	9	24
20	14	11	8	22	34	53	137	58	24	11	8	11	12	8	11	5	4	5	6	S	19	24	16	12	4	137	22	24
21	17	13	13	16	15	15	25	18	18	5	3	2	7	16	2	3	9	2	S	1	2	6	8	5	1	25	10	24
22	4	15	21	25	34	24	62	59	5	4	3	4	5	5	8	4	7	S	46	8	12	26	19	18	3	62	18	24
23	15	14	21	20	6	6	8	4	2	5	5	3	7	2	2	10	S	2	3	4	3	6	3	4	2	21	7	24
24	4	4	4	8	8	8	11	5	3	3	3	2	9	2	1	S	1	2	3	3	3	7	7	5	1	11	5	24
25	3	3	3	2	1	2	2	4	2	3	2	8	2	2	S	3	4	2	2	2	2	4	4	3	1	8	3	24
26	4	3	3	5	4	4	10	5	8	6	8	11	5	S	11	10	8	10	9	10	12	8	8	7	3	12	7	24
27	3	3	2	2	2	2	4	4	2	2	2	2	S	2	2	2	3	3	5	8	13	8	15	15	2	15	5	24
28	7	13	20	25	13	12	13	38	5	5	13	S	2	3	2	4	9	2	3	4	4	14	3	3	2	38	9	24
29	9	8	5	16	4	4	4	4	3	5	S	2	1	8	4	3	4	1	2	4	3	2	1	2	1	16	4	24
30	3	2	2	2	8	17	4	7	4	S	5	2	1	1	1	2	2	2	2	2	5	5	2	4	1	17	4	24
31	4	3	2	17	15	12	21	41	S	2	8	1	1	1	4	1	2	2	3	4	4	5	5	4	1	41	7	24
HOURLY MAX	20	15	28	29	206	73	137	60	52	13	14	12	21	58	125	96	10	10	46	32	21	55	48	35				
HOURLY AVG	9	8	10	12	18	16	20	20	10	7	7	6	6	7	9	9	5	4	7	8	8	12	10	10				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

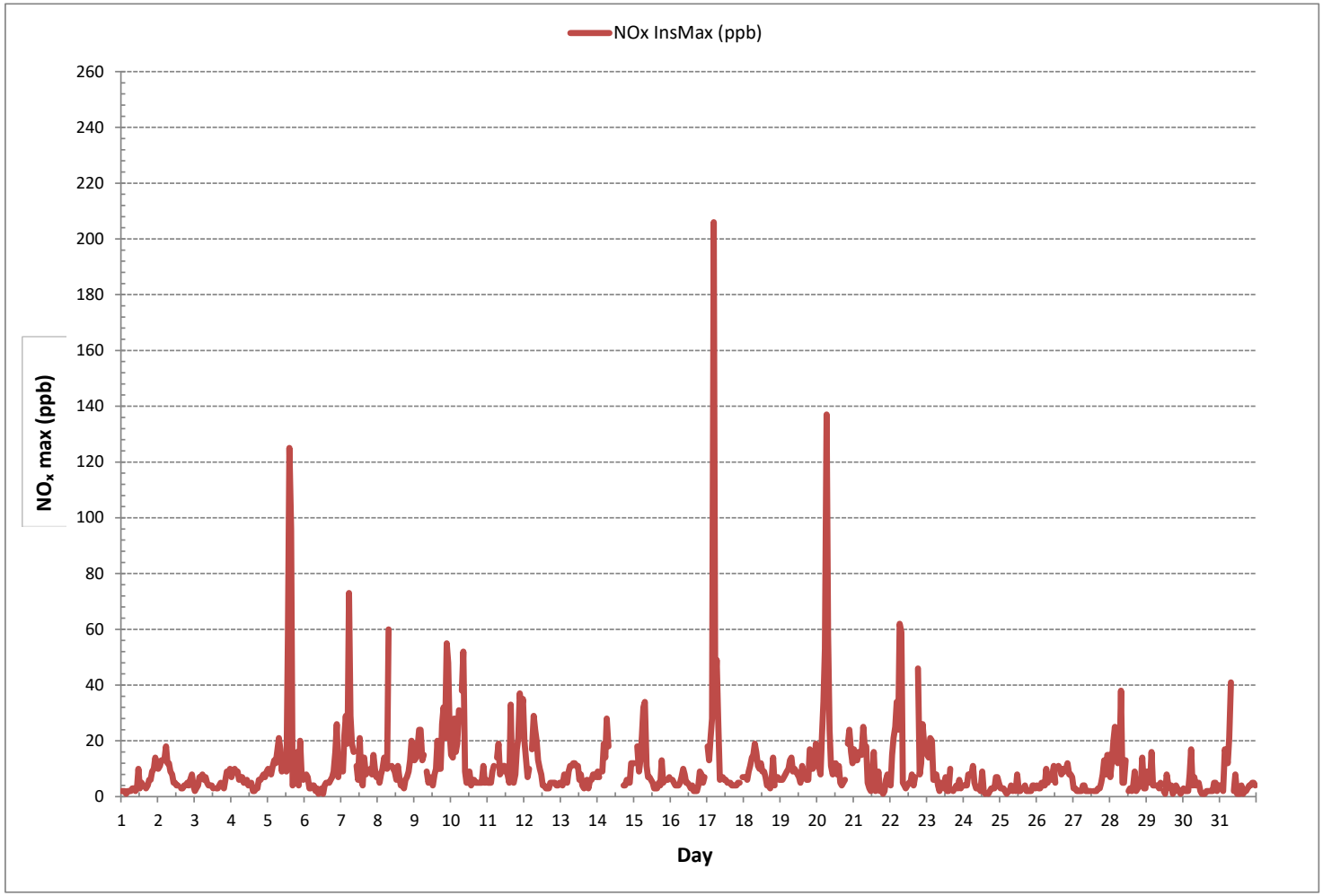
NUMBER OF NON-ZERO READINGS: 703

MAXIMUM INSTANTANEOUS VALUE: 206 ppb @ HOUR 4 ON DAY 17

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 9 hrs
STANDARD DEVIATION: 14

OPERATIONAL TIME: 744 hrs

OXIDES OF NITROGEN Instantaneous Maximum (NO_x ppb)



NITRIC OXIDE Instantaneous Maximum (NO ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	1	1	1	1	0	0	0	1	1	1	1	6	1	1	2	S	1	1	1	1	2	3	4	1	0	6	1	24
2	2	3	4	3	2	2	2	2	3	3	3	2	2	2	S	1	1	1	0	0	0	1	2	1	0	4	2	24
3	0	1	0	1	2	1	1	2	1	2	2	2	1	S	1	2	1	2	1	0	0	2	1	1	0	2	1	24
4	1	2	2	2	1	3	2	2	2	2	2	2	S	2	1	1	1	0	1	1	1	1	1	3	0	3	1	24
5	2	1	0	2	3	3	3	4	5	5	9	S	5	35	72	96	1	1	1	4	1	12	1	2	0	96	12	24
6	3	3	2	1	0	1	1	2	1	0	S	2	1	2	3	2	1	2	0	1	2	4	1	1	0	4	2	24
7	1	1	4	7	2	25	11	7	5	S	4	6	19	3	1	4	2	3	2	1	1	3	1	1	1	25	5	24
8	1	0	1	1	4	2	2	32	S	4	4	3	2	5	4	1	1	1	1	1	2	1	1	6	0	32	4	24
9	5	1	1	1	11	1	1	S	2	2	3	3	2	3	5	10	3	3	13	6	1	42	16	1	1	42	6	24
10	0	0	4	0	1	4	S	13	27	3	2	1	2	1	1	1	1	0	0	0	0	3	0	0	0	27	3	24
11	0	0	1	1	1	S	1	4	2	2	4	3	3	2	1	11	1	0	1	1	1	4	1	2	0	11	2	24
12	1	1	1	1	S	1	1	5	4	4	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	5	2	24
13	1	1	1	S	0	1	2	2	4	5	4	4	2	3	1	3	3	1	0	1	2	2	2	1	0	5	2	24
14	2	1	S	2	1	2	10	5	C	C	C	C	C	C	C	C	C	0	0	0	0	0	0	0	0	10	-	24
15	0	S	0	0	0	1	7	7	0	1	1	1	1	0	0	0	1	1	4	0	1	1	0	1	0	7	1	24
16	S	1	1	1	1	1	1	1	2	3	2	2	2	1	1	0	0	0	1	0	0	0	1	S	0	3	1	24
17	1	0	2	3	**179**	9	18	7	1	2	2	2	2	1	1	1	1	1	0	1	1	0	S	2	0	**179**	10	24
18	1	1	0	2	1	0	1	3	4	4	7	4	3	3	2	1	1	0	0	1	0	S	1	1	0	7	2	24
19	0	1	1	1	3	1	1	3	2	3	3	2	2	5	3	4	4	1	0	0	S	1	1	1	0	5	2	24
20	2	2	0	3	12	26	115	35	12	3	2	3	4	2	3	3	0	0	0	S	1	1	1	0	0	115	10	24
21	1	0	2	2	4	2	21	7	7	2	2	1	5	1	0	2	1	0	S	0	0	1	1	0	0	21	3	24
22	0	5	4	3	9	5	46	33	1	1	1	1	1	2	5	1	2	S	9	0	1	5	3	1	0	46	6	24
23	2	1	5	2	1	2	4	1	1	1	2	1	2	3	0	1	S	0	1	2	1	1	1	1	0	5	2	24
24	2	1	1	2	2	1	3	1	1	1	3	1	1	0	0	S	0	0	0	0	0	1	1	0	0	3	1	24
25	0	2	0	0	0	0	0	1	1	1	1	2	1	1	S	1	1	0	0	0	0	1	1	1	0	2	1	24
26	1	1	1	1	0	2	1	1	3	2	6	5	2	S	5	5	2	4	2	2	3	1	1	1	0	6	2	24
27	0	1	0	0	0	0	0	0	0	0	0	0	S	1	0	1	1	0	0	0	3	0	1	5	0	5	1	24
28	1	3	7	10	3	3	5	22	2	2	3	S	1	1	1	1	1	1	1	1	1	4	0	1	0	22	3	24
29	1	1	2	2	0	0	0	1	1	3	S	1	0	3	1	1	1	0	0	0	0	0	0	0	0	3	1	24
30	1	0	0	0	1	1	1	2	1	S	2	1	0	0	0	0	1	0	0	0	0	1	0	1	0	2	1	24
31	1	0	0	2	2	2	7	22	S	0	1	1	0	0	1	0	0	1	1	2	1	1	2	1	0	22	2	24
HOURLY MAX	5	5	7	10	179	26	115	35	27	5	9	6	19	35	72	96	4	4	13	6	3	42	16	6				
HOURLY AVG	1	1	2	2	8	3	9	8	3	2	3	2	2	3	4	6	1	1	1	1	1	3	2	1				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

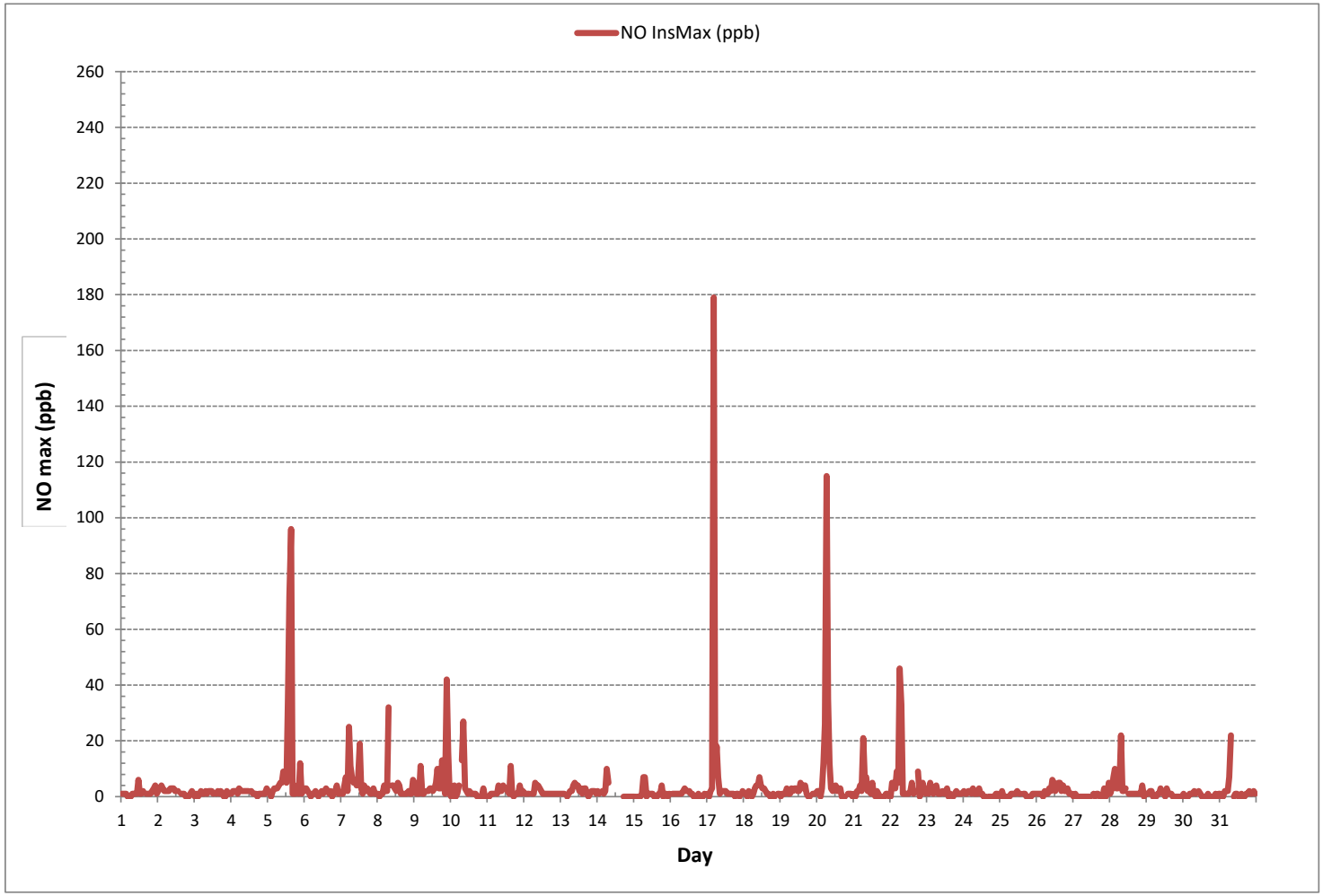
NUMBER OF NON-ZERO READINGS: 558

MAXIMUM INSTANTANEOUS VALUE: 179 ppb @ HOUR 4 ON DAY 17

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 9 hrs
STANDARD DEVIATION: 10

OPERATIONAL TIME: 744 hrs

NITRIC OXIDE Instantaneous Maximum (NO ppb)



NITROGEN DIOXIDE Instantaneous Maximum (NO_2 ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	1	1	1	1	2	2	2	2	2	1	2	4	2	4	2	S	2	3	5	5	7	8	13	11	1	13	4	24
2	8	9	11	11	12	17	11	10	7	5	3	3	2	2	S	2	2	3	4	5	4	5	6	3	2	17	6	24
3	2	3	4	6	6	7	5	6	4	3	3	2	2	S	2	2	3	3	4	3	6	8	9	9	2	9	4	24
4	7	8	9	9	9	5	6	6	4	3	4	3	S	3	1	2	2	3	5	6	6	8	6	8	1	9	5	24
5	8	8	8	9	10	10	15	17	12	4	10	S	5	35	63	76	3	4	6	12	4	9	8	6	3	76	15	24
6	5	6	4	2	2	3	3	2	2	1	S	2	1	3	3	3	4	4	7	8	14	22	6	13	1	22	5	24
7	12	8	18	22	17	47	21	15	11	S	7	4	7	4	3	10	7	7	7	10	7	12	9	7	3	47	12	24
8	7	5	8	10	12	10	9	35	S	7	6	6	5	8	5	3	4	3	6	7	8	12	20	18	3	35	9	24
9	12	13	17	23	15	13	13	S	6	4	4	3	2	5	6	10	7	8	17	26	21	25	33	22	2	33	13	24
10	15	14	24	16	18	26	S	29	25	6	4	4	7	3	4	5	4	5	4	5	5	9	4	6	3	29	10	24
11	5	5	4	8	11	S	14	15	6	8	8	8	6	6	4	22	5	5	7	16	20	34	31	33	4	34	12	24
12	20	13	7	9	S	16	29	19	15	10	7	5	3	3	3	3	3	5	5	5	4	3	3	4	3	29	8	24
13	5	4	7	S	4	8	10	10	9	7	8	7	4	6	3	2	3	4	3	5	5	7	7	6	2	10	6	24
14	7	7	S	8	18	12	19	13	C	C	C	C	C	C	C	C	C	4	4	5	5	5	12	11	4	19	-	24
15	12	S	17	9	13	21	25	27	10	7	6	6	4	3	3	3	4	3	9	5	5	5	5	6	3	27	9	24
16	S	5	4	4	4	3	5	5	8	5	4	3	3	2	3	2	2	2	4	8	8	5	6	S	2	8	4	24
17	17	13	20	25	41	29	33	21	5	5	5	4	4	4	4	4	4	4	4	4	4	4	S	6	4	41	11	24
18	6	7	6	8	10	13	14	17	11	8	7	8	6	6	6	4	3	3	6	14	4	S	7	6	3	17	8	24
19	6	6	6	7	8	8	12	12	7	7	6	6	5	4	8	5	5	5	6	17	S	10	11	19	4	19	8	24
20	14	11	7	19	24	30	38	27	13	8	6	8	9	6	9	4	4	5	6	S	18	23	16	12	4	38	14	24
21	15	13	11	14	12	13	11	16	11	4	3	2	4	15	1	2	8	2	S	1	1	6	7	5	1	16	8	24
22	4	14	18	22	26	20	21	28	4	3	3	3	3	3	3	3	5	S	37	8	12	23	17	17	3	37	13	24
23	14	13	19	18	6	4	6	3	2	4	3	3	4	2	1	9	S	2	3	2	3	5	2	3	1	19	6	24
24	3	3	3	7	7	7	9	4	2	2	2	1	8	1	1	S	1	2	3	3	3	6	6	4	1	9	4	24
25	3	2	3	2	1	2	2	3	2	2	1	7	2	2	S	2	3	2	2	2	2	3	3	3	1	7	2	24
26	3	2	3	4	3	3	9	4	5	4	5	6	3	S	7	7	6	8	7	8	11	7	7	6	2	11	6	24
27	3	2	1	2	2	2	4	3	2	2	1	2	S	2	1	2	2	3	5	8	10	8	14	13	1	14	4	24
28	7	11	13	16	10	9	8	17	3	3	10	S	1	2	1	3	8	1	2	3	3	9	3	2	1	17	6	24
29	8	7	4	14	4	4	4	4	2	2	S	1	1	5	2	2	3	1	2	4	3	2	1	2	1	14	4	24
30	3	2	2	2	7	16	3	5	3	S	4	2	1	1	1	1	2	2	2	2	4	4	2	3	1	16	3	24
31	4	3	2	15	13	10	14	19	S	1	8	1	1	1	3	1	2	2	3	2	3	4	4	4	1	19	5	24
HOURLY MAX	20	14	24	25	41	47	38	35	25	10	10	8	9	35	63	76	8	8	37	26	21	34	33	33				
HOURLY AVG	8	7	9	11	11	12	13	13	7	5	5	4	4	5	5	7	4	4	6	7	7	10	9	9				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 703

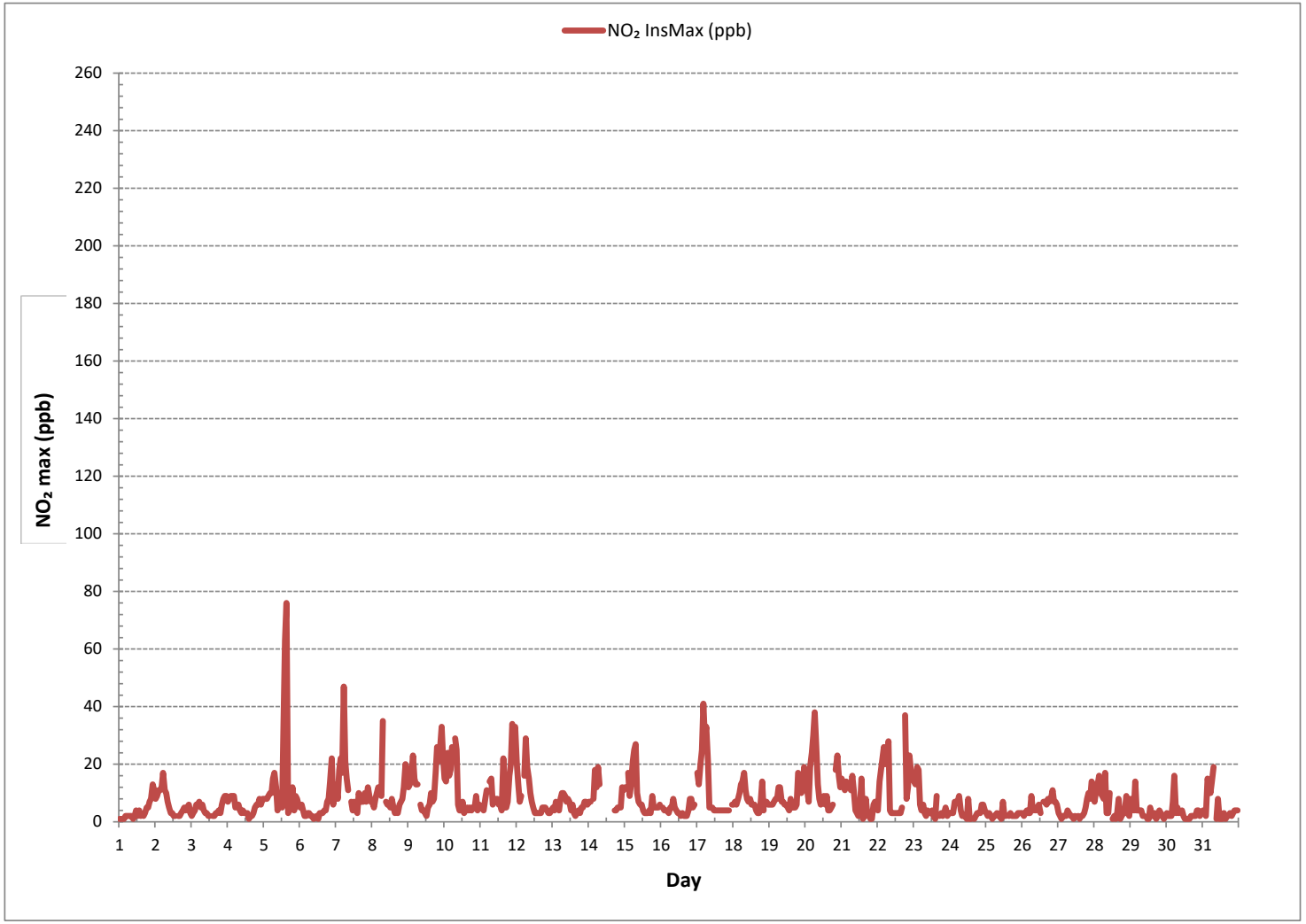
MAXIMUM INSTANTANEOUS VALUE: 76 ppb @ HOUR 15 ON DAY 5

VAR-VARIOUS

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 9 hrs
STANDARD DEVIATION: 7

OPERATIONAL TIME: 744 hrs

NITROGEN DIOXIDE Instantaneous Maximum (NO_2 ppb)



OZONE Instantaneous Maximum (O_3 ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	24.7	22.9	23.0	22.0	23.2	25.6	29.7	32.2	33.2	34.1	34.3	34.7	34.9	35.7	36.1	S	36.1	35.4	34.5	33.0	31.1	31.3	28.1	27.8	22.0	36.1	30.6	24
2	29.8	29.4	27.7	25.9	24.5	24.5	25.0	28.7	30.9	33.7	35.5	38.0	39.2	39.9	S	40.6	41.2	40.8	40.7	38.9	38.7	38.1	37.6	38.6	24.5	41.2	34.3	24
3	39.6	39.4	38.8	37.6	35.8	35.5	36.1	36.7	37.0	37.2	37.9	38.5	41.2	S	41.9	41.4	40.2	41.9	41.6	41.7	40.1	41.3	36.0	35.5	35.5	41.9	38.8	24
4	35.8	36.3	35.3	35.6	36.1	36.2	36.4	36.3	39.3	39.7	40.3	41.9	S	45.2	46.6	47.3	46.7	46.4	45.6	42.6	42.3	41.3	40.1	39.5	35.3	47.3	40.5	24
5	39.2	37.9	35.6	35.8	34.8	32.4	31.2	29.2	38.1	40.7	40.2	S	43.0	43.0	42.7	45.1	45.0	44.7	44.1	44.0	43.5	42.1	41.2	41.3	29.2	45.1	39.8	24
6	41.3	40.8	40.3	40.7	41.3	41.5	41.7	41.9	41.9	42.0	S	42.0	42.1	43.2	42.7	42.9	43.4	43.1	41.2	39.9	40.0	37.0	39.7	36.5	36.5	43.4	41.2	24
7	39.9	39.3	37.6	31.4	31.2	32.7	33.5	34.5	39.2	S	42.1	42.2	42.7	43.2	43.9	44.2	43.4	43.7	43.6	40.8	42.1	41.8	41.1	40.0	31.2	44.2	39.7	24
8	41.6	40.5	39.2	31.9	32.1	31.8	31.2	31.8	S	34.0	37.0	46.6	46.2	49.5	49.4	48.9	48.6	48.4	46.8	43.6	42.7	40.9	37.9	33.2	31.2	49.5	40.6	24
9	32.9	30.4	28.4	21.6	26.3	33.4	32.8	S	42.3	43.2	44.6	45.3	45.6	45.5	44.3	45.2	46.0	45.9	41.8	34.4	30.7	24.5	22.0	22.6	21.6	46.0	36.1	24
10	21.4	25.5	17.8	23.6	21.1	20.5	S	16.7	39.1	45.9	47.7	52.1	55.0	56.3	54.9	56.9	59.7	61.8	61.8	61.4	61.1	61.0	60.7	60.1	16.7	61.8	45.3	24
11	58.6	58.2	57.8	56.6	54.0	S	51.5	49.6	49.8	52.1	51.0	50.5	54.2	55.6	56.1	56.1	54.8	57.3	57.3	56.8	50.9	42.6	44.9	41.5	41.5	58.6	52.9	24
12	40.5	49.4	51.5	50.6	S	42.1	34.5	35.0	42.6	42.1	42.9	46.3	47.1	47.2	47.1	47.1	48.3	48.4	47.2	46.3	46.1	46.0	45.7	44.7	34.5	51.5	45.2	24
13	43.0	40.6	37.6	S	33.3	31.0	31.4	32.9	36.2	38.9	41.6	43.5	46.1	49.1	52.6	51.6	51.8	50.6	50.3	46.9	49.8	49.3	46.0	44.0	31.0	52.6	43.4	24
14	43.0	40.7	S	35.5	35.3	29.7	32.3	30.8	33.6	35.0	38.9	40.0	45.8	47.7	51.1	51.4	53.0	53.0	52.1	47.6	48.0	45.3	40.7	37.0	29.7	53.0	42.1	24
15	33.9	S	38.2	39.9	32.1	20.9	30.6	40.3	44.3	45.1	46.3	C	C	C	C	C	C	49.0	45.7	31.7	43.6	42.9	43.8	42.2	20.9	49.0	-	24
16	S	44.9	45.4	46.3	46.3	46.6	45.3	44.3	45.1	46.4	47.2	49.0	51.9	53.9	54.9	55.2	54.3	51.9	48.0	45.1	41.5	40.7	43.5	S	40.7	55.2	47.6	24
17	32.6	25.0	27.1	25.1	16.4	20.0	10.9	47.3	48.6	49.6	51.3	52.3	53.4	56.0	57.9	58.5	59.7	59.6	57.8	54.3	54.0	52.1	S	43.9	10.9	59.7	44.1	24
18	40.6	41.0	41.7	41.5	41.1	39.0	38.2	37.0	40.8	44.1	46.9	51.6	52.4	56.2	60.6	60.4	60.8	58.2	57.0	55.9	57.7	S	54.1	52.7	37.0	60.8	49.1	24
19	49.9	48.4	46.0	44.2	42.3	39.8	39.6	40.1	42.3	44.0	46.6	51.4	56.0	59.0	59.8	60.5	55.7	54.2	51.7	49.2	S	31.3	26.7	25.0	25.0	60.5	46.2	24
20	24.0	23.7	19.4	12.3	4.3	4.1	2.5	13.3	39.5	47.8	52.9	56.5	58.1	61.6	71.6	75.1	75.8	**76.3**	74.7	S	50.6	39.3	44.3	48.3	2.5	**76.3**	42.4	24
21	42.7	45.8	46.2	42.8	43.5	41.2	42.3	40.6	46.2	49.1	49.2	50.9	50.8	53.3	53.8	54.3	53.5	52.2	S	52.5	51.5	50.3	49.5	47.4	40.6	54.3	48.2	24
22	42.8	35.0	30.2	21.8	25.9	30.1	6.6	32.0	33.8	35.3	37.2	38.2	41.7	46.9	49.8	52.0	50.2	S	44.0	39.1	29.3	19.5	17.8	13.1	6.6	52.0	33.6	24
23	14.2	12.1	20.2	38.9	45.9	47.6	47.7	47.0	46.3	46.3	47.4	49.1	51.7	52.1	50.3	50.3	S	47.3	43.3	39.5	39.0	40.2	41.8	41.7	12.1	52.1	41.7	24
24	40.2	39.4	38.1	36.1	33.2	34.1	35.1	36.8	37.2	36.8	37.3	38.4	38.6	39.9	43.2	S	43.4	42.0	36.7	34.8	31.9	32.6	33.8	32.6	31.9	43.4	37.0	24
25	29.5	24.9	31.0	31.2	35.4	36.5	35.6	35.4	34.6	34.9	37.0	36.3	41.2	42.2	S	43.0	40.7	38.7	38.0	37.1	35.7	34.2	25.8	25.0	24.9	43.0	34.9	24
26	27.3	27.1	27.2	28.0	26.2	26.7	26.4	25.7	24.7	23.7	23.5	23.8	24.2	S	21.9	23.4	23.8	20.8	18.0	15.6	12.3	9.8	8.0	35.5	8.0	35.5	22.8	24
27	35.3	38.8	38.4	41.0	41.0	40.8	39.4	45.2	45.1	44.6	45.2	46.9	S	48.3	47.3	47.3	45.5	44.3	41.4	38.5	30.8	24.4	22.7	15.4	15.4	48.3	39.5	24
28	15.7	13.1	5.3	4.1	5.6	5.3	7.2	25.2	28.4	36.7	38.3	S	42.0	42.4	43.3	44.3	44.0	44.9	40.8	40.3	39.3	39.1	40.3	40.2	4.1	44.9	29.8	24
29	39.9	35.8	34.2	34.8	35.7	35.6	35.2	38.9	42.5	43.3	S	43.8	44.2	44.9	44.9	46.3	47.5	47.8	46.8	43.7	42.2	41.8	41.8	41.7	34.2	47.8	41.5	24
30	40.9	40.4	40.4	37.8	36.4	32.2	25.8	30.7	33.9	S	41.4	44.7	45.3	45.7	45.8	46.0	45.9	45.1	43.9	43.8	42.6	42.2	40.8	39.7	25.8	46.0	40.5	24
31	39.1	34.7	30.8	23.4	16.8	16.1	19.3	31.1	S	44.6	43.3	44.7	45.7	48.0	47.5	46.9	48.1	45.9	44.5	40.5	39.4	37.8	35.3	34.3	16.1	48.1	37.3	24
HOURLY MAX	58.6	58.2	57.8	56.6	54.0	47.6	51.5	49.6	49.8	52.1	52.9	56.5	58.1	61.6	71.6	75.1	75.8	76.3	74.7	61.4	61.1	61.0	60.7	60.1				
HOURLY AVG	36.0	35.4	34.3	33.3	31.9	31.1	31.2	34.9	39.2	41.1	42.2	44.3	45.7	48.3	48.6	49.4	48.5	48.0	46.0	42.7	41.6	38.7	37.7	37.4				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

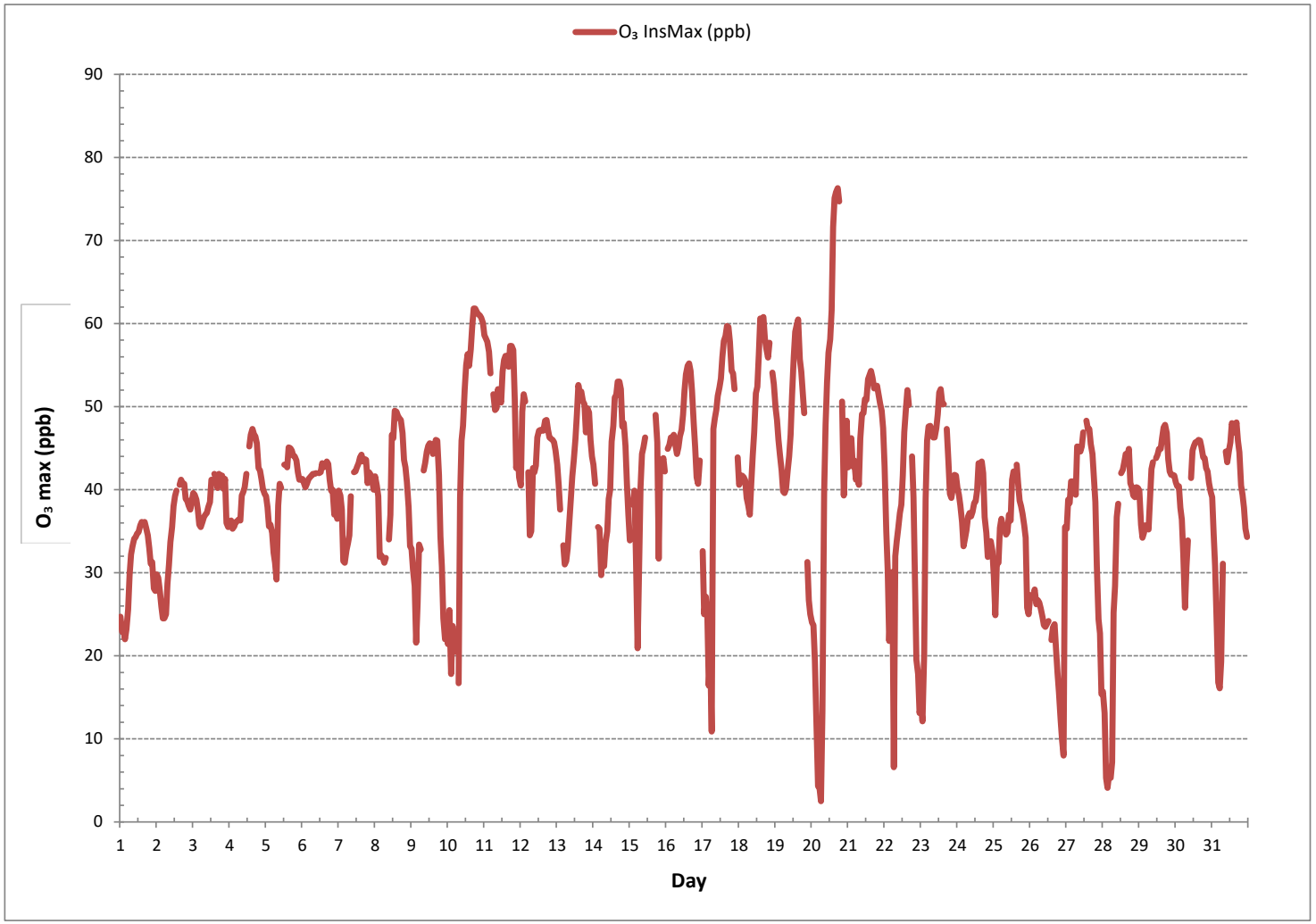
NUMBER OF NON-ZERO READINGS: 706

MAXIMUM INSTANTANEOUS VALUE: 76.3 ppb @ HOUR 17 ON DAY 20

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 6 hrs
STANDARD DEVIATION: 10.9

OPERATIONAL TIME: 744 hrs

OZONE Instantaneous Maximum (O_3 ppb)



WIND SPEED Instantaneous Maximum (WS kph)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	29.1	32.5	35.2	31.1	28.4	25.9	32.1	30.6	30.8	33.0	31.8	29.0	32.5	35.9	37.2	31.8	32.1	28.4	21.3	15.5	17.7	16.7	16.7	18.6	15.5	37.2	28.1	24
2	14.7	17.7	19.0	20.1	21.1	19.6	20.2	26.2	27.4	27.6	26.9	38.2	35.9	34.5	35.2	39.4	36.2	41.1	35.3	33.9	35.7	26.7	15.0	24.7	14.7	41.1	28.0	24
3	26.2	25.9	17.2	16.9	23.3	27.4	24.2	33.0	30.6	31.8	38.4	28.9	33.0	34.0	30.1	35.5	30.6	27.7	25.7	23.8	28.6	19.6	17.9	20.6	16.9	38.4	27.1	24
4	22.0	24.5	23.3	24.7	42.8	26.9	30.6	33.0	30.1	31.1	27.4	30.3	30.1	31.1	34.5	36.2	32.0	33.0	24.7	10.3	22.5	10.3	16.0	20.8	10.3	42.8	27.0	24
5	15.5	18.2	19.1	20.6	19.6	18.6	19.8	19.6	22.3	35.2	40.9	38.9	41.4	33.0	38.4	38.1	32.3	27.2	25.9	24.6	24.0	14.5	14.2	25.7	14.2	41.4	26.1	24
6	28.6	20.6	16.9	17.9	14.5	20.3	18.4	20.9	20.1	18.4	30.6	22.5	20.8	22.8	16.4	15.9	15.7	14.7	17.4	19.8	13.0	8.1	9.3	19.1	8.1	30.6	18.4	24
7	19.4	16.4	14.5	7.9	15.0	7.4	12.3	11.1	20.6	19.2	17.6	12.8	14.7	16.7	18.9	12.0	12.8	14.0	9.4	6.9	9.3	5.4	8.6	3.6	3.6	20.6	12.8	24
8	4.8	6.7	9.4	15.2	12.7	7.4	10.9	13.0	13.5	9.6	17.2	25.4	26.2	27.2	17.2	26.8	18.1	17.5	4.9	8.1	11.3	12.0	15.4	16.7	4.8	27.2	14.5	24
9	15.7	8.4	11.5	12.3	12.4	14.0	15.0	9.6	20.3	18.1	18.4	15.4	15.5	19.2	17.3	14.7	14.2	10.9	9.2	8.4	17.6	15.0	7.6	2.1	2.1	20.3	13.5	24
10	3.1	8.9	7.6	10.8	8.1	10.1	3.2	3.3	10.5	14.2	12.5	25.7	26.2	24.7	33.8	27.9	28.8	28.1	27.9	19.1	16.7	16.4	13.2	11.5	3.1	33.8	16.4	24
11	12.8	11.6	13.0	13.2	5.2	10.1	10.6	7.1	14.5	14.4	28.6	24.0	20.8	25.9	17.6	13.8	18.4	23.5	19.8	6.4	5.0	8.2	4.7	5.3	4.7	28.6	13.9	24
12	6.2	7.4	7.6	6.7	10.4	11.3	4.5	11.8	11.5	21.8	32.6	47.9	38.6	44.2	34.7	34.1	27.9	21.0	8.5	18.9	16.4	17.6	18.4	12.8	4.5	47.9	19.7	24
13	14.1	8.1	6.9	4.5	3.2	14.5	14.2	14.2	17.9	16.2	15.7	16.4	20.6	25.4	27.4	27.4	24.1	25.2	22.3	24.2	16.4	14.9	13.5	17.3	3.2	27.4	16.9	24
14	19.8	18.9	13.5	9.6	11.5	5.8	15.4	11.1	12.8	14.2	14.7	13.5	21.9	22.7	29.6	25.4	23.8	20.2	15.9	14.9	16.2	10.1	2.5	4.1	2.5	29.6	15.3	24
15	3.0	4.6	5.7	7.4	4.2	7.7	7.9	13.5	19.8	22.5	22.5	25.0	32.3	51.5	51.8	60.3	**X**	47.9	12.0	10.6	13.0	11.2	11.1	14.2	3.0	60.3	20.0	23
16	15.0	19.8	17.9	18.4	22.1	23.0	23.2	21.3	13.7	16.4	16.3	21.4	22.3	27.9	26.8	23.8	20.8	9.8	8.6	11.1	10.9	9.6	10.6	10.1	8.6	27.9	17.5	24
17	7.6	10.8	3.3	3.8	4.0	4.5	10.8	11.1	10.6	24.5	28.1	26.2	24.2	25.2	27.4	30.8	25.9	22.8	20.1	19.8	16.9	11.8	11.3	12.5	3.3	30.8	16.4	24
18	12.3	16.2	13.0	13.0	14.3	9.6	11.5	8.9	9.8	17.5	15.4	16.9	23.7	24.7	26.9	21.8	22.3	23.7	11.6	14.5	18.6	19.6	17.1	16.0	8.9	26.9	16.6	24
19	16.7	18.6	16.4	18.0	20.8	16.4	17.1	14.0	21.5	18.4	22.6	19.8	25.4	26.7	33.2	23.7	19.1	16.5	13.2	6.9	4.9	5.3	3.3	6.9	3.3	33.2	16.9	24
20	8.9	3.8	4.7	3.6	2.9	4.0	2.9	2.9	9.8	10.8	13.2	24.2	23.0	28.8	27.4	23.9	23.5	21.3	17.4	11.0	3.7	6.9	16.2	11.5	2.9	28.8	12.8	24
21	9.8	7.1	6.5	7.1	9.3	11.1	9.3	6.0	20.2	25.4	29.8	23.0	20.6	32.1	31.2	32.0	29.6	23.0	27.6	24.5	17.6	13.1	12.0	12.3	6.0	32.1	18.3	24
22	10.8	7.9	11.3	4.2	6.4	5.7	4.0	11.3	12.3	7.0	12.3	19.6	17.6	15.9	22.6	18.6	21.8	12.5	9.2	9.1	3.5	3.2	7.1	4.5	3.2	22.6	10.8	24
23	4.5	2.9	6.7	16.4	16.9	20.3	19.5	28.6	28.6	21.8	26.9	29.1	38.4	38.8	38.5	32.3	29.3	35.3	29.8	28.0	17.9	30.8	29.3	33.2	2.9	38.8	25.2	24
24	25.2	34.7	16.7	12.0	9.1	14.2	9.7	13.0	14.9	16.4	14.0	17.0	16.4	18.1	18.9	14.5	15.2	22.3	20.8	14.9	12.8	8.8	7.4	5.9	5.9	34.7	15.5	24
25	6.9	4.0	7.4	9.6	11.8	20.8	22.0	19.8	17.9	19.7	17.6	17.9	28.3	34.7	26.4	27.9	26.9	23.7	18.4	16.4	12.5	19.3	17.4	13.5	4.0	34.7	18.4	24
26	13.7	20.6	18.5	15.4	14.0	14.2	9.1	6.2	8.0	4.1	7.4	15.2	8.6	11.3	10.3	6.9	9.1	13.0	10.1	8.5	4.3	7.6	5.5	15.3	4.1	20.6	10.7	24
27	12.7	28.8	29.3	31.1	39.8	25.5	24.2	31.3	31.5	33.0	21.8	30.5	42.0	26.9	35.9	35.0	46.2	22.7	17.1	7.0	8.2	11.1	3.8	11.1	3.8	46.2	25.3	24
28	10.8	2.9	10.8	10.6	10.2	10.6	3.7	10.8	14.1	18.7	23.2	35.9	51.9	34.8	45.7	47.1	45.2	48.1	21.0	21.5	17.6	11.0	29.8	25.4	2.9	51.9	23.4	24
29	21.5	4.5	10.1	10.2	14.2	18.1	15.4	23.2	30.1	28.6	22.3	17.9	16.4	17.6	17.9	25.4	16.9	20.1	7.4	8.2	8.6	10.1	13.0	14.2	4.5	30.1	16.3	24
30	13.2	18.6	21.4	18.9	10.9	4.9	4.7	14.0	17.6	20.6	35.7	59.3	**63.2**	63.2	56.7	52.7	45.4	40.1	38.1	24.7	20.8	18.1	20.1	22.3	4.7	**63.2**	29.4	24
31	13.5	10.1	4.1	3.1	3.2	2.8	2.0	8.1	10.9	13.5	13.7	16.4	17.2	26.2	28.6	26.6	34.0	31.3	16.9	12.5	27.9	15.8	18.0	29.6	2.0	34.0	16.1	24
HOURLY MAX	29.1	34.7	35.2	31.1	42.8	27.4	32.1	33.0	31.5	35.2	40.9	59.3	63.2	63.2	56.7	60.3	46.2	48.1	38.1	33.9	35.7	30.8	29.8	33.2				

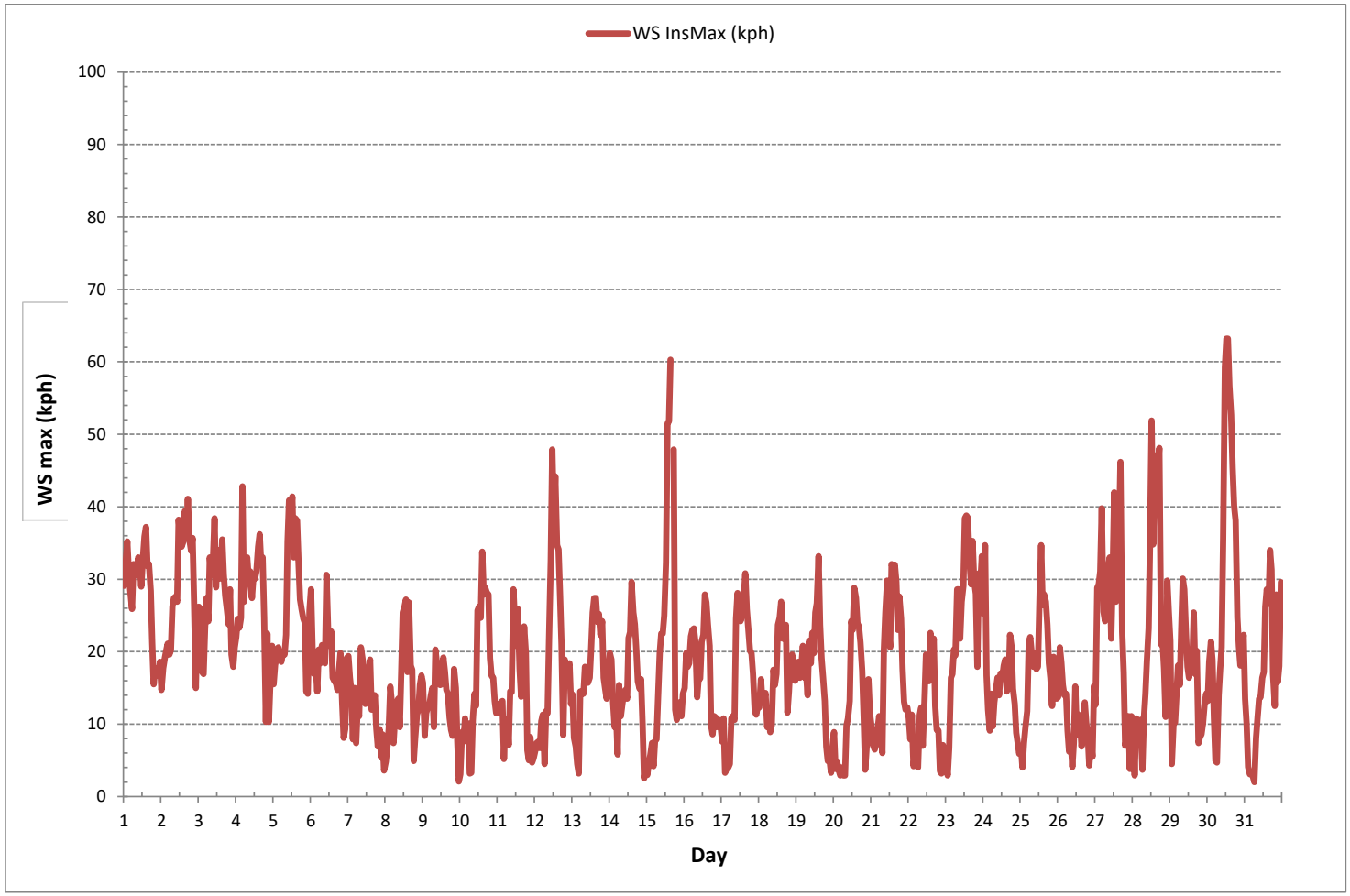
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	63.2	kph	@ HOUR	12	ON DAY	30
OPERATIONAL TIME:					743	hrs

WIND SPEED Instantaneous Maximum (WS kph)



1.0 Quality Control Activities

Quality control procedures are established to govern the performance of the monitoring equipment and to protect operational uptime. Data collected during QC/QA activities are assigned a data validation code to comply with the requirements outlined in Chapter 6, 4.1.1, DQ 4-A (AMD, 2016). Calibrations are deemed successful only if the AMD calibration acceptance limits are met (Chapter 7, 9.0, AMD 2016).

A daily zero-span test procedure is performed for each gaseous parameter by challenging the analyzer with a zero-air source and span gas. Daily review of the data ensures the zero and span check are within the required acceptance limits and do not deviate more than ±10% from the expected value. The total zero-span cycle is complete within an hour with the zero phase commencing at the beginning of the scheduled hour. This QC activity is conducted in accordance with Chapter 7, 4.0, Cal 4-A (AMD, 2016).

The allowable time for a zero-span check is one hour per calendar day. The time allotted for the zero-span check does not contribute to downtime and is identified with a data validation code of "S". If any additional zero-span response checks are performed, the time accrued during the QC activity is considered downtime and is identified with a data validation code of "S1". The initiation of an additional zero-span check may be warranted during the investigation of operational issues or suspect data.

Each month, a scheduled multipoint calibration is performed on each gas analyzer. Prior to any adjustments, an as-found response test is completed to obtain the zero reading of the analyzer and the response to the highest span concentration. The zero and high point test gases are then re-introduced into the analyzer to establish the zero and high set-points. Once these adjustments are satisfactory, a mid-point and a low-point test concentration is introduced. Additional multi-point calibrations are required if any of the conditions, outlined in Chapter 7, 2.1, Cal 2G (AMD, 2016) exist.

The time allotted for the first multi-point calibration is not considered downtime and is identified with a data validation code of "C". If any additional as-found response checks or multipoint calibrations are performed, the time accrued during the QC activity is considered downtime and is identified with a data validation code of "C1".

A mechanical wind system undergoes annual calibration, as a minimum, while an ultrasonic wind system is factory calibrated every two years (Chapter 6, 6.0, Cal 6-A, AMD 2016). Supplementary to this, a visual inspection of the equipment is performed during each scheduled monthly site visit.

The time allotted for the wind system calibration is not considered downtime and is identified with a data validation code of "C". If function checks or additional calibrations are performed, the time accrued during the QC activity is not considered downtime and is identified with a data validation code of "Q" and "C", respectively. If QC activity goes beyond 10% of the monthly operating time, the time exceeding 10% is considered downtime and is assigned a data validation code of "C1". Data identified with a data validation code of "Q" is in accordance with Chapter 6, 4.1.3 (AMD, 2016) which states QA/QC activities are not included when calculating data completeness.

High volume samplers are calibrated every three months, as a minimum, in accordance with Chapter 7, 7.0, Cal 7-B (AMD, 2016).

Where passive sampling is in practice, quality control samples will be deployed in accordance with Chapter 4, 3.0, 3.1.3. Method blanks, replicate samples and spiked blanks are exposed and handled in the same manner as each passive sample. To comply with the data submission requirements in Chapter 9, 3.1, the replicate and corresponding passive sample concentrations are reportable data values and have not been averaged.

As recommended in Chapter 6, 4.2 (AMD 2016), daily data review is conducted to verify data and avoid significant data losses. Automated flags, originating from the data-logger, and data anomalies are reviewed and may prompt the need to dispatch a technician for investigation and/or corrective action. Additionally, there are several automated alarm scenarios that serve to screen raw data, alert technicians and elicit investigation or corrective action.

Comparisons of the measured ambient concentrations to the corresponding AAAQO are assessed using the significant figures protocol in Chapter 9, 3.1.2. If the measurement is near the set objective, raw data may undergo necessary data adjustments to confirm a true exceedance. Should an exceedance occur, Maxxam will formally notify the client; however, the reporting protocol to AEP is defined by the client and may not involve Maxxam. Exceedance events are acknowledged in the report, based on the information available at the time.

2.0 Data Verification and Validation

The data validation procedures, outlined in Chapter 6, 4.0, AMD 2016, are used to accept, reject and qualify data. The data verification and validation process, and the current Data Collection and Management Process Flow Chart have been compiled from sections 4.2 to 4.6 (AMD, 2016) and are shown below.

Baseline adjustments are applied by interpolation between two valid zero checks, as determined by the Data Acquisition System. In the event that zero check results are not reliable, data may be adjusted by applying a constant offset to data collected between two adjacent zero checks. Both adjustment approaches are deemed acceptable by the AMD.

Table 1 (Chapter 6) outlines the quantitative parameter relationships to be considered and dictates that data adjustments are applied equally for NO/NO_2/NOx and CH_4/NMHC/THC parameters. Below zero adjustments are applied to 1-hour averages, in accordance with Table 2 (Chapter 6), and are done after baseline corrections.

Instantaneous data, where provided, is provided for reference purposes and has not undergone zero correction. The minimum and maximum statistics are highlighted in the data table and are for reference only. The highlighted cells are based on the software's interpretation of the exact position of the minimum or maximum value. The visual presentation of these statistics may not be the obvious choice in a data range due to rounding, truncating or analyzer specifications.

All calculations and reporting of results follow the methods described in the AMD, 2016.

There were no deviations from the prescribed methods.

AMD Data Verification and Validation Process

The following steps were used to complete the data verification and validation process:

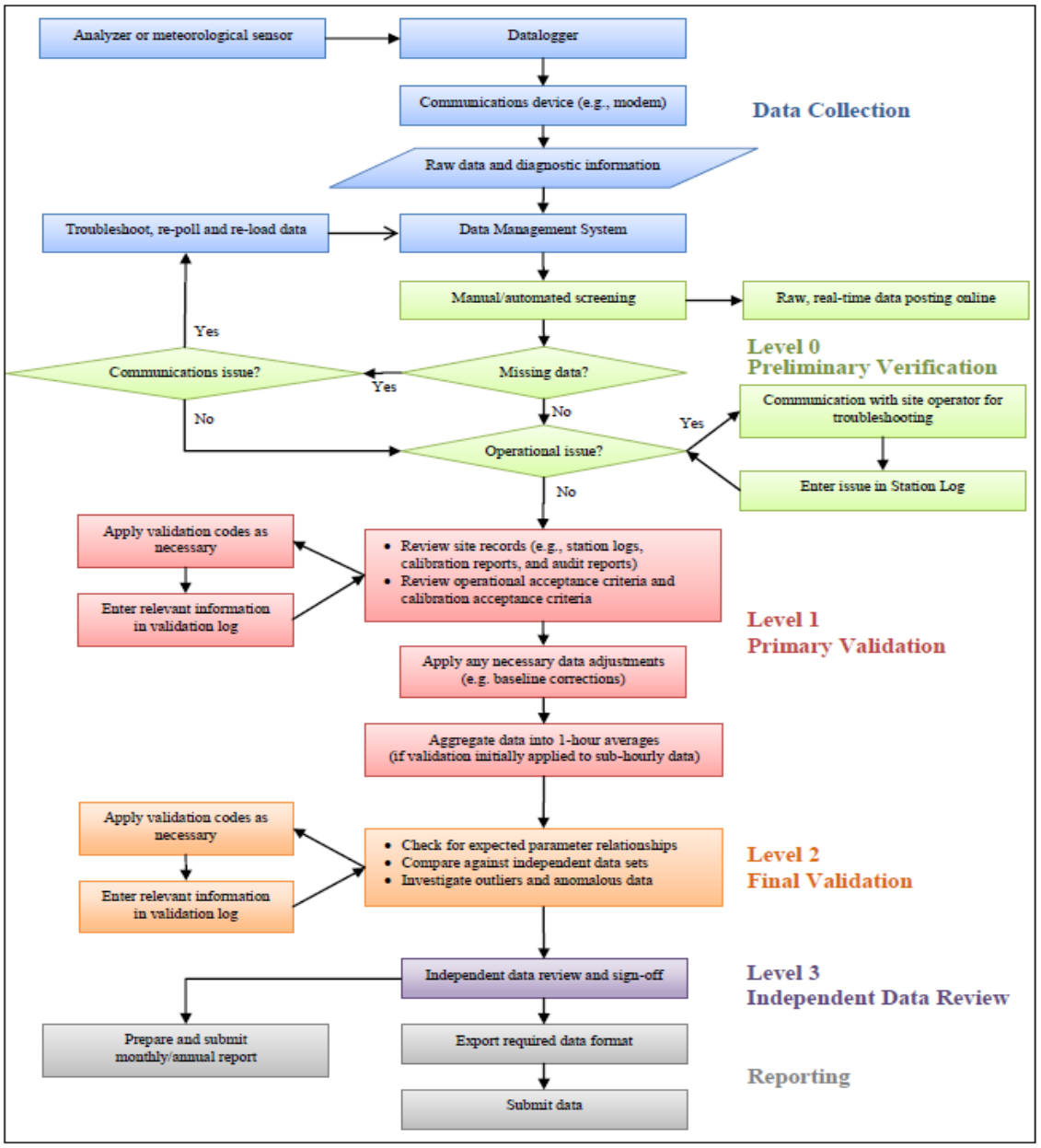
Level 0 Preliminary Verification	Level 0 data are raw data obtained directly from the data acquisition system (DAS). At this level, data undergoes a certain amount of manual or automated screening and flagging. Screening checks include: a) identification of periods of missing data; b) verification of time stamps against reference time; c) verification that instrument diagnostics/data-logger flags indicate normal operation; d) comparison of data to upper and lower limits; e) rate of change flagging indicating that data changed too rapidly or not at all; and f) verification that zero, span and multipoint performance checks are within specifications. This level of verification is performed on a daily basis.

Level 1 Primary Validation	Primary validation involves more thorough evaluation and documentation of issues identified during data screening, along with appropriate application of data validation codes. Level 1 activities include: a) review of all screening flags assigned during preliminary verification; b) review of all supporting site information and documentation; c) review of operational acceptance limits for each parameter/analyzer; d) review of daily zero/span and monthly calibration results for all gaseous parameters; and e) application of any necessary adjustments to data (e.g. baseline adjustments, below zero adjustments). This level of validation is performed on a monthly basis.

Level 2 Final Validation	The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites. At this level of review, some general knowledge of pollutant and meteorological behavior can be used to determine if data is suspect.

Level 3 Independent Data Review	Level 3 validation involves a final cursory review of validated data, and is completed by an individual independent of both field operations and primary data validation. At this level, a final independent QA review/endorsement is performed before data is submitted to Alberta Environment and Parks.

Post-Final Validation	The Post-Final Validation step serves to re-evaluate validated data for errors or omissions discovered and/or suspected after the initial monthly data submittal. This level of validation is performed on an annual basis, when annual reporting is required or requested.



Source: Air Monitoring Directive (December 2016), Chapter 6, Ambient Data Quality
Figure 1 Data Collection and Management Process Flow Chart

Validation Certificate Form

Client:	Lakeland Industry & Community Association	**Project #:**	2833-2019-03-23-C
Site:	Cold Lake South Continuous Monitoring Station	**Contact:**	Mike Bisaga

Level 0 Preliminary Verification	bimadeniji	**Date**	24-Apr-2019
Level 1 Primary Validation	bimadeniji	**Date**	24-Apr-2019
Level 2 Final Validation	bimadeniji	**Date**	26-Apr-2019
Level 3 Independent Data Review		**Date**	26-Apr-2019
Post-Final Validation	**NA**	**Date**	**NA**

Notes
The Post-Final Validation step serves to re-evaluate the data that errors or omissions are discovered and/or suspected after the initial submittal of data. This validation is performed on an annual basis.

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MARCH 1 - 31, 2019
MONTHLY AMBIENT AIR QUALITY MONITORING REPORT
Project #: 2833-2019-03-24-C
LICA-201903

Prepared for:

Lakeland Industry & Community Association

Mike Bisaga

5107 50 St.

Bonnyville, Alberta T9N 2J7

monitoring@lica.ca

780-266-7068

Monitoring Station

Maskwa Continuous Monitoring Station

Date of Report Issuance: April 18, 2019

Report Preparation By:

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Project Manager, Customer Service, Air Services

Reviewed By:

Wunmi Adekanmbi, M.Sc., EPt, PMP

403-219-3661

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Project Team Lead, Customer Service, Air Services

Maxxam
A Bureau Veritas Group Company

#1 - 2080 39 Avenue NE, Calgary AB, T2E 6P7

Lakeland Industry & Community Association

5107 50 St.

Bonnyville, Alberta T9N 2J7

Attention: Mike Bisaga

Date: April 18, 2019

Subject: MONTHLY AMBIENT AIR QUALITY MONITORING REPORT for MARCH 1 - 31, 2019

In March 2019, Maxxam Analytics was contracted to manage the ambient air quality monitoring and maintenance activities at the Maskwa Continuous Monitoring Station near Cold Lake, Alberta. The monitoring program provides measurements of ambient air pollutants and meteorological data to satisfy the reporting requirements of the Alberta airshed.

Network Parameters for Continuous Monitoring:

This monthly report, where applicable, was prepared in accordance with Chapter 9 of the Air Monitoring Directive (AMD, 2016). The report summarizes the continuous monitoring results for pollutant and meteorological parameters and presents the hourly statistics, graphs and rose charts for the month. Calibration records are provided in a separate PDF document in order to comply with AMD requirements Chapter 9, 13.1.7, RC 13-R. The station is equipped with analyzers to measure SO_2, H_2S, THC, CH_4, NMHC, NOx, NO and NO_2. The meteorological sensors and equipment capture data for WS, WD, RH, BP, PRECIP, AmbTPX and STDWD.

Exceedance & Performance Reporting:

The operational time for all continuous ambient air analyzers, meteorological systems and data acquisition systems were above the 90% requirement, as per the AMD, Chapter 6, DQ 4-C, 2016.

All measured ambient air concentrations were below the Alberta Ambient Air Quality Objectives and Guidelines (AAAQO, January 2019). Comparisons of these concentrations to the corresponding AAAQOs were done in accordance with Chapter 9, 15.3.2, RC 15-P. Accordingly, the averaging specifications and data completeness criteria, as defined in the Alberta Ambient Air Quality Objective Calculation Guidelines, were applied (Chapter 9, Appendix A, AMD 2016).

Specific to the content and purpose of this report, there were no instances where the requirements of the AMD (2016) were contravened.

Monthly Monitoring Overview:

In relation to the previous month, there were no changes made to the scope or management of the ambient air monitoring program.

The evaluation of data collected in the month of March did not reveal any errors or omissions that would require resubmission of air data to AEP's airdata warehouse.

During this monitoring period, there were no scheduled audits, to which Maxxam Analytics was privy to.

H_2S: Six hours of downtime were recorded during the month, due to additional quality checks and proactive measures performed to assure span response.

THC/CH_4/NMHC: The analyzer failed the daily zero-span check scheduled for hour 01:00, on March 12, as the span gas was depleted. The span gas bottle was replaced the same day and a successful zero-span check was completed afterwards. One hour of downtime was recorded due to this event.

NOx/NO/NO_2: One hour of downtime was recorded on March 20, due to an additional quality check performed to assess a biased high drift in span response.

Should you have any questions concerning the results or if we can be of further assistance, please contact your Maxxam representative indicated below.

Reviewed by:

Wunmi Adekanmbi, M.Sc., EPt, PMP

Project Team Lead, Customer Service, Air Services

403-219-3661

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. Certification of submitted information is specific to the contents of this report and is not intended to represent the onus of the Person Responsible, as outlined in Chapter 9, RC 12-E.

TABLE OF CONTENTS

List of Acronyms

AAAQO	Alberta Ambient Air Quality Objectives and Guidelines Summary
AEP	Alberta Environment and Parks
AMBTPX	Ambient Temperature
AMD	Air Monitoring Directive
BP	Barometric Pressure
CH_4	Methane
DAS	Data acquisition system
hr	Hour
hrs	Hours
H_2S	Hydrogen Sulphide
IZS	Internal zero-span
kph	Kilometers per hour
NO	Nitric Oxide
NO_2	Nitrogen dioxide
NOx	Total oxides of nitrogen
NMHC	Non-Methane Hydrocarbon
Precip	Precipitation
ppb	Parts per billion
ppm	Parts per million
QA	Quality Assurance
QC	Quality Control
RH	Relative Humidity
SOP	Standard Operating Procedure
SO_2	Sulphur Dioxide
STDWD	Standard Deviation Wind Direction
THC	Total hydrocarbons
WS	Wind Speed
WD	Wind Direction
°C	Degrees Celsius

AAAQO Exceedance Summary Report

SO_2 1-Hour Exceedances
Measured concentrations of sulphur dioxide were below the 1-hour AAAQO of 172 ppb.

SO_2 24-Hour Exceedances
Measured concentrations of sulphur dioxide were below the 24-hour AAAQO of 48.0 ppb.

H_2S 1-Hour Exceedances
Measured concentrations of hydrogen sulphide were below the 1-hour AAAQO of 10 ppb.

H_2S 24-Hour Exceedances
Measured concentrations of hydrogen sulphide were below the 24-hour AAAQO of 3 ppb.

NO_2 1-Hour Exceedances
Measured concentrations of nitrogen dioxide were below the 1-hour AAAQO of 159 ppb.

In accordance with EPEA and the Substance Release Regulation
In accordance with A Guide to Release Reporting and the Alberta Ambient Air Quality Objectives and Guidelines Summary

MONTHLY CONTINUOUS DATA SUMMARY

Lakeland Industry & Community Association Maskwa Continuous Monitoring Station						MAXIMUM VALUES							OPERATIONAL TIME (%)
						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDANCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (kph)	WIND DIRECTION (sector)	READING	DAY	
	1-hr	24-hr	1-hr	24-hr									
SO_2 (ppb)	172	48	0	0	1	18	4	21	6.4	NW	6	3	100.0
H_2S (ppb)	10	3	0	0	0	1	3	15	7.3	NW	0	1	99.2
THC (ppm)	-	-	-	-	2.00	2.66	12	5	3.2	SW	2.14	11	99.9
CH_4 (ppm)	-	-	-	-	2.00	2.66	12	5	3.2	SW	2.14	11	99.9
NMHC (ppm)	-	-	-	-	0.00	0.14	21	9	5.6	ESE	0.01	21	99.9
NO_2 (ppb)	159	-	0	-	4	26	4	21	6.4	NW	9	4	99.9
NO (ppb)	-	-	-	-	1	8	4	8	7.1	NW	2	2	99.9
NOx (ppb)	-	-	-	-	5	33	4	21	6.4	NW	11	3	99.9
RELATIVE HUMIDITY (%)	-	-	-	-	66	100	22	5	0.4	NNE	96	26	100.0
BAROMETRIC PRESSURE (millibar)	-	-	-	-	941	957	1	22	2.3	NW	956	2	100.0
AMBIENT TEMPERATURE (°C)	-	-	-	-	-3.7	17.9	19	14	6.4	WNW	8.1	19	100.0
PRECIPITATION (mm)	-	-	-	-	2.5	1.2	26	8	3.0	SSW	1.9	26	100.0
VECTOR WS (kph)	-	-	-	-	1.3	16.0	30	13	-	NNE	8.4	23	100.0
VECTOR WD (sec)	-	-	-	-	270 (W)	-	-	-	-	-	-	-	100.0

** Precipitation: data represents the total (sum) for the indicated time frame*

OPERATIONAL SUMMARY

Parameter	Equipment	Method & Procedure	Operational Notes
SULPHUR DIOXIDE (SO_2)	**Thermo 43i TLE Pulsed Fluorescence Analyzer**	**Maxxam AIR SOP-00209: Ambient Sulphur Monitoring**	• Operational time was 100% and there were no performance issues identified. • The routine monthly calibration was performed on March 21, between the hours of 09:00 and 13:00.
HYDROGEN SULPHIDE (H_2S)	**Thermo 450i UV Fluorescence Analyzer**	**Maxxam AIR SOP-00209: Ambient Sulphur Monitoring**	• Operational time for the monitoring period was 99.2%, equivalent to 6 hours of downtime. • The daily span result exceeded the upper acceptance limit on March 8 for unknown reasons. A repeat zero-span check performed shortly afterwards exhibited a similar response. This prompted an immediate site visit where the routine monthly calibration was successfully completed between hours 16:00 - 20:00. As the monthly calibration results met AMD requirements, no data was discarded due to the span drift. One hour of downtime was, however, recorded due to the additional zero-span check. • A repeat calibration was completed on March 21 as a proactive measure in anticipation of elevated span readings with increasing ambient temperatures. This was based on the previously established correlation between span response and ambient temperatures. Six hours of downtime were recorded due to the additional quality check.
TOTAL HYDROCARBONS (THC), METHANE (CH_4) & NON-METHANE HYDROCARBONS (NMHC)	**Thermo 55i FID Analyzer**	**Maxxam AIR SOP-00001: Methane, Non-Methane Hydrocarbon Analyzer Monitoring**	• Operational time for the monitoring period was 99.9%, equivalent to 1 hour of downtime. • The analyzer failed the daily zero-span check scheduled for hour 01:00, on March 12, due to span gas depletion. The span gas bottle was replaced the same day and a successful zero-span check was completed at hour 08:00. One hour of downtime was recorded due to this event.
OXIDES OF NITROGEN (NOx), NITRIC OXIDE (NO) & NITROGEN DIOXIDE (NO_2)	**Thermo 42i Chemiluminescent Analyzer**	**Maxxam AIR SOP-00213: Ambient NO/NO_2/NOx Monitoring**	• Operational time for the monitoring period was 99.9%, equivalent to 1 hour of downtime. • The daily span result drifted abruptly outside the upper acceptance limit on March 20 for unknown reasons. The result of a repeat zero-span check triggered immediately afterwards was within limits, but was still biased high. A successful routine monthly calibration was completed on March 21, between hours 09:00 - 15:00, and the expected span value was updated. No further issues were identified. As the repeat zero-span check and the monthly calibration met AMD requirements, no data was discarded due to the span drift. One hour of downtime was, however, recorded due to the additional quality check.
WIND SPEED (WS), WIND DIRECTION (WD) & STANDARD DEVIATION WIND DIRECTION (STDWD)	**RM Young Unit**	**Maxxam AIR SOP-00013: RM Young Wind Monitor Calibration**	• Operational time was 100% and there were no performance issues identified. • Wind data is reported as vector wind speed and vector wind direction. Wind direction is defined as the direction from which the wind is blowing from and is measured in degrees from true north.

OPERATIONAL SUMMARY

Parameter	Equipment	Method & Procedure	Operational Notes
RELATIVE HUMIDITY (RH)	**Rotronic Hygroclip Unit**	**Operations Manual**	• Operational time was 100% and there were no performance issues identified.
BAROMETRIC PRESSURE (BP)	**Met One Unit**	**Operations Manual**	• Operational time was 100% and there were no performance issues identified.
PRECIPITATION (PRECIP)	**Met One Unit**	**Maxxam AIR SOP-00242: Precipitation Collector Installation/Maintenance**	• Operational time was 100% and there were no performance issues identified.
AMBIENT TEMPERATURE (AmbTPX)	**Rotronic Hygroclip Unit**	**Operations Manual**	• Operational time was 100% and there were no performance issues identified.
Datalogger	**Envidas Ultimate Unit**	**Operations Manual**	• There were no performance issues identified.

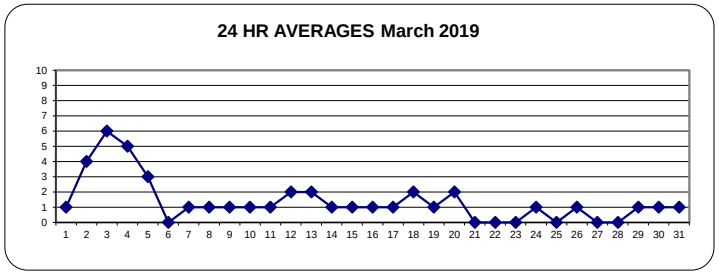
SUMMARY TABLES, GRAPHS AND ROSES

SULPHUR DIOXIDE Hourly Averages (SO_2 ppb)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	0	0	0	0	1	1	1	1	1	1	0	1	S	1	1	1	1	1	1	1	2	2	1	4	0	4	1	24
2	2	6	4	2	2	5	2	3	6	7	1	S	2	1	2	6	1	1	0	1	0	12	12	6	0	12	4	24
3	5	12	9	1	8	7	6	7	4	5	S	1	4	3	4	4	2	0	1	10	10	16	8	9	0	16	6	24
4	11	12	3	2	1	2	10	5	13	S	7	1	0	5	4	1	1	0	0	5	16	18	2	0	0	18	5	24
5	1	0	9	11	6	7	6	5	S	1	2	2	2	3	2	1	1	1	1	0	0	0	0	0	0	11	3	24
6	0	0	0	1	0	0	0	S	0	0	0	1	1	0	0	0	1	0	0	0	0	1	3	2	0	3	0	24
7	0	0	0	0	0	0	S	0	1	2	5	6	4	3	2	2	1	1	1	1	1	1	1	1	0	6	1	24
8	1	1	1	1	1	S	1	1	1	1	0	1	1	1	1	1	0	1	0	1	4	7	2	1	0	7	1	24
9	1	1	2	1	S	2	2	2	2	1	0	1	2	1	1	1	1	2	1	0	0	0	0	0	0	2	1	24
10	0	0	0	S	0	0	0	0	0	1	1	2	1	2	4	3	2	2	2	2	1	2	2	1	0	4	1	24
11	1	1	S	1	1	1	1	1	1	1	3	3	3	2	1	1	1	1	1	1	1	1	1	1	1	3	1	24
12	1	S	1	1	2	2	2	1	1	0	0	3	4	1	3	3	0	1	1	1	0	0	2	4	0	4	2	24
13	S	4	5	2	2	1	0	0	1	6	3	3	2	1	0	0	0	0	0	1	2	0	0	S	0	6	2	24
14	0	0	0	0	2	2	2	2	3	3	4	1	2	1	1	0	0	0	0	0	0	0	S	1	0	4	1	24
15	1	1	1	1	1	1	1	1	2	3	1	0	0	0	4	1	1	1	2	0	0	S	0	2	0	4	1	24
16	0	1	1	0	0	0	0	0	1	4	3	2	4	0	0	1	0	0	0	0	S	0	0	1	0	4	1	24
17	1	0	0	0	1	1	1	1	1	2	2	2	2	2	2	1	0	0	0	S	0	0	0	0	0	2	1	24
18	0	0	0	1	1	2	5	5	4	6	9	4	1	1	1	1	0	0	S	0	0	1	3	4	0	9	2	24
19	4	1	1	1	1	1	1	0	1	1	1	1	1	0	1	2	8	S	2	1	0	0	0	0	0	8	1	24
20	0	0	1	1	1	1	0	1	4	3	1	4	4	5	5	4	S	2	2	1	1	1	1	1	0	5	2	24
21	1	1	0	0	0	0	0	0	0	C	C	C	C	C	0	S	0	0	0	0	0	1	1	0	0	1	0	24
22	0	1	0	0	0	0	0	0	1	1	2	1	1	1	S	1	1	1	0	0	0	0	0	0	0	2	0	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0	1	0	24
24	1	1	1	0	0	0	0	0	0	4	2	2	S	1	1	1	1	0	0	0	0	0	0	0	0	4	1	24
25	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	24
26	1	0	1	0	0	0	0	0	0	0	S	1	1	3	3	2	1	0	0	0	0	0	0	0	0	3	1	24
27	0	0	0	1	1	1	1	1	1	S	0	1	0	1	1	0	1	1	0	0	0	0	0	0	0	1	0	24
28	0	0	0	0	0	0	0	0	S	3	2	1	0	0	0	0	0	0	0	0	2	1	1	0	0	3	0	24
29	0	0	0	5	1	1	1	S	1	0	0	1	1	2	2	1	0	0	0	0	0	0	0	0	0	5	1	24
30	0	0	0	0	0	0	S	0	4	1	2	1	1	1	1	1	0	0	0	0	0	0	1	0	0	4	1	24
31	0	0	0	0	0	S	0	0	1	1	2	1	1	1	1	0	0	0	0	0	0	0	1	3	0	3	1	24
HOURLY MAX	11	12	9	11	8	7	10	7	13	7	9	6	4	5	5	6	8	2	2	10	16	18	12	9				
HOURLY AVG	1	1	1	1	1	1	1	1	2	2	2	2	2	1	2	1	1	1	1	1	1	2	1	1				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

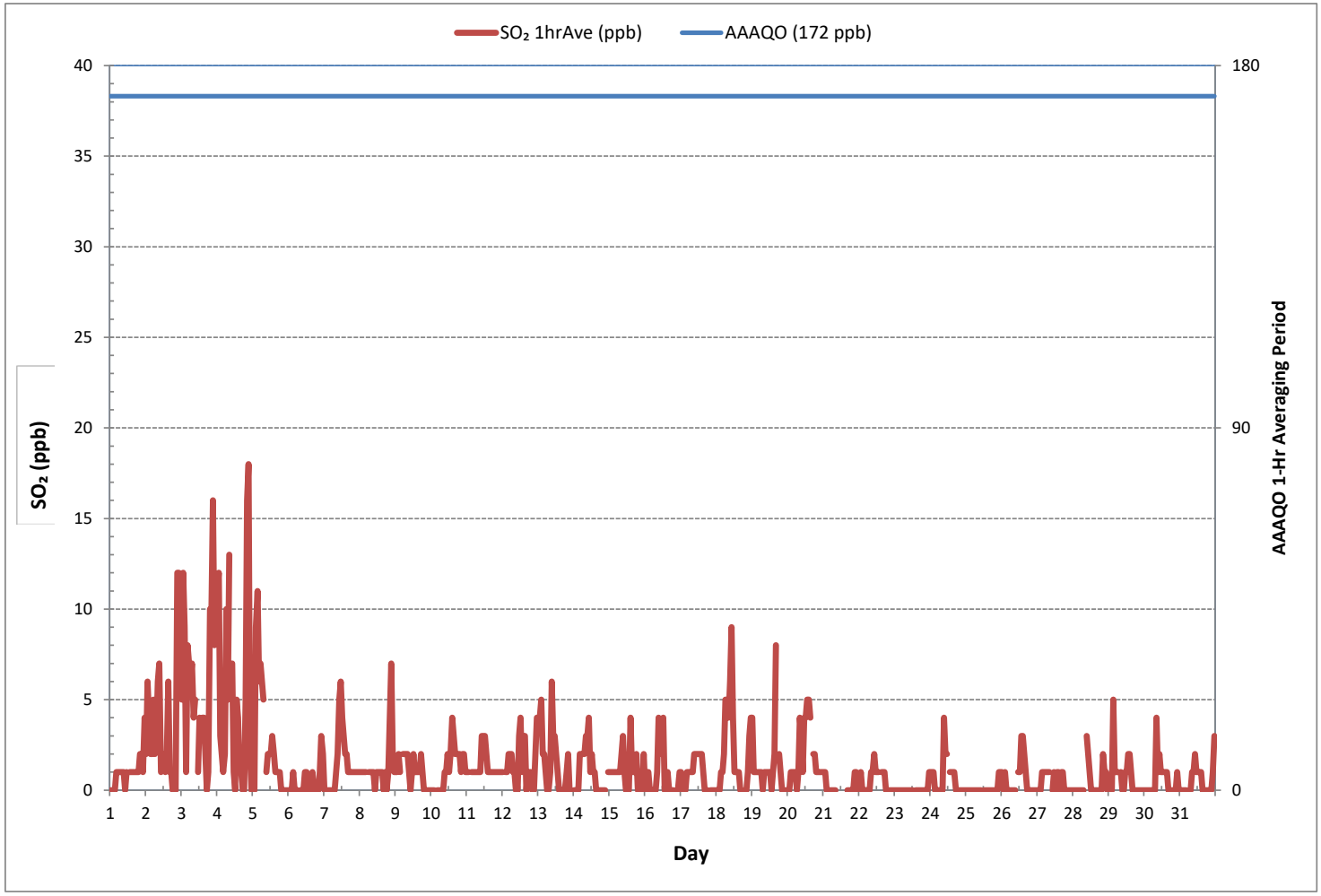


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 ppb | 24-HR 48 ppb

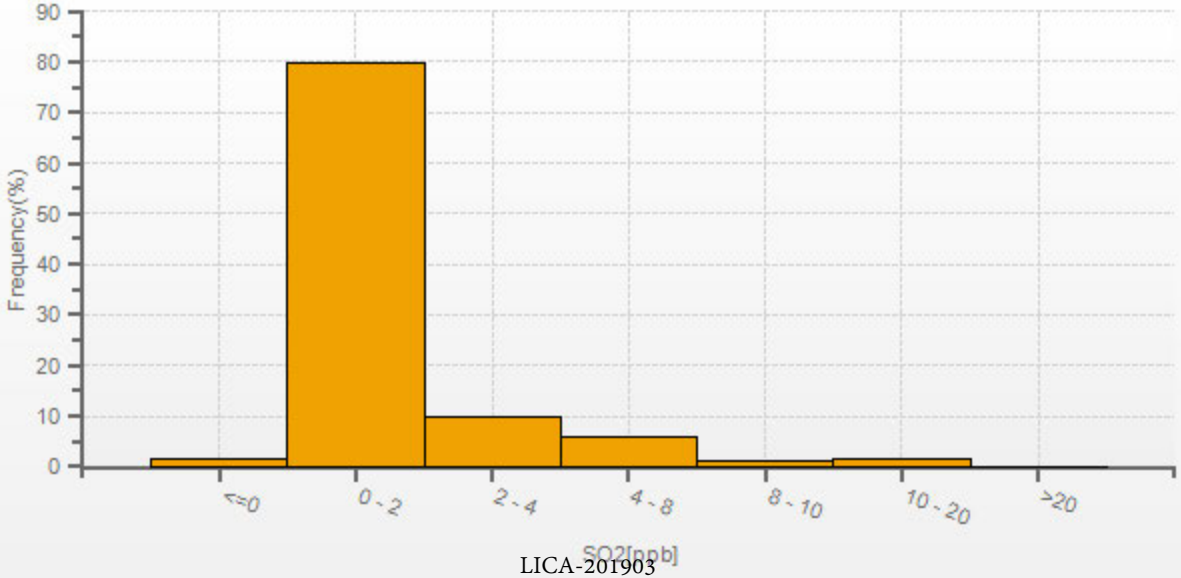
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:		0					
NUMBER OF 24-HR EXCEEDANCES:		0					
NUMBER OF NON-ZERO READINGS:		410					
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	0	ON DAY	1	
MAXIMUM 1-HR AVERAGE:	18	ppb	@ HOUR	21	ON DAY	4	
MAXIMUM 24-HR AVERAGE:	6	ppb			ON DAY	3	
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:			744	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	2		MONTHLY AVERAGE:			1	ppb

SULPHUR DIOXIDE Hourly Averages (SO_2 ppb)

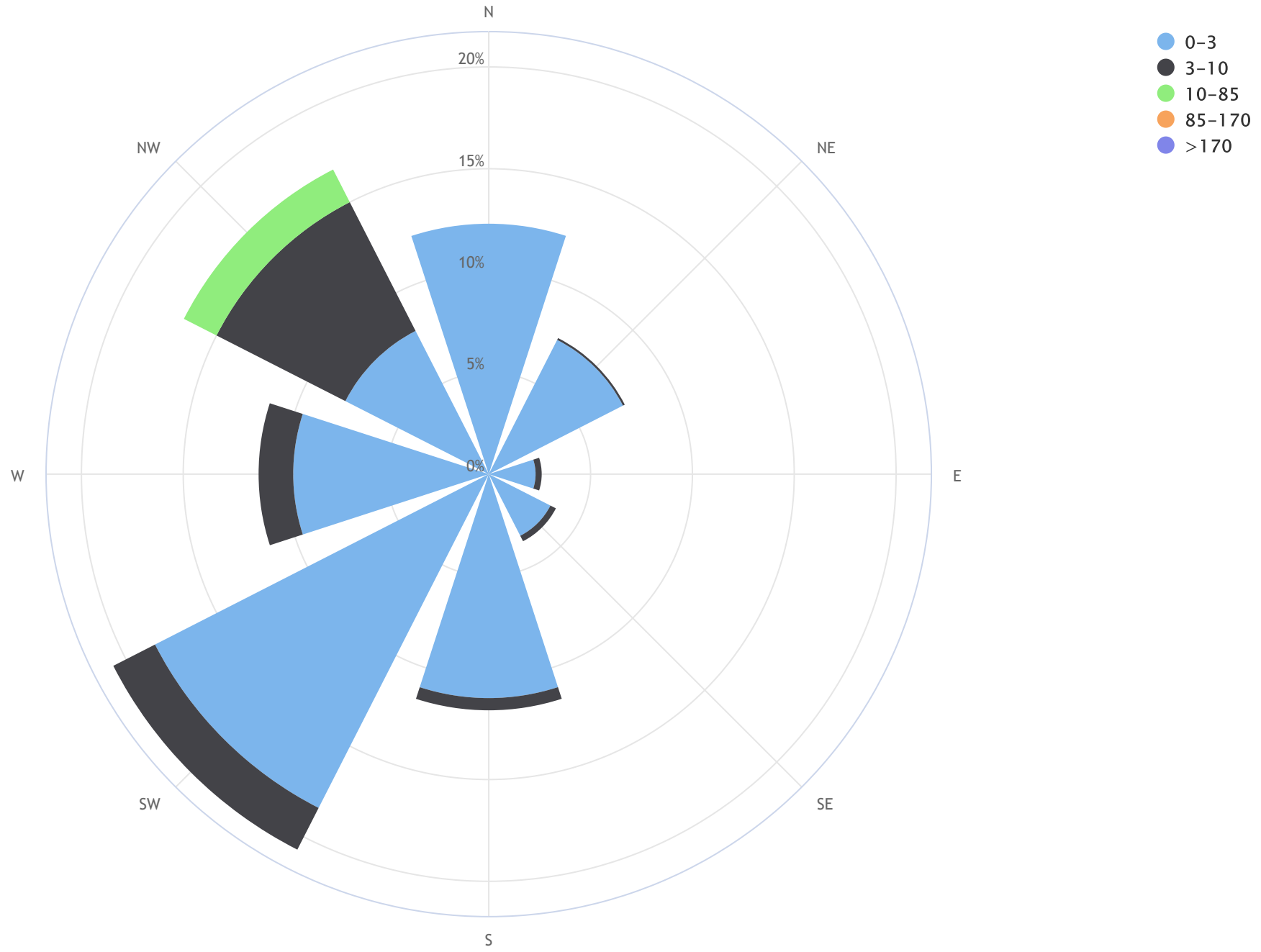


SO2[ppb] Histogram: LICA MASKWA Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Maskwa Continuous Monitoring Station_SO_2 (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 0.6, CALM % = 13.6%



Direction	0-3	3-10	10-85	85-170	>170	TOTAL
N	12.3	0.0	0.0	0.0	0.0	12.3
NE	7.4	0.1	0.0	0.0	0.0	7.5
E	2.3	0.3	0.0	0.0	0.0	2.5
SE	3.4	0.3	0.0	0.0	0.0	3.7
S	11.0	0.6	0.0	0.0	0.0	11.6
SW	18.4	2.3	0.0	0.0	0.0	20.7
W	9.6	1.7	0.0	0.0	0.0	11.3
NW	7.9	7.1	1.8	0.0	0.0	16.8
Summary	72.3	12.3	1.8	0.0	0.0	86.4
CALM	13.3	0.3	0.0	0.0	0.0	13.6

Maxxam
A Bureau Veritas Group Company

HYDROGEN SULPHIDE Hourly Averages (H_2S ppb)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
2	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
3	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	0	0	0	0	1	1	0	0	0	1	0	24
4	1	0	0	0	0	0	0	1	1	S	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	24
5	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	24
6	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	24
7	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	24
8	0	0	0	0	0	S	0	0	S1	0	0	0	0	0	0	1	C	C	C	C	C	0	0	0	0	1	-	23
9	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	24
10	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	24
11	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	24
12	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	24
13	S	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	0	24
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	24
15	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	24
16	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	24
17	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	24
18	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	24
19	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	24
20	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	24
21	0	0	0	0	0	0	0	0	0	C1	C1	C1	C1	C1	0	S	0	0	0	0	0	0	0	0	0	0	0	19
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	24
24	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
26	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	24
27	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	24
28	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	24
29	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	24
30	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	24
31	0	0	0	0	0	S	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
HOURLY MAX	1	0	0	0	0	1	0	1	1	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0				
HOURLY AVG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				

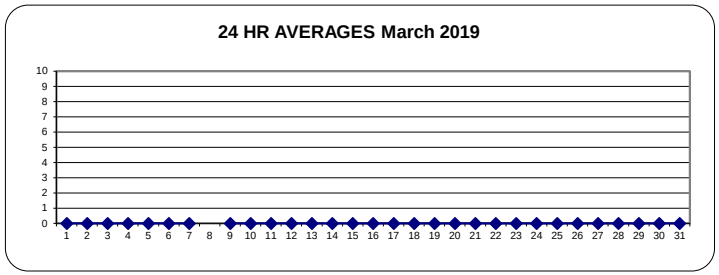
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

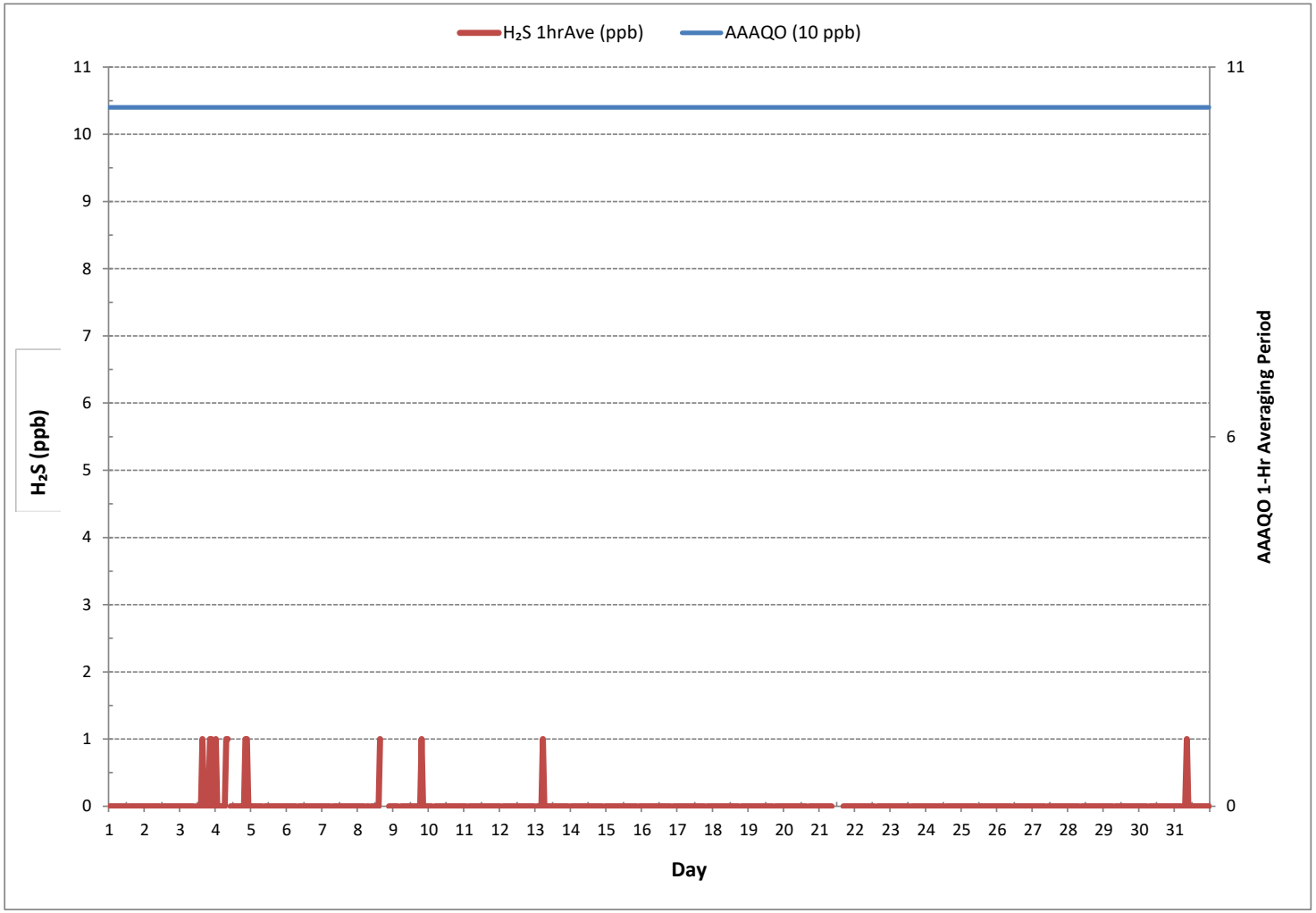
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 10 ppb | 24-HR 3 ppb

MONTHLY SUMMARY

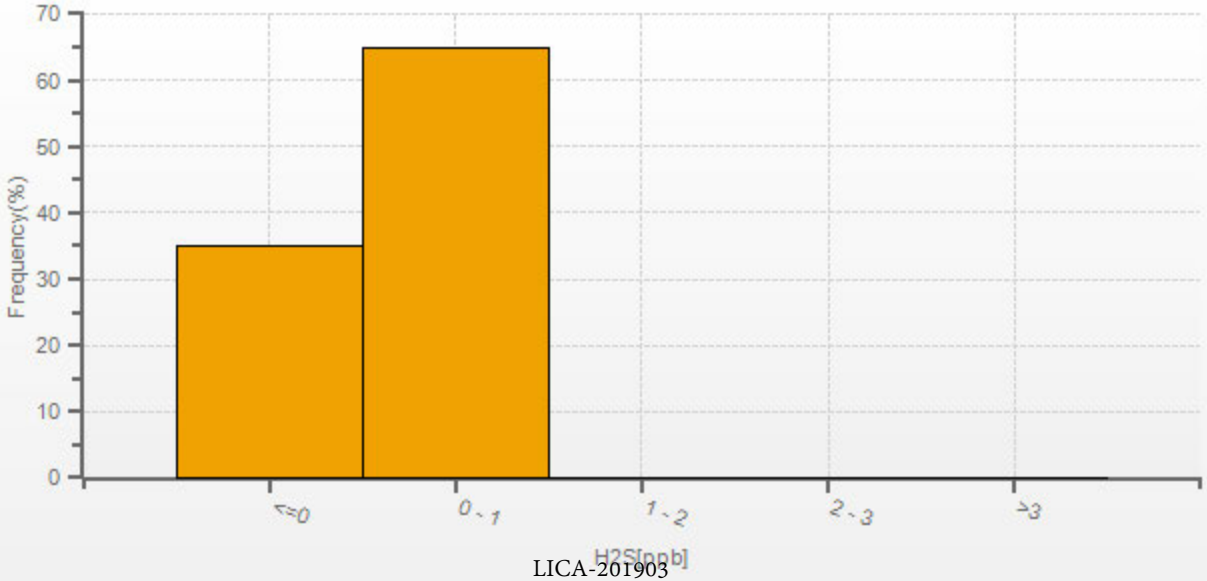
NUMBER OF 1-HR EXCEEDANCES:	0					
NUMBER OF 24-HR EXCEEDANCES:	0					
NUMBER OF NON-ZERO READINGS:	12					
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	0	ON DAY	1
MAXIMUM 1-HR AVERAGE:	1	ppb	@ HOUR	15	ON DAY	3
MAXIMUM 24-HR AVERAGE:	0	ppb			ON DAY	1
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:		738	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:		99.2	%
STANDARD DEVIATION:	0		MONTHLY AVERAGE:		0	ppb



HYDROGEN SULPHIDE Hourly Averages (H_2S ppb)

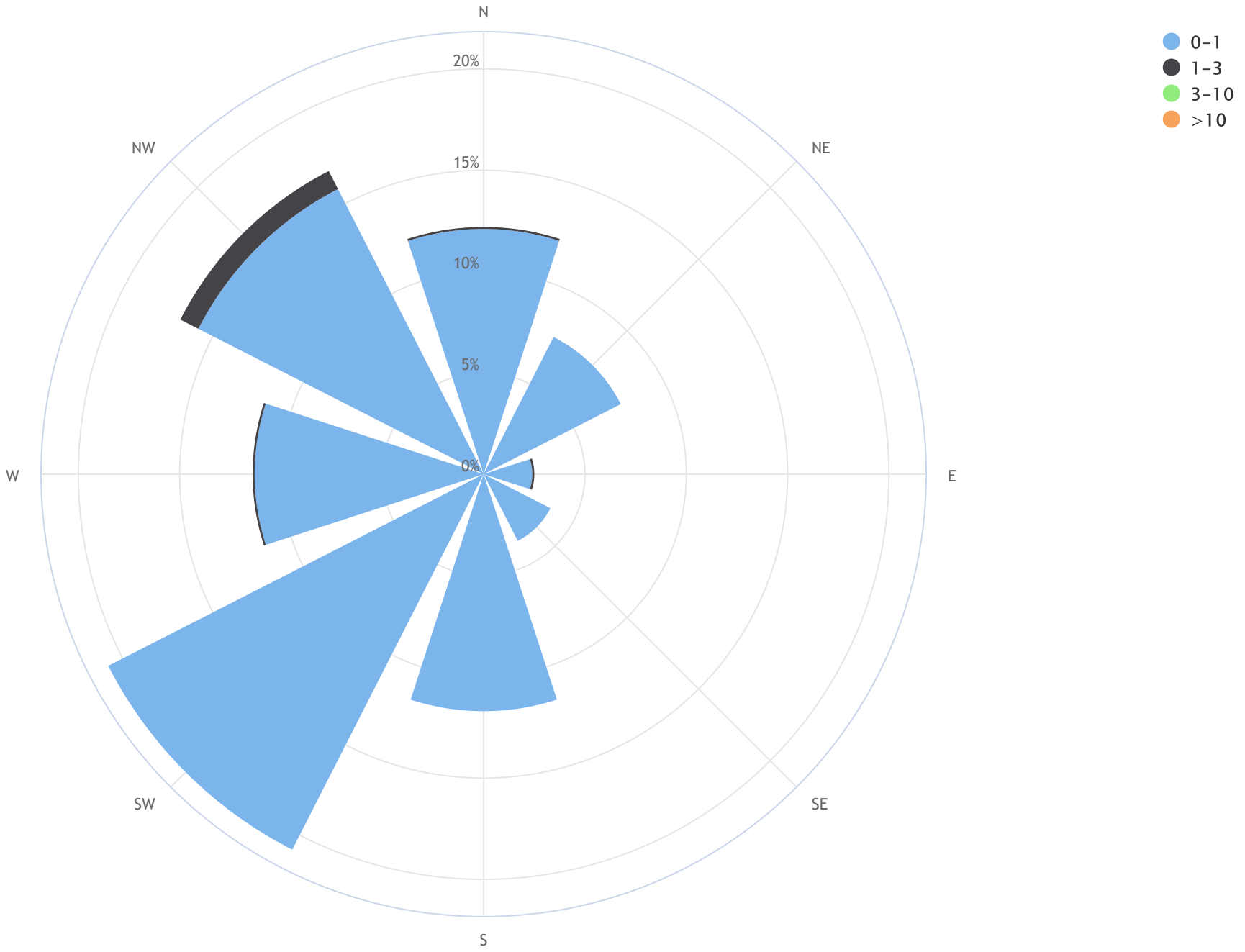


H2S[ppb] Histogram: LICA MA SKWA Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Maskwa Continuous Monitoring Station_H_2S (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 0.0, CALM % = 13.1%



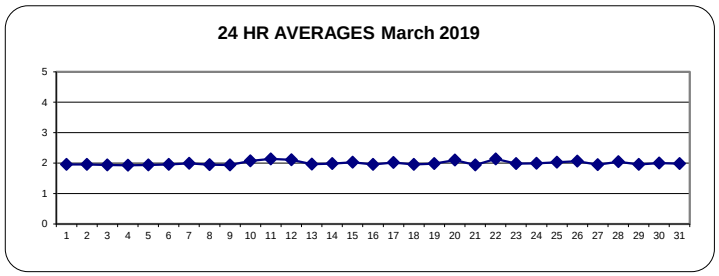
Direction	0-1	1-3	3-10	>10	TOTAL
N	12.1	0.1	0.0	0.0	12.3
NE	7.6	0.0	0.0	0.0	7.6
E	2.4	0.1	0.0	0.0	2.6
SE	3.7	0.0	0.0	0.0	3.7
S	11.7	0.0	0.0	0.0	11.7
SW	20.8	0.0	0.0	0.0	20.8
W	11.3	0.1	0.0	0.0	11.4
NW	15.8	1.0	0.0	0.0	16.8
Summary	85.5	1.4	0.0	0.0	86.9
CALM	12.8	0.3	0.0	0.0	13.1

TOTAL HYDROCARBONS Hourly Averages (THC ppm)

HR START (MST) / HR END (MST)	0:00 / 0:59	1:00 / 1:59	2:00 / 2:59	3:00 / 3:59	4:00 / 4:59	5:00 / 5:59	6:00 / 6:59	7:00 / 7:59	8:00 / 8:59	9:00 / 9:59	10:00 / 10:59	11:00 / 11:59	12:00 / 12:59	13:00 / 13:59	14:00 / 14:59	15:00 / 15:59	16:00 / 16:59	17:00 / 17:59	18:00 / 18:59	19:00 / 19:59	20:00 / 20:59	21:00 / 21:59	22:00 / 22:59	23:00 / 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	1.93	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.97	S	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.96	1.96	1.96	1.97	1.93	1.97	1.96	24
2	1.98	1.98	1.97	1.95	1.97	1.98	1.98	2.01	1.97	1.95	1.95	S	1.95	1.95	1.97	1.95	1.94	1.94	1.93	1.93	1.93	1.95	1.96	1.95	1.93	2.01	1.96	24
3	1.94	1.94	1.94	1.92	1.93	1.94	1.93	1.94	1.94	1.94	S	1.94	1.95	1.96	1.93	1.93	1.92	1.92	1.92	1.93	1.96	1.97	1.95	1.94	1.92	1.97	1.94	24
4	1.95	1.95	1.94	1.94	1.93	1.95	1.96	1.96	1.95	S	1.94	1.92	1.90	1.92	1.91	1.91	1.91	1.91	1.91	1.92	1.94	1.96	1.94	1.94	1.90	1.96	1.93	24
5	1.94	1.94	1.96	1.95	1.95	1.95	1.97	1.96	S	1.94	1.95	1.94	1.94	1.94	1.93	1.92	1.92	1.94	1.93	1.92	1.92	1.92	1.93	1.92	1.92	1.97	1.94	24
6	1.91	1.92	1.92	1.92	1.92	1.92	1.93	S	1.94	1.93	1.94	1.94	1.95	1.95	1.96	1.96	1.98	2.02	2.03	2.05	2.03	2.01	2.01	2.01	1.91	2.05	1.96	24
7	2.00	2.02	2.03	2.07	2.03	2.01	S	2.01	2.00	1.99	2.02	2.03	1.99	1.98	1.98	1.96	1.95	1.95	1.94	1.93	1.94	1.94	1.95	1.96	1.93	2.07	1.99	24
8	1.98	1.95	1.95	1.96	1.98	S	1.97	1.99	2.13	1.97	1.95	1.94	1.93	1.92	1.91	**1.89**	1.91	1.92	1.93	1.93	1.93	1.95	1.96	1.95	**1.89**	2.13	1.95	24
9	1.96	1.97	1.99	1.96	S	1.97	1.99	2.00	1.97	1.94	1.93	1.92	1.91	1.91	1.91	1.92	1.92	1.93	1.94	1.94	1.92	1.93	1.95	1.92	1.91	2.00	1.94	24
10	1.92	1.93	1.96	S	1.95	1.96	1.96	1.95	2.02	2.14	2.11	2.13	2.16	2.13	2.09	2.11	2.11	2.16	2.17	2.12	2.13	2.17	2.16	2.15	1.92	2.17	2.07	24
11	2.14	2.15	S	2.22	2.20	2.19	2.22	2.23	2.21	2.16	2.11	2.08	2.04	2.04	2.00	1.98	2.02	2.11	2.16	2.14	2.17	2.19	2.21	2.23	1.98	2.23	**2.14**	24
12	2.24	S	2.39	2.44	2.52	**2.66**	2.60	2.45	S1	1.99	1.92	1.93	1.92	1.92	1.92	1.92	1.92	1.94	1.93	1.94	1.96	1.94	1.94	1.97	1.92	**2.66**	2.11	23
13	S	1.97	2.00	1.97	1.99	2.02	1.98	1.96	1.96	1.96	1.92	1.93	1.93	1.93	1.93	1.93	1.94	1.97	1.97	1.97	1.99	2.02	2.04	S	1.92	2.04	1.97	24
14	2.02	2.03	2.03	2.03	2.00	2.01	2.01	1.98	1.95	1.94	1.94	1.93	1.94	1.94	1.94	1.96	1.97	1.98	1.98	1.99	1.98	2.01	S	1.99	1.93	2.03	1.98	24
15	1.99	2.01	2.06	2.18	2.16	2.18	2.23	2.23	2.22	2.23	2.12	1.94	1.93	1.94	1.94	1.93	1.93	1.93	1.93	1.93	1.94	S	1.93	1.94	1.93	2.23	2.03	24
16	1.93	1.94	1.94	1.94	2.00	2.05	2.04	2.03	1.95	1.95	1.93	1.93	1.93	1.92	1.93	1.93	1.92	1.92	1.92	1.91	S	2.05	2.02	2.07	1.91	2.07	1.96	24
17	2.02	2.18	2.10	2.15	2.04	1.98	2.00	2.08	2.11	2.06	2.06	2.07	2.06	2.07	2.04	2.02	1.95	1.92	1.93	S	1.92	1.92	1.90	1.90	1.90	2.18	2.02	24
18	1.90	1.91	1.92	1.93	1.94	1.97	1.98	1.98	1.94	1.93	1.94	1.93	1.93	1.94	1.94	1.96	1.97	1.96	S	1.99	1.98	2.00	2.04	2.08	1.90	2.08	1.96	24
19	2.11	2.09	2.12	2.15	2.14	2.12	2.09	1.95	1.93	1.91	1.93	1.92	1.91	1.90	1.91	1.90	1.92	S	1.92	1.94	1.93	1.92	1.94	1.92	1.90	2.15	1.98	24
20	1.95	2.10	2.15	2.10	2.13	2.13	2.37	2.37	2.32	2.18	1.97	2.19	2.17	2.03	1.99	1.98	S	2.01	2.03	2.06	2.06	2.08	2.02	1.96	1.95	2.37	2.10	24
21	1.94	1.92	1.92	1.92	1.92	1.93	1.92	1.91	1.90	2.13	1.92	1.93	1.93	1.93	1.92	S	1.92	1.92	1.91	1.92	1.95	1.98	1.98	1.98	1.90	2.13	1.94	24
22	1.99	2.00	2.01	2.01	2.05	2.06	2.03	2.04	2.09	2.09	C	C	C	C	S	2.15	2.13	2.17	2.24	2.29	2.31	2.29	2.36	2.39	1.99	2.39	2.14	24
23	2.27	2.17	2.07	2.01	1.99	1.97	1.97	1.97	1.96	1.95	1.94	1.94	1.94	S	1.93	1.92	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.95	1.92	2.27	1.98	24
24	1.95	1.96	1.95	1.95	1.95	1.96	1.96	1.96	1.95	2.02	1.96	1.98	S	1.95	1.95	1.94	1.95	1.95	2.05	2.08	2.09	2.12	2.12	2.12	1.94	2.12	1.99	24
25	2.12	2.13	2.05	2.02	2.02	2.00	1.98	1.96	1.97	2.01	2.01	S	1.99	2.02	2.04	2.07	2.07	2.08	2.09	2.08	2.05	2.01	2.00	1.99	1.96	2.13	2.03	24
26	1.99	2.01	2.02	2.02	2.05	2.02	2.01	2.02	2.03	2.05	S	2.07	2.03	2.02	2.01	2.02	2.09	2.11	2.14	2.16	2.16	2.16	2.08	2.02	1.99	2.16	2.06	24
27	1.97	1.94	1.94	1.94	1.95	1.94	1.94	1.94	1.93	S	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.96	2.09	2.08	2.02	1.93	2.09	1.95	24
28	2.00	2.03	2.12	2.12	2.24	2.36	2.41	2.30	S	2.07	2.15	2.20	1.99	1.93	1.92	1.92	1.91	1.91	1.92	1.92	1.93	1.93	1.94	1.95	1.91	2.41	2.05	24
29	1.96	1.95	1.95	1.96	1.95	1.95	1.95	S	1.94	1.93	1.92	1.93	1.93	1.93	1.94	1.94	1.95	1.95	1.96	1.97	1.99	1.99	2.00	2.03	1.92	2.03	1.96	24
30	2.07	2.12	2.13	2.11	2.08	2.09	S	2.08	2.04	1.98	1.96	1.94	1.94	1.95	1.96	1.96	1.96	1.95	1.96	1.96	1.97	1.97	1.96	1.96	1.94	2.13	2.00	24
31	1.97	1.97	1.98	1.98	2.00	S	2.01	2.02	2.05	1.97	1.97	1.97	1.97	1.99	1.98	1.97	1.97	1.96	1.97	1.98	2.00	2.02	1.98	1.99	1.96	2.05	1.98	24
HOURLY MAX	2.27	2.18	2.39	2.44	2.52	2.66	2.60	2.45	2.32	2.23	2.15	2.20	2.17	2.13	2.09	2.15	2.13	2.17	2.24	2.29	2.31	2.29	2.36	2.39				
HOURLY AVG	2.00	2.00	2.02	2.03	2.03	2.04	2.05	2.04	2.01	2.01	1.98	1.98	1.97	1.96	1.96	1.96	1.96	1.98	1.99	1.99	2.00	2.01	2.01	2.01				

STATUS FLAG CODES

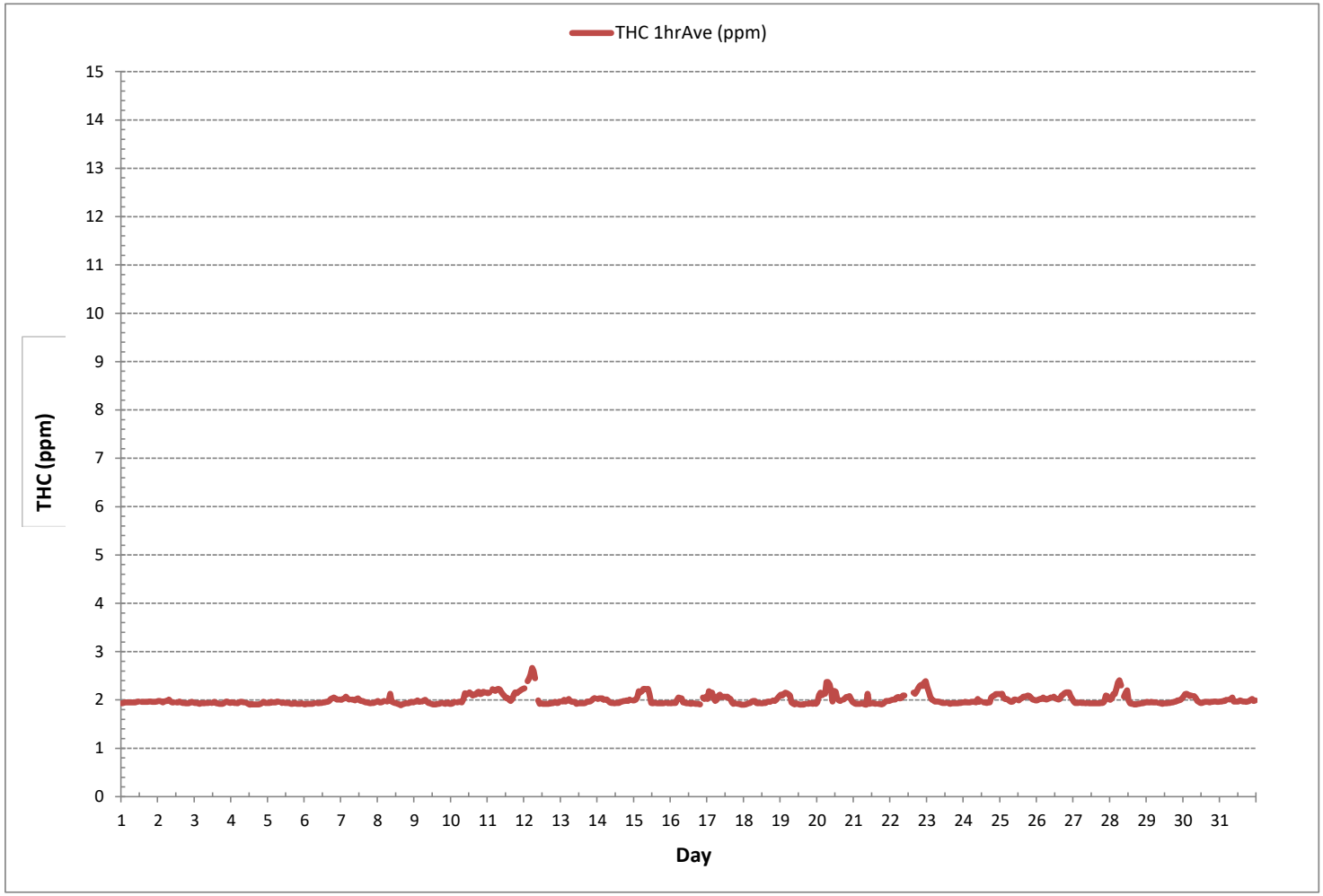
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



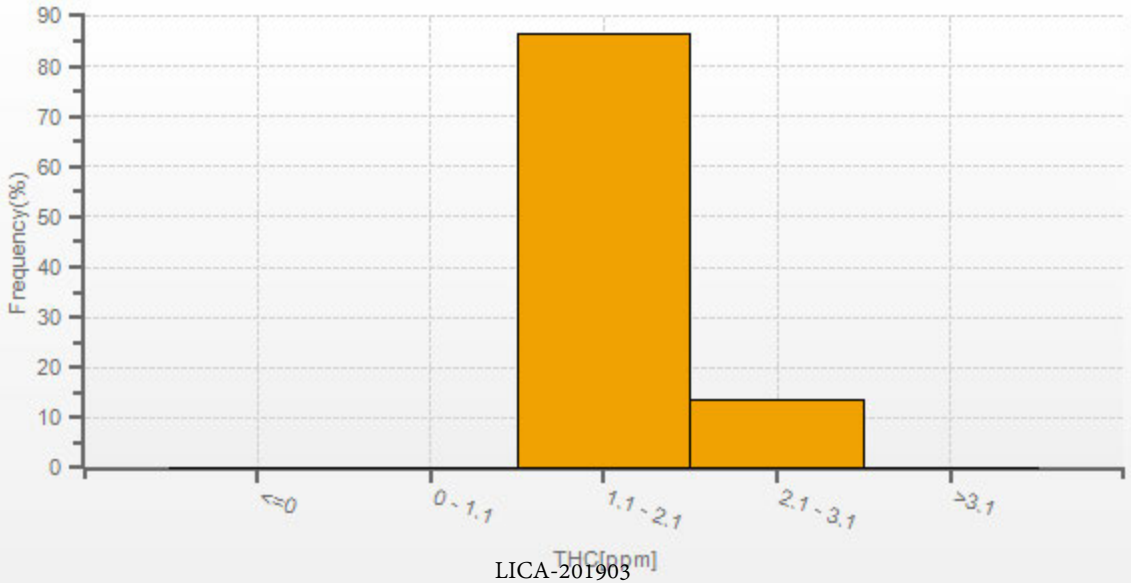
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			707				
MINIMUM 1-HR AVERAGE	1.89	ppm	@ HOUR	15	ON DAY	8	
MAXIMUM 1-HR AVERAGE:	2.66	ppm	@ HOUR	5	ON DAY	12	
MAXIMUM 24-HR AVERAGE:	2.14	ppm			ON DAY	11	
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:			743	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:			99.9	%
STANDARD DEVIATION:	0.10		MONTHLY AVERAGE:			2.00	ppm

TOTAL HYDROCARBONS Hourly Averages (THC ppm)

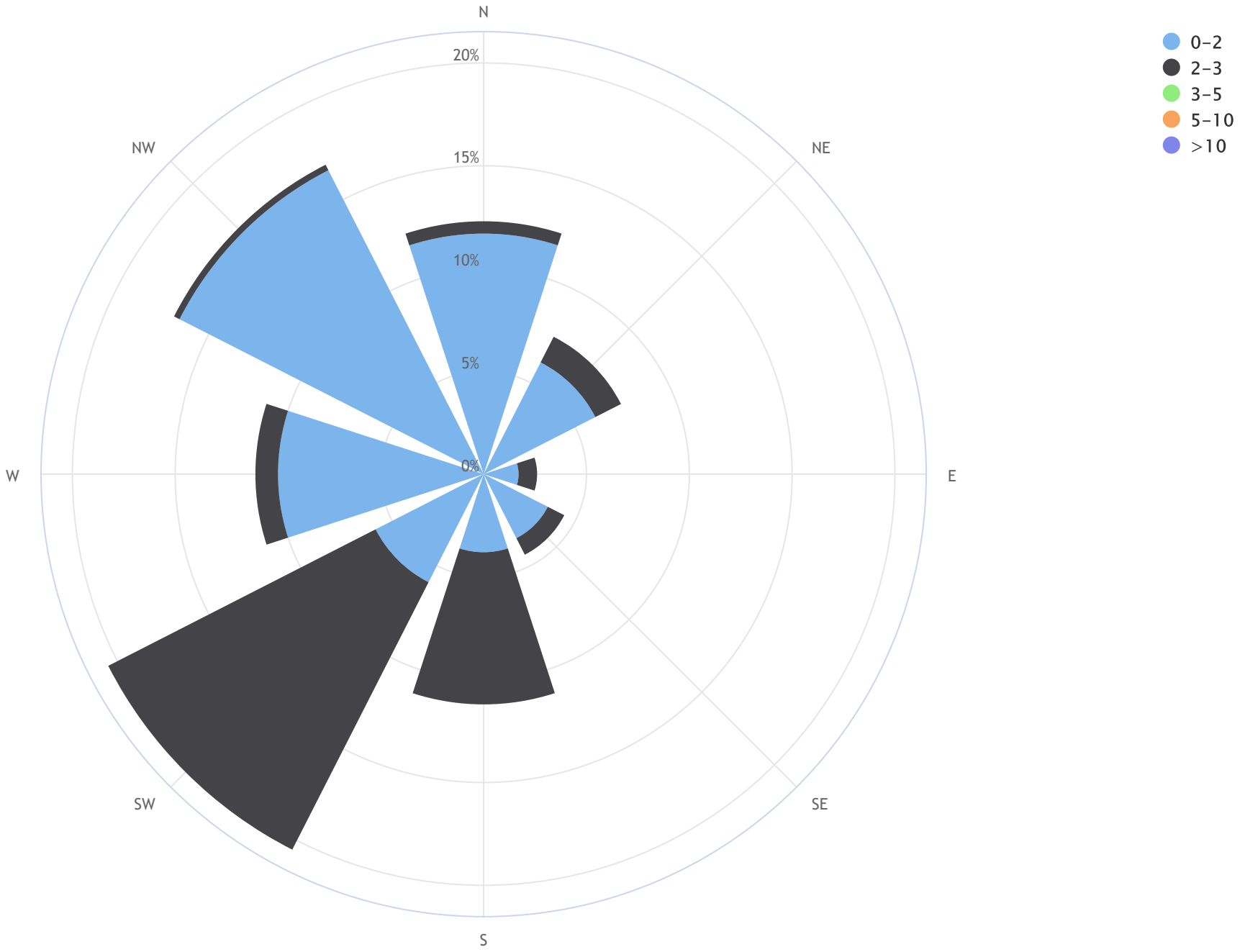


THC[ppm] Histogram: LICA MA SKWA Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Maskwa Continuous Monitoring Station_THC (ppm)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 2.0, CALM % = 13.6%



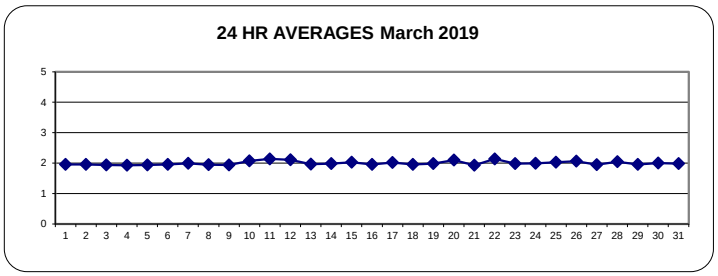
Direction	0-2	2-3	3-5	5-10	>10	TOTAL
N	11.7	0.6	0.0	0.0	0.0	12.3
NE	6.1	1.4	0.0	0.0	0.0	7.5
E	1.7	0.9	0.0	0.0	0.0	2.6
SE	3.5	0.9	0.0	0.0	0.0	4.4
S	3.8	7.4	0.0	0.0	0.0	11.2
SW	5.9	14.6	0.0	0.0	0.0	20.5
W	10.0	1.1	0.0	0.0	0.0	11.2
NW	16.6	0.3	0.0	0.0	0.0	16.8
Summary	59.4	27.0	0.0	0.0	0.0	86.4
CALM	7.1	6.5	0.0	0.0	0.0	13.6

METHANE Hourly Averages (CH_4 ppm)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	1.93	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.97	S	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.96	1.96	1.96	1.97	1.93	1.97	1.96	24
2	1.98	1.98	1.97	1.95	1.97	1.98	1.98	2.01	1.97	1.95	1.95	S	1.95	1.95	1.97	1.95	1.94	1.94	1.93	1.93	1.93	1.95	1.96	1.95	1.93	2.01	1.96	24
3	1.94	1.94	1.94	1.92	1.93	1.94	1.93	1.94	1.94	1.94	S	1.94	1.95	1.96	1.93	1.93	1.92	1.92	1.92	1.93	1.95	1.97	1.95	1.94	1.92	1.97	1.94	24
4	1.95	1.95	1.94	1.94	1.93	1.95	1.96	1.96	1.95	S	1.94	1.92	1.90	1.92	1.91	1.91	1.91	1.91	1.91	1.92	1.94	1.96	1.94	1.94	1.90	1.96	1.93	24
5	1.94	1.94	1.96	1.95	1.95	1.95	1.97	1.96	S	1.94	1.95	1.94	1.94	1.94	1.93	1.92	1.92	1.94	1.93	1.92	1.92	1.92	1.93	1.92	1.92	1.97	1.94	24
6	1.91	1.92	1.92	1.92	1.92	1.92	1.93	S	1.94	1.93	1.94	1.94	1.95	1.95	1.96	1.96	1.98	2.02	2.03	2.05	2.03	2.01	2.01	2.01	1.91	2.05	1.96	24
7	2.00	2.02	2.03	2.07	2.03	2.01	S	2.01	2.00	1.99	2.01	2.02	1.99	1.98	1.98	1.96	1.95	1.95	1.94	1.93	1.94	1.94	1.95	1.96	1.93	2.07	1.99	24
8	1.98	1.95	1.95	1.96	1.98	S	1.97	1.99	2.13	1.97	1.95	1.94	1.93	1.92	1.91	**1.89**	1.91	1.92	1.93	1.93	1.93	1.95	1.96	1.95	**1.89**	2.13	1.95	24
9	1.96	1.97	1.99	1.96	S	1.97	1.99	2.00	1.97	1.94	1.93	1.92	1.91	1.91	1.91	1.92	1.92	1.93	1.94	1.94	1.92	1.93	1.95	1.92	1.91	2.00	1.94	24
10	1.92	1.93	1.96	S	1.95	1.96	1.96	1.95	2.02	2.14	2.11	2.13	2.16	2.13	2.09	2.11	2.11	2.16	2.17	2.12	2.13	2.17	2.16	2.15	1.92	2.17	2.07	24
11	2.14	2.15	S	2.22	2.20	2.19	2.22	2.23	2.21	2.16	2.11	2.08	2.04	2.04	2.00	1.98	2.02	2.11	2.16	2.14	2.17	2.19	2.21	2.23	1.98	2.23	**2.14**	24
12	2.24	S	2.39	2.44	2.52	**2.66**	2.60	2.45	S1	1.99	1.92	1.93	1.92	1.92	1.92	1.92	1.92	1.94	1.93	1.94	1.96	1.94	1.94	1.97	1.92	**2.66**	2.11	23
13	S	1.97	2.00	1.97	1.99	2.02	1.98	1.96	1.96	1.96	1.92	1.93	1.93	1.93	1.93	1.93	1.94	1.97	1.97	1.97	1.99	2.02	2.04	S	1.92	2.04	1.97	24
14	2.02	2.03	2.03	2.03	2.00	2.01	2.01	1.98	1.95	1.94	1.94	1.93	1.94	1.94	1.94	1.96	1.97	1.98	1.98	1.99	1.98	2.01	S	1.99	1.93	2.03	1.98	24
15	1.99	2.01	2.06	2.18	2.16	2.18	2.23	2.23	2.22	2.23	2.12	1.94	1.93	1.94	1.94	1.93	1.93	1.93	1.93	1.93	1.94	S	1.93	1.94	1.93	2.23	2.03	24
16	1.93	1.94	1.94	1.94	2.00	2.05	2.04	2.03	1.95	1.95	1.93	1.93	1.93	1.92	1.93	1.93	1.92	1.92	1.92	1.91	S	2.05	2.02	2.07	1.91	2.07	1.96	24
17	2.02	2.18	2.10	2.15	2.04	1.98	2.00	2.08	2.11	2.06	2.06	2.07	2.06	2.07	2.04	2.02	1.95	1.92	1.93	S	1.92	1.92	1.90	1.90	1.90	2.18	2.02	24
18	1.90	1.91	1.92	1.93	1.94	1.97	1.98	1.98	1.94	1.93	1.94	1.93	1.93	1.94	1.94	1.96	1.97	1.96	S	1.99	1.98	2.00	2.04	2.08	1.90	2.08	1.96	24
19	2.11	2.09	2.12	2.15	2.14	2.12	2.09	1.95	1.93	1.91	1.92	1.92	1.91	1.90	1.91	1.90	1.90	S	1.91	1.92	1.92	1.92	1.94	1.92	1.90	2.15	1.98	24
20	1.95	2.10	2.15	2.10	2.13	2.13	2.37	2.37	2.32	2.18	1.97	2.19	2.17	2.03	1.99	1.98	S	2.01	2.03	2.06	2.06	2.08	2.02	1.96	1.95	2.37	2.10	24
21	1.94	1.92	1.92	1.92	1.92	1.93	1.92	1.91	1.90	2.00	1.92	1.93	1.93	1.93	1.92	S	1.92	1.92	1.91	1.92	1.95	1.98	1.98	1.98	1.90	2.00	1.93	24
22	1.99	2.00	2.01	2.01	2.05	2.06	2.03	2.04	2.09	2.09	C	C	C	C	S	2.15	2.13	2.17	2.24	2.29	2.31	2.29	2.36	2.39	1.99	2.39	2.14	24
23	2.27	2.17	2.07	2.01	1.99	1.97	1.97	1.97	1.96	1.95	1.94	1.94	1.94	S	1.93	1.92	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.95	1.92	2.27	1.98	24
24	1.95	1.96	1.95	1.95	1.95	1.96	1.96	1.96	1.95	2.02	1.96	1.97	S	1.95	1.95	1.94	1.95	1.95	2.05	2.08	2.09	2.12	2.12	2.12	1.94	2.12	1.99	24
25	2.12	2.13	2.05	2.02	2.02	2.00	1.98	1.96	1.97	2.01	2.01	S	1.99	2.02	2.04	2.07	2.07	2.08	2.09	2.08	2.05	2.01	2.00	1.99	1.96	2.13	2.03	24
26	1.99	2.01	2.02	2.02	2.05	2.02	2.01	2.02	2.03	2.05	S	2.07	2.03	2.02	2.01	2.02	2.09	2.11	2.14	2.16	2.16	2.16	2.08	2.02	1.99	2.16	2.06	24
27	1.97	1.94	1.94	1.94	1.95	1.94	1.94	1.94	1.93	S	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.96	2.09	2.08	2.02	1.93	2.09	1.95	24
28	2.00	2.03	2.12	2.12	2.24	2.36	2.41	2.30	S	2.07	2.15	2.20	1.99	1.93	1.92	1.92	1.91	1.91	1.92	1.92	1.93	1.93	1.94	1.95	1.91	2.41	2.05	24
29	1.96	1.95	1.95	1.96	1.95	1.95	1.95	S	1.94	1.93	1.92	1.93	1.93	1.93	1.94	1.94	1.95	1.95	1.96	1.97	1.99	1.99	2.00	2.03	1.92	2.03	1.96	24
30	2.07	2.12	2.13	2.11	2.08	2.09	S	2.08	2.04	1.98	1.96	1.94	1.94	1.95	1.96	1.96	1.96	1.95	1.96	1.96	1.97	1.97	1.96	1.96	1.94	2.13	2.00	24
31	1.97	1.97	1.98	1.98	2.00	S	2.01	2.02	2.03	1.97	1.97	1.97	1.97	1.99	1.98	1.97	1.97	1.96	1.97	1.98	2.00	2.02	1.98	1.99	1.96	2.03	1.98	24
HOURLY MAX	2.27	2.18	2.39	2.44	2.52	2.66	2.60	2.45	2.32	2.23	2.15	2.20	2.17	2.13	2.09	2.15	2.13	2.17	2.24	2.29	2.31	2.29	2.36	2.39				
HOURLY AVG	2.00	2.00	2.02	2.03	2.03	2.04	2.05	2.04	2.01	2.00	1.98	1.98	1.97	1.96	1.96	1.96	1.96	1.98	1.98	1.99	2.00	2.01	2.01	2.01				

STATUS FLAG CODES

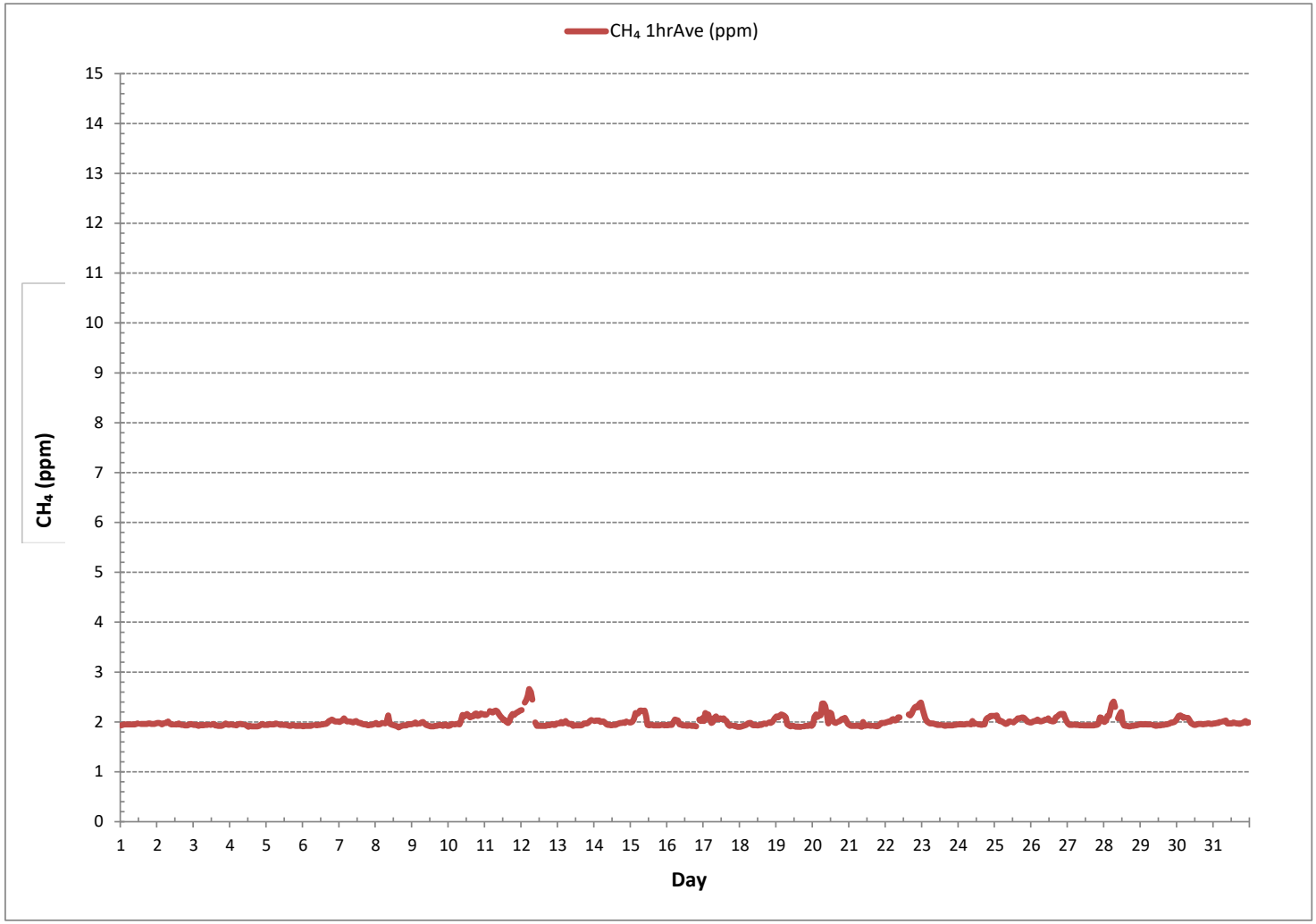
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



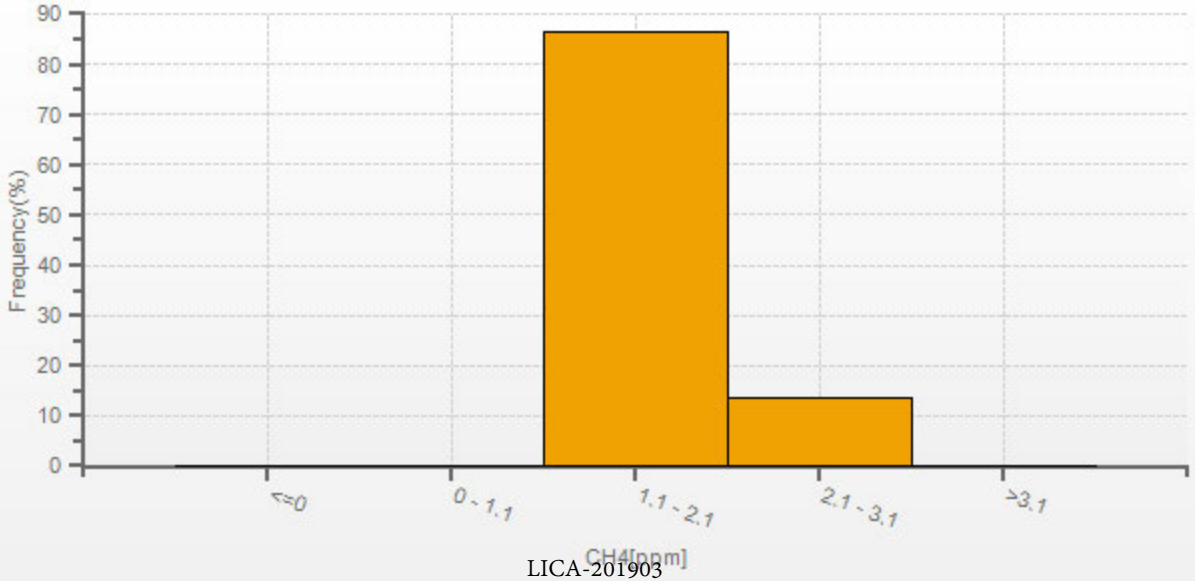
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			707				
MINIMUM 1-HR AVERAGE	1.89	ppm	@ HOUR	15	ON DAY	8	
MAXIMUM 1-HR AVERAGE:	2.66	ppm	@ HOUR	5	ON DAY	12	
MAXIMUM 24-HR AVERAGE:	2.14	ppm			ON DAY	11	
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:			743	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:			99.9	%
STANDARD DEVIATION:	0.10		MONTHLY AVERAGE:			2.00	ppm

METHANE Hourly Averages (CH_4 ppm)

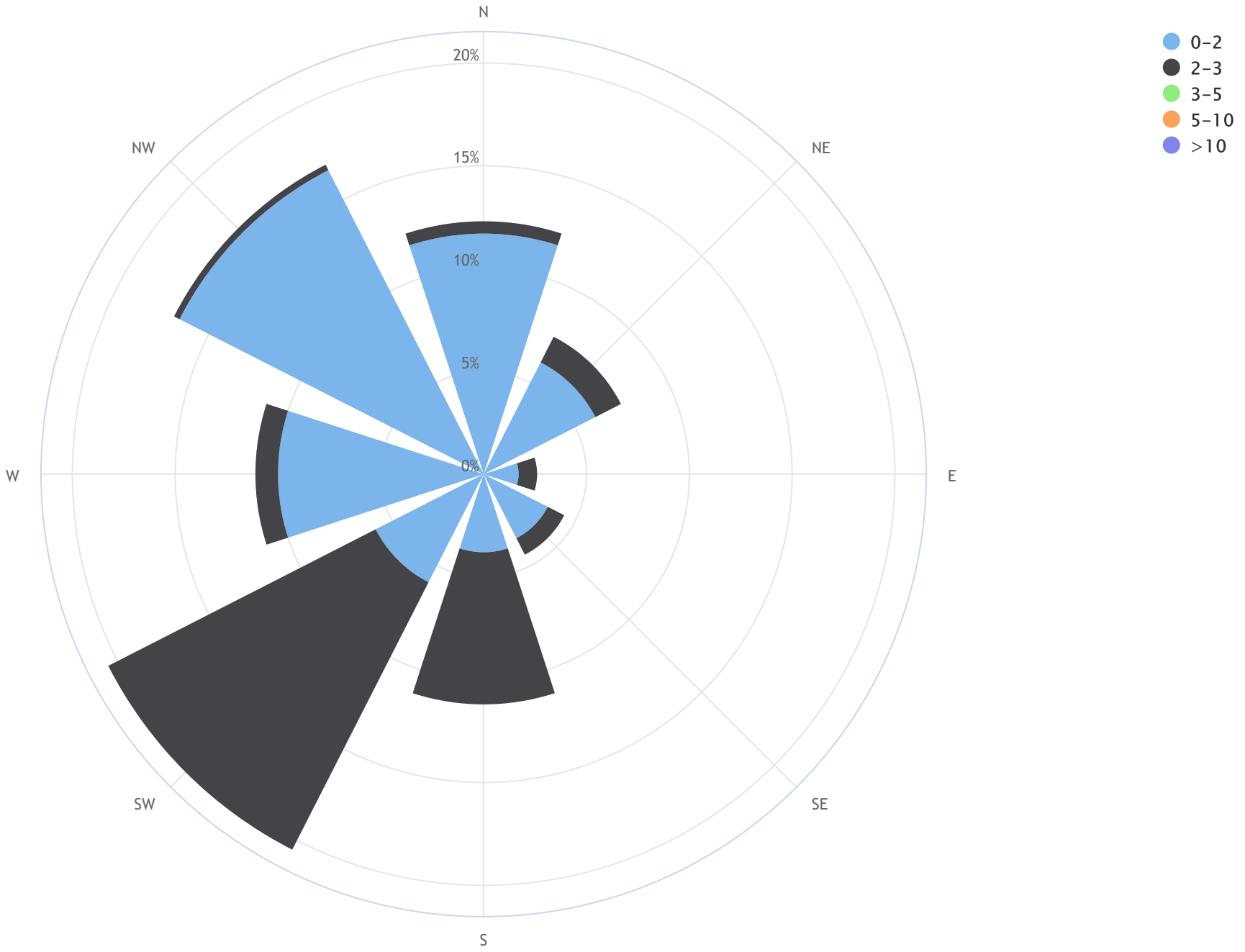


CH4[ppm] Histogram: LICA MASKWA Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Maskwa Continuous Monitoring Station_CH_4 (ppm)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 2.0, CALM % = 13.6%



Direction	0-2	2-3	3-5	5-10	>10	TOTAL
N	11.7	0.6	0.0	0.0	0.0	12.3
NE	6.1	1.4	0.0	0.0	0.0	7.5
E	1.7	0.9	0.0	0.0	0.0	2.6
SE	3.5	0.9	0.0	0.0	0.0	4.4
S	3.8	7.4	0.0	0.0	0.0	11.2
SW	5.9	14.6	0.0	0.0	0.0	20.5
W	10.0	1.1	0.0	0.0	0.0	11.2
NW	16.6	0.3	0.0	0.0	0.0	16.8
Summary	59.4	27.0	0.0	0.0	0.0	86.4
CALM	7.1	6.5	0.0	0.0	0.0	13.6

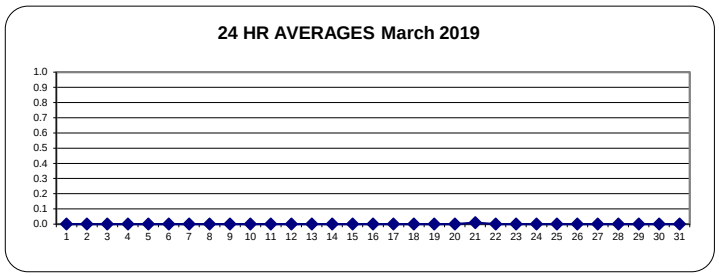
Maxxam
A Bureau Veritas Group Company

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	24
2	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	24
3	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	0.01	0.00	0.00	0.00	0.00	0.01	0.00	24
4	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	24
5	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	24
6	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	24
7	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24
8	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	24
9	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	24
10	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	24
11	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	24
12	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	**S1**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23
13	**S**	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.01	0.00	24
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	**S**	0.00	0.00	0.00	0.00	24
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	**S**	0.00	0.00	0.00	0.00	0.00	24
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	24
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.02	**S**	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00	24
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.14**	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	**0.14**	**0.01**	24
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**C**	**C**	**C**	**C**	**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	24
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**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	24
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**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	24
25	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	24
26	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	24
27	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	24
28	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	24
29	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	24
30	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	24
31	0.00	0.00	0.00	0.00	0.00	**S**	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	0.02	0.00	24
HOURLY MAX	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.14	0.01	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02	0.01	0.00	0.00	0.00				
HOURLY AVG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

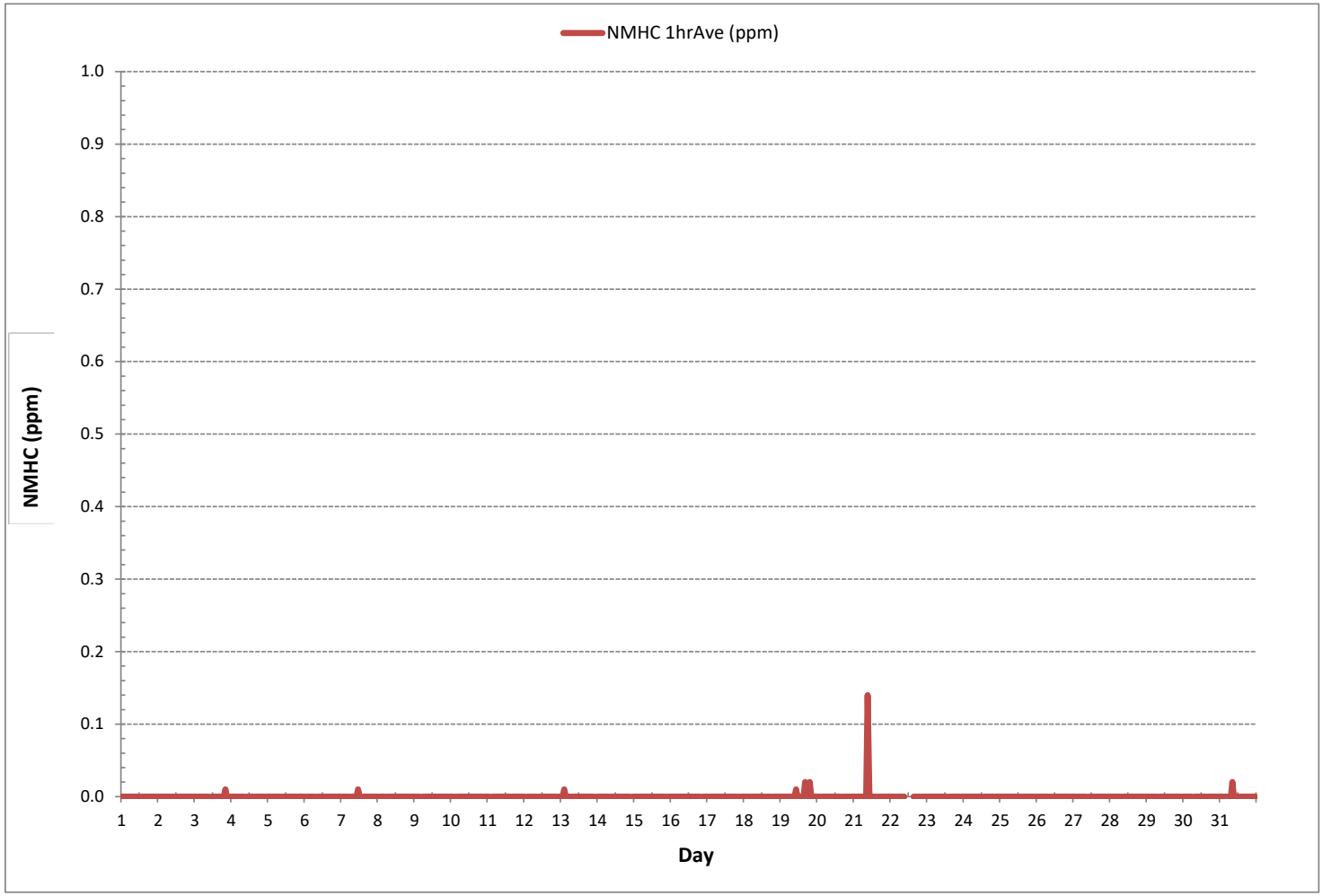


MONTHLY SUMMARY

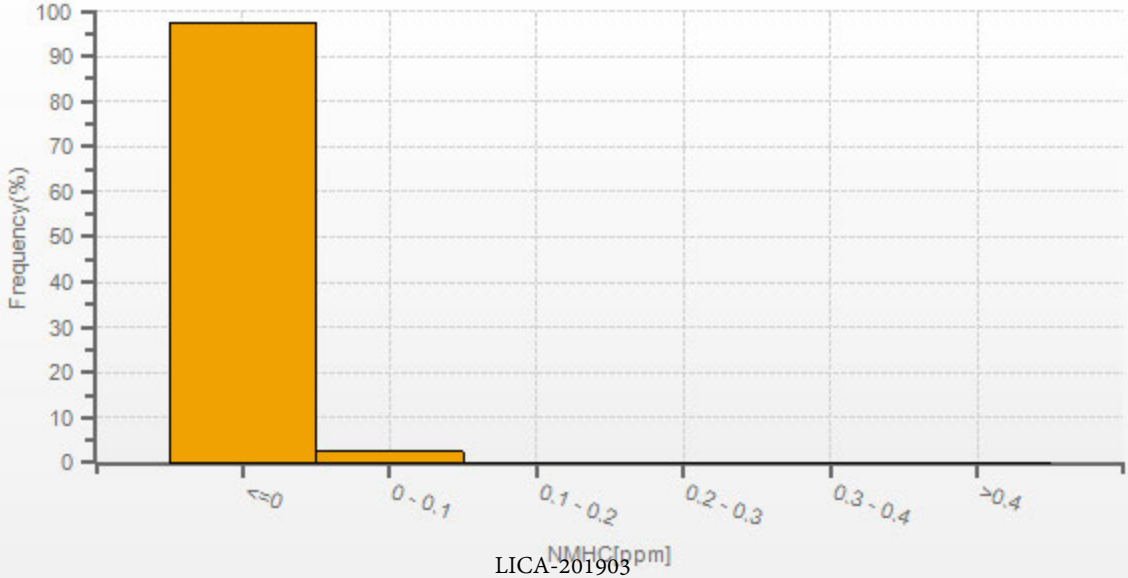
NUMBER OF NON-ZERO READINGS:		8				
MINIMUM 1-HR AVERAGE	0.00	ppm	@ HOUR	0	ON DAY	1
MAXIMUM 1-HR AVERAGE:	0.14	ppm	@ HOUR	9	ON DAY	21
MAXIMUM 24-HR AVERAGE:	0.01	ppm			ON DAY	21

IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	743	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	99.9	%
STANDARD DEVIATION:	0.01		MONTHLY AVERAGE:	0.00	ppm

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

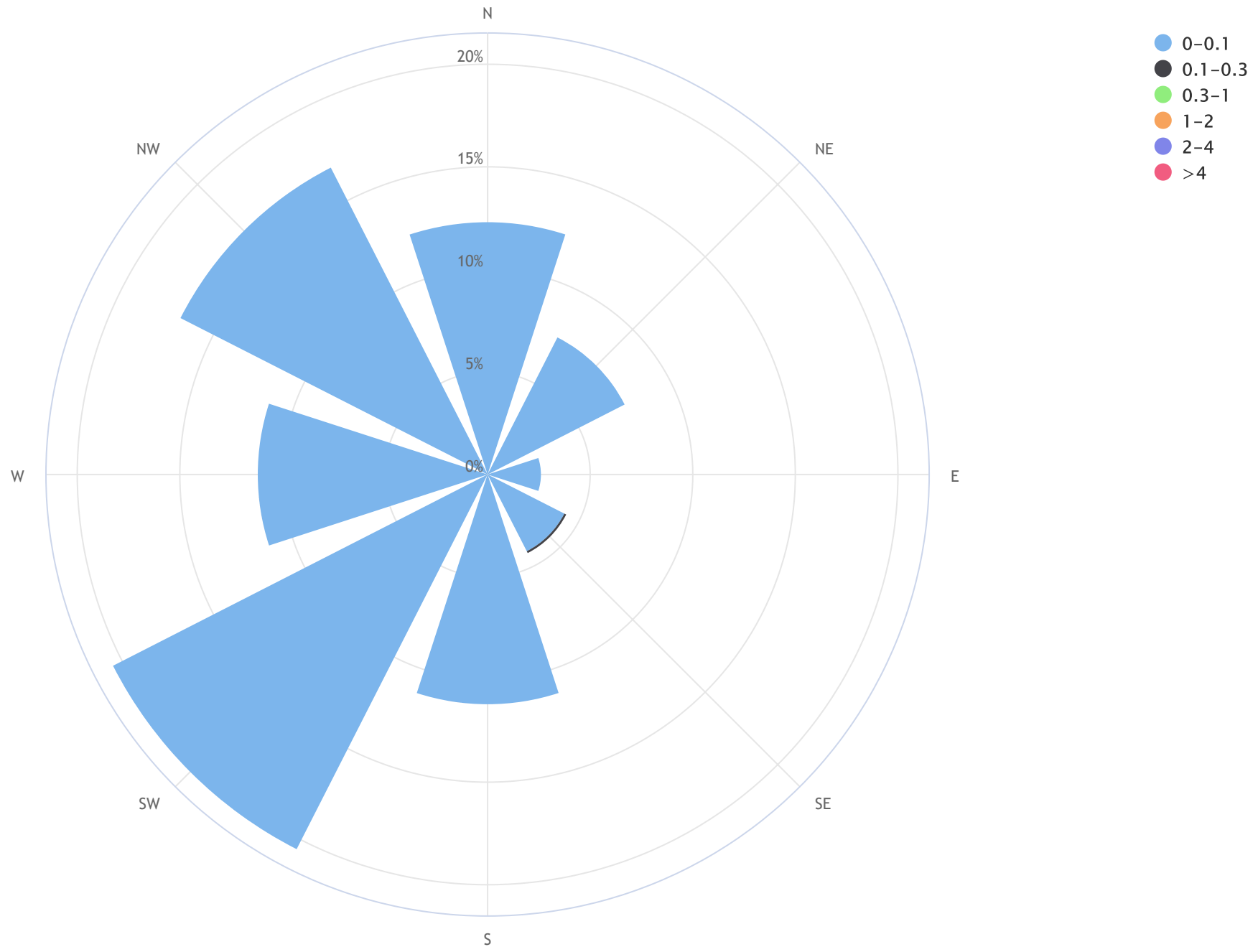


NMHC[ppm] Histogram: LICA MA SKWA Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Maskwa Continuous Monitoring Station_NMHC (ppm)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 0.0, CALM % = 13.6%



Direction	0-0.1	0.1-0.3	0.3-1	1-2	2-4	>4	TOTAL
N	12.3	0.0	0.0	0.0	0.0	0.0	12.3
NE	7.5	0.0	0.0	0.0	0.0	0.0	7.5
E	2.6	0.0	0.0	0.0	0.0	0.0	2.6
SE	4.2	0.1	0.0	0.0	0.0	0.0	4.4
S	11.2	0.0	0.0	0.0	0.0	0.0	11.2
SW	20.5	0.0	0.0	0.0	0.0	0.0	20.5
W	11.2	0.0	0.0	0.0	0.0	0.0	11.2
NW	16.8	0.0	0.0	0.0	0.0	0.0	16.8
Summary	86.3	0.1	0.0	0.0	0.0	0.0	86.4
CALM	13.6	0.0	0.0	0.0	0.0	0.0	13.6

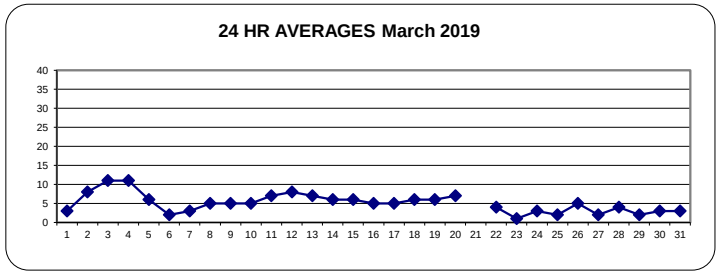
Maxxam
A Bureau Veritas Group Company

OXIDES OF NITROGEN Hourly Averages (NO_x ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	1	**0**	0	1	1	1	2	4	3	2	2	3	**S**	2	3	2	2	3	4	4	5	5	4	9	**0**	9	3	24
2	7	13	10	5	9	10	7	15	16	13	3	**S**	4	3	3	9	2	1	1	2	3	20	19	12	1	20	8	24
3	10	19	15	2	14	11	10	14	7	10	**S**	2	8	7	7	7	5	1	1	17	19	29	14	16	1	29	**11**	24
4	20	22	9	15	5	9	20	11	24	**S**	12	2	2	11	7	4	3	1	1	9	28	**33**	4	3	1	**33**	11	24
5	2	1	16	20	12	13	13	11	**S**	3	4	4	5	6	4	2	3	3	3	2	1	2	1	1	1	20	6	24
6	0	0	0	2	1	1	1	**S**	2	1	1	2	2	1	1	1	2	2	2	2	3	2	4	3	0	4	2	24
7	1	2	2	2	1	1	**S**	1	3	4	8	11	7	8	6	5	4	2	1	1	1	1	2	1	1	11	3	24
8	1	1	1	5	3	**S**	5	9	13	3	1	1	2	2	3	2	1	2	1	2	15	17	13	6	1	17	5	24
9	5	8	7	4	**S**	11	10	16	12	2	1	3	7	3	3	3	3	3	3	2	2	1	1	1	1	16	5	24
10	1	2	1	**S**	3	1	5	14	8	6	6	6	6	6	6	6	6	6	7	6	5	6	6	6	1	14	5	24
11	6	6	**S**	6	6	7	8	8	10	10	10	11	9	7	5	5	5	6	6	6	6	5	5	5	5	11	7	24
12	5	**S**	6	7	9	14	16	13	16	5	3	8	8	3	7	7	2	4	4	6	3	2	10	16	2	16	8	24
13	**S**	10	12	6	6	16	10	10	14	17	6	8	4	2	1	1	2	2	2	3	6	4	3	**S**	1	17	7	24
14	3	3	5	3	13	17	17	9	8	9	10	2	5	2	3	2	2	2	3	3	3	4	**S**	3	2	17	6	24
15	3	4	4	5	5	5	9	12	11	13	8	2	2	2	8	5	4	3	6	2	1	**S**	3	15	1	15	6	24
16	2	10	5	2	6	12	15	10	8	16	7	8	7	1	1	2	1	1	1	1	**S**	2	2	3	1	16	5	24
17	3	5	5	6	4	3	4	6	6	7	7	8	8	8	7	5	3	2	2	**S**	2	2	2	2	2	8	5	24
18	1	1	2	5	6	11	17	16	8	10	17	8	4	3	2	3	3	2	**S**	3	3	5	7	9	1	17	6	24
19	9	6	6	6	6	10	11	6	5	4	5	7	4	2	3	4	17	**S**	9	5	4	3	2	2	2	17	6	24
20	2	3	6	6	6	11	10	16	18	12	5	10	9	7	6	6	**S**	**S1**	5	4	4	5	3	2	2	18	7	23
21	2	1	1	1	1	1	1	1	1	**C**	**C**	**C**	**C**	**C**	**C**	**C**	1	1	1	1	1	2	2	2	1	2	-	24
22	2	3	2	2	2	2	8	7	4	4	5	3	3	3	**S**	3	3	4	4	6	6	4	4	4	2	8	4	24
23	3	2	2	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	0	1	1	0	6	0	6	1	24
24	5	4	3	1	1	1	2	2	1	11	4	5	**S**	4	3	2	2	1	2	2	3	4	3	3	1	11	3	24
25	3	3	2	2	2	2	2	2	2	2	2	**S**	2	2	2	3	3	3	3	3	3	2	3	4	2	4	2	24
26	3	3	3	3	3	4	4	5	4	4	**S**	8	5	10	10	9	8	7	6	6	5	6	3	2	2	10	5	24
27	1	1	1	1	1	2	1	2	1	**S**	1	2	1	2	2	1	2	2	2	1	2	2	2	2	1	2	2	24
28	2	4	4	3	3	12	13	15	**S**	6	8	8	2	1	1	1	1	1	1	3	6	2	2	1	1	15	4	24
29	1	1	1	10	2	3	6	**S**	2	1	1	1	3	4	5	3	1	1	2	1	1	2	2	2	1	10	2	24
30	2	3	3	2	2	3	**S**	8	15	3	2	1	1	1	2	2	2	1	1	2	2	2	2	1	1	15	3	24
31	1	1	2	4	4	**S**	4	3	4	2	5	3	2	2	2	2	2	2	2	2	3	2	2	9	1	9	3	24
HOURLY MAX	20	22	16	20	14	17	20	16	24	17	17	11	9	11	10	9	17	7	9	17	28	33	19	16				
HOURLY AVG	4	5	5	5	5	7	8	9	8	6	5	5	4	4	4	4	3	2	3	4	5	6	4	5				

STATUS FLAG CODES

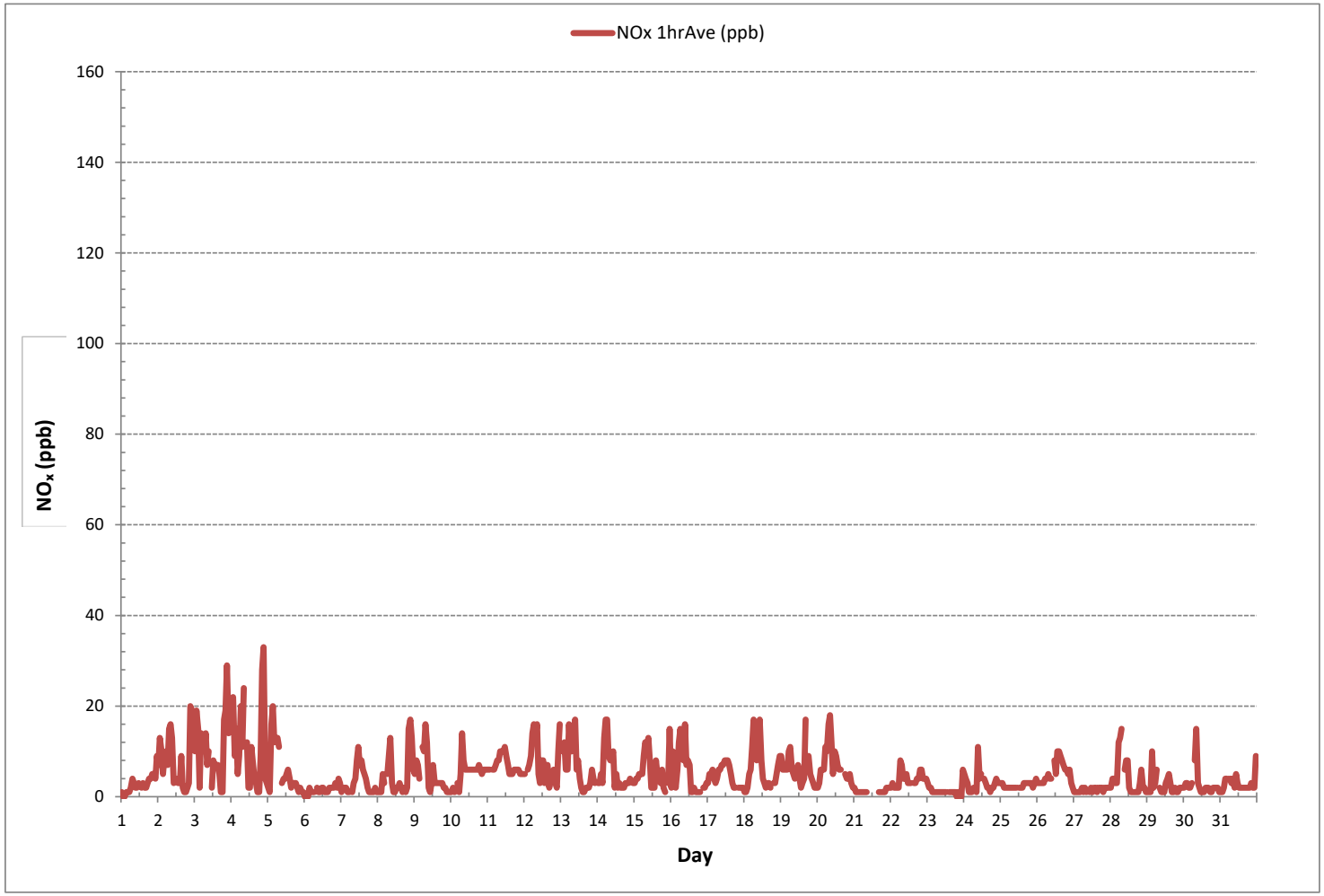
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



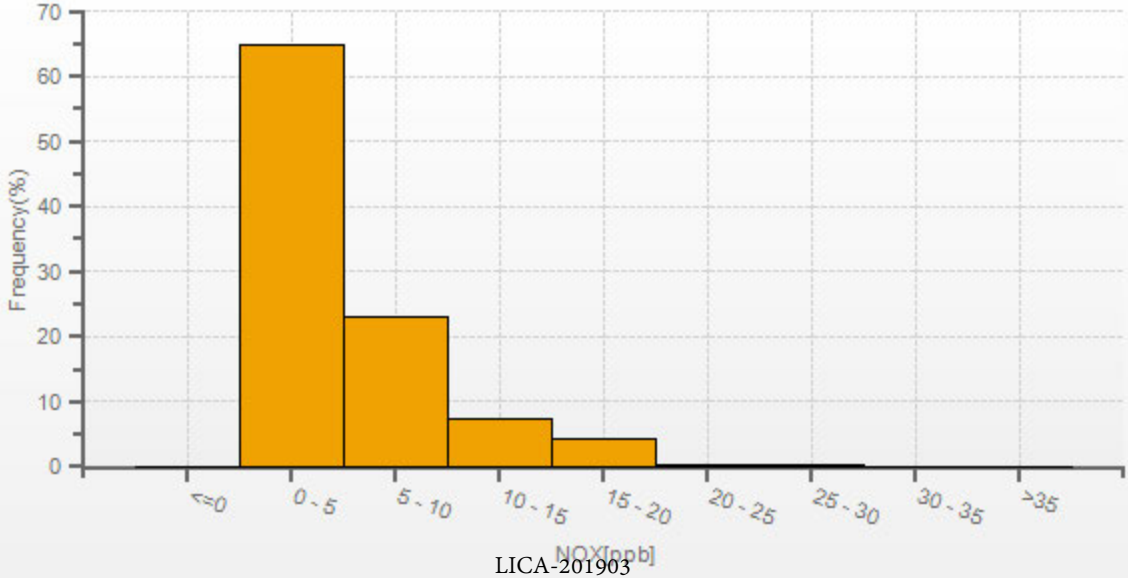
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			698				
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	1	ON DAY	1	
MAXIMUM 1-HR AVERAGE:	33	ppb	@ HOUR	21	ON DAY	4	
MAXIMUM 24-HR AVERAGE:	11	ppb			ON DAY	3	
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:			743	hrs
MONTHLY CALIBRATION TIME:	7	hrs	AMD OPERATION UPTIME:			99.9	%
STANDARD DEVIATION:	5		MONTHLY AVERAGE:			5	ppb

OXIDES OF NITROGEN Hourly Averages (NO_x ppb)

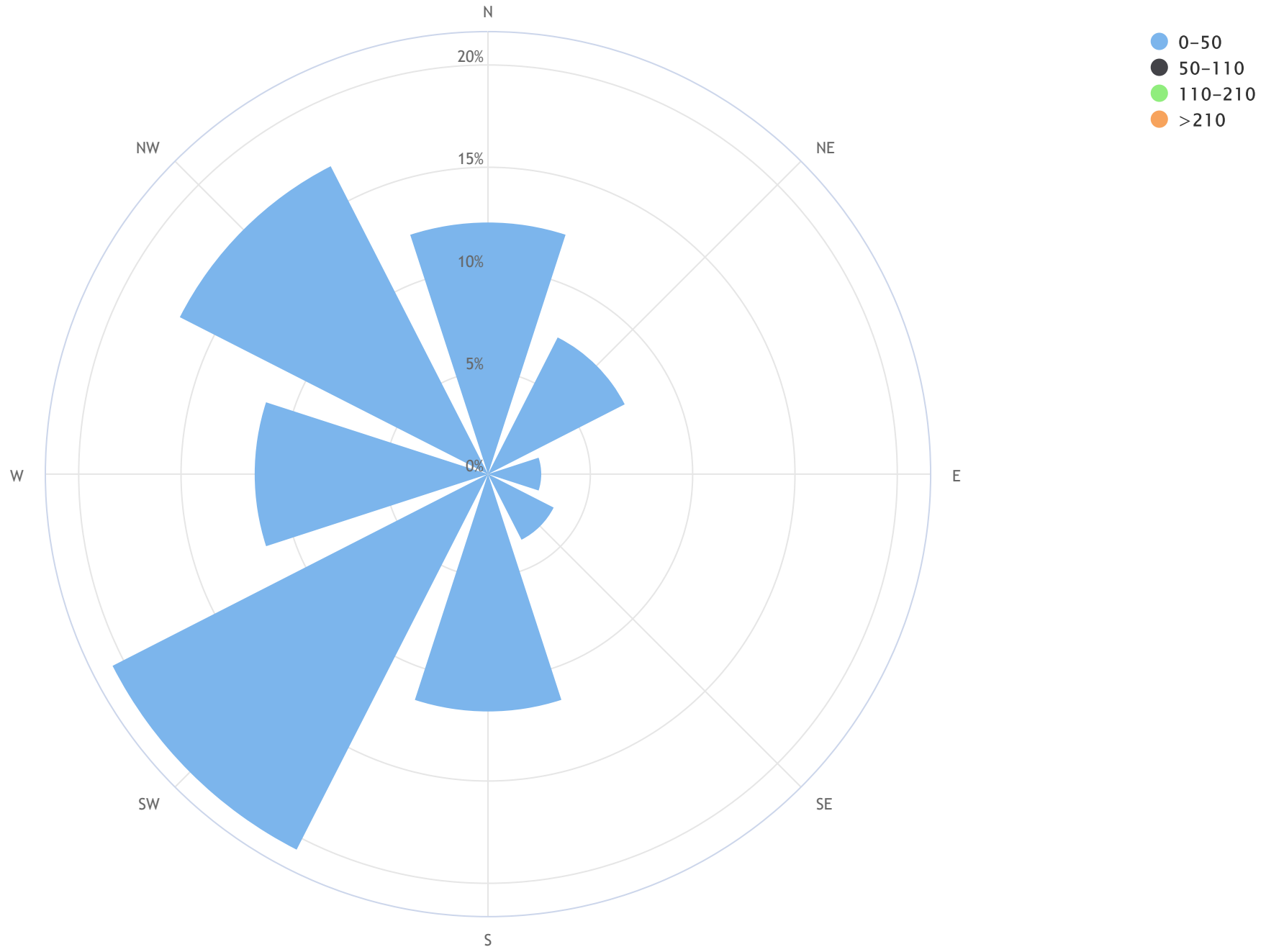


NOX[ppb] Histogram: LICA MASKWA Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Maskwa Continuous Monitoring Station_NO_X (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 4.7, CALM % = 13.6%



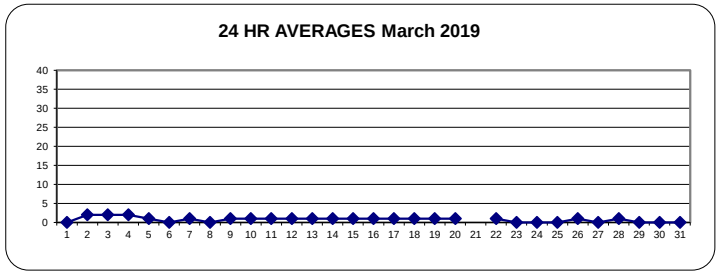
Direction	0-50	50-110	110-210	>210	TOTAL
N	12.3	0.0	0.0	0.0	12.3
NE	7.5	0.0	0.0	0.0	7.5
E	2.6	0.0	0.0	0.0	2.6
SE	3.6	0.0	0.0	0.0	3.6
S	11.6	0.0	0.0	0.0	11.6
SW	20.6	0.0	0.0	0.0	20.6
W	11.4	0.0	0.0	0.0	11.4
NW	16.9	0.0	0.0	0.0	16.9
Summary	86.4	0.0	0.0	0.0	86.4
CALM	13.6	0.0	0.0	0.0	13.6

NITRIC OXIDE Hourly Averages (NO ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	**0**	0	0	0	0	0	0	0	1	0	1	1	**S**	1	1	1	0	0	0	0	0	0	0	0	**0**	1	0	24
2	0	2	1	0	0	1	1	2	6	6	1	**S**	2	1	1	3	0	0	0	0	1	4	3	2	0	6	**2**	24
3	2	5	3	0	3	2	2	2	2	3	**S**	1	3	3	3	2	1	0	0	3	3	6	2	3	0	6	2	24
4	4	3	0	0	0	1	3	2	**8**	**S**	5	1	0	4	2	1	1	0	0	1	4	7	0	1	0	**8**	2	24
5	0	0	1	3	1	2	1	2	**S**	1	1	1	2	2	1	0	0	0	0	0	0	0	0	0	0	3	1	24
6	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	1	0	24
7	0	0	0	0	0	0	**S**	0	1	1	2	4	2	2	2	1	0	0	0	0	0	0	0	0	0	4	1	24
8	0	0	0	0	0	**S**	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	2	0	24
9	0	0	0	0	**S**	2	0	3	3	1	0	1	3	1	1	1	0	0	0	0	0	0	0	0	0	3	1	24
10	0	0	0	**S**	0	0	1	7	5	2	2	2	1	1	1	1	1	0	0	0	0	0	0	0	0	7	1	24
11	0	0	**S**	0	0	0	0	0	1	2	2	3	2	1	1	1	0	0	0	0	0	0	0	0	0	3	1	24
12	0	**S**	0	0	0	1	0	1	3	1	1	3	3	1	2	2	0	0	0	0	0	0	0	0	0	3	1	24
13	**S**	0	0	0	0	0	0	2	4	6	2	3	1	1	0	0	0	0	0	0	0	0	0	**S**	0	6	1	24
14	0	0	0	0	0	1	0	1	2	3	4	1	2	1	1	0	0	0	0	0	0	0	**S**	0	0	4	1	24
15	0	0	0	0	0	0	0	2	2	4	2	0	0	0	2	1	1	0	0	0	0	**S**	0	0	0	4	1	24
16	0	0	0	0	0	0	1	1	2	5	2	3	2	0	0	0	0	0	0	0	**S**	0	0	0	0	5	1	24
17	0	0	0	0	0	0	0	0	1	1	2	2	2	2	1	1	0	0	0	**S**	0	0	0	0	0	2	1	24
18	0	0	0	0	0	0	1	2	2	3	6	3	1	1	0	0	0	0	**S**	0	0	0	0	0	0	6	1	24
19	0	0	0	0	0	0	0	1	1	1	3	2	1	0	1	1	4	**S**	0	0	0	0	0	0	0	4	1	24
20	0	0	0	0	0	0	0	3	5	3	1	3	2	1	1	1	**S**	**S1**	0	0	0	0	0	0	0	5	1	23
21	0	0	0	0	0	0	0	0	0	**C**	**C**	**C**	**C**	**C**	**C**	**C**	0	0	0	0	0	0	0	0	0	0	-	24
22	0	0	0	0	0	0	5	2	1	1	1	1	1	0	**S**	1	0	0	0	0	0	0	0	0	0	5	1	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	24
24	0	0	0	0	0	0	0	0	0	4	1	2	**S**	1	1	0	0	0	0	0	0	0	0	0	0	4	0	24
25	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
26	0	0	0	0	0	0	0	0	0	1	**S**	2	1	4	3	3	2	1	0	0	0	0	0	0	0	4	1	24
27	0	0	0	0	0	0	0	0	0	**S**	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	24
28	0	0	0	0	0	1	4	6	**S**	2	3	3	1	0	0	0	0	0	0	1	0	0	0	0	0	6	1	24
29	0	0	0	1	0	0	1	**S**	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	24
30	0	0	0	0	0	0	**S**	1	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	24
31	0	0	0	0	0	**S**	0	0	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	24
HOURLY MAX	4	5	3	3	3	2	5	7	8	6	6	4	3	4	3	3	4	1	0	3	4	7	3	3				
HOURLY AVG	0	0	0	0	0	0	1	1	2	2	2	2	1	1	1	1	0	0	0	0	0	1	0	0				

STATUS FLAG CODES

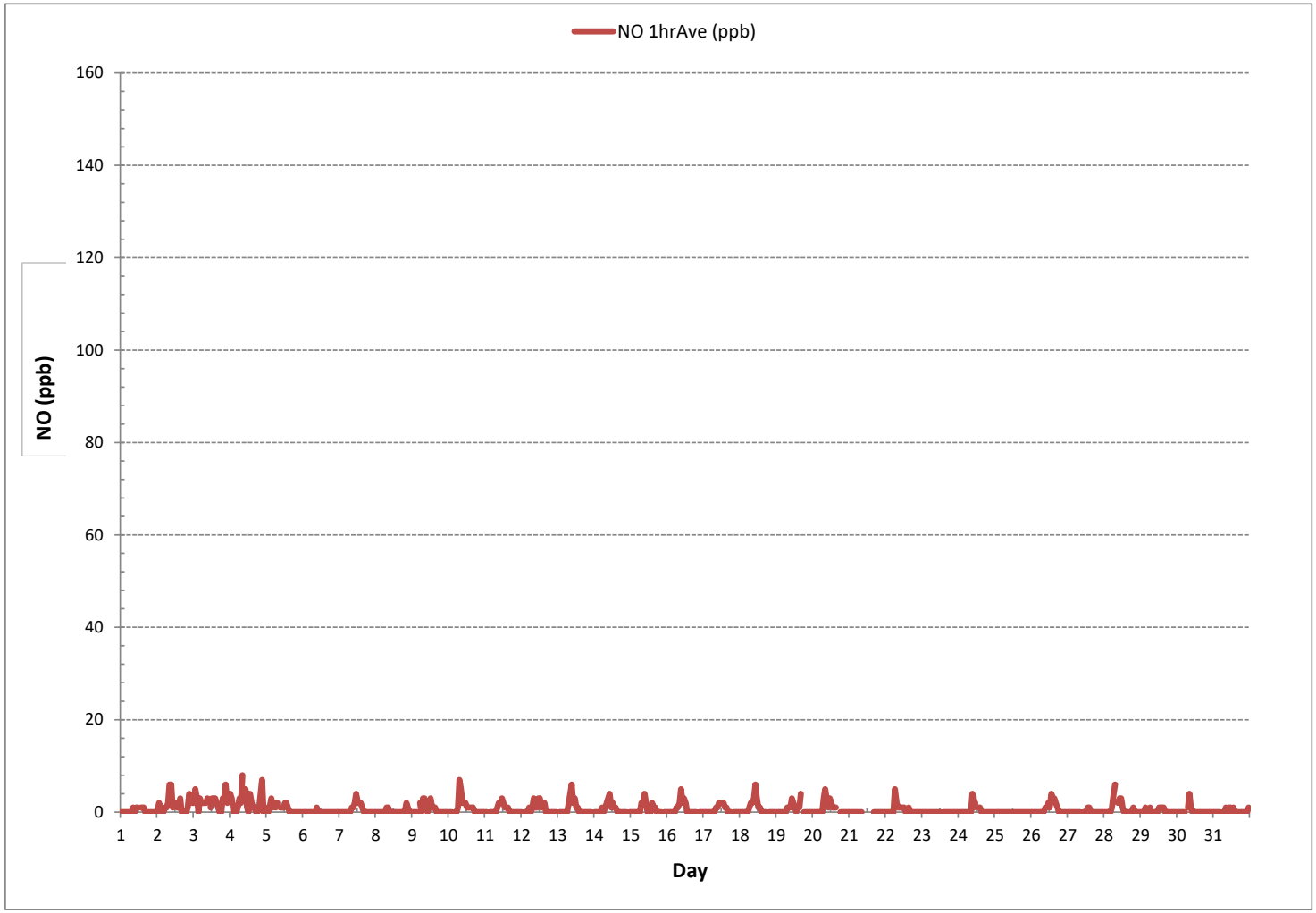
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



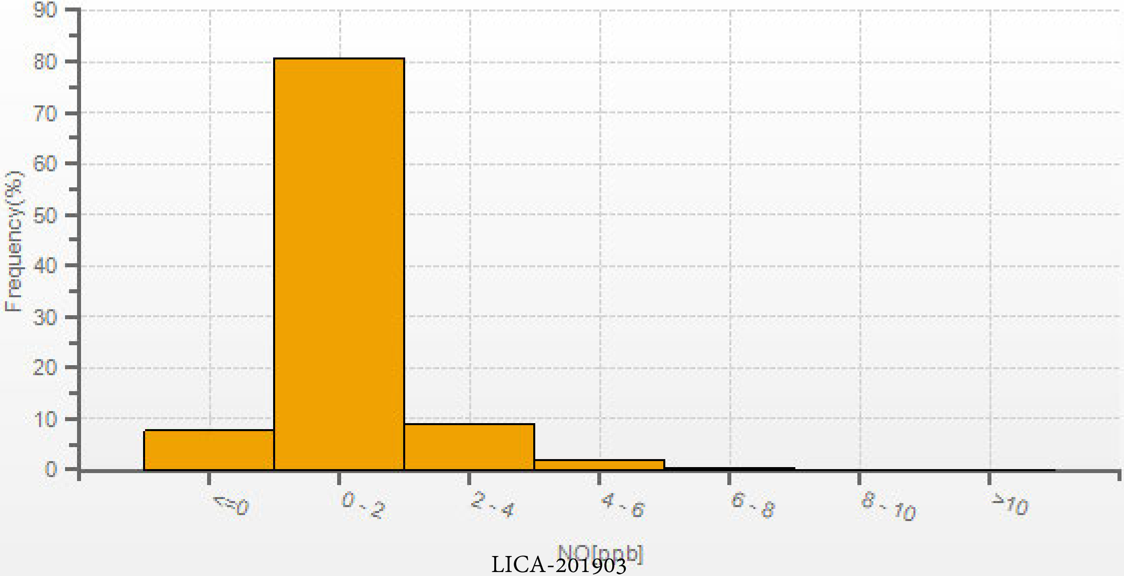
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		230					
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	0	ON DAY	1	
MAXIMUM 1-HR AVERAGE:	8	ppb	@ HOUR	8	ON DAY	4	
MAXIMUM 24-HR AVERAGE:	2	ppb			ON DAY	2	
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:			743	hrs
MONTHLY CALIBRATION TIME:	7	hrs	AMD OPERATION UPTIME:			99.9	%
STANDARD DEVIATION:	1		MONTHLY AVERAGE:			1	ppb

NITRIC OXIDE Hourly Averages (NO ppb)

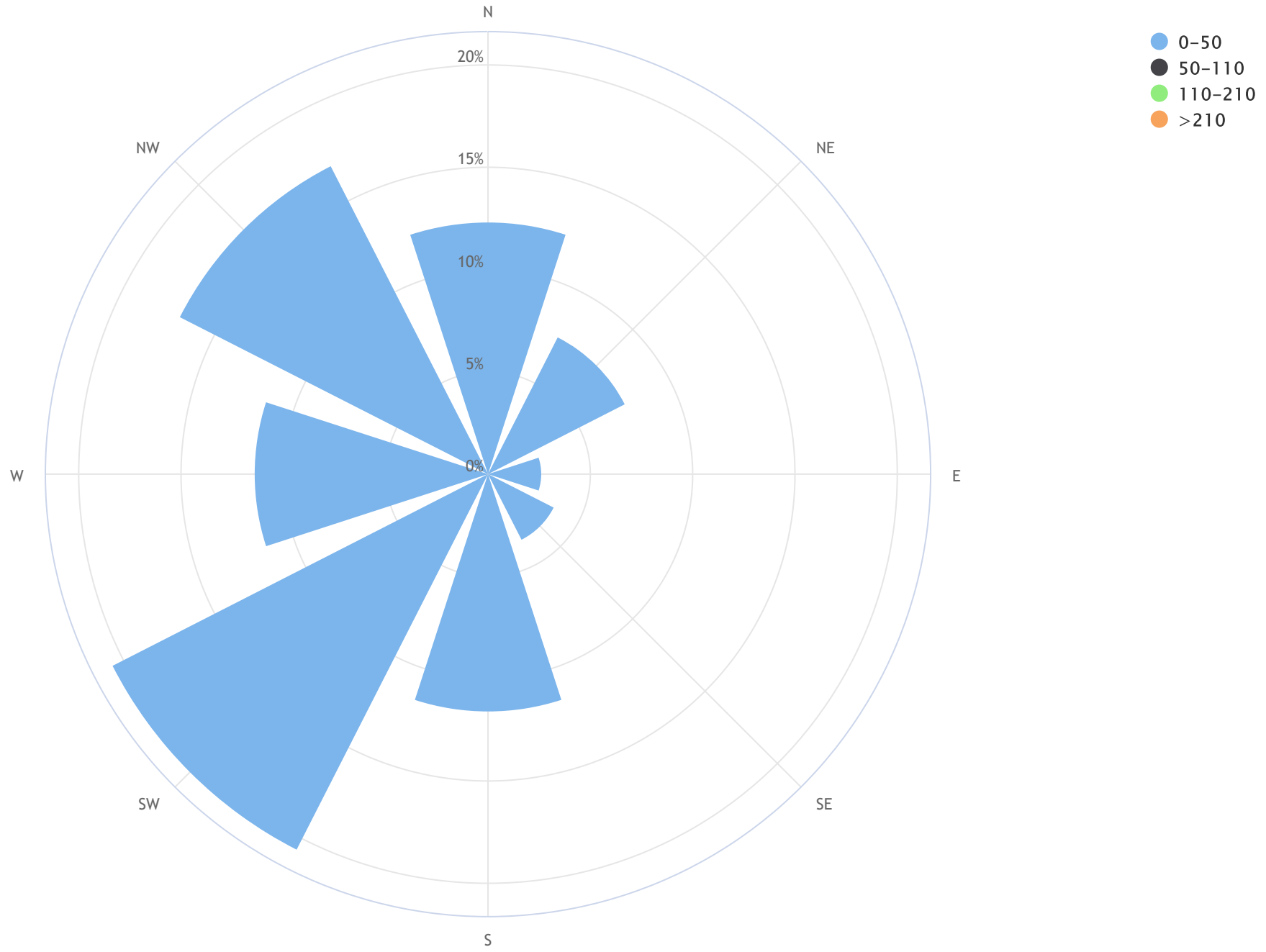


NO[ppb] Histogram: LICA MASKWA Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Maskwa Continuous Monitoring Station_NO (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 0.4, CALM % = 13.6%



Direction	0-50	50-110	110-210	>210	TOTAL
N	12.3	0.0	0.0	0.0	12.3
NE	7.5	0.0	0.0	0.0	7.5
E	2.6	0.0	0.0	0.0	2.6
SE	3.6	0.0	0.0	0.0	3.6
S	11.6	0.0	0.0	0.0	11.6
SW	20.6	0.0	0.0	0.0	20.6
W	11.4	0.0	0.0	0.0	11.4
NW	16.9	0.0	0.0	0.0	16.9
Summary	86.4	0.0	0.0	0.0	86.4
CALM	13.6	0.0	0.0	0.0	13.6

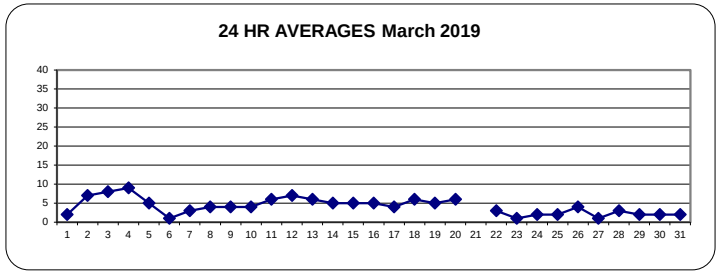
NITROGEN DIOXIDE Hourly Averages (NO_2 ppb)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	1	**0**	0	1	1	1	2	3	2	1	1	2	**S**	1	2	2	2	3	4	4	5	5	4	8	**0**	8	2	24
2	7	12	9	5	8	9	7	13	10	8	2	**S**	2	2	2	6	2	1	1	2	2	16	16	10	1	16	7	24
3	8	14	12	2	11	9	8	12	6	7	**S**	1	4	4	4	5	3	1	1	13	16	23	12	13	1	23	8	24
4	16	19	8	15	5	8	16	9	16	**S**	8	1	1	7	5	3	3	1	1	8	24	**26**	4	2	1	**26**	**9**	24
5	2	1	14	17	11	11	12	9	**S**	2	3	3	3	3	3	2	2	3	3	2	1	2	1	1	1	17	5	24
6	0	0	0	2	1	1	1	**S**	1	1	1	1	1	1	1	1	2	2	2	2	3	2	4	3	0	4	1	24
7	1	2	2	2	1	1	**S**	1	2	3	6	7	5	5	4	4	3	2	1	1	1	1	1	1	1	7	3	24
8	1	1	1	5	3	**S**	5	8	12	3	1	1	1	1	2	2	1	1	1	2	13	16	13	6	1	16	4	24
9	5	8	7	4	**S**	9	10	13	9	2	1	2	4	2	2	2	2	3	3	2	2	1	1	1	1	13	4	24
10	1	2	1	**S**	2	1	5	7	3	4	4	5	4	5	5	5	5	6	7	6	5	6	6	6	1	7	4	24
11	6	6	**S**	6	6	7	8	8	8	8	8	8	7	6	5	4	5	5	6	6	6	5	5	5	4	8	6	24
12	5	**S**	6	7	8	14	16	12	13	5	3	6	6	3	6	5	2	3	4	6	3	2	10	16	2	16	7	24
13	**S**	10	11	6	6	16	10	9	9	11	4	5	3	1	1	1	1	2	2	3	6	4	3	**S**	1	16	6	24
14	3	3	5	3	13	16	17	7	6	5	6	2	3	2	2	2	2	2	3	3	3	4	**S**	3	2	17	5	24
15	3	4	4	5	5	5	8	10	9	10	6	2	1	2	5	4	4	3	6	2	1	**S**	3	15	1	15	5	24
16	2	10	5	2	6	12	14	9	6	11	5	5	5	1	1	1	1	1	1	1	**S**	2	2	3	1	14	5	24
17	3	5	4	6	4	3	4	6	6	6	6	6	6	6	5	4	3	2	2	**S**	2	2	2	2	2	6	4	24
18	1	1	2	5	6	10	16	14	7	7	11	6	3	3	2	3	2	2	**S**	2	3	4	7	9	1	16	6	24
19	9	6	6	6	6	9	10	6	4	3	3	4	3	1	3	3	13	**S**	8	5	4	2	2	2	1	13	5	24
20	2	3	6	6	6	11	9	13	13	9	4	7	7	5	5	5	**S**	**S1**	5	4	4	5	3	2	2	13	6	23
21	2	1	1	1	1	1	1	1	1	**C**	**C**	**C**	**C**	**C**	**C**	**C**	1	1	1	1	1	2	2	2	1	2	-	24
22	2	3	2	2	2	2	4	5	3	3	4	3	3	2	**S**	3	3	3	4	6	6	4	4	4	2	6	3	24
23	3	2	1	1	1	1	1	1	1	1	0	0	0	**S**	1	0	0	0	0	0	1	1	0	5	0	5	1	24
24	5	4	3	1	1	1	2	1	1	7	3	3	**S**	3	2	2	1	1	2	2	3	4	3	3	1	7	2	24
25	3	3	2	2	2	2	2	2	2	2	2	**S**	2	2	2	2	3	3	3	3	3	2	3	3	2	3	2	24
26	3	3	3	3	3	3	4	4	3	4	**S**	6	4	6	6	7	6	6	5	5	5	6	3	2	2	7	4	24
27	1	1	1	1	1	2	1	2	1	**S**	1	1	1	1	1	1	2	2	2	1	2	2	2	2	1	2	1	24
28	2	4	4	3	3	11	10	9	**S**	4	5	5	2	1	1	1	1	1	1	2	5	2	2	1	1	11	3	24
29	1	1	1	9	2	3	5	**S**	2	1	1	1	2	3	3	2	1	1	1	1	1	1	2	2	1	9	2	24
30	2	3	3	2	2	3	**S**	7	11	2	2	1	1	1	2	2	2	1	1	2	2	2	2	1	1	11	2	24
31	1	1	2	4	4	**S**	4	3	3	2	4	2	2	2	2	1	2	1	2	2	3	2	2	8	1	8	2	24
HOURLY MAX	16	19	14	17	13	16	17	14	16	11	11	8	7	7	6	7	13	6	8	13	24	26	16	16				
HOURLY AVG	3	4	4	4	4	6	7	7	6	5	4	3	3	3	3	3	3	2	3	3	5	5	4	5				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 159 ppb

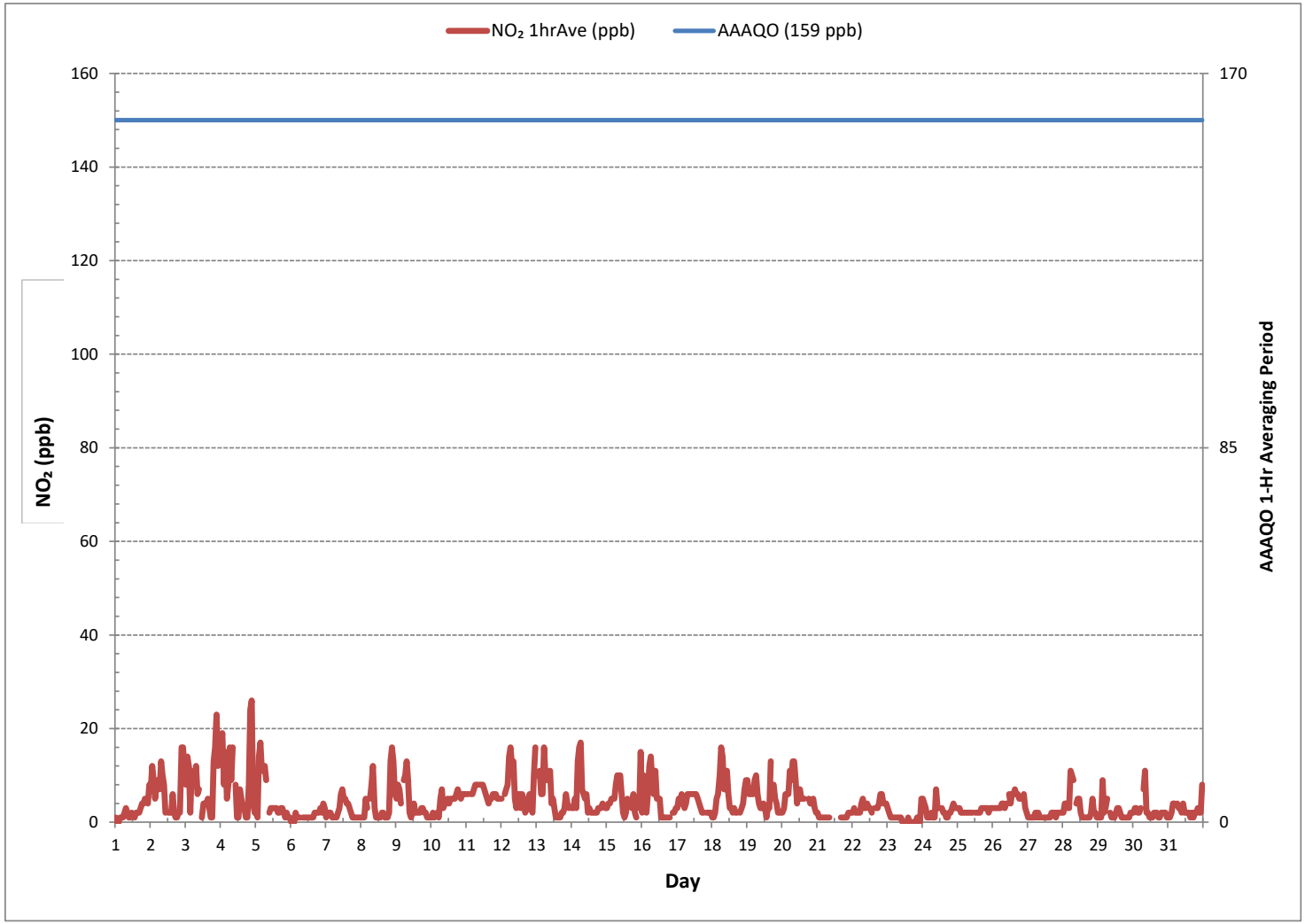


MONTHLY SUMMARY

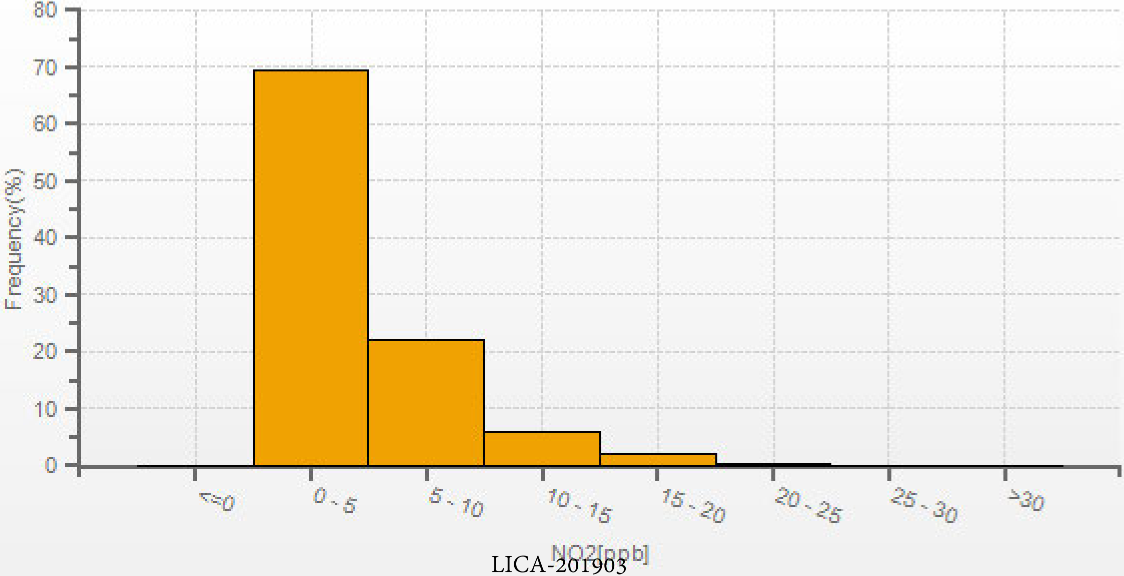
NUMBER OF 1-HR EXCEEDANCES:	0					
NUMBER OF NON-ZERO READINGS:	691					
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	1	ON DAY	1
MAXIMUM 1-HR AVERAGE:	26	ppb	@ HOUR	21	ON DAY	4
MAXIMUM 24-HR AVERAGE:	9	ppb			ON DAY	4

IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	743	hrs
MONTHLY CALIBRATION TIME:	7	hrs	AMD OPERATION UPTIME:	99.9	%
STANDARD DEVIATION:	4		MONTHLY AVERAGE:	4	ppb

NITROGEN DIOXIDE Hourly Averages (NO_2 ppb)

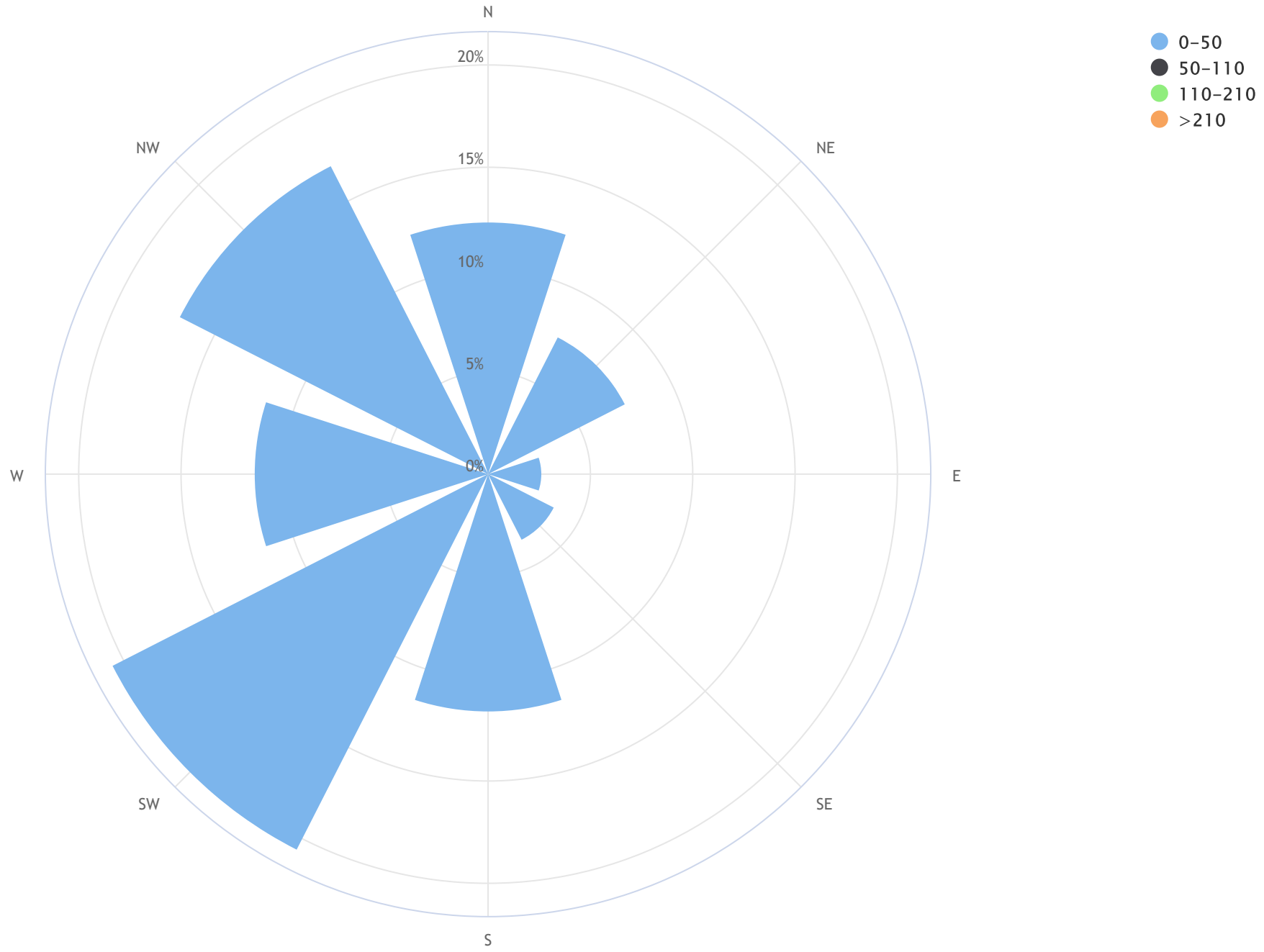


NO2[ppb] Histogram: LICA MASKWA Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Maskwa Continuous Monitoring Station_NO_2 (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 4.3, CALM % = 13.6%



Direction	0-50	50-110	110-210	>210	TOTAL
N	12.3	0.0	0.0	0.0	12.3
NE	7.5	0.0	0.0	0.0	7.5
E	2.6	0.0	0.0	0.0	2.6
SE	3.6	0.0	0.0	0.0	3.6
S	11.6	0.0	0.0	0.0	11.6
SW	20.6	0.0	0.0	0.0	20.6
W	11.4	0.0	0.0	0.0	11.4
NW	16.9	0.0	0.0	0.0	16.9
Summary	86.4	0.0	0.0	0.0	86.4
CALM	13.6	0.0	0.0	0.0	13.6

Maxxam
A Bureau Veritas Group Company

WIND SPEED Hourly Averages (WS kph)

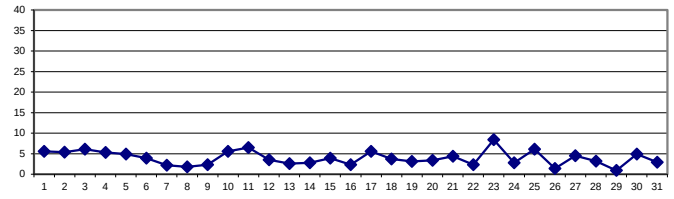
HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	6.4	5.0	5.8	6.5	5.3	4.7	6.4	5.2	6.7	11.6	9.7	7.2	8.0	9.1	8.1	8.7	6.6	5.3	2.6	2.4	2.2	2.3	2.3	2.7	2.2	11.6	5.6	24
2	3.7	3.4	3.7	4.0	3.6	4.7	6.2	6.0	6.5	6.1	6.1	6.7	6.8	7.8	7.0	7.7	7.4	6.3	5.6	5.8	5.8	5.5	4.8	4.6	3.4	7.8	5.4	24
3	4.9	6.2	6.1	4.2	5.5	6.7	6.0	4.8	5.6	6.3	6.1	6.9	7.3	8.1	7.5	7.3	7.4	6.2	5.8	5.8	5.0	4.9	5.9	7.2	4.2	8.1	6.1	24
4	4.9	4.3	2.5	3.6	4.2	4.9	5.5	6.6	7.1	6.0	6.7	6.8	7.4	6.6	7.6	6.6	7.0	6.0	4.0	5.2	5.3	6.4	5.7	4.6	2.5	7.6	5.3	24
5	4.5	2.8	3.7	3.5	5.0	4.7	4.8	5.0	5.9	8.2	7.8	6.3	6.6	6.7	7.1	9.7	9.8	6.1	8.0	6.1	5.7	1.0	3.7	3.4	1.0	9.8	4.9	24
6	5.3	5.0	3.9	4.3	4.0	4.0	3.1	3.2	6.2	4.8	4.1	5.7	5.8	5.6	5.0	6.3	6.1	5.4	2.7	4.2	5.3	6.0	6.2	4.4	2.7	6.3	3.9	24
7	2.7	2.1	3.3	2.8	2.3	2.8	2.3	2.5	4.0	4.8	2.8	2.8	2.2	4.8	3.8	3.2	3.8	3.1	0.9	0.9	2.4	**0.1**	0.2	2.0	**0.1**	4.8	2.2	24
8	2.3	1.1	0.2	0.1	2.1	1.3	0.4	1.2	0.6	2.4	4.1	6.5	5.3	7.9	7.2	5.5	2.6	1.4	1.7	1.2	2.2	2.6	2.8	2.2	0.1	7.9	1.8	24
9	2.1	1.0	1.6	2.4	1.1	1.9	2.3	3.2	2.3	4.7	8.5	3.8	5.5	4.7	5.0	5.3	7.1	6.2	3.2	2.4	2.5	1.4	1.5	0.6	0.6	8.5	2.3	24
10	0.4	0.7	0.5	0.7	0.2	0.2	0.2	0.7	0.4	3.1	7.0	11.6	12.0	12.3	11.4	11.4	10.5	8.9	8.3	9.7	8.0	7.7	8.1	7.5	0.2	12.3	5.6	24
11	8.4	8.5	7.7	3.2	2.9	7.6	6.9	8.6	6.5	6.5	7.2	8.8	9.1	9.0	9.4	9.8	8.7	8.2	6.6	7.5	1.1	1.8	3.8	1.0	1.0	9.8	6.5	24
12	1.8	1.7	2.9	3.8	3.7	3.2	4.7	1.6	2.2	7.4	8.3	8.6	8.6	8.1	6.6	6.3	4.3	4.5	1.1	2.7	3.2	5.1	4.3	4.2	1.1	8.6	3.5	24
13	2.4	3.3	1.4	1.1	2.2	1.4	1.8	2.5	3.2	4.3	4.0	4.5	6.2	5.3	2.9	2.4	4.7	7.0	6.1	4.4	1.4	4.1	3.2	2.8	1.1	7.0	2.6	24
14	2.3	2.8	2.3	2.9	2.2	2.3	0.2	1.2	2.5	3.1	4.1	4.9	4.9	4.1	3.7	3.5	8.0	7.5	5.5	5.2	5.8	5.8	4.9	5.3	0.2	8.0	2.8	24
15	4.1	6.3	7.1	7.5	4.7	3.5	3.7	4.8	5.4	5.6	4.9	8.8	8.5	7.4	6.6	5.6	4.1	2.9	1.9	2.7	2.9	4.3	6.4	4.4	1.9	8.8	3.9	24
16	4.6	2.5	4.4	2.9	3.3	3.5	3.4	3.5	3.9	4.6	4.4	3.3	5.0	5.6	6.7	6.5	6.4	4.1	1.1	0.7	3.1	2.0	0.7	2.1	0.7	6.7	2.3	24
17	3.3	3.2	4.9	4.5	5.5	7.0	9.5	9.6	8.7	7.0	7.4	7.0	8.3	8.6	8.8	9.3	5.4	6.6	3.6	3.1	3.2	3.7	5.2	5.0	3.1	9.6	5.6	24
18	6.0	3.7	3.3	1.6	0.8	1.1	1.4	2.5	4.0	3.1	3.2	4.0	2.9	4.4	9.1	8.1	7.9	7.3	7.5	7.3	7.3	5.9	4.5	4.9	0.8	9.1	3.7	24
19	4.8	2.9	2.8	3.5	3.6	3.0	3.1	3.5	3.1	4.0	7.1	6.1	5.2	5.5	6.4	4.6	6.0	4.2	2.7	2.0	1.5	1.8	1.7	1.0	1.0	7.1	3.1	24
20	1.1	2.5	2.7	2.4	0.6	0.6	1.7	3.2	4.6	3.1	5.2	7.8	9.0	8.8	8.1	8.4	8.6	6.4	4.1	1.8	0.2	1.4	4.0	3.7	0.2	9.0	3.4	24
21	3.8	4.1	3.6	3.0	2.6	3.9	3.8	5.7	5.2	5.6	8.2	7.2	7.4	7.8	8.3	8.6	8.6	6.9	6.0	7.1	5.6	1.8	2.8	3.3	1.8	8.6	4.4	24
22	2.0	1.6	2.0	3.1	1.0	0.4	0.5	1.3	0.8	2.4	5.0	8.1	9.4	6.3	5.7	4.4	6.5	4.8	4.4	2.8	1.6	0.9	1.7	2.1	0.4	9.4	2.3	24
23	1.9	3.1	4.9	5.7	6.3	7.4	6.4	7.7	7.8	8.9	12.7	12.6	14.1	14.0	14.2	12.9	14.4	11.9	10.3	9.0	6.1	4.0	5.0	3.3	1.9	14.4	**8.4**	24
24	3.3	2.5	2.9	2.4	2.5	2.1	1.1	2.2	2.8	1.8	1.6	3.0	4.2	5.3	4.1	4.7	5.2	4.9	5.7	6.5	6.0	4.9	5.0	4.2	1.1	6.5	2.8	24
25	5.6	7.1	6.5	5.9	5.3	6.7	7.8	5.6	4.3	5.4	5.5	4.6	4.1	8.8	9.5	10.1	8.7	8.8	6.2	6.1	4.2	5.6	4.5	4.1	4.1	10.1	6.1	24
26	3.2	3.6	3.2	2.8	2.2	0.9	0.5	1.7	3.0	1.1	2.1	2.4	2.2	1.8	1.9	4.5	6.9	5.0	3.1	1.2	0.9	1.0	3.0	4.6	0.5	6.9	1.4	24
27	3.9	6.4	7.0	6.4	5.4	7.0	5.8	4.2	6.1	6.8	6.3	5.5	6.5	6.7	7.6	8.8	5.3	4.9	3.1	0.2	2.5	1.3	0.7	1.2	0.2	8.8	4.5	24
28	0.4	1.1	0.5	0.5	0.5	0.9	0.3	3.4	4.2	7.3	8.0	8.1	7.6	8.3	8.5	8.2	9.5	8.2	5.8	5.3	4.2	6.4	3.8	7.2	0.3	9.5	3.2	24
29	4.5	2.6	1.5	3.3	1.8	1.3	1.6	4.1	6.4	5.5	6.9	3.8	4.1	3.4	3.6	3.8	6.6	7.7	6.5	4.8	4.4	5.2	6.0	6.4	1.3	7.7	0.9	24
30	6.3	6.1	6.6	5.7	1.6	1.7	2.1	3.1	4.8	6.7	9.5	13.1	14.1	**16.0**	12.9	14.6	15.1	13.2	10.5	4.7	2.1	5.3	4.8	2.6	1.6	**16.0**	4.9	24
31	0.9	0.4	0.4	0.1	0.6	0.7	0.4	1.1	1.0	1.7	3.3	4.3	5.9	8.0	9.3	8.9	5.6	5.0	4.1	4.0	3.3	3.6	4.8	6.5	0.1	9.3	2.9	24
HOURLY MAX	8.4	8.5	7.7	7.5	6.3	7.6	9.5	9.6	8.7	11.6	12.7	13.1	14.1	16.0	14.2	14.6	15.1	13.2	10.5	9.7	8.0	7.7	8.1	7.5				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION:	September 17, 2018
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

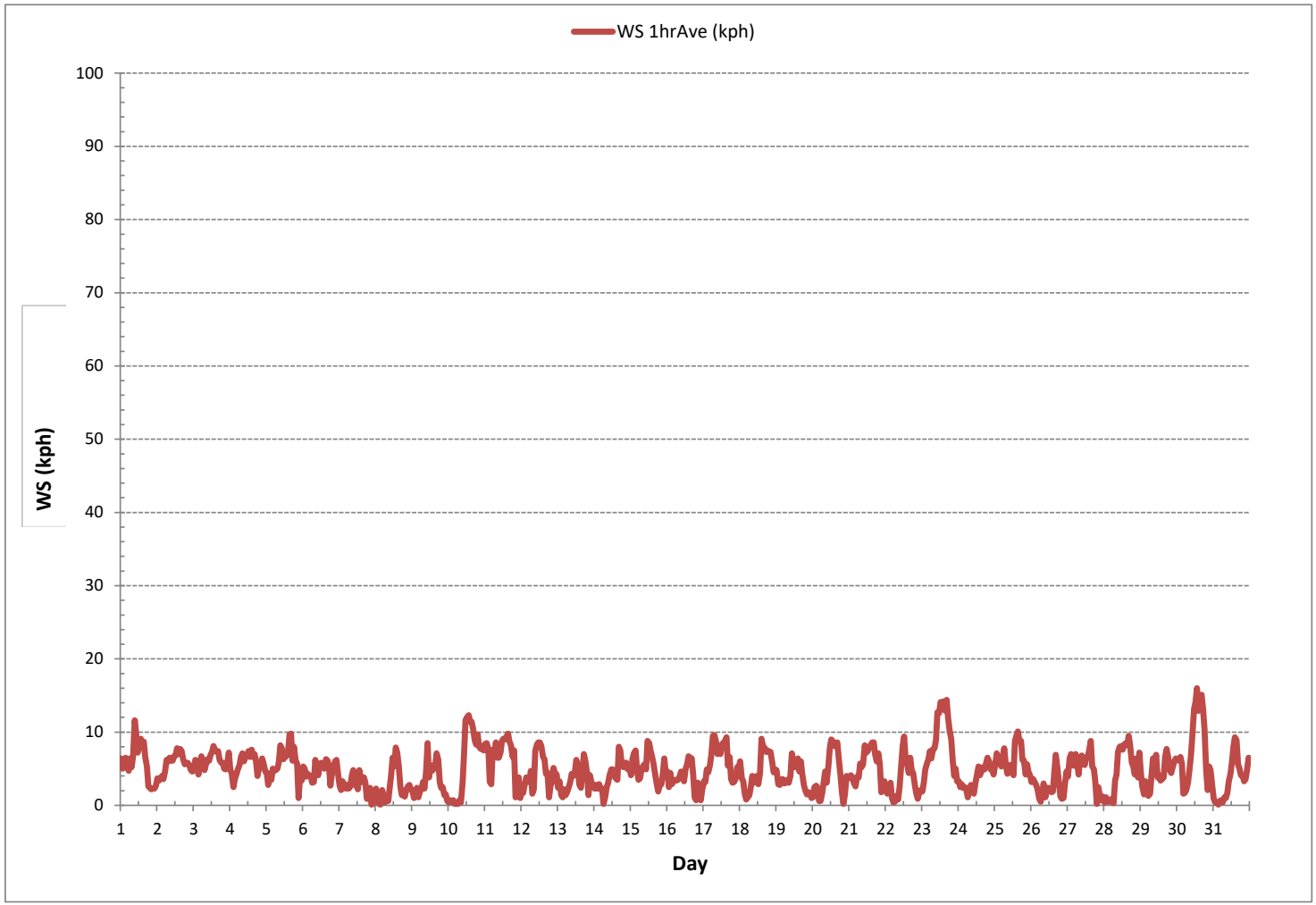
24 HR AVERAGES March 2019



MONTHLY SUMMARY

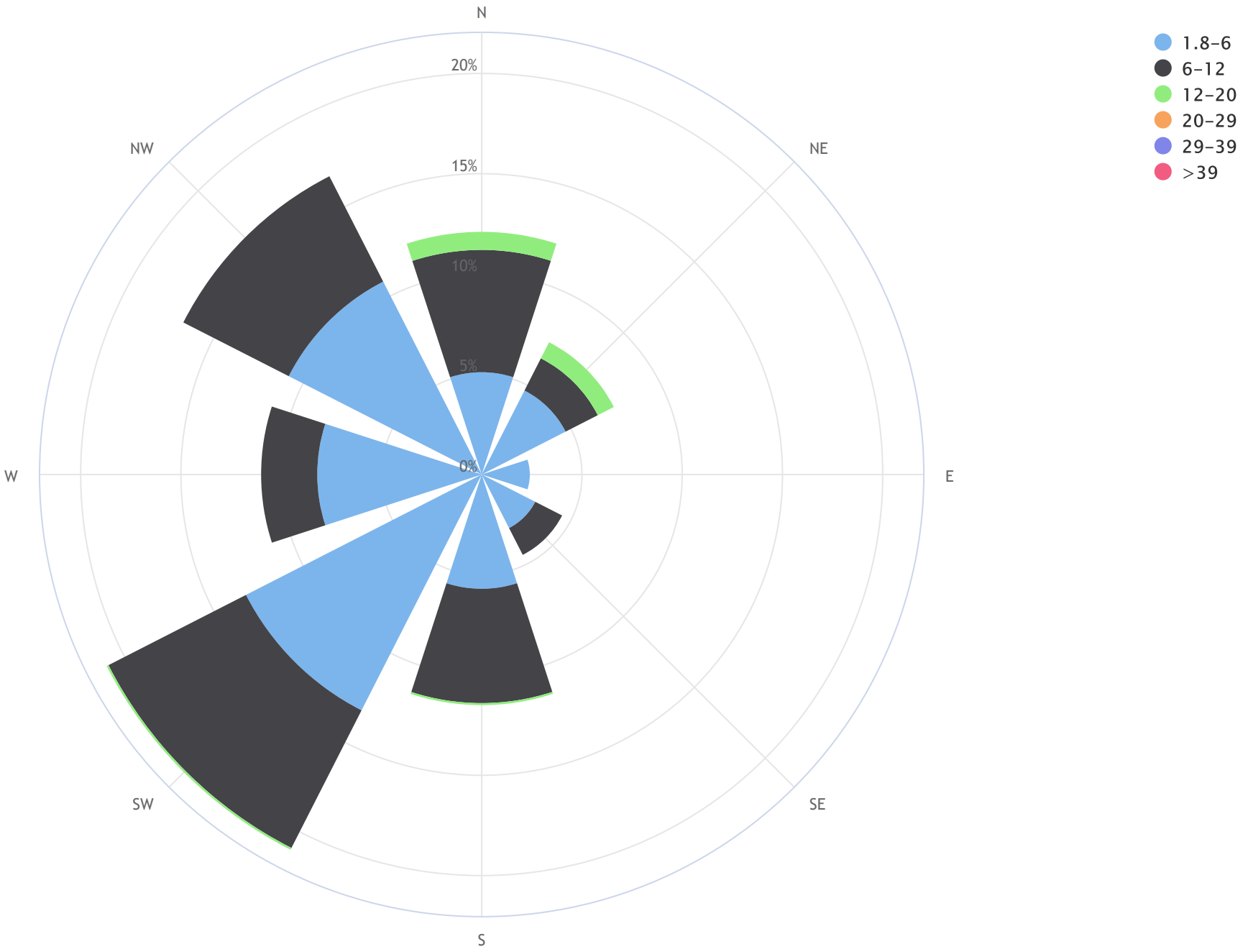
NUMBER OF NON-ZERO READINGS:			744				
MINIMUM 1-HR AVERAGE	0.1	kph	@ HOUR	21	ON DAY	7	
MAXIMUM 1-HR AVERAGE:	16.0	kph	@ HOUR	13	ON DAY	30	
MAXIMUM 24-HR AVERAGE:	8.4	kph			ON DAY	23	
			OPERATIONAL TIME:			744	hrs
MONTHLY CALIBRATION TIME:	0	hrs	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	2.8		MONTHLY AVERAGE:			1.3	kph

WIND SPEED Hourly Averages (WS kph)



Lakeland Industry & Community Association_Maskwa Continuous Monitoring Station_19/03

Wind Rose_Wind Frequency (Blowing From)_CALM Avg = 1.0_CALM % = 13.6%



Direction	1.8-6	6-12	12-20	20-29	29-39	>39	TOTAL
N	5.1	6.1	0.9	0.0	0.0	0.0	12.1
NE	4.7	1.8	0.9	0.0	0.0	0.0	7.4
E	2.4	0.0	0.0	0.0	0.0	0.0	2.4
SE	3.0	1.5	0.0	0.0	0.0	0.0	4.4
S	5.7	5.7	0.1	0.0	0.0	0.0	11.4
SW	13.2	7.7	0.1	0.0	0.0	0.0	21.0
W	8.2	2.8	0.0	0.0	0.0	0.0	11.0
NW	10.8	5.9	0.0	0.0	0.0	0.0	16.7
Summary	53.0	31.3	2.1	0.0	0.0	0.0	86.4
CALM	13.6	0.0	0.0	0.0	0.0	0.0	13.6

WIND DIRECTION Hourly Averages (WD)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR AVG	24-HR
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	QUADRANT	RDGS.
DAY																										
1	NNE	N	N	N	N	NNW	N	N	N	NNE	NNE	N	N	N	N	NNE	N	N	N	NW	NW	NW	NW	WNW	N	24
2	W	WNW	WNW	W	W	WNW	WNW	WNW	WNW	NW	NW	NW	NW	NNW	NNW	NW	NNW	NNW	NW	NW	NW	NW	WNW	WNW	NW	24
3	WNW	NW	NW	NW	NW	NW	NW	WNW	NW	NW	NNW	NW	WNW	WNW	NW	NW	NW	NW	NW	NW	WNW	WNW	NW	NW	NW	24
4	WNW	WNW	W	W	W	W	WNW	WNW	NW	NW	NW	NW	NNW	WNW	NNW	NNW	NW	NNW	NNW	NW	WNW	NW	NW	NW	NW	24
5	NW	NW	WNW	WNW	WNW	NW	WNW	NW	NNW	N	N	NNW	NNW	NW	N	NNE	NNE	N	NNE	N	NNE	NE	NE	ENE	NNW	24
6	ENE	ENE	E	ESE	SE	SSE	SSE	S	S	S	S	SSE	S	SSW	S	SSE	SSE	S	SSW	SSW	S	SSE	SSE	SE	SSE	24
7	ESE	E	E	NE	ENE	NE	NE	ENE	E	ESE	ESE	SE	E	NE	ENE	SE	ESE	ESE	E	ESE	NNE	ENE	NW	NNE	E	24
8	NNE	NNE	WSW	WSW	SSW	SW	SSW	SSW	S	NNE	NNE	NNE	NNE	NNE	NNE	N	N	NNW	N	NW	WNW	W	W	W	N	24
9	W	WNW	WNW	NNE	N	WNW	WNW	WNW	NW	NNE	NNE	NW	NW	NNW	N	N	NNE	NE	ESE	E	ENE	E	ENE	NE	N	24
10	ESE	E	NNE	NW	N	NW	ENE	ENE	N	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	SSW	SSW	SSW	SSW	SSW	24
11	SSW	SSW	SSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSE	S	SW	SSW	24
12	S	SSW	SSW	SSW	SSW	SW	SW	SW	W	WNW	WNW	WNW	NW	NW	NW	NW	NNW	NW	WNW	W	W	W	WNW	WNW	WNW	24
13	W	W	W	W	W	SW	WSW	WSW	W	NW	NW	WNW	WNW	WNW	NW	NE	SW	SW	SW	SSW	WSW	SSW	SW	SW	WSW	24
14	WSW	SW	WSW	W	W	W	NW	NW	NW	WNW	NW	NW	WNW	NW	NW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	WSW	24
15	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	WSW	WNW	WNW	WNW	WNW	NW	W	NNW	W	SW	WSW	W	WNW	W	WSW	24
16	W	W	W	WSW	SW	SW	SW	WSW	W	WNW	NW	WNW	NW	NNW	NNW	N	N	N	NNW	SW	SSW	SSW	SSW	SSW	WNW	24
17	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	WSW	WNW	SW	SW	WSW	W	W	W	SW	24
18	W	W	W	SW	SW	WSW	W	WNW	NW	WNW	WNW	NW	NW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	24
19	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	W	WNW	WNW	W	W	WNW	NW	NW	WNW	WNW	W	WSW	SW	SSW	S	W	24
20	SSW	SSW	SW	SW	SW	SSW	SSW	SSW	SSW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	S	NE	NE	NE	SSW	24
21	ENE	NE	NE	NE	NE	ENE	ENE	NE	NE	ESE	ESE	ESE	SE	SE	SE	SE	SE	SE	SE	SSE	SE	SE	SE	ESE	ESE	24
22	ESE	ESE	ENE	E	ENE	NNE	SE	N	SSW	SW	SSW	S	SSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SE	E	NE	S	24
23	ENE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NNE	NE	NE	NE	NE	NE	NE	NE	ENE	ENE	ENE	E	NE	24
24	E	E	ESE	ESE	ESE	ENE	E	SE	ESE	E	S	S	SE	SE	SSE	S	S	SSW	SW	SSW	SSW	SSW	SSW	S	SSE	24
25	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSE	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	WSW	SW	SSW	24
26	WSW	WSW	SW	WSW	W	NW	E	SSW	SSW	SW	SSW	NNW	NNW	SW	SSW	S	SSW	SSW	SSW	SSW	W	NNW	N	NNE	SW	24
27	N	N	N	N	N	N	N	NNW	NNW	N	N	NNW	N	NNW	N	NNE	NNW	NNW	N	WNW	SSW	SW	ESE	S	N	24
28	SE	SSW	SSE	SW	WSW	SW	WNW	SSW	SW	SSW	SSW	SW	WSW	W	W	W	WNW	W	W	W	NNW	NNE	NNE	NNE	W	24
29	NNE	N	NNW	NW	NNW	NW	NNW	N	N	N	NNE	NNW	NNW	NNW	NW	SW	SSW	S	S	S	S	SSW	SSW	SSW	W	24
30	SSW	SSW	SSW	SSW	S	S	SW	W	NW	N	N	N	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	24
31	N	N	WNW	E	S	S	ENE	ENE	SSE	S	SW	SW	SSW	SSW	SSW	SSW	SW	SW	SSW	SW	SSW	SW	W	WNW	SW	24

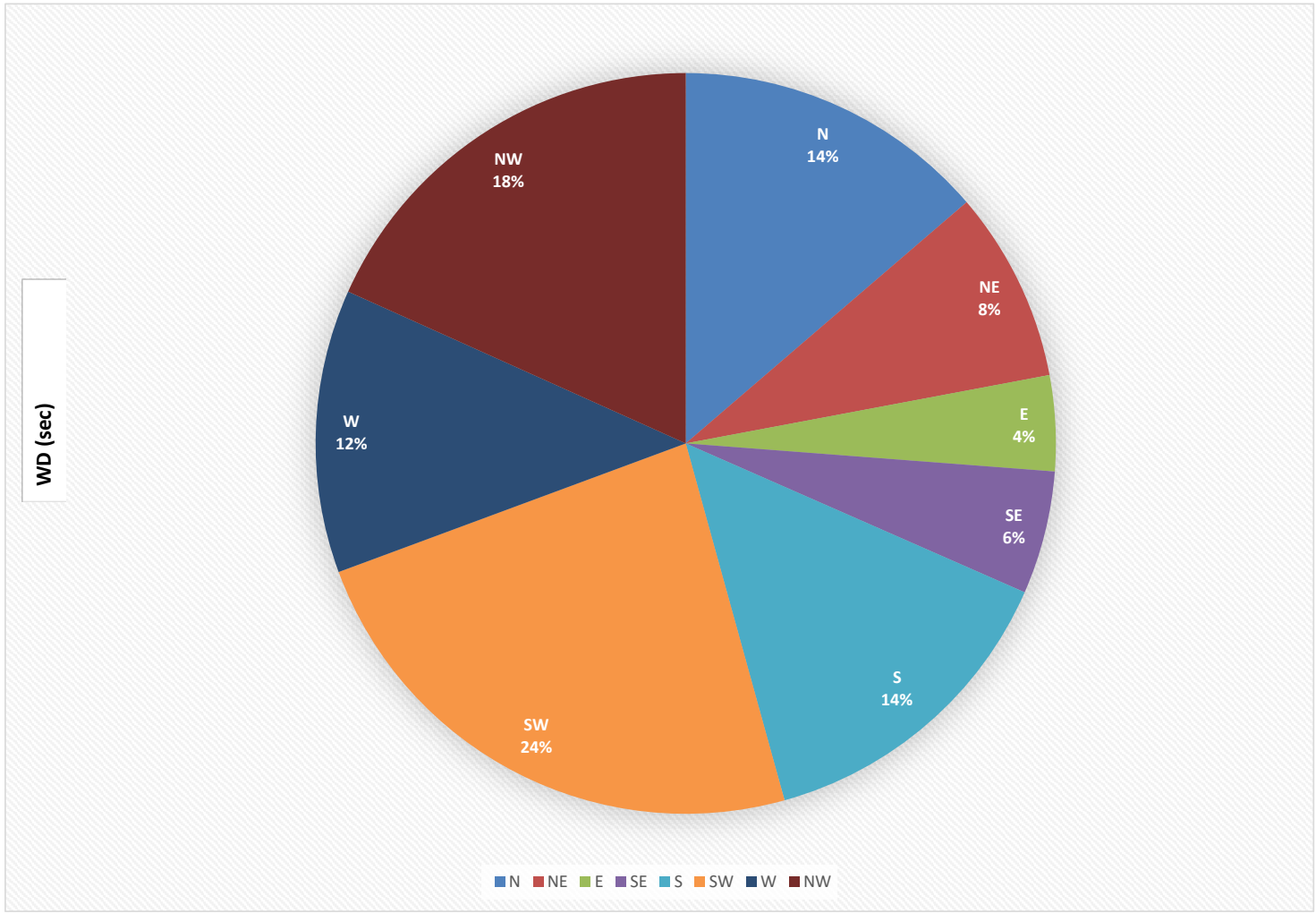
STATUS FLAG CODES

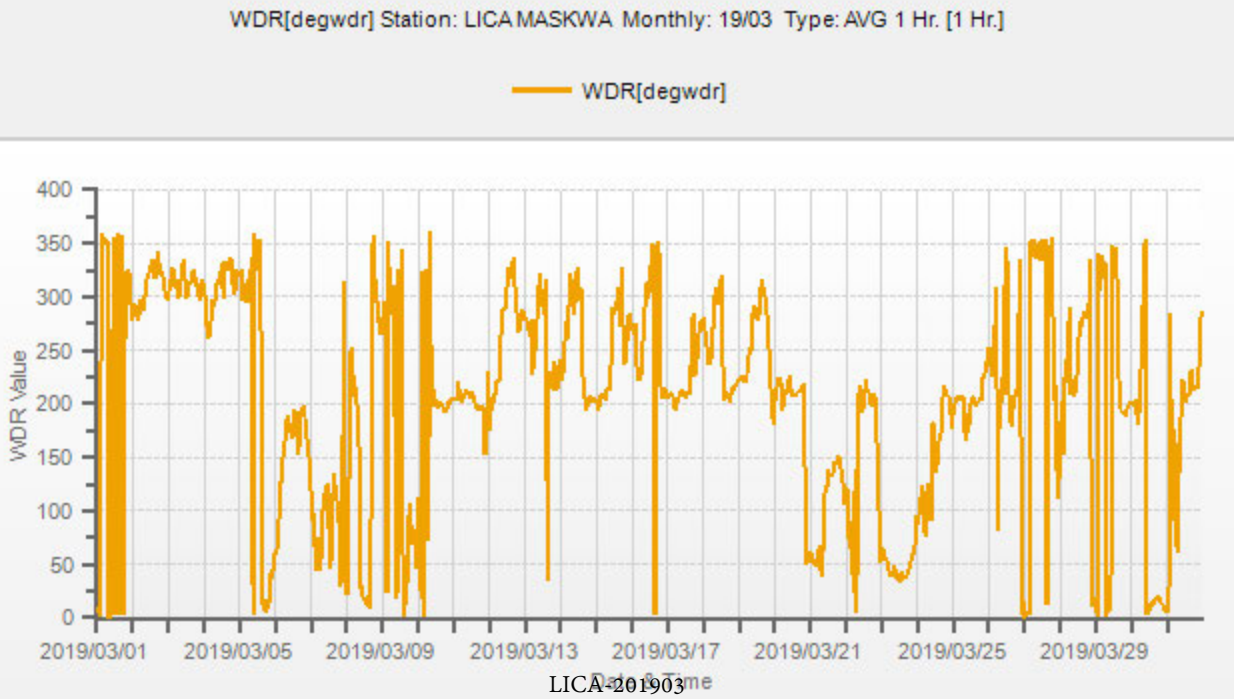
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION:	September 17, 2018
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	744	hrs
STANDARD DEVIATION:	102		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	270 (W)	

WIND DIRECTION Hourly Averages (WD)




WDR[degwdr] Station: LICA MASKWA Monthly: 19/03 Type: AVG 1 Hr. [1 Hr.]
WDR[degwdr]
WDR Value
400
350
300
250
200
150
100
50
0
2019/03/01
2019/03/05
2019/03/09
2019/03/13
2019/03/17
2019/03/21
2019/03/25
2019/03/29

Maxxam
A Bureau Veritas Group Company

STANDARD DEVIATION WIND DIRECTION Hourly Averages (STDWD deg)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	
DAY																									
1	6	7	7	9	11	11	9	13	13	7	10	20	18	19	21	13	16	11	13	16	16	17	12	18	24
2	14	13	10	11	11	9	6	10	11	10	14	15	17	20	17	12	20	13	11	12	11	12	15	14	24
3	13	13	12	15	12	10	11	14	14	11	18	15	13	12	17	22	15	11	11	11	13	10	10	8	24
4	14	12	20	15	12	11	11	8	12	12	12	18	17	14	20	22	16	14	16	18	13	12	13	12	24
5	11	21	13	21	10	14	11	11	16	13	17	21	23	16	27	12	11	11	5	7	6	28	16	16	24
6	13	15	17	26	15	18	25	23	20	29	37	27	29	25	32	19	19	17	15	11	8	7	7	8	24
7	19	20	10	19	19	12	15	23	25	21	32	35	54	30	32	28	24	24	22	42	7	72	51	7	24
8	9	16	35	70	34	42	26	26	29	15	15	13	13	10	7	15	18	26	12	13	15	15	8	17	24
9	23	35	28	10	30	19	12	9	30	13	9	33	19	26	24	20	9	21	14	19	15	23	18	16	24
10	31	18	29	20	39	45	53	50	34	28	14	8	9	9	8	8	8	8	7	7	6	8	8	6	24
11	7	6	6	14	10	5	6	5	8	10	10	7	11	11	10	8	5	5	6	7	63	27	12	49	24
12	22	28	9	14	9	9	5	13	30	7	8	14	15	13	19	13	19	19	48	15	10	8	9	7	24
13	20	10	24	24	13	19	18	15	16	13	17	21	21	27	46	50	24	20	7	18	57	7	7	16	24
14	21	12	19	13	15	14	59	20	20	19	22	27	24	35	32	42	18	6	9	5	6	3	6	7	24
15	10	6	8	8	10	20	15	8	8	12	36	8	12	15	23	36	20	41	31	13	16	7	6	11	24
16	6	13	11	15	9	7	7	14	18	20	17	33	31	25	23	23	20	19	20	42	9	8	37	13	24
17	10	7	6	6	7	7	4	4	7	12	11	9	8	10	8	8	27	6	23	14	14	11	7	7	24
18	5	10	8	15	27	22	19	16	13	19	22	26	37	47	8	9	8	6	6	4	4	12	10	6	24
19	5	7	9	7	10	11	11	13	20	16	8	14	24	17	16	19	12	13	11	19	21	14	23	47	24
20	49	16	13	11	28	25	19	13	9	13	13	12	7	8	11	6	6	6	9	10	33	22	9	7	24
21	5	8	11	17	11	6	7	9	11	19	12	15	18	15	12	13	11	8	6	8	8	33	10	9	24
22	18	25	18	21	38	31	49	27	70	41	19	13	12	17	24	19	14	20	6	14	17	28	18	28	24
23	12	9	7	9	8	6	7	7	13	12	9	10	7	14	10	11	8	9	8	8	9	11	11	16	24
24	15	16	15	13	13	17	30	17	26	53	52	44	38	29	41	31	21	15	7	6	5	5	6	11	24
25	7	10	10	10	14	12	12	16	20	19	15	27	31	15	12	12	11	8	9	7	17	13	15	18	24
26	22	24	16	18	22	33	46	17	16	50	27	34	36	42	40	25	12	11	24	25	20	44	15	6	24
27	10	8	11	11	13	15	12	16	18	12	19	23	20	21	21	10	23	21	16	74	11	16	30	35	24
28	39	28	54	29	36	28	46	14	13	10	12	17	21	10	14	9	9	8	7	6	38	6	10	4	24
29	5	12	24	21	26	14	15	12	18	22	23	45	35	44	38	45	11	9	7	8	7	7	6	5	24
30	6	6	6	9	40	40	13	16	27	18	15	13	10	9	12	7	6	7	5	7	9	11	6	9	24
31	15	31	18	49	47	49	28	27	51	53	38	38	26	23	14	10	21	17	9	10	8	16	9	13	24

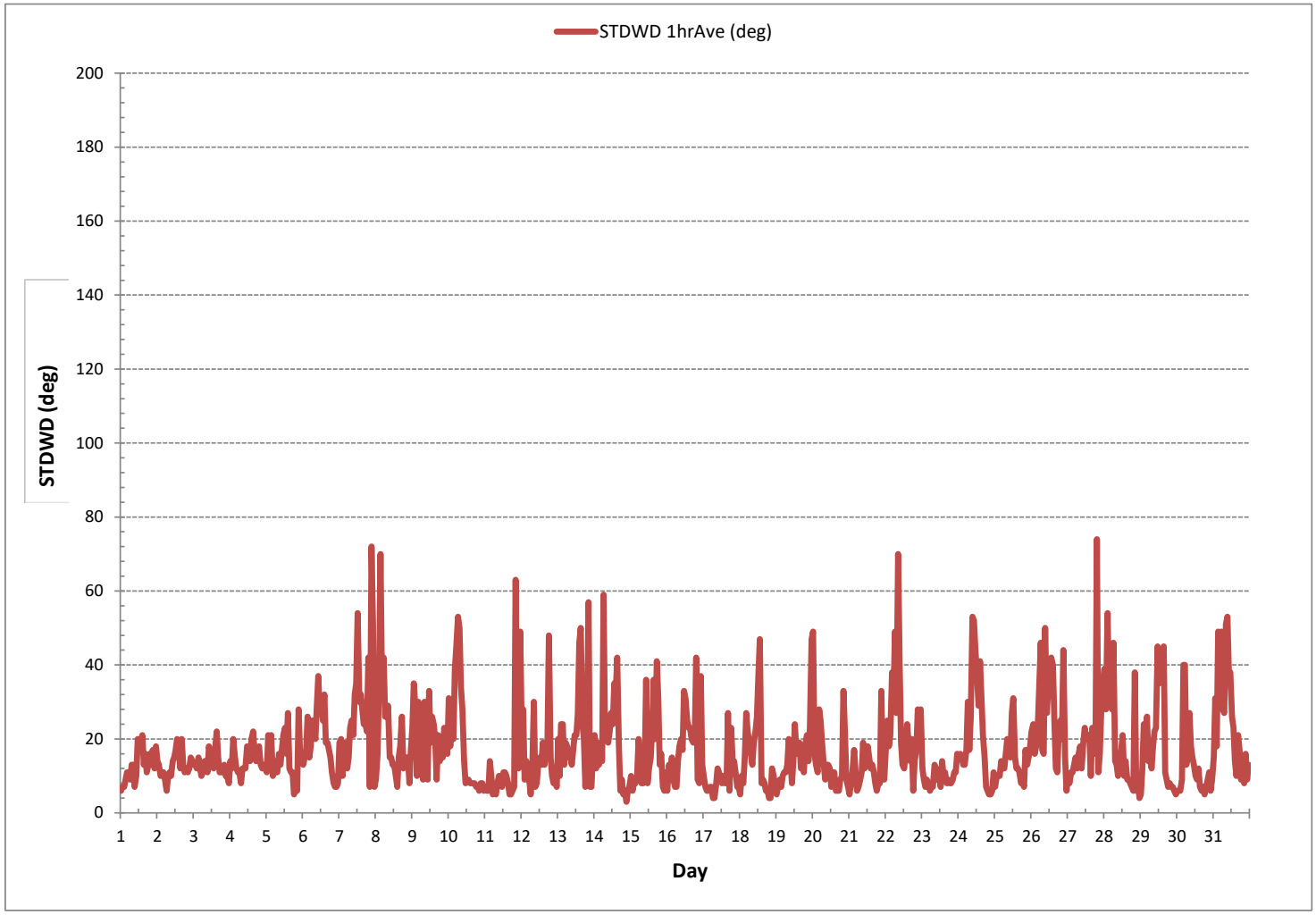
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION: September 17, 2018

CALIBRATION TIME: 0 hrs OPERATIONAL TIME: 744 hrs

STANDARD DEVIATION WIND DIRECTION Hourly Averages (STDWD deg)



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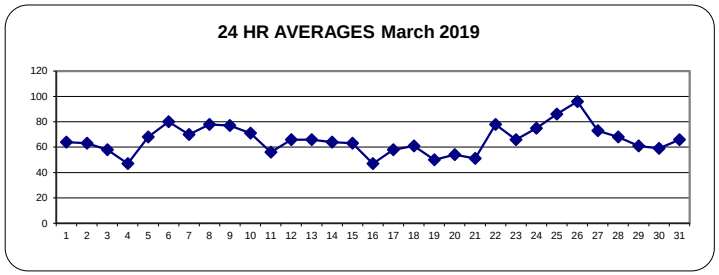
RELATIVE HUMIDITY Hourly Averages (RH %)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	79	73	77	75	74	72	71	71	67	61	55	52	48	47	46	46	49	57	67	67	65	67	69	72	46	79	64	24
2	73	75	74	73	74	74	73	74	73	69	62	55	49	45	43	47	48	50	54	58	61	66	70	71	43	75	63	24
3	73	75	76	74	76	76	75	75	70	64	53	49	46	42	38	37	39	43	45	49	52	56	54	53	37	76	58	24
4	57	61	64	68	66	68	66	62	59	49	43	36	32	32	29	31	31	32	35	36	39	41	40	44	29	68	47	24
5	48	52	59	63	64	68	75	78	75	72	67	64	66	60	57	56	58	63	67	72	80	92	90	87	48	92	68	24
6	84	87	89	90	91	92	92	92	91	87	83	77	69	68	63	57	57	63	75	80	83	82	84	87	57	92	80	24
7	91	89	87	83	82	80	80	81	85	77	73	67	62	59	56	53	52	53	56	57	62	60	63	65	52	91	70	24
8	65	66	66	67	69	72	74	78	80	90	92	90	88	88	86	77	80	79	74	80	73	75	77	79	65	92	78	24
9	80	86	86	90	92	92	95	91	81	74	70	62	58	55	52	51	52	58	70	79	88	94	96	96	51	96	77	24
10	94	91	87	87	87	84	84	85	87	77	65	59	54	48	45	42	44	52	58	66	71	74	76	76	42	94	71	24
11	74	72	72	77	80	77	79	76	68	58	47	38	34	32	30	29	34	38	44	45	52	60	57	63	29	80	56	24
12	65	65	68	73	77	82	82	84	70	65	63	61	62	60	56	51	44	44	56	63	72	71	75	79	44	84	66	24
13	82	82	85	90	90	96	99	93	77	65	54	45	39	36	38	39	36	47	59	60	69	68	69	71	36	99	66	24
14	73	74	73	75	78	83	90	86	73	66	59	51	44	41	39	37	41	53	60	64	67	70	71	69	37	90	64	24
15	69	66	66	68	68	70	76	77	73	60	50	45	43	41	42	70	72	67	70	70	69	60	54	58	41	77	63	24
16	59	61	61	62	66	71	72	67	51	45	39	33	29	24	23	**21**	21	24	27	37	49	55	62	65	**21**	72	47	24
17	62	68	66	70	72	69	61	60	60	52	50	49	48	46	45	46	43	47	54	61	65	65	67	68	43	72	58	24
18	68	72	74	83	89	91	89	80	65	54	43	35	31	31	32	31	34	43	55	63	69	73	77	77	31	91	61	24
19	78	81	82	82	81	78	78	62	48	40	35	31	27	25	22	21	22	24	28	35	45	54	62	70	21	82	50	24
20	82	86	83	83	92	93	95	82	57	42	29	28	27	26	25	25	25	26	31	41	56	64	52	54	25	95	54	24
21	58	56	59	67	77	78	78	71	58	39	35	32	31	29	28	27	28	32	36	41	48	58	70	82	27	82	51	24
22	89	95	99	97	99	**100**	100	97	86	74	62	57	55	52	47	43	44	48	59	74	92	98	100	99	43	**100**	78	24
23	100	99	88	80	76	76	78	75	65	53	46	42	37	36	36	35	41	51	59	68	75	81	86	90	35	100	66	24
24	88	90	89	89	89	91	90	80	69	66	61	53	49	48	47	46	47	51	70	85	93	97	99	100	46	100	75	24
25	100	100	97	94	93	94	98	100	100	100	97	90	73	62	56	59	68	74	78	81	85	87	91	93	56	100	86	24
26	95	96	98	99	100	100	100	100	100	100	100	99	94	86	80	81	90	94	97	99	100	100	96	91	80	100	**96**	24
27	84	82	81	78	75	69	65	64	63	60	58	55	46	43	50	71	75	69	74	88	94	97	99	100	43	100	73	24
28	100	100	99	99	99	99	99	96	83	67	56	53	49	45	41	39	39	39	43	46	49	58	67	73	39	100	68	24
29	82	84	85	83	84	88	90	83	72	62	54	48	42	37	30	30	35	42	50	55	56	57	59	61	30	90	61	24
30	61	63	64	68	79	88	85	77	70	53	41	40	38	37	37	39	42	45	50	58	69	69	67	73	37	88	59	24
31	81	87	94	97	98	99	98	91	65	51	47	45	43	42	41	42	41	44	48	56	70	68	65	71	41	99	66	24
HOURLY MAX	100	100	99	99	100	100	100	100	100	100	100	99	94	88	86	81	90	94	97	99	100	100	100	100				
HOURLY AVG	77	79	79	80	82	83	83	80	72	64	58	53	49	46	44	44	46	50	56	62	68	72	73	75				

STATUS FLAG CODES

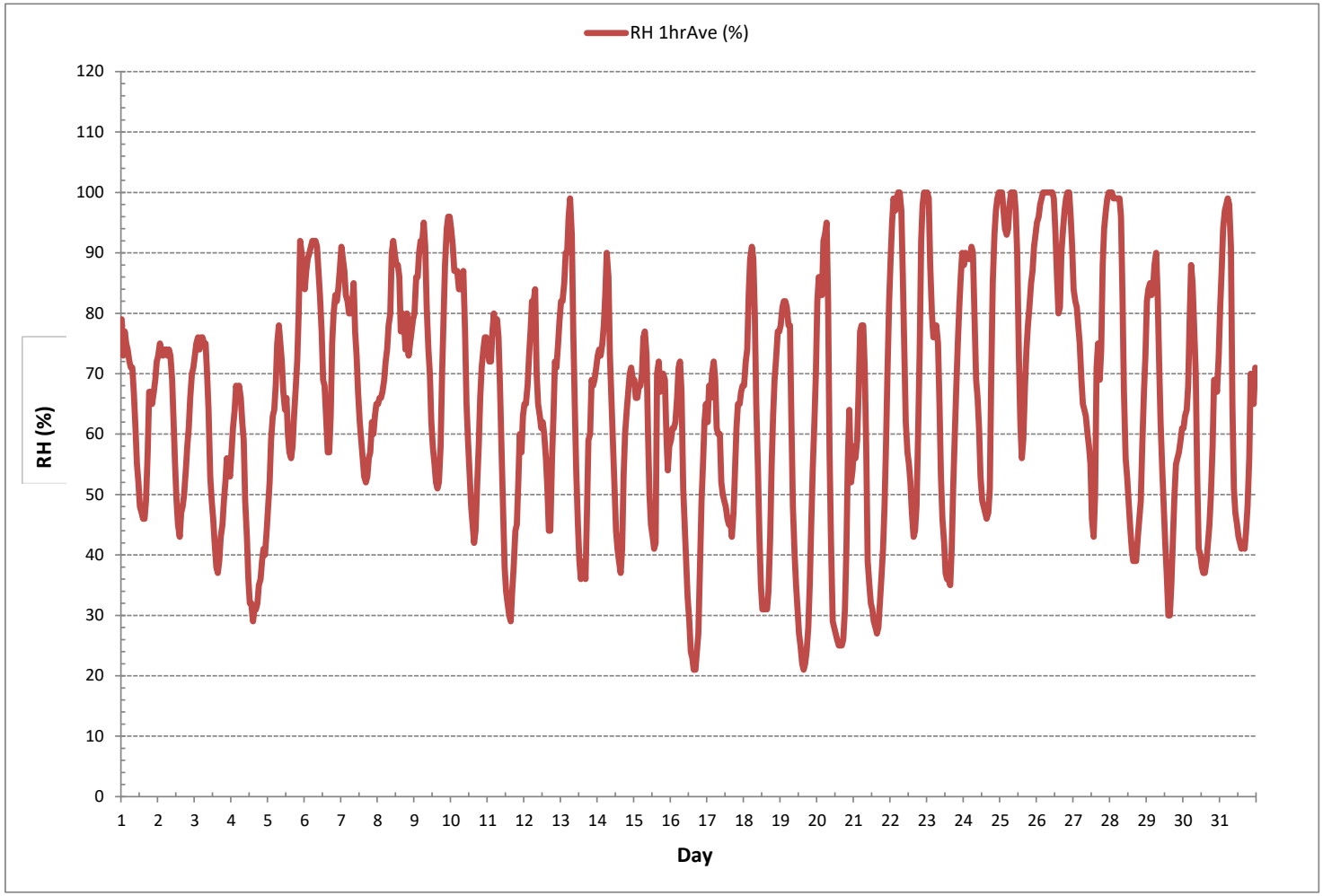
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	21	%	@ HOUR	15	ON DAY	16	
MAXIMUM 1-HR AVERAGE:	100	%	@ HOUR	5	ON DAY	22	
MAXIMUM 24-HR AVERAGE:	96	%			ON DAY	26	
			OPERATIONAL TIME:			744	hrs
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	20		MONTHLY AVERAGE:			66	%

RELATIVE HUMIDITY Hourly Averages (RH %)

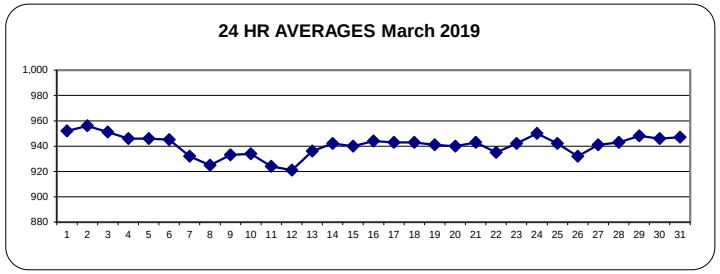


BAROMETRIC PRESSURE Hourly Averages (BP mbar)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	943	944	945	946	948	949	949	951	951	952	952	952	953	953	953	953	953	954	955	956	956	956	**957**	957	943	**957**	952	24
2	957	957	957	957	957	957	957	957	957	957	956	956	955	955	954	954	954	954	954	954	955	955	955	955	954	957	**956**	24
3	955	954	954	954	954	953	953	953	952	952	952	952	951	951	951	950	950	950	950	950	950	949	948	948	948	955	951	24
4	947	947	947	947	947	946	946	946	946	946	946	946	946	946	945	945	945	945	945	945	945	945	945	945	945	947	946	24
5	945	945	945	945	945	945	945	945	945	946	946	946	946	946	946	946	946	945	946	946	946	947	947	947	945	947	946	24
6	948	948	948	948	948	948	947	947	947	947	947	947	947	946	945	944	943	942	942	941	941	940	940	939	939	948	945	24
7	938	938	937	936	936	935	934	934	933	932	932	931	931	930	930	930	929	929	929	929	928	928	928	928	928	938	932	24
8	927	926	926	926	926	925	925	924	924	924	924	924	925	924	924	925	925	925	925	926	926	926	927	927	924	927	925	24
9	927	928	929	929	930	930	931	931	932	933	934	934	935	934	934	934	934	934	934	935	935	935	936	936	927	936	933	24
10	936	936	936	936	936	937	937	936	936	936	936	936	936	936	935	934	933	933	932	931	931	930	930	929	929	937	934	24
11	928	928	927	927	926	926	926	925	925	925	926	925	925	924	924	923	922	922	921	920	920	919	919	918	918	928	924	24
12	918	918	918	918	**917**	918	918	918	919	920	921	921	922	922	922	923	923	923	924	925	925	926	927	928	**917**	928	921	24
13	928	929	930	930	931	932	933	933	935	936	937	938	938	939	938	938	939	939	939	940	940	940	940	940	928	940	936	24
14	940	941	941	941	941	942	942	942	943	944	945	945	944	944	943	943	942	942	941	941	941	941	941	940	940	945	942	24
15	940	940	940	939	939	939	939	939	939	939	940	940	940	940	940	941	940	941	941	940	941	941	941	941	939	941	940	24
16	942	942	942	942	942	942	943	943	944	944	945	945	945	945	945	945	945	944	944	944	944	944	944	944	942	945	944	24
17	944	944	944	944	944	944	944	943	943	944	944	944	944	944	944	943	943	943	942	941	942	942	942	942	941	944	943	24
18	942	942	942	942	942	942	943	943	944	944	945	946	945	945	944	944	944	943	942	942	942	941	941	941	941	946	943	24
19	941	940	940	939	939	939	939	940	940	941	942	942	942	942	942	941	941	941	941	940	941	941	941	941	939	942	941	24
20	940	940	940	940	940	940	940	940	940	941	942	942	942	941	941	941	940	940	940	940	940	940	941	941	940	942	940	24
21	942	942	943	943	943	943	943	943	944	945	945	945	945	945	944	944	943	942	941	940	940	940	939	939	939	945	943	24
22	938	937	937	936	935	935	934	934	934	934	935	935	934	934	934	934	934	934	933	933	933	933	933	934	933	938	935	24
23	934	934	935	935	936	937	937	938	940	941	942	943	944	944	945	945	946	946	947	947	948	949	949	950	934	950	942	24
24	950	950	950	950	950	950	950	950	951	951	951	952	951	951	951	951	950	950	949	949	949	948	948	948	948	952	950	24
25	947	947	947	946	945	945	944	944	944	943	943	942	942	942	941	940	939	938	938	937	936	936	936	935	935	947	942	24
26	934	934	934	933	933	932	932	932	932	932	932	932	931	931	931	931	931	931	931	931	932	932	933	934	931	934	932	24
27	935	936	936	937	938	938	939	939	940	941	941	941	942	942	942	942	942	943	943	943	943	944	944	944	935	944	941	24
28	945	945	945	945	945	944	944	944	944	944	945	944	943	943	942	942	942	942	941	941	942	943	943	944	941	945	943	24
29	944	945	945	945	946	946	947	948	949	949	950	950	950	950	950	950	949	949	948	948	948	948	947	946	944	950	948	24
30	946	945	945	944	943	943	943	943	944	944	946	946	947	947	948	948	948	949	949	949	949	949	950	950	943	950	946	24
31	950	950	950	950	950	950	950	950	950	950	950	949	948	948	947	945	944	944	943	942	942	941	941	941	941	950	947	24
HOURLY MAX	957	957	957	957	957	957	957	957	957	957	956	956	955	955	954	954	954	954	955	956	956	956	957	957				
HOURLY AVG	940	940	940	940	940	940	940	940	941	941	942	942	942	941	941	941	941	941	940	940	940	940	940	940				

STATUS FLAG CODES

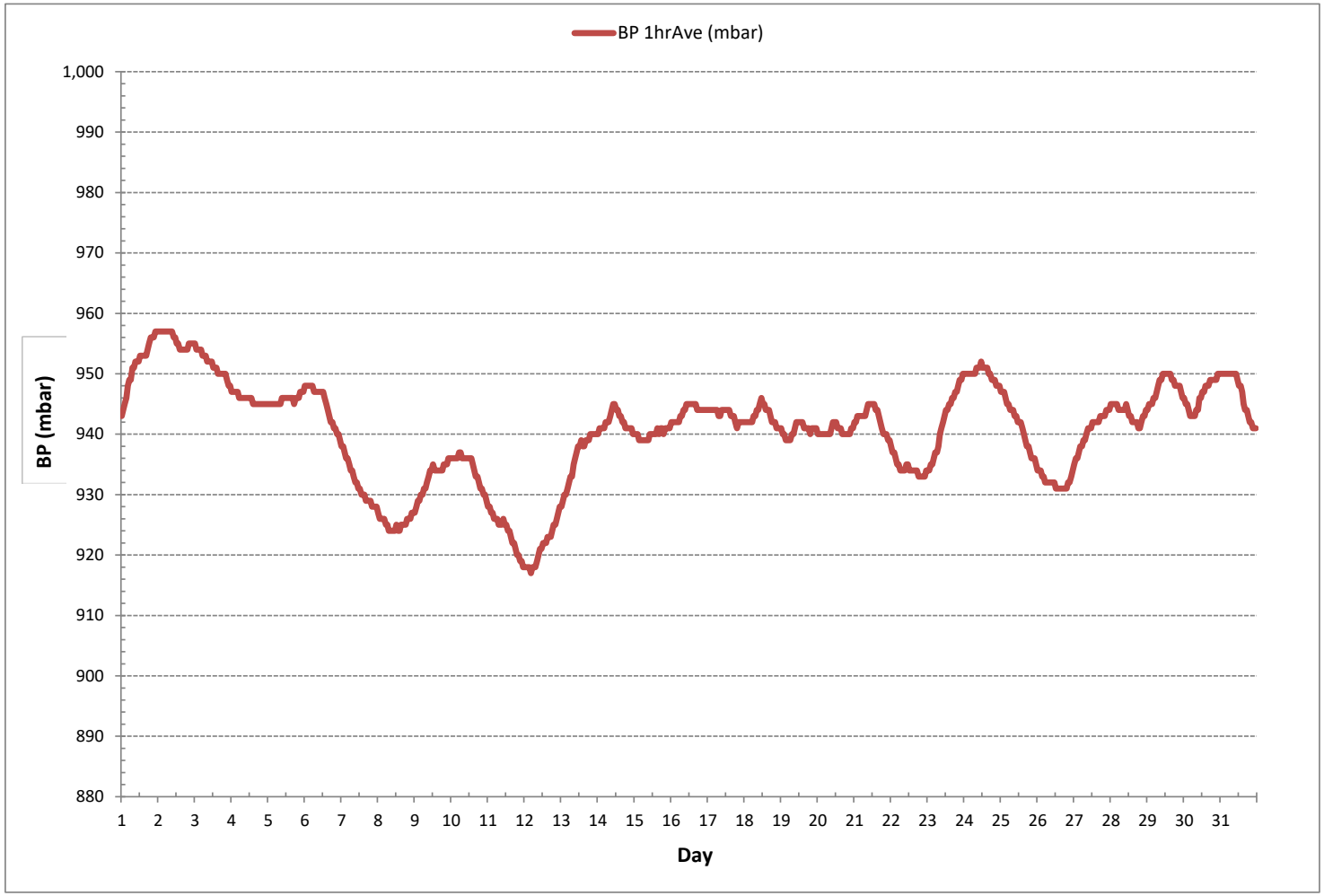
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	917	mbar	@ HOUR	4	ON DAY	12	
MAXIMUM 1-HR AVERAGE:	957	mbar	@ HOUR	22	ON DAY	1	
MAXIMUM 24-HR AVERAGE:	956	mbar			ON DAY	2	
			OPERATIONAL TIME:			744	hrs
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	8		MONTHLY AVERAGE:			941	mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



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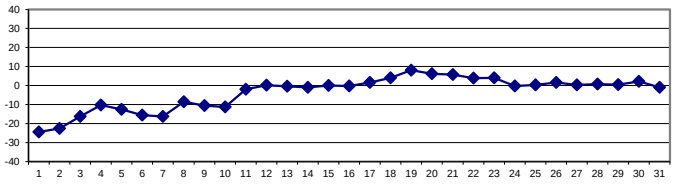
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

HR START (MST) / HR END (MST)	0:00 / 0:59	1:00 / 1:59	2:00 / 2:59	3:00 / 3:59	4:00 / 4:59	5:00 / 5:59	6:00 / 6:59	7:00 / 7:59	8:00 / 8:59	9:00 / 9:59	10:00 / 10:59	11:00 / 11:59	12:00 / 12:59	13:00 / 13:59	14:00 / 14:59	15:00 / 15:59	16:00 / 16:59	17:00 / 17:59	18:00 / 18:59	19:00 / 19:59	20:00 / 20:59	21:00 / 21:59	22:00 / 22:59	23:00 / 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	-21.4	-22.6	-23.8	-24.4	-25.3	-26.0	-26.4	-27.2	-26.8	-25.8	-24.7	-23.5	-22.7	-22.0	-21.4	-21.3	-21.6	-22.4	-24.2	-24.9	-25.5	-26.4	-27.1	-27.8	-27.8	-21.3	-24.4	24
2	-28.5	-28.1	-28.1	-27.8	-28.1	**-28.6**	-28.5	-28.5	-27.0	-25.0	-22.4	-20.1	-18.8	-17.5	-16.4	-16.0	-16.3	-17.2	-18.1	-18.7	-19.3	-19.9	-20.5	-21.0	**-28.6**	-16.0	-22.5	24
3	-21.3	-21.0	-21.3	-21.8	-21.9	-21.1	-20.7	-20.3	-19.5	-18.0	-16.4	-15.0	-13.4	-11.9	-10.5	-9.9	-10.4	-11.7	-12.9	-13.7	-14.3	-14.7	-14.8	-14.3	-21.9	-9.9	-16.3	24
4	-15.0	-15.6	-16.5	-17.6	-17.8	-18.0	-17.0	-16.6	-15.7	-13.4	-11.1	-8.0	-5.8	-4.7	-3.4	-3.5	-4.0	-4.3	-4.7	-5.1	-5.8	-6.7	-7.4	-8.4	-18.0	-3.4	-10.2	24
5	-9.0	-10.2	-11.5	-12.4	-12.8	-13.5	-14.6	-15.1	-14.7	-14.3	-13.1	-12.0	-11.4	-9.9	-8.9	-8.2	-8.4	-9.7	-11.1	-12.8	-14.7	-17.4	-17.1	-16.3	-17.4	-8.2	-12.5	24
6	-16.3	-16.6	-16.7	-16.8	-17.0	-17.3	-17.3	-17.2	-16.9	-16.3	-15.7	-14.7	-13.6	-13.0	-12.1	-11.1	-11.2	-12.4	-15.1	-16.3	-16.9	-16.8	-17.3	-18.2	-18.2	-11.1	-15.5	24
7	-20.1	-22.1	-22.7	-24.3	-24.8	-25.3	-25.3	-24.9	-20.5	-17.2	-16.0	-14.5	-13.5	-13.0	-11.7	-10.7	-10.4	-10.5	-10.5	-10.5	-10.7	-10.5	-10.5	-10.4	-25.3	-10.4	-16.3	24
8	-10.5	-10.3	-10.1	-9.9	-10.1	-10.3	-10.3	-10.1	-9.9	-9.8	-9.5	-8.3	-7.3	-6.7	-6.5	-5.4	-5.8	-5.8	-6.6	-7.6	-7.4	-8.8	-9.9	-10.4	-10.5	-5.4	-8.6	24
9	-11.0	-12.5	-12.8	-14.2	-14.5	-14.7	-15.9	-15.5	-12.6	-9.5	-8.2	-6.2	-5.1	-4.3	-3.8	-3.5	-3.8	-5.1	-7.8	-10.2	-12.7	-14.5	-16.0	-16.8	-16.8	-3.5	-10.5	24
10	-18.2	-19.9	-21.3	-21.7	-21.9	-22.9	-23.2	-22.3	-17.8	-11.3	-7.5	-6.1	-4.8	-3.5	-2.4	-1.5	-1.7	-2.9	-4.5	-6.0	-7.0	-7.6	-7.7	-7.7	-23.2	-1.5	-11.3	24
11	-7.4	-7.3	-7.6	-8.7	-9.4	-8.5	-8.9	-8.4	-6.8	-4.2	-1.4	1.8	3.7	5.7	6.7	6.9	5.1	4.0	2.0	1.4	-0.4	-1.8	-1.9	-2.9	-9.4	6.9	-2.0	24
12	-3.3	-3.2	-3.5	-4.5	-5.1	-5.9	-5.6	-5.2	-1.3	2.6	4.3	5.1	4.7	4.7	4.6	5.8	5.7	4.5	1.8	0.1	-0.1	0.1	-0.8	-1.8	-5.9	5.8	0.2	24
13	-2.7	-3.2	-4.0	-5.0	-5.2	-6.7	-7.3	-5.8	-2.4	0.3	2.5	4.4	5.3	6.0	5.3	5.4	5.4	4.7	2.3	0.6	-1.8	-2.1	-2.6	-3.3	-7.3	6.0	-0.4	24
14	-4.0	-4.3	-4.2	-4.8	-5.4	-6.2	-7.6	-6.4	-2.8	-0.4	1.7	3.4	4.3	4.7	4.7	5.8	5.1	3.1	1.1	-0.3	-1.2	-2.0	-2.7	-2.9	-7.6	5.8	-0.9	24
15	-3.3	-2.7	-2.6	-3.0	-3.1	-3.6	-4.7	-4.7	-3.9	-0.9	2.5	4.2	5.3	6.2	5.8	3.4	2.9	3.2	1.3	0.0	-0.4	-0.3	-0.1	-1.2	-4.7	6.2	0.0	24
16	-1.9	-2.7	-3.0	-3.8	-4.6	-5.6	-5.9	-4.9	-0.8	1.1	3.0	4.8	5.9	6.3	6.4	6.5	6.2	5.1	2.4	-1.6	-3.4	-4.5	-5.4	-6.0	-6.0	6.5	-0.3	24
17	-5.2	-5.1	-3.9	-4.4	-4.6	-3.8	-3.1	-2.7	-2.1	0.0	1.3	2.8	4.5	6.1	7.7	8.5	9.6	8.5	6.5	4.7	3.7	3.6	3.1	2.7	-5.2	9.6	1.6	24
18	2.5	1.4	0.5	-1.4	-2.7	-3.1	-2.9	-1.3	1.7	4.3	7.3	9.2	10.1	10.7	10.7	10.9	10.3	8.1	5.7	4.4	3.4	2.7	2.0	1.8	-3.1	10.9	4.0	24
19	1.5	0.5	0.0	0.0	0.1	0.7	0.8	4.4	7.9	10.6	12.3	14.4	16.2	17.3	**17.9**	17.8	17.3	15.8	13.2	10.0	7.0	4.5	2.9	1.5	0.0	**17.9**	**8.1**	24
20	-0.8	-1.1	-0.2	-0.6	-2.2	-3.0	-3.4	-0.8	4.7	9.0	13.7	14.6	14.6	15.1	15.7	15.8	15.4	14.0	11.1	6.9	2.8	1.1	3.4	3.5	-3.4	15.8	6.2	24
21	2.6	2.7	1.8	0.1	-1.8	-2.0	-1.8	0.0	3.4	8.7	9.9	11.2	12.0	12.8	13.5	13.4	12.9	11.3	9.2	7.8	6.2	4.0	2.0	-0.1	-2.0	13.5	5.8	24
22	-0.9	-1.2	-2.4	-2.6	-3.4	-4.0	-4.0	-2.5	2.1	5.7	8.4	9.5	10.4	11.6	12.8	13.7	12.9	11.9	9.0	5.8	2.1	0.7	-0.8	-1.5	-4.0	13.7	3.9	24
23	-1.4	-0.5	1.1	1.9	2.0	1.6	1.1	1.8	3.8	6.4	8.1	9.1	10.0	10.1	10.1	10.3	8.9	6.5	4.4	2.7	1.3	0.1	-0.9	-1.5	-1.5	10.3	4.0	24
24	-2.1	-2.7	-3.2	-3.8	-4.5	-5.3	-5.8	-4.8	-3.0	-1.2	1.1	3.2	4.3	5.1	5.8	6.2	6.1	5.2	2.9	0.5	-0.9	-1.8	-2.4	-3.0	-5.8	6.2	-0.2	24
25	-3.4	-3.4	-3.3	-3.1	-3.1	-3.3	-3.4	-3.1	-2.6	-2.2	-1.5	-0.3	2.8	4.7	5.7	5.3	4.4	3.7	3.2	2.8	2.6	2.2	1.7	1.5	-3.4	5.7	0.3	24
26	1.2	0.8	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.4	0.9	1.7	2.6	4.5	5.9	5.9	4.5	3.7	2.7	1.8	0.8	0.3	0.2	-0.2	-0.2	5.9	1.6	24
27	0.6	1.1	1.1	0.6	0.3	0.4	0.4	0.6	0.8	0.7	1.2	1.6	2.8	3.5	3.5	2.0	1.9	2.1	0.9	-1.9	-3.1	-3.8	-4.9	-5.5	-5.5	3.5	0.3	24
28	-6.1	-6.8	-7.4	-8.0	-8.4	-8.4	-7.9	-4.8	-1.1	1.8	4.1	5.4	6.3	7.2	7.6	7.6	7.9	7.6	6.3	5.7	4.7	3.2	1.1	0.1	-8.4	7.9	0.7	24
29	-1.6	-2.1	-2.7	-2.8	-3.4	-4.3	-4.7	-3.5	-2.3	-1.2	-0.2	1.1	2.4	3.4	4.7	5.3	4.4	3.8	3.0	2.3	2.1	2.0	1.7	1.4	-4.7	5.3	0.4	24
30	1.4	1.2	1.1	0.6	-1.2	-2.7	-1.9	0.4	2.1	5.0	7.4	7.6	7.6	7.5	7.5	6.7	5.4	3.7	2.1	0.0	-2.2	-1.9	-1.9	-3.2	-3.2	7.6	2.2	24
31	-4.4	-5.4	-6.3	-6.9	-7.2	-7.4	-7.2	-5.3	-1.9	-0.2	0.6	1.5	2.5	2.9	3.4	3.7	3.9	3.8	3.3	1.7	-0.6	-0.1	1.2	1.9	-7.4	3.9	-0.9	24
HOURLY MAX	2.6	2.7	1.8	1.9	2.0	1.6	1.1	4.4	7.9	10.6	13.7	14.6	16.2	17.3	17.9	17.8	17.3	15.8	13.2	10.0	7.0	4.5	3.4	3.5				
HOURLY AVG	-6.8	-7.2	-7.5	-8.1	-8.6	-9.0	-9.1	-8.2	-6.0	-3.7	-1.9	-0.4	0.7	1.6	2.2	2.4	2.0	1.0	-0.7	-2.3	-3.6	-4.4	-4.9	-5.5				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

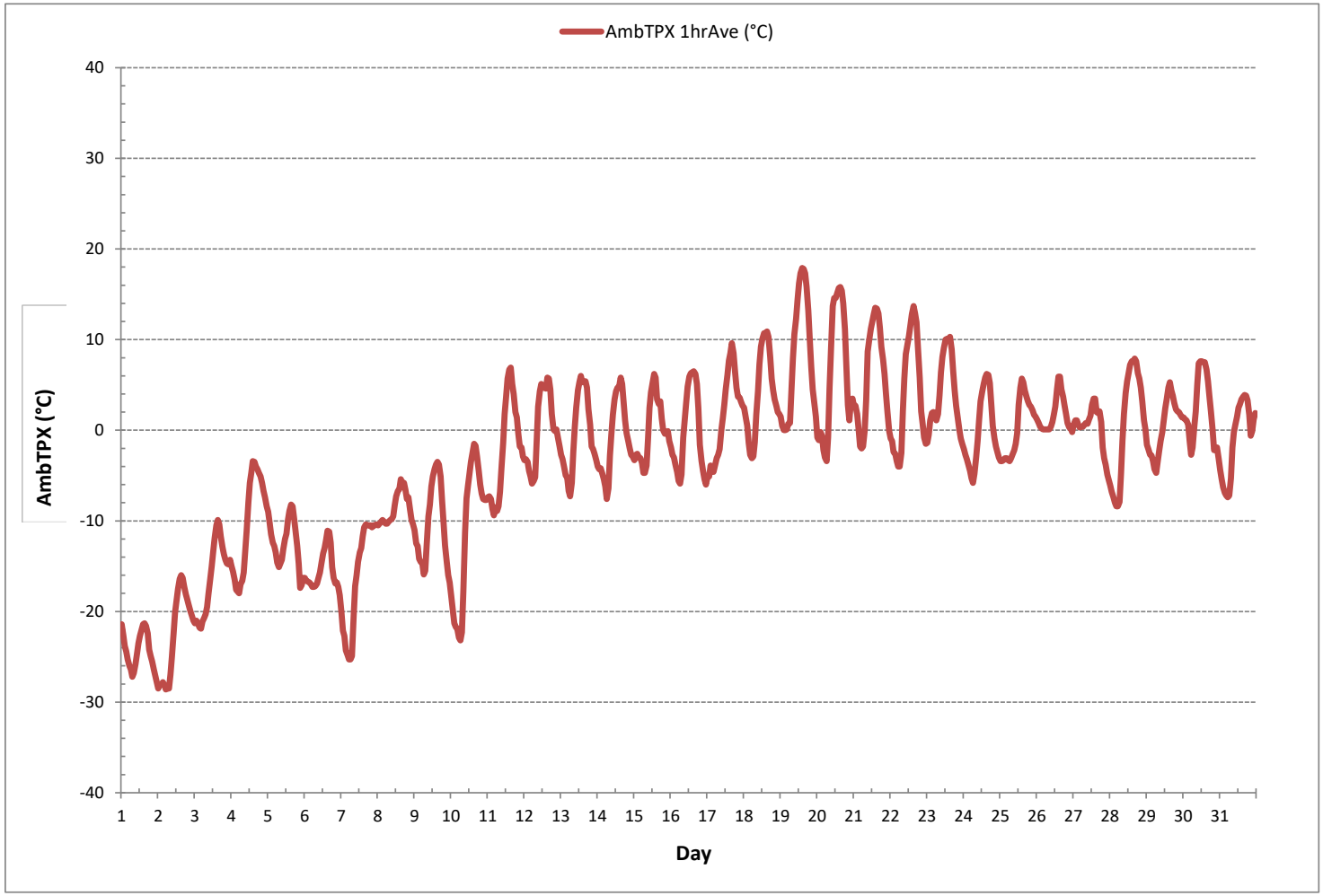
24 HR AVERAGES March 2019



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-28.6	°C	@ HOUR	5	ON DAY	2	
MAXIMUM 1-HR AVERAGE:	17.9	°C	@ HOUR	14	ON DAY	19	
MAXIMUM 24-HR AVERAGE:	8.1	°C			ON DAY	19	
			OPERATIONAL TIME:			744	hrs
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	9.6		MONTHLY AVERAGE:			-3.7	°C

AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

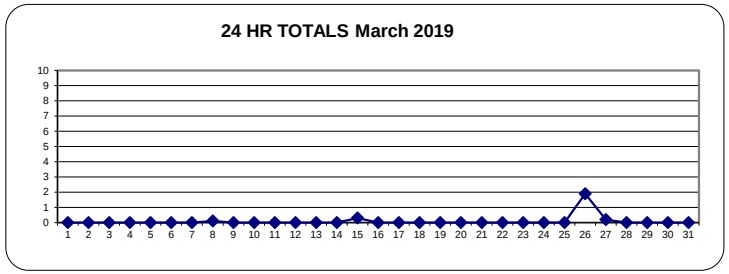


PRECIPITATION Hourly TOTALS (mm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	SUM	
DAY																												
1	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	24
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	24
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	24
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
26	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	**1.2**	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**1.2**	**1.9**	24
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
HOURLY MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	1.2	0.5	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0				
HOURLY SUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

STATUS FLAG CODES

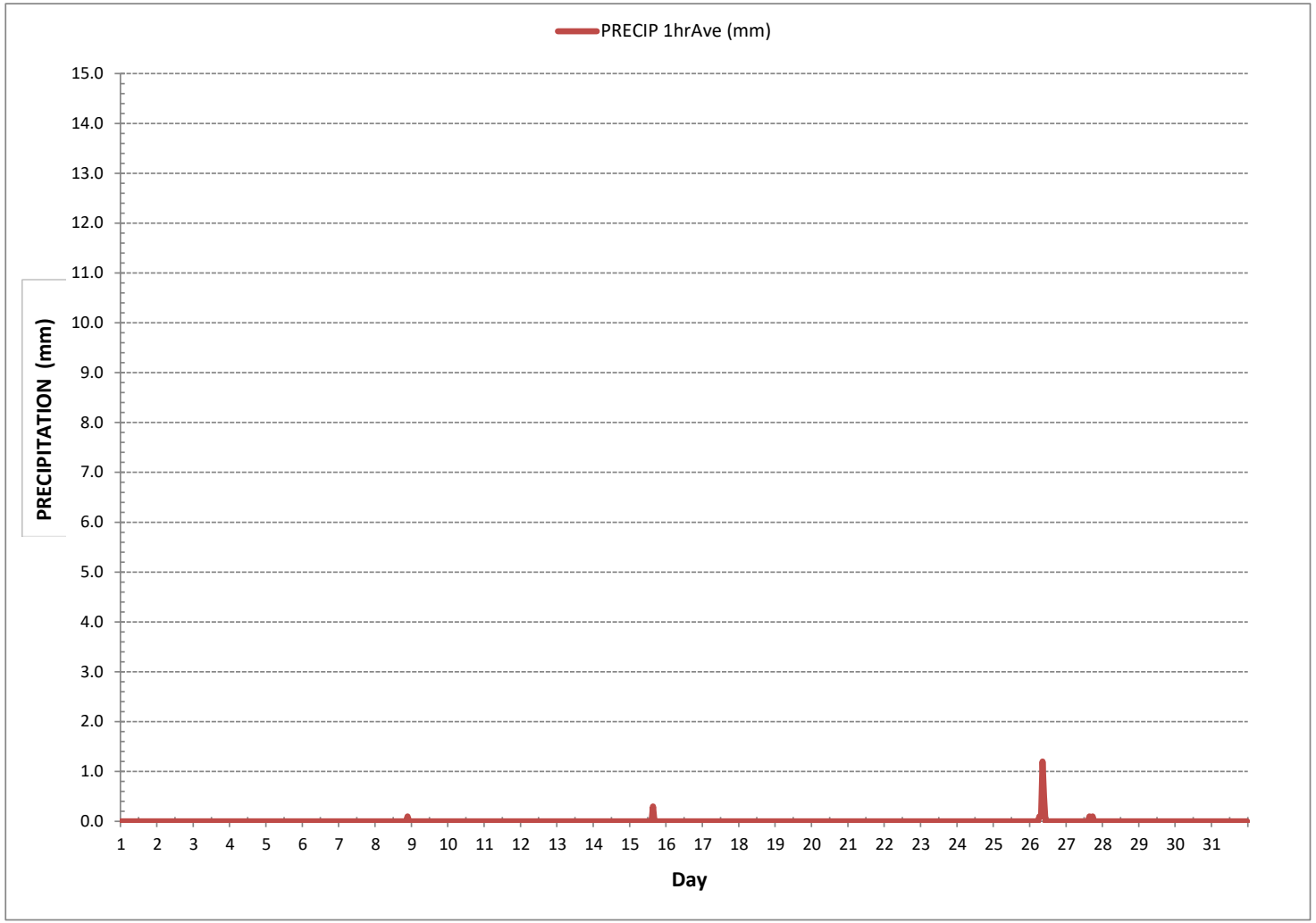
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



MONTHLY SUMMARY

MINIMUM 1-HR TOTAL:	0.0	mm	@ HOUR	0	ON DAY	1	
MAXIMUM 1-HR TOTAL:	1.2	mm	@ HOUR	8	ON DAY	26	
MAXIMUM 24-HR TOTAL:	1.9	mm			ON DAY	26	
			OPERATIONAL TIME:			744	hrs
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.0		MONTHLY TOTAL:			2.5	mm

PRECIPITATION Hourly TOTALS (mm)



SULPHUR DIOXIDE Instantaneous Maximum (SO_2 ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	0	0	0	1	1	1	1	1	1	1	0	2	S	1	1	1	1	1	1	2	2	2	2	14	0	14	2	24
2	2	12	11	4	3	10	4	5	15	13	7	S	11	10	6	16	6	1	1	7	3	23	19	25	1	25	9	24
3	19	27	18	7	19	18	13	14	13	15	S	6	17	11	14	11	10	3	5	24	24	27	22	23	3	27	16	24
4	24	22	15	3	2	5	25	13	25	S	16	2	2	15	15	6	5	0	0	20	26	30	13	2	0	30	12	24
5	2	1	21	29	24	20	17	18	S	2	3	2	4	5	8	1	2	2	2	1	0	1	0	0	0	29	7	24
6	0	0	0	2	1	0	1	S	1	0	1	2	2	0	0	1	2	0	0	0	0	3	3	3	0	3	1	24
7	1	1	0	0	0	0	S	0	2	5	8	11	9	6	7	3	4	4	1	1	1	1	1	1	0	11	3	24
8	1	1	1	2	1	S	1	1	1	1	0	1	1	1	1	1	0	1	0	1	17	17	3	2	0	17	2	24
9	2	3	5	1	S	3	3	3	3	1	0	4	7	1	1	1	1	2	1	1	0	0	0	0	0	7	2	24
10	0	0	0	S	0	0	0	0	0	1	2	2	1	2	6	4	2	2	2	2	1	2	2	1	0	6	1	24
11	1	1	S	1	1	1	1	1	1	1	4	4	4	2	2	1	2	1	1	1	1	1	2	1	1	4	2	24
12	1	S	2	2	2	2	2	1	1	0	0	20	16	9	12	15	2	6	5	2	0	0	5	7	0	20	5	24
13	S	12	9	6	4	2	0	0	5	19	12	15	13	7	1	0	0	1	0	3	4	1	1	S	0	19	5	24
14	0	0	0	0	4	5	4	5	9	8	8	9	9	7	3	1	0	0	0	0	0	1	S	1	0	9	3	24
15	1	1	1	1	1	1	1	1	4	4	2	0	0	3	21	7	5	6	5	0	0	S	1	4	0	21	3	24
16	0	2	3	0	1	0	0	0	4	10	13	7	18	6	5	5	0	0	0	0	S	0	0	1	0	18	3	24
17	1	1	0	1	1	1	1	1	1	3	3	3	2	3	3	2	1	0	0	S	0	0	0	0	0	3	1	24
18	0	0	1	1	1	4	12	12	15	12	21	15	6	1	1	2	1	0	S	0	1	2	6	6	0	21	5	24
19	6	2	2	1	1	1	1	1	1	1	1	1	1	0	10	7	23	S	10	3	0	0	0	0	0	23	3	24
20	0	1	3	3	2	1	0	2	12	6	2	4	5	6	6	5	S	3	2	1	1	1	1	1	0	12	3	24
21	1	1	0	0	0	0	0	0	0	C	C	C	C	C	0	S	0	0	0	0	0	2	2	0	0	2	0	24
22	0	1	0	0	0	0	0	0	1	3	5	1	1	1	S	1	1	1	0	0	0	0	0	0	0	5	1	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	2	0	2	0	24
24	3	2	2	1	0	0	0	1	2	6	3	3	S	2	2	1	1	0	0	0	0	0	0	0	0	6	1	24
25	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	24
26	1	0	1	1	0	0	0	0	0	0	S	2	2	7	3	3	1	0	0	0	0	0	0	0	0	7	1	24
27	0	0	1	1	1	1	1	1	2	S	0	6	0	8	13	0	3	6	0	0	0	0	0	0	0	13	2	24
28	0	0	0	0	0	0	0	1	S	6	2	2	0	0	0	0	0	0	0	0	12	1	1	0	0	12	1	24
29	0	0	0	15	1	1	1	S	1	0	0	3	4	4	8	3	1	0	0	0	0	0	0	0	0	15	2	24
30	0	0	0	0	0	0	S	1	22	1	2	2	1	1	1	1	1	0	0	0	0	0	1	0	0	22	2	24
31	0	0	0	0	0	S	0	0	2	2	3	2	1	1	1	1	1	1	1	1	1	0	1	11	0	11	1	24
HOURLY MAX	24	27	21	29	24	20	25	18	25	19	21	20	18	15	21	16	23	6	10	24	26	30	22	25				
HOURLY AVG	2	3	3	3	2	3	3	3	5	4	4	5	5	4	5	3	3	1	1	2	3	4	3	4				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

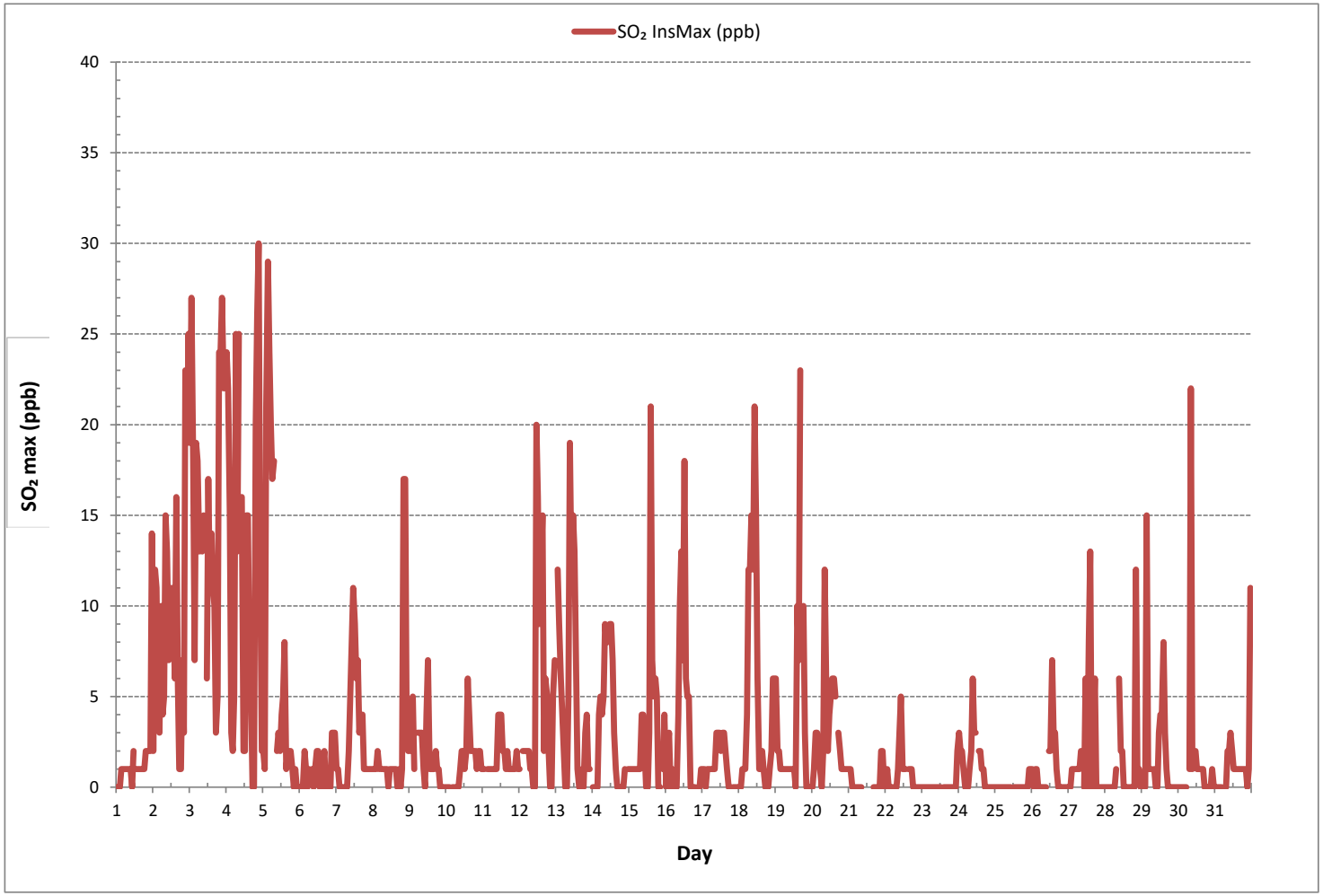
NUMBER OF NON-ZERO READINGS: 462

MAXIMUM INSTANTANEOUS VALUE: 30 ppb @ HOUR 21 ON DAY 4

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 6

OPERATIONAL TIME: 744 hrs

SULPHUR DIOXIDE Instantaneous Maximum (SO_2 ppb)



HYDROGEN SULPHIDE Instantaneous Maximum (H_2S ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	1	**2**	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	**2**	1	24
2	1	1	1	1	1	1	1	2	2	1	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	24
3	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	2	2	1	1	1	2	2	2	1	1	1	2	1	24
4	2	1	1	1	1	1	2	1	2	**S**	2	1	1	2	2	2	1	1	1	1	2	2	1	1	1	2	1	24
5	1	1	1	2	2	2	2	2	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	24
6	1	1	2	1	1	2	1	**S**	1	1	1	2	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1	24
7	1	2	2	2	1	1	**S**	1	1	1	2	2	2	1	1	1	1	2	2	1	1	1	2	1	1	2	1	24
8	1	1	1	1	1	**S**	1	2	**S1**	2	2	1	1	1	1	2	**C**	**C**	**C**	**C**	**C**	**C**	0	0	0	2	-	23
9	1	0	1	0	**S**	1	1	0	1	1	0	0	1	0	0	0	0	1	1	1	1	0	0	1	0	1	1	24
10	1	2	0	**S**	1	0	0	1	1	1	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	2	1	24
11	1	1	**S**	1	1	1	0	1	1	0	1	1	0	1	1	0	1	0	1	0	1	1	1	0	0	1	1	24
12	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	24
13	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	24
14	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	**S**	1	0	1	1	24
15	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	**S**	1	1	0	1	1	24
16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	24
17	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	0	1	1	24
18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	1	1	24
19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	**S**	1	1	1	1	1	1	1	2	1	24
20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	24
21	1	1	1	1	1	1	1	1	1	**C1**	**C1**	**C1**	**C1**	**C1**	0	**S**	1	1	1	1	1	1	1	1	0	1	1	19
22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	24
23	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	24
24	1	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
25	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
26	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
27	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
28	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
29	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
30	1	1	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
31	1	1	1	1	1	**S**	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	24
HOURLY MAX	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1				
HOURLY AVG	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

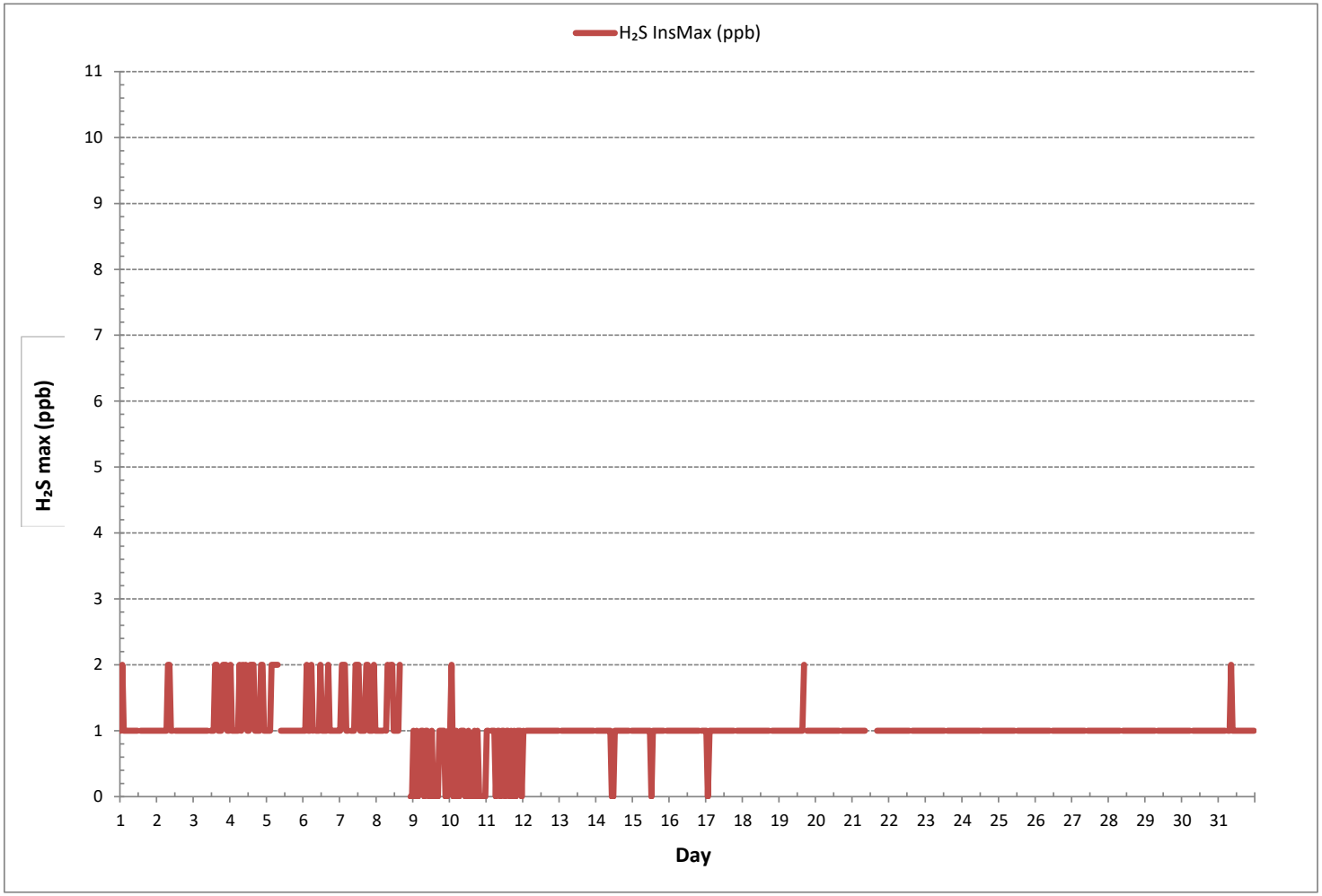
NUMBER OF NON-ZERO READINGS: 661

MAXIMUM INSTANTANEOUS VALUE: 2 ppb @ HOUR 1 ON DAY 1

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 6 hrs
STANDARD DEVIATION: 0

OPERATIONAL TIME: 738 hrs

HYDROGEN SULPHIDE Instantaneous Maximum (H_2S ppb)



TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	1.95	1.97	1.98	1.97	1.99	1.97	1.99	1.97	2.00	1.98	1.99	1.99	S	2.00	1.98	2.00	1.97	2.00	1.98	2.01	1.98	2.00	2.00	2.00	1.95	2.01	1.99	24
2	2.01	2.00	2.00	1.99	2.00	2.01	2.04	2.06	2.01	1.99	2.06	S	1.97	2.00	2.02	1.99	1.96	1.96	1.95	1.97	1.94	1.98	1.99	1.99	1.94	2.06	1.99	24
3	1.98	1.97	1.99	1.94	1.96	1.97	1.95	1.97	1.96	1.97	S	1.96	1.97	2.10	1.96	1.96	1.98	1.94	1.94	1.96	2.11	2.01	1.99	1.96	1.94	2.11	1.98	24
4	1.98	1.97	1.97	1.96	1.96	1.97	1.99	2.01	1.99	S	1.97	1.96	1.93	2.04	1.95	1.94	1.94	1.93	1.94	1.96	1.98	2.00	1.96	1.97	1.93	2.04	1.97	24
5	1.96	1.97	1.98	1.99	1.98	1.98	1.99	1.99	S	1.96	1.98	1.96	1.97	1.97	1.95	1.94	1.94	1.95	1.97	1.94	1.94	1.96	1.94	1.96	1.94	1.99	1.96	24
6	1.94	1.94	1.94	1.95	1.95	1.95	1.95	S	1.96	1.95	1.97	1.97	1.99	1.97	2.00	1.99	2.00	2.06	2.05	2.10	2.06	2.04	2.03	2.02	1.94	2.10	1.99	24
7	2.02	2.05	2.08	2.12	2.06	2.03	S	2.05	2.03	2.02	2.21	2.27	2.09	2.02	2.04	1.99	1.99	2.01	1.99	1.96	1.97	1.97	1.98	1.99	1.96	2.27	2.04	24
8	2.01	1.98	1.99	1.98	2.00	S	2.00	2.02	2.21	2.05	1.97	1.96	1.95	1.93	1.93	1.91	1.93	1.95	1.95	1.95	1.97	2.14	2.00	1.98	1.91	2.21	1.99	24
9	2.01	2.02	2.03	2.00	S	2.03	2.02	2.06	2.00	1.97	1.94	1.95	1.93	1.95	1.94	1.95	1.97	1.95	2.00	1.98	1.95	1.98	2.00	1.94	1.93	2.06	1.98	24
10	1.96	1.97	2.00	S	1.98	2.02	1.97	1.98	2.13	2.19	2.13	2.18	2.20	2.18	2.13	2.13	2.15	2.18	2.20	2.14	2.17	2.20	2.19	2.18	1.96	2.20	2.11	24
11	2.17	2.18	S	2.25	2.22	2.26	2.25	2.27	2.24	2.19	2.16	2.10	2.08	2.07	2.04	2.00	2.07	2.15	2.19	2.19	2.19	2.22	2.28	2.32	2.00	2.32	2.18	24
12	2.31	S	2.42	2.47	2.67	2.69	2.67	2.54	S1	S1	1.96	1.96	1.97	1.94	1.96	1.95	1.94	1.97	1.96	1.98	1.99	1.97	1.98	2.02	1.94	2.69	2.16	23
13	S	2.00	2.11	2.01	2.04	2.06	2.04	1.98	2.01	2.01	1.97	1.95	1.97	1.95	1.95	1.95	1.96	1.99	1.99	2.01	2.01	2.06	2.07	S	1.95	2.11	2.00	24
14	2.06	2.07	2.07	2.06	2.02	2.05	2.04	2.04	1.98	1.98	1.96	1.97	1.97	1.98	1.99	2.00	2.00	2.00	2.05	2.02	2.00	2.03	S	2.01	1.96	2.07	2.01	24
15	2.03	2.03	2.12	2.23	2.23	2.30	2.28	2.26	2.25	2.28	2.27	1.97	1.95	1.96	1.98	1.96	1.98	1.96	1.96	1.95	1.98	S	1.97	1.96	1.95	2.30	2.08	24
16	1.96	2.00	1.96	1.98	2.05	2.08	2.07	2.11	1.98	1.98	1.97	1.96	1.98	1.95	1.96	1.94	1.96	1.94	1.95	1.93	S	2.20	2.09	2.19	1.93	2.20	2.01	24
17	2.13	2.25	2.16	2.20	2.09	2.02	2.10	2.13	2.17	2.10	2.09	2.09	2.11	2.08	2.07	2.05	2.02	1.94	1.96	S	1.95	1.94	1.93	1.94	1.93	2.25	2.07	24
18	1.91	1.94	1.95	1.97	1.97	2.09	2.01	2.00	2.00	1.95	1.99	1.94	2.01	2.00	1.97	2.00	2.00	2.01	S	2.02	2.00	2.04	2.08	2.11	1.91	2.11	2.00	24
19	2.17	2.13	2.20	2.19	2.19	2.16	2.17	2.03	1.96	1.93	2.14	1.96	1.93	1.93	1.94	1.96	2.10	S	2.14	2.27	2.07	1.97	2.01	1.98	1.93	2.27	2.07	24
20	2.03	2.42	2.28	2.19	2.24	2.22	2.59	2.43	2.40	2.24	2.06	2.33	2.24	2.10	2.00	2.03	S	2.03	2.07	2.08	2.11	2.13	2.09	1.98	1.98	2.59	2.19	24
21	1.97	1.94	1.96	1.97	1.95	1.97	1.93	1.95	1.92	3.55	1.95	1.95	1.96	1.98	1.96	S	1.93	1.94	1.94	1.95	1.99	2.01	2.00	2.02	1.92	3.55	2.03	24
22	2.01	2.05	2.03	2.05	2.11	2.11	2.08	2.08	2.11	2.11	C	C	C	C	S	2.19	2.16	2.21	2.29	2.36	2.36	2.35	2.45	2.45	2.01	2.45	2.19	24
23	2.36	2.24	2.13	2.06	2.01	2.02	1.99	1.98	1.98	1.97	1.97	1.96	1.98	S	1.98	1.95	1.96	1.97	1.95	1.97	1.95	1.95	1.95	1.99	1.95	2.36	2.01	24
24	2.00	1.99	1.99	1.97	1.98	1.99	1.99	1.99	2.02	2.06	2.00	2.11	S	1.99	1.97	1.96	1.96	2.00	2.10	2.11	2.11	2.16	2.15	2.15	1.96	2.16	2.03	24
25	2.14	2.15	2.10	2.04	2.05	2.01	2.00	1.99	1.99	2.05	2.04	S	2.01	2.05	2.07	2.12	2.11	2.12	2.13	2.14	2.07	2.03	2.04	2.00	1.99	2.15	2.06	24
26	2.01	2.03	2.04	2.05	2.09	2.05	2.03	2.05	2.06	2.08	S	2.12	2.06	2.05	2.03	2.07	2.15	2.15	2.19	2.18	2.20	2.20	2.14	2.12	2.01	2.20	2.09	24
27	1.99	1.95	1.98	1.97	1.96	1.96	1.96	1.96	1.96	S	1.95	1.97	1.95	1.95	1.95	1.95	1.96	1.95	1.95	1.96	2.03	2.18	2.14	2.05	1.95	2.18	1.98	24
28	2.03	2.11	2.18	2.17	2.68	2.81	2.59	2.34	S	2.19	2.20	2.26	2.19	1.95	1.95	1.94	1.94	1.93	1.93	1.96	1.96	1.95	1.96	1.99	1.93	2.81	2.14	24
29	2.00	1.98	1.97	1.99	1.97	1.99	1.99	S	1.97	1.95	1.94	1.95	1.96	1.95	1.98	1.98	1.96	1.98	1.98	2.00	2.01	2.02	2.02	2.05	1.94	2.05	1.98	24
30	2.14	2.16	2.15	2.13	2.12	2.11	S	2.10	2.10	2.02	2.00	1.99	1.99	2.00	1.97	2.00	1.97	1.99	1.97	1.98	1.99	2.01	1.99	1.98	1.97	2.16	2.04	24
31	2.01	1.99	2.01	2.00	2.03	S	2.04	2.05	2.29	2.00	1.98	1.98	1.98	2.01	1.99	2.00	1.99	1.98	1.99	1.99	2.03	2.05	2.02	2.02	1.98	2.29	2.02	24
HOURLY MAX	2.36	2.42	2.42	2.47	2.68	2.81	2.67	2.54	2.40	3.55	2.27	2.33	2.24	2.18	2.13	2.19	2.16	2.21	2.29	2.36	2.36	2.35	2.45	2.45				
HOURLY AVG	2.04	2.05	2.06	2.06	2.09	2.10	2.09	2.08	2.06	2.10	2.03	2.03	2.01	2.00	1.99	1.99	2.00	2.00	2.02	2.03	2.04	2.06	2.05	2.04				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

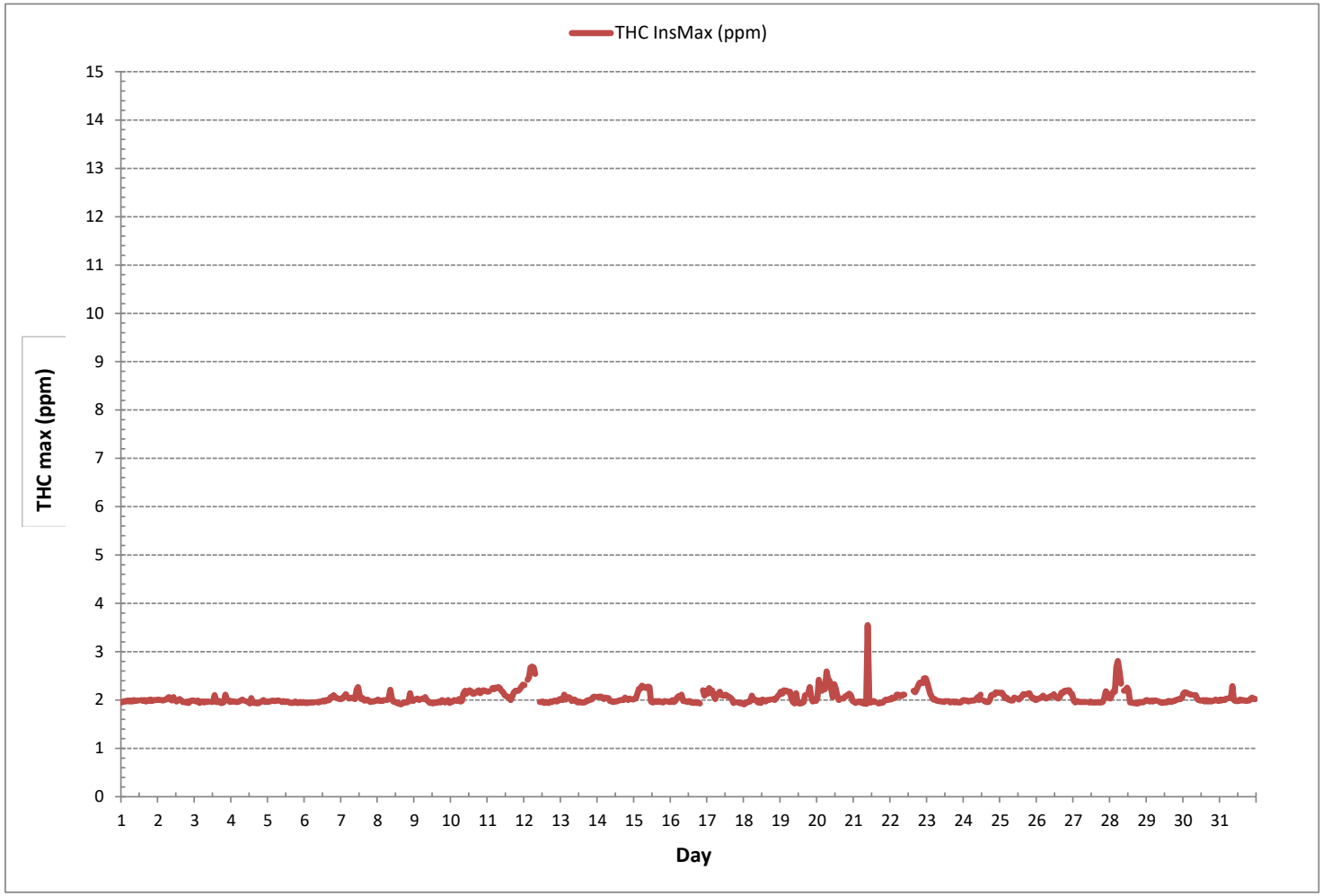
NUMBER OF NON-ZERO READINGS: 706

MAXIMUM INSTANTANEOUS VALUE: 3.55 ppm @ HOUR 9 ON DAY 21

IZS CALIBRATION TIME: 33 hrs
MONTHLY CALIBRATION TIME: 4 hrs
STANDARD DEVIATION: 0.13

OPERATIONAL TIME: 743 hrs

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)



METHANE MAX Instantaneous Maximum (CH_4 ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	1.95	1.97	1.98	1.97	1.99	1.97	1.99	1.97	2.00	1.98	1.99	1.99	S	2.00	1.98	2.00	1.97	2.00	1.98	2.01	1.98	2.00	2.00	2.00	1.95	2.01	1.99	24
2	2.01	2.00	2.00	1.99	2.00	2.01	2.04	2.06	2.01	1.99	2.06	S	1.97	2.00	2.02	1.99	1.96	1.96	1.95	1.97	1.94	1.98	1.99	1.99	1.94	2.06	1.99	24
3	1.98	1.97	1.99	1.94	1.96	1.97	1.95	1.97	1.96	1.97	S	1.96	1.97	2.00	1.96	1.96	1.96	1.94	1.94	1.96	2.01	2.01	1.99	1.96	1.94	2.01	1.97	24
4	1.98	1.97	1.97	1.96	1.96	1.97	1.99	2.01	1.99	S	1.97	1.96	1.93	1.96	1.95	1.94	1.94	1.93	1.94	1.96	1.98	2.00	1.96	1.97	1.93	2.01	1.96	24
5	1.96	1.97	1.98	1.99	1.98	1.98	1.99	1.99	S	1.96	1.98	1.96	1.97	1.97	1.95	1.94	1.94	1.95	1.97	1.94	1.94	1.96	1.94	1.96	1.94	1.99	1.96	24
6	1.94	1.94	1.94	1.95	1.95	1.95	1.95	S	1.96	1.95	1.97	1.97	1.99	1.97	2.00	1.99	2.00	2.06	2.05	2.10	2.06	2.04	2.03	2.02	1.94	2.10	1.99	24
7	2.02	2.05	2.08	2.12	2.06	2.03	S	2.05	2.03	2.02	2.11	2.14	2.09	2.02	2.04	1.99	1.99	2.01	1.99	1.96	1.97	1.97	1.98	1.99	1.96	2.14	2.03	24
8	2.01	1.98	1.99	1.98	2.00	S	2.00	2.02	2.21	2.05	1.97	1.96	1.95	1.93	1.93	1.91	1.93	1.95	1.95	1.95	1.97	1.99	2.00	1.98	1.91	2.21	1.98	24
9	2.01	2.02	2.03	2.00	S	2.03	2.02	2.06	2.00	1.97	1.94	1.95	1.93	1.95	1.94	1.95	1.97	1.95	2.00	1.98	1.95	1.98	2.00	1.94	1.93	2.06	1.98	24
10	1.96	1.97	2.00	S	1.98	2.02	1.97	1.98	2.13	2.19	2.13	2.18	2.20	2.18	2.13	2.13	2.15	2.18	2.20	2.14	2.17	2.20	2.19	2.18	1.96	2.20	2.11	24
11	2.17	2.18	S	2.25	2.22	2.26	2.25	2.27	2.24	2.19	2.16	2.10	2.08	2.07	2.04	2.00	2.07	2.15	2.19	2.19	2.19	2.22	2.28	2.32	2.00	2.32	2.18	24
12	2.31	S	2.42	2.47	2.67	2.69	2.67	2.54	S1	S1	1.96	1.96	1.97	1.94	1.96	1.95	1.94	1.97	1.96	1.98	1.99	1.97	1.98	2.02	1.94	2.69	2.16	23
13	S	2.00	2.03	2.01	2.04	2.06	2.04	1.98	2.01	2.01	1.97	1.95	1.97	1.95	1.95	1.95	1.96	1.99	1.99	2.01	2.01	2.06	2.07	S	1.95	2.07	2.00	24
14	2.06	2.07	2.07	2.06	2.02	2.05	2.04	2.04	1.98	1.98	1.96	1.97	1.97	1.98	1.99	2.00	2.00	2.00	2.05	2.02	2.00	2.03	S	2.01	1.96	2.07	2.01	24
15	2.03	2.03	2.12	2.23	2.23	2.30	2.28	2.26	2.25	2.28	2.27	1.97	1.95	1.96	1.98	1.96	1.98	1.96	1.96	1.95	1.98	S	1.97	1.96	1.95	2.30	2.08	24
16	1.96	2.00	1.96	1.98	2.05	2.08	2.07	2.11	1.98	1.98	1.97	1.96	1.98	1.95	1.96	1.94	1.96	1.94	1.95	1.93	S	2.20	2.09	2.19	1.93	2.20	2.01	24
17	2.13	2.25	2.16	2.20	2.09	2.02	2.10	2.13	2.17	2.10	2.09	2.09	2.11	2.08	2.07	2.05	2.02	1.94	1.96	S	1.95	1.94	1.93	1.94	1.93	2.25	2.07	24
18	1.91	1.94	1.95	1.97	1.97	2.02	2.01	2.00	2.00	1.95	1.99	1.94	1.95	2.00	1.97	2.00	2.00	2.01	S	2.02	2.00	2.04	2.08	2.11	1.91	2.11	1.99	24
19	2.17	2.13	2.20	2.19	2.19	2.16	2.17	2.03	1.96	1.93	1.98	1.96	1.93	1.93	1.94	1.96	1.96	S	1.98	2.03	1.98	1.97	2.01	1.98	1.93	2.20	2.03	24
20	2.03	2.42	2.28	2.19	2.24	2.22	2.59	2.43	2.40	2.24	2.06	2.33	2.24	2.10	2.00	2.03	S	2.03	2.07	2.08	2.11	2.13	2.09	1.98	1.98	2.59	2.19	24
21	1.97	1.94	1.96	1.97	1.95	1.97	1.93	1.95	1.92	2.45	1.95	1.95	1.96	1.98	1.96	S	1.93	1.94	1.94	1.95	1.99	2.01	2.00	2.02	1.92	2.45	1.98	24
22	2.01	2.05	2.03	2.05	2.11	2.11	2.08	2.08	2.11	2.11	C	C	C	C	S	2.19	2.16	2.21	2.29	2.36	2.36	2.35	2.45	2.45	2.01	2.45	2.19	24
23	2.36	2.24	2.13	2.06	2.01	2.02	1.99	1.98	1.98	1.97	1.97	1.96	1.98	S	1.98	1.95	1.96	1.97	1.95	1.97	1.95	1.95	1.95	1.99	1.95	2.36	2.01	24
24	2.00	1.99	1.99	1.97	1.98	1.99	1.99	1.99	2.02	2.06	2.00	2.03	S	1.99	1.97	1.96	1.96	2.00	2.10	2.11	2.11	2.16	2.15	2.15	1.96	2.16	2.03	24
25	2.14	2.15	2.10	2.04	2.05	2.01	2.00	1.99	1.99	2.05	2.04	S	2.01	2.05	2.07	2.12	2.11	2.12	2.13	2.14	2.07	2.03	2.04	2.00	1.99	2.15	2.06	24
26	2.01	2.03	2.04	2.05	2.09	2.05	2.03	2.05	2.06	2.08	S	2.12	2.06	2.05	2.03	2.07	2.15	2.15	2.19	2.18	2.20	2.20	2.14	2.05	2.01	2.20	2.09	24
27	1.99	1.95	1.98	1.97	1.96	1.96	1.96	1.96	1.96	S	1.95	1.97	1.95	1.95	1.95	1.95	1.96	1.95	1.95	1.96	2.03	2.18	2.14	2.05	1.95	2.18	1.98	24
28	2.03	2.11	2.18	2.17	2.68	2.81	2.59	2.34	S	2.19	2.20	2.26	2.19	1.95	1.95	1.94	1.94	1.93	1.93	1.96	1.96	1.95	1.96	1.99	1.93	2.81	2.14	24
29	2.00	1.98	1.97	1.99	1.97	1.99	1.99	S	1.97	1.95	1.94	1.95	1.96	1.95	1.98	1.98	1.96	1.98	1.98	2.00	2.01	2.02	2.02	2.05	1.94	2.05	1.98	24
30	2.14	2.16	2.15	2.13	2.12	2.11	S	2.10	2.10	2.02	2.00	1.99	1.99	2.00	1.97	2.00	1.97	1.99	1.97	1.98	1.99	2.01	1.99	1.98	1.97	2.16	2.04	24
31	2.01	1.99	2.01	2.00	2.03	S	2.04	2.05	2.16	2.00	1.98	1.98	1.98	2.01	1.99	2.00	1.99	1.98	1.99	1.99	2.03	2.05	2.02	2.02	1.98	2.16	2.01	24
HOURLY MAX	2.36	2.42	2.42	2.47	2.68	2.81	2.67	2.54	2.40	2.45	2.27	2.33	2.24	2.18	2.13	2.19	2.16	2.21	2.29	2.36	2.36	2.35	2.45	2.45				
HOURLY AVG	2.04	2.05	2.06	2.06	2.09	2.10	2.09	2.08	2.06	2.06	2.02	2.02	2.01	2.00	1.99	1.99	1.99	2.00	2.02	2.03	2.03	2.05	2.05	2.04				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

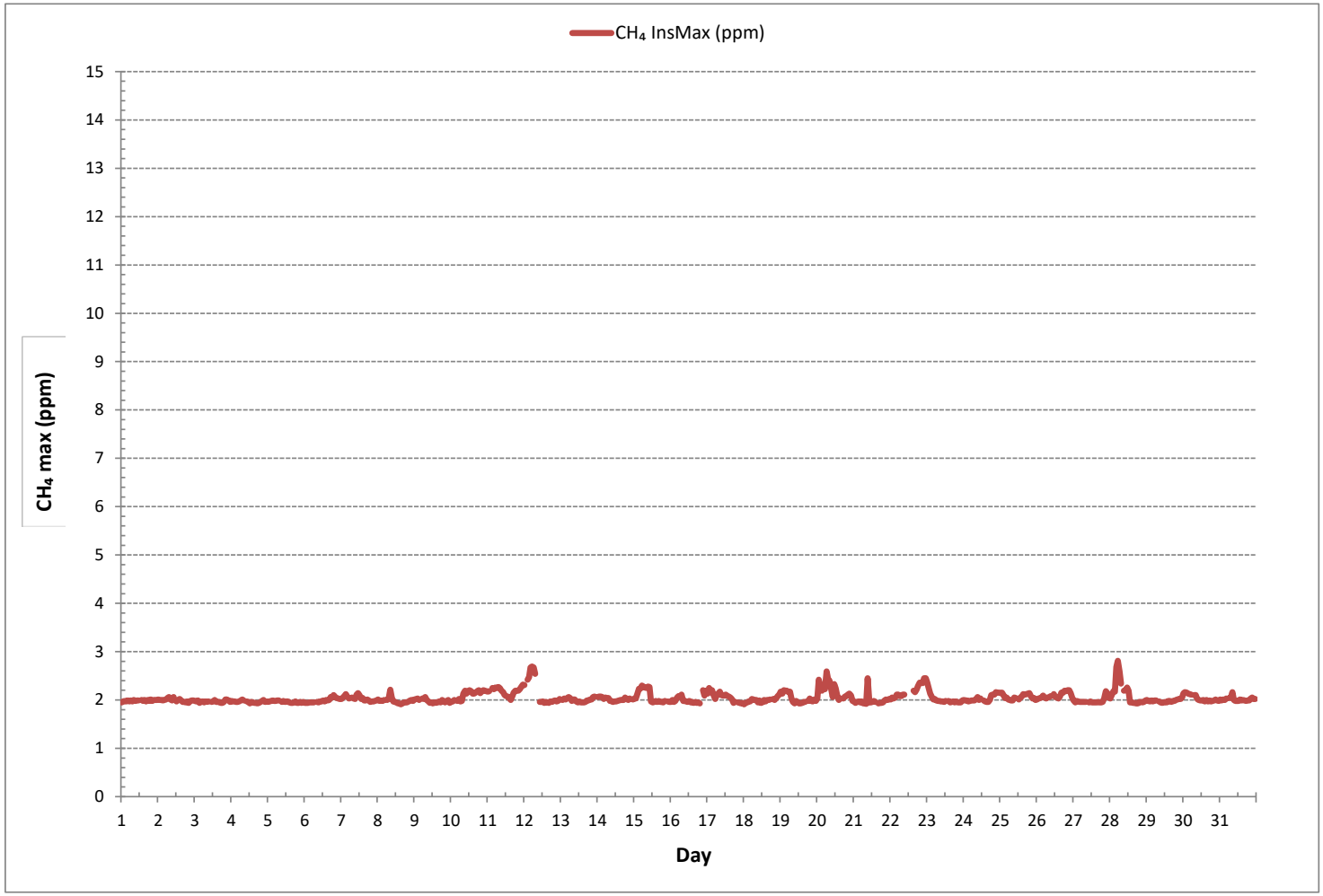
NUMBER OF NON-ZERO READINGS: 706

MAXIMUM INSTANTANEOUS VALUE: 2.81 ppm @ HOUR 5 ON DAY 28

IZS CALIBRATION TIME: 33 hrs
MONTHLY CALIBRATION TIME: 4 hrs
STANDARD DEVIATION: 0.12

OPERATIONAL TIME: 743 hrs

METHANE MAX Instantaneous Maximum (CH_4 ppm)



NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
2	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	24
3	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	0.00	0.00	0.03	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.13	0.01	24
4	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	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	24
5	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	24
6	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	24
7	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.09	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	0.13	0.01	24
8	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	0.17	0.00	0.00	0.00	0.17	0.01	24
9	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	24
10	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	24
11	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	24
12	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	S1	S1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23
13	S	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.07	0.00	24
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	S	0.00	0.00	0.00	0.00	24
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	S	0.00	0.00	0.00	0.00	0.00	24
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	24
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
18	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01	24
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.15	S	0.16	0.25	0.10	0.00	0.00	0.00	0.00	0.25	0.04	24
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	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	1.10	0.05	24
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	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	24
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	24
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	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	0.09	0.00	24
25	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	24
26	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	0.10	0.00	0.10	0.00	24
27	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	24
28	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	24
29	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	24
30	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	24
31	0.00	0.00	0.00	0.00	0.00	S	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	0.13	0.01	24
HOURLY MAX	0.00	0.00	0.07	0.00	0.00	0.07	0.00	0.00	0.13	1.10	0.16	0.13	0.07	0.13	0.00	0.00	0.15	0.00	0.16	0.25	0.12	0.17	0.00	0.10				
HOURLY AVG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.00	0.00				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

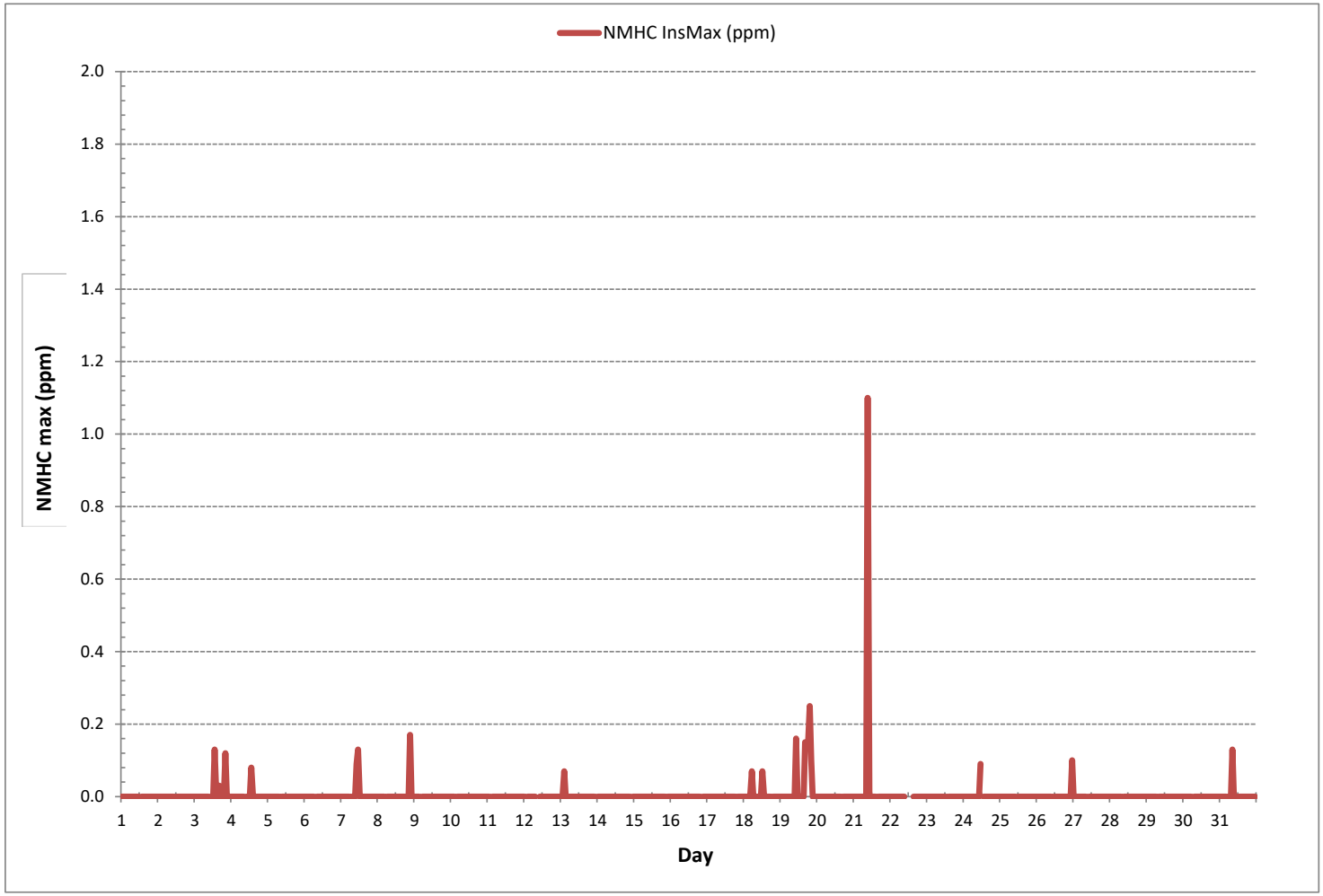
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 19

MAXIMUM INSTANTANEOUS VALUE: 1.10 ppm @ HOUR 9 ON DAY 21

IZS CALIBRATION TIME: 33 hrs OPERATIONAL TIME: 743 hrs
MONTHLY CALIBRATION TIME: 4 hrs
STANDARD DEVIATION: 0.05

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)



OXIDES OF NITROGEN Instantaneous Maximum (NO_x ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	1	0	1	2	2	2	3	5	6	2	2	9	S	7	7	3	3	4	16	4	11	5	5	27	0	27	5	24
2	8	23	23	12	12	20	16	32	31	26	13	S	23	20	10	28	10	2	1	15	31	41	33	43	1	43	20	24
3	33	46	30	12	32	30	26	26	21	26	S	10	29	20	30	21	17	4	9	42	40	46	37	37	4	46	27	24
4	42	38	25	23	12	17	42	24	44	S	29	5	6	29	25	14	13	1	1	35	44	56	22	26	1	56	25	24
5	3	2	34	50	40	35	31	33	S	3	4	7	12	11	22	3	5	5	4	2	1	2	2	1	1	50	14	24
6	0	0	0	5	1	1	4	S	9	16	4	3	3	3	4	2	6	7	3	3	3	5	5	4	0	16	4	24
7	2	3	2	3	1	1	S	1	5	8	17	24	16	16	16	10	12	6	2	1	1	4	3	2	1	24	7	24
8	1	1	2	6	4	S	8	19	16	8	1	2	3	2	3	4	1	3	2	3	62	42	18	11	1	62	10	24
9	16	20	17	5	S	52	16	27	32	4	1	9	39	4	3	3	3	5	3	4	2	2	2	1	1	52	12	24
10	2	2	2	S	12	3	31	79	79	7	14	7	6	10	7	7	6	7	7	6	6	6	6	6	2	79	14	24
11	16	6	S	6	7	7	11	11	12	17	12	12	13	9	7	7	6	6	7	7	6	6	6	5	5	17	9	24
12	5	S	7	7	14	36	26	15	22	12	7	38	32	17	23	29	5	11	10	10	4	2	24	23	2	38	16	24
13	S	22	18	12	8	26	17	26	35	34	20	27	23	13	3	3	5	3	2	5	10	5	4	S	2	35	15	24
14	4	3	11	6	19	34	21	19	17	61	17	15	17	12	10	4	2	4	3	3	3	4	S	4	2	61	13	24
15	4	4	7	5	5	7	22	49	17	19	12	9	3	7	36	15	14	15	12	4	1	S	17	25	1	49	13	24
16	3	17	19	8	9	15	31	16	21	22	28	16	34	10	9	9	2	1	1	1	S	3	3	4	1	34	12	24
17	5	6	6	7	4	6	7	9	9	8	9	8	10	9	13	6	4	9	4	S	4	2	4	4	2	13	7	24
18	1	2	5	9	8	15	28	23	26	21	36	25	11	5	4	5	3	3	S	3	3	5	11	10	1	36	11	24
19	11	7	7	12	8	25	17	10	11	11	45	39	12	7	20	13	44	S	20	10	6	3	2	2	2	45	15	24
20	3	6	8	8	7	20	19	22	25	17	9	13	11	8	14	15	S	S1	5	5	5	7	5	3	3	25	11	23
21	2	2	1	1	1	1	1	2	2	C	C	C	C	C	C	C	2	1	1	1	2	3	3	2	1	3	-	24
22	2	3	3	2	3	3	101	23	8	9	12	6	4	3	S	6	4	5	5	8	7	5	4	4	2	101	10	24
23	3	3	2	1	1	1	1	1	1	1	1	1	0	S	1	0	0	0	0	0	1	1	0	11	0	11	1	24
24	13	8	7	2	1	1	3	3	8	19	7	9	S	7	6	7	2	1	2	2	3	4	3	3	1	19	5	24
25	4	3	3	2	5	2	4	3	4	3	3	S	3	2	4	3	6	3	3	3	3	2	4	4	2	6	3	24
26	3	3	5	4	4	7	5	11	8	10	S	15	9	16	11	11	11	8	10	8	6	7	4	2	2	16	8	24
27	1	1	1	1	2	2	2	5	4	S	2	10	6	17	22	5	7	12	2	3	3	3	2	3	1	22	5	24
28	2	13	6	4	5	18	17	24	S	10	35	9	7	4	5	10	1	1	1	23	26	2	2	1	1	35	10	24
29	1	1	1	32	3	3	30	S	6	1	1	7	9	8	16	6	3	2	2	1	1	2	2	2	1	32	6	24
30	3	4	3	2	2	10	S	22	45	9	2	2	3	2	2	2	3	1	1	2	2	2	2	1	1	45	5	24
31	1	1	2	8	5	S	6	4	8	4	6	4	3	6	2	2	3	2	2	3	4	3	2	31	1	31	5	24
HOURLY MAX	42	46	34	50	40	52	101	79	79	61	45	39	39	29	36	29	44	15	20	42	62	56	37	43				
HOURLY AVG	7	8	9	9	8	14	19	19	18	14	12	12	12	10	12	8	7	5	5	7	10	9	8	10				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

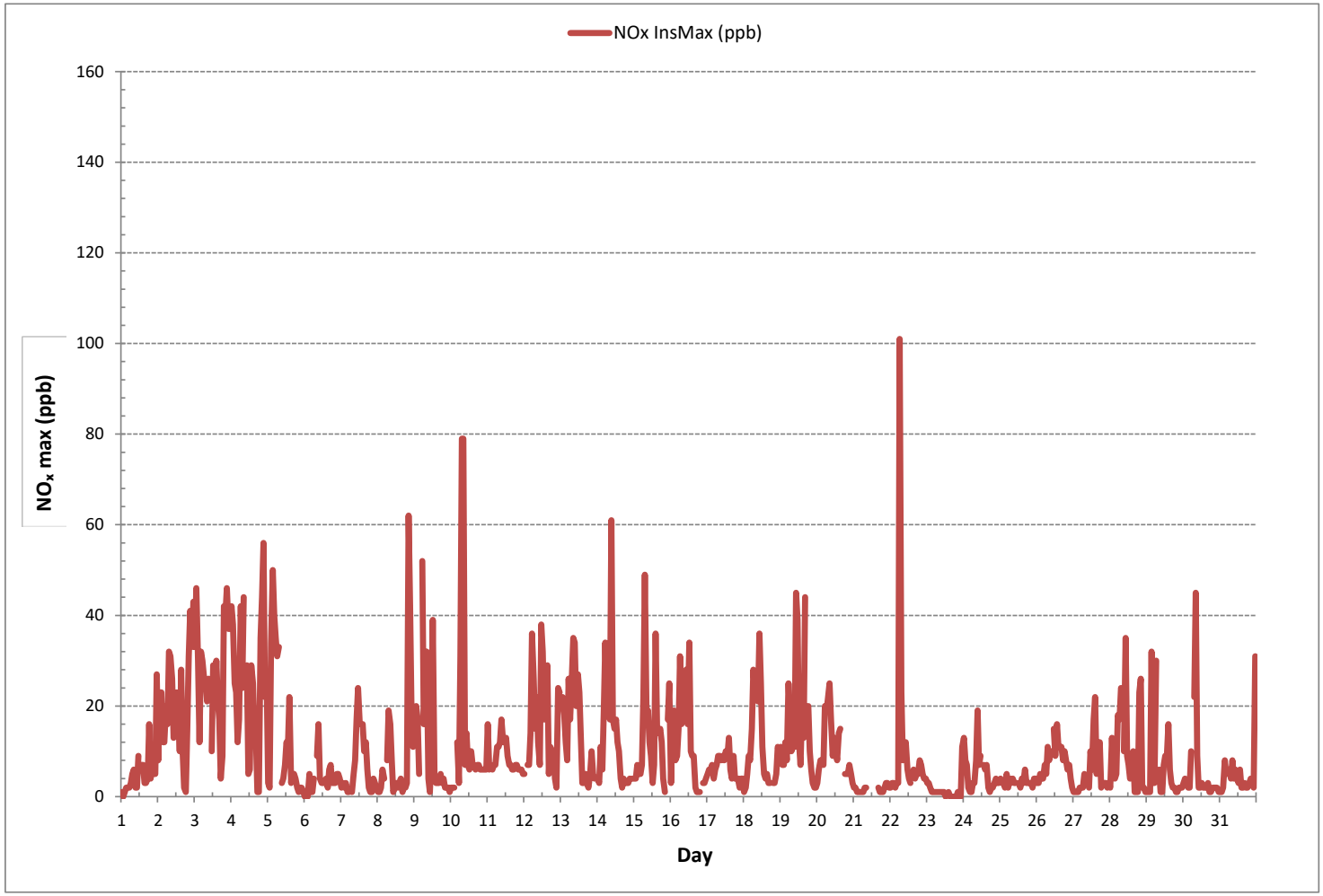
NUMBER OF NON-ZERO READINGS: 694

MAXIMUM INSTANTANEOUS VALUE: 101 ppb @ HOUR 6 ON DAY 22

IZS CALIBRATION TIME: 31 hrs
MONTHLY CALIBRATION TIME: 7 hrs
STANDARD DEVIATION: 12

OPERATIONAL TIME: 743 hrs

OXIDES OF NITROGEN Instantaneous Maximum (NO_x ppb)



NITRIC OXIDE Instantaneous Maximum (NO ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	0	0	0	0	0	0	0	1	2	1	1	5	S	4	3	1	1	0	2	0	7	0	0	4	0	7	1	24
2	0	5	3	1	0	5	5	16	15	12	6	S	12	10	5	13	3	0	0	4	23	11	7	12	0	23	7	24
3	8	15	7	2	8	6	6	6	8	11	S	4	16	9	13	9	6	1	2	10	11	13	10	9	1	16	8	24
4	11	9	5	1	0	5	12	8	19	S	12	2	3	12	10	5	4	0	0	6	10	17	4	12	0	19	7	24
5	0	0	5	13	7	7	5	9	S	1	2	3	7	7	11	1	1	1	0	0	0	0	0	0	0	13	4	24
6	0	0	0	0	0	0	0	S	5	12	1	1	2	1	2	1	2	3	0	0	0	0	0	0	0	12	1	24
7	0	0	0	0	0	0	S	0	2	2	6	9	5	7	5	2	1	0	0	0	0	0	0	0	0	9	2	24
8	0	0	0	0	0	S	0	5	3	1	0	0	1	1	1	1	0	0	0	0	28	16	0	0	0	28	2	24
9	0	0	0	0	S	16	1	9	12	1	0	4	23	1	1	1	1	0	0	0	0	0	0	0	0	23	3	24
10	0	0	0	S	3	0	8	47	74	3	6	2	2	3	2	2	1	0	0	0	0	0	0	0	0	74	7	24
11	5	0	S	0	0	0	1	1	2	5	3	3	4	2	1	2	0	0	0	0	0	0	0	0	0	5	1	24
12	0	S	0	0	1	8	3	2	5	3	4	18	15	7	9	9	1	1	1	0	0	0	0	1	0	18	4	24
13	S	1	2	1	1	2	0	8	14	15	8	12	10	5	1	0	1	0	0	0	0	0	0	S	0	15	4	24
14	0	0	1	0	0	13	0	4	5	39	7	6	7	4	2	1	0	0	0	0	0	0	S	0	0	39	4	24
15	0	0	1	0	0	0	5	25	4	6	3	7	1	2	15	3	2	2	0	0	0	S	10	1	0	25	4	24
16	0	0	0	0	0	1	9	2	8	7	12	6	15	3	3	3	0	0	0	0	S	0	0	0	0	15	3	24
17	0	0	0	0	0	0	1	1	2	2	2	2	3	2	3	1	1	4	0	S	0	0	0	0	0	4	1	24
18	0	0	0	0	0	2	2	5	6	7	15	9	3	1	1	1	0	0	S	0	0	0	0	0	0	15	2	24
19	0	0	0	0	0	5	2	1	2	3	52	27	5	2	6	3	15	S	1	0	0	0	0	0	0	52	6	24
20	0	0	0	0	0	1	1	8	9	5	3	4	3	2	3	4	S	S1	0	0	0	0	0	0	0	9	2	23
21	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	-	24
22	0	0	0	0	0	0	79	11	2	3	4	1	1	1	S	1	0	0	0	0	0	0	0	0	0	79	5	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0	1	0	24
24	0	0	0	0	0	0	0	0	2	7	2	3	S	2	2	1	0	0	0	0	0	0	0	0	0	7	1	24
25	0	0	0	0	1	0	1	1	1	0	1	S	1	0	1	0	3	0	0	0	0	0	0	0	0	3	0	24
26	0	0	0	0	0	2	0	2	3	4	S	4	2	7	4	3	3	1	1	0	0	0	0	0	0	7	2	24
27	0	0	0	0	0	0	0	1	1	S	0	2	4	5	8	1	1	3	0	0	0	0	0	0	0	8	1	24
28	0	1	0	0	0	3	5	10	S	3	21	3	2	2	1	4	0	0	0	9	4	0	0	0	0	21	3	24
29	0	0	0	5	0	0	12	S	2	0	0	2	3	3	5	1	1	0	0	0	0	0	0	0	0	12	1	24
30	0	0	0	0	0	1	S	7	18	4	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	18	1	24
31	0	0	0	0	0	S	0	1	2	1	2	1	1	2	0	0	0	0	0	0	0	0	0	5	0	5	1	24
HOURLY MAX	11	15	7	13	8	16	79	47	74	39	52	27	23	12	15	13	15	4	2	10	28	17	10	12				
HOURLY AVG	1	1	1	1	1	3	5	7	8	6	6	5	5	4	4	2	2	1	0	1	3	2	1	2				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

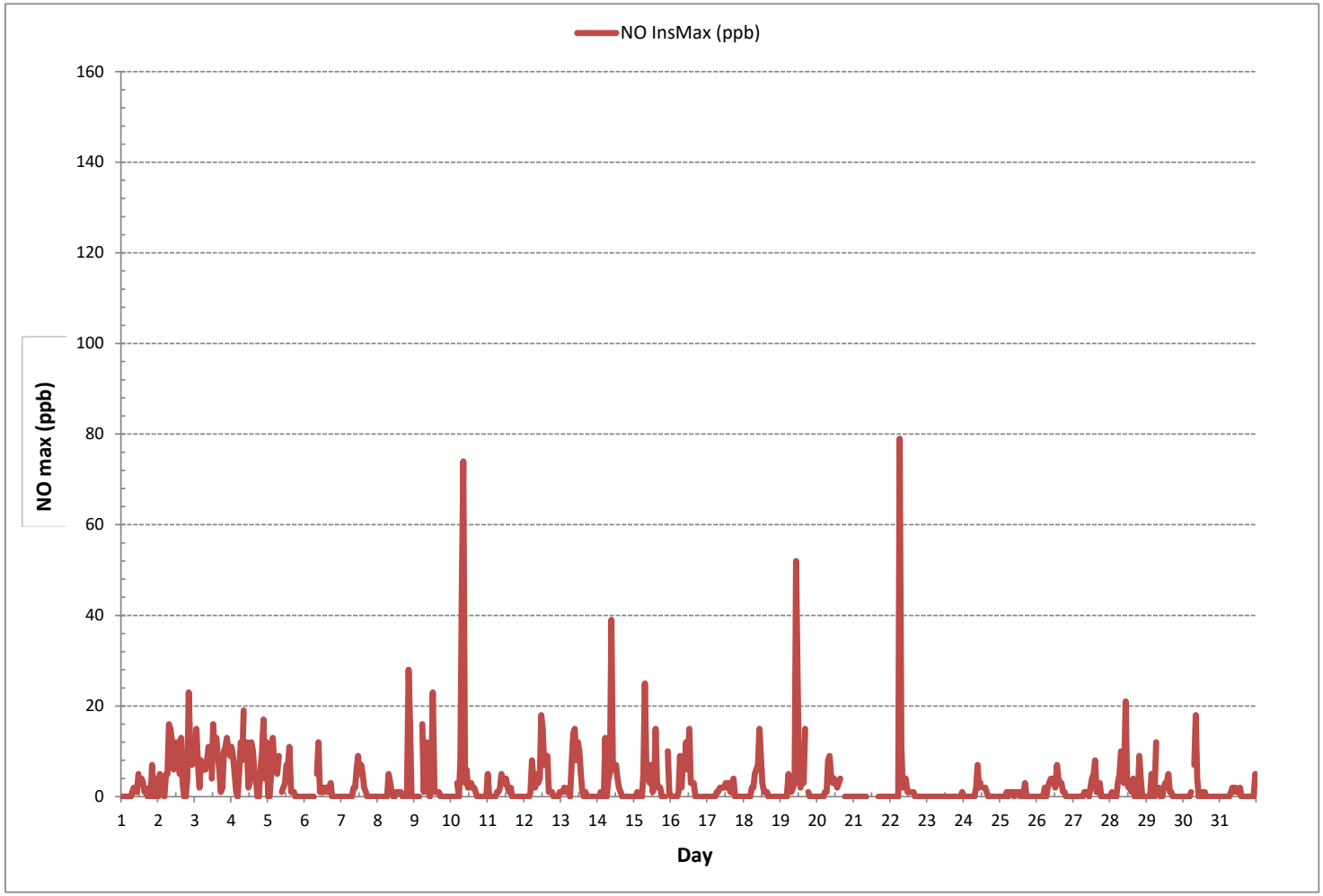
NUMBER OF NON-ZERO READINGS: 347

MAXIMUM INSTANTANEOUS VALUE: 79 ppb @ HOUR 6 ON DAY 22

IZS CALIBRATION TIME: 31 hrs
MONTHLY CALIBRATION TIME: 7 hrs
STANDARD DEVIATION: 6

OPERATIONAL TIME: 743 hrs

NITRIC OXIDE Instantaneous Maximum (NO ppb)



NITROGEN DIOXIDE Instantaneous Maximum (NO_2 ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	1	1	1	2	2	2	3	4	4	2	1	4	S	3	4	2	3	4	14	4	8	5	5	23	1	23	4	24
2	8	18	20	12	12	15	15	16	17	14	6	S	11	10	5	16	7	2	1	11	9	31	26	31	1	31	14	24
3	25	31	23	10	24	24	22	22	15	17	S	6	14	11	17	13	12	3	7	32	30	34	27	28	3	34	19	24
4	33	29	20	23	12	16	30	17	26	S	17	3	4	17	16	9	8	1	1	30	34	39	19	14	1	39	18	24
5	3	2	29	37	32	27	28	25	S	3	3	4	5	6	11	2	4	4	4	2	1	2	2	1	1	37	10	24
6	0	0	0	4	1	1	3	S	5	4	2	2	2	1	2	2	5	5	3	4	3	5	5	4	0	5	3	24
7	2	3	2	3	1	1	S	1	4	5	11	15	11	11	11	7	10	6	2	1	1	4	3	2	1	15	5	24
8	1	1	2	6	4	S	8	15	15	7	1	1	2	2	3	3	1	3	2	3	35	32	18	11	1	35	8	24
9	16	19	16	5	S	37	16	20	20	3	1	5	17	3	2	2	3	5	3	4	2	2	2	1	1	37	9	24
10	2	2	2	S	9	4	23	33	15	4	8	5	5	7	5	6	6	6	7	6	6	6	6	6	2	33	8	24
11	13	6	S	6	7	7	10	10	10	12	9	9	10	7	6	6	6	6	7	7	6	6	6	5	5	13	8	24
12	5	S	7	7	13	28	24	14	18	9	4	20	18	11	14	20	4	10	9	10	4	2	24	23	2	28	13	24
13	S	21	17	12	8	25	16	18	21	20	12	15	13	8	2	2	4	3	2	5	10	5	4	S	2	25	11	24
14	4	3	10	6	19	24	21	14	12	23	10	9	10	8	7	3	2	4	3	3	3	4	S	4	2	24	9	24
15	4	4	5	5	5	7	17	25	12	13	9	5	2	5	20	12	12	13	12	4	1	S	9	25	1	25	10	24
16	3	17	19	8	9	14	23	14	13	16	17	10	19	7	6	6	1	1	1	1	S	3	3	4	1	23	9	24
17	5	6	6	7	4	5	6	8	7	6	7	7	8	7	10	5	4	6	4	S	3	2	4	4	2	10	6	24
18	1	2	4	9	8	14	26	19	20	14	22	16	8	4	3	4	3	3	S	3	3	5	10	10	1	26	9	24
19	11	7	7	11	7	20	16	9	10	8	12	19	8	5	14	10	30	S	19	10	6	3	2	2	2	30	11	24
20	3	5	8	8	7	19	19	18	17	12	6	9	8	6	11	12	S	S1	5	5	5	7	5	3	3	19	9	23
21	2	2	1	1	1	1	1	2	2	C	C	C	C	C	C	C	1	1	1	1	2	3	3	2	1	3	-	24
22	2	3	3	2	3	3	23	13	6	6	8	4	3	3	S	5	3	5	5	8	7	5	4	4	2	23	6	24
23	3	3	2	1	1	1	1	1	1	1	1	1	1	S	1	0	0	1	0	0	1	1	0	11	0	11	1	24
24	13	8	7	2	1	1	3	3	6	12	5	6	S	5	4	5	2	1	2	2	3	4	3	3	1	13	4	24
25	4	3	3	2	4	2	3	2	3	2	3	S	2	2	3	3	4	3	3	3	3	3	4	4	2	4	3	24
26	4	3	5	4	4	6	5	9	6	7	S	12	6	9	8	8	8	7	9	7	6	7	4	2	2	12	6	24
27	1	1	1	1	2	2	2	4	3	S	2	8	2	12	14	4	5	10	2	3	3	3	2	3	1	14	4	24
28	2	12	6	4	5	15	12	14	S	7	16	6	5	2	4	6	1	1	1	16	23	2	2	2	1	23	7	24
29	1	1	1	27	3	3	18	S	5	1	1	5	6	6	11	4	3	2	2	2	1	2	3	3	1	27	5	24
30	3	4	3	3	2	8	S	15	26	5	2	1	2	2	2	2	2	1	1	2	2	2	2	1	1	26	4	24
31	1	2	2	8	5	S	6	4	6	3	4	3	2	3	2	2	3	2	2	3	5	3	2	26	1	26	4	24
HOURLY MAX	33	31	29	37	32	37	30	33	26	23	22	20	19	17	20	20	30	13	19	32	35	39	27	31				
HOURLY AVG	6	7	8	8	7	11	14	13	11	8	7	8	7	6	8	6	5	4	4	6	8	8	7	9				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 697

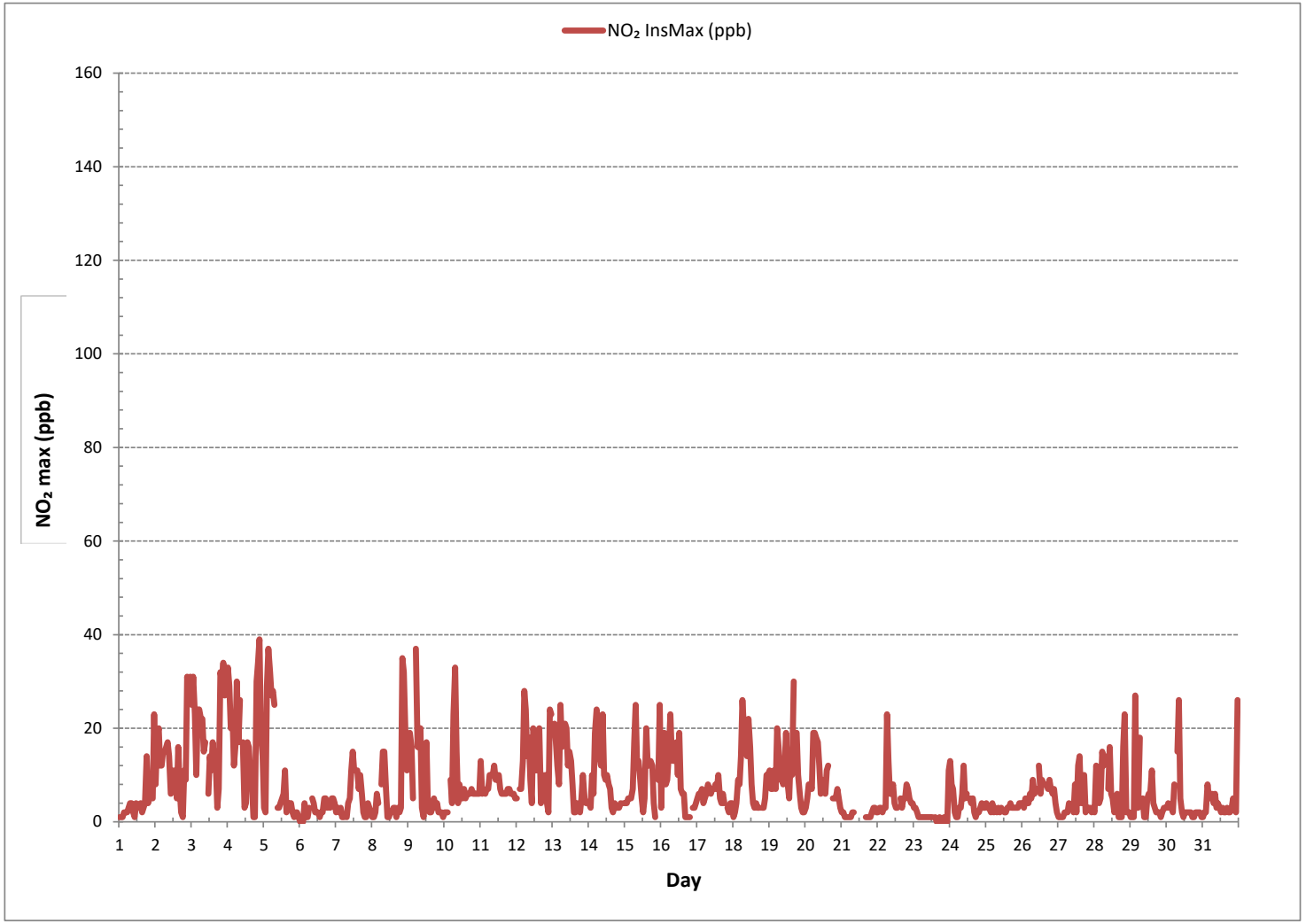
MAXIMUM INSTANTANEOUS VALUE: 39 ppb @ HOUR 21 ON DAY 4

VAR-VARIOUS

IZS CALIBRATION TIME: 31 hrs
MONTHLY CALIBRATION TIME: 7 hrs
STANDARD DEVIATION: 8

OPERATIONAL TIME: 743 hrs

NITROGEN DIOXIDE Instantaneous Maximum (NO_2 ppb)



WIND SPEED Instantaneous Maximum (WS kph)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	9.1	7.1	9.9	9.5	10.8	10.2	10.3	9.5	11.5	15.7	11.6	10.8	12.0	13.6	14.2	14.9	10.1	11.5	6.7	4.6	5.2	4.4	5.2	4.7	4.4	15.7	9.7	24
2	5.9	7.1	5.5	6.8	7.5	6.3	9.6	10.3	8.9	10.8	11.3	11.5	12.8	16.1	12.8	12.5	13.8	11.9	10.9	13.3	11.7	10.4	9.2	9.2	5.5	16.1	10.3	24
3	12.1	11.8	9.8	9.9	11.1	12.0	10.4	10.5	9.7	10.3	10.2	12.8	11.3	15.1	12.7	13.2	13.7	12.9	13.9	12.6	9.5	8.2	13.2	12.8	8.2	15.1	11.6	24
4	11.1	8.4	4.8	6.1	8.1	7.8	9.4	11.0	11.8	10.2	11.3	14.5	16.3	13.0	14.9	14.1	13.8	12.4	10.0	8.8	9.0	12.0	11.8	9.9	4.8	16.3	10.8	24
5	7.9	6.6	6.7	7.2	7.3	8.8	7.9	10.2	10.3	11.5	12.2	11.4	11.4	11.9	9.7	13.8	14.0	11.0	10.7	9.2	8.0	3.0	4.8	6.0	3.0	14.0	9.2	24
6	8.3	10.2	7.2	8.0	7.4	7.1	6.1	4.6	8.1	8.4	9.3	8.6	8.7	10.0	8.7	8.8	8.8	7.9	4.4	4.5	9.5	8.2	8.7	6.9	4.4	10.2	7.8	24
7	5.0	4.4	3.7	2.8	3.0	3.3	2.5	3.4	7.5	7.6	4.8	5.1	7.0	7.4	6.5	5.6	5.5	5.6	2.8	2.1	2.6	1.5	1.3	3.1	1.3	7.6	4.3	24
8	2.6	2.5	1.2	1.2	3.8	3.4	1.2	1.8	2.0	3.5	5.6	7.5	7.8	11.5	9.1	9.2	7.9	5.5	4.1	2.7	5.1	4.7	4.6	4.3	1.2	11.5	4.7	24
9	4.9	2.9	3.2	3.1	2.3	3.0	3.5	3.7	3.8	7.0	8.5	7.2	8.7	8.2	7.7	9.4	9.0	8.8	4.2	4.0	3.7	2.2	2.7	1.5	1.5	9.4	5.1	24
10	1.4	1.8	1.5	1.3	1.3	1.0	1.5	1.8	1.4	8.7	9.6	13.0	16.4	15.3	13.2	12.9	13.9	10.1	12.2	14.0	10.5	9.4	9.2	10.5	1.0	16.4	8.0	24
11	11.4	10.5	10.5	5.7	6.0	9.3	8.7	10.1	8.2	8.1	9.3	10.0	11.2	12.3	11.6	10.2	9.7	10.8	8.0	8.4	6.4	3.0	4.5	3.0	3.0	12.3	8.6	24
12	2.1	3.7	3.9	5.1	5.1	3.9	5.7	2.7	7.3	11.8	15.2	12.9	14.3	15.6	12.8	12.6	10.2	9.3	3.2	6.0	6.2	7.8	7.6	5.4	2.1	15.6	7.9	24
13	5.5	5.2	3.7	2.7	3.8	2.7	3.3	4.0	6.2	7.7	7.2	8.0	11.3	10.9	8.2	6.6	6.8	11.2	9.9	6.1	4.4	4.8	3.3	3.9	2.7	11.3	6.1	24
14	4.2	3.7	4.8	5.5	4.1	4.4	2.7	2.6	4.3	4.4	6.4	8.2	11.4	9.7	7.9	10.8	9.2	9.0	6.4	5.9	7.0	5.5	5.2	5.3	2.6	11.4	6.2	24
15	4.5	8.0	7.9	9.2	5.9	4.6	4.8	6.0	7.5	6.8	11.2	13.8	15.4	12.6	12.3	15.0	13.0	10.7	5.5	5.4	5.9	8.5	10.1	7.5	4.5	15.4	8.8	24
16	6.8	4.4	6.0	4.6	4.3	4.4	4.6	7.5	8.2	7.6	10.2	6.6	11.3	10.5	11.6	10.7	10.6	7.7	3.9	1.9	3.0	2.6	3.8	3.3	1.9	11.6	6.5	24
17	3.8	5.1	7.2	6.2	5.7	7.8	10.6	10.0	10.4	9.4	9.3	9.2	10.4	10.1	11.3	13.2	10.4	11.3	5.4	5.4	7.5	6.0	7.3	8.3	3.8	13.2	8.4	24
18	9.4	6.2	5.6	3.6	3.2	2.4	3.5	4.4	5.7	4.7	5.1	7.3	6.8	9.8	11.0	10.0	9.0	9.0	8.9	9.3	9.1	8.0	6.0	5.4	2.4	11.0	6.8	24
19	6.1	5.0	4.0	4.4	3.7	4.3	4.8	7.6	5.3	8.0	8.4	9.0	9.0	11.7	11.2	10.2	11.1	7.9	3.9	3.4	4.1	4.3	2.1	2.1	2.1	11.7	6.3	24
20	5.4	5.0	5.4	3.6	1.4	1.8	2.4	4.8	6.1	4.4	7.5	9.3	10.2	9.3	10.0	9.8	9.5	9.1	4.9	4.0	1.1	6.5	4.7	4.7	1.1	10.2	5.9	24
21	5.4	4.6	4.4	4.1	3.0	5.0	5.0	5.8	5.3	11.9	11.9	11.7	10.6	12.7	12.9	12.5	12.6	10.7	9.6	9.8	8.3	4.3	4.4	4.0	3.0	12.9	7.9	24
22	3.2	3.4	3.4	3.7	2.1	1.5	1.7	2.6	4.0	4.6	6.2	9.7	11.2	9.2	8.5	7.1	9.4	5.5	5.0	3.6	2.3	1.7	3.6	3.9	1.5	11.2	4.9	24
23	3.2	4.7	6.1	8.0	9.0	9.5	9.9	10.1	10.7	12.1	15.1	13.8	16.9	17.2	17.3	16.1	17.9	15.9	15.2	15.2	11.3	5.6	6.4	5.6	3.2	17.9	11.4	24
24	5.4	5.0	4.6	4.7	5.2	4.2	2.3	5.0	4.6	5.6	5.1	6.1	8.6	8.5	6.7	8.2	7.3	7.9	7.6	7.7	6.0	6.0	5.9	5.5	2.3	8.6	6.0	24
25	7.8	9.6	10.1	7.6	7.2	8.2	10.6	8.6	6.3	7.7	8.2	7.3	7.0	12.0	14.7	12.7	11.1	12.5	10.0	7.8	7.2	9.3	11.7	8.4	6.3	14.7	9.3	24
26	7.2	8.0	6.5	6.7	6.1	2.9	1.4	4.0	4.0	4.3	4.2	4.3	3.7	4.4	3.9	6.6	8.0	5.6	6.6	3.1	2.6	4.4	4.8	6.0	1.4	8.0	5.0	24
27	6.2	11.2	14.8	11.9	9.5	15.6	11.2	8.7	12.1	11.8	13.9	10.6	11.8	12.3	13.5	14.2	12.4	9.9	5.6	2.5	2.5	2.6	1.3	2.3	1.3	15.6	9.5	24
28	1.5	1.9	1.8	1.7	1.1	1.9	2.5	5.9	6.8	9.9	10.5	11.4	14.1	13.6	16.9	15.5	15.9	15.8	10.6	7.9	9.3	10.3	5.7	9.9	1.1	16.9	8.4	24
29	6.5	4.7	3.4	6.1	4.2	3.6	3.2	6.5	10.8	10.0	10.2	9.5	8.3	9.0	7.4	8.8	7.8	10.3	7.9	6.1	5.4	5.6	7.6	7.7	3.2	10.8	7.1	24
30	8.2	7.1	7.9	7.5	3.0	4.3	4.2	6.7	8.6	12.4	15.5	22.2	21.3	**22.4**	21.4	17.1	17.8	18.0	14.9	7.7	3.6	11.5	6.9	5.3	3.0	**22.4**	11.5	24
31	1.6	1.3	1.8	1.0	1.7	1.5	1.7	3.7	4.1	5.9	6.6	10.8	10.7	13.6	13.1	10.6	9.9	9.2	5.6	5.6	3.4	5.1	8.5	12.7	1.0	13.6	6.2	24
HOURLY MAX	12.1	11.8	14.8	11.9	11.1	15.6	11.2	11.0	12.1	15.7	15.5	22.2	21.3	22.4	21.4	17.1	17.9	18.0	15.2	15.2	11.7	12.0	13.2	12.8				

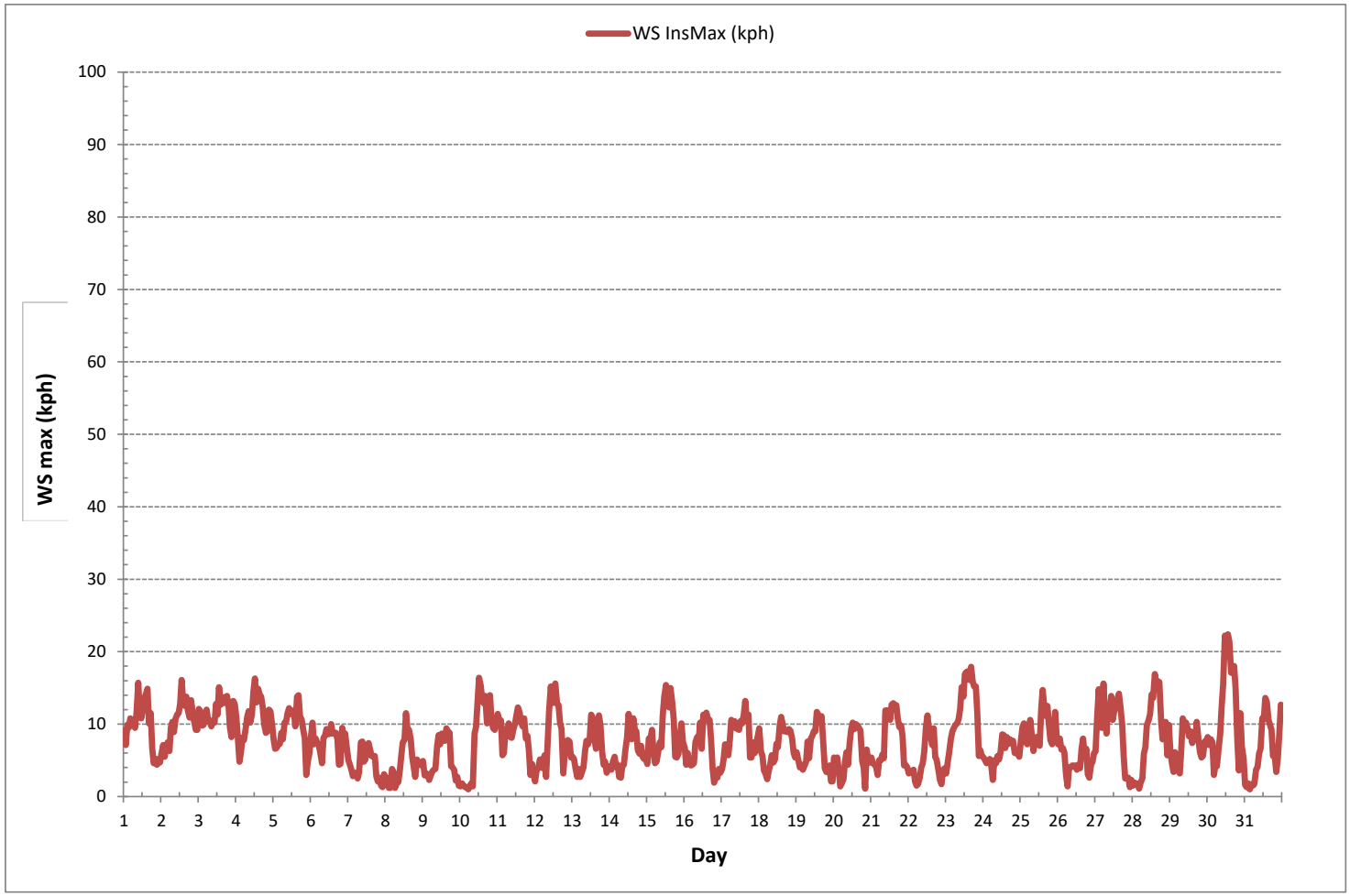
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	22.4	kph	@ HOUR	13	ON DAY	30
OPERATIONAL TIME:					744	hrs

WIND SPEED Instantaneous Maximum (WS kph)



1.0 Quality Control Activities

Quality control procedures are established to govern the performance of the monitoring equipment and to protect operational uptime. Data collected during QC/QA activities are assigned a data validation code to comply with the requirements outlined in Chapter 6, 4.1.1, DQ 4-A (AMD, 2016). Calibrations are deemed successful only if the AMD calibration acceptance limits are met (Chapter 7, 9.0, AMD 2016).

A daily zero-span test procedure is performed for each gaseous parameter by challenging the analyzer with a zero-air source and span gas. Daily review of the data ensures the zero and span check are within the required acceptance limits and do not deviate more than ±10% from the expected value. The total zero-span cycle is complete within an hour with the zero phase commencing at the beginning of the scheduled hour. This QC activity is conducted in accordance with Chapter 7, 4.0, Cal 4-A (AMD, 2016).

The allowable time for a zero-span check is one hour per calendar day. The time allotted for the zero-span check does not contribute to downtime and is identified with a data validation code of "S". If any additional zero-span response checks are performed, the time accrued during the QC activity is considered downtime and is identified with a data validation code of "S1". The initiation of an additional zero-span check may be warranted during the investigation of operational issues or suspect data.

Each month, a scheduled multipoint calibration is performed on each gas analyzer. Prior to any adjustments, an as-found response test is completed to obtain the zero reading of the analyzer and the response to the highest span concentration. The zero and high point test gases are then re-introduced into the analyzer to establish the zero and high set-points. Once these adjustments are satisfactory, a mid-point and a low-point test concentration is introduced. Additional multi-point calibrations are required if any of the conditions, outlined in Chapter 7, 2.1, Cal 2G (AMD, 2016) exist.

The time allotted for the first multi-point calibration is not considered downtime and is identified with a data validation code of "C". If any additional as-found response checks or multipoint calibrations are performed, the time accrued during the QC activity is considered downtime and is identified with a data validation code of "C1".

A mechanical wind system undergoes annual calibration, as a minimum, while an ultrasonic wind system is factory calibrated every two years (Chapter 6, 6.0, Cal 6-A, AMD 2016). Supplementary to this, a visual inspection of the equipment is performed during each scheduled monthly site visit.

The time allotted for the wind system calibration is not considered downtime and is identified with a data validation code of "C". If function checks or additional calibrations are performed, the time accrued during the QC activity is not considered downtime and is identified with a data validation code of "Q" and "C", respectively. If QC activity goes beyond 10% of the monthly operating time, the time exceeding 10% is considered downtime and is assigned a data validation code of "C1". Data identified with a data validation code of "Q" is in accordance with Chapter 6, 4.1.3 (AMD, 2016) which states QA/QC activities are not included when calculating data completeness.

High volume samplers are calibrated every three months, as a minimum, in accordance with Chapter 7, 7.0, Cal 7-B (AMD, 2016).

Where passive sampling is in practice, quality control samples will be deployed in accordance with Chapter 4, 3.0, 3.1.3. Method blanks, replicate samples and spiked blanks are exposed and handled in the same manner as each passive sample. To comply with the data submission requirements in Chapter 9, 3.1, the replicate and corresponding passive sample concentrations are reportable data values and have not been averaged.

As recommended in Chapter 6, 4.2 (AMD 2016), daily data review is conducted to verify data and avoid significant data losses. Automated flags, originating from the data-logger, and data anomalies are reviewed and may prompt the need to dispatch a technician for investigation and/or corrective action. Additionally, there are several automated alarm scenarios that serve to screen raw data, alert technicians and elicit investigation or corrective action.

Comparisons of the measured ambient concentrations to the corresponding AAAQO are assessed using the significant figures protocol in Chapter 9, 3.1.2. If the measurement is near the set objective, raw data may undergo necessary data adjustments to confirm a true exceedance. Should an exceedance occur, Maxxam will formally notify the client; however, the reporting protocol to AEP is defined by the client and may not involve Maxxam. Exceedance events are acknowledged in the report, based on the information available at the time.

2.0 Data Verification and Validation

The data validation procedures, outlined in Chapter 6, 4.0, AMD 2016, are used to accept, reject and qualify data. The data verification and validation process, and the current Data Collection and Management Process Flow Chart have been compiled from sections 4.2 to 4.6 (AMD, 2016) and are shown below.

Baseline adjustments are applied by interpolation between two valid zero checks, as determined by the Data Acquisition System. In the event that zero check results are not reliable, data may be adjusted by applying a constant offset to data collected between two adjacent zero checks. Both adjustment approaches are deemed acceptable by the AMD.

Table 1 (Chapter 6) outlines the quantitative parameter relationships to be considered and dictates that data adjustments are applied equally for NO/NO_2/NOx and CH_4/NMHC/THC parameters. Below zero adjustments are applied to 1-hour averages, in accordance with Table 2 (Chapter 6), and are done after baseline corrections.

Instantaneous data, where provided, is provided for reference purposes and has not undergone zero correction. The minimum and maximum statistics are highlighted in the data table and are for reference only. The highlighted cells are based on the software's interpretation of the exact position of the minimum or maximum value. The visual presentation of these statistics may not be the obvious choice in a data range due to rounding, truncating or analyzer specifications.

All calculations and reporting of results follow the methods described in the AMD, 2016.

There were no deviations from the prescribed methods.

AMD Data Verification and Validation Process

The following steps were used to complete the data verification and validation process:

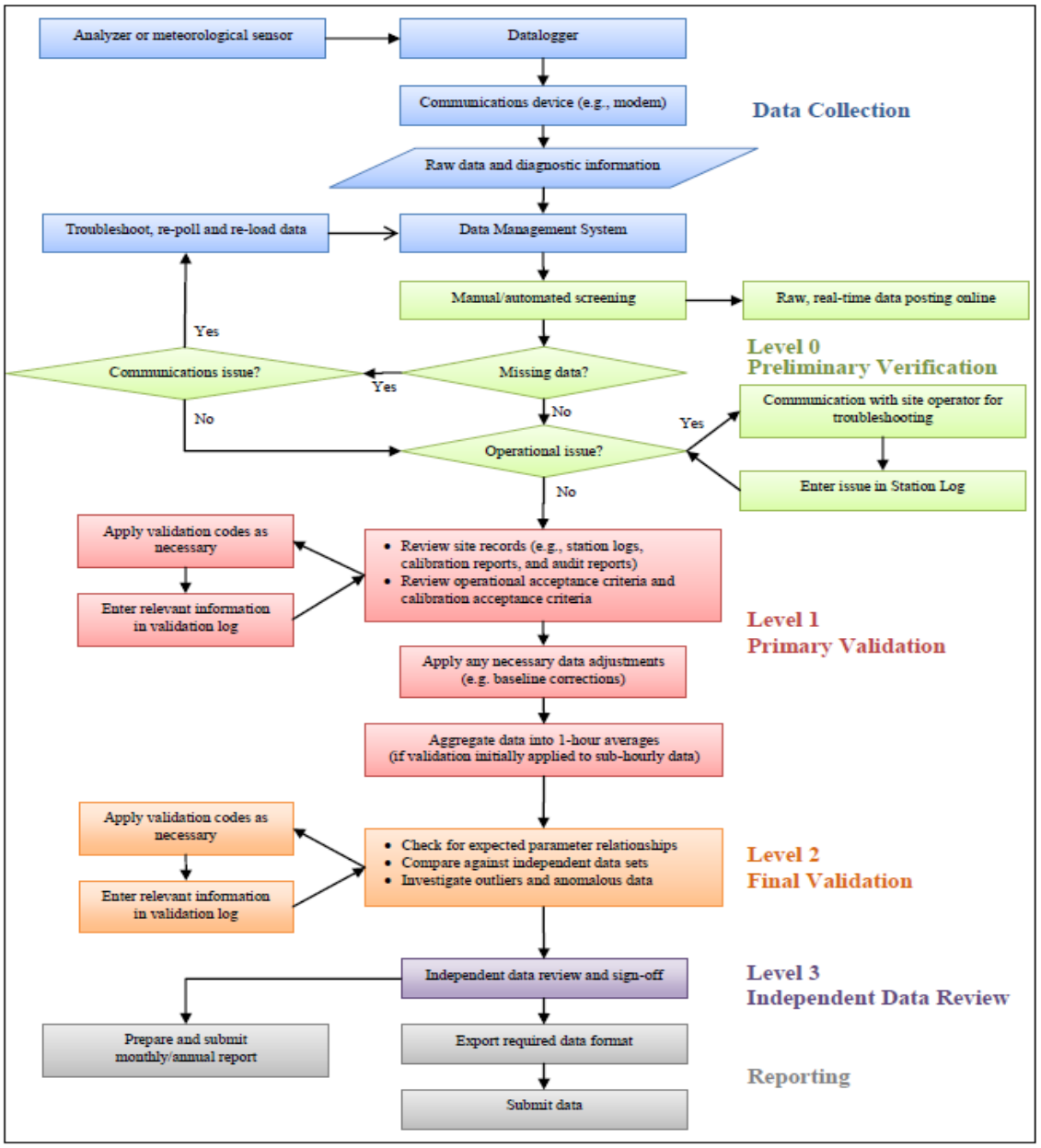
Level 0 Preliminary Verification	Level 0 data are raw data obtained directly from the data acquisition system (DAS). At this level, data undergoes a certain amount of manual or automated screening and flagging. Screening checks include: a) identification of periods of missing data; b) verification of time stamps against reference time; c) verification that instrument diagnostics/data-logger flags indicate normal operation; d) comparison of data to upper and lower limits; e) rate of change flagging indicating that data changed too rapidly or not at all; and f) verification that zero, span and multipoint performance checks are within specifications. This level of verification is performed on a daily basis.

Level 1 Primary Validation	Primary validation involves more thorough evaluation and documentation of issues identified during data screening, along with appropriate application of data validation codes. Level 1 activities include: a) review of all screening flags assigned during preliminary verification; b) review of all supporting site information and documentation; c) review of operational acceptance limits for each parameter/analyzer; d) review of daily zero/span and monthly calibration results for all gaseous parameters; and e) application of any necessary adjustments to data (e.g. baseline adjustments, below zero adjustments). This level of validation is performed on a monthly basis.

Level 2 Final Validation	The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites. At this level of review, some general knowledge of pollutant and meteorological behavior can be used to determine if data is suspect.

Level 3 Independent Data Review	Level 3 validation involves a final cursory review of validated data, and is completed by an individual independent of both field operations and primary data validation. At this level, a final independent QA review/endorsement is performed before data is submitted to Alberta Environment and Parks.

Post-Final Validation	The Post-Final Validation step serves to re-evaluate validated data for errors or omissions discovered and/or suspected after the initial monthly data submittal. This level of validation is performed on an annual basis, when annual reporting is required or requested.



Source: Air Monitoring Directive (December 2016), Chapter 6, Ambient Data Quality
Figure 1 Data Collection and Management Process Flow Chart

Validation Certificate Form

Client: Lakeland Industry & Community Association	**Project #:** 2833-2019-03-24-C
Site: Maskwa Continuous Monitoring Station	**Contact:** Mike Bisaga

Level 0 Preliminary Verification	bimadeniji	**Date**	09-Apr- 2019
Level 1 Primary Validation	bimadeniji	**Date**	09-Apr- 2019
Level 2 Final Validation	bimadeniji	**Date**	10-Apr- 2019
Level 3 Independent Data Review	[illegible]	**Date**	18-Apr- 2019
Post-Final Validation	**NA**	**Date**	**NA**

Notes
The Post-Final Validation step serves to re-evaluate the data that errors or omissions are discovered and/or suspected after the initial submittal of data. This validation is performed on an annual basis.

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MARCH 1 - 31, 2019
MONTHLY AMBIENT AIR QUALITY MONITORING REPORT
Project #: 2833-2019-03-25-C
LICA-201903

Prepared for:

Lakeland Industry & Community Association

Mike Bisaga

5107 50 St.

Bonnyville, Alberta T9N 2J7

monitoring@lica.ca

780-266-7068

Monitoring Station

St. Lina Continuous Monitoring Station

Date of Report Issuance: April 23, 2019

Report Preparation By:

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bimadeniji

Project Manager, Customer Service, Air Services

Reviewed By:

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Project Team Lead, Customer Service, Air Services

Maxxam
A Bureau Veritas Group Company

#1 - 2080 39 Avenue NE, Calgary AB, T2E 6P7

Lakeland Industry & Community Association

5107 50 St.

Bonnyville, Alberta T9N 2J7

Attention: Mike Bisaga

Date: April 23, 2019

Subject: MONTHLY AMBIENT AIR QUALITY MONITORING REPORT for MARCH 1 - 31, 2019

In March 2019, Maxxam Analytics was contracted to manage the ambient air quality monitoring and maintenance activities at the St. Lina Continuous Monitoring Station near St. Lina, Alberta. The monitoring program provides measurements of ambient air pollutants and meteorological data to satisfy the reporting requirements of the Alberta airshed.

Network Parameters for Continuous Monitoring:

This monthly report, where applicable, was prepared in accordance with Chapter 9 of the Air Monitoring Directive (AMD, 2016). The report summarizes the continuous monitoring results for pollutant and meteorological parameters and presents the hourly statistics, graphs and rose charts for the month. Calibration records are provided in a separate PDF document in order to comply with AMD requirements Chapter 9, 13.1.7, RC 13-R. The station is equipped with analyzers to measure SO_2, H_2S, THC, CH_4, NMHC, NOx, NO, NO_2, $PM_{2.5}$ and O_3. The meteorological sensors and equipment capture data for WS, WD, RH, BP, PRECIP, AmbTPX and STDWD.

Exceedance & Performance Reporting:

The operational time for all continuous ambient air analyzers, meteorological systems and data acquisition systems were above the 90% requirement, as per the AMD, Chapter 6, DQ 4-C, 2016.

Comparisons of the measured ambient air concentrations to the corresponding AAAQOs were done in accordance with Appendix A, Alberta Ambient Air Quality Objective Calculation Guidelines (AMD, Chapter 9, Appendix A, 2016). For O_3, there were concentrations recorded in excess of the Alberta Ambient Air Quality Objectives and Guidelines (AAAQO, January 2019). Four 1-hour exceedances were recorded and reported to AEP under reference number: 350886.
For all the remaining parameters, there were no ambient concentrations in excess of the AAAQOs.

Monthly Monitoring Overview:

In relation to the previous month, there were no changes made to the scope or management of the ambient air monitoring program.

The evaluation of data collected in the month of March did not reveal any errors or omissions that would require resubmission of air data to AEP's airdata warehouse.

During this monitoring period, there were no scheduled audits that Maxxam Analytics was privy to.

H_2S: Six hours of downtime were recorded during the month, due to additional quality checks and proactive measures performed to assure span response.

NOx/NO/NO_2: Four hours of downtime were recorded between March 23 and March 25, due to additional quality checks performed to assess a biased low drift in span response.

Should you have any questions concerning the results or if we can be of further assistance, please contact your Maxxam representative indicated below.

Reviewed by:

Wunmi Adekanmbi, M.Sc., EPt, PMP

Project Team Lead, Customer Service, Air Services

403-219-3661

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. Certification of submitted information is specific to the contents of this report and is not intended to represent the onus of the Person Responsible, as outlined in Chapter 9, RC 12-E.

TABLE OF CONTENTS

List of Acronyms

AAAQO	Alberta Ambient Air Quality Objectives and Guidelines Summary
AEP	Alberta Environment and Parks
AMBTPX	Ambient Temperature
AMD	Air Monitoring Directive
BP	Barometric Pressure
CH_4	Methane
DAS	Data acquisition system
ESRD	Environment and Sustainable Resource Development
ET	External temperature
GPT	Gas Phase Titration
hr	Hour
hrs	Hours
HVAC	Heating, ventilation and Air Conditioning
H_2S	Hydrogen Sulphide
IZS	Internal zero-span
kph	Kilometers per hour
NO	Nitric Oxide
NO_2	Nitrogen dioxide
NOx	Total oxides of nitrogen
O_3	Ozone
NAPS	National Air Pollution Surveillance Program
NMHC	Non-Methane Hydrocarbon
PAH	Polycyclic Aromatic Hydrocarbons
$PM_{2.5}$	Particulate matter less than or equal to 2.5 microns in diameter
PM_{10}	Particulate matter between 2.5 and 10 microns in diameter
Precip	Precipitation
ppb	Parts per billion
ppm	Parts per million
PUF	Poly-Urethane Foam
QA	Quality Assurance
QC	Quality Control
RH	Relative Humidity
SHARP	Synchronized Hybrid Ambient Real-time Particulate Monitor
SOP	Standard Operating Procedure
SO_2	Sulphur Dioxide
STDWD	Standard Deviation Wind Direction
STNTPX	Station Temperature
TEOM	Tapered Element Oscillating Microbalance
THC	Total hydrocarbons
TSP	Total Suspended Particulate
$\mu g/m^3$	Microgram per cubic meter
VOC	Volatile Organic Compounds
WS	Wind Speed
WD	Wind Direction
°C	Degrees Celsius

AAAQO Exceedance Summary Report

SO_2 1-Hour Exceedances

Measured concentrations of sulphur dioxide were below the 1-hour AAAQO of 172 ppb.

SO_2 24-Hour Exceedances

Measured concentrations of sulphur dioxide were below the 24-hour AAAQO of 48.0 ppb.

H_2S 1-Hour Exceedances

Measured concentrations of hydrogen sulphide were below the 1-hour AAAQO of 10 ppb.

H_2S 24-Hour Exceedances

Measured concentrations of hydrogen sulphide were below the 24-hour AAAQO of 3 ppb.

NO_2 1-Hour Exceedances

Measured concentrations of nitrogen dioxide were below the 1-hour AAAQO of 159 ppb.

$PM_{2.5}$ 1-Hour Exceedances

Measured concentrations of fine particulate matter were below the 1-hour AAAQG of 80 µg/m³.

$PM_{2.5}$ 24-Hour Exceedances

Measured concentrations of fine particulate matter were below the 24-hour AAAQO of 29 µg/m³.

O_3 1-Hour Exceedances

DATE	TIME (MST)	READING (ppb)	WS (kph)	WD (deg)	AEP Reference #
March 20	15	77.7	14.3	SW	350886
March 20	16	79.1	16.3	SW	350886
March 20	17	79.4	15.8	SW	350886
March 20	18	77.3	11.9	SW	350886

In accordance with EPEA and the Substance Release Regulation
In accordance with A Guide to Release Reporting and the Alberta Ambient Air Quality Objectives and Guidelines Summary

MONTHLY CONTINUOUS DATA SUMMARY

Lakeland Industry & Community Association St. Lina Continuous Monitoring Station						MAXIMUM VALUES							OPERATIONAL TIME (%)
						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDANCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (kph)	WIND DIRECTION (sector)	READING	DAY	
	1-hr	24-hr	1-hr	24-hr									
SO_2 (ppb)	172	48	0	0	0	5	18	19	13.5	SW	2	20	100.0
H_2S (ppb)	10	3	0	0	0	0	1	0	12.3	NNE	0	1	99.2
THC (ppm)	-	-	-	-	2.02	2.57	23	4	12.5	NE	2.13	7	100.0
CH_4 (ppm)	-	-	-	-	2.02	2.57	23	4	12.5	NE	2.13	7	100.0
NMHC (ppm)	-	-	-	-	0.00	0.01	2	12	16.0	NW	0.00	1	100.0
NO_2 (ppb)	159	-	0	-	2	19	23	4	12.5	NE	6	11	99.5
NO (ppb)	-	-	-	-	0	3	20	8	12.4	SW	1	20	99.5
NOx (ppb)	-	-	-	-	3	19	23	4	12.5	NE	7	11	99.5
O_3 (ppb)	76	-	4	-	45.2	79.4	20	17	15.8	SW	63.4	20	100.0
$PM_{2.5}$ ($\mu g/m^3$)	80	29	0	0	5	25	23	3	10.3	NE	13	20	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	65	100	24	21	11.0	S	92	25	100.0
BAROMETRIC PRESSURE (millibar)	-	-	-	-	932	945	2	0	10.5	WNW	945	2	100.0
AMBIENT TEMPERATURE (°C)	-	-	-	-	-3.6	14.4	19	16	8.7	SW	8.1	19	100.0
PRECIPITATION (mm)	-	-	-	-	9.6	4.0	26	7	2.2	WSW	6.6	26	100.0
VECTOR WS (kph)	-	-	-	-	4.4	24.5	28	14	-	WSW	15.6	23	100.0
VECTOR WD (sec)	-	-	-	-	272 (W)	-	-	-	-	-	-	-	100.0

** Precipitation: data represents the total (sum) for the indicated time frame*

OPERATIONAL SUMMARY

Parameter	Equipment	Method & Procedure	Operational Notes
SULPHUR DIOXIDE (SO_2)	**Thermo 43i TLE Pulsed Fluorescence Analyzer**	**Maxxam AIR SOP-00209: Ambient Sulphur Monitoring**	• Operational time was 100% and there were no performance issues identified. • The routine monthly calibration was performed on March 19, between the hours of 11:00 and 15:00.
HYDROGEN SULPHIDE (H_2S)	**Thermo 450i UV Fluorescence Analyzer**	**Maxxam AIR SOP-00209: Ambient Sulphur Monitoring**	• Operational time for the monitoring period was 99.2%, equivalent to 6 hours of downtime. • The daily span result exceeded the upper acceptance limit on March 8. The results of subsequent repeat and scheduled span checks exhibited similar response, prompting a site visit on March 10 where the routine monthly calibration was successfully completed between hours 13:00 - 18:00. As the monthly calibration results met AMD requirements, no data was discarded due to the span drift. One hour of downtime was, however, recorded due to the additional zero-span check. • A gradual biased high drift in span response was observed towards the middle of the month as ambient temperatures increased. A successful repeat calibration was, therefore, completed on March 19 as a proactive measure. This was based on the previously established correlation between span response and ambient temperatures. Five hours of downtime were recorded due to the additional quality check.
TOTAL HYDROCARBONS (THC), METHANE (CH_4) & NON-METHANE HYDROCARBONS (NMHC)	**Thermo 55i FID Analyzer**	**Maxxam AIR SOP-00001: Methane, Non-Methane Hydrocarbon Analyzer Monitoring**	• Operational time was 100%. • The routine monthly calibration was performed on March 20, between the hours of 10:00 and 13:00. • An anomalous spike in minute concentration was recorded on March 30, at 8:01 – 8:02. Impacted minute concentrations were therefore excluded, along with the corresponding maximum instantaneous data; and the hourly average was re-calculated.
OXIDES OF NITROGEN (NOx), NITRIC OXIDE (NO) & NITROGEN DIOXIDE (NO_2)	**Thermo 42i Chemiluminescent Analyzer**	**Maxxam AIR SOP-00213: Ambient NO/NO_2/NOx Monitoring**	• Operational time for the monitoring period was 99.5%, equivalent to 4 hours of downtime. • The routine monthly calibration was performed on March 19, between the hours of 11:00 and 17:00. • The daily span result drifted abruptly outside the lower acceptance limit on March 22, for undetermined reasons. The results of subsequent repeat and scheduled span checks exhibited similar response, prompting a site visit on March 25 where an as-found response check was completed. As the as-found results met AMD requirements, no data was discarded due to the span drift. Four hours of downtime were, however, recorded due to the additional quality checks.
OZONE (O_3)	**Thermo 49i Photometric Analyzer**	**Maxxam AIR SOP-00212: Ambient O_3 Monitoring**	• Operational time was 100% and there were no performance issues identified. • The routine monthly calibration was performed on March 20, between the hours of 10:00 and 14:00. • There were four 1-hr exceedances recorded this month. Details of the exceedance are recorded in the AAAQO Exceedance Summary Report (page 5).

OPERATIONAL SUMMARY

Parameter	Equipment	Method & Procedure	Operational Notes
PARTICULATE MATTER < 2.5 MICRONS ($PM_{2.5}$)	**Thermo SHARP 5030i Unit**	**Maxxam AIR SOP-00014: Measurement of Particulate Concentration Using the THERMO SHARP**	• Operational time was 100% and there were no performance issues identified. • The routine monthly check was performed on March 20, between the hours of 14:00 and 15:00.
WIND SPEED (WS), WIND DIRECTION (WD) & STANDARD DEVIATION WIND DIRECTION (STDWD)	**Met One Unit**	**Maxxam AIR SOP-00013: RM Young Wind Monitor Calibration**	• Operational time was 100% and there were no performance issues identified. • Wind data is reported as vector wind speed and vector wind direction. Wind direction is defined as the direction from which the wind is blowing and is measured in degrees from true north.
RELATIVE HUMIDITY (RH)	**Rotronic Hygroclip Unit**	**Operations Manual**	• Operational time was 100% and there were no performance issues identified.
BAROMETRIC PRESSURE (BP)	**Met One Unit**	**Operations Manual**	• Operational time was 100% and there were no performance issues identified.
PRECIPITATION (PRECIP)	**Met One Unit**	**Maxxam AIR SOP-00242: Precipitation Collector Installation/Maintenance**	• Operational time was 100% and there were no performance issues identified.
AMBIENT TEMPERATURE (AmbTPX)	**Rotronic Hygroclip Unit**	**Operations Manual**	• Operational time was 100% and there were no performance issues identified.
Datalogger	**Envista Ultimate Unit**	**Operations Manual**	• There were no performance issues identified.

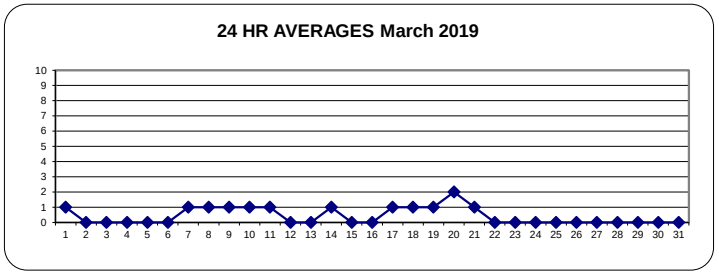
SUMMARY TABLES, GRAPHS AND ROSES

SULPHUR DIOXIDE Hourly Averages (SO_2 ppb)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	1	1	1	**0**	0	0	1	2	2	1	1	1	2	1	1	1	1	0	0	0	**S**	0	0	0	**0**	2	1	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	24
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	24
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	1	1	1	0	1	0	24
6	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	**S**	1	0	0	0	0	0	0	0	0	1	0	24
7	0	0	0	0	0	0	0	0	0	0	1	1	1	1	**S**	1	1	1	2	2	1	1	1	1	0	2	1	24
8	1	1	1	1	1	1	1	1	0	0	0	1	1	**S**	0	0	0	0	0	0	0	0	0	0	0	1	1	24
9	0	0	0	0	1	1	1	1	1	1	1	0	**S**	1	1	1	1	0	0	1	1	1	1	1	0	1	1	24
10	1	2	3	1	1	1	1	1	1	1	2	**S**	1	1	1	1	1	1	1	2	2	1	1	1	1	3	1	24
11	1	1	1	1	1	1	1	1	1	2	**S**	3	3	3	2	2	2	2	2	1	1	1	1	1	1	3	1	24
12	1	1	2	1	1	1	1	1	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	24
13	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	2	3	1	0	0	0	0	3	0	24
14	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	1	1	1	2	1	1	1	0	2	1	24
15	1	1	1	1	1	0	**S**	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
16	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	24
17	1	2	2	1	**S**	2	1	1	1	2	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	2	1	24
18	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	**5**	4	2	2	1	0	**5**	1	24
19	2	3	**S**	2	2	1	1	0	0	0	0	**C**	**C**	**C**	**C**	**C**	0	0	0	0	0	0	0	0	0	3	1	24
20	0	**S**	0	0	0	0	0	1	2	3	3	3	2	2	2	2	2	4	5	4	3	3	3	4	0	5	**2**	24
21	**S**	2	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	**S**	0	2	1	24
22	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	24
23	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	1	0	24
24	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	24
25	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	0	1	1	0	**S**	0	0	0	0	0	2	0	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	24
27	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	1	0	24
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	24
29	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	1	0	24
30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	**S**	0	0	1	1	1	1	1	1	0	0	1	0	24
31	1	0	0	1	1	1	1	1	1	0	0	0	0	**S**	0	0	0	0	0	0	0	1	1	1	0	1	0	24
HOURLY MAX	2	3	3	2	2	2	1	2	2	3	3	3	3	3	2	2	2	4	5	5	4	3	3	4				
HOURLY AVG	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0	0	0				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

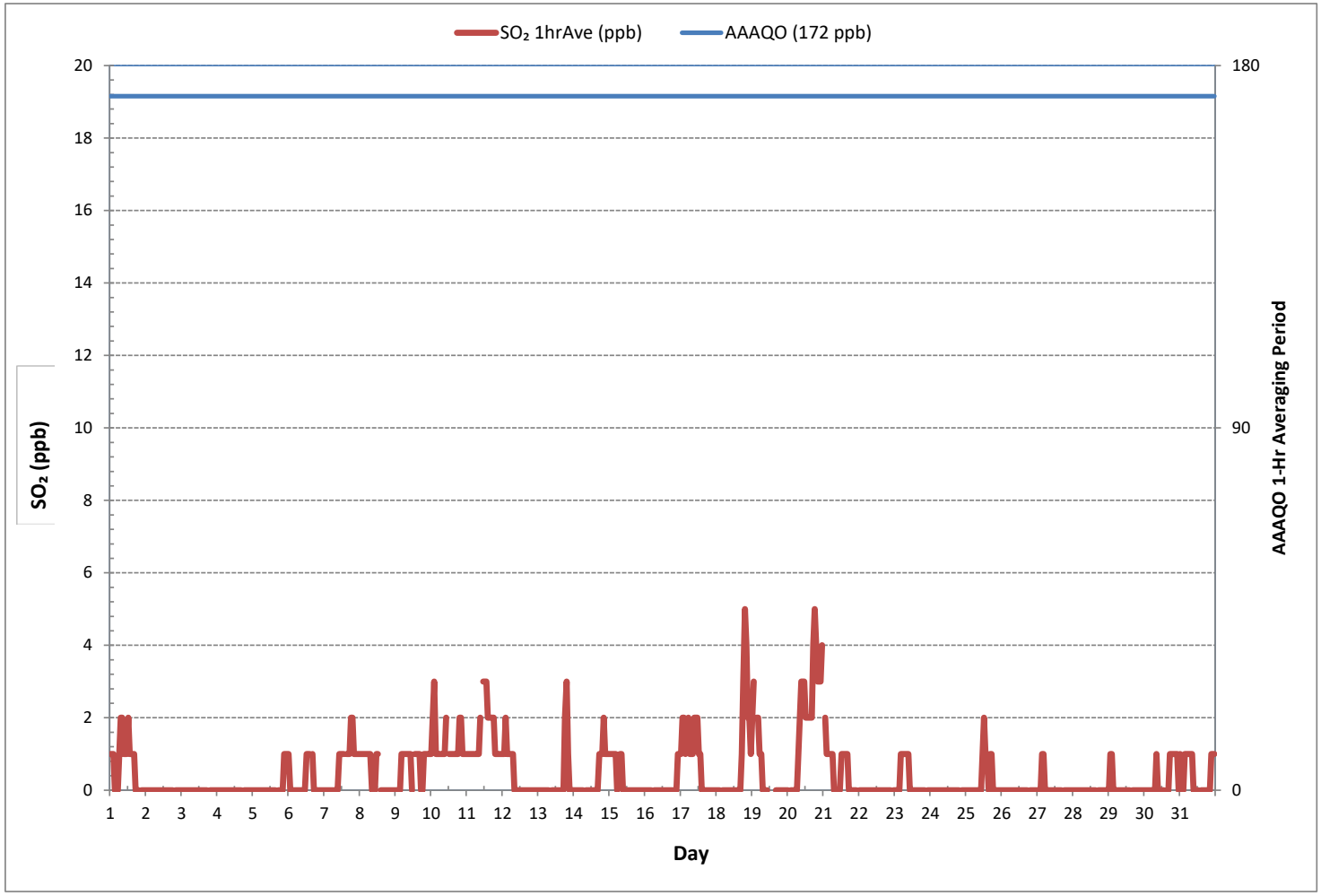


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 ppb | 24-HR 48 ppb

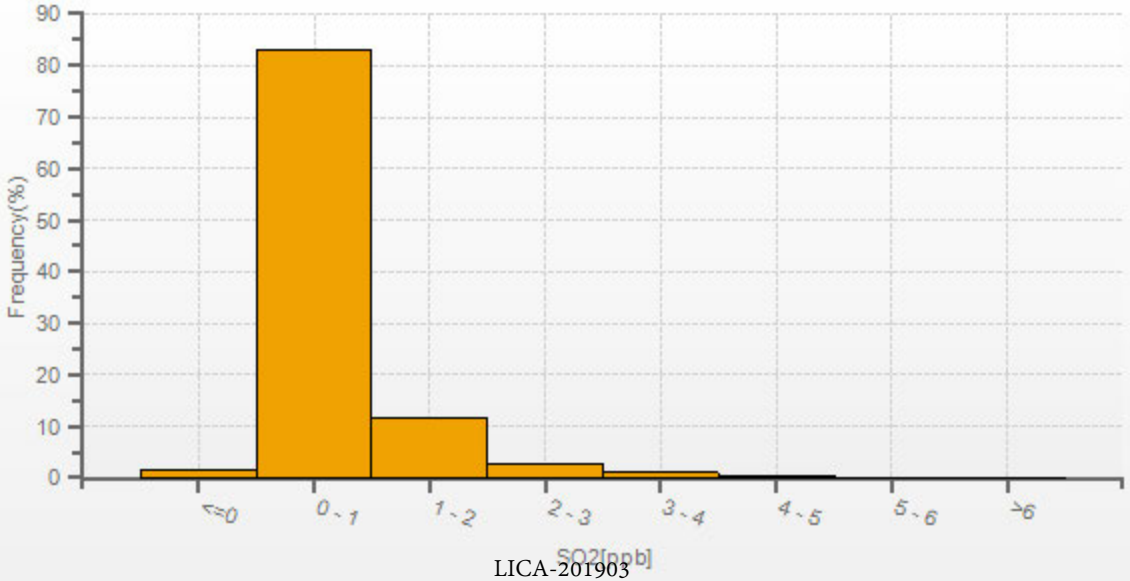
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:	0					
NUMBER OF 24-HR EXCEEDANCES:	0					
NUMBER OF NON-ZERO READINGS:	221					
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	3	ON DAY	1
MAXIMUM 1-HR AVERAGE:	5	ppb	@ HOUR	19	ON DAY	18
MAXIMUM 24-HR AVERAGE:	2	ppb			ON DAY	20
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:			744 hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:			100.0 %
STANDARD DEVIATION:	1		MONTHLY AVERAGE:			0 ppb

SULPHUR DIOXIDE Hourly Averages (SO_2 ppb)

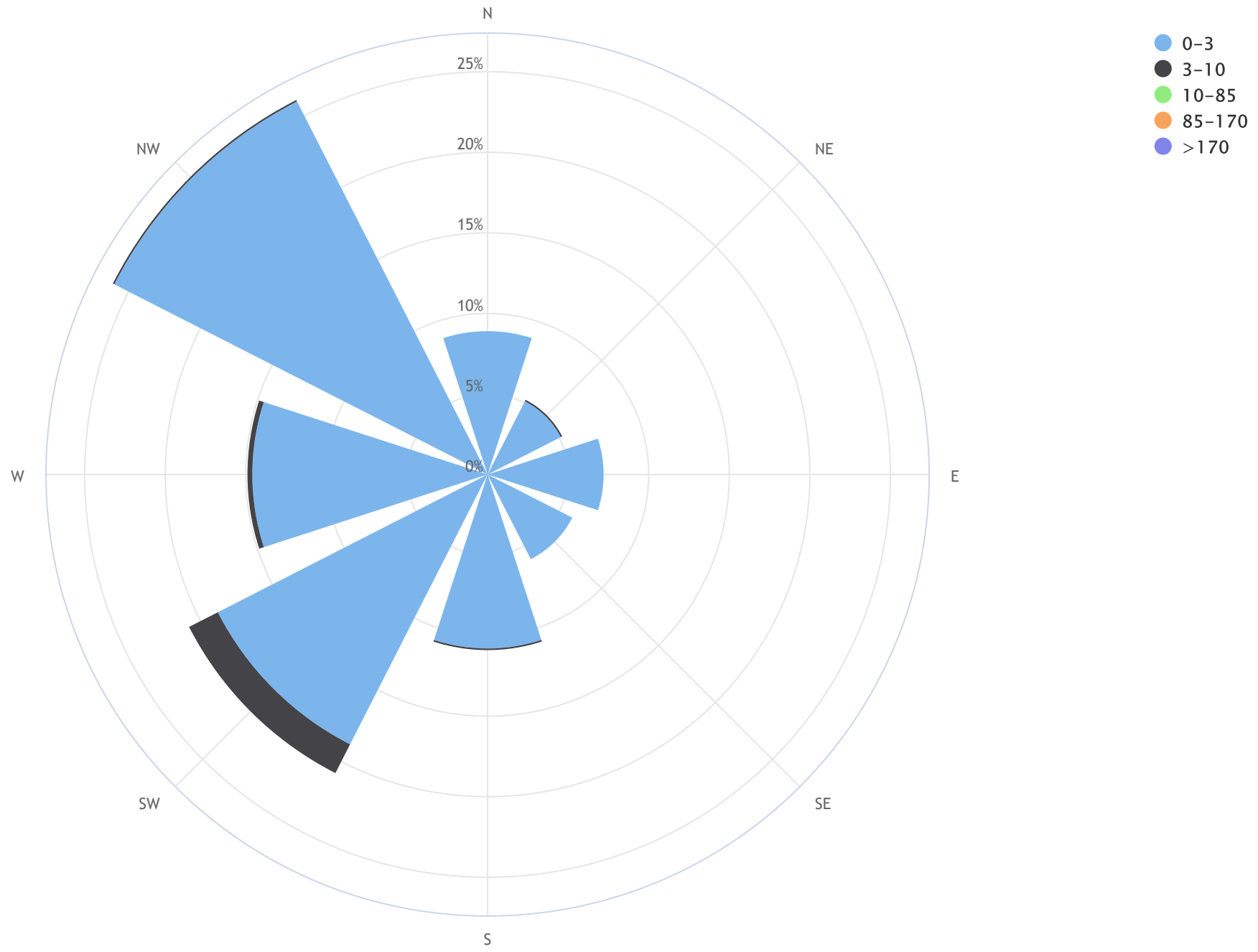


SO2[ppb] Histogram: LICA ST. LINA Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_St. Lina Continuous Monitoring Station_SO_2 (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = N/A, CALM % = 0.0%



Direction	0-3	3-10	10-85	85-170	>170	TOTAL
N	8.9	0.0	0.0	0.0	0.0	8.9
NE	5.1	0.1	0.0	0.0	0.0	5.2
E	7.2	0.0	0.0	0.0	0.0	7.2
SE	5.9	0.0	0.0	0.0	0.0	5.9
S	10.8	0.1	0.0	0.0	0.0	10.9
SW	18.8	2.0	0.0	0.0	0.0	20.8
W	14.6	0.3	0.0	0.0	0.0	14.9
NW	26.0	0.1	0.0	0.0	0.0	26.2
Summary	97.3	2.7	0.0	0.0	0.0	100.0
CALM	0.0	0.0	0.0	0.0	0.0	0.0

Maxxam
A Bureau Veritas Group Company

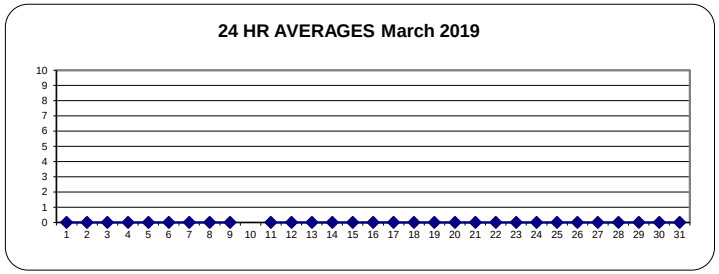
HYDROGEN SULPHIDE Hourly Averages (H_2S ppb)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
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	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	24
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	24
5	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	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	24
9	0	0	0	0	0	0	0	S1	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
10	0	0	0	0	0	0	0	0	0	0	0	S	0	C	C	C	C	C	C	0	0	0	0	0	0	0	-	24
11	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	24
12	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
13	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
14	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	24
15	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	24
16	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
17	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
18	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
19	0	0	S	0	0	0	0	0	0	0	0	C1	C1	C1	C1	C1	0	0	0	0	0	0	0	0	0	0	0	19
20	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
21	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	24
22	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	24
23	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	24
24	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	24
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	24
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	24
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	24
29	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	24
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	24
31	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	24
HOURLY MAX	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
HOURLY AVG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

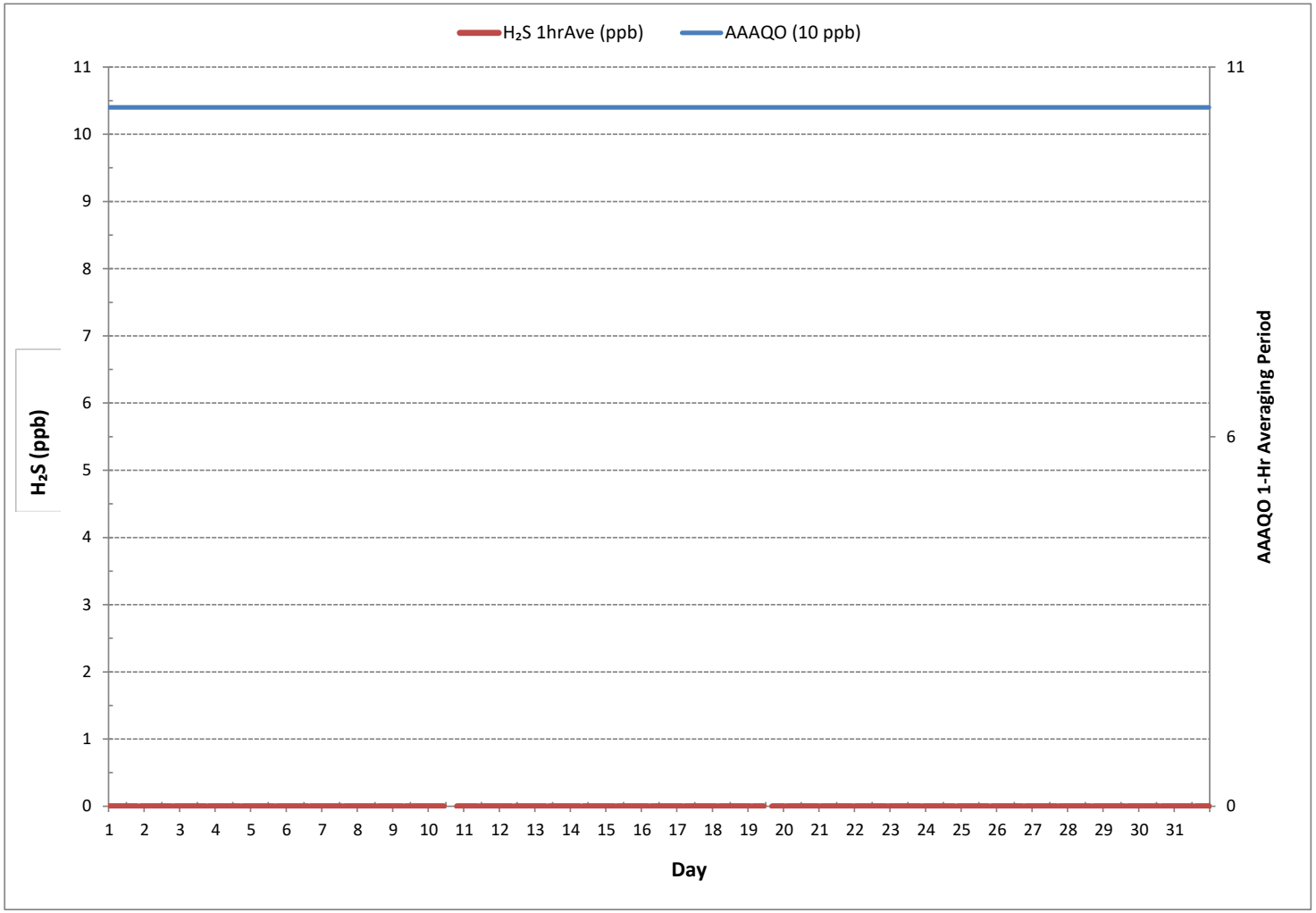
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 10 ppb | 24-HR 3 ppb



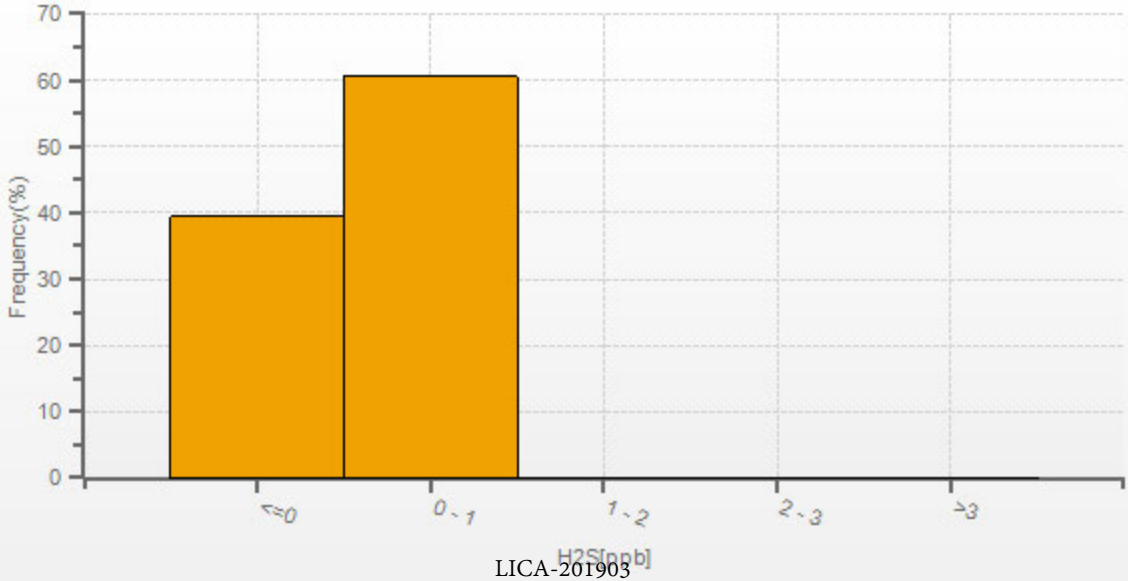
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:	0						
NUMBER OF 24-HR EXCEEDANCES:	0						
NUMBER OF NON-ZERO READINGS:	0						
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	0	ON DAY	1	
MAXIMUM 1-HR AVERAGE:	0	ppb	@ HOUR	0	ON DAY	1	
MAXIMUM 24-HR AVERAGE:	0	ppb			ON DAY	1	
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:			738	hrs
MONTHLY CALIBRATION TIME:	6	hrs	AMD OPERATION UPTIME:			99.2	%
STANDARD DEVIATION:	0		MONTHLY AVERAGE:			0	ppb

HYDROGEN SULPHIDE Hourly Averages (H_2S ppb)

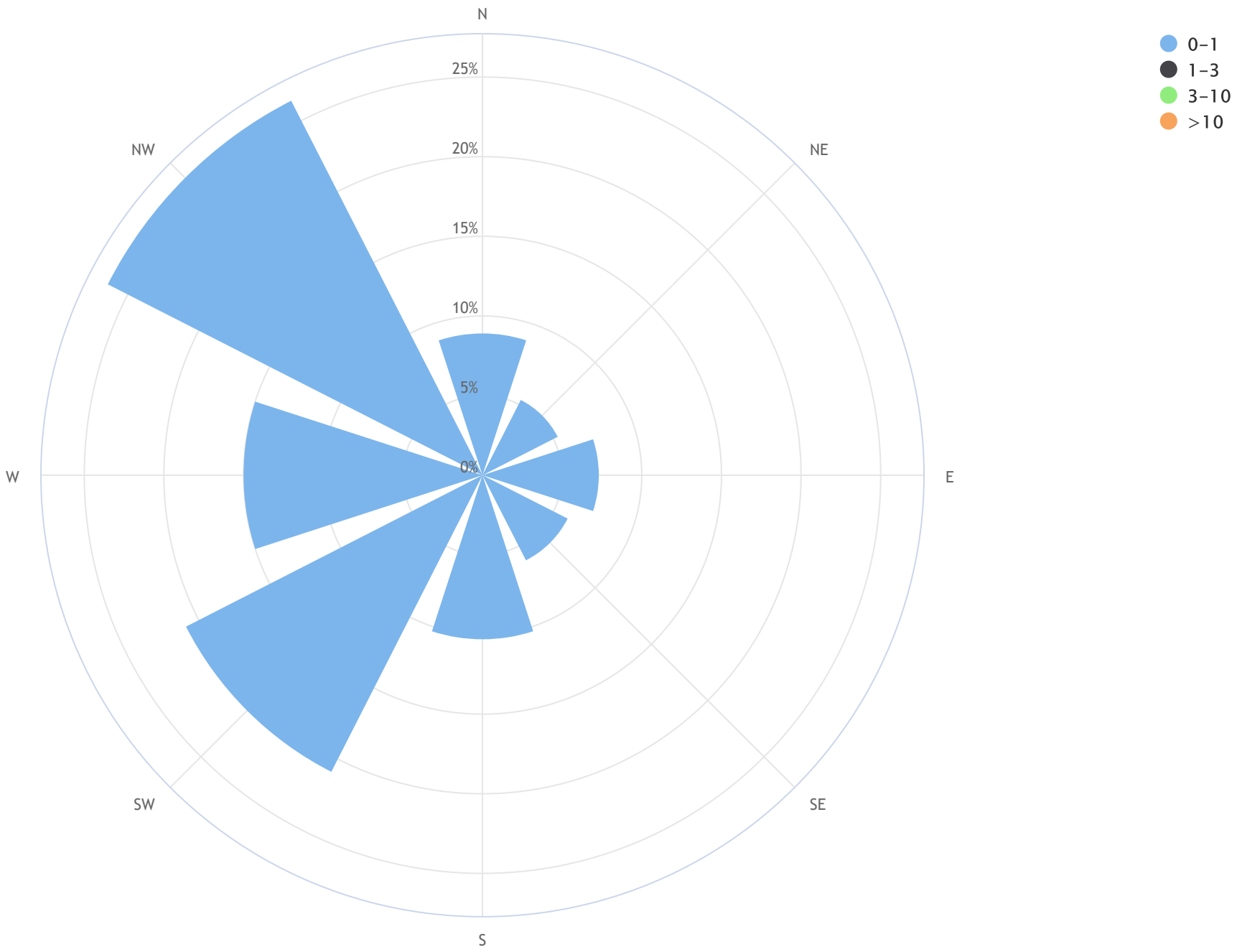


H2S[ppb] Histogram: LICA ST. LINA Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_St. Lina Continuous Monitoring Station_H_2S (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = N/A, CALM % = 0.0%



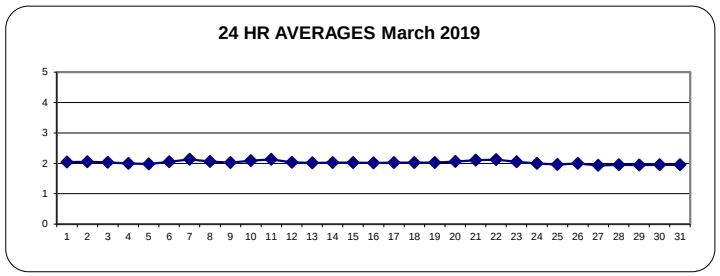
Direction	0-1	1-3	3-10	>10	TOTAL
N	8.9	0.0	0.0	0.0	8.9
NE	5.3	0.0	0.0	0.0	5.3
E	7.3	0.0	0.0	0.0	7.3
SE	6.0	0.0	0.0	0.0	6.0
S	10.3	0.0	0.0	0.0	10.3
SW	20.9	0.0	0.0	0.0	20.9
W	15.0	0.0	0.0	0.0	15.0
NW	26.4	0.0	0.0	0.0	26.4
Summary	100.0	0.0	0.0	0.0	100.0
CALM	0.0	0.0	0.0	0.0	0.0

TOTAL HYDROCARBONS Hourly Averages (THC ppm)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	1.98	1.98	1.98	1.98	1.99	1.99	2.00	2.00	2.00	2.01	2.02	2.03	2.08	2.03	2.05	2.04	2.03	2.07	2.11	2.12	S	2.01	2.17	2.28	1.98	2.28	2.04	24
2	2.12	2.01	2.04	2.04	2.10	2.24	2.05	2.13	2.13	2.10	2.09	2.04	2.03	2.01	2.02	2.02	2.00	2.00	1.98	S	2.03	2.04	2.06	2.00	1.98	2.24	2.05	24
3	2.02	2.02	2.02	2.11	2.12	2.03	2.01	2.01	2.08	2.08	2.08	2.02	2.01	1.98	1.98	1.98	2.01	2.06	S	2.02	2.00	2.01	2.00	2.01	1.98	2.12	2.03	24
4	2.00	2.04	2.02	2.01	2.02	2.01	2.01	2.06	2.08	2.02	2.00	1.98	1.97	1.96	1.96	1.97	1.97	S	1.97	1.98	1.98	1.98	1.99	1.99	1.96	2.08	2.00	24
5	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.01	2.00	1.97	1.96	1.96	1.96	1.95	1.95	1.95	S	1.95	1.95	1.95	1.96	1.97	1.99	2.02	1.95	2.02	1.98	24
6	2.01	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.01	1.98	2.00	2.05	2.05	2.06	2.06	S	2.05	2.08	2.11	2.13	2.10	2.09	2.11	2.11	1.98	2.13	2.05	24
7	2.10	2.10	2.14	2.14	2.17	2.21	2.21	2.19	2.18	2.15	2.13	2.12	2.12	2.11	S	2.10	2.09	2.09	2.10	2.10	2.10	2.13	2.13	2.09	2.21	**2.13**	24
8	2.11	2.10	2.11	2.14	2.14	2.12	2.12	2.12	2.11	2.10	2.06	2.04	2.01	S	2.00	1.98	1.98	1.99	1.99	2.01	2.02	2.01	2.01	2.00	1.98	2.14	2.06	24
9	1.99	1.99	2.00	2.00	2.00	2.02	2.01	2.03	2.01	2.00	1.98	1.99	S	2.06	2.03	2.00	2.05	1.99	1.99	2.05	2.10	2.04	2.03	2.04	1.98	2.10	2.02	24
10	2.09	2.08	2.07	2.12	2.14	2.13	2.09	2.08	2.08	2.06	2.07	S	2.06	2.05	2.05	2.06	2.08	2.11	2.12	2.11	2.11	2.10	2.08	2.08	2.05	2.14	2.09	24
11	2.08	2.10	2.10	2.10	2.11	2.12	2.15	2.15	2.14	2.13	S	2.08	2.05	2.06	2.07	2.07	2.02	2.03	2.06	2.21	2.20	2.24	2.32	2.35	2.02	2.35	2.13	24
12	2.30	2.19	2.10	2.05	2.02	2.01	2.01	2.01	1.98	S	2.04	2.04	2.04	1.97	2.00	2.00	2.06	1.98	1.98	1.96	2.00	1.96	1.97	1.99	1.96	2.30	2.03	24
13	2.01	2.01	2.03	2.05	1.99	1.97	1.97	1.97	S	2.01	2.05	2.00	2.02	2.00	2.00	1.99	1.98	2.00	2.02	2.02	2.03	2.00	2.00	2.00	1.97	2.05	2.01	24
14	2.00	2.01	2.00	2.02	2.03	2.04	2.03	S	1.98	2.08	2.03	1.99	2.00	2.00	2.00	1.99	2.00	2.00	2.00	2.04	2.03	2.04	2.04	2.04	1.98	2.08	2.02	24
15	2.05	2.05	2.06	2.05	2.05	2.06	S	2.08	2.08	2.03	1.99	1.99	2.03	2.02	2.02	2.04	2.02	1.97	1.97	1.98	2.00	2.00	1.99	1.98	1.97	2.08	2.02	24
16	1.98	1.97	1.99	2.00	2.00	S	2.00	2.01	2.02	2.01	2.01	2.07	2.05	2.03	1.96	1.98	2.06	2.05	1.97	2.00	1.99	2.00	2.01	2.01	1.96	2.07	2.01	24
17	2.02	2.03	2.04	2.05	S	2.05	2.06	2.05	2.06	2.07	2.07	2.06	2.05	2.03	2.00	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	2.07	2.02	24
18	1.98	1.99	1.99	S	2.02	2.03	2.01	2.00	2.02	2.09	2.07	2.04	1.98	1.98	1.98	1.98	1.99	2.02	2.03	2.03	2.03	2.03	2.03	2.04	1.98	2.09	2.02	24
19	2.06	2.07	S	2.08	2.09	2.07	2.04	2.03	2.02	2.00	2.04	2.00	1.95	1.98	2.03	2.01	2.00	2.00	2.01	2.02	2.01	1.96	1.99	2.08	1.95	2.09	2.02	24
20	2.05	S	2.05	2.04	2.04	2.09	2.10	2.11	2.16	2.13	C	C	C	C	1.96	1.98	1.98	1.99	2.02	2.03	2.04	2.08	2.12	2.09	1.96	2.16	2.06	24
21	S	2.23	2.15	2.11	2.06	2.05	2.05	2.05	2.05	2.04	2.06	2.09	2.13	2.14	2.13	2.12	2.09	2.08	2.08	2.08	2.12	2.12	2.13	S	2.04	2.23	2.10	24
22	2.17	2.17	2.15	2.15	2.19	2.19	2.21	2.23	2.22	2.16	2.13	2.14	2.11	2.04	2.07	2.08	2.07	2.04	2.04	2.04	2.03	2.01	S	2.01	2.01	2.23	2.12	24
23	2.01	2.02	2.07	2.31	**2.57**	2.50	2.27	2.17	2.10	2.06	2.00	1.93	1.91	1.91	1.91	1.91	1.92	1.91	1.91	1.92	1.92	S	1.93	1.93	1.91	**2.57**	2.05	24
24	1.92	1.92	1.93	1.93	1.94	1.96	1.99	1.99	2.01	2.02	2.04	2.12	2.13	2.12	2.06	2.01	2.00	1.99	1.98	1.97	S	1.97	1.97	1.96	1.92	2.13	2.00	24
25	1.95	1.94	1.93	1.93	1.93	1.94	1.94	1.93	1.94	1.94	1.95	1.96	1.98	2.03	2.00	1.98	1.98	1.98	1.98	S	1.97	1.97	1.99	1.98	1.93	2.03	1.96	24
26	1.99	1.99	1.99	1.99	2.00	2.00	1.99	2.04	2.00	2.00	1.99	2.00	1.99	1.98	2.06	2.10	1.99	2.00	S	2.02	2.05	1.93	1.92	1.92	1.92	2.10	2.00	24
27	1.92	1.92	1.92	1.92	1.93	1.91	1.91	1.92	1.92	1.91	**1.90**	1.94	1.97	1.97	1.96	1.98	1.93	S	1.96	1.91	1.92	1.99	1.97	1.92	**1.90**	1.99	1.93	24
28	1.92	1.94	1.94	1.94	1.95	1.98	2.00	2.03	2.04	1.98	1.96	1.93	1.94	1.92	1.92	1.92	S	1.93	1.92	1.93	1.93	1.93	1.95	1.93	1.92	2.04	1.95	24
29	1.95	1.99	1.94	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.93	1.94	1.94	1.94	S	1.92	1.93	1.93	1.94	1.94	1.96	1.96	1.93	1.92	1.99	1.94	24
30	1.94	1.96	1.96	1.96	1.95	1.94	1.95	1.98	2.05	1.94	1.93	1.92	1.91	1.91	S	1.90	1.90	1.92	1.93	1.94	1.95	1.95	2.00	1.99	1.90	2.05	1.95	24
31	1.98	2.00	1.99	1.97	1.99	1.96	1.96	1.96	1.95	1.93	1.93	1.92	1.91	S	1.92	1.92	1.93	1.94	1.97	1.97	1.97	1.96	1.96	1.95	1.91	2.00	1.95	24
HOURLY MAX	2.30	2.23	2.15	2.31	2.57	2.50	2.27	2.23	2.22	2.16	2.13	2.14	2.13	2.14	2.13	2.12	2.09	2.11	2.12	2.21	2.20	2.24	2.32	2.35				
HOURLY AVG	2.02	2.03	2.02	2.04	2.05	2.05	2.04	2.04	2.04	2.03	2.02	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.02	2.02	2.01	2.03	2.02				

STATUS FLAG CODES

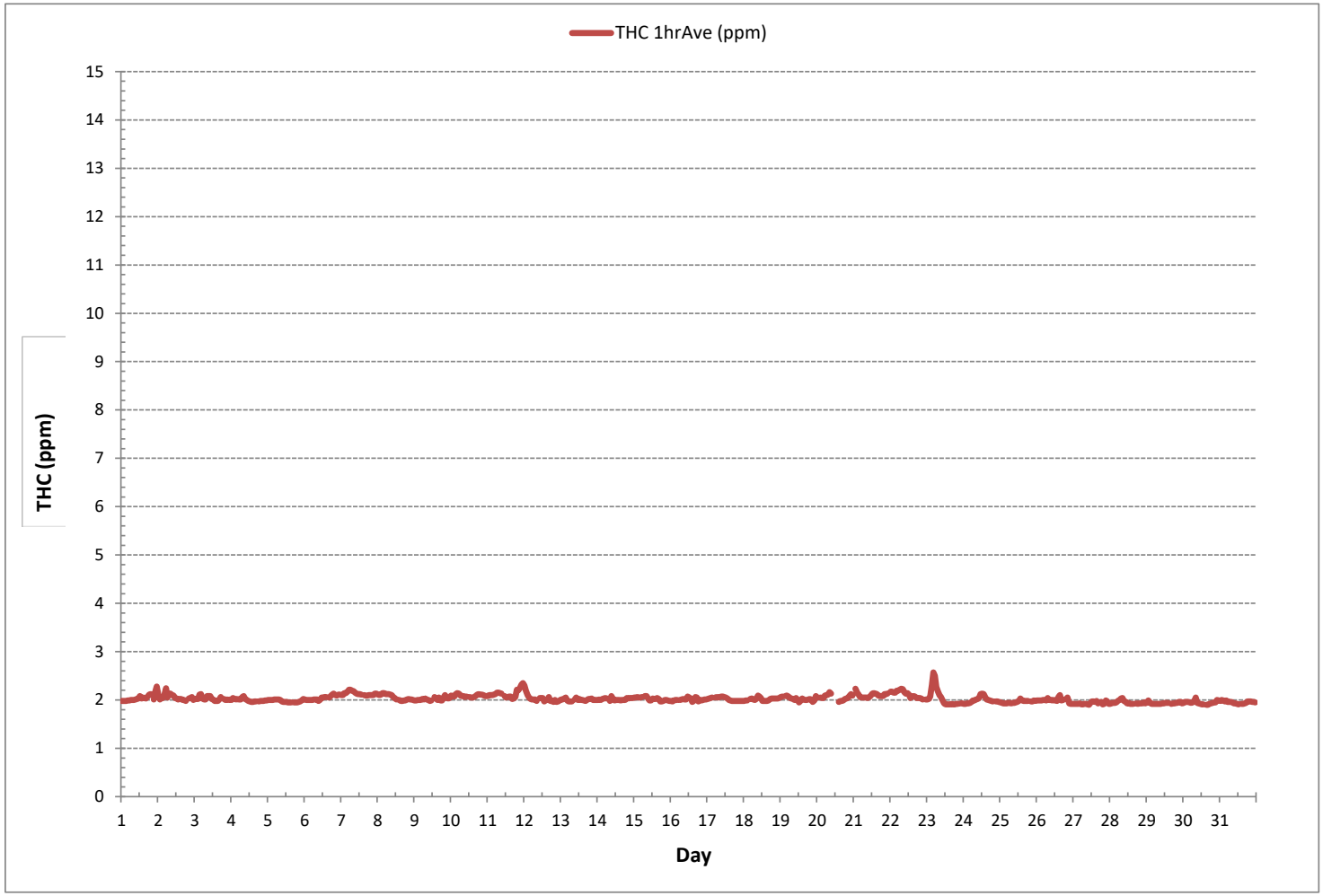
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



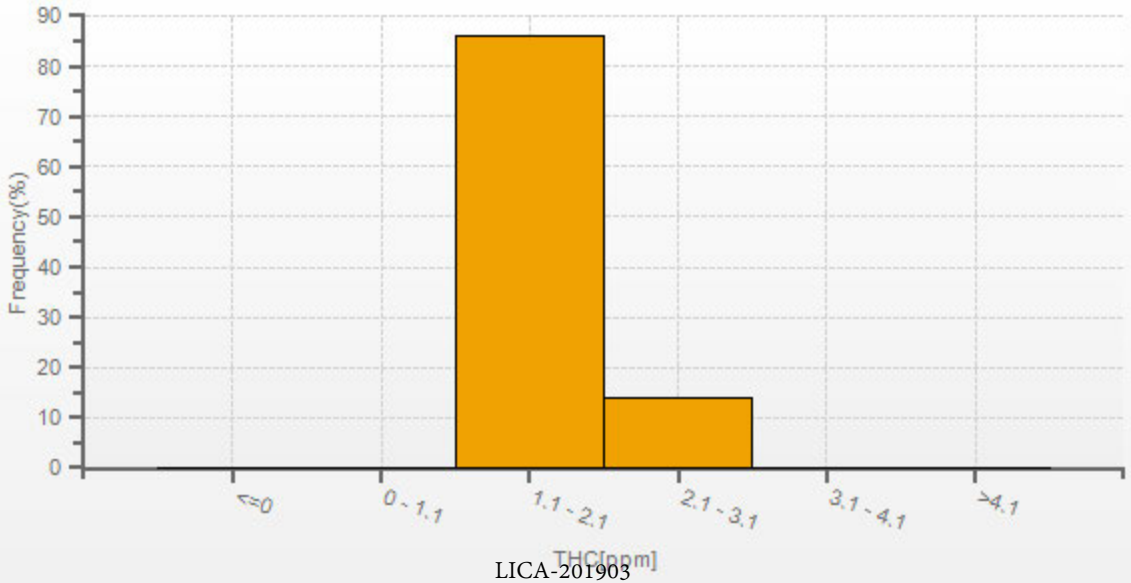
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			708				
MINIMUM 1-HR AVERAGE	1.90	ppm	@ HOUR	10	ON DAY	27	
MAXIMUM 1-HR AVERAGE:	2.57	ppm	@ HOUR	4	ON DAY	23	
MAXIMUM 24-HR AVERAGE:	2.13	ppm			ON DAY	7	
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:			744	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.08		MONTHLY AVERAGE:			2.02	ppm

TOTAL HYDROCARBONS Hourly Averages (THC ppm)

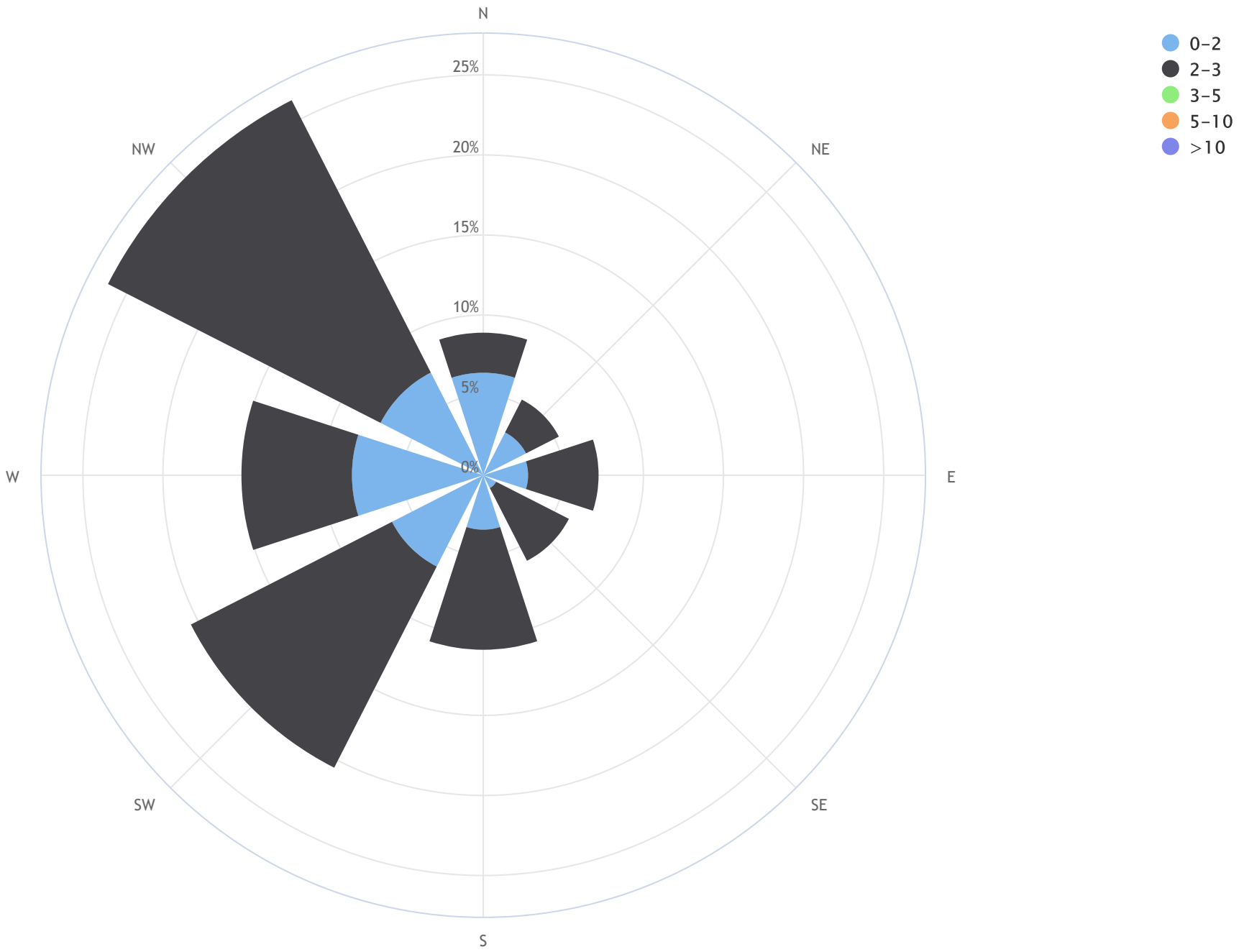


THC[ppm] Histogram: LICA ST. LINA Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_St. Lina Continuous Monitoring Station_THC (ppm)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = N/A, CALM % = 0.0%



Direction	0-2	2-3	3-5	5-10	>10	TOTAL
N	6.4	2.5	0.0	0.0	0.0	8.9
NE	3.0	2.3	0.0	0.0	0.0	5.2
E	2.8	4.4	0.0	0.0	0.0	7.2
SE	0.9	5.1	0.0	0.0	0.0	5.9
S	3.4	7.5	0.0	0.0	0.0	10.9
SW	6.4	14.1	0.0	0.0	0.0	20.5
W	8.2	6.9	0.0	0.0	0.0	15.1
NW	7.2	19.1	0.0	0.0	0.0	26.3
Summary	38.1	61.9	0.0	0.0	0.0	100.0
CALM	0.0	0.0	0.0	0.0	0.0	0.0

Maxxam
A Bureau Veritas Group Company

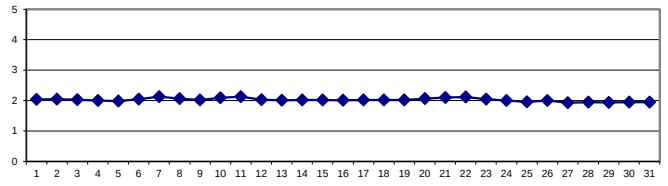
METHANE Hourly Averages (CH_4 ppm)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	1.98	1.98	1.98	1.98	1.99	1.99	2.00	2.00	2.00	2.01	2.02	2.03	2.08	2.03	2.05	2.04	2.03	2.07	2.11	2.12	S	2.01	2.17	2.28	1.98	2.28	2.04	24
2	2.12	2.01	2.04	2.04	2.10	2.24	2.05	2.13	2.13	2.10	2.09	2.04	2.02	2.01	2.02	2.02	2.00	2.00	1.98	S	2.03	2.04	2.06	2.00	1.98	2.24	2.05	24
3	2.02	2.02	2.02	2.11	2.12	2.03	2.01	2.01	2.08	2.08	2.08	2.02	2.01	1.98	1.98	1.98	2.01	2.06	S	2.02	2.00	2.01	2.00	2.01	1.98	2.12	2.03	24
4	2.00	2.04	2.02	2.01	2.02	2.01	2.01	2.06	2.08	2.02	2.00	1.98	1.97	1.96	1.96	1.97	1.97	S	1.97	1.98	1.98	1.98	1.99	1.99	1.96	2.08	2.00	24
5	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.01	2.00	1.97	1.96	1.96	1.96	1.95	1.95	1.95	S	1.95	1.95	1.95	1.96	1.97	1.99	2.02	1.95	2.02	1.98	24
6	2.01	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.01	1.98	2.00	2.05	2.05	2.06	2.06	S	2.05	2.08	2.11	2.13	2.10	2.09	2.11	2.11	1.98	2.13	2.05	24
7	2.10	2.10	2.14	2.14	2.17	2.21	2.21	2.19	2.18	2.15	2.13	2.12	2.12	2.11	S	2.10	2.09	2.09	2.10	2.10	2.10	2.13	2.13	2.09	2.21	**2.13**	24
8	2.11	2.10	2.11	2.14	2.14	2.12	2.12	2.12	2.11	2.10	2.06	2.04	2.01	S	2.00	1.98	1.98	1.99	1.99	2.01	2.02	2.01	2.01	2.00	1.98	2.14	2.06	24
9	1.99	1.99	2.00	2.00	2.00	2.02	2.01	2.03	2.01	2.00	1.98	1.99	S	2.06	2.03	2.00	2.05	1.99	1.99	2.05	2.10	2.04	2.03	2.04	1.98	2.10	2.02	24
10	2.09	2.08	2.07	2.12	2.14	2.13	2.09	2.08	2.08	2.06	2.07	S	2.06	2.05	2.05	2.06	2.08	2.11	2.12	2.11	2.11	2.10	2.08	2.08	2.05	2.14	2.09	24
11	2.08	2.10	2.10	2.10	2.11	2.12	2.15	2.15	2.14	2.13	S	2.08	2.05	2.06	2.07	2.07	2.02	2.03	2.06	2.21	2.20	2.24	2.32	2.35	2.02	2.35	2.13	24
12	2.30	2.19	2.10	2.05	2.02	2.01	2.01	2.01	1.98	S	2.04	2.04	2.04	1.97	2.00	2.00	2.06	1.98	1.98	1.96	2.00	1.96	1.97	1.99	1.96	2.30	2.03	24
13	2.01	2.01	2.03	2.05	1.99	1.97	1.97	1.97	S	2.01	2.05	2.00	2.02	2.00	2.00	1.99	1.98	2.00	2.02	2.02	2.03	2.00	2.00	2.00	1.97	2.05	2.01	24
14	2.00	2.01	2.00	2.02	2.03	2.04	2.03	S	1.98	2.08	2.03	1.99	2.00	2.00	2.00	1.99	2.00	2.00	2.00	2.04	2.03	2.04	2.04	2.04	1.98	2.08	2.02	24
15	2.05	2.05	2.06	2.05	2.05	2.06	S	2.08	2.08	2.03	1.99	1.99	2.03	2.02	2.02	2.04	2.02	1.97	1.97	1.98	2.00	2.00	1.99	1.98	1.97	2.08	2.02	24
16	1.98	1.97	1.99	2.00	2.00	S	2.00	2.01	2.02	2.01	2.01	2.07	2.05	2.02	1.96	1.98	2.06	2.05	1.97	2.00	1.99	2.00	2.01	2.01	1.96	2.07	2.01	24
17	2.02	2.03	2.04	2.05	S	2.05	2.06	2.05	2.06	2.07	2.07	2.06	2.05	2.03	2.00	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	2.07	2.02	24
18	1.98	1.99	1.99	S	2.02	2.03	2.01	2.00	2.02	2.09	2.07	2.04	1.98	1.98	1.98	1.98	1.99	2.02	2.03	2.03	2.03	2.03	2.03	2.04	1.98	2.09	2.02	24
19	2.06	2.06	S	2.08	2.09	2.07	2.04	2.03	2.02	2.00	2.04	2.00	1.95	1.98	2.03	2.01	2.00	2.00	2.01	2.02	2.01	1.96	1.99	2.08	1.95	2.09	2.02	24
20	2.05	S	2.05	2.04	2.04	2.09	2.10	2.11	2.16	2.13	C	C	C	C	1.96	1.98	1.98	1.99	2.02	2.03	2.04	2.08	2.11	2.09	1.96	2.16	2.06	24
21	S	2.23	2.15	2.11	2.06	2.05	2.05	2.05	2.05	2.04	2.06	2.09	2.13	2.14	2.13	2.12	2.09	2.08	2.08	2.08	2.12	2.12	2.13	S	2.04	2.23	2.10	24
22	2.17	2.17	2.15	2.15	2.19	2.19	2.21	2.23	2.22	2.16	2.13	2.14	2.11	2.03	2.07	2.08	2.07	2.04	2.04	2.04	2.03	2.01	S	2.01	2.01	2.23	2.12	24
23	2.01	2.02	2.07	2.31	**2.57**	2.50	2.27	2.17	2.10	2.06	2.00	1.93	1.91	1.91	1.91	1.91	1.92	1.91	1.91	1.92	1.92	S	1.93	1.93	1.91	**2.57**	2.05	24
24	1.92	1.92	1.93	1.93	1.94	1.96	1.99	1.99	2.01	2.02	2.04	2.12	2.13	2.12	2.06	2.01	2.00	1.99	1.98	1.97	S	1.97	1.97	1.96	1.92	2.13	2.00	24
25	1.95	1.94	1.93	1.93	1.93	1.94	1.94	1.93	1.94	1.94	1.95	1.96	1.98	2.03	2.00	1.98	1.98	1.98	1.98	S	1.97	1.97	1.98	1.98	1.93	2.03	1.96	24
26	1.98	1.99	1.99	1.99	2.00	2.00	1.99	2.04	2.00	2.00	1.99	2.00	1.99	1.98	2.06	2.10	1.99	2.00	S	2.02	2.05	1.93	1.92	1.92	1.92	2.10	2.00	24
27	1.92	1.92	1.92	1.92	1.93	1.91	1.91	1.92	1.92	1.91	**1.90**	1.94	1.96	1.97	1.96	1.98	1.93	S	1.96	1.91	1.92	1.99	1.97	1.92	**1.90**	1.99	1.93	24
28	1.92	1.94	1.94	1.94	1.95	1.98	2.00	2.03	2.04	1.98	1.96	1.93	1.94	1.92	1.92	1.92	S	1.93	1.92	1.93	1.93	1.93	1.95	1.93	1.92	2.04	1.95	24
29	1.95	1.99	1.94	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.93	1.94	1.94	1.94	S	1.92	1.93	1.93	1.94	1.94	1.96	1.96	1.93	1.92	1.99	1.94	24
30	1.94	1.96	1.96	1.96	1.95	1.94	1.95	1.98	2.04	1.94	1.93	1.92	1.91	1.91	S	1.90	1.90	1.92	1.93	1.94	1.95	1.95	2.00	1.99	1.90	2.04	1.95	24
31	1.98	2.00	1.99	1.97	1.99	1.96	1.96	1.96	1.95	1.93	1.93	1.92	1.91	S	1.92	1.92	1.93	1.94	1.97	1.97	1.97	1.96	1.96	1.95	1.91	2.00	1.95	24
HOURLY MAX	2.30	2.23	2.15	2.31	2.57	2.50	2.27	2.23	2.22	2.16	2.13	2.14	2.13	2.14	2.13	2.12	2.09	2.11	2.12	2.21	2.20	2.24	2.32	2.35				
HOURLY AVG	2.02	2.03	2.02	2.04	2.05	2.05	2.04	2.04	2.04	2.03	2.02	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.02	2.02	2.01	2.03	2.02				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HR AVERAGES March 2019

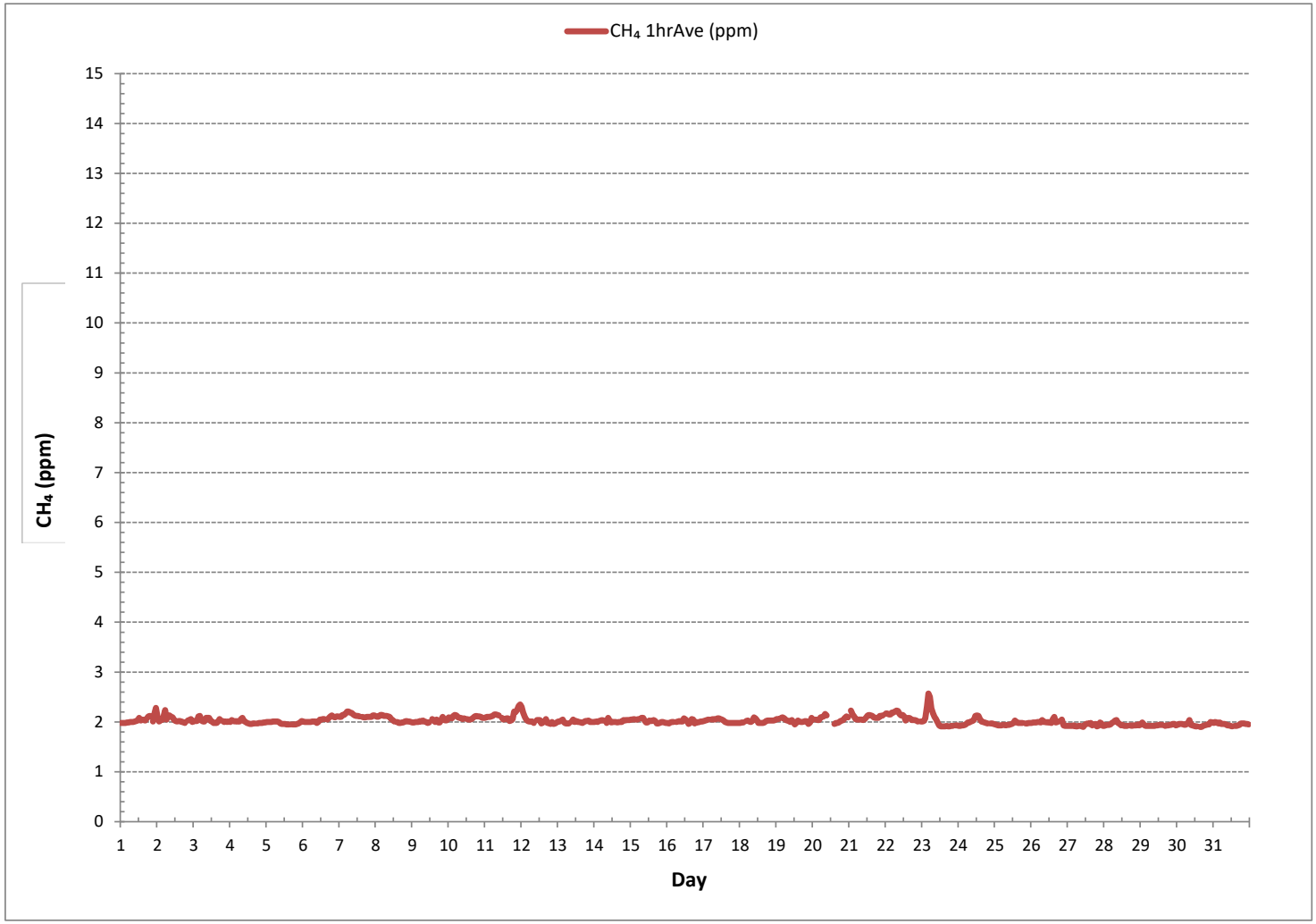


MONTHLY SUMMARY

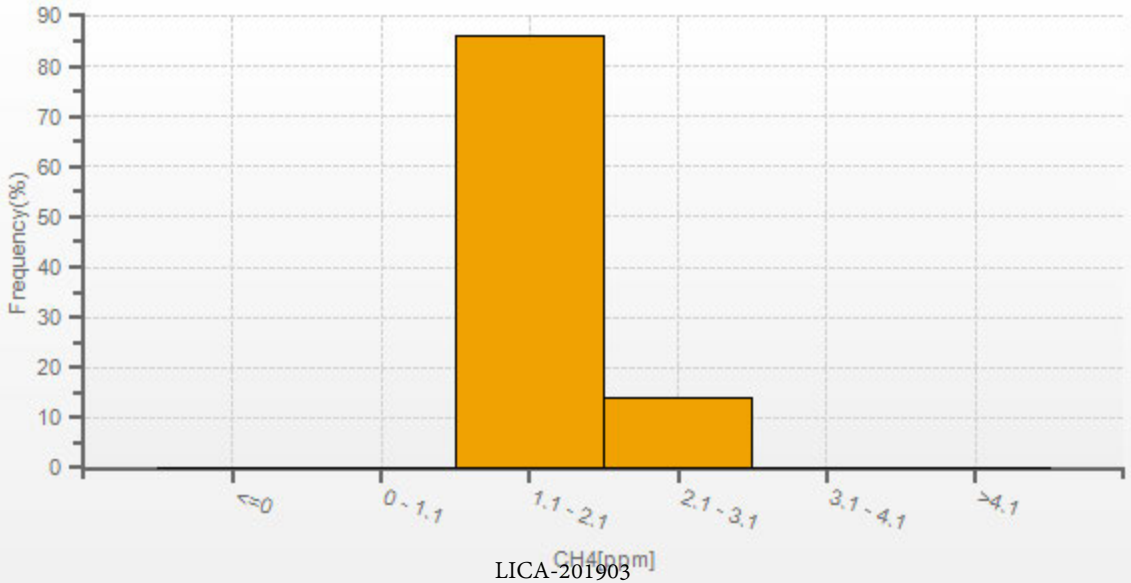
NUMBER OF NON-ZERO READINGS:			708			
MINIMUM 1-HR AVERAGE	1.90	ppm	@ HOUR	10	ON DAY	27
MAXIMUM 1-HR AVERAGE:	2.57	ppm	@ HOUR	4	ON DAY	23
MAXIMUM 24-HR AVERAGE:	2.13	ppm			ON DAY	7

IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	744	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.08		MONTHLY AVERAGE:	2.02	ppm

METHANE Hourly Averages (CH_4 ppm)

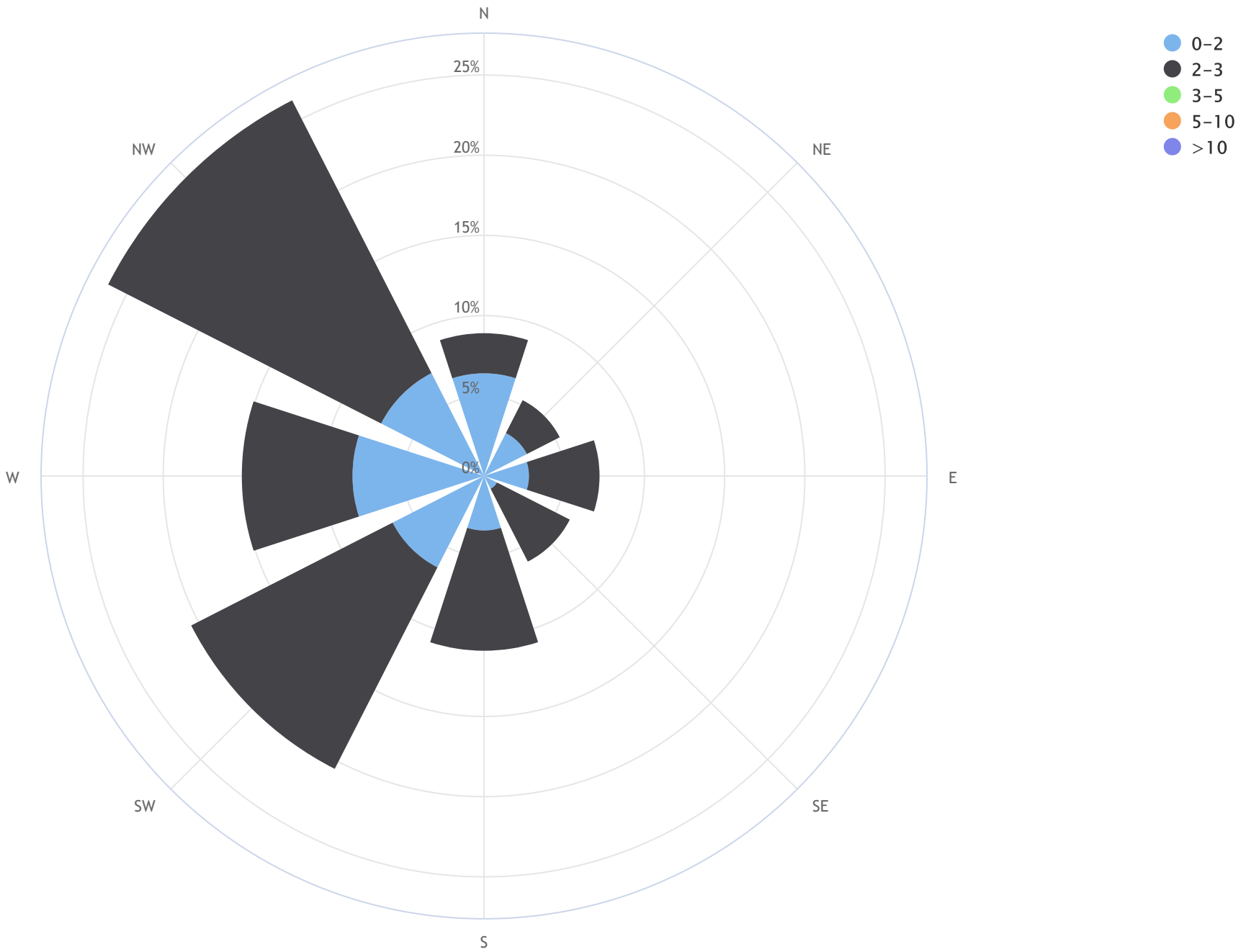


CH4[ppm] Histogram: LICA ST. LINA Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_St. Lina Continuous Monitoring Station_CH_4 (ppm)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = N/A, CALM % = 0.0%



Direction	0-2	2-3	3-5	5-10	>10	TOTAL
N	6.4	2.5	0.0	0.0	0.0	8.9
NE	3.0	2.3	0.0	0.0	0.0	5.2
E	2.8	4.4	0.0	0.0	0.0	7.2
SE	0.9	5.1	0.0	0.0	0.0	5.9
S	3.4	7.5	0.0	0.0	0.0	10.9
SW	6.4	14.1	0.0	0.0	0.0	20.5
W	8.2	6.9	0.0	0.0	0.0	15.1
NW	7.2	19.1	0.0	0.0	0.0	26.3
Summary	38.1	61.9	0.0	0.0	0.0	100.0
CALM	0.0	0.0	0.0	0.0	0.0	0.0

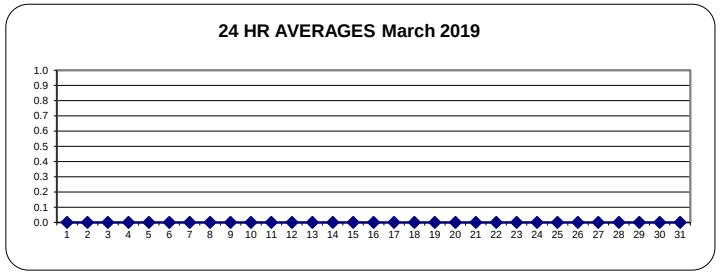
Maxxam
A Bureau Veritas Group Company

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	**0.00**	0.00	**0.00**	24
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.01**	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	**0.01**	0.00	24
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
6	0.00	0.00	0.00	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	24
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**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	24
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**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	24
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**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	24
10	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	24
11	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	24
12	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	24
13	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	24
14	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	24
15	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	24
16	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	24
17	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	24
18	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	24
19	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	24
20	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**C**	**C**	**C**	**C**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
21	**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	**S**	0.00	0.00	0.00	24
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	24
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	24
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	24
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**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	24
HOURLY MAX	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
HOURLY AVG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				

STATUS FLAG CODES

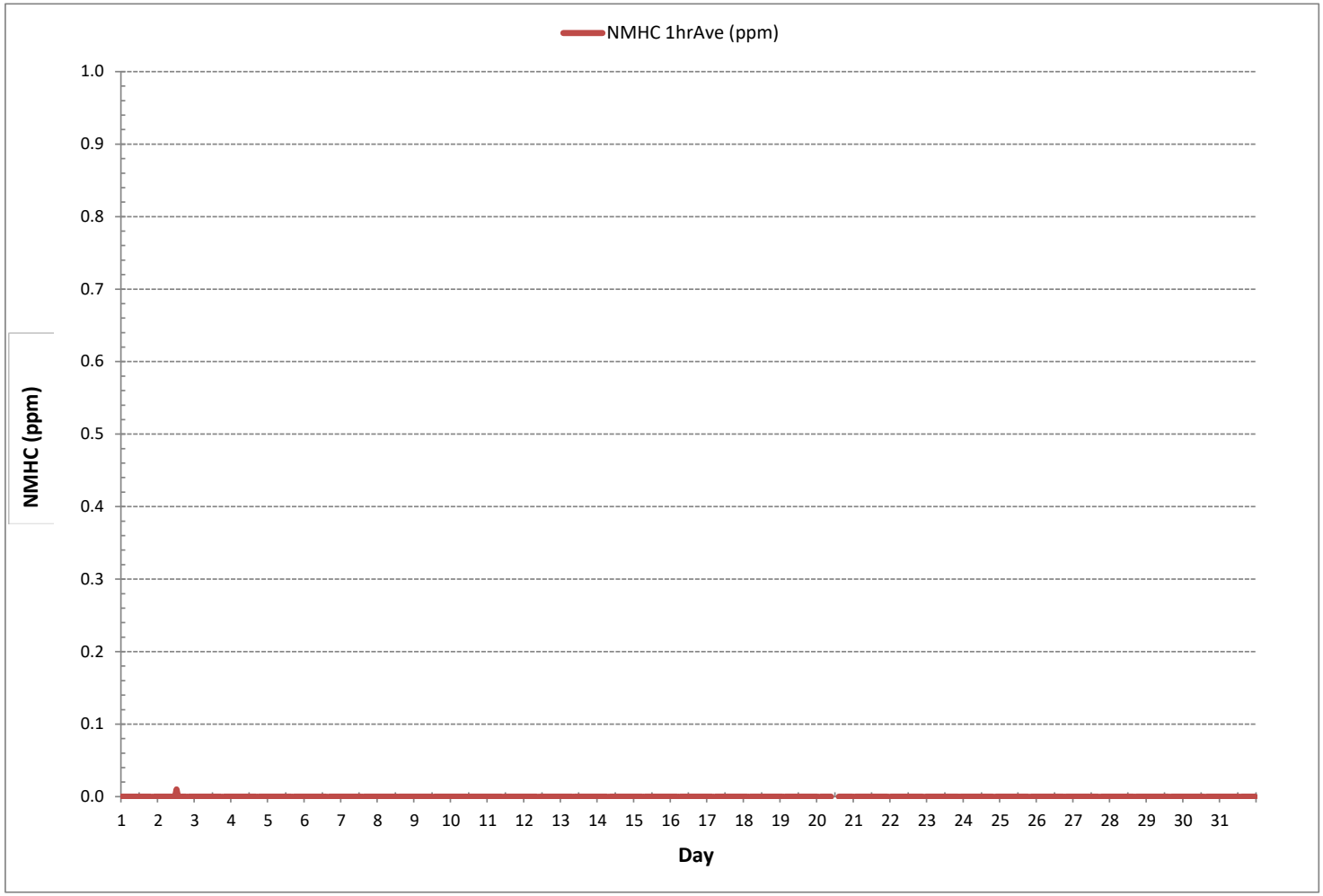
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



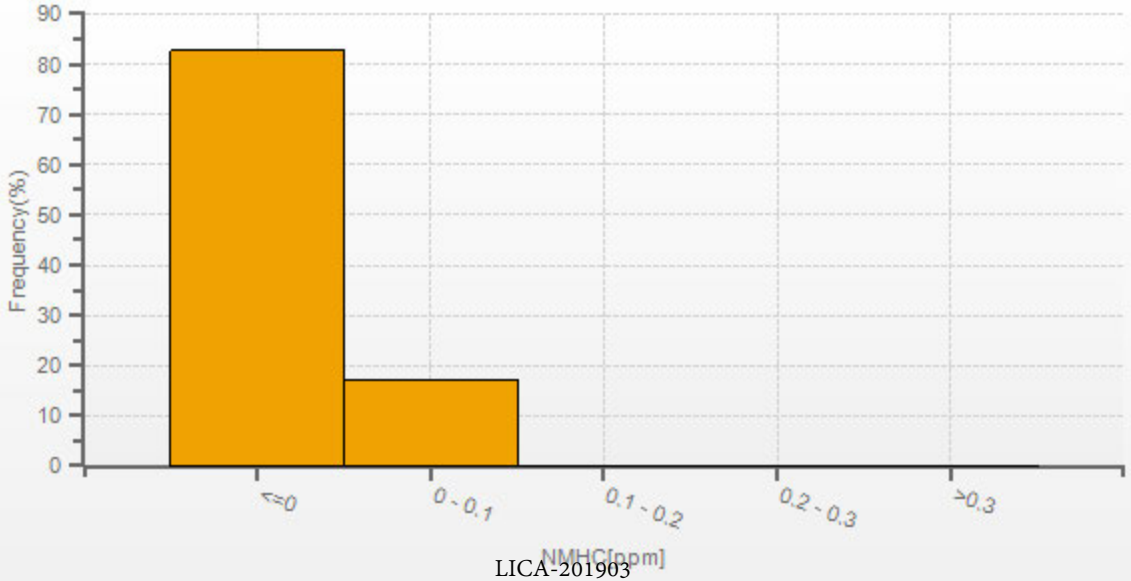
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			1				
MINIMUM 1-HR AVERAGE	0.00	ppm	@ HOUR	0	ON DAY	1	
MAXIMUM 1-HR AVERAGE:	0.01	ppm	@ HOUR	12	ON DAY	2	
MAXIMUM 24-HR AVERAGE:	0.00	ppm			ON DAY	1	
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:			744	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:			0.00	ppm

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

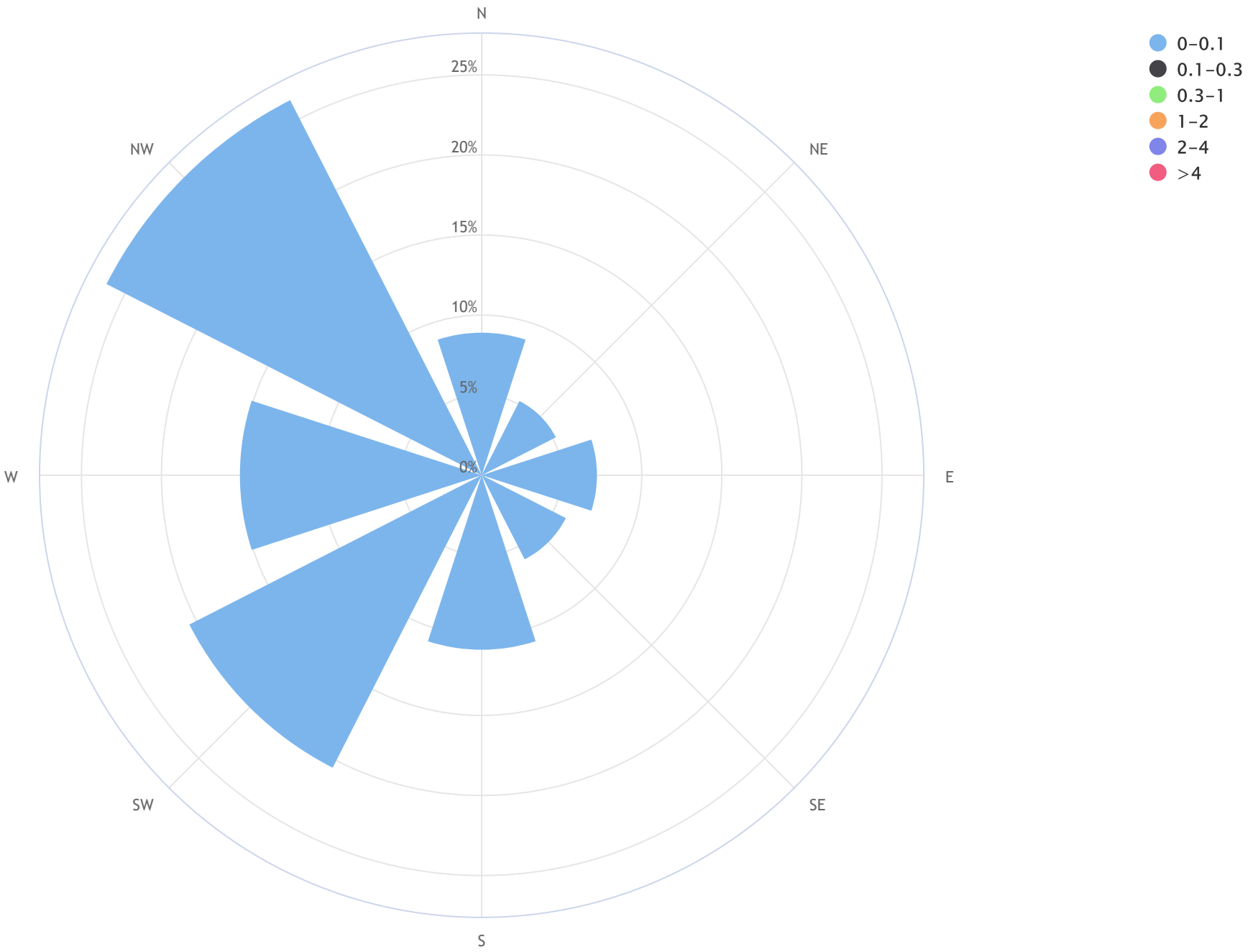


NMHC[ppm] Histogram: LICA ST. LINA Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_St. Lina Continuous Monitoring Station_NMHC (ppm)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = N/A, CALM % = 0.0%



Direction	0-0.1	0.1-0.3	0.3-1	1-2	2-4	>4	TOTAL
N	8.9	0.0	0.0	0.0	0.0	0.0	8.9
NE	5.2	0.0	0.0	0.0	0.0	0.0	5.2
E	7.2	0.0	0.0	0.0	0.0	0.0	7.2
SE	5.9	0.0	0.0	0.0	0.0	0.0	5.9
S	10.9	0.0	0.0	0.0	0.0	0.0	10.9
SW	20.5	0.0	0.0	0.0	0.0	0.0	20.5
W	15.1	0.0	0.0	0.0	0.0	0.0	15.1
NW	26.3	0.0	0.0	0.0	0.0	0.0	26.3
Summary	100.0	0.0	0.0	0.0	0.0	0.0	100.0
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0

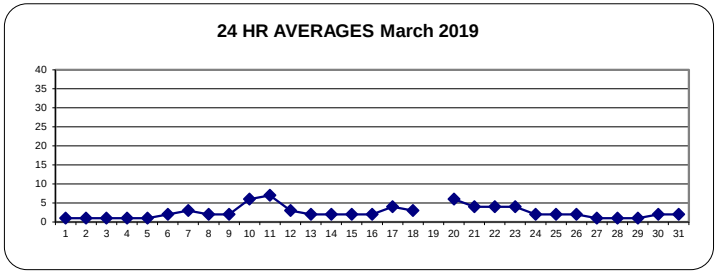
Maxxam
A Bureau Veritas Group Company

OXIDES OF NITROGEN Hourly Averages (NO_x ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	2	2	2	1	1	1	2	3	2	2	2	2	2	2	1	1	1	1	1	1	S	1	1	1	1	3	1	24
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	S	1	1	1	1	0	1	1	24
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	24
4	1	1	1	2	1	2	2	2	2	2	2	2	1	1	1	1	1	S	1	1	1	1	2	2	1	2	1	24
5	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	S	1	1	1	1	2	3	4	1	4	1	24
6	4	3	2	2	1	1	1	1	1	1	1	2	2	2	2	S	2	2	3	3	3	2	2	2	1	4	2	24
7	2	2	3	3	3	3	3	3	3	3	3	4	4	4	S	4	3	4	4	4	3	3	3	3	2	4	3	24
8	3	3	3	3	3	2	2	3	3	2	2	2	2	S	2	2	1	1	1	2	2	2	2	2	1	3	2	24
9	1	1	1	2	2	2	2	2	2	2	1	1	S	3	3	2	3	2	2	2	2	2	2	3	1	3	2	24
10	3	4	5	4	4	5	4	4	4	5	6	S	6	7	6	6	6	6	7	8	9	8	7	7	3	9	6	24
11	7	7	7	7	7	6	6	7	7	8	S	9	8	7	7	7	6	6	6	6	6	6	7	7	6	9	7	24
12	7	7	8	7	5	4	4	5	3	S	3	2	2	2	2	2	2	1	1	1	1	1	1	1	1	8	3	24
13	1	1	1	1	1	1	1	1	S	2	1	1	2	2	2	2	1	2	5	5	4	2	2	2	1	5	2	24
14	2	2	2	1	1	1	1	S	1	1	2	2	2	2	2	1	2	2	3	5	6	5	5	5	1	6	2	24
15	4	4	4	4	4	4	S	4	6	4	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	6	2	24
16	1	1	1	1	1	S	2	4	3	3	3	2	2	1	1	1	1	1	1	2	1	2	2	3	1	4	2	24
17	3	3	4	4	S	5	5	5	6	8	8	8	7	5	3	2	2	2	2	2	2	2	1	1	1	8	4	24
18	1	1	1	S	1	1	1	1	1	1	1	2	2	1	3	2	2	4	6	7	6	6	6	5	1	7	3	24
19	6	8	S	7	7	6	4	3	3	2	2	C	C	C	C	C	C	C	3	3	2	1	1	3	1	8	-	24
20	2	S	2	2	2	3	4	11	15	12	8	6	5	4	5	5	5	5	7	8	8	9	10	10	2	15	6	24
21	S	9	7	5	4	3	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	S	3	9	4	24
22	4	4	4	4	4	4	4	5	5	5	4	4	4	4	4	4	4	4	4	5	5	4	S	4	4	5	4	24
23	4	5	6	12	19	15	S1	S1	7	5	3	2	1	1	1	1	1	1	1	1	1	S	1	1	1	19	4	22
24	1	1	1	1	1	1	1	1	2	2	2	3	3	2	2	2	2	2	1	1	S	2	1	1	1	3	2	24
25	1	1	1	1	1	1	1	1	2	1	2	2	4	3	C1	C1	3	3	3	S	3	3	3	2	1	4	2	22
26	2	2	2	2	2	2	3	2	2	2	2	2	2	2	3	3	4	4	S	4	3	2	1	1	1	4	2	24
27	1	1	2	2	2	1	1	1	1	1	0	0	1	1	1	1	0	S	1	1	1	0	0	1	0	2	1	24
28	1	1	1	1	1	1	2	3	3	3	2	1	1	1	1	1	S	1	1	1	1	1	1	1	1	3	1	24
29	2	3	2	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	2	1	1	1	1	3	1	24
30	1	1	1	1	1	1	2	3	3	2	1	1	1	1	S	1	1	2	2	2	2	2	3	4	1	4	2	24
31	3	4	4	3	3	3	3	3	2	1	1	1	1	S	1	1	1	1	2	1	2	2	3	3	1	4	2	24
HOURLY MAX	7	9	8	12	19	15	6	11	15	12	8	9	8	7	7	7	6	6	7	8	9	9	10	10				
HOURLY AVG	2	3	3	3	3	3	2	3	3	3	2	2	3	2	2	2	2	2	3	3	3	3	3	3				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

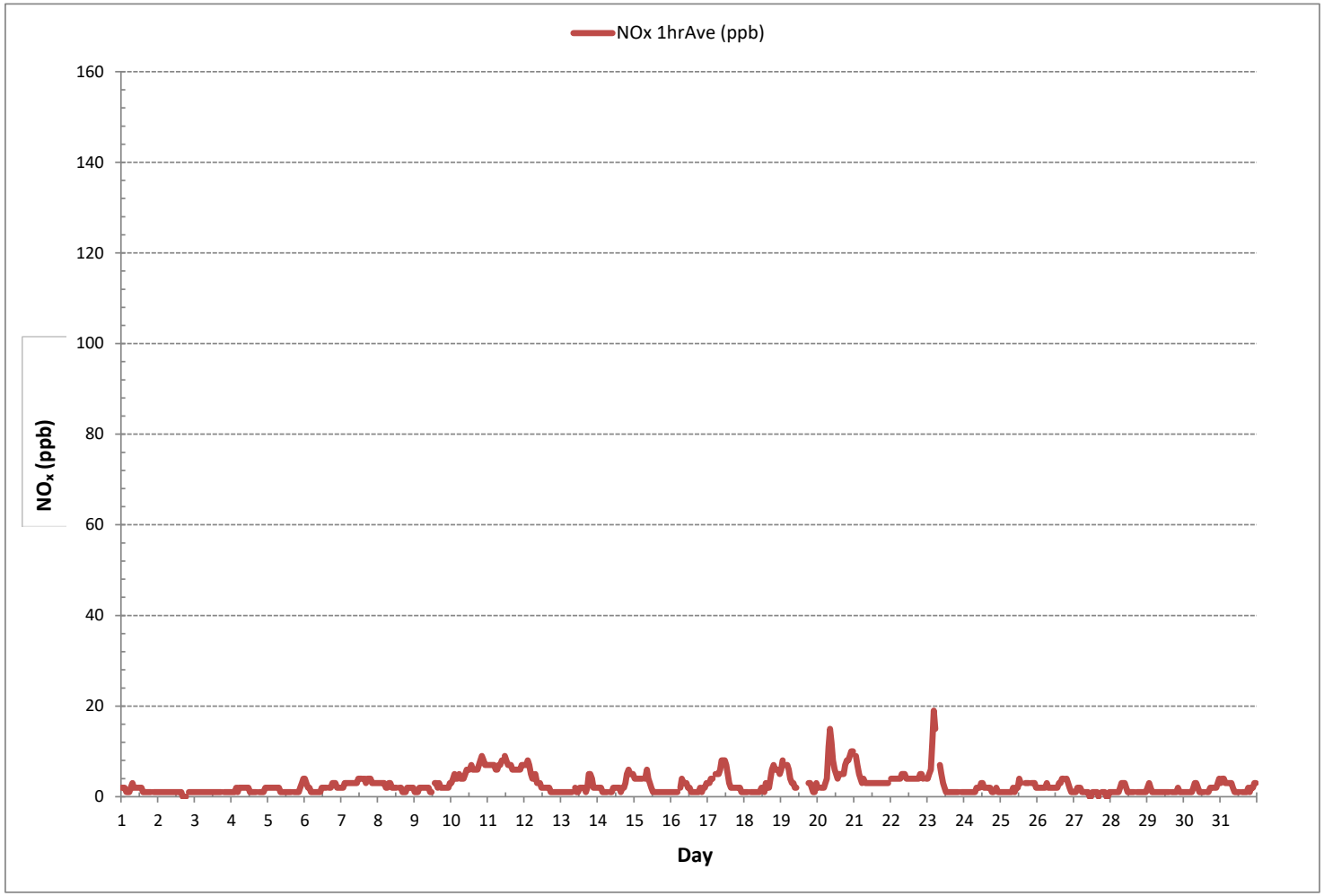


MONTHLY SUMMARY

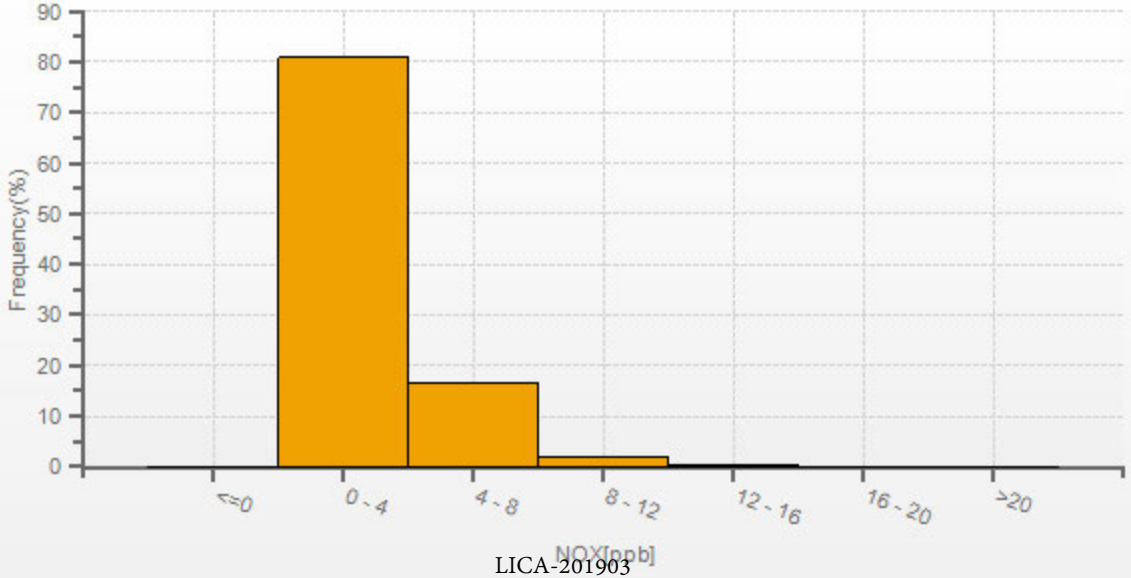
NUMBER OF NON-ZERO READINGS:		693				
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	16	ON DAY	2
MAXIMUM 1-HR AVERAGE:	19	ppb	@ HOUR	4	ON DAY	23
MAXIMUM 24-HR AVERAGE:	7	ppb			ON DAY	11

IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	740	hrs
MONTHLY CALIBRATION TIME:	7	hrs	AMD OPERATION UPTIME:	99.5	%
STANDARD DEVIATION:	2		MONTHLY AVERAGE:	3	ppb

OXIDES OF NITROGEN Hourly Averages (NO_x ppb)

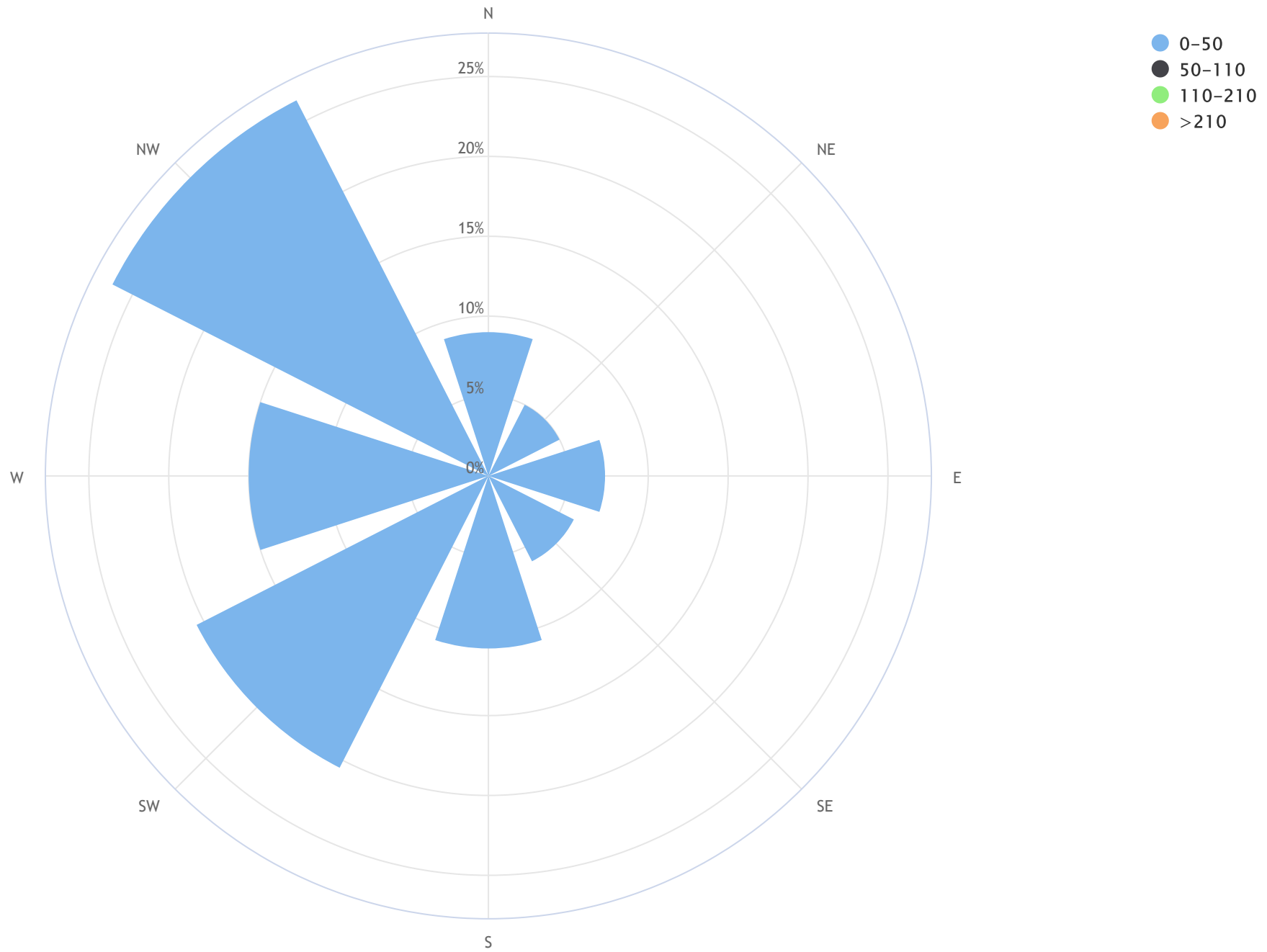


NOX[ppb] Histogram: LICA ST. LINA Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_St. Lina Continuous Monitoring Station_NO_X (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = N/A, CALM % = 0.0%



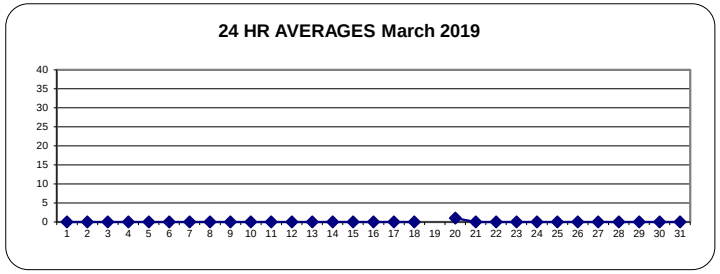
Direction	0-50	50-110	110-210	>210	TOTAL
N	9.0	0.0	0.0	0.0	9.0
NE	5.0	0.0	0.0	0.0	5.0
E	7.3	0.0	0.0	0.0	7.3
SE	6.0	0.0	0.0	0.0	6.0
S	10.8	0.0	0.0	0.0	10.8
SW	20.5	0.0	0.0	0.0	20.5
W	15.0	0.0	0.0	0.0	15.0
NW	26.4	0.0	0.0	0.0	26.4
Summary	100.0	0.0	0.0	0.0	100.0
CALM	0.0	0.0	0.0	0.0	0.0

NITRIC OXIDE Hourly Averages (NO ppb)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	S	0	0	0	0	1	0	24
2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	S	0	0	0	0	0	1	0	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	24
4	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	S	0	0	0	0	0	0	0	1	0	24
5	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	24
6	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	S	0	0	0	0	0	0	0	0	0	1	0	24
7	0	0	0	0	0	0	0	0	1	1	1	1	1	1	S	1	0	0	0	0	0	0	0	0	0	1	0	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	24
9	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	0	1	0	0	0	0	0	0	0	0	1	0	24
10	0	0	0	0	0	0	0	0	1	1	1	S	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	24
11	0	0	0	0	0	0	0	0	1	1	S	2	2	1	1	1	1	0	0	0	0	0	0	0	0	2	0	24
12	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
13	0	0	0	0	0	0	0	0	S	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
14	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	24
15	0	0	0	0	0	0	S	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
16	0	0	0	0	0	S	0	2	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	24
17	0	0	0	0	S	0	0	0	1	2	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	2	0	24
18	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	24
19	0	0	S	0	0	0	0	0	1	0	0	C	C	C	C	C	C	C	0	0	0	0	0	0	0	1	-	24
20	0	S	0	0	0	0	0	1	3	3	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	3	1	24
21	S	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	0	24
22	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	S	0	0	1	0	24
23	0	0	0	0	0	0	S1	S1	1	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	0	22
24	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	S	0	0	0	0	1	0	24
25	0	0	0	0	0	0	0	0	0	0	0	0	1	0	C1	C1	0	0	0	S	0	0	0	0	0	1	0	22
26	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	S	0	0	0	0	0	0	1	0	24
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	24
28	0	0	0	0	0	0	0	2	1	1	1	0	0	0	0	0	0	S	0	0	0	0	0	0	0	2	0	24
29	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	24
30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	0	24
31	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	24
HOURLY MAX	0	0	0	0	0	0	1	2	3	3	2	2	2	1	1	1	1	1	0	0	0	0	0	0	0			
HOURLY AVG	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

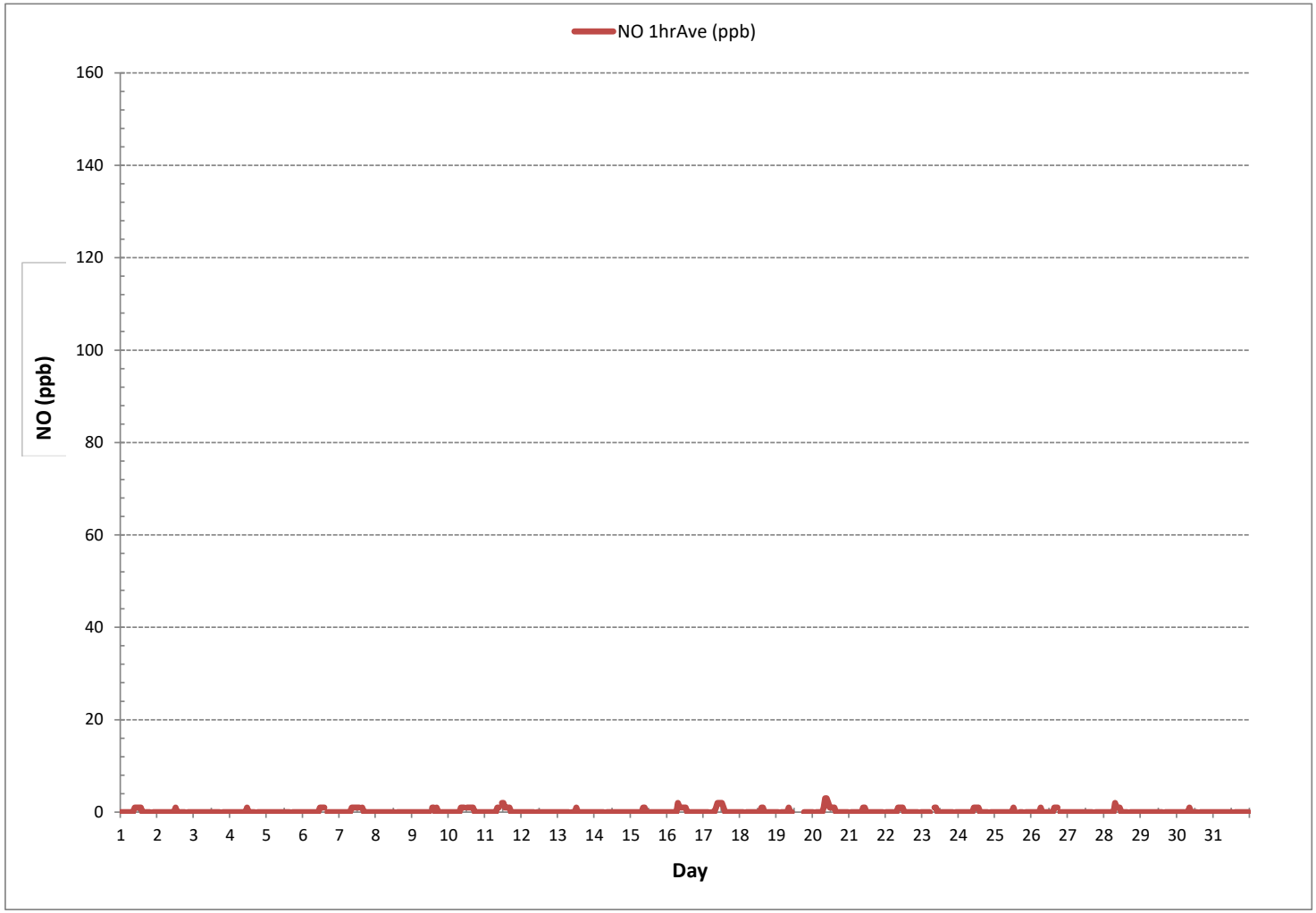


MONTHLY SUMMARY

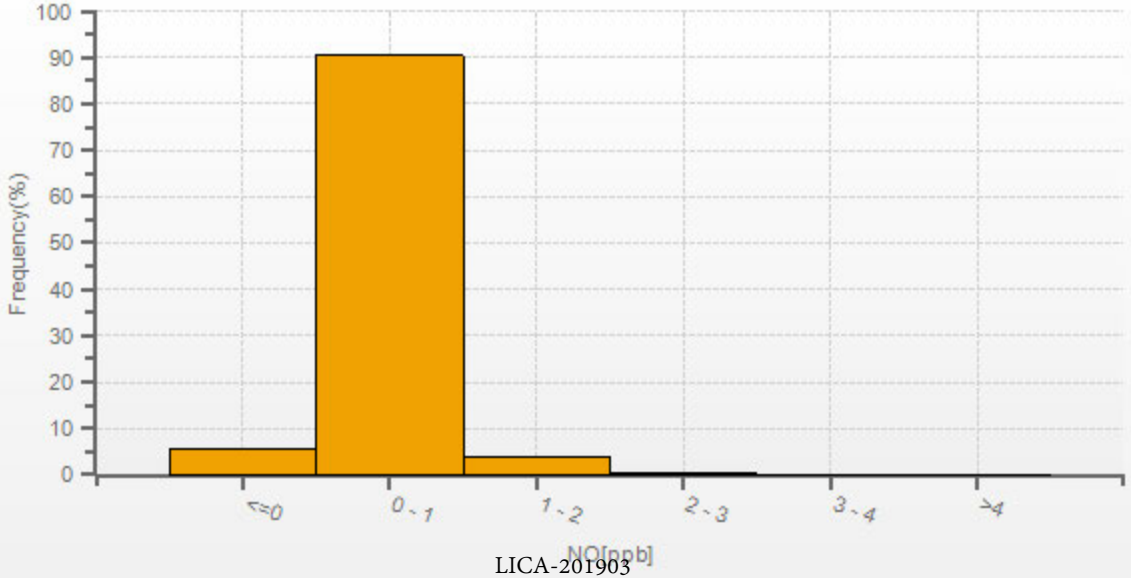
NUMBER OF NON-ZERO READINGS:		85				
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	0	ON DAY	1
MAXIMUM 1-HR AVERAGE:	3	ppb	@ HOUR	8	ON DAY	20
MAXIMUM 24-HR AVERAGE:	1	ppb			ON DAY	20

IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	740	hrs
MONTHLY CALIBRATION TIME:	7	hrs	AMD OPERATION UPTIME:	99.5	%
STANDARD DEVIATION:	0		MONTHLY AVERAGE:	0	ppb

NITRIC OXIDE Hourly Averages (NO ppb)

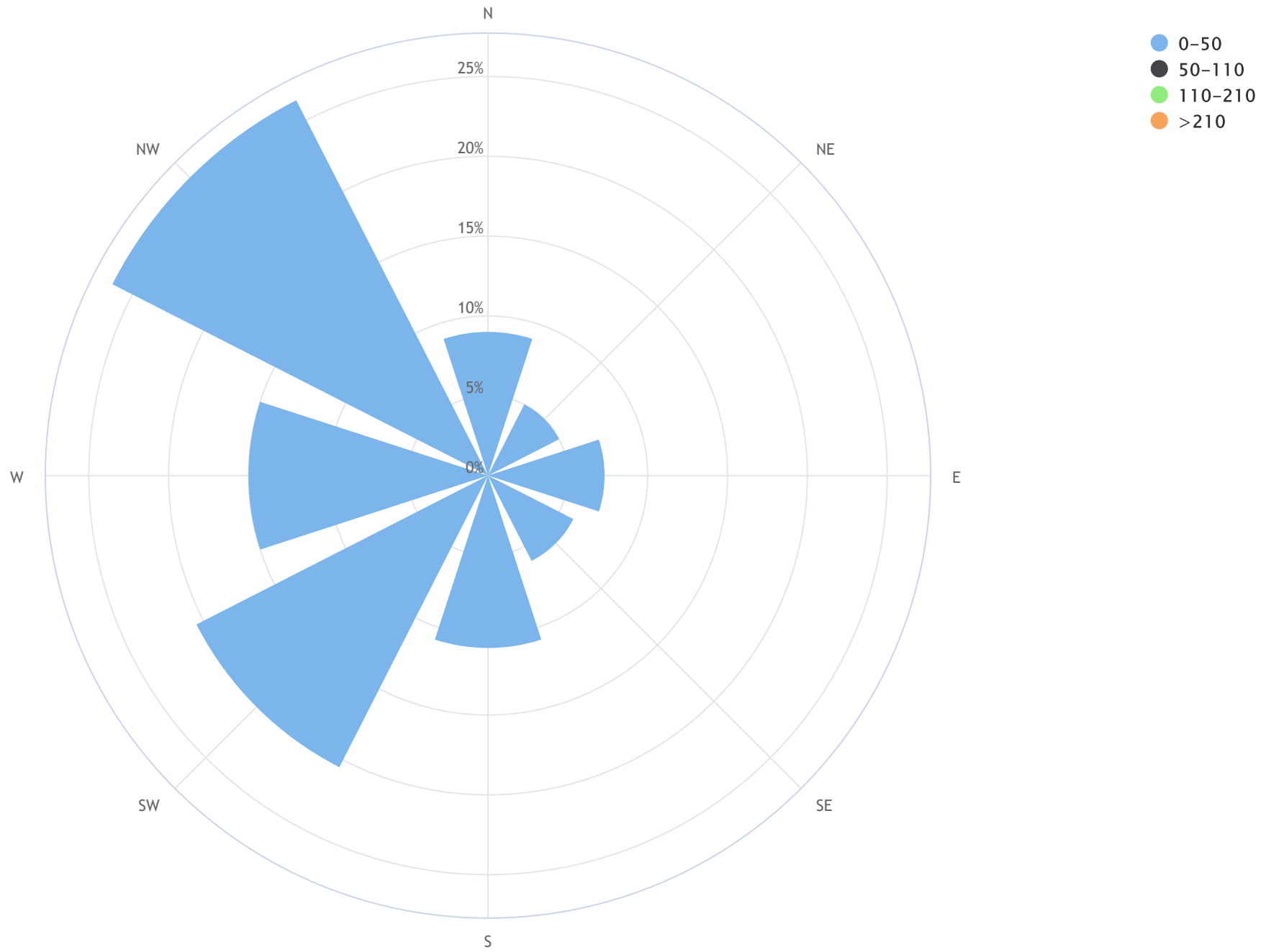


NO[ppb] Histogram: LICA ST. LINA Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_St. Lina Continuous Monitoring Station_NO (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = N/A, CALM % = 0.0%



Direction	0-50	50-110	110-210	>210	TOTAL
N	9.0	0.0	0.0	0.0	9.0
NE	5.0	0.0	0.0	0.0	5.0
E	7.3	0.0	0.0	0.0	7.3
SE	6.0	0.0	0.0	0.0	6.0
S	10.8	0.0	0.0	0.0	10.8
SW	20.5	0.0	0.0	0.0	20.5
W	15.0	0.0	0.0	0.0	15.0
NW	26.4	0.0	0.0	0.0	26.4
Summary	100.0	0.0	0.0	0.0	100.0
CALM	0.0	0.0	0.0	0.0	0.0

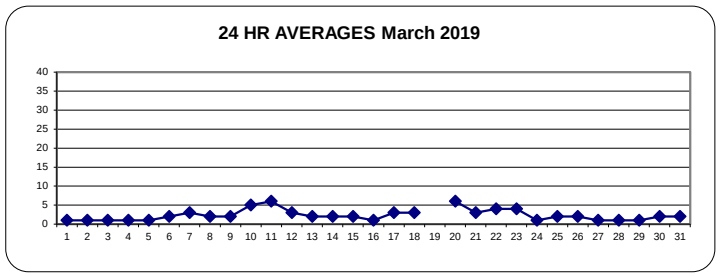
NITROGEN DIOXIDE Hourly Averages (NO_2 ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	2	2	2	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	2	1	24
2	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0	0	S	1	1	1	1	0	1	1	24
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	24
4	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	S	1	1	1	1	2	2	1	2	1	24
5	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	S	1	1	1	1	2	3	4	1	4	1	24
6	4	3	2	2	1	1	1	1	1	1	1	1	1	1	1	S	2	2	3	3	3	2	2	2	1	4	2	24
7	2	2	3	3	3	3	3	3	3	2	2	3	3	3	S	3	3	4	4	4	3	3	3	3	2	4	3	24
8	3	3	3	3	3	2	2	2	2	2	2	2	2	S	2	2	1	1	1	2	2	2	2	2	1	3	2	24
9	1	1	1	2	2	2	2	2	2	1	1	1	S	2	3	2	2	1	2	2	2	2	2	3	1	3	2	24
10	3	4	5	4	4	5	4	4	4	4	5	S	5	5	5	5	5	6	7	8	9	8	7	6	3	9	5	24
11	7	7	7	7	6	6	6	6	7	7	S	7	6	6	6	6	5	5	6	6	6	6	7	7	5	7	6	24
12	7	7	8	7	5	4	4	4	3	S	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	8	3	24
13	1	1	1	1	1	1	1	1	S	1	1	1	2	2	2	2	1	2	4	5	4	2	2	2	1	5	2	24
14	2	2	2	1	1	1	1	S	1	1	1	1	1	1	2	1	2	2	3	5	5	5	5	5	1	5	2	24
15	4	4	4	4	4	3	S	4	5	4	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	5	2	24
16	1	1	1	1	1	S	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	2	3	1	3	1	24
17	3	3	4	4	S	5	5	5	6	6	6	6	5	4	3	2	2	2	2	2	2	1	1	1	1	6	3	24
18	1	1	1	S	1	1	1	1	1	1	1	1	1	1	2	2	2	4	6	7	6	6	6	5	1	7	3	24
19	6	8	S	7	7	6	4	3	2	2	2	C	C	C	C	C	C	C	3	3	2	1	1	3	1	8	-	24
20	2	S	2	2	2	3	4	9	12	9	7	5	4	4	4	4	5	5	7	7	8	9	10	9	2	12	6	24
21	S	9	7	5	4	3	3	3	3	2	3	2	3	3	3	3	3	3	3	3	3	3	3	S	2	9	3	24
22	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	5	5	4	S	4	3	5	4	24
23	4	5	6	12	19	15	S1	S1	6	4	3	2	1	1	1	1	1	1	1	1	1	S	1	1	1	19	4	22
24	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	1	S	2	1	1	1	2	1	24
25	1	1	1	1	1	1	1	1	2	1	1	2	3	2	C1	C1	2	3	3	S	3	3	2	2	1	3	2	22
26	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	S	4	3	2	1	1	1	4	2	24
27	1	1	2	2	2	1	1	1	1	0	0	0	0	0	1	1	0	S	1	1	1	0	0	1	0	2	1	24
28	0	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	S	1	1	1	1	1	1	1	0	2	1	24
29	2	3	2	1	1	1	1	1	1	0	0	0	1	1	1	S	1	1	1	1	2	1	1	1	0	3	1	24
30	1	1	1	1	1	1	2	2	2	2	1	1	1	1	S	1	1	2	2	2	2	2	3	4	1	4	2	24
31	3	4	4	3	3	3	3	3	2	1	1	1	1	S	1	1	1	1	2	1	2	2	3	3	1	4	2	24
HOURLY MAX	7	9	8	12	19	15	6	9	12	9	7	7	6	6	6	6	5	6	7	8	9	9	10	9				
HOURLY AVG	2	3	3	3	3	3	2	3	3	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

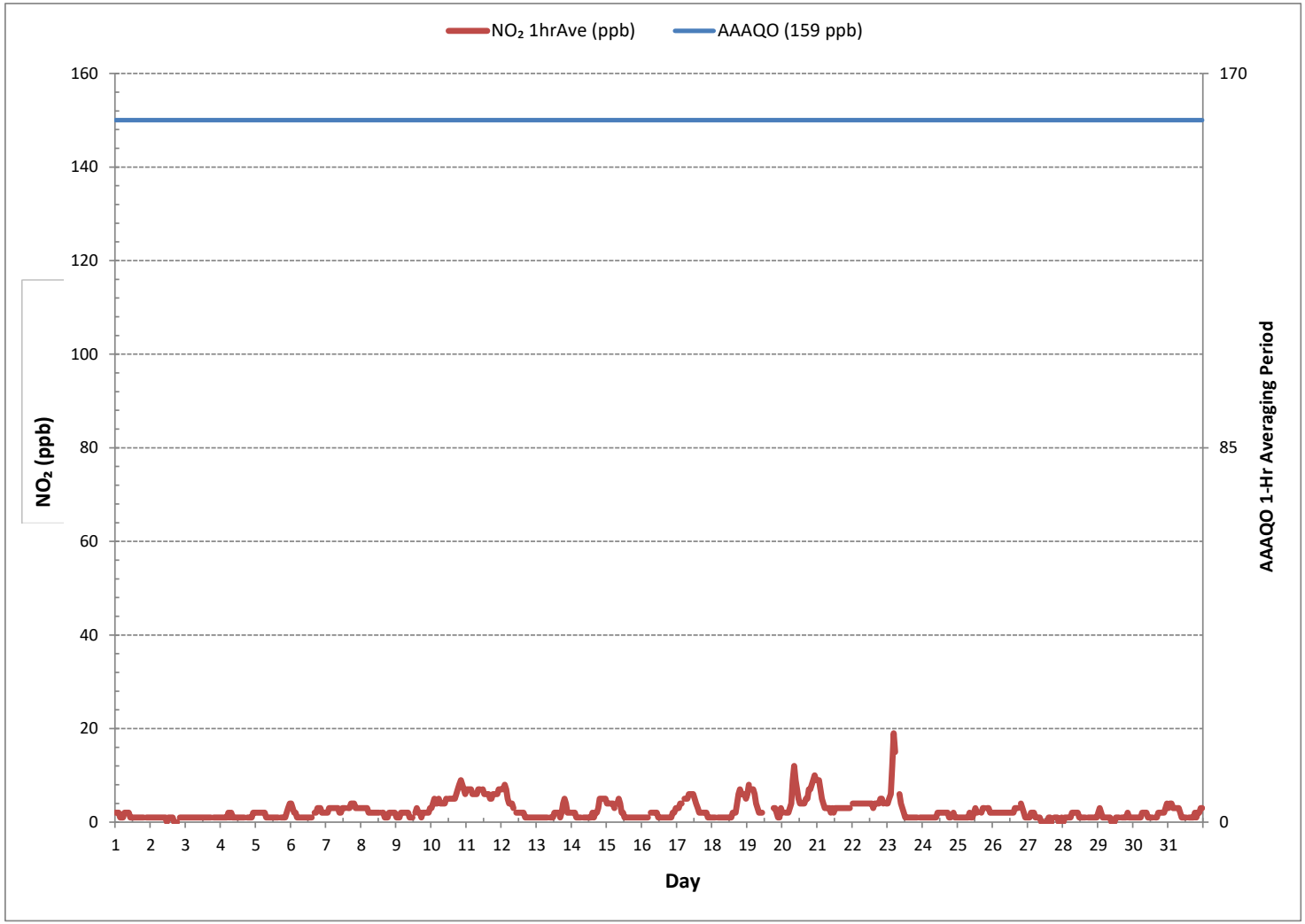
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 159 ppb



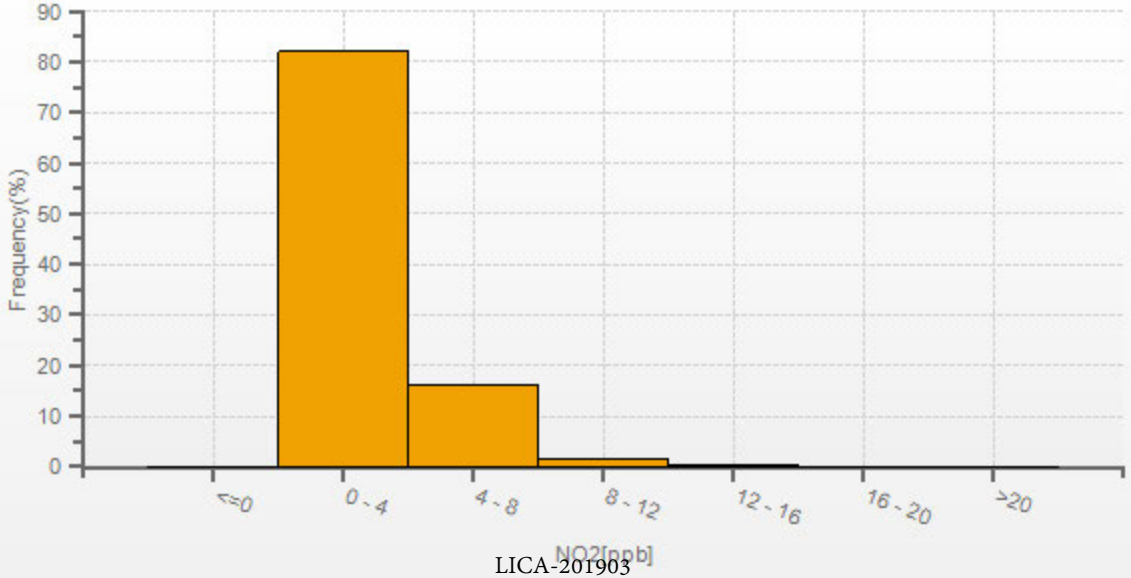
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:		0				
NUMBER OF NON-ZERO READINGS:		685				
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	11	ON DAY	2
MAXIMUM 1-HR AVERAGE:	19	ppb	@ HOUR	4	ON DAY	23
MAXIMUM 24-HR AVERAGE:	6	ppb			ON DAY	11
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:		740	hrs
MONTHLY CALIBRATION TIME:	7	hrs	AMD OPERATION UPTIME:		99.5	%
STANDARD DEVIATION:	2		MONTHLY AVERAGE:		2	ppb

NITROGEN DIOXIDE Hourly Averages (NO_2 ppb)

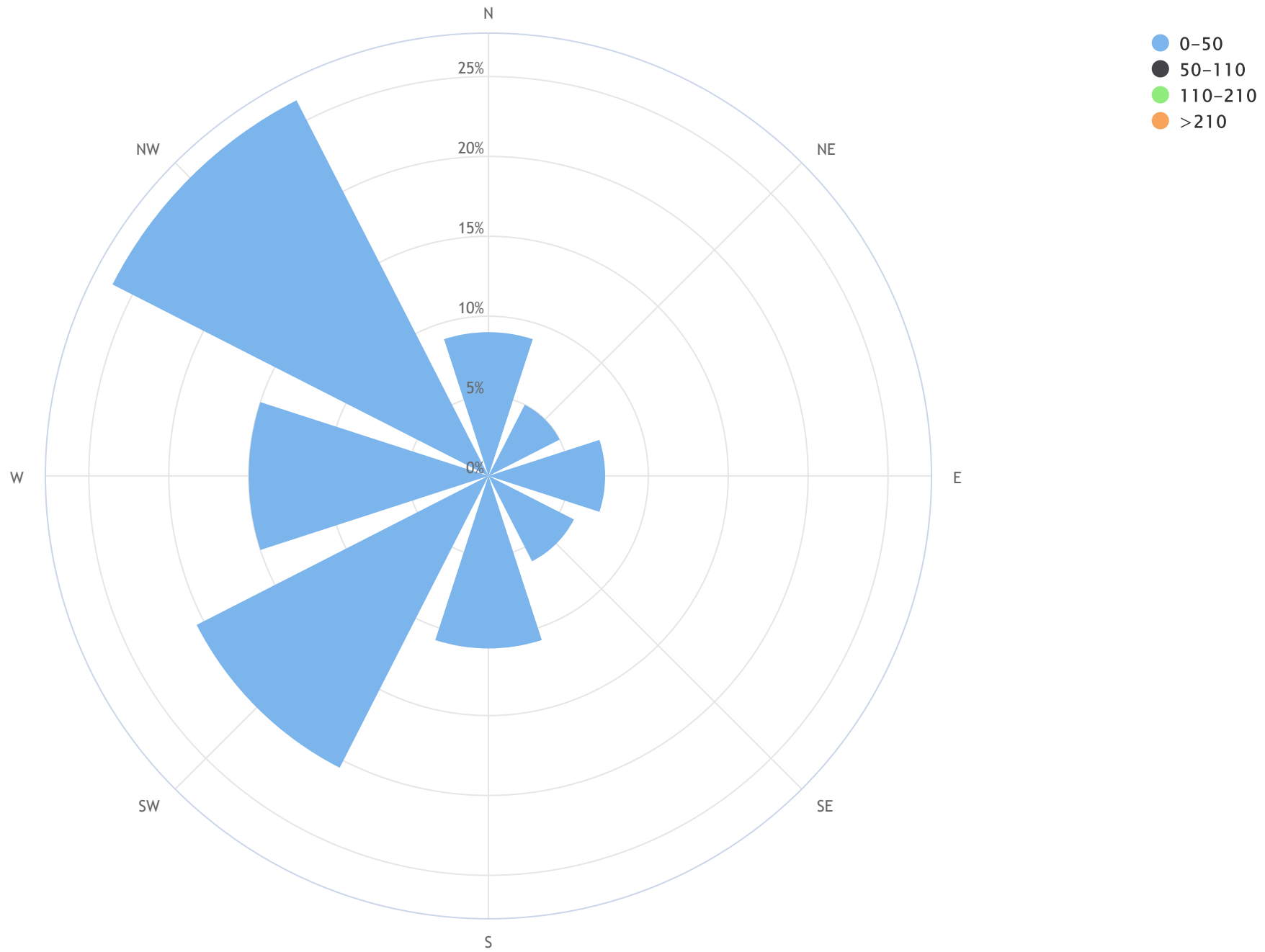


NO2[ppb] Histogram: LICA ST. LINA Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_St. Lina Continuous Monitoring Station_NO_2 (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = N/A, CALM % = 0.0%



Direction	0-50	50-110	110-210	>210	TOTAL
N	9.0	0.0	0.0	0.0	9.0
NE	5.0	0.0	0.0	0.0	5.0
E	7.3	0.0	0.0	0.0	7.3
SE	6.0	0.0	0.0	0.0	6.0
S	10.8	0.0	0.0	0.0	10.8
SW	20.5	0.0	0.0	0.0	20.5
W	15.0	0.0	0.0	0.0	15.0
NW	26.4	0.0	0.0	0.0	26.4
Summary	100.0	0.0	0.0	0.0	100.0
CALM	0.0	0.0	0.0	0.0	0.0

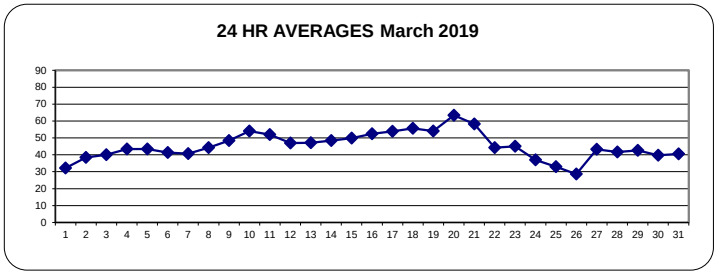
OZONE Hourly Averages (O_3 ppb)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																											
1	28.6	25.5	23.4	**20.5**	23.2	26.0	30.0	30.4	32.2	32.8	33.0	33.5	34.0	35.6	36.4	36.6	36.6	36.3	36.2	36.5	S	36.8	36.8	36.7	**20.5**	36.8	32.1	24
2	36.7	36.7	36.6	36.5	35.9	34.9	34.5	34.5	34.8	35.0	36.3	39.1	40.1	40.9	40.4	41.1	42.5	42.8	42.4	S	41.1	41.0	40.6	40.0	34.5	42.8	38.5	24
3	37.9	37.3	37.7	38.0	37.7	37.3	36.8	37.1	37.6	38.5	39.1	39.7	41.2	42.8	42.9	42.6	42.7	42.7	S	42.9	42.7	42.4	41.8	41.2	36.8	42.9	40.0	24
4	40.4	40.1	40.1	40.4	40.6	40.5	40.3	40.4	40.9	41.8	42.9	44.3	45.7	46.6	47.1	47.1	46.9	S	47.0	46.6	46.3	45.8	45.0	44.2	40.1	47.1	43.5	24
5	43.4	42.7	42.3	42.1	41.9	41.9	41.9	41.9	42.2	43.2	43.9	43.9	44.3	45.2	45.5	45.6	S	45.7	46.1	46.0	45.1	43.0	41.2	40.0	40.0	46.1	43.4	24
6	40.0	41.0	41.3	41.3	41.3	41.0	40.6	40.2	39.6	39.7	39.6	39.6	41.4	42.3	42.7	S	43.0	42.9	42.3	42.4	41.9	41.9	42.6	43.2	39.6	43.2	41.4	24
7	43.1	42.5	41.2	40.4	39.4	38.8	39.0	39.2	39.5	40.3	40.8	40.8	41.2	41.7	S	42.3	41.8	41.2	40.3	40.2	40.4	40.5	40.3	40.2	38.8	43.1	40.7	24
8	40.1	39.9	39.6	39.2	39.8	40.1	39.6	38.9	39.0	39.5	41.5	42.9	43.8	S	47.1	49.0	50.1	50.3	50.1	49.8	49.8	49.8	49.8	49.5	38.9	50.3	44.3	24
9	49.1	48.6	48.1	47.5	46.7	46.0	45.4	45.1	44.8	45.0	46.4	47.3	S	48.3	48.5	48.9	49.2	49.5	49.1	50.6	50.6	53.1	53.6	53.8	44.8	53.8	48.5	24
10	52.9	51.6	50.8	52.1	51.5	48.8	49.8	50.4	48.9	49.2	49.9	S	54.9	56.2	58.6	61.7	63.1	61.3	60.8	57.1	54.3	53.6	53.4	52.7	48.8	63.1	54.1	24
11	50.5	47.3	48.3	49.0	49.5	50.4	49.9	48.6	47.9	47.3	S	48.9	50.6	52.4	53.9	53.8	53.5	55.1	56.5	55.8	57.0	57.0	56.9	56.4	47.3	57.0	52.0	24
12	55.8	52.8	46.8	44.4	43.7	43.5	42.9	42.6	45.2	S	46.1	45.7	45.8	47.0	47.7	47.8	47.9	47.9	47.6	48.6	48.8	48.3	47.4	46.0	42.6	55.8	47.0	24
13	45.0	44.8	44.9	44.9	45.4	45.4	45.3	44.9	S	44.3	45.2	46.7	48.7	49.1	50.3	49.7	49.0	52.7	50.2	47.7	47.7	48.5	48.3	47.9	44.3	52.7	47.2	24
14	47.4	46.9	46.0	45.4	44.7	44.5	44.6	S	45.8	46.0	47.2	49.1	50.4	52.2	50.8	51.3	52.1	51.5	51.1	49.0	51.0	50.6	48.6	47.6	44.5	52.2	48.4	24
15	47.5	47.5	47.5	47.9	47.7	46.8	S	44.6	44.4	46.9	49.6	51.1	51.5	51.4	51.6	52.9	52.5	52.4	51.8	53.5	53.2	52.5	51.5	50.9	44.4	53.5	49.9	24
16	51.3	51.4	49.8	49.5	49.5	S	49.0	47.9	47.3	48.5	50.1	51.3	52.6	53.5	52.1	52.1	53.0	53.0	53.7	57.2	57.6	58.8	60.0	59.1	47.3	60.0	52.5	24
17	58.0	56.6	54.7	52.2	S	48.6	48.4	48.7	48.3	47.7	49.1	51.0	52.7	55.3	58.0	58.2	58.6	58.8	57.4	56.6	57.1	55.8	54.1	52.8	47.7	58.8	53.9	24
18	52.5	52.8	53.4	S	54.7	54.5	54.5	53.9	53.3	53.8	54.8	55.9	56.4	57.7	59.2	61.3	61.4	59.1	57.1	56.4	55.6	54.9	53.6	52.3	52.3	61.4	55.6	24
19	49.4	46.2	S	43.5	42.1	44.3	47.8	48.7	51.0	53.4	54.3	53.8	54.1	56.7	62.4	63.1	63.0	62.5	62.1	61.2	59.1	55.1	54.5	56.9	42.1	63.1	54.1	24
20	57.3	S	58.0	57.6	57.1	55.3	53.6	48.4	43.8	47.9	C	C	C	C	C	77.7	79.1	**79.4**	77.3	75.5	73.5	70.4	66.8	62.7	43.8	**79.4**	**63.4**	24
21	S	58.0	62.5	60.5	56.6	54.6	52.3	51.9	51.6	52.3	53.8	58.3	63.4	67.2	67.6	67.1	65.2	62.8	60.1	56.7	53.9	53.0	52.4	S	51.6	67.6	58.3	24
22	47.7	45.0	42.3	39.9	37.7	35.6	33.8	32.6	32.0	33.9	36.5	39.4	43.9	47.2	49.6	50.8	51.6	51.3	51.4	52.7	53.2	54.9	S	52.6	32.0	54.9	44.2	24
23	52.0	51.0	47.9	35.2	25.0	28.7	37.8	41.8	45.1	47.7	50.6	51.7	51.2	50.8	52.0	52.0	50.3	51.2	49.7	44.0	40.7	S	39.9	39.7	25.0	52.0	45.0	24
24	40.5	40.1	40.1	39.4	38.5	37.1	35.5	34.9	35.5	34.9	35.4	35.9	34.9	36.1	37.5	36.3	35.7	35.6	36.8	37.0	S	37.4	37.7	38.0	34.9	40.5	37.0	24
25	38.0	37.2	36.5	35.2	34.7	34.7	33.9	34.6	34.4	35.1	35.9	36.0	34.9	35.6	35.6	33.7	31.0	29.3	27.6	S	26.1	26.1	26.8	27.1	26.1	38.0	33.0	24
26	27.2	26.4	27.7	27.9	28.4	27.9	27.0	26.5	24.9	24.4	25.8	24.7	23.9	26.7	27.2	27.7	26.4	25.9	S	24.8	30.7	41.6	42.0	41.5	23.9	42.0	28.6	24
27	40.6	39.6	37.7	36.5	35.9	39.0	40.7	40.9	42.5	46.6	48.5	48.3	47.7	46.7	45.7	47.3	46.8	S	44.9	43.9	43.2	44.3	44.0	43.2	35.9	48.5	43.2	24
28	43.4	41.2	41.7	41.3	40.6	38.2	34.5	29.6	28.2	35.0	39.1	42.1	43.5	45.6	46.0	46.4	S	47.2	46.9	47.3	46.0	45.6	45.8	43.9	28.2	47.3	41.7	24
29	40.6	37.4	38.3	39.5	40.5	41.0	40.4	41.5	41.9	43.1	43.3	43.9	44.7	46.3	47.9	S	46.8	46.8	45.1	43.4	42.3	43.4	42.5	42.0	37.4	47.9	42.7	24
30	40.9	40.0	39.0	37.3	35.2	33.4	32.7	33.8	35.9	39.2	41.0	41.7	42.3	43.4	S	44.1	46.4	45.9	43.6	42.6	41.6	40.6	37.1	34.9	32.7	46.4	39.7	24
31	35.4	34.7	35.9	37.0	36.9	38.3	38.6	38.2	39.4	42.1	42.6	44.5	46.4	S	46.2	46.2	46.4	45.0	43.2	40.5	39.0	38.3	37.4	38.6	34.7	46.4	40.5	24
HOURLY MAX	58.0	58.0	62.5	60.5	57.1	55.3	54.5	53.9	53.3	53.8	54.8	58.3	63.4	67.2	67.6	77.7	79.1	79.4	77.3	75.5	73.5	70.4	66.8	62.7				
HOURLY AVG	44.4	43.4	43.3	42.1	41.4	41.2	41.4	41.1	41.3	42.5	43.5	44.5	45.7	47.2	48.2	49.5	49.4	49.2	49.3	48.5	47.9	47.5	46.4	45.9				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 76 ppb

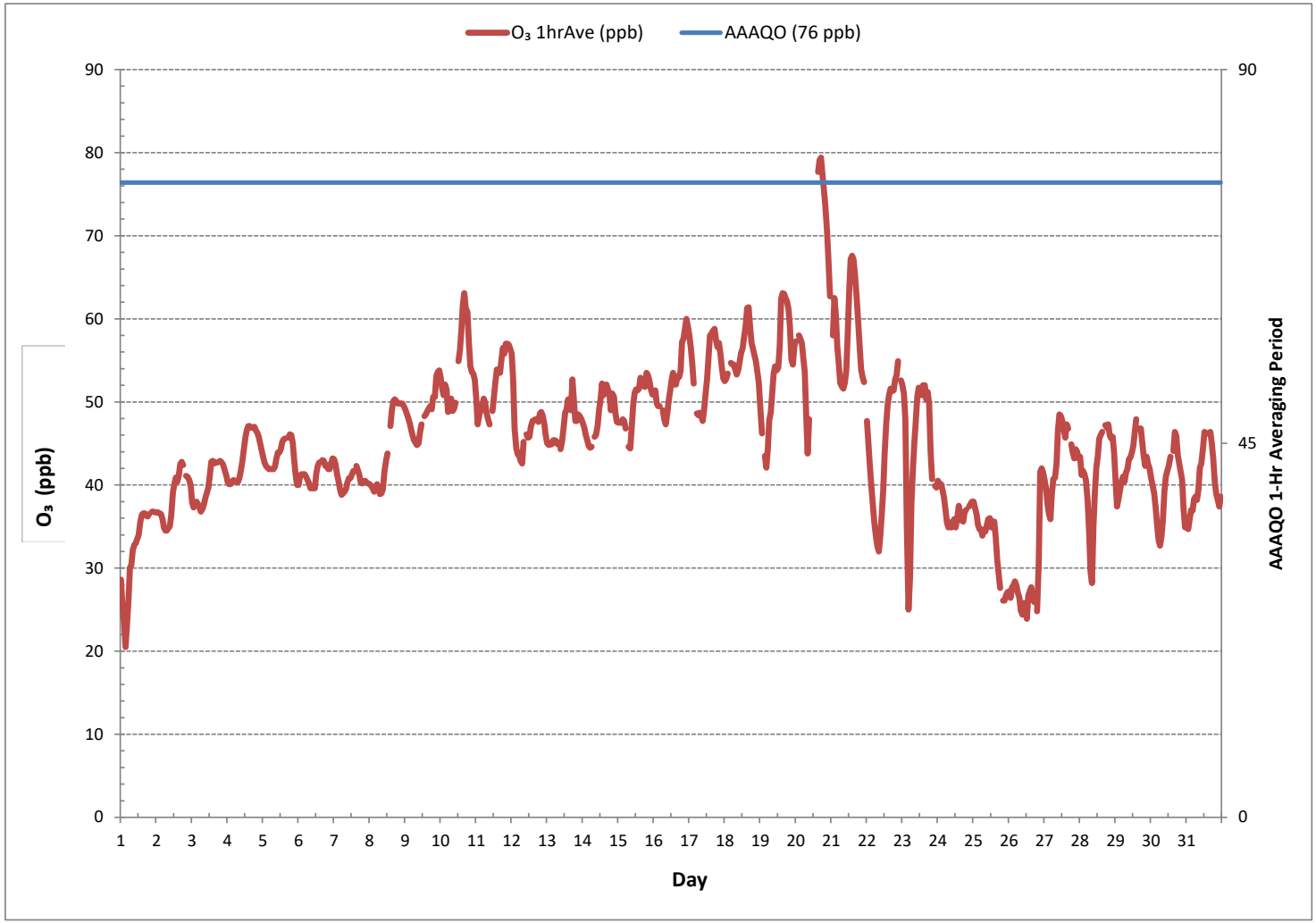


MONTHLY SUMMARY

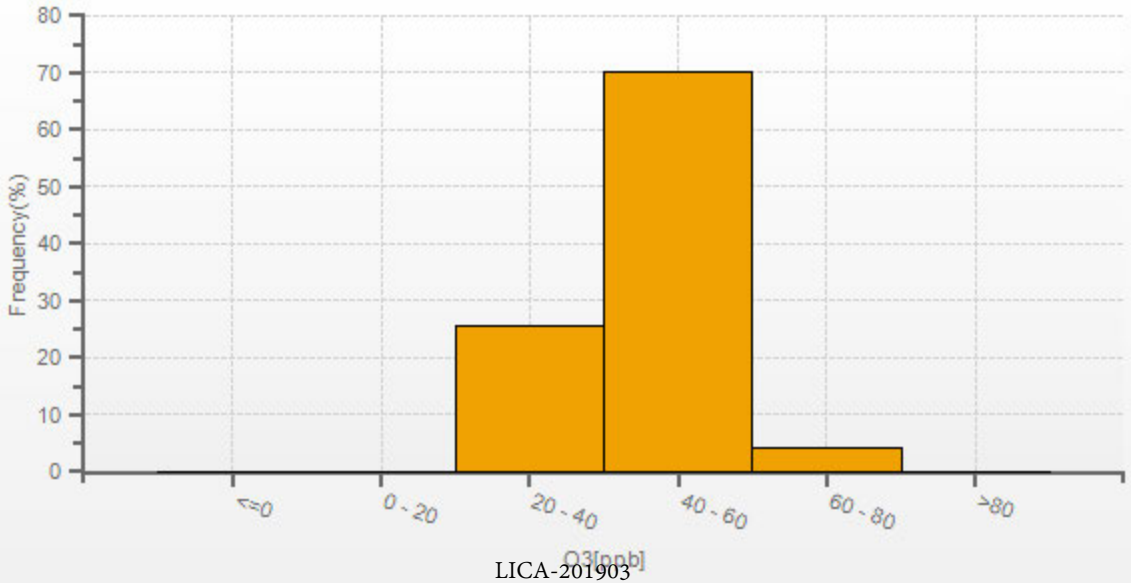
NUMBER OF 1-HR EXCEEDANCES:		4				
NUMBER OF NON-ZERO READINGS:		707				
MINIMUM 1-HR AVERAGE	20.5	ppb	@ HOUR	3	ON DAY	1
MAXIMUM 1-HR AVERAGE:	79.4	ppb	@ HOUR	17	ON DAY	20
MAXIMUM 24-HR AVERAGE:	63.4	ppb			ON DAY	20

IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	744	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	8.8		MONTHLY AVERAGE:	45.2	ppb

OZONE Hourly Averages (O_3 ppb)

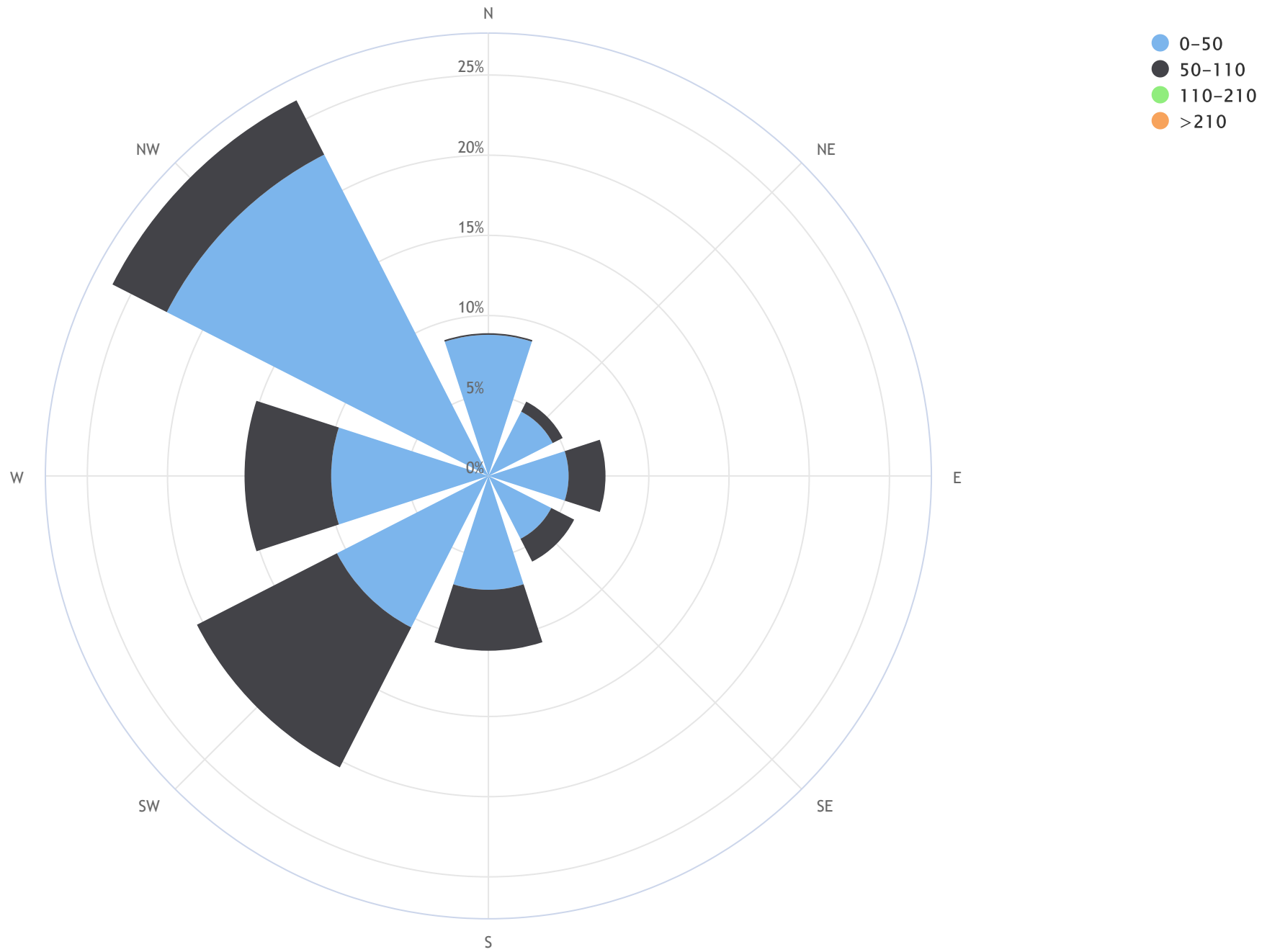


O3[ppb] Histogram: LICA ST. LINA Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_St. Lina Continuous Monitoring Station_O_3 (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = N/A, CALM % = 0.0%



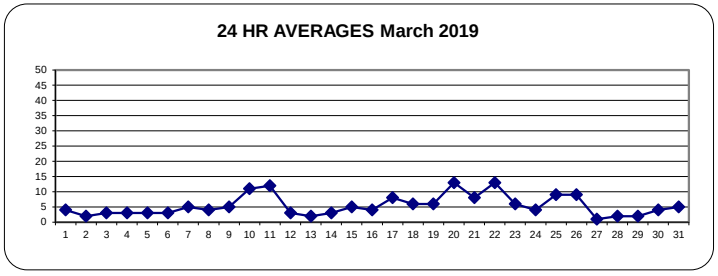
Direction	0-50	50-110	110-210	>210	TOTAL
N	8.8	0.1	0.0	0.0	8.9
NE	4.5	0.7	0.0	0.0	5.2
E	5.0	2.3	0.0	0.0	7.2
SE	4.4	1.6	0.0	0.0	5.9
S	7.1	3.8	0.0	0.0	10.9
SW	10.6	9.8	0.0	0.0	20.4
W	9.8	5.4	0.0	0.0	15.1
NW	22.5	3.8	0.0	0.0	26.3
Summary	72.6	27.4	0.0	0.0	100.0
CALM	0.0	0.0	0.0	0.0	0.0

PARTICULATE MATTER < 2.5 MICRONS Hourly Averages ($PM_{2.5}$ µg/m^3)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	5	5	4	5	5	4	3	4	3	3	3	4	5	4	4	4	4	3	3	3	3	3	3	3	3	5	4	24
2	3	3	3	3	3	4	4	4	4	3	3	2	2	2	2	2	1	1	1	1	1	1	2	2	1	4	2	24
3	2	3	2	2	2	3	3	3	3	3	3	3	3	2	2	2	2	2	2	3	3	3	3	3	2	3	3	24
4	3	3	4	4	4	4	4	4	3	3	3	3	2	2	2	3	3	3	3	3	4	3	4	4	2	4	3	24
5	4	4	4	8	7	4	4	4	4	3	3	2	3	2	2	2	2	2	2	2	3	5	4	3	2	8	3	24
6	2	2	2	2	2	2	2	2	2	4	4	3	4	4	3	3	3	3	3	4	4	4	4	4	2	4	3	24
7	4	5	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	5	5	5	5	6	4	6	5	24
8	5	5	5	5	5	5	5	5	4	4	4	4	3	3	3	2	3	3	3	6	7	6	5	5	2	7	4	24
9	5	5	5	6	6	5	5	5	4	4	4	3	4	5	8	6	5	3	3	5	6	7	7	9	3	9	5	24
10	12	12	14	14	13	11	10	9	9	8	7	7	7	7	7	9	10	11	12	13	14	14	13	11	7	14	11	24
11	10	13	15	16	17	16	16	16	15	14	13	11	8	9	9	7	5	6	7	9	10	13	15	16	5	17	12	24
12	14	10	8	6	5	4	4	4	2	1	1	1	1	1	1	1	1	1	1	**0**	1	1	1	1	**0**	14	3	24
13	1	1	1	1	1	1	1	1	1	1	1	1	3	2	2	1	1	4	4	3	4	3	3	3	1	4	2	24
14	3	3	2	2	2	2	2	2	2	2	2	2	3	4	3	2	3	3	3	6	6	6	7	7	2	7	3	24
15	8	9	9	9	9	10	13	13	12	6	3	2	2	2	2	2	2	2	1	2	2	2	2	2	1	13	5	24
16	2	2	3	3	4	4	4	4	3	4	4	4	3	3	2	2	3	3	3	5	5	6	7	7	2	7	4	24
17	7	9	10	11	13	15	15	14	13	13	12	11	9	7	4	4	3	4	3	4	4	3	3	2	2	15	8	24
18	3	3	3	3	3	3	3	3	3	4	4	5	5	4	4	4	5	10	10	10	11	11	10	10	3	11	6	24
19	10	9	10	9	10	9	5	4	3	3	3	3	3	4	5	5	4	4	4	5	6	4	4	6	3	10	6	24
20	6	4	5	5	6	10	13	16	21	19	17	11	9	6	**C**	**C**	9	10	13	16	20	23	24	15	4	24	**13**	24
21	9	10	12	9	7	6	5	5	4	4	6	6	9	11	10	10	9	8	8	8	8	9	11	13	4	13	8	24
22	14	14	13	13	13	13	13	13	12	12	12	13	13	12	12	12	11	11	11	14	16	20	20	16	11	20	13	24
23	17	20	23	**25**	14	9	5	4	3	3	3	2	1	1	1	1	1	1	4	2	2	3	2	2	1	**25**	6	24
24	2	2	1	1	1	1	2	2	2	3	5	6	8	8	6	4	4	4	4	4	4	5	4	3	1	8	4	24
25	3	4	6	8	10	10	10	10	11	7	5	6	8	9	9	11	11	10	8	11	13	14	9	7	3	14	9	24
26	6	7	8	8	8	7	7	6	3	2	5	7	10	14	19	18	18	19	17	16	13	2	1	1	1	19	9	24
27	1	1	1	2	2	1	1	1	1	0	0	0	0	0	1	1	0	0	1	1	1	0	0	1	0	2	1	24
28	1	1	1	1	2	2	2	4	9	7	5	3	3	2	1	1	1	2	2	2	2	2	2	2	1	9	2	24
29	2	3	3	2	2	2	10	3	1	2	1	1	2	2	2	2	2	2	2	2	3	3	2	2	1	10	2	24
30	2	2	2	2	3	3	4	6	7	5	3	2	2	2	2	2	3	4	6	6	6	4	5	6	2	7	4	24
31	5	5	5	5	6	4	4	4	3	3	4	3	3	3	4	5	5	6	6	6	6	8	8	7	3	8	5	24
HOURLY MAX	17	20	23	25	17	16	16	16	21	19	17	13	13	14	19	18	18	19	17	16	20	23	24	16				
HOURLY AVG	6	6	6	6	6	6	6	6	6	5	5	4	5	5	5	4	4	5	5	6	6	6	6	6				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

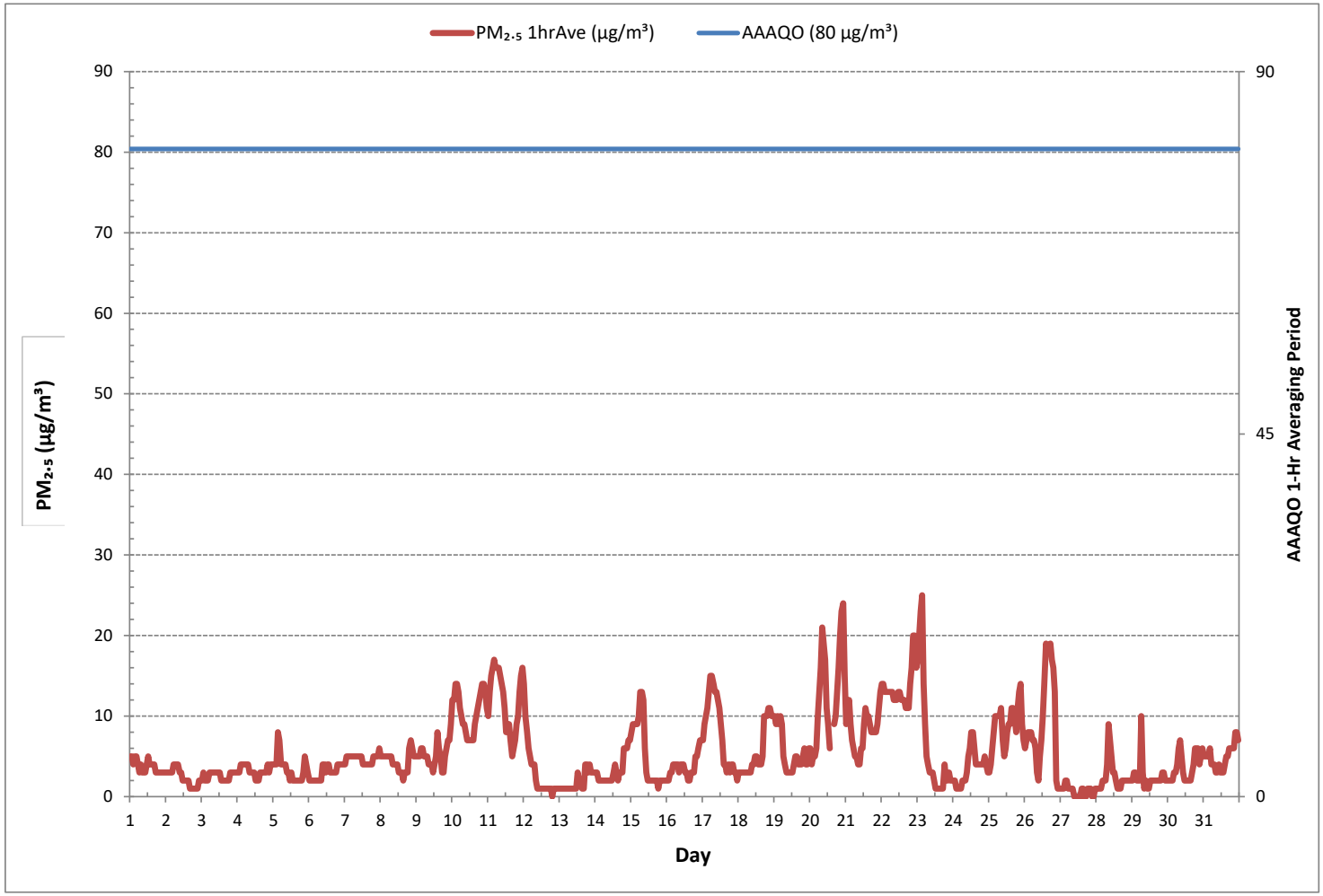


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 80 µg/m^3 | 24-HR 29 µg/m^3

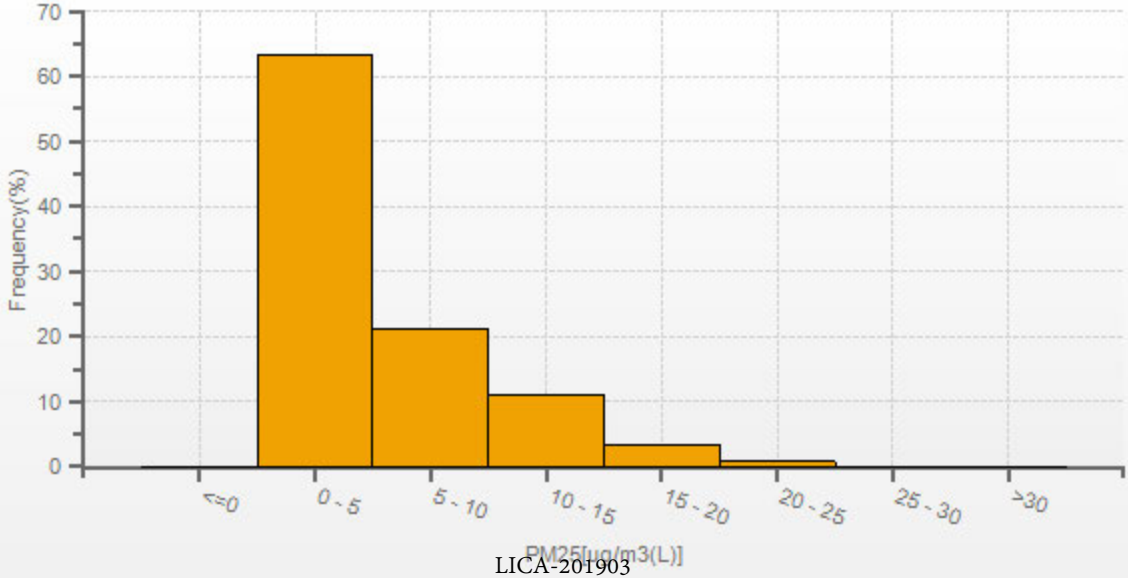
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:	0						
NUMBER OF 24-HR EXCEEDANCES:	0						
NUMBER OF NON-ZERO READINGS:	732						
MINIMUM 1-HR AVERAGE	0	µg/m^3	@ HOUR	19	ON DAY	12	
MAXIMUM 1-HR AVERAGE:	25	µg/m^3	@ HOUR	3	ON DAY	23	
MAXIMUM 24-HR AVERAGE:	13	µg/m^3			ON DAY	20	
			OPERATIONAL TIME:			744	hrs
MONTHLY CALIBRATION TIME:	2	hrs	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	4		MONTHLY AVERAGE:			5	µg/m^3

PARTICULATE MATTER < 2.5 MICRONS Hourly Averages ($PM_{2.5}$ µg/m³)

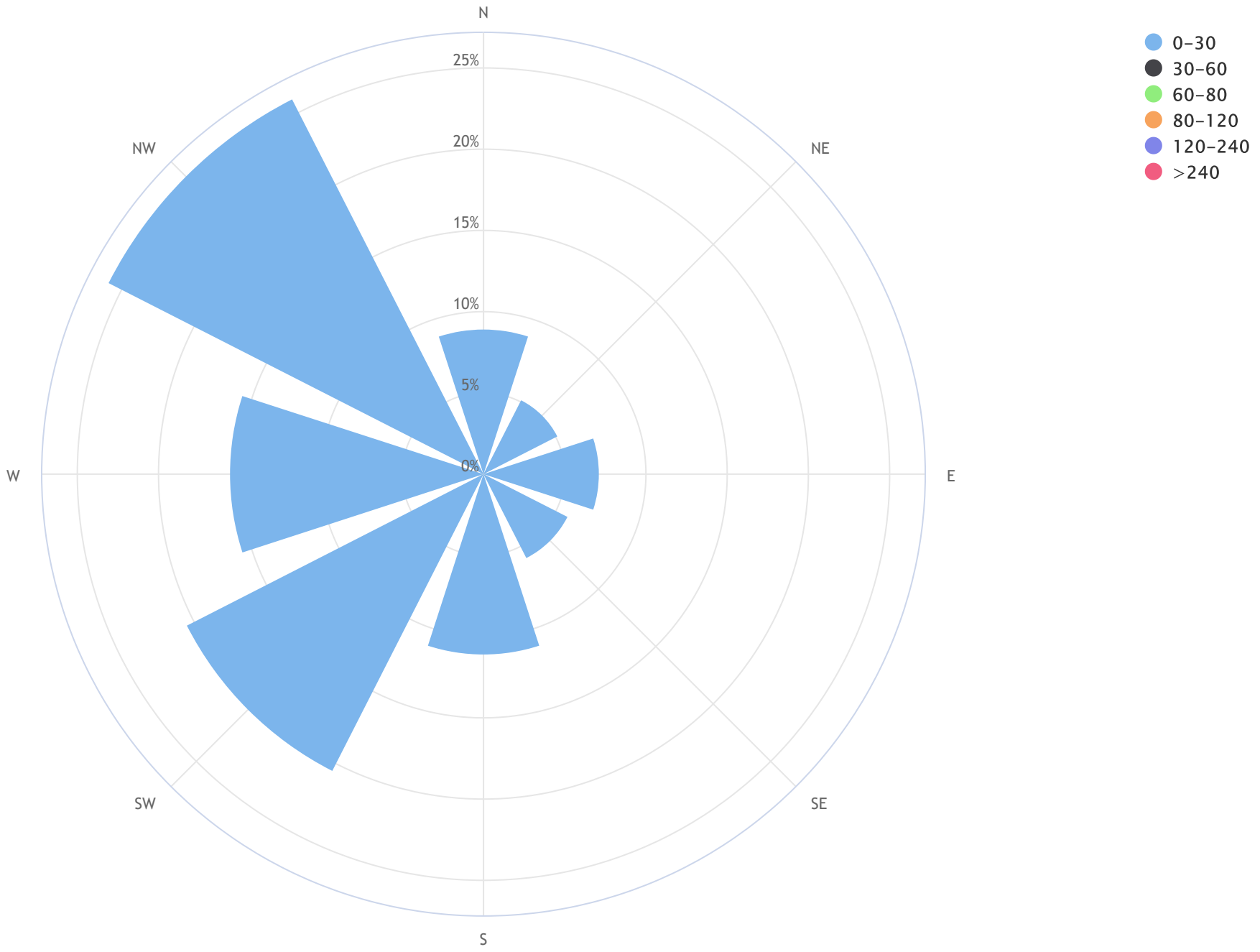


PM25[ug/m3(L)] Histogram: LICA ST. LINA Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_St. Lina Continuous Monitoring Station_$PM_{2.5}$ ($\mu g/m^3$)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = N/A, CALM % = 0.0%



Direction	0-30	30-60	60-80	80-120	120-240	>240	TOTAL
N	8.9	0.0	0.0	0.0	0.0	0.0	8.9
NE	5.1	0.0	0.0	0.0	0.0	0.0	5.1
E	7.1	0.0	0.0	0.0	0.0	0.0	7.1
SE	5.8	0.0	0.0	0.0	0.0	0.0	5.8
S	11.1	0.0	0.0	0.0	0.0	0.0	11.1
SW	20.5	0.0	0.0	0.0	0.0	0.0	20.5
W	15.6	0.0	0.0	0.0	0.0	0.0	15.6
NW	25.9	0.0	0.0	0.0	0.0	0.0	25.9
Summary	100.0	0.0	0.0	0.0	0.0	0.0	100.0
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Maxxam
A Bureau Veritas Group Company

WIND SPEED Hourly Averages (WS kph)

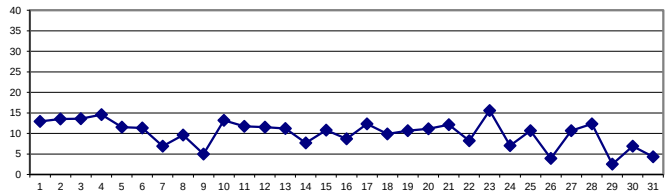
HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	12.3	12.6	11.0	17.6	16.4	17.1	13.8	13.4	14.5	16.2	14.5	15.4	15.2	16.6	14.5	14.6	15.1	12.8	11.0	10.9	11.6	9.9	7.9	8.9	7.9	17.6	12.9	24
2	10.5	12.2	13.1	13.8	14.5	12.5	12.7	13.1	11.9	11.4	12.3	16.3	16.0	16.3	16.7	18.4	18.6	16.7	14.7	14.4	12.6	11.9	9.0	10.7	9.0	18.6	13.5	24
3	13.3	14.1	14.0	13.8	15.4	13.2	13.9	13.3	13.7	13.8	14.0	15.1	14.5	15.6	16.3	15.0	14.3	11.9	11.2	11.3	11.2	13.3	13.8	15.6	11.2	16.3	13.6	24
4	15.0	16.4	13.0	13.7	14.5	15.7	16.9	16.4	13.1	13.8	14.4	14.3	16.6	17.9	18.8	15.4	13.3	10.8	11.9	13.2	15.6	15.9	14.3	14.1	10.8	18.8	14.6	24
5	13.8	12.8	12.1	13.1	14.7	13.6	13.3	14.0	14.9	16.9	18.1	17.0	14.6	15.3	15.2	15.1	12.4	11.1	10.0	11.9	12.6	11.9	14.5	13.8	10.0	18.1	11.5	24
6	11.0	11.5	12.7	14.5	12.7	11.6	11.0	9.2	9.0	12.0	12.5	11.1	11.8	11.5	14.3	13.9	15.0	13.0	11.1	12.2	13.4	13.5	12.4	12.0	9.0	15.0	11.3	24
7	13.7	15.6	14.0	13.8	10.2	10.7	10.1	10.0	9.0	9.0	7.6	8.9	8.7	6.8	5.8	4.9	5.8	4.1	3.2	4.1	3.9	3.6	3.0	4.3	3.0	15.6	6.9	24
8	4.1	4.0	4.8	3.6	5.6	6.5	7.4	7.7	7.7	10.6	10.2	10.8	12.1	13.5	12.4	15.6	16.0	11.2	9.3	12.8	11.7	12.5	14.0	13.7	3.6	16.0	9.6	24
9	13.0	12.0	11.8	11.4	9.7	7.8	8.2	5.3	5.3	2.3	2.9	4.6	7.5	5.2	6.0	6.0	7.8	7.0	2.6	5.9	7.4	7.6	7.5	9.0	2.3	13.0	5.0	24
10	9.5	9.9	8.8	10.6	10.2	10.7	10.1	12.4	12.7	15.4	16.1	15.8	15.5	14.3	15.2	14.7	15.1	13.1	13.4	16.5	16.5	14.6	14.6	14.8	8.8	16.5	13.2	24
11	14.9	14.9	14.5	15.4	14.4	12.3	11.8	12.3	11.8	12.1	11.7	12.3	11.1	8.9	8.6	11.0	8.4	8.5	10.1	14.1	14.2	10.9	12.7	12.4	8.4	15.4	11.7	24
12	11.6	12.8	12.9	12.4	11.7	13.1	13.4	13.0	12.2	15.6	17.3	19.1	18.3	17.6	15.1	14.2	11.1	9.9	9.5	14.7	6.8	9.4	11.8	12.5	6.8	19.1	11.5	24
13	11.5	12.3	12.6	10.7	11.0	10.6	10.4	12.0	12.0	11.8	10.6	11.7	12.3	11.3	12.4	16.8	23.0	18.6	12.9	9.6	11.4	13.0	12.8	10.2	9.6	23.0	11.2	24
14	8.3	9.6	11.4	12.7	12.0	11.2	11.1	9.1	9.0	8.2	6.3	8.3	9.8	11.2	11.2	14.1	15.5	13.4	8.5	9.1	10.0	10.7	11.5	10.6	6.3	15.5	7.7	24
15	10.5	10.5	11.0	11.4	14.3	15.0	13.8	12.8	12.0	13.7	16.3	16.7	16.3	14.8	17.4	18.4	13.2	11.1	10.2	10.2	9.5	9.1	11.2	13.1	9.1	18.4	10.8	24
16	12.8	12.9	14.4	12.3	11.8	12.0	11.3	11.1	10.9	12.4	10.5	10.9	10.4	10.0	11.8	11.8	8.5	6.8	7.7	10.3	8.7	9.9	9.6	9.7	6.8	14.4	8.7	24
17	10.5	12.2	11.7	12.0	13.1	13.4	13.3	14.2	14.6	14.2	14.8	13.9	14.0	16.1	19.4	17.7	17.4	13.7	12.6	14.2	11.3	12.1	12.8	12.1	10.5	19.4	12.3	24
18	12.3	12.1	12.5	11.9	13.7	13.4	14.8	12.6	9.4	5.8	7.2	6.6	4.6	9.8	16.7	17.5	15.8	16.5	15.1	13.5	14.1	13.8	14.7	11.2	4.6	17.5	9.9	24
19	12.3	12.1	13.0	14.6	15.9	15.7	14.3	12.4	12.6	14.3	11.5	11.2	14.1	9.8	10.6	10.0	8.7	6.8	5.3	8.1	11.3	12.1	7.1	10.1	5.3	15.9	10.7	24
20	10.4	9.4	9.9	11.2	11.1	10.5	10.8	11.0	12.4	15.1	15.4	16.2	16.4	17.6	13.9	14.3	16.3	15.8	11.9	11.4	9.7	8.8	6.0	11.7	6.0	17.6	11.1	24
21	15.6	17.1	18.2	18.5	17.7	16.8	16.4	15.3	13.0	13.9	13.9	15.3	15.5	16.6	14.8	15.0	14.5	10.2	8.9	10.7	12.4	13.8	13.6	13.1	8.9	18.5	12.1	24
22	13.8	13.3	14.5	13.5	10.8	11.5	9.9	10.0	9.7	8.2	7.8	6.4	8.2	10.1	11.1	7.1	7.1	6.3	6.8	7.4	5.5	3.1	3.9	3.1	3.1	14.5	8.2	24
23	8.2	8.7	9.3	10.3	12.5	13.1	14.5	13.5	16.5	16.5	18.2	18.9	18.0	17.9	20.4	18.4	15.7	15.7	15.9	16.9	18.8	21.0	20.9	17.8	8.2	21.0	**15.6**	24
24	14.0	13.3	11.3	9.5	8.8	9.0	9.1	8.9	8.5	7.9	8.0	8.1	9.4	8.1	11.0	11.1	10.1	10.7	11.7	11.7	9.3	11.0	11.0	13.3	7.9	14.0	7.0	24
25	12.9	12.5	13.4	11.8	10.7	6.8	8.2	10.8	11.1	11.2	10.3	10.3	10.1	11.9	11.3	12.6	10.8	13.2	11.6	10.8	13.9	16.6	14.0	9.2	6.8	16.6	10.7	24
26	9.5	6.5	7.6	4.4	**1.2**	1.5	3.9	2.2	2.1	6.0	5.3	4.7	5.3	5.7	4.5	5.1	6.2	8.7	8.6	9.0	10.4	12.6	10.6	10.5	**1.2**	12.6	3.9	24
27	10.8	9.7	11.4	11.2	8.8	11.4	11.4	11.6	12.1	16.1	18.3	13.3	13.4	13.5	13.7	14.9	16.3	12.2	9.4	6.6	5.4	6.7	5.0	7.1	5.0	18.3	10.7	24
28	6.0	7.1	6.8	8.5	8.2	8.4	8.4	8.5	9.6	11.9	16.3	18.9	22.3	24.4	**24.5**	24.1	22.7	18.1	16.9	13.7	12.1	10.7	11.1	11.2	6.0	**24.5**	12.3	24
29	11.5	11.2	10.9	11.0	11.8	11.6	10.6	14.1	14.2	10.3	7.3	6.7	5.7	6.9	5.4	2.8	11.9	10.0	8.6	9.1	8.9	10.0	12.3	13.6	2.8	14.2	2.5	24
30	14.5	16.8	15.3	13.7	14.1	11.8	11.8	13.8	13.2	14.9	16.0	18.3	19.6	19.6	19.5	18.8	19.1	15.2	12.4	9.3	8.8	10.6	12.1	11.0	8.8	19.6	6.9	24
31	11.5	6.8	3.2	2.7	4.0	4.7	5.8	6.7	7.3	8.5	7.6	7.6	9.7	11.7	12.8	13.6	17.5	16.7	16.5	11.9	10.0	11.3	10.8	10.4	2.7	17.5	4.3	24
HOURLY MAX	15.6	17.1	18.2	18.5	17.7	17.1	16.9	16.4	16.5	16.9	18.3	19.1	22.3	24.4	24.5	24.1	23.0	18.6	16.9	16.9	18.8	21.0	20.9	17.8				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION:	May 25, 2017
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

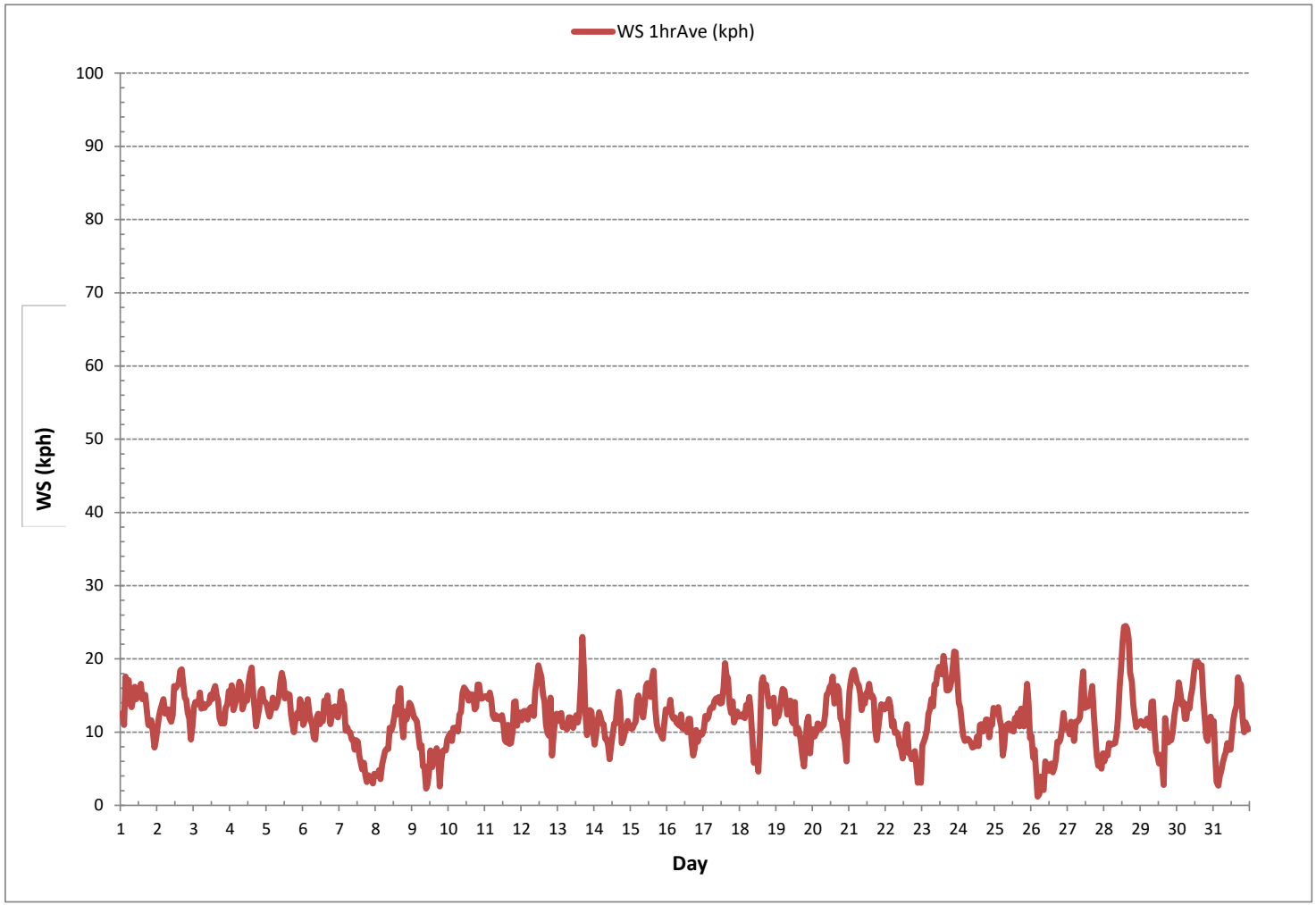
24 HR AVERAGES March 2019



MONTHLY SUMMARY

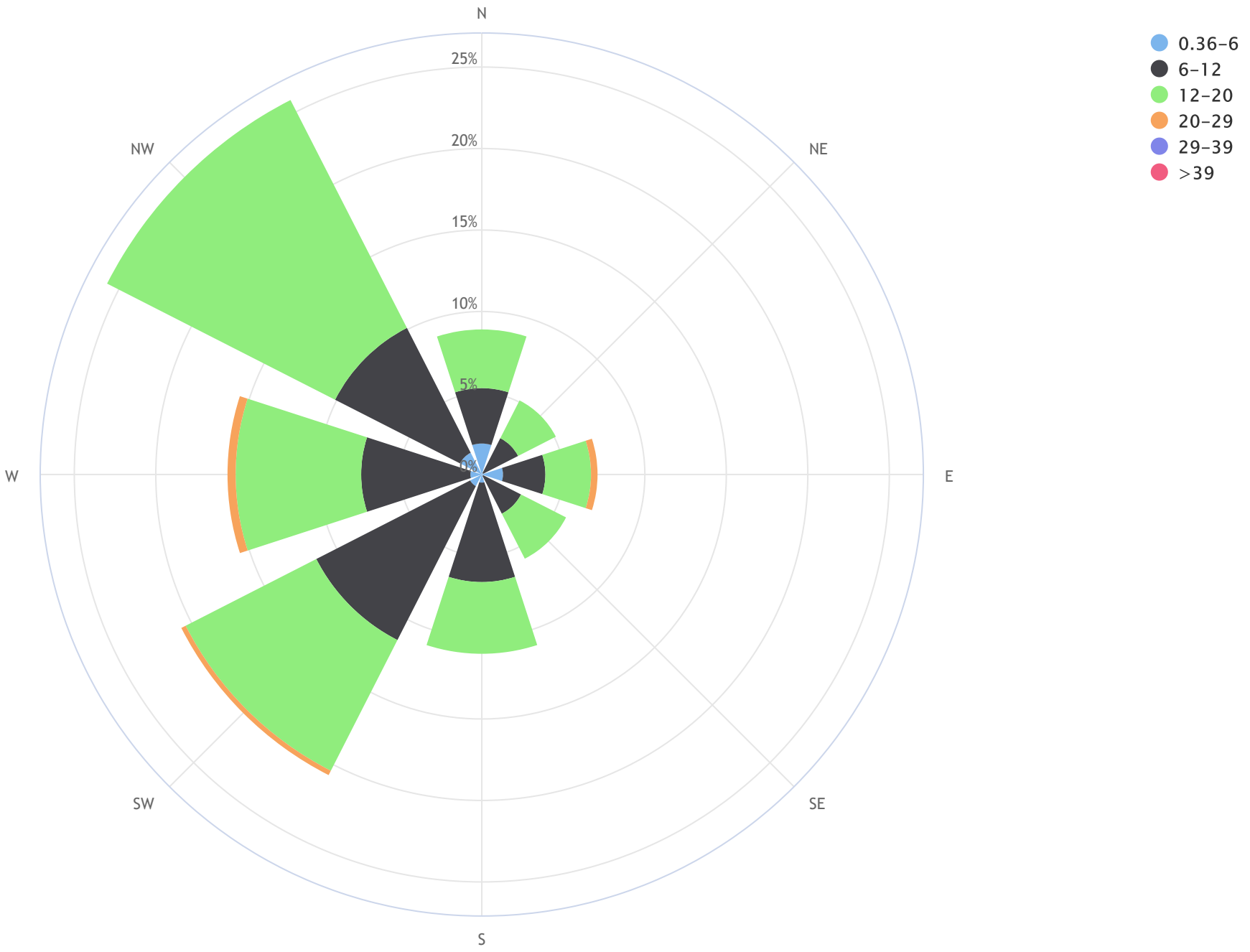
NUMBER OF NON-ZERO READINGS:			744				
MINIMUM 1-HR AVERAGE	1.2	kph	@ HOUR	4	ON DAY	26	
MAXIMUM 1-HR AVERAGE:	24.5	kph	@ HOUR	14	ON DAY	28	
MAXIMUM 24-HR AVERAGE:	15.6	kph			ON DAY	23	
			OPERATIONAL TIME:			744	hrs
MONTHLY CALIBRATION TIME:	0	hrs	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	3.7		MONTHLY AVERAGE:			4.4	kph

WIND SPEED Hourly Averages (WS kph)



Lakeland Industry & Community Association_St. Lina Continuous Monitoring Station_19/03

Wind Rose_Wind Frequency (Blowing From)_CALM Avg = N/A_CALM % = 0.0%



Direction	0.36-6	6-12	12-20	20-29	29-39	>39	TOTAL
N	1.9	3.4	3.6	0.0	0.0	0.0	8.9
NE	0.1	2.4	2.6	0.0	0.0	0.0	5.1
E	1.3	2.6	2.8	0.4	0.0	0.0	7.1
SE	0.1	2.6	3.1	0.0	0.0	0.0	5.8
S	0.5	6.1	4.4	0.0	0.0	0.0	11.0
SW	0.8	10.6	9.0	0.3	0.0	0.0	20.7
W	0.7	6.7	7.7	0.5	0.0	0.0	15.6
NW	1.5	8.6	15.7	0.0	0.0	0.0	25.8
Summary	7.0	42.9	48.9	1.2	0.0	0.0	100.0
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0

WIND DIRECTION Hourly Averages (WD)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR AVG	24-HR
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	QUADRANT	RDGS.
DAY																										
1	NNE	NNE	N	N	N	N	NNW	NNW	N	N	NNW	NNW	NW	NNW	NNW	NNW	NNW	NW	NW	NW	NNW	NNW	NNW	NW	NNW	24
2	WNW	WNW	WNW	WNW	NW	NW	WNW	NW	NW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	NNW	NW	NW	WNW	WNW	NW	24
3	WNW	WNW	WNW	NW	NW	WNW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	WNW	WNW	WNW	WNW	WNW	WNW	NW	24
4	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	WNW	WNW	WNW	WNW	WNW	NW	WNW	WNW	NW	24
5	WNW	NW	WNW	WNW	WNW	WNW	WNW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	NNE	NE	NE	NE	ENE	NNW	24
6	ENE	E	E	E	E	E	ESE	SE	ESE	ESE	SE	SE	SE	SE	ESE	SE	SE	SE	SE	SE	SE	SSE	SSE	SSE	SE	24
7	SE	SSE	SE	SE	ESE	E	ESE	ESE	ESE	ESE	ESE	E	E	ESE	E	E	ENE	ENE	ESE	ENE	E	SE	SSW	WNW	ESE	24
8	NNW	NNW	NNW	NNW	NW	NW	NW	WNW	WNW	NW	NW	NNW	NNW	NNW	NW	NW	NNW	NW	WNW	WNW	WNW	WNW	WNW	WNW	NW	24
9	WNW	W	WNW	NW	NNW	NNW	N	N	N	N	NNE	NW	NW	NNW	N	N	NW	NNW	WNW	SW	SSW	SW	SW	SW	NW	24
10	SW	SW	SSW	SSW	SSW	SSW	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	SSW	SSW	SSW	SSW	SSW	24
11	SSW	SSW	SW	SW	SW	SSW	SSW	SSW	SW	SW	SW	SW	SW	SSW	SSW	S	SSW	S	SSW	S	S	SSW	SW	SW	SSW	24
12	SW	WSW	W	W	WSW	WSW	WSW	WSW	W	WNW	WNW	NW	NW	NNW	NW	NW	NW	WNW	NW	NNW	NW	W	WNW	WNW	WNW	24
13	NW	NW	NW	NW	WNW	WNW	W	W	W	WNW	WNW	W	SW	SW	SW	WSW	WSW	WSW	SW	WSW	WSW	W	W	W	W	24
14	W	W	WNW	NW	NW	NW	NW	WNW	WNW	NW	W	WSW	SW	SW	SW	SW	SW	SW	SSW	SSW	S	S	S	SSW	WSW	24
15	SSW	SSW	SSW	SSW	SW	WSW	WSW	SW	WSW	WSW	W	WNW	WNW	WNW	NW	WNW	WNW	W	W	W	WNW	WNW	WNW	WNW	W	24
16	WNW	W	WSW	W	W	W	W	WSW	WSW	WSW	W	NW	NW	NW	N	NNW	NW	NW	WSW	WSW	SW	SW	SW	SSW	W	24
17	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	WNW	WNW	WSW	24
18	W	WNW	WNW	WNW	NW	NW	NW	NW	NW	NNW	NW	NW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	W	24
19	WSW	WSW	WSW	W	W	W	W	W	W	W	WNW	WNW	W	WSW	SW	SW	SW	SW	WSW	WSW	W	WNW	WNW	SSW	W	24
20	WSW	W	WSW	W	WSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	WNW	NE	SW	24
21	ENE	ENE	ENE	ENE	E	ENE	E	E	E	E	ESE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SSE	SSE	SSE	ESE	24
22	SSE	SSE	S	S	SSE	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SW	SSW	S	SSW	SSW	SSW	SSW	S	SSE	ENE	S	24
23	ENE	ENE	NE	NE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	E	ENE	24
24	E	E	E	E	E	E	E	E	E	ESE	SE	SSE	SSE	S	SSE	S	SSW	SSW	SSW	SSW	S	S	S	S	SE	24
25	SSW	SSW	SSW	SSW	SSW	SSE	SSE	S	S	S	SSE	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SSW	SW	WSW	SW	WSW	SSW	24
26	WSW	WSW	SW	WSW	NNW	W	WSW	WSW	S	W	W	WNW	N	N	NNW	WNW	WSW	SW	WSW	W	NW	N	N	N	WNW	24
27	N	N	N	N	NNW	NNW	NNW	NNW	NNW	N	N	NNW	NNW	NNW	NW	NW	NNW	NNW	NNW	N	NNE	NNW	NW	W	NNW	24
28	W	WSW	WSW	WSW	SW	SSW	SSW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	W	NW	NNE	WSW	24
29	NE	NE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNW	N	NW	NNW	WNW	SW	SW	SSW	S	S	S	SSW	S	NNE	24
30	SSW	SSW	SSW	SSW	SW	WSW	W	WNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	NNE	NNE	NNE	NNE	NNE	ENE	ENE	NNW	24
31	ENE	ENE	NE	NNW	N	ENE	ESE	SE	ESE	SE	SE	SE	SSW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	W	SW	24

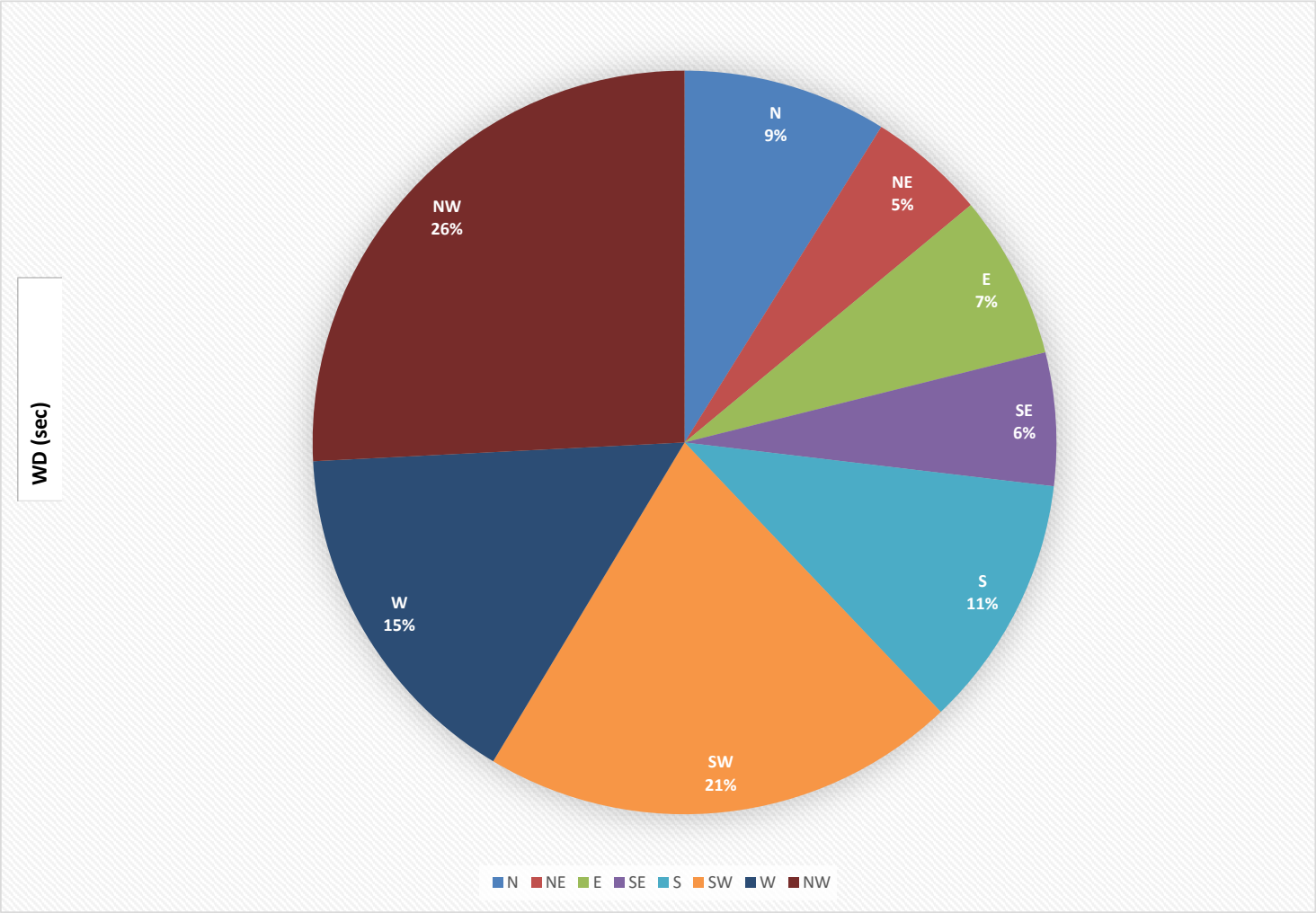
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

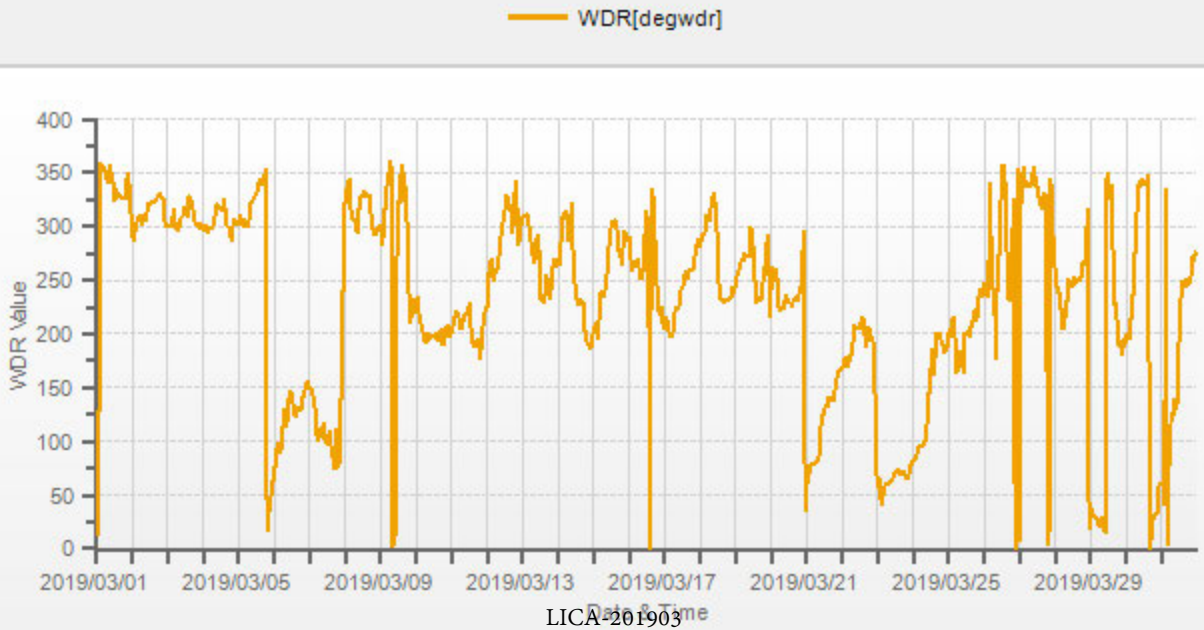
LAST CALIBRATION:	May 25, 2017
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	744	hrs
STANDARD DEVIATION:	90		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	272 (W)	

WIND DIRECTION Hourly Averages (WD)



WDR[degwdr] Station: LICA ST. LINA Monthly: 19/03 Type: AVG 1 Hr. [1 Hr.]



STANDARD DEVIATION WIND DIRECTION Hourly Averages (STDWD deg)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	
DAY																									
1	7	5	11	3	5	5	6	5	6	6	8	9	8	8	9	7	6	4	3	7	5	4	19	5	24
2	15	5	5	3	5	5	3	4	4	6	6	6	8	9	8	5	5	4	4	5	4	4	8	4	24
3	3	4	3	6	4	10	4	5	8	7	7	5	9	9	7	5	5	6	4	5	3	3	3	5	24
4	5	5	5	4	4	4	4	4	7	4	5	6	7	7	4	12	7	5	7	5	4	3	4	4	24
5	4	5	5	4	4	6	3	4	8	5	6	8	9	7	10	6	5	6	6	8	4	4	5	4	24
6	4	7	4	4	6	10	14	14	8	11	15	12	14	15	7	11	7	5	5	4	6	3	4	4	24
7	4	5	3	5	12	5	7	6	6	9	12	10	10	15	14	21	13	13	21	14	16	22	36	24	24
8	13	9	25	31	7	7	5	7	11	8	5	9	7	5	6	6	5	10	5	5	4	5	3	4	24
9	3	3	11	8	13	27	13	9	8	28	44	28	13	26	14	17	9	11	45	22	8	7	7	5	24
10	8	6	7	8	6	7	7	7	5	8	6	5	5	5	7	6	9	5	7	3	6	5	4	4	24
11	7	4	6	4	5	3	6	8	6	6	7	10	7	11	7	5	12	14	9	3	9	10	4	5	24
12	6	8	3	7	10	4	4	3	10	7	10	7	9	8	8	8	8	10	21	15	33	3	6	4	24
13	3	3	4	3	5	7	8	6	8	11	14	16	10	7	6	11	6	5	7	6	5	5	5	9	24
14	12	10	9	3	3	5	8	6	16	20	32	15	15	6	7	9	7	6	11	4	3	5	5	5	24
15	7	9	8	10	14	4	4	4	6	11	11	12	9	14	9	8	12	12	15	4	14	8	7	4	24
16	4	12	4	7	7	7	4	7	3	3	17	11	16	25	11	10	9	20	18	5	13	7	5	5	24
17	3	6	4	4	6	6	7	4	3	6	5	7	10	7	6	7	6	6	7	5	10	5	4	4	24
18	3	4	6	9	3	3	3	8	7	8	11	13	18	16	4	5	5	3	2	6	3	2	5	6	24
19	8	3	6	5	5	3	5	3	4	8	11	14	8	19	5	7	5	9	29	13	5	8	49	9	24
20	21	15	15	4	9	5	4	3	4	3	2	4	3	3	7	4	3	2	5	4	6	5	17	20	24
21	4	3	5	2	3	3	3	2	8	8	9	9	7	7	9	7	8	6	8	11	6	3	3	3	24
22	3	4	3	3	3	4	5	9	8	8	9	18	20	16	9	14	18	15	5	4	9	31	11	27	24
23	7	8	3	7	3	3	2	2	2	4	5	7	5	4	3	5	4	4	4	3	2	3	4	5	24
24	4	3	4	6	4	5	3	4	9	11	20	18	13	19	13	19	13	12	10	9	14	13	11	12	24
25	13	8	9	9	10	12	7	9	10	16	14	16	13	8	11	9	9	8	6	7	8	6	10	8	24
26	11	12	10	18	55	53	17	45	42	24	25	37	20	17	27	32	10	6	9	10	17	5	10	5	24
27	5	8	7	10	6	5	7	7	8	10	7	14	15	9	13	9	14	9	7	27	18	7	28	9	24
28	21	7	7	6	11	5	5	7	4	12	8	8	9	8	6	4	6	5	5	6	5	7	19	17	24
29	5	4	4	2	4	4	3	5	8	13	19	24	30	26	36	66	12	9	24	6	9	8	4	6	24
30	8	6	5	8	6	4	9	7	6	8	5	8	9	9	8	10	7	8	4	4	2	5	6	3	24
31	3	3	12	30	21	17	6	6	13	20	21	30	22	19	20	17	9	8	4	4	8	3	8	7	24

STATUS FLAG CODES

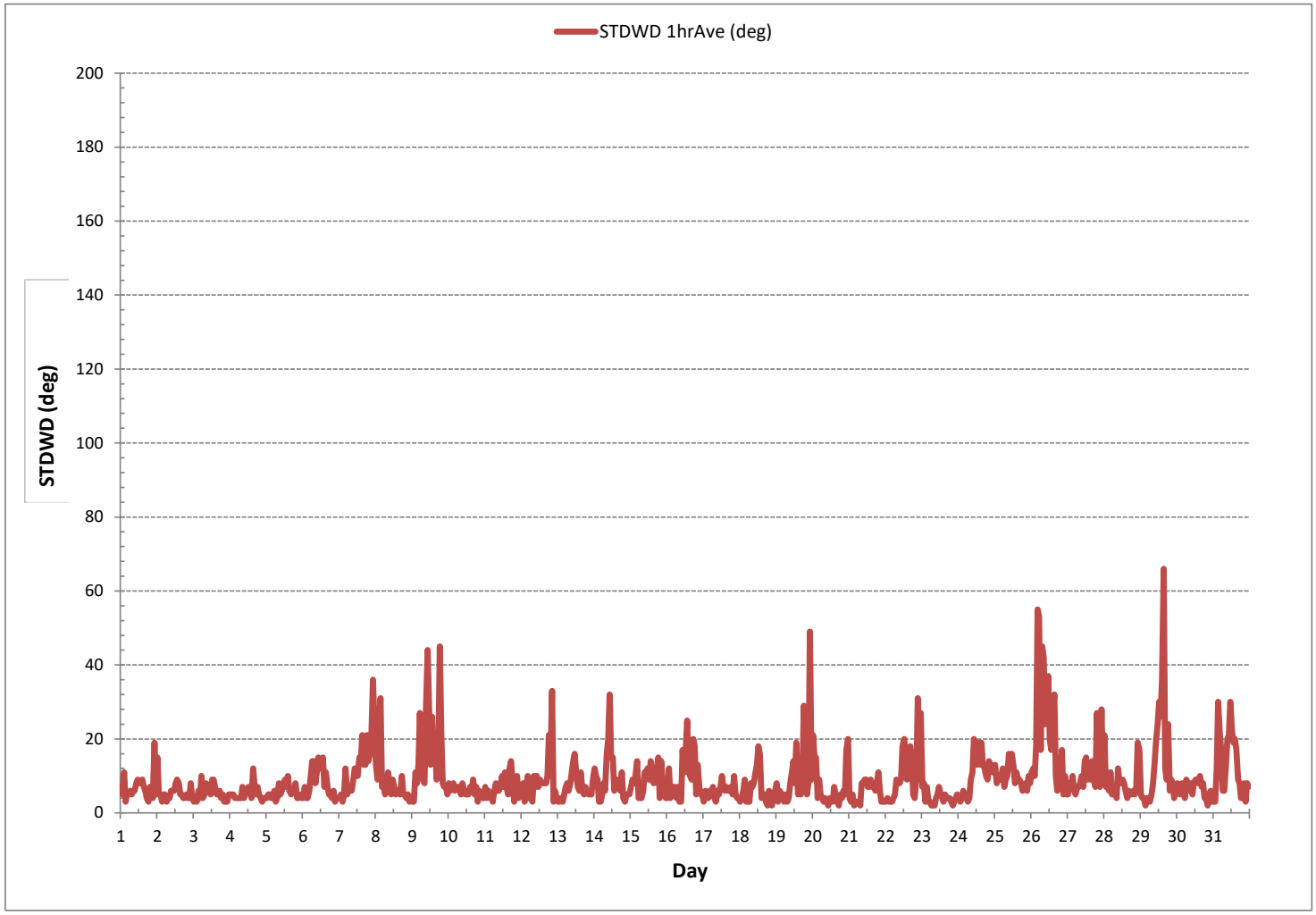
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION: May 25, 2017

CALIBRATION TIME: 0 hrs

OPERATIONAL TIME: 744 hrs

STANDARD DEVIATION WIND DIRECTION Hourly Averages (STDWD deg)



Maxxam
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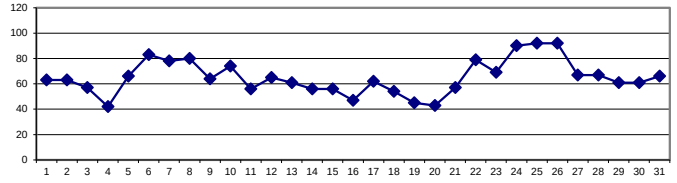
RELATIVE HUMIDITY Hourly Averages (RH %)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	84	81	81	77	73	72	70	71	67	62	58	54	51	48	48	48	48	49	53	56	61	63	64	68	48	84	63	24
2	70	73	72	71	72	73	73	73	71	70	66	57	55	53	52	52	51	52	53	55	58	59	64	68	51	73	63	24
3	68	68	70	71	71	71	72	71	67	62	57	52	47	44	43	41	41	42	46	48	49	51	54	53	41	72	57	24
4	54	53	53	53	53	54	55	53	47	43	38	35	32	32	33	31	31	33	35	36	37	40	42	44	31	55	42	24
5	45	47	50	51	56	60	64	66	66	66	70	68	69	68	64	61	59	62	70	77	79	82	88	90	45	90	66	24
6	92	92	91	90	91	91	90	89	86	87	85	80	71	69	67	65	68	74	81	85	84	84	86	89	65	92	83	24
7	89	89	89	88	86	84	84	84	84	85	82	77	72	71	69	68	69	70	71	72	73	72	72	73	68	89	78	24
8	74	74	75	75	75	79	83	85	85	87	91	89	88	84	84	84	79	84	79	75	74	73	71	73	71	91	80	24
9	76	80	78	75	76	77	81	79	72	60	53	53	51	47	44	43	43	44	49	56	65	74	78	85	43	85	64	24
10	92	92	92	96	95	94	94	92	88	79	65	58	53	48	49	53	55	56	67	73	74	75	73	71	48	96	74	24
11	70	69	69	72	73	76	78	77	69	58	47	39	33	32	33	39	35	36	42	52	56	60	66	70	32	78	56	24
12	70	65	63	65	67	66	67	64	58	56	61	64	63	58	53	52	51	54	60	77	78	84	82	79	51	84	65	24
13	76	73	73	74	75	76	81	79	76	68	62	55	56	51	46	40	38	44	56	60	59	54	52	51	38	81	61	24
14	51	54	55	59	63	65	67	67	61	57	51	47	45	44	42	42	42	43	49	65	64	66	67	68	42	68	56	24
15	70	69	68	68	72	77	78	77	70	58	49	45	44	44	41	37	36	38	39	51	53	52	50	48	36	78	56	24
16	46	47	57	59	59	58	58	59	55	49	45	41	39	34	28	28	28	27	34	50	52	56	62	66	27	66	47	24
17	66	69	72	75	72	71	70	67	64	63	60	58	54	51	50	51	51	52	57	61	62	61	61	60	50	75	62	24
18	60	59	59	60	59	60	62	62	59	51	46	41	35	35	39	42	47	51	57	61	64	64	62	64	35	64	54	24
19	67	65	65	64	62	60	55	54	45	38	33	30	29	30	31	31	30	31	36	42	42	37	42	60	29	67	45	24
20	58	50	62	60	58	70	70	63	57	48	41	36	30	24	**22**	22	23	25	28	33	38	39	39	36	**22**	70	43	24
21	46	54	54	55	56	57	58	56	52	49	47	45	44	45	46	47	49	54	61	69	74	78	81	85	44	85	57	24
22	89	92	95	96	97	99	98	94	87	79	72	66	64	62	60	57	58	60	69	76	77	78	81	81	57	99	79	24
23	91	95	97	98	96	92	87	80	73	67	60	53	47	44	39	40	42	42	49	61	71	77	81	85	39	98	69	24
24	88	91	92	93	95	97	98	92	85	82	80	77	80	76	78	84	89	93	96	98	99	**100**	100	98	76	**100**	90	24
25	97	99	100	100	100	100	100	100	100	95	80	75	77	79	79	83	85	88	90	93	94	96	98	100	75	100	**92**	24
26	100	100	100	100	100	100	100	100	100	100	100	100	100	93	89	86	85	87	94	95	84	63	62	65	62	100	92	24
27	70	73	78	81	83	85	84	82	74	65	60	57	51	50	51	47	52	56	59	62	71	69	71	75	47	85	67	24
28	75	80	79	81	84	90	94	93	87	74	66	61	58	52	48	46	48	49	54	56	59	58	58	63	46	94	67	24
29	67	71	75	78	78	79	79	70	65	61	57	53	49	42	37	38	42	43	52	67	71	69	66	66	37	79	61	24
30	69	70	74	79	84	90	89	82	74	61	52	48	45	41	40	39	37	40	47	52	55	59	67	76	37	90	61	24
31	78	81	80	78	79	77	77	74	68	57	54	49	43	43	44	46	48	57	66	75	79	76	77	79	43	81	66	24
HOURLY MAX	100	100	100	100	100	100	100	100	100	100	100	100	100	93	89	86	89	93	96	98	99	100	100	100				
HOURLY AVG	73	73	75	76	76	77	78	76	71	66	61	57	54	51	50	50	50	53	58	64	66	67	68	71				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

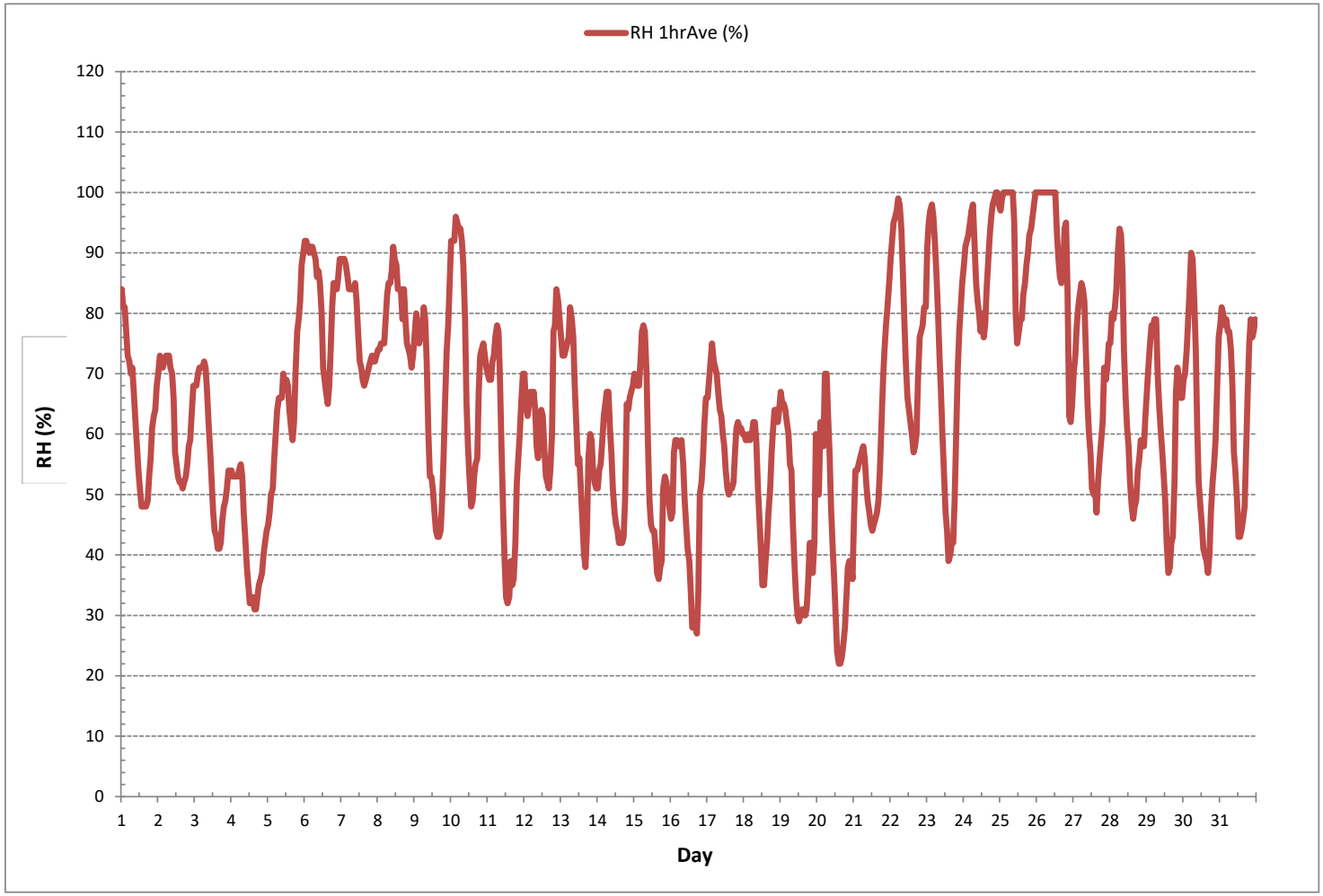
24 HR AVERAGES March 2019



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	22	%	@ HOUR	14	ON DAY	20	
MAXIMUM 1-HR AVERAGE:	100	%	@ HOUR	21	ON DAY	24	
MAXIMUM 24-HR AVERAGE:	92	%			ON DAY	25	
			OPERATIONAL TIME:			744	hrs
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	18		MONTHLY AVERAGE:			65	%

RELATIVE HUMIDITY Hourly Averages (RH %)

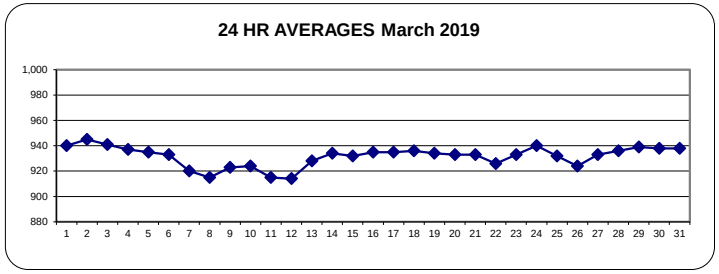


BAROMETRIC PRESSURE Hourly Averages (BP mbar)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	931	932	933	934	935	936	937	938	939	940	941	941	942	942	942	942	942	943	943	943	944	944	944	944	931	944	940	24
2	**945**	945	945	945	945	945	945	945	945	945	945	945	945	945	944	944	944	944	944	944	944	944	944	944	944	**945**	**945**	24
3	944	943	943	943	943	943	942	942	942	942	942	942	941	941	941	941	941	940	940	940	939	939	938	938	938	944	941	24
4	938	937	937	937	937	937	936	936	936	937	937	937	937	937	937	937	937	937	936	936	936	936	936	936	936	938	937	24
5	936	936	936	935	935	935	935	935	935	935	935	936	936	936	936	936	936	935	935	935	935	936	935	935	935	936	935	24
6	936	936	936	936	935	935	935	935	935	935	935	935	935	934	933	933	932	931	930	929	928	927	927	926	926	936	933	24
7	925	924	923	922	922	921	921	920	920	919	919	919	919	919	919	919	918	918	918	917	917	917	917	917	917	925	920	24
8	916	916	915	915	915	914	914	914	914	914	914	914	915	915	915	915	916	916	916	917	917	918	918	918	914	918	915	24
9	918	919	919	920	920	920	921	921	922	923	925	925	925	925	925	926	926	925	925	925	925	924	925	925	918	926	923	24
10	924	924	924	925	925	925	924	924	924	925	925	926	926	925	925	924	924	924	923	921	921	920	920	919	919	926	924	24
11	918	918	917	917	917	916	916	916	915	916	916	917	917	917	916	915	914	913	912	911	910	910	**909**	909	**909**	918	915	24
12	909	909	909	909	909	910	910	910	911	912	913	914	914	914	915	916	916	916	917	917	918	918	919	919	909	919	914	24
13	920	921	922	922	923	924	924	925	926	927	928	929	930	930	931	931	931	931	931	931	931	932	932	932	920	932	928	24
14	932	932	933	933	933	933	934	934	934	935	936	936	936	936	935	935	934	934	933	933	932	932	931	931	931	936	934	24
15	931	930	930	930	930	929	930	930	930	931	932	932	933	933	933	933	934	934	933	933	933	933	933	933	929	934	932	24
16	933	934	934	934	934	934	934	934	934	935	936	937	937	937	937	937	938	938	937	936	936	936	936	935	933	938	935	24
17	935	935	935	934	934	934	934	934	934	935	935	936	936	936	936	936	936	936	936	935	935	935	935	935	934	936	935	24
18	935	935	935	934	935	935	935	935	936	937	937	938	938	938	937	937	936	936	935	935	934	934	934	934	934	938	936	24
19	933	933	933	933	932	932	932	932	933	934	934	935	935	936	936	936	936	936	935	934	934	934	934	933	932	936	934	24
20	933	934	933	933	933	932	932	932	932	933	933	934	934	934	934	934	934	934	933	933	933	933	933	933	932	934	933	24
21	933	934	934	934	934	934	934	934	934	935	935	936	935	935	935	935	934	933	932	931	931	930	930	930	930	936	933	24
22	929	928	927	926	926	925	925	925	925	925	926	926	926	926	926	927	927	927	926	925	925	925	925	925	925	929	926	24
23	925	926	926	926	926	927	927	929	930	931	933	934	935	936	936	936	937	937	938	938	938	938	939	939	925	940	933	24
24	940	940	940	940	940	940	940	940	941	941	942	942	942	942	942	942	941	941	940	940	939	939	939	938	938	942	940	24
25	938	937	937	936	936	935	935	934	934	934	933	933	933	932	932	931	930	930	929	928	928	928	927	926	926	938	932	24
26	926	925	925	924	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	924	924	925	926	923	926	924	24
27	927	928	928	929	929	930	931	931	932	933	933	934	934	934	934	935	935	935	935	935	935	935	936	936	927	936	933	24
28	936	936	936	936	936	935	935	935	936	936	937	937	937	936	936	936	935	935	935	934	934	935	935	935	934	937	936	24
29	936	936	936	937	937	938	938	939	940	941	941	942	942	942	942	942	942	942	941	939	939	938	938	938	936	942	939	24
30	937	936	935	934	934	934	934	935	936	937	938	939	940	940	940	941	941	941	941	940	940	941	941	941	934	941	938	24
31	941	941	941	941	941	941	940	940	941	941	941	940	940	939	939	938	937	936	935	935	934	934	934	934	934	941	938	24
HOURLY MAX	945	945	945	945	945	945	945	945	945	945	945	945	945	945	944	944	944	944	944	944	944	944	944	944				
HOURLY AVG	931	931	931	931	931	931	931	931	931	932	932	933	933	933	933	933	932	932	932	931	931	931	931	931				

STATUS FLAG CODES

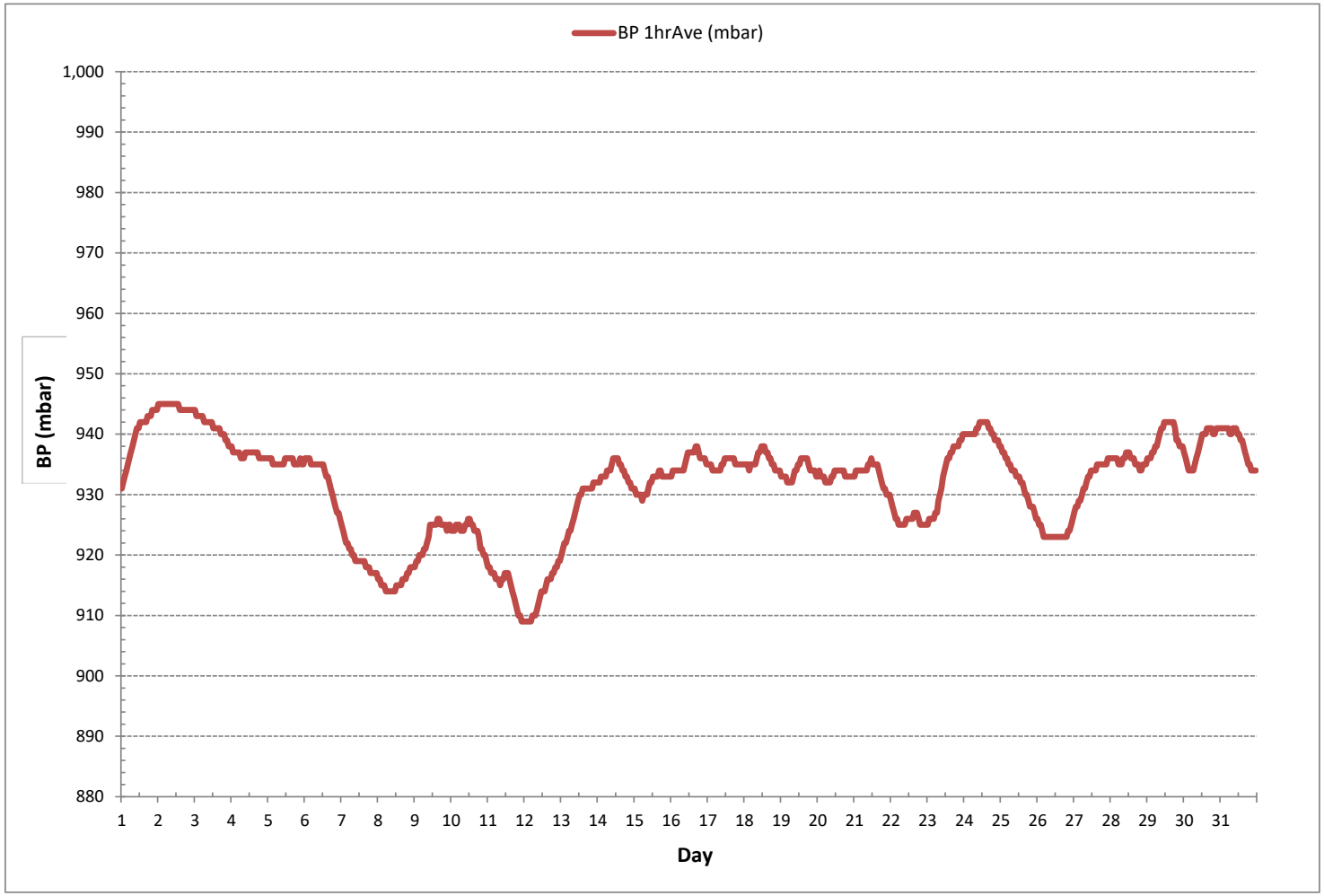
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	909	mbar	@ HOUR	22	ON DAY	11	
MAXIMUM 1-HR AVERAGE:	945	mbar	@ HOUR	0	ON DAY	2	
MAXIMUM 24-HR AVERAGE:	945	mbar			ON DAY	2	
			OPERATIONAL TIME:			744	hrs
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	8		MONTHLY AVERAGE:			932	mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



Maxxam
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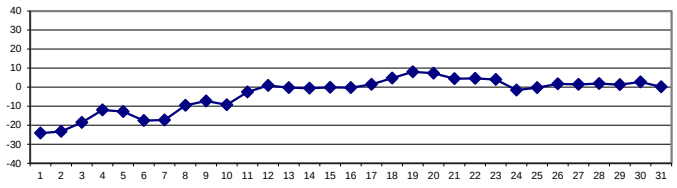
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	-19.6	-21.1	-22.0	-23.0	-24.2	-25.2	-26.7	-27.7	-27.3	-26.5	-25.6	-24.6	-24.0	-23.1	-22.5	-22.3	-22.5	-22.9	-23.9	-24.5	-25.0	-25.4	-25.9	-26.3	-27.7	-19.6	-24.2	24
2	-26.9	-27.5	-27.7	-27.8	-28.5	-29.4	**-29.8**	-29.7	-29.0	-27.2	-24.3	-21.5	-20.3	-19.2	-18.6	-18.3	-17.5	-17.7	-18.2	-18.7	-19.3	-19.5	-20.7	-21.5	**-29.8**	-17.5	-23.3	24
3	-22.0	-22.7	-23.2	-23.3	-23.5	-23.9	-24.4	-23.9	-22.9	-21.7	-20.0	-18.1	-15.9	-14.1	-13.3	-13.1	-12.9	-13.0	-14.0	-14.9	-15.5	-16.0	-16.7	-16.8	-24.4	-12.9	-18.6	24
4	-17.2	-17.2	-17.5	-17.8	-18.1	-18.3	-18.7	-18.3	-16.5	-14.6	-12.3	-9.7	-8.0	-7.1	-6.2	-5.8	-5.7	-6.0	-6.9	-7.7	-8.3	-8.9	-9.7	-10.5	-18.7	-5.7	-12.0	24
5	-11.0	-11.6	-12.5	-12.8	-13.9	-15.1	-15.9	-16.0	-15.1	-13.5	-13.0	-12.6	-12.3	-11.2	-10.6	-10.1	-9.6	-10.0	-11.3	-12.1	-12.5	-13.8	-15.6	-16.3	-16.3	-9.6	-12.8	24
6	-16.8	-17.3	-18.3	-19.1	-19.8	-20.6	-21.0	-21.7	-20.9	-18.8	-17.3	-16.2	-15.5	-14.6	-14.0	-13.6	-14.3	-15.4	-17.0	-17.6	-17.9	-18.0	-18.5	-18.9	-21.7	-13.6	-17.6	24
7	-19.2	-19.8	-20.5	-20.9	-21.7	-22.8	-22.8	-22.4	-21.4	-20.0	-18.1	-17.1	-15.9	-15.0	-14.2	-13.7	-13.6	-13.5	-13.6	-13.4	-13.3	-13.3	-13.1	-13.1	-22.8	-13.1	-17.2	24
8	-13.1	-12.9	-13.0	-12.9	-13.0	-13.2	-13.3	-13.2	-12.7	-12.0	-10.9	-9.6	-8.7	-7.8	-6.9	-6.4	-6.1	-6.2	-6.0	-6.0	-6.4	-6.7	-6.9	-7.3	-13.3	-6.0	-9.6	24
9	-8.0	-8.8	-8.6	-8.3	-8.5	-9.3	-10.4	-10.7	-9.7	-7.5	-6.1	-6.1	-5.3	-4.0	-3.0	-3.1	-3.3	-3.7	-5.3	-6.6	-8.5	-9.5	-10.1	-11.2	-11.2	-3.0	-7.3	24
10	-12.8	-12.7	-13.0	-14.3	-15.1	-15.6	-15.3	-14.8	-14.0	-11.6	-9.4	-7.2	-5.3	-3.6	-3.0	-2.9	-3.6	-4.3	-6.7	-7.3	-7.3	-7.5	-7.4	-7.4	-15.6	-2.9	-9.3	24
11	-7.7	-8.0	-8.0	-8.5	-8.9	-9.3	-9.6	-9.5	-8.0	-5.8	-2.4	0.8	4.0	5.4	5.6	3.9	3.8	3.7	2.0	0.5	-0.5	-1.1	-2.1	-2.9	-9.6	5.6	-2.6	24
12	-2.9	-2.1	-1.7	-1.7	-1.9	-1.6	-2.0	-1.8	-0.2	1.2	2.4	3.4	3.6	4.1	4.7	5.0	4.9	4.4	3.1	1.2	0.6	-0.1	-0.5	-0.9	-2.9	5.0	0.9	24
13	-1.0	-1.1	-1.6	-2.3	-2.7	-2.9	-4.0	-3.8	-3.5	-1.5	0.2	1.8	1.9	3.2	4.3	4.2	3.5	2.6	0.2	-1.2	-1.1	-0.7	-0.7	-1.0	-4.0	4.3	-0.3	24
14	-1.1	-1.8	-1.5	-1.8	-2.5	-3.1	-3.4	-3.7	-2.5	-1.6	0.5	1.9	3.0	3.4	4.2	3.8	3.3	1.9	0.1	-1.8	-2.0	-2.5	-3.1	-3.5	-3.7	4.2	-0.6	24
15	-3.7	-3.5	-3.3	-3.6	-4.7	-5.7	-5.8	-5.6	-4.0	-0.6	2.2	3.5	4.0	4.4	4.8	5.0	5.3	4.8	3.3	1.4	0.7	0.3	-0.5	-1.1	-5.8	5.3	-0.1	24
16	-1.2	-1.9	-3.9	-4.4	-4.8	-5.1	-5.2	-5.5	-4.4	-2.0	0.3	2.4	3.8	4.7	5.2	5.1	5.1	5.0	3.0	0.8	-0.1	-0.9	-1.6	-2.3	-5.5	5.2	-0.3	24
17	-2.7	-3.7	-4.5	-5.1	-4.9	-4.7	-4.9	-4.6	-3.2	-1.7	1.0	3.9	5.8	7.0	7.6	7.8	7.7	7.4	6.1	4.7	4.1	4.0	3.7	3.5	-5.1	7.8	1.4	24
18	3.3	3.2	2.8	2.2	2.2	1.8	1.4	1.3	2.0	4.3	6.0	7.5	9.4	9.3	8.5	8.0	7.4	6.8	5.5	4.6	3.8	3.6	3.8	3.1	1.3	9.4	4.7	24
19	2.6	2.7	2.6	2.7	3.0	3.0	3.7	3.7	5.9	8.3	10.4	12.2	13.1	13.7	13.8	14.0	**14.4**	13.8	11.4	9.0	8.8	9.7	8.3	3.6	2.6	**14.4**	**8.1**	24
20	3.9	5.6	2.9	3.0	3.1	0.6	0.3	1.5	2.6	5.1	7.7	9.9	11.5	12.5	13.4	13.8	13.5	12.8	11.1	9.3	7.9	7.7	7.5	7.8	0.3	13.8	7.3	24
21	5.1	3.5	3.4	2.9	2.4	2.0	1.6	2.3	3.7	4.7	6.1	7.4	7.9	8.0	8.0	7.9	7.4	6.5	4.9	3.4	2.8	2.4	2.1	1.7	1.6	8.0	4.5	24
22	1.4	1.3	0.9	0.6	0.2	0.0	-0.1	0.6	2.0	4.1	5.7	7.0	7.7	8.4	8.8	9.7	9.4	8.9	6.7	5.3	5.3	5.5	5.1	4.8	-0.1	9.7	4.6	24
23	3.0	2.3	1.8	0.9	0.1	-0.4	-0.3	1.0	2.5	4.0	5.7	7.3	8.3	9.1	9.6	9.4	8.7	7.9	6.4	4.6	2.8	1.6	0.6	-0.3	-0.4	9.6	4.0	24
24	-1.3	-2.1	-2.8	-3.3	-3.9	-4.4	-4.7	-3.6	-2.1	-1.2	-0.4	0.5	0.3	1.2	1.3	0.6	0.0	-0.7	-1.5	-1.8	-2.0	-2.4	-2.5	-2.6	-4.7	1.3	-1.6	24
25	-2.7	-3.0	-3.1	-3.0	-2.9	-2.8	-2.7	-2.5	-2.1	-1.1	1.0	2.0	2.1	2.4	2.7	2.7	2.3	1.9	1.5	1.2	1.1	0.7	0.3	0.1	-3.1	2.7	-0.2	24
26	-0.3	-0.3	-0.5	-0.5	-0.6	-0.6	-0.7	-0.4	-0.1	0.0	0.3	1.1	1.8	3.1	3.9	4.9	4.9	4.3	3.0	2.7	3.7	4.3	3.9	3.3	-0.7	4.9	1.7	24
27	2.7	2.3	2.0	1.6	1.1	0.1	-0.9	-0.9	-0.1	0.4	0.9	1.8	2.9	3.3	3.5	4.2	3.7	3.2	2.1	1.3	0.3	0.1	-0.3	-0.8	-0.9	4.2	1.4	24
28	-1.0	-1.8	-1.6	-1.8	-2.2	-3.1	-3.7	-3.4	-1.6	1.5	3.4	4.7	5.6	6.1	6.7	7.0	6.6	6.0	4.4	3.3	2.8	2.7	2.6	1.9	-3.7	7.0	1.9	24
29	0.9	-0.1	-0.8	-1.5	-2.0	-2.4	-2.4	-1.6	-0.8	0.2	1.4	2.4	3.3	4.3	5.0	6.0	5.7	5.7	4.2	1.8	0.8	0.5	0.3	0.2	-2.4	6.0	1.3	24
30	-0.1	0.2	-0.2	-0.4	-0.7	-1.4	-0.9	0.3	2.2	4.2	5.9	6.7	7.4	8.0	7.8	7.5	6.8	6.0	4.1	2.5	1.4	0.5	-0.8	-1.9	-1.9	8.0	2.7	24
31	-2.4	-3.0	-3.1	-3.0	-3.1	-3.1	-3.3	-2.7	-1.6	-0.6	0.3	1.2	2.1	3.0	3.6	4.0	4.5	3.4	2.3	1.3	1.1	1.6	1.4	1.7	-3.3	4.5	0.2	24
HOURLY MAX	5.1	5.6	3.4	3.0	3.1	3.0	3.7	3.7	5.9	8.3	10.4	12.2	13.1	13.7	13.8	14.0	14.4	13.8	11.4	9.3	8.8	9.7	8.3	7.8				
HOURLY AVG	-5.5	-5.9	-6.3	-6.7	-7.1	-7.6	-7.9	-7.7	-6.5	-4.9	-3.2	-1.7	-0.7	0.2	0.7	0.8	0.6	0.1	-1.3	-2.4	-3.0	-3.3	-3.8	-4.4				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

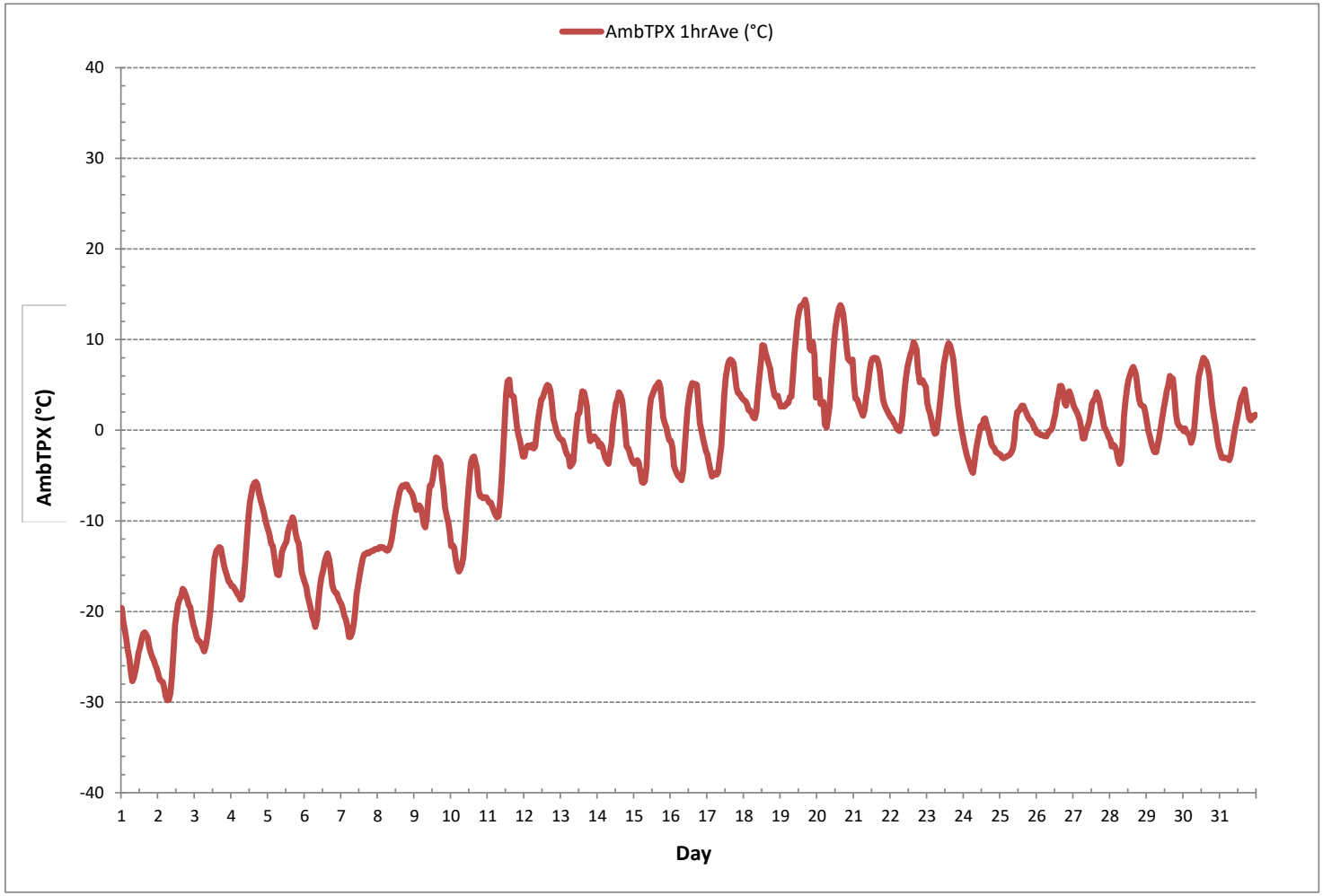
24 HR AVERAGES March 2019



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-29.8	°C	@ HOUR	6	ON DAY	2	
MAXIMUM 1-HR AVERAGE:	14.4	°C	@ HOUR	16	ON DAY	19	
MAXIMUM 24-HR AVERAGE:	8.1	°C			ON DAY	19	
			OPERATIONAL TIME:			744	hrs
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	9.5		MONTHLY AVERAGE:			-3.6	°C

AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

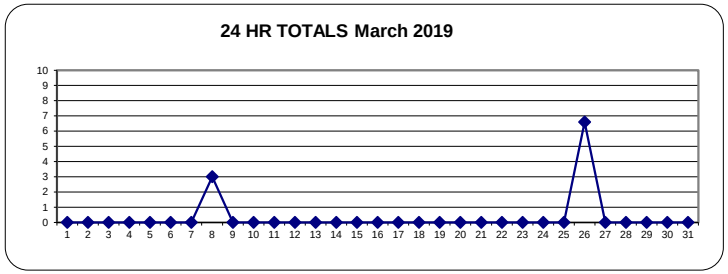


PRECIPITATION Hourly TOTALS (mm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	SUM	
DAY																												
1	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	24
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.8	0.2	0.3	0.1	0.3	0.3	0.5	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.8	3.0	24
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
26	0.0	0.0	0.0	0.0	0.0	0.0	0.2	**4.0**	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**4.0**	**6.6**	24
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
HOURLY MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.2	4.0	2.4	0.3	0.8	0.2	0.3	0.1	0.3	0.3	0.5	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0			
HOURLY SUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

STATUS FLAG CODES

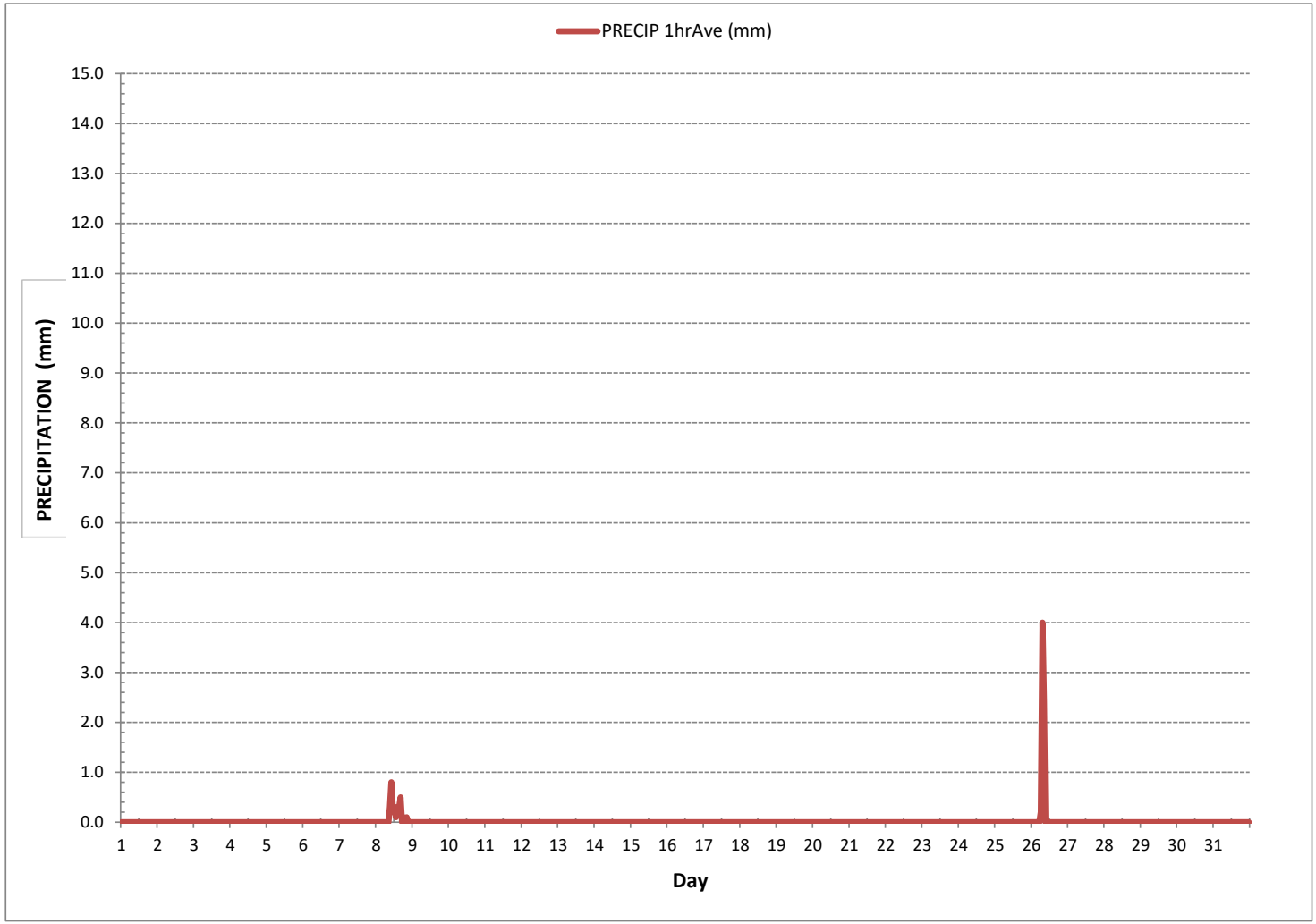
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



MONTHLY SUMMARY

MINIMUM 1-HR TOTAL:	0.0	mm	@ HOUR	0	ON DAY	1	
MAXIMUM 1-HR TOTAL:	4.0	mm	@ HOUR	7	ON DAY	26	
MAXIMUM 24-HR TOTAL:	6.6	mm			ON DAY	26	
			OPERATIONAL TIME:			744	hrs
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.2		MONTHLY TOTAL:			9.6	mm

PRECIPITATION Hourly TOTALS (mm)



SULPHUR DIOXIDE Instantaneous Maximum (SO_2 ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	1	1	1	0	0	0	1	2	2	2	1	2	2	1	1	1	1	1	0	0	S	0	0	0	0	2	1	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	24
4	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	0	24
5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	1	1	0	1	0	24
6	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	S	1	0	0	0	0	0	0	0	0	1	0	24
7	0	0	0	0	0	0	0	0	0	1	1	1	1	1	S	1	1	2	2	2	1	1	1	1	0	2	1	24
8	1	1	1	1	1	1	1	1	1	0	1	2	2	S	1	1	0	0	0	0	0	0	0	0	0	2	1	24
9	1	1	1	1	1	1	1	1	1	1	1	1	S	1	2	1	1	1	0	1	1	1	1	1	0	2	1	24
10	2	3	3	2	1	1	1	1	1	2	2	S	2	1	1	1	1	1	1	2	2	1	1	1	1	3	2	24
11	1	1	1	1	0	0	1	1	2	2	S	3	3	3	2	2	2	2	2	2	0	1	1	1	0	3	1	24
12	1	2	2	2	1	1	1	1	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	24
13	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	3	3	2	0	0	0	0	3	0	24
14	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	2	2	2	2	1	1	1	0	2	1	24
15	1	1	1	0	0	0	S	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
16	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	24
17	1	2	2	1	S	2	1	1	1	2	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	2	1	24
18	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	5	5	3	2	1	0	5	1	24
19	3	3	S	2	2	1	1	0	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	0	0	3	1	24
20	0	S	0	0	0	0	0	1	3	3	3	3	2	3	3	2	3	5	5	5	4	4	4	4	0	5	2	24
21	S	2	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	S	0	2	1	24
22	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	24
23	0	0	0	0	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	0	24
24	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	24
25	0	0	0	0	0	0	0	0	0	0	0	2	3	2	1	1	1	1	0	S	0	0	0	0	0	3	0	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	24
27	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	0	24
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	24
29	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	1	0	24
30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	S	0	0	1	1	1	1	1	0	0	0	1	0	24
31	0	0	0	0	1	1	1	1	1	0	0	0	0	S	0	0	0	0	0	0	0	1	1	1	0	1	0	24
HOURLY MAX	3	3	3	2	2	2	1	2	3	3	3	3	3	3	3	2	3	5	5	5	5	4	4	4				
HOURLY AVG	1	1	0	0	0	0	0	0	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	0				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

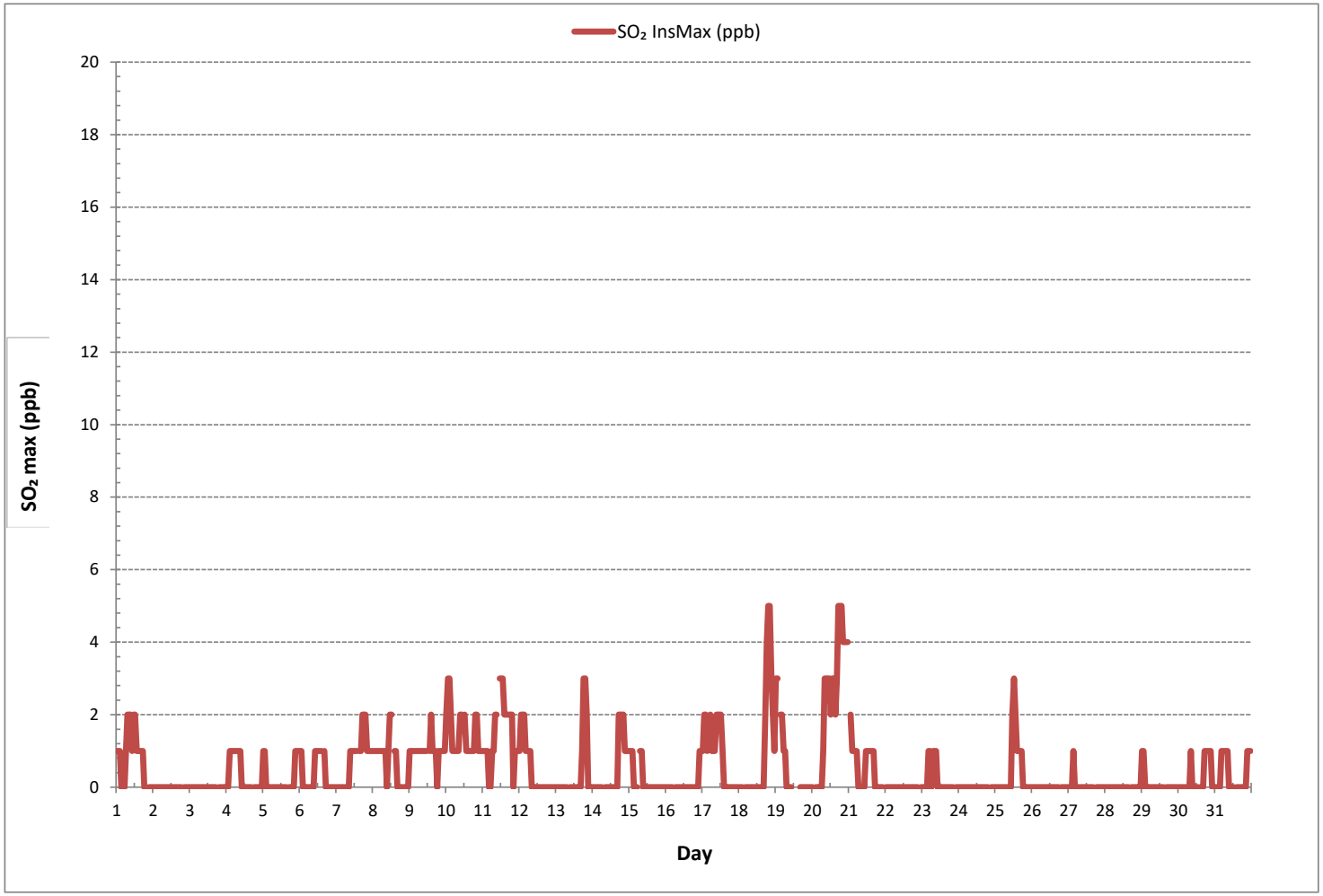
NUMBER OF NON-ZERO READINGS: 238

MAXIMUM INSTANTANEOUS VALUE: 5 ppb @ HOUR 19 ON DAY 18

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 1

OPERATIONAL TIME: 744 hrs

SULPHUR DIOXIDE Instantaneous Maximum (SO_2 ppb)



Maxxam
A Bureau Veritas Group Company

HYDROGEN SULPHIDE Instantaneous Maximum (H_2S ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	S	1	2	2	1	2	2	24
2	1	1	1	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	2	1	24
3	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	2	1	24
4	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	S	2	1	1	1	1	1	1	2	1	24
5	1	1	2	2	2	2	2	1	2	1	2	2	2	2	2	2	S	2	2	2	2	2	2	2	1	2	2	24
6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	2	24
7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2	24
8	2	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2	2	24
9	2	2	2	2	3	2	2	S1	S1	2	2	2	S	2	2	2	2	3	2	2	3	2	3	2	2	3	2	22
10	2	3	2	2	2	2	2	2	2	2	2	S	C	C	C	C	C	C	C	1	1	1	0	1	0	3	-	24
11	1	1	1	1	0	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	24
12	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	2	1	1	1	1	2	2	1	2	1	24
13	2	2	2	2	2	1	2	2	S	2	2	1	2	1	2	2	2	2	2	2	1	1	1	1	1	2	2	24
14	2	1	1	1	1	1	2	S	1	1	1	1	2	1	1	2	1	1	1	1	1	1	1	2	1	2	1	24
15	2	2	2	1	1	1	S	2	2	2	1	2	1	1	2	1	2	2	2	1	2	1	1	2	1	2	2	24
16	1	1	1	1	2	S	1	1	2	1	1	1	1	1	1	1	2	2	1	1	1	2	2	1	1	2	1	24
17	1	1	2	2	S	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	24
18	2	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	24
19	2	2	S	2	2	2	2	2	2	2	2	C1	C1	C1	C1	C1	1	1	1	1	1	1	1	1	1	2	2	19
20	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	24
21	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	24
22	1	1	1	1	1	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	S	2	1	2	2	24
23	2	2	2	2	2	2	2	2	2	2	1	2	1	1	2	1	1	2	1	1	1	S	1	1	1	2	2	24
24	2	1	1	1	1	1	1	1	1	2	1	1	2	2	1	2	2	1	2	1	S	2	1	2	1	2	1	24
25	1	2	2	1	2	2	1	2	1	1	2	2	2	2	2	2	2	2	2	S	2	2	2	2	1	2	2	24
26	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	24
27	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	S	2	2	2	2	2	2	1	2	2	24
28	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	24
29	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	2	24
30	2	2	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2	24
31	2	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2	2	24
HOURLY MAX	2	3	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	3	2	3	2				
HOURLY AVG	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

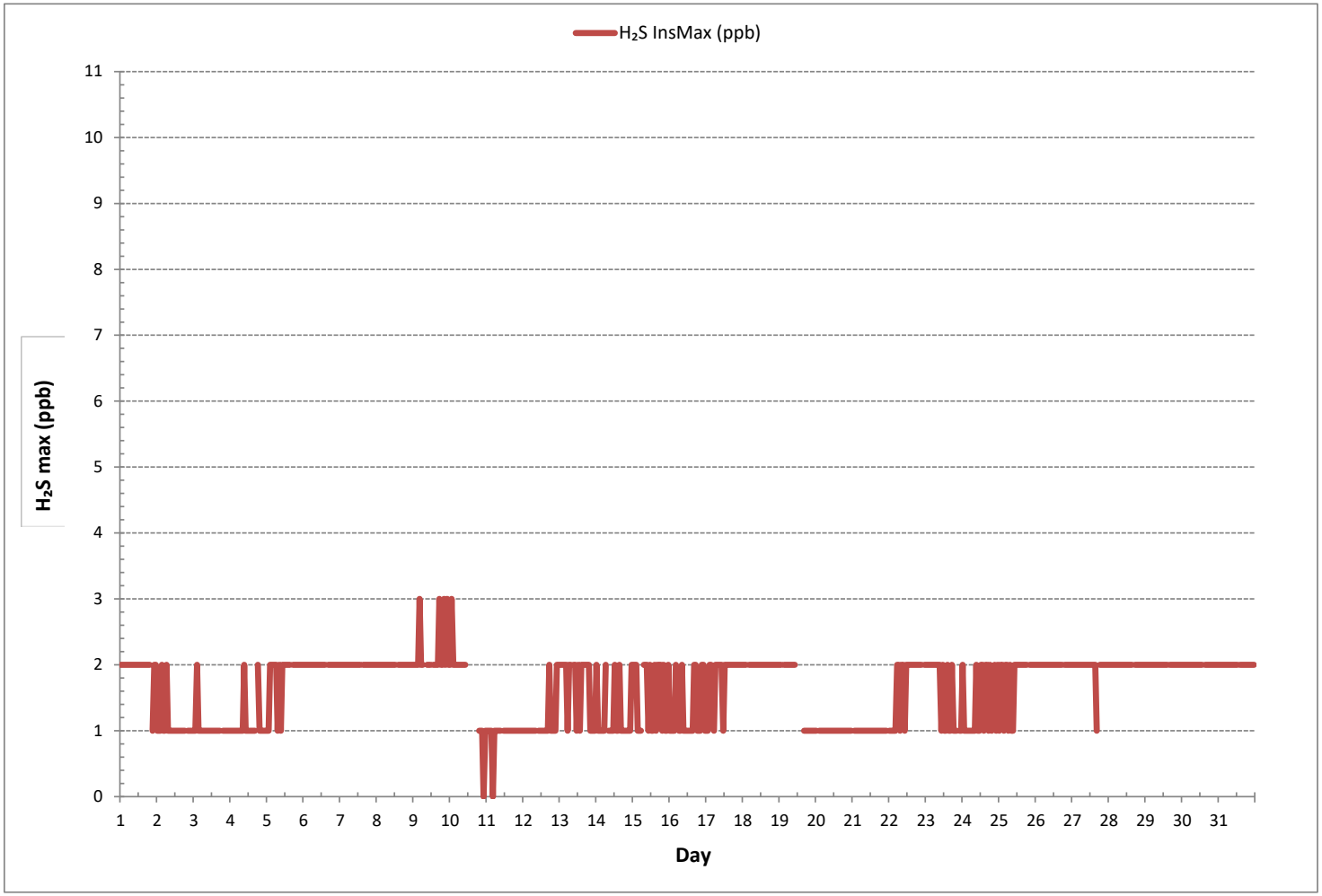
NUMBER OF NON-ZERO READINGS: 696

MAXIMUM INSTANTANEOUS VALUE: 3 ppb @ HOUR 4 ON DAY 9

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 7 hrs
STANDARD DEVIATION: 1

OPERATIONAL TIME: 737 hrs

HYDROGEN SULPHIDE Instantaneous Maximum (H_2S ppb)



TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	2.01	1.99	1.99	1.99	2.02	2.01	2.03	2.04	2.04	2.04	2.10	2.10	2.42	2.24	2.26	2.16	2.19	2.41	3.44	2.55	S	2.05	3.22	**4.26**	1.99	**4.26**	2.33	24
2	2.93	2.02	2.34	2.41	2.39	3.45	2.23	2.49	2.46	2.47	2.35	2.26	2.41	2.18	2.15	2.18	2.11	2.48	2.13	S	2.24	2.53	2.77	2.49	2.02	3.45	2.41	24
3	2.35	2.13	2.23	2.69	2.46	2.24	2.11	2.21	2.37	2.28	2.37	2.20	2.19	2.06	2.16	2.01	2.22	2.21	S	2.22	2.11	2.08	2.30	2.19	2.01	2.69	2.23	24
4	2.07	2.30	2.32	2.12	2.58	2.15	2.09	2.27	2.53	2.11	2.06	2.02	1.98	1.98	2.01	1.99	2.00	S	2.00	2.01	1.99	2.01	2.00	2.02	1.98	2.58	2.11	24
5	2.01	2.04	2.02	2.03	2.03	2.02	2.03	2.03	2.05	1.99	1.99	1.97	1.99	1.96	1.97	1.97	S	1.98	1.96	1.99	1.97	1.98	2.02	2.05	1.96	2.05	2.00	24
6	2.03	2.01	2.03	2.02	2.01	2.19	2.03	2.05	2.03	2.02	2.03	2.08	2.07	2.08	2.08	S	2.06	2.12	2.13	2.16	2.12	2.14	2.14	2.12	2.01	2.19	2.08	24
7	2.14	2.14	2.20	2.16	2.21	2.22	2.29	2.22	2.19	2.18	2.15	2.16	2.13	2.14	S	2.12	2.17	2.11	2.13	2.12	2.12	2.15	2.17	2.22	2.11	2.29	2.17	24
8	2.25	2.18	2.24	2.27	2.29	2.24	2.26	2.20	2.15	2.15	2.10	2.08	2.04	S	2.03	2.00	2.01	2.00	2.01	2.03	2.05	2.02	2.04	2.01	2.00	2.29	2.12	24
9	2.02	2.02	2.03	2.04	2.03	2.06	2.07	2.30	2.02	2.04	2.00	2.17	S	2.95	2.49	2.25	2.56	2.12	2.38	2.21	2.23	2.06	2.05	2.07	2.00	2.95	2.18	24
10	2.15	2.11	2.11	2.18	2.20	2.17	2.13	2.10	2.13	2.08	2.11	S	2.09	2.07	2.07	2.07	2.10	2.14	2.13	2.14	2.13	2.14	2.09	2.10	2.07	2.20	2.12	24
11	2.09	2.34	2.13	2.13	2.15	2.14	2.18	2.16	2.16	2.14	S	2.10	2.07	2.08	2.08	2.08	2.05	2.06	2.09	2.27	2.22	2.27	2.36	2.39	2.05	2.39	2.16	24
12	2.34	2.26	2.13	2.09	2.05	2.02	2.04	2.03	2.02	S	2.90	2.57	2.34	2.22	2.31	2.17	2.40	2.27	2.28	2.00	2.37	1.98	1.98	2.10	1.98	2.90	2.21	24
13	2.20	2.14	2.18	2.24	2.10	2.01	2.01	2.01	S	2.36	2.33	2.33	2.03	2.02	2.01	2.00	1.99	2.02	2.09	2.03	2.05	2.02	2.01	2.01	1.99	2.36	2.10	24
14	2.02	2.02	2.09	2.16	2.10	2.21	2.21	S	2.11	3.38	2.56	2.02	2.02	2.02	2.01	2.00	2.01	2.01	2.03	2.06	2.07	2.05	2.06	2.07	2.00	3.38	2.14	24
15	2.06	2.08	2.07	2.09	2.07	2.08	S	2.11	2.10	2.11	2.21	2.11	2.29	2.26	2.41	2.73	2.35	2.00	1.99	2.00	2.01	2.19	1.99	2.03	1.99	2.73	2.14	24
16	1.99	2.00	2.01	2.03	2.01	S	2.04	2.03	2.07	2.04	2.28	2.52	2.54	2.44	1.98	2.26	2.72	2.41	1.99	2.01	2.00	2.01	2.02	2.04	1.98	2.72	2.15	24
17	2.05	2.07	2.09	2.07	S	2.06	2.09	2.07	2.10	2.08	2.11	2.08	2.08	2.05	2.01	2.00	1.99	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.11	2.04	24
18	2.00	2.00	2.00	S	2.07	2.29	2.26	2.10	2.21	2.73	2.50	2.36	2.01	2.02	1.99	1.99	2.01	2.04	2.05	2.05	2.03	2.04	2.04	2.06	1.99	2.73	2.12	24
19	2.07	2.17	S	2.13	2.10	2.10	2.07	2.04	2.04	2.02	2.53	2.23	1.97	2.02	2.09	2.05	2.03	2.02	2.05	2.04	2.03	2.00	2.12	2.12	1.97	2.53	2.09	24
20	2.09	S	2.07	2.06	2.08	2.14	2.22	2.13	2.19	C	C	C	C	C	1.99	2.01	2.00	2.01	2.05	2.05	2.08	2.11	2.41	2.14	1.99	2.41	2.10	24
21	S	2.26	2.21	2.15	2.09	2.08	2.11	2.09	2.06	2.05	2.10	2.11	2.16	2.15	2.17	2.14	2.13	2.10	2.11	2.14	2.16	2.15	2.14	S	2.05	2.26	2.13	24
22	2.19	2.20	2.17	2.18	2.23	2.23	2.26	2.26	2.25	2.19	2.16	2.15	2.15	2.07	2.10	2.10	2.08	2.07	2.06	2.06	2.05	2.05	S	2.05	2.05	2.26	2.14	24
23	2.03	2.07	2.17	2.60	2.62	2.55	2.39	2.20	2.14	2.09	2.05	1.96	1.98	1.94	1.92	1.94	1.93	1.94	1.92	1.95	1.94	S	1.96	1.95	1.92	2.62	2.10	24
24	1.95	1.95	1.96	1.94	1.97	1.98	2.00	2.01	2.02	2.06	2.08	2.17	2.16	2.17	2.09	2.05	2.02	2.01	1.99	1.98	S	1.99	1.99	2.00	1.94	2.17	2.02	24
25	1.97	1.95	1.95	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.97	1.98	2.02	2.07	2.03	2.01	2.00	1.99	2.00	S	1.99	1.98	2.00	1.99	1.94	2.07	1.98	24
26	2.06	2.00	2.00	2.04	2.31	2.29	2.18	2.56	2.02	2.15	2.07	2.11	2.05	2.02	2.68	2.96	2.02	2.02	S	2.03	2.27	1.95	1.93	1.93	1.93	2.96	2.16	24
27	1.93	1.94	1.93	1.95	2.20	1.93	2.04	2.05	2.04	2.04	1.91	2.27	2.41	2.40	2.40	2.32	2.11	S	2.84	1.93	1.94	2.54	2.66	1.94	1.91	2.84	2.16	24
28	1.99	1.97	1.95	1.96	2.02	2.00	2.02	2.05	2.07	2.01	1.99	1.95	1.97	1.93	1.93	1.93	S	1.94	1.94	1.95	1.94	1.94	2.23	1.95	1.93	2.23	1.98	24
29	2.01	2.02	1.99	1.93	1.94	1.93	1.94	1.93	1.94	1.93	2.20	2.04	2.21	2.24	2.11	S	1.94	1.94	1.95	1.96	1.95	2.00	2.00	1.95	1.93	2.24	2.00	24
30	1.97	1.97	1.98	1.97	1.96	1.96	1.97	2.27	X	2.11	1.97	2.03	1.95	2.02	S	1.93	1.92	1.94	1.95	1.95	1.96	1.97	2.05	2.00	1.92	2.27	1.99	23
31	2.00	2.01	2.01	1.98	2.01	2.00	1.97	1.99	1.98	1.95	1.96	1.94	1.92	S	1.94	1.94	1.94	1.96	1.98	1.98	1.99	1.98	1.99	1.96	1.92	2.01	1.97	24
HOURLY MAX	2.93	2.34	2.34	2.69	2.62	3.45	2.39	2.56	2.53	3.38	2.90	2.57	2.54	2.95	2.68	2.96	2.72	2.48	3.44	2.55	2.37	2.54	3.22	4.26				
HOURLY AVG	2.10	2.08	2.09	2.12	2.14	2.16	2.11	2.13	2.12	2.16	2.18	2.14	2.13	2.14	2.12	2.12	2.11	2.08	2.13	2.06	2.07	2.08	2.16	2.14				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

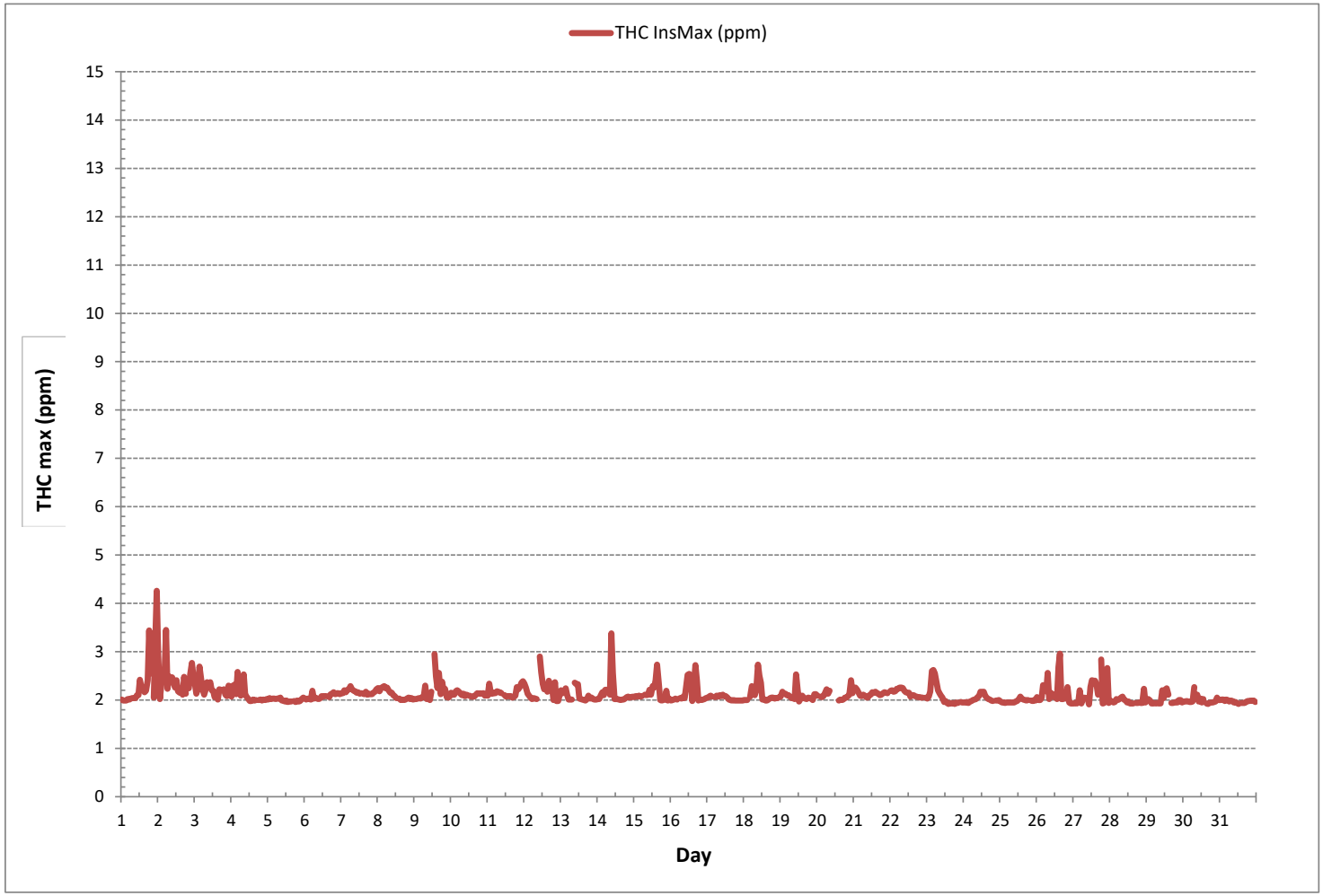
NUMBER OF NON-ZERO READINGS: 706

MAXIMUM INSTANTANEOUS VALUE: 4.26 ppm @ HOUR 23 ON DAY 1

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 0.21

OPERATIONAL TIME: 743 hrs

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)



METHANE MAX Instantaneous Maximum (CH_4 ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	2.01	1.99	1.99	1.99	2.02	2.01	2.03	2.04	2.04	2.04	2.10	2.10	2.42	2.24	2.26	2.16	2.19	2.41	3.44	2.55	S	2.05	3.22	**4.26**	1.99	**4.26**	2.33	24
2	2.93	2.02	2.34	2.41	2.39	3.45	2.23	2.49	2.46	2.47	2.35	2.26	2.17	2.18	2.15	2.18	2.11	2.48	2.13	S	2.24	2.53	2.77	2.49	2.02	3.45	2.40	24
3	2.35	2.13	2.23	2.69	2.46	2.24	2.11	2.21	2.37	2.28	2.37	2.20	2.19	2.06	2.16	2.01	2.22	2.21	S	2.22	2.11	2.08	2.30	2.19	2.01	2.69	2.23	24
4	2.07	2.30	2.32	2.12	2.58	2.15	2.09	2.27	2.53	2.11	2.06	2.02	1.98	1.98	2.01	1.99	2.00	S	2.00	2.01	1.99	2.01	2.00	2.02	1.98	2.58	2.11	24
5	2.01	2.04	2.02	2.03	2.03	2.02	2.03	2.03	2.05	1.99	1.99	1.97	1.99	1.96	1.97	1.97	S	1.98	1.96	1.99	1.97	1.98	2.02	2.05	1.96	2.05	2.00	24
6	2.03	2.01	2.03	2.02	2.01	2.19	2.03	2.05	2.03	2.02	2.03	2.08	2.07	2.08	2.08	S	2.06	2.12	2.13	2.16	2.12	2.11	2.14	2.12	2.01	2.19	2.07	24
7	2.14	2.14	2.20	2.16	2.21	2.22	2.22	2.22	2.19	2.18	2.15	2.16	2.13	2.14	S	2.12	2.17	2.11	2.13	2.12	2.12	2.15	2.17	2.22	2.11	2.22	2.16	24
8	2.25	2.18	2.24	2.27	2.29	2.24	2.26	2.20	2.15	2.15	2.10	2.08	2.04	S	2.03	2.00	2.01	2.00	2.01	2.03	2.05	2.02	2.04	2.01	2.00	2.29	2.12	24
9	2.02	2.02	2.03	2.04	2.03	2.06	2.07	2.30	2.02	2.04	2.00	2.17	S	2.95	2.49	2.25	2.56	2.12	2.38	2.21	2.23	2.06	2.05	2.07	2.00	2.95	2.18	24
10	2.15	2.11	2.11	2.18	2.20	2.17	2.13	2.10	2.13	2.08	2.11	S	2.09	2.07	2.07	2.07	2.10	2.14	2.13	2.14	2.12	2.14	2.09	2.10	2.07	2.20	2.12	24
11	2.09	2.34	2.11	2.13	2.15	2.14	2.18	2.16	2.16	2.14	S	2.10	2.07	2.08	2.08	2.08	2.05	2.06	2.09	2.27	2.22	2.27	2.36	2.39	2.05	2.39	2.16	24
12	2.34	2.26	2.13	2.09	2.05	2.02	2.04	2.03	2.02	S	2.90	2.57	2.34	2.22	2.31	2.17	2.40	2.27	2.28	2.00	2.37	1.98	1.98	2.10	1.98	2.90	2.21	24
13	2.20	2.14	2.18	2.24	2.10	2.01	2.01	2.01	S	2.36	2.33	2.33	2.03	2.02	2.01	2.00	1.99	2.02	2.09	2.03	2.05	2.02	2.01	2.01	1.99	2.36	2.10	24
14	2.02	2.02	2.09	2.16	2.10	2.21	2.21	S	2.11	3.38	2.56	2.02	2.02	2.02	2.01	2.00	2.01	2.01	2.03	2.06	2.07	2.05	2.06	2.07	2.00	3.38	2.14	24
15	2.06	2.08	2.07	2.09	2.07	2.08	S	2.11	2.10	2.11	2.21	2.11	2.29	2.26	2.41	2.73	2.35	2.00	1.99	2.00	2.01	2.19	1.99	2.03	1.99	2.73	2.14	24
16	1.99	2.00	2.01	2.03	2.01	S	2.04	2.03	2.07	2.04	2.28	2.52	2.54	2.44	1.98	2.26	2.72	2.41	1.99	2.01	2.00	2.01	2.02	2.04	1.98	2.72	2.15	24
17	2.05	2.07	2.09	2.07	S	2.06	2.09	2.07	2.10	2.08	2.11	2.08	2.08	2.05	2.01	2.00	1.99	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.11	2.04	24
18	2.00	2.00	2.00	S	2.07	2.29	2.26	2.10	2.21	2.73	2.50	2.36	2.01	2.02	1.99	1.99	2.01	2.04	2.05	2.05	2.03	2.04	2.04	2.06	1.99	2.73	2.12	24
19	2.07	2.08	S	2.09	2.10	2.10	2.07	2.04	2.04	2.02	2.53	2.23	1.97	2.02	2.09	2.05	2.03	2.02	2.05	2.04	2.03	2.00	2.12	2.12	1.97	2.53	2.08	24
20	2.09	S	2.07	2.06	2.08	2.14	2.12	2.13	2.19	C	C	C	C	C	1.99	2.01	2.00	2.01	2.05	2.05	2.08	2.11	2.13	2.14	1.99	2.19	2.08	24
21	S	2.26	2.21	2.15	2.09	2.08	2.11	2.09	2.06	2.05	2.10	2.11	2.16	2.15	2.17	2.14	2.13	2.10	2.11	2.14	2.16	2.15	2.14	S	2.05	2.26	2.13	24
22	2.19	2.20	2.17	2.18	2.23	2.23	2.26	2.26	2.25	2.19	2.16	2.15	2.15	2.07	2.10	2.10	2.08	2.07	2.06	2.06	2.05	2.05	S	2.05	2.05	2.26	2.14	24
23	2.03	2.07	2.17	2.60	2.60	2.55	2.39	2.20	2.14	2.09	2.05	1.96	1.98	1.94	1.92	1.94	1.93	1.94	1.92	1.95	1.93	S	1.96	1.95	1.92	2.60	2.10	24
24	1.95	1.95	1.96	1.94	1.97	1.98	2.00	2.01	2.02	2.06	2.08	2.17	2.16	2.17	2.09	2.05	2.02	2.01	1.99	1.98	S	1.99	1.99	1.97	1.94	2.17	2.02	24
25	1.97	1.95	1.95	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.97	1.98	2.02	2.07	2.03	2.01	2.00	1.99	2.00	S	1.99	1.98	2.00	1.99	1.94	2.07	1.98	24
26	2.00	2.00	2.00	2.04	2.31	2.29	2.18	2.56	2.02	2.15	2.07	2.11	2.05	2.02	2.68	2.96	2.02	2.02	S	2.03	2.27	1.95	1.93	1.93	1.93	2.96	2.16	24
27	1.93	1.94	1.93	1.94	2.20	1.93	2.04	2.05	2.04	2.04	1.91	2.27	2.41	2.40	2.40	2.32	2.11	S	2.84	1.93	1.94	2.54	2.66	1.94	1.91	2.84	2.16	24
28	1.99	1.97	1.95	1.96	2.02	2.00	2.02	2.05	2.07	2.01	1.99	1.95	1.97	1.93	1.93	1.93	S	1.94	1.94	1.95	1.94	1.94	2.23	1.95	1.93	2.23	1.98	24
29	2.01	2.02	1.99	1.93	1.94	1.93	1.94	1.93	1.94	1.93	2.20	2.04	2.21	2.24	2.11	S	1.94	1.94	1.95	1.96	1.95	2.00	2.00	1.95	1.93	2.24	2.00	24
30	1.97	1.97	1.98	1.97	1.96	1.96	1.97	2.27	X	2.11	1.97	2.03	1.95	2.02	S	1.93	1.92	1.94	1.95	1.95	1.96	1.97	2.05	2.00	1.92	2.27	1.99	23
31	2.00	2.01	2.01	1.98	2.01	2.00	1.97	1.99	1.98	1.95	1.96	1.94	1.92	S	1.94	1.94	1.94	1.96	1.98	1.98	1.99	1.98	1.99	1.96	1.92	2.01	1.97	24
HOURLY MAX	2.93	2.34	2.34	2.69	2.60	3.45	2.39	2.56	2.53	3.38	2.90	2.57	2.54	2.95	2.68	2.96	2.72	2.48	3.44	2.55	2.37	2.54	3.22	4.26				
HOURLY AVG	2.10	2.08	2.09	2.12	2.14	2.16	2.10	2.13	2.12	2.16	2.18	2.14	2.12	2.14	2.12	2.12	2.11	2.08	2.13	2.06	2.07	2.08	2.15	2.14				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

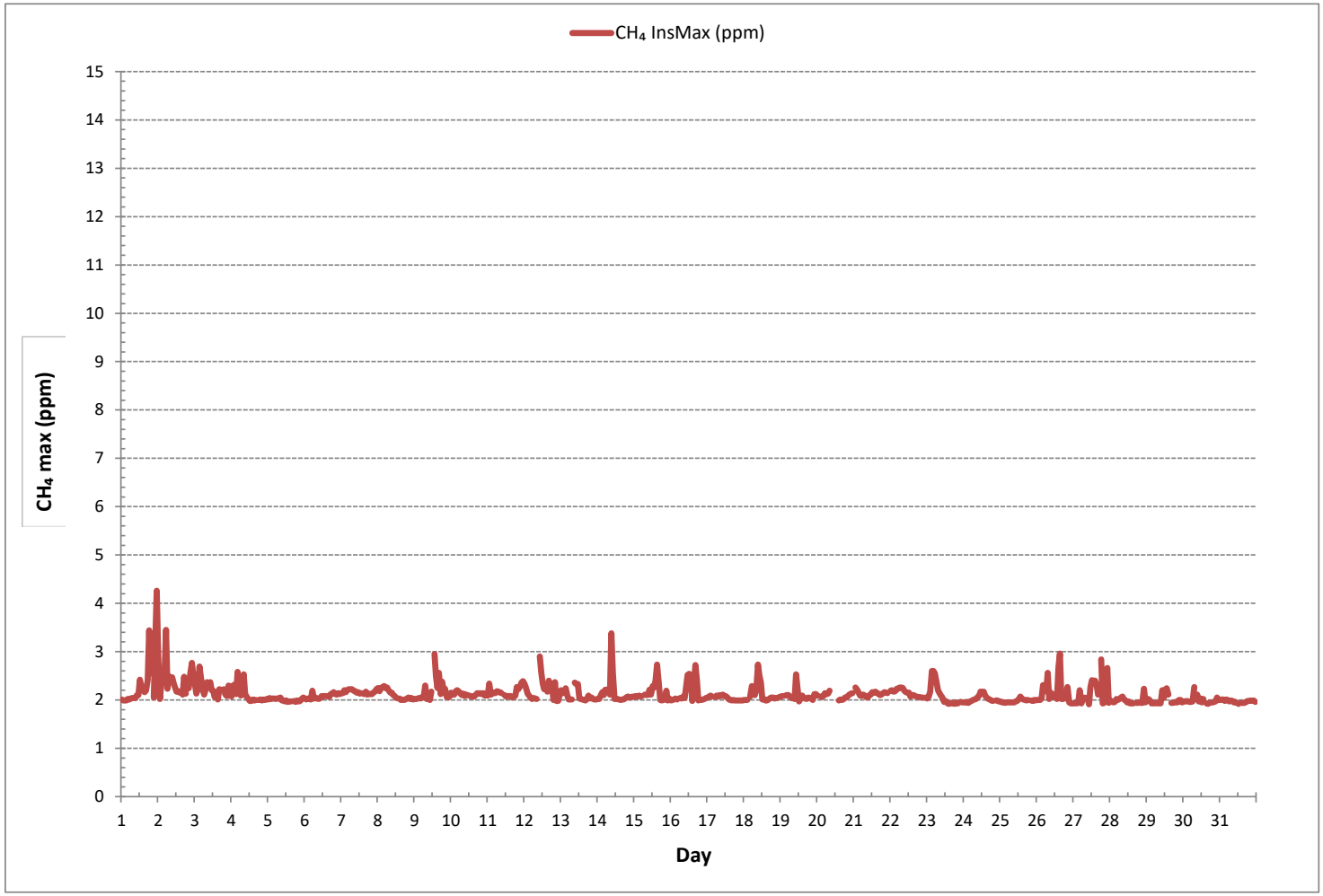
NUMBER OF NON-ZERO READINGS: 706

MAXIMUM INSTANTANEOUS VALUE: 4.26 ppm @ HOUR 23 ON DAY 1

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 0.21

OPERATIONAL TIME: 743 hrs

METHANE MAX Instantaneous Maximum (CH_4 ppm)



NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	24
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.01	0.00	0.00	0.00	0.00	S	0.00	0.00	0.01	0.00	0.00	0.42	0.02	24
3	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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	24
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
6	0.00	0.00	0.00	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	0.01	0.00	0.04	0.00	0.00	0.00	0.04	0.00	24
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09	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	0.09	0.00	24
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	S	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	24
10	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	24
11	0.00	0.00	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.04	0.00	24
12	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24
13	0.00	0.00	0.11	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	0.11	0.00	24
14	0.00	0.01	0.01	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	0.01	0.00	24
15	0.00	0.00	0.00	0.00	0.01	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24
16	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	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	24
17	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	24
18	0.00	0.00	0.00	S	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.03	0.00	24
19	0.00	0.12	S	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.12	0.01	24
20	0.00	S	0.00	0.00	0.00	0.00	0.11	0.00	0.01	C	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.29	0.02	24
21	S	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.01	0.00	24
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	S	0.00	0.00	0.04	0.00	24
23	0.00	0.00	0.00	0.01	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	0.01	S	0.00	0.00	0.00	0.06	0.00	24
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.03	0.00	0.03	0.00	24
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
26	0.07	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	0.01	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	24
27	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	24
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	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	23
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	24
HOURLY MAX	0.07	0.12	0.11	0.05	0.06	0.03	0.11	0.01	0.01	0.01	0.00	0.00	0.42	0.04	0.01	0.03	0.02	0.01	0.01	0.01	0.01	0.04	0.29	0.03				
HOURLY AVG	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

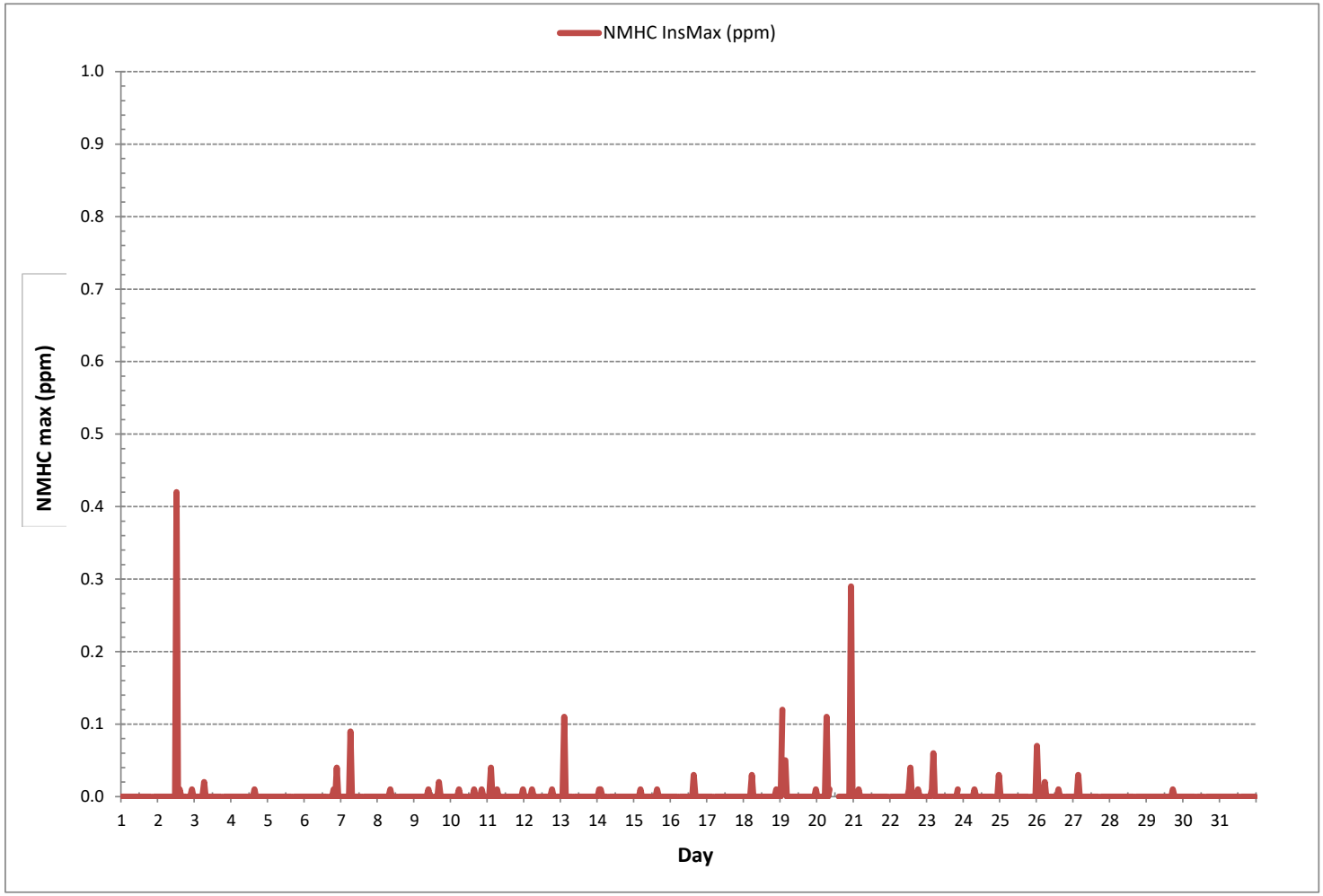
NUMBER OF NON-ZERO READINGS: 47

MAXIMUM INSTANTANEOUS VALUE: 0.42 ppm @ HOUR 12 ON DAY 2

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 0.02

OPERATIONAL TIME: 743 hrs

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)



OXIDES OF NITROGEN Instantaneous Maximum (NO_x ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	2	2	2	2	1	1	3	7	2	4	5	4	3	4	3	1	5	1	2	1	S	2	1	1	1	7	2	24
2	1	1	1	1	1	1	1	6	3	4	1	1	17	2	1	2	1	1	1	S	1	2	2	1	1	17	2	24
3	1	1	1	1	1	1	2	2	2	2	2	2	4	1	2	2	2	2	S	4	1	1	3	1	1	4	2	24
4	1	1	1	2	1	2	2	3	2	7	4	6	1	2	1	1	3	S	2	1	1	1	2	2	1	7	2	24
5	2	2	2	2	2	2	2	2	2	1	5	1	6	3	4	3	S	3	2	1	2	2	4	5	1	6	3	24
6	4	3	2	2	2	1	1	1	2	1	2	2	2	2	3	S	2	2	3	3	3	3	2	2	1	4	2	24
7	2	2	3	3	4	3	3	3	3	3	3	4	4	4	S	4	4	4	4	4	4	3	4	4	2	4	3	24
8	3	3	3	3	3	3	5	4	5	4	6	3	3	S	6	4	2	5	2	2	2	3	2	2	2	6	3	24
9	2	2	2	2	2	2	2	2	3	2	2	3	S	6	4	3	17	4	10	7	5	2	2	4	2	17	4	24
10	4	5	5	5	5	6	5	4	6	6	12	S	7	17	10	8	7	8	8	9	9	9	9	7	4	17	7	24
11	7	8	8	7	7	9	9	7	8	19	S	11	11	7	9	8	7	7	6	7	6	10	7	7	6	19	8	24
12	11	8	8	8	6	5	8	6	4	S	4	5	2	2	4	2	2	2	2	2	1	1	2	1	1	11	4	24
13	1	1	1	1	1	8	10	3	S	9	2	3	6	2	3	11	3	3	5	6	10	3	2	2	1	11	4	24
14	2	2	2	1	1	1	4	S	2	2	10	6	2	6	18	3	3	3	4	7	7	5	5	5	1	18	4	24
15	5	4	5	4	4	6	S	5	23	11	6	2	2	3	2	2	3	1	1	1	1	1	1	1	1	23	4	24
16	1	1	1	1	1	S	3	49	20	19	10	15	11	1	1	2	2	8	1	2	3	4	4	3	1	49	7	24
17	5	4	4	7	S	6	6	6	10	35	25	12	11	6	3	3	3	2	3	3	4	2	2	1	1	35	7	24
18	1	1	1	S	2	2	2	2	2	3	4	8	8	8	27	16	7	6	9	17	7	6	7	6	1	27	7	24
19	7	8	S	8	8	7	5	6	11	6	4	C	C	C	C	C	C	C	C	3	3	2	3	3	2	11	-	24
20	2	S	2	2	3	3	7	52	16	22	11	7	6	8	7	7	11	6	8	10	8	10	12	11	2	52	10	24
21	S	11	8	6	5	4	4	4	3	3	4	3	3	3	3	3	3	3	3	3	4	3	4	S	3	11	4	24
22	4	4	4	4	4	4	4	5	5	7	5	5	4	11	6	5	5	10	5	5	5	5	S	5	4	11	5	24
23	5	7	7	20	21	18	S1	S1	8	6	5	2	2	2	1	1	1	1	2	2	2	S	2	1	1	21	5	22
24	1	1	1	1	1	1	1	2	2	2	3	3	4	4	2	2	4	2	1	1	S	2	2	1	1	4	2	24
25	1	1	1	1	1	1	1	2	3	2	2	3	20	4	C1	C1	6	6	3	S	3	3	4	3	1	20	3	22
26	2	2	2	2	2	2	26	3	11	2	2	12	2	5	4	13	14	17	S	4	4	2	1	1	1	26	6	24
27	2	2	2	2	2	2	3	1	5	2	1	1	3	2	4	8	1	S	4	1	1	0	1	3	0	8	2	24
28	3	2	1	1	1	1	16	47	8	3	9	2	2	1	4	2	S	1	1	1	2	2	1	1	1	47	5	24
29	3	3	3	1	1	1	1	1	1	1	1	1	8	5	1	S	7	9	4	1	8	2	1	1	1	9	3	24
30	1	1	1	1	1	5	4	6	4	5	1	2	2	1	S	2	1	3	2	2	2	2	4	4	1	6	3	24
31	4	4	4	3	3	3	3	4	3	1	1	1	1	S	2	1	1	11	11	2	5	3	3	3	1	11	3	24
HOURLY MAX	11	11	8	20	21	18	26	52	23	35	25	15	20	17	27	16	17	17	11	17	10	10	12	11				
HOURLY AVG	3	3	3	3	3	4	5	8	6	6	5	4	5	4	5	4	5	5	4	4	4	3	3	3				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

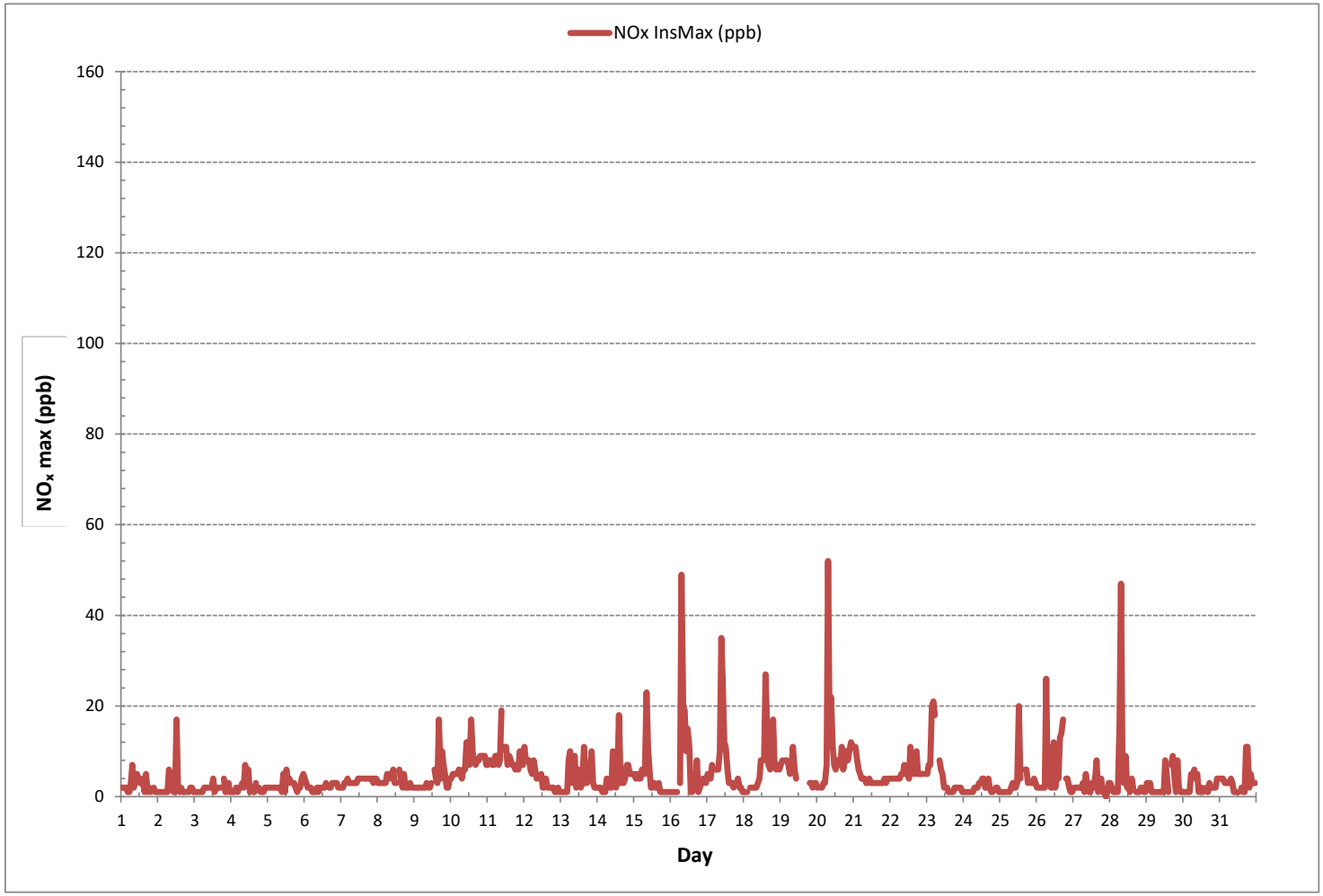
NUMBER OF NON-ZERO READINGS: 699

MAXIMUM INSTANTANEOUS VALUE: 52 ppb @ HOUR 7 ON DAY 20

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 8 hrs
STANDARD DEVIATION: 5

OPERATIONAL TIME: 740 hrs

OXIDES OF NITROGEN Instantaneous Maximum (NO_x ppb)



NITRIC OXIDE Instantaneous Maximum (NO ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	0	0	0	0	0	0	1	3	1	2	2	2	1	2	1	0	2	0	1	0	S	0	0	0	0	3	1	24
2	0	0	0	0	0	0	0	2	1	3	1	0	10	1	0	1	0	0	0	S	1	1	1	0	0	10	1	24
3	0	0	0	0	0	0	0	0	0	1	1	1	2	0	0	2	1	1	S	2	0	0	2	0	0	2	1	24
4	0	0	0	0	0	0	0	0	0	3	2	3	0	1	0	0	1	S	0	0	0	0	0	0	0	3	1	24
5	0	0	0	0	0	0	0	0	0	1	3	0	2	1	2	1	S	1	0	0	0	0	0	0	0	3	1	24
6	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	S	1	0	0	0	0	0	0	0	0	1	0	24
7	0	0	0	0	0	0	0	0	1	1	1	1	1	1	S	1	1	0	0	0	0	0	0	0	0	1	0	24
8	0	0	0	0	0	0	3	1	2	1	2	1	0	S	2	3	0	3	0	0	0	1	0	0	0	3	1	24
9	0	0	0	0	0	0	0	0	0	0	0	1	S	3	1	1	8	1	2	3	0	0	0	0	0	8	1	24
10	0	0	0	0	0	0	0	0	1	1	4	S	2	6	3	2	1	1	0	0	0	0	1	0	0	6	1	24
11	0	0	0	0	0	1	1	1	1	8	S	4	4	1	2	1	1	1	0	0	0	1	0	0	0	8	1	24
12	1	0	0	0	0	0	1	1	0	S	1	2	0	0	2	0	1	0	0	0	0	0	0	0	0	2	1	24
13	0	0	0	0	0	4	5	1	S	3	0	1	3	0	1	2	1	1	0	0	2	0	0	0	0	5	1	24
14	0	0	0	0	0	0	2	S	1	1	2	3	0	3	7	1	0	0	0	0	0	0	0	0	0	7	1	24
15	0	0	0	0	0	2	S	0	11	4	1	0	0	1	0	1	1	0	0	0	0	0	0	0	0	11	1	24
16	0	0	0	0	0	S	1	31	11	8	5	14	5	1	0	0	1	3	0	0	0	1	0	0	0	31	4	24
17	0	0	0	0	S	0	0	0	5	25	15	5	5	3	0	1	1	0	0	1	2	0	0	0	0	25	3	24
18	0	0	0	S	0	0	0	1	1	1	2	4	5	5	24	6	4	1	1	1	0	0	1	0	0	24	2	24
19	0	0	S	0	0	2	1	1	6	2	1	C	C	C	C	C	C	C	C	0	0	0	0	0	0	6	-	24
20	0	S	0	0	0	0	0	18	4	9	2	1	1	2	2	1	2	0	1	0	0	0	0	0	0	18	2	24
21	S	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	0	24
22	0	0	0	0	0	0	0	0	1	2	1	1	0	3	1	0	0	2	0	0	0	0	S	0	0	3	1	24
23	0	0	0	0	0	0	S1	S1	1	1	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	0	22
24	0	0	0	0	0	0	0	0	0	0	1	1	1	2	0	0	1	0	0	0	S	0	0	0	0	2	0	24
25	0	0	0	0	0	0	0	0	0	0	0	1	10	1	C1	C1	2	3	0	S	0	0	2	0	0	10	1	22
26	0	0	0	0	0	0	19	0	5	0	0	5	0	2	1	7	7	8	S	0	0	0	0	0	0	19	2	24
27	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2	3	0	S	1	0	0	0	0	1	0	3	0	24
28	1	0	0	0	0	0	6	38	4	1	6	0	1	0	3	1	S	0	0	0	1	1	0	0	0	38	3	24
29	0	0	0	0	0	0	0	0	0	0	0	0	5	2	0	S	4	2	0	0	0	0	0	0	0	5	1	24
30	0	0	0	0	0	1	1	2	1	1	0	1	1	0	S	1	0	0	0	0	0	0	0	0	0	2	0	24
31	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	0	0	3	3	0	2	0	0	0	0	3	0	24
HOURLY MAX	1	0	0	0	0	4	19	38	11	25	15	14	10	6	24	7	8	8	3	3	2	1	2	1				
HOURLY AVG	0	0	0	0	0	0	1	3	2	3	2	2	2	2	2	1	1	1	0	0	0	0	0	0				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

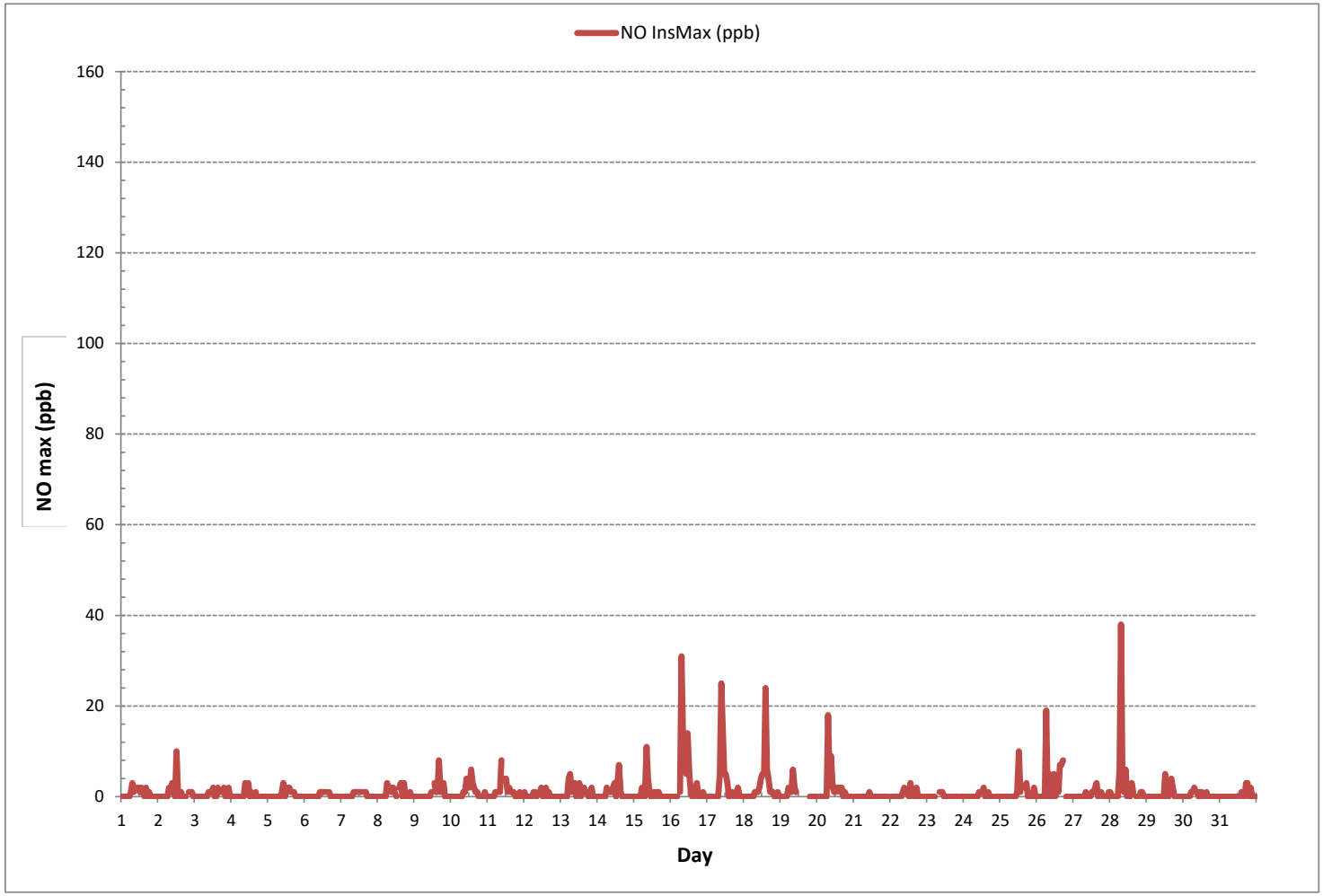
NUMBER OF NON-ZERO READINGS: 246

MAXIMUM INSTANTANEOUS VALUE: 38 ppb @ HOUR 7 ON DAY 28

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 8 hrs
STANDARD DEVIATION: 3

OPERATIONAL TIME: 740 hrs

NITRIC OXIDE Instantaneous Maximum (NO ppb)



Maxxam
A Bureau Veritas Group Company

NITROGEN DIOXIDE Instantaneous Maximum (NO_2 ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	2	2	2	2	1	1	2	4	2	3	3	2	1	2	2	1	2	1	1	1	S	1	1	1	1	4	2	24
2	1	1	1	1	1	1	1	3	1	2	1	0	7	1	1	1	0	1	1	S	1	1	1	1	0	7	1	24
3	1	1	1	1	1	1	1	1	2	1	1	2	2	1	1	1	1	1	S	2	1	1	2	1	1	2	1	24
4	1	1	2	2	1	2	2	3	2	4	2	3	1	1	1	1	2	S	1	1	1	1	2	2	1	4	2	24
5	2	2	2	2	2	2	2	2	2	1	3	1	3	2	2	2	S	2	2	1	2	2	4	5	1	5	2	24
6	4	3	2	2	2	1	1	1	1	1	1	1	1	1	2	S	2	2	3	3	3	3	2	2	1	4	2	24
7	2	2	3	3	4	3	3	3	3	3	2	3	3	3	S	3	3	4	4	4	4	3	4	4	2	4	3	24
8	3	3	3	3	3	3	3	3	4	3	3	2	2	S	4	2	2	3	1	2	2	2	2	2	1	4	3	24
9	2	2	2	2	2	2	2	2	2	2	1	2	S	3	3	2	9	3	7	4	4	2	2	4	1	9	3	24
10	4	5	5	5	5	6	5	4	5	5	8	S	5	11	7	7	6	8	8	9	9	9	8	7	4	11	6	24
11	7	8	7	7	7	8	8	7	7	11	S	8	8	6	7	7	6	6	6	7	6	9	7	7	6	11	7	24
12	10	8	8	8	6	5	7	5	4	S	3	3	2	2	2	2	2	2	2	2	1	1	2	1	1	10	4	24
13	1	1	1	1	1	5	5	2	S	6	1	2	3	2	3	8	3	3	5	6	8	3	2	2	1	8	3	24
14	2	2	2	1	1	1	3	S	1	1	8	3	2	4	11	2	2	2	4	6	7	5	5	5	1	11	4	24
15	5	4	5	4	4	4	S	4	12	8	5	2	1	3	1	2	2	1	1	1	1	1	1	1	1	12	3	24
16	1	1	1	1	1	S	3	19	9	11	6	8	7	1	1	1	2	5	1	2	3	3	3	3	1	19	4	24
17	5	4	4	6	S	6	6	5	6	11	13	8	7	5	3	3	3	2	3	3	2	2	2	1	1	13	5	24
18	1	1	1	S	2	1	1	1	2	2	2	5	6	4	10	11	4	6	8	16	7	6	6	5	1	16	5	24
19	7	8	S	7	8	7	5	5	6	4	3	C	C	C	C	C	C	C	C	3	3	2	3	3	2	8	-	24
20	3	S	3	3	3	3	7	34	13	13	9	6	5	6	6	7	9	6	8	9	8	10	12	11	3	34	8	24
21	S	11	8	6	5	4	4	4	3	3	3	3	3	3	3	3	3	3	3	4	4	3	4	S	3	11	4	24
22	4	4	4	4	4	4	4	5	4	6	4	4	4	8	5	4	5	8	5	6	5	5	S	5	4	8	5	24
23	5	7	7	20	20	18	S1	S1	7	5	4	2	2	2	1	1	1	1	2	2	2	S	2	1	1	20	5	22
24	1	1	1	1	1	1	1	1	2	2	2	2	3	3	2	2	3	2	1	1	S	2	2	1	1	3	2	24
25	1	1	1	1	1	1	1	2	2	2	2	3	11	3	C1	C1	4	4	3	S	3	3	3	3	1	11	3	22
26	2	2	2	2	2	2	9	3	6	2	2	7	2	4	3	7	7	9	S	4	4	2	1	2	1	9	4	24
27	2	2	2	2	2	2	2	1	4	2	1	1	2	2	2	6	1	S	3	1	2	1	1	2	1	6	2	24
28	3	2	1	1	1	1	9	9	4	3	2	1	2	1	2	2	S	1	1	1	1	2	1	1	1	9	2	24
29	3	3	3	1	1	1	1	1	1	1	1	1	4	2	1	S	3	7	3	1	8	2	1	1	1	8	2	24
30	1	1	1	2	2	3	3	4	3	3	1	2	1	1	S	2	1	2	3	2	3	2	4	5	1	5	2	24
31	4	4	4	3	3	3	3	4	2	1	1	1	1	S	1	1	1	8	8	2	3	3	3	3	1	8	3	24
HOURLY MAX	10	11	8	20	20	18	9	34	13	13	13	8	11	11	11	11	9	9	8	16	9	10	12	11				
HOURLY AVG	3	3	3	3	3	3	4	5	4	4	3	3	3	3	3	3	3	4	4	4	4	3	3	3				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 698

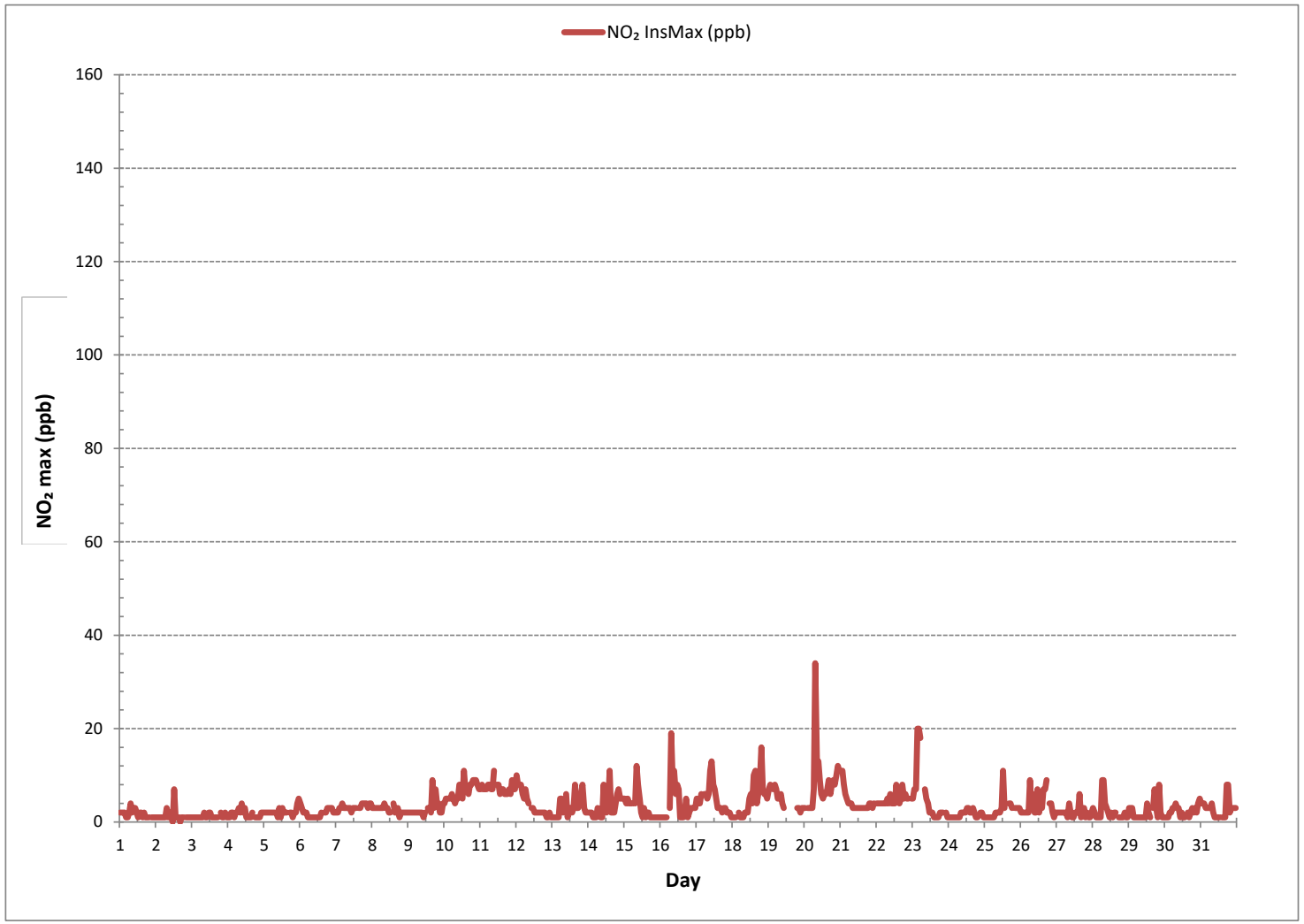
MAXIMUM INSTANTANEOUS VALUE: 34 ppb @ HOUR 7 ON DAY 20

VAR-VARIOUS

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 8 hrs
STANDARD DEVIATION: 3

OPERATIONAL TIME: 740 hrs

NITROGEN DIOXIDE Instantaneous Maximum (NO_2 ppb)



OZONE Instantaneous Maximum (O_3 ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	31.9	27.0	25.1	24.2	24.6	28.9	31.4	31.7	33.3	33.5	33.7	34.4	35.3	36.7	37.2	37.3	37.4	37.0	36.9	37.4	S	37.5	37.6	37.4	24.2	37.6	33.3	24
2	37.4	37.4	37.3	37.3	36.9	36.0	35.2	35.2	35.8	36.1	37.8	40.6	41.4	41.7	41.4	42.2	43.7	43.6	43.3	S	41.8	41.7	41.7	40.9	35.2	43.7	39.4	24
3	39.5	38.0	38.3	38.6	38.5	38.2	37.5	37.8	38.5	39.3	39.8	40.8	42.9	43.5	43.6	43.4	43.4	43.4	S	43.5	43.4	43.1	42.6	42.0	37.5	43.6	40.9	24
4	41.3	40.7	40.8	41.2	41.3	41.1	41.1	41.0	42.1	42.8	43.9	45.5	46.7	47.6	47.9	48.0	47.5	S	47.8	47.4	47.0	46.6	46.0	45.0	40.7	48.0	44.4	24
5	44.4	43.4	43.0	42.6	42.5	42.6	42.5	42.5	43.1	44.6	44.5	44.6	45.4	45.9	46.2	46.2	S	46.4	46.8	46.6	46.2	44.3	43.0	41.1	41.1	46.8	44.3	24
6	40.9	41.9	41.9	42.0	41.9	41.8	41.3	40.9	40.6	40.3	40.3	40.9	42.6	43.2	43.5	S	43.9	43.9	43.0	43.1	42.8	42.6	43.5	43.9	40.3	43.9	42.2	24
7	43.9	43.5	42.4	41.3	40.7	39.5	39.7	39.9	40.4	41.0	41.8	41.6	42.1	42.5	S	43.0	42.8	42.1	41.1	41.0	41.2	41.3	41.1	41.1	39.5	43.9	41.5	24
8	40.8	40.7	40.5	40.3	40.5	40.9	40.6	39.7	39.9	40.5	42.9	44.6	44.7	S	48.3	50.3	51.2	51.4	50.9	50.5	50.5	50.5	50.5	50.3	39.7	51.4	45.3	24
9	49.9	49.4	48.9	48.4	47.6	46.9	46.3	45.8	45.6	46.3	48.0	48.3	S	49.3	49.4	50.1	50.4	50.4	50.3	52.5	52.1	54.6	54.8	54.9	45.6	54.9	49.6	24
10	54.1	52.6	51.7	53.3	52.8	50.9	51.6	51.9	50.2	50.6	51.4	S	56.5	58.2	60.4	63.8	63.9	63.0	62.2	60.1	56.0	54.4	54.3	53.6	50.2	63.9	55.5	24
11	52.6	48.5	49.4	49.8	50.5	51.4	51.1	49.6	48.8	48.3	S	50.5	52.0	54.3	54.8	55.1	55.3	56.8	57.5	57.0	58.3	58.2	57.7	57.3	48.3	58.3	53.2	24
12	57.0	55.7	49.5	46.0	44.7	44.3	44.1	44.7	46.9	S	46.9	47.1	47.0	48.2	48.7	48.8	48.7	48.8	48.8	49.5	49.7	49.1	48.7	47.3	44.1	57.0	48.3	24
13	45.8	45.5	45.5	45.8	46.0	46.3	46.3	46.1	S	45.1	46.6	47.7	51.0	50.0	52.0	51.4	50.6	55.8	53.0	48.7	48.7	49.3	49.3	48.8	45.1	55.8	48.5	24
14	48.2	47.7	46.9	46.2	45.6	45.2	45.6	S	46.8	47.6	49.0	50.3	52.9	53.3	52.5	52.7	53.4	52.3	52.5	50.1	52.5	52.4	49.8	48.5	45.2	53.4	49.6	24
15	48.4	48.3	48.3	48.8	48.7	47.7	S	45.5	46.0	48.8	50.7	52.3	52.3	52.2	53.6	53.6	53.5	54.2	53.6	54.3	54.1	53.3	52.6	51.6	45.5	54.3	51.0	24
16	52.0	52.1	51.0	50.2	50.1	S	49.9	49.6	48.5	50.1	51.5	53.0	54.3	54.6	52.9	53.5	53.9	54.0	55.9	58.3	58.4	60.7	60.8	60.8	48.5	60.8	53.7	24
17	58.9	58.4	56.2	54.0	S	49.4	49.3	49.6	49.3	49.0	50.9	52.8	54.5	57.2	59.9	59.6	59.8	59.8	58.9	57.7	58.3	57.1	55.5	53.9	49.0	59.9	55.2	24
18	53.3	53.7	54.8	S	55.6	55.2	55.3	54.9	54.4	54.9	56.4	57.6	58.1	59.6	61.6	63.2	62.6	61.4	58.4	57.4	56.8	55.9	55.3	53.7	53.3	63.2	57.0	24
19	51.5	48.0	S	45.2	43.0	47.1	50.0	50.4	53.0	54.7	55.1	57.3	55.3	60.7	65.2	65.2	64.0	64.2	63.2	61.9	61.5	58.4	58.0	57.9	43.0	65.2	56.1	24
20	58.5	S	58.6	58.7	58.0	56.3	54.7	53.5	46.6	C	C	C	C	C	C	78.6	80.7	**80.8**	78.4	77.1	74.1	73.0	73.3	65.3	46.6	**80.8**	-	24
21	S	61.0	63.3	62.4	58.2	55.7	52.8	52.4	52.5	53.2	56.7	61.3	66.0	68.0	67.9	67.9	66.6	64.0	61.8	58.5	55.4	53.4	53.0	S	52.4	68.0	59.6	24
22	49.1	46.4	43.9	41.0	39.1	36.5	35.1	33.3	33.0	36.0	38.1	42.2	46.1	49.0	50.6	51.6	52.3	52.5	52.4	53.6	54.7	57.4	S	53.0	33.0	57.4	45.5	24
23	53.1	53.2	49.6	44.1	26.9	32.7	40.9	43.1	47.3	48.6	52.4	52.5	51.8	51.2	52.6	52.6	51.0	51.6	50.9	46.7	41.8	S	40.1	40.0	26.9	53.2	46.7	24
24	41.1	40.4	40.3	39.9	39.2	37.8	36.6	35.4	35.9	35.5	37.2	37.0	36.6	38.1	38.8	37.7	36.4	36.5	37.7	38.0	S	38.3	38.8	38.9	35.4	41.1	37.9	24
25	38.8	38.2	37.1	36.1	35.7	35.5	34.8	36.0	35.2	35.9	36.6	36.8	36.0	36.4	36.4	35.6	31.9	30.4	29.1	S	26.7	27.2	27.3	28.1	26.7	38.8	34.0	24
26	28.5	28.4	29.1	29.6	29.6	29.5	28.5	28.3	26.4	25.8	26.5	25.8	25.6	27.6	28.5	28.7	27.8	27.1	S	25.8	39.6	42.5	42.4	42.3	25.6	42.5	30.2	24
27	41.3	40.7	38.9	37.5	37.3	40.8	41.5	41.9	45.8	48.3	49.5	49.3	48.5	48.0	46.6	48.4	47.5	S	46.0	44.6	44.2	44.8	45.0	44.6	37.3	49.5	44.4	24
28	44.7	42.0	42.4	42.1	42.0	39.7	37.1	32.8	31.1	38.4	41.4	43.0	45.0	46.5	46.6	47.1	S	48.3	47.5	48.1	47.3	46.2	46.4	45.7	31.1	48.3	43.1	24
29	43.0	38.2	39.3	40.6	41.5	41.7	40.9	42.6	43.0	43.7	44.0	44.7	45.8	47.3	48.5	S	48.0	47.6	46.5	44.2	43.7	44.6	43.4	42.7	38.2	48.5	43.7	24
30	41.8	40.6	40.5	38.4	36.8	34.2	33.9	34.6	38.5	40.0	41.9	42.5	43.5	44.3	S	45.0	47.3	47.1	44.8	43.7	42.3	41.2	39.8	36.2	33.9	47.3	40.8	24
31	36.9	35.3	37.1	37.5	38.6	39.1	39.0	39.2	41.7	43.8	44.2	45.6	47.5	S	46.9	47.1	47.1	46.1	44.9	42.3	40.1	39.1	38.3	39.3	35.3	47.5	41.6	24
HOURLY MAX	58.9	61.0	63.3	62.4	58.2	56.3	55.3	54.9	54.4	54.9	56.7	61.3	66.0	68.0	67.9	78.6	80.7	80.8	78.4	77.1	74.1	73.0	73.3	65.3				
HOURLY AVG	45.6	44.6	44.4	43.4	42.5	42.4	42.5	42.3	42.7	43.5	44.8	45.9	47.2	48.4	49.4	50.6	50.4	50.4	50.5	49.6	49.3	48.6	47.7	46.9				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

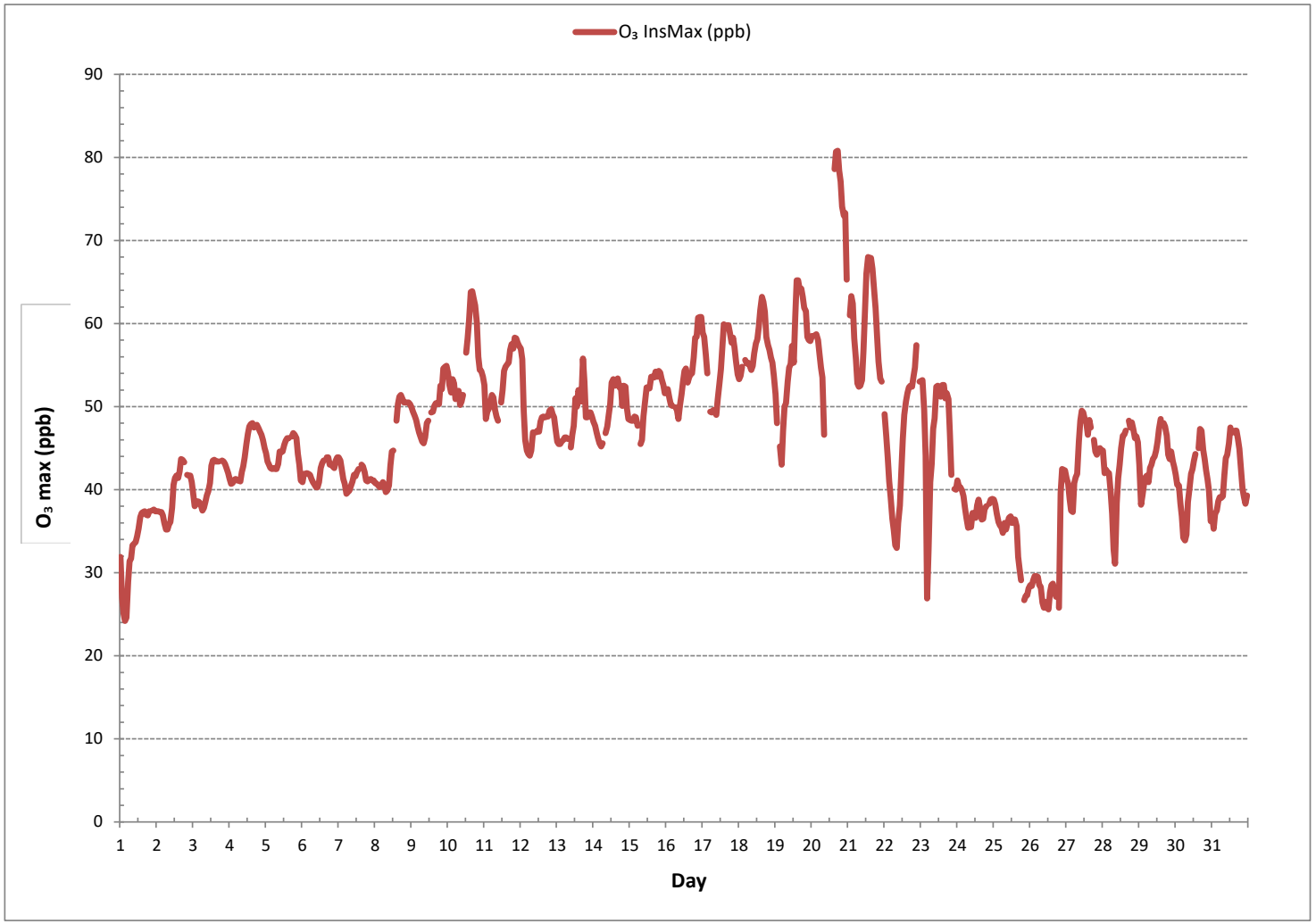
NUMBER OF NON-ZERO READINGS: 706

MAXIMUM INSTANTANEOUS VALUE: 80.8 ppb @ HOUR 17 ON DAY 20

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 6 hrs
STANDARD DEVIATION: 8.8

OPERATIONAL TIME: 744 hrs

OZONE Instantaneous Maximum (O_3 ppb)



WIND SPEED Instantaneous Maximum (WS kph)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	31.2	32.3	27.9	42.8	40.4	40.6	37.7	31.0	39.9	41.1	35.6	36.0	32.5	37.1	35.8	33.6	31.6	26.6	23.9	25.7	25.7	25.0	22.0	14.7	14.7	42.8	32.1	24
2	19.8	23.3	23.5	28.1	27.5	26.1	24.5	27.9	26.6	23.9	26.1	33.4	32.5	34.1	35.3	38.8	38.2	36.0	30.5	32.9	25.7	23.3	18.0	21.5	18.0	38.8	28.2	24
3	26.6	29.0	27.9	28.3	33.8	29.0	28.8	27.9	31.2	29.6	30.7	31.2	30.9	33.1	36.9	35.5	31.2	25.7	24.4	23.7	24.8	24.4	31.6	30.3	23.7	36.9	29.4	24
4	30.5	31.8	28.1	30.7	29.4	32.7	33.4	31.2	29.8	30.5	27.6	33.3	37.1	36.6	37.9	32.9	32.3	23.5	24.6	23.9	35.1	32.5	28.1	29.2	23.5	37.9	30.9	24
5	30.1	26.5	23.7	25.5	27.2	25.9	25.5	29.9	31.4	37.7	37.3	38.2	31.9	38.4	41.4	31.9	30.1	27.2	23.5	31.2	24.1	22.8	26.6	28.5	22.8	41.4	29.8	24
6	24.1	27.0	27.2	28.4	30.5	25.9	21.7	20.2	17.8	25.7	26.6	25.9	25.9	25.5	27.8	25.2	28.7	23.7	20.9	24.1	25.5	27.9	27.2	23.5	17.8	30.5	25.3	24
7	25.2	28.5	26.3	24.8	23.7	24.6	23.3	24.2	24.4	20.2	19.1	21.5	24.1	18.7	17.6	16.1	16.3	26.2	34.7	44.3	67.3	31.6	13.8	30.1	13.8	67.3	26.1	24
8	16.0	15.4	**71.4**	16.7	11.7	13.4	15.4	14.1	16.0	21.1	23.7	25.5	26.3	30.1	26.1	34.9	32.7	37.7	19.3	26.1	27.4	26.1	26.3	26.3	11.7	**71.4**	25.0	24
9	25.9	22.6	23.3	23.0	20.7	18.0	20.0	40.6	16.9	14.1	16.9	14.9	16.2	16.5	21.0	19.1	17.6	19.1	19.3	14.3	12.3	9.7	9.3	11.4	9.3	40.6	18.4	24
10	14.1	13.8	11.9	14.7	16.9	21.5	23.3	26.1	26.1	39.5	32.7	30.9	32.0	29.0	34.4	34.2	31.6	28.1	29.6	31.8	33.6	27.6	27.8	26.5	11.9	39.5	26.6	24
11	30.7	28.1	24.1	22.6	21.1	18.5	20.8	22.4	16.5	19.1	19.6	22.2	21.9	16.9	16.2	20.2	17.1	18.4	15.4	29.8	28.5	24.1	20.0	20.0	15.4	30.7	21.4	24
12	16.0	27.0	25.9	21.3	17.1	18.6	21.9	20.8	25.2	33.8	37.0	40.1	39.0	38.8	34.0	32.0	25.9	22.1	36.6	39.2	25.4	17.6	23.7	25.2	16.0	40.1	27.7	24
13	22.8	24.6	23.7	21.7	21.9	19.6	20.6	23.7	23.7	26.3	23.9	23.0	20.0	17.6	22.2	34.6	48.4	33.3	24.1	15.1	20.4	27.0	20.0	16.0	15.1	48.4	23.9	24
14	14.3	17.1	20.0	26.5	22.6	21.7	22.4	18.3	19.3	19.5	13.2	17.1	17.3	19.1	18.0	22.6	23.5	24.1	15.6	17.1	15.8	21.5	25.4	21.3	13.2	26.5	19.7	24
15	20.6	18.5	21.0	26.3	24.3	20.8	18.7	17.8	20.8	25.0	44.0	38.1	35.3	32.6	38.8	46.5	40.5	30.0	23.5	16.2	15.8	17.3	22.1	24.6	15.8	46.5	26.6	24
16	28.3	21.5	20.2	19.1	20.4	21.9	16.7	15.8	14.9	17.3	21.3	21.3	30.7	25.5	32.2	28.3	18.9	17.1	14.3	16.9	13.2	14.9	14.7	15.2	13.2	32.2	20.0	24
17	16.5	19.6	18.7	19.5	23.9	28.1	19.7	23.7	21.5	21.3	20.7	27.2	25.9	26.7	44.9	31.1	32.4	25.2	21.0	22.8	19.5	20.2	25.0	22.1	16.5	44.9	24.0	24
18	21.7	23.5	26.5	24.6	26.1	24.1	27.2	26.3	22.4	12.1	15.4	13.4	10.8	17.1	25.6	24.1	24.8	26.1	24.1	19.1	20.6	20.2	23.7	17.6	10.8	27.2	21.5	24
19	17.1	17.4	18.2	21.9	31.2	22.1	22.4	19.3	23.2	26.7	26.8	24.5	25.4	19.9	14.9	15.1	12.1	9.4	10.3	13.8	14.7	19.5	28.0	13.4	9.4	31.2	19.5	24
20	14.5	14.9	13.2	14.0	12.8	12.3	12.7	15.6	18.4	20.0	21.5	21.9	24.5	23.9	20.2	22.1	23.0	22.6	18.2	15.1	12.1	11.6	9.7	23.2	9.7	24.5	17.4	24
21	25.2	25.9	39.2	42.1	43.2	39.7	39.3	31.8	38.6	29.6	30.0	28.7	29.4	34.4	33.8	32.7	29.6	21.9	21.9	22.6	24.1	24.3	26.2	24.1	21.9	43.2	30.8	24
22	25.2	26.7	29.2	26.3	22.4	27.8	26.7	23.0	18.4	15.6	14.5	15.6	17.6	21.3	24.1	15.1	13.8	13.8	11.4	11.9	7.9	5.6	6.8	7.3	5.6	29.2	17.8	24
23	11.2	11.3	13.2	17.9	21.7	23.2	24.1	25.0	34.0	40.3	45.1	49.5	44.9	46.4	55.4	46.0	39.2	42.1	42.4	37.9	42.5	37.5	47.6	45.6	11.2	55.4	35.2	24
24	38.8	38.8	29.6	16.0	14.1	15.2	15.4	15.6	19.1	15.1	18.0	18.6	19.3	20.4	20.2	26.6	23.1	27.8	23.2	25.9	20.0	26.7	27.0	31.1	14.1	38.8	22.7	24
25	32.3	27.8	25.2	24.8	22.2	15.1	26.1	28.5	26.3	32.2	21.5	22.1	21.9	22.6	26.1	26.1	26.5	27.6	27.4	23.2	27.2	27.8	25.7	18.4	15.1	32.3	25.2	24
26	17.6	14.3	14.5	12.7	11.4	11.6	11.2	12.3	11.0	14.5	16.5	19.3	14.3	12.7	11.9	13.4	10.3	13.2	13.6	15.0	24.8	30.3	24.3	26.1	10.3	30.3	15.7	24
27	28.3	28.9	28.5	32.7	22.6	30.5	29.2	28.7	39.7	40.8	44.5	38.6	35.5	32.7	30.7	36.0	44.9	26.9	23.5	20.6	16.0	15.4	11.2	8.8	8.8	44.9	29.0	24
28	12.7	9.2	10.1	11.7	11.9	12.7	13.4	14.7	16.9	21.3	25.7	32.0	41.6	49.3	44.5	46.7	48.0	35.3	31.1	24.1	18.9	20.8	26.7	26.1	9.2	49.3	25.2	24
29	23.7	19.9	20.6	21.3	22.6	21.3	23.5	30.9	29.0	30.5	17.6	22.1	21.3	24.1	20.2	24.3	19.6	16.7	18.5	21.9	15.4	16.9	19.1	26.4	15.4	30.9	22.0	24
30	27.4	31.2	30.7	25.0	23.2	16.5	21.3	26.5	27.6	36.4	35.0	46.4	41.4	46.4	47.3	43.8	49.1	44.5	27.2	17.8	13.8	20.2	24.1	21.7	13.8	49.1	31.0	24
31	24.6	10.5	6.8	10.3	12.8	11.9	11.6	12.7	16.5	16.7	16.2	20.2	20.6	27.2	25.0	23.9	32.9	27.6	30.7	18.0	16.0	18.7	17.8	18.9	6.8	32.9	18.7	24
HOURLY MAX	38.8	38.8	71.4	42.8	43.2	40.6	39.3	40.6	39.9	41.1	45.1	49.5	44.9	49.3	55.4	46.7	49.1	44.5	42.4	44.3	67.3	37.5	47.6	45.6				

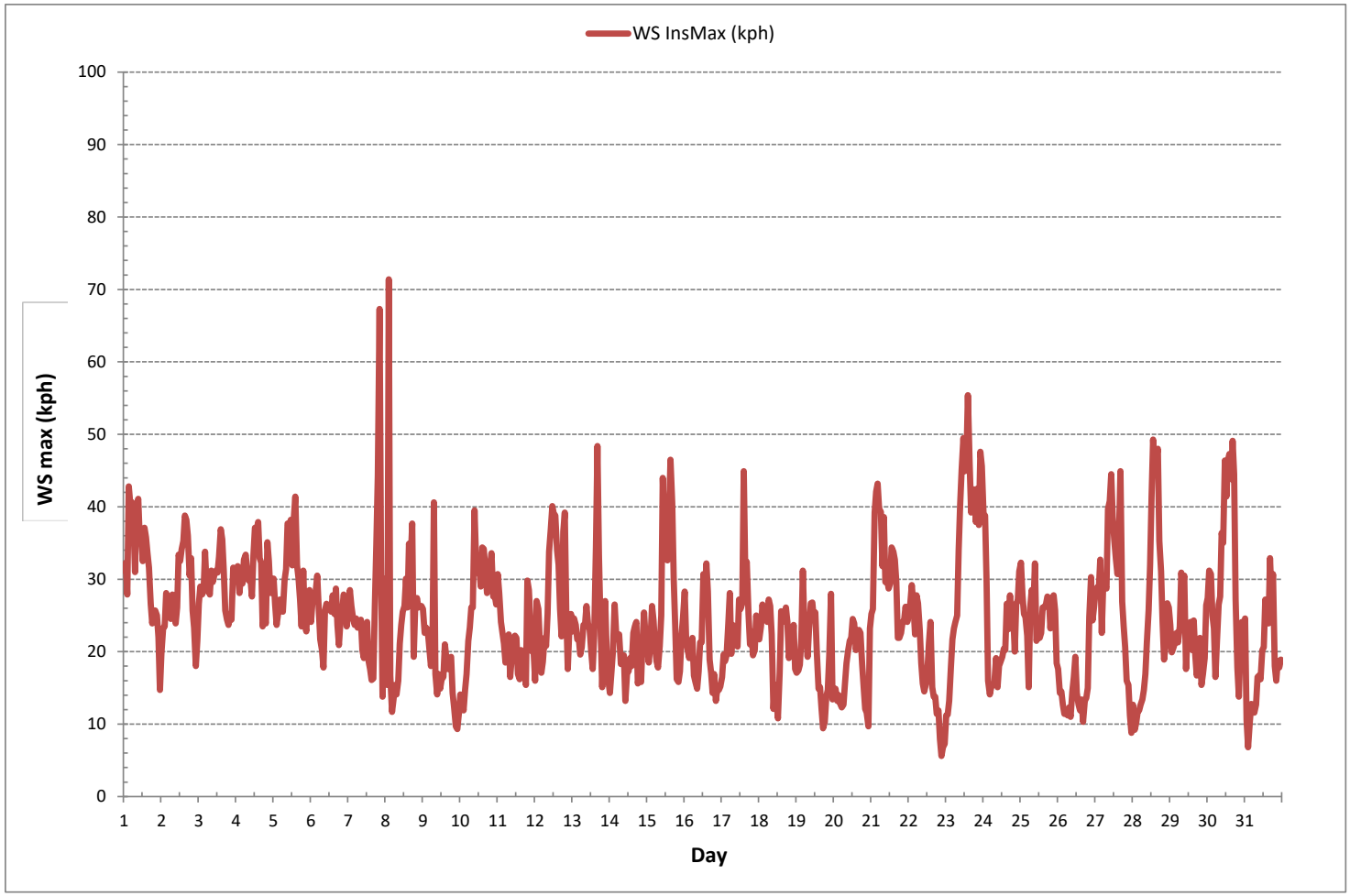
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	71.4	kph	@ HOUR	2	ON DAY	8	
OPERATIONAL TIME:						744	hrs

WIND SPEED Instantaneous Maximum (WS kph)



1.0 Quality Control Activities

Quality control procedures are established to govern the performance of the monitoring equipment and to protect operational uptime. Data collected during QC/QA activities are assigned a data validation code to comply with the requirements outlined in Chapter 6, 4.1.1, DQ 4-A (AMD, 2016). Calibrations are deemed successful only if the AMD calibration acceptance limits are met (Chapter 7, 9.0, AMD 2016).

A daily zero-span test procedure is performed for each gaseous parameter by challenging the analyzer with a zero-air source and span gas. Daily review of the data ensures the zero and span check are within the required acceptance limits and do not deviate more than ±10% from the expected value. The total zero-span cycle is complete within an hour with the zero phase commencing at the beginning of the scheduled hour. This QC activity is conducted in accordance with Chapter 7, 4.0, Cal 4-A (AMD, 2016).

The allowable time for a zero-span check is one hour per calendar day. The time allotted for the zero-span check does not contribute to downtime and is identified with a data validation code of "S". If any additional zero-span response checks are performed, the time accrued during the QC activity is considered downtime and is identified with a data validation code of "S1". The initiation of an additional zero-span check may be warranted during the investigation of operational issues or suspect data.

Each month, a scheduled multipoint calibration is performed on each gas analyzer. Prior to any adjustments, an as-found response test is completed to obtain the zero reading of the analyzer and the response to the highest span concentration. The zero and high point test gases are then re-introduced into the analyzer to establish the zero and high set-points. Once these adjustments are satisfactory, a mid-point and a low-point test concentration is introduced. Additional multi-point calibrations are required if any of the conditions, outlined in Chapter 7, 2.1, Cal 2G (AMD, 2016) exist.

The time allotted for the first multi-point calibration is not considered downtime and is identified with a data validation code of "C". If any additional as-found response checks or multipoint calibrations are performed, the time accrued during the QC activity is considered downtime and is identified with a data validation code of "C1".

A mechanical wind system undergoes annual calibration, as a minimum, while an ultrasonic wind system is factory calibrated every two years (Chapter 6, 6.0, Cal 6-A, AMD 2016). Supplementary to this, a visual inspection of the equipment is performed during each scheduled monthly site visit.

The time allotted for the wind system calibration is not considered downtime and is identified with a data validation code of "C". If function checks or additional calibrations are performed, the time accrued during the QC activity is not considered downtime and is identified with a data validation code of "Q" and "C", respectively. If QC activity goes beyond 10% of the monthly operating time, the time exceeding 10% is considered downtime and is assigned a data validation code of "C1". Data identified with a data validation code of "Q" is in accordance with Chapter 6, 4.1.3 (AMD, 2016) which states QA/QC activities are not included when calculating data completeness.

High volume samplers are calibrated every three months, as a minimum, in accordance with Chapter 7, 7.0, Cal 7-B (AMD, 2016).

Where passive sampling is in practice, quality control samples will be deployed in accordance with Chapter 4, 3.0, 3.1.3. Method blanks, replicate samples and spiked blanks are exposed and handled in the same manner as each passive sample. To comply with the data submission requirements in Chapter 9, 3.1, the replicate and corresponding passive sample concentrations are reportable data values and have not been averaged.

As recommended in Chapter 6, 4.2 (AMD 2016), daily data review is conducted to verify data and avoid significant data losses. Automated flags, originating from the data-logger, and data anomalies are reviewed and may prompt the need to dispatch a technician for investigation and/or corrective action. Additionally, there are several automated alarm scenarios that serve to screen raw data, alert technicians and elicit investigation or corrective action.

Comparisons of the measured ambient concentrations to the corresponding AAAQO are assessed using the significant figures protocol in Chapter 9, 3.1.2. If the measurement is near the set objective, raw data may undergo necessary data adjustments to confirm a true exceedance. Should an exceedance occur, Maxxam will formally notify the client; however, the reporting protocol to AEP is defined by the client and may not involve Maxxam. Exceedance events are acknowledged in the report, based on the information available at the time.

2.0 Data Verification and Validation

The data validation procedures, outlined in Chapter 6, 4.0, AMD 2016, are used to accept, reject and qualify data. The data verification and validation process, and the current Data Collection and Management Process Flow Chart have been compiled from sections 4.2 to 4.6 (AMD, 2016) and are shown below.

Baseline adjustments are applied by interpolation between two valid zero checks, as determined by the Data Acquisition System. In the event that zero check results are not reliable, data may be adjusted by applying a constant offset to data collected between two adjacent zero checks. Both adjustment approaches are deemed acceptable by the AMD.

Table 1 (Chapter 6) outlines the quantitative parameter relationships to be considered and dictates that data adjustments are applied equally for NO/NO_2/NOx and CH_4/NMHC/THC parameters. Below zero adjustments are applied to 1-hour averages, in accordance with Table 2 (Chapter 6), and are done after baseline corrections.

Instantaneous data, where provided, is provided for reference purposes and has not undergone zero correction. The minimum and maximum statistics are highlighted in the data table and are for reference only. The highlighted cells are based on the software's interpretation of the exact position of the minimum or maximum value. The visual presentation of these statistics may not be the obvious choice in a data range due to rounding, truncating or analyzer specifications.

All calculations and reporting of results follow the methods described in the AMD, 2016.

There were no deviations from the prescribed methods.

AMD Data Verification and Validation Process

The following steps were used to complete the data verification and validation process:

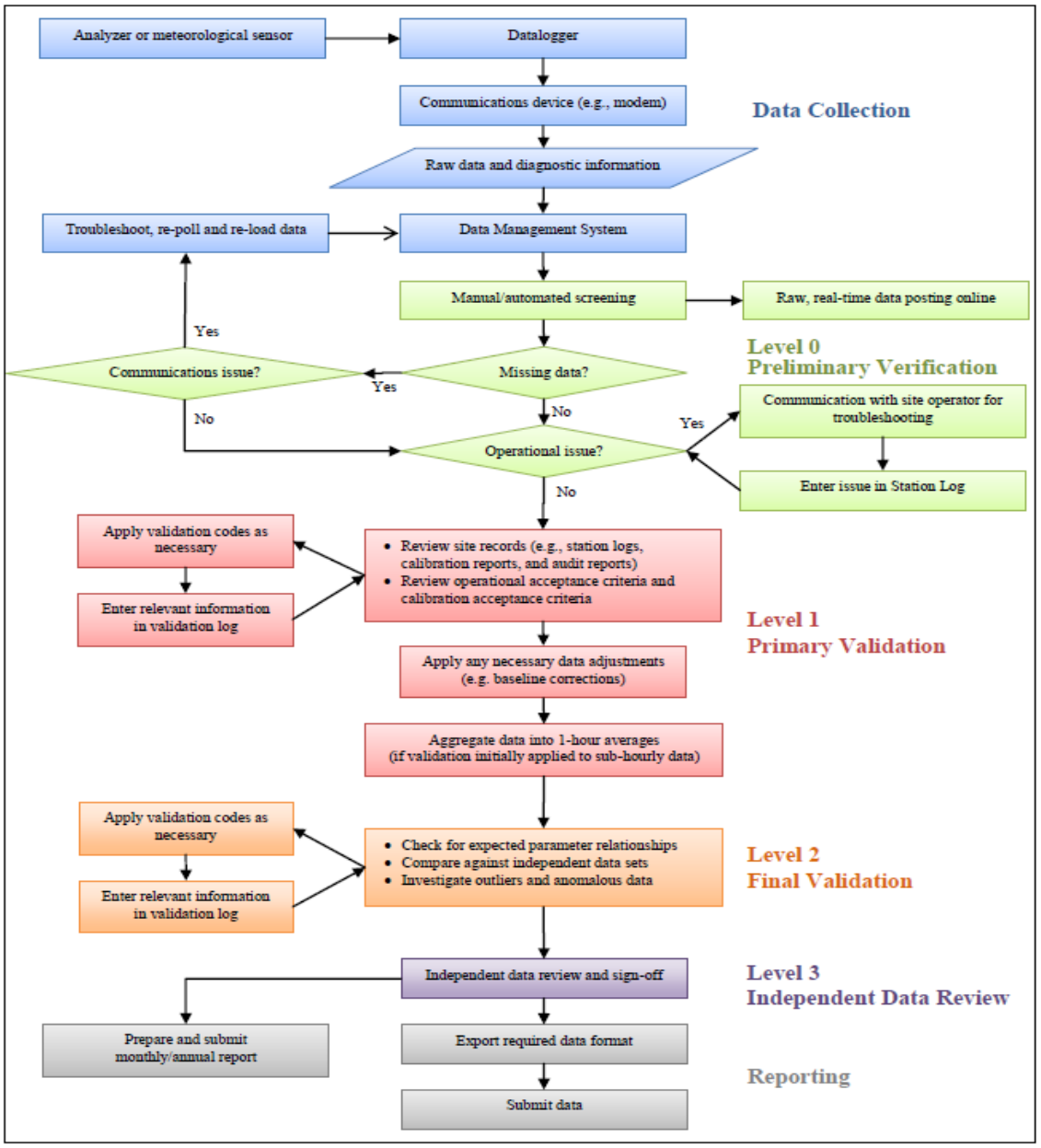
Level 0 Preliminary Verification	Level 0 data are raw data obtained directly from the data acquisition system (DAS). At this level, data undergoes a certain amount of manual or automated screening and flagging. Screening checks include: a) identification of periods of missing data; b) verification of time stamps against reference time; c) verification that instrument diagnostics/data-logger flags indicate normal operation; d) comparison of data to upper and lower limits; e) rate of change flagging indicating that data changed too rapidly or not at all; and f) verification that zero, span and multipoint performance checks are within specifications. This level of verification is performed on a daily basis.

Level 1 Primary Validation	Primary validation involves more thorough evaluation and documentation of issues identified during data screening, along with appropriate application of data validation codes. Level 1 activities include: a) review of all screening flags assigned during preliminary verification; b) review of all supporting site information and documentation; c) review of operational acceptance limits for each parameter/analyzer; d) review of daily zero/span and monthly calibration results for all gaseous parameters; and e) application of any necessary adjustments to data (e.g. baseline adjustments, below zero adjustments). This level of validation is performed on a monthly basis.

Level 2 Final Validation	The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites. At this level of review, some general knowledge of pollutant and meteorological behavior can be used to determine if data is suspect.

Level 3 Independent Data Review	Level 3 validation involves a final cursory review of validated data, and is completed by an individual independent of both field operations and primary data validation. At this level, a final independent QA review/endorsement is performed before data is submitted to Alberta Environment and Parks.

Post-Final Validation	The Post-Final Validation step serves to re-evaluate validated data for errors or omissions discovered and/or suspected after the initial monthly data submittal. This level of validation is performed on an annual basis, when annual reporting is required or requested.



Source: Air Monitoring Directive (December 2016), Chapter 6, Ambient Data Quality
Figure 1 Data Collection and Management Process Flow Chart

Validation Certificate Form

Client:	Lakeland Industry & Community Association	**Project #:**	2833-2019-03-25-C
Site:	St. Lina Continuous Monitoring Station	**Contact:**	Mike Bisaga

Level 0 Preliminary Verification	bimadeniji	**Date**	12- Apr- 2019
Level 1 Primary Validation	bimadeniji	**Date**	12- Apr- 2019
Level 2 Final Validation	bimadeniji	**Date**	15- Apr- 2019
Level 3 Independent Data Review	[signature]	**Date**	22- Apr- 2019
Post-Final Validation	**NA**	**Date**	**NA**

Notes
The Post-Final Validation step serves to re-evaluate the data that errors or omissions are discovered and/or suspected after the initial submittal of data. This validation is performed on an annual basis.

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MARCH 1 - 31, 2019
MONTHLY AMBIENT AIR QUALITY MONITORING REPORT
Project #: 2833-2019-03-39-C
LICA-201903

Prepared for:

Lakeland Industry & Community Association

Mike Bisaga

5107 50 St.

Bonnyville, Alberta T9N 2J5

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780-266-7068

Monitoring Station

Bonnyville East Site Continuous Monitoring Station

Date of Report Issuance: April 23, 2019

Report Preparation By:

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bimadeniji

Project Manager, Customer Service, Air Services

Reviewed By:

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403-219-3661

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Project Team Lead, Customer Service, Air Services

Maxxam
A Bureau Veritas Group Company

#1 - 2080 39 Avenue NE, Calgary AB, T2E 6P7

Lakeland Industry & Community Association

5107 50 St.

Bonnyville, Alberta T9N 2J5

Attention: Mike Bisaga

Date: April 23, 2019

Subject: MONTHLY AMBIENT AIR QUALITY MONITORING REPORT for MARCH 1 - 31, 2019

In March 2019, Maxxam Analytics was contracted to manage the ambient air quality monitoring and maintenance activities at the Bonnyville East Site Continuous Monitoring Station near Bonnyville, Alberta. The monitoring program provides measurements of ambient air pollutants and meteorological data to satisfy the reporting requirements of the Alberta airshed.

Network Parameters for Continuous Monitoring:

This monthly report, where applicable, was prepared in accordance with Chapter 9 of the Air Monitoring Directive (AMD, 2016). The report summarizes the continuous monitoring results for pollutant and meteorological parameters and presents the hourly statistics, graphs and rose charts for the month. Calibration records are provided in a separate PDF document in order to comply with AMD requirements Chapter 9, 13.1.7, RC 13-R. The station is equipped with analyzers to measure SO_2, H_2S, THC, CH_4, NMHC, NOx, NO, NO_2, $PM_{2.5}$ and O_3. The meteorological sensors and equipment capture data for WS, WD and STDWD.

Exceedance & Performance Reporting:

The operational time for all continuous ambient air analyzers, meteorological systems and data acquisition systems were above the 90% requirement, as per the AMD, Chapter 6, DQ 4-C, 2016.

Comparisons of the measured ambient air concentrations to the corresponding AAAQOs were done in accordance with Appendix A, Alberta Ambient Air Quality Objective Calculation Guidelines (AMD, Chapter 9, Appendix A, 2016). For H_2S and O_3, there were concentrations recorded in excess of the Alberta Ambient Air Quality Objectives and Guidelines (AAAQO, January 2019). Nine 1-hr and one 24-hr exceedances were recorded for H_2S. Two 1-hr exceedances were also recorded for O_3 this month. Details of the exceedance are recorded in the AAAQO Exceedance Summary Report (Page 5).

For all the remaining parameters, there were no ambient concentrations in excess of the AAAQOs.

Monthly Monitoring Overview:

In relation to the previous month, there were no changes made to the scope or management of the ambient air monitoring program.

The evaluation of data collected in the month of March did not reveal any errors or omissions that would require resubmission of air data to AEP's airdata warehouse.

During this monitoring period, there were no scheduled audits that Maxxam Analytics was privy to.

H_2S: Six hours of downtime were recorded during the month due to additional quality checks and corrective actions performed to address drifts in zero and span response.

Canister System: Three canister events were recorded this month. The samples were processed for analysis by InnoTech and the results will be provided in the 2019, Q1 Integrated Report.

Should you have any questions concerning the results or if we can be of further assistance, please contact your Maxxam representative indicated below.

Reviewed by:

Wunmi Adekanmbi, M.Sc., EPt, PMP

Project Team Lead, Customer Service, Air Services

403-219-3661

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. Certification of submitted information is specific to the contents of this report and is not intended to represent the onus of the Person Responsible, as outlined in Chapter 9, RC 12-E.

TABLE OF CONTENTS

List of Acronyms

AAAQO	Alberta Ambient Air Quality Objectives and Guidelines Summary
AEP	Alberta Environment and Parks
AMBTPX	Ambient Temperature
AMD	Air Monitoring Directive
BP	Barometric Pressure
CH_4	Methane
DAS	Data acquisition system
ESRD	Environment and Sustainable Resource Development
ET	External temperature
GPT	Gas Phase Titration
hr	Hour
hrs	Hours
HVAC	Heating, ventilation and Air Conditioning
H_2S	Hydrogen Sulphide
IZS	Internal zero-span
kph	Kilometers per hour
NO	Nitric Oxide
NO_2	Nitrogen dioxide
NOx	Total oxides of nitrogen
O_3	Ozone
NAPS	National Air Pollution Surveillance Program
NMHC	Non-Methane Hydrocarbon
PAH	Polycyclic Aromatic Hydrocarbons
$PM_{2.5}$	Particulate matter less than or equal to 2.5 microns in diameter
PM_{10}	Particulate matter between 2.5 and 10 microns in diameter
Precip	Precipitation
ppb	Parts per billion
ppm	Parts per million
PUF	Poly-Urethane Foam
QA	Quality Assurance
QC	Quality Control
RH	Relative Humidity
SHARP	Synchronized Hybrid Ambient Real-time Particulate Monitor
SOP	Standard Operating Procedure
SO_2	Sulphur Dioxide
STDWD	Standard Deviation Wind Direction
STNTPX	Station Temperature
TEOM	Tapered Element Oscillating Microbalance
THC	Total hydrocarbons
TSP	Total Suspended Particulate
$\mu g/m^3$	Microgram per cubic meter
VOC	Volatile Organic Compounds
WS	Wind Speed
WD	Wind Direction
°C	Degrees Celsius

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AAAQO Exceedance Summary Report

SO_2 1-Hour Exceedances

Measured concentrations of sulphur dioxide were below the 1-hour AAAQO of 172 ppb.

SO_2 24-Hour Exceedances

Measured concentrations of sulphur dioxide were below the 24-hour AAAQO of 48.0 ppb.

H_2S 1-Hour Exceedances

DATE	TIME (MST)	READING (ppb)	WS (kph)	WD (deg)	AEP Reference #
March 20	05:00	12	1.8	SSW	350818
March 20	06:00	13	1.7	SE	350818
March 20	23:00	17	5.5	E	350818
March 21	01:00	21	3.5	ENE	350884
March 21	07:00	16	10.6	ENE	350884
March 22	20:00	12	2.1	SE	351024
March 22	23:00	28	4.6	E	351024
March 23	00:00	38	2.6	SE	351025
March 23	01:00	9	3.6	SSW	351025

H_2S 24-Hour Exceedances

DATE	READING (ppb)	WS (kph)	WD (deg)	AEP Reference #
March 23	4.0	10.6	ENE	351025

NO_2 1-Hour Exceedances

Measured concentrations of nitrogen dioxide were below the 1-hour AAAQO of 159 ppb.

$PM_{2.5}$ 1-Hour Exceedances

Measured concentrations of fine particulate matter were below the 1-hour AAAQG of 80 µg/m³.

$PM_{2.5}$ 24-Hour Exceedances

Measured concentrations of fine particulate matter were below the 24-hour AAAQO of 29 µg/m³.

O_3 1-Hour Exceedances

DATE	TIME (MST)	READING (ppb)	WS (kph)	WD (deg)	AEP Reference #
March 20	16:00	76.8	11.9	WSW	350818
March 20	17:00	77.3	10.7	WSW	350818

In accordance with EPEA and the Substance Release Regulation
In accordance with A Guide to Release Reporting and the Alberta Ambient Air Quality Objectives and Guidelines Summary

MONTHLY CONTINUOUS DATA SUMMARY

Lakeland Industry & Community Association Bonnyville East Site Continuous Monitoring Station						MAXIMUM VALUES							OPERATIONAL TIME (%)
						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDANCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (kph)	WIND DIRECTION (sector)	READING	DAY	
	1-hr	24-hr	1-hr	24-hr									
SO_2 (ppb)	172	48	0	0	0	5	11	20	6.2	SSE	2	11	100.0
H_2S (ppb)	10	3	9	1	1	38	23	0	2.6	SE	4	23	99.2
THC (ppm)	-	-	-	-	2.16	5.70	10	1	6.2	ESE	3.02	10	100.0
CH_4 (ppm)	-	-	-	-	2.16	5.70	10	1	6.2	ESE	3.02	10	100.0
NMHC (ppm)	-	-	-	-	0.00	0.55	1	18	12.0	NW	0.02	1	100.0
NO_2 (ppb)	159	-	0	-	3	27	10	6	2.2	ESE	9	10	100.0
NO (ppb)	-	-	-	-	0	10	10	9	2.8	SSE	2	10	100.0
NOx (ppb)	-	-	-	-	4	28	10	6	2.2	ESE	11	10	100.0
O_3 (ppb)	76	-	2	-	41.5	77.3	20	17	10.7	WSW	55.1	20	100.0
$PM_{2.5}$ (µg/m³)	80	29	0	0	5	20	22	11	6.4	ENE	12	11	100.0
VECTOR WS (kph)	-	-	-	-	5.3	26.9	30	15	-	NW	16.9	4	100.0
VECTOR WD (sec)	-	-	-	-	258 (WSW)	-	-	-	-	-	-	-	100.0

OPERATIONAL SUMMARY

Parameter	Equipment	Method & Procedure	Operational Notes
SULPHUR DIOXIDE (SO_2)	**Thermo 43I-TLE Pulsed Fluorescence Analyzer**	**Maxxam AIR SOP-00209: Ambient Sulphur Monitoring**	• Operational time was 100% and there were no performance issues identified. • The routine monthly calibration was performed on March 5, between the hours of 12:00 and 17:00.
HYDROGEN SULPHIDE (H_2S)	**Thermo 450i UV Fluorescence Analyzer**	**Maxxam AIR SOP-00209: Ambient Sulphur Monitoring**	• Operational time for the monitoring period was 99.2%, equivalent to 6 hours of downtime. • The routine monthly calibration was performed on March 5, between the hours of 12:00 and 17:00. The expected span value was updated following the post calibration zero-span check. • With increasing ambient temperatures, span response gradually drifted high and eventually exceeded the upper acceptance limit on March 11. A repeat span check performed on March 12, at hour 06:00 exhibited a similar response. This prompted an immediate site visit where a successful as-found response check was completed, ascertaining analyzer performance. Span response continued to drift outside the limit as the expected span value could not be updated following an as-found response check. Zero response also drifted high during this time. On March 25, a repeat calibration was completed between hours 15:00 – 18:00, to address both the span and zero drifts. The expected span value was adjusted following the post calibration zero-span check. As the repeat calibration was performed after ambient temperatures had stabilized, no further drifts in span response were observed. As both the as-found response check and the repeat calibration met AMD requirements, no data was discarded due to the span drift. Six hours of downtime were, however, recorded due to the additional quality checks. • There were nine 1-hr and one 24-hr exceedances recorded this month. Details of the exceedance are recorded in the AAAQO Exceedance Summary Report (Page 5).
TOTAL HYDROCARBONS (THC), METHANE (CH_4) & NON-METHANE HYDROCARBONS (NMHC)	**Thermo 55i FID Analyzer**	**Maxxam AIR SOP-00001: Methane, Non-Methane Hydrocarbon Analyzer Monitoring** **Maxxam AIR SOP-00225: The Collection of VOCs in Ambient Air Using Canisters and Xontech**	• Operational time was 100% and there were no performance issues identified. • The routine monthly calibration was performed on March 6, between the hours of 11:00 and 15:00. • The canister sampler is programmed to draw in a whole air sample when the 5-minute average concentration of NMHC is above 0.30 ppm. A representative sample of ambient air is collected over a one-hour period when the canister event is triggered. • Three canister events were recorded this month. The date, time and initial 5-min average concentration measurements are as follows: March 1, at 18:30 - 1.61 ppm March 9, at 08:55 - 0.60 ppm March 21, at 06:05 - 0.31 ppm The samples were processed for analysis by InnoTech and the results will be provided in the 2019, Q1 Integrated Report.
OXIDES OF NITROGEN (NOx), NITRIC OXIDE (NO) & NITROGEN DIOXIDE (NO_2)	**Thermo 42i Chemiluminescent Analyzer**	**Maxxam AIR SOP-00213: Ambient $NO/NO_2/NOx$ Monitoring**	• Operational time was 100% and there were no performance issues identified. • The routine monthly calibration was performed on March 5, between the hours of 12:00 and 20:00.

OPERATIONAL SUMMARY

Parameter	Equipment	Method & Procedure	Operational Notes
OZONE (O_3)	**Thermo 49i Photometric Analyzer**	**Maxxam AIR SOP-00212: Ambient O_3 Monitoring**	• Operational time was 100% and there were no performance issues identified. • The routine monthly calibration was performed on March 6, between the hours of 11:00 and 15:00. • There were two 1-hr exceedances recorded this month. Details of the exceedance are recorded in the AAAQO Exceedance Summary Report (Page 5).
PARTICULATE MATTER < 2.5 MICRONS ($PM_{2.5}$)	**Thermo SHARP 5030i Unit**	**Maxxam AIR SOP-00014: Measurement of Particulate Concentration Using the THERMO SHARP**	• Operational time was 100% and there were no performance issues identified. • The routine monthly check was performed on March 6, between the hours of 15:00 and 16:00.
WIND SPEED (WS), WIND DIRECTION (WD) & STANDARD DEVIATION WIND DIRECTION (STDWD)	**RM Young Unit**	**Maxxam AIR SOP-00013: RM Young Wind Monitor Calibration**	• Operational time was 100% and there were no performance issues identified. • Wind data is reported as vector wind speed and vector wind direction. Wind direction is defined as the direction from which the wind is blowing from and is measured in degrees from true north.
Datalogger	**Envista Ultimate Unit**	**Operations Manual**	• There were no performance issues identified.

SUMMARY TABLES, GRAPHS AND ROSES

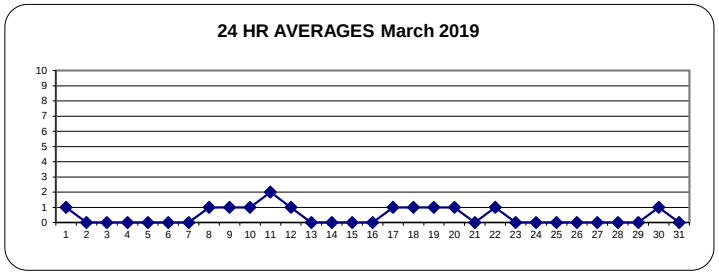
SULPHUR DIOXIDE Hourly Averages (SO_2 ppb)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																											
1	1	1	1	1	**0**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	0	**0**	1	1	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	24
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	24
5	0	0	0	0	0	0	0	0	0	0	0	0	**C**	**C**	**C**	**C**	**C**	**C**	1	1	1	1	1	0	1	0	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	1	1	0	0	0	0	0	1	0	24
7	0	0	0	0	0	0	0	0	0	0	0	1	1	1	**S**	1	1	0	0	0	0	0	0	0	1	0	24
8	0	0	0	1	1	1	1	1	1	1	1	1	2	**S**	1	1	1	0	0	0	0	0	0	0	2	1	24
9	0	0	0	0	0	0	1	1	1	1	2	2	**S**	1	1	1	1	1	0	0	0	0	0	0	2	1	24
10	0	0	0	0	0	0	0	0	0	1	1	**S**	2	3	2	1	2	2	1	1	1	1	1	0	3	1	24
11	1	1	1	1	0	1	1	1	2	2	**S**	2	2	2	1	1	1	1	1	2	**5**	4	3	3	0	**5**	**2**	24
12	3	3	3	2	1	1	1	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	24
13	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	1	2	2	1	1	0	2	0	24
14	0	0	1	1	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	24
15	1	1	1	1	1	1	**S**	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
16	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
17	0	0	0	0	**S**	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	24
18	0	0	0	**S**	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2	3	2	2	2	0	3	1	24
19	2	3	**S**	2	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	24
20	0	**S**	0	0	0	0	0	0	0	1	3	3	4	2	1	1	1	1	1	1	1	0	0	0	4	1	24
21	**S**	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	**S**	0	1	0	24
22	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	**S**	0	0	1	1	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	24
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	24
25	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	**S**	0	0	0	0	0	1	0	24
26	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	24
27	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	1	0	24
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	24
29	1	0	1	0	1	0	0	0	1	1	1	0	0	0	0	**S**	0	0	0	0	0	0	0	0	1	0	24
30	0	0	0	0	0	0	0	0	0	0	0	1	1	2	**S**	1	1	1	1	0	1	1	0	1	2	1	24
31	1	1	1	0	0	0	0	0	1	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	1	0	24
HOURLY MAX	3	3	3	2	2	1	1	1	2	2	3	3	4	3	2	1	2	2	1	2	5	4	3	3			
HOURLY AVG	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0			

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

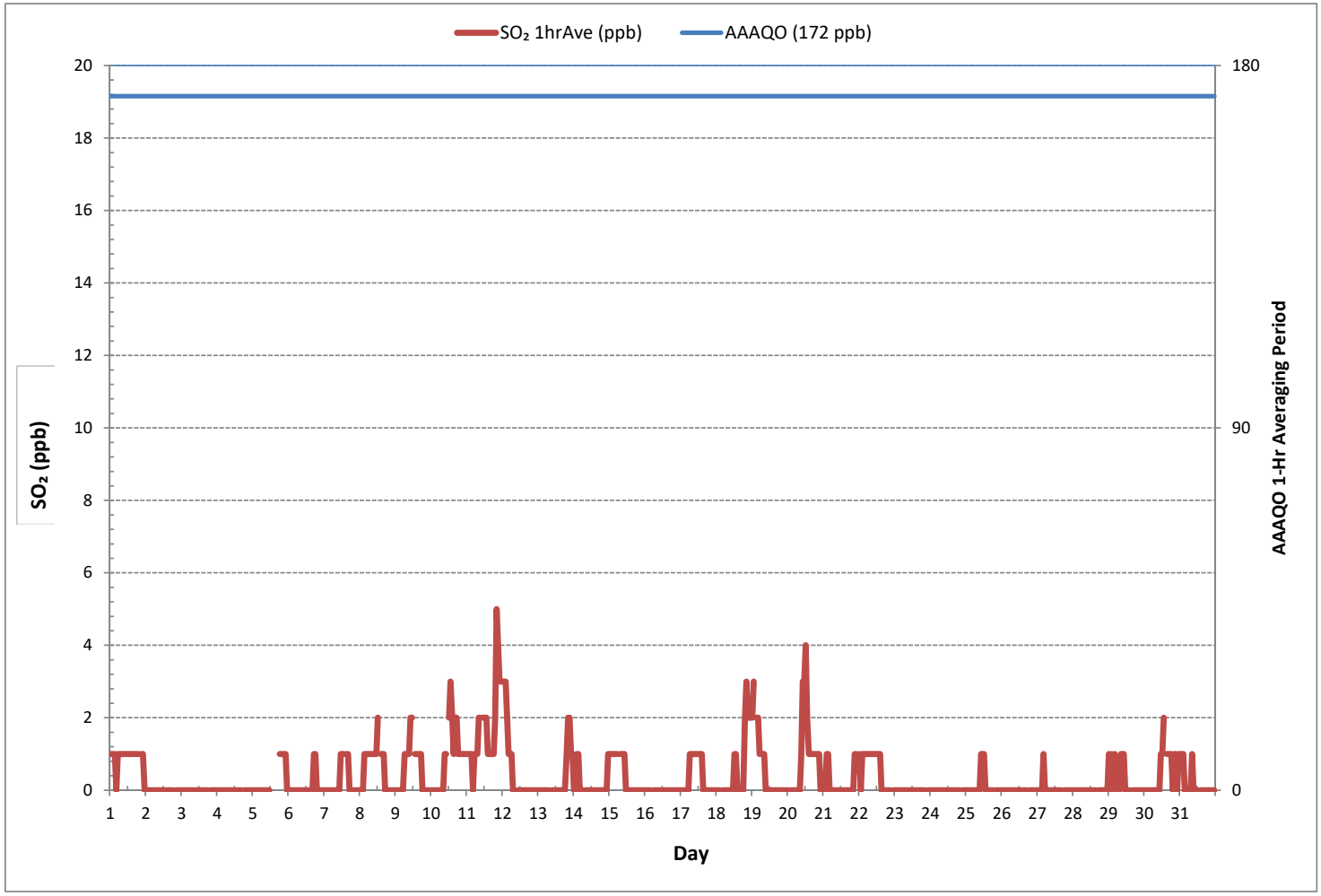
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 ppb | 24-HR 48 ppb



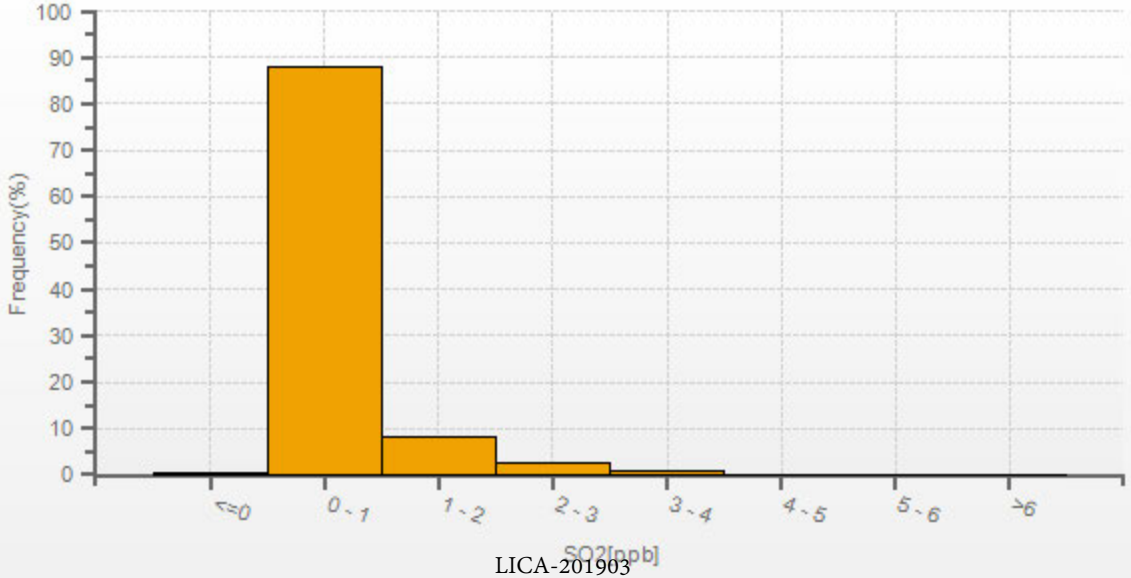
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:	0					
NUMBER OF 24-HR EXCEEDANCES:	0					
NUMBER OF NON-ZERO READINGS:	197					
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	4	ON DAY	1
MAXIMUM 1-HR AVERAGE:	5	ppb	@ HOUR	20	ON DAY	11
MAXIMUM 24-HR AVERAGE:	2	ppb			ON DAY	11
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:			744 hrs
MONTHLY CALIBRATION TIME:	6	hrs	AMD OPERATION UPTIME:			100.0 %
STANDARD DEVIATION:	1		MONTHLY AVERAGE:			0 ppb

SULPHUR DIOXIDE Hourly Averages (SO_2 ppb)

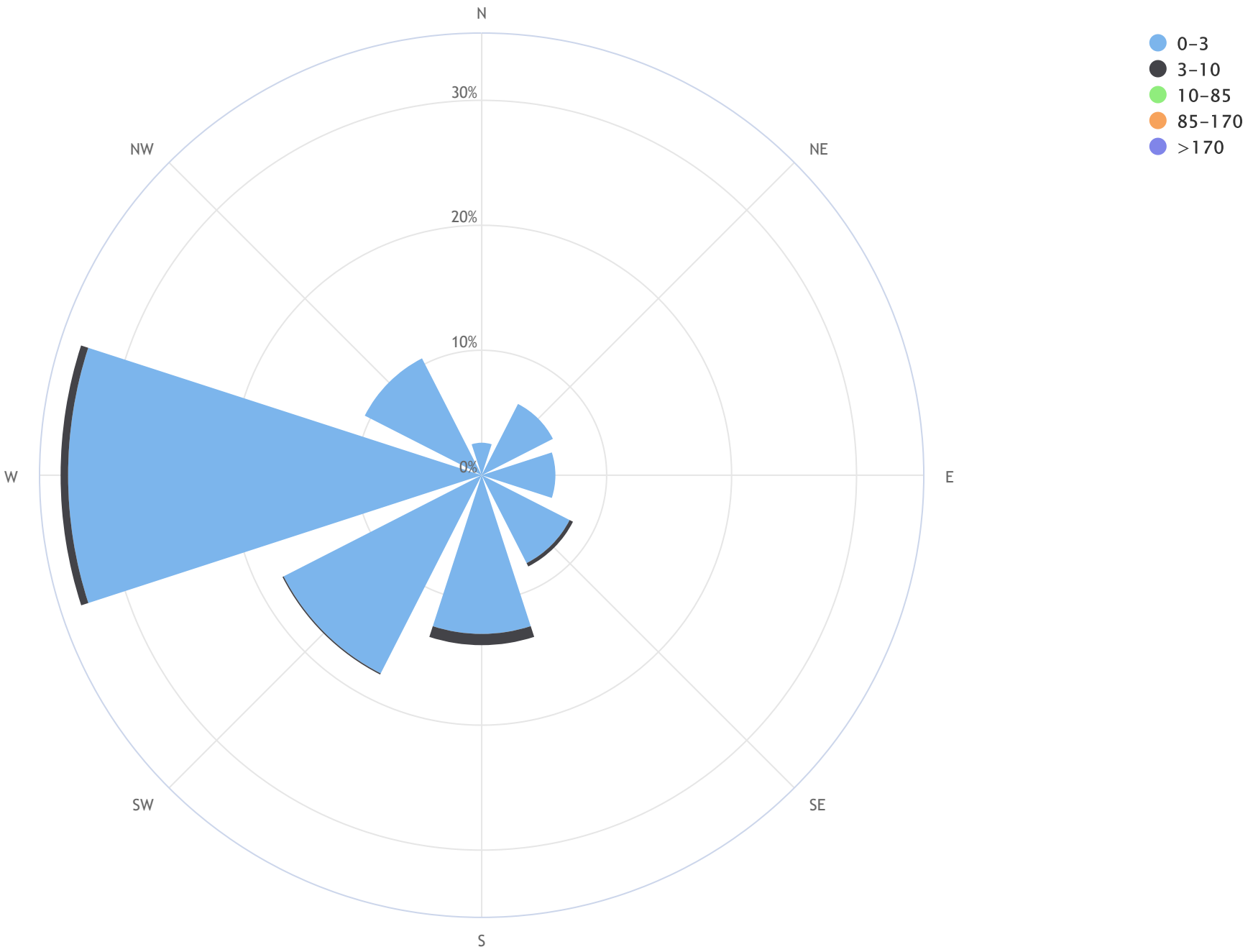


SO2[ppb] Histogram: LICA Bonnyville East Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Bonnyville East Site Continuous Monitoring Station_SO_2 (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 0.6, CALM % = 1.3%



Direction	0-3	3-10	10-85	85-170	>170	TOTAL
N	2.6	0.0	0.0	0.0	0.0	2.6
NE	6.4	0.0	0.0	0.0	0.0	6.4
E	5.9	0.0	0.0	0.0	0.0	5.9
SE	7.9	0.3	0.0	0.0	0.0	8.2
S	12.7	0.9	0.0	0.0	0.0	13.6
SW	17.8	0.1	0.0	0.0	0.0	18.0
W	33.1	0.6	0.0	0.0	0.0	33.7
NW	10.5	0.0	0.0	0.0	0.0	10.5
Summary	96.9	1.8	0.0	0.0	0.0	98.7
CALM	1.3	0.0	0.0	0.0	0.0	1.3

Maxxam
A Bureau Veritas Group Company

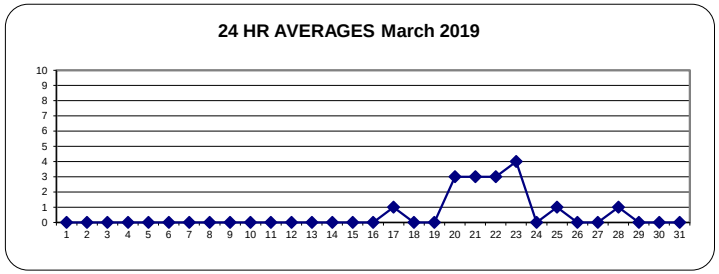
HYDROGEN SULPHIDE Hourly Averages (H_2S ppb)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
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	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	24
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	24
5	0	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	24
6	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	S	1	0	0	1	0	0	0	0	0	1	0	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	24
9	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	1	0	24
10	1	1	0	0	1	0	1	1	1	1	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
11	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	0	0	0	1	1	1	0	1	0	24
12	1	1	0	0	0	0	S1	0	0	S	0	0	0	0	0	0	0	C1	0	0	0	0	0	0	0	1	0	22
13	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
14	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	24
15	0	1	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
16	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	0	24
17	3	1	2	1	S	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	24
18	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
19	0	0	S	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	2	0	3	0	24
20	1	S	2	3	2	12	13	2	3	1	0	0	0	0	0	0	0	0	0	0	2	1	1	17	0	17	3	24
21	S	21	4	3	2	2	4	16	1	1	0	0	1	3	3	2	0	2	3	1	4	1	0	S	0	21	3	24
22	0	2	0	0	5	3	1	2	1	1	1	1	0	0	0	0	0	0	0	2	12	1	S	28	0	28	3	24
23	38	13	3	3	8	9	6	3	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	38	4	24
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	2	1	0	0	2	0	24
25	0	0	0	1	1	1	1	1	1	1	2	1	2	2	2	C1	C1	C1	C1	S	0	0	0	0	0	2	1	20
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	2	1	1	0	0	0	2	0	24
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0	1	0	24
28	0	2	2	1	2	1	0	2	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	2	1	24
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	1	0	0	0	0	0	0	1	0	24
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	24
31	0	0	0	0	0	0	1	1	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	1	0	24
HOURLY MAX	38	21	4	3	8	12	13	16	3	1	2	1	2	3	3	2	1	2	3	2	12	2	3	28				
HOURLY AVG	1	1	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

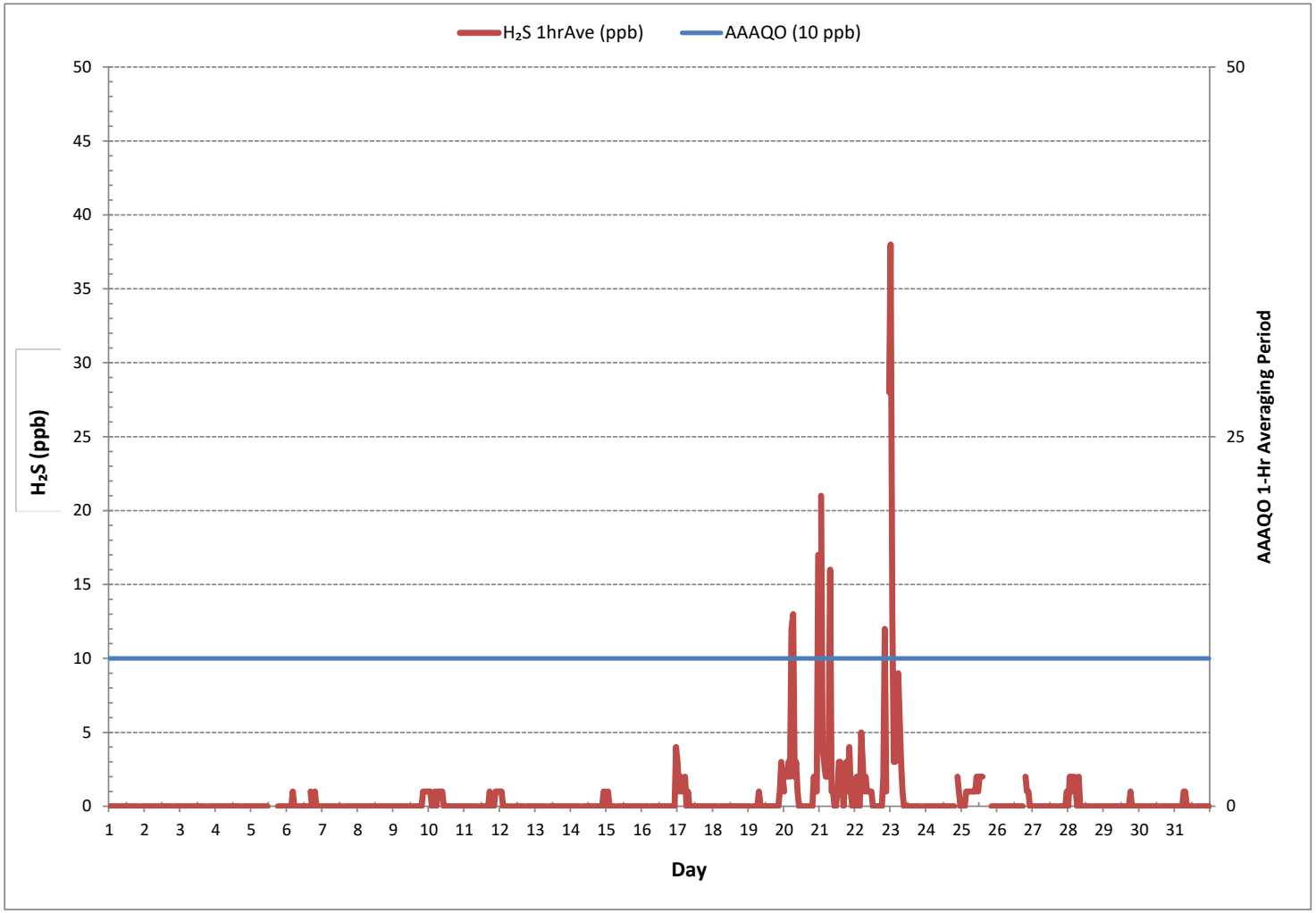
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 10 ppb | 24-HR 3 ppb



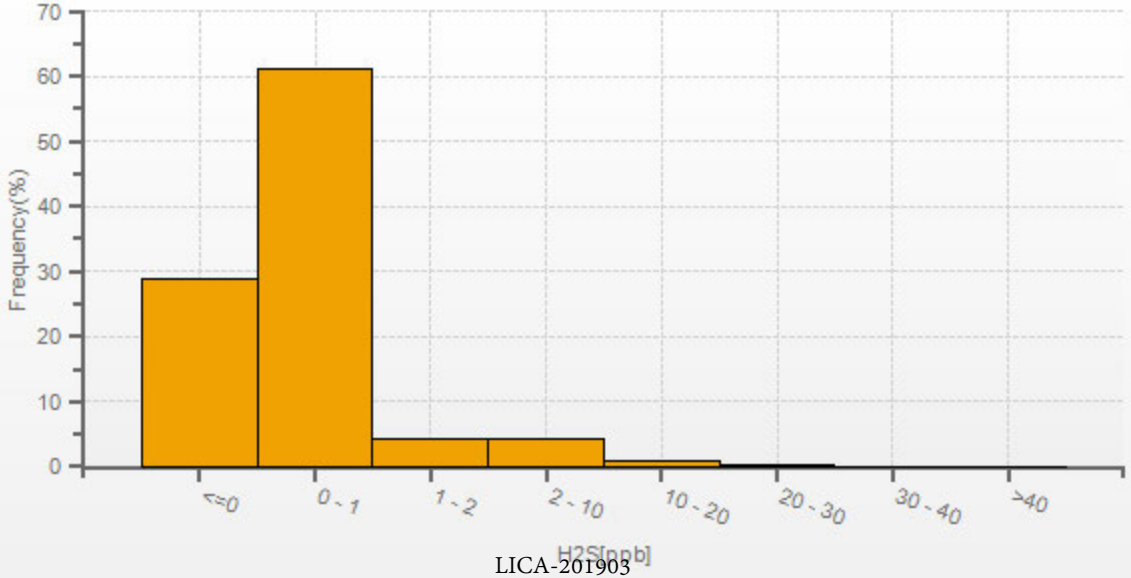
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:		9				
NUMBER OF 24-HR EXCEEDANCES:		1				
NUMBER OF NON-ZERO READINGS:		114				
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	0	ON DAY	1
MAXIMUM 1-HR AVERAGE:	38	ppb	@ HOUR	0	ON DAY	23
MAXIMUM 24-HR AVERAGE:	4	ppb			ON DAY	23
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:		738	hrs
MONTHLY CALIBRATION TIME:	6	hrs	AMD OPERATION UPTIME:		99.2	%
STANDARD DEVIATION:	2		MONTHLY AVERAGE:		1	ppb

HYDROGEN SULPHIDE Hourly Averages (H_2S ppb)

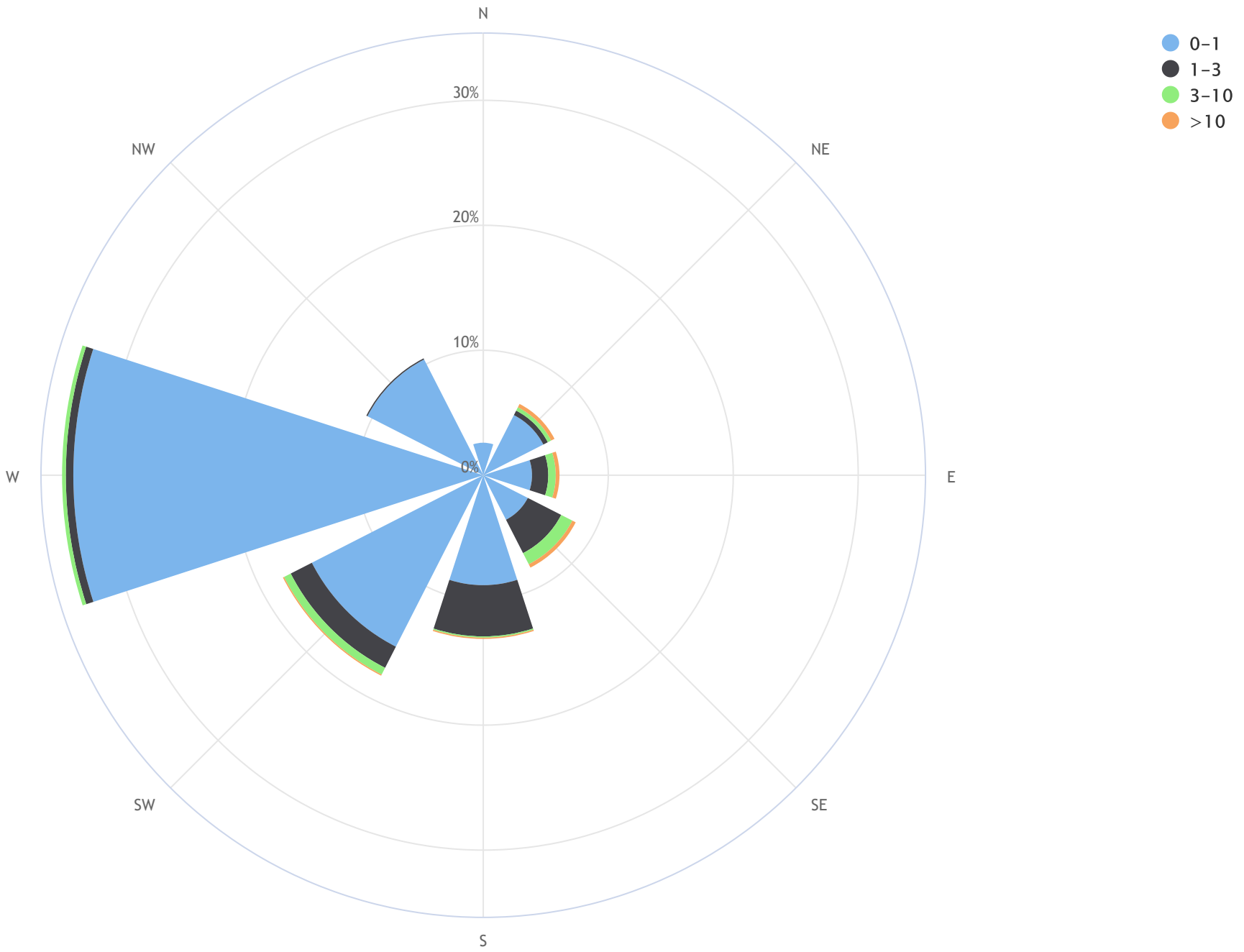


H2S[ppb] Histogram: LICA Bonnyville East Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Bonnyville East Site Continuous Monitoring Station_H_2S (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 2.4, CALM % = 1.3%



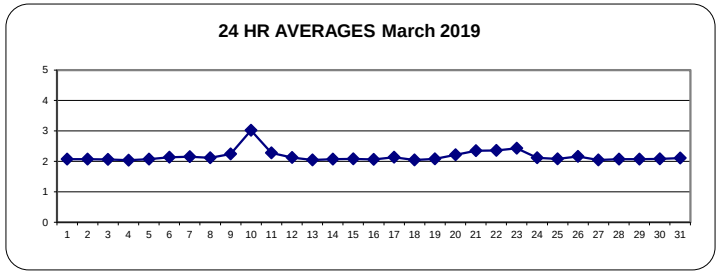
Direction	0-1	1-3	3-10	>10	TOTAL
N	2.6	0.0	0.0	0.0	2.6
NE	5.4	0.4	0.3	0.3	6.4
E	3.9	1.3	0.6	0.3	6.0
SE	4.0	3.0	1.0	0.3	8.3
S	8.8	4.1	0.1	0.1	13.3
SW	15.4	1.9	0.6	0.1	18.0
W	32.8	0.6	0.3	0.0	33.7
NW	10.4	0.1	0.0	0.0	10.6
Summary	83.3	11.4	2.9	1.2	98.7
CALM	0.4	0.7	0.0	0.1	1.3

TOTAL HYDROCARBONS Hourly Averages (THC ppm)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	2.03	2.03	2.02	2.03	2.03	2.03	2.03	2.03	2.05	2.05	2.05	2.03	2.02	2.03	2.02	2.02	2.03	2.04	2.65	2.09	S	2.15	2.12	2.13	2.02	2.65	2.07	24
2	2.18	2.17	2.12	2.09	2.12	2.09	2.11	2.10	2.10	2.08	2.06	2.05	2.04	2.00	2.01	2.01	2.02	2.01	2.02	S	2.04	2.05	2.05	2.11	2.00	2.18	2.07	24
3	2.10	2.09	2.10	2.10	2.09	2.08	2.07	2.06	2.07	2.05	2.05	2.04	2.03	2.03	2.03	2.03	2.02	2.03	S	2.07	2.08	2.07	2.10	2.08	2.02	2.10	2.06	24
4	2.05	2.06	2.07	2.06	2.07	2.07	2.07	2.04	2.03	2.05	2.05	2.02	2.01	2.01	2.02	2.01	2.01	S	2.02	2.01	2.01	2.03	2.02	2.05	2.01	2.07	2.04	24
5	2.07	2.08	2.08	2.09	2.13	2.16	2.13	2.10	2.08	2.07	2.00	1.99	2.00	2.10	2.02	2.03	S	2.02	2.07	2.07	2.06	2.07	2.04	2.07	1.99	2.16	2.07	24
6	2.12	2.12	2.27	2.30	2.41	2.18	2.05	2.09	2.04	2.07	2.05	C	C	C	C	C	2.09	2.08	2.08	2.10	2.17	2.13	2.15	2.22	2.04	2.41	2.14	24
7	2.21	2.19	2.20	2.22	2.27	2.28	2.37	2.25	2.24	2.19	2.16	2.13	2.11	2.09	S	2.04	2.03	2.03	2.02	2.05	2.06	2.08	2.09	2.09	2.02	2.37	2.15	24
8	2.12	2.16	2.17	2.14	2.17	2.16	2.16	2.17	2.20	2.16	2.20	2.22	2.18	S	2.06	2.02	2.04	2.01	2.03	2.05	2.07	2.10	2.11	2.14	2.01	2.22	2.12	24
9	2.14	2.13	2.10	2.11	2.13	2.23	2.26	2.26	2.36	2.28	2.08	2.09	S	2.05	2.04	2.06	2.05	2.03	2.07	2.33	2.31	2.50	3.15	2.79	2.03	3.15	2.24	24
10	3.55	**5.70**	5.36	4.58	3.42	3.35	3.13	3.06	3.90	3.88	2.99	S	2.30	2.18	2.18	2.22	2.22	2.20	2.18	2.19	2.18	2.20	2.21	2.19	2.18	**5.70**	**3.02**	24
11	2.17	2.24	2.26	2.21	2.20	2.20	2.23	2.28	2.28	2.22	S	2.18	2.16	2.15	2.18	2.17	2.14	2.32	2.31	2.38	2.48	2.61	2.56	2.59	2.14	2.61	2.28	24
12	2.62	2.66	2.61	2.51	2.41	2.23	2.13	2.07	2.05	S	1.99	1.97	**1.95**	1.95	1.96	1.96	1.96	1.98	1.99	1.99	2.00	2.01	2.01	2.05	**1.95**	2.66	2.13	24
13	2.07	2.08	2.13	2.10	2.07	2.05	2.06	2.06	S	2.03	2.03	2.02	2.00	2.00	2.01	2.01	2.02	2.01	2.03	2.06	2.08	2.06	2.06	2.08	2.00	2.13	2.05	24
14	2.08	2.09	2.12	2.16	2.14	2.13	2.15	S	2.09	2.07	2.06	2.04	2.02	2.01	2.01	2.02	2.02	2.02	2.05	2.07	2.06	2.06	2.07	2.14	2.01	2.16	2.07	24
15	2.17	2.22	2.24	2.20	2.17	2.20	S	2.18	2.12	2.13	2.08	2.04	1.99	1.98	1.98	1.99	1.98	1.99	2.01	2.04	2.06	2.06	2.06	2.05	1.98	2.24	2.08	24
16	2.05	2.06	2.05	2.08	2.07	S	2.07	2.06	2.05	2.05	2.04	2.02	2.02	2.00	2.00	2.00	1.99	2.01	2.04	2.04	2.06	2.13	2.14	2.24	1.99	2.24	2.06	24
17	2.20	2.20	2.31	2.31	S	2.30	2.16	2.23	2.18	2.29	2.25	2.22	2.11	2.09	2.08	2.05	2.05	2.02	2.03	2.05	2.03	2.03	2.05	2.05	2.02	2.31	2.14	24
18	2.05	2.05	2.04	S	2.07	2.07	2.09	2.09	2.08	2.07	2.07	2.05	2.02	2.01	2.00	1.99	2.00	2.02	2.04	2.08	2.08	2.06	2.08	2.08	1.99	2.09	2.05	24
19	2.12	2.10	S	2.12	2.12	2.11	2.11	2.12	2.07	2.04	2.01	1.99	1.99	1.99	1.99	2.01	2.04	2.04	2.05	2.08	2.11	2.19	2.18	2.19	1.99	2.19	2.08	24
20	2.20	S	2.24	2.26	2.28	2.36	2.48	2.36	2.36	2.28	2.15	2.03	2.05	2.00	2.01	2.03	2.03	2.04	2.12	2.26	2.33	2.28	2.36	2.45	2.00	2.48	2.22	24
21	S	3.30	3.52	3.03	2.75	2.68	2.62	2.50	2.25	2.13	2.11	2.08	2.06	2.03	2.04	2.03	2.01	2.03	2.09	2.09	2.11	2.12	2.14	S	2.01	3.52	2.35	24
22	2.19	2.22	2.21	2.23	2.33	2.36	2.38	2.46	2.49	2.35	2.37	2.38	2.42	2.36	2.33	2.30	2.27	2.26	2.28	2.35	2.49	2.42	S	2.81	2.19	2.81	2.36	24
23	4.21	3.55	2.70	2.86	2.88	2.96	3.16	2.93	2.42	2.07	2.03	2.01	1.99	1.98	1.98	1.99	2.00	2.02	2.02	2.04	2.05	S	2.06	2.06	1.98	4.21	2.43	24
24	2.06	2.10	2.14	2.16	2.10	2.14	2.20	2.17	2.09	2.08	2.07	2.05	2.05	2.08	2.12	2.13	2.11	2.13	2.15	2.17	S	2.17	2.16	2.15	2.05	2.20	2.12	24
25	2.13	2.08	2.09	2.08	2.06	2.03	2.02	2.06	2.07	2.06	2.07	2.09	2.11	2.14	2.13	2.12	2.11	2.13	2.12	S	2.06	2.05	2.06	2.05	2.02	2.14	2.08	24
26	2.07	2.07	2.06	2.06	2.07	2.07	2.08	2.08	2.09	2.11	2.10	2.10	2.11	2.19	2.23	2.22	2.22	2.17	S	2.32	2.32	2.31	2.34	2.35	2.06	2.35	2.16	24
27	2.26	2.08	2.06	2.05	2.03	2.02	2.04	2.04	2.03	2.00	2.00	2.01	2.00	2.00	2.00	2.00	2.01	S	2.02	2.05	2.11	2.09	2.18	2.09	2.00	2.26	2.05	24
28	2.13	2.09	2.11	2.11	2.13	2.12	2.25	2.13	2.10	2.07	2.04	2.02	2.01	2.00	2.00	1.99	S	2.00	2.02	2.02	2.04	2.03	2.06	2.12	1.99	2.25	2.07	24
29	2.07	2.06	2.07	2.12	2.09	2.14	2.18	2.11	2.05	2.03	2.02	2.01	2.01	2.01	2.01	S	2.01	2.03	2.04	2.08	2.10	2.05	2.09	2.17	2.01	2.18	2.07	24
30	2.17	2.10	2.09	2.14	2.10	2.12	2.16	2.13	2.08	2.15	2.04	2.01	2.01	2.02	S	2.03	2.04	2.03	2.03	2.03	2.05	2.07	2.07	2.09	2.01	2.17	2.08	24
31	2.05	2.05	2.15	2.20	2.15	2.13	2.15	2.25	2.46	2.17	2.06	2.03	2.03	S	2.02	2.02	2.03	2.03	2.03	2.04	2.07	2.08	2.08	2.12	2.02	2.46	2.11	24
HOURLY MAX	4.21	5.70	5.36	4.58	3.42	3.35	3.16	3.06	3.90	3.88	2.99	2.38	2.42	2.36	2.33	2.30	2.27	2.32	2.65	2.38	2.49	2.61	3.15	2.81				
HOURLY AVG	2.25	2.34	2.32	2.29	2.24	2.24	2.24	2.22	2.22	2.18	2.11	2.07	2.06	2.05	2.05	2.05	2.05	2.06	2.09	2.11	2.13	2.14	2.16	2.19				

STATUS FLAG CODES

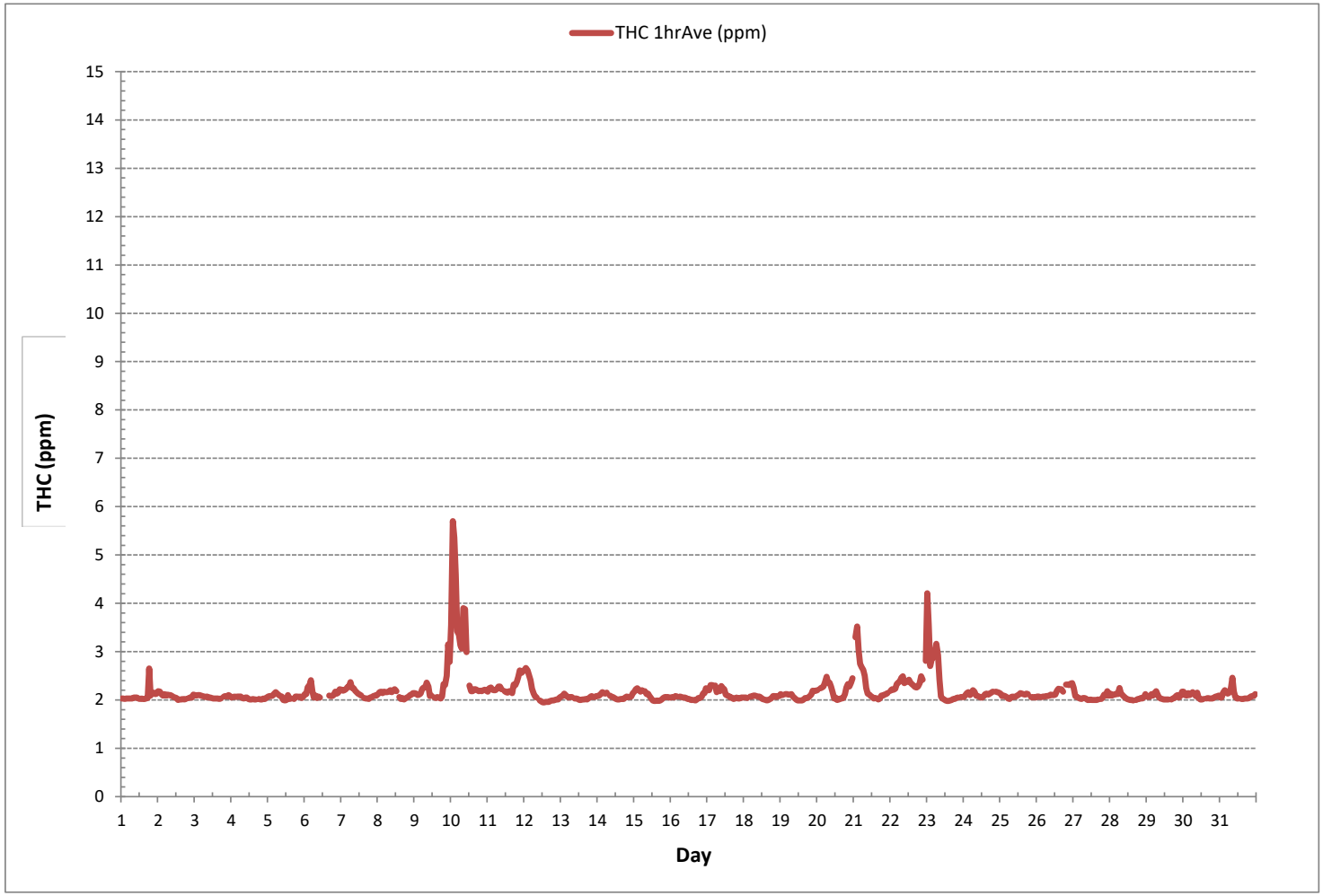
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



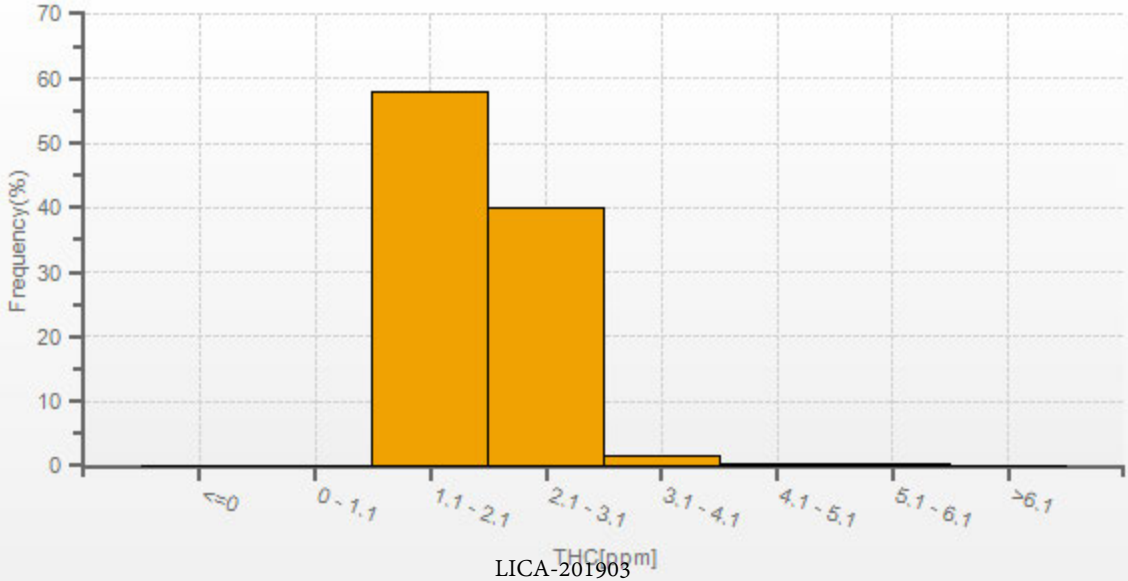
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			708				
MINIMUM 1-HR AVERAGE	1.95	ppm	@ HOUR	12	ON DAY	12	
MAXIMUM 1-HR AVERAGE:	5.70	ppm	@ HOUR	1	ON DAY	10	
MAXIMUM 24-HR AVERAGE:	3.02	ppm			ON DAY	10	
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:			744	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.31		MONTHLY AVERAGE:			2.16	ppm

TOTAL HYDROCARBONS Hourly Averages (THC ppm)

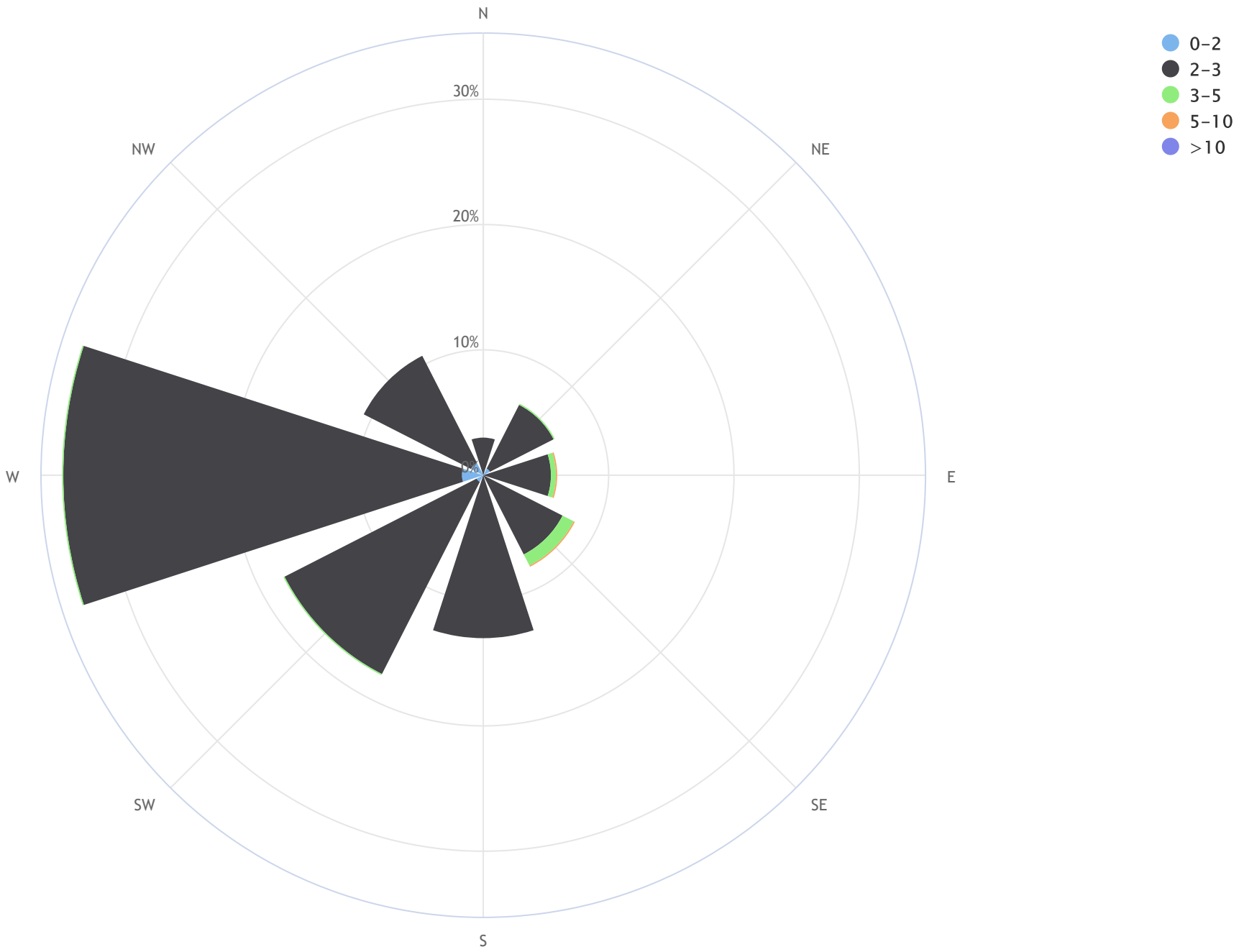


THC[ppm] Histogram: LICA Bonnyville East Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Bonnyville East Site Continuous Monitoring Station_THC (ppm)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 2.7, CALM % = 1.3%



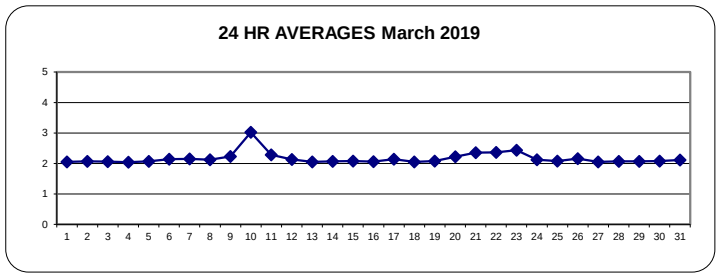
Direction	0-2	2-3	3-5	5-10	>10	TOTAL
N	0.0	3.0	0.0	0.0	0.0	3.0
NE	0.6	5.7	0.1	0.0	0.0	6.4
E	0.0	5.4	0.4	0.1	0.0	5.9
SE	0.0	7.1	1.0	0.1	0.0	8.2
S	0.0	13.0	0.0	0.0	0.0	13.0
SW	0.6	17.2	0.1	0.0	0.0	17.9
W	1.7	31.8	0.1	0.0	0.0	33.6
NW	1.1	9.6	0.0	0.0	0.0	10.7
Summary	3.9	92.7	1.8	0.3	0.0	98.7
CALM	0.0	1.0	0.3	0.0	0.0	1.3

METHANE Hourly Averages (CH_4 ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	2.03	2.03	2.02	2.03	2.03	2.03	2.03	2.03	2.05	2.05	2.05	2.03	2.02	2.03	2.02	2.02	2.03	2.04	2.10	2.09	S	2.15	2.12	2.13	2.02	2.15	2.05	24
2	2.18	2.17	2.12	2.09	2.12	2.09	2.11	2.10	2.10	2.08	2.06	2.05	2.04	2.00	2.01	2.01	2.02	2.01	2.02	S	2.04	2.05	2.05	2.11	2.00	2.18	2.07	24
3	2.10	2.09	2.10	2.10	2.09	2.08	2.07	2.06	2.07	2.05	2.05	2.04	2.03	2.03	2.03	2.03	2.02	2.03	S	2.07	2.08	2.07	2.10	2.08	2.02	2.10	2.06	24
4	2.05	2.06	2.07	2.06	2.07	2.07	2.07	2.04	2.03	2.05	2.05	2.02	2.01	2.01	2.02	2.01	2.01	S	2.02	2.01	2.01	2.03	2.02	2.05	2.01	2.07	2.04	24
5	2.07	2.08	2.08	2.09	2.13	2.16	2.13	2.10	2.08	2.07	2.00	1.99	2.00	2.10	2.02	2.03	S	2.02	2.07	2.07	2.06	2.07	2.04	2.07	1.99	2.16	2.07	24
6	2.12	2.12	2.27	2.30	2.41	2.18	2.05	2.09	2.04	2.07	2.05	C	C	C	C	C	2.09	2.08	2.08	2.10	2.17	2.13	2.15	2.22	2.04	2.41	2.14	24
7	2.21	2.19	2.20	2.22	2.27	2.28	2.37	2.25	2.24	2.19	2.16	2.13	2.11	2.09	S	2.04	2.03	2.03	2.02	2.05	2.06	2.08	2.09	2.09	2.02	2.37	2.15	24
8	2.12	2.16	2.17	2.14	2.17	2.16	2.16	2.17	2.20	2.16	2.20	2.22	2.18	S	2.06	2.02	2.04	2.01	2.03	2.05	2.07	2.10	2.11	2.14	2.01	2.22	2.12	24
9	2.14	2.13	2.10	2.11	2.13	2.23	2.26	2.26	2.31	2.15	2.08	2.09	S	2.05	2.04	2.06	2.05	2.03	2.07	2.33	2.31	2.50	3.15	2.79	2.03	3.15	2.23	24
10	3.55	**5.70**	5.36	4.58	3.42	3.35	3.13	3.06	3.90	3.88	2.99	S	2.30	2.18	2.18	2.22	2.22	2.20	2.18	2.19	2.18	2.20	2.21	2.19	2.18	**5.70**	**3.02**	24
11	2.17	2.24	2.26	2.21	2.20	2.20	2.23	2.28	2.28	2.22	S	2.18	2.16	2.15	2.18	2.17	2.14	2.32	2.31	2.38	2.48	2.61	2.56	2.59	2.14	2.61	2.28	24
12	2.62	2.66	2.61	2.51	2.41	2.23	2.13	2.07	2.05	S	1.99	1.97	**1.95**	1.95	1.96	1.96	1.96	1.98	1.99	1.99	2.00	2.01	2.01	2.05	**1.95**	2.66	2.13	24
13	2.07	2.08	2.13	2.10	2.07	2.05	2.06	2.06	S	2.03	2.03	2.02	2.00	2.00	2.01	2.01	2.02	2.01	2.03	2.06	2.08	2.06	2.06	2.08	2.00	2.13	2.05	24
14	2.08	2.09	2.12	2.16	2.14	2.13	2.15	S	2.09	2.07	2.06	2.04	2.02	2.01	2.01	2.02	2.02	2.02	2.05	2.07	2.06	2.06	2.07	2.14	2.01	2.16	2.07	24
15	2.17	2.22	2.24	2.20	2.17	2.20	S	2.18	2.12	2.13	2.08	2.04	1.99	1.98	1.98	1.99	1.98	1.99	2.01	2.04	2.06	2.06	2.06	2.05	1.98	2.24	2.08	24
16	2.05	2.06	2.05	2.08	2.07	S	2.07	2.06	2.05	2.05	2.04	2.02	2.02	2.00	2.00	2.00	1.99	2.01	2.04	2.04	2.06	2.13	2.14	2.24	1.99	2.24	2.06	24
17	2.20	2.20	2.31	2.31	S	2.30	2.16	2.23	2.18	2.29	2.25	2.22	2.11	2.09	2.08	2.05	2.05	2.02	2.03	2.05	2.03	2.03	2.05	2.05	2.02	2.31	2.14	24
18	2.05	2.05	2.04	S	2.07	2.07	2.09	2.09	2.08	2.07	2.07	2.05	2.02	2.01	2.00	1.99	2.00	2.02	2.04	2.08	2.08	2.06	2.08	2.08	1.99	2.09	2.05	24
19	2.12	2.10	S	2.12	2.12	2.11	2.11	2.12	2.07	2.04	2.01	1.99	1.99	1.99	1.99	2.01	2.04	2.04	2.05	2.08	2.11	2.19	2.18	2.19	1.99	2.19	2.08	24
20	2.20	S	2.24	2.26	2.28	2.36	2.48	2.36	2.36	2.28	2.15	2.03	2.05	2.00	2.01	2.03	2.03	2.04	2.12	2.26	2.33	2.28	2.35	2.45	2.00	2.48	2.22	24
21	S	3.28	3.52	3.03	2.75	2.68	2.57	2.50	2.25	2.13	2.11	2.08	2.06	2.03	2.04	2.03	2.01	2.03	2.09	2.09	2.11	2.12	2.14	S	2.01	3.52	2.35	24
22	2.19	2.22	2.21	2.23	2.33	2.36	2.37	2.46	2.49	2.35	2.37	2.38	2.42	2.36	2.33	2.30	2.27	2.26	2.28	2.35	2.49	2.42	S	2.81	2.19	2.81	2.36	24
23	4.21	3.55	2.70	2.86	2.88	2.96	3.16	2.93	2.42	2.07	2.03	2.01	1.99	1.98	1.98	1.99	2.00	2.02	2.02	2.04	2.05	S	2.06	2.06	1.98	4.21	2.43	24
24	2.06	2.10	2.14	2.16	2.10	2.14	2.20	2.17	2.09	2.08	2.07	2.05	2.05	2.08	2.12	2.13	2.11	2.13	2.15	2.17	S	2.17	2.16	2.15	2.05	2.20	2.12	24
25	2.13	2.08	2.09	2.08	2.06	2.03	2.02	2.06	2.07	2.06	2.07	2.09	2.11	2.14	2.13	2.12	2.11	2.13	2.12	S	2.06	2.05	2.06	2.05	2.02	2.14	2.08	24
26	2.07	2.07	2.06	2.06	2.07	2.07	2.08	2.08	2.09	2.11	2.10	2.10	2.11	2.19	2.23	2.22	2.22	2.17	S	2.32	2.32	2.31	2.34	2.35	2.06	2.35	2.16	24
27	2.26	2.08	2.06	2.05	2.03	2.02	2.04	2.04	2.03	2.00	2.00	2.01	2.00	2.00	2.00	2.00	2.01	S	2.02	2.05	2.11	2.09	2.18	2.09	2.00	2.26	2.05	24
28	2.13	2.09	2.11	2.11	2.13	2.12	2.24	2.13	2.10	2.07	2.04	2.02	2.01	2.00	2.00	1.99	S	2.00	2.02	2.02	2.04	2.03	2.06	2.12	1.99	2.24	2.07	24
29	2.07	2.06	2.07	2.12	2.09	2.14	2.18	2.11	2.05	2.03	2.02	2.01	2.01	2.01	2.01	S	2.01	2.03	2.04	2.08	2.10	2.05	2.09	2.17	2.01	2.18	2.07	24
30	2.17	2.10	2.09	2.14	2.10	2.12	2.16	2.13	2.08	2.15	2.04	2.01	2.01	2.02	S	2.03	2.04	2.03	2.03	2.03	2.05	2.07	2.07	2.09	2.01	2.17	2.08	24
31	2.05	2.05	2.15	2.20	2.15	2.13	2.15	2.25	2.46	2.17	2.06	2.03	2.03	S	2.02	2.02	2.03	2.03	2.03	2.04	2.07	2.08	2.08	2.12	2.02	2.46	2.11	24
HOURLY MAX	4.21	5.70	5.36	4.58	3.42	3.35	3.16	3.06	3.90	3.88	2.99	2.38	2.42	2.36	2.33	2.30	2.27	2.32	2.31	2.38	2.49	2.61	3.15	2.81				
HOURLY AVG	2.25	2.34	2.32	2.29	2.24	2.24	2.23	2.22	2.21	2.17	2.11	2.07	2.06	2.05	2.05	2.05	2.05	2.06	2.07	2.11	2.13	2.14	2.16	2.19				

STATUS FLAG CODES

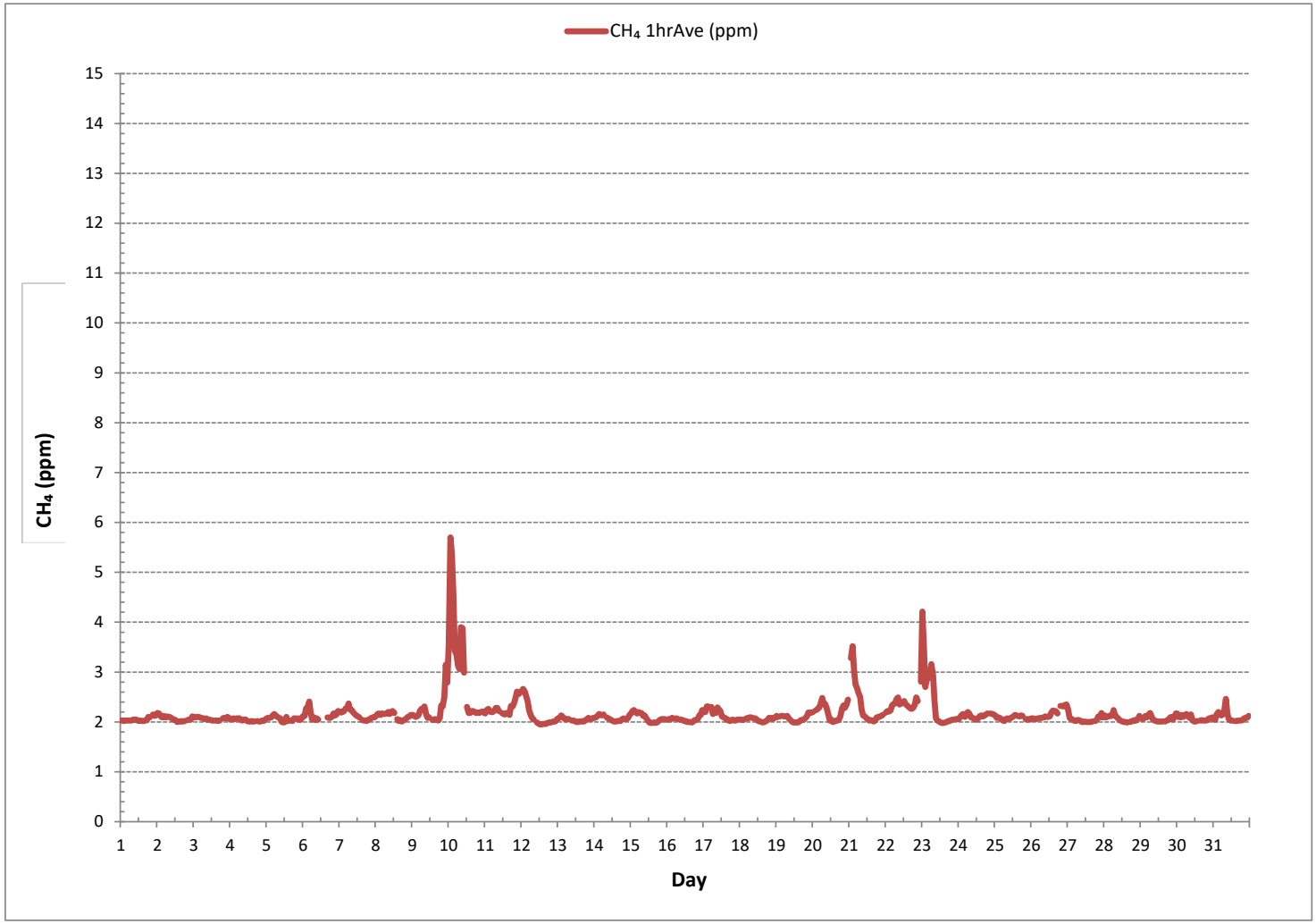
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



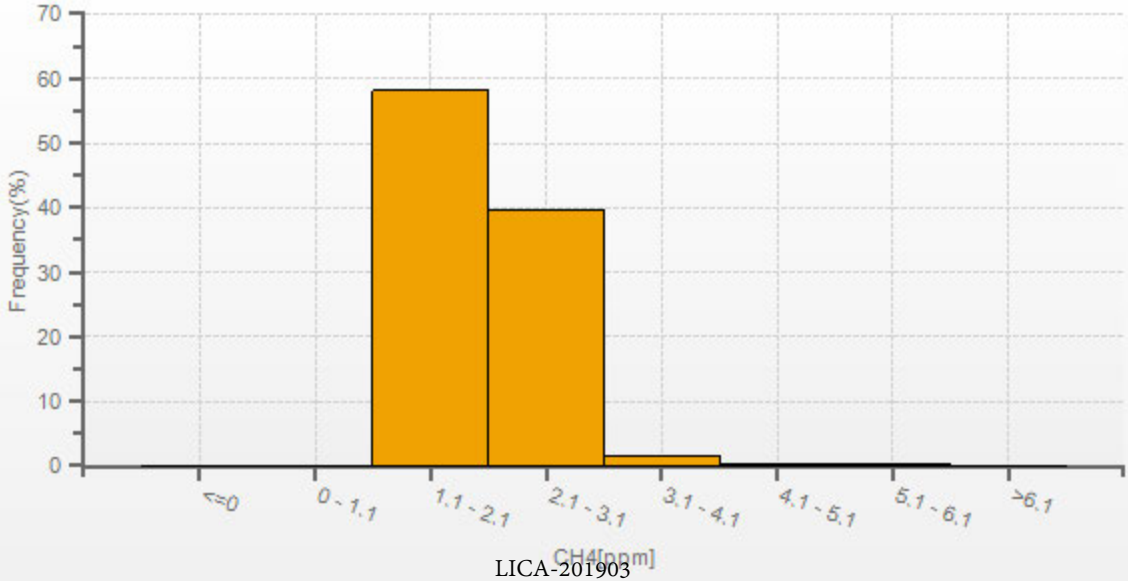
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			708				
MINIMUM 1-HR AVERAGE	1.95	ppm	@ HOUR	12	ON DAY	12	
MAXIMUM 1-HR AVERAGE:	5.70	ppm	@ HOUR	1	ON DAY	10	
MAXIMUM 24-HR AVERAGE:	3.02	ppm			ON DAY	10	
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:			744	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.31		MONTHLY AVERAGE:			2.16	ppm

METHANE Hourly Averages (CH_4 ppm)

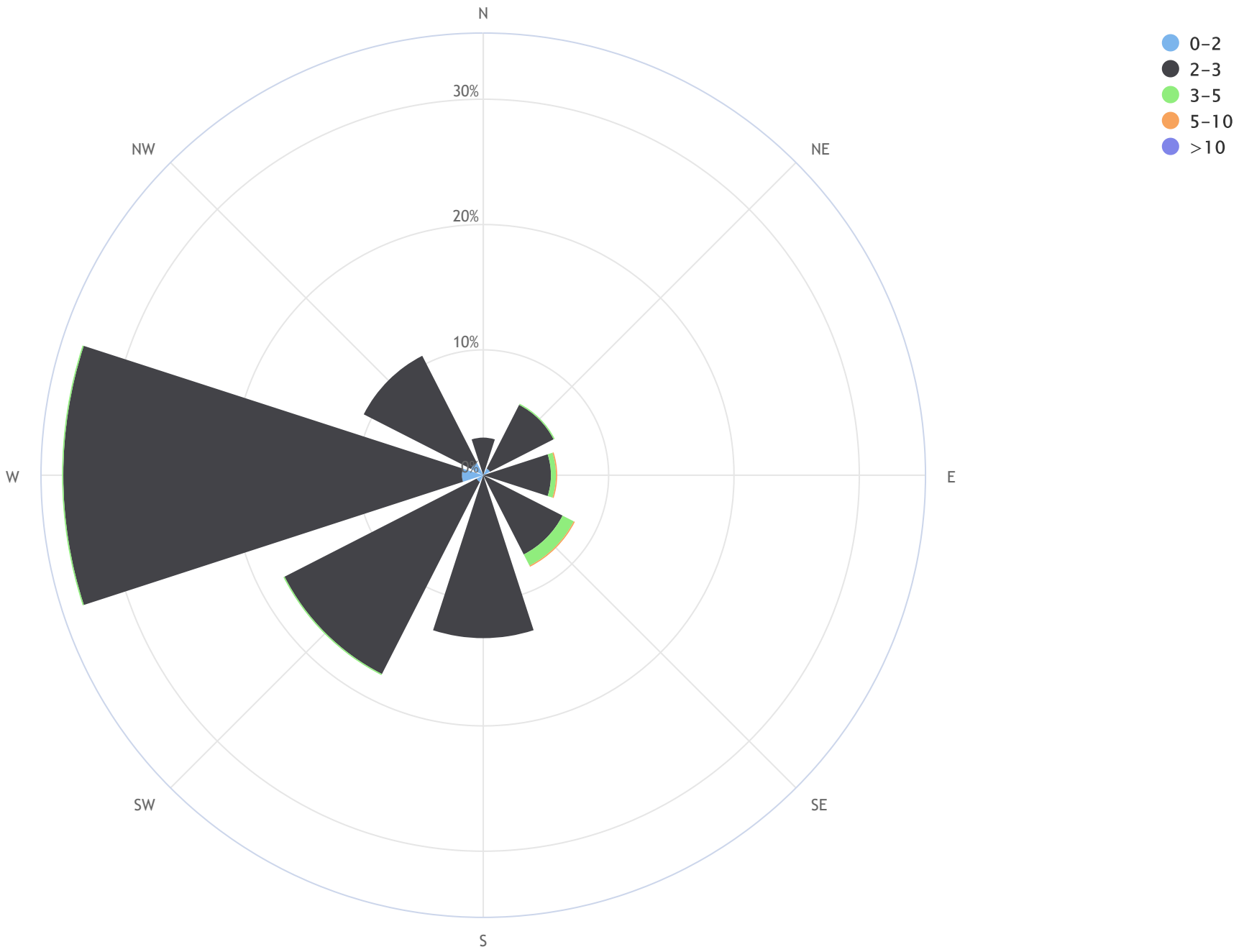


CH4[ppm] Histogram: LICA Bonnyville East Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Bonnyville East Site Continuous Monitoring Station_CH_4 (ppm)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 2.7, CALM % = 1.3%



Direction	0-2	2-3	3-5	5-10	>10	TOTAL
N	0.0	3.0	0.0	0.0	0.0	3.0
NE	0.6	5.7	0.1	0.0	0.0	6.4
E	0.0	5.4	0.4	0.1	0.0	5.9
SE	0.0	7.1	1.0	0.1	0.0	8.2
S	0.0	13.0	0.0	0.0	0.0	13.0
SW	0.6	17.2	0.1	0.0	0.0	17.9
W	1.7	31.8	0.1	0.0	0.0	33.6
NW	1.1	9.6	0.0	0.0	0.0	10.7
Summary	3.9	92.7	1.8	0.3	0.0	98.7
CALM	0.0	1.0	0.3	0.0	0.0	1.3

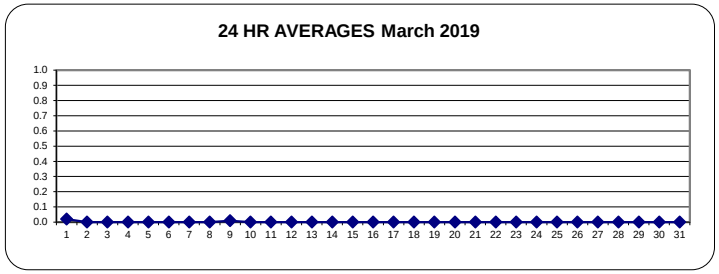
Maxxam
A Bureau Veritas Group Company

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.55**	0.00	**S**	0.00	0.00	0.00	**0.00**	**0.55**	**0.02**	24
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**C**	**C**	**C**	**C**	**C**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**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	24
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**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	24
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.13	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	0.13	0.01	24
10	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	24
11	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	24
12	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	24
13	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	24
14	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	24
15	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	24
16	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	24
17	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	24
18	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	24
19	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	24
20	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	0.02	0.00	0.00	0.02	0.00	24
21	**S**	0.02	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	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	0.05	0.00	24
22	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.01	0.00	24
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	24
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	24
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	24
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**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	24
HOURLY MAX	0.00	0.02	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.00	0.00	0.00	0.02	0.00				
HOURLY AVG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

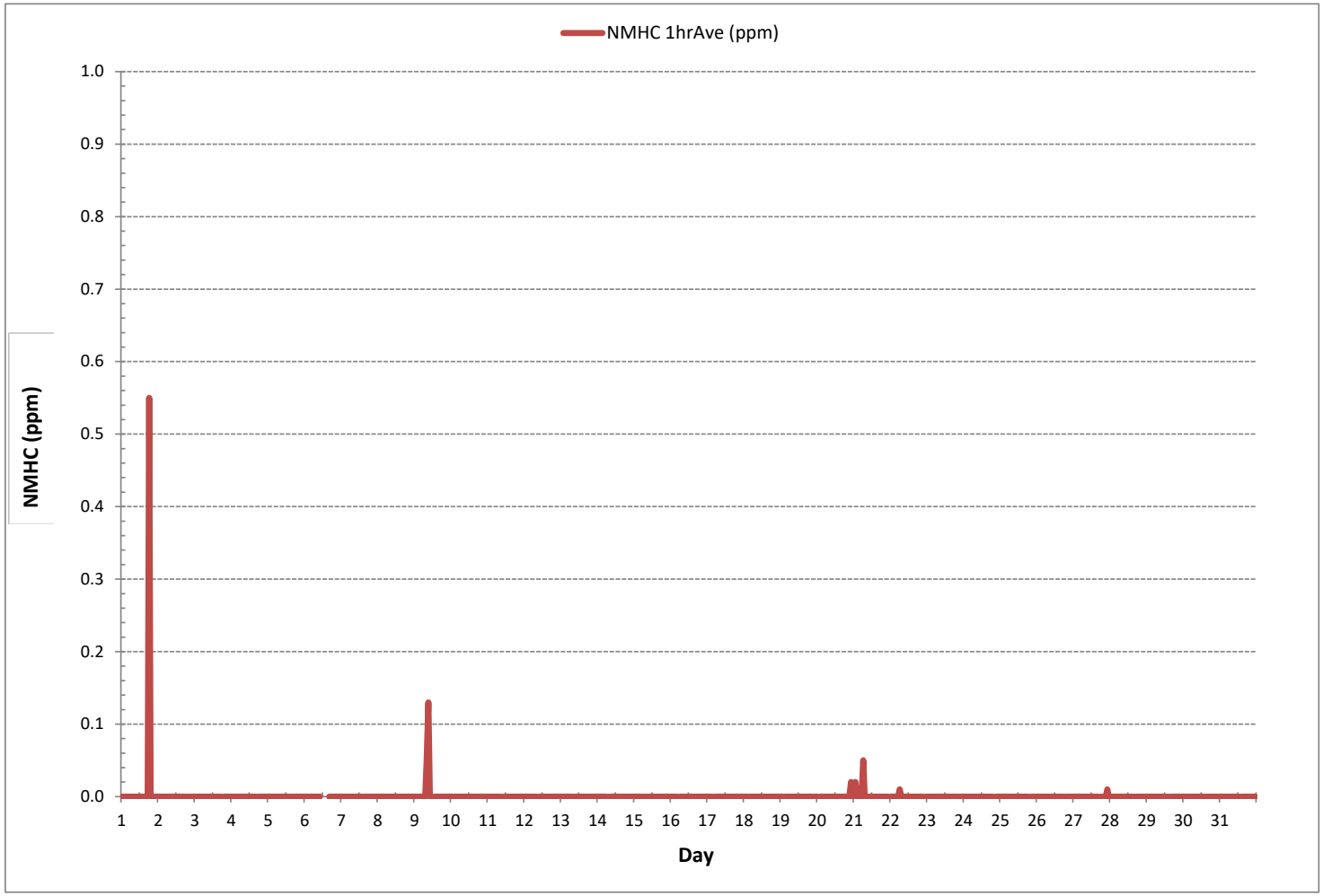


MONTHLY SUMMARY

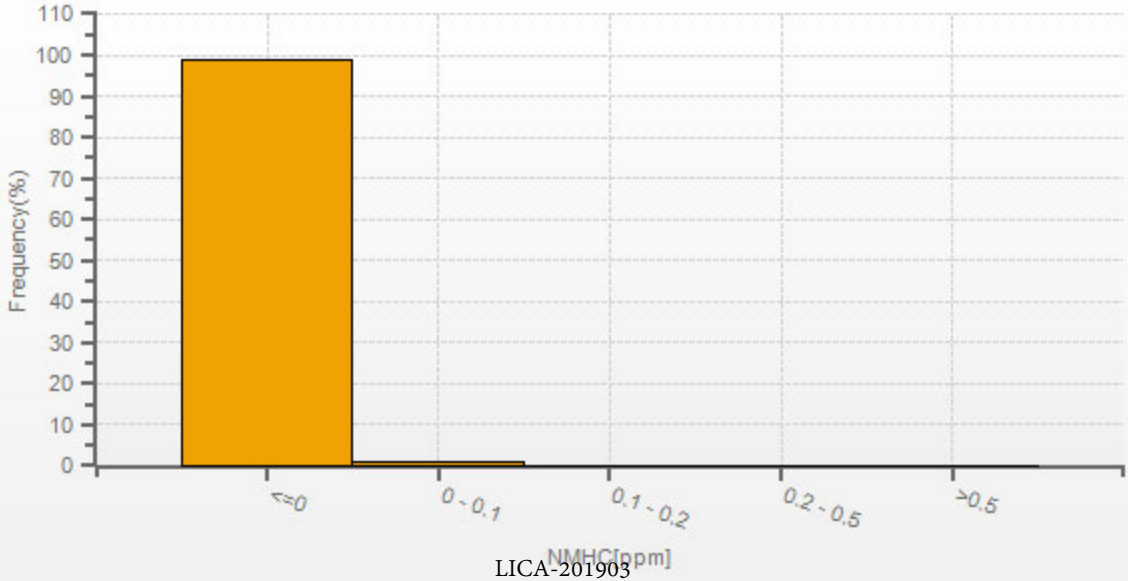
NUMBER OF NON-ZERO READINGS:		8				
MINIMUM 1-HR AVERAGE	0.00	ppm	@ HOUR	0	ON DAY	1
MAXIMUM 1-HR AVERAGE:	0.55	ppm	@ HOUR	18	ON DAY	1
MAXIMUM 24-HR AVERAGE:	0.02	ppm			ON DAY	1

IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	744	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.02		MONTHLY AVERAGE:	0.00	ppm

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

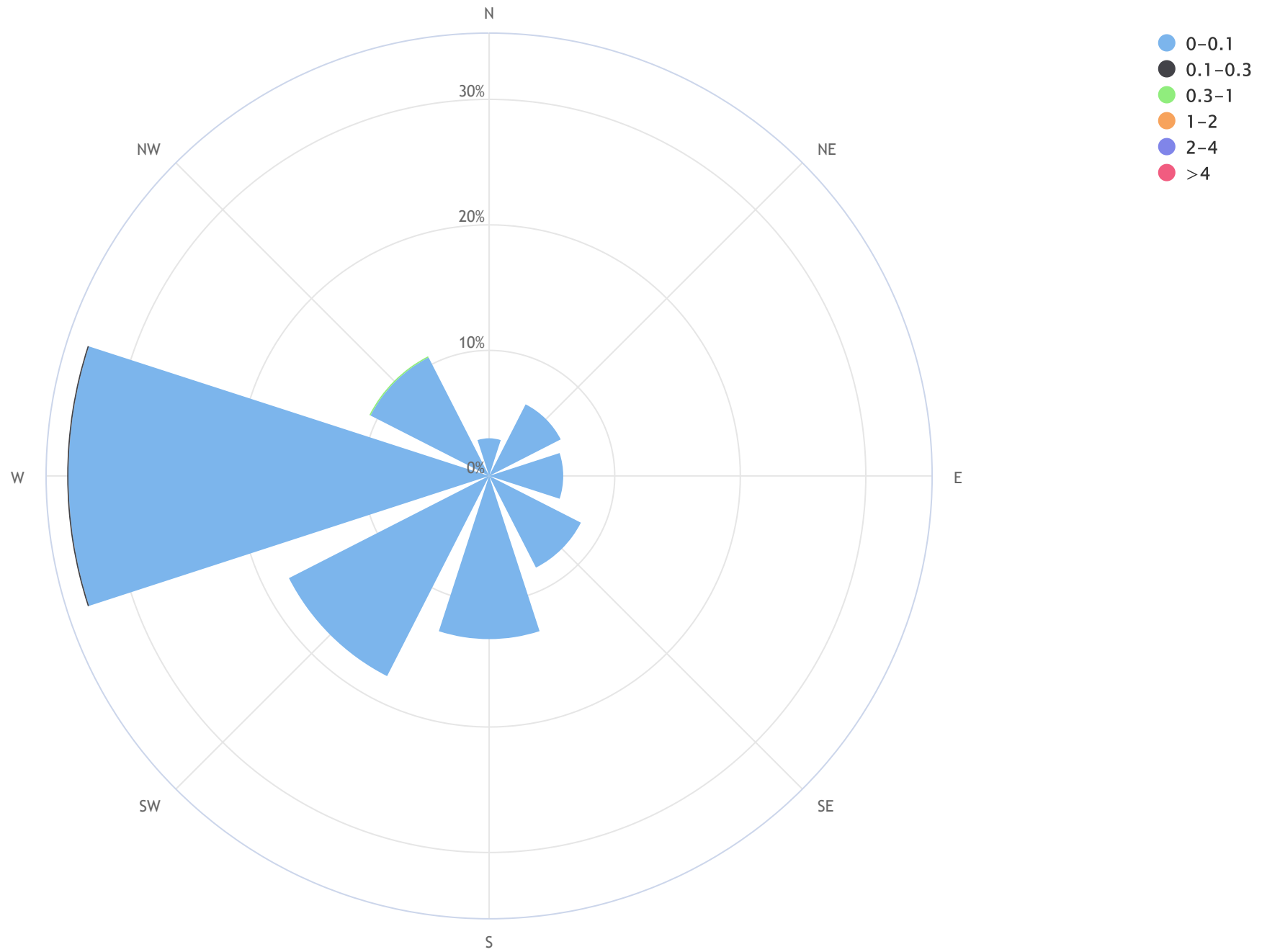


NMHC[ppm] Histogram: LICA Bonnyville East Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Bonnyville East Site Continuous Monitoring Station_NMHC (ppm)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 0.0, CALM % = 1.3%



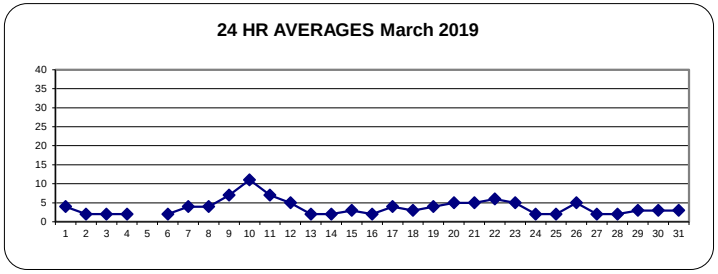
Direction	0-0.1	0.1-0.3	0.3-1	1-2	2-4	>4	TOTAL
N	3.0	0.0	0.0	0.0	0.0	0.0	3.0
NE	6.4	0.0	0.0	0.0	0.0	0.0	6.4
E	5.9	0.0	0.0	0.0	0.0	0.0	5.9
SE	8.2	0.0	0.0	0.0	0.0	0.0	8.2
S	13.0	0.0	0.0	0.0	0.0	0.0	13.0
SW	17.9	0.0	0.0	0.0	0.0	0.0	17.9
W	33.5	0.1	0.0	0.0	0.0	0.0	33.6
NW	10.6	0.0	0.1	0.0	0.0	0.0	10.7
Summary	98.4	0.1	0.1	0.0	0.0	0.0	98.7
CALM	1.3	0.0	0.0	0.0	0.0	0.0	1.3

OXIDES OF NITROGEN Hourly Averages (NO_x ppb)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	4	3	2	2	2	2	3	3	4	4	3	3	3	3	2	2	3	4	11	10	S	9	7	4	2	11	4	24
2	3	4	3	2	2	2	2	2	2	2	2	2	2	1	2	2	1	2	2	S	2	4	4	3	1	4	2	24
3	3	2	1	1	2	2	1	2	2	2	2	2	2	2	2	2	1	2	S	2	2	2	2	2	1	3	2	24
4	2	2	2	2	2	2	2	2	2	4	4	2	2	2	2	2	2	S	2	2	2	2	2	2	2	4	2	24
5	2	2	3	3	3	3	3	3	3	6	2	1	C	C	C	C	C	C	C	C	C	7	4	4	1	7	-	24
6	4	4	4	5	4	2	1	2	1	1	1	1	2	2	2	S	2	2	2	2	3	2	3	3	1	5	2	24
7	3	3	3	3	5	5	6	6	5	3	4	3	3	3	S	2	3	4	3	4	5	5	4	3	2	6	4	24
8	4	6	5	3	3	3	3	4	4	4	7	8	7	S	5	3	5	3	6	4	5	3	3	2	2	8	4	24
9	2	2	2	2	6	14	13	21	18	10	7	7	S	5	3	4	3	2	2	5	5	6	13	9	2	21	7	24
10	9	10	17	16	12	15	**28**	16	21	21	22	S	9	8	6	6	6	6	6	5	6	6	6	5	5	**28**	**11**	24
11	6	6	6	6	5	6	6	8	8	8	S	7	6	6	6	6	5	8	8	9	12	12	10	9	5	12	7	24
12	9	10	9	8	7	7	5	5	5	S	5	4	3	3	3	3	3	3	2	3	3	3	3	4	2	10	5	24
13	4	2	2	2	2	2	2	2	S	2	2	2	1	1	2	2	2	1	1	3	4	4	3	2	1	4	2	24
14	2	2	2	2	2	3	3	S	3	3	2	2	2	2	1	2	2	2	2	2	2	2	2	3	1	3	2	24
15	5	5	5	4	4	4	S	5	6	6	4	3	2	2	2	2	1	2	2	2	2	2	2	2	1	6	3	24
16	1	1	1	1	1	S	2	3	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	3	1	3	2	24
17	2	2	2	3	S	4	4	6	5	7	7	7	5	5	5	4	3	2	2	2	2	2	2	2	2	7	4	24
18	1	1	2	S	2	2	3	3	3	4	4	3	2	2	2	1	2	1	1	3	4	4	5	5	1	5	3	24
19	6	6	S	6	6	6	6	6	4	3	2	2	2	2	2	2	2	2	3	2	3	3	4	3	2	6	4	24
20	3	S	3	3	3	5	6	10	8	7	9	7	6	4	3	4	3	3	4	4	4	4	4	4	3	10	5	24
21	S	13	15	9	7	9	22	8	4	7	3	2	2	1	1	1	1	1	2	2	2	2	3	S	1	22	5	24
22	3	3	4	4	4	5	8	8	9	6	8	8	7	7	7	5	5	4	4	5	4	5	S	5	3	9	6	24
23	9	9	8	13	8	10	11	11	7	3	3	3	5	1	1	1	3	1	1	1	1	S	1	1	1	13	5	24
24	1	1	2	1	1	8	4	2	2	1	2	1	1	1	2	2	2	2	2	2	S	2	2	2	1	8	2	24
25	2	2	2	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	1	2	2	24
26	2	2	2	3	3	3	5	4	5	4	3	4	4	6	7	7	7	5	S	5	4	8	8	7	2	8	5	24
27	7	4	2	2	2	2	3	3	2	1	1	1	1	1	1	1	1	S	3	5	2	3	2	1	1	7	2	24
28	4	6	1	1	2	2	2	2	2	3	2	2	1	1	1	1	S	1	1	1	1	1	2	4	1	6	2	24
29	4	2	4	5	5	8	12	5	2	2	2	2	1	1	1	S	1	1	1	1	1	1	2	3	1	12	3	24
30	2	1	1	2	2	2	2	2	3	5	2	1	1	2	S	4	4	4	2	2	3	3	3	4	1	5	3	24
31	2	3	7	7	4	3	3	8	11	3	2	1	1	S	1	1	1	1	1	1	1	2	2	2	1	11	3	24
HOURLY MAX	9	13	17	16	12	15	28	21	21	21	22	8	9	8	7	7	7	8	11	10	12	12	13	9				
HOURLY AVG	4	4	4	4	4	5	6	5	5	5	4	3	3	3	3	3	3	3	3	3	4	4	4	4				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

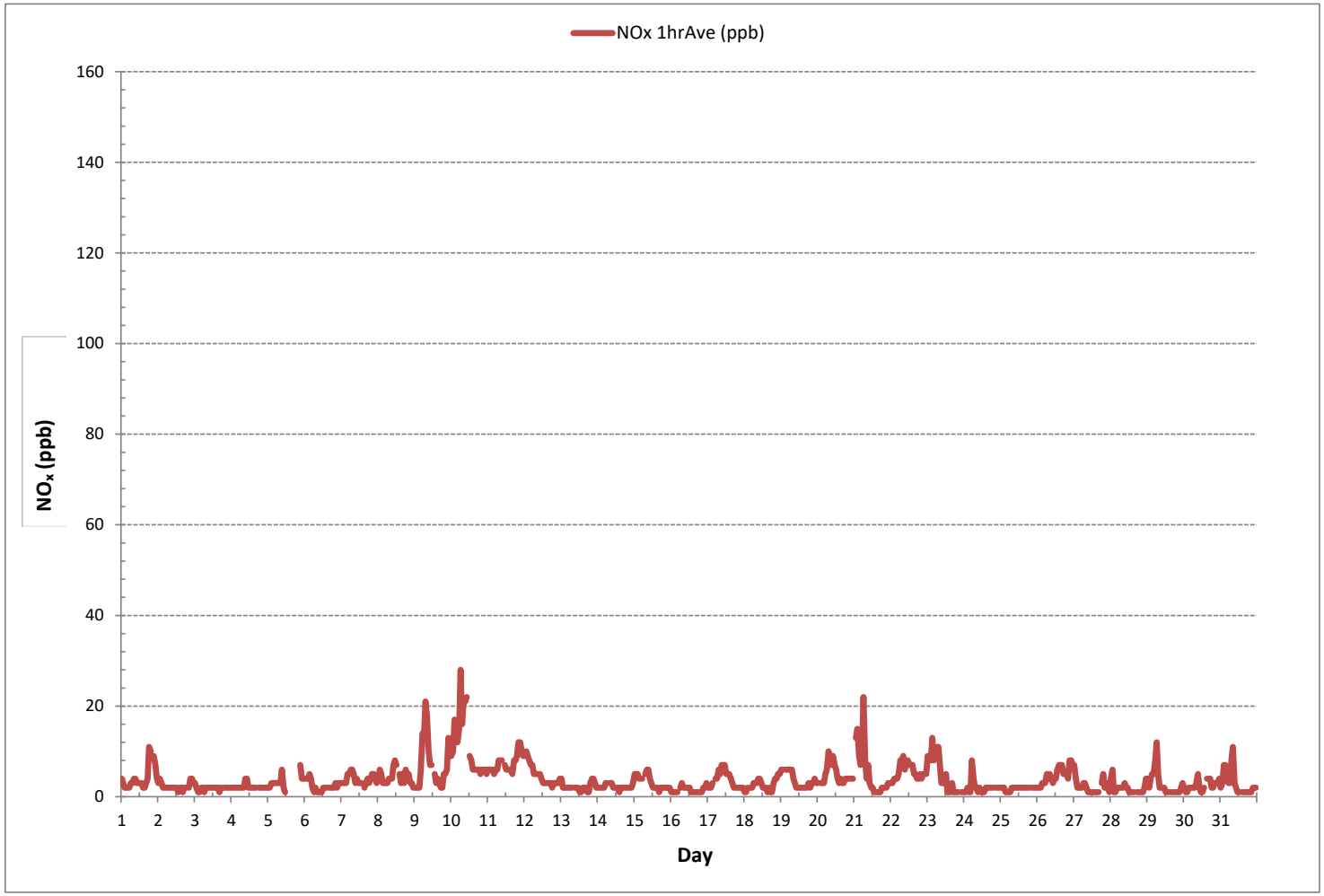


MONTHLY SUMMARY

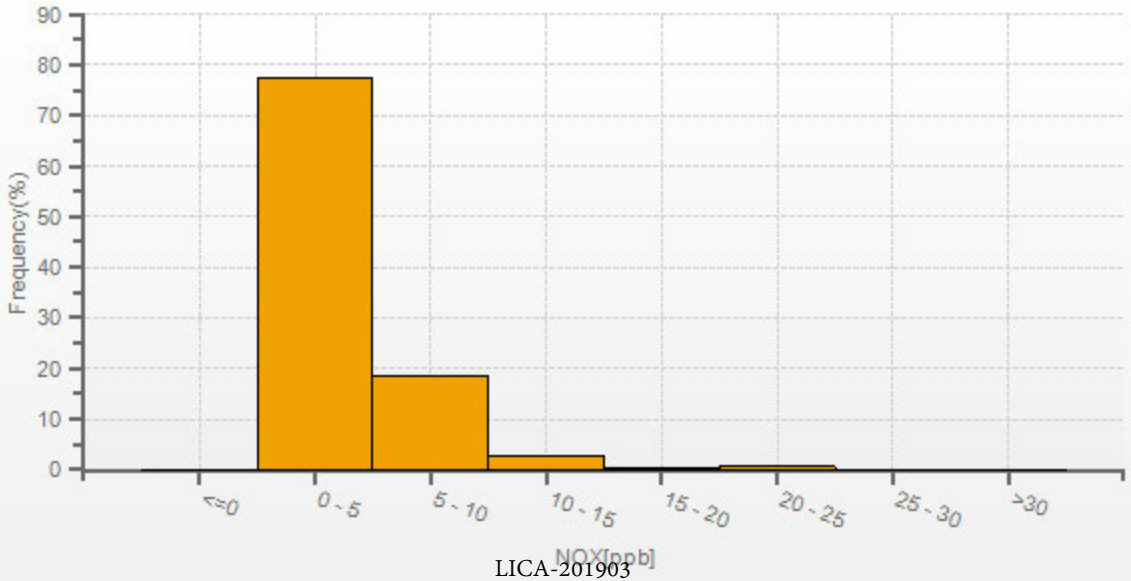
NUMBER OF NON-ZERO READINGS:		704				
MINIMUM 1-HR AVERAGE	1	ppb	@ HOUR	13	ON DAY	2
MAXIMUM 1-HR AVERAGE:	28	ppb	@ HOUR	6	ON DAY	10
MAXIMUM 24-HR AVERAGE:	11	ppb			ON DAY	10

IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	744	hrs
MONTHLY CALIBRATION TIME:	9	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	3		MONTHLY AVERAGE:	4	ppb

OXIDES OF NITROGEN Hourly Averages (NO_x ppb)

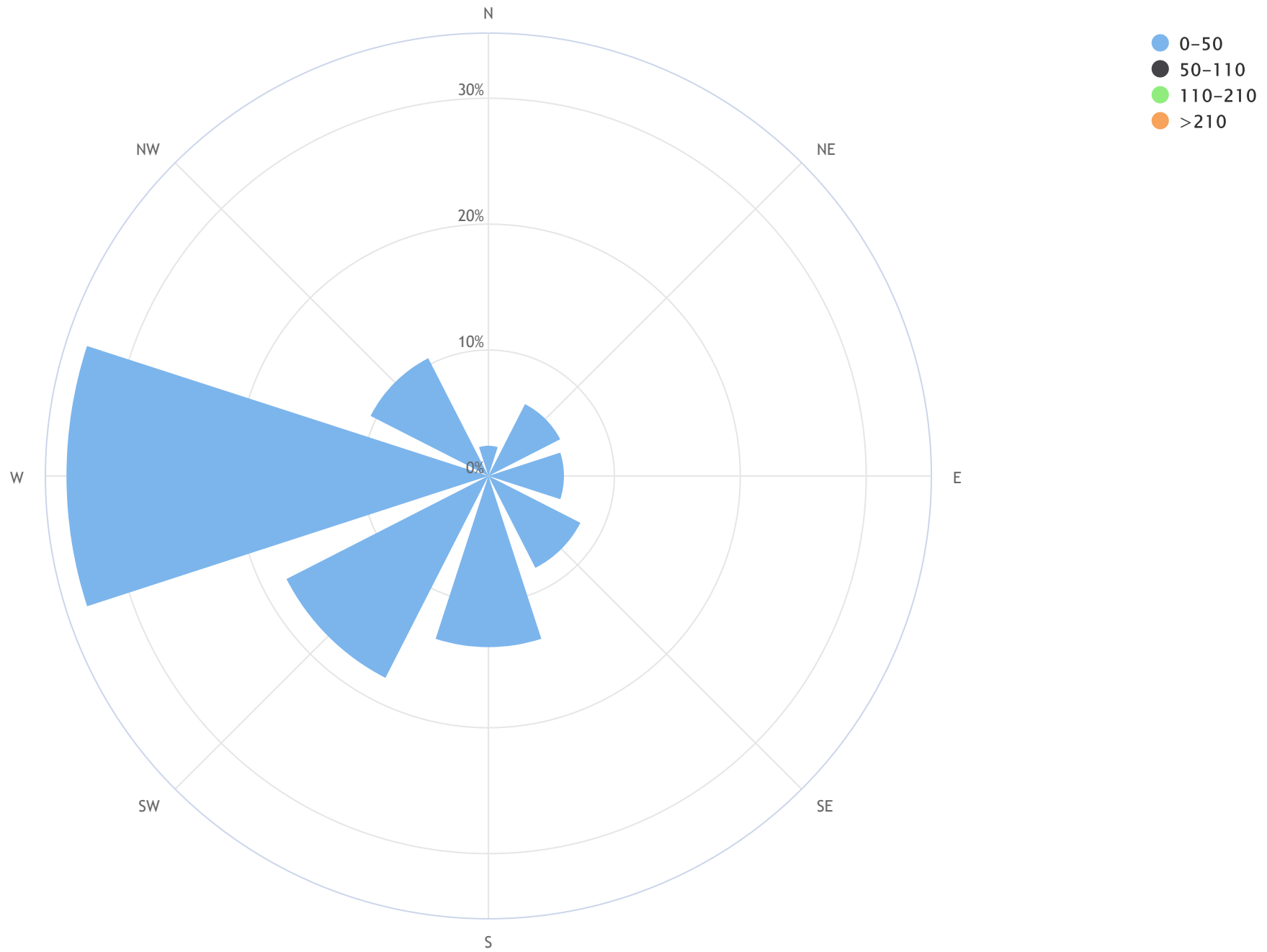


NOX[ppb] Histogram: LICA Bonnyville East Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Bonnyville East Site Continuous Monitoring Station_NO_X (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 7.9, CALM % = 1.3%



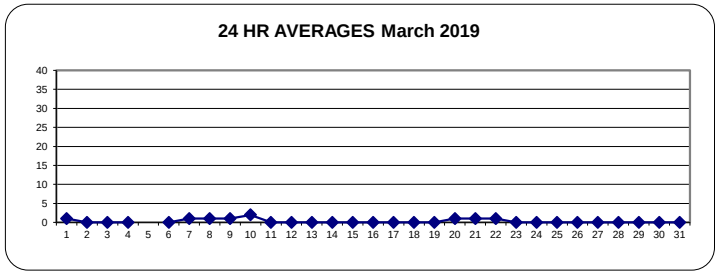
Direction	0-50	50-110	110-210	>210	TOTAL
N	2.4	0.0	0.0	0.0	2.4
NE	6.4	0.0	0.0	0.0	6.4
E	6.0	0.0	0.0	0.0	6.0
SE	8.2	0.0	0.0	0.0	8.2
S	13.6	0.0	0.0	0.0	13.6
SW	18.0	0.0	0.0	0.0	18.0
W	33.5	0.0	0.0	0.0	33.5
NW	10.5	0.0	0.0	0.0	10.5
Summary	98.7	0.0	0.0	0.0	98.7
CALM	1.3	0.0	0.0	0.0	1.3

NITRIC OXIDE Hourly Averages (NO ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	**0**	0	0	0	0	0	0	0	1	2	2	1	1	2	1	1	1	0	0	0	**S**	0	0	0	**0**	2	1	24
2	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	**S**	0	0	0	0	0	1	0	24
3	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	**S**	0	0	0	0	0	0	1	0	24
4	0	0	0	0	0	0	0	0	0	1	2	1	1	1	1	0	0	**S**	0	0	0	0	0	0	0	2	0	24
5	0	0	0	0	0	0	0	0	1	2	1	0	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	0	0	0	0	2	-	24
6	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	**S**	0	0	0	0	0	0	0	0	0	1	0	24
7	0	0	0	0	0	0	0	1	2	1	2	1	1	1	**S**	1	1	0	0	0	0	0	0	0	0	2	1	24
8	0	0	0	0	0	0	0	0	1	1	3	4	3	**S**	2	1	1	0	0	0	0	0	0	0	0	4	1	24
9	0	0	0	0	0	0	0	3	6	4	3	3	**S**	2	1	1	1	0	0	0	0	0	1	0	0	6	1	24
10	0	0	1	0	0	0	1	3	9	**10**	10	**S**	3	2	2	1	1	0	0	0	0	0	0	0	0	**10**	**2**	24
11	0	0	0	0	0	0	0	0	1	2	**S**	2	1	1	1	1	0	0	0	0	0	0	0	0	0	2	0	24
12	0	0	0	0	0	0	0	1	1	**S**	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	24
13	0	0	0	0	0	0	0	0	**S**	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
14	0	0	0	0	0	0	0	**S**	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
15	0	0	0	0	0	0	**S**	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
16	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
17	0	0	0	0	**S**	0	0	1	1	2	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	2	0	24
18	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	1	0	24
19	0	0	**S**	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
20	0	**S**	0	0	0	0	0	2	2	2	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3	1	24
21	**S**	0	0	0	0	0	9	1	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	9	1	24
22	0	0	0	0	0	0	1	1	3	2	3	3	2	2	2	1	0	0	0	0	0	0	**S**	0	0	3	1	24
23	0	0	0	0	1	0	1	2	1	1	0	1	2	0	0	0	1	0	0	0	0	**S**	0	0	0	2	0	24
24	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	4	0	24
25	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	**S**	0	0	0	0	0	1	0	24
26	0	0	0	0	0	0	1	0	0	1	1	1	1	2	2	2	1	0	**S**	0	0	0	0	0	0	2	0	24
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	24
28	1	2	0	0	0	0	0	0	1	1	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	2	0	24
29	0	0	0	0	0	0	1	1	1	0	1	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	1	0	24
30	0	0	0	0	0	0	0	0	1	1	1	0	0	0	**S**	1	1	0	0	0	0	0	0	0	0	1	0	24
31	0	0	0	0	0	0	0	2	3	1	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	3	0	24
HOURLY MAX	1	2	1	0	1	4	9	3	9	10	10	4	3	2	2	2	1	0	0	0	0	0	1	0				
HOURLY AVG	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0				

STATUS FLAG CODES

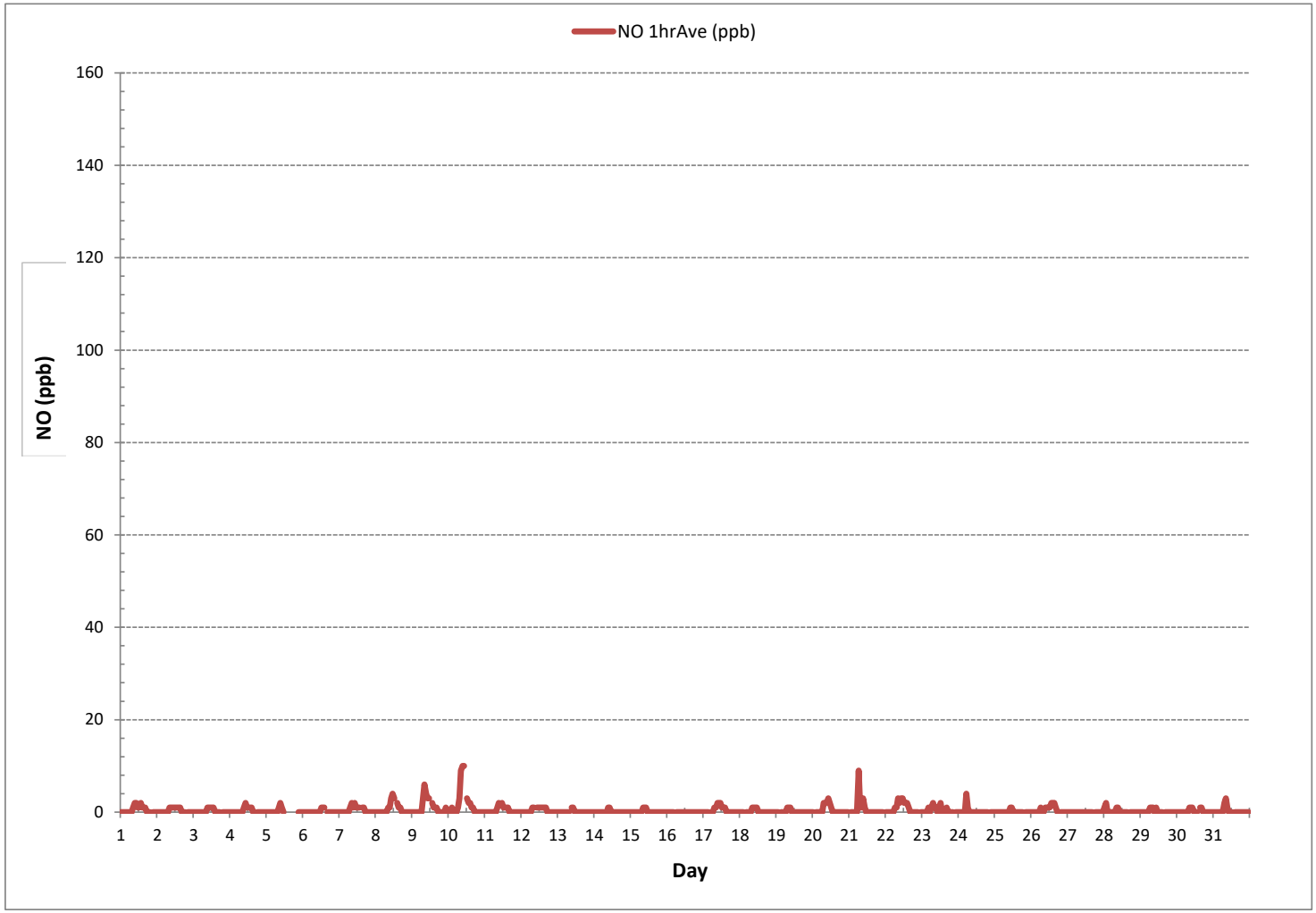
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



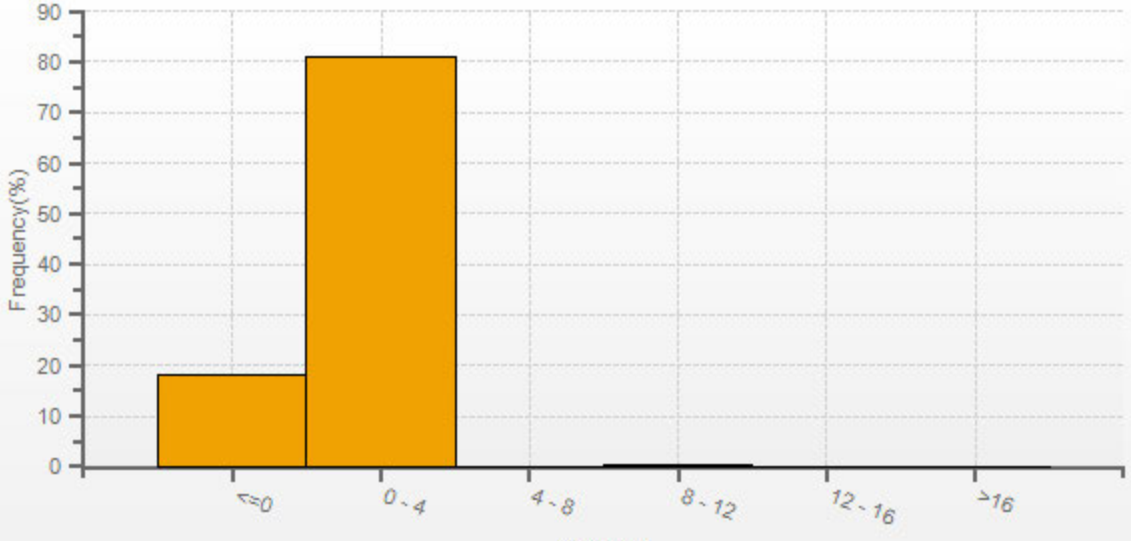
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			168				
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	0	ON DAY	1	
MAXIMUM 1-HR AVERAGE:	10	ppb	@ HOUR	9	ON DAY	10	
MAXIMUM 24-HR AVERAGE:	2	ppb			ON DAY	10	
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:			744	hrs
MONTHLY CALIBRATION TIME:	9	hrs	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	1		MONTHLY AVERAGE:			0	ppb

NITRIC OXIDE Hourly Averages (NO ppb)

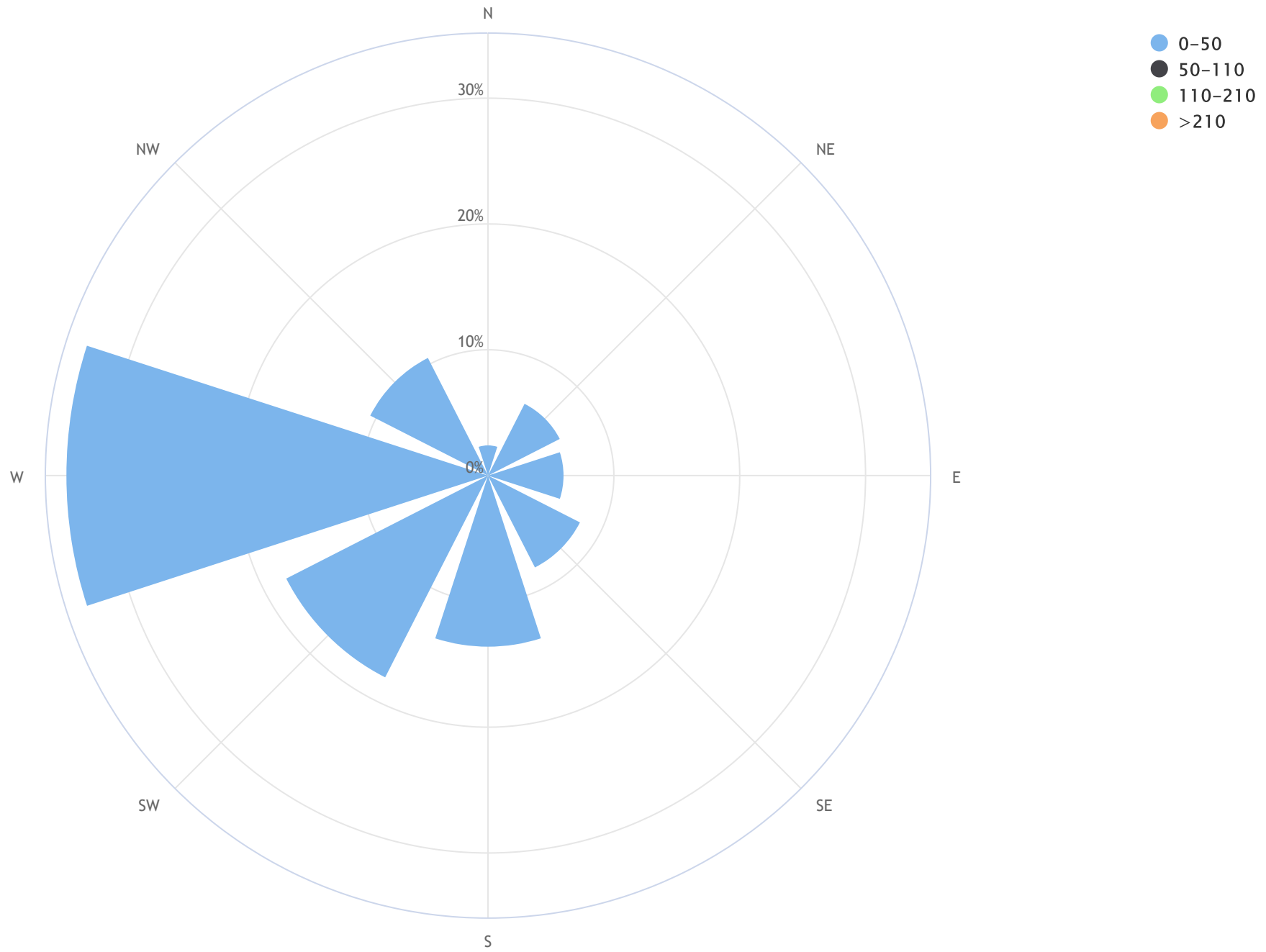


NO[ppb] Histogram: LICA Bonnyville East Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Bonnyville East Site Continuous Monitoring Station_NO (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 0.9, CALM % = 1.3%



Direction	0-50	50-110	110-210	>210	TOTAL
N	2.4	0.0	0.0	0.0	2.4
NE	6.4	0.0	0.0	0.0	6.4
E	6.0	0.0	0.0	0.0	6.0
SE	8.2	0.0	0.0	0.0	8.2
S	13.6	0.0	0.0	0.0	13.6
SW	18.0	0.0	0.0	0.0	18.0
W	33.5	0.0	0.0	0.0	33.5
NW	10.5	0.0	0.0	0.0	10.5
Summary	98.7	0.0	0.0	0.0	98.7
CALM	1.3	0.0	0.0	0.0	1.3

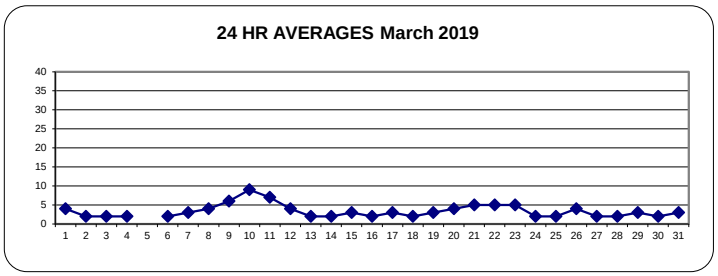
NITROGEN DIOXIDE Hourly Averages (NO_2 ppb)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	4	3	2	2	2	2	3	3	3	2	2	**1**	1	2	1	1	2	4	11	10	**S**	9	7	4	**1**	11	4	24
2	3	4	3	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	**S**	2	4	4	3	1	4	2	24
3	2	2	1	1	2	2	1	2	1	1	1	1	1	1	1	1	2	**S**	2	2	2	2	2	2	1	2	2	24
4	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2	**S**	2	2	2	2	2	2	1	2	2	24
5	2	2	2	2	3	3	2	2	2	3	1	1	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	7	4	4	1	7	-	24
6	4	4	4	5	4	2	1	2	1	1	1	1	1	1	1	**S**	1	2	2	2	3	2	3	3	1	5	2	24
7	3	3	3	3	5	5	6	5	3	2	2	2	2	2	**S**	2	2	3	3	4	5	5	4	3	2	6	3	24
8	4	6	5	3	3	3	3	3	3	3	4	5	4	**S**	3	3	4	2	6	4	5	3	3	2	2	6	4	24
9	2	2	2	2	6	14	12	17	12	7	4	4	**S**	3	2	3	2	2	2	5	5	6	12	8	2	17	6	24
10	9	10	16	16	12	15	**27**	13	12	11	12	**S**	6	5	5	5	5	6	5	5	5	6	6	5	5	**27**	**9**	24
11	6	6	6	6	5	6	6	8	7	7	**S**	5	5	5	5	5	5	7	8	9	12	12	10	9	5	12	7	24
12	9	10	9	8	7	7	5	5	4	**S**	3	3	3	3	3	2	3	3	2	2	3	3	3	4	2	10	4	24
13	4	2	2	2	2	2	2	2	**S**	2	2	2	1	1	1	1	1	1	1	3	4	4	3	2	1	4	2	24
14	2	2	2	2	2	3	3	**S**	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	3	1	3	2	24
15	5	5	5	4	4	4	**S**	5	5	5	4	3	2	1	1	1	1	2	2	2	2	2	2	2	1	5	3	24
16	1	1	1	1	1	**S**	2	3	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	3	2	24
17	2	2	2	3	**S**	4	4	6	5	6	5	5	4	4	4	4	3	2	2	2	2	2	2	1	1	6	3	24
18	1	1	1	**S**	2	2	3	3	3	3	3	2	2	2	1	1	2	1	1	3	4	4	5	5	1	5	2	24
19	5	6	**S**	5	5	5	6	5	4	3	2	2	2	2	2	2	2	2	3	2	3	3	4	3	2	6	3	24
20	3	**S**	3	3	3	5	5	8	5	5	7	5	4	3	3	4	3	3	4	4	4	4	4	4	3	8	4	24
21	**S**	13	15	9	7	9	13	7	3	4	2	2	2	1	1	1	1	1	2	1	2	2	3	**S**	1	15	5	24
22	3	3	3	4	4	5	8	6	6	5	6	6	5	5	5	4	4	4	4	5	4	5	**S**	5	3	8	5	24
23	9	9	8	12	7	10	11	9	5	3	2	2	3	1	1	1	2	1	1	1	1	**S**	1	1	1	12	5	24
24	1	1	2	1	1	5	3	2	1	1	1	1	1	1	1	1	1	2	2	2	**S**	2	2	2	1	5	2	24
25	2	2	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	**S**	2	2	2	2	1	2	2	24
26	2	2	2	2	3	3	4	4	5	3	3	3	3	4	5	6	6	5	**S**	5	4	8	8	7	2	8	4	24
27	7	4	2	2	2	2	3	2	2	1	1	1	1	1	1	1	1	**S**	3	5	2	3	2	1	1	7	2	24
28	3	4	1	1	2	2	2	2	2	2	2	1	1	1	1	1	**S**	1	1	1	1	1	2	4	1	4	2	24
29	4	2	4	5	5	8	11	4	2	1	1	1	1	1	1	**S**	1	1	1	1	1	1	2	3	1	11	3	24
30	2	1	1	2	2	2	2	2	2	3	2	1	1	2	**S**	3	3	3	2	2	2	3	3	4	1	4	2	24
31	2	3	6	7	4	3	3	7	8	2	1	1	1	**S**	1	1	1	1	1	1	1	1	2	2	1	8	3	24
HOURLY MAX	9	13	16	16	12	15	27	17	12	11	12	6	6	5	5	6	6	7	11	10	12	12	12	9				
HOURLY AVG	4	4	4	4	4	5	5	5	4	3	3	2	2	2	2	2	2	2	3	3	3	4	4	3				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 159 ppb

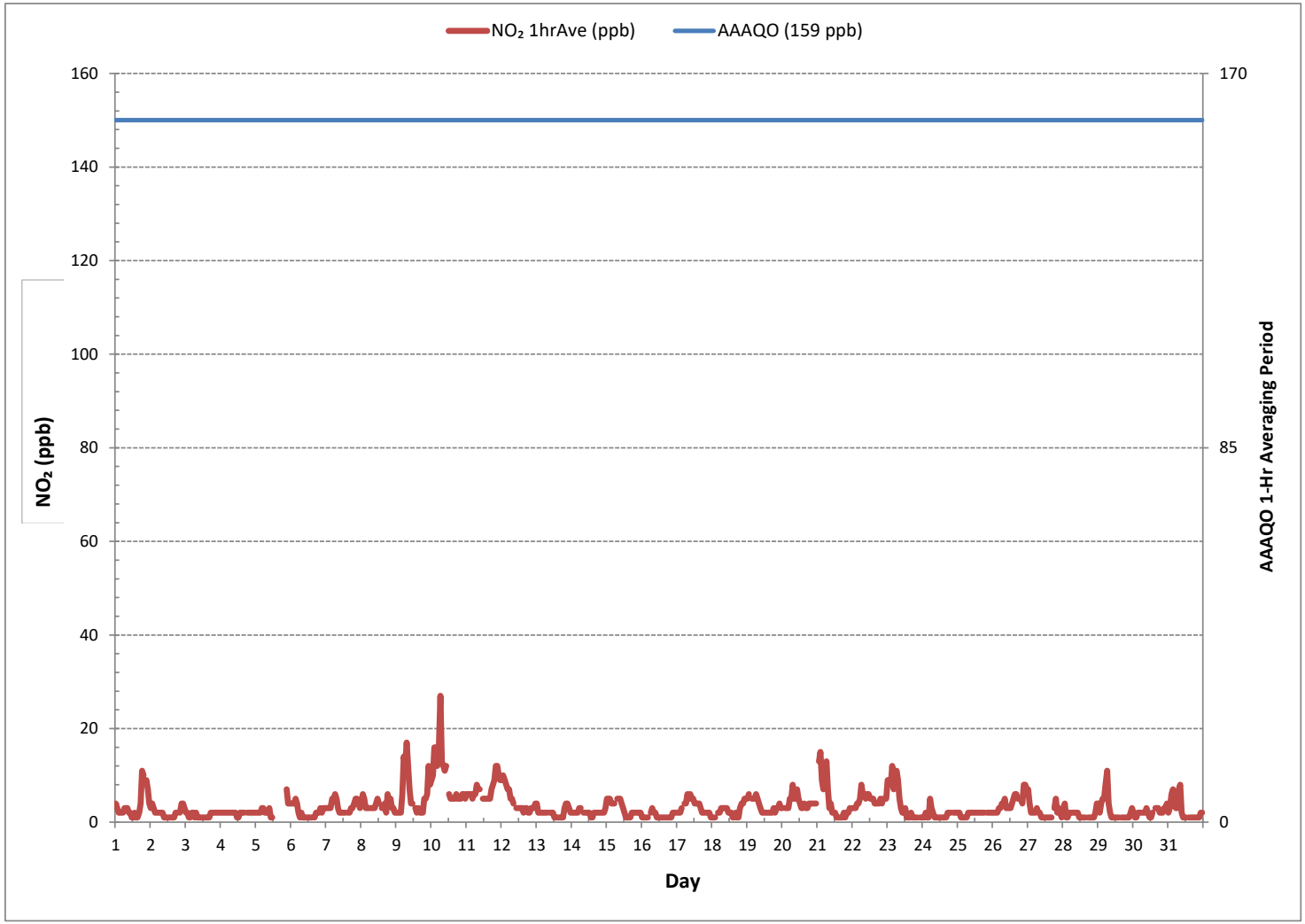


MONTHLY SUMMARY

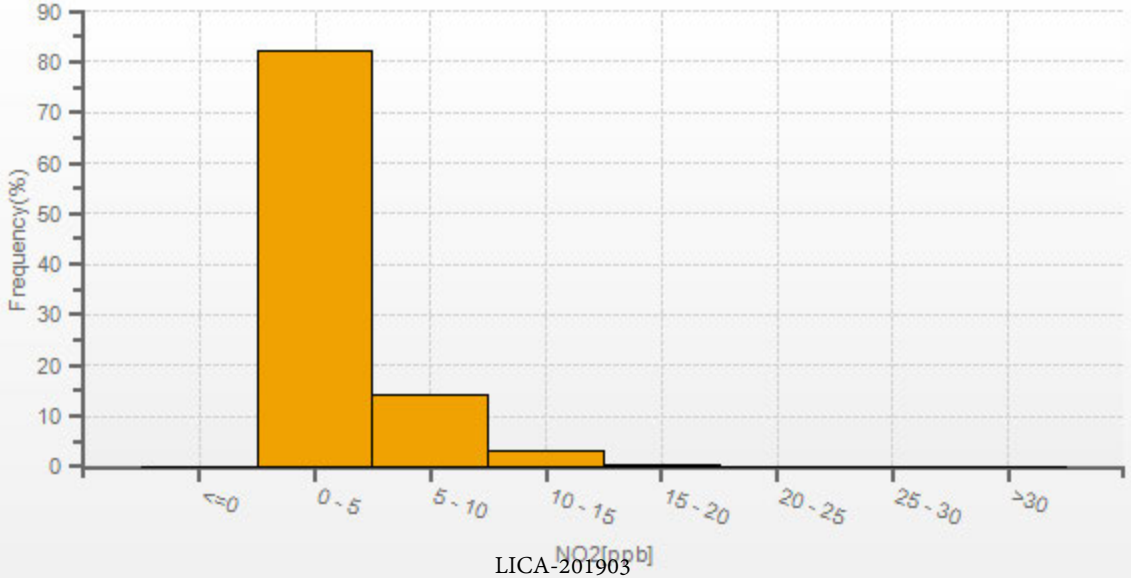
NUMBER OF 1-HR EXCEEDANCES:	0					
NUMBER OF NON-ZERO READINGS:	704					
MINIMUM 1-HR AVERAGE	1	ppb	@ HOUR	11	ON DAY	1
MAXIMUM 1-HR AVERAGE:	27	ppb	@ HOUR	6	ON DAY	10
MAXIMUM 24-HR AVERAGE:	9	ppb			ON DAY	10

IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	744	hrs
MONTHLY CALIBRATION TIME:	9	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	3		MONTHLY AVERAGE:	3	ppb

NITROGEN DIOXIDE Hourly Averages (NO_2 ppb)

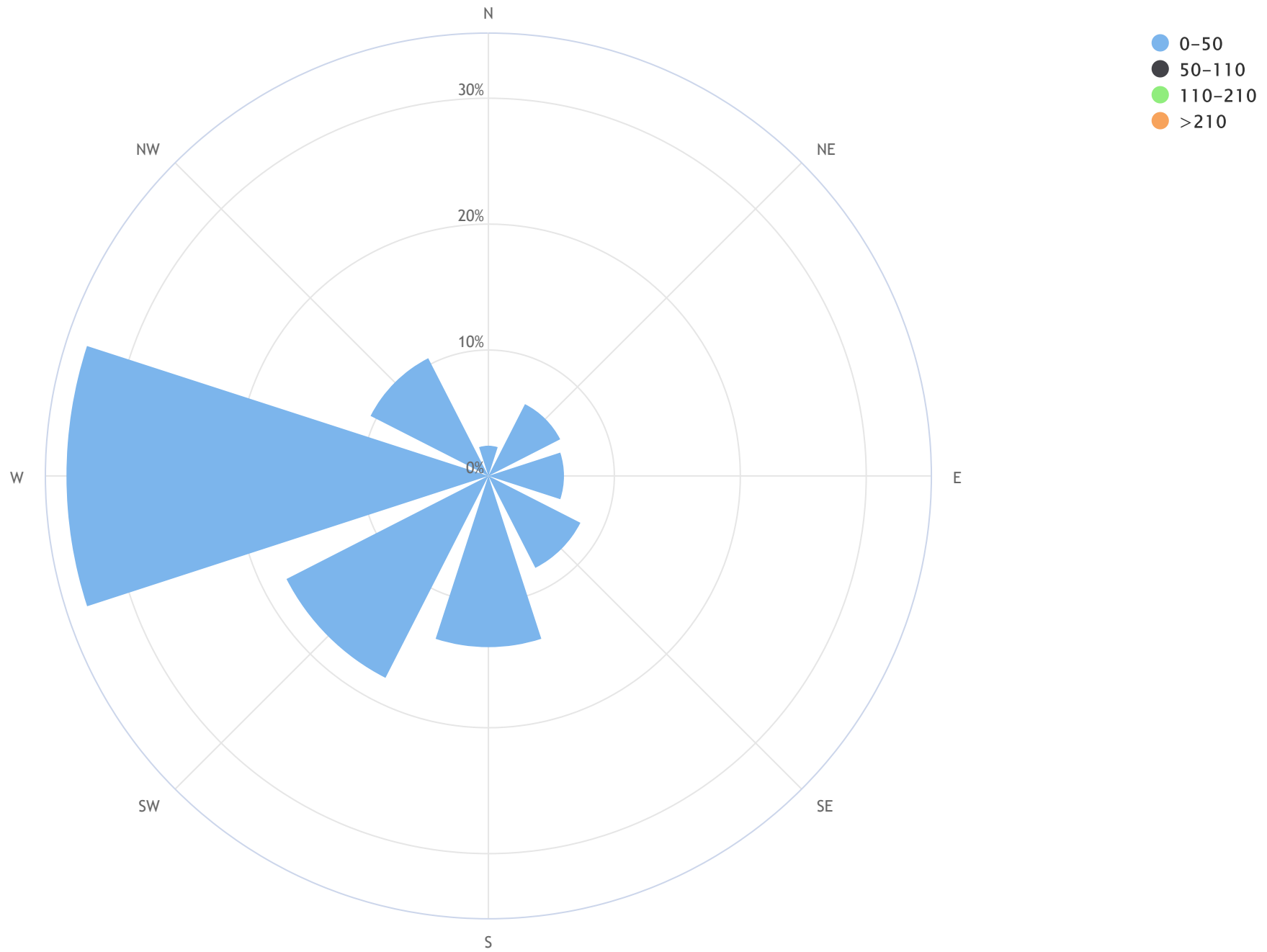


NO2[ppb] Histogram: LICA Bonnyville East Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Bonnyville East Site Continuous Monitoring Station_NO_2 (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 6.9, CALM % = 1.3%



Direction	0-50	50-110	110-210	>210	TOTAL
N	2.4	0.0	0.0	0.0	2.4
NE	6.4	0.0	0.0	0.0	6.4
E	6.0	0.0	0.0	0.0	6.0
SE	8.2	0.0	0.0	0.0	8.2
S	13.6	0.0	0.0	0.0	13.6
SW	18.0	0.0	0.0	0.0	18.0
W	33.5	0.0	0.0	0.0	33.5
NW	10.5	0.0	0.0	0.0	10.5
Summary	98.7	0.0	0.0	0.0	98.7
CALM	1.3	0.0	0.0	0.0	1.3

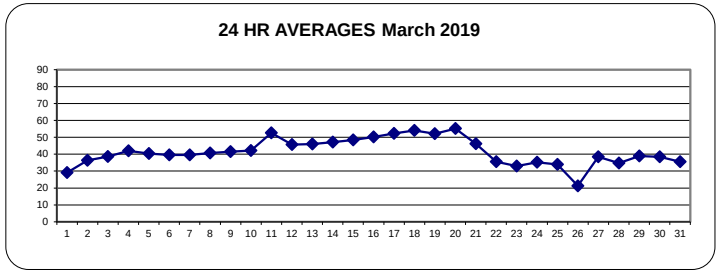
OZONE Hourly Averages (O_3 ppb)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																											
1	22.1	21.2	20.5	18.9	22.5	25.9	27.6	29.2	30.1	31.9	32.7	33.4	33.7	34.0	35.2	35.6	35.4	33.6	26.5	27.9	S	28.7	30.2	32.7	18.9	35.6	29.1	24
2	32.1	31.9	33.0	34.2	34.1	34.2	33.8	34.0	33.8	34.6	35.3	35.8	37.7	39.6	39.5	39.2	39.7	40.9	40.6	S	39.5	38.3	37.9	37.5	31.9	40.9	36.4	24
3	38.0	38.1	38.7	37.9	37.0	36.8	37.4	36.5	36.6	37.0	37.6	37.9	38.5	39.4	40.2	40.7	40.8	40.2	S	39.6	39.8	39.8	40.0	40.4	36.5	40.8	38.6	24
4	40.0	39.5	38.9	38.5	38.6	38.9	38.9	39.2	39.6	39.8	40.7	41.9	43.0	44.0	44.4	44.7	45.3	S	45.5	45.5	45.4	45.1	44.5	43.8	38.5	45.5	42.0	24
5	42.9	41.8	41.0	40.4	40.0	39.0	39.2	39.2	39.1	39.0	41.7	43.4	43.4	37.9	41.8	42.9	S	43.3	40.2	38.7	36.9	37.3	39.6	38.9	36.9	43.4	40.3	24
6	38.2	38.0	37.3	35.5	35.8	36.1	39.9	38.5	39.9	39.7	40.0	C	C	C	C	C	42.4	42.4	42.5	42.2	40.7	40.8	41.0	40.7	35.5	42.5	39.6	24
7	40.6	40.5	40.3	39.4	36.6	35.3	34.1	34.9	36.6	38.4	39.1	40.5	41.1	41.8	S	43.2	42.8	42.0	42.5	41.1	39.7	39.8	40.2	40.3	34.1	43.2	39.6	24
8	39.3	36.1	36.3	38.5	38.8	38.3	37.8	37.0	36.9	37.7	36.9	37.9	40.6	S	41.9	45.7	43.0	47.0	42.4	43.8	42.2	45.0	45.4	46.5	36.1	47.0	40.7	24
9	46.4	46.2	46.0	45.7	40.9	32.2	32.0	27.7	33.1	41.1	42.2	42.8	S	45.5	46.7	47.1	47.9	49.4	49.1	44.5	43.4	39.9	30.4	33.7	27.7	49.4	41.5	24
10	30.2	26.8	22.0	22.6	26.8	22.2	13.7	24.4	23.9	28.5	36.4	S	51.0	53.3	54.8	57.4	60.5	60.5	60.5	60.1	59.6	58.8	58.3	57.1	13.7	60.5	42.1	24
11	55.7	55.6	55.4	54.3	53.1	51.7	49.3	47.6	47.7	48.6	S	51.0	52.2	53.3	54.3	55.0	55.0	54.1	55.2	55.4	52.2	51.2	51.7	50.2	47.6	55.7	52.6	24
12	50.4	48.4	47.7	48.3	45.8	42.8	41.8	41.6	43.1	S	46.2	46.2	46.1	45.5	46.3	46.0	46.3	45.3	45.9	47.2	47.0	45.9	45.3	43.1	41.6	50.4	45.7	24
13	41.7	42.0	41.8	40.9	40.9	41.1	41.6	42.2	S	44.5	45.3	47.0	48.5	49.7	51.5	51.1	50.9	49.2	49.5	51.8	48.4	46.7	46.4	46.1	40.9	51.8	46.0	24
14	45.9	45.5	44.8	43.8	42.9	41.3	39.9	S	41.5	43.0	44.9	47.4	49.6	51.5	53.5	54.5	53.9	51.9	51.0	50.3	49.1	48.0	46.2	44.9	39.9	54.5	47.2	24
15	43.9	42.8	43.5	46.6	47.2	45.5	S	44.4	44.6	45.3	48.1	50.3	51.3	50.6	50.6	51.0	51.7	51.4	51.3	52.9	51.3	50.1	49.7	49.0	42.8	52.9	48.4	24
16	49.2	49.3	49.0	48.5	48.4	S	47.5	46.9	47.8	49.1	50.4	51.9	53.2	53.9	54.3	53.7	52.0	51.2	50.6	51.1	50.6	50.0	47.7	47.8	46.9	54.3	50.2	24
17	50.0	53.0	43.6	42.4	S	44.6	48.0	48.3	50.9	49.2	49.7	50.7	53.7	55.2	57.5	59.8	60.0	57.1	57.3	56.2	54.6	54.6	53.6	52.2	42.4	60.0	52.3	24
18	51.2	50.8	50.2	S	49.5	48.7	47.8	47.5	49.1	50.4	51.9	54.4	56.4	58.3	58.1	58.7	59.4	58.3	60.3	59.7	57.8	56.5	54.5	52.1	47.5	60.3	54.0	24
19	49.0	47.5	S	44.7	43.1	42.1	41.6	42.7	47.8	50.5	53.1	54.8	55.8	57.2	58.0	61.1	62.9	60.8	58.8	57.0	55.8	54.9	48.5	50.4	41.6	62.9	52.1	24
20	47.1	S	48.8	45.0	44.4	35.0	32.0	32.1	33.5	45.7	51.1	55.2	56.6	66.7	73.1	74.3	76.8	**77.3**	73.5	69.7	65.7	68.9	51.9	42.7	32.0	**77.3**	**55.1**	24
21	S	30.3	38.9	50.9	42.4	32.3	32.2	36.0	45.4	45.6	46.8	48.3	50.6	52.7	53.2	52.2	52.3	52.1	51.3	50.6	51.8	50.6	48.4	S	30.3	53.2	46.1	24
22	44.0	41.9	40.0	37.6	34.4	31.5	26.4	26.2	26.6	31.0	30.6	32.9	36.4	38.4	40.8	44.4	46.0	46.7	45.4	40.9	33.4	28.9	S	15.3	15.3	46.7	35.6	24
23	9.0	12.8	12.4	**7.6**	9.0	9.7	20.0	23.6	37.2	44.1	45.4	46.6	46.4	48.7	48.6	47.7	46.2	45.4	41.6	38.9	36.8	S	39.5	41.1	**7.6**	48.7	33.0	24
24	39.2	36.9	34.3	33.2	33.7	30.9	31.5	31.9	34.4	35.2	35.7	36.6	38.2	39.4	40.0	40.1	37.1	35.5	35.3	33.9	S	30.1	32.7	33.6	30.1	40.1	35.2	24
25	34.3	35.2	35.3	36.1	36.8	36.0	35.0	33.8	32.8	33.6	34.7	35.8	37.2	38.1	39.2	38.0	36.1	34.6	33.0	S	25.8	25.6	26.1	26.3	25.6	39.2	33.9	24
26	25.7	25.0	24.4	23.9	25.7	27.4	24.0	24.7	23.4	25.0	24.3	23.8	22.4	22.4	22.4	21.5	20.6	20.9	S	17.0	15.3	8.7	8.9	11.7	8.7	27.4	21.3	24
27	22.4	33.9	33.3	35.2	35.8	38.1	37.6	38.7	41.7	45.7	45.9	46.5	47.6	47.9	47.0	45.5	44.0	S	37.2	34.2	37.1	29.8	30.5	29.6	22.4	47.9	38.5	24
28	27.7	20.4	23.4	21.7	23.1	23.9	20.9	23.1	33.8	34.8	38.2	40.4	42.7	44.2	45.2	45.6	S	45.4	44.3	43.6	43.3	41.9	38.2	33.7	20.4	45.6	34.8	24
29	35.1	33.9	34.2	30.5	32.1	28.1	23.8	34.4	39.7	41.3	41.8	43.5	44.9	46.1	47.0	S	46.6	46.0	42.8	41.7	41.2	41.7	40.9	38.2	23.8	47.0	38.9	24
30	39.2	40.7	40.9	38.7	39.1	35.2	30.3	31.3	32.2	34.5	39.5	42.6	45.0	44.7	S	43.6	42.5	41.2	41.1	39.1	38.2	35.7	36.5	34.0	30.3	45.0	38.5	24
31	36.1	33.9	27.1	23.6	24.0	23.2	22.0	22.1	26.1	37.4	42.2	43.9	45.2	S	47.1	47.9	46.0	44.2	41.6	40.1	39.3	37.1	35.1	33.4	22.0	47.9	35.6	24
HOURLY MAX	55.7	55.6	55.4	54.3	53.1	51.7	49.3	48.3	50.9	50.5	53.1	55.2	56.6	66.7	73.1	74.3	76.8	77.3	73.5	69.7	65.7	68.9	58.3	57.1				
HOURLY AVG	38.9	38.0	37.4	36.8	36.8	34.9	34.3	35.3	37.6	40.1	41.6	43.6	45.1	46.4	47.6	47.9	47.7	47.2	46.8	45.3	44.2	42.3	41.3	39.6				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 76 ppb

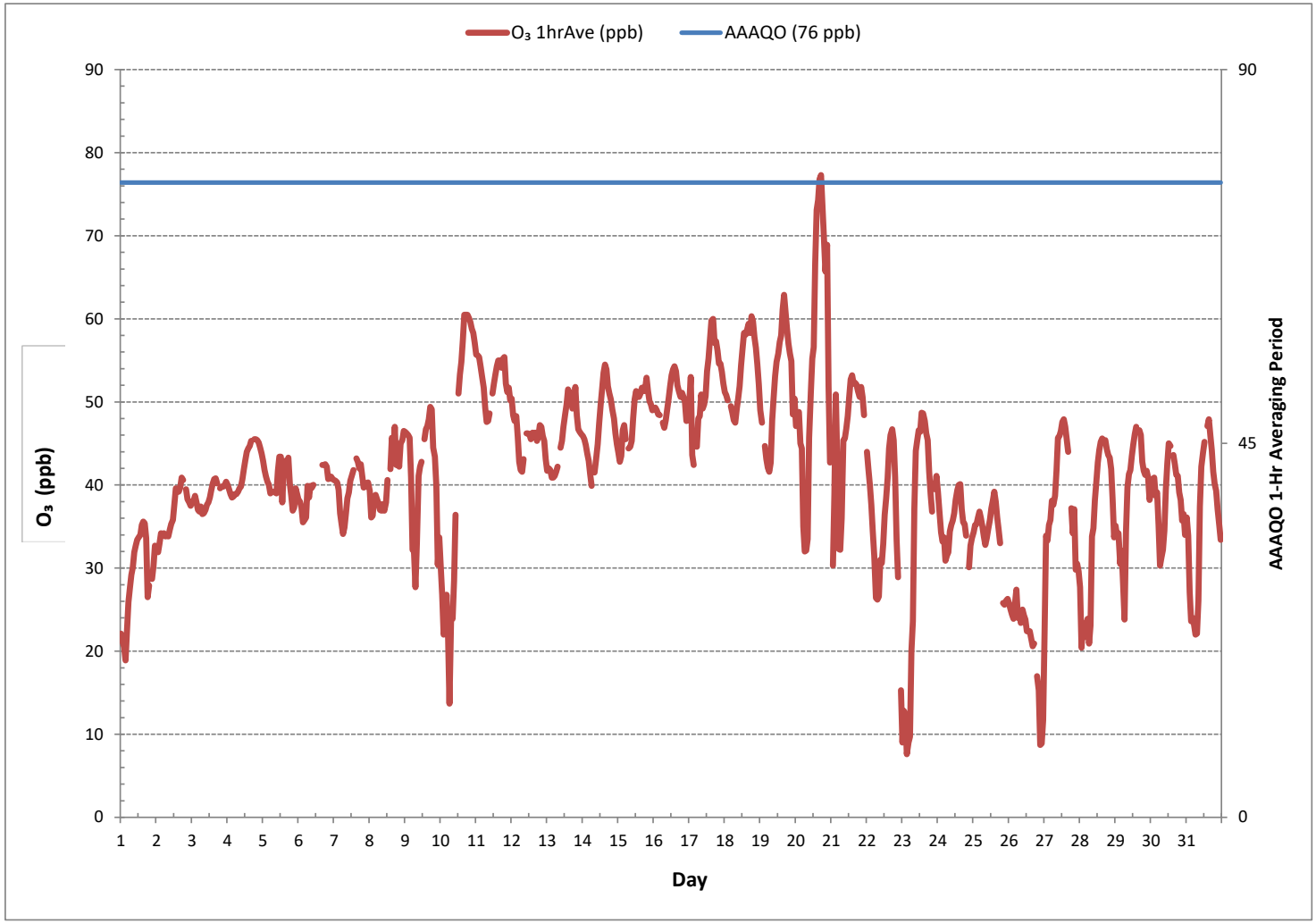


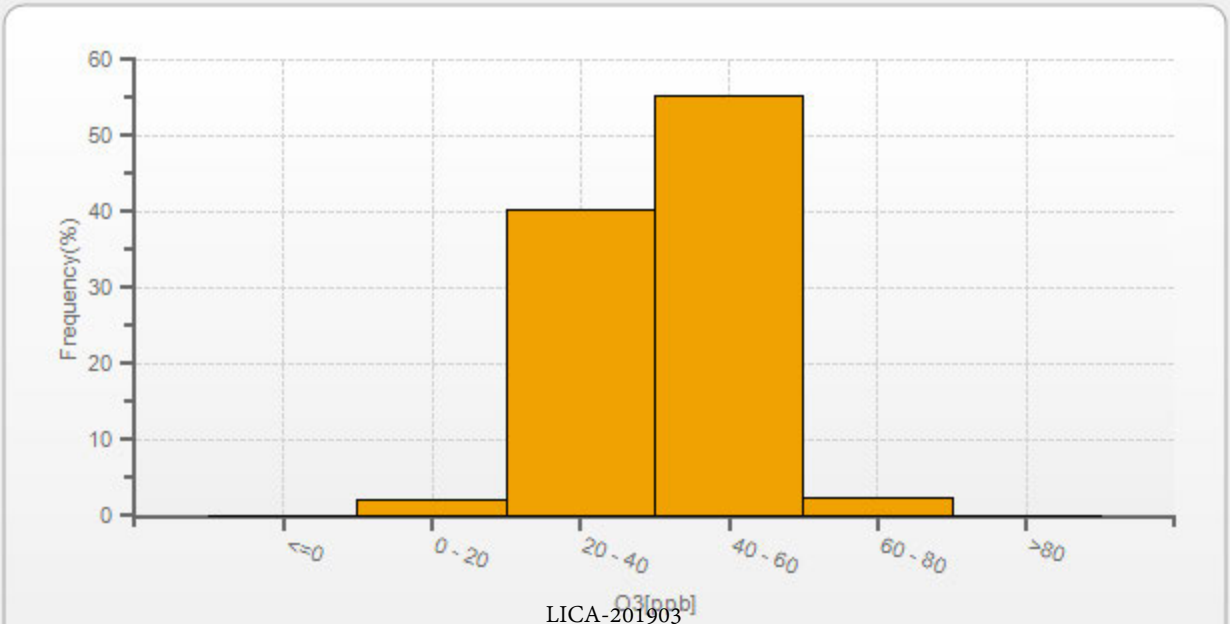
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:			2			
NUMBER OF NON-ZERO READINGS:			708			
MINIMUM 1-HR AVERAGE	7.6	ppb	@ HOUR	3	ON DAY	23
MAXIMUM 1-HR AVERAGE:	77.3	ppb	@ HOUR	17	ON DAY	20
MAXIMUM 24-HR AVERAGE:	55.1	ppb			ON DAY	20

IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	744	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	10.3		MONTHLY AVERAGE:	41.5	ppb

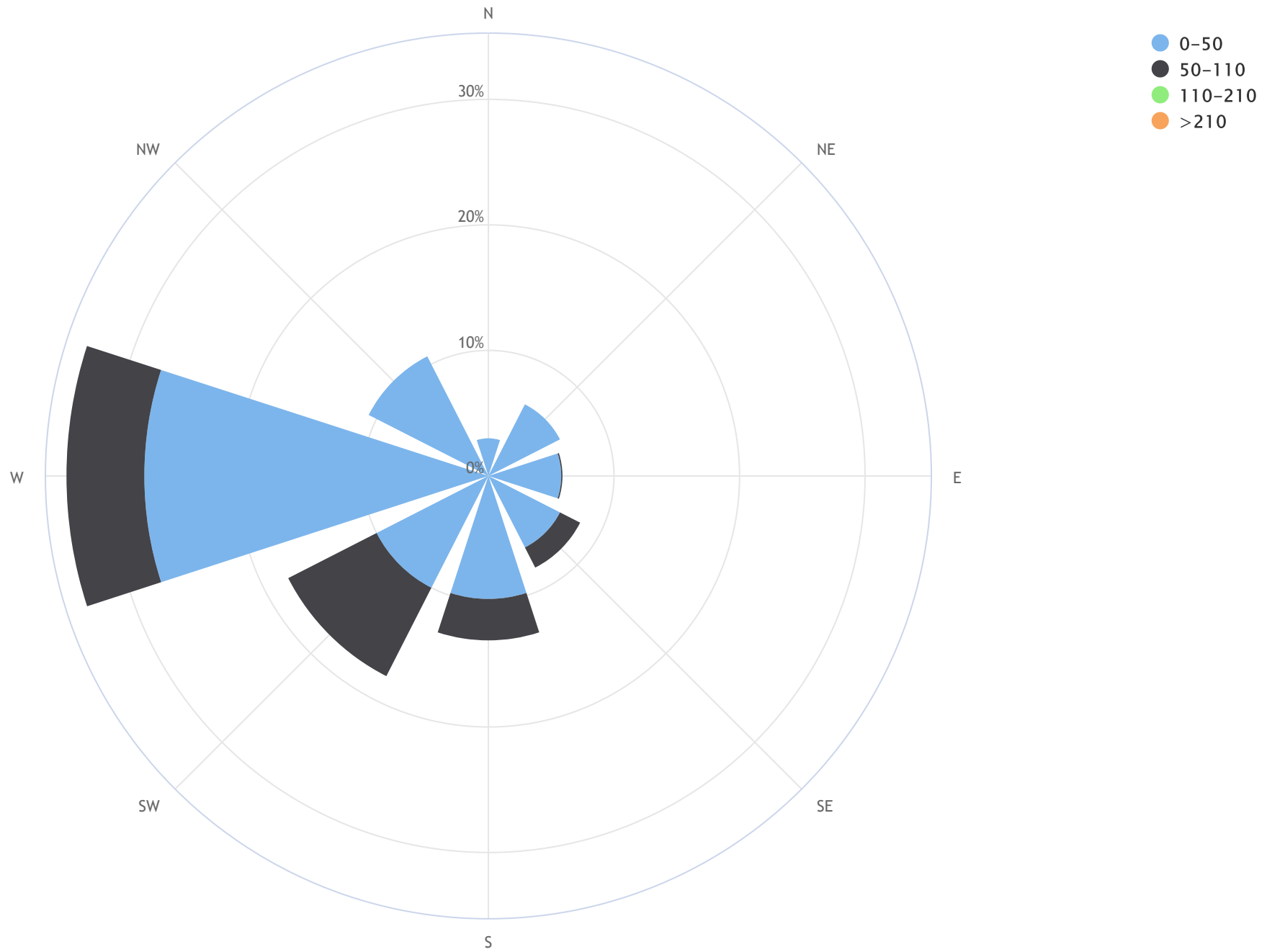
OZONE Hourly Averages (O_3 ppb)




O3[ppb] Histogram: LICA Bonnyville East Monthly: 19/03 1 Hr.
Frequency(%)
60
50
40
30
20
10
0
<=0
0 - 20
20 - 40
40 - 60
60 - 80
>80
O3[ppb]

Lakeland Industry & Community Association_Bonnyville East Site Continuous Monitoring Station_O_3 (ppb)_19/03

Pollutant Rose_Wind Frequency (Blowing From)_ CALM Avg = 36.6, CALM % = 1.3%



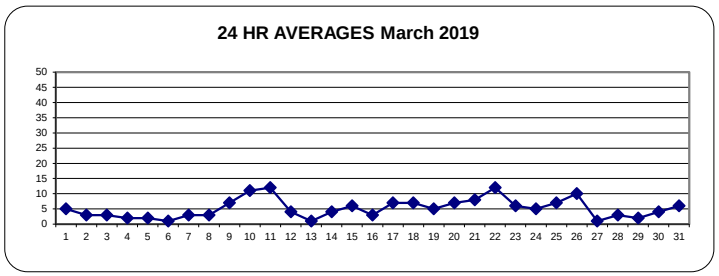
Direction	0-50	50-110	110-210	>210	TOTAL
N	3.0	0.0	0.0	0.0	3.0
NE	6.4	0.0	0.0	0.0	6.4
E	5.8	0.1	0.0	0.0	5.9
SE	6.4	1.8	0.0	0.0	8.2
S	9.8	3.3	0.0	0.0	13.0
SW	10.0	7.9	0.0	0.0	17.9
W	27.4	6.2	0.0	0.0	33.6
NW	10.7	0.0	0.0	0.0	10.7
Summary	79.4	19.4	0.0	0.0	98.7
CALM	1.1	0.1	0.0	0.0	1.3

PARTICULATE MATTER < 2.5 MICRONS Hourly Averages ($PM_{2.5}$ µg/m³)

HR START (MST) / HR END (MST) / DAY	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
1	11	9	8	7	6	7	5	4	4	4	4	3	3	4	5	4	3	3	6	6	8	5	5	5	3	11	5	24
2	4	4	4	5	4	4	5	4	3	3	2	3	3	2	2	3	2	2	2	2	2	4	3	3	2	5	3	24
3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	3	3	4	4	4	3	3	3	2	3	2	4	3	24
4	3	3	3	3	2	3	3	3	4	3	2	2	2	2	2	2	2	1	1	1	1	2	2	2	1	4	2	24
5	2	2	2	2	2	2	2	2	2	2	1	1	1	2	2	2	1	1	3	3	3	2	5	3	1	5	2	24
6	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	C	C	1	1	1	2	1	1	1	1	2	1	24
7	1	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	3	3	24
8	3	3	5	5	5	4	4	4	4	3	3	4	4	3	3	2	2	2	2	2	2	2	3	3	2	5	3	24
9	5	6	7	8	8	8	6	7	7	6	6	5	6	6	5	5	4	5	7	7	10	9	10	9	4	10	7	24
10	8	8	7	8	8	8	12	17	15	14	14	14	10	8	7	9	10	11	12	15	15	14	13	11	7	17	11	24
11	9	10	12	12	13	14	15	16	14	12	11	9	9	8	7	6	4	10	10	15	17	16	16	16	4	17	**12**	24
12	16	15	14	14	13	9	5	3	3	2	1	1	1	1	1	1	1	1	1	1	**0**	0	0	0	**0**	16	4	24
13	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	4	3	2	2	2	0	4	1	24
14	2	3	8	9	6	3	3	3	2	3	3	3	3	3	3	3	3	3	5	4	3	3	3	4	2	9	4	24
15	4	5	5	6	8	9	11	11	12	12	8	5	2	2	6	6	7	3	2	2	2	1	2	2	1	12	6	24
16	2	2	2	2	2	3	4	4	4	4	4	3	4	3	3	3	3	3	3	3	3	4	8	7	2	8	3	24
17	8	6	5	7	6	7	12	10	11	11	10	10	9	9	9	7	5	2	3	3	3	3	3	3	2	12	7	24
18	2	2	2	2	2	4	4	5	5	6	6	6	6	7	7	6	6	5	6	11	16	15	13	12	2	16	7	24
19	12	9	8	7	7	7	7	7	4	3	2	2	2	3	2	3	4	5	4	4	4	5	6	5	2	12	5	24
20	5	5	5	5	7	7	6	7	13	9	10	8	8	6	6	6	5	6	8	8	11	9	10	9	5	13	7	24
21	11	11	13	10	9	11	8	6	7	7	7	12	7	4	4	7	5	5	7	5	9	8	8	9	4	13	8	24
22	9	9	10	10	11	12	12	12	12	12	14	**20**	16	14	14	11	11	12	11	12	15	8	11	8	8	**20**	12	24
23	9	10	9	16	15	12	9	10	6	4	4	4	4	2	2	3	5	5	2	4	4	2	4	3	2	16	6	24
24	2	2	2	2	3	3	3	3	2	3	9	4	7	8	9	9	7	5	5	5	5	8	10	10	2	10	5	24
25	6	4	4	5	5	7	13	14	12	8	6	6	7	6	6	6	5	4	4	5	6	6	6	10	4	14	7	24
26	13	16	17	18	18	16	12	9	8	6	4	4	4	5	7	8	8	8	8	9	10	10	11	10	4	18	10	24
27	4	1	1	1	2	4	2	2	2	1	1	1	1	1	0	0	0	0	0	1	1	1	1	0	0	4	1	24
28	0	1	1	2	2	2	2	2	4	9	10	5	3	2	2	1	1	1	2	2	3	3	3	4	0	10	3	24
29	3	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1	2	3	3	3	2	2	2	3	1	3	2	24
30	3	2	2	2	3	3	3	4	5	5	3	2	2	3	3	4	4	5	5	6	6	5	5	6	2	6	4	24
31	5	5	6	8	9	9	10	14	12	5	2	2	2	3	3	3	4	4	4	5	7	9	10	5	2	14	6	24
HOURLY MAX	16	16	17	18	18	16	15	17	15	14	14	20	16	14	14	11	11	12	12	15	17	16	16	16				
HOURLY AVG	5	5	6	6	6	6	6	6	6	5	5	5	4	4	4	4	4	4	4	5	6	5	6	6				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

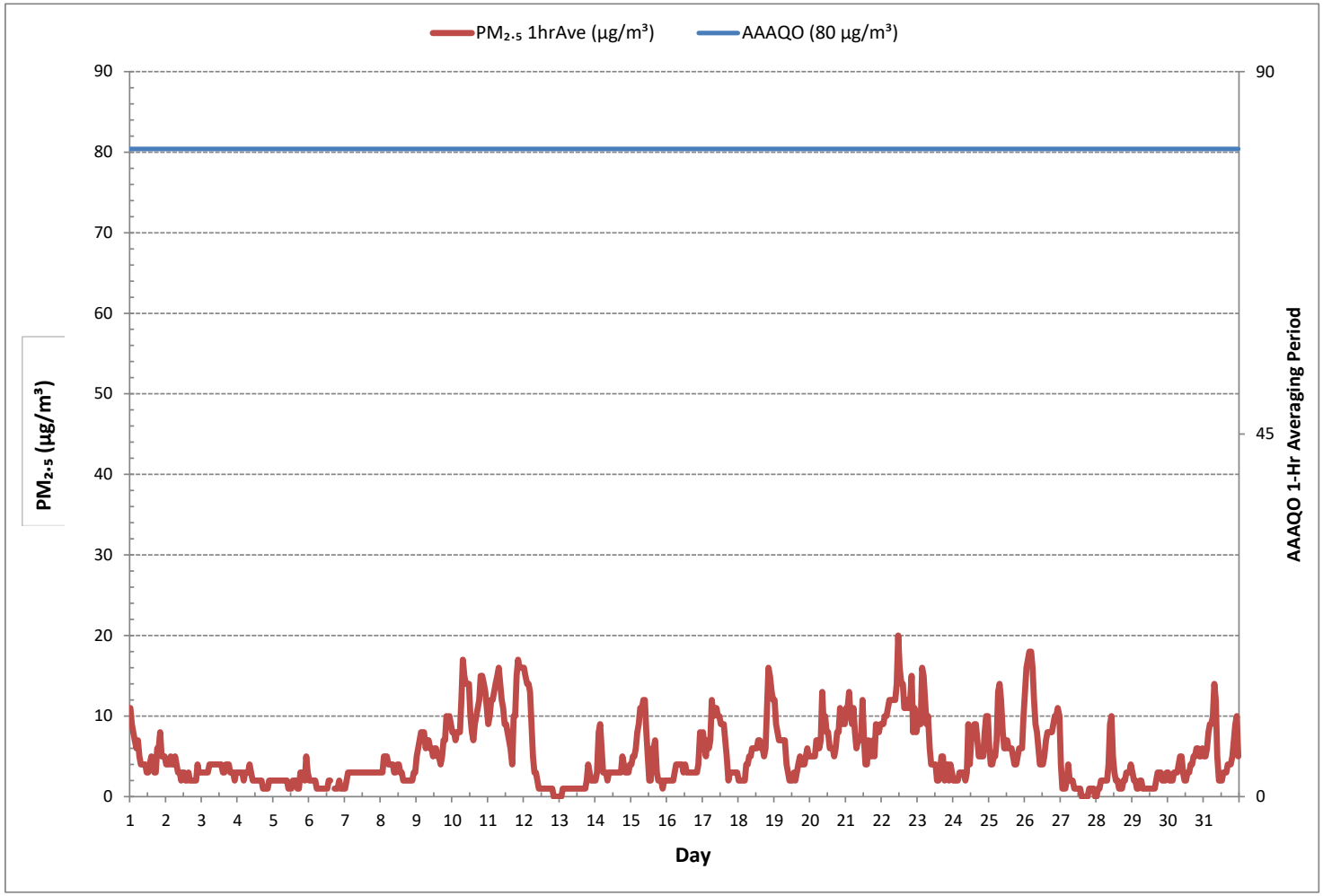


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 80 µg/m³ 24-HR 29 µg/m³

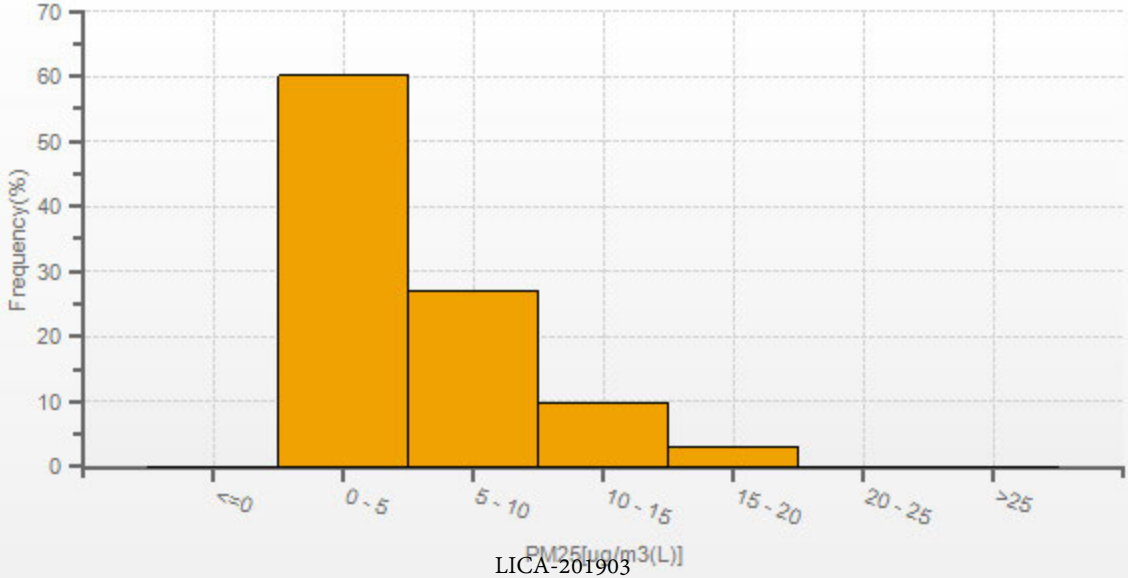
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:	0					
NUMBER OF 24-HR EXCEEDANCES:	0					
NUMBER OF NON-ZERO READINGS:	729					
MINIMUM 1-HR AVERAGE	0 µg/m³	@ HOUR	20	ON DAY	12	
MAXIMUM 1-HR AVERAGE:	20 µg/m³	@ HOUR	11	ON DAY	22	
MAXIMUM 24-HR AVERAGE:	12 µg/m³			ON DAY	11	
		OPERATIONAL TIME:			744	hrs
MONTHLY CALIBRATION TIME:	2 hrs	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	4	MONTHLY AVERAGE:			5	µg/m³

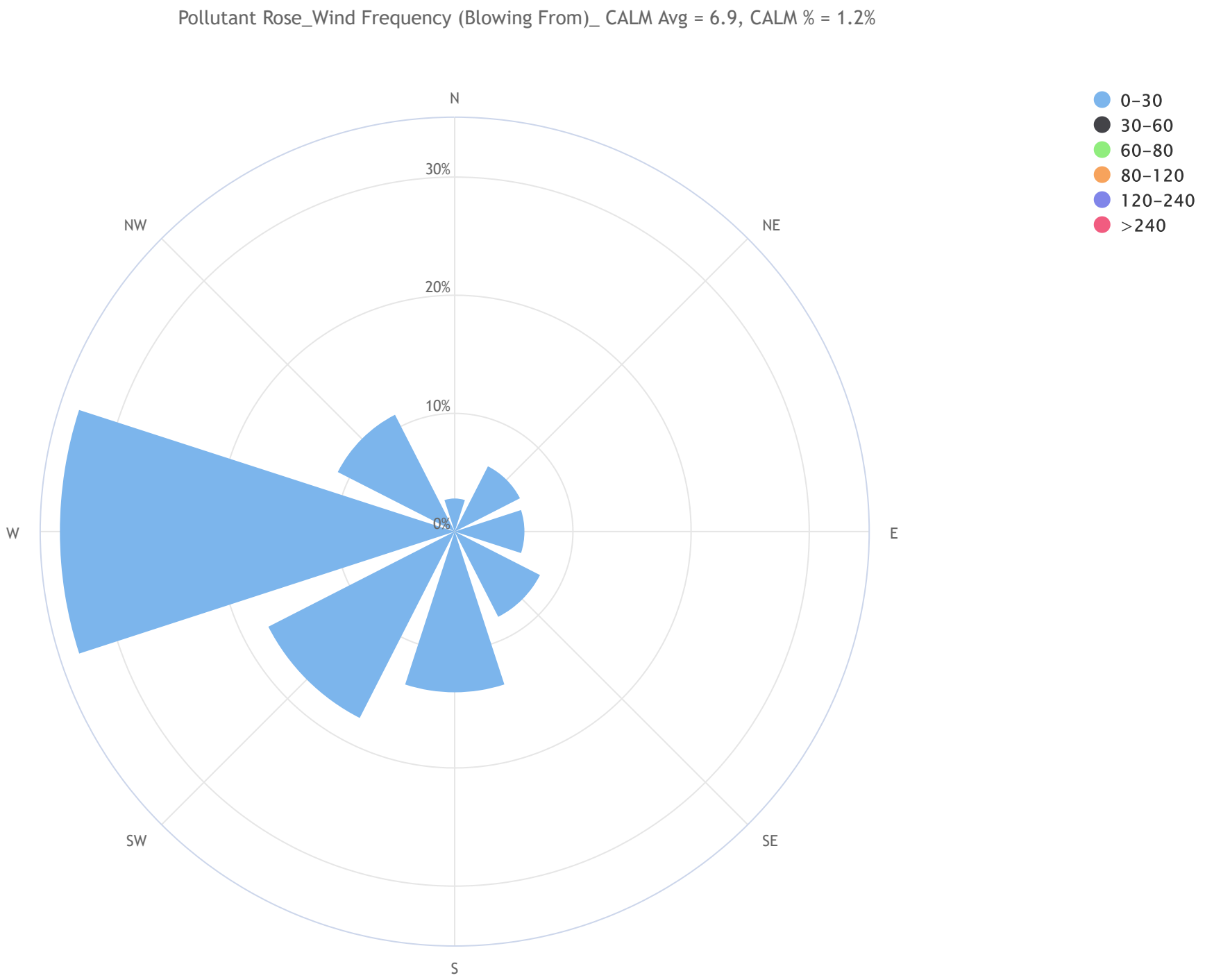
PARTICULATE MATTER < 2.5 MICRONS Hourly Averages ($PM_{2.5}$ µg/m³)



PM25[ug/m3(L)] Histogram: LICA Bonnyville East Monthly: 19/03 1 Hr.



Lakeland Industry & Community Association_Bonnyville East Site Continuous Monitoring Station_$PM_{2.5}$ ($\mu g/m^3$)_19/03



Direction	0-30	30-60	60-80	80-120	120-240	>240	TOTAL
N	2.8	0.0	0.0	0.0	0.0	0.0	2.8
NE	6.2	0.0	0.0	0.0	0.0	0.0	6.2
E	5.9	0.0	0.0	0.0	0.0	0.0	5.9
SE	8.1	0.0	0.0	0.0	0.0	0.0	8.1
S	13.6	0.0	0.0	0.0	0.0	0.0	13.6
SW	17.7	0.0	0.0	0.0	0.0	0.0	17.7
W	33.4	0.0	0.0	0.0	0.0	0.0	33.4
NW	11.1	0.0	0.0	0.0	0.0	0.0	11.1
Summary	98.8	0.0	0.0	0.0	0.0	0.0	98.8
CALM	1.2	0.0	0.0	0.0	0.0	0.0	1.2

Maxxam
A Bureau Veritas Group Company

WIND SPEED Hourly Averages (WS kph)

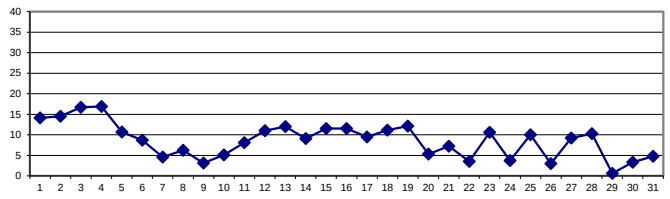
HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	19.1	17.3	15.6	20.4	20.3	19.9	19.3	18.1	14.9	19.3	16.6	18.8	17.9	17.8	17.3	16.0	15.6	13.6	12.0	10.3	10.7	11.7	11.9	10.2	10.2	20.4	14.1	24
2	12.4	14.2	12.7	13.0	11.7	13.6	15.6	16.4	15.4	15.4	15.1	15.6	15.0	22.7	20.4	18.4	15.5	19.8	21.3	17.6	17.6	13.7	12.7	14.6	11.7	22.7	14.5	24
3	15.2	14.9	15.8	14.3	15.3	14.4	16.1	18.0	21.5	18.8	20.6	16.1	17.1	19.2	17.1	15.9	18.8	16.7	16.5	15.3	15.8	15.2	16.2	18.4	14.3	21.5	16.7	24
4	20.5	18.6	18.7	19.6	18.8	18.7	13.0	13.8	16.1	13.6	13.9	15.9	19.8	20.1	18.3	19.4	18.4	16.6	17.8	15.9	15.1	14.7	14.1	16.9	13.0	20.5	**16.9**	24
5	17.3	16.9	14.5	15.1	17.3	16.1	15.1	13.4	13.5	13.7	18.5	19.8	18.3	18.0	18.1	19.8	14.5	11.8	14.2	12.2	12.0	11.2	11.5	5.4	5.4	19.8	10.7	24
6	6.2	5.0	4.1	3.3	3.5	7.7	7.9	3.8	10.9	12.3	10.5	11.7	10.9	9.8	11.5	10.9	13.4	12.9	10.0	12.4	10.9	13.1	13.2	14.2	3.3	14.2	8.7	24
7	14.9	11.7	5.4	5.1	7.3	8.7	8.1	8.5	9.5	9.2	9.9	9.6	9.0	9.2	9.9	10.9	9.5	7.3	6.9	5.6	3.7	5.2	8.1	5.6	3.7	14.9	4.6	24
8	5.3	3.4	4.3	5.7	6.8	6.4	7.8	7.2	8.1	8.8	7.9	10.1	7.4	10.7	13.9	14.0	12.3	8.7	7.8	7.8	9.2	9.3	10.7	12.0	3.4	14.0	6.2	24
9	14.5	12.5	13.3	12.1	7.6	8.5	9.0	7.9	6.4	4.5	1.6	1.1	1.8	3.3	6.7	5.2	4.0	5.7	8.0	6.2	6.3	8.0	8.9	7.6	1.1	14.5	3.1	24
10	6.0	6.2	2.3	0.9	1.7	3.1	2.2	1.8	3.2	2.8	4.5	2.2	5.8	5.3	8.0	14.5	13.8	12.2	9.4	11.8	7.6	7.1	4.6	6.4	0.9	14.5	5.1	24
11	11.2	8.4	11.3	10.4	9.3	10.9	8.0	9.4	6.0	10.2	10.5	9.6	9.8	10.4	7.9	11.7	8.8	11.5	13.3	15.6	6.2	8.5	5.3	4.2	4.2	15.6	8.1	24
12	5.2	9.2	6.9	8.9	6.9	12.7	18.1	16.9	14.6	15.5	14.1	21.8	20.6	21.6	16.4	15.4	12.7	10.0	13.7	17.9	13.9	13.0	11.9	14.0	5.2	21.8	11.0	24
13	13.3	12.4	12.0	11.5	11.7	9.1	13.8	12.4	13.0	13.2	8.3	8.4	8.8	11.0	13.3	14.9	13.5	14.9	14.4	11.4	12.3	13.9	13.9	13.5	8.3	14.9	12.0	24
14	13.6	13.3	12.2	13.3	13.5	13.4	10.8	10.9	13.0	7.0	3.6	4.6	6.0	9.5	10.8	13.5	9.8	12.1	11.5	11.0	7.3	2.8	3.6	7.9	2.8	13.6	9.1	24
15	5.7	5.7	9.8	10.0	8.1	11.3	8.9	10.6	13.0	11.1	12.9	13.3	20.4	21.4	20.9	20.6	19.0	15.0	10.0	10.4	11.2	14.0	13.2	13.9	5.7	21.4	11.5	24
16	12.6	10.8	9.3	12.9	15.6	16.5	14.7	10.7	11.6	12.9	13.8	12.6	11.5	13.4	12.7	11.8	14.7	11.8	10.3	9.1	9.5	10.6	3.7	4.5	3.7	16.5	11.5	24
17	4.6	6.5	3.1	3.1	3.2	7.2	11.8	10.4	11.9	9.8	10.6	8.1	12.9	11.1	13.6	14.8	15.2	15.8	14.1	12.6	15.4	16.2	14.9	13.1	3.1	16.2	9.5	24
18	13.0	14.3	14.1	13.4	14.3	14.3	12.9	14.3	13.1	9.1	6.9	6.5	5.3	3.1	8.1	12.4	11.3	10.4	11.1	11.4	13.3	14.3	13.6	14.1	3.1	14.3	11.1	24
19	12.6	13.4	8.0	9.2	13.6	13.2	12.5	14.8	13.8	14.5	13.5	11.7	11.2	14.6	13.6	14.2	14.8	13.7	13.1	11.5	11.9	11.5	6.7	8.9	6.7	14.8	12.1	24
20	7.7	10.6	6.0	2.9	5.6	1.8	1.7	1.7	1.8	4.0	6.9	8.9	6.6	12.6	14.2	13.3	11.9	10.7	5.8	2.7	1.7	3.6	2.7	5.5	1.7	14.2	5.3	24
21	5.7	3.5	4.1	2.6	1.4	7.2	10.8	10.6	13.5	11.0	7.7	10.2	7.6	14.1	11.5	15.5	15.8	16.1	12.0	12.8	12.9	8.7	11.6	16.8	1.4	16.8	7.2	24
22	14.6	10.2	14.1	11.1	11.2	8.9	4.9	6.5	3.2	2.5	5.0	6.4	3.3	4.4	4.5	10.6	6.1	7.3	3.4	2.9	2.1	1.9	2.6	4.6	1.9	14.6	3.5	24
23	2.6	3.6	5.0	2.4	2.4	2.3	2.9	4.8	7.0	8.1	11.6	14.6	13.8	16.2	18.8	17.4	16.1	17.4	19.9	23.0	20.8	18.0	21.1	18.8	2.3	23.0	10.6	24
24	13.2	10.7	9.4	9.4	8.6	8.9	10.2	8.2	9.9	9.2	9.3	9.0	5.8	3.6	6.5	9.9	9.3	9.8	11.4	7.9	5.7	6.2	5.4	8.8	3.6	13.2	3.7	24
25	5.1	6.2	5.4	7.5	8.8	12.7	11.1	11.5	12.7	12.9	11.8	10.5	13.1	17.4	17.3	15.5	14.4	12.4	10.8	9.4	9.4	9.6	9.4	7.9	5.1	17.4	10.0	24
26	6.8	7.2	4.7	7.3	7.1	4.0	5.1	5.5	1.9	2.2	3.4	8.3	5.6	6.2	5.5	4.2	6.5	5.8	3.4	2.8	3.0	5.2	7.7	8.5	1.9	8.5	3.0	24
27	10.2	12.4	8.1	13.8	14.2	14.3	13.4	12.8	13.3	19.6	17.1	20.4	16.6	12.3	18.2	21.0	19.9	12.7	7.8	10.2	4.0	5.4	3.4	4.8	3.4	21.0	9.2	24
28	3.5	4.7	3.1	2.0	3.6	2.2	4.6	**0.6**	7.7	11.5	14.9	17.4	20.2	22.6	23.9	22.9	19.6	19.2	13.7	15.6	17.5	13.9	9.9	8.2	**0.6**	23.9	10.3	24
29	8.5	7.6	10.2	10.2	10.9	9.5	9.2	15.0	17.3	14.7	9.8	7.2	7.7	5.9	4.5	4.0	8.1	9.3	8.8	8.4	9.5	10.1	13.0	9.6	4.0	17.3	0.6	24
30	9.1	12.8	15.2	8.0	9.6	8.8	5.4	9.1	12.3	16.3	17.3	23.0	25.4	21.6	26.4	**26.9**	22.3	23.0	17.8	13.1	11.9	10.8	11.3	9.6	5.4	**26.9**	3.3	24
31	8.6	6.9	6.7	7.2	7.2	2.8	2.5	2.5	5.0	6.0	3.7	4.9	5.1	9.2	11.5	15.2	14.0	11.1	8.6	10.0	11.1	11.4	12.3	14.7	2.5	15.2	4.8	24
HOURLY MAX	20.5	18.6	18.7	20.4	20.3	19.9	19.3	18.1	21.5	19.6	20.6	23.0	25.4	22.7	26.4	26.9	22.3	23.0	21.3	23.0	20.8	18.0	21.1	18.8				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION:	October 24, 2018
DECLINATION :	MAGNETIC DECLINATION 13 DEGREE EAST

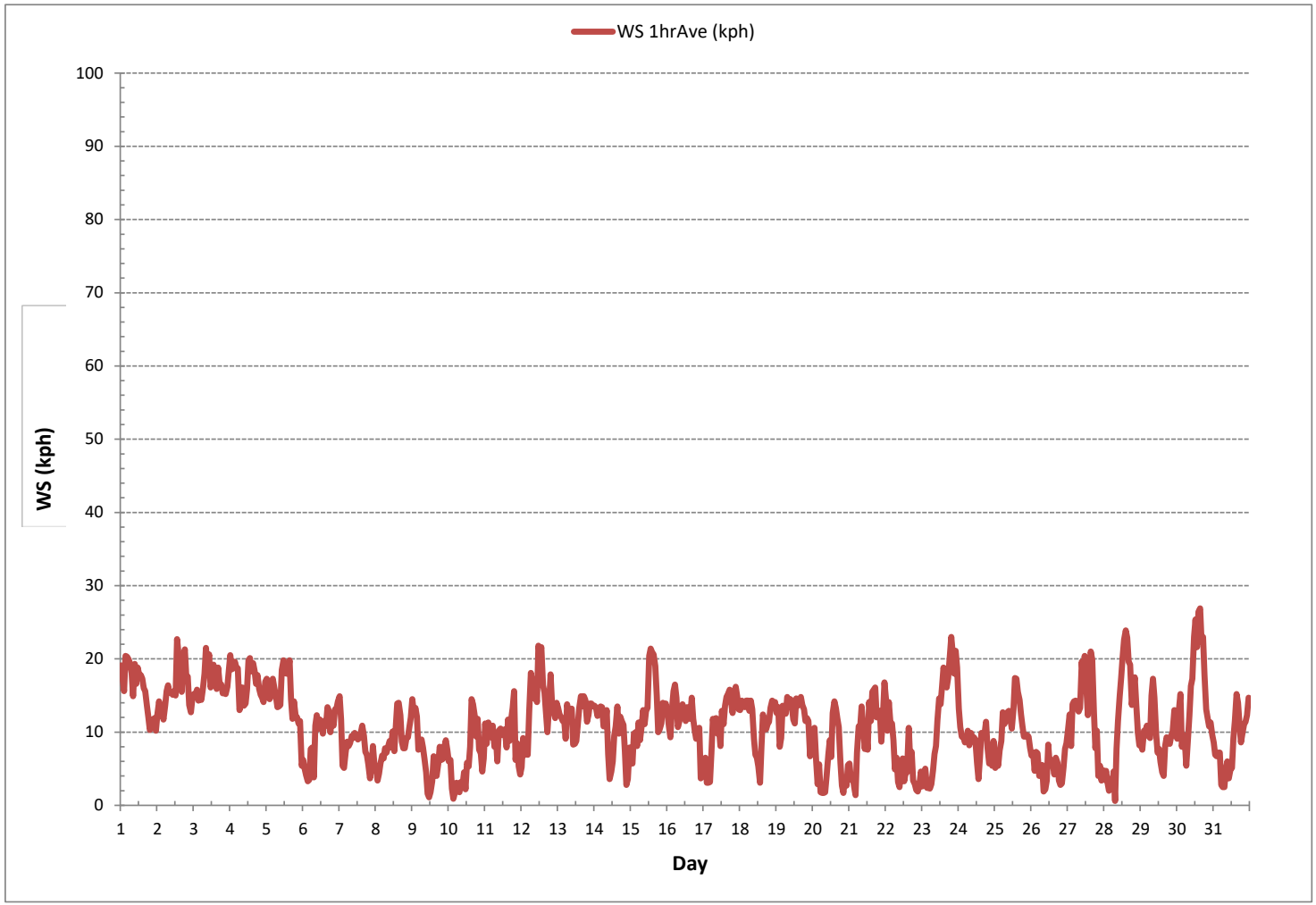
24 HR AVERAGES March 2019



MONTHLY SUMMARY

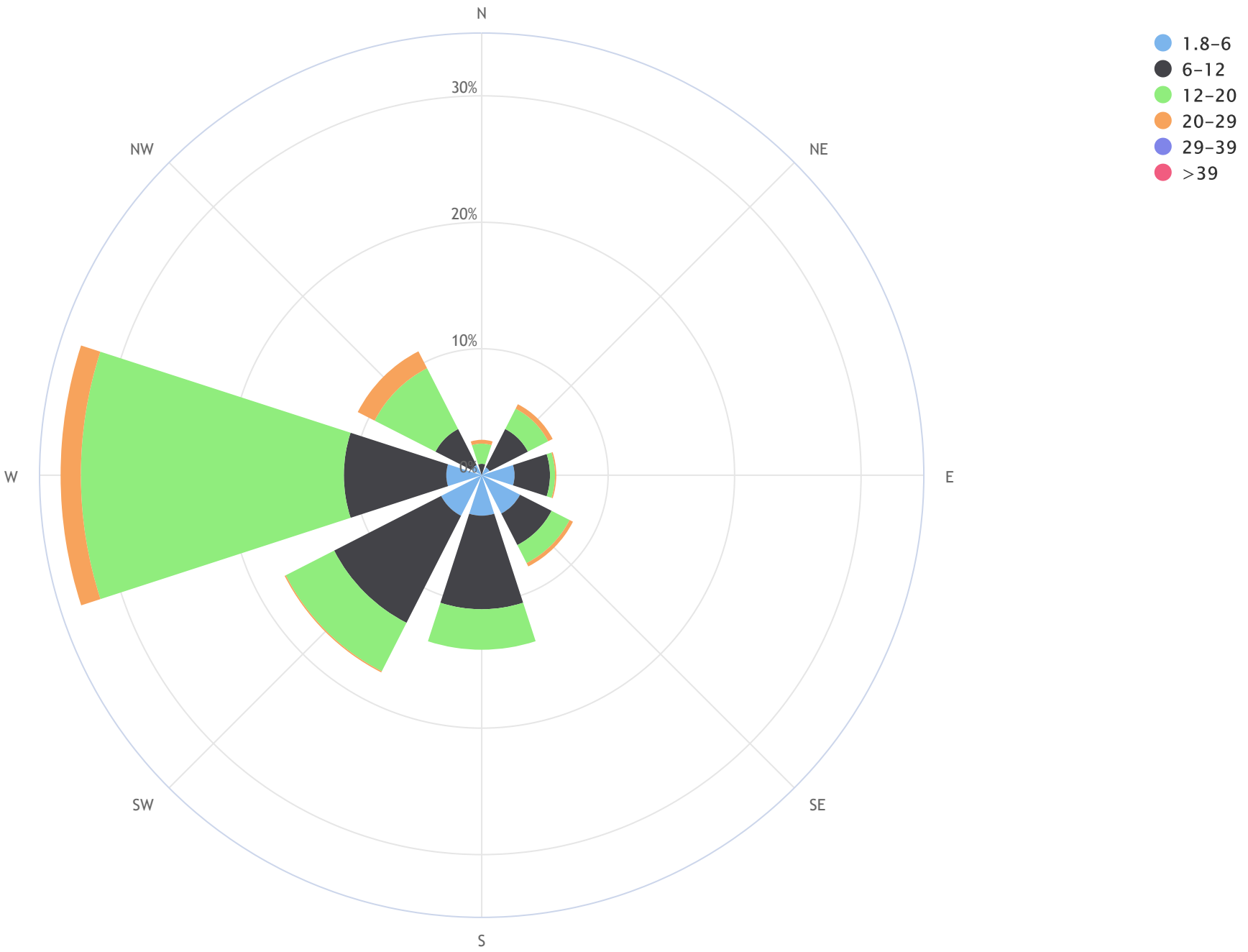
NUMBER OF NON-ZERO READINGS:			744				
MINIMUM 1-HR AVERAGE	0.6	kph	@ HOUR	7	ON DAY	28	
MAXIMUM 1-HR AVERAGE:	26.9	kph	@ HOUR	15	ON DAY	30	
MAXIMUM 24-HR AVERAGE:	16.9	kph			ON DAY	4	
			OPERATIONAL TIME:			744	hrs
MONTHLY CALIBRATION TIME:	0	hrs	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	5.0		MONTHLY AVERAGE:			5.3	kph

WIND SPEED Hourly Averages (WS kph)



Lakeland Industry & Community Association_Bonnyville East Site Continuous Monitoring Station_19/03

Wind Rose_Wind Frequency (Blowing From)_CALM Avg = 1.4_CALM % = 1.2%



Direction	1.8-6	6-12	12-20	20-29	29-39	>39	TOTAL
N	0.0	0.9	1.6	0.3	0.0	0.0	2.8
NE	0.7	3.4	1.8	0.4	0.0	0.0	6.2
E	2.6	2.8	0.4	0.1	0.0	0.0	5.9
SE	3.4	2.8	1.6	0.3	0.0	0.0	8.1
S	3.2	7.4	3.2	0.0	0.0	0.0	13.9
SW	3.6	9.5	4.3	0.1	0.0	0.0	17.6
W	2.8	8.1	20.8	1.6	0.0	0.0	33.3
NW	0.9	3.2	5.4	1.5	0.0	0.0	11.0
Summary	17.2	38.2	39.1	4.3	0.0	0.0	98.8
CALM	1.2	0.0	0.0	0.0	0.0	0.0	1.2

WIND DIRECTION Hourly Averages (WD)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR AVG	24-HR
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	QUADRANT	RDGS.
DAY																										
1	NNW	SE	NNW	NNW	NNW	N	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NW	W	NNW	24
2	WSW	WSW	W	WSW	W	WSW	W	W	W	W	W	W	WNW	NW	WNW	WNW	WNW	NW	NNW	NW	NW	WNW	WNW	W	WNW	24
3	W	W	W	W	W	WSW	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	WSW	W	24
4	W	W	W	W	W	W	W	WSW	W	W	W	WSW	WSW	W	W	W	W	W	W	W	W	W	WSW	W	W	24
5	W	W	WSW	WSW	W	W	W	WSW	W	WNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	WSW	NNW	W	S	NNE	NE	WNW	24
6	ENE	E	E	ENE	SE	ESE	SSE	SSE	S	SSE	SE	SSE	S	SSE	S	S	S	S	SSE	SE	SSE	SSE	SSE	SSE	SSE	24
7	SSE	SSE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	ENE	NE	NE	NE	NE	NNE	E	E	NW	W	WSW	W	WNW	ENE	24
8	WNW	W	WSW	SW	WSW	WSW	WSW	WSW	WSW	W	WNW	SE	S	NW	NW	NNW	NW	NNW	WSW	WSW	W	W	W	WSW	W	24
9	W	WSW	WSW	W	WNW	NW	NNW	WNW	WNW	WNW	SSW	SSW	S	SW	WSW	WSW	SW	SW	S	ESE	SE	ESE	E	ESE	WSW	24
10	ESE	ESE	SSE	SE	SE	W	ESE	ESE	SE	SSE	W	ESE	SSE	SSE	SSW	SSE	SSE	S	S	SSE	S	SSE	SSE	SSE	SSE	24
11	S	SSE	SSE	SSW	SSW	S	S	S	S	SW	WSW	WSW	WSW	WSW	WSW	SW	SSW	SSE	S	S	SSE	SSE	SSE	SE	SSW	24
12	SSE	SSE	SSE	S	SW	WSW	WSW	WSW	W	W	W	WNW	NW	NW	NW	NW	WNW	W	W	NW	WNW	WNW	W	WNW	W	24
13	WNW	W	W	W	WSW	SW	WSW	WSW	WSW	W	WSW	W	WSW	SW	SW	SW	SW	WSW	WSW	SW	WSW	WSW	WSW	WSW	WSW	24
14	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	WSW	WSW	SW	SW	WSW	SW	SW	SW	SW	SW	S	S	SSE	WSW	24
15	SW	SSE	S	SW	SW	SSW	SW	WSW	WSW	WSW	WSW	WSW	W	W	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	24
16	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	WSW	WSW	WSW	W	WSW	W	W	WSW	SW	WSW	WSW	WSW	WSW	WSW	24
17	SW	SW	SW	WSW	SE	SSE	SSE	SSE	SW	SW	SW	SW	WSW	SW	SW	SW	WSW	WSW	WSW	WSW	W	WSW	WSW	WSW	SW	24
18	WSW	WSW	WSW	WSW	WSW	W	W	W	W	WSW	WSW	W	WSW	SSW	SW	SW	WSW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	24
19	W	WSW	W	WSW	WSW	WSW	W	W	WSW	WSW	WSW	WSW	SW	WSW	SW	SW	SW	WSW	WSW	WSW	WSW	SW	SSW	SW	WSW	24
20	SW	WSW	SW	WSW	SW	SSW	SE	S	S	WSW	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	SSW	W	SW	ESE	E	WSW	24
21	E	ENE	E	SE	ESE	ENE	ENE	ENE	ENE	ENE	NE	NE	E	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	SSE	SSE	S	SE	24
22	S	SE	SSE	SSE	SSE	SSE	SE	ESE	E	SW	ENE	ENE	SE	WSW	W	W	WSW	W	WSW	S	SE	WSW	SSE	E	S	24
23	SE	SSW	WNW	SSW	ESE	ENE	E	ENE	ENE	ENE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	ENE	E	E	ENE	24
24	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	SSE	S	SW	SW	SW	SW	SSW	SSE	S	S	ESE	24
25	SW	SSW	SSW	SSW	SSW	SSW	S	SSE	SSE	S	SSE	S	S	S	S	S	S	S	SSW	SW	SW	WSW	WSW	WSW	SSW	24
26	WSW	WSW	WSW	W	WNW	WNW	WNW	NW	W	SSW	SSE	NW	NW	W	E	ENE	SSE	SSW	SSE	S	S	WNW	W	WNW	W	24
27	NNW	SW	NW	NNW	NNW	SW	SSE	SW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NNW	NW	NW	NW	NW	W	SW	S	NW	24
28	SSW	SSE	SSW	S	SSW	SSE	SSW	SE	SW	WSW	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	W	W	NNW	SSE	WSW	24
29	NNE	E	NNE	NNW	NW	NNW	NW	WNW	NE	NE	NE	S	SSE	ENE	S	SSW	SE	SE	SSE	S	S	SSW	S	S	E	24
30	S	SSW	SSW	S	SW	WSW	WSW	WSW	W	NW	NNW	NNW	SSW	ESE	WNW	NW	SE	NNE	NNE	NE	NE	NNE	NNE	NNE	NW	24
31	N	SE	NNW	WNW	W	W	ESE	SE	E	ESE	SE	E	SE	W	WNW	W	W	WSW	WSW	WSW	WSW	WSW	WSW	W	W	24

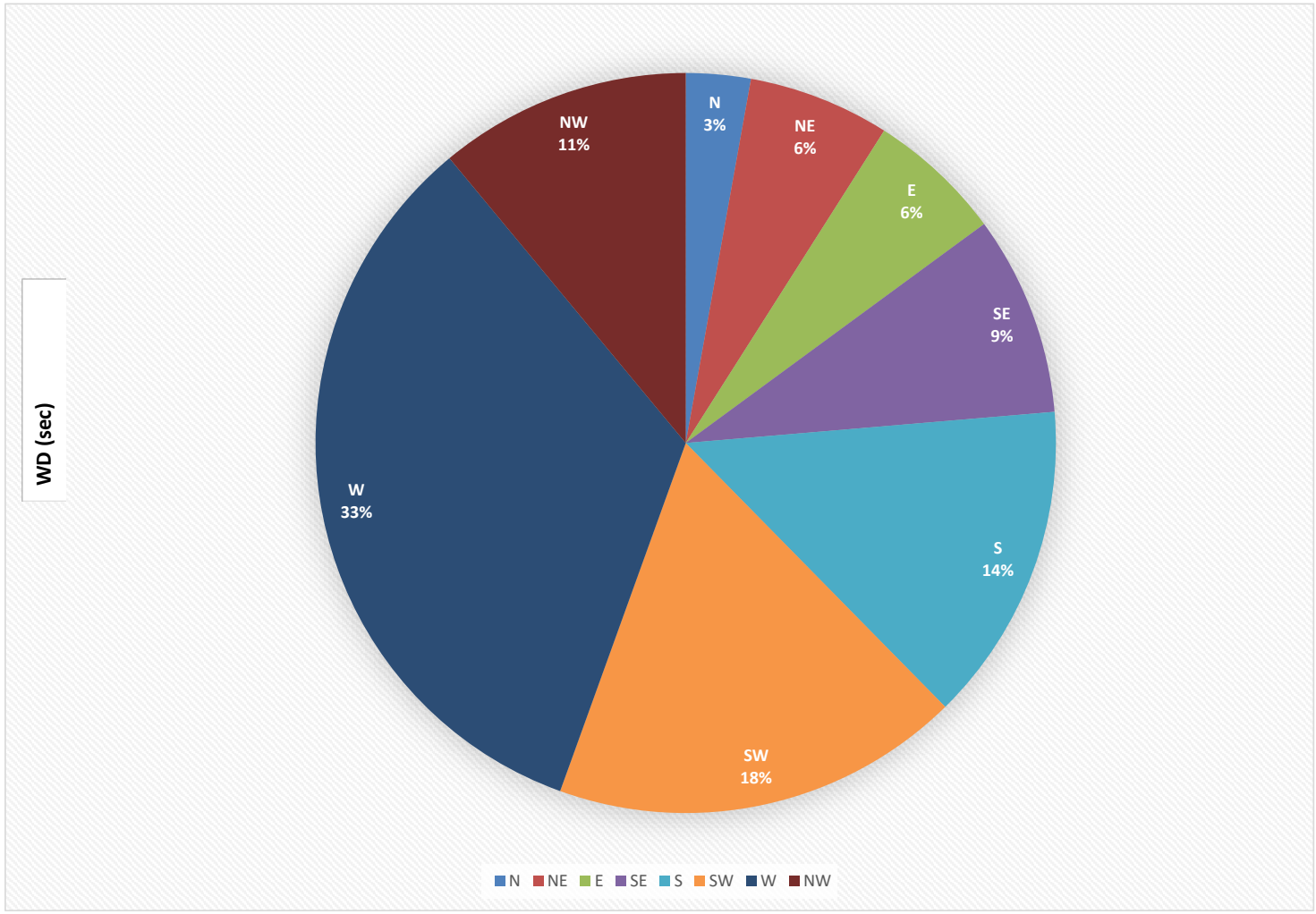
STATUS FLAG CODES

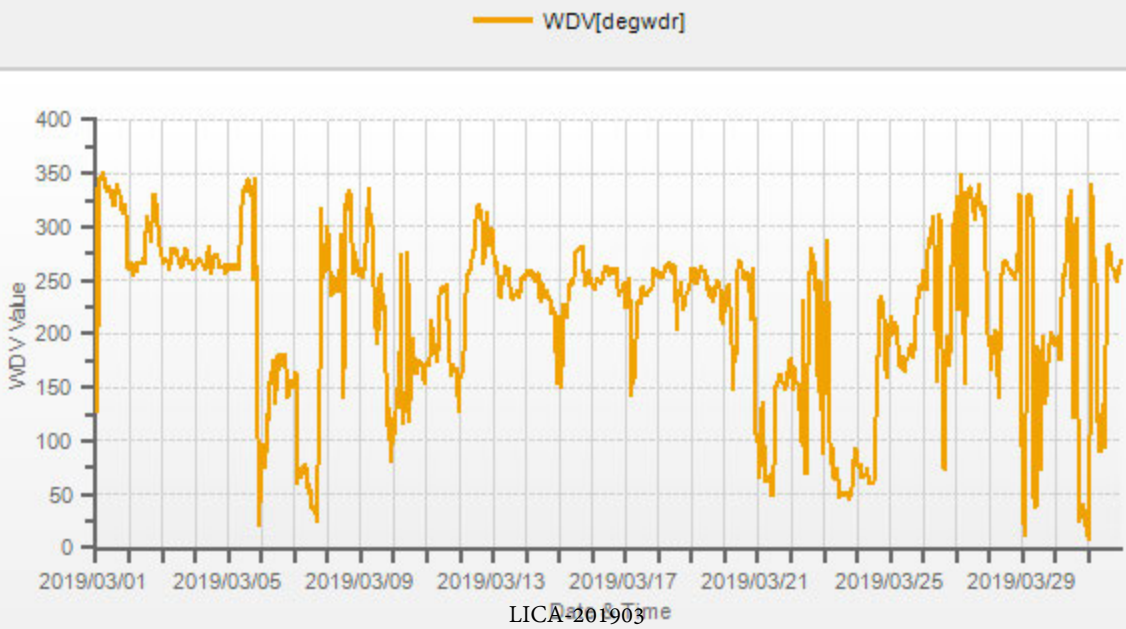
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION:	October 24, 2018
DECLINATION :	MAGNETIC DECLINATION 13 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	744	hrs
STANDARD DEVIATION:	79		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	258 (WSW)	

WIND DIRECTION Hourly Averages (WD)




WDV[degwdr] Station: LICA Bonnyville East Monthly: 19/03 Type: AVG 1 Hr. [1 Hr.]
WDV[degwdr]
WDV Value
400
350
300
250
200
150
100
50
0
2019/03/01
2019/03/05
2019/03/09
2019/03/13
2019/03/17
2019/03/21
2019/03/25
2019/03/29
Date & Time

STANDARD DEVIATION WIND DIRECTION Hourly Averages (STDWD deg)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	
DAY																									
1	10	11	5	5	6	7	6	5	6	5	6	5	5	5	6	6	5	4	3	3	4	2	3	2	24
2	2	1	2	2	2	2	3	4	4	4	5	6	8	5	7	8	6	4	5	4	4	5	5	3	24
3	3	2	3	3	3	4	6	7	6	6	6	7	5	4	5	5	6	6	4	2	3	2	2	3	24
4	3	4	3	3	3	3	4	3	5	6	7	7	6	5	5	5	5	4	5	4	4	4	4	2	24
5	3	3	2	2	2	1	2	2	3	5	4	5	5	7	6	5	5	4	7	3	3	5	3	3	24
6	3	1	3	2	5	4	5	3	6	6	6	6	6	6	6	4	3	4	4	3	3	6	6	4	24
7	3	10	10	8	6	4	5	3	4	5	5	6	6	7	6	5	5	6	6	3	5	7	5	6	24
8	5	6	7	8	7	8	7	7	7	6	7	9	8	6	4	5	5	4	2	3	3	2	2	1	24
9	2	1	1	1	2	3	2	2	5	8	6	9	7	7	7	5	7	4	8	3	2	2	1	2	24
10	3	3	3	5	3	2	3	2	2	5	4	5	10	12	11	5	4	4	4	4	9	7	11	9	24
11	4	5	3	7	5	3	4	2	4	6	6	7	7	8	8	7	6	4	5	4	8	6	5	5	24
12	4	2	2	2	5	7	4	3	6	4	7	6	5	5	5	4	5	5	5	5	5	6	7	6	24
13	4	2	1	2	2	3	2	2	3	4	7	7	9	9	10	8	7	8	7	8	5	4	3	2	24
14	2	2	1	1	2	2	2	4	3	5	7	7	9	9	9	6	9	7	4	6	6	9	6	2	24
15	4	5	4	6	8	6	4	8	7	7	9	8	7	7	7	7	7	7	4	3	3	2	3	2	24
16	3	2	2	2	2	3	2	4	4	5	5	8	9	7	5	7	5	5	3	4	2	2	5	4	24
17	4	4	9	4	5	2	3	6	11	10	10	9	8	9	8	9	8	6	6	7	4	5	3	2	24
18	2	3	2	2	2	1	1	1	1	3	5	3	5	7	6	6	5	5	7	7	6	5	4	5	24
19	3	6	4	3	3	2	4	3	6	5	7	7	6	6	7	7	6	3	2	2	1	1	3	3	24
20	3	3	4	3	4	3	1	2	6	5	3	4	7	6	5	3	2	2	3	4	3	2	4	3	24
21	2	5	5	5	8	2	1	4	4	7	8	6	8	5	7	5	4	4	3	3	5	15	9	7	24
22	7	10	6	6	5	4	3	3	7	8	7	7	11	8	12	4	5	4	3	2	2	2	2	3	24
23	6	2	3	2	4	3	2	5	6	6	6	7	7	7	6	7	6	5	6	6	5	4	4	5	24
24	4	3	3	4	4	4	4	5	5	6	7	7	10	15	11	7	10	10	9	7	3	2	2	4	24
25	6	6	4	7	7	7	6	6	6	7	8	9	8	7	7	6	6	5	7	8	8	9	9	9	24
26	7	8	6	6	7	7	5	5	6	4	4	6	7	9	9	7	6	6	2	2	4	2	2	6	24
27	6	9	6	7	8	9	8	7	7	7	7	6	7	9	7	6	6	6	4	3	2	2	2	3	24
28	3	3	2	1	3	1	3	7	11	9	7	7	8	8	8	9	9	9	10	8	5	5	4	5	24
29	7	5	7	3	3	3	3	8	9	7	11	14	13	15	16	15	6	4	4	3	3	4	4	4	24
30	6	7	7	7	10	7	5	8	8	8	8	8	11	10	8	9	9	6	6	5	4	4	9	7	24
31	6	4	1	2	3	2	2	6	8	8	15	11	16	10	10	9	8	8	6	8	10	7	8	6	24

STATUS FLAG CODES

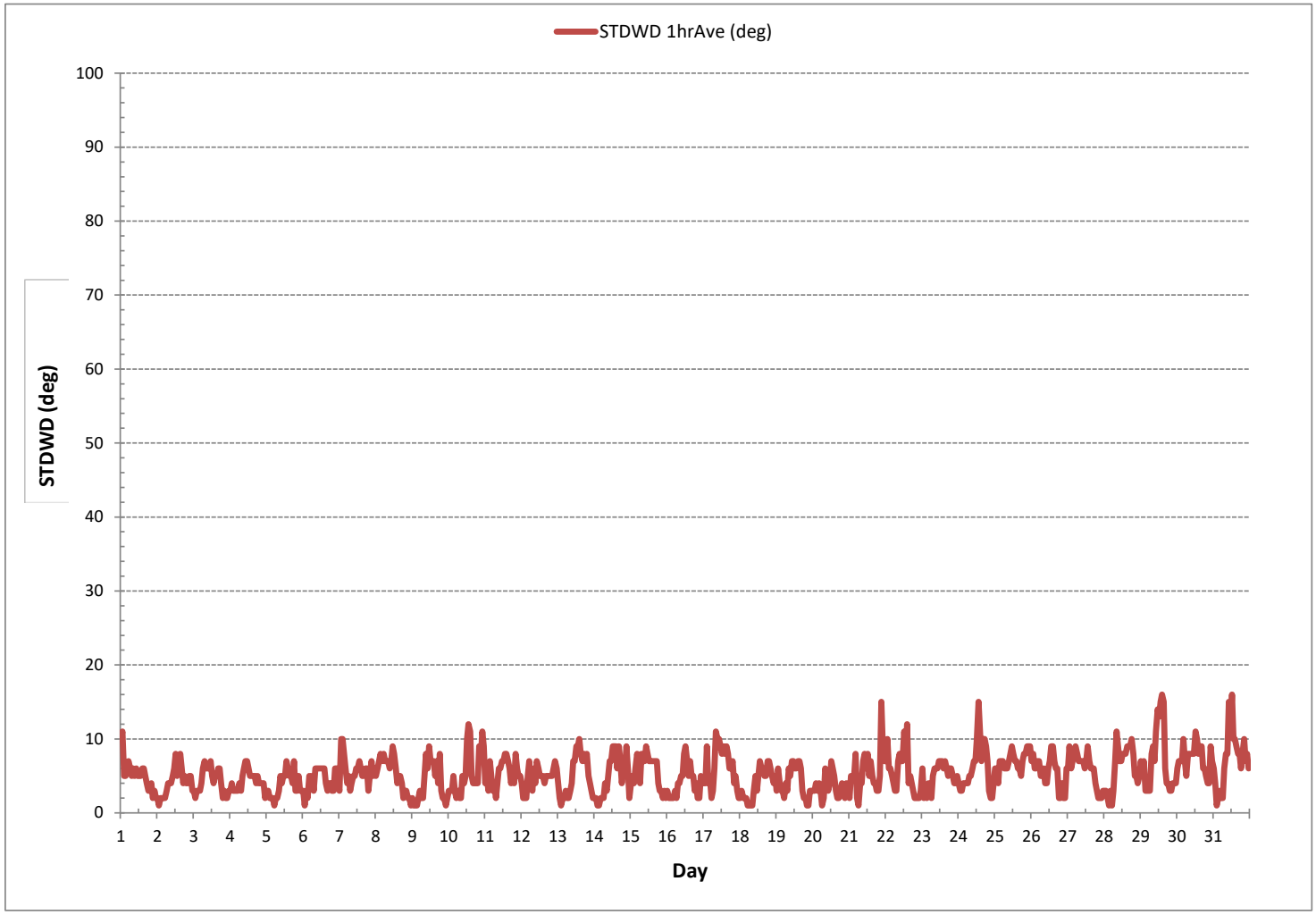
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION: October 24, 2018

CALIBRATION TIME: 0 hrs

OPERATIONAL TIME: 744 hrs

STANDARD DEVIATION WIND DIRECTION Hourly Averages (STDWD deg)



SULPHUR DIOXIDE Instantaneous Maximum (SO_2 ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	1	1	1	1	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	S	1	0	0	0	1	1	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	24
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	24
5	0	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	0	1	1	1	0	0	0	1	0	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	1	0	0	0	0	0	0	1	0	24
7	0	0	0	0	0	0	0	0	0	0	0	1	1	1	S	0	0	0	0	0	0	0	0	0	0	1	0	24
8	0	0	0	0	0	1	1	1	1	1	1	1	2	S	1	1	0	0	0	0	0	0	0	0	0	2	1	24
9	0	0	0	0	0	0	1	1	1	1	1	1	S	1	1	1	1	0	0	0	0	0	0	0	0	1	0	24
10	0	0	0	0	0	0	0	0	0	0	1	S	2	2	2	1	1	1	1	1	1	1	1	1	0	2	1	24
11	1	1	1	0	0	0	1	1	2	2	S	2	1	1	1	1	1	1	1	2	5	4	3	3	0	5	1	24
12	2	3	3	2	1	1	1	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	24
13	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	2	2	1	0	0	2	0	24
14	0	0	0	1	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
15	1	1	1	1	0	0	S	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
16	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
17	0	0	0	0	S	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	24
18	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	2	2	2	2	0	2	0	24
19	2	2	S	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	24
20	0	S	0	0	0	0	0	0	0	0	3	3	3	1	1	1	1	0	0	1	0	0	0	0	0	3	1	24
21	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	24
22	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	S	0	0	1	0	24
23	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	24
24	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	24
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	24
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	24
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	24
29	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	24
30	0	0	0	0	0	0	0	0	0	0	0	0	1	1	S	1	1	1	0	0	0	0	0	0	0	1	0	24
31	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	24
HOURLY MAX	2	3	3	2	1	1	1	1	2	2	3	3	3	2	2	1	1	1	1	2	5	4	3	3				
HOURLY AVG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

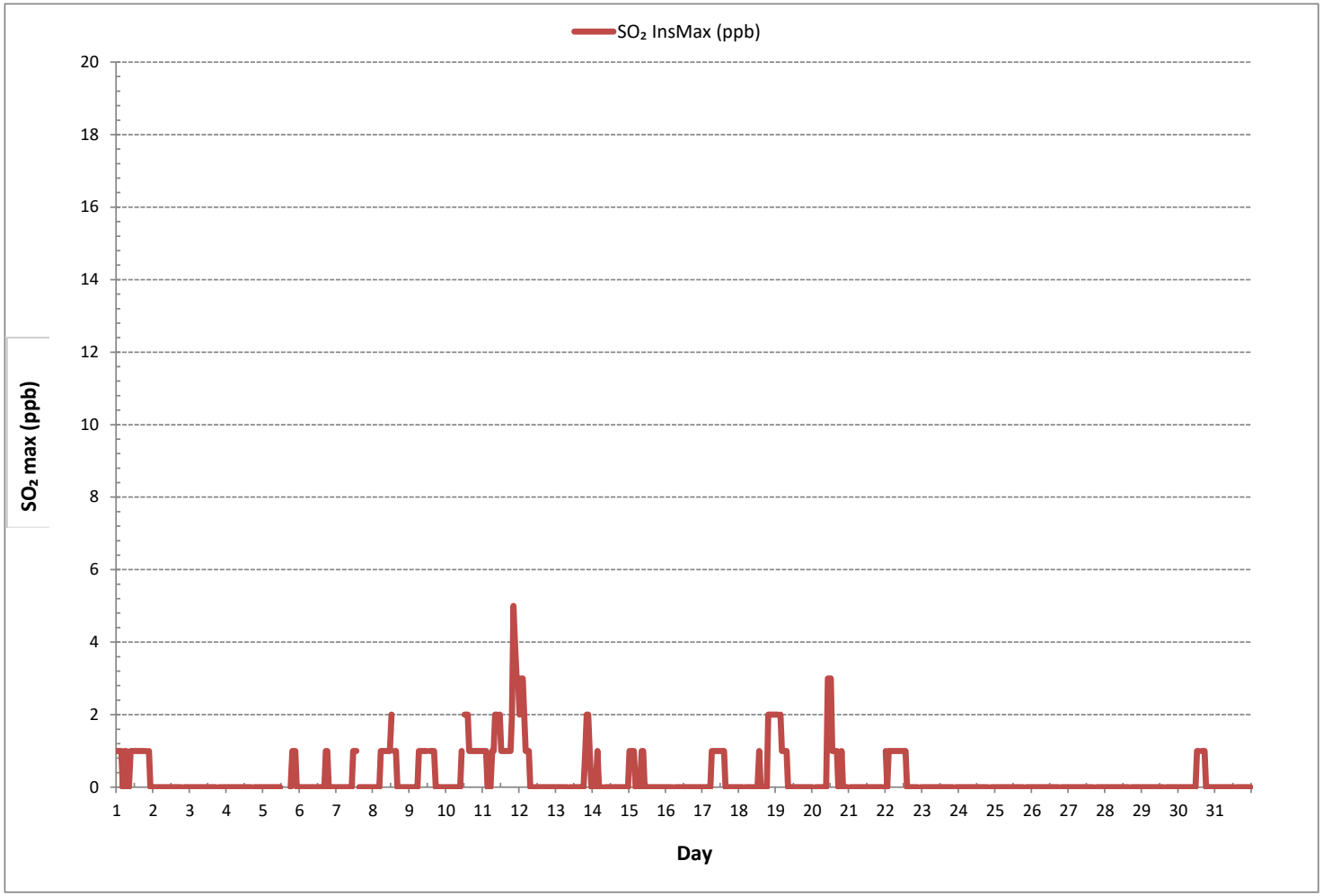
NUMBER OF NON-ZERO READINGS: 145

MAXIMUM INSTANTANEOUS VALUE: 5 ppb @ HOUR 20 ON DAY 11

IZS CALIBRATION TIME: 31 hrs
MONTHLY CALIBRATION TIME: 6 hrs
STANDARD DEVIATION: 1

OPERATIONAL TIME: 744 hrs

SULPHUR DIOXIDE Instantaneous Maximum (SO_2 ppb)



HYDROGEN SULPHIDE Instantaneous Maximum (H_2S ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	24
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	24
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	24
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	24
5	1	1	1	1	1	1	1	1	1	1	1	1	C	C	C	C	C	C	0	0	0	0	0	0	0	1	1	24
6	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	S	1	0	1	1	1	0	1	0	0	1	1	24
7	0	0	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	0	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	1	1	1	1	1	1	1	1	0	1	0	24
9	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	2	2	2	1	1	2	1	24
10	1	1	1	1	2	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	24
11	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	2	1	1	1	2	2	2	1	2	1	24
12	2	2	1	1	1	3	S1	1	1	S	1	1	1	1	1	1	1	C1	1	1	1	1	1	1	1	3	1	22
13	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
14	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	1	3	1	24
15	1	2	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	24
16	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	5	1	5	2	24
17	4	3	3	3	S	4	2	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	4	2	24
18	2	2	2	S	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	24
19	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	4	2	5	2	24
20	3	S	3	5	4	15	17	4	4	3	2	2	2	2	2	2	2	2	2	2	4	3	2	20	2	20	5	24
21	S	23	6	5	4	4	6	18	3	3	2	2	3	5	5	4	2	4	6	4	7	3	2	S	2	23	5	24
22	2	4	2	2	7	5	3	4	3	2	3	3	2	2	2	2	2	2	2	4	15	3	S	31	2	31	5	24
23	40	15	5	5	10	11	8	5	3	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	40	6	24
24	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	S	4	3	2	2	4	2	24
25	2	2	2	2	2	2	2	2	2	2	3	2	2	2	C1	C1	C1	C1	C1	S	0	0	0	0	0	3	2	19
26	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	S	3	1	1	0	0	0	3	0	24
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0	1	0	24
28	1	2	2	1	2	1	0	2	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	2	1	24
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	1	0	0	0	0	0	0	1	0	24
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	24
31	0	0	0	0	0	0	2	1	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	2	0	24
HOURLY MAX	40	23	6	5	10	15	17	18	4	3	3	3	3	5	5	4	2	4	6	4	15	4	5	31				
HOURLY AVG	2	2	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	3				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

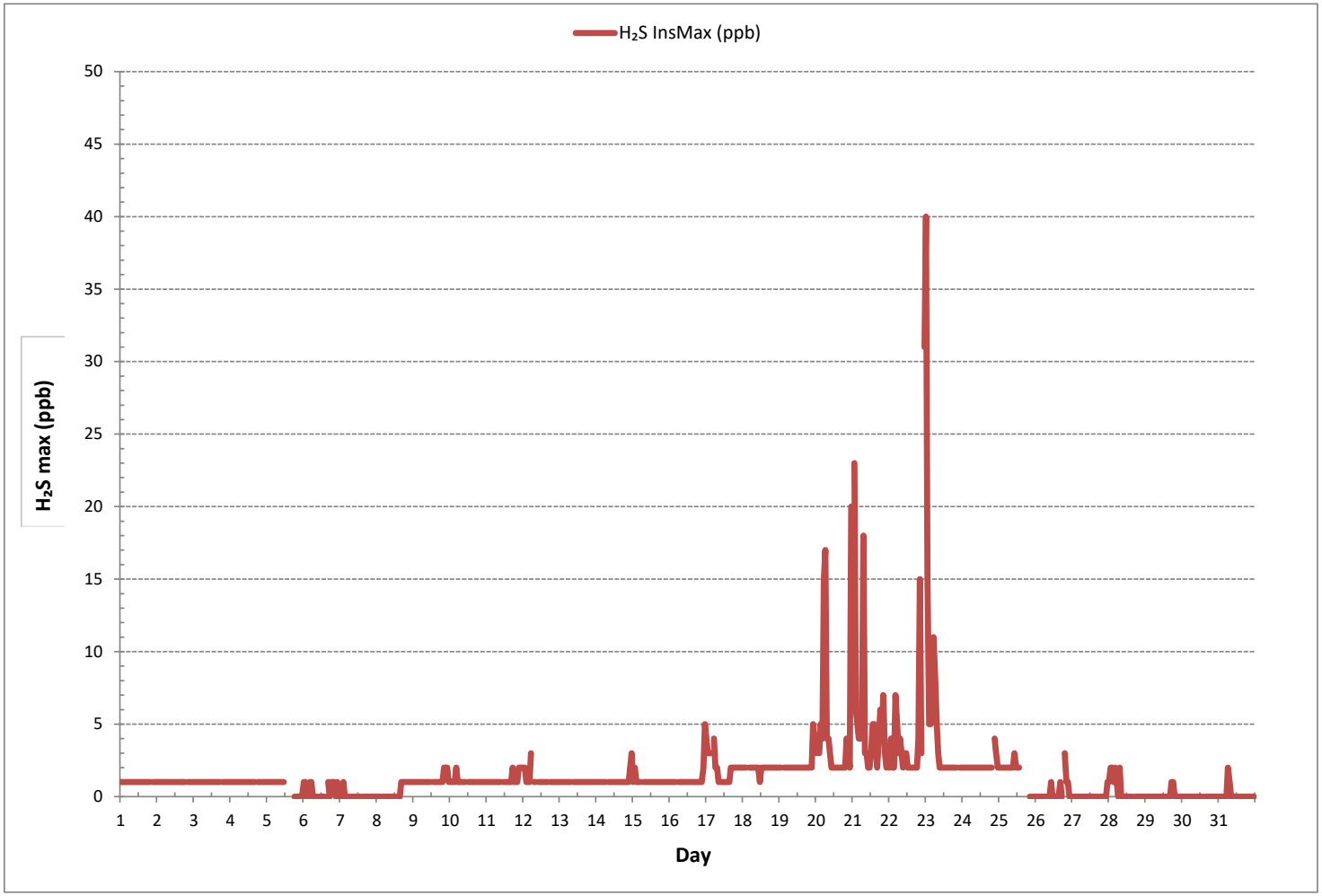
NUMBER OF NON-ZERO READINGS: 518

MAXIMUM INSTANTANEOUS VALUE: 40 ppb @ HOUR 0 ON DAY 23

IZS CALIBRATION TIME: 31 hrs
MONTHLY CALIBRATION TIME: 6 hrs
STANDARD DEVIATION: 3

OPERATIONAL TIME: 737 hrs

HYDROGEN SULPHIDE Instantaneous Maximum (H_2S ppb)



TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	2.04	2.03	2.03	2.04	2.03	2.03	2.03	2.03	2.05	2.05	2.05	2.03	2.02	2.03	2.02	2.03	2.03	2.05	2.73	2.09	S	2.15	2.12	2.13	2.02	2.73	2.08	24
2	2.19	2.17	2.12	2.09	2.13	2.09	2.11	2.10	2.10	2.08	2.06	2.06	2.04	2.01	2.01	2.02	2.02	2.01	2.03	S	2.04	2.05	2.05	2.12	2.01	2.19	2.07	24
3	2.11	2.09	2.10	2.11	2.09	2.08	2.07	2.07	2.07	2.06	2.05	2.04	2.03	2.03	2.04	2.04	2.03	2.03	S	2.08	2.08	2.08	2.10	2.08	2.03	2.11	2.07	24
4	2.06	2.06	2.07	2.07	2.08	2.08	2.07	2.04	2.03	2.05	2.06	2.02	2.02	2.01	2.02	2.02	2.01	S	2.02	2.02	2.01	2.03	2.03	2.06	2.01	2.08	2.04	24
5	2.08	2.08	2.08	2.09	2.13	2.17	2.13	2.11	2.08	2.08	2.00	2.00	2.00	2.12	2.02	2.04	S	2.03	2.07	2.08	2.07	2.08	2.04	2.07	2.00	2.17	2.07	24
6	2.12	2.13	2.28	2.31	2.45	2.19	2.06	2.09	2.04	2.07	2.05	C	C	C	C	C	2.10	2.09	2.09	2.10	2.18	2.13	2.15	2.22	2.04	2.45	2.15	24
7	2.21	2.20	2.20	2.22	2.27	2.28	2.38	2.26	2.24	2.20	2.16	2.13	2.11	2.09	S	2.04	2.04	2.03	2.02	2.06	2.06	2.08	2.10	2.09	2.02	2.38	2.15	24
8	2.12	2.17	2.18	2.14	2.17	2.16	2.17	2.17	2.20	2.16	2.20	2.23	2.19	S	2.06	2.02	2.04	2.02	2.03	2.05	2.07	2.11	2.12	2.15	2.02	2.23	2.13	24
9	2.15	2.13	2.11	2.11	2.13	2.23	2.26	2.27	2.38	2.33	2.09	2.09	S	2.06	2.04	2.07	2.06	2.03	2.07	2.35	2.37	2.54	3.18	2.83	2.03	3.18	2.26	24
10	3.67	**5.76**	5.40	4.68	3.48	3.40	3.15	3.08	3.92	3.91	3.01	S	2.31	2.18	2.18	2.22	2.23	2.20	2.18	2.20	2.18	2.20	2.22	2.19	2.18	**5.76**	3.04	24
11	2.17	2.25	2.27	2.22	2.20	2.20	2.23	2.28	2.28	2.22	S	2.19	2.16	2.15	2.18	2.18	2.15	2.33	2.32	2.39	2.49	2.61	2.56	2.60	2.15	2.61	2.29	24
12	2.64	2.67	2.61	2.52	2.42	2.50	2.26	2.08	2.08	S	1.99	1.97	1.96	1.95	1.96	1.96	1.96	1.98	1.99	1.99	2.00	2.01	2.01	2.05	1.95	2.67	2.15	24
13	2.07	2.08	2.13	2.10	2.08	2.05	2.06	2.06	S	2.03	2.03	2.02	2.00	2.00	2.02	2.01	2.02	2.02	2.03	2.06	2.08	2.07	2.07	2.08	2.00	2.13	2.05	24
14	2.08	2.09	2.12	2.17	2.14	2.14	2.15	S	2.09	2.07	2.06	2.04	2.03	2.02	2.01	2.03	2.02	2.03	2.06	2.07	2.06	2.06	2.07	2.14	2.01	2.17	2.08	24
15	2.18	2.22	2.25	2.20	2.17	2.20	S	2.18	2.13	2.13	2.08	2.04	1.99	1.98	1.99	1.99	1.98	1.99	2.02	2.05	2.07	2.06	2.06	2.05	1.98	2.25	2.09	24
16	2.06	2.06	2.06	2.08	2.07	S	2.07	2.06	2.05	2.06	2.04	2.03	2.02	2.00	2.00	2.00	2.00	2.01	2.04	2.04	2.06	2.13	2.14	2.26	2.00	2.26	2.06	24
17	2.22	2.23	2.33	2.34	S	2.32	2.17	2.23	2.19	2.30	2.26	2.23	2.12	2.10	2.08	2.06	2.05	2.03	2.04	2.05	2.04	2.04	2.05	2.06	2.03	2.34	2.15	24
18	2.05	2.05	2.05	S	2.07	2.07	2.09	2.10	2.08	2.07	2.07	2.05	2.03	2.01	2.00	1.99	2.00	2.02	2.04	2.08	2.09	2.07	2.08	2.09	1.99	2.10	2.06	24
19	2.12	2.11	S	2.12	2.13	2.11	2.12	2.12	2.07	2.04	2.02	1.99	1.99	2.00	1.99	2.01	2.04	2.05	2.05	2.08	2.11	2.20	2.18	2.20	1.99	2.20	2.08	24
20	2.22	S	2.25	2.28	2.30	2.37	2.52	2.38	2.37	2.28	2.15	2.03	2.06	2.01	2.01	2.04	2.03	2.05	2.13	2.28	2.36	2.29	2.39	2.47	2.01	2.52	2.23	24
21	S	3.36	3.55	3.05	2.76	2.70	2.65	2.50	2.25	2.13	2.11	2.08	2.06	2.04	2.05	2.03	2.01	2.03	2.09	2.09	2.12	2.12	2.14	S	2.01	3.55	2.36	24
22	2.19	2.23	2.21	2.23	2.34	2.37	2.39	2.47	2.50	2.36	2.37	2.38	2.42	2.37	2.33	2.31	2.28	2.27	2.29	2.37	2.51	2.43	S	2.85	2.19	2.85	2.37	24
23	4.34	3.67	2.71	2.89	2.90	3.00	3.17	2.95	2.43	2.07	2.03	2.02	2.00	1.98	1.98	1.99	2.01	2.02	2.03	2.04	2.06	S	2.06	2.06	1.98	4.34	2.45	24
24	2.06	2.10	2.15	2.16	2.11	2.14	2.21	2.17	2.09	2.08	2.08	2.06	2.06	2.08	2.13	2.14	2.11	2.13	2.15	2.17	S	2.18	2.17	2.16	2.06	2.21	2.13	24
25	2.14	2.09	2.09	2.09	2.06	2.03	2.03	2.06	2.08	2.06	2.07	2.09	2.12	2.14	2.14	2.12	2.12	2.13	2.12	S	2.06	2.06	2.06	2.06	2.03	2.14	2.09	24
26	2.07	2.07	2.07	2.07	2.07	2.07	2.08	2.09	2.09	2.11	2.10	2.10	2.11	2.20	2.23	2.22	2.22	2.18	S	2.35	2.33	2.31	2.34	2.36	2.07	2.36	2.17	24
27	2.27	2.08	2.06	2.05	2.04	2.02	2.04	2.04	2.03	2.01	2.01	2.01	2.01	2.01	2.00	2.00	2.01	S	2.02	2.05	2.12	2.09	2.23	2.09	2.00	2.27	2.06	24
28	2.14	2.10	2.11	2.12	2.13	2.14	2.31	2.13	2.10	2.07	2.05	2.03	2.01	2.00	2.00	1.99	S	2.01	2.02	2.02	2.04	2.04	2.06	2.12	1.99	2.31	2.08	24
29	2.07	2.06	2.07	2.12	2.10	2.14	2.18	2.11	2.05	2.03	2.02	2.02	2.01	2.01	2.01	S	2.02	2.04	2.05	2.09	2.11	2.05	2.10	2.18	2.01	2.18	2.07	24
30	2.17	2.11	2.10	2.14	2.10	2.13	2.17	2.13	2.09	2.15	2.04	2.01	2.01	2.02	S	2.03	2.04	2.04	2.03	2.04	2.05	2.07	2.07	2.09	2.01	2.17	2.08	24
31	2.05	2.05	2.15	2.20	2.16	2.14	2.15	2.25	2.47	2.17	2.07	2.04	2.03	S	2.02	2.03	2.04	2.03	2.03	2.05	2.08	2.08	2.09	2.12	2.02	2.47	2.11	24
HOURLY MAX	4.34	5.76	5.40	4.68	3.48	3.40	3.17	3.08	3.92	3.91	3.01	2.38	2.42	2.37	2.33	2.31	2.28	2.33	2.73	2.39	2.51	2.61	3.18	2.85				
HOURLY AVG	2.27	2.35	2.33	2.30	2.24	2.25	2.25	2.22	2.22	2.18	2.11	2.07	2.07	2.06	2.05	2.06	2.06	2.06	2.10	2.12	2.13	2.15	2.17	2.20				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

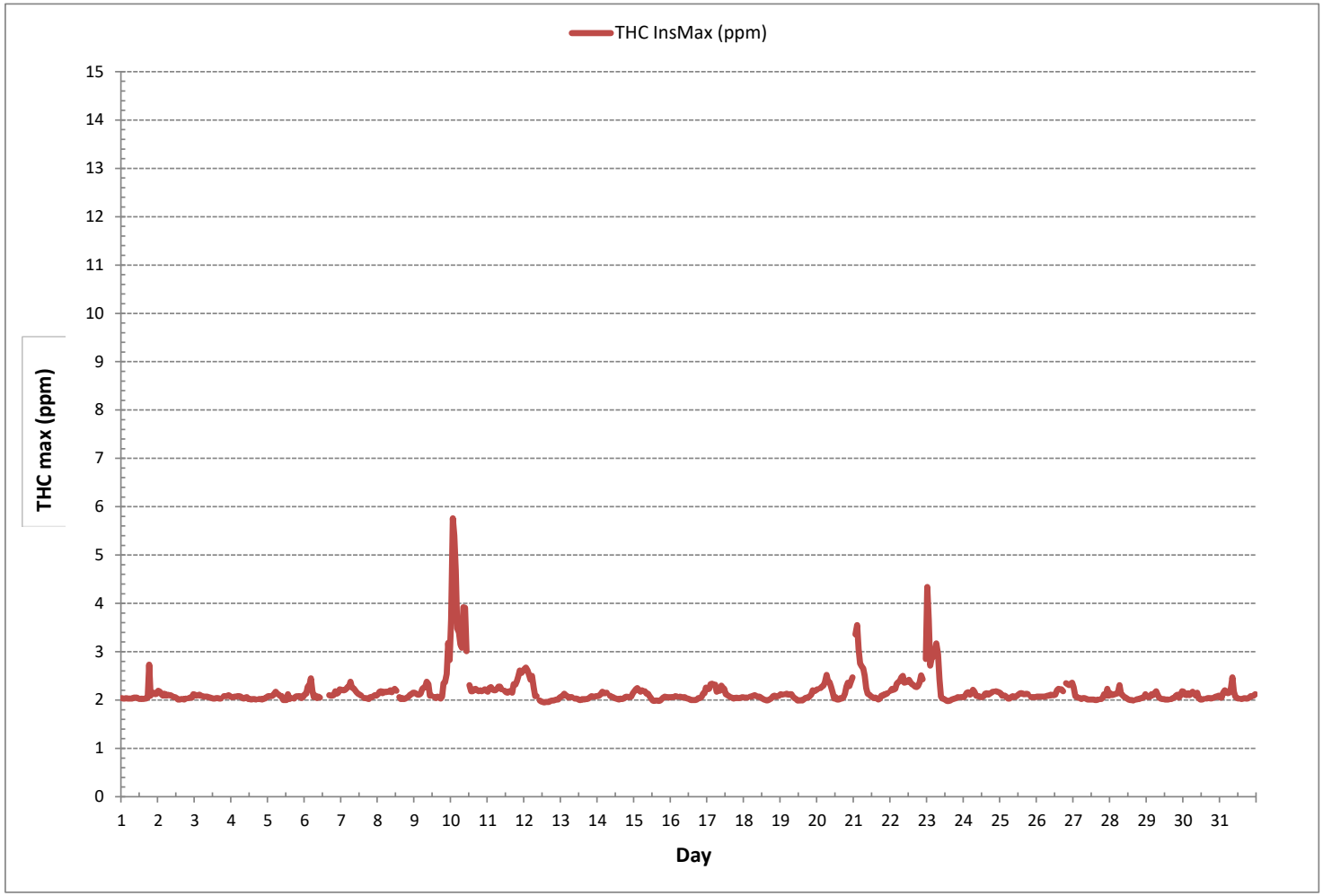
NUMBER OF NON-ZERO READINGS: 708

MAXIMUM INSTANTANEOUS VALUE: 5.76 ppm @ HOUR 1 ON DAY 10

IZS CALIBRATION TIME: 31 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 0.32

OPERATIONAL TIME: 744 hrs

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)



METHANE MAX Instantaneous Maximum (CH_4 ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	2.04	2.03	2.03	2.04	2.03	2.03	2.03	2.03	2.05	2.05	2.05	2.03	2.02	2.03	2.02	2.03	2.03	2.05	2.10	2.09	S	2.15	2.12	2.13	2.02	2.15	2.05	24
2	2.19	2.17	2.12	2.09	2.13	2.09	2.11	2.10	2.10	2.08	2.06	2.06	2.04	2.01	2.01	2.02	2.02	2.01	2.03	S	2.04	2.05	2.05	2.12	2.01	2.19	2.07	24
3	2.11	2.09	2.10	2.11	2.09	2.08	2.07	2.07	2.07	2.06	2.05	2.04	2.03	2.03	2.04	2.04	2.03	2.03	S	2.08	2.08	2.08	2.10	2.08	2.03	2.11	2.07	24
4	2.06	2.07	2.07	2.07	2.08	2.08	2.07	2.04	2.03	2.05	2.06	2.02	2.02	2.01	2.02	2.02	2.01	S	2.02	2.02	2.01	2.03	2.03	2.06	2.01	2.08	2.04	24
5	2.08	2.08	2.08	2.09	2.13	2.17	2.13	2.11	2.08	2.08	2.00	2.00	2.00	2.12	2.02	2.04	S	2.03	2.07	2.08	2.07	2.08	2.04	2.07	2.00	2.17	2.07	24
6	2.12	2.13	2.28	2.31	2.45	2.19	2.06	2.09	2.04	2.07	2.05	C	C	C	C	C	2.10	2.09	2.09	2.10	2.18	2.13	2.15	2.22	2.04	2.45	2.15	24
7	2.21	2.20	2.20	2.22	2.27	2.28	2.38	2.26	2.24	2.20	2.16	2.13	2.11	2.09	S	2.04	2.04	2.03	2.02	2.06	2.06	2.08	2.10	2.09	2.02	2.38	2.15	24
8	2.12	2.17	2.18	2.14	2.17	2.16	2.17	2.17	2.20	2.16	2.20	2.23	2.19	S	2.06	2.02	2.04	2.02	2.03	2.05	2.07	2.11	2.12	2.15	2.02	2.23	2.13	24
9	2.15	2.13	2.11	2.11	2.13	2.23	2.26	2.27	2.31	2.16	2.09	2.09	S	2.06	2.04	2.07	2.06	2.03	2.07	2.35	2.38	2.54	3.18	2.83	2.03	3.18	2.25	24
10	3.67	**5.76**	5.40	4.68	3.49	3.41	3.15	3.08	3.93	3.91	3.01	S	2.31	2.18	2.18	2.22	2.23	2.20	2.18	2.20	2.18	2.20	2.21	2.19	2.18	**5.76**	3.04	24
11	2.17	2.25	2.27	2.22	2.20	2.20	2.23	2.28	2.28	2.22	S	2.19	2.16	2.15	2.18	2.18	2.15	2.33	2.32	2.39	2.49	2.61	2.56	2.60	2.15	2.61	2.29	24
12	2.64	2.67	2.61	2.52	2.42	2.50	2.26	2.08	2.08	S	1.99	1.97	1.96	1.95	1.96	1.96	1.96	1.98	1.99	1.99	2.00	2.01	2.01	2.05	1.95	2.67	2.15	24
13	2.07	2.08	2.13	2.10	2.08	2.05	2.06	2.06	S	2.03	2.03	2.02	2.00	2.00	2.02	2.01	2.02	2.02	2.03	2.06	2.08	2.07	2.07	2.08	2.00	2.13	2.05	24
14	2.08	2.09	2.12	2.17	2.14	2.14	2.15	S	2.09	2.07	2.06	2.04	2.03	2.02	2.01	2.03	2.02	2.03	2.06	2.07	2.06	2.06	2.07	2.14	2.01	2.17	2.08	24
15	2.18	2.22	2.25	2.20	2.17	2.20	S	2.18	2.13	2.13	2.08	2.04	1.99	1.98	1.99	1.99	1.98	1.99	2.02	2.05	2.07	2.06	2.06	2.05	1.98	2.25	2.09	24
16	2.06	2.06	2.06	2.08	2.07	S	2.07	2.06	2.05	2.06	2.04	2.03	2.02	2.00	2.00	2.00	2.00	2.01	2.04	2.04	2.06	2.13	2.14	2.26	2.00	2.26	2.06	24
17	2.22	2.23	2.33	2.34	S	2.32	2.17	2.23	2.19	2.30	2.26	2.23	2.12	2.10	2.08	2.06	2.05	2.03	2.04	2.05	2.04	2.04	2.05	2.06	2.03	2.34	2.15	24
18	2.05	2.05	2.05	S	2.07	2.07	2.09	2.10	2.08	2.07	2.07	2.05	2.03	2.01	2.00	1.99	2.00	2.02	2.04	2.08	2.09	2.07	2.08	2.09	1.99	2.10	2.06	24
19	2.12	2.11	S	2.12	2.13	2.11	2.12	2.12	2.07	2.04	2.02	1.99	1.99	2.00	1.99	2.01	2.04	2.05	2.05	2.08	2.11	2.20	2.18	2.20	1.99	2.20	2.08	24
20	2.22	S	2.25	2.28	2.30	2.37	2.52	2.38	2.37	2.28	2.15	2.03	2.06	2.01	2.01	2.04	2.03	2.05	2.13	2.28	2.36	2.29	2.36	2.47	2.01	2.52	2.23	24
21	S	3.32	3.55	3.05	2.76	2.70	2.58	2.50	2.25	2.13	2.11	2.08	2.06	2.04	2.05	2.03	2.01	2.03	2.10	2.09	2.12	2.12	2.14	S	2.01	3.55	2.36	24
22	2.19	2.23	2.21	2.23	2.34	2.37	2.38	2.47	2.50	2.36	2.37	2.38	2.42	2.37	2.33	2.31	2.28	2.27	2.29	2.37	2.51	2.43	S	2.85	2.19	2.85	2.37	24
23	4.33	3.67	2.71	2.89	2.90	3.00	3.18	2.95	2.43	2.07	2.03	2.02	2.00	1.98	1.98	1.99	2.01	2.02	2.03	2.04	2.06	S	2.06	2.06	1.98	4.33	2.45	24
24	2.06	2.10	2.15	2.16	2.11	2.14	2.21	2.17	2.09	2.08	2.08	2.06	2.06	2.08	2.13	2.14	2.11	2.13	2.15	2.17	S	2.18	2.17	2.16	2.06	2.21	2.13	24
25	2.14	2.09	2.09	2.09	2.06	2.03	2.03	2.06	2.08	2.06	2.07	2.09	2.12	2.14	2.14	2.12	2.12	2.13	2.12	S	2.06	2.06	2.06	2.06	2.03	2.14	2.09	24
26	2.07	2.07	2.07	2.07	2.07	2.07	2.08	2.09	2.09	2.11	2.10	2.10	2.11	2.20	2.23	2.22	2.22	2.18	S	2.35	2.33	2.31	2.34	2.36	2.07	2.36	2.17	24
27	2.27	2.08	2.06	2.05	2.04	2.02	2.04	2.04	2.03	2.01	2.01	2.01	2.00	2.01	2.00	2.00	2.01	S	2.02	2.05	2.12	2.09	2.22	2.09	2.00	2.27	2.06	24
28	2.14	2.10	2.11	2.12	2.13	2.14	2.30	2.13	2.10	2.07	2.05	2.03	2.01	2.00	2.00	1.99	S	2.01	2.02	2.02	2.04	2.04	2.06	2.12	1.99	2.30	2.08	24
29	2.07	2.06	2.07	2.12	2.10	2.14	2.18	2.11	2.05	2.03	2.02	2.02	2.01	2.01	2.01	S	2.02	2.04	2.05	2.09	2.10	2.05	2.10	2.18	2.01	2.18	2.07	24
30	2.17	2.11	2.10	2.15	2.10	2.13	2.17	2.13	2.09	2.15	2.04	2.01	2.01	2.02	S	2.03	2.04	2.04	2.03	2.04	2.05	2.07	2.07	2.09	2.01	2.17	2.08	24
31	2.05	2.05	2.15	2.20	2.16	2.14	2.15	2.25	2.47	2.17	2.07	2.04	2.03	S	2.02	2.03	2.04	2.03	2.03	2.05	2.08	2.08	2.09	2.12	2.02	2.47	2.11	24
HOURLY MAX	4.33	5.76	5.40	4.68	3.49	3.41	3.18	3.08	3.93	3.91	3.01	2.38	2.42	2.37	2.33	2.31	2.28	2.33	2.32	2.39	2.51	2.61	3.18	2.85				
HOURLY AVG	2.27	2.35	2.33	2.30	2.24	2.25	2.25	2.22	2.22	2.18	2.11	2.07	2.07	2.06	2.05	2.06	2.06	2.06	2.07	2.12	2.13	2.15	2.17	2.20				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

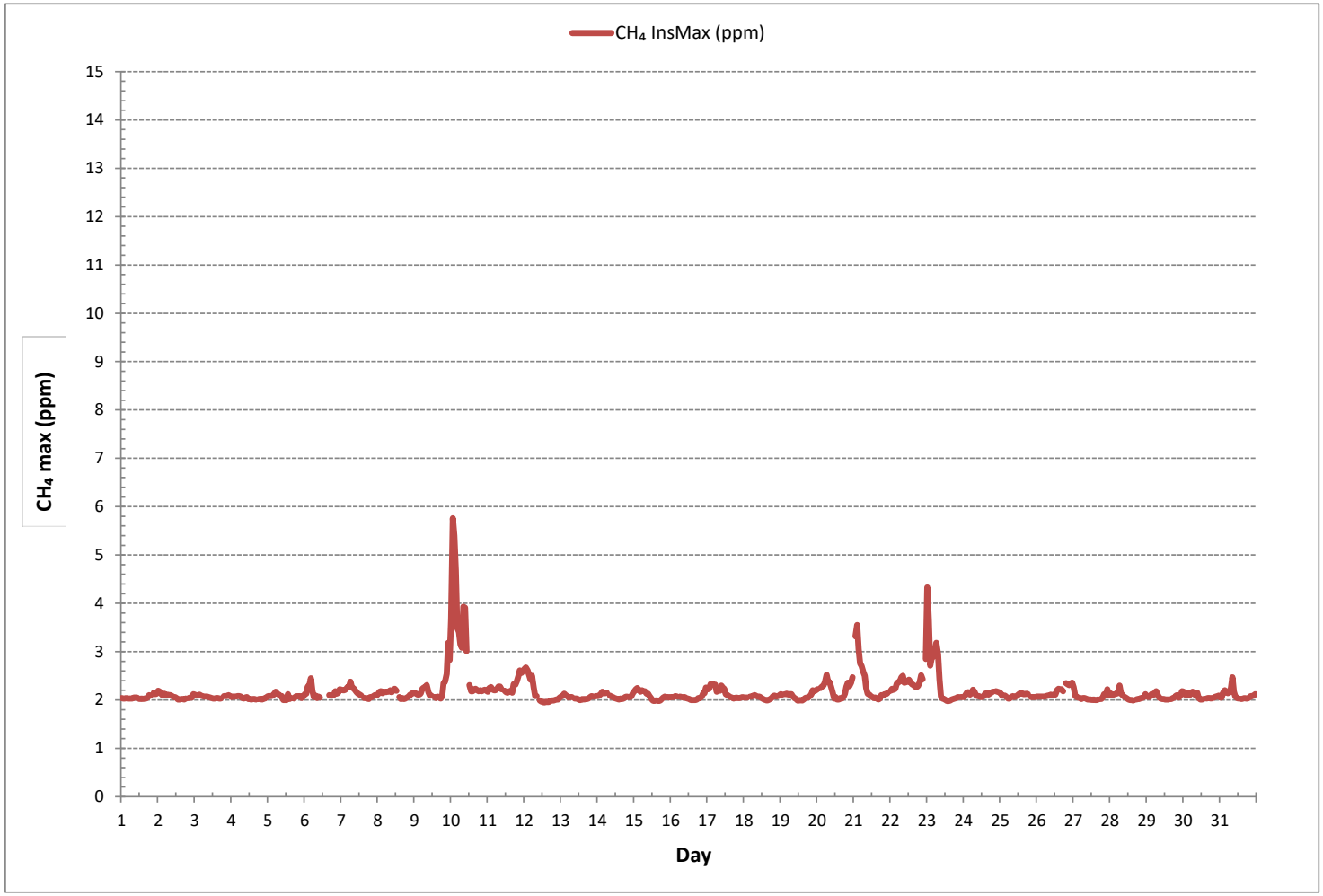
NUMBER OF NON-ZERO READINGS: 708

MAXIMUM INSTANTANEOUS VALUE: 5.76 ppm @ HOUR 1 ON DAY 10

IZS CALIBRATION TIME: 31 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 0.32

OPERATIONAL TIME: 744 hrs

METHANE MAX Instantaneous Maximum (CH_4 ppm)



NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.63**	0.00	**S**	0.00	0.00	0.00	0.00	**0.63**	0.03	24
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**C**	**C**	**C**	**C**	**C**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**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	24
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**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	24
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.17	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	0.17	0.01	24
10	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	24
11	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	24
12	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	24
13	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	24
14	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	24
15	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	24
16	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	24
17	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	24
18	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	24
19	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	24
20	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	0.03	0.00	0.00	0.03	0.00	24
21	**S**	0.04	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	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	0.07	0.00	24
22	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.01	0.00	24
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	24
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	24
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	24
28	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**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	24
HOURLY MAX	0.00	0.04	0.00	0.00	0.00	0.00	0.07	0.00	0.07	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.00	0.03	0.00				
HOURLY AVG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

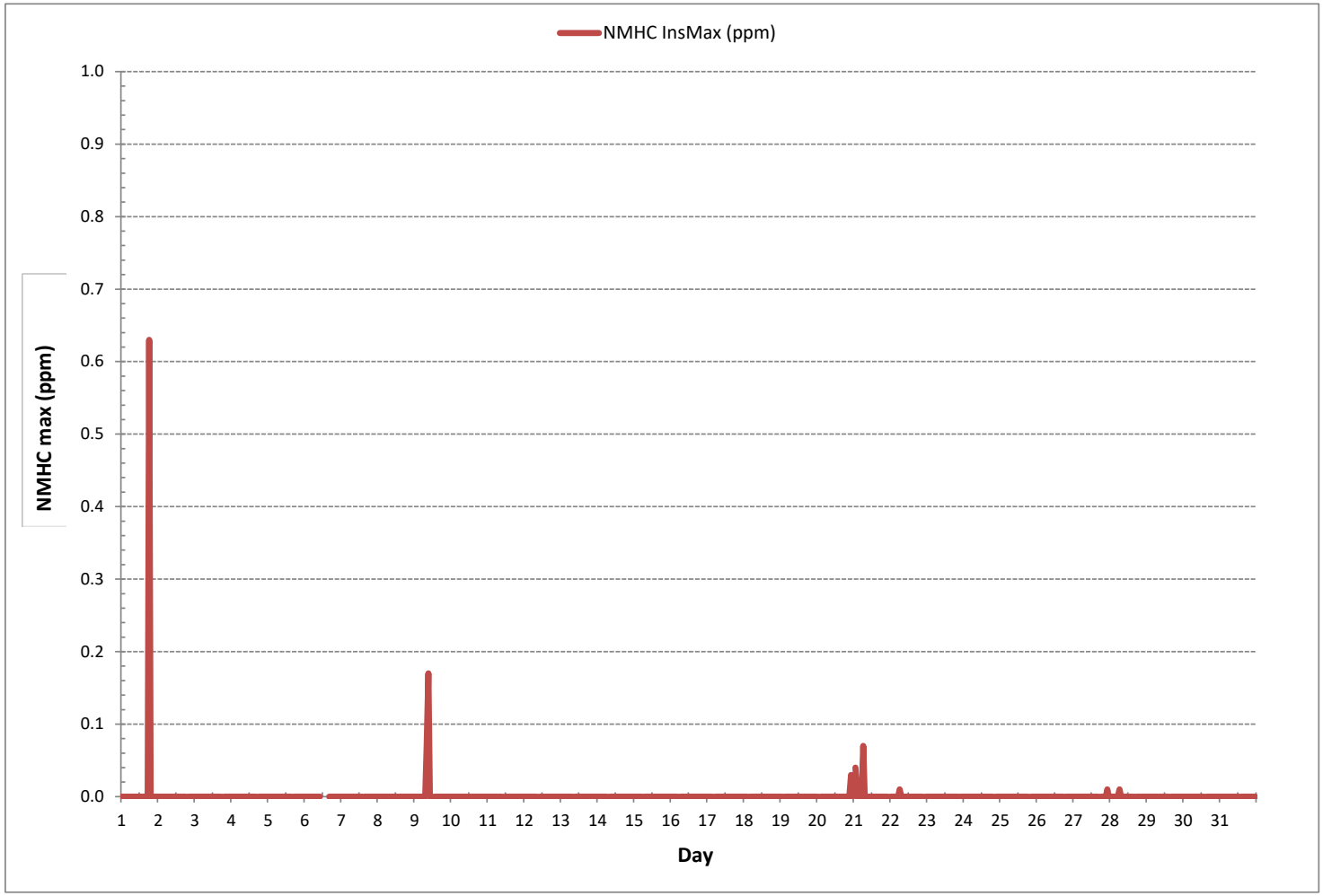
NUMBER OF NON-ZERO READINGS: 9

MAXIMUM INSTANTANEOUS VALUE: 0.63 ppm @ HOUR 18 ON DAY 1

IZS CALIBRATION TIME: 31 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 0.02

OPERATIONAL TIME: 744 hrs

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)



OXIDES OF NITROGEN Instantaneous Maximum (NO_x ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	4	3	2	2	2	2	3	3	4	4	4	3	3	3	3	2	3	5	11	10	S	9	8	4	2	11	4	24
2	4	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	S	2	4	4	4	2	4	2	24
3	3	2	1	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	1	3	2	24
4	2	2	2	2	2	2	2	2	2	4	4	2	2	2	2	2	2	S	2	2	2	2	2	2	2	4	2	24
5	2	2	3	3	3	3	3	3	4	6	2	1	C	C	C	C	C	C	C	C	C	7	4	4	1	7	-	24
6	4	4	4	5	4	2	1	2	1	1	1	1	2	2	2	S	2	2	2	2	3	2	2	3	1	5	2	24
7	3	3	3	3	5	5	6	6	5	3	4	3	3	3	S	2	3	4	3	4	5	4	3	3	2	6	4	24
8	4	6	5	3	3	3	3	3	4	4	7	8	7	S	5	3	5	3	6	4	5	3	3	2	2	8	4	24
9	2	2	2	2	7	14	13	21	18	10	7	7	S	5	3	4	3	2	2	6	5	7	13	9	2	21	7	24
10	9	10	17	17	13	16	30	16	21	22	22	S	9	8	7	6	6	6	6	6	6	6	6	6	6	30	12	24
11	6	6	6	6	5	6	6	8	8	8	S	7	7	6	6	6	5	8	8	9	12	12	10	10	5	12	8	24
12	9	10	10	8	8	18	6	5	6	S	5	4	3	3	3	3	4	4	2	3	3	3	3	4	2	18	5	24
13	4	3	2	2	2	2	2	2	S	2	2	2	1	1	2	2	2	1	1	3	4	4	3	2	1	4	2	24
14	2	2	2	2	2	3	3	S	3	3	2	2	2	2	1	1	2	2	2	2	2	2	2	3	1	3	2	24
15	5	5	5	4	4	4	S	5	6	6	4	3	2	2	2	2	1	2	2	2	2	2	1	1	1	6	3	24
16	1	1	1	1	1	S	2	3	2	2	2	2	1	1	1	1	1	1	1	1	1	2	2	3	1	3	2	24
17	2	2	2	3	S	4	4	6	5	7	7	7	5	5	5	4	3	2	2	2	2	2	2	1	1	7	4	24
18	1	1	1	S	2	2	3	3	3	4	4	3	2	2	2	1	2	1	1	3	4	4	5	5	1	5	3	24
19	6	6	S	6	6	6	6	6	4	3	2	2	2	2	2	2	2	2	3	2	3	3	5	3	2	6	4	24
20	3	S	3	3	3	5	6	10	8	7	9	7	6	4	3	4	3	3	4	4	4	4	4	4	3	10	5	24
21	S	13	15	9	7	9	27	8	4	8	3	2	2	1	1	1	1	1	2	1	2	2	3	S	1	27	6	24
22	3	3	3	4	4	5	9	8	9	6	8	8	7	7	7	5	5	4	5	5	4	5	S	5	3	9	6	24
23	9	10	9	13	9	11	11	11	7	4	3	3	6	1	1	1	3	1	1	1	1	S	1	1	1	13	5	24
24	1	1	2	1	1	10	5	2	1	1	1	1	1	1	2	2	2	2	2	2	S	2	2	2	1	10	2	24
25	2	2	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	2	S	2	2	2	2	1	3	2	24
26	2	2	2	3	3	3	6	4	5	4	3	4	4	6	7	7	7	5	S	5	5	8	8	7	2	8	5	24
27	7	4	2	2	2	2	3	3	3	1	1	1	1	1	1	1	1	S	3	5	2	3	2	1	1	7	2	24
28	4	7	1	1	2	3	2	2	2	3	2	1	1	1	1	1	S	1	1	1	1	1	2	4	1	7	2	24
29	4	2	4	5	5	8	12	5	2	1	2	1	1	1	1	S	1	1	1	1	1	1	2	3	1	12	3	24
30	2	1	1	2	1	2	2	2	3	5	2	1	1	2	S	4	4	4	2	2	2	3	3	4	1	5	2	24
31	2	3	7	7	4	3	3	8	11	3	2	1	1	S	1	1	1	1	1	1	1	2	2	2	1	11	3	24
HOURLY MAX	9	13	17	17	13	18	30	21	21	22	22	8	9	8	7	7	7	8	11	10	12	12	13	10				
HOURLY AVG	4	4	4	4	4	5	6	5	5	5	4	3	3	3	3	3	3	3	3	3	3	4	4	4				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

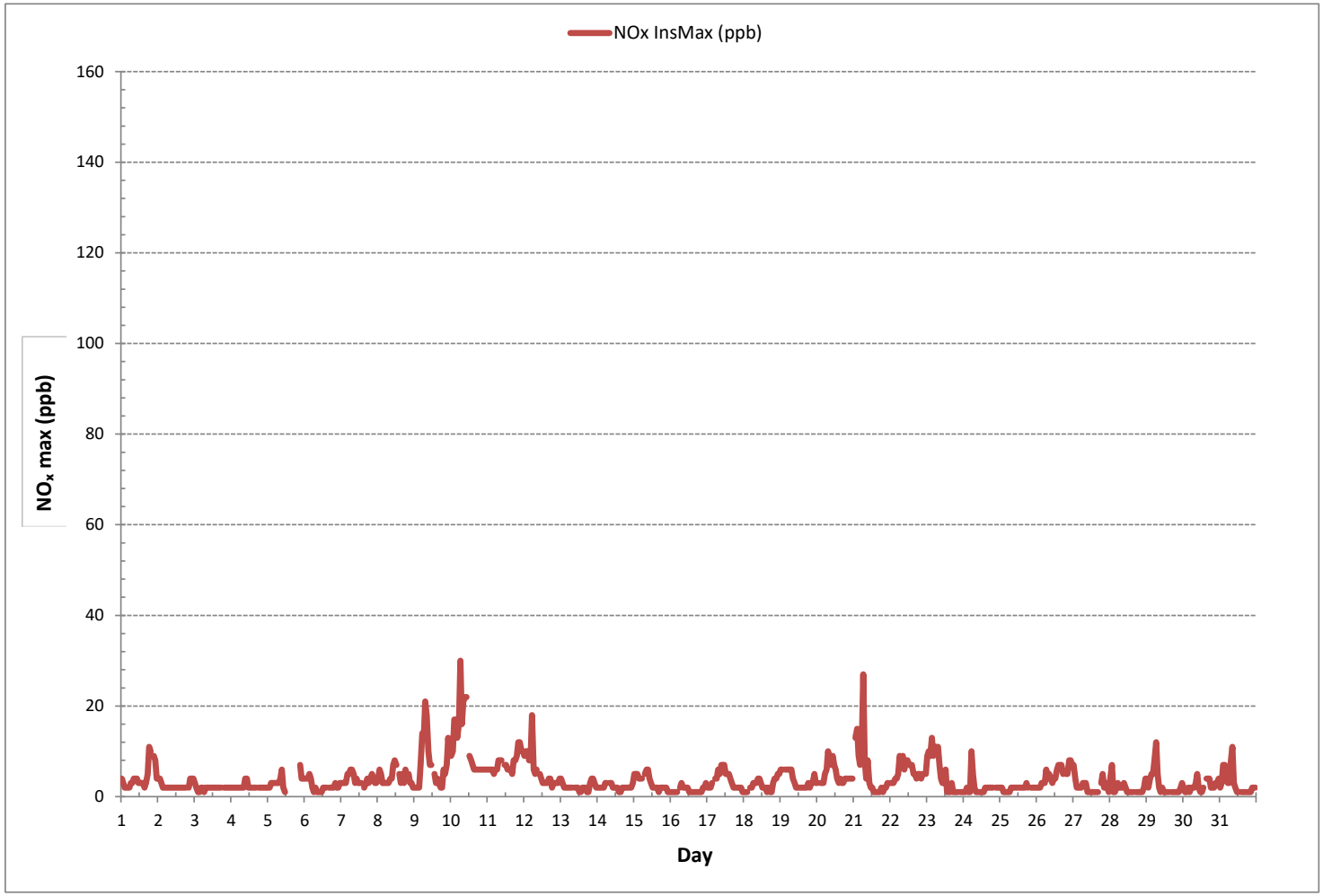
NUMBER OF NON-ZERO READINGS: 704

MAXIMUM INSTANTANEOUS VALUE: 30 ppb @ HOUR 6 ON DAY 10

IZS CALIBRATION TIME: 31 hrs
MONTHLY CALIBRATION TIME: 9 hrs
STANDARD DEVIATION: 3

OPERATIONAL TIME: 744 hrs

OXIDES OF NITROGEN Instantaneous Maximum (NO_x ppb)



NITRIC OXIDE Instantaneous Maximum (NO ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	0	0	0	0	0	0	0	0	1	2	2	2	1	2	1	1	1	1	0	0	S	0	0	0	0	2	1	24
2	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	S	0	0	0	0	0	1	0	24
3	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	S	0	0	0	0	0	0	1	0	24
4	0	0	0	0	0	0	0	0	1	1	2	1	1	1	1	1	0	S	0	0	0	0	0	0	0	2	0	24
5	0	0	0	0	0	0	0	0	1	2	1	0	C	C	C	C	C	C	C	C	C	0	0	0	0	2	-	24
6	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	S	0	0	0	0	0	0	0	0	0	1	0	24
7	0	0	0	0	0	0	0	1	1	1	1	1	1	1	S	0	0	0	0	0	0	0	0	0	0	1	0	24
8	0	0	0	0	0	0	0	0	1	1	3	4	2	S	1	1	1	0	0	0	0	0	0	0	0	4	1	24
9	0	0	0	0	0	0	0	3	6	3	3	3	S	2	1	1	0	0	0	0	0	0	1	0	0	6	1	24
10	0	0	1	0	0	0	1	3	9	10	10	S	3	2	2	1	1	0	0	0	0	0	0	0	0	10	2	24
11	0	0	0	0	0	0	0	0	1	1	S	2	1	1	1	1	0	0	0	0	0	0	0	0	0	2	0	24
12	0	0	0	0	0	1	0	0	1	S	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	1	0	24
13	0	0	0	0	0	0	0	0	S	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
14	0	0	0	0	0	0	0	S	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
15	0	0	0	0	0	0	S	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
16	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
17	0	0	0	0	S	0	0	0	1	2	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	2	0	24
18	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	1	0	24
19	0	0	S	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
20	0	S	0	0	0	0	0	2	2	2	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3	1	24
21	S	0	0	0	0	0	12	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	12	1	24
22	0	0	0	0	0	0	1	1	2	2	3	2	2	2	1	1	0	0	0	0	0	0	S	0	0	3	1	24
23	0	0	0	0	1	0	0	2	1	0	0	0	3	0	0	0	1	0	0	0	0	S	0	0	0	3	0	24
24	0	0	0	0	0	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	4	0	24
25	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0	24
26	0	0	0	0	0	0	1	0	0	1	0	1	1	2	2	1	1	0	S	0	0	0	0	0	0	2	0	24
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	24
28	1	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	3	0	24
29	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0	24
30	0	0	0	0	0	0	0	0	0	1	0	0	0	0	S	1	1	0	0	0	0	0	0	0	0	1	0	24
31	0	0	0	0	0	0	0	1	3	1	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	3	0	24
HOURLY MAX	1	3	1	0	1	4	12	3	9	10	10	4	3	2	2	1	1	1	0	0	0	0	1	0				
HOURLY AVG	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

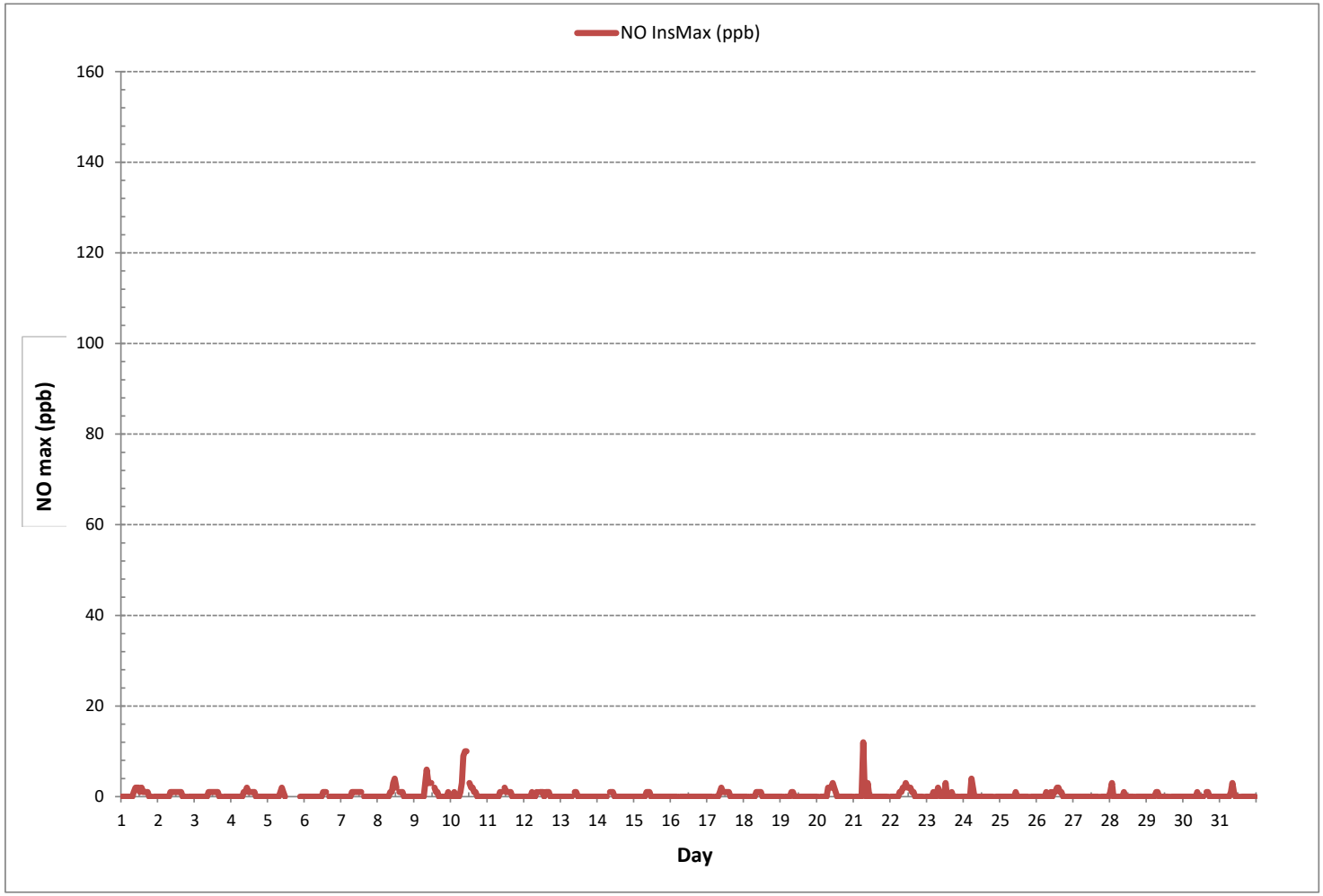
NUMBER OF NON-ZERO READINGS: 156

MAXIMUM INSTANTANEOUS VALUE: 12 ppb @ HOUR 6 ON DAY 21

IZS CALIBRATION TIME: 31 hrs
MONTHLY CALIBRATION TIME: 9 hrs
STANDARD DEVIATION: 1

OPERATIONAL TIME: 744 hrs

NITRIC OXIDE Instantaneous Maximum (NO ppb)



NITROGEN DIOXIDE Instantaneous Maximum (NO_2 ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	4	3	2	2	2	2	3	3	3	2	2	1	1	2	1	1	2	4	11	10	S	9	8	4	1	11	4	24
2	3	4	3	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	S	2	4	4	3	1	4	2	24
3	2	2	1	1	2	2	1	2	1	1	1	1	1	1	1	1	1	2	S	2	2	2	2	2	1	2	1	24
4	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2	2	1	S	2	2	2	2	2	2	1	2	2	24
5	2	2	3	3	3	3	2	2	2	3	1	1	C	C	C	C	C	C	C	C	C	7	4	4	1	7	-	24
6	4	4	4	5	4	2	1	2	1	1	1	1	1	1	1	S	1	2	2	2	3	2	3	3	1	5	2	24
7	3	3	3	3	5	5	6	5	4	2	2	2	2	2	S	2	3	3	3	4	5	5	4	4	2	6	3	24
8	4	6	5	3	3	3	3	3	4	3	4	5	4	S	4	3	4	3	6	4	5	3	3	2	2	6	4	24
9	2	2	2	2	7	15	13	18	12	7	4	4	S	3	3	3	3	2	2	6	5	7	13	9	2	18	6	24
10	10	10	17	16	13	15	29	14	12	11	12	S	6	6	5	5	6	6	6	6	6	6	6	6	5	29	10	24
11	6	6	6	6	6	6	7	8	7	7	S	6	5	5	5	5	5	8	8	9	12	12	10	9	5	12	7	24
12	9	10	10	8	8	17	6	5	5	S	4	3	3	3	3	3	3	3	2	3	3	3	3	4	2	17	5	24
13	4	2	2	2	2	2	2	2	S	2	2	2	1	1	1	1	1	1	1	4	4	4	3	2	1	4	2	24
14	2	2	2	2	3	3	3	S	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	3	1	3	2	24
15	5	5	5	4	4	4	S	5	5	5	4	3	2	2	2	1	1	2	2	2	2	2	2	2	1	5	3	24
16	1	1	1	1	1	S	2	3	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	3	1	3	2	24
17	2	2	2	3	S	4	4	6	5	6	5	5	4	4	4	4	3	2	2	2	2	2	2	2	2	6	3	24
18	1	1	2	S	2	2	3	3	3	3	3	2	2	2	2	1	2	2	2	3	4	4	5	5	1	5	3	24
19	6	6	S	6	6	6	6	6	4	3	2	2	2	2	2	2	2	2	3	3	3	3	5	3	2	6	3	24
20	3	S	3	3	3	5	6	8	6	5	7	6	5	3	3	4	3	3	4	4	4	5	5	4	3	8	4	24
21	S	13	15	9	7	9	15	7	3	5	2	2	2	1	1	1	1	1	2	2	2	3	3	S	1	15	5	24
22	3	4	4	4	4	5	8	7	7	5	6	6	5	5	5	4	4	4	5	5	4	5	S	5	3	8	5	24
23	9	10	8	13	8	11	11	9	6	3	3	3	4	1	1	1	2	1	1	1	1	S	1	1	1	13	5	24
24	1	1	2	1	1	6	3	2	1	1	1	1	1	1	1	2	2	2	2	2	S	2	2	2	1	6	2	24
25	2	2	2	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	2	S	2	2	2	2	1	3	2	24
26	2	2	2	3	3	3	5	4	5	3	3	3	3	4	5	6	6	5	S	5	5	8	8	7	2	8	4	24
27	7	4	3	2	3	2	3	2	2	1	1	1	1	1	1	1	1	S	3	5	2	3	2	1	1	7	2	24
28	3	4	1	1	2	3	2	2	2	2	2	1	1	1	1	1	S	1	1	1	1	1	2	4	1	4	2	24
29	4	2	4	5	5	8	11	5	2	1	1	1	1	1	1	S	1	1	1	1	1	1	2	3	1	11	3	24
30	2	1	1	2	2	2	2	2	2	3	2	1	1	2	S	3	4	3	2	2	3	3	3	4	1	4	2	24
31	2	3	7	7	4	3	3	7	8	3	1	1	1	S	1	1	1	1	1	1	1	1	2	2	1	8	3	24
HOURLY MAX	10	13	17	16	13	17	29	18	12	11	12	6	6	6	5	6	6	8	11	10	12	12	13	9				
HOURLY AVG	4	4	4	4	4	5	6	5	4	3	3	2	2	2	2	2	2	3	3	3	3	4	4	4				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 704

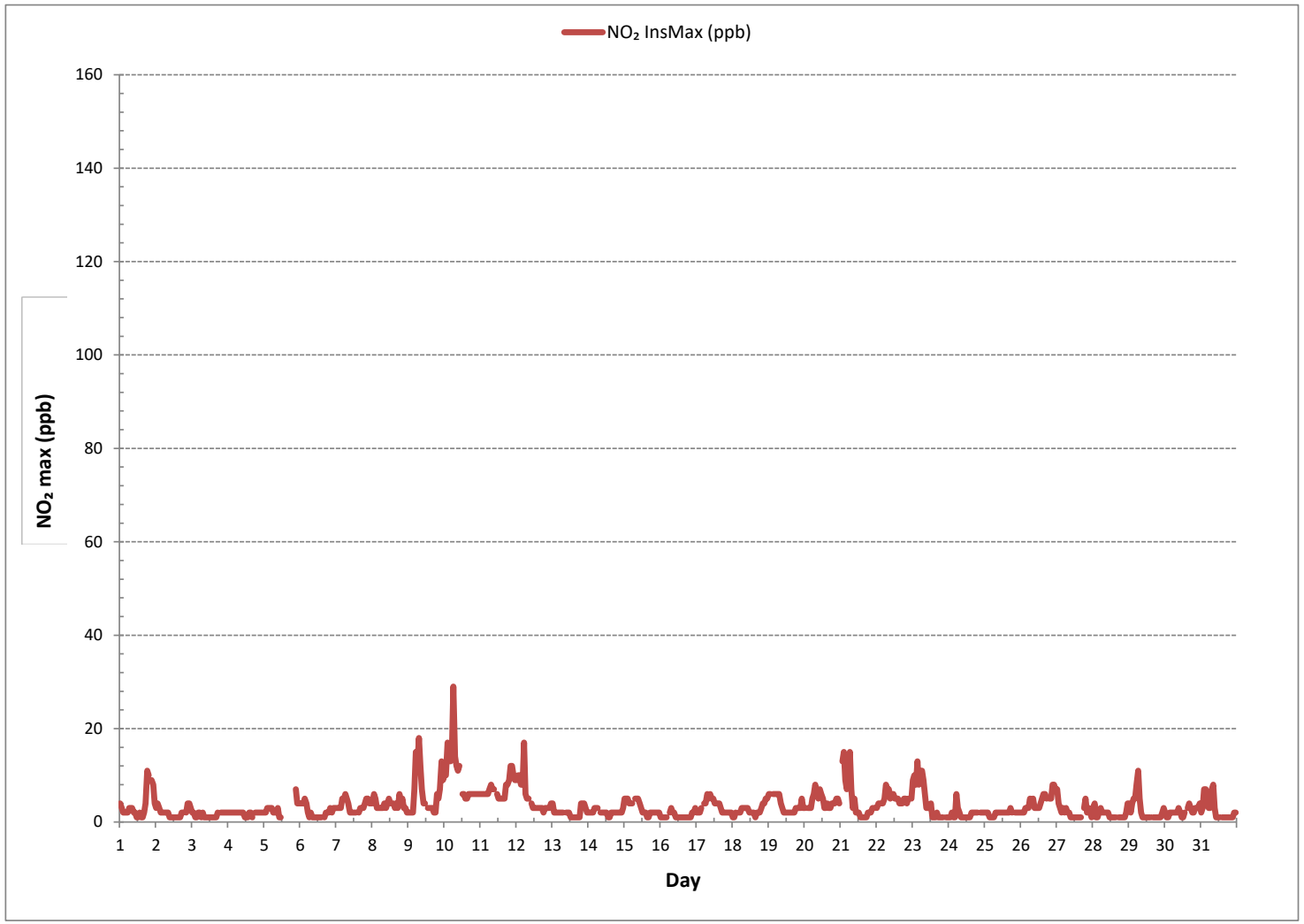
MAXIMUM INSTANTANEOUS VALUE: 29 ppb @ HOUR 6 ON DAY 10

VAR-VARIOUS

IZS CALIBRATION TIME: 31 hrs
MONTHLY CALIBRATION TIME: 9 hrs
STANDARD DEVIATION: 3

OPERATIONAL TIME: 744 hrs

NITROGEN DIOXIDE Instantaneous Maximum (NO_2 ppb)



OZONE Instantaneous Maximum (O_3 ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	22.4	21.5	20.8	19.2	22.8	26.2	27.9	29.5	30.4	32.2	33.0	33.6	34.0	34.3	35.5	35.8	35.6	33.8	26.9	28.2	S	29.0	30.4	32.9	19.2	35.8	29.4	24
2	32.3	32.1	33.2	34.4	34.3	34.4	34.0	34.2	34.0	34.8	35.5	36.0	38.0	39.8	39.7	39.4	39.9	41.1	40.8	S	39.8	38.5	38.1	37.7	32.1	41.1	36.6	24
3	38.1	38.3	38.9	38.0	37.2	36.9	37.6	36.6	36.8	37.1	37.7	38.1	38.6	39.5	40.4	40.8	41.0	40.3	S	39.7	39.9	39.9	40.2	40.5	36.6	41.0	38.8	24
4	40.2	39.7	39.0	38.7	38.7	39.0	39.0	39.4	39.7	39.9	40.8	42.0	43.1	44.1	44.5	44.8	45.4	S	45.6	45.6	45.5	45.2	44.7	43.9	38.7	45.6	42.1	24
5	43.0	41.9	41.1	40.5	40.1	39.1	39.3	39.4	39.2	39.1	41.8	43.5	43.5	38.4	41.9	43.0	S	43.5	40.3	38.8	37.1	37.5	39.8	39.1	37.1	43.5	40.5	24
6	38.4	38.2	37.5	35.8	36.3	36.5	40.2	38.8	40.2	40.0	40.4	C	C	C	C	C	42.8	42.8	42.9	42.6	41.2	41.2	41.4	41.1	35.8	42.9	39.9	24
7	41.0	40.8	40.7	39.8	37.0	35.7	34.5	35.3	37.0	38.9	39.6	40.9	41.6	42.2	S	43.6	43.2	42.4	42.9	41.5	40.2	40.2	40.7	40.8	34.5	43.6	40.0	24
8	39.7	36.5	36.7	39.0	39.3	38.8	38.3	37.5	37.4	38.1	37.4	38.4	41.1	S	42.4	46.3	43.5	47.5	42.9	44.3	42.7	45.4	45.9	46.9	36.5	47.5	41.1	24
9	46.8	46.7	46.5	46.1	41.3	32.8	32.5	28.3	33.6	41.6	42.6	43.2	S	45.9	47.2	47.5	48.3	49.8	49.5	45.0	44.0	40.5	31.1	34.2	28.3	49.8	42.0	24
10	30.9	27.2	22.6	23.5	27.7	23.1	15.0	24.9	24.3	29.0	37.0	S	51.3	53.6	55.2	57.8	60.8	60.8	60.8	60.4	59.9	59.1	58.6	57.4	15.0	60.8	42.6	24
11	56.0	55.9	55.7	54.6	53.4	52.0	49.6	48.0	48.1	48.9	S	51.3	52.5	53.6	54.6	55.3	55.4	54.4	55.6	55.7	52.5	51.5	52.1	50.6	48.0	56.0	52.9	24
12	50.8	48.7	48.1	48.6	46.1	44.6	42.8	41.9	44.1	S	46.6	46.5	46.4	45.8	46.6	46.3	46.7	45.6	46.3	47.6	47.3	46.2	45.6	43.4	41.9	50.8	46.2	24
13	42.0	42.4	42.1	41.2	41.2	41.4	41.9	42.5	S	44.8	45.7	47.4	48.8	50.1	51.8	51.5	51.2	49.5	49.9	52.1	48.7	47.0	46.7	46.4	41.2	52.1	46.4	24
14	46.2	45.9	45.2	44.2	43.2	41.6	40.3	S	41.8	43.3	45.2	47.7	49.9	51.8	53.8	54.8	54.2	52.2	51.3	50.5	49.4	48.4	46.6	45.2	40.3	54.8	47.5	24
15	44.2	43.2	43.7	46.9	47.4	45.7	S	44.7	44.9	45.5	48.3	50.6	51.5	50.8	50.8	51.3	52.0	51.6	51.5	53.2	51.6	50.4	50.0	49.2	43.2	53.2	48.7	24
16	49.5	49.6	49.3	48.8	48.7	S	47.8	47.2	48.1	49.4	50.7	52.1	53.5	54.2	54.5	53.9	52.2	51.4	50.9	51.3	50.9	50.3	48.3	48.3	47.2	54.5	50.5	24
17	50.6	53.7	44.6	43.2	S	45.2	48.2	48.6	51.2	49.4	50.0	50.9	54.0	55.5	57.8	60.1	60.3	57.5	57.6	56.6	54.9	54.9	53.9	52.5	43.2	60.3	52.7	24
18	51.5	51.2	50.5	S	49.8	49.1	48.3	47.9	49.5	50.8	52.3	54.8	56.8	58.7	58.5	59.1	59.8	58.6	60.6	60.0	58.2	56.9	54.8	52.5	47.9	60.6	54.4	24
19	49.4	47.9	S	45.1	43.5	42.5	42.0	43.1	48.2	50.9	53.5	55.2	56.2	57.6	58.4	61.5	63.3	61.2	59.2	57.4	56.2	55.4	49.4	50.9	42.0	63.3	52.5	24
20	47.7	S	49.2	45.6	44.9	35.8	32.6	33.0	34.3	46.3	51.5	55.6	57.0	67.3	73.5	74.7	77.3	**77.7**	74.1	70.5	66.7	69.9	53.3	43.6	32.6	**77.7**	55.7	24
21	S	30.8	39.6	51.4	43.0	33.2	33.1	36.5	45.8	46.2	47.2	48.7	51.0	53.1	53.7	52.6	52.7	52.5	51.8	51.0	52.3	51.0	48.9	S	30.8	53.7	46.6	24
22	44.5	42.3	40.4	38.0	34.7	31.9	27.0	26.6	26.9	31.4	31.0	33.2	36.7	38.8	41.1	44.6	46.3	47.0	45.7	41.5	34.1	29.6	S	15.7	15.7	47.0	36.1	24
23	9.3	13.2	12.7	7.9	9.3	9.9	20.2	24.0	37.4	44.3	45.6	46.9	46.8	48.9	48.8	47.9	46.5	45.6	41.8	39.1	36.9	S	39.7	41.3	7.9	48.9	33.2	24
24	39.4	37.1	34.5	33.4	34.0	31.4	31.8	32.2	34.6	35.5	35.9	36.8	38.5	39.7	40.3	40.3	37.3	35.8	35.5	34.1	S	30.5	33.0	33.9	30.5	40.3	35.5	24
25	34.6	35.5	35.6	36.3	37.0	36.3	35.3	34.1	33.1	33.9	35.0	36.0	37.4	38.4	39.5	38.3	36.4	34.9	33.3	S	26.1	25.9	26.3	26.6	25.9	39.5	34.2	24
26	26.0	25.3	24.7	24.2	26.0	27.7	24.4	25.0	23.6	25.3	24.6	24.1	22.7	22.6	22.6	21.8	20.8	21.1	S	17.3	15.7	9.1	9.1	12.0	9.1	27.7	21.6	24
27	22.8	34.1	33.5	35.5	36.1	38.4	37.9	39.0	42.0	46.0	46.2	46.8	47.8	48.2	47.3	45.7	44.3	S	37.5	34.5	37.4	30.3	31.0	30.3	22.8	48.2	38.8	24
28	28.5	21.2	23.8	22.4	23.8	24.7	21.5	23.6	34.3	35.1	38.4	40.7	43.0	44.5	45.5	45.9	S	45.7	44.6	44.0	43.6	42.2	38.6	34.0	21.2	45.9	35.2	24
29	35.5	34.3	34.5	30.9	32.5	28.5	24.3	34.8	40.1	41.7	42.2	43.9	45.3	46.5	47.3	S	47.0	46.4	43.3	42.2	41.6	42.1	41.3	38.6	24.3	47.3	39.3	24
30	39.6	41.1	41.2	39.0	39.5	35.6	30.8	31.6	32.5	34.8	39.9	42.9	45.3	45.0	S	43.9	42.8	41.6	41.5	39.4	38.5	36.0	36.8	34.3	30.8	45.3	38.9	24
31	36.5	34.3	27.5	24.0	24.4	23.8	22.6	22.5	26.6	37.8	42.6	44.3	45.6	S	47.5	48.3	46.4	44.7	42.1	40.6	39.7	37.5	35.6	33.9	22.5	48.3	36.0	24
HOURLY MAX	56.0	55.9	55.7	54.6	53.4	52.0	49.6	48.6	51.2	50.9	53.5	55.6	57.0	67.3	73.5	74.7	77.3	77.7	74.1	70.5	66.7	69.9	58.6	57.4				
HOURLY AVG	39.2	38.4	37.8	37.2	37.1	35.4	34.7	35.7	38.0	40.4	41.9	43.9	45.4	46.7	47.9	48.2	48.0	47.5	47.1	45.7	44.6	42.7	41.7	39.9				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

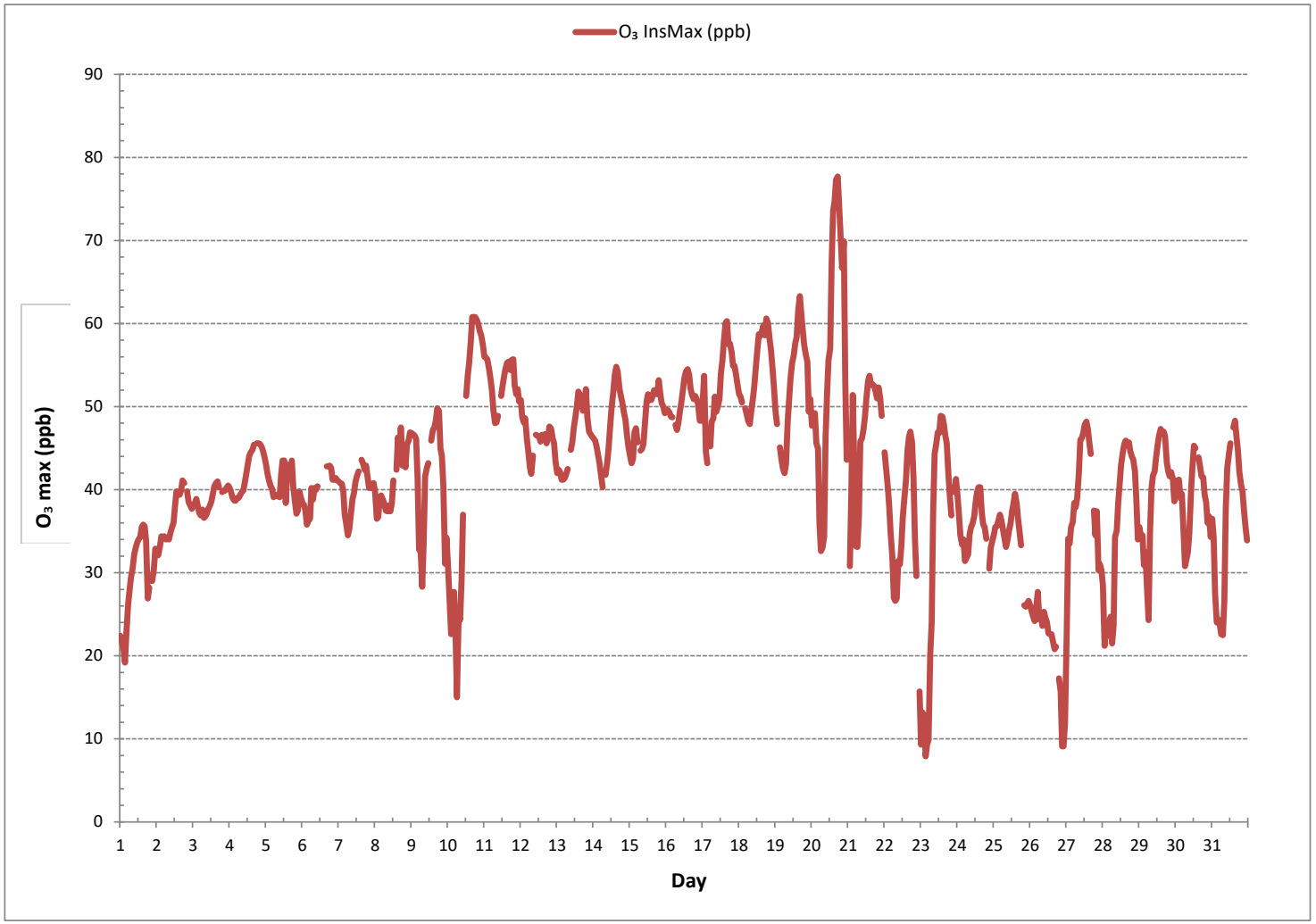
NUMBER OF NON-ZERO READINGS: 708

MAXIMUM INSTANTANEOUS VALUE: 77.7 ppb @ HOUR 17 ON DAY 20

IZS CALIBRATION TIME: 31 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 10.3

OPERATIONAL TIME: 744 hrs

OZONE Instantaneous Maximum (O_3 ppb)



WIND SPEED Instantaneous Maximum (WS kph)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	20.4	19.2	16.7	21.9	22.0	21.8	20.9	19.6	16.6	20.8	18.0	20.3	18.9	18.7	18.6	17.3	16.6	14.4	12.4	10.3	11.1	11.6	11.9	9.8	9.8	22.0	17.1	24
2	11.8	13.4	12.4	12.7	11.2	13.3	15.6	17.1	16.0	15.7	16.1	16.9	17.3	24.2	22.6	20.9	17.0	20.6	23.3	18.4	18.5	15.0	13.7	14.8	11.2	24.2	16.6	24
3	15.2	14.6	16.1	14.5	15.6	15.3	17.7	20.6	23.6	21.2	22.8	18.0	18.0	20.0	18.5	17.0	20.6	18.9	17.1	14.8	15.7	14.8	15.7	18.2	14.5	23.6	17.7	24
4	20.8	19.1	18.9	19.6	19.0	18.9	13.3	14.2	17.3	15.0	15.7	18.1	22.0	21.5	19.8	21.2	19.9	17.5	19.2	16.3	15.9	15.1	14.5	16.6	13.3	22.0	17.9	24
5	16.9	16.7	13.9	14.7	16.5	15.2	14.8	13.0	13.5	14.6	19.5	21.2	19.5	19.3	19.2	21.0	15.7	12.3	14.4	12.0	11.8	11.1	11.5	5.7	5.7	21.2	15.2	24
6	6.2	4.9	4.3	3.4	3.8	8.2	8.7	4.1	11.7	13.3	11.5	12.6	11.8	10.6	12.2	11.3	13.7	13.6	10.8	12.5	11.2	14.5	14.9	15.0	3.4	15.0	10.2	24
7	15.2	13.2	6.1	6.0	7.8	9.0	8.4	8.4	9.8	9.7	10.4	10.2	9.6	10.2	10.5	11.6	10.1	7.8	7.5	5.8	4.1	5.7	8.5	6.1	4.1	15.2	8.8	24
8	5.6	3.9	4.8	6.7	7.6	7.3	8.8	8.3	9.3	9.6	8.7	11.1	8.2	11.5	14.3	14.6	13.0	9.0	7.6	7.8	9.3	9.0	10.3	11.5	3.9	14.6	9.1	24
9	13.9	11.9	12.7	11.5	7.5	8.6	8.9	7.7	6.5	5.1	2.0	1.5	2.3	3.8	7.4	5.4	4.6	6.0	8.9	6.1	6.1	7.7	8.5	7.3	1.5	13.9	7.2	24
10	5.9	6.2	2.6	1.4	2.1	3.3	2.5	2.1	3.3	3.2	4.6	2.5	7.0	6.6	9.2	15.2	14.3	12.8	10.0	12.7	9.1	7.7	5.3	7.2	1.4	15.2	6.5	24
11	11.6	9.0	11.3	11.3	9.9	10.9	8.5	9.4	6.2	11.3	11.9	10.7	11.1	12.5	9.2	13.3	9.5	11.8	14.4	16.9	6.9	9.3	5.7	4.5	4.5	16.9	10.3	24
12	5.3	9.1	6.8	8.6	7.3	17.9	20.8	16.9	17.8	16.2	16.0	24.3	21.8	23.4	17.6	16.3	13.3	10.8	14.7	19.5	14.8	14.1	13.7	15.8	5.3	24.3	15.1	24
13	14.1	11.9	11.4	11.2	11.3	9.3	13.3	12.3	13.4	13.6	9.5	9.3	10.9	13.7	17.0	18.1	15.4	17.7	17.0	14.1	13.3	14.6	14.1	13.2	9.3	18.1	13.3	24
14	13.0	12.6	11.5	12.5	13.0	12.9	10.5	11.0	13.3	7.5	4.1	5.1	7.0	11.7	13.4	14.9	12.4	14.0	12.0	12.7	8.4	3.5	4.2	8.0	3.5	14.9	10.4	24
15	5.8	6.1	10.1	10.9	9.4	12.4	9.1	12.6	14.5	12.4	15.5	15.5	23.5	24.3	24.2	24.0	22.3	17.3	10.6	10.6	11.3	13.6	13.1	13.8	5.8	24.3	14.3	24
16	12.7	10.6	9.1	12.4	15.3	16.4	14.3	11.2	12.4	14.0	14.7	14.6	13.8	15.3	13.7	13.3	15.7	12.6	10.6	9.4	9.1	10.4	4.0	4.7	4.0	16.4	12.1	24
17	5.0	7.1	3.8	3.4	3.7	7.2	11.8	10.7	15.5	12.7	13.6	10.1	15.4	13.6	16.8	18.4	17.9	17.2	15.3	14.5	16.1	17.2	14.9	12.8	3.4	18.4	12.3	24
18	12.8	14.3	13.9	13.0	13.8	13.6	12.2	13.3	12.4	9.1	7.2	6.6	5.5	3.6	9.1	14.0	12.3	11.6	12.8	13.5	14.7	15.2	14.1	15.4	3.6	15.4	11.8	24
19	12.7	14.6	8.5	9.4	13.5	13.0	12.7	14.8	15.2	15.7	15.5	13.3	12.2	16.0	15.7	16.8	16.5	14.2	12.7	11.0	11.2	11.0	6.9	8.9	6.9	16.8	13.0	24
20	7.7	10.4	6.3	3.1	5.7	2.2	2.0	1.9	2.2	4.3	7.2	9.1	7.3	14.0	15.1	13.4	11.5	10.5	6.0	3.1	1.9	3.7	3.2	5.5	1.9	15.1	6.5	24
21	5.7	3.9	4.5	3.0	1.9	7.0	10.4	11.0	14.0	12.4	9.1	11.1	8.6	15.6	13.4	16.7	16.9	17.1	12.3	13.2	14.2	11.5	14.3	19.9	1.9	19.9	11.2	24
22	16.8	12.6	16.0	12.5	12.1	9.4	4.9	6.4	3.6	2.9	5.5	7.1	4.1	5.0	5.3	11.0	6.5	7.5	3.5	3.1	2.3	2.2	2.6	4.6	2.2	16.8	7.0	24
23	3.0	3.7	5.0	2.6	2.7	2.6	3.1	5.3	7.9	9.0	13.1	16.7	15.5	18.4	21.3	20.1	18.0	18.8	22.5	25.4	23.0	19.4	22.1	20.1	2.6	25.4	13.3	24
24	13.8	10.7	9.2	9.7	9.1	9.3	10.6	8.8	10.4	9.8	10.2	9.9	7.0	5.0	7.7	10.8	11.3	12.3	14.5	9.2	5.9	6.1	5.5	9.3	5.0	14.5	9.4	24
25	5.7	7.0	5.7	8.5	10.0	14.7	12.1	12.6	13.7	14.4	13.6	12.1	15.0	19.1	19.6	17.0	15.7	13.7	12.6	11.5	11.1	12.2	11.4	9.7	5.7	19.6	12.4	24
26	7.7	8.4	5.3	8.0	8.0	4.5	5.5	5.9	2.3	2.6	3.7	9.0	6.3	7.2	6.3	4.7	6.9	6.3	3.5	2.9	3.3	5.1	7.4	9.0	2.3	9.0	5.8	24
27	11.0	14.2	9.0	15.4	15.9	16.1	15.0	14.6	14.7	22.2	19.2	22.5	18.9	14.7	20.6	23.4	22.4	14.0	8.4	10.1	4.1	5.4	3.4	4.8	3.4	23.4	14.2	24
28	3.7	4.7	3.3	2.1	3.9	2.4	4.6	1.0	9.7	13.7	17.0	20.2	23.8	26.8	28.9	28.2	24.7	23.5	17.3	18.2	19.0	15.1	10.3	8.8	1.0	28.9	13.8	24
29	9.7	7.9	11.5	10.3	11.0	9.7	9.2	17.1	20.0	16.8	12.0	9.7	10.1	7.8	6.3	5.5	8.8	9.6	9.1	8.4	9.5	10.9	14.0	10.2	5.5	20.0	10.6	24
30	10.2	15.0	17.4	9.2	12.3	10.0	5.7	10.6	14.2	18.8	19.6	26.4	29.1	24.7	30.0	**30.6**	25.9	26.3	19.9	14.5	12.7	11.1	12.9	10.9	5.7	**30.6**	17.4	24
31	9.6	7.2	6.5	7.0	7.3	3.0	2.7	2.9	5.6	6.8	5.1	6.0	6.9	11.1	14.0	17.9	16.5	13.0	9.5	12.0	14.2	13.3	14.6	16.1	2.7	17.9	9.5	24
HOURLY MAX	20.8	19.2	18.9	21.9	22.0	21.8	20.9	20.6	23.6	22.2	22.8	26.4	29.1	26.8	30.0	30.6	25.9	26.3	23.3	25.4	23.0	19.4	22.1	20.1				

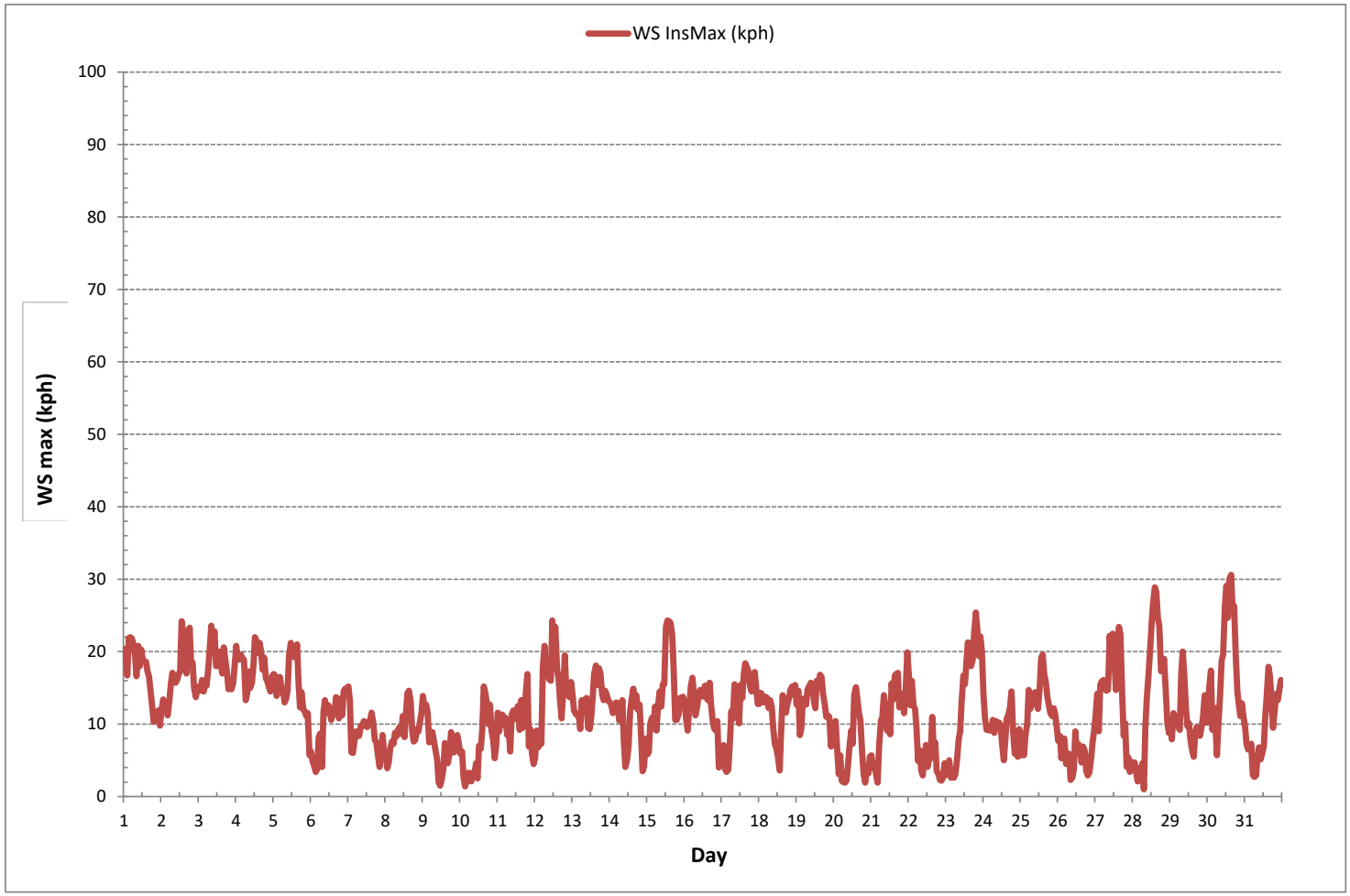
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	30.6	kph	@ HOUR	15	ON DAY	30
OPERATIONAL TIME:					744	hrs

WIND SPEED Instantaneous Maximum (WS kph)



1.0 Quality Control Activities

Quality control procedures are established to govern the performance of the monitoring equipment and to protect operational uptime. Data collected during QC/QA activities are assigned a data validation code to comply with the requirements outlined in Chapter 6, 4.1.1, DQ 4-A (AMD, 2016). Calibrations are deemed successful only if the AMD calibration acceptance limits are met (Chapter 7, 9.0, AMD 2016).

A daily zero-span test procedure is performed for each gaseous parameter by challenging the analyzer with a zero-air source and span gas. Daily review of the data ensures the zero and span check are within the required acceptance limits and do not deviate more than ±10% from the expected value. The total zero-span cycle is complete within an hour with the zero phase commencing at the beginning of the scheduled hour. This QC activity is conducted in accordance with Chapter 7, 4.0, Cal 4-A (AMD, 2016).

The allowable time for a zero-span check is one hour per calendar day. The time allotted for the zero-span check does not contribute to downtime and is identified with a data validation code of "S". If any additional zero-span response checks are performed, the time accrued during the QC activity is considered downtime and is identified with a data validation code of "S1". The initiation of an additional zero-span check may be warranted during the investigation of operational issues or suspect data.

Each month, a scheduled multipoint calibration is performed on each gas analyzer. Prior to any adjustments, an as-found response test is completed to obtain the zero reading of the analyzer and the response to the highest span concentration. The zero and high point test gases are then re-introduced into the analyzer to establish the zero and high set-points. Once these adjustments are satisfactory, a mid-point and a low-point test concentration is introduced. Additional multi-point calibrations are required if any of the conditions, outlined in Chapter 7, 2.1, Cal 2G (AMD, 2016) exist.

The time allotted for the first multi-point calibration is not considered downtime and is identified with a data validation code of "C". If any additional as-found response checks or multipoint calibrations are performed, the time accrued during the QC activity is considered downtime and is identified with a data validation code of "C1".

A mechanical wind system undergoes annual calibration, as a minimum, while an ultrasonic wind system is factory calibrated every two years (Chapter 6, 6.0, Cal 6-A, AMD 2016). Supplementary to this, a visual inspection of the equipment is performed during each scheduled monthly site visit.

The time allotted for the wind system calibration is not considered downtime and is identified with a data validation code of "C". If function checks or additional calibrations are performed, the time accrued during the QC activity is not considered downtime and is identified with a data validation code of "Q" and "C", respectively. If QC activity goes beyond 10% of the monthly operating time, the time exceeding 10% is considered downtime and is assigned a data validation code of "C1". Data identified with a data validation code of "Q" is in accordance with Chapter 6, 4.1.3 (AMD, 2016) which states QA/QC activities are not included when calculating data completeness.

High volume samplers are calibrated every three months, as a minimum, in accordance with Chapter 7, 7.0, Cal 7-B (AMD, 2016).

Where passive sampling is in practice, quality control samples will be deployed in accordance with Chapter 4, 3.0, 3.1.3. Method blanks, replicate samples and spiked blanks are exposed and handled in the same manner as each passive sample. To comply with the data submission requirements in Chapter 9, 3.1, the replicate and corresponding passive sample concentrations are reportable data values and have not been averaged.

As recommended in Chapter 6, 4.2 (AMD 2016), daily data review is conducted to verify data and avoid significant data losses. Automated flags, originating from the data-logger, and data anomalies are reviewed and may prompt the need to dispatch a technician for investigation and/or corrective action. Additionally, there are several automated alarm scenarios that serve to screen raw data, alert technicians and elicit investigation or corrective action.

Comparisons of the measured ambient concentrations to the corresponding AAAQO are assessed using the significant figures protocol in Chapter 9, 3.1.2. If the measurement is near the set objective, raw data may undergo necessary data adjustments to confirm a true exceedance. Should an exceedance occur, Maxxam will formally notify the client; however, the reporting protocol to AEP is defined by the client and may not involve Maxxam. Exceedance events are acknowledged in the report, based on the information available at the time.

2.0 Data Verification and Validation

The data validation procedures, outlined in Chapter 6, 4.0, AMD 2016, are used to accept, reject and qualify data. The data verification and validation process, and the current Data Collection and Management Process Flow Chart have been compiled from sections 4.2 to 4.6 (AMD, 2016) and are shown below.

Baseline adjustments are applied by interpolation between two valid zero checks, as determined by the Data Acquisition System. In the event that zero check results are not reliable, data may be adjusted by applying a constant offset to data collected between two adjacent zero checks. Both adjustment approaches are deemed acceptable by the AMD.

Table 1 (Chapter 6) outlines the quantitative parameter relationships to be considered and dictates that data adjustments are applied equally for NO/NO_2/NOx and CH_4/NMHC/THC parameters. Below zero adjustments are applied to 1-hour averages, in accordance with Table 2 (Chapter 6), and are done after baseline corrections.

Instantaneous data, where provided, is provided for reference purposes and has not undergone zero correction. The minimum and maximum statistics are highlighted in the data table and are for reference only. The highlighted cells are based on the software's interpretation of the exact position of the minimum or maximum value. The visual presentation of these statistics may not be the obvious choice in a data range due to rounding, truncating or analyzer specifications.

All calculations and reporting of results follow the methods described in the AMD, 2016.

There were no deviations from the prescribed methods.

AMD Data Verification and Validation Process

The following steps were used to complete the data verification and validation process:

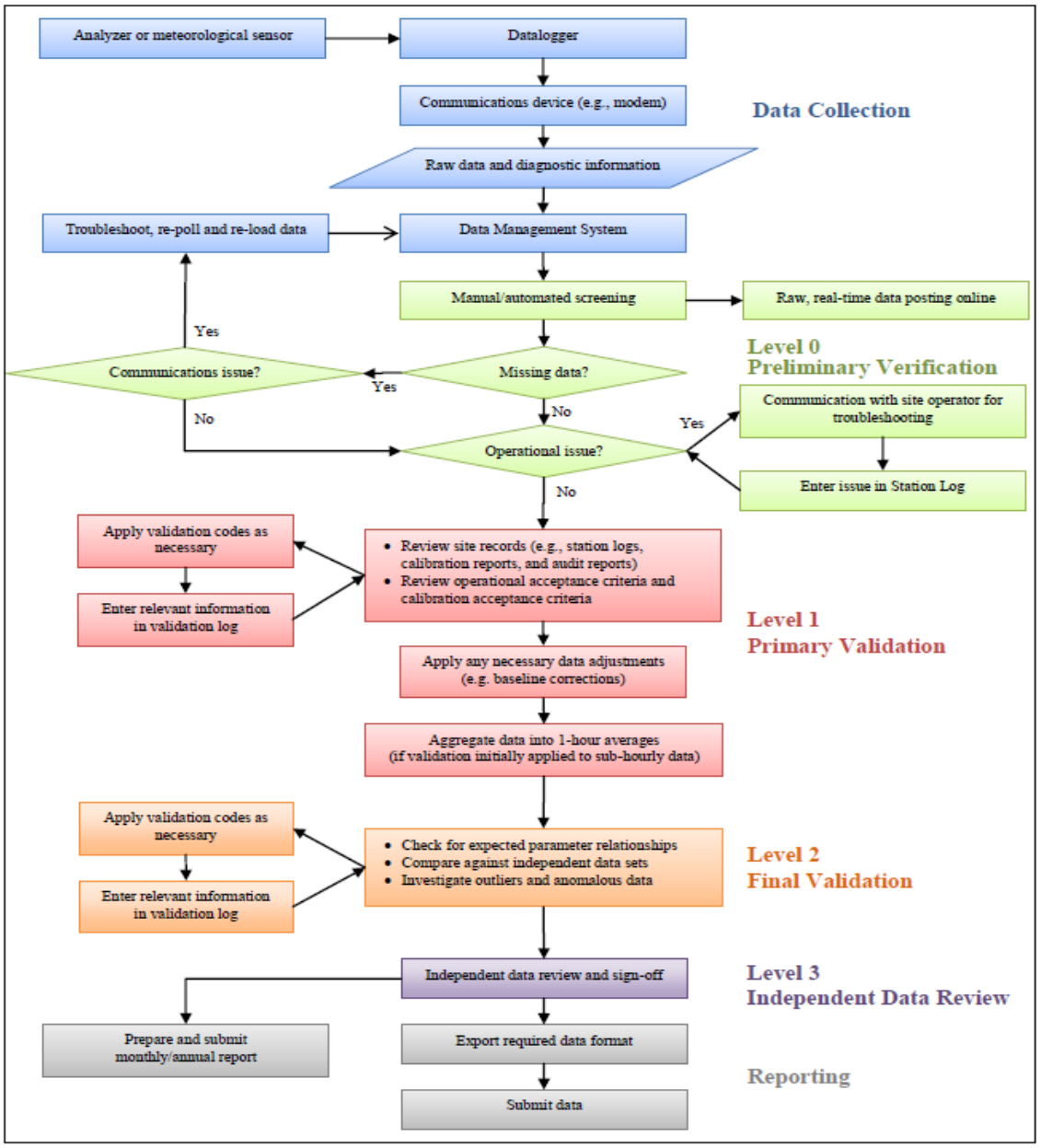
Level 0 Preliminary Verification	Level 0 data are raw data obtained directly from the data acquisition system (DAS). At this level, data undergoes a certain amount of manual or automated screening and flagging. Screening checks include: a) identification of periods of missing data; b) verification of time stamps against reference time; c) verification that instrument diagnostics/data-logger flags indicate normal operation; d) comparison of data to upper and lower limits; e) rate of change flagging indicating that data changed too rapidly or not at all; and f) verification that zero, span and multipoint performance checks are within specifications. This level of verification is performed on a daily basis.

Level 1 Primary Validation	Primary validation involves more thorough evaluation and documentation of issues identified during data screening, along with appropriate application of data validation codes. Level 1 activities include: a) review of all screening flags assigned during preliminary verification; b) review of all supporting site information and documentation; c) review of operational acceptance limits for each parameter/analyzer; d) review of daily zero/span and monthly calibration results for all gaseous parameters; and e) application of any necessary adjustments to data (e.g. baseline adjustments, below zero adjustments). This level of validation is performed on a monthly basis.

Level 2 Final Validation	The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites. At this level of review, some general knowledge of pollutant and meteorological behavior can be used to determine if data is suspect.

Level 3 Independent Data Review	Level 3 validation involves a final cursory review of validated data, and is completed by an individual independent of both field operations and primary data validation. At this level, a final independent QA review/endorsement is performed before data is submitted to Alberta Environment and Parks.

Post-Final Validation	The Post-Final Validation step serves to re-evaluate validated data for errors or omissions discovered and/or suspected after the initial monthly data submittal. This level of validation is performed on an annual basis, when annual reporting is required or requested.



Source: Air Monitoring Directive (December 2016), Chapter 6, Ambient Data Quality
Figure 1 Data Collection and Management Process Flow Chart

Validation Certificate Form

Client: Lakeland Industry & Community Association	**Project #:** 2833-2019-03-39-C
Site: Bonnyville East Continuous Monitoring Station	**Contact:** Mike Bisaga

Level 0 Preliminary Verification	bimadeniji	**Date**	16- Apr- 2019
Level 1 Primary Validation	bimadeniji	**Date**	16- Apr- 2019
Level 2 Final Validation	bimadeniji	**Date**	19- Apr- 2019
Level 3 Independent Data Review	[signature]	**Date**	22- Apr- 2019
Post-Final Validation	**NA**	**Date**	**NA**

Notes
The Post-Final Validation step serves to re-evaluate the data that errors or omissions are discovered and/or suspected after the initial submittal of data. This validation is performed on an annual basis.

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Lakeland Industry & Community Association
5107 50 St
Bonnyville, AB T9N2J7

Lakeland Industry & Community Association

MARCH 2019

Ambient Air Monitoring Calibration Report

- COLD LAKE SOUTH STATION-

CAL-LICA-201903-01174

Station Operation and Maintenance:
Maxxam Analytics

Data Validation and Report:
Maxxam Analytics

May 2, 2019

Lakeland Industry & Community Association
5107 50 St
Bonnyville, AB T9N2J7

Alberta Environment and Parks (AEP)
Air.Reporting@gov.ab.ca

May 2, 2019

Subject:

March 2019 Ambient Air Monitoring Calibration Report Submission for the LICA Cold Lake South station

Lakeland Industry & Community Association (LICA) is pleased to submit the ambient air monitoring calibration report for the LICA Cold Lake South AQM Station in the month of March 2019. This calibration report includes equipment calibration records, calibrator performance audit records and calibration gas audit records for the equipment that were used this month. This calibration report is prepared by the LICA network contractor.

Should you have any questions, please don't hesitate to contact us.

Respectfully,

Michael Bisaga
Technical Program Manager
Lakeland Industry & Community Association
780-266-7068
monitoring@lica.ca

Lily Lin
Data & Reporting Specialist
587-225-2248
monitoring@lica.ca

MARCH 1 - 31, 2019
MONTHLY CALIBRATION REPORT
Project #: 2833-2019-03-23-C
LICA-201903

Prepared for:

Lakeland Industry & Community Association

Mike Bisaga

5107 50 St.

Bonnyville, Alberta T9N 2J7

monitoring@lica.ca

780-266-7068

Monitoring Station

Cold Lake South Continuous Monitoring Station

Date of Report Issuance: April 29, 2019

Maxxam
A Bureau Veritas Group Company

#1 - 2080 39 Avenue NE, Calgary AB, T2E 6P7

Thermo 43I-TLE Sulphur Dioxide Analyzer Calibration

Date:	March 14, 2019	**Barometer/B.P./units:**	F.S. #05544, exprires Jan 17, 2020	955	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. #170286131, expires April 19, 2019	22	°C
Location/Station Name:	Cold Lake South	**Weather Conditions:**	Mainly sunny		
Parameter:	Sulphur Dioxide	**Calibration Purpose:**	routine monthly		
Start Time 24 hr. (mst):	8:56	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
End Time 24 hr. (mst):	13:40	**Cal Gas Expiry Date:**	August 20, 2026		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	n/a		

Analyzer:

Serial Number/Owner:	11800260018 LICA	**Range ppb:**	500
Last Calibration Date:	February 8, 2019	**As Found C.F.:**	0.995
Previous C.F.:	1.000	**New C.F.:**	1.001

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Sabio id# 42531101(0911) expires January 15, 2020
Cal Gas Cylinder I.D. # :	LL 107918
Cal Gas Conc. (ppm):	49.5

Standard Calibration Points for Ranges

Point	ppb
High	380
Mid	180
Low	90

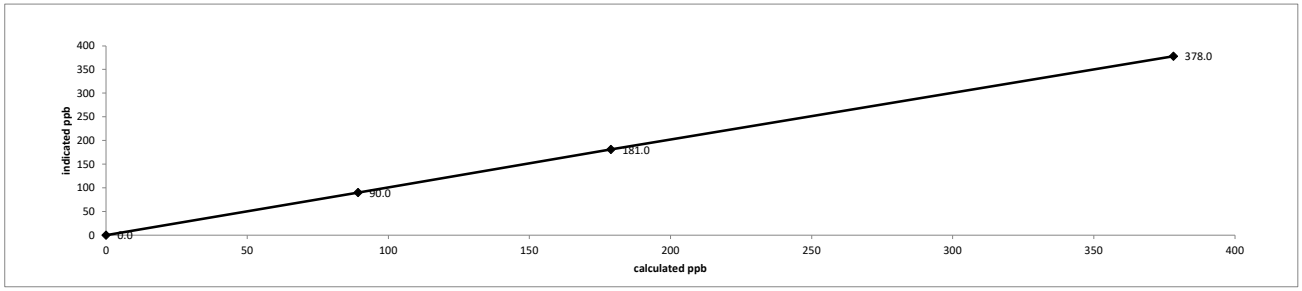
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**			
as found zero	4997	0.00	4997	0.0	-0.1	n/a
as found high	4922	37.90	4960	378.2	380	0.995
adjusted zero	4997	0.00	4997	0.0	0	n/a
adjusted high	4922	37.90	4960	378.2	378	1.001
mid	4962	18.00	4980	178.9	181	0.988
low	4980	9.00	4989	89.3	90	0.992
calibrator zero	4997	0.00	4997	0.0	0	n/a
					Average C.F.=	0.994

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**1.001**	**0.95-1.05**
b (Intercept as % of full scale)=	**-0.15%**	**± 3% F.S.**
% change in C.F. from last cal=	**0.49%**	**± 10%**

Thermo 43I-TLE Sulphur Dioxide Analyzer Calibration



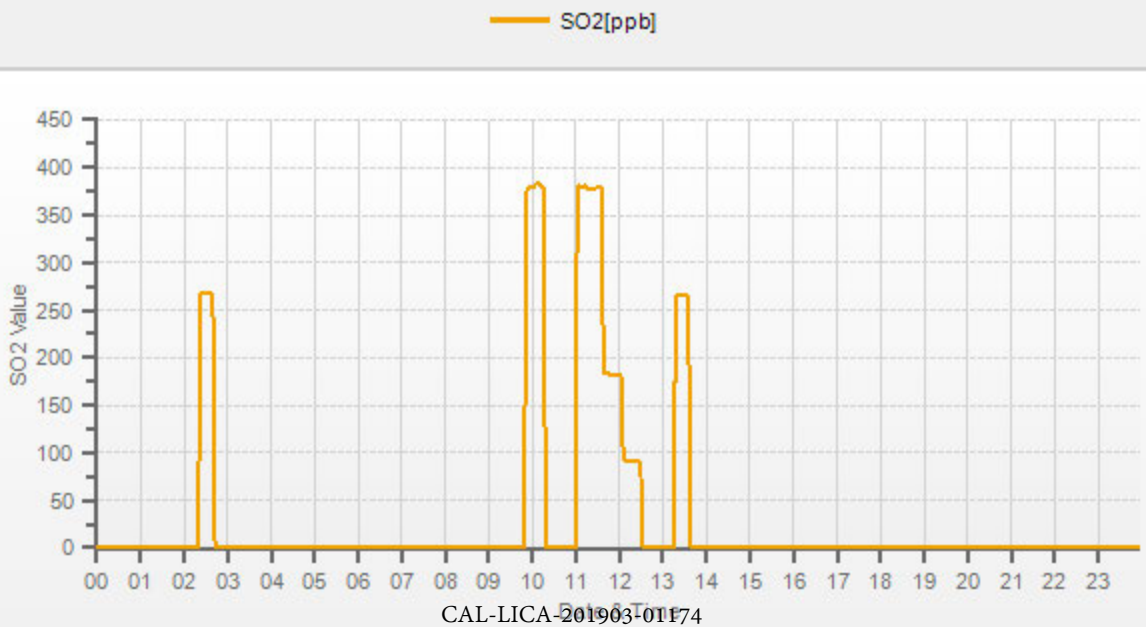
As found:		As left:	
Bkg:	2.03	Bkg:	1.99
Coef:	1.040	Coef:	1.032
Pmt:	-690.8	Pmt:	-690.4
Flash:	1052	Flash:	1054
Internal:	32.1	Internal:	33.3
Chamber:	45.2	Chamber:	45.3
Perm Oven Gas:	45.00	Perm Oven Gas:	45.00
Perm Oven Heater:	44.28	Perm Oven Heater:	44.29
Pressure:	691.0	Pressure:	690.4
Sample Flow:	0.455	Sample Flow:	0.454
Lamp Intensity:	91	Lamp Intensity:	91
Converter:	n/a	Converter:	n/a
Converter Set:	n/a	Converter Set:	n/a
Averaging Time:	120	Averaging Time:	120
Expected Value:	260.0	Expected Value:	265.0

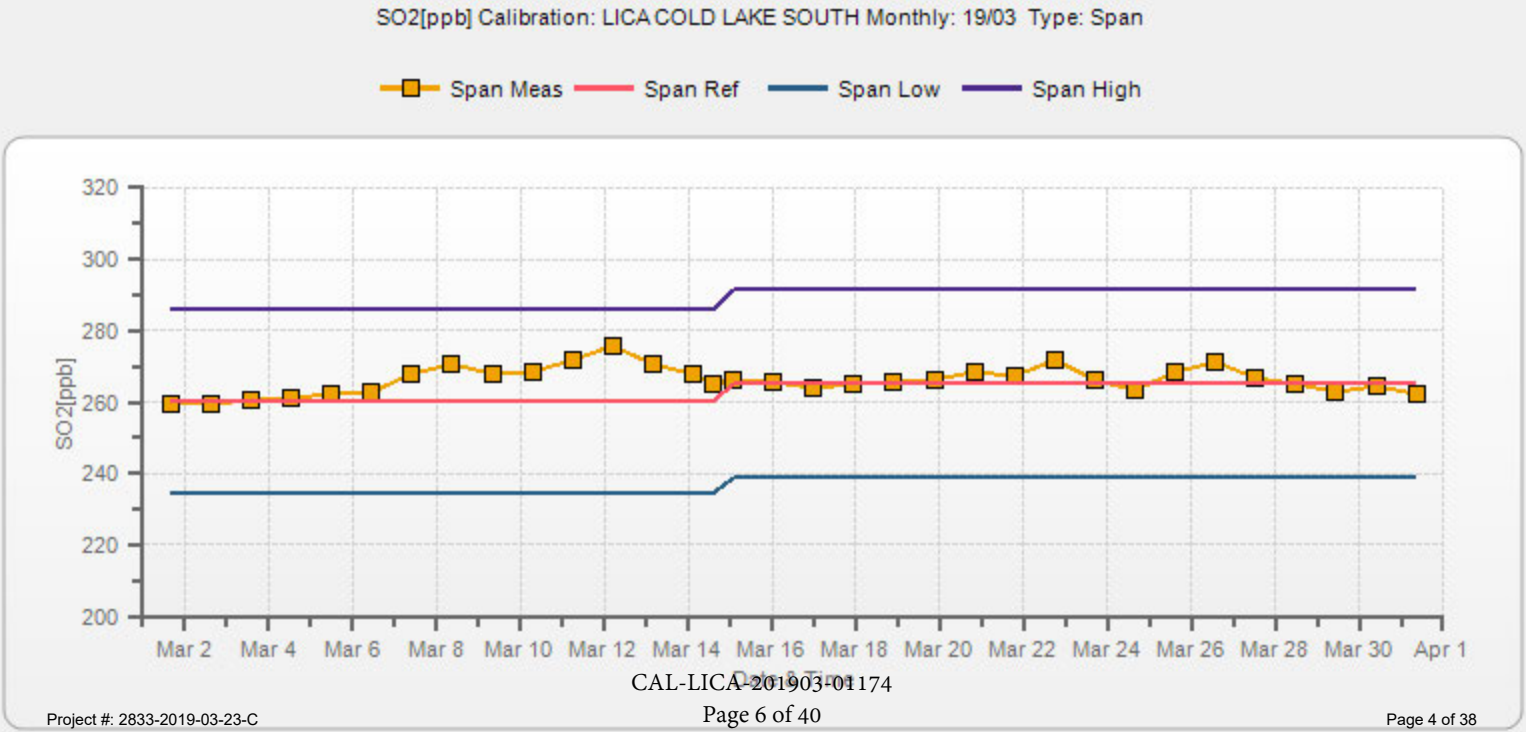
Comments:

The analyzer sample inlet filter was changed.
The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

SO2[ppb] Station: LICA COLD LAKE SOUTH Daily: 19/03/14 Type: AVG 1 Min. [1 Min.]




SO2[ppb] Calibration: LICA COLD LAKE SOUTH Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
320
300
280
260
240
220
200
SO2[ppb]
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1
Date & Time

Thermo 450i Total Reduced Sulphur Analyzer Calibration

Date:	March 14, 2019	**Barometer/B.P./units:**	F.S. #05544, exprires Jan 17, 2020	955	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. #170286131, expires April 19, 2019	22	°C
Location/Station Name:	Cold Lake South	**Weather Conditions:**	Mainly sunny		
Parameter:	Total Reduced Sulphur	**Calibration Purpose:**	routine monthly		
Start Time 24 hr. (mst):	8:56	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
End Time 24 hr. (mst):	13:40	**Cal Gas Expiry Date:**	October 20, 2020		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	CDNOVA/Model CDN 101/#501		

Analyzer:

Serial Number/Owner:	812728560 LICA	**Range ppb:**	100
Last Calibration Date:	February 8, 2019	**As Found C.F.:**	0.997
Previous C.F.:	0.999	**New C.F.:**	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Sabio id# 26801218 expires January 15, 2020
Cal Gas Cylinder I.D. # :	EY 0001003
Cal Gas Conc. (ppm):	9.55

Standard Calibration Points for Ranges

Point	ppb
High	78
Mid	38
Low	19

SO2 Scrubber Check (10 minutes):

Start/End Time 24 hr.:	09:02 / 09:18
SO2 Analyzer Range:	500
Target Concentration (ppb):	380
As Found Zero:	0.4
Analyzer Response: (ppb):	0.4
Zero Corrected Result (ppb):	0.0

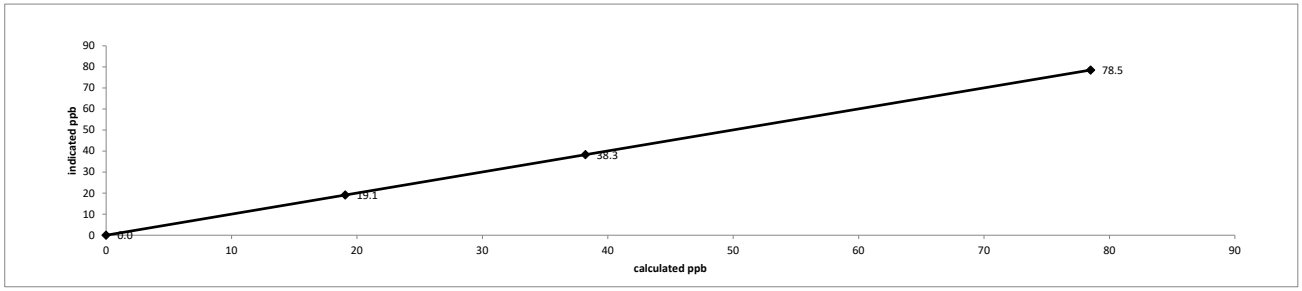
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**			
as found zero	5016	0.00	5016	0.0	0.2	n/a
as found high	4935	40.90	4976	78.5	78.9	0.997
adjusted zero	5016	0.00	5016	0.0	0	n/a
adjusted high	4935	40.90	4976	78.5	78.5	1.000
mid	4978	20.00	4998	38.2	38.3	0.998
low	4997	10.00	5007	19.1	19.1	0.999
calibrator zero	5016	0.00	5016	0.0	0	n/a
					Average C.F.=	0.999

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**1.000**	**0.95-1.05**
b (Intercept as % of full scale)=	**-0.03%**	**± 3% F.S.**
% change in C.F. from last cal=	**0.16%**	**± 10%**

Thermo 450i Total Reduced Sulphur Analyzer Calibration



	As found:		**As left:**
Bkg:	15.0	Bkg:	15.3
Coef:	0.903	Coef:	0.906
Pmt:	-650.8	Pmt:	-650.8
Flash:	747	Flash:	748
Internal:	33.3	Internal:	34.3
Chamber:	44.8	Chamber:	45.0
Converter Temp:	825	Converter Temp:	825
Converter Set:	825	Converter Set:	825
Perm Oven Gas:	45.00	Perm Oven Gas:	45.01
Perm Oven Htr:	44.37	Perm Oven Htr:	44.37
Pressure:	635.8	Pressure:	637.0
Sample Flow:	0.491	Sample Flow:	0.495
Lamp Intensity:	91	Lamp Intensity:	91
Averaging Time:	120	Averaging Time:	120
Expected Value:	36.2	Expected Value:	36.5

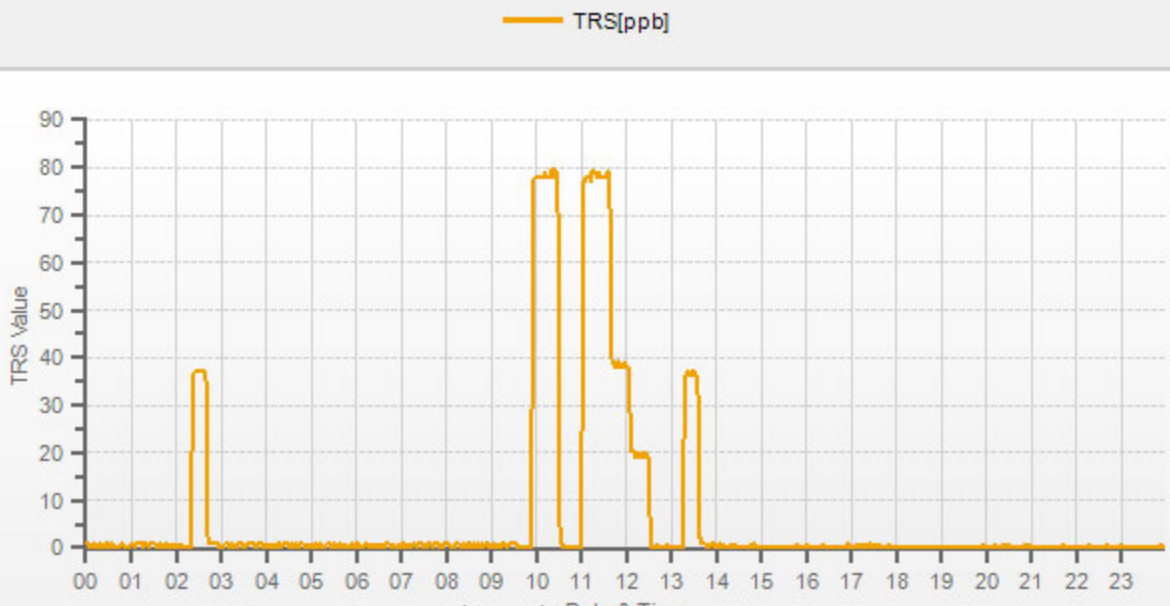
Comments:

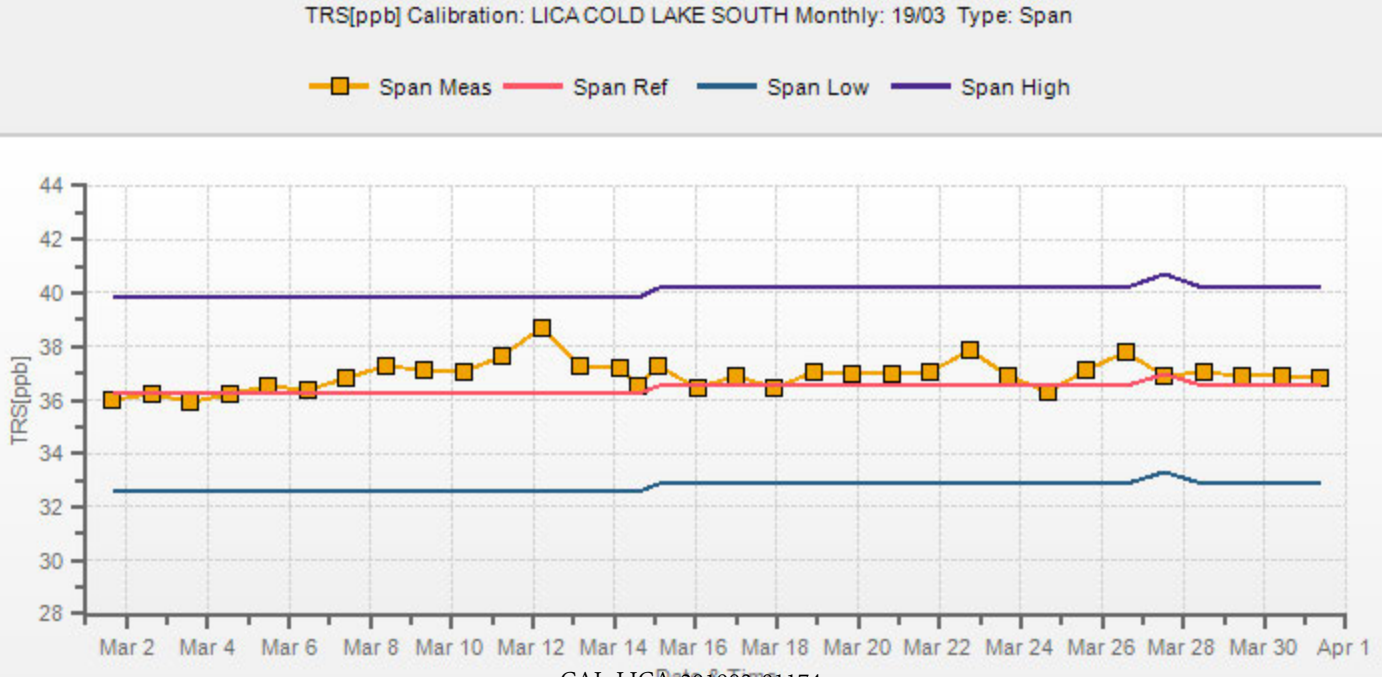
The analyzer sample inlet filter was changed.

The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

TRS[ppb] Station: LICA COLD LAKE SOUTH Daily: 19/03/14 Type: AVG 1 Min. [1 Min.]




TRS[ppb] Calibration: LICA COLD LAKE SOUTH Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
TRS[ppb]
44
42
40
38
36
34
32
30
28
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1
Date/Time

Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	March 1, 2019	**Barometer/B.P./units:**	Brunton #05490	967.4	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	Station Probe	21	°C
Location/Station Name:	Cold Lake South	**Weather Conditions:**	Mainly sunny		
Parameter:	CH4 / NMHC / THC	**Calibration Purpose:**	installation		
Start/End Time 24 hr. (mst):	08:30/11:07	**Performed By/Reviewer:**	Chris Wesson	Rob Fisher	
Calibration Method:	Gas Dilution	**Cal Gas Expiry Date:**	August 1, 2026		

Analyzer:

			Correction Factors:		
Serial Number/Owner:	1236656107	LICA		**Previous C.F.:**	**As Found C.F.:**	**New C.F.:**
Measured Flow:	0.87 L/min		**CH_4 =**	n/a	n/a	0.999
Last Calibration Date:	n/a		**NMHC =**	n/a	n/a	1.001
Range ppm:	20 CH4/20 NMHC/40 THC		**THC =**	n/a	n/a	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A		
High Flow Meter ID/Expiry Date:	N/A		
Calibrator ID/Expiry Date:	Sabio id# 26801218 expires January 15, 2020		
Cal Gas Cylinder I.D. # :	LL29687		
CH4 Cylinder Conc.=	598.0	198.0	**=C_3H_8 Cylinder Conc.**
CH_4 expressed as C_3H_8=	544.5	1142.5	**=total CH4 equivalent**

Standard Calibration Points for Analyzer Range of 20/20/40 ppm

Point	CH4	NMHC	THC
High	13.00	13.00	26.00
Mid	7.00	7.00	14.00
Low	3.00	3.00	6.00

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated CH_4 (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH_4 (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	Correction Factors:		
Point	**Diluent**	**Cal Gas**	**Total Flow**							**CH_4**	**NMHC**	**THC**
adjusted zero	3011	0.00	3011	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2939	73.50	3012	14.59	13.29	27.88	14.60	13.28	27.88	0.999	1.001	1.000
mid	2975	36.80	3012	7.31	6.65	13.96	7.37	6.59	13.97	0.991	1.009	0.999
low	2993	18.40	3011	3.65	3.33	6.98	3.71	3.26	6.96	0.985	1.021	1.003
calibrator zero	3011	0.00	3011	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
									Average C.F.=	0.992	1.010	1.001

Linear Regression/Calibration Results:

	CH_4	NMHC	THC	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.000	1.001	1.000	0.95-1.05
b (Intercept as % of full scale)=	0.17%	-0.19%	-0.02%	± 3% F.S.
% change in C.F. from last cal=	n/a	n/a	n/a	n/a

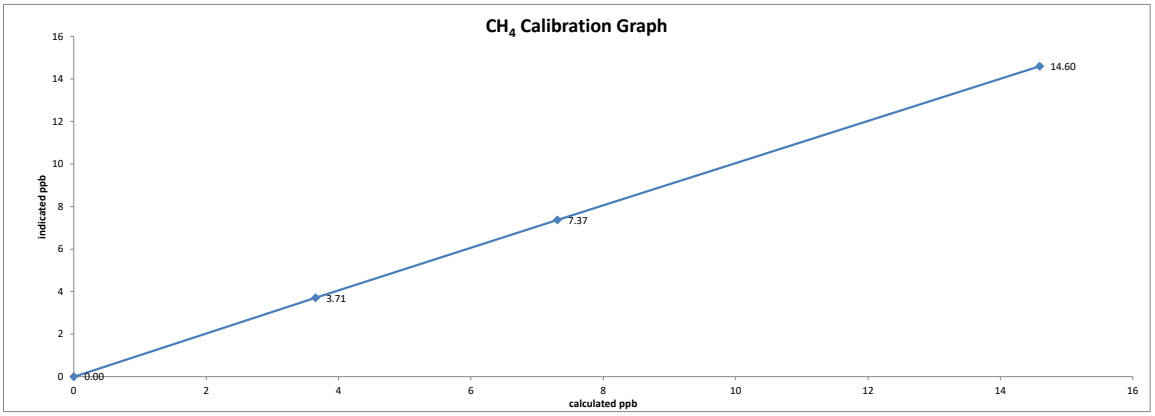
As Left Instrument Diagnostics:

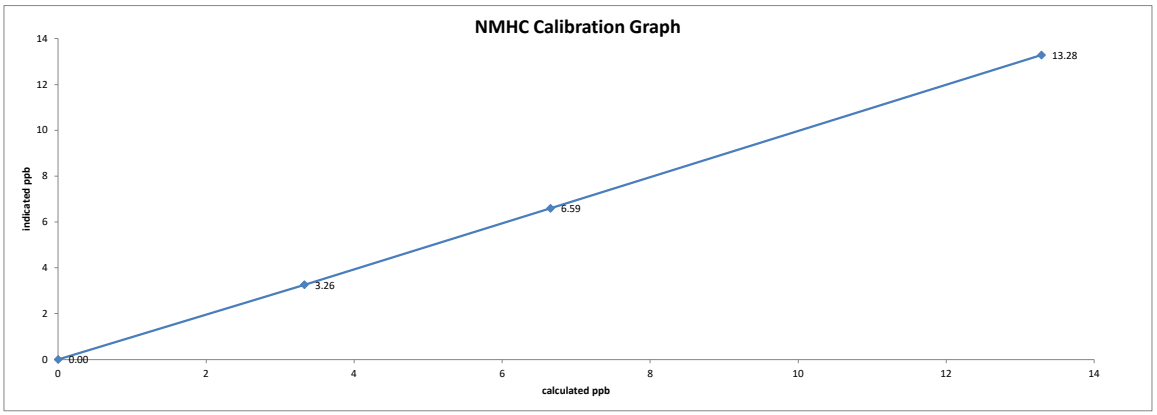
Interface Board Voltages:	Bias Supply:	-293.0		Calibration History cnt'd:	NM Peak Area:	95393
Temperatures:	Detector Oven:	175.0		Crucial Settings:	Methane Start:	8.0
	Filter:	175.1			Methane End:	16.0
	Column Oven:	75.0			Backflush:	18.0
	Internal:	37.1			NMHV Start:	24.5
Cylinder Pressures/reg.:	Carrier:	900	50		NMHC End:	56.0
	Fuel:	1700	50	Run History>1:	Date:	01Mar2019
	Span Gas:	450	10		Time:	10:11
	Zero Air Generator:	50			CH_4 PK HT:	0
Internal Pressures:	Carrier:	31.1			CH_4 RT:	14.2
	Fuel:	40.3			CH_4 Baseline:	2669
	Air:	32.3			CH_4 LOD:	20
FID Status:	Status:	LIT			CH_4 SD:	4
	Counts:	29804			CH_4 CONC:	0.00
	Flame:	367.4			NM PK HT:	0
	Det Base:	175.0			NM Peak Area:	0
Flame and Power Stats:	Last Power On:	28Feb2019@12:53			NM CONC:	0.00
	Flameouts:	1			NM Base Start:	2585
	Det Oven at Start:	30.1			NM Base End:	2509
	Col Oven at Start:	29.8			NM LOD:	13
Calibration History:	Time:	01Mar2019@088:51			NM Start IDX:	2
	Type:	Span			NM End IDX:	51
	Status:	Good			NM Max Slope:	0.0e+00
	Check/Adjust:	Adjust			NM Min Slope:	-2.1e-01
	CH_4 Span Conc:	14.59			NM PT Count:	0
	CH_4 SP Ratio:	0.000784		Expected Values:	Previous CH4:	n/a
	CH_4 RT:	13.8			Previous NMHC	n/a
	CH_4 PK IDX:	29			Previous THC:	n/a
	CH_4 PK HT:	18608			New CH4:	10.09
	NM Span Conc:	13.29			New NMHC	10.75
	NM SP Ratio:	0.000139			New THC:	20.83

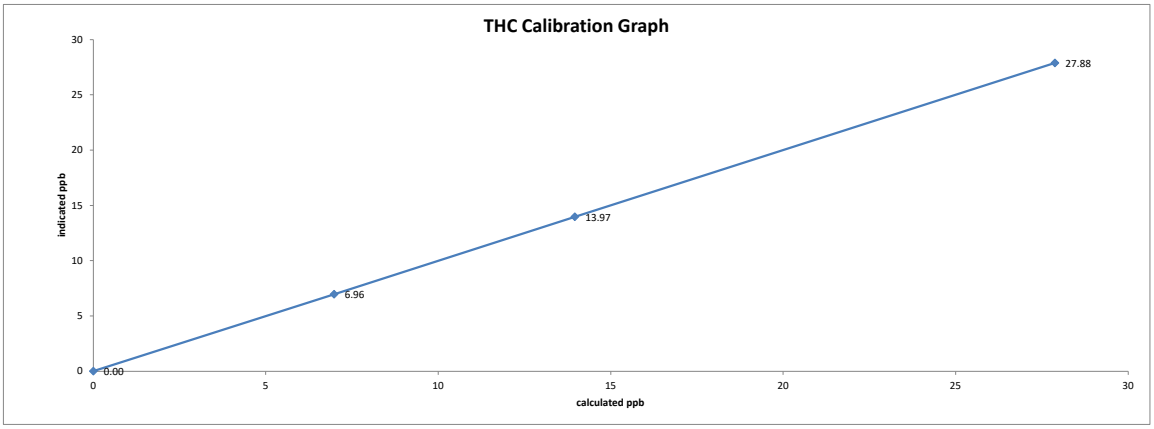
Comments:

A replacement analyzer was installed to send the faulty analzyer #1180030034 for repair.

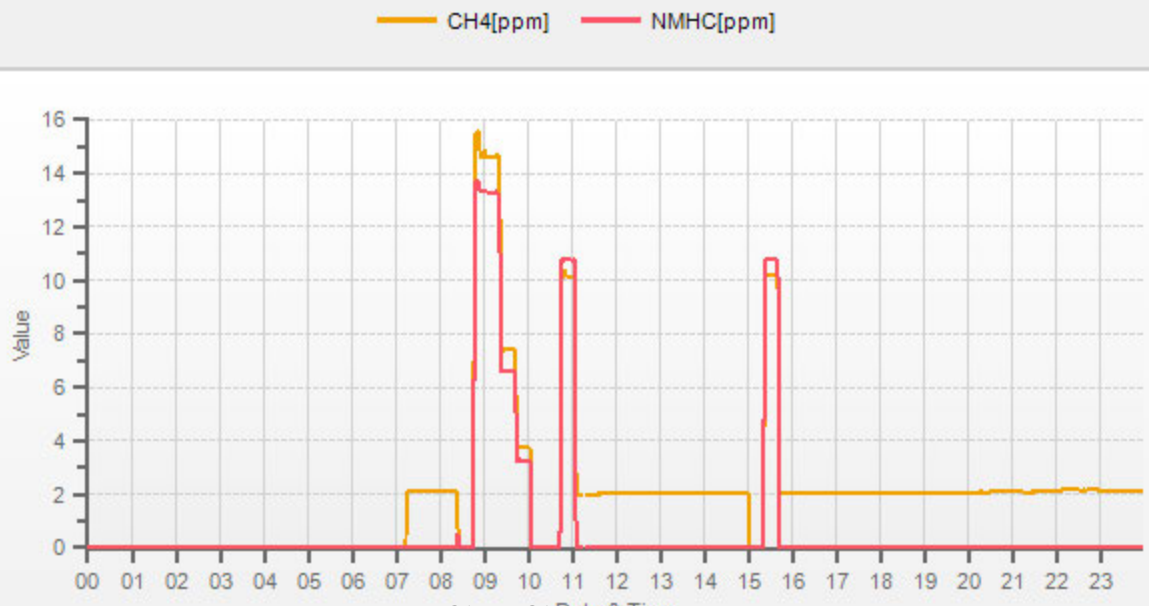
Date:	March 1, 2019	Start/End Time 24 hr. (mst):	08:30/11:07
Company/Airshed:	LICA	Calibration Purpose:	installation
Location/Station Name:	Cold Lake South	Calibration Method:	Gas Dilution







Station: LICA COLD LAKE SOUTH Daily: 19/03/01 Type: AVG 1 Min. [1 Min.]



Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	March 15, 2019	**Barometer/B.P./units:**	F.S. #05544, exprires Jan 17, 2020	950	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. #170286131, expires April 19, 2019	22	°C
Location/Station Name:	Cold Lake South	**Weather Conditions:**	Mainly sunny		
Parameter:	CH4 / NMHC / THC	**Calibration Purpose:**	post repair		
Start/End Time 24 hr. (mst):	13:56 / 17:23	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
Calibration Method:	Gas Dilution	**Cal Gas Expiry Date:**	August 21, 2026		

Analyzer:

Serial Number/Owner:	1236656107	LICA
Measured Flow:	1.043	
Last Calibration Date:	March 1, 2019	
Range ppm:	20 CH4/20 NMHC/40 THC	

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
CH_4 =	0.999	n/a	1.000
NMHC =	1.001	n/a	1.000
THC =	1.000	n/a	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A		
High Flow Meter ID/Expiry Date:	N/A		
Calibrator ID/Expiry Date:	Sabio id# 26801218 expires January 15, 2020		
Cal Gas Cylinder I.D. # :	LL 29687		
CH4 Cylinder Conc.=	598.0	198.0	**=C_3H_8 Cylinder Conc.**
CH_4 expressed as C_3H_8=	544.5	1142.5	**=total CH4 equivalent**

Standard Calibration Points for Analyzer Range of 20/20/40 ppm

Point	CH4	NMHC	THC
High	**13.00**	**13.00**	**26.00**
Mid	**7.00**	**7.00**	**14.00**
Low	**3.00**	**3.00**	**6.00**

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)										Correction Factors:		
Point	**Diluent**	**Cal Gas**	**Total Flow**	**Calculated CH_4 (ppm)**	**Calculated NMHC (ppm)**	**Calculated THC (ppm)**	**Indicated CH_4 (ppm)**	**Indicated NMHC (ppm)**	**Indicated THC (ppm)**	**CH_4**	**NMHC**	**THC**
adjusted zero	3011	0.00	3011	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2940	73.50	3013	14.59	13.28	27.87	14.59	13.28	27.87	1.000	1.000	1.000
mid	2976	36.80	3013	7.30	6.65	13.95	7.36	6.52	13.89	0.992	1.020	1.005
low	2995	18.40	3013	3.65	3.33	6.98	3.66	3.19	6.85	0.998	1.042	1.019
calibrator zero	3011	0.00	3011	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
									Average C.F.=	0.997	1.021	1.008

Linear Regression/Calibration Results:

	CH_4	NMHC	THC	LIMITS
Correlation Coefficient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**1.000**	**1.002**	**1.001**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.07%**	**-0.40%**	**-0.16%**	**± 3% F.S.**
% change in C.F. from last cal=	**n/a**	**n/a**	**n/a**	**n/a**

As Left Instrument Diagnostics:

Interface Board Voltages:	Bias Supply:	-293.2		Calibration History cnt'd:	NM Peak Area:	95393
Temperatures:	Detector Oven:	175.1		Crucial Settings:	Methane Start:	n/a
	Filter:	175.1			Methane End:	n/a
	Column Oven:	75.2			Backflush:	n/a
	Internal:	37.9			NMHV Start:	n/a
Cylinder Pressures/reg.:	Carrier:	400	50		NMHC End:	n/a
	Fuel:	1200	50	Run History>1:	Date:	March 15, 2019
	Span Gas:	2000	10		Time:	16:22
	Zero Air Generator:	60			CH_4 PK HT:	0
Internal Pressures:	Carrier:	31.1			CH_4 RT:	14.8
	Fuel:	40.1			CH_4 Baseline:	2789
	Air:	31.7			CH_4 LOD:	28
FID Status:	Status:	LIT			CH_4 SD:	9
	Counts:	29548			CH_4 CONC:	0.00
	Flame:	366.0			NM PK HT:	0
	Det Base:	175.0			NM Peak Area:	0
Flame and Power Stats:	Last Power On:	Feb 28, 2019 / 12:53			NM CONC:	0.00
	Flameouts:	1			NM Base Start:	2636
	Det Oven at Start:	30.1			NM Base End:	2537
	Col Oven at Start:	29.8			NM LOD:	21
Calibration History:	Time:	Mar 1, 2019 / 08:51			NM Start IDX:	2
	Type:	SPAN			NM End IDX:	48
	Status:	GOOD			NM Max Slope:	0.0e+00
	Check/Adjust:	ADJUST			NM Min Slope:	-1.5e+00
	CH_4 Span Conc:	14.59			NM PT Count:	0
	CH_4 SP Ratio:	0.000784		Expected Values:	Previous CH4:	10.09
	CH_4 RT:	13.8			Previous NMHC	10.75
	CH_4 PK IDX:	29			Previous THC:	20.83
	CH_4 PK HT:	18608			New CH4:	10.12
	NM Span Conc:	13.29			New NMHC	10.68
	NM SP Ratio:	0.000139			New THC:	20.79

Comments:
The analyzer sample inlet filter was changed.

A new span gas cylinder was installed.

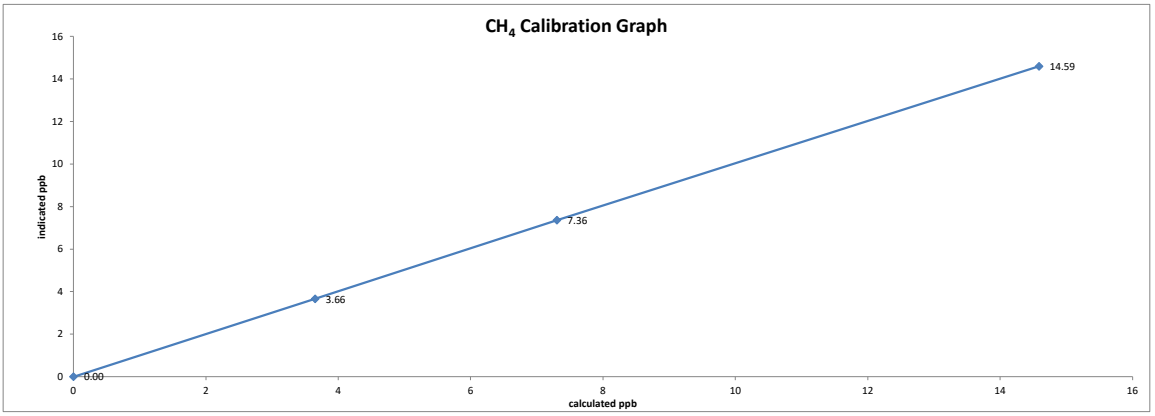
The analyzer cooling fan filter(s) were cleaned.

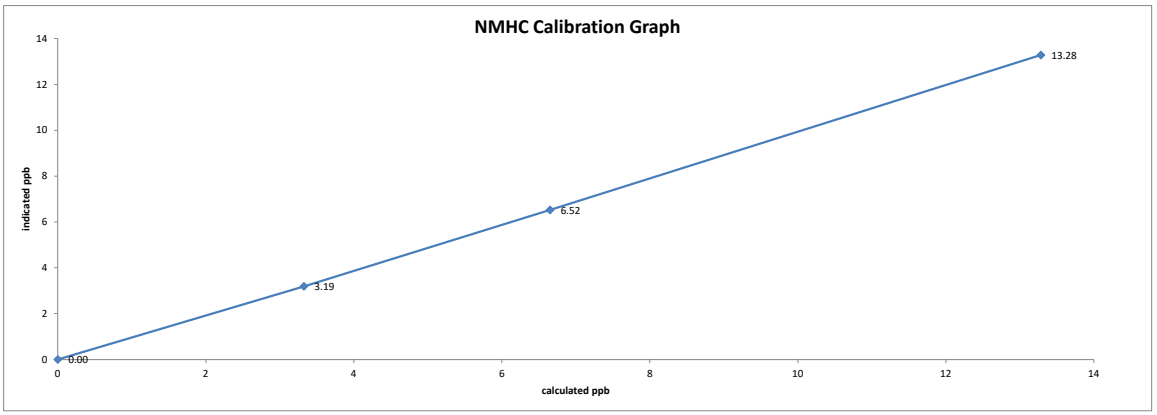
The manifold blower was found to be working normally.

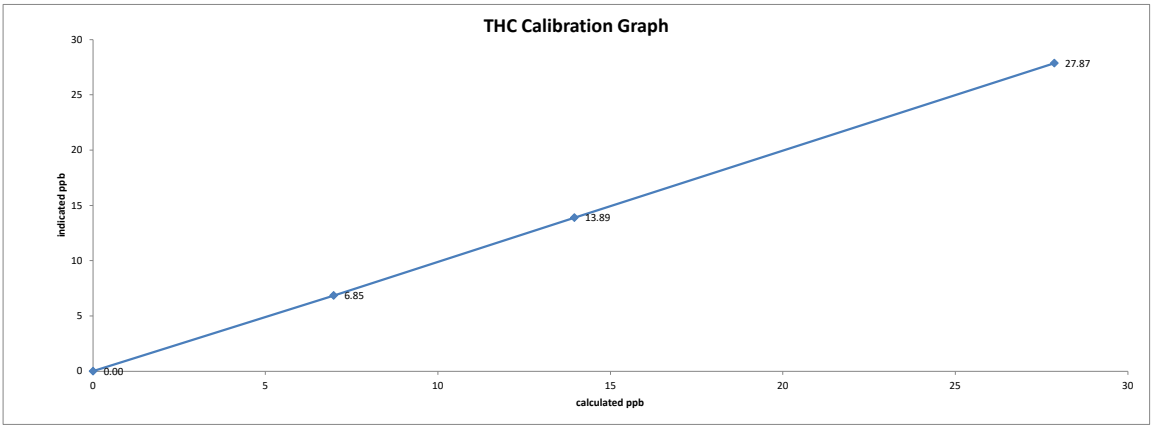
No zero adjustment was required/made.

A Post Repair was performed after adjusting the actuator. The Zero Air pressure was changed to 60 psi.

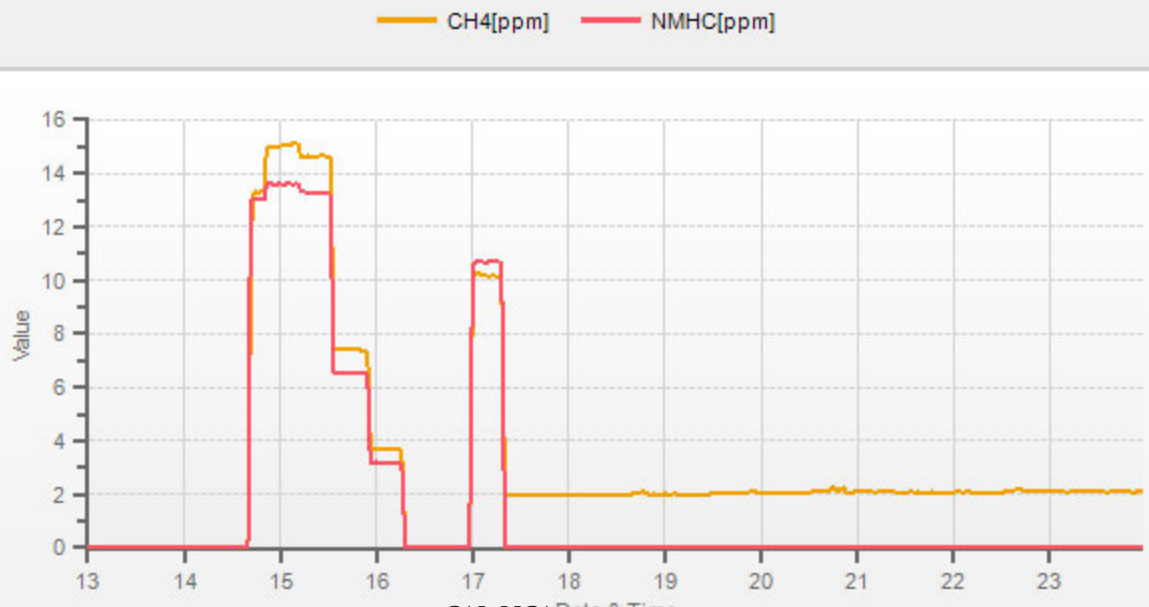
Date:	March 15, 2019	Start/End Time 24 hr. (mst):	13:56 / 17:23
Company/Airshed:	LICA	Calibration Purpose:	post repair
Location/Station Name:	Cold Lake South	Calibration Method:	Gas Dilution







Station: LICA COLD LAKE SOUTH Periodically: 2019/03/15 13:00-2019/03/15 23:59 Type: AVG 1 Min. [1 Min.]



Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	March 18, 2019	**Barometer/B.P./units:**	F.S. #05544, expires Jan 17, 2019	952	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. #170286131, expires April 19, 2019	22	°C
Location/Station Name:	Cold Lake South	**Weather Conditions:**	Mainly sunny		
Parameter:	CH4 / NMHC / THC	**Calibration Purpose:**	post repair		
Start/End Time 24 hr. (mst):	10:31/13:38	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
Calibration Method:	Gas Dilution	**Cal Gas Expiry Date:**			

Analyzer:

			Correction Factors:		
Serial Number/Owner:	1236656107	LICA	**Previous C.F.:**	**As Found C.F.:**	**New C.F.:**
Measured Flow:	1.055		**CH_4 =** 1.000	n/a	1.000
Last Calibration Date:	March 15, 2019		**NMHC =** 1.000	n/a	1.000
Range ppm:	20 CH4/20 NMHC/40 THC		**THC =** 1.000	n/a	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A		
High Flow Meter ID/Expiry Date:	N/A		
Calibrator ID/Expiry Date:	Sabio id# 26801218 expires January 15, 2020		
Cal Gas Cylinder I.D. # :	LL 29687		
CH4 Cylinder Conc.=	598.0	198.0	**=C_3H_8 Cylinder Conc.**
CH_4 expressed as C_3H_8=	544.5	1142.5	**=total CH4 equivalent**

Standard Calibration Points for Analyzer Range of 20/20/40 ppm

Point	CH4	NMHC	THC
High	13.00	13.00	26.00
Mid	7.00	7.00	14.00
Low	3.00	3.00	6.00

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated CH_4 (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH_4 (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	Correction Factors:		
Point	**Diluent**	**Cal Gas**	**Total Flow**							**CH_4**	**NMHC**	**THC**
adjusted zero	3011	0.00	3011	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2940	73.50	3013	14.59	13.28	27.87	14.59	13.28	27.87	1.000	1.000	1.000
mid	2976	36.80	3013	7.30	6.65	13.95	7.35	6.64	14.00	0.994	1.002	0.997
low	2995	18.40	3013	3.65	3.33	6.98	3.69	3.27	6.97	0.990	1.017	1.001
calibrator zero	3011	0.00	3011	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
									Average C.F.=	0.994	1.006	0.999

Linear Regression/Calibration Results:

	CH_4	**NMHC**	**THC**	**LIMITS**
Correlation Coefficient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**1.000**	**1.001**	**1.000**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.12%**	**-0.12%**	**0.02%**	**± 3% F.S.**
% change in C.F. from last cal=	**n/a**	**n/a**	**n/a**	**n/a**

As Left Instrument Diagnostics:

Interface Board Voltages:	Bias Supply:	-293.2	Calibration History cnt'd:	NM Peak Area:	n/a
Temperatures:	Detector Oven:	175.0	Crucial Settings:	Methane Start:	n/a
	Filter:	175.0		Methane End:	n/a
	Column Oven:	75.2		Backflush:	n/a
	Internal:	38.0		NMHV Start:	n/a
Cylinder Pressures/reg.:	Carrier:	400 50		NMHC End:	n/a
	Fuel:	1200 50	Run History>1:	Date:	Mar 18, 2019
	Span Gas:	1900 10		Time:	10:48
	Zero Air Generator:	60		CH_4 PK HT:	0
Internal Pressures:	Carrier:	31.1		CH_4 RT:	14.4
	Fuel:	40.3		CH_4 Baseline:	2919
	Air:	32.2		CH_4 LOD:	15
FID Status:	Status:	LIT		CH_4 SD:	15
	Counts:	30350		CH_4 CONC:	0.00
	Flame:	366.9		NM PK HT:	0
	Det Base:	175.0		NM Peak Area:	0
Flame and Power Stats:	Last Power On:	Mar 18, 2019 / 09:16		NM CONC:	0.00
	Flameouts:	1		NM Base Start:	2670
	Det Oven at Start:	116.5		NM Base End:	2637
	Col Oven at Start:	63.4		NM LOD:	22
Calibration History:	Time:	Jan 1, 1970 / n/a		NM Start IDX:	2
	Type:	n/a		NM End IDX:	51
	Status:	n/a		NM Max Slope:	0.0e+00
	Check/Adjust:	n/a		NM Min Slope:	-1.0e+00
	CH_4 Span Conc:	n/a		NM PT Count:	0
	CH_4 SP Ratio:	n/a	Expected Values:	Previous CH4:	10.12
	CH_4 RT:	n/a		Previous NMHC	10.68
	CH_4 PK IDX:	n/a		Previous THC:	20.79
	CH_4 PK HT:	n/a		New CH4:	10.18
	NM Span Conc:	n/a		New NMHC	10.58
	NM SP Ratio:	n/a		New THC:	20.76

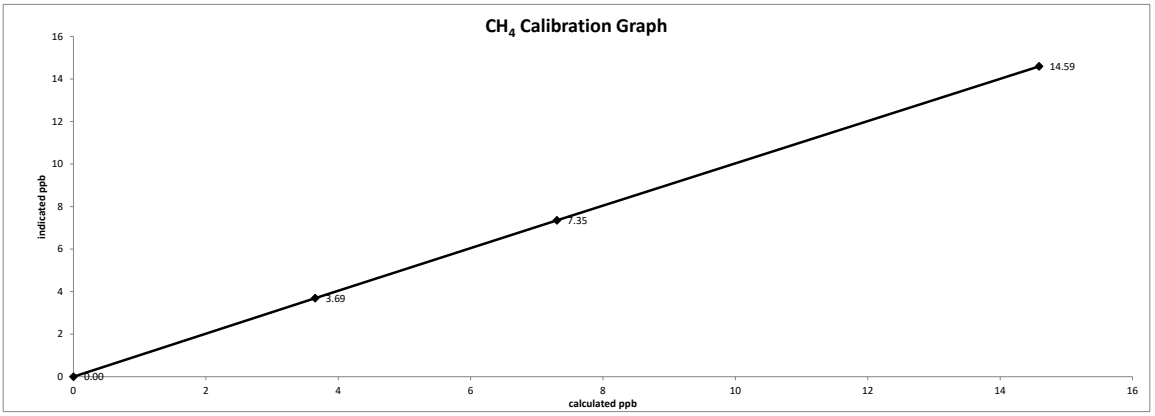
Comments:

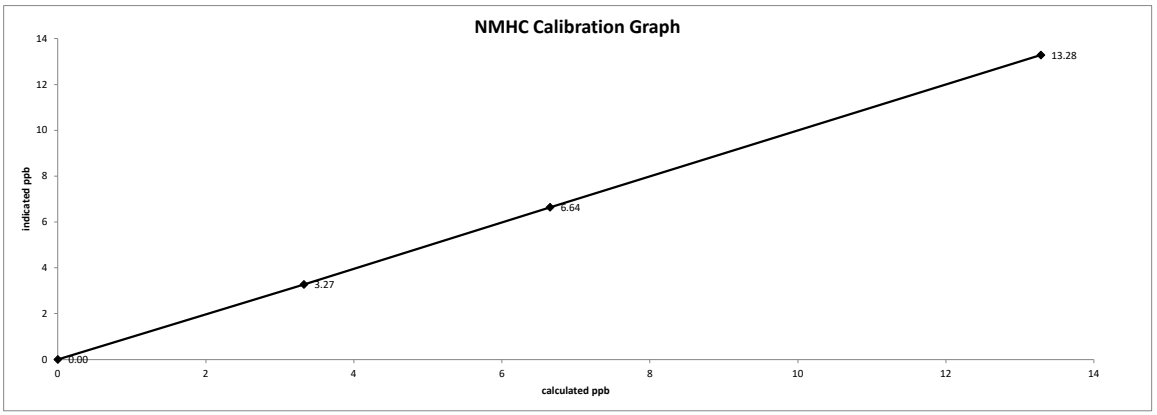
No zero adjustment was required/made.

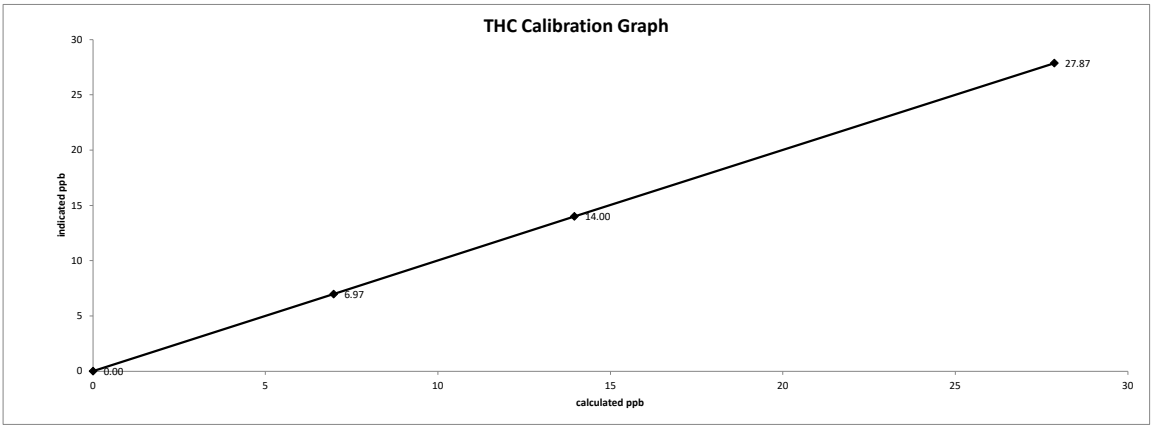
The manifold blower was found to be working normally.

A re-alignment of the actuator was completed and the analyzer failed at 15:00 on Mar 17, 2019. The analyzer was found not sampling with 0.00 ppm on March 18, 2019. A shutdown calibration was not possible.

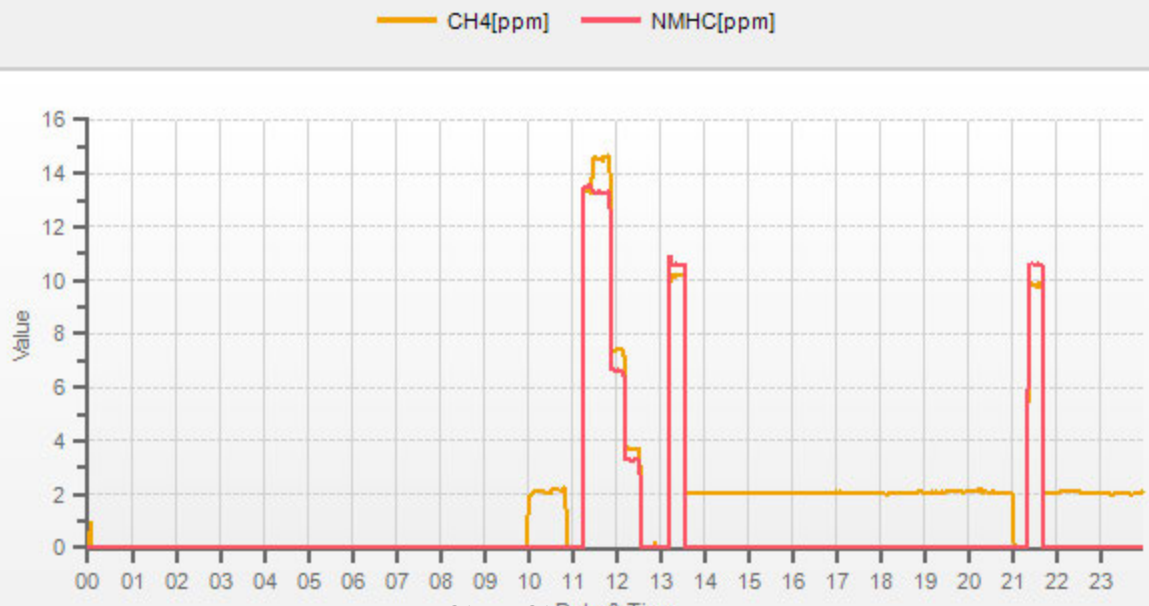
Date:	March 18, 2019	Start/End Time 24 hr. (mst):	10:31/13:38
Company/Airshed:	LICA	Calibration Purpose:	post repair
Location/Station Name:	Cold Lake South	Calibration Method:	Gas Dilution







Station: LICA COLD LAKE SOUTH Daily: 19/03/18 Type: AVG 1 Min. [1 Min.]



Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	March 27, 2019	**Barometer/B.P./units:**	F.S. #05544, expires Jan 17, 2019	951	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. #170286131, expires Apr 19, 2019	22	°C
Location/Station Name:	Cold Lake South	**Weather Conditions:**	Cloudy/Overcast		
Parameter:	CH4 / NMHC / THC	**Calibration Purpose:**	installation		
Start/End Time 24 hr. (mst):	8:51 / 12:17	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
Calibration Method:	Gas Dilution	**Cal Gas Expiry Date:**			

Analyzer:

Serial Number/Owner:	1236656188	Maxxam
Measured Flow:	1.151	
Last Calibration Date:	n/a	
Range ppm:	20 CH4/20 NMHC/40 THC	

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
CH_4 =	n/a	n/a	1.000
NMHC =	n/a	n/a	1.000
THC =	n/a	n/a	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A		
High Flow Meter ID/Expiry Date:	N/A		
Calibrator ID/Expiry Date:	Sabio id# 26801218 expires January 15, 2020		
Cal Gas Cylinder I.D. # :	LL 29687		
CH4 Cylinder Conc.=	598.0	198.0	**=C_3H_8 Cylinder Conc.**
CH_4 expressed as C_3H_8=	544.5	1142.5	**=total CH4 equivalent**

Standard Calibration Points for Analyzer Range of 20/20/40 ppm

Point	CH4	NMHC	THC
High	**13.00**	**13.00**	**26.00**
Mid	**7.00**	**7.00**	**14.00**
Low	**3.00**	**3.00**	**6.00**

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)										Correction Factors:		
Point	**Diluent**	**Cal Gas**	**Total Flow**	**Calculated CH_4 (ppm)**	**Calculated NMHC (ppm)**	**Calculated THC (ppm)**	**Indicated CH_4 (ppm)**	**Indicated NMHC (ppm)**	**Indicated THC (ppm)**	**CH_4**	**NMHC**	**THC**
adjusted zero	3013	0.00	3013	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2940	73.50	3013	14.59	13.28	27.87	14.59	13.28	27.87	1.000	1.000	1.000
mid	2976	36.80	3013	7.30	6.65	13.95	7.32	6.62	13.93	0.998	1.005	1.002
low	2995	18.40	3013	3.65	3.33	6.98	3.66	3.22	6.89	0.998	1.033	1.013
calibrator zero	3013	0.00	3013	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
									Average C.F.=	0.998	1.012	1.005

Linear Regression/Calibration Results:

	CH_4	NMHC	THC	LIMITS
Correlation Coefficient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**1.000**	**1.002**	**1.001**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.03%**	**-0.24%**	**-0.10%**	**± 3% F.S.**
% change in C.F. from last cal=	**n/a**	**n/a**	**n/a**	**n/a**

As Left Instrument Diagnostics:

Interface Board Voltages:	Bias Supply:	-288.3		Calibration History cnt'd:	NM Peak Area:	n/a
Temperatures:	Detector Oven:	175.0		Crucial Settings:	Methane Start:	n/a
	Filter:	175.0			Methane End:	n/a
	Column Oven:	75.0			Backflush:	n/a
	Internal:	34.6			NMHV Start:	n/a
Cylinder Pressures/reg.:	Carrier:	1800	50		NMHC End:	n/a
	Fuel:	700	50	Run History>1:	Date:	Mar 27, 2019
	Span Gas:	1700	10		Time:	08:41
	Zero Air Generator:	50			CH_4 PK HT:	2770
Internal Pressures:	Carrier:	29.2			CH_4 RT:	12.6
	Fuel:	44.9			CH_4 Baseline:	3189
	Air:	32.2			CH_4 LOD:	25
FID Status:	Status:	LIT			CH_4 SD:	8
	Counts:	35780			CH_4 CONC:	2.09
	Flame:	374.4			NM PK HT:	0
	Det Base:	175.0			NM Peak Area:	0
Flame and Power Stats:	Last Power On:	Mar 26, 2019 / 07:53			NM CONC:	0.00
	Flameouts:	1			NM Base Start:	3135
	Det Oven at Start:	167.9			NM Base End:	3149
	Col Oven at Start:	74.4			NM LOD:	34
Calibration History:	Time:	n/a			NM Start IDX:	9
	Type:	n/a			NM End IDX:	68
	Status:	n/a			NM Max Slope:	1.5e+00
	Check/Adjust:	n/a			NM Min Slope:	-1.4e+00
	CH_4 Span Conc:	n/a			NM PT Count:	0
	CH_4 SP Ratio:	n/a		Expected Values:	Previous CH4:	n/a
	CH_4 RT:	n/a			Previous NMHC	n/a
	CH_4 PK IDX:	n/a			Previous THC:	n/a
	CH_4 PK HT:	n/a			New CH4:	10.06
	NM Span Conc:	n/a			New NMHC	10.18
	NM SP Ratio:	n/a			New THC:	20.61

Comments:

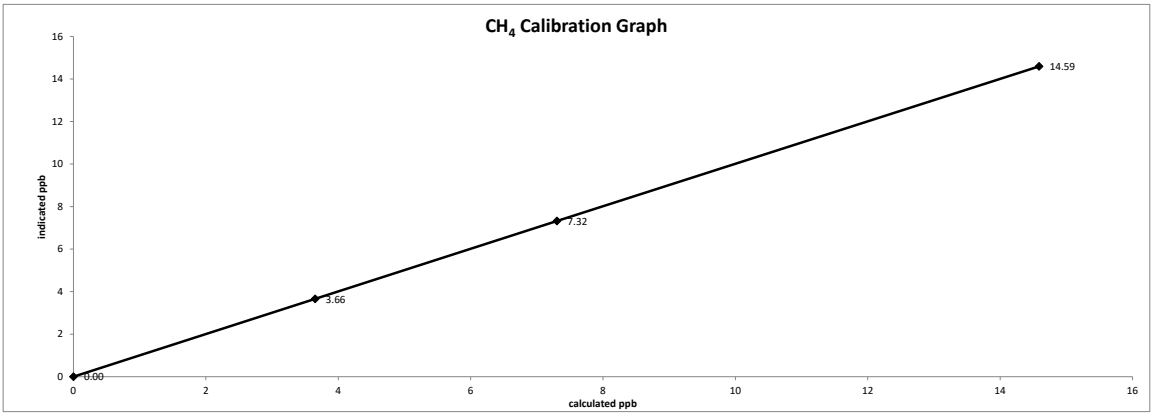
A new nitrogen cylinder was installed.
A column conditioning was performed.

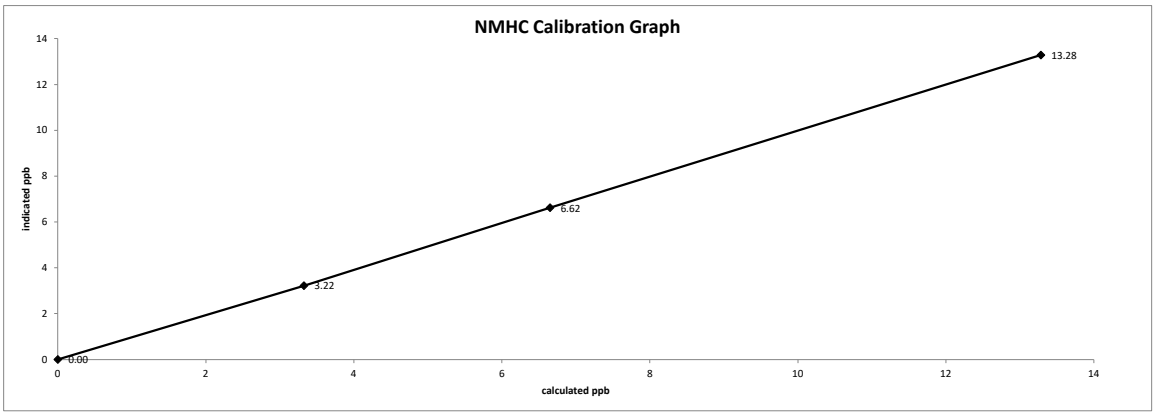
No zero adjustment was required/made.

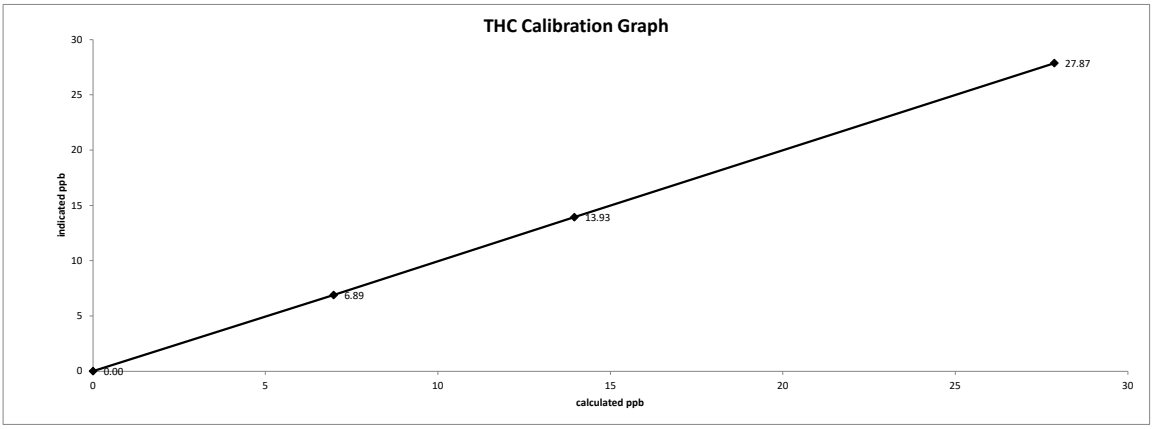
The manifold blower was found to be working normally.

A Maxxam analyzer was installed to replace LICA analyzer, which was sent to Calgary for repair.

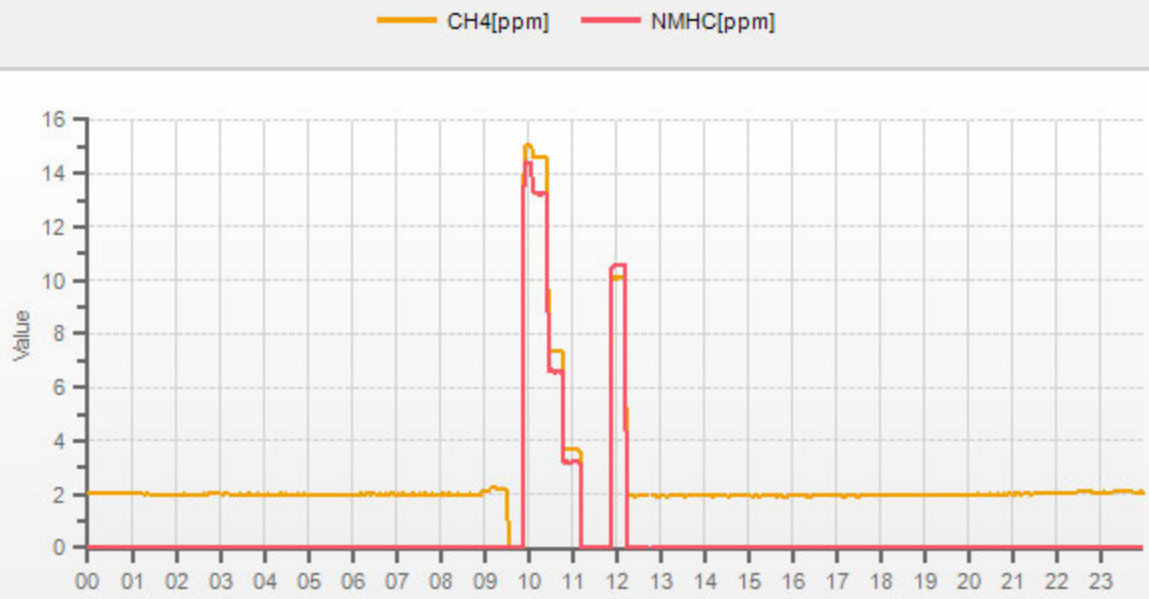
Date:	March 27, 2019	Start/End Time 24 hr. (mst):	8:51 / 12:17
Company/Airshed:	LICA	Calibration Purpose:	installation
Location/Station Name:	Cold Lake South	Calibration Method:	Gas Dilution



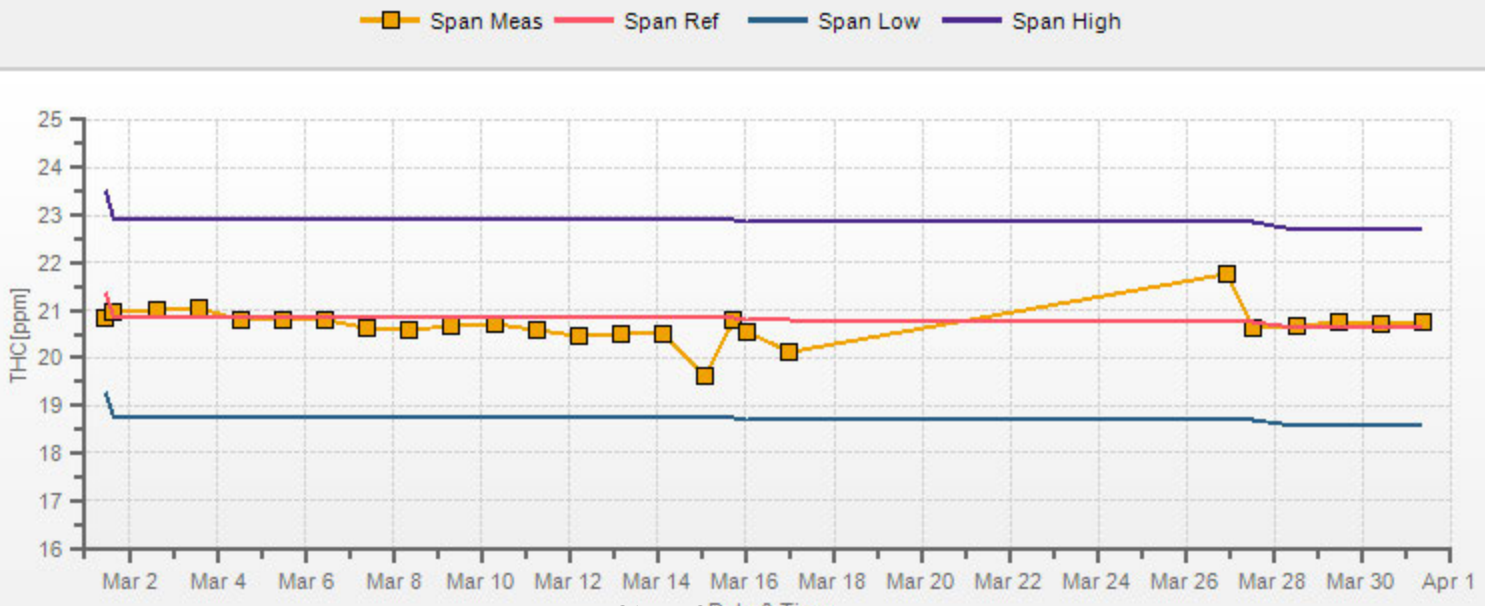




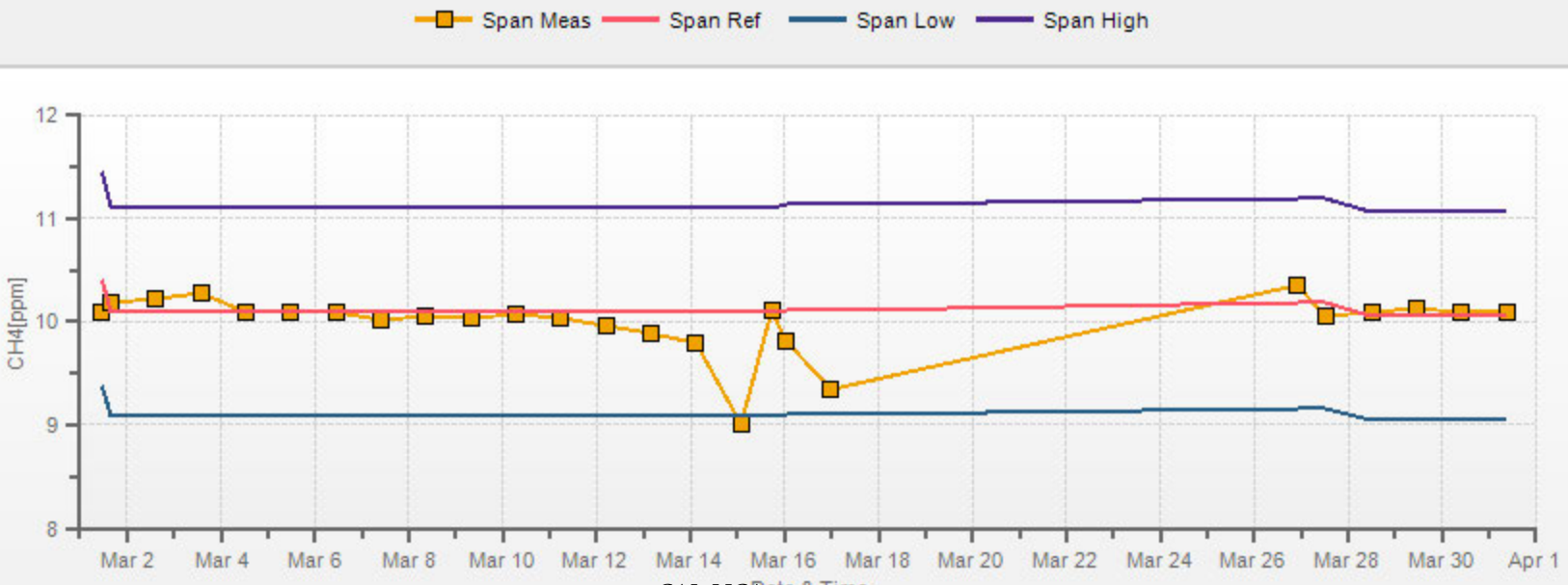
Station: LICA COLD LAKE SOUTH Daily: 19/03/27 Type: AVG 1 Min. [1 Min.]



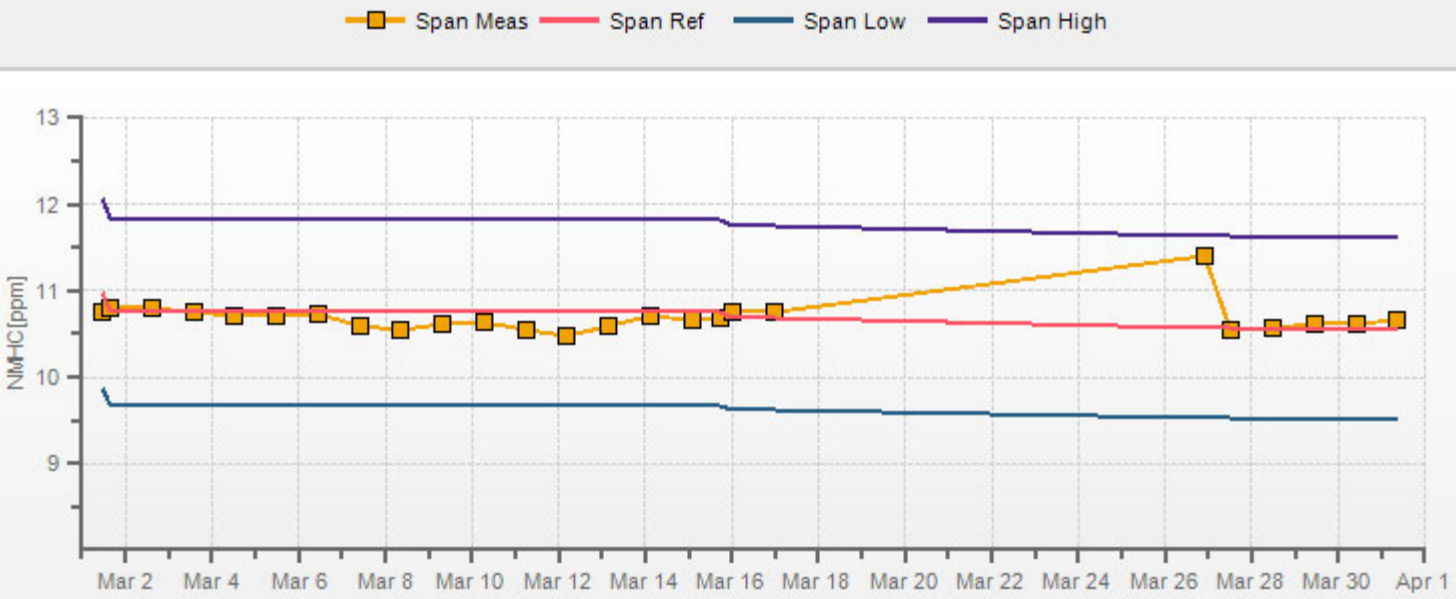
THC[ppm] Calibration: LICA COLD LAKE SOUTH Monthly: 19/03 Type: Span



CH4[ppm] Calibration: LICA COLD LAKE SOUTH Monthly: 19/03 Type: Span



NMHC[ppm] Calibration: LICA COLD LAKE SOUTH Monthly: 19/03 Type: Span



Thermo 42i NO-NO2-NOx Analyzer Calibration

Date:	March 14, 2019	**Barometer/B.P./units:**	F.S. #05544, exprires Jan 17, 2020	955	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. #170286131, expires April 19, 2019	22	°C
Location/Station Name:	Cold Lake South	**Weather Conditions:**	Mainly sunny		
Start/End Time 24 hr. (mst):	8:56 / 16:31	**Calibration Purpose:**	routine monthly		
G.P.T. to be used for Ozone?	Yes with 500 ppb NOx full scale	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
Calibration Method:	Gas Dilution & Gas Phase Titration	**Cal Gas Expiry Date:**	August 20, 2026		

Analyzer:

Serial Number/Owner:	1505664393	LICA
Last Calibration Date:	February 8, 2019	
Range ppb:	500	

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
NO =	1.001	1.029	1.000
NO_2 =	1.000	1.004	1.000
NOx =	1.000	1.032	0.999

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A	
High Flow Meter ID/Expiry Date:	N/A	
Calibrator ID/Expiry Date:	Sabio id# 42531101(0911) expires February 13, 2020	
Cal Gas Cylinder I.D. # :	LL 107918	
Cal Gas Conc. (ppm):	50.1	50.2

Standard Calibration Points for a Range of: 500 ppb

Point	Target NO (ppb)	Target NO_2 (ppb)	Cc Ozone ?
High	**380**	**330**	**<--high ozone**
Mid	**180**	**245**	**n/a**
Low	**90**	**175**	**n/a**
Extra Point #1	**n/a**	**133**	**<--mid ozone**
Extra Point #2	**n/a**	**53**	**<--low ozone**

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	**Diluent**	**Cal Gas**	**Total Flow**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**		
as found zero	4997	0.0	4997	0	0	0.1	0.2	n/a	n/a
as found high	4922	37.9	4960	382.8	383.6	372.0	372.0	1.029	1.032
adjusted zero	4997	0.00	4997	0.0	0.0	0.0	0.0	n/a	n/a
adjusted high	4922	37.90	4960	382.8	383.6	383.0	384.0	1.000	0.999
mid	4962	18.00	4980	181.1	181.4	183.0	183.0	0.990	0.992
low	4980	9.00	4989	90.4	90.6	92.0	92.0	0.982	0.984
calibrator zero	4997	0.00	4997	0	0	0.0	0.0	n/a	n/a
							Average C.F.=	0.990	0.992

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO_2	NO drop	NO_2 gain	NO_2 C.F.
Point	**Diluent**	**Cal Gas**	**Total Flow**	**volts or ppb**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**
NOx reference	4922	37.90	4960	0.0	382.0	382.0	0.0	0.0	0.0	
as found high NO2	4922	37.90	4960	240.0	127.0	381.0	254.0	255.0	254.0	1.004
adjusted high NO2	4922	37.90	4960	240.0	125.0	382.0	257.0	257.0	257.0	1.000
gpt mid	4922	37.90	4960	140.0	231.0	382.0	151.0	151.0	151.0	1.000
gpt low	4922	37.90	4960	50.0	326.0	381.0	56.0	56.0	56.0	1.000
									Average NO_2 C.F.=	1.000

Linear Regression/Calibration Results:

	NO	NOx	NO_2	LIMITS
Correlation Coefficient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**1.001**	**1.000**	**1.000**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.20%**	**0.17%**	**0.00%**	**± 3% F.S.**
% change in C.F. from last cal=	**-2.83%**	**-3.17%**	**-0.39%**	**± 10%**
NO2 converter efficiency			**1.00**	**0.96 to 1.04**

As found:		As left:	
NO Bkg:	4.4	NO Bkg:	4.6
NOx Bkg:	4.5	NOx Bkg:	5.0
NO Coef:	1.067	NO Coef:	1.093
NO2 Coef:	0.996	NO2 Coef:	0.993
NOx Coef:	0.997	NOx Coef:	1.001
PMT:	-854.3	PMT:	-854.7
Internal:	29.3	Internal:	30.7
Chamber:	50.3	Chamber:	50.4
Cooler:	-2.8	Cooler:	-2.7
NO2 Converter:	327.4	NO2 Converter:	322.9
NO2 Converter Set:	325.0	NO2 Converter Set:	325.0
Perm Oven Gas:	35.01	Perm Oven Gas:	35.00
Perm Oven Heater:	34.28	Perm Oven Heater:	34.29
Pressure:	183.5	Pressure:	182.0
Flow:	0.716	Flow:	0.716
Ozonator Flow:	OK	Ozonator Flow:	OK
Expected Value NO:	2	Expected Value NO:	2
Expected Value NO2:	309	Expected Value NO2:	297
Expected Value NOx:	312	Expected Value NOx:	299

Comments:

The analyzer sample inlet filter was changed.

The manifold blower was found to be working normally.

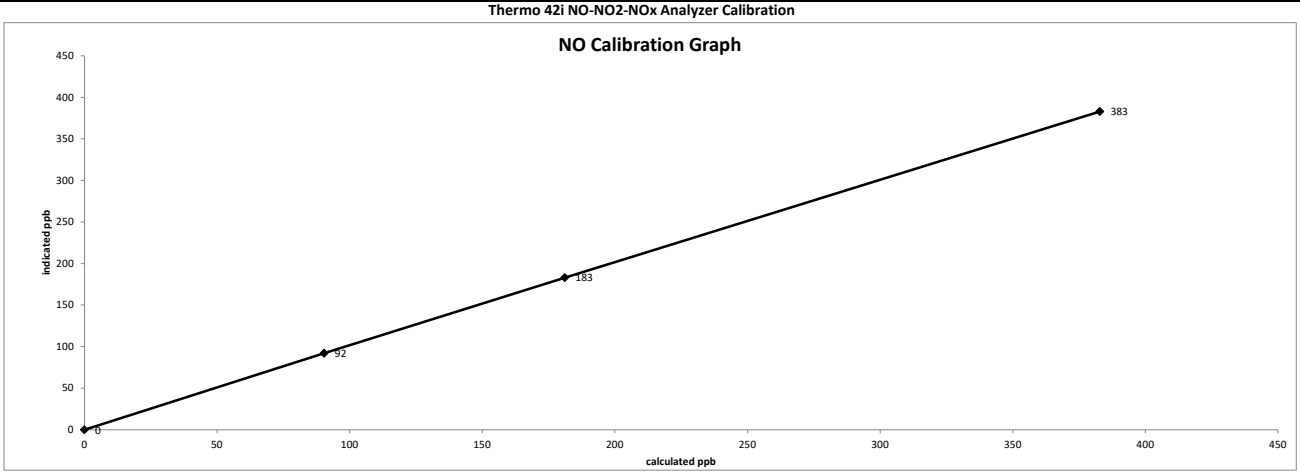
The converter cooling fan filter was cleaned.

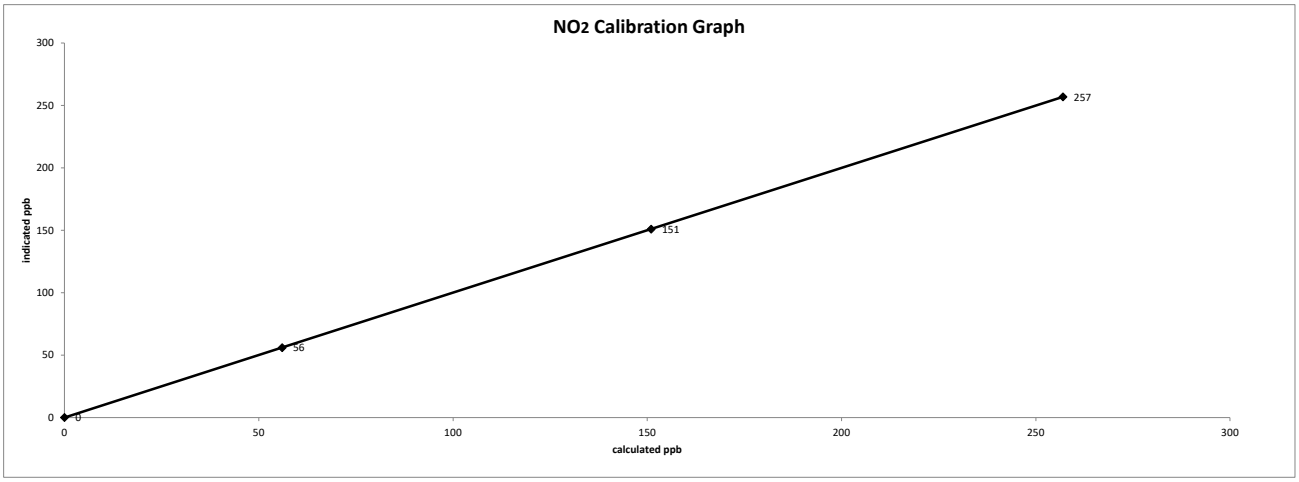
The analyzer cooling fan filter(s) were cleaned.

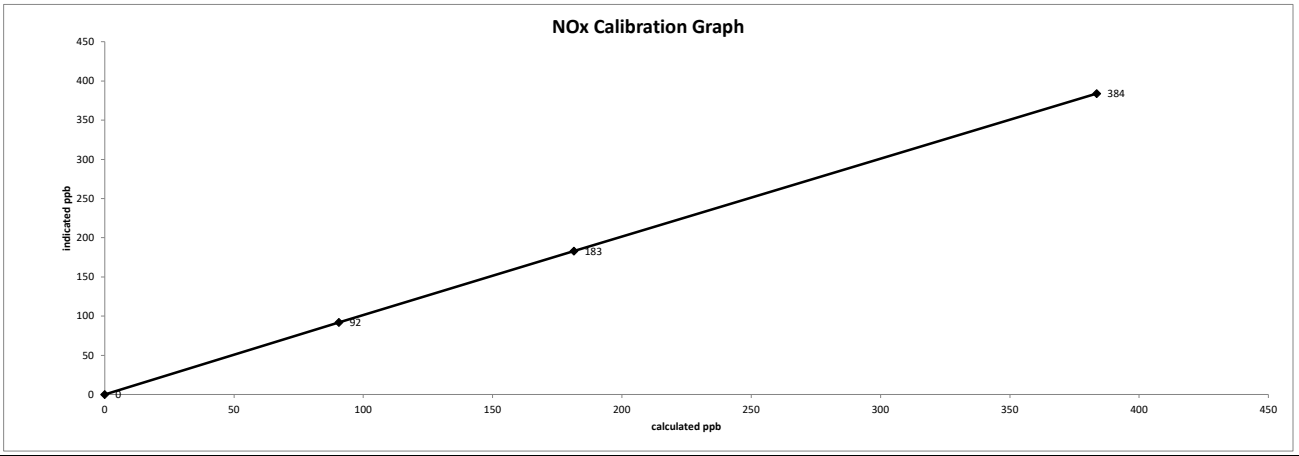
15:11 - GPT for O3 (ppb): High O3 set/NO drop=350/372, Mid O3 set/NO drop = 170/184, Low O3 set/NO drop = 55/61.

Date:	**March 14, 2019**	**Start/End Time 24 hr. (mst):**	**8:56 / 16:31**
Company/Airshed:	**LICA**	**Calibration Purpose:**	**routine monthly**
Location/Station Name:	**Cold Lake South**	**Calibration Method:**	**Gas Dilution & Gas Phase Titration**

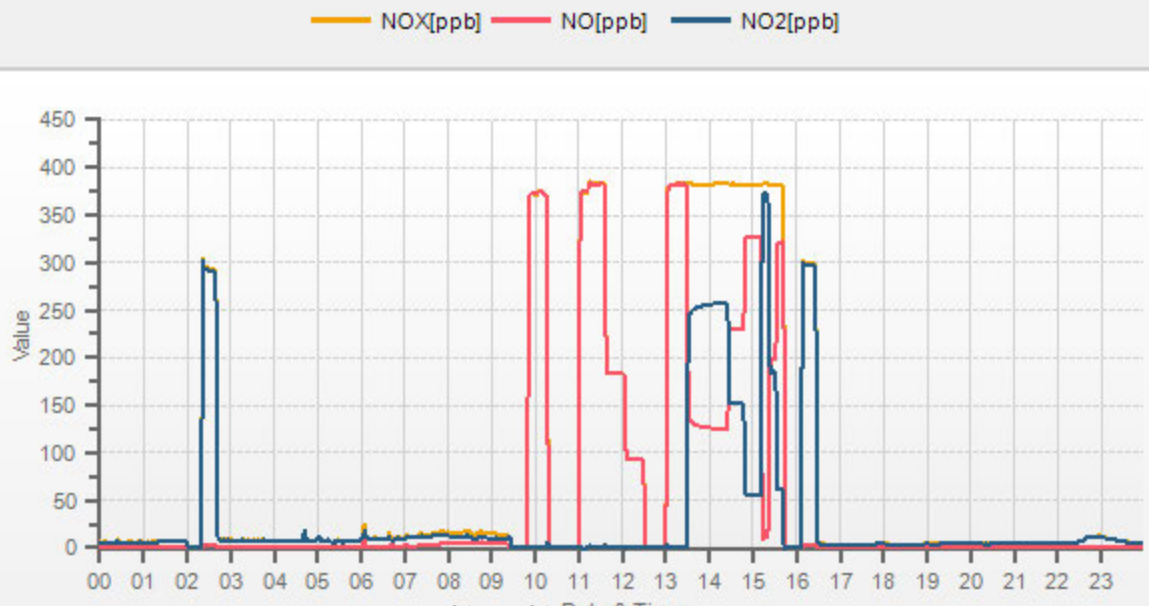
Thermo 42i NO-NO2-NOx Analyzer Calibration



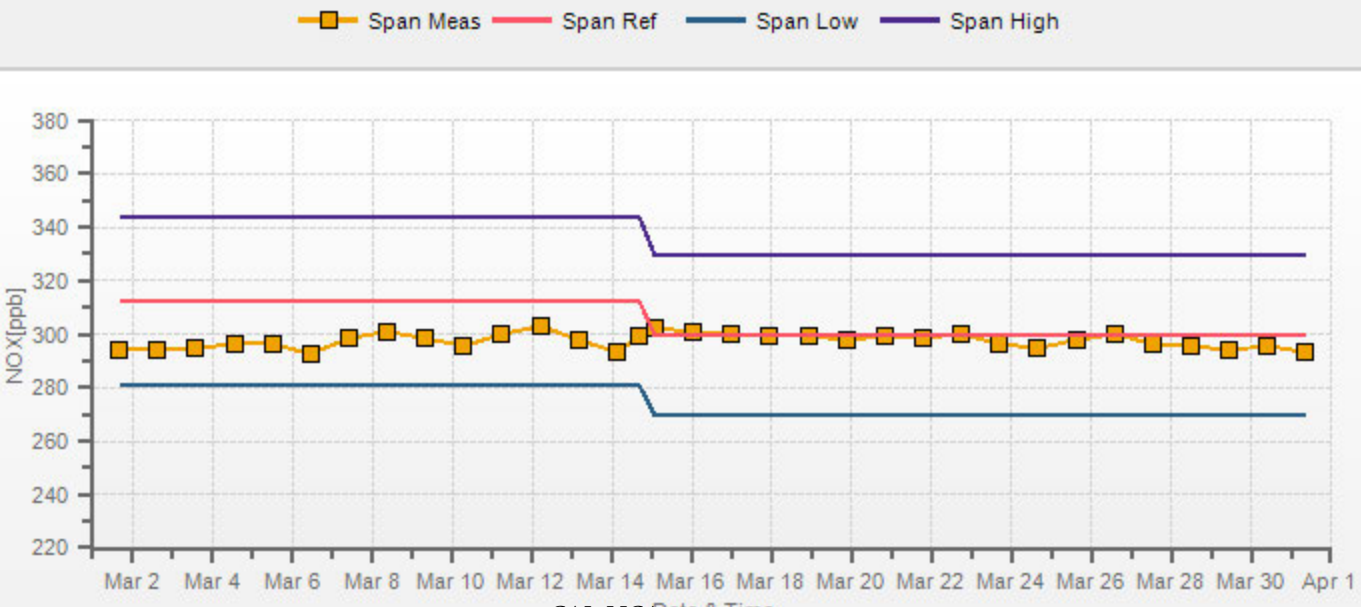


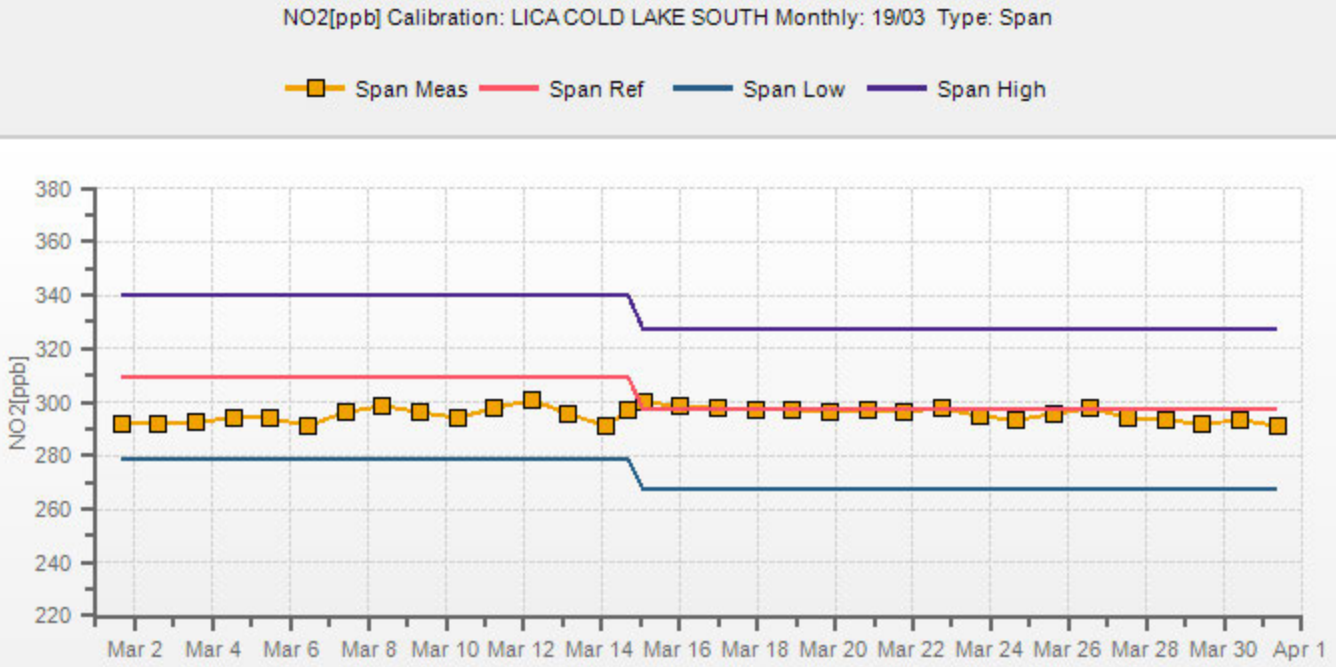


Station: LICA COLD LAKE SOUTH Daily: 19/03/14 Type: AVG 1 Min. [1 Min.]



NOX[ppb] Calibration: LICA COLD LAKE SOUTH Monthly: 19/03 Type: Span




NO2[ppb] Calibration: LICA COLD LAKE SOUTH Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
NO2[ppb]
380
360
340
320
300
280
260
240
220
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1

Thermo 49i Ozone Analyzer Calibration

Date:	March 15, 2019	**Barometer/B.P./units:**	F.S. #05544, exprires Jan 17, 2020	950	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. #170286131, expires April 19, 2019	22	°C
Location/Station Name:	Cold Lake South	**Weather Conditions:**	Mainly sunny		
Start/End Time 24 hr. (mst):	11:37 / 16:38	**Calibration Purpose:**	routine monthly		
Ozone Calibration Method:	Direct G.P.T.	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
G.P.T. Date:	March 14, 2019	**Cal Gas Expiry Date:**	August 20, 2026		

Analyzer:

Serial Number/Owner:	700419951 LICA	**Ozone Range ppb:**	500
Last Calibration Date:	February 7, 2019	**As Found C.F.:**	1.002
Previous Cal High Point C.F.:	1.000	**New C.F.:**	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Sabio id# 42531101(0911) expires February 13, 2020
Cal Gas Cylinder I.D. # :	LL 107918

Point	AMD Required Range of Ozone Calibration Points
High	300-400 ppb
Mid	150-200 ppb
Low	50-100 ppb

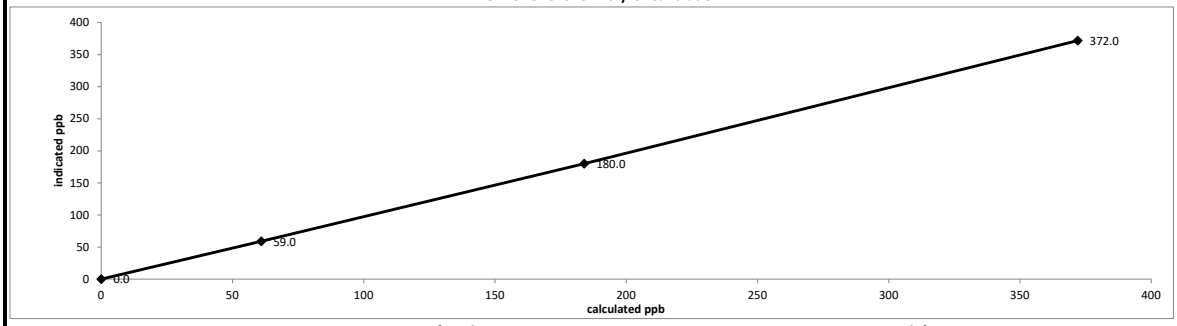
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

	Calibrator Flow Rate (cc/min)		Calculated Concentration:	Corrected Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	**Total Flow @ Point Start**	**Total Flow @ Point Finish**	**(ppb)**	**(ppb)**	**(ppb)**	
as found zero	5000	5000	0.0	n/a	0.7	n/a
as found high	5000	5000	372.0	372.0	372.0	1.002
adjusted zero	5000	5000	0.0	0.0	0.0	n/a
adjusted high	5000	5000	372.0	372.0	372.0	1.000
mid	5000	5000	184.0	184.0	180.0	1.022
low	5000	5000	61.0	61.0	59.0	1.034
calibrator zero	5000	5000	0.0	n/a	0.0	n/a
					Average C.F.=	1.019

Linear Regression/Calibration Results:

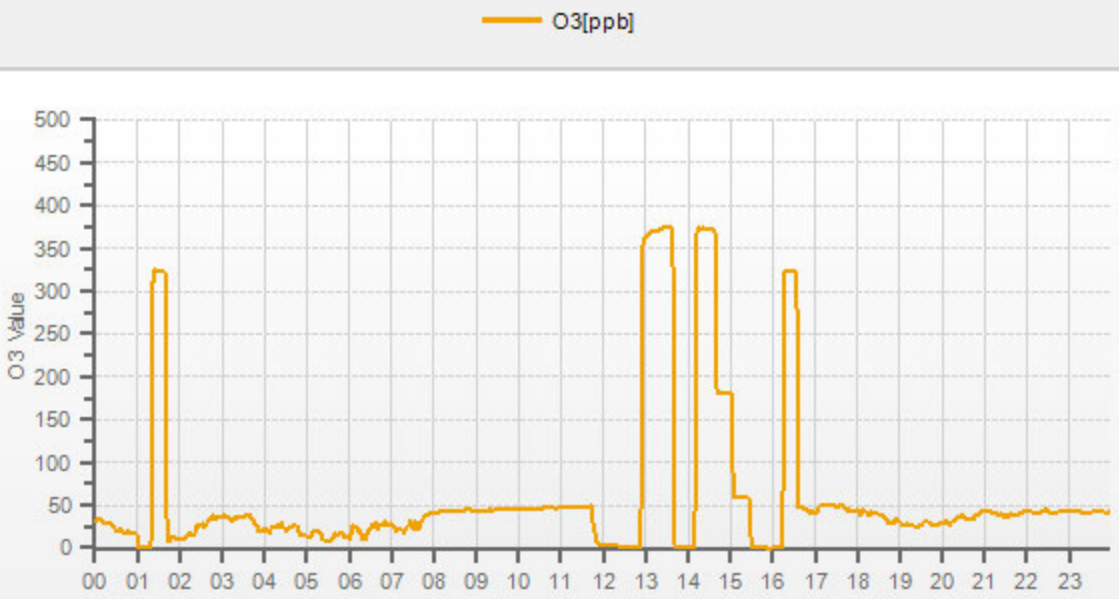
		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**0.999**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.33%**	**± 3% F.S.**
% change in C.F. from last cal=	**-0.19%**	**± 10%**

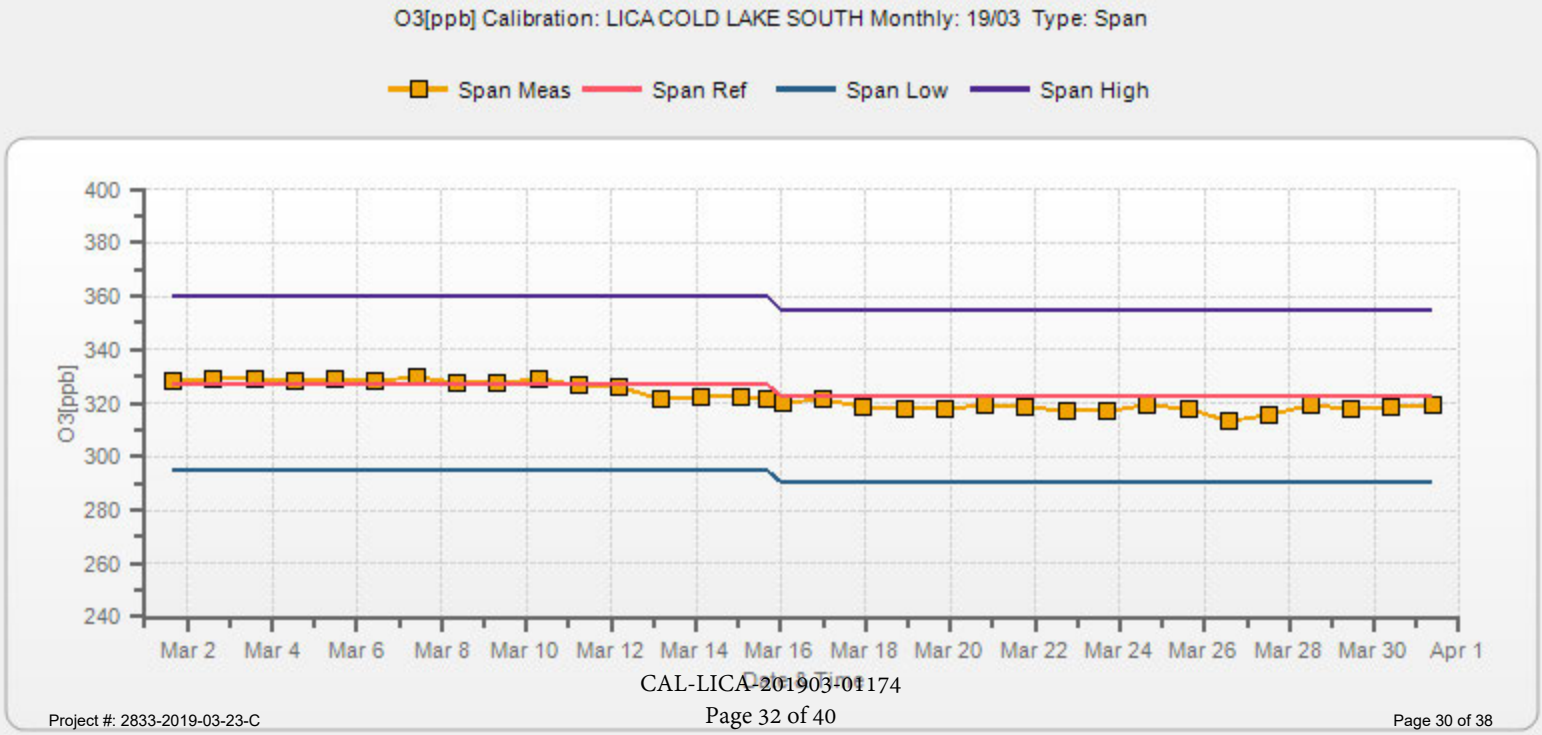
Thermo 49i Ozone Analyzer Calibration



As found:		As left:	
O3 Bkg:	0.0	O3 Bkg:	0.0
O3 Coef:	1.045	O3 Coef:	1.036
Photo Lamp	9.6	Photo Lamp	9.6
O3 Lamp	9.3	O3 Lamp	9.3
Bench:	31.0	Bench:	31.7
Bench Lamp:	53.5	Bench Lamp:	53.6
O3 Lamp:	67.4	O3 Lamp:	67.5
Pressure:	707.1	Pressure:	707.1
Cell A lpm:	0.708	Cell A lpm:	0.708
Cell B lpm:	0.752	Cell B lpm:	0.751
O3 ppb:	2.4	O3 ppb:	0.3
Cell A ppb:	-2.3	Cell A ppb:	2.7
Cell B ppb:	7.2	Cell B ppb:	-2.0
Cell A int (Hz):	75685	Cell A int (Hz):	75693
Cell B int (Hz):	77864	Cell B int (Hz):	77878
Expected Value:	327.0	Expected Value:	322.0

Comments:


O3[ppb] Station: LICA COLD LAKE SOUTH Daily: 19/03/15 Type: AVG 1 Min. [1 Min.]
O3[ppb]
O3 Value
500
450
400
350
300
250
200
150
100
50
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Date & Time


O3[ppb] Calibration: LICA COLD LAKE SOUTH Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
O3[ppb]
400
380
360
340
320
300
280
260
240
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1

Thermo 5030 SHARP Monitor Quaterly Audit

Date:	March 8, 2019	**Performed By/Reviewer:**	Alex Yakupov / Rob Fisher
Company:	LICA	**Start Time (mst):**	10:25
Station Name/Location:	Cold Lake South	**End Time (mst):**	12:25
Previous Audit Date:	February 21, 2019	**Calibration Purpose:**	quarterly
Parameter:	PM 2.5	**Weather Conditions:**	A few clouds

SHARP Information and Status:

Serial Number/Owner:	CM - 2209 LICA	**Status Code**	0
Approx. % Tape Reaming	4/10	**Error Code**	0

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

High Flow:	Airmetrics/Chinook High Maxxam ID #2 expires April 24, 2019
Digital Manometer:	Dwyer 475 Mark III id# 3 expires January 17, 2020
Temperature:	F.S. 170286131 expires April 19, 2019
Pressure:	F.S. 05544 expires January 16, 2020

As Found Temperatures, Pressure, Humidity:

	T1 (°C)	T2 (°C)	T3 (°C)	T4 (°C)	P3 (hPa)	RH (%)
SHARP:	-8	24	25	25	937	9
Reference:	-8.2	24.0	24.0	24.0	937.0	9.0
Difference:	0.2	0.0	1.0	1.0	0.0	0.0

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

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

	T1 (°C)	T2 (°C)	T3 (°C)	T4 (°C)	P3 (hPa)	RH (%)
SHARP:	-8	24	25	25	937	9
Reference:	-8.2	24.0	24.0	24.0	937.0	9.0
Difference:	0.2	0.0	1.0	1.0	0.0	0.0%

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

Mass Foil Calibration:

	Mass Foil:		ZERO:		Span Sensitivity
Mass Foil ID:	9015	**QLF:**	-16	**OLD:**	7057
Spanfoil Value (µg):	1294	**CONFID:**	9	**NEW:**	7085

Nephalometer Zero:

	As Found		As Left
Analog	159.00	**Analog**	160.00
NEPH	0.00	**NEPH**	-0.70
C14	-20.20	**C14**	-6.60
Conc	0.00	**Conc**	-0.50

Flow rate:

	As Found		As Left
SHARP AirFlow l/hr	1000	**SHARP AirFlow l/hr**	1000
Reference AirFlow (l/min)	16.73	**Reference AirFlow (l/min)**	16.68
Reference AirFlow (l/hr)	1004	**Reference AirFlow (l/hr)**	1001
% Difference:	-0.4%	**Difference:**	-0.1%

$$\%D = 100 \times \frac{Qm - Qi}{Qi}$$

Tolerance +/- 5%

Inlet Assembly:

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

Pump Assembly:

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

Comments:

Leak check: 16.66 vs 16.65, Difference =0.01 lpm < 0.42 lpm, passed.

Met One Instruments

Sonic Wind Sensor Certificate of Calibration

Sensor Model No.: 50.5H
Sensor Serial No.: F1644
Sensor Output Swing: 0V - 1.0V
Sensor Output Range: 0 - 50.0 MPS
Customer: Maxxam Analytics
Sales Order No.: 125713
Tested per PO: PO0000003392
Calibration Date: 11/09/2017
Calibrated by: David Frith DF
QC Inspection Byron Dawson

Instrument Condition Within Tolerance: As Found ___ As Left X
Corrective Action: No Adjustment ___ Adjust X Repair ___
Preventative Maintenance ___

As Found Test Date: N/A As Left Test Date 11/09/2017

Quality Control Manual Revision: September 16, 2013 MP42201 Rev. G.
All Work Performed per Customer Purchase Order Requirements.
Calibration Document No. 50.5-6100

Test Equipment Used for Calibration of Instruments

Description	Manufacturer	Model No.	Serial No.	Cal Date	Cal Due	Voltage Accuracy	Time Base Accuracy
Data Acquition	Campbell Scientific	CR1000	6569	4/06/2015	4/06/2018	+/- 3mV	< 6 ppm
NIST Cupset	Met One Instruments	170-41	3309	1/26/2017	1/26/2022	Accuracy < 0.15 mph or 1% WS	

Environmental Data: Temperature 65 to 80 Deg F Vibration none
Humidity 20 to 70% Radiation none

Firmware Version: 3194-01 R2.62

The standards used for calibration have accuracies equal to or greater than the instruments tested. These standards are on record and are traceable to NIST to the extent allowed by the institute's calibration facility. Unless otherwise stated heron, all instruments are calibrated to meet the manufacturer's published specifications. The calibration system complies with MIL-STD-45662A (8/1/88). Instrument's accuracy meets the requirements of Regulatory Guide 1.23 (2/72). Compliant with IS) 9001:2008 requirements

50.5 - 9600 Rev A ***October 2016***

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2019-425A

Company: Maxxam **Operator:** C. Wesson

Calibrator:				**Flow Measurement Device:**	
Make/Model	Sabio 2010			Make/Model	N/A
Serial Number	042531101			Serial Number	N/A
Last Verification Date	March 1, 2018			Temperature (°C)	N/A
NO Cylinder S/N	LL107918			Barometric Pressure	N/A
NO [PPM]	50.1	NOx [PPM]	50.2		
Expiry Date	August 2026				

Dilution Flow (sccm)

Pt. #1 5000 Pt. #2 5000 Pt. #3 5000

Gas Flow (sccm)

Pt. #1 80 Pt. #2 40 Pt. #3 20

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4999	77.8	0.780	0.781	0.778	-0.001	0.777	0%	-1%
4998	37.9	0.380	0.381	0.376	-0.001	0.375	-1%	-1%
4999	18.9	0.189	0.190	0.189	-0.001	0.188	0%	-1%
				Absolute Average Percent Difference			0%	1%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO		**LIMITS**	**NOx**	
Correlation=	1.0000	**≥ 0.990**	Correlation=	1.0000
m (Slope)=	0.9974	**0.90-1.10**	m (Slope)=	0.9944
b (Intercept % of FS)=	-0.0636	**± 3% F.S.**	b (Intercept % of FS)=	-0.1045

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
4999	0.000	0.000	0.779	-0.001	0.778	NO_2	% Diff. Limit
4999	0.500	0.510	0.269	0.501	0.770	-2%	± 10%
4999	0.275	0.281	0.498	0.276	0.774	-1%	± 10%
4999	0.090	0.092	0.687	0.091	0.778	0%	± 10%
					Absolute Average Percent Difference	1%	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	0.9833	**0.90-1.10**
b (Intercept % of FS)=	-0.0304	**± 3% F.S.**

AENV Standards **Audit Calibrator**		**NO_X Analyzer**	
Make/Model	Sabio 2010	Make/Model	Teco 42i
Serial/AMU Number	AMU 2092	Serial/AMU Number	AMU 1868
SRM Gas Cylinder No.	APEX1236645	Last Calibration Date	February 12, 2019
Cylinder Conc. (ppm)	50.05	Full Scale (ppm)	1.0
		Cylinder Gas Expiry Date	June 2021

COMMENTS: Contains 49.5 ppm SO2.

Auditor: Al Clark Date: February 13, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2019-396A

Company Maxxam **Operator:** Alex

Calibrator:				**Flow Measurement Device:**	
Make/Model	Sabio 2010			Make/Model	N/A
Serial Number	26801218			Serial Number	N/A
Last Verification Date	New			Temperature (°C)	N/A
NO Cylinder S/N	LL48147			Barometric Pressure	N/A
NO [PPM]	50.5	NOx [PPM]	50.6		
Expiry Date	August 2026				

Dilution Flow (sccm)

Pt. #1 5000 Pt. #2 5000 Pt. #3 5000

Gas Flow (sccm)

Pt. #1 80 Pt. #2 40 Pt. #3 20

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
5015	79.1	0.797	0.798	0.793	0.001	0.794	0%	-1%
5015	39.6	0.399	0.400	0.395	0.001	0.396	-1%	-1%
5017	19.8	0.199	0.200	0.197	0.000	0.197	-1%	-1%
					Absolute Average Percent Difference		1%	1%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO		**LIMITS**	**NOx**	
Correlation=	1.0000	**≥ 0.990**	Correlation=	1.0000
m (Slope)=	0.9959	**0.90-1.10**	m (Slope)=	0.9954
b (Intercept % of FS)=	-0.0968	**± 3% F.S.**	b (Intercept % of FS)=	-0.0969

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
						NO_2	% Diff. Limit
5015	0.000	0.000	0.792	0.001	0.793		
5015	0.500	0.496	0.296	0.493	0.791	-1%	± 10%
5015	0.250	0.246	0.546	0.245	0.793	-1%	± 10%
5015	0.100	0.098	0.694	0.098	0.793	-1%	± 10%
				Absolute Average Percent Difference		1%	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	0.9921	**0.90-1.10**
b (Intercept % of FS)=	0.0909	**± 3% F.S.**

AENV Standards		**NO_X Analyzer**	
Audit Calibrator		Make/Model	Teco 42i
Make/Model	Teco 146i	Serial/AMU Number	AMU 1868
Serial/AMU Number	AMU 1809	Last Calibration Date	January 14, 2019
SRM Gas Cylinder No.	APEX1236645	Full Scale (ppm)	1.0
Cylinder Conc. (ppm)	50.05	Cylinder Gas Expiry Date	June 2021

COMMENTS:

Auditor: Al Clark Date: Janaury 15, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2019-392CGA

Company: Maxxam **Operator's Name:** Alex

Cylinder #: LL107918 Concentration PPM: 49.5 Tolerance(%) 1 Certified By: Praxair

Expiry Date: August 2026

Reference Calibrator and Gas:

Make/Model: Sabio 2010
Serial Number: AMU 2092
Last Verification Date: January 14, 2019
Gas Type: SO2 Conc. 50.26
Cylinder Number: FF28071
Expiry Date: March 2020

Flow Measurement Device:

Make/Model: Mesa Definer 220
Serial Number: H-133034 / L-132702
Temp.°C: 22.7 C
B.P. 707 mmHg

Reference Analyzer:

Make/Model: Teco 43i Serial/AMU Number: 2195

Instrument Settings: Zero: 11.8 Span: 0.980 Range: 1.0

Last Calibration: Date: Jan 14/19 C.F. 1.000 Done By: Shea Beaton

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.000			
4898	78.1	0.790	0.01595	62.714	49.5
4893	38.7	0.389	0.00791	126.434	49.2
4894	19.3	0.192	0.00394	253.575	48.7
				Average Cylinder Concentration:	**49.1**

Previous Stated Concentration PPM: 49.5

Percent variance from Stated: 1

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: January 15, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2017-493CGA

Company: Maxxam **Operator's Name:** Mike

Cylinder #: EY0001003 Concentration PPM: 9.55 Tolerance(%) 2 Certified By: Praxair

Expiry Date: October 2020

Reference Calibrator and Gas:

Make/Model: Sabio 2010
Serial Number: AMU 2092
Last Verification Date: January 17, 2018
Gas Type: H2S Conc. 20.43
Cylinder Number: CAL015272
Expiry Date: January 2019

Flow Measurement Device:

Make/Model: Mesa Defender 530
Serial Number: H-153961 / L-153874
Temp.°C: 23.0 C
B.P. 697 mmHg

Reference Analyzer:

Make/Model: Teco 450i Serial/AMU Number: 1980

Instrument Settings: Zero: 12.9 Span: 0.955 Range: 0.1

Last Calibration: Date: Jan 17/18 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated	Gas Flow/	Concentration	Cylinder
Dilution	Gas	Concentration (PPM)	Dilution Flow	Factor	Concentration
5000	0.0	0.0000			
5051	39.6	0.0753	0.00784	127.551	9.60
5028	20.2	0.0387	0.00402	248.911	9.63
5033	10.5	0.0198	0.00209	479.333	9.49
				Average Cylinder Concentration:	**9.58**

Previous Stated Concentration PPM: 9.55

Percent variance from Stated: 0

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:** Used AEP regulator

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: January 18, 2018

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

CH4 / C3H8 Cylinder Gas

File No. 2019-393CGA

Company: Maxxam **Operators name:** Alex

Cylinder #: LL29687 Conc CH4 (PPM) 598/198 Tolerance (%) 1 Certified By: Praxair

Expiry Date: August 2026

Reference Calibrator and Gas:

Make/Model	Sabio 2010		
Serial Number	AMU 2092		
Last Verification Date	January 14, 2019		
Gas Type	CH4	Conc.	990.4
Cylinder Number	05604875	Expiry Date	July 2021
Gas Type	C3H8	Conc.	246.5
Cylinder Number	XF003845B	Expiry Date	July 2022

Flow Measurement Device:

Make/Model	Mesa Definer 220
Serial Number	H-133034 / L-132702
Temp.°C	23.8 C
B.P.	707 mmHg

Reference Analyzer:

Make/Model	Teco 55i			Serial/AMU Number:	2221
Instrument Settings	Zero: N/A		Span: N/A	Range:	20.0
Last Calibration:	Date: Jan 14/19		C.F. 1.000	Done By:	Shea Beaton

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/	Concentration	Cylinder Concentration	
Dilution	Gas	CH4	C3H8	Dilution Flow	Factor	CH4	C3H8
5000	0.0	0.00	0.00				
3990	77.5	11.71	11.18	0.02	51.48	603	209
3976	39.1	5.87	5.71	0.01	101.69	597	211
3986	20.0	2.96	2.86	0.01	199.30	590	207
					Average Cylinder Concentration:	**597**	**209**

	CH4	C3H8
Previous Stated Concentration PPM:	598	198
Percent variance from Stated:	**0**	**6**

Cylinder gas tolerances based on CH4 only

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: January 15, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

NO Cylinder Gas

File No. 2019-391CGA

Company: Maxxam **Operators name:** Alex

Cylinder #: LL107918 Conc (PPM) 50.1/50.2 Tolerance (%) 1 Certified By: Praxair

Expiry Date: August 2026

Reference Calibrator and Gas:

Make/Model	Teco 146i
Serial Number	AMU 1809
Last Verification Date	January 14, 2019
Gas Type	NO Conc. 50.05
Cylinder Number	APEX1236645
Expiry Date	June 2021

Flow Measurement Device:

Make/Model	Mesa Definer 220
Serial Number	H-133034 / L-132702
Temp.°C	22.7 C
B.P.	707 mmHg

Reference Analyzer:

Make/Model: Teco 42i Serial/AMU Number: 2268

Instrument Settings Zero: 9.2 Span: 1.223 Range: 1.0

Last Calibration: Date: Jan 14/19 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/	Concentration	Cylinder Concentration	
Dilution	Gas	NO	NOX	Dilution Flow	Factor	NO	NOX
5000	0.0	0.000	0.000				
4898	78.1	0.792	0.793	0.016	62.714	49.7	49.7
4893	38.7	0.395	0.395	0.008	126.434	49.9	49.9
4894	19.3	0.195	0.195	0.004	253.575	49.4	49.4
					Average Cylinder Concentration:	**49.7**	**49.7**

	NO	NOx
Previous Stated Concentration PPM:	50.1	50.2
Percent variance from Stated:	**1**	**1**

Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: Janaury 15, 2019

Operator Signature: Location: McIntyre Center Edmonton

Lakeland Industry & Community Association
5107 50 St
Bonnyville, AB T9N2J7

Lakeland Industry & Community Association

MARCH 2019

Ambient Air Monitoring Calibration Report

- MASKWA STATION-

CAL-LICA-201903-01248

Station Operation and Maintenance:
Maxxam Analytics

Data Validation and Report:
Maxxam Analytics

May 2, 2019

Lakeland Industry & Community Association
5107 50 St
Bonnyville, AB T9N2J7

Alberta Environment and Parks (AEP)
Air.Reporting@gov.ab.ca

May 2, 2019

Subject:

March 2019 Ambient Air Monitoring Calibration Report Submission for the LICA Maskwa station

Lakeland Industry & Community Association (LICA) is pleased to submit the ambient air monitoring calibration report for the LICA Maskwa AQM Station in the month of March 2019. This calibration report includes equipment calibration records, calibrator performance audit records and calibration gas audit records for the equipment that were used this month. This calibration report is prepared by the LICA network contractor.

Should you have any questions, please don't hesitate to contact us.

Respectfully,

Michael Bisaga
Technical Program Manager
Lakeland Industry & Community Association
780-266-7068
monitoring@lica.ca

Lily Lin
Data & Reporting Specialist
587-225-2248
monitoring@lica.ca

MARCH 1 - 31, 2019
MONTHLY CALIBRATION REPORT
Project #: 2833-2019-03-24-C
LICA-201903

Prepared for:

Lakeland Industry & Community Association

Mike Bisaga

5107 50 St.

Bonnyville, Alberta T9N 2J7

monitoring@lica.ca

780-266-7068

Monitoring Station

Maskwa Continuous Monitoring Station

Date of Report Issuance: April 18, 2019

Maxxam
A Bureau Veritas Group Company

#1 - 2080 39 Avenue NE, Calgary AB, T2E 6P7

CAL-LICA-2019-01248

Thermo 43I-TLE Sulphur Dioxide Analyzer Calibration

Date:	March 21, 2019	**Barometer/B.P./units:**	F.S. #05544, expires Jan 17, 2019	944	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. #170286131, expires Apr 19, 2019	22	°C
Location/Station Name:	Maskwa	**Weather Conditions:**	Mainly sunny		
Parameter:	Sulphur Dioxide	**Calibration Purpose:**	routine monthly		
Start Time 24 hr. (mst):	9:43	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
End Time 24 hr. (mst):	13:52	**Cal Gas Expiry Date:**	August 20, 2026		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	n/a		

Analyzer:

Serial Number/Owner:	1180930031 LICA	**Range ppb:**	1000
Last Calibration Date:	February 14, 2019	**As Found C.F.:**	0.970
Previous C.F.:	1.001	**New C.F.:**	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Sabio id# 42531101(0911) expires February 13, 2020
Cal Gas Cylinder I.D. # :	LL 107918
Cal Gas Conc. (ppm):	49.5

Standard Calibration Points for Ranges

Point	ppb
High	780
Mid	380
Low	190

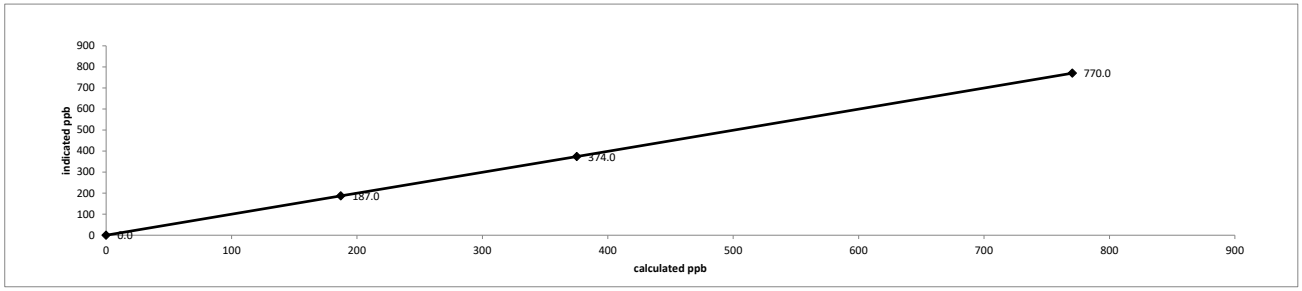
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**			
as found zero	4997	0.00	4997	0.0	-0.1	n/a
as found high	4921	77.80	4999	770.4	794	0.970
adjusted zero	4997	0.00	4997	0.0	0	n/a
adjusted high	4921	77.80	4999	770.4	770	1.000
mid	4961	37.90	4999	375.3	374	1.003
low	4980	18.90	4999	187.1	187	1.001
calibrator zero	4997	0.00	4997	0.0	0	n/a
					Average C.F.=	1.002

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**1.001**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.03%**	**± 3% F.S.**
% change in C.F. from last cal=	**3.08%**	**± 10%**

Thermo 43I-TLE Sulphur Dioxide Analyzer Calibration



	As found:		As left:
Bkg:	2.30	Bkg:	2.26
Coef:	0.984	Coef:	0.952
Pmt:	-700.8	Pmt:	-701.9
Flash:	994	Flash:	995
Internal:	31.2	Internal:	30.8
Chamber:	45.0	Chamber:	45.2
Perm Oven Gas:	35.01	Perm Oven Gas:	35.00
Perm Oven Heater:	34.27	Perm Oven Heater:	34.26
Pressure:	676.7	Pressure:	676.1
Sample Flow:	0.462	Sample Flow:	0.462
Lamp Intensity:	90	Lamp Intensity:	90
Converter:	n/a	Converter:	n/a
Converter Set:	n/a	Converter Set:	n/a
Averaging Time:	120	Averaging Time:	120
Expected Value:	420.0	Expected Value:	422.0

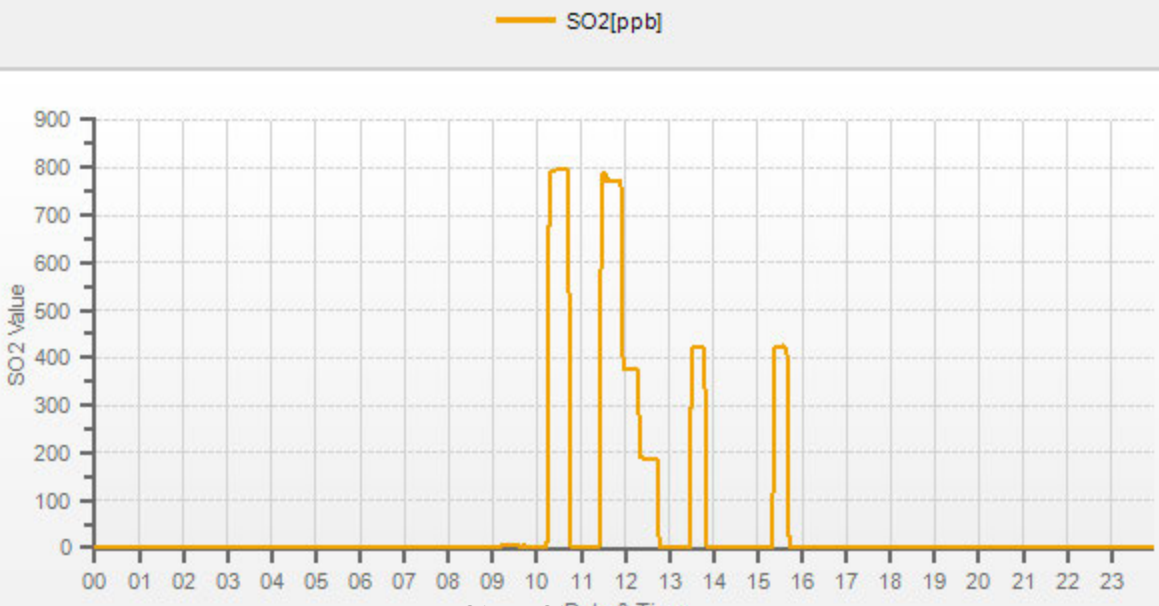
Comments:

The analyzer sample inlet filter was changed.

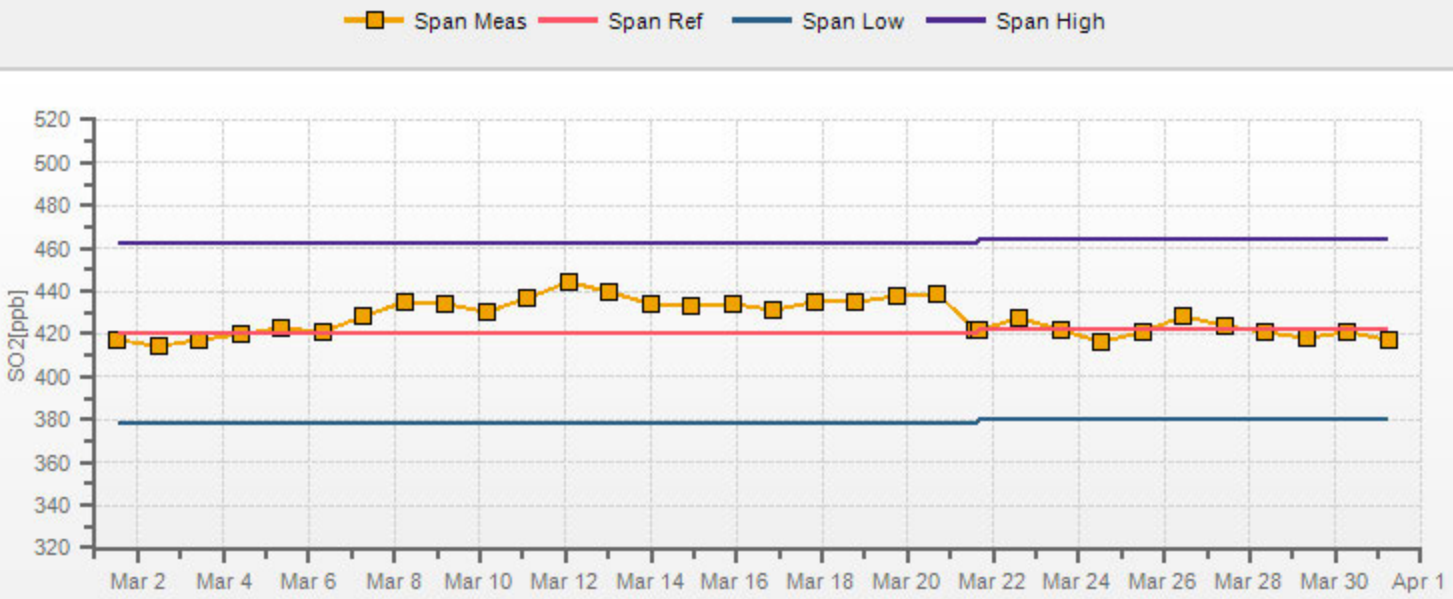
The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

SO2[ppb] Station: LICA MASKWA Daily: 19/03/21 Type: AVG 1 Min. [1 Min.]



SO2[ppb] Calibration: LICA MASKWA Monthly: 19/03 Type: Span



Thermo 450i Hydrogen Sulphide Analyzer Calibration

Date:	March 8, 2019	**Barometer/B.P./units:**	F.S. #05544 expires Jan 17, 2019	937	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. #170286131 expires Apr 19, 2019	22	°C
Location/Station Name:	Maskwa	**Weather Conditions:**	Cloudy/Overcast		
Parameter:	Hydrogen Sulphide	**Calibration Purpose:**	routine monthly		
Start Time 24 hr. (mst):	16:41	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
End Time 24 hr. (mst):	21:05	**Cal Gas Expiry Date:**	October 20, 2020		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	n/a		

Analyzer:

Serial Number/Owner:	CM 17360005 / LICA	**Range ppb:**	100
Last Calibration Date:	February 14, 2019	**As Found C.F.:**	0.917
Previous C.F.:	0.999	**New C.F.:**	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Sabio id# 26801218 expires January 15, 2020
Cal Gas Cylinder I.D. # :	EY 0001003
Cal Gas Conc. (ppm):	9.55

Standard Calibration Points for Ranges

Point	ppb
High	78
Mid	38
Low	19

SO2 Scrubber Check (10 minutes):

Start/End Time 24 hr.:	16:43 / 16:59
SO2 Analyzer Range:	1000
Target Concentration (ppb):	780
As Found Zero:	0.8
Analyzer Response: (ppb):	0.8
Zero Corrected Result (ppb):	0.0

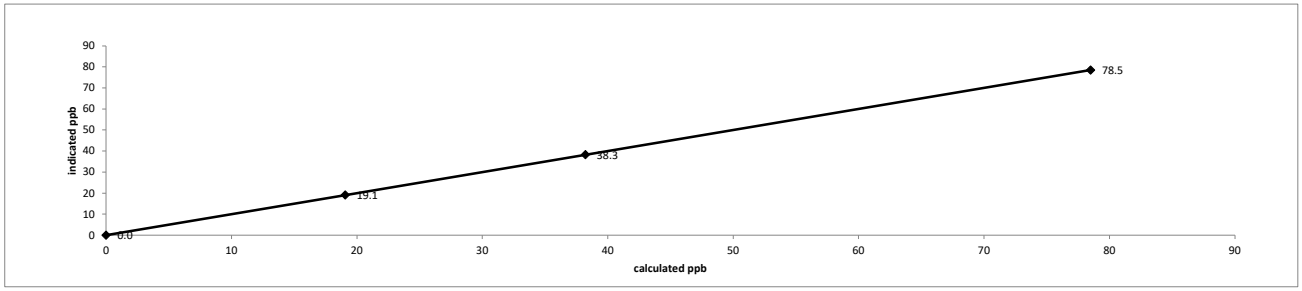
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**			
as found zero	5016	0.00	5016	0.0	0.8	n/a
as found high	4935	40.90	4976	78.5	86.36	0.917
adjusted zero	5016	0.00	5016	0.0	0	n/a
adjusted high	4935	40.90	4976	78.5	78.5	1.000
mid	4978	20.00	4998	38.2	38.26	0.999
low	4997	10.00	5007	19.1	19.1	0.999
calibrator zero	5016	0.00	5016	0.0	0	n/a
					Average C.F.=	0.999

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**1.000**	**0.95-1.05**
b (Intercept as % of full scale)=	**-0.02%**	**± 3% F.S.**
% change in C.F. from last cal=	**8.16%**	**± 10%**

Thermo 450i Hydrogen Sulphide Analyzer Calibration



As found:		**As left:**	
Bkg:	20.1	Bkg:	19.7
Coef:	0.877	Coef:	0.817
Pmt:	-601.3	Pmt:	-602.4
Flash:	815	Flash:	813
Internal:	33.8	Internal:	34.0
Chamber:	44.9	Chamber:	45.0
Converter Temp:	322.0	Converter Temp:	323.0
Converter Set:	325.0	Converter Set:	325.0
Perm Oven Gas:	35.00	Perm Oven Gas:	35.00
Perm Oven Htr:	34.32	Perm Oven Htr:	34.29
Pressure:	556.4	Pressure:	559.4
Sample Flow:	0.935	Sample Flow:	0.934
Lamp Intensity:	91	Lamp Intensity:	90
Averaging Time:	120	Averaging Time:	120
Expected Value:	48.9	Expected Value:	49.2

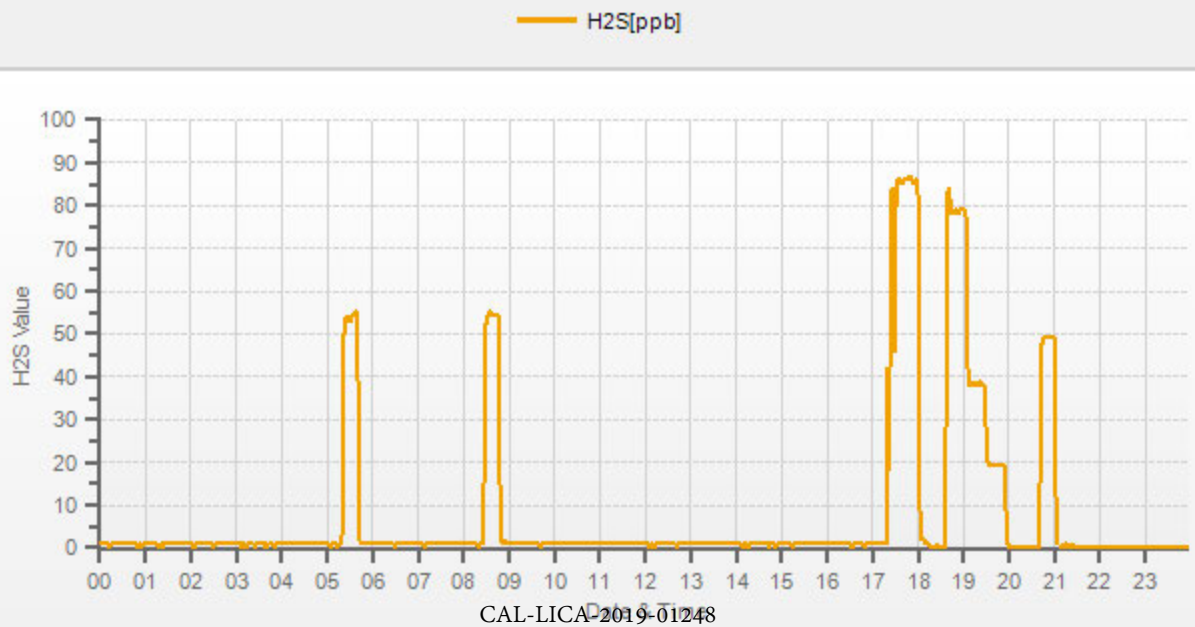
Comments:

The analyzer sample inlet filter was changed.

The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

A stand alone monthly calibration was completed because of a daily ZS check failed at 11%. The High As Found point starts at 17:32 due to an operator error.


H2S[ppb] Station: LICA MASKWA Daily: 19/03/08 Type: AVG 1 Min. [1 Min.]
H2S[ppb]
H2S Value
100
90
80
70
60
50
40
30
20
10
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23

Thermo 450i Hydrogen Sulphide Analyzer Calibration

Date:	March 21, 2019	**Barometer/B.P./units:**	F.S. #05544, expires Jan 17, 2019	944	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. #170286131, expires Apr 19, 2019	22	°C
Location/Station Name:	Maskwa	**Weather Conditions:**	Mainly sunny		
Parameter:	Hydrogen Sulphide	**Calibration Purpose:**	repeat		
Start Time 24 hr. (mst):	9:43	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
End Time 24 hr. (mst):	13:57	**Cal Gas Expiry Date:**	October 20, 2020		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	n/a		

Analyzer:

Serial Number/Owner:	CM 17360005 LICA	**Range ppb:**	100
Last Calibration Date:	March 8, 2019	**As Found C.F.:**	0.946
Previous C.F.:	0.999	**New C.F.:**	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Sabio id# 26801218 expires January 16, 2020
Cal Gas Cylinder I.D. # :	EY 0001003
Cal Gas Conc. (ppm):	9.55

Standard Calibration Points for Ranges

Point	ppb
High	78
Mid	38
Low	19

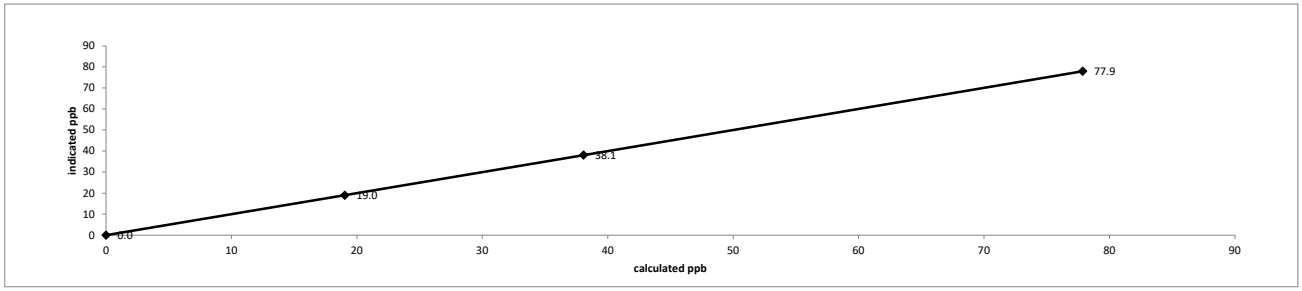
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**			
as found zero	5016	0.00	5016	0.0	0.2	n/a
as found high	4975	40.90	5016	77.9	82.5	0.946
adjusted zero	5016	0.00	5016	0.0	0	n/a
adjusted high	4975	40.90	5016	77.9	77.9	1.000
mid	4997	20.00	5017	38.1	38.1	0.999
low	5007	10.00	5017	19.0	19	1.002
calibrator zero	5016	0.00	5016	0.0	0	n/a
					Average C.F.=	1.000

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**0.999**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.01%**	**± 3% F.S.**
% change in C.F. from last cal=	**5.29%**	**± 10%**

Thermo 450i Hydrogen Sulphide Analyzer Calibration

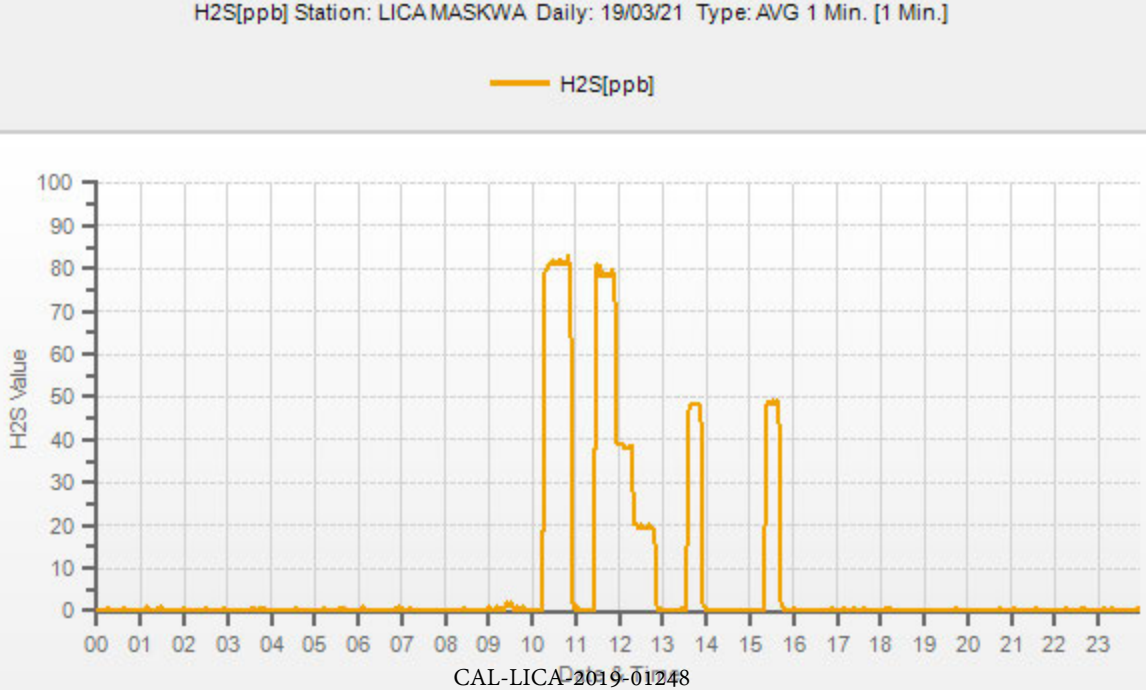


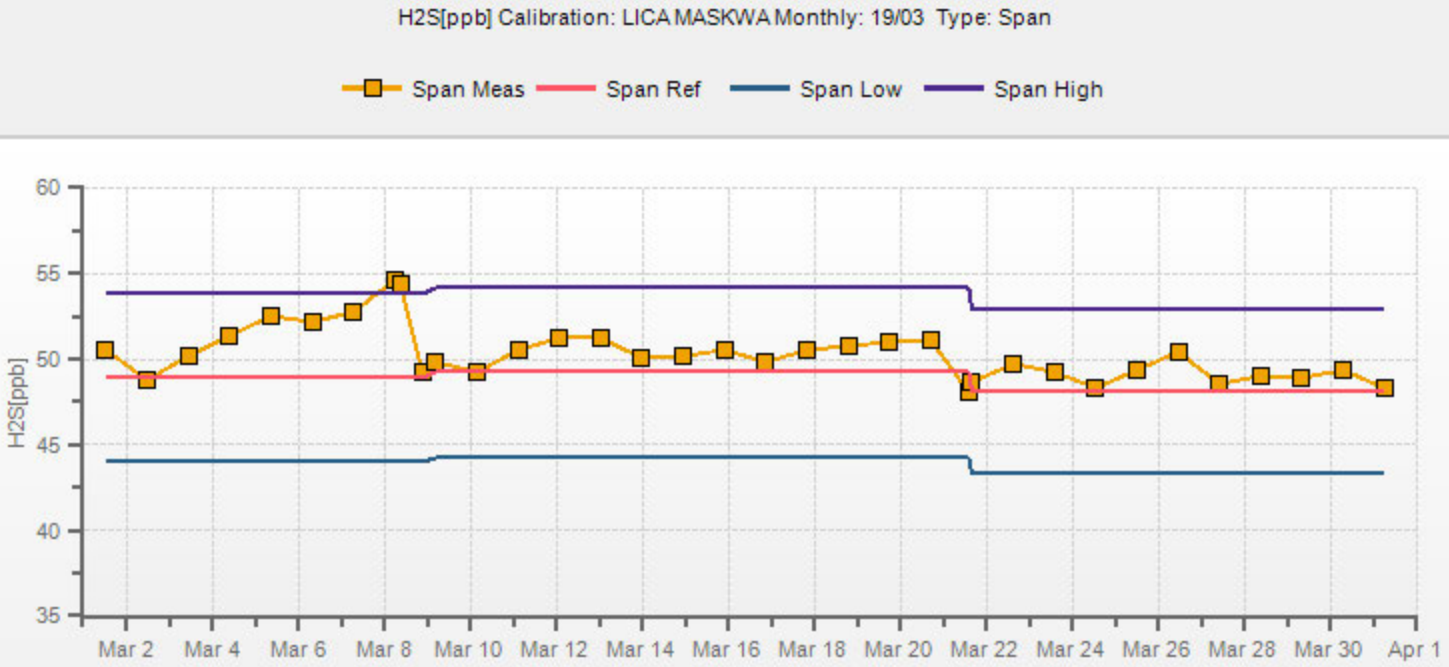
As found:		**As left:**	
Bkg:	19.4	Bkg:	18.7
Coef:	0.817	Coef:	0.786
Pmt:	-602.7	Pmt:	-601.6
Flash:	813	Flash:	810
Internal:	34.9	Internal:	34.9
Chamber:	45.1	Chamber:	45.0
Converter Temp:	322.6	Converter Temp:	326.0
Converter Set:	325.0	Converter Set:	325.0
Perm Oven Gas:	35.01	Perm Oven Gas:	35.00
Perm Oven Htr:	34.32	Perm Oven Htr:	34.31
Pressure:	570.1	Pressure:	567.6
Sample Flow:	0.950	Sample Flow:	0.950
Lamp Intensity:	90	Lamp Intensity:	91
Averaging Time:	120	Averaging Time:	120
Expected Value:	49.2	Expected Value:	48.1

Comments:

The manifold blower was found to be working normally.

A Repeat calibration was completed to adjust the EV. The SO2 scrubber was checked during the monthly calibration.


H2S[ppb] Station: LICA MASKWA Daily: 19/03/21 Type: AVG 1 Min. [1 Min.]
H2S[ppb]
H2S Value
100
90
80
70
60
50
40
30
20
10
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Date & Time


H2S[ppb] Calibration: LICA MASKWA Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
60
55
50
45
40
35
H2S[ppb]
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1

Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	March 22, 2019	**Barometer/B.P./units:**	F.S. #05544, expires Jan 17, 2019	934	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. #170286131, expires Apr 19, 2019	22	°C
Location/Station Name:	Maskwa	**Weather Conditions:**	Mainly sunny		
Parameter:	CH4 / NMHC / THC	**Calibration Purpose:**	routine monthly		
Start/End Time 24 hr. (mst):	10:06 / 13:44	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
Calibration Method:	Gas Dilution	**Cal Gas Expiry Date:**	August 1, 2026		

Analyzer:

			Correction Factors:		
Serial Number/Owner:	1108930026	LICA	**Previous C.F.:**	**As Found C.F.:**	**New C.F.:**
Measured Flow:	1114		**CH_4 =** 1.000	1.012	1.000
Last Calibration Date:	February 15, 2019		**NMHC =** 1.000	0.990	1.000
Range ppm:	20 CH4/20 NMHC/40 THC		**THC =** 1.000	1.001	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A		
High Flow Meter ID/Expiry Date:	N/A		
Calibrator ID/Expiry Date:	Sabio id# 26801218 expires January 15, 2020		
Cal Gas Cylinder I.D. # :	LL 29687		
CH4 Cylinder Conc.=	598.0	198.0	**=C_3H_8 Cylinder Conc.**
CH_4 expressed as C_3H_8=	544.5	1142.5	**=total CH4 equivalent**

Standard Calibration Points for Analyzer Range of 20/20/40 ppm

Point	CH4	NMHC	THC
High	13.00	13.00	26.00
Mid	7.00	7.00	14.00
Low	3.00	3.00	6.00

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)										Correction Factors:		
Point	**Diluent**	**Cal Gas**	**Total Flow**	**Calculated CH_4 (ppm)**	**Calculated NMHC (ppm)**	**Calculated THC (ppm)**	**Indicated CH_4 (ppm)**	**Indicated NMHC (ppm)**	**Indicated THC (ppm)**	**CH_4**	**NMHC**	**THC**
as found zero	3013	0.00	3013	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
as found high	2940	73.50	3013	14.59	13.28	27.87	14.42	13.42	27.84	1.012	0.990	1.001
adjusted zero	3011	0.00	3011	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2940	73.50	3013	14.59	13.28	27.87	14.59	13.28	27.87	1.000	1.000	1.000
mid	2976	36.80	3013	7.30	6.65	13.95	7.32	6.70	14.03	0.998	0.993	0.995
low	2995	18.40	3013	3.65	3.33	6.98	3.70	3.27	7.00	0.987	1.017	0.997
calibrator zero	3013	0.00	3013	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
									Average C.F.=	0.995	1.003	0.997

Linear Regression/Calibration Results:

	CH_4	NMHC	THC	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	0.999	1.002	1.000	0.95-1.05
b (Intercept as % of full scale)=	0.11%	-0.06%	0.06%	± 3% F.S.
% change in C.F. from last cal=	-1.16%	1.02%	-0.11%	± 10%

As Left Instrument Diagnostics:

Interface Board Voltages:	Bias Supply:	-301.6		Calibration History cnt'd:	NM Peak Area: 62819
Temperatures:	Detector Oven:	175.1		Crucial Settings:	Methane Start: n/a
	Filter:	175.1			Methane End: n/a
	Column Oven:	75.2			Backflush: n/a
	Internal:	31.7			NMHV Start: n/a
Cylinder Pressures/reg.:	Carrier:	1100	50		NMHC End: n/a
	Fuel:	1300	50	Run History>1:	Date: Mar 22, 2019
	Span Gas:	1200	13		Time: 10:04
	Zero Air Generator:	50			CH_4 PK HT: 0
Internal Pressures:	Carrier:	28.5			CH_4 RT: 14.4
	Fuel:	42.9			CH_4 Baseline: 123
	Air:	30.5			CH_4 LOD: 13
FID Status:	Status:	LIT			CH_4 SD: 4
	Counts:	17962			CH_4 CONC: 0.00
	Flame:	377.4			NM PK HT: 0
	Det Base:	175.0			NM Peak Area: 0
Flame and Power Stats:	Last Power On:	Dec 4, 2018 / 12:07			NM CONC: 0.00
	Flameouts:	5			NM Base Start: 133
	Det Oven at Start:	22.7			NM Base End: 133
	Col Oven at Start:	21.6			NM LOD: 14
Calibration History:	Time:	Feb 15, 2019 / 15:01			NM Start IDX: 7
	Type:	SPAN			NM End IDX: 42
	Status:	GOOD			NM Max Slope: 8.6e-01
	Check/Adjust:	ADJUST			NM Min Slope: -9.6e-01
	CH_4 Span Conc:	13.64			NM PT Count: 0
	CH_4 SP Ratio:	0.00102		Expected Values:	Previous CH4: 9.9
	CH_4 RT:	13.8			Previous NMHC 10.62
	CH_4 PK IDX:	29			Previous THC: 20.51
	CH_4 PK HT:	13328			New CH4: 10.07
	NM Span Conc:	12.42			New NMHC 10.63
	NM SP Ratio:	0.000198			New THC: 20.70

Comments:

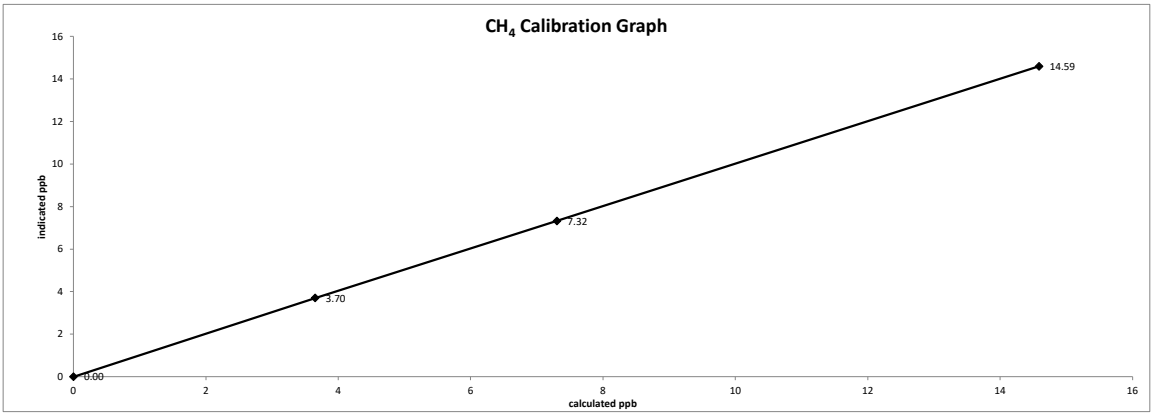
The analyzer sample inlet filter was changed.

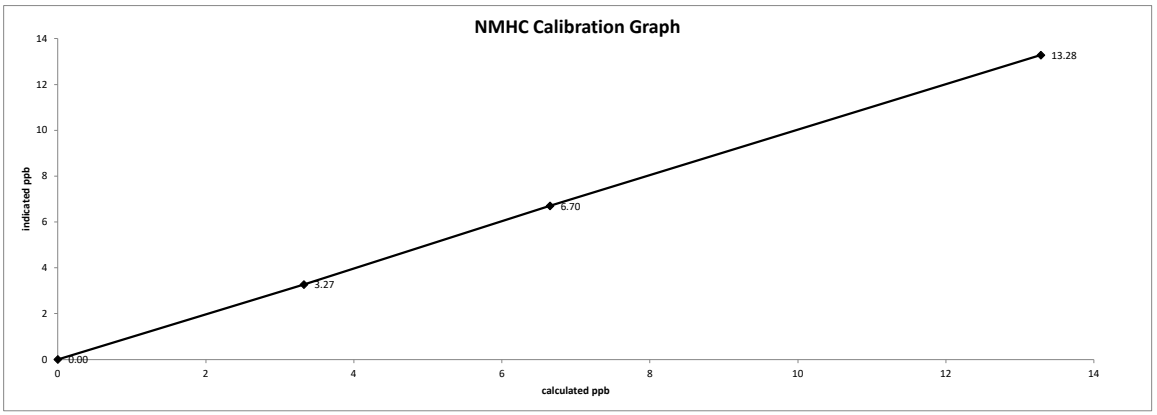
No zero adjustment was required/made.

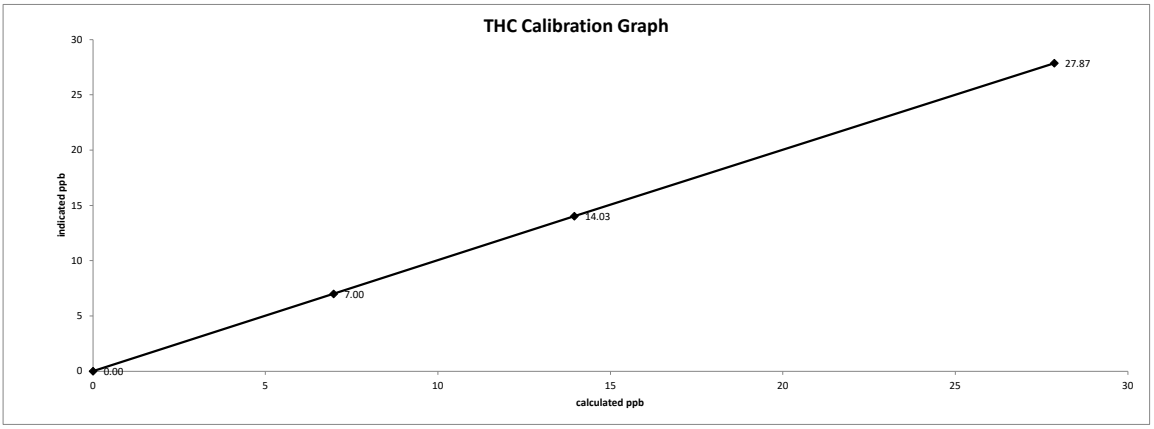
The analyzer cooling fan filter(s) were cleaned.

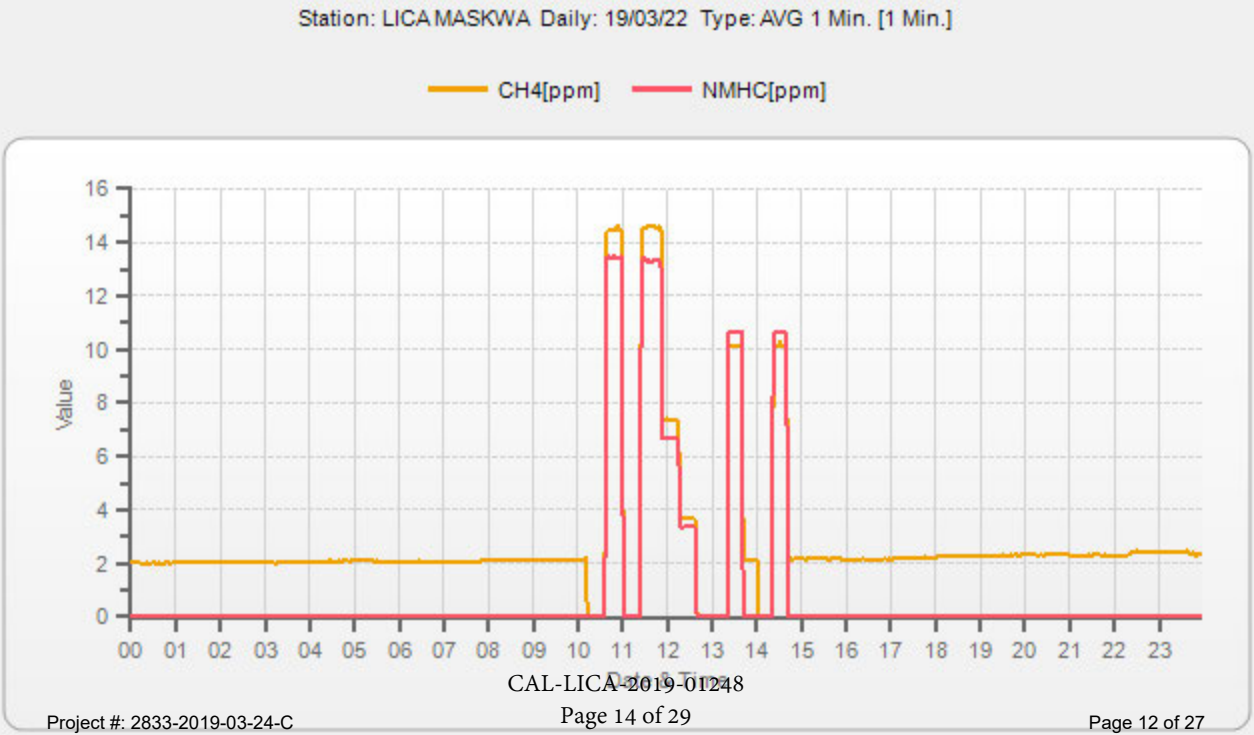
The manifold blower was found to be working normally.

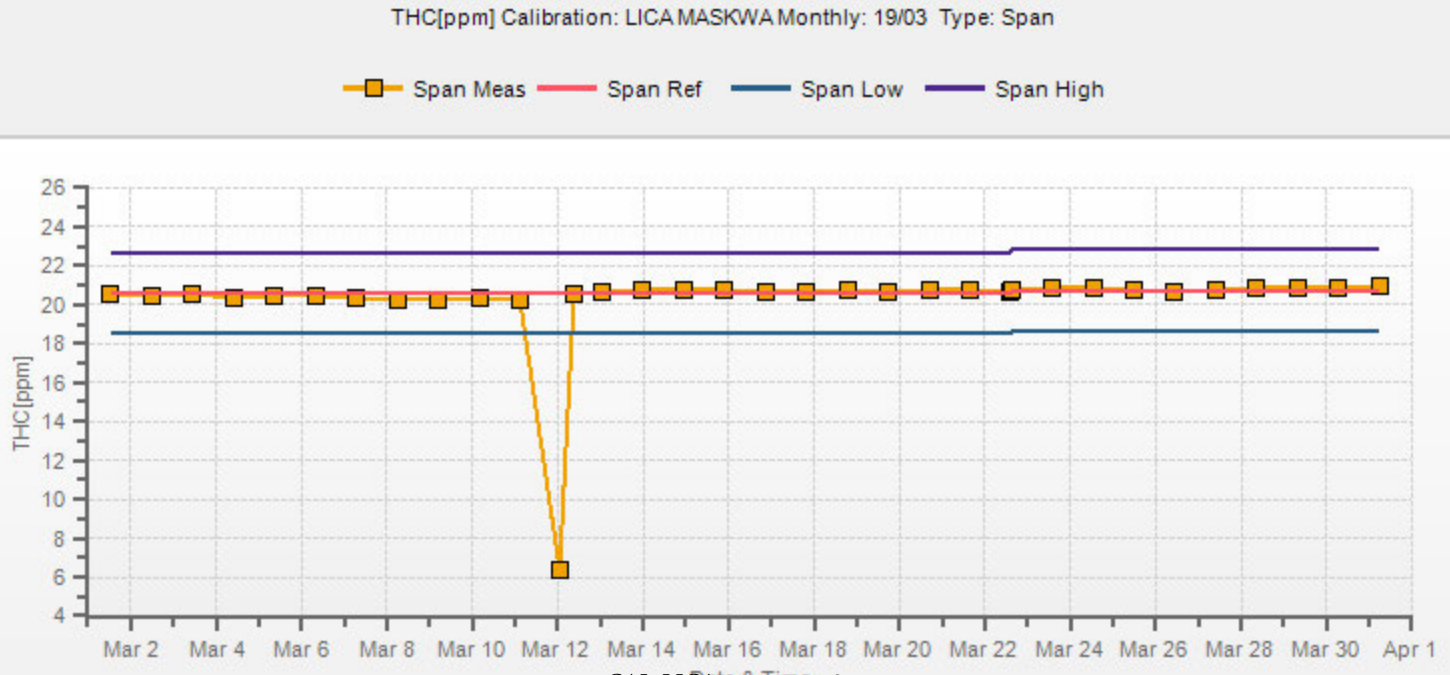
Date:	March 22, 2019	Start/End Time 24 hr. (mst):	10:06 / 13:44
Company/Airshed:	LICA	Calibration Purpose:	routine monthly
Location/Station Name:	Maskwa	Calibration Method:	Gas Dilution

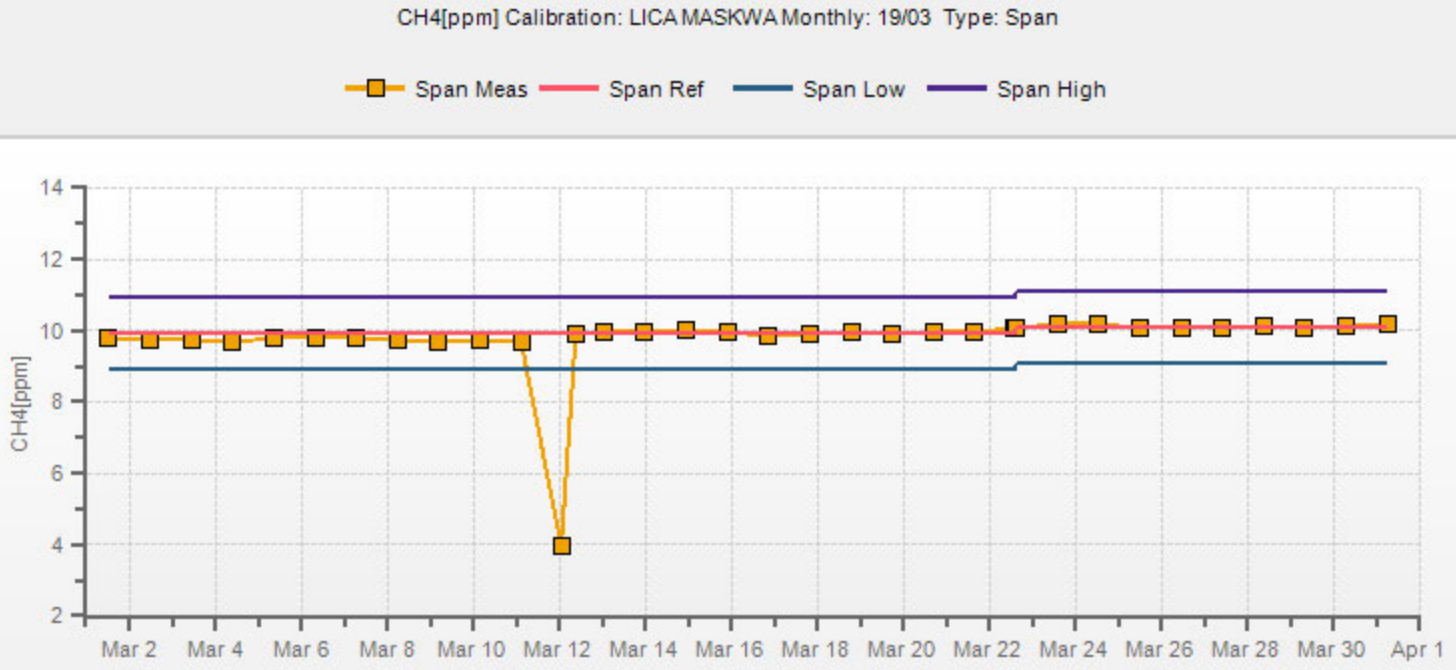


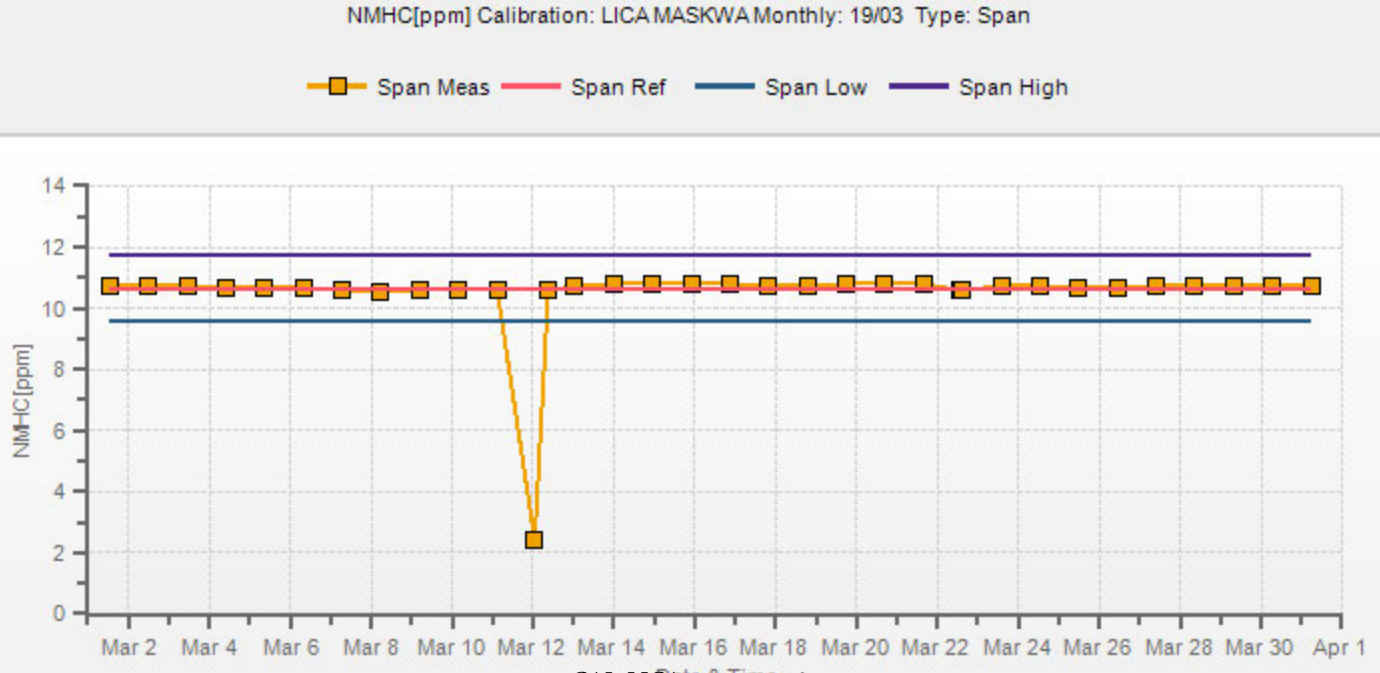





Station: LICA MASKWA Daily: 19/03/22 Type: AVG 1 Min. [1 Min.]
CH4[ppm]
NMHC[ppm]
Value
16
14
12
10
8
6
4
2
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23


THC[ppm] Calibration: LICA MASKWA Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
THC[ppm]
26
24
22
20
18
16
14
12
10
8
6
4
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1
Date & Time


CH4[ppm] Calibration: LICA MASKWA Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
CH4[ppm]
14
12
10
8
6
4
2
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1


NMHC[ppm] Calibration: LICA MASKWA Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
NMHC[ppm]
14
12
10
8
6
4
2
0
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1

Thermo 42i NO-NO2-NOx Analyzer Calibration

Date:	March 21, 2019	**Barometer/B.P./units:**	F.S. #05544, expires Jan 17, 2019	944	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. #170286131, expires Apr 19, 2019	22	°C
Location/Station Name:	Maskwa	**Weather Conditions:**	Mainly sunny		
Start/End Time 24 hr. (mst):	9:42 / 15:45	**Calibration Purpose:**	routine monthly		
G.P.T. to be used for Ozone?	No	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
Calibration Method:	Gas Dilution & Gas Phase Titration	**Cal Gas Expiry Date:**	August 20, 2026		

Analyzer:

Serial Number/Owner:	1180930028	LICA
Last Calibration Date:	February 14, 2019	
Range ppb:	1000	

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
NO =	1.000	1.023	1.000
NO_2 =	1.000	1.000	1.000
NOx =	1.000	1.025	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A	
High Flow Meter ID/Expiry Date:	N/A	
Calibrator ID/Expiry Date:	Sabio id# 26801218 expires January 15, 2020	
Cal Gas Cylinder I.D. # :	LL 107918	
Cal Gas Conc. (ppm):	50.1	50.2

Standard Calibration Points for a Range of: 1000 ppb

Point	Target NO (ppb)	Target NO_2 (ppb)	Cc Ozone ?
High	**780**	**500**	**n/a**
Mid	**380**	**275**	**n/a**
Low	**190**	**100**	**n/a**
Extra Point #1	**n/a**	**n/a**	**n/a**
Extra Point #2	**n/a**	**n/a**	**n/a**

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	**Diluent**	**Cal Gas**	**Total Flow**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**		
as found zero	4997	0.0	4997	0	0	0.0	0.0	n/a	n/a
as found high	4921	77.8	4999	779.7	781.3	762.0	762.0	1.023	1.025
adjusted zero	4997	0.00	4997	0.0	0.0	0.0	0.0	n/a	n/a
adjusted high	4921	77.80	4999	779.7	781.3	780.0	781.0	1.000	1.000
mid	4961	37.90	4999	379.8	380.6	379.0	380.0	1.002	1.002
low	4980	18.90	4999	189.4	189.8	191.0	191.0	0.992	0.994
calibrator zero	4997	0.00	4997	0	0	0.0	0.0	n/a	n/a
							Average C.F.=	0.998	0.999

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO_2	NO drop	NO_2 gain	NO_2 C.F.
Point	**Diluent**	**Cal Gas**	**Total Flow**	**volts or ppb**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**
NOx reference	4921	77.80	4999	0.0	781.0	781.0	0.0	0.0	0.0	
as found high NO2	4921	77.80	4999	500.0	258.0	781.0	523.0	523.0	523.0	1.000
adjusted high NO2	4921	77.80	4999	500.0	258.0	781.0	523.0	523.0	523.0	1.000
gpt mid	4921	77.80	4999	275.0	493.0	781.0	288.0	288.0	288.0	1.000
gpt low	4921	77.80	4999	100.0	676.0	781.0	105.0	105.0	105.0	1.000
									Average NO_2 C.F.=	1.000

Linear Regression/Calibration Results:

	NO	NOx	NO_2	LIMITS
Correlation Coefficient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**1.000**	**1.001**	**1.000**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.04%**	**0.04%**	**0.00%**	**± 3% F.S.**
% change in C.F. from last cal=	**-2.32%**	**-2.53%**	**0.00%**	**± 10%**
NO2 converter efficiency			**1.00**	**0.96 to 1.04**

As found:		As left:	
NO Bkg:	2.5	NO Bkg:	2.7
NOx Bkg:	2.6	NOx Bkg:	2.8
NO Coef:	0.916	NO Coef:	0.935
NO2 Coef:	1.000	NO2 Coef:	1.000
NOx Coef:	1.000	NOx Coef:	1.000
PMT:	-866.9	PMT:	-866.9
Internal:	30.6	Internal:	30.1
Chamber:	50.1	Chamber:	50.5
Cooler:	-3.0	Cooler:	-3.0
NO2 Converter:	325.3	NO2 Converter:	325.3
NO2 Converter Set:	325.0	NO2 Converter Set:	325.0
Perm Oven Gas:	45.02	Perm Oven Gas:	44.99
Perm Oven Heater:	44.20	Perm Oven Heater:	44.17
Pressure:	263.2	Pressure:	261.5
Flow:	0.548	Flow:	0.547
Ozonator Flow:	OK	Ozonator Flow:	OK
Expected Value NO:	3	Expected Value NO:	3
Expected Value NO2:	392	Expected Value NO2:	403
Expected Value NOx:	395	Expected Value NOx:	406

Comments:

The analyzer sample inlet filter was changed.

The manifold blower was found to be working normally.

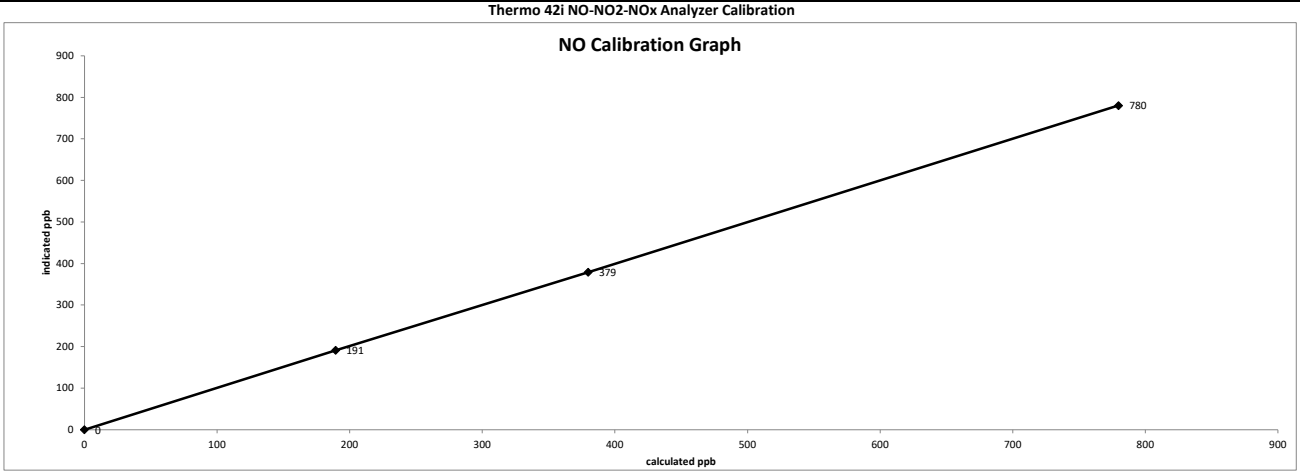
The analyzer cooling fan filter(s) were cleaned.

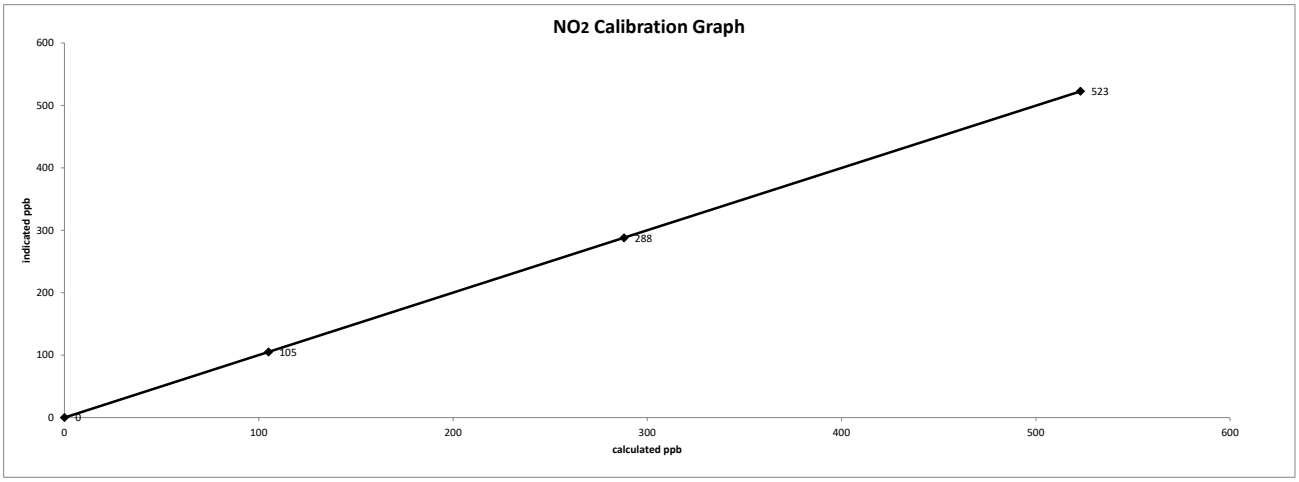
The converter cooling fan filter was cleaned.

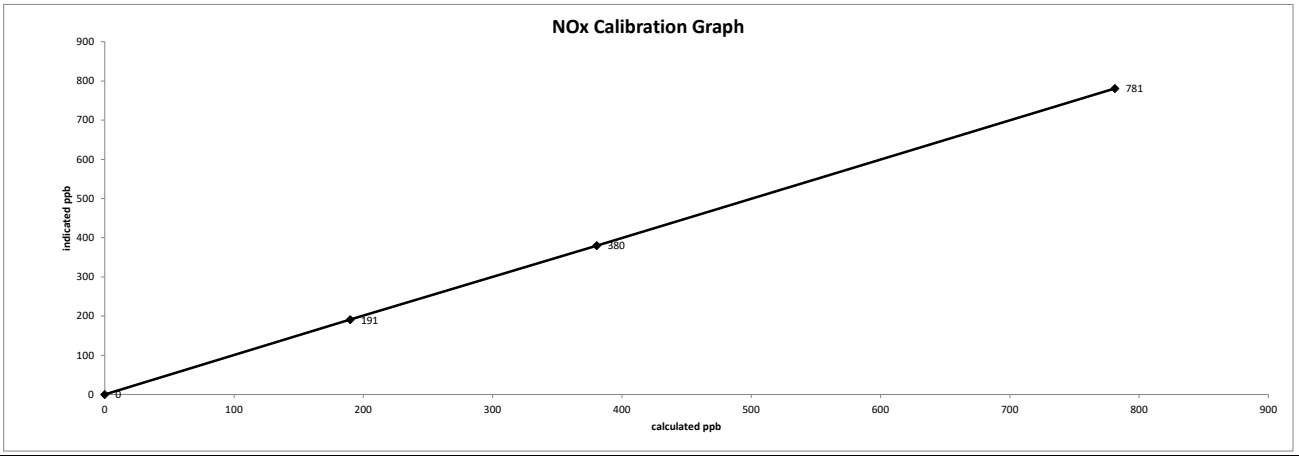
No high point NO2 adjustment was required/made.

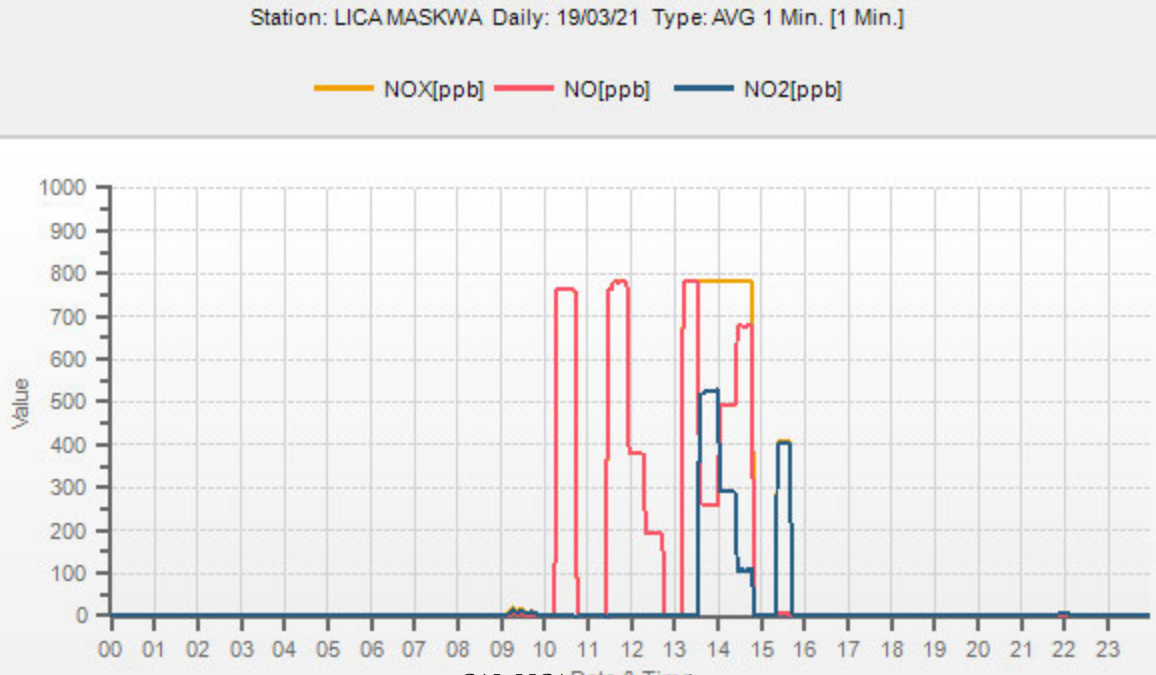
Date:	**March 21, 2019**	**Start/End Time 24 hr. (mst):**	**9:42 / 15:45**
Company/Airshed:	**LICA**	**Calibration Purpose:**	**routine monthly**
Location/Station Name:	**Maskwa**	**Calibration Method:**	**Gas Dilution & Gas Phase Titration**

Thermo 42i NO-NO2-NOx Analyzer Calibration

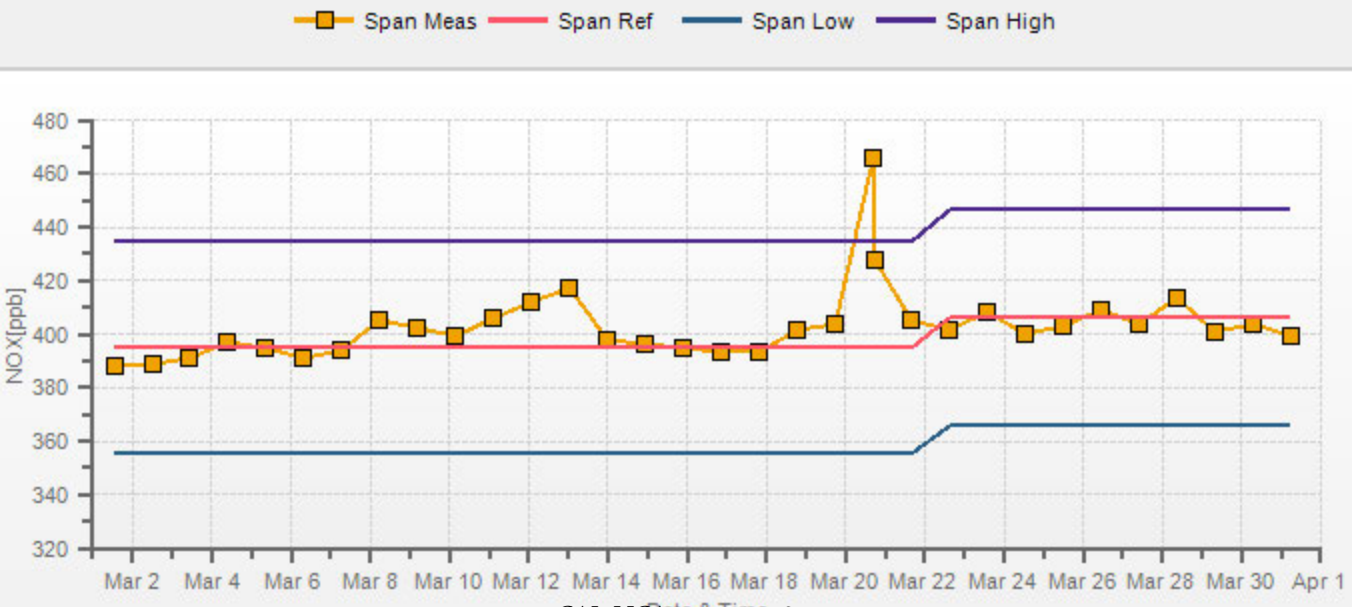


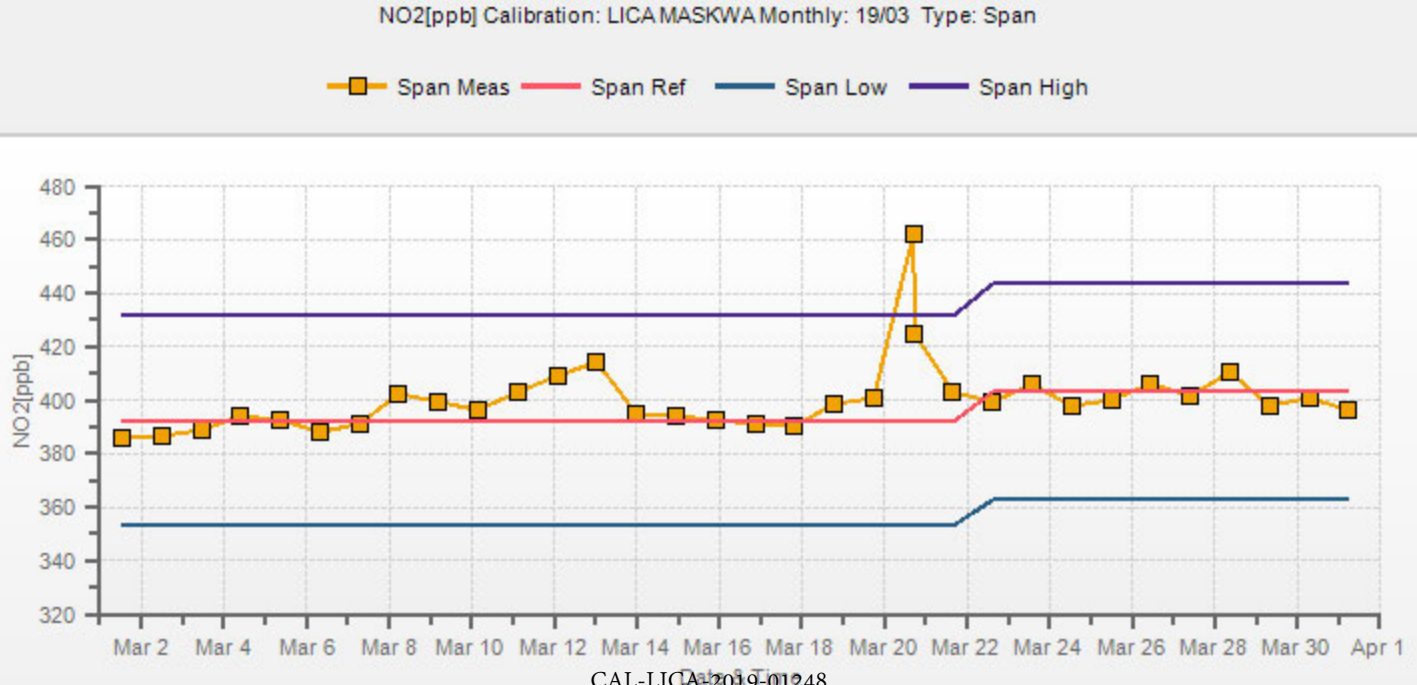





Station: LICA MASKWA Daily: 19/03/21 Type: AVG 1 Min. [1 Min.]
NOX[ppb]
NO[ppb]
NO2[ppb]
Value
1000
900
800
700
600
500
400
300
200
100
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Date & Time

NOX[ppb] Calibration: LICA MASKWA Monthly: 19/03 Type: Span




NO2[ppb] Calibration: LICA MASKWA Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
NO2[ppb]
480
460
440
420
400
380
360
340
320
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1

Meteorological Sensor Audit/Calibration

Location Information

Company:	LICA	**Performed By:**	Alex Yakupov
Audit Location:	Maskwa	**Reviewed By:**	Rob Fisher
Audit Date:	September 17, 2018	**Start/End Time (mst):**	9:36 / 12:48
Calibration Purpose:	installation	**Weather Conditions:**	Cloudy/Overcast

Wind Sensor Information

Sensor ID Data:		**Sensor Outputs:**	
Sensor Make:	RM Young	**Velocity Voltage Output Range:**	0-1 V
Sensor Model:	05305VK	**Velocity Unit Output Range:**	0-200 km/h
Serial #:	161465	**Direction Voltage Output Range:**	0-1 V
Previous Cal/Audit Date:	May 17, 2018	**Direction Unit Output Range:**	0-360 degrees

Wind Calibrator Information

Calibrator I.D. and Expiry Date: Model 18860-90/18802 SN: CA 4744; expiration May 18, 2019

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	0.995
2000	36.9	36.9	36.9	1.000
3000	55.3	55.4	55.4	0.998
4000	73.7	73.8	73.8	0.999
5000	92.2	92.3	92.3	0.999
6000	110.6	110.8	110.8	0.998
7000	129.0	129.3	129.3	0.998
8000	147.4	147.7	147.7	0.998
9000	165.9	166.1	166.1	0.999
10000	184.3	184.9	184.9	0.997
		The audit meets AMD requirements.	**Average Correction Factor=**	**0.998**

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	0.3	0.1	0.2
30	330	30	329	-0.4	0.7	0.5
60	300	62	300	-1.9	-0.3	1.1
90	270	91	270	-1.3	-0.3	0.8
120	240	121	241	-1.0	-0.8	0.9
150	210	152	212	-1.7	-1.7	1.7
180	180	181	182	-1.1	-2.0	1.6
210	150	211	152	-1.1	-1.8	1.5
240	120	241	122	-0.5	-1.8	1.2
270	90	270	91	-0.1	-0.8	0.5
300	60	300	61	0.4	-0.6	0.5
330	30	330	31	-0.1	-0.7	0.4
355	0	354	0	0.6	0.3	0.5
The audit meets AMD requirements.			**Average Absolute Degrees Difference=**			**0.9**

Comments:

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2019-425A

Company: Maxxam **Operator:** C. Wesson

Calibrator:				**Flow Measurement Device:**	
Make/Model	Sabio 2010			Make/Model	N/A
Serial Number	042531101			Serial Number	N/A
Last Verification Date	March 1, 2018			Temperature (°C)	N/A
NO Cylinder S/N	LL107918			Barometric Pressure	N/A
NO [PPM]	50.1	NOx [PPM]	50.2		
Expiry Date	August 2026				

Dilution Flow (sccm)

Pt. #1 5000 Pt. #2 5000 Pt. #3 5000

Gas Flow (sccm)

Pt. #1 80 Pt. #2 40 Pt. #3 20

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4999	77.8	0.780	0.781	0.778	-0.001	0.777	0%	-1%
4998	37.9	0.380	0.381	0.376	-0.001	0.375	-1%	-1%
4999	18.9	0.189	0.190	0.189	-0.001	0.188	0%	-1%
				Absolute Average Percent Difference			0%	1%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO		**LIMITS**	**NOx**	
Correlation=	1.0000	**≥ 0.990**	Correlation=	1.0000
m (Slope)=	0.9974	**0.90-1.10**	m (Slope)=	0.9944
b (Intercept % of FS)=	-0.0636	**± 3% F.S.**	b (Intercept % of FS)=	-0.1045

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
4999	0.000	0.000	0.779	-0.001	0.778	NO_2	% Diff. Limit
4999	0.500	0.510	0.269	0.501	0.770	-2%	± 10%
4999	0.275	0.281	0.498	0.276	0.774	-1%	± 10%
4999	0.090	0.092	0.687	0.091	0.778	0%	± 10%
					Absolute Average Percent Difference	1%	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	0.9833	**0.90-1.10**
b (Intercept % of FS)=	-0.0304	**± 3% F.S.**

AENV Standards		**NO_X Analyzer**	
Audit Calibrator		Make/Model	Teco 42i
Make/Model	Sabio 2010	Serial/AMU Number	AMU 1868
Serial/AMU Number	AMU 2092	Last Calibration Date	February 12, 2019
SRM Gas Cylinder No.	APEX1236645	Full Scale (ppm)	1.0
Cylinder Conc. (ppm)	50.05	Cylinder Gas Expiry Date	June 2021

COMMENTS: Contains 49.5 ppm SO2.

Auditor: Al Clark Date: February 13, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2019-396A

Company Maxxam **Operator:** Alex

Calibrator:				**Flow Measurement Device:**	
Make/Model	Sabio 2010			Make/Model	N/A
Serial Number	26801218			Serial Number	N/A
Last Verification Date	New			Temperature (°C)	N/A
NO Cylinder S/N	LL48147			Barometric Pressure	N/A
NO [PPM]	50.5	NOx [PPM]	50.6		
Expiry Date	August 2026				

Dilution Flow (sccm)

Pt. #1 5000 Pt. #2 5000 Pt. #3 5000

Gas Flow (sccm)

Pt. #1 80 Pt. #2 40 Pt. #3 20

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
5015	79.1	0.797	0.798	0.793	0.001	0.794	0%	-1%
5015	39.6	0.399	0.400	0.395	0.001	0.396	-1%	-1%
5017	19.8	0.199	0.200	0.197	0.000	0.197	-1%	-1%
					Absolute Average Percent Difference		1%	1%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO		**LIMITS**	**NOx**	
Correlation=	1.0000	**≥ 0.990**	Correlation=	1.0000
m (Slope)=	0.9959	**0.90-1.10**	m (Slope)=	0.9954
b (Intercept % of FS)=	-0.0968	**± 3% F.S.**	b (Intercept % of FS)=	-0.0969

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
						NO_2	% Diff. Limit
5015	0.000	0.000	0.792	0.001	0.793	-1%	± 10%
5015	0.500	0.496	0.296	0.493	0.791	-1%	± 10%
5015	0.250	0.246	0.546	0.245	0.793	-1%	± 10%
5015	0.100	0.098	0.694	0.098	0.793	-1%	± 10%
				Absolute Average Percent Difference		1%	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	0.9921	**0.90-1.10**
b (Intercept % of FS)=	0.0909	**± 3% F.S.**

AENV Standards		**NO_X Analyzer**	
Audit Calibrator		Make/Model	Teco 42i
Make/Model	Teco 146i	Serial/AMU Number	AMU 1868
Serial/AMU Number	AMU 1809	Last Calibration Date	January 14, 2019
SRM Gas Cylinder No.	APEX1236645	Full Scale (ppm)	1.0
Cylinder Conc. (ppm)	50.05	Cylinder Gas Expiry Date	June 2021

COMMENTS:

Auditor: Al Clark Date: Janaury 15, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2019-392CGA

Company: Maxxam **Operator's Name:** Alex

Cylinder #: LL107918 Concentration PPM: 49.5 Tolerance(%) 1 Certified By: Praxair

Expiry Date: August 2026

Reference Calibrator and Gas:

Make/Model: Sabio 2010
Serial Number: AMU 2092
Last Verification Date: January 14, 2019
Gas Type: SO2 Conc. 50.26
Cylinder Number: FF28071
Expiry Date: March 2020

Flow Measurement Device:

Make/Model: Mesa Definer 220
Serial Number: H-133034 / L-132702
Temp.°C: 22.7 C
B.P. 707 mmHg

Reference Analyzer:

Make/Model: Teco 43i Serial/AMU Number: 2195
Instrument Settings: Zero: 11.8 Span: 0.980 Range: 1.0
Last Calibration: Date: Jan 14/19 C.F. 1.000 Done By: Shea Beaton

Calibrator Flows (sccm)		Indicated	Gas Flow/	Concentration	Cylinder
Dilution	Gas	Concentration (PPM)	Dilution Flow	Factor	Concentration
5000	0.0	0.000			
4898	78.1	0.790	0.01595	62.714	49.5
4893	38.7	0.389	0.00791	126.434	49.2
4894	19.3	0.192	0.00394	253.575	48.7
				Average Cylinder Concentration:	**49.1**

Previous Stated Concentration PPM: 49.5

Percent variance from Stated: **1**

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: January 15, 2019

Operator Signature: Location: McIntyre Center Edmonton

Form No. F-GAS-002
Version No. 1.1

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2017-493CGA

Company: Maxxam **Operator's Name:** Mike

Cylinder #: EY0001003 Concentration PPM: 9.55 Tolerance(%) 2 Certified By: Praxair

Expiry Date: October 2020

Reference Calibrator and Gas:

Make/Model: Sabio 2010
Serial Number: AMU 2092
Last Verification Date: January 17, 2018
Gas Type: H2S Conc. 20.43
Cylinder Number: CAL015272
Expiry Date: January 2019

Flow Measurement Device:

Make/Model: Mesa Defender 530
Serial Number: H-153961 / L-153874
Temp.°C: 23.0 C
B.P. 697 mmHg

Reference Analyzer:

Make/Model: Teco 450i Serial/AMU Number: 1980

Instrument Settings: Zero: 12.9 Span: 0.955 Range: 0.1

Last Calibration: Date: Jan 17/18 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated	Gas Flow/	Concentration	Cylinder
Dilution	Gas	Concentration (PPM)	Dilution Flow	Factor	Concentration
5000	0.0	0.0000			
5051	39.6	0.0753	0.00784	127.551	9.60
5028	20.2	0.0387	0.00402	248.911	9.63
5033	10.5	0.0198	0.00209	479.333	9.49
				Average Cylinder Concentration:	**9.58**

Previous Stated Concentration PPM: 9.55

Percent variance from Stated: 0

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:** Used AEP regulator

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark

Operator Signature: [signature]

Date: January 18, 2018

Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

CH4 / C3H8 Cylinder Gas

File No. 2019-393CGA

Company: Maxxam **Operators name:** Alex

Cylinder #: LL29687 Conc CH4 (PPM) 598/198 Tolerance (%) 1 Certified By: Praxair

Expiry Date: August 2026

Reference Calibrator and Gas:

Make/Model	Sabio 2010		
Serial Number	AMU 2092		
Last Verification Date	January 14, 2019		
Gas Type	CH4	Conc.	990.4
Cylinder Number	05604875	Expiry Date	July 2021
Gas Type	C3H8	Conc.	246.5
Cylinder Number	XF003845B	Expiry Date	July 2022

Flow Measurement Device:

Make/Model	Mesa Definer 220
Serial Number	H-133034 / L-132702
Temp.°C	23.8 C
B.P.	707 mmHg

Reference Analyzer:

Make/Model: Teco 55i Serial/AMU Number: 2221

Instrument Settings Zero: N/A Span: N/A Range: 20.0

Last Calibration: Date: Jan 14/19 C.F. 1.000 Done By: Shea Beaton

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/	Concentration	Cylinder Concentration	
Dilution	Gas	CH4	C3H8	Dilution Flow	Factor	CH4	C3H8
5000	0.0	0.00	0.00				
3990	77.5	11.71	11.18	0.02	51.48	603	209
3976	39.1	5.87	5.71	0.01	101.69	597	211
3986	20.0	2.96	2.86	0.01	199.30	590	207
					Average Cylinder Concentration:	**597**	**209**

	CH4	C3H8
Previous Stated Concentration PPM:	598	198
Percent variance from Stated:	**0**	**6**

Cylinder gas tolerances based on CH4 only

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: January 15, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

NO Cylinder Gas

File No. 2019-391CGA

Company: Maxxam **Operators name:** Alex

Cylinder #: LL107918 Conc (PPM) 50.1/50.2 Tolerance (%) 1 Certified By: Praxair

Expiry Date: August 2026

Reference Calibrator and Gas:

Make/Model	Teco 146i
Serial Number	AMU 1809
Last Verification Date	January 14, 2019
Gas Type	NO Conc. 50.05
Cylinder Number	APEX1236645
Expiry Date	June 2021

Flow Measurement Device:

Make/Model	Mesa Definer 220
Serial Number	H-133034 / L-132702
Temp.°C	22.7 C
B.P.	707 mmHg

Reference Analyzer:

Make/Model: Teco 42i Serial/AMU Number: 2268

Instrument Settings Zero: 9.2 Span: 1.223 Range: 1.0

Last Calibration: Date: Jan 14/19 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/	Concentration	Cylinder Concentration	
Dilution	Gas	NO	NOX	Dilution Flow	Factor	NO	NOX
5000	0.0	0.000	0.000				
4898	78.1	0.792	0.793	0.016	62.714	49.7	49.7
4893	38.7	0.395	0.395	0.008	126.434	49.9	49.9
4894	19.3	0.195	0.195	0.004	253.575	49.4	49.4
					Average Cylinder Concentration:	**49.7**	**49.7**

	NO	NOx
Previous Stated Concentration PPM:	50.1	50.2
Percent variance from Stated:	**1**	**1**

Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: Janaury 15, 2019

Operator Signature: Location: McIntyre Center Edmonton

Lakeland Industry & Community Association
5107 50 St
Bonnyville, AB T9N2J7

Lakeland Industry & Community Association

MARCH 2019

Ambient Air Monitoring Calibration Report

- ST. LINA STATION-

CAL-LICA-201903-01250

Station Operation and Maintenance:
Maxxam Analytics

Data Validation and Report:
Maxxam Analytics

May 2, 2019

Lakeland Industry & Community Association
5107 50 St
Bonnyville, AB T9N2J7

Alberta Environment and Parks (AEP)
Air.Reporting@gov.ab.ca

May 2, 2019

Subject:

March 2019 Ambient Air Monitoring Calibration Report Submission for the LICA St. Lina station

Lakeland Industry & Community Association (LICA) is pleased to submit the ambient air monitoring calibration report for the LICA St. Lina AQM Station in the month of March 2019. This calibration report includes equipment calibration records, calibrator performance audit records and calibration gas audit records for the equipment that were used this month. This calibration report is prepared by the LICA network contractor.

Should you have any questions, please don't hesitate to contact us.

Respectfully,

Michael Bisaga
Technical Program Manager
Lakeland Industry & Community Association
780-266-7068
monitoring@lica.ca

Lily Lin
Data & Reporting Specialist
587-225-2248
monitoring@lica.ca

March 1 - 31, 2019
MONTHLY CALIBRATION REPORT
Project #: 2833-2019-03-25-C
LICA-201903

Prepared for:

Lakeland Industry & Community Association

Mike Bisaga

5107 50 St.

Bonnyville, Alberta T9N 2J7

monitoring@lica.ca

780-266-7068

St. Lina Continuous Monitoring Station

Date of Report Issuance: April 23, 2019

Maxxam
A Bureau Veritas Group Company

#1 - 2080 39 Avenue NE, Calgary AB, T2E 6P7

Thermo 43I-TLE Sulphur Dioxide Analyzer Calibration

Date:	March 19, 2019	**Barometer/B.P./units:**	F.S. #05544, expires Jan 17, 2020	935	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S.170286131, expires Apr 19, 2019	22	°C
Location/Station Name:	St. Lina	**Weather Conditions:**	Mainly sunny		
Parameter:	Sulphur Dioxide	**Calibration Purpose:**	routine monthly		
Start Time 24 hr. (mst):	11:22	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
End Time 24 hr. (mst):	15:42	**Cal Gas Expiry Date:**	August 20, 2026		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	n/a		

Analyzer:

Serial Number/Owner:	1180930030	LICA	**Range ppb:**	1000
Last Calibration Date:	February 12, 2019		**As Found C.F.:**	0.987
Previous C.F.:	1.000		**New C.F.:**	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Sabio id# 42531101(0911) expires February 13, 2020
Cal Gas Cylinder I.D. # :	LL 107918
Cal Gas Conc. (ppm):	49.5

Standard Calibration Points for Ranges

Point	ppb
High	**780**
Mid	**380**
Low	**190**

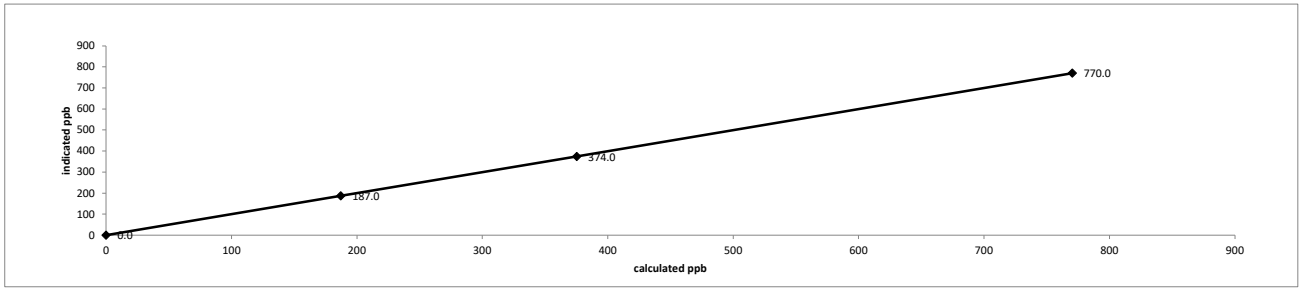
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**			
as found zero	4997	0.00	4997	0.0	-0.2	n/a
as found high	4921	77.80	4999	770.4	780	0.987
adjusted zero	4997	0.00	4997	0.0	0	n/a
adjusted high	4921	77.80	4999	770.4	770	1.000
mid	4961	37.90	4999	375.3	374	1.003
low	4980	18.90	4999	187.1	187	1.001
calibrator zero	4997	0.00	4997	0.0	0	n/a
					Average C.F.=	1.002

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**1.001**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.03%**	**± 3% F.S.**
% change in C.F. from last cal=	**1.26%**	**± 10%**

Thermo 43I-TLE Sulphur Dioxide Analyzer Calibration



	As found:		As left:
Bkg:	4.09	Bkg:	3.99
Coef:	1.107	Coef:	1.087
Pmt:	-696.0	Pmt:	-696.0
Flash:	993	Flash:	994
Internal:	31.9	Internal:	31.3
Chamber:	45.2	Chamber:	45.0
Perm Oven Gas:	44.99	Perm Oven Gas:	45.00
Perm Oven Heater:	44.15	Perm Oven Heater:	44.15
Pressure:	673.2	Pressure:	672.9
Sample Flow:	0.437	Sample Flow:	0.439
Lamp Intensity:	90	Lamp Intensity:	91
Converter:	n/a	Converter:	n/a
Converter Set:	n/a	Converter Set:	n/a
Averaging Time:	120	Averaging Time:	120
Expected Value:	702.0	Expected Value:	694.0

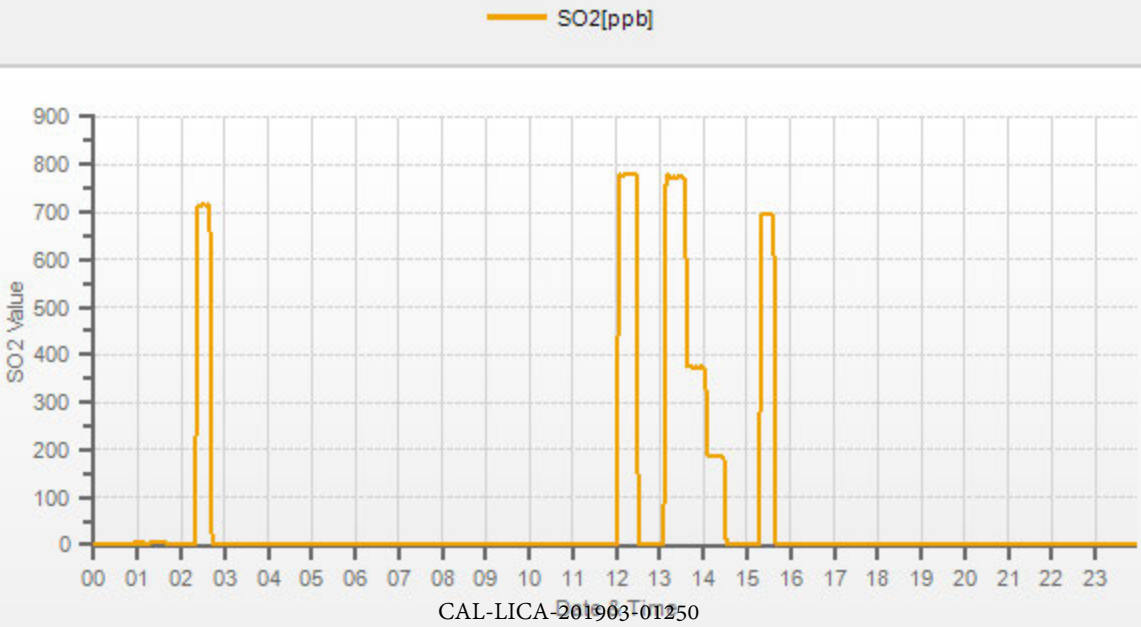
Comments:

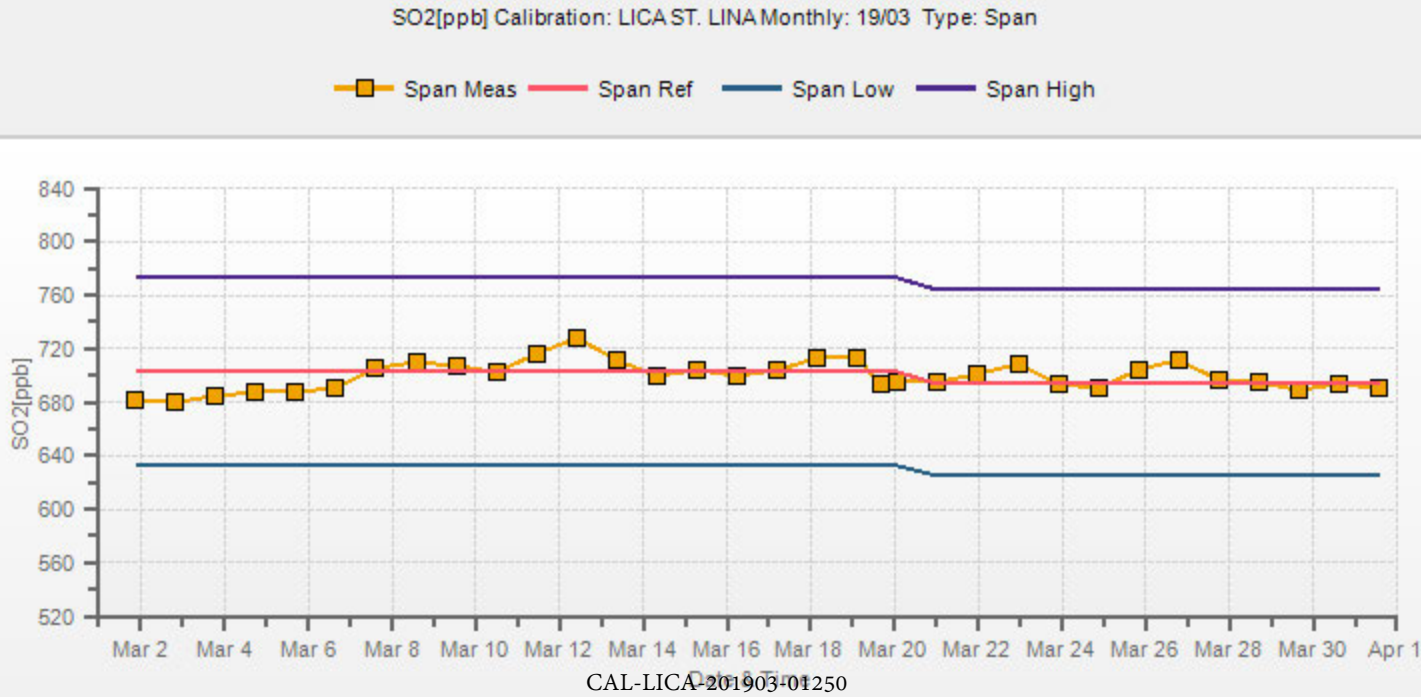
The analyzer sample inlet filter was changed.

The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

SO2[ppb] Station: LICA ST. LINA Daily: 19/03/19 Type: AVG 1 Min. [1 Min.]




SO2[ppb] Calibration: LICA ST. LINA Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
840
800
760
720
680
640
600
560
520
SO2[ppb]
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1

Thermo 450i Hydrogen Sulphide Analyzer Calibration

Date:	March 10, 2019	**Barometer/B.P./units:**	F.S. 10528 expires January 23, 2020	932	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. 181341226 expires Jun 7, 2020	22.98	°C
Location/Station Name:	St Lina	**Weather Conditions:**	Sunny		
Parameter:	Hydrogen Sulphide	**Calibration Purpose:**	routine monthly		
Start Time 24 hr. (mst):	12:56	**Performed By/Reviewer:**	Ferdinand Roy	Rob Fisher	
End Time 24 hr. (mst):	18:48	**Cal Gas Expiry Date:**	May 16, 2020		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	Internal		

Analyzer:

Serial Number/Owner:	CM 18010058 / LICA	**Range ppb:**	100
Last Calibration Date:	February 13, 2019	**As Found C.F.:**	0.951
Previous C.F.:	0.999	**New C.F.:**	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Environics id# 4760 expires February 14, 2020
Cal Gas Cylinder I.D. # :	LL119420
Cal Gas Conc. (ppm):	10.2

Standard Calibration Points for Ranges

Point	ppb
High	78
Mid	38
Low	19

SO2 Scrubber Check (10 minutes):

Start/End Time 24 hr.:	13:04/13:19
SO2 Analyzer Range:	1000
Target Concentration (ppb):	780
As Found Zero:	1.7
Analyzer Response: (ppb):	1.7
Zero Corrected Result (ppb):	0.0

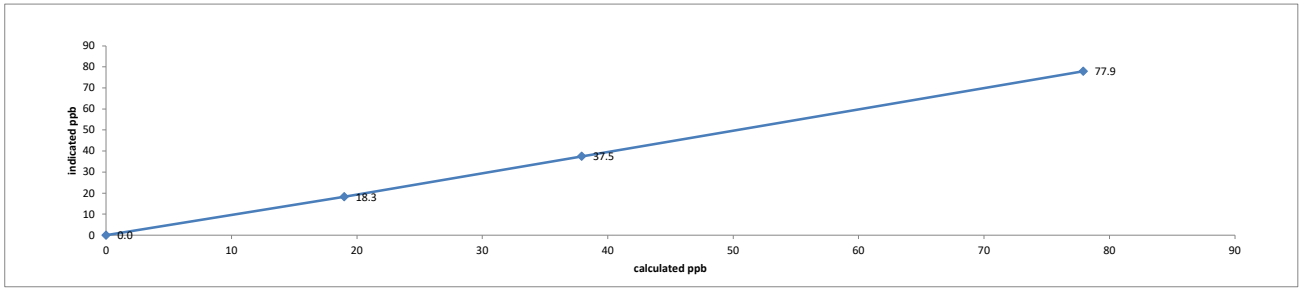
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**			
as found zero	7488	0.00	7488	0.0	1.7	n/a
as found high	7429	57.19	7487	77.9	83.6	0.951
adjusted zero	7487	0.00	7487	0.0	0	n/a
adjusted high	7430	57.19	7487	77.9	77.9	1.000
mid	7459	27.83	7487	37.9	37.5	1.011
low	7474	13.94	7488	19.0	18.3	1.038
calibrator zero	7488	0.00	7488	0.0	0.3	n/a
					Average C.F.=	1.016

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**0.998**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.36%**	**± 3% F.S.**
% change in C.F. from last cal=	**4.76%**	**± 10%**

Thermo 450i Hydrogen Sulphide Analyzer Calibration



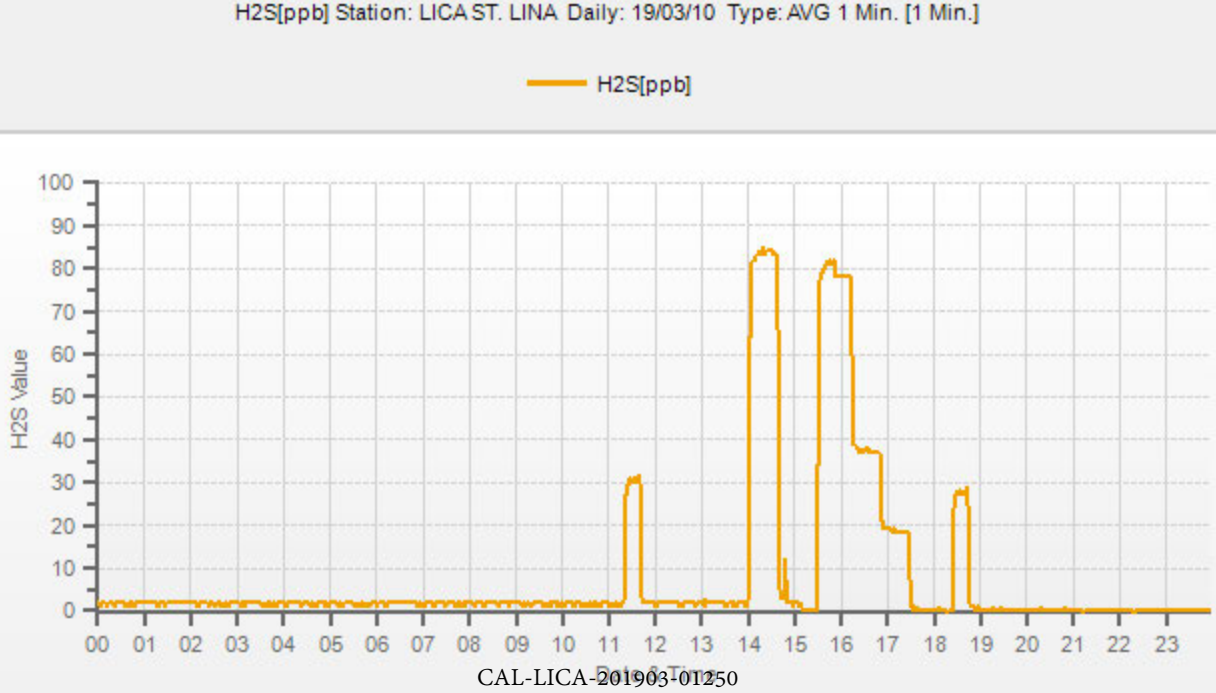
	As found:		As left:
Bkg:	33.3	Bkg:	33.1
Coef:	0.887	Coef:	0.842
Pmt:	-634.2	Pmt:	-634.2
Flash:	910	Flash:	910
Internal:	33.1	Internal:	33.9
Chamber:	45.1	Chamber:	45.0
Converter Temp:	323.6	Converter Temp:	325.2
Converter Set:	325	Converter Set:	325.0
Perm Oven Gas:	45.0	Perm Oven Gas:	45.01
Perm Oven Htr:	44.07	Perm Oven Htr:	44.12
Pressure:	580.3	Pressure:	581.2
Sample Flow:	0.820	Sample Flow:	0.822
Lamp Intensity:	90	Lamp Intensity:	91
Averaging Time:	120	Averaging Time:	120
Expected Value:	27.6	Expected Value:	28.0

Comments:

The analyzer sample inlet filter was changed.

The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.


H2S[ppb] Station: LICA ST. LINA Daily: 19/03/10 Type: AVG 1 Min. [1 Min.]
H2S[ppb]
H2S Value
100
90
80
70
60
50
40
30
20
10
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Date & Time

Thermo 450i Hydrogen Sulphide Analyzer Calibration

Date:	March 19, 2019	**Barometer/B.P./units:**	F.S. #05544, expires Jan 17, 2020	935	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S.170286131, expires Apr 19, 2019	22	°C
Location/Station Name:	St. Lina	**Weather Conditions:**	Mainly sunny		
Parameter:	Hydrogen Sulphide	**Calibration Purpose:**	repeat		
Start Time 24 hr. (mst):	11:21	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
End Time 24 hr. (mst):	15:42	**Cal Gas Expiry Date:**	October 20, 2020		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	n/a		

Analyzer:

Serial Number/Owner:	CM 18010058 LICA	**Range ppb:**	100
Last Calibration Date:	March 10, 2019	**As Found C.F.:**	0.984
Previous C.F.:	1.000	**New C.F.:**	0.998

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Sabio id# 26801218 expires January 15, 2020
Cal Gas Cylinder I.D. # :	EY 0001003
Cal Gas Conc. (ppm):	9.55

Standard Calibration Points for Ranges

Point	ppb
High	78
Mid	38
Low	19

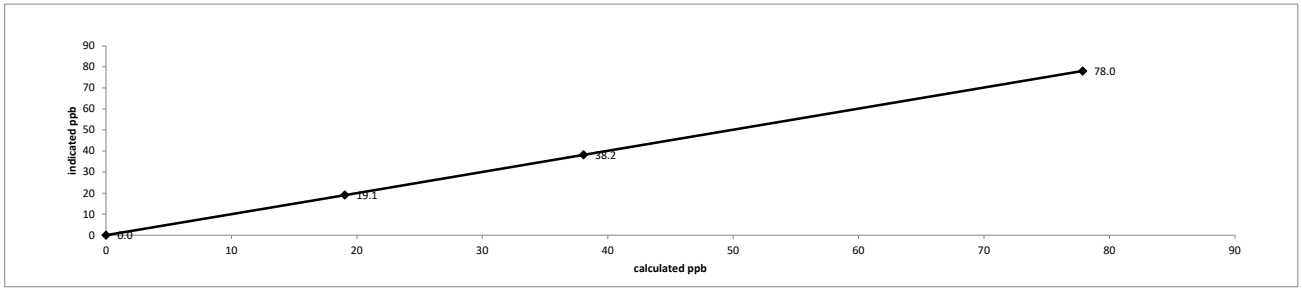
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**			
as found zero	5016	0.00	5016	0.0	1.2	n/a
as found high	4975	40.90	5016	77.9	80.3	0.984
adjusted zero	5016	0.00	5016	0.0	0	n/a
adjusted high	4975	40.90	5016	77.9	78	0.998
mid	4997	20.00	5017	38.1	38.2	0.997
low	5007	10.00	5017	19.0	19.1	0.997
calibrator zero	5016	0.00	5016	0.0	0	n/a
					Average C.F.=	0.997

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**0.998**	**0.95-1.05**
b (Intercept as % of full scale)=	**-0.03%**	**± 3% F.S.**
% change in C.F. from last cal=	**1.56%**	**± 10%**

Thermo 450i Hydrogen Sulphide Analyzer Calibration



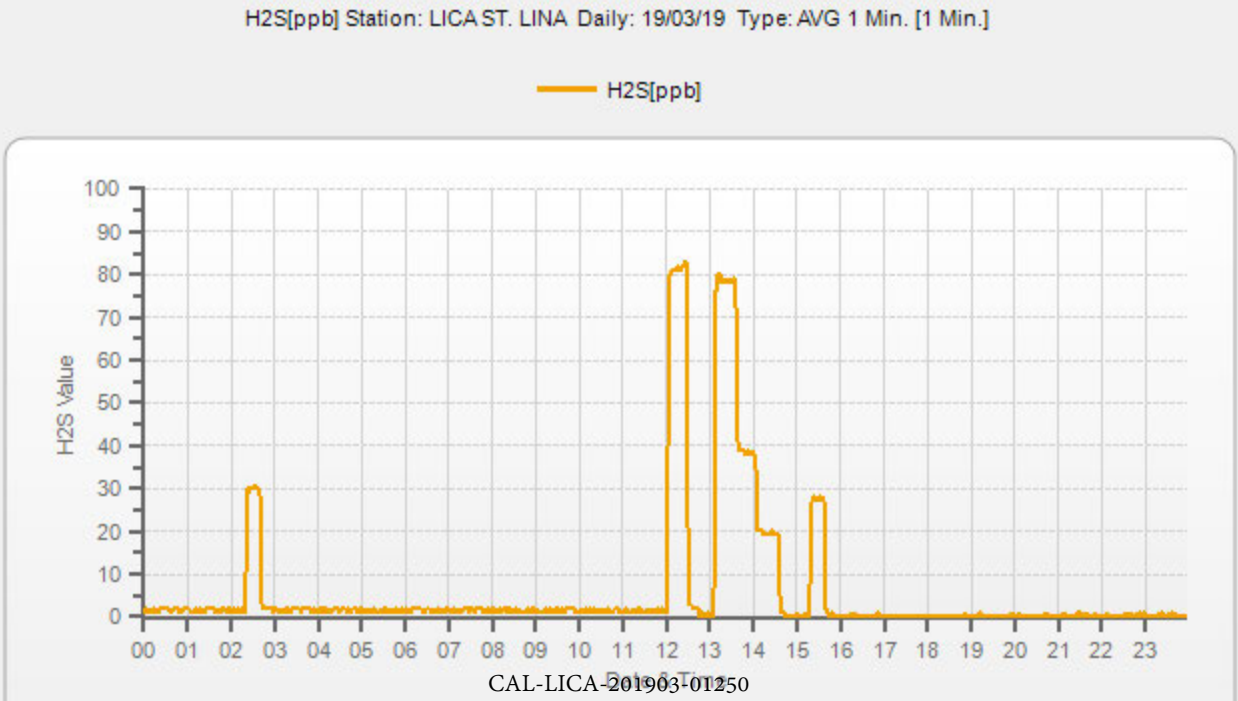
As found:		As left:	
Bkg:	32.9	Bkg:	33.2
Coef:	0.842	Coef:	0.820
Pmt:	-634.2	Pmt:	-634.9
Flash:	906	Flash:	909
Internal:	35.0	Internal:	34.2
Chamber:	45.0	Chamber:	45.0
Converter Temp:	325.7	Converter Temp:	327.3
Converter Set:	325.0	Converter Set:	325.0
Perm Oven Gas:	45.00	Perm Oven Gas:	45.00
Perm Oven Htr:	44.12	Perm Oven Htr:	44.14
Pressure:	585.4	Pressure:	583.3
Sample Flow:	0.824	Sample Flow:	0.825
Lamp Intensity:	90	Lamp Intensity:	91
Averaging Time:	120	Averaging Time:	120
Expected Value:	27.6	Expected Value:	28.1

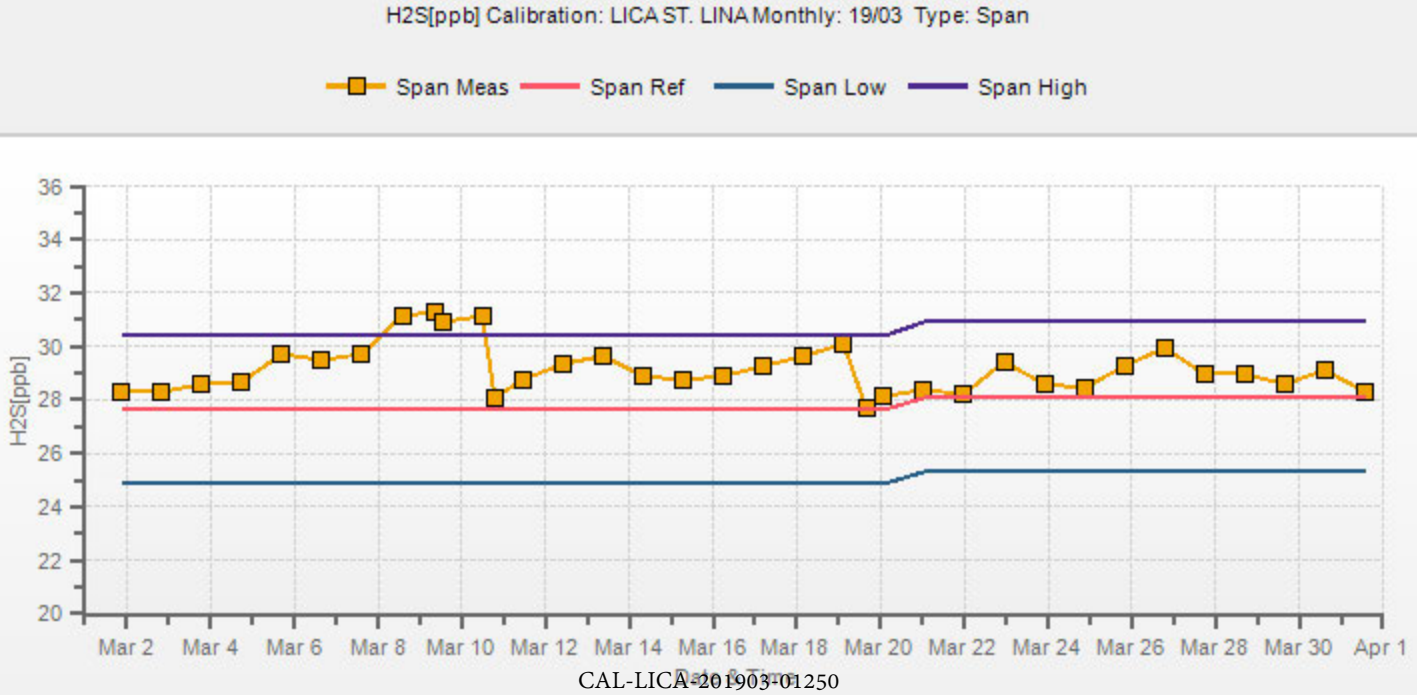
Comments:

The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

A Repeat calibration was completed to correct span drift. The SO2 scrubber was tested during a monthly calibration.


H2S[ppb] Station: LICA ST. LINA Daily: 19/03/19 Type: AVG 1 Min. [1 Min.]
H2S[ppb]
H2S Value
100
90
80
70
60
50
40
30
20
10
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Date & Time


H2S[ppb] Calibration: LICA ST. LINA Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
H2S[ppb]
36
34
32
30
28
26
24
22
20
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1

Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	March 20, 2019	**Barometer/B.P./units:**	F.S. #05544, expires Jan 17, 2020	932	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S.170286131, expires Apr 19, 2019	23	°C
Location/Station Name:	St. Lina	**Weather Conditions:**	Mainly sunny		
Parameter:	CH4 / NMHC / THC	**Calibration Purpose:**	routine monthly		
Start/End Time 24 hr. (mst):	9:54 / 13:53	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
Calibration Method:	Gas Dilution	**Cal Gas Expiry Date:**	August 1, 2026		

Analyzer:

Serial Number/Owner:	118093025	LICA
Measured Flow:	1242	
Last Calibration Date:	February 13, 2019	
Range ppm:	20 CH4/20 NMHC/40 THC	

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
CH_4 =	1.000	0.974	1.000
NMHC =	1.000	0.982	1.000
THC =	1.000	0.978	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A		
High Flow Meter ID/Expiry Date:	N/A		
Calibrator ID/Expiry Date:	Sabio id# 26801218 expires January 15, 2020		
Cal Gas Cylinder I.D. # :	LL 29687		
CH4 Cylinder Conc.=	598.0	198.0	**=C_3H_8 Cylinder Conc.**
CH_4 expressed as C_3H_8=	544.5	1142.5	**=total CH4 equivalent**

Standard Calibration Points for Analyzer Range of 20/20/40 ppm

Point	CH4	NMHC	THC
High	13.00	13.00	26.00
Mid	7.00	7.00	14.00
Low	3.00	3.00	6.00

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)										Correction Factors:		
Point	Diluent	Cal Gas	Total Flow	Calculated CH_4 (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH_4 (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	CH_4	NMHC	THC
as found zero	3011	0.00	3011	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
as found high	2940	73.50	3013	14.59	13.28	27.87	14.98	13.53	28.50	0.974	0.982	0.978
adjusted zero	3011	0.00	3011	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2940	73.50	3013	14.59	13.28	27.87	14.59	13.28	27.87	1.000	1.000	1.000
mid	2976	36.80	3013	7.30	6.65	13.95	7.28	6.64	13.92	1.003	1.002	1.002
low	2995	18.40	3013	3.65	3.33	6.98	3.63	3.43	7.06	1.006	0.969	0.988
calibrator zero	3011	0.00	3011	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
									Average C.F.=	1.003	0.990	0.997

Linear Regression/Calibration Results:

	CH_4	NMHC	THC	LIMITS
Correlation Coefficient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**1.000**	**0.997**	**0.999**	**0.95-1.05**
b (Intercept as % of full scale)=	**-0.07%**	**0.20%**	**0.07%**	**± 3% F.S.**
% change in C.F. from last cal=	**2.62%**	**1.83%**	**2.21%**	**± 10%**

As Left Instrument Diagnostics:

Interface Board Voltages:	Bias Supply:	-296.6		Calibration History cnt'd:	NM Peak Area:	82818
Temperatures:	Detector Oven:	175.0		Crucial Settings:	Methane Start:	n/a
	Filter:	175.0			Methane End:	n/a
	Column Oven:	75.0			Backflush:	n/a
	Internal:	29.1			NMHV Start:	n/a
Cylinder Pressures/reg.:	Carrier:	900	55		NMHC End:	n/a
	Fuel:	1000	55	Run History>1:	Date:	Mar 20, 2019
	Span Gas:	1300	10		Time:	10:18
	Zero Air Generator:	50			CH_4 PK HT:	0
Internal Pressures:	Carrier:	32.0			CH_4 RT:	12.8
	Fuel:	48.1			CH_4 Baseline:	3990
	Air:	36.2			CH_4 LOD:	39
FID Status:	Status:	LIT			CH_4 SD:	11
	Counts:	43837			CH_4 CONC:	0.00
	Flame:	405.0			NM PK HT:	0
	Det Base:	175.1			NM Peak Area:	0
Flame and Power Stats:	Last Power On:	Dec 20, 2018			NM CONC:	0.00
	Flameouts:	300			NM Base Start:	3950
	Det Oven at Start:	166.9			NM Base End:	4009
	Col Oven at Start:	73.6			NM LOD:	66
Calibration History:	Time:	Feb 13, 2019 / 12:13			NM Start IDX:	2
	Type:	SPAN			NM End IDX:	62
	Status:	GOOD			NM Max Slope:	3.2e+00
	Check/Adjust:	ADJUST			NM Min Slope:	-5.6e-01
	CH_4 Span Conc:	13.64			NM PT Count:	0
	CH_4 SP Ratio:	0.000707		Expected Values:	Previous CH4:	9.92
	CH_4 RT:	13.2			Previous NMHC	10.63
	CH_4 PK IDX:	26			Previous THC:	20.55
	CH_4 PK HT:	19296			New CH4:	10.06
	NM Span Conc:	12.42			New NMHC	10.78
	NM SP Ratio:	0.00015			New THC:	20.83

Comments:

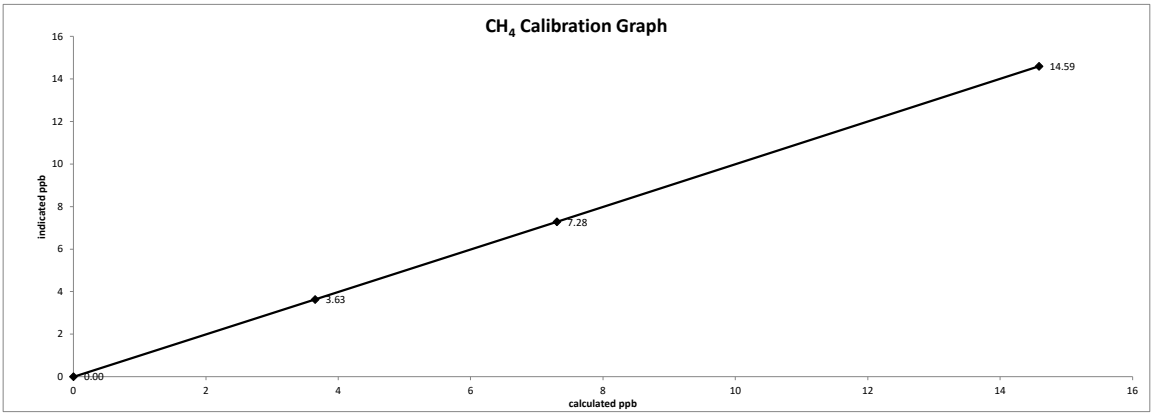
The analyzer sample inlet filter was changed.

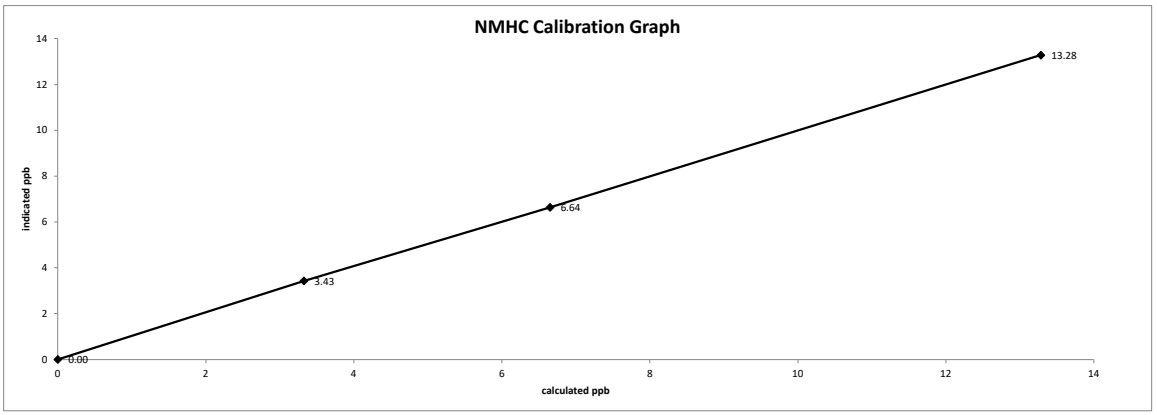
No zero adjustment was required/made.

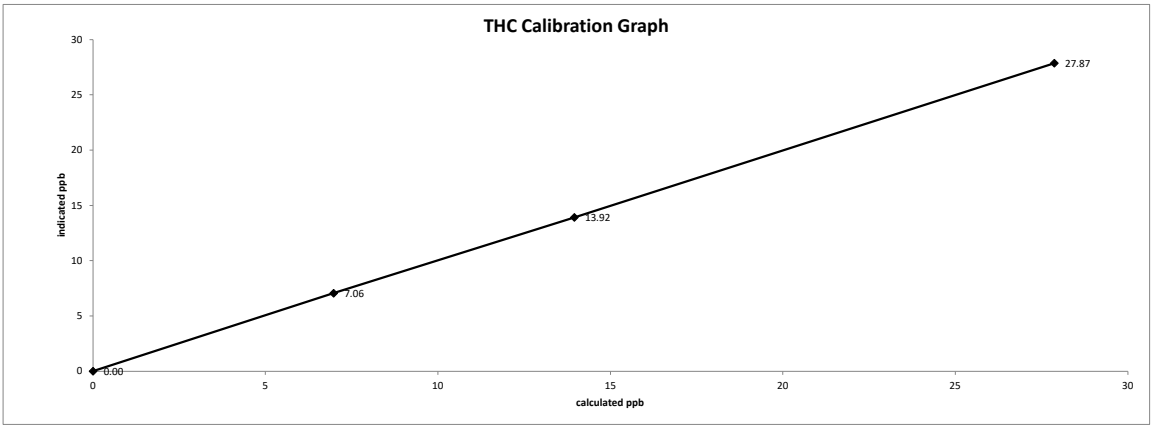
The analyzer cooling fan filter(s) were cleaned.

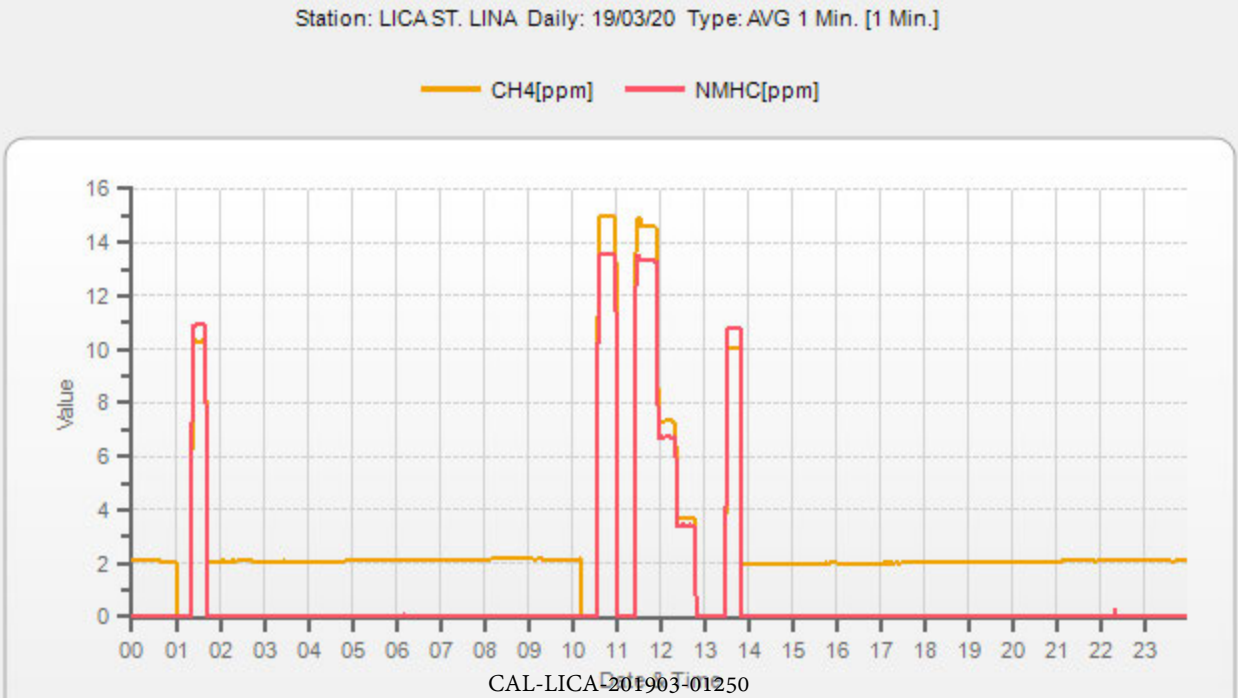
The manifold blower was found to be working normally.

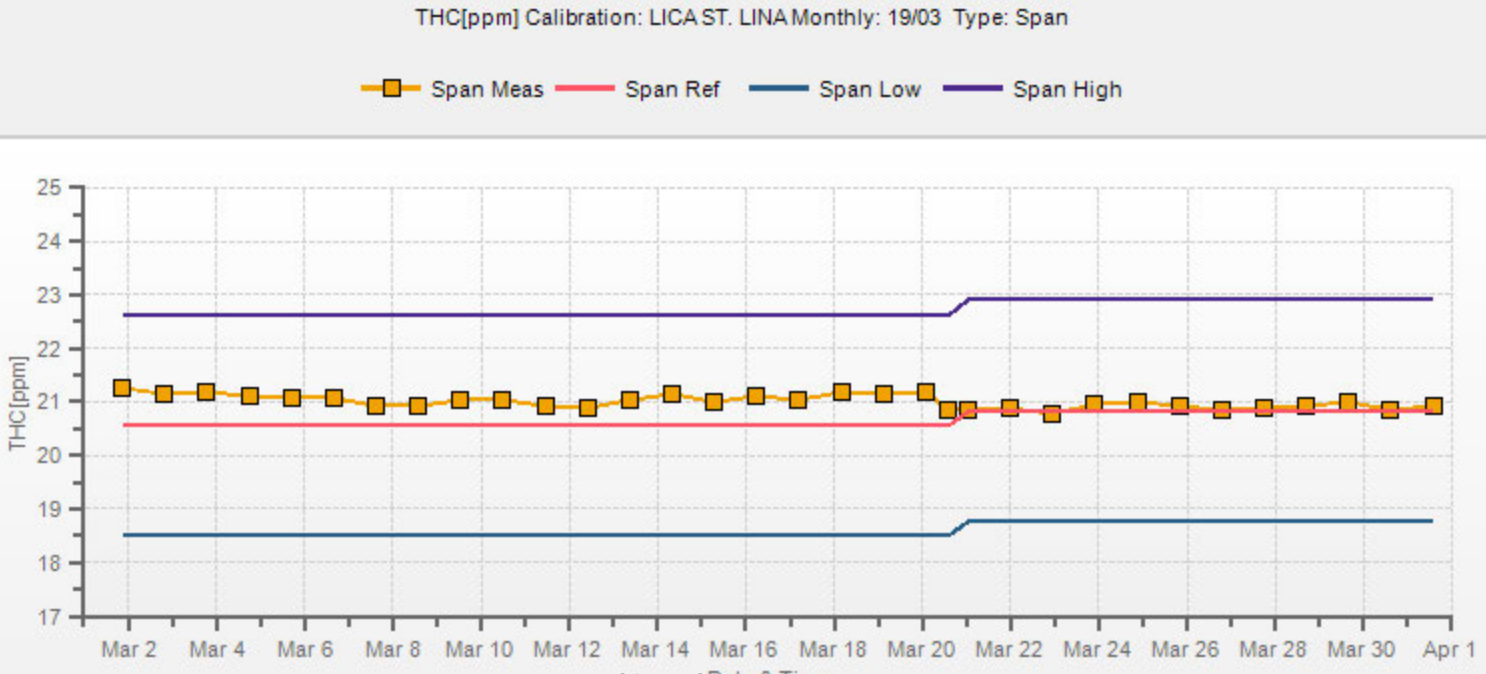
Date:	March 20, 2019	Start/End Time 24 hr. (mst):	9:54 / 13:53
Company/Airshed:	LICA	Calibration Purpose:	routine monthly
Location/Station Name:	St. Lina	Calibration Method:	Gas Dilution

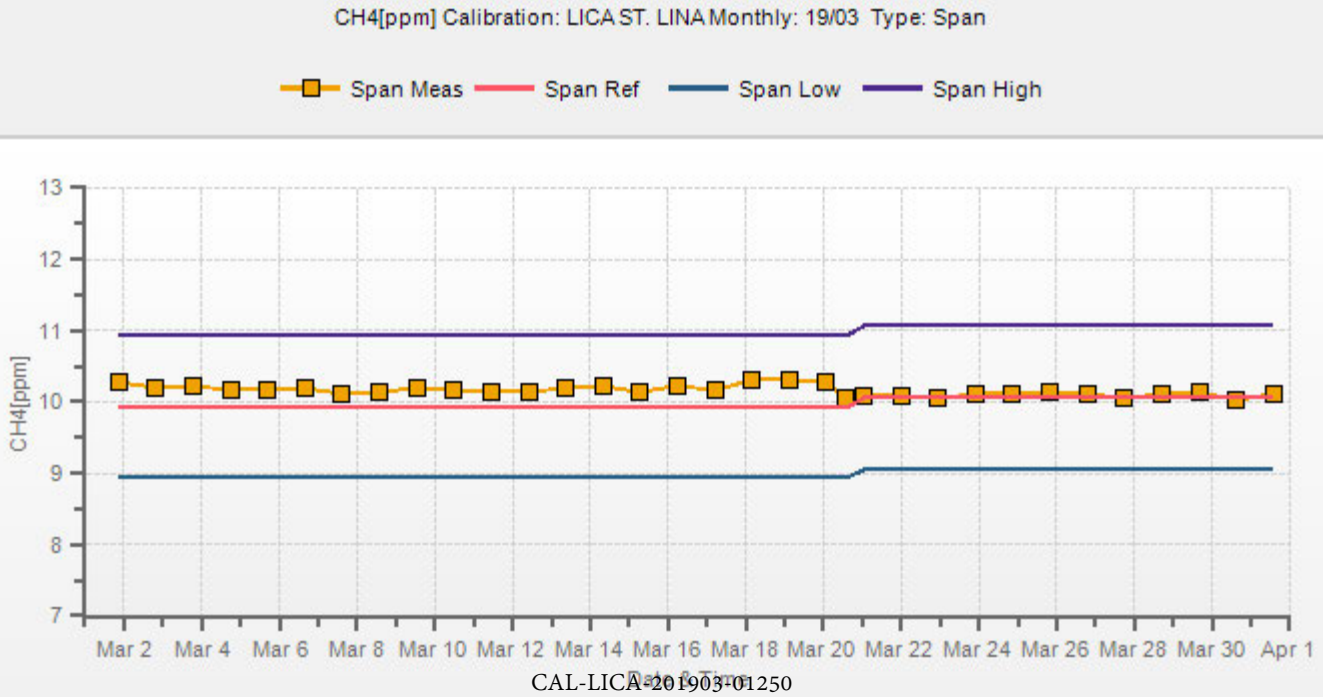


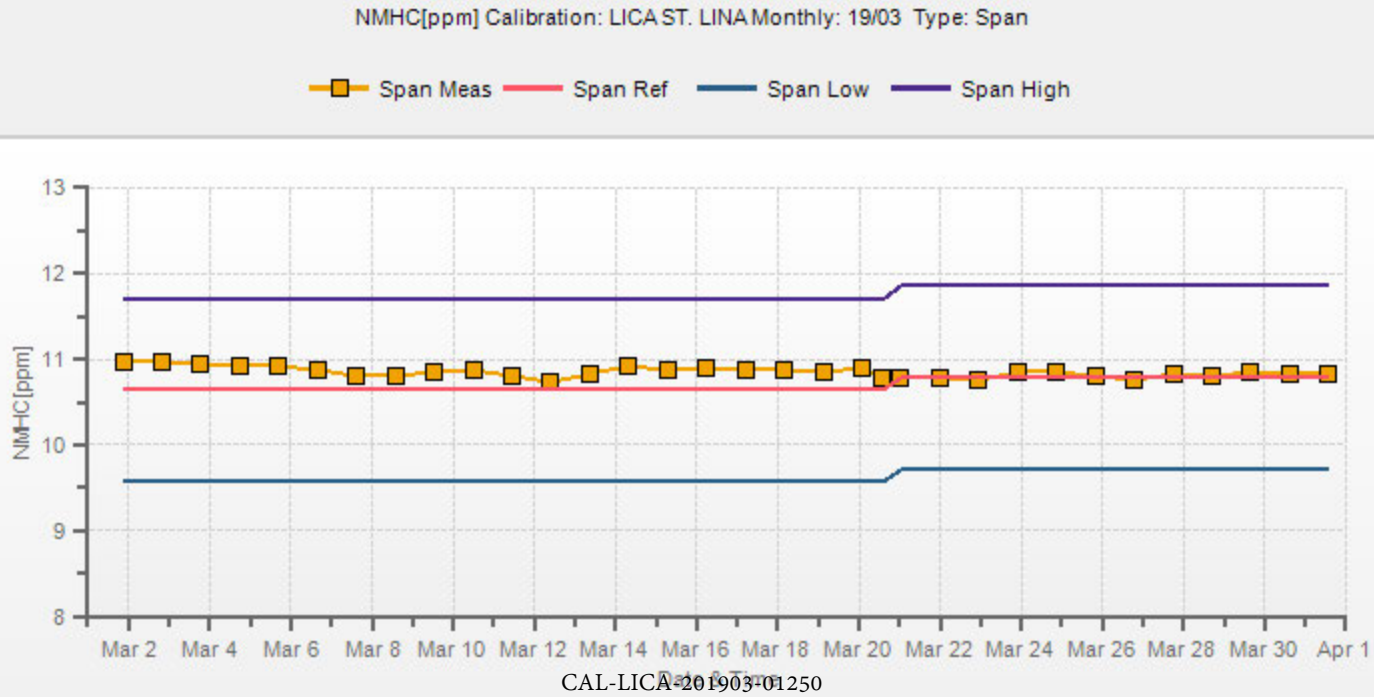





Station: LICA ST. LINA Daily: 19/03/20 Type: AVG 1 Min. [1 Min.]
CH4[ppm]
NMHC[ppm]
Value
16
14
12
10
8
6
4
2
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Date Time


THC[ppm] Calibration: LICA ST. LINA Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
THC[ppm]
25
24
23
22
21
20
19
18
17
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1
Date Time


CH4[ppm] Calibration: LICA ST. LINA Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
CH4[ppm]
13
12
11
10
9
8
7
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1
Date/Time


NMHC[ppm] Calibration: LICA ST. LINA Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
NMHC[ppm]
13
12
11
10
9
8
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1
Date & Time

Thermo 42i NO-NO2-NOx Analyzer Calibration

Date:	March 19, 2019		**Barometer/B.P./units:**	F.S. #05544, expires Jan 17, 2020	935	millibars
Company/Airshed:	LICA		**Thermometer/Station Temp:**	F.S.170286131, expires Apr 19, 2019	22	°C
Location/Station Name:	St. Lina		**Weather Conditions:**	Mainly sunny		
Start/End Time 24 hr. (mst):	11:22/18:14		**Calibration Purpose:**	routine monthly		
G.P.T. to be used for Ozone?	Yes with 1000 ppb NOx full scale		**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
Calibration Method:	Gas Dilution & Gas Phase Titration		**Cal Gas Expiry Date:**	August 20, 2026		

Analyzer:

Serial Number/Owner:	1180930029	LICA
Last Calibration Date:	February 12, 2019	
Range ppb:	1000	

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
NO =	1.000	1.029	1.000
NO_2 =	1.000	1.000	1.000
NOx =	1.000	1.031	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A	
High Flow Meter ID/Expiry Date:	N/A	
Calibrator ID/Expiry Date:	Sabio id# 42531101(0911) expires February 13, 2020	
Cal Gas Cylinder I.D. # :	LL 107918	
Cal Gas Conc. (ppm):	50.1	50.2

Standard Calibration Points for a Range of: 1000 ppb

Point	Target NO (ppb)	Target NO_2 (ppb)	Cc Ozone ?
High	**610**	**375**	**<--high ozone**
Mid	**380**	**190**	**<--mid ozone**
Low	**190**	**70**	**<--low ozone**
Extra Point #1	**n/a**	**n/a**	**n/a**
Extra Point #2	**n/a**	**n/a**	**n/a**

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	**Diluent**	**Cal Gas**	**Total Flow**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**		
as found zero	4997	0.0	4997	0	0	0.0	0.1	n/a	n/a
as found high	4921	77.8	4999	779.7	781.3	758.0	758.0	1.029	1.031
adjusted zero	4997	0.00	4997	0.0	0.0	0.0	0.0	n/a	n/a
adjusted high	4921	77.80	4999	779.7	781.3	780.0	781.0	1.000	1.000
mid	4961	37.90	4999	379.8	380.6	380.0	380.0	1.000	1.002
low	4980	18.90	4999	189.4	189.8	191.0	191.0	0.992	0.994
calibrator zero	4997	0.00	4997	0	0	0.0	0.0	n/a	n/a
							Average C.F.=	0.997	0.999

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO_2	NO drop	NO_2 gain	NO_2 C.F.
Point	**Diluent**	**Cal Gas**	**Total Flow**	**volts or ppb**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**
NOx reference	4921	77.80	4999	0.0	783.0	784.0	1.0	0.0	1.0	
as found high NO2	4921	77.80	4999	500.0	268.0	784.0	516.0	515.0	515.0	1.000
adjusted high NO2	4921	77.80	4999	500.0	268.0	784.0	516.0	515.0	515.0	1.000
gpt mid	4921	77.80	4999	275.0	498.0	784.0	286.0	285.0	285.0	1.000
gpt low	4921	77.80	4999	100.0	679.0	784.0	105.0	104.0	104.0	1.000
									Average NO_2 C.F.=	1.000

Linear Regression/Calibration Results:

	NO	NOx	NO_2	LIMITS
Correlation Coefficient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**1.000**	**1.001**	**1.001**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.06%**	**0.04%**	**0.06%**	**± 3% F.S.**
% change in C.F. from last cal=	**-2.86%**	**-3.08%**	**0.00%**	**± 10%**
NO2 converter efficiency			**1.00**	**0.96 to 1.04**

As found:		As left:	
NO Bkg:	5.2	NO Bkg:	5.5
NOx Bkg:	5.4	NOx Bkg:	5.6
NO Coef:	1.150	NO Coef:	1.179
NO2 Coef:	0.999	NO2 Coef:	0.999
NOx Coef:	1.000	NOx Coef:	1.003
PMT:	-824.7	PMT:	-824.0
Internal:	31.3	Internal:	29.6
Chamber:	50.0	Chamber:	50.1
Cooler:	-2.9	Cooler:	-2.8
NO2 Converter:	323.9	NO2 Converter:	326.6
NO2 Converter Set:	325.0	NO2 Converter Set:	325.0
Perm Oven Gas:	44.97	Perm Oven Gas:	44.98
Perm Oven Heater:	44.14	Perm Oven Heater:	44.14
Pressure:	260.2	Pressure:	259.3
Flow:	0.531	Flow:	530
Ozonator Flow:	OK	Ozonator Flow:	OK
Expected Value NO:	3	Expected Value NO:	4
Expected Value NO2:	392	Expected Value NO2:	391
Expected Value NOx:	395	Expected Value NOx:	395

Comments:

The analyzer sample inlet filter was changed.

The manifold blower was found to be working normally.

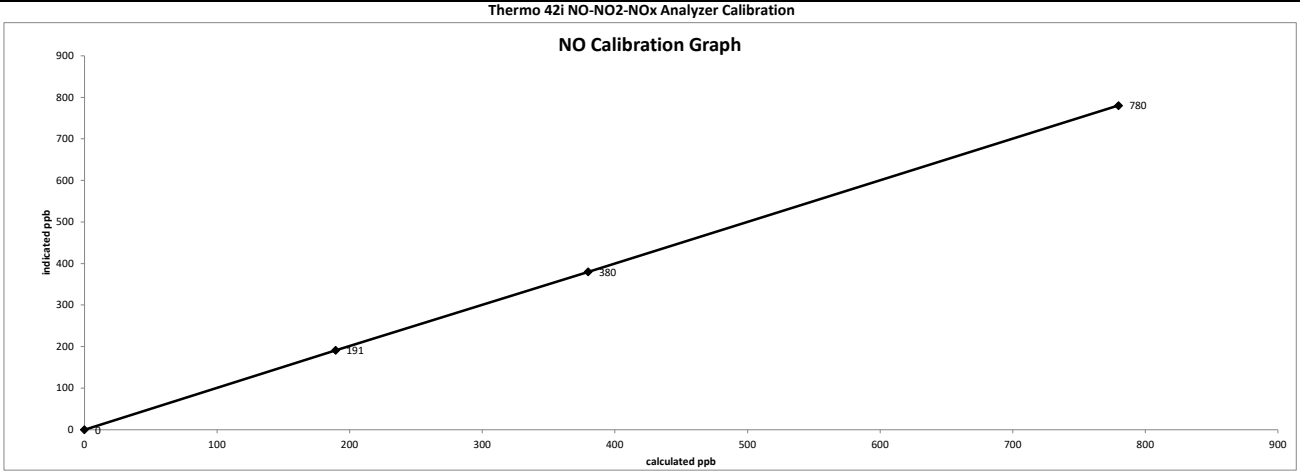
The converter cooling fan filter was cleaned.

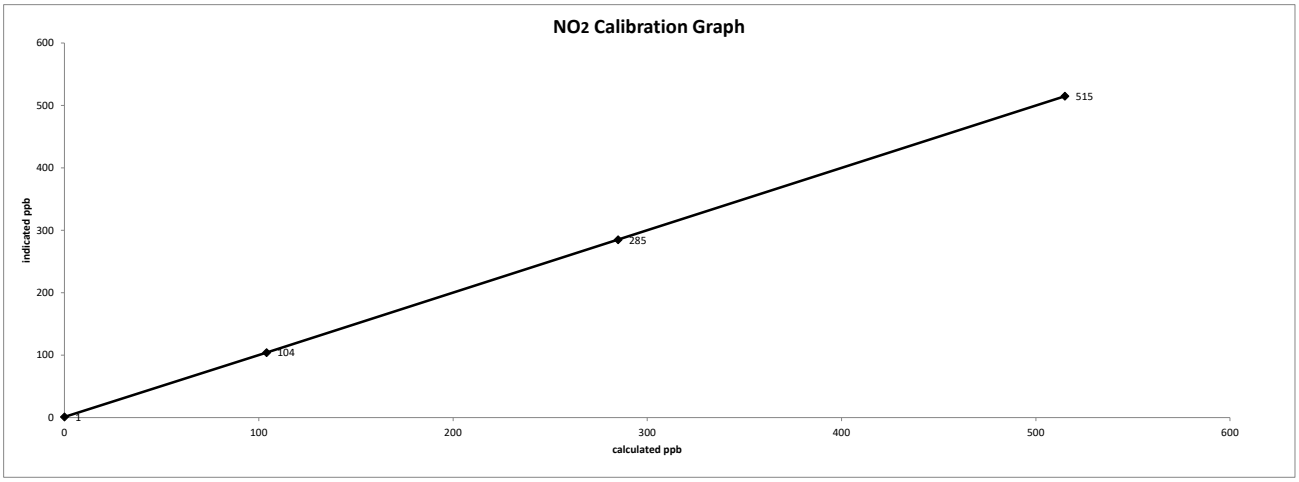
The analyzer cooling fan filter(s) were cleaned.

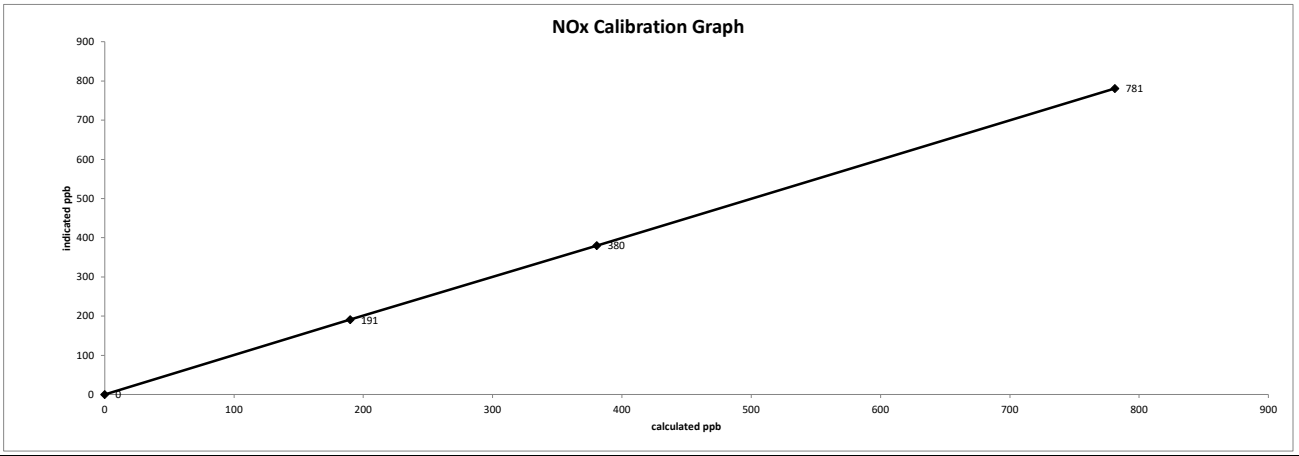
Additional GPT is for O3 calibration; O3 set / NO drop: High=370/386, Mid=170/177, Low=60/63 .

Date:	**March 19, 2019**	**Start/End Time 24 hr. (mst):**	**11:22/18:14**
Company/Airshed:	**LICA**	**Calibration Purpose:**	**routine monthly**
Location/Station Name:	**St. Lina**	**Calibration Method:**	**Gas Dilution & Gas Phase Titration**

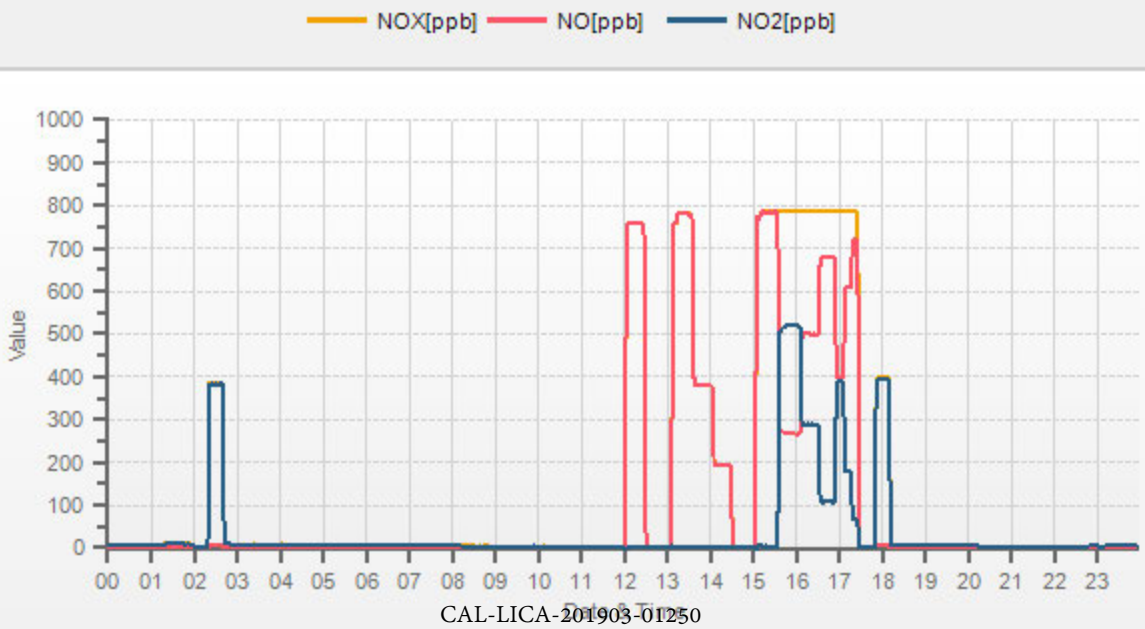
Thermo 42i NO-NO2-NOx Analyzer Calibration







Station: LICA ST. LINA Daily: 19/03/19 Type: AVG 1 Min. [1 Min.]



Thermo 42i NO-NO2-NOx Analyzer Calibration

Date:	March 25, 2019	**Barometer/B.P./units:**	Brunton #05490	936.4	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	Station Probe	22.4	°C
Location/Station Name:	St.Lina	**Weather Conditions:**	Cloudy/Overcast		
Start/End Time 24 hr. (mst):	14:02 / 15:56	**Calibration Purpose:**	as found		
G.P.T. to be used for Ozone?	No	**Performed By/Reviewer:**	Chris Wesson/Moe Haddadi	Rob Fisher	
Calibration Method:	Gas Dilution & Gas Phase Titration	**Cal Gas Expiry Date:**	October 24, 2020		

Analyzer:

Serial Number/Owner:	1180930029	LICA
Last Calibration Date:	March 19, 2019	
Range ppb:	1000	

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
NO =	1.000	1.004	n/a
NO_2 =	1.000	1.000	n/a
NOx =	1.000	1.004	n/a

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A	
High Flow Meter ID/Expiry Date:	N/A	
Calibrator ID/Expiry Date:	Sabio2010 #26701218 expires January 15, 2020	
Cal Gas Cylinder I.D. # :	LL108015	
Cal Gas Conc. (ppm):	52.2	52.3

Standard Calibration Points for a Range of: 1000 ppb

Point	Target NO (ppb)	Target NO_2 (ppb)	Cc Ozone ?
High	780	500	n/a
Mid	380	275	n/a
Low	190	100	n/a
Extra Point #1	n/a	n/a	n/a
Extra Point #2	n/a	n/a	n/a

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	**Diluent**	**Cal Gas**	**Total Flow**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**		
as found zero	4998	0.0	4998	0	0	-0.2	0.2	n/a	n/a
as found high	4923	74.4	4997	777.2	778.7	774.0	776.0	1.004	1.004
							Average C.F.=	n/a	n/a

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO_2	NO drop	NO_2 gain	NO_2 C.F.
Point	**Diluent**	**Cal Gas**	**Total Flow**	**volts or ppb**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**
NOx reference	4923	74.40	4997	0.0	774.0	776.0	2.0	-0.2	2.0	
as found high NO2	4922	74.70	4997	500.0	264.0	776.0	512.0	510.0	510.0	1.000
									Average NO_2 C.F.=	n/a

Linear Regression/Calibration Results:

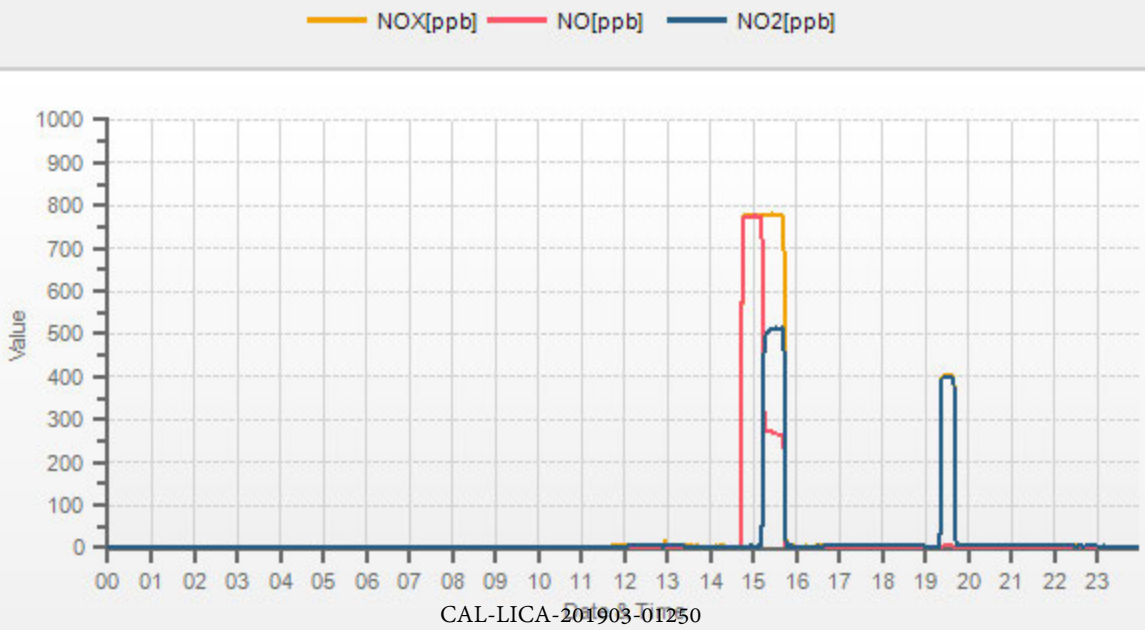
	NO	NOx	NO_2	LIMITS
Correlation Coefficient =	n/a	n/a	n/a	n/a
Slope =	n/a	n/a	n/a	n/a
b (Intercept as % of full scale)=	n/a	n/a	n/a	n/a
% change in C.F. from last cal=	-0.39%	0.00%	-0.37%	n/a
NO2 converter efficiency			1.00	0.96 to 1.04

As found:		As left:	
NO Bkg:	5.5	NO Bkg:	5.5
NOx Bkg:	5.6	NOx Bkg:	5.6
NO Coef:	1.179	NO Coef:	1.179
NO2 Coef:	0.999	NO2 Coef:	0.999
NOx Coef:	1.003	NOx Coef:	1.003
PMT:	-824.4	PMT:	-824.4
Internal:	30.7	Internal:	30.6
Chamber:	50.3	Chamber:	50.5
Cooler:	-3	Cooler:	-3
NO2 Converter:	323.4	NO2 Converter:	322.6
NO2 Converter Set:	325	NO2 Converter Set:	325
Perm Oven Gas:	45.01	Perm Oven Gas:	46.37
Perm Oven Heater:	44.19	Perm Oven Heater:	46.91
Pressure:	257.5	Pressure:	258.1
Flow:	0.528	Flow:	0.528
Ozonator Flow:	OK	Ozonator Flow:	OK
Expected Value NO:	4	Expected Value NO:	4
Expected Value NO2:	391	Expected Value NO2:	391
Expected Value NOx:	395	Expected Value NOx:	395

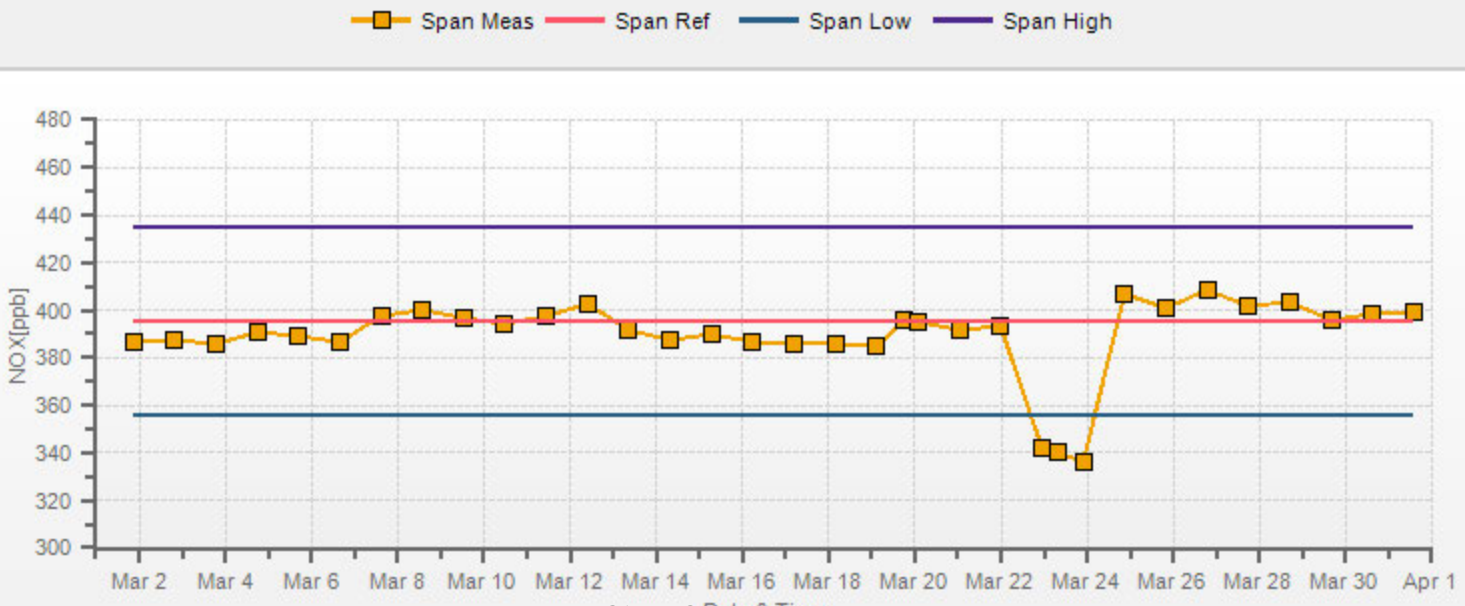
Comments:

The manifold blower was found to be working normally.

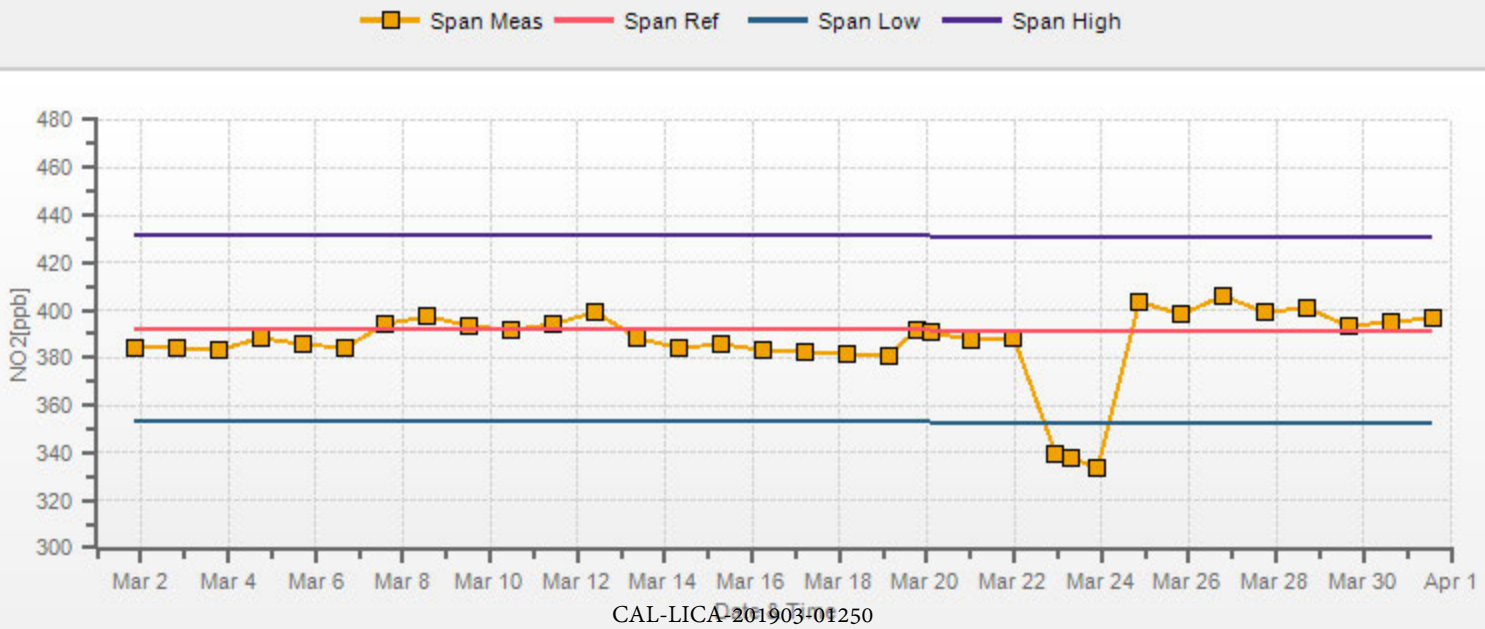
Station: LICA ST. LINA Daily: 19/03/25 Type: AVG 1 Min. [1 Min.]



NOX[ppb] Calibration: LICA ST. LINA Monthly: 19/03 Type: Span



NO2[ppb] Calibration: LICA ST. LINA Monthly: 19/03 Type: Span



Thermo 49i Ozone Analyzer Calibration

Date:	March 20, 2019	**Barometer/B.P./units:**	F.S. #05544, expires Jan 17, 2020	932	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S.170286131, expires Apr 19, 2019	23	°C
Location/Station Name:	St. Lina	**Weather Conditions:**	Mainly sunny		
Start/End Time 24 hr. (mst):	9:54 / 14:26	**Calibration Purpose:**	routine monthly		
Ozone Calibration Method:	Direct G.P.T.	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
G.P.T. Date:	March 19, 2019	**Cal Gas Expiry Date:**	August 20, 2026		

Analyzer:

Serial Number/Owner:	10022540371 LICA	**Ozone Range ppb:**	500
Last Calibration Date:	February 13, 2019	**As Found C.F.:**	1.009
Previous Cal High Point C.F.:	1.000	**New C.F.:**	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Sabio id# 42531101(0911) expires February 13, 2020
Cal Gas Cylinder I.D. # :	LL 107918

Point	AMD Required Range of Ozone Calibration Points
High	300-400 ppb
Mid	150-200 ppb
Low	50-100 ppb

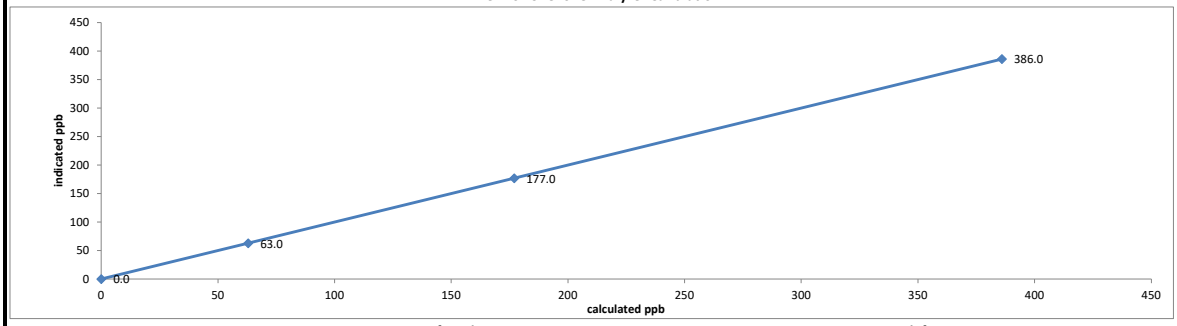
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

	Calibrator Flow Rate (cc/min)		Calculated Concentration:	Corrected Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	**Total Flow @ Point Start**	**Total Flow @ Point Finish**	**(ppb)**	**(ppb)**	**(ppb)**	
as found zero	5000	5000	0.0	n/a	0.3	n/a
as found high	5000	5000	386.0	386.0	383.0	1.009
adjusted zero	5000	5000	0.0	0.0	0.0	n/a
adjusted high	5000	5000	386.0	386.0	386.0	1.000
mid	5000	5000	177.0	177.0	177.0	1.000
low	5000	5000	63.0	63.0	63.0	1.000
calibrator zero	5000	5000	0.0	n/a	0.0	n/a
					Average C.F.=	1.000

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**1.000**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.00%**	**± 3% F.S.**
% change in C.F. from last cal=	**-0.86%**	**± 10%**

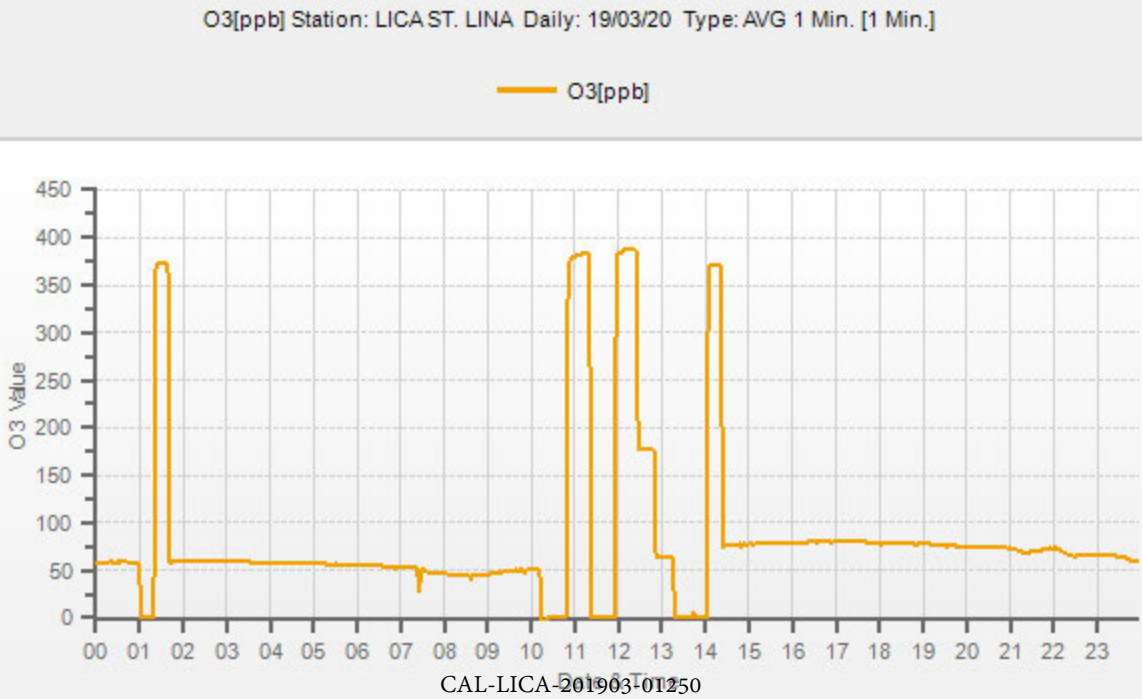
Thermo 49i Ozone Analyzer Calibration

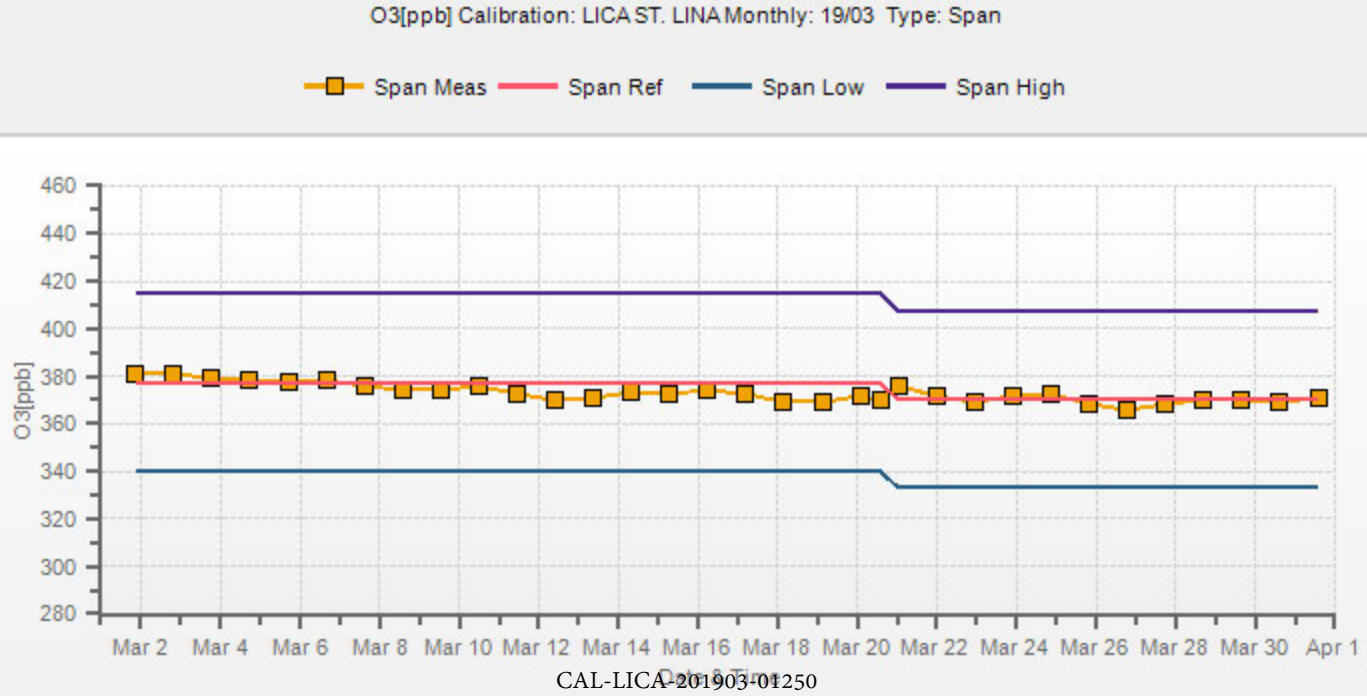


	As found:	As left:
O3 Bkg:	-0.4	-0.1
O3 Coef:	1.008	1.015
Photo Lamp	10.7	10.7
O3 Lamp	8.2	8.2
Bench:	28.1	28.1
Bench Lamp:	53.6	53.6
O3 Lamp:	67.8	67.8
Pressure:	681.5	681.5
Cell A lpm:	0.732	0.731
Cell B lpm:	0.774	0.777
O3 ppb:	-4.7	0.2
Cell A ppb:	-1.0	-0.1
Cell B ppb:	-7.3	1.7
Cell A int (Hz):	70620	70646
Cell B int (Hz):	89929	89940
Expected Value:	377.0	370.0

Comments:

The analyzer sample inlet filter was changed.
The analyzer cooling fan filter(s) were cleaned.
The manifold blower was found to be working normally.


O3[ppb] Station: LICA ST. LINA Daily: 19/03/20 Type: AVG 1 Min. [1 Min.]
O3[ppb]
O3 Value
450
400
350
300
250
200
150
100
50
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Date & Time


O3[ppb] Calibration: LICA ST. LINA Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
O3[ppb]
460
440
420
400
380
360
340
320
300
280
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1

Thermo 5030i SHARP Monitor Monthly Check

Date:	March 20, 2019	**Performed By/Reviewer:**	Alex Yakupov / Rob Fisher
Company:	LICA	**Start Time (mst):**	14:19
Station Name/Location:	Cold Lake South	**End Time (mst):**	15:21
Previous Audit Date:	February 13, 2019	**Calibration Purpose:**	routine monthly
Parameter:	PM 2.5	**Weather Conditions:**	Mainly sunny

SHARP 5030i Information and Status:

Serial Number: CM 17091001 **Filter Tape Counter** 489

Reference Standards: **Air Flow**

	Manometer	Orifice	Pressure:		Temp / RH:
Make:	Dwyer	Chinook	Fisher Scientific		Fisher Scientific
Model:	475 Mk. III	CHN0901	FB61291		11-661-7A 11745843
Serial Number:	#3	#2	130168457		170286131
Calibration Expiration Date:	January 17, 2020	April 24, 2019	January 17, 2020		April 19, 2019

Ambient Temperature (°C)

	Reference	SHARP	Difference
#1	13.80	14.6	-0.8

Ambient Relative Humidity (%RH)

As Found:

	Reference	SHARP	Difference
#1	26.50	25.6	0.9

Barometric Pressure (mmHg)

As Found:

	Reference	SHARP	Difference
#1	699.0	699.0	0.0

Flow Audit (L/min)

As Found:

	Reference	SHARP
#1	16.66	16.67
#2	16.67	16.67
#3	16.66	16.66
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	16.70	16.69	0.01	*Leak Limit: 0.80 L/min*
					LEAK RATE:	**0.02**	

Met One Instruments

Sonic Wind Sensor Certificate of Calibration

Sensor Model No.: 50.5H
Sensor Output Swing: 0V - 1.0V
Customer: MAXXAM Analytics
Tested per PO: 35-67600
Calibrated by: David Frith DF

Sensor Serial No.: H12635
Sensor Output Range: 0 - 50.0 MPS
Sales Order No.: L22618
Calibration Date: 05/25/2017

QC Inspection Chris Pal

Instrument Condition Within Tolerance: As Found ___ As Left X
Corrective Action: No Adjustment ___ Adjust X Repair ___
Preventative Maintenance ___

As Found Test Date: N/A As Left Test Date 05/25/2017

Quality Control Manual Revision: September 16, 2013 MP42201 Rev. G.
All Work Performed per Customer Purchase Order Requirements.
Calibration Document No. 50.5-6100

Test Equipment Used for Calibration of Instruments

Description	Manufacturer	Model No.	Serial No.	Cal Date	Cal Due	Voltage Accuracy	Time Base Accuracy
Data Acquition	Campbell Scientific	CR1000	6569	4/06/2015	4/06/2018	+/- 3mV	< 6 ppm
NIST Cupset	Met One Instruments	170-41	3309	1/26/2017	1/26/2022	Accuracy < 0.15 mph or 1% WS	

Environmental Data: Temperature 65 to 80 Deg F Vibration none
Humidity 20 to 70% Radiation none

Firmware Version: 3194-01 R2.62

The standards used for calibration have accuracies equal to or greater than the instruments tested. These standards are on record and are traceable to NIST to the extent allowed by the institute's calibration facility. Unless otherwise stated heron, all instruments are calibrated to meet the manufacturer's published specifications. The calibration system complies with MIL-STD-45662A (8/1/88). Instrument's accuracy meets the requirements of Regulatory Guide 1.23 (2/72). Compliant with IS) 9001:2008 requirements

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2019-425A

Company: Maxxam **Operator:** C. Wesson

Calibrator:				**Flow Measurement Device:**	
Make/Model	Sabio 2010			Make/Model	N/A
Serial Number	042531101			Serial Number	N/A
Last Verification Date	March 1, 2018			Temperature (°C)	N/A
NO Cylinder S/N	LL107918			Barometric Pressure	N/A
NO [PPM]	50.1	NOx [PPM]	50.2		
Expiry Date	August 2026				

Dilution Flow (sccm)

Pt. #1 5000 Pt. #2 5000 Pt. #3 5000

Gas Flow (sccm)

Pt. #1 80 Pt. #2 40 Pt. #3 20

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4999	77.8	0.780	0.781	0.778	-0.001	0.777	0%	-1%
4998	37.9	0.380	0.381	0.376	-0.001	0.375	-1%	-1%
4999	18.9	0.189	0.190	0.189	-0.001	0.188	0%	-1%
				Absolute Average Percent Difference			0%	1%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO		**LIMITS**	**NOx**	
Correlation=	1.0000	**≥ 0.990**	Correlation=	1.0000
m (Slope)=	0.9974	**0.90-1.10**	m (Slope)=	0.9944
b (Intercept % of FS)=	-0.0636	**± 3% F.S.**	b (Intercept % of FS)=	-0.1045

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
4999	0.000	0.000	0.779	-0.001	0.778	NO_2	% Diff. Limit
4999	0.500	0.510	0.269	0.501	0.770	-2%	± 10%
4999	0.275	0.281	0.498	0.276	0.774	-1%	± 10%
4999	0.090	0.092	0.687	0.091	0.778	0%	± 10%
					Absolute Average Percent Difference	1%	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	0.9833	**0.90-1.10**
b (Intercept % of FS)=	-0.0304	**± 3% F.S.**

AENV Standards **Audit Calibrator**		**NO_X Analyzer**	
Make/Model	Sabio 2010	Make/Model	Teco 42i
Serial/AMU Number	AMU 2092	Serial/AMU Number	AMU 1868
SRM Gas Cylinder No.	APEX1236645	Last Calibration Date	February 12, 2019
Cylinder Conc. (ppm)	50.05	Full Scale (ppm)	1.0
		Cylinder Gas Expiry Date	June 2021

COMMENTS: Contains 49.5 ppm SO2.

Auditor: Al Clark Date: February 13, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2019-427A

Company: Maxxam **Operator:** C. Wesson

Calibrator:				**Flow Measurement Device:**	
Make/Model	Evironics 6100			Make/Model	N/A
Serial Number	4760			Serial Number	N/A
Last Verification Date	March 2018			Temperature (°C)	N/A
NO Cylinder S/N	LL107918			Barometric Pressure	N/A
NO [PPM]	50.1	NOx [PPM]	50.2		
Expiry Date	August 2026				

Dilution Flow (sccm)

Pt. #1 5000 Pt. #2 5000 Pt. #3 5000

Gas Flow (sccm)

Pt. #1 80 Pt. #2 40 Pt. #3 20

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4994	77.7	0.779	0.781	0.798	0.000	0.798	2%	2%
4993	37.8	0.379	0.380	0.388	-0.001	0.387	2%	2%
4993	18.9	0.190	0.190	0.193	0.000	0.193	2%	2%
					Absolute Average Percent Difference		2%	2%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO		**LIMITS**	**NOx**	
Correlation=	1.0000	**≥ 0.990**	Correlation=	1.0000
m (Slope)=	1.0242	**0.90-1.10**	m (Slope)=	1.0221
b (Intercept % of FS)=	-0.0519	**± 3% F.S.**	b (Intercept % of FS)=	-0.0726

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
4994	0.000	0.000	0.796	0.000	0.796	NO_2	% Diff. Limit
4994	0.550	0.502	0.294	0.499	0.792	-1%	± 10%
4994	0.300	0.275	0.521	0.274	0.795	0%	± 10%
4994	0.100	0.062	0.734	0.061	0.796	-2%	± 10%
				Absolute Average Percent Difference		1%	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	0.9949	**0.90-1.10**
b (Intercept % of FS)=	-0.0179	**± 3% F.S.**

AENV Standards		**NO_X Analyzer**	
Audit Calibrator		Make/Model	Teco 42i
Make/Model	Sabio 2010	Serial/AMU Number	AMU 1868
Serial/AMU Number	AMU 2092	Last Calibration Date	February 14, 2019
SRM Gas Cylinder No.	APEX1236645	Full Scale (ppm)	1.0
Cylinder Conc. (ppm)	50.05	Cylinder Gas Expiry Date	June 2021

COMMENTS: Contains 49.5 ppm SO2.

Auditor: Al Clark Date: February 14, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2019-396A

Company Maxxam **Operator:** Alex

Calibrator:				**Flow Measurement Device:**	
Make/Model	Sabio 2010			Make/Model	N/A
Serial Number	26801218			Serial Number	N/A
Last Verification Date	New			Temperature (°C)	N/A
NO Cylinder S/N	LL48147			Barometric Pressure	N/A
NO [PPM]	50.5	NOx [PPM]	50.6		
Expiry Date	August 2026				

Dilution Flow (sccm)

Pt. #1 5000 Pt. #2 5000 Pt. #3 5000

Gas Flow (sccm)

Pt. #1 80 Pt. #2 40 Pt. #3 20

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
5015	79.1	0.797	0.798	0.793	0.001	0.794	0%	-1%
5015	39.6	0.399	0.400	0.395	0.001	0.396	-1%	-1%
5017	19.8	0.199	0.200	0.197	0.000	0.197	-1%	-1%
						Absolute Average Percent Difference	1%	1%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO		**LIMITS**	**NOx**	
Correlation=	1.0000	**≥ 0.990**	Correlation=	1.0000
m (Slope)=	0.9959	**0.90-1.10**	m (Slope)=	0.9954
b (Intercept % of FS)=	-0.0968	**± 3% F.S.**	b (Intercept % of FS)=	-0.0969

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
						NO_2	% Diff. Limit
5015	0.000	0.000	0.792	0.001	0.793		
5015	0.500	0.496	0.296	0.493	0.791	-1%	± 10%
5015	0.250	0.246	0.546	0.245	0.793	-1%	± 10%
5015	0.100	0.098	0.694	0.098	0.793	-1%	± 10%
					Absolute Average Percent Difference	1%	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	0.9921	**0.90-1.10**
b (Intercept % of FS)=	0.0909	**± 3% F.S.**

AENV Standards		**NO_X Analyzer**	
Audit Calibrator		Make/Model	Teco 42i
Make/Model	Teco 146i	Serial/AMU Number	AMU 1868
Serial/AMU Number	AMU 1809	Last Calibration Date	January 14, 2019
SRM Gas Cylinder No.	APEX1236645	Full Scale (ppm)	1.0
Cylinder Conc. (ppm)	50.05	Cylinder Gas Expiry Date	June 2021

COMMENTS:

Auditor: Al Clark Date: Janaury 15, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2019-392CGA

Company: Maxxam **Operator's Name:** Alex

Cylinder #: LL107918 Concentration PPM: 49.5 Tolerance(%) 1 Certified By: Praxair

Expiry Date: August 2026

Reference Calibrator and Gas:

Make/Model: Sabio 2010
Serial Number: AMU 2092
Last Verification Date: January 14, 2019
Gas Type: SO2 Conc. 50.26
Cylinder Number: FF28071
Expiry Date: March 2020

Flow Measurement Device:

Make/Model: Mesa Definer 220
Serial Number: H-133034 / L-132702
Temp.°C: 22.7 C
B.P. 707 mmHg

Reference Analyzer:

Make/Model: Teco 43i Serial/AMU Number: 2195
Instrument Settings: Zero: 11.8 Span: 0.980 Range: 1.0
Last Calibration: Date: Jan 14/19 C.F. 1.000 Done By: Shea Beaton

Calibrator Flows (sccm)		Indicated	Gas Flow/	Concentration	Cylinder
Dilution	Gas	Concentration (PPM)	Dilution Flow	Factor	Concentration
5000	0.0	0.000			
4898	78.1	0.790	0.01595	62.714	49.5
4893	38.7	0.389	0.00791	126.434	49.2
4894	19.3	0.192	0.00394	253.575	48.7
				Average Cylinder Concentration:	**49.1**

Previous Stated Concentration PPM: 49.5

Percent variance from Stated: **1**

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: January 15, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2017-135CGA

Company: Maxxam **Operator's Name:** Raja Abid Ashraf

Cylinder #: LL119420 Concentration PPM: 10.2 Tolerance(%) 2 Certified By: Praxair

Expiry Date: May 16, 2020

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: July 27, 2017
Gas Type: H2S Conc. 20.43
Cylinder Number: CAL015272
Expiry Date: Janaury 2019

Flow Measurement Device:

Make/Model: Mesa Definer 220
Serial Number: H-133034 L-132702
Temp.°C: 22.0 C
B.P. 700 mmhg

Reference Analyzer:

Make/Model: Teco 450i Serial/AMU Number: 1980
Instrument Settings: Zero: 21.9 Span: 1.069 Range: 0.1
Last Calibration: Date: July 27, 2017 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0020			
5117	38.9	0.0781	0.00760	131.542	10.0
5103	18.4	0.0379	0.00361	277.337	10.5
5097	9.4	0.0198	0.00184	542.234	10.7
				Average Cylinder Concentration:	**10.4**

Previous Stated Concentration PPM: 10.2

Percent variance from Stated: **2**

Meets Manufacturer Tolerance. Use manufacturers stated concentration [ ] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [X]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: July 27, 2017

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2017-493CGA

Company: Maxxam **Operator's Name:** Mike

Cylinder #: EY0001003 Concentration PPM: 9.55 Tolerance(%) 2 Certified By: Praxair

Expiry Date: October 2020

Reference Calibrator and Gas:

Make/Model: Sabio 2010
Serial Number: AMU 2092
Last Verification Date: January 17, 2018
Gas Type: H2S Conc. 20.43
Cylinder Number: CAL015272
Expiry Date: January 2019

Flow Measurement Device:

Make/Model: Mesa Defender 530
Serial Number: H-153961 / L-153874
Temp.°C: 23.0 C
B.P. 697 mmHg

Reference Analyzer:

Make/Model: Teco 450i Serial/AMU Number: 1980

Instrument Settings: Zero: 12.9 Span: 0.955 Range: 0.1

Last Calibration: Date: Jan 17/18 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated	Gas Flow/	Concentration	Cylinder
Dilution	Gas	Concentration (PPM)	Dilution Flow	Factor	Concentration
5000	0.0	0.0000			
5051	39.6	0.0753	0.00784	127.551	9.60
5028	20.2	0.0387	0.00402	248.911	9.63
5033	10.5	0.0198	0.00209	479.333	9.49
				Average Cylinder Concentration:	**9.58**

Previous Stated Concentration PPM: 9.55

Percent variance from Stated: 0

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:** Used AEP regulator

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: January 18, 2018

Operator Signature: Al Clark Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

CH4 / C3H8 Cylinder Gas

File No. 2019-393CGA

Company: Maxxam **Operators name:** Alex

Cylinder #: LL29687 Conc CH4 (PPM) 598/198 Tolerance (%) 1 Certified By: Praxair

Expiry Date: August 2026

Reference Calibrator and Gas:

Make/Model	Sabio 2010		
Serial Number	AMU 2092		
Last Verification Date	January 14, 2019		
Gas Type	CH4	Conc.	990.4
Cylinder Number	05604875	Expiry Date	July 2021
Gas Type	C3H8	Conc.	246.5
Cylinder Number	XF003845B	Expiry Date	July 2022

Flow Measurement Device:

Make/Model	Mesa Definer 220
Serial Number	H-133034 / L-132702
Temp.°C	23.8 C
B.P.	707 mmHg

Reference Analyzer:

Make/Model: Teco 55i Serial/AMU Number: 2221

Instrument Settings Zero: N/A Span: N/A Range: 20.0

Last Calibration: Date: Jan 14/19 C.F. 1.000 Done By: Shea Beaton

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/	Concentration	Cylinder Concentration	
Dilution	Gas	CH4	C3H8	Dilution Flow	Factor	CH4	C3H8
5000	0.0	0.00	0.00				
3990	77.5	11.71	11.18	0.02	51.48	603	209
3976	39.1	5.87	5.71	0.01	101.69	597	211
3986	20.0	2.96	2.86	0.01	199.30	590	207
					Average Cylinder Concentration:	**597**	**209**

	CH4	C3H8
Previous Stated Concentration PPM:	598	198
Percent variance from Stated:	**0**	**6**

Cylinder gas tolerances based on CH4 only

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: January 15, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

NO Cylinder Gas

File No. 2019-391CGA

Company: Maxxam **Operators name:** Alex

Cylinder #: LL107918 Conc (PPM) 50.1/50.2 Tolerance (%) 1 Certified By: Praxair

Expiry Date: August 2026

Reference Calibrator and Gas:

Make/Model	Teco 146i
Serial Number	AMU 1809
Last Verification Date	January 14, 2019
Gas Type	NO Conc. 50.05
Cylinder Number	APEX1236645
Expiry Date	June 2021

Flow Measurement Device:

Make/Model	Mesa Definer 220
Serial Number	H-133034 / L-132702
Temp.°C	22.7 C
B.P.	707 mmHg

Reference Analyzer:

Make/Model: Teco 42i Serial/AMU Number: 2268

Instrument Settings Zero: 9.2 Span: 1.223 Range: 1.0

Last Calibration: Date: Jan 14/19 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/	Concentration	Cylinder Concentration	
Dilution	Gas	NO	NOX	Dilution Flow	Factor	NO	NOX
5000	0.0	0.000	0.000				
4898	78.1	0.792	0.793	0.016	62.714	49.7	49.7
4893	38.7	0.395	0.395	0.008	126.434	49.9	49.9
4894	19.3	0.195	0.195	0.004	253.575	49.4	49.4
					Average Cylinder Concentration:	**49.7**	**49.7**

	NO	NOx
Previous Stated Concentration PPM:	50.1	50.2
Percent variance from Stated:	**1**	**1**

Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: Janaury 15, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

NO Cylinder Gas

File No. 2017-487CGA

Company: Maxxam **Operators name:** Mike

Cylinder #: LL108015 Conc (PPM) 52.2/52.3 Tolerance (%) 2 Certified By: Praxair

Expiry Date: October 2020

Reference Calibrator and Gas:

Make/Model	Teco 146i		
Serial Number	AMU 1809		
Last Verification Date	December 13, 2017		
Gas Type	NO	Conc.	50.03
Cylinder Number	APEX 1223938		
Expiry Date	June 2020		

Flow Measurement Device:

Make/Model	Mesa Definer 220
Serial Number	H-133034 / L-132702
Temp.°C	23.4 C
B.P.	707 mmHg

Reference Analyzer:

Make/Model	Teco 42i			Serial/AMU Number:	1868
Instrument Settings	Zero: 4.7		Span: 1.004	Range:	1.0
Last Calibration:	Date: Dec12/17		C.F. 1.000	Done By:	Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/	Concentration	Cylinder Concentration	
Dilution	Gas	NO	NOX	Dilution Flow	Factor	NO	NOX
5000	0.0	0.000	0.000				
4989	79.5	0.833	0.831	0.016	62.755	52.3	52.1
4995	39.6	0.417	0.417	0.008	126.136	52.6	52.6
4992	19.6	0.209	0.209	0.004	254.694	53.2	53.2
					Average Cylinder Concentration:	**52.7**	**52.7**

	NO	NOx
Previous Stated Concentration PPM:	52.2	52.3
Percent variance from Stated:	1	1

Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: December 13, 2017

Operator Signature: Location: McIntyre Center Edmonton

Lakeland Industry & Community Association
5107 50 St
Bonnyville, AB T9N2J7

Lakeland Industry & Community Association

MARCH 2019

Ambient Air Monitoring Calibration Report

- BONNYVILLE EAST STATION-

CAL-LICA-201903-01608

Station Operation and Maintenance:
Maxxam Analytics

Data Validation and Report:
Maxxam Analytics

May 2, 2019

Lakeland Industry & Community Association
5107 50 St
Bonnyville, AB T9N2J7

Alberta Environment and Parks (AEP)
Air.Reporting@gov.ab.ca

May 2, 2019

Subject:

March 2019 Ambient Air Monitoring Calibration Report Submission for the LICA Bonnyville East station

Lakeland Industry & Community Association (LICA) is pleased to submit the ambient air monitoring calibration report for the LICA Bonnyville East AQM Station in the month of March 2019. This calibration report includes equipment calibration records, calibrator performance audit records and calibration gas audit records for the equipment that were used this month. This calibration report is prepared by the LICA network contractor.

Should you have any questions, please don't hesitate to contact us.

Respectfully,

Michael Bisaga
Technical Program Manager
Lakeland Industry & Community Association
780-266-7068
monitoring@lica.ca

Lily Lin
Data & Reporting Specialist
587-225-2248
monitoring@lica.ca

March 1 - 31, 2019
MONTHLY CALIBRATION REPORT
Project #: 2833-2019-03-39-C
LICA-201903

Prepared for:

Lakeland Industry & Community Association

Mike Bisaga

5107 50 St.

Bonnyville, Alberta T9N 2J7

monitoring@lica.ca

780-266-7068

Monitoring Station

Bonnyville East Continuous Monitoring Station

Date of Report Issuance: April 23, 2019

Maxxam
A Bureau Veritas Group Company

#1 - 2080 39 Avenue NE, Calgary AB, T2E 6P7

Thermo 43I-TLE Sulphur Dioxide Analyzer Calibration

Date:	March 05, 2019	**Barometer/B.P./units:**	F.S. #05544 expires Jan 17, 2020	950	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. #170286131 expires Apr 19, 2019	22	°C
Location/Station Name:	Bonnyville East	**Weather Conditions:**	Mainly sunny		
Parameter:	Sulphur Dioxide	**Calibration Purpose:**	routine monthly		
Start Time 24 hr. (mst):	12:21	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
End Time 24 hr. (mst):	17:15	**Cal Gas Expiry Date:**	August 20, 2026		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	n/a		

Analyzer:

Serial Number/Owner:	1180320043	LICA	**Range ppb:**	1000
Last Calibration Date:	February 6, 2019		**As Found C.F.:**	1.015
Previous C.F.:	1.000		**New C.F.:**	0.999

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Sabio id# 42531101(0911) expires February 13, 2020
Cal Gas Cylinder I.D. # :	LL 107918
Cal Gas Conc. (ppm):	49.5

Standard Calibration Points for Ranges

Point	ppb
High	780
Mid	380
Low	190

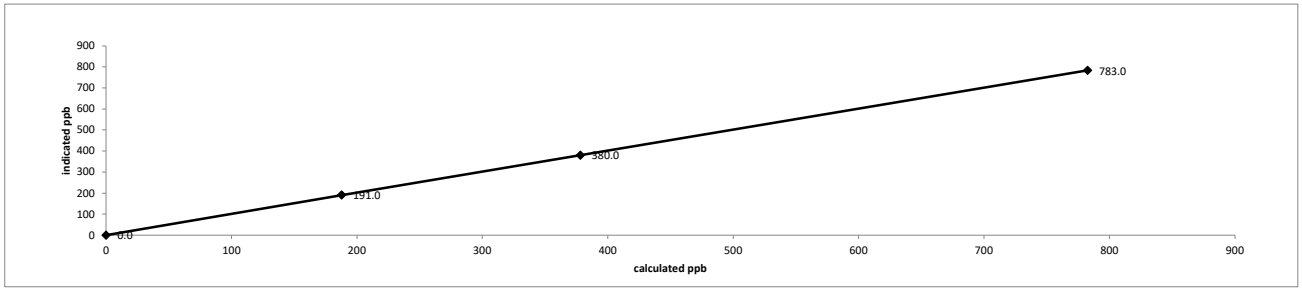
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**			
as found zero	4998	0.00	4998	0.0	0	n/a
as found high	4843	77.80	4921	782.6	771	1.015
adjusted zero	4998	0.00	4998	0.0	0	n/a
adjusted high	4843	77.80	4921	782.6	783	0.999
mid	4923	37.90	4961	378.2	380	0.995
low	4961	18.90	4980	187.9	191	0.984
calibrator zero	4998	0.00	4998	0.0	0	n/a
					Average C.F.=	0.993

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**1.001**	**0.95-1.05**
b (Intercept as % of full scale)=	**-0.16%**	**± 3% F.S.**
% change in C.F. from last cal=	**-1.50%**	**± 10%**

Thermo 43I-TLE Sulphur Dioxide Analyzer Calibration



	As found:		**As left:**
Bkg:	4.85	Bkg:	4.92
Coef:	0.968	Coef:	0.980
Pmt:	-677.1	Pmt:	-676.4
Flash:	1117	Flash:	1117
Internal:	33.1	Internal:	32.8
Chamber:	45.0	Chamber:	44.9
Perm Oven Gas:	45.00	Perm Oven Gas:	45.00
Perm Oven Heater:	44.25	Perm Oven Heater:	44.25
Pressure:	688.7	Pressure:	688.0
Sample Flow:	0.463	Sample Flow:	0.462
Lamp Intensity:	90	Lamp Intensity:	90
Converter:	n/a	Converter:	n/a
Converter Set:	n/a	Converter Set:	n/a
Averaging Time:	120	Averaging Time:	120
Expected Value:	576.0	Expected Value:	591.0

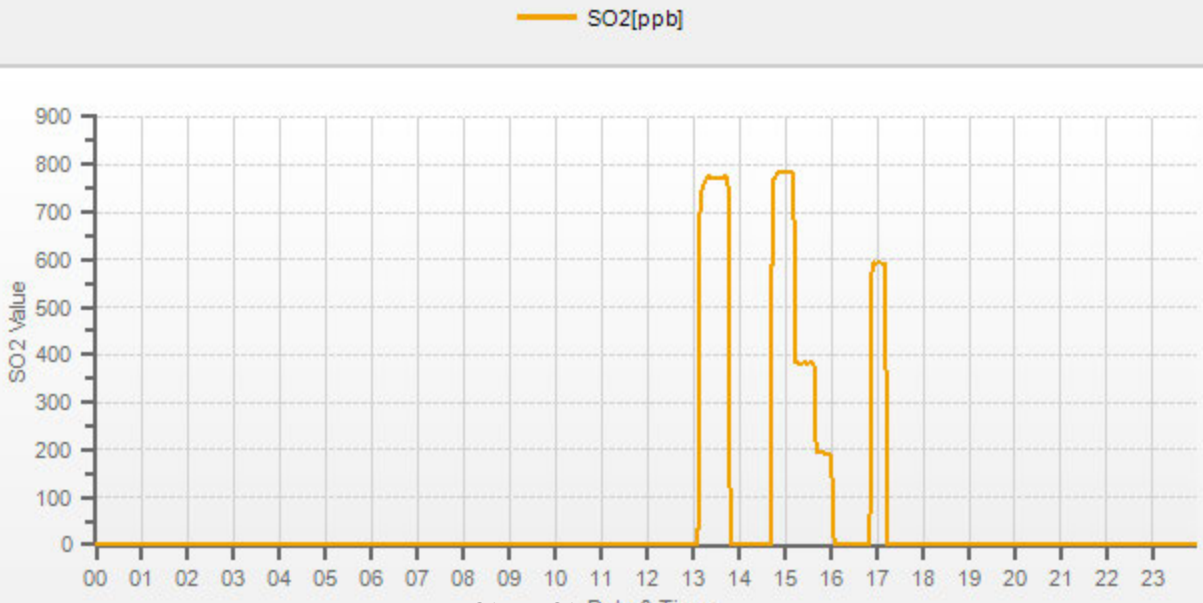
Comments:

The analyzer sample inlet filter was changed.

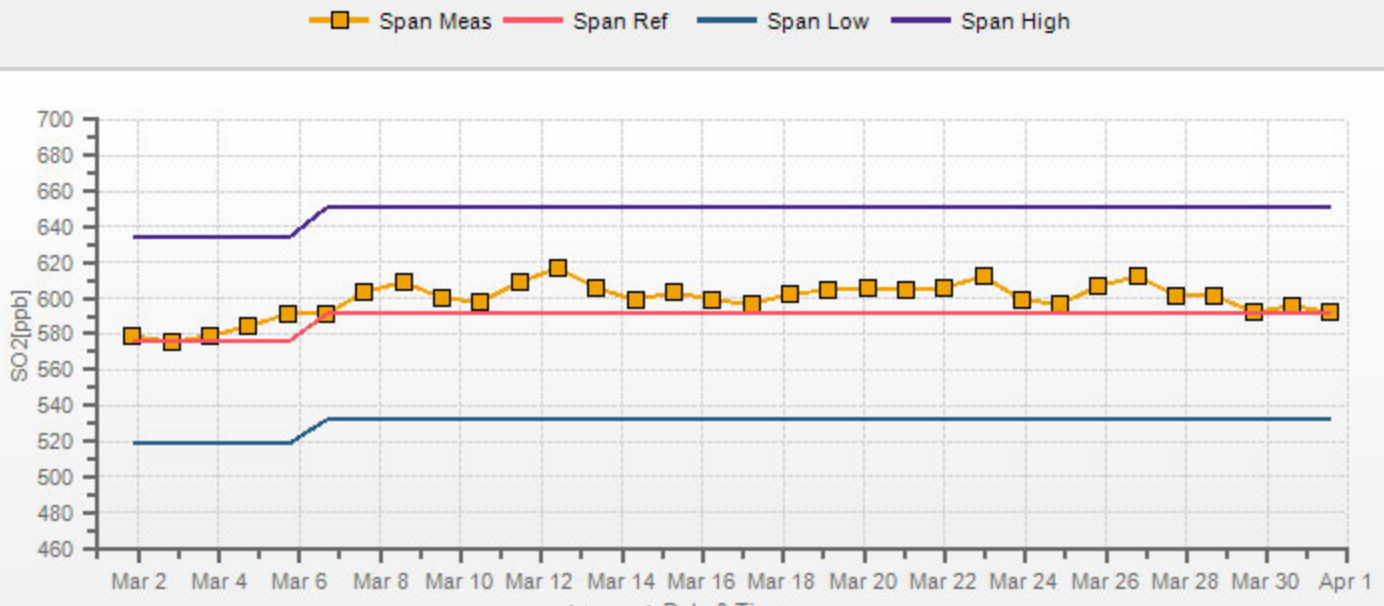
The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

SO2[ppb] Station: LICA Bonnyville East Daily: 19/03/05 Type: AVG 1 Min. [1 Min.]



SO2[ppb] Calibration: LICA Bonnyville East Monthly: 19/03 Type: Span



Thermo 450i Hydrogen Sulphide Analyzer Calibration

Date:	March 5, 2019	**Barometer/B.P./units:**	F.S. #05544 expires Jan 17, 2020	950	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. #170286131 expires Apr 19, 2019	22	°C
Location/Station Name:	Bonnyville East	**Weather Conditions:**	Mainly sunny		
Parameter:	Hydrogen Sulphide	**Calibration Purpose:**	routine monthly		
Start Time 24 hr. (mst):	12:21	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
End Time 24 hr. (mst):	17:28	**Cal Gas Expiry Date:**	October 20, 2020		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	n/a		

Analyzer:

Serial Number/Owner:	CM 17360002 LICA	**Range ppb:**	100
Last Calibration Date:	February 19, 2019	**As Found C.F.:**	1.009
Previous C.F.:	0.999	**New C.F.:**	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Sabio id# 26801218 expires January 15, 2020
Cal Gas Cylinder I.D. # :	EY 0001003
Cal Gas Conc. (ppm):	9.55

Standard Calibration Points for Ranges

Point	ppb
High	78
Mid	38
Low	19

SO2 Scrubber Check (10 minutes):

Start/End Time 24 hr.:	12:42
SO2 Analyzer Range:	1000
Target Concentration (ppb):	780
As Found Zero:	0.8
Analyzer Response: (ppb):	0.8
Zero Corrected Result (ppb):	0.0

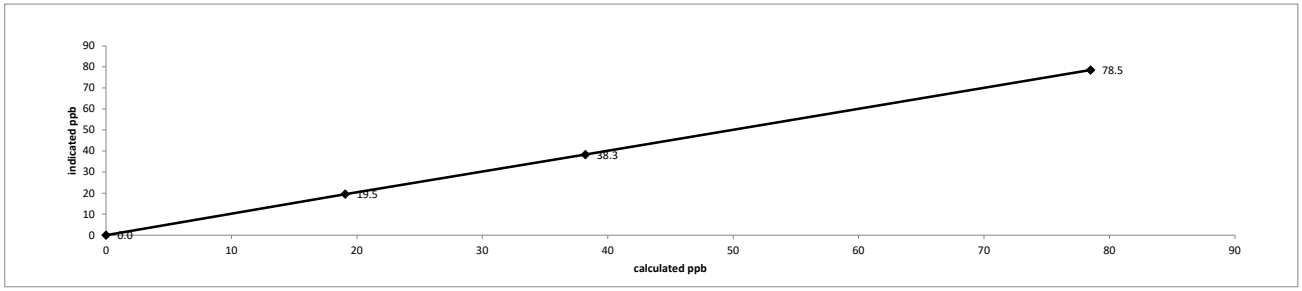
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**			
as found zero	5016	0.00	5016	0.0	0.8	n/a
as found high	4935	40.90	4976	78.5	78.6	1.009
adjusted zero	5016	0.00	5016	0.0	0	n/a
adjusted high	4935	40.90	4976	78.5	78.5	1.000
mid	4978	20.00	4998	38.2	38.3	0.998
low	4997	10.00	5007	19.1	19.5	0.978
calibrator zero	5016	0.00	5016	0.0	0	n/a
					Average C.F.=	0.992

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**1.002**	**0.95-1.05**
b (Intercept as % of full scale)=	**-0.19%**	**± 3% F.S.**
% change in C.F. from last cal=	**-1.00%**	**± 10%**

Thermo 450i Hydrogen Sulphide Analyzer Calibration



	As found:		**As left:**
Bkg:	18.6	Bkg:	19.5
Coef:	1.183	Coef:	1.199
Pmt:	-639.7	Pmt:	-639.0
Flash:	777	Flash:	779
Internal:	32.4	Internal:	33.2
Chamber:	44.9	Chamber:	45.1
Converter Temp:	327.0	Converter Temp:	323.3
Converter Set:	325.0	Converter Set:	325.0
Perm Oven Gas:	45.00	Perm Oven Gas:	45.00
Perm Oven Htr:	43.91	Perm Oven Htr:	43.92
Pressure:	565.6	Pressure:	567.7
Sample Flow:	0.955	Sample Flow:	0.961
Lamp Intensity:	89	Lamp Intensity:	91
Averaging Time:	120	Averaging Time:	120
Expected Value:	43.8	Expected Value:	45.6

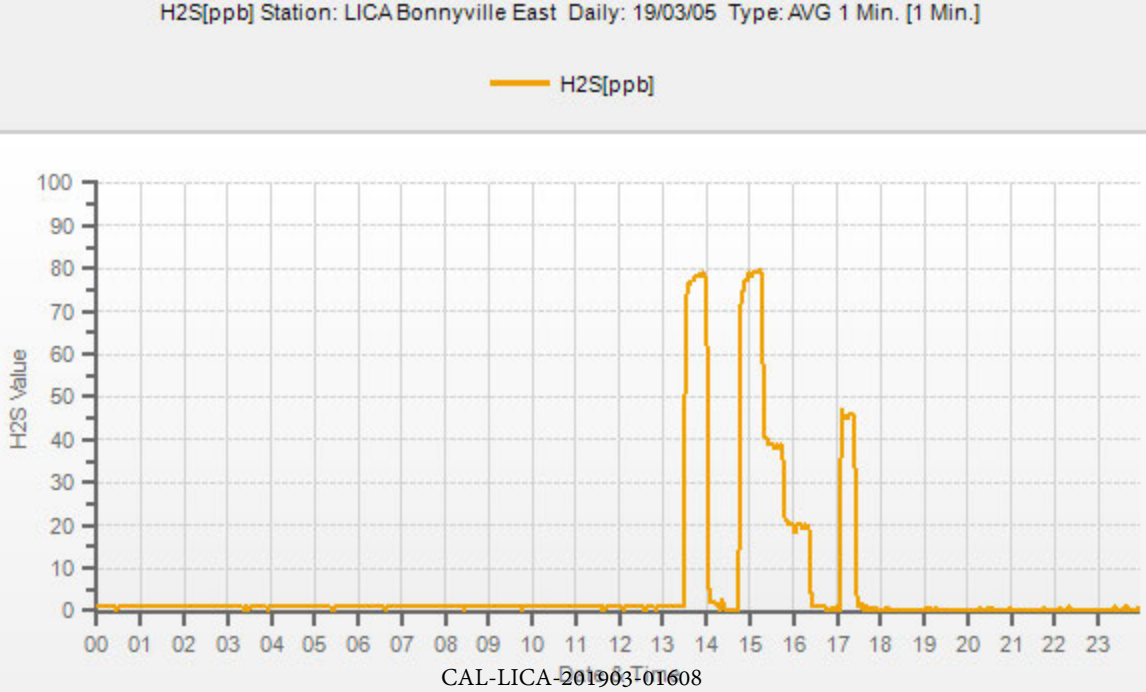
Comments:

The analyzer sample inlet filter was changed.

The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

At 16:00 - scheduled ZS check interfered with the calibration. Low point was re-started.


H2S[ppb] Station: LICA Bonnyville East Daily: 19/03/05 Type: AVG 1 Min. [1 Min.]
H2S[ppb]
H2S Value
100
90
80
70
60
50
40
30
20
10
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Date & Time

Thermo 450i Hydrogen Sulphide Analyzer Calibration

Date:	March 12, 2019	**Barometer/B.P./units:**	F.S. #05544, expires Jan 17, 2019	931	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. #170286131, expires Apr 19, 2019	22	°C
Location/Station Name:	Bonnyville - East	**Weather Conditions:**	Mainly sunny		
Parameter:	Hydrogen Sulphide	**Calibration Purpose:**	as found		
Start Time 24 hr. (mst):	16:55	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
End Time 24 hr. (mst):	18:05	**Cal Gas Expiry Date:**	October 20, 2020		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	n/a		

Analyzer:

Serial Number/Owner:	CM 17360002	LICA	**Range ppb:**	100
Last Calibration Date:	March 5, 2019		**As Found C.F.:**	0.965
Previous C.F.:	1.000		**New C.F.:**	n/a

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Sabio id# 26801218 expires January 15, 2020
Cal Gas Cylinder I.D. # :	EY 0001003
Cal Gas Conc. (ppm):	9.55

Standard Calibration Points for Ranges

Point	ppb
High	78
Mid	38
Low	19

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**	**Concentration (ppb):**		
as found zero	5016	0.00	5016	0.0	0.7	n/a
as found high	4935	40.90	4976	78.5	82.06	0.965
					Average C.F.=	n/a

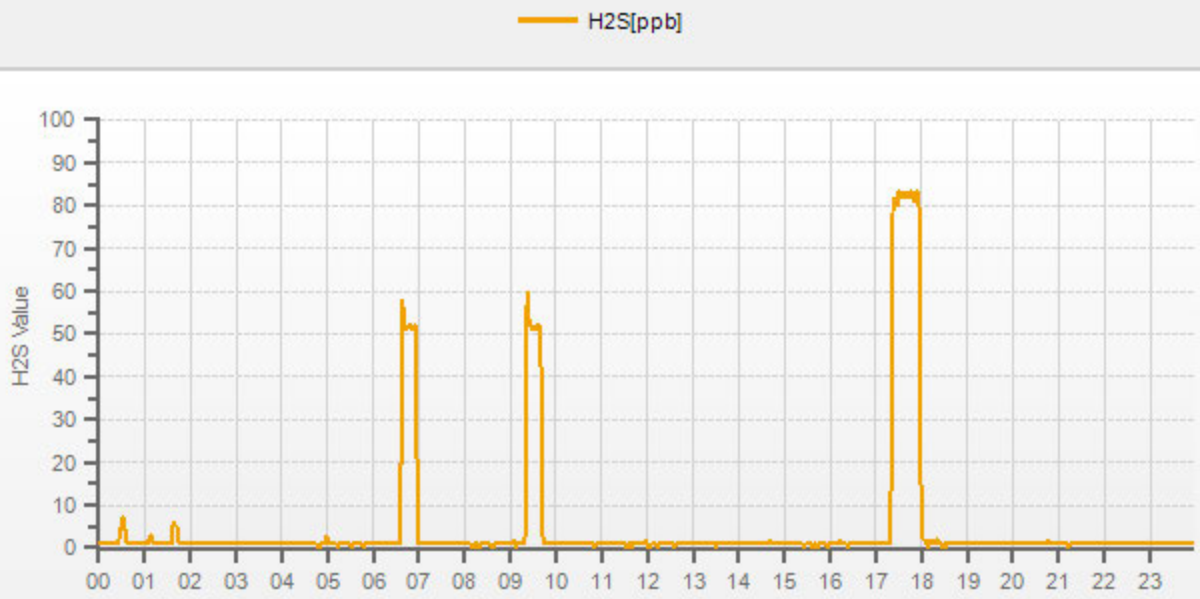
Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**n/a**	**n/a**
Slope =	**n/a**	**n/a**
b (Intercept as % of full scale)=	**n/a**	**n/a**
% change in C.F. from last cal=	**3.52%**	**n/a**

As found:		**As left:**	
Bkg:	20.0	Bkg:	20.0
Coef:	1.199	Coef:	1.199
Pmt:	-639.4	Pmt:	-639.4
Flash:	778	Flash:	778
Internal:	32.6	Internal:	32.5
Chamber:	45.2	Chamber:	45.1
Converter Temp:	326.8	Converter Temp:	325.1
Converter Set:	325.0	Converter Set:	325.0
Perm Oven Gas:	45.00	Perm Oven Gas:	45.00
Perm Oven Htr:	43.90	Perm Oven Htr:	43.91
Pressure:	551.7	Pressure:	551.7
Sample Flow:	0.938	Sample Flow:	0.938
Lamp Intensity:	91	Lamp Intensity:	90
Averaging Time:	120	Averaging Time:	120
Expected Value:	45.6	Expected Value:	45.6

Comments:

As Found calibration was completed because SPAN check failed with the result of over 11%.


H2S[ppb] Station: LICA Bonnyville East Daily: 19/03/12 Type: AVG 1 Min. [1 Min.]
H2S[ppb]
H2S Value
100
90
80
70
60
50
40
30
20
10
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23

Thermo 450i Hydrogen Sulphide Analyzer Calibration

Date:	March 25, 2019	**Barometer/B.P./units:**	F.S. #05544, expires Jan 17, 2020	946	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. #170286131, expires Apr 19, 2019	22	°C
Location/Station Name:	Bonnyville - East	**Weather Conditions:**	Mainly sunny		
Parameter:	Hydrogen Sulphide	**Calibration Purpose:**	repeat		
Start Time 24 hr. (mst):	14:55	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
End Time 24 hr. (mst):	18:51	**Cal Gas Expiry Date:**	October 20, 2020		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	n/a		

Analyzer:

Serial Number/Owner:	CM 17360002	LICA	**Range ppb:**	100
Last Calibration Date:	March 5, 2019		**As Found C.F.:**	0.935
Previous C.F.:	0.999		**New C.F.:**	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Sabio id# 26801218 expires January 15, 2020
Cal Gas Cylinder I.D. # :	EY 0001003
Cal Gas Conc. (ppm):	9.55

Standard Calibration Points for Ranges

Point	ppb
High	78
Mid	38
Low	19

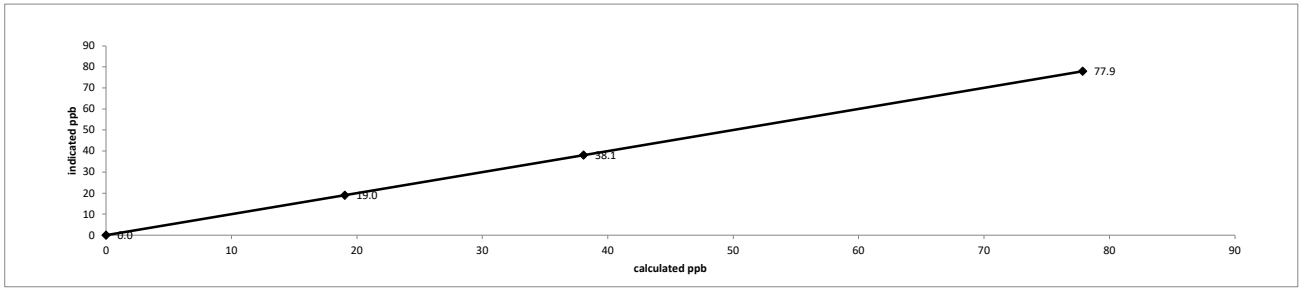
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**			
as found zero	5017	0.00	5017	0.0	2.1	n/a
as found high	4975	40.90	5016	77.9	85.4	0.935
adjusted zero	5016	0.00	5016	0.0	0	n/a
adjusted high	4975	40.90	5016	77.9	77.9	1.000
mid	4997	20.00	5017	38.1	38.1	0.999
low	5007	10.00	5017	19.0	19	1.002
calibrator zero	5017	0.00	5017	0.0	0	n/a
					Average C.F.=	1.000

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**0.999**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.01%**	**± 3% F.S.**
% change in C.F. from last cal=	**6.43%**	**± 10%**

Thermo 450i Hydrogen Sulphide Analyzer Calibration

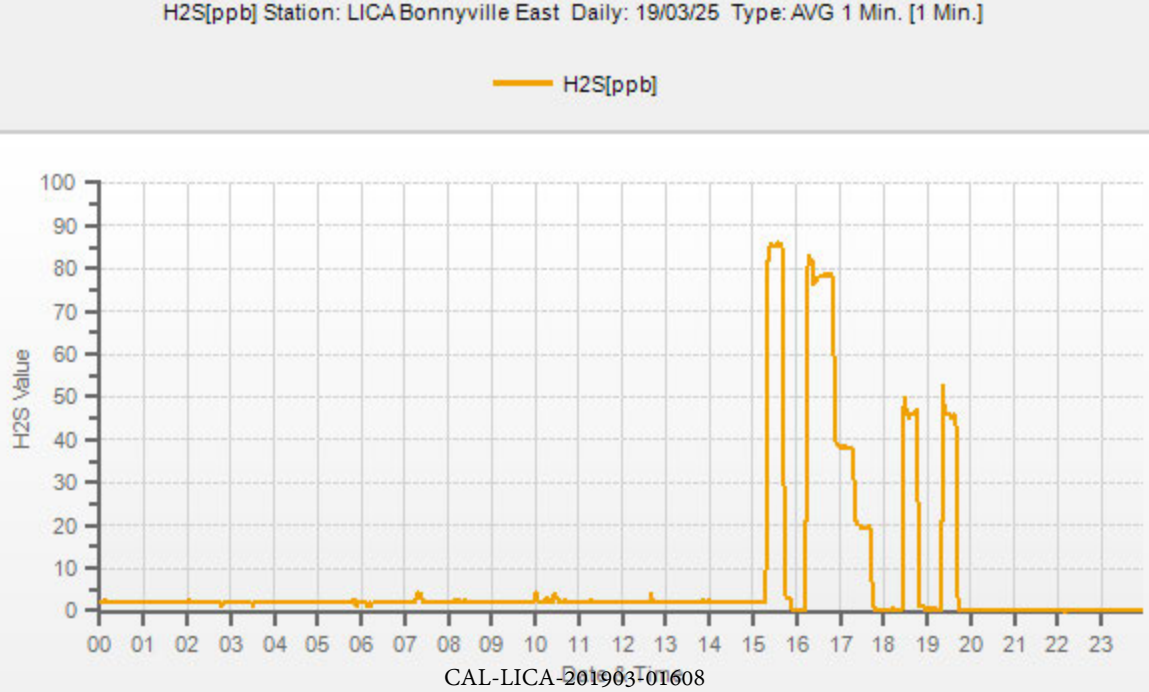


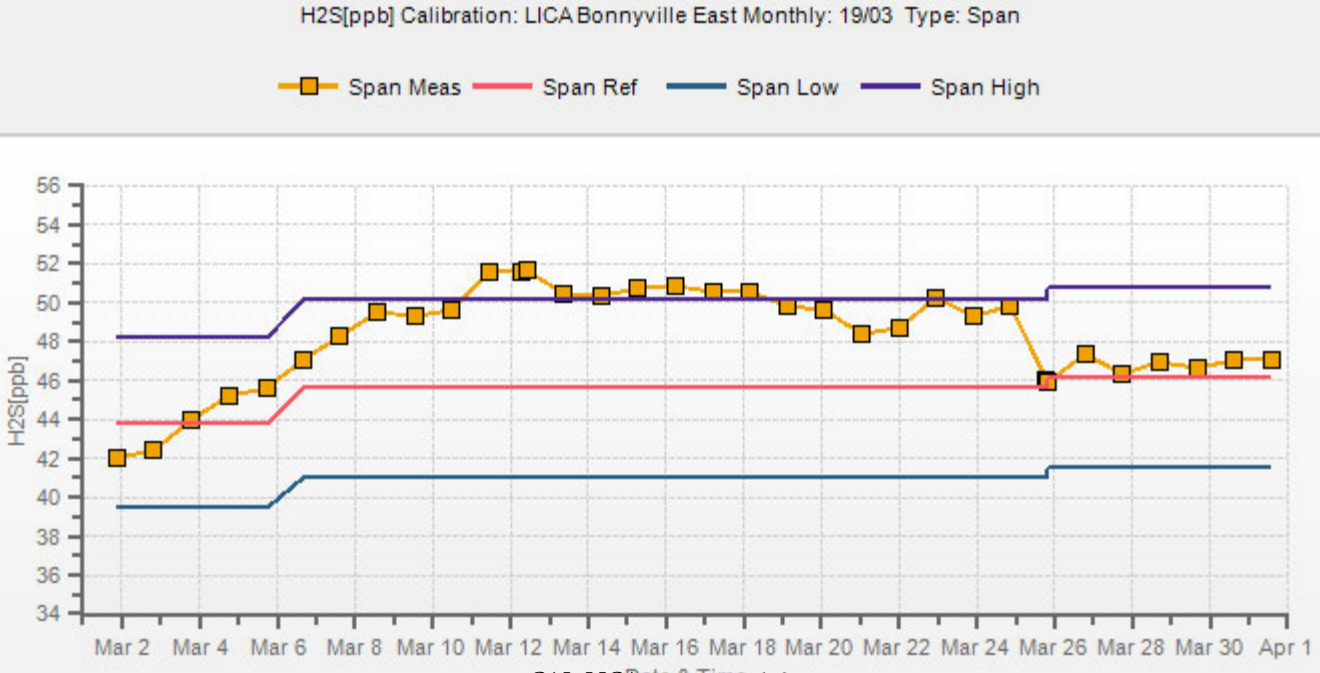
	As found:		**As left:**
Bkg:	19.7	Bkg:	20.5
Coef:	1.199	Coef:	1.128
Pmt:	-639.0	Pmt:	-638.3
Flash:	773	Flash:	775
Internal:	33.0	Internal:	33.5
Chamber:	45.1	Chamber:	44.9
Converter Temp:	327.3	Converter Temp:	326.5
Converter Set:	325.0	Converter Set:	325.0
Perm Oven Gas:	45.00	Perm Oven Gas:	45.00
Perm Oven Htr:	43.92	Perm Oven Htr:	43.92
Pressure:	562.2	Pressure:	560.7
Sample Flow:	0.953	Sample Flow:	0.950
Lamp Intensity:	91	Lamp Intensity:	91
Averaging Time:	120	Averaging Time:	120
Expected Value:	45.6	Expected Value:	46.1

Comments:

The manifold blower was found to be working normally.

A repeat calibration is required to correct Span and Zero drifts. SO2 scrubber was tested during a monthly calibration on March 5, 2019.


H2S[ppb] Station: LICA Bonnyville East Daily: 19/03/25 Type: AVG 1 Min. [1 Min.]
H2S[ppb]
H2S Value
100
90
80
70
60
50
40
30
20
10
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Date & Time


H2S[ppb] Calibration: LICA Bonnyville East Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
H2S[ppb]
56
54
52
50
48
46
44
42
40
38
36
34
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1
Date & Time

Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	March 6, 2019	**Barometer/B.P./units:**	F.S. #05544 expires Jan 17, 2020	952	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. #170286131 expires Apr 19, 2019	22	°C
Location/Station Name:	Bonnyville East	**Weather Conditions:**	Mainly sunny		
Parameter:	CH4 / NMHC / THC	**Calibration Purpose:**	routine monthly		
Start/End Time 24 hr. (mst):	11:44 / 15:36	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
Calibration Method:	Gas Dilution	**Cal Gas Expiry Date:**	August 1, 2026		

Analyzer:

Serial Number/Owner:	1180320044	LICA
Measured Flow:	1.147	
Last Calibration Date:	February 23, 2019	
Range ppm:	20 CH4/20 NMHC/40 THC	

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
CH_4 =	1.000	1.001	1.000
NMHC =	1.000	1.027	1.000
THC =	1.000	1.013	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A		
High Flow Meter ID/Expiry Date:	N/A		
Calibrator ID/Expiry Date:	Sabio id# 26801218 expires January 15, 2020		
Cal Gas Cylinder I.D. # :	LL 29687		
CH4 Cylinder Conc.=	598.0	198.0	**=C_3H_8 Cylinder Conc.**
CH_4 expressed as C_3H_8=	544.5	1142.5	**=total CH4 equivalent**

Standard Calibration Points for Analyzer Range of 20/20/40 ppm

Point	CH4	NMHC	THC
High	13.00	13.00	26.00
Mid	7.00	7.00	14.00
Low	3.00	3.00	6.00

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated CH_4 (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH_4 (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	Correction Factors:		
Point	**Diluent**	**Cal Gas**	**Total Flow**							**CH_4**	**NMHC**	**THC**
as found zero	3011	0.00	3011	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
as found high	2866	73.50	2939	14.96	13.62	28.57	14.94	13.26	28.20	1.001	1.027	1.013
adjusted zero	3011	0.00	3011	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2866	73.50	2939	14.96	13.62	28.57	14.96	13.62	28.58	1.000	1.000	1.000
mid	2939	36.80	2976	7.39	6.73	14.13	7.49	6.76	14.26	0.987	0.996	0.991
low	2975	18.40	2993	3.68	3.35	7.02	3.75	3.35	7.10	0.980	0.999	0.989
calibrator zero	3011	0.00	3011	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
									Average C.F.=	0.989	0.998	0.993

Linear Regression/Calibration Results:

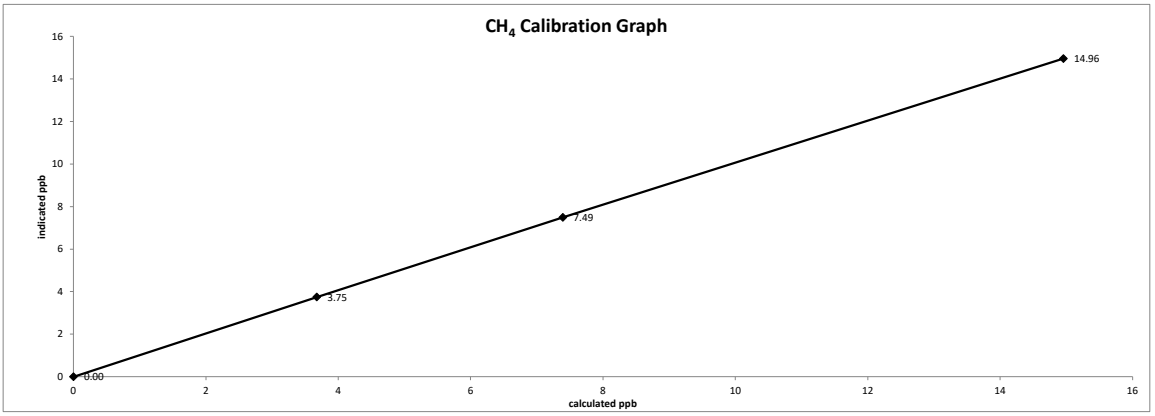
	CH_4	NMHC	THC	LIMITS
Correlation Coefficient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**0.999**	**1.000**	**1.000**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.24%**	**0.03%**	**0.14%**	**± 3% F.S.**
% change in C.F. from last cal=	**-0.10%**	**-2.69%**	**-1.32%**	**± 10%**

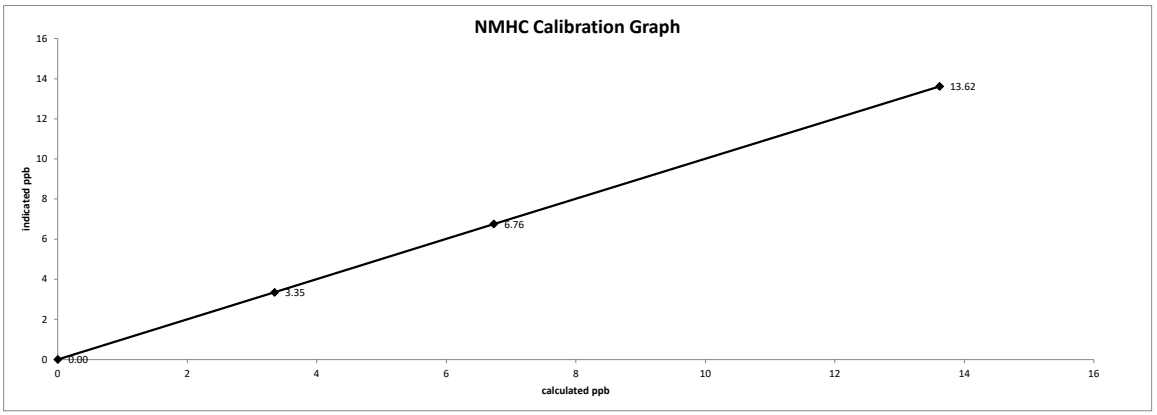
As Left Instrument Diagnostics:

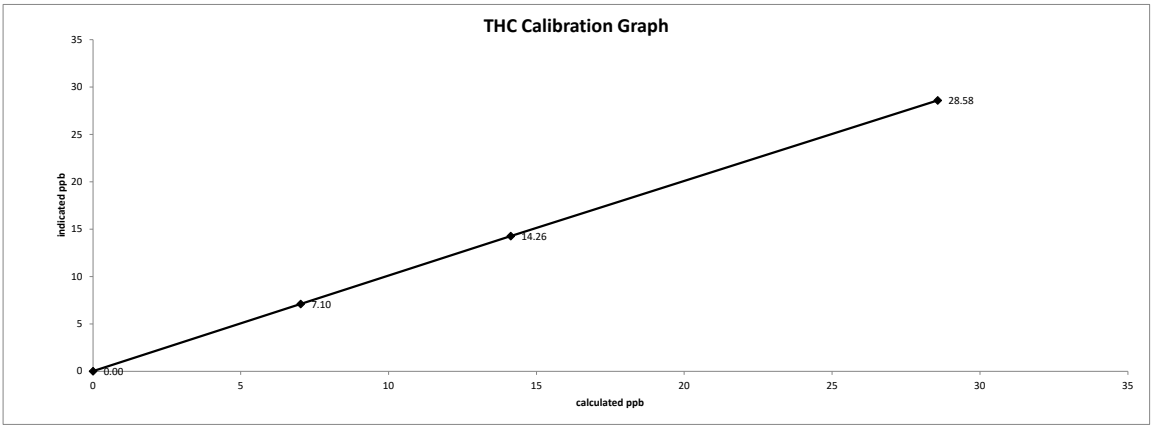
Interface Board Voltages:	Bias Supply:	-296.9		Calibration History cnt'd:	NM Peak Area:	88796
Temperatures:	Detector Oven:	175.1		Crucial Settings:	Methane Start:	n/a
	Filter:	175.0			Methane End:	n/a
	Column Oven:	75.3			Backflush:	n/a
	Internal:	34.0			NMHV Start:	n/a
Cylinder Pressures/reg.:	Carrier:	1500	50		NMHC End:	n/a
	Fuel:	700	50	Run History>1:	Date:	Mar 06, 2019
	Span Gas:	1800	22		Time:	11:56
	Zero Air Generator:	50			CH_4 PK HT:	0
Internal Pressures:	Carrier:	29.4			CH_4 RT:	12.4
	Fuel:	44.2			CH_4 Baseline:	2580
	Air:	30.2			CH_4 LOD:	33
FID Status:	Status:	LIT			CH_4 SD:	12
	Counts:	30002			CH_4 CONC:	0.00
	Flame:	340.4			NM PK HT:	0
	Det Base:	175.0			NM Peak Area:	0
Flame and Power Stats:	Last Power On:	Feb 23, 2019			NM CONC:	0.00
	Flameouts:	1			NM Base Start:	2635
	Det Oven at Start:	17.3			NM Base End:	2596
	Col Oven at Start:	20.1			NM LOD:	7
Calibration History:	Time:	Feb 23, 2019 / 16:11			NM Start IDX:	62
	Type:	SPAN			NM End IDX:	65
	Status:	GOOD			NM Max Slope:	3.5e-01
	Check/Adjust:	ADJUST			NM Min Slope:	-1.4e+00
	CH_4 Span Conc:	13.64			NM PT Count:	0
	CH_4 SP Ratio:	0.000787		Expected Values:	Previous CH4:	10.14
	CH_4 RT:	13.2			Previous NMHC	10.86
	CH_4 PK IDX:	26			Previous THC:	21.00
	CH_4 PK HT:	17327			New CH4:	10.12
	NM Span Conc:	12.42			New NMHC	11.12
	NM SP Ratio:	0.00014			New THC:	21.24

Comments:

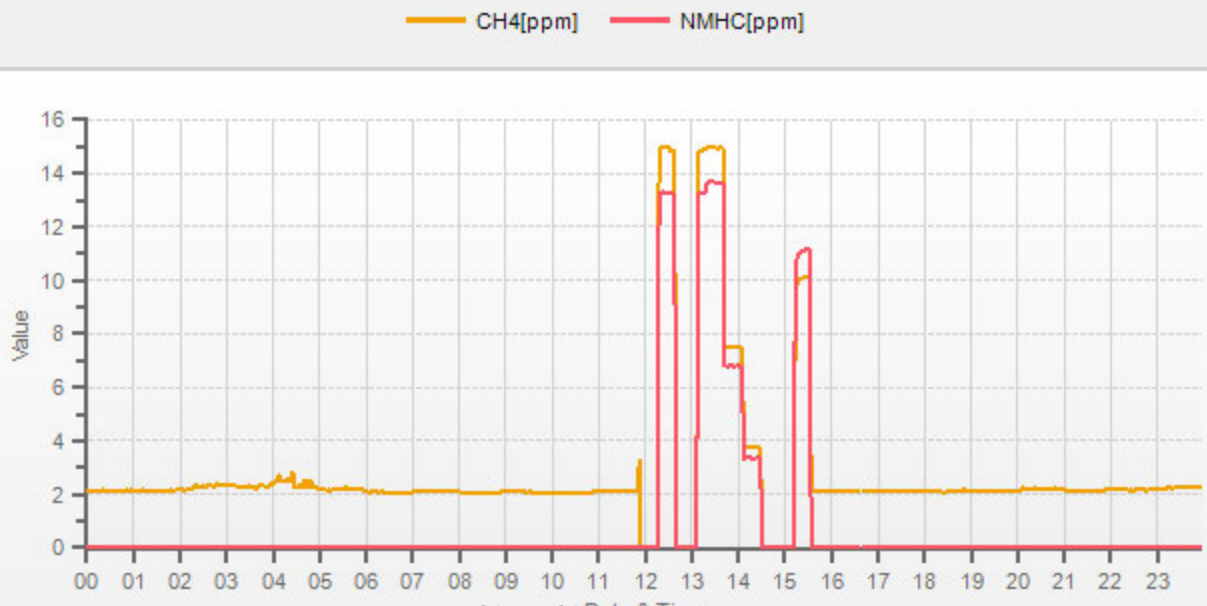
Date:	March 6, 2019	Start/End Time 24 hr. (mst):	11:44 / 15:36
Company/Airshed:	LICA	Calibration Purpose:	routine monthly
Location/Station Name:	Bonnyville East	Calibration Method:	Gas Dilution

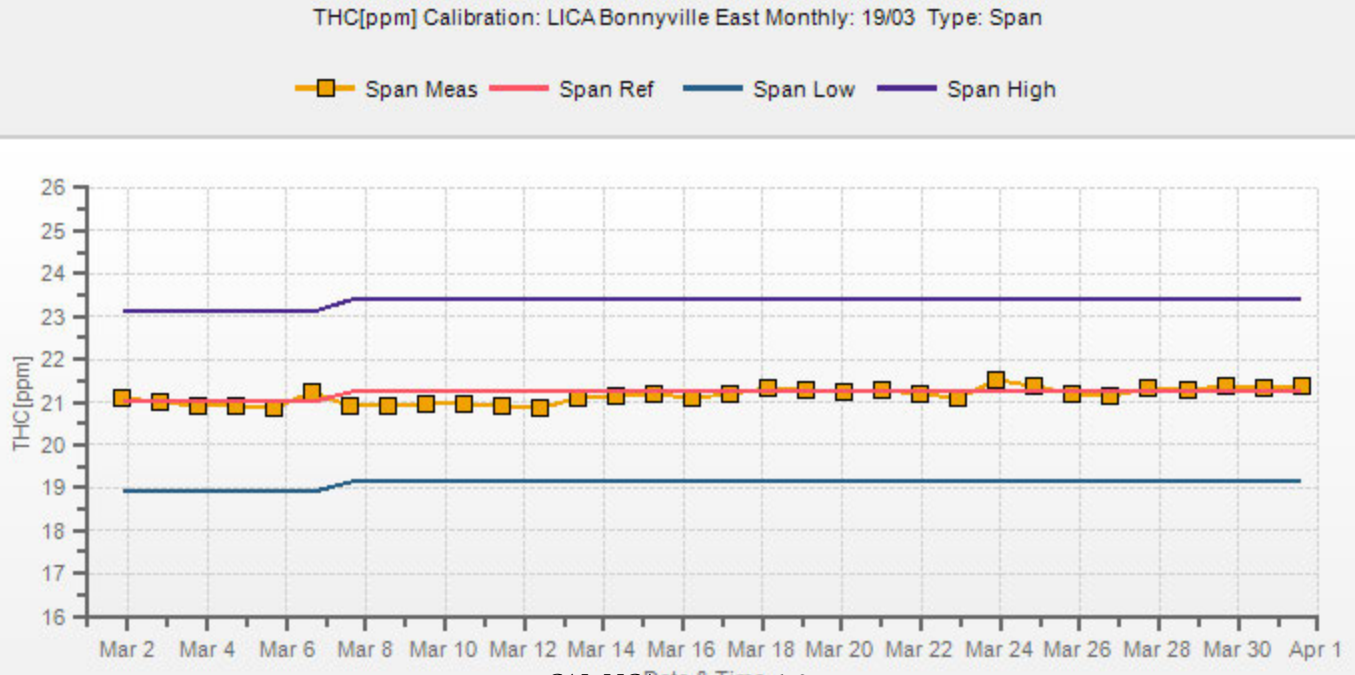


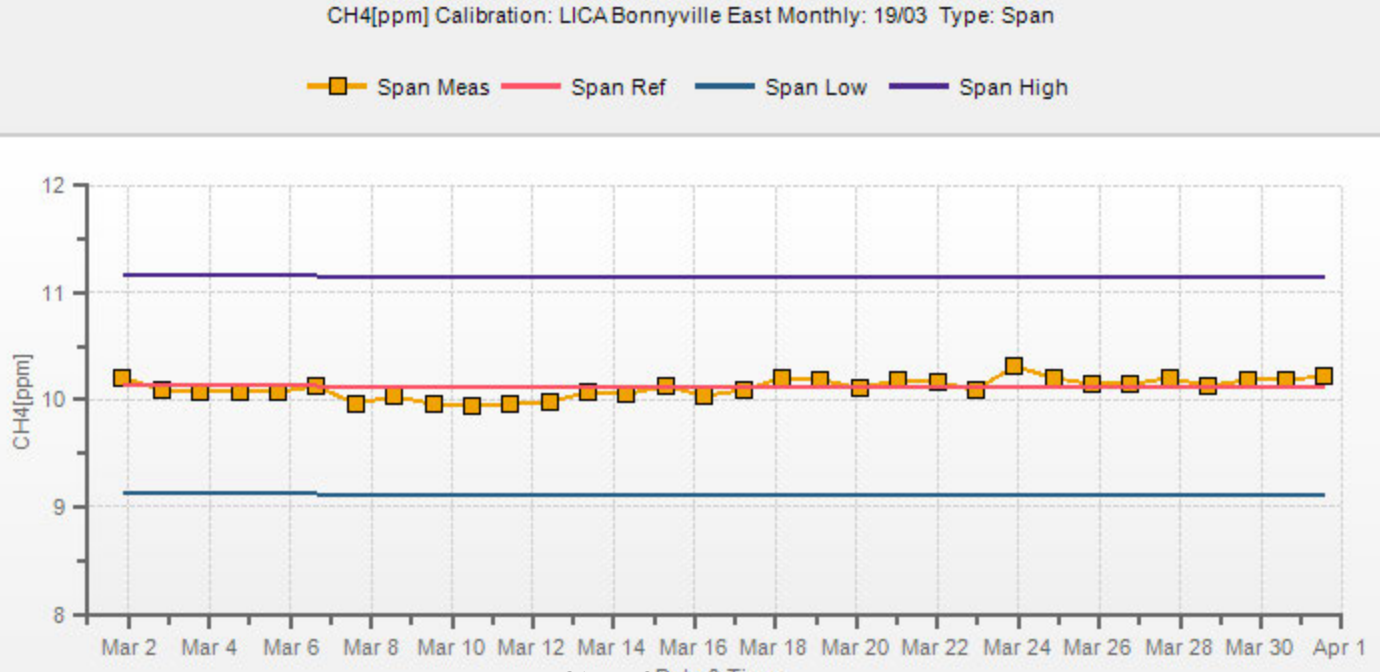


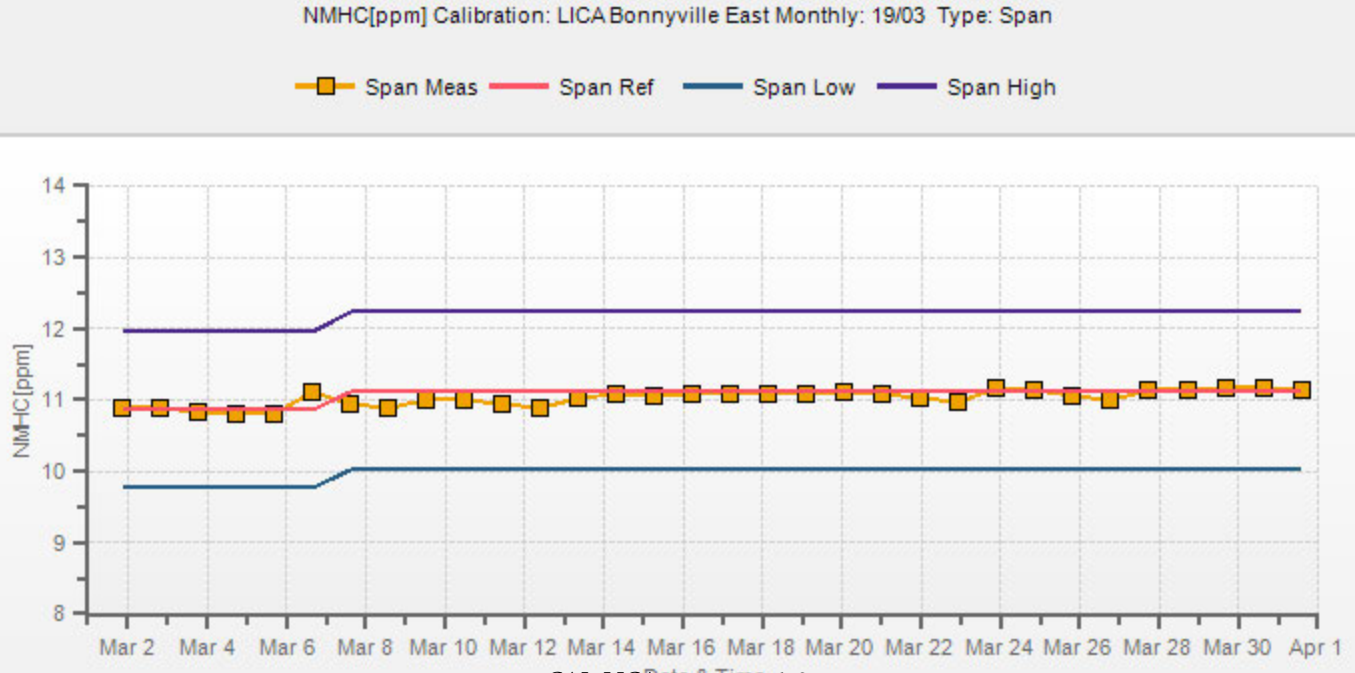


Station: LICA Bonnyville East Daily: 19/03/06 Type: AVG 1 Min. [1 Min.]




THC[ppm] Calibration: LICA Bonnyville East Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
THC[ppm]
26
25
24
23
22
21
20
19
18
17
16
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1
Date/Time


CH4[ppm] Calibration: LICA Bonnyville East Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
CH4[ppm]
12
11
10
9
8
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1
Date & Time


NMHC[ppm] Calibration: LICA Bonnyville East Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
NMHC[ppm]
14
13
12
11
10
9
8
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1
Date/Time

Thermo 42i NO-NO2-NOx Analyzer Calibration

Date:	March 5, 2020		**Barometer/B.P./units:**	F.S. #05544 expires Jan 17, 2020	950	millibars
Company/Airshed:	LICA		**Thermometer/Station Temp:**	F.S. #170286131 expires Apr 19, 2019	22	°C
Location/Station Name:	Bonnyville East		**Weather Conditions:**	Mainly sunny		
Start/End Time 24 hr. (mst):	12:20 / 20:45		**Calibration Purpose:**	routine monthly		
G.P.T. to be used for Ozone?	Yes with 1000 ppb NOx full scale		**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
Calibration Method:	Gas Dilution & Gas Phase Titration		**Cal Gas Expiry Date:**	August 20, 2026		

Analyzer:

Serial Number/Owner:	1180930027	LICA
Last Calibration Date:	February 6, 2019	
Range ppb:	1000	

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
NO =	1.000	1.017	1.000
NO_2 =	1.000	0.994	1.000
NOx =	1.000	1.019	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A	
High Flow Meter ID/Expiry Date:	N/A	
Calibrator ID/Expiry Date:	Sabio id# 42531101(0911) expires February 13, 2020	
Cal Gas Cylinder I.D. # :	LL 107918	
Cal Gas Conc. (ppm):	50.1	50.2

Standard Calibration Points for a Range of: 1000 ppb

Point	Target NO (ppb)	Target NO_2 (ppb)	Cc Ozone ?
High	**610**	**375**	**<--high ozone**
Mid	**380**	**190**	**<--mid ozone**
Low	**190**	**70**	**<--low ozone**
Extra Point #1	**n/a**	**n/a**	**n/a**
Extra Point #2	**n/a**	**n/a**	**n/a**

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	**Diluent**	**Cal Gas**	**Total Flow**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**		
as found zero	4998	0.0	4998	0	0	0.0	0.0	n/a	n/a
as found high	4843	77.8	4921	792.1	793.7	779.0	779.0	1.017	1.019
adjusted zero	4998	0.00	4998	0.0	0.0	0.0	0.0	n/a	n/a
adjusted high	4843	77.80	4921	792.1	793.7	792.0	794.0	1.000	1.000
mid	4923	37.90	4961	382.7	383.5	385.0	386.0	0.994	0.994
low	4961	18.90	4980	190.1	190.5	195.0	195.0	0.975	0.977
calibrator zero	4998	0.00	4998	0	0	0.0	0.0	n/a	n/a
							Average C.F.=	0.990	0.990

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO_2	NO drop	NO_2 gain	NO_2 C.F.
Point	**Diluent**	**Cal Gas**	**Total Flow**	**volts or ppb**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**	**(ppb)**
NOx reference	4843	77.80	4921	0.0	792.0	794.0	2.0	0.0	2.0	
as found high NO2	4843	77.80	4921	500.0	258.0	797.0	539.0	534.0	537.0	0.994
adjusted high NO2	4843	77.80	4921	500.0	256.0	794.0	538.0	536.0	536.0	1.000
gpt mid	4843	77.80	4921	275.0	495.0	794.0	299.0	297.0	297.0	1.000
gpt low	4843	77.80	4921	90.0	697.0	795.0	98.0	95.0	96.0	0.990
									Average NO_2 C.F.=	0.997

Linear Regression/Calibration Results:

	NO	NOx	NO_2	LIMITS
Correlation Coefficient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**1.002**	**1.001**	**1.004**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.24%**	**0.22%**	**0.16%**	**± 3% F.S.**
% change in C.F. from last cal=	**-1.68%**	**-1.88%**	**0.56%**	**± 10%**
NO2 converter efficiency			**1.00**	**0.96 to 1.04**

As found:		As left:	
NO Bkg:	6.7	NO Bkg:	7.1
NOx Bkg:	6.9	NOx Bkg:	7.2
NO Coef:	0.843	NO Coef:	0.857
NO2 Coef:	0.995	NO2 Coef:	0.999
NOx Coef:	0.999	NOx Coef:	1.001
PMT:	-906.1	PMT:	-906.1
Internal:	29.6	Internal:	30.1
Chamber:	50.0	Chamber:	50.2
Cooler:	-3.1	Cooler:	-2.7
NO2 Converter:	325.8	NO2 Converter:	325.0
NO2 Converter Set:	325.0	NO2 Converter Set:	325.0
Perm Oven Gas:	45.00	Perm Oven Gas:	45.01
Perm Oven Heater:	44.23	Perm Oven Heater:	44.24
Pressure:	205.8	Pressure:	206.1
Flow:	0.711	Flow:	0.711
Ozonator Flow:	OK	Ozonator Flow:	OK
Expected Value NO:	3	Expected Value NO:	3
Expected Value NO2:	353	Expected Value NO2:	360
Expected Value NOx:	356	Expected Value NOx:	363

Comments:

The analyzer sample inlet filter was changed.

The manifold blower was found to be working normally.

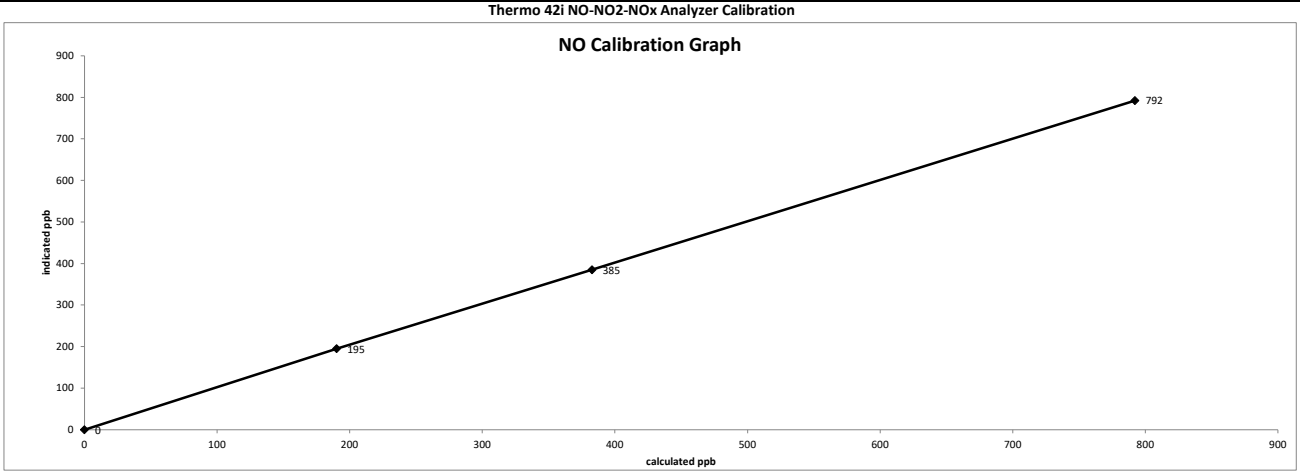
The converter cooling fan filter was cleaned.

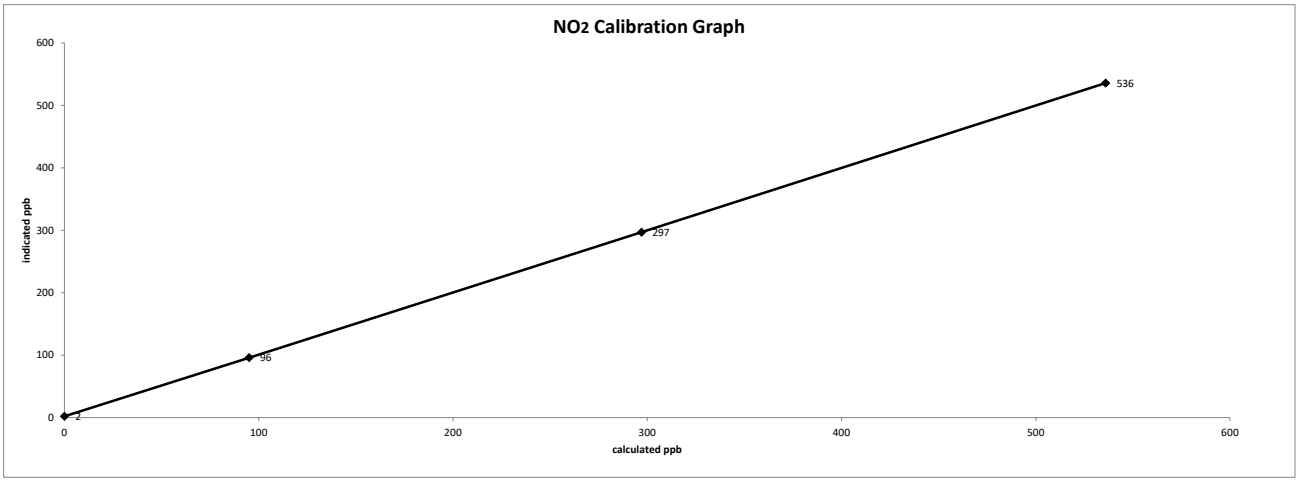
The analyzer cooling fan filter(s) were cleaned.

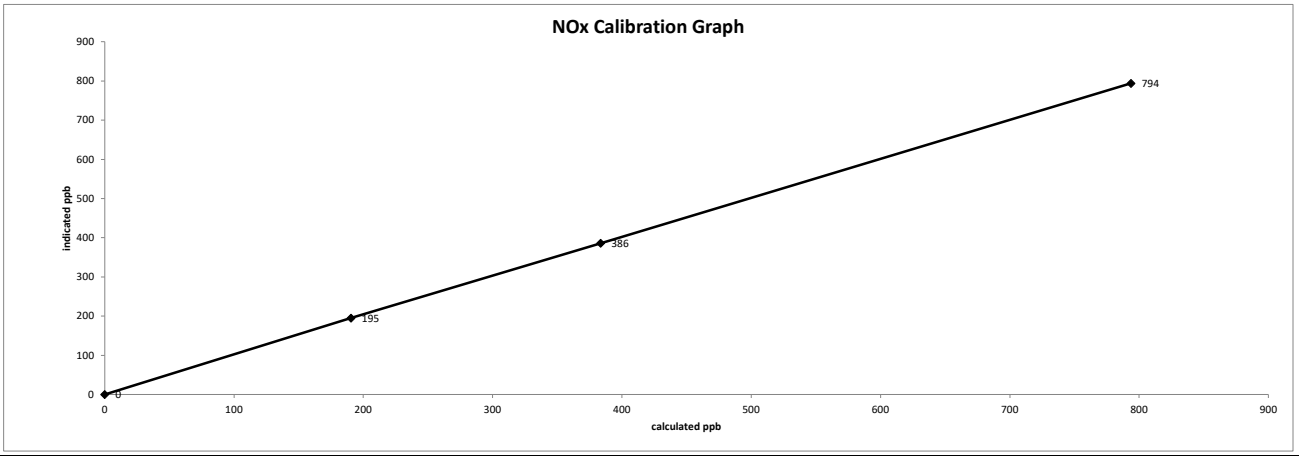
Additional GPT is for O3 (calibrator setting/NO drop): High=350/376, Mid=170/181 , Low=60/64 .

Date:	**March 5, 2020**	**Start/End Time 24 hr. (mst):**	**12:20 / 20:45**
Company/Airshed:	**LICA**	**Calibration Purpose:**	**routine monthly**
Location/Station Name:	**Bonnyville East**	**Calibration Method:**	**Gas Dilution & Gas Phase Titration**

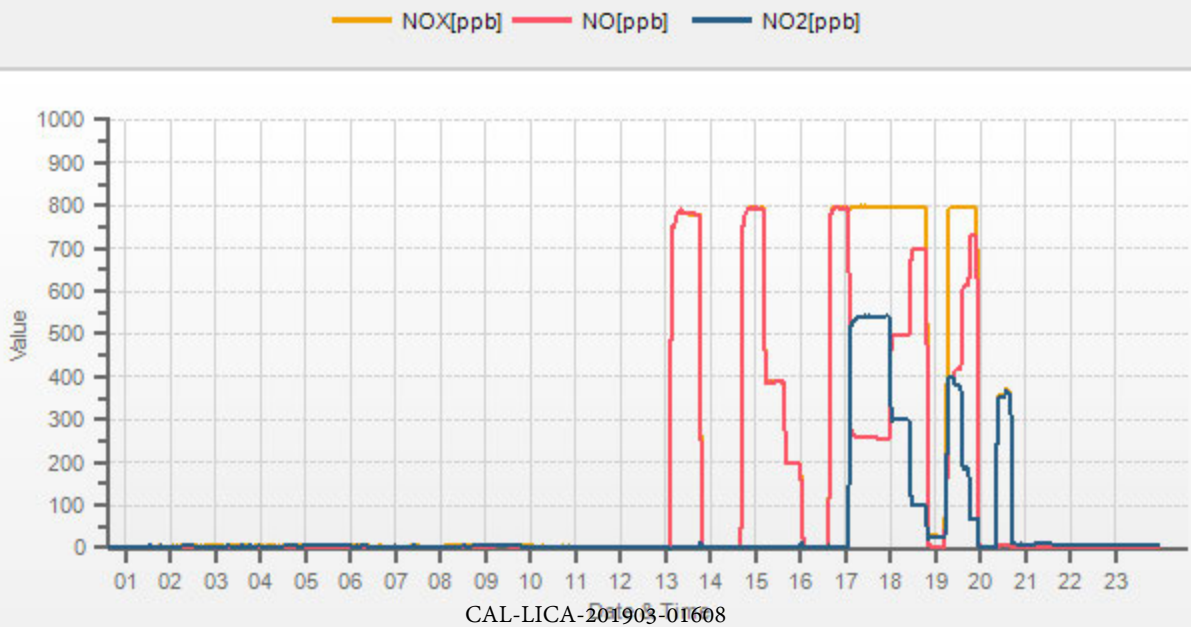
Thermo 42i NO-NO2-NOx Analyzer Calibration

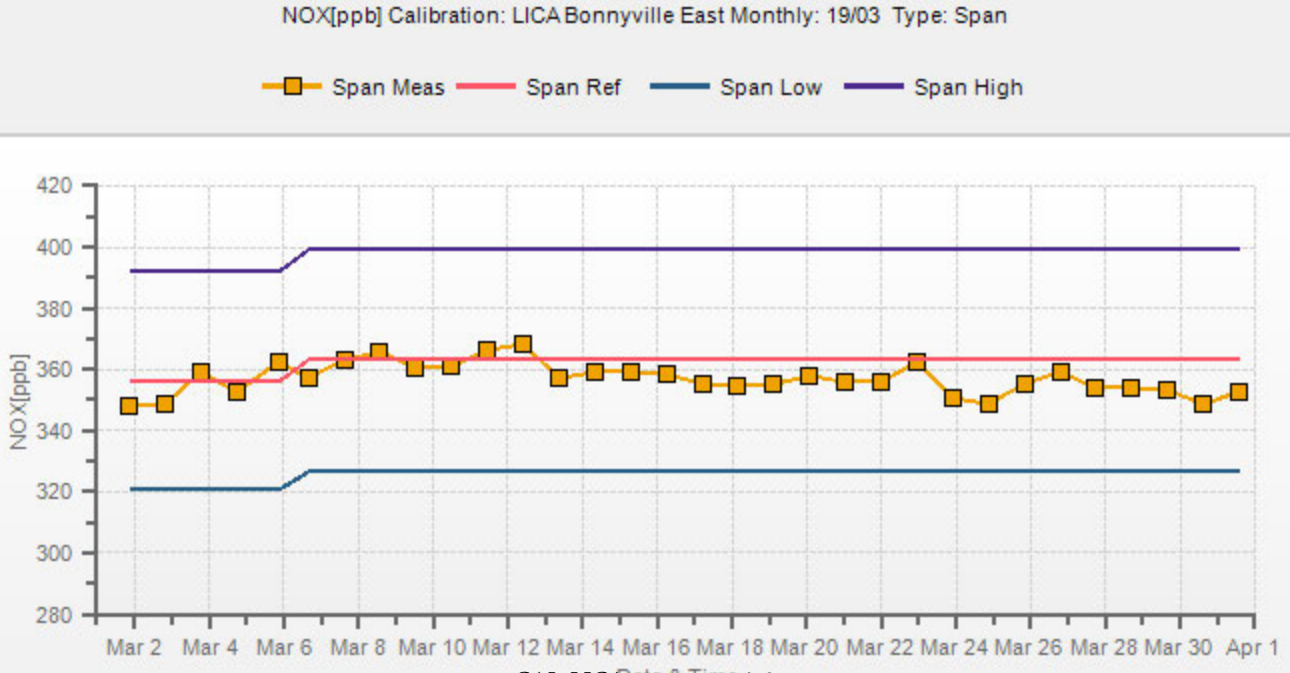


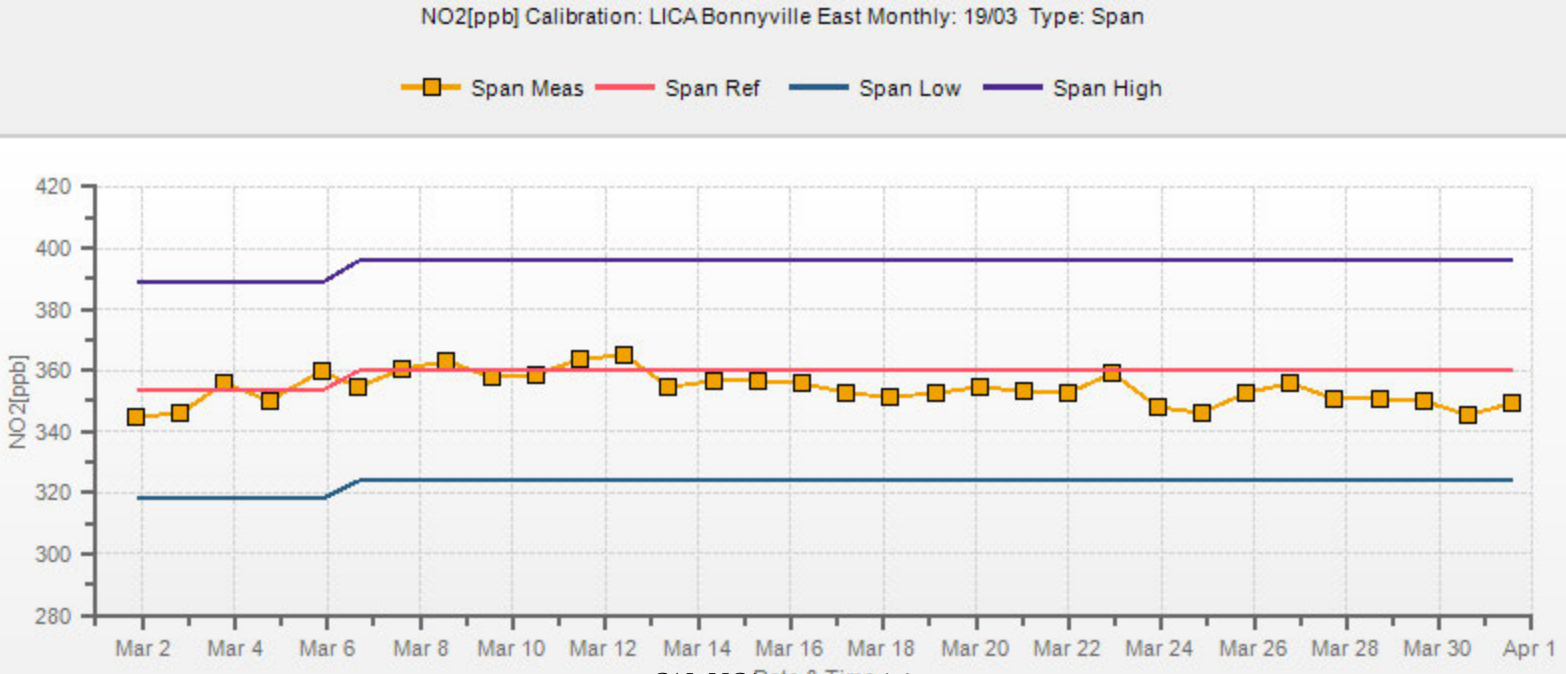




Station: LICA Bonnyville East Daily: 19/03/05 Type: AVG 1 Min. [1 Min.]




NOX[ppb] Calibration: LICA Bonnyville East Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
NOX[ppb]
420
400
380
360
340
320
300
280
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1


NO2[ppb] Calibration: LICA Bonnyville East Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
NO2[ppb]
420
400
380
360
340
320
300
280
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1

Thermo 49i Ozone Analyzer Calibration

Date:	March 6, 2019	**Barometer/B.P./units:**	F.S. #05544 expires Jan 17, 2020	952	millibars
Company/Airshed:	LICA	**Thermometer/Station Temp:**	F.S. #170286131 expires Apr 19, 2019	22	°C
Location/Station Name:	Bonnyville East	**Weather Conditions:**	Mainly sunny		
Start/End Time 24 hr. (mst):	11:44 / 15:44	**Calibration Purpose:**	routine monthly		
Ozone Calibration Method:	Direct G.P.T.	**Performed By/Reviewer:**	Alex Yakupov	Rob Fisher	
G.P.T. Date:	March 5, 2019	**Cal Gas Expiry Date:**	August 20, 2026		
Analyzer:					
Serial Number/Owner:	1002240372 LICA	**Ozone Range ppb:**	500		
Last Calibration Date:	February 5, 2019	**As Found C.F.:**	1.008		
Previous Cal High Point C.F.:	1.000	**New C.F.:**	1.000		

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Sabio id# 42531101(0911) expires February 13, 2020
Cal Gas Cylinder I.D. # :	LL 107918

Point	AMD Required Range of Ozone Calibration Points
High	300-400 ppb
Mid	150-200 ppb
Low	50-100 ppb

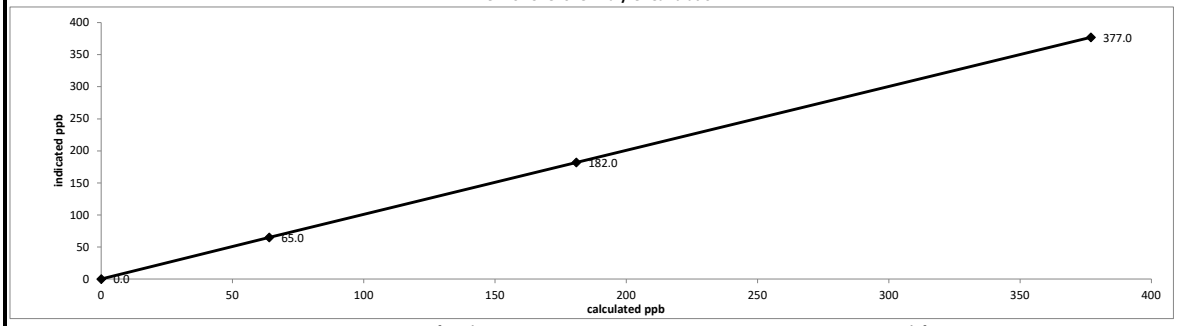
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

	Calibrator Flow Rate (cc/min)		Calculated Concentration:	Corrected Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	**Total Flow @ Point Start**	**Total Flow @ Point Finish**	**(ppb)**	**(ppb)**	**(ppb)**	
as found zero	5000	5000	0.0	n/a	0.0	n/a
as found high	5000	5000	377.0	377.0	374.0	1.008
adjusted zero	5000	5000	0.0	0.0	0.0	n/a
adjusted high	5000	5000	377.0	377.0	377.0	1.000
mid	5000	5000	181.0	181.0	182.0	0.995
low	5000	5000	64.0	64.0	65.0	0.985
calibrator zero	5000	5000	0.0	n/a	0.0	n/a
					Average C.F.=	0.993

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**1.001**	**0.95-1.05**
b (Intercept as % of full scale)=	**-0.12%**	**± 3% F.S.**
% change in C.F. from last cal=	**-0.80%**	**± 10%**

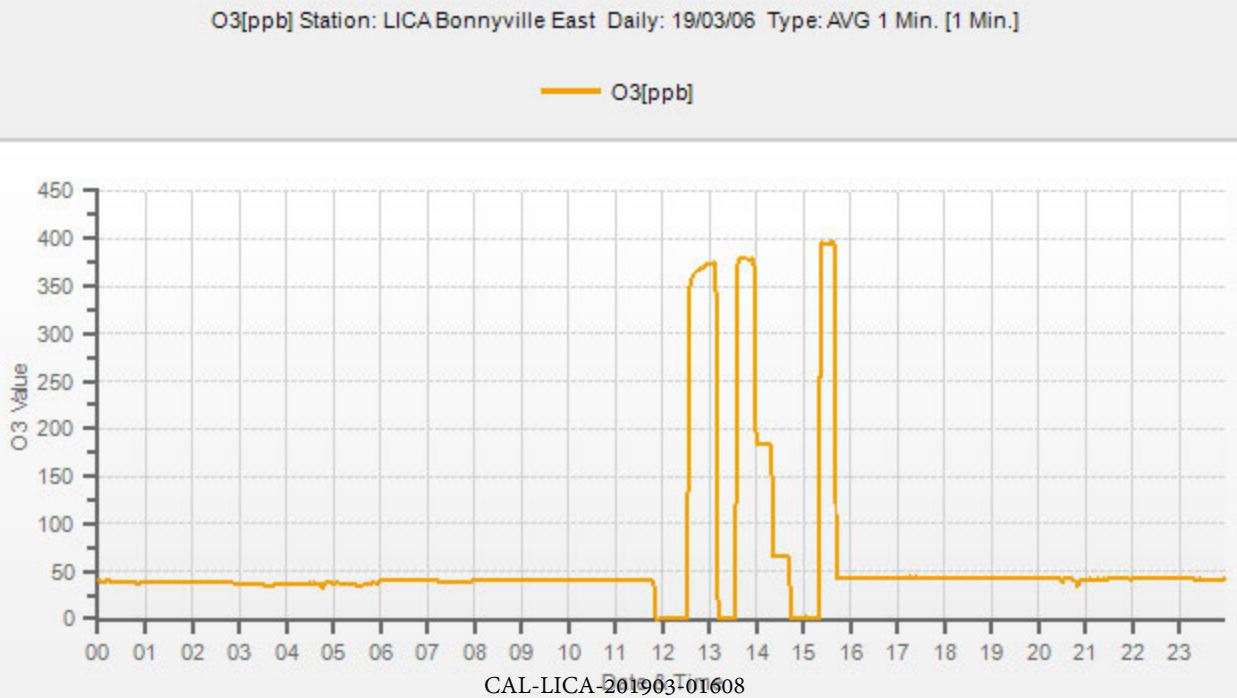
Thermo 49i Ozone Analyzer Calibration

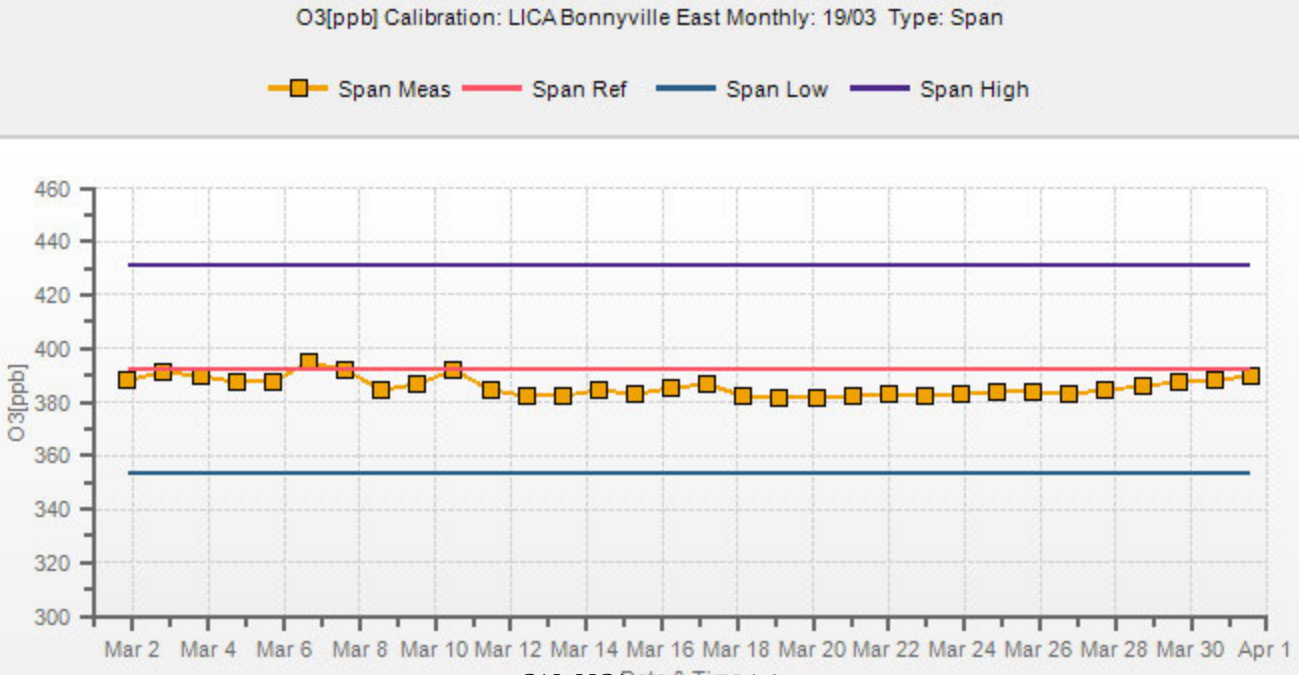


As found:		As left:	
O3 Bkg:	-0.3	O3 Bkg:	-0.3
O3 Coef:	1.031	O3 Coef:	1.036
Photo Lamp	14.2	Photo Lamp	14.2
O3 Lamp	9.3	O3 Lamp	9.3
Bench:	31.5	Bench:	30.6
Bench Lamp:	54.0	Bench Lamp:	54.0
O3 Lamp:	68.0	O3 Lamp:	68.0
Pressure:	705.7	Pressure:	705.6
Cell A lpm:	0.763	Cell A lpm:	0.762
Cell B lpm:	0.768	Cell B lpm:	0.767
O3 ppb:	-0.2	O3 ppb:	0.1
Cell A ppb:	-0.2	Cell A ppb:	-1.1
Cell B ppb:	-0.2	Cell B ppb:	1.2
Cell A int (Hz):	74129	Cell A int (Hz):	74169
Cell B int (Hz):	74861	Cell B int (Hz):	74932
Expected Value:	392.0	Expected Value:	395.0

Comments:

The analyzer sample inlet filter was changed.
The analyzer cooling fan filter(s) were cleaned.
The manifold blower was found to be working normally.


O3[ppb] Station: LICA Bonnyville East Daily: 19/03/06 Type: AVG 1 Min. [1 Min.]
O3[ppb]
O3 Value
450
400
350
300
250
200
150
100
50
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Date & Time


O3[ppb] Calibration: LICA Bonnyville East Monthly: 19/03 Type: Span
Span Meas
Span Ref
Span Low
Span High
O3[ppb]
460
440
420
400
380
360
340
320
300
Mar 2
Mar 4
Mar 6
Mar 8
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Mar 24
Mar 26
Mar 28
Mar 30
Apr 1

Thermo 5030i SHARP Monitor Monthly Check

Date:	March 6, 2019	**Performed By/Reviewer:**	Alex Yakupov / Rob Fisher
Company:	LICA	**Start Time (mst):**	15:08
Station Name/Location:	Bonnyville - East	**End Time (mst):**	16:31
Previous Audit Date:	February 6, 2019	**Calibration Purpose:**	routine monthly
Parameter:	PM 2.5	**Weather Conditions:**	Mainly sunny

SHARP 5030i Information and Status:

Serial Number: CM 17071016 **Filter Tape Counter** 420

Reference Standards: **Air Flow**

	Manometer	Orifice	Pressure:		Temp / RH:	
Make:	Dwyer	chinook	Fisher Scientific		Fisher Scientific	
Model:	475 Mk. III	CHN0901	FB61291		11-661-7A	11745843
Serial Number:	#3	#2	130168457		170286131	
Calibration Expiration Date:	January 17, 2020	April 24, 2019	January 17, 2020		April 19, 2019	

Ambient Temperature (°C)

	Reference	SHARP	Difference
#1	-11.67	-12.6	0.9

Ambient Relative Humidity (%RH)

As Found:

	Reference	SHARP	Difference
#1	60.04	59.9	0.1

Barometric Pressure (mmHg)

As Found:

	Reference	SHARP	Difference
#1	715.5	715.0	0.5

Flow Audit (L/min)

As Found:

	Reference	SHARP
#1	16.67	16.68
#2	16.68	16.69
#3	16.67	16.67
Average	16.67	16.68

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	16.73	16.68	0.05	*Leak Limit: 0.80 L/min*
					LEAK RATE:	**0.05**	

Meteorological Sensor Audit/Calibration

Location Information

Company:	LICA	**Performed By:**	Alex Yakupov
Audit Location:	Bonnyville East	**Reviewed By:**	Rob Fisher
Audit Date:	October 24, 2018	**Start/End Time (mst):**	12:56 / 14:01
Calibration Purpose:	installation	**Weather Conditions:**	Mainly sunny

Wind Sensor Information

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

Wind Calibrator Information

Calibrator I.D. and Expiry Date: Model 18860-90/18802 SN: CA 4744, calibrated on May 18, 2018

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	18.4	18.4	1.000
2000	36.9	36.8	36.8	1.003
3000	55.3	55.4	55.4	0.998
4000	73.7	73.8	73.8	0.999
5000	92.2	92.2	92.2	1.000
6000	110.6	110.6	110.6	1.000
7000	129.0	129.0	129.0	1.000
8000	147.4	147.4	147.4	1.000
9000	165.9	165.8	166.0	1.000
10000	184.3	184.0	184.4	1.001
		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	0	355	0.0	0.0	0.0
30	330	30	331	0.0	-0.6	0.3
60	300	60	301	0.0	-0.8	0.4
90	270	90	271	0.0	-1.0	0.5
120	240	121	241	-0.6	-0.8	0.7
150	210	151	211	-0.8	-1.3	1.1
180	180	181	182	-0.9	-1.8	1.4
210	150	211	152	-1.0	-2.3	1.7
240	120	240	121	-0.3	-1.4	0.9
270	90	270	92	0.0	-2.0	1.0
300	60	300	62	0.1	-1.6	0.9
330	30	330	31	-0.1	-1.0	0.6
355	0	355	0	0.0	0.3	0.2
The audit meets AMD requirements.			**Average Absolute Degrees Difference=**			**0.7**

Comments:

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2019-425A

Company: Maxxam **Operator:** C. Wesson

Calibrator:				**Flow Measurement Device:**	
Make/Model	Sabio 2010			Make/Model	N/A
Serial Number	042531101			Serial Number	N/A
Last Verification Date	March 1, 2018			Temperature (°C)	N/A
NO Cylinder S/N	LL107918			Barometric Pressure	N/A
NO [PPM]	50.1	NOx [PPM]	50.2		
Expiry Date	August 2026				

Dilution Flow (sccm)

Pt. #1 5000 Pt. #2 5000 Pt. #3 5000

Gas Flow (sccm)

Pt. #1 80 Pt. #2 40 Pt. #3 20

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4999	77.8	0.780	0.781	0.778	-0.001	0.777	0%	-1%
4998	37.9	0.380	0.381	0.376	-0.001	0.375	-1%	-1%
4999	18.9	0.189	0.190	0.189	-0.001	0.188	0%	-1%
				Absolute Average Percent Difference			0%	1%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO		**LIMITS**	**NOx**	
Correlation=	1.0000	**≥ 0.990**	Correlation=	1.0000
m (Slope)=	0.9974	**0.90-1.10**	m (Slope)=	0.9944
b (Intercept % of FS)=	-0.0636	**± 3% F.S.**	b (Intercept % of FS)=	-0.1045

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
4999	0.000	0.000	0.779	-0.001	0.778	NO_2	% Diff. Limit
4999	0.500	0.510	0.269	0.501	0.770	-2%	± 10%
4999	0.275	0.281	0.498	0.276	0.774	-1%	± 10%
4999	0.090	0.092	0.687	0.091	0.778	0%	± 10%
					Absolute Average Percent Difference	1%	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	0.9833	**0.90-1.10**
b (Intercept % of FS)=	-0.0304	**± 3% F.S.**

AENV Standards **Audit Calibrator**		**NO_X Analyzer**	
Make/Model	Sabio 2010	Make/Model	Teco 42i
Serial/AMU Number	AMU 2092	Serial/AMU Number	AMU 1868
SRM Gas Cylinder No.	APEX1236645	Last Calibration Date	February 12, 2019
Cylinder Conc. (ppm)	50.05	Full Scale (ppm)	1.0
		Cylinder Gas Expiry Date	June 2021

COMMENTS: Contains 49.5 ppm SO2.

Auditor: Al Clark Date: February 13, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2019-396A

Company Maxxam **Operator:** Alex

Calibrator:				**Flow Measurement Device:**	
Make/Model	Sabio 2010			Make/Model	N/A
Serial Number	26801218			Serial Number	N/A
Last Verification Date	New			Temperature (°C)	N/A
NO Cylinder S/N	LL48147			Barometric Pressure	N/A
NO [PPM]	50.5	NOx [PPM]	50.6		
Expiry Date	August 2026				

Dilution Flow (sccm)

Pt. #1 5000 Pt. #2 5000 Pt. #3 5000

Gas Flow (sccm)

Pt. #1 80 Pt. #2 40 Pt. #3 20

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
5015	79.1	0.797	0.798	0.793	0.001	0.794	0%	-1%
5015	39.6	0.399	0.400	0.395	0.001	0.396	-1%	-1%
5017	19.8	0.199	0.200	0.197	0.000	0.197	-1%	-1%
					Absolute Average Percent Difference		1%	1%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO		**LIMITS**	**NOx**	
Correlation=	1.0000	**≥ 0.990**	Correlation=	1.0000
m (Slope)=	0.9959	**0.90-1.10**	m (Slope)=	0.9954
b (Intercept % of FS)=	-0.0968	**± 3% F.S.**	b (Intercept % of FS)=	-0.0969

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
						NO_2	% Diff. Limit
5015	0.000	0.000	0.792	0.001	0.793		
5015	0.500	0.496	0.296	0.493	0.791	-1%	± 10%
5015	0.250	0.246	0.546	0.245	0.793	-1%	± 10%
5015	0.100	0.098	0.694	0.098	0.793	-1%	± 10%
				Absolute Average Percent Difference		1%	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	0.9921	**0.90-1.10**
b (Intercept % of FS)=	0.0909	**± 3% F.S.**

AENV Standards		**NO_X Analyzer**	
Audit Calibrator		Make/Model	Teco 42i
Make/Model	Teco 146i	Serial/AMU Number	AMU 1868
Serial/AMU Number	AMU 1809	Last Calibration Date	January 14, 2019
SRM Gas Cylinder No.	APEX1236645	Full Scale (ppm)	1.0
Cylinder Conc. (ppm)	50.05	Cylinder Gas Expiry Date	June 2021

COMMENTS:

Auditor: Al Clark Date: Janaury 15, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2019-392CGA

Company: Maxxam **Operator's Name:** Alex

Cylinder #: LL107918 Concentration PPM: 49.5 Tolerance(%) 1 Certified By: Praxair

Expiry Date: August 2026

Reference Calibrator and Gas:

Make/Model: Sabio 2010
Serial Number: AMU 2092
Last Verification Date: January 14, 2019
Gas Type: SO2 Conc. 50.26
Cylinder Number: FF28071
Expiry Date: March 2020

Flow Measurement Device:

Make/Model: Mesa Definer 220
Serial Number: H-133034 / L-132702
Temp.°C: 22.7 C
B.P. 707 mmHg

Reference Analyzer:

Make/Model: Teco 43i Serial/AMU Number: 2195
Instrument Settings: Zero: 11.8 Span: 0.980 Range: 1.0
Last Calibration: Date: Jan 14/19 C.F. 1.000 Done By: Shea Beaton

Calibrator Flows (sccm)		Indicated	Gas Flow/	Concentration	Cylinder
Dilution	Gas	Concentration (PPM)	Dilution Flow	Factor	Concentration
5000	0.0	0.000			
4898	78.1	0.790	0.01595	62.714	49.5
4893	38.7	0.389	0.00791	126.434	49.2
4894	19.3	0.192	0.00394	253.575	48.7
				Average Cylinder Concentration:	**49.1**

Previous Stated Concentration PPM: 49.5

Percent variance from Stated: **1**

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: January 15, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2017-493CGA

Company: Maxxam **Operator's Name:** Mike

Cylinder #: EY0001003 Concentration PPM: 9.55 Tolerance(%) 2 Certified By: Praxair

Expiry Date: October 2020

Reference Calibrator and Gas:

Make/Model: Sabio 2010
Serial Number: AMU 2092
Last Verification Date: January 17, 2018
Gas Type: H2S Conc. 20.43
Cylinder Number: CAL015272
Expiry Date: January 2019

Flow Measurement Device:

Make/Model: Mesa Defender 530
Serial Number: H-153961 / L-153874
Temp.°C: 23.0 C
B.P. 697 mmHg

Reference Analyzer:

Make/Model: Teco 450i Serial/AMU Number: 1980

Instrument Settings: Zero: 12.9 Span: 0.955 Range: 0.1

Last Calibration: Date: Jan 17/18 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated	Gas Flow/	Concentration	Cylinder
Dilution	Gas	Concentration (PPM)	Dilution Flow	Factor	Concentration
5000	0.0	0.0000			
5051	39.6	0.0753	0.00784	127.551	9.60
5028	20.2	0.0387	0.00402	248.911	9.63
5033	10.5	0.0198	0.00209	479.333	9.49
				Average Cylinder Concentration:	**9.58**

Previous Stated Concentration PPM: 9.55

Percent variance from Stated: 0

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:** Used AEP regulator

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: January 18, 2018

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

CH4 / C3H8 Cylinder Gas

File No. 2019-393CGA

Company: Maxxam **Operators name:** Alex

Cylinder #: LL29687 Conc CH4 (PPM) 598/198 Tolerance (%) 1 Certified By: Praxair

Expiry Date: August 2026

Reference Calibrator and Gas:

Make/Model	Sabio 2010		
Serial Number	AMU 2092		
Last Verification Date	January 14, 2019		
Gas Type	CH4	Conc.	990.4
Cylinder Number	05604875	Expiry Date	July 2021
Gas Type	C3H8	Conc.	246.5
Cylinder Number	XF003845B	Expiry Date	July 2022

Flow Measurement Device:

Make/Model	Mesa Definer 220
Serial Number	H-133034 / L-132702
Temp.°C	23.8 C
B.P.	707 mmHg

Reference Analyzer:

Make/Model: Teco 55i Serial/AMU Number: 2221

Instrument Settings Zero: N/A Span: N/A Range: 20.0

Last Calibration: Date: Jan 14/19 C.F. 1.000 Done By: Shea Beaton

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/	Concentration	Cylinder Concentration	
Dilution	Gas	CH4	C3H8	Dilution Flow	Factor	CH4	C3H8
5000	0.0	0.00	0.00				
3990	77.5	11.71	11.18	0.02	51.48	603	209
3976	39.1	5.87	5.71	0.01	101.69	597	211
3986	20.0	2.96	2.86	0.01	199.30	590	207
					Average Cylinder Concentration:	**597**	**209**

	CH4	C3H8
Previous Stated Concentration PPM:	598	198
Percent variance from Stated:	**0**	**6**

Cylinder gas tolerances based on CH4 only

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: January 15, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

NO Cylinder Gas

File No. 2019-391CGA

Company: Maxxam **Operators name:** Alex

Cylinder #: LL107918 Conc (PPM) 50.1/50.2 Tolerance (%) 1 Certified By: Praxair

Expiry Date: August 2026

Reference Calibrator and Gas:

Make/Model	Teco 146i
Serial Number	AMU 1809
Last Verification Date	January 14, 2019
Gas Type	NO Conc. 50.05
Cylinder Number	APEX1236645
Expiry Date	June 2021

Flow Measurement Device:

Make/Model	Mesa Definer 220
Serial Number	H-133034 / L-132702
Temp.°C	22.7 C
B.P.	707 mmHg

Reference Analyzer:

Make/Model: Teco 42i Serial/AMU Number: 2268

Instrument Settings Zero: 9.2 Span: 1.223 Range: 1.0

Last Calibration: Date: Jan 14/19 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/	Concentration	Cylinder Concentration	
Dilution	Gas	NO	NOX	Dilution Flow	Factor	NO	NOX
5000	0.0	0.000	0.000				
4898	78.1	0.792	0.793	0.016	62.714	49.7	49.7
4893	38.7	0.395	0.395	0.008	126.434	49.9	49.9
4894	19.3	0.195	0.195	0.004	253.575	49.4	49.4
					Average Cylinder Concentration:	**49.7**	**49.7**

	NO	NOx
Previous Stated Concentration PPM:	50.1	50.2
Percent variance from Stated:	**1**	**1**

Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: Janaury 15, 2019

Operator Signature: Location: McIntyre Center Edmonton