Lakeland Industry & Community Association

SEPTEMBER 2019

Monthly Ambient Air Quality Monitoring Report

LICA-201909

Operation and Maintenance:

Bureau Veritas Canada

Data Validation and Report:

Lakeland Industry & Community Association

October 7, 2019

Pages may be left blank for double-sided printing

Lakeland Industry & Community Association
5107 50 St
Bonnyville, AB, T9N 2J7
Phone #: 780-226-7068
E-mail: monitoring@lica.ca
www.lica.ca

October 7, 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 – September 2019 Monthly Ambient Air Quality Monitoring Report

Enclosed is the September 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, Monitoring Programs Manager
5107 50 Street
Bonnyville, AB, T9N 2J7
Phone #: 780-226-7068
E-mail: monitoring@lica.ca

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

TABLE OF CONTECTS

LIST OF ACRONYMS

AAAQOs	Alberta Ambient Air Quality Objectives
AEP	Alberta Environment and Parks
AMD	Air Monitoring Directive
AT	Ambient Temperature
BP	Barometric Pressure
CH4	Methane
EPEA	Environmental Protection and Enhancement Act
H2S	Hydrogen Sulphide
kph	kilometers per hour
LICA	Lakeland Industry & Community Association
mb	millibar
mm	millimeter
NMHC	Non-Methane Hydrocarbons
NO	Nitric Oxide
NO2	Nitrogen Dioxide
NOx	Oxide of Nitrogen
ppb	parts per billion
ppm	parts per million
RH	Relative Humidity
SO2	Sulphur Dioxide
ST	Station Temperature
STDWD	Standard Deviation Wind Direction
THC	Total Hydrocarbons
TRS	Total Reduced Sulphur
VWD	Vector Wind Direction
VWS	Vector Wind Speed
WD	Wind Direction
WS	Wind Speed
°C	Degrees Celsius

NETWORK STATION SUMMARY

Listing of Continuous Monitoring Stations and Integrated Sampling Stations

Station Name		Cold Lake South	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	Bureau Veritas Canada	Bureau Veritas Canada	LICA / Bureau Veritas Canada	LICA
Intermittent (VOCs/PAHs)	Bureau Veritas Canada	InnoTech Alberta Inc	InnoTech Alberta Inc	LICA
Partisol	Bureau Veritas Canada	InnoTech Alberta Inc	InnoTech Alberta Inc	LICA
Passive	Bureau Veritas Canada	Bureau Veritas Canada	Bureau Veritas Canada	LICA
NMHC Canister	Bureau Veritas Canada	InnoTech Alberta Inc	InnoTech Alberta Inc	Not Applicable

Monitoring Notes during the Month of September 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.
- **O3:** The zero-span pump was rebuilt on September 16. A repeat zero-span check was initiated to ensure the pump's functionality. The check result was within the acceptable limit. One hour of downtime was recorded due to this maintenance.

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.
- **THC:** The span gas bottle was replaced following by a zero-span check on September 30. The check result was within the acceptable limit. Two hours of downtime was recorded due to this maintenance.

St. Lina Station

- 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:**
    - Following a shut down calibration performed on September 3, maintenance was performed on the analyzer: the sample pump was rebuilt, tubing was cleaned, SO2 scrubber material were renewed, and the reaction cell was checked. The analyzer was left offline overnight for stabilizing. A post-repair calibration was performed on September 4. Eighteen hours of downtime were recorded due to this maintenance.
    - The analyzer showed a negative drift in daily span check responses after the calibration on September 4. A repeat multi-point calibration was performed to address the drift issue on September 17. Five hours of downtime were recorded due to this event.
- **ST:** Unstable shelter temperatures were recorded on September 30. The thermostat was adjusted on October 1 and October 2 to correct the issue.

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. Fifty-three 1-hr and ten 24-hr exceedances were recorded this month. Nearby sewage lagoons are a known source of odours and hydrogen sulphide in the area.

Date	Time	Avg. Period	Reading (ppb)	AEP Reference #
03-Sep	5:00	1-hr	12	358379
03-Sep	21:00	1-hr	13	358379
04-Sep	3:00	1-hr	16	358450
04-Sep	6:00	1-hr	32	358450
04-Sep	7:00	1-hr	11	358450
04-Sep	-	24-hr	4	358450
06-Sep	4:00	1-hr	15	358563
06-Sep	5:00	1-hr	30	358563
06-Sep	6:00	1-hr	44	358563
06-Sep	7:00	1-hr	15	358563
06-Sep	21:00	1-hr	23	358563
06-Sep	22:00	1-hr	11	358563
06-Sep	-	24-hr	8	358563
07-Sep	8:00	1-hr	12	358618
11-Sep	2:00	1-hr	24	358782
11-Sep	22:00	1-hr	12	358782
11-Sep	23:00	1-hr	17	358782

11-Sep	-	24-hr	4	358782
12-Sep	0:00	1-hr	25	358783
12-Sep	5:00	1-hr	15	358783
12-Sep	6:00	1-hr	21	358783
12-Sep	7:00	1-hr	14	358783
12-Sep	18:00	1-hr	37	358783
12-Sep	19:00	1-hr	11	358783
12-Sep	-	24-hr	9	358783
13-Sep	18:00	1-hr	92	358872
13-Sep	22:00	1-hr	90	358872
13-Sep	-	24-hr	9	358872
14-Sep	1:00	1-hr	14	358873
14-Sep	8:00	1-hr	16	358873
14-Sep	18:00	1-hr	72	358873
14-Sep	21:00	1-hr	14	358873
14-Sep	22:00	1-hr	31	358873
14-Sep	-	24-hr	7	358873
15-Sep	0:00	1-hr	67	358896
15-Sep	1:00	1-hr	20	358896
15-Sep	2:00	1-hr	20	358896
15-Sep	-	24-hr	6	358896
16-Sep	4:00	1-hr	34	358926
18-Sep	22:00	1-hr	38	359078
18-Sep	23:00	1-hr	137	358078
18-Sep	-	24-hr	9	359078
19-Sep	0:00	1-hr	19	359077
19-Sep	1:00	1-hr	26	359077
19-Sep	4:00	1-hr	11	359077
19-Sep	6:00	1-hr	13	359077
19-Sep	7:00	1-hr	28	359077
19-Sep	-	24-hr	6	359077
20-Sep	0:00	1-hr	27	359142
22-Sep	3:00	1-hr	15	359234
22-Sep	5:00	1-hr	125	359234
22-Sep	6:00	1-hr	75	359234
22-Sep	7:00	1-hr	12	359234
22-Sep	19:00	1-hr	71	359234
22-Sep	21:00	1-hr	39	359234
22-Sep	23:00	1-hr	14	359234
22-Sep	-	24-hr	16	359234
23-Sep	0:00	1-hr	35	359236

23-Sep	1:00	1-hr	17	359236
26-Sep	4:00	1-hr	11	359389
26-Sep	6:00	1-hr	17	359389
26-Sep	7:00	1-hr	15	359389
30-Sep	18:00	1-hr	16	359526

- **THC/CH4/NMHC:** A new span gas bottle was installed during the monthly calibration on September 13.
- **O3:** The zero-span pump was rebuilt on September 13. A repeat zero-span check was initiated to ensure the pump's functionality. The check result was within the acceptable limit. One hour of downtime was recorded due to this maintenance. The expected span value was incorrectly input after the pump rebuilt. The expected span value was re-adjusted on September 17.

Integrated Sampling

All the integrated sampling analytical results are included in the September 2019 Integrated Sampling Report.

- **VOCs Sampling System:**
  - The VOC sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - Five samples were collected this month: on September 6, 12, 18, 24 and 30.
- **PAHs Sampling System:**
  - The PAH sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - Five samples were collected this month: on September 6, 12, 18, 24 and 30.
- **Partisol Sampling System:**
  - The Partisol sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - Five samples were collected this month: on September 6, 12, 18, 24 and 30.
- **Passive Sampling System:**
  - The passive sample filters were installed at the stations between August 29 and August 30, and were removed between September 30 and October 1.
  - A total of 9 duplicate samples were collected: 2 for H2S, 3 for SO2, 2 for NO2 and 2 for O3.
- **NMHC Canister System**:
  - The canister sampling program collects a 1-hour sample of air when the continuously non-methane hydrocarbon (NMHC) concentration reaches a specified trigger point. The current trigger point is 0.3 ppm and is based on real-time monitoring data that are averaged over a 5-minute period.
  - Two canister events were recorded: on September 15 at 02:50, at concentration of 0.33 ppm, and on September 19 at 04:50, at concentration of 0.34 ppm.

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.

Disclaimer

Data verification/validation were performed on the 1-minute, 5-minute and 1-hour data. Hourly data that are included in this report are calculated based on the post- validation 1-minute data set.

Hourly instantaneous maximum data included in this report have not gone through data validation/verification steps and are considered raw data. The intention of including this data set in the report is for reference purposes and should not be used in published documents.

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

Certification

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

Lily Lin, Data & Reporting Specialist, LICA Airshed

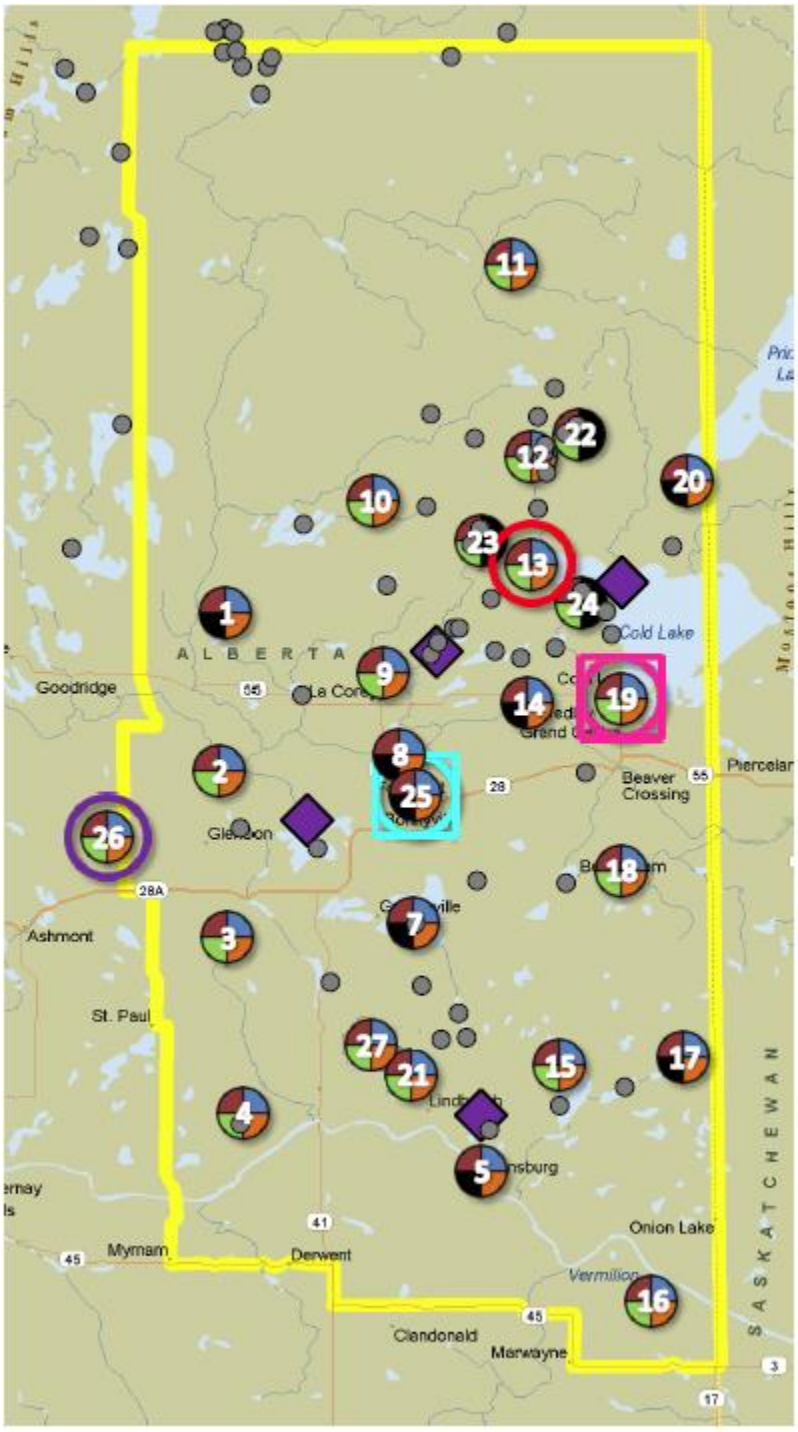
This report was reviewed by Mike Bisaga in accordance with Chapter 9 of the Air Monitoring Directive (AMD 2016).

I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements. I also certify that at the time of this report's submission, all air data have been electronically uploaded to Alberta's Ambient Air Quality Data Warehouse as required by the AMD, with the exception of electronic submission for the results of intermittent samples, Partisol samples and passive samples. Electronic submission for the intermittent sample, Partisol sample and passive sample results will be performed during the preparation of the September 2019 integrated sampling report. Uploading of VOC data from the canister sampling program was not required at the time of completing this report.

Michael Bisaga, Monitoring Programs Manager, LICA Airshed

October 7, 2019

Map of LICA Continuous Monitoring Network



Passive Monitor: Sulphur Dioxide

Passive Monitor: Nitrogen Dioxide

Passive Monitor: Ozone

Passive Monitor: Hydrogen Sulphide

Continuous Monitor: Sulphur Dioxide, Hydrogen Sulphide, Oxides of Nitrogen, Total Hydrocarbons, Meteorology.

Continuous Monitor: Sulphur Dioxide, Hydrogen Sulphide, Oxides of Nitrogen, Ozone, Methane/Non-Methane Hydrocarbons, Particulate Matter, Meteorology.

Continuous Monitor: Sulphur Dioxide, Hydrogen Sulphide, Oxides of Nitrogen, Ozone, Total Hydrocarbons, Particulate Matter, Meteorology.

Continuous Monitor: Sulphur Dioxide, Total Reduced Sulphurs, Oxides of Nitrogen, Ozone, Total Hydrocarbons, Particulate Matter, Meteorology.

Polycyclic Aromatic and Speciated Hydrocarbons: Routine 1-in-6 day samples.

Polycyclic Aromatic and Speciated Hydrocarbons: Routine 1-in-6 day samples. High non-methane hydrocarbon triggered samples.

CONTINUOUS NETWORK EQUIPMENT AND MONITORING RESULTS SUMMARY

Cold Lake South Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	Calibration Date
Sulphur Dioxide (SO2)	**Thermo / 43i-TLE**	**1180026018**	**September 10, 2019**
• No issues were identified this month.			
Total Reduced Sulphur (TRS)	**Thermo / 450i**	**812728560**	**September 10, 2019**
• No issues were identified this month.			
Oxide of Nitrogen / Nitric Oxide/ Nitrogen Dioxide (NOx/NO/NO2)	**Thermo / 42i**	**1505664393**	**September 10, 2019**
• No issues were identified this month.			
Ozone (O3)	**Thermo / 49i**	**700419951**	**September 11, 2019**
• The zero-span pump was rebuilt on September 16. A repeat zero-span check was initiated to ensure the pump's functionality. The check result was within the acceptable limit. One hour of downtime was recorded due to this maintenance.			
Total Hydrocarbons / Methane/ Non-methane Hydrocarbons (THC/CH4/NMHC)	**Thermo / 55i**	**11800300034**	**September 11, 2019**
• No issues were identified this month.			
Particulate Matter 2.5 (PM2.5)	**Thermo / Sharp 5030**	**CM-2209**	**September 06, 2019**
• No issues were identified this month.			

Parameter	Make / Model	Serial Number	Calibration Date
Relative Humidity (RH)	**Rotronic / Hydroclip-S3**	**PFD919-121406 / Part 50.5PS**	**January 26, 2018**
• No issues were identified this month.			
Ambient Temperature (AT)	**Rotronic / Hydroclip-S3**	**PFD919-121406 / Part 50.5PS**	**January 26, 2018**
• No issues were identified this month.			
Station Temperature (ST)	**Maxxam-supplied**	**n/a**	**n/a**
• No issues were identified this month.			
Wind Speed (WS) / Wind Direction (WD)/ Stand Deviation Wind Direction (STDWD)	**Met One / 50.5H**	**F1644**	**September 11, 2017**
• No issues were identified this month.			
AQM Station	**National Trailer**	**2N9MF63843**	**n/a**
• No issues were identified this month.			

Monitored Data Summary for September 2019

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.1	0	4	September 12 at hour 12	6.6	SSW	0.4	September 12	100.0	95.0
TRS (ppb)	10	3	-	-	-	-	0.1	0.00	1.00	September 3 at hour 4	0.7	SSW	0.26	September 21	100.0	95.0
Nox (ppb)	-	-	-	-	-	-	2.0	0	23	September 6 at hour 7	0.6	NNE	3.7	September 14	100.0	94.7
NO (ppb)	-	-	-	-	-	-	0.4	0	12	September 18 at hour 7	0.1	NNW	1.6	September 19	100.0	94.7
NO2 (ppb)	159	-	-	0	-	-	1.5	0	18	September 6 at hour 7	0.6	NNE	2.7	September 25	100.0	94.7
O3 (ppb)	82	-	-	0	-	-	18.3	0	38	September 22 at hour 16	7	SW	28.9	September 29	99.9	95.0
THC (ppm)	-	-	-	-	-	-	2.17	1.95	4.56	September 6 at hour 7	0.6	NNE	2.50	September 14	100.0	95.2
CH4 (ppm)	-	-	-	-	-	-	2.16	1.95	3.14	September 14 at hour 6	0.4	ESE	2.49	September 14	100.0	95.2
NMHC (ppm)	-	-	-	-	-	-	0.01	0.00	1.76	September 6 at hour 7	0.6	NNE	0.08	September 6	100.0	95.2
PM2.5 (µg/m3)	80	30	-	0	0	-	2.3	0.0	22.0	September 15 at hour 1	0.7	NE	8.3	September 7	100.0	99.6
RH (%)	-	-	-	-	-	-	74.9	35	100	September 2 at hour 7	7.1	SE	91.4	September 9	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	10.7	-1.4	23.6	September 22 at hour 14	6.3	WSW	16.3	September 4	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	20.6	19.6	21.8	September 11 at hour 10	5.8	ESE	21.3	September 11	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	0.3	0.1	19.1	September 23 at hour 13	19.1	W	10.6	September 8	100.0	100.0
WDV (sector)	-	-	-	-	-	-	72 (ENE)	-	-	-	-	-	-	-	100.0	100.0

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

Alberta Ambient Air Quality Objectives (AAAQOs) Exceedances

The measured ambient air quality was within the AAAQOs for all monitored parameters.

Maskwa Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	Calibration Date
Sulphur Dioxide (SO2)	**Thermo / 43i-TLE**	**1180930031**	**September 18, 2019**
• No issues were identified this month.			
Hydrogen Sulphide (H2S)	**Thermo / 450i**	**CM17360005**	**September 18, 2019**
• No issues were identified this month.			
Oxide of Nitrogen / Nitric Oxide/ Nitrogen Dioxide (NOx/NO/NO2)	**Thermo / 42i**	**1180930029**	**September 18, 2019**
• No issues were identified this month.			
Total Hydrocarbons / Methane/ Non-methane Hydrocarbons (THC/CH4/NMHC)	**Thermo / 55i**	**1180930026**	**September 19, 2019**
• The span gas bottle was replaced following by a zero-span check on September 30. The check result was within the acceptable limit. Two hours of downtime was recorded due to this maintenance.			
Relative Humidity (RH)	**Met One / 083D-1-35**	**F4090**	**February 15, 2019**
• No issues were identified this month.			
Ambient Temperature (AT)	**Met One / 083D-1-35**	**F4090**	**February 15, 2019**
• No issues were identified this month.			
Barometric Pressure (BP)	**Met One / Part 090D**	**F4997**	**February 15, 2019**
• No issues were identified this month.			

Parameter	Make / Model	Serial Number	Calibration Date
Station Temperature (ST)	**Maxxam-supplied**	**n/a**	**n/a**
• No issues were identified this month.			
Precipitation (PRECIP)	**Met One / Part 387-Heated Rain Gauge**	**F4481**	**September 20, 2019**
• No issues were identified this month.			
Wind Speed (WS) / Wind Direction (WD)/ Stand Deviation Wind Direction (STDWD)	**RM Young / 05305VK**	**161465**	**September 19, 2019**
• An annual wind system calibration/verification was performed on September 19.			
AQM Station	**National Trailer**	**n/a**	**n/a**
• No issues were identified this month.			

Monitored Data Summary for September 2019

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.5	0	16	September 27 at hour 23	5.6	WNW	2.2	September 27	100.0	95.1
H2S (ppb)	10	3	-	0	0	-	0.1	0	6	September 4 at hour 0	0.9	ESE	0.6	September 15	100.0	95.0
Nox (ppb)	-	-	-	-	-	-	2.5	0	29	September 27 at hour 23	5.6	WNW	5.8	September 20	100.0	94.8
NO (ppb)	-	-	-	-	-	-	0.6	0	13	September 17 at hour 0	3.3	NW	1.7	September 2	100.0	94.8
NO2 (ppb)	159	-	-	0	-	-	1.9	0	18	September 27 at hour 23	5.6	WNW	4.7	September 20	100.0	94.8
THC (ppm)	-	-	-	-	-	-	2.11	1.97	3.34	September 22 at hour 7	0.7	SW	2.35	September 14	99.7	94.7
CH4 (ppm)	-	-	-	-	-	-	2.11	1.97	3.34	September 22 at hour 7	0.7	SW	2.35	September 14	99.7	94.7
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.11	September 15 at hour 1	0.3	E	0.01	September 15	99.7	94.7
RH (%)	-	-	-	-	-	-	85.0	38	100	September 1 at hour 0	1	NE	100.0	September 9	100.0	100.0
BP (millibar)	-	-	-	-	-	-	937	923	953	September 29 at hour 8	4.7	NNE	951	September 29	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	9.9	-3.8	22.7	September 22 at hour 14	5.4	SW	15.3	September 4	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	21.3	19.3	23.1	September 18 at hour 11	2.9	NE	21.8	September 19	100.0	100.0
Precipitation (mm)*	-	-	-	-	-	-	37.2	0.0	3.8	September 2 at hour 4	5.2	SE	12.6	September 9	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	0.3	0.0	12.8	September 8 at hour 8	12.8	NNE	9.7	September 8	100.0	99.7
WDV (sector)	-	-	-	-	-	-	35 (NE)	-	-	-	-	-	-	-	100.0	99.7

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

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

Alberta Ambient Air Quality Objectives (AAAQOs) Exceedances

The measured ambient air quality was within the AAAQOs for all monitored parameters.

St. Lina Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	Calibration Date
Sulphur Dioxide (SO2)	**Thermo / 43i-TLE**	**1180930030**	**September 3, 2019**
• No issues were identified this month.			
Hydrogen Sulphide (H2S)	**Thermo / 450i**	**CM18010058**	**September 17, 2019**
• Following a shut down calibration performed on September 3, maintenance was performed on the analyzer: the sample pump was rebuilt, tubing was cleaned, SO2 scrubber material were renewed, and the reaction cell was checked. The analyzer was left offline overnight for stabilizing. A post-repair calibration was performed on September 4. Eighteen hours of downtime were recorded due to this maintenance. • The analyzer showed a negative drift in daily span check responses after the calibration on September 4. A repeat multi-point calibration was performed on September 17 to address the drift issue. Five hours of downtime were recorded due to this event.			
Oxide of Nitrogen / Nitric Oxide/ Nitrogen Dioxide (NOx/NO/NO2)	**Thermo / 42i**	**1180930029**	**September 3, 2019**
• No issues were identified this month.			
Ozone (O3)	**Thermo / 49i**	**1002240371**	**September 4, 2019**
• No issues were identified this month.			
Total Hydrocarbons / Methane/ Non-methane Hydrocarbons (THC/CH4/NMHC)	**Thermo / 55i**	**1180930025**	**September 4, 2019**
• No issues were identified this month.			
Particulate Matter 2.5 (PM2.5)	**Thermo / Sharp 5030i**	**CM17091001**	**September 17, 2019**
• No issues were identified this month.			

Parameter	Make / Model	Serial Number	Calibration Date
Relative Humidity (RH)	**Vaisala Oyj. Finland / HMP155**	**R2640785**	**June 28, 2019**
• No issues were identified this month.			
Ambient Temperature (AT)	**Vaisala Oyj. Finland / HMP155**	**R2640785**	**June 28, 2019**
• No issues were identified this month.			
Barometric Pressure (BP)	**Met One / Part 090D**	**F4998**	**February 21, 2019**
• No issues were identified this month.			
Station Temperature (ST)	**Maxxam-supplied**	**n/a**	**n/a**
• Unstable shelter temperatures were recorded on September 30. The thermostat was adjusted on October 1 and October 2 to correct the issue.			
Precipitation (PRECIP)	**Met One / Part 387-Heated Rain Gauge**	**n/a**	**September 15, 2019**
• No issues were identified this month.			
Wind Speed (WS) / Wind Direction (WD)/ Stand Deviation Wind Direction (STDWD)	**RM Young / 05305VK**	**65521**	**May 17, 2019**
• No issues were identified this month.			
AQM Station	**National Trailer**	**n/a**	**n/a**
• No issues were identified this month.			

Monitored Data Summary for September 2019

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.1	0	2	September 12 at hour 15	11.8	S	0.3	September 22	100.0	95.1
H2S (ppb)	10	3	-	0	0	-	0.1	0	2	September 14 at hour 6	6.2	SW	0.9	September 14	96.8	90.9
Nox (ppb)	-	-	-	-	-	-	1.4	0	8	September 29 at hour 3	7	NE	3.6	September 29	100.0	94.8
NO (ppb)	-	-	-	-	-	-	0.1	0	3	September 19 at hour 9	5.6	SW	0.5	September 21	100.0	94.8
NO2 (ppb)	159	-	-	0	-	-	1.2	0	8	September 29 at hour 3	7	NE	3.4	September 29	100.0	94.8
O3 (ppb)	82	-	-	0	-	-	22.6	6	38	September 23 at hour 22	13.7	W	30.4	September 23	100.0	95.0
THC (ppm)	-	-	-	-	-	-	2.05	1.93	2.48	September 15 at hour 7	10.5	ENE	2.14	September 1	100.0	95.1
CH4 (ppm)	-	-	-	-	-	-	2.05	1.93	2.48	September 15 at hour 7	10.5	ENE	2.14	September 1	100.0	95.1
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.09	September 3 at hour 16	5	WSW	0.00	September 3	100.0	95.1
PM2.5 (µg/m3)	80	30	-	0	0	-	2.4	0.0	10.0	September 3 at hour 7	11	WSW	5.0	September 1	100.0	99.9
RH (%)	-	-	-	-	-	-	76.4	37	100	September 11 at hour 1	6.1	ESE	97.9	September 9	100.0	100.0
BP (millibar)	-	-	-	-	-	-	918	906	933	September 29 at hour 1	8.5	ENE	932	September 29	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	10.5	-2.3	23.1	September 3 at hour 15	5.9	WSW	17.2	September 4	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	22.2	17.4	31.8	September 30 at hour 5	9.3	ENE	23.2	September 2	100.0	100.0
Precipitation (mm)*	-	-	-	-	-	-	42.1	0.0	7.2	September 2 at hour 2	7.8	E	13.3	September 2	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	0.1	0.7	23.4	September 23 at hour 12	23.4	WNW	16.3	September 23	100.0	100.0
WDV (sector)	-	-	-	-	-	-	29 (NNE)	-	-	-	-	-	-	-	100.0	100.0

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

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

Alberta Ambient Air Quality Objectives (AAAQOs) Exceedances

The measured ambient air quality was within the AAAQOs for all monitored parameters.

Bonnyville - East Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	Calibration Date
Sulphur Dioxide (SO2)	**Thermo / 43i-TLE**	**1180320046**	**September 12, 2019**
• No issues were identified this month.			
Hydrogen Sulphide (H2S)	**Thermo / 450i**	**CM17360002**	**September 12, 2019**
• No issues were identified this month.			
Oxide of Nitrogen / Nitric Oxide/ Nitrogen Dioxide (NOx/NO/NO2)	**Thermo / 42i**	**1180930027**	**September 12, 2019**
• No issues were identified this month.			
Ozone (O3)	**Thermo / 49i**	**1002240372**	**September 13, 2019**
• The zero-span pump was rebuilt on September 13. A repeat zero-span check was initiated to ensure the pump's functionality. The check result was within the acceptable limit. One hour of downtime was recorded due to this maintenance. The expected span value was incorrectly input after the pump rebuilt. The expected span value was re-adjusted on September 17.			
Total Hydrocarbons / Methane/ Non-methane Hydrocarbons (THC/CH4/NMHC)	**Thermo / 55i**	**1180320044**	**September 13, 2019**
• A new span gas bottle was installed during the monthly calibration on September 13.			
Particulate Matter 2.5 (PM2.5)	**Thermo / Sharp 5030i**	**CM17071016**	**September 16, 2019**
• No issues were identified this month.			
Station Temperature (ST)	**Maxxam-supplied**	**n/a**	**n/a**
• No issues were identified this month.			

Parameter	Make / Model	Serial Number	Calibration Date
Wind Speed (WS) / Wind Direction (WD)/ Stand Deviation Wind Direction (STDWD)	**RM Young / 05305VK**	**56778**	**October 24, 2018**
• No issues were identified this month.			
AQM Station	**ITB Trailer**	**5CUO98**	**n/a**
• No issues were identified this month. • Datalogger updates were applied on September 26 during hour 14. One hour of data was invalidated due to this event. Hourly instantaneous maximum values recorded on September 26 between hour 10 and 12 were also invalidated due to datalogger update preparations.			

Monitored Data Summary for September 2019

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.1	0	2	September 21 at hour 10	14.9	SW	0.3	September 13	100.0	95.1
H2S (ppb)	10	3	-	56	9	-	3.2	0	136	September 18 at hour 23	2.5	ESE	15.9	September 22	100.0	95.0
Nox (ppb)	-	-	-	-	-	-	2.8	0	268	September 27 at hour 5	12.7	N	18.0	September 27	100.0	95.0
NO (ppb)	-	-	-	-	-	-	0.7	0	171	September 27 at hour 5	12.7	N	10.9	September 27	100.0	95.0
NO2 (ppb)	159	-	-	0	-	-	2.0	0	97	September 27 at hour 5	12.7	N	7.0	September 27	100.0	95.0
O3 (ppb)	82	-	-	0	-	-	20.8	1	40	September 7 at hour 15	14.5	SW	30.1	September 24	99.9	95.0
THC (ppm)	-	-	-	-	-	-	2.05	1.86	3.38	September 15 at hour 2	3.1	ENE	2.32	September 15	100.0	95.2
CH4 (ppm)	-	-	-	-	-	-	2.04	1.86	3.33	September 15 at hour 5	1.9	ENE	2.31	September 15	100.0	95.2
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.07	September 15 at hour 2	3.1	ENE	0.01	September 15	100.0	95.2
PM2.5 (µg/m3)	80	30	-	0	0	-	3.6	0.0	33.0	September 17 at hour 15	4.9	NNE	8.0	September 18	100.0	99.6
Stn. Temp. (°C)	-	-	-	-	-	-	23.2	19.7	25.9	September 28 at hour 23	6.6	NE	25.1	September 27	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	0.8	0.1	31.3	September 25 at hour 13	31.3	WNW	24.1	September 9	100.0	100.0
WDV (sector)	-	-	-	-	-	-	38 (NE)	-	-	-	-	-	-	-	100.0	100.0

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

Alberta Ambient Air Quality Objectives (AAAQOs) Exceedances

The following exceedances of AAAQOs were observed at the Bonnyville - East Site.

Date	Time (MST)	Parameter	Average Period	AAAQOs	Concentration	Wind speed	Wind Direction	Reference #
September 3	5	H2S	1-Hour	172 ppb	12 ppb	4.2 km/hr	216° (SW)	358379
September 3	21	H2S	1-Hour	10 ppb	13 ppb	6.3 km/hr	158° (SSE)	358379
September 4	3	H2S	1-Hour	10 ppb	16 ppb	9.3 km/hr	149° (SSE)	358450
September 4	6	H2S	1-Hour	10 ppb	32 ppb	5.3 km/hr	138° (SE)	358450
September 4	7	H2S	1-Hour	10 ppb	11 ppb	9.0 km/hr	154° (SSE)	358450
September 4	-	H2S	24-Hour	3 ppb	4 ppb	7.3 km/hr	173° (S)	358450
September 6	4	H2S	1-Hour	10 ppb	15 ppb	3.3 km/hr	56° (NE)	358563
September 6	5	H2S	1-Hour	10 ppb	30 ppb	0.9 km/hr	149° (SSE)	358563
September 6	6	H2S	1-Hour	10 ppb	44 ppb	1.3 km/hr	40° (NE)	358563
September 6	7	H2S	1-Hour	10 ppb	15 ppb	5.9 km/hr	60° (ENE)	358563
September 6	21	H2S	1-Hour	10 ppb	23 ppb	9.7 km/hr	131° (SE)	358563
September 6	22	H2S	1-Hour	10 ppb	11 ppb	9.8 km/hr	129° (SE)	358563
September 6	-	H2S	24-Hour	3 ppb	8 ppb	8.8 km/hr	90° (E)	358563
September 7	8	H2S	1-Hour	10 ppb	12 ppb	11.2 km/hr	156° (SSE)	358618
September 11	2	H2S	1-Hour	10 ppb	24 ppb	10.6 km/hr	112° (ESE)	358782
September 11	22	H2S	1-Hour	10 ppb	12 ppb	9.1 km/hr	159° (SSE)	358782
September 11	23	H2S	1-Hour	10 ppb	17 ppb	14.3 km/hr	157° (SSE)	358782
September 11	-	H2S	24-Hour	3 ppb	4 ppb	11.3 km/hr	111° (ESE)	358782
September 12	0	H2S	1-Hour	10 ppb	25 ppb	5.8 km/hr	157° (SSE)	358783
September 12	5	H2S	1-Hour	10 ppb	15 ppb	9.6 km/hr	157° (SSE)	358783
September 12	6	H2S	1-Hour	10 ppb	21 ppb	14.9 km/hr	148° (SE)	358783
September 12	7	H2S	1-Hour	10 ppb	14 ppb	16.7 km/hr	154° (SSE)	358783
September 12	18	H2S	1-Hour	10 ppb	37 ppb	11.1 km/hr	151° (SSE)	358783
September 12	19	H2S	1-Hour	10 ppb	11 ppb	10.5 km/hr	140° (SE)	358783
September 12	-	H2S	24-Hour	3 ppb	9 ppb	13.4 km/hr	168° (SSE)	358783
September 13	18	H2S	1-Hour	10 ppb	92 ppb	4.2 km/hr	148° (SE)	358872
September 13	22	H2S	1-Hour	10 ppb	90 ppb	4.8 km/hr	156° (SSE)	358872
September 13	-	H2S	24-Hour	3 ppb	9 ppb	10.6 km/hr	174° (S)	358872
September 14	1	H2S	1-Hour	10 ppb	14 ppb	5.6 km/hr	208° (SSW)	358873
September 14	8	H2S	1-Hour	10 ppb	16 ppb	2.8 km/hr	201° (SSW)	358873
September 14	18	H2S	1-Hour	10 ppb	72 ppb	3.6 km/hr	71° (ENE)	358873
September 14	21	H2S	1-Hour	10 ppb	14 ppb	3.9 km/hr	358° (N)	358873
September 14	22	H2S	1-Hour	10 ppb	31 ppb	2.6 km/hr	125° (SE)	358873
September 14	-	H2S	24-Hour	3 ppb	7 ppb	5.6 km/hr	204° (SSW)	358873
September 15	0	H2S	1-Hour	10 ppb	67 ppb	4.0 km/hr	129° (SE)	358896
September 15	1	H2S	1-Hour	10 ppb	20 ppb	4.8 km/hr	85° (E)	358896

Date	Time (MST)	Parameter	Average Period	AAAQOs	Concentration	Wind speed	Wind Direction	Reference #
September 15	2	H2S	1-Hour	10 ppb	20 ppb	3.1 km/hr	62° (ENE)	358896
September 15	-	H2S	24-Hour	3 ppb	6 ppb	11.6 km/hr	307 (NW)	358896
September 16	4	H2S	1-Hour	10 ppb	34 ppb	2.2 km/hr	87° (E)	358926
September 18	22	H2S	1-Hour	10 ppb	38 ppb	1.7 km/hr	103° (ESE)	359078
September 18	23	H2S	1-Hour	10 ppb	137 ppb	2.2 km/hr	123° (ESE)	358078
September 18	-	H2S	24-Hour	3 ppb	9 ppb	3.3 km/hr	140° (SE)	359078
September 19	0	H2S	1-Hour	10 ppb	19 ppb	1.6 km/hr	153° (SSE)	359077
September 19	1	H2S	1-Hour	10 ppb	26 ppb	3.2 km/hr	145° (SE)	359077
September 19	4	H2S	1-Hour	10 ppb	11 ppb	3.0 km/hr	58° (ENE)	359077
September 19	6	H2S	1-Hour	10 ppb	13 ppb	3.1 km/hr	136° (SE)	359077
September 19	7	H2S	1-Hour	10 ppb	28 ppb	4.4 km/hr	112° (ESE)	359077
September 19	-	H2S	24-Hour	3 ppb	6 ppb	8.6 km/hr	166° (SSE)	359077
September 20	0	H2S	1-Hour	10 ppb	27 ppb	3.2 km/hr	175° (S)	359142
September 22	3	H2S	1-Hour	10 ppb	15 ppb	4.4 km/hr	220° (SW)	359234
September 22	5	H2S	1-Hour	10 ppb	125 ppb	2.4 km/hr	151° (SSE)	359234
September 22	6	H2S	1-Hour	10 ppb	75 ppb	2.1 km/hr	42° (NE)	359234
September 22	7	H2S	1-Hour	10 ppb	12 ppb	2.0 km/hr	257° (WSW)	359234
September 22	19	H2S	1-Hour	10 ppb	71 ppb	3.0 km/hr	179° (S)	359234
September 22	21	H2S	1-Hour	10 ppb	39 ppb	1.5 km/hr	138° (SE)	359234
September 22	23	H2S	1-Hour	10 ppb	14 ppb	8.1 km/hr	114° (ESE)	359234
September 22	-	H2S	24-Hour	3 ppb	16 ppb	18.6 km/hr	246° (WSW)	359234
September 23	0	H2S	1-Hour	10 ppb	35 ppb	7.0 km/hr	155° (SSE)	359236
September 23	1	H2S	1-Hour	10 ppb	17 ppb	1.1 km/hr	34° (NE)	359236
September 26	4	H2S	1-Hour	10 ppb	11 ppb	4.0 km/hr	177° (S)	359389
September 26	6	H2S	1-Hour	10 ppb	17 ppb	2.5 km/hr	101° (E)	359389
September 26	7	H2S	1-Hour	10 ppb	15 ppb	0.7 km/hr	162° (SSE)	359389
September 30	18	H2S	1-Hour	10 ppb	16 ppb	8.1 km/hr	155° (SSE)	359526

TABLES, CHARTS, WIND ROSES AND EQUIPMENT CALIBRATION RECORDS

COLD LAKE SOUTH STATION

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Averages

SULPHUR DIOXIDE (SO_2) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb

Number of 1-Hour Exceedences: 0 Number of 24-Hour Exceedences: 0 30-Day Exceedence: 0

Maximum Hourly Value:	4	ppb	on September 12 at hour 12	Hours in Service:	720
Maximum Daily Value:	0.4	ppb	on September 12	Hours of Data:	684
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 1	Hours of Calibration:	36
Monthly Average:	0.1	ppb		Operational Uptime:	100.0

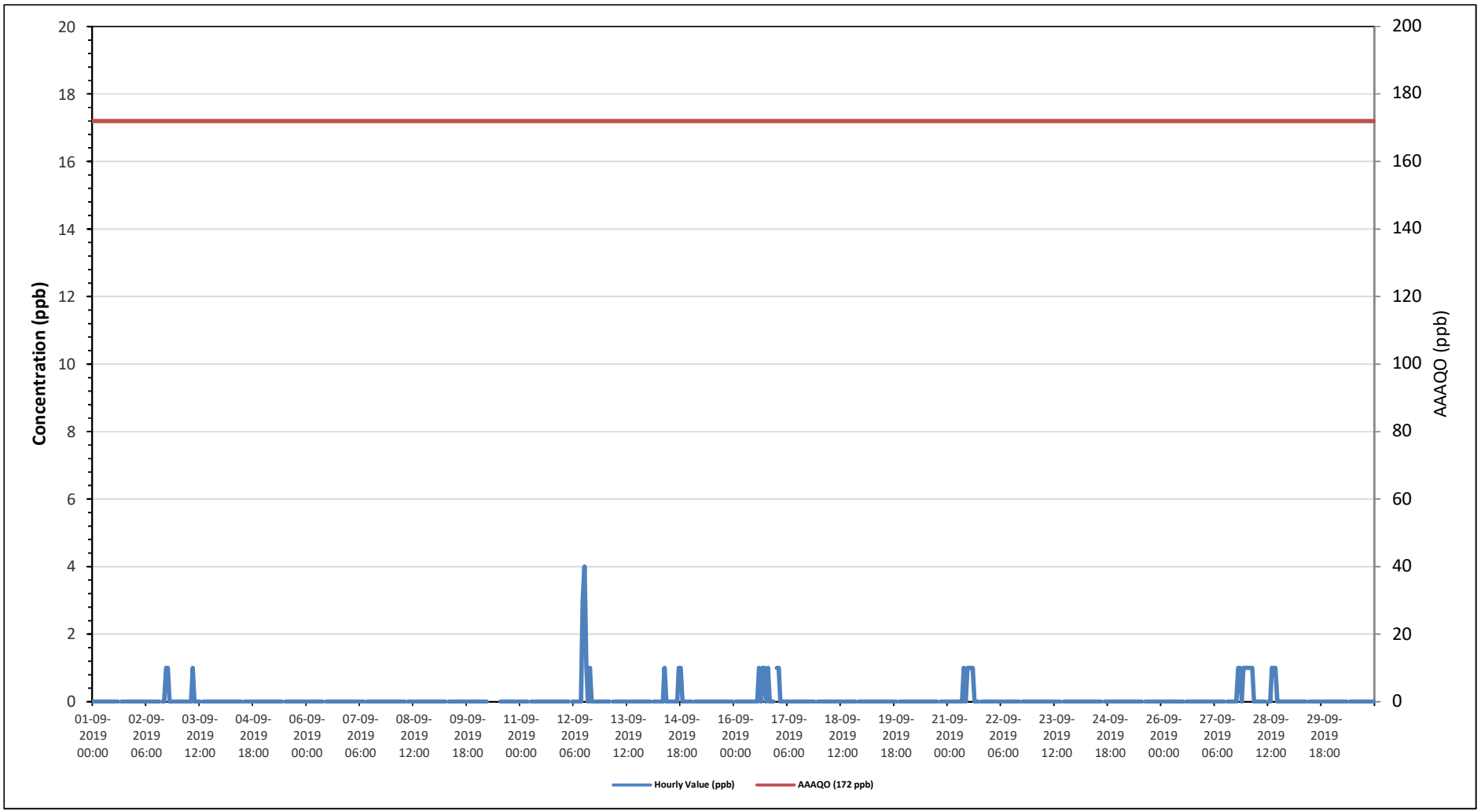
Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0.0
Sep 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	1	1	0	0	0	0	0	0	1	0.1
Sep 3	0	0	0	0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

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

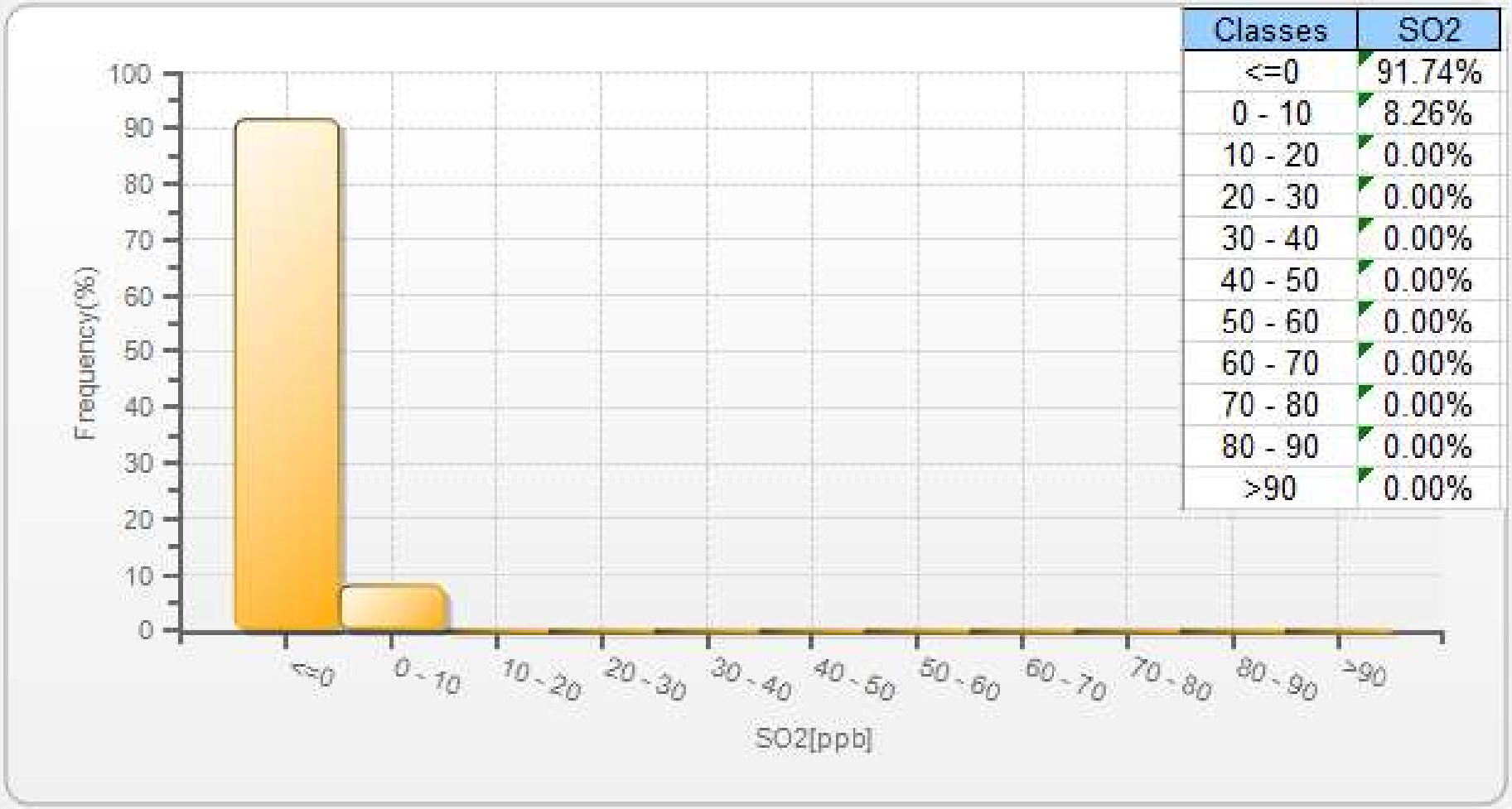
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

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



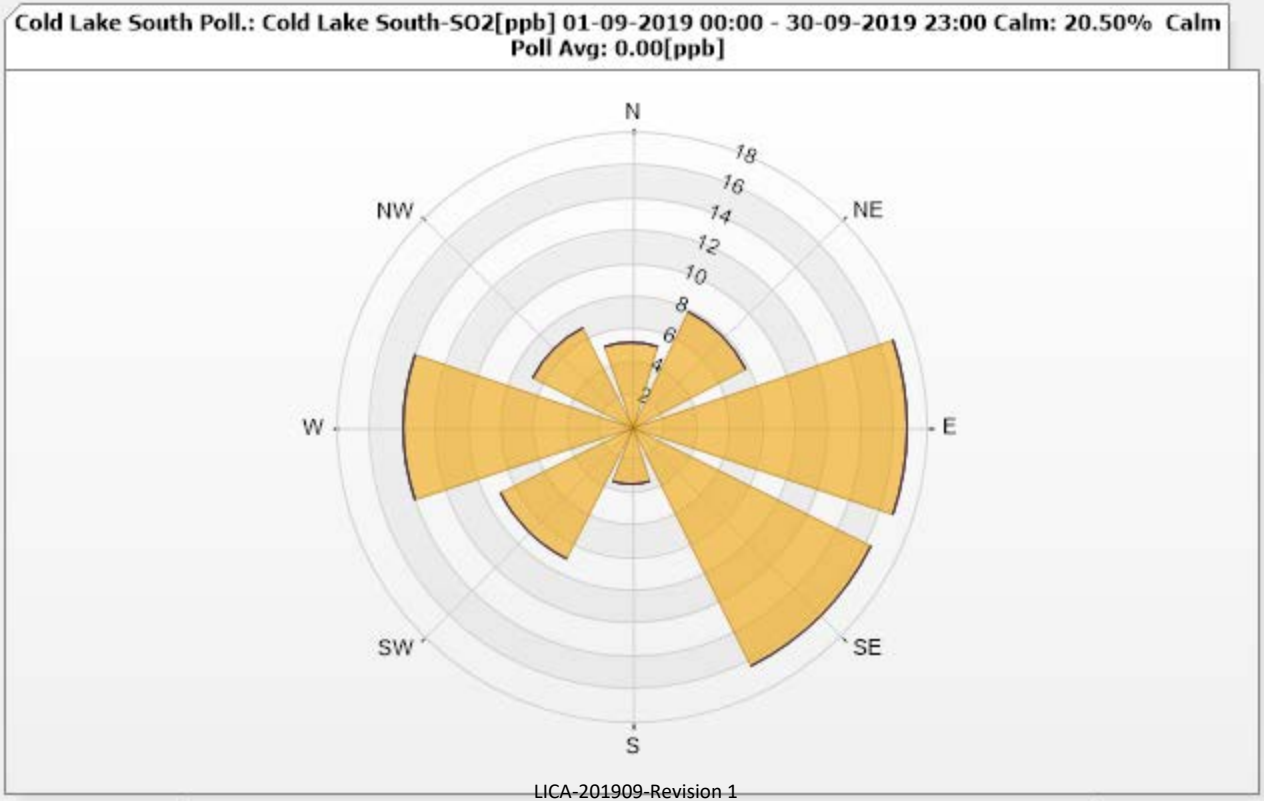
SO2[ppb] Histogram: Cold Lake South Monthly: 09-2019 1 Hr.



Classes	SO2
<=0	91.74%
0 - 10	8.26%
10 - 20	0.00%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-SO2[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.50% Valid Data: 94.17% Calm Avg: 0.00 [ppb]

Direction	10-50	50-100	100-172	>172.0	Total
N	5.16	0	0	0	5.16
NE	7.82	0	0	0	7.82
E	16.81	0	0	0	16.81
SE	16.37	0	0	0	16.37
S	3.54	0	0	0	3.54
SW	9	0	0	0	9
W	14.01	0	0	0	14.01
NW	6.78	0	0	0	6.78
Summary	79.49	0	0	0	79.49


Cold Lake South Poll.: Cold Lake South-SO2[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.50% Calm
Poll Avg: 0.00[ppb]
N
NE
E
SE
S
SW
W
NW
18
16
14
12
10
8
6
4
2
% Icon Classes (ppb)
79 10-50
0 50-100
0 100-172
0 >172.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Averages

TOTAL REDUCED SULPHUR (TRS) in ppb

Alberta Ambient Air Quality Objectives (AAAQO) for H2S: 1-Hour 10 ppb, 24-Hour 3 ppb

Number of 1-Hour Exceedences: 0 Number of 24-Hour Exceedences: 0

Maximum Hourly Value:	1	ppb	on September 3 at hour 4	Hours in Service:	720
Maximum Daily Value:	0	ppb	on September 21	Hours of Data:	684
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0	ppb	on September 1	Hours of Calibration:	36
Monthly Average:	0.05	ppb		Operational Uptime:	100.0

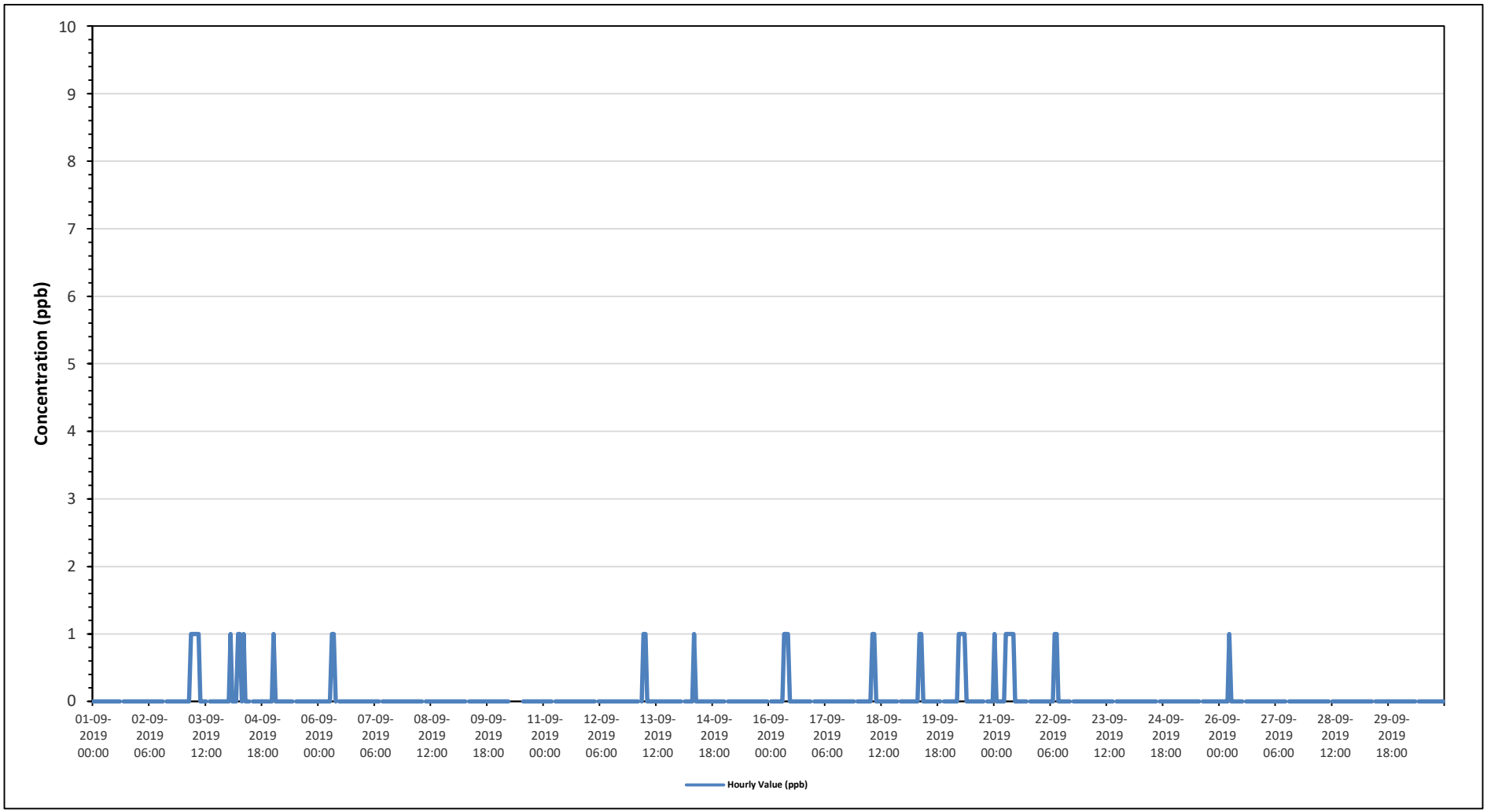
Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0.00
Sep 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0.00
Sep 3	0	0	0	0	1	1	1	1	1	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	1	0.22
Sep 4	0	1	0	0	0	1	1	0	1	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	0.17
Sep 5	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.04
Sep 6	0	0	0	0	0	0	0	1	1	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.09
Sep 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	0.00
Sep 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	0.00
Sep 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	0.00
Sep 10	0	0	0	0	0	0	S	0	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Sep 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	0.00
Sep 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	0.00
Sep 13	0	0	0	S	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.09
Sep 14	0	0	S	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.04
Sep 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	0.00
Sep 16	S	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	0.14
Sep 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0.00
Sep 18	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	0.09
Sep 19	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	0.09
Sep 20	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0.17
Sep 21	1	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	**0.26**
Sep 22	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	0.09
Sep 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	0.00
Sep 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	0.00
Sep 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	0.00
Sep 26	0	0	0	0	0	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	1	0.04
Sep 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	0.00
Sep 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	0.00
Sep 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	0.00
Sep 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	0.00
Diurnal Maximum	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Daiurnal Average	0.07	0.03	0.00	0.00	0.03	0.17	0.17	0.17	0.36	0.15	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			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

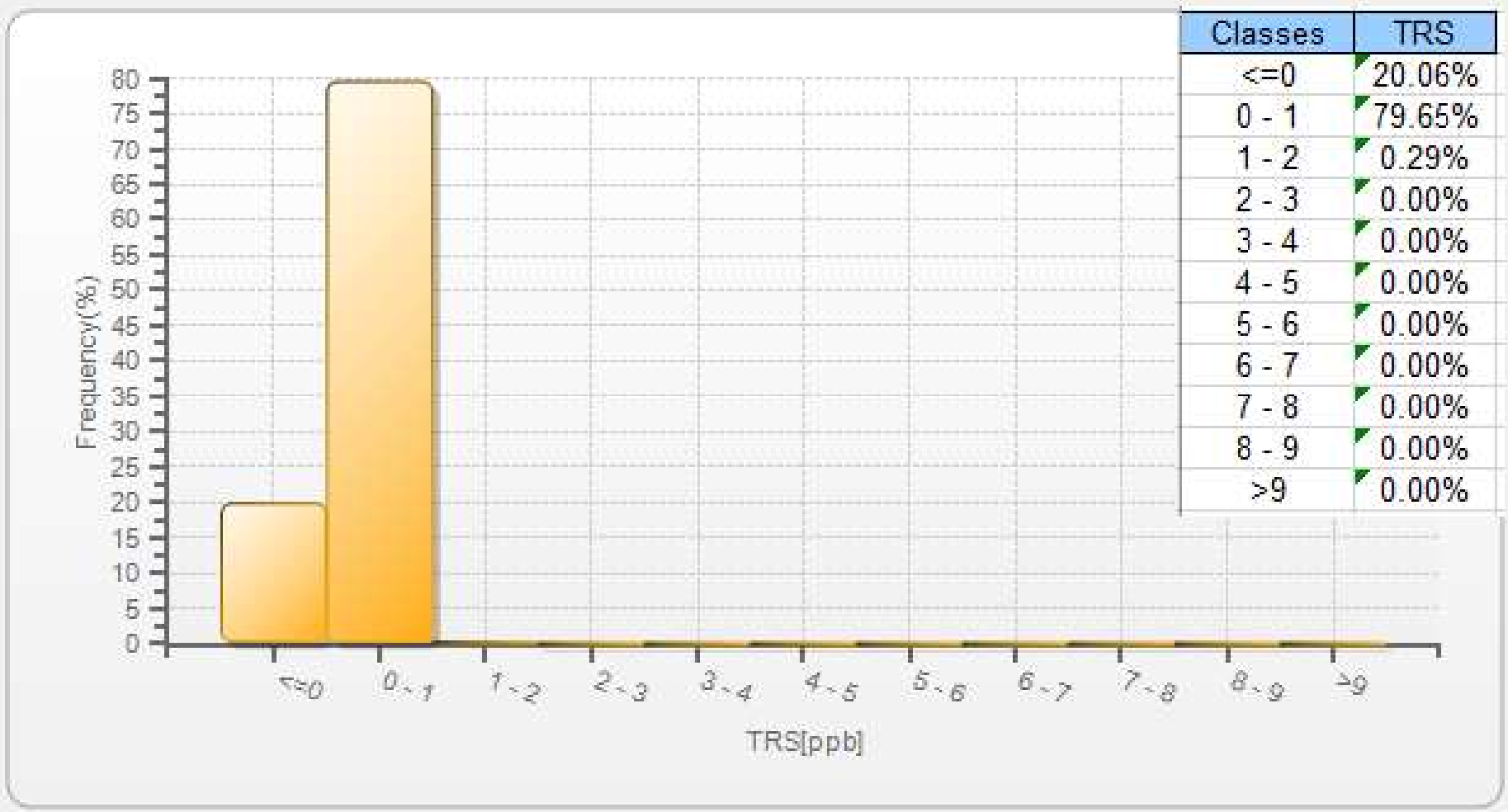
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

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



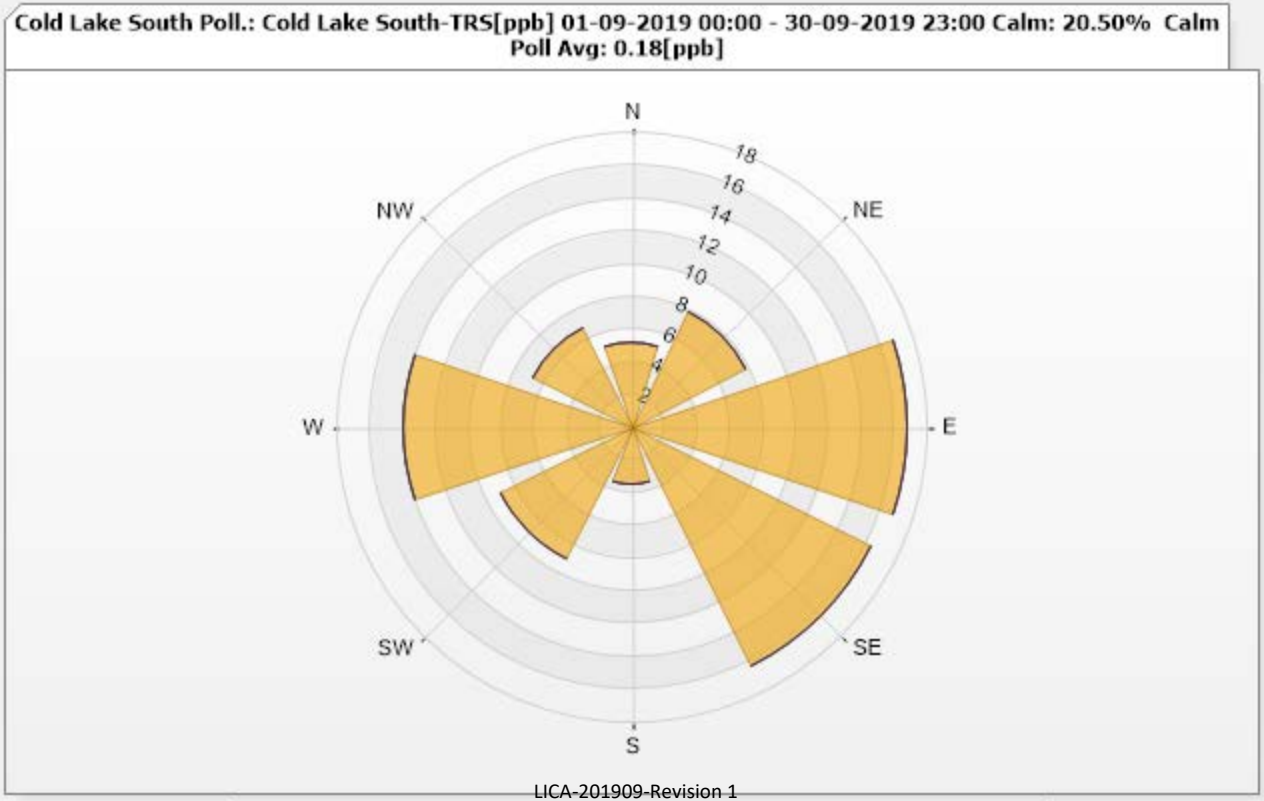
TRS[ppb] Histogram: Cold Lake South Monthly: 09-2019 1 Hr.



Classes	TRS
<=0	20.06%
0 - 1	79.65%
1 - 2	0.29%
2 - 3	0.00%
3 - 4	0.00%
4 - 5	0.00%
5 - 6	0.00%
6 - 7	0.00%
7 - 8	0.00%
8 - 9	0.00%
>9	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-TRS[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.50% Valid Data: 94.17% Calm Avg: 0.18 [ppb]

Direction	2-5	5-10	10-50	>50.0	Total
N	5.16	0	0	0	5.16
NE	7.82	0	0	0	7.82
E	16.81	0	0	0	16.81
SE	16.37	0	0	0	16.37
S	3.54	0	0	0	3.54
SW	9	0	0	0	9
W	14.01	0	0	0	14.01
NW	6.78	0	0	0	6.78
Summary	79.49	0	0	0	79.49


Cold Lake South Poll.: Cold Lake South-TRS[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.50% Calm
Poll Avg: 0.18[ppb]
N
NE
E
SE
S
SW
W
NW
18
16
14
12
10
8
6
4
2
% Icon Classes (ppb)
79
0
0
0 10-50
0 >50.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Averages

OXIDES OF NITROGEN (NOx) in ppb

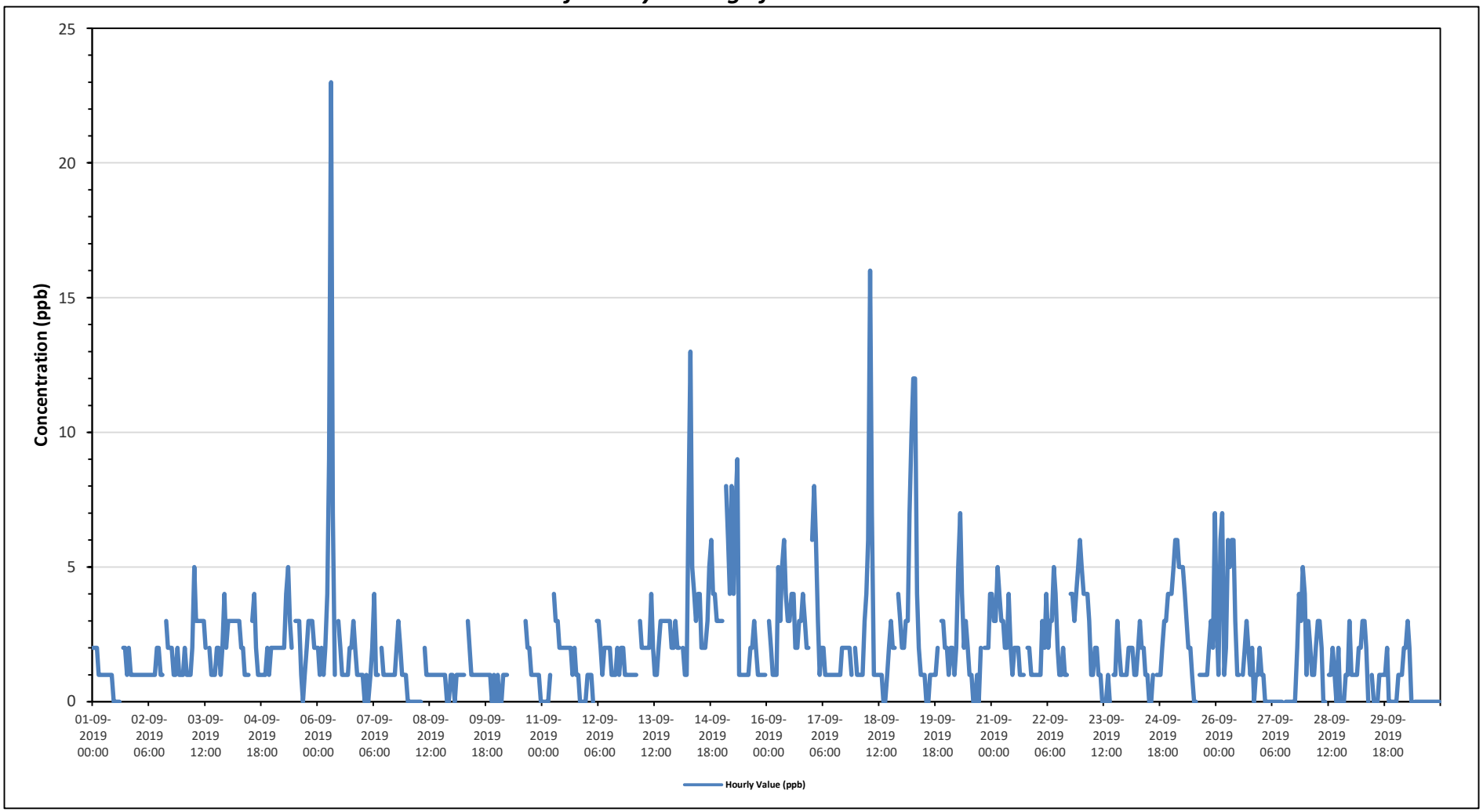
Maximum Hourly Value:	23	ppb	on September 6 at hour 7	Hours in Service:	720
Maximum Daily Value:	3.7	ppb	on September 14	Hours of Data:	682
Minimum Hourly Value:	0	ppb	on September 1 at hour 11	Hours of Missing Data:	0
Minimum Daily Value:	0.5	ppb	on September 30	Hours of Calibration:	38
Monthly Average:	2.0	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	2	2	2	1	1	1	1	1	1	1	1	0	0	0	0	S	2	2	1	2	1	1	1	1	0	2	1.1
Sep 2	1	1	1	1	1	1	1	1	1	1	2	2	1	1	S	3	2	2	2	1	1	2	1	1	1	3	1.3
Sep 3	1	2	1	1	1	2	5	3	3	3	3	3	2	S	2	1	1	1	2	2	1	2	4	2	1	5	2.1
Sep 4	3	3	3	3	3	3	3	2	2	1	1	1	S	3	4	2	1	1	1	1	1	2	1	2	1	4	2.0
Sep 5	2	2	2	2	2	2	2	4	5	3	2	S	3	3	3	1	0	1	2	3	3	3	2	2	0	5	2.3
Sep 6	2	1	2	1	2	4	9	23	7	1	S	3	2	1	1	1	1	2	2	3	2	1	1	1	1	23	3.2
Sep 7	1	0	1	0	1	2	4	1	1	S	2	1	1	1	1	1	1	1	2	3	2	1	1	1	0	4	1.3
Sep 8	0	0	0	0	0	0	0	0	S	2	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	2	0.6
Sep 9	1	0	1	1	1	1	1	S	3	2	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	3	1.0
Sep 10	1	0	0	1	1	1	S	3	C	C	C	C	C	C	C	3	2	2	1	1	1	1	1	0	0	3	-
Sep 11	0	0	0	0	1	S	4	3	3	2	2	2	2	2	2	2	1	2	1	1	0	0	0	0	0	4	1.3
Sep 12	1	1	1	0	S	3	3	2	1	2	2	2	2	1	1	1	2	1	2	2	1	1	1	1	0	3	1.5
Sep 13	1	1	1	S	3	2	2	2	2	2	4	2	1	1	2	3	3	3	3	3	3	2	2	3	1	4	2.2
Sep 14	2	2	S	2	1	1	7	13	5	4	3	4	4	2	2	2	3	5	6	4	4	3	3	3	1	13	3.7
Sep 15	3	S	8	6	4	8	4	7	9	1	1	1	1	1	1	2	2	3	2	1	1	1	1	1	1	9	3.0
Sep 16	S	3	2	1	1	1	5	3	5	6	4	3	3	4	4	2	2	3	3	4	3	2	2	S	1	6	3.0
Sep 17	6	8	6	3	1	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	S	2	1	8	2.2
Sep 18	1	1	1	1	3	4	6	16	7	1	1	1	1	1	0	0	1	2	3	2	2	S	4	3	0	16	2.7
Sep 19	2	2	3	3	7	10	12	12	4	2	1	1	1	0	0	1	1	1	1	2	S	3	3	2	0	12	3.2
Sep 20	2	1	2	2	1	2	5	7	4	2	3	2	1	1	0	0	1	0	2	S	2	2	2	4	0	7	2.1
Sep 21	4	3	3	5	4	3	3	2	2	4	2	1	2	2	2	1	1	1	S	2	2	1	1	1	1	5	2.3
Sep 22	1	1	1	3	2	4	2	3	3	5	4	2	1	1	2	1	1	S	4	4	3	4	5	6	1	6	2.7
Sep 23	5	4	4	4	3	1	1	2	2	1	1	0	0	0	1	0	S	1	1	3	2	1	1	1	0	5	1.7
Sep 24	1	2	2	2	1	1	2	3	2	2	1	1	0	0	1	S	1	1	1	2	3	3	4	4	0	4	1.7
Sep 25	4	5	6	6	5	5	5	4	3	2	2	1	0	0	S	1	1	1	1	1	2	3	2	7	0	7	2.9
Sep 26	3	1	6	7	1	2	6	5	6	6	3	1	1	S	1	2	3	2	1	2	0	1	1	2	0	7	2.7
Sep 27	1	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	2	4	3	5	4	0	5	0.9
Sep 28	1	3	2	1	1	2	3	3	2	0	0	S	1	1	2	1	0	2	0	0	0	1	1	3	0	3	1.3
Sep 29	1	1	1	1	2	2	3	3	2	0	S	1	0	0	0	1	1	1	1	2	0	0	0	0	0	3	1.0
Sep 30	0	1	1	1	2	2	3	2	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.5
Diurnal Maximum	6	8	8	7	7	10	12	23	9	6	4	4	4	4	4	3	3	5	6	4	4	4	5	7			
Daiurnal Average	1.8	1.8	2.2	2.0	1.9	2.5	3.6	4.5	3.1	2.1	1.8	1.4	1.2	1.1	1.3	1.3	1.3	1.6	1.7	2.0	1.7	1.6	1.8	2.0			

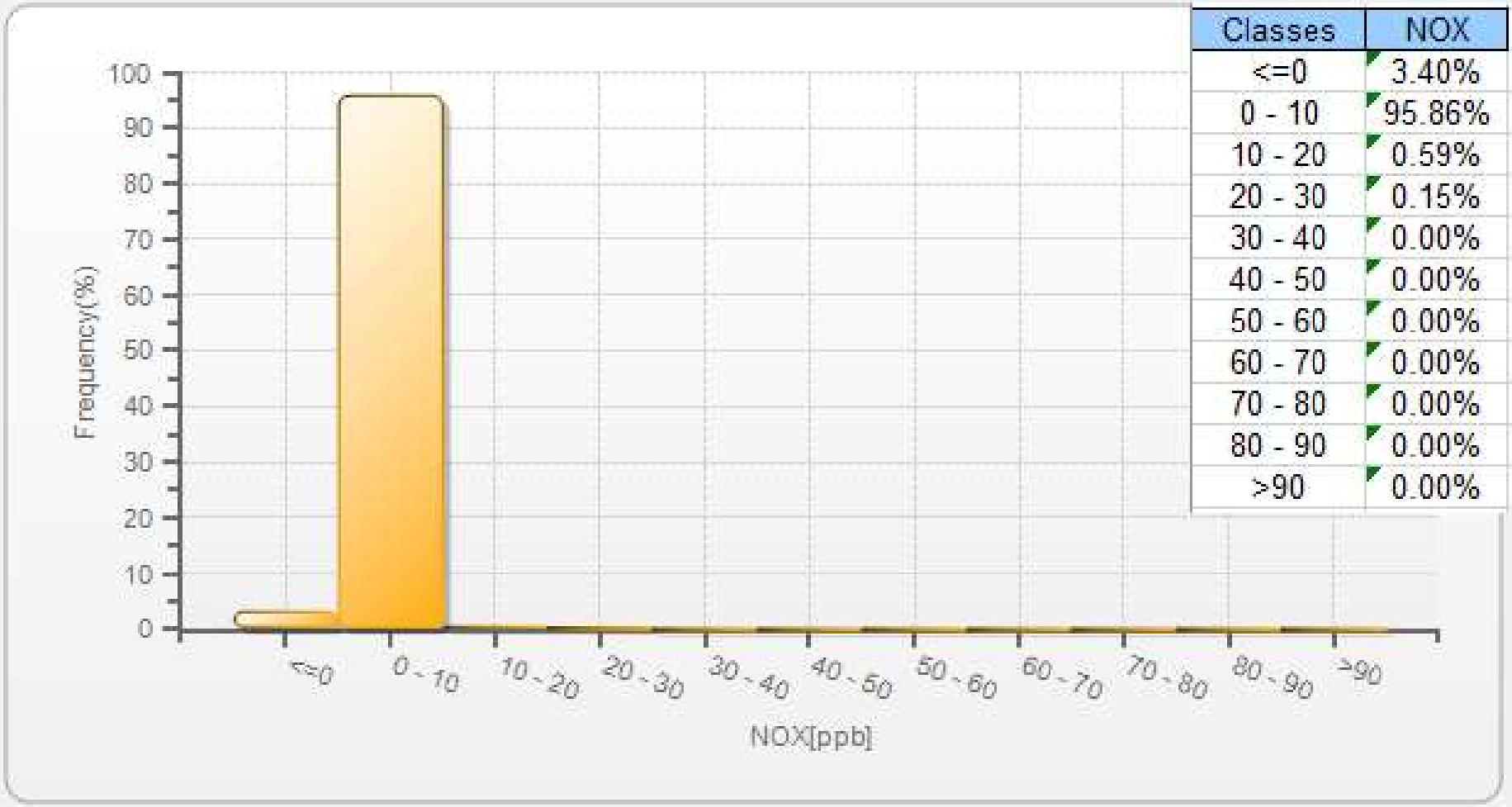
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



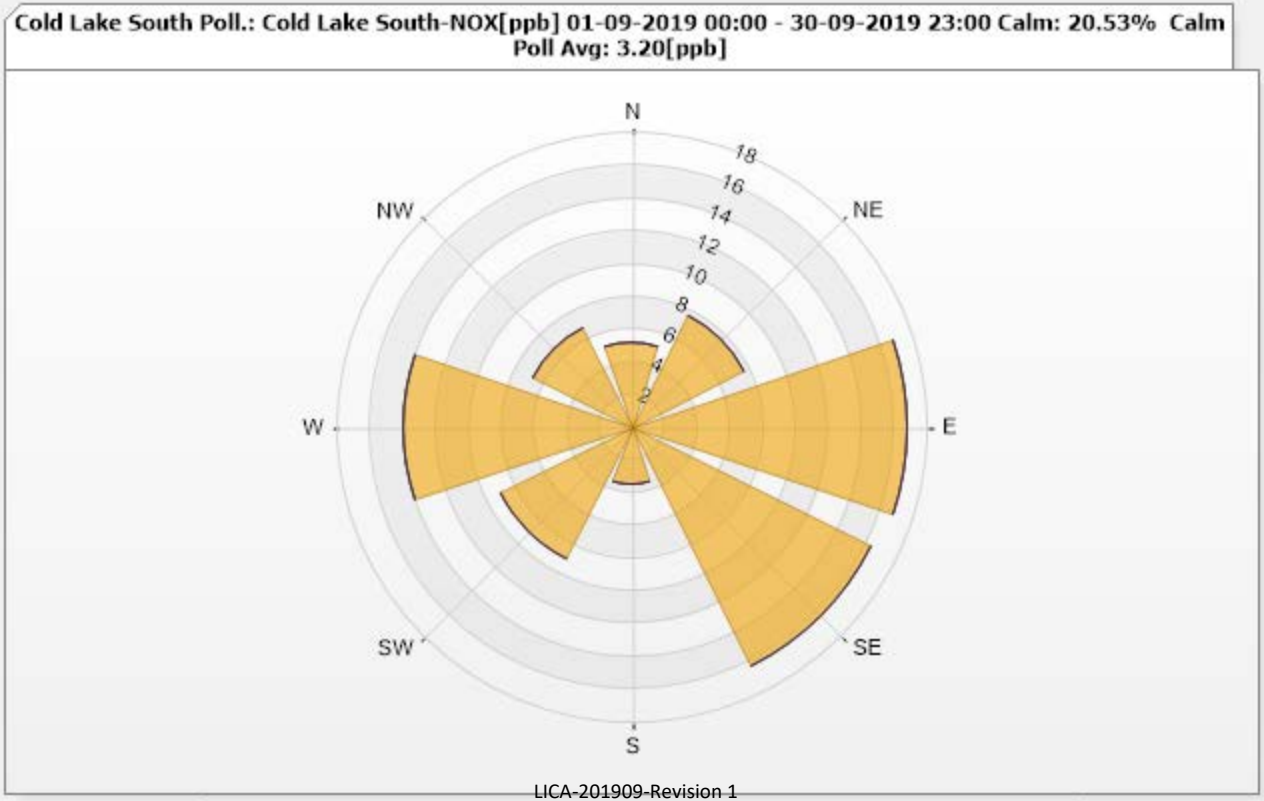
NOX[ppb] Histogram: Cold Lake South Monthly: 09-2019 1 Hr.



Classes	NOX
<=0	3.40%
0 - 10	95.86%
10 - 20	0.59%
20 - 30	0.15%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-NOX[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.53% Valid Data: 94.03% Calm Avg: 3.20 [ppb]

Direction	30-50	50-82	82-159	>159.0	Total
N	5.17	0	0	0	5.17
NE	7.68	0	0	0	7.68
E	16.84	0	0	0	16.84
SE	16.4	0	0	0	16.4
S	3.55	0	0	0	3.55
SW	9.01	0	0	0	9.01
W	14.03	0	0	0	14.03
NW	6.79	0	0	0	6.79
Summary	79.47	0	0	0	79.47


Cold Lake South Poll.: Cold Lake South-NOX[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.53% Calm
Poll Avg: 3.20[ppb]
N
NE
E
SE
S
SW
W
NW
18
16
14
12
10
8
6
4
2
% Icon Classes (ppb)
79 30-59
0 60-82
0 82-159
0 >159.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Averages

NITRIC OXIDE (NO) in ppb

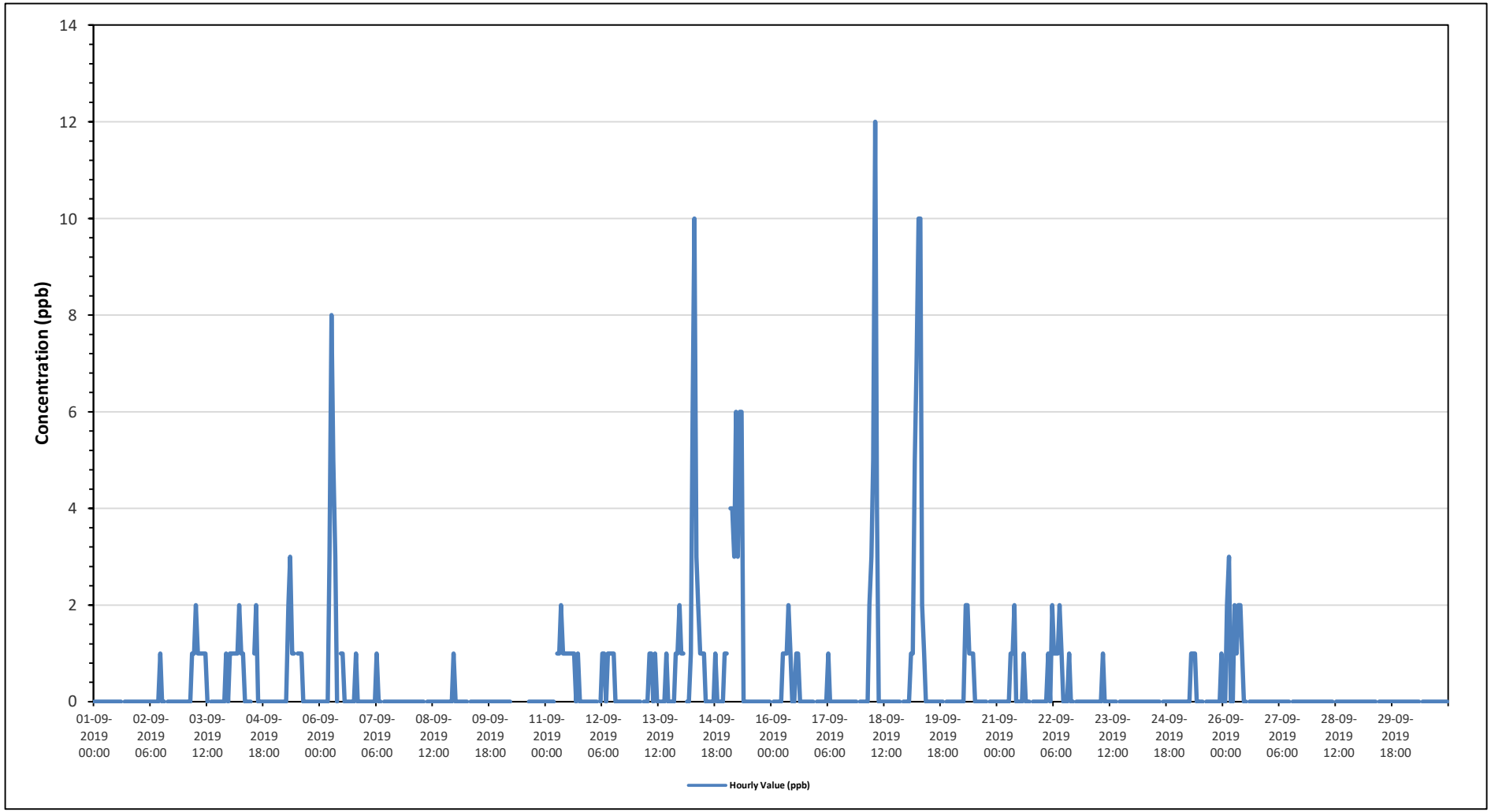
Maximum Hourly Value:	12	ppb	on September 18 at hour 7	Hours in Service:	720
Maximum Daily Value:	1.6	ppb	on September 19	Hours of Data:	682
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 1	Hours of Calibration:	38
Monthly Average:	0.4	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 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	0.0
Sep 2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	S	0	0	0	0	0	0	0	0	0	0	1	0.0
Sep 3	0	0	0	0	1	1	2	1	1	1	1	1	0	S	0	0	0	0	0	0	0	0	1	0	0	2	0.4
Sep 4	1	1	1	1	1	2	1	1	0	0	0	0	S	1	2	0	0	0	0	0	0	0	0	0	0	2	0.5
Sep 5	0	0	0	0	0	0	0	2	3	1	1	S	1	1	1	0	0	0	0	0	0	0	0	0	0	3	0.4
Sep 6	0	0	0	0	0	3	8	5	3	0	S	1	1	0	0	0	0	0	0	1	0	0	0	0	0	8	1.0
Sep 7	0	0	0	0	0	0	1	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Sep 8	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	0.0
Sep 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	0.0
Sep 10	0	0	0	0	0	0	S	0	C	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	-
Sep 11	0	0	0	0	0	S	1	1	2	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	2	0.5
Sep 12	0	0	0	0	S	0	1	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3
Sep 13	0	0	0	S	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0	0	1	1	2	0	2	0.3
Sep 14	1	1	S	0	0	1	6	10	3	2	1	1	1	0	0	0	0	0	1	0	0	0	0	1	0	10	1.3
Sep 15	1	S	4	4	3	6	3	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1.4
Sep 16	S	0	0	0	0	0	1	1	1	2	1	0	0	1	1	0	0	0	0	0	0	0	0	S	0	2	0.4
Sep 17	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	1	0.0
Sep 18	0	0	0	0	2	3	5	**12**	4	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	**12**	1.1
Sep 19	0	0	1	1	5	7	10	10	2	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	10	**1.6**
Sep 20	0	0	0	0	0	0	0	2	2	1	1	1	0	0	0	0	0	0	0	S	0	0	0	0	0	2	0.3
Sep 21	0	0	0	0	0	0	0	1	1	2	0	0	0	0	1	0	0	0	S	0	0	0	0	0	0	2	0.2
Sep 22	0	0	0	1	0	2	1	1	1	2	1	0	0	0	1	0	0	S	0	0	0	0	0	0	0	2	0.4
Sep 23	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0.0
Sep 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	0.0
Sep 25	0	0	0	0	0	0	0	1	1	1	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0	1	0.2
Sep 26	0	0	2	3	0	0	2	1	2	2	1	0	0	S	0	0	0	0	0	0	0	0	0	0	0	3	0.6
Sep 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	0.0
Sep 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	0.0
Sep 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	0.0
Sep 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	0.0
Diurnal Maximum	1	1	4	4	5	7	10	12	6	2	1	1	1	1	2	1	1	1	1	1	0	1	1	2			
Daiurnal Average	0.1	0.1	0.3	0.3	0.4	0.9	1.5	2.0	1.2	0.6	0.4	0.3	0.2	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2			

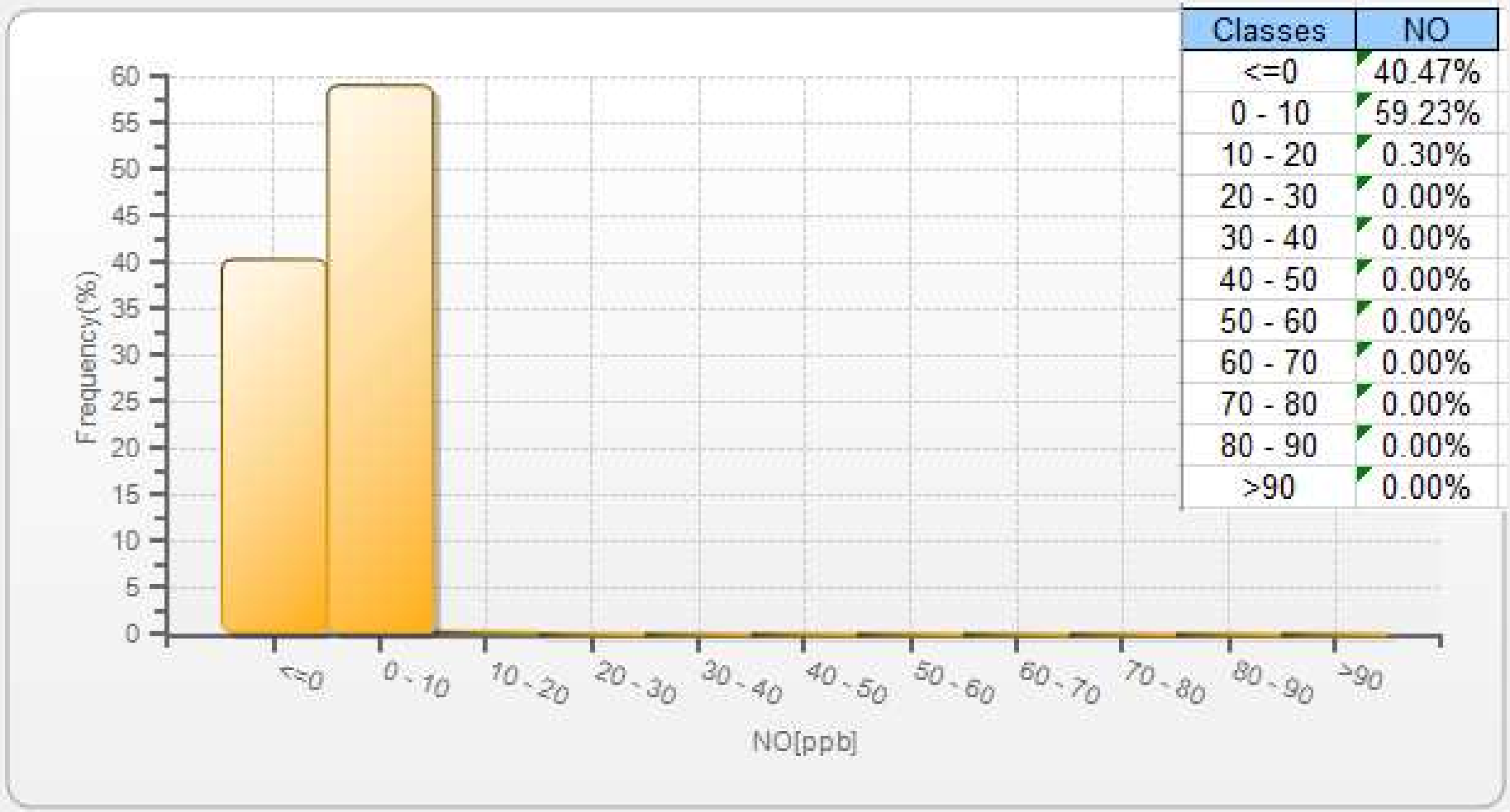
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



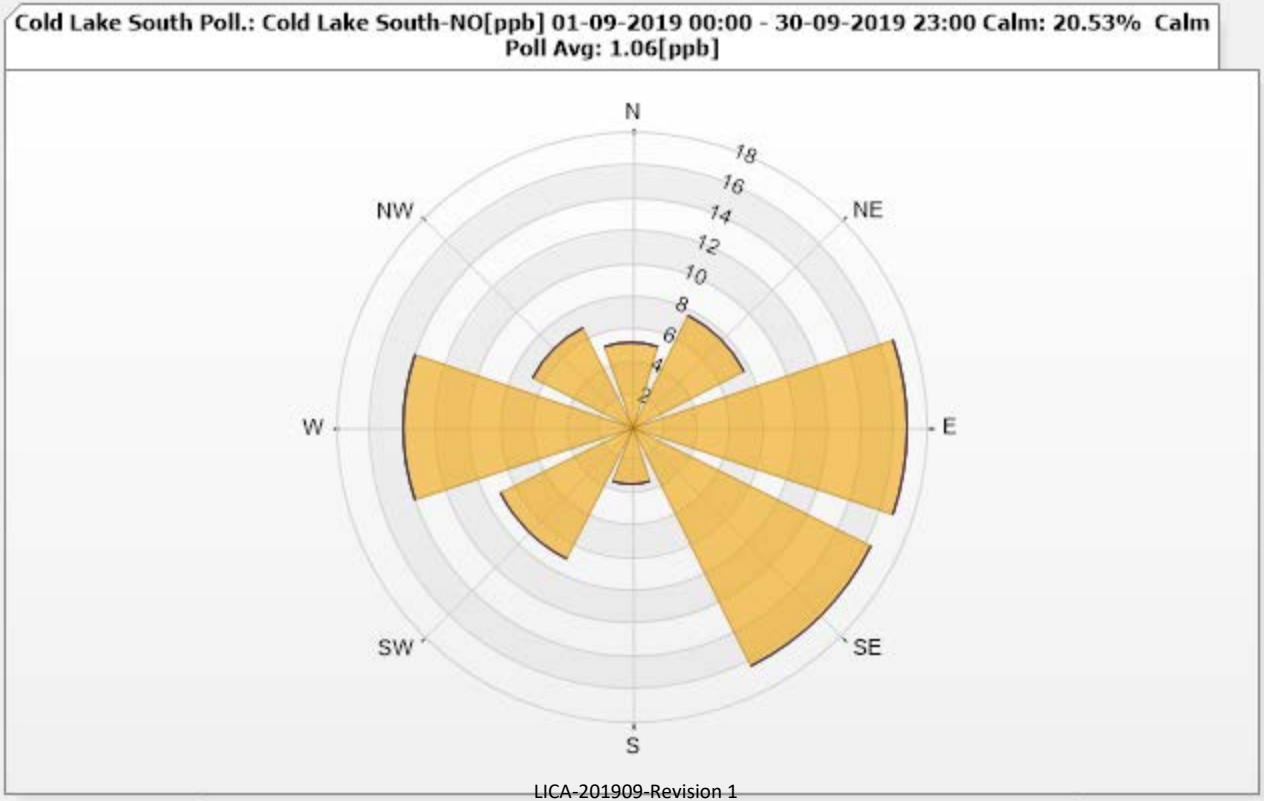
NO[ppb] Histogram: Cold Lake South Monthly: 09-2019 1 Hr.



Classes	NO
<=0	40.47%
0 - 10	59.23%
10 - 20	0.30%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-NO[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.53% Valid Data: 94.03% Calm Avg: 1.06 [ppb]

Direction	30-50	50-82	82-159	>159.0	Total
N	5.17	0	0	0	5.17
NE	7.68	0	0	0	7.68
E	16.84	0	0	0	16.84
SE	16.4	0	0	0	16.4
S	3.55	0	0	0	3.55
SW	9.01	0	0	0	9.01
W	14.03	0	0	0	14.03
NW	6.79	0	0	0	6.79
Summary	79.47	0	0	0	79.47


Cold Lake South Poll.: Cold Lake South-NO[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.53% Calm
Poll Avg: 1.06[ppb]
N
NE
E
SE
S
SW
W
NW
18
16
14
12
10
8
6
4
2
% Icon Classes (ppb)
79 30-59
0 60-82
0 82-159
0 >159.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Averages

NITROGEN DIOXIDE (NO_2) in ppb

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

Number of 1-Hour Exceedences: 0

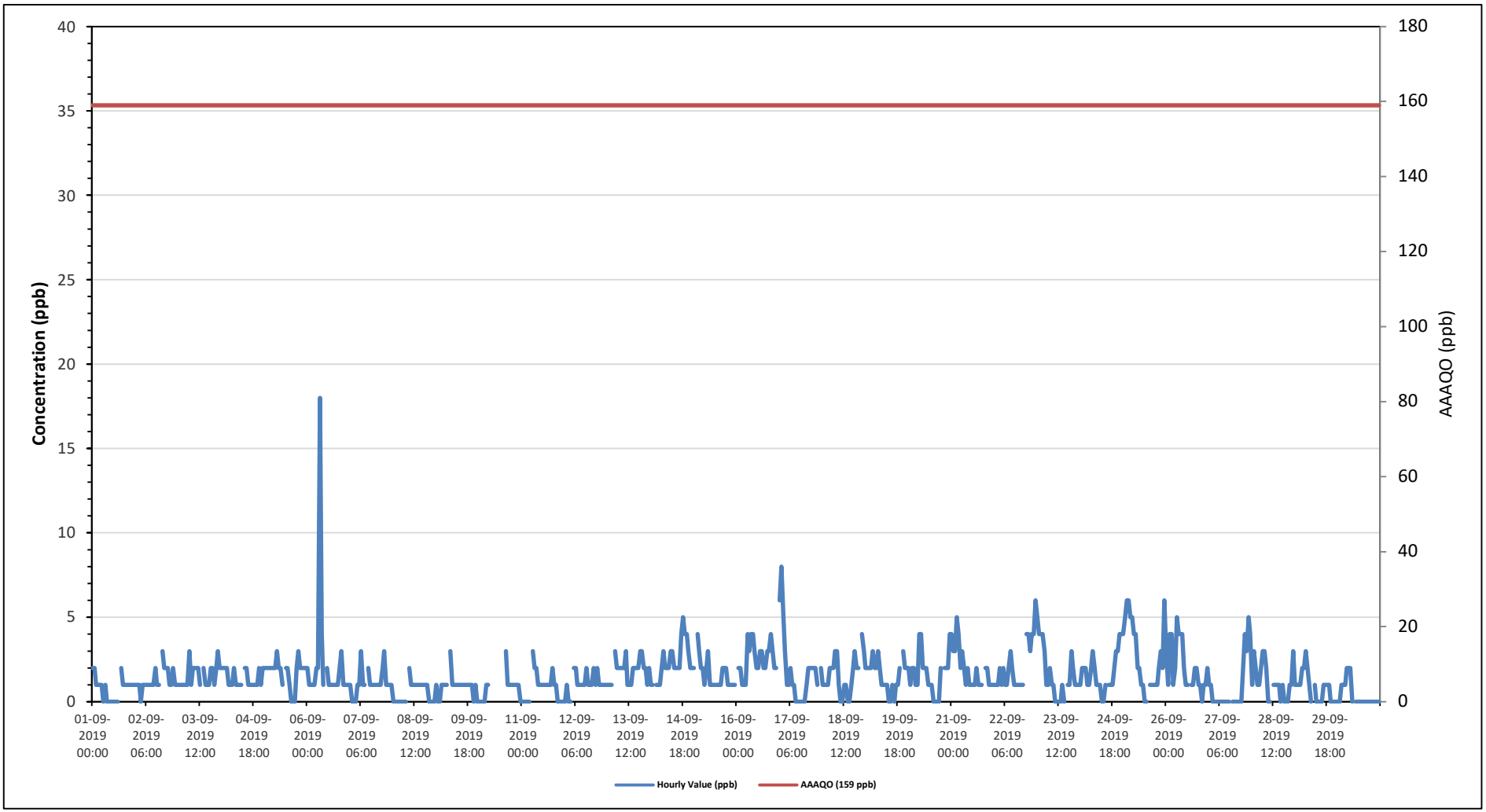
Maximum Hourly Value:	18	ppb	on September 6 at hour 7	Hours in Service:	720
Maximum Daily Value:	2.7	ppb	on September 25	Hours of Data:	682
Minimum Hourly Value:	0	ppb	on September 1 at hour 6	Hours of Missing Data:	0
Minimum Daily Value:	0.4	ppb	on September 30	Hours of Calibration:	38
Monthly Average:	1.5	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	2	2	1	1	1	1	0	1	0	0	0	0	0	0	0	S	2	1	1	1	1	1	1	1	0	2	0.8
Sep 2	1	1	1	0	1	1	1	1	1	1	1	2	1	1	S	3	2	2	2	1	1	2	1	1	0	3	1.3
Sep 3	1	1	1	1	1	1	3	1	2	2	2	2	1	S	2	1	1	1	2	2	1	2	3	2	1	3	1.6
Sep 4	2	2	2	2	1	1	1	2	1	1	1	1	S	2	2	1	1	1	1	1	1	2	1	2	1	2	1.4
Sep 5	2	2	2	2	2	2	2	3	2	2	1	S	2	2	1	0	0	0	2	3	2	2	2	2	0	3	1.7
Sep 6	2	1	1	1	1	2	2	18	4	1	S	2	1	1	1	1	1	1	2	3	1	1	1	1	1	18	2.2
Sep 7	1	0	0	0	1	1	3	1	1	S	2	1	1	1	1	1	1	1	2	3	1	1	1	1	0	3	1.1
Sep 8	0	0	0	0	0	0	0	0	S	2	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	2	0.5
Sep 9	1	0	0	1	1	1	1	S	3	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	3	0.9
Sep 10	0	0	0	0	1	1	S	2	C	C	C	C	C	C	C	3	1	1	1	1	1	1	1	0	0	3	-
Sep 11	0	0	0	0	0	S	3	2	2	1	1	1	1	1	1	1	1	2	1	1	0	0	0	0	0	3	0.8
Sep 12	0	1	0	0	S	2	2	1	1	1	1	1	2	1	1	1	2	1	2	1	1	1	1	1	0	2	1.1
Sep 13	1	1	1	S	3	2	2	2	2	2	3	1	1	1	2	2	2	2	3	3	2	2	1	2	1	3	1.9
Sep 14	1	1	S	1	1	1	2	3	2	2	2	3	3	2	2	2	2	4	5	4	4	3	2	2	1	5	2.3
Sep 15	2	S	4	3	2	2	1	2	3	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	4	1.6
Sep 16	S	2	2	1	1	1	4	3	4	4	3	2	2	3	3	2	2	3	3	4	3	2	2	S	1	4	2.5
Sep 17	6	8	5	3	1	1	2	1	1	0	0	0	0	0	0	1	2	2	2	2	2	1	S	2	0	8	1.8
Sep 18	1	1	1	1	2	2	2	3	3	1	0	0	1	1	0	0	1	2	3	2	2	S	4	3	0	4	1.6
Sep 19	2	2	2	2	3	2	2	3	2	1	1	1	1	0	0	1	0	1	1	2	S	3	2	2	0	3	1.6
Sep 20	2	1	2	2	1	1	4	4	2	2	2	1	1	1	0	0	0	0	2	S	2	2	2	4	0	4	1.7
Sep 21	4	3	3	5	4	2	3	2	1	2	1	1	1	1	2	1	1	1	S	2	2	1	1	1	1	5	2.0
Sep 22	1	1	1	2	1	2	1	1	2	3	2	1	1	1	1	1	1	S	4	4	3	4	4	6	1	6	2.1
Sep 23	5	4	4	4	3	1	1	2	1	1	0	0	0	0	1	0	S	1	1	3	2	1	1	1	0	5	1.6
Sep 24	1	2	2	2	1	1	2	3	2	1	1	1	0	0	1	S	1	1	1	2	3	3	4	4	0	4	1.7
Sep 25	4	5	6	6	5	5	4	4	2	2	1	1	0	0	S	1	1	1	1	1	2	3	2	6	0	6	2.7
Sep 26	3	1	4	4	1	2	5	4	4	4	2	1	1	S	1	1	2	2	1	1	0	1	1	2	0	5	2.1
Sep 27	1	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	2	4	3	5	4	0	5	0.9
Sep 28	1	3	2	1	1	2	3	3	2	0	0	S	1	1	1	1	0	1	0	0	0	1	1	3	0	3	1.2
Sep 29	1	1	1	1	2	2	3	2	1	0	S	1	0	0	0	0	1	1	1	1	0	0	0	0	0	3	0.8
Sep 30	0	0	1	1	1	2	2	2	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4
Diurnal Maximum	6	8	6	6	5	5	5	18	4	4	3	3	3	3	3	3	2	4	5	4	4	4	5	6			
Daiurnal Average	1.7	1.6	1.7	1.6	1.5	1.5	2.1	2.6	1.8	1.4	1.1	1.0	0.9	0.9	1.0	1.0	1.1	1.3	1.7	1.8	1.5	1.5	1.6	1.9			

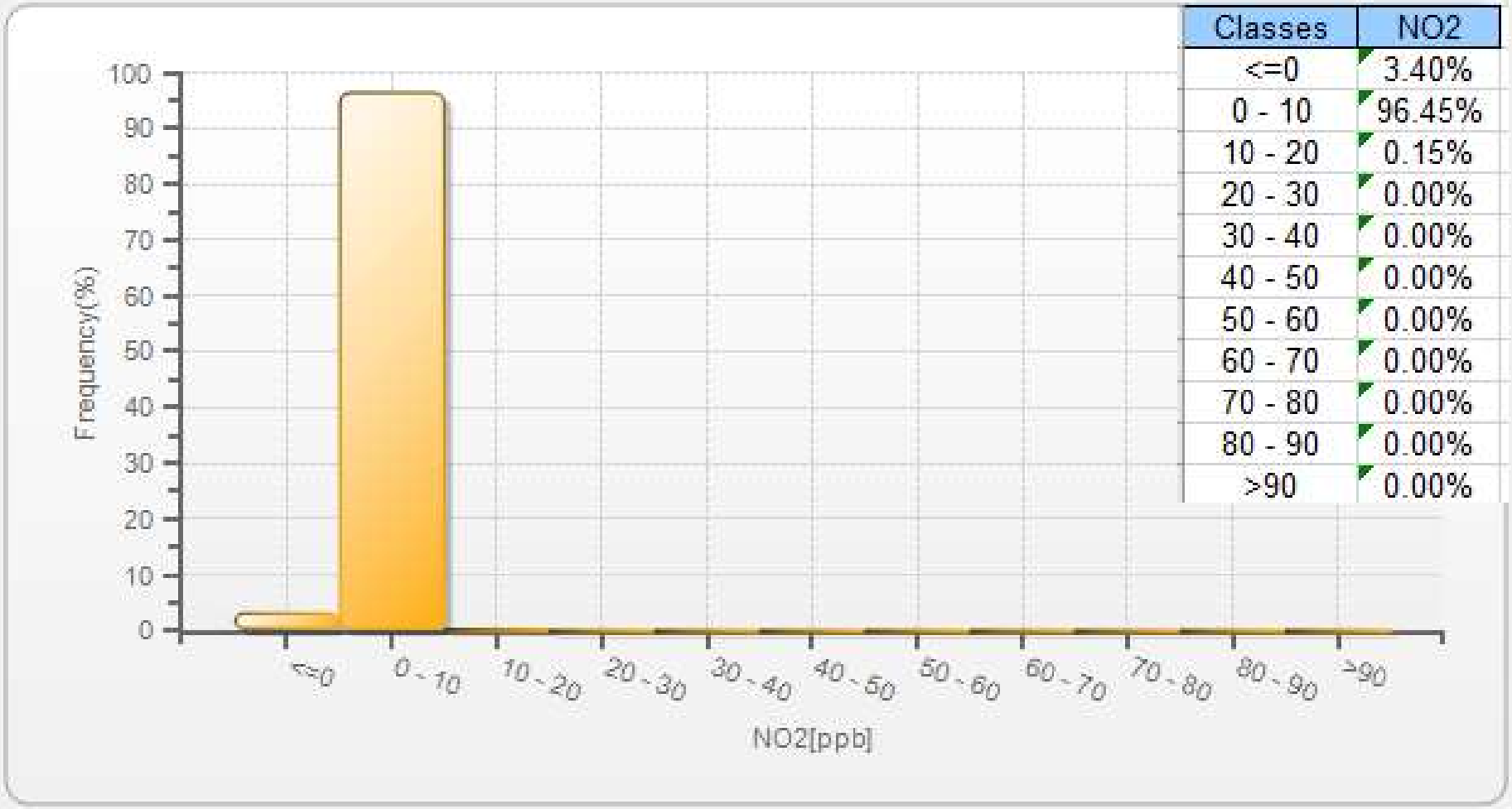
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



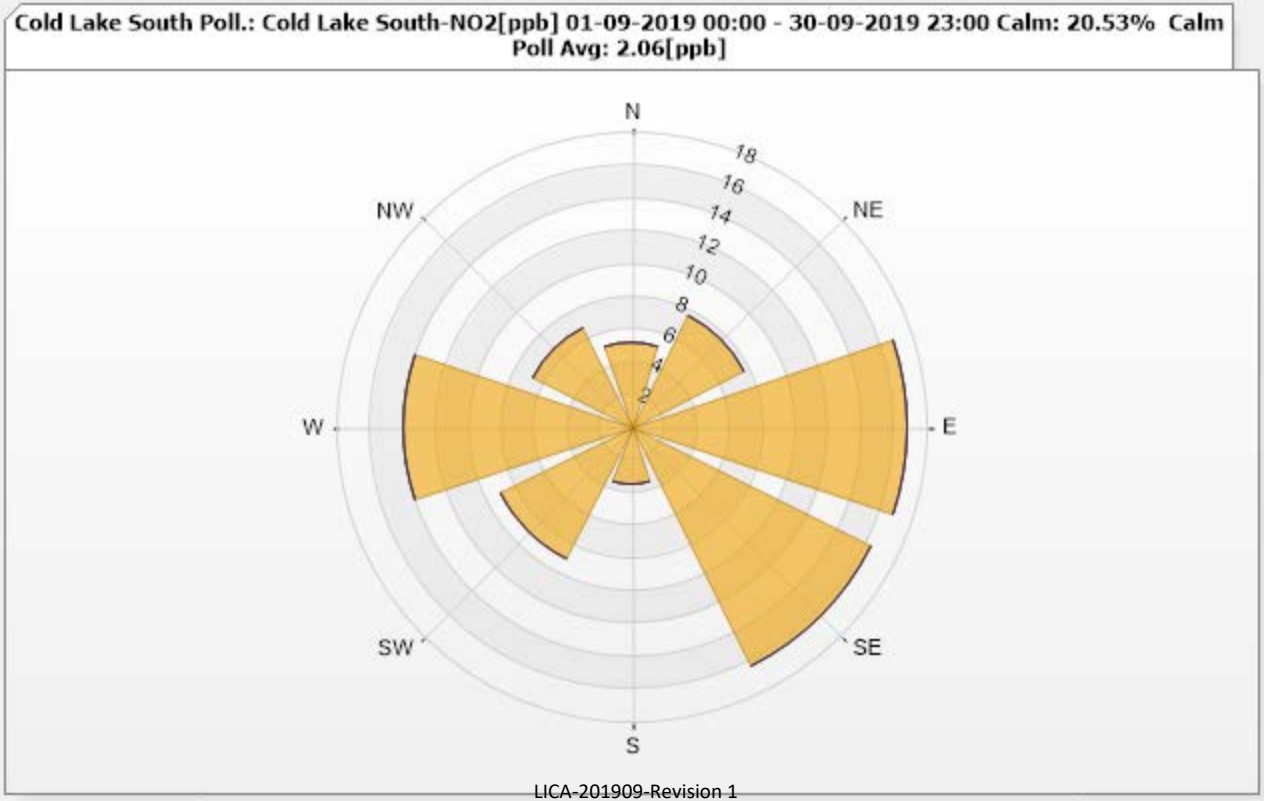
NO2[ppb] Histogram: Cold Lake South Monthly: 09-2019 1 Hr.



Classes	NO2
<=0	3.40%
0 - 10	96.45%
10 - 20	0.15%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-NO2[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.53% Valid Data: 94.03% Calm Avg: 2.06 [ppb]

Direction	30-50	50-82	82-159	>159.0	Total
N	5.17	0	0	0	5.17
NE	7.68	0	0	0	7.68
E	16.84	0	0	0	16.84
SE	16.4	0	0	0	16.4
S	3.55	0	0	0	3.55
SW	9.01	0	0	0	9.01
W	14.03	0	0	0	14.03
NW	6.79	0	0	0	6.79
Summary	79.47	0	0	0	79.47


Cold Lake South Poll.: Cold Lake South-NO2[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.53% Calm
Poll Avg: 2.06[ppb]
N
NE
E
SE
S
SW
W
NW
18
16
14
12
10
8
6
4
2
% Icon Classes (ppb)
79 30-59
0 60-82
0 82-159
0 >159.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Averages

OZONE (O_3) in ppb

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

Number of 1-Hour Exceedences: 0

Maximum Hourly Value:	37.8	ppb	on September 22 at hour 16	Hours in Service:	720
Maximum Daily Value:	28.9	ppb	on September 29	Hours of Data:	684
Minimum Hourly Value:	0.3	ppb	on September 14 at hour 4	Hours of Missing Data:	1
Minimum Daily Value:	10.1	ppb	on September 14	Hours of Calibration:	35
Monthly Average:	18.3	ppb		Operational Uptime:	99.9

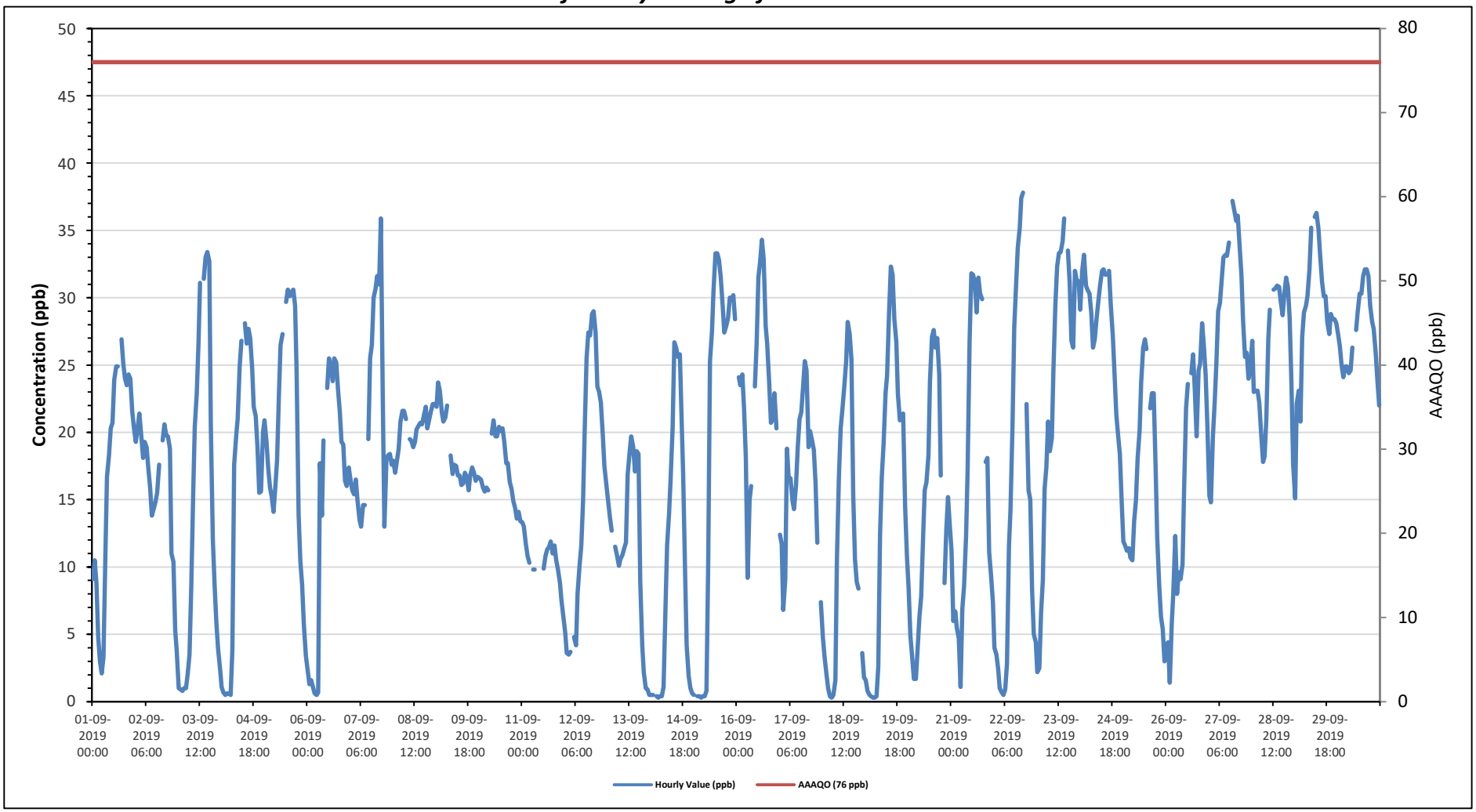
Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	9.1	10.5	8.8	4.8	3	2.1	3.3	11.2	16.7	18.3	20.3	20.7	23.9	24.9	24.9	S	26.9	25.1	24	23.5	24.3	24	21.5	20.4	2.1	26.9	17.1
Sep 2	19.3	20.3	21.4	19.9	18.1	19.3	18.9	17.3	15.9	13.8	14.3	14.8	15.5	17.6	S	19.4	20.6	19.8	19.7	18.8	11	10.4	5.3	3.8	3.8	21.4	16.3
Sep 3	1	0.9	0.8	1	1	2.1	3.5	8.5	15.7	20.4	22.9	26.7	31.1	S	31.4	33	33.4	32.7	20.5	12.1	8.7	5.9	3.9	2.4	0.8	33.4	13.9
Sep 4	1.1	0.7	0.5	0.6	0.6	0.5	3.9	17.6	19.7	21	24.9	26.8	S	28.1	26.6	27.7	27	24.7	21.9	21.2	18.9	15.5	15.6	20	0.5	28.1	15.9
Sep 5	20.9	19.3	17.3	15.9	15.2	14.1	15.9	17.9	23.1	26.5	27.3	S	29.7	30.6	30.1	30.4	30.6	29.4	24.5	13.9	10.4	8.7	5.7	3.4	3.4	30.6	20.0
Sep 6	2.5	1.3	1.6	1.1	0.6	0.5	0.7	17.7	13.8	19.4	S	23.3	25.5	25	23.8	25.5	25.2	23.2	21.6	19.3	19.1	16.4	16	17.4	0.5	25.5	14.8
Sep 7	16.6	15.7	15.4	16.5	14.9	13.5	13	14.6	14.6	S	19.5	25.5	26.5	30	30.7	31.6	31	35.9	23.4	13	17.9	18.3	18.4	17.6	13.0	35.9	20.6
Sep 8	17.9	17	17.9	18.8	20.8	21.6	21.6	21	S	19.5	19.4	18.9	19.3	20.2	20.5	20.7	20.6	21.2	21.9	20.3	21	21.6	22.1	22.1	17.0	22.1	20.3
Sep 9	21.9	23.7	23.1	21.5	20.8	21.1	22	S	18.3	16.9	17.6	17.5	16.8	16.8	16.1	16.2	17	16.7	15.7	16.8	17.4	17	16.4	16.7	15.7	23.7	18.4
Sep 10	16.6	16.5	15.9	15.6	15.9	15.7	S	19.9	20.9	19.7	19.7	20.4	20.1	20.3	19.3	17.7	17.7	16.3	15.8	14.9	14.4	13.6	14.1	13.4	13.4	20.9	17.1
Sep 11	13.3	13	11.7	10.8	10.3	S	9.8	9.8	C	C	C	C	9.9	10.8	11.3	11.5	11.9	11	11.6	10.5	9.8	8.8	7.5	6.4	6.4	13.3	10.5
Sep 12	5.1	3.6	3.5	3.7	S	4.8	4.2	8	10.1	11.6	14.9	20.5	25.5	27.4	27.2	28.8	29	27.4	23.4	23	22.2	19.7	17.5	16.1	3.5	29.0	16.4
Sep 13	14.9	13.7	12.7	S	11.5	10.9	10.1	10.6	10.9	11.4	11.8	16.9	18.6	19.7	18.9	17.1	18.6	18.4	8.9	4.2	2.2	1	0.9	0.5	0.5	19.7	11.5
Sep 14	0.5	0.5	S	0.4	**0.3**	0.4	0.4	1.1	6.5	11.6	14	16.5	20.3	26.7	26.3	25.6	25.8	21.6	16.9	9.4	4.2	1.9	1	0.6	**0.3**	26.7	10.1
Sep 15	0.5	S	0.4	0.4	**0.3**	0.4	0.4	0.8	10.4	25.3	27.5	30.5	33.3	33.3	32.8	31.5	29.3	27.4	27.9	28.5	30	29.9	30.2	28.4	**0.3**	33.3	20.0
Sep 16	S	24.1	23.5	24.3	21.7	18.1	9.2	15	16	S1	23.4	26.6	31.5	32.7	34.3	32.9	27.9	26.6	23.7	20.7	21	22.9	20.3	S	9.2	34.3	23.6
Sep 17	12.4	11.7	6.8	9	18.8	16.5	16.6	14.9	14.3	16.1	18.9	21	21.5	23.6	25.3	24.6	18.9	20.1	19.4	18.7	16.2	11.8	S	7.4	6.8	25.3	16.7
Sep 18	4.8	3.3	2.1	1	0.4	**0.3**	0.5	1.6	10.5	16.7	20.3	21.7	23.3	25.3	28.2	27.3	25.4	15.4	10.6	8.9	8.4	S	3.6	1.8	**0.3**	28.2	11.4
Sep 19	1.6	0.8	0.5	0.4	**0.3**	**0.3**	0.4	2.6	12.4	16.7	19.1	22.9	24.2	28.9	32.3	31.7	28.4	26.7	22.9	20.9	S	21.4	14.5	10.9	**0.3**	32.3	14.8
Sep 20	8.4	4.9	3.1	1.7	1.7	4	6.3	7.8	12.4	15.7	16.3	18.3	23.8	27.1	27.6	26.3	27	24.3	16.8	S	8.8	12.7	15.2	13.1	1.7	27.6	14.1
Sep 21	11.2	6	6.7	5.5	4.7	1.1	6.9	8.6	12.3	17.1	26.8	31.8	31.7	31.1	28.9	31.5	30.3	29.9	S	17.8	18.1	11.1	9.5	7.4	1.1	31.8	16.8
Sep 22	4	3.5	2.4	1	0.7	0.5	0.9	2.8	11.6	14.2	20.4	27.8	30.8	33.7	35.2	37.4	**37.8**	S	22.1	15.7	15	8.4	5	4.4	0.5	**37.8**	14.6
Sep 23	2.2	2.5	6.6	9	15.8	17.4	20.8	18.6	19.6	24.5	29.5	32.3	33.3	33.4	34.2	35.9	S	33.5	31.1	26.8	26.3	32	31.3	31.2	2.2	35.9	23.8
Sep 24	29.1	32	33.2	30.9	30.6	30.3	28.9	26.3	26.9	28.4	29.7	30.9	32	32.1	31.7	S	32	29.4	27.2	24.7	21.3	19.8	18.4	15	15.0	33.2	27.9
Sep 25	11.9	11.6	11.2	11.4	10.7	10.5	13.4	14.9	18.1	20.2	23.7	26.3	26.9	26.2	S	21.8	22.9	22.9	17.1	12.2	8.6	6.3	5.4	3	3.0	26.9	15.5
Sep 26	3.4	4.4	1.4	5.8	8	12.3	8	9.6	9.1	10.2	15.6	21.8	23.6	S	24.4	25.8	23.1	19.7	24.6	25.1	28.1	26.4	24.3	20.5	1.4	28.1	16.3
Sep 27	15.3	14.8	19.7	22.2	25.2	29	29.6	31.3	33	33.2	33.1	34.1	S	37.2	36.5	35.7	36.1	33.7	31.6	28.4	25.6	25.9	24	24.7	14.8	37.2	28.7
Sep 28	26.8	23	23.1	23.1	22.2	20	17.8	18.2	21	27	29.1	S	30.6	30.7	30.9	30.8	29.8	28.7	30.3	31.5	30.8	28.5	23.7	17.6	17.6	31.5	25.9
Sep 29	15.1	22.1	23.1	20.8	27.1	28.9	29.4	30.1	32.1	35.2	S	36	36.3	35.1	33.3	31.2	30.1	30.1	28.2	27.3	28.8	28.4	28.4	28.1	15.1	36.3	**28.9**
Sep 30	27.3	26.4	25	24.1	24.9	24.9	24.4	24.6	26.3	S	27.6	28.9	30.3	30.3	31.6	32.1	32.1	31.6	29.4	28.2	27.7	25.9	23.8	22	22.0	32.1	27.4
Diurnal Maximum	29	32	33	31	31	30	30	31	33	35	33	36	36	37	37	37	38	36	32	32	31	32	31	31			
Daiurnal Average	11.5	12.0	11.7	11.1	11.9	11.8	11.8	13.9	16.9	19.6	21.8	24.4	25.6	27.1	27.7	27.2	26.4	24.9	21.8	19.2	17.8	17.0	15.3	13.7			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

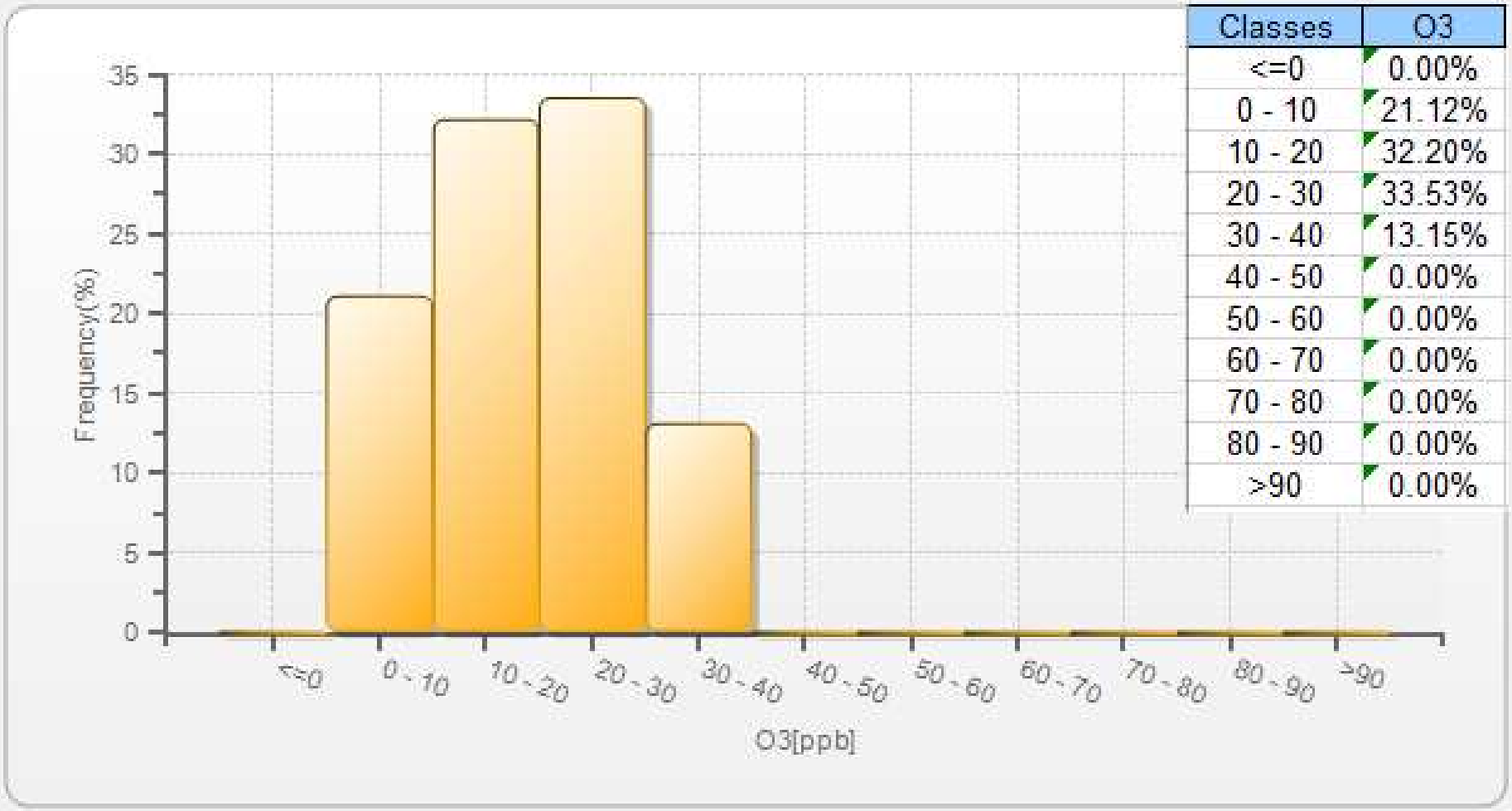
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

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



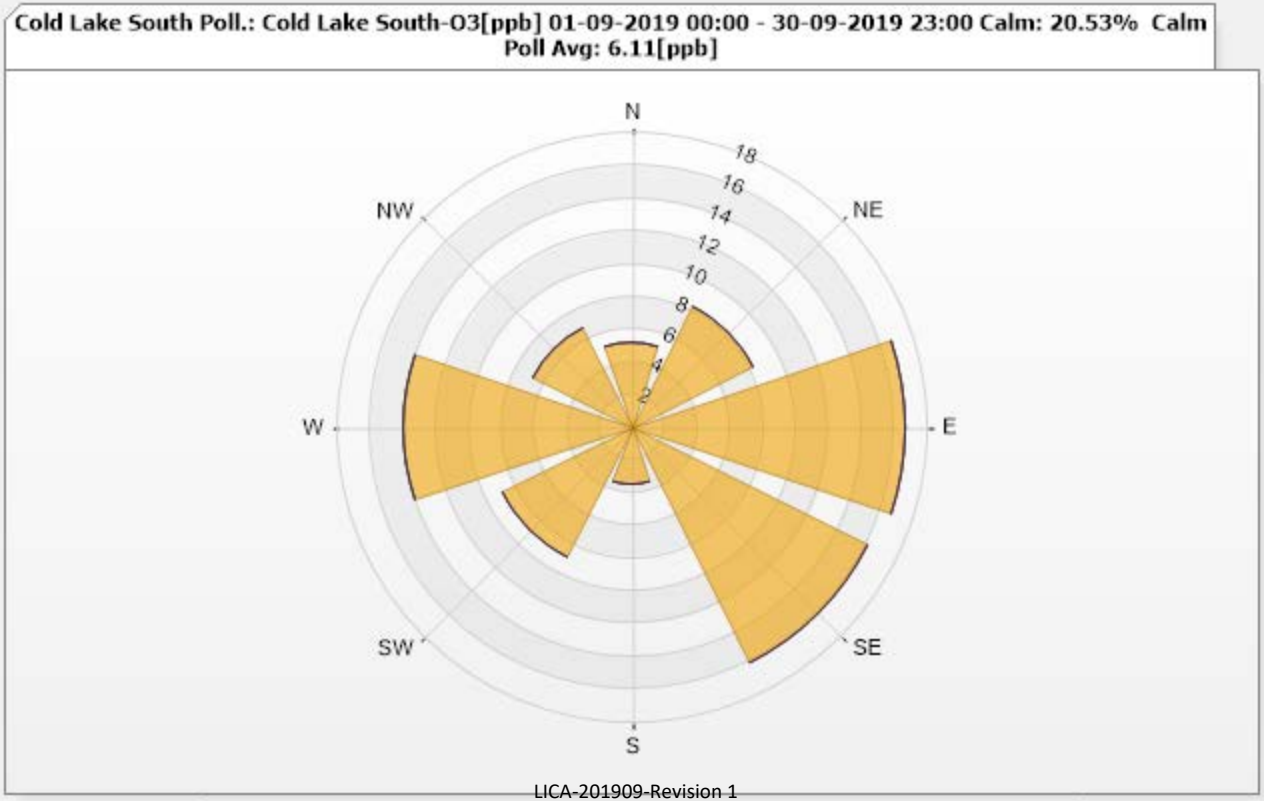
O3[ppb] Histogram: Cold Lake South Monthly: 09-2019 1 Hr.



Classes	O3
<=0	0.00%
0 - 10	21.12%
10 - 20	32.20%
20 - 30	33.53%
30 - 40	13.15%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-O3[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.53% Valid Data: 94.03% Calm Avg: 6.11 [ppb]

Direction	30-50	50-82	82-159	>159.0	Total
N	5.17	0	0	0	5.17
NE	8.27	0	0	0	8.27
E	16.69	0	0	0	16.69
SE	16.1	0	0	0	16.1
S	3.55	0	0	0	3.55
SW	8.86	0	0	0	8.86
W	14.03	0	0	0	14.03
NW	6.79	0	0	0	6.79
Summary	79.46	0	0	0	79.46


Cold Lake South Poll.: Cold Lake South-O3[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.53% Calm
Poll Avg: 6.11[ppb]
N
NE
E
SE
S
SW
W
NW
18
16
14
12
10
8
6
4
2
% Icon Classes (ppb)
79 30-59
0 60-82
0 82-159
0 >159.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Averages

TOTAL HYDROCARBONS (THC) in ppm

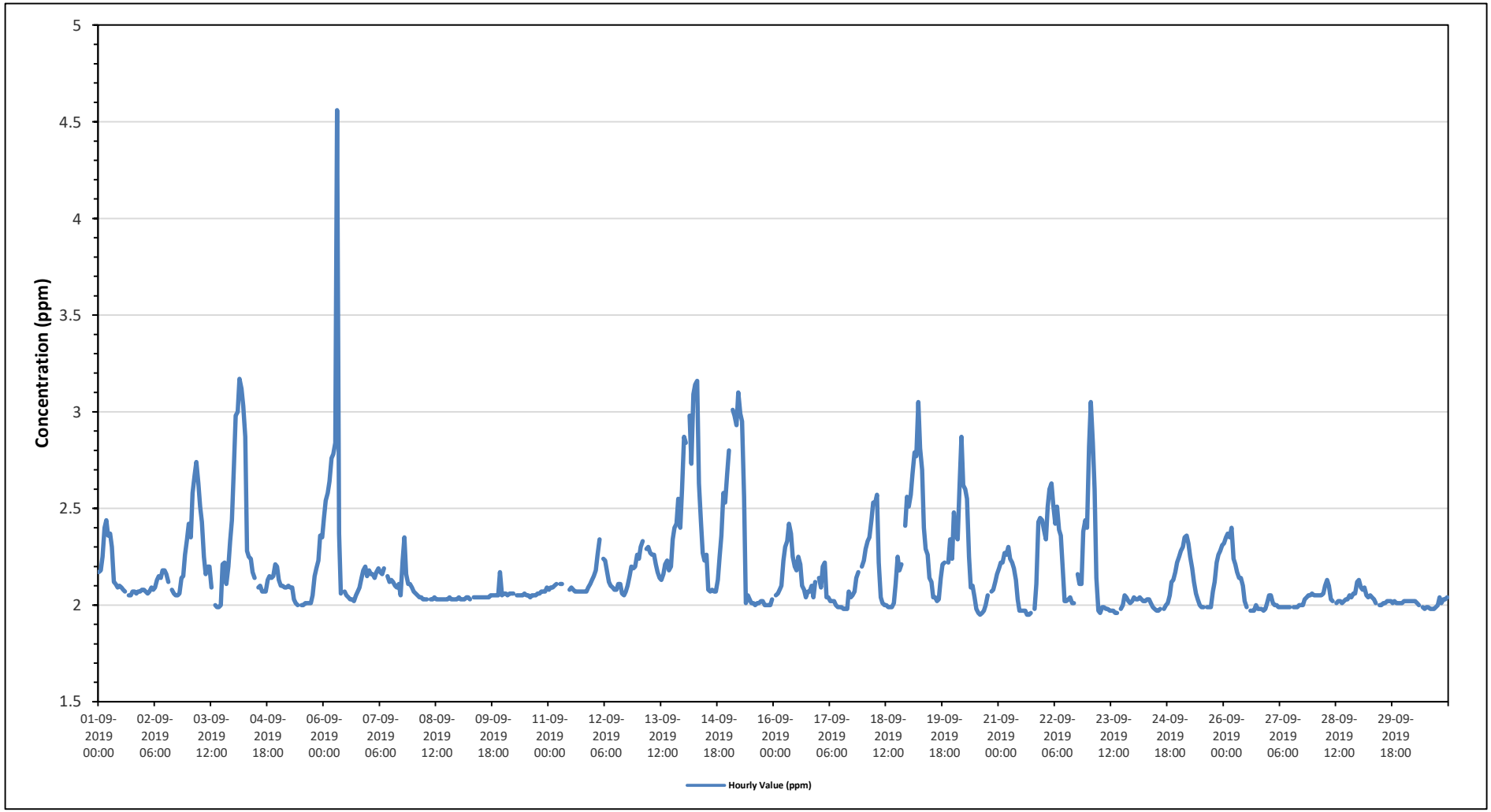
Maximum Hourly Value:	4.56	ppm	on September 6 at hour 7	Hours in Service:	720
Maximum Daily Value:	2.50	ppm	on September 14	Hours of Data:	686
Minimum Hourly Value:	1.95	ppm	on September 20 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	2.01	ppm	on September 30	Hours of Calibration:	34
Monthly Average:	2.17	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	2.17	2.18	2.25	2.40	2.44	2.36	2.37	2.30	2.12	2.11	2.09	2.10	2.09	2.08	2.07	S	2.05	2.05	2.07	2.07	2.06	2.07	2.07	2.08	2.05	2.44	2.16
Sep 2	2.08	2.07	2.06	2.07	2.09	2.08	2.09	2.13	2.15	2.14	2.18	2.18	2.16	2.12	S	2.08	2.06	2.05	2.05	2.06	2.14	2.15	2.26	2.34	2.05	2.34	2.12
Sep 3	2.42	2.35	2.58	2.67	2.74	2.63	2.51	2.43	2.25	2.16	2.20	2.20	2.09	S	2.00	1.99	1.99	2.00	2.21	2.22	2.11	2.20	2.33	2.44	1.99	2.74	2.29
Sep 4	2.72	2.98	3.00	3.17	3.12	3.03	2.87	2.28	2.25	2.24	2.17	2.14	S	2.09	2.10	2.07	2.07	2.07	2.13	2.15	2.14	2.15	2.21	2.20	2.07	3.17	2.41
Sep 5	2.13	2.10	2.10	2.09	2.09	2.10	2.09	2.09	2.03	2.01	2.00	S	2.00	2.00	2.01	2.01	2.01	2.01	2.05	2.15	2.19	2.23	2.36	2.35	2.00	2.36	2.10
Sep 6	2.45	2.54	2.58	2.64	2.76	2.78	2.84	**4.56**	2.37	2.06	S	2.07	2.05	2.04	2.03	2.03	2.02	2.05	2.07	2.09	2.14	2.18	2.20	2.15	2.02	**4.56**	2.38
Sep 7	2.18	2.16	2.16	2.14	2.17	2.19	2.17	2.16	2.19	S	2.15	2.12	2.13	2.12	2.10	2.09	2.11	2.05	2.23	2.35	2.16	2.11	2.11	2.09	2.05	2.35	2.15
Sep 8	2.07	2.06	2.05	2.04	2.04	2.03	2.03	2.03	S	2.03	2.03	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.04	2.03	2.03	2.03	2.03	2.03	2.07	2.04
Sep 9	2.04	2.03	2.03	2.03	2.04	2.04	2.03	S	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.05	2.05	2.05	2.05	2.05	2.17	2.05	2.03	2.17	2.05
Sep 10	2.06	2.06	2.05	2.06	2.06	2.06	S	2.05	2.05	2.05	2.05	2.06	2.05	2.05	2.04	2.05	2.05	2.05	2.06	2.06	2.07	2.07	2.07	2.09	2.04	2.09	2.06
Sep 11	2.08	2.09	2.09	2.10	2.11	S	2.11	2.11	C	C	C	2.08	2.09	2.08	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.09	2.11	2.13	2.07	2.13	2.09
Sep 12	2.15	2.18	2.26	2.34	S	2.24	2.23	2.17	2.12	2.10	2.09	2.08	2.08	2.11	2.11	2.06	2.05	2.07	2.10	2.15	2.20	2.19	2.20	2.26	2.05	2.34	2.15
Sep 13	2.24	2.30	2.33	S	2.29	2.30	2.27	2.26	2.26	2.21	2.17	2.14	2.13	2.16	2.21	2.23	2.18	2.20	2.34	2.40	2.42	2.55	2.40	2.60	2.13	2.60	2.29
Sep 14	2.87	2.84	S	2.98	2.73	3.09	3.14	3.16	2.63	2.43	2.27	2.23	2.26	2.08	2.07	2.08	2.07	2.07	2.13	2.25	2.36	2.58	2.53	2.68	2.07	3.16	**2.50**
Sep 15	2.80	S	3.01	2.98	2.93	3.10	2.99	2.95	2.56	2.01	2.05	2.03	2.01	2.01	2.00	2.01	2.01	2.02	2.02	2.00	2.00	2.00	2.00	2.03	2.00	3.10	2.33
Sep 16	S	2.05	2.06	2.08	2.10	2.23	2.30	2.33	2.42	2.37	2.25	2.20	2.18	2.25	2.21	2.10	2.08	2.04	2.07	2.07	2.10	2.04	2.12	S	2.04	2.42	2.17
Sep 17	2.14	2.09	2.20	2.22	2.04	2.04	2.02	2.02	2.02	2.00	1.99	1.99	1.99	1.98	1.98	1.98	2.07	2.04	2.05	2.07	2.14	2.17	S	2.20	1.98	2.22	2.06
Sep 18	2.23	2.29	2.33	2.35	2.44	2.53	2.53	2.57	2.22	2.04	2.01	2.00	2.00	1.99	1.99	1.99	2.01	2.11	2.25	2.18	2.21	S	2.41	2.56	1.99	2.57	2.23
Sep 19	2.51	2.57	2.68	2.79	2.77	3.05	2.81	2.70	2.40	2.29	2.26	2.14	2.12	2.04	2.04	2.02	2.03	2.14	2.21	2.22	S	2.22	2.34	2.24	2.02	3.05	2.37
Sep 20	2.48	2.37	2.34	2.60	2.87	2.62	2.60	2.55	2.25	2.09	2.10	2.04	1.98	1.96	1.95	1.96	1.97	2.00	2.05	S	2.07	2.08	2.12	2.16	1.95	2.87	2.23
Sep 21	2.19	2.22	2.22	2.27	2.26	2.30	2.24	2.22	2.19	2.13	2.03	1.97	1.97	1.97	1.97	1.95	1.95	1.96	S	1.98	2.11	2.43	2.45	2.44	1.95	2.45	2.15
Sep 22	2.39	2.34	2.51	2.60	2.63	2.52	2.42	2.51	2.39	2.36	2.18	2.02	2.02	2.03	2.04	2.01	2.01	S	2.16	2.11	2.11	2.38	2.44	2.40	2.01	2.63	2.29
Sep 23	2.82	3.05	2.84	2.60	2.14	1.97	1.96	1.99	1.99	1.98	1.98	1.97	1.97	1.97	1.96	1.96	S	1.98	2.00	2.05	2.04	2.02	2.01	2.02	1.96	3.05	2.14
Sep 24	2.04	2.03	2.03	2.04	2.03	2.02	2.02	2.03	2.03	2.01	1.99	1.98	1.97	1.97	1.98	S	1.98	2.00	2.01	2.05	2.12	2.13	2.17	2.22	1.97	2.22	2.04
Sep 25	2.25	2.28	2.30	2.35	2.36	2.32	2.25	2.19	2.12	2.06	2.03	2.00	1.99	1.99	S	1.99	1.99	1.99	2.07	2.12	2.22	2.26	2.28	2.31	1.99	2.36	2.16
Sep 26	2.32	2.35	2.37	2.35	2.40	2.24	2.21	2.17	2.14	2.14	2.10	2.02	1.99	S	1.97	1.97	1.97	2.00	1.98	1.98	1.98	1.97	1.98	2.01	1.97	2.40	2.11
Sep 27	2.05	2.05	2.01	2.00	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	S	1.99	1.99	1.99	2.00	2.00	2.00	2.03	2.04	2.05	2.05	2.06	1.99	2.06	2.01
Sep 28	2.05	2.05	2.05	2.05	2.05	2.06	2.10	2.13	2.10	2.03	2.02	S	2.01	2.02	2.02	2.01	2.02	2.03	2.03	2.05	2.04	2.06	2.06	2.12	2.01	2.13	2.05
Sep 29	2.13	2.09	2.08	2.09	2.05	2.04	2.05	2.04	2.03	2.01	S	2.00	2.00	2.01	2.01	2.02	2.02	2.02	2.01	2.02	2.01	2.01	2.01	2.01	2.00	2.13	2.03
Sep 30	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.01	2.00	S	1.99	1.98	1.99	1.99	1.98	1.98	1.98	1.99	2.00	2.04	2.01	2.03	2.03	2.04	1.98	2.04	2.01
Diurnal Maximum	2.87	3.05	3.01	3.17	3.12	3.10	3.14	4.56	2.63	2.43	2.27	2.23	2.26	2.25	2.21	2.23	2.18	2.20	2.34	2.40	2.42	2.58	2.53	2.68			
Daiurnal Average	2.28	2.27	2.30	2.35	2.34	2.34	2.32	2.35	2.19	2.11	2.09	2.06	2.05	2.04	2.03	2.03	2.03	2.04	2.09	2.11	2.12	2.16	2.19	2.22			

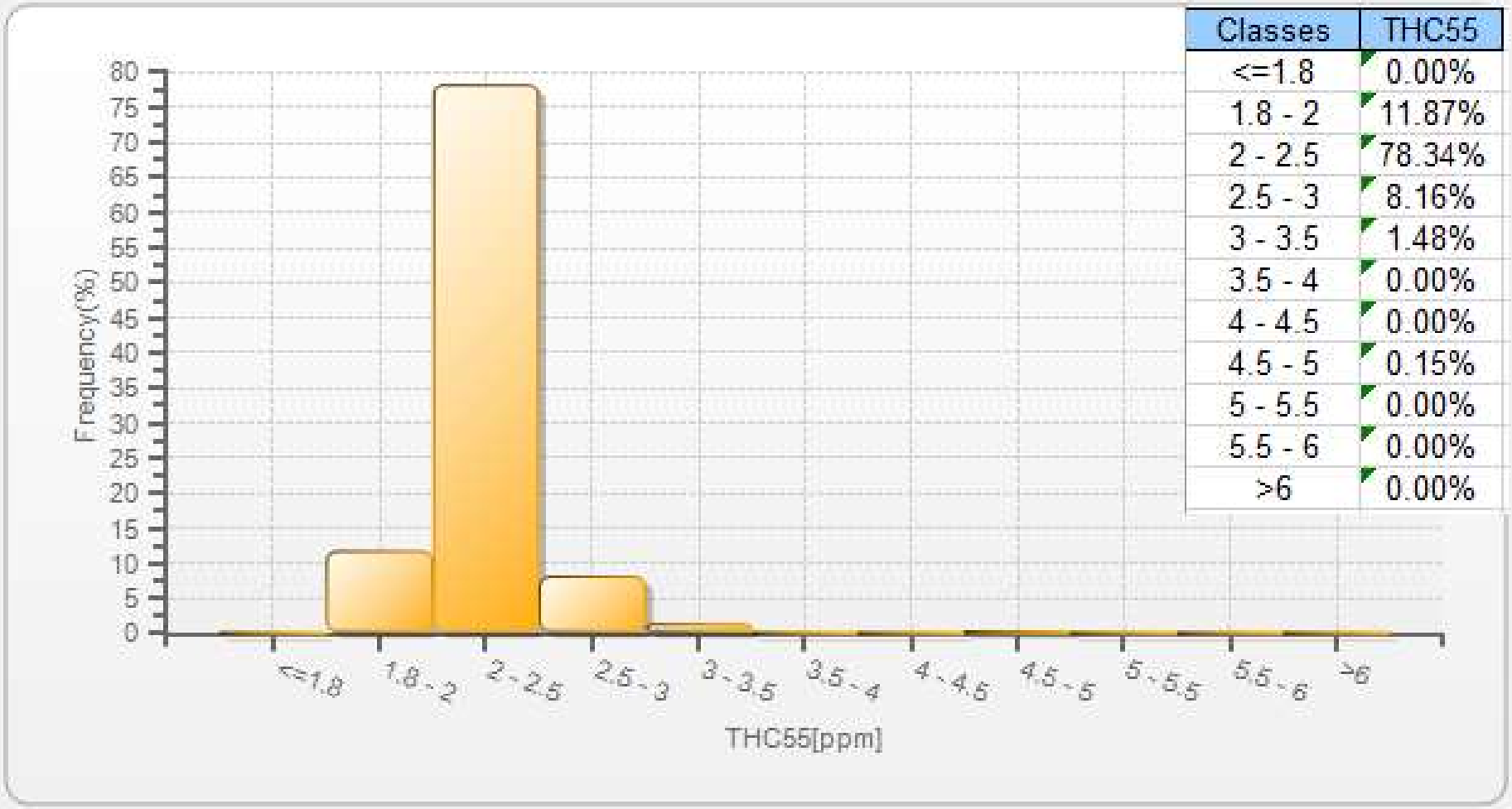
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



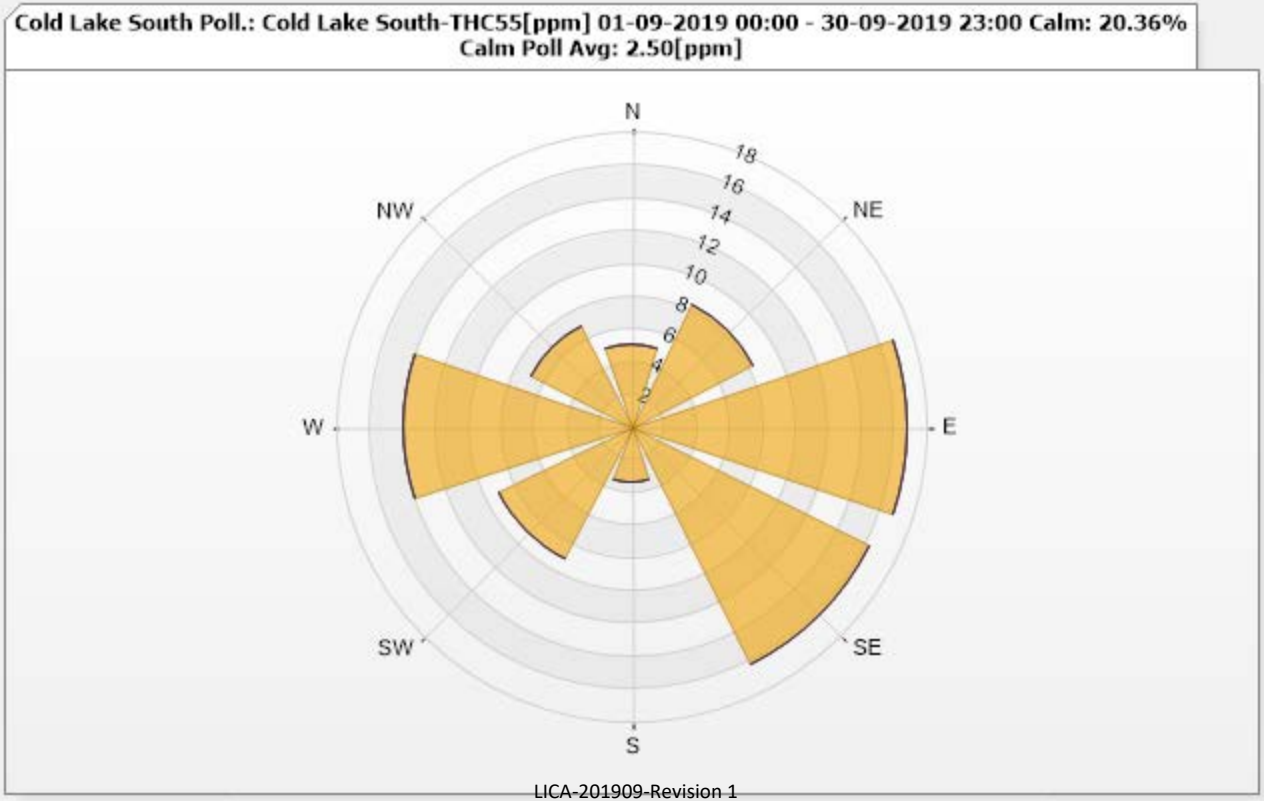
THC55[ppm] Histogram: Cold Lake South Monthly: 09-2019 1 Hr.



Classes	THC55
<=1.8	0.00%
1.8 - 2	11.87%
2 - 2.5	78.34%
2.5 - 3	8.16%
3 - 3.5	1.48%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.15%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-THC55[ppm] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.36% Valid Data: 93.47% Calm Avg: 2.50 [ppm]

Direction	2-5	5-10	10-40	>40.0	Total
N	5.05	0	0	0	5.05
NE	8.32	0	0	0	8.32
E	16.79	0	0	0	16.79
SE	16.2	0	0	0	16.2
S	3.42	0	0	0	3.42
SW	9.06	0	0	0	9.06
W	13.97	0	0	0	13.97
NW	6.84	0	0	0	6.84
Summary	79.65	0	0	0	79.65


Cold Lake South Poll.: Cold Lake South-THC55[ppm] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.36%
Calm Poll Avg: 2.50[ppm]
N
NE
E
SE
S
SW
W
NW
18
16
14
12
10
8
6
4
2
% Icon Classes (ppm)
80
0
5-10
0
10-40
0
>40.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Averages

METHANE (CH4) in ppm

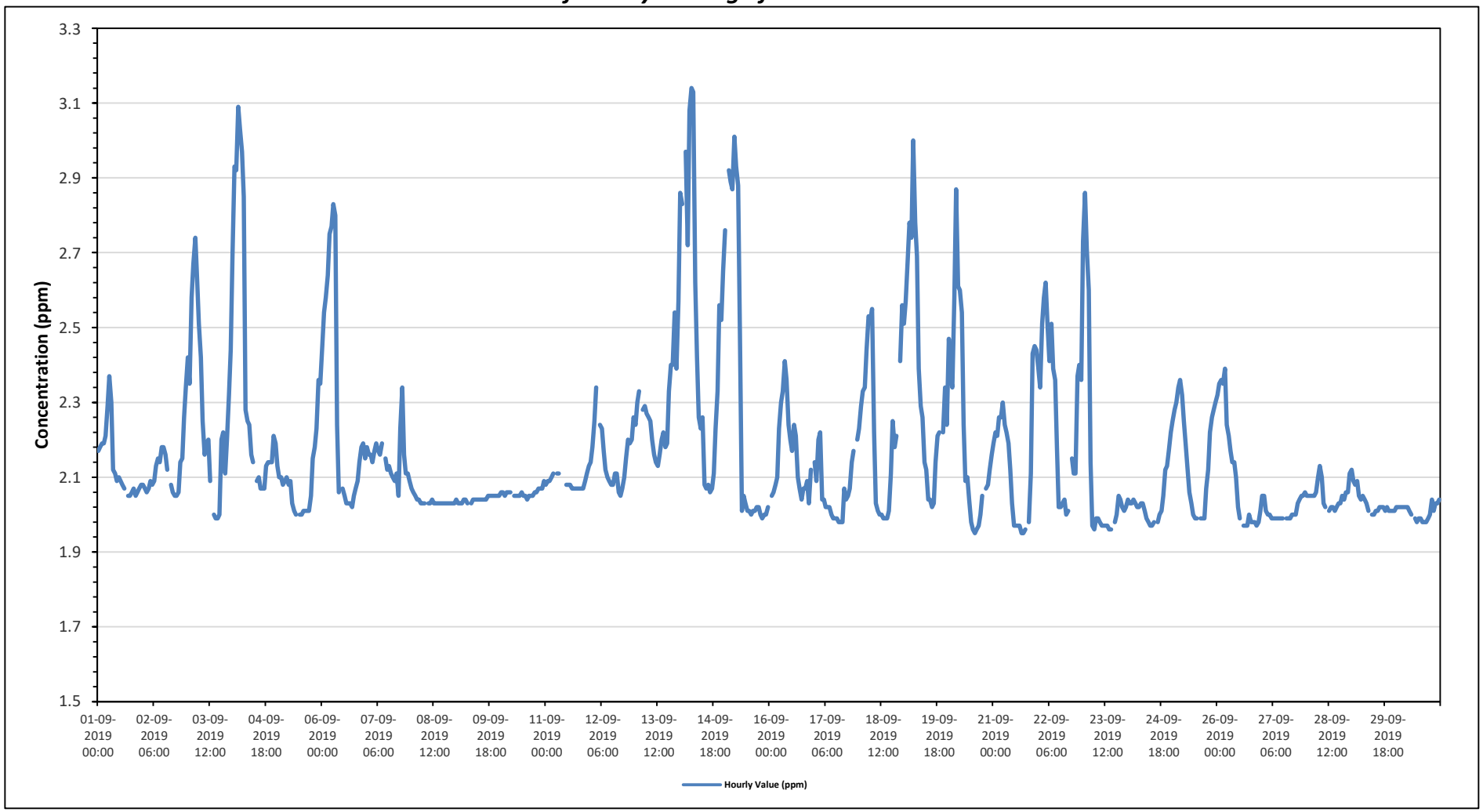
Maximum Hourly Value:	3.14	ppm	on September 14 at hour 6	Hours in Service:	720
Maximum Daily Value:	2.49	ppm	on September 14	Hours of Data:	686
Minimum Hourly Value:	1.95	ppm	on September 20 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	2.01	ppm	on September 30	Hours of Calibration:	34
Monthly Average:	2.16	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	2.17	2.18	2.19	2.19	2.21	2.29	2.37	2.30	2.12	2.11	2.09	2.10	2.09	2.08	2.07	S	2.05	2.05	2.06	2.07	2.05	2.06	2.07	2.08	2.05	2.37	2.13
Sep 2	2.08	2.07	2.06	2.07	2.09	2.08	2.09	2.13	2.15	2.14	2.18	2.18	2.16	2.12	S	2.08	2.06	2.05	2.05	2.06	2.14	2.15	2.26	2.34	2.05	2.34	2.12
Sep 3	2.42	2.35	2.58	2.67	2.74	2.63	2.51	2.42	2.25	2.16	2.19	2.20	2.09	S	2.00	1.99	1.99	2.00	2.20	2.22	2.11	2.20	2.32	2.44	1.99	2.74	2.29
Sep 4	2.69	2.93	2.92	3.09	3.03	2.97	2.85	2.28	2.25	2.24	2.16	2.14	S	2.09	2.10	2.07	2.07	2.07	2.13	2.14	2.14	2.14	2.21	2.19	2.07	3.09	2.39
Sep 5	2.13	2.10	2.10	2.08	2.09	2.10	2.08	2.09	2.03	2.01	2.00	S	2.00	2.00	2.01	2.01	2.01	2.01	2.05	2.15	2.18	2.23	2.36	2.35	2.00	2.36	2.09
Sep 6	2.45	2.54	2.58	2.64	2.75	2.77	2.83	2.80	2.24	2.06	S	2.07	2.05	2.03	2.03	2.03	2.02	2.05	2.07	2.09	2.14	2.18	2.19	2.15	2.02	2.83	2.29
Sep 7	2.18	2.16	2.16	2.14	2.17	2.19	2.17	2.16	2.19	S	2.15	2.12	2.13	2.11	2.10	2.09	2.11	2.05	2.23	2.34	2.16	2.11	2.11	2.09	2.05	2.34	2.15
Sep 8	2.07	2.06	2.05	2.04	2.04	2.03	2.03	2.03	S	2.03	2.03	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.07	2.04
Sep 9	2.04	2.03	2.03	2.03	2.04	2.04	2.03	S	2.03	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.03	2.05	2.04
Sep 10	2.06	2.06	2.05	2.06	2.06	2.06	S	2.05	2.05	2.05	2.05	2.06	2.05	2.05	2.04	2.05	2.05	2.05	2.06	2.06	2.07	2.07	2.07	2.09	2.04	2.09	2.06
Sep 11	2.08	2.09	2.09	2.10	2.11	S	2.11	2.11	C	C	C	2.08	2.08	2.08	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.09	2.11	2.13	2.07	2.13	2.09
Sep 12	2.14	2.18	2.25	2.34	S	2.24	2.23	2.17	2.12	2.10	2.09	2.08	2.08	2.11	2.11	2.06	2.05	2.07	2.10	2.15	2.20	2.19	2.20	2.26	2.05	2.34	2.15
Sep 13	2.24	2.30	2.33	S	2.28	2.29	2.27	2.26	2.25	2.20	2.16	2.14	2.13	2.16	2.20	2.22	2.18	2.19	2.33	2.40	2.40	2.54	2.39	2.57	2.13	2.57	2.28
Sep 14	2.86	2.83	S	2.97	2.72	3.08	**3.14**	3.13	2.62	2.42	2.26	2.23	2.26	2.08	2.07	2.08	2.06	2.07	2.11	2.23	2.33	2.56	2.52	2.65	2.06	**3.14**	**2.49**
Sep 15	2.76	S	2.92	2.89	2.87	3.01	2.93	2.88	2.49	2.01	2.05	2.03	2.01	2.01	2.00	2.01	2.01	2.02	2.02	2.00	1.99	2.00	2.00	2.02	1.99	3.01	2.30
Sep 16	S	2.05	2.06	2.08	2.10	2.23	2.30	2.33	2.41	2.36	2.24	2.20	2.17	2.24	2.21	2.10	2.07	2.04	2.07	2.07	2.09	2.03	2.12	S	2.03	2.41	2.16
Sep 17	2.14	2.09	2.20	2.22	2.04	2.04	2.02	2.02	2.02	2.00	1.99	1.99	1.99	1.98	1.98	1.98	2.07	2.04	2.05	2.07	2.14	2.17	S	2.20	1.98	2.22	2.06
Sep 18	2.23	2.29	2.33	2.34	2.44	2.53	2.52	2.55	2.22	2.03	2.01	2.00	2.00	1.99	1.99	1.99	2.01	2.11	2.25	2.18	2.21	S	2.41	2.56	1.99	2.56	2.23
Sep 19	2.51	2.57	2.68	2.78	2.74	3.00	2.78	2.69	2.39	2.29	2.26	2.14	2.12	2.04	2.04	2.02	2.03	2.14	2.21	2.22	S	2.22	2.34	2.24	2.02	3.00	2.37
Sep 20	2.47	2.37	2.34	2.58	2.87	2.61	2.60	2.54	2.24	2.09	2.10	2.04	1.98	1.96	1.95	1.96	1.97	2.00	2.05	S	2.07	2.08	2.12	2.16	1.95	2.87	2.22
Sep 21	2.19	2.22	2.21	2.26	2.26	2.30	2.24	2.22	2.19	2.12	2.03	1.97	1.97	1.97	1.97	1.95	1.95	1.96	S	1.98	2.11	2.43	2.45	2.44	1.95	2.45	2.15
Sep 22	2.39	2.34	2.51	2.58	2.62	2.50	2.41	2.51	2.39	2.36	2.18	2.02	2.02	2.03	2.04	2.00	2.01	S	2.15	2.11	2.11	2.37	2.40	2.36	2.00	2.62	2.28
Sep 23	2.73	2.86	2.71	2.60	2.14	1.97	1.96	1.99	1.99	1.98	1.97	1.97	1.97	1.97	1.96	1.96	S	1.98	2.00	2.05	2.04	2.02	2.01	2.02	1.96	2.86	2.12
Sep 24	2.04	2.03	2.03	2.04	2.03	2.02	2.02	2.03	2.03	2.01	1.99	1.98	1.97	1.97	1.98	S	1.98	2.00	2.01	2.05	2.12	2.13	2.17	2.22	1.97	2.22	2.04
Sep 25	2.25	2.28	2.30	2.34	2.36	2.32	2.25	2.19	2.12	2.06	2.03	2.00	1.99	1.99	S	1.99	1.99	1.99	2.07	2.12	2.22	2.26	2.28	2.30	1.99	2.36	2.16
Sep 26	2.32	2.35	2.36	2.35	2.39	2.24	2.21	2.17	2.14	2.14	2.10	2.02	1.99	S	1.97	1.97	1.97	2.00	1.98	1.98	1.98	1.97	1.98	2.01	1.97	2.39	2.11
Sep 27	2.05	2.05	2.01	2.00	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	S	1.99	1.99	1.99	2.00	2.00	2.00	2.03	2.04	2.05	2.05	2.06	1.99	2.06	2.01
Sep 28	2.05	2.05	2.05	2.05	2.05	2.06	2.10	2.13	2.10	2.03	2.02	S	2.01	2.02	2.02	2.01	2.02	2.03	2.03	2.05	2.04	2.06	2.06	2.11	2.01	2.13	2.05
Sep 29	2.12	2.09	2.08	2.09	2.05	2.04	2.05	2.04	2.03	2.01	S	2.00	2.00	2.01	2.01	2.02	2.02	2.02	2.01	2.02	2.01	2.01	2.01	2.01	2.00	2.12	2.03
Sep 30	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.01	2.00	S	1.99	1.98	1.99	1.99	1.98	1.98	1.98	1.99	2.00	2.04	2.01	2.03	2.03	2.04	1.98	2.04	2.01
Diurnal Maximum	2.86	2.93	2.92	3.09	3.03	3.08	3.14	3.13	2.62	2.42	2.26	2.23	2.26	2.24	2.21	2.22	2.18	2.19	2.33	2.40	2.40	2.56	2.52	2.65			
Daiurnal Average	2.27	2.26	2.28	2.33	2.32	2.33	2.31	2.28	2.18	2.11	2.09	2.06	2.05	2.04	2.03	2.03	2.03	2.04	2.08	2.10	2.11	2.15	2.18	2.21			

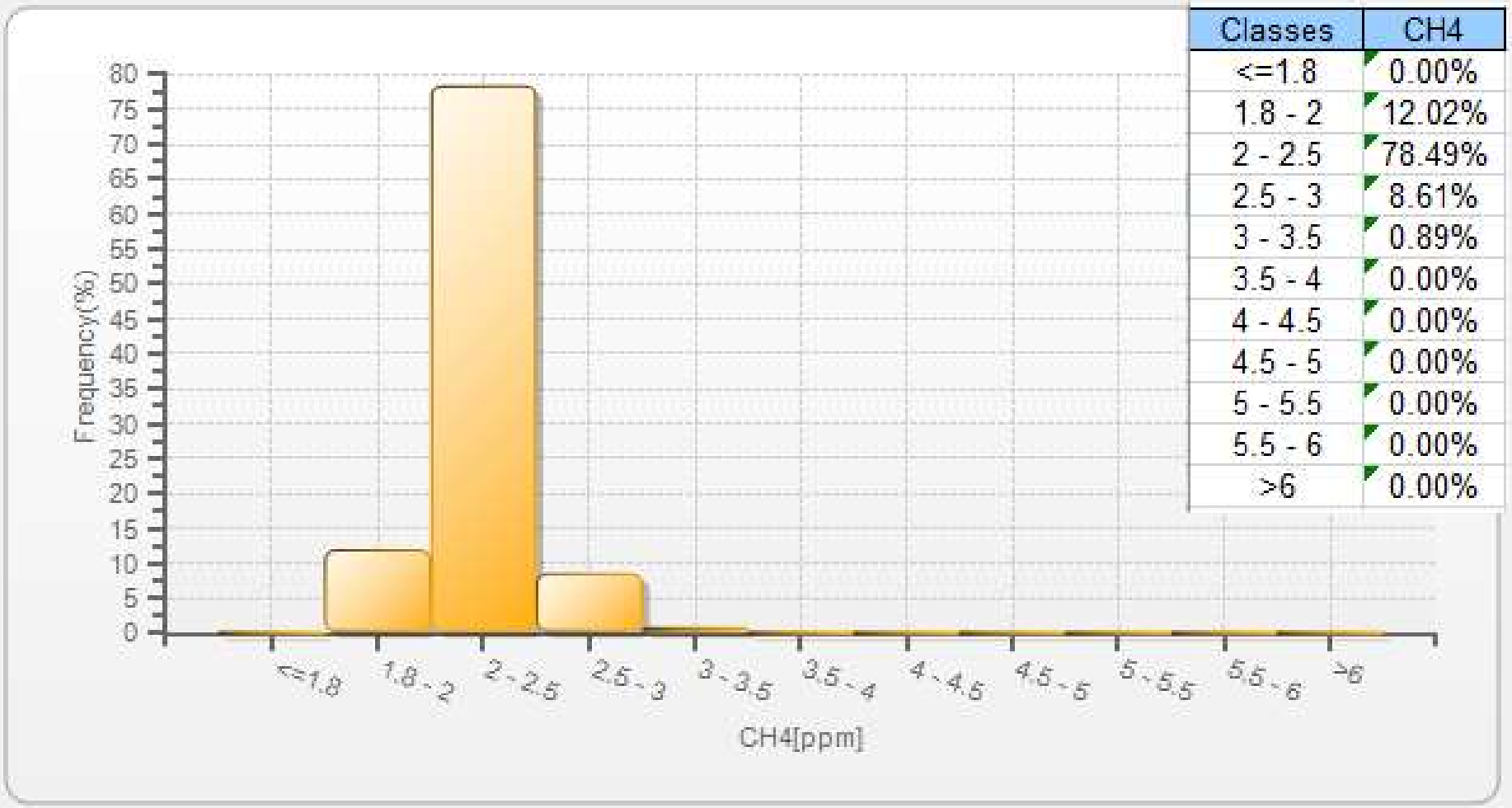
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



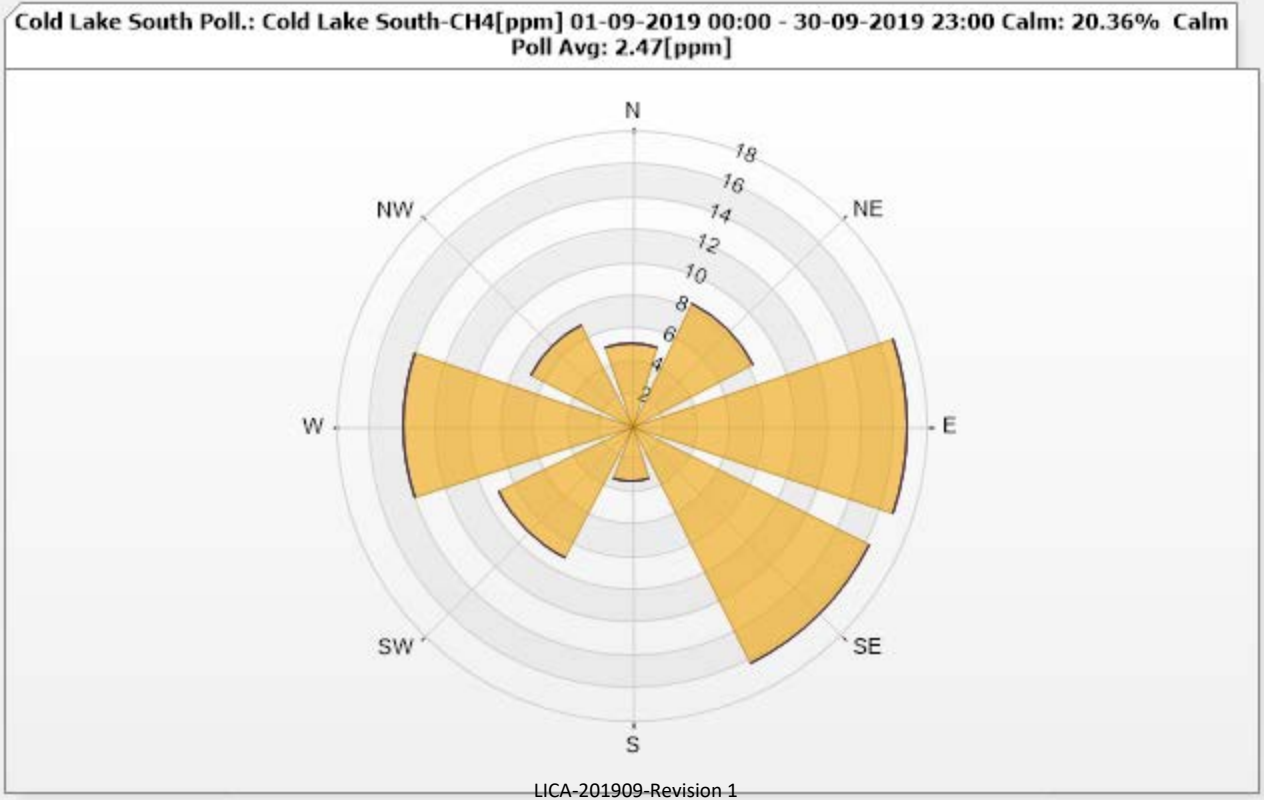
CH4[ppm] Histogram: Cold Lake South Monthly: 09-2019 1 Hr.



Classes	CH4
<=1.8	0.00%
1.8 - 2	12.02%
2 - 2.5	78.49%
2.5 - 3	8.61%
3 - 3.5	0.89%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-CH4[ppm] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.36% Valid Data: 93.47% Calm Avg: 2.47 [ppm]

Direction	2-5	5-10	10-20	>20.0	Total
N	5.05	0	0	0	5.05
NE	8.32	0	0	0	8.32
E	16.79	0	0	0	16.79
SE	16.2	0	0	0	16.2
S	3.42	0	0	0	3.42
SW	9.06	0	0	0	9.06
W	13.97	0	0	0	13.97
NW	6.84	0	0	0	6.84
Summary	79.65	0	0	0	79.65


Cold Lake South Poll.: Cold Lake South-CH4[ppm] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.36% Calm
Poll Avg: 2.47[ppm]
N
NE
E
SE
S
SW
W
NW
18
16
14
12
10
8
6
4
2
% Icon Classes (ppm)
80
5-10
0
10-20
0
>20.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Averages

NON-METHANE HYDROCARBONS (NMHC) in ppm

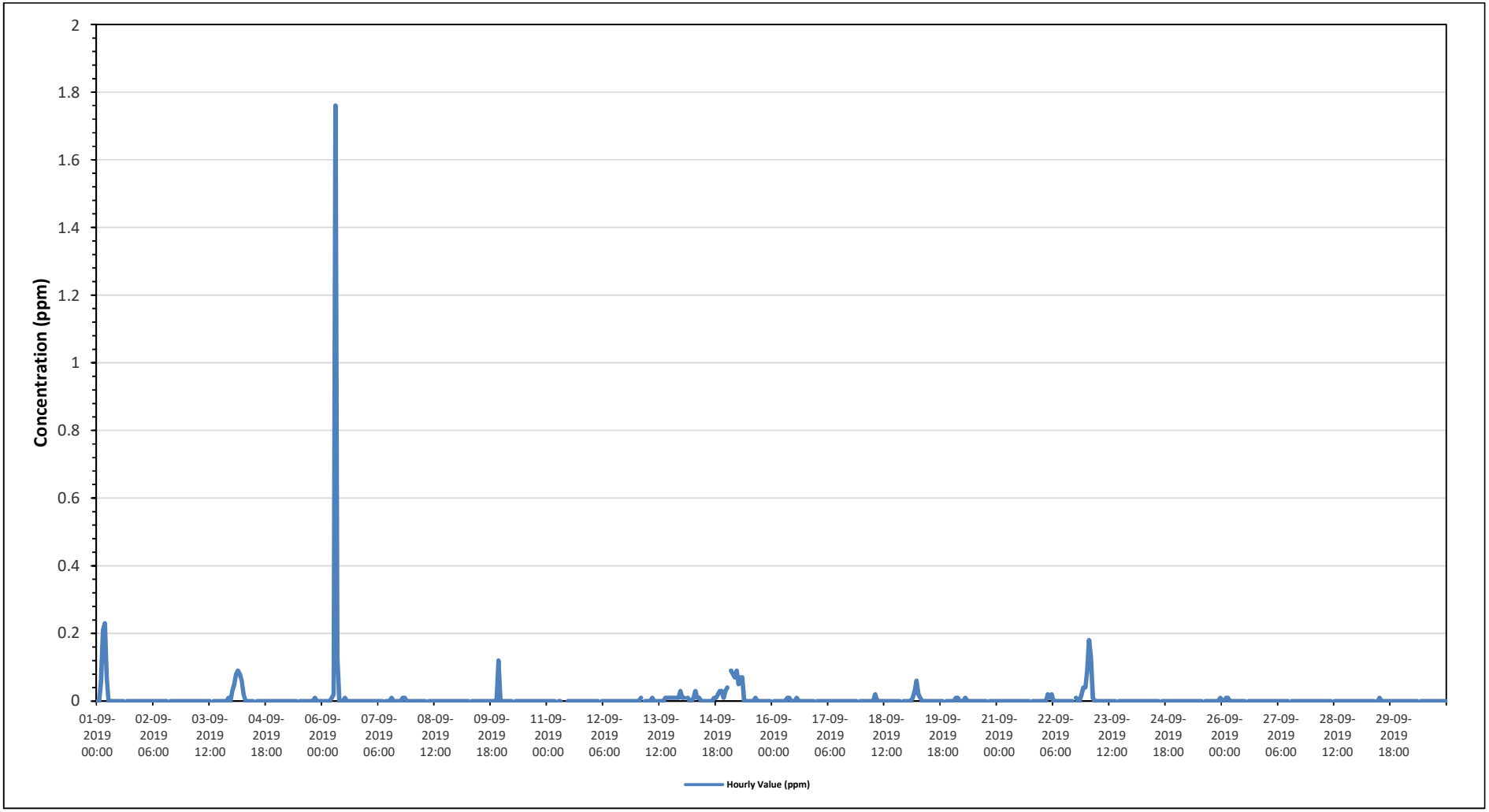
Maximum Hourly Value:	1.76	ppm	on September 6 at hour 7	Hours in Service:	720
Maximum Daily Value:	0.08	ppm	on September 6	Hours of Data:	686
Minimum Hourly Value:	0.00	ppm	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.00	ppm	on September 2	Hours of Calibration:	34
Monthly Average:	0.01	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	0.00	0.00	0.06	0.21	0.23	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.02
Sep 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
Sep 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	0.01	0.00	0.00	0.01	0.00
Sep 4	0.03	0.05	0.08	0.09	0.08	0.06	0.02	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.02
Sep 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	0.01	0.00	0.00	0.00	0.00	0.01	0.00
Sep 6	0.00	0.00	0.00	0.00	0.00	0.01	0.02	**1.76**	0.13	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	**1.76**	**0.08**
Sep 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	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00
Sep 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
Sep 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	0.00	0.12	0.00	0.00	0.12	0.01
Sep 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
Sep 11	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	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	0.00	0.00	0.00
Sep 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
Sep 13	0.00	0.00	0.01	S	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.00	0.03	0.01
Sep 14	0.01	0.01	S	0.01	0.00	0.00	0.01	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.03	0.03	0.01	0.03	0.00	0.03	0.01
Sep 15	0.04	S	0.09	0.08	0.07	0.09	0.05	0.07	0.07	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	0.09	0.02
Sep 16	S	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.01	0.00
Sep 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	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00
Sep 18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.02	0.00
Sep 19	0.00	0.00	0.00	0.01	0.03	0.06	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.06	0.01
Sep 20	0.00	0.00	0.01	0.01	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	S	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Sep 21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Sep 22	0.00	0.00	0.00	0.02	0.01	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	0.01	0.00	0.00	0.02	0.04	0.04	0.00	0.04	0.01
Sep 23	0.09	0.18	0.13	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.02
Sep 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sep 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00
Sep 26	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Sep 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	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
Sep 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
Sep 29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Sep 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
Diurnal Maximum	0.09	0.18	0.13	0.21	0.23	0.09	0.05	1.76	0.13	0.01	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.02	0.03	0.03	0.12	0.04			
Daiurnal Average	0.01	0.01	0.01	0.02	0.01	0.01	0.00	0.07	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			

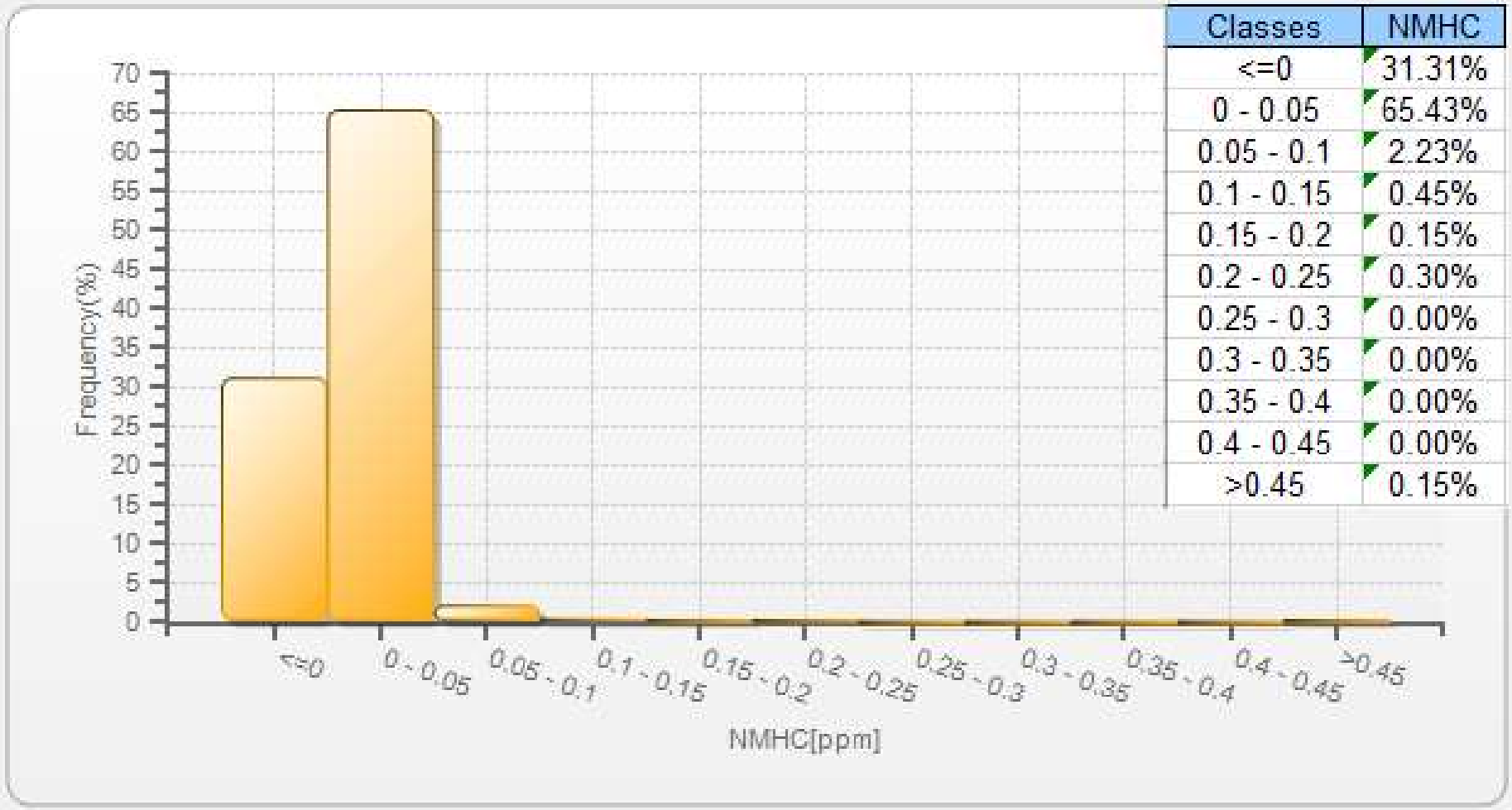
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



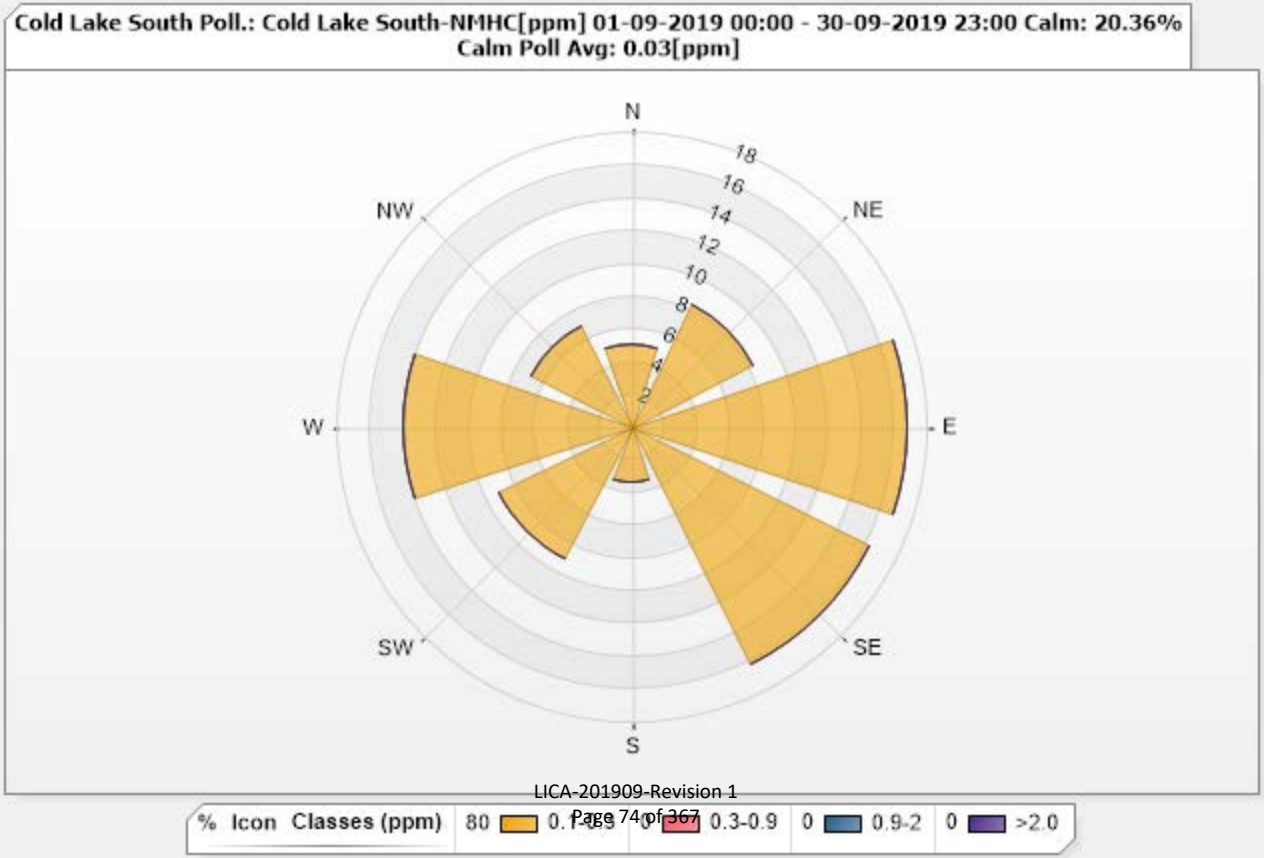
NMHC[ppm] Histogram: Cold Lake South Monthly: 09-2019 1 Hr.



Classes	NMHC
<=0	31.31%
0 - 0.05	65.43%
0.05 - 0.1	2.23%
0.1 - 0.15	0.45%
0.15 - 0.2	0.15%
0.2 - 0.25	0.30%
0.25 - 0.3	0.00%
0.3 - 0.35	0.00%
0.35 - 0.4	0.00%
0.4 - 0.45	0.00%
>0.45	0.15%

Wind: Cold Lake South Poll.: Cold Lake South-NMHC[ppm] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.36% Valid Data: 93.47% Calm Avg: 0.03 [ppm]

Direction	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	5.05	0	0	0	5.05
NE	8.32	0	0	0	8.32
E	16.79	0	0	0	16.79
SE	16.2	0	0	0	16.2
S	3.42	0	0	0	3.42
SW	9.06	0	0	0	9.06
W	13.97	0	0	0	13.97
NW	6.84	0	0	0	6.84
Summary	79.65	0	0	0	79.65


Cold Lake South Poll.: Cold Lake South-NMHC[ppm] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.36%
Calm Poll Avg: 0.03[ppm]
N
NE
E
SE
S
SW
W
NW
18
16
14
12
10
8
6
4
2
% Icon Classes (ppm)
80 0.1-0.3
0 0.3-0.9
0 0.9-2
0 >2.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Averages

PARTICULATE MATTER 2.5 ($PM_{2.5}$) in $\mu g/m^3$

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 80 µg/m3, 24-Hour 29 µg/m3

Number of 1-Hour Exceedences: 0 Number of 24-Hour Exceedences: 0

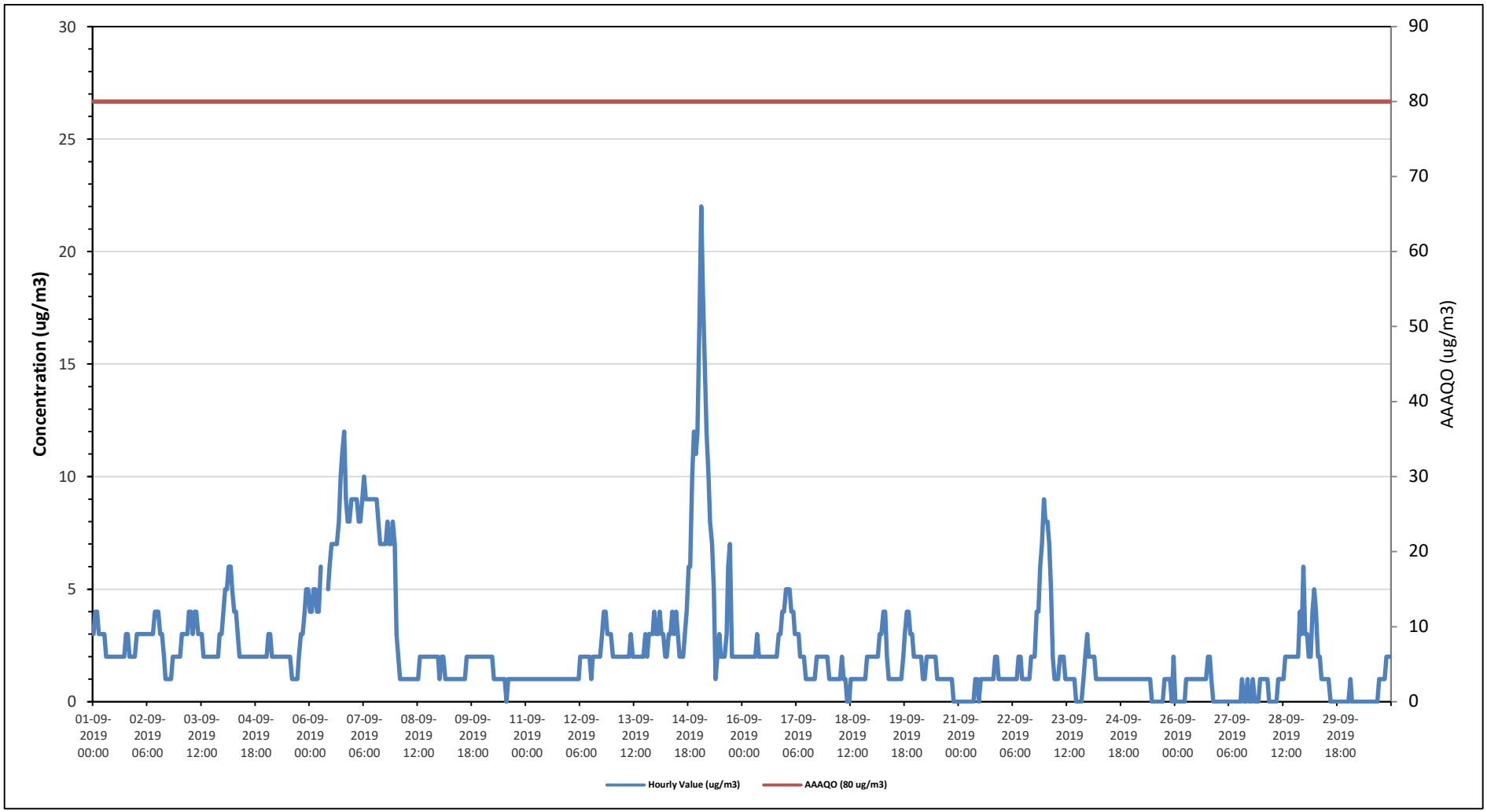
Maximum Hourly Value:	22 $\mu g/m^3$ on September 15 at hour 1	Hours in Service:	720
Maximum Daily Value:	8 $\mu g/m^3$ on September 7	Hours of Data:	717
Minimum Hourly Value:	0 $\mu g/m^3$ on September 10 at hour 13	Hours of Missing Data:	0
Minimum Daily Value:	0 $\mu g/m^3$ on September 27	Hours of Calibration:	3
Monthly Average:	2.3 $\mu g/m^3$	Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	3	4	4	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2	2	4	2.5
Sep 2	3	3	3	3	3	3	3	3	3	3	4	4	4	3	3	2	1	1	1	1	2	2	2	2	1	4	2.6
Sep 3	2	3	3	3	3	4	4	3	4	4	3	3	3	2	2	2	2	2	2	2	2	2	3	3	2	4	2.8
Sep 4	4	5	5	6	6	5	4	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	6	3.0
Sep 5	2	3	3	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	2	3	3	4	5	5	1	5	2.3
Sep 6	4	4	5	5	4	4	6	C	C	C	5	6	7	7	7	7	8	10	11	12	9	8	8	9	4	12	7.0
Sep 7	9	9	9	8	8	9	10	9	9	9	9	9	9	9	8	7	7	7	7	8	7	7	8	7	7	10	**8.3**
Sep 8	3	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	1	3	1.6
Sep 9	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	1	2	1.5
Sep 10	2	2	2	2	2	2	1	1	1	1	1	1	1	**0**	1	1	1	1	1	1	1	1	1	1	**0**	2	1.2
Sep 11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Sep 12	1	1	1	1	1	1	2	2	2	2	2	2	1	2	2	2	2	2	3	4	4	3	3	3	1	4	2.0
Sep 13	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	3	2	3	3	3	4	2	4	2.3
Sep 14	3	3	4	3	3	2	2	3	3	4	3	4	3	2	2	2	3	4	6	6	10	12	11	12	2	12	4.6
Sep 15	17	**22**	18	15	12	10	8	7	5	1	2	3	2	2	2	3	6	7	2	2	2	2	2	2	1	**22**	6.4
Sep 16	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	3	3	4	4	2	4	2.3
Sep 17	5	5	5	4	4	3	3	3	2	2	2	1	1	1	1	1	1	2	2	2	2	2	2	2	1	5	2.4
Sep 18	1	1	1	1	1	1	1	2	1	1	**0**	**0**	1	1	1	1	1	1	1	1	1	2	2	2	**0**	2	1.1
Sep 19	2	2	2	2	3	3	4	4	2	1	1	1	1	1	1	1	1	2	3	4	4	3	3	2	1	4	2.2
Sep 20	2	2	2	2	1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	**0**	**0**	**0**	**0**	2	1.3
Sep 21	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1	1	**0**	1	1	1	1	1	1	1	1	2	2	1	1	**0**	2	0.7
Sep 22	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	2	2	2	4	4	6	7	9	1	9	2.3
Sep 23	8	8	7	5	2	1	1	1	2	2	2	1	1	1	1	1	1	**0**	**0**	**0**	**0**	1	2	3	**0**	8	2.1
Sep 24	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.2
Sep 25	1	1	1	1	1	1	1	1	1	1	1	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1	1	1	1	**0**	2	**0**	2	0.7
Sep 26	**0**	**0**	**0**	**0**	**0**	**0**	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	**0**	**0**	**0**	**0**	2	0.7
Sep 27	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1	**0**	**0**	1	**0**	**0**	1	**0**	**0**	**0**	1	**0**	1	0.2
Sep 28	1	1	1	1	**0**	**0**	**0**	**0**	**0**	1	1	1	1	2	2	2	2	2	2	2	2	4	3	6	**0**	6	1.5
Sep 29	3	3	2	2	4	5	4	2	2	1	1	1	1	1	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	5	1.3
Sep 30	**0**	1	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1	1	1	1	2	2	2	**0**	2	0.5
Diurnal Maximum	17	22	18	15	12	10	10	9	9	9	9	9	9	9	8	7	8	10	11	12	10	12	11	12			
Daiurnal Average	2.8	3.2	3.0	2.6	2.4	2.3	2.4	2.1	2.0	1.8	1.9	1.8	1.8	1.8	1.7	1.7	1.9	2.1	2.2	2.5	2.5	2.7	2.7	3.1			

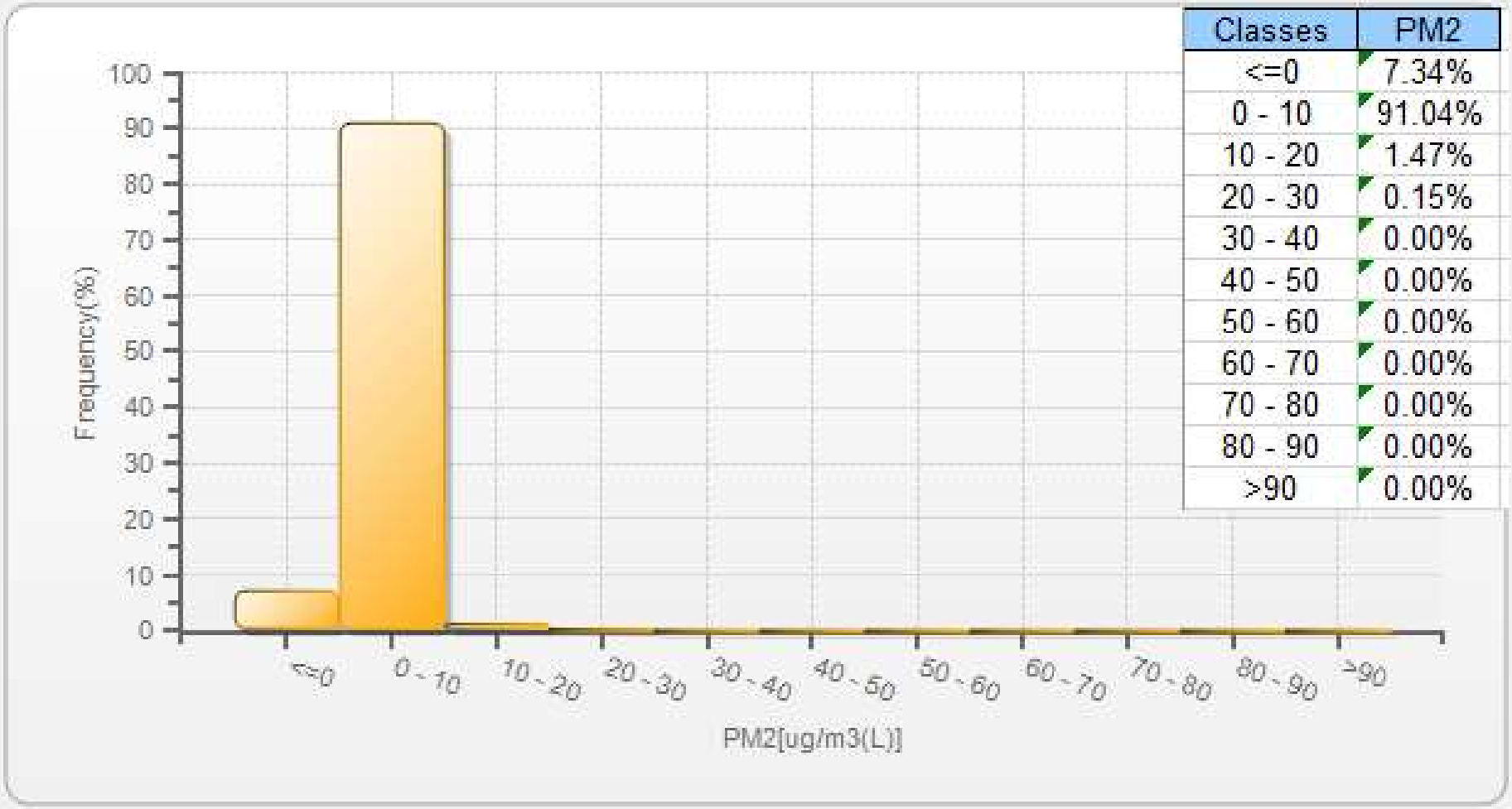
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



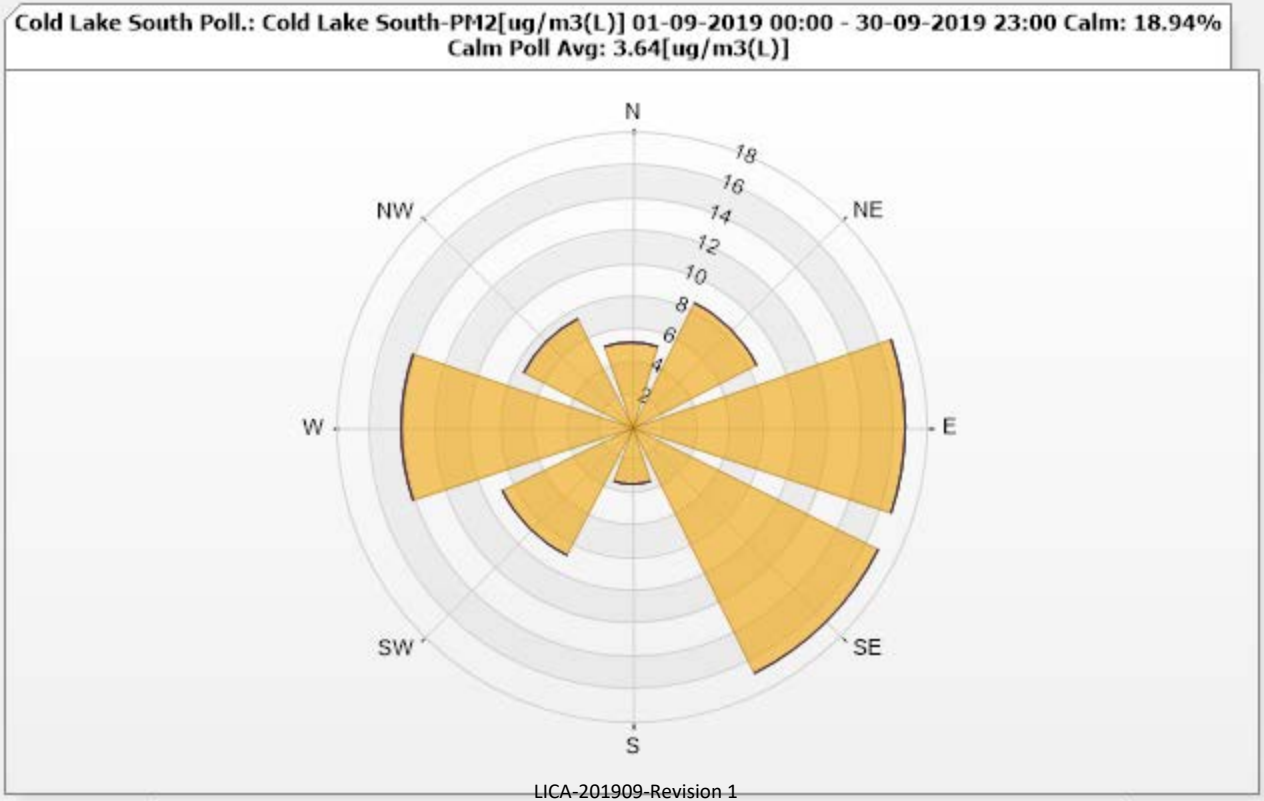
PM2[ug/m3(L)] Histogram: Cold Lake South Monthly: 09-2019 1 Hr.



Classes	PM2
<=0	7.34%
0 - 10	91.04%
10 - 20	1.47%
20 - 30	0.15%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Cold Lake South Poll.: Cold Lake South-PM2[ug/m3(L)] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 18.94% Valid Data: 94.58% Calm Avg: 3.64 [ug/m3(L)]

Direction	30-80	80-120	120-240	>240.0	Total
N	5.14	0	0	0	5.14
NE	8.52	0	0	0	8.52
E	16.74	0	0	0	16.74
SE	16.89	0	0	0	16.89
S	3.52	0	0	0	3.52
SW	8.81	0	0	0	8.81
W	14.1	0	0	0	14.1
NW	7.34	0	0	0	7.34
Summary	81.06	0	0	0	81.06


Cold Lake South Poll.: Cold Lake South-PM2[ug/m3(L)] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 18.94%
Calm Poll Avg: 3.64[ug/m3(L)]
N
NE
E
SE
S
SW
W
NW
18
16
14
12
10
8
6
4
2
% Icon Classes (ug/m3(L))
81
30-80
0
80-120
0
120-240
0
>240.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

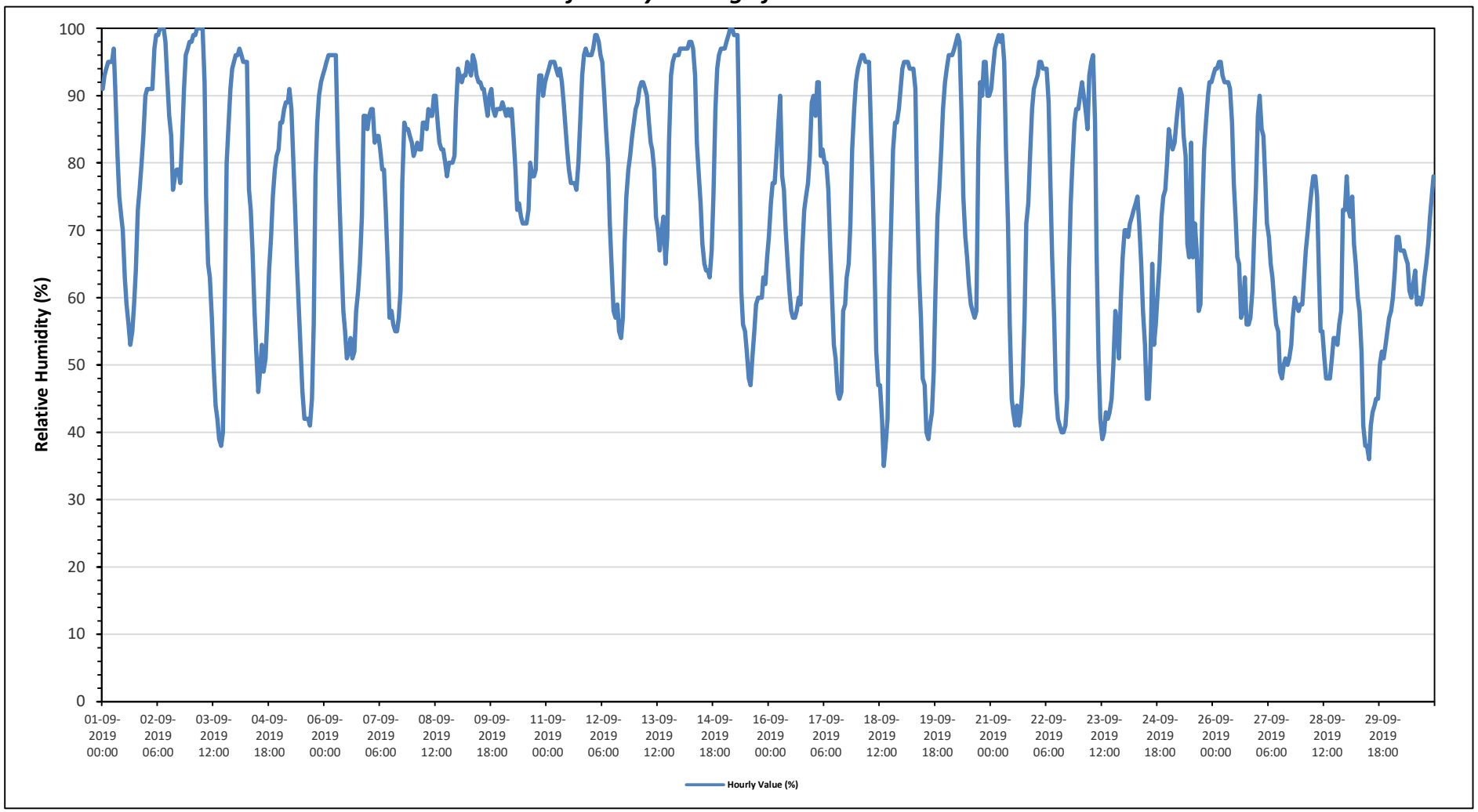
Maximum Hourly Value:	100	%	on September 2 at hour 7	Hours in Service:	720
Maximum Daily Value:	91.4	%	on September 9	Hours of Data:	720
Minimum Hourly Value:	35	%	on September 18 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	53.8	%	on September 29	Hours of Calibration:	0
Monthly Average:	74.9	%		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	91	93	94	95	95	95	97	90	81	75	72	70	63	59	56	53	55	59	64	73	76	80	84	90	53	97	78
Sep 2	91	91	91	91	97	99	99	**100**	**100**	**100**	98	92	87	84	76	78	79	79	77	84	91	96	97	98	76	**100**	91
Sep 3	98	99	99	**100**	**100**	**100**	**100**	92	75	65	63	57	50	44	42	39	38	40	60	80	86	91	94	95	38	**100**	75
Sep 4	96	96	97	96	95	95	95	76	73	67	58	52	46	49	53	49	51	57	64	69	75	79	81	82	46	97	73
Sep 5	86	86	88	89	89	91	88	81	73	65	58	52	46	42	42	42	41	45	56	78	86	90	92	93	41	93	71
Sep 6	94	95	96	96	96	96	96	83	74	65	58	55	51	52	54	51	52	58	61	65	72	87	87	85	51	96	74
Sep 7	87	88	88	83	84	84	82	79	79	73	65	57	58	56	55	55	57	61	77	86	85	85	84	83	55	88	75
Sep 8	81	82	83	82	82	86	86	85	88	87	87	90	90	86	83	82	82	80	78	80	80	80	81	88	78	90	84
Sep 9	94	93	92	93	93	95	94	93	96	95	93	92	92	91	91	89	87	90	91	88	87	88	88	88	87	96	**91**
Sep 10	89	88	87	88	87	88	84	79	73	74	72	71	71	71	73	80	78	78	79	89	93	93	90	92	71	93	82
Sep 11	93	94	95	95	95	94	93	94	92	89	85	82	79	77	77	77	76	80	86	93	96	97	96	96	76	97	89
Sep 12	96	97	99	99	98	96	95	90	85	80	71	64	58	57	59	55	54	57	68	75	79	81	84	86	54	99	78
Sep 13	88	89	91	92	92	91	90	86	83	82	79	72	70	67	70	72	65	69	83	93	95	96	96	96	65	96	84
Sep 14	97	97	97	97	97	98	98	97	93	83	78	74	68	65	64	64	63	67	75	88	94	96	97	97	63	98	85
Sep 15	97	98	99	**100**	**100**	99	99	99	84	61	56	55	52	48	47	51	55	59	60	60	60	63	62	66	47	**100**	72
Sep 16	69	74	77	77	81	86	90	78	76	70	65	61	58	57	57	58	60	59	67	73	75	77	81	89	57	90	71
Sep 17	90	87	92	92	81	82	80	80	76	68	60	53	51	46	45	46	58	59	63	65	71	82	88	92	45	92	71
Sep 18	94	95	96	96	95	95	95	85	76	65	52	47	47	42	**35**	38	42	61	72	82	86	86	88	91	**35**	96	73
Sep 19	94	95	95	95	94	94	94	91	75	64	57	48	47	40	39	41	43	49	61	72	76	82	88	92	39	95	72
Sep 20	94	96	96	96	97	98	99	98	87	75	69	66	62	59	58	57	58	82	92	90	95	95	90	90	57	99	83
Sep 21	91	94	97	98	99	98	99	95	82	71	56	45	43	41	44	41	43	47	57	71	74	81	88	91	41	99	73
Sep 22	92	93	95	95	94	94	94	89	77	66	57	46	42	41	40	40	41	45	64	74	80	86	88	88	40	95	72
Sep 23	90	92	90	88	85	93	95	96	86	67	51	42	39	40	43	42	43	45	50	58	56	51	60	66	39	96	65
Sep 24	70	70	69	71	72	73	74	75	71	65	58	53	45	45	51	65	53	56	61	65	72	75	76	80	45	80	65
Sep 25	85	83	82	83	86	89	91	90	84	81	68	66	83	66	71	67	58	59	72	82	86	90	92	92	58	92	79
Sep 26	93	94	94	95	95	93	92	92	92	91	86	77	72	66	65	57	58	63	56	56	57	61	69	76	56	95	77
Sep 27	87	90	85	84	78	71	69	65	63	59	56	55	49	48	50	51	50	51	53	57	60	59	58	59	48	90	63
Sep 28	59	63	67	70	73	76	78	78	75	64	55	55	51	48	48	48	51	54	54	53	56	58	73	73	48	78	62
Sep 29	78	73	72	75	68	65	60	58	52	41	38	38	36	41	43	44	45	45	50	52	51	53	55	57	36	78	54
Sep 30	58	60	64	69	69	67	67	67	66	65	61	60	62	64	59	60	59	60	63	65	68	72	75	78	58	78	65
Diurnal Maximum	98	99	99	100	100	100	100	100	100	100	98	92	92	91	91	89	87	90	92	93	96	97	97	98			
Daiurnal Average	87.4	88.2	88.9	89.3	88.9	89.4	89.1	85.4	79.6	72.4	66.1	61.6	58.9	56.4	56.3	56.4	56.5	60.5	67.1	73.9	77.3	80.3	82.7	85.0			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

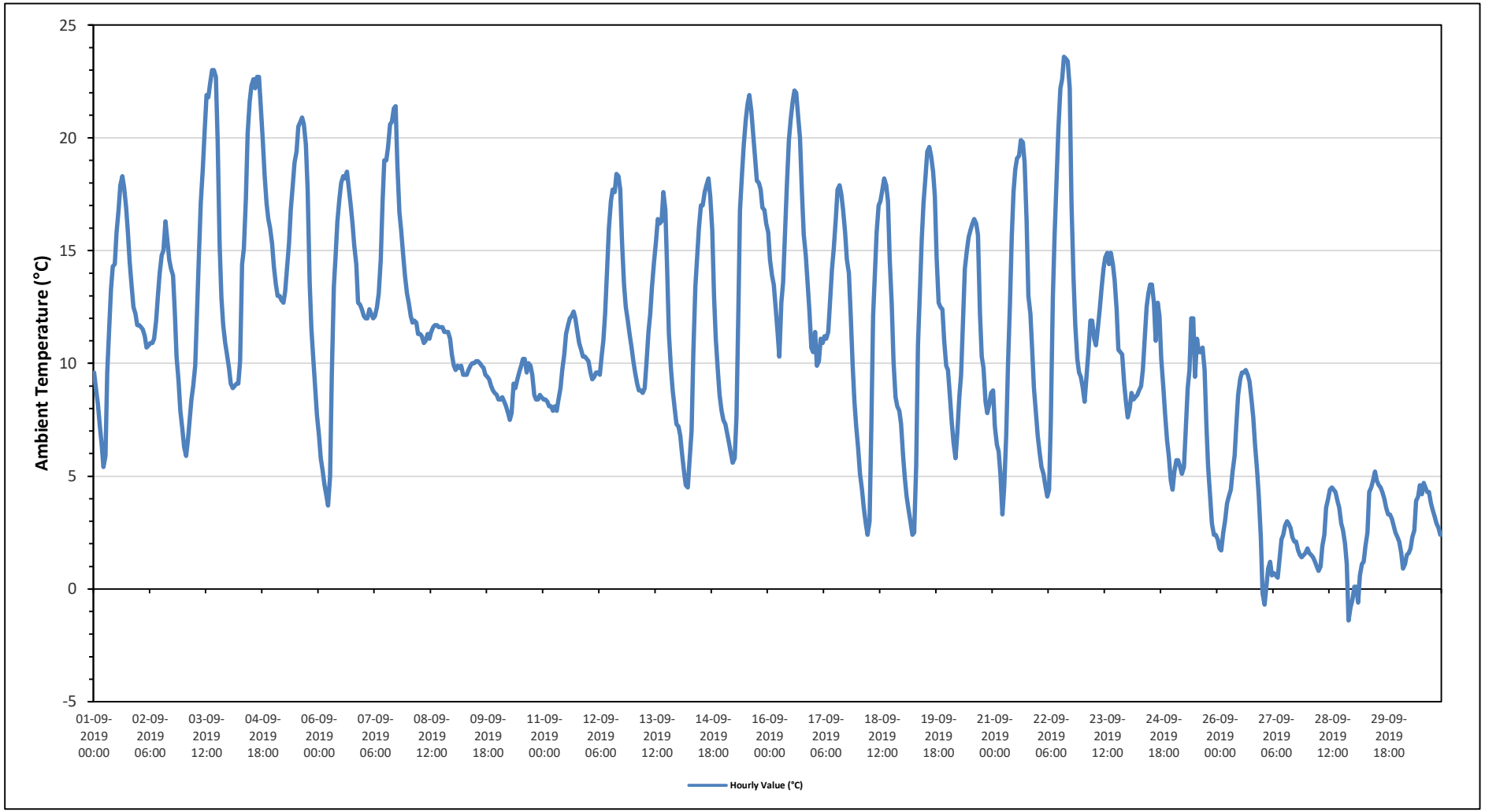
Maximum Hourly Value:	23.6	°C	on September 22 at hour 14	Hours in Service:	720
Maximum Daily Value:	16.3	°C	on September 4	Hours of Data:	720
Minimum Hourly Value:	-1.4	°C	on September 28 at hour 22	Hours of Missing Data:	0
Minimum Daily Value:	1.5	°C	on September 27	Hours of Calibration:	0
Monthly Average:	10.7	°C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	9.6	8.9	8.2	7.3	6.4	5.4	5.9	9.6	11.6	13.3	14.3	14.4	15.8	16.8	17.9	18.3	17.8	16.9	15.8	14.5	13.4	12.5	12.2	11.7	5.4	18.3	12.4
Sep 2	11.7	11.6	11.5	11.2	10.7	10.8	10.9	10.9	11.1	11.9	13.0	14.0	14.8	15.0	16.3	15.5	14.6	14.2	13.9	12.3	10.3	9.2	7.9	7.1	7.1	16.3	12.1
Sep 3	6.3	5.9	6.6	7.5	8.4	9.0	9.9	12.2	14.9	17.1	18.6	20.2	21.9	21.8	22.4	23.0	23.0	22.7	19.9	15.2	12.9	11.7	10.9	10.4	5.9	23.0	14.7
Sep 4	9.8	9.1	8.9	9.0	9.1	9.1	10.1	14.4	15.1	17.3	20.2	21.6	22.3	22.6	22.2	22.7	22.7	21.4	19.9	18.4	17.1	16.4	16.0	15.3	8.9	22.7	**16.3**
Sep 5	14.3	13.5	13.0	13.0	12.8	12.7	13.2	14.2	15.3	16.8	17.9	18.9	19.4	20.5	20.7	20.9	20.6	19.7	17.7	13.6	11.5	10.1	8.9	7.7	7.7	20.9	15.3
Sep 6	6.8	5.8	5.2	4.6	4.1	3.7	5.0	9.6	13.4	14.8	16.3	17.3	18.0	18.3	18.2	18.5	17.8	17.1	16.2	15.2	14.4	12.7	12.6	12.4	3.7	18.5	12.4
Sep 7	12.1	12.0	12.0	12.4	12.2	12.0	12.1	12.5	13.1	14.6	17.1	19.0	19.0	19.6	20.6	20.7	21.3	21.4	18.8	16.7	15.9	14.8	13.9	13.1	12.0	21.4	15.7
Sep 8	12.7	12.1	11.8	11.9	11.8	11.3	11.3	11.2	10.9	11.0	11.3	11.1	11.4	11.6	11.7	11.7	11.6	11.6	11.6	11.4	11.4	11.4	11.1	10.4	10.4	12.7	11.5
Sep 9	9.9	9.7	9.9	9.8	9.9	9.5	9.5	9.5	9.7	9.9	10.0	10.0	10.1	10.1	10.0	9.9	9.8	9.5	9.4	9.3	9.0	8.8	8.7	8.6	8.6	10.1	9.6
Sep 10	8.4	8.4	8.5	8.3	8.1	7.8	7.5	7.8	9.1	8.9	9.3	9.6	9.9	10.2	10.2	9.6	10.0	9.9	9.5	8.6	8.4	8.4	8.6	8.5	7.5	10.2	8.9
Sep 11	8.4	8.4	8.3	8.1	8.1	7.9	8.1	7.9	8.4	8.9	9.7	10.4	11.3	11.7	12.0	12.1	12.3	12.0	11.4	10.9	10.6	10.3	10.3	10.2	7.9	12.3	9.9
Sep 12	10.1	9.6	9.3	9.4	9.6	9.6	9.5	10.3	11.0	12.2	14.2	16.0	17.2	17.7	17.6	18.4	18.3	17.7	15.4	13.5	12.5	11.9	11.3	10.7	9.3	18.4	13.0
Sep 13	10.1	9.6	9.1	8.8	8.8	8.7	8.9	10.0	11.4	12.2	13.4	14.5	15.3	16.4	16.2	16.3	17.6	16.8	14.2	11.3	9.8	8.8	8.0	7.3	7.3	17.6	11.8
Sep 14	7.2	6.8	6.0	5.2	4.6	4.5	5.7	7.0	10.5	13.4	14.7	16.0	17.0	17.0	17.6	17.9	18.2	17.4	15.9	13.0	11.1	9.7	8.6	7.9	4.5	18.2	11.4
Sep 15	7.5	7.3	6.9	6.5	6.0	5.6	5.8	7.6	12.6	16.8	18.4	19.7	20.8	21.5	21.9	21.2	20.2	19.1	18.1	18.0	17.7	16.9	16.8	16.2	5.6	21.9	14.5
Sep 16	15.8	14.6	13.9	13.5	12.4	11.4	10.3	12.7	13.6	15.9	17.9	19.9	20.8	21.6	22.1	22.0	20.9	20.0	17.5	15.7	14.8	13.6	12.4	10.7	10.3	22.1	16.0
Sep 17	10.5	11.4	9.9	10.1	11.1	10.9	11.2	11.1	11.4	12.7	14.2	15.1	16.4	17.7	17.9	17.5	16.8	15.8	14.6	14.0	12.2	9.9	8.3	7.2	7.2	17.9	12.8
Sep 18	6.2	5.1	4.4	3.6	2.9	2.4	3.0	7.2	12.1	14.2	15.8	17.0	17.2	17.7	18.2	17.9	17.2	14.6	12.6	10.1	8.5	8.1	7.9	7.3	2.4	18.2	10.5
Sep 19	5.9	4.9	4.1	3.5	3.0	2.4	2.5	5.5	10.8	13.3	15.5	17.1	18.3	19.4	19.6	19.2	18.5	17.4	14.7	12.7	12.5	12.4	11.0	9.9	2.4	19.6	11.4
Sep 20	9.7	8.5	7.4	6.5	5.8	6.9	8.5	9.5	12.0	14.2	15.0	15.6	15.9	16.2	16.4	16.2	15.7	12.2	10.3	9.8	8.3	7.8	8.2	8.7	5.8	16.4	11.1
Sep 21	8.8	7.2	6.4	6.1	5.1	3.3	4.5	6.8	9.9	12.7	15.6	17.6	18.6	19.1	19.2	19.9	19.8	18.9	16.3	13.0	12.2	10.6	8.9	7.8	3.3	19.9	12.0
Sep 22	6.8	6.0	5.4	5.1	4.6	4.1	4.4	7.5	12.9	15.7	18.2	20.4	22.2	22.6	**23.6**	23.5	23.4	22.2	17.1	13.8	11.7	10.2	9.6	9.4	4.1	**23.6**	13.4
Sep 23	8.9	8.3	9.5	10.5	11.9	11.9	11.1	10.8	11.5	12.4	13.3	14.2	14.7	14.9	14.4	14.9	14.4	13.7	12.4	10.6	10.5	10.4	9.1	8.3	8.3	14.9	11.8
Sep 24	7.6	8.0	8.7	8.4	8.5	8.6	8.8	9.0	9.7	11.0	12.5	13.1	13.5	13.5	12.7	11.0	12.7	12.1	10.2	9.0	7.8	6.6	5.9	4.8	4.8	13.5	9.7
Sep 25	4.4	5.2	5.7	5.7	5.4	5.1	5.4	7.0	8.9	9.7	12.0	12.0	9.4	11.1	10.5	10.5	10.7	9.7	7.3	5.4	4.1	2.9	2.4	2.4	2.4	12.0	7.2
Sep 26	2.2	1.8	1.7	2.5	3.0	3.8	4.1	4.4	5.2	5.9	7.3	8.6	9.3	9.6	9.6	9.7	9.5	9.2	8.4	7.6	6.4	5.3	4.1	2.3	1.7	9.7	5.9
Sep 27	-0.2	-0.7	0.1	0.9	1.2	0.6	0.7	0.6	0.5	1.3	2.2	2.4	2.8	3.0	2.9	2.7	2.3	2.1	2.1	1.7	1.5	1.4	1.5	1.6	-0.7	3.0	1.5
Sep 28	1.8	1.6	1.5	1.4	1.2	1.0	0.8	1.0	1.9	2.4	3.6	4.0	4.4	4.5	4.4	4.3	3.9	3.6	2.9	2.6	2.0	1.1	**-1.4**	-0.8	**-1.4**	4.5	2.2
Sep 29	-0.5	0.1	0.1	-0.6	0.6	1.1	1.2	1.9	2.5	4.3	4.5	4.8	5.2	4.8	4.6	4.5	4.3	4.0	3.6	3.3	3.3	3.1	2.8	2.5	-0.6	5.2	2.8
Sep 30	2.3	2.1	1.6	0.9	1.1	1.5	1.6	1.8	2.3	2.6	3.9	4.1	4.6	4.2	4.7	4.5	4.3	4.3	3.8	3.5	3.2	2.9	2.7	2.4	0.9	4.7	3.0
Diurnal Maximum	15.8	14.6	13.9	13.5	12.8	12.7	13.2	14.4	15.3	17.3	20.2	21.6	22.3	22.6	23.6	23.5	23.4	22.7	19.9	18.4	17.7	16.9	16.8	16.2			
Daiurnal Average	7.8	7.4	7.2	7.0	6.9	6.8	7.1	8.4	10.1	11.6	13.0	14.0	14.6	15.0	15.2	15.2	15.0	14.2	12.7	11.2	10.2	9.3	8.6	8.1			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

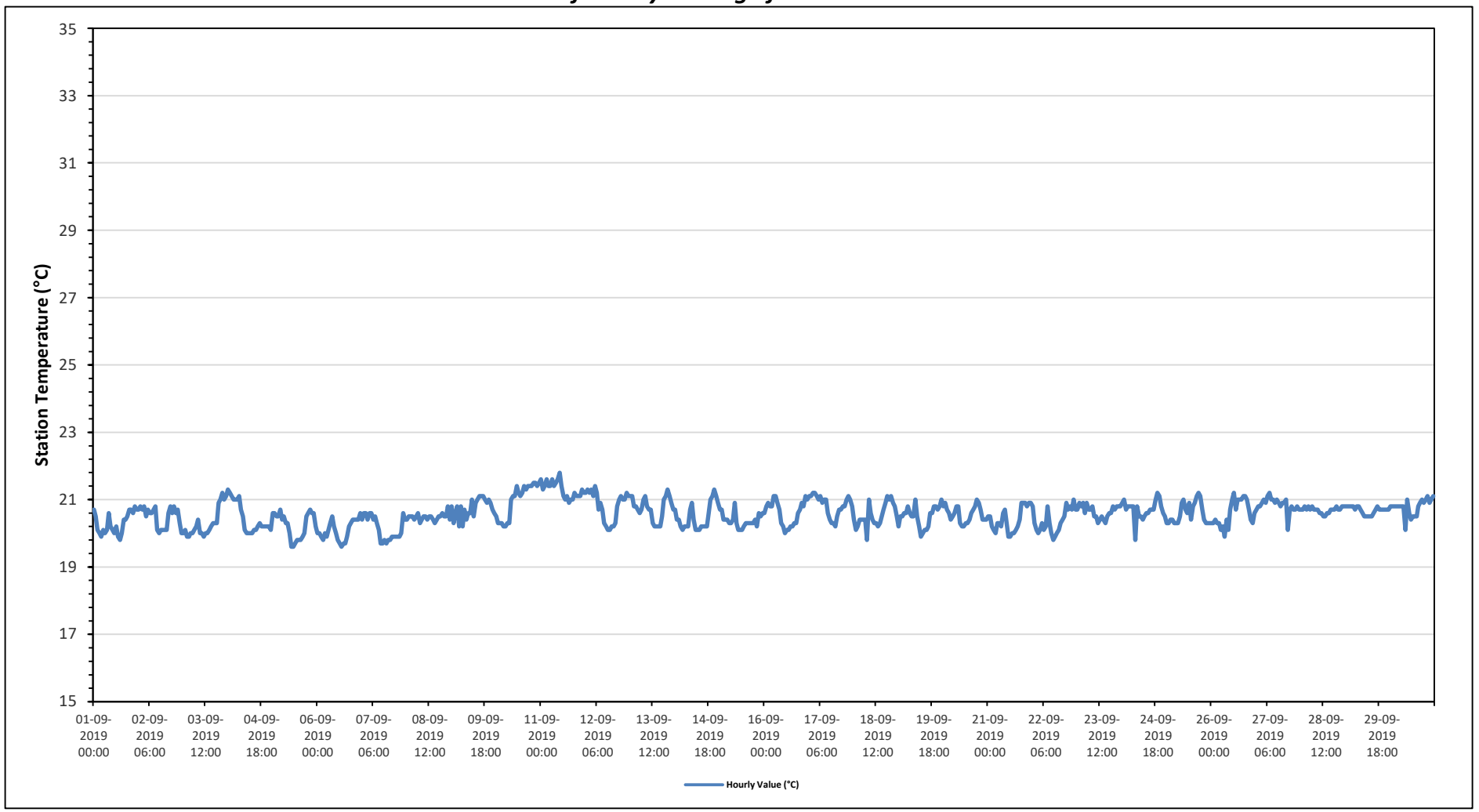
Maximum Hourly Value:	21.8	°C	on September 11 at hour 10	Hours in Service:	720
Maximum Daily Value:	21.3	°C	on September 11	Hours of Data:	720
Minimum Hourly Value:	19.6	°C	on September 5 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	20.1	°C	on September 6	Hours of Calibration:	0
Monthly Average:	20.6	°C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	20.7	20.5	20.1	20.0	19.9	20.1	20.0	20.1	20.6	20.2	20.1	20.0	20.2	19.9	19.8	20.0	20.4	20.4	20.5	20.7	20.7	20.6	20.8	20.7	19.8	20.8	20.3
Sep 2	20.7	20.8	20.7	20.8	20.5	20.7	20.6	20.6	20.7	20.8	20.1	20.0	20.1	20.1	20.1	20.1	20.6	20.8	20.6	20.8	20.6	20.7	20.3	20.0	20.0	20.8	20.5
Sep 3	20.0	20.1	19.9	19.9	20.0	20.0	20.1	20.2	20.4	20.0	20.0	19.9	20.0	20.0	20.1	20.2	20.3	20.3	20.3	20.9	21.0	21.2	21.0	21.1	19.9	21.2	20.3
Sep 4	21.3	21.2	21.1	21.0	21.0	21.0	21.1	20.7	20.5	20.1	20.0	20.0	20.0	20.0	20.1	20.1	20.2	20.3	20.2	20.2	20.2	20.2	20.2	20.1	20.0	21.3	20.5
Sep 5	20.6	20.6	20.5	20.5	20.7	20.4	20.5	20.3	20.3	20.0	**19.6**	**19.6**	19.7	19.8	19.8	19.8	19.9	20.0	20.5	20.6	20.7	20.6	20.6	20.2	**19.6**	20.7	20.2
Sep 6	20.0	20.0	19.9	19.8	20.0	19.9	20.1	20.3	20.5	20.2	20.0	19.8	19.7	**19.6**	19.7	19.7	19.9	20.2	20.3	20.4	20.4	20.4	20.4	20.6	**19.6**	20.6	20.1
Sep 7	20.4	20.6	20.6	20.4	20.6	20.6	20.4	20.5	20.3	20.1	19.7	19.7	19.8	19.7	19.8	19.8	19.9	19.9	19.9	19.9	19.9	20.0	20.6	20.4	19.7	20.6	20.1
Sep 8	20.4	20.5	20.5	20.5	20.4	20.5	20.6	20.3	20.4	20.5	20.5	20.4	20.5	20.5	20.4	20.3	20.4	20.5	20.5	20.6	20.5	20.5	20.8	20.4	20.3	20.8	20.5
Sep 9	20.8	20.3	20.6	20.8	20.2	20.8	20.2	20.7	20.4	20.6	20.6	21.0	20.5	20.9	21.0	21.1	21.1	21.1	21.0	20.9	21.0	20.9	20.7	20.6	20.2	21.1	20.7
Sep 10	20.5	20.3	20.3	20.3	20.2	20.2	20.3	20.3	21.0	21.1	21.1	21.4	21.2	21.1	21.2	21.4	21.3	21.4	21.4	21.4	21.5	21.5	21.4	21.5	20.2	21.5	21.0
Sep 11	21.6	21.3	21.4	21.6	21.4	21.4	21.6	21.4	21.5	21.6	**21.8**	21.4	21.1	21.0	21.1	20.9	21.0	21.0	21.2	21.1	21.1	21.1	21.3	21.2	20.9	**21.8**	**21.3**
Sep 12	21.2	21.3	21.2	21.3	21.1	21.4	21.2	20.7	20.9	20.7	20.3	20.2	20.1	20.1	20.2	20.2	20.3	20.8	21.0	21.1	21.0	21.0	21.2	21.1	20.1	21.4	20.8
Sep 13	21.1	21.1	20.8	20.8	20.7	20.6	20.7	21.0	21.1	20.8	20.7	20.7	20.3	20.2	20.2	20.2	20.2	20.5	21.0	21.1	21.3	21.1	20.9	20.7	20.2	21.3	20.7
Sep 14	20.7	20.4	20.4	20.2	20.1	20.2	20.2	20.2	20.7	20.9	20.4	20.1	20.1	20.1	20.2	20.2	20.2	20.2	20.6	21.0	21.1	21.3	21.1	20.9	20.1	21.3	20.5
Sep 15	20.7	20.7	20.4	20.4	20.4	20.3	20.3	20.4	20.9	20.3	20.1	20.1	20.1	20.2	20.3	20.3	20.3	20.3	20.3	20.4	20.2	20.6	20.5	20.6	20.1	20.9	20.4
Sep 16	20.6	20.8	20.9	20.8	20.8	21.1	21.1	20.9	20.7	20.3	20.2	20.0	20.1	20.1	20.2	20.2	20.3	20.3	20.6	20.7	20.9	20.8	21.1	21.0	20.0	21.1	20.6
Sep 17	21.1	21.1	21.2	21.2	21.1	21.0	21.1	20.9	21.0	21.0	20.6	20.4	20.3	20.3	20.2	20.5	20.7	20.7	20.8	20.8	21.0	21.1	21.0	20.8	20.2	21.2	20.8
Sep 18	20.4	20.1	20.2	20.4	20.4	20.4	20.4	19.8	21.0	20.6	20.4	20.3	20.3	20.2	20.3	20.5	20.7	20.9	21.1	21.0	21.1	20.9	20.8	20.5	19.8	21.1	20.5
Sep 19	20.2	20.5	20.5	20.6	20.6	20.8	20.6	20.5	20.5	21.0	20.5	20.2	19.9	20.0	20.1	20.1	20.2	20.6	20.6	20.8	20.8	20.7	20.8	21.0	19.9	21.0	20.5
Sep 20	20.8	20.9	20.7	20.6	20.4	20.5	20.6	20.8	20.8	20.3	20.2	20.2	20.3	20.3	20.4	20.6	20.7	20.8	21.0	20.9	20.7	20.4	20.4	20.4	20.2	21.0	20.6
Sep 21	20.5	20.5	20.2	20.1	20.0	20.3	20.3	20.2	20.6	20.7	20.3	19.9	19.9	20.0	20.0	20.1	20.2	20.4	20.9	20.9	20.9	20.8	20.9	20.9	19.9	20.9	20.4
Sep 22	20.8	20.3	20.1	20.0	20.1	20.3	20.1	20.2	20.8	20.3	20.0	19.8	19.9	20.0	20.1	20.3	20.4	20.5	20.9	20.7	20.8	20.7	21.0	20.7	19.8	21.0	20.4
Sep 23	20.7	20.9	20.8	20.9	20.6	20.9	20.7	20.7	20.8	20.5	20.5	20.3	20.4	20.5	20.4	20.3	20.5	20.6	20.6	20.8	20.7	20.8	20.8	20.8	20.3	20.9	20.6
Sep 24	20.9	21.0	20.7	20.8	20.8	20.8	20.8	19.8	20.8	20.5	20.5	20.4	20.5	20.6	20.6	20.7	20.7	20.7	21.0	21.2	21.1	20.8	20.6	20.5	19.8	21.2	20.7
Sep 25	20.3	20.3	20.4	20.4	20.3	20.3	20.3	20.5	20.9	21.0	20.7	20.6	20.9	20.4	20.8	20.9	21.1	21.2	21.1	20.7	20.4	20.3	20.3	20.3	20.3	21.2	20.6
Sep 26	20.3	20.3	20.4	20.3	20.3	20.1	20.2	19.9	20.4	20.1	20.7	21.0	21.2	20.7	21.0	21.0	21.0	21.1	21.1	21.0	20.7	20.4	20.3	20.6	19.9	21.2	20.6
Sep 27	20.7	20.8	20.8	20.9	21.0	20.9	21.1	21.2	21.0	21.0	20.9	21.0	20.9	20.8	20.9	20.9	21.0	20.1	20.7	20.8	20.7	20.7	20.8	20.7	20.1	21.2	20.8
Sep 28	20.7	20.7	20.8	20.7	20.8	20.7	20.8	20.7	20.7	20.7	20.6	20.6	20.5	20.5	20.6	20.6	20.7	20.7	20.7	20.8	20.7	20.7	20.8	20.8	20.5	20.8	20.7
Sep 29	20.8	20.8	20.8	20.8	20.8	20.7	20.8	20.8	20.7	20.6	20.5	20.5	20.5	20.5	20.5	20.6	20.7	20.8	20.7	20.7	20.7	20.7	20.7	20.7	20.5	20.8	20.7
Sep 30	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.1	21.0	20.6	20.4	20.5	20.5	20.5	20.8	20.9	21.0	20.9	21.0	21.1	20.9	21.0	21.1	20.1	21.1	20.8
Diurnal Maximum	21.6	21.3	21.4	21.6	21.4	21.4	21.6	21.4	21.5	21.6	21.8	21.4	21.2	21.1	21.2	21.4	21.3	21.4	21.4	21.4	21.5	21.5	21.4	21.5			
Daiurnal Average	20.7	20.7	20.6	20.6	20.5	20.6	20.6	20.5	20.7	20.6	20.4	20.3	20.3	20.3	20.4	20.4	20.5	20.6	20.7	20.8	20.8	20.7	20.8	20.7			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

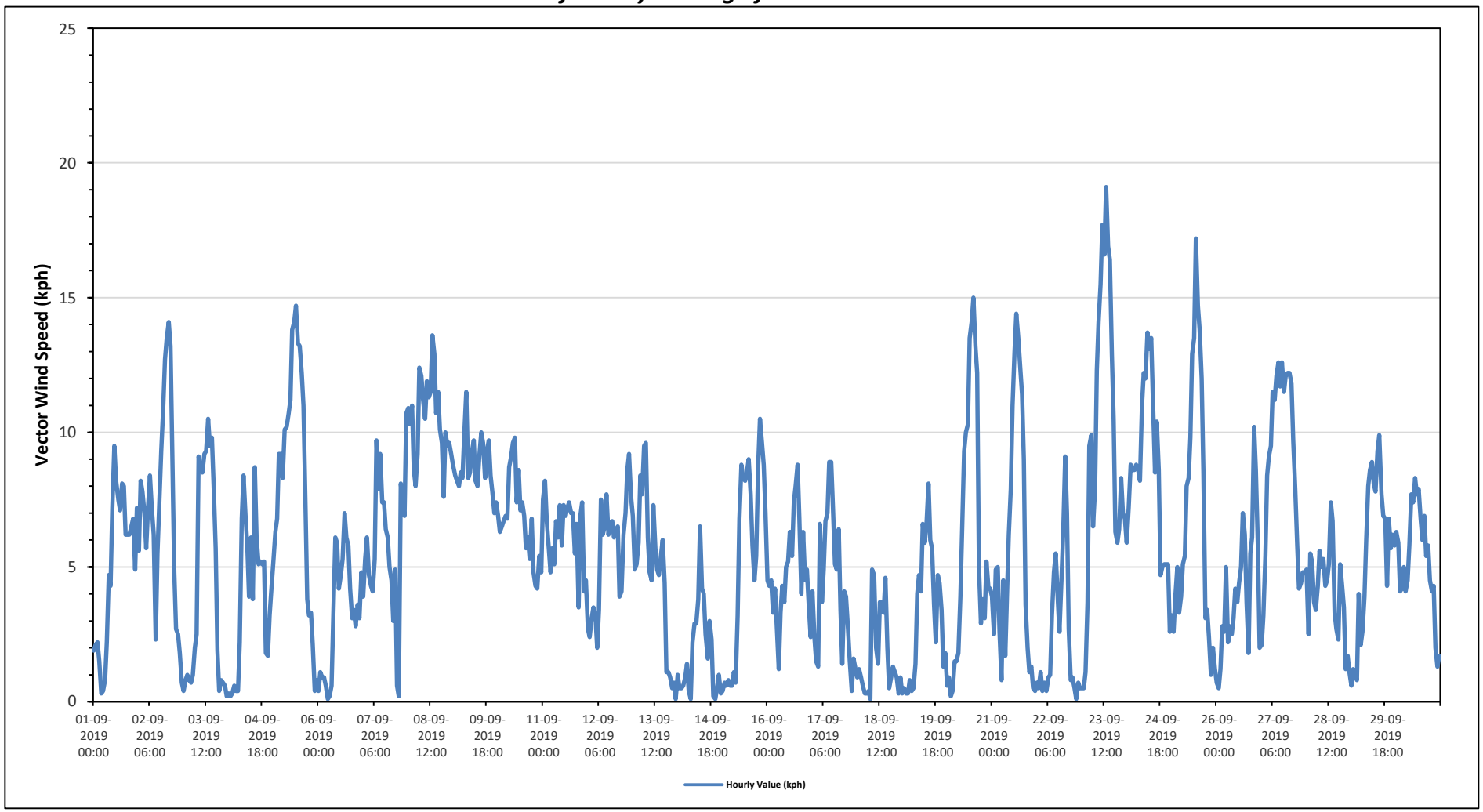
Maximum Hourly Value:	19.1	kph	on September 23 at hour 13	Hours in Service:	720
Maximum Daily Value:	10.6	kph	on September 8	Hours of Data:	720
Minimum Hourly Value:	0.1	kph	on September 6 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	1.7	kph	on September 18	Hours of Calibration:	0
Monthly Average:	0.3	kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	1.9	2.1	2.2	1.5	0.3	0.4	0.8	2.2	4.7	4.3	7.2	9.5	8.2	7.5	7.1	8.1	8	6.2	6.2	6.2	6.5	6.8	4.9	7.2	0.3	9.5	5.0
Sep 2	5.6	8.2	7.8	7	5.7	7.3	8.4	7.1	6.2	2.3	5.5	7.3	9.3	10.7	12.7	13.5	14.1	13.2	9.3	4.8	2.7	2.5	1.8	0.7	0.7	14.1	7.2
Sep 3	0.4	0.8	1	0.8	0.7	1	2	2.5	9.1	8.7	8.5	9.2	9.3	10.5	9.5	9.8	8	5.7	1.9	0.4	0.8	0.7	0.6	0.2	0.2	10.5	4.3
Sep 4	0.3	0.2	0.3	0.6	0.4	0.4	2.2	6.8	8.4	6.9	5.8	3.9	6.1	3.8	8.7	6.1	5.1	5.2	5.1	5.2	1.8	1.7	3.2	4.3	0.2	8.7	3.9
Sep 5	5.2	6.3	6.8	9.2	9.2	8.3	10.1	10.2	10.7	11.2	13.8	14.1	14.7	13.3	13.2	12.2	11	7.3	3.8	3.2	3.3	2.1	0.4	0.8	0.4	14.7	8.4
Sep 6	0.4	1.1	0.9	0.9	0.6	**0.1**	0.2	0.6	3.2	6.1	5.9	4.2	4.7	5.3	7	6.1	5.8	4.2	3.1	3.4	2.8	3.6	3.1	4.8	**0.1**	7.0	3.3
Sep 7	3.9	5.3	6.1	4.7	4.3	4.1	5.3	9.7	7.9	9.2	7.4	7.4	6.4	6.1	5	4.5	3	4.9	0.6	0.2	8.1	7.4	6.9	10.7	0.2	10.7	5.8
Sep 8	10.9	10.3	11	8.6	8	9.2	12.4	12.1	11.2	10.5	11.9	11.3	11.5	13.6	12.9	10.7	11.5	10.1	9.6	7.6	10	9.5	9.6	9.2	7.6	13.6	**10.6**
Sep 9	8.8	8.4	8.2	8	8.5	8.3	10.1	11.5	8.3	8.5	9.3	9.7	8.2	8	9.1	10	9.6	8.3	9.3	9.7	8.4	7.8	7	7.4	7.0	11.5	8.8
Sep 10	6.9	6.3	6.5	6.7	6.9	6.8	8.7	9.1	9.6	9.8	7.4	8.6	7.1	7.4	6.9	5.7	6.1	5.3	6.8	4.8	4.3	4.2	5.4	4.8	4.2	9.8	6.8
Sep 11	7.5	8.2	6.7	5.7	4.8	5.7	5.1	6.7	6.1	7.3	5.8	7.3	6.9	7.2	7.4	7	7	5.5	6.6	3.5	6.9	7.4	4.1	4.5	3.5	8.2	6.3
Sep 12	2.7	2.4	3.1	3.5	3.2	2	3.4	7.5	6.2	6.5	7.7	6.2	6.6	6.7	6.1	6.3	6.5	3.9	4.1	6.2	7	8.6	9.2	7.6	2.0	9.2	5.6
Sep 13	6.9	4.9	5.1	5.9	8.4	7.7	9.5	9.6	6.1	4.8	4.5	7.3	5.7	4.9	4.7	5.4	6	4.4	1.1	1.1	0.9	0.5	0.7	**0.1**	**0.1**	9.6	4.8
Sep 14	1	0.5	0.5	0.6	0.9	1.4	0.4	**0.1**	2.2	2.9	2.9	3.8	6.5	4.2	4	2.5	1.6	3	2.3	0.2	**0.1**	0.5	1	0.3	**0.1**	6.5	1.8
Sep 15	0.4	0.7	0.6	0.8	0.6	0.6	1.1	0.7	3.2	6.8	8.8	8.3	8.2	8.5	9	7.7	5.8	4.5	5.4	8.8	10.5	9.6	8.8	7	0.4	10.5	5.3
Sep 16	4.5	4.3	4.5	3.3	4.2	2.8	1.2	3.3	4.3	3.7	5	5.2	6.3	5.4	7.4	8	8.8	6.8	4	6.3	4.5	4.9	3.5	2.4	1.2	8.8	4.8
Sep 17	4.1	2.4	1.5	1.3	6.6	3.7	4.9	6.7	7	8.9	8.9	7.2	5.1	4.9	6.4	3.4	1.4	4.1	3.9	2.7	1.5	0.4	1.6	1.2	0.4	8.9	4.2
Sep 18	0.9	1.2	0.9	0.6	0.3	0.3	0.4	**0.1**	4.9	4.7	2	1.4	3.7	3.7	3.3	4.6	2	0.5	0.9	1.3	1.1	0.9	0.3	0.9	**0.1**	4.9	**1.7**
Sep 19	0.3	0.5	0.3	0.3	0.8	0.4	0.5	1.4	4	4.7	4.1	6.6	5.9	6.6	8.1	6	5.7	3.6	2.2	4.7	4.4	3.4	1.3	1.8	0.3	8.1	3.2
Sep 20	0.6	0.9	0.2	0.4	1.5	1.5	1.8	3.9	6.4	9.3	10	10.3	13.5	14.1	15	13.2	12.2	5	2.9	3.8	3.1	5.2	4.2	4.2	0.2	15.0	6.0
Sep 21	3.9	2.5	4.9	5	2.6	0.8	4.5	1.7	4	6.2	7.9	11	13	14.4	13.5	12.5	11.4	9	3.6	2	1.1	1.3	0.5	0.4	0.4	14.4	5.7
Sep 22	0.7	0.5	1.1	0.4	0.7	0.4	0.9	1	3.2	4.8	5.5	3.9	2.6	4.5	6.3	9.1	7	2.7	0.8	0.9	0.5	**0.1**	0.7	0.5	**0.1**	9.1	2.5
Sep 23	0.5	0.5	1.1	3.7	9.5	9.9	6.5	7.9	12.3	14.1	15.5	17.7	16.6	**19.1**	16.9	16.4	12.9	10.5	6.3	5.9	6.4	8.3	7	6.8	0.5	**19.1**	9.7
Sep 24	5.9	7.2	8.8	8.6	8.6	8.8	8.6	8.2	11	12.2	12	13.7	13.1	13.5	11.1	8.5	10.4	8.6	4.7	5	5.1	5.1	5.1	2.6	2.6	13.7	8.6
Sep 25	3.2	2.6	3.9	5	3.3	3.9	5.1	5.4	8	8.3	9.8	12.9	13.5	17.2	14.7	13.8	12	8.5	3.1	3.4	2.4	1	2	1.2	1.0	17.2	6.8
Sep 26	0.7	0.5	1.2	2.8	2.6	5	2.2	2.8	2.5	3.1	4.2	3.7	4.4	5	7	6.2	3.7	1.8	5.5	6.1	10.2	8.6	5.8	2	0.5	10.2	4.1
Sep 27	2.1	3.2	5.4	8.4	9.1	9.5	11.5	11.2	12.1	12.6	11.7	12.6	11.5	12.1	12.2	12.2	11.8	9.7	7.9	5.8	4.2	4.4	4.8	4.8	2.1	12.6	8.8
Sep 28	4.9	2.5	5.5	5.2	3.7	3.4	4.3	5.6	5	5.3	4.3	4.5	5.1	7.4	6.7	3.3	2.7	2.3	5.1	4.4	3.5	1.2	1.7	1.1	1.1	7.4	4.1
Sep 29	0.6	1.2	1	0.8	4	2.1	2.6	3.9	6	8	8.6	8.9	8.1	7.8	9.3	9.9	7.7	6.9	6.8	4.3	6.8	5.7	6.2	5.8	0.6	9.9	5.5
Sep 30	6.3	5.9	4.1	4.2	5	4.1	4.5	5.8	7.7	7.4	8.3	7.7	7.9	6.8	6	6.9	5.4	5.8	4.5	4.1	4.3	2	1.3	1.7	1.3	8.3	5.3
Diurnal Maximum	11	10	11	9	10	10	12	12	12	14	16	18	17	19	17	16	14	13	10	10	11	10	10	11			
Daiurnal Average	3.4	3.4	3.7	3.8	4.2	4.0	4.6	5.5	6.7	7.3	7.7	8.2	8.3	8.7	8.9	8.3	7.5	5.9	4.6	4.2	4.4	4.2	3.8	3.6			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

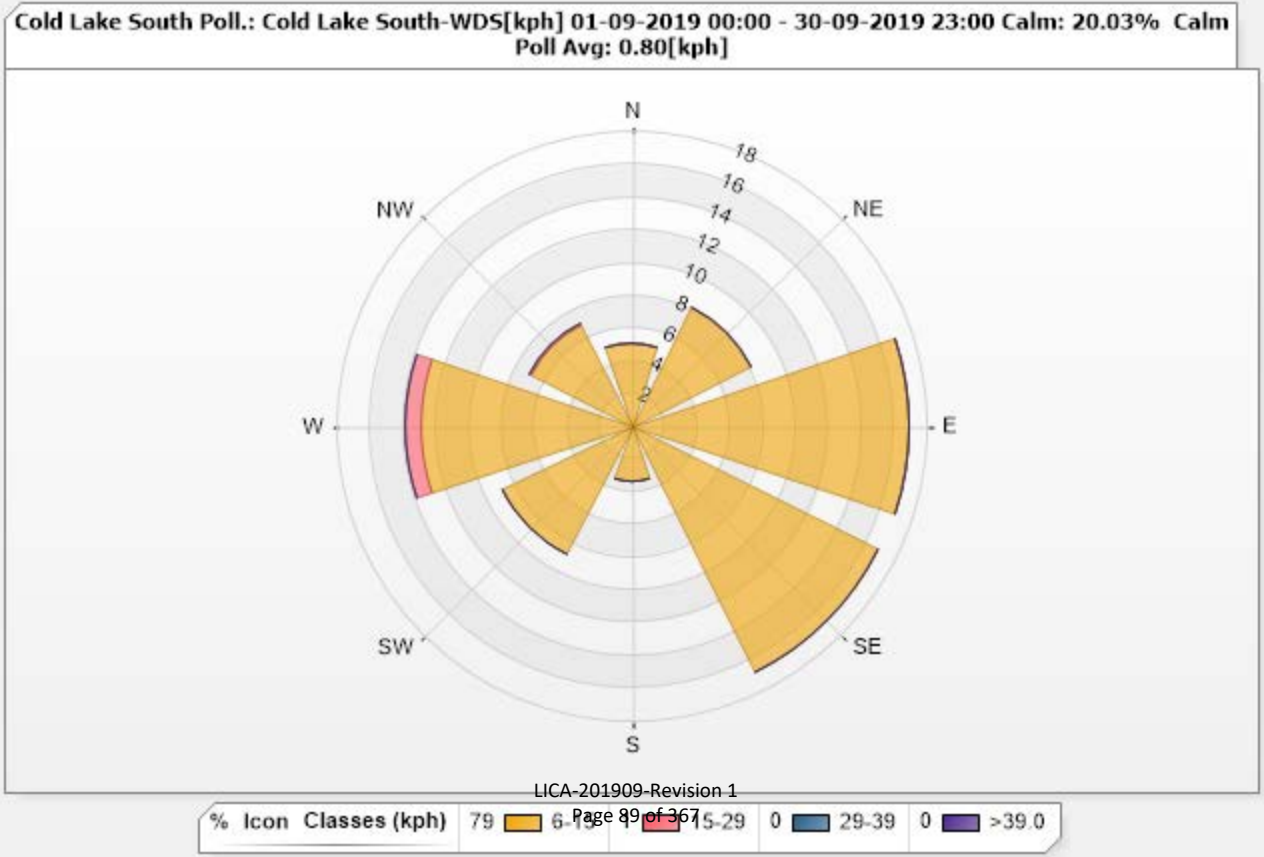
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

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



Wind: Cold Lake South Poll.: Cold Lake South-WDS[kph] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.03% Valid Data: 99.17% Calm Avg: 0.80 [kph]

Direction	6-15	15-29	29-39	>39.0	Total
N	5.04	0	0	0	5.04
NE	8.12	0	0	0	8.12
E	16.95	0	0	0	16.95
SE	16.81	0	0	0	16.81
S	3.36	0	0	0	3.36
SW	8.82	0	0	0	8.82
W	12.89	0.98	0	0	13.87
NW	6.86	0.14	0	0	7
Summary	78.85	1.12	0	0	79.97


Cold Lake South Poll.: Cold Lake South-WDS[kph] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.03% Calm
Poll Avg: 0.80[kph]
N
NE
E
SE
S
SW
W
NW
18
16
14
12
10
8
6
4
2
% Icon Classes (kph)
79
6-15
1
15-29
0
29-39
0
>39.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average: 72 (ENE) degree

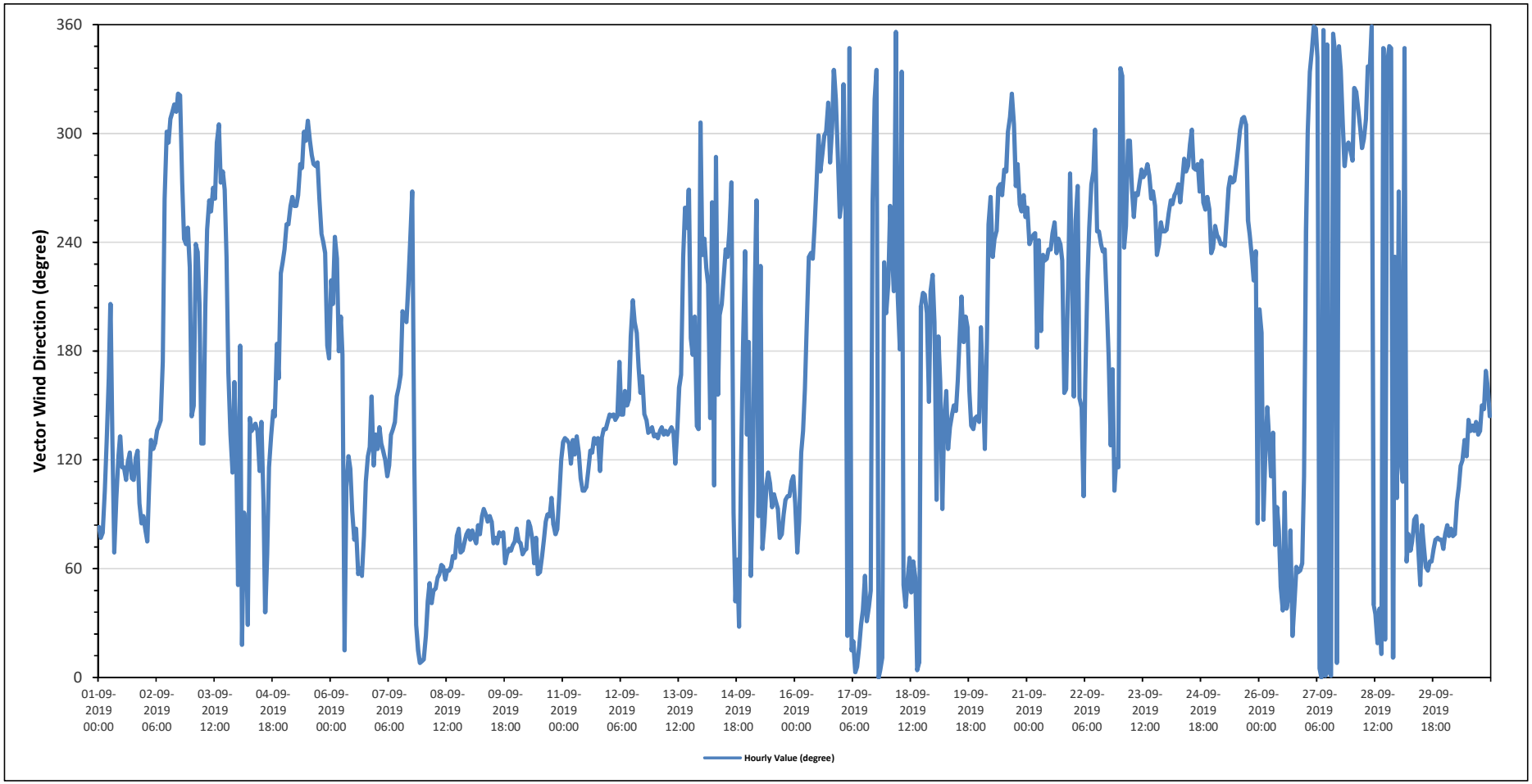
Hours in Service:	720
Hours of Data:	720
Hours of Missing Data:	0
Hours of Calibration:	0
Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant
Sep 1	E	ENE	E	ESE	SE	SSE	SSW	SE	ENE	E	ESE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	E	E	E	111	ESE
Sep 2	E	ENE	ESE	SE	SE	SE	SE	SE	SE	S	W	WNW	WNW	NW	NW	NW	NW	NW	NW	W	WSW	WSW	WSW	SW	308	NW
Sep 3	SE	SSE	WSW	SW	SSW	SE	SE	SSW	WSW	W	WSW	W	W	WNW	WNW	W	W	W	SW	SSE	SE	ESE	SSE	SE	266	W
Sep 4	NE	S	NNE	E	E	NNE	SE	SE	SE	SE	SE	ESE	SE	E	NE	ENE	ESE	SE	SE	SE	S	SSE	SW	SW	128	SE
Sep 5	SW	WSW	WSW	WSW	W	WSW	WSW	W	W	W	WNW	WNW	NW	WNW	WNW	W	W	WNW	W	WSW	WSW	SW	S	S	277	W
Sep 6	SW	SSW	WSW	SW	S	SSW	S	NNE	ESE	ESE	ESE	E	ENE	E	ENE	ENE	NE	ENE	ESE	ESE	SE	SSE	ESE	SE	98	E
Sep 7	SE	SE	SE	SE	ESE	ESE	ESE	SE	SE	SE	SSE	SSE	SSE	SSW	SSW	SSW	SW	WSW	W	ESE	NNE	NNE	N	N	133	SE
Sep 8	N	NNE	NE	NE	NE	NE	NE	NE	ENE	ENE	ENE	NE	ENE	ENE	ENE	ENE	ENE	ENE	E	ENE	ENE	ENE	ENE	E	58	ENE
Sep 9	ENE	E	ENE	ENE	E	ENE	E	E	E	E	E	E	ENE	ENE	ENE	E	ENE	E	ENE	ENE	ENE	ENE	ENE	ENE	79	ENE
Sep 10	E	ENE	ENE	ENE	ENE	ENE	E	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	E	E	E	E	E	ENE	E	E	ESE	78	ENE
Sep 11	SE	SE	SE	SE	ESE	SE	ESE	SE	ESE	ESE	ESE	ESE	ESE	ESE	SE	ESE	SE	SE	SE	ESE	SE	SE	SE	SE	124	ESE
Sep 12	SE	SE	SE	SE	SE	S	SE	SE	SSE	SSE	SSE	S	SSW	SSW	S	S	SSE	SSE	SE	SE	SE	SE	SE	SE	156	SSE
Sep 13	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	SE	SSE	SSE	SW	WSW	WSW	W	S	S	SSW	SE	SE	NW	151	SSE
Sep 14	SW	WSW	SW	SW	SE	W	ESE	WNW	SSE	SSW	SSW	SW	SW	SW	WSW	W	E	NE	ENE	NNE	ESE	S	SW	SE	221	SW
Sep 15	S	NE	E	SSW	W	E	SW	ENE	E	ESE	ESE	ESE	E	E	E	E	ENE	ENE	E	E	E	E	ESE	ESE	100	E
Sep 16	E	ENE	E	ESE	SE	SSE	SSW	SW	SW	SW	WSW	W	WNW	W	WNW	WNW	WNW	NW	WNW	WNW	NNW	NW	WNW	WSW	286	WNW
Sep 17	W	NW	WSW	NNE	NNW	NNE	NNE	N	N	NNE	NNE	NE	NE	NNE	NE	NE	W	NW	NNW	N	N	NNE	SW	SSW	10	N
Sep 18	SW	WSW	SW	SSW	N	SSW	S	NNW	NE	NE	NE	ENE	NE	ENE	NE	N	N	SSW	SSW	SSW	SSW	SSE	SSW	SW	45	NE
Sep 19	SSW	E	S	SSE	E	SE	SSE	SE	SE	SE	SSE	SE	SSE	S	SSW	S	SSW	S	SSE	SE	SE	SE	SE	SE	165	SSE
Sep 20	S	SSE	SE	S	WSW	W	SW	WSW	WSW	W	W	W	W	W	WNW	NW	NW	WNW	W	W	W	WSW	W	WSW	280	W
Sep 21	WSW	WSW	WSW	WSW	WSW	S	WSW	S	SW	SW	SW	SW	SW	WSW	WSW	SW	WSW	WSW	SW	SSE	SSE	SSW	W	SW	238	SW
Sep 22	SSE	WSW	W	SSE	SSE	E	SSE	SW	WSW	W	W	WNW	WSW	WSW	WSW	SW	SW	SSW	S	SE	SSE	ESE	ESE	ESE	243	WSW
Sep 23	NNW	NNW	SW	WSW	WNW	WNW	W	WSW	W	W	W	W	W	W	W	W	W	W	WSW	SW	WSW	WSW	WSW	WSW	270	W
Sep 24	WSW	WSW	W	W	W	W	W	W	W	WNW	W	W	WNW	WNW	W	W	W	W	WNW	W	WSW	W	WSW	SW	274	W
Sep 25	SW	WSW	WSW	WSW	WSW	WSW	SW	WSW	W	W	W	W	W	WNW	WNW	NW	NW	WNW	WSW	WSW	SW	SW	SW	E	278	W
Sep 26	SSW	S	E	SE	SSE	SE	ESE	SE	ENE	E	E	NE	NE	E	NE	NE	E	NNE	NE	ENE	ENE	ENE	ENE	ESE	71	ENE
Sep 27	WSW	WNW	NNW	NNW	N	N	NNW	N	N	N	N	NNW	N	N	N	NNW	N	NNW	NNW	WNW	W	WNW	WNW	WNW	347	NNW
Sep 28	WNW	NW	NW	NW	WNW	WNW	WNW	NW	NNW	NNW	N	NE	NE	NNE	NE	NNE	NNW	NNE	NNW	NNW	NNW	NNE	SW	E	343	NNW
Sep 29	W	ESE	ESE	NNW	ENE	ENE	ENE	ENE	E	E	ENE	NE	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	71	ENE
Sep 30	ENE	E	ENE	E	ENE	ENE	E	ESE	ESE	ESE	SE	ESE	SE	SE	SE	SE	SE	SE	SE	SSE	SE	SSE	SSE	SE	120	ESE

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hour Standard Deviations

STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

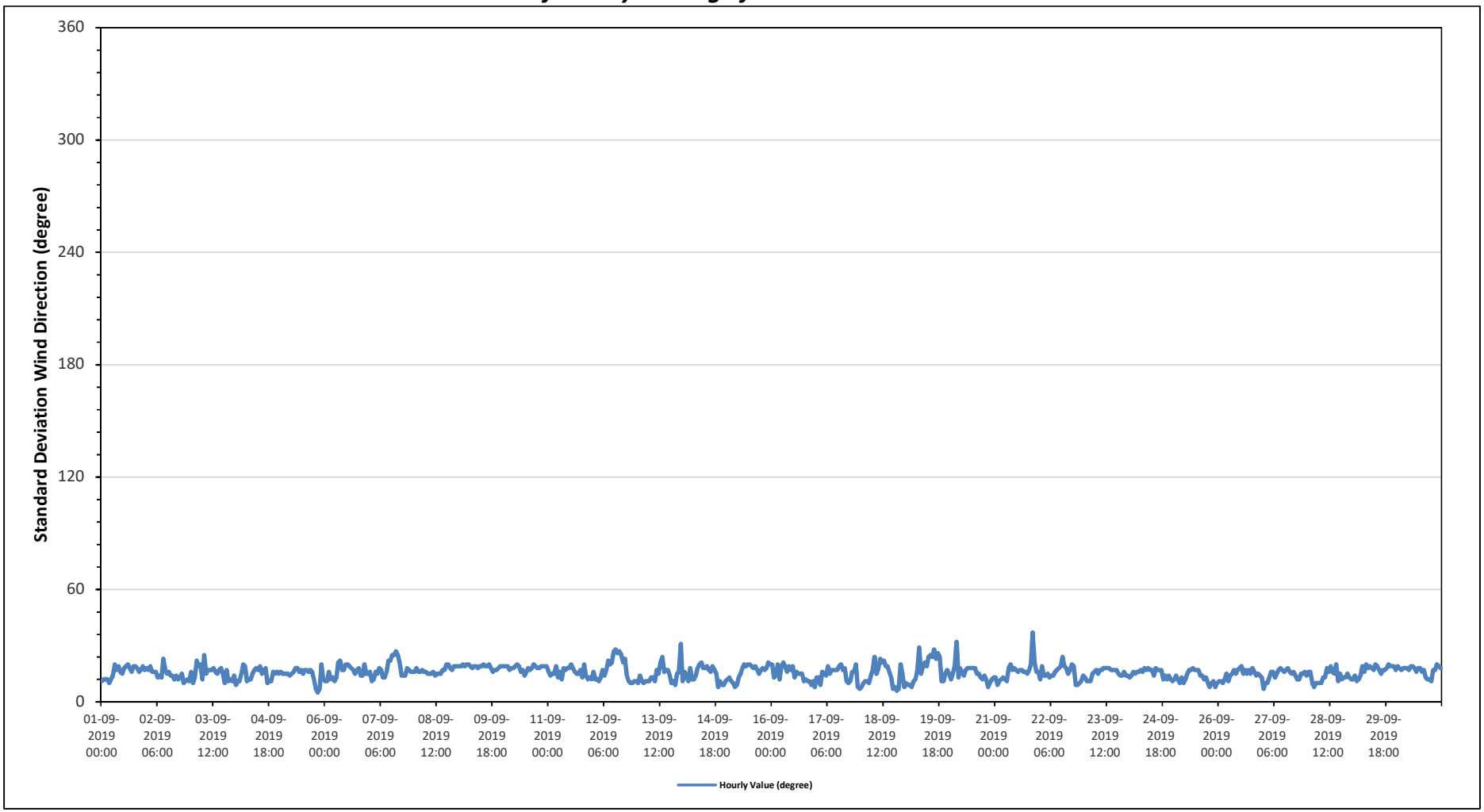
Maximum Hourly Value:	37	degree	on September 21 at hour 20	Hours in Service:	720
				Hours of Data:	720
Minimum Hourly Value:	5	degree	on September 5 at hour 0	Hours of Missing Data:	0
				Hours of Calibration:	0
				Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum
Sep 1	11	12	12	12	10	12	14	20	17	19	16	15	18	19	20	18	16	19	19	18	16	17	19	17	10	20
Sep 2	18	17	19	16	16	16	13	14	13	23	17	15	16	14	14	12	14	12	13	15	10	11	12	11	10	23
Sep 3	16	10	13	22	19	20	12	25	15	17	17	17	18	16	15	17	18	15	10	17	11	12	11	14	10	25
Sep 4	9	11	11	15	20	19	11	12	12	15	17	18	17	19	15	17	18	10	11	11	16	15	16	15	9	20
Sep 5	16	15	15	15	15	14	15	16	18	18	16	17	15	17	17	16	17	16	12	7	**5**	7	20	12	**5**	20
Sep 6	11	11	16	12	13	11	13	21	22	17	17	20	20	19	18	17	15	17	18	14	14	20	15	15	11	22
Sep 7	16	11	12	16	15	18	17	13	13	16	22	22	25	25	27	25	21	14	14	14	18	17	16	16	11	27
Sep 8	16	18	16	16	17	16	16	15	15	15	16	14	15	15	15	17	17	20	20	18	17	19	19	19	14	20
Sep 9	19	19	20	19	20	20	19	18	19	19	18	19	19	20	19	19	20	18	16	17	17	18	19	19	16	20
Sep 10	19	19	19	17	18	18	19	20	19	16	17	14	16	18	17	18	20	19	18	18	19	19	19	19	14	20
Sep 11	16	14	15	15	19	13	16	12	18	17	18	18	20	18	16	15	15	17	13	20	14	12	13	12	12	20
Sep 12	16	12	12	11	13	17	14	17	22	20	21	27	28	26	27	25	21	23	14	11	10	10	11	11	10	28
Sep 13	10	14	11	10	11	11	11	13	13	11	17	15	21	24	16	17	17	14	10	11	9	15	16	31	9	31
Sep 14	11	16	14	11	18	12	12	14	18	20	21	18	18	19	17	16	19	17	15	8	11	9	9	11	8	21
Sep 15	12	13	11	10	8	9	13	15	18	20	19	20	20	19	18	19	17	15	17	18	17	18	21	20	8	21
Sep 16	20	13	14	20	12	19	21	19	16	19	17	19	13	16	15	15	15	11	12	11	11	9	11	8	8	21
Sep 17	13	13	9	16	15	14	19	15	17	17	17	17	19	20	17	18	11	10	11	16	16	20	8	7	7	20
Sep 18	8	10	11	11	10	14	17	24	15	18	23	21	22	19	19	16	13	7	8	6	7	20	15	8	6	24
Sep 19	10	9	9	8	11	12	17	29	15	19	21	19	24	25	24	28	23	26	24	11	11	15	17	15	8	29
Sep 20	12	15	19	32	13	18	16	14	17	18	18	18	18	18	15	15	13	12	14	12	8	10	12	13	8	32
Sep 21	13	9	11	12	13	12	11	18	20	17	18	17	16	17	17	16	16	15	17	20	**37**	21	16	16	9	**37**
Sep 22	12	19	14	14	15	13	14	14	16	17	18	19	24	19	18	15	17	20	19	9	9	10	11	14	9	24
Sep 23	13	11	11	11	15	16	17	15	17	17	18	18	18	18	17	17	17	17	15	14	14	16	14	14	11	18
Sep 24	13	14	16	15	16	16	17	16	18	17	18	17	17	14	18	17	17	17	12	14	12	14	12	11	11	18
Sep 25	12	14	12	10	13	10	12	15	17	17	18	17	17	17	14	14	12	13	10	8	10	11	8	10	8	18
Sep 26	11	11	10	12	15	11	14	15	17	15	17	18	19	15	17	15	17	15	18	16	14	15	14	13	10	19
Sep 27	7	10	10	13	16	16	13	15	17	18	17	16	17	18	16	15	16	14	12	12	15	15	16	14	7	18
Sep 28	16	16	10	8	10	10	10	10	13	13	18	16	19	16	15	20	11	15	12	13	13	15	13	12	8	20
Sep 29	12	14	11	12	14	19	16	20	18	19	18	17	20	19	17	15	17	17	18	20	19	19	19	17	11	20
Sep 30	19	18	17	18	18	18	17	19	19	18	16	18	18	16	17	13	12	12	11	17	17	20	19	18	11	20
Diurnal Minimum	7	9	9	8	8	9	10	10	12	11	16	14	13	14	14	12	11	7	8	6	5	7	8	7		
Daiurnal Maximum	20	19	20	32	20	20	21	29	22	23	23	27	28	26	27	28	23	26	24	20	37	21	21	31		

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



MASKWA STATION

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Averages

SULPHUR DIOXIDE (SO_2) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb

Number of 1-Hour Exceedences: 0 Number of 24-Hour Exceedences: 0 30-Day Exceedence: 0

Maximum Hourly Value:	16	ppb	on September 27 at hour 23	Hours in Service:	720
Maximum Daily Value:	2.2	ppb	on September 27	Hours of Data:	685
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 8	Hours of Calibration:	35
Monthly Average:	0.5	ppb		Operational Uptime:	100.0

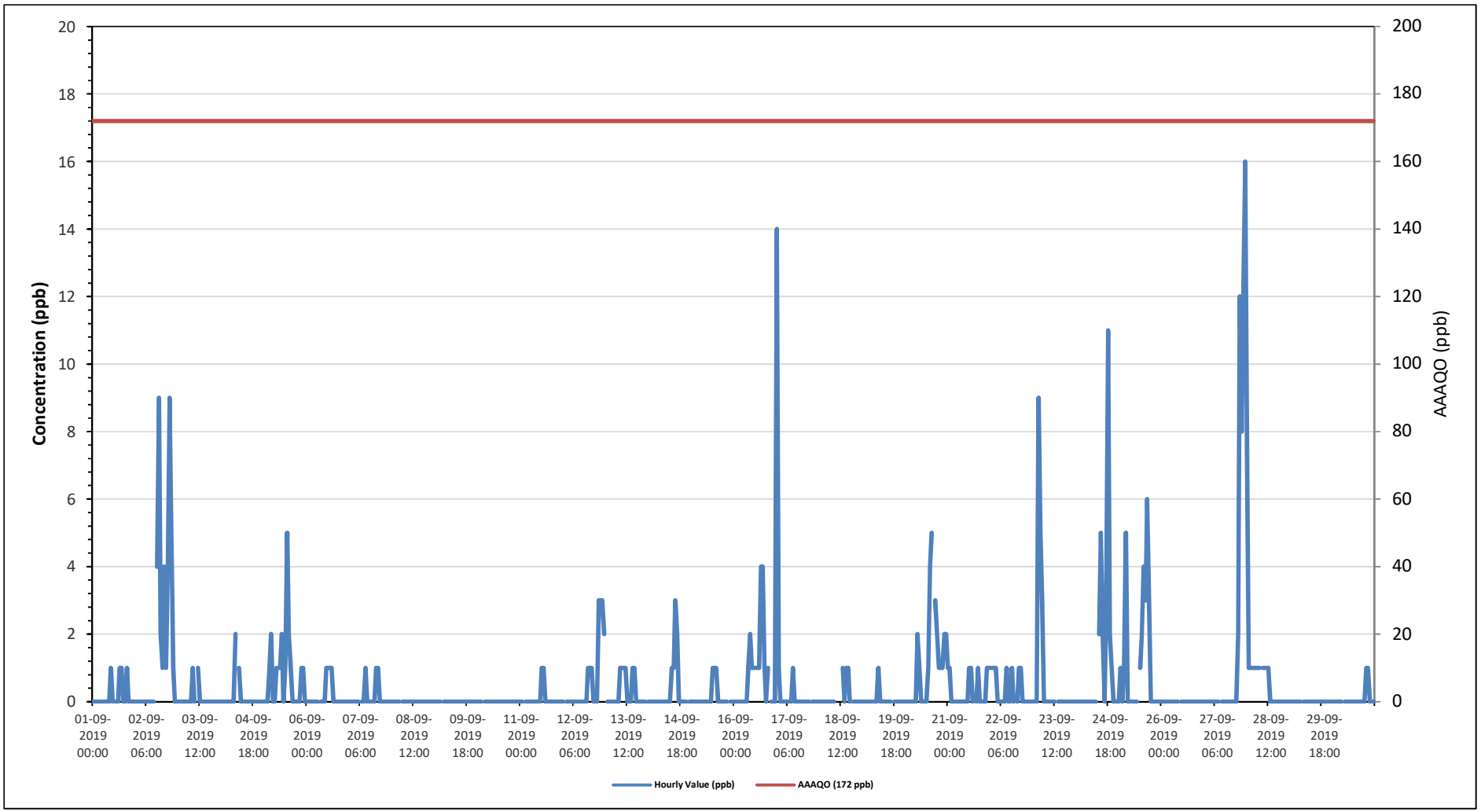
Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	0	0	0	0	0	0	0	0	0	0	1	0	S	0	0	1	1	0	0	1	0	0	0	0	0	1	0.2
Sep 2	0	0	0	0	0	0	0	0	0	0	0	S	4	9	2	1	4	1	4	9	5	1	0	0	0	9	1.7
Sep 3	0	0	0	0	0	0	0	0	1	0	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 4	0	0	0	0	0	0	0	0	2	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1
Sep 5	0	0	0	1	2	0	0	1	S	1	2	0	1	5	2	1	0	0	0	0	0	1	1	0	0	5	0.8
Sep 6	0	0	0	0	0	0	0	S	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.2
Sep 7	0	0	0	0	0	0	S	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0.1
Sep 8	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 9	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 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	0.0
Sep 11	0	0	S	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 12	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	3	3	3	2	0	3	0.6
Sep 13	S	0	0	0	0	0	0	0	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	S	0	1	0.3
Sep 14	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	2	0	0	0	0	0	S	0	0	3	0.3
Sep 15	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	S	0	0	0	1	0.1
Sep 16	0	0	0	0	0	0	0	0	1	2	1	1	1	1	1	4	4	1	0	1	S	0	0	0	0	4	0.8
Sep 17	14	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	14	0.7
Sep 18	0	0	0	0	0	0	0	0	0	C	C	C	C	1	0	1	1	0	S	0	0	0	0	0	0	1	0.2
Sep 19	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	0.0
Sep 20	0	0	0	0	0	0	0	2	1	0	0	0	0	1	4	5	S	3	2	1	1	1	2	2	0	5	1.1
Sep 21	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	S	0	1	0	0	0	0	1	1	0	1	0.3
Sep 22	1	1	1	1	0	0	0	0	0	1	0	0	1	0	S	0	1	1	0	0	0	0	0	0	0	1	0.3
Sep 23	0	0	0	9	5	3	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	9	0.7
Sep 24	0	0	0	0	0	0	0	0	0	0	0	0	S	2	5	2	0	3	11	2	1	0	0	0	0	11	1.1
Sep 25	0	1	0	1	5	0	0	0	0	0	0	S	1	2	4	3	6	3	0	0	0	0	0	0	0	6	1.1
Sep 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	0.0
Sep 27	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	2	12	8	12	16	0	**16**	**2.2**
Sep 28	7	1	1	1	1	1	1	1	S	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0.8
Sep 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	0.0
Sep 30	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0.1
Diurnal Maximum	14	1	1	9	5	3	1	2	2	2	2	1	4	9	5	5	6	3	11	9	12	8	12	16			
Daiurnal Average	0.8	0.2	0.1	0.4	0.4	0.1	0.0	0.1	0.2	0.3	0.3	0.2	0.5	0.9	0.8	0.8	0.8	0.4	0.6	0.6	0.8	0.5	0.7	0.7			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

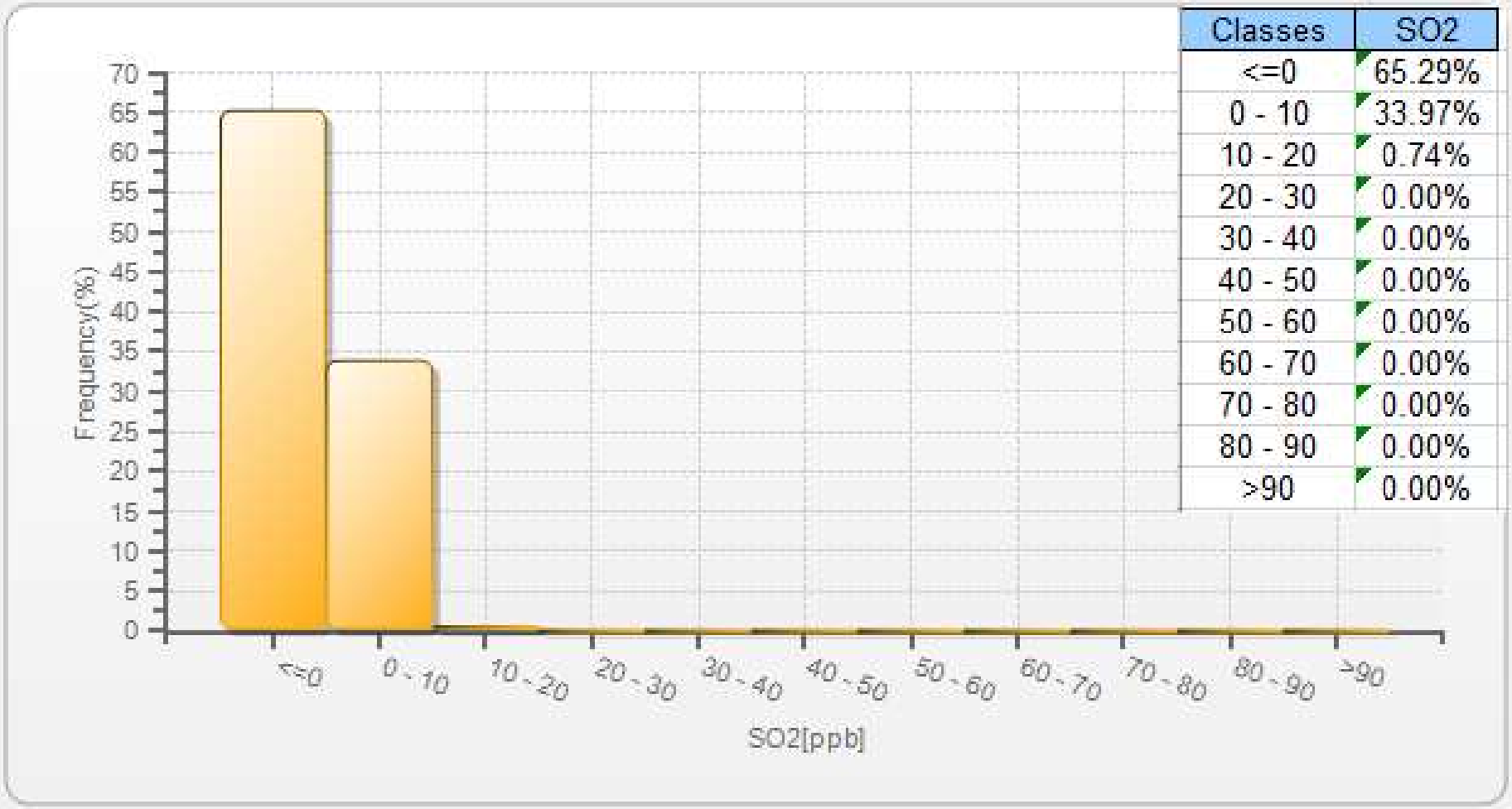
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

Timeseries Chart of Hourly Average for SO2 - Maskwa Site



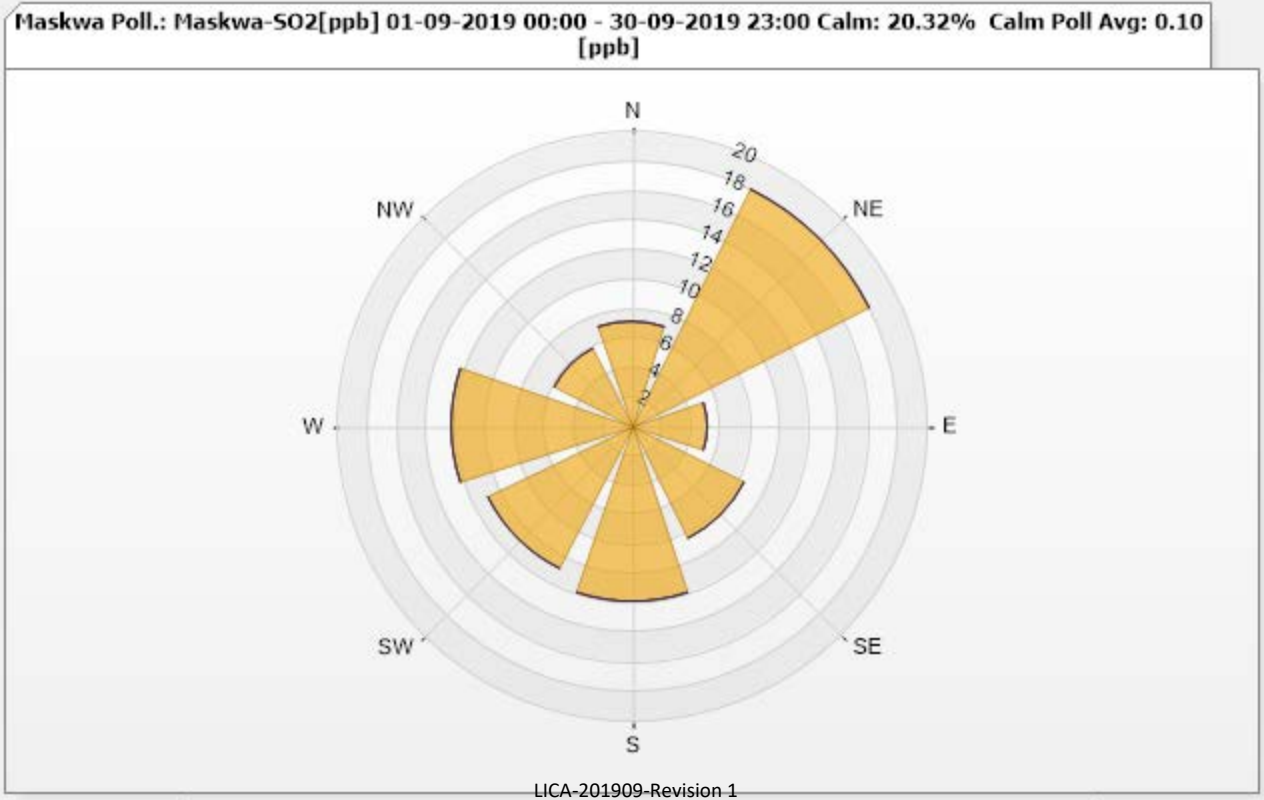
SO2[ppb] Histogram: Maskwa Monthly: 09-2019 1 Hr.



Classes	SO2
<=0	65.29%
0 - 10	33.97%
10 - 20	0.74%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Maskwa Poll.: Maskwa-SO2[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.32% Valid Data: 94.31% Calm Avg: 0.10 [ppb]

Direction	10-50	50-100	100-172	>172.0	Total
N	7.07	0	0	0	7.07
NE	17.97	0	0	0	17.97
E	5.15	0	0	0	5.15
SE	8.54	0	0	0	8.54
S	11.93	0	0	0	11.93
SW	10.9	0	0	0	10.9
W	12.22	0	0	0	12.22
NW	5.89	0	0	0	5.89
Summary	79.67	0	0	0	79.67


Maskwa Poll.: Maskwa-SO2[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.32% Calm Poll Avg: 0.10 [ppb]
N
NE
E
SE
S
SW
W
NW
20
18
16
14
12
10
8
6
4
2
% Icon Classes (ppb)
80
10-50
0
50-100
0
100-172
0
>172.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Averages

HYDROGEN SULPHIDE (H_2S) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 10 ppb, 24-Hour 3 ppb

Number of 1-Hour Exceedences: 0 Number of 24-Hour Exceedences: 0

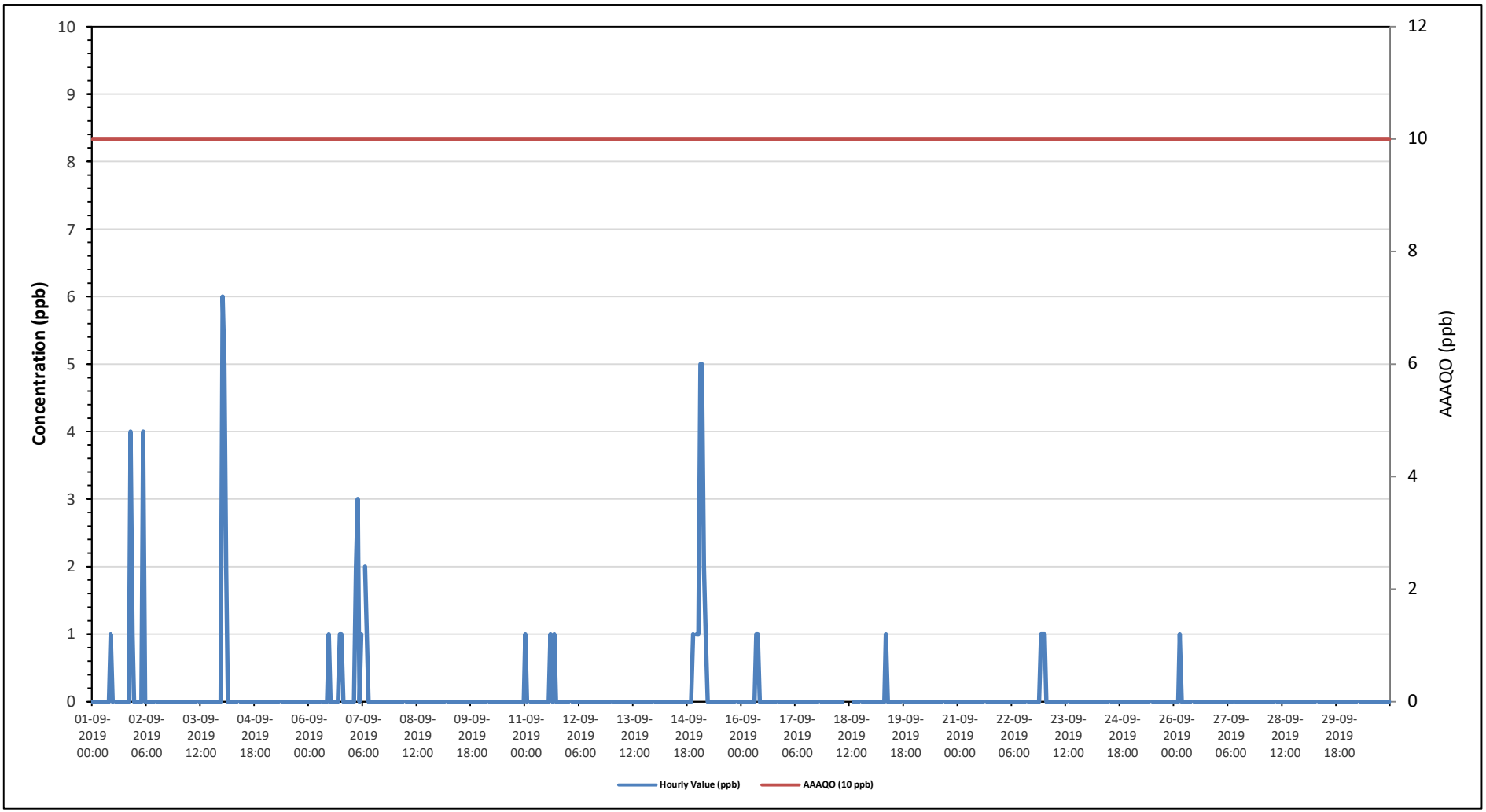
Maximum Hourly Value:	6	ppb	on September 4 at hour 0	Hours in Service:	720
Maximum Daily Value:	0.6	ppb	on September 15	Hours of Data:	684
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 3	Hours of Calibration:	36
Monthly Average:	0.1	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	0	0	0	0	0	0	0	0	0	0	1	0	S	0	0	0	0	0	0	0	0	4	1	0	0	4	0.3
Sep 2	0	0	0	0	4	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.2
Sep 3	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 4	6	5	2	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0.6
Sep 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	0.0
Sep 6	0	0	0	0	0	0	0	S	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0.1
Sep 7	0	0	2	3	0	1	S	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.4
Sep 8	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 9	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 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	0.0
Sep 11	1	0	S	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0.1
Sep 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	0.0
Sep 13	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0
Sep 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	S	1	0	1	0.1
Sep 15	1	5	5	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	5	0.6
Sep 16	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	0.1
Sep 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	0.0
Sep 18	0	0	0	0	0	0	0	0	0	C	C	C	C	C	0	0	0	0	S	0	0	0	0	0	0	0	0.0
Sep 19	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	0.0
Sep 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	0.0
Sep 21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0.0
Sep 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	1	0	1	0.1
Sep 23	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	1	0.0
Sep 24	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 25	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 26	0	0	0	1	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Sep 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	0.0
Sep 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	0.0
Sep 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	0.0
Sep 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	0.0
Diurnal Maximum	6	5	5	3	4	1	0	2	1	1	1	1	0	0	1	0	1	1	1	0	0	4	1	1			
Daiurnal Average	0.3	0.3	0.3	0.2	0.2	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	0.2	0.1	0.1			

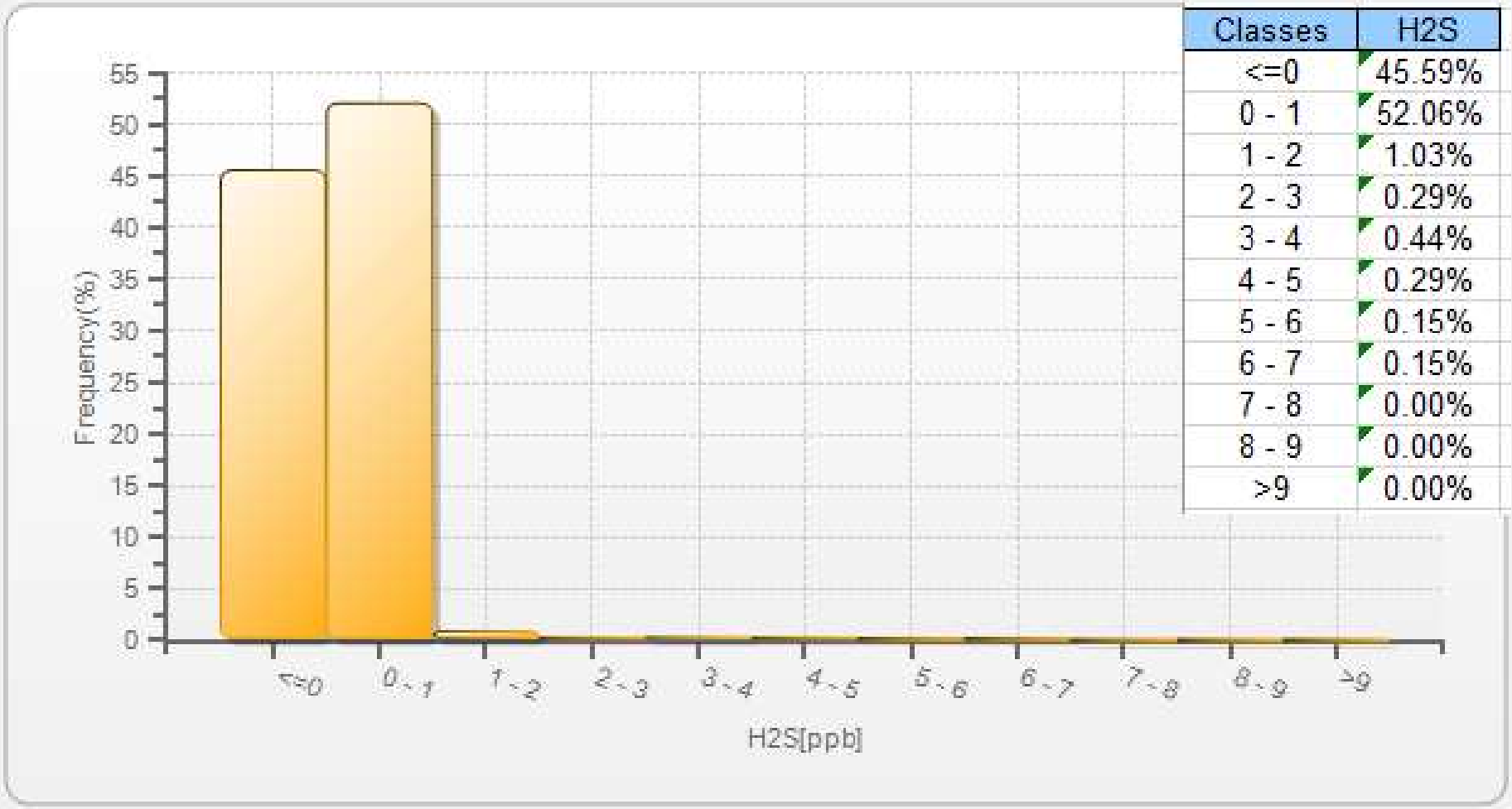
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for H2S - Maskwa Site



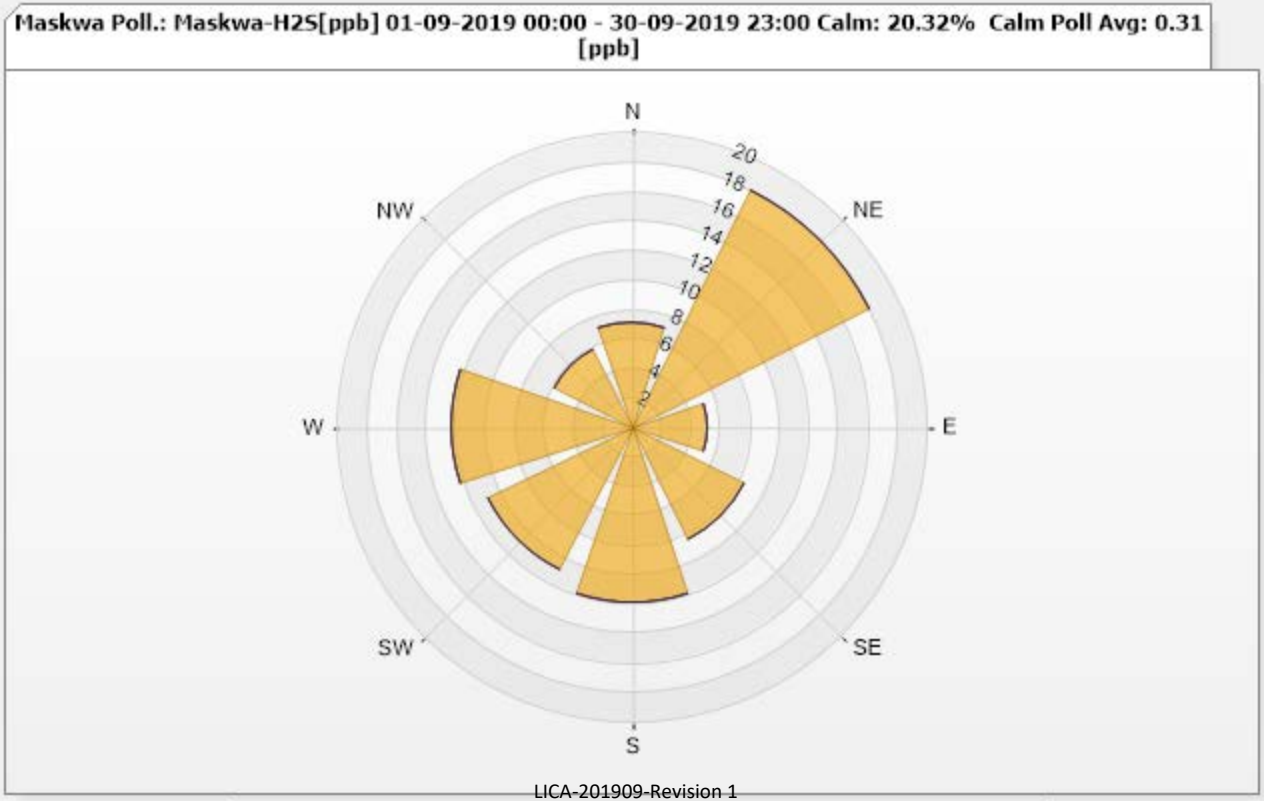
H2S[ppb] Histogram: Maskwa Monthly: 09-2019 1 Hr.



Classes	H2S
<=0	45.59%
0 - 1	52.06%
1 - 2	1.03%
2 - 3	0.29%
3 - 4	0.44%
4 - 5	0.29%
5 - 6	0.15%
6 - 7	0.15%
7 - 8	0.00%
8 - 9	0.00%
>9	0.00%

Wind: Maskwa Poll.: Maskwa-H2S[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.32% Valid Data: 94.31% Calm Avg: 0.31 [ppb]

Direction	2-5	5-10	10-50	>50.0	Total
N	7.07	0	0	0	7.07
NE	17.97	0	0	0	17.97
E	5.15	0	0	0	5.15
SE	8.54	0	0	0	8.54
S	11.93	0	0	0	11.93
SW	10.9	0	0	0	10.9
W	12.22	0	0	0	12.22
NW	5.89	0	0	0	5.89
Summary	79.67	0	0	0	79.67


Maskwa Poll.: Maskwa-H2S[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.32% Calm Poll Avg: 0.31 [ppb]
N
NE
E
SE
S
SW
W
NW
20
18
16
14
12
10
8
6
4
2
% Icon Classes (ppb)
80
2-5
0
5-10
0
10-50
0
>50.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Averages

OXIDES OF NITROGEN (NOx) in ppb

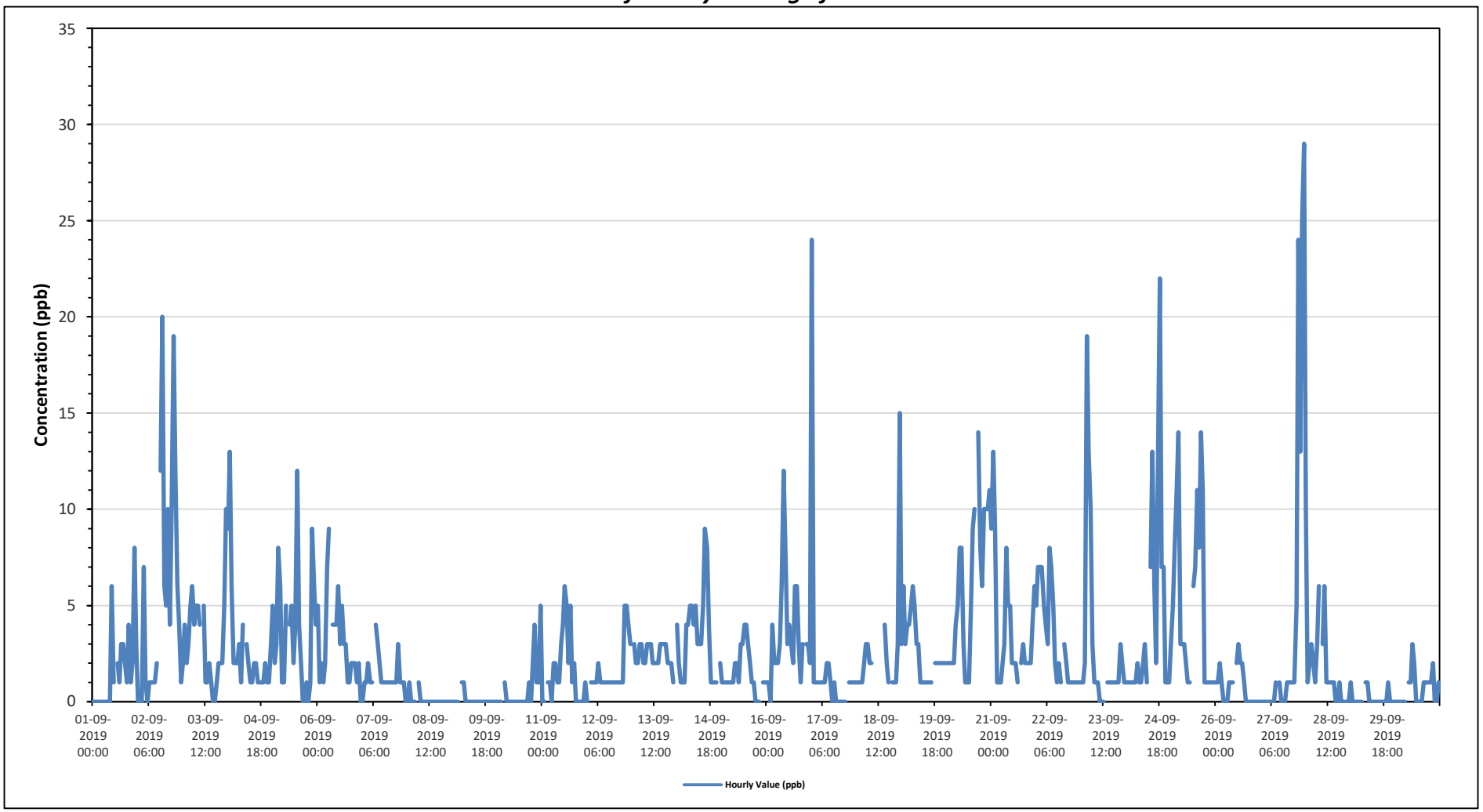
Maximum Hourly Value:	29	ppb	on September 27 at hour 23	Hours in Service:	720
Maximum Daily Value:	5.8	ppb	on September 20	Hours of Data:	683
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.1	ppb	on September 8	Hours of Calibration:	37
Monthly Average:	2.5	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	0	0	0	0	0	0	0	0	0	0	6	1	S	2	1	3	3	2	1	4	1	2	8	3	0	8	1.6
Sep 2	0	0	0	7	1	0	1	1	1	1	2	S	12	20	6	5	10	4	10	19	12	6	4	1	0	20	5.3
Sep 3	2	4	2	3	5	6	4	5	5	4	S	5	1	1	2	1	0	0	1	2	2	2	5	10	0	10	3.1
Sep 4	9	13	6	2	2	2	3	1	4	S	3	2	1	1	2	2	1	1	1	1	2	1	1	3	1	13	2.8
Sep 5	5	2	3	8	6	1	1	5	S	4	5	2	4	12	4	2	0	0	1	0	1	9	6	4	0	12	3.7
Sep 6	5	1	2	1	2	7	9	S	4	4	4	6	3	5	3	3	1	1	2	2	2	1	2	0	0	9	3.0
Sep 7	0	1	1	2	1	1	S	4	3	2	1	1	1	1	1	1	1	1	1	3	1	1	1	0	0	4	1.3
Sep 8	0	1	0	0	0	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 9	0	0	0	0	S	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 10	0	0	0	S	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	4	1	1	5	0	5	0.7
Sep 11	0	0	S	1	1	0	2	2	1	1	3	4	6	5	2	5	1	2	0	0	0	0	0	1	0	6	1.6
Sep 12	0	S	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	4	3	0	5	1.6
Sep 13	S	3	2	2	3	3	2	2	3	3	3	2	2	2	2	3	3	3	3	2	2	2	1	S	1	3	2.4
Sep 14	4	2	1	1	1	4	4	5	5	4	5	3	3	3	5	9	8	4	1	1	1	1	S	2	1	9	3.3
Sep 15	1	1	1	1	1	1	1	2	2	1	3	3	4	4	3	2	1	1	0	0	0	S	1	1	0	4	1.5
Sep 16	1	1	0	4	2	2	2	3	6	12	8	3	4	3	2	6	6	3	1	3	S	3	3	2	0	12	3.5
Sep 17	24	1	1	1	1	1	1	1	2	2	1	0	1	0	0	0	0	0	0	S	1	1	1	1	0	24	1.8
Sep 18	1	1	1	1	2	3	3	2	2	C	C	C	C	C	C	4	2	1	S	1	1	1	3	15	1	15	-
Sep 19	3	6	3	4	4	5	6	5	3	3	1	1	1	1	1	1	1	S	2	2	2	2	2	2	1	6	2.7
Sep 20	2	2	2	2	2	4	5	8	8	3	1	1	1	5	9	10	S	14	8	6	10	10	10	11	1	14	**5.8**
Sep 21	9	13	9	1	1	1	2	3	8	5	5	2	2	2	1	S	2	3	2	2	2	2	4	6	1	13	3.8
Sep 22	5	7	7	7	5	4	3	8	7	5	2	1	2	1	S	3	2	1	1	1	1	1	1	1	1	8	3.3
Sep 23	1	1	2	19	13	10	3	1	1	1	0	0	0	S	1	1	1	1	1	1	1	3	2	1	0	19	2.8
Sep 24	1	1	1	1	1	1	2	1	1	2	3	1	S	7	13	6	2	12	22	7	7	1	1	1	1	22	4.1
Sep 25	3	5	8	11	14	3	3	3	2	1	1	S	6	7	11	8	14	11	1	1	1	1	1	1	1	14	5.1
Sep 26	1	1	2	1	0	0	0	1	1	1	S	2	3	2	2	1	0	0	0	0	0	0	0	0	0	3	0.8
Sep 27	0	0	0	0	0	0	0	0	1	S	1	0	0	0	1	1	1	1	1	5	24	13	25	**29**	0	**29**	4.5
Sep 28	10	1	2	3	2	1	3	6	S	3	6	1	1	1	1	1	0	0	1	0	0	0	0	0	0	10	1.9
Sep 29	1	0	0	0	0	0	0	S	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0.2
Sep 30	0	0	0	0	0	0	S	1	1	3	2	0	0	0	0	1	1	1	1	1	2	0	0	1	0	3	0.7
Diurnal Maximum	24	13	9	19	14	10	9	8	8	12	8	6	12	20	13	10	14	14	22	19	24	13	25	29			
Daiurnal Average	3.0	2.3	2.0	2.9	2.5	2.1	2.3	2.5	2.6	2.5	2.5	1.6	2.2	3.1	2.6	2.8	2.1	2.4	2.2	2.3	3.0	2.4	3.0	3.6			

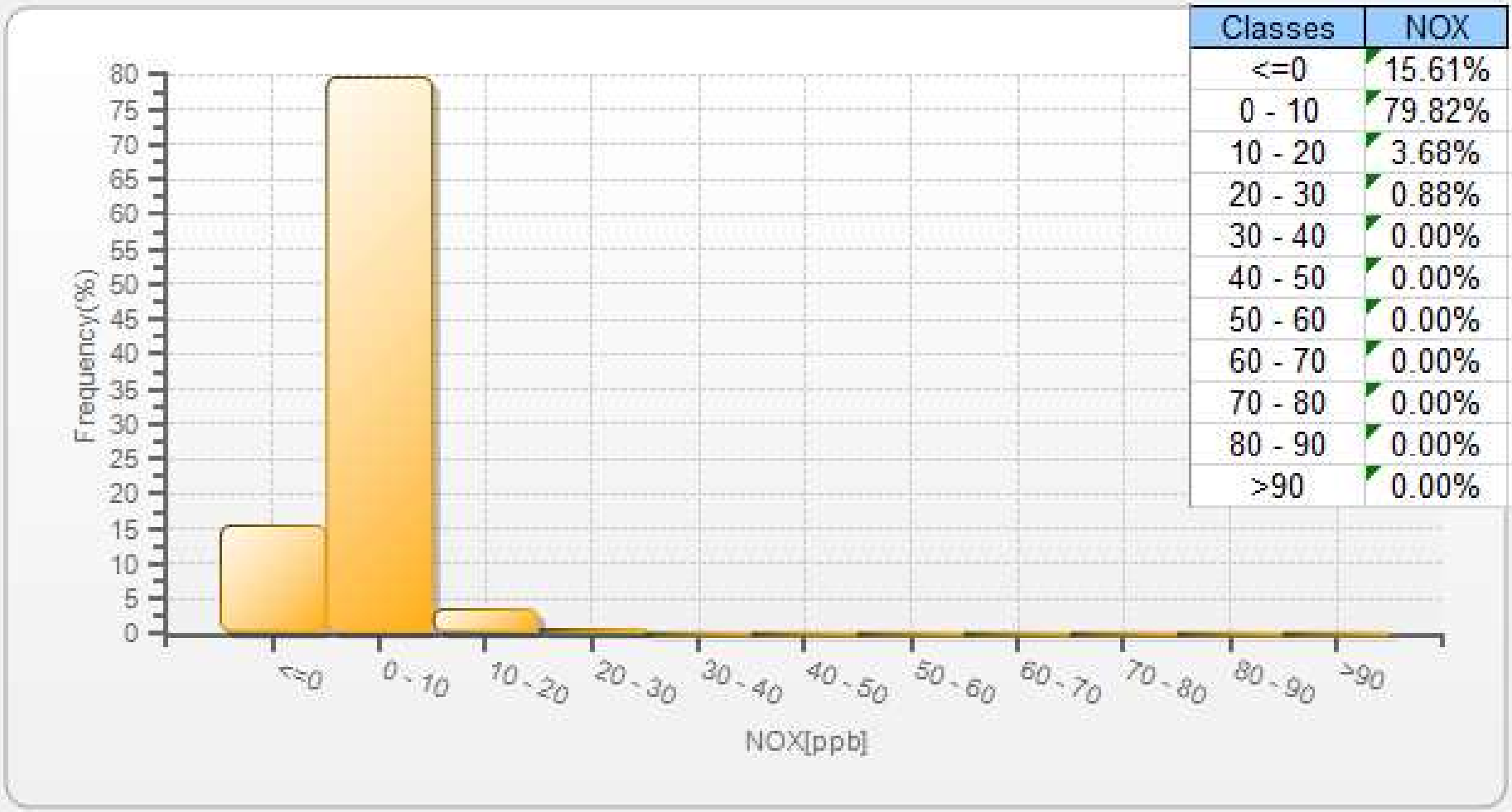
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for NOx - Maskwa Site



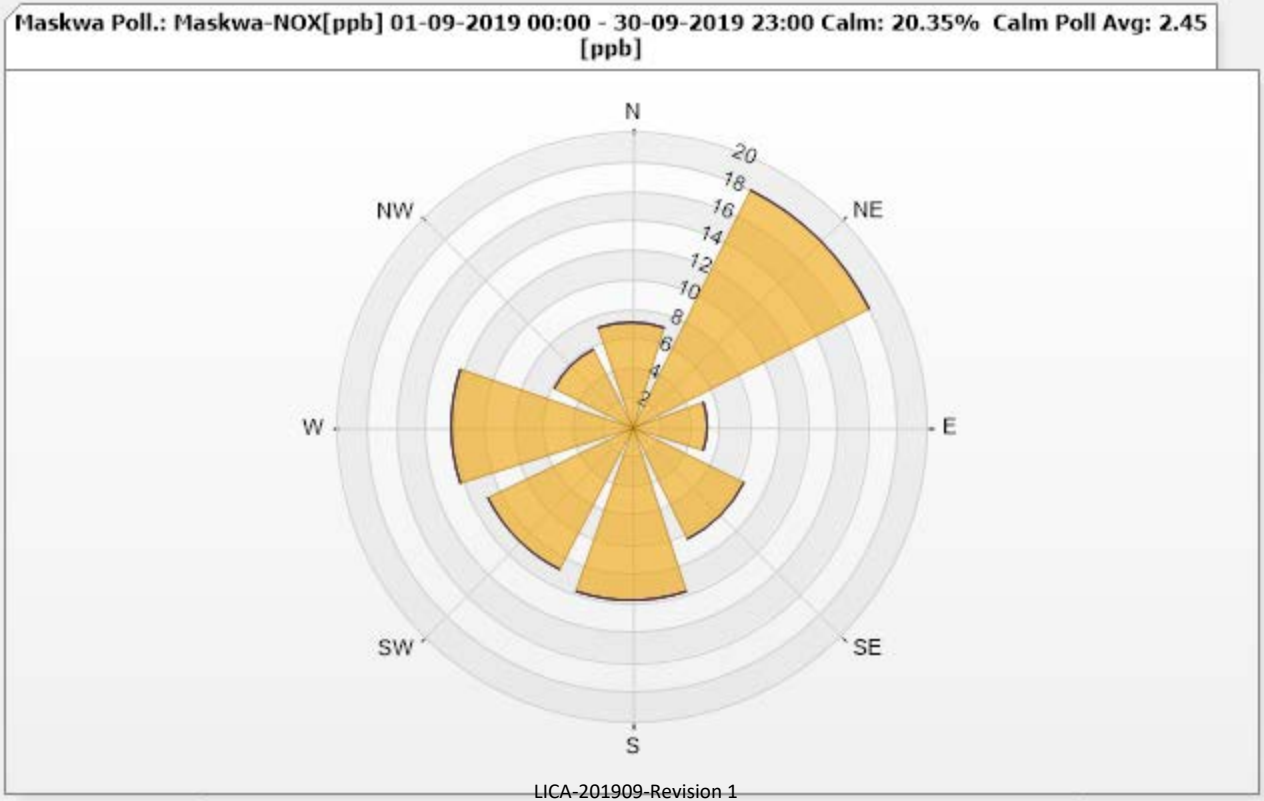
NOX[ppb] Histogram: Maskwa Monthly: 09-2019 1 Hr.



Classes	NOX
<=0	15.61%
0 - 10	79.82%
10 - 20	3.68%
20 - 30	0.88%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Maskwa Poll.: Maskwa-NOX[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.35% Valid Data: 94.17% Calm Avg: 2.45 [ppb]

Direction	30-50	50-82	82-159	>159.0	Total
N	7.08	0	0	0	7.08
NE	17.99	0	0	0	17.99
E	5.16	0	0	0	5.16
SE	8.55	0	0	0	8.55
S	11.8	0	0	0	11.8
SW	10.91	0	0	0	10.91
W	12.24	0	0	0	12.24
NW	5.9	0	0	0	5.9
Summary	79.63	0	0	0	79.63


Maskwa Poll.: Maskwa-NOX[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.35% Calm Poll Avg: 2.45 [ppb]
N
NE
E
SE
S
SW
W
NW
20
18
16
14
12
10
8
6
4
2
% Icon Classes (ppb)
80 30-58
0 58-82
0 82-159
0 >159.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Averages

NITRIC OXIDE (NO) in ppb

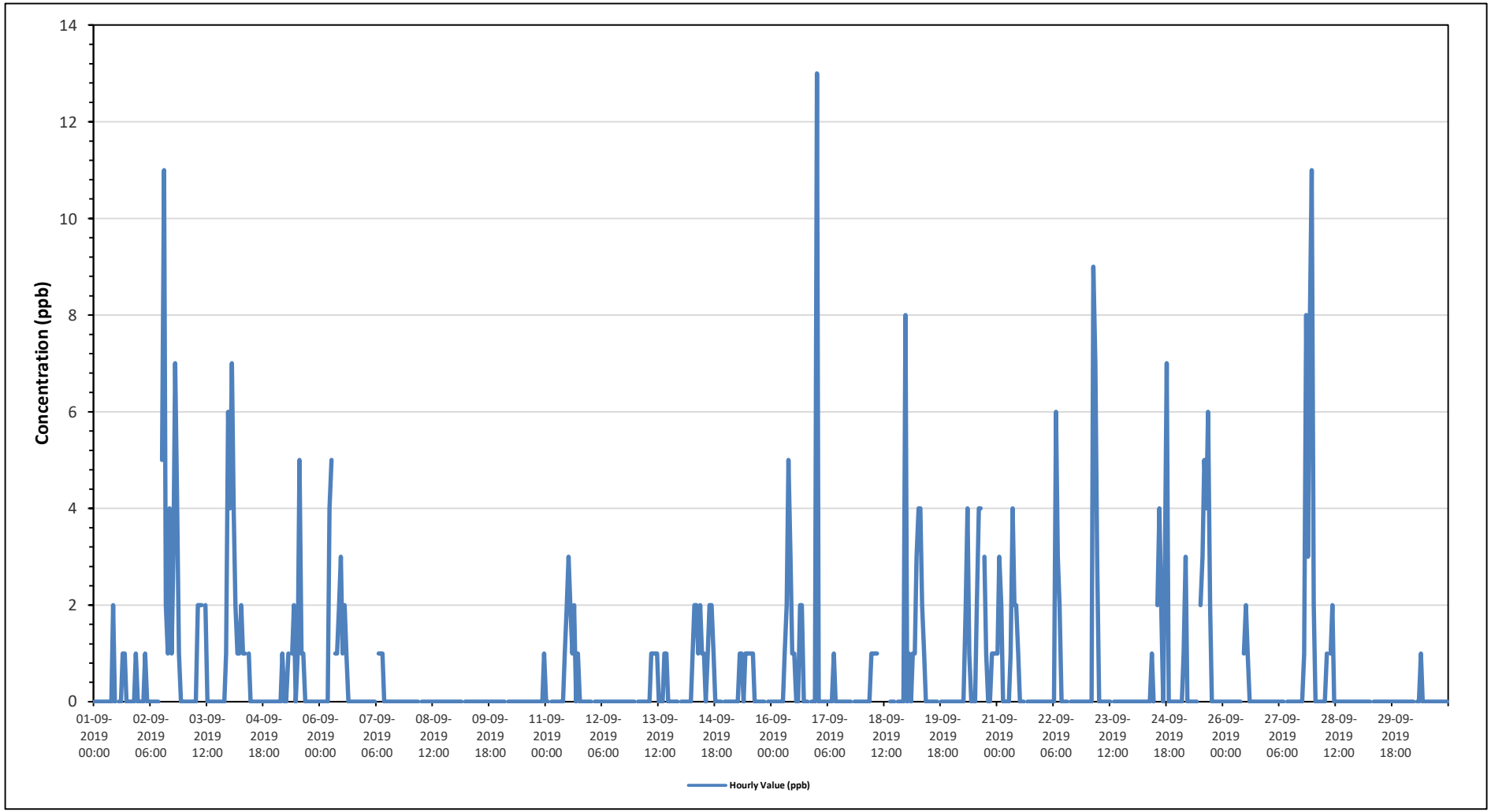
Maximum Hourly Value:	13	ppb	on September 17 at hour 0	Hours in Service:	720
Maximum Daily Value:	1.7	ppb	on September 2	Hours of Data:	683
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 8	Hours of Calibration:	37
Monthly Average:	0.6	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	0	0	0	0	0	0	0	0	0	0	2	0	S	0	0	1	1	0	0	0	0	0	1	0	0	2	0.2
Sep 2	0	0	0	1	0	0	0	0	0	0	0	S	5	11	2	1	4	1	3	7	4	1	0	0	0	11	**1.7**
Sep 3	0	0	0	0	0	0	0	2	2	2	S	2	0	0	0	0	0	0	0	0	0	0	1	6	0	6	0.7
Sep 4	4	7	4	2	1	1	2	1	1	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	1.0
Sep 5	0	0	0	0	1	0	0	1	S	1	2	0	1	5	1	1	0	0	0	0	0	0	0	0	0	5	0.6
Sep 6	0	0	0	0	0	4	5	S	1	1	2	3	1	2	1	0	0	0	0	0	0	0	0	0	0	5	0.9
Sep 7	0	0	0	0	0	0	S	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 8	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 9	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 10	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.0
Sep 11	0	0	S	0	0	0	0	0	0	0	1	2	3	2	1	2	0	1	0	0	0	0	0	0	0	3	0.5
Sep 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	0.0
Sep 13	S	0	0	0	0	0	0	0	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	S	0	1	0.3
Sep 14	0	0	0	0	0	0	1	2	2	1	2	1	1	0	1	2	2	1	0	0	0	0	S	0	0	2	0.7
Sep 15	0	0	0	0	0	0	0	1	1	0	1	1	1	1	1	0	0	0	0	0	0	S	0	0	0	1	0.3
Sep 16	0	0	0	0	0	0	0	1	2	5	3	1	1	0	0	2	2	0	0	0	S	0	0	0	0	5	0.7
Sep 17	**13**	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	**13**	0.6
Sep 18	0	0	0	0	0	1	1	1	1	C	C	C	C	C	C	0	0	0	S	0	0	0	0	8	0	8	-
Sep 19	0	1	0	1	1	3	4	4	2	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	4	0.7
Sep 20	0	0	0	0	0	0	0	2	4	1	0	0	0	2	4	4	S	3	1	0	0	1	1	1	0	4	1.0
Sep 21	1	3	2	0	0	0	0	1	4	2	2	1	0	0	0	S	0	0	0	0	0	0	0	0	0	4	0.7
Sep 22	0	0	0	0	0	0	0	6	3	2	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	6	0.5
Sep 23	0	0	0	9	7	3	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	9	0.8
Sep 24	0	0	0	0	0	0	0	0	0	0	1	0	S	2	4	2	0	3	7	0	0	0	0	0	0	7	0.8
Sep 25	0	0	0	1	3	0	0	0	0	0	0	S	2	3	5	4	6	2	0	0	0	0	0	0	0	6	1.1
Sep 26	0	0	0	0	0	0	0	0	0	0	S	1	2	1	0	0	0	0	0	0	0	0	0	0	0	2	0.2
Sep 27	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	8	3	8	11	0	11	1.3
Sep 28	2	0	0	0	0	0	0	1	S	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3
Sep 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	0.0
Sep 30	0	0	0	0	0	0	S	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Diurnal Maximum	13	7	4	9	7	4	5	6	4	5	3	3	5	11	5	4	6	3	7	7	8	3	8	11			
Daiurnal Average	0.7	0.4	0.2	0.5	0.4	0.4	0.5	0.9	0.9	0.8	0.7	0.5	0.6	1.0	0.7	0.7	0.6	0.4	0.4	0.3	0.4	0.2	0.4	0.9			

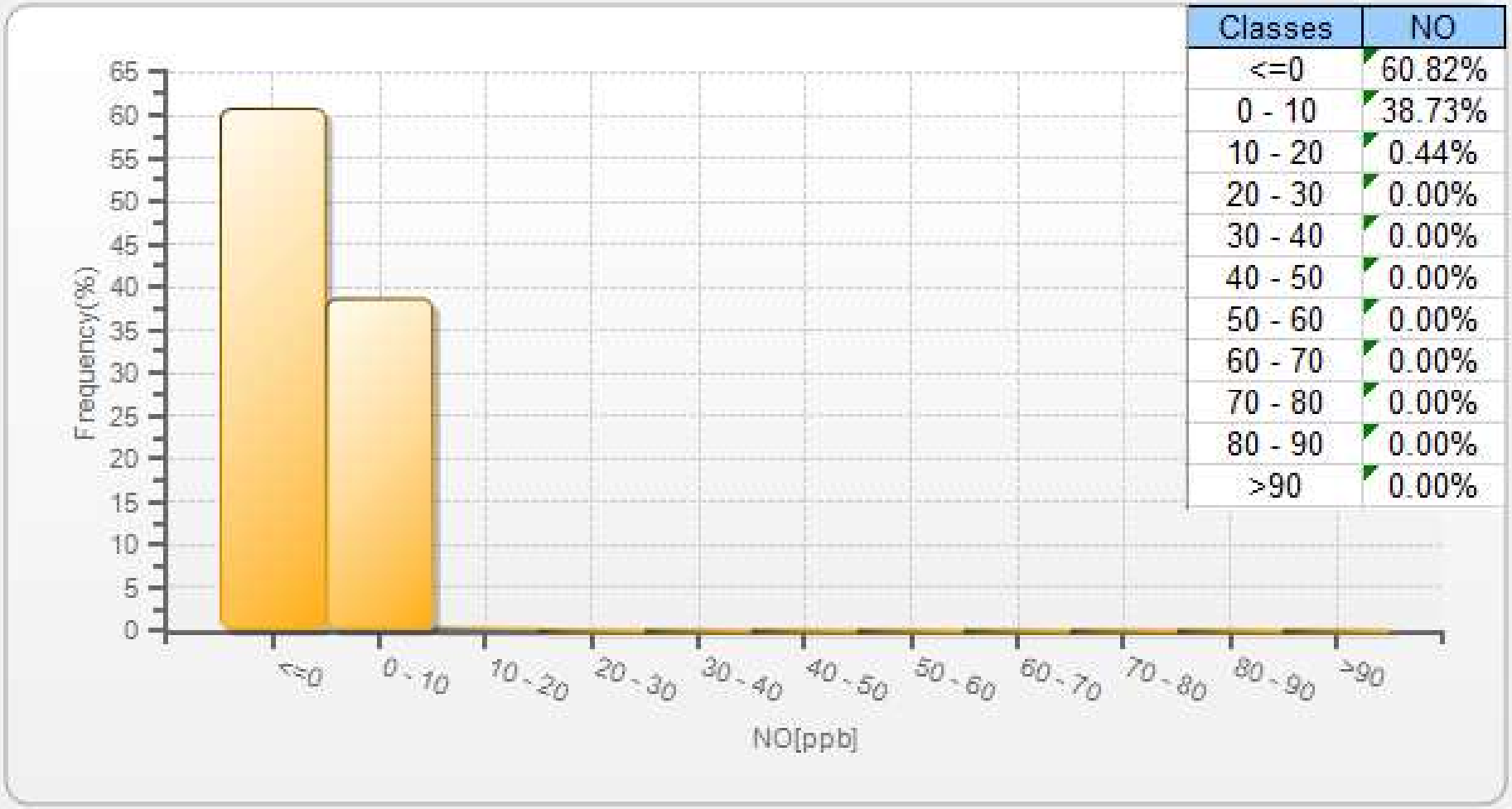
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for NO - Maskwa Site



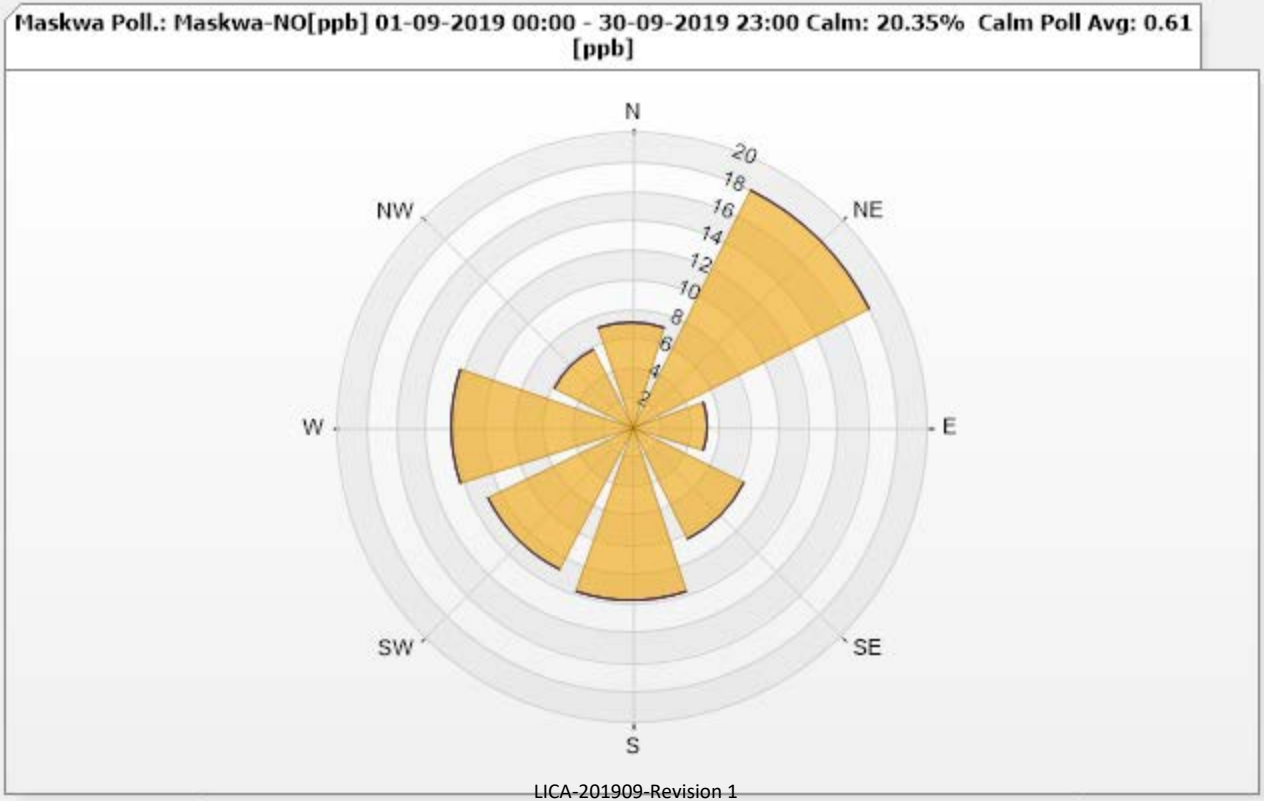
NO[ppb] Histogram: Maskwa Monthly: 09-2019 1 Hr.



Classes	NO
<=0	60.82%
0 - 10	38.73%
10 - 20	0.44%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Maskwa Poll.: Maskwa-NO[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.35% Valid Data: 94.17% Calm Avg: 0.61 [ppb]

Direction	30-50	50-82	82-159	>159.0	Total
N	7.08	0	0	0	7.08
NE	17.99	0	0	0	17.99
E	5.16	0	0	0	5.16
SE	8.55	0	0	0	8.55
S	11.8	0	0	0	11.8
SW	10.91	0	0	0	10.91
W	12.24	0	0	0	12.24
NW	5.9	0	0	0	5.9
Summary	79.63	0	0	0	79.63


Maskwa Poll.: Maskwa-NO[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.35% Calm Poll Avg: 0.61 [ppb]
N
NE
E
SE
S
SW
W
NW
20
18
16
14
12
10
8
6
4
2
% Icon Classes (ppb)
80 30-58
0 58-82
0 82-159
0 >159.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Averages

NITROGEN DIOXIDE (NO_2) in ppb

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

Number of 1-Hour Exceedences: 0

Maximum Hourly Value:	18	ppb	on September 27 at hour 23	Hours in Service:	720
Maximum Daily Value:	4.7	ppb	on September 20	Hours of Data:	683
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.1	ppb	on September 8	Hours of Calibration:	37
Monthly Average:	1.9	ppb		Operational Uptime:	100.0

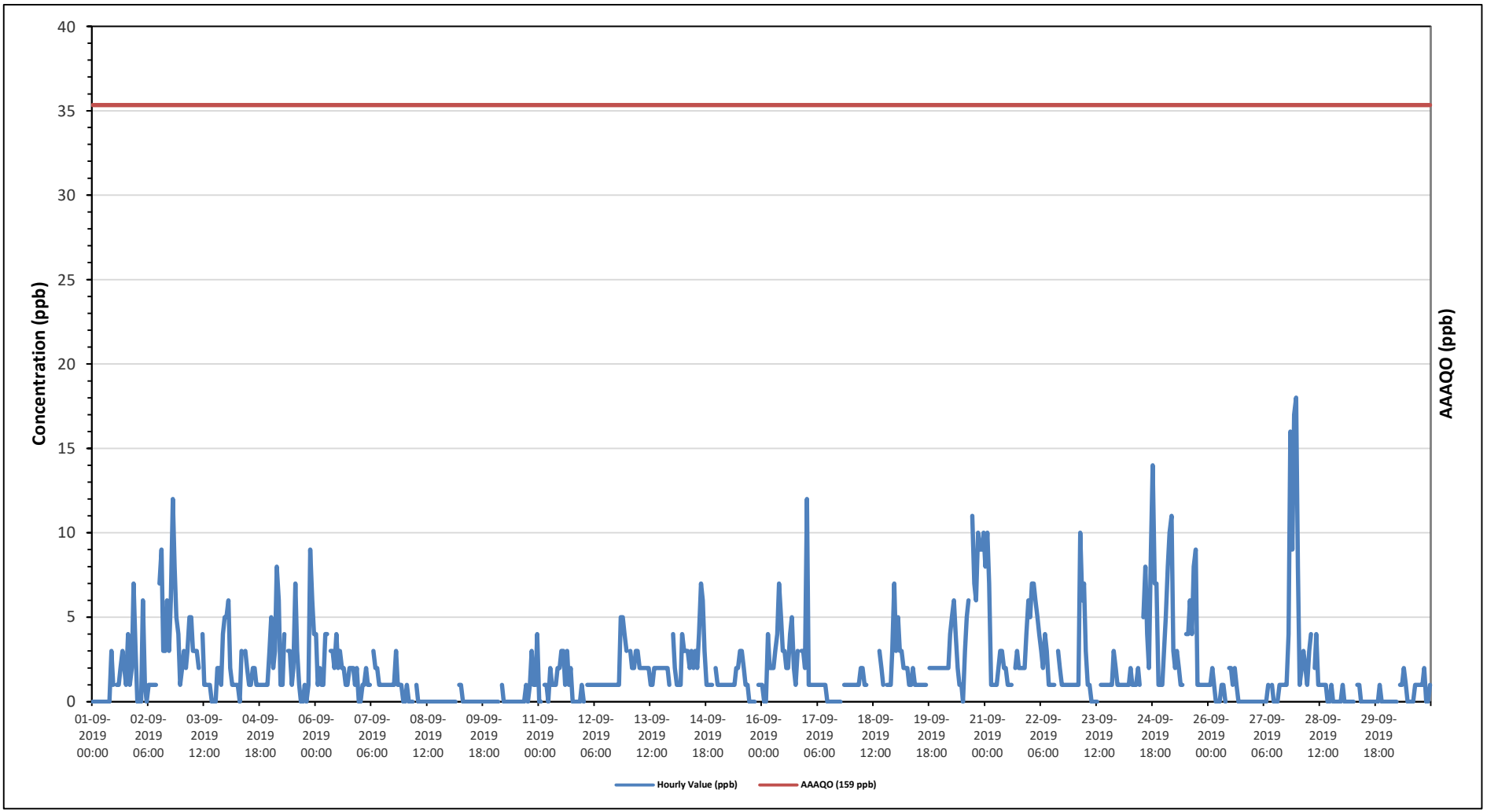
Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	0	0	0	0	0	0	0	0	0	0	3	1	S	1	1	2	3	2	1	4	1	2	7	3	0	7	1.3
Sep 2	0	0	0	6	1	0	1	1	1	1	1	S	7	9	3	3	6	3	6	12	8	5	4	1	0	12	3.4
Sep 3	2	3	2	3	5	5	3	3	3	2	S	4	1	1	1	1	0	0	0	2	2	1	4	5	0	5	2.3
Sep 4	5	6	2	1	1	1	1	0	3	S	3	2	1	1	2	2	1	1	1	1	1	1	1	3	0	6	1.8
Sep 5	5	2	3	8	6	1	1	4	S	3	3	1	2	7	3	1	0	0	1	0	1	9	6	4	0	9	3.1
Sep 6	4	1	2	1	1	4	4	S	3	3	2	4	2	3	2	2	1	1	2	2	2	1	2	0	0	4	2.1
Sep 7	0	1	1	2	1	1	S	3	2	2	1	1	1	1	1	1	1	1	1	3	1	1	1	0	0	3	1.2
Sep 8	0	1	0	0	0	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 9	0	0	0	0	S	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 10	0	0	0	S	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3	1	1	4	0	4	0.5
Sep 11	0	0	S	1	1	0	2	1	1	1	2	2	3	3	1	3	1	2	0	0	0	0	0	1	0	3	1.1
Sep 12	0	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	4	3	0	5	1.5
Sep 13	S	3	2	2	3	3	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	1	S	1	3	2.0
Sep 14	4	2	1	1	1	4	3	3	3	2	3	2	3	2	4	7	6	3	1	1	1	1	S	2	1	7	2.6
Sep 15	1	1	1	1	1	1	1	1	1	1	2	2	3	3	2	1	1	0	0	0	0	S	1	1	0	3	1.1
Sep 16	1	0	0	4	2	2	2	3	4	7	5	3	3	2	2	4	5	2	1	3	S	3	3	2	0	7	2.7
Sep 17	12	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	S	1	1	1	1	0	12	1.1
Sep 18	1	1	1	1	1	2	2	1	1	C	C	C	C	C	C	3	2	1	S	1	1	1	3	7	1	7	-
Sep 19	3	5	3	3	2	2	2	1	1	2	1	1	1	1	1	1	1	S	2	2	2	2	2	2	1	5	1.9
Sep 20	2	2	2	2	2	4	5	6	4	2	1	1	0	3	5	6	S	11	7	6	10	9	9	10	0	11	**4.7**
Sep 21	8	10	7	1	1	1	1	2	3	3	2	2	1	1	1	S	2	3	2	2	2	2	4	6	1	10	2.9
Sep 22	5	7	7	6	5	4	3	2	4	3	1	1	1	1	S	3	2	1	1	1	1	1	1	1	1	7	2.7
Sep 23	1	1	1	10	6	7	3	1	1	0	0	0	0	S	1	1	1	1	1	1	1	3	2	1	0	10	1.9
Sep 24	1	1	1	1	1	1	2	1	1	1	2	1	S	5	8	4	2	9	14	7	7	1	1	1	1	14	3.2
Sep 25	3	5	8	10	11	3	2	3	2	1	1	S	4	4	6	4	8	9	1	1	1	1	1	1	1	11	3.9
Sep 26	1	1	2	1	0	0	0	1	1	0	S	2	2	1	2	1	0	0	0	0	0	0	0	0	0	2	0.7
Sep 27	0	0	0	0	0	0	0	0	1	S	1	0	0	0	1	1	1	1	1	4	16	9	17	**18**	0	**18**	3.1
Sep 28	8	1	2	3	2	1	3	4	S	2	4	1	1	1	1	1	0	0	1	0	0	0	0	0	0	8	1.6
Sep 29	1	0	0	0	0	0	0	S	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0.2
Sep 30	0	0	0	0	0	0	S	1	1	2	1	0	0	0	0	1	1	1	1	1	2	0	0	1	0	2	0.6
Diurnal Maximum	12	10	8	10	11	7	5	6	4	7	5	4	7	9	8	7	8	11	14	12	16	9	17	18			
Daiurnal Average	2.3	1.9	1.7	2.4	2.0	1.7	1.7	1.6	1.6	1.6	1.6	1.3	1.4	1.9	1.8	1.9	1.7	1.9	1.7	2.0	2.5	2.1	2.6	2.7			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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

Timeseries Chart of Hourly Average for NO2 - Maskwa Site

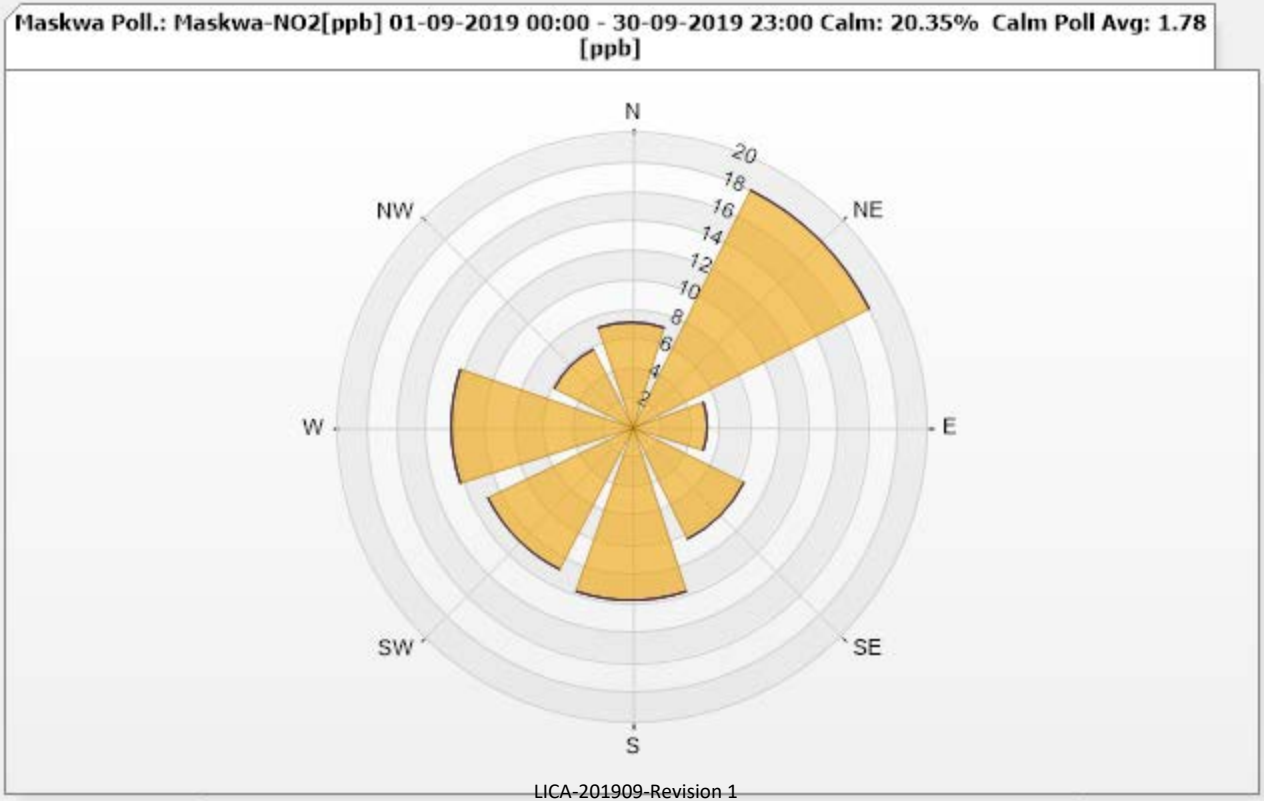


NO2[ppb] Histogram: Maskwa Monthly: 09-2019 1 Hr.

Classes	NO2
<=0	15.61%
0 - 10	82.92%
10 - 20	1.47%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Maskwa Poll.: Maskwa-NO2[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.35% Valid Data: 94.17% Calm Avg: 1.78 [ppb]

Direction	30-50	50-82	82-159	>159.0	Total
N	7.08	0	0	0	7.08
NE	17.99	0	0	0	17.99
E	5.16	0	0	0	5.16
SE	8.55	0	0	0	8.55
S	11.8	0	0	0	11.8
SW	10.91	0	0	0	10.91
W	12.24	0	0	0	12.24
NW	5.9	0	0	0	5.9
Summary	79.63	0	0	0	79.63


Maskwa Poll.: Maskwa-NO2[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.35% Calm Poll Avg: 1.78 [ppb]
N
NE
E
SE
S
SW
W
NW
20
18
16
14
12
10
8
6
4
2
% Icon Classes (ppb)
80 30-58
0 58-82
0 82-159
0 >159.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Averages

TOTAL HYDROCARBONS (THC) in ppm

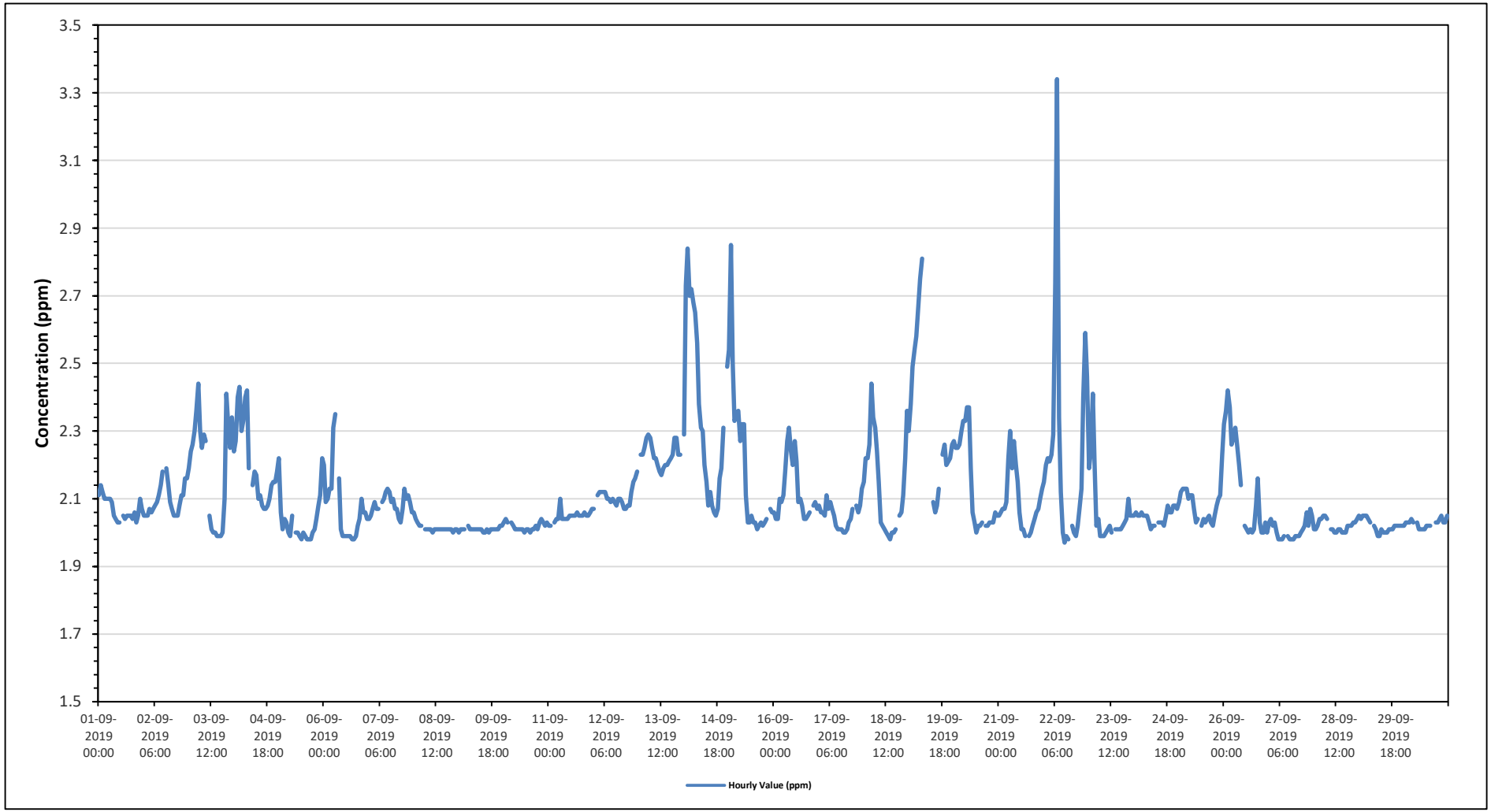
Maximum Hourly Value:	3.34	ppm	on September 22 at hour 7	Hours in Service:	720
Maximum Daily Value:	2.35	ppm	on September 14	Hours of Data:	682
Minimum Hourly Value:	1.97	ppm	on September 22 at hour 11	Hours of Missing Data:	2
Minimum Daily Value:	2.01	ppm	on September 27	Hours of Calibration:	36
Monthly Average:	2.11	ppm		Operational Uptime:	99.7

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	2.11	2.14	2.12	2.10	2.10	2.10	2.10	2.09	2.05	2.04	2.03	2.03	S	2.05	2.04	2.05	2.05	2.04	2.06	2.03	2.05	2.10	2.07	2.03	2.14	2.07
Sep 2	2.05	2.05	2.05	2.07	2.06	2.07	2.08	2.09	2.11	2.14	2.18	S	2.19	2.14	2.09	2.07	2.05	2.05	2.05	2.05	2.08	2.11	2.11	2.16	2.16	2.05	2.19	2.10
Sep 3	2.19	2.24	2.26	2.30	2.36	2.44	2.30	2.25	2.29	2.27	S	2.05	2.01	2.00	2.00	1.99	1.99	1.99	2.00	2.10	2.41	2.31	2.25	2.34	1.99	2.44	2.19
Sep 4	2.24	2.27	2.40	2.43	2.30	2.33	2.40	2.42	2.19	S	2.14	2.18	2.17	2.10	2.11	2.08	2.07	2.07	2.08	2.10	2.14	2.15	2.15	2.18	2.07	2.43	2.20
Sep 5	2.22	2.06	2.01	2.04	2.03	2.00	1.99	2.05	S	2.00	2.00	1.99	1.98	2.00	1.99	1.98	1.98	1.98	2.00	2.01	2.04	2.08	2.11	2.22	1.98	2.22	2.03
Sep 6	2.20	2.09	2.10	2.13	2.13	2.31	2.35	S	2.16	2.01	1.99	1.99	1.99	1.99	1.99	1.98	1.98	1.99	2.02	2.04	2.10	2.06	2.06	2.04	1.98	2.35	2.07
Sep 7	2.04	2.05	2.07	2.09	2.07	2.07	S	2.09	2.10	2.12	2.13	2.12	2.09	2.10	2.07	2.07	2.04	2.03	2.07	2.13	2.10	2.11	2.09	2.06	2.03	2.13	2.08
Sep 8	2.06	2.04	2.03	2.02	2.02	S	2.01	2.01	2.01	2.01	2.00	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.00	2.01	2.01	2.00	2.06	2.01
Sep 9	2.00	2.01	2.01	2.01	S	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.00	2.00	2.01	2.00	2.01	2.01	2.01	2.01	2.01	2.02	2.02	2.00	2.02	2.01
Sep 10	2.03	2.04	2.03	S	2.03	2.02	2.01	2.01	2.01	2.01	2.01	2.00	2.01	2.01	2.00	2.01	2.01	2.02	2.01	2.03	2.04	2.03	2.02	2.03	2.00	2.04	2.02
Sep 11	2.02	2.02	S	2.03	2.04	2.04	2.10	2.04	2.04	2.04	2.04	2.05	2.05	2.05	2.05	2.06	2.05	2.05	2.05	2.06	2.05	2.05	2.06	2.07	2.02	2.10	2.05
Sep 12	2.07	S	2.11	2.12	2.12	2.12	2.12	2.10	2.10	2.09	2.10	2.09	2.08	2.10	2.10	2.09	2.07	2.07	2.08	2.08	2.12	2.15	2.16	2.18	2.07	2.18	2.11
Sep 13	S	2.23	2.23	2.25	2.28	2.29	2.28	2.25	2.22	2.22	2.20	2.18	2.17	2.19	2.20	2.20	2.21	2.22	2.23	2.28	2.28	2.23	2.23	S	2.17	2.29	2.23
Sep 14	2.29	2.73	2.84	2.70	2.72	2.68	2.65	2.56	2.38	2.31	2.30	2.20	2.15	2.08	2.12	2.08	2.06	2.05	2.07	2.16	2.19	2.31	S	2.49	2.05	2.84	**2.35**
Sep 15	2.54	2.85	2.50	2.33	2.35	2.36	2.27	2.32	2.32	2.11	2.03	2.03	2.05	2.03	2.03	2.01	2.02	2.03	2.02	2.03	2.04	S	2.07	2.06	2.01	2.85	2.19
Sep 16	2.06	2.04	2.04	2.10	2.09	2.11	2.18	2.27	2.31	2.24	2.20	2.27	2.21	2.09	2.10	2.08	2.04	2.04	2.05	2.06	S	2.08	2.09	2.07	2.04	2.31	2.12
Sep 17	2.08	2.06	2.06	2.05	2.11	2.07	2.09	2.07	2.05	2.02	2.01	2.01	2.01	2.00	2.00	2.01	2.03	2.04	2.07	S	2.08	2.06	2.08	2.13	2.00	2.13	2.05
Sep 18	2.15	2.22	2.22	2.26	2.44	2.34	2.31	2.24	2.15	2.03	2.02	2.01	2.00	1.99	1.98	2.00	2.00	2.01	S	2.05	2.06	2.11	2.22	2.36	1.98	2.44	2.14
Sep 19	2.30	2.38	2.49	2.54	2.58	2.67	2.75	2.81	C	C	C	C	C	2.09	2.06	2.08	2.13	S	2.23	2.26	2.20	2.21	2.22	2.26	2.06	2.81	2.35
Sep 20	2.27	2.25	2.25	2.26	2.30	2.33	2.33	2.37	2.37	2.19	2.06	2.03	2.00	2.02	2.02	2.03	S	2.02	2.02	2.03	2.03	2.03	2.06	2.05	2.00	2.37	2.14
Sep 21	2.05	2.06	2.07	2.07	2.09	2.22	2.30	2.19	2.27	2.20	2.15	2.06	2.01	2.01	1.99	S	1.99	2.00	2.02	2.04	2.06	2.07	2.10	2.13	1.99	2.30	2.09
Sep 22	2.15	2.20	2.22	2.21	2.23	2.29	2.74	**3.34**	2.34	2.12	2.00	1.97	1.99	1.98	S	2.02	2.00	1.99	2.02	2.07	2.13	2.40	2.59	2.46	1.97	**3.34**	2.24
Sep 23	2.19	2.24	2.41	2.20	2.02	2.04	1.99	1.99	1.99	2.00	2.01	2.02	2.00	S	2.01	2.01	2.01	2.01	2.02	2.03	2.04	2.10	2.05	2.05	1.99	2.41	2.06
Sep 24	2.05	2.06	2.05	2.05	2.06	2.05	2.05	2.05	2.03	2.01	2.02	2.02	S	2.03	2.03	2.03	2.02	2.05	2.08	2.06	2.06	2.08	2.08	2.07	2.01	2.08	2.05
Sep 25	2.09	2.12	2.13	2.13	2.13	2.10	2.11	2.11	2.07	2.03	2.04	S	2.02	2.04	2.03	2.04	2.05	2.03	2.02	2.05	2.08	2.10	2.11	2.23	2.02	2.23	2.08
Sep 26	2.32	2.36	2.42	2.37	2.26	2.28	2.31	2.26	2.20	2.14	S	2.02	2.01	2.00	2.01	2.00	2.01	2.08	2.16	2.03	2.00	2.00	2.03	2.00	2.00	2.42	2.14
Sep 27	2.03	2.04	2.02	2.03	2.00	1.98	1.98	1.98	1.99	S	1.99	1.98	1.98	1.98	1.99	1.99	1.99	2.00	2.01	2.02	2.06	2.02	2.07	2.05	1.98	2.07	2.01
Sep 28	2.01	2.01	2.02	2.04	2.04	2.05	2.05	2.04	S	2.01	2.01	2.00	2.00	2.01	2.01	2.00	2.00	2.00	2.02	2.02	2.02	2.03	2.03	2.04	2.00	2.05	2.02
Sep 29	2.05	2.04	2.05	2.05	2.05	2.04	2.03	S	2.02	2.01	1.99	1.99	2.01	2.00	2.00	2.00	2.01	2.01	2.01	2.02	2.02	2.02	2.02	2.02	1.99	2.05	2.02
Sep 30	2.02	2.03	2.03	2.03	2.04	2.03	S	2.03	2.01	2.01	2.01	2.01	2.02	2.02	2.02	Y	S1	2.03	2.03	2.04	2.05	2.03	2.03	2.05	2.01	2.05	2.03
Diurnal Maximum	2.54	2.85	2.84	2.70	2.72	2.68	2.75	3.34	2.38	2.31	2.30	2.27	2.21	2.19	2.20	2.20	2.21	2.22	2.23	2.28	2.41	2.40	2.59	2.49			
Daiurnal Average	2.13	2.17	2.18	2.17	2.17	2.19	2.21	2.22	2.14	2.09	2.06	2.05	2.05	2.04	2.04	2.04	2.03	2.03	2.05	2.07	2.09	2.10	2.11	2.13			

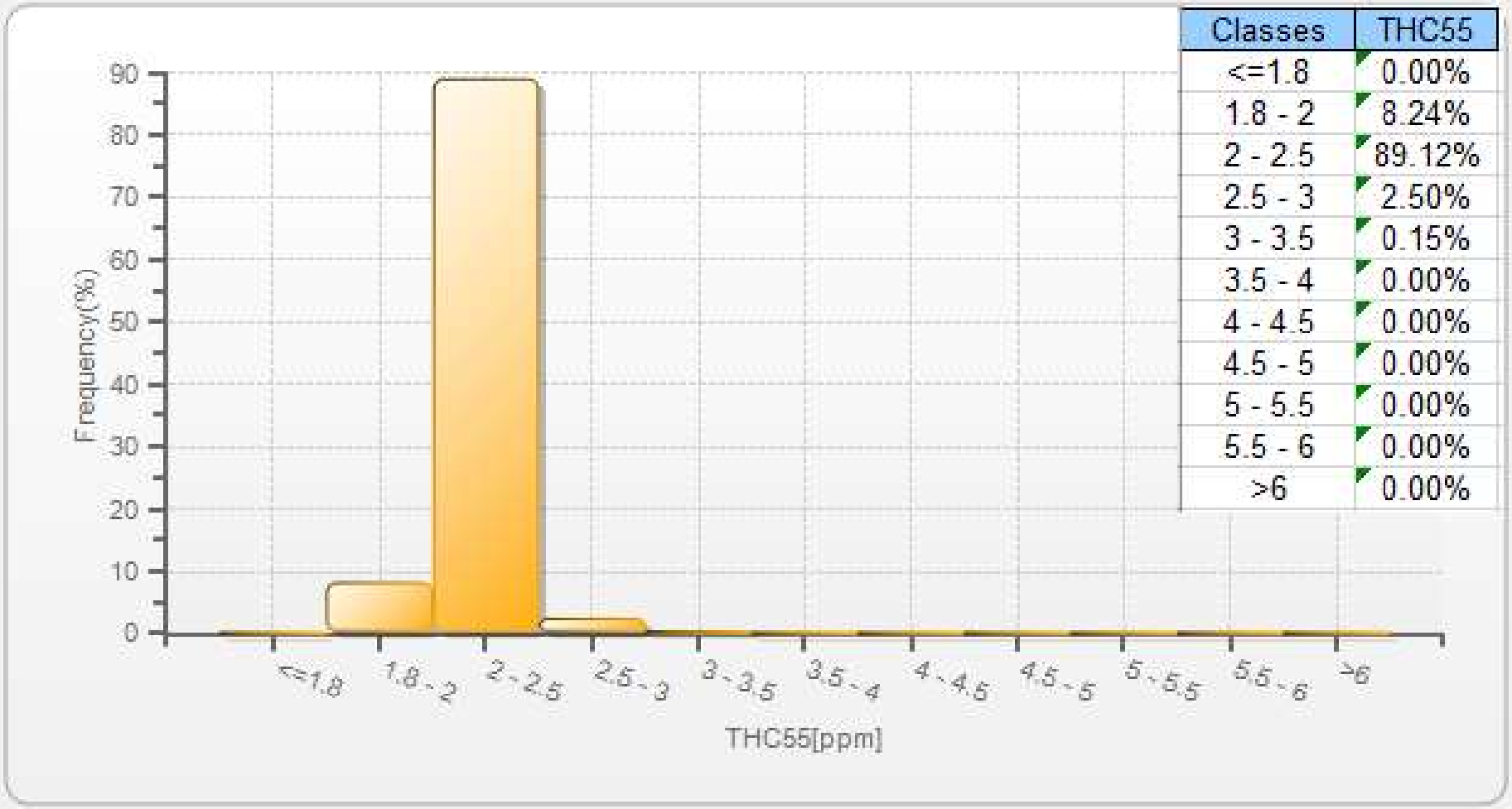
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for THC - Maskwa Site



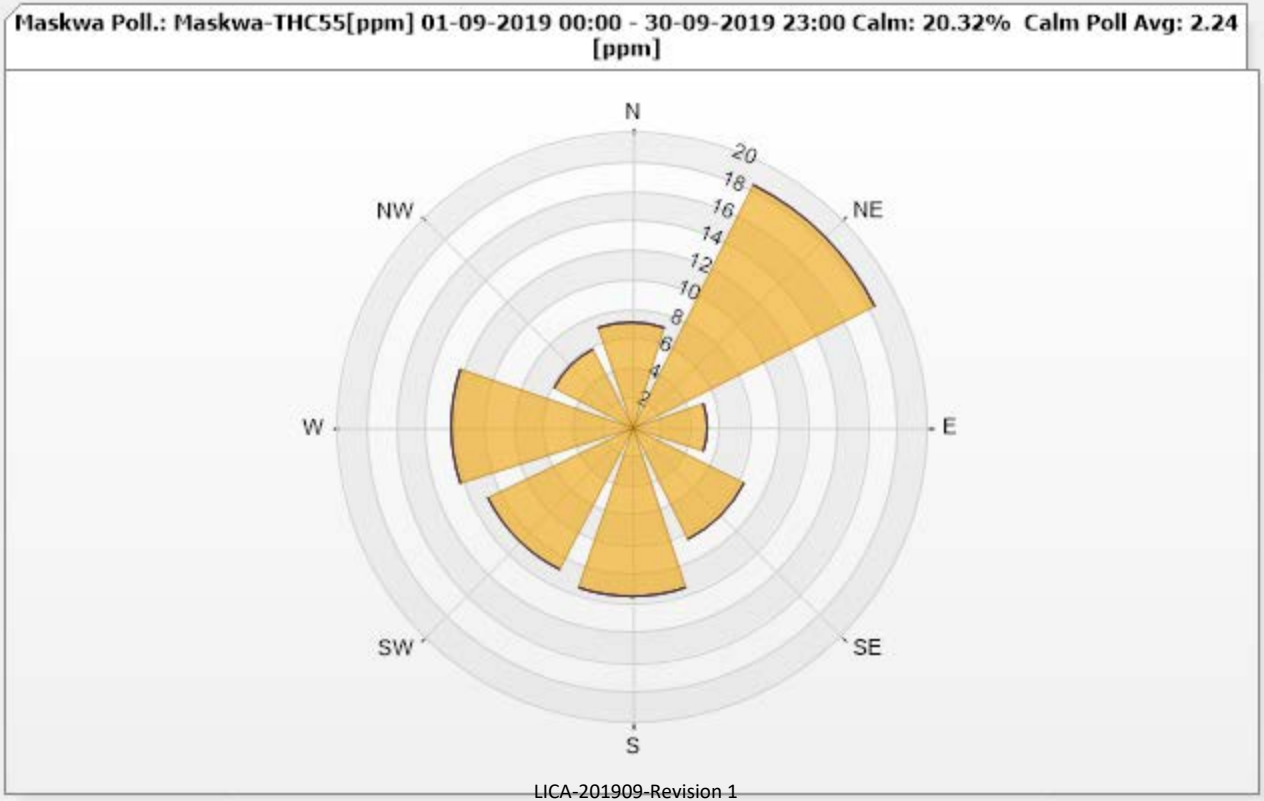
THC55[ppm] Histogram: Maskwa Monthly: 09-2019 1 Hr.



Classes	THC55
<=1.8	0.00%
1.8 - 2	8.24%
2 - 2.5	89.12%
2.5 - 3	2.50%
3 - 3.5	0.15%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: Maskwa Poll.: Maskwa-THC55[ppm] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.32% Valid Data: 94.31% Calm Avg: 2.24 [ppm]

Direction	2-5	5-10	10-40	>40.0	Total
N	7.07	0	0	0	7.07
NE	18.41	0	0	0	18.41
E	5.15	0	0	0	5.15
SE	8.54	0	0	0	8.54
S	11.49	0	0	0	11.49
SW	10.9	0	0	0	10.9
W	12.22	0	0	0	12.22
NW	5.89	0	0	0	5.89
Summary	79.67	0	0	0	79.67


Maskwa Poll.: Maskwa-THC55[ppm] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.32% Calm Poll Avg: 2.24 [ppm]
N
NE
E
SE
S
SW
W
NW
20
18
16
14
12
10
8
6
4
2
% Icon Classes (ppm)
80
0
10-40
0
>40.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Averages

METHANE (CH4) in ppm

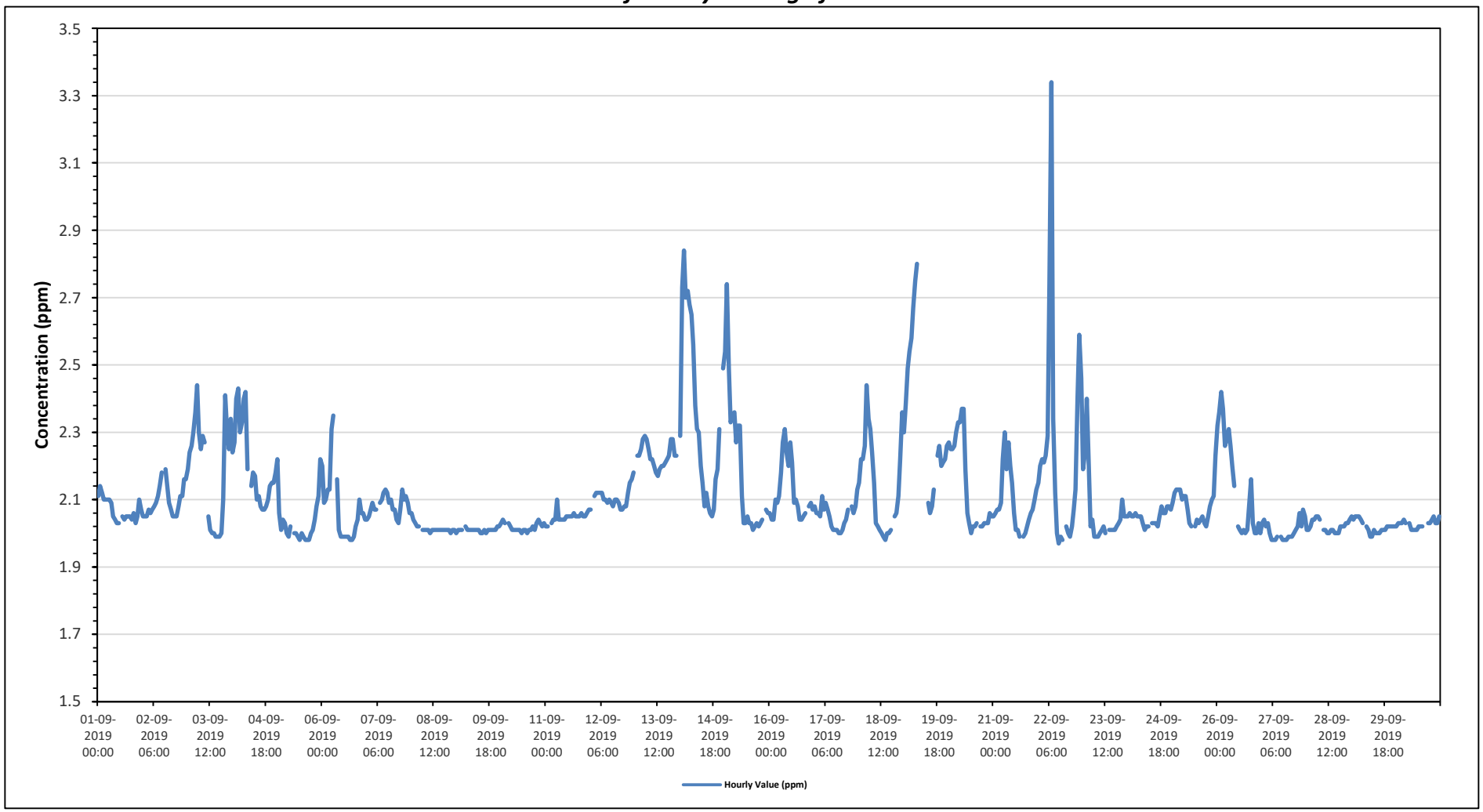
Maximum Hourly Value:	3.34	ppm	on September 22 at hour 7	Hours in Service:	720
Maximum Daily Value:	2.35	ppm	on September 14	Hours of Data:	682
Minimum Hourly Value:	1.97	ppm	on September 22 at hour 11	Hours of Missing Data:	2
Minimum Daily Value:	2.01	ppm	on September 27	Hours of Calibration:	36
Monthly Average:	2.11	ppm		Operational Uptime:	99.7

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	2.11	2.14	2.12	2.10	2.10	2.10	2.10	2.09	2.05	2.04	2.03	2.03	S	2.05	2.04	2.05	2.05	2.04	2.06	2.03	2.05	2.10	2.07	2.03	2.14	2.07
Sep 2	2.05	2.05	2.05	2.07	2.06	2.07	2.08	2.09	2.11	2.14	2.18	S	2.19	2.14	2.09	2.07	2.05	2.05	2.05	2.08	2.11	2.11	2.16	2.16	2.05	2.19	2.10
Sep 3	2.19	2.24	2.26	2.30	2.36	2.44	2.30	2.25	2.29	2.27	S	2.05	2.01	2.00	2.00	1.99	1.99	1.99	2.00	2.10	2.41	2.31	2.25	2.34	1.99	2.44	2.19
Sep 4	2.24	2.27	2.40	2.43	2.30	2.33	2.40	2.42	2.19	S	2.14	2.18	2.17	2.10	2.11	2.08	2.07	2.07	2.08	2.10	2.14	2.15	2.15	2.18	2.07	2.43	2.20
Sep 5	2.22	2.06	2.01	2.04	2.03	2.00	1.99	2.02	S	2.00	2.00	1.99	1.98	2.00	1.99	1.98	1.98	1.98	2.00	2.01	2.04	2.08	2.11	2.22	1.98	2.22	2.03
Sep 6	2.20	2.09	2.10	2.13	2.13	2.31	2.35	S	2.16	2.01	1.99	1.99	1.99	1.99	1.99	1.98	1.98	1.99	2.02	2.04	2.10	2.06	2.06	2.04	1.98	2.35	2.07
Sep 7	2.04	2.05	2.07	2.09	2.07	2.07	S	2.09	2.10	2.12	2.13	2.12	2.09	2.10	2.07	2.07	2.04	2.03	2.07	2.13	2.10	2.11	2.09	2.06	2.03	2.13	2.08
Sep 8	2.06	2.04	2.03	2.02	2.02	S	2.01	2.01	2.01	2.01	2.00	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.00	2.01	2.01	2.00	2.06	2.01
Sep 9	2.00	2.01	2.01	2.01	S	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.00	2.00	2.01	2.00	2.01	2.01	2.01	2.01	2.01	2.02	2.02	2.00	2.02	2.01
Sep 10	2.03	2.04	2.03	S	2.03	2.02	2.01	2.01	2.01	2.01	2.01	2.00	2.01	2.01	2.00	2.01	2.01	2.02	2.01	2.03	2.04	2.03	2.02	2.03	2.00	2.04	2.02
Sep 11	2.02	2.02	S	2.03	2.04	2.04	2.10	2.04	2.04	2.04	2.04	2.05	2.05	2.05	2.05	2.06	2.05	2.05	2.05	2.06	2.05	2.05	2.06	2.07	2.02	2.10	2.05
Sep 12	2.07	S	2.11	2.12	2.12	2.12	2.12	2.10	2.10	2.09	2.10	2.09	2.08	2.10	2.10	2.09	2.07	2.07	2.08	2.08	2.12	2.15	2.16	2.18	2.07	2.18	2.11
Sep 13	S	2.23	2.23	2.25	2.28	2.29	2.28	2.25	2.22	2.22	2.20	2.18	2.17	2.19	2.20	2.20	2.21	2.22	2.23	2.28	2.28	2.23	2.23	S	2.17	2.29	2.23
Sep 14	2.29	2.73	2.84	2.70	2.72	2.68	2.65	2.56	2.38	2.31	2.30	2.20	2.15	2.08	2.12	2.08	2.06	2.05	2.07	2.16	2.19	2.31	S	2.49	2.05	2.84	**2.35**
Sep 15	2.54	2.74	2.49	2.33	2.35	2.36	2.27	2.32	2.32	2.11	2.03	2.03	2.05	2.03	2.03	2.01	2.02	2.03	2.02	2.03	2.04	S	2.07	2.06	2.01	2.74	2.19
Sep 16	2.06	2.04	2.04	2.10	2.09	2.11	2.18	2.27	2.31	2.24	2.20	2.27	2.21	2.09	2.10	2.08	2.04	2.04	2.05	2.06	S	2.08	2.09	2.07	2.04	2.31	2.12
Sep 17	2.08	2.06	2.06	2.05	2.11	2.07	2.09	2.07	2.05	2.02	2.01	2.01	2.01	2.00	2.00	2.01	2.03	2.04	2.07	S	2.08	2.06	2.08	2.13	2.00	2.13	2.05
Sep 18	2.15	2.22	2.22	2.26	2.44	2.34	2.31	2.24	2.15	2.03	2.02	2.01	2.00	1.99	1.98	2.00	2.00	2.01	S	2.05	2.06	2.11	2.22	2.36	1.98	2.44	2.14
Sep 19	2.30	2.38	2.49	2.54	2.58	2.67	2.75	2.80	C	C	C	C	C	2.09	2.06	2.08	2.13	S	2.23	2.26	2.20	2.21	2.22	2.26	2.06	2.80	2.35
Sep 20	2.27	2.25	2.25	2.26	2.30	2.33	2.33	2.37	2.37	2.19	2.06	2.03	2.00	2.02	2.02	2.03	S	2.02	2.02	2.03	2.03	2.03	2.06	2.05	2.00	2.37	2.14
Sep 21	2.05	2.06	2.07	2.07	2.09	2.22	2.30	2.19	2.27	2.20	2.15	2.06	2.01	2.01	1.99	S	1.99	2.00	2.02	2.04	2.06	2.07	2.10	2.13	1.99	2.30	2.09
Sep 22	2.15	2.20	2.22	2.21	2.23	2.29	2.74	**3.34**	2.34	2.12	2.00	1.97	1.99	1.98	S	2.02	2.00	1.99	2.02	2.07	2.13	2.40	2.59	2.46	1.97	**3.34**	2.24
Sep 23	2.19	2.24	2.40	2.20	2.02	2.04	1.99	1.99	1.99	2.00	2.01	2.02	2.00	S	2.01	2.01	2.01	2.01	2.02	2.03	2.04	2.10	2.05	2.05	1.99	2.40	2.06
Sep 24	2.05	2.06	2.05	2.05	2.06	2.05	2.05	2.05	2.03	2.01	2.02	2.02	S	2.03	2.03	2.03	2.02	2.05	2.08	2.06	2.06	2.08	2.08	2.07	2.01	2.08	2.05
Sep 25	2.09	2.12	2.13	2.13	2.13	2.10	2.11	2.11	2.07	2.03	2.02	S	2.02	2.04	2.03	2.04	2.05	2.03	2.02	2.05	2.08	2.10	2.11	2.23	2.02	2.23	2.08
Sep 26	2.32	2.36	2.42	2.37	2.26	2.28	2.31	2.26	2.20	2.14	S	2.02	2.01	2.00	2.01	2.00	2.01	2.08	2.16	2.03	2.00	2.00	2.03	2.00	2.00	2.42	2.14
Sep 27	2.03	2.04	2.02	2.03	2.00	1.98	1.98	1.98	1.99	S	1.99	1.98	1.98	1.98	1.99	1.99	1.99	2.00	2.01	2.02	2.06	2.02	2.07	2.05	1.98	2.07	2.01
Sep 28	2.01	2.01	2.02	2.04	2.04	2.05	2.05	2.04	S	2.01	2.01	2.00	2.00	2.01	2.01	2.00	2.00	2.00	2.02	2.02	2.02	2.03	2.03	2.04	2.00	2.05	2.02
Sep 29	2.05	2.04	2.05	2.05	2.05	2.04	2.03	S	2.02	2.01	1.99	1.99	2.01	2.00	2.00	2.00	2.01	2.01	2.01	2.02	2.02	2.02	2.02	2.02	1.99	2.05	2.02
Sep 30	2.02	2.03	2.03	2.03	2.04	2.03	S	2.03	2.01	2.01	2.01	2.01	2.02	2.02	2.02	Y	S1	2.03	2.03	2.04	2.05	2.03	2.03	2.05	2.01	2.05	2.03
Diurnal Maximum	2.54	2.74	2.84	2.70	2.72	2.68	2.75	3.34	2.38	2.31	2.30	2.27	2.21	2.19	2.20	2.20	2.21	2.22	2.23	2.28	2.41	2.40	2.59	2.49			
Daiurnal Average	2.13	2.17	2.18	2.17	2.17	2.19	2.21	2.21	2.14	2.09	2.06	2.05	2.05	2.04	2.04	2.04	2.03	2.03	2.05	2.07	2.09	2.10	2.11	2.13			

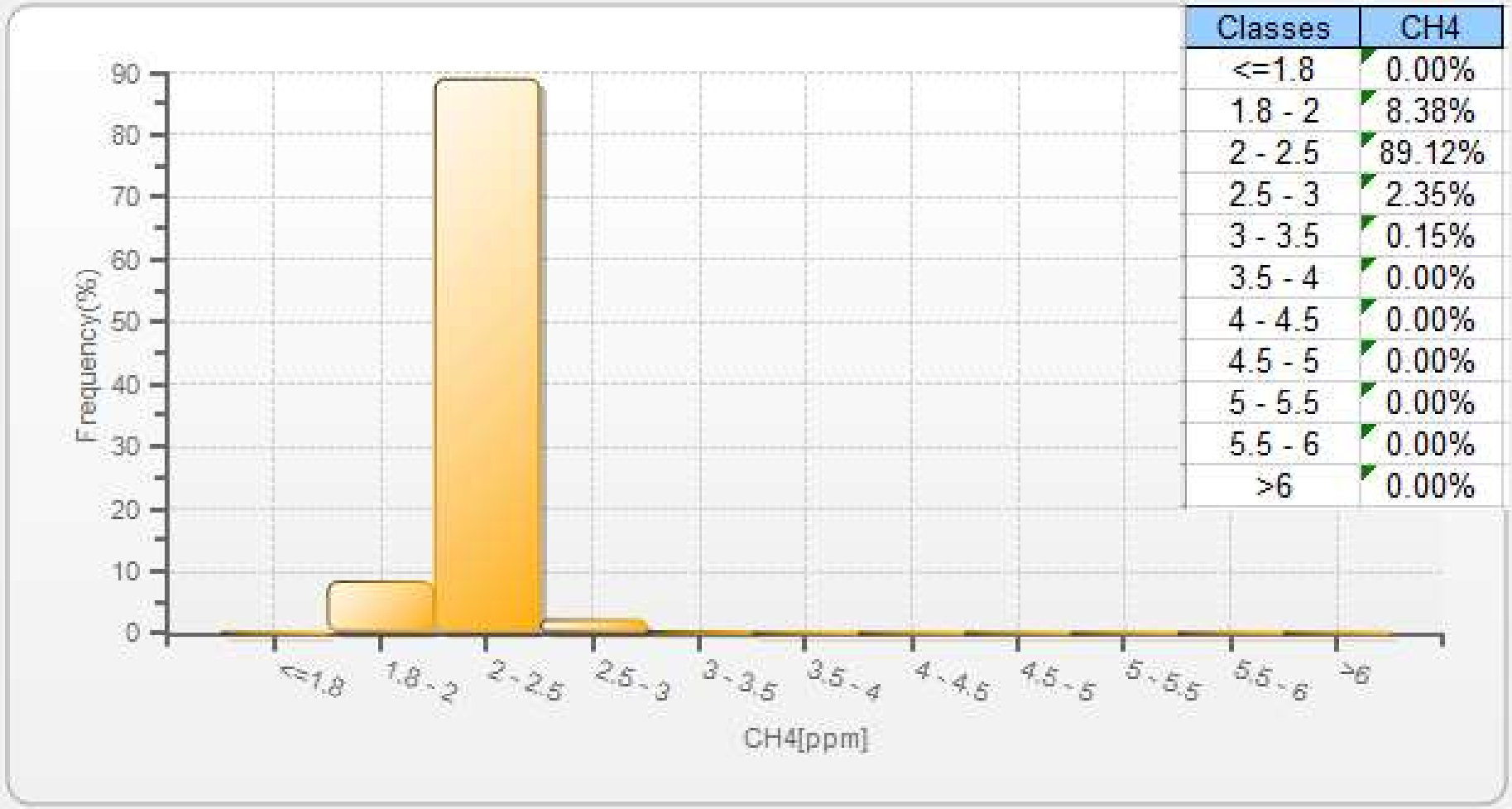
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for CH4 - Maskwa Site



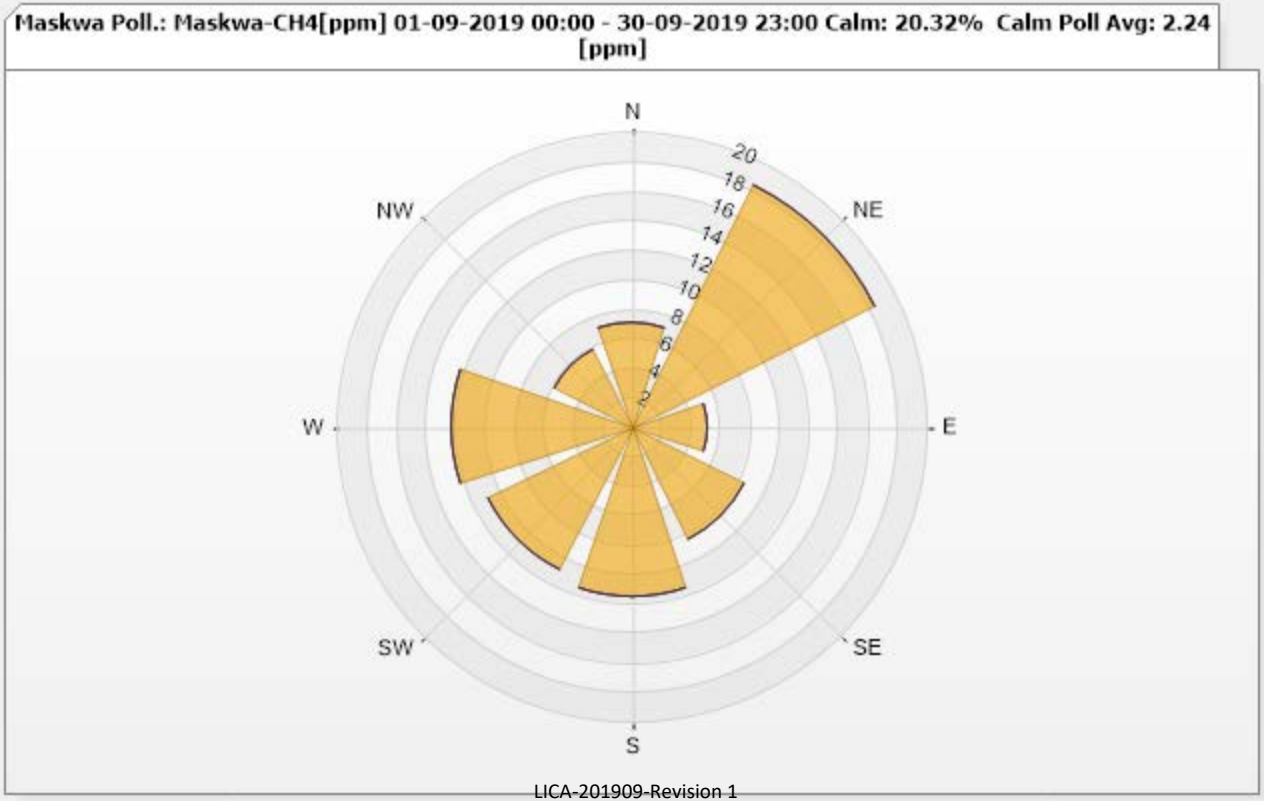
CH4[ppm] Histogram: Maskwa Monthly: 09-2019 1 Hr.



Classes	CH4
<=1.8	0.00%
1.8 - 2	8.38%
2 - 2.5	89.12%
2.5 - 3	2.35%
3 - 3.5	0.15%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: Maskwa Poll.: Maskwa-CH4[ppm] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.32% Valid Data: 94.31% Calm Avg: 2.24 [ppm]

Direction	2-5	5-10	10-20	>20.0	Total
N	7.07	0	0	0	7.07
NE	18.41	0	0	0	18.41
E	5.15	0	0	0	5.15
SE	8.54	0	0	0	8.54
S	11.49	0	0	0	11.49
SW	10.9	0	0	0	10.9
W	12.22	0	0	0	12.22
NW	5.89	0	0	0	5.89
Summary	79.67	0	0	0	79.67


Maskwa Poll.: Maskwa-CH4[ppm] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.32% Calm Poll Avg: 2.24 [ppm]
N
NE
E
SE
S
SW
W
NW
20
18
16
14
12
10
8
6
4
2
% Icon Classes (ppm)
80
0
5-10
0
10-20
0
>20.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Averages

NON-METHANE HYDROCARBONS (NMHC) in ppm

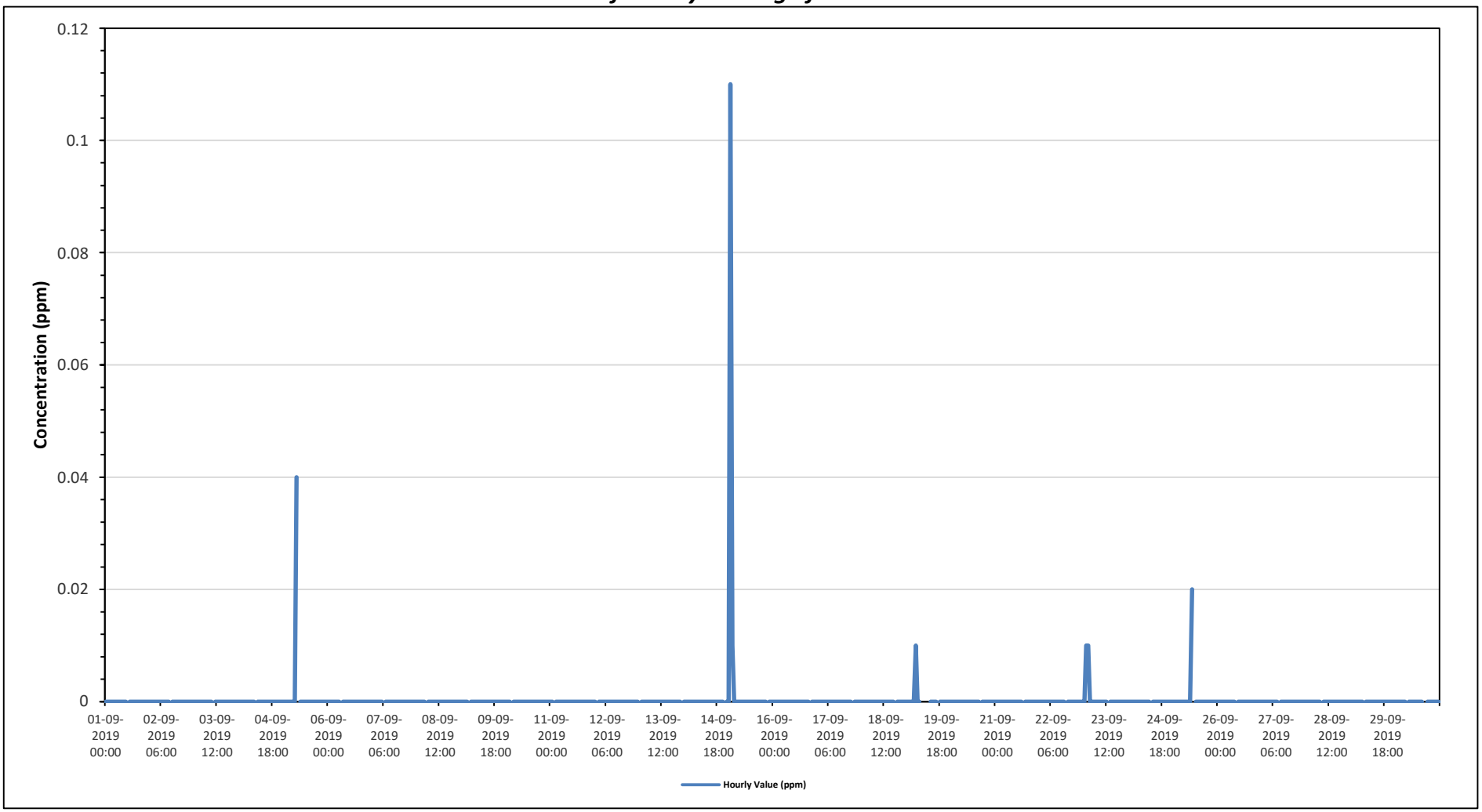
Maximum Hourly Value:	0.11	ppm	on September 15 at hour 1	Hours in Service:	720
Maximum Daily Value:	0.01	ppm	on September 15	Hours of Data:	682
Minimum Hourly Value:	0.00	ppm	on September 1 at hour 0	Hours of Missing Data:	2
Minimum Daily Value:	0.00	ppm	on September 1	Hours of Calibration:	36
Monthly Average:	0.00	ppm		Operational Uptime:	99.7

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 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
Sep 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
Sep 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sep 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
Sep 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	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	0.04	0.00
Sep 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
Sep 7	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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 12	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sep 13	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
Sep 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
Sep 15	0.00	**0.11**	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	S	0.00	0.00	0.00	**0.11**	**0.01**
Sep 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
Sep 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
Sep 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
Sep 19	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	C	C	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	0.01	0.00
Sep 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
Sep 21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Sep 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	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
Sep 23	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Sep 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
Sep 25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	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	0.02	0.00
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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	Y	S1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diurnal Maximum	0.00	0.11	0.01	0.00	0.00	0.01	0.00	0.04	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			
Daiurnal Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

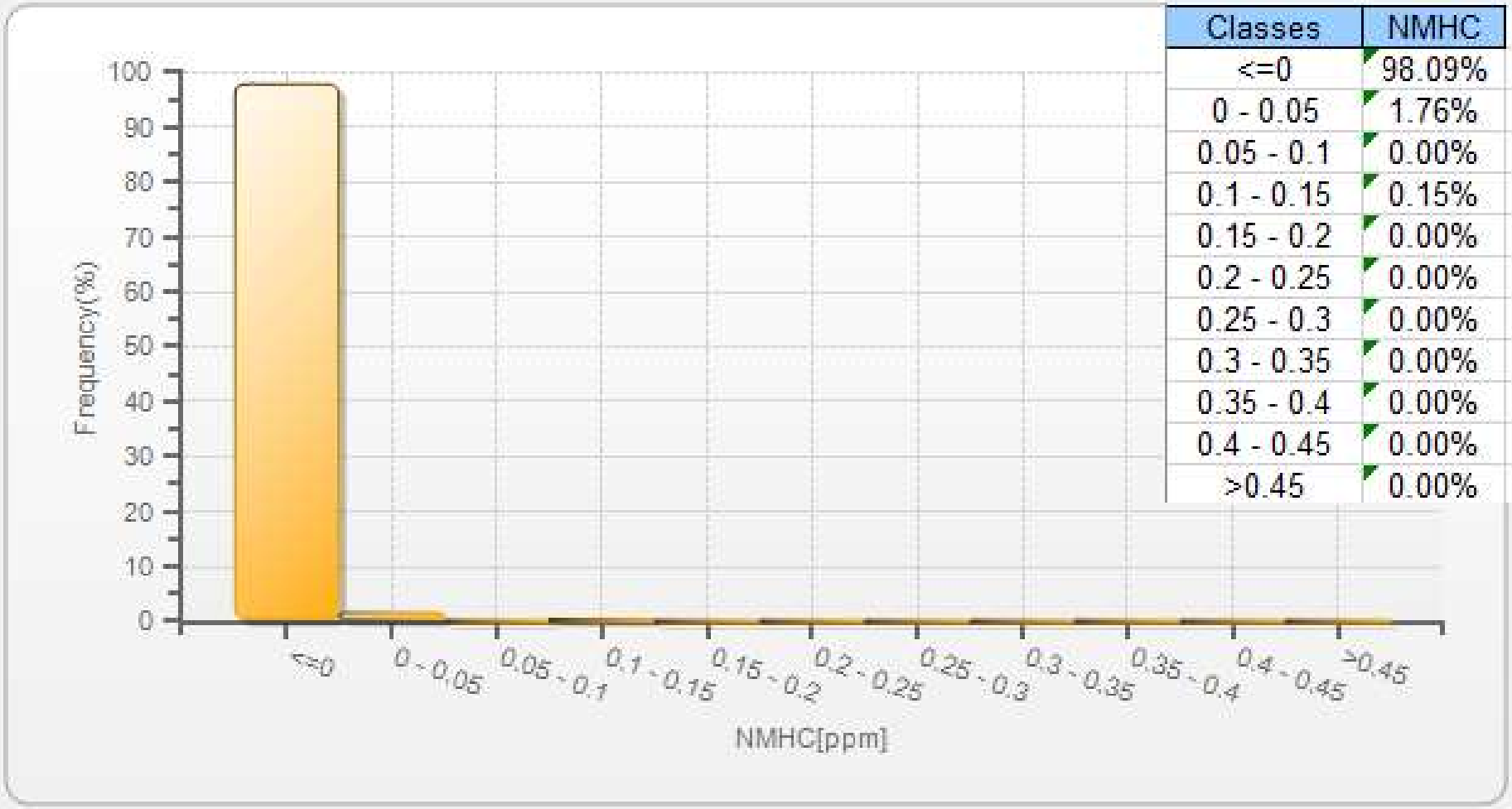
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for NMHC - Maskwa Site



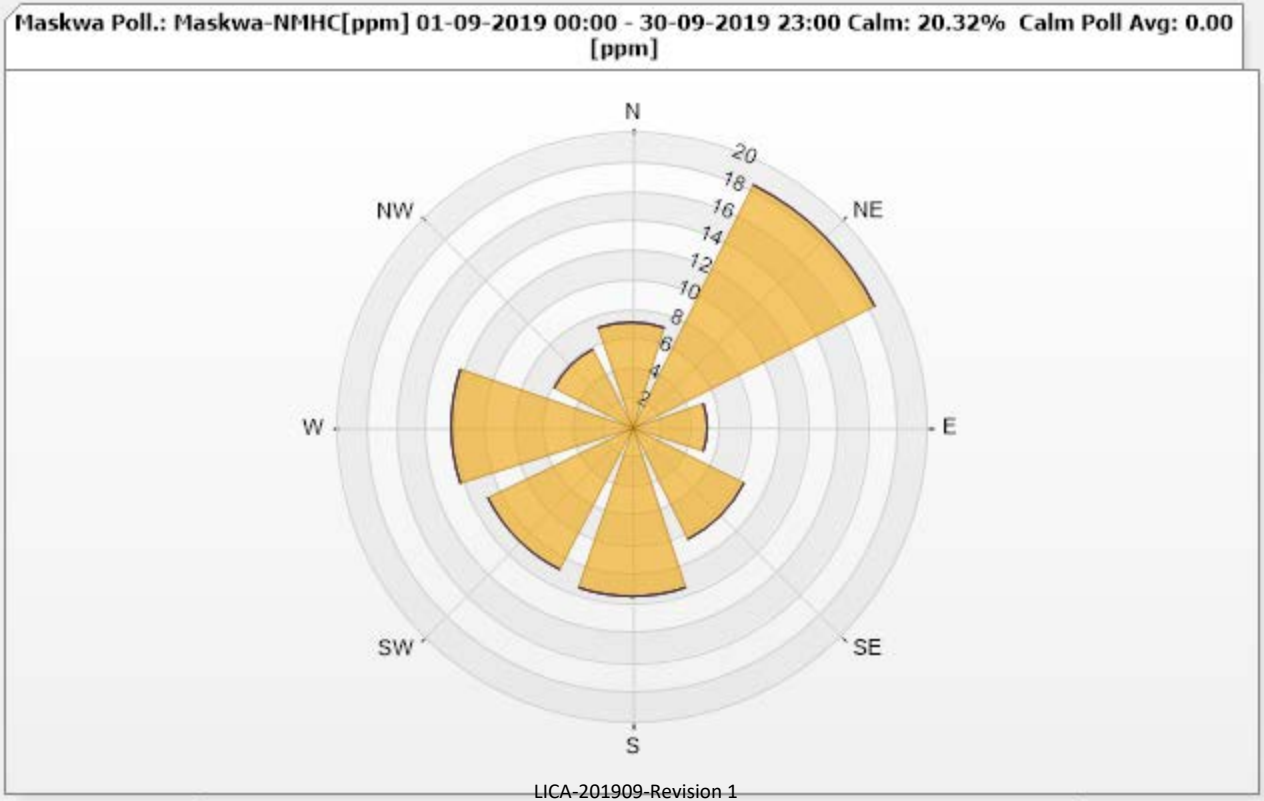
NMHC[ppm] Histogram: Maskwa Monthly: 09-2019 1 Hr.



Classes	NMHC
<=0	98.09%
0 - 0.05	1.76%
0.05 - 0.1	0.00%
0.1 - 0.15	0.15%
0.15 - 0.2	0.00%
0.2 - 0.25	0.00%
0.25 - 0.3	0.00%
0.3 - 0.35	0.00%
0.35 - 0.4	0.00%
0.4 - 0.45	0.00%
>0.45	0.00%

Wind: Maskwa Poll.: Maskwa-NMHC[ppm] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.32% Valid Data: 94.31% Calm Avg: 0.00 [ppm]

Direction	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	7.07	0	0	0	7.07
NE	18.41	0	0	0	18.41
E	5.15	0	0	0	5.15
SE	8.54	0	0	0	8.54
S	11.49	0	0	0	11.49
SW	10.9	0	0	0	10.9
W	12.22	0	0	0	12.22
NW	5.89	0	0	0	5.89
Summary	79.67	0	0	0	79.67


Maskwa Poll.: Maskwa-NMHC[ppm] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.32% Calm Poll Avg: 0.00 [ppm]
N
NE
E
SE
S
SW
W
NW
20
18
16
14
12
10
8
6
4
2
% Icon Classes (ppm)
80 0.1-0.3
0 0.3-0.9
0 0.9-2
0 >2.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

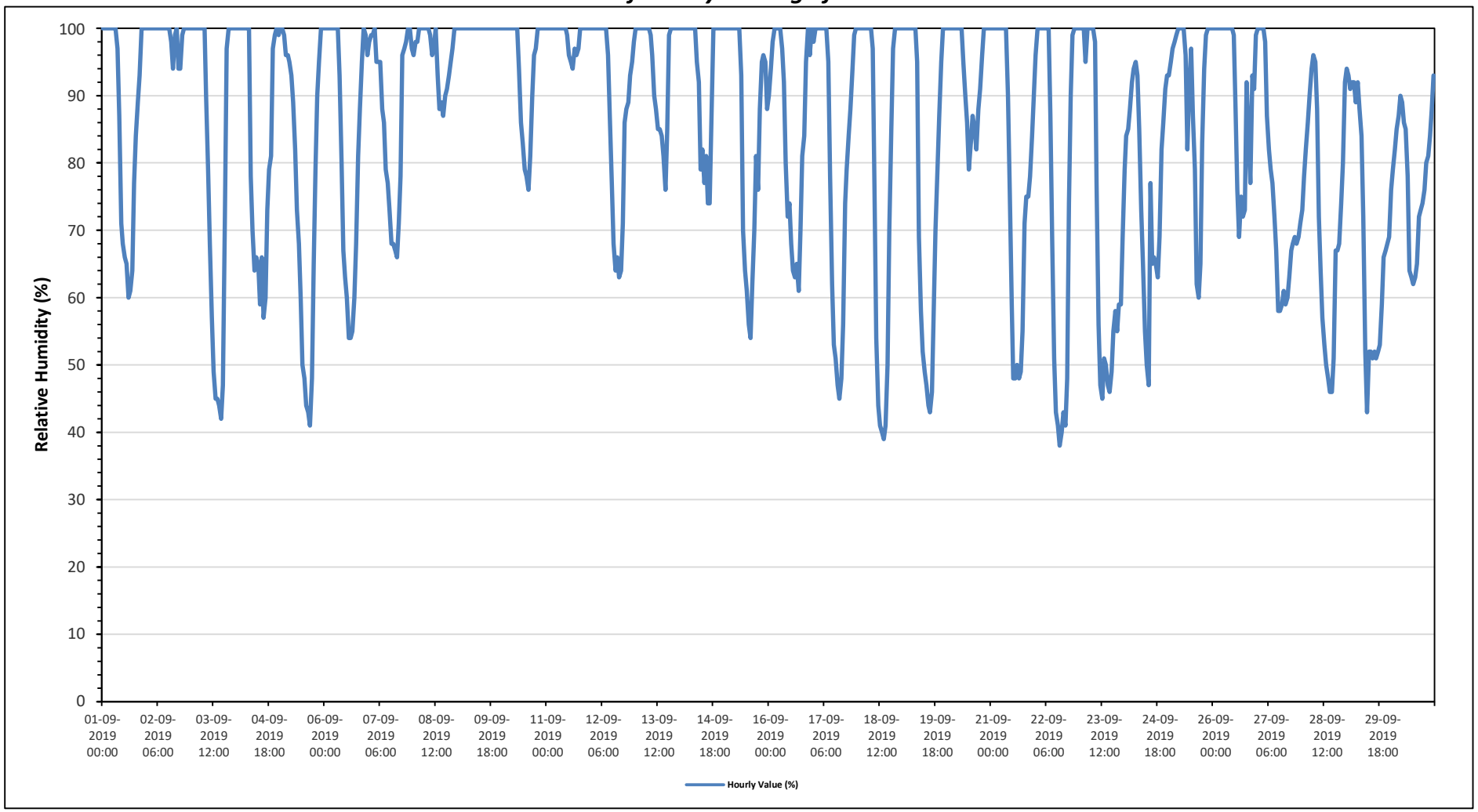
Maximum Hourly Value:	100	%	on September 1 at hour 0	Hours in Service:	720	
Maximum Daily Value:	####	%	on September 9	Hours of Data:	720	
Minimum Hourly Value:	38	%	on September 22 at hour 13	Hours of Missing Data:	0	
Minimum Daily Value:	69.8	%	on September 29	Hours of Calibration:	0	
Monthly Average:	85.0	%		Operational Uptime:	100.0	

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	97	87	71	68	66	65	60	61	64	77	84	89	93	**100**	**100**	**100**	60	**100**	87
Sep 2	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	98	94	99	**100**	94	94	99	**100**	**100**	**100**	**100**	94	**100**	99
Sep 3	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	90	79	68	57	49	45	45	44	42	47	72	97	**100**	**100**	**100**	**100**	42	**100**	81
Sep 4	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	78	70	64	66	65	59	66	57	60	73	79	81	97	99	**100**	99	57	**100**	84
Sep 5	**100**	**100**	99	96	96	95	93	89	82	73	68	60	50	48	44	43	41	48	65	79	90	95	**100**	**100**	41	**100**	77
Sep 6	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	93	80	67	63	60	54	54	55	60	68	81	88	95	**100**	99	96	54	**100**	84
Sep 7	98	99	99	**100**	95	95	95	88	86	79	77	73	68	68	67	66	71	78	96	97	98	**100**	**100**	97	66	**100**	87
Sep 8	96	98	98	**100**	**100**	**100**	**100**	**100**	**100**	99	96	97	**100**	93	88	89	87	90	91	93	95	97	**100**	**100**	87	**100**	96
Sep 9	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	100	**100**	**100**
Sep 10	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	94	86	83	79	78	76	81	90	96	97	**100**	**100**	**100**	**100**	**100**	76	**100**	94
Sep 11	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	99	96	95	94	97	96	97	**100**	**100**	**100**	**100**	**100**	**100**	94	**100**	99
Sep 12	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	96	87	77	68	64	66	63	64	71	86	88	89	93	95	98	63	**100**	88
Sep 13	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	99	96	90	88	85	85	84	81	76	85	99	**100**	**100**	**100**	**100**	**100**	76	**100**	95
Sep 14	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	95	92	79	82	77	81	74	74	88	**100**	**100**	**100**	**100**	**100**	**100**	74	**100**	93
Sep 15	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	93	70	64	61	56	54	62	70	81	76	88	95	96	95	88	54	**100**	85
Sep 16	90	94	98	**100**	**100**	**100**	**100**	97	92	80	72	74	68	64	63	65	61	70	81	84	95	**100**	96	**100**	61	**100**	85
Sep 17	98	**100**	**100**	**100**	**100**	**100**	**100**	**100**	95	78	62	53	51	47	45	48	56	74	79	84	88	93	99	**100**	45	**100**	81
Sep 18	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	97	76	54	44	41	40	39	41	50	70	85	97	**100**	**100**	**100**	**100**	39	**100**	81
Sep 19	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	95	69	58	52	49	47	44	43	46	58	70	79	87	95	**100**	**100**	43	**100**	79
Sep 20	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	95	90	86	79	83	87	85	82	88	91	96	**100**	**100**	**100**	**100**	79	**100**	94
Sep 21	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	90	76	59	48	48	50	48	49	55	71	75	75	78	84	90	48	**100**	79
Sep 22	96	**100**	**100**	**100**	**100**	**100**	**100**	**100**	87	69	51	43	41	**38**	40	43	41	48	74	90	99	**100**	**100**	**100**	**38**	**100**	78
Sep 23	**100**	**100**	**100**	95	**100**	**100**	**100**	**100**	98	77	56	47	45	51	50	47	46	49	55	58	55	59	59	69	45	**100**	72
Sep 24	79	84	85	88	92	94	95	93	85	73	65	55	50	47	77	65	66	65	63	69	82	86	91	93	47	95	77
Sep 25	93	95	97	98	99	**100**	**100**	**100**	**100**	96	82	91	97	87	79	62	60	65	83	94	99	**100**	**100**	**100**	60	**100**	91
Sep 26	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	99	88	76	69	75	72	73	92	84	77	93	91	99	69	**100**	91
Sep 27	**100**	**100**	**100**	**100**	98	87	82	79	77	72	67	58	58	59	61	59	60	63	67	68	69	68	69	71	58	**100**	75
Sep 28	73	78	82	86	90	94	96	95	88	72	64	57	53	50	48	46	46	51	67	67	68	74	80	92	46	96	72
Sep 29	94	93	91	92	92	89	92	88	84	72	52	43	52	52	51	52	51	52	53	59	66	67	68	69	43	94	70
Sep 30	76	79	82	85	87	90	89	86	85	78	64	63	62	63	65	72	73	74	76	80	81	84	88	93	62	93	78
Diurnal Maximum	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100			
Daiurnal Average	96.4	97.3	97.7	98.0	98.3	98.1	98.1	97.2	93.6	84.6	75.0	69.9	67.0	64.6	64.7	64.1	65.1	71.6	80.9	86.1	89.8	92.6	93.8	95.1			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for RH - Maskwa Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

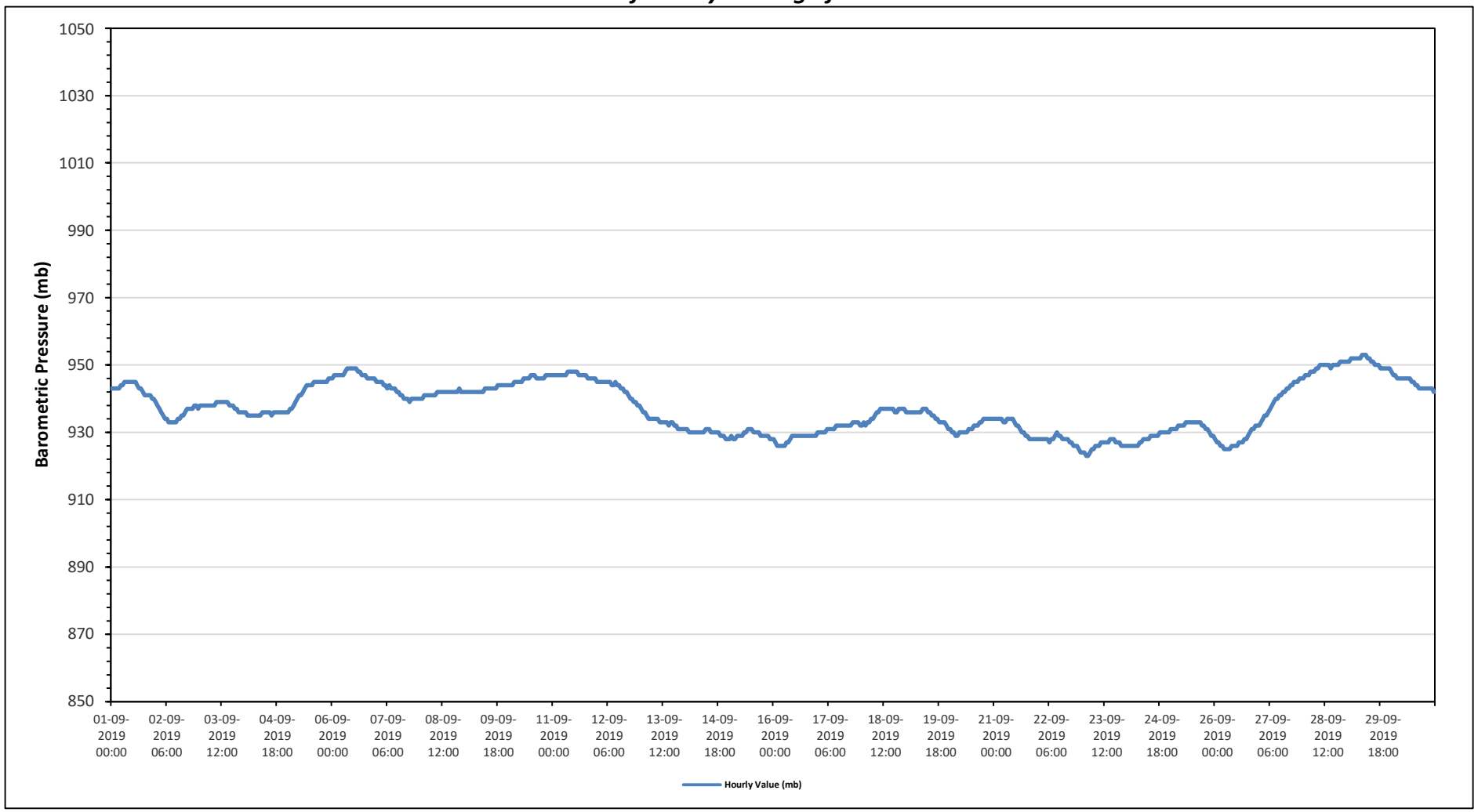
Maximum Hourly Value:	953	mb	on September 29 at hour 8	Hours in Service:	720
Maximum Daily Value:	951	mb	on September 29	Hours of Data:	720
Minimum Hourly Value:	923	mb	on September 23 at hour 2	Hours of Missing Data:	0
Minimum Daily Value:	926	mb	on September 23	Hours of Calibration:	0
Monthly Average:	937	mb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	943	943	943	943	943	944	944	945	945	945	945	945	945	945	944	943	943	942	941	941	941	941	940	940	940	945	943
Sep 2	939	938	937	936	935	934	934	933	933	933	933	933	934	934	935	935	936	937	937	937	937	938	938	937	933	939	936
Sep 3	938	938	938	938	938	938	938	938	938	939	939	939	939	939	939	939	938	938	938	937	937	936	936	936	936	939	938
Sep 4	936	936	935	935	935	935	935	935	935	935	936	936	936	936	936	935	936	936	936	936	936	936	936	936	935	936	936
Sep 5	936	937	937	938	939	940	941	941	942	943	944	944	944	944	945	945	945	945	945	945	945	945	946	946	936	946	943
Sep 6	946	947	947	947	947	947	947	948	949	949	949	949	949	949	948	948	947	947	947	946	946	946	946	946	946	949	947
Sep 7	945	945	945	945	944	944	943	944	943	943	943	942	942	941	941	940	940	940	939	940	940	940	940	940	939	945	942
Sep 8	940	940	941	941	941	941	941	941	941	942	942	942	942	942	942	942	942	942	942	942	942	943	942	942	940	943	942
Sep 9	942	942	942	942	942	942	942	942	942	942	942	943	943	943	943	943	943	943	944	944	944	944	944	944	942	944	943
Sep 10	944	944	944	945	945	945	945	945	946	946	946	946	947	947	947	946	946	946	946	946	947	947	947	947	944	947	946
Sep 11	947	947	947	947	947	947	947	947	948	948	948	948	948	948	947	947	947	947	947	946	946	946	946	946	946	948	947
Sep 12	945	945	945	945	945	945	945	945	944	944	945	944	944	943	943	942	942	941	940	940	939	939	938	938	938	945	943
Sep 13	937	936	936	935	934	934	934	934	934	934	933	933	933	933	933	932	933	933	932	932	931	931	931	931	931	937	933
Sep 14	931	931	930	930	930	930	930	930	930	930	930	931	931	931	930	930	930	930	930	929	929	929	928	928	928	931	930
Sep 15	928	929	928	928	929	929	929	929	930	930	931	931	931	930	930	930	930	929	929	929	929	929	928	928	928	931	929
Sep 16	928	927	926	926	926	926	926	927	927	928	929	929	929	929	929	929	929	929	929	929	929	929	929	929	926	929	928
Sep 17	930	930	930	930	930	931	931	931	931	931	932	932	932	932	932	932	932	932	932	933	933	933	933	932	930	933	932
Sep 18	932	933	932	933	933	934	934	935	936	936	937	937	937	937	937	937	937	937	936	936	937	937	937	937	932	937	936
Sep 19	936	936	936	936	936	936	936	936	936	937	937	937	936	936	935	935	934	934	933	933	933	933	932	931	931	937	935
Sep 20	931	930	930	929	929	930	930	930	930	930	931	931	931	932	932	932	933	933	934	934	934	934	934	934	929	934	932
Sep 21	934	934	934	934	934	933	933	934	934	934	934	933	932	932	931	930	930	929	929	928	928	928	928	928	928	934	932
Sep 22	928	928	928	928	928	928	927	928	928	929	930	929	929	928	928	928	928	927	927	926	926	926	925	924	924	930	928
Sep 23	924	924	**923**	**923**	924	925	925	926	926	926	927	927	927	927	927	928	928	928	927	927	927	926	926	926	**923**	928	926
Sep 24	926	926	926	926	926	926	926	927	927	928	928	928	928	929	929	929	929	929	930	930	930	930	930	930	926	930	928
Sep 25	931	931	931	931	932	932	932	932	933	933	933	933	933	933	933	933	933	932	932	931	931	930	929	929	929	933	932
Sep 26	928	927	927	926	926	925	925	925	925	926	926	926	926	927	927	927	928	928	929	930	931	931	932	932	925	932	928
Sep 27	932	933	934	935	935	936	937	938	939	940	940	941	941	942	942	943	943	944	944	945	945	945	946	946	932	946	940
Sep 28	946	947	947	947	948	948	948	949	949	950	950	950	950	950	950	949	950	950	950	950	951	951	951	951	946	951	949
Sep 29	951	951	952	952	952	952	952	952	**953**	**953**	**953**	952	952	951	951	950	950	950	949	949	949	949	949	949	949	**953**	**951**
Sep 30	948	947	947	946	946	946	946	946	946	946	946	945	945	944	944	943	943	943	943	943	943	943	943	942	942	948	945
Diurnal Maximum	951	951	952	952	952	952	952	952	953	953	953	952	952	951	951	950	950	950	950	950	951	951	951	951			
Daiurnal Average	937	937	937	937	937	937	937	937	937	938	938	938	938	938	938	937	938	937	937	937	937	937	937	937			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for BP - Maskwa Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

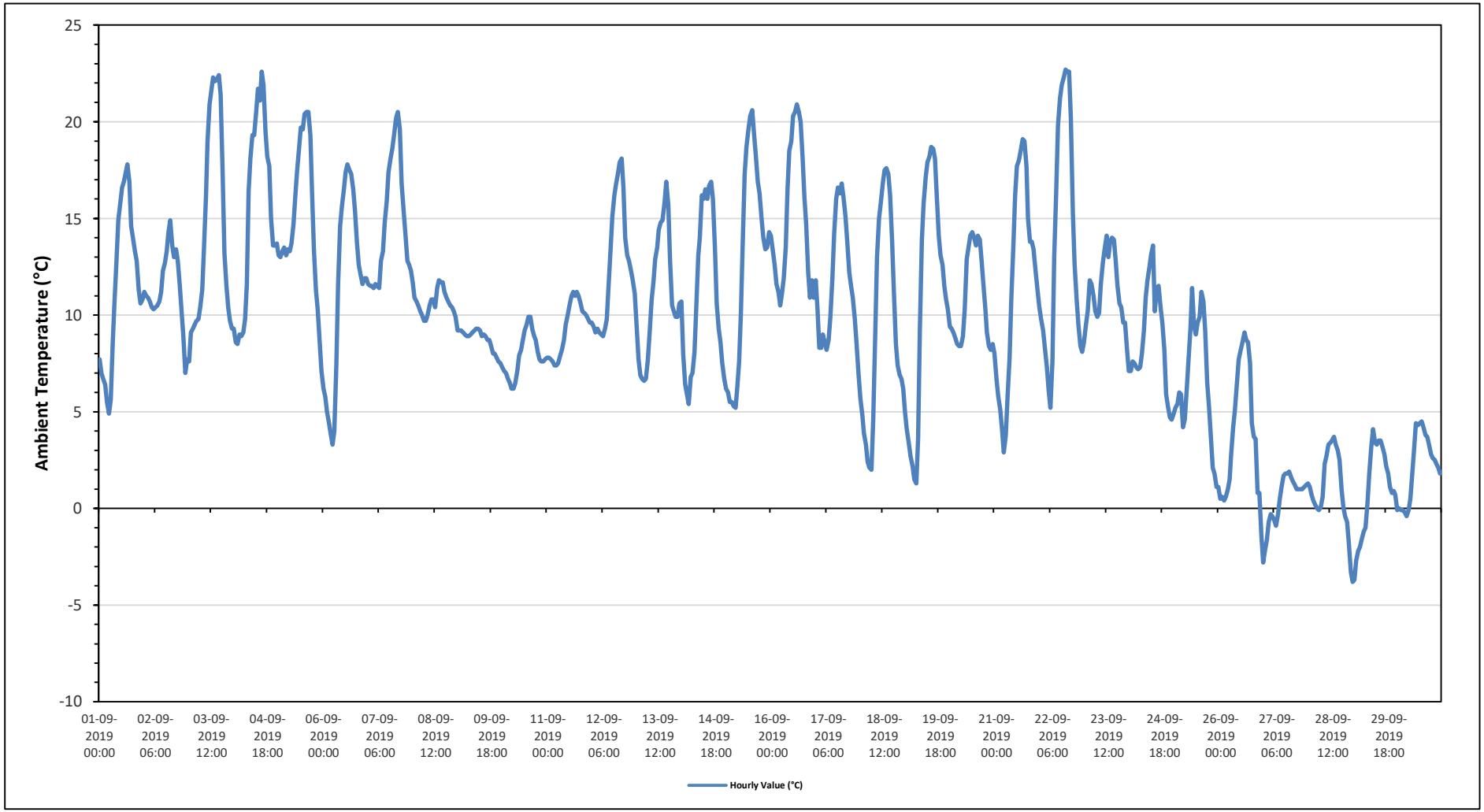
Maximum Hourly Value:	22.7	°C	on September 22 at hour 14	Hours in Service:	720
Maximum Daily Value:	15.3	°C	on September 4	Hours of Data:	720
Minimum Hourly Value:	-3.8	°C	on September 29 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.4	°C	on September 27	Hours of Calibration:	0
Monthly Average:	9.9	°C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	7.7	7.0	6.7	6.4	5.5	4.9	5.6	8.6	10.7	12.6	14.9	15.7	16.6	16.9	17.4	17.8	16.9	14.6	14.0	13.3	12.8	11.3	10.6	10.8	4.9	17.8	11.6
Sep 2	11.2	11.0	10.9	10.7	10.4	10.3	10.4	10.5	10.7	11.2	12.3	12.7	13.3	14.3	14.9	13.6	13.0	13.4	12.8	11.5	10.2	8.9	7.0	7.7	7.0	14.9	11.4
Sep 3	7.6	9.1	9.3	9.5	9.7	9.8	10.4	11.3	13.5	16.2	19.0	20.9	21.6	22.3	22.1	22.2	22.4	21.4	17.3	13.2	11.5	10.4	9.7	9.3	7.6	22.4	14.6
Sep 4	9.3	8.6	8.5	9.0	8.9	9.1	9.8	11.6	16.4	18.1	19.3	19.3	20.5	21.7	21.1	22.6	21.9	19.5	18.2	17.7	15.0	13.6	13.6	13.7	8.5	22.6	**15.3**
Sep 5	13.1	13.0	13.3	13.5	13.1	13.4	13.3	13.7	14.7	16.1	17.4	18.6	19.7	19.6	20.4	20.5	20.5	19.3	16.2	13.4	11.3	10.3	8.6	7.1	7.1	20.5	15.0
Sep 6	6.2	5.8	5.0	4.4	3.9	3.3	4.0	7.4	11.6	14.6	15.6	16.5	17.4	17.8	17.5	17.3	16.5	15.4	13.7	12.6	12.1	11.6	11.9	11.9	3.3	17.8	11.4
Sep 7	11.6	11.5	11.5	11.4	11.6	11.5	11.4	12.8	13.3	14.8	15.9	17.4	18.1	18.6	19.3	20.2	20.5	19.6	16.8	15.4	14.2	12.8	12.6	12.3	11.4	20.5	14.8
Sep 8	11.7	10.9	10.7	10.5	10.2	10.0	9.7	9.7	10.0	10.5	10.8	10.8	10.4	11.4	11.8	11.7	11.7	11.2	10.9	10.7	10.5	10.4	10.2	9.9	9.7	11.8	10.7
Sep 9	9.2	9.2	9.2	9.1	9.0	8.9	8.9	9.0	9.1	9.2	9.3	9.3	9.2	8.9	9.0	8.9	8.7	8.7	8.4	8.0	8.0	7.8	7.6	7.5	7.5	9.3	8.8
Sep 10	7.3	7.1	7.0	6.7	6.5	6.2	6.2	6.5	7.1	7.9	8.2	8.7	9.2	9.5	9.9	9.9	9.3	8.9	8.7	8.1	7.7	7.6	7.6	7.7	6.2	9.9	7.9
Sep 11	7.8	7.8	7.7	7.6	7.4	7.4	7.5	7.9	8.2	8.7	9.5	10.0	10.5	11.0	11.2	11.0	11.2	11.0	10.6	10.2	10.1	10.0	9.8	9.6	7.4	11.2	9.3
Sep 12	9.6	9.4	9.1	9.3	9.1	9.0	8.9	9.3	9.8	11.5	13.4	15.1	16.2	16.8	17.3	17.9	18.1	16.6	14.0	13.1	12.8	12.3	11.8	11.1	8.9	18.1	12.6
Sep 13	9.5	7.7	6.9	6.7	6.6	6.7	7.7	9.1	10.8	11.7	12.9	13.5	14.4	14.8	14.9	15.8	16.9	15.7	12.8	10.5	10.2	9.9	9.9	10.6	6.6	16.9	11.1
Sep 14	10.7	8.0	6.4	5.9	5.4	6.8	7.0	8.1	10.4	13.1	14.0	16.2	16.0	16.5	16.0	16.7	16.9	16.0	13.5	10.6	9.3	8.6	7.5	6.7	5.4	16.9	11.1
Sep 15	6.2	6.0	5.5	5.5	5.3	5.2	6.3	7.6	10.1	13.6	17.3	18.7	19.6	20.3	20.6	19.4	18.3	16.9	16.3	15.0	14.0	13.4	13.5	14.3	5.2	20.6	12.9
Sep 16	14.1	13.4	12.6	11.6	11.2	10.5	11.1	11.9	13.5	16.5	18.5	19.0	20.3	20.5	20.9	20.5	20.0	18.1	16.1	14.7	12.2	10.9	11.8	10.9	10.5	20.9	15.0
Sep 17	11.8	10.3	8.3	8.3	9.0	8.6	8.2	8.7	9.9	11.9	14.2	16.0	16.6	16.3	16.8	16.1	15.1	13.8	12.2	11.5	10.9	9.8	8.5	6.9	6.9	16.8	11.7
Sep 18	5.7	4.8	3.9	3.3	2.4	2.1	2.0	4.6	9.0	13.0	15.0	15.8	16.8	17.5	17.6	17.3	16.2	13.8	11.2	8.5	7.4	6.9	6.7	6.2	2.0	17.6	9.5
Sep 19	5.0	4.1	3.4	2.7	2.2	1.5	1.3	3.6	9.2	13.9	15.8	17.1	17.9	18.2	18.7	18.6	18.1	16.2	14.1	13.1	12.6	11.5	10.8	10.3	1.3	18.7	10.8
Sep 20	9.4	9.3	9.1	8.8	8.5	8.4	8.4	8.9	10.3	12.9	13.5	14.1	14.3	14.0	13.6	14.1	13.9	12.8	11.6	10.3	9.1	8.4	8.2	8.5	8.2	14.3	10.9
Sep 21	8.0	6.7	5.8	5.1	4.1	2.9	3.8	5.8	7.8	10.9	13.6	16.2	17.7	18.0	18.5	19.1	19.0	17.7	15.0	13.8	13.8	13.4	12.3	11.4	2.9	19.1	11.7
Sep 22	10.4	9.8	9.2	8.3	7.3	6.1	5.2	7.6	13.0	16.4	19.8	21.2	21.9	22.3	**22.7**	22.6	22.6	20.2	15.3	12.6	10.8	9.5	8.4	8.1	5.2	**22.7**	13.8
Sep 23	8.6	9.5	10.2	11.8	11.6	11.0	10.2	9.9	10.1	11.6	12.7	13.4	14.1	13.0	13.8	14.0	13.9	12.8	11.5	10.6	10.4	9.6	9.6	8.2	8.2	14.1	11.3
Sep 24	7.1	7.1	7.6	7.5	7.3	7.2	7.3	8.0	9.2	10.9	11.8	12.5	13.1	13.6	10.2	11.4	11.5	10.4	9.6	8.2	5.9	5.3	4.7	4.6	4.6	13.6	8.8
Sep 25	4.9	5.2	5.4	6.0	5.9	4.2	4.6	6.2	7.7	9.4	11.4	9.4	9.0	9.6	9.9	11.2	10.7	9.2	6.5	5.3	3.6	2.1	1.8	1.1	1.1	11.4	6.7
Sep 26	1.1	0.5	0.6	0.4	0.6	1.0	1.5	2.8	4.2	5.1	6.5	7.7	8.2	8.6	9.1	8.7	8.6	7.5	4.4	3.7	3.6	0.8	0.8	-1.4	-1.4	9.1	3.9
Sep 27	-2.8	-2.2	-1.6	-0.7	-0.3	-0.4	-0.6	-0.9	-0.3	0.5	1.1	1.7	1.8	1.8	1.9	1.6	1.4	1.2	1.0	1.0	1.0	1.0	1.1	1.2	-2.8	1.9	0.4
Sep 28	1.3	1.1	0.7	0.4	0.2	0.0	-0.1	0.1	0.6	2.3	2.7	3.3	3.4	3.5	3.7	3.3	3.0	2.5	1.0	0.1	-0.4	-0.7	-1.8	-3.3	-3.3	3.7	1.1
Sep 29	**-3.8**	-3.7	-2.7	-2.2	-2.0	-1.6	-1.2	-1.0	0.3	1.8	3.2	4.1	3.4	3.3	3.5	3.5	3.2	2.8	2.2	1.8	1.1	0.8	0.9	0.7	**-3.8**	4.1	0.8
Sep 30	-0.1	0.0	-0.1	-0.1	-0.2	-0.4	-0.1	0.5	1.7	3.1	4.4	4.3	4.4	4.5	4.2	3.8	3.7	3.3	2.8	2.6	2.5	2.3	2.1	1.8	-0.4	4.5	2.1
Diurnal Maximum	14.1	13.4	13.3	13.5	13.1	13.4	13.3	13.7	16.4	18.1	19.8	21.2	21.9	22.3	22.7	22.6	22.6	21.4	18.2	17.7	15.0	13.6	13.6	14.3			
Daiurnal Average	7.3	6.9	6.7	6.6	6.3	6.1	6.3	7.3	9.1	11.0	12.5	13.3	13.9	14.2	14.3	14.4	14.1	13.0	11.3	10.0	9.1	8.4	7.9	7.5			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for AT - Maskwa Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

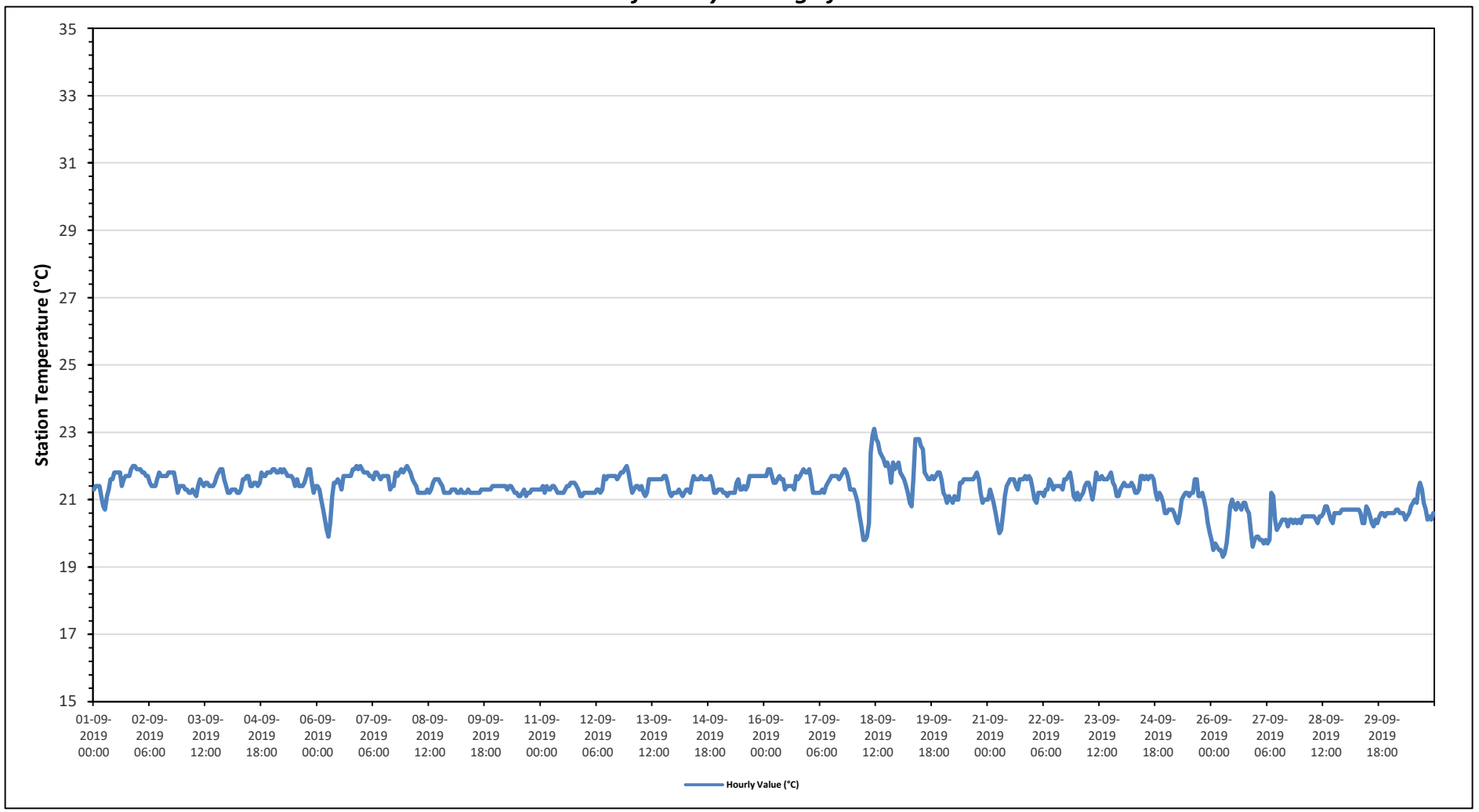
Maximum Hourly Value:	23.1	°C	on September 18 at hour 11	Hours in Service:	720
Maximum Daily Value:	21.8	°C	on September 19	Hours of Data:	720
Minimum Hourly Value:	19.3	°C	on September 26 at hour 6	Hours of Missing Data:	0
Minimum Daily Value:	20.2	°C	on September 26	Hours of Calibration:	0
Monthly Average:	21.3	°C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	21.3	21.4	21.4	21.4	21.1	20.8	20.7	21.1	21.3	21.6	21.6	21.8	21.8	21.8	21.8	21.4	21.6	21.7	21.7	21.7	21.9	22.0	22.0	21.9	20.7	22.0	21.5
Sep 2	21.9	21.9	21.8	21.8	21.7	21.7	21.5	21.4	21.4	21.4	21.6	21.8	21.7	21.7	21.7	21.7	21.8	21.8	21.8	21.8	21.5	21.2	21.4	21.4	21.2	21.9	21.6
Sep 3	21.4	21.3	21.3	21.2	21.2	21.3	21.2	21.1	21.4	21.6	21.5	21.4	21.5	21.5	21.4	21.4	21.4	21.5	21.7	21.8	21.9	21.9	21.6	21.4	21.1	21.9	21.5
Sep 4	21.2	21.2	21.3	21.3	21.3	21.2	21.2	21.3	21.6	21.6	21.7	21.7	21.4	21.4	21.5	21.5	21.4	21.5	21.8	21.7	21.7	21.8	21.8	21.8	21.2	21.8	21.5
Sep 5	21.9	21.9	21.8	21.8	21.9	21.8	21.9	21.8	21.7	21.7	21.7	21.6	21.4	21.6	21.4	21.4	21.4	21.5	21.7	21.9	21.9	21.5	21.2	21.4	21.2	21.9	21.7
Sep 6	21.4	21.3	21.0	20.7	20.4	20.1	19.9	20.3	21.1	21.5	21.5	21.6	21.5	21.3	21.7	21.7	21.7	21.7	21.7	21.9	21.9	22.0	21.9	22.0	19.9	22.0	21.3
Sep 7	21.9	21.8	21.8	21.8	21.7	21.7	21.6	21.8	21.8	21.7	21.6	21.7	21.7	21.7	21.7	21.3	21.4	21.4	21.8	21.7	21.8	21.9	21.8	21.9	21.3	21.9	21.7
Sep 8	22.0	21.9	21.8	21.6	21.5	21.4	21.2	21.2	21.2	21.2	21.2	21.3	21.2	21.3	21.5	21.6	21.6	21.6	21.5	21.4	21.2	21.2	21.2	21.2	21.2	22.0	21.4
Sep 9	21.3	21.3	21.3	21.2	21.2	21.3	21.2	21.2	21.2	21.3	21.2	21.2	21.2	21.2	21.2	21.2	21.3	21.3	21.3	21.3	21.3	21.3	21.4	21.4	21.2	21.4	21.3
Sep 10	21.4	21.4	21.4	21.4	21.4	21.4	21.3	21.4	21.4	21.3	21.2	21.2	21.1	21.1	21.2	21.3	21.1	21.2	21.2	21.3	21.3	21.3	21.3	21.3	21.1	21.4	21.3
Sep 11	21.3	21.4	21.2	21.4	21.3	21.3	21.4	21.4	21.3	21.2	21.2	21.2	21.2	21.3	21.4	21.4	21.5	21.5	21.5	21.4	21.3	21.1	21.1	21.2	21.1	21.5	21.3
Sep 12	21.2	21.2	21.2	21.2	21.2	21.2	21.3	21.3	21.2	21.3	21.7	21.6	21.7	21.7	21.7	21.7	21.7	21.6	21.7	21.8	21.8	21.9	22.0	21.8	21.2	22.0	21.5
Sep 13	21.5	21.2	21.3	21.4	21.4	21.3	21.4	21.2	21.1	21.2	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.7	21.7	21.5	21.2	21.1	21.2	21.1	21.7	21.4
Sep 14	21.2	21.2	21.3	21.2	21.1	21.2	21.3	21.3	21.2	21.5	21.7	21.6	21.6	21.6	21.7	21.6	21.6	21.6	21.6	21.7	21.5	21.2	21.2	21.3	21.1	21.7	21.4
Sep 15	21.3	21.3	21.2	21.2	21.1	21.2	21.2	21.2	21.2	21.5	21.6	21.3	21.3	21.4	21.3	21.4	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.1	21.7	21.4
Sep 16	21.7	21.7	21.9	21.9	21.7	21.5	21.5	21.6	21.7	21.6	21.6	21.3	21.4	21.4	21.4	21.4	21.3	21.7	21.6	21.7	21.8	21.9	21.8	21.8	21.3	21.9	21.6
Sep 17	21.9	21.6	21.2	21.2	21.2	21.2	21.2	21.3	21.2	21.4	21.5	21.6	21.7	21.7	21.7	21.7	21.6	21.7	21.8	21.9	21.8	21.6	21.3	21.3	21.2	21.9	21.5
Sep 18	21.3	21.1	20.9	20.5	20.2	19.8	19.8	19.9	20.3	22.4	22.9	**23.1**	22.8	22.7	22.4	22.3	22.2	22.0	22.1	21.9	21.5	22.1	21.9	22.0	19.8	**23.1**	21.6
Sep 19	22.1	21.8	21.7	21.6	21.4	21.2	20.9	20.8	21.6	22.8	22.8	22.8	22.6	22.5	21.8	21.7	21.6	21.6	21.7	21.6	21.7	21.8	21.8	21.6	20.8	22.8	**21.8**
Sep 20	21.2	21.1	20.9	21.1	21.0	20.9	21.1	21.0	21.0	21.5	21.5	21.6	21.6	21.6	21.6	21.6	21.6	21.7	21.8	21.6	21.2	20.9	21.0	21.0	20.9	21.8	21.3
Sep 21	21.0	21.3	21.1	20.9	20.6	20.3	20.0	20.1	20.6	21.1	21.4	21.5	21.6	21.6	21.6	21.4	21.3	21.6	21.6	21.6	21.7	21.6	21.7	21.6	20.0	21.7	21.2
Sep 22	21.3	21.0	20.9	21.2	21.2	21.2	21.1	21.3	21.3	21.6	21.5	21.3	21.4	21.4	21.4	21.4	21.3	21.6	21.6	21.7	21.8	21.5	21.1	21.0	20.9	21.8	21.3
Sep 23	21.2	21.0	21.1	21.2	21.4	21.5	21.5	21.3	21.0	21.3	21.8	21.6	21.6	21.7	21.6	21.6	21.6	21.7	21.8	21.5	21.4	21.1	21.1	21.3	21.0	21.8	21.4
Sep 24	21.4	21.5	21.4	21.4	21.4	21.5	21.4	21.2	21.2	21.3	21.7	21.7	21.6	21.7	21.6	21.7	21.7	21.6	21.2	21.0	21.2	21.1	20.9	20.6	20.6	21.7	21.4
Sep 25	20.6	20.7	20.7	20.7	20.6	20.4	20.3	20.6	21.0	21.1	21.2	21.2	21.1	21.2	21.2	21.6	21.6	21.1	21.1	21.2	21.0	20.7	20.3	20.0	20.0	21.6	20.9
Sep 26	19.8	19.5	19.7	19.6	19.5	19.5	**19.3**	19.4	19.7	20.2	20.8	21.0	20.8	20.7	20.9	20.8	20.7	20.9	20.9	20.7	20.6	20.1	19.6	19.8	**19.3**	21.0	20.2
Sep 27	19.9	19.9	19.8	19.8	19.7	19.8	19.7	19.8	21.2	21.1	20.4	20.1	20.2	20.3	20.4	20.4	20.4	20.2	20.4	20.4	20.3	20.4	20.3	20.4	19.7	21.2	20.2
Sep 28	20.3	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.4	20.3	20.5	20.5	20.6	20.8	20.8	20.6	20.4	20.3	20.6	20.6	20.6	20.6	20.7	20.7	20.3	20.8	20.5
Sep 29	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.6	20.3	20.3	20.8	20.7	20.5	20.3	20.2	20.4	20.3	20.5	20.6	20.6	20.5	20.6	20.6	20.2	20.8	20.6
Sep 30	20.6	20.6	20.6	20.7	20.7	20.6	20.6	20.6	20.4	20.5	20.6	20.8	20.9	21.0	20.9	21.3	21.5	21.3	20.9	20.7	20.4	20.5	20.4	20.6	20.4	21.5	20.7
Diurnal Maximum	22.1	21.9	21.9	21.9	21.9	21.8	21.9	21.8	21.8	22.8	22.9	23.1	22.8	22.7	22.4	22.3	22.2	22.0	22.1	21.9	21.9	22.1	22.0	22.0			
Daiurnal Average	21.2	21.2	21.1	21.1	21.0	21.0	20.9	21.0	21.1	21.3	21.4	21.5	21.4	21.4	21.4	21.4	21.4	21.4	21.5	21.5	21.4	21.3	21.2	21.2			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for ST - Maskwa Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Averages

PRECIPITATION in mm

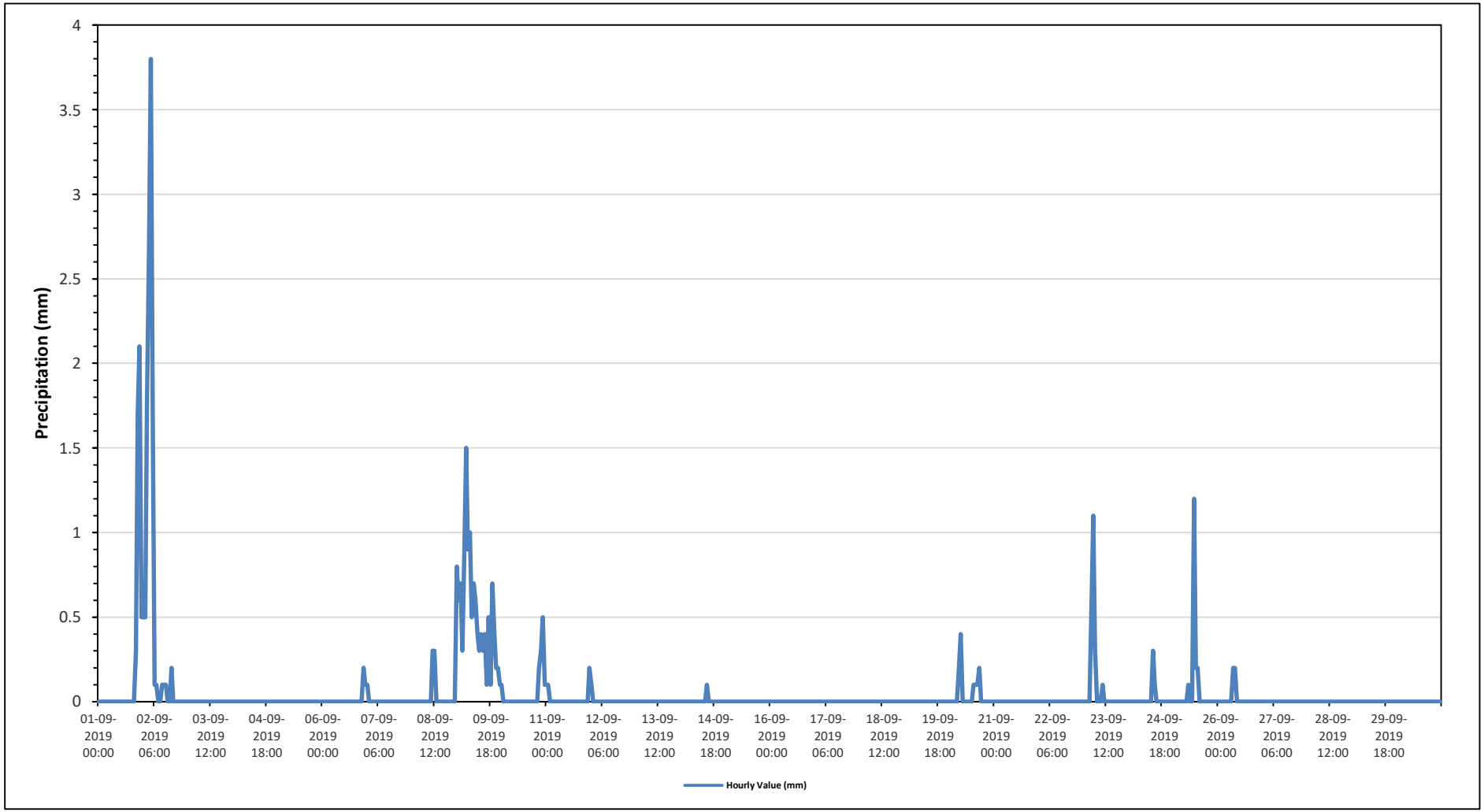
Maximum Hourly Value:	3.8	mm	on September 2 at hour 4	Hours in Service:	720
Maximum Daily Value:	12.6	mm	on September 9	Hours of Data:	720
Minimum Hourly Value:	0.0	mm	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	mm	on September 3	Hours of Calibration:	0
Monthly Total:	37.2	mm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Total
Sep 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	0.3	1.7	2.1	0.5	0.0	2.1	4.6
Sep 2	0.5	0.5	1.8	2.7	**3.8**	1.6	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**3.8**	11.6
Sep 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
Sep 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
Sep 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
Sep 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	0.2	0.1	0.0	0.2	0.3
Sep 7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Sep 8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6
Sep 9	0.8	0.6	0.7	0.3	0.9	1.5	0.9	1.0	0.5	0.7	0.6	0.4	0.3	0.4	0.3	0.4	0.1	0.5	0.1	0.7	0.4	0.2	0.2	0.1	0.1	1.5	**12.6**
Sep 10	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.5	0.1	0.0	0.5	1.2
Sep 11	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.4
Sep 12	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Sep 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
Sep 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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 20	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.1
Sep 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
Sep 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
Sep 23	0.0	0.0	0.0	0.0	0.5	1.1	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	2.0
Sep 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	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4
Sep 25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.7
Sep 26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4
Sep 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
Sep 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
Sep 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
Sep 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
Diurnal Maximum	0.8	0.6	1.8	2.7	3.8	1.6	0.9	1.0	0.5	0.7	0.6	1.2	0.3	0.4	0.3	0.4	0.2	0.5	0.1	0.7	0.4	1.7	2.1	0.5			
Daiurnal Average	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for Precipitation - Maskwa Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

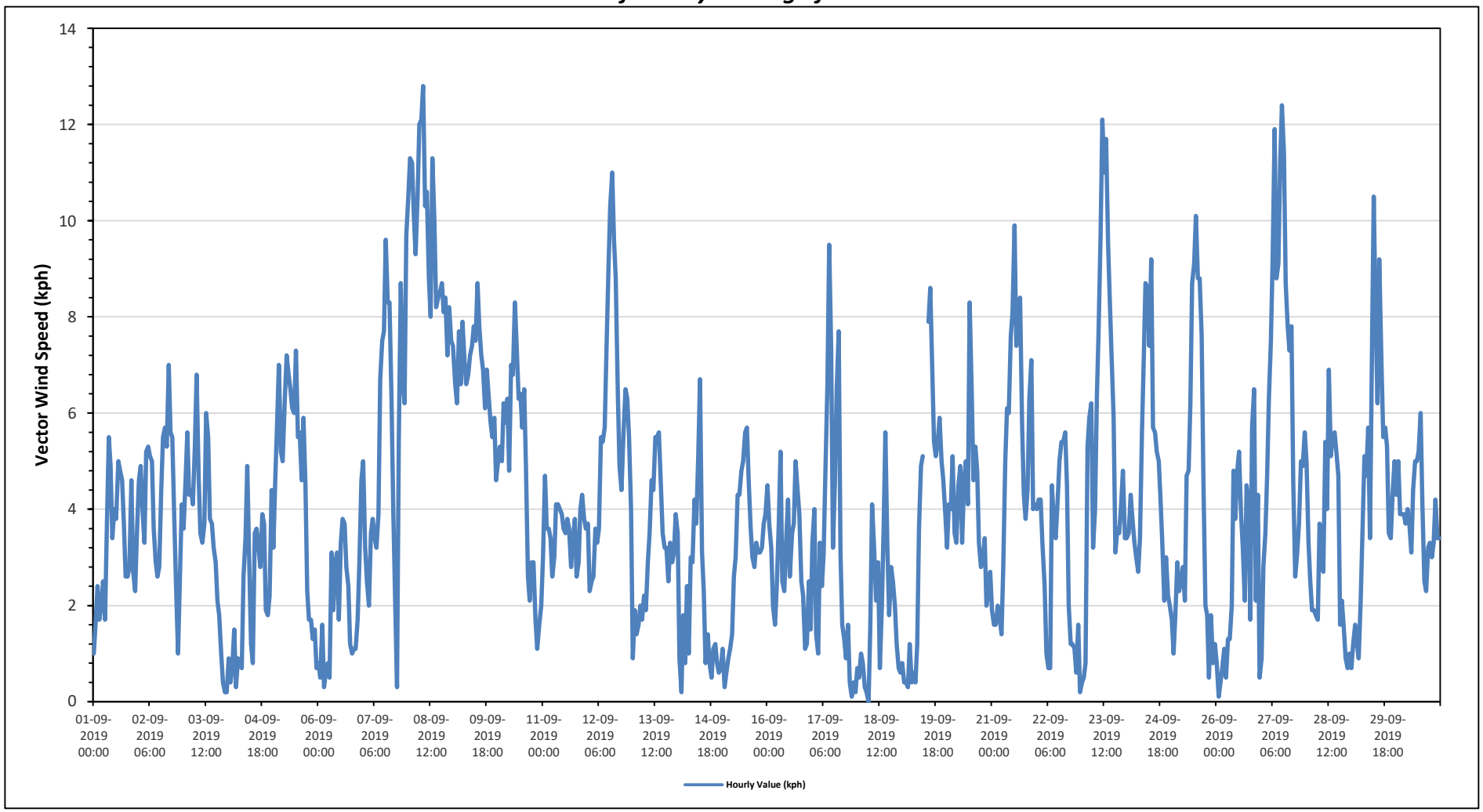
Maximum Hourly Value:	12.8	kph	on September 8 at hour 8	Hours in Service:	720
Maximum Daily Value:	9.7	kph	on September 8	Hours of Data:	718
Minimum Hourly Value:	0.0	kph	on September 18 at hour 6	Hours of Missing Data:	0
Minimum Daily Value:	1.8	kph	on September 18	Hours of Calibration:	2
Monthly Average:	0.3	kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	1	1.6	2.4	1.7	2	2.5	1.7	3.6	5.5	4.9	3.4	4	3.8	5	4.8	4.6	3.7	2.6	2.6	2.8	4.6	2.7	2.3	3.5	1.0	5.5	3.2
Sep 2	4.6	4.9	4	3.3	5.2	5.3	5.1	5	3.6	2.9	2.6	2.8	4.4	5.5	5.7	5.3	7	5.6	5.5	3.8	2.4	1	2.5	4.1	1.0	7.0	4.3
Sep 3	3.6	4.6	5.6	4.3	4.4	4.1	5.3	6.8	4.7	3.5	3.3	3.7	6	5.5	3.8	3.7	3.2	2.9	2.1	1.8	1	0.4	0.2	0.2	0.2	6.8	3.5
Sep 4	0.9	0.4	0.7	1.5	0.3	0.9	0.8	0.7	2.6	3.4	4.9	3.1	1.2	0.8	3.5	3.6	3.2	2.8	3.9	3.7	1.9	1.8	2.2	4.4	0.3	4.9	2.2
Sep 5	3.2	4.7	5.8	7	5.2	5	6.2	7.2	6.8	6.5	6.1	6	7.3	5.5	5.6	4.6	5.9	4.5	2.3	1.7	1.7	1.3	1.5	0.7	0.7	7.3	4.7
Sep 6	0.8	0.5	1.6	0.3	0.6	0.8	0.5	3.1	1.9	2.9	3.1	1.7	3.3	3.8	3.7	2.8	2.4	1.2	1	1.1	1.1	1.7	2.9	4.6	0.3	4.6	2.0
Sep 7	5	3.2	2.5	2	3.5	3.8	3.4	3.2	3.9	6.7	7.5	7.7	9.6	8.3	8.3	6.3	4	2	0.3	5.4	8.7	6.7	6.2	9.7	0.3	9.7	5.3
Sep 8	10.5	11.3	11.2	10.1	9.3	10.5	12	12.1	**12.8**	10.3	10.6	8.8	8	11.3	10	8.2	8.4	8.5	8.7	8.1	8.4	7.2	8.2	7.5	7.2	**12.8**	**9.7**
Sep 9	7.4	6.6	6.2	7.7	6.6	7.9	7.1	6.6	6.8	7.2	7.4	7.8	7.5	8.7	7.8	7.2	6.9	6.1	6.9	6.3	5.8	5.5	5.9	4.6	4.6	8.7	6.9
Sep 10	5	5.3	5	6.2	5.8	6.3	4.8	7	6.8	8.3	7.4	6.3	6.4	5.7	6.5	4.9	2.6	2.1	2.9	2.9	1.7	1.1	1.6	2	1.1	8.3	4.8
Sep 11	3	4.7	3.6	3.6	3.4	2.6	3	4.1	4.1	4	3.9	3.6	3.5	3.8	3.6	2.8	3.4	3.8	2.6	2.9	4	4.3	3.8	3.6	2.6	4.7	3.6
Sep 12	3.7	2.3	2.5	2.6	3.6	3.3	3.6	5.5	5.4	5.7	7.3	9	10.3	11	9.6	8.8	6.5	4.9	4.4	5.6	6.5	6.3	5.5	4	2.3	11.0	5.7
Sep 13	0.9	1.9	1.4	1.6	2	1.7	2.2	1.9	2.9	3.5	4.6	4.4	5.5	5.5	5.6	4.5	3.5	3.2	3.2	2.5	3.3	2.9	3.1	3.9	0.9	5.6	3.2
Sep 14	3.5	0.9	0.2	1.8	0.8	2.4	1	3	2.9	4.2	3.7	5.1	6.7	3.1	2.3	0.8	1.4	0.8	0.5	1.1	1.2	0.8	0.6	0.7	0.2	6.7	2.1
Sep 15	1.1	0.3	0.6	0.9	1.1	1.4	2.6	3	4.3	4.3	4.8	5	5.6	5.7	4.6	3.6	3	2.8	3.3	3.1	3.1	3.2	3.7	3.9	0.3	5.7	3.1
Sep 16	4.5	3.7	3.2	2	1.6	2.4	3.7	5.2	2.5	2.3	3.3	4.2	2.6	3.5	3.7	5	4.4	3.9	2.5	2.2	1.1	1.2	2.5	1.5	1.1	5.2	3.0
Sep 17	3.3	4	1.4	1	3.3	2.4	3.1	4.8	6.6	9.5	7.3	3.2	4.6	6.5	7.7	3.1	1.6	1.3	0.9	1.6	0.4	0.1	0.4	0.2	0.1	9.5	3.3
Sep 18	0.7	0.5	1	0.8	0.3	0.2	**0**	1.6	4.1	3.2	2.1	2.9	0.7	2	3.6	5.6	3.2	1.8	2.8	2.5	2	1.2	0.7	0.6	**0.0**	5.6	**1.8**
Sep 19	0.8	0.4	0.4	0.3	1.2	0.4	0.6	0.4	1.2	3.6	4.9	5.1	**C**	**C**	7.9	8.6	7.1	5.4	5.1	5.4	5.9	5	4.6	3.9	0.3	8.6	3.6
Sep 20	3.2	4.1	4	5.1	3.5	3.3	4.5	4.9	3.3	4.6	5	4.1	8.3	6.5	4.6	5.3	4.8	3.3	2.8	2.9	3.4	2	2.3	2.7	2.0	8.3	4.1
Sep 21	1.9	1.6	1.6	2	1.8	1.4	2.8	5	6.1	6	7.6	8.1	9.9	7.4	7.8	8.4	5.8	4.3	3.8	4.4	6.3	7.1	4	4.1	1.4	9.9	5.0
Sep 22	4	4.2	4.2	3.3	2.4	1	0.7	0.7	4.5	3.7	3.4	4.2	5	5.4	5.4	5.6	4.5	2	1.2	1.2	1.1	0.6	1.6	0.2	0.2	5.6	2.9
Sep 23	0.4	0.5	0.8	5.3	5.9	6.2	3.2	4	6.3	7.7	9.7	12.1	11	11.7	9.5	8.3	7	5.9	3.1	3.6	3.5	4.1	4.8	3.4	0.4	12.1	5.8
Sep 24	3.4	3.5	4.3	3.8	3.3	3	2.7	3.4	5.6	7.1	8.7	8.6	7.4	9.2	5.7	5.6	5.2	5	4.2	3.3	2.1	3	2.2	2	2.0	9.2	4.7
Sep 25	1.7	1	1.8	2.9	2.3	2.5	2.8	2.1	4.7	4.8	6.2	8.7	9.1	10.1	8.8	8.8	7.6	4.6	2	1.8	0.5	1.8	0.8	1.2	0.5	10.1	4.1
Sep 26	0.8	0.1	0.4	0.7	1.1	0.5	1.3	1.3	2	4.8	3.8	4.8	5.2	3.9	3.2	2.1	4.5	4.2	1.7	5.7	6.5	2.1	4.3	0.5	0.1	6.5	2.7
Sep 27	0.9	2.8	3.5	4.7	6.3	7.5	9.2	11.9	8.8	9.1	11.2	12.4	11.4	8.7	7.8	7.3	7.8	4.6	2.6	3.1	3.7	5	4.9	5.6	0.9	12.4	6.7
Sep 28	5	3.3	2.5	1.9	1.9	1.8	1.7	3.7	2.9	2.7	5.4	4	6.9	5.1	5.5	5.6	5.2	4.7	1.6	2.1	1.5	0.9	0.7	1	0.7	6.9	3.2
Sep 29	0.7	1.2	1.6	1.2	0.9	2.1	3.5	5.1	4.7	5.7	3.4	7.3	10.5	8.2	6.2	9.2	7	5.5	5.7	5.3	3.5	3.4	4.3	5	0.7	10.5	4.6
Sep 30	4.3	5	3.9	3.9	3.9	3.7	4	3.7	3.1	4.4	5	5	5.2	6	4.1	2.5	2.3	3.2	3.3	3	3.3	4.2	3.4	3.4	2.3	6.0	3.9
Diurnal Maximum	11	11	11	10	9	11	12	12	13	10	11	12	11	12	10	9	8	9	9	8	9	7	8	10			
Daiurnal Average	3.0	3.0	2.9	3.1	3.1	3.2	3.4	4.4	4.7	5.3	5.6	5.8	6.4	6.3	5.9	5.4	4.8	3.8	3.1	3.4	3.3	3.0	3.1	3.1			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

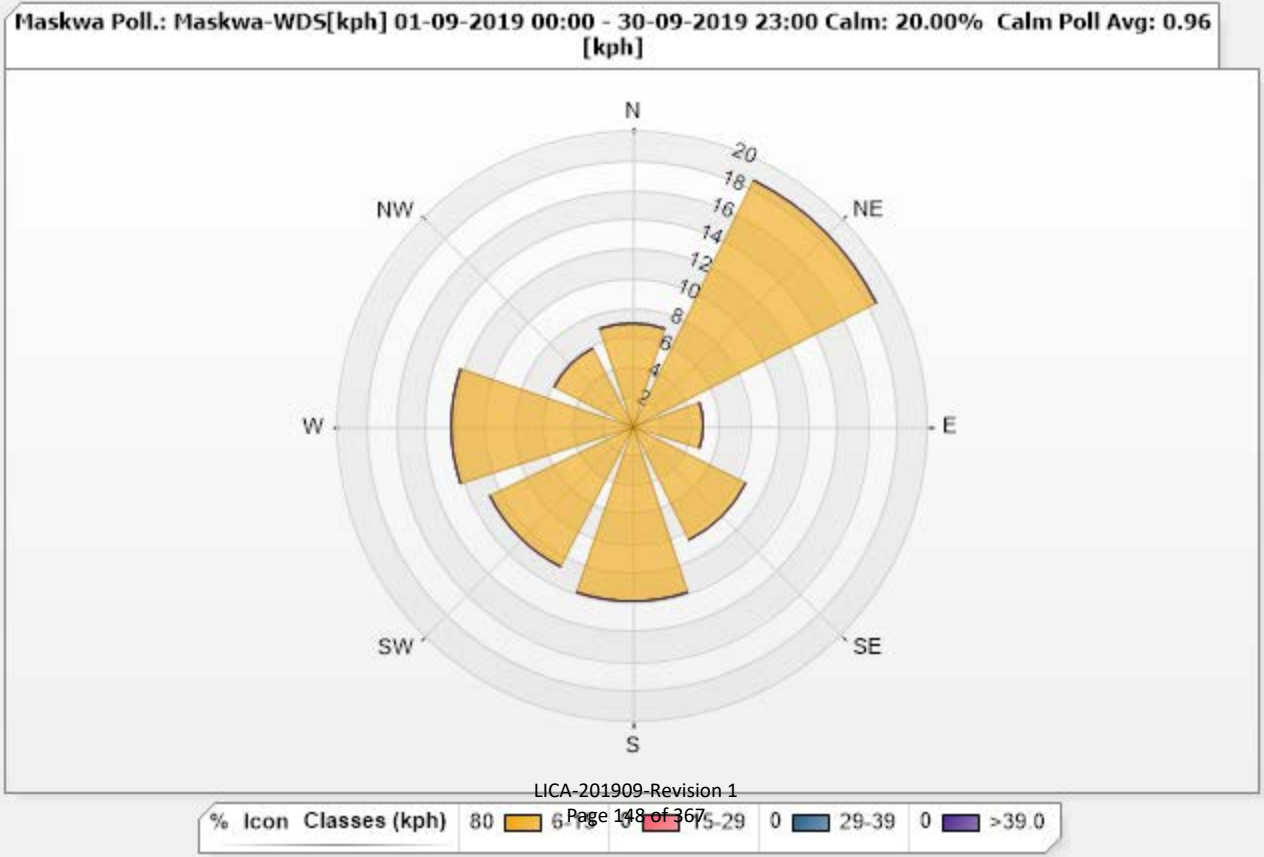
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

Timeseries Chart of Hourly Average for VWS - Maskwa Site



Wind: Maskwa Poll.: Maskwa-WDS[kph] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 20.00% Valid Data: 99.31% Calm Avg: 0.96 [kph]

Direction	6-15	15-29	29-39	>39.0	Total
N	6.99	0	0	0	6.99
NE	18.6	0	0	0	18.6
E	4.9	0	0	0	4.9
SE	8.67	0	0	0	8.67
S	11.89	0	0	0	11.89
SW	10.77	0	0	0	10.77
W	12.31	0	0	0	12.31
NW	5.87	0	0	0	5.87
Summary	80	0	0	0	80


Maskwa Poll.: Maskwa-WDS[kph] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 20.00% Calm Poll Avg: 0.96 [kph]
N
NE
E
SE
S
SW
W
NW
20
18
16
14
12
10
8
6
4
2
% Icon Classes (kph)
80
6-19
0
15-29
0
29-39
0
>39.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average: 35 (NE) degree

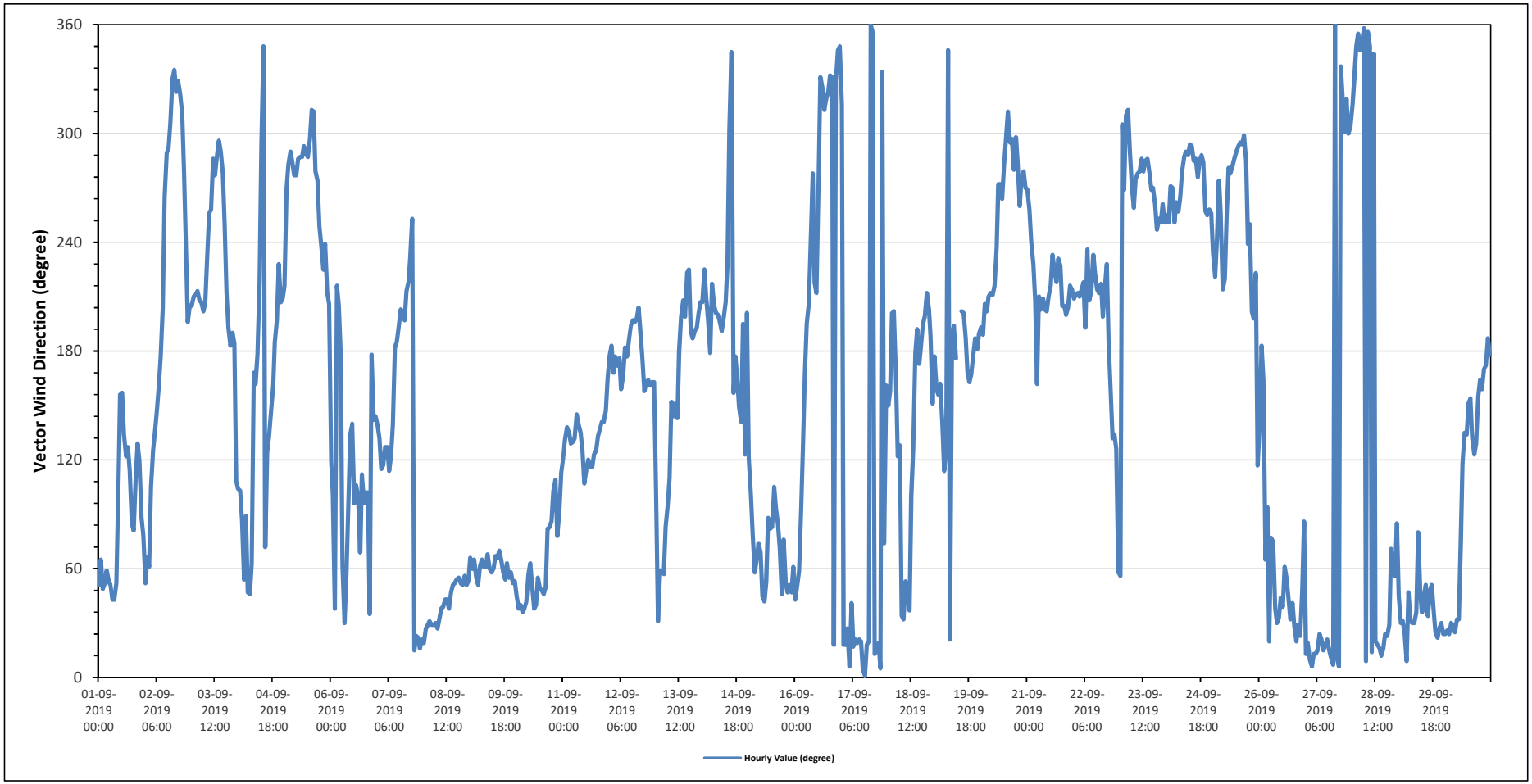
Hours in Service:	720
Hours of Data:	718
Hours of Missing Data:	0
Hours of Calibration:	2
Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant
Sep 1	NE	ENE	NE	NE	ENE	NE	NE	NE	NE	NE	ESE	SSE	SSE	SE	ESE	SE	ESE	E	E	ESE	SE	ESE	E	ENE	95	E
Sep 2	NE	ENE	ENE	ESE	SE	SE	SE	SSE	S	SSW	W	WNW	WNW	NW	NNW	NNW	NW	NNW	NW	NW	W	SW	SSW	SSW	310	NW
Sep 3	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	WSW	WSW	WNW	W	WNW	WNW	WNW	W	WSW	SSW	S	S	S	S	ESE	236	SW
Sep 4	ESE	ESE	E	NE	E	NE	NE	ENE	SSE	SSE	S	SW	WNW	NNW	ENE	ESE	SE	SE	SSE	S	SSW	SW	SSW	SSW	162	SSE
Sep 5	SW	W	W	WNW	WNW	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	NW	NW	W	W	WSW	SW	SW	WSW	SSW	SSW	282	W
Sep 6	ESE	E	NE	SW	SSW	S	ENE	NNE	NE	E	SE	SE	E	ESE	E	ENE	ESE	E	E	E	NE	S	SE	SE	106	ESE
Sep 7	SE	SE	ESE	ESE	SE	SE	ESE	ESE	SE	S	S	SSW	SSW	SSW	SSW	SSW	SW	SW	WSW	NNE	NNE	NNE	NNE	NNE	157	SSE
Sep 8	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	39	NE
Sep 9	ENE	ENE	ENE	NE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	ENE	NE	ENE	NE	NE	61	ENE
Sep 10	NE	NE	NE	NE	NE	NE	ENE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	E	E	E	ESE	ESE	ENE	E	ESE	52	NE
Sep 11	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	SE	SE	SE	SSE	131	SE
Sep 12	S	S	SSE	S	S	S	SSE	SSE	S	S	S	SSW	SSW	SSW	SSW	SSW	S	S	SSE	SSE	SSE	SSE	SSE	SSE	181	S
Sep 13	E	NNE	ENE	ENE	ENE	E	E	ESE	SSE	SE	SSE	SE	S	SSW	SSW	SSW	SW	SW	S	S	S	S	SSW	SSW	175	S
Sep 14	SSW	SW	SSW	SSW	S	SW	SSW	SSW	SSW	SSW	S	SSW	SSW	SW	WNW	NNW	SSE	S	SSE	SSE	SE	SSW	ESE	SSW	202	SSW
Sep 15	ESE	E	ENE	ENE	ENE	ENE	ENE	NE	NE	NE	E	E	E	ESE	E	E	ENE	NE	ENE	NE	NE	NE	NE	ENE	70	ENE
Sep 16	NE	NE	ENE	E	SE	SSE	SSW	SSW	WSW	W	SW	SSW	W	NNW	NW	NW	NW	NW	NNW	NNW	NNE	NNW	NNW	NNW	309	NW
Sep 17	NW	NNE	NNE	NNE	N	NE	NNE	NNE	NNE	NNE	NNE	N	N	NNE	NNE	N	N	NNE	NNE	NNE	N	NNW	ENE	SSE	15	NNE
Sep 18	SSE	SSE	SSW	SSW	SSE	ESE	SE	NE	NNE	NE	NE	NE	E	SE	S	S	S	S	SSW	SSW	SSW	SSW	S	SSE	156	SSE
Sep 19	S	SSE	SSE	SSE	SE	ESE	SE	NNW	NNE	S	SSW	S	C	C	SSW	SSW	S	SSE	SSE	SSE	S	S	S	S	183	S
Sep 20	S	S	SSW	SSW	SSW	SSW	SSW	SW	SW	W	W	W	WNW	WNW	NW	WNW	WNW	W	WNW	WNW	WSW	W	W	W	258	WSW
Sep 21	W	WSW	WSW	SW	SSW	SSE	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SW	SSW	214	SSW
Sep 22	SSW	SSW	SSW	SSW	SSW	SW	S	SW	SSW	SSW	SW	SW	SSW	SSW	SW	SSW	SSW	SW	S	SSE	SE	SE	SE	ENE	209	SSW
Sep 23	NE	WNW	W	NW	NW	WNW	W	WSW	W	W	W	WNW	W	WNW	WNW	W	W	W	W	WSW	WSW	WSW	W	WSW	278	W
Sep 24	WSW	WSW	W	W	WSW	W	WSW	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W	WNW	WNW	WNW	WSW	WSW	WSW	WSW	278	W
Sep 25	SW	SW	WSW	W	WSW	SSW	SW	WSW	W	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WSW	WSW	SSW	SSW	SW	ESE	278	W
Sep 26	SE	S	SSE	ENE	E	NNE	ENE	ENE	NE	NNE	NNE	NE	NE	ENE	NE	NE	NNE	NE	NNE	NNE	NNE	NNE	NE	E	41	NE
Sep 27	NNE	NNE	N	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	NNE	N	NNW	NW	WNW	NW	WNW	WNW	6	N
Sep 28	NW	NNW	NNW	N	NNW	N	N	N	N	NNW	NNE	NNW	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	ENE	ENE	NE	E	7	N
Sep 29	NE	NNE	NNE	NNE	N	NE	NNE	NNE	NNE	NE	E	NE	NE	NE	NE	NE	NE	NE	NE	NNE	NNE	NNE	NNE	NNE	38	NE
Sep 30	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	ENE	ESE	SE	SE	SSE	SSE	SE	ESE	SE	SSE	SSE	SSE	SSE	S	S	S	112	ESE

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for VWD - Maskwa Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hour Standard Deviations

STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

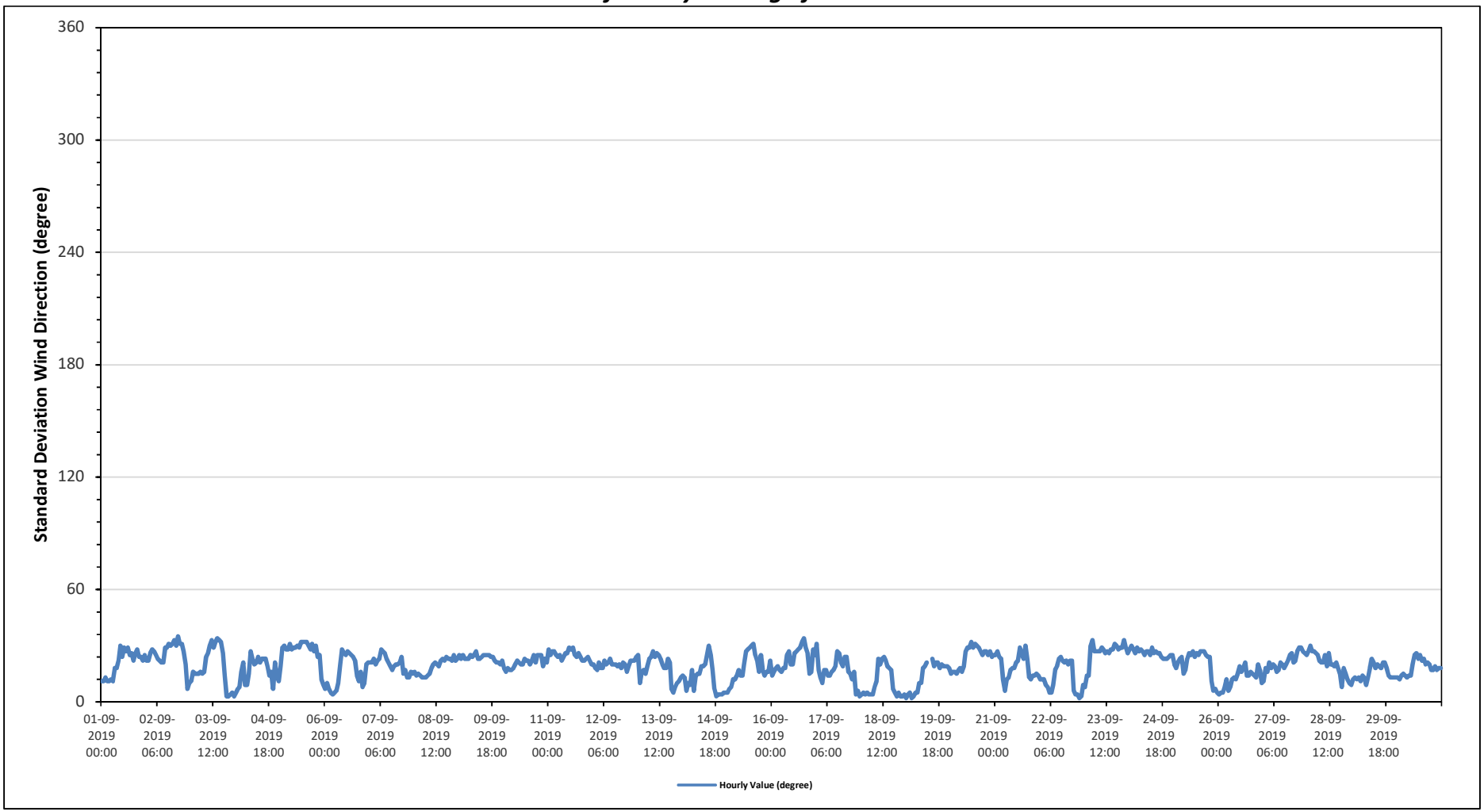
Maximum Hourly Value:	35	degree	on September 2 at hour 17	Hours in Service:	720
				Hours of Data:	718
Minimum Hourly Value:	2	degree	on September 19 at hour 0	Hours of Missing Data:	0
				Hours of Calibration:	2
				Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum
Sep 1	11	11	13	11	11	12	11	18	18	22	30	24	29	27	29	25	26	22	26	28	24	24	22	25	11	30
Sep 2	22	22	26	28	27	25	23	22	21	21	29	29	31	30	31	33	30	**35**	31	31	27	20	7	10	7	**35**
Sep 3	11	16	15	15	15	16	15	16	24	26	30	33	29	32	34	33	32	26	14	3	3	4	5	3	3	34
Sep 4	5	7	8	16	21	9	9	15	27	23	20	21	24	21	23	23	23	19	14	16	7	21	14	11	5	27
Sep 5	19	29	30	28	28	31	28	29	29	30	29	32	32	32	32	30	28	31	27	30	24	25	12	9	9	32
Sep 6	7	10	7	5	4	5	6	10	20	28	26	25	27	26	25	24	22	14	11	16	8	10	20	21	4	28
Sep 7	21	21	23	20	22	23	28	27	26	23	21	19	17	19	20	20	21	24	15	17	13	13	16	15	13	28
Sep 8	16	14	15	14	13	13	13	14	15	18	20	21	20	19	22	23	22	24	23	23	22	25	22	23	13	25
Sep 9	25	23	25	23	23	23	25	24	25	27	23	23	24	25	25	25	25	24	24	22	21	21	20	22	20	27
Sep 10	18	16	18	17	17	18	20	22	21	20	20	23	22	22	20	22	25	21	25	25	25	19	23	21	16	25
Sep 11	28	25	27	27	25	24	25	22	24	26	26	29	28	29	25	24	26	24	22	22	23	24	22	20	20	29
Sep 12	20	18	17	21	18	18	22	20	21	23	20	20	20	19	20	18	21	20	16	19	22	22	22	24	16	24
Sep 13	25	10	16	17	15	19	23	24	27	24	26	25	23	20	18	18	23	21	7	5	8	10	11	13	5	27
Sep 14	14	13	6	10	9	17	6	14	15	15	19	19	20	25	30	25	17	7	3	4	4	4	5	5	3	30
Sep 15	5	7	8	12	12	14	17	14	14	20	27	28	29	30	31	25	22	16	25	17	14	16	16	22	5	31
Sep 16	14	16	18	19	17	16	18	18	25	27	20	20	26	27	28	29	32	34	29	26	15	16	28	25	14	34
Sep 17	31	17	13	10	17	17	14	14	16	17	19	27	26	21	19	24	24	16	15	12	16	4	6	3	3	31
Sep 18	4	5	4	5	4	4	4	8	11	23	20	23	24	22	19	18	17	7	5	3	5	3	3	4	3	24
Sep 19	**2**	4	5	**2**	3	5	5	10	10	18	19	21	**C**	**C**	23	19	21	21	18	20	19	19	19	18	**2**	23
Sep 20	15	16	16	15	17	18	16	19	27	29	29	32	29	31	30	29	27	25	27	27	25	27	24	25	15	32
Sep 21	25	27	24	23	12	6	12	13	17	18	18	21	22	29	26	23	30	23	13	12	14	14	15	14	6	30
Sep 22	12	12	12	9	8	5	5	9	17	19	23	24	22	21	22	20	22	22	6	4	4	**2**	3	9	**2**	24
Sep 23	8	14	14	30	33	27	27	27	27	29	28	26	27	26	28	28	31	30	28	29	29	33	29	26	8	33
Sep 24	28	30	28	26	29	27	28	27	25	27	27	25	29	26	27	26	26	24	23	23	23	24	25	25	23	30
Sep 25	20	18	21	23	24	15	17	23	26	25	27	24	26	25	27	27	27	25	24	24	11	6	7	5	5	27
Sep 26	4	5	5	8	12	6	8	12	13	12	15	19	16	18	21	14	14	16	15	14	13	20	17	10	4	21
Sep 27	11	18	16	21	18	20	19	16	17	21	20	18	20	22	25	26	21	22	27	29	29	27	26	25	11	29
Sep 28	27	30	27	27	26	25	22	21	21	25	19	26	20	20	19	21	18	15	8	18	15	12	10	9	8	30
Sep 29	12	13	12	13	11	14	13	9	13	18	23	21	18	20	19	18	21	21	18	14	13	13	13	13	9	23
Sep 30	13	12	14	15	14	13	14	14	20	25	26	23	25	22	23	20	21	20	17	17	19	17	18	18	12	26
Diurnal Minimum	2	4	4	2	3	4	4	8	10	12	15	18	16	18	18	14	14	7	3	3	3	2	3	3		
Daiurnal Maximum	31	30	30	30	33	31	28	29	29	30	30	33	32	32	34	33	32	35	31	31	29	33	29	26		

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for STDWD - Maskwa Site



ST. LINA STATION

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Averages

SULPHUR DIOXIDE (SO_2) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb

Number of 1-Hour Exceedences: 0 Number of 24-Hour Exceedences: 0 30-Day Exceedence: 0

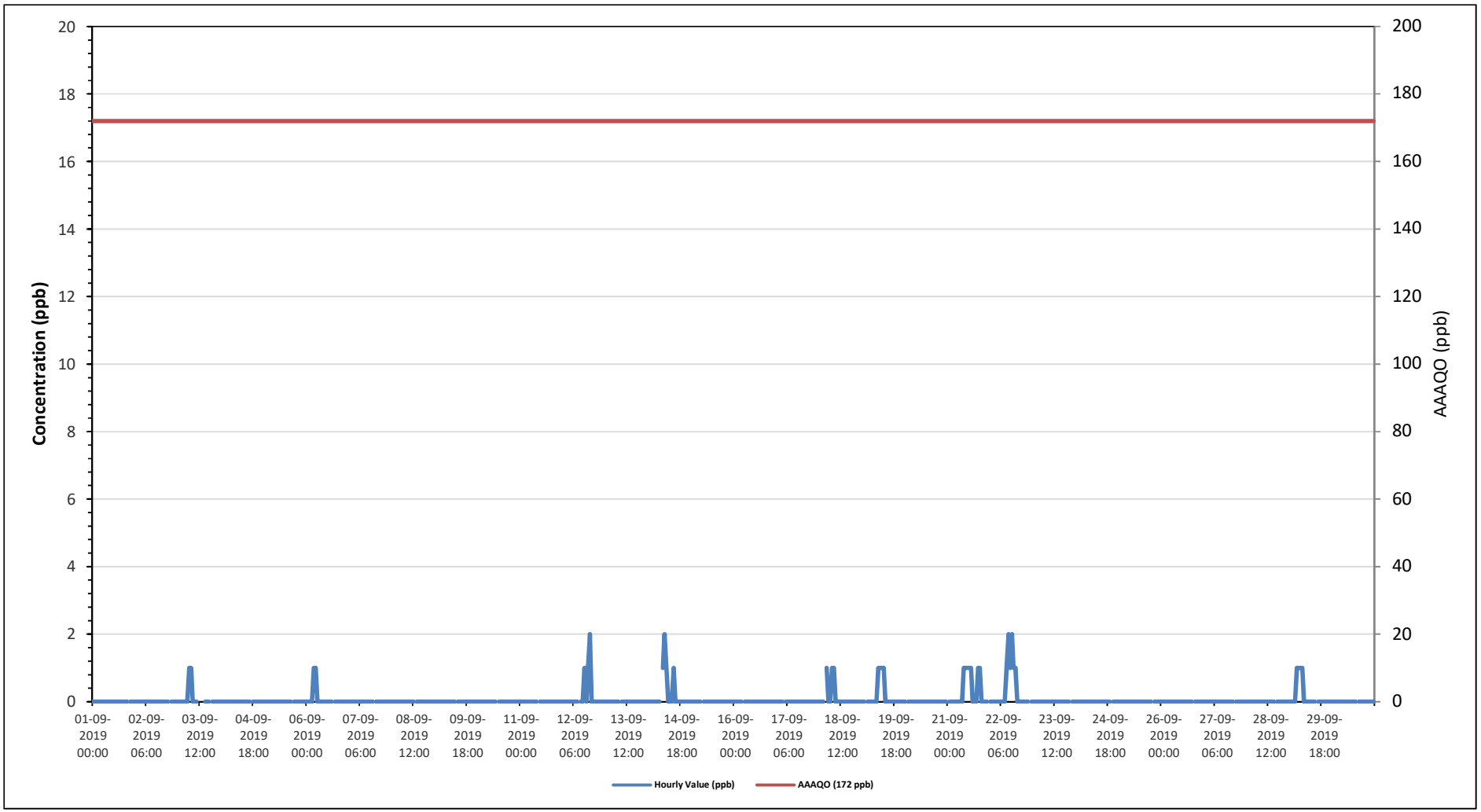
Maximum Hourly Value:	2	ppb	on September 12 at hour 15	Hours in Service:	720
Maximum Daily Value:	0.3	ppb	on September 22	Hours of Data:	685
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 1	Hours of Calibration:	35
Monthly Average:	0.1	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0
Sep 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	0.0
Sep 3	0	0	0	0	0	0	1	1	0	0	0	C	C	C	C	0	0	0	S	0	0	0	0	0	0	1	0.1
Sep 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	0.0
Sep 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	0.0
Sep 6	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0.1
Sep 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	0.0
Sep 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	0.0
Sep 9	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 10	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 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	0.0
Sep 12	0	0	0	0	0	0	0	0	0	S	0	0	1	0	1	2	0	0	0	0	0	0	0	0	0	2	0.2
Sep 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	0.0
Sep 14	0	0	0	0	0	0	0	S	1	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0.2
Sep 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	0.0
Sep 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	0.0
Sep 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	0.0
Sep 18	0	0	0	S	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 19	0	0	S	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2
Sep 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	0.0
Sep 21	S	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	1	1	0	0	0	0	S	0	1	0.3
Sep 22	0	0	0	0	0	0	0	0	0	1	2	1	2	1	1	0	0	0	0	0	0	0	S	0	0	2	**0.3**
Sep 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	0.0
Sep 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	0.0
Sep 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	0.0
Sep 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	0.0
Sep 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	0.0
Sep 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	0.0
Sep 29	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0.2
Sep 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	0.0
Diurnal Maximum	0	0	0	0	1	1	1	1	1	2	2	1	2	1	1	2	0	1	1	0	0	0	0	0			
Daiurnal Average	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

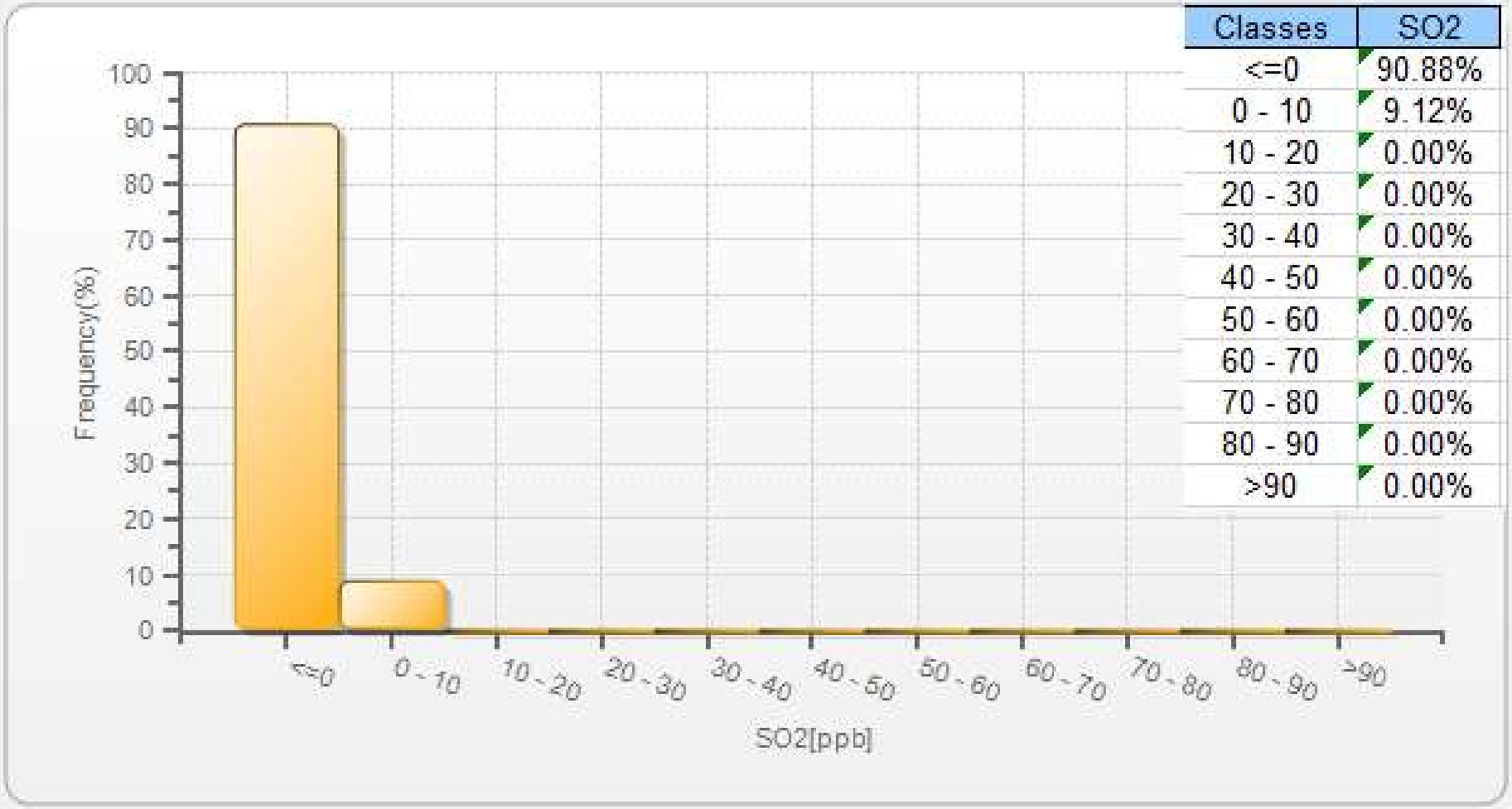
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



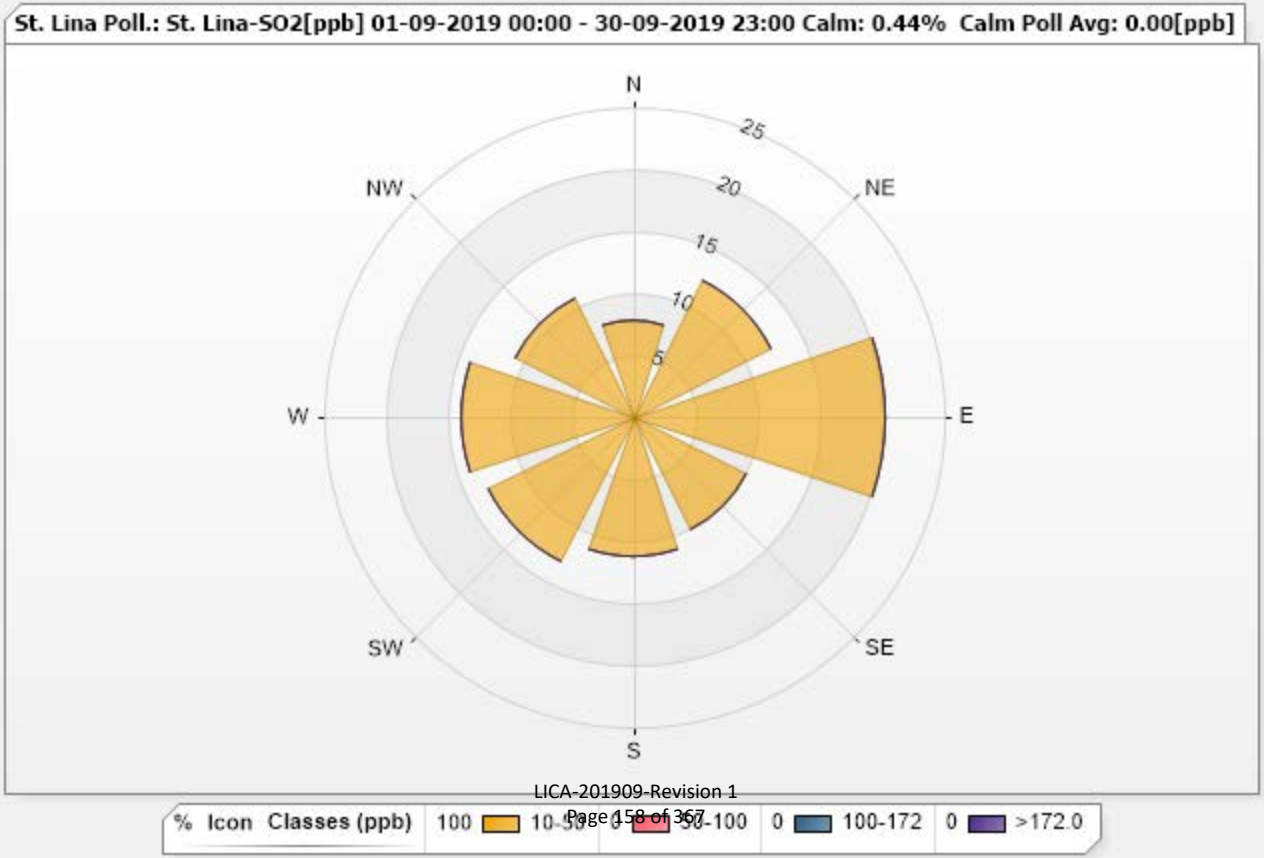
SO2[ppb] Histogram: St. Lina Monthly: 09-2019 1 Hr.



Classes	SO2
<=0	90.88%
0 - 10	9.12%
10 - 20	0.00%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: St. Lina Poll.: St. Lina-SO2[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 0.44% Valid Data: 94.44% Calm Avg: 0.00 [ppb]

Direction	10-50	50-100	100-172	>172.0	Total
N	7.79	0	0	0	7.79
NE	12.35	0	0	0	12.35
E	20.29	0	0	0	20.29
SE	10	0	0	0	10
S	11.32	0	0	0	11.32
SW	13.09	0	0	0	13.09
W	13.97	0	0	0	13.97
NW	10.74	0	0	0	10.74
Summary	100	0	0	0	100


St. Lina Poll.: St. Lina-SO2[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 0.44% Calm Poll Avg: 0.00[ppb]
N
NE
E
SE
S
SW
W
NW
25
20
15
10
5
% Icon Classes (ppb)
100
10-50
50-100
0
100-172
0
>172.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Averages

HYDROGEN SULPHIDE (H_2S) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 10 ppb, 24-Hour 3 ppb

Number of 1-Hour Exceedences: 0 Number of 24-Hour Exceedences: 0

Maximum Hourly Value:	2	ppb	on September 14 at hour 6	Hours in Service:	720
Maximum Daily Value:	0.9	ppb	on September 14	Hours of Data:	655
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	23
Minimum Daily Value:	0.0	ppb	on September 1	Hours of Calibration:	42
Monthly Average:	0.1	ppb		Operational Uptime:	96.8

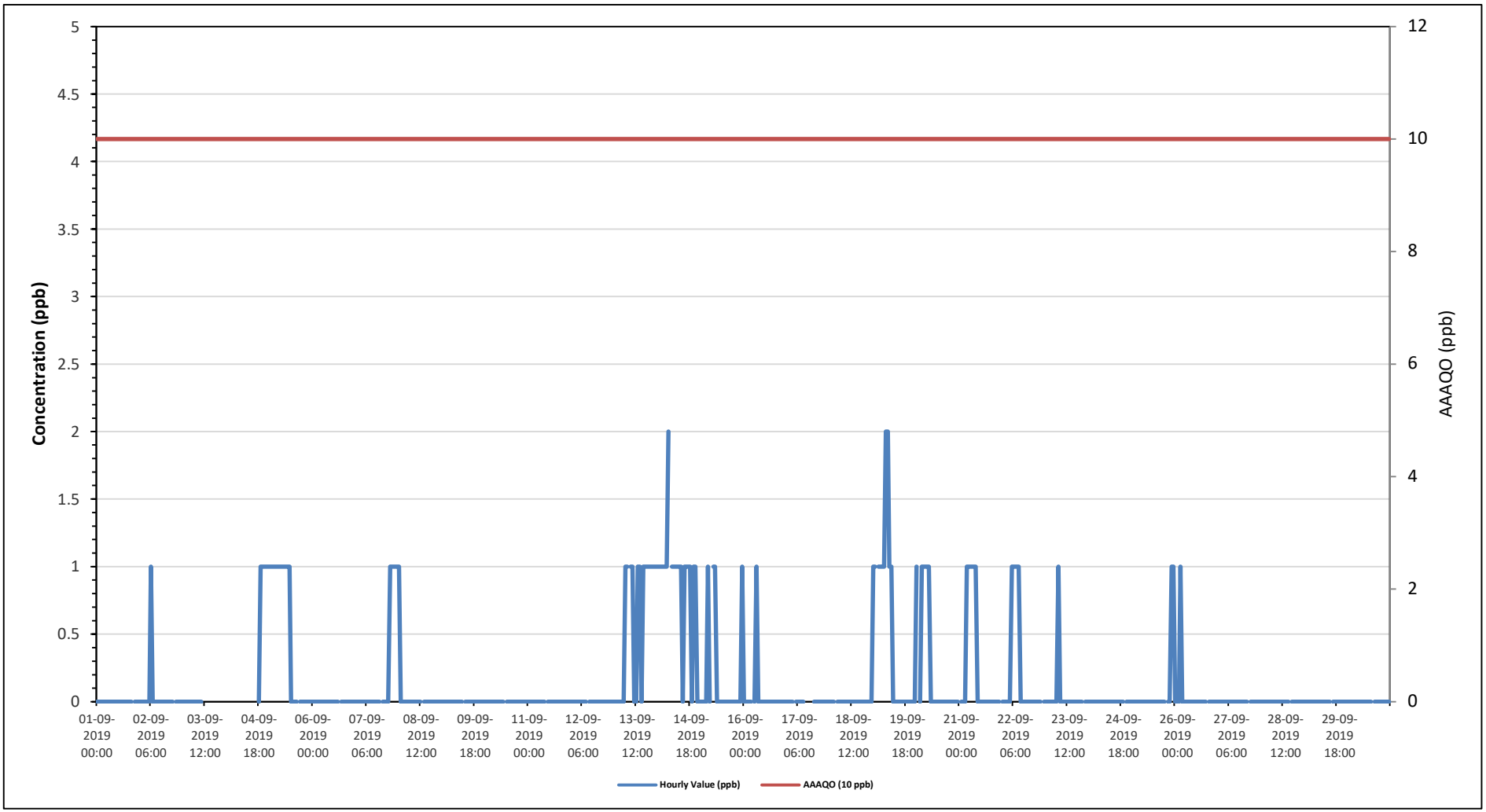
Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0
Sep 2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0.0
Sep 3	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	Y	Y	Y	Y	Y	Y	Y	0	0	-
Sep 4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	C	C	S	0	1	1	1	1	1	0	1	-
Sep 5	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0.5
Sep 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	0.0
Sep 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	1	1	1	1	0	1	0.2
Sep 8	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	1	0.0
Sep 9	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 10	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 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	0.0
Sep 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	0.0
Sep 13	0	0	0	0	0	0	1	1	S	1	1	0	0	1	1	0	1	1	1	1	1	1	1	1	0	1	0.6
Sep 14	1	1	1	1	1	1	2	S	1	1	1	1	1	1	0	1	1	1	1	0	1	1	0	0	0	2	0.9
Sep 15	0	0	0	0	1	0	S	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.2
Sep 16	0	0	0	0	0	S	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Sep 17	0	0	0	0	S	0	0	0	0	0	C1	C1	C1	C1	C1	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 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	0.0
Sep 19	1	1	S	1	1	1	1	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.5
Sep 20	1	S	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3
Sep 21	S	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	0.3
Sep 22	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	1	0.2
Sep 23	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	0.0
Sep 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	0.0
Sep 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	1	1	0	1	0.1
Sep 26	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	0.0
Sep 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	0.0
Sep 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	0.0
Sep 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	0.0
Sep 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	0.0
Diurnal Maximum	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Daiurnal Average	0.2	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

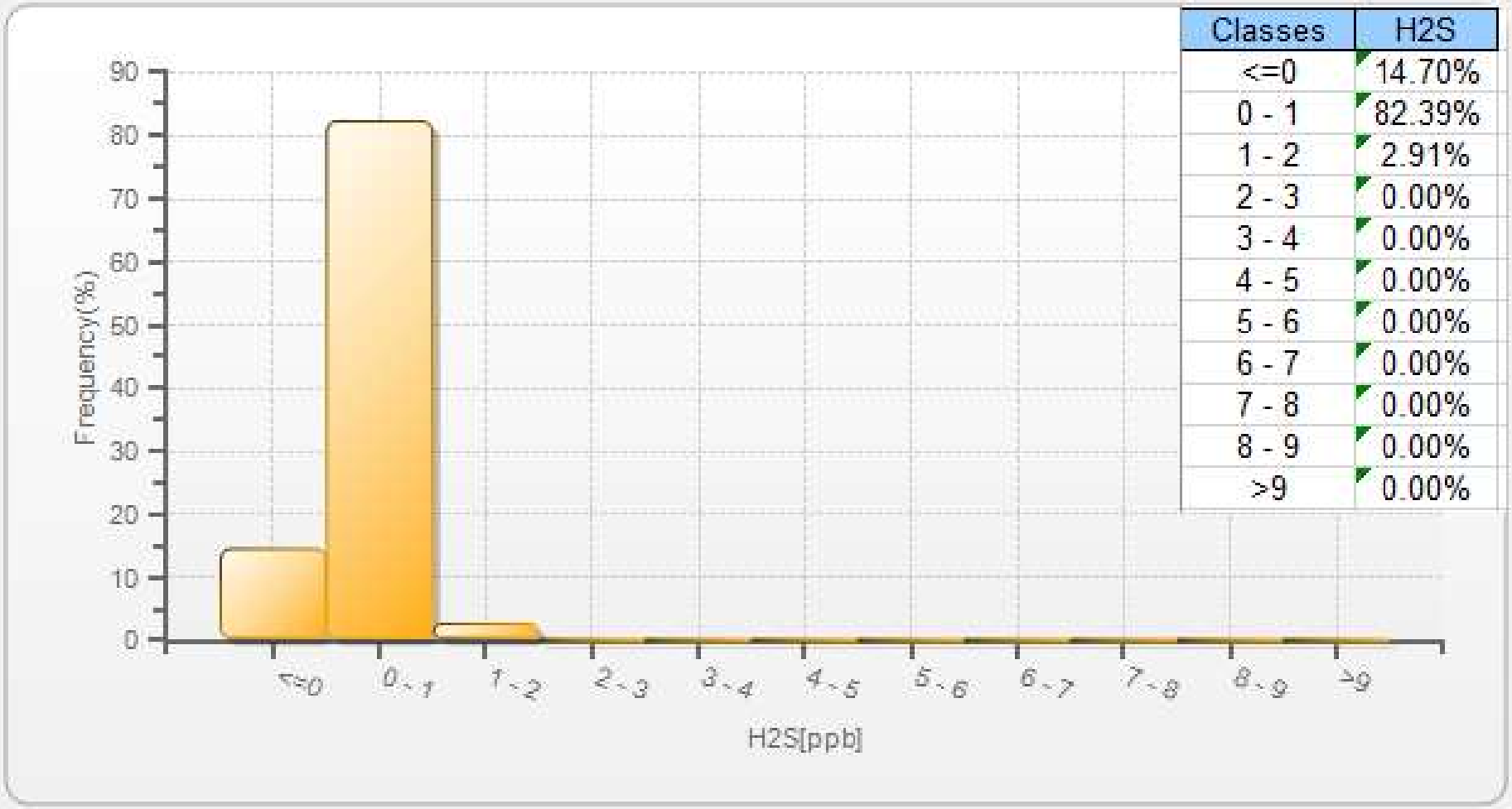
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

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



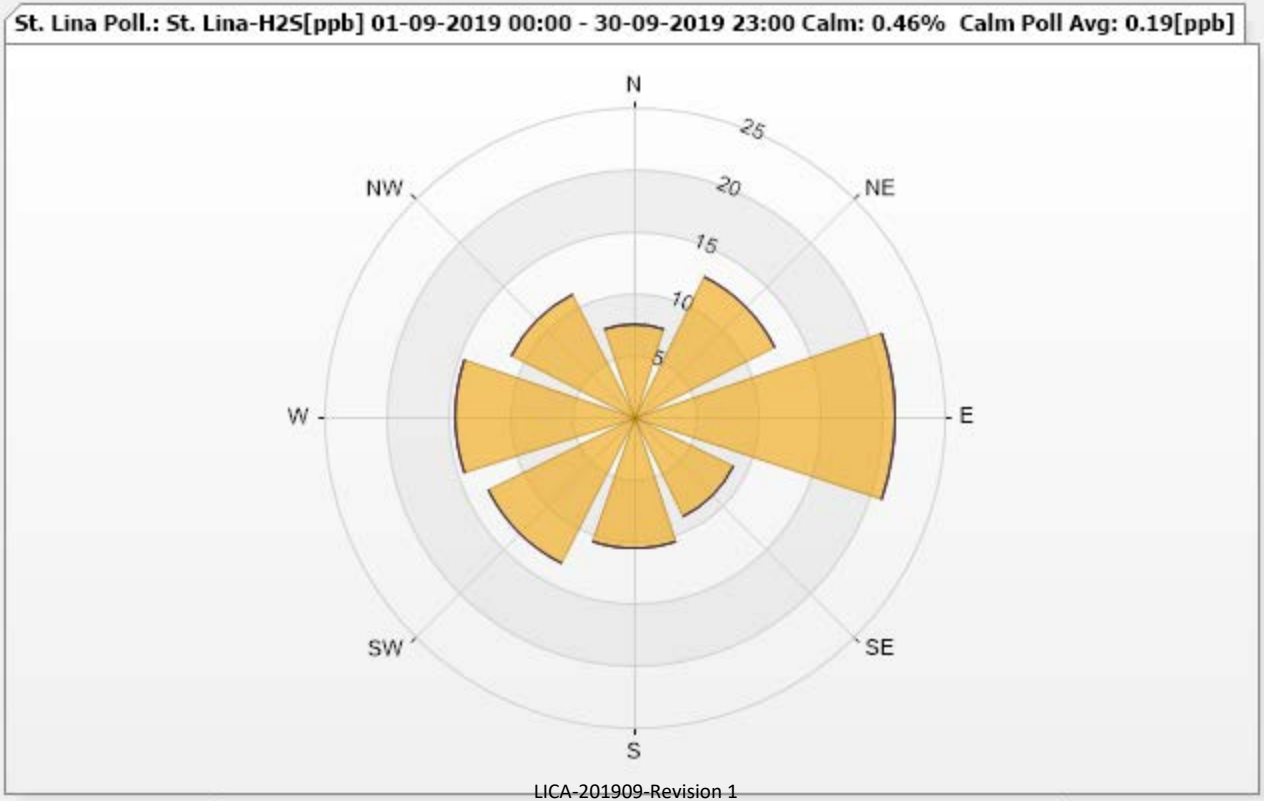
H2S[ppb] Histogram: St. Lina Monthly: 09-2019 1 Hr.



Classes	H2S
<=0	14.70%
0 - 1	82.39%
1 - 2	2.91%
2 - 3	0.00%
3 - 4	0.00%
4 - 5	0.00%
5 - 6	0.00%
6 - 7	0.00%
7 - 8	0.00%
8 - 9	0.00%
>9	0.00%

Wind: St. Lina Poll.: St. Lina-H2S[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 0.46% Valid Data: 90.69% Calm Avg: 0.19 [ppb]

Direction	2-5	5-10	10-50	>50.0	Total
N	7.5	0	0	0	7.5
NE	12.71	0	0	0	12.71
E	21.13	0	0	0	21.13
SE	9.04	0	0	0	9.04
S	10.57	0	0	0	10.57
SW	13.17	0	0	0	13.17
W	14.4	0	0	0	14.4
NW	11.03	0	0	0	11.03
Summary	100	0	0	0	100


St. Lina Poll.: St. Lina-H2S[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 0.46% Calm Poll Avg: 0.19[ppb]
N
NE
E
SE
S
SW
W
NW
25
20
15
10
5
% Icon Classes (ppb)
100
0
0
0
0-10
0
10-50
0
>50.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Averages

OXIDES OF NITROGEN (NOx) in ppb

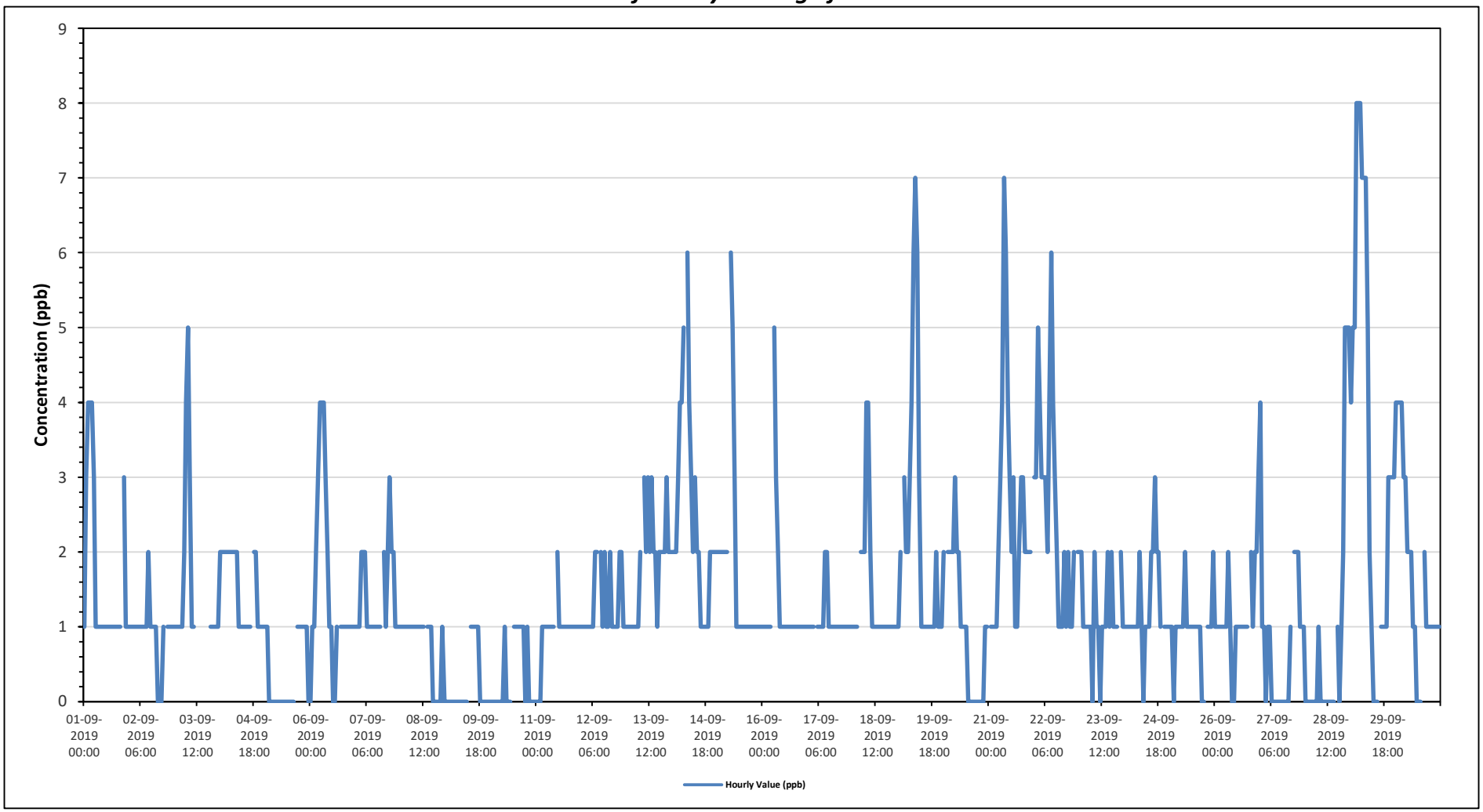
Maximum Hourly Value:	8	ppb	on September 29 at hour 3	Hours in Service:	720
Maximum Daily Value:	3.6	ppb	on September 29	Hours of Data:	683
Minimum Hourly Value:	0	ppb	on September 2 at hour 15	Hours of Missing Data:	0
Minimum Daily Value:	0.2	ppb	on September 9	Hours of Calibration:	37
Monthly Average:	1.4	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	1	3	4	4	4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	3	1	1	1	4	1.7
Sep 2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	0	0	0	1	S	1	1	1	1	0	2	0.9
Sep 3	1	1	1	1	1	2	4	5	3	1	1	C	C	C	C	C	C	2	S	1	1	1	1	1	1	5	-
Sep 4	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	S	2	2	1	1	1	1	1	2	1.5
Sep 5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	1	1	1	1	0	0	1	0.3
Sep 6	0	1	1	2	3	4	4	4	3	2	1	1	0	0	1	S	1	1	1	1	1	1	1	1	0	4	1.5
Sep 7	1	1	1	2	2	2	1	1	1	1	1	1	1	1	S	2	1	2	3	2	2	1	1	1	1	3	1.4
Sep 8	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	0	0	0	0	0	1	0	0	1	0.7
Sep 9	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	1	1	1	0	0	0	0	0	0	0	1	0.2
Sep 10	0	0	0	0	0	0	0	1	0	0	0	S	1	1	1	1	1	1	0	1	0	0	0	0	0	1	0.3
Sep 11	0	0	0	1	1	1	1	1	1	1	S	2	1	1	1	1	1	1	1	1	1	1	1	1	0	2	0.9
Sep 12	1	1	1	1	1	1	1	2	2	S	2	1	2	1	1	2	1	1	1	1	2	2	1	1	1	2	1.3
Sep 13	1	1	1	1	1	1	1	2	S	3	2	3	2	3	2	2	1	2	2	2	2	3	2	2	1	3	1.8
Sep 14	2	2	2	3	4	4	5	S	6	4	3	2	3	2	2	1	1	1	1	1	2	2	2	2	1	6	2.5
Sep 15	2	2	2	2	2	2	S	6	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	1.7
Sep 16	1	1	1	1	1	S	5	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	1.3
Sep 17	1	1	1	1	S	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1
Sep 18	1	1	1	S	2	2	2	4	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1.4
Sep 19	1	2	S	3	2	2	3	4	6	7	6	3	1	1	1	1	1	1	1	1	2	1	1	1	1	7	2.3
Sep 20	2	S	2	2	2	2	3	2	2	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	0	3	1.0
Sep 21	S	1	1	1	1	2	3	4	7	6	4	3	2	3	1	1	2	3	3	2	2	2	2	S	1	7	2.5
Sep 22	3	3	5	4	3	3	3	2	4	6	4	3	2	1	1	1	2	1	2	1	1	2	S	2	1	6	2.6
Sep 23	2	2	1	1	1	1	1	0	2	1	1	0	1	1	1	2	1	2	1	1	1	S	2	1	0	2	1.2
Sep 24	1	1	1	1	1	1	1	1	2	1	0	1	1	1	2	2	3	2	2	1	S	1	1	1	0	3	1.3
Sep 25	1	1	0	1	1	1	1	1	2	1	1	1	1	1	1	1	1	0	0	S	1	1	1	2	0	2	1.0
Sep 26	1	1	1	1	1	1	1	2	1	0	0	1	1	1	1	1	1	1	S	2	1	2	2	3	0	3	1.2
Sep 27	4	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1	S	2	2	2	1	1	1	0	4	0.8
Sep 28	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	S	1	0	1	2	5	5	5	0	5	0.9
Sep 29	4	5	5	**8**	**8**	**8**	7	7	7	5	2	1	0	0	0	S	1	1	1	1	3	3	3	3	0	**8**	**3.6**
Sep 30	4	4	4	4	3	3	2	2	2	1	1	0	0	0	S	2	1	1	1	1	1	1	1	1	0	4	1.7
Diurnal Maximum	4	5	5	8	8	8	7	7	7	7	6	3	3	3	2	2	3	3	3	2	3	5	5	5			
Daiurnal Average	1.4	1.4	1.4	1.7	1.7	1.8	1.9	2.1	2.3	1.9	1.4	1.1	1.0	0.9	0.9	1.0	1.1	1.1	1.1	1.1	1.2	1.4	1.3	1.3			

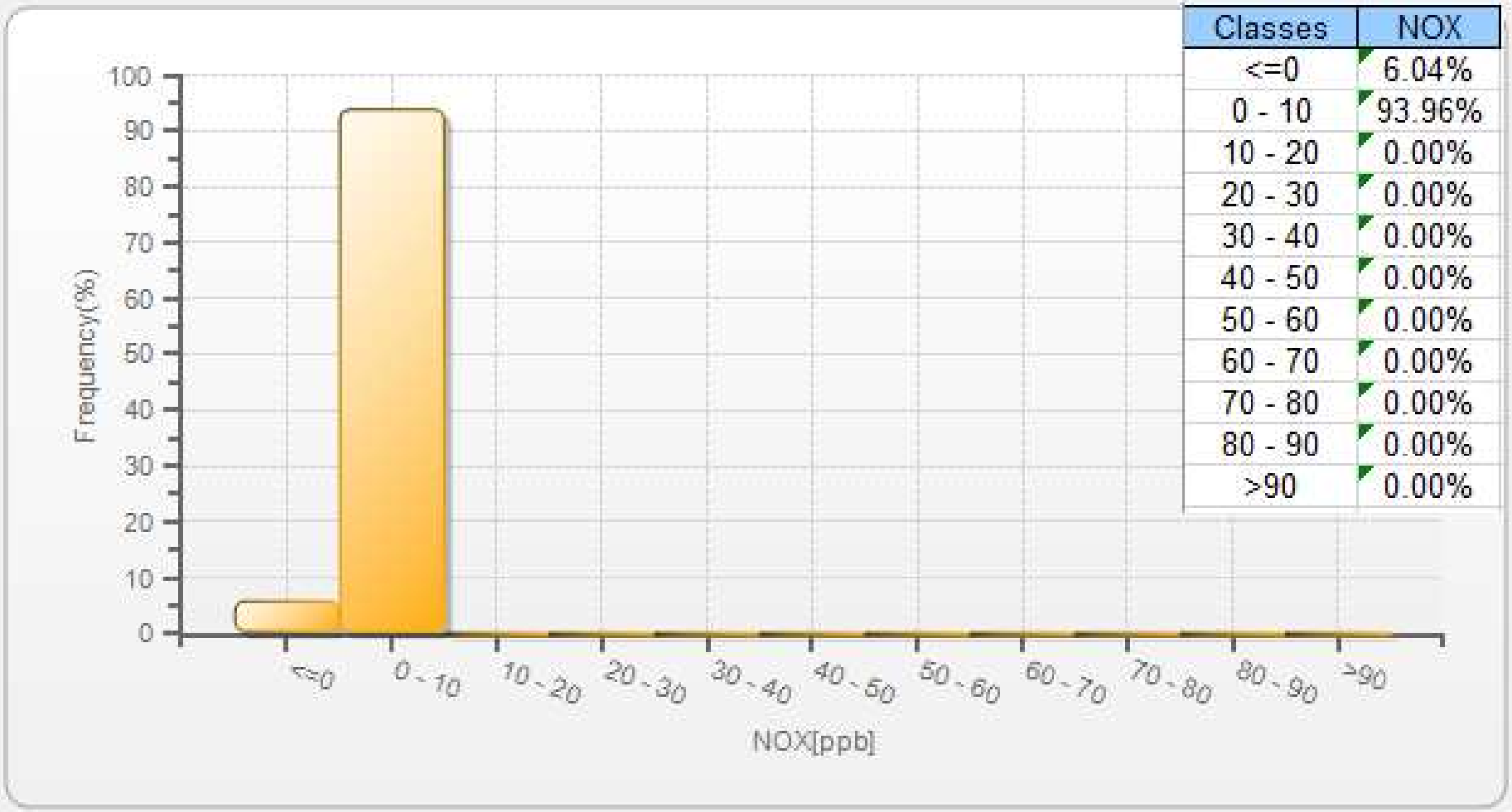
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



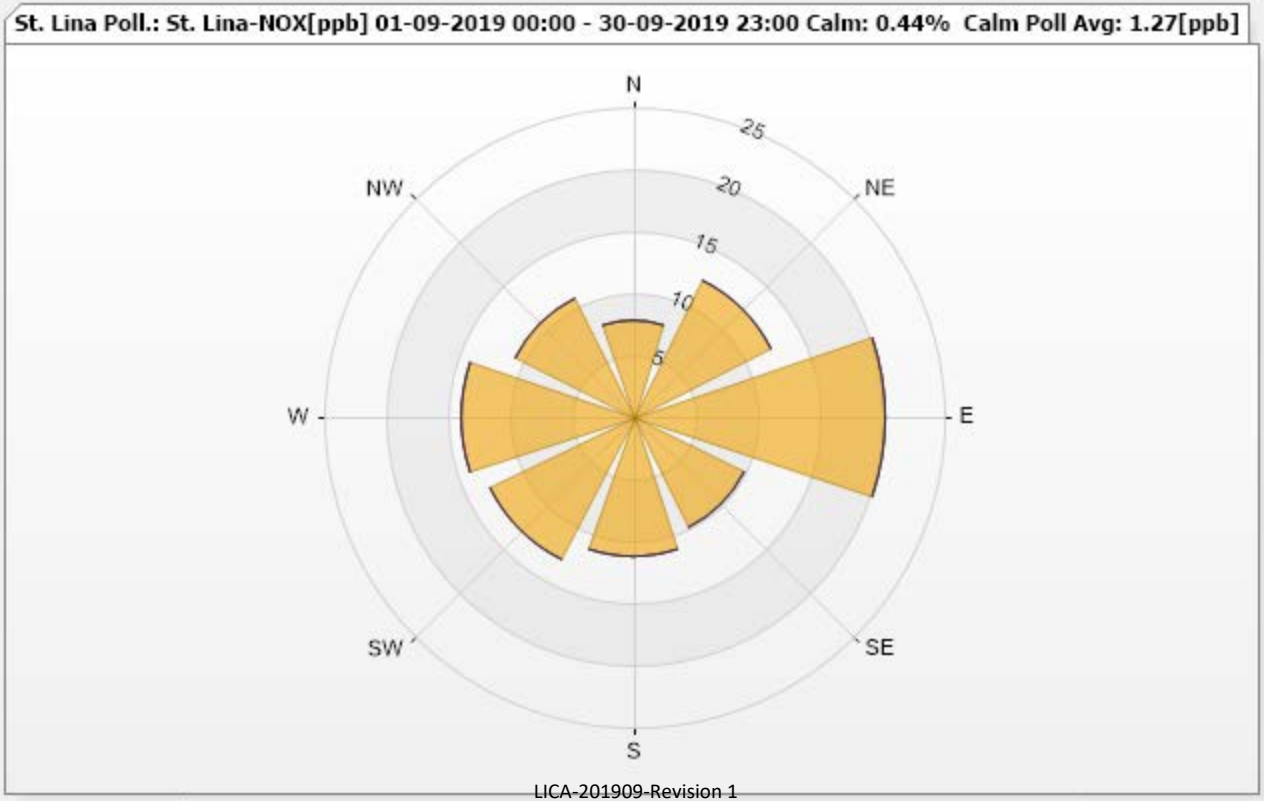
NOX[ppb] Histogram: St. Lina Monthly: 09-2019 1 Hr.



Classes	NOX
<=0	6.04%
0 - 10	93.96%
10 - 20	0.00%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: St. Lina Poll.: St. Lina-NOX[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 0.44% Valid Data: 94.31% Calm Avg: 1.27 [ppb]

Direction	30-50	50-82	82-159	>159.0	Total
N	7.81	0	0	0	7.81
NE	12.37	0	0	0	12.37
E	20.32	0	0	0	20.32
SE	10.01	0	0	0	10.01
S	11.34	0	0	0	11.34
SW	12.96	0	0	0	12.96
W	13.99	0	0	0	13.99
NW	10.75	0	0	0	10.75
Summary	100	0	0	0	100


St. Lina Poll.: St. Lina-NOX[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 0.44% Calm Poll Avg: 1.27[ppb]
N
NE
E
SE
S
SW
W
NW
25
20
15
10
5
% Icon Classes (ppb)
100
30-59
0
60-82
0
82-159
0
>159.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Averages

NITRIC OXIDE (NO) in ppb

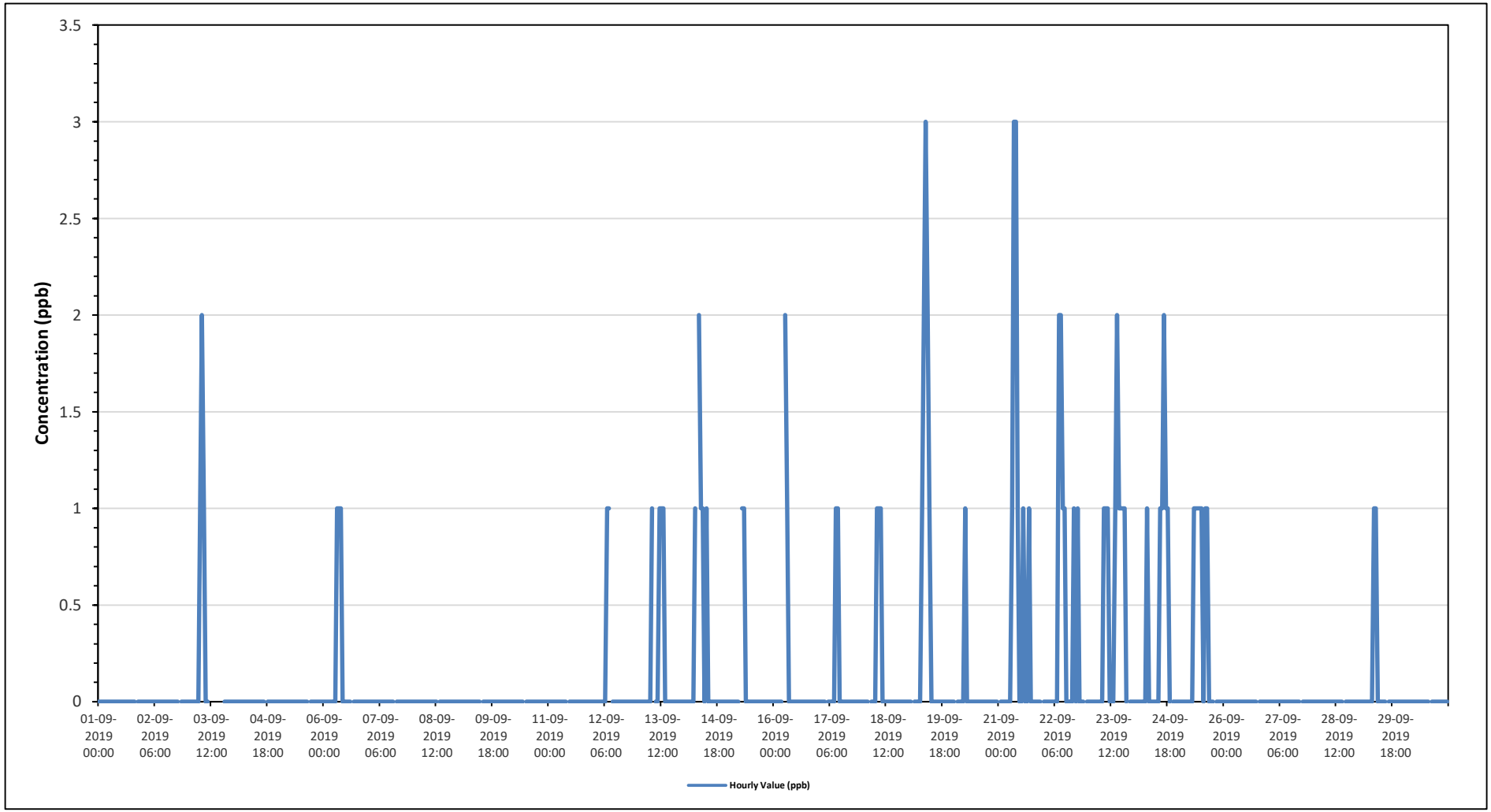
Maximum Hourly Value:	3	ppb	on September 19 at hour 9	Hours in Service:	720
Maximum Daily Value:	0.5	ppb	on September 21	Hours of Data:	683
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 1	Hours of Calibration:	37
Monthly Average:	0.1	ppb		Operational Uptime:	100.0

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

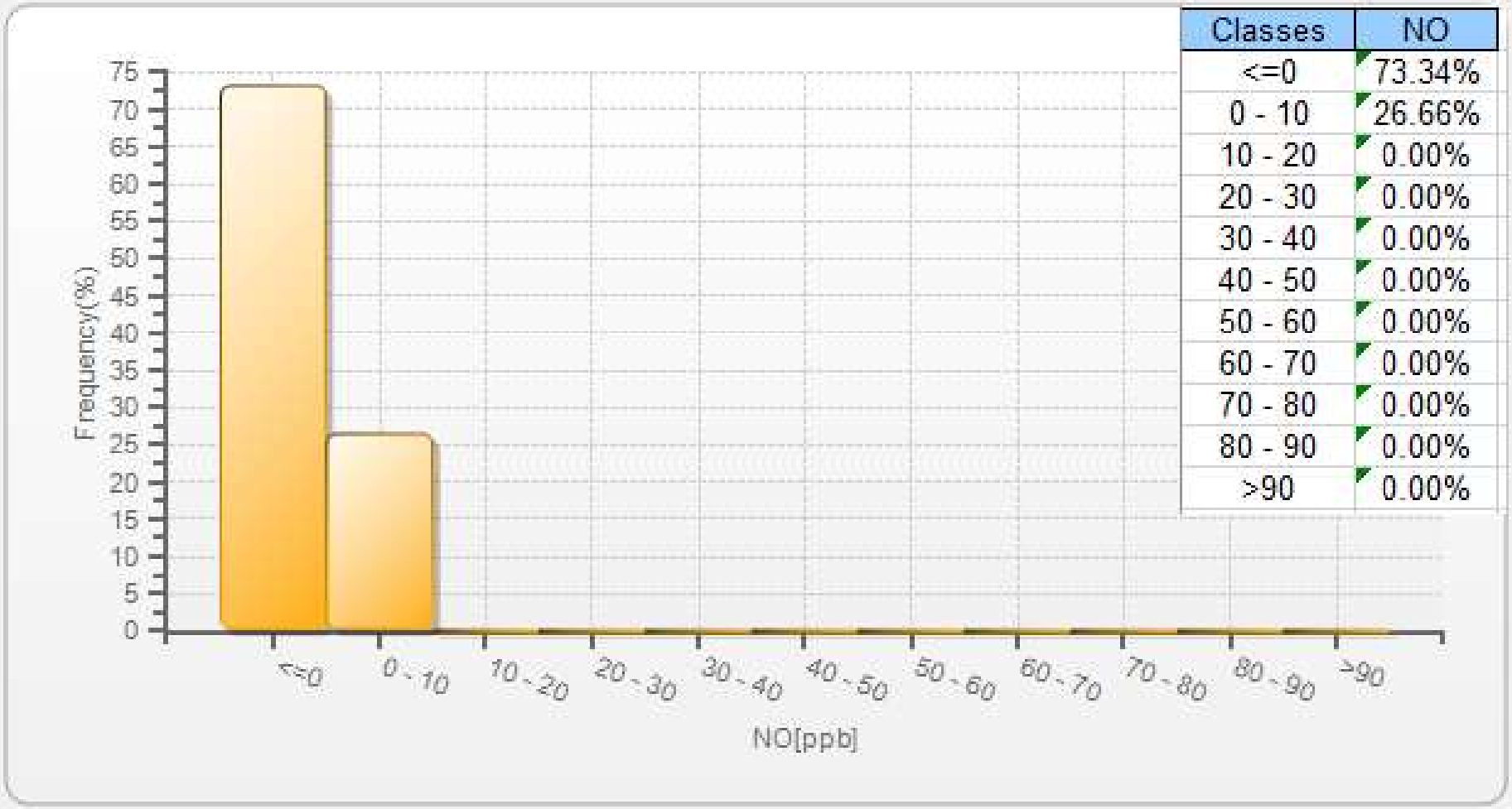
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



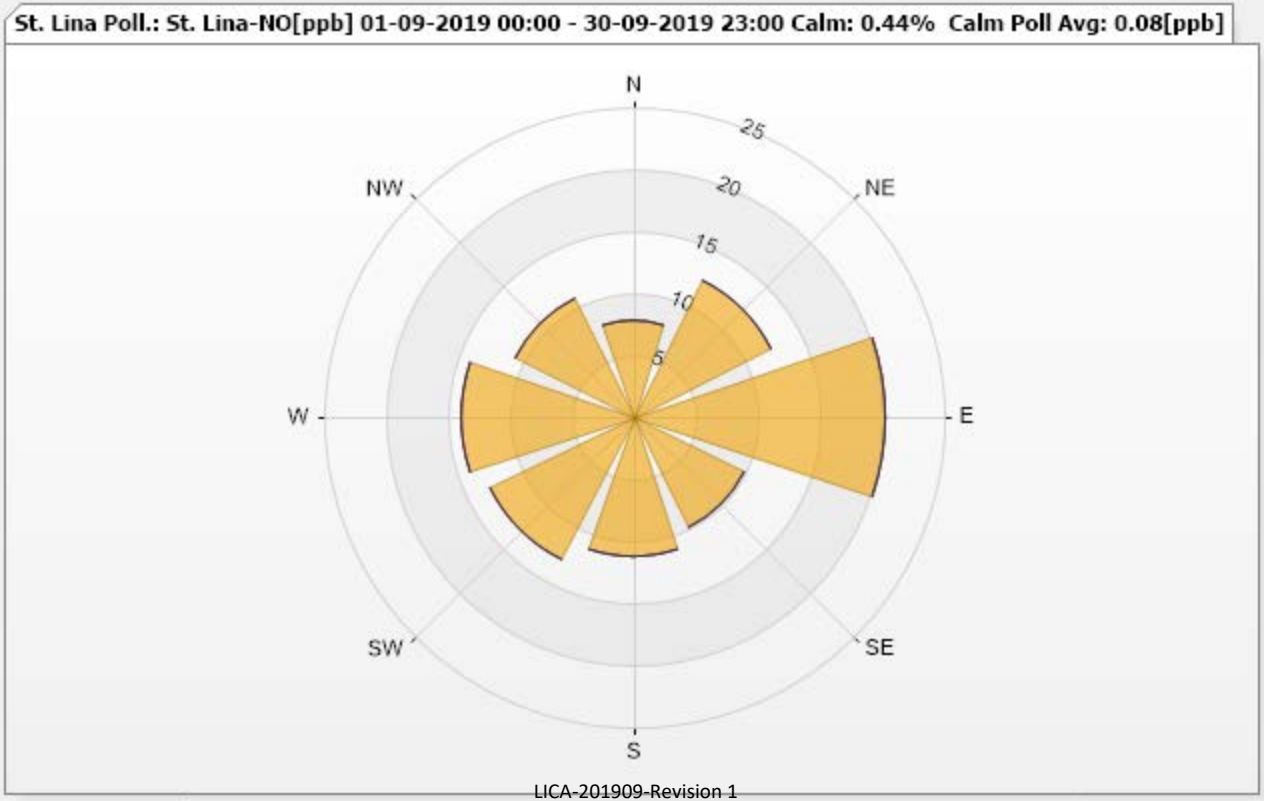
NO[ppb] Histogram: St. Lina Monthly: 09-2019 1 Hr.



Classes	NO
<=0	73.34%
0 - 10	26.66%
10 - 20	0.00%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: St. Lina Poll.: St. Lina-NO[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 0.44% Valid Data: 94.31% Calm Avg: 0.08 [ppb]

Direction	30-50	50-82	82-159	>159.0	Total
N	7.81	0	0	0	7.81
NE	12.37	0	0	0	12.37
E	20.32	0	0	0	20.32
SE	10.01	0	0	0	10.01
S	11.34	0	0	0	11.34
SW	12.96	0	0	0	12.96
W	13.99	0	0	0	13.99
NW	10.75	0	0	0	10.75
Summary	100	0	0	0	100


St. Lina Poll.: St. Lina-NO[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 0.44% Calm Poll Avg: 0.08[ppb]
N
NE
E
SE
S
SW
W
NW
25
20
15
10
5
% Icon Classes (ppb)
100
30-59
0
59-82
0
82-159
0
>159.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Averages

NITROGEN DIOXIDE (NO_2) in ppb

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

Number of 1-Hour Exceedences: 0

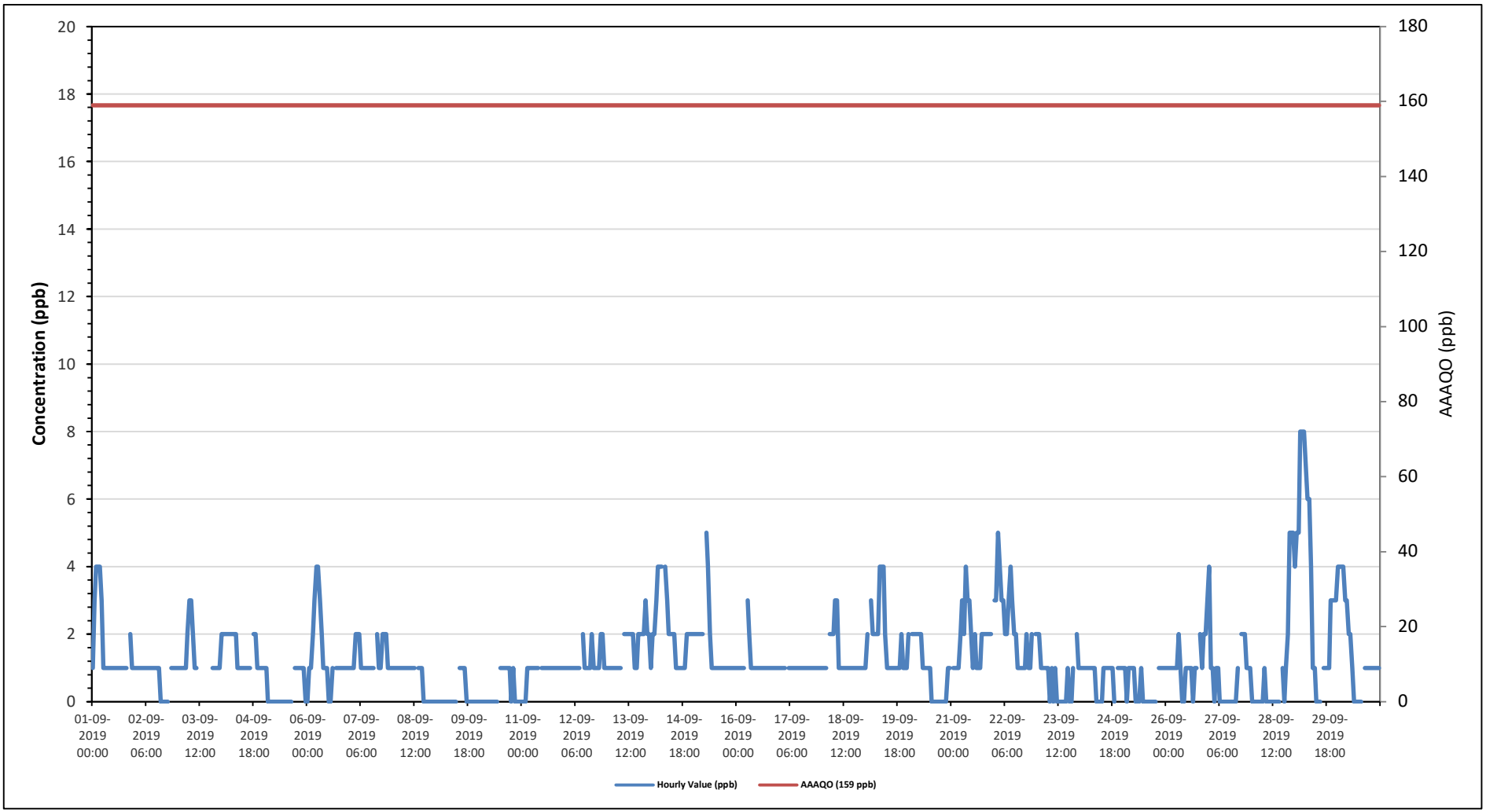
Maximum Hourly Value:	8	ppb	on September 29 at hour 3	Hours in Service:	720
Maximum Daily Value:	3.4	ppb	on September 29	Hours of Data:	683
Minimum Hourly Value:	0	ppb	on September 2 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	0.2	ppb	on September 9	Hours of Calibration:	37
Monthly Average:	1.2	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	1	3	4	4	4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	2	1	1	1	4	1.6
Sep 2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	S	1	1	1	1	0	1	0.8
Sep 3	1	1	1	1	1	2	3	3	2	1	1	C	C	C	C	C	C	2	S	1	1	1	1	1	1	3	-
Sep 4	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	S	2	2	1	1	1	1	1	2	1.5
Sep 5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	1	1	1	1	0	0	1	0.3
Sep 6	0	1	1	2	3	4	4	3	2	1	1	1	0	0	1	S	1	1	1	1	1	1	1	1	0	4	1.4
Sep 7	1	1	1	2	2	2	1	1	1	1	1	1	1	1	S	2	1	1	2	2	2	1	1	1	1	2	1.3
Sep 8	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	0	0	0	0	0	0	0	0	1	0.7
Sep 9	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	1	1	0	0	0	0	0	0	0	0	1	0.2
Sep 10	0	0	0	0	0	0	0	0	0	0	0	S	1	1	1	1	1	1	0	1	0	0	0	0	0	1	0.3
Sep 11	0	0	0	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0.9
Sep 12	1	1	1	1	1	1	1	1	1	S	2	1	1	1	1	2	1	1	1	1	2	2	1	1	1	2	1.2
Sep 13	1	1	1	1	1	1	1	1	S	2	2	2	2	2	2	1	1	2	2	2	2	3	2	2	1	3	1.6
Sep 14	1	2	2	3	4	4	4	S	4	3	2	2	2	2	1	1	1	1	1	1	2	2	2	2	1	4	2.1
Sep 15	2	2	2	2	2	2	S	5	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	1.6
Sep 16	1	1	1	1	1	S	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.1
Sep 17	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	1.0
Sep 18	1	1	1	S	2	2	2	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.3
Sep 19	1	2	S	3	2	2	2	2	4	4	4	2	1	1	1	1	1	1	1	1	2	1	1	1	1	4	1.8
Sep 20	2	S	2	2	2	2	2	2	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	0	2	0.9
Sep 21	S	1	1	1	1	2	3	2	4	3	3	2	1	2	1	1	1	2	2	2	2	2	2	S	1	4	1.9
Sep 22	3	3	5	4	3	3	2	2	3	4	3	2	2	1	1	1	1	1	2	1	1	2	S	2	1	5	2.3
Sep 23	2	2	1	1	1	1	1	0	1	0	1	0	0	0	0	0	0	1	0	0	1	S	2	1	0	2	0.7
Sep 24	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	S	1	1	1	0	1	0.8
Sep 25	1	1	0	1	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	S	1	1	1	1	0	1	0.5
Sep 26	1	1	1	1	1	1	1	2	1	0	0	1	1	1	1	0	1	1	S	2	1	2	2	3	0	3	1.1
Sep 27	4	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1	S	2	2	2	1	1	1	0	4	0.8
Sep 28	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	S	1	0	1	2	5	5	5	0	5	0.9
Sep 29	4	5	5	**8**	**8**	**8**	7	6	6	4	1	1	0	0	0	S	1	1	1	1	3	3	3	3	0	**8**	**3.4**
Sep 30	4	4	4	4	3	3	2	2	1	0	0	0	0	0	S	1	1	1	1	1	1	1	1	1	0	4	1.6
Diurnal Maximum	4	5	5	8	8	8	7	6	6	4	4	2	2	2	2	2	1	2	2	2	3	5	5	5			
Daiurnal Average	1.3	1.4	1.4	1.7	1.7	1.8	1.7	1.6	1.6	1.2	1.1	0.9	0.8	0.8	0.7	0.8	0.9	0.9	0.9	1.0	1.2	1.3	1.3	1.2			

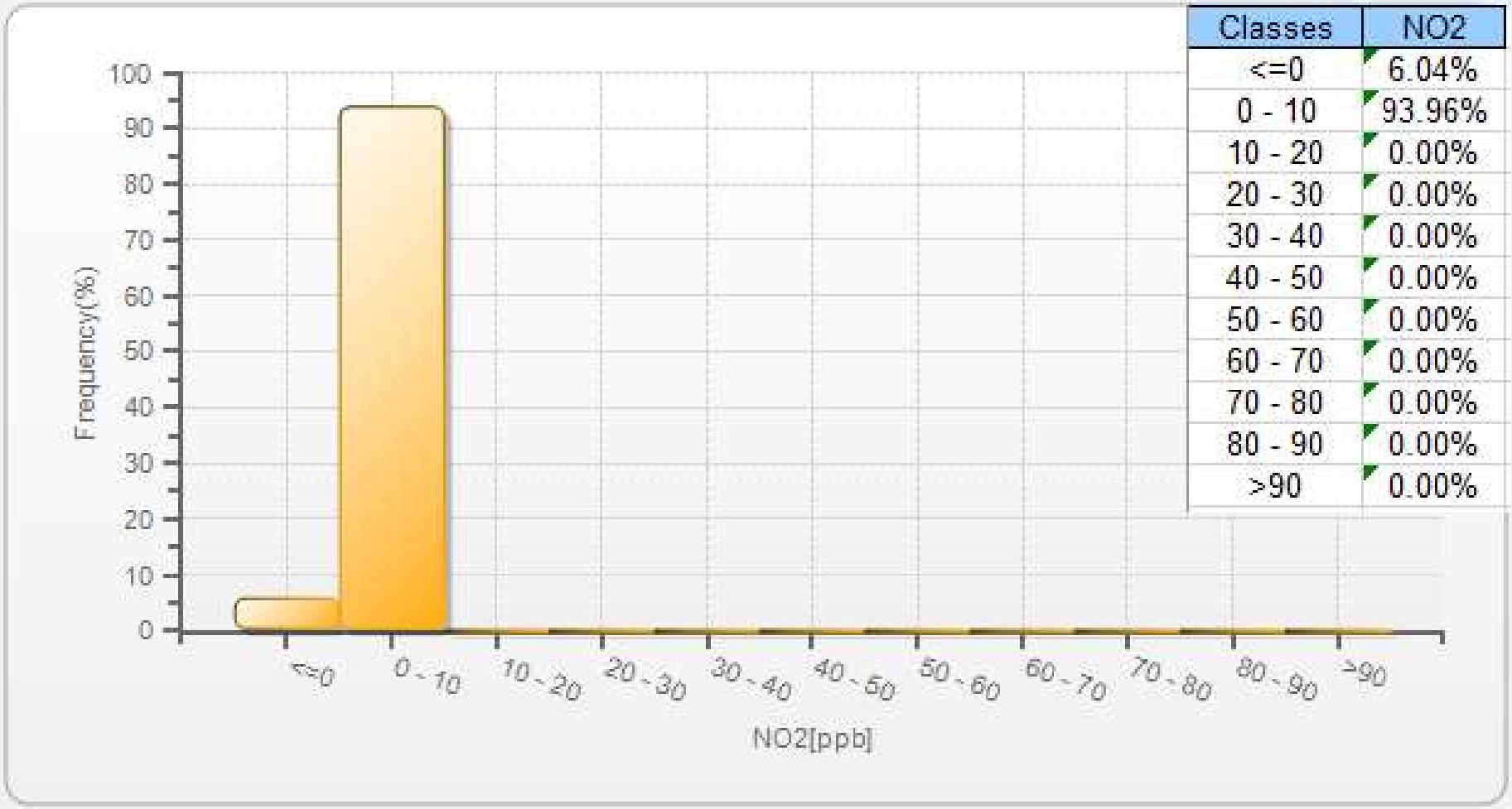
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



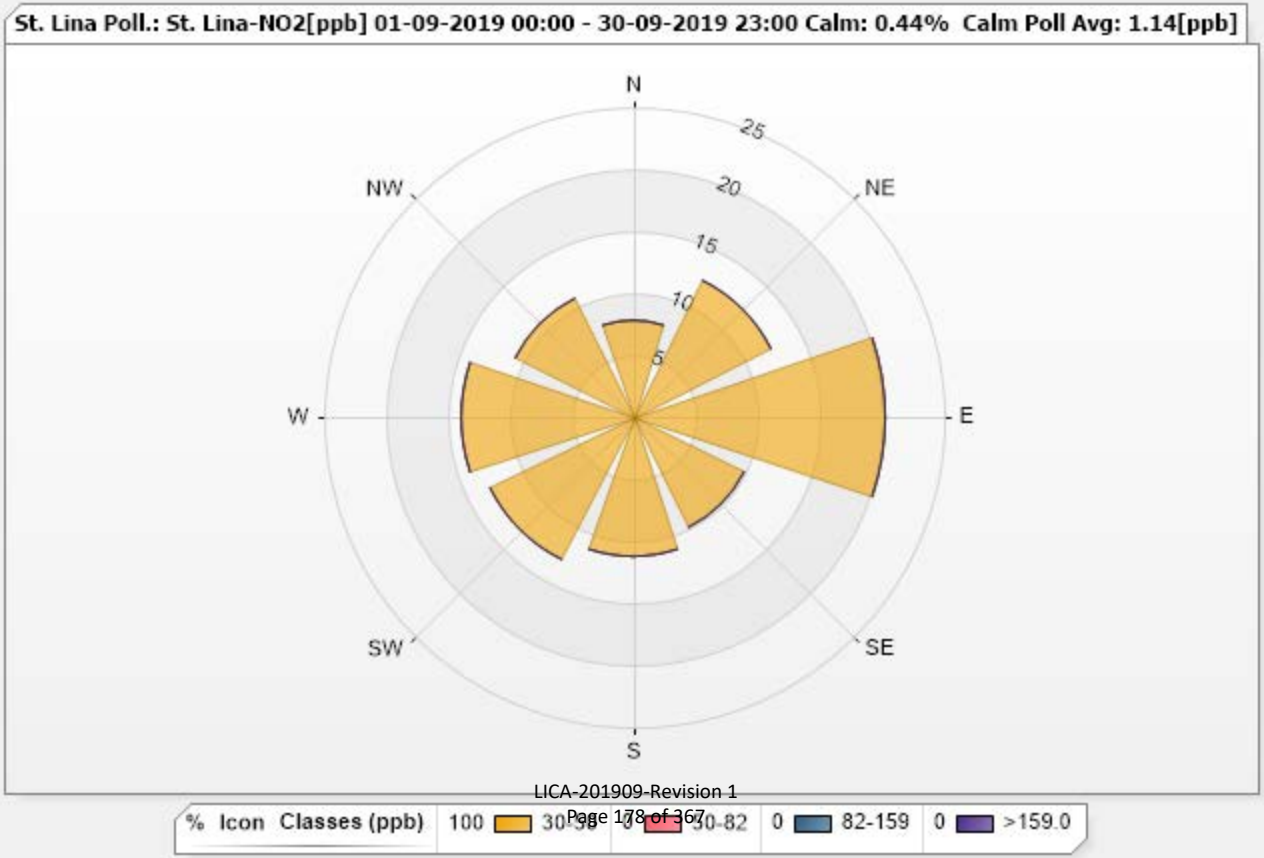
NO2[ppb] Histogram: St. Lina Monthly: 09-2019 1 Hr.



Classes	NO2
<=0	6.04%
0 - 10	93.96%
10 - 20	0.00%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: St. Lina Poll.: St. Lina-NO2[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 0.44% Valid Data: 94.31% Calm Avg: 1.14 [ppb]

Direction	30-50	50-82	82-159	>159.0	Total
N	7.81	0	0	0	7.81
NE	12.37	0	0	0	12.37
E	20.32	0	0	0	20.32
SE	10.01	0	0	0	10.01
S	11.34	0	0	0	11.34
SW	12.96	0	0	0	12.96
W	13.99	0	0	0	13.99
NW	10.75	0	0	0	10.75
Summary	100	0	0	0	100


St. Lina Poll.: St. Lina-NO2[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 0.44% Calm Poll Avg: 1.14[ppb]
N
NE
E
SE
S
SW
W
NW
25
20
15
10
5
% Icon Classes (ppb)
100
30-59
0
60-82
0
82-159
0
>159.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Averages

OZONE (O_3) in ppb

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

Number of 1-Hour Exceedences: 0

Maximum Hourly Value:	38.2	ppb	on September 23 at hour 22	Hours in Service:	720
Maximum Daily Value:	30.4	ppb	on September 23	Hours of Data:	684
Minimum Hourly Value:	5.7	ppb	on September 12 at hour 5	Hours of Missing Data:	0
Minimum Daily Value:	10.5	ppb	on September 11	Hours of Calibration:	36
Monthly Average:	22.6	ppb		Operational Uptime:	100.0

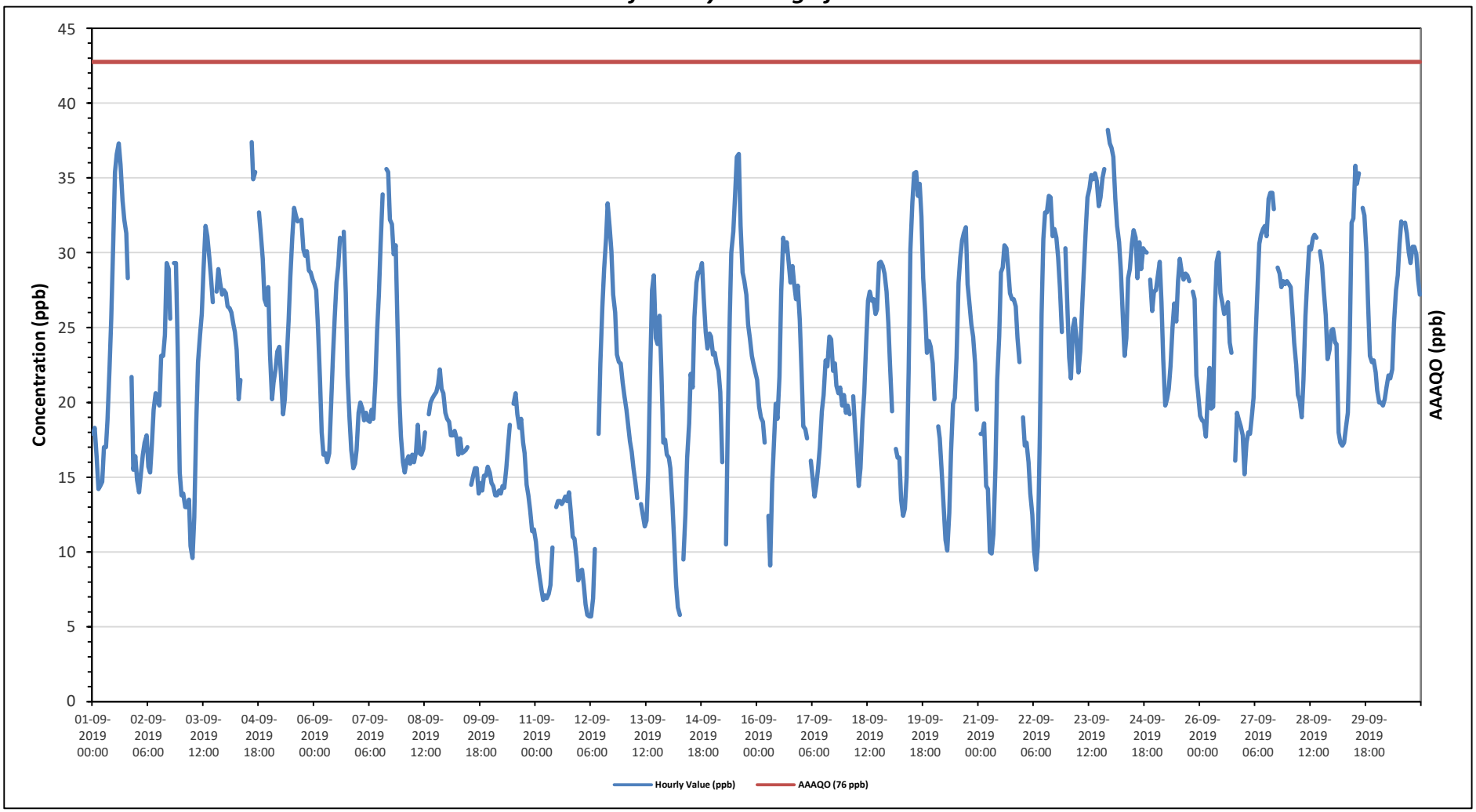
Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	17.9	18.3	16.3	14.2	14.4	14.7	17	17	18.8	22.2	25.6	30.7	35.4	36.6	37.3	35.9	33.5	32.2	31.3	28.3	S	21.7	15.5	16.4	14.2	37.3	24.0
Sep 2	14.8	14	15.2	16.5	17.3	17.8	15.7	15.3	17.2	19.5	20.6	20.1	19.8	23.1	23.1	24.5	29.3	28.9	25.6	S	29.3	29.3	23.6	15.3	14.0	29.3	20.7
Sep 3	13.8	13.9	13	13	13.5	10.4	9.6	12.3	18.7	22.7	24.5	25.9	28.9	31.8	31.1	29.7	28.5	26.7	S	27.4	28.9	28	27.2	27.5	9.6	31.8	22.0
Sep 4	27.3	26.4	26.3	26	25.3	24.7	23.5	20.2	21.5	C	C	C	C	C	37.4	34.9	35.4	S	32.7	31.3	29.6	26.9	26.5	27.7	20.2	37.4	28.0
Sep 5	23.2	20.2	21.3	22.2	23.4	23.7	21.7	19.2	20.2	22.7	25.4	28.4	31.1	33	32.5	32.1	S	32.2	30.2	29.8	30.1	28.8	28.7	28.2	19.2	33.0	26.4
Sep 6	27.9	27.5	25.1	21.6	18	16.5	16.6	16	16.6	19.6	23.1	25.7	28	29.1	31	S	31.4	27.3	21.8	18.9	16.8	15.6	15.9	16.8	15.6	31.4	22.0
Sep 7	19.3	20	19.6	18.8	19.3	18.8	18.7	19.5	18.9	21.4	24.8	27.2	30.6	33.9	S	35.6	35.4	32.2	31.9	29.9	30.5	25.3	20.5	17.7	17.7	35.6	24.8
Sep 8	16	15.3	16.1	16.4	15.9	16.5	16	16.7	18.5	16.6	16.5	16.9	18	S	19.2	20	20.3	20.5	20.7	21.2	22.2	20.9	20.6	19.3	15.3	22.2	18.3
Sep 9	18.9	18.7	17.8	17.8	18.1	17.6	16.5	17.6	16.6	16.7	16.8	17	S	14.5	15.1	15.6	15.6	13.9	14.6	14.1	15.1	15.1	15.7	15.3	13.9	18.9	16.3
Sep 10	14.6	14.4	13.8	13.8	14.1	13.9	14.4	14.3	15.6	17.1	18.5	S	19.9	20.6	19.2	18.3	18.9	17.3	16.6	14.5	13.8	12.8	11.4	11.5	11.4	20.6	15.6
Sep 11	10.7	9.3	8.3	7.5	6.8	7.1	6.9	7.2	7.8	10.3	S	13	13.4	13.4	13.2	13.4	13.7	13.4	14	12.7	11	10.9	9.6	8.1	6.8	14.0	10.5
Sep 12	8.7	8.8	7.8	6.5	5.8	**5.7**	**5.7**	6.9	10.2	S	17.9	22.6	26.4	28.9	31	33.3	31.7	30.1	27.2	26	23.2	22.7	22.6	21.3	**5.7**	33.3	18.7
Sep 13	20.4	19.5	18.6	17.4	16.7	15.6	14.6	13.6	S	13.2	12.4	11.7	12.1	15.4	21.6	27.5	28.5	24.3	23.9	25.8	22.2	17.3	17.5	16.5	11.7	28.5	18.5
Sep 14	16.3	15.6	13.3	10.8	7.8	6.3	5.8	S	9.5	12.5	16.3	18.6	21.9	21	25.7	28	28.7	28.7	29.3	27	24.7	23.6	24.6	24.4	5.8	29.3	19.1
Sep 15	23.2	23.3	22.6	22.1	20.7	16	S	10.5	18.7	25.8	30	31.4	33.8	36.4	36.6	31.8	28.7	28.1	27.2	25.2	24.3	23.1	22.6	22	10.5	36.6	25.4
Sep 16	21.5	19.7	19	18.7	17.3	S	12.4	9.1	14.6	16.9	19.9	18.9	21.7	27.4	31	30.1	30.7	29.3	28	29.1	28	26.9	27.8	25.5	9.1	31.0	22.8
Sep 17	22.1	18.4	18.2	17.6	S	16.1	14.8	13.7	14.5	15.6	17	19.4	20.5	22.8	22.4	24.4	24.2	22.1	22.6	21.1	20.6	21	19.8	20.5	13.7	24.4	19.5
Sep 18	19.3	19.8	19.2	S	20.4	18.1	16.6	14.4	15.6	18.8	20.6	24.1	26.8	27.4	26.8	26.9	25.9	26.2	29.3	29.4	29.1	28.6	27.4	25.3	14.4	29.4	23.3
Sep 19	22.4	19.4	S	16.9	16.3	16.3	13.5	12.4	12.9	15	22	30.2	33.4	35.3	35.4	33.8	34.6	32.4	28.3	26	23.3	24.1	23.7	22.6	12.4	35.4	23.9
Sep 20	20.2	S	18.4	17.6	15.3	13.2	10.8	10.1	12.6	16.7	19.9	20.3	23	28	29.7	30.8	31.3	31.7	27.9	26.5	25.2	24.4	22.6	19.5	10.1	31.7	21.6
Sep 21	S	17.9	17.9	18.6	14.4	14.2	10	9.9	11.2	15.6	21.5	24.4	28.7	29	30.5	30.3	28.9	27.3	26.9	26.9	26.4	24.3	22.7	S	9.9	30.5	21.7
Sep 22	19	17.1	17.3	16	13.9	12.5	10.1	8.8	10.4	17.8	25.9	30.9	32.7	32.7	33.8	33.7	31.1	31.6	31	29.7	27.7	24.7	S	30.3	8.8	33.8	23.4
Sep 23	26.8	23	21.6	25	25.6	24.2	22	23.4	26.5	29	31.5	33.7	34.3	35.2	34.9	35.3	34.8	33.1	33.7	35	35.6	S	**38.2**	37.3	21.6	**38.2**	**30.4**
Sep 24	37	36.4	33.6	31.8	30.7	28.8	25.7	23.1	24.3	28.3	28.9	30.6	31.5	31	28.3	30.7	28.9	30.3	30.1	30	S	28.2	26.1	27.4	23.1	37.0	29.6
Sep 25	27.5	28.4	29.4	26.7	22.9	19.8	20.2	20.9	22.4	25	26.6	25.4	28.1	29.6	28.7	28.2	28.6	28.5	28.1	S	27.4	26.9	21.8	20.4	19.8	29.6	25.7
Sep 26	19.1	18.8	18.7	17.7	20.2	22.3	19.6	19.7	26.3	29.4	30	27.3	26.6	25.9	26.1	26.7	24	23.3	S	16.1	19.3	18.8	18.4	17.8	16.1	30.0	22.3
Sep 27	15.2	17.3	18	17.9	19.2	20.3	24.3	27.3	30.6	31.2	31.6	31.8	31.1	33.6	34	34	32.9	S	29	28.6	27.7	28.1	27.9	28.1	15.2	34.0	26.9
Sep 28	27.9	27.7	25.7	24	22.5	20.5	20.1	19	21.5	25.8	28.1	30.4	30.2	31	31.2	31	S	30.1	29.2	27.5	25.8	22.9	23.5	24.8	19.0	31.2	26.1
Sep 29	24.9	24	23.9	18	17.3	17.1	17.3	18.4	19.3	23.6	32	32.3	35.8	34.6	35.3	S	33	32.5	30.1	26.4	23.1	22.7	22.8	22	17.1	35.8	25.5
Sep 30	20.8	20	20	19.8	20.2	21	21.8	21.6	22.2	25.3	27.5	28.5	30.6	32.1	S	32	31.3	30	29.3	30.4	30.4	29.9	28.2	27.2	19.8	32.1	26.1
Diurnal Maximum	37	36	34	32	31	29	26	27	31	31	32	34	36	37	37	36	35	33	34	35	36	30	38	37			
Daiurnal Average	20.6	19.8	19.2	18.3	17.7	16.9	15.9	15.8	17.7	20.5	23.4	24.9	26.9	28.3	28.6	28.9	28.6	27.3	26.8	25.5	24.7	23.2	22.5	22.0			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

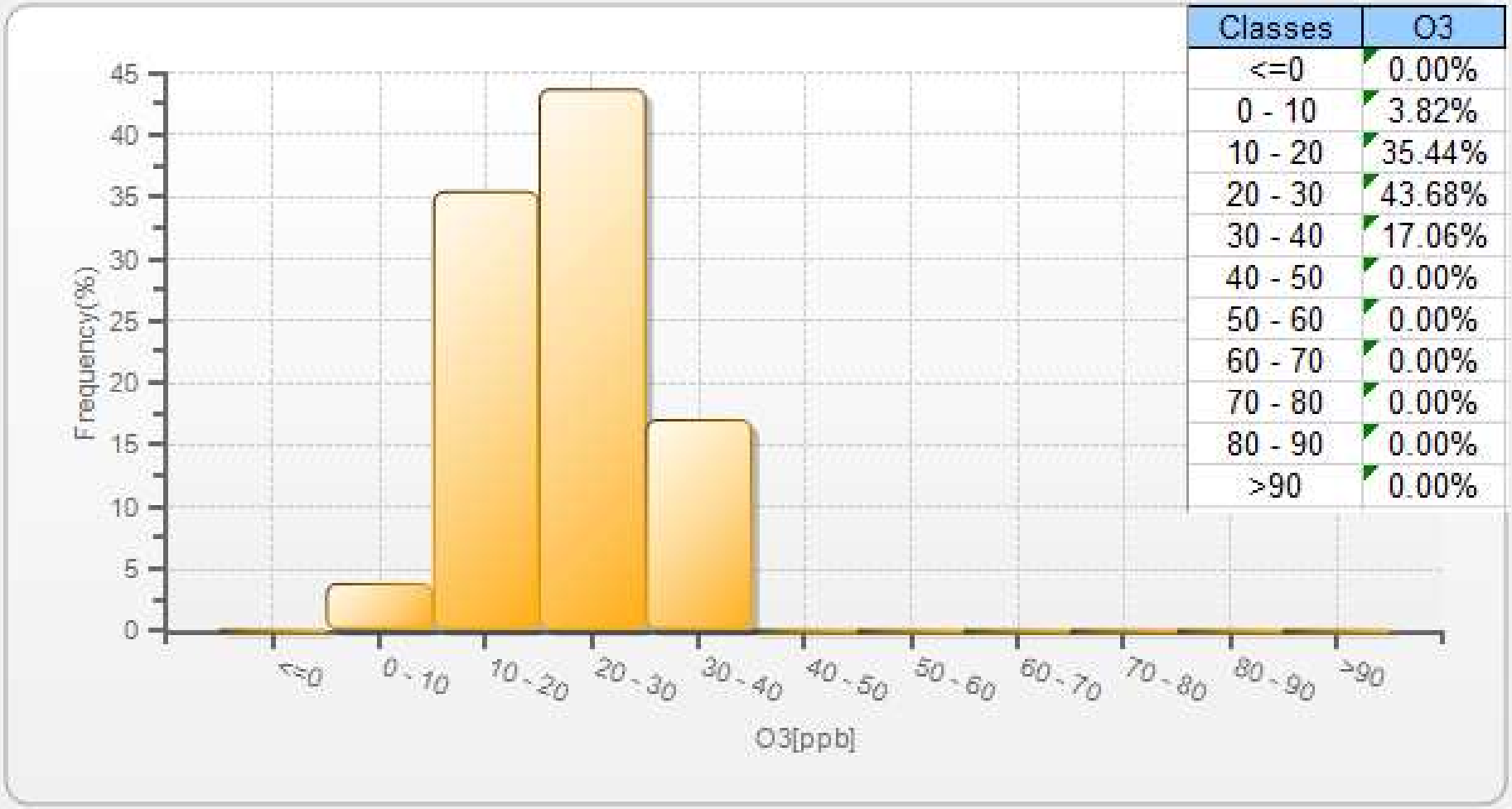
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

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



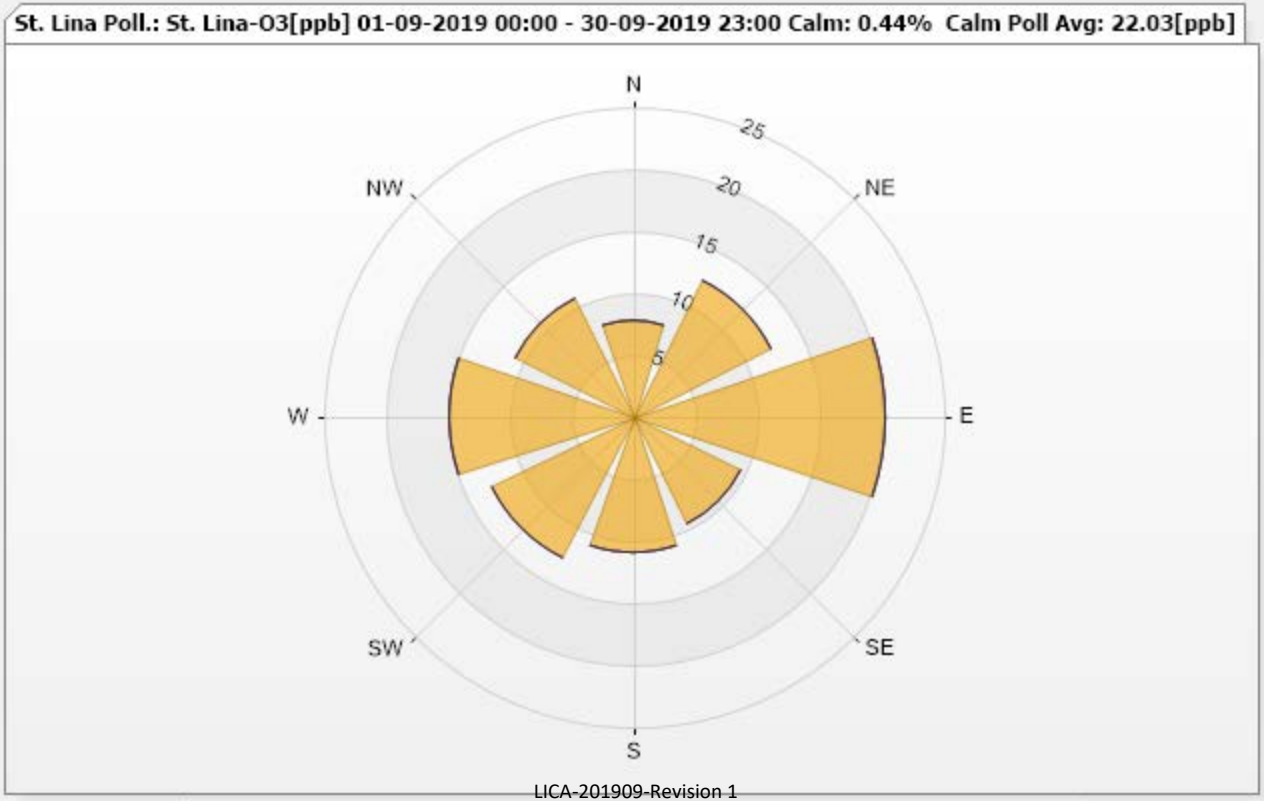
O3[ppb] Histogram: St. Lina Monthly: 09-2019 1 Hr.



Classes	O3
<=0	0.00%
0 - 10	3.82%
10 - 20	35.44%
20 - 30	43.68%
30 - 40	17.06%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: St. Lina Poll.: St. Lina-O3[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 0.44% Valid Data: 94.44% Calm Avg: 22.03 [ppb]

Direction	30-50	50-82	82-159	>159.0	Total
N	7.79	0	0	0	7.79
NE	12.35	0	0	0	12.35
E	20.29	0	0	0	20.29
SE	9.71	0	0	0	9.71
S	11.03	0	0	0	11.03
SW	12.79	0	0	0	12.79
W	14.85	0	0	0	14.85
NW	10.74	0	0	0	10.74
Summary	100	0	0	0	100


St. Lina Poll.: St. Lina-O3[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 0.44% Calm Poll Avg: 22.03[ppb]
N
NE
E
SE
S
SW
W
NW
25
20
15
10
5
% Icon Classes (ppb)
100
30-50
0
50-82
0
82-159
0
>159.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Averages

TOTAL HYDROCARBONS (THC) in ppm

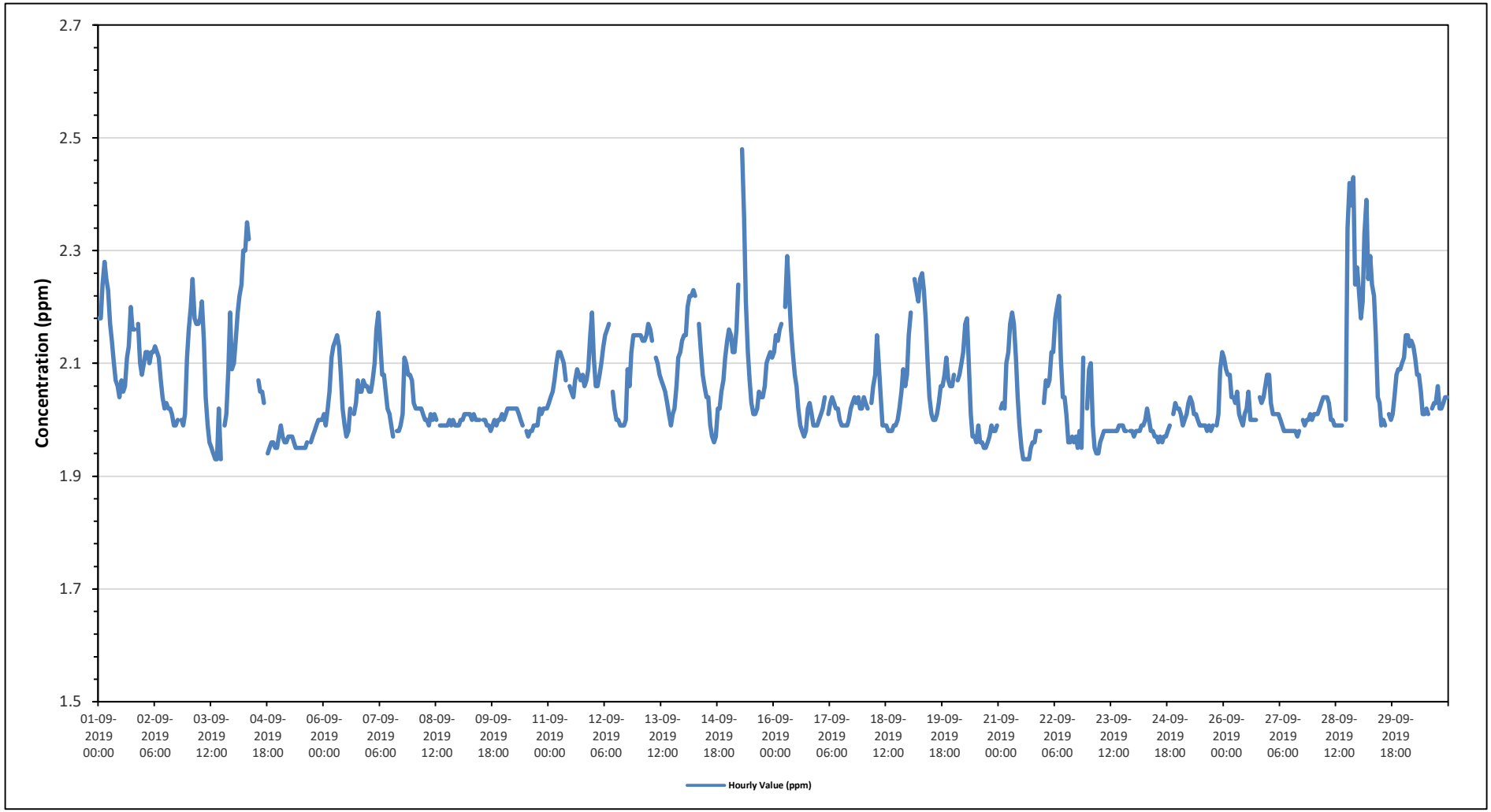
Maximum Hourly Value:	2.48	ppm	on September 15 at hour 7	Hours in Service:	720
Maximum Daily Value:	2.14	ppm	on September 1	Hours of Data:	685
Minimum Hourly Value:	1.93	ppm	on September 3 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	1.97	ppm	on September 5	Hours of Calibration:	35
Monthly Average:	2.05	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	2.18	2.18	2.24	2.28	2.25	2.23	2.17	2.14	2.10	2.07	2.06	2.04	2.07	2.05	2.06	2.11	2.13	2.20	2.16	2.16	S	2.17	2.10	2.08	2.04	2.28	**2.14**
Sep 2	2.10	2.12	2.12	2.10	2.12	2.12	2.13	2.12	2.11	2.07	2.04	2.02	2.03	2.02	2.02	2.01	1.99	1.99	2.00	S	2.00	1.99	2.01	2.11	1.99	2.13	2.06
Sep 3	2.16	2.20	2.25	2.18	2.17	2.17	2.18	2.21	2.14	2.04	1.99	1.96	1.95	1.94	1.93	1.93	2.02	1.93	S	1.99	2.01	2.09	2.19	2.09	1.93	2.25	2.07
Sep 4	2.10	2.14	2.19	2.22	2.24	2.30	2.30	2.35	2.32	C	C	C	C	2.07	2.05	2.05	2.03	S	1.94	1.95	1.96	1.96	1.95	1.95	1.94	2.35	2.11
Sep 5	1.97	1.99	1.97	1.96	1.96	1.97	1.97	1.97	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.96	S	1.96	1.97	1.98	1.99	2.00	2.00	2.00	1.95	2.00	1.97
Sep 6	2.01	1.99	2.02	2.05	2.11	2.13	2.14	2.15	2.13	2.08	2.02	1.99	1.97	1.98	2.02	S	2.01	2.03	2.07	2.05	2.05	2.07	2.06	2.06	1.97	2.15	2.05
Sep 7	2.05	2.05	2.07	2.10	2.16	2.19	2.14	2.08	2.08	2.05	2.02	2.01	1.99	1.97	S	1.98	1.98	1.99	2.01	2.11	2.10	2.08	2.08	2.07	1.97	2.19	2.06
Sep 8	2.03	2.02	2.02	2.02	2.02	2.01	2.00	2.00	1.99	2.01	2.00	2.01	2.00	S	1.99	1.99	1.99	1.99	1.99	2.00	1.99	2.00	1.99	1.99	1.99	2.03	2.00
Sep 9	1.99	2.00	2.00	2.01	2.01	2.01	2.01	2.00	2.01	2.00	2.00	2.00	S	2.00	2.00	1.99	1.99	1.98	1.99	2.00	1.99	2.00	2.00	2.01	1.98	2.01	2.00
Sep 10	2.00	2.01	2.02	2.02	2.02	2.02	2.02	2.02	2.01	2.00	1.99	S	1.98	1.97	1.98	1.98	1.99	1.99	1.99	2.02	2.01	2.02	2.02	2.02	1.97	2.02	2.00
Sep 11	2.03	2.04	2.05	2.07	2.10	2.12	2.12	2.11	2.10	2.07	S	2.06	2.05	2.04	2.07	2.09	2.08	2.07	2.08	2.06	2.07	2.09	2.15	2.19	2.03	2.19	2.08
Sep 12	2.11	2.06	2.06	2.08	2.10	2.13	2.15	2.16	2.17	S	2.05	2.02	2.00	2.00	1.99	1.99	1.99	2.00	2.09	2.06	2.12	2.15	2.15	2.15	1.99	2.17	2.08
Sep 13	2.15	2.15	2.14	2.14	2.15	2.17	2.16	2.14	S	2.11	2.10	2.08	2.07	2.06	2.05	2.03	2.01	1.99	2.01	2.02	2.06	2.11	2.12	2.14	1.99	2.17	2.09
Sep 14	2.15	2.15	2.20	2.22	2.22	2.23	2.22	S	2.17	2.12	2.08	2.06	2.04	2.04	1.99	1.97	1.96	1.97	2.02	2.02	2.05	2.07	2.11	2.14	1.96	2.23	2.10
Sep 15	2.16	2.15	2.12	2.12	2.16	2.24	S	**2.48**	2.36	2.21	2.12	2.07	2.03	2.01	2.01	2.02	2.05	2.04	2.04	2.06	2.10	2.11	2.12	2.11	2.01	**2.48**	2.13
Sep 16	2.12	2.15	2.14	2.16	2.17	S	2.20	2.29	2.23	2.16	2.12	2.08	2.06	2.02	1.99	1.98	1.97	1.98	2.02	2.03	2.01	1.99	1.99	1.99	1.97	2.29	2.08
Sep 17	2.00	2.01	2.02	2.04	S	2.01	2.03	2.04	2.03	2.02	2.02	2.00	1.99	1.99	1.99	1.99	2.00	2.02	2.03	2.04	2.03	2.04	2.02	2.02	1.99	2.04	2.02
Sep 18	2.04	2.03	2.02	S	2.03	2.06	2.08	2.15	2.10	2.04	1.99	1.99	1.99	1.98	1.98	1.98	1.99	1.99	2.00	2.02	2.05	2.09	2.06	2.08	1.98	2.15	2.03
Sep 19	2.15	2.19	S	2.25	2.23	2.21	2.25	2.26	2.23	2.18	2.10	2.04	2.01	2.00	2.00	2.01	2.03	2.06	2.06	2.08	2.11	2.07	2.06	2.06	2.00	2.26	2.11
Sep 20	2.08	S	2.07	2.08	2.10	2.12	2.17	2.18	2.09	2.01	1.97	1.97	1.96	1.99	1.96	1.96	1.95	1.95	1.96	1.97	1.99	1.98	1.98	1.99	1.95	2.18	2.02
Sep 21	S	2.02	2.03	2.02	2.10	2.12	2.17	2.19	2.17	2.11	2.04	1.99	1.95	1.93	1.93	1.93	1.93	1.95	1.96	1.96	1.98	1.98	1.98	S	1.93	2.19	2.02
Sep 22	2.03	2.07	2.06	2.07	2.12	2.12	2.18	2.20	2.22	2.11	2.04	2.04	2.01	1.96	1.96	1.97	1.96	1.97	1.95	1.98	1.95	2.11	S	2.02	1.95	2.22	2.05
Sep 23	2.09	2.10	1.99	1.95	1.94	1.94	1.96	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.99	1.99	1.99	1.98	1.98	S	1.98	1.98	1.94	2.10	1.99
Sep 24	1.97	1.98	1.98	1.98	1.99	1.99	2.00	2.02	2.00	1.98	1.98	1.97	1.97	1.96	1.97	1.96	1.97	1.97	1.98	1.99	S	2.01	2.03	2.02	1.96	2.03	1.99
Sep 25	2.02	2.01	1.99	2.00	2.01	2.03	2.04	2.03	2.01	2.01	2.00	1.99	1.99	1.99	1.99	1.98	1.99	1.98	1.99	S	1.99	2.01	2.09	2.12	1.98	2.12	2.01
Sep 26	2.11	2.09	2.08	2.08	2.04	2.04	2.03	2.05	2.01	2.00	1.99	2.01	2.02	2.05	2.00	2.00	2.00	2.00	S	2.04	2.03	2.04	2.06	2.08	1.99	2.11	2.04
Sep 27	2.08	2.03	2.01	2.01	2.01	2.01	2.00	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.97	1.98	S	2.00	1.99	2.00	2.00	2.01	2.00	1.97	2.08	2.00
Sep 28	2.01	2.01	2.01	2.02	2.03	2.04	2.04	2.04	2.03	2.00	2.00	1.99	1.99	1.99	1.99	1.99	S	2.00	2.34	2.42	2.38	2.43	2.24	2.27	1.99	2.43	2.10
Sep 29	2.23	2.18	2.21	2.33	2.39	2.25	2.29	2.24	2.22	2.15	2.04	2.03	1.99	2.00	1.99	S	2.01	2.00	2.01	2.04	2.08	2.09	2.09	2.10	1.99	2.39	2.13
Sep 30	2.11	2.15	2.15	2.13	2.14	2.13	2.11	2.08	2.08	2.05	2.01	2.01	2.02	2.01	S	2.02	2.03	2.03	2.06	2.02	2.02	2.03	2.04	2.04	2.01	2.15	2.06
Diurnal Maximum	2.23	2.20	2.25	2.33	2.39	2.30	2.30	2.48	2.36	2.21	2.12	2.08	2.07	2.07	2.07	2.11	2.13	2.20	2.34	2.42	2.38	2.43	2.24	2.27			
Daiurnal Average	2.08	2.08	2.08	2.09	2.11	2.11	2.11	2.13	2.10	2.06	2.02	2.01	2.00	2.00	1.99	1.99	2.00	2.00	2.03	2.04	2.04	2.06	2.06	2.06			

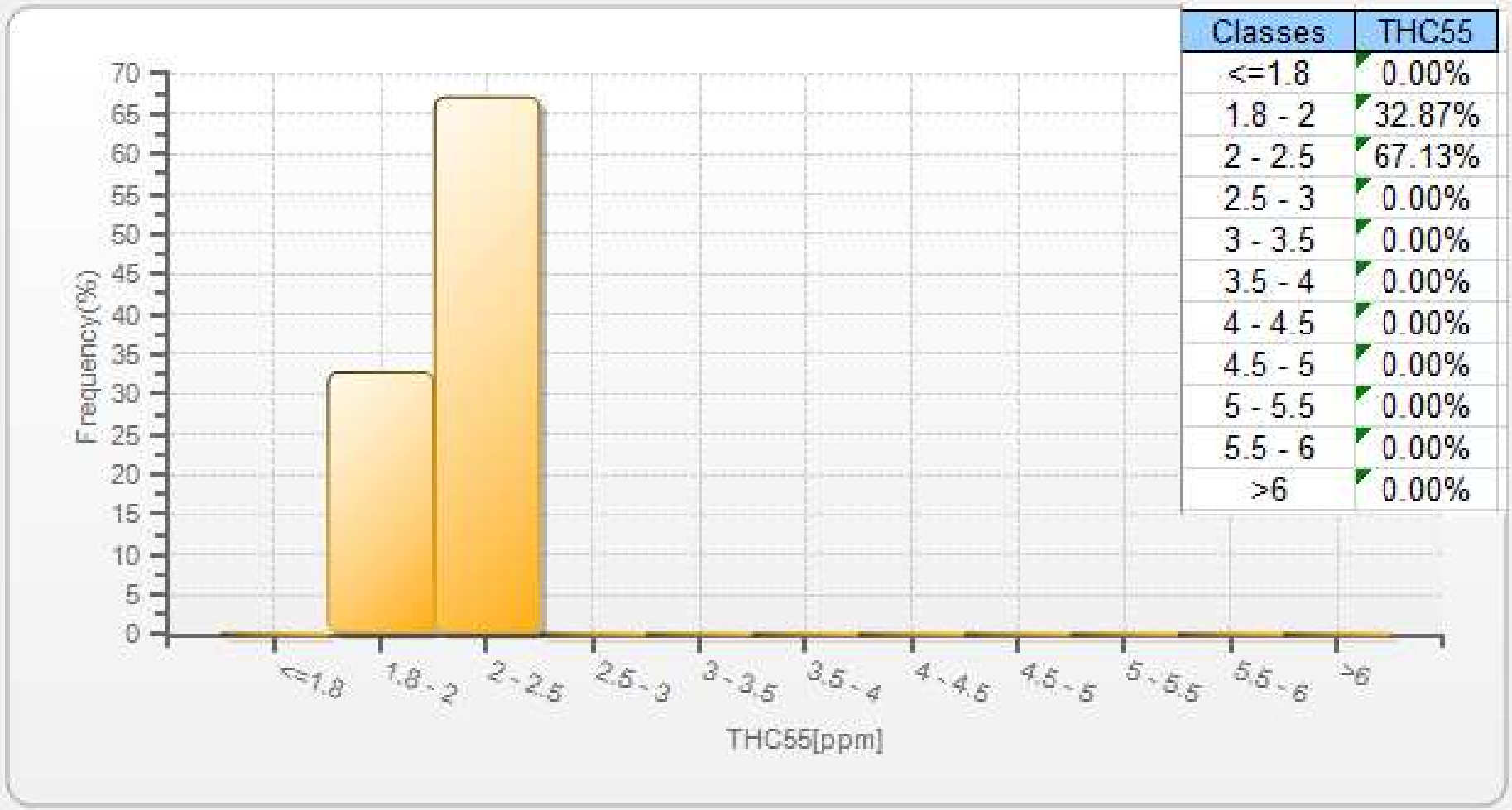
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



THC55[ppm] Histogram: St. Lina Monthly: 09-2019 1 Hr.

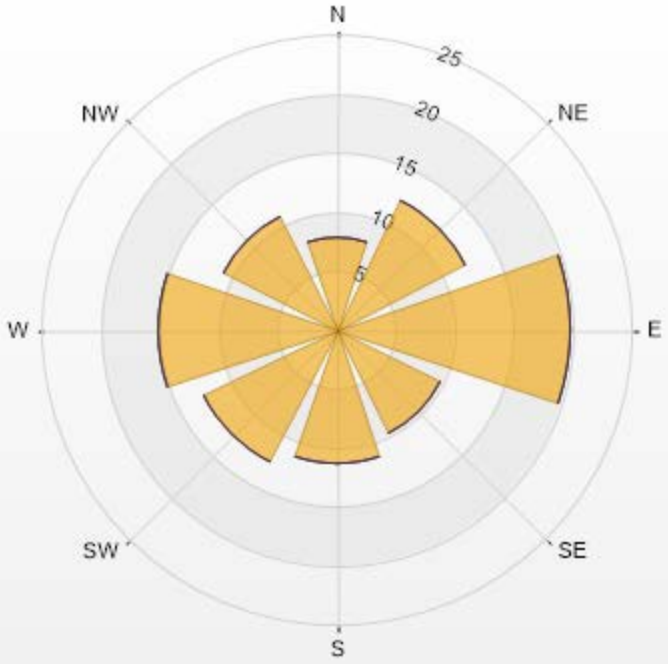


Classes	THC55
<=1.8	0.00%
1.8 - 2	32.87%
2 - 2.5	67.13%
2.5 - 3	0.00%
3 - 3.5	0.00%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: St. Lina Poll.: St. Lina-THC55[ppm] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 0.47% Valid Data: 89.58% Calm Avg: 2.02 [ppm]

Direction	2-5	5-10	10-40	>40.0	Total
N	7.91	0	0	0	7.91
NE	12.25	0	0	0	12.25
E	19.84	0	0	0	19.84
SE	9.77	0	0	0	9.77
S	11.32	0	0	0	11.32
SW	12.56	0	0	0	12.56
W	15.19	0	0	0	15.19
NW	10.7	0	0	0	10.7
Summary	100	0	0	0	100

St. Lina Poll.: St. Lina-THC55[ppm] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 0.47% Calm Poll Avg: 2.02 [ppm]



%	Icon	Classes (ppm)									
100		2.5	0		5-10	0		10-40	0		>40.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Averages

METHANE (CH4) in ppm

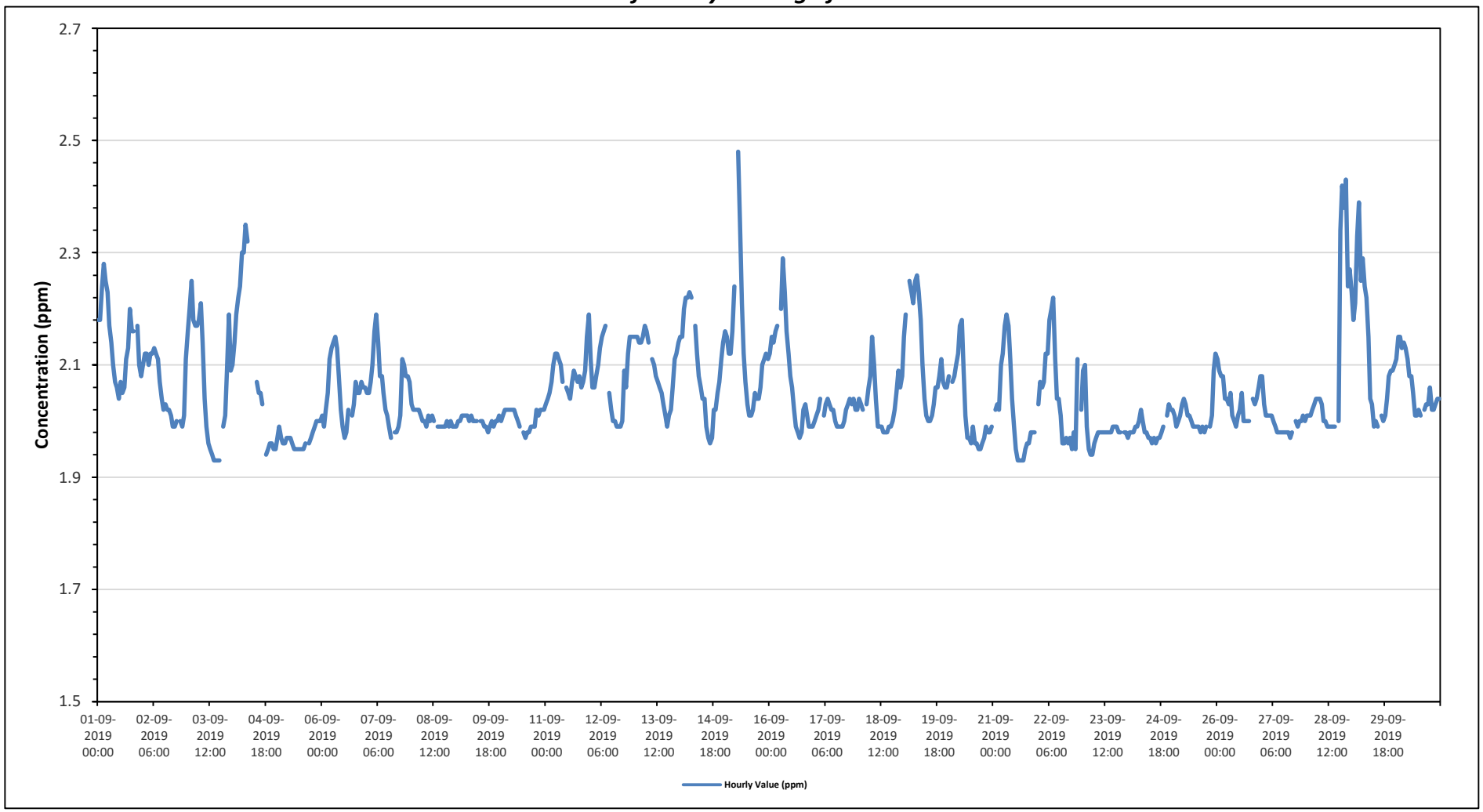
Maximum Hourly Value:	2.48	ppm	on September 15 at hour 7	Hours in Service:	720
Maximum Daily Value:	2.14	ppm	on September 1	Hours of Data:	685
Minimum Hourly Value:	1.93	ppm	on September 3 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	1.97	ppm	on September 5	Hours of Calibration:	35
Monthly Average:	2.05	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	2.18	2.18	2.24	2.28	2.25	2.23	2.17	2.14	2.10	2.07	2.06	2.04	2.07	2.05	2.06	2.11	2.13	2.20	2.16	2.16	S	2.17	2.10	2.08	2.04	2.28	**2.14**
Sep 2	2.10	2.12	2.12	2.10	2.12	2.12	2.13	2.12	2.11	2.07	2.04	2.02	2.03	2.02	2.02	2.01	1.99	1.99	2.00	S	2.00	1.99	2.01	2.11	1.99	2.13	2.06
Sep 3	2.16	2.20	2.25	2.18	2.17	2.17	2.18	2.21	2.14	2.04	1.99	1.96	1.95	1.94	1.93	1.93	1.93	1.93	S	1.99	2.01	2.09	2.19	2.09	1.93	2.25	2.07
Sep 4	2.10	2.14	2.19	2.22	2.24	2.30	2.30	2.35	2.32	C	C	C	C	2.07	2.05	2.05	2.03	S	1.94	1.95	1.96	1.96	1.95	1.95	1.94	2.35	2.11
Sep 5	1.97	1.99	1.97	1.96	1.96	1.97	1.97	1.97	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.96	S	1.96	1.97	1.98	1.99	2.00	2.00	2.00	1.95	2.00	1.97
Sep 6	2.01	1.99	2.02	2.05	2.11	2.13	2.14	2.15	2.13	2.08	2.02	1.99	1.97	1.98	2.02	S	2.01	2.03	2.07	2.05	2.05	2.07	2.06	2.06	1.97	2.15	2.05
Sep 7	2.05	2.05	2.07	2.10	2.16	2.19	2.14	2.08	2.08	2.05	2.02	2.01	1.99	1.97	S	1.98	1.98	1.99	2.01	2.11	2.10	2.08	2.08	2.07	1.97	2.19	2.06
Sep 8	2.03	2.02	2.02	2.02	2.02	2.01	2.00	2.00	1.99	2.01	2.00	2.01	2.00	S	1.99	1.99	1.99	1.99	1.99	2.00	1.99	2.00	1.99	1.99	1.99	2.03	2.00
Sep 9	1.99	2.00	2.00	2.01	2.01	2.01	2.01	2.00	2.01	2.00	2.00	2.00	S	2.00	2.00	1.99	1.99	1.98	1.99	2.00	1.99	2.00	2.00	2.01	1.98	2.01	2.00
Sep 10	2.00	2.01	2.02	2.02	2.02	2.02	2.02	2.02	2.01	2.00	1.99	S	1.98	1.97	1.98	1.98	1.99	1.99	1.99	2.02	2.01	2.02	2.02	2.02	1.97	2.02	2.00
Sep 11	2.03	2.04	2.05	2.07	2.10	2.12	2.12	2.11	2.10	2.07	S	2.06	2.05	2.04	2.07	2.09	2.08	2.07	2.08	2.06	2.07	2.09	2.15	2.19	2.03	2.19	2.08
Sep 12	2.11	2.06	2.06	2.08	2.10	2.13	2.15	2.16	2.17	S	2.05	2.02	2.00	2.00	1.99	1.99	1.99	2.00	2.09	2.06	2.12	2.15	2.15	2.15	1.99	2.17	2.08
Sep 13	2.15	2.15	2.14	2.14	2.15	2.17	2.16	2.14	S	2.11	2.10	2.08	2.07	2.06	2.05	2.03	2.01	1.99	2.01	2.02	2.06	2.11	2.12	2.14	1.99	2.17	2.09
Sep 14	2.15	2.15	2.20	2.22	2.22	2.23	2.22	S	2.17	2.12	2.08	2.06	2.04	2.04	1.99	1.97	1.96	1.97	2.02	2.02	2.05	2.07	2.11	2.14	1.96	2.23	2.10
Sep 15	2.16	2.15	2.12	2.12	2.16	2.24	S	**2.48**	2.36	2.21	2.12	2.07	2.03	2.01	2.01	2.02	2.05	2.04	2.04	2.06	2.10	2.11	2.12	2.11	2.01	**2.48**	2.13
Sep 16	2.12	2.15	2.14	2.16	2.17	S	2.20	2.29	2.23	2.16	2.12	2.08	2.06	2.02	1.99	1.98	1.97	1.98	2.02	2.03	2.01	1.99	1.99	1.99	1.97	2.29	2.08
Sep 17	2.00	2.01	2.02	2.04	S	2.01	2.03	2.04	2.03	2.02	2.02	2.00	1.99	1.99	1.99	1.99	2.00	2.02	2.03	2.04	2.03	2.04	2.02	2.02	1.99	2.04	2.02
Sep 18	2.04	2.03	2.02	S	2.03	2.06	2.08	2.15	2.10	2.04	1.99	1.99	1.99	1.98	1.98	1.98	1.99	1.99	2.00	2.02	2.05	2.09	2.06	2.08	1.98	2.15	2.03
Sep 19	2.15	2.19	S	2.25	2.23	2.21	2.25	2.26	2.23	2.18	2.10	2.04	2.01	2.00	2.00	2.01	2.03	2.06	2.06	2.08	2.11	2.07	2.06	2.06	2.00	2.26	2.11
Sep 20	2.08	S	2.07	2.08	2.10	2.12	2.17	2.18	2.09	2.01	1.97	1.97	1.96	1.99	1.96	1.96	1.95	1.95	1.96	1.97	1.99	1.98	1.98	1.99	1.95	2.18	2.02
Sep 21	S	2.02	2.03	2.02	2.10	2.12	2.17	2.19	2.17	2.11	2.04	1.99	1.95	1.93	1.93	1.93	1.93	1.95	1.96	1.96	1.98	1.98	1.98	S	1.93	2.19	2.02
Sep 22	2.03	2.07	2.06	2.07	2.12	2.12	2.18	2.20	2.22	2.11	2.04	2.04	2.01	1.96	1.96	1.97	1.96	1.97	1.95	1.98	1.95	2.11	S	2.02	1.95	2.22	2.05
Sep 23	2.09	2.10	1.99	1.95	1.94	1.94	1.96	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.99	1.99	1.99	1.98	1.98	S	1.98	1.98	1.94	2.10	1.99
Sep 24	1.97	1.98	1.98	1.98	1.99	1.99	2.00	2.02	2.00	1.98	1.98	1.97	1.97	1.96	1.97	1.96	1.97	1.97	1.98	1.99	S	2.01	2.03	2.02	1.96	2.03	1.99
Sep 25	2.02	2.01	1.99	2.00	2.01	2.03	2.04	2.03	2.01	2.01	2.00	1.99	1.99	1.99	1.99	1.98	1.99	1.98	1.99	S	1.99	2.01	2.09	2.12	1.98	2.12	2.01
Sep 26	2.11	2.09	2.08	2.08	2.04	2.04	2.03	2.05	2.01	2.00	1.99	2.01	2.02	2.05	2.00	2.00	2.00	2.00	S	2.04	2.03	2.04	2.06	2.08	1.99	2.11	2.04
Sep 27	2.08	2.03	2.01	2.01	2.01	2.01	2.00	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.97	1.98	S	2.00	1.99	2.00	2.00	2.01	2.00	1.97	2.08	2.00
Sep 28	2.01	2.01	2.01	2.02	2.03	2.04	2.04	2.04	2.03	2.00	2.00	1.99	1.99	1.99	1.99	1.99	S	2.00	2.34	2.42	2.38	2.43	2.24	2.27	1.99	2.43	2.10
Sep 29	2.23	2.18	2.21	2.33	2.39	2.25	2.29	2.24	2.22	2.15	2.04	2.03	1.99	2.00	1.99	S	2.01	2.00	2.01	2.04	2.08	2.09	2.09	2.10	1.99	2.39	2.13
Sep 30	2.11	2.15	2.15	2.13	2.14	2.13	2.11	2.08	2.08	2.05	2.01	2.01	2.02	2.01	S	2.02	2.03	2.03	2.06	2.02	2.02	2.03	2.04	2.04	2.01	2.15	2.06
Diurnal Maximum	2.23	2.20	2.25	2.33	2.39	2.30	2.30	2.48	2.36	2.21	2.12	2.08	2.07	2.07	2.07	2.11	2.13	2.20	2.34	2.42	2.38	2.43	2.24	2.27			
Daiurnal Average	2.08	2.08	2.08	2.09	2.11	2.11	2.11	2.13	2.10	2.06	2.02	2.01	2.00	2.00	1.99	1.99	2.00	2.00	2.03	2.04	2.04	2.06	2.06	2.06			

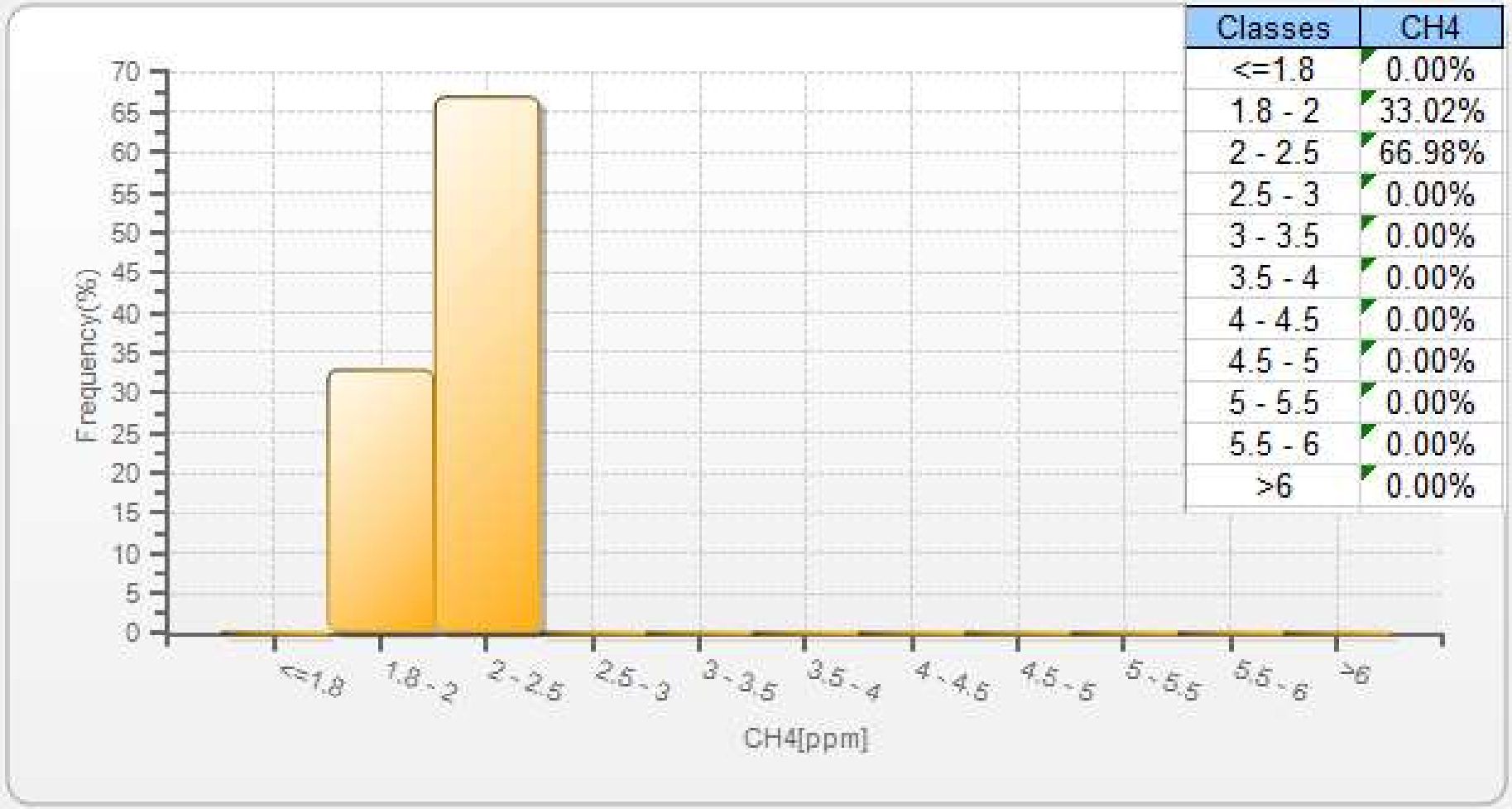
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



CH4[ppm] Histogram: St. Lina Monthly: 09-2019 1 Hr.

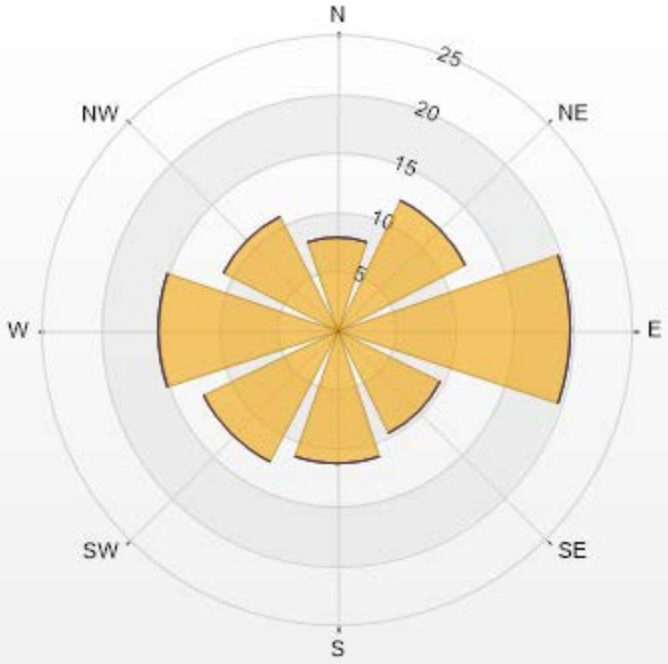


Classes	CH4
<=1.8	0.00%
1.8 - 2	33.02%
2 - 2.5	66.98%
2.5 - 3	0.00%
3 - 3.5	0.00%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: St. Lina Poll.: St. Lina-CH4[ppm] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 0.47% Valid Data: 89.58% Calm Avg: 2.02 [ppm]

Direction	2-5	5-10	10-20	>20.0	Total
N	7.91	0	0	0	7.91
NE	12.25	0	0	0	12.25
E	19.84	0	0	0	19.84
SE	9.77	0	0	0	9.77
S	11.32	0	0	0	11.32
SW	12.56	0	0	0	12.56
W	15.19	0	0	0	15.19
NW	10.7	0	0	0	10.7
Summary	100	0	0	0	100

St. Lina Poll.: St. Lina-CH4[ppm] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 0.47% Calm Poll Avg: 2.02 [ppm]



% Icon Classes (ppm)	100	2-5	0	5-10	0	10-20	0	>20.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Averages

NON-METHANE HYDROCARBONS (NMHC) in ppm

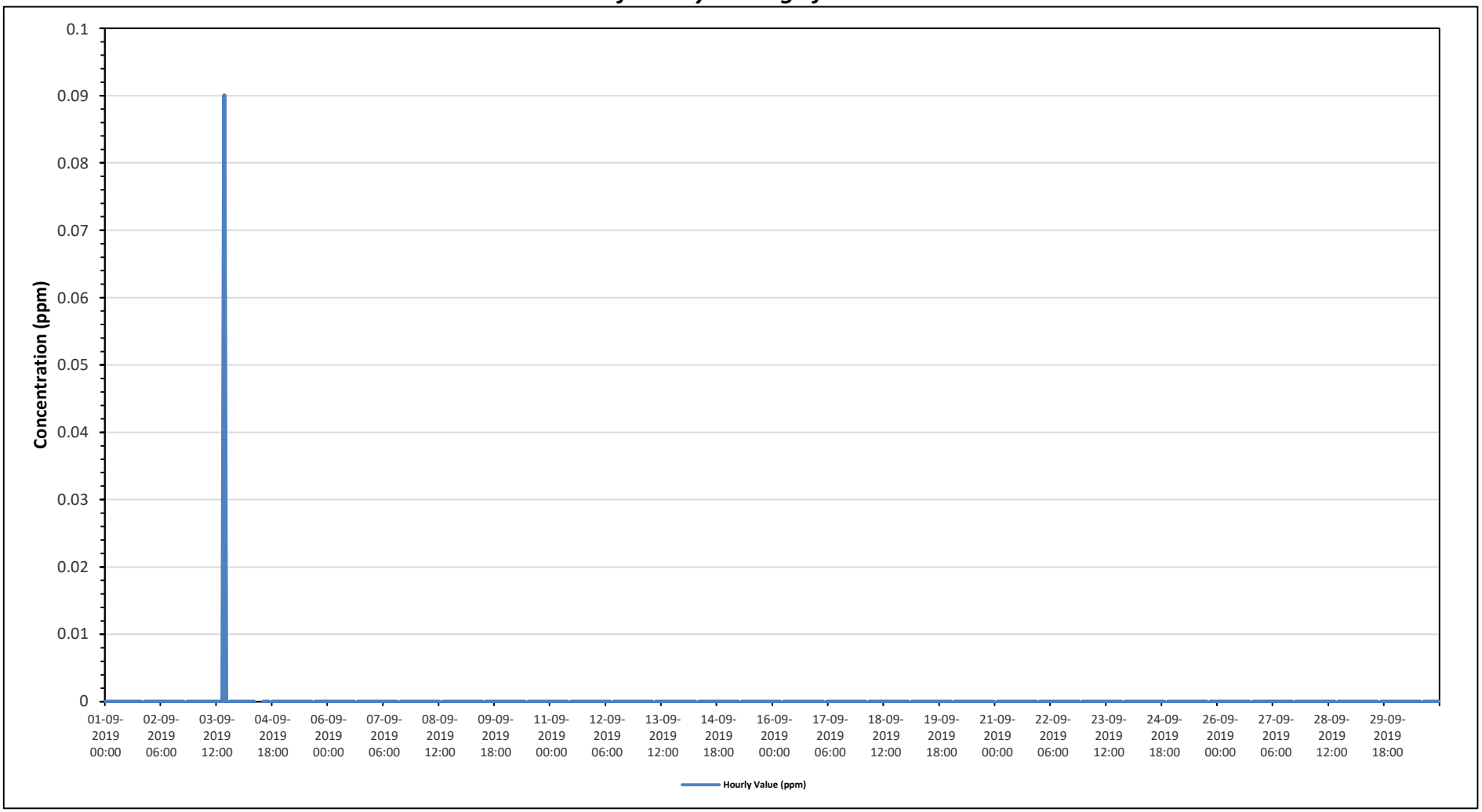
Maximum Hourly Value:	0.09	ppm	on September 3 at hour 16	Hours in Service:	720
Maximum Daily Value:	0.00	ppm	on September 3	Hours of Data:	685
Minimum Hourly Value:	0.00	ppm	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.00	ppm	on September 1	Hours of Calibration:	35
Monthly Average:	0.00	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 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
Sep 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
Sep 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	**0.09**	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	**0.09**	**0.00**
Sep 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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	0.00	0.00	0.00	0.00	0.00
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Diurnal Maximum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00			
Daiurnal Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

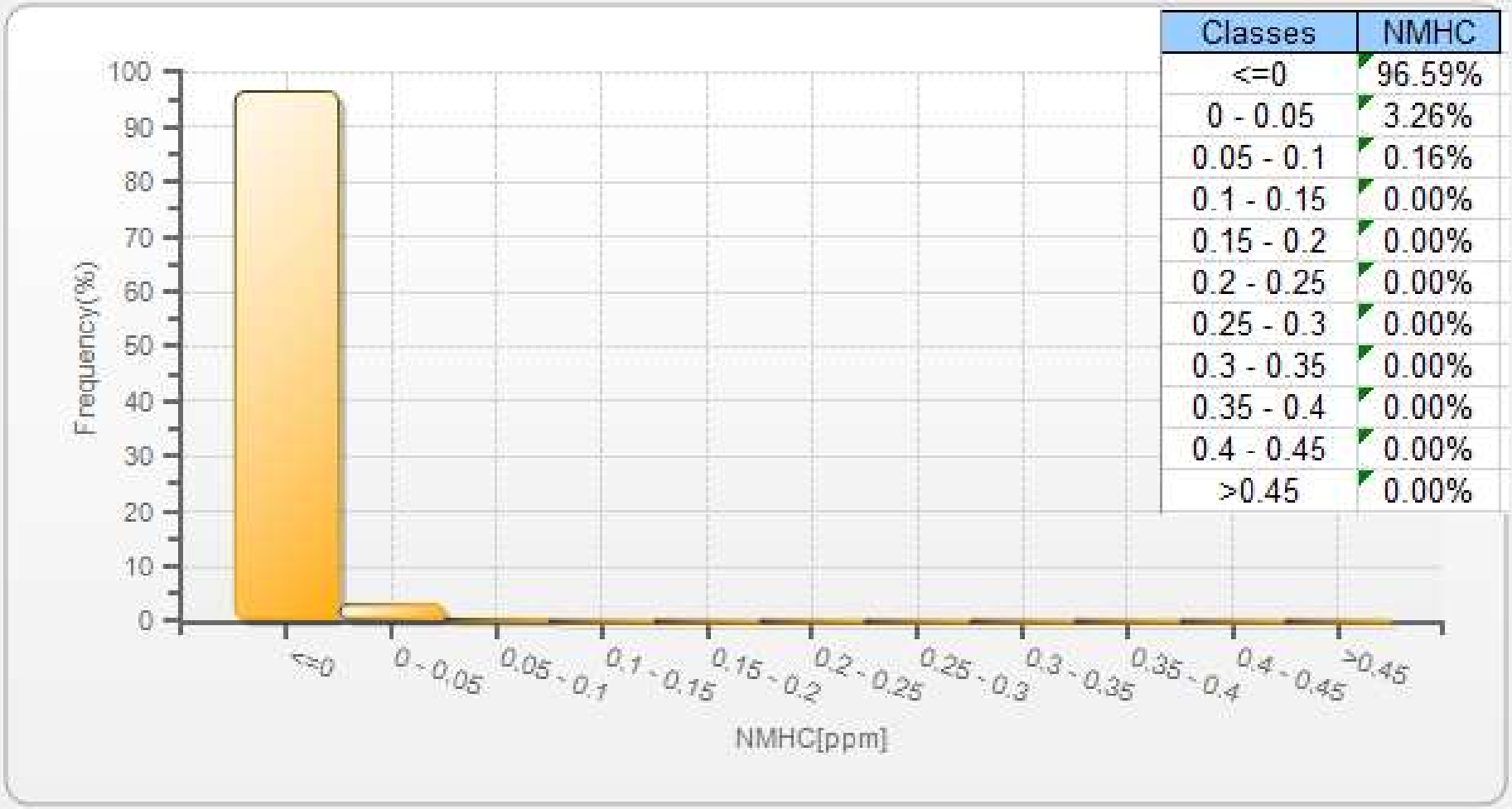
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



NMHC[ppm] Histogram: St. Lina Monthly: 09-2019 1 Hr.

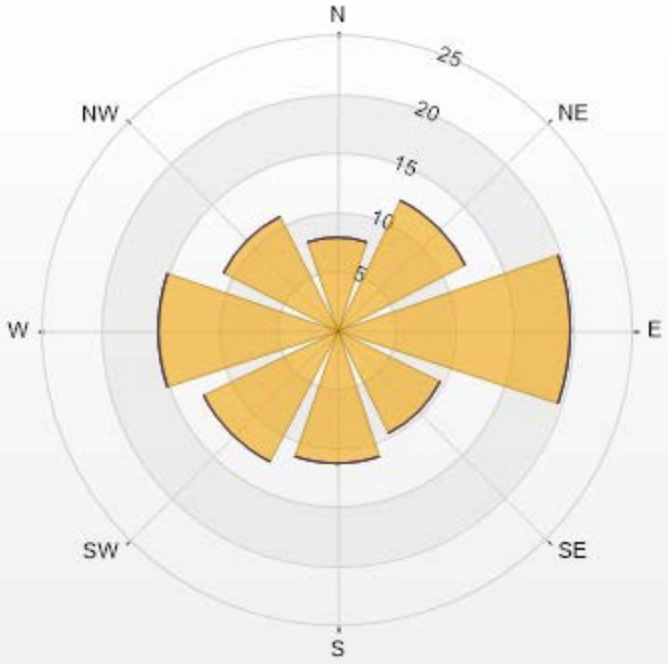


Classes	NMHC
<=0	96.59%
0 - 0.05	3.26%
0.05 - 0.1	0.16%
0.1 - 0.15	0.00%
0.15 - 0.2	0.00%
0.2 - 0.25	0.00%
0.25 - 0.3	0.00%
0.3 - 0.35	0.00%
0.35 - 0.4	0.00%
0.4 - 0.45	0.00%
>0.45	0.00%

Wind: St. Lina Poll.: St. Lina-NMHC[ppm] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 0.47% Valid Data: 89.58% Calm Avg: 0.00 [ppm]

Direction	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	7.91	0	0	0	7.91
NE	12.25	0	0	0	12.25
E	19.84	0	0	0	19.84
SE	9.77	0	0	0	9.77
S	11.32	0	0	0	11.32
SW	12.56	0	0	0	12.56
W	15.19	0	0	0	15.19
NW	10.7	0	0	0	10.7
Summary	100	0	0	0	100

St. Lina Poll.: St. Lina-NMHC[ppm] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 0.47% Calm Poll Avg: 0.00 [ppm]



% Icon Classes (ppm)	100	0.1-0.3	0	0.3-0.9	0	0.9-2	0	>2.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Averages

PARTICULATE MATTER 2.5 ($PM_{2.5}$) in µg/m^3

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 80 µg/m3, 24-Hour 29 µg/m3

Number of 1-Hour Exceedences: 0 Number of 24-Hour Exceedences: 0

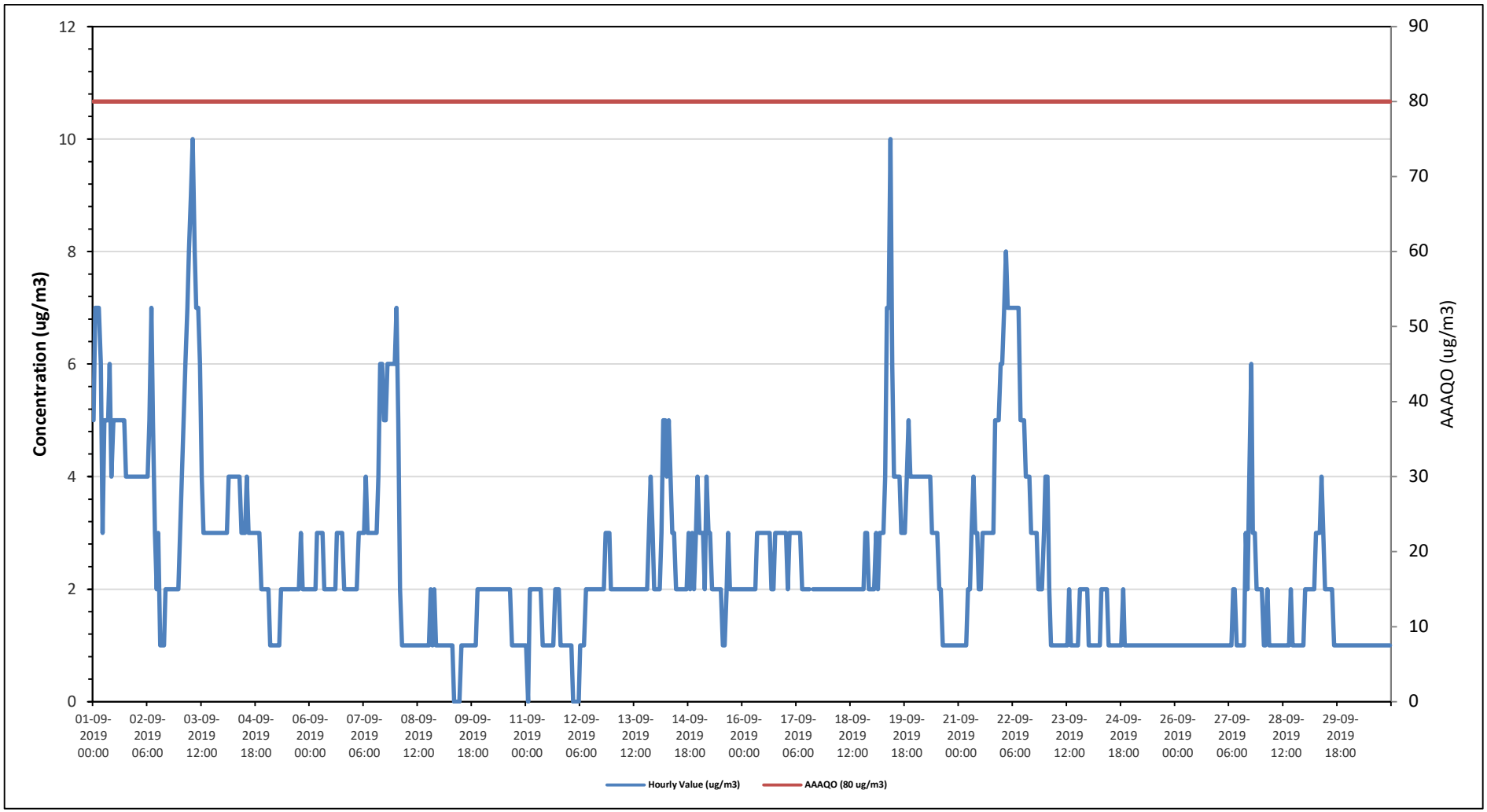
Maximum Hourly Value:	10 µg/m^3 on September 3 at hour 7	Hours in Service:	720
Maximum Daily Value:	5 µg/m^3 on September 1	Hours of Data:	719
Minimum Hourly Value:	0 µg/m^3 on September 9 at hour 8	Hours of Missing Data:	0
Minimum Daily Value:	1 µg/m^3 on September 9	Hours of Calibration:	1
Monthly Average:	2.4 µg/m^3	Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	5	7	7	7	6	3	5	5	5	6	4	5	5	5	5	5	5	5	4	4	4	4	4	4	3	7	**5.0**
Sep 2	4	4	4	4	4	4	4	5	7	5	3	2	3	1	1	1	2	2	2	2	2	2	2	2	1	7	3.0
Sep 3	3	4	5	6	7	8	9	**10**	8	7	7	6	4	3	3	3	3	3	3	3	3	3	3	3	3	**10**	4.9
Sep 4	3	3	3	4	4	4	4	4	4	4	3	3	3	4	3	3	3	3	3	3	3	2	2	2	2	4	3.2
Sep 5	2	2	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	1	3	1.8
Sep 6	2	2	2	2	3	3	3	3	2	2	2	2	2	2	2	3	3	3	3	2	2	2	2	2	2	3	2.3
Sep 7	2	2	2	3	3	3	3	4	3	3	3	3	3	3	4	6	6	5	5	6	6	6	6	6	2	6	4.0
Sep 8	7	5	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	7	1.5
Sep 9	1	1	1	1	1	1	1	1	**0**	**0**	**0**	**0**	1	1	1	1	1	1	1	1	1	2	2	2	**0**	2	1.0
Sep 10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	2	1.7
Sep 11	1	**0**	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	**0**	2	1.4
Sep 12	1	1	**0**	**0**	**0**	**0**	1	1	1	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	**0**	3	1.6
Sep 13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	4	3	2	2	4	2.2
Sep 14	2	2	2	3	5	5	4	5	4	3	3	2	2	2	2	2	2	2	3	2	3	2	3	4	2	5	2.9
Sep 15	3	3	3	2	4	3	3	2	2	2	2	2	2	1	1	2	3	2	2	2	2	2	2	2	1	4	2.3
Sep 16	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	2	2	3	3	3	3	3	3	2	3	2.6
Sep 17	3	2	3	3	3	3	3	3	3	2	2	2	2	2	**C**	2	2	2	2	2	2	2	2	2	2	3	2.3
Sep 18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2	3	2.1
Sep 19	2	2	3	2	3	3	3	4	7	7	**10**	6	4	4	4	4	3	3	3	4	5	4	4	4	2	**10**	4.1
Sep 20	4	4	4	4	4	4	4	4	4	3	3	3	3	2	2	1	1	1	1	1	1	1	1	1	1	4	2.5
Sep 21	1	1	1	1	1	2	2	3	4	3	3	2	2	3	3	3	3	3	3	3	5	5	5	6	1	6	2.8
Sep 22	6	7	8	7	7	7	7	7	7	7	5	5	5	4	4	4	3	3	3	3	2	2	2	3	2	8	4.9
Sep 23	4	4	2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	2	2	2	2	1	4	1.5
Sep 24	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	1.2
Sep 25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Sep 26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Sep 27	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	3	2	4	6	3	3	2	2	2	1	6	1.8
Sep 28	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1.1
Sep 29	2	2	2	2	2	2	3	3	3	4	3	2	2	2	2	2	1	1	1	1	1	1	1	1	1	4	1.9
Sep 30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Diurnal Maximum	7	7	8	7	7	8	9	10	8	7	10	6	5	5	5	6	6	5	6	6	6	6	6	6			
Daiurnal Average	2.4	2.4	2.4	2.4	2.5	2.5	2.6	2.8	2.9	2.7	2.5	2.2	2.2	2.1	2.0	2.2	2.1	2.1	2.2	2.2	2.3	2.3	2.2	2.2			

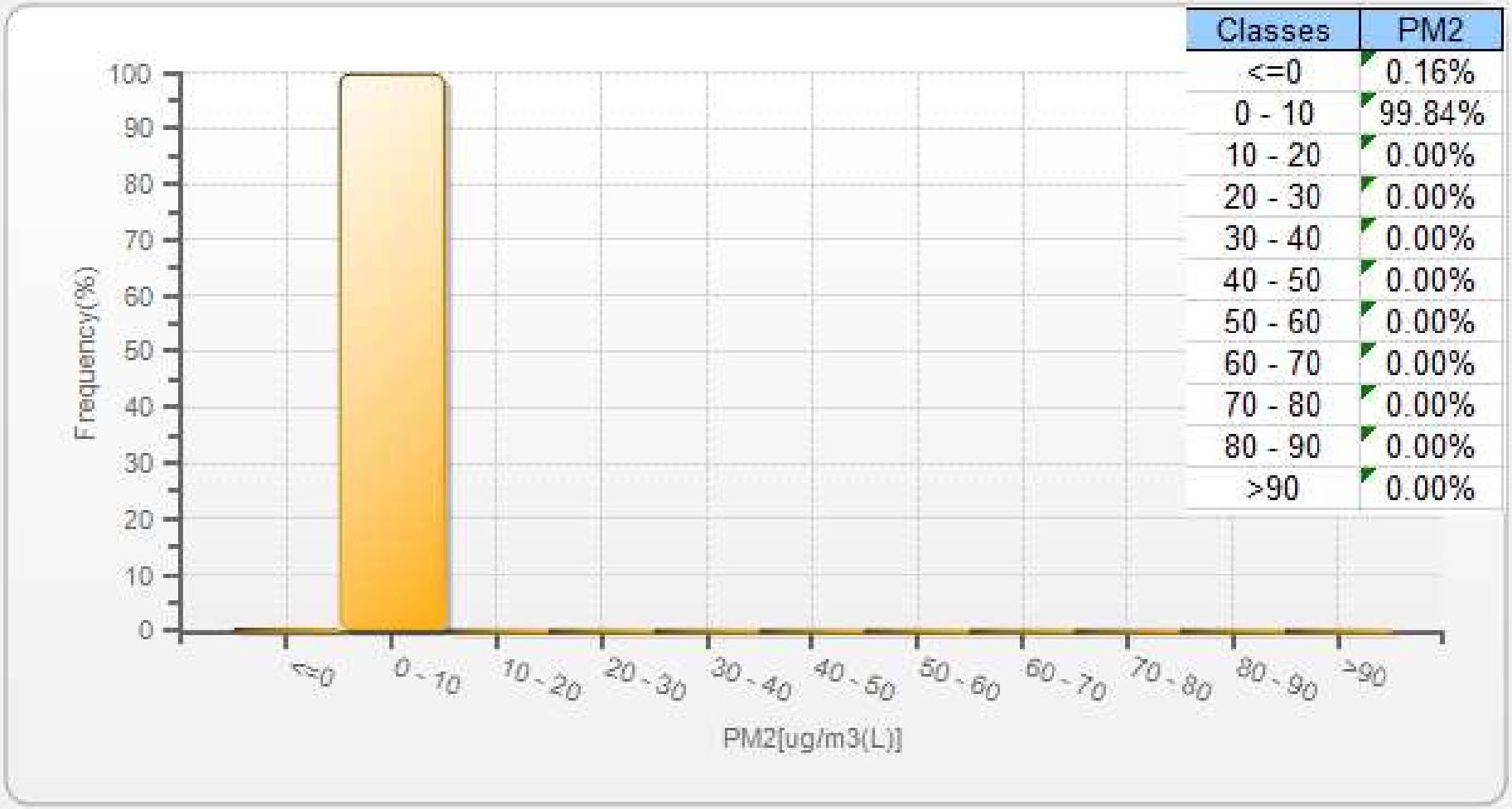
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



PM2[ug/m3(L)] Histogram: St. Lina Monthly: 09-2019 1 Hr.

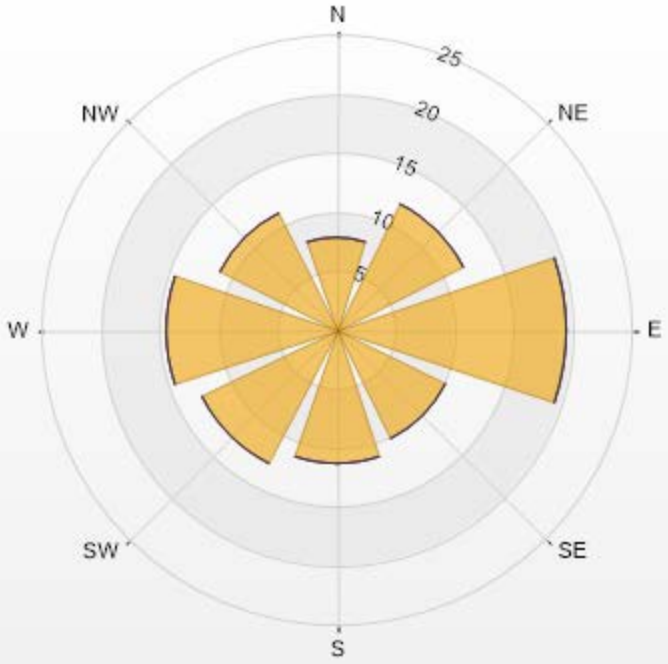


Classes	PM2
<=0	0.16%
0 - 10	99.84%
10 - 20	0.00%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: St. Lina Poll.: St. Lina-PM2[ug/m3(L)] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 0.48% Valid Data: 86.94% Calm Avg: 1.33 [ug/m3(L)]

Direction	50-80	80-120	120-240	>240.0	Total
N	7.83	0	0	0	7.83
NE	11.98	0	0	0	11.98
E	19.49	0	0	0	19.49
SE	10.38	0	0	0	10.38
S	11.34	0	0	0	11.34
SW	12.78	0	0	0	12.78
W	14.54	0	0	0	14.54
NW	11.18	0	0	0	11.18
Summary	100	0	0	0	100

St. Lina Poll.: St. Lina-PM2[ug/m3(L)] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 0.48% Calm Poll Avg: 1.33 [ug/m3(L)]



%	Icon	Classes (ug/m3(L))									
100		50-80	0		80-120	0		120-240	0		>240.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

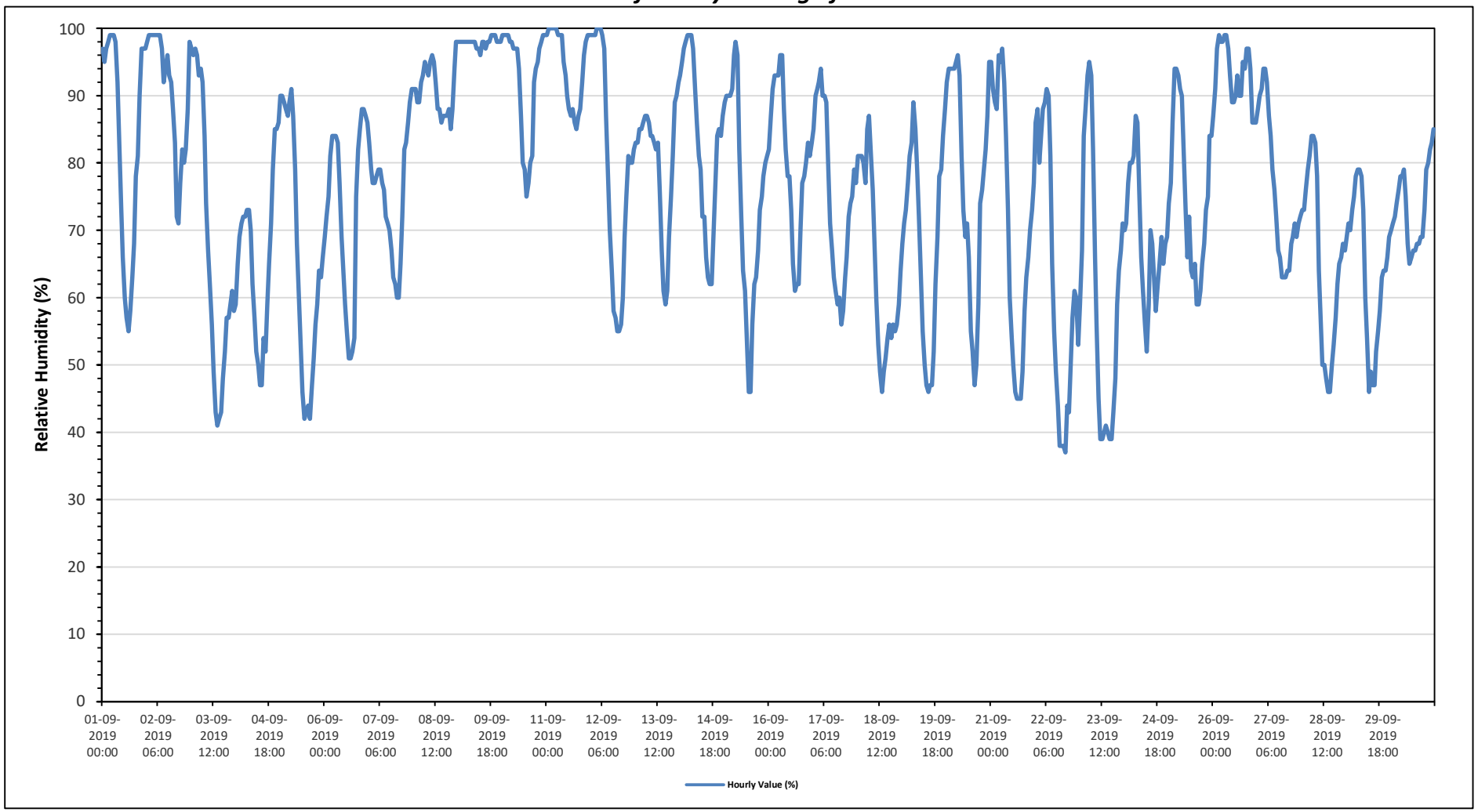
Maximum Hourly Value:	100	%	on September 11 at hour 1	Hours in Service:	720
Maximum Daily Value:	97.9	%	on September 9	Hours of Data:	720
Minimum Hourly Value:	37	%	on September 22 at hour 16	Hours of Missing Data:	0
Minimum Daily Value:	60.7	%	on September 23	Hours of Calibration:	0
Monthly Average:	76.4	%		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	97	95	97	98	99	99	99	98	92	83	73	66	60	57	55	58	63	68	78	81	90	97	97	97	55	99	83
Sep 2	98	99	99	99	99	99	99	99	97	92	94	96	93	92	88	83	72	71	77	82	80	82	88	98	71	99	91
Sep 3	97	96	97	96	93	94	92	84	74	67	62	56	49	43	41	42	43	48	52	57	57	59	61	58	41	97	67
Sep 4	59	65	69	71	72	72	73	73	70	62	57	52	50	47	47	54	52	59	65	71	79	85	85	86	47	86	66
Sep 5	90	90	89	88	87	89	91	87	79	68	60	53	46	42	43	44	42	47	51	56	59	64	63	66	42	91	66
Sep 6	69	72	75	81	84	84	84	83	77	69	64	59	55	51	51	52	54	75	82	85	88	88	87	86	51	88	73
Sep 7	83	79	77	77	78	79	79	77	76	72	71	70	67	63	62	60	60	65	72	82	83	86	89	91	60	91	75
Sep 8	91	91	89	89	92	93	95	94	93	95	96	95	92	88	88	86	87	87	87	88	85	88	94	98	85	98	91
Sep 9	98	98	98	98	98	98	98	98	98	98	97	97	96	98	98	97	98	98	99	99	99	98	98	98	96	99	**98**
Sep 10	99	99	99	99	98	98	97	97	97	94	87	80	79	75	77	80	81	92	94	95	97	98	99	99	75	99	92
Sep 11	99	**100**	**100**	**100**	**100**	**100**	99	99	99	95	93	90	88	87	88	86	85	87	88	92	96	98	99	99	85	**100**	94
Sep 12	99	99	99	**100**	**100**	**100**	99	97	87	78	70	64	58	57	55	55	56	60	69	75	81	80	80	82	55	**100**	79
Sep 13	83	83	85	85	86	87	87	86	84	84	83	82	83	76	67	61	59	61	69	75	81	89	90	92	59	92	80
Sep 14	93	95	97	98	99	99	99	97	91	86	81	79	72	72	66	63	62	62	69	77	84	85	84	87	62	99	83
Sep 15	89	90	90	90	91	96	98	96	82	72	64	61	54	46	46	56	62	63	67	73	75	78	80	81	46	98	75
Sep 16	82	87	91	93	93	93	96	96	88	82	78	78	73	65	61	62	62	70	77	78	80	83	81	83	61	96	81
Sep 17	85	90	91	92	94	90	90	89	79	71	67	63	61	59	60	56	58	63	66	72	74	75	79	77	56	94	75
Sep 18	81	81	81	80	77	85	87	81	76	68	60	53	49	46	49	51	54	56	54	56	55	56	59	64	46	87	65
Sep 19	68	71	73	77	81	83	89	85	79	72	63	55	50	47	46	47	47	52	62	69	78	79	84	88	46	89	69
Sep 20	92	94	94	94	94	95	96	93	81	73	69	71	66	55	52	47	50	59	74	76	79	82	87	95	47	96	78
Sep 21	95	91	89	88	96	95	97	92	84	73	60	54	50	46	45	45	45	49	58	63	66	70	73	77	45	97	71
Sep 22	86	88	80	84	88	89	91	90	81	65	55	49	44	38	38	38	**37**	44	43	50	57	61	60	53	**37**	91	63
Sep 23	59	67	84	88	93	95	93	82	66	56	45	39	39	40	41	40	39	39	43	48	59	64	67	71	39	95	61
Sep 24	70	71	77	80	80	81	87	86	76	66	61	56	52	59	70	68	63	58	62	65	69	65	68	69	52	87	69
Sep 25	74	77	86	94	94	93	91	90	82	73	66	72	64	63	65	59	59	61	65	68	73	75	84	84	59	94	76
Sep 26	87	91	97	99	98	98	99	99	97	93	89	89	90	93	90	90	95	94	97	97	94	86	86	86	86	99	93
Sep 27	88	90	91	94	94	92	87	84	79	76	72	67	66	63	63	63	64	64	68	69	71	69	71	72	63	94	76
Sep 28	73	73	76	79	81	84	84	83	78	64	57	50	50	48	46	46	50	53	57	62	65	66	68	67	46	84	65
Sep 29	69	71	70	73	75	78	79	79	78	73	60	54	46	49	47	47	52	55	58	63	64	64	66	69	46	79	64
Sep 30	70	71	72	74	76	78	78	79	75	68	65	66	67	67	68	68	69	69	73	79	80	82	83	85	65	85	73
Diurnal Maximum	99	100	100	100	100	100	99	99	99	98	97	97	96	98	98	97	98	98	99	99	99	98	99	99			
Daiurnal Average	84.1	85.5	87.1	88.6	89.7	90.5	91.1	89.1	83.2	76.3	70.6	67.2	63.6	61.1	60.4	60.1	60.7	64.3	69.2	73.4	76.6	78.4	80.3	81.9			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

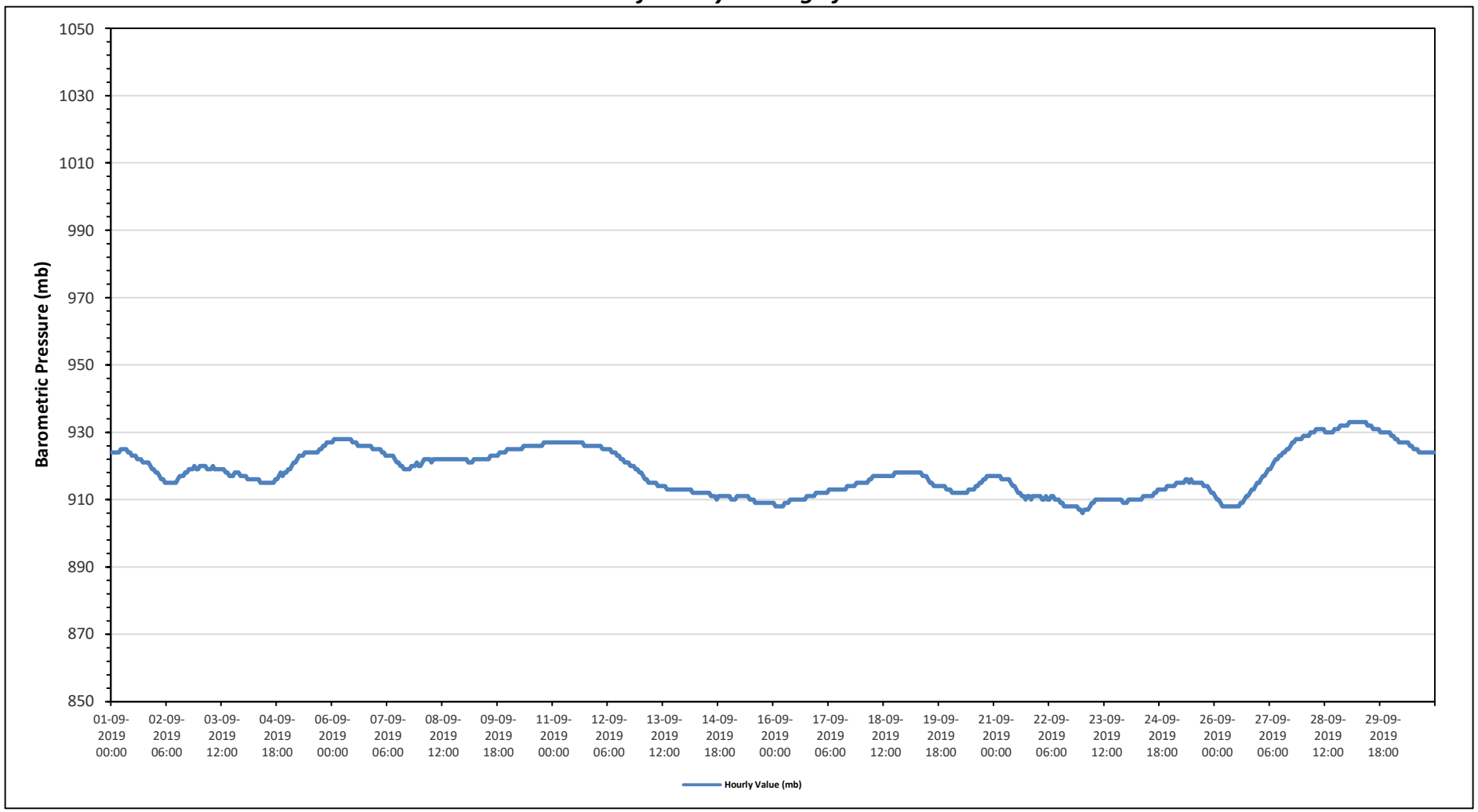
Maximum Hourly Value:	933	mb	on September 29 at hour 1	Hours in Service:	720
Maximum Daily Value:	932	mb	on September 29	Hours of Data:	720
Minimum Hourly Value:	906	mb	on September 23 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	909	mb	on September 22	Hours of Calibration:	0
Monthly Average:	918	mb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	924	924	924	924	924	925	925	925	925	924	924	923	923	923	922	922	922	921	921	921	921	920	919	919	919	925	923
Sep 2	918	918	917	916	916	915	915	915	915	915	915	915	916	917	917	917	918	918	919	919	919	920	919	919	915	920	917
Sep 3	920	920	920	920	919	919	919	920	919	919	919	919	919	919	918	918	917	917	917	918	918	918	917	917	917	920	919
Sep 4	917	917	916	916	916	916	916	916	916	915	915	915	915	915	915	915	915	916	916	917	918	917	918	918	915	918	916
Sep 5	919	919	920	921	921	922	923	923	923	924	924	924	924	924	924	924	924	925	925	926	926	927	927	927	919	927	924
Sep 6	927	928	928	928	928	928	928	928	928	928	928	927	927	927	926	926	926	926	926	926	926	926	925	925	925	928	927
Sep 7	925	925	925	924	924	923	923	923	923	923	922	921	921	920	920	919	919	919	919	920	920	920	921	920	919	925	922
Sep 8	920	921	922	922	922	922	921	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	920	922	922
Sep 9	922	922	921	921	921	922	922	922	922	922	922	922	922	922	923	923	923	923	923	924	924	924	924	925	921	925	923
Sep 10	925	925	925	925	925	925	925	925	926	926	926	926	926	926	926	926	926	926	926	927	927	927	927	927	925	927	926
Sep 11	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	926	926	926	926	926	926	926	926	927	927
Sep 12	926	926	926	925	925	925	925	925	924	924	924	923	923	922	922	921	921	921	920	920	920	919	919	918	918	926	923
Sep 13	918	917	916	916	915	915	915	915	915	914	914	914	914	914	913	913	913	913	913	913	913	913	913	913	913	918	914
Sep 14	913	913	913	913	912	912	912	912	912	912	912	912	912	912	911	911	911	910	911	911	911	911	911	911	910	913	912
Sep 15	911	910	910	910	911	911	911	911	911	911	911	910	910	910	909	909	909	909	909	909	909	909	909	909	909	911	910
Sep 16	909	908	908	908	908	908	909	909	909	910	910	910	910	910	910	910	910	910	911	911	911	911	911	912	908	912	910
Sep 17	912	912	912	912	912	912	913	913	913	913	913	913	913	913	913	913	914	914	914	914	914	915	915	915	912	915	913
Sep 18	915	915	915	915	916	916	917	917	917	917	917	917	917	917	917	917	917	917	918	918	918	918	918	918	915	918	917
Sep 19	918	918	918	918	918	918	918	918	918	917	917	917	916	915	915	914	914	914	914	914	914	914	913	913	913	918	916
Sep 20	913	912	912	912	912	912	912	912	912	912	913	913	913	913	914	914	915	915	916	916	917	917	917	917	912	917	914
Sep 21	917	917	917	917	916	916	916	916	916	915	914	914	913	912	912	911	911	910	911	911	910	911	911	911	910	917	914
Sep 22	911	911	910	910	911	910	910	911	911	910	910	910	909	909	908	908	908	908	908	908	908	908	907	907	907	911	909
Sep 23	**906**	907	907	907	908	909	909	910	910	910	910	910	910	910	910	910	910	910	910	910	910	910	909	909	**906**	910	909
Sep 24	909	910	910	910	910	910	910	910	910	911	911	911	911	911	911	912	912	913	913	913	913	913	914	914	909	914	911
Sep 25	914	914	914	915	915	915	915	915	916	916	915	916	915	915	915	915	915	915	914	914	914	913	912	912	912	916	915
Sep 26	911	910	910	909	908	908	908	908	908	908	908	908	908	908	909	909	910	911	911	912	913	913	914	915	908	915	910
Sep 27	915	916	917	917	918	919	919	920	921	922	922	923	923	924	924	925	925	926	927	927	928	928	928	928	915	928	923
Sep 28	929	929	929	929	930	930	930	931	931	931	931	931	930	930	930	930	930	931	931	931	932	932	932	932	929	932	931
Sep 29	932	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	932	932	932	931	931	931	931	930	930	930	930	930	930	930	**933**	**932**
Sep 30	929	929	928	928	927	927	927	927	927	927	926	926	925	925	925	924	924	924	924	924	924	924	924	924	924	929	926
Diurnal Maximum	932	933	933	933	933	933	933	933	933	933	933	932	932	932	931	931	931	931	931	931	932	932	932	932			
Daiurnal Average	918	918	918	918	918	918	918	919	919	919	919	918	918	918	918	918	918	918	918	918	919	919	918	918			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

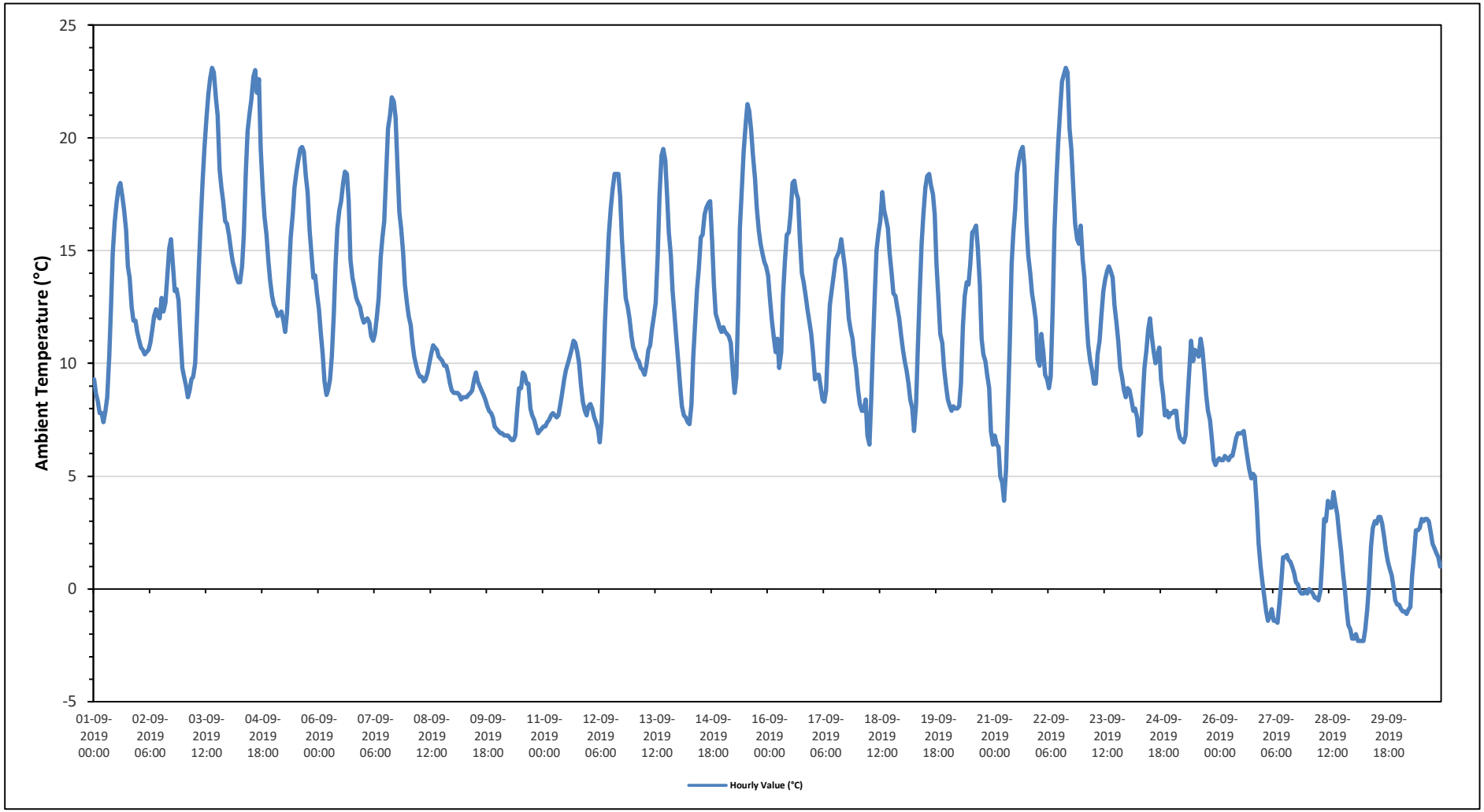
Maximum Hourly Value:	23.1	°C	on September 3 at hour 15	Hours in Service:	720
Maximum Daily Value:	17.2	°C	on September 4	Hours of Data:	720
Minimum Hourly Value:	-2.3	°C	on September 29 at hour 3	Hours of Missing Data:	0
Minimum Daily Value:	0.0	°C	on September 27	Hours of Calibration:	0
Monthly Average:	10.5	°C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	9.3	8.7	8.3	7.8	7.8	7.4	7.9	8.5	10.3	12.5	14.9	16.3	17.1	17.8	18.0	17.4	16.8	15.9	14.3	13.8	12.5	11.9	11.9	11.4	7.4	18.0	12.4
Sep 2	11.0	10.7	10.6	10.4	10.5	10.6	10.9	11.5	12.1	12.4	12.1	12.0	12.9	12.3	12.7	13.8	15.1	15.5	14.3	13.2	13.3	12.8	11.3	9.8	9.8	15.5	12.2
Sep 3	9.4	9.0	8.5	8.8	9.3	9.4	10.0	12.0	14.4	16.3	18.2	19.6	20.9	21.9	22.6	**23.1**	22.9	21.8	21.0	18.6	17.8	17.2	16.3	16.2	8.5	**23.1**	16.1
Sep 4	15.7	15.1	14.5	14.2	13.8	13.6	13.6	14.3	15.7	18.5	20.3	21.1	21.7	22.7	23.0	22.0	22.6	19.5	17.7	16.5	15.7	14.6	13.7	13.0	13.0	23.0	**17.2**
Sep 5	12.6	12.4	12.1	12.2	12.3	11.9	11.4	12.2	14.0	15.6	16.6	17.8	18.5	19.0	19.5	19.6	19.4	18.3	17.6	15.9	14.9	13.8	13.9	13.1	11.4	19.6	15.2
Sep 6	12.4	11.4	10.4	9.2	8.6	8.8	9.3	10.3	12.2	14.4	16.0	16.8	17.2	18.0	18.5	18.4	17.2	14.6	13.8	13.4	12.9	12.7	12.5	12.1	8.6	18.5	13.4
Sep 7	11.8	11.9	12.0	11.8	11.2	11.0	11.3	12.1	12.9	14.7	15.6	16.3	18.5	20.4	21.0	21.8	21.6	20.9	18.9	16.7	16.0	14.9	13.5	12.7	11.0	21.8	15.4
Sep 8	12.1	11.7	10.9	10.3	9.9	9.6	9.4	9.4	9.2	9.3	9.6	10.0	10.4	10.8	10.7	10.6	10.3	10.2	10.1	9.9	9.9	9.6	9.1	8.8	8.8	12.1	10.1
Sep 9	8.7	8.7	8.7	8.6	8.4	8.5	8.5	8.5	8.6	8.7	8.8	9.3	9.6	9.2	9.0	8.8	8.6	8.4	8.1	7.9	7.8	7.6	7.2	7.1	7.1	9.6	8.5
Sep 10	7.0	6.9	6.9	6.8	6.8	6.8	6.7	6.6	6.6	6.8	8.0	8.9	8.9	9.6	9.5	9.1	9.1	8.0	7.7	7.5	7.2	6.9	7.0	7.1	6.6	9.6	7.6
Sep 11	7.2	7.2	7.4	7.5	7.7	7.8	7.7	7.6	7.7	8.2	8.7	9.3	9.7	10.0	10.3	10.6	11.0	10.9	10.5	10.0	9.0	8.3	7.9	7.7	7.2	11.0	8.7
Sep 12	8.1	8.2	8.0	7.6	7.4	7.1	6.5	7.4	9.4	11.9	14.0	15.7	16.9	17.7	18.4	18.4	18.4	17.4	15.5	14.1	12.9	12.5	12.0	11.2	6.5	18.4	12.4
Sep 13	10.7	10.5	10.2	10.1	9.8	9.7	9.5	9.9	10.6	10.8	11.5	12.1	12.7	14.8	17.4	19.2	19.5	19.0	17.5	15.8	14.8	13.2	12.1	11.1	9.5	19.5	13.0
Sep 14	10.0	9.0	8.1	7.7	7.6	7.4	7.3	8.2	10.3	11.9	13.3	14.2	15.6	15.7	16.6	16.9	17.1	17.2	15.4	13.5	12.2	11.9	11.6	11.4	7.3	17.2	12.1
Sep 15	11.6	11.4	11.3	11.2	10.9	9.8	8.7	9.4	12.8	16.0	17.8	19.4	20.6	21.5	21.2	20.3	19.2	18.2	16.9	15.9	15.3	14.9	14.5	14.3	8.7	21.5	15.1
Sep 16	13.9	12.9	11.9	11.2	10.5	11.1	9.8	10.5	13.0	14.6	15.7	15.8	16.6	18.0	18.1	17.6	17.3	15.5	14.0	13.6	13.0	12.4	11.9	11.3	9.8	18.1	13.8
Sep 17	10.5	9.3	9.5	9.5	9.0	8.4	8.3	8.8	11.0	12.6	13.3	13.9	14.6	14.8	15.0	15.5	14.9	14.2	13.3	12.0	11.5	11.1	10.3	9.8	8.3	15.5	11.7
Sep 18	8.8	8.2	7.9	7.9	8.4	6.8	6.4	8.4	10.8	13.3	15.0	15.8	16.3	17.6	16.8	16.4	16.0	14.9	14.0	13.1	13.0	12.5	12.0	11.3	6.4	17.6	12.2
Sep 19	10.6	10.1	9.7	9.1	8.4	8.0	7.0	8.2	10.7	13.3	15.3	16.6	17.8	18.3	18.4	17.9	17.5	16.6	14.4	12.8	11.3	10.9	9.8	9.0	7.0	18.4	12.6
Sep 20	8.4	8.1	7.9	8.1	8.0	8.0	8.1	9.1	11.7	13.0	13.6	13.5	14.4	15.8	15.9	16.1	15.1	13.5	11.1	10.4	10.1	9.5	8.9	7.0	7.0	16.1	11.1
Sep 21	6.4	6.8	6.4	6.3	5.0	4.7	3.9	5.3	7.9	11.0	14.4	15.8	16.8	18.4	19.0	19.4	19.6	18.7	16.2	14.8	14.0	13.1	12.6	11.9	3.9	19.6	12.0
Sep 22	10.2	9.9	11.3	10.5	9.5	9.3	8.9	9.4	12.4	15.9	18.2	19.8	21.3	22.5	22.8	**23.1**	22.9	20.4	19.5	17.7	16.2	15.5	15.3	16.1	8.9	**23.1**	15.8
Sep 23	14.6	13.8	12.0	10.8	10.1	9.7	9.1	9.1	10.4	11.0	12.1	13.2	13.7	14.1	14.3	14.1	13.8	12.6	11.8	11.0	9.8	9.4	8.8	8.5	8.5	14.6	11.6
Sep 24	8.9	8.8	8.4	7.9	8.0	7.6	6.8	6.9	8.4	9.8	10.6	11.5	12.0	11.2	10.5	10.0	10.4	10.7	9.3	8.6	7.7	7.9	7.6	7.8	6.8	12.0	9.1
Sep 25	7.8	7.9	7.9	7.1	6.7	6.6	6.5	6.8	8.4	9.7	11.0	10.1	10.6	10.5	10.3	11.1	10.6	9.6	8.6	7.9	7.5	6.7	5.7	5.5	5.5	11.1	8.4
Sep 26	5.7	5.8	5.7	5.7	5.9	5.8	5.7	5.9	5.9	6.3	6.7	6.9	6.9	6.9	7.0	6.4	5.8	5.3	4.9	5.1	5.0	3.6	2.0	1.0	1.0	7.0	5.5
Sep 27	0.3	-0.4	-1.0	-1.4	-1.2	-0.9	-1.4	-1.4	-1.5	-0.7	0.3	1.4	1.4	1.5	1.3	1.2	1.0	0.7	0.3	0.2	-0.1	-0.2	-0.2	-0.1	-1.5	1.5	0.0
Sep 28	-0.2	0.0	-0.1	-0.2	-0.4	-0.4	-0.5	-0.1	1.2	3.1	3.0	3.9	3.6	3.6	4.3	3.8	3.3	2.5	1.7	0.8	0.0	-0.9	-1.6	-1.8	-1.8	4.3	1.2
Sep 29	-2.2	-2.2	-2.0	**-2.3**	**-2.3**	**-2.3**	**-2.3**	-1.8	-0.9	0.2	1.9	2.7	3.0	2.9	3.2	3.2	2.9	2.3	1.7	1.2	0.9	0.6	0.1	-0.5	**-2.3**	3.2	0.3
Sep 30	-0.7	-0.7	-0.9	-1.0	-1.0	-1.1	-0.9	-0.8	0.6	1.6	2.6	2.6	2.7	3.1	3.0	3.1	3.1	3.0	2.5	2.0	1.8	1.6	1.4	1.0	-1.1	3.1	1.2
Diurnal Maximum	15.7	15.1	14.5	14.2	13.8	13.6	13.6	14.3	15.7	18.5	20.3	21.1	21.7	22.7	23.0	23.1	22.9	21.8	21.0	18.6	17.8	17.2	16.3	16.2			
Daiurnal Average	8.7	8.4	8.1	7.8	7.6	7.4	7.1	7.7	9.2	10.8	12.0	12.7	13.4	14.0	14.3	14.3	14.1	13.2	12.1	11.1	10.5	9.9	9.3	8.8			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

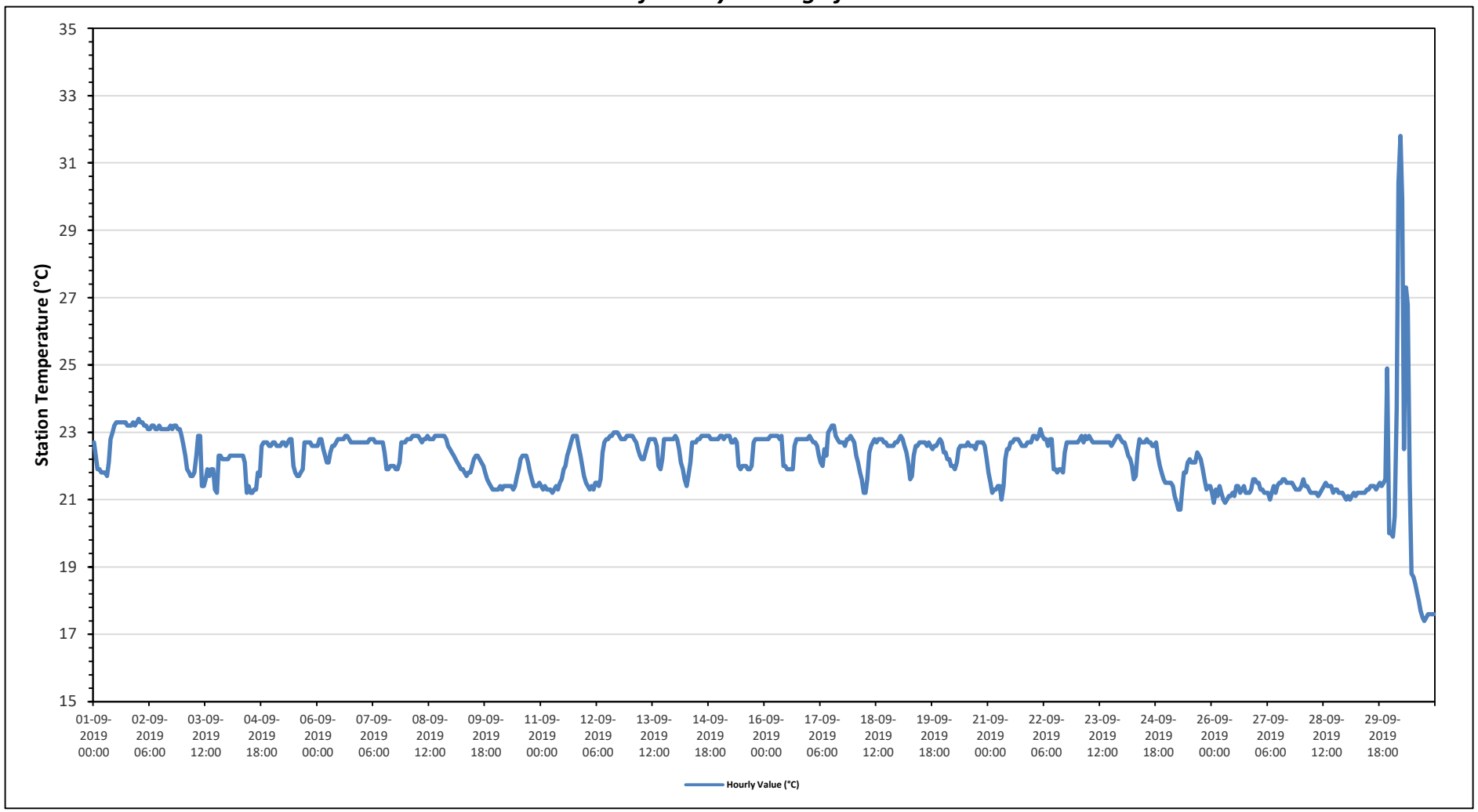
Maximum Hourly Value:	31.8	°C	on September 30 at hour 5	Hours in Service:	720
Maximum Daily Value:	23.2	°C	on September 2	Hours of Data:	720
Minimum Hourly Value:	17.4	°C	on September 30 at hour 18	Hours of Missing Data:	0
Minimum Daily Value:	21.1	°C	on September 30	Hours of Calibration:	0
Monthly Average:	22.2	°C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	22.7	22.3	21.9	21.9	21.8	21.8	21.8	21.7	22.1	22.8	23.0	23.2	23.3	23.3	23.3	23.3	23.3	23.3	23.2	23.2	23.2	23.3	23.2	23.3	21.7	23.3	22.8
Sep 2	23.4	23.3	23.3	23.2	23.2	23.1	23.1	23.2	23.2	23.1	23.1	23.2	23.1	23.1	23.1	23.1	23.1	23.2	23.1	23.2	23.2	23.1	23.1	22.9	22.9	23.4	**23.2**
Sep 3	22.6	22.3	21.9	21.8	21.7	21.7	21.8	22.3	22.9	22.9	21.4	21.4	21.6	21.9	21.7	21.9	21.9	21.3	21.2	22.3	22.3	22.2	22.2	22.2	21.2	22.9	22.0
Sep 4	22.2	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.1	21.2	21.4	21.2	21.2	21.3	21.3	21.8	21.7	22.6	22.7	22.7	22.7	22.6	22.6	21.2	22.7	22.1
Sep 5	22.7	22.7	22.6	22.6	22.6	22.7	22.7	22.6	22.7	22.8	22.8	22.0	21.8	21.7	21.7	21.8	21.9	22.7	22.7	22.7	22.7	22.6	22.6	22.6	21.7	22.8	22.5
Sep 6	22.6	22.8	22.8	22.5	22.3	22.1	22.1	22.4	22.6	22.6	22.7	22.8	22.8	22.8	22.8	22.9	22.9	22.8	22.7	22.7	22.7	22.7	22.7	22.7	22.1	22.9	22.6
Sep 7	22.7	22.7	22.7	22.7	22.8	22.8	22.8	22.7	22.7	22.7	22.7	22.7	22.4	21.9	21.9	22.0	22.0	22.0	21.9	21.9	22.1	22.7	22.7	22.7	21.9	22.8	22.5
Sep 8	22.8	22.8	22.8	22.9	22.9	22.9	22.9	22.8	22.7	22.8	22.8	22.9	22.8	22.8	22.8	22.9	22.9	22.9	22.9	22.9	22.9	22.8	22.6	22.5	22.5	22.9	22.8
Sep 9	22.4	22.3	22.2	22.1	22.0	21.9	21.9	21.8	21.7	21.8	21.8	22.0	22.2	22.3	22.3	22.2	22.1	22.0	21.8	21.6	21.5	21.4	21.3	21.3	21.3	22.4	21.9
Sep 10	21.3	21.3	21.4	21.3	21.4	21.4	21.4	21.4	21.4	21.3	21.4	21.7	21.9	22.2	22.3	22.3	22.3	22.1	21.8	21.6	21.4	21.4	21.4	21.5	21.3	22.3	21.6
Sep 11	21.4	21.3	21.4	21.3	21.3	21.3	21.2	21.3	21.4	21.3	21.5	21.6	21.9	22.0	22.3	22.5	22.7	22.9	22.9	22.9	22.6	22.3	22.0	21.7	21.2	22.9	21.9
Sep 12	21.5	21.4	21.3	21.4	21.3	21.5	21.5	21.4	21.6	22.4	22.7	22.8	22.8	22.9	22.9	23.0	23.0	23.0	22.9	22.8	22.8	22.8	22.9	22.9	21.3	23.0	22.3
Sep 13	22.9	22.9	22.8	22.7	22.5	22.3	22.2	22.2	22.4	22.6	22.8	22.8	22.8	22.8	22.6	22.0	21.9	22.2	22.8	22.8	22.8	22.8	22.8	22.8	21.9	22.9	22.6
Sep 14	22.9	22.8	22.5	22.1	21.9	21.6	21.4	21.7	22.1	22.7	22.7	22.7	22.8	22.8	22.9	22.9	22.9	22.9	22.9	22.8	22.8	22.8	22.8	22.8	21.4	22.9	22.6
Sep 15	22.9	22.9	22.8	22.9	22.9	22.9	22.7	22.7	22.8	22.7	22.0	21.9	22.0	22.0	22.0	21.9	21.9	22.0	22.7	22.8	22.8	22.8	22.8	22.8	21.9	22.9	22.5
Sep 16	22.8	22.8	22.8	22.9	22.9	22.9	22.9	22.9	22.8	22.9	22.0	22.0	21.9	21.9	21.9	21.9	22.6	22.8	22.8	22.8	22.8	22.8	22.8	22.8	21.9	22.9	22.6
Sep 17	22.9	22.8	22.7	22.7	22.6	22.3	22.1	22.0	22.5	22.3	23.0	23.1	23.2	23.2	22.9	22.8	22.7	22.7	22.7	22.6	22.8	22.8	22.9	22.8	22.0	23.2	22.7
Sep 18	22.7	22.3	22.1	21.8	21.6	21.2	21.2	21.6	22.4	22.6	22.7	22.8	22.7	22.8	22.8	22.8	22.7	22.7	22.6	22.6	22.6	22.6	22.7	22.7	21.2	22.8	22.4
Sep 19	22.8	22.9	22.8	22.6	22.4	22.1	21.6	21.7	22.3	22.6	22.6	22.7	22.7	22.7	22.7	22.6	22.7	22.6	22.5	22.6	22.6	22.7	22.8	22.7	21.6	22.9	22.5
Sep 20	22.4	22.4	22.2	22.2	22.0	22.0	21.9	22.1	22.5	22.6	22.6	22.6	22.6	22.7	22.6	22.6	22.6	22.5	22.7	22.7	22.7	22.7	22.6	22.2	21.9	22.7	22.4
Sep 21	21.8	21.5	21.2	21.3	21.3	21.4	21.4	21.0	21.4	22.2	22.5	22.5	22.7	22.7	22.8	22.8	22.8	22.7	22.6	22.6	22.6	22.7	22.7	22.7	21.0	22.8	22.2
Sep 22	22.9	22.9	22.8	22.9	23.1	22.9	22.8	22.8	22.6	22.8	22.8	21.9	21.9	21.8	21.9	21.9	21.8	22.4	22.7	22.7	22.7	22.7	22.7	22.7	21.8	23.1	22.5
Sep 23	22.7	22.8	22.9	22.7	22.9	22.8	22.9	22.8	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.6	22.7	22.8	22.9	22.9	22.8	22.6	22.9	22.8
Sep 24	22.7	22.7	22.5	22.3	22.2	22.0	21.6	21.7	22.4	22.8	22.7	22.7	22.7	22.8	22.7	22.7	22.6	22.6	22.7	22.3	22.0	21.8	21.6	21.5	21.5	22.8	22.3
Sep 25	21.5	21.5	21.5	21.4	21.1	20.9	20.7	20.7	21.3	21.8	21.8	22.1	22.2	22.1	22.1	22.1	22.4	22.3	22.2	21.9	21.6	21.3	21.4	21.4	20.7	22.4	21.6
Sep 26	21.2	20.9	21.3	21.1	21.4	21.2	21.0	20.9	21.0	21.1	21.1	21.2	21.1	21.4	21.4	21.2	21.3	21.4	21.2	21.2	21.2	21.3	21.6	21.6	20.9	21.6	21.2
Sep 27	21.5	21.5	21.3	21.3	21.2	21.2	21.2	21.0	21.2	21.4	21.2	21.4	21.5	21.5	21.6	21.6	21.5	21.5	21.5	21.5	21.4	21.3	21.3	21.3	21.0	21.6	21.4
Sep 28	21.4	21.6	21.4	21.4	21.3	21.2	21.2	21.2	21.2	21.1	21.2	21.3	21.4	21.5	21.4	21.4	21.4	21.2	21.3	21.3	21.2	21.2	21.2	21.1	21.1	21.6	21.3
Sep 29	21.0	21.1	21.0	21.1	21.2	21.1	21.2	21.2	21.2	21.2	21.2	21.3	21.3	21.4	21.4	21.4	21.3	21.4	21.5	21.4	21.5	21.6	24.9	20.0	20.0	24.9	21.4
Sep 30	20.0	19.9	20.5	23.7	30.4	**31.8**	29.9	22.5	27.3	26.8	21.5	18.8	18.7	18.5	18.2	18.0	17.7	17.5	**17.4**	17.5	17.6	17.6	17.6	17.6	**17.4**	**31.8**	21.1
Diurnal Maximum	23.4	23.3	23.3	23.7	30.4	31.8	29.9	23.2	27.3	26.8	23.1	23.2	23.3	23.3	23.3	23.3	23.3	23.3	23.2	23.2	23.2	23.3	24.9	23.3			
Daiurnal Average	22.2	22.2	22.1	22.2	22.4	22.3	22.2	22.0	22.3	22.5	22.2	22.1	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.3	22.1			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Averages

PRECIPITATION in mm

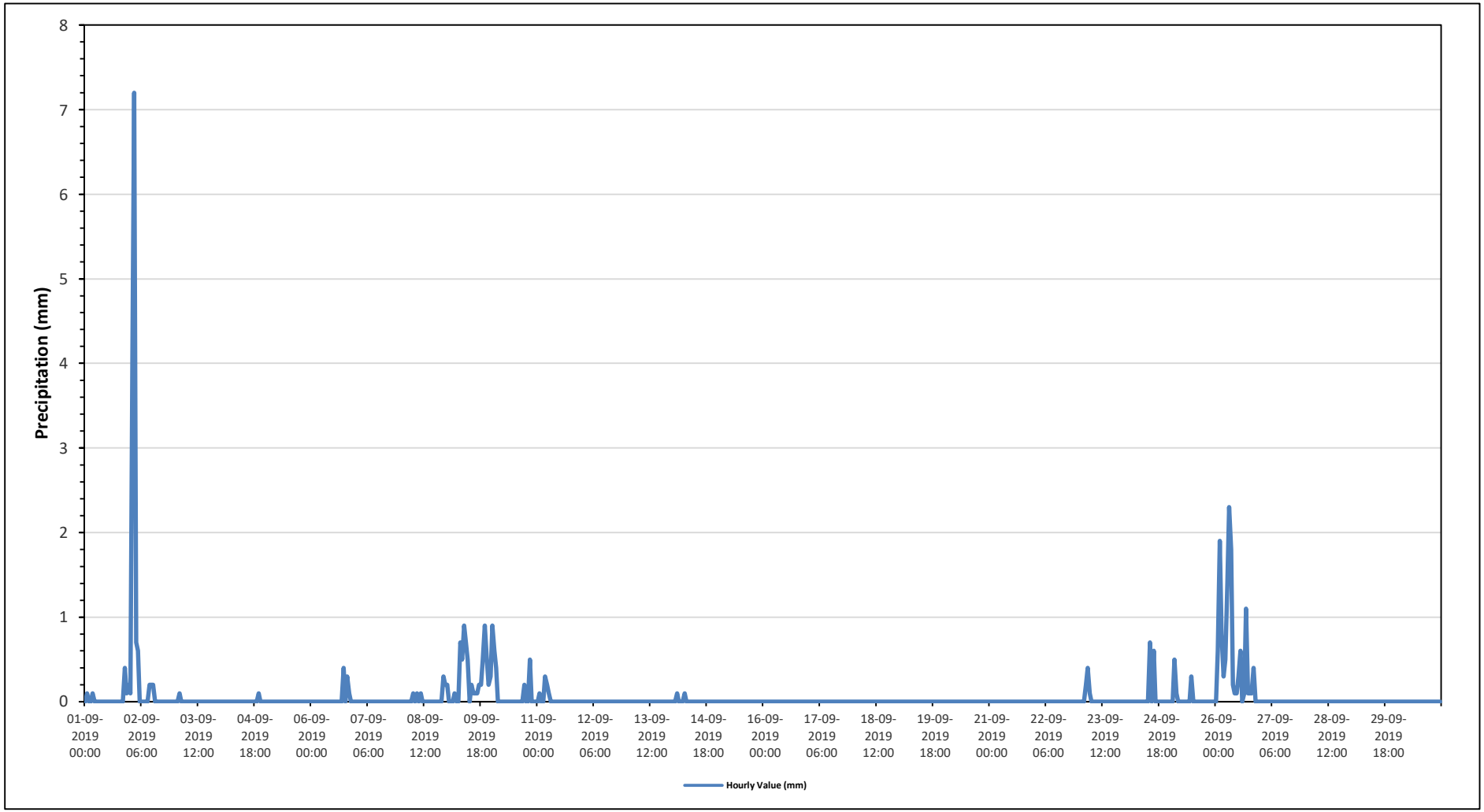
Maximum Hourly Value:	7.2	mm	on September 2 at hour 2	Hours in Service:	720
Maximum Daily Value:	13.3	mm	on September 2	Hours of Data:	720
Minimum Hourly Value:	0.0	mm	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	mm	on September 5	Hours of Calibration:	0
Monthly Total:	42.1	mm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Total
Sep 1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.2	0.0	0.4	0.9
Sep 2	0.1	4.1	**7.2**	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**7.2**	**13.3**
Sep 3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Sep 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	0.1	0.0	0.0	0.0	0.0	0.1	0.1
Sep 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
Sep 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	0.4	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.4	0.8
Sep 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
Sep 8	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.3	0.8
Sep 9	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.7	0.5	0.9	0.7	0.5	0.0	0.2	0.1	0.1	0.1	0.2	0.2	0.5	0.9	0.5	0.2	0.3	0.0	0.9	6.9
Sep 10	0.9	0.6	0.4	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	0.2	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.9	2.6
Sep 11	0.0	0.1	0.0	0.0	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.7
Sep 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
Sep 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
Sep 14	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 23	0.0	0.0	0.0	0.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.7
Sep 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	0.7	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.3
Sep 25	0.0	0.0	0.5	0.1	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	0.0	0.0	0.0	0.0	0.5	0.9
Sep 26	0.0	0.6	1.9	0.8	0.3	0.5	1.4	2.3	1.8	0.2	0.1	0.1	0.3	0.6	0.0	0.1	1.1	0.1	0.1	0.1	0.4	0.0	0.0	0.0	0.0	2.3	12.8
Sep 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
Sep 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
Sep 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
Sep 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
Diurnal Maximum	0.9	4.1	7.2	0.8	0.6	0.5	1.4	2.3	1.8	0.9	0.7	0.5	0.3	0.7	0.1	0.6	1.1	0.4	0.2	0.5	0.9	0.5	0.3	0.3			
Daiurnal Average	0.0	0.2	0.3	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

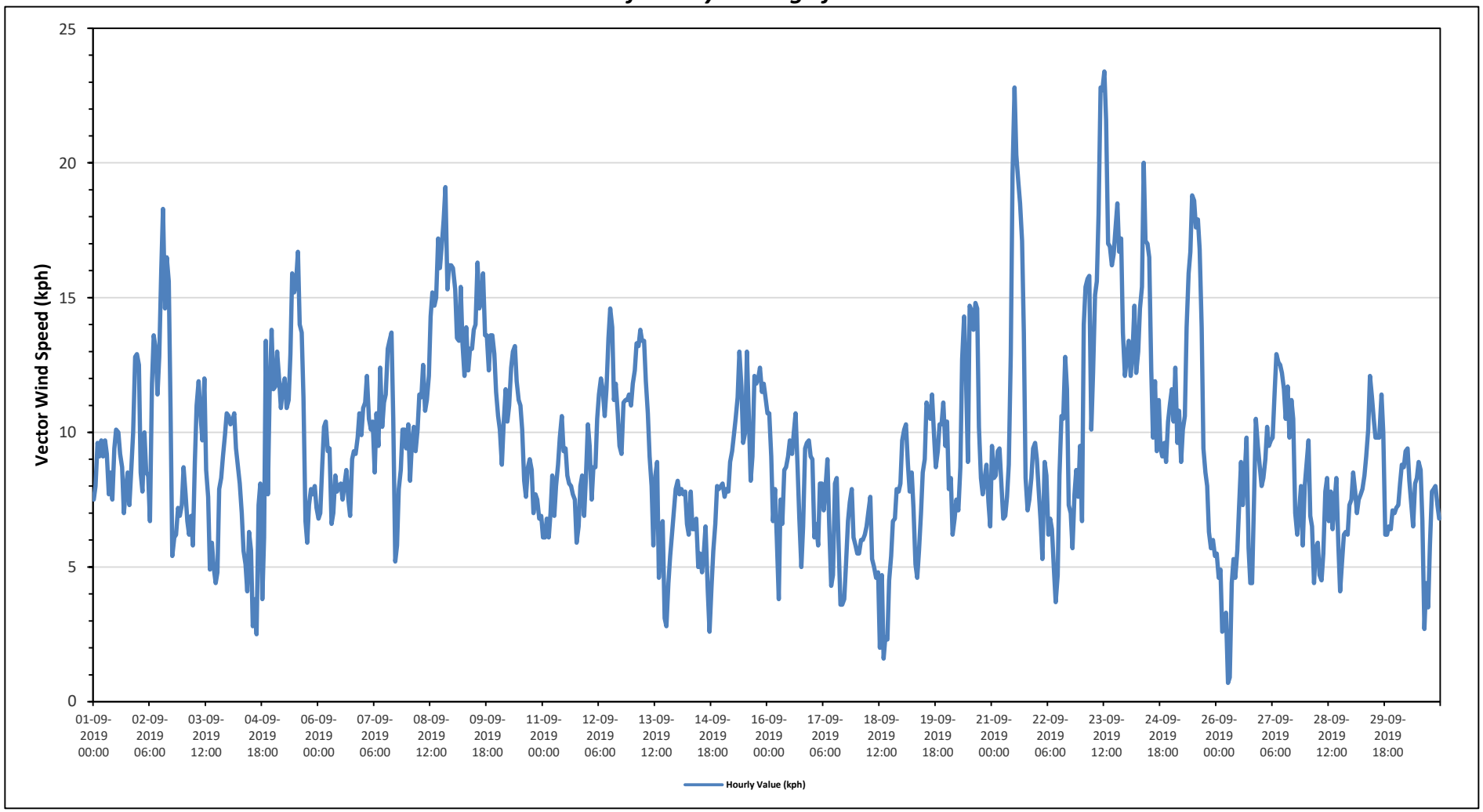
Maximum Hourly Value:	23.4	kph	on September 23 at hour 12	Hours in Service:	720
Maximum Daily Value:	16.3	kph	on September 23	Hours of Data:	720
Minimum Hourly Value:	0.7	kph	on September 26 at hour 6	Hours of Missing Data:	0
Minimum Daily Value:	5.4	kph	on September 18	Hours of Calibration:	0
Monthly Average:	0.1	kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	7.5	8	9.6	9.1	9.7	9.1	9.7	9.2	7.7	8.5	7.5	9.4	10.1	10	9.2	8.7	7	7.8	8.5	7.3	8.7	10	12.8	12.9	7.0	12.9	9.1
Sep 2	12.5	8.5	7.8	10	8.5	8.4	6.7	11.8	13.6	13.1	11.4	12.8	16	18.3	14.6	16.5	15.6	10.9	5.4	6.1	6.2	7.2	6.9	7.3	5.4	18.3	10.7
Sep 3	8.7	7.7	6.7	6.2	6.9	5.8	8.9	11	11.9	10.7	9.7	12	8.6	7.6	4.9	5.9	5	4.4	4.8	7.9	8.3	9.1	9.9	10.7	4.4	12.0	8.1
Sep 4	10.6	10.3	10.4	10.7	9.4	8.7	8.1	7	5.6	5.1	4.1	6.3	5.6	2.8	3.8	2.5	7.3	8.1	3.8	6.1	13.4	7.7	11.4	13.8	2.5	13.8	7.6
Sep 5	11.6	11.7	13	12.1	10.9	11.6	12	10.9	11.2	12.9	15.9	15.2	15.5	16.7	14	13.7	11.3	6.7	5.9	7.3	7.9	7.7	8	7.2	5.9	16.7	11.3
Sep 6	6.8	7	8.8	10.2	10.4	9.3	9.4	6.6	7	8.4	7.8	8	8.1	7.5	8.1	8.6	7.5	6.9	9	9.3	9.2	9.8	10.7	9.9	6.6	10.7	8.5
Sep 7	10.9	11.1	12.1	10.5	10.1	10.4	8.5	10.7	9.5	12.4	10.2	11.1	11.4	13.1	13.4	13.7	10.5	5.2	5.8	7.9	8.6	10.1	10.1	9.4	5.2	13.7	10.3
Sep 8	10.3	8.2	9.7	10.2	9.3	10.1	11.4	11.3	12.5	10.8	11.2	12.1	14.3	15.2	14.7	15	17.2	16.1	17	17.9	19.1	15.3	16.2	16.2	8.2	19.1	13.4
Sep 9	16.1	15.3	13.5	13.4	15.4	13.3	12.1	13.9	12.3	13.1	13.1	13.8	14	16.3	14.6	14.9	15.9	13.6	13.6	12.3	13.6	13.6	12.9	11.5	11.5	16.3	13.8
Sep 10	10.6	10.1	8.8	10.3	11.6	10.4	11	12.4	13	13.2	11.9	11.2	11	10.1	8.2	7.6	8.7	9	8.6	7	7.7	7.5	6.8	6.9	6.8	13.2	9.7
Sep 11	6.1	6.1	6.8	6.1	7	8.4	6.9	8	8.8	9.8	10.6	9.3	9.4	8.4	8.1	8	7.7	7.5	5.9	6.5	8	8.4	6.9	8.3	5.9	10.6	7.8
Sep 12	10.3	9.5	7.5	8.7	8.7	10.5	11.4	12	11.6	10.6	11.6	13.5	14.6	13.9	11.2	11.8	10.7	9.5	9.2	11.1	11.2	11.2	11.4	11	7.5	14.6	10.9
Sep 13	11.8	12.3	13.3	13.2	13.8	13.4	13.4	11.9	10.7	9.1	8	5.8	8.4	8.9	4.6	5.9	6.7	3.1	2.8	4.4	5.4	6.3	7.1	7.9	2.8	13.8	8.7
Sep 14	8.2	7.7	7.9	7.7	7.8	6.6	6.2	7.8	6.4	6.4	6.8	5	5.5	4.8	5.5	6.5	4.1	2.6	4.3	5.6	6.6	8	7.9	8	2.6	8.2	6.4
Sep 15	8.1	7.6	7.9	7.8	8.9	9.3	9.9	10.5	11.3	13	11.7	9.6	10	13	10.8	8.2	9.1	12.1	11.8	12	12.4	11.5	11.8	11.3	7.6	13.0	10.4
Sep 16	10.7	10.7	9.1	6.7	7.9	6.1	3.8	7.5	6.6	8.6	8.7	9.1	9.7	9.2	10	10.7	8.7	6.8	5	6.5	9.4	9.6	9.7	9.1	3.8	10.7	8.3
Sep 17	9	6.1	6.6	5.8	8.1	8.1	7.1	7.9	9	6.6	4.3	4.7	8.1	8.3	5.7	3.6	3.6	3.8	5.1	6.7	7.4	7.9	6.1	5.8	3.6	9.0	6.5
Sep 18	5.5	5.5	6	6	6.2	6.5	7.1	7.6	5.3	5	4.6	4.8	2	4.7	1.6	2.4	2.3	4.5	5.4	6.7	6.8	7.9	7.8	8.1	1.6	8.1	**5.4**
Sep 19	9.7	10.1	10.3	8.8	7.8	8.5	7.2	5.1	4.6	5.6	7	8.5	9	11.1	10.7	10.5	11.4	9.9	8.7	9.3	10.3	10.3	11.1	9.5	4.6	11.4	9.0
Sep 20	10.4	7.9	8.3	6.2	6.8	7.5	7.1	8.7	12.7	14.3	12.2	8.9	14.7	14.5	13.8	14.8	14.6	10.2	8.3	7.7	8.3	8.8	7.4	6.5	6.2	14.8	10.0
Sep 21	9.5	8.3	8.4	9.3	9.4	8	6.8	6.9	7.6	8.8	12.9	19.6	22.8	20.3	19.3	18.5	17.1	13.7	8.3	7.1	7.5	8.3	9.4	9.6	6.8	22.8	11.6
Sep 22	9	7.9	6.7	5.3	8.9	8.4	6.2	6.8	6.4	4.9	3.7	4.7	8.4	10.6	10.5	12.8	11.6	7.3	7	5.7	7.7	8.6	7.6	9.5	3.7	12.8	7.8
Sep 23	6.7	14	15.4	15.7	15.8	10.1	12.2	15.1	15.6	18.1	22.8	22.7	**23.4**	21.6	17	16.9	16.2	16.6	17.5	18.5	16.7	17.2	13.7	12.1	6.7	**23.4**	**16.3**
Sep 24	12.7	13.4	12.1	12.9	14.7	12.2	13	14.6	15.4	20	17.1	17	16.5	12.3	9.8	11.9	9.3	11.2	9.4	9.1	9.6	8.9	10.4	11	8.9	20.0	12.7
Sep 25	11.6	10.4	12.4	9.6	10.8	8.9	10.1	10.6	13.9	15.9	16.7	18.8	18.6	17.6	17.9	16.8	13.9	9.4	8.5	8	6.3	5.7	6	5.4	5.4	18.8	11.8
Sep 26	5.5	4.6	4.9	2.6	2.7	3.3	**0.7**	0.9	4.4	5.3	4.6	5.6	7.2	8.9	7.3	8.5	9.8	5.7	4.4	4.4	7.6	10.5	9.5	8.8	**0.7**	10.5	5.7
Sep 27	8	8.3	9	10.2	9.5	9.7	9.8	11.5	12.9	12.6	12.5	12.2	11.6	10.5	11.7	9.8	11.2	10.5	7	6.2	7	8	5.8	8	5.8	12.9	9.7
Sep 28	8.8	9.7	6.9	6.5	4.4	5.7	5.9	4.7	4.5	5.5	7.8	8.3	6.7	7.8	6.4	7.4	8.3	5.8	4.1	5.1	6.2	6.3	6.2	7.3	4.1	9.7	6.5
Sep 29	7.5	8.5	7.8	7	7.5	7.7	7.9	8.4	9.1	10.1	12.1	11.3	10.5	9.8	9.8	9.8	11.4	10	6.2	6.2	6.5	6.4	7.1	7	6.2	12.1	8.6
Sep 30	7.2	7.3	8.1	8.8	8.7	9.3	9.4	8.2	7.3	6.5	8.1	8.3	8.9	8.6	6.7	2.7	4.4	3.5	5.8	7.8	7.9	8	7.3	6.8	2.7	9.4	7.3
Diurnal Maximum	16	15	15	16	16	13	13	15	16	20	23	23	23	22	19	19	17	17	18	19	19	17	16	16			
Daiurnal Average	9.4	9.1	9.2	8.9	9.3	8.8	8.7	9.3	9.6	10.2	10.2	10.7	11.4	11.4	10.1	10.2	9.9	8.4	7.6	8.1	9.1	9.2	9.2	9.2			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

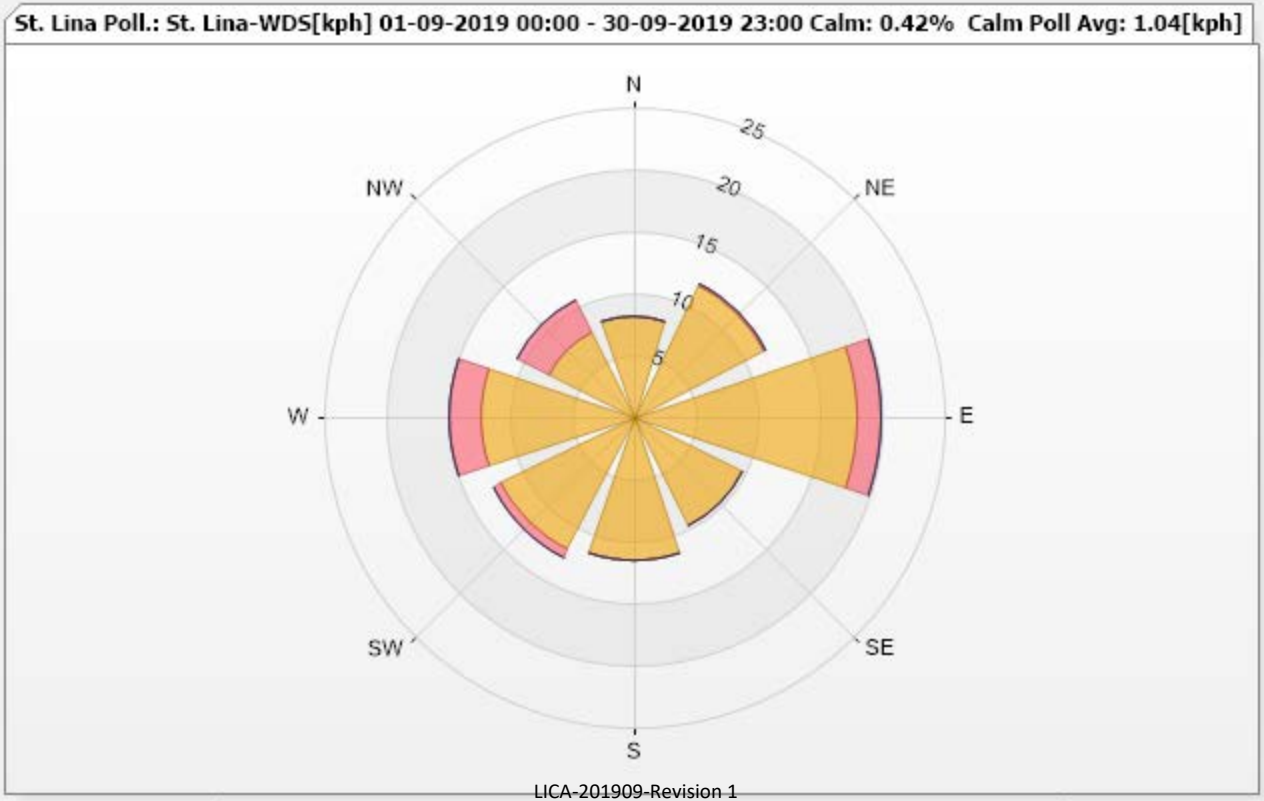
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

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



Wind: St. Lina Poll.: St. Lina-WDS[kph] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 0.42% Valid Data: 99.58% Calm Avg: 1.04 [kph]

Direction	6-15	15-29	29-39	>39.0	Total
N	8.09	0	0	0	8.09
NE	11.85	0.14	0	0	11.99
E	17.99	1.95	0	0	19.94
SE	9.76	0	0	0	9.76
S	11.58	0	0	0	11.58
SW	11.99	0.7	0	0	12.69
W	12.41	2.51	0	0	14.92
NW	7.67	2.93	0	0	10.6
Summary	91.34	8.23	0	0	100


St. Lina Poll.: St. Lina-WDS[kph] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 0.42% Calm Poll Avg: 1.04[kph]
N
NE
E
SE
S
SW
W
NW
25
20
15
10
5
% Icon Classes (kph)
91
6-19
8
15-29
0
29-39
0
>39.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average: 29 (NNE) degree

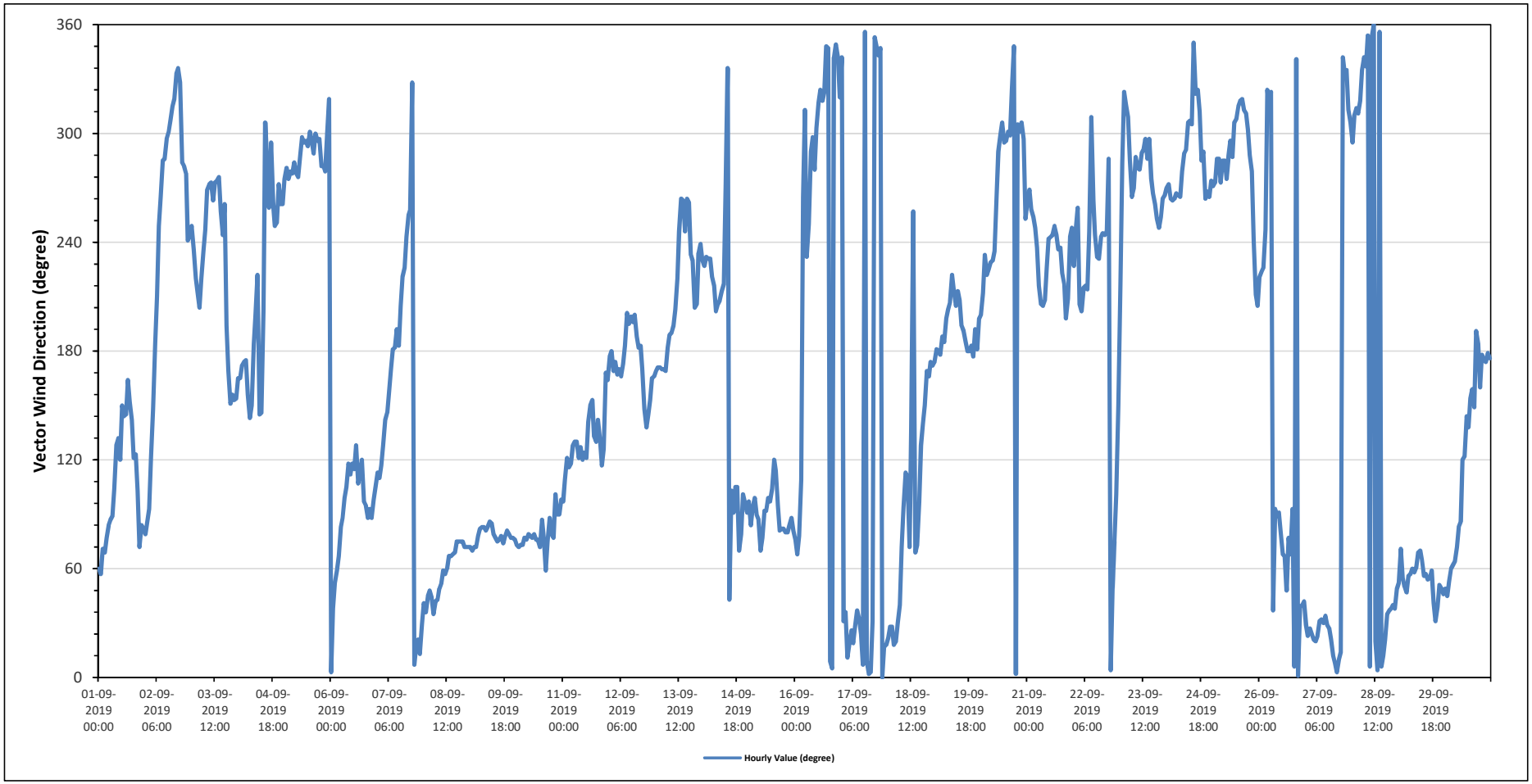
Hours in Service:	720
Hours of Data:	720
Hours of Missing Data:	0
Hours of Calibration:	0
Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant
Sep 1	ENE	ENE	ENE	ENE	ENE	E	E	E	ESE	SE	SE	ESE	SSE	SE	SE	SSE	SSE	SE	ESE	ESE	ESE	ENE	E	E	105	ESE
Sep 2	ENE	E	E	ESE	SE	S	SSW	WSW	W	WNW	WNW	WNW	WNW	NW	NW	NW	NNW	NNW	NNW	WNW	W	W	WSW	WSW	293	WNW
Sep 3	WSW	SW	SW	SSW	SSW	SW	SW	WSW	W	W	W	W	W	W	W	WSW	WSW	W	SSW	SSE	SSE	SSE	SSE	SSE	231	SW
Sep 4	SSE	SSE	S	S	S	SSE	SE	SSE	S	SSW	SW	SE	SE	SSW	NW	W	WSW	WNW	W	WSW	WSW	W	W	W	207	SSW
Sep 5	W	W	W	W	W	WNW	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W	W	W	WNW	NW	289	WNW
Sep 6	N	NE	NE	ENE	ENE	E	E	E	ESE	ESE	ESE	ESE	ESE	SE	ESE	ESE	ESE	E	E	E	E	E	E	ESE	93	E
Sep 7	ESE	ESE	ESE	SE	SE	SE	SSE	SSE	S	S	S	S	SSW	SW	SW	WSW	WSW	WSW	NNW	N	NNE	NNE	NNE	NNE	171	S
Sep 8	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	61	ENE
Sep 9	ENE	ENE	ENE	ENE	ENE	E	E	E	E	E	E	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	E	ENE	ENE	ENE	ENE	78	ENE
Sep 10	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	E	ENE	ENE	ENE	E	ENE	ENE	E	E	E	E	79	ENE
Sep 11	E	ESE	ESE	ESE	ESE	SE	SE	SE	ESE	SE	ESE	ESE	ESE	SE	SSE	SSE	SE	SE	SE	SE	ESE	SE	SSE	SSE	130	SE
Sep 12	S	S	SSE	S	SSE	SSE	SSE	S	S	SSW	SSW	SSW	SSW	SSW	S	S	S	SSE	SE	SE	SE	SSE	SSE	SSE	176	S
Sep 13	SSE	S	S	SSE	SSE	SSE	S	S	S	SSW	SSW	SW	WSW	W	W	WSW	W	W	SW	SW	SSW	SSW	SW	WSW	200	SSW
Sep 14	SW	SW	SW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SW	W	NNW	NE	ESE	E	ESE	ESE	ENE	ENE	E	E	E	184	S
Sep 15	E	E	E	E	E	E	ENE	ENE	E	E	E	E	ESE	ESE	ESE	E	E	E	E	E	E	E	E	E	90	E
Sep 16	ENE	ENE	ENE	ESE	W	NW	SW	WSW	WNW	WNW	W	WNW	NW	NW	NW	NW	NNW	NNW	N	N	NNW	NNW	NNW	NW	332	NNW
Sep 17	NNW	NNE	NE	NNE	NNE	NNE	NNE	NNE	NE	NNE	NNE	N	N	N	N	N	NNE	N	NNW	NNW	NNW	N	NNE	NNE	12	NNE
Sep 18	NNE	NNE	NNE	NNE	NNE	NNE	NE	ENE	E	ESE	ESE	ENE	SE	WSW	ENE	ENE	E	SE	SE	SSE	SSE	SSE	S	S	96	E
Sep 19	S	S	S	S	S	S	SSW	SSW	SSW	SW	SSW	SSW	SSW	SSW	SSW	S	S	S	S	S	S	S	S	SSW	191	S
Sep 20	SSW	SSW	SW	SW	SW	SW	SW	SW	W	WNW	WNW	NW	WNW	WNW	WNW	WNW	NW	NNW	N	WNW	WNW	NW	WNW	WSW	283	W
Sep 21	W	W	WSW	WSW	WSW	SW	SW	SSW	SSW	SSW	SW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SSW	SSW	WSW	WSW	237	SW
Sep 22	SW	WSW	WSW	SSW	SSW	SSW	SW	SSW	WSW	NW	W	WSW	SW	SW	WSW	WSW	WSW	WSW	WNW	N	NE	ENE	E	SSE	232	SW
Sep 23	SW	WNW	NW	NW	NW	WNW	W	W	WNW	W	W	WNW	WNW	WNW	WNW	WNW	W	W	W	WSW	WSW	WSW	W	W	280	W
Sep 24	W	W	W	W	W	W	W	W	W	WNW	WNW	NW	NW	WNW	N	NW	NW	NW	WNW	WNW	W	W	W	W	285	WNW
Sep 25	W	W	WNW	WNW	W	WNW	WNW	W	WNW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	WNW	WNW	W	WSW	SSW	SSW	293	WNW
Sep 26	SW	SW	SW	WSW	NW	NW	NW	NE	E	E	E	E	ENE	ENE	NE	ENE	ENE	E	N	NNW	N	NE	NE	NE	53	NE
Sep 27	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NE	NNE	NNE	NNE	NNE	N	N	N	NNE	NNW	NNW	NNW	NW	NW	15	NNE
Sep 28	WNW	NW	NW	NW	NW	NNW	NNW	NNW	N	N	N	N	NNE	N	N	N	NNE	NNE	NE	NE	NE	NE	NE	NE	357	N
Sep 29	NE	ENE	NE	NE	NE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	ENE	NE	NE	ENE	NE	NNE	NE	NE	NE	NE	56	NE
Sep 30	NE	NE	NE	ENE	ENE	ENE	ENE	E	E	ESE	ESE	SE	SE	SSE	SSE	SSE	S	S	SSE	S	S	S	S	S	120	ESE

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hour Standard Deviations

STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

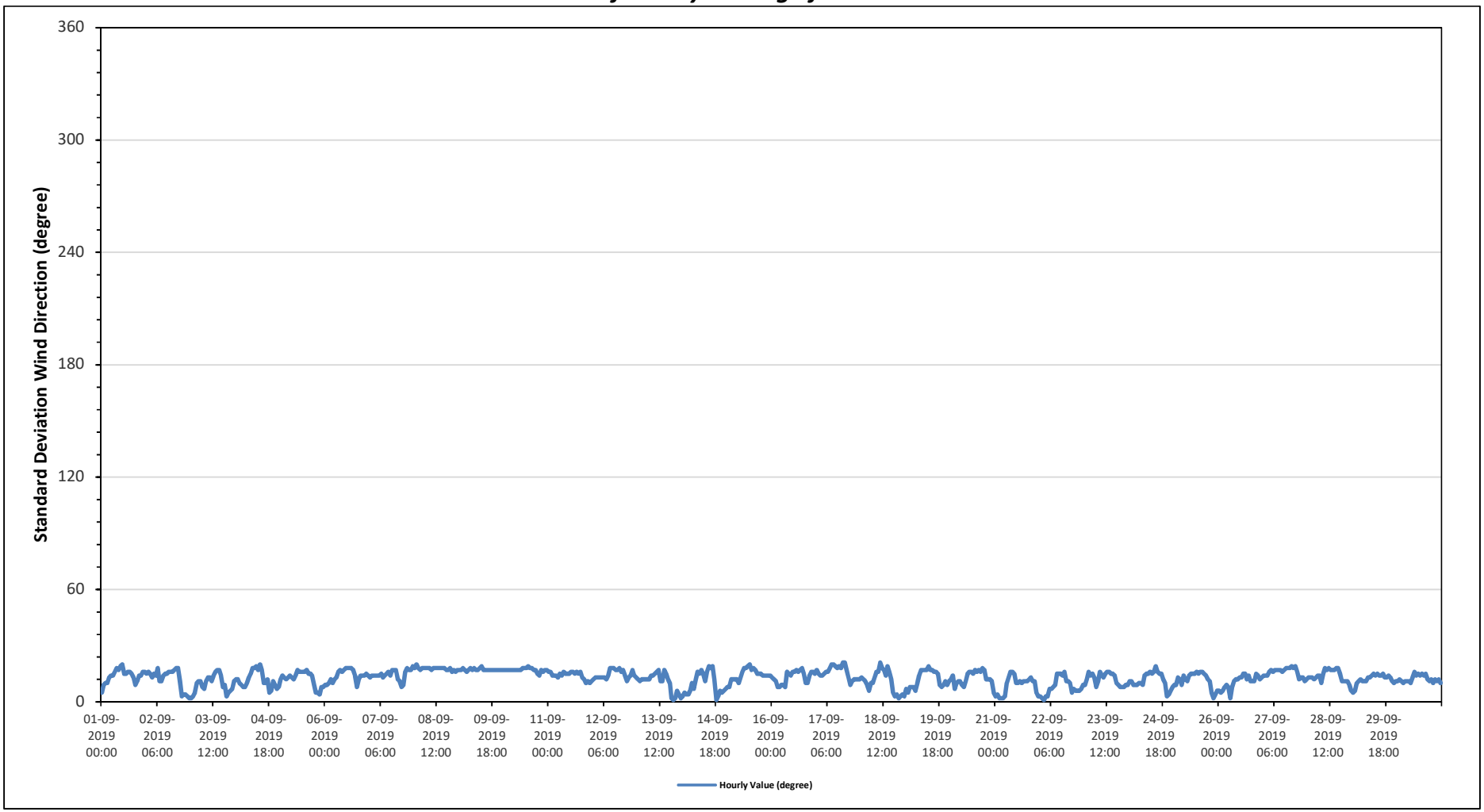
Maximum Hourly Value:	21	degree	on September 17 at hour 14	Hours in Service:	720
				Hours of Data:	720
Minimum Hourly Value:	1	degree	on September 13 at hour 19	Hours of Missing Data:	0
				Hours of Calibration:	0
				Operational Uptime:	100.0

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

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

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



BONNYVILLE -EAST STATION

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Averages

SULPHUR DIOXIDE (SO_2) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb

Number of 1-Hour Exceedences: 0 Number of 24-Hour Exceedences: 0 30-Day Exceedence: 0

Maximum Hourly Value:	2	ppb	on September 21 at hour 10	Hours in Service:	720
Maximum Daily Value:	0.3	ppb	on September 13	Hours of Data:	685
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 1	Hours of Calibration:	35
Monthly Average:	0.1	ppb		Operational Uptime:	100.0

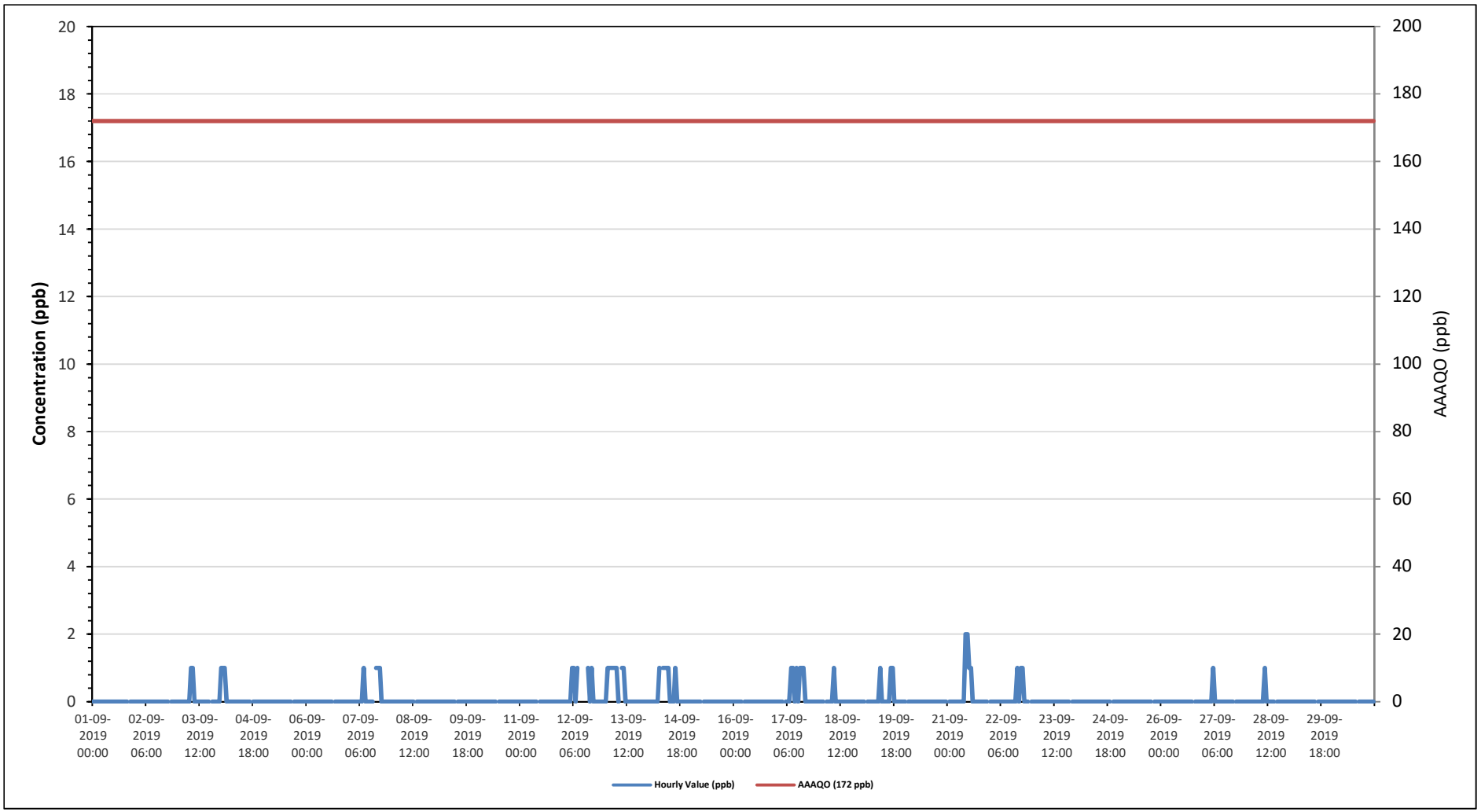
Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0
Sep 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0
Sep 3	0	0	0	0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

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

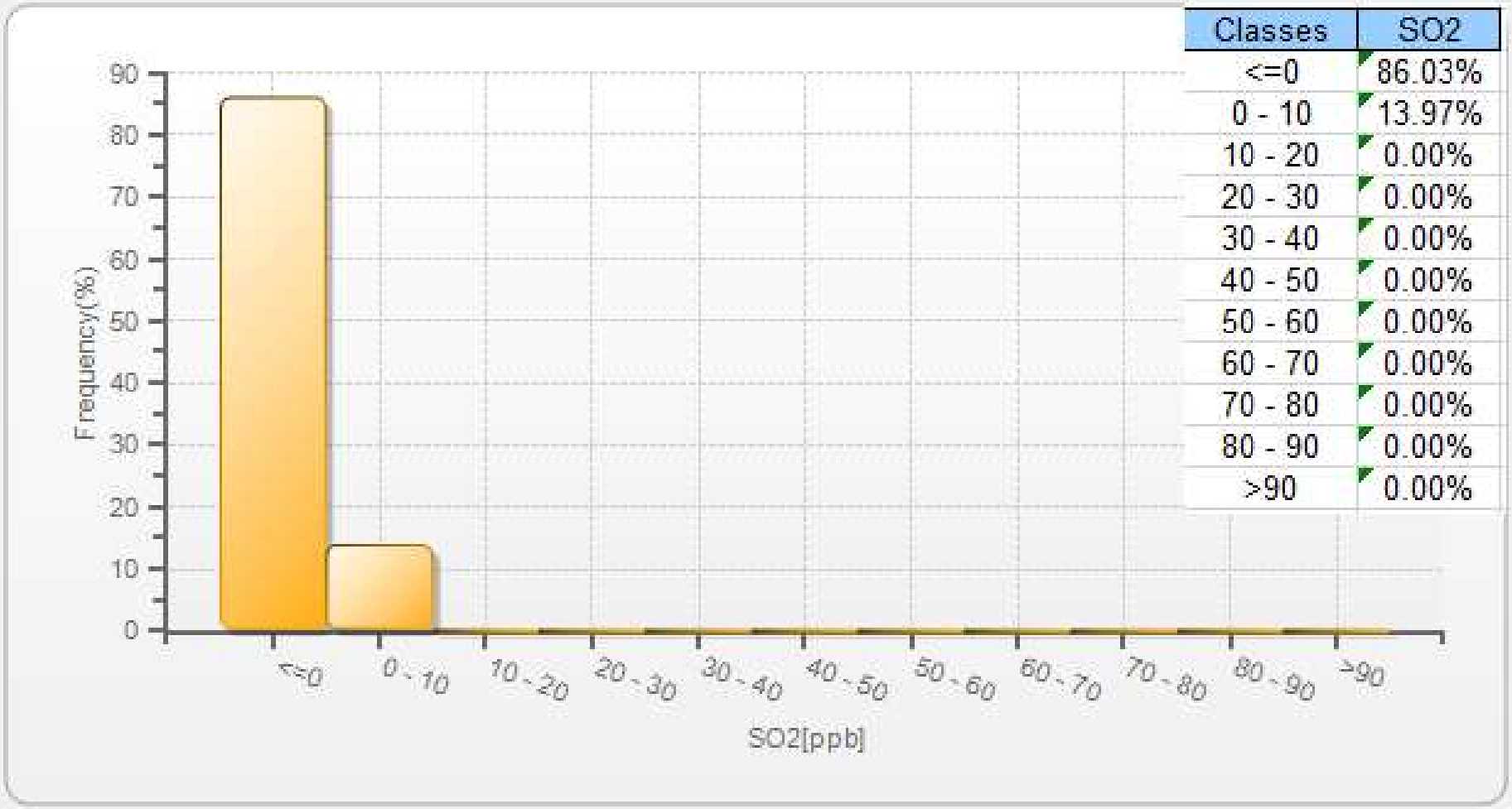
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

Timeseries Chart of Hourly Average for SO2 - Bonnyville - East Site



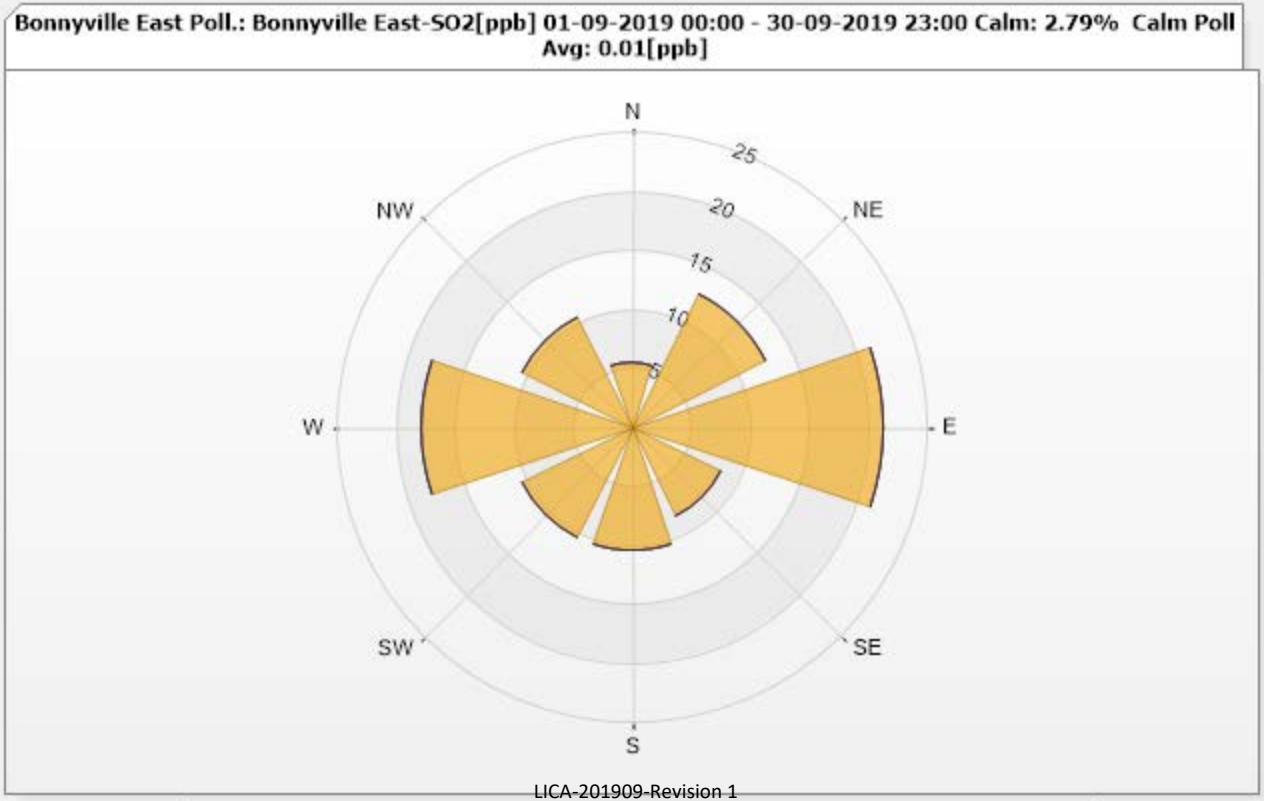
SO2[ppb] Histogram: Bonnyville East Monthly: 09-2019 1 Hr.



Classes	SO2
<=0	86.03%
0 - 10	13.97%
10 - 20	0.00%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Bonnyville East Poll.: Bonnyville East-SO2[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 2.79% Valid Data: 94.44% Calm Avg: 0.01 [ppb]

Direction	10-50	50-100	100-172	>172.0	Total
N	5.44	0	0	0	5.44
NE	12.65	0	0	0	12.65
E	21.32	0	0	0	21.32
SE	8.53	0	0	0	8.53
S	10.44	0	0	0	10.44
SW	10.44	0	0	0	10.44
W	17.94	0	0	0	17.94
NW	10.44	0	0	0	10.44
Summary	97.2	0	0	0	97.2


Bonnyville East Poll.: Bonnyville East-SO2[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 2.79% Calm Poll Avg: 0.01[ppb]
N
NE
E
SE
S
SW
W
NW
25
20
15
10
5
% Icon Classes (ppb)
97 10-50
0 50-100
0 100-172
0 >172.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Averages

HYDROGEN SULPHIDE (H_2S) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 10 ppb, 24-Hour 3 ppb

Number of 1-Hour Exceedences: 56 Number of 24-Hour Exceedences: 9

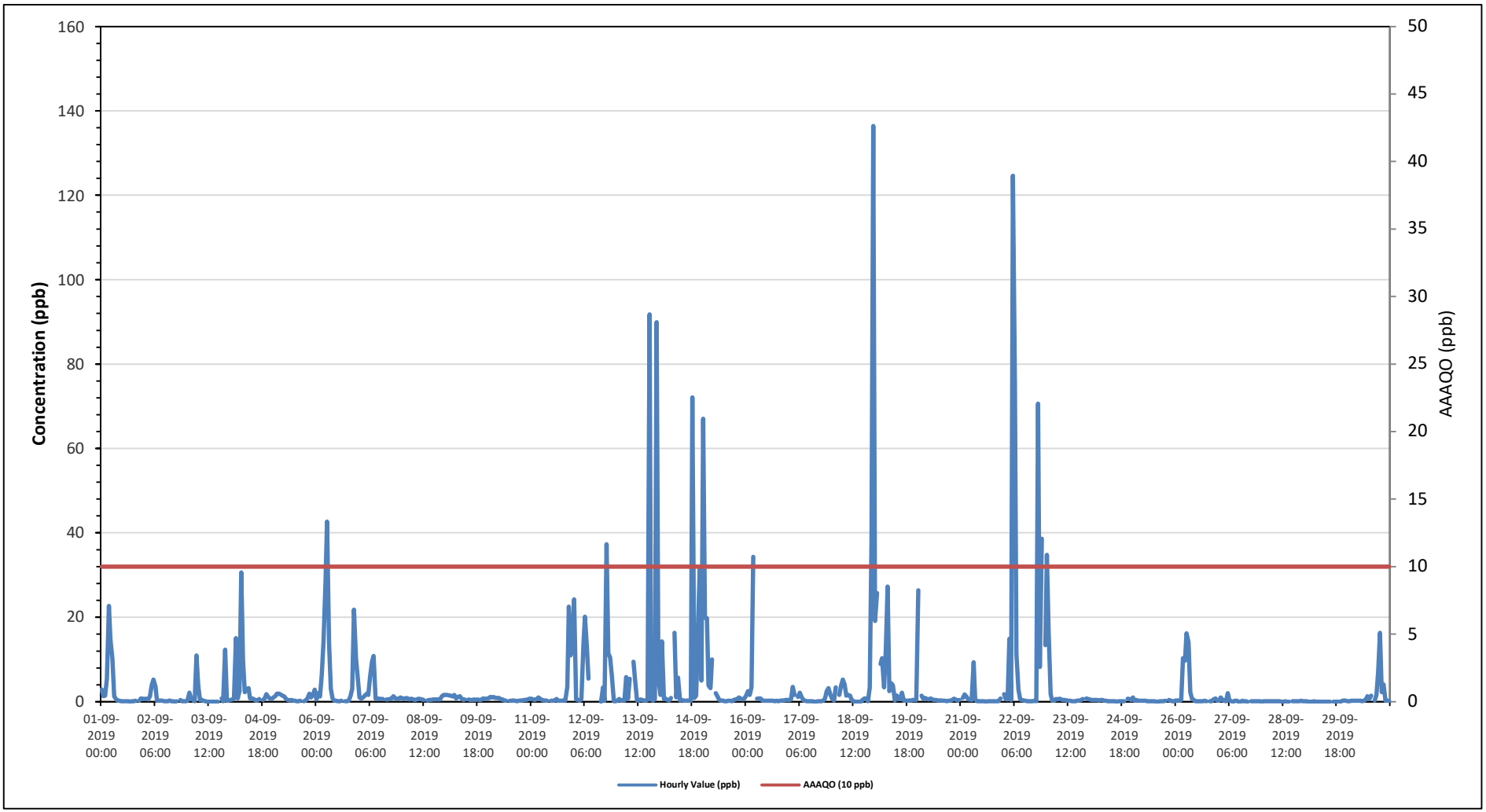
Maximum Hourly Value:	136	ppb	on September 18 at hour 23	Hours in Service:	720
Maximum Daily Value:	15.9	ppb	on September 22	Hours of Data:	684
Minimum Hourly Value:	0	ppb	on September 1 at hour 16	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 29	Hours of Calibration:	36
Monthly Average:	3.2	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	2.9	1.3	1.4	5.4	22.7	14.7	10.1	1.2	0.6	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0	0.1	0.1	0.2	S	0.2	0.8	0.7	0	23	2.8
Sep 2	0.6	0.7	0.5	1.2	3.9	5.2	3.6	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.3	0.1	0.1	0	0.1	S	0.4	0.1	0.1	0.1	0	5	0.8
Sep 3	0.2	2.1	0.7	0.4	0.1	11	3.8	0.4	0.4	0.2	0.1	0	0	0	0	0	0	0	S	0.8	0.1	12.3	0.2	0.3	0	12	1.4
Sep 4	0.4	0.5	0.7	15.1	0.8	2.5	30.6	9.8	2.2	2.9	3.2	0.8	0.8	0.6	0.3	0.3	0.6	S	0.4	0.6	1.8	1.1	0.8	0.6	0	31	3.4
Sep 5	1	1.3	1.9	1.9	1.7	1.4	1.2	0.6	0.4	0.3	0.4	0.3	0.2	0.1	0.1	0.2	S	0.1	0.3	0.8	1.9	1	1.6	2.8	0	3	0.9
Sep 6	0.5	2	1.2	6.3	14.3	28.5	42.7	13.8	3.1	0.7	0.2	0.2	0.1	0.1	0.2	S	0.1	0.1	0.2	1.3	3	21.8	10.3	6.4	0	43	6.8
Sep 7	1	0.7	1	1.4	1.9	1.6	5.9	9.6	10.8	0.7	0.8	0.7	0.6	0.6	S	0.5	0.5	0.6	0.8	1.3	0.8	0.7	0.7	1	1	11	1.9
Sep 8	0.8	0.6	0.9	0.8	0.5	0.7	0.5	0.4	0.5	0.7	0.6	0.5	0.4	S	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.5	1.2	1.6	0	2	0.6
Sep 9	1.6	1.6	1.5	1.4	1.2	1.6	0.8	1.1	1.3	0.8	0.4	0.5	S	0.5	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.8	0.7	0.7	0	2	0.8
Sep 10	0.8	1.1	1	1.1	0.9	0.9	0.9	0.5	0.5	0.3	0.2	S	0.2	0.2	0.3	0.2	0.1	0.2	0.3	0.3	0.4	0.4	0.5	0.7	0	1	0.5
Sep 11	0.7	0.5	0.4	0.6	1	0.6	0.4	0.3	0.3	0.2	S	0.2	0.2	0.3	0.6	0.2	0.2	0.2	0.3	0.3	3.5	22.5	11	15.6	0	23	2.6
Sep 12	24.2	0.5	0.4	0.2	0.6	13.5	20.1	12.7	5.5	S	C	C	C	C	C	0	3.4	0.2	37.3	11.4	10.5	6.1	0.1	0.1	0	37	8.2
Sep 13	0.2	0.6	0.3	0.3	0.3	5.8	0.7	5.4	S	9.5	5.3	0.3	0.3	0.5	0.4	0.3	0.3	0.4	91.8	0.5	0.3	0.6	89.9	5.4	0	92	9.5
Sep 14	1.6	14.3	0.6	0.7	0.4	0.3	0.9	S	16.3	1	5.7	0.3	0.4	0.3	0.2	0.3	0.2	0.2	72.1	0.9	1.4	13.6	31.4	5	0	72	7.3
Sep 15	67	19.9	19.8	3.9	3.2	10	S	2	1.2	0.4	0.2	0.3	0.1	0.1	0.2	0.2	0.1	0.4	0.5	0.6	1	0.7	0.5	0.8	0	67	5.8
Sep 16	1.5	2.5	1.6	3.4	34.3	S	0.7	0.8	0.8	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.3	0.3	0.4	0.4	0	34	2.1
Sep 17	0.4	0.5	3.5	1.6	S	1.1	2.1	1.1	0.3	0.2	0.1	0.1	0.1	0.1	0	0	0.1	0.1	0.1	0.2	0.7	2.5	3.2	1.6	0	4	0.9
Sep 18	0.7	0.3	3.4	S	1.6	3.8	5.2	4.1	1.4	1.6	1.4	0.4	0.1	0	0	0	0	0.4	0.8	0.8	0.1	3.3	38	**136.4**	0	**136**	8.9
Sep 19	19.1	25.7	S	8.9	10.3	3.4	12.4	27.3	2.5	4.3	3.9	0.3	1.5	0.6	0.7	2.1	0.3	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0	27	5.5
Sep 20	26.4	S	1.4	0.6	0.9	0.6	0.5	0.8	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.4	0.7	0.5	0.3	0.4	0	26	1.6
Sep 21	S	0.9	1.7	1.2	0.5	0.5	0.4	9.3	0.5	0.1	0.1	0.1	0.1	0.1	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.8	S	0	9	0.8
Sep 22	1.8	0.6	0.5	14.9	0.4	124.6	74.8	11.3	2.8	0.5	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.1	70.6	8.2	38.6	S	13.4	0	125	**15.9**
Sep 23	34.8	16.6	1.8	0.3	0.2	0.6	0.5	0.7	0.5	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.3	0.2	0.4	0.6	S	0.8	0.6	0	35	2.6
Sep 24	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0	0.1	0.1	0.1	0.1	S	0.7	0.6	0.4	0	1	0.3
Sep 25	1	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0	0	0.1	0.1	0.1	0.2	S	0.4	0.3	0.1	0.1	0	1	0.2
Sep 26	0.3	0.3	0.2	0.4	10.3	9.7	16.2	14.1	2.2	0.6	0.4	0.1	0.1	0.1	0.1	0.1	0.2	0.1	S	0.1	0.1	0.5	0.8	0.3	0	16	2.5
Sep 27	0.2	1	0.4	0.2	0.1	2	0.2	0.1	0	0.2	0.2	0	0	0.2	0.1	0.1	0	S	0.1	0.1	0.1	0.1	0.1	0.1	0	2	0.2
Sep 28	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0.1	0	0	S	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0	0	0.1
Sep 29	0.1	0.1	0	0	0	0.1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.2	0.3	0.2	0	0	0.0
Sep 30	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.5	1.3	0.6	1.4	S	0.3	1.6	7.3	16.3	2.2	4.1	0.2	0.2	0.2	0	16	1.6
Diurnal Maximum	67	26	20	15	34	125	75	27	16	10	6	1	2	1	1	2	3	7	92	71	11	39	90	136			
Daiurnal Average	6.6	3.3	1.7	2.5	3.9	8.5	8.1	4.4	1.9	0.9	0.9	0.3	0.3	0.3	0.2	0.2	0.3	0.5	8.0	3.4	1.5	4.5	6.8	6.8			

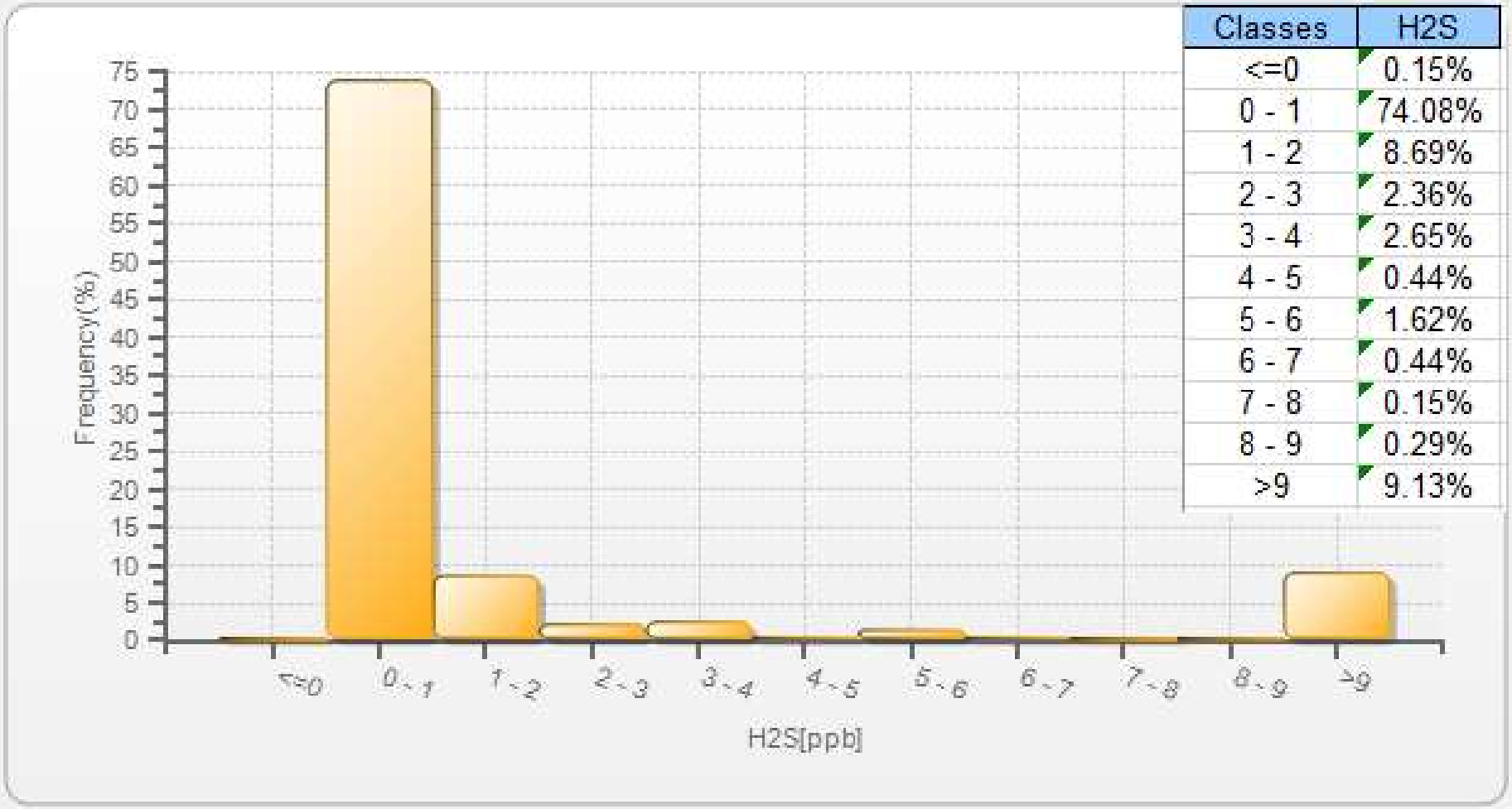
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for H2S - Bonnyville - East Site



H2S[ppb] Histogram: Bonnyville East Monthly: 09-2019 1 Hr.

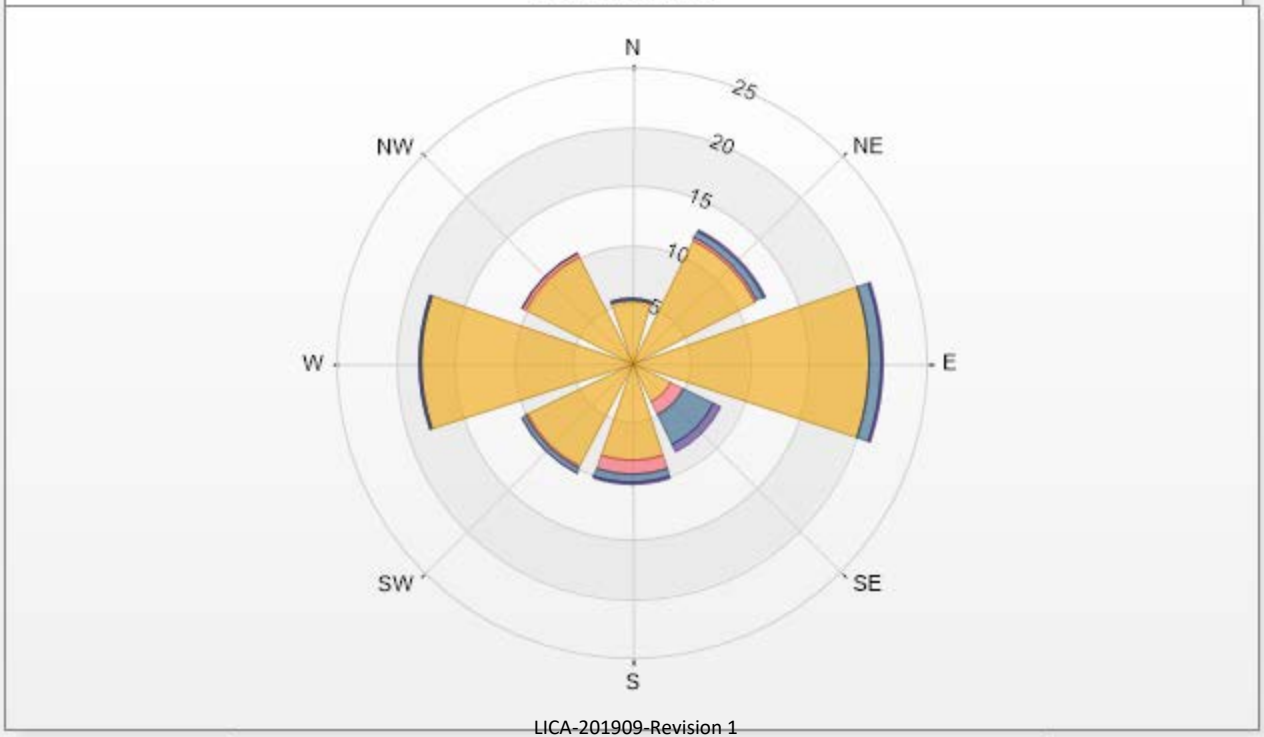


Classes	H2S
<=0	0.15%
0 - 1	74.08%
1 - 2	8.69%
2 - 3	2.36%
3 - 4	2.65%
4 - 5	0.44%
5 - 6	1.62%
6 - 7	0.44%
7 - 8	0.15%
8 - 9	0.29%
>9	9.13%

Wind: Bonnyville East Poll.: Bonnyville East-H2S[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 2.80% Valid Data: 94.31% Calm Avg: 12.25 [ppb]

Direction	2-5	5-10	10-50	>50.0	Total
N	5.3	0	0.15	0	5.45
NE	11.63	0.29	0.59	0.15	12.66
E	20.18	0	1.03	0.15	21.36
SE	3.68	1.18	2.95	0.74	8.55
S	8.25	1.18	0.74	0.15	10.32
SW	9.87	0.15	0.44	0	10.46
W	17.82	0	0.15	0	17.97
NW	10.16	0.29	0	0	10.45
Summary	86.89	3.09	6.05	1.19	97.22

Bonnyville East Poll.: Bonnyville East-H2S[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 2.80% Calm Poll Avg: 12.25[ppb]



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Averages

OXIDES OF NITROGEN (NOx) in ppb

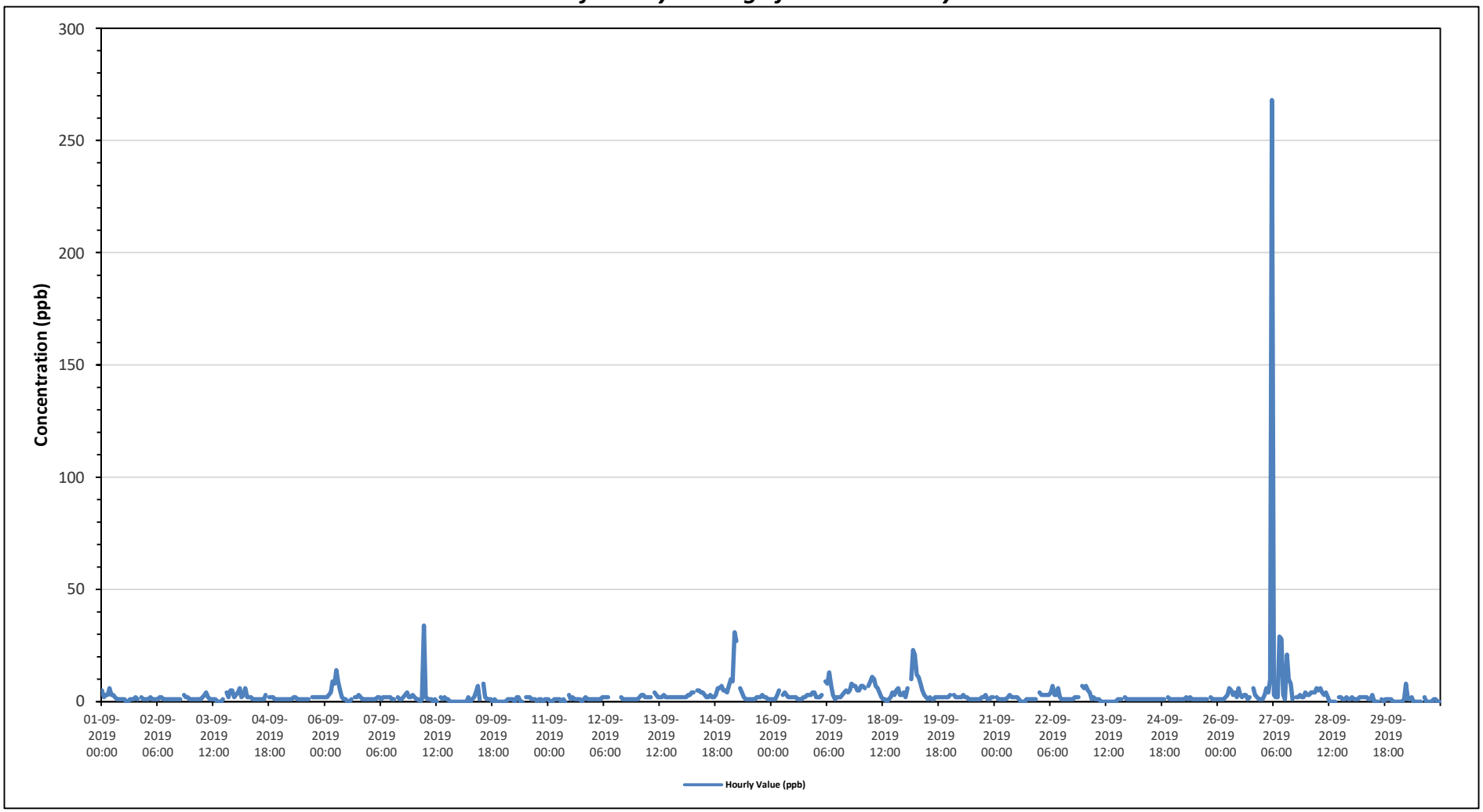
Maximum Hourly Value:	268	ppb	on September 27 at hour 5	Hours in Service:	720
Maximum Daily Value:	18.0	ppb	on September 27	Hours of Data:	684
Minimum Hourly Value:	0	ppb	on September 1 at hour 13	Hours of Missing Data:	0
Minimum Daily Value:	0.8	ppb	on September 30	Hours of Calibration:	36
Monthly Average:	2.8	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	5	2	3	3	6	3	3	2	1	1	1	1	1	0	0	1	1	1	2	1	S	2	1	1	0	6	1.8
Sep 2	1	1	2	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	S	3	2	2	1	1	3	1.3
Sep 3	1	1	1	1	1	1	2	3	4	2	1	1	1	1	0	0	0	1	S	4	2	5	5	2	0	5	1.7
Sep 4	3	4	6	2	3	6	2	2	2	1	1	1	1	1	1	1	3	S	2	2	2	1	1	1	1	6	2.1
Sep 5	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	S	2	2	2	2	2	2	2	1	2	1.4
Sep 6	2	2	3	4	9	8	14	9	5	2	1	1	0	0	1	S	2	2	3	2	1	1	1	1	0	14	3.2
Sep 7	1	1	1	1	2	2	1	2	2	2	2	2	1	1	S	2	1	1	2	3	4	2	2	3	1	4	1.8
Sep 8	2	1	1	0	1	34	2	1	1	1	0	1	0	S	2	1	2	1	1	0	0	0	0	0	0	34	2.3
Sep 9	0	0	0	0	0	2	0	1	2	4	7	1	S	8	2	1	1	1	0	1	0	0	0	0	0	8	1.3
Sep 10	0	0	1	1	1	1	0	2	2	0	0	S	2	2	2	1	1	1	0	1	1	0	1	1	0	2	0.9
Sep 11	1	0	0	1	1	1	1	0	1	0	S	3	1	2	1	1	1	1	0	1	2	1	1	1	0	3	1.0
Sep 12	1	1	1	1	1	2	2	2	2	S	C	C	C	C	C	2	1	1	1	1	1	1	1	1	1	2	1.3
Sep 13	1	2	3	3	2	2	2	2	S	4	3	2	2	2	3	2	2	2	2	2	2	2	2	2	1	4	2.2
Sep 14	2	2	2	3	3	4	4	S	5	5	4	4	3	2	2	3	2	2	3	6	6	7	5	5	2	7	3.7
Sep 15	4	7	10	9	31	27	S	6	4	2	1	1	1	1	1	1	2	2	2	3	2	2	1	1	1	31	5.3
Sep 16	1	1	1	3	5	S	3	4	3	2	2	2	2	2	1	1	1	2	2	3	3	3	4	4	1	5	2.4
Sep 17	2	2	2	3	S	9	8	13	7	3	1	2	2	2	3	4	5	4	5	8	7	7	5	5	1	13	4.7
Sep 18	7	7	6	S	7	9	11	10	7	6	4	2	1	1	0	1	2	4	3	5	6	3	3	4	0	11	4.7
Sep 19	2	6	S	10	23	21	12	11	8	5	3	2	1	2	1	1	2	2	2	2	2	2	2	2	1	23	5.4
Sep 20	3	S	3	2	2	2	2	3	2	2	1	1	1	1	1	1	1	2	2	3	1	1	2	2	1	3	1.8
Sep 21	S	2	1	1	1	1	1	2	3	2	2	2	2	1	0	0	0	1	1	1	1	1	1	S	0	3	1.2
Sep 22	4	3	3	3	3	3	4	7	3	3	6	2	1	1	1	1	1	1	1	2	2	2	S	7	1	7	2.8
Sep 23	6	7	5	4	1	2	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	S	2	1	0	7	1.5
Sep 24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	2	1	1	1	2	1.0
Sep 25	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	S	2	1	1	1	1	2	1.1
Sep 26	1	1	1	1	2	3	6	5	3	4	2	6	3	2	3	3	1	2	S	6	3	2	1	1	1	6	2.7
Sep 27	1	3	6	4	10	268	3	2	2	29	28	3	1	21	10	8	1	S	2	2	3	2	2	4	1	268	18.0
Sep 28	3	3	4	4	4	6	5	6	4	3	4	2	0	0	0	0	S	2	2	1	1	2	1	1	0	6	2.5
Sep 29	2	1	1	1	2	2	2	2	2	1	1	3	1	0	0	S	1	0	1	1	1	1	0	0	0	3	1.1
Sep 30	0	0	0	0	1	8	1	1	2	1	0	0	0	0	S	2	0	0	0	0	1	1	0	0	0	8	0.8
Diurnal Maximum	7	7	10	10	31	268	14	13	8	29	28	6	3	21	10	8	5	4	5	8	7	7	5	7			
Daiurnal Average	2.0	2.2	2.4	2.4	4.3	14.9	3.3	3.7	2.9	3.1	2.8	1.8	1.1	2.0	1.4	1.5	1.3	1.5	1.6	2.3	2.2	2.0	1.7	1.9			

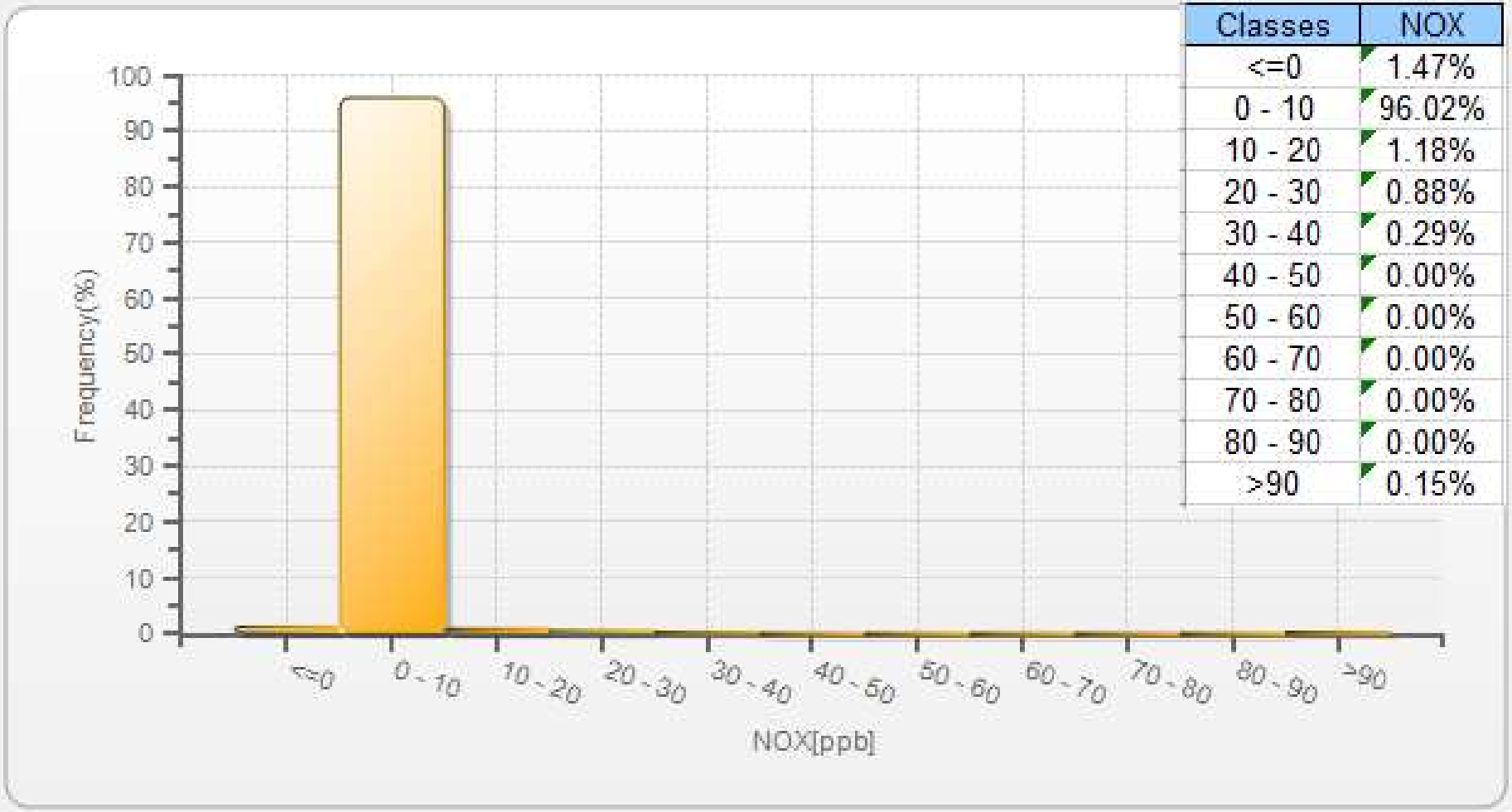
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for NOx - Bonnyville - East Site



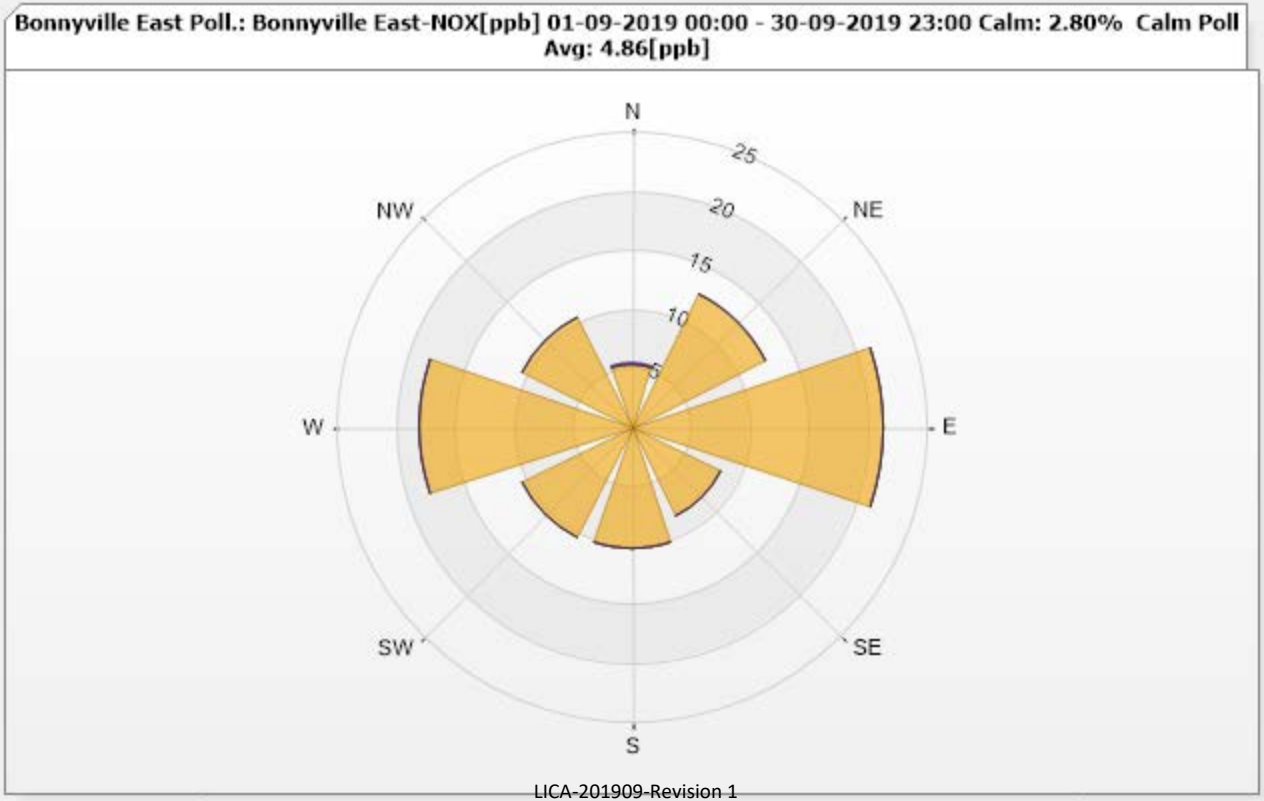
NOX[ppb] Histogram: Bonnyville East Monthly: 09-2019 1 Hr.



Classes	NOX
<=0	1.47%
0 - 10	96.02%
10 - 20	1.18%
20 - 30	0.88%
30 - 40	0.29%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.15%

Wind: Bonnyville East Poll.: Bonnyville East-NOX[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 2.80% Valid Data: 94.31% Calm Avg: 4.86 [ppb]

Direction	30-50	50-82	82-159	>159.0	Total
N	5.3	0	0	0.15	5.45
NE	12.67	0	0	0	12.67
E	21.35	0	0	0	21.35
SE	8.54	0	0	0	8.54
S	10.31	0	0	0	10.31
SW	10.46	0	0	0	10.46
W	17.97	0	0	0	17.97
NW	10.46	0	0	0	10.46
Summary	97.06	0	0	0.15	97.21


Bonnyville East Poll.: Bonnyville East-NOX[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 2.80% Calm Poll Avg: 4.86[ppb]
N
NE
E
SE
S
SW
W
NW
25
20
15
10
5
% Icon Classes (ppb)
97 30-50
0 50-82
0 82-159
0 >159.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Averages

NITRIC OXIDE (NO) in ppb

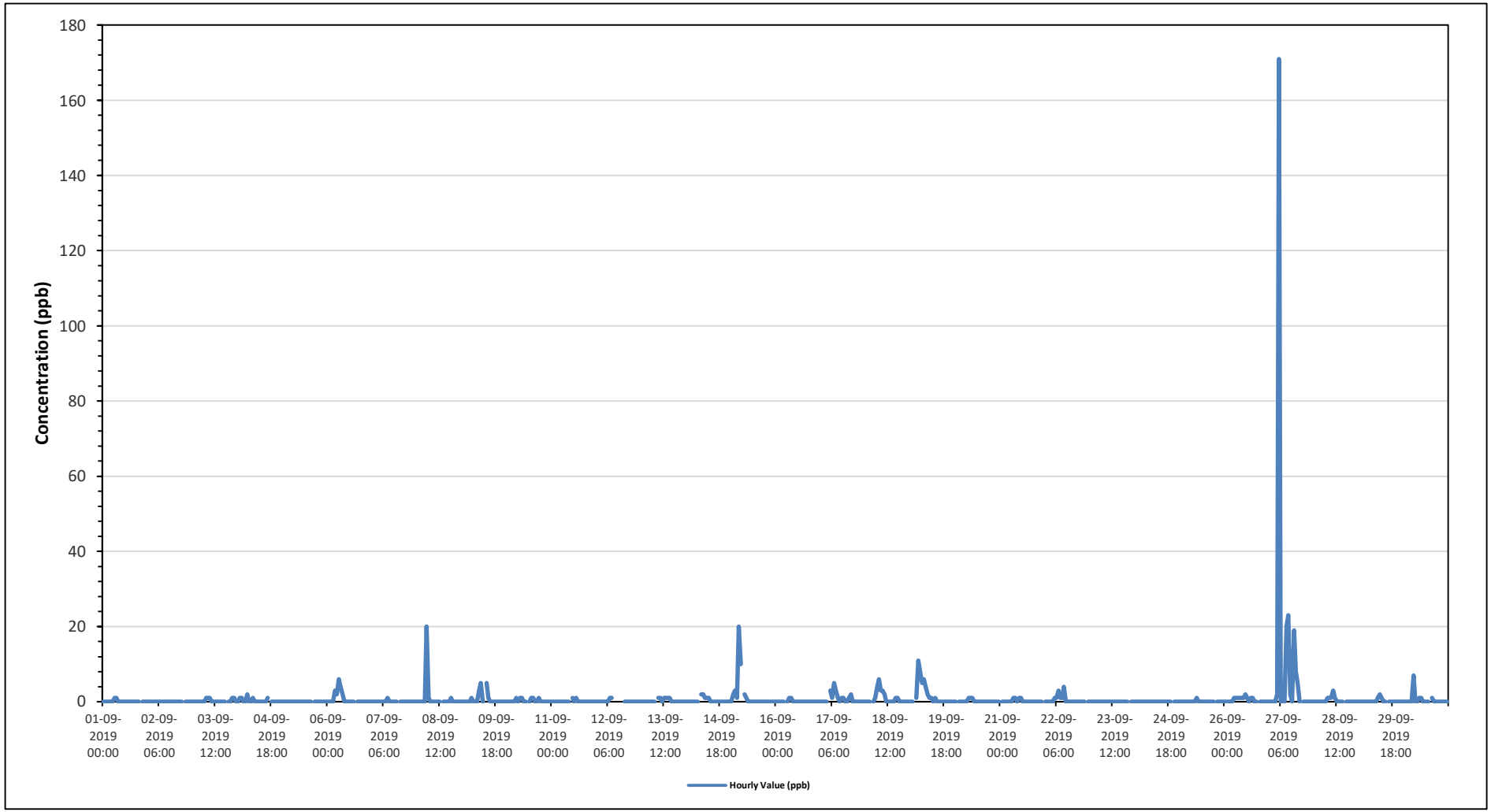
Maximum Hourly Value:	171	ppb	on September 27 at hour 5	Hours in Service:	720
Maximum Daily Value:	10.9	ppb	on September 27	Hours of Data:	684
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 2	Hours of Calibration:	36
Monthly Average:	0.7	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	0.1
Sep 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	0.0
Sep 3	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	S	0	0	1	1	0	0	1	0.2
Sep 4	0	1	1	0	0	2	0	0	1	0	0	0	0	0	0	0	1	S	0	0	0	0	0	0	0	2	0.3
Sep 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	0.0
Sep 6	0	0	0	0	3	2	6	4	2	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	6	0.7
Sep 7	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	0.0
Sep 8	0	0	0	0	0	20	1	0	0	0	0	0	0	S	0	0	0	0	1	0	0	0	0	0	0	20	1.0
Sep 9	0	0	0	0	0	1	0	0	0	3	5	0	S	5	1	0	0	0	0	0	0	0	0	0	0	5	0.7
Sep 10	0	0	0	0	0	1	0	1	1	0	0	S	0	1	1	0	0	1	0	0	0	0	0	0	0	1	0.3
Sep 11	0	0	0	0	0	0	0	0	0	0	S	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 12	0	0	0	0	0	0	0	1	1	S	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 13	0	0	0	0	0	0	0	0	S	1	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0.3
Sep 14	0	0	0	0	0	0	0	S	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3
Sep 15	0	2	3	1	20	10	S	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	1.7
Sep 16	0	0	0	0	0	S	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 17	0	0	0	0	S	3	1	5	3	1	0	1	1	0	0	1	2	0	0	0	0	0	0	0	0	5	0.8
Sep 18	0	0	0	S	0	1	4	6	3	3	2	0	0	0	0	0	1	1	0	0	0	0	0	0	0	6	0.9
Sep 19	0	0	S	1	11	8	5	6	4	2	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	11	1.7
Sep 20	0	S	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 21	S	0	0	0	0	0	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	S	0	1	0.2
Sep 22	0	0	0	0	0	1	1	3	1	1	4	0	0	0	0	0	0	0	0	0	0	0	S	0	0	4	0.5
Sep 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	0.0
Sep 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	0.0
Sep 25	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0.0
Sep 26	0	0	0	0	0	1	1	1	1	1	1	2	1	0	1	1	0	0	S	0	0	0	0	0	0	2	0.5
Sep 27	0	0	0	0	2	171	0	0	0	20	23	2	0	19	8	5	0	S	0	0	0	0	0	0	0	171	10.9
Sep 28	0	0	0	0	0	0	0	1	1	1	3	1	0	0	0	0	S	0	0	0	0	0	0	0	0	3	0.3
Sep 29	0	0	0	0	0	0	0	0	0	0	1	2	1	0	0	S	0	0	0	0	0	0	0	0	0	2	0.2
Sep 30	0	0	0	0	0	7	0	0	1	1	0	0	0	0	S	1	0	0	0	0	0	0	0	0	0	7	0.4
Diurnal Maximum	0	2	3	1	20	171	6	6	4	20	23	2	1	19	8	5	2	1	1	0	0	1	1	0			
Daiurnal Average	0.0	0.1	0.1	0.1	1.2	7.9	0.7	1.2	0.9	1.3	1.5	0.4	0.2	1.0	0.4	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0			

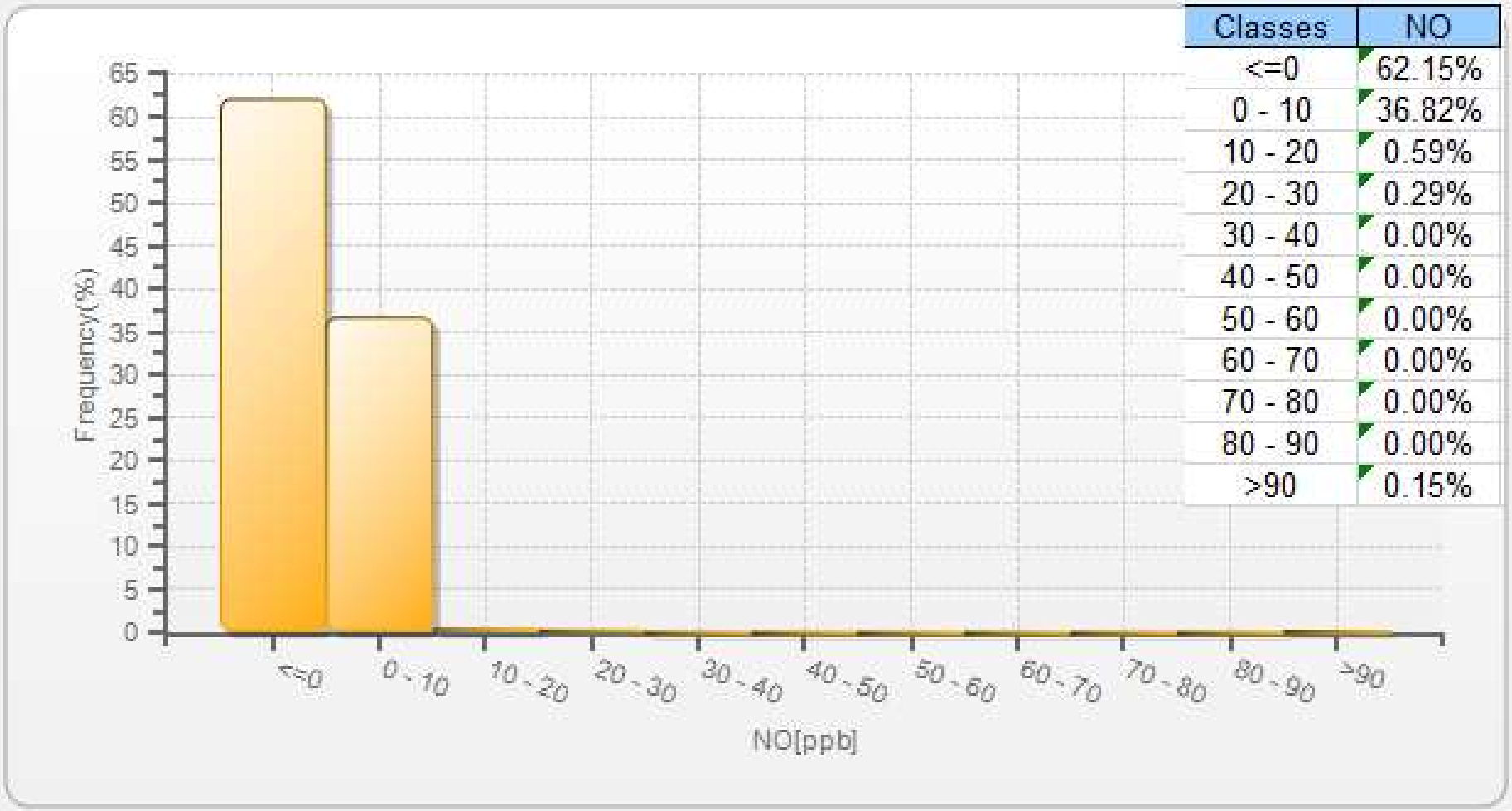
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for NO - Bonnyville - East Site



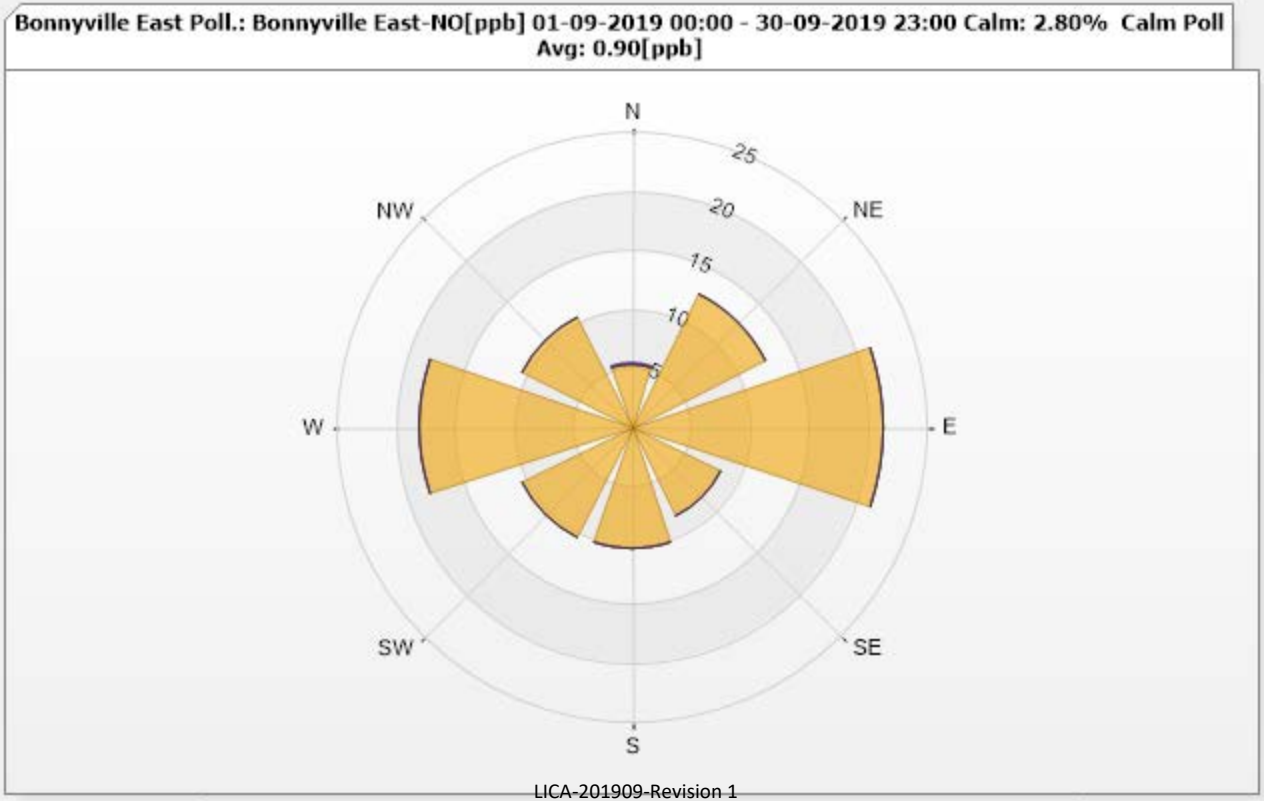
NO[ppb] Histogram: Bonnyville East Monthly: 09-2019 1 Hr.



Classes	NO
<=0	62.15%
0 - 10	36.82%
10 - 20	0.59%
20 - 30	0.29%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.15%

Wind: Bonnyville East Poll.: Bonnyville East-NO[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 2.80% Valid Data: 94.31% Calm Avg: 0.90 [ppb]

Direction	30-50	50-82	82-159	>159.0	Total
N	5.3	0	0	0.15	5.45
NE	12.67	0	0	0	12.67
E	21.35	0	0	0	21.35
SE	8.54	0	0	0	8.54
S	10.31	0	0	0	10.31
SW	10.46	0	0	0	10.46
W	17.97	0	0	0	17.97
NW	10.46	0	0	0	10.46
Summary	97.06	0	0	0.15	97.21


Bonnyville East Poll.: Bonnyville East-NO[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 2.80% Calm Poll Avg: 0.90[ppb]
N
NE
E
SE
S
SW
W
NW
25
20
15
10
5
% Icon Classes (ppb)
97 30-50
0 50-82
0 82-159
0 >159.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Averages

NITROGEN DIOXIDE (NO_2) in ppb

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

Number of 1-Hour Exceedences: 0

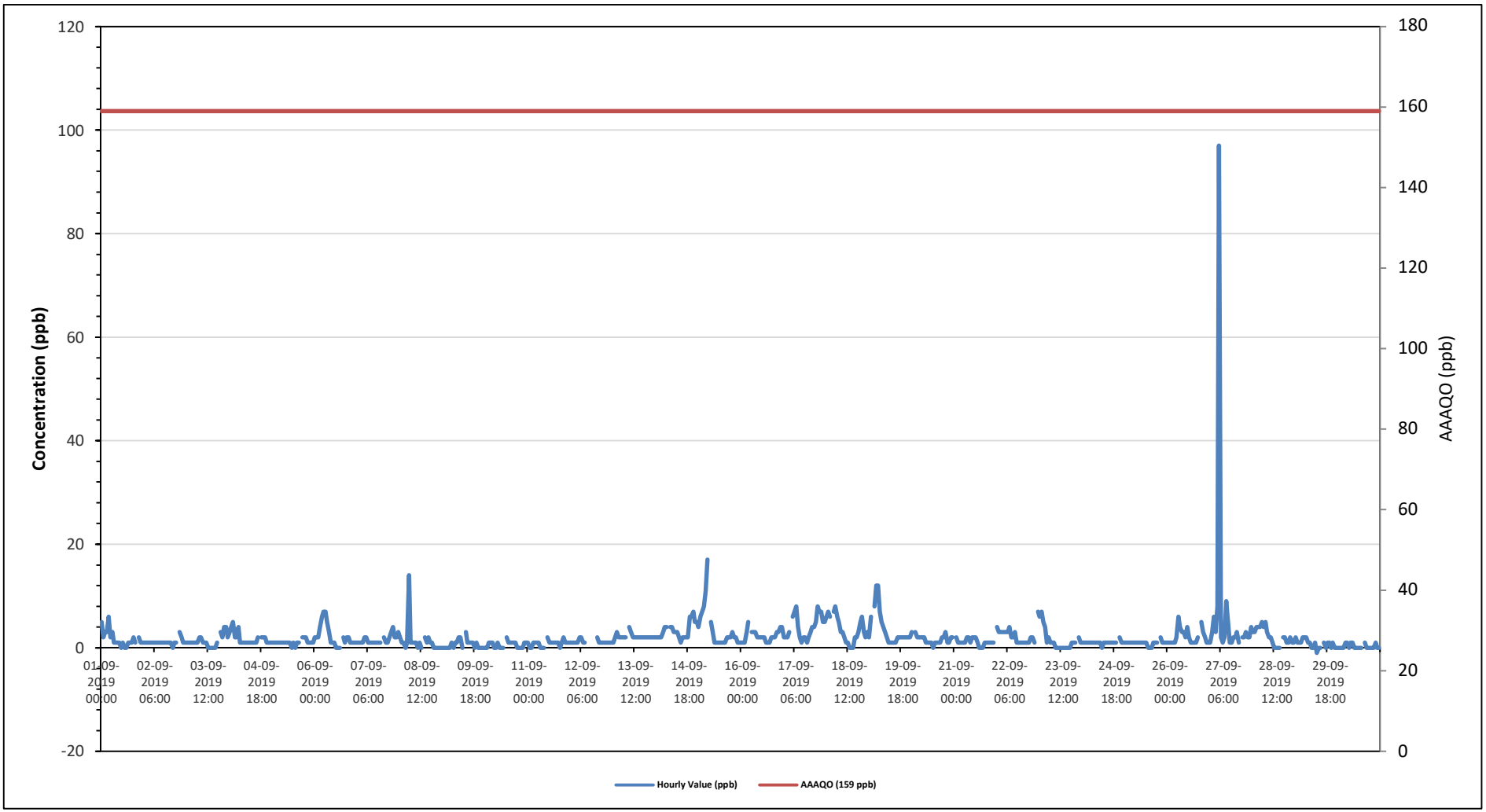
Maximum Hourly Value:	97	ppb	on September 27 at hour 5	Hours in Service:	720
Maximum Daily Value:	7.0	ppb	on September 27	Hours of Data:	684
Minimum Hourly Value:	0	ppb	on September 1 at hour 12	Hours of Missing Data:	0
Minimum Daily Value:	0.3	ppb	on September 30	Hours of Calibration:	36
Monthly Average:	2.0	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	5	2	3	3	6	2	3	1	1	1	1	0	1	0	0	1	1	1	2	1	S	2	1	1	0	6	1.7
Sep 2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	S	3	2	1	1	0	3	1.1
Sep 3	1	1	1	1	1	1	1	2	2	1	1	1	0	0	0	0	0	1	S	3	2	4	4	2	0	4	1.3
Sep 4	3	4	5	2	2	4	1	1	1	1	1	1	1	1	1	1	2	S	2	2	2	1	1	1	1	5	1.8
Sep 5	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	S	2	2	2	1	1	1	1	0	2	1.0
Sep 6	2	2	2	4	6	7	7	5	3	1	1	1	0	0	0	S	2	1	2	2	1	1	1	1	0	7	2.3
Sep 7	1	1	1	1	2	2	1	1	1	1	1	1	1	1	S	2	1	1	2	3	4	2	2	3	1	4	1.6
Sep 8	2	1	1	0	1	14	1	1	1	1	0	1	0	S	2	1	2	1	1	0	0	0	0	0	0	14	1.3
Sep 9	0	0	0	0	0	1	0	1	1	2	2	0	S	3	1	1	1	1	0	1	0	0	0	0	0	3	0.7
Sep 10	0	0	1	1	1	0	0	1	0	0	0	S	2	1	1	1	1	1	0	0	0	0	1	1	0	2	0.6
Sep 11	1	0	0	1	1	1	1	0	0	0	S	2	1	1	1	1	1	1	0	1	2	1	1	1	0	2	0.8
Sep 12	1	1	1	1	1	2	2	1	1	S	C	C	C	C	C	2	1	1	1	1	1	1	1	1	1	2	1.2
Sep 13	1	2	3	2	2	2	2	2	S	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	1	4	2.1
Sep 14	2	2	2	2	3	4	4	S	4	4	3	3	3	2	1	2	2	2	2	6	6	7	5	5	1	7	3.3
Sep 15	4	6	7	8	11	17	S	5	3	1	1	1	1	1	1	1	2	2	2	3	2	2	1	1	1	17	3.6
Sep 16	1	1	1	3	5	S	3	3	3	2	2	2	2	2	1	1	1	2	2	2	3	3	4	4	1	5	2.3
Sep 17	2	2	2	3	S	6	7	8	4	2	1	2	2	1	2	3	4	4	5	8	7	7	5	5	1	8	4.0
Sep 18	6	7	6	S	7	8	6	5	3	3	2	1	1	0	0	0	2	2	3	5	6	3	2	3	0	8	3.5
Sep 19	2	6	S	8	12	12	7	5	4	3	2	1	1	1	1	1	2	2	2	2	2	2	2	2	1	12	3.6
Sep 20	3	S	3	2	2	2	2	2	1	1	1	1	0	1	1	1	1	2	2	3	1	1	2	2	0	3	1.6
Sep 21	S	2	1	1	1	1	1	2	2	1	2	2	2	1	0	0	0	1	1	1	1	1	1	S	0	2	1.1
Sep 22	4	3	3	3	3	3	3	4	2	2	3	1	1	1	1	1	1	1	1	2	2	1	S	7	1	7	2.3
Sep 23	6	7	5	4	1	2	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	S	2	1	0	7	1.5
Sep 24	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	S	2	1	1	0	2	1.0
Sep 25	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	S	2	1	1	1	0	2	0.9
Sep 26	1	1	1	1	1	2	6	4	3	3	2	4	2	1	1	1	1	2	S	5	3	2	1	1	1	6	2.1
Sep 27	1	3	6	3	8	**97**	2	1	2	9	5	1	1	2	2	3	1	S	2	2	3	2	2	4	1	**97**	**7.0**
Sep 28	3	3	4	4	4	5	4	5	3	2	2	1	0	0	0	0	S	2	2	1	1	2	1	1	0	5	2.2
Sep 29	2	1	1	1	2	2	2	1	1	0	0	1	0	0	0	S	1	0	1	1	0	1	0	0	0	2	0.8
Sep 30	0	0	0	0	1	1	0	1	1	0	0	0	0	0	S	1	0	0	0	0	0	1	0	0	0	1	0.3
Diurnal Maximum	6	7	7	8	12	97	7	8	4	9	5	4	3	3	2	3	4	4	5	8	7	7	5	7			
Daiurnal Average	2.0	2.1	2.2	2.2	3.0	7.0	2.4	2.3	1.8	1.7	1.4	1.1	1.0	0.9	0.8	1.1	1.2	1.4	1.5	2.2	2.1	1.9	1.6	1.8			

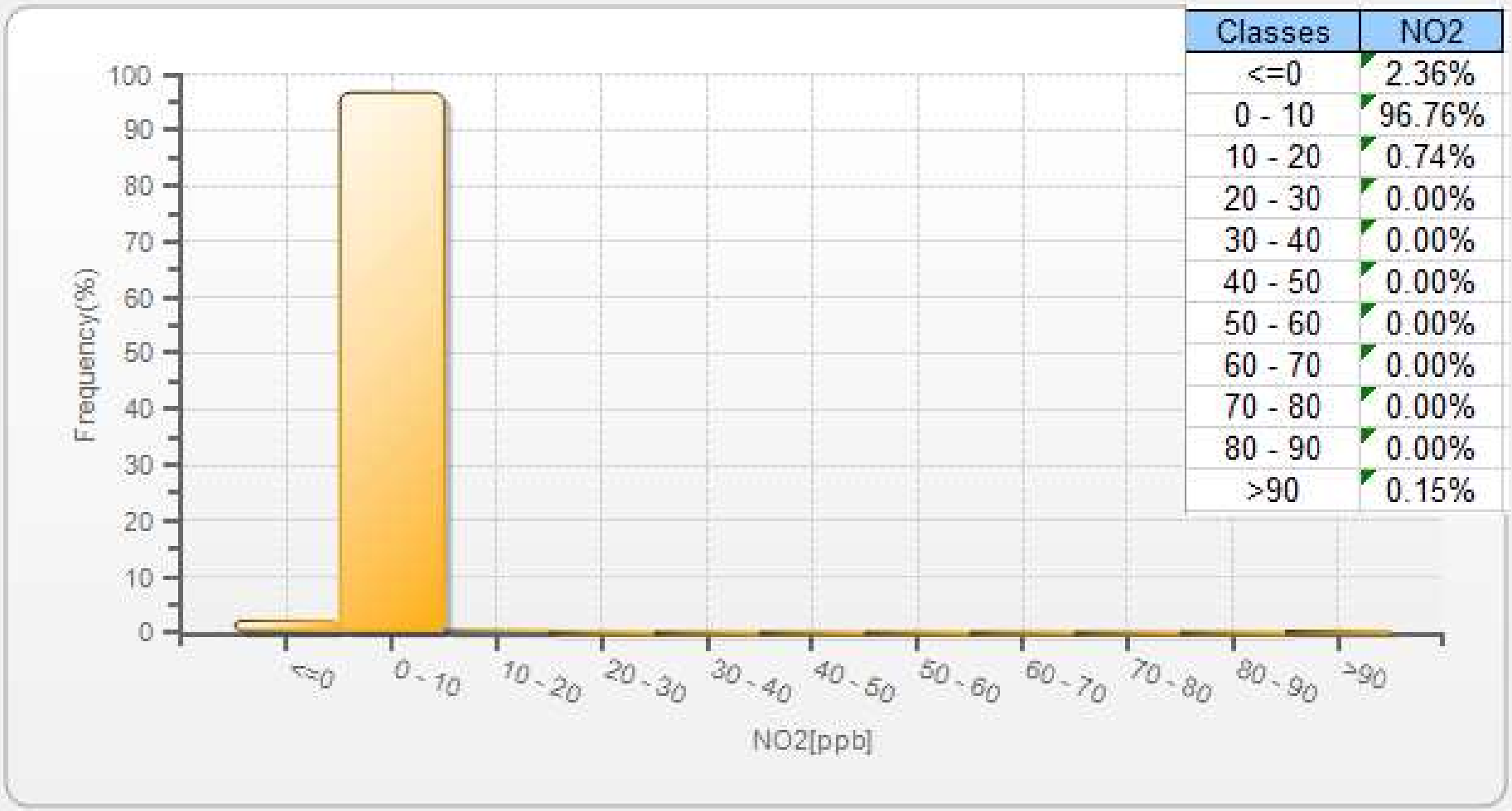
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for NO2 - Bonnyville - East Site



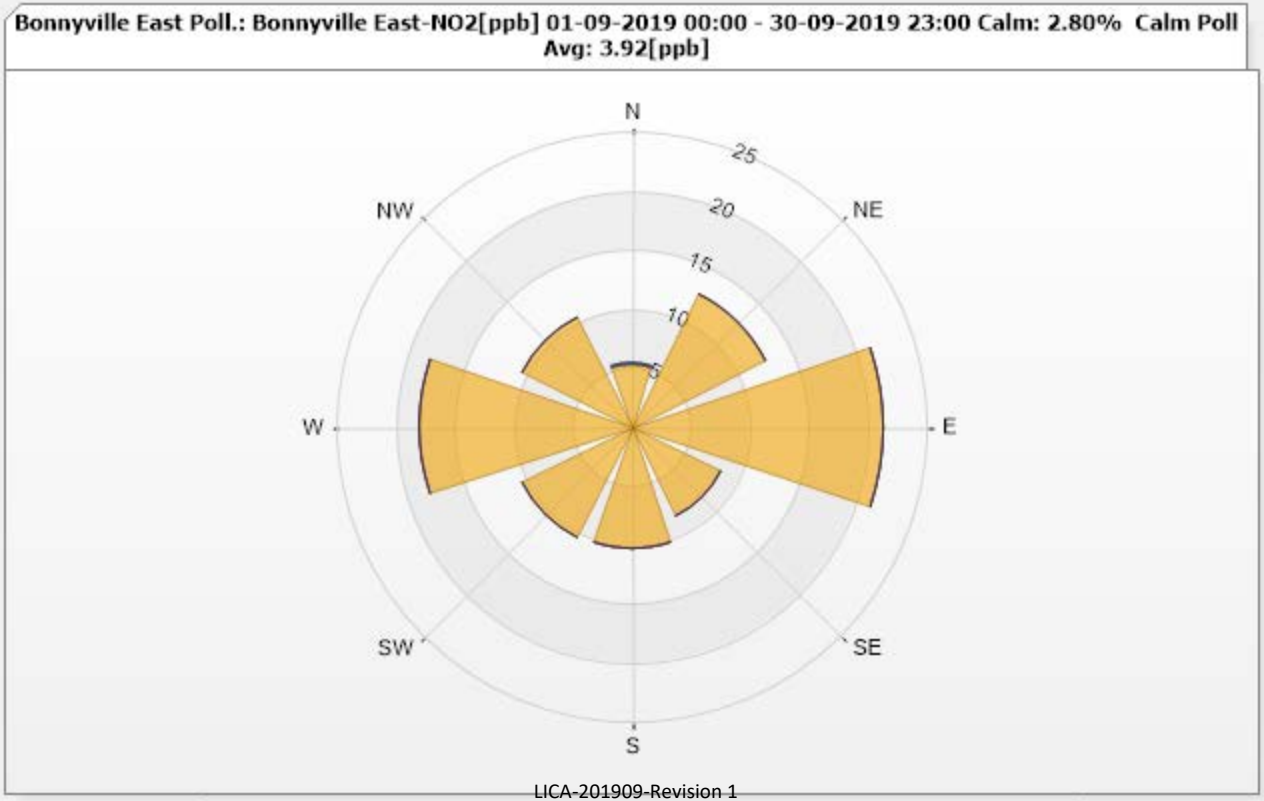
NO2[ppb] Histogram: Bonnyville East Monthly: 09-2019 1 Hr.



Classes	NO2
<=0	2.36%
0 - 10	96.76%
10 - 20	0.74%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.15%

Wind: Bonnyville East Poll.: Bonnyville East-NO2[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 2.80% Valid Data: 94.31% Calm Avg: 3.92 [ppb]

Direction	30-50	50-82	82-159	>159.0	Total
N	5.3	0	0.15	0	5.45
NE	12.67	0	0	0	12.67
E	21.35	0	0	0	21.35
SE	8.54	0	0	0	8.54
S	10.31	0	0	0	10.31
SW	10.46	0	0	0	10.46
W	17.97	0	0	0	17.97
NW	10.46	0	0	0	10.46
Summary	97.06	0	0.15	0	97.21


Bonnyville East Poll.: Bonnyville East-NO2[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 2.80% Calm Poll Avg: 3.92[ppb]
N
NE
E
SE
S
SW
W
NW
25
20
15
10
5
% Icon Classes (ppb)
97 30-50
0 50-82
0 82-159
0 >159.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Averages

OZONE (O_3) in ppb

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

Number of 1-Hour Exceedences: 0

Maximum Hourly Value:	40.1	ppb	on September 7 at hour 15	Hours in Service:	720
Maximum Daily Value:	30.1	ppb	on September 24	Hours of Data:	684
Minimum Hourly Value:	1.2	ppb	on September 15 at hour 4	Hours of Missing Data:	1
Minimum Daily Value:	10.2	ppb	on September 11	Hours of Calibration:	35
Monthly Average:	20.8	ppb		Operational Uptime:	99.9

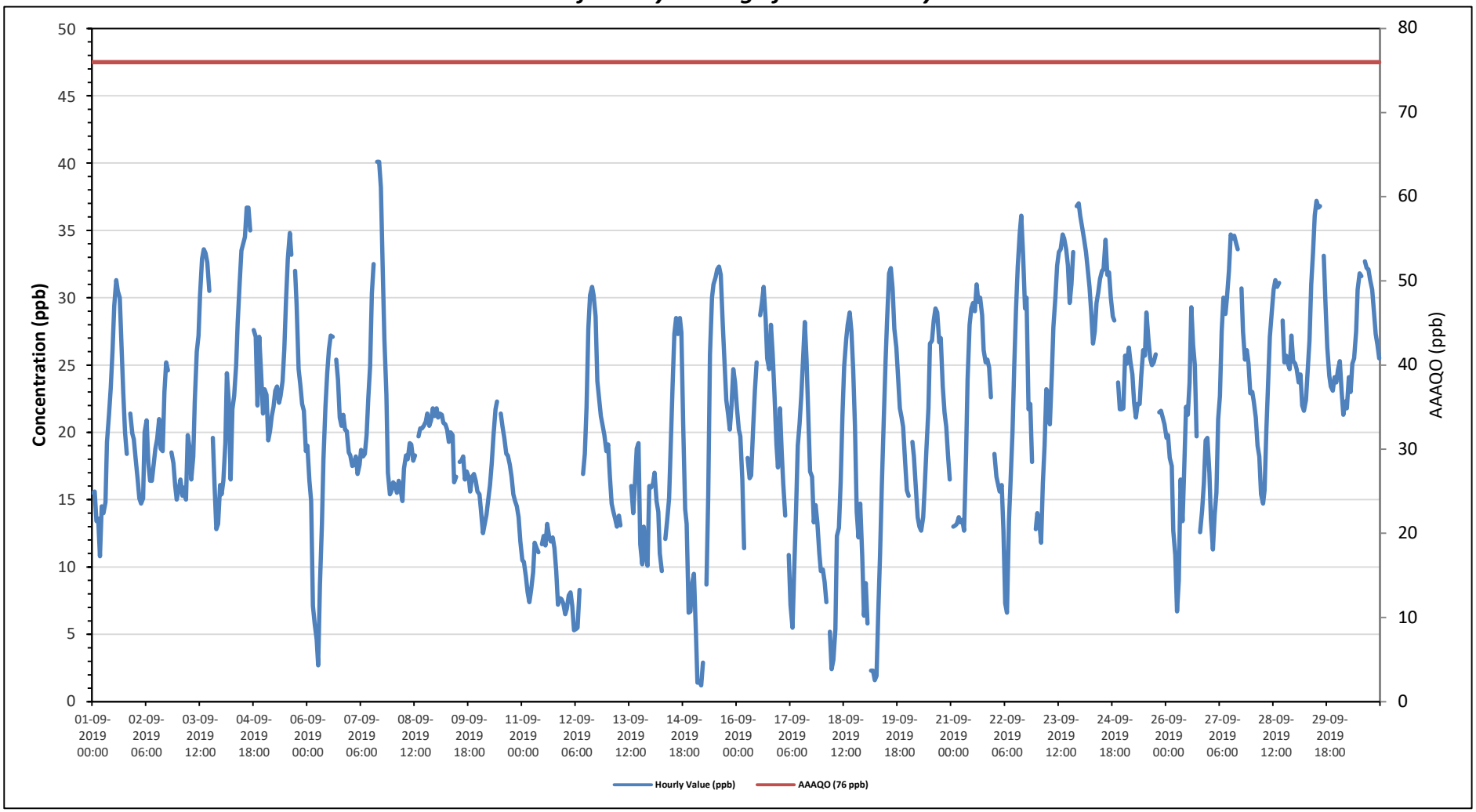
Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	15.5	15.6	13.4	13.6	10.8	14.5	14	14.8	19.3	21.3	23.3	26	29.4	31.3	30.5	30	26.4	22.9	20	18.4	S	21.4	19.9	19.5	10.8	31.3	20.5
Sep 2	17.9	16.6	15.1	14.7	15.1	20	20.9	17.7	16.4	16.4	17.6	18.8	19.5	21	18.8	18.6	23	25.2	24.6	S	18.5	17.7	16	15	14.7	25.2	18.5
Sep 3	15.8	16.5	15.3	15.9	15	19.8	18.9	16.5	18.2	22.3	26	27.2	30.2	32.9	33.6	33.3	32.6	30.5	S	19.6	16	12.8	13.2	16.1	12.8	33.6	21.7
Sep 4	15.4	16.4	19.2	24.4	22.2	16.5	21.7	22.7	25	28.1	31.1	33.5	34	34.5	36.7	36.7	35	S	27.6	27.1	22	27.1	24.6	21.4	15.4	36.7	26.2
Sep 5	23.2	22.8	19.4	20.1	21.2	21.9	23.1	23.4	22.2	22.7	23.8	26.2	29.9	32.9	34.8	33.2	S	32	29.5	24.7	23.5	22.1	21.6	18.6	18.6	34.8	24.9
Sep 6	19	16.4	14.9	7.1	5.8	4.6	2.7	8.7	13.2	18	21.9	24.4	26.2	27.2	27.1	S	25.4	23.9	21.1	20.5	21.3	20.2	20.1	18.5	2.7	27.2	17.7
Sep 7	18.3	17.5	17.6	18.2	16.9	17.6	18.7	18.2	18.4	19.8	22.6	24.9	30.3	32.5	S	**40.1**	**40.1**	38.2	32.4	26.9	22.8	17	15.4	15.7	15.4	**40.1**	23.5
Sep 8	16.3	16.1	15.5	16.4	15.8	14.9	17.3	18.3	18	19.2	19.1	17.9	18.3	S	19.7	20.3	20.3	20.5	20.8	21.4	20.5	20.9	21.8	21.2	14.9	21.8	18.7
Sep 9	21.8	21.1	21.4	21.3	20.7	20.6	20.2	19.3	20	19.8	16.3	16.7	S	17.8	17.9	18.2	16.5	17.1	16.7	15.6	16.7	16.9	16.4	15.6	15.6	21.8	18.5
Sep 10	15.4	14.2	12.5	13.2	13.9	15	16.1	17.7	19.8	21.7	22.3	S	21.4	20.4	19.6	18.4	18.3	17.6	16.7	15.4	14.9	14.5	13.7	11.9	11.9	22.3	16.7
Sep 11	10.5	10.4	9.3	8.1	7.4	8.3	9.6	11.8	11.4	11.1	S	11.7	12.3	11.6	13.2	12.2	11.9	12.2	11.4	9.7	7.2	7.7	7.6	7.3	7.2	13.2	10.2
Sep 12	6.5	6.9	7.9	8.1	7.1	5.3	5.4	5.5	8.3	S	16.9	18.4	21.9	27.7	30.2	30.8	30.2	28.6	23.8	22.5	21.2	20.4	19.8	18.6	5.3	30.8	17.0
Sep 13	19.1	16.7	14.7	14.1	13.6	13	13.8	13.1	S	C	C	C	C	16	14	16.3	18.8	19.2	11.7	10.2	13	10.8	10.1	16	10.1	19.2	14.4
Sep 14	15.9	16.2	17	14.9	14.1	11	9.7	S	12.1	13.4	15.1	18.7	23.5	27.3	28.5	27.3	28.5	27.4	20.7	14.3	13.2	6.6	6.7	8.8	6.6	28.5	17.0
Sep 15	9.5	5.1	1.4	1.5	**1.2**	2.9	S	8.7	15.3	25.8	30	31	31.5	32.1	32.3	31.7	28	25.6	22.4	21.4	20.2	22	24.7	23.7	**1.2**	32.3	19.5
Sep 16	21.9	20.2	19.7	16.5	11.4	S	18.1	16.6	16.8	20.3	23.1	25.2	S1	28.7	29.6	30.8	28.4	25.5	24.7	28	25.8	22.9	19.1	17.4	11.4	30.8	22.3
Sep 17	21.8	18.5	16.2	13.8	S	10.9	7.2	5.5	9.3	14.1	19	20.6	22.7	25.8	28.2	25.4	20.6	17.1	16.7	13.3	14.6	13.3	11	9.7	5.5	28.2	16.3
Sep 18	9.8	8.9	7.4	S	5.2	2.4	3.1	5.4	12.3	12.9	16.3	21.2	24.9	26.9	28	28.9	27.5	24.6	20.5	14.1	12.2	14.7	10.8	6.4	2.4	28.9	15.0
Sep 19	8.8	5.8	S	2.3	2.3	1.6	1.9	6.7	10.9	16	20.4	25.3	28.3	31.8	32.2	30.7	27.7	26.3	24.4	21.8	21.1	20.4	17.8	15.7	1.6	32.2	17.4
Sep 20	15.3	S	19.3	18.2	15.8	13.7	13	12.7	13.7	15.9	18.8	21.8	26.6	26.8	28.3	29.2	28.9	26.7	27	23.4	21.5	20.4	18.3	16.5	12.7	29.2	20.5
Sep 21	S	13	13.1	13.2	13.7	13.3	13.5	12.7	18.4	23.9	28	29.2	29.6	29	31	29.7	30	28.7	26.1	25.2	25.4	24.8	22.6	S	12.7	31.0	22.5
Sep 22	18.4	16.7	16.1	15.6	16.1	12.7	7.3	6.6	13.5	16.2	20	24.9	29.1	32.3	34.8	36.1	33.3	29.2	30	21.7	22.1	17.8	S	12.8	6.6	36.1	21.0
Sep 23	14	13.3	11.8	16.2	19	23.2	22.9	20.6	24.4	27.8	30	32.4	33.4	33.6	34.7	34.4	33.6	32.4	29.6	31	33.4	S	36.8	37	11.8	37.0	27.2
Sep 24	36.1	35.2	34.4	33.4	32.3	30.8	28.9	26.6	27.5	29.6	30.4	31.4	32	32.1	34.3	31.7	31.9	30	28.6	28.3	S	23.7	21.7	21.7	21.7	36.1	**30.1**
Sep 25	21.8	25.7	25.1	26.3	25.3	24.3	22.2	21.1	22.1	22.1	24.1	26.1	25.7	28.9	26.9	25.5	25	25.2	25.8	S	21.5	21.6	21.1	20.6	20.6	28.9	24.1
Sep 26	19.6	19.8	18.1	17.5	12.7	10.9	6.7	9	16.5	13.4	16.9	21.9	21.3	23.7	29.3	26.5	25	19.7	S	12.6	14.2	16.2	19.4	19.6	6.7	29.3	17.8
Sep 27	17	13.6	11.3	13.9	15.5	21	22.7	27.5	30	28.8	30	32	34.7	34.4	34.6	34	33.6	S	30.7	27.5	25.4	26.1	25.1	22.9	11.3	34.7	25.8
Sep 28	23	22.3	21.1	19	18.2	15.4	14.7	15.7	20.1	24.1	27.1	29	30.6	31.3	30.8	31.1	S	28.3	25.2	25.7	25.1	24.7	27.2	25.3	14.7	31.3	24.1
Sep 29	25.1	24.7	23.7	24.3	22	21.6	22.4	24.3	26.8	31	33.3	36.1	37.2	36.7	36.8	S	33.1	29.5	26.3	24.2	23.4	23.1	24.1	23.7	21.6	37.2	27.5
Sep 30	24.7	25.3	23.1	21.3	22.3	21.8	24.1	23	25.1	25.5	27.5	30.6	31.8	31.6	S	32.7	32.2	32.1	31.3	30.6	29.2	27.3	26.5	25.5	21.3	32.7	27.2
Diurnal Maximum	36	35	34	33	32	31	29	28	30	31	33	36	37	37	37	40	40	38	32	31	33	27	37	37			
Daiurnal Average	17.8	16.9	16.4	16.0	14.9	14.8	15.2	15.5	18.1	20.8	23.2	25.1	27.3	28.2	28.4	28.4	27.4	25.6	23.8	21.3	20.2	19.1	19.1	18.0			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

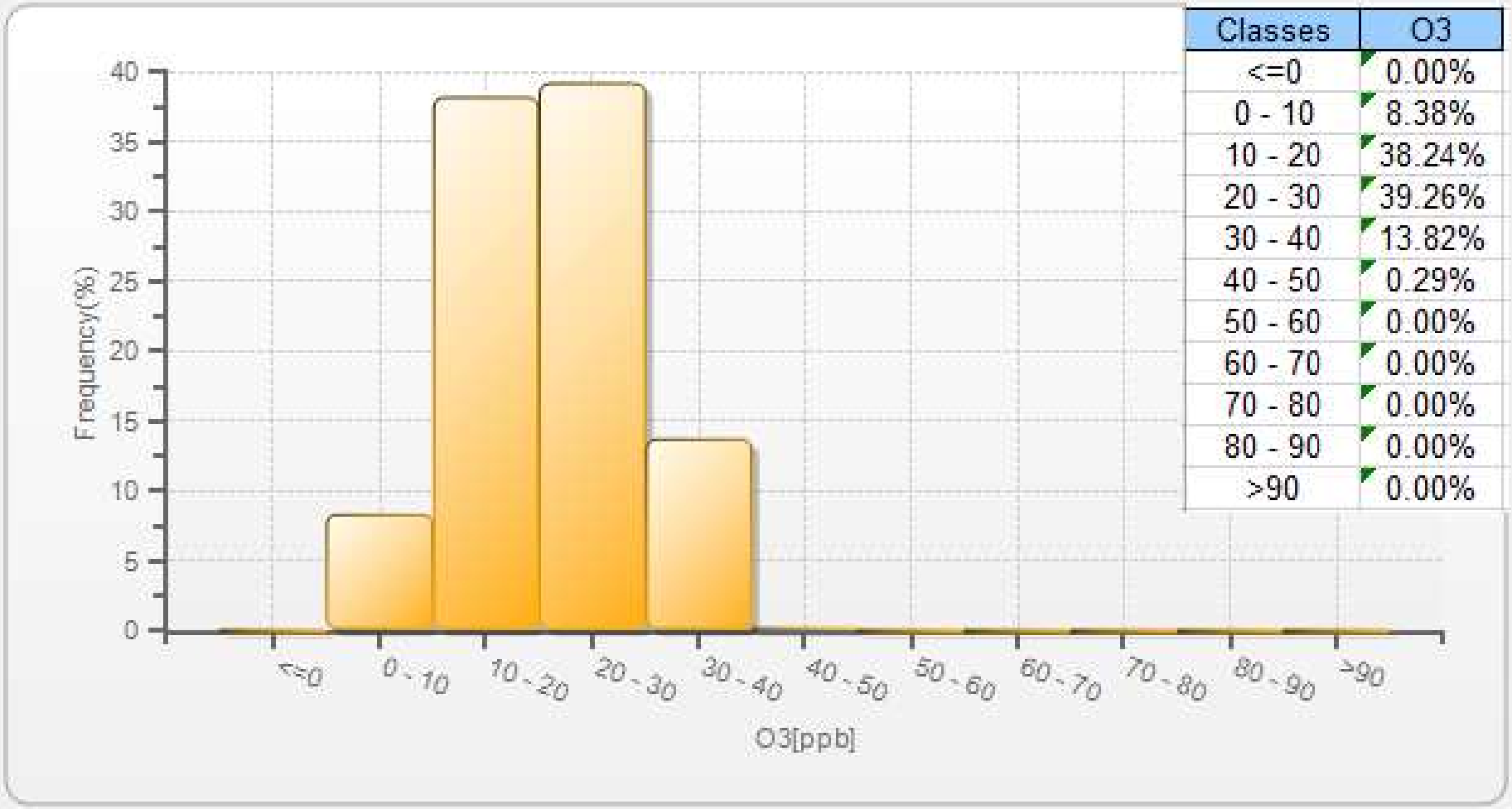
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

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

Timeseries Chart of Hourly Average for O3 - Bonnyville - East Site



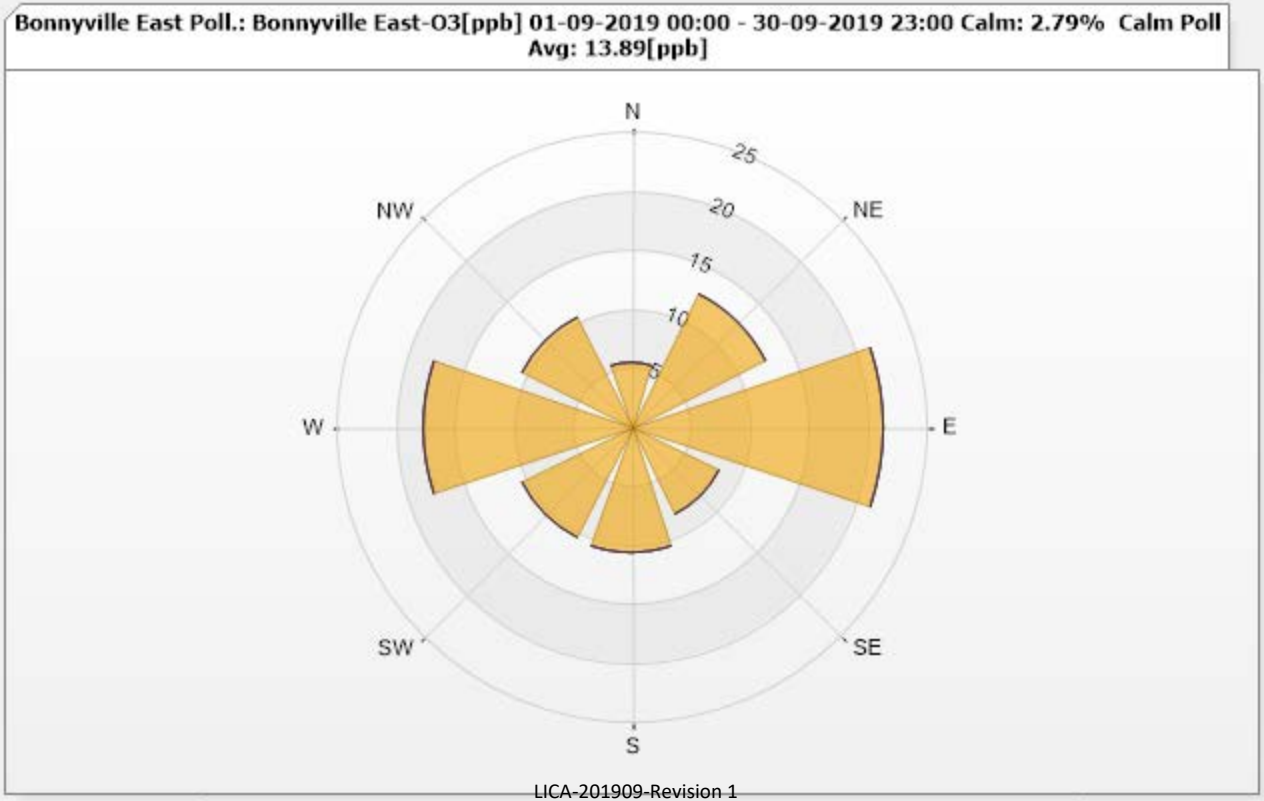
O3[ppb] Histogram: Bonnyville East Monthly: 09-2019 1 Hr.



Classes	O3
<=0	0.00%
0 - 10	8.38%
10 - 20	38.24%
20 - 30	39.26%
30 - 40	13.82%
40 - 50	0.29%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Bonnyville East Poll.: Bonnyville East-O3[ppb] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 2.79% Valid Data: 94.44% Calm Avg: 13.89 [ppb]

Direction	30-50	50-82	82-159	>159.0	Total
N	5.44	0	0	0	5.44
NE	12.65	0	0	0	12.65
E	21.32	0	0	0	21.32
SE	8.38	0	0	0	8.38
S	10.74	0	0	0	10.74
SW	10.44	0	0	0	10.44
W	17.79	0	0	0	17.79
NW	10.44	0	0	0	10.44
Summary	97.2	0	0	0	97.2


Bonnyville East Poll.: Bonnyville East-O3[ppb] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 2.79% Calm Poll
Avg: 13.89[ppb]
N
NE
E
SE
S
SW
W
NW
25
20
15
10
5
% Icon Classes (ppb)
97 30-50
0 50-82
0 82-159
0 >159.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Averages

TOTAL HYDROCARBONS (THC) in ppm

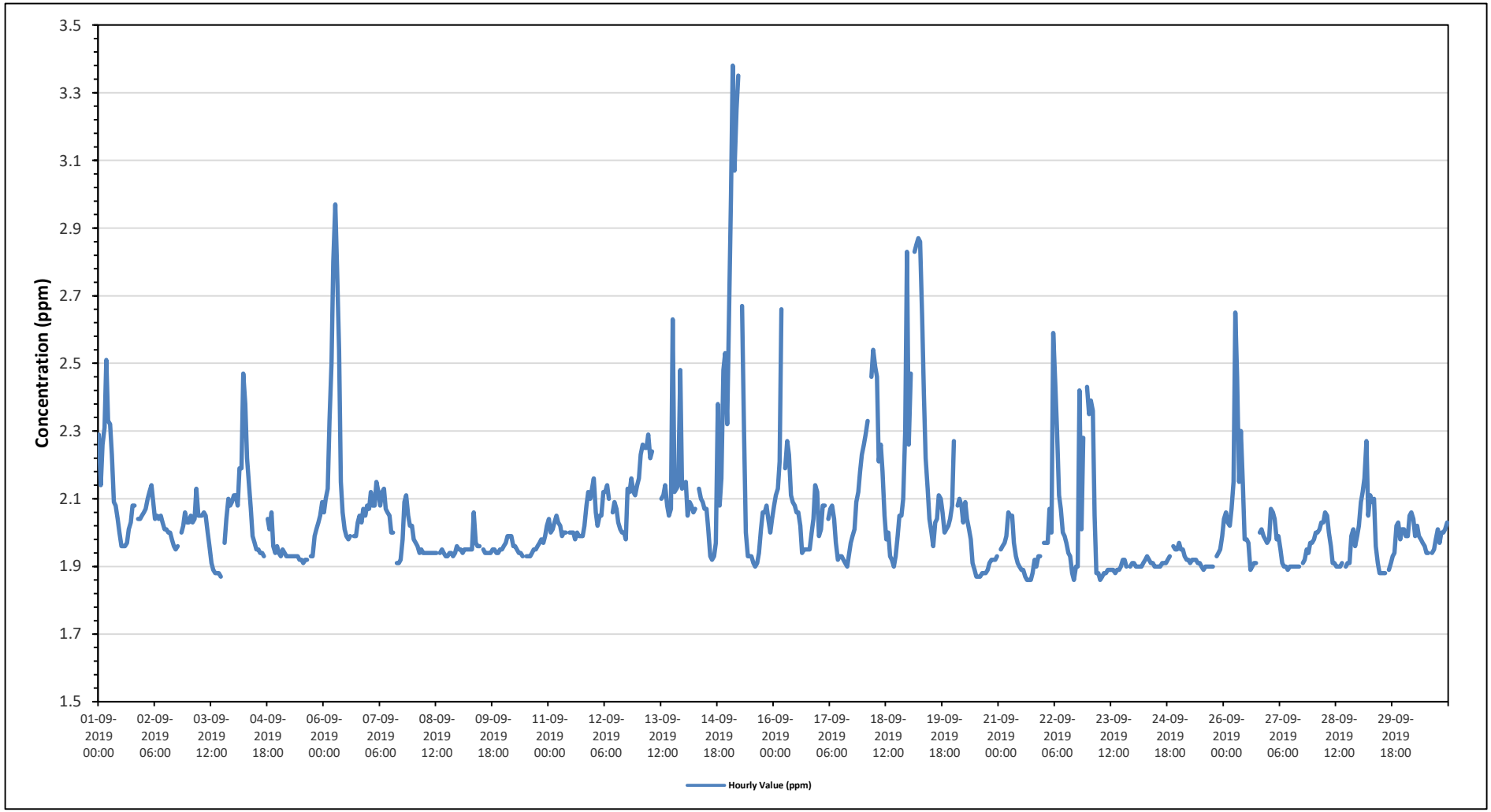
Maximum Hourly Value:	3.38	ppm	on September 15 at hour 2	Hours in Service:	720
Maximum Daily Value:	2.32	ppm	on September 15	Hours of Data:	686
Minimum Hourly Value:	1.86	ppm	on September 21 at hour 15	Hours of Missing Data:	0
Minimum Daily Value:	1.92	ppm	on September 24	Hours of Calibration:	34
Monthly Average:	2.05	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	2.29	2.14	2.26	2.31	2.51	2.33	2.32	2.23	2.09	2.08	2.04	2.00	1.96	1.96	1.96	1.97	2.01	2.03	2.08	2.08	S	2.04	2.04	2.05	1.96	2.51	2.12
Sep 2	2.06	2.07	2.10	2.12	2.14	2.09	2.04	2.05	2.04	2.05	2.03	2.01	2.01	2.00	2.00	1.98	1.96	1.95	1.96	S	2.00	2.02	2.06	2.03	1.95	2.14	2.03
Sep 3	2.03	2.05	2.03	2.04	2.13	2.05	2.05	2.05	2.06	2.05	2.00	1.96	1.91	1.89	1.88	1.88	1.88	1.87	S	1.97	2.04	2.10	2.08	2.09	1.87	2.13	2.00
Sep 4	2.11	2.11	2.08	2.19	2.19	2.47	2.38	2.22	2.15	2.07	1.99	1.97	1.95	1.95	1.94	1.94	1.93	S	2.04	2.01	2.06	1.96	1.94	1.96	1.93	2.47	2.07
Sep 5	1.94	1.93	1.95	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.92	1.92	1.91	1.92	1.92	S	1.93	1.93	1.99	2.01	2.03	2.05	2.09	1.91	2.09	1.95
Sep 6	2.06	2.10	2.13	2.33	2.50	2.80	2.97	2.78	2.54	2.15	2.06	2.01	1.99	1.98	1.99	S	1.99	1.99	2.03	2.05	2.03	2.07	2.05	2.08	1.98	2.97	2.20
Sep 7	2.07	2.12	2.08	2.08	2.15	2.12	2.08	2.12	2.13	2.07	2.06	2.05	2.00	2.00	S	1.91	1.91	1.92	1.98	2.09	2.11	2.05	2.02	2.02	1.91	2.15	2.05
Sep 8	1.98	1.97	1.96	1.94	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	S	1.94	1.95	1.94	1.93	1.93	1.94	1.94	1.93	1.94	1.96	1.93	1.98	1.94
Sep 9	1.95	1.95	1.94	1.95	1.95	1.95	1.95	1.95	2.06	1.97	1.96	1.96	S	1.95	1.94	1.94	1.94	1.94	1.95	1.95	1.94	1.94	1.95	1.95	1.94	2.06	1.95
Sep 10	1.96	1.97	1.99	1.99	1.99	1.96	1.96	1.95	1.94	1.94	1.93	S	1.93	1.93	1.93	1.94	1.95	1.95	1.96	1.97	1.98	1.97	1.99	2.02	1.93	2.02	1.96
Sep 11	2.04	2.00	2.01	2.03	2.05	2.03	2.02	1.99	2.00	2.00	S	2.00	2.00	2.00	1.98	2.00	1.99	1.99	1.99	2.02	2.08	2.12	2.10	2.13	1.98	2.13	2.02
Sep 12	2.16	2.06	2.02	2.05	2.05	2.12	2.12	2.14	2.10	S	2.06	2.09	2.07	2.03	2.01	2.00	2.00	1.98	2.13	2.12	2.16	2.12	2.11	2.14	1.98	2.16	2.08
Sep 13	2.16	2.23	2.26	2.25	2.25	2.29	2.22	2.24	S	C	C	C	2.10	2.11	2.14	2.08	2.05	2.07	2.63	2.12	2.13	2.14	2.48	2.13	2.05	2.63	2.20
Sep 14	2.14	2.15	2.05	2.09	2.08	2.06	2.07	S	2.13	2.10	2.09	2.07	2.07	2.01	1.93	1.92	1.93	1.97	2.38	2.08	2.16	2.48	2.53	2.32	1.92	2.53	2.12
Sep 15	2.63	2.99	**3.38**	3.07	3.25	3.35	S	2.67	2.29	2.00	1.93	1.93	1.93	1.91	1.90	1.91	1.94	2.01	2.06	2.06	2.08	2.04	2.00	2.04	1.90	**3.38**	**2.32**
Sep 16	2.08	2.11	2.13	2.21	2.66	S	2.19	2.27	2.23	2.11	2.09	2.08	2.06	2.06	2.02	1.94	1.95	1.95	1.95	1.95	2.00	2.04	2.14	2.12	1.94	2.66	2.10
Sep 17	1.99	2.01	2.08	2.08	S	2.04	2.07	2.08	2.04	1.97	1.92	1.93	1.93	1.92	1.91	1.90	1.93	1.97	1.99	2.01	2.09	2.12	2.18	2.23	1.90	2.23	2.02
Sep 18	2.26	2.29	2.33	S	2.46	2.54	2.49	2.46	2.21	2.26	2.18	2.05	1.98	2.00	1.93	1.92	1.90	1.93	1.99	2.05	2.05	2.10	2.30	2.83	1.90	2.83	2.20
Sep 19	2.26	2.47	S	2.83	2.85	2.87	2.86	2.64	2.41	2.22	2.13	2.04	2.00	1.96	2.03	2.04	2.11	2.10	2.06	2.00	2.01	2.02	2.04	2.08	1.96	2.87	2.26
Sep 20	2.27	S	2.08	2.10	2.08	2.03	2.09	2.04	2.01	1.98	1.91	1.89	1.87	1.87	1.87	1.88	1.88	1.88	1.89	1.91	1.92	1.92	1.92	1.93	1.87	2.27	1.97
Sep 21	S	1.95	1.96	1.97	1.99	2.06	2.05	2.05	1.97	1.93	1.91	1.90	1.89	1.89	1.87	1.86	1.86	1.86	1.88	1.92	1.90	1.93	1.93	S	1.86	2.06	1.93
Sep 22	1.97	1.97	1.97	2.07	2.00	2.59	2.44	2.30	2.11	2.07	2.00	1.99	1.97	1.94	1.93	1.88	1.86	1.90	1.90	2.42	2.01	2.28	S	2.43	1.86	2.59	2.09
Sep 23	2.35	2.39	2.36	2.05	1.88	1.88	1.86	1.87	1.88	1.88	1.89	1.89	1.89	1.89	1.88	1.89	1.89	1.90	1.92	1.92	1.90	S	1.90	1.91	1.86	2.39	1.96
Sep 24	1.91	1.90	1.90	1.90	1.90	1.91	1.92	1.93	1.92	1.91	1.91	1.90	1.90	1.90	1.90	1.91	1.91	1.91	1.92	1.93	S	1.96	1.95	1.95	1.90	1.96	1.92
Sep 25	1.97	1.95	1.95	1.93	1.92	1.92	1.91	1.92	1.92	1.92	1.91	1.91	1.90	1.89	1.90	1.90	1.90	1.90	1.90	S	1.93	1.94	1.95	1.99	1.89	1.99	1.92
Sep 26	2.04	2.06	2.03	2.02	2.07	2.15	2.65	2.46	2.15	2.30	2.14	1.98	1.98	1.97	1.89	1.90	1.91	1.91	S	2.00	2.01	1.99	1.98	1.97	1.89	2.65	2.07
Sep 27	1.98	2.07	2.06	2.04	1.98	1.99	1.95	1.91	1.90	1.90	1.89	1.90	1.90	1.90	1.90	1.90	1.90	S	1.91	1.92	1.95	1.94	1.97	1.97	1.89	2.07	1.94
Sep 28	1.98	2.00	2.00	2.01	2.03	2.03	2.06	2.05	2.00	1.96	1.91	1.91	1.90	1.90	1.90	1.91	S	1.90	1.91	1.91	1.99	2.01	1.96	1.99	1.90	2.06	1.97
Sep 29	2.02	2.09	2.12	2.16	2.27	2.05	2.11	2.09	2.10	1.96	1.91	1.88	1.88	1.88	1.88	S	1.89	1.91	1.93	1.94	2.02	2.03	1.98	2.01	1.88	2.27	2.00
Sep 30	2.01	1.99	1.99	2.05	2.06	2.04	1.99	2.02	1.99	1.98	1.97	1.96	1.94	1.94	S	1.94	1.95	1.98	2.01	1.97	2.00	2.00	2.01	2.03	1.94	2.06	1.99
Diurnal Maximum	2.63	2.99	3.38	3.07	3.25	3.35	2.97	2.78	2.54	2.30	2.18	2.09	2.10	2.11	2.14	2.08	2.11	2.10	2.63	2.42	2.16	2.48	2.53	2.83			
Daiurnal Average	2.09	2.11	2.11	2.13	2.18	2.19	2.16	2.15	2.08	2.03	1.99	1.97	1.96	1.95	1.94	1.93	1.94	1.95	2.01	2.01	2.02	2.04	2.05	2.08			

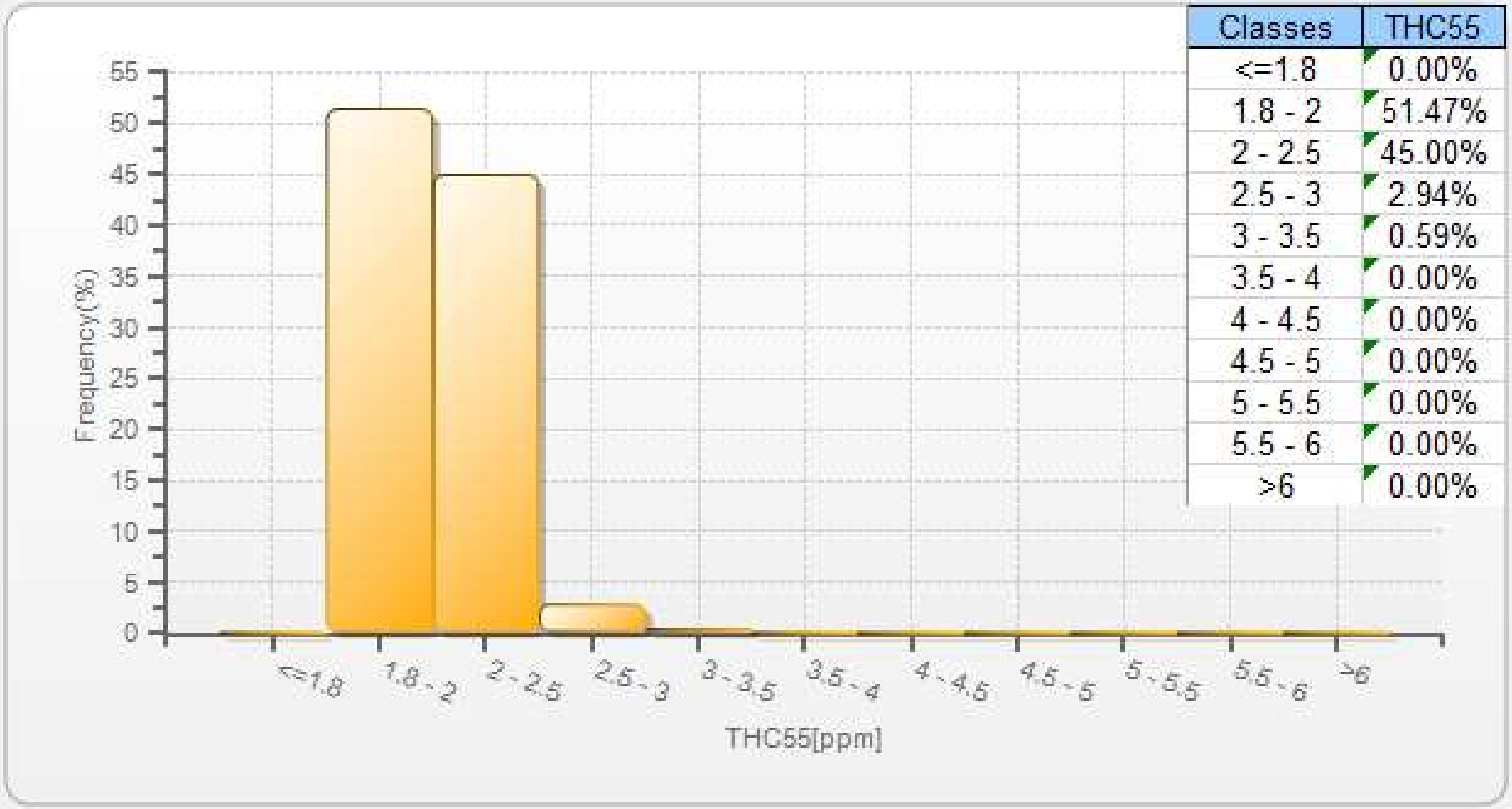
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for THC - Bonnyville - East Site



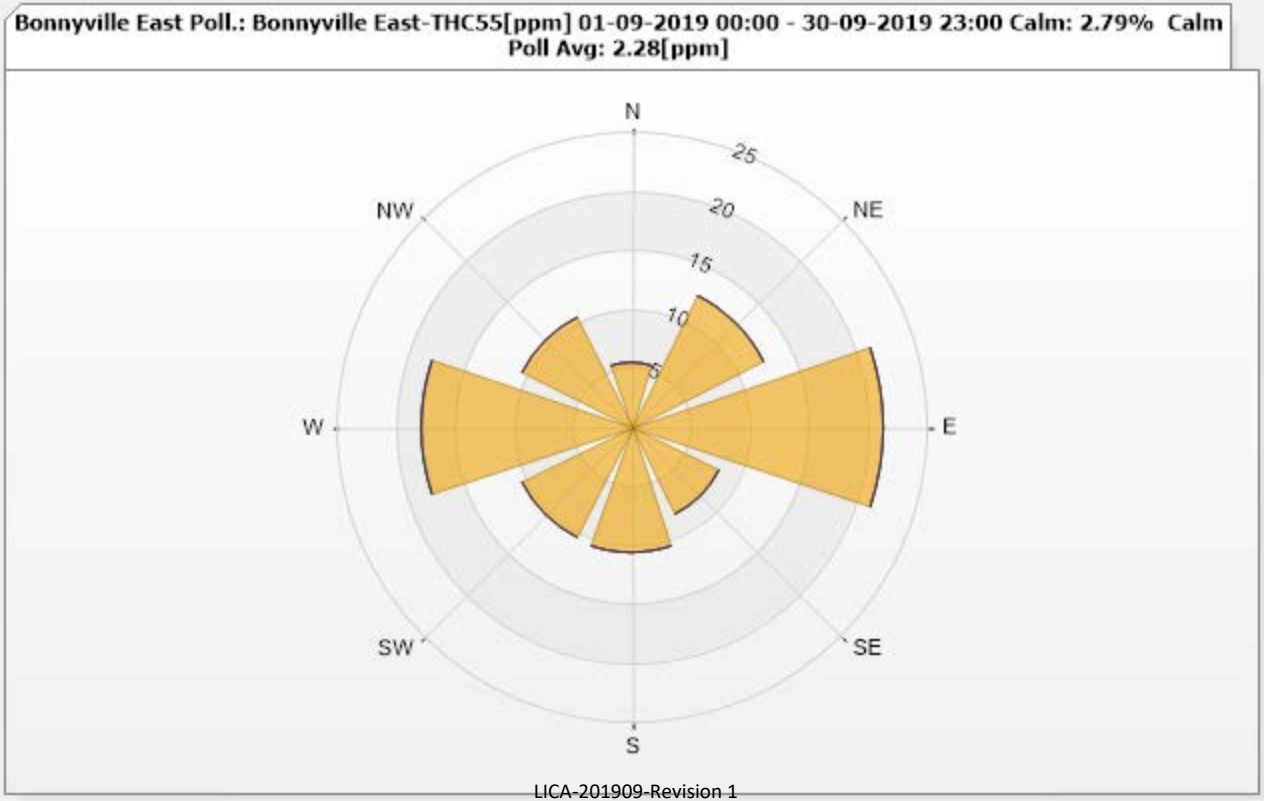
THC55[ppm] Histogram: Bonnyville East Monthly: 09-2019 1 Hr.



Classes	THC55
<=1.8	0.00%
1.8 - 2	51.47%
2 - 2.5	45.00%
2.5 - 3	2.94%
3 - 3.5	0.59%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: Bonnyville East Poll.: Bonnyville East-THC55[ppm] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 2.79% Valid Data: 94.44% Calm Avg: 2.28 [ppm]

Direction	2-5	5-10	10-40	>40.0	Total
N	5.44	0	0	0	5.44
NE	12.5	0	0	0	12.5
E	21.32	0	0	0	21.32
SE	8.38	0	0	0	8.38
S	10.74	0	0	0	10.74
SW	10.44	0	0	0	10.44
W	17.94	0	0	0	17.94
NW	10.44	0	0	0	10.44
Summary	97.2	0	0	0	97.2


Bonnyville East Poll.: Bonnyville East-THC55[ppm] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 2.79% Calm
Poll Avg: 2.28[ppm]
N
NE
E
SE
S
SW
W
NW
25
20
15
10
5
% Icon Classes (ppm)
97
0
5-10
0
10-40
0
>40.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Averages

METHANE (CH4) in ppm

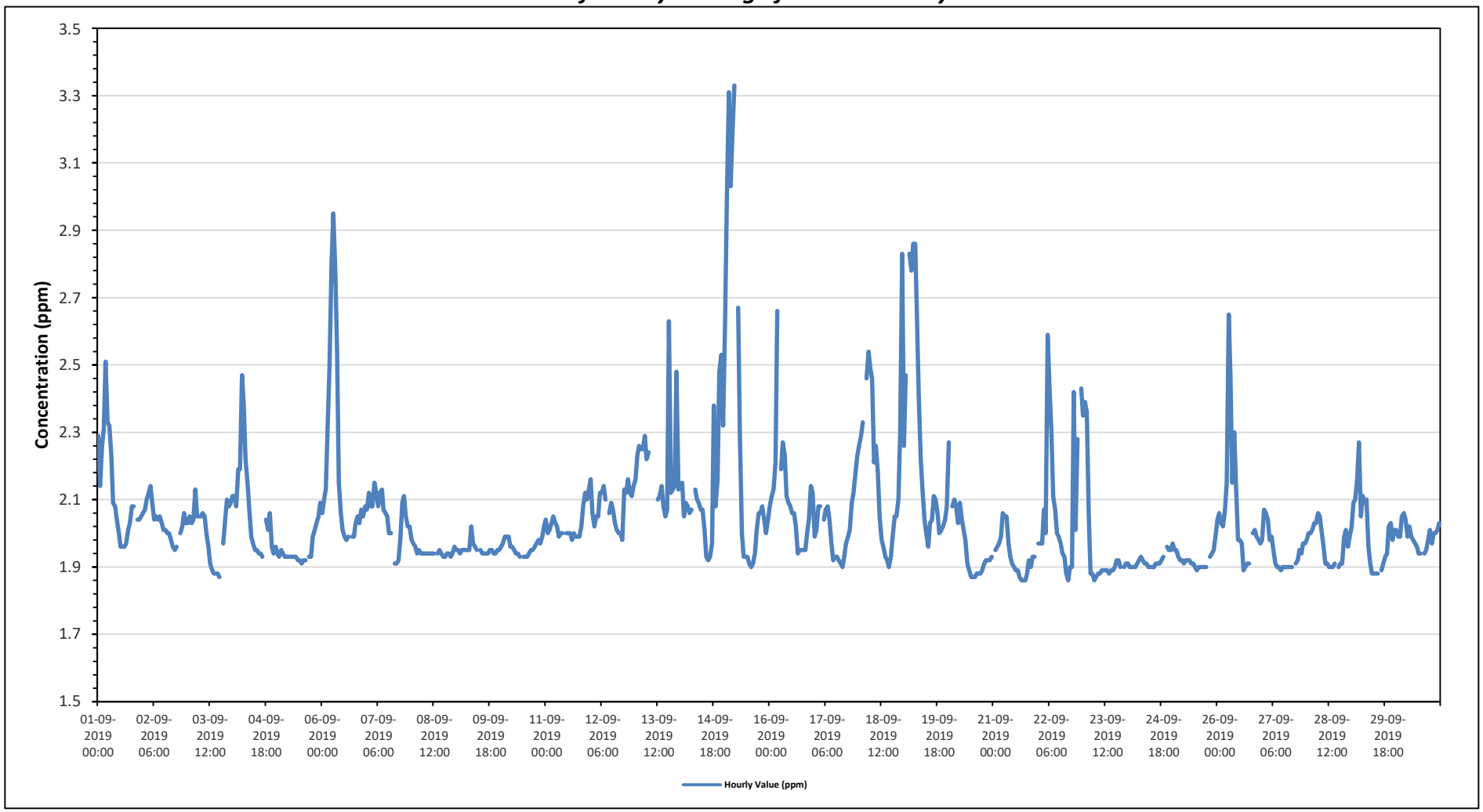
Maximum Hourly Value:	3.33	ppm	on September 15 at hour 5	Hours in Service:	720
Maximum Daily Value:	2.31	ppm	on September 15	Hours of Data:	686
Minimum Hourly Value:	1.86	ppm	on September 21 at hour 15	Hours of Missing Data:	0
Minimum Daily Value:	1.92	ppm	on September 24	Hours of Calibration:	34
Monthly Average:	2.04	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	2.29	2.14	2.26	2.31	2.51	2.33	2.32	2.23	2.09	2.08	2.04	2.00	1.96	1.96	1.96	1.97	2.01	2.03	2.08	2.08	S	2.04	2.04	2.05	1.96	2.51	2.12
Sep 2	2.06	2.07	2.10	2.12	2.14	2.09	2.04	2.05	2.04	2.05	2.03	2.01	2.01	2.00	2.00	1.98	1.96	1.95	1.96	S	2.00	2.02	2.06	2.03	1.95	2.14	2.03
Sep 3	2.03	2.05	2.03	2.04	2.13	2.05	2.05	2.05	2.06	2.05	2.00	1.96	1.91	1.89	1.88	1.88	1.88	1.87	S	1.97	2.04	2.10	2.08	2.09	1.87	2.13	2.00
Sep 4	2.11	2.11	2.08	2.19	2.19	2.47	2.38	2.22	2.15	2.07	1.99	1.97	1.95	1.95	1.94	1.94	1.93	S	2.04	2.01	2.06	1.96	1.94	1.96	1.93	2.47	2.07
Sep 5	1.94	1.93	1.95	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.92	1.92	1.91	1.92	1.92	S	1.93	1.93	1.99	2.01	2.03	2.05	2.09	1.91	2.09	1.95
Sep 6	2.06	2.10	2.13	2.33	2.50	2.80	2.95	2.78	2.54	2.15	2.06	2.01	1.99	1.98	1.99	S	1.99	1.99	2.03	2.05	2.03	2.07	2.05	2.08	1.98	2.95	2.20
Sep 7	2.07	2.12	2.08	2.08	2.15	2.12	2.08	2.12	2.13	2.07	2.06	2.05	2.00	2.00	S	1.91	1.91	1.92	1.98	2.09	2.11	2.05	2.02	2.02	1.91	2.15	2.05
Sep 8	1.98	1.97	1.96	1.94	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	S	1.94	1.95	1.94	1.93	1.93	1.94	1.94	1.93	1.94	1.96	1.93	1.98	1.94
Sep 9	1.95	1.95	1.94	1.95	1.95	1.95	1.95	1.95	2.02	1.97	1.96	1.95	S	1.95	1.94	1.94	1.94	1.94	1.95	1.95	1.94	1.94	1.95	1.95	1.94	2.02	1.95
Sep 10	1.96	1.97	1.99	1.99	1.99	1.96	1.96	1.95	1.94	1.94	1.93	S	1.93	1.93	1.93	1.94	1.95	1.95	1.96	1.97	1.98	1.97	1.99	2.02	1.93	2.02	1.96
Sep 11	2.04	2.00	2.01	2.03	2.05	2.03	2.02	1.99	2.00	2.00	S	2.00	2.00	2.00	1.98	2.00	1.99	1.99	1.99	2.02	2.08	2.12	2.10	2.13	1.98	2.13	2.02
Sep 12	2.16	2.06	2.02	2.05	2.05	2.12	2.12	2.14	2.10	S	2.06	2.09	2.07	2.03	2.01	2.00	2.00	1.98	2.13	2.12	2.16	2.12	2.11	2.14	1.98	2.16	2.08
Sep 13	2.16	2.23	2.26	2.25	2.25	2.29	2.22	2.24	S	C	C	C	2.10	2.11	2.14	2.08	2.05	2.07	2.63	2.12	2.13	2.14	2.48	2.13	2.05	2.63	2.20
Sep 14	2.14	2.15	2.05	2.09	2.08	2.06	2.07	S	2.13	2.10	2.09	2.07	2.07	2.01	1.93	1.92	1.93	1.97	2.38	2.08	2.16	2.48	2.53	2.32	1.92	2.53	2.12
Sep 15	2.63	2.99	3.31	3.03	3.18	**3.33**	S	2.67	2.29	2.00	1.93	1.93	1.93	1.91	1.90	1.91	1.94	2.01	2.06	2.06	2.08	2.04	2.00	2.04	1.90	**3.33**	**2.31**
Sep 16	2.08	2.11	2.13	2.21	2.66	S	2.19	2.27	2.23	2.11	2.09	2.08	2.06	2.06	2.02	1.94	1.95	1.95	1.95	1.95	2.00	2.04	2.14	2.12	1.94	2.66	2.10
Sep 17	1.99	2.01	2.08	2.08	S	2.04	2.07	2.08	2.04	1.97	1.92	1.93	1.93	1.92	1.91	1.90	1.93	1.97	1.99	2.01	2.09	2.12	2.18	2.23	1.90	2.23	2.02
Sep 18	2.26	2.29	2.33	S	2.46	2.54	2.49	2.46	2.21	2.26	2.18	2.05	1.98	1.96	1.93	1.92	1.90	1.93	1.99	2.05	2.05	2.10	2.30	2.83	1.90	2.83	2.19
Sep 19	2.26	2.47	S	2.83	2.78	2.86	2.86	2.64	2.41	2.22	2.13	2.04	2.00	1.96	2.03	2.04	2.11	2.10	2.06	2.00	2.01	2.02	2.04	2.08	1.96	2.86	2.26
Sep 20	2.27	S	2.08	2.10	2.08	2.03	2.09	2.04	2.01	1.98	1.91	1.89	1.87	1.87	1.87	1.88	1.88	1.88	1.89	1.91	1.92	1.92	1.92	1.93	1.87	2.27	1.97
Sep 21	S	1.95	1.96	1.97	1.99	2.06	2.05	2.05	1.97	1.93	1.91	1.90	1.89	1.89	1.87	1.86	1.86	1.86	1.88	1.92	1.90	1.93	1.93	S	1.86	2.06	1.93
Sep 22	1.97	1.97	1.97	2.07	2.00	2.59	2.44	2.30	2.11	2.07	2.00	1.99	1.97	1.94	1.93	1.88	1.86	1.90	1.90	2.42	2.01	2.28	S	2.43	1.86	2.59	2.09
Sep 23	2.35	2.39	2.36	2.05	1.88	1.88	1.86	1.87	1.88	1.88	1.89	1.89	1.89	1.89	1.88	1.89	1.89	1.90	1.92	1.92	1.90	S	1.90	1.91	1.86	2.39	1.96
Sep 24	1.91	1.90	1.90	1.90	1.90	1.91	1.92	1.93	1.92	1.91	1.91	1.90	1.90	1.90	1.90	1.91	1.91	1.91	1.92	1.93	S	1.96	1.95	1.95	1.90	1.96	1.92
Sep 25	1.97	1.95	1.95	1.93	1.92	1.92	1.91	1.92	1.92	1.92	1.91	1.91	1.90	1.89	1.90	1.90	1.90	1.90	1.90	S	1.93	1.94	1.95	1.99	1.89	1.99	1.92
Sep 26	2.04	2.06	2.03	2.02	2.07	2.15	2.65	2.46	2.15	2.30	2.14	1.98	1.98	1.97	1.89	1.90	1.91	1.91	S	2.00	2.01	1.99	1.98	1.97	1.89	2.65	2.07
Sep 27	1.98	2.07	2.06	2.04	1.98	1.99	1.95	1.91	1.90	1.90	1.89	1.90	1.90	1.90	1.90	1.90	1.90	S	1.91	1.92	1.95	1.94	1.97	1.97	1.89	2.07	1.94
Sep 28	1.98	2.00	2.00	2.01	2.03	2.03	2.06	2.05	2.00	1.96	1.91	1.91	1.90	1.90	1.90	1.91	S	1.90	1.91	1.91	1.99	2.01	1.96	1.99	1.90	2.06	1.97
Sep 29	2.02	2.09	2.10	2.16	2.27	2.05	2.11	2.09	2.10	1.96	1.91	1.88	1.88	1.88	1.88	S	1.89	1.91	1.93	1.94	2.02	2.03	1.98	2.01	1.88	2.27	2.00
Sep 30	2.01	1.99	1.99	2.05	2.06	2.04	1.99	2.02	1.99	1.98	1.97	1.96	1.94	1.94	S	1.94	1.95	1.98	2.01	1.97	2.00	2.00	2.01	2.03	1.94	2.06	1.99
Diurnal Maximum	2.63	2.99	3.31	3.03	3.18	3.33	2.95	2.78	2.54	2.30	2.18	2.09	2.10	2.11	2.14	2.08	2.11	2.10	2.63	2.42	2.16	2.48	2.53	2.83			
Daiurnal Average	2.09	2.11	2.11	2.13	2.18	2.19	2.16	2.15	2.08	2.03	1.99	1.97	1.96	1.95	1.94	1.93	1.94	1.95	2.01	2.01	2.02	2.04	2.05	2.08			

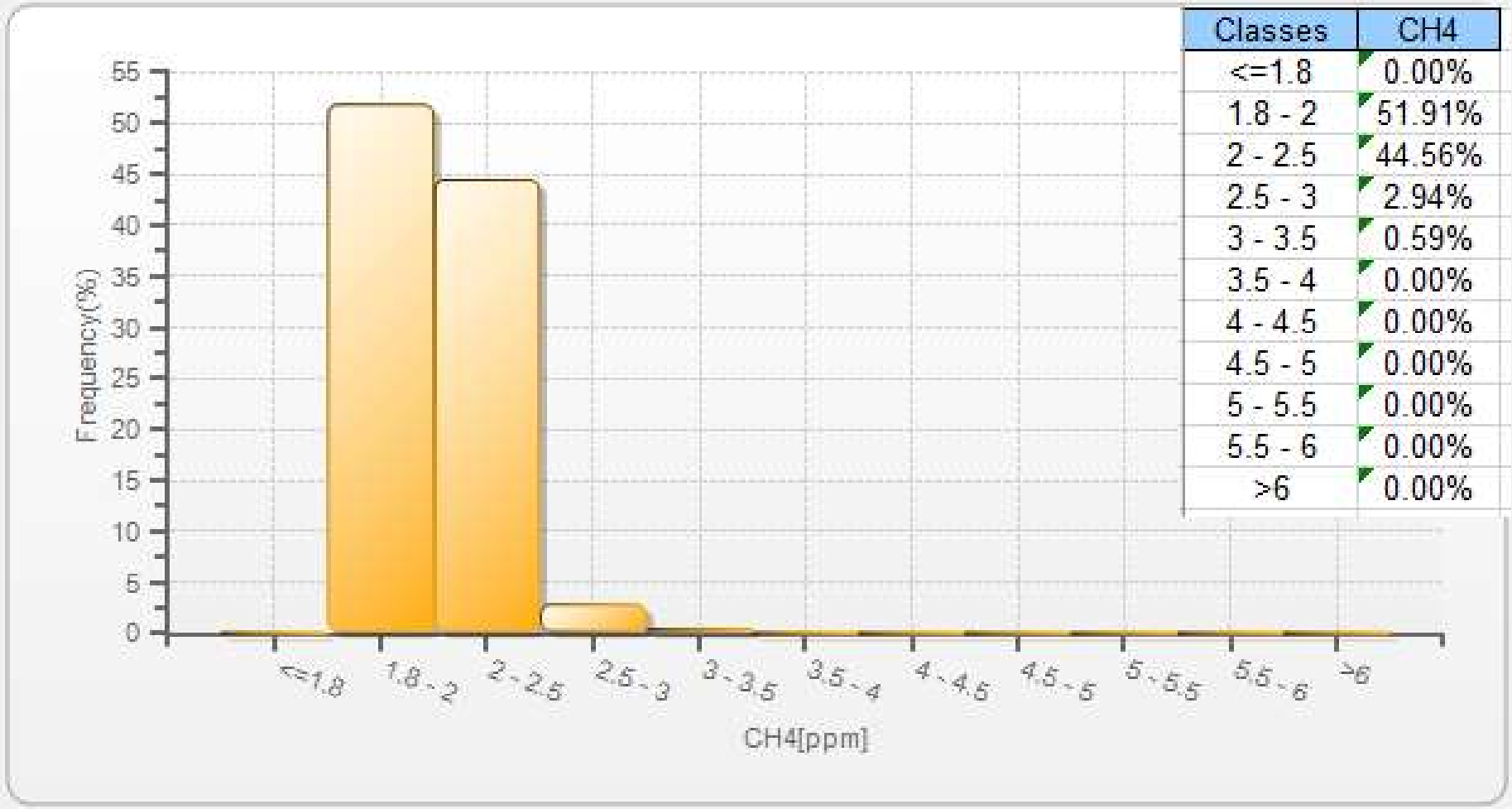
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for CH4 - Bonnyville - East Site



CH4[ppm] Histogram: Bonnyville East Monthly: 09-2019 1 Hr.

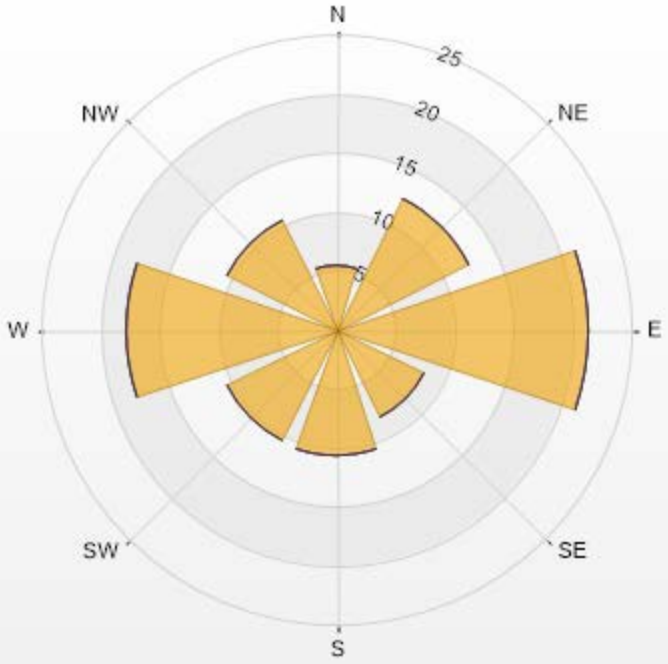


Classes	CH4
<=1.8	0.00%
1.8 - 2	51.91%
2 - 2.5	44.56%
2.5 - 3	2.94%
3 - 3.5	0.59%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: Bonnyville East Poll.: Bonnyville East-CH4[ppm] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 2.79% Valid Data: 94.44% Calm Avg: 2.28 [ppm]

Direction	2-5	5-10	10-20	>20.0	Total
N	5.44	0	0	0	5.44
NE	12.5	0	0	0	12.5
E	21.32	0	0	0	21.32
SE	8.38	0	0	0	8.38
S	10.74	0	0	0	10.74
SW	10.44	0	0	0	10.44
W	17.94	0	0	0	17.94
NW	10.44	0	0	0	10.44
Summary	97.2	0	0	0	97.2

Bonnyville East Poll.: Bonnyville East-CH4[ppm] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 2.79% Calm Poll Avg: 2.28[ppm]



%	Icon	Classes (ppm)							
97		2-5	0	5-10	0	10-20	0	>20.0	

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Averages

NON-METHANE HYDROCARBONS (NMHC) in ppm

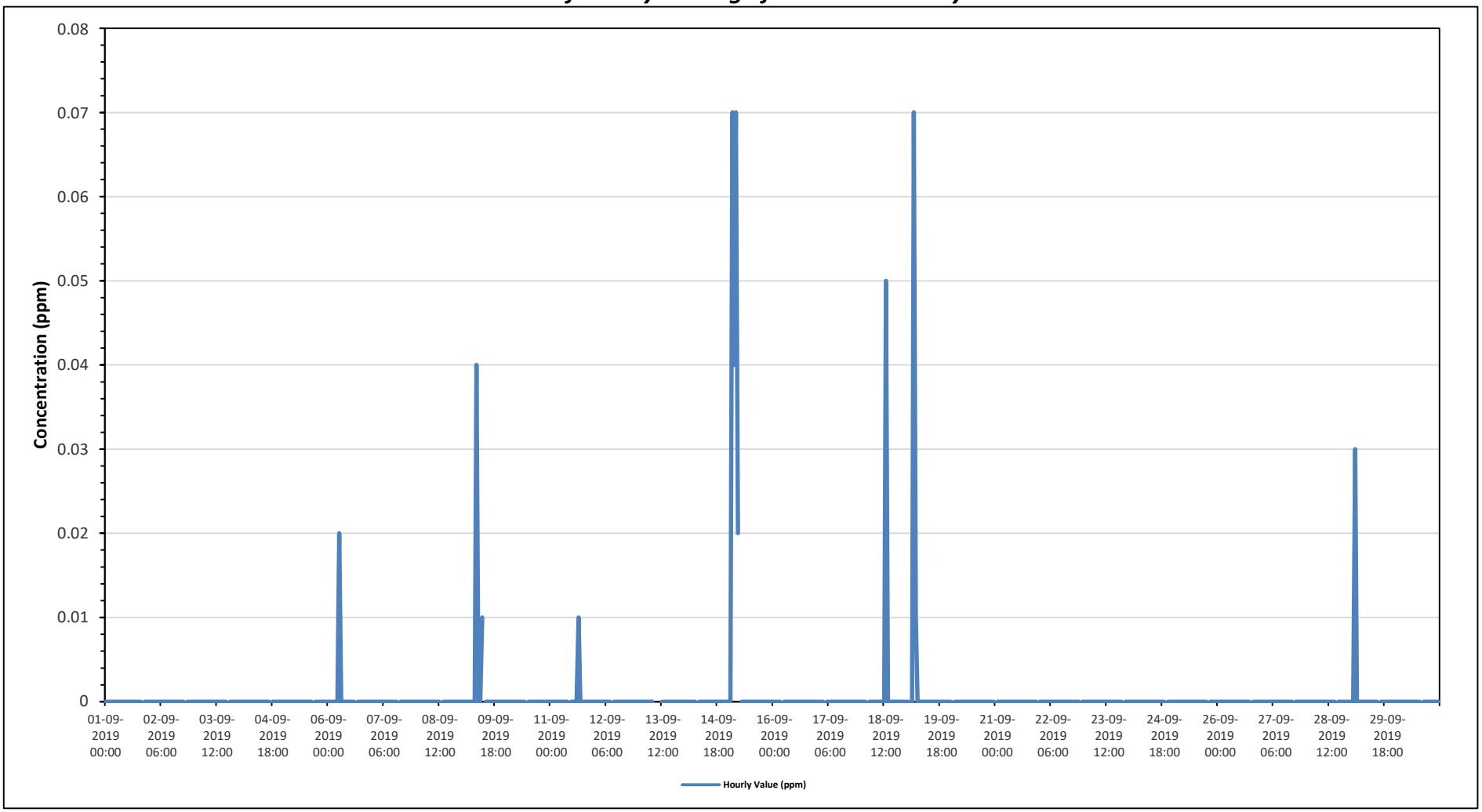
Maximum Hourly Value:	0.07	ppm	on September 15 at hour 2	Hours in Service:	720
Maximum Daily Value:	0.01	ppm	on September 15	Hours of Data:	686
Minimum Hourly Value:	0.00	ppm	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.00	ppm	on September 1	Hours of Calibration:	34
Monthly Average:	0.00	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 6	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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
Sep 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
Sep 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
Sep 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.01	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Sep 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
Sep 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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Sep 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
Sep 13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	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	0.00	0.00
Sep 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
Sep 15	0.00	0.00	**0.07**	0.04	**0.07**	0.02	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	**0.07**	**0.01**
Sep 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
Sep 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
Sep 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	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00
Sep 19	0.00	0.00	S	0.00	**0.07**	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	**0.07**	0.00
Sep 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	0.00	0.00	0.00	0.00	0.00
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 29	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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00
Sep 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
Diurnal Maximum	0.00	0.00	0.07	0.04	0.07	0.02	0.02	0.00	0.04	0.00	0.00	0.01	0.00	0.05	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Daiurnal Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

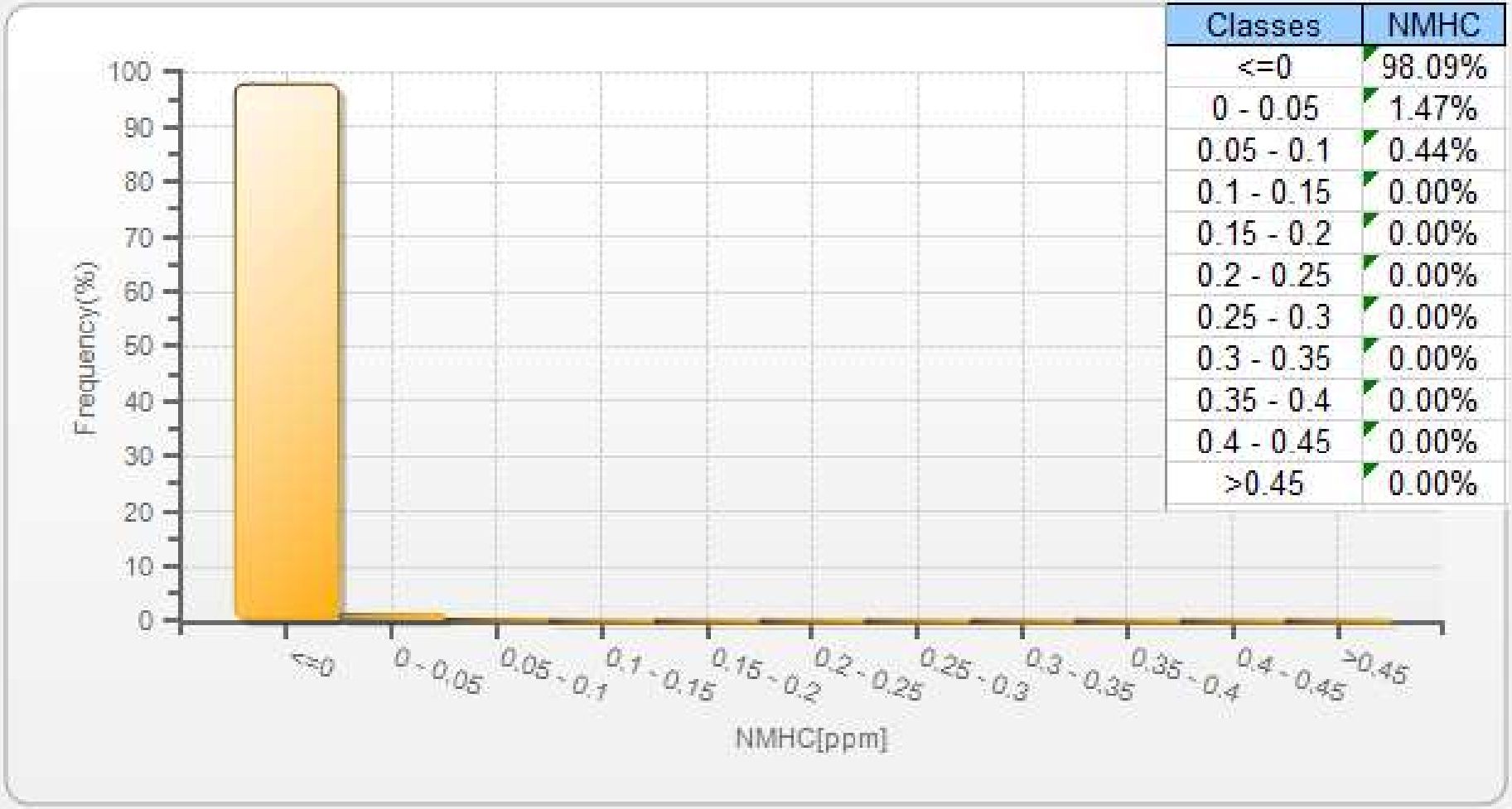
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for NMHC - Bonnyville - East Site



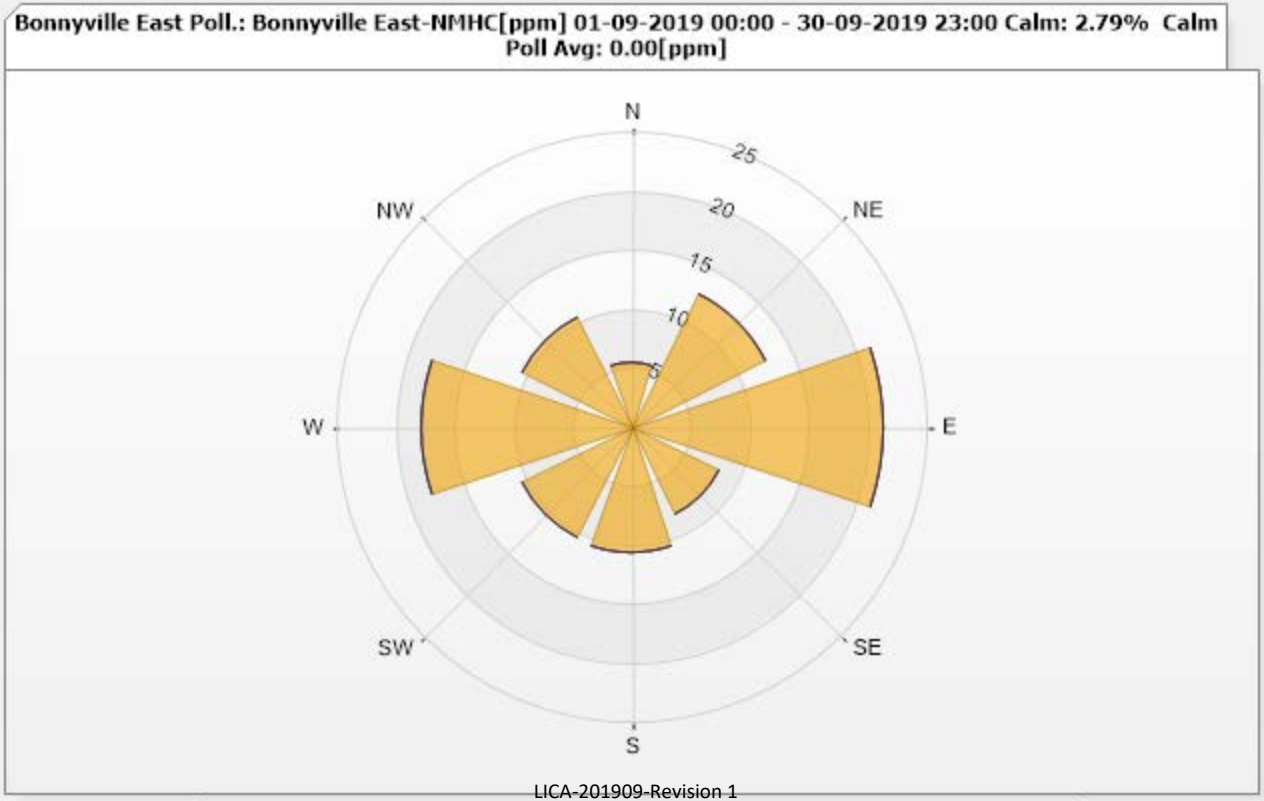
NMHC[ppm] Histogram: Bonnyville East Monthly: 09-2019 1 Hr.



Classes	NMHC
<=0	98.09%
0 - 0.05	1.47%
0.05 - 0.1	0.44%
0.1 - 0.15	0.00%
0.15 - 0.2	0.00%
0.2 - 0.25	0.00%
0.25 - 0.3	0.00%
0.3 - 0.35	0.00%
0.35 - 0.4	0.00%
0.4 - 0.45	0.00%
>0.45	0.00%

Wind: Bonnyville East Poll.: Bonnyville East-NMHC[ppm] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 2.79% Valid Data: 94.58% Calm Avg: 0.00 [ppm]

Direction	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	5.43	0	0	0	5.43
NE	12.63	0	0	0	12.63
E	21.29	0	0	0	21.29
SE	8.37	0	0	0	8.37
S	10.72	0	0	0	10.72
SW	10.43	0	0	0	10.43
W	17.91	0	0	0	17.91
NW	10.43	0	0	0	10.43
Summary	97.21	0	0	0	97.21


Bonnyville East Poll.: Bonnyville East-NMHC[ppm] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 2.79% Calm
Poll Avg: 0.00[ppm]
N
NE
E
SE
S
SW
W
NW
25
20
15
10
5
% Icon Classes (ppm)
97
0.1-0.3
0
0.3-0.9
0
0.9-2
0
>2.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Averages

PARTICULATE MATTER 2.5 ($PM_{2.5}$) in $\mu g/m^3$

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 80 µg/m3, 24-Hour 29 µg/m3

Number of 1-Hour Exceedences: 0 Number of 24-Hour Exceedences: 0

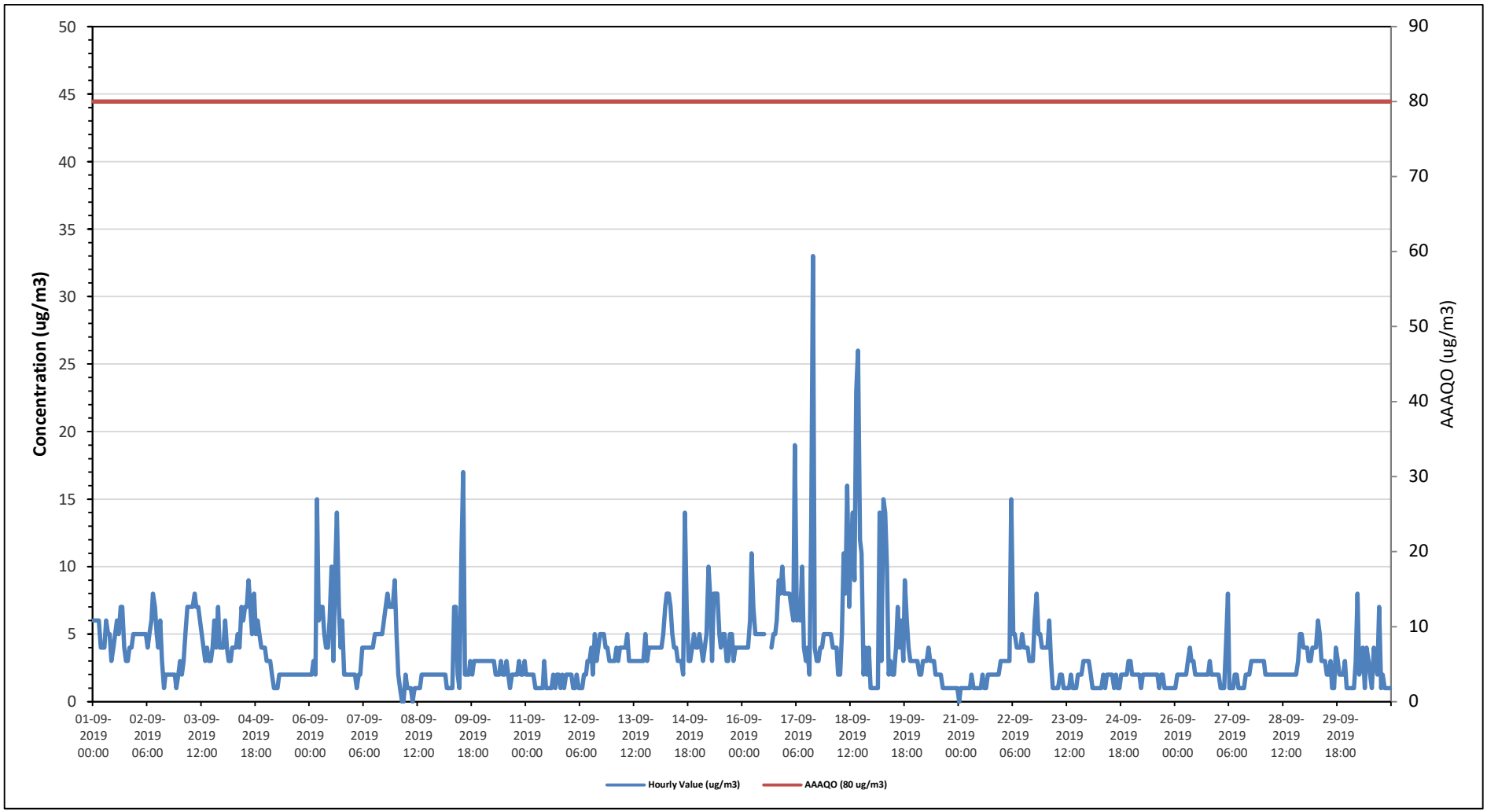
Maximum Hourly Value:	33	$\mu g/m^3$ on September 17 at hour 15	Hours in Service:	720
Maximum Daily Value:	8	$\mu g/m^3$ on September 18	Hours of Data:	717
Minimum Hourly Value:	0	$\mu g/m^3$ on September 8 at hour 3	Hours of Missing Data:	0
Minimum Daily Value:	1	$\mu g/m^3$ on September 21	Hours of Calibration:	3
Monthly Average:	3.6	$\mu g/m^3$	Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	6	6	6	6	4	4	4	6	5	5	3	4	5	6	5	7	7	4	3	3	4	4	5	5	3	7	4.9
Sep 2	5	5	5	5	5	5	4	5	6	8	7	5	4	6	3	1	2	2	2	2	2	2	1	2	1	8	3.9
Sep 3	3	2	3	5	7	7	7	7	8	7	7	6	5	4	3	4	3	3	4	6	4	7	4	4	2	8	5.0
Sep 4	4	6	4	3	3	4	4	4	5	4	7	6	7	7	9	7	5	8	5	6	5	4	4	4	3	9	5.2
Sep 5	3	3	3	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	3	2.0
Sep 6	2	2	3	2	15	6	7	7	5	4	4	6	10	3	10	14	7	4	6	2	2	2	2	2	2	15	5.3
Sep 7	2	2	1	2	2	4	4	4	4	4	4	4	5	5	5	5	5	6	7	8	7	7	7	9	1	9	4.7
Sep 8	5	2	1	**0**	**0**	2	1	1	1	**0**	1	1	1	1	2	2	2	2	2	2	2	2	2	2	**0**	5	1.5
Sep 9	2	2	2	2	1	1	1	1	7	7	2	1	11	17	2	2	2	3	2	3	3	3	3	3	1	17	3.5
Sep 10	3	3	3	3	3	3	3	2	2	2	3	2	2	3	2	1	2	2	2	2	3	2	2	3	1	3	2.4
Sep 11	2	2	2	2	2	1	1	1	1	1	3	1	1	1	1	2	1	2	2	1	2	1	2	2	1	3	1.5
Sep 12	2	2	1	1	2	1	1	1	2	2	3	3	4	2	5	3	4	5	5	5	4	4	3	3	1	5	2.8
Sep 13	3	3	4	3	4	4	4	4	5	3	3	3	3	3	3	3	3	3	5	3	4	4	4	4	3	5	3.5
Sep 14	4	4	4	4	5	7	8	8	7	5	4	4	3	3	3	2	14	7	3	3	4	5	4	4	2	14	5.0
Sep 15	5	4	3	4	5	10	8	3	8	8	8	5	4	5	5	3	3	5	5	3	4	4	4	4	3	10	5.0
Sep 16	4	4	4	4	6	11	7	5	5	5	5	5	5	**C**	**C**	**C**	4	5	5	6	9	8	10	8	4	11	6.0
Sep 17	8	8	8	7	6	19	6	7	6	10	4	3	4	2	13	**33**	4	3	3	4	4	5	5	5	2	**33**	7.4
Sep 18	5	5	4	4	4	2	2	5	11	8	16	7	11	14	9	23	26	12	11	2	4	2	4	1	1	26	**8.0**
Sep 19	1	1	1	1	14	3	15	14	10	2	3	2	2	4	7	4	6	3	9	6	4	3	3	3	1	15	5.0
Sep 20	3	3	2	2	3	3	3	4	3	3	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	4	2.0
Sep 21	**0**	1	1	1	1	1	1	2	1	1	1	1	1	2	1	1	2	2	2	2	2	2	2	3	**0**	3	1.4
Sep 22	3	3	3	3	3	15	5	5	4	4	4	5	4	4	4	3	3	3	6	8	5	5	4	4	3	15	4.6
Sep 23	4	4	6	3	1	1	1	1	2	2	1	1	1	1	2	1	1	1	2	2	2	3	3	3	1	6	2.0
Sep 24	3	2	1	1	1	1	1	1	2	1	2	2	2	2	1	2	1	1	2	2	2	2	3	3	1	3	1.7
Sep 25	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	1	2	2	1	1	1	1	1	1	1	2	1.7
Sep 26	1	2	2	2	2	2	2	3	4	3	3	2	2	2	2	2	2	2	2	3	2	2	2	2	1	4	2.2
Sep 27	2	1	1	1	4	8	1	1	1	2	2	1	1	1	1	2	2	2	3	3	3	3	3	3	1	8	2.2
Sep 28	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	5	5	4	2	5	2.5
Sep 29	4	4	3	3	4	4	4	6	5	3	3	3	2	2	3	1	1	4	3	2	2	2	3	1	1	6	3.0
Sep 30	1	1	1	1	3	8	2	3	4	1	4	3	2	1	4	3	2	7	1	2	1	1	1	1	1	8	2.4
Diurnal Maximum	8	8	8	7	15	19	15	14	11	10	16	7	11	17	13	33	26	12	11	8	9	8	10	9			
Daiurnal Average	3.2	3.1	2.9	2.7	3.8	4.7	3.7	3.9	4.3	3.7	3.9	3.1	3.7	3.8	3.9	4.7	4.0	3.6	3.6	3.2	3.2	3.3	3.3	3.2			

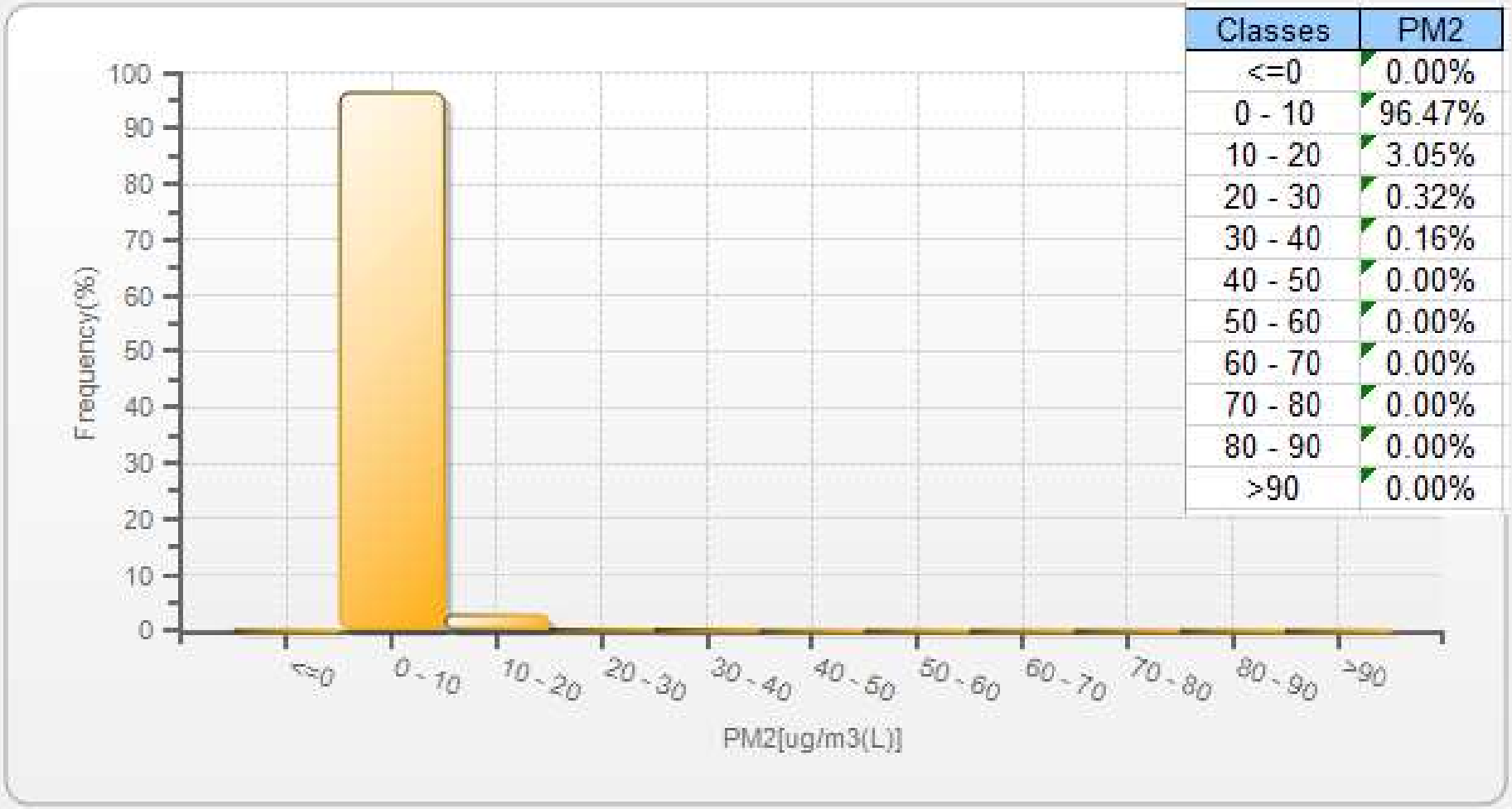
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for PM2.5 - Bonnyville - East Site



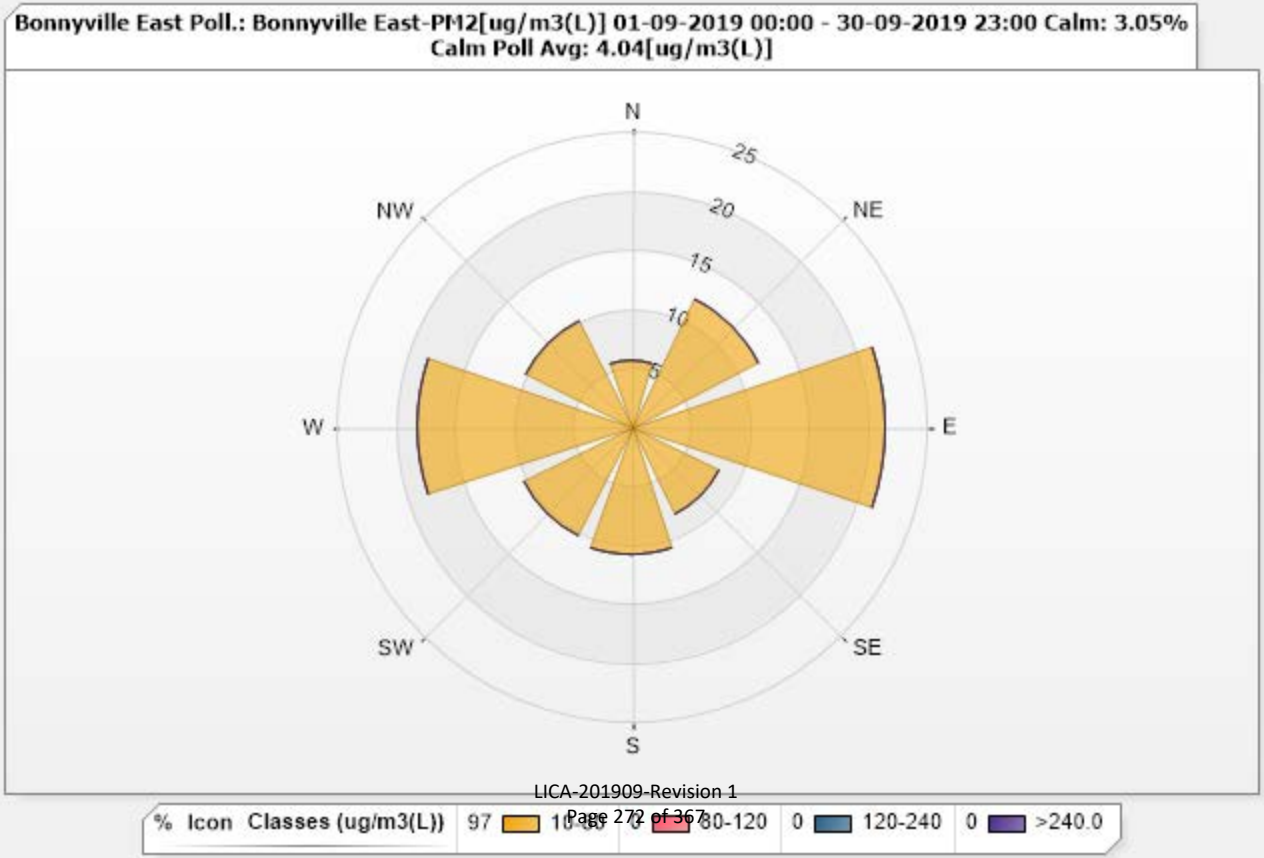
PM2[ug/m3(L)] Histogram: Bonnyville East Monthly: 09-2019 1 Hr.



Classes	PM2
<=0	0.00%
0 - 10	96.47%
10 - 20	3.05%
20 - 30	0.32%
30 - 40	0.16%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: Bonnyville East Poll.: Bonnyville East-PM2[ug/m3(L)] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 3.05% Valid Data: 86.53% Calm Avg: 4.04 [ug/m3(L)]

Direction	10-80	80-120	120-240	>240.0	Total
N	5.62	0	0	0	5.62
NE	12.04	0	0	0	12.04
E	21.51	0	0	0	21.51
SE	8.35	0	0	0	8.35
S	10.91	0	0	0	10.91
SW	10.27	0	0	0	10.27
W	18.14	0	0	0	18.14
NW	10.11	0	0	0	10.11
Summary	96.95	0	0	0	96.95


Bonnyville East Poll.: Bonnyville East-PM2[ug/m3(L)] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 3.05%
Calm Poll Avg: 4.04[ug/m3(L)]
N
NE
E
SE
S
SW
W
NW
25
20
15
10
5
% Icon Classes (ug/m3(L))
97
0
80-120
0
120-240
0
>240.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

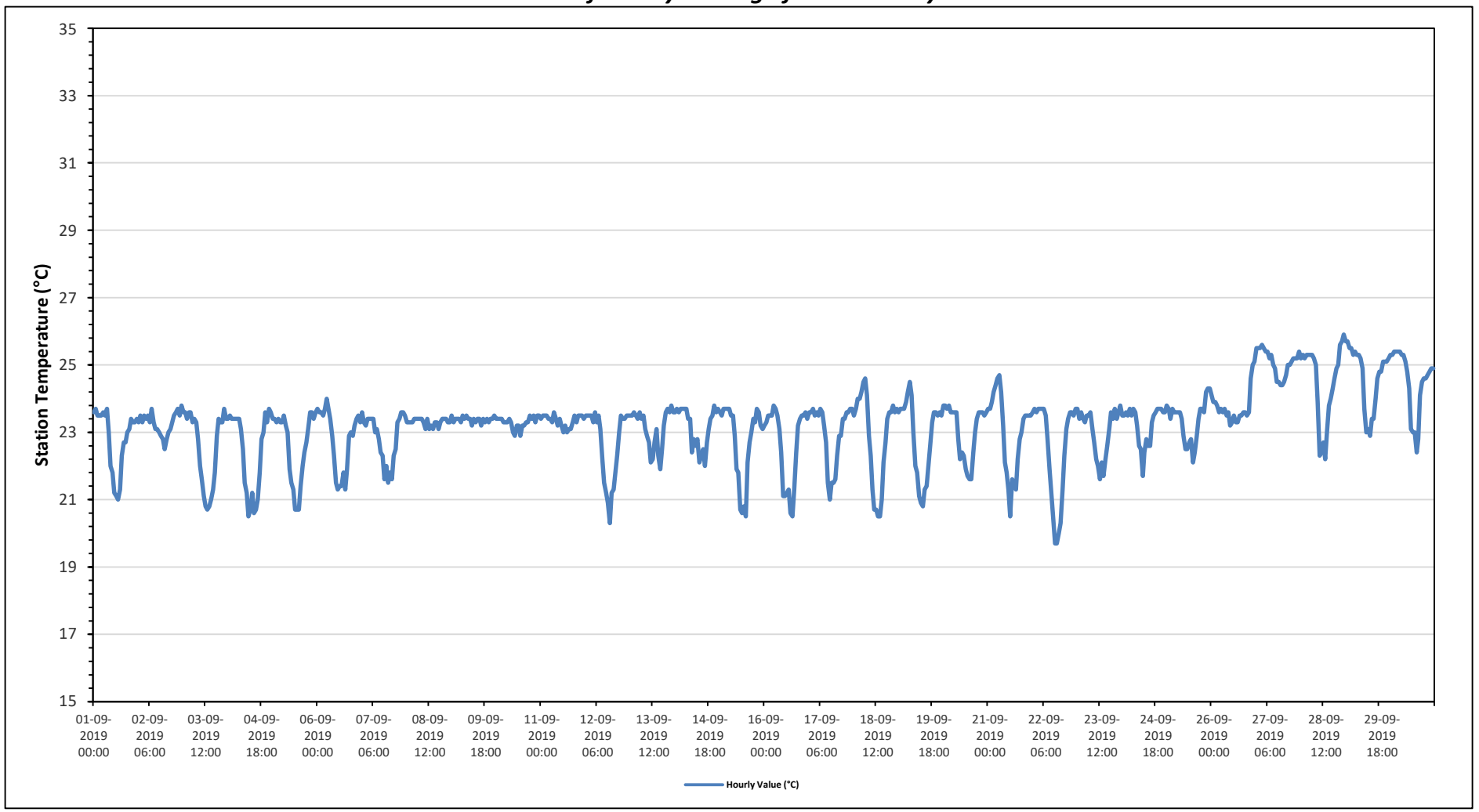
Maximum Hourly Value:	25.9	°C	on September 28 at hour 23	Hours in Service:	720
Maximum Daily Value:	25.1	°C	on September 27	Hours of Data:	720
Minimum Hourly Value:	19.7	°C	on September 22 at hour 12	Hours of Missing Data:	0
Minimum Daily Value:	22.4	°C	on September 4	Hours of Calibration:	0
Monthly Average:	23.2	°C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	23.6	23.7	23.5	23.5	23.5	23.6	23.5	23.7	23.0	22.0	21.8	21.2	21.1	21.0	21.3	22.3	22.7	22.7	23.0	23.1	23.4	23.3	23.3	23.4	21.0	23.7	22.8
Sep 2	23.3	23.5	23.3	23.5	23.4	23.5	23.3	23.7	23.3	23.1	23.1	23.0	22.9	22.8	22.5	22.8	23.0	23.1	23.3	23.5	23.6	23.7	23.5	23.8	22.5	23.8	23.3
Sep 3	23.6	23.6	23.4	23.6	23.6	23.3	23.4	23.3	22.8	22.0	21.6	21.1	20.8	20.7	20.8	21.0	21.3	21.8	22.9	23.4	23.3	23.3	23.7	23.4	20.7	23.7	22.6
Sep 4	23.4	23.5	23.4	23.4	23.4	23.4	23.4	23.1	22.5	21.5	21.2	20.5	20.7	21.2	20.6	20.7	21.0	21.8	22.8	23.0	23.6	23.3	23.7	23.6	20.5	23.7	22.4
Sep 5	23.4	23.4	23.3	23.4	23.3	23.3	23.5	23.2	23.0	21.9	21.5	21.3	20.7	20.7	20.7	21.4	22.0	22.4	22.7	23.1	23.6	23.6	23.4	23.6	20.7	23.6	22.6
Sep 6	23.7	23.6	23.6	23.5	23.7	24.0	23.7	23.4	22.9	22.3	21.5	21.3	21.4	21.4	21.8	21.3	21.9	22.9	23.0	22.9	23.2	23.4	23.5	23.3	21.3	24.0	22.8
Sep 7	23.6	23.3	23.2	23.4	23.4	23.4	23.4	23.0	23.1	22.8	22.4	22.3	21.6	22.0	21.5	21.8	21.6	22.3	22.5	23.3	23.4	23.6	23.6	23.5	21.5	23.6	22.8
Sep 8	23.3	23.3	23.3	23.3	23.4	23.4	23.4	23.4	23.4	23.3	23.1	23.4	23.1	23.2	23.1	23.3	23.3	23.1	23.3	23.4	23.4	23.4	23.3	23.3	23.1	23.4	23.3
Sep 9	23.5	23.3	23.4	23.4	23.4	23.3	23.5	23.4	23.5	23.4	23.4	23.2	23.4	23.3	23.4	23.4	23.2	23.4	23.3	23.4	23.3	23.4	23.4	23.5	23.2	23.5	23.4
Sep 10	23.4	23.4	23.4	23.4	23.3	23.3	23.3	23.4	23.3	23.0	22.9	23.2	23.2	22.9	23.2	23.2	23.3	23.3	23.5	23.4	23.5	23.3	23.5	23.5	22.9	23.5	23.3
Sep 11	23.4	23.5	23.5	23.5	23.4	23.4	23.3	23.6	23.4	23.2	23.4	23.2	23.0	23.2	23.0	23.1	23.1	23.3	23.5	23.3	23.5	23.5	23.5	23.4	23.0	23.6	23.3
Sep 12	23.5	23.5	23.5	23.5	23.3	23.6	23.3	23.5	23.1	22.2	21.5	21.2	20.9	20.3	21.2	21.3	21.8	22.3	23.0	23.5	23.4	23.4	23.5	23.5	20.3	23.6	22.7
Sep 13	23.5	23.5	23.6	23.5	23.4	23.6	23.4	23.5	23.1	22.9	22.7	22.1	22.2	22.7	23.1	22.3	21.9	22.5	23.2	23.6	23.7	23.6	23.8	23.6	21.9	23.8	23.1
Sep 14	23.6	23.7	23.6	23.7	23.7	23.7	23.7	23.4	23.4	22.4	22.8	22.6	22.8	22.1	22.3	22.5	22.0	22.7	23.1	23.4	23.5	23.8	23.6	23.7	22.0	23.8	23.2
Sep 15	23.6	23.5	23.7	23.7	23.7	23.7	23.5	23.5	22.9	21.9	21.8	20.7	20.6	20.8	20.5	22.1	22.7	23.0	23.4	23.3	23.7	23.6	23.2	23.1	20.5	23.7	22.8
Sep 16	23.2	23.3	23.5	23.5	23.5	23.8	23.7	23.5	23.1	22.4	21.1	21.1	21.2	21.3	20.6	20.5	21.3	22.4	23.2	23.4	23.5	23.5	23.6	23.4	20.5	23.8	22.7
Sep 17	23.6	23.6	23.7	23.5	23.6	23.5	23.7	23.6	23.2	22.7	21.5	21.0	21.5	21.5	21.6	22.3	22.9	22.9	23.4	23.4	23.6	23.6	23.7	23.7	21.0	23.7	23.0
Sep 18	23.5	23.7	24.0	24.0	24.2	24.5	24.6	24.1	22.9	22.3	21.3	20.7	20.7	20.5	20.5	21.0	22.1	22.7	23.4	23.6	23.6	23.8	23.6	23.7	20.5	24.6	22.9
Sep 19	23.6	23.7	23.7	23.7	23.9	24.2	24.5	24.1	23.0	22.0	21.8	21.1	20.9	20.8	21.3	21.4	22.0	22.6	23.3	23.6	23.6	23.5	23.6	23.5	20.8	24.5	22.9
Sep 20	23.8	23.8	23.7	23.8	23.6	23.6	23.6	23.6	22.8	22.2	22.4	22.3	21.9	21.7	21.6	21.6	22.4	23.0	23.4	23.6	23.6	23.6	23.5	23.6	21.6	23.8	23.0
Sep 21	23.7	23.7	23.9	24.2	24.4	24.6	24.7	24.2	23.2	22.1	21.8	21.3	20.5	21.6	21.5	21.3	22.2	22.8	23.0	23.4	23.5	23.5	23.5	23.5	20.5	24.7	23.0
Sep 22	23.6	23.7	23.6	23.7	23.7	23.7	23.7	23.5	22.8	21.9	21.2	20.4	**19.7**	**19.7**	20.0	20.3	21.3	22.3	23.1	23.4	23.6	23.6	23.5	23.7	**19.7**	23.7	22.5
Sep 23	23.7	23.4	23.6	23.4	23.3	23.5	23.5	23.6	23.1	22.7	22.2	22.0	21.6	22.1	21.7	22.2	22.6	23.1	23.6	23.4	23.7	23.4	23.6	23.8	21.6	23.8	23.0
Sep 24	23.5	23.5	23.6	23.5	23.7	23.5	23.7	23.6	23.2	22.6	22.5	21.7	22.4	22.8	22.6	22.6	23.3	23.5	23.6	23.7	23.7	23.7	23.6	23.6	21.7	23.7	23.2
Sep 25	23.8	23.7	23.4	23.7	23.6	23.6	23.6	23.6	23.4	22.9	22.5	22.5	22.7	22.8	22.1	22.4	22.9	23.4	23.7	23.7	23.6	24.2	24.3	24.3	22.1	24.3	23.4
Sep 26	24.1	23.9	23.9	23.8	23.6	23.7	23.6	23.7	23.5	23.6	23.2	23.3	23.5	23.3	23.3	23.5	23.5	23.6	23.6	23.5	23.6	24.6	25.0	25.1	23.2	25.1	23.8
Sep 27	25.5	25.5	25.5	25.6	25.5	25.4	25.4	25.2	25.3	25.0	24.9	24.5	24.5	24.4	24.4	24.5	24.7	25.0	25.0	25.1	25.2	25.2	25.2	25.4	24.4	25.6	**25.1**
Sep 28	25.2	25.3	25.2	25.3	25.3	25.3	25.3	25.2	25.0	23.9	22.3	22.4	22.7	22.2	23.0	23.8	24.0	24.3	24.6	24.9	25.0	25.6	25.7	**25.9**	22.2	**25.9**	24.5
Sep 29	25.7	25.7	25.5	25.5	25.3	25.4	25.3	25.3	25.2	24.9	23.7	23.0	23.1	22.9	23.4	23.4	24.0	24.6	24.8	24.8	25.1	25.1	25.1	25.2	22.9	25.7	24.7
Sep 30	25.3	25.3	25.4	25.4	25.4	25.4	25.3	25.3	25.1	24.8	24.3	23.1	23.0	23.0	22.4	22.8	24.1	24.5	24.6	24.6	24.7	24.8	24.9	24.9	22.4	25.4	24.5
Diurnal Maximum	25.7	25.7	25.5	25.6	25.5	25.4	25.4	25.3	25.3	25.0	24.9	24.5	24.5	24.4	24.4	24.5	24.7	25.0	25.0	25.1	25.2	25.6	25.7	25.9			
Daiurnal Average	23.8	23.8	23.8	23.8	23.8	23.9	23.9	23.8	23.4	22.8	22.4	22.0	21.9	22.0	22.0	22.2	22.6	23.0	23.4	23.6	23.7	23.8	23.8	23.9			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for ST - Bonnyville - East Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

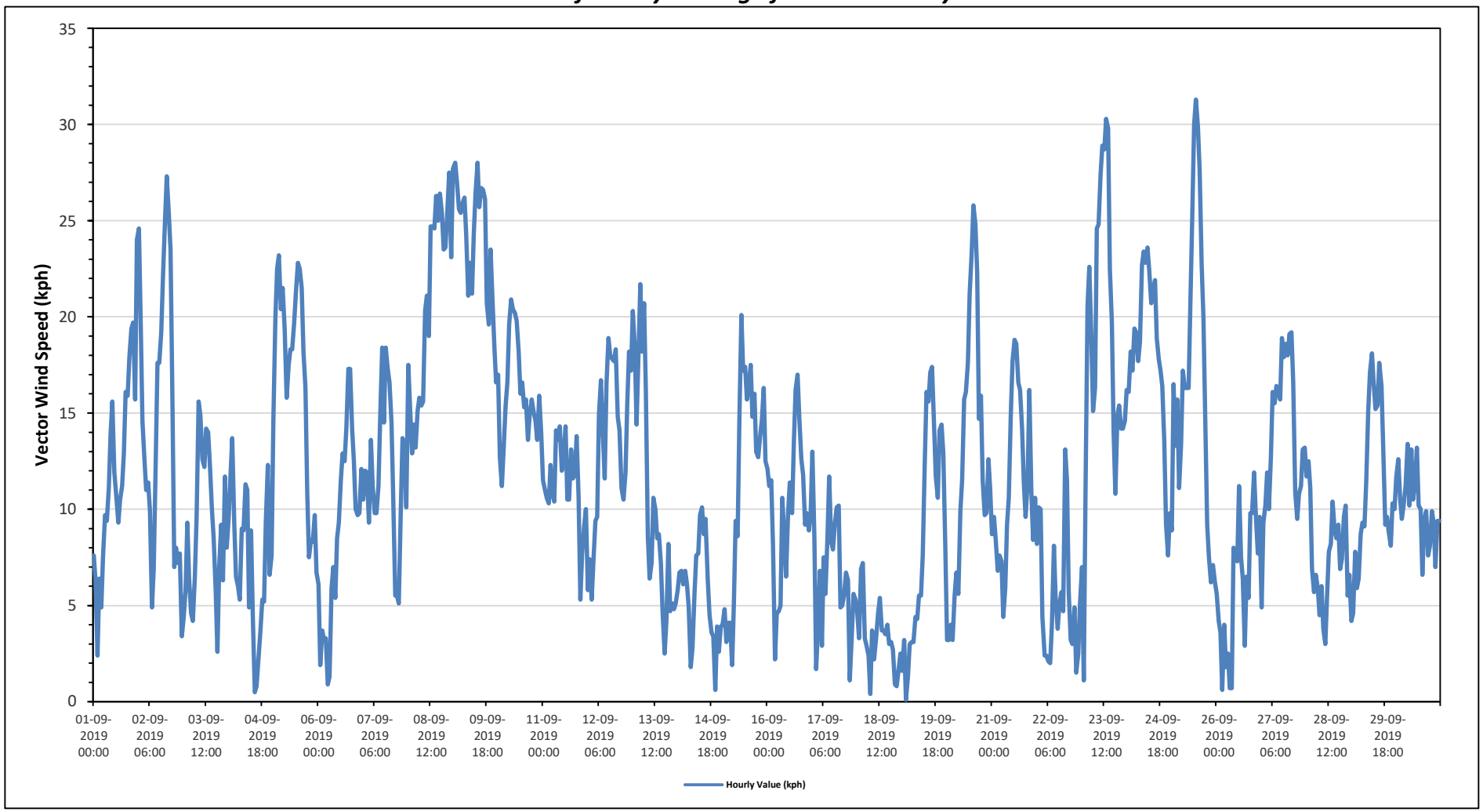
Maximum Hourly Value:	31.3	kph	on September 25 at hour 13	Hours in Service:	720
Maximum Daily Value:	24.1	kph	on September 9	Hours of Data:	720
Minimum Hourly Value:	0.1	kph	on September 19 at hour 2	Hours of Missing Data:	0
Minimum Daily Value:	3.3	kph	on September 18	Hours of Calibration:	0
Monthly Average:	0.8	kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	7.6	6.3	2.4	6.4	4.9	7.6	9.7	9.4	11.1	13.9	15.6	11.9	10.8	9.3	10.5	11.2	12.9	16.1	15.9	17.9	19.4	19.7	15.7	24	2.4	24.0	12.1
Sep 2	24.6	19.8	14.6	12.6	11	11.4	9.9	4.9	6.9	12.5	17.6	17.6	19.2	22.1	25	27.3	25.4	23.5	16.3	7	8	7.2	7.7	3.4	3.4	27.3	14.8
Sep 3	4.3	5.8	9.3	6.4	4.6	4.2	6.5	9.6	15.6	14.9	12.6	12.2	14.2	14	12.3	10	8.5	5.8	2.6	7	9.2	6.3	11.7	8	2.6	15.6	9.0
Sep 4	9.6	11.7	13.7	9.3	6.5	6	5.3	9	8.9	11.3	11	4.9	8.9	4.5	0.5	0.8	2.3	3.6	5.3	5.2	9.4	12.3	6.6	7.6	0.5	13.7	7.3
Sep 5	14.6	19.9	22.5	23.2	20.4	21.5	19.4	15.8	17.5	18.3	18.3	19.7	21.3	22.8	22.5	21.5	18.2	16.3	10.9	7.5	8.4	8.3	9.7	6.7	6.7	23.2	16.9
Sep 6	6.1	1.9	3.7	3.2	3.3	0.9	1.3	5.9	7	5.4	8.5	9.3	11.5	12.9	12.5	14.2	17.3	17.3	14.2	12.5	10	9.7	9.8	12.1	0.9	17.3	8.8
Sep 7	10.5	12	11.9	9.3	13.6	11.2	9.8	9.8	11.2	14.8	18.4	14.5	18.4	17.3	16.6	14.5	10.5	5.5	5.5	5.1	9.9	13.7	13.2	10.1	5.1	18.4	12.0
Sep 8	17.5	15.3	12.9	14.4	13.2	15.1	15.8	15.4	15.6	20.3	21.1	19	24.7	24.7	24.6	26.3	25	26.4	25.4	23.5	23.6	25.6	27.5	23.1	12.9	27.5	20.7
Sep 9	27.7	28	27	25.6	25.4	25.9	26.2	24.2	21.1	22.8	21.2	24.3	26.4	28	25.7	26.7	26.6	26.1	20.7	19.6	23.5	21.1	18.5	16.6	16.6	28.0	**24.1**
Sep 10	17	12.7	11.2	13.1	15.4	16.6	19.6	20.9	20.4	20.2	19.8	18.2	16	16.6	15.3	15.7	13.6	14.9	15.7	15.1	14.6	13.6	15.9	13.9	11.2	20.9	16.1
Sep 11	11.5	11	10.6	10.3	12.3	10.8	10.4	14.1	13.6	14.3	12	12.7	14.3	10.5	10.5	13.1	11.6	11.8	13.8	10.6	5.3	7.7	9.1	10	5.3	14.3	11.3
Sep 12	5.8	7.4	5.3	7.3	9.4	9.6	14.9	16.7	14.1	11.6	16.5	18.9	18	17.8	17.7	18.3	14.8	14.1	11.1	10.5	11.9	15.5	18.2	17.2	5.3	18.9	13.4
Sep 13	20.3	18.4	14.4	18.2	21.7	18.2	20.7	16.2	8.6	6.4	7.2	10.6	10	8.5	8.7	7.2	4.6	2.5	4.2	8.2	4.7	5.1	4.8	5.1	2.5	21.7	10.6
Sep 14	5.8	6.7	6.8	6.1	6.8	6.1	4.9	1.8	2.8	5.6	7.6	7.7	9.7	10.1	8.7	9.5	6.3	4.5	3.6	3.4	0.6	3.9	2.6	3.9	0.6	10.1	5.6
Sep 15	4	4.8	3.1	4.1	4.1	1.9	5.1	9.4	8.6	14.7	20.1	17.2	17.4	15.7	16.3	17.5	14.8	16	13	12.7	13.7	14.7	16.3	12.5	1.9	20.1	11.6
Sep 16	12.1	11.2	11.5	8.1	2.2	4.6	4.7	5	10.6	8.6	6.5	9.8	11.4	9.8	13.4	16.2	17	14.7	12.6	11.8	9.2	9.8	8.9	9.7	2.2	17.0	10.0
Sep 17	13	8.5	1.7	4	6.8	2.9	7.5	5.6	8.5	11.7	8.3	7.9	9.3	10.1	10.2	4.9	5	5.6	6.7	6.3	1.1	3.4	5.6	5.3	1.1	13.0	6.7
Sep 18	4.6	3.3	6.9	7.2	3.3	2.9	2.4	0.4	3.7	2.2	3.3	4.6	5.4	3.7	3.7	3.5	4	3	3.1	2.7	0.9	0.8	1.7	2.5	0.4	7.2	**3.3**
Sep 19	1.6	3.2	**0.1**	1.3	3	3.1	3.1	4.4	4.3	5.5	5.5	7.6	12.4	16.1	15.6	17.1	17.4	14.4	11.7	10.6	14.1	14.4	12.9	8	**0.1**	17.4	8.6
Sep 20	3.2	3.2	4	3.2	5.5	6.7	5.6	9.9	11.5	15.7	16.1	17.6	21.2	23.3	25.8	24.8	22.3	14.7	15.9	11.5	9.7	9.8	12.6	11	3.2	25.8	12.7
Sep 21	8.7	9.6	8.4	6.8	7.6	7.3	4.4	5.9	9.2	10.6	14.9	17.7	18.8	18.6	16.6	16.2	14.2	11.4	9.6	11.4	16.2	10.9	8.4	10.6	4.4	18.8	11.4
Sep 22	8.2	10.1	10	4.4	2.4	2.4	2.1	2	4	8.1	5.3	3.8	5.1	5.7	4.7	13.1	11.5	5.7	3.2	3	4.9	1.5	2.5	5.1	1.5	13.1	5.4
Sep 23	7	1.1	11	20.6	22.6	19	15.1	16.3	24.6	24.8	27.4	28.9	28.7	30.3	29.8	22.5	19.7	14	10.8	14.9	15.4	14.2	14.2	14.6	1.1	30.3	18.6
Sep 24	16.2	16.1	18.2	17.2	19.4	19.2	17.7	18.7	22.7	23.4	22.8	23.6	22.4	20.7	21.3	21.9	18.9	17.8	17.2	16.4	13.5	9.2	7.6	9.8	7.6	23.6	18.0
Sep 25	8.9	16.5	13.3	15.7	11.1	13.4	17.2	16.3	16.3	16.3	20.7	24.9	30	**31.3**	29.9	27.6	22.7	20	14.2	9.2	7.5	6.2	7.1	6.2	6.2	**31.3**	16.8
Sep 26	5.6	4.2	3.6	0.6	4	1.8	2.5	0.7	0.7	8	7.8	7.3	11.2	7.5	6.4	2.9	6.5	5.4	9.8	9.8	11.9	9.7	7.7	9.6	0.6	11.9	6.1
Sep 27	4.9	9.3	10.2	11.9	10	12.7	16.1	15.5	16.4	16.1	15.7	18.9	17.9	18.6	18	19.1	19.2	16.6	10.9	9.5	10.8	11.2	13.1	13.2	4.9	19.2	14.0
Sep 28	11.7	12.5	11.1	6.9	5.7	6.6	5.9	4.5	6	3.8	3	5.5	7.8	8.2	10.4	8.9	8.5	9.2	6.9	7.4	9.6	10.2	5.5	6.6	3.0	12.5	7.6
Sep 29	4.2	4.6	7.8	5.9	6.4	8.7	9.3	9.1	11.4	15.1	17.1	18.1	16.5	15.2	15.4	17.6	16.4	13.1	9.2	9.6	8.8	8.1	10.3	10	4.2	18.1	11.2
Sep 30	11.7	12.6	10.6	9.5	10.3	11.2	13.4	10.2	13.1	10.5	11.5	13.2	10.2	10	6.6	9.5	9.9	7.6	8.1	9.9	9.3	7	9.4	9.4	6.6	13.4	10.2
Diurnal Maximum	28	28	27	26	25	26	26	24	25	25	27	29	30	31	30	28	27	26	25	24	24	26	28	24			
Daiurnal Average	10.3	10.3	9.9	9.8	9.8	9.7	10.2	10.3	11.5	12.9	13.8	14.3	15.6	15.5	15.2	15.3	14.2	12.6	10.9	10.3	10.5	10.4	10.5	10.2			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

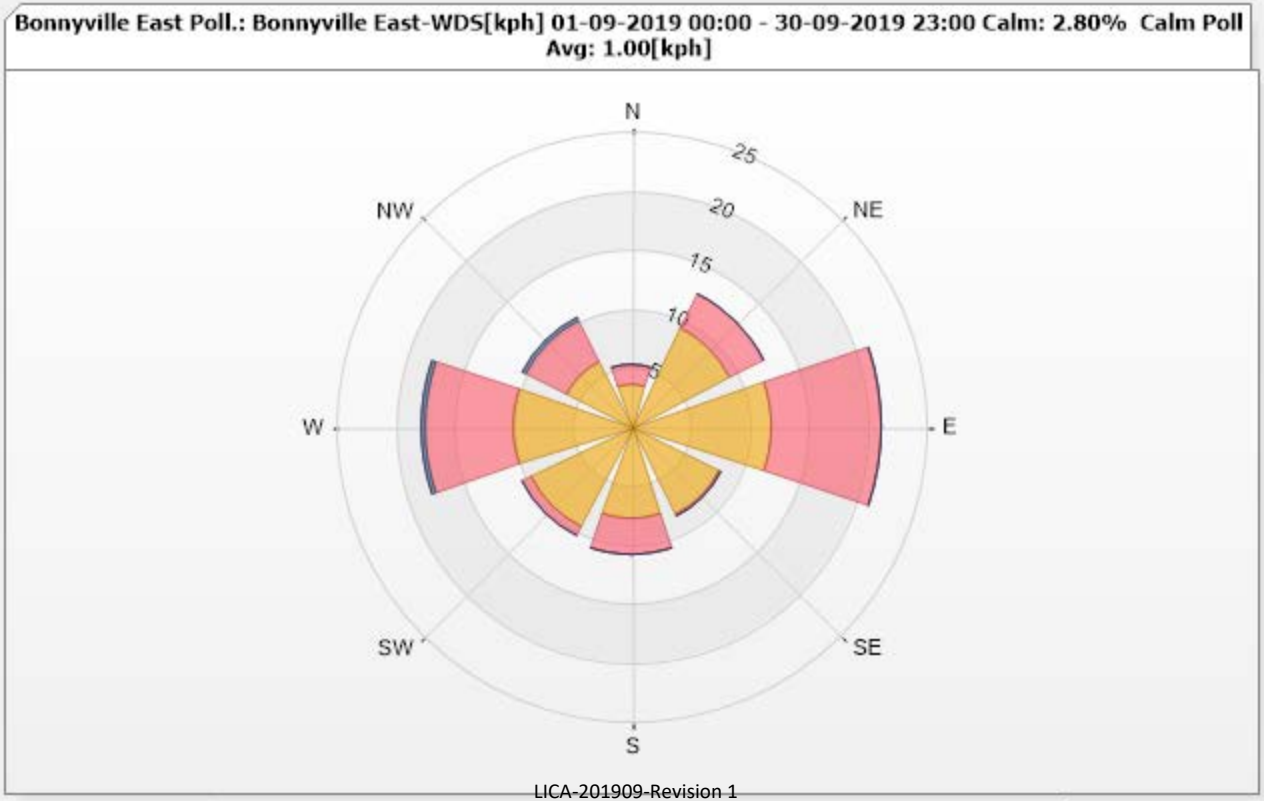
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

Timeseries Chart of Hourly Average for VWS - Bonnyville - East Site



Wind: Bonnyville East Poll.: Bonnyville East-WDS[kph] Monthly: 09-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 2.80% Valid Data: 99.31% Calm Avg: 1.00 [kph]

Direction	6-15	15-29	29-39	>39.0	Total
N	3.64	1.68	0	0	5.32
NE	9.37	3.22	0	0	12.59
E	11.89	9.37	0	0	21.26
SE	8.25	0.14	0	0	8.39
S	7.83	3.08	0	0	10.91
SW	9.51	0.84	0	0	10.35
W	10.07	7.55	0.28	0	17.9
NW	6.15	3.92	0.42	0	10.49
Summary	66.71	29.8	0.7	0	97.21


Bonnyville East Poll.: Bonnyville East-WDS[kph] 01-09-2019 00:00 - 30-09-2019 23:00 Calm: 2.80% Calm Poll Avg: 1.00[kph]
N
NE
E
SE
S
SW
W
NW
25
20
15
10
5
% Icon Classes (kph)
67
6-15
30
15-29
1
29-39
0
>39.0

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average: 38 (NE) degree

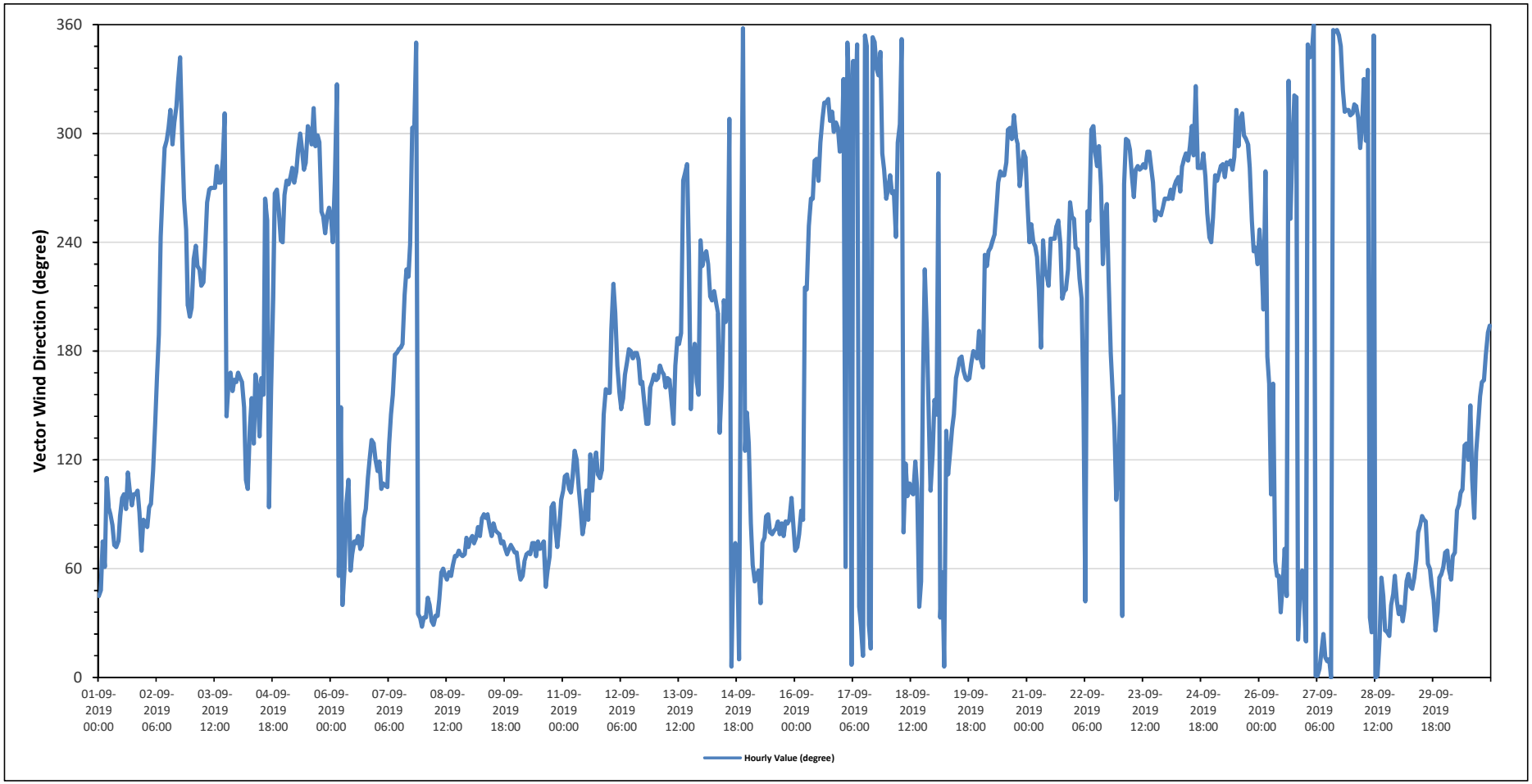
Hours in Service:	720
Hours of Data:	720
Hours of Missing Data:	0
Hours of Calibration:	0
Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant
Sep 1	NE	NE	ENE	ENE	ESE	E	E	E	ENE	ENE	ENE	E	E	E	E	ESE	ESE	E	E	E	ESE	E	ENE	E	89	E
Sep 2	E	E	E	E	ESE	SE	SSE	S	WSW	W	WNW	WNW	WNW	NW	WNW	NW	NW	NNW	NNW	WNW	W	WSW	SSW	SSW	309	NW
Sep 3	SSW	SW	SW	SW	SW	SW	SW	SW	W	W	W	W	W	W	W	W	WNW	NW	SE	SSE	SSE	SSE	SSE	SSE	244	WSW
Sep 4	SSE	SSE	SSE	SSE	ESE	ESE	SE	SSE	SE	SSE	SSE	SE	SSE	SSE	W	WSW	E	SSE	SSW	W	W	WSW	WSW	WSW	173	S
Sep 5	W	W	W	W	W	W	W	WNW	WNW	WNW	W	WNW	WNW	WNW	WNW	NW	WNW	WNW	WNW	WSW	WSW	WSW	WSW	WSW	284	WNW
Sep 6	WSW	WSW	W	NW	NE	SSE	NE	ENE	E	ESE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	E	E	ESE	ESE	SE	SE	ESE	90	E
Sep 7	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	SSE	S	S	S	S	S	SSW	SW	SW	WSW	WNW	WNW	N	NE	NNE	NNE	153	SSE
Sep 8	NNE	NNE	NE	NE	NNE	NNE	NE	NE	NE	ENE	ENE	NE	NE	ENE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	57	ENE
Sep 9	ENE	ENE	ENE	ENE	E	ENE	E	E	E	E	E	ENE	E	E	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	79	ENE
Sep 10	ENE	ENE	NE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	ENE	ENE	E	E	E	ENE	E	E	72	ENE
Sep 11	ESE	ESE	ESE	ESE	E	ESE	SE	ESE	ESE	E	ENE	E	ESE	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SSE	SSE	111	ESE
Sep 12	SSE	S	SW	SSW	S	SSE	SE	SSE	SSE	S	S	S	S	S	S	S	SSE	SSE	SSE	SE	SE	SSE	SSE	SSE	168	SSE
Sep 13	SSE	SSE	S	SSE	SSE	SSE	SSE	SSE	SSE	SE	S	S	S	S	W	W	W	SW	SE	S	S	SSE	SSE	WSW	174	S
Sep 14	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SE	SSE	SSW	SSW	SSW	NW	N	ENE	ENE	ENE	N	SW	N	SE	SE	204	SSW
Sep 15	SE	E	ENE	NE	NE	ENE	NE	ENE	ENE	E	E	E	ENE	E	E	E	ENE	E	ENE	E	E	E	E	E	83	E
Sep 16	ENE	ENE	ENE	E	E	SSW	SSW	WSW	W	W	WNW	WNW	W	WNW	NW	NW	NW	NW	NW	NW	WNW	NW	WNW	WNW	307	NW
Sep 17	WNW	NNW	ENE	N	NW	N	NNW	WNW	NNW	NE	NNE	NNE	N	NNW	NNE	NNE	N	N	NNW	NNW	NNW	WNW	W	W	345	NNW
Sep 18	W	W	W	W	WSW	WNW	WNW	N	E	ESE	E	ESE	E	E	ESE	ESE	NE	NE	SSE	SW	S	SE	ESE	ESE	140	SE
Sep 19	SSE	SE	W	NNE	ENE	N	SE	ESE	ESE	SE	SE	SSE	SSE	S	S	SSE	SSE	SSE	SSE	S	S	S	S	S	166	SSE
Sep 20	S	S	SW	SW	SW	SW	WSW	WSW	WSW	W	W	W	W	WNW	WNW	WNW	WNW	NW	WNW	WNW	W	W	WNW	WNW	282	W
Sep 21	W	WSW	WSW	WSW	SW	SW	SSW	S	WSW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	SSW	SSW	SSW	SW	W	WSW	235	SW
Sep 22	WSW	SW	SW	SW	SSW	SSE	NE	WSW	WSW	WNW	WNW	WNW	W	WNW	W	SW	WSW	W	SW	S	SSE	SE	E	ESE	246	WSW
Sep 23	SSE	NE	W	WNW	WNW	WNW	W	W	W	W	W	W	W	W	WNW	WNW	W	W	WSW	WSW	WSW	WSW	WSW	W	278	W
Sep 24	W	W	W	W	W	W	W	W	W	WNW	WNW	WNW	WNW	WNW	WNW	NW	W	W	W	WNW	W	WSW	WSW	WSW	280	W
Sep 25	WSW	W	W	W	W	W	W	WNW	W	WNW	W	WNW	NW	WNW	NW	NW	WNW	WNW	WNW	W	WSW	SW	SW	SW	288	WNW
Sep 26	WSW	SW	SSW	W	S	SSE	E	SSE	ENE	NE	NE	NE	NE	ENE	NE	NNW	WSW	WNW	NW	NW	NNE	NE	ENE	NE	27	NNE
Sep 27	NNE	NNW	NNW	NNW	N	N	N	N	NNE	NNE	NNE	N	N	N	N	N	N	N	NNW	NW	NW	NW	NW	NW	354	N
Sep 28	NW	NW	NW	NW	WNW	WNW	NNW	WNW	NNW	NNE	NNE	N	N	N	NNE	NE	NE	NNE	NNE	NNE	NE	NE	NE	NE	1	N
Sep 29	NE	NE	NNE	NE	NE	ENE	NE	NE	NE	ENE	E	E	E	E	E	ENE	ENE	NE	NE	NNE	NE	NE	ENE	ENE	62	ENE
Sep 30	ENE	ENE	ENE	NE	ENE	ENE	E	E	E	ESE	SE	SE	ESE	SSE	ESE	E	ESE	SE	SSE	SSE	SSE	S	S	SSW	113	ESE

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for VWD - Bonnyville - East Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hour Standard Deviations

STANDARD DEVIATION WIND DIRECTION (STDWD) in Degree

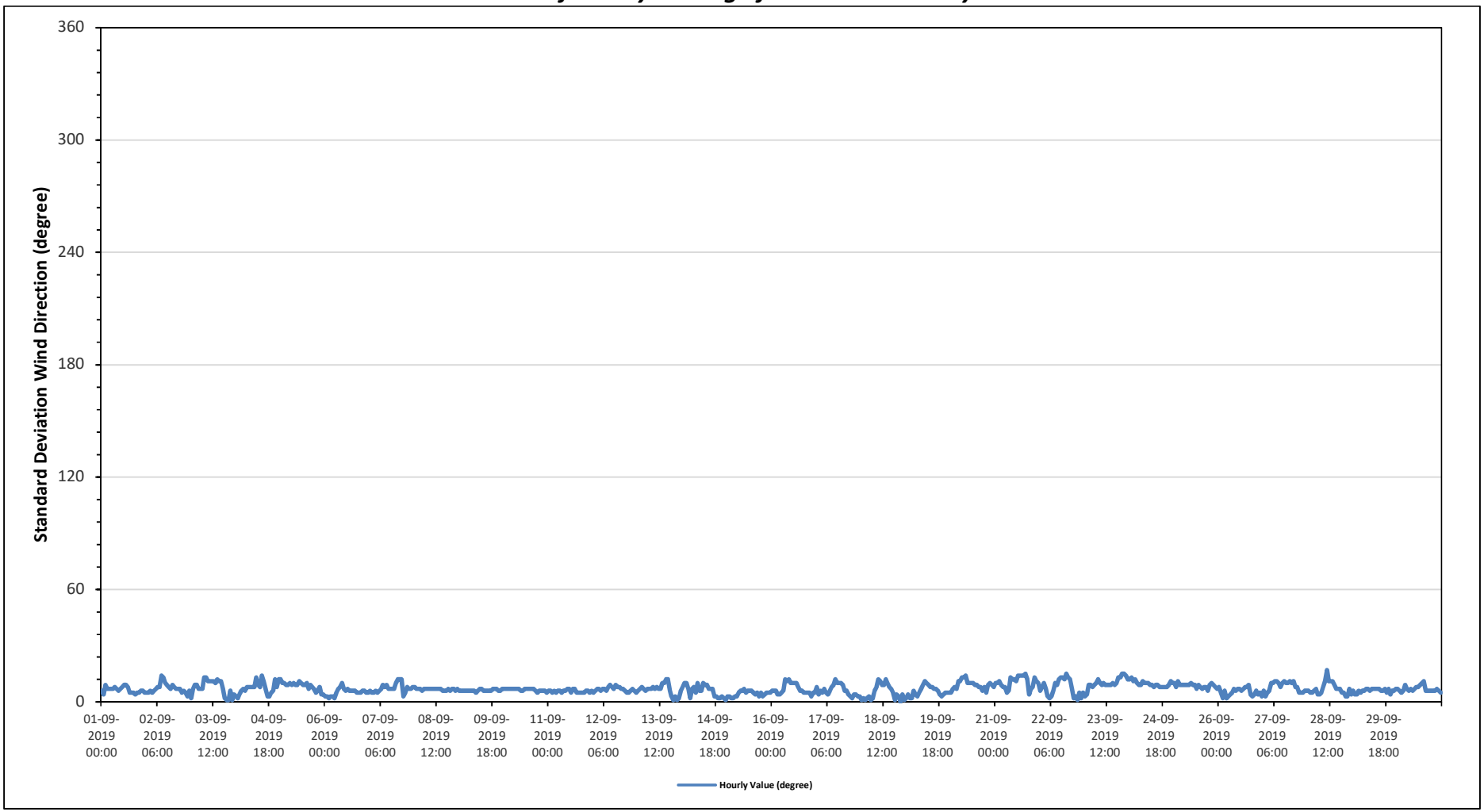
Maximum Hourly Value:	17	degree	on September 28 at hour 10	Hours in Service:	720
				Hours of Data:	720
Minimum Hourly Value:	0	degree	on September 18 at hour 21	Hours of Missing Data:	0
				Hours of Calibration:	0
				Operational Uptime:	100.0

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

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Average for STDWD - Bonnyville - East Site



REFERENCE DOCUMENTS

HOURLY INSTANTANEOUS DATA

COLD LAKE SOUTH STATION

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Instantaneous Maximums

SULPHUR DIOXIDE (SO_2) in ppb

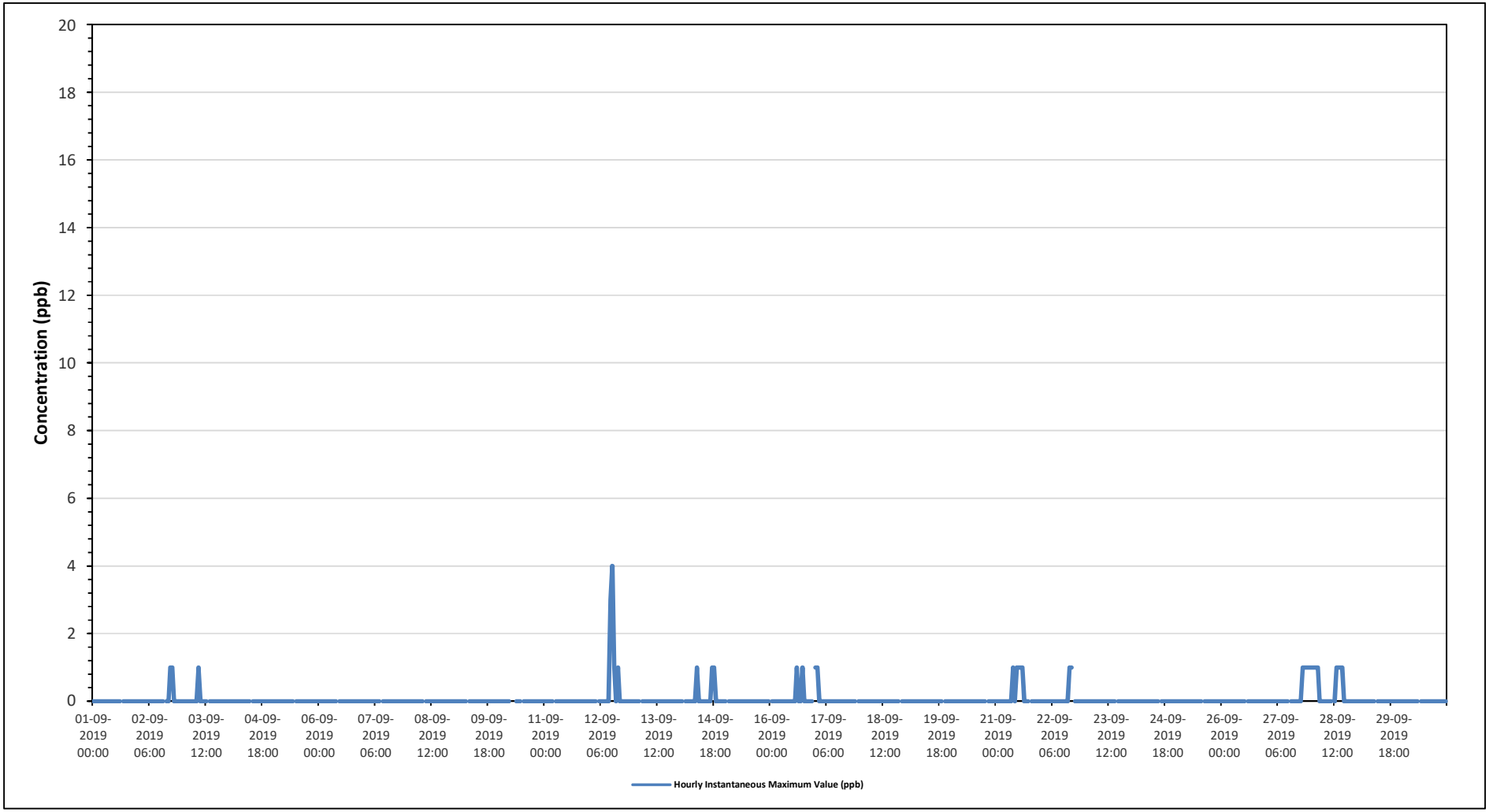
Maximum Hourly Value:	4	ppb	on September 12 at hour 12	Hours in Service:	720
Maximum Daily Value:	0.4	ppb	on September 12	Hours of Data:	684
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 1	Hours of Calibration:	36
Monthly Average:	0.1	ppb		Operational Uptime:	100.0

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

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for SO2 - Cold Lake South Station



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Instantaneous Maximums

TOTAL REDUCED SULPHUR (TRS) in ppb

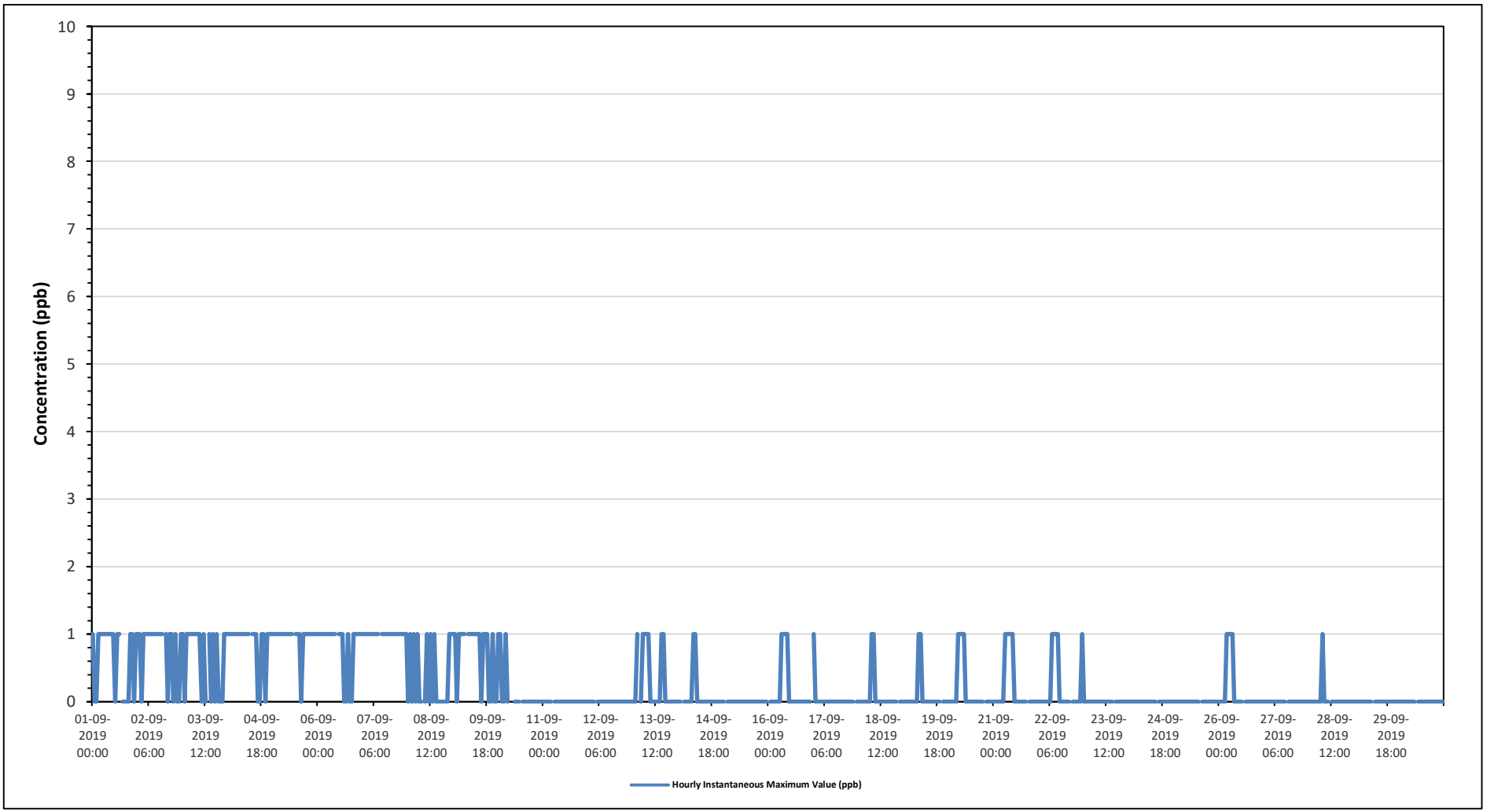
Maximum Hourly Value:	1	ppb	on September 1 at hour 0	Hours in Service:	720
Maximum Daily Value:	1	ppb	on September 7	Hours of Data:	684
Minimum Hourly Value:	0	ppb	on September 1 at hour 1	Hours of Missing Data:	0
Minimum Daily Value:	0	ppb	on September 11	Hours of Calibration:	36
Monthly Average:	0.29	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	1	0	0	1	1	1	1	1	1	1	1	1	0	1	1	S	0	0	0	0	1	1	0	1	0	1	0.65
Sep 2	1	1	0	1	1	1	1	1	1	1	1	1	1	1	S	1	0	1	1	0	1	0	0	1	0	1	0.78
Sep 3	1	0	1	1	1	1	1	1	1	1	0	1	0	S	1	0	1	0	1	0	0	0	1	1	0	1	0.65
Sep 4	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	0	0	1	1	0	1	1	1	0	1	0.87
Sep 5	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	0	1	1	1	1	1	1	1	1	0	1	0.96
Sep 6	1	1	1	1	1	1	1	1	1	1	S	1	1	1	0	0	1	0	0	1	1	1	1	1	0	1	0.83
Sep 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	**1.00**
Sep 8	0	1	0	1	0	1	0	0	S	0	1	0	1	0	1	0	0	0	0	0	0	0	1	1	0	1	0.35
Sep 9	1	1	0	1	1	1	1	S	1	1	1	1	1	1	1	0	1	1	1	0	0	1	0	0	0	1	0.74
Sep 10	1	1	0	0	1	0	S	1	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	1	0.22
Sep 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	0.00
Sep 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	0.00
Sep 13	0	0	1	S	0	1	1	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0.30
Sep 14	0	0	S	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.09
Sep 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	0.00
Sep 16	S	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	0.18
Sep 17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	1	0.04
Sep 18	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	0.09
Sep 19	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	0.09
Sep 20	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0.17
Sep 21	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	0.22
Sep 22	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	S	0	0	0	0	0	1	0	1	0.22
Sep 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	0.00
Sep 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	0.00
Sep 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	0.00
Sep 26	0	0	0	0	1	1	1	1	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	1	0.17
Sep 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	0.00
Sep 28	0	0	0	0	0	0	0	1	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.04
Sep 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	0.00
Sep 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	0.00
Diurnal Maximum	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Daiurnal Average	0.34	0.28	0.21	0.31	0.34	0.41	0.41	0.55	0.57	0.44	0.37	0.26	0.22	0.25	0.25	0.14	0.21	0.14	0.21	0.14	0.17	0.21	0.21	0.31			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for TRS - Cold Lake South Station



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Instantaneous Maximums

OXIDES OF NITROGEN (NOx) in ppb

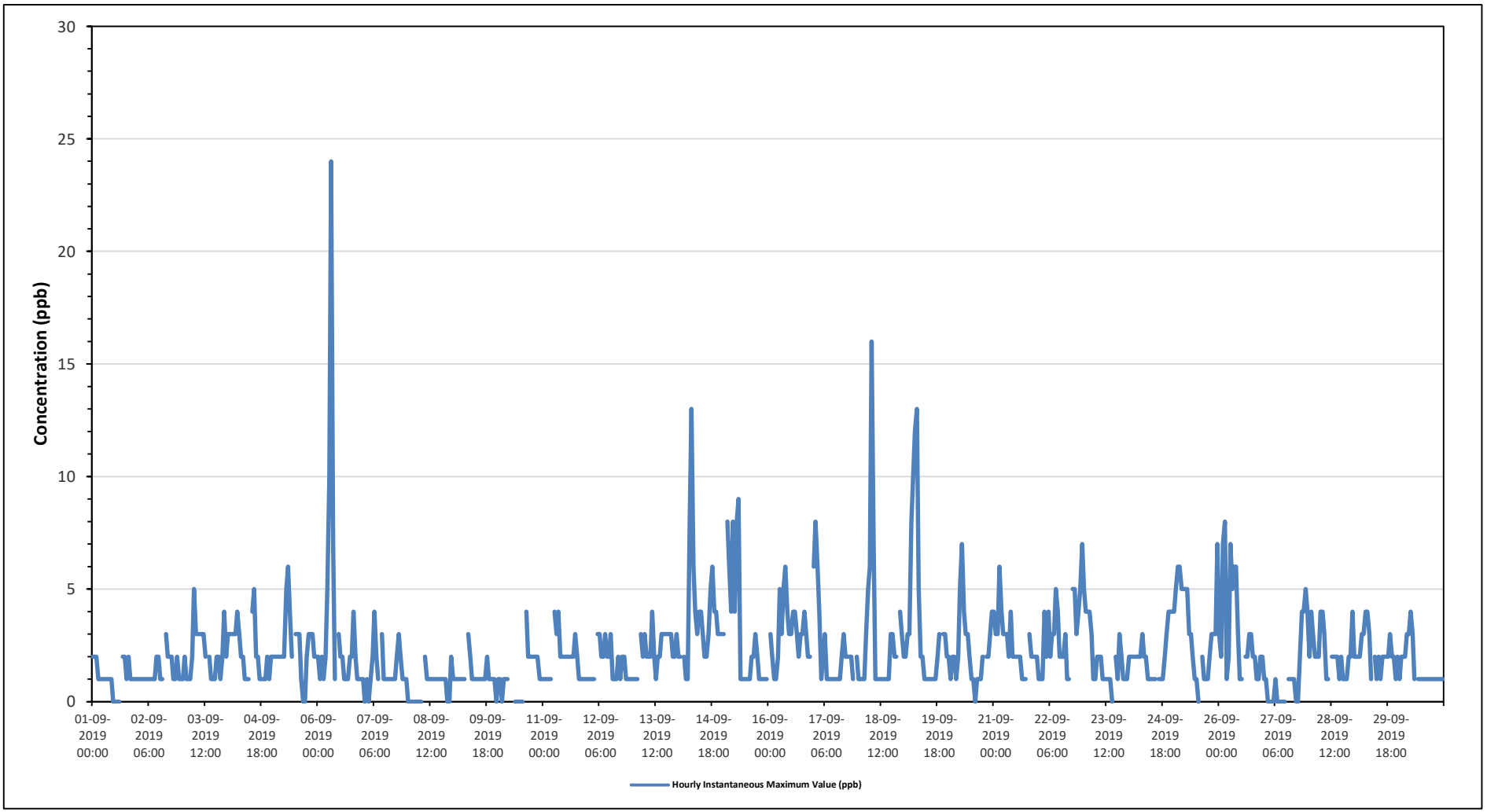
Maximum Hourly Value:	24	ppb	on September 6 at hour 7	Hours in Service:	720
Maximum Daily Value:	3.8	ppb	on September 14	Hours of Data:	682
Minimum Hourly Value:	0	ppb	on September 1 at hour 11	Hours of Missing Data:	0
Minimum Daily Value:	0.7	ppb	on September 8	Hours of Calibration:	38
Monthly Average:	2.2	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	2	2	2	1	1	1	1	1	1	1	1	0	0	0	0	S	2	2	1	2	1	1	1	1	0	2	1.1
Sep 2	1	1	1	1	1	1	1	1	1	1	2	2	1	1	S	3	2	2	2	1	1	2	1	1	1	3	1.3
Sep 3	1	2	1	1	1	2	5	3	3	3	3	3	2	S	2	1	1	1	2	2	1	2	4	2	1	5	2.1
Sep 4	3	3	3	3	3	4	3	2	2	1	1	1	S	4	5	2	2	1	1	1	1	2	1	2	1	5	2.2
Sep 5	2	2	2	2	2	2	2	5	6	4	2	S	3	3	3	1	0	0	2	3	3	3	2	2	0	6	2.4
Sep 6	2	1	2	1	2	5	10	24	7	1	S	3	2	2	1	1	1	2	2	4	2	1	1	1	1	24	3.4
Sep 7	1	0	1	0	1	2	4	2	1	S	3	1	1	1	1	1	1	1	2	3	2	1	1	1	0	4	1.4
Sep 8	0	0	0	0	0	0	0	0	S	2	1	1	1	1	1	1	1	1	1	1	1	0	0	2	0	2	0.7
Sep 9	1	1	1	1	1	1	1	S	3	2	1	1	1	1	1	1	1	1	2	1	1	1	1	0	0	3	1.1
Sep 10	1	1	0	1	1	1	S	3	C	C	C	C	C	C	C	4	2	2	2	2	2	2	1	1	0	4	-
Sep 11	1	1	1	1	1	S	4	3	4	2	2	2	2	2	2	2	2	3	2	1	1	1	1	1	1	4	1.8
Sep 12	1	1	1	1	S	3	3	2	2	3	2	2	3	1	1	1	2	1	2	2	1	1	1	1	1	3	1.7
Sep 13	1	1	1	S	3	2	3	2	2	2	4	2	1	2	2	3	3	3	3	3	3	2	2	3	1	4	2.3
Sep 14	2	2	S	2	1	1	8	13	6	4	3	4	4	3	2	2	3	5	6	4	4	3	3	3	1	13	3.8
Sep 15	3	S	8	6	4	8	4	8	9	1	1	1	1	1	1	2	2	3	2	1	1	1	1	1	1	9	3.0
Sep 16	S	3	2	1	1	2	5	3	5	6	4	3	3	4	4	3	2	3	3	4	3	2	2	S	1	6	3.1
Sep 17	6	8	6	4	1	2	3	1	1	1	1	1	1	1	1	2	3	2	2	2	2	1	S	2	1	8	2.3
Sep 18	1	1	1	1	3	5	6	16	7	1	1	1	1	1	1	1	1	3	3	2	2	S	4	3	1	16	2.9
Sep 19	2	2	3	3	8	10	12	13	5	2	2	1	1	1	1	1	1	1	2	3	S	3	3	2	1	13	3.6
Sep 20	2	1	2	2	1	2	5	7	4	3	3	2	1	1	0	1	1	1	2	S	2	2	3	4	0	7	2.3
Sep 21	4	3	3	6	4	3	3	3	2	4	2	2	2	2	2	1	1	1	S	3	2	2	2	2	1	6	2.6
Sep 22	1	1	1	4	2	4	2	3	3	5	4	2	2	2	3	1	1	S	5	5	3	4	5	7	1	7	3.0
Sep 23	5	4	4	4	3	1	1	2	2	2	1	1	1	1	1	0	S	2	1	3	2	1	1	1	0	5	1.9
Sep 24	2	2	2	2	2	2	2	3	2	2	1	1	1	1	1	S	1	1	1	2	3	4	4	4	1	4	2.0
Sep 25	4	5	6	6	5	5	5	5	3	3	2	1	1	0	S	2	1	1	1	2	3	3	3	7	0	7	3.2
Sep 26	3	2	7	8	1	2	7	5	6	6	3	1	1	S	2	2	3	3	2	2	1	1	2	2	1	8	3.1
Sep 27	1	1	0	0	0	0	1	0	0	0	0	0	S	1	1	1	1	0	0	2	4	4	5	4	0	5	1.1
Sep 28	2	4	3	2	2	2	4	4	3	1	1	S	2	2	2	2	1	2	1	1	1	2	2	4	1	4	2.2
Sep 29	2	2	2	2	3	3	4	4	3	1	S	2	1	2	1	2	2	2	2	3	2	2	1	2	1	4	2.2
Sep 30	1	2	2	2	3	3	4	3	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1.5
Diurnal Maximum	6	8	8	8	8	10	12	24	9	6	4	4	4	4	5	4	3	5	6	5	4	4	5	7			
Daiurnal Average	2.0	2.0	2.3	2.3	2.1	2.7	3.9	4.9	3.4	2.4	1.9	1.6	1.5	1.6	1.6	1.6	1.6	1.8	2.0	2.3	1.9	1.9	2.0	2.3			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for NOx - Cold Lake South Station



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Instantaneous Maximums

NITRIC OXIDE (NO) in ppb

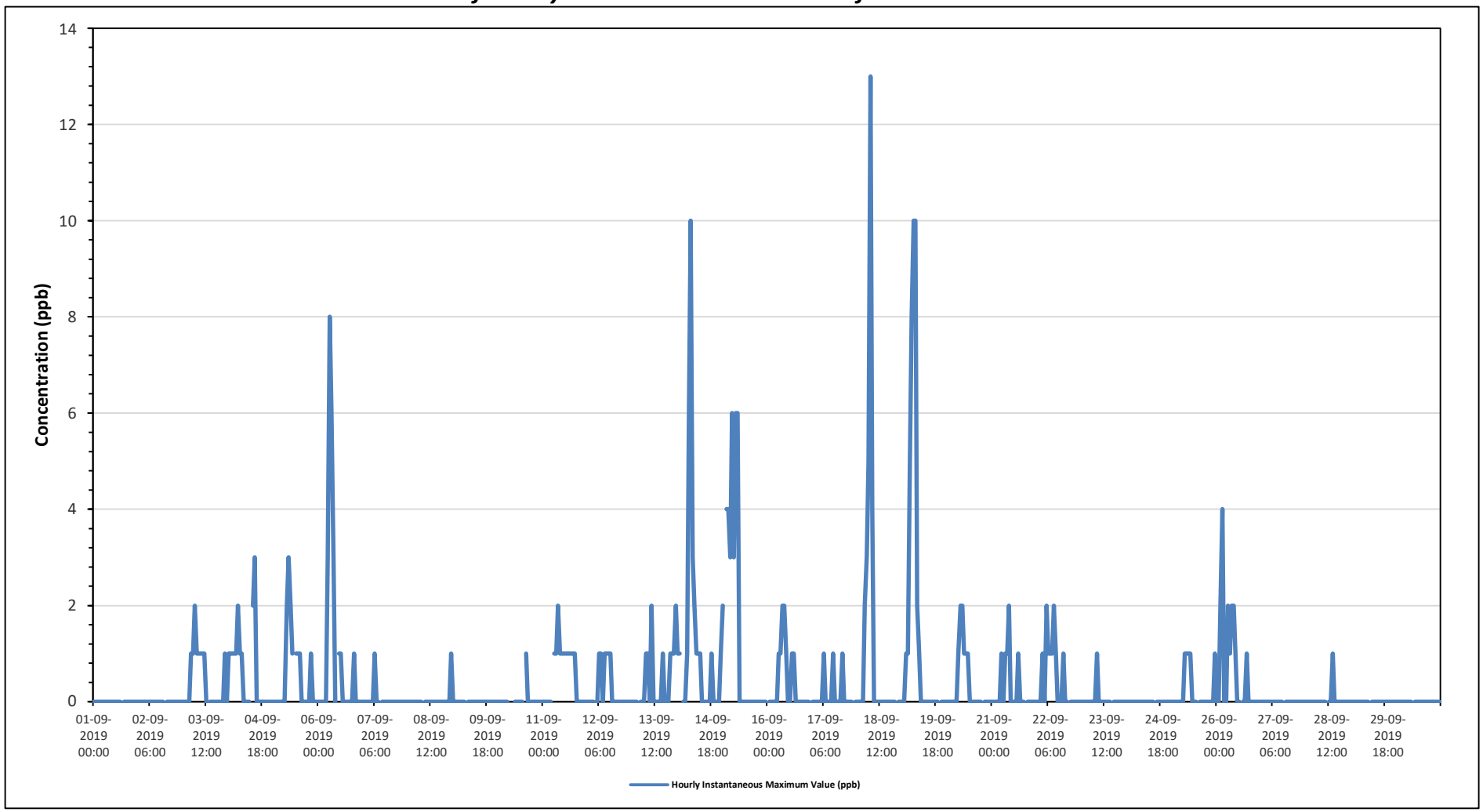
Maximum Hourly Value:	13	ppb	on September 18 at hour 7	Hours in Service:	720
Maximum Daily Value:	1.7	ppb	on September 19	Hours of Data:	682
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 1	Hours of Calibration:	38
Monthly Average:	0.4	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 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	0.0
Sep 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	0.0
Sep 3	0	0	0	0	1	1	2	1	1	1	1	1	0	S	0	0	0	0	0	0	0	0	1	0	0	2	0.4
Sep 4	1	1	1	1	1	2	1	1	0	0	0	0	S	2	3	0	0	0	0	0	0	0	0	0	0	3	0.6
Sep 5	0	0	0	0	0	0	0	2	3	2	1	S	1	1	1	0	0	0	0	0	1	0	0	0	0	3	0.5
Sep 6	0	0	0	0	0	3	8	6	3	0	S	1	1	0	0	0	0	0	0	1	0	0	0	0	0	8	1.0
Sep 7	0	0	0	0	0	0	1	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Sep 8	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	0.0
Sep 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	0.0
Sep 10	0	0	0	0	0	0	S	0	C	C	C	C	C	C	C	1	0	0	0	0	0	0	0	0	0	1	-
Sep 11	0	0	0	0	0	S	1	1	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	2	0.6
Sep 12	0	0	0	0	S	0	1	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3
Sep 13	0	0	0	S	0	0	0	1	1	0	2	0	0	0	0	0	1	0	0	0	1	1	1	2	0	2	0.4
Sep 14	1	1	S	0	0	1	6	10	3	2	1	1	1	0	0	0	0	0	1	0	0	0	0	1	0	10	1.3
Sep 15	2	S	4	4	3	6	3	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1.5
Sep 16	S	0	0	0	0	0	1	1	2	2	1	0	0	1	1	0	0	0	0	0	0	0	0	S	0	2	0.4
Sep 17	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	S	0	0	1	0.1
Sep 18	0	0	0	0	2	3	5	**13**	4	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	**13**	1.2
Sep 19	0	0	1	1	5	8	10	10	2	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	10	**1.7**
Sep 20	0	0	0	0	0	0	1	2	2	1	1	1	0	0	0	0	0	0	0	S	0	0	0	0	0	2	0.3
Sep 21	0	0	0	0	0	1	0	1	1	2	0	0	0	0	1	0	0	0	S	0	0	0	0	0	0	2	0.3
Sep 22	0	0	0	1	0	2	1	1	1	2	1	0	0	0	1	0	0	S	0	0	0	0	0	0	0	2	0.4
Sep 23	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0.0
Sep 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	0.0
Sep 25	0	0	0	0	0	0	0	1	1	1	1	0	0	0	S	0	0	0	0	0	0	0	0	1	0	1	0.2
Sep 26	0	0	2	4	0	0	2	1	2	2	1	0	0	S	0	0	1	0	0	0	0	0	0	0	0	4	0.7
Sep 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	0.0
Sep 28	0	0	0	0	0	0	0	0	0	0	0	S	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.0
Sep 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	0.0
Sep 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	0.0
Diurnal Maximum	2	1	4	4	5	8	10	13	6	2	2	1	1	2	3	1	1	1	1	1	1	1	1	2			
Daiurnal Average	0.1	0.1	0.3	0.4	0.4	0.9	1.5	2.0	1.3	0.7	0.4	0.3	0.2	0.2	0.3	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.2			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for NO - Cold Lake South Station



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Instantaneous Maximums

NITROGEN DIOXIDE (NO_2) in ppb

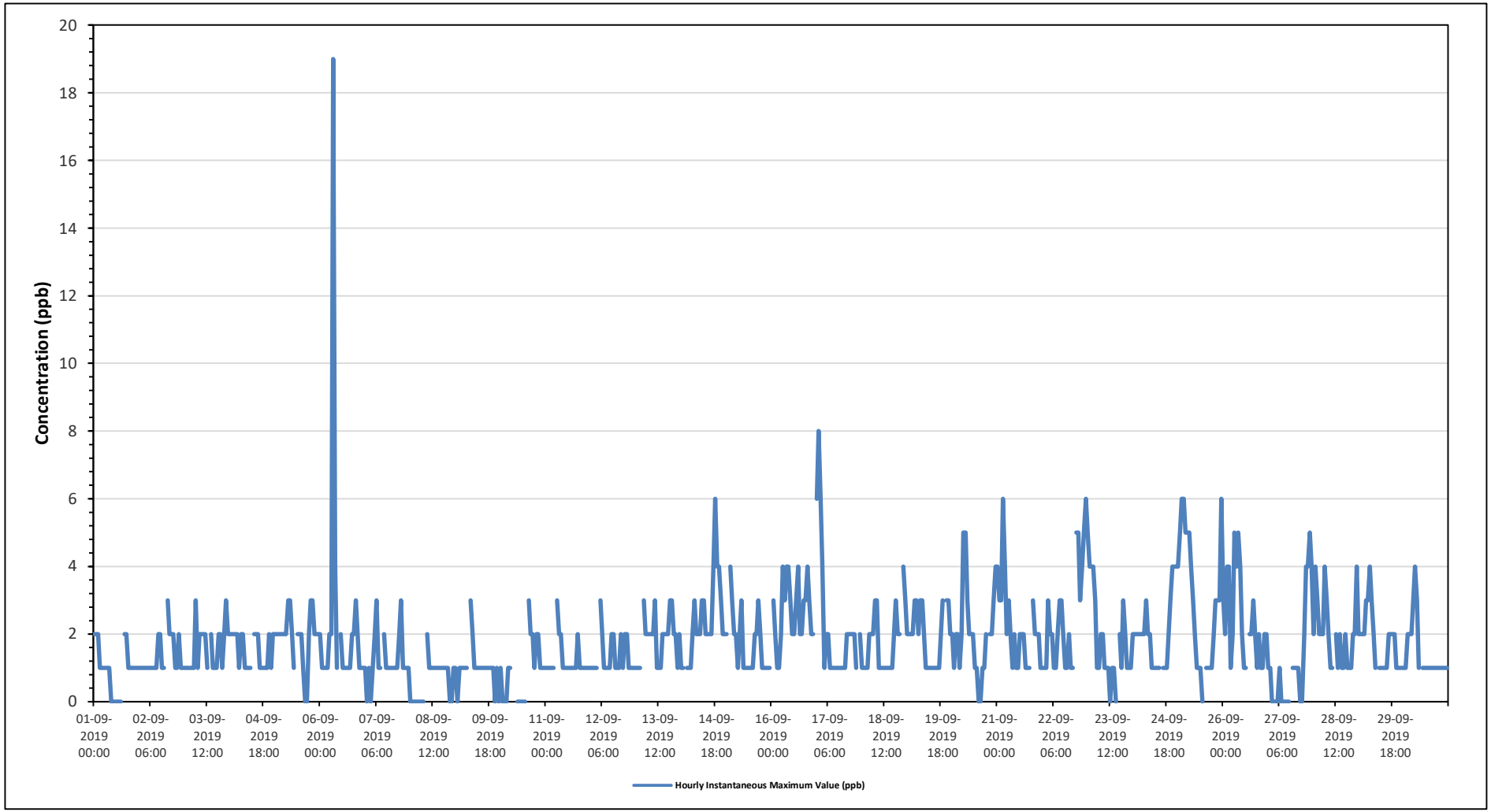
Maximum Hourly Value:	19	ppb	on September 6 at hour 7	Hours in Service:	720
Maximum Daily Value:	3.0	ppb	on September 25	Hours of Data:	682
Minimum Hourly Value:	0	ppb	on September 1 at hour 9	Hours of Missing Data:	0
Minimum Daily Value:	0.6	ppb	on September 8	Hours of Calibration:	38
Monthly Average:	1.8	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	2	2	2	1	1	1	1	1	1	0	0	0	0	0	0	S	2	2	1	1	1	1	1	1	0	2	1.0
Sep 2	1	1	1	1	1	1	1	1	1	1	2	2	1	1	S	3	2	2	2	1	1	2	1	1	1	3	1.3
Sep 3	1	1	1	1	1	1	3	1	2	2	2	2	1	S	2	1	1	1	2	2	1	2	3	2	1	3	1.6
Sep 4	2	2	2	2	2	1	2	2	1	1	1	1	S	2	2	2	1	1	1	1	1	2	1	2	1	2	1.5
Sep 5	2	2	2	2	2	2	2	3	3	2	1	S	2	2	2	1	0	0	2	3	3	2	2	2	0	3	1.9
Sep 6	2	1	1	1	1	2	2	19	4	1	S	2	1	1	1	1	1	2	2	3	2	1	1	1	1	19	2.3
Sep 7	1	0	1	0	1	2	3	1	1	S	2	1	1	1	1	1	1	1	2	3	1	1	1	1	0	3	1.2
Sep 8	0	0	0	0	0	0	0	0	S	2	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	2	0.6
Sep 9	1	0	1	1	1	1	1	S	3	2	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	3	1.0
Sep 10	1	0	0	0	1	1	S	2	C	C	C	C	C	C	C	3	2	2	1	2	2	1	1	1	0	3	-
Sep 11	1	1	1	1	1	S	3	2	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	3	1.2
Sep 12	1	1	1	1	S	3	2	1	1	1	1	2	2	1	1	1	2	1	2	2	1	1	1	1	1	3	1.3
Sep 13	1	1	1	S	3	2	2	2	2	2	3	1	1	1	2	2	2	2	3	3	2	2	1	2	1	3	1.9
Sep 14	1	1	S	1	1	1	2	3	2	2	2	3	3	2	2	2	2	4	6	4	4	3	2	2	1	6	2.4
Sep 15	2	S	4	3	2	2	1	2	3	1	1	1	1	1	1	2	2	3	2	1	1	1	1	1	1	4	1.7
Sep 16	S	3	2	1	1	2	4	3	4	4	3	2	2	3	4	2	2	3	3	4	3	2	2	S	1	4	2.7
Sep 17	6	8	6	4	1	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	S	2	1	8	2.2
Sep 18	1	1	1	1	2	2	2	3	3	1	1	1	1	1	1	1	1	2	3	2	2	S	4	3	1	4	1.7
Sep 19	2	2	2	2	3	3	2	3	3	2	1	1	1	1	1	1	1	1	2	3	S	3	3	2	1	3	2.0
Sep 20	2	1	2	2	1	2	5	5	3	2	2	2	1	1	0	0	1	1	2	S	2	2	3	4	0	5	2.0
Sep 21	4	3	3	6	4	2	3	2	1	2	1	1	2	2	2	1	1	1	S	3	2	2	2	1	1	6	2.2
Sep 22	1	1	1	3	2	2	1	1	2	3	3	2	1	1	2	1	1	S	5	5	3	4	5	6	1	6	2.4
Sep 23	5	4	4	4	3	1	1	2	2	1	1	1	0	1	1	0	S	2	1	3	2	1	1	1	0	5	1.8
Sep 24	2	2	2	2	2	2	2	3	2	2	1	1	1	1	1	S	1	1	1	2	3	4	4	4	1	4	2.0
Sep 25	4	5	6	6	5	5	5	4	3	2	1	1	1	0	S	1	1	1	1	2	3	3	3	6	0	6	3.0
Sep 26	3	2	4	4	1	2	5	4	5	4	2	1	1	S	2	2	3	2	1	2	1	1	2	2	1	5	2.4
Sep 27	1	1	0	0	0	0	1	0	0	0	0	0	S	1	1	1	1	0	0	2	4	4	5	4	0	5	1.1
Sep 28	2	4	3	2	2	2	4	3	2	1	1	S	2	1	2	1	1	2	1	1	1	2	2	4	1	4	2.0
Sep 29	2	2	2	2	3	3	4	3	2	1	S	1	1	1	1	1	2	2	2	2	1	1	1	1	1	4	1.8
Sep 30	1	1	2	2	2	3	4	3	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1.4
Diurnal Maximum	6	8	6	6	5	5	5	19	5	4	3	3	3	3	4	3	3	4	6	5	4	4	5	6			
Daiurnal Average	1.9	1.8	2.0	1.9	1.7	1.8	2.4	2.8	2.1	1.6	1.4	1.3	1.2	1.1	1.4	1.3	1.4	1.6	1.9	2.2	1.8	1.8	1.9	2.1			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for NO2 - Cold Lake South Station



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Instantaneous Maximums

OZONE (O_3) in ppb

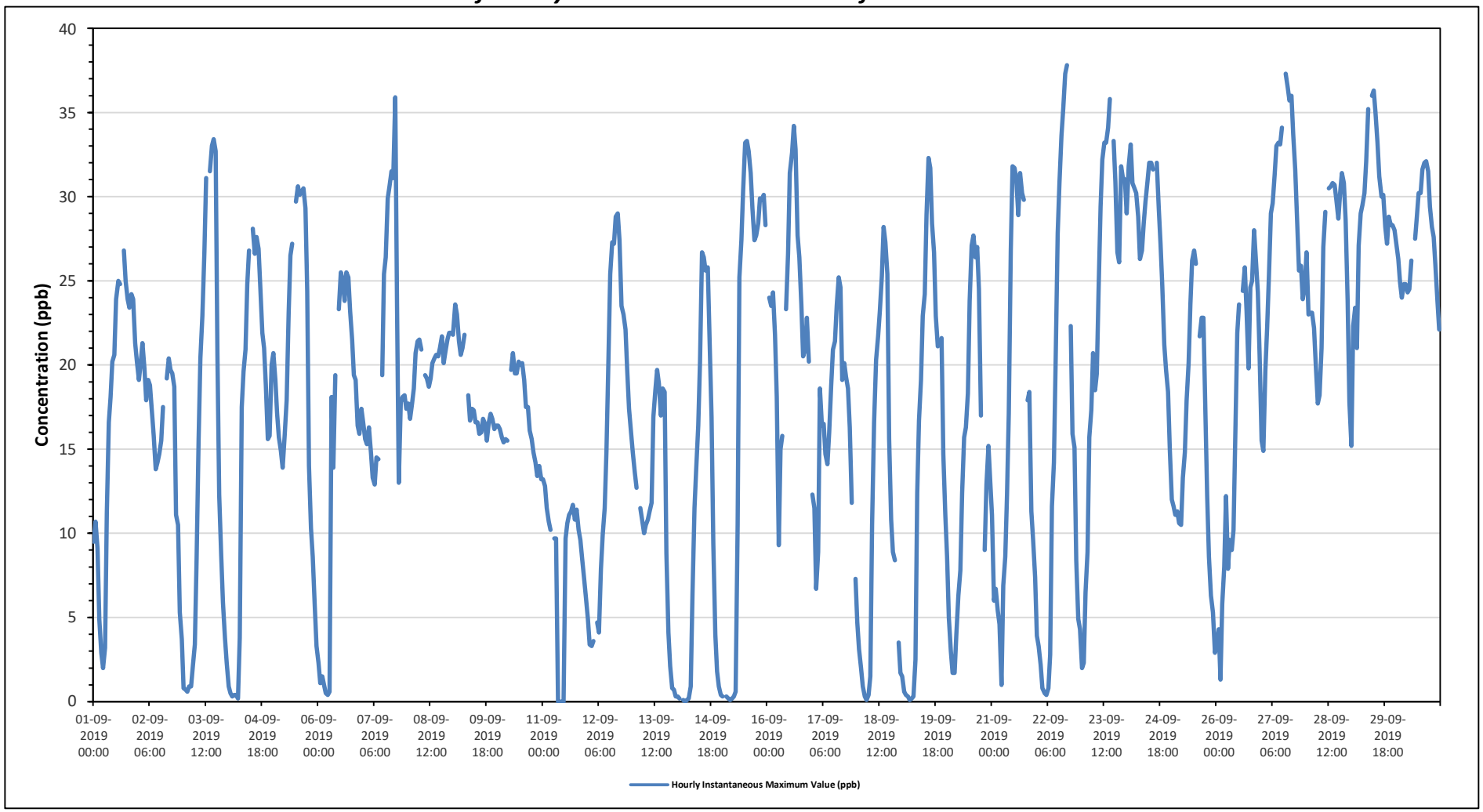
Maximum Hourly Value:	37.8	ppb	on September 22 at hour 16	Hours in Service:	720
Maximum Daily Value:	28.9	ppb	on September 29	Hours of Data:	684
Minimum Hourly Value:	0.0	ppb	on September 14 at hour 4	Hours of Missing Data:	1
Minimum Daily Value:	10.0	ppb	on September 14	Hours of Calibration:	35
Monthly Average:	18.3	ppb		Operational Uptime:	99.9

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	9.5	10.7	9.1	4.9	2.9	2	3.2	11.2	16.6	18.1	20.2	20.6	23.9	25	24.8	S	26.8	25	23.9	23.4	24.2	23.9	21.3	20.2	2.0	26.8	17.0
Sep 2	19.1	20.1	21.3	19.8	17.9	19.1	18.8	17.2	15.8	13.8	14.2	14.7	15.5	17.5	S	19.2	20.4	19.7	19.5	18.7	11.1	10.5	5.3	3.7	3.7	21.3	16.2
Sep 3	0.8	0.7	0.6	0.9	0.9	2.1	3.4	8.5	15.6	20.4	22.9	26.7	31.1	S	31.5	33	33.4	32.7	20.6	12.3	8.7	5.9	3.8	2.3	0.6	33.4	13.9
Sep 4	0.9	0.5	0.3	0.4	0.4	0.2	3.8	17.5	19.6	20.9	24.8	26.8	S	28.1	26.6	27.6	26.9	24.6	21.9	21	18.8	15.6	15.8	20	0.2	28.1	15.8
Sep 5	20.7	19.1	17.1	15.7	14.9	13.9	15.8	17.9	23.1	26.5	27.2	S	29.7	30.6	30.1	30.3	30.5	29.3	24.4	14	10.3	8.6	5.7	3.3	3.3	30.6	19.9
Sep 6	2.3	1.1	1.5	1	0.5	0.4	0.6	18.1	13.9	19.4	S	23.3	25.5	25.1	23.8	25.5	25.2	23.2	21.5	19.4	19.1	16.4	15.9	17.4	0.4	25.5	14.8
Sep 7	16.6	15.6	15.3	16.3	14.8	13.3	12.9	14.5	14.4	S	19.4	25.4	26.4	29.9	30.6	31.5	31.1	35.9	23.6	13	17.8	18.1	18.2	17.4	12.9	35.9	20.5
Sep 8	17.7	16.8	17.7	18.6	20.7	21.4	21.5	20.9	S	19.4	19.2	18.7	19.2	20.1	20.4	20.6	20.5	21	21.7	20.1	20.8	21.5	21.9	21.9	16.8	21.9	20.1
Sep 9	21.8	23.6	23	21.4	20.6	21	21.8	S	18.2	16.7	17.4	17.3	16.6	16.6	15.9	16	16.8	16.5	15.5	16.6	17.1	16.8	16.2	16.4	15.5	23.6	18.3
Sep 10	16.4	16.2	15.7	15.4	15.6	15.5	S	19.7	20.7	19.5	19.5	20.2	20	20.1	19.1	17.5	17.5	16.1	15.6	14.8	14.2	13.4	14	13.2	13.2	20.7	17.0
Sep 11	13.2	12.8	11.5	10.7	10.2	S	9.7	9.7	C	C	C	C	9.7	10.6	11.1	11.3	11.7	10.8	11.4	10.2	9.6	8.5	7.3	6.2	6.2	13.2	10.3
Sep 12	4.9	3.4	3.3	3.6	S	4.7	4.1	7.9	9.9	11.5	14.9	20.4	25.4	27.3	27.2	28.8	29	27.4	23.5	23	22.1	19.6	17.4	16	3.3	29.0	16.3
Sep 13	14.8	13.6	12.7	S	11.5	10.8	10	10.5	10.8	11.3	11.8	16.9	18.5	19.7	18.9	17	18.6	18.4	8.8	4.1	2.1	0.8	0.7	0.3	0.3	19.7	11.4
Sep 14	0.3	0.2	S	0.1	0	0.1	0.2	0.9	6.4	11.5	13.9	16.4	20.2	26.7	26.4	25.6	25.8	21.6	16.9	9.4	4	1.8	0.9	0.4	0.0	26.7	10.0
Sep 15	0.3	S	0.3	0.2	0.1	0.2	0.3	0.6	10.5	25.2	27.4	30.4	33.2	33.3	32.7	31.4	29.3	27.4	27.7	28.4	29.9	29.8	30.1	28.3	0.1	33.3	19.9
Sep 16	S	24	23.5	24.3	21.8	18.1	9.3	15	15.8	S1	23.3	26.6	31.4	32.6	34.2	32.8	27.7	26.4	23.6	20.5	20.9	22.8	20.2	S	9.3	34.2	23.6
Sep 17	12.3	11.5	6.7	8.9	18.6	16.4	16.5	14.7	14.1	16	18.8	20.9	21.4	23.5	25.2	24.6	19.1	20.1	19.3	18.6	16.3	11.8	S	7.3	6.7	25.2	16.6
Sep 18	4.7	3.1	2	0.9	0.3	0.1	0.4	1.5	10.5	16.6	20.3	21.7	23.2	25.3	28.2	27.3	25.4	15.6	10.8	8.9	8.4	S	3.5	1.7	0.1	28.2	11.3
Sep 19	1.5	0.6	0.4	0.3	0.1	0.2	0.3	2.5	12.4	16.7	19.1	22.9	24.2	28.9	32.3	31.7	28.4	26.7	22.9	21.1	S	21.6	14.7	11.1	0.1	32.3	14.8
Sep 20	8.6	5	3	1.7	1.7	4	6.3	7.8	12.4	15.7	16.3	18.3	23.8	27.1	27.7	26.4	27	24.5	17	S	9	12.9	15.2	13.1	1.7	27.7	14.1
Sep 21	11.1	6	6.7	5.4	4.6	1	6.9	8.6	12.3	17.1	26.8	31.8	31.7	31	28.9	31.4	30.2	29.8	S	17.9	18.4	11.3	9.6	7.4	1.0	31.8	16.8
Sep 22	3.9	3.3	2.2	0.8	0.5	0.4	0.8	2.8	11.6	14.2	20.4	27.8	30.8	33.6	35.2	37.3	37.8	S	22.3	15.9	15.1	8.4	4.9	4.3	0.4	37.8	14.5
Sep 23	2	2.3	6.5	8.9	15.7	17.3	20.7	18.5	19.5	24.4	29.4	32.2	33.2	33.2	34.1	35.8	S	33.3	30.9	26.7	26.1	31.8	31.1	31	2.0	35.8	23.7
Sep 24	29	31.8	33.1	30.8	30.5	30.2	28.8	26.3	26.8	28.4	29.7	30.9	32	32	31.6	S	32	29.3	27.2	24.7	21.2	19.7	18.4	15	15.0	33.1	27.8
Sep 25	12	11.6	11.1	11.3	10.6	10.5	13.3	14.8	17.9	20.1	23.6	26.2	26.8	26	S	21.7	22.8	22.8	17.1	12.2	8.6	6.3	5.3	2.9	2.9	26.8	15.5
Sep 26	3.4	4.3	1.3	5.8	8	12.2	7.9	9.6	9	10.2	15.7	21.9	23.6	S	24.4	25.8	23.2	19.8	24.6	25	28	26.3	24.3	20.6	1.3	28.0	16.3
Sep 27	15.5	14.9	19.7	22.2	25.2	29	29.6	31.3	33	33.2	33.1	34.1	S	37.3	36.5	35.7	36	33.7	31.6	28.4	25.6	25.9	23.9	24.6	14.9	37.3	28.7
Sep 28	26.7	23	23.1	23.1	22.2	20	17.7	18.2	21	27	29.1	S	30.5	30.6	30.8	30.7	29.8	28.7	30.2	31.4	30.8	28.6	23.8	17.8	17.7	31.4	25.9
Sep 29	15.2	22.3	23.4	21	27.1	29	29.5	30.2	32.1	35.2	S	36	36.3	35	33.2	31.2	30	30.1	28.2	27.2	28.8	28.3	28.3	28	15.2	36.3	28.9
Sep 30	27.2	26.3	24.9	24	24.8	24.8	24.3	24.5	26.2	S	27.5	28.8	30.2	30.2	31.6	32	32.1	31.5	29.4	28.2	27.6	25.9	23.8	22.1	22.1	32.1	27.3
Diurnal Maximum	29	32	33	31	31	30	30	31	33	35	33	36	36	37	37	37	38	36	32	31	31	32	31	31			
Daiurnal Average	11.5	11.9	11.6	11.0	11.8	11.7	11.7	13.8	16.8	19.6	21.7	24.4	25.5	27.0	27.6	27.1	26.4	24.9	21.8	19.1	17.7	17.0	15.2	13.6			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for O3 - Cold Lake South Station



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Instantaneous Maximums

TOTAL HYDROCARBONS (THC) in ppm

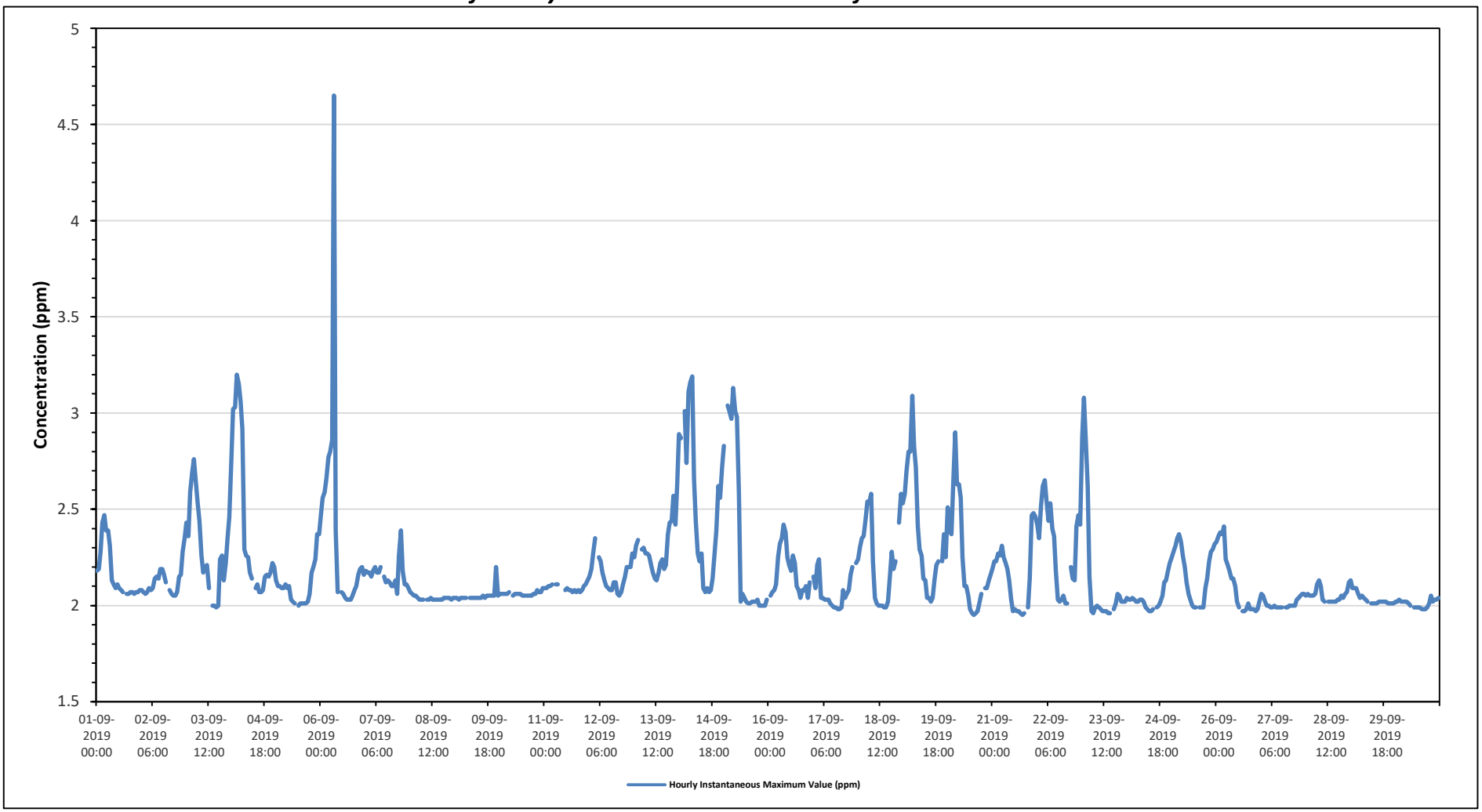
Maximum Hourly Value:	4.65	ppm	on September 6 at hour 7	Hours in Service:	720
Maximum Daily Value:	2.52	ppm	on September 14	Hours of Data:	686
Minimum Hourly Value:	1.95	ppm	on September 20 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	2.01	ppm	on September 30	Hours of Calibration:	34
Monthly Average:	2.18	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	2.18	2.19	2.28	2.43	2.47	2.39	2.39	2.31	2.13	2.11	2.09	2.11	2.09	2.08	2.07	S	2.06	2.06	2.07	2.07	2.06	2.07	2.07	2.08	2.06	2.47	2.17
Sep 2	2.08	2.07	2.06	2.07	2.09	2.08	2.09	2.14	2.15	2.14	2.19	2.19	2.16	2.12	S	2.08	2.06	2.05	2.05	2.07	2.15	2.16	2.28	2.35	2.05	2.35	2.13
Sep 3	2.43	2.36	2.59	2.69	2.76	2.65	2.53	2.44	2.26	2.17	2.20	2.21	2.09	S	2.00	2.00	1.99	2.00	2.24	2.26	2.13	2.22	2.35	2.46	1.99	2.76	2.31
Sep 4	2.75	3.02	3.03	3.20	3.15	3.06	2.92	2.29	2.26	2.25	2.17	2.14	S	2.09	2.11	2.07	2.07	2.08	2.15	2.16	2.15	2.17	2.22	2.20	2.07	3.20	2.42
Sep 5	2.13	2.10	2.10	2.09	2.09	2.11	2.09	2.10	2.03	2.02	2.01	S	2.00	2.01	2.01	2.01	2.01	2.02	2.06	2.17	2.20	2.24	2.37	2.37	2.00	2.37	2.10
Sep 6	2.47	2.56	2.59	2.66	2.77	2.80	2.86	**4.65**	2.39	2.07	S	2.07	2.06	2.04	2.03	2.03	2.03	2.05	2.08	2.10	2.16	2.19	2.20	2.16	2.03	**4.65**	2.39
Sep 7	2.18	2.17	2.17	2.15	2.18	2.20	2.17	2.17	2.20	S	2.15	2.12	2.13	2.12	2.10	2.10	2.13	2.06	2.26	2.39	2.18	2.11	2.11	2.09	2.06	2.39	2.16
Sep 8	2.07	2.06	2.05	2.05	2.04	2.03	2.03	2.03	S	2.03	2.03	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.04	2.04	2.04	2.04	2.03	2.04	2.03	2.07	2.04
Sep 9	2.04	2.04	2.03	2.04	2.04	2.04	2.04	S	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.05	2.04	2.05	2.05	2.05	2.05	2.05	2.20	2.05	2.03	2.20	2.05
Sep 10	2.06	2.06	2.06	2.06	2.06	2.07	S	2.05	2.06	2.06	2.06	2.06	2.05	2.05	2.05	2.05	2.05	2.05	2.06	2.06	2.08	2.07	2.07	2.09	2.05	2.09	2.06
Sep 11	2.09	2.09	2.10	2.10	2.11	S	2.11	2.11	C	C	C	2.08	2.09	2.08	2.08	2.07	2.08	2.07	2.08	2.07	2.08	2.10	2.11	2.13	2.07	2.13	2.09
Sep 12	2.15	2.19	2.27	2.35	S	2.25	2.23	2.17	2.13	2.10	2.09	2.08	2.08	2.12	2.12	2.06	2.05	2.07	2.11	2.15	2.20	2.20	2.20	2.27	2.05	2.35	2.16
Sep 13	2.25	2.31	2.34	S	2.29	2.30	2.27	2.27	2.26	2.21	2.17	2.14	2.13	2.17	2.22	2.24	2.19	2.21	2.37	2.43	2.44	2.57	2.42	2.63	2.13	2.63	2.30
Sep 14	2.89	2.87	S	3.01	2.74	3.11	3.16	3.19	2.66	2.44	2.27	2.23	2.27	2.09	2.07	2.09	2.07	2.08	2.14	2.27	2.39	2.62	2.56	2.72	2.07	3.19	**2.52**
Sep 15	2.83	S	3.04	3.01	2.97	3.13	3.01	2.98	2.58	2.02	2.06	2.04	2.02	2.01	2.01	2.02	2.02	2.02	2.03	2.00	2.00	2.00	2.00	2.03	2.00	3.13	2.34
Sep 16	S	2.05	2.07	2.08	2.11	2.25	2.32	2.35	2.42	2.38	2.25	2.21	2.18	2.26	2.22	2.10	2.08	2.04	2.08	2.08	2.10	2.04	2.12	S	2.04	2.42	2.17
Sep 17	2.15	2.09	2.21	2.24	2.04	2.04	2.03	2.03	2.03	2.01	2.00	1.99	1.99	1.98	1.98	1.99	2.08	2.04	2.06	2.08	2.16	2.20	S	2.22	1.98	2.24	2.07
Sep 18	2.24	2.30	2.35	2.36	2.45	2.54	2.53	2.58	2.23	2.04	2.01	2.00	2.00	2.00	1.99	1.99	2.02	2.14	2.28	2.19	2.23	S	2.43	2.58	1.99	2.58	2.24
Sep 19	2.53	2.58	2.70	2.80	2.80	3.09	2.83	2.72	2.41	2.29	2.26	2.14	2.13	2.04	2.04	2.02	2.04	2.14	2.21	2.23	S	2.23	2.37	2.25	2.02	3.09	2.38
Sep 20	2.51	2.39	2.37	2.63	2.90	2.63	2.63	2.56	2.25	2.10	2.10	2.05	1.98	1.96	1.95	1.96	1.97	2.01	2.06	S	2.09	2.09	2.13	2.16	1.95	2.90	2.24
Sep 21	2.19	2.23	2.23	2.27	2.26	2.31	2.25	2.22	2.19	2.13	2.03	1.97	1.98	1.97	1.97	1.96	1.95	1.96	S	1.99	2.14	2.47	2.48	2.46	1.95	2.48	2.16
Sep 22	2.42	2.35	2.52	2.62	2.65	2.54	2.44	2.53	2.40	2.36	2.18	2.03	2.02	2.03	2.05	2.01	2.01	S	2.20	2.14	2.13	2.41	2.47	2.42	2.01	2.65	2.30
Sep 23	2.87	3.08	2.87	2.62	2.15	1.97	1.96	1.99	2.00	1.99	1.98	1.97	1.97	1.97	1.96	1.96	S	1.98	2.01	2.06	2.05	2.02	2.02	2.02	1.96	3.08	2.15
Sep 24	2.04	2.03	2.03	2.04	2.03	2.02	2.02	2.03	2.03	2.02	1.99	1.98	1.97	1.97	1.98	S	1.99	2.00	2.02	2.05	2.12	2.13	2.18	2.22	1.97	2.22	2.04
Sep 25	2.25	2.28	2.31	2.35	2.37	2.33	2.26	2.20	2.12	2.06	2.03	2.00	1.99	1.99	S	1.99	1.99	1.99	2.09	2.14	2.23	2.28	2.29	2.32	1.99	2.37	2.17
Sep 26	2.33	2.36	2.38	2.37	2.41	2.24	2.21	2.18	2.14	2.14	2.10	2.02	1.99	S	1.97	1.97	1.98	2.01	1.98	1.98	1.98	1.97	1.98	2.02	1.97	2.41	2.12
Sep 27	2.06	2.05	2.02	2.00	2.00	1.99	1.99	2.00	1.99	1.99	1.99	1.99	S	1.99	1.99	2.00	2.00	2.00	2.00	2.03	2.04	2.05	2.06	2.06	1.99	2.06	2.01
Sep 28	2.05	2.06	2.05	2.05	2.05	2.06	2.11	2.13	2.10	2.03	2.02	S	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.05	2.04	2.06	2.07	2.12	2.02	2.13	2.05
Sep 29	2.13	2.09	2.09	2.09	2.06	2.04	2.05	2.04	2.03	2.02	S	2.01	2.01	2.01	2.01	2.02	2.02	2.02	2.02	2.02	2.01	2.01	2.01	2.01	2.01	2.13	2.04
Sep 30	2.02	2.02	2.03	2.02	2.02	2.02	2.02	2.01	2.00	S	1.99	1.99	1.99	1.99	1.98	1.98	1.98	1.99	2.01	2.05	2.02	2.03	2.03	2.04	1.98	2.05	2.01
Diurnal Maximum	2.89	3.08	3.04	3.20	3.15	3.13	3.16	4.65	2.66	2.44	2.27	2.23	2.27	2.26	2.22	2.24	2.19	2.21	2.37	2.43	2.44	2.62	2.56	2.72			
Daiurnal Average	2.29	2.28	2.31	2.36	2.35	2.35	2.33	2.36	2.20	2.12	2.09	2.07	2.05	2.04	2.04	2.03	2.03	2.04	2.10	2.12	2.13	2.17	2.20	2.23			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for THC - Cold Lake South Station



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Instantaneous Maximums

METHANE (CH4) in ppm

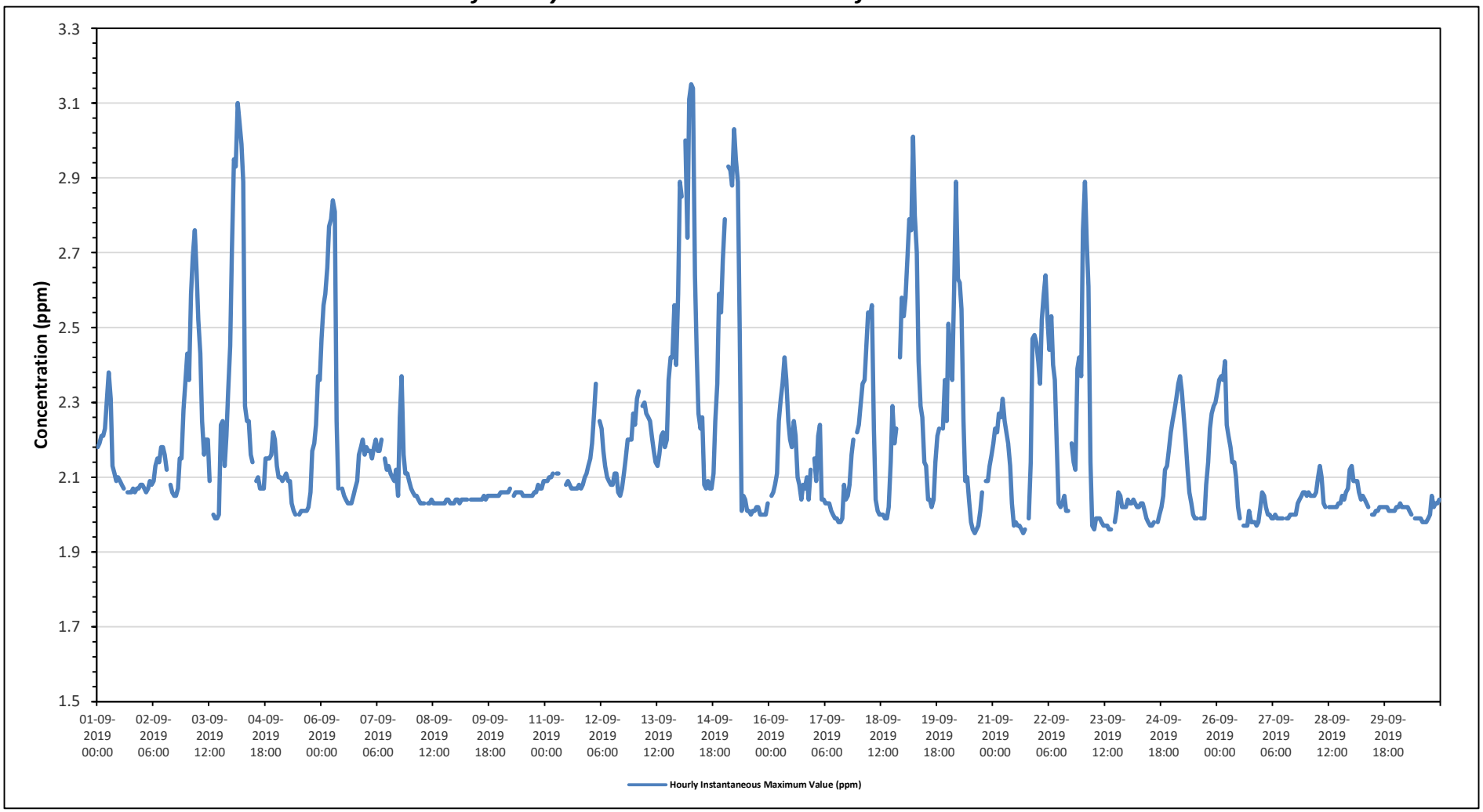
Maximum Hourly Value:	3.15	ppm	on September 14 at hour 6	Hours in Service:	720
Maximum Daily Value:	2.50	ppm	on September 14	Hours of Data:	686
Minimum Hourly Value:	1.95	ppm	on September 20 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	2.01	ppm	on September 30	Hours of Calibration:	34
Monthly Average:	2.17	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	2.18	2.19	2.21	2.21	2.23	2.31	2.38	2.31	2.13	2.11	2.09	2.10	2.09	2.08	2.07	S	2.06	2.06	2.06	2.07	2.06	2.07	2.07	2.08	2.06	2.38	2.14
Sep 2	2.08	2.07	2.06	2.07	2.09	2.08	2.09	2.13	2.15	2.14	2.18	2.18	2.16	2.12	S	2.08	2.06	2.05	2.05	2.07	2.15	2.15	2.28	2.35	2.05	2.35	2.12
Sep 3	2.43	2.36	2.59	2.69	2.76	2.65	2.52	2.43	2.25	2.16	2.20	2.20	2.09	S	2.00	1.99	1.99	2.00	2.24	2.25	2.13	2.21	2.33	2.45	1.99	2.76	2.30
Sep 4	2.71	2.95	2.93	3.10	3.05	2.99	2.89	2.29	2.25	2.25	2.16	2.14	S	2.09	2.10	2.07	2.07	2.07	2.15	2.15	2.15	2.16	2.22	2.20	2.07	3.10	2.40
Sep 5	2.13	2.10	2.10	2.09	2.10	2.11	2.09	2.09	2.03	2.01	2.00	S	2.00	2.01	2.01	2.01	2.01	2.02	2.06	2.17	2.19	2.24	2.37	2.36	2.00	2.37	2.10
Sep 6	2.47	2.56	2.59	2.66	2.77	2.79	2.84	2.81	2.25	2.07	S	2.07	2.05	2.04	2.03	2.03	2.03	2.05	2.07	2.09	2.16	2.18	2.20	2.16	2.03	2.84	2.30
Sep 7	2.18	2.17	2.17	2.15	2.18	2.20	2.17	2.17	2.20	S	2.15	2.12	2.13	2.11	2.10	2.09	2.12	2.05	2.26	2.37	2.16	2.11	2.11	2.09	2.05	2.37	2.15
Sep 8	2.07	2.06	2.05	2.05	2.04	2.03	2.03	2.03	S	2.03	2.03	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.04	2.04	2.03	2.03	2.03	2.03	2.07	2.04
Sep 9	2.04	2.04	2.03	2.04	2.04	2.04	2.04	S	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.05	2.04	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.03	2.05	2.04
Sep 10	2.06	2.06	2.06	2.06	2.06	2.07	S	2.05	2.06	2.06	2.06	2.06	2.05	2.05	2.05	2.05	2.05	2.05	2.06	2.06	2.08	2.07	2.07	2.09	2.05	2.09	2.06
Sep 11	2.09	2.09	2.10	2.10	2.11	S	2.11	2.11	C	C	C	2.08	2.09	2.08	2.07	2.07	2.07	2.07	2.08	2.07	2.08	2.10	2.11	2.13	2.07	2.13	2.09
Sep 12	2.15	2.19	2.27	2.35	S	2.25	2.23	2.17	2.13	2.10	2.09	2.08	2.08	2.11	2.11	2.06	2.05	2.07	2.11	2.15	2.20	2.20	2.20	2.27	2.05	2.35	2.16
Sep 13	2.24	2.31	2.33	S	2.29	2.30	2.27	2.26	2.25	2.21	2.17	2.14	2.13	2.16	2.21	2.22	2.18	2.20	2.36	2.42	2.42	2.56	2.40	2.59	2.13	2.59	2.29
Sep 14	2.89	2.85	S	3.00	2.74	3.11	**3.15**	3.14	2.64	2.43	2.27	2.23	2.26	2.08	2.07	2.09	2.07	2.07	2.11	2.25	2.35	2.59	2.54	2.68	2.07	**3.15**	**2.50**
Sep 15	2.79	S	2.93	2.92	2.88	3.03	2.95	2.89	2.51	2.01	2.05	2.04	2.01	2.01	2.00	2.01	2.01	2.02	2.02	2.00	2.00	2.00	2.00	2.03	2.00	3.03	2.31
Sep 16	S	2.05	2.06	2.08	2.11	2.25	2.31	2.35	2.42	2.36	2.25	2.20	2.18	2.25	2.21	2.10	2.08	2.04	2.08	2.07	2.10	2.04	2.12	S	2.04	2.42	2.17
Sep 17	2.15	2.09	2.21	2.24	2.04	2.04	2.03	2.03	2.03	2.01	2.00	1.99	1.99	1.98	1.98	1.99	2.08	2.04	2.05	2.08	2.16	2.20	S	2.22	1.98	2.24	2.07
Sep 18	2.24	2.30	2.35	2.36	2.45	2.54	2.53	2.56	2.23	2.04	2.01	2.00	2.00	2.00	1.99	1.99	2.02	2.14	2.29	2.19	2.23	S	2.42	2.58	1.99	2.58	2.24
Sep 19	2.53	2.58	2.69	2.79	2.76	3.01	2.80	2.70	2.41	2.29	2.26	2.14	2.13	2.04	2.04	2.02	2.04	2.14	2.21	2.23	S	2.23	2.36	2.25	2.02	3.01	2.38
Sep 20	2.51	2.39	2.36	2.61	2.89	2.63	2.62	2.55	2.25	2.09	2.10	2.04	1.98	1.96	1.95	1.96	1.97	2.01	2.06	S	2.09	2.09	2.13	2.16	1.95	2.89	2.23
Sep 21	2.19	2.23	2.22	2.27	2.26	2.31	2.25	2.22	2.19	2.13	2.03	1.97	1.98	1.97	1.97	1.96	1.95	1.96	S	1.99	2.14	2.47	2.48	2.46	1.95	2.48	2.16
Sep 22	2.41	2.35	2.52	2.59	2.64	2.52	2.44	2.53	2.40	2.36	2.18	2.03	2.02	2.03	2.05	2.01	2.01	S	2.19	2.14	2.12	2.39	2.42	2.37	2.01	2.64	2.29
Sep 23	2.76	2.89	2.73	2.61	2.14	1.97	1.96	1.99	1.99	1.99	1.98	1.97	1.97	1.97	1.96	1.96	S	1.98	2.01	2.06	2.05	2.02	2.02	2.02	1.96	2.89	2.13
Sep 24	2.04	2.03	2.03	2.04	2.03	2.02	2.02	2.03	2.03	2.01	1.99	1.98	1.97	1.97	1.98	S	1.98	2.00	2.02	2.05	2.12	2.13	2.17	2.22	1.97	2.22	2.04
Sep 25	2.25	2.28	2.31	2.35	2.37	2.33	2.26	2.20	2.12	2.06	2.03	2.00	1.99	1.99	S	1.99	1.99	1.99	2.08	2.14	2.23	2.27	2.29	2.30	1.99	2.37	2.17
Sep 26	2.33	2.36	2.37	2.36	2.41	2.24	2.21	2.18	2.14	2.14	2.10	2.02	1.99	S	1.97	1.97	1.97	2.01	1.98	1.98	1.98	1.97	1.98	2.02	1.97	2.41	2.12
Sep 27	2.06	2.05	2.02	2.00	2.00	1.99	1.99	2.00	1.99	1.99	1.99	1.99	S	1.99	1.99	2.00	2.00	2.00	2.00	2.03	2.04	2.05	2.06	2.06	1.99	2.06	2.01
Sep 28	2.05	2.06	2.05	2.05	2.05	2.06	2.10	2.13	2.10	2.03	2.02	S	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.05	2.04	2.06	2.07	2.12	2.02	2.13	2.05
Sep 29	2.13	2.09	2.09	2.09	2.06	2.04	2.05	2.04	2.03	2.02	S	2.00	2.00	2.01	2.01	2.02	2.02	2.02	2.02	2.02	2.01	2.01	2.01	2.01	2.00	2.13	2.03
Sep 30	2.02	2.02	2.03	2.02	2.02	2.02	2.02	2.01	2.00	S	1.99	1.99	1.99	1.99	1.98	1.98	1.98	1.99	2.00	2.05	2.02	2.03	2.03	2.04	1.98	2.05	2.01
Diurnal Maximum	2.89	2.95	2.93	3.10	3.05	3.11	3.15	3.14	2.64	2.43	2.27	2.23	2.26	2.25	2.21	2.22	2.18	2.20	2.36	2.42	2.42	2.59	2.54	2.68			
Daiurnal Average	2.28	2.27	2.29	2.34	2.33	2.34	2.32	2.29	2.19	2.12	2.09	2.07	2.05	2.04	2.04	2.03	2.03	2.04	2.09	2.11	2.12	2.16	2.19	2.22			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for CH4 - Cold Lake South Station



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Instantaneous Maximums

NON-METHANE HYDROCARBONS (NMHC) in ppm

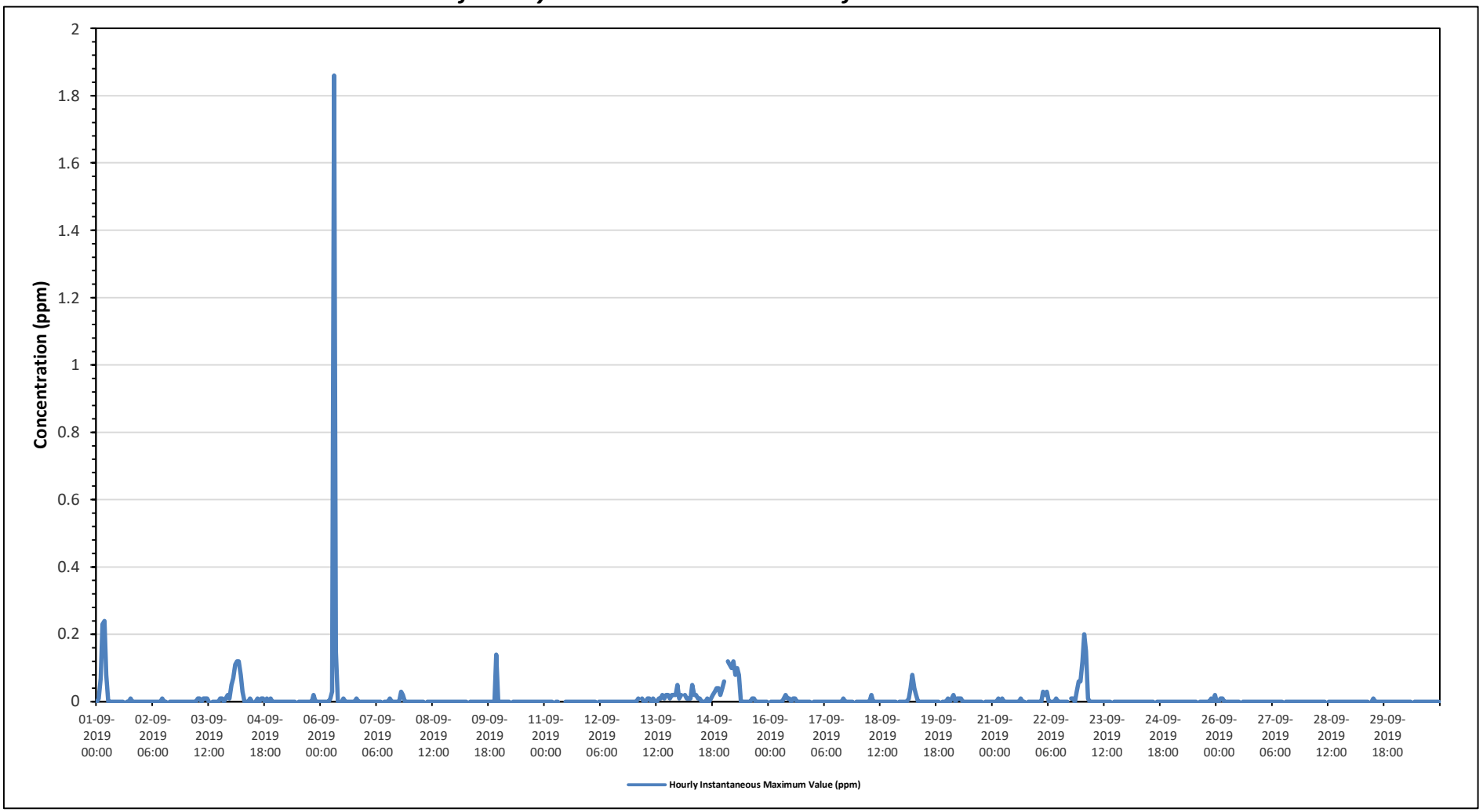
Maximum Hourly Value:	1.86	ppm	on September 6 at hour 7	Hours in Service:	720
Maximum Daily Value:	0.09	ppm	on September 6	Hours of Data:	686
Minimum Hourly Value:	0.00	ppm	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.00	ppm	on September 8	Hours of Calibration:	34
Monthly Average:	0.01	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	0.00	0.01	0.07	0.23	0.24	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.03
Sep 2	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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Sep 3	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.01	0.00	S	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.02	0.01	0.00	0.02	0.00
Sep 4	0.05	0.07	0.11	0.12	0.12	0.08	0.03	0.00	0.00	0.00	0.01	0.00	S	0.00	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.12	0.03
Sep 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	0.02	0.00	0.00	0.00	0.00	0.02	0.00
Sep 6	0.00	0.00	0.00	0.00	0.00	0.01	0.03	**1.86**	0.15	0.00	S	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	**1.86**	**0.09**
Sep 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	0.01	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.03	0.00
Sep 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
Sep 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	0.00	0.14	0.00	0.00	0.14	0.01
Sep 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
Sep 11	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	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	0.00	0.00	0.00
Sep 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
Sep 13	0.00	0.00	0.01	S	0.01	0.00	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.01	0.01	0.02	0.01	0.02	0.02	0.01	0.02	0.02	0.02	0.05	0.00	0.05	0.01
Sep 14	0.01	0.02	S	0.02	0.01	0.01	0.01	0.05	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.02	0.03	0.04	0.04	0.02	0.04	0.00	0.05	0.02
Sep 15	0.06	S	0.12	0.11	0.10	0.12	0.08	0.10	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.03
Sep 16	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.02	0.00
Sep 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	0.01	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.01	0.00
Sep 18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.02	0.00
Sep 19	0.00	0.00	0.00	0.01	0.04	0.08	0.04	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	S	0.00	0.00	0.00	0.00	0.08	0.01
Sep 20	0.01	0.00	0.01	0.02	0.00	0.01	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	S	0.00	0.00	0.00	0.00	0.00	0.02	0.00
Sep 21	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Sep 22	0.00	0.00	0.00	0.03	0.02	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	S	0.01	0.01	0.00	0.03	0.06	0.06	0.00	0.06	0.01
Sep 23	0.12	0.20	0.15	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.02
Sep 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sep 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.02	0.00
Sep 26	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Sep 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	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
Sep 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
Sep 29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Sep 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
Diurnal Maximum	0.12	0.20	0.15	0.23	0.24	0.12	0.08	1.86	0.15	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.02	0.02	0.03	0.04	0.04	0.14	0.06			
Daiurnal Average	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.07	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	0.01			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for NMHC - Cold Lake South Station



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2019

Summary of Hourly Instantaneous Maximums

WIND SPEED (WS) in km/hr

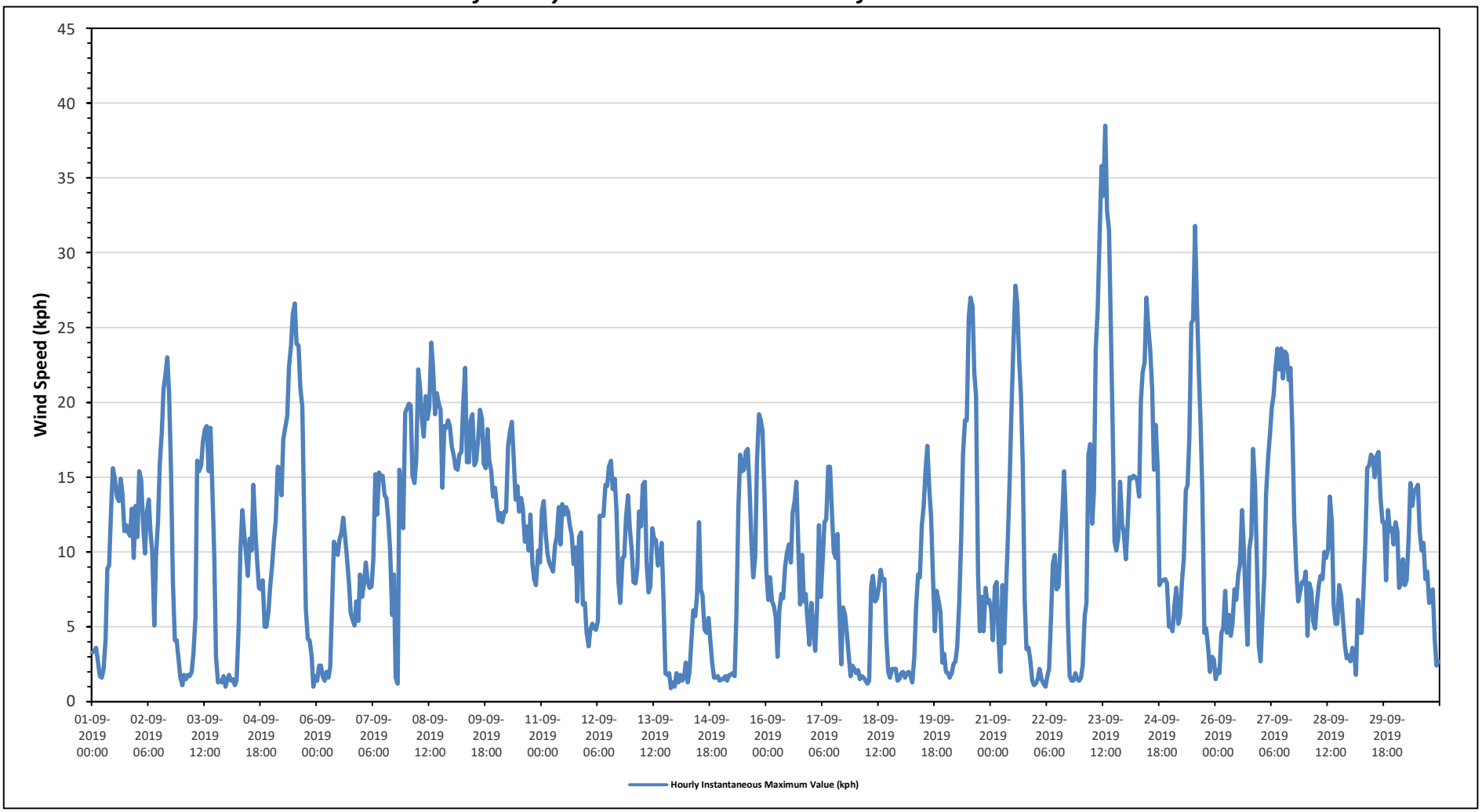
Maximum Hourly Value:	38.5	kph	on September 23 at hour 13	Hours in Service:	720
Maximum Daily Value:	19.1	kph	on September 8	Hours of Data:	720
Minimum Hourly Value:	0.9	kph	on September 13 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	3.8	kph	on September 14	Hours of Calibration:	0
Monthly Average:	10.2	kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	3.3	3.4	3.6	2.6	1.7	1.6	2.2	4.2	8.9	9.1	12.9	15.6	14.9	13.7	13.4	14.9	13.9	11.4	11.8	11.3	11.1	12.9	9.6	13.1	1.6	15.6	9.2
Sep 2	11.0	15.4	14.8	12.0	9.9	12.6	13.5	11.3	10.0	5.1	9.8	12.1	15.9	18.0	20.9	21.9	23.0	20.6	15.2	8.1	4.1	4.1	2.8	1.6	1.6	23.0	12.2
Sep 3	1.1	1.8	1.5	1.8	1.7	2.0	3.2	5.6	16.1	15.4	15.8	17.4	18.2	18.4	15.4	18.3	14.5	9.8	3.0	1.3	1.4	1.3	1.7	1.0	1.0	18.4	7.8
Sep 4	1.5	1.8	1.4	1.5	1.1	1.4	4.9	10.0	12.8	11.3	10.0	8.4	10.9	10.1	14.5	11.4	9.4	7.6	7.5	8.1	5.0	5.0	6.0	7.7	1.1	14.5	7.1
Sep 5	9.2	10.8	12.1	15.7	15.6	13.8	17.5	18.4	19.1	22.4	23.8	25.9	26.6	23.9	23.8	21.0	19.7	12.8	6.2	4.2	4.1	3.1	1.0	1.7	1.0	26.6	14.7
Sep 6	1.4	2.4	2.4	1.7	1.4	2.0	1.6	2.3	6.7	10.7	10.4	9.8	10.8	11.3	12.3	10.9	9.6	7.9	5.9	5.5	5.1	6.7	5.4	8.5	1.4	12.3	6.4
Sep 7	7.0	7.8	9.3	8.1	7.6	7.7	9.5	15.2	12.5	15.3	14.9	15.1	13.8	13.6	12.1	10.1	5.8	8.5	1.6	1.2	15.5	13.1	11.6	19.3	1.2	19.3	10.7
Sep 8	19.6	19.9	19.8	15.1	14.6	16.2	22.2	21.0	18.8	17.7	20.4	18.9	19.7	24.0	22.3	19.2	20.6	19.9	19.5	14.3	18.4	18.3	18.8	18.4	14.3	24.0	**19.1**
Sep 9	17.0	16.4	15.6	15.5	16.5	16.7	19.8	22.3	16.0	16.0	18.8	19.2	15.8	16.1	17.6	19.5	18.9	15.9	15.6	18.2	16.1	15.4	13.7	14.3	13.7	22.3	17.0
Sep 10	13.1	12.1	12.6	12.0	12.7	12.7	17.1	18.0	18.7	16.4	13.5	14.4	12.7	13.6	12.9	10.7	11.7	10.1	12.5	9.2	8.2	7.8	10.1	9.3	7.8	18.7	12.6
Sep 11	12.8	13.4	11.2	9.9	9.3	9.0	8.7	10.4	11.0	13.0	10.5	13.2	12.5	13.0	12.7	11.8	11.1	9.2	10.3	6.7	11.0	11.3	6.5	6.6	6.5	13.4	10.6
Sep 12	4.6	3.7	4.8	5.2	4.9	4.8	5.4	12.4	12.4	12.4	14.5	14.4	15.7	16.1	14.2	14.9	12.8	8.0	6.6	9.6	9.7	12.3	13.8	11.6	3.7	16.1	10.2
Sep 13	10.1	8.0	7.9	8.9	12.7	11.7	14.5	14.7	9.3	7.3	7.7	11.6	10.9	10.8	9.1	9.5	10.6	7.1	1.9	1.8	1.9	**0.9**	1.3	1.0	**0.9**	14.7	8.0
Sep 14	1.9	1.3	1.8	1.4	1.6	2.6	1.3	2.0	4.2	6.1	5.7	7.1	12.0	7.5	7.1	4.8	4.6	5.6	4.1	2.5	1.6	1.6	1.7	1.4	1.3	12.0	**3.8**
Sep 15	1.5	1.5	1.7	1.4	1.8	1.8	1.9	1.7	5.9	13.0	16.5	15.4	15.5	16.7	16.9	14.5	10.6	8.3	9.7	16.1	19.2	18.8	18.1	13.7	1.4	19.2	10.1
Sep 16	8.8	6.8	8.3	6.7	6.4	5.6	3.0	6.1	7.2	6.9	9.0	9.9	10.5	9.3	12.6	13.4	14.7	10.2	6.5	9.8	6.7	7.2	5.3	3.8	3.0	14.7	8.1
Sep 17	6.6	4.9	3.4	6.1	11.8	7.0	9.2	12.0	12.2	15.7	15.7	12.5	10.0	9.6	11.2	6.3	2.5	6.3	5.8	4.6	3.0	1.7	2.4	2.2	1.7	15.7	7.6
Sep 18	1.9	2.1	1.5	1.7	1.6	1.4	1.2	1.4	7.7	8.4	6.7	6.9	7.7	8.8	8.1	8.2	4.4	2.0	1.6	2.2	2.2	2.2	1.4	1.5	1.2	8.8	3.9
Sep 19	1.9	2.0	1.6	1.9	2.0	1.7	1.3	3.0	6.3	8.5	8.3	11.8	13.0	15.5	17.1	14.4	12.3	8.5	4.7	7.4	6.7	6.0	2.6	3.2	1.3	17.1	6.7
Sep 20	2.0	1.9	1.6	1.9	2.5	2.7	3.7	6.6	11.1	16.5	18.8	18.8	25.7	27.0	26.4	22.0	20.4	8.5	4.7	7.0	4.7	7.6	6.6	6.8	1.6	27.0	10.6
Sep 21	6.2	4.1	7.7	8.0	4.1	2.0	7.8	3.9	7.3	11.0	14.8	20.0	23.9	27.8	26.6	22.8	20.5	15.9	6.7	3.5	3.6	2.8	1.4	1.1	1.1	27.8	10.6
Sep 22	1.2	1.5	2.2	1.5	1.2	1.0	1.7	2.2	5.7	9.2	9.8	7.5	7.7	10.2	12.6	15.4	12.1	5.4	1.7	1.4	1.4	1.9	1.5	1.4	1.0	15.4	4.9
Sep 23	1.6	2.4	5.7	6.6	16.5	17.2	11.9	14.1	23.5	26.3	30.8	35.8	33.8	**38.5**	32.8	31.5	25.2	18.8	10.7	10.1	11.0	14.7	11.9	11.2	1.6	**38.5**	18.4
Sep 24	9.5	12.1	15.0	14.9	15.1	15.0	14.8	13.7	20.1	22.0	22.7	27.0	24.9	23.5	20.9	15.5	18.5	15.6	7.8	8.1	8.1	8.2	7.9	5.0	5.0	27.0	15.2
Sep 25	5.1	4.7	6.5	7.6	5.2	5.7	8.1	9.5	14.1	14.5	17.6	25.3	25.5	31.8	26.7	22.0	18.5	13.9	4.6	4.9	3.6	2.0	3.0	2.8	2.0	31.8	11.8
Sep 26	1.5	2.1	1.9	4.6	4.9	7.4	4.6	5.8	4.4	5.2	7.5	6.8	8.5	9.2	12.8	10.3	6.4	3.8	10.2	11.1	16.9	14.4	9.6	3.7	1.5	16.9	7.2
Sep 27	2.7	5.5	8.5	13.9	16.3	17.8	19.7	20.5	22.4	23.6	22.2	23.6	21.6	23.4	23.2	21.5	22.3	17.9	12.3	8.9	6.7	7.3	8.0	7.9	2.7	23.6	15.7
Sep 28	8.7	4.4	7.9	7.4	5.4	4.9	6.5	7.8	8.4	8.2	10.0	9.6	10.2	13.7	12.0	6.5	5.2	5.2	7.8	7.1	5.5	3.8	2.9	3.1	2.9	13.7	7.2
Sep 29	2.7	3.6	3.3	1.8	6.8	4.6	4.6	7.4	10.9	15.6	15.8	16.5	16.3	15.0	16.4	16.7	13.6	12.0	12.0	8.1	12.8	11.4	11.6	10.5	1.8	16.7	10.4
Sep 30	12.0	11.4	7.6	7.9	9.5	7.8	8.1	10.9	14.6	13.1	14.1	14.2	14.5	11.4	10.1	10.6	8.2	8.7	6.6	6.8	7.5	4.2	2.4	2.7	2.4	14.6	9.4
Diurnal Maximum	19.6	19.9	19.8	15.7	16.5	17.8	22.2	22.3	23.5	26.3	30.8	35.8	33.8	38.5	32.8	31.5	25.2	20.6	19.5	18.2	19.2	18.8	18.8	19.3			
Daiurnal Average	6.3	6.3	6.8	6.8	7.4	7.3	8.3	9.8	11.9	13.2	14.3	15.5	16.0	16.7	16.5	15.0	13.4	10.5	7.8	7.3	7.8	7.6	6.7	6.5			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for WS - Cold Lake South Station



MASKWA STATION

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Instantaneous Maximums

SULPHUR DIOXIDE (SO_2) in ppb

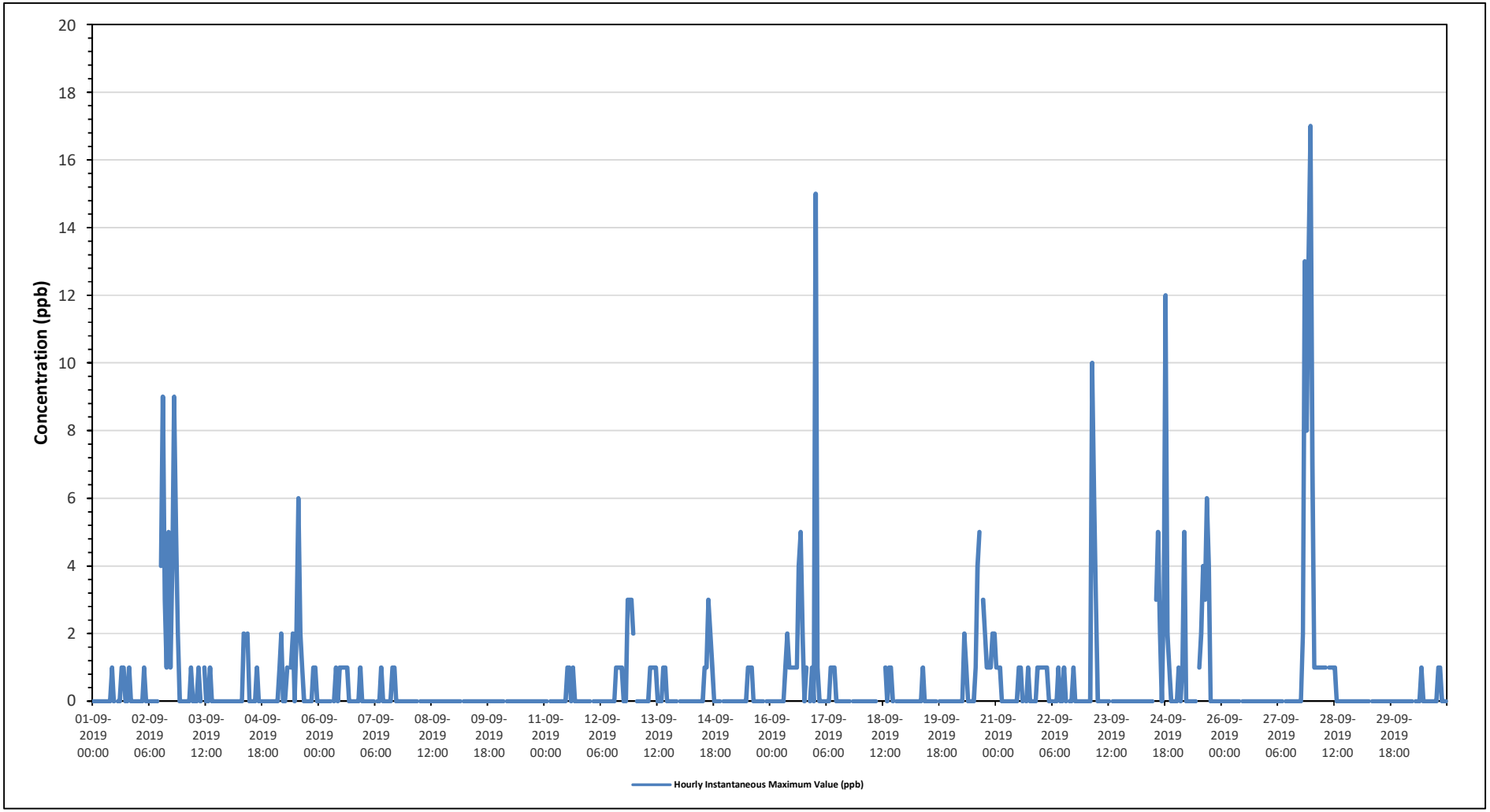
Maximum Hourly Value:	17	ppb	on September 27 at hour 23	Hours in Service:	720
Maximum Daily Value:	2.3	ppb	on September 27	Hours of Data:	685
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 8	Hours of Calibration:	35
Monthly Average:	0.5	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	0	0	0	0	0	0	0	0	0	0	1	0	S	0	0	1	1	0	0	1	0	0	0	0	0	1	0.2
Sep 2	0	0	0	1	0	0	0	0	0	0	0	S	4	9	3	1	5	1	4	9	5	2	0	0	0	9	1.9
Sep 3	0	0	0	0	1	0	0	0	1	0	S	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.2
Sep 4	0	0	0	0	0	0	0	0	2	S	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0.2
Sep 5	0	0	0	1	2	0	0	1	S	1	2	0	2	6	2	1	0	0	0	0	0	1	1	0	0	6	0.9
Sep 6	0	0	0	0	0	0	0	S	0	1	0	1	1	1	1	1	0	0	0	0	0	0	1	0	0	1	0.3
Sep 7	0	0	0	0	0	0	S	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0.1
Sep 8	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 9	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 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	0.0
Sep 11	0	0	S	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	1	0.1
Sep 12	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	3	3	3	2	0	3	0.7
Sep 13	S	0	0	0	0	0	0	0	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	S	0	1	0.3
Sep 14	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	2	1	0	0	0	0	S	0	0	3	0.3
Sep 15	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	S	0	0	0	1	0.1
Sep 16	0	0	0	0	0	0	0	0	1	2	1	1	1	1	1	4	5	2	0	1	S	0	1	0	0	5	0.9
Sep 17	15	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	S	0	0	0	0	0	15	0.8
Sep 18	0	0	0	0	0	0	0	0	0	C	C	C	C	1	0	1	1	0	S	0	0	0	0	0	0	1	0.2
Sep 19	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	0.0
Sep 20	0	0	0	0	0	0	0	2	1	0	0	0	0	1	4	5	S	3	2	1	1	1	2	2	0	5	1.1
Sep 21	1	1	1	0	0	0	0	0	0	0	0	0	1	1	0	S	0	1	0	0	0	0	1	1	0	1	0.3
Sep 22	1	1	1	1	0	0	0	0	0	1	0	0	1	0	S	0	0	1	0	0	0	0	0	0	0	1	0.3
Sep 23	0	0	0	10	6	3	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	10	0.8
Sep 24	0	0	0	0	0	0	0	0	0	0	0	0	S	3	5	2	0	3	12	2	1	0	0	0	0	12	1.2
Sep 25	0	1	0	1	5	0	0	0	0	0	0	S	1	2	4	3	6	4	0	0	0	0	0	0	0	6	1.2
Sep 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	0.0
Sep 27	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	2	13	8	13	**17**	0	**17**	**2.3**
Sep 28	7	1	1	1	1	1	1	1	S	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	7	0.8
Sep 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	0.0
Sep 30	0	0	0	0	0	0	S	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0.1
Diurnal Maximum	15	1	1	10	6	3	1	2	2	2	2	1	4	9	5	5	6	4	12	9	13	8	13	17			
Daiurnal Average	0.8	0.2	0.1	0.5	0.5	0.1	0.0	0.1	0.3	0.4	0.4	0.2	0.5	1.0	0.8	0.9	0.8	0.6	0.6	0.6	0.8	0.5	0.8	0.8			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for SO2 - Maskwa Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Instantaneous Maximums

HYDROGEN SULPHIDE (H_2S) in ppb

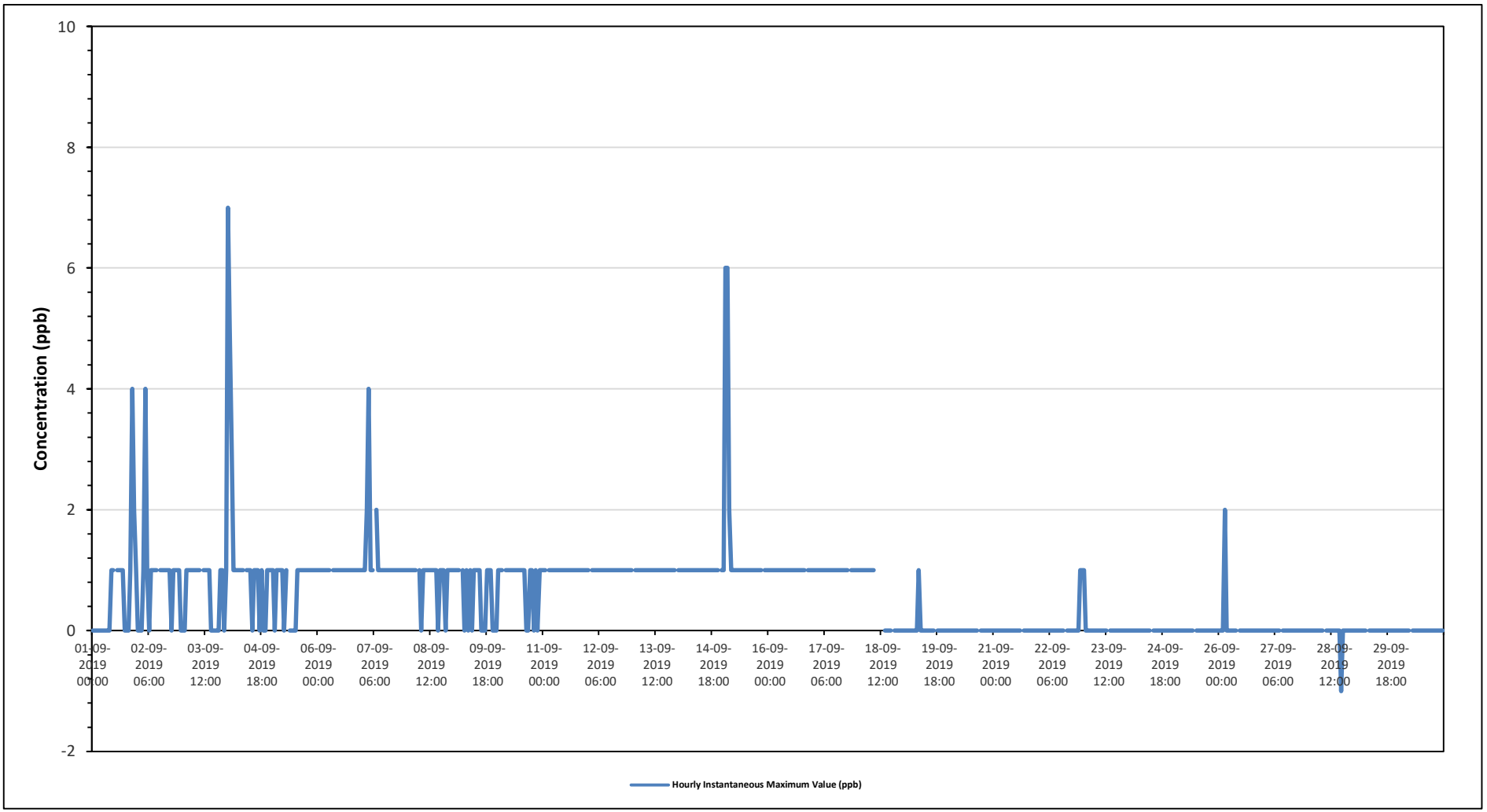
Maximum Hourly Value:	7	ppb	on September 4 at hour 0	Hours in Service:	720
Maximum Daily Value:	1.5	ppb	on September 15	Hours of Data:	684
Minimum Hourly Value:	-1	ppb	on September 28 at hour 17	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 28	Hours of Calibration:	36
Monthly Average:	0.6	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	0	0	0	0	0	0	0	0	0	0	1	1	S	1	1	1	1	0	0	0	1	4	2	1	0	4	0.6
Sep 2	0	0	0	1	4	1	0	1	1	1	1	S	1	1	1	1	1	1	0	0	1	1	1	0	0	4	0.9
Sep 3	0	0	1	1	1	1	1	1	1	1	S	1	1	1	1	0	0	0	0	0	1	1	0	1	0	1	0.7
Sep 4	7	5	3	1	1	1	1	1	1	S	1	1	1	0	1	1	1	0	1	0	0	1	1	1	0	7	1.3
Sep 5	1	0	1	1	1	1	0	1	S	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	0.7
Sep 6	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	1.0
Sep 7	1	1	2	4	1	1	S	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1.2
Sep 8	1	1	1	1	1	S	1	0	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	1	0.9
Sep 9	1	1	1	1	S	1	0	1	0	1	0	1	1	1	1	0	0	0	1	1	1	0	0	0	0	1	0.6
Sep 10	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	1	0	1	1	0	1	0.8
Sep 11	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Sep 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	1.0
Sep 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	1.0
Sep 14	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	1.0
Sep 15	1	6	6	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	6	1.5
Sep 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	1.0
Sep 17	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	1.0
Sep 18	1	1	1	1	1	1	1	1	1	C	C	C	C	C	0	0	0	0	S	0	0	0	0	0	0	1	0.5
Sep 19	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	0.0
Sep 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	0.0
Sep 21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0.0
Sep 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	1	0	1	0.1
Sep 23	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	1	0.0
Sep 24	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 25	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 26	0	0	0	2	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1
Sep 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	0.0
Sep 28	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	-1	0	0.0
Sep 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	0.0
Sep 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	0.0
Diurnal Maximum	7	6	6	4	4	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	4	2	1			
Daiurnal Average	0.7	0.8	0.8	0.8	0.7	0.6	0.5	0.6	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.4	0.4	0.5	0.4	0.5	0.6	0.6	0.5			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for H2S - Maskwa Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Instantaneous Maximums

OXIDES OF NITROGEN (NOx) in ppb

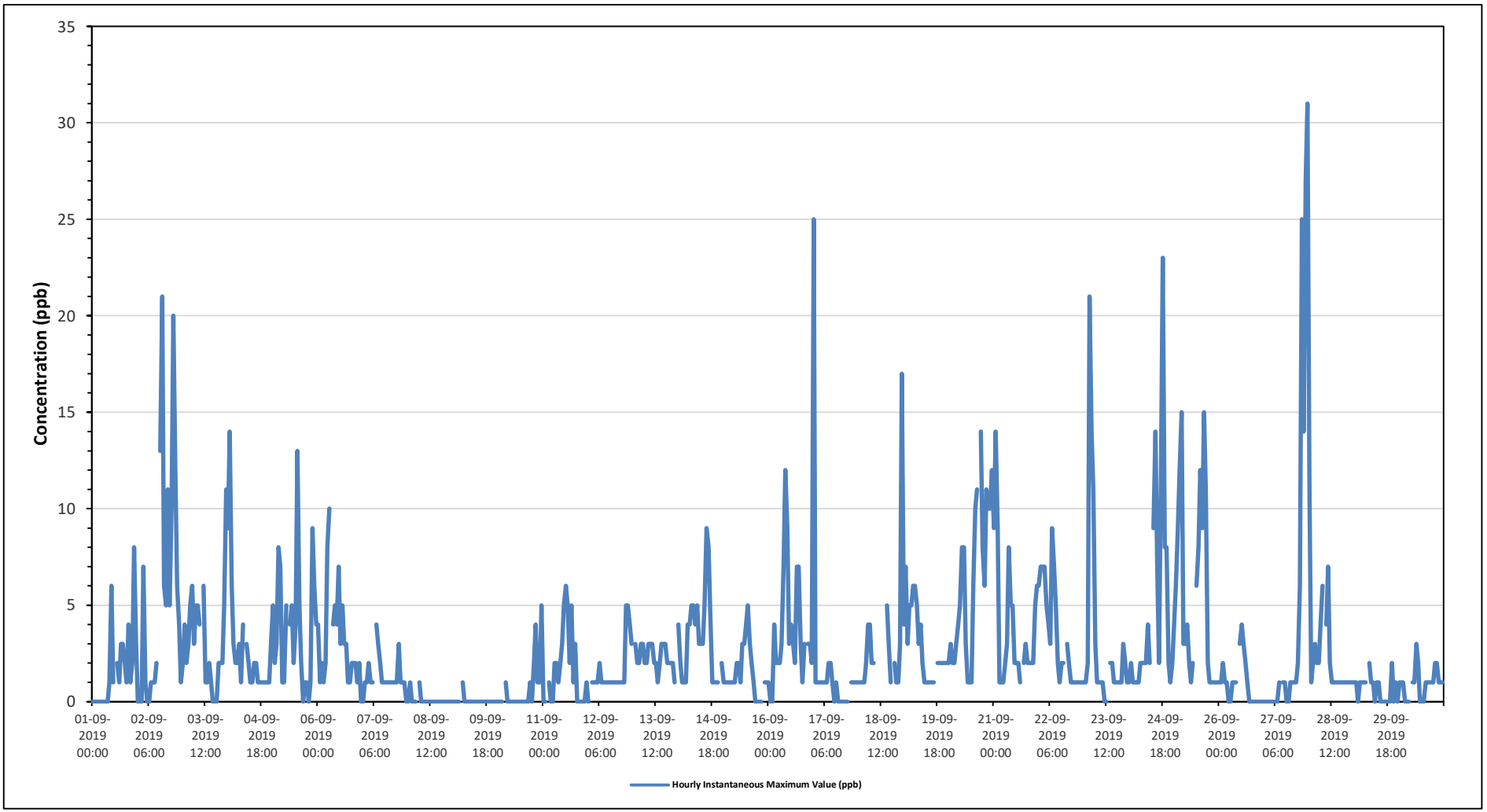
Maximum Hourly Value:	31	ppb	on September 27 at hour 23	Hours in Service:	720
Maximum Daily Value:	6.1	ppb	on September 20	Hours of Data:	683
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 9	Hours of Calibration:	37
Monthly Average:	2.7	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	0	0	0	0	0	0	0	0	0	1	6	1	S	2	1	3	3	2	1	4	1	2	8	3	0	8	1.7
Sep 2	0	0	0	7	1	0	0	1	1	1	2	S	13	21	6	5	11	5	10	20	12	6	4	1	0	21	5.5
Sep 3	2	4	2	3	5	6	3	5	5	4	S	6	1	1	2	1	0	0	0	2	2	2	5	11	0	11	3.1
Sep 4	9	14	6	3	2	2	3	1	4	S	3	2	1	1	2	2	1	1	1	1	1	1	1	3	1	14	2.8
Sep 5	5	2	3	8	7	1	1	5	S	4	5	2	4	13	5	2	0	1	1	0	1	9	6	4	0	13	3.9
Sep 6	4	1	2	1	2	8	10	S	4	5	4	7	3	5	3	3	1	1	2	2	2	1	2	0	0	10	3.2
Sep 7	0	1	1	2	1	1	S	4	3	2	1	1	1	1	1	1	1	1	1	3	1	1	1	0	0	4	1.3
Sep 8	0	1	0	0	0	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 9	0	0	0	0	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Sep 10	0	0	0	S	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	4	1	1	5	0	5	0.7
Sep 11	0	0	S	1	0	0	2	2	1	2	3	5	6	5	2	5	1	3	0	0	0	0	0	1	0	6	1.7
Sep 12	0	S	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	4	3	0	5	1.6
Sep 13	S	3	2	2	3	3	2	2	3	3	3	2	2	1	2	3	3	3	2	2	2	2	1	S	1	3	2.3
Sep 14	4	2	1	1	1	4	4	5	5	4	5	3	3	3	5	9	8	4	1	1	1	1	S	2	1	9	3.3
Sep 15	1	1	1	1	1	1	1	2	2	1	3	3	4	5	3	2	1	0	0	0	0	S	1	1	0	5	1.5
Sep 16	1	0	0	4	2	2	2	3	7	12	9	3	4	3	2	7	7	3	1	3	S	3	3	2	0	12	3.6
Sep 17	25	1	1	1	1	1	1	1	2	2	1	0	1	0	0	0	0	0	0	S	1	1	1	1	0	25	1.8
Sep 18	1	1	1	1	2	4	4	2	2	C	C	C	C	C	C	5	3	1	S	2	1	1	3	17	1	17	-
Sep 19	4	7	3	5	5	6	6	5	3	4	2	1	1	1	1	1	1	S	2	2	2	2	2	2	1	7	3.0
Sep 20	2	3	2	2	3	4	5	8	8	3	1	1	1	6	10	11	S	14	8	6	11	10	10	12	1	14	6.1
Sep 21	9	14	9	1	1	1	2	3	8	5	5	2	2	2	1	S	2	3	2	2	2	2	5	6	1	14	3.9
Sep 22	6	7	7	7	5	4	3	9	7	5	2	1	2	2	S	3	2	1	1	1	1	1	1	1	1	9	3.4
Sep 23	1	1	2	21	14	11	3	1	1	1	1	0	0	S	2	2	1	1	1	1	1	3	2	1	0	21	3.1
Sep 24	1	2	1	1	1	1	2	2	2	2	4	2	S	9	14	7	2	12	23	8	8	2	1	2	1	23	4.7
Sep 25	4	6	9	12	15	3	3	4	2	1	2	S	6	8	12	9	15	11	2	1	1	1	1	1	1	15	5.6
Sep 26	1	1	2	1	1	0	0	1	1	1	S	3	4	3	2	1	0	0	0	0	0	0	0	0	0	4	1.0
Sep 27	0	0	0	0	0	0	0	0	1	S	1	1	0	0	1	1	1	1	2	6	25	14	27	31	0	31	4.9
Sep 28	11	1	2	3	2	2	4	6	S	4	7	2	1	1	1	1	1	1	1	1	1	1	1	1	1	11	2.4
Sep 29	1	1	0	1	1	1	1	S	2	1	1	0	1	1	0	0	0	0	0	0	2	0	1	0	0	2	0.7
Sep 30	1	1	1	0	0	0	S	1	1	3	2	0	0	0	1	1	1	1	1	2	2	1	1	1	0	3	1.0
Diurnal Maximum	25	14	9	21	15	11	10	9	8	12	9	7	13	21	14	11	15	14	23	20	25	14	27	31			
Daiurnal Average	3.2	2.6	2.0	3.1	2.7	2.3	2.3	2.6	2.7	2.7	2.7	1.8	2.3	3.4	2.9	3.0	2.3	2.5	2.2	2.5	3.1	2.5	3.2	3.9			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for NOx - Maskwa Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Instantaneous Maximums

NITRIC OXIDE (NO) in ppb

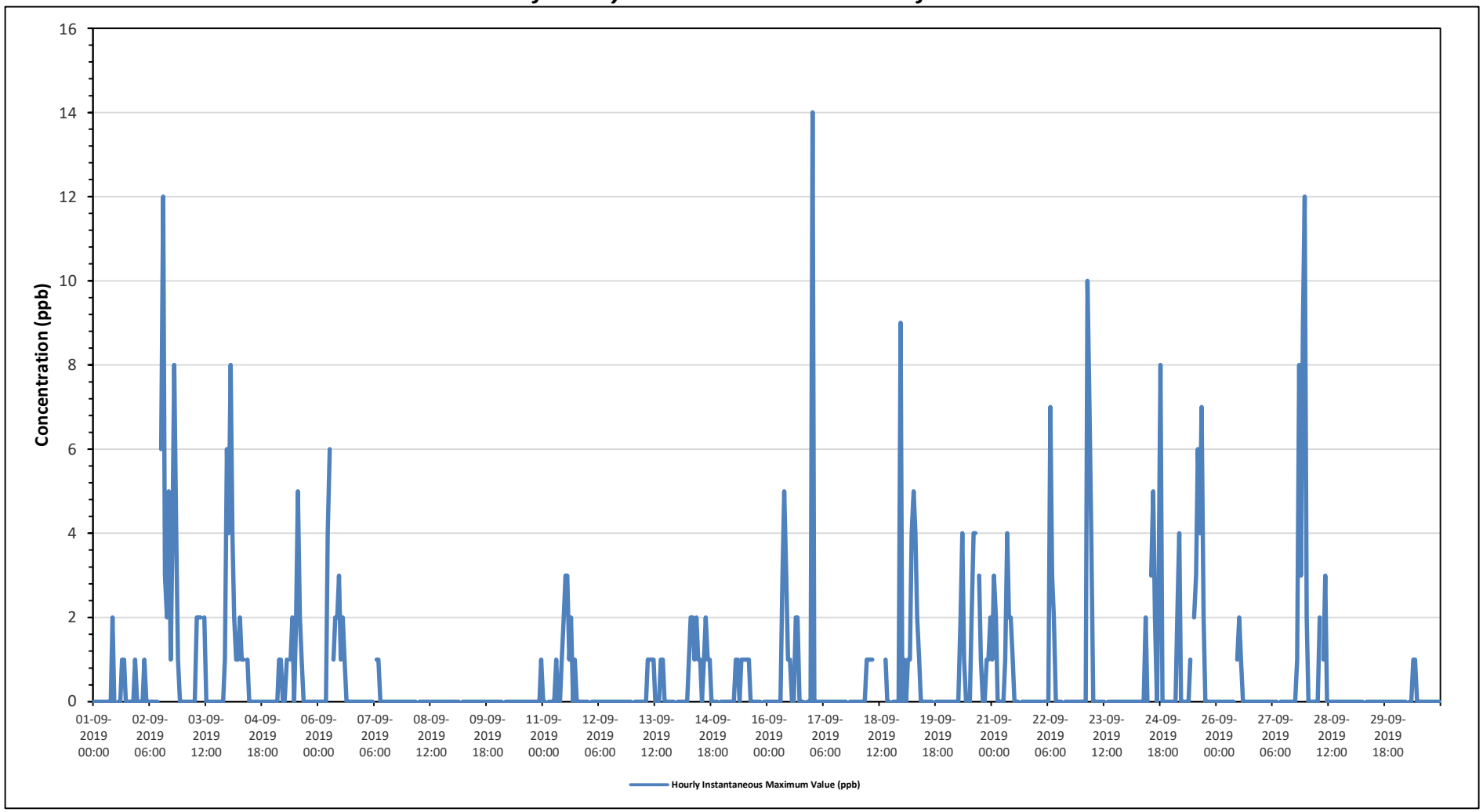
Maximum Hourly Value:	14	ppb	on September 17 at hour 0	Hours in Service:	720
Maximum Daily Value:	2.0	ppb	on September 2	Hours of Data:	683
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 8	Hours of Calibration:	37
Monthly Average:	0.6	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	0	0	0	0	0	0	0	0	0	0	2	0	S	0	0	1	1	0	0	0	0	0	1	0	0	2	0.2
Sep 2	0	0	0	1	0	0	0	0	0	0	0	S	6	12	3	2	5	1	4	8	4	1	0	0	0	12	**2.0**
Sep 3	0	0	0	0	0	0	0	2	2	2	S	2	0	0	0	0	0	0	0	0	0	0	1	6	0	6	0.7
Sep 4	4	8	4	2	1	1	2	1	1	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	1.1
Sep 5	0	0	0	1	1	0	0	1	S	1	2	0	2	5	2	1	0	0	0	0	0	0	0	0	0	5	0.7
Sep 6	0	0	0	0	0	4	6	S	1	2	2	3	1	2	1	0	0	0	0	0	0	0	0	0	0	6	1.0
Sep 7	0	0	0	0	0	0	S	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 8	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 9	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 10	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.0
Sep 11	0	0	S	0	0	0	0	1	0	0	1	2	3	3	1	2	0	1	0	0	0	0	0	0	0	3	0.6
Sep 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	0.0
Sep 13	S	0	0	0	0	0	0	0	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	S	0	1	0.3
Sep 14	0	0	0	0	0	0	1	2	2	1	2	1	1	0	1	2	1	1	0	0	0	0	S	0	0	2	0.7
Sep 15	0	0	0	0	0	0	0	1	1	0	1	1	1	1	1	0	0	0	0	0	0	S	0	0	0	1	0.3
Sep 16	0	0	0	0	0	0	0	0	3	5	3	1	1	0	0	2	2	0	0	0	S	0	0	0	0	5	0.7
Sep 17	**14**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	**14**	0.6
Sep 18	0	0	0	0	0	1	1	1	1	C	C	C	C	C	C	1	0	0	S	0	0	0	0	9	0	9	-
Sep 19	0	1	0	1	1	4	5	4	2	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	5	0.8
Sep 20	0	0	0	0	0	0	0	2	4	1	0	0	0	2	4	4	S	3	1	0	0	1	1	2	0	4	1.1
Sep 21	1	3	2	0	0	0	0	1	4	2	2	1	0	0	0	S	0	0	0	0	0	0	0	0	0	4	0.7
Sep 22	0	0	0	0	0	0	0	7	3	2	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	7	0.5
Sep 23	0	0	0	10	7	4	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	10	0.9
Sep 24	0	0	0	0	0	0	0	0	0	0	2	0	S	3	5	2	0	3	8	0	0	0	0	0	0	8	1.0
Sep 25	0	0	0	2	4	0	0	0	0	0	1	S	2	3	6	4	7	2	0	0	0	0	0	0	0	7	1.3
Sep 26	0	0	0	0	0	0	0	0	0	0	S	1	2	1	0	0	0	0	0	0	0	0	0	0	0	2	0.2
Sep 27	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	8	3	9	12	0	12	1.4
Sep 28	2	0	0	0	0	0	0	2	S	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.3
Sep 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	0.0
Sep 30	0	0	0	0	0	0	S	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Diurnal Maximum	14	8	4	10	7	4	6	7	4	5	3	3	6	12	6	4	7	3	8	8	8	3	9	12			
Daiurnal Average	0.7	0.4	0.2	0.6	0.5	0.5	0.5	0.9	0.9	0.7	0.9	0.5	0.7	1.1	0.9	0.8	0.6	0.4	0.4	0.3	0.4	0.2	0.4	1.0			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for NO - Maskwa Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Instantaneous Maximums

NITROGEN DIOXIDE (NO_2) in ppb

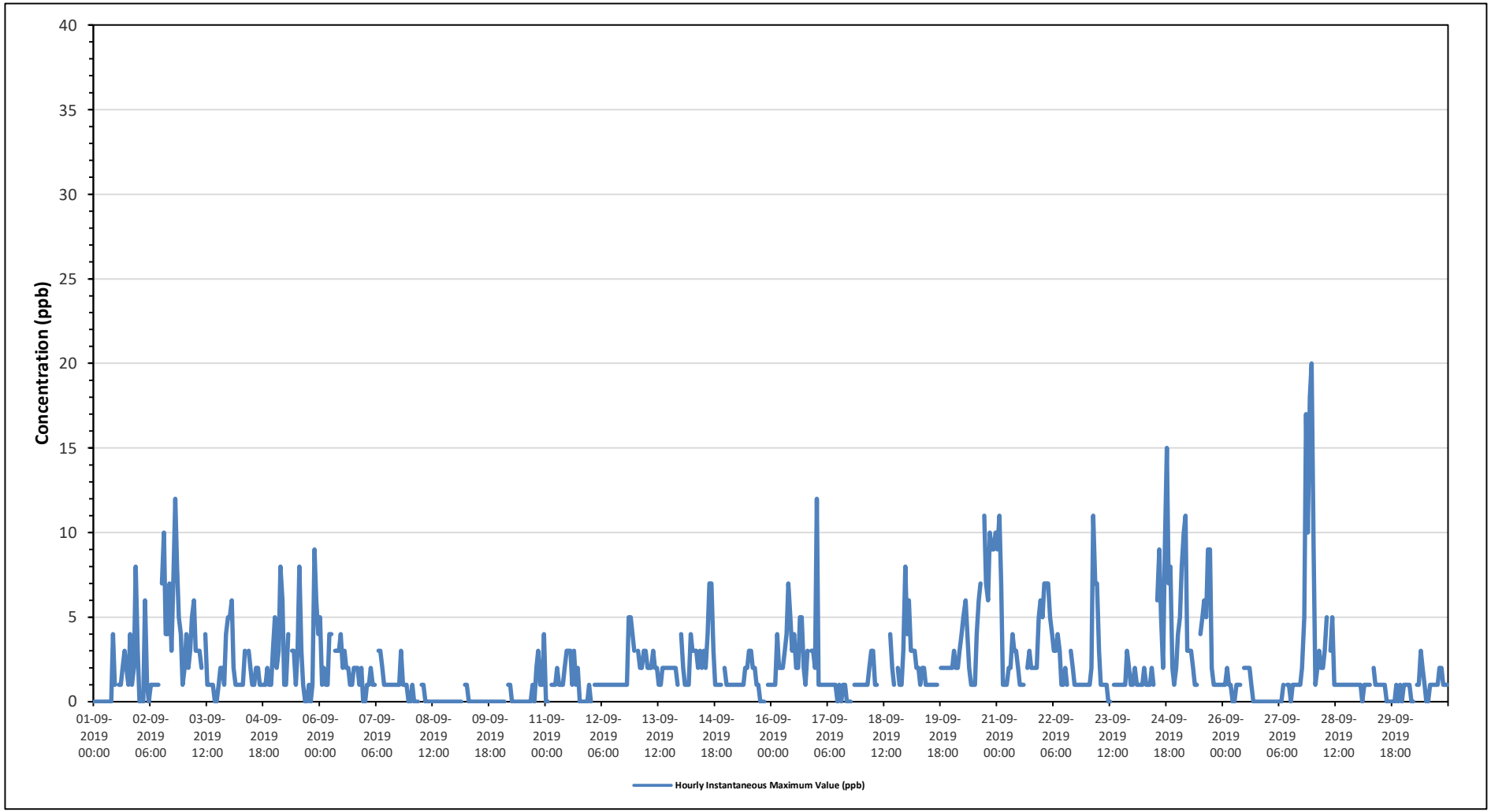
Maximum Hourly Value:	20	ppb	on September 27 at hour 23	Hours in Service:	720
Maximum Daily Value:	5.0	ppb	on September 20	Hours of Data:	683
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.1	ppb	on September 9	Hours of Calibration:	37
Monthly Average:	2.1	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	0	0	0	0	0	0	0	0	0	0	4	1	S	1	1	2	3	2	1	4	1	2	8	3	0	8	1.4
Sep 2	0	0	0	6	1	0	1	1	1	1	1	S	7	10	4	4	7	3	7	12	8	5	4	1	0	12	3.7
Sep 3	2	4	2	3	5	6	3	3	3	2	S	4	1	1	1	1	0	0	1	2	2	1	4	5	0	6	2.4
Sep 4	5	6	2	1	1	1	1	1	3	S	3	2	1	1	2	2	1	1	1	1	2	1	1	3	1	6	1.9
Sep 5	5	2	3	8	6	1	1	4	S	3	3	1	3	8	3	1	0	0	1	0	1	9	6	4	0	9	3.2
Sep 6	5	1	2	1	1	4	4	S	3	3	3	4	2	3	2	2	1	1	2	2	2	1	2	0	0	5	2.2
Sep 7	0	1	1	2	1	1	S	3	3	2	1	1	1	1	1	1	1	1	1	3	1	1	1	0	0	3	1.3
Sep 8	0	1	0	0	0	S	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 9	0	0	0	0	S	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 10	0	0	0	S	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2	3	1	1	4	0	4	0.6
Sep 11	0	0	S	1	1	1	2	1	1	1	2	3	3	3	1	3	1	2	0	0	0	0	0	1	0	3	1.2
Sep 12	0	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	4	3	0	5	1.5
Sep 13	S	3	2	2	3	3	2	2	2	3	2	2	1	1	2	2	2	2	2	2	2	2	1	S	1	3	2.0
Sep 14	4	2	1	1	1	4	3	3	3	2	3	2	3	2	4	7	7	3	1	1	1	1	S	2	1	7	2.7
Sep 15	1	1	1	1	1	1	1	1	1	1	2	2	3	3	2	2	1	1	0	0	0	S	1	1	0	3	1.2
Sep 16	1	1	1	4	2	2	2	3	4	7	5	3	4	2	2	5	5	2	1	3	S	3	3	2	1	7	2.9
Sep 17	12	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	S	1	1	1	1	0	12	1.3
Sep 18	1	1	1	1	2	3	3	1	1	C	C	C	C	C	C	4	2	1	S	2	1	1	3	8	1	8	-
Sep 19	4	6	3	3	3	2	2	1	2	2	1	1	1	1	1	1	1	S	2	2	2	2	2	2	1	6	2.0
Sep 20	2	3	2	2	3	4	5	6	4	2	1	1	1	4	6	7	S	11	7	6	10	9	9	10	1	11	5.0
Sep 21	9	11	7	1	1	1	2	2	4	3	3	2	1	1	1	S	2	3	2	2	2	2	5	6	1	11	3.2
Sep 22	5	7	7	7	5	4	3	3	4	3	1	1	2	1	S	3	2	1	1	1	1	1	1	1	1	7	2.8
Sep 23	1	1	2	11	7	7	3	1	1	1	1	0	0	S	1	1	1	1	1	1	1	3	2	1	0	11	2.1
Sep 24	1	2	1	1	1	1	2	1	1	1	2	1	S	6	9	5	2	9	15	7	8	2	1	2	1	15	3.5
Sep 25	4	5	8	10	11	3	3	3	2	1	1	S	4	5	6	5	9	9	2	1	1	1	1	1	1	11	4.2
Sep 26	1	1	2	1	1	0	0	1	1	1	S	2	2	2	2	1	0	0	0	0	0	0	0	0	0	2	0.8
Sep 27	0	0	0	0	0	0	0	0	1	S	1	1	0	1	1	1	1	1	2	5	17	10	18	20	0	20	3.5
Sep 28	9	1	2	3	2	2	3	5	S	3	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9	2.1
Sep 29	1	1	0	1	1	1	1	S	2	1	1	1	1	1	1	0	0	0	0	0	1	0	1	0	0	2	0.7
Sep 30	1	1	1	1	0	0	S	1	1	3	2	1	0	0	1	1	1	1	1	2	2	1	1	1	0	3	1.0
Diurnal Maximum	12	11	8	11	11	7	5	6	4	7	5	4	7	10	9	7	9	11	15	12	17	10	18	20			
Daiurnal Average	2.6	2.2	1.8	2.6	2.2	1.9	1.8	1.8	1.8	1.8	1.9	1.4	1.6	2.1	2.0	2.2	1.8	2.0	1.8	2.2	2.6	2.3	2.8	2.9			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for NO2 - Maskwa Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Instantaneous Maximums

TOTAL HYDROCARBONS (THC) in ppm

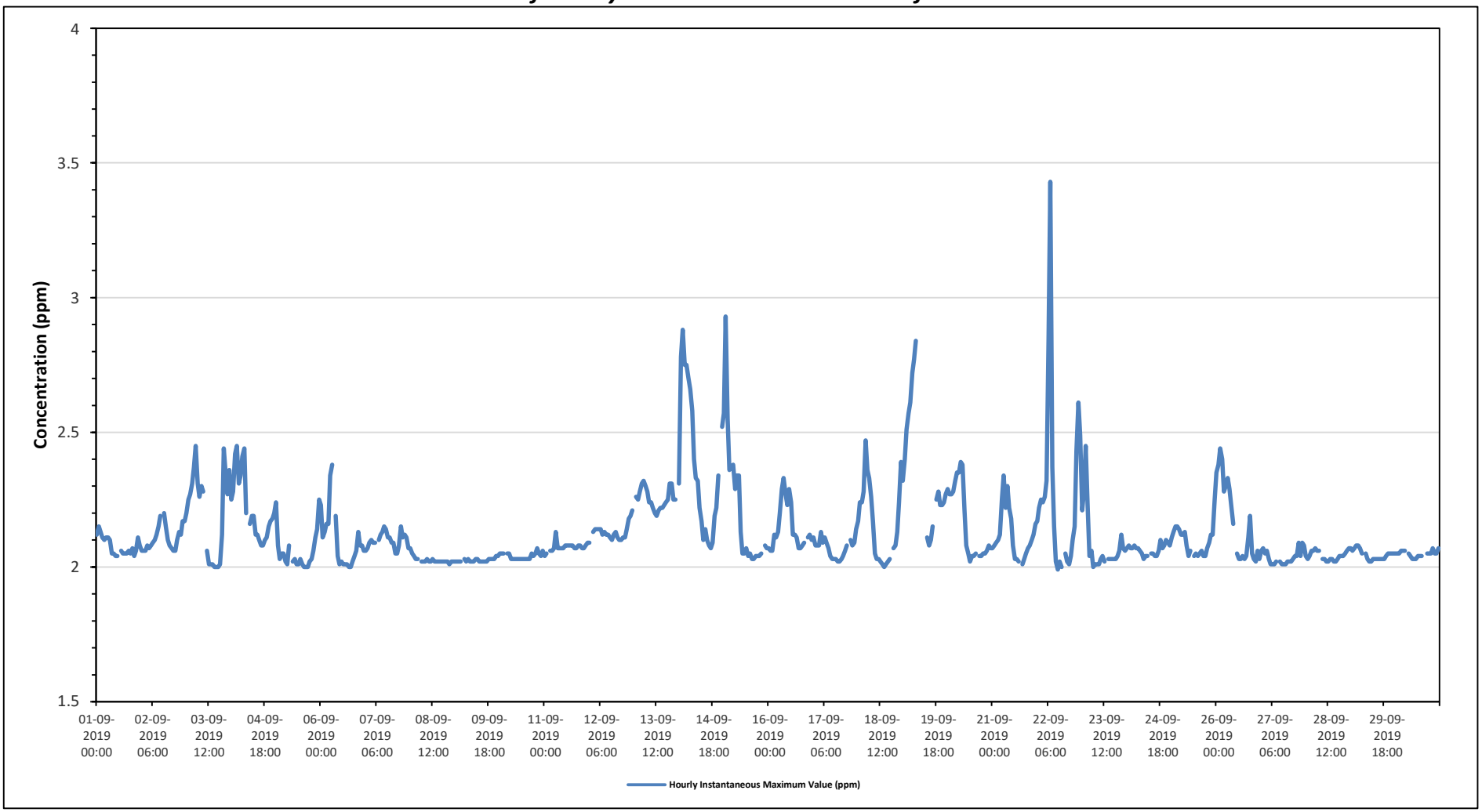
Maximum Hourly Value:	3.43	ppm	on September 22 at hour 7	Hours in Service:	720
Maximum Daily Value:	2.38	ppm	on September 14	Hours of Data:	682
Minimum Hourly Value:	1.99	ppm	on September 22 at hour 11	Hours of Missing Data:	2
Minimum Daily Value:	2.03	ppm	on September 9	Hours of Calibration:	36
Monthly Average:	2.13	ppm		Operational Uptime:	99.7

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	2.12	2.15	2.13	2.11	2.10	2.11	2.11	2.10	2.05	2.05	2.04	2.04	S	2.06	2.05	2.05	2.05	2.06	2.05	2.07	2.04	2.06	2.11	2.08	2.04	2.15	2.08
Sep 2	2.06	2.06	2.06	2.08	2.07	2.08	2.09	2.10	2.12	2.15	2.19	S	2.20	2.15	2.10	2.08	2.07	2.06	2.06	2.10	2.13	2.12	2.17	2.17	2.06	2.20	2.11
Sep 3	2.20	2.25	2.27	2.31	2.37	2.45	2.31	2.26	2.30	2.28	S	2.06	2.01	2.01	2.01	2.00	2.00	2.00	2.01	2.12	2.44	2.34	2.27	2.36	2.00	2.45	2.20
Sep 4	2.25	2.28	2.42	2.45	2.31	2.34	2.41	2.44	2.20	S	2.16	2.19	2.19	2.12	2.12	2.10	2.08	2.08	2.10	2.11	2.15	2.17	2.18	2.20	2.08	2.45	2.22
Sep 5	2.24	2.08	2.03	2.05	2.05	2.02	2.01	2.08	S	2.02	2.03	2.01	2.01	2.03	2.01	2.00	2.00	2.00	2.02	2.03	2.06	2.11	2.14	2.25	2.00	2.25	2.06
Sep 6	2.23	2.11	2.13	2.16	2.16	2.34	2.38	S	2.19	2.04	2.01	2.02	2.01	2.01	2.01	2.00	2.00	2.02	2.04	2.06	2.13	2.08	2.08	2.06	2.00	2.38	2.10
Sep 7	2.06	2.07	2.09	2.10	2.09	2.09	S	2.10	2.12	2.13	2.15	2.14	2.11	2.11	2.09	2.09	2.05	2.05	2.08	2.15	2.11	2.12	2.11	2.07	2.05	2.15	2.10
Sep 8	2.07	2.05	2.04	2.03	2.03	S	2.02	2.02	2.02	2.03	2.02	2.02	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.01	2.02	2.02	2.01	2.07	2.03
Sep 9	2.02	2.02	2.02	2.02	S	2.03	2.02	2.03	2.02	2.02	2.02	2.03	2.03	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.03	2.03	2.04	2.04	2.02	2.04	2.03
Sep 10	2.05	2.05	2.05	S	2.05	2.05	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.05	2.04	2.05	2.07	2.05	2.04	2.06	2.03	2.07	2.04
Sep 11	2.04	2.05	S	2.06	2.06	2.07	2.13	2.07	2.07	2.07	2.07	2.08	2.08	2.08	2.08	2.08	2.07	2.07	2.08	2.08	2.07	2.07	2.08	2.09	2.04	2.13	2.07
Sep 12	2.09	S	2.13	2.14	2.14	2.14	2.14	2.12	2.13	2.12	2.12	2.11	2.10	2.12	2.13	2.11	2.10	2.10	2.11	2.11	2.14	2.18	2.19	2.21	2.09	2.21	2.13
Sep 13	S	2.26	2.25	2.28	2.31	2.32	2.30	2.28	2.24	2.24	2.22	2.20	2.19	2.21	2.22	2.22	2.23	2.24	2.25	2.31	2.31	2.25	2.25	S	2.19	2.32	2.25
Sep 14	2.31	2.78	2.88	2.75	2.75	2.70	2.66	2.58	2.40	2.33	2.32	2.22	2.17	2.10	2.14	2.10	2.08	2.07	2.09	2.19	2.22	2.34	S	2.52	2.07	2.88	**2.38**
Sep 15	2.57	2.93	2.55	2.36	2.37	2.38	2.29	2.34	2.34	2.13	2.05	2.05	2.07	2.04	2.05	2.03	2.03	2.04	2.04	2.04	2.05	S	2.08	2.07	2.03	2.93	2.21
Sep 16	2.07	2.06	2.06	2.12	2.11	2.13	2.20	2.29	2.33	2.27	2.23	2.29	2.24	2.12	2.12	2.11	2.07	2.07	2.08	2.09	S	2.11	2.12	2.10	2.06	2.33	2.15
Sep 17	2.11	2.08	2.08	2.08	2.13	2.09	2.11	2.09	2.07	2.04	2.03	2.03	2.03	2.02	2.02	2.03	2.04	2.06	2.08	S	2.10	2.08	2.09	2.14	2.02	2.14	2.07
Sep 18	2.17	2.24	2.24	2.28	2.47	2.36	2.33	2.26	2.17	2.05	2.03	2.03	2.02	2.01	2.00	2.01	2.02	2.03	S	2.07	2.08	2.13	2.24	2.39	2.00	2.47	2.16
Sep 19	2.32	2.40	2.51	2.57	2.61	2.72	2.77	2.84	C	C	C	C	C	2.11	2.08	2.10	2.15	S	2.25	2.28	2.23	2.23	2.24	2.27	2.08	2.84	2.37
Sep 20	2.29	2.27	2.27	2.28	2.32	2.35	2.35	2.39	2.38	2.21	2.08	2.05	2.02	2.04	2.04	2.05	S	2.04	2.04	2.05	2.05	2.06	2.08	2.07	2.02	2.39	2.16
Sep 21	2.07	2.08	2.09	2.10	2.12	2.25	2.34	2.22	2.30	2.22	2.18	2.08	2.03	2.03	2.02	S	2.01	2.03	2.05	2.07	2.08	2.10	2.12	2.16	2.01	2.34	2.12
Sep 22	2.17	2.22	2.25	2.24	2.26	2.32	2.85	**3.43**	2.37	2.15	2.02	1.99	2.02	2.00	S	2.05	2.02	2.01	2.04	2.10	2.15	2.43	2.61	2.49	1.99	**3.43**	2.27
Sep 23	2.21	2.28	2.45	2.22	2.04	2.06	2.00	2.01	2.01	2.01	2.03	2.04	2.02	S	2.03	2.03	2.03	2.03	2.03	2.04	2.06	2.12	2.07	2.06	2.00	2.45	2.08
Sep 24	2.07	2.08	2.07	2.07	2.08	2.07	2.07	2.06	2.05	2.03	2.04	2.04	S	2.05	2.05	2.04	2.04	2.06	2.10	2.07	2.08	2.10	2.09	2.08	2.03	2.10	2.06
Sep 25	2.11	2.13	2.15	2.15	2.14	2.12	2.12	2.13	2.08	2.04	2.06	S	2.04	2.05	2.04	2.05	2.06	2.04	2.04	2.07	2.09	2.12	2.12	2.25	2.04	2.25	2.10
Sep 26	2.35	2.38	2.44	2.40	2.28	2.30	2.33	2.29	2.22	2.16	S	2.05	2.03	2.03	2.04	2.03	2.04	2.11	2.19	2.05	2.03	2.02	2.06	2.03	2.02	2.44	2.17
Sep 27	2.06	2.07	2.05	2.06	2.03	2.01	2.01	2.01	2.02	S	2.02	2.01	2.01	2.01	2.02	2.02	2.02	2.03	2.04	2.04	2.09	2.04	2.09	2.08	2.01	2.09	2.04
Sep 28	2.04	2.03	2.04	2.06	2.06	2.07	2.06	2.06	S	2.03	2.03	2.02	2.02	2.03	2.03	2.02	2.02	2.03	2.04	2.04	2.04	2.05	2.06	2.07	2.02	2.07	2.04
Sep 29	2.07	2.06	2.07	2.08	2.08	2.07	2.05	S	2.05	2.03	2.02	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.04	2.05	2.05	2.05	2.05	2.02	2.08	2.05
Sep 30	2.05	2.05	2.05	2.06	2.06	2.06	S	2.05	2.04	2.03	2.03	2.03	2.04	2.04	2.04	Y	S1	2.05	2.05	2.05	2.07	2.05	2.05	2.07	2.03	2.07	2.05
Diurnal Maximum	2.57	2.93	2.88	2.75	2.75	2.72	2.85	3.43	2.40	2.33	2.32	2.29	2.24	2.21	2.22	2.22	2.23	2.24	2.25	2.31	2.44	2.43	2.61	2.52			
Daiurnal Average	2.15	2.19	2.20	2.20	2.19	2.21	2.23	2.24	2.16	2.11	2.08	2.07	2.07	2.06	2.06	2.05	2.05	2.05	2.07	2.09	2.11	2.12	2.13	2.16			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for THC - Maskwa Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Instantaneous Maximums

METHANE (CH4) in ppm

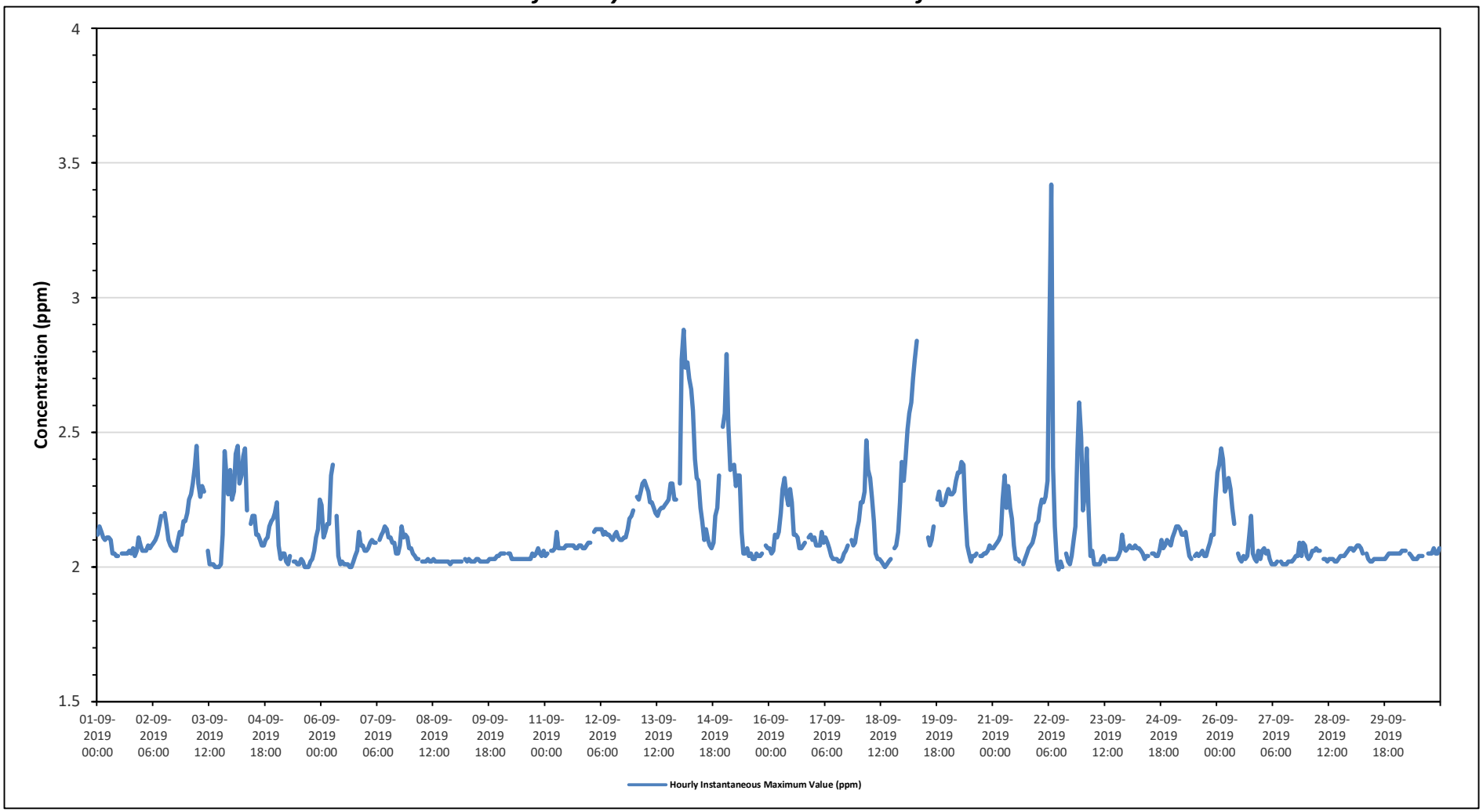
Maximum Hourly Value:	3.42	ppm	on September 22 at hour 7	Hours in Service:	720
Maximum Daily Value:	2.38	ppm	on September 14	Hours of Data:	682
Minimum Hourly Value:	1.99	ppm	on September 22 at hour 11	Hours of Missing Data:	2
Minimum Daily Value:	2.03	ppm	on September 9	Hours of Calibration:	36
Monthly Average:	2.13	ppm		Operational Uptime:	99.7

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	2.12	2.15	2.13	2.11	2.10	2.11	2.11	2.10	2.05	2.05	2.04	2.04	S	2.05	2.05	2.05	2.05	2.06	2.05	2.07	2.04	2.06	2.11	2.08	2.04	2.15	2.08
Sep 2	2.06	2.06	2.06	2.08	2.07	2.08	2.09	2.10	2.12	2.15	2.19	S	2.20	2.15	2.10	2.08	2.07	2.06	2.06	2.10	2.13	2.12	2.17	2.17	2.06	2.20	2.11
Sep 3	2.20	2.25	2.27	2.31	2.37	2.45	2.31	2.26	2.30	2.28	S	2.06	2.01	2.01	2.01	2.00	2.00	2.00	2.01	2.12	2.43	2.34	2.27	2.36	2.00	2.45	2.20
Sep 4	2.25	2.28	2.42	2.45	2.31	2.34	2.41	2.44	2.21	S	2.16	2.19	2.19	2.12	2.12	2.10	2.08	2.08	2.10	2.11	2.15	2.17	2.18	2.20	2.08	2.45	2.22
Sep 5	2.24	2.08	2.03	2.05	2.05	2.02	2.01	2.04	S	2.02	2.02	2.01	2.01	2.03	2.02	2.00	2.00	2.00	2.02	2.03	2.06	2.11	2.14	2.25	2.00	2.25	2.05
Sep 6	2.23	2.11	2.13	2.16	2.16	2.34	2.38	S	2.19	2.04	2.01	2.02	2.01	2.01	2.01	2.00	2.00	2.02	2.04	2.06	2.13	2.08	2.08	2.06	2.00	2.38	2.10
Sep 7	2.06	2.07	2.09	2.10	2.09	2.09	S	2.10	2.12	2.13	2.15	2.14	2.11	2.11	2.09	2.09	2.05	2.05	2.08	2.15	2.11	2.12	2.11	2.07	2.05	2.15	2.10
Sep 8	2.07	2.05	2.04	2.03	2.03	S	2.02	2.02	2.02	2.03	2.02	2.02	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.01	2.02	2.02	2.01	2.07	2.03
Sep 9	2.02	2.02	2.02	2.02	S	2.03	2.02	2.03	2.02	2.02	2.02	2.03	2.03	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.03	2.03	2.04	2.04	2.02	2.04	2.03
Sep 10	2.05	2.05	2.05	S	2.05	2.05	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.05	2.04	2.05	2.07	2.05	2.04	2.06	2.03	2.07	2.04
Sep 11	2.04	2.05	S	2.06	2.06	2.07	2.13	2.07	2.07	2.07	2.07	2.08	2.08	2.08	2.08	2.08	2.07	2.07	2.08	2.08	2.07	2.07	2.08	2.09	2.04	2.13	2.07
Sep 12	2.09	S	2.13	2.14	2.14	2.14	2.14	2.12	2.13	2.12	2.12	2.11	2.10	2.12	2.13	2.11	2.10	2.10	2.11	2.11	2.14	2.18	2.19	2.21	2.09	2.21	2.13
Sep 13	S	2.26	2.25	2.28	2.31	2.32	2.30	2.28	2.24	2.24	2.22	2.20	2.19	2.21	2.22	2.22	2.23	2.24	2.25	2.31	2.31	2.25	2.25	S	2.19	2.32	2.25
Sep 14	2.31	2.77	2.88	2.74	2.76	2.70	2.66	2.58	2.40	2.33	2.32	2.22	2.17	2.10	2.14	2.10	2.08	2.07	2.09	2.19	2.22	2.34	S	2.52	2.07	2.88	**2.38**
Sep 15	2.57	2.79	2.53	2.36	2.37	2.38	2.30	2.34	2.34	2.13	2.05	2.05	2.07	2.04	2.05	2.03	2.03	2.05	2.04	2.04	2.05	S	2.08	2.07	2.03	2.79	2.21
Sep 16	2.07	2.05	2.06	2.12	2.11	2.13	2.20	2.29	2.33	2.27	2.23	2.29	2.24	2.12	2.12	2.11	2.07	2.07	2.08	2.09	S	2.11	2.12	2.10	2.05	2.33	2.15
Sep 17	2.11	2.08	2.08	2.08	2.13	2.09	2.11	2.09	2.07	2.04	2.03	2.03	2.03	2.02	2.02	2.03	2.05	2.06	2.08	S	2.10	2.08	2.09	2.14	2.02	2.14	2.07
Sep 18	2.17	2.24	2.24	2.28	2.47	2.36	2.33	2.26	2.17	2.05	2.03	2.03	2.02	2.01	2.00	2.01	2.02	2.03	S	2.07	2.08	2.13	2.24	2.39	2.00	2.47	2.16
Sep 19	2.32	2.40	2.51	2.57	2.61	2.70	2.77	2.84	C	C	C	C	C	2.11	2.08	2.10	2.15	S	2.25	2.28	2.23	2.23	2.24	2.27	2.08	2.84	2.37
Sep 20	2.29	2.27	2.27	2.28	2.32	2.35	2.35	2.39	2.38	2.21	2.08	2.05	2.02	2.04	2.04	2.05	S	2.04	2.04	2.05	2.05	2.06	2.08	2.07	2.02	2.39	2.16
Sep 21	2.07	2.08	2.09	2.10	2.12	2.25	2.34	2.22	2.30	2.22	2.18	2.08	2.03	2.03	2.02	S	2.01	2.03	2.05	2.07	2.08	2.09	2.12	2.16	2.01	2.34	2.12
Sep 22	2.17	2.22	2.25	2.24	2.26	2.32	2.85	**3.42**	2.37	2.15	2.02	1.99	2.02	2.00	S	2.05	2.02	2.01	2.04	2.10	2.15	2.43	2.61	2.48	1.99	**3.42**	2.27
Sep 23	2.21	2.27	2.44	2.22	2.04	2.06	2.01	2.01	2.01	2.01	2.03	2.04	2.02	S	2.03	2.03	2.03	2.03	2.03	2.04	2.06	2.12	2.07	2.06	2.01	2.44	2.08
Sep 24	2.07	2.08	2.07	2.07	2.08	2.07	2.07	2.06	2.05	2.03	2.04	2.04	S	2.05	2.05	2.04	2.04	2.06	2.10	2.07	2.08	2.10	2.09	2.08	2.03	2.10	2.06
Sep 25	2.11	2.13	2.15	2.15	2.14	2.12	2.12	2.13	2.08	2.04	2.03	S	2.04	2.05	2.04	2.05	2.06	2.04	2.04	2.07	2.09	2.12	2.12	2.25	2.03	2.25	2.09
Sep 26	2.35	2.38	2.44	2.40	2.28	2.30	2.33	2.29	2.22	2.16	S	2.05	2.03	2.02	2.04	2.03	2.04	2.11	2.19	2.05	2.03	2.02	2.06	2.03	2.02	2.44	2.17
Sep 27	2.06	2.07	2.05	2.06	2.03	2.01	2.01	2.01	2.02	S	2.02	2.01	2.01	2.01	2.02	2.02	2.02	2.03	2.04	2.04	2.09	2.04	2.09	2.08	2.01	2.09	2.04
Sep 28	2.04	2.03	2.04	2.06	2.06	2.07	2.06	2.06	S	2.03	2.03	2.02	2.03	2.03	2.03	2.02	2.02	2.03	2.04	2.04	2.04	2.05	2.06	2.07	2.02	2.07	2.04
Sep 29	2.07	2.06	2.07	2.08	2.08	2.07	2.05	S	2.05	2.03	2.02	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.04	2.05	2.05	2.05	2.05	2.02	2.08	2.05
Sep 30	2.05	2.05	2.05	2.06	2.06	2.06	S	2.05	2.04	2.03	2.03	2.03	2.04	2.04	2.04	Y	S1	2.05	2.05	2.05	2.07	2.05	2.05	2.07	2.03	2.07	2.05
Diurnal Maximum	2.57	2.79	2.88	2.74	2.76	2.70	2.85	3.42	2.40	2.33	2.32	2.29	2.24	2.21	2.22	2.22	2.23	2.24	2.25	2.31	2.43	2.43	2.61	2.52			
Daiurnal Average	2.15	2.19	2.20	2.20	2.20	2.21	2.23	2.24	2.16	2.11	2.08	2.07	2.07	2.06	2.06	2.05	2.05	2.05	2.07	2.09	2.11	2.12	2.13	2.16			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for CH4 - Maskwa Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Instantaneous Maximums

NON-METHANE HYDROCARBONS (NMHC) in ppm

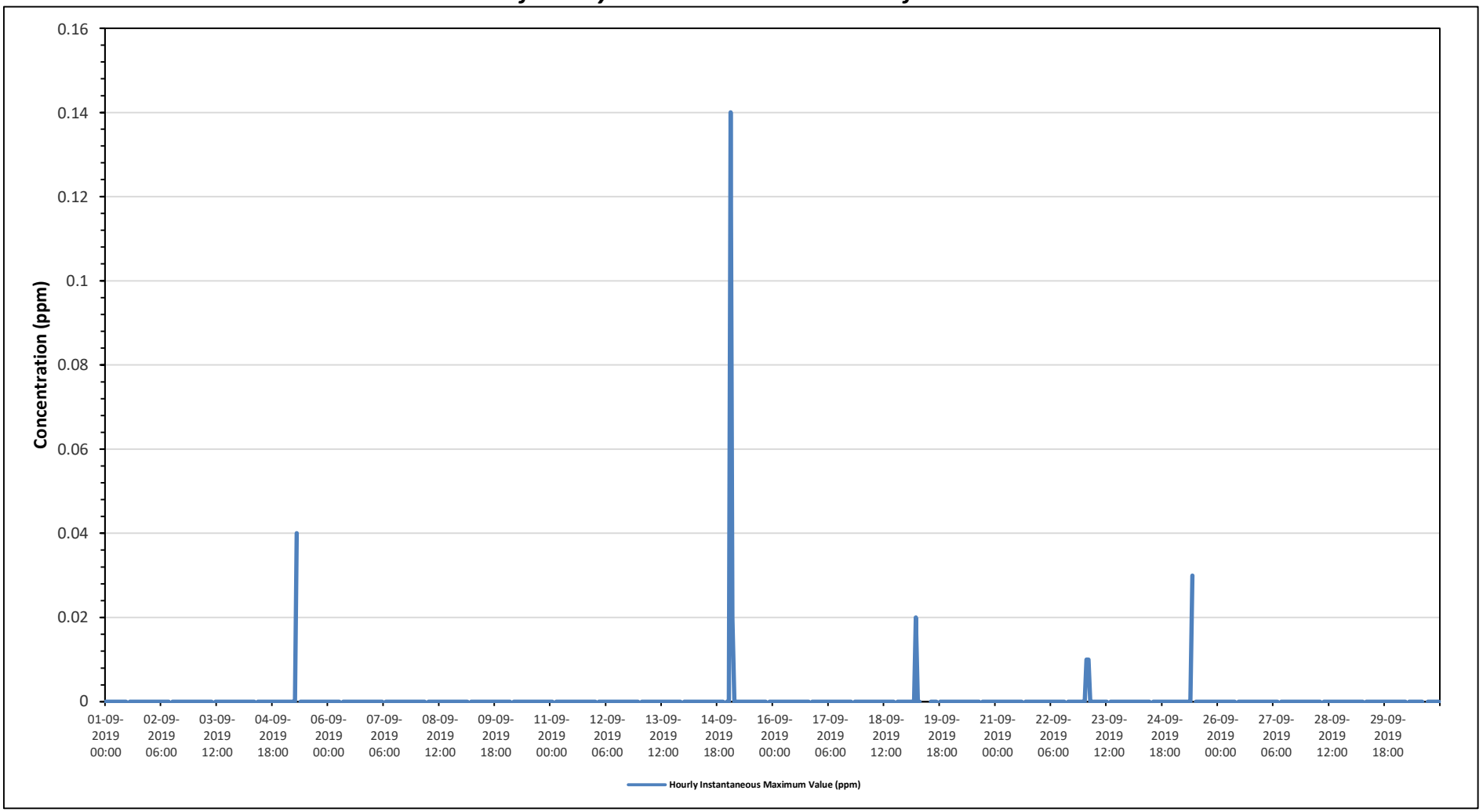
Maximum Hourly Value:	0.14	ppm	on September 15 at hour 1	Hours in Service:	720
Maximum Daily Value:	0.01	ppm	on September 15	Hours of Data:	682
Minimum Hourly Value:	0.00	ppm	on September 1 at hour 0	Hours of Missing Data:	2
Minimum Daily Value:	0.00	ppm	on September 1	Hours of Calibration:	36
Monthly Average:	0.00	ppm		Operational Uptime:	99.7

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 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
Sep 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
Sep 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sep 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
Sep 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	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	0.04	0.00
Sep 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
Sep 7	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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 12	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sep 13	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
Sep 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
Sep 15	0.00	**0.14**	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	**0.14**	**0.01**
Sep 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
Sep 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
Sep 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
Sep 19	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	C	C	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	0.02	0.00
Sep 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
Sep 21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Sep 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	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
Sep 23	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Sep 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
Sep 25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	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	0.03	0.00
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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	Y	S1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diurnal Maximum	0.00	0.14	0.02	0.00	0.00	0.02	0.00	0.04	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			
Daiurnal Average	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for NMHC - Maskwa Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - September 2019

Summary of Hourly Instantaneous Maximums

WIND SPEED (WS) in km/hr

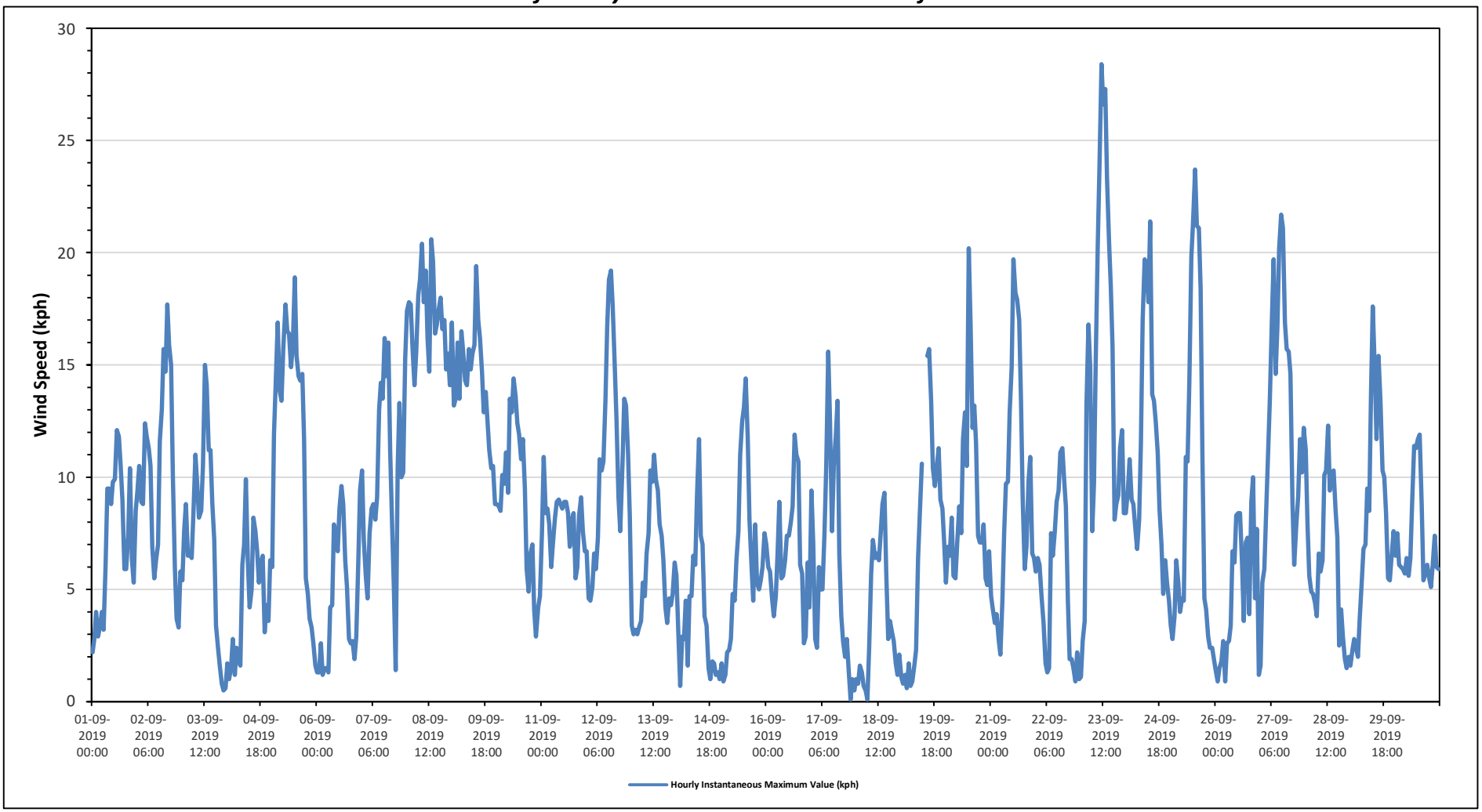
Maximum Hourly Value:	28.4	kph	on September 23 at hour 11	Hours in Service:	720
Maximum Daily Value:	17.1	kph	on September 8	Hours of Data:	718
Minimum Hourly Value:	0.1	kph	on September 17 at hour 21	Hours of Missing Data:	0
Minimum Daily Value:	3.7	kph	on September 18	Hours of Calibration:	2
Monthly Average:	8.4	kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	2.2	2.8	4.0	2.9	3.3	4.0	3.2	6.1	9.5	9.5	8.8	9.8	9.9	12.1	11.8	10.5	9.0	5.9	5.9	7.4	10.4	6.3	5.3	8.5	2.2	12.1	7.0
Sep 2	9.4	10.5	8.9	8.8	12.4	11.8	11.3	10.5	6.9	5.5	6.3	7.0	11.6	13.0	15.7	14.7	17.7	15.9	15.0	10.1	6.0	3.7	3.3	5.8	3.3	17.7	10.1
Sep 3	5.4	7.6	8.8	6.5	6.6	6.4	8.4	11.0	9.7	8.2	8.5	10.5	15.0	14.1	11.2	11.2	8.9	7.2	3.4	2.4	1.6	0.8	0.5	0.6	0.5	15.0	7.3
Sep 4	1.7	1.0	1.5	2.8	1.2	2.4	1.9	1.6	6.1	7.0	9.9	6.2	4.2	5.0	8.2	7.6	6.7	5.3	6.2	6.5	3.1	4.3	3.6	6.3	1.0	9.9	4.6
Sep 5	6.0	11.9	14.2	16.9	13.9	13.4	15.7	17.7	16.5	16.4	14.9	15.8	18.9	15.4	14.5	14.3	14.6	11.7	5.5	4.8	3.7	3.3	2.6	1.6	1.6	18.9	11.8
Sep 6	1.3	1.3	2.6	1.2	1.5	1.5	1.3	4.2	4.3	7.9	7.5	6.7	8.6	9.6	8.8	6.3	5.1	2.8	2.6	2.7	1.9	2.9	6.2	9.4	1.2	9.6	4.5
Sep 7	10.3	7.2	5.6	4.6	7.5	8.6	8.8	8.1	9.1	13.0	14.2	13.5	16.2	14.5	16.0	11.2	7.8	5.0	1.4	10.4	13.3	10.0	10.2	15.3	1.4	16.2	10.1
Sep 8	17.4	17.8	17.7	15.8	14.1	15.6	18.1	18.8	20.4	17.8	19.2	16.2	14.7	20.6	19.6	16.4	16.8	17.5	18.0	16.6	17.0	14.8	15.5	14.1	14.1	20.6	**17.1**
Sep 9	16.9	13.2	13.5	16.0	13.5	16.5	15.6	14.3	14.1	15.7	14.8	15.5	15.9	19.4	17.0	16.2	14.7	12.9	13.8	12.5	11.2	10.4	10.5	8.8	8.8	19.4	14.3
Sep 10	8.8	8.7	8.5	10.1	9.7	11.1	9.3	13.5	12.9	14.4	13.6	12.4	11.9	10.8	11.7	9.5	5.9	4.9	6.6	7.0	4.1	2.9	4.2	4.7	2.9	14.4	9.1
Sep 11	7.5	10.9	8.4	8.6	7.9	6.0	7.1	8.2	8.9	9.0	8.8	8.6	8.9	8.9	8.4	6.9	8.1	8.4	5.5	6.0	8.3	9.1	7.6	6.7	5.5	10.9	8.0
Sep 12	6.7	4.6	4.5	5.1	6.6	5.9	7.3	10.8	10.3	10.7	13.4	16.7	18.8	19.2	17.6	15.0	12.6	9.1	7.6	10.6	13.5	13.2	11.1	8.3	4.5	19.2	10.8
Sep 13	3.4	3.0	3.2	3.0	3.3	3.6	5.3	4.7	6.6	7.5	10.3	9.8	11.0	9.9	9.4	7.9	7.4	6.3	4.2	3.5	4.6	4.3	4.8	6.2	3.0	11.0	6.0
Sep 14	5.6	2.9	0.7	2.9	2.8	4.5	1.6	4.7	4.7	6.5	6.1	9.2	11.7	7.4	7.0	3.8	3.4	1.5	1.0	1.8	1.7	1.2	1.3	1.0	0.7	11.7	4.0
Sep 15	1.7	0.9	1.2	2.2	2.3	2.8	4.8	4.5	6.3	7.6	11.0	12.5	13.1	14.4	11.8	8.1	6.1	4.5	7.9	5.3	5.0	5.4	6.0	7.5	0.9	14.4	6.4
Sep 16	7.0	6.0	5.8	4.6	3.8	4.7	6.6	8.9	5.5	5.6	6.3	7.4	7.4	8.0	8.7	11.9	11.0	10.7	6.1	5.7	2.6	2.9	6.2	4.2	2.6	11.9	6.6
Sep 17	9.4	7.1	2.8	2.4	6.0	5.0	5.0	7.5	10.5	15.6	12.5	7.6	10.5	11.8	13.4	6.6	3.8	2.7	2.0	2.8	1.3	**0.1**	1.0	0.5	**0.1**	15.6	6.2
Sep 18	1.0	0.8	1.6	1.3	0.7	0.5	**0.1**	2.4	5.7	7.2	6.4	6.6	6.3	7.5	8.8	9.3	5.8	2.8	3.6	3.1	2.7	1.7	1.2	2.1	**0.1**	9.3	**3.7**
Sep 19	1.1	0.8	1.2	0.6	1.7	0.7	0.9	1.6	2.3	6.4	8.4	10.6	**C**	**C**	15.4	15.7	13.4	10.4	9.6	10.4	11.3	9.0	8.6	7.1	0.6	15.7	6.7
Sep 20	5.3	6.9	6.5	8.2	5.6	5.5	7.1	8.7	7.5	11.7	12.9	10.5	20.2	16.9	12.2	13.2	11.5	7.4	7.1	7.1	7.9	5.5	5.2	6.7	5.2	20.2	9.1
Sep 21	4.7	4.1	3.5	3.9	2.8	2.1	4.5	7.5	9.7	9.8	12.9	14.9	19.7	18.2	17.9	17.0	13.5	9.0	5.9	6.9	9.8	10.9	6.6	6.4	2.1	19.7	9.3
Sep 22	5.8	6.4	6.1	4.7	3.5	1.7	1.3	1.5	7.5	6.5	7.6	8.9	9.4	11.1	11.3	9.9	8.7	4.5	1.9	1.9	1.5	0.9	2.2	1.0	0.9	11.3	5.2
Sep 23	1.1	2.7	3.6	13.2	16.8	14.9	7.6	9.7	15.2	20.3	23.9	**28.4**	26.6	27.3	23.3	20.5	18.5	15.8	8.1	8.8	9.2	11.3	12.1	8.4	1.1	**28.4**	14.5
Sep 24	8.4	9.4	10.8	9.0	8.8	7.7	6.8	8.1	11.5	17.0	19.7	19.5	17.8	21.4	13.7	13.4	12.5	11.1	8.6	7.0	4.8	6.3	5.3	4.5	4.5	21.4	11.0
Sep 25	3.4	2.8	3.8	6.3	5.3	4.0	4.6	4.5	10.9	10.7	14.2	19.8	21.4	23.7	21.2	21.1	18.4	11.1	4.6	4.1	2.9	2.4	2.4	1.9	1.9	23.7	9.4
Sep 26	1.4	0.9	1.5	1.8	2.7	0.9	2.6	2.7	3.4	6.7	6.2	8.3	8.4	8.4	6.2	3.6	7.1	7.3	3.9	8.9	10.0	4.6	7.7	1.2	0.9	10.0	4.9
Sep 27	1.6	5.3	5.9	8.4	11.1	13.5	17.0	19.7	14.6	16.7	20.2	21.7	21.1	16.9	15.7	15.6	14.6	8.9	6.1	7.8	9.2	11.7	10.2	12.2	1.6	21.7	12.7
Sep 28	11.2	7.9	5.6	4.9	4.8	4.4	3.8	6.6	5.8	6.3	10.1	10.3	12.3	9.4	10.2	10.3	8.5	7.3	2.5	4.1	2.9	1.9	1.5	2.0	1.5	12.3	6.4
Sep 29	1.6	2.3	2.8	2.4	2.0	3.7	5.3	6.8	7.0	9.5	8.5	13.7	17.6	14.8	11.7	15.4	13.3	10.3	10.0	8.4	5.5	5.4	6.6	7.6	1.6	17.6	8.0
Sep 30	6.5	7.5	6.1	6.0	5.9	5.7	6.4	5.6	6.4	9.2	11.4	11.3	11.7	11.9	8.8	5.4	5.7	6.1	5.5	5.1	6.1	7.4	6.0	5.9	5.1	11.9	7.2
Diurnal Maximum	17.4	17.8	17.7	16.9	16.8	16.5	18.1	19.7	20.4	20.3	23.9	28.4	26.6	27.3	23.3	21.1	18.5	17.5	18.0	16.6	17.0	14.8	15.5	15.3			
Daiurnal Average	5.8	5.8	5.7	6.2	6.3	6.3	6.6	8.0	9.0	10.5	11.6	12.3	13.8	13.8	12.9	11.6	10.4	8.1	6.3	6.7	6.4	5.8	5.9	5.9			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for WS - Maskwa Site



ST. LINA STATION

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Instantaneous Maximums

SULPHUR DIOXIDE (SO_2) in ppb

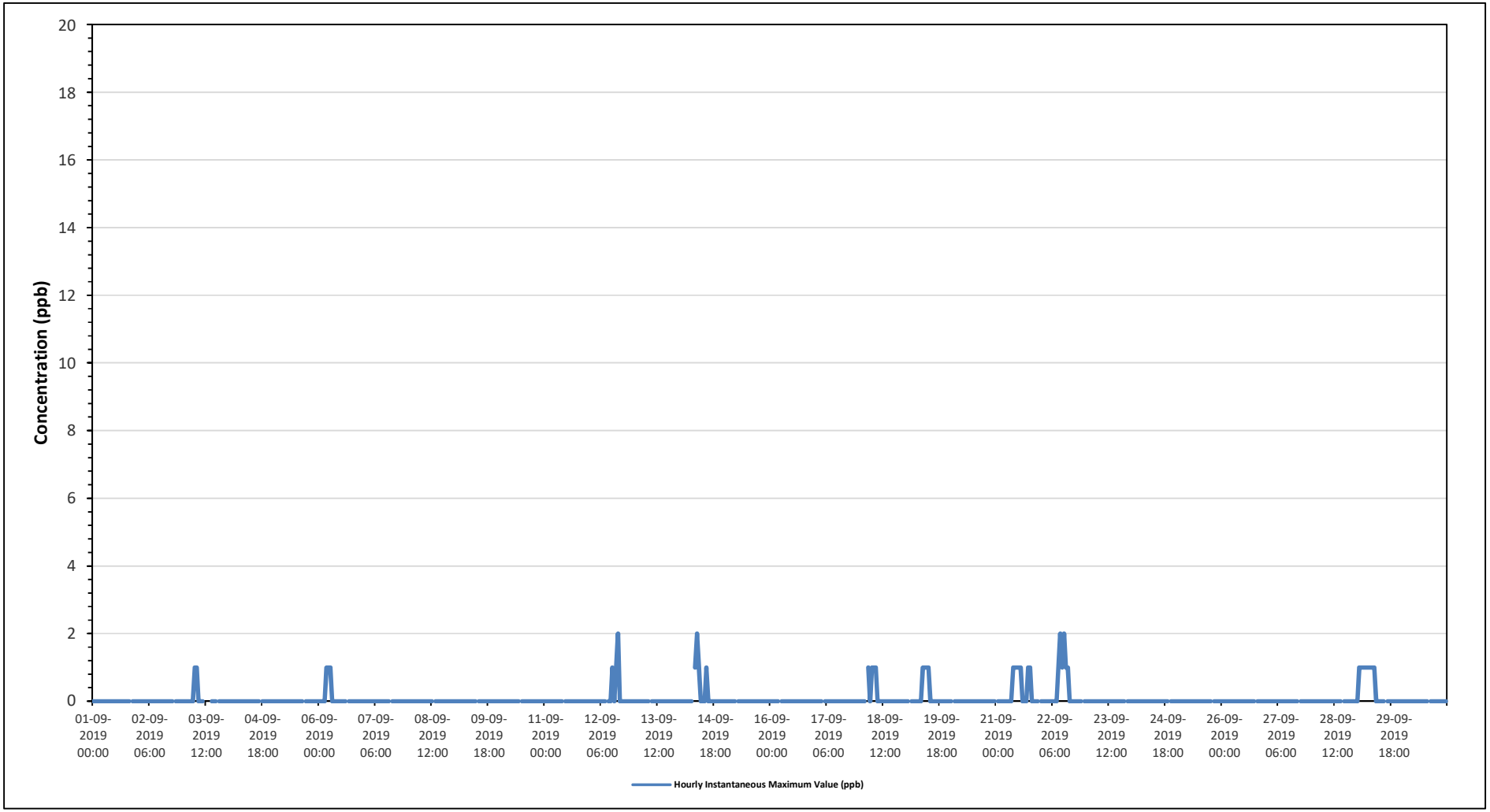
Maximum Hourly Value:	2	ppb	on September 12 at hour 15	Hours in Service:	720
Maximum Daily Value:	0.4	ppb	on September 29	Hours of Data:	685
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 1	Hours of Calibration:	35
Monthly Average:	0.1	ppb		Operational Uptime:	100.0

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

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for SO2 - St. Lina Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Instantaneous Maximums

HYDROGEN SULPHIDE (H_2S) in ppb

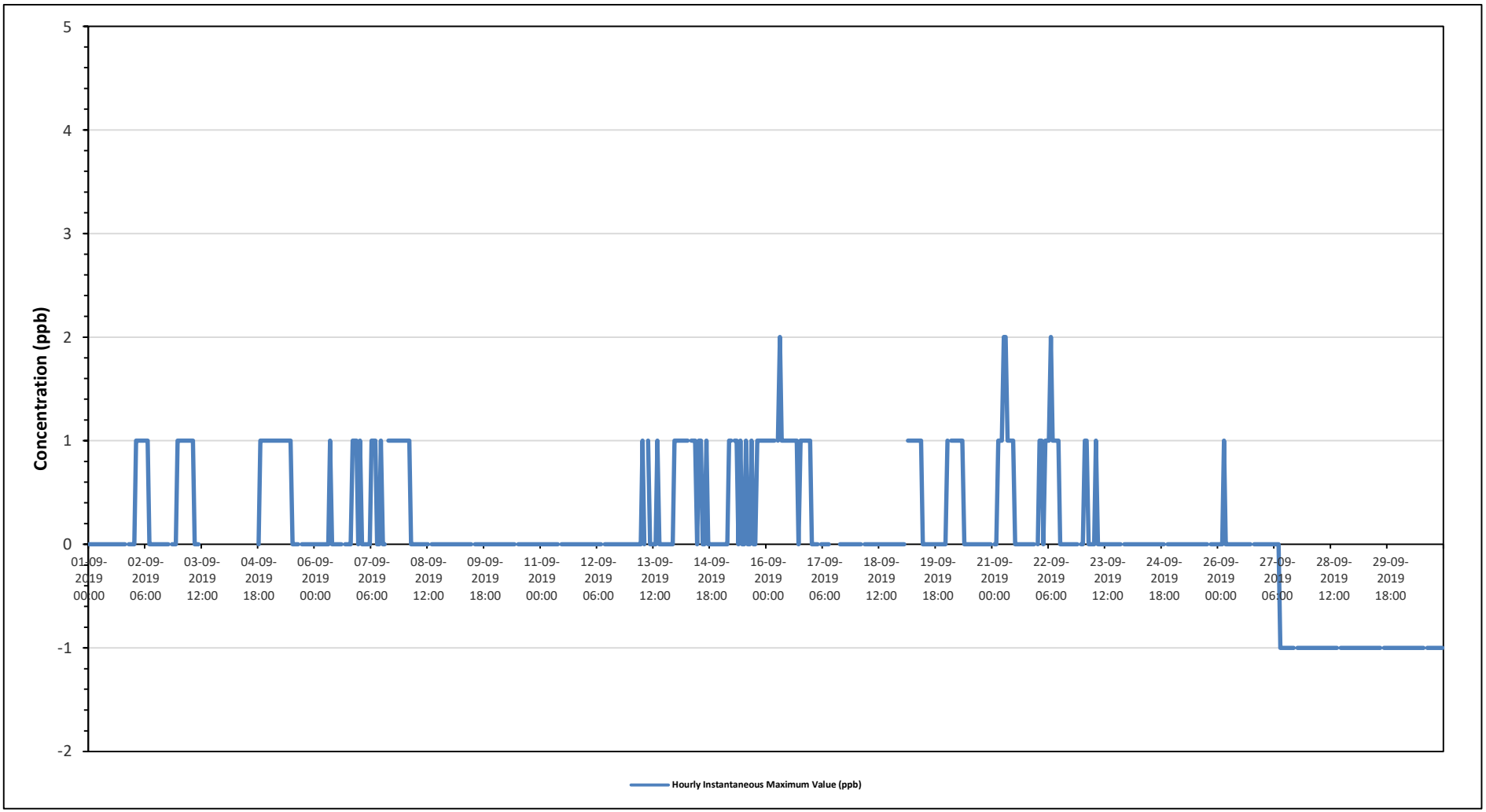
Maximum Hourly Value:	2	ppb	on September 16 at hour 7	Hours in Service:	720
Maximum Daily Value:	1.0	ppb	on September 16	Hours of Data:	655
Minimum Hourly Value:	-1	ppb	on September 27 at hour 9	Hours of Missing Data:	23
Minimum Daily Value:	-1.0	ppb	on September 28	Hours of Calibration:	42
Monthly Average:	0.1	ppb		Operational Uptime:	96.8

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0
Sep 2	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	0	1	0.3
Sep 3	1	1	1	1	1	1	1	1	0	0	0	C	C	C	C	C	C	Y	Y	Y	Y	Y	Y	Y	0	1	-
Sep 4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	C	C	S	0	1	1	1	1	1	0	1	-
Sep 5	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0.5
Sep 6	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	S	0	0	0	0	1	1	1	0	0	1	0.2
Sep 7	1	0	0	0	0	0	1	1	1	0	0	1	0	0	S	1	1	1	1	1	1	1	1	1	0	1	0.6
Sep 8	1	1	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 9	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 10	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 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	0.0
Sep 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	0.0
Sep 13	0	0	0	0	0	0	1	0	S	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0.2
Sep 14	1	1	1	1	1	1	1	S	1	1	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	1	0.6
Sep 15	0	0	0	0	1	1	S	1	1	0	1	0	0	1	0	0	1	0	0	1	1	1	1	1	0	1	0.5
Sep 16	1	1	1	1	1	S	1	2	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	2	1.0
Sep 17	0	0	0	0	S	0	0	0	0	0	C1	C1	C1	C1	C1	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 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	0.0
Sep 19	0	0	S	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3
Sep 20	1	S	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3
Sep 21	S	0	0	1	1	1	2	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	S	0	2	0.5
Sep 22	0	1	1	0	1	1	1	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	S	0	0	2	0.5
Sep 23	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	0.1
Sep 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	0.0
Sep 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	0.0
Sep 26	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	0.0
Sep 27	0	0	0	0	0	0	0	0	0	-1	-1	-1	-1	-1	-1	-1	-1	S	-1	-1	-1	-1	-1	-1	-1	0	-0.6
Sep 28	-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	-1.0
Sep 29	-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	-1.0
Sep 30	-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	-1.0
Diurnal Maximum	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Daiurnal Average	0.1	0.2	0.2	0.2	0.3	0.2	0.3	0.4	0.3	0.1	0.1	0.0	-0.1	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0	0.1			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for H2S - St. Lina Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Instantaneous Maximums

OXIDES OF NITROGEN (NOx) in ppb

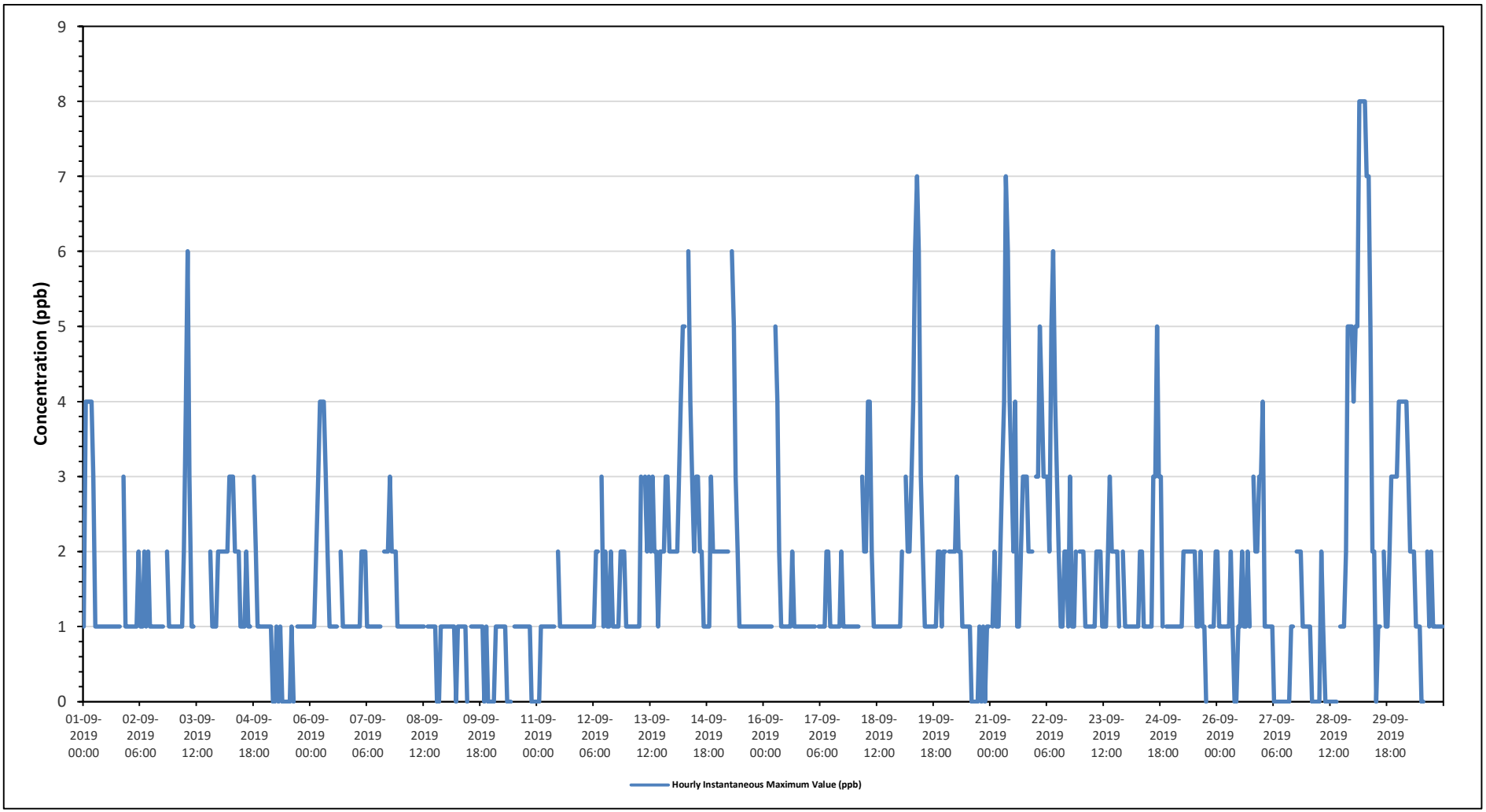
Maximum Hourly Value:	8	ppb	on September 29 at hour 3	Hours in Service:	720
Maximum Daily Value:	3.9	ppb	on September 29	Hours of Data:	683
Minimum Hourly Value:	0	ppb	on September 5 at hour 4	Hours of Missing Data:	0
Minimum Daily Value:	0.6	ppb	on September 5	Hours of Calibration:	37
Monthly Average:	1.6	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	1	4	4	4	4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	3	1	1	1	4	1.7
Sep 2	1	1	1	1	1	2	1	1	2	1	2	1	1	1	1	1	1	1	1	S	2	1	1	1	1	2	1.2
Sep 3	1	1	1	1	1	2	4	6	3	1	1	C	C	C	C	C	C	3	S	2	1	1	1	2	1	6	-
Sep 4	2	2	2	2	2	3	3	3	2	2	2	1	1	1	2	1	1	S	3	2	1	1	1	1	1	3	1.8
Sep 5	1	1	1	1	0	0	1	0	1	0	0	0	0	0	1	0	S	1	1	1	1	1	1	1	0	1	0.6
Sep 6	1	1	1	2	3	4	4	4	3	2	1	1	1	1	1	S	2	1	1	1	1	1	1	1	1	4	1.7
Sep 7	1	1	1	2	2	2	1	1	1	1	1	1	1	1	S	2	2	2	3	2	2	2	1	1	1	3	1.5
Sep 8	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	0	0	1	1	1	0	1	0.9
Sep 9	1	1	1	1	1	0	1	1	1	1	1	0	S	1	1	1	1	1	1	1	0	1	0	0	0	1	0.8
Sep 10	0	0	1	1	1	1	1	1	0	0	0	S	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0.7
Sep 11	0	0	1	1	1	1	1	1	1	1	S	2	1	1	1	1	1	1	1	1	1	1	1	1	0	2	1.0
Sep 12	1	1	1	1	1	1	1	2	2	S	3	1	2	1	1	2	1	1	1	1	2	2	2	1	1	3	1.4
Sep 13	1	1	1	1	1	1	1	3	S	3	2	3	2	3	2	2	1	2	2	2	3	3	2	2	1	3	1.9
Sep 14	2	2	2	3	4	5	5	S	6	4	3	2	3	3	2	2	1	1	1	1	3	2	2	2	1	6	2.7
Sep 15	2	2	2	2	2	2	S	6	5	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	1.8
Sep 16	1	1	1	1	1	S	5	4	2	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	5	1.4
Sep 17	1	1	1	1	S	1	1	1	1	2	2	1	1	1	1	1	1	2	1	1	1	1	1	1	1	2	1.1
Sep 18	1	1	1	S	3	2	2	4	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1.5
Sep 19	1	2	S	3	2	2	3	4	6	7	6	3	2	1	1	1	1	1	1	1	2	2	1	2	1	7	2.4
Sep 20	2	S	2	2	2	2	3	2	2	1	1	1	1	1	0	0	0	0	1	0	1	0	1	1	0	3	1.1
Sep 21	S	1	2	1	1	2	3	4	7	6	4	3	2	4	1	1	2	3	3	3	2	2	2	S	1	7	2.7
Sep 22	3	3	5	4	3	3	3	2	5	6	4	3	2	1	1	2	2	1	3	1	1	2	S	2	1	6	2.7
Sep 23	2	2	1	1	1	1	1	1	2	2	2	1	1	1	2	3	2	2	2	2	1	S	2	1	1	3	1.6
Sep 24	1	1	1	1	1	1	1	2	2	1	1	1	1	1	3	3	5	3	3	1	S	1	1	1	1	5	1.6
Sep 25	1	1	1	1	1	1	2	2	2	2	2	2	2	1	1	2	1	1	0	S	1	1	1	2	0	2	1.3
Sep 26	2	1	1	1	1	1	1	2	1	0	0	1	1	2	1	1	2	1	S	3	2	2	3	3	0	3	1.4
Sep 27	4	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	S	2	2	2	1	1	1	0	4	0.9
Sep 28	1	1	0	0	0	0	0	2	1	0	0	0	0	0	0	0	S	1	1	1	2	5	5	5	0	5	1.1
Sep 29	4	5	5	8	8	8	8	7	7	5	2	2	0	1	1	S	2	1	1	2	3	3	3	3	0	8	3.9
Sep 30	4	4	4	4	4	3	2	2	2	1	1	1	0	0	S	2	1	2	1	1	1	1	1	1	0	4	1.9
Diurnal Maximum	4	5	5	8	8	8	8	7	7	7	6	3	3	4	3	3	5	3	3	3	3	5	5	5			
Daiurnal Average	1.5	1.5	1.6	1.8	1.9	1.9	2.1	2.4	2.5	2.0	1.6	1.3	1.1	1.1	1.1	1.3	1.4	1.4	1.4	1.3	1.4	1.5	1.4	1.4			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for NOx - St. Lina Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Instantaneous Maximums

NITRIC OXIDE (NO) in ppb

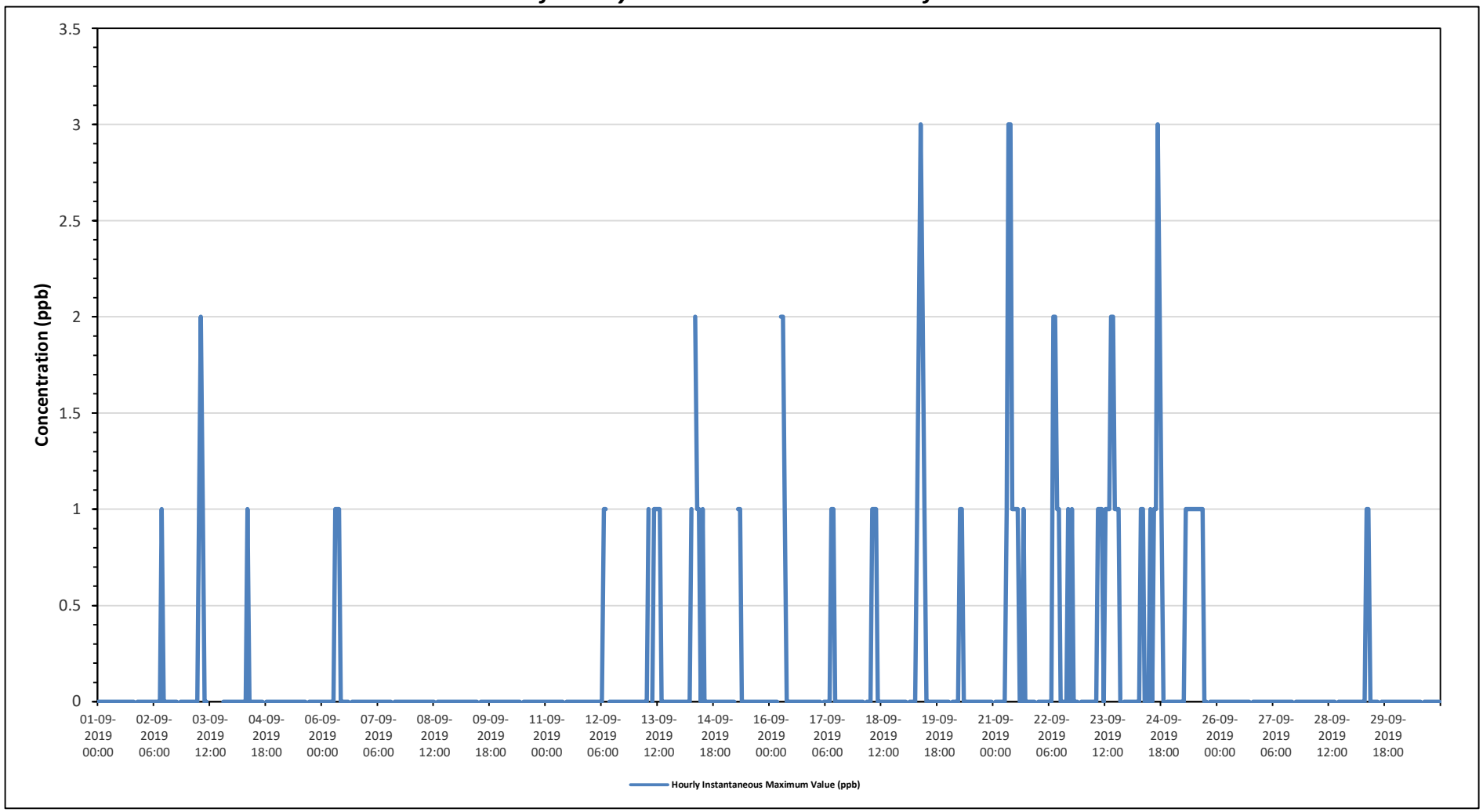
Maximum Hourly Value:	3	ppb	on September 19 at hour 9	Hours in Service:	720
Maximum Daily Value:	0.6	ppb	on September 23	Hours of Data:	683
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 1	Hours of Calibration:	37
Monthly Average:	0.1	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0
Sep 2	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	0.0
Sep 3	0	0	0	0	0	0	1	2	1	0	0	C	C	C	C	C	C	0	S	0	0	0	0	0	0	2	-
Sep 4	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	0.0
Sep 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	0.0
Sep 6	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0.1
Sep 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	0.0
Sep 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	0.0
Sep 9	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 10	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sep 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	0.0
Sep 12	0	0	0	0	0	0	0	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 13	0	0	0	0	0	0	0	1	S	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0.2
Sep 14	0	0	0	0	0	0	1	S	2	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3
Sep 15	0	0	0	0	0	0	S	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 16	0	0	0	0	0	S	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2
Sep 17	0	0	0	0	S	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 18	0	0	0	S	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 19	0	0	S	0	0	0	0	1	2	**3**	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**	0.4
Sep 20	0	S	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 21	S	0	0	0	0	0	0	1	**3**	**3**	1	1	1	1	0	0	1	0	0	0	0	0	0	S	0	**3**	0.5
Sep 22	0	0	0	0	0	0	0	0	2	2	1	1	0	0	0	0	1	0	1	0	0	0	S	0	0	2	0.3
Sep 23	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	2	2	1	1	1	0	S	0	0	0	2	**0.6**
Sep 24	0	0	0	0	0	0	0	1	1	0	0	0	1	0	1	1	**3**	2	1	0	S	0	0	0	0	**3**	0.5
Sep 25	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	S	0	0	0	0	0	1	0.4
Sep 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	0.0
Sep 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	0.0
Sep 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	0.0
Sep 29	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0.1
Sep 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	0.0
Diurnal Maximum	0	0	0	0	0	0	2	2	3	3	2	1	1	1	1	2	3	2	1	1	0	0	0	0			
Daiurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.7	0.5	0.3	0.2	0.2	0.1	0.1	0.1	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for NO - St. Lina Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Instantaneous Maximums

NITROGEN DIOXIDE (NO_2) in ppb

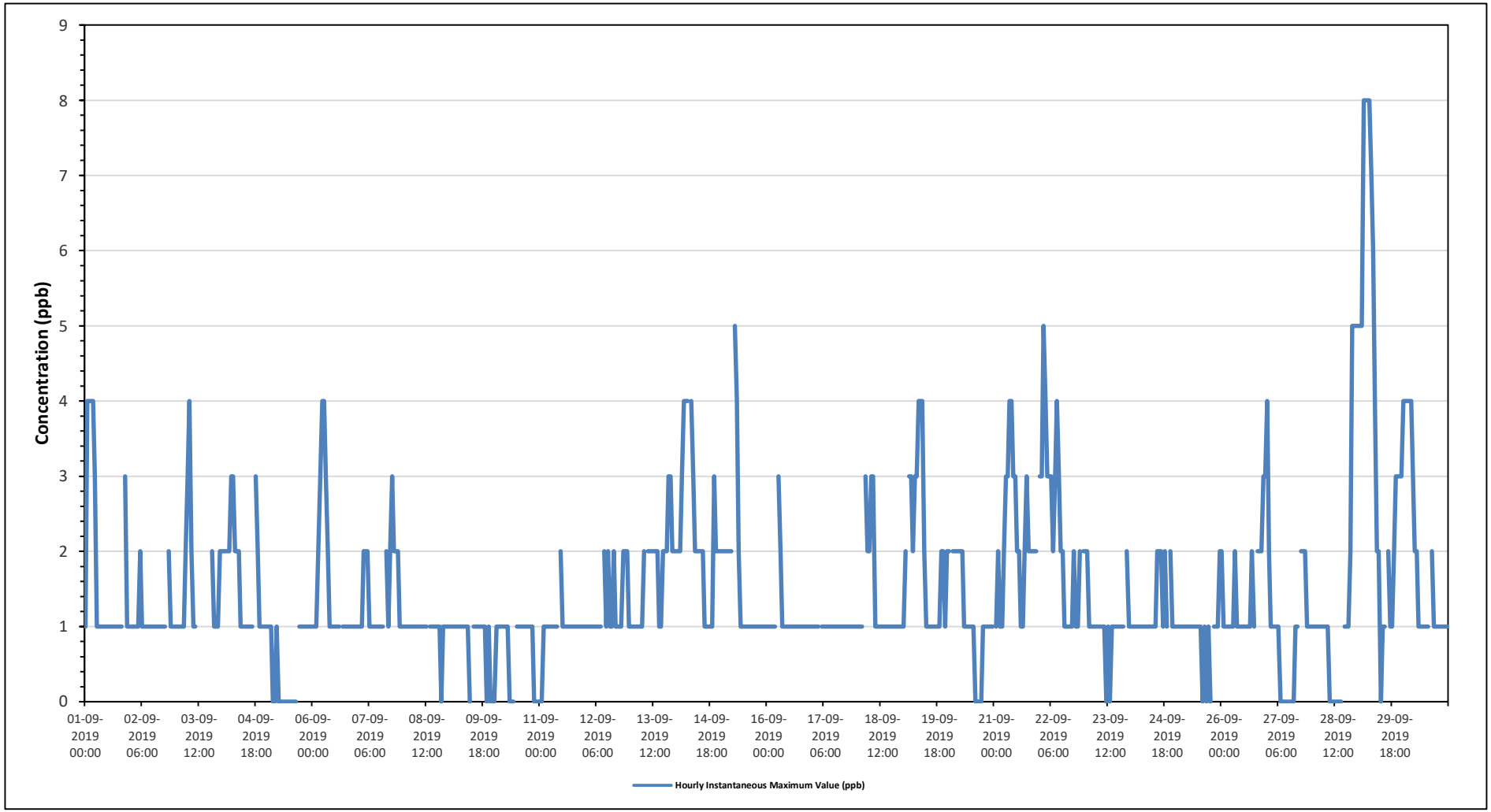
Maximum Hourly Value:	8	ppb	on September 29 at hour 3	Hours in Service:	720
Maximum Daily Value:	3.8	ppb	on September 29	Hours of Data:	683
Minimum Hourly Value:	0	ppb	on September 5 at hour 3	Hours of Missing Data:	0
Minimum Daily Value:	0.5	ppb	on September 5	Hours of Calibration:	37
Monthly Average:	1.4	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	1	4	4	4	4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	3	1	1	1	4	1.7
Sep 2	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	S	2	1	1	1	1	2	1.1
Sep 3	1	1	1	1	1	2	3	4	2	1	1	C	C	C	C	C	C	3	S	2	1	1	1	2	1	4	-
Sep 4	2	2	2	2	2	3	3	2	2	2	1	1	1	1	1	1	1	S	3	2	1	1	1	1	1	3	1.7
Sep 5	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	S	1	1	1	1	1	1	1	0	1	0.5
Sep 6	1	1	1	2	3	4	4	3	2	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	4	1.5
Sep 7	1	1	1	2	2	2	1	1	1	1	1	1	1	1	S	2	1	2	3	2	2	2	1	1	1	3	1.4
Sep 8	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	0	1	1	1	0	1	1.0
Sep 9	1	1	1	1	1	1	1	1	1	1	1	0	S	1	1	1	1	1	1	1	0	1	0	0	0	1	0.8
Sep 10	0	1	1	1	1	1	1	1	0	0	0	S	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0.7
Sep 11	0	0	1	1	1	1	1	1	1	1	S	2	1	1	1	1	1	1	1	1	1	1	1	1	0	2	1.0
Sep 12	1	1	1	1	1	1	1	1	1	S	2	1	2	1	1	2	1	1	1	1	2	2	2	1	1	2	1.3
Sep 13	1	1	1	1	1	1	1	2	S	2	2	2	2	2	2	1	1	2	2	2	3	3	2	2	1	3	1.7
Sep 14	2	2	2	3	4	4	4	S	4	3	2	2	2	2	2	1	1	1	1	1	3	2	2	2	1	4	2.3
Sep 15	2	2	2	2	2	2	S	5	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	1.6
Sep 16	1	1	1	1	1	S	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.1
Sep 17	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	1.0
Sep 18	1	1	1	S	3	2	2	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.3
Sep 19	1	2	S	3	3	2	3	3	4	4	4	2	1	1	1	1	1	1	1	1	2	2	1	2	1	4	2.0
Sep 20	2	S	2	2	2	2	2	2	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	2	1.1
Sep 21	S	1	2	1	1	2	3	3	4	4	3	3	2	2	1	1	2	3	2	2	2	2	2	S	1	4	2.2
Sep 22	3	3	5	4	3	3	3	2	3	4	3	2	2	1	1	1	1	1	2	1	1	2	S	2	1	5	2.3
Sep 23	2	2	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	S	2	1	0	2	1.0
Sep 24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	S	2	1	1	1	2	1.2
Sep 25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	S	1	1	1	2	0	2	0.9
Sep 26	2	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1	S	2	2	2	3	3	1	3	1.4
Sep 27	4	2	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	S	2	2	2	1	1	1	0	4	1.0
Sep 28	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	S	1	1	1	2	5	5	5	0	5	1.3
Sep 29	5	5	5	8	8	8	8	7	6	4	2	2	0	1	1	S	2	1	1	2	3	3	3	3	0	8	3.8
Sep 30	4	4	4	4	4	3	2	2	1	1	1	1	1	1	S	2	1	1	1	1	1	1	1	1	1	4	1.9
Diurnal Maximum	5	5	5	8	8	8	8	7	6	4	4	3	2	2	2	2	2	3	3	2	3	5	5	5			
Daiurnal Average	1.6	1.6	1.7	1.8	1.9	2.0	1.9	1.9	1.7	1.4	1.2	1.1	1.0	1.0	0.9	1.0	1.1	1.2	1.3	1.3	1.4	1.6	1.4	1.4			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for NO2 - St. Lina Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Instantaneous Maximums

OZONE (O_3) in ppb

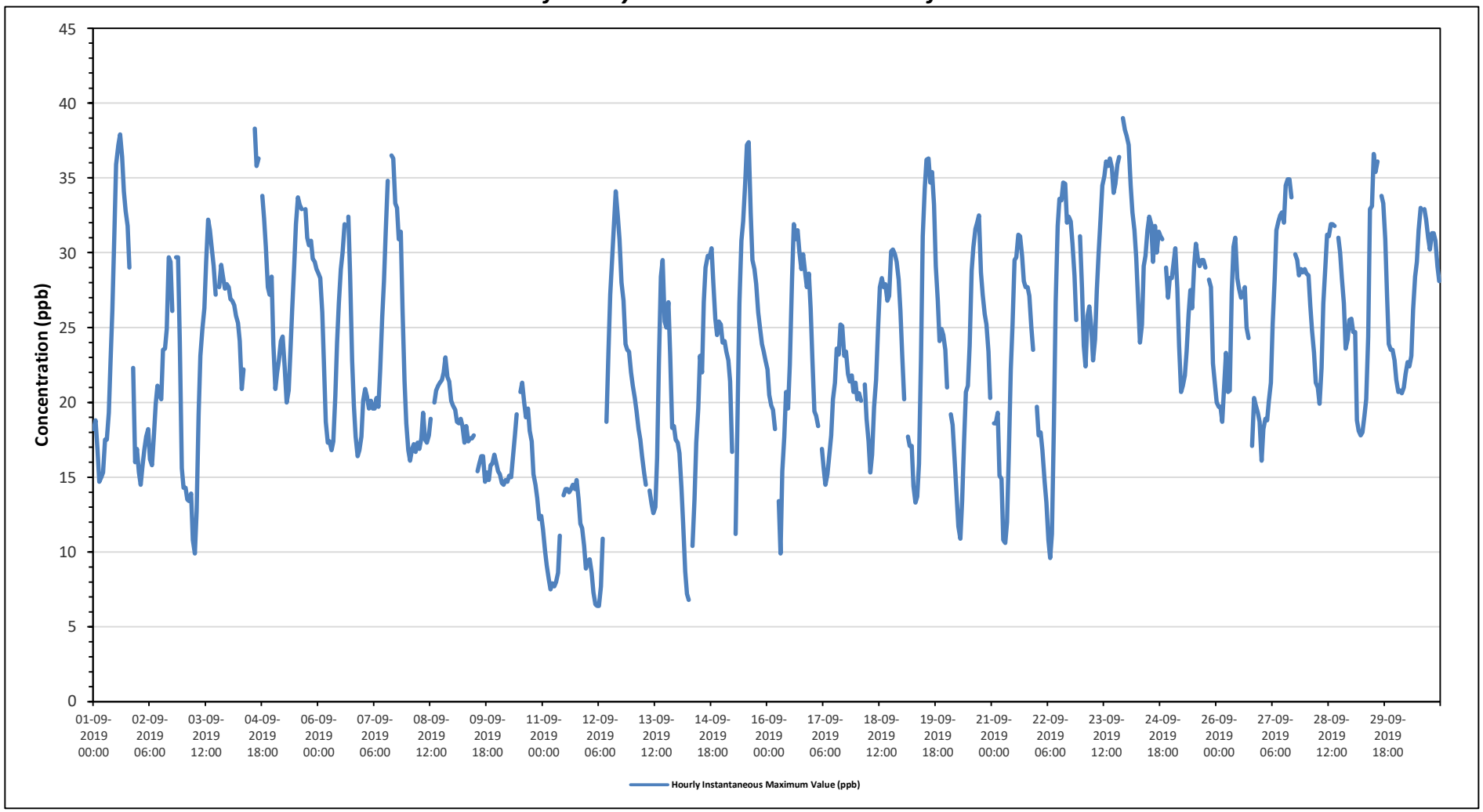
Maximum Hourly Value:	39.0	ppb	on September 23 at hour 22	Hours in Service:	720
Maximum Daily Value:	31.3	ppb	on September 23	Hours of Data:	684
Minimum Hourly Value:	6.4	ppb	on September 12 at hour 5	Hours of Missing Data:	0
Minimum Daily Value:	11.3	ppb	on September 11	Hours of Calibration:	36
Monthly Average:	23.4	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	18.2	18.8	16.8	14.7	15	15.3	17.5	17.5	19.3	22.8	26.1	31.2	35.9	37.2	37.9	36.4	34.1	32.8	31.8	29	S	22.3	16	16.9	14.7	37.9	24.5
Sep 2	15.3	14.5	15.7	16.9	17.7	18.2	16.2	15.8	17.6	19.9	21.1	20.5	20.2	23.5	23.6	24.9	29.7	29.4	26.1	S	29.7	29.7	24	15.6	14.5	29.7	21.1
Sep 3	14.3	14.3	13.5	13.4	13.9	10.8	9.9	12.7	19.2	23.1	24.9	26.3	29.4	32.2	31.5	30.2	29.1	27.2	S	27.7	29.2	28.4	27.6	27.9	9.9	32.2	22.5
Sep 4	27.7	26.9	26.8	26.5	25.8	25.3	24.1	20.9	22.2	C	C	C	C	C	38.3	35.8	36.3	S	33.8	32.3	30.4	27.7	27.2	28.4	20.9	38.3	28.7
Sep 5	23.9	20.9	22	22.8	24.1	24.4	22.4	20	20.8	23.4	26.2	29.1	31.9	33.7	33.2	32.9	S	32.9	31	30.5	30.8	29.6	29.4	28.9	20.0	33.7	27.2
Sep 6	28.6	28.3	26	22.4	18.7	17.3	17.4	16.8	17.4	20.4	24	26.6	28.9	30	31.9	S	32.4	28.5	22.8	19.8	17.7	16.4	16.8	17.7	16.4	32.4	22.9
Sep 7	20.1	20.9	20.4	19.6	20.1	19.6	19.6	20.3	19.7	22.2	25.7	28.1	31.4	34.8	S	36.5	36.3	33.3	33	30.9	31.4	26.2	21.4	18.6	18.6	36.5	25.7
Sep 8	16.8	16.1	16.9	17.2	16.7	17.3	16.9	17.6	19.3	17.5	17.3	17.8	18.9	S	20	20.8	21.1	21.3	21.5	22	23	21.7	21.4	20.1	16.1	23.0	19.1
Sep 9	19.8	19.5	18.7	18.6	18.9	18.4	17.3	18.4	17.4	17.6	17.6	17.8	S	15.4	15.9	16.4	16.4	14.7	15.3	14.8	15.8	15.9	16.5	16	14.7	19.8	17.1
Sep 10	15.4	15.2	14.6	14.5	14.8	14.7	15.1	15	16.3	17.8	19.2	S	20.7	21.3	20	19	19.6	18.1	17.4	15.2	14.5	13.6	12.2	12.4	12.2	21.3	16.4
Sep 11	11.5	10.1	9.1	8.2	7.5	7.9	7.7	8	8.6	11.1	S	13.8	14.2	14.2	14	14.2	14.5	14.2	14.8	13.5	11.9	11.6	10.4	8.9	7.5	14.8	11.3
Sep 12	9.4	9.5	8.6	7.3	6.5	**6.4**	**6.4**	7.7	10.9	S	18.7	23.4	27.2	29.7	31.9	34.1	32.5	30.9	28	26.8	23.9	23.5	23.4	22	**6.4**	34.1	19.5
Sep 13	21.1	20.3	19.4	18.2	17.5	16.4	15.3	14.5	S	14.1	13.2	12.6	13	16.3	22.6	28.4	29.5	25.4	25	26.7	23.2	18.3	18.4	17.5	12.6	29.5	19.4
Sep 14	17.3	16.6	14.3	11.8	8.7	7.2	6.8	S	10.4	13.5	17.3	19.6	23.1	22	26.7	29	29.8	29.7	30.3	28	25.6	24.5	25.4	25.2	6.8	30.3	20.1
Sep 15	24	24.1	23.4	22.8	21.4	16.7	S	11.2	19.5	26.6	30.8	32.1	34.6	37.2	37.4	32.7	29.5	28.9	27.9	26	25	23.9	23.4	22.8	11.2	37.4	26.2
Sep 16	22.2	20.5	19.8	19.5	18.2	S	13.4	9.9	15.4	17.7	20.7	19.6	22.5	28.3	31.9	30.9	31.5	30.1	28.9	29.9	28.7	27.7	28.6	26.3	9.9	31.9	23.6
Sep 17	22.9	19.4	19.1	18.4	S	16.9	15.6	14.5	15.2	16.4	17.8	20.2	21.3	23.6	23.2	25.2	25.1	23.1	23.4	21.9	21.4	21.8	20.7	21.3	14.5	25.2	20.4
Sep 18	20.2	20.6	20.1	S	21.2	18.9	17.4	15.3	16.5	19.7	21.5	25	27.7	28.3	27.7	27.9	26.8	27.1	30.1	30.2	29.9	29.4	28.2	26.1	15.3	30.2	24.2
Sep 19	23.2	20.2	S	17.7	17.1	17.1	14.4	13.3	13.7	15.9	22.9	31.1	34.3	36.2	36.3	34.7	35.4	33.2	29.1	26.8	24.1	24.9	24.5	23.5	13.3	36.3	24.8
Sep 20	21	S	19.2	18.5	16.2	14.1	11.7	10.9	13.4	17.5	20.7	21.1	23.8	28.8	30.4	31.6	32	32.5	28.7	27.2	25.9	25.2	23.4	20.3	10.9	32.5	22.4
Sep 21	S	18.6	18.6	19.3	15.1	14.9	10.8	10.6	12	16.4	22.2	25.2	29.5	29.7	31.2	31.1	29.8	28.1	27.7	27.7	27.1	25	23.5	S	10.6	31.2	22.5
Sep 22	19.7	17.8	18	16.8	14.7	13.3	10.8	9.6	11.2	18.6	26.7	31.8	33.6	33.5	34.7	34.6	32	32.4	32.1	30.6	28.5	25.5	S	31.1	9.6	34.7	24.2
Sep 23	27.6	23.8	22.4	25.8	26.4	25	22.8	24.2	27.5	29.9	32.3	34.5	35.1	36.1	35.8	36.3	35.7	34	34.6	35.9	36.4	S	**39**	38.2	22.4	**39.0**	**31.3**
Sep 24	37.8	37.2	34.5	32.7	31.5	29.7	26.6	24	25.2	29.1	29.8	31.5	32.4	31.9	29.4	31.8	30	31.4	31.1	30.9	S	29	27	28.3	24.0	37.8	30.6
Sep 25	28.3	29.3	30.3	27.6	23.8	20.7	21.1	21.8	23.4	25.9	27.5	26.3	29.1	30.6	29.6	29.1	29.5	29.5	29	S	28.2	27.7	22.6	21.2	20.7	30.6	26.6
Sep 26	20	19.7	19.7	18.7	21.2	23.3	20.7	20.8	27.4	30.4	31	28.3	27.6	27	27.1	27.7	25	24.3	S	17.1	20.3	19.8	19.3	18.7	17.1	31.0	23.3
Sep 27	16.1	18.2	18.9	18.8	20.1	21.3	25.2	28.2	31.5	32.1	32.5	32.7	32	34.5	34.9	34.9	33.7	S	29.9	29.5	28.5	28.9	28.7	28.9	16.1	34.9	27.8
Sep 28	28.6	28.5	26.5	24.8	23.3	21.3	21	19.9	22.3	26.6	29	31.2	31.1	31.9	31.9	31.8	S	31	30	28.3	26.6	23.6	24.2	25.5	19.9	31.9	26.9
Sep 29	25.6	24.7	24.7	18.8	18.1	17.8	18	19.1	20.2	24.4	32.9	33.1	36.6	35.4	36.1	S	33.8	33.3	30.9	27.2	23.9	23.5	23.5	22.8	17.8	36.6	26.3
Sep 30	21.5	20.7	20.8	20.6	21	21.9	22.7	22.4	23.1	26.2	28.4	29.4	31.5	33	S	32.9	32.2	31	30.2	31.3	31.3	30.8	29.1	28.1	20.6	33.0	27.0
Diurnal Maximum	38	37	35	33	32	30	27	28	32	32	33	35	37	37	38	37	36	34	35	36	36	31	39	38			
Daiurnal Average	21.3	20.5	20.0	19.1	18.5	17.7	16.7	16.6	18.5	21.3	24.2	25.7	27.8	29.2	29.5	29.7	29.4	28.2	27.7	26.3	25.5	24.0	23.3	22.7			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for O3 - St. Lina Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Instantaneous Maximums

TOTAL HYDROCARBONS (THC) in ppm

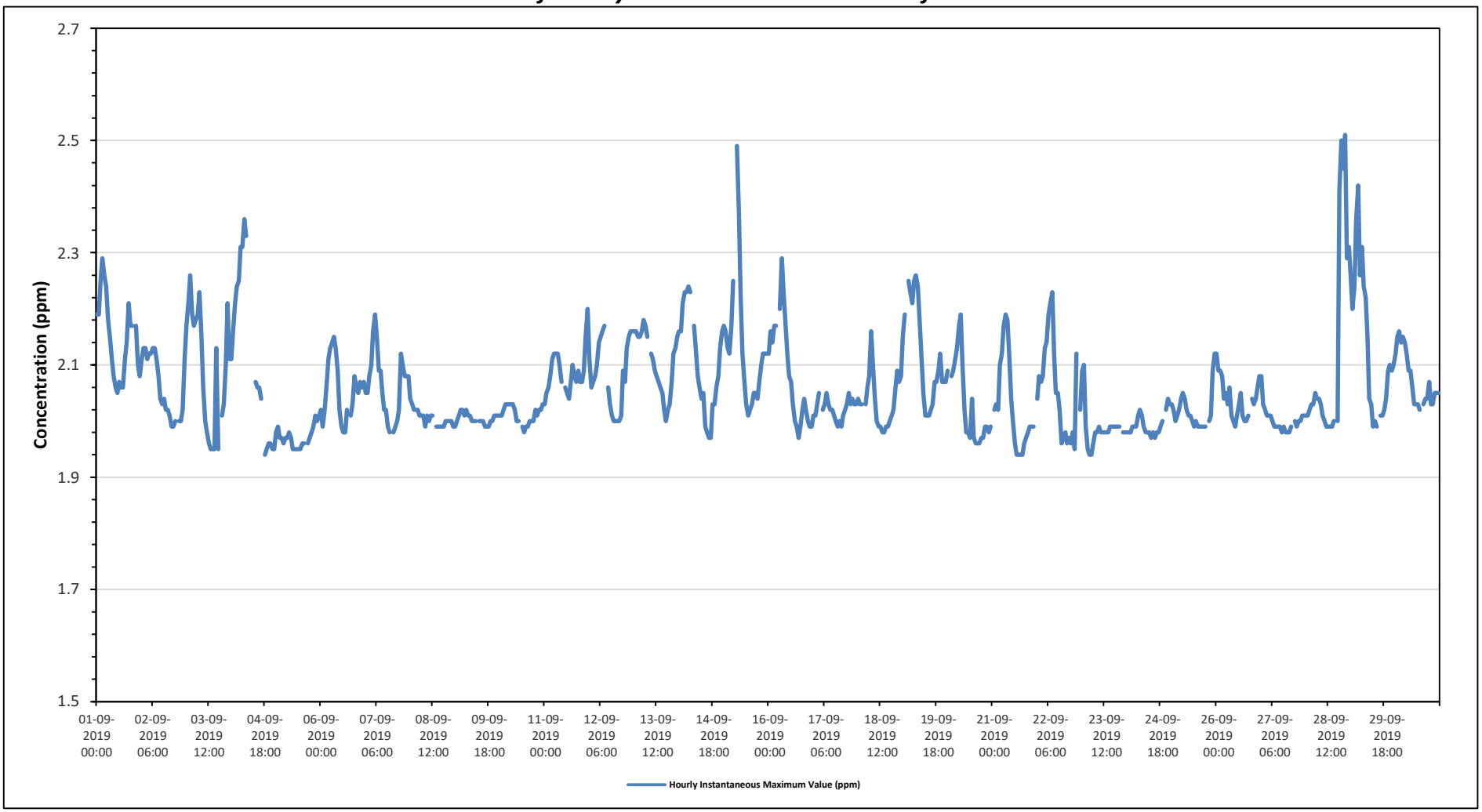
Maximum Hourly Value:	2.51	ppm	on September 28 at hour 21	Hours in Service:	720
Maximum Daily Value:	2.15	ppm	on September 1	Hours of Data:	685
Minimum Hourly Value:	1.94	ppm	on September 4 at hour 18	Hours of Missing Data:	0
Minimum Daily Value:	1.97	ppm	on September 5	Hours of Calibration:	35
Monthly Average:	2.06	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	2.19	2.19	2.25	2.29	2.26	2.24	2.18	2.15	2.11	2.08	2.06	2.05	2.07	2.06	2.06	2.11	2.14	2.21	2.17	2.17	S	2.17	2.10	2.08	2.05	2.29	**2.15**
Sep 2	2.11	2.13	2.13	2.11	2.12	2.12	2.13	2.13	2.11	2.08	2.04	2.03	2.04	2.02	2.02	2.01	1.99	1.99	2.00	S	2.00	2.00	2.02	2.11	1.99	2.13	2.06
Sep 3	2.17	2.21	2.26	2.19	2.17	2.18	2.19	2.23	2.15	2.06	2.00	1.98	1.96	1.95	1.95	1.95	2.13	1.95	S	2.01	2.03	2.10	2.21	2.11	1.95	2.26	2.09
Sep 4	2.11	2.16	2.21	2.24	2.25	2.31	2.31	2.36	2.33	C	C	C	C	2.07	2.06	2.06	2.04	S	1.94	1.95	1.96	1.96	1.95	1.95	1.94	2.36	2.12
Sep 5	1.98	1.99	1.97	1.97	1.96	1.97	1.97	1.98	1.97	1.95	1.95	1.95	1.95	1.95	1.96	1.96	S	1.96	1.97	1.98	1.99	2.01	2.00	2.01	1.95	2.01	1.97
Sep 6	2.02	1.99	2.02	2.06	2.11	2.13	2.14	2.15	2.13	2.09	2.02	1.99	1.98	1.98	2.02	S	2.01	2.03	2.08	2.06	2.05	2.07	2.06	2.07	1.98	2.15	2.05
Sep 7	2.05	2.05	2.08	2.10	2.16	2.19	2.15	2.09	2.09	2.05	2.02	2.02	1.99	1.98	S	1.98	1.99	2.00	2.02	2.12	2.10	2.08	2.08	2.08	1.98	2.19	2.06
Sep 8	2.04	2.03	2.02	2.02	2.02	2.01	2.01	2.01	1.99	2.01	2.00	2.01	2.01	S	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.00	2.00	1.99	1.99	2.04	2.01
Sep 9	1.99	2.00	2.01	2.02	2.02	2.01	2.02	2.01	2.01	2.00	2.00	2.00	S	2.00	2.00	2.00	1.99	1.99	1.99	2.00	2.00	2.01	2.01	2.01	1.99	2.02	2.00
Sep 10	2.01	2.01	2.02	2.03	2.03	2.03	2.03	2.03	2.02	2.00	2.00	S	1.99	1.98	1.99	1.99	2.00	2.00	2.00	2.02	2.01	2.02	2.02	2.03	1.98	2.03	2.01
Sep 11	2.03	2.05	2.06	2.08	2.11	2.12	2.12	2.12	2.10	2.07	S	2.06	2.05	2.04	2.07	2.10	2.08	2.07	2.09	2.07	2.07	2.09	2.15	2.20	2.03	2.20	2.09
Sep 12	2.11	2.06	2.07	2.08	2.10	2.14	2.15	2.16	2.17	S	2.06	2.03	2.01	2.00	2.00	2.00	2.00	2.01	2.09	2.07	2.13	2.15	2.16	2.16	2.00	2.17	2.08
Sep 13	2.16	2.16	2.15	2.15	2.16	2.18	2.17	2.15	S	2.12	2.11	2.09	2.08	2.07	2.06	2.05	2.02	2.00	2.02	2.03	2.07	2.12	2.13	2.15	2.00	2.18	2.10
Sep 14	2.16	2.16	2.21	2.23	2.23	2.24	2.23	S	2.17	2.13	2.08	2.06	2.04	2.05	1.99	1.98	1.97	1.97	2.03	2.03	2.06	2.08	2.13	2.16	1.97	2.24	2.10
Sep 15	2.17	2.16	2.13	2.12	2.17	2.25	S	2.49	2.37	2.22	2.12	2.07	2.03	2.01	2.02	2.03	2.05	2.05	2.04	2.07	2.10	2.12	2.12	2.12	2.01	2.49	2.13
Sep 16	2.12	2.16	2.14	2.17	2.17	S	2.20	2.29	2.23	2.17	2.12	2.08	2.07	2.03	2.00	1.99	1.97	1.99	2.02	2.04	2.02	2.00	1.99	1.99	1.97	2.29	2.09
Sep 17	2.01	2.01	2.03	2.05	S	2.02	2.03	2.05	2.03	2.02	2.02	2.01	2.00	1.99	2.00	1.99	2.01	2.02	2.03	2.05	2.03	2.04	2.03	2.03	1.99	2.05	2.02
Sep 18	2.04	2.03	2.03	S	2.03	2.06	2.08	2.16	2.10	2.04	2.00	1.99	1.99	1.98	1.98	1.99	1.99	2.00	2.01	2.02	2.06	2.09	2.07	2.08	1.98	2.16	2.04
Sep 19	2.15	2.19	S	2.25	2.23	2.21	2.25	2.26	2.24	2.18	2.11	2.05	2.01	2.01	2.01	2.02	2.03	2.07	2.07	2.09	2.12	2.07	2.07	2.07	2.01	2.26	2.12
Sep 20	2.09	S	2.08	2.09	2.11	2.13	2.17	2.19	2.10	2.02	1.98	1.98	1.97	2.04	1.97	1.96	1.96	1.96	1.97	1.97	1.99	1.99	1.98	1.99	1.96	2.19	2.03
Sep 21	S	2.02	2.03	2.02	2.10	2.12	2.17	2.19	2.18	2.12	2.04	2.00	1.96	1.94	1.94	1.94	1.94	1.96	1.97	1.98	1.99	1.99	1.99	S	1.94	2.19	2.03
Sep 22	2.04	2.08	2.07	2.08	2.13	2.14	2.19	2.21	2.23	2.12	2.05	2.05	2.02	1.96	1.97	1.98	1.96	1.97	1.96	1.98	1.95	2.12	S	2.02	1.95	2.23	2.06
Sep 23	2.09	2.10	1.99	1.95	1.94	1.94	1.96	1.98	1.98	1.99	1.98	1.98	1.98	1.98	1.98	1.99	1.99	1.99	1.99	1.99	1.99	S	1.98	1.98	1.94	2.10	1.99
Sep 24	1.98	1.98	1.98	1.99	1.99	1.99	2.01	2.02	2.01	1.99	1.98	1.98	1.98	1.97	1.98	1.97	1.98	1.98	1.99	2.00	S	2.02	2.04	2.03	1.97	2.04	1.99
Sep 25	2.03	2.02	2.00	2.01	2.02	2.04	2.05	2.04	2.02	2.01	2.01	2.00	1.99	2.00	1.99	1.99	1.99	1.99	1.99	S	2.00	2.01	2.09	2.12	1.99	2.12	2.02
Sep 26	2.12	2.09	2.09	2.08	2.04	2.05	2.03	2.06	2.01	2.00	1.99	2.01	2.03	2.05	2.01	2.00	2.00	2.01	S	2.04	2.03	2.04	2.06	2.08	1.99	2.12	2.04
Sep 27	2.08	2.03	2.02	2.01	2.01	2.01	2.00	1.99	1.99	1.99	1.99	1.98	1.99	1.98	1.98	1.98	1.99	S	2.00	1.99	2.00	2.00	2.01	2.01	1.98	2.08	2.00
Sep 28	2.01	2.01	2.02	2.03	2.03	2.05	2.04	2.04	2.03	2.01	2.00	1.99	1.99	1.99	1.99	2.00	S	2.00	2.41	2.50	2.45	**2.51**	2.29	2.31	1.99	**2.51**	2.12
Sep 29	2.26	2.20	2.24	2.36	2.42	2.26	2.31	2.24	2.22	2.15	2.04	2.03	1.99	2.00	1.99	S	2.01	2.01	2.02	2.04	2.09	2.10	2.09	2.10	1.99	2.42	2.14
Sep 30	2.12	2.15	2.16	2.14	2.15	2.14	2.12	2.09	2.09	2.06	2.03	2.03	2.03	2.02	S	2.03	2.04	2.04	2.07	2.03	2.03	2.05	2.05	2.05	2.02	2.16	2.07
Diurnal Maximum	2.26	2.21	2.26	2.36	2.42	2.31	2.31	2.49	2.37	2.22	2.12	2.09	2.08	2.07	2.07	2.11	2.14	2.21	2.41	2.50	2.45	2.51	2.29	2.31			
Daiurnal Average	2.08	2.08	2.09	2.10	2.11	2.11	2.12	2.13	2.11	2.06	2.03	2.02	2.01	2.00	2.00	2.00	2.01	2.01	2.03	2.05	2.05	2.07	2.06	2.07			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for THC - St. Lina Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Instantaneous Maximums

METHANE (CH4) in ppm

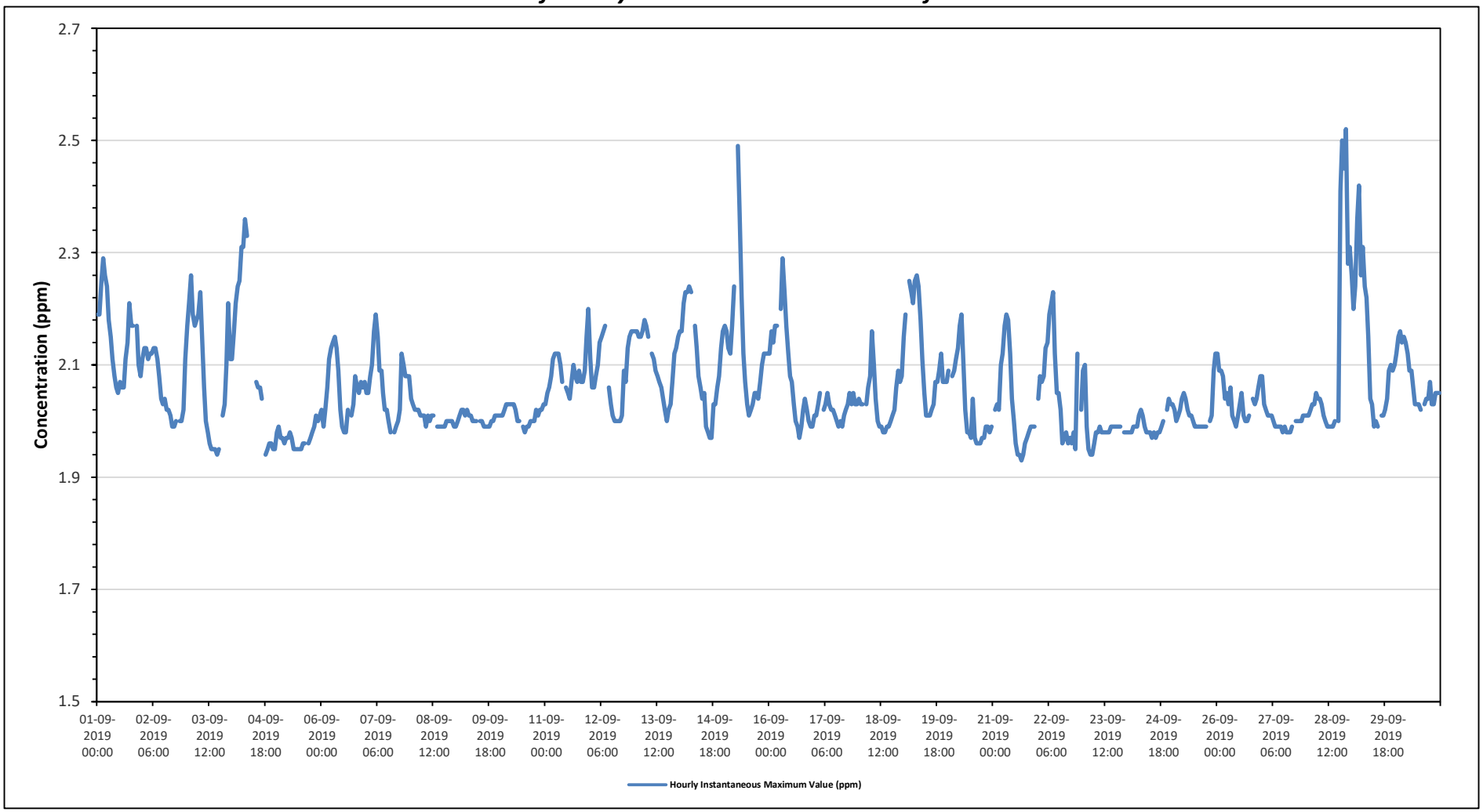
Maximum Hourly Value:	2.52	ppm	on September 28 at hour 21	Hours in Service:	720
Maximum Daily Value:	2.15	ppm	on September 1	Hours of Data:	685
Minimum Hourly Value:	1.93	ppm	on September 21 at hour 15	Hours of Missing Data:	0
Minimum Daily Value:	1.97	ppm	on September 5	Hours of Calibration:	35
Monthly Average:	2.06	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	2.19	2.19	2.25	2.29	2.26	2.24	2.18	2.15	2.11	2.08	2.06	2.05	2.07	2.06	2.06	2.11	2.14	2.21	2.17	2.17	S	2.17	2.10	2.08	2.05	2.29	**2.15**
Sep 2	2.11	2.13	2.13	2.11	2.12	2.12	2.13	2.13	2.11	2.08	2.04	2.03	2.04	2.02	2.02	2.01	1.99	1.99	2.00	S	2.00	2.00	2.02	2.11	1.99	2.13	2.06
Sep 3	2.17	2.21	2.26	2.19	2.17	2.18	2.19	2.23	2.15	2.06	2.00	1.98	1.96	1.95	1.95	1.95	1.94	1.95	S	2.01	2.03	2.10	2.21	2.11	1.94	2.26	2.08
Sep 4	2.11	2.16	2.21	2.24	2.25	2.31	2.31	2.36	2.33	C	C	C	C	2.07	2.06	2.06	2.04	S	1.94	1.95	1.96	1.96	1.95	1.95	1.94	2.36	2.12
Sep 5	1.98	1.99	1.97	1.97	1.96	1.97	1.97	1.98	1.97	1.95	1.95	1.95	1.95	1.95	1.96	1.96	S	1.96	1.97	1.98	1.99	2.01	2.00	2.01	1.95	2.01	1.97
Sep 6	2.02	1.99	2.02	2.06	2.11	2.13	2.14	2.15	2.13	2.09	2.02	1.99	1.98	1.98	2.02	S	2.01	2.03	2.08	2.06	2.05	2.07	2.06	2.07	1.98	2.15	2.05
Sep 7	2.05	2.05	2.08	2.10	2.16	2.19	2.15	2.09	2.09	2.05	2.02	2.02	2.00	1.98	S	1.98	1.99	2.00	2.02	2.12	2.10	2.08	2.08	2.08	1.98	2.19	2.06
Sep 8	2.04	2.03	2.02	2.02	2.02	2.01	2.01	2.01	1.99	2.01	2.00	2.01	2.01	S	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.00	2.00	1.99	1.99	2.04	2.01
Sep 9	1.99	2.00	2.01	2.02	2.02	2.01	2.02	2.01	2.01	2.00	2.00	2.00	S	2.00	2.00	1.99	1.99	1.99	1.99	2.00	2.00	2.01	2.01	2.01	1.99	2.02	2.00
Sep 10	2.01	2.01	2.02	2.03	2.03	2.03	2.03	2.03	2.02	2.00	2.00	S	1.99	1.98	1.99	1.99	2.00	2.00	2.00	2.02	2.01	2.02	2.02	2.03	1.98	2.03	2.01
Sep 11	2.03	2.05	2.06	2.08	2.11	2.12	2.12	2.12	2.10	2.07	S	2.06	2.05	2.04	2.07	2.10	2.08	2.07	2.09	2.07	2.07	2.09	2.15	2.20	2.03	2.20	2.09
Sep 12	2.11	2.06	2.06	2.08	2.10	2.14	2.15	2.16	2.17	S	2.06	2.03	2.01	2.00	2.00	2.00	2.00	2.01	2.09	2.07	2.13	2.15	2.16	2.16	2.00	2.17	2.08
Sep 13	2.16	2.16	2.15	2.15	2.16	2.18	2.17	2.15	S	2.12	2.11	2.09	2.08	2.07	2.06	2.04	2.02	2.00	2.02	2.03	2.07	2.12	2.13	2.15	2.00	2.18	2.10
Sep 14	2.16	2.16	2.21	2.23	2.23	2.24	2.23	S	2.17	2.13	2.08	2.06	2.04	2.05	1.99	1.98	1.97	1.97	2.03	2.03	2.06	2.08	2.13	2.16	1.97	2.24	2.10
Sep 15	2.17	2.16	2.13	2.12	2.17	2.24	S	2.49	2.37	2.22	2.12	2.07	2.03	2.01	2.02	2.03	2.05	2.05	2.04	2.07	2.10	2.12	2.12	2.12	2.01	2.49	2.13
Sep 16	2.12	2.16	2.14	2.17	2.17	S	2.20	2.29	2.23	2.17	2.12	2.08	2.07	2.03	2.00	1.99	1.97	1.99	2.02	2.04	2.02	2.00	1.99	1.99	1.97	2.29	2.09
Sep 17	2.01	2.01	2.03	2.05	S	2.02	2.03	2.05	2.03	2.02	2.02	2.01	2.00	1.99	2.00	1.99	2.01	2.02	2.03	2.05	2.03	2.05	2.03	2.03	1.99	2.05	2.02
Sep 18	2.04	2.03	2.03	S	2.03	2.06	2.08	2.16	2.10	2.04	2.00	1.99	1.99	1.98	1.98	1.99	1.99	2.00	2.01	2.02	2.06	2.09	2.07	2.08	1.98	2.16	2.04
Sep 19	2.15	2.19	S	2.25	2.23	2.21	2.25	2.26	2.24	2.18	2.11	2.05	2.01	2.01	2.01	2.02	2.03	2.07	2.07	2.09	2.12	2.07	2.07	2.07	2.01	2.26	2.12
Sep 20	2.09	S	2.08	2.09	2.11	2.13	2.17	2.19	2.10	2.02	1.98	1.98	1.97	2.04	1.97	1.96	1.96	1.96	1.97	1.97	1.99	1.99	1.98	1.99	1.96	2.19	2.03
Sep 21	S	2.02	2.03	2.02	2.10	2.12	2.17	2.19	2.18	2.12	2.04	2.00	1.96	1.94	1.94	1.93	1.94	1.96	1.97	1.98	1.99	1.99	1.99	S	1.93	2.19	2.03
Sep 22	2.04	2.08	2.07	2.08	2.13	2.14	2.19	2.21	2.23	2.12	2.05	2.05	2.02	1.96	1.97	1.98	1.96	1.97	1.96	1.98	1.95	2.12	S	2.02	1.95	2.23	2.06
Sep 23	2.09	2.10	1.99	1.95	1.94	1.94	1.96	1.98	1.98	1.99	1.98	1.98	1.98	1.98	1.98	1.99	1.99	1.99	1.99	1.99	1.99	S	1.98	1.98	1.94	2.10	1.99
Sep 24	1.98	1.98	1.98	1.99	1.99	1.99	2.01	2.02	2.01	1.99	1.98	1.98	1.98	1.97	1.98	1.97	1.98	1.98	1.99	2.00	S	2.02	2.04	2.03	1.97	2.04	1.99
Sep 25	2.03	2.02	2.00	2.01	2.02	2.04	2.05	2.04	2.02	2.01	2.01	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	S	2.00	2.01	2.09	2.12	1.99	2.12	2.02
Sep 26	2.12	2.09	2.09	2.08	2.04	2.05	2.03	2.06	2.01	2.00	1.99	2.01	2.03	2.05	2.01	2.00	2.00	2.01	S	2.04	2.03	2.04	2.06	2.08	1.99	2.12	2.04
Sep 27	2.08	2.03	2.02	2.01	2.01	2.01	2.00	1.99	1.99	1.99	1.99	1.98	1.99	1.98	1.98	1.98	1.99	S	2.00	2.00	2.00	2.00	2.01	2.01	1.98	2.08	2.00
Sep 28	2.01	2.01	2.02	2.03	2.03	2.05	2.04	2.04	2.03	2.01	2.00	1.99	1.99	1.99	1.99	2.00	S	2.00	2.41	2.50	2.45	**2.52**	2.28	2.31	1.99	**2.52**	2.12
Sep 29	2.26	2.20	2.24	2.36	2.42	2.26	2.31	2.24	2.22	2.15	2.04	2.03	1.99	2.00	1.99	S	2.01	2.01	2.02	2.04	2.09	2.10	2.09	2.10	1.99	2.42	2.14
Sep 30	2.12	2.15	2.16	2.14	2.15	2.14	2.12	2.09	2.09	2.06	2.03	2.03	2.03	2.02	S	2.03	2.04	2.04	2.07	2.03	2.03	2.05	2.05	2.05	2.02	2.16	2.07
Diurnal Maximum	2.26	2.21	2.26	2.36	2.42	2.31	2.31	2.49	2.37	2.22	2.12	2.09	2.08	2.07	2.07	2.11	2.14	2.21	2.41	2.50	2.45	2.52	2.28	2.31			
Daiurnal Average	2.08	2.08	2.08	2.10	2.11	2.11	2.12	2.13	2.11	2.06	2.03	2.02	2.01	2.00	2.00	2.00	2.00	2.01	2.03	2.05	2.05	2.07	2.06	2.07			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for CH4 - St. Lina Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Instantaneous Maximums

NON-METHANE HYDROCARBONS (NMHC) in ppm

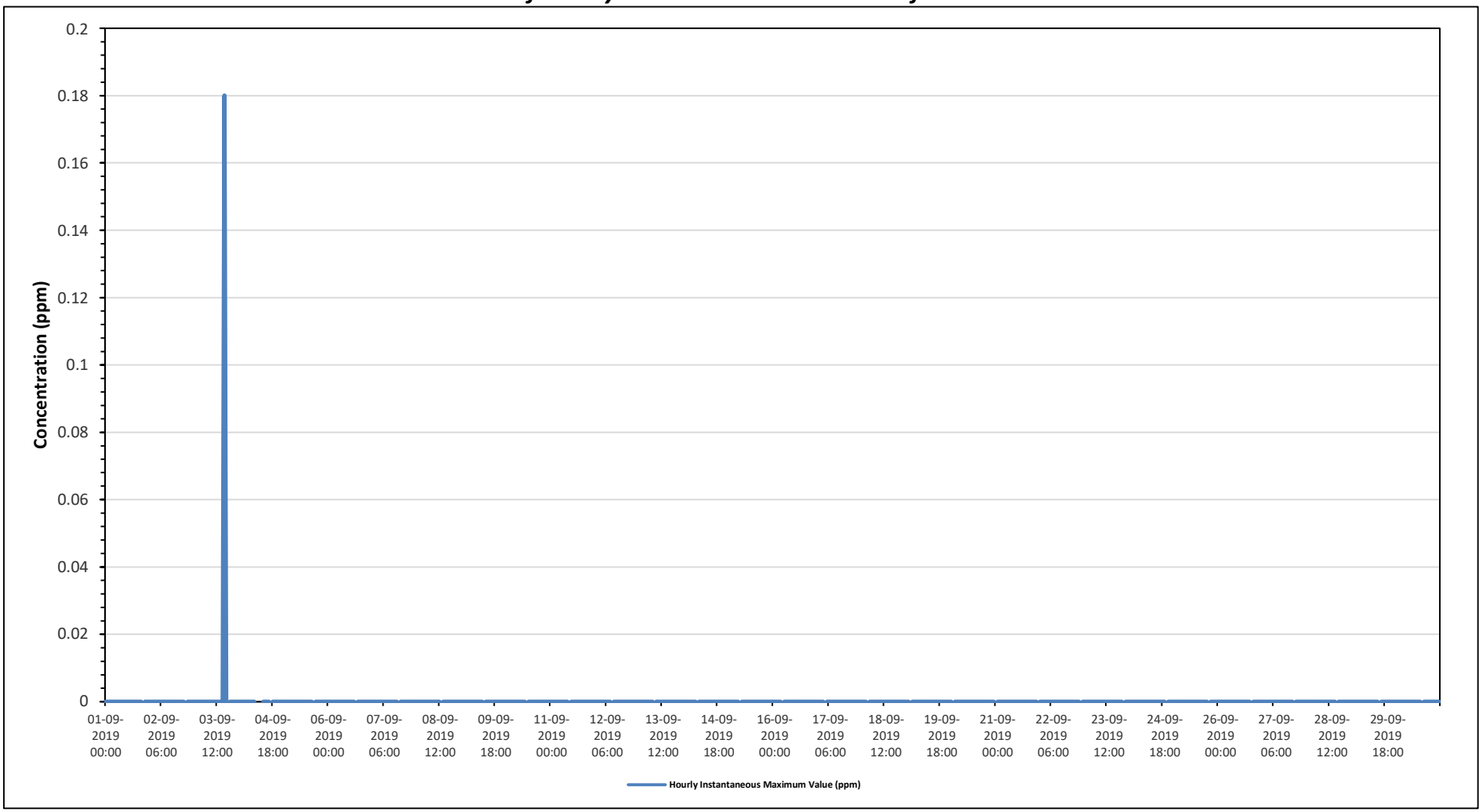
Maximum Hourly Value:	0.18	ppm	on September 3 at hour 16	Hours in Service:	720
Maximum Daily Value:	0.01	ppm	on September 3	Hours of Data:	685
Minimum Hourly Value:	0.00	ppm	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.00	ppm	on September 1	Hours of Calibration:	35
Monthly Average:	0.00	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 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
Sep 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
Sep 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	**0.18**	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	**0.18**	**0.01**
Sep 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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	0.00	0.00	0.00	0.00	0.00
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Diurnal Maximum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00			
Daiurnal Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for NMHC - St. Lina Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - September 2019

Summary of Hourly Instantaneous Maximums

WIND SPEED (WS) in km/hr

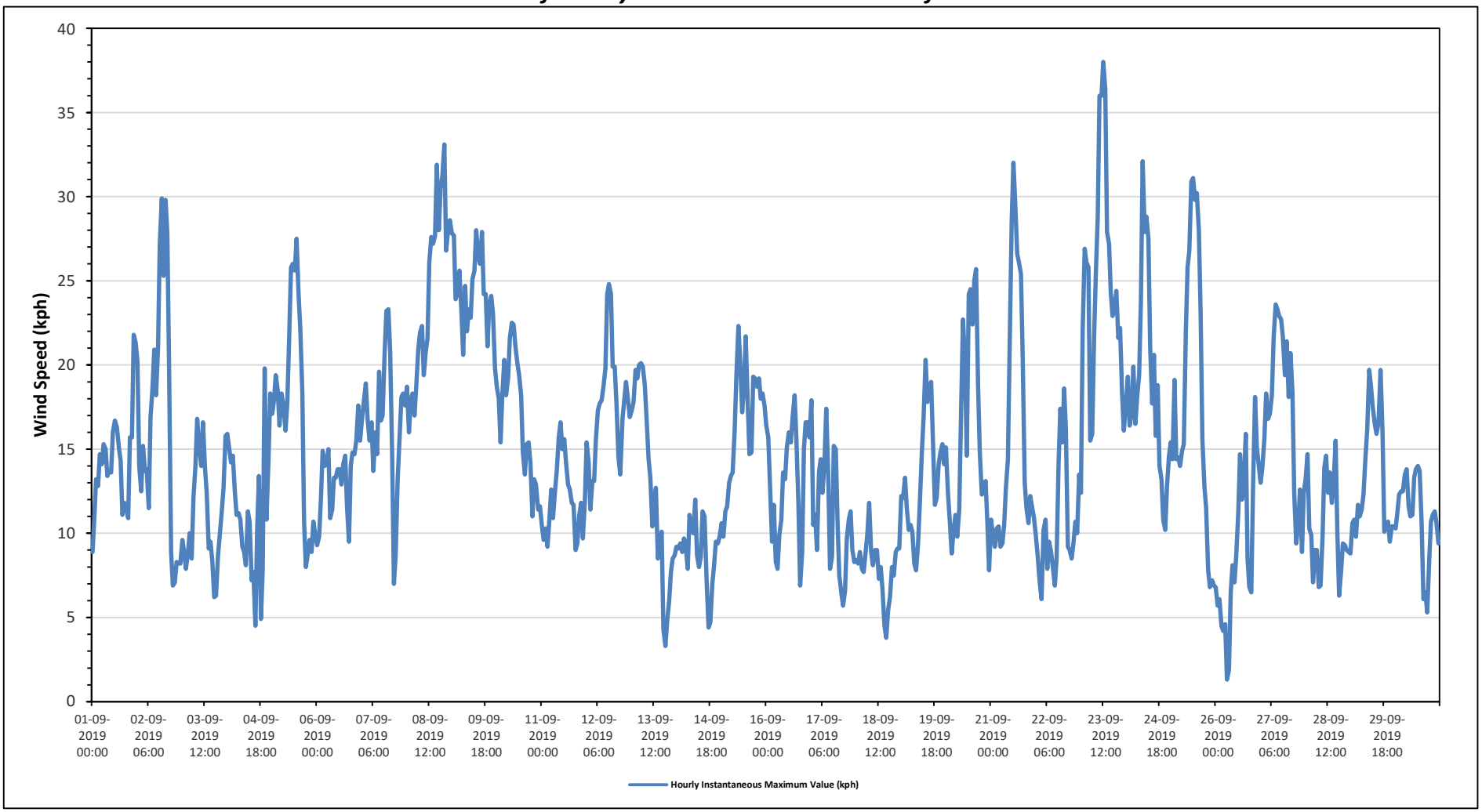
Maximum Hourly Value:	38.0	kph	on September 23 at hour 12	Hours in Service:	720
Maximum Daily Value:	24.8	kph	on September 23	Hours of Data:	720
Minimum Hourly Value:	1.3	kph	on September 26 at hour 6	Hours of Missing Data:	0
Minimum Daily Value:	8.0	kph	on September 18	Hours of Calibration:	0
Monthly Average:	14.8	kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	8.9	10.9	13.2	12.8	14.7	14.1	15.3	15.0	13.4	13.7	13.6	16.0	16.7	16.3	15.1	14.3	11.1	11.8	11.5	10.9	15.7	15.7	21.8	21.3	8.9	21.8	14.3
Sep 2	20.2	14.0	12.5	15.2	13.7	13.8	11.5	16.9	18.4	20.9	18.2	21.0	27.2	29.9	25.3	29.8	27.8	19.8	8.9	6.9	7.1	8.3	8.2	8.2	6.9	29.9	16.8
Sep 3	9.6	8.9	7.9	8.8	10.0	8.5	12.1	14.0	16.8	15.3	14.0	16.6	13.9	12.4	9.1	9.5	8.4	6.2	6.3	8.7	9.9	11.3	12.7	15.8	6.2	16.8	11.1
Sep 4	15.9	15.1	14.2	14.6	12.5	11.1	11.2	10.8	9.2	8.9	8.1	11.3	10.7	7.2	7.7	4.5	10.2	13.4	4.9	7.8	19.8	10.8	14.3	18.3	4.5	19.8	11.4
Sep 5	17.1	17.9	19.4	18.5	16.4	18.3	17.7	16.1	17.7	21.3	25.8	26.0	25.6	27.5	24.2	22.1	18.4	10.7	8.0	8.8	9.6	8.9	10.7	9.9	8.0	27.5	17.4
Sep 6	9.3	9.8	12.0	14.9	14.0	14.1	15.0	10.9	11.4	13.3	13.3	13.8	13.8	12.9	14.1	14.6	11.6	9.5	14.0	14.8	14.7	15.5	17.6	15.5	9.3	17.6	13.4
Sep 7	16.8	17.8	18.9	16.8	15.5	16.6	13.7	16.0	14.7	19.6	16.7	17.0	20.7	23.2	23.3	20.8	14.7	7.0	8.7	13.2	15.5	18.1	18.3	17.6	7.0	23.3	16.7
Sep 8	18.7	16.0	17.9	18.3	17.0	18.7	20.9	21.9	22.3	19.4	20.8	21.6	26.1	27.6	27.2	27.7	31.9	28.0	30.5	31.2	33.1	26.8	28.0	28.6	16.0	33.1	24.2
Sep 9	27.8	27.7	23.9	24.3	25.6	23.2	20.6	24.7	22.0	23.3	22.8	25.1	25.6	28.0	26.4	26.0	27.9	24.2	24.2	21.1	23.6	24.1	23.0	19.8	19.8	28.0	24.4
Sep 10	18.7	18.0	15.4	18.2	20.3	18.2	19.2	21.6	22.5	22.4	21.0	20.1	19.4	18.2	14.8	13.5	15.3	15.4	14.2	11.0	13.2	12.9	11.4	11.6	11.0	22.5	16.9
Sep 11	10.4	9.6	10.3	9.2	10.7	12.6	10.9	12.5	13.7	15.7	16.6	15.0	15.6	14.2	12.9	12.6	11.8	11.7	9.0	9.4	11.0	11.8	9.7	11.9	9.0	16.6	12.0
Sep 12	15.4	14.2	11.4	13.1	13.1	15.6	17.3	17.7	17.9	18.7	19.8	24.2	24.8	24.2	19.9	19.9	17.7	14.5	13.5	16.8	17.9	19.0	17.9	16.9	11.4	24.8	17.6
Sep 13	17.3	17.8	19.7	19.2	20.0	20.1	19.9	18.8	16.8	14.4	13.3	10.4	11.8	12.7	8.5	9.4	10.1	4.3	3.3	4.8	6.0	7.7	8.5	8.7	3.3	20.1	12.6
Sep 14	9.2	9.1	9.4	8.9	9.7	9.2	7.9	11.1	10.2	10.0	12.0	8.7	8.0	8.6	11.3	11.0	7.3	4.4	4.7	7.0	8.1	9.5	9.4	9.8	4.4	12.0	8.9
Sep 15	10.6	9.8	11.3	11.6	13.0	13.4	13.6	16.1	19.4	22.3	20.2	17.2	18.6	21.7	17.8	14.7	14.8	19.3	19.2	18.7	19.2	18.0	18.3	17.6	9.8	22.3	16.5
Sep 16	16.4	15.7	12.8	9.5	11.7	8.3	7.9	9.9	10.8	13.6	13.2	15.1	16.0	15.4	16.9	18.2	15.6	11.8	6.9	8.9	15.0	16.6	16.6	15.7	6.9	18.2	13.3
Sep 17	17.9	10.5	11.1	9.0	13.6	14.4	12.4	14.2	17.4	13.4	7.9	8.6	15.2	15.0	10.7	7.5	6.5	5.7	6.6	9.7	10.8	11.3	9.0	8.3	5.7	17.9	11.1
Sep 18	8.4	8.2	8.9	7.9	7.7	8.9	10.0	11.8	8.9	8.1	9.0	9.0	7.3	8.0	6.7	4.5	3.8	5.5	6.2	8.0	7.5	8.9	9.1	9.1	3.8	11.8	**8.0**
Sep 19	12.2	12.1	13.3	11.5	10.2	10.5	10.1	8.2	7.8	9.4	11.8	14.8	16.9	20.3	17.8	18.3	19.0	15.6	11.7	12.1	14.1	14.8	15.3	14.1	7.8	20.3	13.4
Sep 20	15.1	12.4	10.8	8.8	10.1	11.1	9.8	11.4	17.7	22.7	20.1	14.6	24.2	24.5	22.4	25.0	25.7	18.8	14.8	12.3	12.5	13.1	10.7	7.8	7.8	25.7	15.7
Sep 21	10.8	9.9	9.2	10.3	10.4	9.2	9.4	10.5	12.7	14.4	21.1	28.5	32.0	29.3	26.6	26.0	25.4	20.4	13.0	11.5	10.6	12.2	11.5	10.9	9.2	32.0	16.1
Sep 22	9.9	8.6	7.2	6.1	10.2	10.8	7.9	9.5	8.9	8.0	6.9	8.5	14.2	17.4	15.4	18.6	16.2	9.2	9.0	8.5	9.4	10.7	10.0	13.5	6.1	18.6	10.6
Sep 23	12.4	22.1	26.9	26.1	25.8	15.5	15.9	21.4	25.2	28.8	36.0	36.0	**38.0**	36.4	27.9	27.2	24.3	22.9	23.4	24.4	21.6	22.2	18.3	16.1	12.4	**38.0**	**24.8**
Sep 24	17.6	19.3	16.4	17.1	19.9	16.5	18.1	19.4	23.8	32.1	27.9	28.8	27.5	21.0	17.7	20.6	15.8	18.8	14.0	13.2	10.8	10.2	12.8	14.6	10.2	32.1	18.9
Sep 25	15.4	14.4	19.1	14.4	14.5	14.0	14.9	15.3	21.9	25.8	26.8	30.9	31.1	29.8	30.2	28.0	23.1	15.6	12.8	11.5	7.8	6.8	7.2	6.9	6.8	31.1	18.3
Sep 26	6.8	5.7	6.1	4.5	4.2	4.6	**1.3**	1.9	6.5	8.1	7.1	8.7	11.2	14.7	12.0	13.0	15.9	8.5	6.8	6.5	12.8	18.1	15.1	14.0	**1.3**	18.1	8.9
Sep 27	13.0	13.9	15.6	18.3	16.8	17.1	18.2	21.6	23.6	23.3	22.9	22.7	21.6	19.4	21.4	18.1	20.7	18.4	12.4	9.4	10.5	12.6	8.9	12.4	8.9	23.6	17.2
Sep 28	13.3	14.7	10.3	9.9	7.1	9.0	9.0	6.8	6.9	9.8	13.9	14.6	12.4	13.6	11.8	13.0	15.5	10.0	6.3	7.8	9.4	9.3	9.0	8.9	6.3	15.5	10.5
Sep 29	8.8	10.6	10.8	9.8	11.7	11.0	11.4	12.3	14.5	16.2	19.7	18.7	17.5	16.5	15.9	16.6	19.7	16.0	10.1	10.4	10.7	9.5	10.4	10.4	8.8	19.7	13.3
Sep 30	10.3	11.2	12.3	12.5	12.5	13.5	13.8	11.6	11.0	11.1	13.3	13.8	14.0	13.7	10.5	6.1	6.5	5.3	8.4	10.7	11.1	11.3	10.6	9.4	5.3	14.0	11.0
Diurnal Maximum	27.8	27.7	26.9	26.1	25.8	23.2	20.9	24.7	25.2	32.1	36.0	36.0	38.0	36.4	30.2	29.8	31.9	28.0	30.5	31.2	33.1	26.8	28.0	28.6			
Daiurnal Average	13.8	13.5	13.6	13.3	13.8	13.4	13.2	14.3	15.5	16.8	17.1	17.9	19.3	19.3	17.4	17.0	16.4	13.4	11.4	11.9	13.3	13.5	13.5	13.5			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for WS - St. Lina Site



BONNYVILLE -EAST STATION

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Instantaneous Maximums

SULPHUR DIOXIDE (SO_2) in ppb

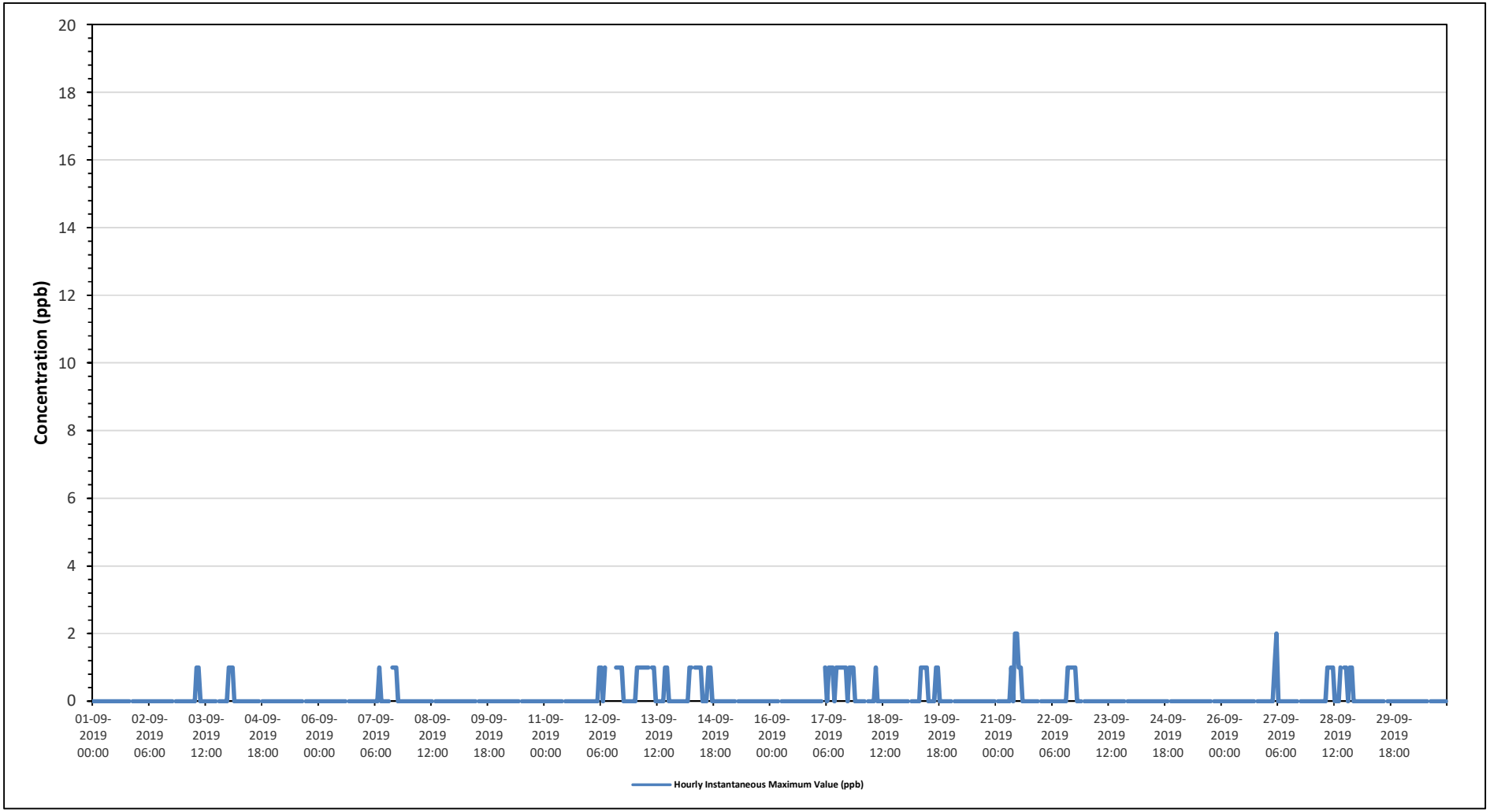
Maximum Hourly Value:	2	ppb	on September 21 at hour 10	Hours in Service:	720
Maximum Daily Value:	0.6	ppb	on September 17	Hours of Data:	685
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 1	Hours of Calibration:	35
Monthly Average:	0.1	ppb		Operational Uptime:	100.0

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

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for SO2 - Bonnyville - East Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Instantaneous Maximums

HYDROGEN SULPHIDE (H_2S) in ppb

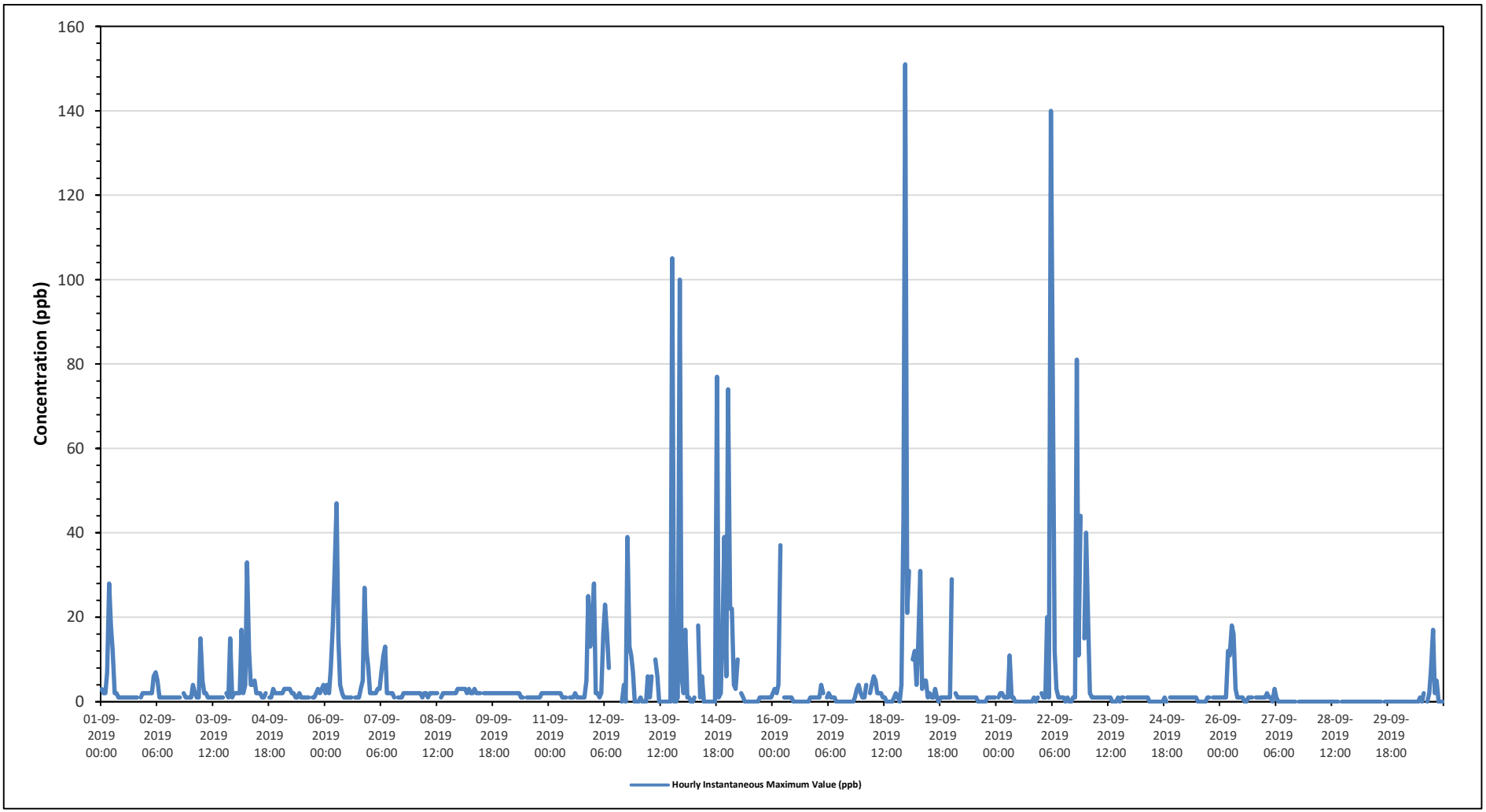
Maximum Hourly Value:	151	ppb	on September 18 at hour 23	Hours in Service:	720
Maximum Daily Value:	18.2	ppb	on September 22	Hours of Data:	684
Minimum Hourly Value:	0	ppb	on September 12 at hour 15	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 28	Hours of Calibration:	36
Monthly Average:	4.0	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	3	2	2	7	28	18	12	2	2	1	1	1	1	1	1	1	1	1	1	1	S	1	2	2	1	28	4.0
Sep 2	2	2	2	2	6	7	5	1	1	1	1	1	1	1	1	1	1	1	1	S	2	1	1	1	1	7	1.9
Sep 3	1	4	2	1	1	15	5	2	2	1	1	1	1	1	1	1	1	1	S	2	1	15	1	2	1	15	2.7
Sep 4	2	2	2	17	2	4	33	12	4	4	5	2	2	2	1	1	2	S	1	1	3	2	2	2	1	33	4.7
Sep 5	2	2	3	3	3	3	2	2	1	1	2	1	1	1	1	1	S	1	1	2	3	2	3	4	1	4	2.0
Sep 6	2	4	2	8	18	31	47	15	4	2	1	1	1	1	1	S	1	1	1	3	5	27	12	8	1	47	8.5
Sep 7	2	2	2	2	3	3	7	11	13	2	2	2	2	1	S	1	1	1	2	2	2	2	2	2	1	13	3.0
Sep 8	2	2	2	2	1	2	2	1	2	2	2	2	2	S	1	2	2	2	2	2	2	2	2	3	1	3	1.9
Sep 9	3	3	3	3	2	3	2	2	3	2	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2	3	2.3
Sep 10	2	2	2	2	2	2	2	2	2	1	1	S	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1.6
Sep 11	2	2	2	2	2	2	2	1	1	1	S	1	1	1	2	1	1	1	1	1	5	25	13	19	1	25	3.9
Sep 12	28	2	2	1	2	16	23	16	8	S	C	C	C	C	C	0	4	0	39	13	11	7	0	0	0	39	9.6
Sep 13	0	1	0	0	0	6	1	6	S	10	6	0	0	0	0	0	0	0	105	0	0	1	100	6	0	105	10.5
Sep 14	2	17	1	1	0	0	1	S	18	1	6	0	0	0	0	0	0	0	77	1	2	17	39	6	0	77	8.2
Sep 15	74	22	22	4	3	10	S	2	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	74	6.3
Sep 16	2	3	2	4	37	S	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	0	37	2.5
Sep 17	1	1	4	2	S	1	2	1	1	1	0	0	0	0	0	0	0	0	0	0	1	3	4	2	0	4	1.0
Sep 18	1	1	4	S	2	4	6	5	2	2	2	1	1	0	0	0	0	1	2	1	0	4	43	151	0	151	10.1
Sep 19	21	31	S	10	12	4	14	31	3	5	5	1	2	1	1	3	1	0	1	1	1	1	1	1	0	31	6.6
Sep 20	29	S	2	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	0	29	2.0
Sep 21	S	1	2	2	1	1	1	11	1	1	0	0	0	0	0	0	0	0	0	0	1	0	1	S	0	11	1.0
Sep 22	2	1	1	20	1	140	81	12	3	1	1	1	1	0	1	0	0	1	1	81	11	44	S	15	0	140	18.2
Sep 23	40	19	2	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	1	1	S	1	1	0	40	3.3
Sep 24	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	S	1	1	1	0	1	0.6
Sep 25	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1	S	1	1	1	1	0	1	0.8
Sep 26	1	1	1	1	12	11	18	16	3	1	1	1	1	0	0	1	1	1	S	1	1	1	1	1	0	18	3.3
Sep 27	1	2	1	1	0	3	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	3	0.4
Sep 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	0.0
Sep 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	0.0
Sep 30	0	0	0	0	0	0	0	0	0	0	0	1	0	2	S	0	2	8	17	2	5	0	0	0	0	17	1.6
Diurnal Maximum	74	31	22	20	37	140	81	31	18	10	6	2	2	2	2	3	4	8	105	81	11	44	100	151			
Daiurnal Average	7.8	4.5	2.4	3.4	4.9	10.0	9.4	5.4	2.8	1.6	1.5	0.8	0.7	0.6	0.5	0.6	0.8	0.9	9.2	4.3	2.3	5.7	8.2	8.1			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for H2S - Bonnyville - East Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Instantaneous Maximums

OXIDES OF NITROGEN (NOx) in ppb

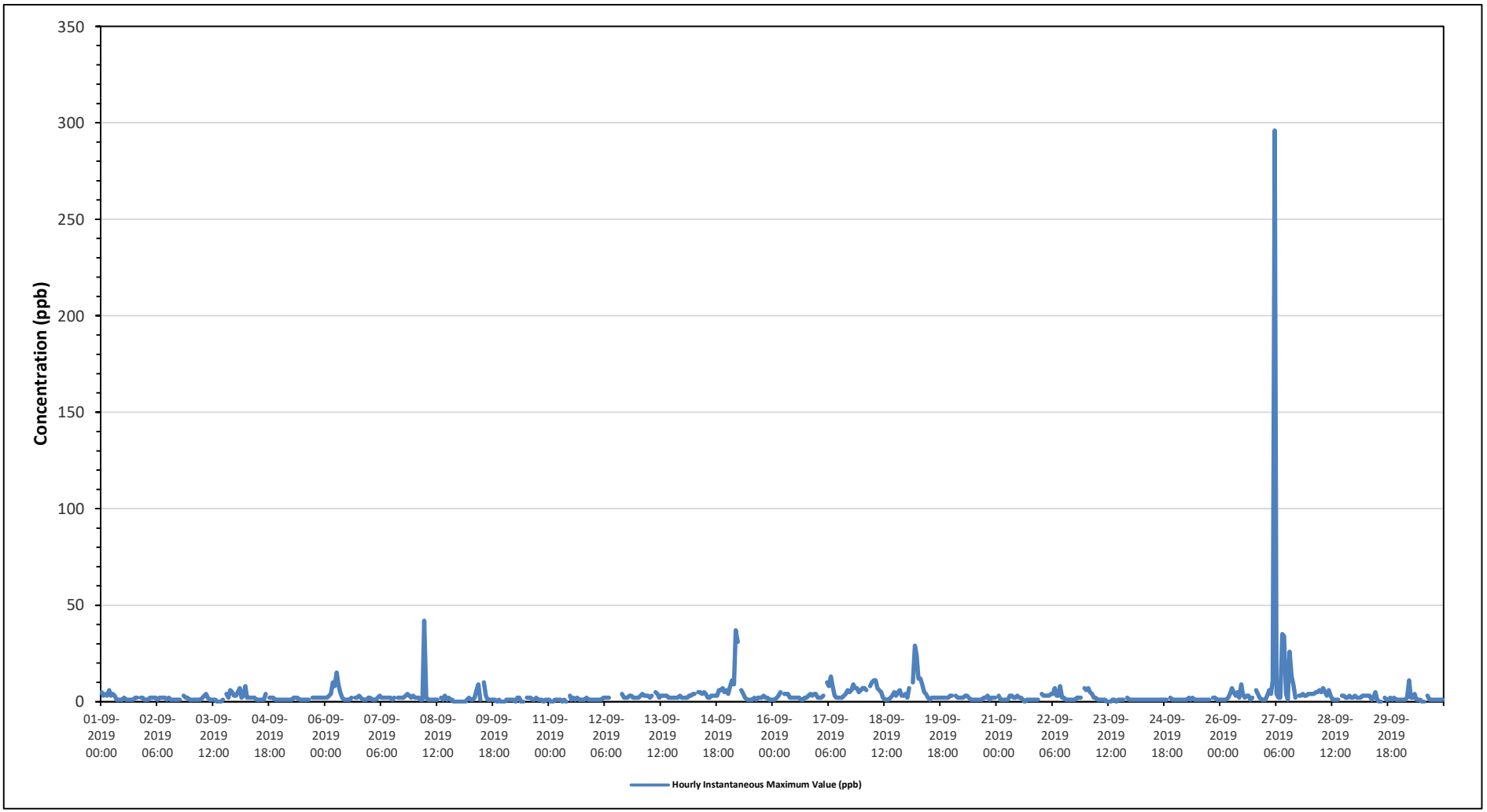
Maximum Hourly Value:	296	ppb	on September 27 at hour 5	Hours in Service:	720
Maximum Daily Value:	20.6	ppb	on September 27	Hours of Data:	684
Minimum Hourly Value:	0	ppb	on September 3 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	1.0	ppb	on September 10	Hours of Calibration:	36
Monthly Average:	3.2	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	5	3	4	3	6	3	4	3	1	1	1	1	2	1	1	1	1	1	2	2	S	2	2	1	1	6	2.2
Sep 2	1	1	2	2	2	2	1	2	2	2	2	1	2	1	1	1	1	1	1	S	3	2	2	1	1	3	1.6
Sep 3	1	1	1	1	1	1	2	3	4	2	1	1	1	1	0	0	0	1	S	4	2	6	5	3	0	6	1.8
Sep 4	3	5	7	2	3	8	2	2	2	2	2	1	1	1	1	1	4	S	2	2	2	1	1	1	1	8	2.4
Sep 5	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	S	2	2	2	2	2	2	2	1	2	1.4
Sep 6	2	2	3	4	10	8	15	9	5	2	1	1	1	1	2	S	2	2	3	2	1	1	1	2	1	15	3.5
Sep 7	2	1	1	1	2	3	2	2	2	2	2	2	1	2	S	2	2	2	2	3	4	3	2	3	1	4	2.1
Sep 8	2	2	2	1	1	42	2	1	1	1	1	1	1	S	2	1	3	1	2	1	1	0	0	0	0	42	3.0
Sep 9	0	0	0	0	1	2	1	1	2	6	9	1	S	10	3	1	1	1	1	1	0	1	0	0	0	10	1.8
Sep 10	0	1	1	1	1	1	0	2	2	0	0	S	2	2	2	1	1	2	1	1	1	0	1	1	0	2	1.0
Sep 11	1	0	0	1	1	1	1	0	1	0	S	3	1	2	1	2	1	1	1	1	2	1	1	1	0	3	1.0
Sep 12	1	1	1	1	1	2	2	2	2	S	C	C	C	C	C	4	2	2	2	3	3	2	2	2	1	4	1.9
Sep 13	2	3	4	3	3	3	2	3	S	5	4	2	3	3	3	3	2	2	2	2	2	2	3	2	2	5	2.7
Sep 14	2	2	2	3	3	4	4	S	5	5	4	5	4	2	2	3	3	3	3	6	6	7	5	6	2	7	3.9
Sep 15	4	8	11	9	37	31	S	6	4	2	1	1	1	1	2	1	2	2	2	3	2	2	1	1	1	37	5.8
Sep 16	1	1	2	3	5	S	4	4	4	2	2	2	2	2	2	1	1	2	2	3	4	3	4	4	1	5	2.6
Sep 17	2	2	2	3	S	10	8	13	8	3	2	2	2	2	3	4	6	5	6	9	7	7	5	6	2	13	5.1
Sep 18	7	7	6	S	8	10	11	11	7	6	5	2	1	1	1	2	3	5	3	5	6	3	3	4	1	11	5.1
Sep 19	2	7	S	10	29	24	12	12	9	5	4	2	1	2	2	2	2	2	2	2	2	2	2	3	1	29	6.1
Sep 20	3	S	3	2	2	2	2	3	3	2	1	1	1	1	1	1	1	2	2	3	1	2	2	2	1	3	1.9
Sep 21	S	3	1	1	1	1	1	3	3	2	2	3	2	2	1	0	1	1	1	1	1	1	1	S	0	3	1.5
Sep 22	4	3	3	3	3	4	4	7	3	3	8	2	2	1	1	1	1	1	1	2	2	2	S	7	1	8	3.0
Sep 23	6	7	5	4	2	2	1	1	1	1	1	0	0	0	1	1	0	1	1	1	1	S	2	1	0	7	1.7
Sep 24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	2	1	1	1	2	1.0
Sep 25	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	S	2	2	1	1	1	2	1.2
Sep 26	1	1	1	1	2	4	7	5	3	5	2	9	4	2	3	3	1	2	S	6	4	2	1	1	1	9	3.0
Sep 27	1	3	6	4	11	296	4	2	2	35	34	4	1	26	13	9	2	S	3	3	4	3	3	4	1	296	20.6
Sep 28	4	4	4	5	5	6	5	7	5	3	6	3	1	1	1	1	S	3	3	2	2	3	2	2	1	7	3.4
Sep 29	3	2	2	2	3	3	3	3	3	1	2	5	1	0	0	S	2	1	1	2	1	2	1	1	0	5	1.9
Sep 30	1	1	1	1	2	11	2	2	4	1	1	1	0	0	S	3	1	1	1	1	1	1	1	1	0	11	1.7
Diurnal Maximum	7	8	11	10	37	296	15	13	9	35	34	9	4	26	13	9	6	5	6	9	7	7	5	7			
Daiurnal Average	2.2	2.6	2.7	2.6	5.1	16.8	3.6	3.9	3.2	3.6	3.6	2.1	1.5	2.5	1.9	1.9	1.7	1.8	1.9	2.6	2.5	2.3	2.0	2.2			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for NOx - Bonnyville - East Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Instantaneous Maximums

NITRIC OXIDE (NO) in ppb

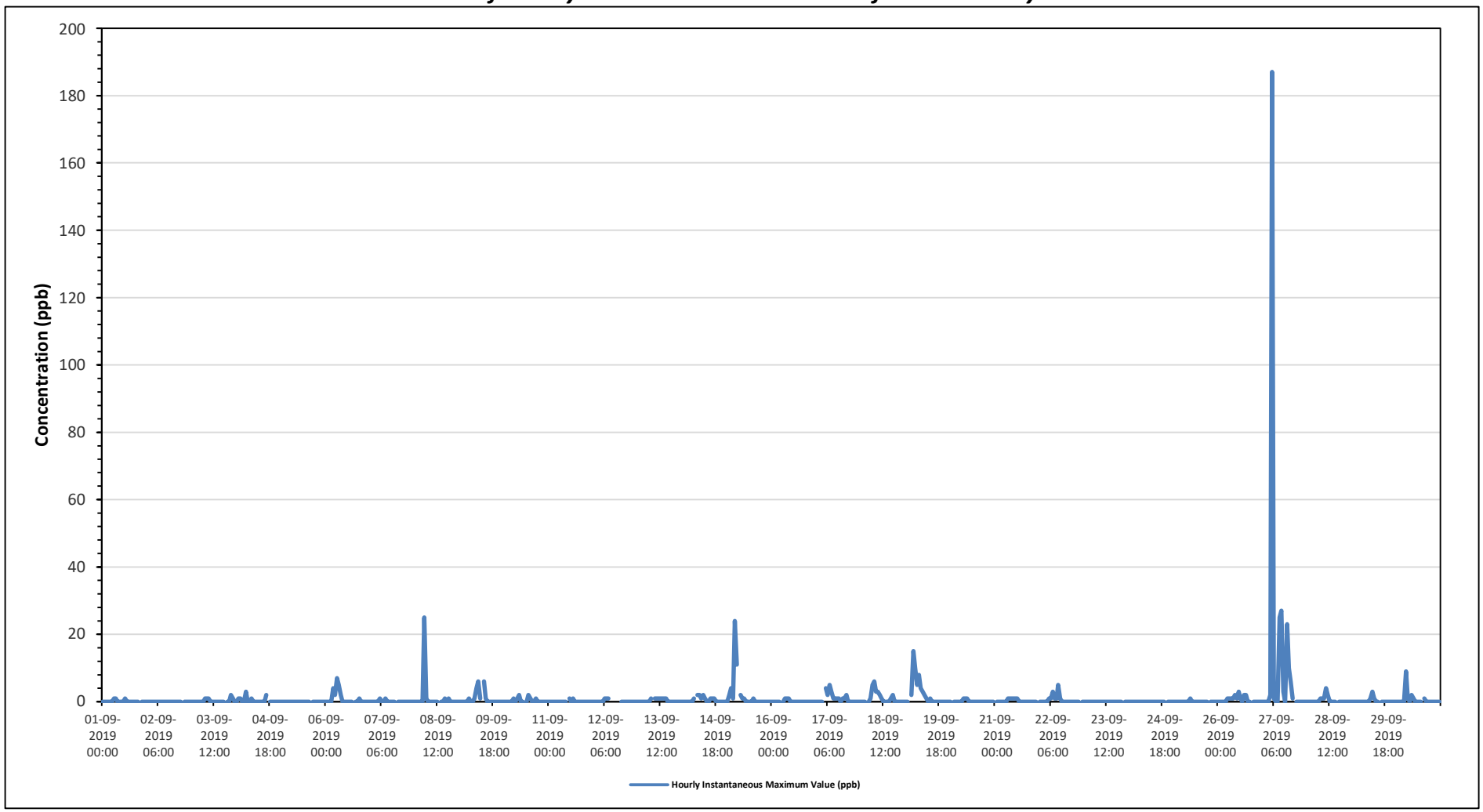
Maximum Hourly Value:	187	ppb	on September 27 at hour 5	Hours in Service:	720
Maximum Daily Value:	12.4	ppb	on September 27	Hours of Data:	684
Minimum Hourly Value:	0	ppb	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on September 2	Hours of Calibration:	36
Monthly Average:	0.9	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	S	0	0	0	0	1	0.1
Sep 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	0.0
Sep 3	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	S	0	0	2	1	0	0	2	0.3
Sep 4	0	1	1	0	0	3	0	0	1	0	0	0	0	0	0	0	2	S	0	0	0	0	0	0	0	3	0.3
Sep 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	0.0
Sep 6	0	0	0	0	4	2	7	5	2	0	0	0	0	0	0	S	0	0	1	0	0	0	0	0	0	7	0.9
Sep 7	0	0	0	0	0	1	0	0	1	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 8	0	0	0	0	0	25	1	0	0	0	0	0	0	S	0	0	1	0	1	0	0	0	0	0	0	25	1.2
Sep 9	0	0	0	0	0	1	0	0	1	4	6	1	S	6	1	0	0	0	0	0	0	0	0	0	0	6	0.9
Sep 10	0	0	0	0	0	1	0	1	2	0	0	S	0	2	1	0	0	1	0	0	0	0	0	0	0	2	0.3
Sep 11	0	0	0	0	0	0	0	0	0	0	S	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 12	0	0	0	0	0	0	1	1	1	S	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	1	0.2
Sep 13	0	0	0	0	0	0	0	1	S	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0.3
Sep 14	0	0	0	0	0	0	1	S	2	2	1	2	1	0	0	1	1	1	0	0	0	0	0	0	0	2	0.5
Sep 15	0	2	4	1	24	11	S	2	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	24	2.0
Sep 16	0	0	0	0	0	S	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 17	0	0	0	0	S	4	2	5	3	1	1	1	1	0	1	1	2	0	0	0	0	0	0	0	0	5	1.0
Sep 18	0	0	0	S	0	1	5	6	3	3	2	1	0	0	0	0	1	2	0	0	0	0	0	0	0	6	1.0
Sep 19	0	0	S	2	15	10	5	8	4	3	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	15	2.2
Sep 20	0	S	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Sep 21	S	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	S	0	1	0.3
Sep 22	0	0	0	0	0	1	1	3	1	1	5	1	0	0	0	0	0	0	0	0	0	0	S	0	0	5	0.6
Sep 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	0.0
Sep 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	0.0
Sep 25	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0.0
Sep 26	0	0	0	0	0	1	1	1	1	2	1	3	1	0	2	2	0	0	S	0	0	0	0	0	0	3	0.7
Sep 27	0	0	0	0	2	**187**	1	0	0	25	27	3	0	23	10	6	1	S	0	0	0	0	0	0	0	**187**	**12.4**
Sep 28	0	0	0	0	0	0	0	1	1	1	4	2	0	0	0	0	S	0	0	0	0	0	0	0	0	4	0.4
Sep 29	0	0	0	0	0	0	0	0	0	0	1	3	1	0	0	S	0	0	0	0	0	0	0	0	0	3	0.2
Sep 30	0	0	0	0	0	9	1	0	2	1	0	0	0	0	S	1	0	0	0	0	0	0	0	0	0	9	0.6
Diurnal Maximum	0	2	4	2	24	187	7	8	4	25	27	3	1	23	10	6	2	2	1	0	0	2	1	0			
Daiurnal Average	0.0	0.1	0.2	0.1	1.6	8.9	0.9	1.3	1.0	1.7	1.9	0.8	0.3	1.2	0.6	0.4	0.3	0.1	0.1	0.0	0.0	0.1	0.0	0.0			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for NO - Bonnyville - East Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Instantaneous Maximums

NITROGEN DIOXIDE (NO_2) in ppb

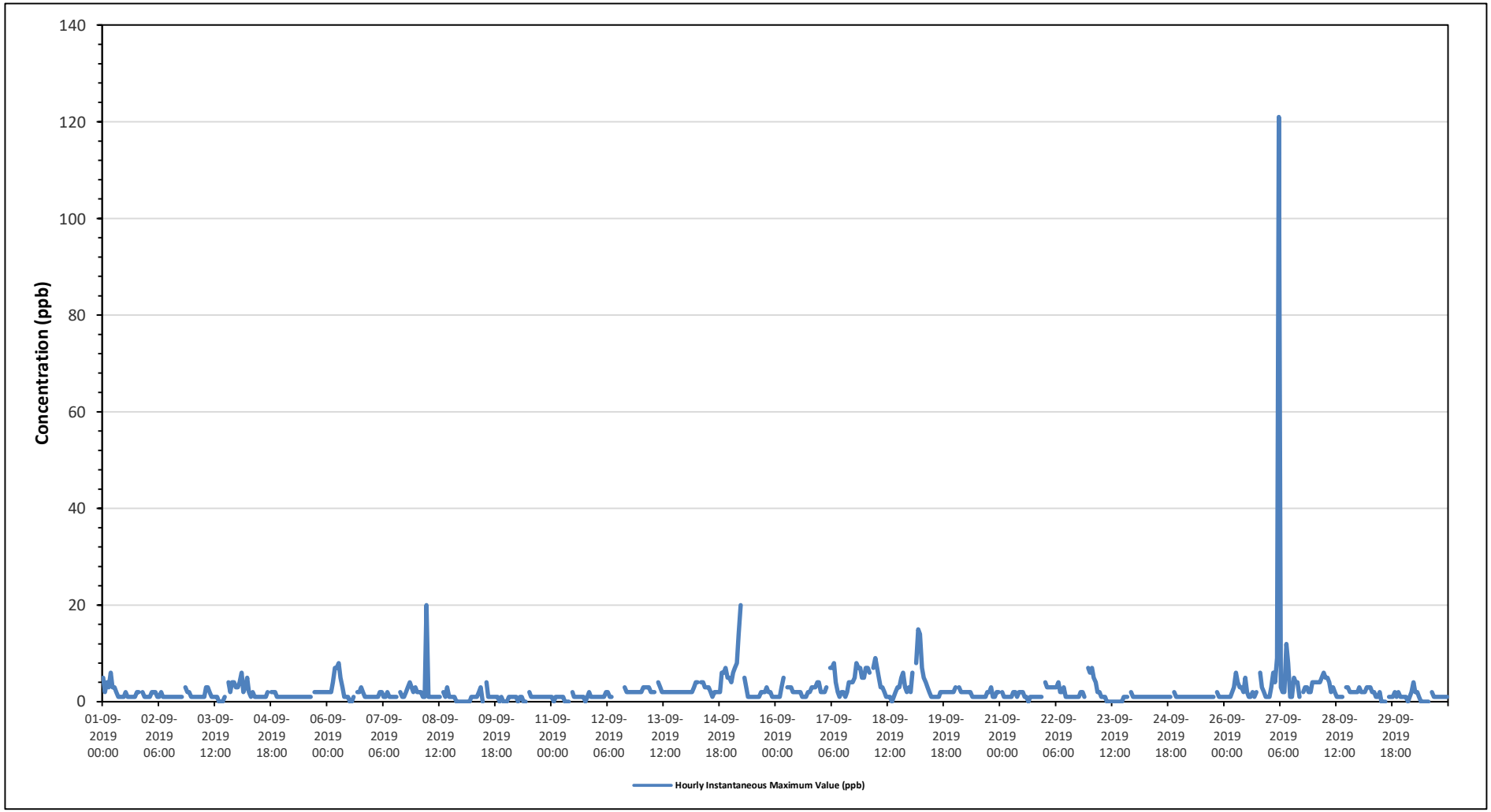
Maximum Hourly Value:	121	ppb	on September 27 at hour 5	Hours in Service:	720
Maximum Daily Value:	8.8	ppb	on September 27	Hours of Data:	684
Minimum Hourly Value:	0	ppb	on September 3 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	0.9	ppb	on September 9	Hours of Calibration:	36
Monthly Average:	2.3	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 1	5	2	4	3	6	3	3	2	1	1	1	1	2	1	1	1	1	1	2	2	S	2	1	1	1	6	2.0
Sep 2	1	1	2	2	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	S	3	2	2	1	1	3	1.3
Sep 3	1	1	1	1	1	1	1	3	3	2	1	1	1	1	0	0	0	1	S	4	2	4	4	3	0	4	1.6
Sep 4	3	4	6	2	3	5	2	1	2	1	1	1	1	1	1	1	2	S	2	2	2	1	1	1	1	6	2.0
Sep 5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	2	2	2	2	2	2	2	1	2	1.3
Sep 6	2	2	2	4	7	7	8	5	3	1	1	1	0	0	1	S	2	2	3	2	1	1	1	1	0	8	2.5
Sep 7	1	1	1	1	2	2	1	1	2	1	1	1	1	1	S	2	1	1	2	3	4	3	2	3	1	4	1.7
Sep 8	2	2	2	1	1	20	1	1	1	1	1	1	1	S	2	1	3	1	1	1	1	0	0	0	0	20	2.0
Sep 9	0	0	0	0	0	1	1	1	1	2	3	0	S	4	1	1	1	1	1	1	0	1	0	0	0	4	0.9
Sep 10	0	1	1	1	1	1	0	1	1	0	0	S	2	1	1	1	1	1	1	1	1	1	1	1	0	2	0.9
Sep 11	1	0	1	1	1	1	1	0	0	0	S	2	1	1	1	1	1	1	0	1	2	1	1	1	0	2	0.9
Sep 12	1	1	1	1	1	2	2	1	1	S	C	C	C	C	C	3	2	2	2	2	2	2	2	2	1	3	1.7
Sep 13	2	3	3	3	3	2	2	2	S	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	2.3
Sep 14	2	2	2	2	3	4	4	S	4	4	3	3	3	2	1	2	2	2	2	6	6	7	5	5	1	7	3.3
Sep 15	4	6	7	8	14	20	S	5	3	1	1	1	1	1	1	1	2	2	2	3	2	2	1	1	1	20	3.9
Sep 16	1	1	1	3	5	S	3	3	3	2	2	2	2	2	1	1	1	2	2	3	3	3	4	4	1	5	2.3
Sep 17	2	2	2	3	S	7	7	8	4	2	1	2	2	1	2	4	4	4	5	8	7	7	5	5	1	8	4.1
Sep 18	7	7	6	S	7	9	7	5	3	3	2	1	1	1	0	1	2	3	3	5	6	3	2	3	0	9	3.8
Sep 19	2	6	S	8	15	14	7	5	4	3	2	1	1	1	1	1	2	2	2	2	2	2	2	2	1	15	3.8
Sep 20	3	S	3	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	3	1	1	2	2	1	3	1.7
Sep 21	S	2	1	1	1	1	1	2	2	1	2	2	2	1	1	0	1	1	1	1	1	1	1	S	0	2	1.2
Sep 22	4	3	3	3	3	3	3	4	2	2	3	1	1	1	1	1	1	1	1	2	2	1	S	7	1	7	2.3
Sep 23	6	7	5	4	2	2	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	S	2	1	0	7	1.5
Sep 24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	2	1	1	1	2	1.0
Sep 25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	2	1	1	1	1	2	1.0
Sep 26	1	1	1	1	2	3	6	4	3	3	2	5	2	1	1	2	1	2	S	6	3	2	1	1	1	6	2.3
Sep 27	1	3	6	4	9	121	3	2	2	12	8	1	1	5	4	4	1	S	2	3	3	2	2	4	1	121	8.8
Sep 28	4	4	4	4	5	6	5	5	4	2	3	2	1	1	1	1	S	3	3	2	2	2	2	2	1	6	3.0
Sep 29	3	2	2	2	3	3	3	2	2	1	1	2	0	0	0	S	1	1	1	2	1	2	1	1	0	3	1.6
Sep 30	1	1	0	1	2	4	2	2	1	0	0	0	0	0	S	2	1	1	1	1	1	1	1	1	0	4	1.0
Diurnal Maximum	7	7	7	8	15	121	8	8	4	12	8	5	3	5	4	4	4	4	5	8	7	7	5	7			
Daiurnal Average	2.2	2.3	2.4	2.4	3.6	8.6	2.8	2.5	2.0	1.9	1.7	1.4	1.2	1.2	1.1	1.4	1.4	1.6	1.8	2.6	2.3	2.1	1.8	2.0			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for NO2 - Bonnyville - East Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Instantaneous Maximums

OZONE (O_3) in ppb

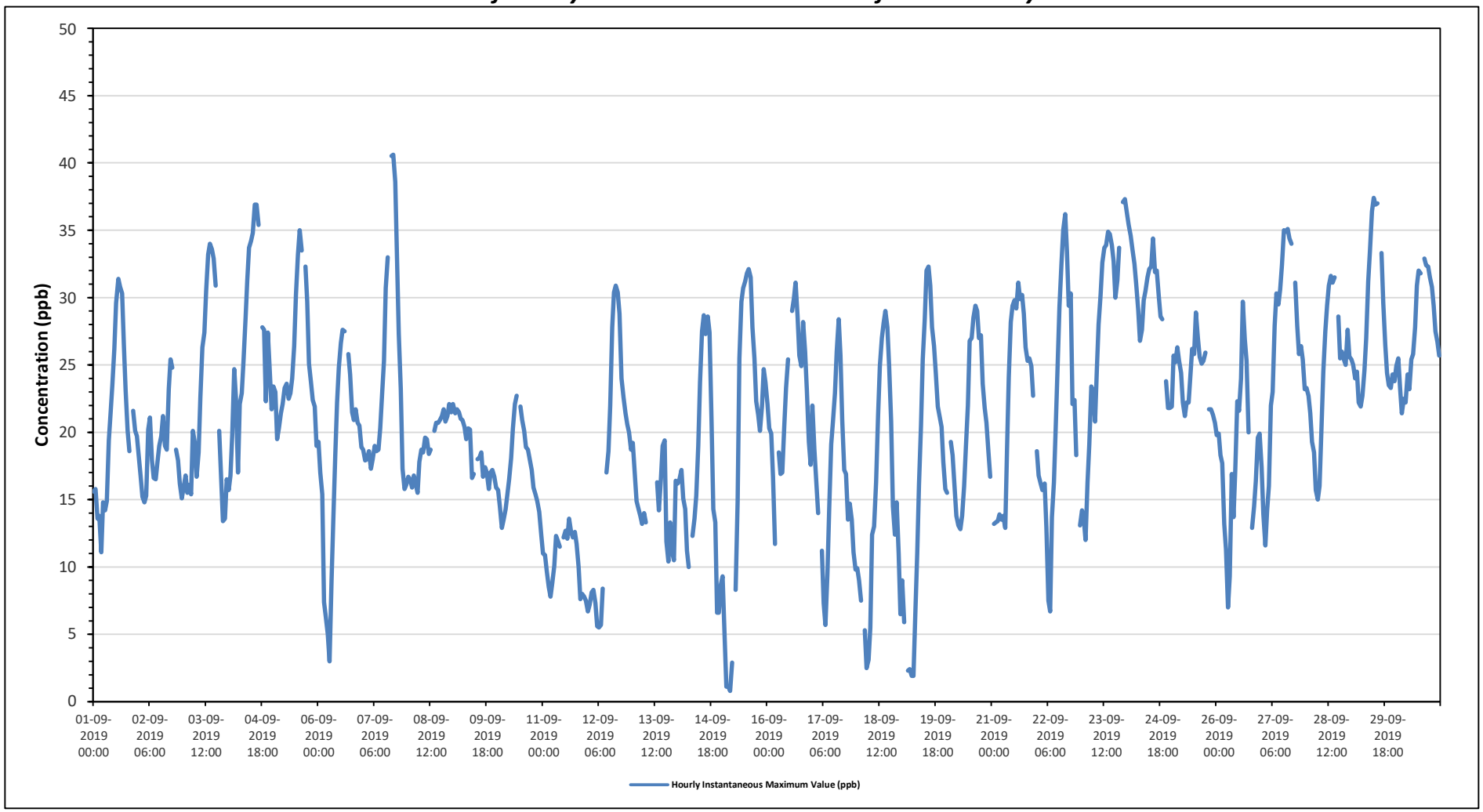
Maximum Hourly Value:	40.6	ppb	on September 7 at hour 16	Hours in Service:	720
Maximum Daily Value:	30.3	ppb	on September 24	Hours of Data:	684
Minimum Hourly Value:	0.8	ppb	on September 15 at hour 4	Hours of Missing Data:	1
Minimum Daily Value:	10.6	ppb	on September 11	Hours of Calibration:	35
Monthly Average:	21.1	ppb		Operational Uptime:	99.9

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	15.6	15.8	13.6	13.8	11.1	14.8	14.2	14.9	19.4	21.4	23.5	26.2	29.6	31.4	30.8	30.3	26.5	23.1	20.1	18.6	S	21.6	20.1	19.7	11.1	31.4	20.7
Sep 2	18.1	16.7	15.2	14.8	15.3	20.2	21.1	17.9	16.6	16.5	17.8	19	19.7	21.2	19	18.7	23.2	25.4	24.8	S	18.7	17.9	16.2	15.1	14.8	25.4	18.7
Sep 3	15.9	16.8	15.5	16.1	15.4	20.1	19.2	16.7	18.5	22.6	26.3	27.4	30.5	33.2	34	33.6	32.9	30.9	S	20.1	16.5	13.4	13.6	16.5	13.4	34.0	22.0
Sep 4	15.7	16.8	19.8	24.7	22.5	17	22.1	22.9	25.3	28.4	31.3	33.7	34.2	34.8	36.9	36.9	35.4	S	27.8	27.6	22.3	27.4	24.8	21.7	15.7	36.9	26.5
Sep 5	23.4	23	19.5	20.3	21.4	22.1	23.3	23.6	22.5	22.9	24	26.4	30.2	33.2	35	33.5	S	32.3	29.7	25.1	23.7	22.4	21.9	19	19.0	35.0	25.1
Sep 6	19.3	17	15.4	7.4	6.3	5	3	9	13.5	18.4	22.2	24.8	26.6	27.6	27.5	S	25.8	24.3	21.5	20.9	21.7	20.7	20.5	18.9	3.0	27.6	18.1
Sep 7	18.7	17.9	18	18.6	17.3	18	19	18.6	18.7	20.3	23	25.3	30.7	33	S	40.5	**40.6**	38.6	32.9	27.3	23.2	17.3	15.8	16.1	15.8	**40.6**	23.9
Sep 8	16.7	16.5	15.9	16.8	16.2	15.5	17.8	18.7	18.5	19.6	19.5	18.4	18.7	S	20.1	20.7	20.7	20.9	21.2	21.7	20.8	21.2	22.1	21.5	15.5	22.1	19.1
Sep 9	22.1	21.4	21.7	21.5	21	20.9	20.4	19.5	20.3	20.2	16.6	16.9	S	18	18.1	18.5	16.7	17.4	17	15.8	17	17.2	16.7	15.9	15.8	22.1	18.7
Sep 10	15.7	14.5	12.9	13.5	14.3	15.4	16.5	18.1	20.3	22.1	22.7	S	21.9	20.9	20.1	18.9	18.7	18	17.2	15.9	15.4	14.9	14.1	12.4	12.4	22.7	17.1
Sep 11	11	10.9	9.7	8.5	7.8	8.8	10.1	12.3	11.9	11.5	S	12.2	12.7	12.1	13.6	12.6	12.2	12.6	11.7	10	7.6	8	7.8	7.5	7.5	13.6	10.6
Sep 12	6.7	7.2	8.1	8.3	7.3	5.6	5.5	5.7	8.4	S	17	18.6	22	27.8	30.4	30.9	30.4	28.8	24	22.6	21.4	20.6	20	18.7	5.5	30.9	17.2
Sep 13	19.2	16.9	14.9	14.3	13.8	13.2	14	13.3	S	C	C	C	C	16.3	14.2	16.5	19	19.4	11.9	10.4	13.3	11.1	10.5	16.4	10.4	19.4	14.7
Sep 14	16.2	16.5	17.2	15.1	14.3	11.2	10	S	12.3	13.6	15.3	19	23.7	27.5	28.7	27.3	28.6	27.4	20.8	14.3	13.3	6.6	6.6	8.7	6.6	28.7	17.1
Sep 15	9.3	4.9	1.1	1.1	**0.8**	2.9	S	8.3	14.9	25.5	29.7	30.7	31.2	31.8	32.1	31.5	27.8	25.5	22.3	21.3	20.1	21.9	24.7	23.7	**0.8**	32.1	19.3
Sep 16	22.1	20.3	19.9	16.7	11.7	S	18.5	16.9	17	20.5	23.3	25.4	S1	29	29.9	31.1	28.6	25.7	24.9	28.2	26	23.1	19.3	17.6	11.7	31.1	22.5
Sep 17	22	18.7	16.5	14	S	11.2	7.3	5.7	9.5	14.3	19.1	20.8	22.9	26	28.4	25.7	20.9	17.2	16.9	13.5	14.7	13.5	11.1	9.8	5.7	28.4	16.5
Sep 18	9.9	9	7.5	S	5.3	2.5	3.1	5.5	12.4	13	16.3	21.3	24.9	27	28.1	29	27.8	24.9	20.8	14.5	12.4	14.8	11	6.5	2.5	29.0	15.1
Sep 19	9	5.9	S	2.3	2.4	1.9	1.9	6.9	11	16.1	20.5	25.4	28.4	32	32.3	30.9	27.8	26.4	24.4	21.9	21.2	20.4	17.8	15.8	1.9	32.3	17.5
Sep 20	15.5	S	19.3	18.3	15.9	13.8	13.1	12.8	13.8	16	18.9	22	26.8	27	28.5	29.4	29	27	27.2	23.6	21.8	20.7	18.5	16.7	12.8	29.4	20.7
Sep 21	S	13.2	13.3	13.4	13.9	13.5	13.8	12.9	18.7	24.1	28.2	29.4	29.8	29.2	31.1	29.9	30.2	28.8	26.3	25.3	25.5	24.9	22.7	S	12.9	31.1	22.6
Sep 22	18.6	16.8	16.2	15.7	16.2	12.9	7.5	6.7	13.7	16.3	20.3	25.1	29.3	32.5	35	36.2	33.4	29.4	30.3	22.1	22.4	18.3	S	13.1	6.7	36.2	21.2
Sep 23	14.2	13.6	12	16.3	19.1	23.4	23.1	20.8	24.6	28	30.2	32.6	33.7	33.9	34.9	34.7	33.9	32.7	30	31.3	33.7	S	37.1	37.3	12.0	37.3	27.4
Sep 24	36.4	35.4	34.6	33.6	32.5	31	29.1	26.8	27.6	29.8	30.5	31.5	32.1	32.3	34.4	31.9	32	30.1	28.6	28.4	S	23.8	21.8	21.8	21.8	36.4	**30.3**
Sep 25	21.9	25.7	25.2	26.3	25.3	24.4	22.2	21.2	22.2	22.2	24.2	26.2	25.8	28.9	27	25.6	25.1	25.3	25.9	S	21.7	21.7	21.3	20.7	20.7	28.9	24.2
Sep 26	19.8	19.9	18.3	17.7	13.2	11.3	7	9.3	16.9	13.7	17.2	22.3	21.6	24	29.7	26.9	25.3	20	S	12.9	14.5	16.4	19.6	19.9	7.0	29.7	18.1
Sep 27	17.4	13.9	11.6	14.2	16	22	23	27.9	30.3	29.5	30.6	32.4	35	34.9	35.1	34.4	34	S	31.1	27.9	25.8	26.4	25.4	23.2	11.6	35.1	26.2
Sep 28	23.3	22.7	21.4	19.3	18.5	15.7	15	16	20.5	24.5	27.5	29.4	30.9	31.6	31.1	31.5	S	28.6	25.5	26	25.4	25	27.6	25.6	15.0	31.6	24.5
Sep 29	25.4	25	24	24.5	22.2	21.9	22.7	24.6	27	31.2	33.5	36.4	37.4	36.9	37	S	33.3	29.6	26.5	24.4	23.5	23.3	24.3	23.8	21.9	37.4	27.8
Sep 30	24.9	25.5	23.3	21.4	22.5	22.2	24.3	23.2	25.4	25.8	27.8	30.9	32	31.8	S	32.9	32.4	32.3	31.5	30.8	29.4	27.5	26.7	25.7	21.4	32.9	27.4
Diurnal Maximum	36	35	35	34	33	31	29	28	30	31	34	36	37	37	37	41	41	39	33	31	34	28	37	37			
Daiurnal Average	18.1	17.2	16.6	16.2	15.2	15.1	15.4	15.7	18.3	21.0	23.5	25.3	27.5	28.5	28.7	28.6	27.6	25.8	24.0	21.5	20.5	19.4	19.3	18.3			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for O3 - Bonnyville - East Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Instantaneous Maximums

TOTAL HYDROCARBONS (THC) in ppm

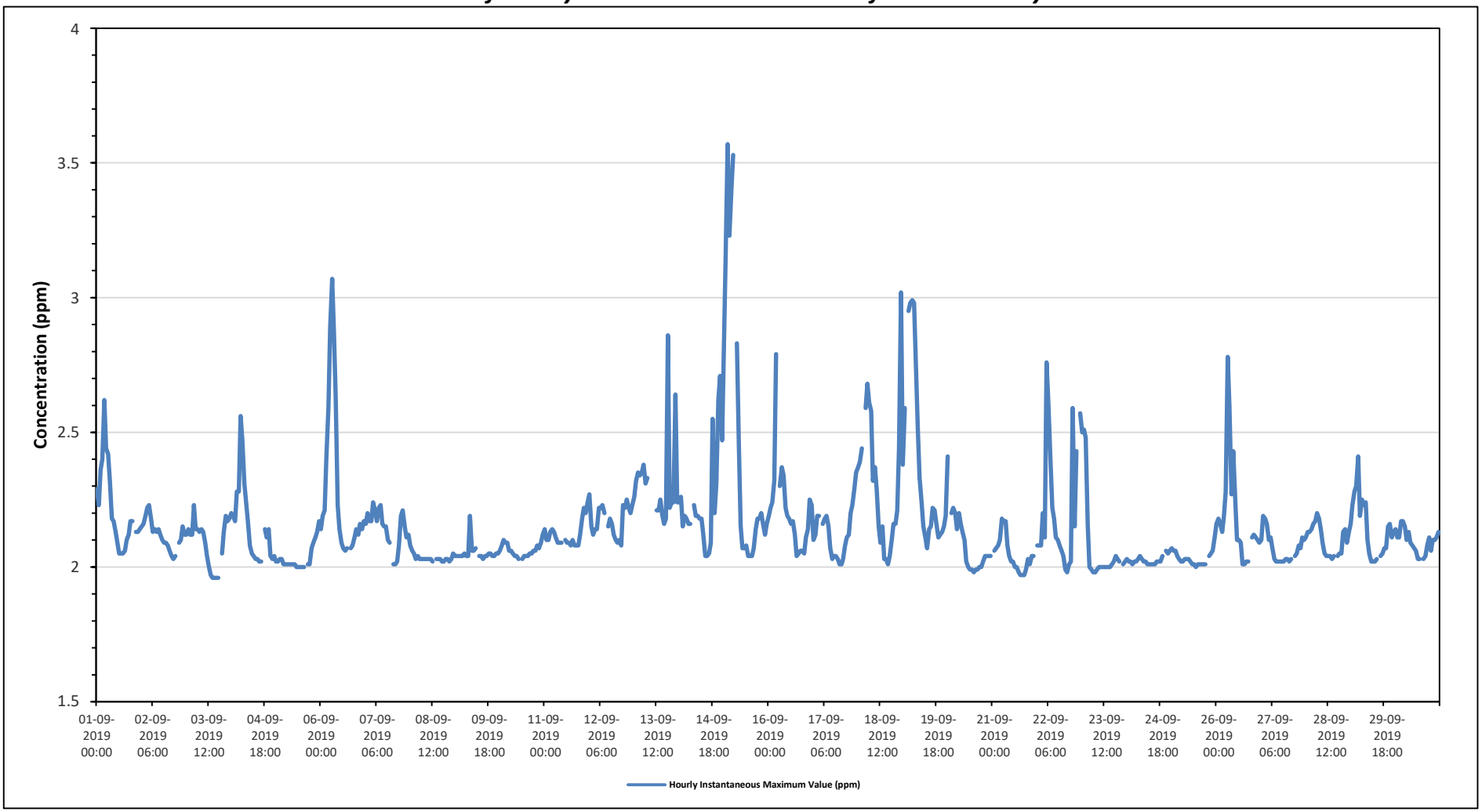
Maximum Hourly Value:	3.57	ppm	on September 15 at hour 2	Hours in Service:	720
Maximum Daily Value:	2.46	ppm	on September 15	Hours of Data:	686
Minimum Hourly Value:	1.96	ppm	on September 3 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	2.03	ppm	on September 24	Hours of Calibration:	34
Monthly Average:	2.15	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	2.29	2.23	2.36	2.40	2.62	2.44	2.42	2.32	2.18	2.17	2.13	2.09	2.05	2.05	2.05	2.06	2.10	2.12	2.17	2.17	S	2.13	2.13	2.14	2.05	2.62	2.21
Sep 2	2.15	2.16	2.19	2.22	2.23	2.18	2.13	2.14	2.13	2.14	2.12	2.10	2.09	2.09	2.08	2.06	2.04	2.03	2.04	S	2.09	2.10	2.15	2.12	2.03	2.23	2.12
Sep 3	2.12	2.14	2.12	2.12	2.23	2.14	2.14	2.13	2.14	2.13	2.09	2.04	2.00	1.97	1.96	1.96	1.96	1.96	S	2.05	2.13	2.19	2.17	2.18	1.96	2.23	2.09
Sep 4	2.20	2.19	2.17	2.28	2.28	2.56	2.47	2.31	2.24	2.16	2.08	2.05	2.04	2.03	2.03	2.02	2.02	S	2.14	2.11	2.14	2.04	2.03	2.04	2.02	2.56	2.16
Sep 5	2.02	2.02	2.03	2.03	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.00	S	2.01	2.01	2.07	2.09	2.11	2.13	2.17	2.00	2.17	2.03
Sep 6	2.14	2.19	2.21	2.41	2.59	2.89	3.07	2.87	2.63	2.23	2.14	2.09	2.07	2.06	2.07	S	2.07	2.08	2.11	2.14	2.12	2.16	2.14	2.17	2.06	3.07	2.29
Sep 7	2.16	2.20	2.17	2.17	2.24	2.21	2.17	2.22	2.23	2.16	2.15	2.15	2.10	2.09	S	2.01	2.01	2.02	2.08	2.19	2.21	2.15	2.11	2.12	2.01	2.24	2.14
Sep 8	2.08	2.06	2.05	2.03	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.02	S	2.03	2.03	2.03	2.02	2.02	2.03	2.03	2.02	2.03	2.05	2.02	2.08	2.03
Sep 9	2.04	2.04	2.04	2.04	2.04	2.05	2.04	2.04	2.19	2.06	2.06	2.07	S	2.04	2.04	2.03	2.04	2.04	2.05	2.05	2.04	2.04	2.05	2.05	2.03	2.19	2.05
Sep 10	2.06	2.08	2.10	2.09	2.09	2.06	2.06	2.05	2.04	2.04	2.03	S	2.03	2.04	2.04	2.04	2.05	2.05	2.06	2.06	2.08	2.07	2.09	2.12	2.03	2.12	2.06
Sep 11	2.14	2.10	2.10	2.13	2.14	2.13	2.11	2.09	2.09	2.09	S	2.10	2.09	2.09	2.08	2.10	2.08	2.08	2.08	2.12	2.18	2.22	2.20	2.24	2.08	2.24	2.12
Sep 12	2.27	2.15	2.12	2.14	2.14	2.22	2.22	2.23	2.20	S	2.15	2.18	2.16	2.12	2.10	2.09	2.10	2.08	2.23	2.22	2.25	2.22	2.20	2.23	2.08	2.27	2.17
Sep 13	2.26	2.32	2.35	2.34	2.35	2.38	2.31	2.33	S	C	C	C	2.21	2.21	2.25	2.19	2.16	2.18	2.86	2.22	2.24	2.24	2.64	2.24	2.16	2.86	2.31
Sep 14	2.24	2.26	2.15	2.19	2.18	2.16	2.16	S	2.23	2.19	2.19	2.18	2.18	2.12	2.04	2.04	2.05	2.09	2.55	2.20	2.31	2.62	2.71	2.47	2.04	2.71	2.24
Sep 15	2.81	3.15	**3.57**	3.23	3.40	3.53	S	2.83	2.44	2.15	2.07	2.07	2.08	2.04	2.04	2.04	2.07	2.14	2.18	2.18	2.20	2.16	2.12	2.16	2.04	**3.57**	**2.46**
Sep 16	2.19	2.22	2.24	2.32	2.79	S	2.30	2.37	2.34	2.22	2.19	2.18	2.16	2.17	2.12	2.04	2.05	2.06	2.06	2.05	2.11	2.14	2.25	2.23	2.04	2.79	2.21
Sep 17	2.10	2.12	2.19	2.19	S	2.16	2.18	2.19	2.15	2.07	2.03	2.04	2.04	2.03	2.01	2.01	2.03	2.08	2.11	2.12	2.20	2.23	2.29	2.35	2.01	2.35	2.13
Sep 18	2.37	2.39	2.44	S	2.59	2.68	2.61	2.58	2.32	2.37	2.29	2.15	2.09	2.15	2.03	2.03	2.01	2.04	2.10	2.16	2.16	2.21	2.44	3.02	2.01	3.02	2.31
Sep 19	2.38	2.59	S	2.95	2.98	2.99	2.98	2.76	2.51	2.33	2.24	2.15	2.11	2.07	2.14	2.15	2.22	2.21	2.16	2.11	2.12	2.13	2.15	2.19	2.07	2.99	2.37
Sep 20	2.41	S	2.20	2.22	2.20	2.14	2.20	2.16	2.13	2.10	2.02	2.00	1.99	1.99	1.98	1.99	1.99	2.00	2.00	2.02	2.04	2.04	2.04	2.04	1.98	2.41	2.08
Sep 21	S	2.06	2.07	2.08	2.10	2.18	2.17	2.17	2.08	2.04	2.02	2.02	2.00	2.00	1.98	1.97	1.97	1.97	1.99	2.03	2.01	2.04	2.04	S	1.97	2.18	2.05
Sep 22	2.08	2.08	2.08	2.20	2.11	2.76	2.59	2.41	2.22	2.18	2.11	2.10	2.08	2.06	2.04	1.99	1.98	2.01	2.02	2.59	2.15	2.43	S	2.57	1.98	2.76	2.21
Sep 23	2.50	2.51	2.48	2.16	2.00	1.99	1.98	1.98	1.99	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.02	2.04	2.03	2.02	S	2.01	2.02	1.98	2.51	2.08
Sep 24	2.03	2.02	2.02	2.01	2.02	2.02	2.03	2.04	2.03	2.02	2.02	2.01	2.01	2.01	2.01	2.01	2.02	2.02	2.02	2.04	S	2.06	2.05	2.06	2.01	2.06	2.03
Sep 25	2.07	2.06	2.06	2.04	2.03	2.02	2.02	2.03	2.03	2.03	2.02	2.01	2.01	2.00	2.01	2.01	2.01	2.01	2.01	S	2.04	2.05	2.06	2.11	2.00	2.11	2.03
Sep 26	2.16	2.18	2.16	2.13	2.19	2.28	2.78	2.59	2.27	2.43	2.25	2.10	2.10	2.09	2.01	2.01	2.02	2.02	S	2.11	2.12	2.11	2.10	2.09	2.01	2.78	2.19
Sep 27	2.10	2.19	2.18	2.16	2.10	2.11	2.07	2.03	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.02	2.03	S	2.04	2.05	2.08	2.07	2.11	2.10	2.02	2.19	2.07
Sep 28	2.11	2.13	2.13	2.14	2.16	2.17	2.20	2.18	2.14	2.09	2.05	2.04	2.04	2.04	2.03	2.04	S	2.04	2.05	2.05	2.13	2.14	2.09	2.13	2.03	2.20	2.10
Sep 29	2.16	2.23	2.28	2.30	2.41	2.19	2.25	2.23	2.24	2.10	2.05	2.02	2.02	2.02	2.03	S	2.04	2.05	2.07	2.07	2.15	2.16	2.11	2.13	2.02	2.41	2.14
Sep 30	2.14	2.11	2.11	2.17	2.17	2.15	2.10	2.13	2.09	2.08	2.07	2.06	2.03	2.03	S	2.03	2.04	2.08	2.11	2.06	2.10	2.10	2.11	2.13	2.03	2.17	2.10
Diurnal Maximum	2.81	3.15	3.57	3.23	3.40	3.53	3.07	2.87	2.63	2.43	2.29	2.18	2.21	2.21	2.25	2.19	2.22	2.21	2.86	2.59	2.31	2.62	2.71	3.02			
Daiurnal Average	2.20	2.21	2.22	2.24	2.29	2.30	2.27	2.26	2.18	2.13	2.09	2.07	2.06	2.06	2.04	2.03	2.04	2.05	2.12	2.12	2.13	2.15	2.16	2.20			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for THC - Bonnyville - East Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Instantaneous Maximums

METHANE (CH4) in ppm

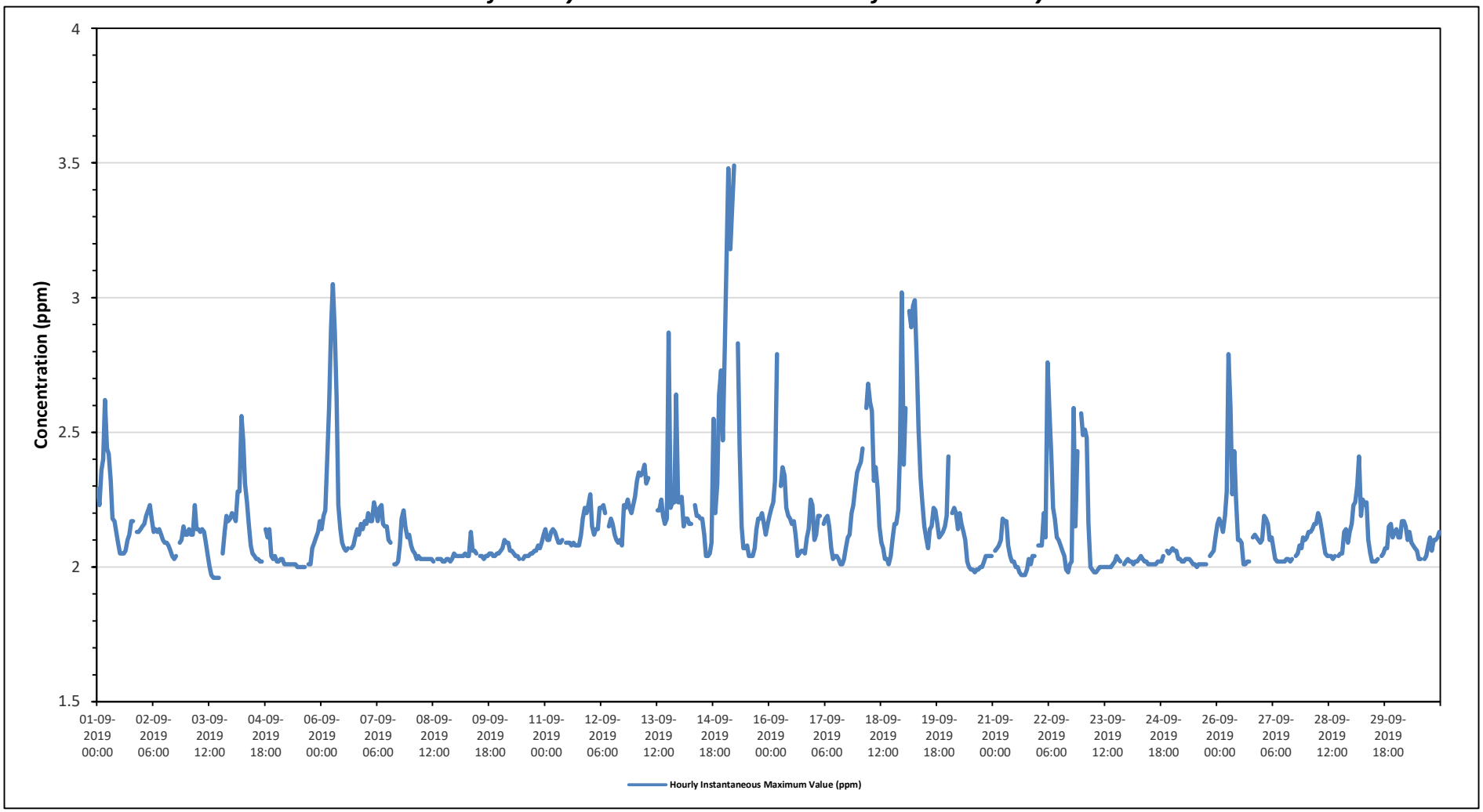
Maximum Hourly Value:	3.49	ppm	on September 15 at hour 5	Hours in Service:	720
Maximum Daily Value:	2.45	ppm	on September 15	Hours of Data:	686
Minimum Hourly Value:	1.96	ppm	on September 3 at hour 14	Hours of Missing Data:	0
Minimum Daily Value:	2.03	ppm	on September 24	Hours of Calibration:	34
Monthly Average:	2.15	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	2.29	2.23	2.36	2.40	2.62	2.44	2.42	2.32	2.18	2.17	2.13	2.09	2.05	2.05	2.05	2.06	2.10	2.12	2.17	2.17	S	2.13	2.13	2.14	2.05	2.62	2.21
Sep 2	2.15	2.16	2.19	2.21	2.23	2.18	2.13	2.14	2.13	2.14	2.12	2.10	2.09	2.09	2.08	2.06	2.04	2.03	2.04	S	2.09	2.10	2.15	2.12	2.03	2.23	2.12
Sep 3	2.12	2.14	2.12	2.12	2.23	2.14	2.14	2.13	2.14	2.13	2.09	2.04	2.00	1.97	1.96	1.96	1.96	1.96	S	2.05	2.13	2.19	2.17	2.18	1.96	2.23	2.09
Sep 4	2.20	2.19	2.17	2.28	2.28	2.56	2.47	2.31	2.24	2.16	2.08	2.05	2.04	2.03	2.03	2.02	2.02	S	2.14	2.11	2.14	2.04	2.03	2.04	2.02	2.56	2.16
Sep 5	2.02	2.02	2.03	2.03	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.00	S	2.01	2.01	2.07	2.09	2.11	2.13	2.17	2.00	2.17	2.03
Sep 6	2.14	2.19	2.21	2.41	2.59	2.89	3.05	2.87	2.63	2.23	2.14	2.09	2.07	2.06	2.07	S	2.07	2.08	2.11	2.14	2.12	2.16	2.14	2.17	2.06	3.05	2.29
Sep 7	2.16	2.20	2.17	2.17	2.24	2.21	2.17	2.22	2.23	2.16	2.15	2.15	2.10	2.09	S	2.01	2.01	2.02	2.08	2.18	2.21	2.15	2.11	2.12	2.01	2.24	2.14
Sep 8	2.08	2.06	2.05	2.03	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.02	S	2.03	2.03	2.03	2.02	2.02	2.03	2.03	2.02	2.03	2.05	2.02	2.08	2.03
Sep 9	2.04	2.04	2.04	2.04	2.04	2.05	2.04	2.04	2.13	2.06	2.06	2.05	S	2.04	2.04	2.03	2.04	2.04	2.05	2.05	2.04	2.04	2.05	2.05	2.03	2.13	2.05
Sep 10	2.06	2.07	2.10	2.09	2.09	2.06	2.06	2.05	2.04	2.04	2.03	S	2.03	2.04	2.04	2.04	2.05	2.05	2.06	2.06	2.08	2.07	2.09	2.12	2.03	2.12	2.06
Sep 11	2.14	2.10	2.10	2.13	2.14	2.13	2.11	2.09	2.09	2.10	S	2.09	2.09	2.09	2.08	2.09	2.08	2.08	2.08	2.12	2.18	2.22	2.20	2.23	2.08	2.23	2.12
Sep 12	2.27	2.15	2.12	2.14	2.14	2.22	2.22	2.23	2.20	S	2.15	2.18	2.16	2.12	2.10	2.09	2.10	2.08	2.23	2.22	2.25	2.22	2.20	2.23	2.08	2.27	2.17
Sep 13	2.26	2.32	2.35	2.34	2.35	2.38	2.31	2.33	S	C	C	C	2.21	2.21	2.25	2.19	2.16	2.18	2.87	2.22	2.24	2.24	2.64	2.24	2.16	2.87	2.31
Sep 14	2.24	2.26	2.15	2.18	2.18	2.16	2.16	S	2.23	2.19	2.19	2.18	2.18	2.12	2.04	2.04	2.05	2.09	2.55	2.20	2.31	2.64	2.73	2.47	2.04	2.73	2.24
Sep 15	2.82	3.15	3.48	3.18	3.33	**3.49**	S	2.83	2.44	2.15	2.07	2.07	2.08	2.04	2.04	2.04	2.07	2.14	2.18	2.18	2.20	2.16	2.12	2.16	2.04	**3.49**	**2.45**
Sep 16	2.19	2.22	2.24	2.32	2.79	S	2.30	2.37	2.34	2.22	2.19	2.18	2.16	2.17	2.12	2.04	2.05	2.06	2.06	2.05	2.11	2.14	2.25	2.23	2.04	2.79	2.21
Sep 17	2.10	2.12	2.19	2.19	S	2.16	2.18	2.19	2.15	2.07	2.03	2.04	2.04	2.03	2.01	2.01	2.03	2.07	2.11	2.12	2.20	2.23	2.29	2.35	2.01	2.35	2.13
Sep 18	2.37	2.39	2.44	S	2.59	2.68	2.61	2.58	2.32	2.37	2.29	2.15	2.09	2.07	2.03	2.03	2.01	2.04	2.10	2.16	2.16	2.21	2.43	3.02	2.01	3.02	2.31
Sep 19	2.38	2.59	S	2.95	2.89	2.97	2.99	2.76	2.51	2.33	2.24	2.15	2.11	2.07	2.14	2.15	2.22	2.21	2.16	2.11	2.12	2.13	2.15	2.19	2.07	2.99	2.37
Sep 20	2.41	S	2.20	2.22	2.20	2.14	2.20	2.16	2.13	2.10	2.02	2.00	1.99	1.99	1.98	1.99	1.99	2.00	2.00	2.02	2.04	2.04	2.04	2.04	1.98	2.41	2.08
Sep 21	S	2.06	2.07	2.08	2.10	2.18	2.17	2.17	2.08	2.04	2.02	2.02	2.00	2.00	1.98	1.97	1.97	1.97	1.99	2.03	2.01	2.04	2.04	S	1.97	2.18	2.05
Sep 22	2.08	2.08	2.08	2.20	2.11	2.76	2.59	2.41	2.22	2.18	2.11	2.10	2.08	2.06	2.04	1.99	1.98	2.01	2.02	2.59	2.15	2.43	S	2.57	1.98	2.76	2.21
Sep 23	2.49	2.51	2.48	2.16	2.00	1.99	1.98	1.98	1.99	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.02	2.04	2.03	2.02	S	2.01	2.02	1.98	2.51	2.08
Sep 24	2.03	2.02	2.02	2.01	2.02	2.02	2.03	2.04	2.03	2.02	2.02	2.01	2.01	2.01	2.01	2.01	2.02	2.02	2.02	2.04	S	2.06	2.05	2.06	2.01	2.06	2.03
Sep 25	2.07	2.06	2.06	2.03	2.03	2.02	2.02	2.03	2.03	2.03	2.02	2.01	2.01	2.00	2.01	2.01	2.01	2.01	2.01	S	2.04	2.05	2.06	2.11	2.00	2.11	2.03
Sep 26	2.16	2.18	2.16	2.13	2.19	2.28	2.79	2.59	2.27	2.43	2.25	2.10	2.10	2.09	2.01	2.01	2.02	2.02	S	2.11	2.12	2.11	2.10	2.09	2.01	2.79	2.19
Sep 27	2.10	2.19	2.18	2.16	2.10	2.11	2.07	2.03	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.02	2.03	S	2.04	2.05	2.08	2.07	2.11	2.10	2.02	2.19	2.07
Sep 28	2.11	2.13	2.13	2.14	2.16	2.16	2.20	2.18	2.14	2.09	2.05	2.04	2.04	2.04	2.03	2.04	S	2.04	2.05	2.05	2.13	2.14	2.09	2.13	2.03	2.20	2.10
Sep 29	2.16	2.23	2.24	2.30	2.41	2.19	2.25	2.23	2.24	2.10	2.05	2.02	2.02	2.02	2.03	S	2.04	2.05	2.07	2.07	2.15	2.16	2.11	2.13	2.02	2.41	2.14
Sep 30	2.14	2.11	2.11	2.17	2.17	2.15	2.10	2.13	2.09	2.08	2.07	2.06	2.03	2.03	S	2.03	2.04	2.08	2.11	2.06	2.10	2.10	2.11	2.13	2.03	2.17	2.10
Diurnal Maximum	2.82	3.15	3.48	3.18	3.33	3.49	3.05	2.87	2.63	2.43	2.29	2.18	2.21	2.21	2.25	2.19	2.22	2.21	2.87	2.59	2.31	2.64	2.73	3.02			
Daiurnal Average	2.20	2.21	2.22	2.23	2.29	2.30	2.27	2.26	2.18	2.13	2.09	2.07	2.06	2.05	2.04	2.03	2.04	2.05	2.12	2.12	2.13	2.15	2.16	2.20			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for CH4 - Bonnyville - East Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Instantaneous Maximums

NON-METHANE HYDROCARBONS (NMHC) in ppm

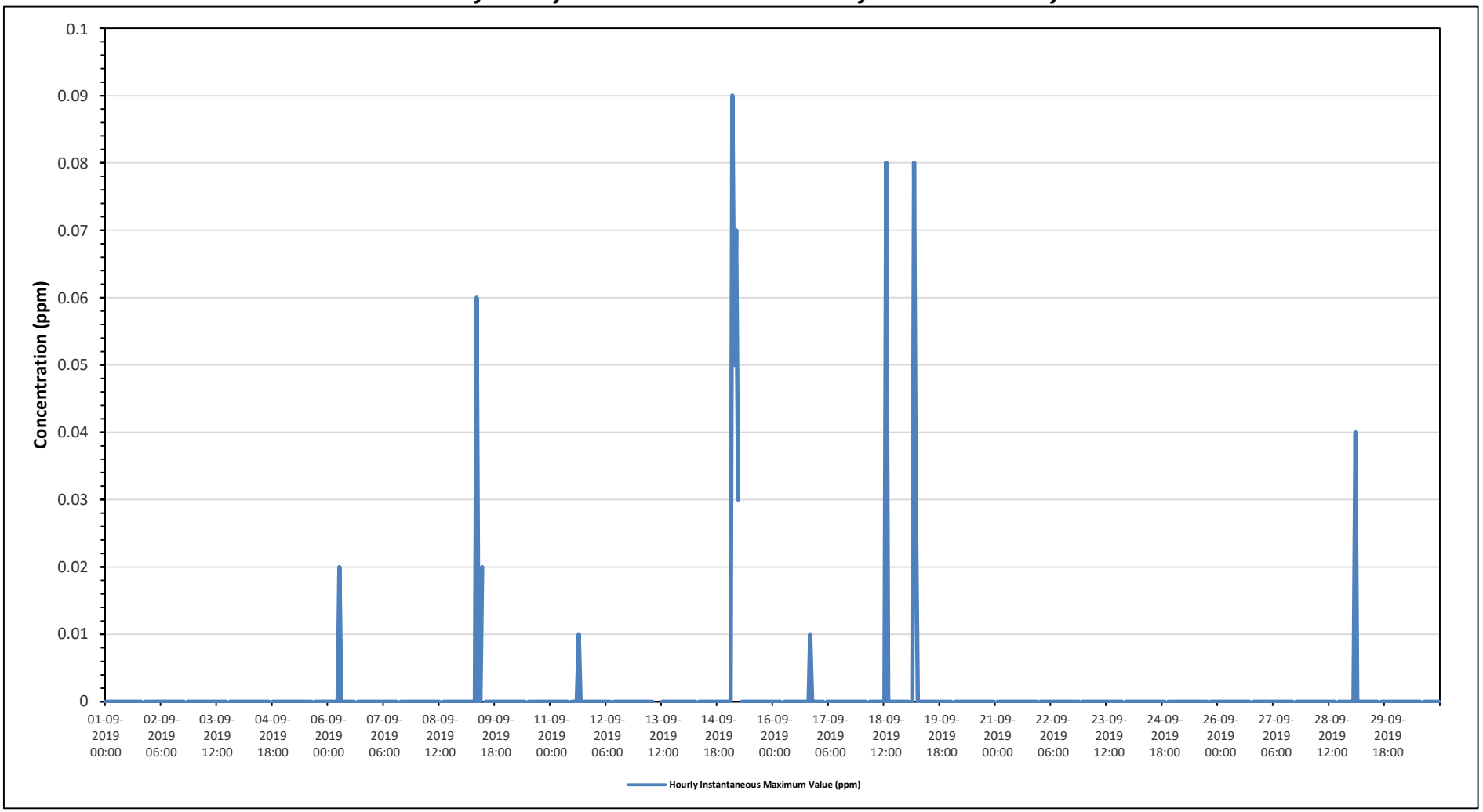
Maximum Hourly Value:	0.09	ppm	on September 15 at hour 2	Hours in Service:	720
Maximum Daily Value:	0.01	ppm	on September 15	Hours of Data:	686
Minimum Hourly Value:	0.00	ppm	on September 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.00	ppm	on September 1	Hours of Calibration:	34
Monthly Average:	0.00	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 6	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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
Sep 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
Sep 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
Sep 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.02	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	0.06	0.00
Sep 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
Sep 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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Sep 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
Sep 13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	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	0.00	0.00
Sep 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
Sep 15	0.00	0.00	**0.09**	0.05	0.07	0.03	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	**0.09**	**0.01**
Sep 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	0.01	0.00	0.00	0.00	0.00	0.01	0.00
Sep 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
Sep 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	0.08	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
Sep 19	0.00	0.00	S	0.00	0.08	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	0.00	0.00	0.00	0.00	0.08	0.00
Sep 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	0.00	0.00	0.00	0.00	0.00
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 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
Sep 29	0.00	0.00	0.04	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	0.04	0.00
Sep 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
Diurnal Maximum	0.00	0.00	0.09	0.05	0.08	0.03	0.02	0.00	0.06	0.00	0.00	0.02	0.00	0.08	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00			
Daiurnal Average	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for NMHC - Bonnyville - East Site



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Bonnyville - East Site - September 2019

Summary of Hourly Instantaneous Maximums

WIND SPEED (WS) in km/hr

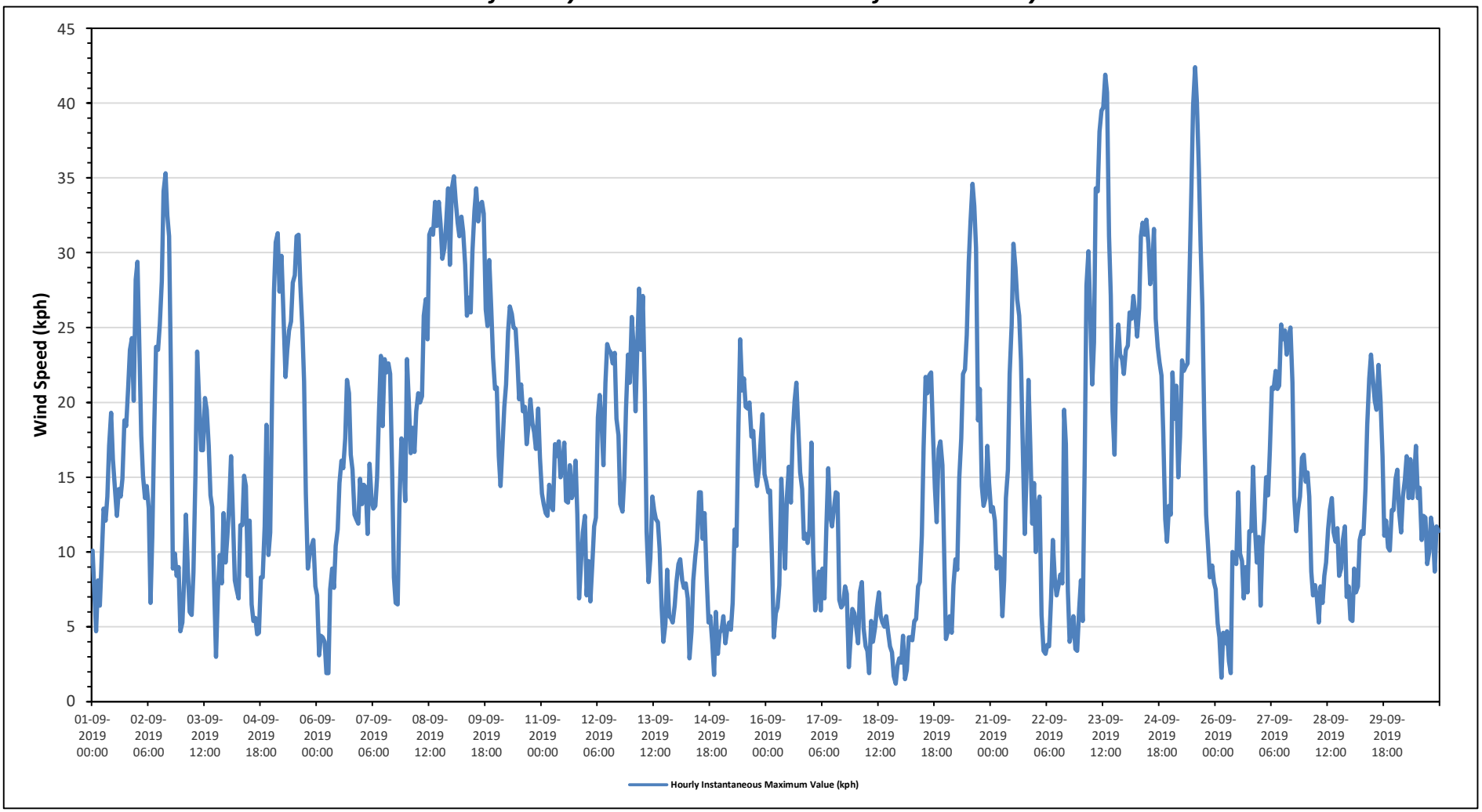
Maximum Hourly Value:	42.4	kph	on September 25 at hour 13	Hours in Service:	720
Maximum Daily Value:	29.9	kph	on September 9	Hours of Data:	720
Minimum Hourly Value:	1.2	kph	on September 18 at hour 21	Hours of Missing Data:	0
Minimum Daily Value:	4.5	kph	on September 18	Hours of Calibration:	0
Monthly Average:	15.5	kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Sep 1	10.1	7.4	4.7	8.1	6.4	9.8	12.9	12.1	13.7	17.1	19.3	16.2	14.3	12.4	14.2	13.7	14.9	18.8	18.4	21.0	23.5	24.3	20.1	28.2	4.7	28.2	15.1
Sep 2	29.4	24.1	17.8	15.1	13.6	14.4	12.9	6.6	11.0	18.4	23.7	23.5	25.2	28.1	34.1	35.3	32.5	31.1	21.2	8.9	9.9	8.4	9.0	4.7	4.7	35.3	19.1
Sep 3	5.3	8.1	12.5	8.7	6.0	5.8	8.6	15.1	23.4	20.4	16.8	16.8	20.3	19.5	17.1	13.8	13.0	7.5	3.0	7.5	9.8	7.9	12.6	9.3	3.0	23.4	12.0
Sep 4	11.0	13.0	16.4	12.6	8.1	7.5	6.9	11.8	11.8	15.1	14.4	8.4	12.1	6.5	5.4	5.6	4.5	4.6	8.3	8.3	11.7	18.5	9.8	11.3	4.5	18.5	10.2
Sep 5	21.1	27.4	30.7	31.3	27.4	29.8	26.3	21.7	23.5	24.8	25.4	28.0	28.5	31.1	31.2	27.9	25.0	21.4	13.9	8.9	9.8	10.4	10.8	7.7	7.7	31.3	22.7
Sep 6	7.1	3.1	4.4	4.3	4.0	1.9	1.9	7.5	8.9	7.6	10.4	11.5	14.6	16.1	15.6	17.6	21.5	20.6	16.5	15.5	12.5	12.2	11.9	14.9	1.9	21.5	10.9
Sep 7	13.2	14.5	14.3	11.2	15.9	13.5	12.9	13.1	15.0	19.6	23.1	18.4	22.9	22.0	22.6	21.9	15.4	8.3	6.6	6.5	13.2	17.6	17.1	13.4	6.5	23.1	15.5
Sep 8	22.9	19.8	16.6	18.3	16.7	19.4	20.6	20.0	20.4	25.8	26.9	24.2	31.2	31.6	31.2	33.4	31.8	33.4	31.9	29.6	30.3	31.9	34.3	29.2	16.6	34.3	26.3
Sep 9	34.3	35.1	33.5	32.0	31.1	32.4	31.4	29.2	25.8	27.0	26.0	30.1	32.8	34.3	32.1	33.2	33.4	32.6	26.2	25.1	29.5	26.2	23.0	20.9	20.9	35.1	**29.9**
Sep 10	21.0	16.4	14.4	16.9	19.7	21.2	24.7	26.4	25.9	25.0	24.9	22.9	20.2	21.2	19.4	19.7	17.2	18.6	20.2	18.6	18.0	16.9	19.6	16.3	14.4	26.4	20.2
Sep 11	13.9	13.2	12.6	12.4	14.5	13.1	12.8	17.2	16.4	17.4	15.0	15.7	17.3	13.4	13.3	15.8	13.6	14.0	16.1	12.5	6.9	9.4	11.3	12.4	6.9	17.4	13.8
Sep 12	7.1	9.4	6.7	9.3	11.7	12.3	19.0	20.5	18.5	15.8	21.3	23.9	23.5	23.3	22.6	23.3	18.9	17.8	13.2	12.7	15.0	19.6	23.2	21.3	6.7	23.9	17.1
Sep 13	25.7	23.8	19.4	23.7	27.6	23.5	27.1	20.6	11.4	8.0	9.6	13.7	12.8	12.2	12.0	10.2	6.3	4.0	5.2	8.8	5.7	5.6	5.3	6.4	4.0	27.6	13.7
Sep 14	8.0	9.2	9.5	8.1	7.6	7.9	6.9	2.9	4.7	8.1	9.7	10.8	14.0	14.0	10.9	12.6	8.5	5.3	5.7	3.9	1.8	6.0	3.2	4.6	1.8	14.0	7.7
Sep 15	4.8	5.7	3.9	4.8	5.3	4.8	6.6	11.5	10.4	18.4	24.2	20.8	21.6	19.7	19.6	20.0	17.7	18.1	15.5	14.4	15.6	17.5	19.2	15.2	3.9	24.2	14.0
Sep 16	14.7	14.0	14.1	9.4	4.3	5.9	6.3	7.8	14.9	12.2	8.9	13.6	15.7	13.3	17.8	20.1	21.3	18.1	15.3	14.2	10.9	11.2	10.6	11.5	4.3	21.3	12.8
Sep 17	17.3	10.0	6.1	7.2	8.7	6.1	8.9	6.9	11.4	15.6	12.5	11.7	12.8	14.0	13.9	6.8	6.3	6.5	7.7	7.2	2.3	4.2	6.2	5.9	2.3	17.3	9.0
Sep 18	5.0	3.9	7.3	8.0	4.9	3.7	3.4	1.9	5.4	4.0	5.0	6.3	7.3	5.7	5.3	5.0	5.7	4.6	3.7	3.3	1.7	**1.2**	2.4	2.9	**1.2**	8.0	**4.5**
Sep 19	2.6	4.4	1.5	2.1	4.3	4.3	4.1	5.4	5.5	7.7	8.0	11.1	17.0	21.7	20.6	21.8	22.0	18.1	14.3	12.0	16.9	17.4	15.8	9.9	1.5	22.0	11.2
Sep 20	4.2	4.7	5.7	4.6	7.8	9.5	8.8	14.9	17.6	21.9	22.2	24.5	29.4	32.1	34.6	33.1	30.3	18.8	20.9	14.4	13.1	13.6	17.1	14.6	4.2	34.6	17.4
Sep 21	12.7	13.0	12.1	8.9	9.7	9.6	5.7	8.1	13.6	15.5	21.9	25.2	30.6	29.0	26.9	25.8	22.8	17.2	11.2	15.2	21.5	17.2	11.9	14.6	5.7	30.6	16.7
Sep 22	10.0	13.1	13.7	5.8	3.4	3.2	3.8	3.7	6.9	10.8	8.2	7.1	7.8	8.5	7.9	19.5	17.2	7.4	4.0	4.7	5.7	3.5	3.4	6.2	3.2	19.5	7.7
Sep 23	8.1	5.4	15.9	27.8	30.1	26.0	21.2	24.0	34.3	34.1	38.1	39.5	39.7	41.9	40.7	31.1	27.1	19.4	16.5	22.7	25.2	23.2	22.9	21.9	5.4	41.9	26.5
Sep 24	23.5	23.8	26.0	25.6	27.1	25.9	24.4	26.3	31.1	32.0	31.2	32.2	30.6	27.9	28.9	31.6	25.6	23.7	22.7	21.8	18.0	12.2	10.7	13.1	10.7	32.2	24.8
Sep 25	12.5	22.0	18.9	21.1	15.0	17.7	22.8	22.1	22.4	22.6	27.9	34.0	39.8	**42.4**	40.1	35.6	30.5	26.4	18.2	12.5	10.3	8.3	9.1	8.0	8.0	**42.4**	22.5
Sep 26	7.5	5.2	4.3	1.6	4.6	3.9	4.7	2.7	1.9	10.0	9.8	9.2	14.0	9.9	9.4	6.9	9.0	7.3	11.4	11.4	15.7	11.5	9.3	11.0	1.6	15.7	8.0
Sep 27	6.4	10.4	12.2	15.0	13.8	16.8	21.0	20.9	22.1	20.9	21.1	25.2	24.2	24.8	23.2	24.4	25.0	21.3	13.7	11.4	12.9	13.7	16.3	16.5	6.4	25.2	18.1
Sep 28	14.7	15.3	13.7	8.7	7.1	7.8	7.0	5.3	7.7	6.6	8.4	9.3	11.5	12.8	13.6	11.3	10.7	11.6	8.4	8.9	10.8	11.7	7.0	7.7	5.3	15.3	9.9
Sep 29	5.5	5.4	8.9	7.3	7.7	10.8	11.4	11.2	14.2	18.5	21.6	23.2	21.7	20.1	19.5	22.5	20.1	16.4	11.1	12.1	10.3	10.1	12.8	12.8	5.4	23.2	14.0
Sep 30	14.9	15.5	12.7	11.3	13.7	14.8	16.4	13.6	16.2	13.6	14.9	17.1	13.6	14.3	10.8	12.4	12.3	9.2	10.0	12.3	11.5	8.7	11.7	11.4	8.7	17.1	13.0
Diurnal Maximum	34.3	35.1	33.5	32.0	31.1	32.4	31.4	29.2	34.3	34.1	38.1	39.5	39.8	42.4	40.7	35.6	33.4	33.4	31.9	29.6	30.3	31.9	34.3	29.2			
Daiurnal Average	13.2	13.2	13.0	12.7	12.6	12.8	13.4	13.7	15.5	17.2	18.3	19.1	20.9	20.8	20.5	20.4	18.7	16.1	13.7	12.9	13.3	13.3	13.3	12.8			

C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

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

Timeseries Chart of Hourly Instantaneous Maximum for WS - Bonnyville - East Site



END OF REPORT

This report, 367 of 367, ends the September 2019 Monthly Ambient Air Quality Monitoring Report.

Lakeland Industry & Community Association

SEPTEMBER 2019

Ambient Air Monitoring Calibration Report

- COLD LAKE SOUTH STATION-

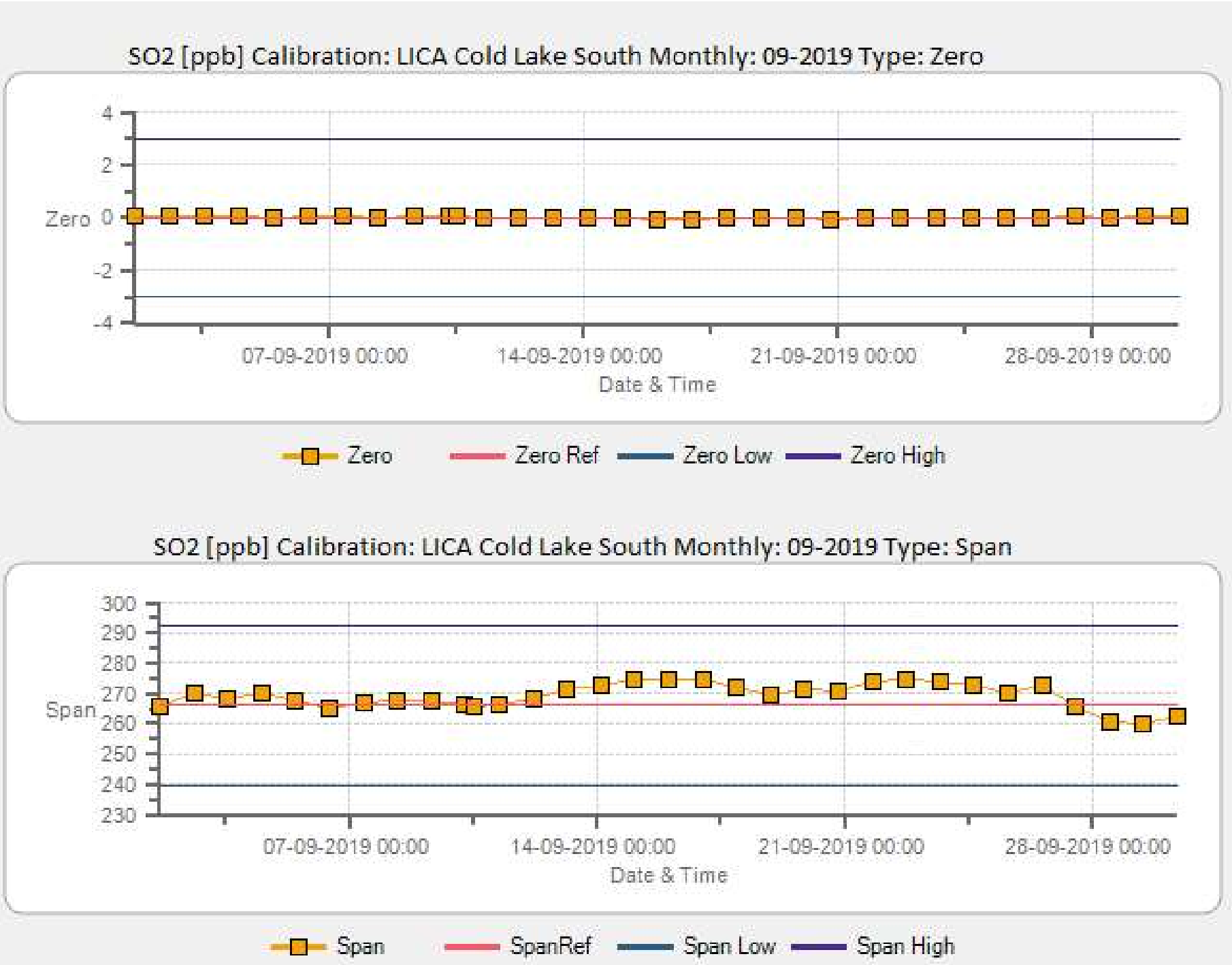
CAL-LICA-201909-01174

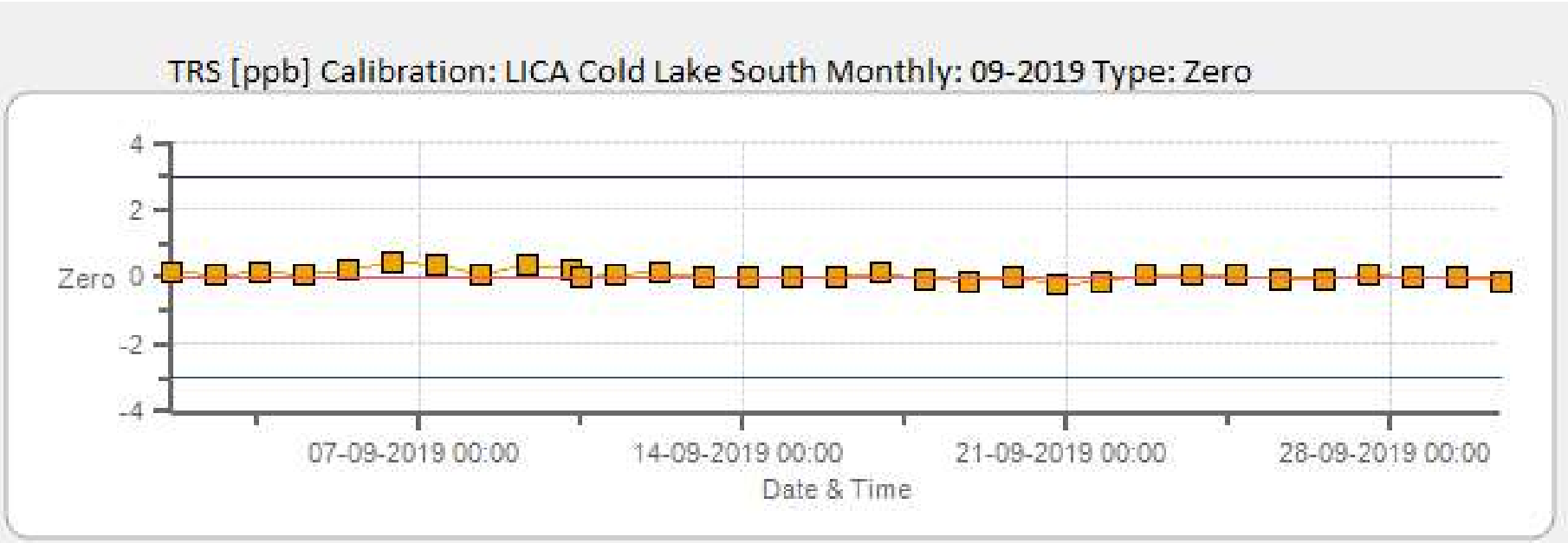
Station Operation and Maintenance:
Bureau Veritas Canada

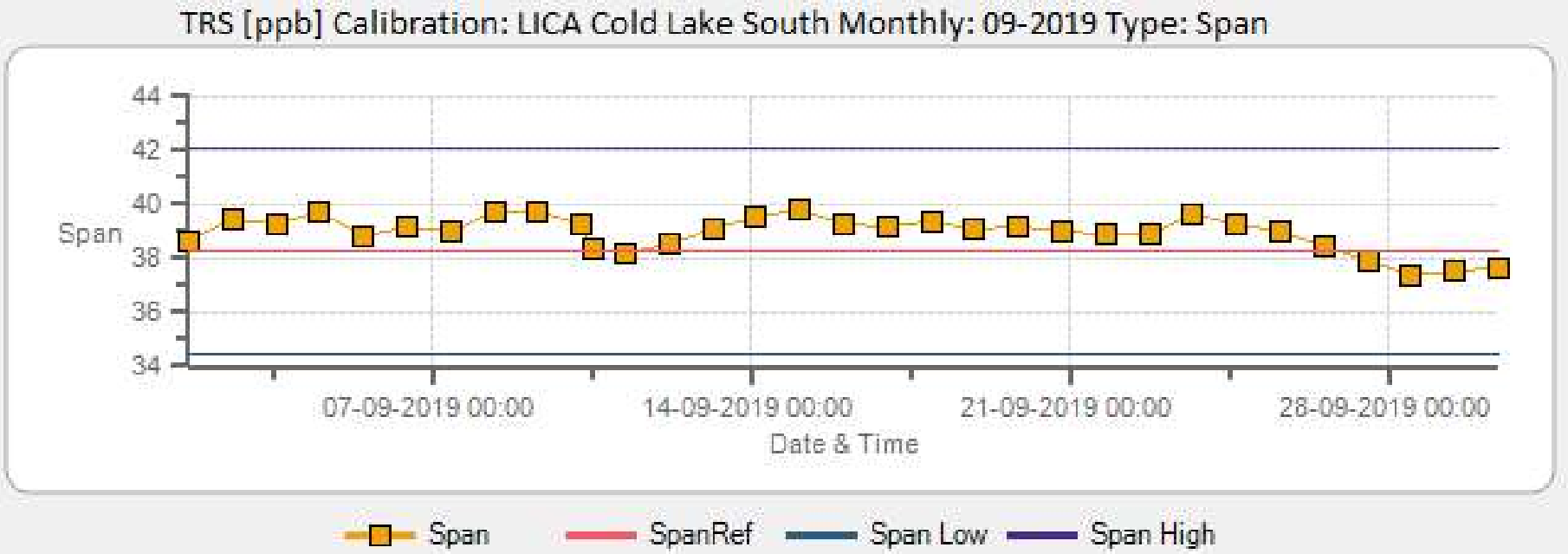
Data Validation and Report:
Bureau Veritas Canada

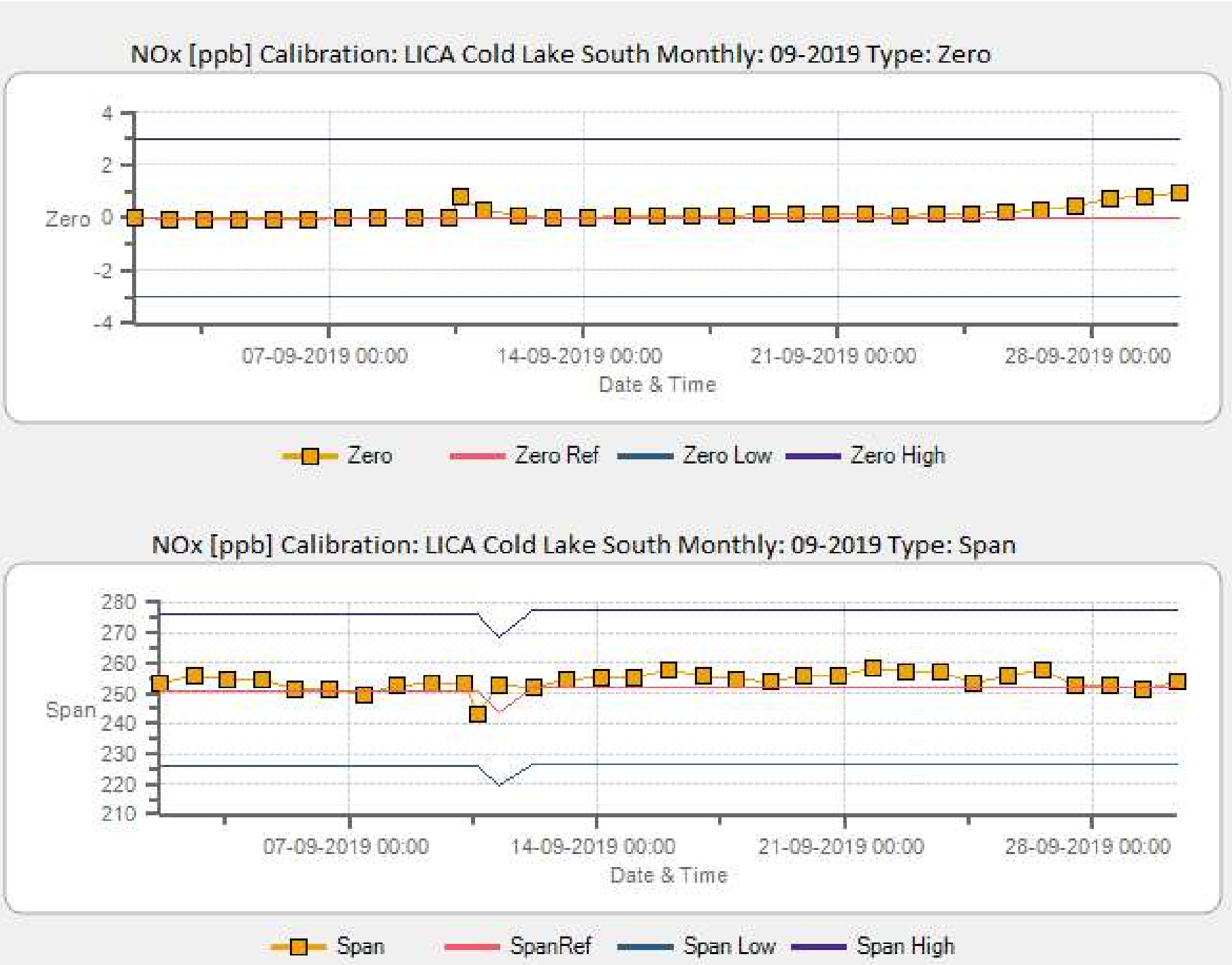
October 7, 2019

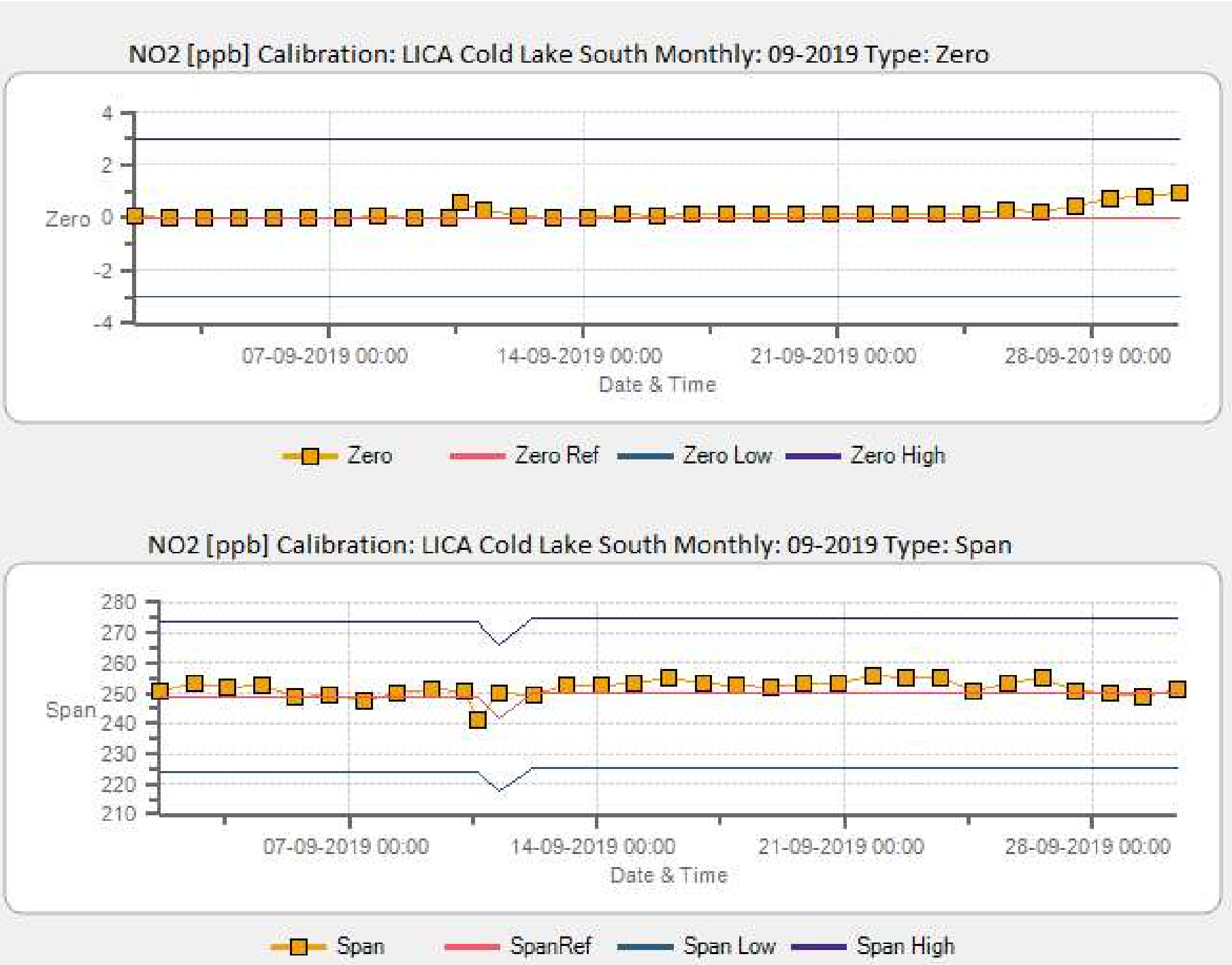
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

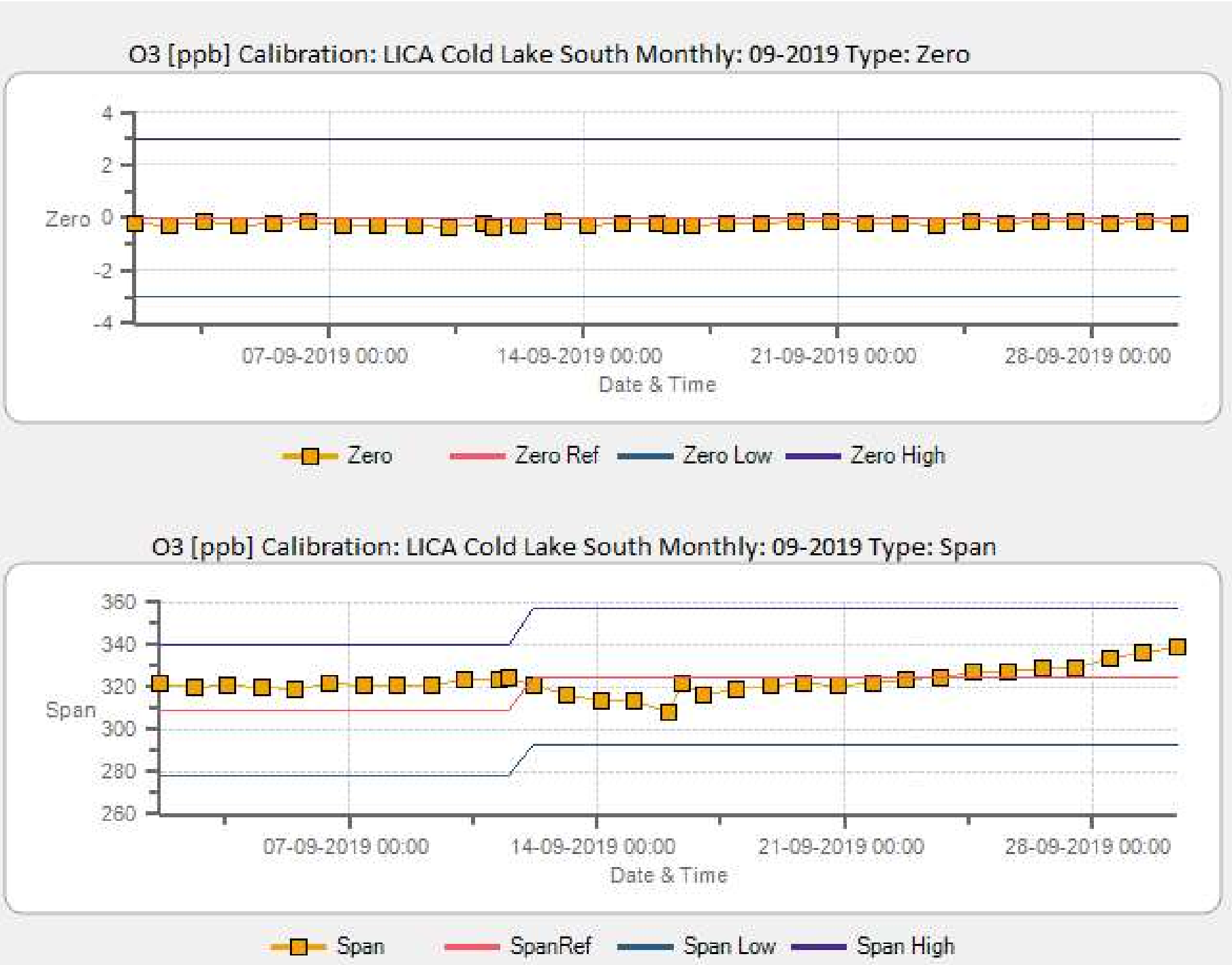

SO2 [ppb] Calibration: LICA Cold Lake South Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
SO2 [ppb] Calibration: LICA Cold Lake South Monthly: 09-2019 Type: Span
300
290
280
Span 270
260
250
240
230
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High

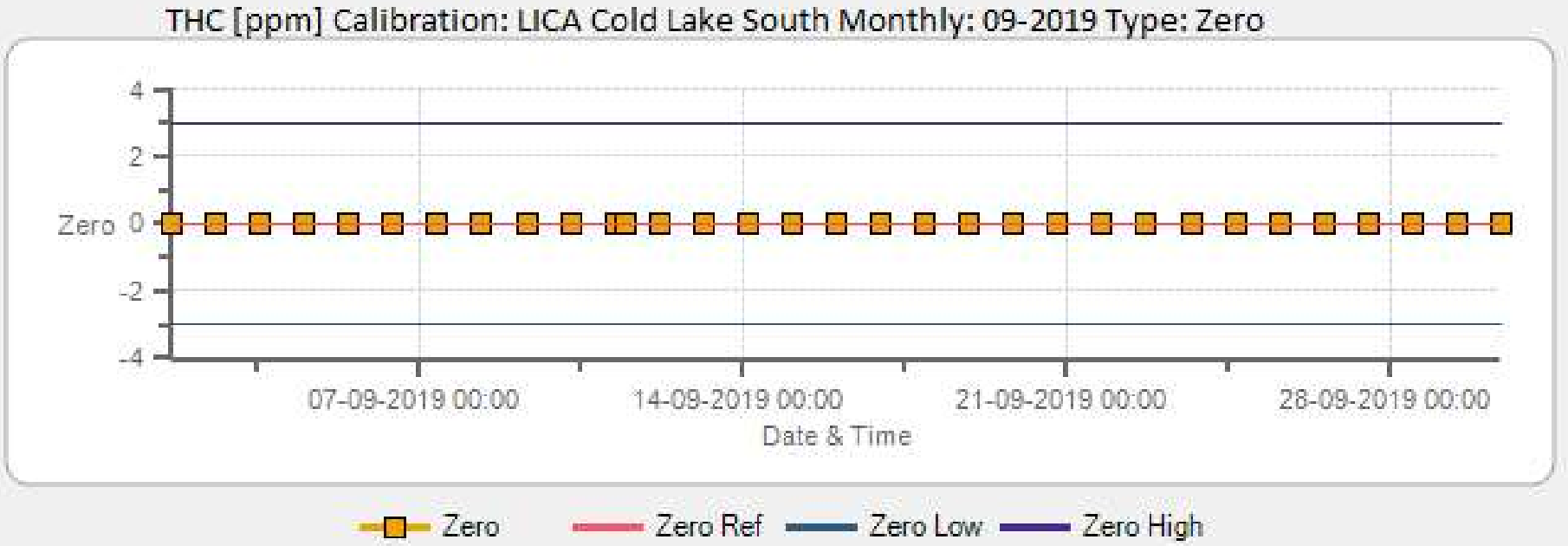

TRS [ppb] Calibration: LICA Cold Lake South Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High

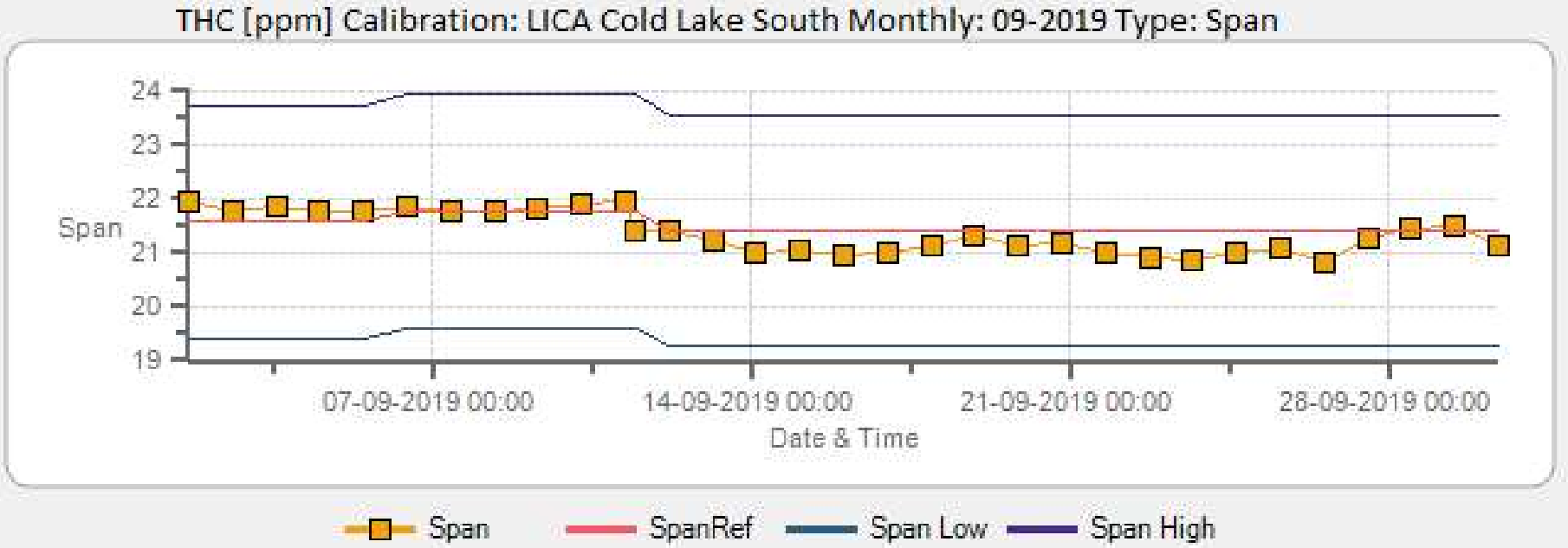

TRS [ppb] Calibration: LICA Cold Lake South Monthly: 09-2019 Type: Span
44
42
40
Span
38
36
34
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High

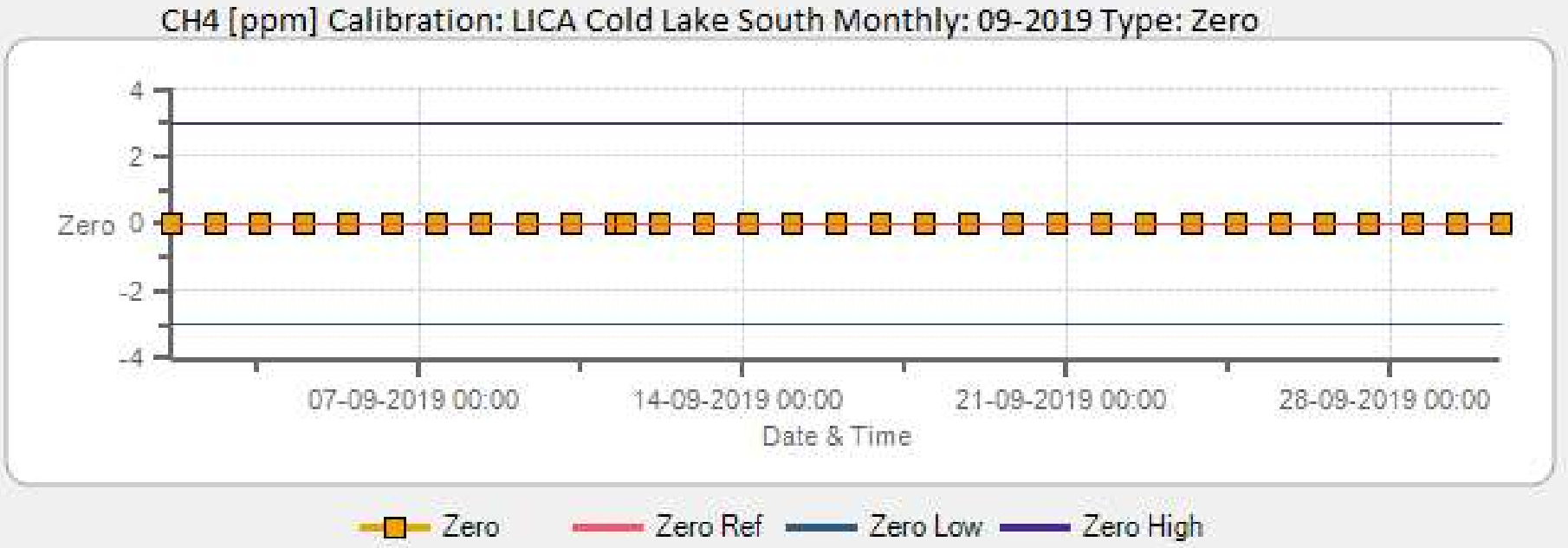

NOx [ppb] Calibration: LICA Cold Lake South Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
NOx [ppb] Calibration: LICA Cold Lake South Monthly: 09-2019 Type: Span
280
270
260
250
Span 240
230
220
210
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High

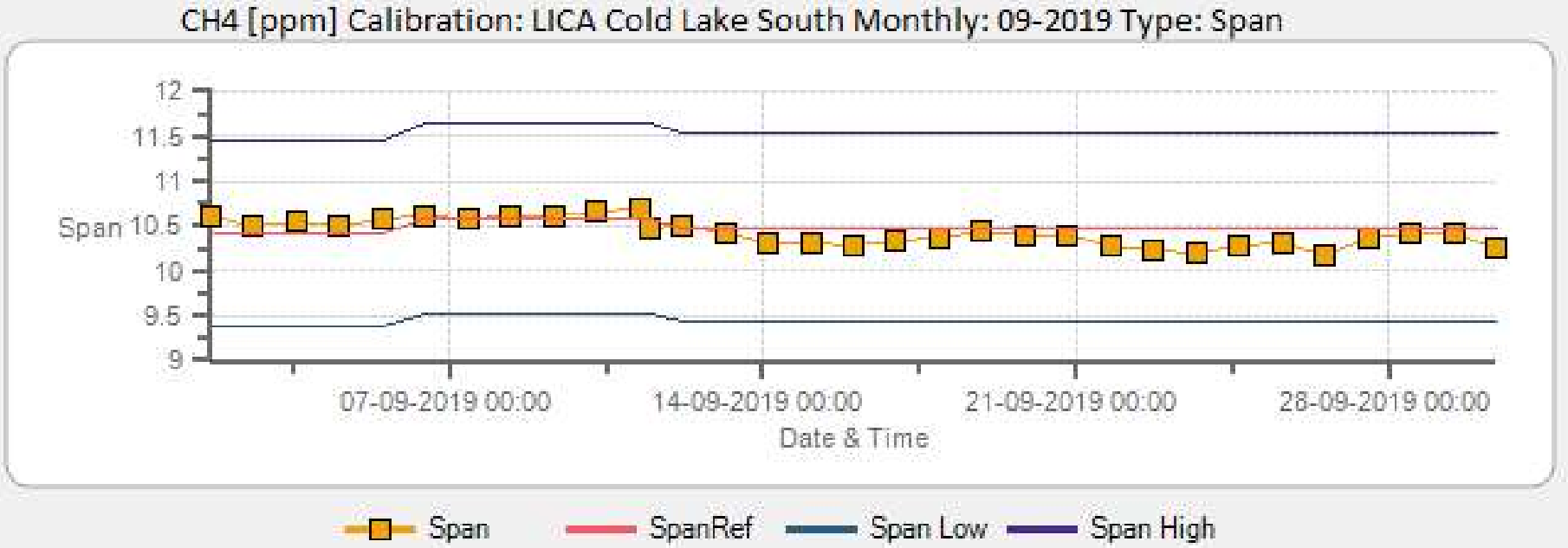

NO2 [ppb] Calibration: LICA Cold Lake South Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
NO2 [ppb] Calibration: LICA Cold Lake South Monthly: 09-2019 Type: Span
280
270
260
Span 250
240
230
220
210
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High


O3 [ppb] Calibration: LICA Cold Lake South Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
O3 [ppb] Calibration: LICA Cold Lake South Monthly: 09-2019 Type: Span
360
340
320
Span
300
280
260
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High

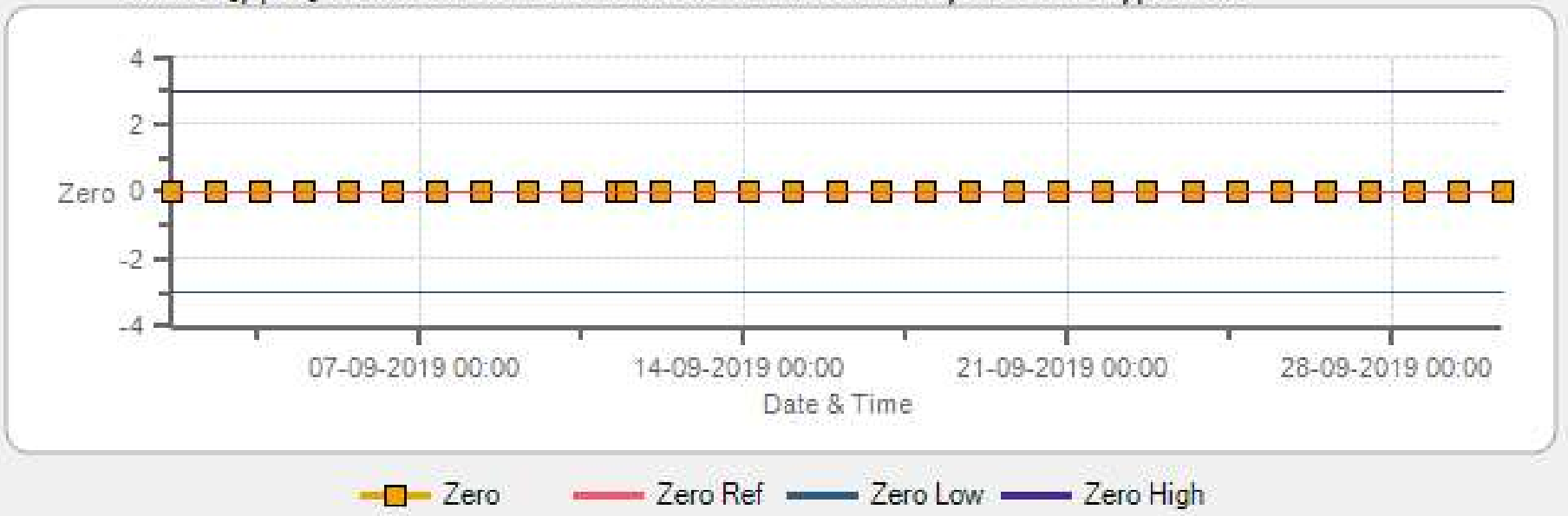

THC [ppm] Calibration: LICA Cold Lake South Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High


THC [ppm] Calibration: LICA Cold Lake South Monthly: 09-2019 Type: Span
24
23
22
Span
21
20
19
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High

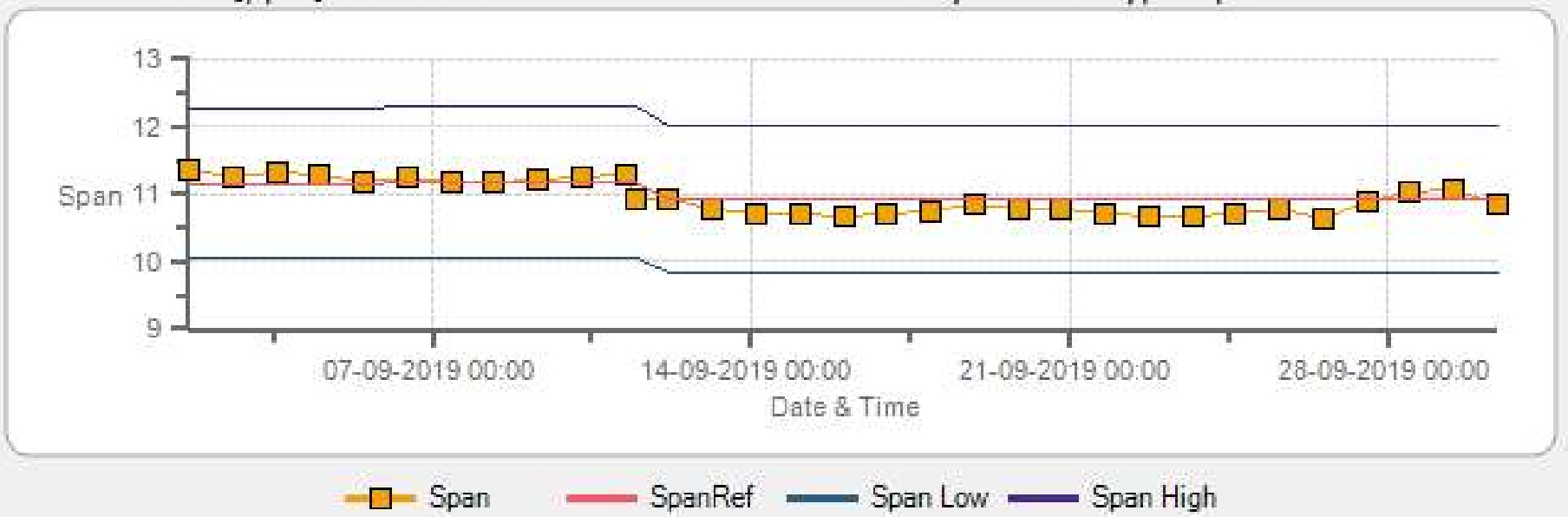

CH4 [ppm] Calibration: LICA Cold Lake South Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High


CH4 [ppm] Calibration: LICA Cold Lake South Monthly: 09-2019 Type: Span
12
11.5
11
Span 10.5
10
9.5
9
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High

NMHC [ppm] Calibration: LICA Cold Lake South Monthly: 09-2019 Type: Zero



NMHC [ppm] Calibration: LICA Cold Lake South Monthly: 09-2019 Type: Span



MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution

DATE:	10-Sep-2019	PREVIOUS CALIBRATION DATE:	13-Aug-2019
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.001
CLIENT:	LICA	TEMPERATURE (°C):	21.0
LOCATION:	Cold Lake South	BAROMETRIC (mBar):	957
PURPOSE	Routine	START TIME (MST):	08:14
PERFORMED BY:	Alex Yakupov	END TIME (MST):	12:55

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1180026018	FLOW (mL/min)	455
INITIAL		FINAL	
BKG/OFFSET	1.64	BKG/OFFSET	1.73
COEF/SLOPE	0.982	COEF/SLOPE	0.985
Expected (reference) Value	266	Expected (reference) Value	266

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	API	MAKE:	Teledyne
MODEL:	700	MODEL:	T701
ID:	690	ID:	132
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 107918	HIGH ID	n/a
CONC (ppm):	49.50	EXPIRY DATE	n/a
CYLINDER (psi):	1200	LOW ID	n/a
EXPIRY DATE	20-Aug-2026	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000		5000	0.00	0	0		
4962	37.90	5000	375.21	372	375	1.009	1.001
4982	18.00	5000	178.20	n/a	178	n/a	1.001
4991	8.90	5000	88.11	n/a	88	n/a	1.001

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.999	0.0%

COMMENTS:

Sample inlet filter was changed. The EV stayed the same after the calibration.

TRS Analyzer Calibration by Dilution

DATE:	10-Sep-2019	PREVIOUS CALIBRATION DATE:	13-Aug-2019
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	21.0
LOCATION:	Cold Lake South	BAROMETRIC (mBar):	957
PURPOSE	Routine	START TIME (MST):	08:14
PERFORMED BY:	Alex Yakupov	END TIME (MST):	12:35

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	812728560	FLOW (mL/min)	488
INITIAL		FINAL	
BKG/OFFSET	16.8	BKG/OFFSET	16.5
COEF/SLOPE	0.947	COEF/SLOPE	0.923
Expected (reference) Value	38.3	Expected (reference) Value	38.3

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0001003	HIGH ID	n/a
CONC (ppm):	9.55	EXPIRY DATE	n/a
CYLINDER (psi):	500	LOW ID	n/a
EXPIRY DATE	20-Oct-2020	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

START TIME:	08:24	SO2 Conc (ppb)	380
END TIME:	08:39	Analyzer Response (ppb)	0.0

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
7500		7500	0.00	0	0		
7439	61.20	7500	77.93	79.5	77.9	0.980	1.000
7470	29.80	7500	37.95	n/a	38	n/a	0.999
7485	14.90	7500	18.97	n/a	18.6	n/a	1.020

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.001	-0.1%

COMMENTS:

Sample inlet filter was changed. The EV stayed the same after the calibration.

NOx Calibration by Dilution/Gas-Phase Titration

CALIBRATION:

				ANALYZER:			
DATE:	10-Sep-2019	PREVIOUS CALIBRATION DATE:	13-Aug-2019	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	21.0	SERIAL #:	1505664393	NOx	0.999
LOCATION:	Cold Lake South	BAROMETRIC (mBar):	957.00	FLOW (mL/min)	774	NO	0.999
PURPOSE	Routine	START TIME (MST):	08:14	RANGE (ppb)	500	NO2	1.000
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:52	GPT FOR O3?		No	

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:			FLOWMETERS (if applicable):	
MAKE:	API	MAKE:	Teledyne	CYLINDER ID:	LL 107918		HIGH ID:	n/a
MODEL:	700	MODEL:	T701	NO/NOx (PPM):	50.1	50.2	HIGH EXPIRY:	n/a
ID:	690	ID:	132	CYLINDER (psi):	1200		LOW ID:	n/a
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	n/a	EXPIRY DATE	20-Aug-2026		LOW EXPIRY:	n/a

CALIBRATION SETTINGS:

INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	5	5	n/a	BKG/OFFSET:	5	5	n/a
SLOPE/COEF/CE:	1	1	1.0	SLOPE/COEF/CE:	1	1	1.0

EXPECTED (REFERENCE) VALUE:

INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	251	2	249.0		252	2	250.0

CALIBRATION PARAMETERS:

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

NO/NOx CALIBRATION:

FLOW RATE (mL/min)			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000		5000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
4962	37.90	5000	379.8	380.5	0.8	379.0	380.0	1.0	380.0	381.0	1.0	1.002	1.001		0.999	0.999	
4982	18.00	5000	180.4	180.7	0.4	n/a	n/a	n/a	181.0	181.0	0.0	n/a	n/a		0.996	0.998	
4991	8.90	5000	89.2	89.4	0.2	n/a	n/a	n/a	90.0	91.0	0.0	n/a	n/a		0.991	0.982	

GPT CALIBRATION:

Point	CALIBRATOR			INDICATED (ppb)			NO DROP / O3 Conc (ppb)	NO2 GAIN (ppb)	NO2 Corr. FACTOR	CONV. EFFICIENCY
	GAS	TOTAL	O3 SETPOINT	NO	NOx	NO2				
REFERENCE	37.90	5000	0	380.0	381.0	1.0				
AS-FOUND HIGH	37.90	5000	245	131.0	381.0	250.0	249	249	1.000	100.00%
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a
MID	37.90	5000	140	242.0	381.0	139.0	138	138	1.000	100.00%
LOW	37.90	5000	45	332.0	381.0	49.0	48	48	1.000	100.00%
NO2 adjustment not required.									AVERAGE:	100.00%

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
NO	1.000	1.000	0.08%
NOx	1.000	1.000	0.12%
NO2	1.000	1.000	0.00%

COMMENTS:

Sample inlet filter was changed.

Methane/Non-Methane Analyzer Calibration by Dilution

CALIBRATION:

DATE:	11-Sep-2019	PREVIOUS CALIBRATION DATE:	14-Aug-2019
CLIENT:	LICA	TEMPERATURE (°C):	20.0
LOCATION:	Cold Lake South	BAROMETRIC (mBar):	959
PURPOSE	Routine	START TIME (MST):	07:53
PERFORMED BY:	Alex Yakupov	END TIME (MST):	11:08

ANALYZER:

VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
	Thermo 55i	1180030034	1120
PARAMETER:	CH4	NMHC	THC
RANGE (ppm):	20	20	40
PREVIOUS CF:	1.000	1.000	1.000

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:			FLOWMETERS (if applicable):	
MAKE:	API	MAKE:	Teledyne	CYLINDER ID:	LL 29687		HIGH ID:	n/a
MODEL:	700	MODEL:	T701	CH_4/C_3H_8 (ppm):	598.0	198.0	HIGH EXPIRY:	n/a
ID:	690	ID:	132	CYLINDER (psi):	1100		LOW ID:	n/a
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	115	EXPIRY DATE	01-Aug-2026		LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

POINT (CH4/NMHC)	HIGH	MID	LOW	CH4 EQUIVILANCE	
TARGET	14	7	3.5	C_3H_8 as CH_4	544.5
RANGE	12 - 16	6 - 8	2 - 4	THC as CH_4	1142.5

EXPECTED (REFERENCE) VALUE:

INITIAL	CH4	NMHC	THC	FINAL	CH4	NMHC	THC
	10.58	11.18	21.76		10.48	10.93	21.41

CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC
3000		3000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
2930	70.00	3000	13.95	12.71	26.66	14.10	13.17	27.26	13.95	12.71	26.66	0.990	0.965	0.978	1.000	1.000	1.000
2962	38.00	3000	7.57	6.90	14.47	n/a	n/a	n/a	7.64	6.95	14.60	n/a	n/a	n/a	0.991	0.992	0.991
2981	19.00	3000	3.79	3.45	7.24	n/a	n/a	n/a	3.85	3.46	7.32	n/a	n/a	n/a	0.984	0.997	0.989

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
CH4	1.000	0.999	0.2%
NMHC	1.000	1.000	0.1%
THC	1.000	1.000	0.1%

COMMENTS:

Sample inlet filter was changed. New N2 gas cylinder was connected.

Ozone Calibration by Photometer (Varying UV Lamp)

DATE:	11-Sep-2019	PREVIOUS CALIBRATION DATE:	14-Aug-2019
PARAMETER:	Ozone	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	20.0
LOCATION:	Cold Lake South	BAROMETRIC (mBar):	959
PURPOSE	Routine	START TIME (MST):	07:53
PERFORMED BY:	Alex Yakupov	END TIME (MST):	12:04

ANALYZER:

MAKE/MODEL	Thermo 49i	RANGE	500 ppb
SERIAL #	700419951	FLOW (mL/min)	1469
INITIAL		FINAL	
BKG/OFFSET	0	BKG/OFFSET	0
COEF/SLOPE	1.045	COEF/SLOPE	1.039
Expected (reference) Value	309	Expected (reference) Value	325

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	n/a
	CALIBRATION METHOD:	Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

CALIBRATION PARAMETERS:

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

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000		5000	0.0	0.0	0.0		
5000		5000	379.0	381.0	379.0	0.995	1.000
5000		5000	180.0	n/a	180.0	n/a	1.000
5000		5000	60.0	n/a	60.0	n/a	1.000

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.0%

COMMENTS:

Sample inlet filter was changed.

Thermo 5030 SHARP Monitor Calibration

Date:	September 6, 2019	**Performed By/Reviewer:**	Alex Yakupov / not yet reviewed
Company:	LICA	**Start Time (mst):**	7:40
Station Name/Location:	Cold Lake South	**End Time (mst):**	9:34
Previous Audit Date:	August 23, 2019	**Calibration Purpose:**	quarterly
Parameter:	PM 2.5	**Weather Conditions:**	Mainly sunny

SHARP Information and Status:

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

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

High Flow:	Airmetrics/Chinook High Maxxam ID #4 expires Jan 31, 2020.
Digital Manometer:	Dwyer 475 Mark III id# 3 expires January 17, 2020
Temperature:	F.S. 160348895 expires June 19, 2020
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:	9	23	24	24	959	43
Reference:	9.6	23.0	23.0	23.0	959.0	44.0
Difference:	0.6	0.0	1.0	1.0	0.0	1.0

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

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

	T1 (°C)	T2 (°C)	T3 (°C)	T4 (°C)	P3 (hPa)	RH (%)
SHARP:	10	23	23	23	959	44
Reference:	10.0	23.0	23.0	23.0	959.0	44.0
Difference:	0.0	0.0	0.0	0.0	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:** 17	**OLD:** 7018
Spanfoil Value (µg):	1294	**CONFID:** 9	**NEW:** 7026

Nephalometer Zero:

	As Found	As Left
Analog	161.00	161.00
NEPH	0.50	0.00
C14	145.80	135.70
Conc	2.70	0.00

Flow rate:

	As Found	As Left
SHARP AirFlow l/hr	1000	1000
Reference AirFlow (l/min)	16.59	16.67
Reference AirFlow (l/hr)	995	1000
% Difference: / **Difference:**	0.5%	0.0%

$$\%D = 100 \times \frac{Qm - Qi}{Qi}$$

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: Without adapter = 16.67 vs with adapter = 16.56, differentce = 0.11, less than 0.8 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. 2019-050A

Company Maxxam **Operator:** Tom Bourque

Calibrator:				**Flow Measurement Device:**	
Make/Model	API 700			Make/Model	N/A
Serial Number	690			Serial Number	N/A
Last Verification Date	March 2018			Temperature (°C)	24.4 C
NO Cylinder S/N	EY0000769			Barometric Pressure	699 mmHg
NO [PPM]	51.1	NOx [PPM]	51.2		
Expiry Date	December 2019				

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	-0.001	-0.001	Limit ± 10%	
5083	80.0	0.804	0.806	0.802	-0.011	0.791	0%	-2%
5044	40.0	0.405	0.406	0.403	-0.006	0.397	-1%	-2%
5022	20.0	0.204	0.204	0.202	-0.004	0.198	-1%	-2%
						Absolute Average Percent Difference	1%	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)=	0.9974	**0.90-1.10**	m (Slope)=	0.9833
b (Intercept % of FS)=	-0.0592	**± 3% F.S.**	b (Intercept % of FS)=	-0.1772

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
5083	0.000	0.000	0.802	-0.011	0.791	NO_2	% Diff. Limit
5083	0.500	0.518	0.284	0.488	0.771	-4%	± 10%
5083	0.300	0.323	0.479	0.294	0.774	-6%	± 10%
5083	0.150	0.167	0.635	0.142	0.777	-8%	± 10%
						6%	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO_2		**LIMITS**
Correlation=	0.9998	**≥ 0.995**
m (Slope)=	0.9649	**0.90-1.10**
b (Intercept % of FS)=	-1.4907	**± 3% F.S.**

Big shift down in NOx when entering GPT function.
Possible flow change.

AENV Standards		**NO_X Analyzer**	
Audit Calibrator			
Make/Model	Teco 146i	Make/Model	Teco 42i
Serial/AMU Number	AMU 1809	Serial/AMU Number	AMU 2265
SRM Gas Cylinder No.	APEX1236646	Last Calibration Date	April 15, 2019
Cylinder Conc. (ppm)	50.04	Full Scale (ppm)	1.0
		Cylinder Gas Expiry Date	June 2021

COMMENTS: With ZAG Teledyne 701 Maxxam ID 11986.

Auditor: Al Clark Date: April 16, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2019-048A

Company Maxxam **Operator:** Tom Bourque

Calibrator:			
Make/Model	Sabio 2010		
Serial Number	11900613		
Last Verification Date	August 2018		
NO Cylinder S/N	EY0000769		
NO [PPM]	51.1	NOx [PPM]	51.2
Expiry Date	December 2019		

Flow Measurement Device:	
Make/Model	N/A
Serial Number	N/A
Temperature (°C)	24.4 C
Barometric Pressure	699 mmHg

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	-0.002	-0.002	Limit ± 10%	
5080	80.0	0.805	0.806	0.815	-0.007	0.808	1%	0%
5041	40.0	0.405	0.406	0.414	-0.004	0.410	2%	1%
5019	20.0	0.204	0.204	0.210	-0.004	0.206	3%	2%
						Absolute Average Percent Difference	2%	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)=	1.0117	**0.90-1.10**	m (Slope)=	1.0039
b (Intercept % of FS)=	0.2171	**± 3% F.S.**	b (Intercept % of FS)=	-0.0020

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
						NO_2	% Diff. Limit
5080	0.000	0.000	0.815	-0.009	0.806		
5080	1.400	0.517	0.298	0.511	0.809	1%	± 10%
5080	0.900	0.308	0.507	0.299	0.806	0%	± 10%
5080	0.500	0.140	0.675	0.130	0.805	-1%	± 10%
						0%	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	1.0062	**0.90-1.10**
b (Intercept % of FS)=	-1.0004	**± 3% F.S.**

AENV Standards	
Audit Calibrator	
Make/Model	Teco 146i
Serial/AMU Number	AMU 1809
SRM Gas Cylinder No.	APEX1236646
Cylinder Conc. (ppm)	50.04

NO_X Analyzer	
Make/Model	Teco 42i
Serial/AMU Number	AMU 2265
Last Calibration Date	April 15, 2019
Full Scale (ppm)	1.0
Cylinder Gas Expiry Date	June 2021

COMMENTS: With ZAG Teledyne 701 Maxxam ID: 11981. Should have Maxxam ID 11986 instead

Auditor: Al Clark Date: April 16, 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

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

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

End of Report

Lakeland Industry & Community Association

SEPTEMBER 2019

Ambient Air Monitoring Calibration Report

- MASKWA STATION-

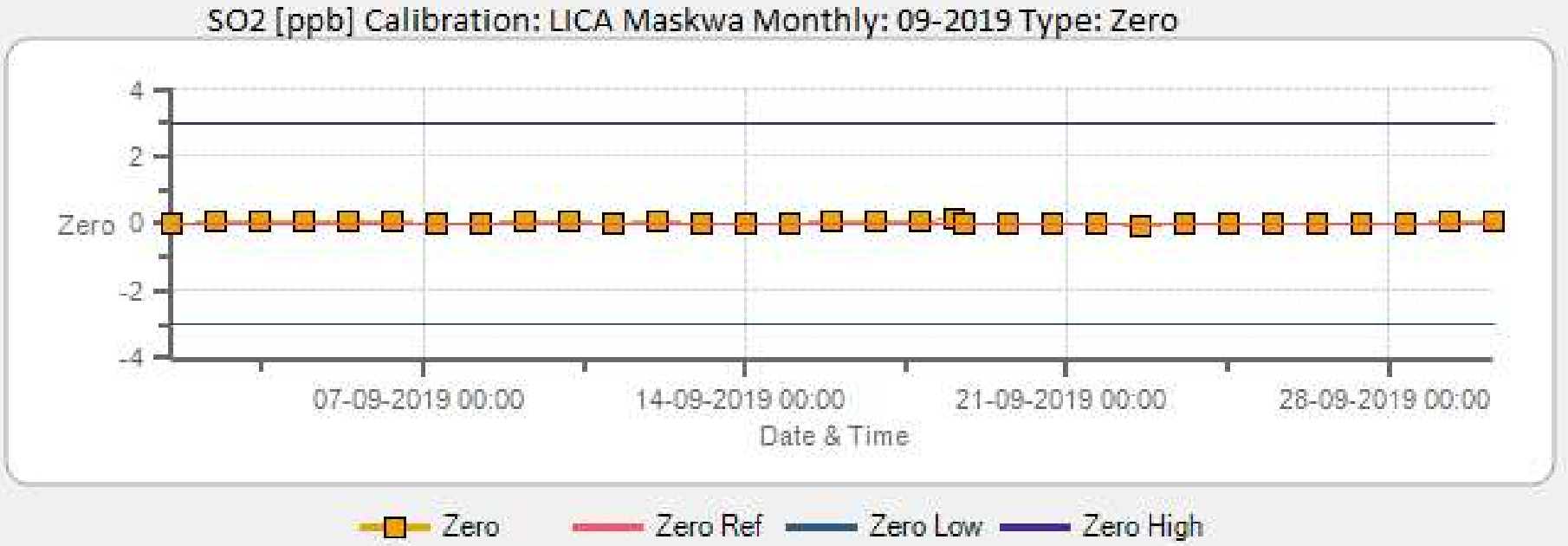
CAL-LICA-201909-01248

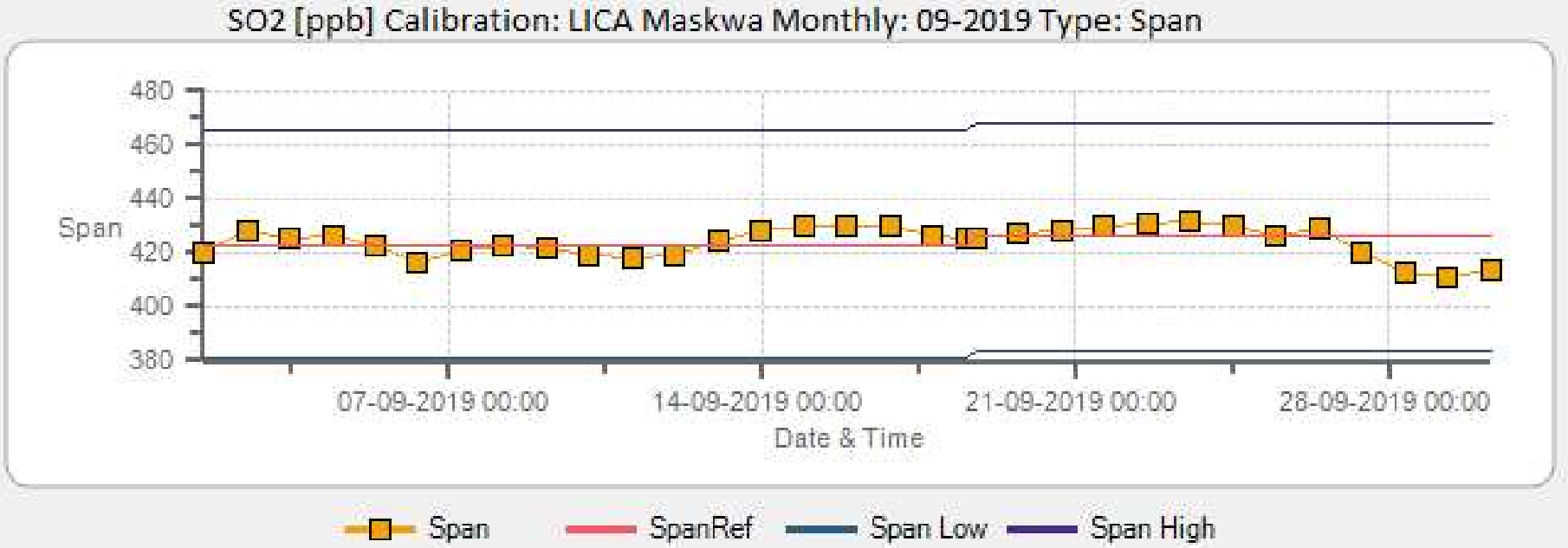
Station Operation and Maintenance:
Bureau Veritas Canada

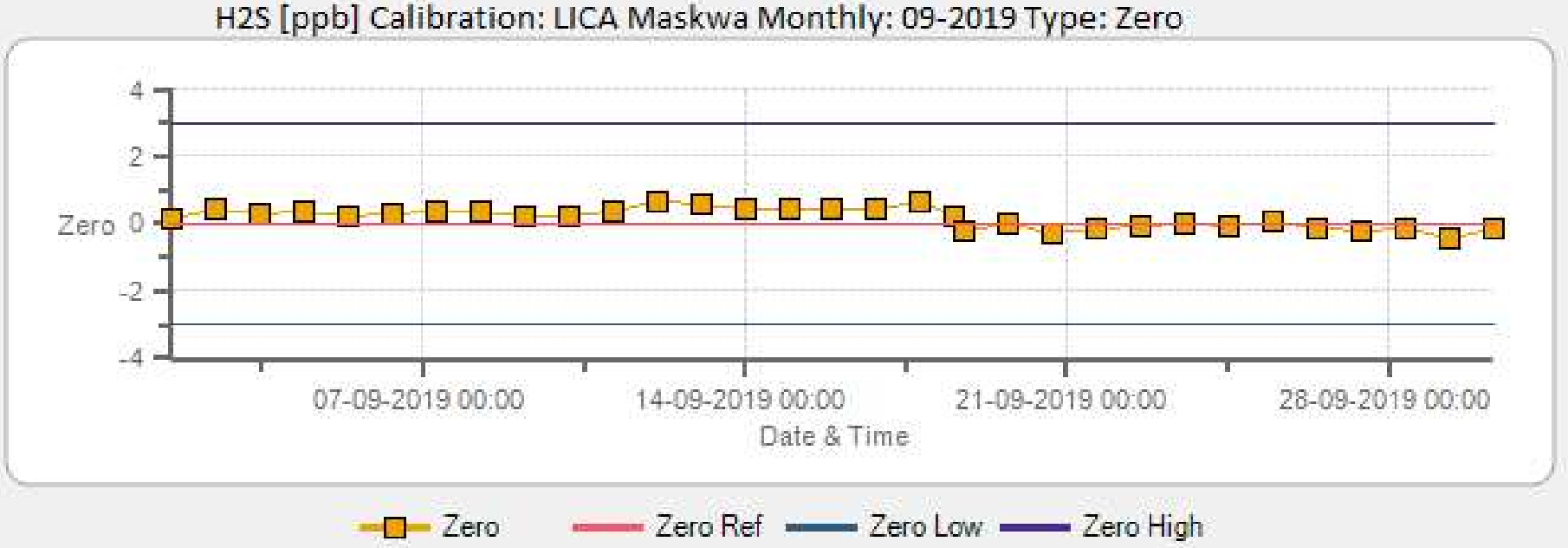
Data Validation and Report:
Bureau Veritas Canada

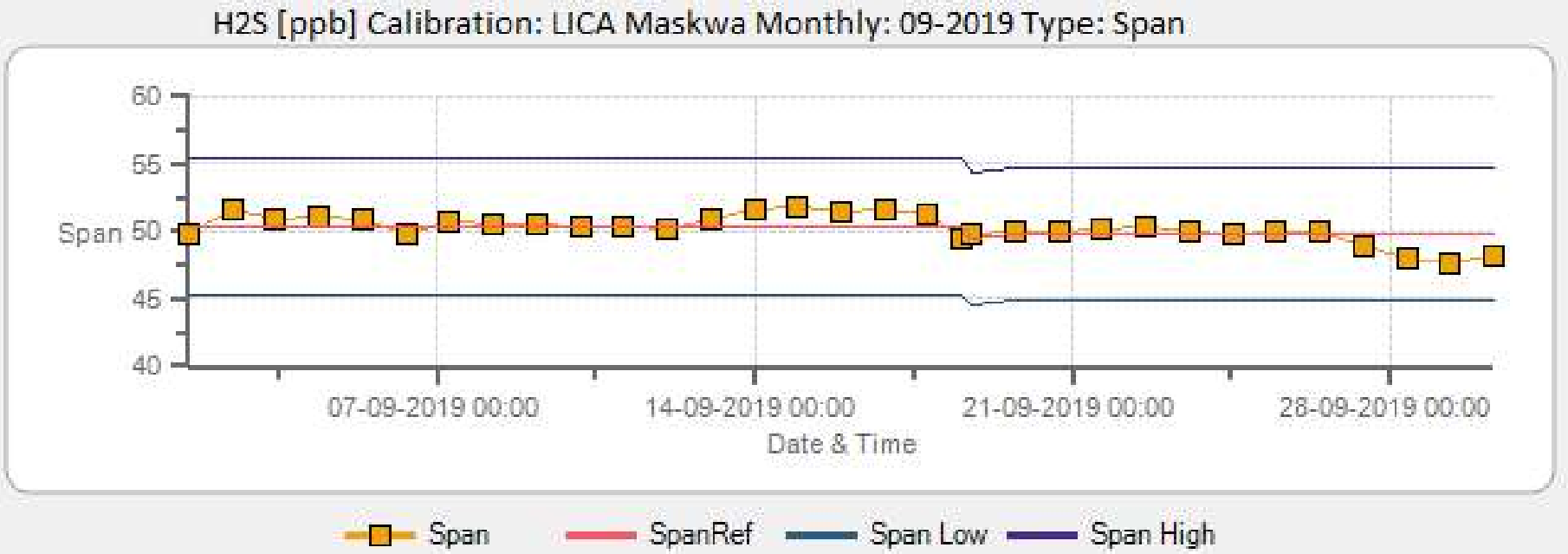
October 7, 2019

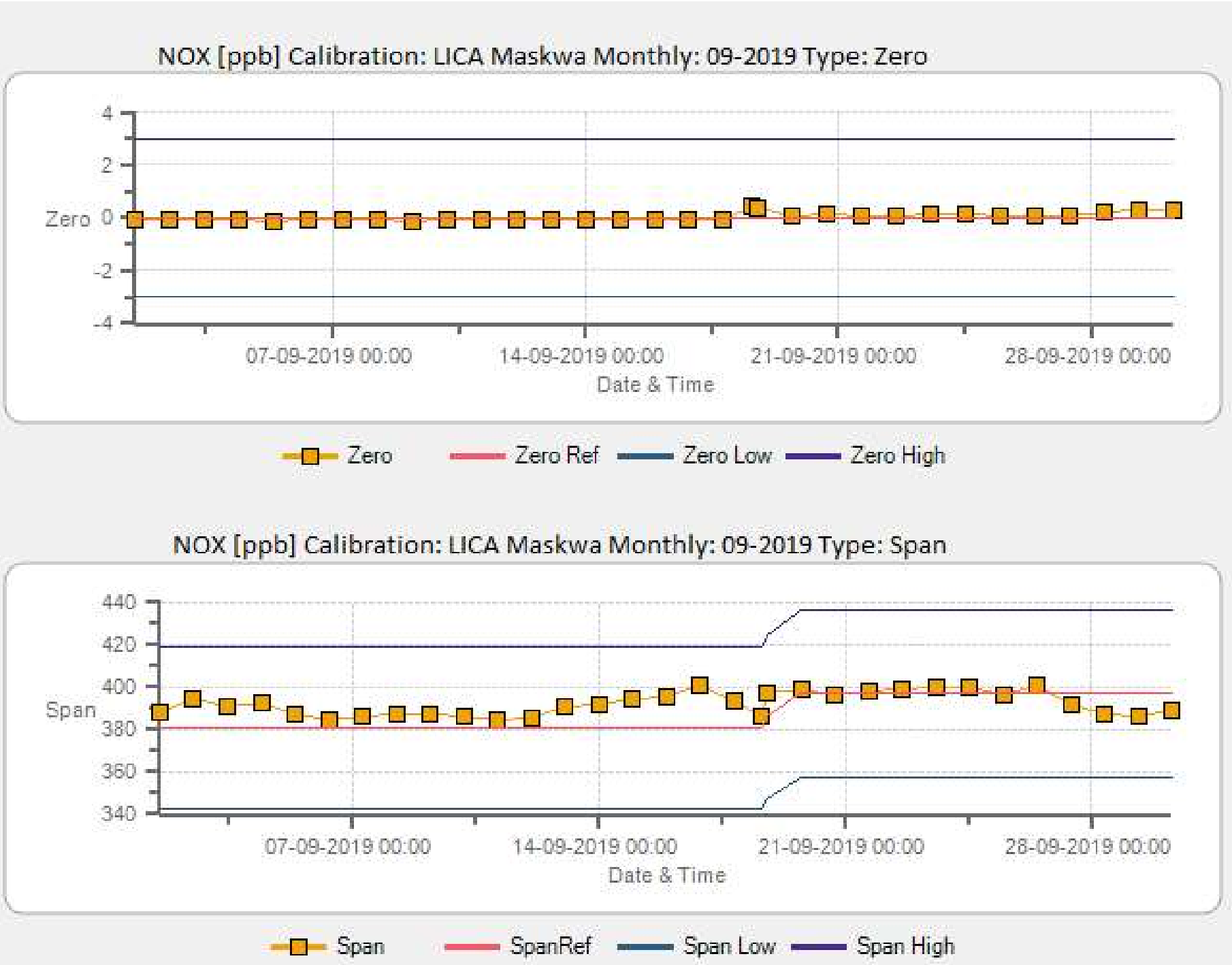
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

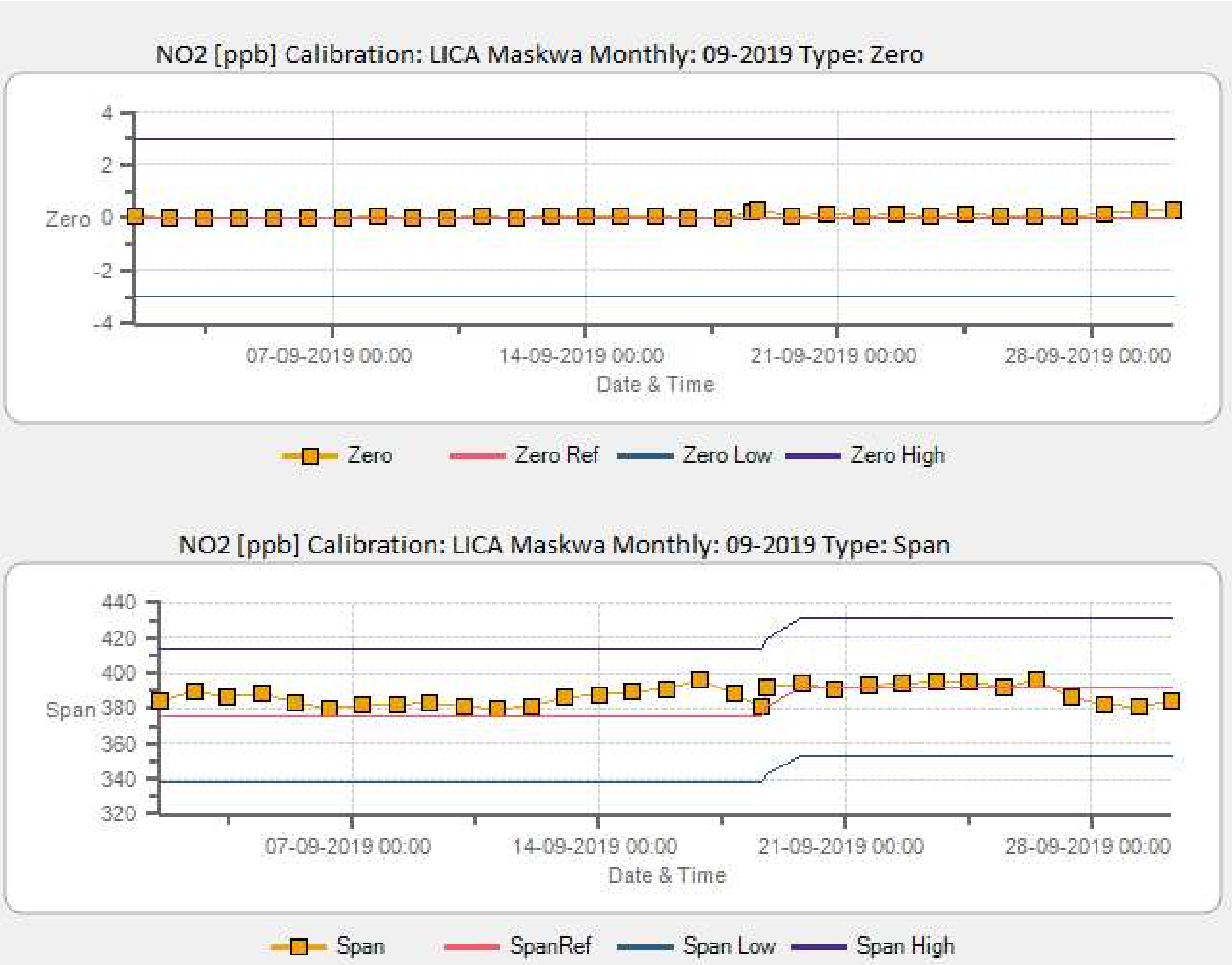

SO2 [ppb] Calibration: LICA Maskwa Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High

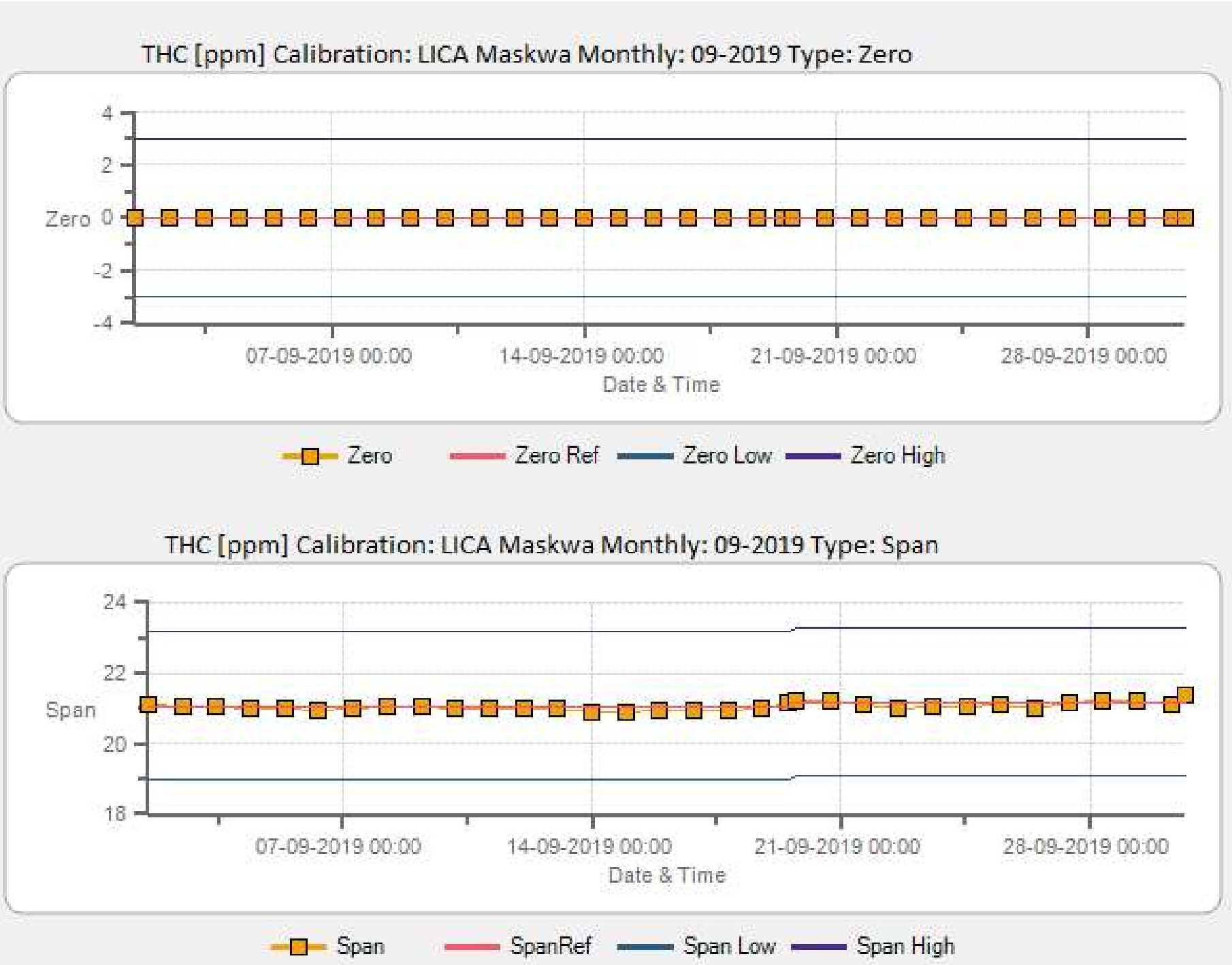

SO2 [ppb] Calibration: LICA Maskwa Monthly: 09-2019 Type: Span
480
460
440
Span
420
400
380
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High

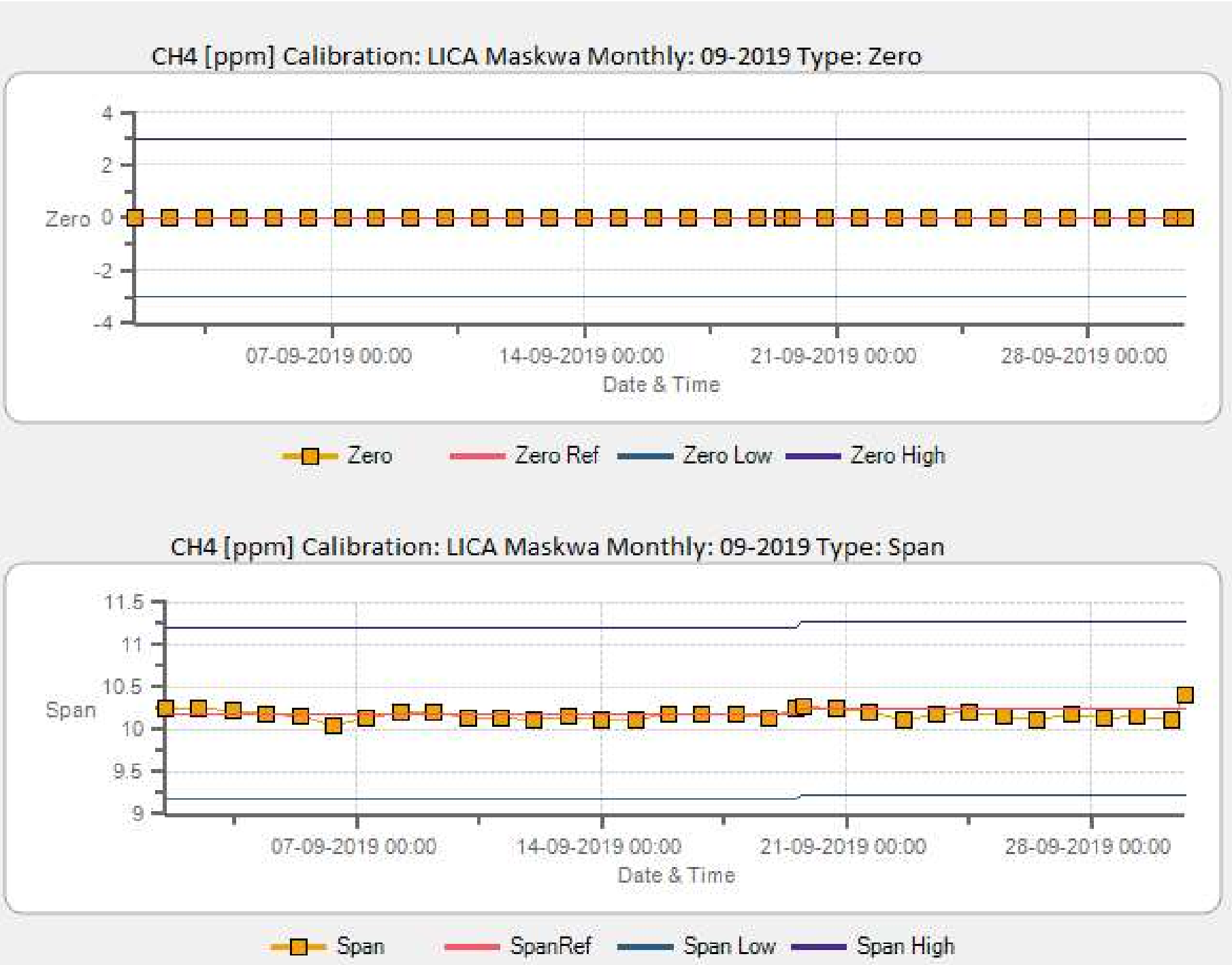

H2S [ppb] Calibration: LICA Maskwa Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High

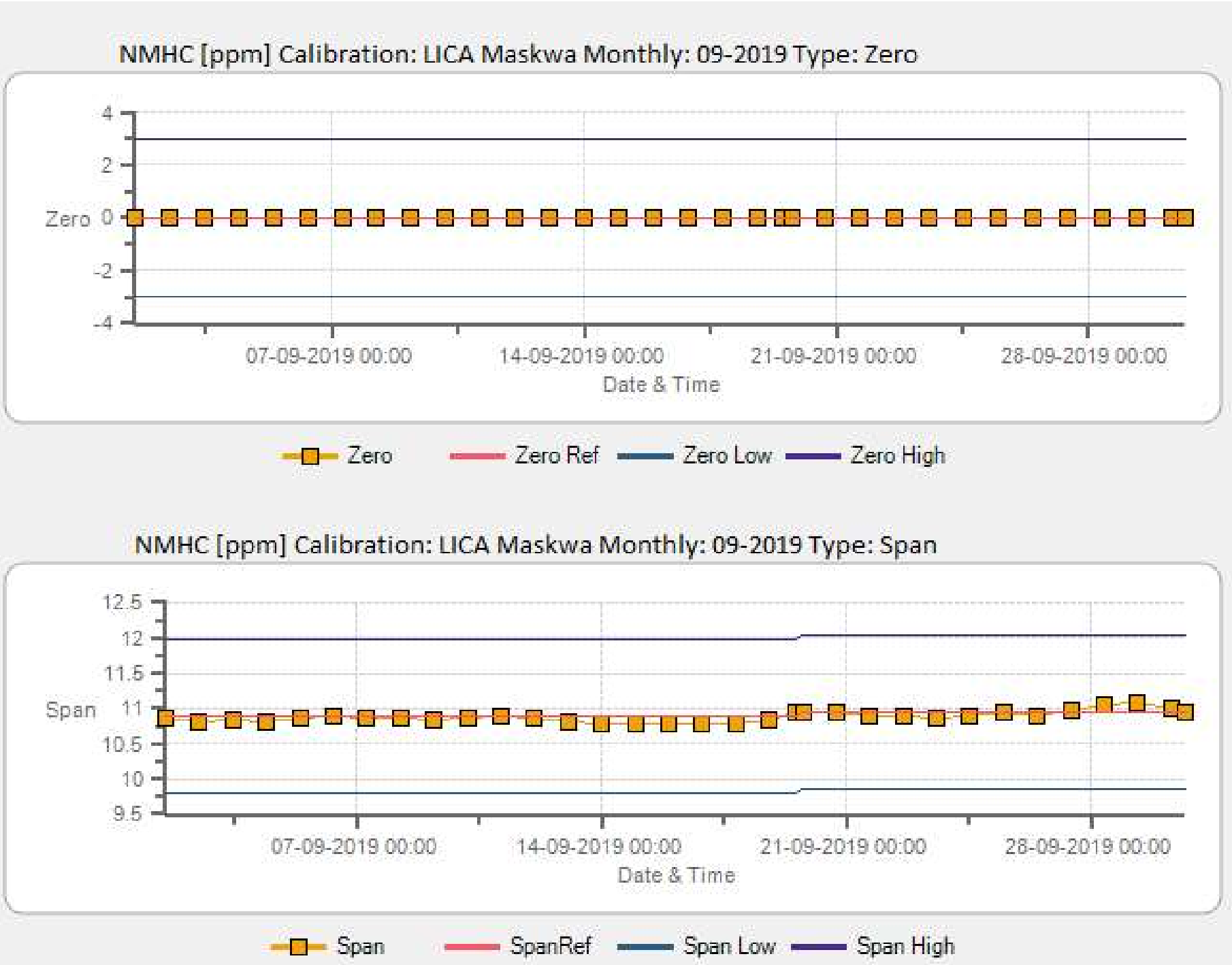

H2S [ppb] Calibration: LICA Maskwa Monthly: 09-2019 Type: Span
60
55
Span 50
45
40
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High


NOX [ppb] Calibration: LICA Maskwa Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
NOX [ppb] Calibration: LICA Maskwa Monthly: 09-2019 Type: Span
440
420
400
Span
380
360
340
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High


NO2 [ppb] Calibration: LICA Maskwa Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
NO2 [ppb] Calibration: LICA Maskwa Monthly: 09-2019 Type: Span
440
420
400
Span 380
360
340
320
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High


THC [ppm] Calibration: LICA Maskwa Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
THC [ppm] Calibration: LICA Maskwa Monthly: 09-2019 Type: Span
24
22
Span
20
18
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High


CH4 [ppm] Calibration: LICA Maskwa Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
CH4 [ppm] Calibration: LICA Maskwa Monthly: 09-2019 Type: Span
11.5
11
10.5
Span 10
9.5
9
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High


NMHC [ppm] Calibration: LICA Maskwa Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
NMHC [ppm] Calibration: LICA Maskwa Monthly: 09-2019 Type: Span
12.5
12
11.5
Span 11
10.5
10
9.5
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution

DATE:	18-Sep-2019	PREVIOUS CALIBRATION DATE:	19-Aug-2019
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Maskwa	BAROMETRIC (mBar):	935
PURPOSE	Routine	START TIME (MST):	09:13
PERFORMED BY:	Alex Yakupov	END TIME (MST):	13:10

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	1000 ppb
SERIAL #	1180930031	FLOW (mL/min)	454
INITIAL		FINAL	
BKG/OFFSET	2.09	BKG/OFFSET	2.14
COEF/SLOPE	0.96	COEF/SLOPE	0.966
Expected (reference) Value	423	Expected (reference) Value	426

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	API	MAKE:	Teledyne
MODEL:	700	MODEL:	T701
ID:	690	ID:	132
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 107918	HIGH ID	n/a
CONC (ppm):	49.50	EXPIRY DATE	n/a
CYLINDER (psi):	1100	LOW ID	n/a
EXPIRY DATE	20-Aug-2026	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	780	380	190
RANGE	600 - 800	300 - 400	100 - 200

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

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

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000		5000	0.00	0	0		
4922	77.80	5000	770.22	761	770	1.012	1.000
4962	37.90	5000	375.21	n/a	374	n/a	1.003
4981	18.90	5000	187.11	n/a	186	n/a	1.006

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	-0.1%

COMMENTS:

Sample inlet filter was changed.

H2S Analyzer Calibration by Dilution

DATE:	18-Sep-2019	PREVIOUS CALIBRATION DATE:	19-Aug-2019
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Maskwa	BAROMETRIC (mBar):	935
PURPOSE	Routine	START TIME (MST):	09:13
PERFORMED BY:	Alex Yakupov	END TIME (MST):	13:40

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 17360005	FLOW (mL/min)	908
INITIAL		FINAL	
BKG/OFFSET	22.3	BKG/OFFSET	22.8
COEF/SLOPE	0.799	COEF/SLOPE	0.791
Expected (reference) Value	50.4	Expected (reference) Value	49.8

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0001003	HIGH ID	n/a
CONC (ppm):	9.55	EXPIRY DATE	n/a
CYLINDER (psi):	500	LOW ID	n/a
EXPIRY DATE	20-Oct-2020	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

START TIME:	09:21	SO2 Conc (ppb)	780
END TIME:	09:36	Analyzer Response (ppb)	0.0

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
7500		7500	0.00	0.6	0		
7439	61.20	7500	77.93	79	77.9	0.994	1.000
7470	29.80	7500	37.95	n/a	37.8	n/a	1.004
7485	14.90	7500	18.97	n/a	18.4	n/a	1.031

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	-0.3%

COMMENTS:

Sample inlet filter was changed.

NOx Calibration by Dilution/Gas-Phase Titration

CALIBRATION:

				ANALYZER:			
DATE:	18-Sep-2019	PREVIOUS CALIBRATION DATE:	19-Aug-2019	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930028	NOx	1.000
LOCATION:	Maskwa	BAROMETRIC (mBar):	935.00	FLOW (mL/min)	534	NO	0.999
PURPOSE	Routine	START TIME (MST):	09:13	RANGE (ppb)	1000	NO2	1.000
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:55	GPT FOR O3?		No	

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:			FLOWMETERS (if applicable):	
MAKE:	API	MAKE:	Teledyne	CYLINDER ID:	LL 107918		HIGH ID:	n/a
MODEL:	700	MODEL:	T701	NO/NOx (PPM):	50.1	50.2	HIGH EXPIRY:	n/a
ID:	690	ID:	132	CYLINDER (psi):	1100		LOW ID:	n/a
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	n/a	EXPIRY DATE	20-Aug-2026		LOW EXPIRY:	n/a

CALIBRATION SETTINGS:

INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	3	3	n/a	BKG/OFFSET:	3	3	n/a
SLOPE/COEF/CE:	1	1	1.0	SLOPE/COEF/CE:	1	1	1.0

EXPECTED (REFERENCE) VALUE:

INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	381	4	376.0		397	5	392.0

CALIBRATION PARAMETERS:

POINT	NO TARGET (PPB)	NO2 TARGET (PPB)	NO2 RANGE	O3 POINT
HIGH	780	500	470-540	n/a
MID	380	275	235-310	n/a
LOW	190	90	80-115	n/a
EXTRA 1	n/a	n/a	n/a	n/a

NO/NOx CALIBRATION:

FLOW RATE (mL/min)			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000		5000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
4922	77.80	5000	779.6	781.1	1.6	773.0	773.0	0.0	780.0	781.0	1.0	1.008	1.010		0.999	1.000	
4962	37.90	5000	379.8	380.5	0.8	n/a	n/a	n/a	381.0	381.0	0.0	n/a	n/a		0.997	0.999	
4981	18.90	5000	189.4	189.8	0.4	n/a	n/a	n/a	191.0	191.0	0.0	n/a	n/a		0.992	0.993	

GPT CALIBRATION:

Point	CALIBRATOR			INDICATED (ppb)			NO DROP / O3 Conc (ppb)	NO2 GAIN (ppb)	NO2 Corr. FACTOR	CONV. EFFICIENCY
	GAS	TOTAL	O3 SETPOINT	NO	NOx	NO2				
REFERENCE	77.80	5000	0	780.0	781.0	1.0				
AS-FOUND HIGH	77.80	5000	490	276.0	781.0	505.0	504	504	1.000	100.00%
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a
MID	77.80	5000	270	501.0	782.0	281.0	279	280	0.996	100.36%
LOW	77.80	5000	100	679.0	782.0	103.0	101	102	0.990	100.99%
NO2 adjustment not required.									AVERAGE:	100.45%

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
NO	1.000	1.000	0.08%
NOx	1.000	1.000	0.06%
NO2	1.000	0.997	0.14%

COMMENTS:

Sample inlet filter was changed.

Methane/Non-Methane Analyzer Calibration by Dilution

CALIBRATION:

DATE:	19-Sep-2019	PREVIOUS CALIBRATION DATE:	20-Aug-2019
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Maskwa	BAROMETRIC (mBar):	936
PURPOSE	Routine	START TIME (MST):	08:22
PERFORMED BY:	Alex Yakupov	END TIME (MST):	12:37

ANALYZER:

VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
	Thermo 55i	1180930026	1110
PARAMETER:	CH4	NMHC	THC
RANGE (ppm):	20	20	40
PREVIOUS CF:	1.000	1.000	1.000

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:			FLOWMETERS (if applicable):	
MAKE:	API	MAKE:	Teledyne	CYLINDER ID:	LL 29687		HIGH ID:	n/a
MODEL:	700	MODEL:	T701	CH_4/C_3H_8 (ppm):	598.0	198.0	HIGH EXPIRY:	n/a
ID:	690	ID:	132	CYLINDER (psi):	1000		LOW ID:	n/a
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	115	EXPIRY DATE	01-Aug-2026		LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

POINT (CH4/NMHC)	HIGH	MID	LOW	CH4 EQUIVILANCE	
TARGET	14	7	3.5	C_3H_8 as CH_4	544.5
RANGE	12 - 16	6 - 8	2 - 4	THC as CH_4	1142.5

EXPECTED (REFERENCE) VALUE:

INITIAL	CH4	NMHC	THC	FINAL	CH4	NMHC	THC
	10.19	10.89	21.08		10.24	10.95	21.19

CALIBRATION:

FLOW RATE (mL/min)			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC
3000		3000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
2930	70.00	3000	13.95	12.71	26.66	13.93	12.58	26.51	13.95	12.71	26.66	1.002	1.010	1.006	1.000	1.000	1.000
2962	38.00	3000	7.57	6.90	14.47	n/a	n/a	n/a	7.66	6.96	14.62	n/a	n/a	n/a	0.989	0.991	0.990
2981	19.00	3000	3.79	3.45	7.24	n/a	n/a	n/a	3.83	3.47	7.31	n/a	n/a	n/a	0.989	0.994	0.990

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
CH4	1.000	1.000	0.2%
NMHC	1.000	1.000	0.1%
THC	1.000	1.000	0.1%

COMMENTS:

Sample inlet filter was changed.

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:

Meteorological Sensor Audit/Calibration

Location Information

Company:	LICA	**Performed By:**	Alex Yakupov
Audit Location:	Maskwa	**Reviewed By:**	Wunmi Adekanmbi
Audit Date:	September 19, 2019	**Start/End Time (mst):**	12:24 / 13:21
Calibration Purpose:	routine annual	**Weather Conditions:**	Mainly cloudy with sunny breaks

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:	September 17, 2018	**Direction Unit Output Range:**	0-360 degrees

Wind Calibrator Information

Calibrator I.D. and Expiry Date: n/a

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

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.0	0.0	-
1000	18.4	18.5	18.5	0.995
2000	36.9	37.0	37.0	0.997
3000	55.3	55.4	55.4	0.998
4000	73.7	73.9	73.9	0.997
5000	92.2	92.4	92.4	0.998
6000	110.6	111.0	111.0	0.996
7000	129.0	129.5	129.5	0.996
8000	147.4	148.1	148.1	0.995
9000	165.9	166.1	166.1	0.999
10000	184.3	184.5	184.5	0.999
		The audit meets AMD requirements.	**Average Correction Factor=**	**0.997**

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

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	0	355	0.3	0.0	0.2
30	330	30	330	-0.2	0.4	0.3
60	300	62	300	-1.8	0.0	0.9
90	270	91	270	-1.3	-0.3	0.8
120	240	121	241	-1.0	-0.7	0.8
150	210	152	212	-1.5	-1.7	1.6
180	180	181	182	-1.2	-2.1	1.6
210	150	211	152	-1.2	-1.8	1.5
240	120	241	122	-0.6	-1.9	1.3
270	90	270	91	-0.1	-0.9	0.5
300	60	300	61	0.3	-0.7	0.5
330	30	330	31	-0.3	-0.8	0.6
355	0	355	0	0.0	0.3	0.2
The audit meets AMD requirements.			**Average Absolute Degrees Difference=**			**0.8**

Comments:

Calibrator ID and expiry date: Model 18860-90/18802 SN: CA 4744, calibration expires - June 19, 2020, (ownership - LICA).

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2019-048A

Company Maxxam **Operator:** Tom Bourque

Calibrator:			
Make/Model	Sabio 2010		
Serial Number	11900613		
Last Verification Date	August 2018		
NO Cylinder S/N	EY0000769		
NO [PPM]	51.1	NOx [PPM]	51.2
Expiry Date	December 2019		

Flow Measurement Device:	
Make/Model	N/A
Serial Number	N/A
Temperature (°C)	24.4 C
Barometric Pressure	699 mmHg

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	-0.002	-0.002	Limit ± 10%	
5080	80.0	0.805	0.806	0.815	-0.007	0.808	1%	0%
5041	40.0	0.405	0.406	0.414	-0.004	0.410	2%	1%
5019	20.0	0.204	0.204	0.210	-0.004	0.206	3%	2%
						Absolute Average Percent Difference	2%	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)=	1.0117	**0.90-1.10**	m (Slope)=	1.0039
b (Intercept % of FS)=	0.2171	**± 3% F.S.**	b (Intercept % of FS)=	-0.0020

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
5080	0.000	0.000	0.815	-0.009	0.806	NO_2	% Diff. Limit
5080	1.400	0.517	0.298	0.511	0.809	1%	± 10%
5080	0.900	0.308	0.507	0.299	0.806	0%	± 10%
5080	0.500	0.140	0.675	0.130	0.805	-1%	± 10%
						0%	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	1.0062	**0.90-1.10**
b (Intercept % of FS)=	-1.0004	**± 3% F.S.**

AENV Standards **Audit Calibrator**		**NO_X Analyzer**	
Make/Model	Teco 146i	Make/Model	Teco 42i
Serial/AMU Number	AMU 1809	Serial/AMU Number	AMU 2265
SRM Gas Cylinder No.	APEX1236646	Last Calibration Date	April 15, 2019
Cylinder Conc. (ppm)	50.04	Full Scale (ppm)	1.0
		Cylinder Gas Expiry Date	June 2021

COMMENTS: With ZAG Teledyne 701 Maxxam ID: 11981. Should have Maxxam ID 11986 instead

Auditor: Al Clark Date: April 16, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2019-050A

Company Maxxam **Operator:** Tom Bourque

Calibrator:				**Flow Measurement Device:**	
Make/Model	API 700			Make/Model	N/A
Serial Number	690			Serial Number	N/A
Last Verification Date	March 2018			Temperature (°C)	24.4 C
NO Cylinder S/N	EY0000769			Barometric Pressure	699 mmHg
NO [PPM]	51.1	NOx [PPM]	51.2		
Expiry Date	December 2019				

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	-0.001	-0.001	Limit ± 10%	
5083	80.0	0.804	0.806	0.802	-0.011	0.791	0%	-2%
5044	40.0	0.405	0.406	0.403	-0.006	0.397	-1%	-2%
5022	20.0	0.204	0.204	0.202	-0.004	0.198	-1%	-2%
						Absolute Average Percent Difference	1%	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)=	0.9974	**0.90-1.10**	m (Slope)=	0.9833
b (Intercept % of FS)=	-0.0592	**± 3% F.S.**	b (Intercept % of FS)=	-0.1772

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
5083	0.000	0.000	0.802	-0.011	0.791	NO_2	% Diff. Limit
5083	0.500	0.518	0.284	0.488	0.771	-4%	± 10%
5083	0.300	0.323	0.479	0.294	0.774	-6%	± 10%
5083	0.150	0.167	0.635	0.142	0.777	-8%	± 10%
						6%	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO_2		**LIMITS**
Correlation=	0.9998	**≥ 0.995**
m (Slope)=	0.9649	**0.90-1.10**
b (Intercept % of FS)=	-1.4907	**± 3% F.S.**

Big shift down in NOx when entering GPT function.
Possible flow change.

AENV Standards		**NO_X Analyzer**	
Audit Calibrator			
Make/Model	Teco 146i	Make/Model	Teco 42i
Serial/AMU Number	AMU 1809	Serial/AMU Number	AMU 2265
SRM Gas Cylinder No.	APEX1236646	Last Calibration Date	April 15, 2019
Cylinder Conc. (ppm)	50.04	Full Scale (ppm)	1.0
		Cylinder Gas Expiry Date	June 2021

COMMENTS: With ZAG Teledyne 701 Maxxam ID 11986.

Auditor: Al Clark Date: April 16, 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: Al Clark 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

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

End of Report

Lakeland Industry & Community Association

SEPTEMBER 2019

Ambient Air Monitoring Calibration Report

- ST. LINA STATION-

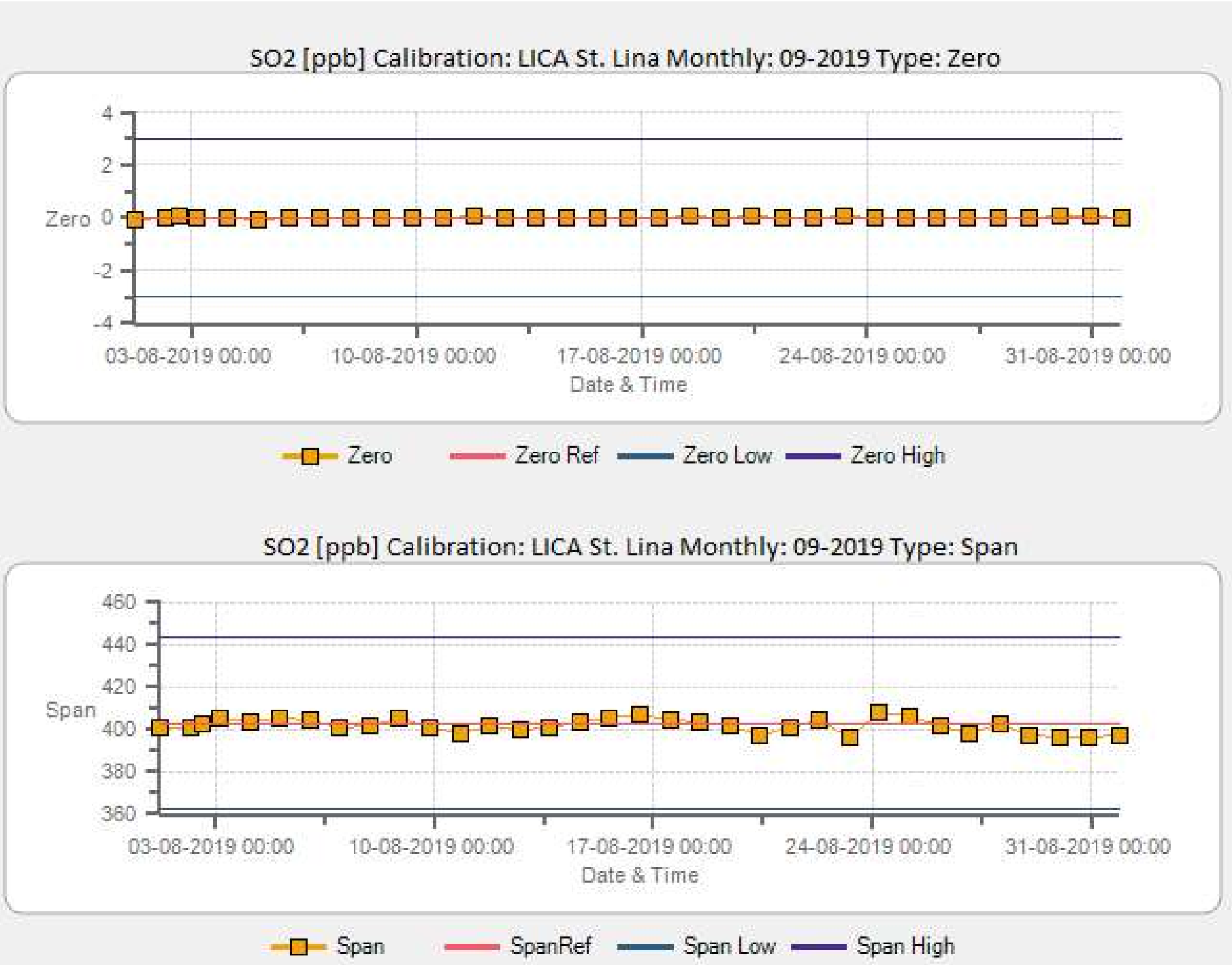
CAL-LICA-201909-01250

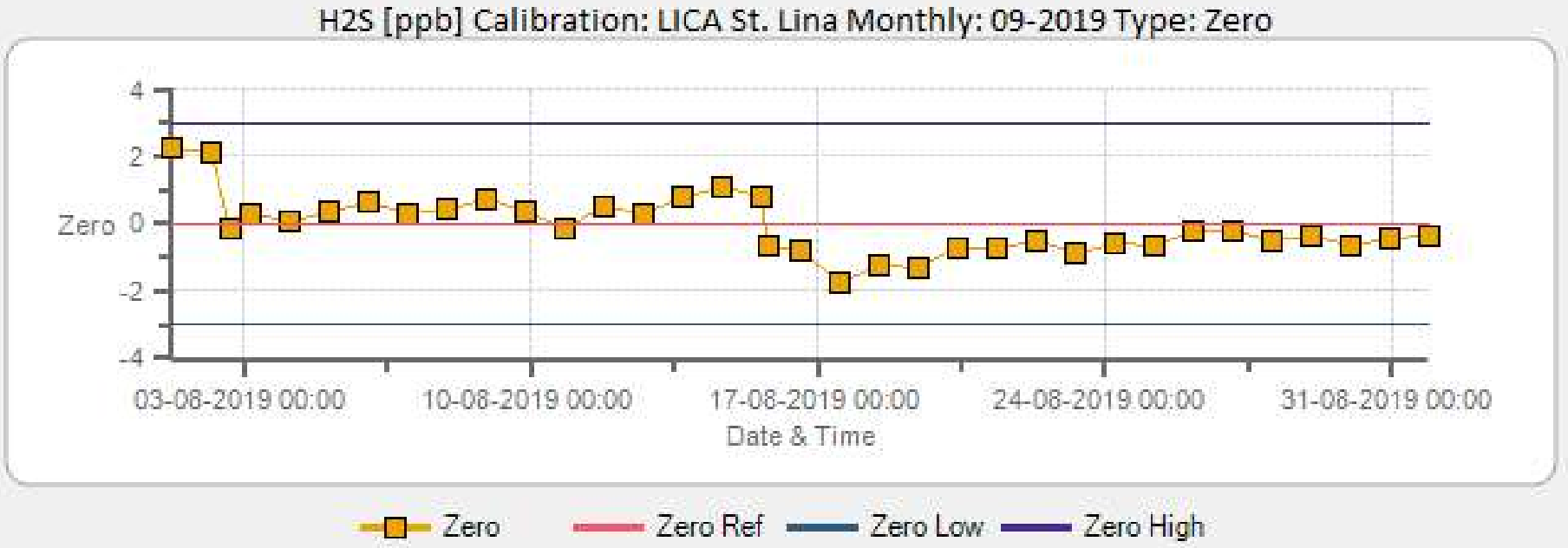
Station Operation and Maintenance:
Bureau Veritas Canada

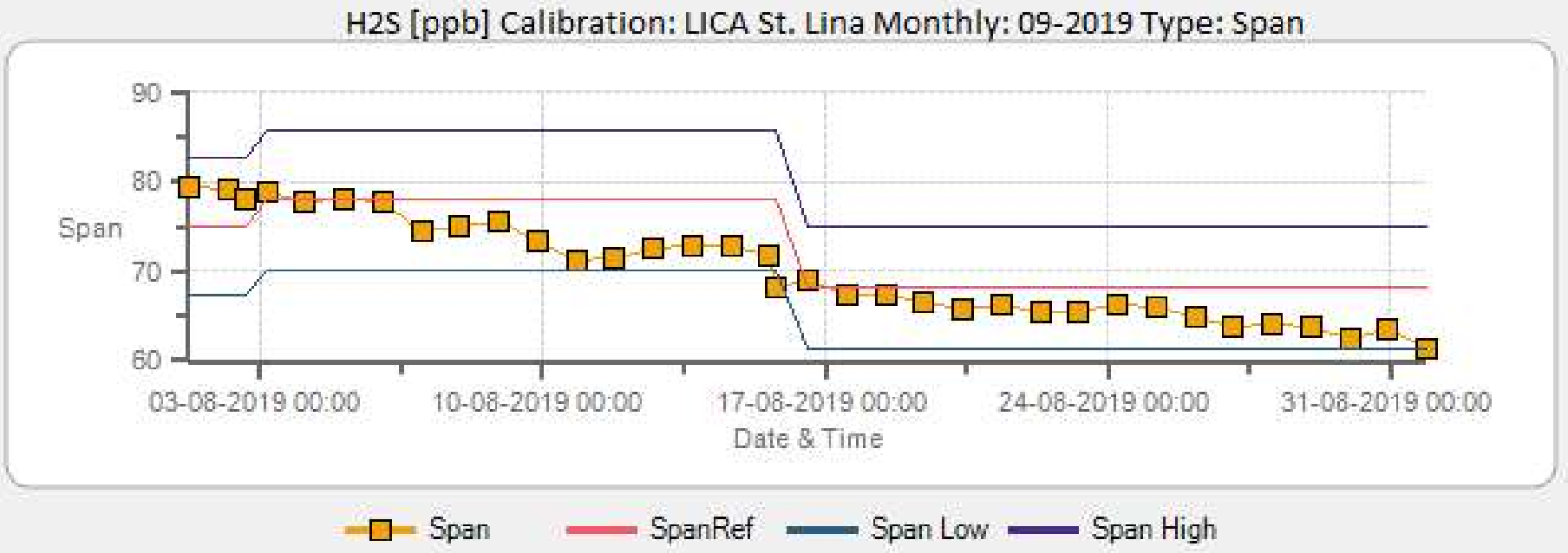
Data Validation and Report:
Bureau Veritas Canada

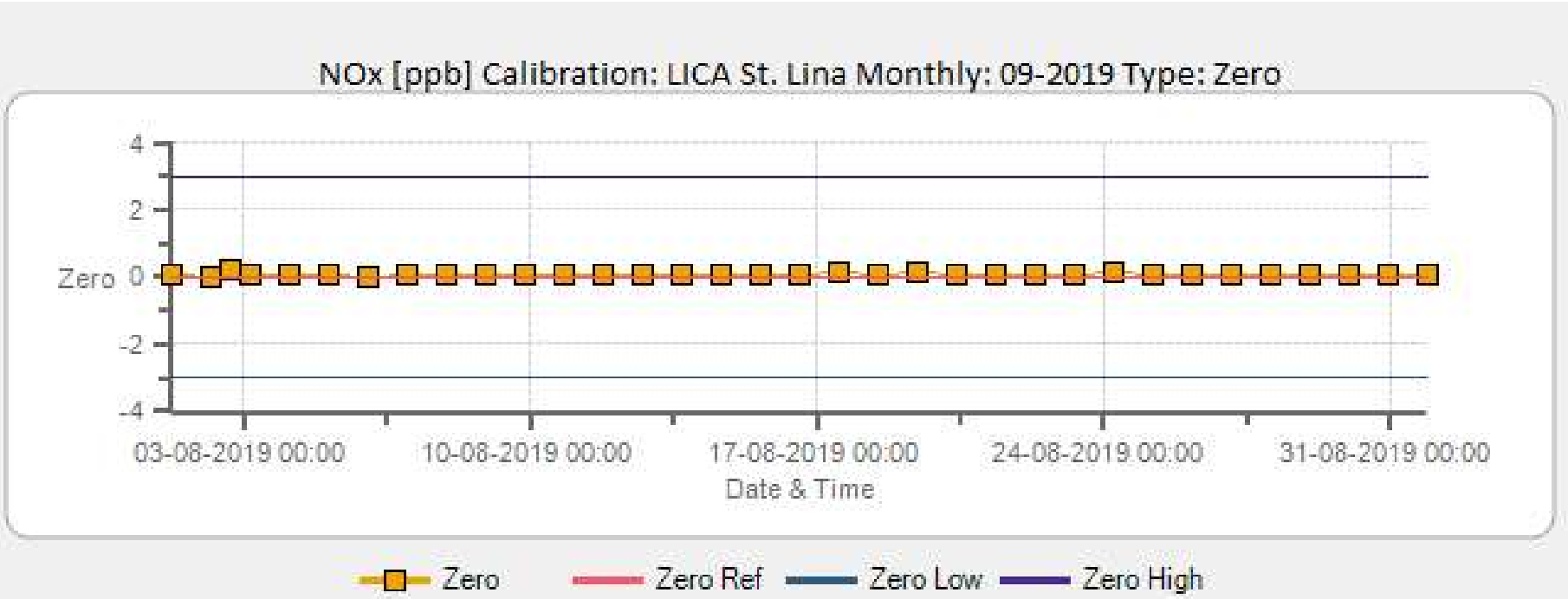
October 7, 2019

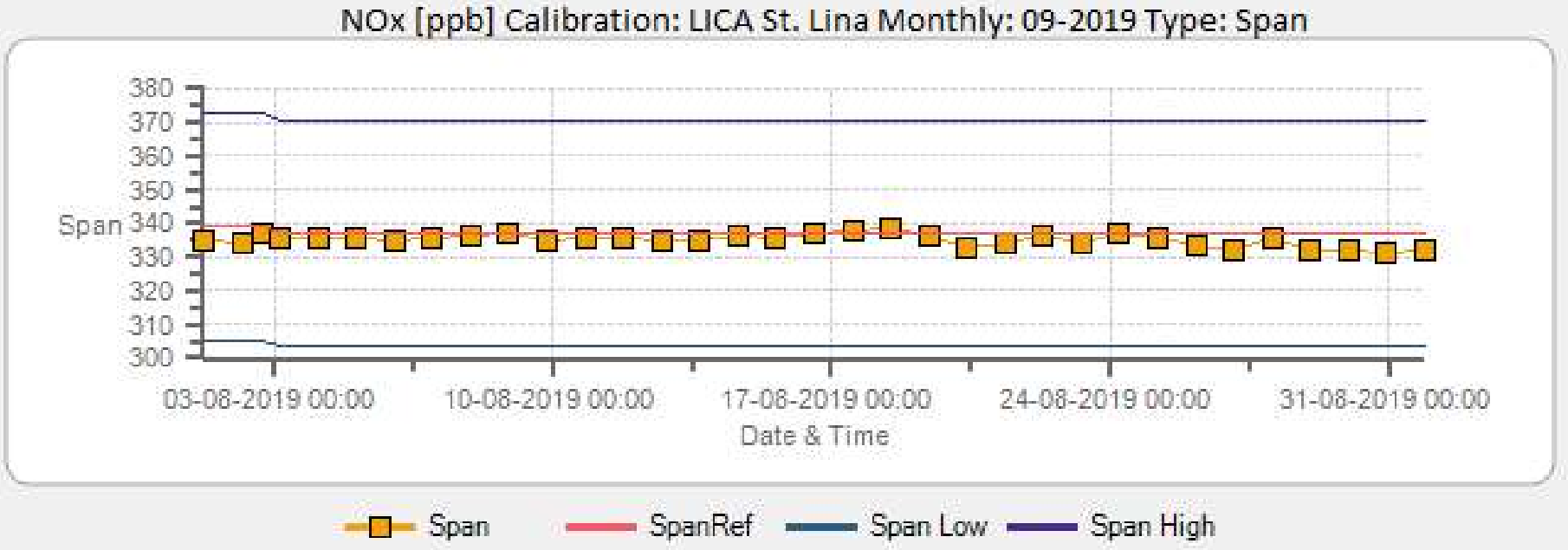
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

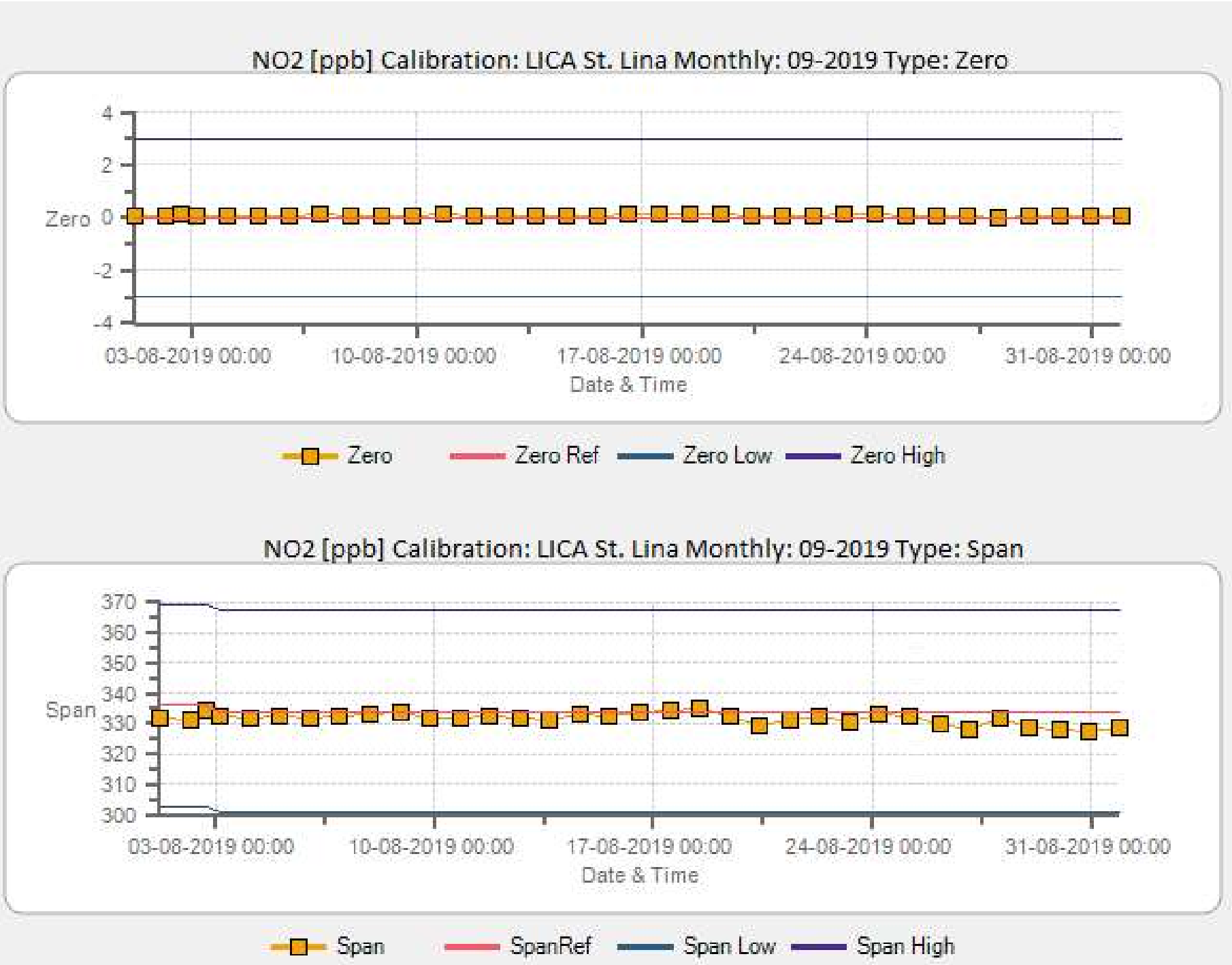

SO2 [ppb] Calibration: LICA St. Lina Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
03-08-2019 00:00
10-08-2019 00:00
17-08-2019 00:00
24-08-2019 00:00
31-08-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
SO2 [ppb] Calibration: LICA St. Lina Monthly: 09-2019 Type: Span
460
440
420
Span
400
380
360
03-08-2019 00:00
10-08-2019 00:00
17-08-2019 00:00
24-08-2019 00:00
31-08-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High

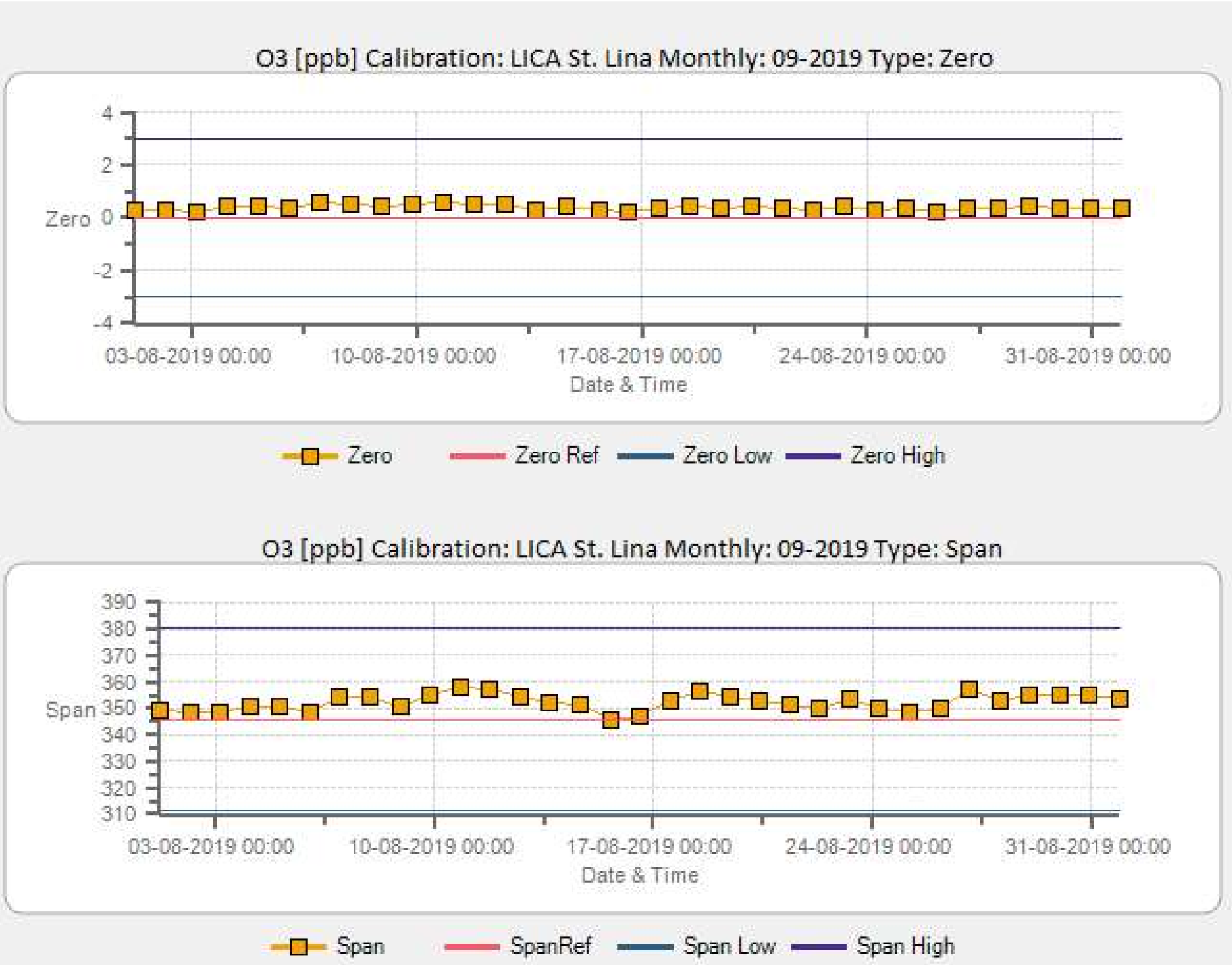

H2S [ppb] Calibration: LICA St. Lina Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
03-08-2019 00:00
10-08-2019 00:00
17-08-2019 00:00
24-08-2019 00:00
31-08-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High

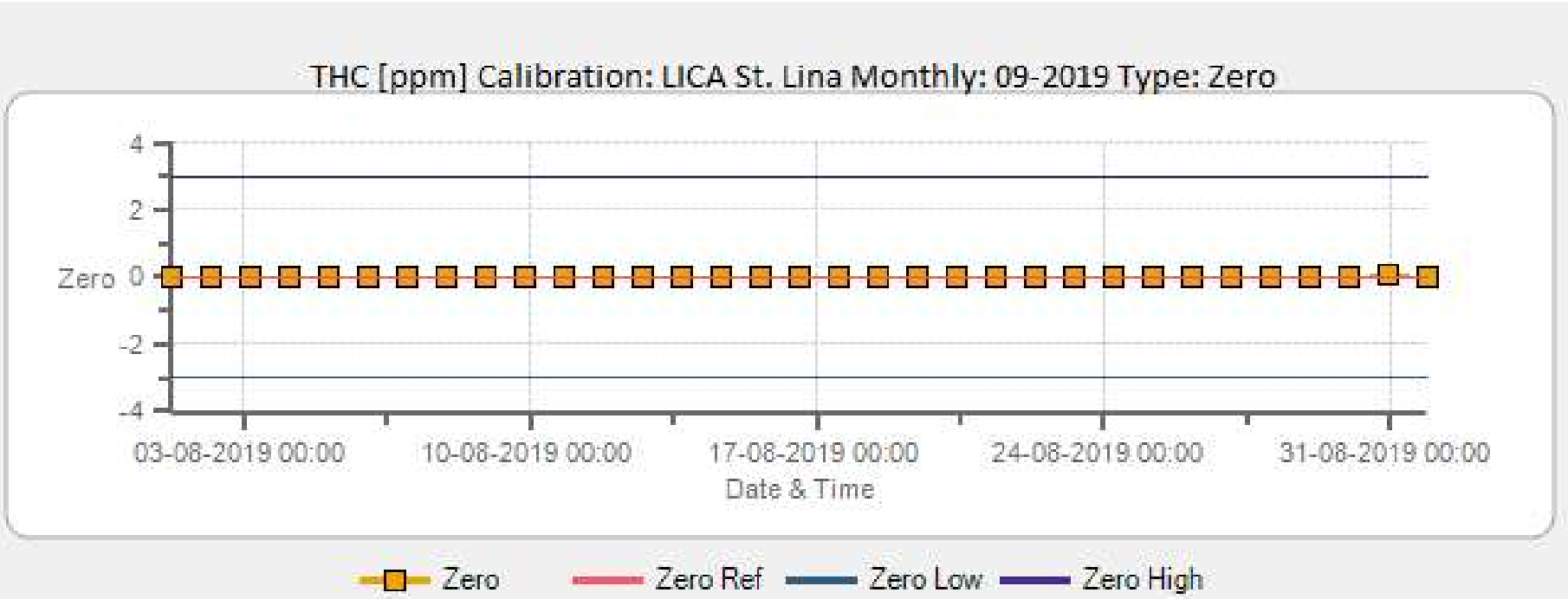

H2S [ppb] Calibration: LICA St. Lina Monthly: 09-2019 Type: Span
90
80
Span
70
60
03-08-2019 00:00
10-08-2019 00:00
17-08-2019 00:00
24-08-2019 00:00
31-08-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High

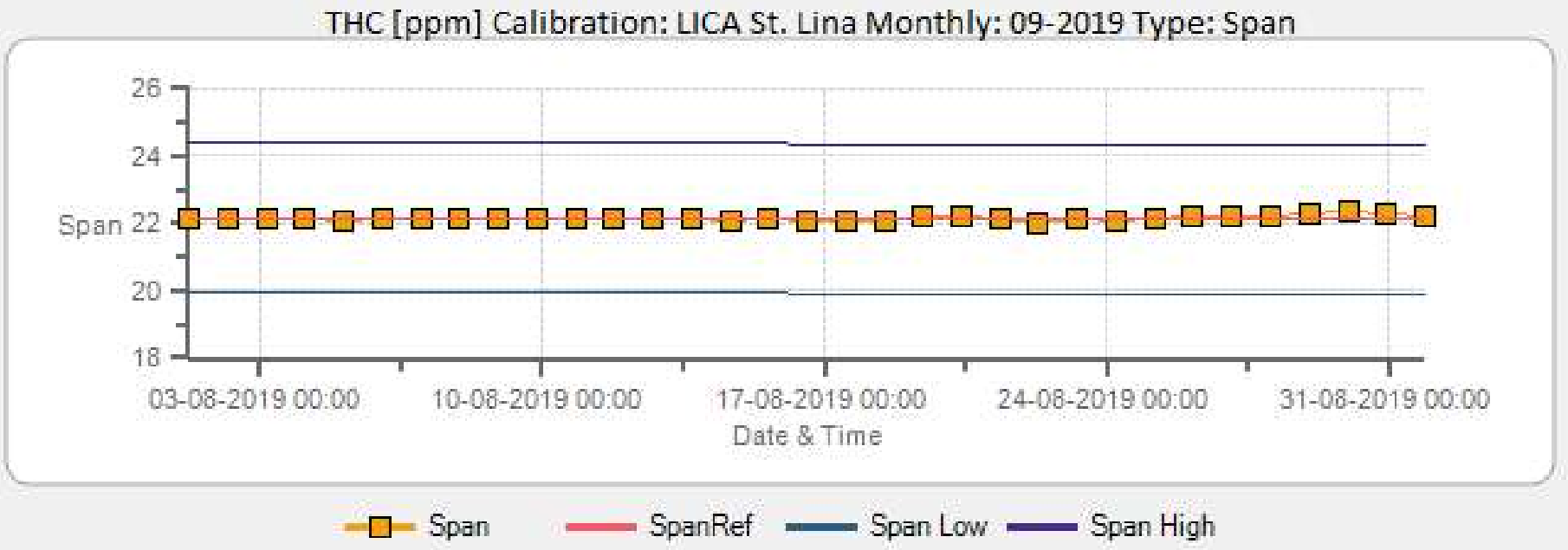

NOx [ppb] Calibration: LICA St. Lina Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
03-08-2019 00:00
10-08-2019 00:00
17-08-2019 00:00
24-08-2019 00:00
31-08-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High

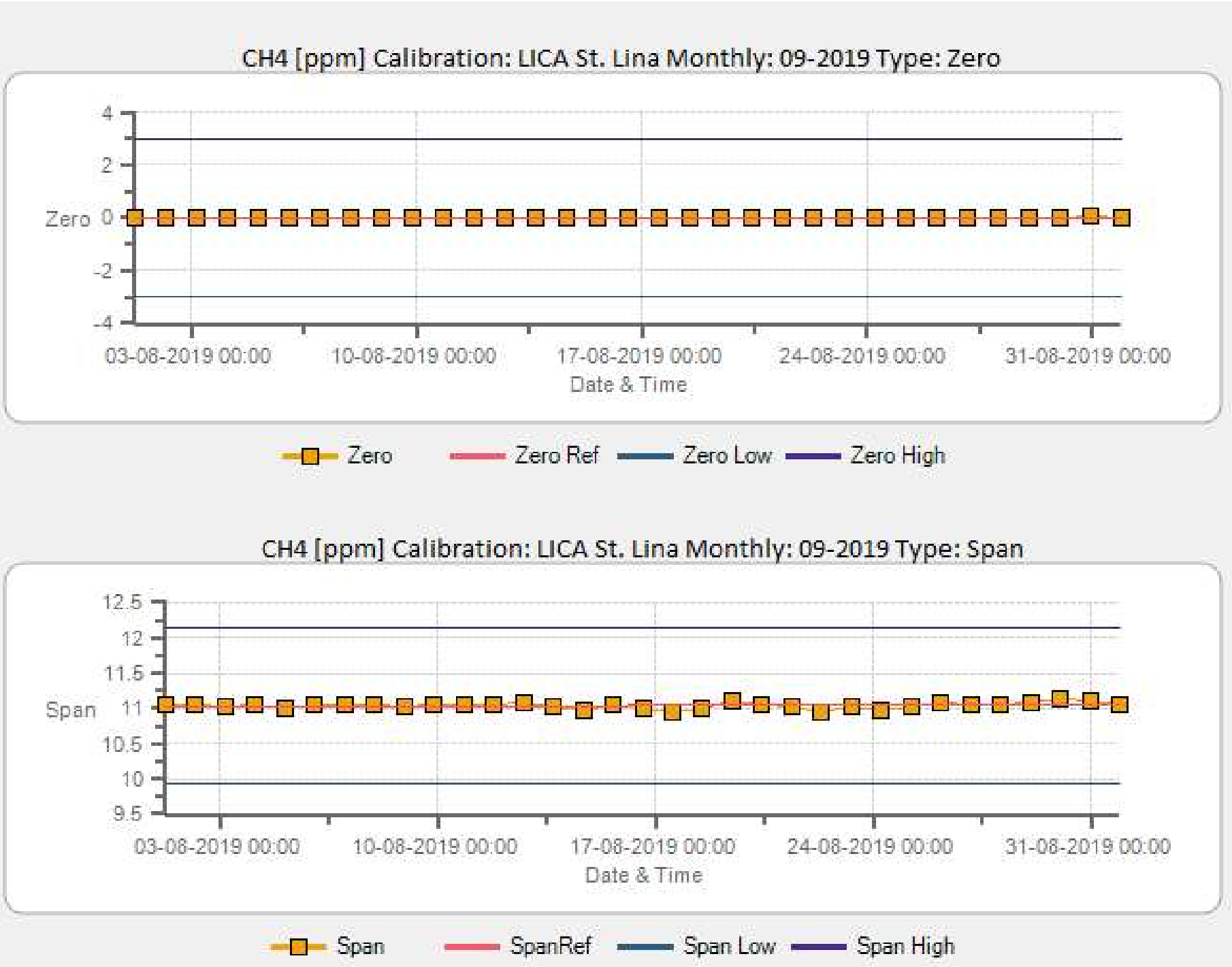

NOx [ppb] Calibration: LICA St. Lina Monthly: 09-2019 Type: Span
380
370
360
350
Span 340
330
320
310
300
03-08-2019 00:00
10-08-2019 00:00
17-08-2019 00:00
24-08-2019 00:00
31-08-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High

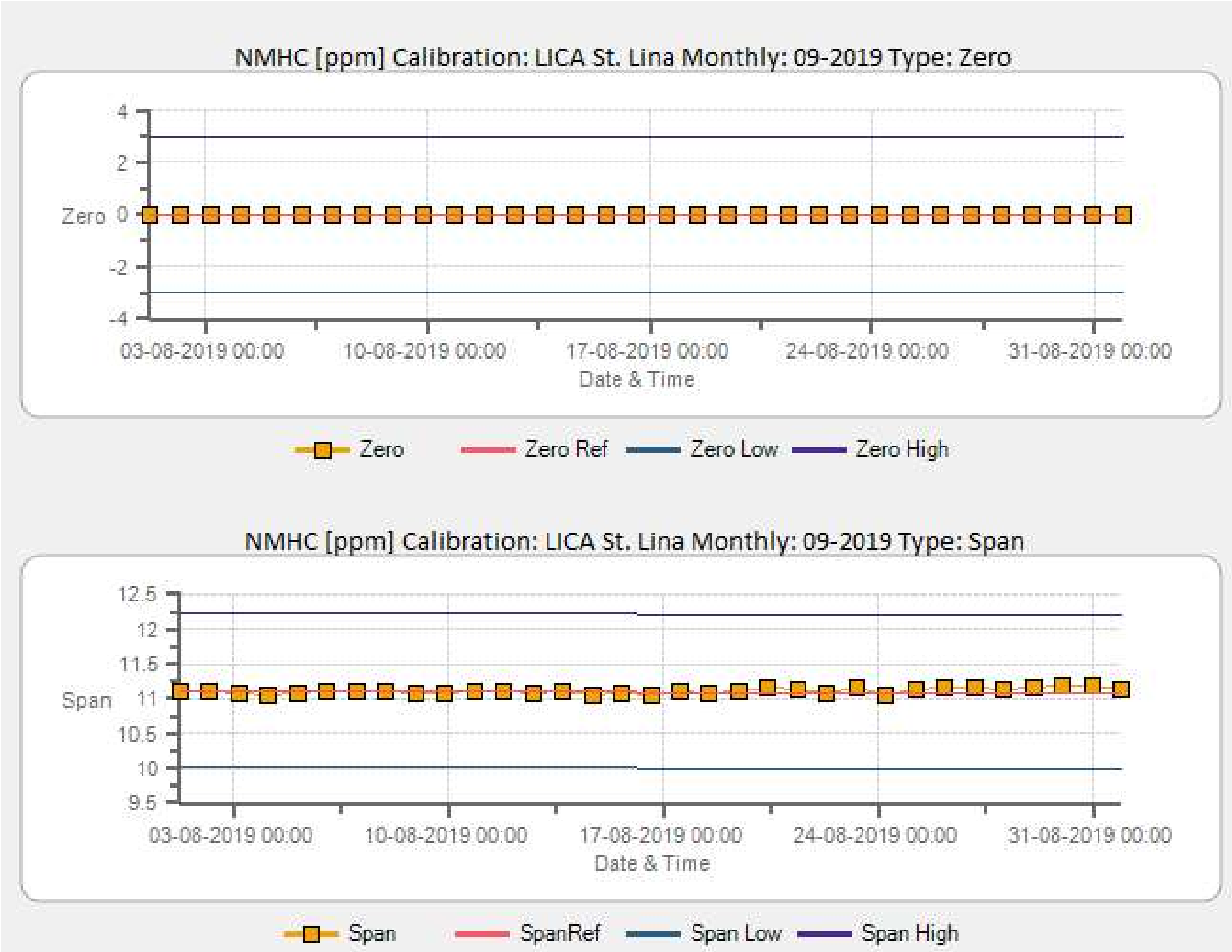

NO2 [ppb] Calibration: LICA St. Lina Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
03-08-2019 00:00
10-08-2019 00:00
17-08-2019 00:00
24-08-2019 00:00
31-08-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
NO2 [ppb] Calibration: LICA St. Lina Monthly: 09-2019 Type: Span
370
360
350
340
Span 330
320
310
300
03-08-2019 00:00
10-08-2019 00:00
17-08-2019 00:00
24-08-2019 00:00
31-08-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High


O3 [ppb] Calibration: LICA St. Lina Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
03-08-2019 00:00
10-08-2019 00:00
17-08-2019 00:00
24-08-2019 00:00
31-08-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
O3 [ppb] Calibration: LICA St. Lina Monthly: 09-2019 Type: Span
390
380
370
360
Span 350
340
330
320
310
03-08-2019 00:00
10-08-2019 00:00
17-08-2019 00:00
24-08-2019 00:00
31-08-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High


THC [ppm] Calibration: LICA St. Lina Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
03-08-2019 00:00
10-08-2019 00:00
17-08-2019 00:00
24-08-2019 00:00
31-08-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High


THC [ppm] Calibration: LICA St. Lina Monthly: 09-2019 Type: Span
26
24
Span 22
20
18
03-08-2019 00:00
10-08-2019 00:00
17-08-2019 00:00
24-08-2019 00:00
31-08-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High


CH4 [ppm] Calibration: LICA St. Lina Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
03-08-2019 00:00
10-08-2019 00:00
17-08-2019 00:00
24-08-2019 00:00
31-08-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
CH4 [ppm] Calibration: LICA St. Lina Monthly: 09-2019 Type: Span
12.5
12
11.5
Span 11
10.5
10
9.5
03-08-2019 00:00
10-08-2019 00:00
17-08-2019 00:00
24-08-2019 00:00
31-08-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High


NMHC [ppm] Calibration: LICA St. Lina Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
03-08-2019 00:00
10-08-2019 00:00
17-08-2019 00:00
24-08-2019 00:00
31-08-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
NMHC [ppm] Calibration: LICA St. Lina Monthly: 09-2019 Type: Span
12.5
12
11.5
Span 11
10.5
10
9.5
03-08-2019 00:00
10-08-2019 00:00
17-08-2019 00:00
24-08-2019 00:00
31-08-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution

DATE:	03-Sep-2019	PREVIOUS CALIBRATION DATE:	02-Aug-2019
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	919
PURPOSE	Routine	START TIME (MST):	10:58
PERFORMED BY:	Alex Yakupov	END TIME (MST):	15:00

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	1000 ppb
SERIAL #	1180930030	FLOW (mL/min)	436
INITIAL		FINAL	
BKG/OFFSET	3.64	BKG/OFFSET	3.64
COEF/SLOPE	1.09	COEF/SLOPE	1.097
Expected (reference) Value	403	Expected (reference) Value	400

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	API	MAKE:	Teledyne
MODEL:	700	MODEL:	T701
ID:	690	ID:	132
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 107918	HIGH ID	n/a
CONC (ppm):	49.50	EXPIRY DATE	n/a
CYLINDER (psi):	1200	LOW ID	n/a
EXPIRY DATE	20-Aug-2026	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	780	380	190
RANGE	600 - 800	300 - 400	100 - 200

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

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

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000		5000	0.00	0	0		
4922	77.80	5000	770.22	765	770	1.007	1.000
4962	37.90	5000	375.21	n/a	375	n/a	1.001
4981	18.90	5000	187.11	n/a	187	n/a	1.001

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.0%

COMMENTS:

Sample filter was changed.

H2S Analyzer Calibration by Dilution

DATE:	03-Sep-2019	PREVIOUS CALIBRATION DATE:	15-Aug-2019
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	0.999
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	919
PURPOSE	Removal/Shut-down	START TIME (MST):	10:58
PERFORMED BY:	Alex Yakupov	END TIME (MST):	13:32

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 18010058	FLOW (mL/min)	819
INITIAL		FINAL	
BKG/OFFSET	48	BKG/OFFSET	n/a
COEF/SLOPE	0.848	COEF/SLOPE	n/a
Expected (reference) Value	69	Expected (reference) Value	n/a

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0001003	HIGH ID	n/a
CONC (ppm):	9.55	EXPIRY DATE	n/a
CYLINDER (psi):	500	LOW ID	n/a
EXPIRY DATE	20-Oct-2020	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
7500		7500	0.00	0	n/a		
7439	61.20	7500	77.93	80.5	n/a	0.968	n/a
7470	29.80	7500	37.95	38.1	n/a	0.996	n/a
7485	14.90	7500	18.97	18.5	n/a	1.026	n/a

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.036	-0.7%

COMMENTS:

Shutdown calibration was completed to perform mainteance on the analyzer. Reason - the analyzer keeps drifting on both Zero and Span readings.

H2S Analyzer Calibration by Dilution

DATE:	04-Sep-2019	PREVIOUS CALIBRATION DATE:	03-Sep-2019
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	915
PURPOSE	Install/Post-Repair	START TIME (MST):	13:00
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:25

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 18010058	FLOW (mL/min)	810
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	45.5
COEF/SLOPE	n/a	COEF/SLOPE	0.791
Expected (reference) Value	n/a	Expected (reference) Value	61.5

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0001003	HIGH ID	n/a
CONC (ppm):	9.55	EXPIRY DATE	n/a
CYLINDER (psi):	500	LOW ID	n/a
EXPIRY DATE	20-Oct-2020	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

START TIME:	13:04	SO2 Conc (ppb)	780
END TIME:	13:19	Analyzer Response (ppb)	0.0

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
7500		7500	0.00	n/a	0		
7439	61.20	7500	77.93	n/a	77.9	n/a	1.000
7470	29.80	7500	37.95	n/a	38	n/a	0.999
7485	14.90	7500	18.97	n/a	18.4	n/a	1.031

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	-0.2%

COMMENTS:

Sample inlet filter was changed. Manitenance completed: sample pump was rebuilt, tubing cleaned, SO2 scrubber beads were renewed, and reaction cell was checked.

H2S Analyzer Calibration by Dilution

DATE:	17-Sep-2019	PREVIOUS CALIBRATION DATE:	04-Sep-2019
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	913
PURPOSE	Repeat	START TIME (MST):	10:23
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:40

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 18010058	FLOW (mL/min)	813
INITIAL		FINAL	
BKG/OFFSET	45.5	BKG/OFFSET	46.4
COEF/SLOPE	0.791	COEF/SLOPE	0.807
Expected (reference) Value	61.5	Expected (reference) Value	67.7

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	API	MAKE:	Teledyne
MODEL:	700	MODEL:	T701
ID:	690	ID:	132
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0001003	HIGH ID	n/a
CONC (ppm):	9.55	EXPIRY DATE	n/a
CYLINDER (psi):	500	LOW ID	n/a
EXPIRY DATE	20-Oct-2020	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
7500		7500	0.00	0	0		
7379	61.00	7440	78.30	76.1	78.3	1.029	1.000
7440	29.70	7470	37.97	n/a	37.6	n/a	1.010
7475	14.80	7490	18.87	n/a	18.2	n/a	1.037

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.003	-0.3%

COMMENTS:

SO2 scrubber was tested during post-repair calibrtion on Sep 4, 2019. Repeat calibration was required to corret the EV (SPAN results drifted close to 9%).

NOx Calibration by Dilution/Gas-Phase Titration

CALIBRATION:

				ANALYZER:			
DATE:	03-Sep-2019	PREVIOUS CALIBRATION DATE:	02-Aug-2019	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930029	NOx	1.000
LOCATION:	St. Lina	BAROMETRIC (mBar):	919.00	FLOW (mL/min)	516	NO	0.999
PURPOSE	Routine	START TIME (MST):	10:58	RANGE (ppb)	1000	NO2	1.000
PERFORMED BY:	Alex Yakupov	END TIME (MST):	16:59	GPT FOR O3?		No	

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:			FLOWMETERS (if applicable):	
MAKE:	API	MAKE:	Teledyne	CYLINDER ID:	LL 107918		HIGH ID:	n/a
MODEL:	700	MODEL:	T701	NO/NOx (PPM):	50.1	50.1	HIGH EXPIRY:	n/a
ID:	690	ID:	132	CYLINDER (psi):	1200		LOW ID:	n/a
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	n/a	EXPIRY DATE	20-Aug-2026		LOW EXPIRY:	n/a

CALIBRATION SETTINGS:

INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	6	6	n/a	BKG/OFFSET:	6	6	n/a
SLOPE/COEF/CE:	1	1	1.0	SLOPE/COEF/CE:	1	1	1.0

EXPECTED (REFERENCE) VALUE:

INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	337	3	334.0		337	4	334.0

CALIBRATION PARAMETERS:

POINT	NO TARGET (PPB)	NO2 TARGET (PPB)	NO2 RANGE	O3 POINT
HIGH	780	500	470-540	n/a
MID	380	275	235-310	n/a
LOW	190	90	80-115	n/a
EXTRA 1	n/a	n/a	n/a	n/a

NO/NOx CALIBRATION:

FLOW RATE (mL/min)			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000		5000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
4922	77.80	5000	779.6	779.6	0.0	779.0	780.0	1.0	780.0	781.0	1.0	1.001	0.999		0.999	0.998	
4962	37.90	5000	379.8	379.8	0.0	n/a	n/a	n/a	380.0	381.0	1.0	n/a	n/a		0.999	0.997	
4981	18.90	5000	189.4	189.4	0.0	n/a	n/a	n/a	191.0	191.0	0.0	n/a	n/a		0.992	0.992	

GPT CALIBRATION:

Point	CALIBRATOR			INDICATED (ppb)			NO DROP / O3 Conc (ppb)	NO2 GAIN (ppb)	NO2 Corr. FACTOR	CONV. EFFICIENCY
	GAS	TOTAL	O3 SETPOINT	NO	NOx	NO2				
REFERENCE	77.80	5000	0	780.0	781.0	1.0				
AS-FOUND HIGH	77.80	5000	490	280.0	781.0	501.0	500	500	1.000	100.00%
ADJUSTED HIGH	77.80	5000	n/a	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a
MID	77.80	5000	270	503.0	781.0	278.0	277	277	1.000	100.00%
LOW	77.80	5000	100	681.0	782.0	102.0	99	101	0.980	102.02%
NO2 adjustment not required.									AVERAGE:	100.67%

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
NO	1.000	1.000	0.06%
NOx	1.000	1.000	0.06%
NO2	1.000	0.995	0.21%

COMMENTS:

Sample inlet filter ws changed.

Methane/Non-Methane Analyzer Calibration by Dilution

CALIBRATION:

DATE:	04-Sep-2019	PREVIOUS CALIBRATION DATE:	15-Aug-2019
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	915
PURPOSE	Routine	START TIME (MST):	09:20
PERFORMED BY:	Alex Yakupov	END TIME (MST):	12:35

ANALYZER:

VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
	Thermo 55i	1180930025	1210
PARAMETER:	CH4	NMHC	THC
RANGE (ppm):	20	20	40
PREVIOUS CF:	1.000	1.000	1.000

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:			FLOWMETERS (if applicable):	
MAKE:	API	MAKE:	Teledyne	CYLINDER ID:	LL 29687		HIGH ID:	n/a
MODEL:	700	MODEL:	T701	CH_4/C_3H_8 (ppm):	598.0	198.0	HIGH EXPIRY:	n/a
ID:	690	ID:	132	CYLINDER (psi):	1200		LOW ID:	n/a
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	115	EXPIRY DATE	01-Aug-2026		LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

POINT (CH4/NMHC)	HIGH	MID	LOW	CH4 EQUIVILANCE	
TARGET	14	7	3.5	C_3H_8 as CH_4	544.5
RANGE	12 - 16	6 - 8	2 - 4	THC as CH_4	1142.5

EXPECTED (REFERENCE) VALUE:

INITIAL	CH4	NMHC	THC	FINAL	CH4	NMHC	THC
	11.05	11.09	22.14		10.97	11.02	21.99

CALIBRATION:

FLOW RATE (mL/min)			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC
3025		3025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
2955	70.00	3025	13.84	12.60	26.44	13.81	12.60	26.41	13.84	12.60	26.44	1.002	1.000	1.001	1.000	1.000	1.000
2987	38.00	3025	7.51	6.84	14.35	n/a	n/a	n/a	7.53	6.93	14.47	n/a	n/a	n/a	0.998	0.987	0.992
3006	19.00	3025	3.76	3.42	7.18	n/a	n/a	n/a	3.80	3.55	7.35	n/a	n/a	n/a	0.988	0.963	0.976

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
CH4	1.000	0.999	0.1%
NMHC	1.000	1.000	0.3%
THC	1.000	0.999	0.2%

COMMENTS:

Sample inlet filter was changed, and a new SPAN gas cylinder was connected.

Ozone Calibration by Photometer (Varying UV Lamp)

DATE:	04-Sep-2019	PREVIOUS CALIBRATION DATE:	15-Aug-2019
PARAMETER:	Ozone	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	St. Lina	BAROMETRIC (mBar):	915
PURPOSE	Routine	START TIME (MST):	08:58
PERFORMED BY:	Alex Yakupov	END TIME (MST):	13:43

ANALYZER:

MAKE/MODEL	Thermo 49i	RANGE	500 ppb
SERIAL #	1002240371	FLOW (mL/min)	1476
INITIAL		FINAL	
BKG/OFFSET	-0.5	BKG/OFFSET	-0.8
COEF/SLOPE	1.009	COEF/SLOPE	1.001
Expected (reference) Value	346	Expected (reference) Value	348

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	n/a
	CALIBRATION METHOD:	Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

CALIBRATION PARAMETERS:

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

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000		5000	0.0	0.0	0.0		
5000		5000	380.0	382.0	380.0	0.995	1.000
5000		5000	181.0	n/a	181.0	n/a	1.000
5000		5000	62.0	n/a	62.0	n/a	1.000

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.0%

COMMENTS:

Sample inlet filter was changed.

Thermo 5030i SHARP Monitor Monthly Check

Date:	September 17, 2019	**Performed By/Reviewer:**	Alex Yakupov / Wunmi Adekanmbi
Company:	LICA	**Start Time (mst):**	13:59
Station Name/Location:	St. Lina	**End Time (mst):**	14:36
Previous Audit Date:	August 15, 2019	**Calibration Purpose:**	routine monthly
Parameter:	PM 2.5	**Weather Conditions:**	Mainly cloudy with clear breaks

SHARP 5030i Information and Status:

Serial Number: CM 17091001 **Filter Tape Counter** 1

Reference Standards:

	Air Flow		Pressure:		Temp / RH:	
	Manometer	**Orifice**				
Make:	Dwyer	Chinook	Fisher Scientific		Fisher Scientific	
Model:	475 Mk. III	170101	FB61291		11-661-7B	11745843
Serial Number:	#3	#4	130168457		160348895	
Calibration Expiration Date:	January 17, 2020	January 31, 2020	January 17, 2020		June 19, 2020	

Ambient Temperature (°C)

	Reference	**SHARP**	**Difference**
#1	14.70	15.0	-0.3

Range	Action
< ± 2°C	OK
2-3 °C	Recalibrate
> 3°C	*Fail*

Ambient Relative Humidity (%RH)

As Found:

	Reference	**SHARP**	**Difference**
#1	62.70	62.1	0.6

Range	Action
< ± 2 %RH	OK
2-5 %RH	Recalibrate
> 5 %RH	*Fail*

Barometric Pressure (mmHg)

As Found:

	Reference	**SHARP**	**Difference**
#1	684.0	684.0	0.0

Range	Action
< ± 10 mmHg	OK
10-12 mmHg	Recalibrate
> 12 mmHg	*Fail*

Flow Audit (L/min)

As Found:

	Reference	**SHARP**
#1	16.66	16.67
#2	16.65	16.66
#3	16.67	16.67
Average	16.66	16.67

% Difference 0.040016006

Range	Action
< ± 4%	OK
4-5%	Recalibrate
>5%	*Fail*

Leak Check (L/min)

	Without Leak Check Adapter			**With leak Check Adapter**			
	Reference	**SHARP**	**Difference**	**Reference**	**SHARP**	**Difference**	
#1	16.67	16.66	0.01	16.64	16.65	-0.01	*Leak Limit: 0.80 L/min*
					LEAK RATE:	**-0.02**	

Meteorological Sensor Audit/Calibration

Location Information

Company:	N/A	**Performed By:**	Chris Wesson
Audit Location:	Edm Shop	**Reviewed By:**	Rob Fisher
Audit Date:	May 17, 2019	**Start/End Time (mst):**	08:10 / 08:51
Calibration Purpose:	shut down	**Weather Conditions:**	Mainly sunny

Wind Sensor Information

Sensor ID Data:		**Sensor Outputs:**	
Sensor Make:	RM Young	**Velocity Voltage Output Range:**	0-1V
Sensor Model:	05305VK	**Velocity Unit Output Range:**	0-200 kph
Serial #:	65521	**Direction Voltage Output Range:**	0-1V
Previous Cal/Audit Date:	March 20, 2018	**Direction Unit Output Range:**	0-360 DEG

Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 id# CA03309 expires October 3, 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	18.4	18.4	1.002
2000	36.9	36.8	36.9	1.000
3000	55.3	55.2	55.2	1.002
4000	73.7	73.6	73.6	1.002
5000	92.2	92.0	92.0	1.002
6000	110.6	110.4	110.4	1.002
7000	129.0	128.8	128.7	1.002
8000	147.4	147.2	147.2	1.002
9000	165.9	165.5	165.6	1.002
10000	184.3	183.9	183.9	1.002
		The audit meets AMD requirements.	**Average Correction Factor=**	**1.002**

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	355	353	5.0	2.1	3.6
30	330	27	328	2.6	1.8	2.2
60	300	58	299	2.2	1.1	1.7
90	270	88	270	1.9	0.3	1.1
120	240	119	240	1.4	0.1	0.8
150	210	149	210	0.6	0.2	0.4
180	180	180	179	0.4	0.6	0.5
210	150	210	149	-0.2	0.9	0.5
240	120	240	119	0.0	1.3	0.6
270	90	271	88	-0.6	1.8	1.2
300	60	300	58	0.3	1.8	1.1
330	30	328	27	2.1	2.6	2.4
355	0	353	355	2.4	4.7	3.5
The audit meets AMD requirements.			**Average Absolute Degrees Difference=**			**1.5**

Comments:

Physical inspection completed. No issues. Completed at Edm shop.

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2019-050A

Company Maxxam **Operator:** Tom Bourque

Calibrator:				**Flow Measurement Device:**	
Make/Model	API 700			Make/Model	N/A
Serial Number	690			Serial Number	N/A
Last Verification Date	March 2018			Temperature (°C)	24.4 C
NO Cylinder S/N	EY0000769			Barometric Pressure	699 mmHg
NO [PPM]	51.1	NOx [PPM]	51.2		
Expiry Date	December 2019				

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	-0.001	-0.001	Limit ± 10%	
5083	80.0	0.804	0.806	0.802	-0.011	0.791	0%	-2%
5044	40.0	0.405	0.406	0.403	-0.006	0.397	-1%	-2%
5022	20.0	0.204	0.204	0.202	-0.004	0.198	-1%	-2%
						Absolute Average Percent Difference	1%	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)=	0.9974	**0.90-1.10**	m (Slope)=	0.9833
b (Intercept % of FS)=	-0.0592	**± 3% F.S.**	b (Intercept % of FS)=	-0.1772

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
5083	0.000	0.000	0.802	-0.011	0.791	NO_2	% Diff. Limit
5083	0.500	0.518	0.284	0.488	0.771	-4%	± 10%
5083	0.300	0.323	0.479	0.294	0.774	-6%	± 10%
5083	0.150	0.167	0.635	0.142	0.777	-8%	± 10%
						6%	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO_2		**LIMITS**
Correlation=	0.9998	**≥ 0.995**
m (Slope)=	0.9649	**0.90-1.10**
b (Intercept % of FS)=	-1.4907	**± 3% F.S.**

Big shift down in NOx when entering GPT function.
Possible flow change.

AENV Standards		**NO_X Analyzer**	
Audit Calibrator			
Make/Model	Teco 146i	Make/Model	Teco 42i
Serial/AMU Number	AMU 1809	Serial/AMU Number	AMU 2265
SRM Gas Cylinder No.	APEX1236646	Last Calibration Date	April 15, 2019
Cylinder Conc. (ppm)	50.04	Full Scale (ppm)	1.0
		Cylinder Gas Expiry Date	June 2021

COMMENTS: With ZAG Teledyne 701 Maxxam ID 11986.

Auditor: Al Clark Date: April 16, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2019-048A

Company Maxxam **Operator:** Tom Bourque

Calibrator:			
Make/Model	Sabio 2010		
Serial Number	11900613		
Last Verification Date	August 2018		
NO Cylinder S/N	EY0000769		
NO [PPM]	51.1	NOx [PPM]	51.2
Expiry Date	December 2019		

Flow Measurement Device:	
Make/Model	N/A
Serial Number	N/A
Temperature (°C)	24.4 C
Barometric Pressure	699 mmHg

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	-0.002	-0.002	Limit ± 10%	
5080	80.0	0.805	0.806	0.815	-0.007	0.808	1%	0%
5041	40.0	0.405	0.406	0.414	-0.004	0.410	2%	1%
5019	20.0	0.204	0.204	0.210	-0.004	0.206	3%	2%
						Absolute Average Percent Difference	2%	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)=	1.0117	**0.90-1.10**	m (Slope)=	1.0039
b (Intercept % of FS)=	0.2171	**± 3% F.S.**	b (Intercept % of FS)=	-0.0020

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
						NO_2	% Diff. Limit
5080	0.000	0.000	0.815	-0.009	0.806		
5080	1.400	0.517	0.298	0.511	0.809	1%	± 10%
5080	0.900	0.308	0.507	0.299	0.806	0%	± 10%
5080	0.500	0.140	0.675	0.130	0.805	-1%	± 10%
						0%	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	1.0062	**0.90-1.10**
b (Intercept % of FS)=	-1.0004	**± 3% F.S.**

AENV Standards	
Audit Calibrator	
Make/Model	Teco 146i
Serial/AMU Number	AMU 1809
SRM Gas Cylinder No.	APEX1236646
Cylinder Conc. (ppm)	50.04

NO_X Analyzer	
Make/Model	Teco 42i
Serial/AMU Number	AMU 2265
Last Calibration Date	April 15, 2019
Full Scale (ppm)	1.0
Cylinder Gas Expiry Date	June 2021

COMMENTS: With ZAG Teledyne 701 Maxxam ID: 11981. Should have Maxxam ID 11986 instead

Auditor: Al Clark Date: April 16, 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: Al Clark 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

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

End of Report

Lakeland Industry & Community Association

SEPTEMBER 2019

Ambient Air Monitoring Calibration Report

- BONNYVILLE EAST STATION-

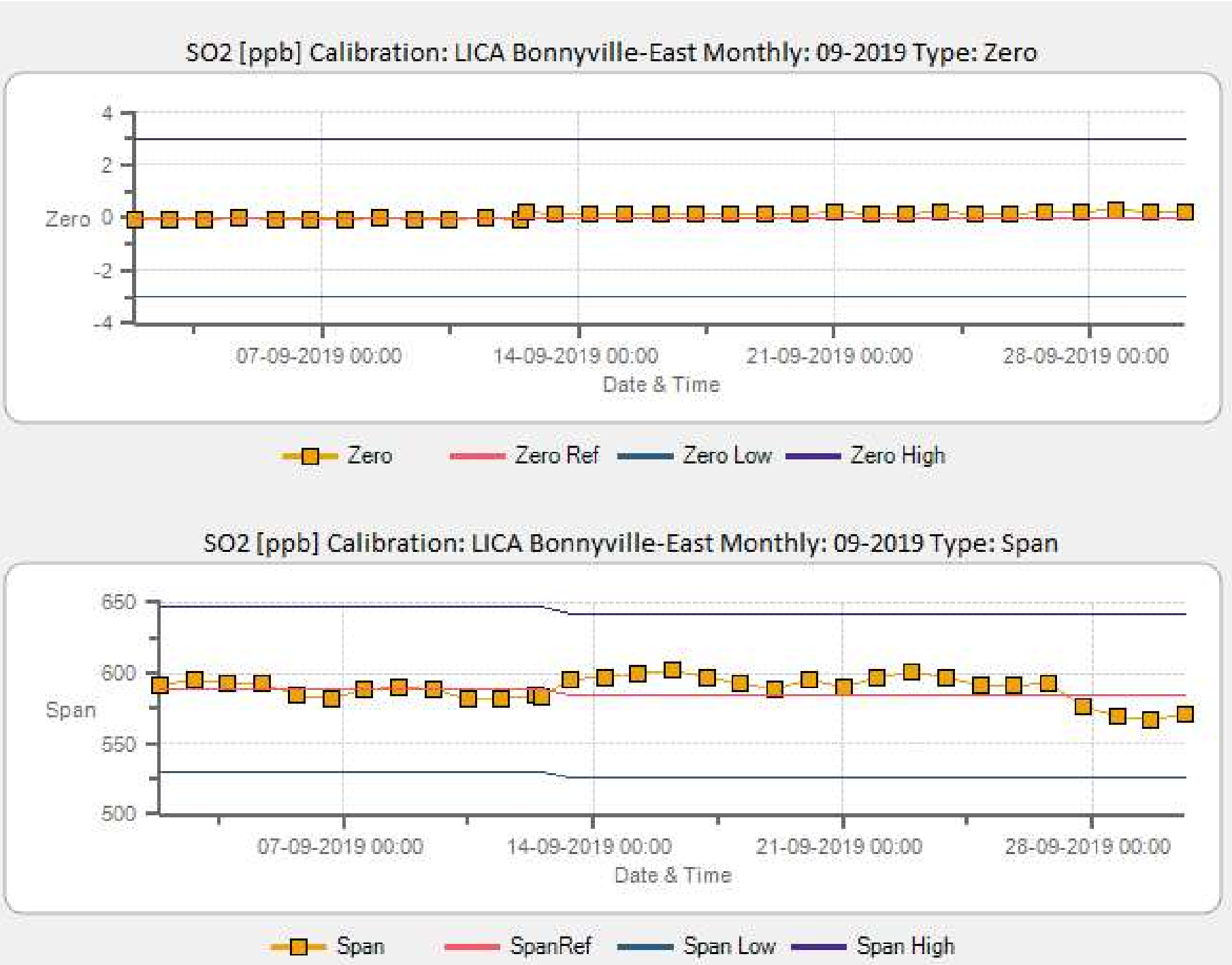
CAL-LICA-201909-01608

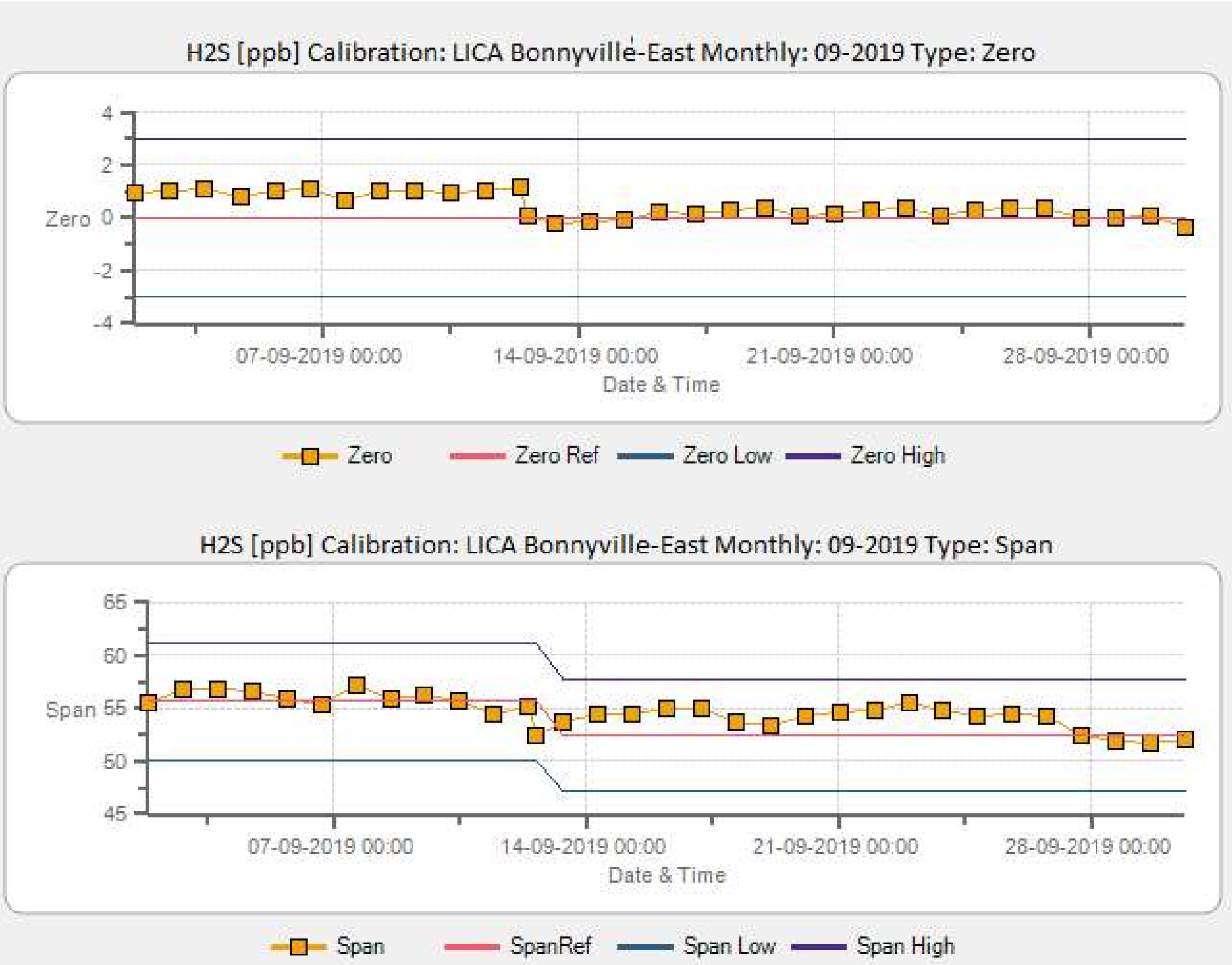
Station Operation and Maintenance:
Bureau Veritas Canada

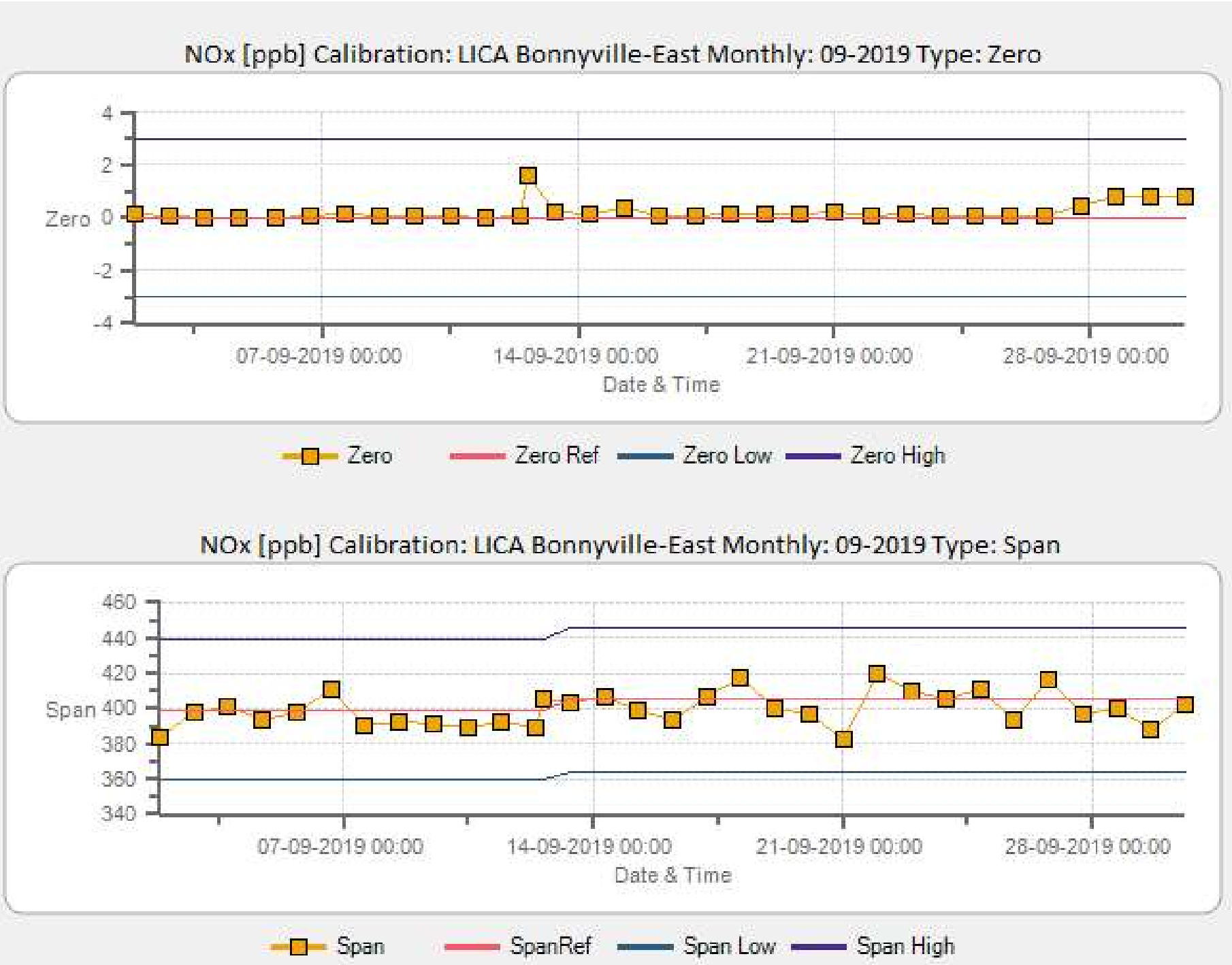
Data Validation and Report:
Bureau Veritas Canada

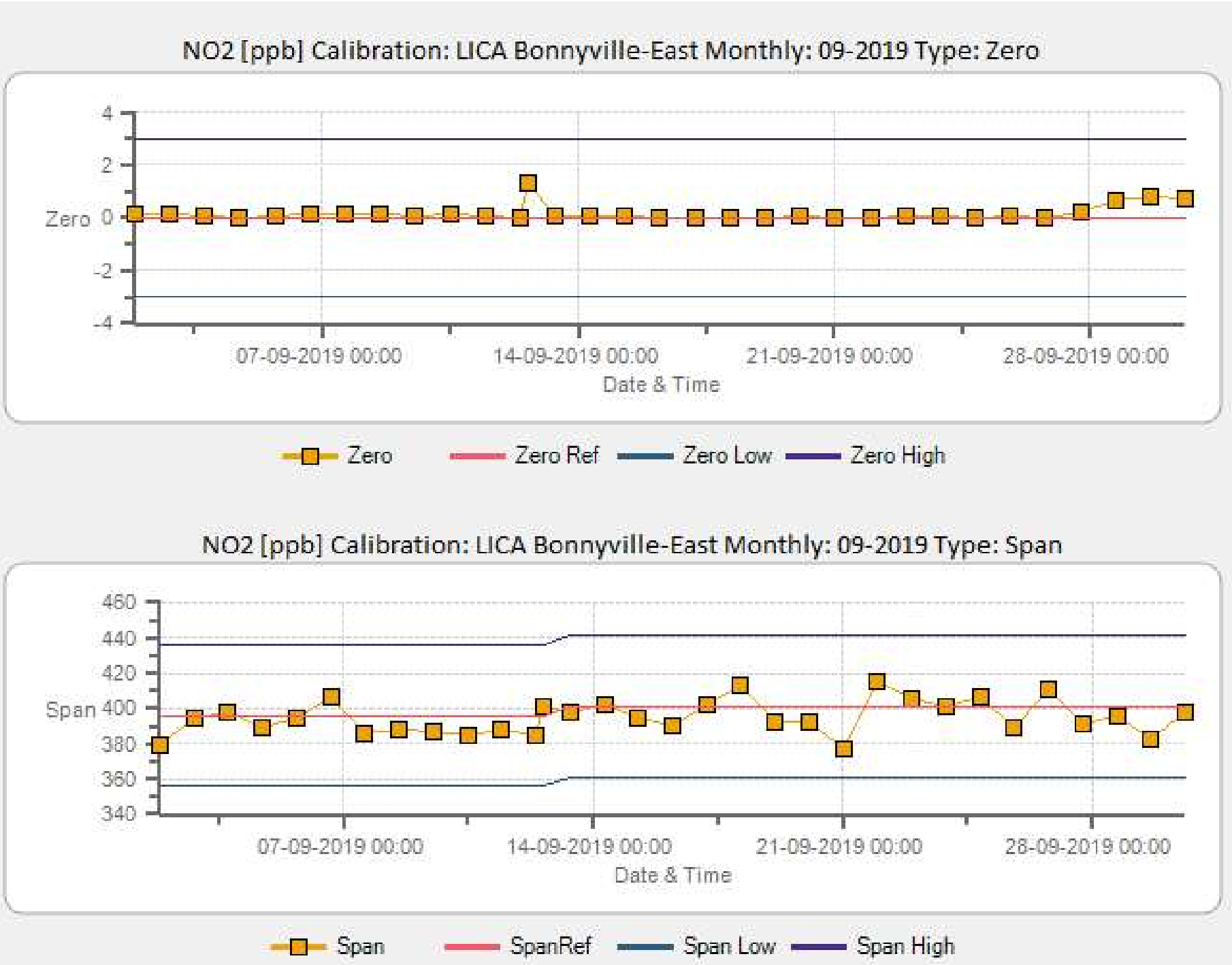
October 7, 2019

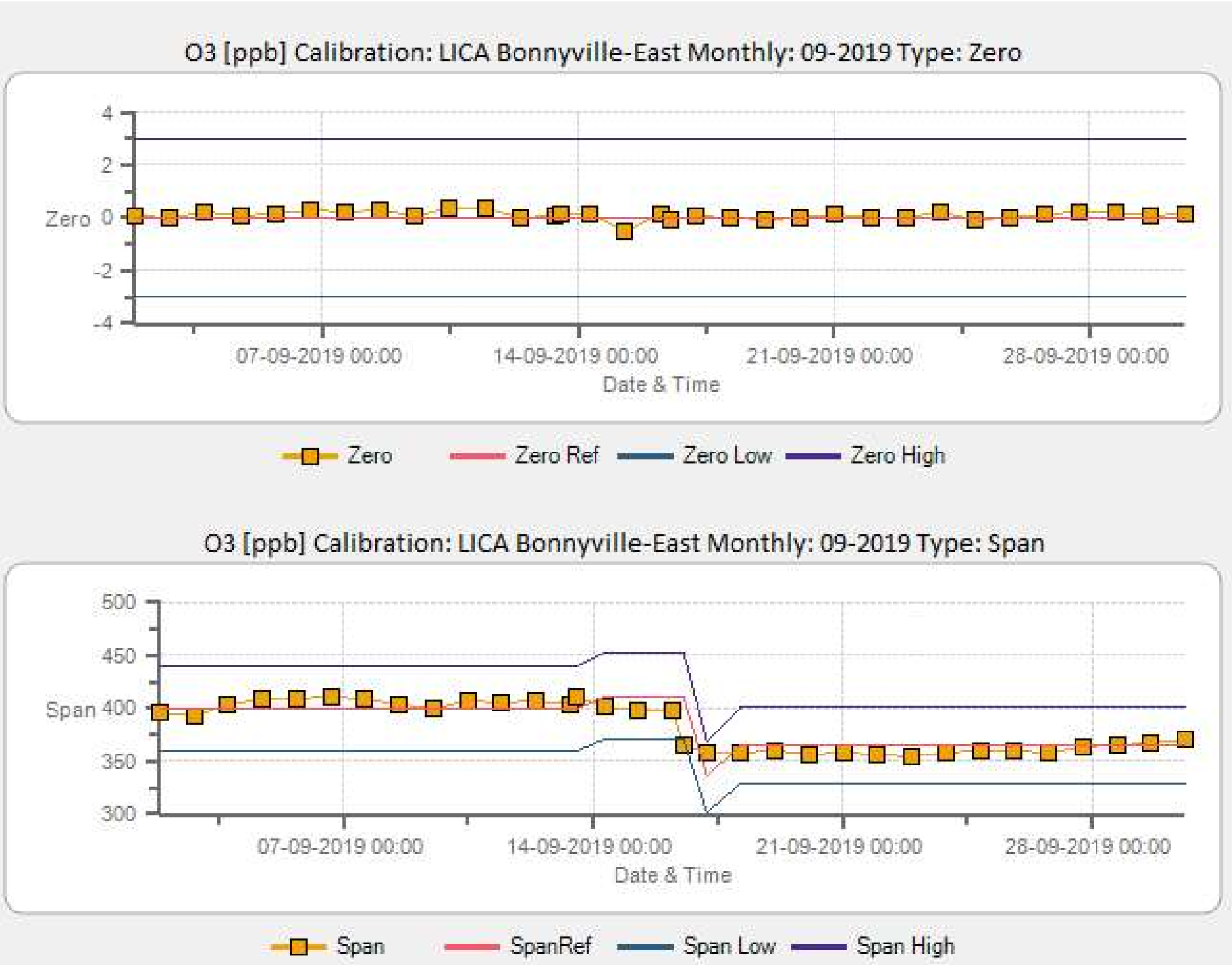
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

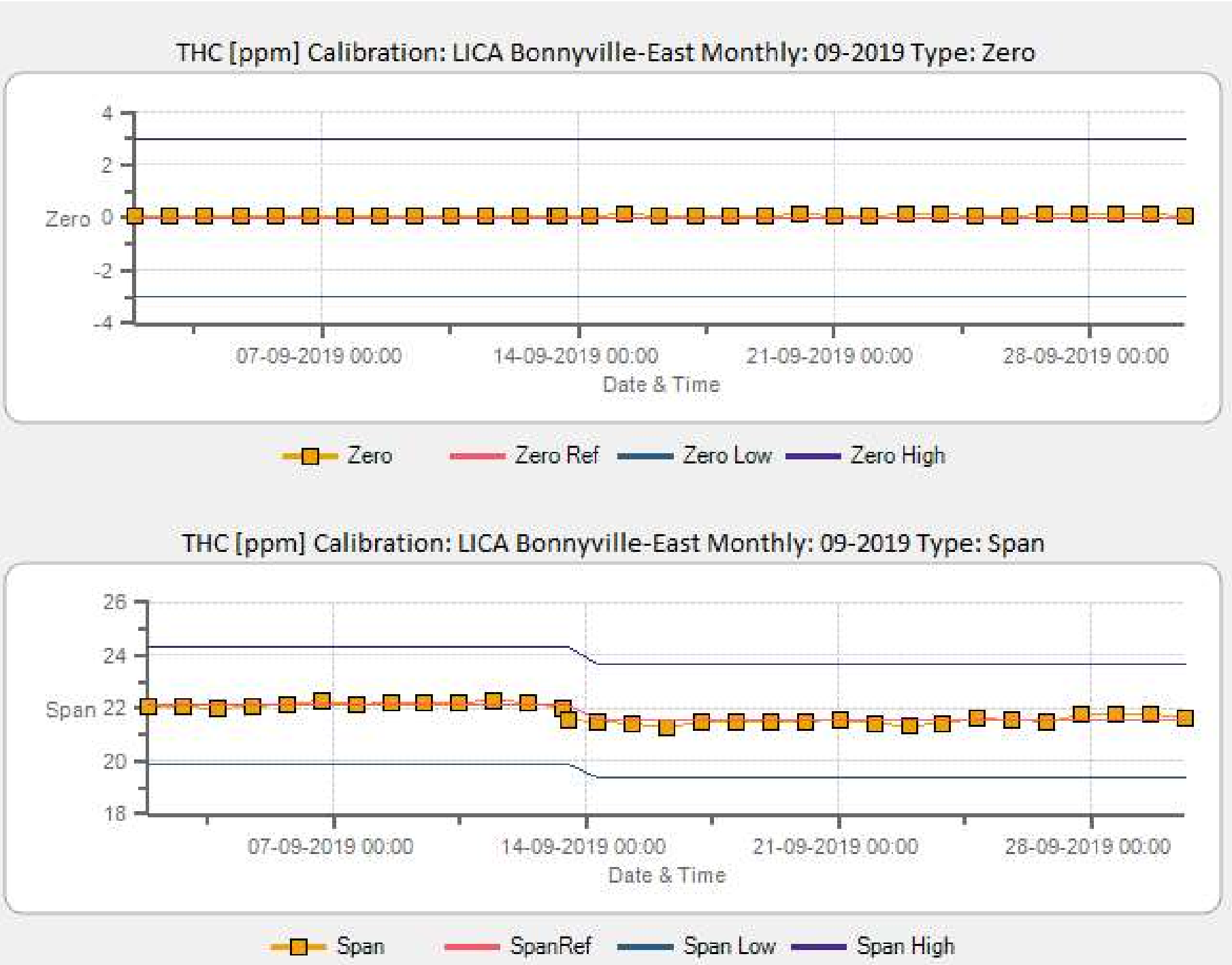

SO2 [ppb] Calibration: LICA Bonnyville-East Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
SO2 [ppb] Calibration: LICA Bonnyville-East Monthly: 09-2019 Type: Span
650
600
Span
550
500
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High

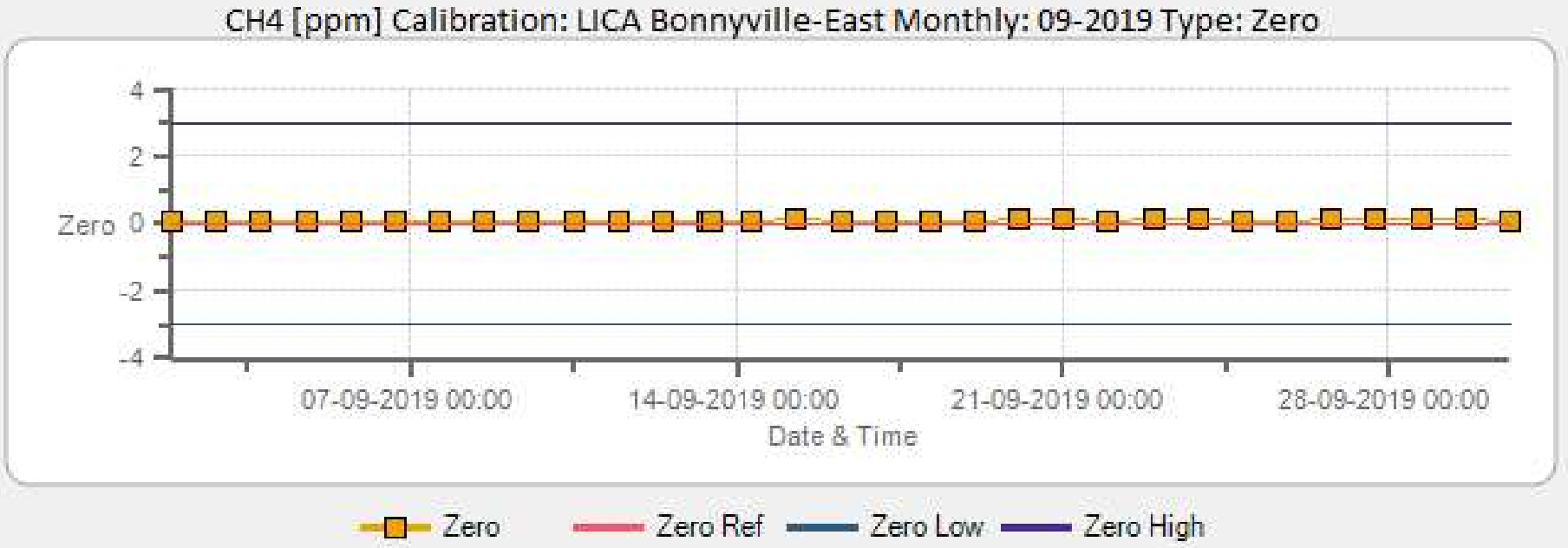

H2S [ppb] Calibration: LICA Bonnyville-East Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
H2S [ppb] Calibration: LICA Bonnyville-East Monthly: 09-2019 Type: Span
65
60
Span 55
50
45
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High

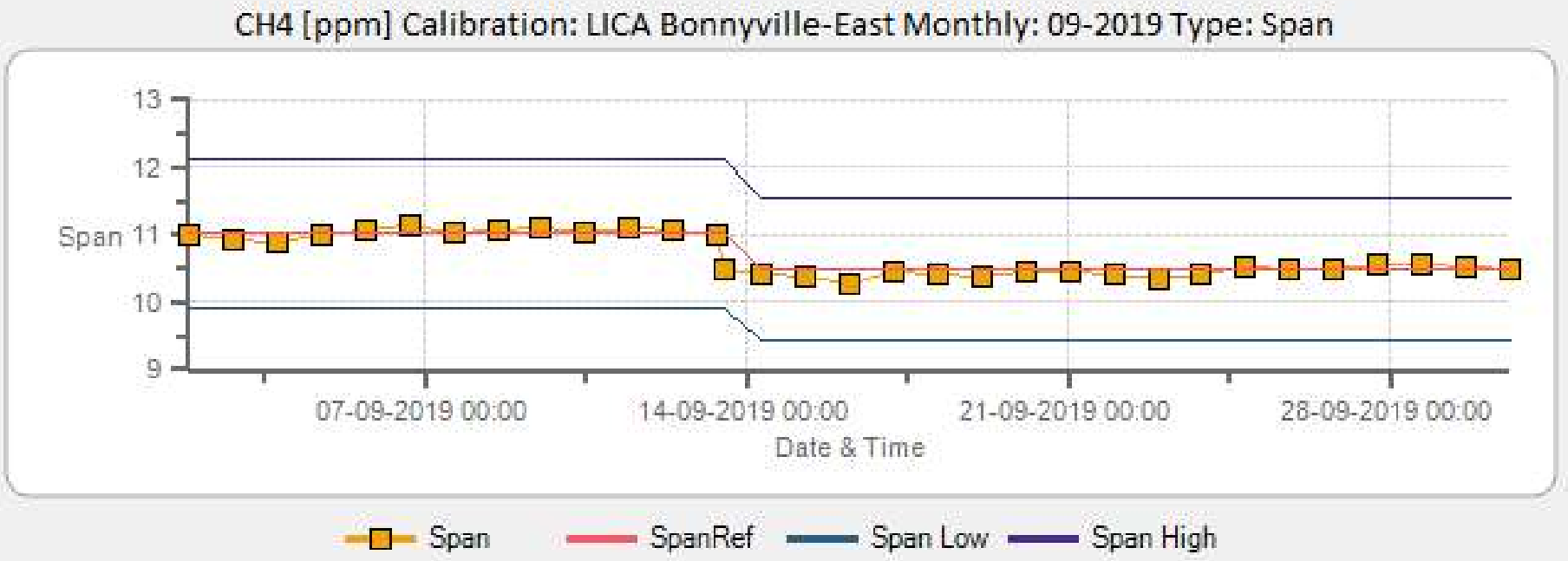

NOx [ppb] Calibration: LICA Bonnyville-East Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
NOx [ppb] Calibration: LICA Bonnyville-East Monthly: 09-2019 Type: Span
460
440
420
Span 400
380
360
340
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High

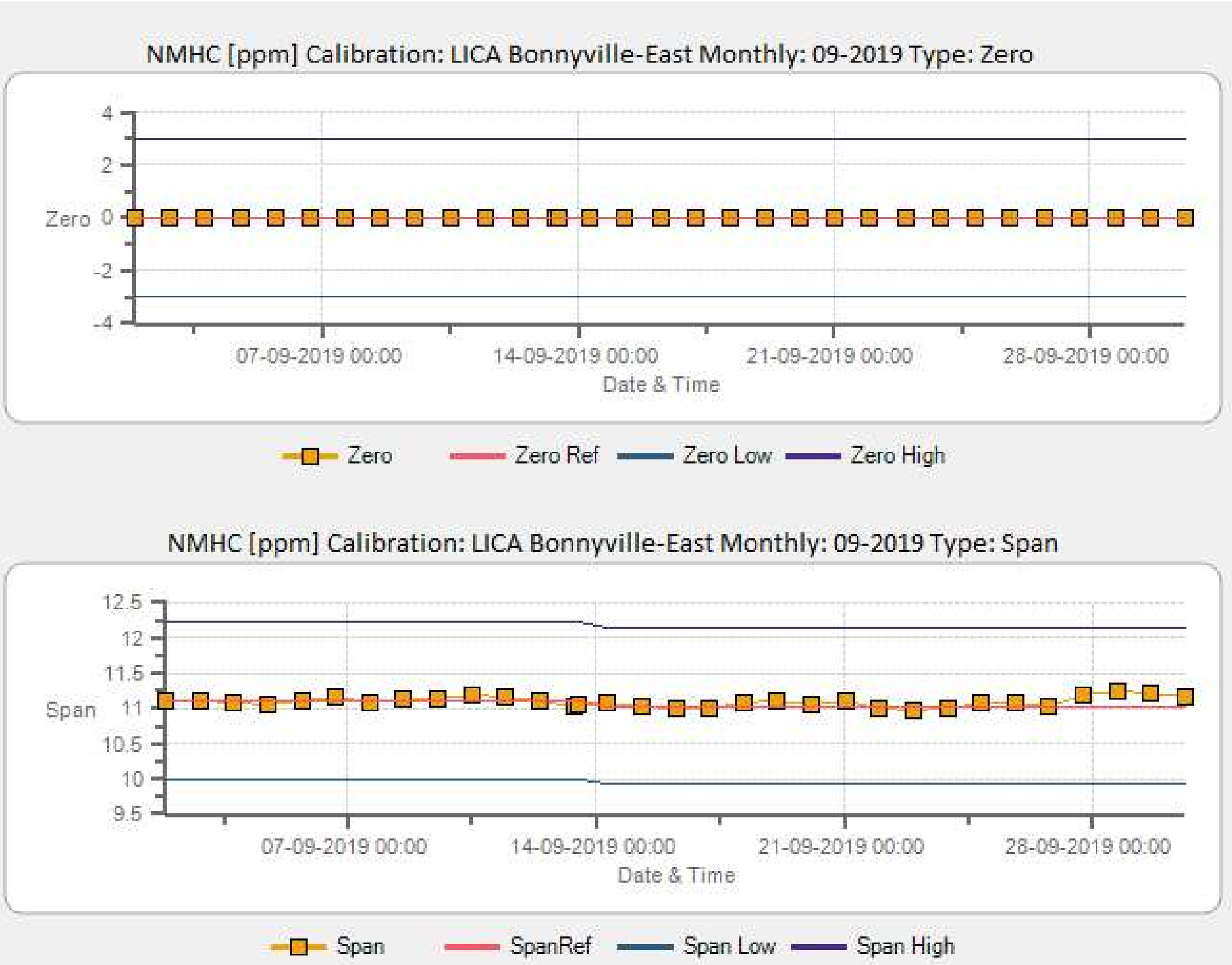

NO2 [ppb] Calibration: LICA Bonnyville-East Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
NO2 [ppb] Calibration: LICA Bonnyville-East Monthly: 09-2019 Type: Span
460
440
420
Span 400
380
360
340
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High


O3 [ppb] Calibration: LICA Bonnyville-East Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
O3 [ppb] Calibration: LICA Bonnyville-East Monthly: 09-2019 Type: Span
500
450
Span 400
350
300
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High


THC [ppm] Calibration: LICA Bonnyville-East Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
THC [ppm] Calibration: LICA Bonnyville-East Monthly: 09-2019 Type: Span
26
24
Span 22
20
18
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High


CH4 [ppm] Calibration: LICA Bonnyville-East Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High


CH4 [ppm] Calibration: LICA Bonnyville-East Monthly: 09-2019 Type: Span
13
12
Span 11
10
9
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High


NMHC [ppm] Calibration: LICA Bonnyville-East Monthly: 09-2019 Type: Zero
4
2
Zero 0
-2
-4
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Zero
Zero Ref
Zero Low
Zero High
NMHC [ppm] Calibration: LICA Bonnyville-East Monthly: 09-2019 Type: Span
12.5
12
11.5
Span 11
10.5
10
9.5
07-09-2019 00:00
14-09-2019 00:00
21-09-2019 00:00
28-09-2019 00:00
Date & Time
Span
SpanRef
Span Low
Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution

DATE:	12-Sep-2019	PREVIOUS CALIBRATION DATE:	08-Jul-2019
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Bonnyville - East	BAROMETRIC (mBar):	951
PURPOSE	Routine	START TIME (MST):	09:48
PERFORMED BY:	Alex Yakupov	END TIME (MST):	13:23

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	1000 ppb
SERIAL #	1180320043	FLOW (mL/min)	465
INITIAL		FINAL	
BKG/OFFSET	4.77	BKG/OFFSET	4.55
COEF/SLOPE	0.939	COEF/SLOPE	0.937
Expected (reference) Value	589	Expected (reference) Value	584

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	API	MAKE:	Teledyne
MODEL:	700	MODEL:	T701
ID:	690	ID:	132
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL 107918	HIGH ID	n/a
CONC (ppm):	49.50	EXPIRY DATE	n/a
CYLINDER (psi):	1200	LOW ID	n/a
EXPIRY DATE	20-Aug-2026	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	780	380	190
RANGE	600 - 800	300 - 400	100 - 200

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

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

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000		5000	0.00	0	0		
4922	77.80	5000	770.22	766	770	1.006	1.000
4962	37.90	5000	375.21	n/a	374	n/a	1.003
4981	18.90	5000	187.11	n/a	186	n/a	1.006

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	-0.1%

COMMENTS:

Sample inlet filter was changed.

H2S Analyzer Calibration by Dilution

DATE:	12-Sep-2019	PREVIOUS CALIBRATION DATE:	07-Aug-2019
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	22.0
LOCATION:	Bonnyville - East	BAROMETRIC (mBar):	951
PURPOSE	Routine	START TIME (MST):	09:48
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:45

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	CM 17360002	FLOW (mL/min)	962
INITIAL		FINAL	
BKG/OFFSET	30.1	BKG/OFFSET	29.9
COEF/SLOPE	1.178	COEF/SLOPE	1.126
Expected (reference) Value	55.7	Expected (reference) Value	52.5

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0001003	HIGH ID	n/a
CONC (ppm):	9.55	EXPIRY DATE	n/a
CYLINDER (psi):	500	LOW ID	n/a
EXPIRY DATE	20-Oct-2020	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

START TIME:	09:54	SO2 Conc (ppb)	780
END TIME:	10:09	Analyzer Response (ppb)	0.0

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
7500		7500	0.00	1	0		
7439	61.20	7500	77.93	82.1	77.9	0.961	1.000
7470	29.80	7500	37.95	n/a	38	n/a	0.999
7485	14.90	7500	18.97	n/a	18.4	n/a	1.031

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	-0.2%

COMMENTS:

Sample inlet filter was changed.

NOx Calibration by Dilution/Gas-Phase Titration

CALIBRATION:

				ANALYZER:			
DATE:	12-Sep-2019	PREVIOUS CALIBRATION DATE:	07-Aug-2019	MAKE/MODEL:	Thermo 42i	PREVIOUS CF.	
CLIENT:	LICA	TEMPERATURE (°C):	22.0	SERIAL #:	1180930027	NOx	1.000
LOCATION:	Bonnyville - East	BAROMETRIC (mBar):	951.00	FLOW (mL/min)	717	NO	0.999
PURPOSE	Routine	START TIME (MST):	09:48	RANGE (ppb)	1000	NO2	1.000
PERFORMED BY:	Alex Yakupov	END TIME (MST):	14:57	GPT FOR O3?		No	

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:			FLOWMETERS (if applicable):	
MAKE:	API	MAKE:	Teledyne	CYLINDER ID:	LL107918		HIGH ID:	n/a
MODEL:	700	MODEL:	700	NO/NOx (PPM):	50.1	50.2	HIGH EXPIRY:	n/a
ID:	690	ID:	132	CYLINDER (psi):	1200		LOW ID:	n/a
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	n/a	EXPIRY DATE	20-Aug-2026		LOW EXPIRY:	n/a

CALIBRATION SETTINGS:

INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	7	7	n/a	BKG/OFFSET:	8	7	n/a
SLOPE/COEF/CE:	1	1	1.0	SLOPE/COEF/CE:	1	1	1.0

EXPECTED (REFERENCE) VALUE:

INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	399	4	396.0		405	4	401.0

CALIBRATION PARAMETERS:

POINT	NO TARGET (PPB)	NO2 TARGET (PPB)	NO2 RANGE	O3 POINT
HIGH	780	500	470-540	n/a
MID	380	275	235-310	n/a
LOW	190	90	80-115	n/a
EXTRA 1	n/a	n/a	n/a	n/a

NO/NOx CALIBRATION:

FLOW RATE (mL/min)			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
5000		5000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
4922	77.80	5000	779.6	781.1	1.6	761.0	762.0	1.0	780.0	781.0	1.0	1.024	1.025		0.999	1.000	
4962	37.90	5000	379.8	380.5	0.8	n/a	n/a	n/a	380.0	380.0	0.0	n/a	n/a		0.999	1.001	
4981	18.90	5000	189.4	189.8	0.4	n/a	n/a	n/a	191.0	191.0	0.0	n/a	n/a		0.992	0.993	

GPT CALIBRATION:

Point	CALIBRATOR			INDICATED (ppb)			NO DROP / O3 Conc (ppb)	NO2 GAIN (ppb)	NO2 Corr. FACTOR	CONV. EFFICIENCY
	GAS	TOTAL	O3 SETPOINT	NO	NOx	NO2				
REFERENCE	77.80	5000	0	781.0	782.0	1.0				
AS-FOUND HIGH	77.80	5000	490	280.0	782.0	502.0	501	501	1.000	100.00%
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a
MID	77.80	5000	270	502.0	783.0	282.0	279	281	0.993	100.72%
LOW	77.80	5000	100	678.0	782.0	104.0	103	103	1.000	100.00%
NO2 adjustment not required.									AVERAGE:	100.24%

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
NO	1.000	1.000	0.06%
NOx	1.000	1.000	0.04%
NO2	1.000	1.000	0.08%

COMMENTS:

Sample inlet filter was changed.

Methane/Non-Methane Analyzer Calibration by Dilution

CALIBRATION:

DATE:	13-Sep-2019	PREVIOUS CALIBRATION DATE:	08-Aug-2019
CLIENT:	LICA	TEMPERATURE (°C):	20.0
LOCATION:	Bonnyville - East	BAROMETRIC (mBar):	948
PURPOSE	Routine	START TIME (MST):	08:47
PERFORMED BY:	Alex Yakupov	END TIME (MST):	11:55

ANALYZER:

VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
	Thermo 55i	1180320044	1050
PARAMETER:	CH4	NMHC	THC
RANGE (ppm):	20	20	40
PREVIOUS CF:	1.000	1.000	1.000

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:			FLOWMETERS (if applicable):	
MAKE:	API	MAKE:	Teledyne	CYLINDER ID:	LL 29687		HIGH ID:	n/a
MODEL:	700	MODEL:	T701	CH_4/C_3H_8 (ppm):	598.0	198.0	HIGH EXPIRY:	n/a
ID:	690	ID:	132	CYLINDER (psi):	1100		LOW ID:	n/a
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	115	EXPIRY DATE	01-Aug-2026		LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

POINT (CH4/NMHC)	HIGH	MID	LOW	CH4 EQUIVILANCE	
TARGET	14	7	3.5	C_3H_8 as CH_4	544.5
RANGE	12 - 16	6 - 8	2 - 4	THC as CH_4	1142.5

EXPECTED (REFERENCE) VALUE:

INITIAL	CH4	NMHC	THC	FINAL	CH4	NMHC	THC
	11.02	11.11	22.12		10.49	11.04	21.53

CALIBRATION:

FLOW RATE (mL/min)			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC	CH4	NMHC	THC
3000		3000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
2930	70.00	3000	13.95	12.71	26.66	13.91	12.45	26.36	13.95	12.71	26.66	1.003	1.020	1.011	1.000	1.000	1.000
2962	38.00	3000	7.57	6.90	14.47	n/a	n/a	n/a	7.58	7.01	14.59	n/a	n/a	n/a	0.999	0.984	0.992
2981	19.00	3000	3.79	3.45	7.24	n/a	n/a	n/a	3.84	3.56	7.43	n/a	n/a	n/a	0.986	0.969	0.974

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
CH4	1.000	0.999	0.1%
NMHC	1.000	1.000	0.3%
THC	1.000	0.998	0.2%

COMMENTS:

Sample inlet filter was changed. A new SPAN gas cylinder was connected.

Ozone Calibration by Photometer (Varying UV Lamp)

DATE:	13-Sep-2019	PREVIOUS CALIBRATION DATE:	09-Jul-2019
PARAMETER:	Ozone	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	LICA	TEMPERATURE (°C):	20.0
LOCATION:	Bonnyville - East	BAROMETRIC (mBar):	948
PURPOSE	Routine	START TIME (MST):	08:47
PERFORMED BY:	Alex Yakupov	END TIME (MST):	12:55

ANALYZER:

MAKE/MODEL	Thermo 49i	RANGE	500 ppb
SERIAL #	1002240372	FLOW (mL/min)	1526
INITIAL		FINAL	
BKG/OFFSET	-0.3	BKG/OFFSET	-0.2
COEF/SLOPE	1.028	COEF/SLOPE	1.024
Expected (reference) Value	400	Expected (reference) Value	411

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010 D	MODEL:	T701
ID:	11900613	ID:	132
MFC CALIBRATION DATE:	16-Apr-2019	OXIDIZER ID:	n/a
	CALIBRATION METHOD:	Photometer (Varying UV Lamp)	
GPT DATE:	n/a	GPT END TIME:	n/a

CALIBRATION PARAMETERS:

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

CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000		5000	0.0	0.0	0.0		
5000		5000	379.0	379.0	379.0	1.000	1.000
5000		5000	180.0	n/a	180.0	n/a	1.000
5000		5000	60.0	n/a	60.0	n/a	1.000

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.0%

COMMENTS:

Sample inlet filter was changed.

Thermo 5030i SHARP Monitor Calibration

Date:	September 16, 2019	**Performed By/Reviewer:**	Alex Yakupov / Wunmi Adekanmbi
Company:	LICA	**Start Time (mst):**	13:38
Station Name/Location:	Bonnyville - East	**End Time (mst):**	15:57
Previous Audit Date:	August 28, 2019	**Calibration Purpose:**	Quarterly
Parameter:	PM 2.5	**Weather Conditions:**	Mainly cloudy with sunny breaks

SHARP 5030i Information and Status:

Serial Number: CM 17071016 **Filter Tape Counter** 57

Reference Standards:

	Air Flow		Pressure:		Temp / RH:	
	Manometer	**Orifice**				
Make:	Dwyer	chinook	Fisher Scientific		Fisher Scientific	
Model:	475 Mk. III	CHN0901	FB61291		11-661-7B	11745843
Serial Number:	#3	#2	130168457		160348895	
Expiry Date:	January 17, 2020	January 31, 2020	January 17, 2020		June 19, 2020	

Ambient Temperature (°C)

	As Found:			As Left: (same as found if acceptable)			
	Reference	**SHARP**	**Difference**	**Reference**	**SHARP**	**Difference**	
#1	19.53	18.3	1.2	19.40	19.4	0.0	*Temp Limit: ± 2°C*
#2	19.42	18.4	1.0	19.52	19.5	0.0	
#3	19.79	18.5	1.3	19.61	19.6	0.0	
Average	19.6	18.4	1.2	19.5	19.5	0.0	

Ambient Relative Humidity (%RH)

	As Found:			As Left: (same as found if acceptable)			
	Reference	**SHARP**	**Offset (ZERO)**	**Reference**	**SHARP**	**Offset (ZERO)**	
#1	68.40	67.2	1.2	64.40	64.4	0.0	*RH Limit: ± 2 %RH*
#2	67.70	66.4	1.3	64.80	64.7	0.1	
#3	66.90	65.5	1.4	64.70	64.7	0.0	
Average	67.7	66.4	1.3	64.6	64.6	0.0	

Flow Temperature (°C)

	As Found:			As Left: (same as found if acceptable)			
	Reference	**SHARP**	**Difference**	**Reference**	**SHARP**	**Difference**	
#1	22.80	22.5	0.3	22.80	22.5	0.3	*Temp Limit: ± 2°C*
#2	22.40	22.1	0.3	22.40	22.1	0.3	
#3	22.20	22.0	0.2	22.20	22.0	0.2	
Average	22.5	22.2	0.3	22.5	22.2	0.3	

Barometric Pressure (mmHg)

	As Found:			As Left: (same as found if acceptable)			
	Reference	**SHARP**	**Difference**	**Reference**	**SHARP**	**Difference**	
#1	702.0	701.4	0.6	702.0	702.0	0.0	*BP Limit: ± 2 mmHg*

Nephelometer Relative Humidity (%RH)

	As Found:			As Left: (same as found if acceptable)			
	Reference	**SHARP**	**Difference**	**Reference**	**SHARP**	**Difference**	
#1	37.20	37.3	-0.1	37.20	37.3	-0.1	*RH Limit: ± 2 %RH*

Nephelometer Temperature (%RH)

	As Found:			As Left: (same as found if acceptable)			
	Reference	**SHARP**	**Difference**	**Reference**	**SHARP**	**Difference**	
#1	24.60	24.9	-0.3	24.60	24.9	-0.3	*Temp Limit: ± 2°C*

Nephelometer Source Level

As Found:		As Left: (same as found if acceptable)		
Variable	**Value**	**Variable**	**Value**	
IRED	69	IRED	65	*IRED Limit (as found): 60-70 mA*
SRC LEVEL	48	SRC LEVEL	47	Adjusted IRED Limit (as left): *65 mA*

Detector Calibration (Auto)

Detector Auto Calibration Completed: YES

As Left:	
Variable	**Value**
HIGH VOLT	1420
BETA REF TH	380
ALPHA TH	950
DIFF HV	3

Mass Coefficient (Auto)

Zero		Span		
Variable	**Value**	**Variable**	**Value**	
MASS COEF	7032.2	MASS COEF	7032.2	**Foil Set: CM1597**
FOIL VALUE	0	FOIL VALUE	1328	
Beta Avg	10447	Beta Avg	8649	
difference	Foil Set# 9258	difference	0.0	

Flow Calibration (L/min)

	As Found:			As Left: (same as found if acceptable)			
	Reference	**SHARP**	**Difference**	**Reference**	**SHARP**	**Difference**	
#1	16.66	16.66	0.00	16.66	16.66	0.00	*Flow Limit: 16.67 ± 0.33 L/min*
#2	16.65	16.65	0.00	16.65	16.65	0.00	
#3	16.68	16.67	0.01	16.68	16.67	0.01	
Average	16.66	16.66	0.00	16.66	16.66	0.00	

Leak Check (L/min)

	Without Leak Check Adapter			With leak Check Adapter			
	Reference	**SHARP**	**Difference**	**Reference**	**SHARP**	**Difference**	
#1	16.66	16.66	0.00	16.63	16.64	-0.01	*Leak Limit: 0.08 L/min*
					LEAK RATE:	**-0.01**	

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. 2019-050A

Company Maxxam **Operator:** Tom Bourque

Calibrator:				**Flow Measurement Device:**	
Make/Model	API 700			Make/Model	N/A
Serial Number	690			Serial Number	N/A
Last Verification Date	March 2018			Temperature (°C)	24.4 C
NO Cylinder S/N	EY0000769			Barometric Pressure	699 mmHg
NO [PPM]	51.1	NOx [PPM]	51.2		
Expiry Date	December 2019				

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	-0.001	-0.001	Limit ± 10%	
5083	80.0	0.804	0.806	0.802	-0.011	0.791	0%	-2%
5044	40.0	0.405	0.406	0.403	-0.006	0.397	-1%	-2%
5022	20.0	0.204	0.204	0.202	-0.004	0.198	-1%	-2%
						Absolute Average Percent Difference	1%	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)=	0.9974	**0.90-1.10**	m (Slope)=	0.9833
b (Intercept % of FS)=	-0.0592	**± 3% F.S.**	b (Intercept % of FS)=	-0.1772

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
5083	0.000	0.000	0.802	-0.011	0.791	NO_2	% Diff. Limit
5083	0.500	0.518	0.284	0.488	0.771	-4%	± 10%
5083	0.300	0.323	0.479	0.294	0.774	-6%	± 10%
5083	0.150	0.167	0.635	0.142	0.777	-8%	± 10%
						6%	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO_2		**LIMITS**
Correlation=	0.9998	**≥ 0.995**
m (Slope)=	0.9649	**0.90-1.10**
b (Intercept % of FS)=	-1.4907	**± 3% F.S.**

Big shift down in NOx when entering GPT function.
Possible flow change.

AENV Standards		**NO_X Analyzer**	
Audit Calibrator			
Make/Model	Teco 146i	Make/Model	Teco 42i
Serial/AMU Number	AMU 1809	Serial/AMU Number	AMU 2265
SRM Gas Cylinder No.	APEX1236646	Last Calibration Date	April 15, 2019
Cylinder Conc. (ppm)	50.04	Full Scale (ppm)	1.0
		Cylinder Gas Expiry Date	June 2021

COMMENTS: With ZAG Teledyne 701 Maxxam ID 11986.

Auditor: Al Clark Date: April 16, 2019

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2019-048A

Company Maxxam **Operator:** Tom Bourque

Calibrator:			
Make/Model	Sabio 2010		
Serial Number	11900613		
Last Verification Date	August 2018		
NO Cylinder S/N	EY0000769		
NO [PPM]	51.1	NOx [PPM]	51.2
Expiry Date	December 2019		

Flow Measurement Device:	
Make/Model	N/A
Serial Number	N/A
Temperature (°C)	24.4 C
Barometric Pressure	699 mmHg

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	-0.002	-0.002	Limit ± 10%	
5080	80.0	0.805	0.806	0.815	-0.007	0.808	1%	0%
5041	40.0	0.405	0.406	0.414	-0.004	0.410	2%	1%
5019	20.0	0.204	0.204	0.210	-0.004	0.206	3%	2%
						Absolute Average Percent Difference	2%	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)=	1.0117	**0.90-1.10**	m (Slope)=	1.0039
b (Intercept % of FS)=	0.2171	**± 3% F.S.**	b (Intercept % of FS)=	-0.0020

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
						NO_2	% Diff. Limit
5080	0.000	0.000	0.815	-0.009	0.806		
5080	1.400	0.517	0.298	0.511	0.809	1%	± 10%
5080	0.900	0.308	0.507	0.299	0.806	0%	± 10%
5080	0.500	0.140	0.675	0.130	0.805	-1%	± 10%
						0%	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	1.0062	**0.90-1.10**
b (Intercept % of FS)=	-1.0004	**± 3% F.S.**

AENV Standards **Audit Calibrator**		**NO_X Analyzer**	
Make/Model	Teco 146i	Make/Model	Teco 42i
Serial/AMU Number	AMU 1809	Serial/AMU Number	AMU 2265
SRM Gas Cylinder No.	APEX1236646	Last Calibration Date	April 15, 2019
Cylinder Conc. (ppm)	50.04	Full Scale (ppm)	1.0
		Cylinder Gas Expiry Date	June 2021

COMMENTS: With ZAG Teledyne 701 Maxxam ID: 11981. Should have Maxxam ID 11986 instead

Auditor: Al Clark Date: April 16, 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: Al Clark 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

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

End of Report