



## **Peace River Area Monitoring Program**

# **FEBRUARY 2019**

## **Monthly Ambient Air Quality Monitoring Report**

**Operation and Maintenance:**

Maxxam Analytics

**Data Validation and Report:**

Peace River Area Monitoring Program

March 14, 2019

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## TABLE OF CONTENTS

LIST OF ACRONYMS .....	4
COVER LETTER .....	5
NETWORK STATION SUMMARY .....	6
Listing of Continuous Monitoring Stations .....	6
Listing of Intermittent Monitoring Stations .....	6
Monitoring Notes .....	6
986 Station .....	6
842 Station .....	7
Reno Station .....	7
VOCs Canister Sampling Program .....	7
Revisions to Alberta's Ambient Air Quality Data Warehouse .....	9
Deviations from Authorized Monitoring Methods .....	9
Disclaimer .....	9
Certification .....	10
Map of PRAMP Continuous Monitoring Network .....	11
CONTINUOUS NETWORK EQUIPMENT AND MONITORING RESULTS SUMMARY .....	12
986 Station .....	12
842 Station .....	15
Reno Station .....	18
TABLES, CHARTS AND WIND ROSES .....	20
986 Station .....	21
842 Station .....	66
Reno Station .....	111
VOC CANISTER SAMPLING RESULTS .....	156
REFERENCE DOCUMENTS .....	175
HOURLY INSTANTANEOUS DATA .....	176
986 Station .....	177
842 Station .....	190
Reno Station .....	203
EQUIPMENT CALIBRATION / MAINTENANCE RECORDS .....	216
986 Station .....	218
842 Station .....	229
Reno Station .....	248
LABORATORY ANALYTICAL RESULTS .....	259
END OF REPORT .....	350

## LIST OF ACRONYMS

AAAQOs	Alberta Ambient Air Quality Objectives
AEP	Alberta Environment and Park
AMD	Air Monitoring Directive
AT	Ambient Temperature
BP	Barometric Pressure
CH4	Methane
EPEA	Environmental Protection and Enhancement Act
H2S	Hydrogen Sulphide
kph	kilometer per hour
mb	millibar
mm	millimeter
NMHC	Non-Methane Hydrocarbons
ppb	parts per billion
ppm	parts per million
PRAMP	Peace River Area Monitoring Program
RH	Relative Humidity
SO2	Sulphur Dioxide
ST	Station Temperature
THC	Total Hydrocarbons
TRS	Total Reduced Sulphur
VWD	Vector Wind Direction
VWS	Vector Wind Speed
WD	Wind Direction
WS	Wind Speed
°C	Degree Celsius



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March 14, 2019

**RE: PRAMP – February 2019 Monthly Ambient Air Quality Monitoring Report**

Enclosed is the revised February 2019 Monthly Ambient Air Quality Monitoring Report for the continuous ambient air quality monitoring stations of the Peace River Area Monitoring Program (PRAMP) regional air quality monitoring network.

The representative of the Person Responsible for this monitoring program is

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This report is prepared, reviewed and submitted by Michael Bisaga & Lily Lin of the PRAMP Airshed

## NETWORK STATION SUMMARY

### **Listing of Continuous Monitoring Stations**

The PRAMP continuous ambient air quality monitoring network stations are:

- 986 Station
- 842 Station
- Reno Station

ID	Station Name	Latitude	Longitude
01	986	56.376056	-116.940704
02	842	56.27406	-116.98129
03	Reno	55.86936	-117.05739

### **Listing of Intermittent Monitoring Stations**

- VOC Canister Sampling Station
  - 986 Station
  - 842 Station
  - Reno Station

### **Monitoring Notes during the Month of February 2019**

#### **986 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.
- A scheduled daily zero span check was interrupted on February 14 during hour 00. The check was re-run during hour 07. One hour of downtime was recorded due to this event.
- The canister system was tested on February 20 during hour 18. No issue was identified.

#### **842 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.
- The met system was checked on February 6. The temperature probe showed a difference of 1.6 °C: measured reading -21.6 °C, reference reading -20.0 °C. The RH sensor showed a difference of -21.0%: measured reading 72.5%, reference reading 59.9%. As the temperature / relative humidity sensor was successfully audited by AEP on January 16, it was concluded that the check result was influenced by poor weather conditions. Another check was performed on February 21, and the result for both temperature and relative humidity were acceptable: measured AT reading -8.3 °C, reference AT reading -8.7 °C; measured RH reading 60.8%, reference RH reading 59.57%.

- THC/CH4/NMHC:
  - The analyzer failed the daily zero/span check between February 9 and February 12. A repeat multi-point calibration was performed on February 12 to correct the drift. 10 hours of downtime were recorded due to this event.
  - The analyzer was put offline on February 22 during hour 9 to test the canister system. One hour of data was invalidated due to this event.

**Reno 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.
- The meteorological (met) system was checked on February 6. The temperature probe showed a difference of 1.5 °C: measured reading -26.5 °C, reference reading -25.0 °C. As the temperature sensor was successfully audited by AEP on January 15, it was concluded that the check result was influenced by poor weather conditions. The met system is scheduled to be checked in March.
- WS/WD: Wind speed reading is deemed invalid if 1-minute data is recorded as 0.0kph as it is considered a freeze sensor. The minute data were discarded, and hourly data were re-averaged. Hourly data was discarded if less than 75% of valid minute data in an hour was recorded. 31 hours of data were invalidated due to this event. The wind direction data with the corresponding period were also considered invalid and were discarded.

**VOCs Canister Sampling program:**

- The canister sampling program collects a 1-hour sample of air when the continuously measured methane (CH4) and/or non-methane hydrocarbon (NMHC) concentration reaches a specified trigger point. The current trigger points are 5.5 ppm for methane and 0.3 ppm for non-methane hydrocarbons and are in place at all stations in the PRAMP network. Both trigger points are based on real-time monitoring data that are averaged over a 5-minute period.
- Ambient concentrations of both methane and non-methane hydrocarbons remained below their respective trigger points and therefore, no trigger-based canister samples were collected in February.
- Four methane-triggered canisters were collected in February.

Parameter	Concentration (ppm)	Date	Time
Methane	5.95	Feb 17	19:25
Methane	5.50	Feb 20	22:05
Methane	17.24	Feb 23	20:15
Methane	11.33	Feb 24	19:35

- Sample analysis and analytical results were prepared and provided by InnoTech Alberta.
- In this report, a value of zero (0) value is assigned if the laboratory analysis results in a concentration that is below Reported Detection Limits (RDL).

- 986 Station: Control sample was collected on February 20.

Sample Date/Time	2019-02-20				
Canister Triggered Conc.	Control Sample				
Canister ID	28892				
Method	NA-025	Method	NA-024	Method	AC-058
Maximum Reading	2.2	Maximum Reading	4.1	Maximum Reading	3.6

- 842 Station: Control sample was collected on February 7.

Sample Date/Time	2019-02-07				
Canister Triggered Conc.	Control Sample				
Canister ID	28894				
Method	NA-025	Method	NA-024	Method	AC-058
Maximum Reading	1.9	Maximum Reading	1.5	Maximum Reading	2.1

- Reno Station: Seven canister samples were collected in February.

- Control sample was collected on February 6.

Sample Date/Time	2019-02-06				
Canister Triggered Conc.	Control Sample				
Canister ID	H2823				
Method	NA-025	Method	NA-024	Method	AC-058
Maximum Reading	2	Maximum Reading	1.6	Maximum Reading	3

- Methane-triggered samples were collected on Feb 17, Feb 20, Feb 23 and Feb 24.

Sample Date/Time	2019-02-17				
Canister Triggered Conc.	Methane				
Canister ID	28914				
Method	NA-025	Method	NA-024	Method	AC-058
Maximum Reading	3	Maximum Reading	2.6	Maximum Reading	3.3

Sample Date/Time	2019-02-20				
Canister Triggered Conc.	Methane				
Canister ID	28965				
Method	NA-025	Method	NA-024	Method	AC-058
Maximum Reading	2.3	Maximum Reading	3.3	Maximum Reading	0.49

Sample Date/Time	2019-02-23				
Canister Triggered Conc.	Methane				
Canister ID	11037				
Method	NA-025	Method	NA-024	Method	AC-058
Maximum Reading	6.1	Maximum Reading	0	Maximum Reading	1.2

Sample Date/Time	2019-02-24				
Canister Triggered Conc.	Methane				
Canister ID	555619				
Method	NA-025	Method	NA-024	Method	AC-058
Maximum Reading	4.1	Maximum Reading	0	Maximum Reading	0.89

- Blank samples were collected on Feb 17 and Feb 20.

Sample Date/Time	2019-02-17				
Canister Triggered Conc.	Blank				
Canister ID	28934				
Method	NA-025	Method	NA-024	Method	AC-058
Maximum Reading	4.8	Maximum Reading	0	Maximum Reading	0.68

Sample Date/Time	2019-02-20				
Canister Triggered Conc.	Blank				
Canister ID	28911				
Method	NA-025	Method	NA-024	Method	AC-058
Maximum Reading	0	Maximum Reading	0	Maximum Reading	0.04

### **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 Reno 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 986 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.

### **Disclaimer**

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 Maxxam Analytics.

### **Certification**

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



Lily Lin, Environmental Monitoring Program Manager, PRAMP Airshed

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

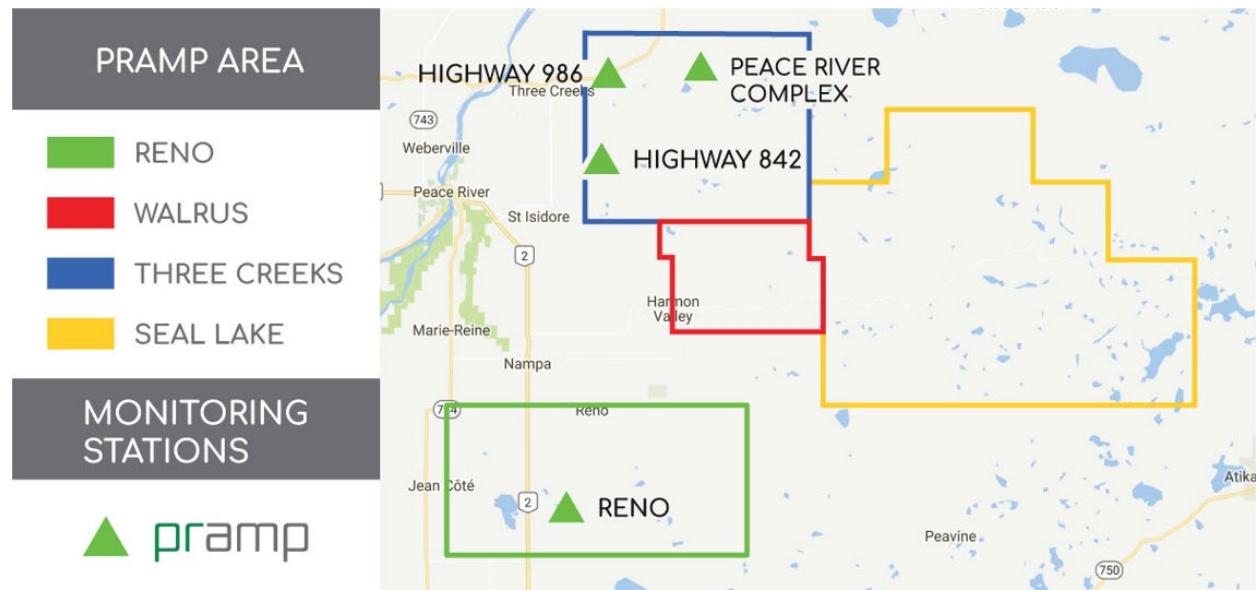
I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements. I also certify that at the time of this report's submission, all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



Michael Bisaga, Environmental Monitoring Program Manager, PRAMP Airshed

March 14, 2019

## **Map of PRAMP Continuous Monitoring Network**



## CONTINUOUS NETWORK EQUIPMENT AND MONITORING RESULTS SUMMARY

### 986 Station

#### Equipment Operation Summary

Parameter	Make / Model	Serial Number
SO2	Thermo / 43C	43C-62339-335
	<ul style="list-style-type: none"> <li>A scheduled daily zero span check was interrupted on February 14 during hour 00. The check was re-run during hour 07. One hour of downtime was recorded due to this event.</li> <li>A successful monthly calibration was performed on February 20.</li> </ul>	
TRS	Thermo / 43i-TLE	1152940011
	<ul style="list-style-type: none"> <li>A scheduled daily zero span check was interrupted on February 14 during hour 00. The check was re-run during hour 07. One hour of downtime was recorded due to this event.</li> <li>A successful monthly calibration was performed on February 20.</li> </ul>	
THC/CH4/NMHC	Thermo / 55i	1022143392
	<ul style="list-style-type: none"> <li>A scheduled daily zero span check was interrupted on February 14 during hour 00. The check was re-run during hour 07. One hour of downtime was recorded due to this event.</li> <li>A successful monthly calibration was performed on February 20.</li> <li>The canister system was tested on February 20 during hour 18. No issue was identified.</li> </ul>	
Relative Humidity (RH)	RM Young / 43172VC	61012322
	<ul style="list-style-type: none"> <li>The RH sensor was checked on February 20. The check result was within the acceptable range: measured reading 58.3%, reference reading 59.7%.</li> </ul>	
Barometric Pressure (BP)	MetOne / 090D	F3845
	<ul style="list-style-type: none"> <li>The BP sensor was checked on February 20. The check result was within the acceptable range: measured reading 948.1mb, reference reading 949.5mb.</li> </ul>	
Ambient Temperature (AT)	RM Young 43172VC	61012322
	<ul style="list-style-type: none"> <li>The AT sensor was checked on February 20. The check result was within the acceptable range: measured reading -12.3°C, reference reading -12.4°C.</li> </ul>	
Station Temperature (ST)	Maxxam	N/A
	<ul style="list-style-type: none"> <li>No issue was identified this month.</li> </ul>	

Parameter	Make / Model	Serial Number	
Wind Speed/Wind Direction (WS/ WD)	RM Young / 5305VK	129612	
<ul style="list-style-type: none"> <li>Wind direction data contained in this report represents where the wind is coming from.</li> <li>The wind sensor was checked on February 20. The check result was within the acceptable range.</li> </ul>			

## Monitored Data Summary

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	8	February 5 at hour 17	1.1	WSW	0.9	February 4	99.9	95.1
TRS (ppb)	10	3	-	-	-	-	0.1	0.00	0.84	February 6 at hour 9	2.9	ESE	0.279	February 1	99.9	94.8
THC (ppm)	-	-	-	-	-	-	2.11	1.99	2.78	February 14 at hour 6	2.2	E	2.33	February 1	99.9	94.8
CH4 (ppm)	-	-	-	-	-	-	2.11	1.99	2.69	February 14 at hour 6	2.2	E	2.31	February 1	99.9	94.8
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.09	February 14 at hour 6	2.2	E	0.02	February 1	99.9	94.8
RH (%)	-	-	-	-	-	-	64.3	38	95	February 19 at hour 20	1.9	S	81.5	February 6	100.0	100.0
BP (millibar)	-	-	-	-	-	-	949	930	974	February 9 at hour 0	2	ESE	965	February 19	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-22.2	-41.0	-1.3	February 27 at hour 16	11.5	WNW	-6.0	February 4	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	20.7	20.0	21.6	February 27 at hour 10	14.4	NW	20.9	February 18	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	0.5	0.2	19.0	February 21 at hour 12	19	S	10.4	February 6	100.0	100.0
WVD (sector)	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	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 for the y was within the AAAQOs for all monitored parameters.

## 842 Station

### Equipment Operation Summary

Parameter	Make / Model	Serial Number	
SO2	Thermo / 43i	835033373	
	<ul style="list-style-type: none"><li>Following a successful shut-down calibration performed on February 7, the sample pump was replaced. A post-repair calibration was performed following the pump replacement.</li><li>The analyzer was found with a blank display on February 21 while data logger values appeared acceptable. Troubleshooting was performed by cycling the analyzer power on February 21. Data collected between 18:09 and 18:13 were discarded, and hourly data for hour 18 was re-averaged.</li></ul>		
TRS	Thermo / 43i-TLE	1162460023	
	<ul style="list-style-type: none"><li>A successful monthly calibration was performed on February 7.</li></ul>		
THC/CH4/NMHC	Thermo / 55i	1505664392	
	<ul style="list-style-type: none"><li>Following a successful shut-down calibration performed on February 7, the sample pump was rebuilt. A post-repair calibration was performed following the pump- rebuild. A flow rate check was performed after the as found high point check on February 7.</li><li>The analyzer failed the daily zero/span check between February 9 and February 12. Following a successful as found points check on February 12, the internal zero span system troubleshooting was performed. A repeat calibration was performed after the troubleshooting. 10 hours of downtime were recorded due to this event.</li><li>CH4 spikes were recorded throughout the month. The spike readings were discarded, and hourly data were re-averaged: February 7 at 00:41, February 8 at 23:59, February 9 at 01:49, February 23 at 05:21 and 07:28, and February 27 at 13:33.</li><li>The analyzer was put offline on February 22 during hour 9 to test the canister system. One hour of data was invalidated due to this event.</li></ul>		
Relative Humidity (RH)	Campbell Scientific / HMP45C	C2608	
	<ul style="list-style-type: none"><li>The hygrometer was checked on February 6. The result showed a difference of -21.0% while the RH tolerance is +/- 15%. As the RH sensor was successfully audited by AEP on January 16, it was concluded that the check result was influenced by poor weather conditions. Another check was performed on February 21, and the result was acceptable: measured reading 60.8%, reference reading 59.57%, difference -2.1%.</li></ul>		
Barometric Pressure (BP)	MetOne / 92	K12864	
	<ul style="list-style-type: none"><li>The BP sensor was checked on both February 6 and February 21. The sensor passed the check requirements.</li></ul>		
Station Temperature (ST)	Maxxam	N/A	
	<ul style="list-style-type: none"><li>No issue was identified this month.</li></ul>		

Parameter	Make / Model	Serial Number	
Ambient Temperature (AT)	Campbell Scientific / HMP45C	C2608	
<ul style="list-style-type: none"> <li>The temperature was checked on February 6. The result showed a difference of -1.6 °C while the acceptable range is +/-1 °C. As the temperature sensor was successfully audited by AEP on January 16, it was concluded that the check result was influenced by poor weather condition. Another check was performed on February 21, and the result was acceptable: measured reading -8.3 °C, reference reading -8.7 °C, difference -0.4 °C.</li> </ul>			
Wind Speed/Wind Direction (WS/ WD)	RM Young / 5305VK	124638	
<ul style="list-style-type: none"> <li>Wind direction data contained in this report represents where the wind is coming from.</li> <li>The wind sensor was checked on February 20. The check result was within the acceptable range.</li> </ul>			

## Monitored Data Summary

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.2	0	2	February 12 at hour 12	9.4	WSW	0.8	February 1	100.0	94.8
TRS (ppb)	10	3	-	-	-	-	0.3	0.10	0.65	February 14 at hour 2	3.2	ENE	0.415	February 2	100.0	94.8
THC (ppm)	-	-	-	-	-	-	2.05	1.93	2.80	February 12 at hour 3	1.5	E	2.26	February 8	98.4	93.3
CH4 (ppm)	-	-	-	-	-	-	2.05	1.93	2.80	February 12 at hour 3	1.5	E	2.26	February 8	98.4	93.3
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.00	February 1 at hour 0	8.2	N	0.00	February 1	98.4	93.3
RH (%)	-	-	-	-	-	-	70.6	39	92	February 19 at hour 18	4.8	SSW	81.8	February 28	100.0	100.0
BP (millibar)	-	-	-	-	-	-	950	931	971	February 8 at hour 22	0.9	E	965	February 19	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-22.0	-39.8	-1.7	February 27 at hour 15	10.4	W	-7.0	February 3	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	21.9	20.0	22.2	February 7 at hour 10	5.6	WSW	22.1	February 22	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	0.7	0.2	20.6	February 21 at hour 12	20.6	SSE	14.7	February 11	100.0	100.0
WVD (sector)	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	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 for the y was within the AAAQOs for all monitored parameters.

## Reno Station

### Equipment Operation Summary

Parameter	Make / Model	Serial Number
SO2	API / 100A	841
	<ul style="list-style-type: none"> <li>A successful monthly calibration was performed on February 6.</li> </ul>	
TRS	Thermo / 43i-TLE	1162460022
	<ul style="list-style-type: none"> <li>A successful monthly calibration was performed on February 6.</li> </ul>	
THC/CH4/NMHC	Thermo / 55i	1314057759
	<ul style="list-style-type: none"> <li>A successful monthly calibration was performed on February 6.</li> <li>Four methane-triggered canisters were collected in February: concentration of 5.95 ppm on Feb 17 at 19:25, concentration of 5.50 ppm on Feb 20 at 22:05, concentration of 17.24 ppm on Feb 23 at 20:15, and concentration of 11.33 ppm on Feb 24 at 19:35.</li> </ul>	
Relative Humidity (RH)	RM Young / 43172VC	60837897
	<ul style="list-style-type: none"> <li>The hygrometer was checked on February 6. The sensor passed the check requirements.</li> </ul>	
Barometric Pressure (BP)	MetOne / 92	R12877
	<ul style="list-style-type: none"> <li>The hygrometer was checked on February 6. The sensor passed the check requirements.</li> </ul>	
Ambient Temperature (AT)	RM Young / 43172VC	60837897
	<ul style="list-style-type: none"> <li>The temperature was checked on February 6. The result showed a difference of 1.5 °C while the acceptable range is +/- 1 °C. As the temperature sensor was successfully audited by AEP on January 15, it was concluded that the check result was influenced by poor weather conditions. The probe is scheduled to be checked during the monthly visit in March.</li> </ul>	
Station Temperature (ST)	Maxxam	N/A
	<ul style="list-style-type: none"> <li>No issue was identified this month.</li> </ul>	
Wind Speed/Wind Direction (WS/ WD)	RM Young / 5305VK	149769
	<ul style="list-style-type: none"> <li>Wind direction data contained in this report represents where the wind is coming from.</li> <li>Wind speed reading is deemed invalid if 1-minute data is recorded as 0.0kph as it is considered a freeze sensor. The minute data were discarded, and hourly data were re-averaged. Hourly data was discarded if less than 75% of valid minute data in an hour was recorded. 31 hours of data were invalidated due to this event. The wind direction data with the corresponding period were also considered invalid and were discarded.</li> </ul>	

## Monitored Data Summary

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	February 6 at hour 11	4.8	S	0.6	February 1	100.0	94.9
TRS (ppb)	10	3	-	-	-	-	0.4	0.23	3.57	February 10 at hour 22	1.2	SSW	0.717	February 1	100.0	94.5
THC (ppm)	-	-	-	-	-	-	2.18	1.93	10.23	February 24 at hour 21	1.5	SW	3.19	February 1	100.0	94.8
CH4 (ppm)	-	-	-	-	-	-	2.18	1.93	10.18	February 24 at hour 21	1.5	SW	3.19	February 1	100.0	94.8
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.05	February 24 at hour 21	1.5	SW	0.00	February 1	100.0	94.8
RH (%)	-	-	-	-	-	-	61.3	43	87	February 19 at hour 21	5.3	WSW	76.6	February 4	100.0	100.0
BP (millibar)	-	-	-	-	-	-	944	926	964	February 8 at hour 20	3.5	NNE	959	February 19	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-21.9	-38.1	-3.4	February 27 at hour 16	8.5	WSW	-7.5	February 3	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	22.4	18.3	23.2	February 6 at hour 1	-	-	22.7	February 6	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	0.9	0.8	18.1	February 28 at hour 19	18.1	NNE	9.7	February 24	95.4	95.4
WVD (sector)	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	95.4	95.4

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 for the y was within the AAAQOs for all monitored parameters.

## **TABLES, CHARTS, WIND ROSES AND EQUIPMENT CALIBRATION RECORDS**

# **986 STATION**



## PEACE RIVER AREA MONITORING PROGRAM

**986b Station - February 2019**

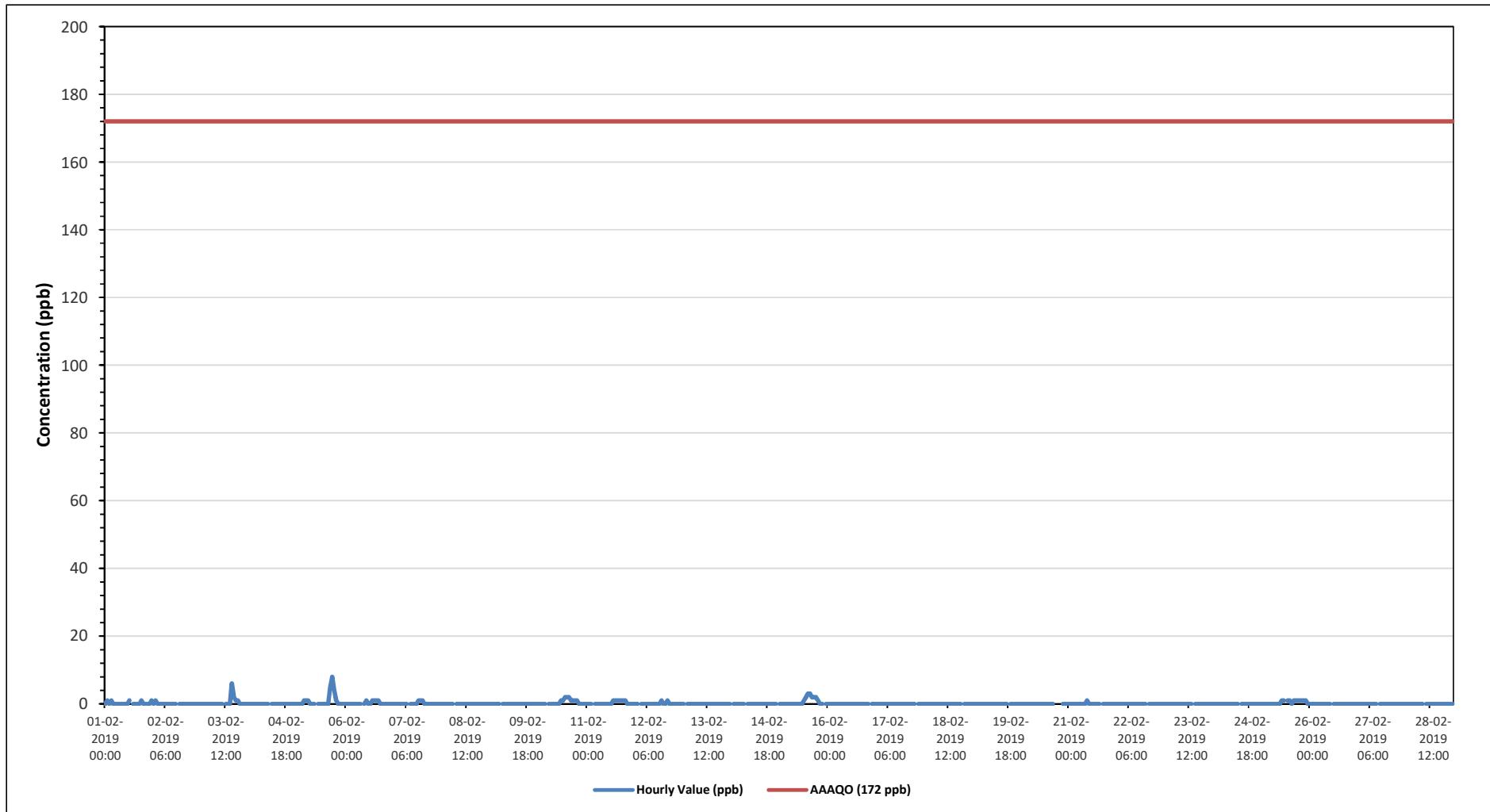
**Summary of Hourly Averages**

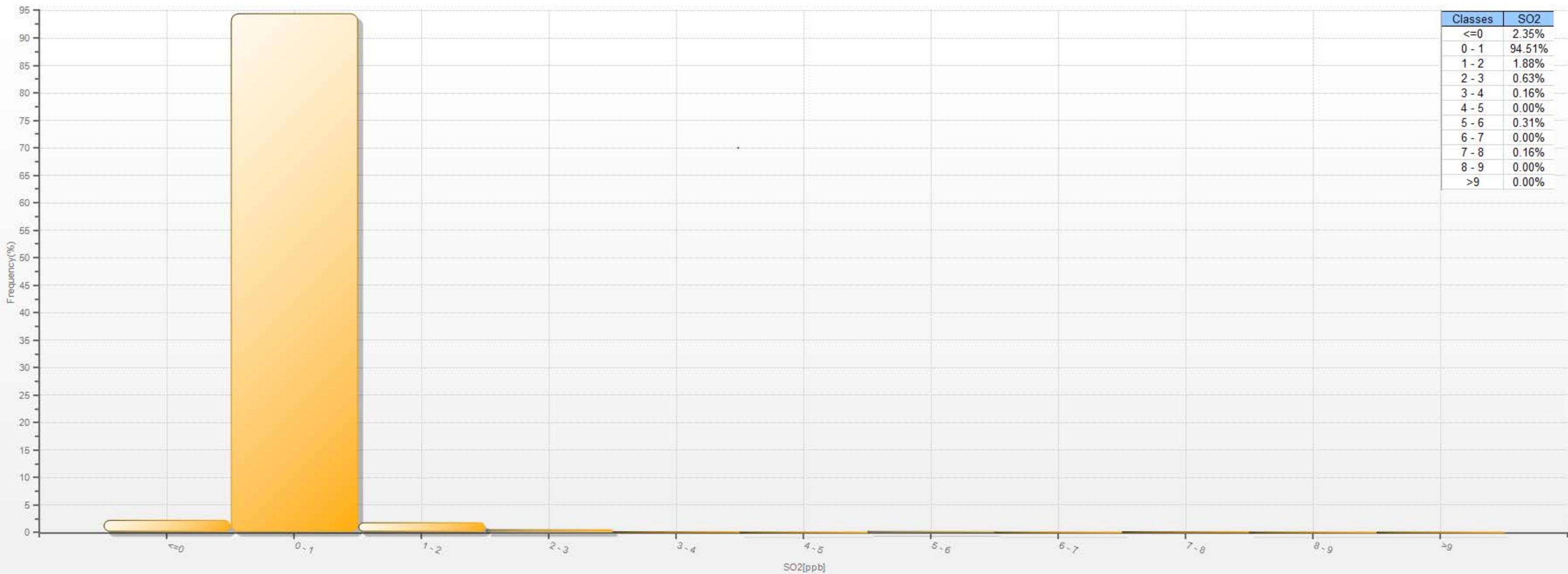
**SULPHUR DIOXIDE (SO<sub>2</sub>) in ppb**

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																																	
Number of 1-Hour Exceedences:		0	Number of 24-Hour Exceedences:		0	30-Day Exceedence:		0																									
Maximum Hourly Value:		8	ppb on February 5 at hour 17																									Hours in Service:	672				
Maximum Daily Value:		0.9	ppb on February 5																									Hours of Data:	639				
Minimum Hourly Value:		0	ppb on February 1 at hour 0																									Hours of Missing Data:	1				
Minimum Daily Value:		0.0	ppb on February 4																									Hours of Calibration:	32				
Monthly Average:		0.1	ppb																									Operational Uptime:	99.9				
Day	Hourly Period Starting at (MST)																										Daily Minimum	Daily Maximum	Daily Average				
Feb 1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2
Feb 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
Feb 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	0.4
Feb 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
Feb 5	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9
Feb 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	0.2
Feb 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	0.1
Feb 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Feb 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Feb 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	1	1	1	1	0	0	0	0	0	0	0	0.5
Feb 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0.3
Feb 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	0.1
Feb 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
Feb 14	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Feb 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	3	2	2	2	1	0	0	0	0	0	0	0	0.7
Feb 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
Feb 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
Feb 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
Feb 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
Feb 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
Feb 21	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Feb 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
Feb 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Feb 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Feb 25	0	0	0	0	0	0	0	0	0	1	1	S	1	1	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0.5
Feb 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Feb 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
Feb 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	0	0	0	0	0.0
Diurnal Maximum	0	1	0	1	1	1	0	0	0	1	1	1	1	2	3	6	5	8	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Diurnal Average	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.3	0.5	0.5	0.5	0.5	0.4	0.2	0.0	0.0	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.

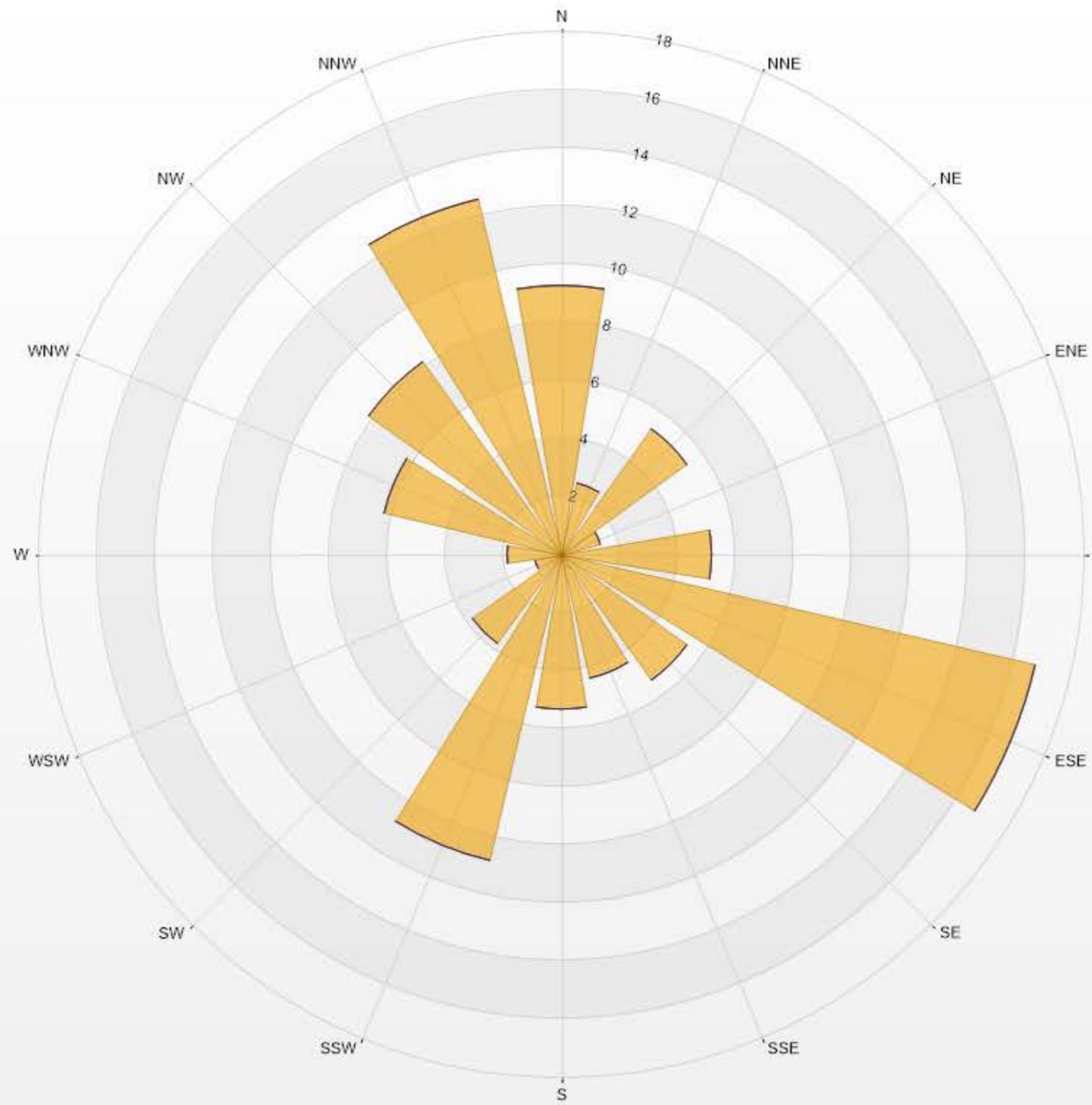
### *Timeseries Chart of Hourly Average for SO<sub>2</sub> - 986b Station*





Wind: PRAMP 986 Poll.: PRAMP 986-SO2[ppb] Monthly: 02-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
Calm: 0.00% Valid Data: 94.79% Calm Avg: 0.00 [ppb]

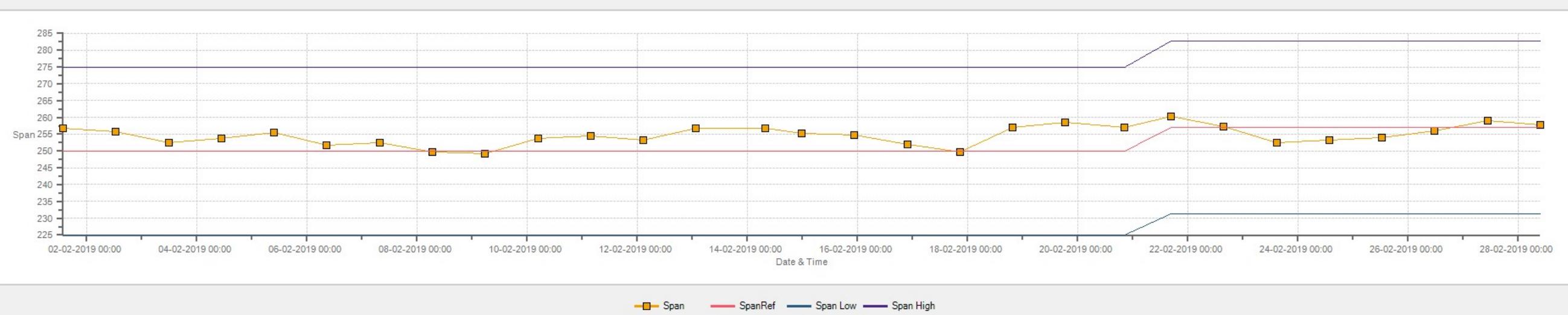
Direction	10-50	50-100	100-172	>172.0	Total
N	9.26	0	0	0	9.26
NNE	2.51	0	0	0	2.51
NE	5.34	0	0	0	5.34
ENE	1.41	0	0	0	1.41
E	5.18	0	0	0	5.18
ESE	16.8	0	0	0	16.8
SE	5.34	0	0	0	5.34
SSE	4.4	0	0	0	4.4
S	5.34	0	0	0	5.34
SSW	10.83	0	0	0	10.83
SW	3.77	0	0	0	3.77
WSW	0.94	0	0	0	0.94
W	1.88	0	0	0	1.88
WNW	6.28	0	0	0	6.28
NW	8.16	0	0	0	8.16
NNW	12.56	0	0	0	12.56
Summary	100	0	0	0	100



Zero



Span





## PEACE RIVER AREA MONITORING PROGRAM

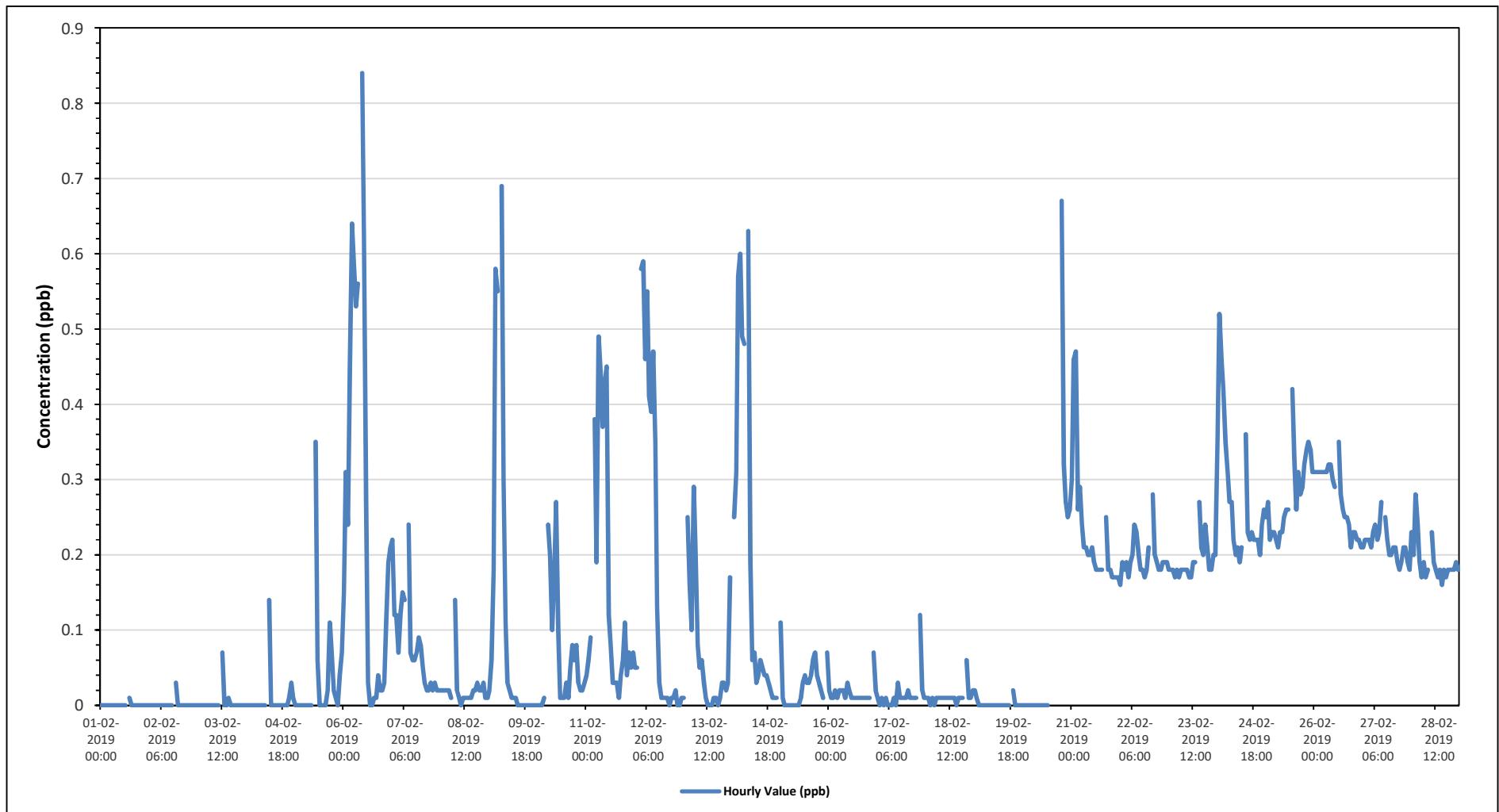
**986b Station - February 2019**  
**Summary of Hourly Averages**

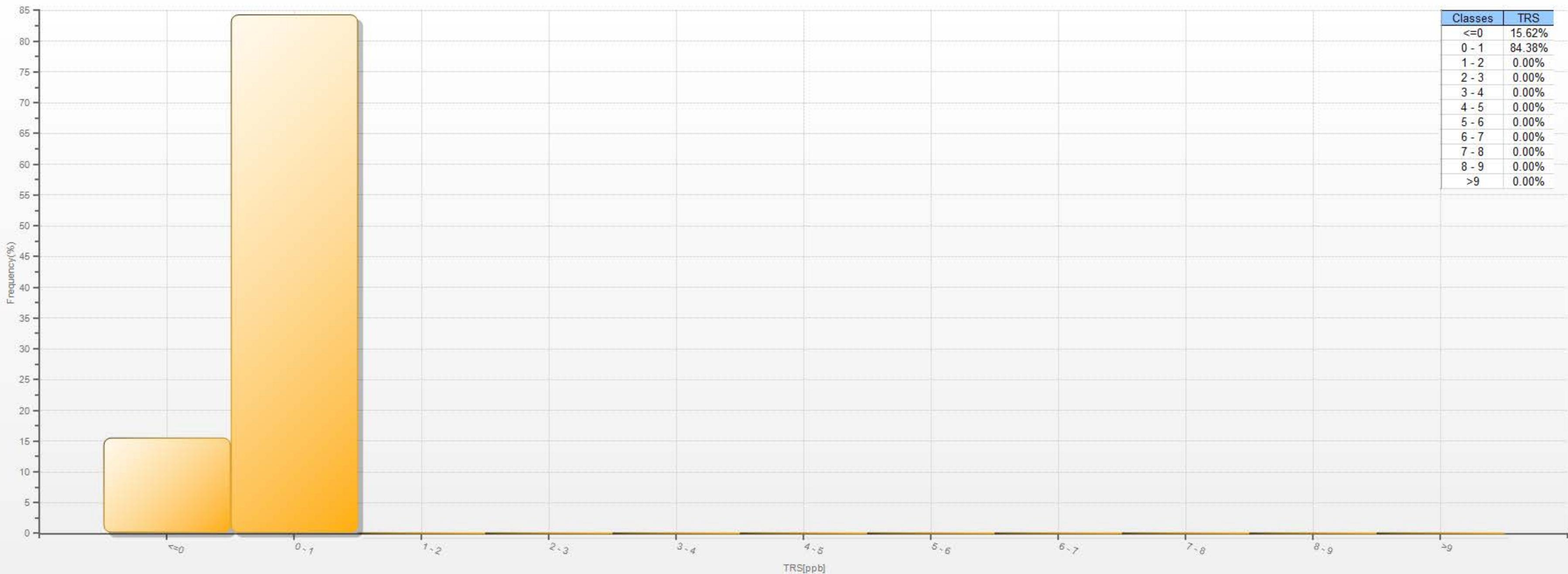
### TOTAL REDUCED SULPHUR (TRS) in ppb

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:												Hours in Service:												672					
Maximum Daily Value:												Hours of Data:												637					
Minimum Hourly Value:												Hours of Missing Data:												1					
Minimum Daily Value:												Hours of Calibration:												34					
Monthly Average:												Operational Uptime:												99.9					
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Minimum	Daily Maximum	Daily Average		
Feb 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	S	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	
Feb 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	S	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	0.03	0.00	
Feb 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.07	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00		
Feb 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.01	0.00	0.14	0.01		
Feb 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.35	0.06	0.00	0.00	0.00	0.00	0.02	0.11	0.07	0.02	0.01	0.00	0.04	0.07	0.00	0.35	0.03		
Feb 6	0.15	0.31	0.24	0.45	0.64	0.59	0.53	0.56	S	0.84	0.62	0.27	0.03	0.00	0.00	0.01	0.01	0.04	0.02	0.02	0.03	0.11	0.19	0.21	0.00	0.84	0.26		
Feb 7	0.22	0.12	0.12	0.07	0.12	0.15	0.14	S	0.24	0.07	0.06	0.07	0.09	0.08	0.05	0.03	0.02	0.02	0.03	0.02	0.03	0.02	0.02	0.02	0.24	0.08			
Feb 8	0.02	0.02	0.02	0.02	0.02	0.01	S	0.14	0.02	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.02	0.03	0.01	0.01	0.00	0.14	0.02			
Feb 9	0.02	0.06	0.18	0.58	0.55	S	0.69	0.30	0.11	0.03	0.02	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	0.69	0.11		
Feb 10	0.00	0.00	0.00	0.01	S	0.24	0.20	0.10	0.18	0.27	0.10	0.01	0.01	0.03	0.01	0.05	0.08	0.06	0.08	0.03	0.02	0.02	0.03	0.00	0.27	0.07			
Feb 11	0.04	0.06	0.09	S	0.38	0.19	0.49	0.44	0.37	0.43	0.45	0.12	0.08	0.03	0.03	0.01	0.04	0.06	0.11	0.04	0.07	0.05	0.07	0.01	0.49	0.16			
Feb 12	0.05	0.05	S	0.58	0.59	0.46	0.55	0.41	0.39	0.47	0.35	0.13	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.00	0.00	0.01	0.00	0.59	0.18		
Feb 13	0.01	S	0.25	0.16	0.10	0.29	0.20	0.08	0.05	0.06	0.03	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.03	0.03	0.02	0.03	0.17	0.00	0.29	0.07			
Feb 14	S	0.25	0.31	0.57	0.60	0.49	0.48	S1	0.63	0.19	0.06	0.07	0.03	0.04	0.06	0.05	0.04	0.04	0.03	0.02	0.01	0.01	0.01	S	0.01	0.63	0.19		
Feb 15	0.11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.04	0.03	0.03	0.04	0.06	0.07	0.04	0.03	0.02	0.01	S	0.07	0.00	0.11	0.03		
Feb 16	0.02	0.01	0.01	0.02	0.01	0.02	0.02	0.01	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	S	0.07	0.02	0.01	0.07	0.02		
Feb 17	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.03	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	S	0.12	0.02	0.01	0.00	0.12	0.01		
Feb 18	0.01	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.01	S	0.06	0.01	0.01	0.02	0.00	0.06	0.01		
Feb 19	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	C	C	C	C	C	S	0.02	0.00	0.00	0.00	0.00	0.02	0.00		
Feb 20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	C	C	C	C	C	S	0.67	0.32	0.27	0.25	0.26	0.00	0.67	0.10	
Feb 21	0.30	0.46	0.47	0.26	0.29	0.24	0.21	0.21	0.20	0.20	0.21	0.19	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.17	0.17	0.17	0.17	0.17	0.47	0.23			
Feb 22	0.16	0.19	0.18	0.19	0.17	0.19	0.20	0.24	0.23	0.20	0.18	0.18	0.17	0.18	0.21	S	0.28	0.20	0.19	0.18	0.18	0.19	0.19	0.19	0.16	0.28	0.19		
Feb 23	0.18	0.18	0.17	0.18	0.17	0.18	0.18	0.18	0.17	0.17	0.19	0.19	0.19	S	0.27	0.21	0.20	0.24	0.21	0.18	0.18	0.20	0.20	0.17	0.27	0.19			
Feb 24	0.35	0.52	0.46	0.42	0.35	0.31	0.27	0.27	0.22	0.20	0.21	0.19	0.21	S	0.36	0.23	0.22	0.23	0.22	0.22	0.20	0.24	0.26	0.19	0.52	0.28			
Feb 25	0.25	0.27	0.22	0.23	0.23	0.22	0.21	0.23	0.23	0.25	0.26	0.26	0.26	S	0.42	0.33	0.26	0.31	0.28	0.29	0.32	0.34	0.35	0.34	0.31	0.21	0.42	0.28	
Feb 26	0.31	0.31	0.31	0.31	0.31	0.31	0.32	0.32	0.30	0.29	S	0.35	0.28	0.26	0.25	0.25	0.24	0.21	0.23	0.23	0.22	0.22	0.22	0.21	0.21	0.35	0.28		
Feb 27	0.21	0.22	0.22	0.21	0.23	0.24	0.22	0.23	0.27	S	0.25	0.22	0.20	0.20	0.21	0.19	0.18	0.19	0.18	0.21	0.21	0.19	0.18	0.18	0.27	0.21			
Feb 28	0.23	0.20	0.28	0.24	0.19	0.17	0.19	0.17	0.18	S	0.23	0.19	0.18	0.17	0.18	0.16	0.18	0.17	0.18	0.18	0.19	0.18	0.16	0.28	0.19				
Diurnal Maximum	0	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0			
Diurnal Average	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	S	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	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 TRS - 986b Station*

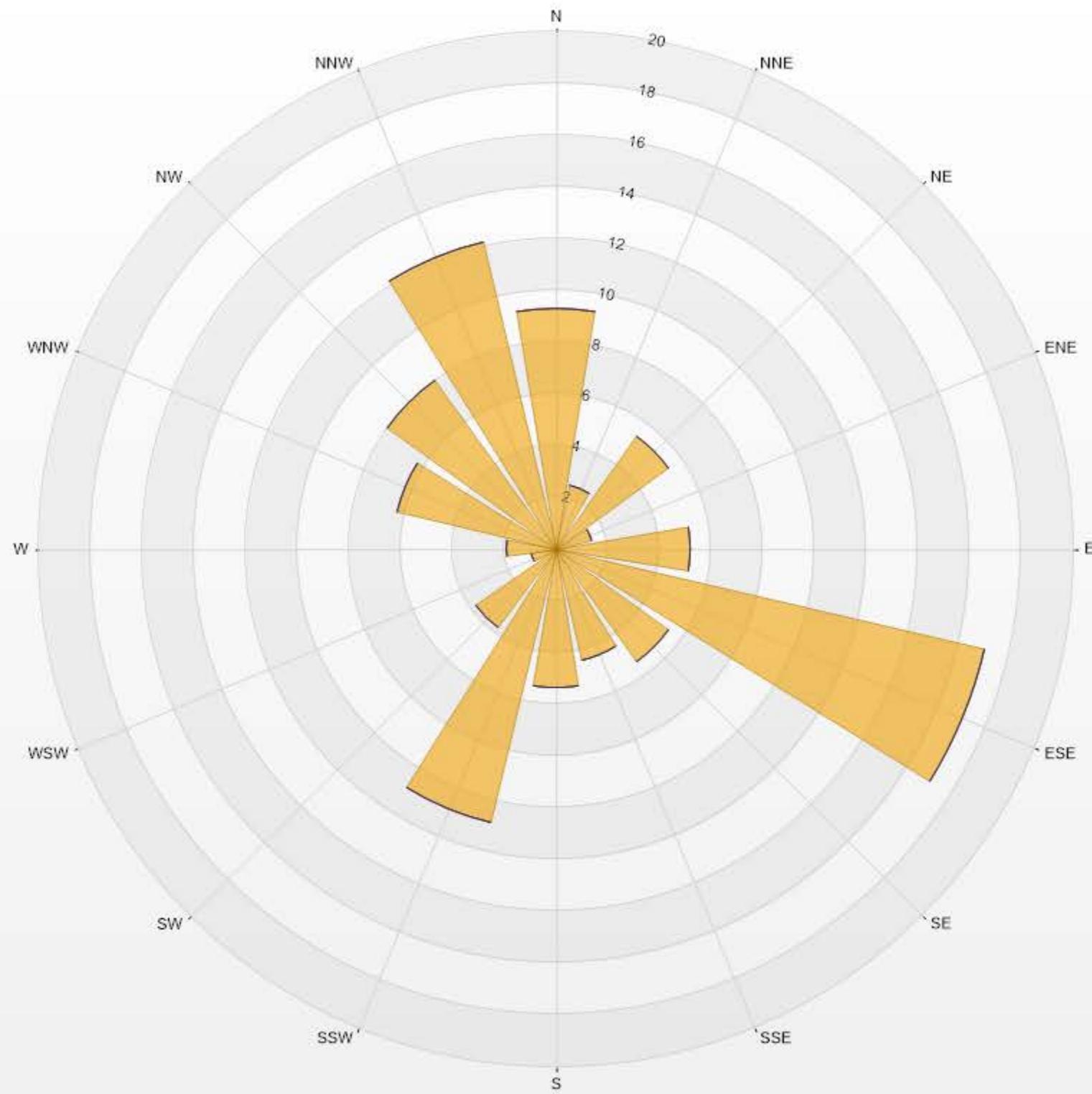




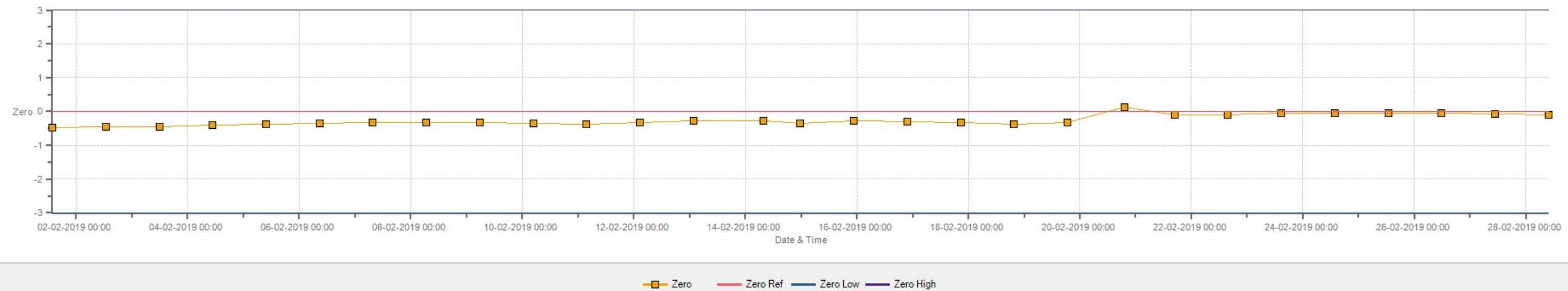
Wind: PRAMP 986 Poll.: PRAMP 986-TRS[ppb] Monthly: 02-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.

Calm: 0.00% Valid Data: 94.35% Calm Avg: 0.00 [ppb]

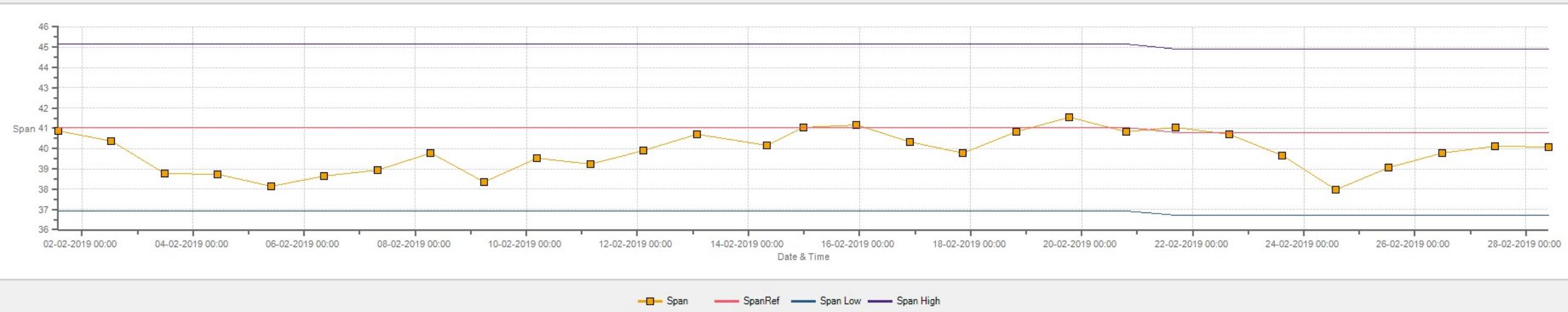
Direction	2-5	5-10	10-50	>50.0	Total
N	9.31	0	0	0	9.31
NNE	2.52	0	0	0	2.52
NE	5.36	0	0	0	5.36
ENE	1.42	0	0	0	1.42
E	5.21	0	0	0	5.21
ESE	17.03	0	0	0	17.03
SE	5.36	0	0	0	5.36
SSE	4.42	0	0	0	4.42
S	5.36	0	0	0	5.36
SSW	10.88	0	0	0	10.88
SW	3.79	0	0	0	3.79
WSW	0.95	0	0	0	0.95
W	1.89	0	0	0	1.89
WNW	6.31	0	0	0	6.31
NW	8.04	0	0	0	8.04
NNW	12.15	0	0	0	12.15
Summary	100	0	0	0	100



Zero



Span





## PEACE RIVER AREA MONITORING PROGRAM

**986b Station - February 2019**

### Summary of Hourly Averages

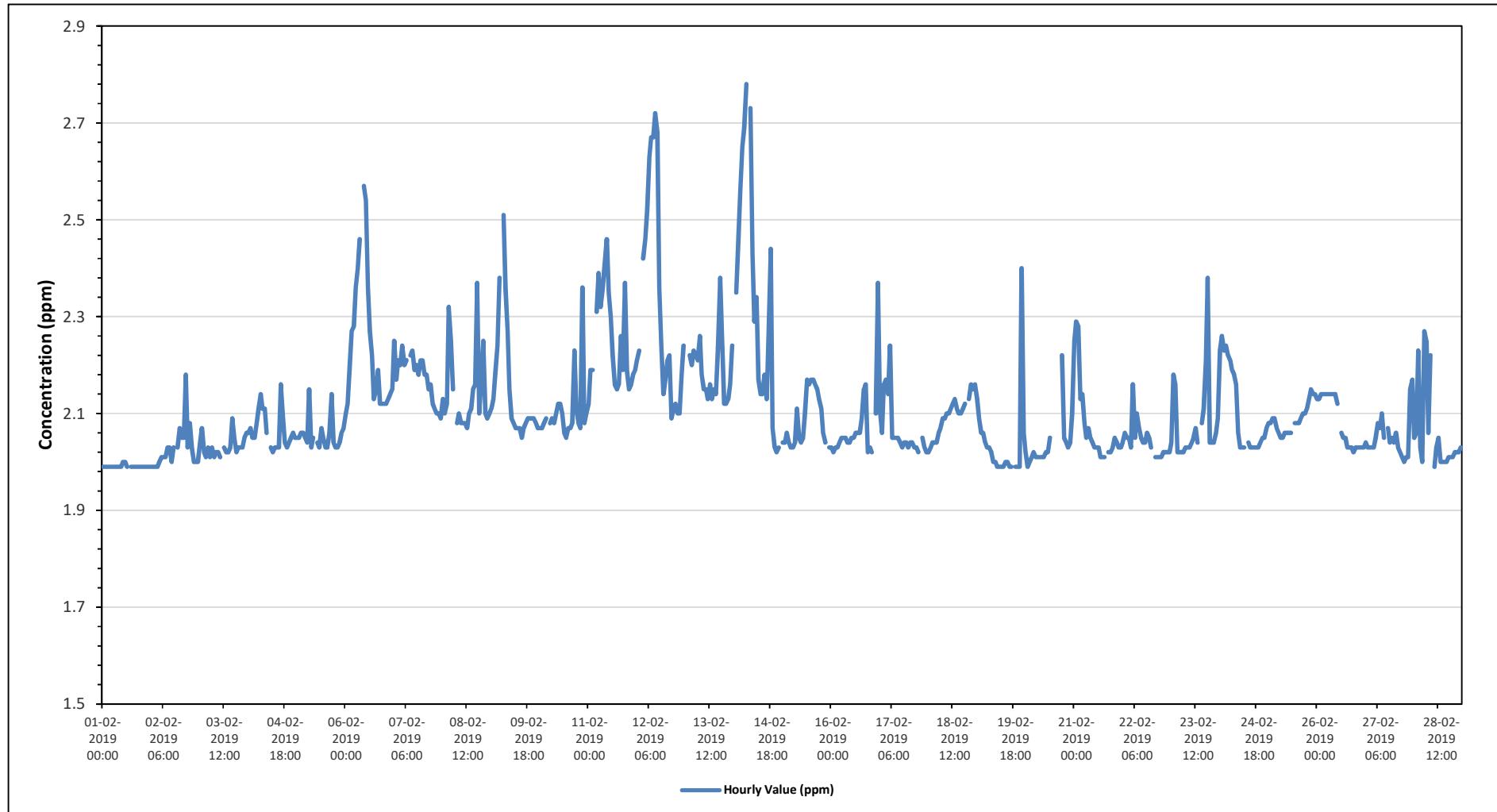
#### TOTAL HYDROCARBONS (THC) in ppm

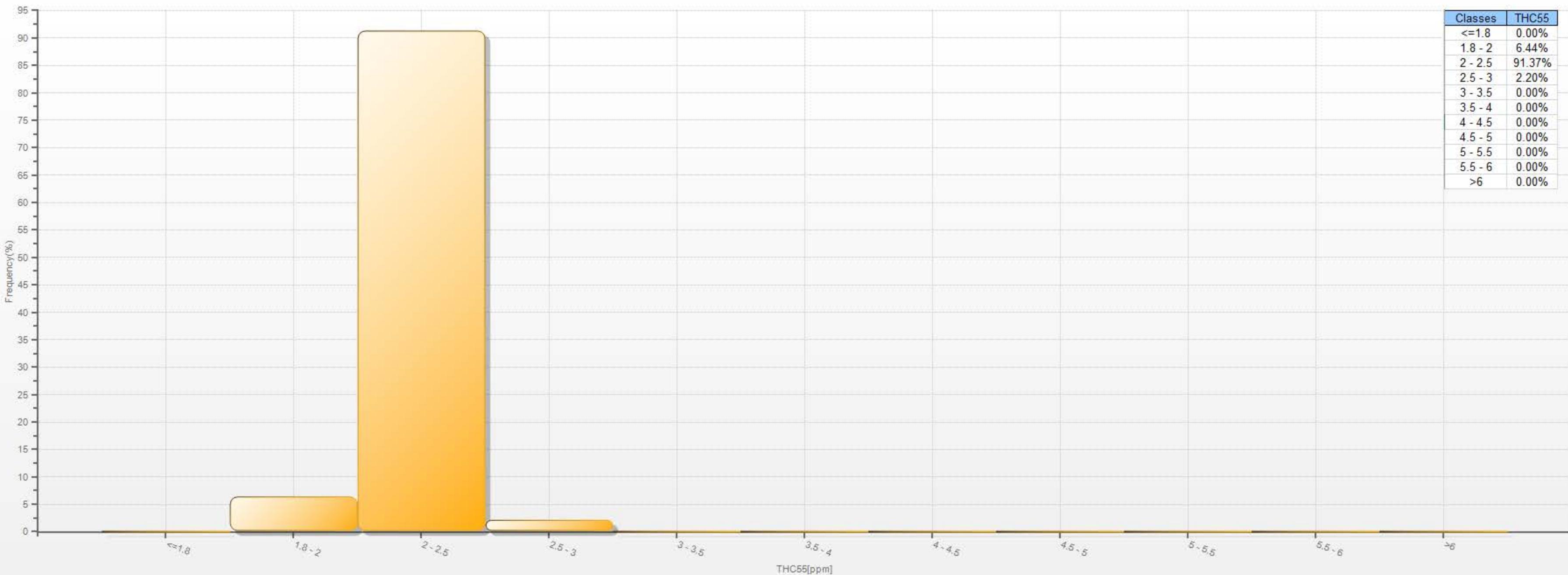
Maximum Hourly Value:	2.78	ppm on February 14 at hour 6	Hours in Service:	672	Daily Minimum	Daily Maximum	Daily Average																						
Maximum Daily Value:	2.33	ppm on February 14	Hours of Data:	637																									
Minimum Hourly Value:	1.99	ppm on February 1 at hour 0	Hours of Missing Data:	1																									
Minimum Daily Value:	1.99	ppm on February 1	Hours of Calibration:	34																									
Monthly Average:	2.11	ppm	Operational Uptime:	99.9																									
Day	Hourly Period Starting at (MST)																												
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
Feb 1	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.00	1.99	S	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	
Feb 2	1.99	1.99	1.99	1.99	2.00	2.01	2.01	2.01	2.03	2.00	2.03	S	2.03	2.07	2.05	2.05	2.18	2.03	2.08	2.03	2.00	2.00	2.00	1.99	2.18	2.03	2.03		
Feb 3	2.04	2.07	2.02	2.01	2.03	2.01	2.03	2.01	2.02	2.01	2.01	S	2.03	2.02	2.02	2.03	2.09	2.05	2.02	2.03	2.03	2.03	2.03	2.05	2.06	2.01	2.09	2.03	
Feb 4	2.06	2.07	2.05	2.05	2.08	2.11	2.14	2.11	2.11	2.06	S	2.03	2.03	2.02	2.03	2.03	2.16	2.09	2.04	2.03	2.04	2.05	2.06	2.05	2.02	2.16	2.07		
Feb 5	2.05	2.05	2.06	2.06	2.05	2.04	2.15	2.03	2.05	S	2.04	2.03	2.07	2.05	2.03	2.03	2.06	2.14	2.04	2.03	2.03	2.04	2.06	2.07	2.03	2.15	2.05		
Feb 6	2.10	2.12	2.20	2.27	2.28	2.36	2.40	2.46	S	2.57	2.54	2.36	2.27	2.22	2.13	2.15	2.19	2.12	2.12	2.12	2.13	2.14	2.15	2.10	2.57	2.24			
Feb 7	2.25	2.17	2.21	2.20	2.24	2.20	2.21	S	2.22	2.23	2.19	2.20	2.18	2.21	2.18	2.18	2.15	2.16	2.12	2.11	2.10	2.09	2.09	2.09	2.25	2.18			
Feb 8	2.13	2.10	2.12	2.32	2.25	2.15	S	2.08	2.10	2.08	2.08	2.07	2.10	2.11	2.15	2.16	2.37	2.10	2.17	2.25	2.10	2.09	2.10	2.07	2.37	2.14			
Feb 9	2.11	2.13	2.19	2.24	2.38	S	2.51	2.36	2.27	2.15	2.09	2.08	2.07	2.07	2.07	2.05	2.07	2.08	2.09	2.09	2.09	2.08	2.07	2.05	2.51	2.15			
Feb 10	2.07	2.07	2.08	2.09	S	2.08	2.09	2.08	2.10	2.12	2.12	2.10	2.06	2.05	2.07	2.07	2.08	2.23	2.11	2.08	2.07	2.36	2.08	2.10	2.05	2.36	2.10		
Feb 11	2.12	2.19	2.19	S	2.31	2.39	2.32	2.36	2.41	2.46	2.35	2.30	2.22	2.16	2.15	2.16	2.26	2.19	2.37	2.19	2.15	2.16	2.18	2.19	2.12	2.46	2.25		
Feb 12	2.21	2.23	S	2.42	2.46	2.52	2.63	2.67	2.67	2.72	2.68	2.36	2.24	2.14	2.17	2.21	2.22	2.09	2.11	2.12	2.10	2.18	2.24	2.09	2.72	2.33			
Feb 13	S	S	2.22	2.20	2.23	2.22	2.21	2.26	2.18	2.15	2.13	2.16	2.13	2.15	2.14	2.24	2.38	2.26	2.12	2.13	2.16	2.24	2.12	2.38	2.19				
Feb 14	S	2.35	2.46	2.56	2.65	2.69	2.78	S1	2.73	2.43	2.29	2.34	2.17	2.14	2.14	2.18	2.13	2.26	2.44	2.07	2.03	2.02	2.03	S	2.02	2.78	2.33		
Feb 15	2.04	2.04	2.06	2.04	2.03	2.03	2.04	2.11	2.05	2.04	2.05	2.10	2.17	2.16	2.17	2.17	2.16	2.15	2.13	2.11	2.06	2.04	S	2.03	2.03	2.17	2.09		
Feb 16	2.03	2.02	2.03	2.03	2.04	2.05	2.05	2.05	2.04	2.04	2.05	2.05	2.06	2.06	2.06	2.09	2.15	2.16	2.02	2.03	2.02	S	2.10	2.37	2.02	2.37	2.07		
Feb 17	2.11	2.06	2.16	2.17	2.14	2.24	2.05	2.05	2.05	2.04	2.03	2.04	2.04	2.03	2.04	2.04	2.03	2.02	2.02	2.02	S	2.05	2.03	2.02	2.24	2.07			
Feb 18	2.02	2.03	2.04	2.04	2.04	2.06	2.07	2.09	2.09	2.10	2.10	2.11	2.12	2.13	2.11	2.10	2.10	2.11	2.12	S	2.13	2.16	2.15	2.16	2.09				
Feb 19	2.13	2.09	2.06	2.06	2.04	2.03	2.03	2.02	2.00	2.00	1.99	1.99	1.99	2.00	2.00	1.99	1.99	1.99	S	2.19	2.40	2.06	1.99	2.40					
Feb 20	2.02	1.99	2.00	2.01	2.02	2.01	2.01	2.01	2.01	2.02	2.02	2.05	C	C	C	C	C	2.22	2.05	2.04	2.03	2.04	2.10	1.99	2.22	2.03			
Feb 21	2.25	2.29	2.28	2.13	2.14	2.08	2.05	2.07	2.05	2.04	2.03	2.03	2.03	2.01	2.01	2.01	S	2.02	2.02	2.03	2.05	2.04	2.03	2.01	2.29	2.07			
Feb 22	2.04	2.06	2.05	2.03	2.16	2.05	2.10	2.07	2.05	2.04	2.04	2.06	2.05	2.03	S	2.01	2.01	2.01	2.02	2.02	2.02	2.02	2.01	2.16	2.04				
Feb 23	2.04	2.18	2.16	2.02	2.02	2.02	2.03	2.03	2.03	2.04	2.05	2.07	2.04	S	2.08	2.11	2.21	2.38	2.04	2.04	2.06	2.09	2.02	2.38	2.08				
Feb 24	2.23	2.26	2.23	2.24	2.22	2.21	2.19	2.18	2.16	2.06	2.03	2.03	2.03	S	2.04	2.03	2.03	2.03	2.04	2.05	2.05	2.07	2.03	2.26	2.11				
Feb 25	2.08	2.08	2.09	2.09	2.07	2.06	2.05	2.05	2.06	2.06	2.06	2.06	2.06	S	2.08	2.08	2.09	2.10	2.10	2.11	2.13	2.15	2.14	2.14	2.05	2.09			
Feb 26	2.13	2.13	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.12	S	2.06	2.05	2.05	2.03	2.03	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.02	2.14	2.08		
Feb 27	2.04	2.03	2.03	2.03	2.03	2.05	2.08	2.07	2.10	2.05	S	2.07	2.04	2.05	2.04	2.06	2.03	2.02	2.01	2.01	2.01	2.15	2.17	2.00	2.17	2.05			
Feb 28	2.05	2.06	2.23	2.03	2.00	2.27	2.25	2.06	2.22	S	1.99	2.03	2.05	2.00	2.00	2.00	2.01	2.12	2.11	2.06	2.06	2.07	2.02	2.03	1.99	2.27	2.06		
Diurnal Maximum	2.25	2.35	2.46	2.56	2.65	2.69	2.78	2.67	2.73	2.72	2.68	2.36	2.27	2.22	2.21	2.21	2.26	2.38	2.44	2.19	2.25	2.36	2.40	2.37					
Diurnal Average	2.09	2.11	2.12	2.13	2.14	2.15	2.17	2.13	2.15	2.14	2.12	2.10	2.09	2.08	2.08	2.10	2.12	2.11	2.06	2.06	2.07	2.09	2.10						
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.

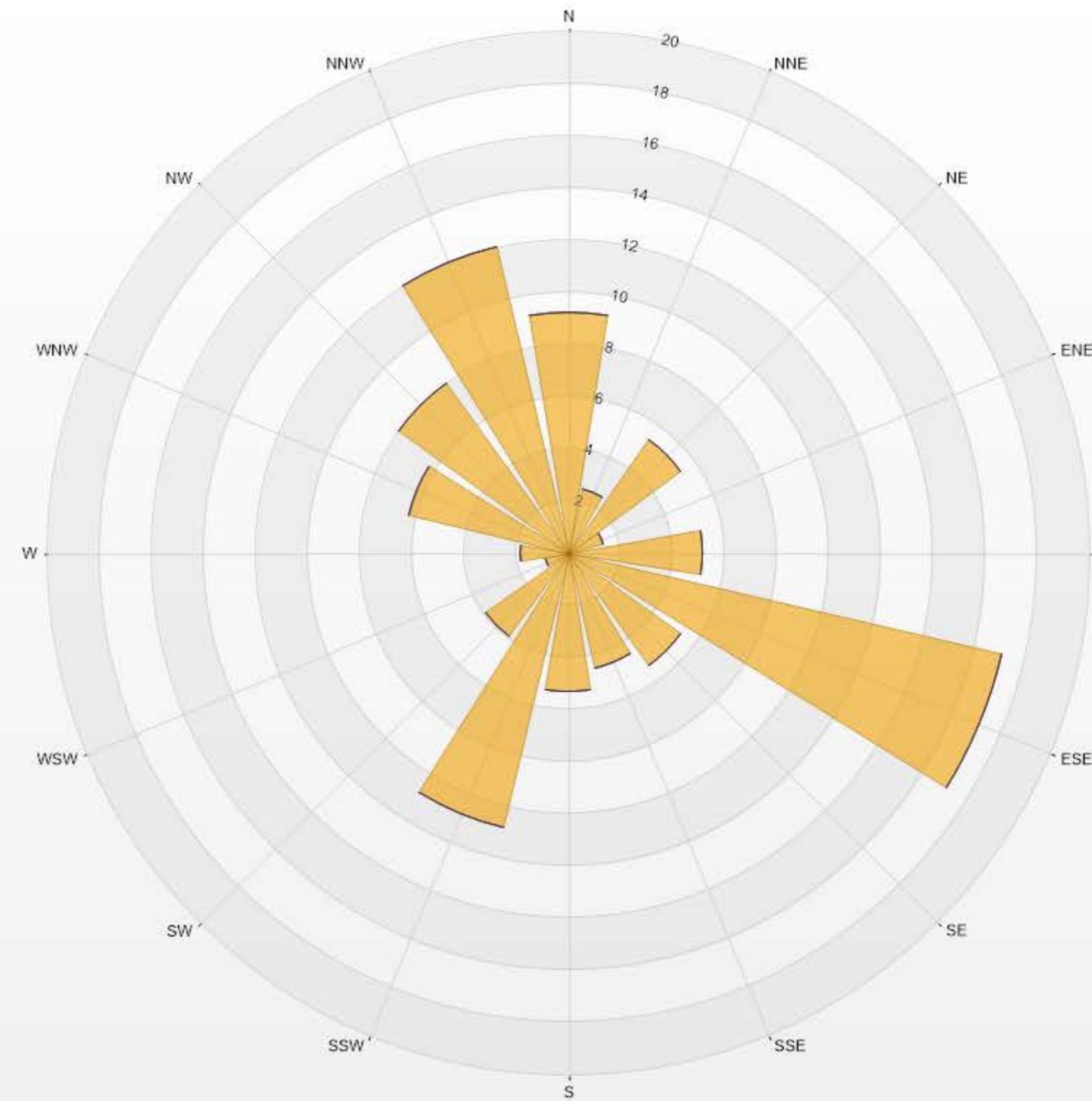
### Timeseries Chart of Hourly Average for THC - 986b Station



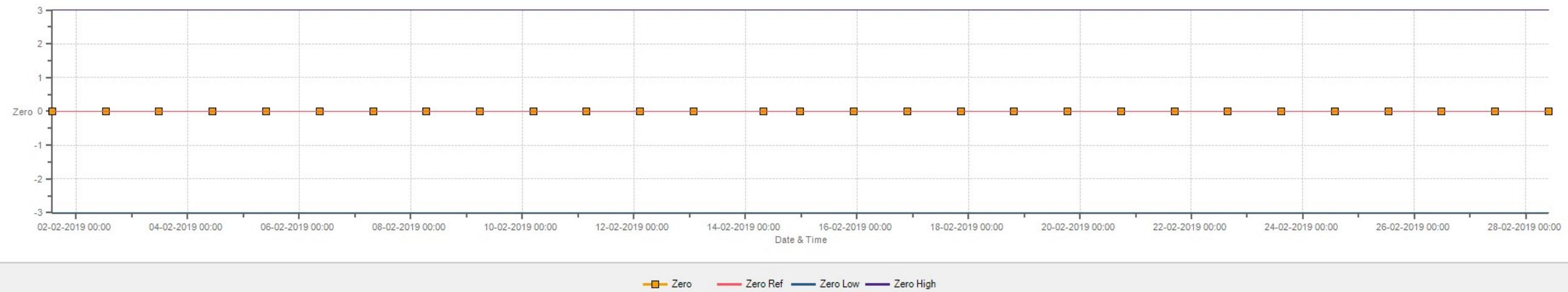


Wind: PRAMP 986 Poll.: PRAMP 986-THC55[ppm] Monthly: 02-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.79% Calm Avg: 0.00 [ppm]

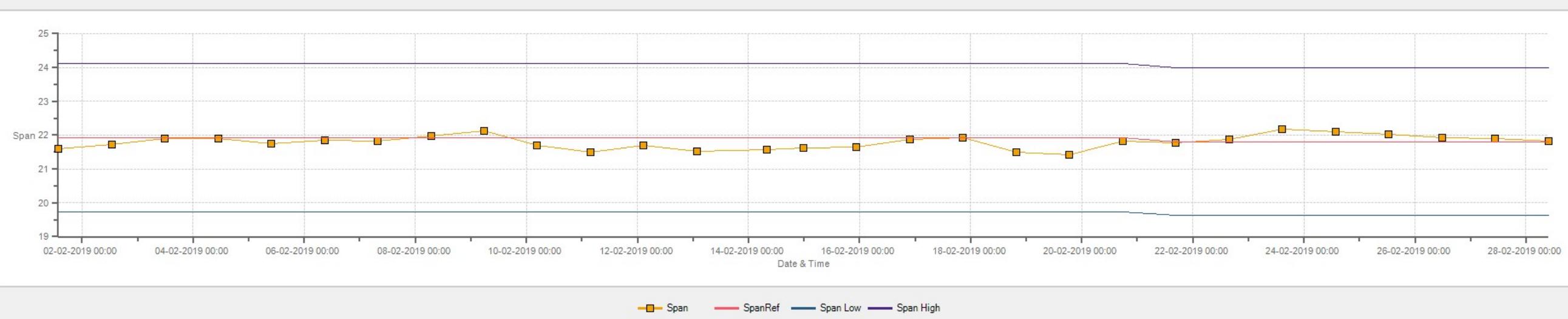
Direction	2-5	5-10	10-40	>40.0	Total
N	9.26	0	0	0	9.26
NNE	2.51	0	0	0	2.51
NE	5.34	0	0	0	5.34
ENE	1.41	0	0	0	1.41
E	5.18	0	0	0	5.18
ESE	17.11	0	0	0	17.11
SE	5.34	0	0	0	5.34
SSE	4.55	0	0	0	4.55
S	5.34	0	0	0	5.34
SSW	10.83	0	0	0	10.83
SW	3.92	0	0	0	3.92
WSW	0.94	0	0	0	0.94
W	1.88	0	0	0	1.88
WNW	6.28	0	0	0	6.28
NW	8.01	0	0	0	8.01
NNW	12.09	0	0	0	12.09
Summary	100	0	0	0	100



Zero



Span





## PEACE RIVER AREA MONITORING PROGRAM

**986b Station - February 2019**

### Summary of Hourly Averages

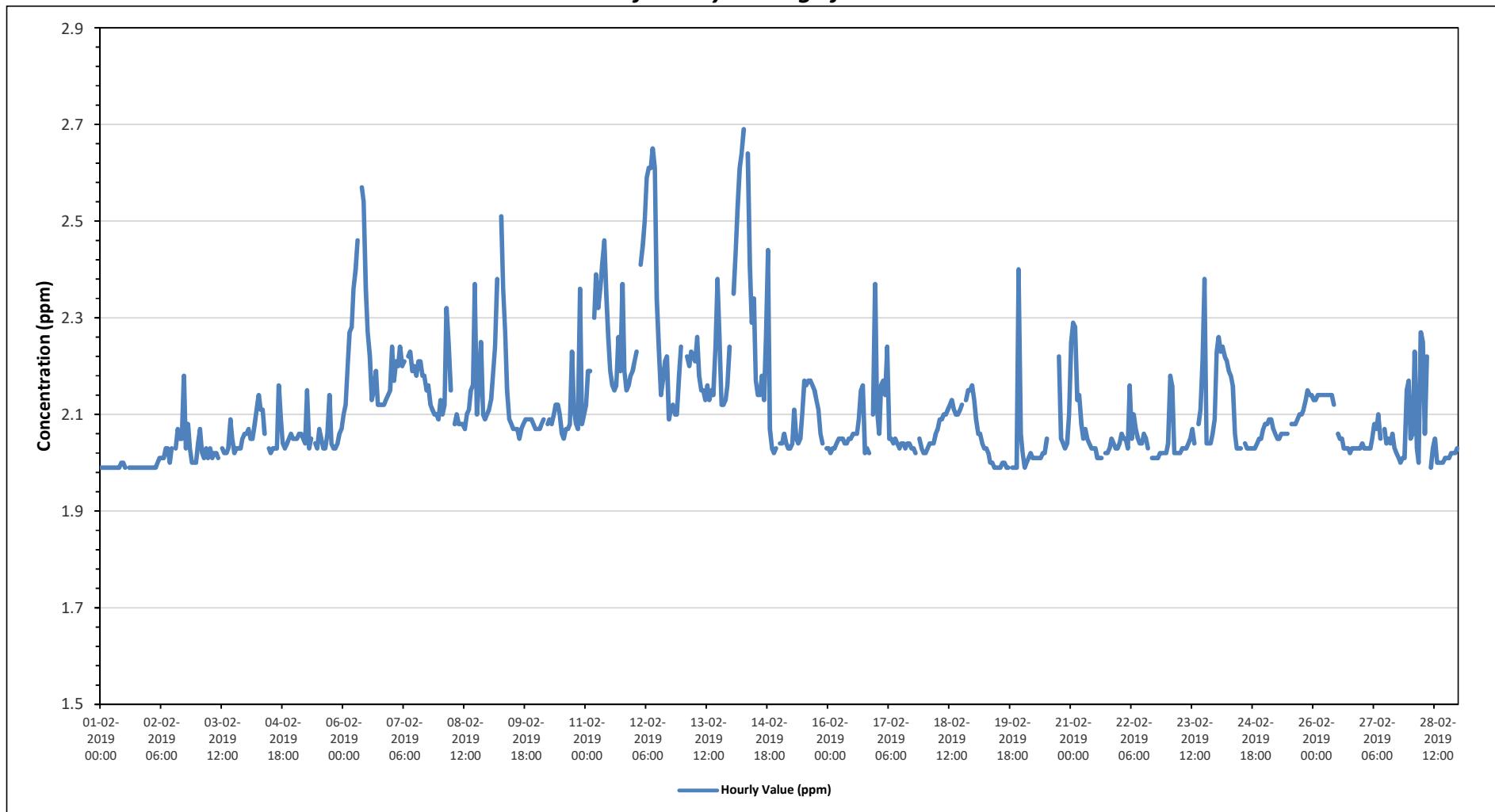
#### METHANE (CH<sub>4</sub>) in ppm

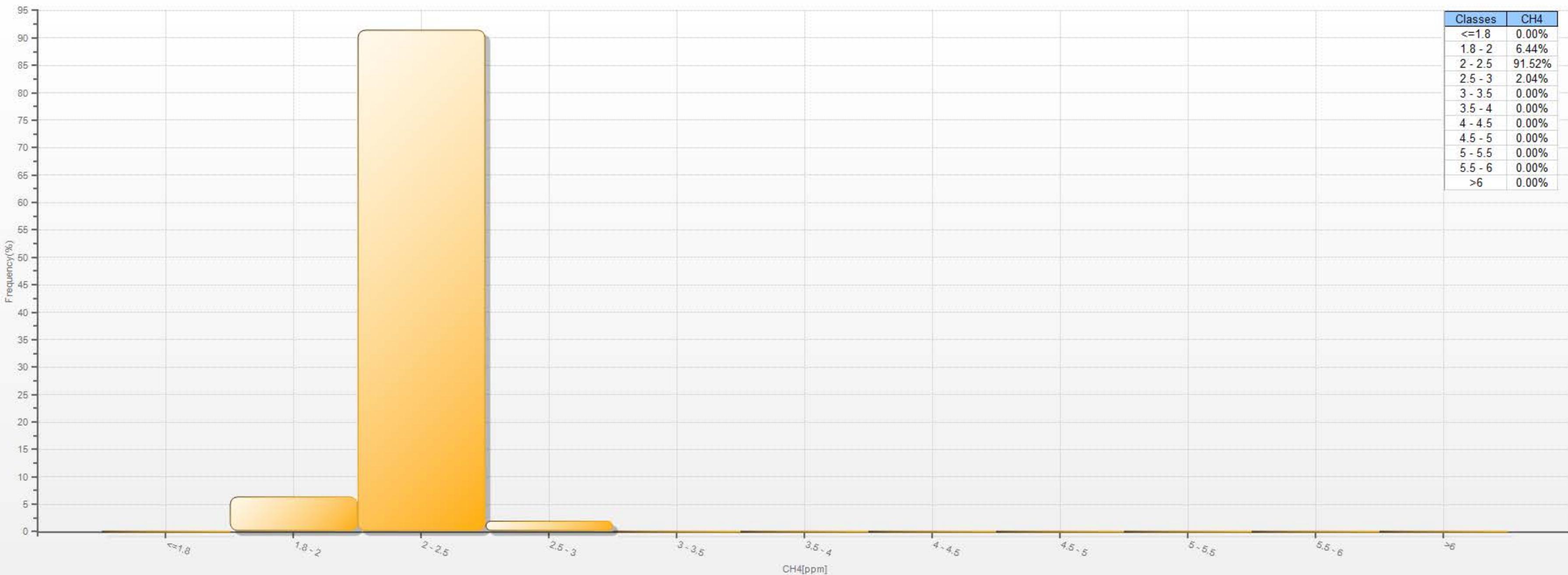
Maximum Hourly Value:	2.69 ppm on February 14 at hour 6	Hours in Service:	672	Daily Minimum	Daily Maximum	Daily Average																							
Maximum Daily Value:	2.31 ppm on February 14	Hours of Data:	637																										
Minimum Hourly Value:	1.99 ppm on February 1 at hour 0	Hours of Missing Data:	1																										
Minimum Daily Value:	1.99 ppm on February 1	Hours of Calibration:	34																										
Monthly Average:	2.11 ppm	Operational Uptime:	99.9																										
Day	Hourly Period Starting at (MST)																												
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
Feb 1	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.00	1.99	S	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99				
Feb 2	1.99	1.99	1.99	1.99	2.00	2.01	2.01	2.01	2.03	2.00	2.03	S	2.03	2.07	2.05	2.05	2.18	2.03	2.08	2.03	2.00	2.00	2.00	1.99	2.18	2.03			
Feb 3	2.04	2.07	2.02	2.01	2.03	2.01	2.03	2.01	2.02	2.01	2.01	S	2.03	2.02	2.02	2.03	2.09	2.05	2.02	2.03	2.03	2.03	2.05	2.06	2.01	2.09	2.03		
Feb 4	2.06	2.07	2.05	2.05	2.08	2.11	2.14	2.11	2.11	2.06	S	2.03	2.03	2.02	2.03	2.03	2.16	2.09	2.04	2.03	2.04	2.05	2.06	2.05	2.02	2.16	2.07		
Feb 5	2.05	2.05	2.06	2.06	2.05	2.04	2.15	2.03	2.05	S	2.04	2.03	2.07	2.05	2.03	2.03	2.06	2.14	2.04	2.03	2.03	2.04	2.06	2.07	2.03	2.15	2.05		
Feb 6	2.10	2.12	2.20	2.27	2.28	2.36	2.40	2.46	S	2.57	2.54	2.36	2.27	2.22	2.13	2.15	2.19	2.12	2.12	2.12	2.13	2.14	2.15	2.10	2.57	2.24			
Feb 7	2.24	2.17	2.21	2.20	2.24	2.20	2.21	S	2.22	2.23	2.19	2.20	2.18	2.21	2.18	2.18	2.15	2.16	2.12	2.11	2.10	2.09	2.09	2.24	2.18				
Feb 8	2.13	2.10	2.12	2.32	2.25	2.15	S	2.08	2.10	2.08	2.08	2.07	2.10	2.11	2.15	2.16	2.37	2.10	2.17	2.25	2.10	2.09	2.10	2.07	2.37	2.14			
Feb 9	2.11	2.13	2.19	2.24	2.38	S	2.51	2.36	2.27	2.15	2.09	2.08	2.07	2.07	2.07	2.05	2.07	2.08	2.09	2.09	2.09	2.09	2.08	2.07	2.05	2.51	2.15		
Feb 10	2.07	2.07	2.08	2.09	S	2.08	2.09	2.08	2.10	2.12	2.12	2.10	2.06	2.05	2.07	2.07	2.08	2.23	2.11	2.08	2.07	2.36	2.08	2.10	2.05	2.36	2.10		
Feb 11	2.12	2.19	2.19	S	2.30	2.39	2.32	2.36	2.41	2.46	2.35	2.26	2.19	2.16	2.15	2.16	2.26	2.19	2.37	2.19	2.15	2.16	2.18	2.19	2.12	2.46	2.25		
Feb 12	2.21	2.23	S	2.41	2.45	2.50	2.59	2.61	2.61	2.65	2.61	2.34	2.24	2.14	2.17	2.21	2.22	2.09	2.11	2.12	2.10	2.18	2.24	2.09	2.65	2.31			
Feb 13	S	S	2.22	2.20	2.23	2.22	2.21	2.26	2.18	2.15	2.15	2.13	2.16	2.13	2.15	2.14	2.24	2.38	2.26	2.12	2.13	2.16	2.24	2.12	2.38	2.19			
Feb 14	S	2.35	2.44	2.53	2.61	2.64	2.69	S1	2.64	2.41	2.41	2.29	2.34	2.17	2.14	2.14	2.18	2.13	2.26	2.44	2.07	2.03	2.02	2.03	S	2.02	2.69	2.31	
Feb 15	2.04	2.04	2.06	2.04	2.03	2.04	2.11	2.05	2.04	2.05	2.10	2.17	2.16	2.17	2.17	2.16	2.15	2.13	2.11	2.06	2.04	S	2.03	2.03	2.17	2.09			
Feb 16	2.03	2.02	2.03	2.03	2.04	2.05	2.05	2.05	2.04	2.04	2.05	2.05	2.06	2.06	2.06	2.09	2.15	2.16	2.02	2.03	2.02	S	2.10	2.37	2.02	2.37	2.07		
Feb 17	2.11	2.06	2.16	2.17	2.14	2.24	2.05	2.05	2.04	2.05	2.04	2.03	2.04	2.04	2.03	2.04	2.04	2.03	2.02	2.03	2.02	S	2.05	2.03	2.02	2.24	2.07		
Feb 18	2.02	2.03	2.04	2.04	2.04	2.06	2.07	2.09	2.09	2.10	2.10	2.11	2.12	2.13	2.11	2.10	2.10	2.11	2.12	S	2.13	2.15	2.15	2.16	2.02	2.16	2.09		
Feb 19	2.13	2.09	2.06	2.06	2.04	2.03	2.03	2.02	2.00	2.00	1.99	1.99	1.99	2.00	2.00	1.99	1.99	S	1.99	1.99	1.99	1.99	2.40	2.06	1.99	2.40	2.04		
Feb 20	2.02	1.99	2.00	2.01	2.02	2.01	2.01	2.01	2.01	2.02	2.02	2.05	C	C	C	C	C	2.22	2.05	2.04	2.03	2.04	2.10	1.99	2.22	2.03			
Feb 21	2.25	2.29	2.28	2.13	2.14	2.08	2.05	2.07	2.05	2.04	2.03	2.03	2.03	2.01	2.01	2.01	S	2.02	2.02	2.03	2.05	2.04	2.03	2.01	2.29	2.07			
Feb 22	2.04	2.06	2.05	2.03	2.16	2.05	2.10	2.07	2.05	2.04	2.04	2.06	2.05	2.03	S	2.01	2.01	2.01	2.02	2.02	2.02	2.02	2.01	2.16	2.04				
Feb 23	2.04	2.18	2.16	2.02	2.02	2.02	2.03	2.03	2.03	2.04	2.05	2.07	2.04	S	2.08	2.11	2.21	2.38	2.04	2.04	2.06	2.06	2.09	2.02	2.38	2.08			
Feb 24	2.23	2.26	2.23	2.24	2.22	2.21	2.19	2.18	2.16	2.06	2.03	2.03	2.03	S	2.04	2.03	2.03	2.03	2.04	2.05	2.05	2.07	2.03	2.26	2.11				
Feb 25	2.08	2.08	2.09	2.09	2.07	2.06	2.05	2.05	2.06	2.06	2.06	2.06	2.06	S	2.08	2.08	2.09	2.10	2.10	2.11	2.13	2.15	2.14	2.14	2.05	2.09			
Feb 26	2.13	2.13	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.12	S	2.06	2.05	2.05	2.03	2.03	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.14	2.08			
Feb 27	2.04	2.03	2.03	2.03	2.03	2.05	2.08	2.07	2.10	2.05	S	2.07	2.04	2.05	2.04	2.06	2.03	2.02	2.01	2.01	2.01	2.15	2.17	2.00	2.17	2.05			
Feb 28	2.05	2.06	2.23	2.03	2.00	2.27	2.25	2.06	2.22	S	1.99	2.03	2.05	2.00	2.00	2.00	2.01	2.12	2.11	2.06	2.06	2.07	2.02	2.03	1.99	2.27	2.06		
Diurnal Maximum	2.25	2.35	2.44	2.53	2.61	2.64	2.69	2.61	2.64	2.65	2.61	2.36	2.27	2.22	2.21	2.21	2.26	2.38	2.44	2.19	2.25	2.36	2.40	2.37					
Diurnal Average	2.09	2.11	2.12	2.13	2.14	2.15	2.16	2.13	2.14	2.14	2.12	2.10	2.09	2.08	2.08	2.10	2.12	2.11	2.06	2.06	2.07	2.09	2.10						
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.

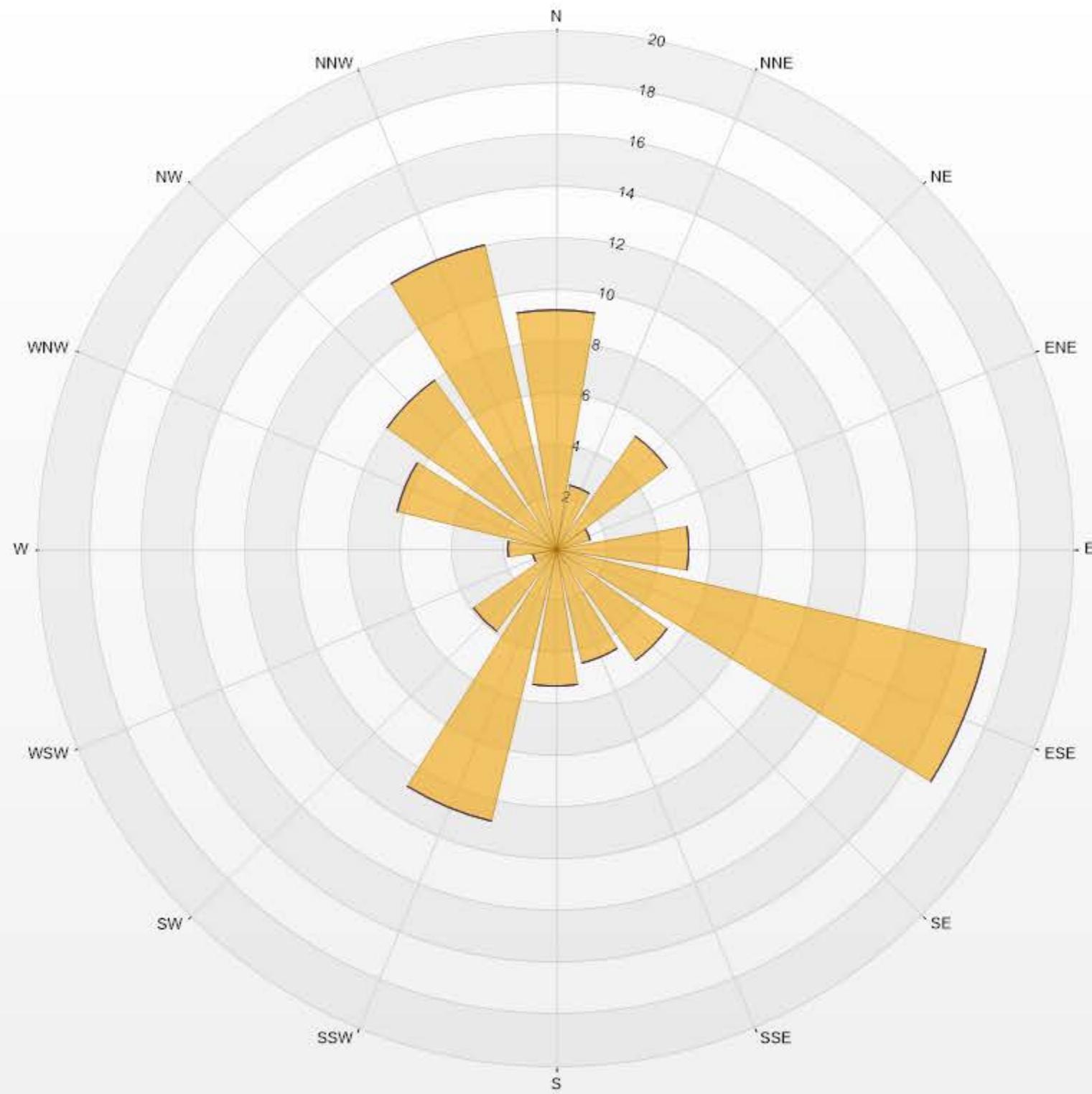
### *Timeseries Chart of Hourly Average for CH4 - 986b Station*



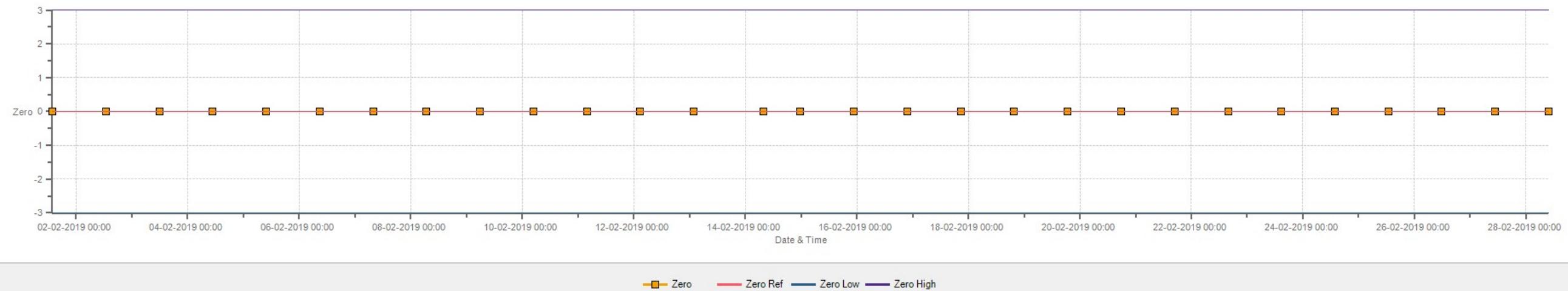


Wind: PRAMP 986 Poll.: PRAMP 986-CH4[ppm] Monthly: 02-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.79% Calm Avg: 0.00 [ppm]

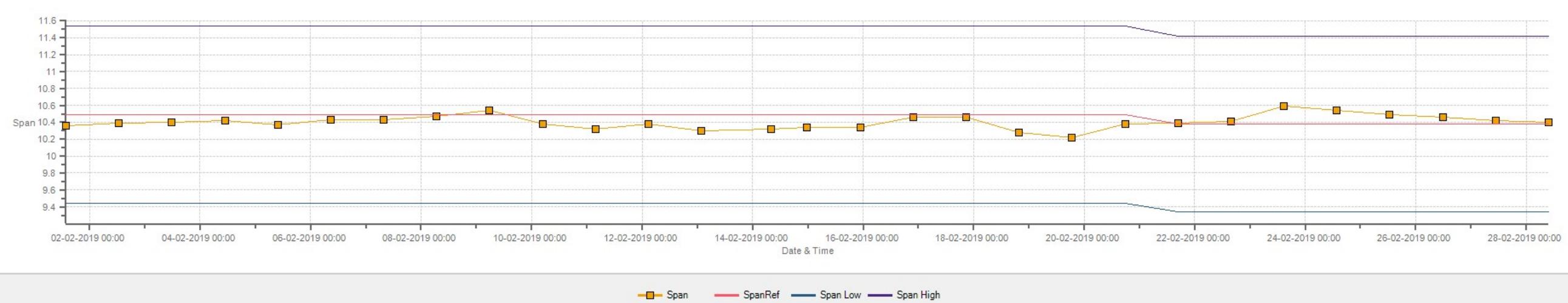
Direction	2-5	5-10	10-20	>20.0	Total
N	9.26	0	0	0	9.26
NNE	2.51	0	0	0	2.51
NE	5.34	0	0	0	5.34
ENE	1.41	0	0	0	1.41
E	5.18	0	0	0	5.18
ESE	17.11	0	0	0	17.11
SE	5.34	0	0	0	5.34
SSE	4.55	0	0	0	4.55
S	5.34	0	0	0	5.34
SSW	10.83	0	0	0	10.83
SW	3.92	0	0	0	3.92
WSW	0.94	0	0	0	0.94
W	1.88	0	0	0	1.88
WNW	6.28	0	0	0	6.28
NW	8.01	0	0	0	8.01
NNW	12.09	0	0	0	12.09
Summary	100	0	0	0	100



Zero



Span





## PEACE RIVER AREA MONITORING PROGRAM

**986b Station - February 2019**

### Summary of Hourly Averages

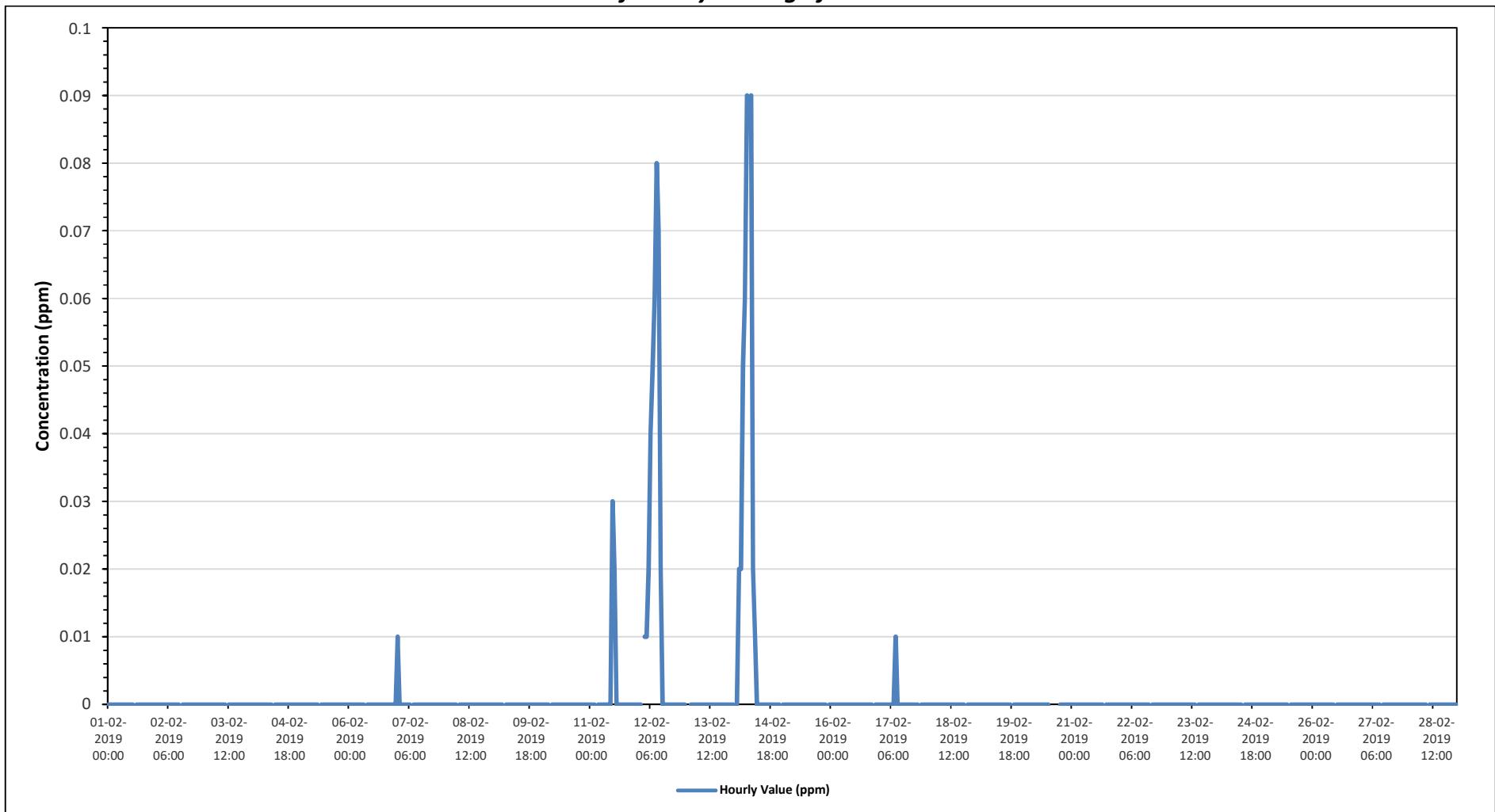
#### NON-METHANE HYDROCARBONS (NMHC) in ppm

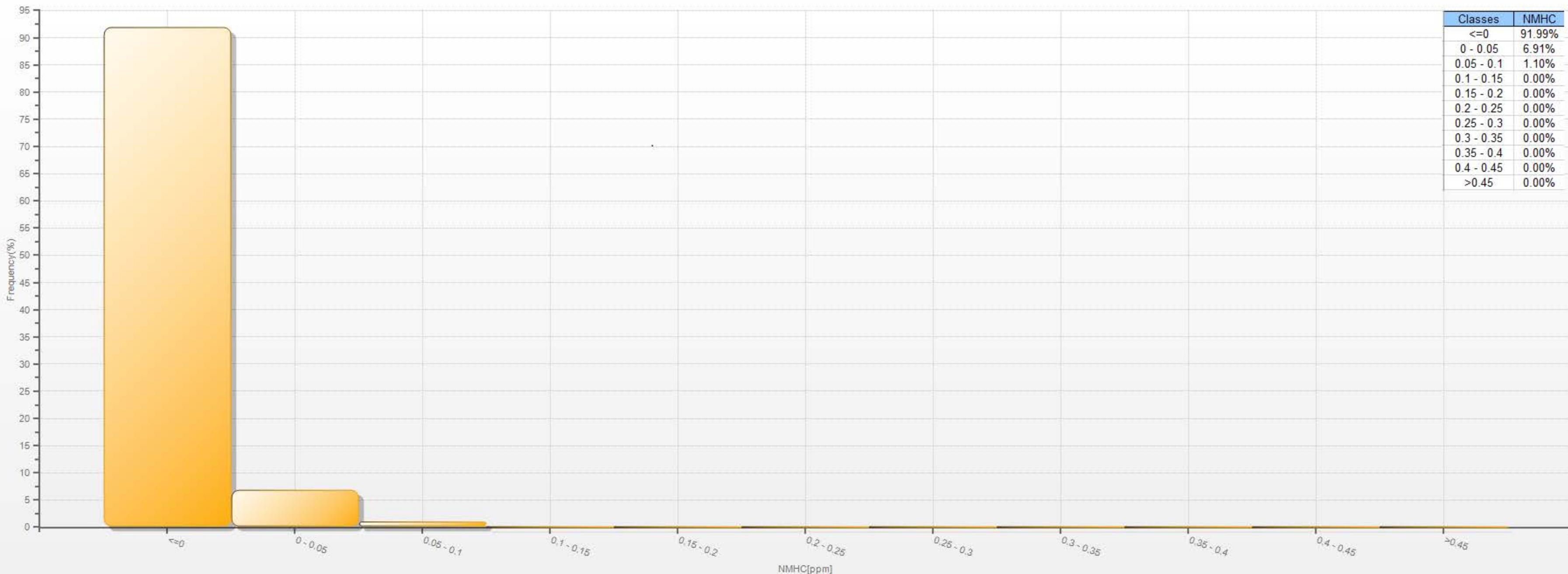
Maximum Hourly Value:	0.09	ppm	on February 14 at hour 6	Hours in Service:	672																							
Maximum Daily Value:	0.02	ppm	on February 14	Hours of Data:	637																							
Minimum Hourly Value:	0.00	ppm	on February 1 at hour 0	Hours of Missing Data:	1																							
Minimum Daily Value:	0.00	ppm	on February 1	Hours of Calibration:	34																							
Monthly Average:	0.00	ppm		Operational Uptime:	99.9																							
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
Feb 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		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 7	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	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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		
Feb 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	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		
Feb 12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.01	0.01	0.02	0.04	0.05	0.06	0.08	0.07	0.02	0.00	0.00	0.00	0.08		
Feb 13	S	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 14	S	0.00	0.02	0.02	0.05	0.06	0.09	S1	0.09	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	0.09	0.02	
Feb 15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00		
Feb 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	C	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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		
Feb 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	S	0.00	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	0.01	0.00	0.02	0.02	0.05	0.06	0.09	0.05	0.09	0.08	0.07	0.03	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		
Diurnal Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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.

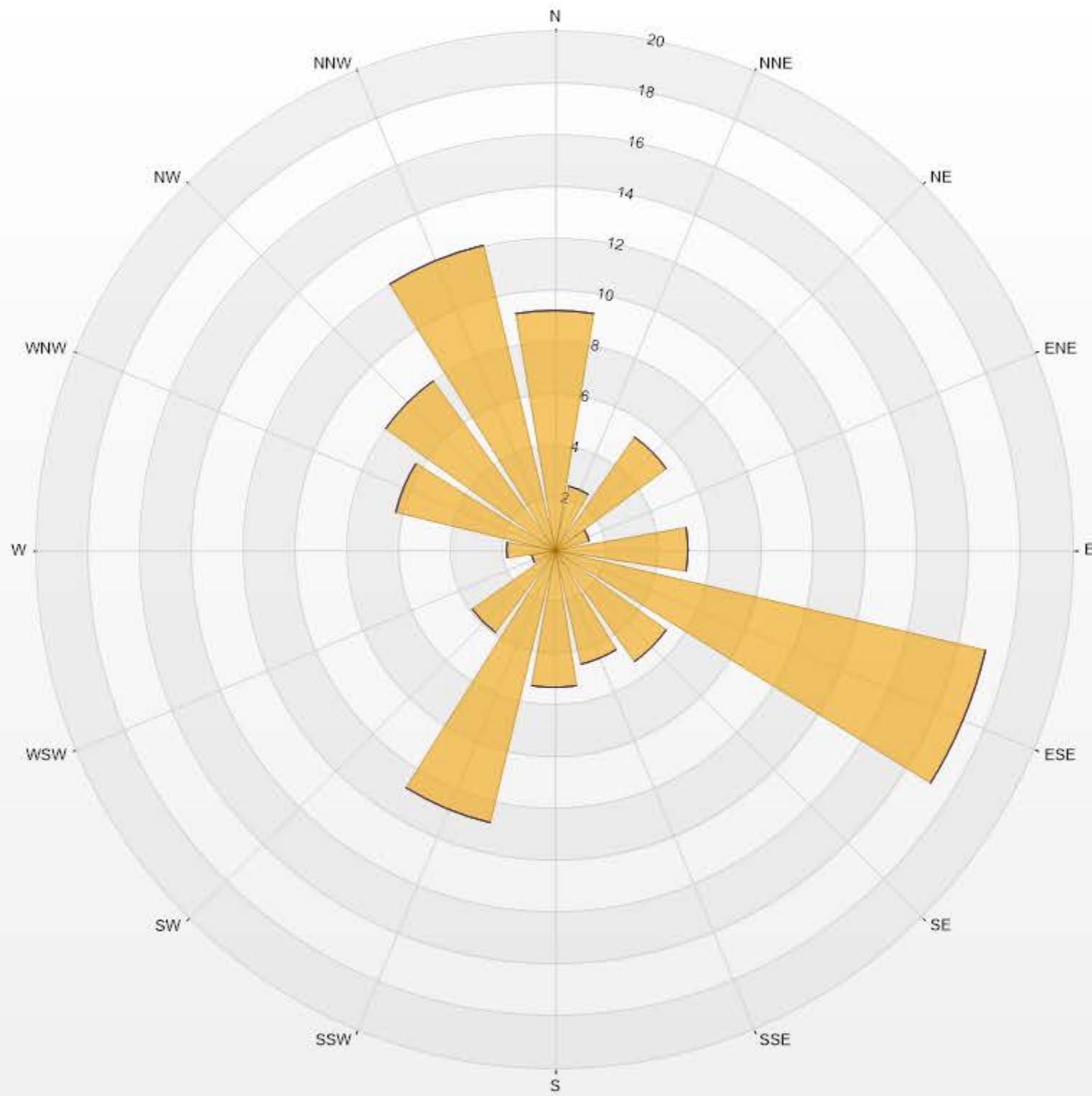
### Timeseries Chart of Hourly Average for NMHC - 986b Station



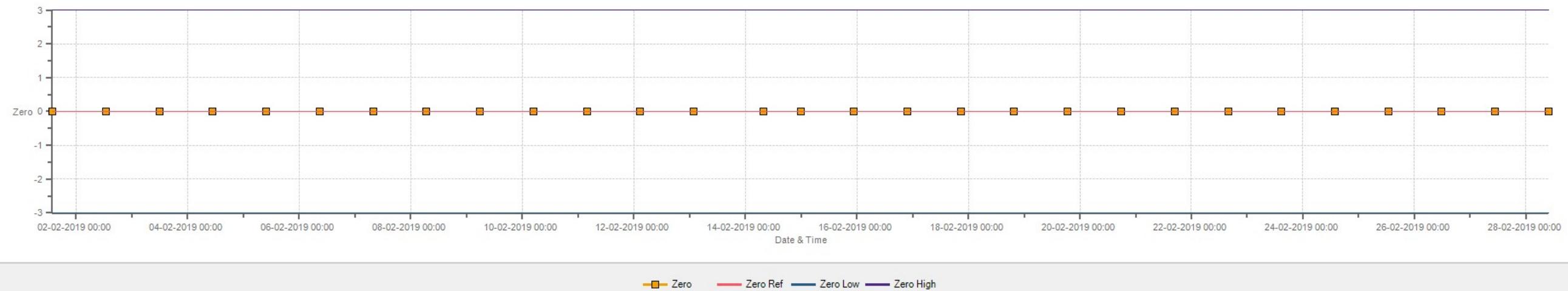


Wind: PRAMP 986 Poll.: PRAMP 986-NMHC[ppm] Monthly: 02-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.79% Calm Avg: 0.00 [ppm]

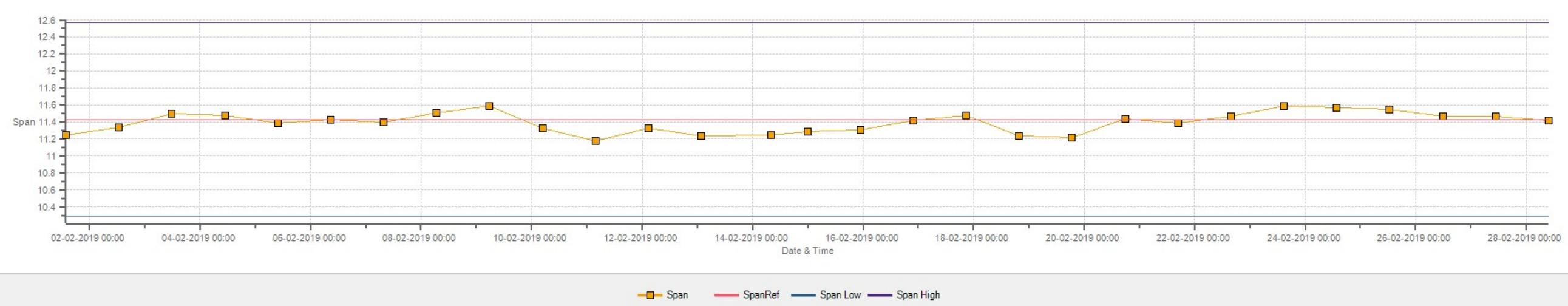
Direction	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	9.26	0	0	0	9.26
NNE	2.51	0	0	0	2.51
NE	5.34	0	0	0	5.34
ENE	1.41	0	0	0	1.41
E	5.18	0	0	0	5.18
ESE	17.11	0	0	0	17.11
SE	5.34	0	0	0	5.34
SSE	4.55	0	0	0	4.55
S	5.34	0	0	0	5.34
SSW	10.83	0	0	0	10.83
SW	3.92	0	0	0	3.92
WSW	0.94	0	0	0	0.94
W	1.88	0	0	0	1.88
WNW	6.28	0	0	0	6.28
NW	8.01	0	0	0	8.01
NNW	12.09	0	0	0	12.09
Summary	100	0	0	0	100



Zero



Span





## **PEACE RIVER AREA MONITORING PROGRAM**

**986b Station - February 2019**

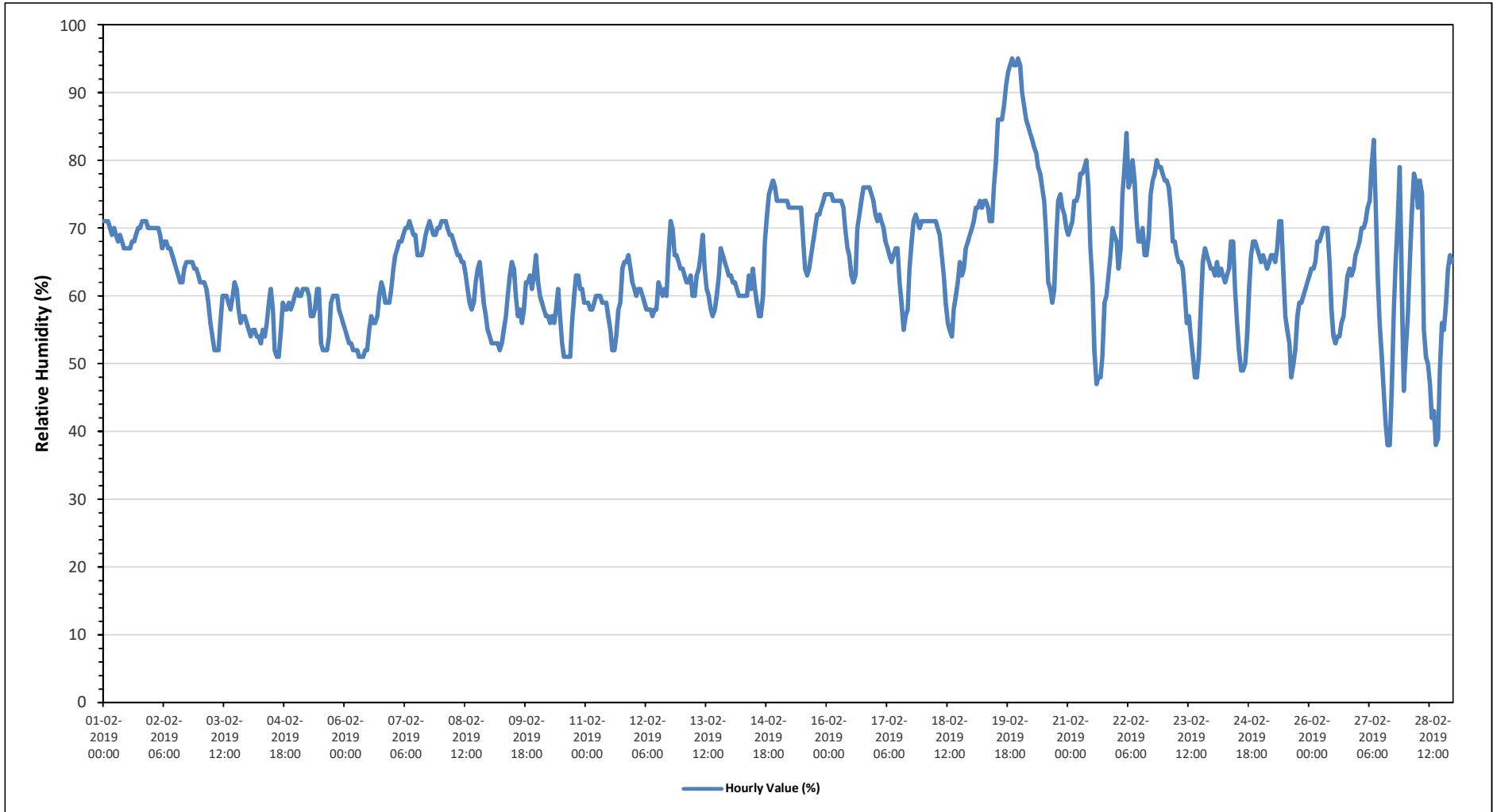
## Summary of Hourly Averages

## **RELATIVE HUMIDITY (RH) in %**

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 - 986b Station*





# **PEACE RIVER AREA MONITORING PROGRAM**

**986b Station - February 2019**

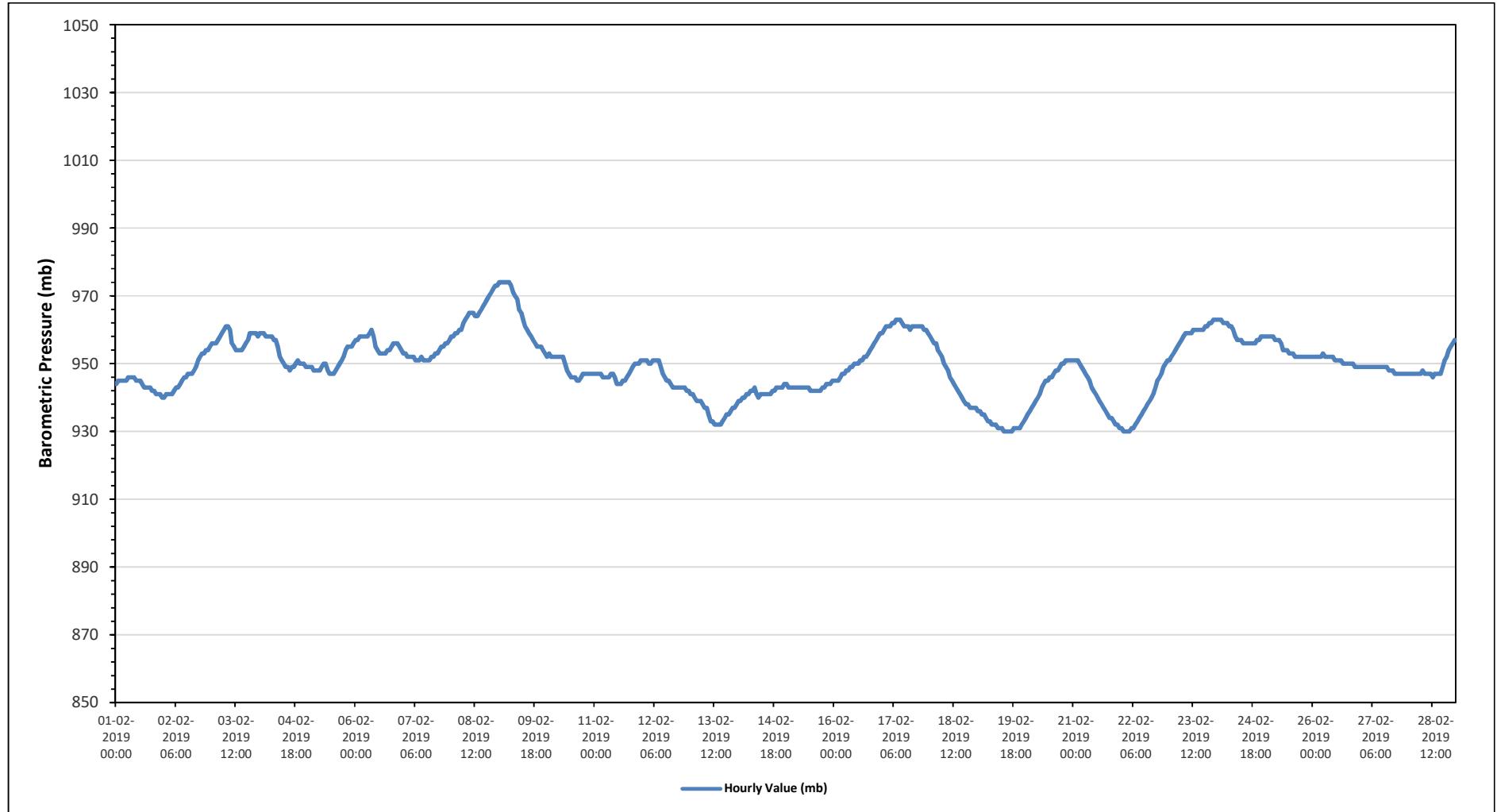
## Summary of Hourly Averages

## **BAROMETRIC PRESSURE (BP) in millibar**

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 - 986b Station*





## PEACE RIVER AREA MONITORING PROGRAM

**986b Station - February 2019**

### Summary of Hourly Averages

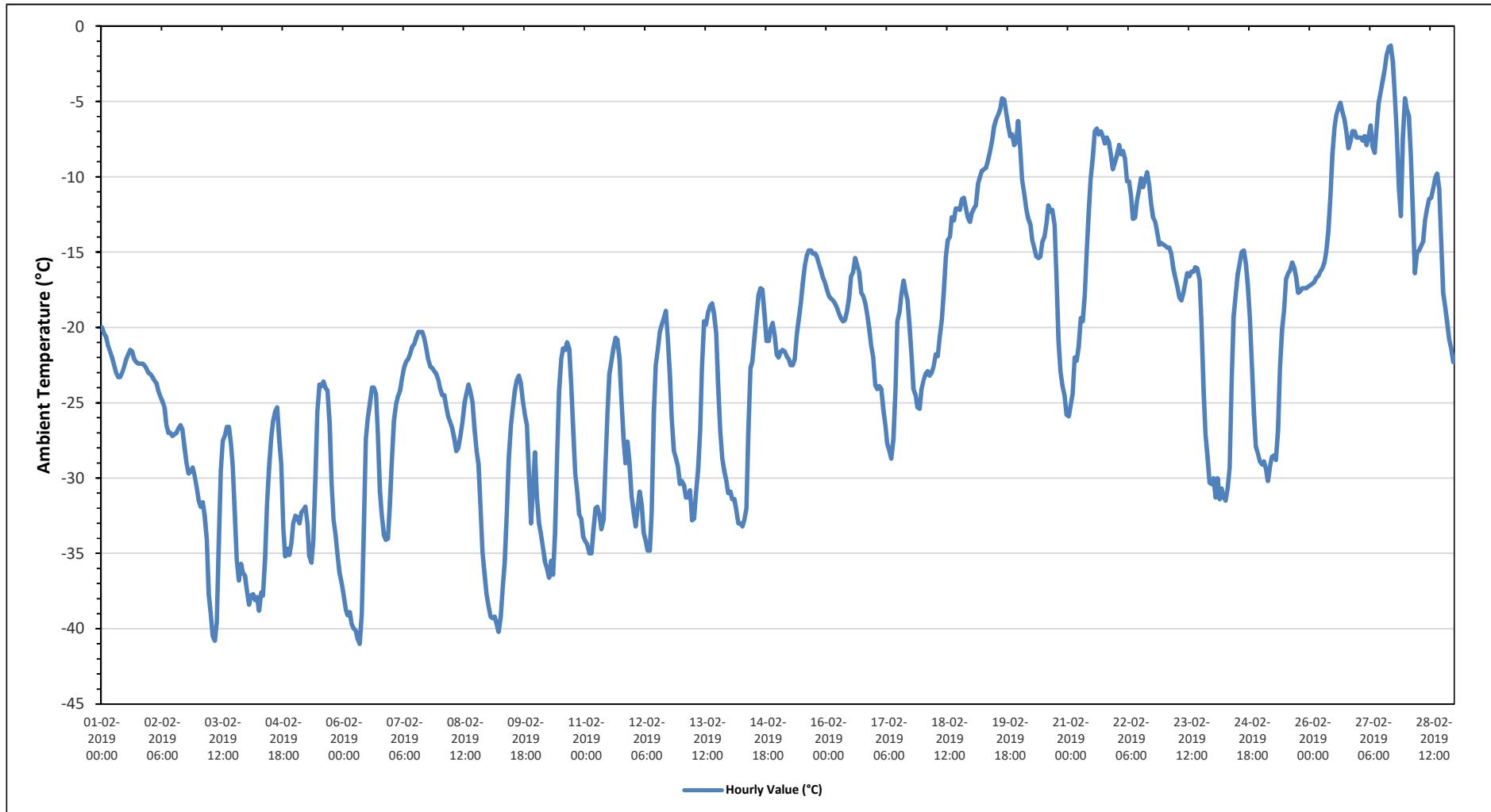
#### AMBIENT TEMPERATURE (AT) in Degree Celsius

Maximum Hourly Value:	-1.3	°C	on February 27 at hour 16	Hours in Service:	672																								
Maximum Daily Value:	-6.0	°C	on February 27	Hours of Data:	672																								
Minimum Hourly Value:	-41.0	°C	on February 6 at hour 8	Hours of Missing Data:	0																								
Minimum Daily Value:	-33.5	°C	on February 4	Hours of Calibration:	0																								
Monthly Average:	-22.2	°C		Operational Uptime:	100.0																								
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23		
Feb 1	-20.0	-20.4	-20.6	-21.2	-21.6	-22.0	-22.5	-23.0	-23.3	-23.6	-22.6	-22.1	-21.8	-21.5	-21.6	-22.1	-22.3	-22.4	-22.4	-22.4	-22.5	-22.7	-23.0	-23.3	-20.0	-22.1			
Feb 2	-23.1	-23.3	-23.5	-23.7	-24.2	-24.6	-24.9	-25.3	-26.5	-27.0	-27.0	-27.2	-27.1	-27.0	-26.7	-26.5	-26.8	-28.0	-29.0	-29.7	-29.6	-29.3	-29.8	-30.6	-30.6	-23.1	-26.7		
Feb 3	-31.5	-31.9	-31.6	-32.5	-34.1	-37.7	-39.1	-40.5	-40.8	-39.6	-34.1	-29.5	-27.5	-27.2	-26.6	-26.6	-27.7	-29.2	-32.5	-35.5	-36.8	-35.7	-36.3	-36.5	-40.8	-26.6	-33.4		
Feb 4	-37.5	-38.4	-37.8	-37.7	-38.1	-37.9	-38.8	-37.6	-37.8	-35.3	-31.7	-29.2	-27.4	-26.2	-25.6	-25.3	-27.3	-29.1	-33.3	-35.2	-34.7	-35.1	-34.3	-33.0	-38.8	-25.3	-33.5		
Feb 5	-32.5	-32.6	-33.0	-32.3	-32.1	-31.9	-33.0	-35.2	-35.6	-34.2	-30.0	-25.6	-23.8	-23.9	-23.6	-24.0	-24.2	-26.4	-30.3	-32.8	-33.8	-35.2	-36.3	-37.0	-37.0	-23.6	-30.8		
Feb 6	-37.7	-38.7	-39.1	-38.9	-39.7	-40.0	-40.1	-40.7	-41.0	-39.0	-33.7	-27.4	-26.1	-25.1	-24.0	-24.0	-24.4	-27.0	-30.9	-32.5	-33.8	-34.1	-34.0	-31.7	-41.0	-24.0	-33.5		
Feb 7	-28.6	-26.2	-25.1	-24.6	-24.2	-23.4	-22.7	-22.3	-22.1	-21.8	-21.3	-21.1	-20.7	-20.3	-20.3	-20.7	-21.4	-22.1	-22.6	-22.7	-22.9	-23.1	-23.5	-28.6	-20.3	-22.7			
Feb 8	-24.1	-24.5	-24.5	-25.3	-25.9	-26.3	-26.7	-27.4	-28.2	-28.0	-27.1	-26.3	-24.4	-23.8	-24.3	-25.0	-26.7	-28.2	-29.1	-32.2	-34.9	-36.4	-37.7	-37.7	-23.8	-27.6			
Feb 9	-38.5	-39.2	-39.3	-39.2	-39.7	-40.2	-39.2	-37.2	-35.6	-32.2	-28.7	-26.5	-25.4	-24.2	-23.5	-23.2	-23.7	-24.9	-25.8	-26.5	-29.6	-33.0	-31.1	-28.3	-40.2	-23.2	-31.4		
Feb 10	-31.2	-33.0	-33.7	-34.6	-35.6	-36.0	-36.6	-35.5	-36.4	-33.7	-28.4	-24.2	-22.1	-21.4	-21.5	-21.0	-21.4	-23.7	-26.9	-29.7	-30.9	-32.4	-32.7	-33.9	-36.6	-21.0	-29.9		
Feb 11	-34.2	-34.4	-35.0	-35.0	-33.5	-32.0	-31.9	-32.5	-33.4	-32.8	-29.2	-25.7	-23.1	-22.2	-21.4	-20.7	-20.8	-22.1	-24.8	-27.4	-29.0	-27.6	-29.0	-31.2	-35.0	-20.7	-28.7		
Feb 12	-32.3	-33.2	-32.0	-30.9	-31.8	-33.6	-34.2	-34.8	-34.8	-32.3	-25.7	-22.5	-21.5	-20.3	-19.8	-19.4	-18.9	-20.6	-23.1	-26.1	-28.2	-28.7	-29.2	-30.4	-34.8	-18.9	-27.7		
Feb 13	-30.2	-30.5	-31.3	-31.3	-30.8	-32.8	-32.7	-30.9	-29.5	-26.8	-22.6	-19.6	-19.8	-19.0	-18.6	-18.4	-19.1	-20.4	-23.8	-26.9	-28.7	-29.5	-30.2	-31.0	-32.8	-18.4	-26.4		
Feb 14	-30.9	-31.4	-31.4	-32.1	-33.0	-33.0	-33.2	-32.8	-32.0	-26.9	-22.7	-22.3	-20.7	-19.3	-17.9	-17.4	-17.5	-19.2	-20.9	-20.9	-20.1	-19.7	-20.5	-21.8	-33.2	-17.4	-24.9		
Feb 15	-22.0	-21.6	-21.5	-21.6	-21.9	-22.1	-22.5	-22.5	-22.1	-20.5	-19.5	-18.4	-17.1	-15.9	-15.2	-14.9	-14.9	-15.1	-15.1	-15.3	-15.8	-16.2	-16.7	-17.0	-22.5	-14.9	-18.6		
Feb 16	-17.5	-17.9	-18.1	-18.2	-18.4	-18.7	-19.1	-19.4	-19.6	-19.5	-18.9	-18.1	-16.6	-16.3	-15.4	-15.9	-16.3	-17.7	-17.9	-18.4	-19.1	-20.1	-21.2	-22.0	-15.4	-18.3			
Feb 17	-23.8	-24.1	-23.9	-24.1	-25.4	-26.5	-27.7	-28.2	-28.7	-27.4	-24.0	-19.6	-18.9	-17.8	-16.9	-17.6	-18.2	-19.8	-21.9	-24.1	-24.5	-25.3	-25.4	-24.1	-28.7	-16.9	-23.2		
Feb 18	-23.5	-23.1	-22.9	-23.2	-23.0	-22.6	-21.8	-21.9	-20.6	-19.5	-17.7	-15.3	-14.2	-14.0	-12.7	-12.9	-12.1	-12.2	-11.5	-11.4	-12.1	-12.7	-13.0	-23.5	-11.4	-16.9			
Feb 19	-12.4	-12.1	-11.9	-10.5	-10.0	-9.6	-9.5	-9.4	-8.9	-8.3	-7.6	-6.7	-6.2	-5.9	-5.5	-4.8	-4.9	-5.7	-6.6	-7.3	-7.2	-7.9	-7.7	-6.3	-12.4	-4.8	-8.0		
Feb 20	-8.2	-10.2	-11.2	-11.2	-12.8	-13.2	-14.2	-14.8	-15.3	-15.4	-15.3	-14.3	-14.0	-13.1	-11.9	-12.3	-12.2	-13.2	-16.5	-20.9	-22.9	-23.9	-24.5	-25.8	-25.8	-8.2	-15.3		
Feb 21	-25.9	-25.2	-24.4	-22.0	-22.2	-21.3	-19.4	-19.6	-17.8	-15.1	-12.3	-10.1	-8.7	-7.0	-6.8	-7.2	-7.0	-7.3	-7.8	-7.4	-7.7	-8.5	-9.5	-9.0	-25.9	-6.8	-13.7		
Feb 22	-8.6	-7.9	-8.5	-8.3	-8.8	-10.3	-10.3	-11.3	-12.8	-12.7	-11.6	-10.8	-10.1	-10.7	-10.2	-9.7	-10.5	-11.8	-12.7	-13.0	-13.7	-14.5	-14.4	-14.5	-7.9	-11.2			
Feb 23	-14.6	-14.7	-14.7	-15.1	-16.1	-16.7	-17.3	-18.0	-18.2	-17.7	-17.0	-16.4	-16.6	-16.3	-16.3	-16.0	-16.1	-16.9	-19.7	-24.2	-27.1	-28.7	-30.3	-30.4	-30.4	-14.6	-19.0		
Feb 24	-30.0	-31.3	-30.0	-31.4	-30.7	-31.3	-31.5	-30.7	-29.3	-23.5	-19.3	-17.8	-16.5	-15.7	-15.0	-14.9	-15.8	-17.2	-19.5	-22.3	-25.7	-27.9	-28.4	-31.5	-14.9	-24.4			
Feb 25	-29.1	-28.9	-29.4	-30.2	-29.2	-28.6	-28.5	-28.8	-26.8	-22.7	-20.1	-18.9	-16.8	-16.4	-16.2	-15.7	-16.0	-16.7	-17.7	-17.6	-17.4	-17.4	-17.3	-30.2	-15.7	-21.8			
Feb 26	-17.2	-17.1	-17.0	-16.7	-16.6	-16.3	-16.1	-15.7	-15.0	-13.6	-11.2	-8.5	-6.7	-5.9	-5.4	-5.1	-5.7	-6.2	-7.1	-8.1	-7.6	-7.0	-7.4	-17.2	-5.1	-10.8			
Feb 27	-7.4	-7.4	-7.6	-7.3	-7.9	-7.3	-6.6	-8.0	-8.4	-6.6	-5.1	-4.3	-3.6	-2.8	-1.9	-1.4	-1.3	-2.4	-4.6	-7.2	-10.8	-12.6	-7.5	-4.8	-12.6	-1.3	-6.0		
Feb 28	-5.5	-6.0	-8.5	-12.5	-16.4	-15.0	-14.9	-14.6	-14.3	-12.9	-12.1	-11.5	-11.4	-10.8	-10.1	-9.8	-10.8	-14.0	-17.7	-18.6	-19.7	-20.8	-21.4	-22.3	-5.5	-13.8			
Durnal Maximum	-5.5	-6.0	-7.6	-7.3	-7.9	-7.3	-6.6	-8.0	-8.4	-6.6	-5.1	-4.3	-3.6	-2.8	-1.9	-1.4	-1.3	-2.4	-4.6	-7.2	-10.8	-12.6	-7.5	-4.8					
Durnal Average	-5.5	-24.2	-24.5	-24.6	-24.7	-25.1	-25.4	-25.5	-25.7	-25.5	-23.9	-21.3	-19.3	-18.2	-17.5	-16.9	-16.8	-17.2	-18.5	-20.4	-21.9	-23.0	-23.7	-23.9	-24.0				
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 AT - 986b Station**





## PEACE RIVER AREA MONITORING PROGRAM

**986b Station - February 2019**

### Summary of Hourly Averages

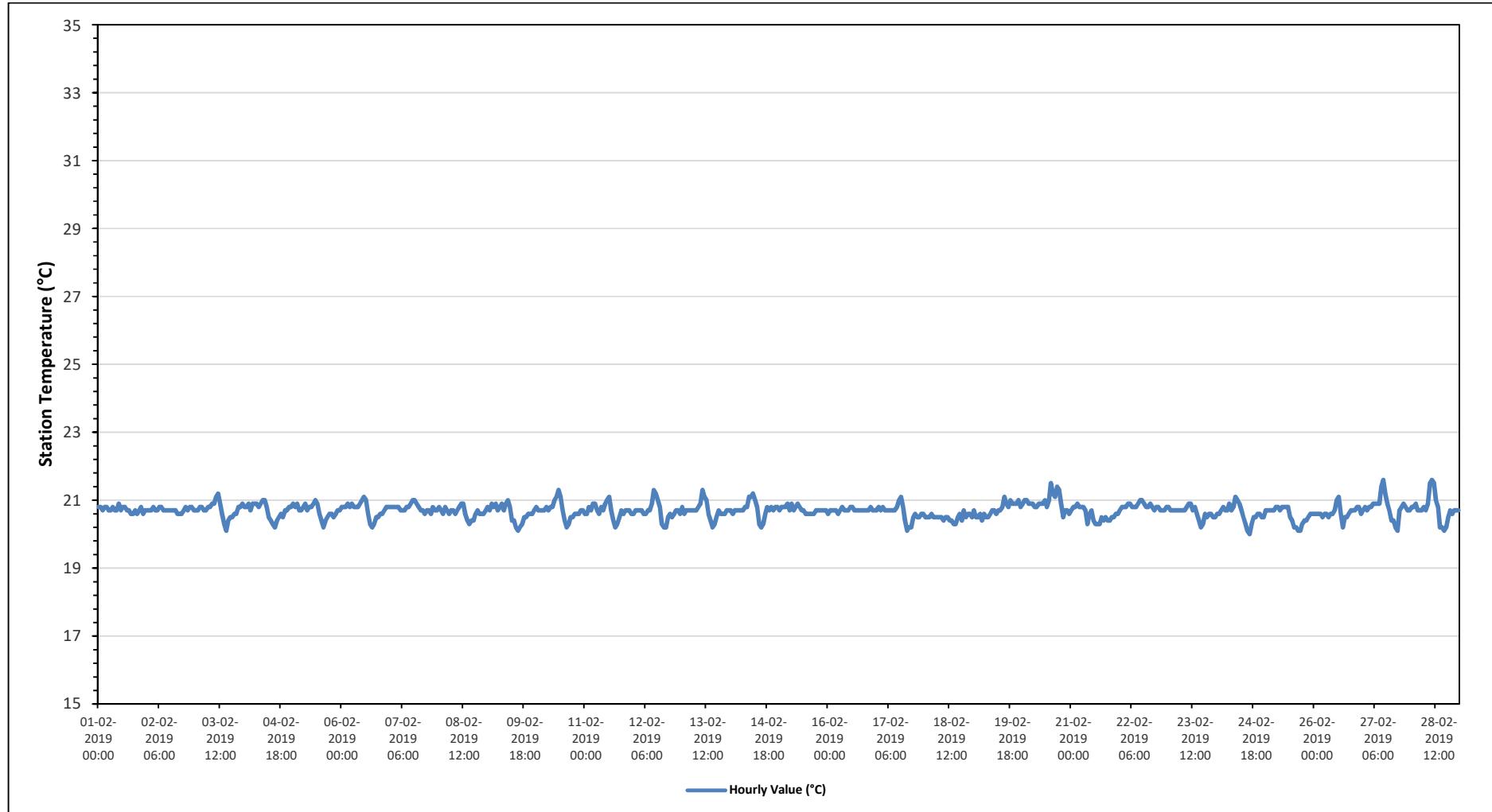
#### STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:	21.6	°C	on February 27 at hour 10	Hours in Service:	672																						
Maximum Daily Value:	20.9	°C	on February 20	Hours of Data:	672																						
Minimum Hourly Value:	20.0	°C	on February 24 at hour 16	Hours of Missing Data:	0																						
Minimum Daily Value:	20.5	°C	on February 18	Hours of Calibration:	0																						
Monthly Average:	20.7	°C		Operational Uptime:	100.0																						
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Feb 1	20.8	20.8	20.7	20.8	20.8	20.7	20.7	20.8	20.7	20.7	20.9	20.7	20.8	20.8	20.7	20.7	20.6	20.6	20.7	20.6	20.7	20.8	20.6	20.7	20.6	20.9	20.7
Feb 2	20.7	20.7	20.7	20.8	20.7	20.7	20.8	20.8	20.7	20.7	20.7	20.7	20.7	20.8	20.7	20.7	20.6	20.6	20.7	20.8	20.7	20.8	20.7	20.7	20.6	20.8	20.7
Feb 3	20.7	20.7	20.8	20.8	20.7	20.7	20.8	20.8	20.9	20.9	21.1	21.2	20.9	20.6	20.3	20.1	20.4	20.5	20.5	20.6	20.6	20.8	20.8	20.7	20.1	21.2	20.7
Feb 4	20.8	20.8	20.9	20.7	20.9	20.9	20.9	20.8	20.9	21.0	21.0	20.8	20.5	20.4	20.3	20.2	20.4	20.5	20.6	20.5	20.7	20.7	20.8	20.8	20.2	21.0	20.7
Feb 5	20.9	20.8	20.9	20.7	20.7	20.8	20.9	20.7	20.8	20.8	20.9	21.0	20.9	20.6	20.4	20.2	20.4	20.5	20.6	20.6	20.5	20.6	20.7	20.7	20.2	21.0	20.7
Feb 6	20.8	20.8	20.9	20.9	20.8	20.9	20.8	20.8	20.9	21.0	21.1	21.0	20.6	20.3	20.2	20.3	20.5	20.5	20.6	20.6	20.6	20.7	20.8	20.8	20.2	21.1	20.7
Feb 7	20.8	20.8	20.8	20.8	20.7	20.7	20.7	20.7	20.8	20.8	21.0	21.0	20.9	20.9	20.8	20.7	20.7	20.6	20.7	20.7	20.6	20.8	20.7	20.7	20.6	21.0	20.8
Feb 8	20.8	20.7	20.6	20.8	20.7	20.6	20.7	20.7	20.8	20.9	20.9	20.6	20.4	20.3	20.4	20.4	20.6	20.7	20.6	20.6	20.6	20.7	20.6	20.7	20.3	20.9	20.6
Feb 9	20.8	20.7	20.9	20.8	20.9	20.7	20.8	20.9	20.7	20.9	21.0	20.8	20.4	20.4	20.2	20.1	20.2	20.3	20.5	20.5	20.6	20.6	20.7	20.7	20.1	21.0	20.6
Feb 10	20.8	20.7	20.7	20.7	20.8	20.7	20.8	20.8	21.0	21.0	21.3	21.1	20.7	20.4	20.2	20.3	20.5	20.5	20.6	20.6	20.6	20.7	20.7	20.7	20.2	21.3	20.7
Feb 11	20.6	20.6	20.8	20.7	20.9	20.9	20.7	20.6	20.8	20.7	20.9	21.0	21.1	20.7	20.4	20.2	20.3	20.5	20.7	20.6	20.7	20.7	20.7	20.6	20.2	21.1	20.7
Feb 12	20.6	20.7	20.7	20.7	20.6	20.6	20.6	20.7	20.7	20.9	21.3	21.2	21.0	20.8	20.3	20.2	20.2	20.5	20.6	20.5	20.6	20.7	20.7	20.6	20.2	21.3	20.7
Feb 13	20.8	20.6	20.7	20.7	20.7	20.7	20.7	20.8	20.9	21.3	21.1	21.0	20.6	20.4	20.2	20.3	20.5	20.7	20.6	20.6	20.7	20.7	20.7	20.2	21.3	20.7	
Feb 14	20.7	20.6	20.7	20.7	20.7	20.7	20.7	20.8	21.1	21.1	21.2	21.0	20.8	20.3	20.2	20.3	20.6	20.8	20.7	20.7	20.8	20.8	20.7	20.2	21.2	20.7	
Feb 15	20.7	20.8	20.8	20.9	20.7	20.9	20.7	20.7	20.8	20.9	20.9	20.8	20.7	20.6	20.6	20.6	20.6	20.7	20.7	20.7	20.7	20.7	20.7	20.6	20.9	20.7	
Feb 16	20.6	20.7	20.7	20.7	20.6	20.7	20.8	20.7	20.7	20.7	20.8	20.8	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.8	20.7	20.6	20.8	20.7	
Feb 17	20.7	20.8	20.7	20.8	20.7	20.7	20.7	20.7	20.7	20.7	20.8	21.0	21.1	20.8	20.4	20.1	20.2	20.5	20.6	20.5	20.5	20.6	20.6	20.1	21.1	20.6	
Feb 18	20.5	20.5	20.6	20.5	20.5	20.5	20.5	20.5	20.4	20.4	20.5	20.5	20.4	20.4	20.3	20.3	20.5	20.6	20.4	20.7	20.5	20.6	20.5	20.3	20.7	20.5	
Feb 19	20.7	20.5	20.5	20.6	20.4	20.6	20.5	20.5	20.6	20.7	20.7	20.6	20.7	20.7	20.8	21.1	20.9	21.0	20.9	20.9	21.0	20.8	20.4	21.1	20.7		
Feb 20	20.9	21.0	21.0	20.9	20.9	20.9	20.8	20.8	20.9	20.9	21.0	20.8	21.5	21.2	21.1	21.4	21.3	20.9	20.5	20.7	20.7	20.6	20.5	21.5	20.9		
Feb 21	20.7	20.8	20.8	20.9	20.8	20.8	20.7	20.7	20.3	20.6	20.7	20.4	20.3	20.3	20.5	20.4	20.5	20.4	20.5	20.5	20.6	20.6	20.3	20.9	20.6		
Feb 22	20.7	20.8	20.8	20.9	20.9	20.8	20.8	20.8	20.9	21.0	21.0	20.9	20.8	20.8	20.9	20.8	20.7	20.8	20.8	20.7	20.7	20.8	20.7	21.0	20.8		
Feb 23	20.8	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.8	20.9	20.9	20.7	20.8	20.6	20.4	20.2	20.3	20.6	20.5	20.6	20.6	20.5	20.2	20.9	20.6	
Feb 24	20.6	20.6	20.7	20.8	20.7	20.7	20.7	20.7	20.7	20.8	21.1	21.0	20.9	20.7	20.5	20.3	20.1	20.0	20.3	20.5	20.5	20.6	20.5	20.0	21.1	20.6	
Feb 25	20.7	20.7	20.7	20.7	20.7	20.8	20.8	20.7	20.8	20.8	20.8	20.8	20.5	20.4	20.2	20.2	20.1	20.1	20.3	20.4	20.4	20.5	20.6	20.1	20.8	20.6	
Feb 26	20.6	20.6	20.6	20.6	20.5	20.6	20.6	20.5	20.6	20.6	20.7	21.0	21.1	20.6	20.2	20.5	20.5	20.6	20.7	20.7	20.8	20.6	20.2	21.1	20.6		
Feb 27	20.7	20.8	20.7	20.8	20.9	20.9	20.9	21.4	21.6	21.6	21.2	20.9	20.7	20.4	20.4	20.2	20.1	20.7	20.8	20.9	20.8	20.7	20.7	20.1	21.6	20.8	
Feb 28	20.8	20.8	20.9	20.7	20.7	20.7	20.8	20.7	20.9	21.5	21.6	21.5	21.0	20.8	20.2	20.2	20.1	20.2	20.5	20.7	20.6	20.7	20.7	20.1	21.6	20.8	
Durnal Maximum	20.9	21.0	21.0	20.9	20.9	20.9	20.9	20.9	21.5	21.6	21.5	21.1	21.0	21.5	21.2	21.1	21.4	21.3	20.9	20.9	21.0	20.9					
Durnal Average	20.7	20.7	20.7	20.8	20.7	20.7	20.7	20.7	20.9	20.9	21.0	20.9	20.8	20.7	20.5	20.4	20.4	20.5	20.6	20.6	20.7	20.7	20.7	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 - 986b Station*





## PEACE RIVER AREA MONITORING PROGRAM

**986b Station - February 2019**

### Summary of Hourly Averages

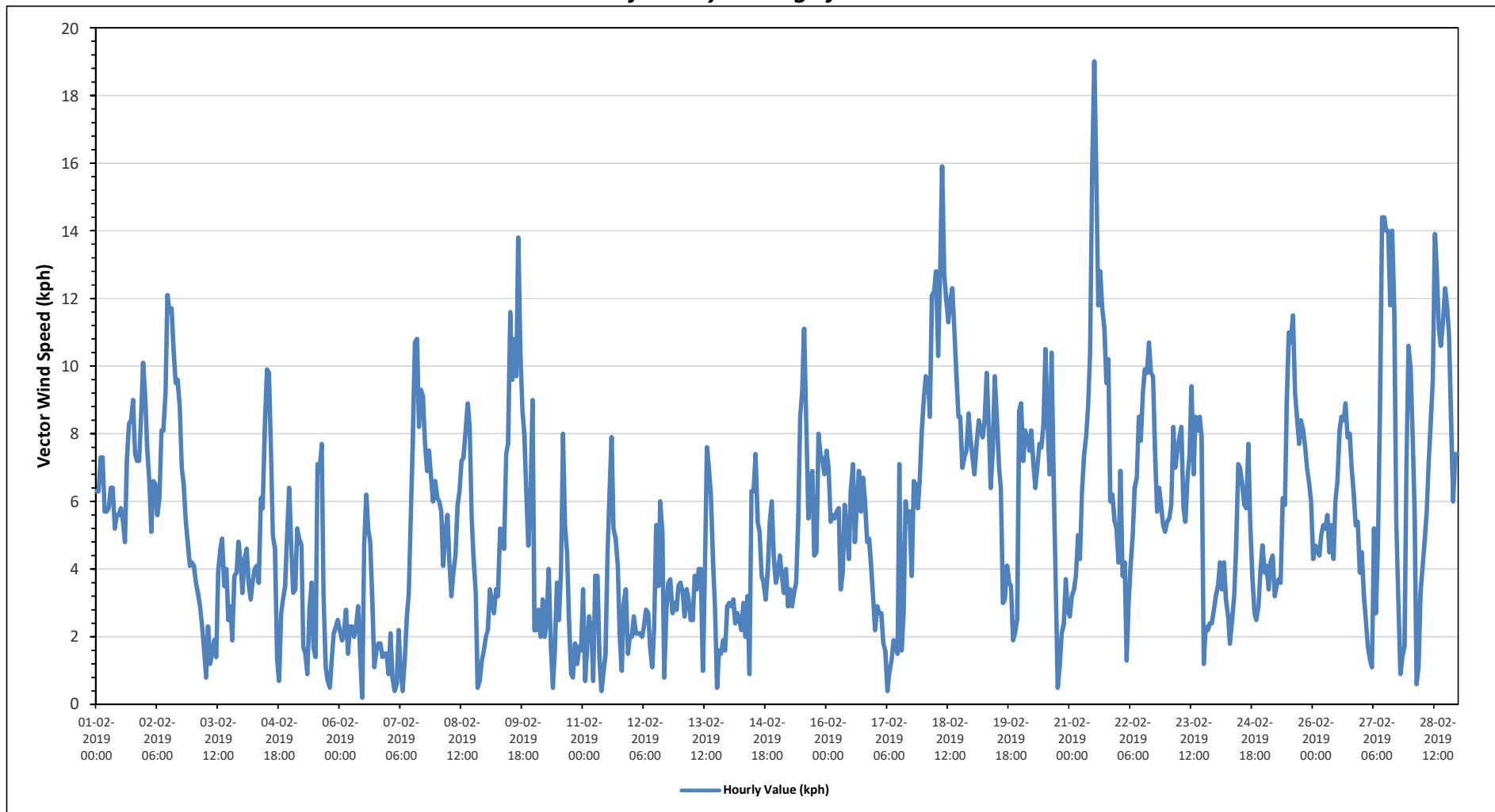
#### VECTOR WIND SPEED (VWS) in km/hr

Maximum Hourly Value:	19.0	kph	on February 21 at hour 12	Hours in Service:	672	Daily Minimum:	4.8	Daily Maximum:	10.1	Daily Average:	6.8																	
Maximum Daily Value:	10.4	kph	on February 18	Hours of Data:	672																							
Minimum Hourly Value:	0.2	kph	on February 6 at hour 11	Hours of Missing Data:	0																							
Minimum Daily Value:	2.4	kph	on February 6	Hours of Calibration:	0																							
Monthly Average:	0.5	kph		Operational Uptime:	100.0																							
Day	Hourly Period Starting at (MST)																											
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Minimum	Daily Maximum	Daily Average	
Feb 1	6.3	6.3	7.3	7.3	5.7	5.7	5.8	6.4	6.4	5.2	5.6	5.6	5.8	5.4	4.8	7.2	8.3	8.4	9	7.4	7.2	7.2	8.6	10.1	4.8	10.1	6.8	
Feb 2	9.1	7.6	6.6	5.1	6.6	6.5	5.6	6.1	8.1	8.1	9.2	12.1	11.6	11.7	10.5	9.5	9.6	8.8	7	6.5	5.4	4.8	4.1	4.2	4.1	12.1	7.7	
Feb 3	4.1	3.6	3.3	2.9	2.4	1.7	0.8	2.3	1.2	1.5	1.9	1.4	3.9	4.6	4.9	3.5	4	2.5	2.9	1.9	3.8	3.9	4.8	4.2	0.8	4.9	3.0	
Feb 4	3.3	4.3	4.6	3.6	3.1	3.6	4	4.1	3.6	6.1	5.8	8.2	9.9	9.8	7.4	5	4.6	1.3	0.7	2.7	3.1	3.5	5	6.4	0.7	9.9	4.7	
Feb 5	4.6	3.3	3.4	5.2	4.9	4.7	1.7	1.5	0.9	2.8	3.6	1.7	1.4	7.1	6.9	7.7	3.2	1.1	0.7	0.5	1.4	2.1	2.3	2.5	0.5	7.7	3.1	
Feb 6	2.2	1.9	2.1	2.8	1.5	2.3	2.3	2	2.3	2.9	1.5	0.2	4.7	6.2	5.2	4.8	3	1.1	1.6	1.8	1.8	1.4	1.5	1.5	0.2	6.2	2.4	
Feb 7	0.9	2.1	0.8	0.4	0.6	2.2	1	0.4	1.3	2.6	3.3	5.6	7.7	10.7	10.8	8.2	9.3	9.1	7.7	6.9	7.5	6.7	6	6.6	0.4	10.8	4.9	
Feb 8	6.1	6	5.7	4.1	5.1	5.6	4.2	3.2	3.9	4.4	5.9	6.3	7.2	7.3	8.1	8.9	8.2	5.5	4.3	3.3	0.5	0.7	1.3	1.6	0.5	8.9	4.9	
Feb 9	2	2.2	3.4	3	2.7	3.4	3.2	5.2	5.1	4.6	7.4	7.7	11.6	9.6	10.8	9.7	13.8	10.4	8.7	8	6.1	4.7	6.3	9	2.0	13.8	6.6	
Feb 10	2.2	2.2	2.8	2	3.1	2	2.5	4	1.7	0.5	1.6	3.6	2.5	3.9	8	5.3	4.5	2.5	0.9	0.8	1.8	1.2	1.7	1.6	0.5	8.0	2.6	
Feb 11	3.4	0.7	1.8	2.6	2.1	0.7	3.8	3.8	1.4	0.4	0.9	1.5	4.6	6.2	7.9	5.2	4.9	4.1	2.1	1	3	3.4	1.5	2	0.4	7.9	2.9	
Feb 12	2	2.6	2.1	2.1	2.1	2	2.3	2.8	2.7	1.7	1.1	2.2	5.3	3.5	6	5.1	0.8	2.8	3.6	3.7	2.7	3	2.8	3.5	0.8	6.0	2.9	
Feb 13	3.6	3.3	2.6	3.4	3.1	2.5	2.5	3.8	3.4	4	4	1	3.8	7.6	7	6.2	4.2	2.9	0.5	1.6	1.5	1.9	1.6	2.9	0.5	7.6	3.3	
Feb 14	3	2.9	3.1	2.4	2.7	2.5	2.2	3	2	3.2	0.9	6.3	6.3	7.4	5.4	5.1	3.8	3.6	3.1	4	5.4	6	4.4	3.6	0.9	7.4	3.8	
Feb 15	3.9	4.4	3.8	3.3	4	2.9	3.4	2.9	3.3	3.6	5.5	8.5	9.3	11.1	8.3	5.5	6.6	6.9	4.4	4.5	8	7.4	7.2	6.8	2.9	11.1	5.6	
Feb 16	7.5	7	5.4	5.6	5.5	5.7	5.8	3.4	3.9	5.9	5.1	4.3	6.3	7.1	4.8	6	6.9	5.7	6.7	6	4.8	4.9	4.1	3.1	7.5	5.5		
Feb 17	2.2	2.9	2.7	2.7	1.8	1.6	0.4	0.9	1.3	1.9	1.7	1.5	7.1	1.6	2.7	6	5.4	5.7	3.8	6.6	6.5	5.8	6.6	8.1	0.4	8.1	3.6	
Feb 18	9.1	9.7	9.6	8.5	12.1	12.2	12.8	10.3	12.5	15.9	12.7	12	11.3	11.9	12.3	11.2	9.8	8.5	8.5	7	7.3	7.5	8.6	7.9	7.0	15.9	10.4	
Feb 19	7.3	6.8	7.7	8.4	8.1	7.9	8.4	9.8	8.1	6.4	7.6	9.7	8.4	7	6.4	3	3.1	4.1	3.6	3.5	1.9	2.1	2.5	8.7	1.9	9.8	6.3	
Feb 20	8.9	7.2	8.1	7.9	7.5	8.1	7.1	6.4	7	7.7	7.6	8.3	10.5	8.3	6.8	10.4	6.5	3.7	0.5	1.1	2.1	2.4	3.7	2.8	0.5	10.5	6.3	
Feb 21	2.6	3.2	3.4	3.8	5	4.3	6.3	7.4	7.9	8.8	10.4	15.8	19	15.9	11.8	12.8	11.7	11.1	9.5	10.2	6	6.2	5.4	5.2	2.6	19.0	8.5	
Feb 22	4.2	6.9	3.8	4.2	1.3	3	4.1	5	6.4	6.7	8.5	7.8	9.2	9.9	9.8	10.7	9.8	9.7	7.6	5.7	6.4	5.9	5.3	5.1	1.3	10.7	6.5	
Feb 23	5.4	5.5	5.9	8.2	7	7.5	7.9	8.2	5.8	5.4	6.7	7.4	9.4	6.8	8.5	8.1	8.5	7.9	1.2	2.3	2.2	2.4	2.4	2.8	1.2	9.4	6.0	
Feb 24	3.2	3.5	4.2	3.4	4.2	3.1	2.6	1.8	2.5	3.2	4.6	7.1	7	6.5	5.9	5.8	7.7	5.4	3.8	2.7	2.5	2.9	3.9	4.7	1.8	7.7	4.3	
Feb 25	3.9	4.1	3.4	4.2	4.4	3.2	3.5	3.7	3.6	6.1	5.9	9	11	10.7	11.5	9.2	8.5	7.7	8.4	8.1	7.6	7	6.5	6	3.2	11.5	6.6	
Feb 26	4.3	4.7	4.6	4.4	5	5.3	5.2	5.6	4.5	5.3	4.3	6	6.6	8.1	8.5	8.4	8.9	7.9	8	7	6.2	5.3	5.4	3.9	3.9	8.9	6.0	
Feb 27	4.5	3.2	2.5	1.7	1.3	1.1	5.2	2.7	4.8	9.2	14.4	14.4	14	14	11.8	14	11.5	5.4	3.1	0.9	1.4	1.7	7	10.6	0.9	14.4	6.7	
Feb 28	9.9	8.1	5.6	0.6	1.1	3.3	4.1	4.9	5.7	7.2	8.3	9.6	13.9	12.8	11.1	10.6	11.3	12.3	11.8	10.9	8.6	6	7.4	7.4	0.6	13.9	8.0	
Diurnal Maximum	10	10	10	9	12	12	13	10	13	16	14	16	19	16	12	14	14	12	12	11	9	8	9	11				
Diurnal Average	4.6	4.5	4.3	4.1	4.1	4.1	4.2	4.3	4.3	5.0	5.6	6.6	8.2	8.3	8.0	7.6	7.1	5.9	4.8	4.5	4.4	4.2	4.6	5.1				
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span	P	Power Failure	N	Not in Service	T	Exceeds Temperature Limits	N	Not in Service											
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P																				
R	Recovery	X	Machine Malfunction	Y	Maintenance																							

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

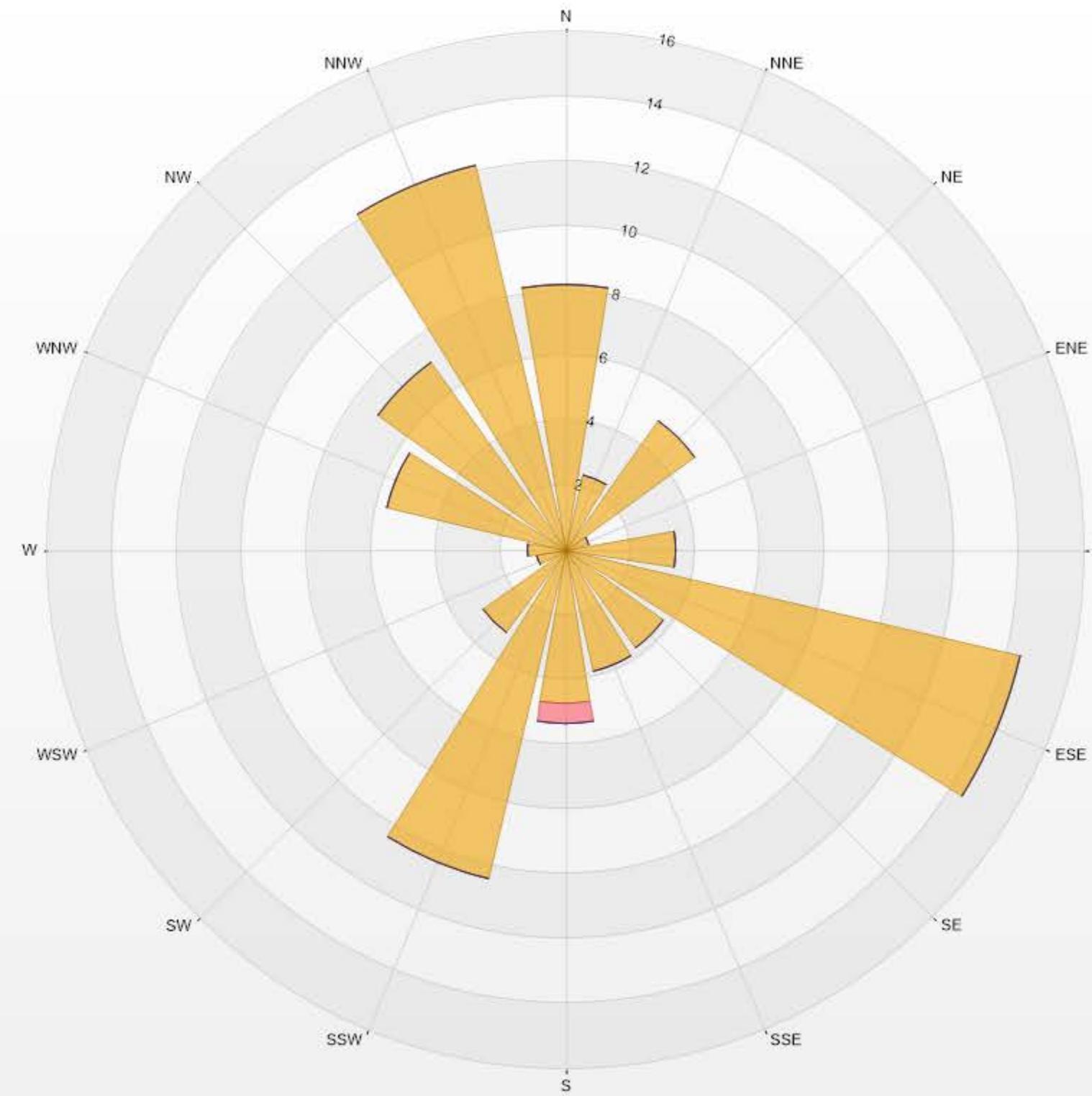
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

### *Timeseries Chart of Hourly Average for VWS - 986b Station*



Wind: PRAMP 986 Poll.: PRAMP 986-WDS[KPH] Monthly: 02-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 12.35% Valid Data: 100.00% Calm Avg: 1.18 [KPH]

Direction	6-15	15-29	29-39	>39.0	Total
N	8.18	0	0	0	8.18
NNE	2.38	0	0	0	2.38
NE	4.91	0	0	0	4.91
ENE	0.74	0	0	0	0.74
E	3.42	0	0	0	3.42
ESE	14.43	0	0	0	14.43
SE	3.72	0	0	0	3.72
SSE	3.87	0	0	0	3.87
S	4.76	0.6	0	0	5.36
SSW	10.42	0	0	0	10.42
SW	3.13	0	0	0	3.13
WSW	0.89	0	0	0	0.89
W	1.19	0	0	0	1.19
WNW	5.65	0	0	0	5.65
NW	7.14	0	0	0	7.14
NNW	12.2	0	0	0	12.2
Summary	87.03	0.6	0	0	87.63





## PEACE RIVER AREA MONITORING PROGRAM

986b Station - February 2019

Summary of Hourly Averages

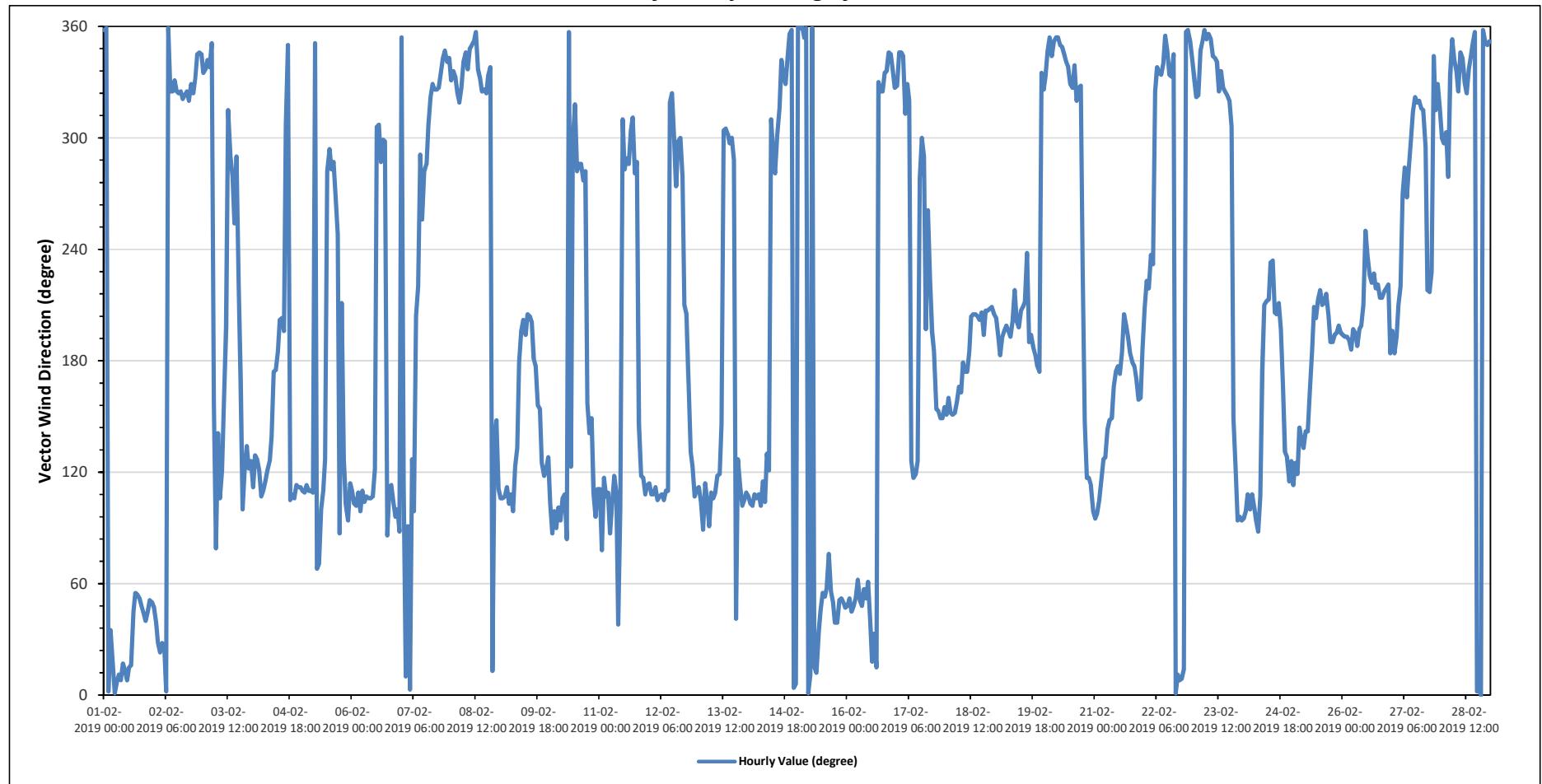
### WIND DIRECTION (VWD) in sector

Monthly Average:		311 (NW) degree		Hours in Service:		672		Hours of Data:		672		Hours of Missing Data:		0		Hours of Calibration:		0		Operational Uptime:		100.0						
Day		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant	
Feb 1	N	N	N	NE	NNE	N	N	NNE	N	NNE	N	NNE	N	NNE	N	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	29	NNE	
Feb 2	NE	NE	NNE	NNE	NNE	NNE	N	N	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	343	NNW		
Feb 3	NNW	NNW	NNW	NNW	NNW	N	SSE	ENE	SE	ESE	ESE	SSE	NNW	NNW	NNW	W	WSW	NNW	SW	SSE	E	ESE	SE	ESE	SE	255	WSW	
Feb 4	ESE	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	S	S	SSW	SSW	SSW	SSW	NW	N	ESE	ESE	ESE	ESE	ESE	149	SSE		
Feb 5	ESE	ESE	ESE	ESE	ESE	ESE	ESE	N	ENE	ENE	E	ESE	SE	W	WNW	W	WNW	W	WSW	E	SSW	SE	ESE	E	ESE	109	ESE	
Feb 6	ESE	ESE	E	ESE	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	NNW	NNW	NNW	NNW	NNW	E	ESE	ESE	E	E	E	77	ENE		
Feb 7	N	ESE	N	E	N	SE	E	SSW	SW	WNW	WSW	W	WNW	NW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	323	NW	
Feb 8	NNW	NNW	NNW	NNW	NW	NW	NNW	NNW	NNW	N	N	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	336	NNW	
Feb 9	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	SSE	SSE	SE	ESE	ESE	163	SSE	
Feb 10	ESE	E	E	E	E	E	ESE	ESE	ESE	E	N	ESE	WNW	NW	W	WNW	WNW	W	W	SSE	SE	SSE	ESE	E	ESE	42	NE	
Feb 11	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	NE	E	NW	WNW	WNW	NW	W	WNW	SE	ESE	ESE	ESE	ESE	304	WNW	
Feb 12	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	NW	NW	NNW	W	WNW	WNW	W	SSW	SSW	SSW	SSE	ESE	ESE	140	SE	
Feb 13	ESE	ESE	E	ESE	ESE	E	ESE	ESE	ESE	ESE	ESE	ESE	SE	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	NE	SE	ESE	ESE	ESE	86	E
Feb 14	ESE	ESE	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	NW	NW	W	WNW	WNW	W	W	SSE	SE	SSE	ESE	E	ESE	352	N
Feb 15	N	N	N	N	N	N	N	NNE	N	NNE	N	NNE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	39	NE	
Feb 16	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NNE	NNE	NNE	NNE	NNE	NW	NW	NW	NW	NW	NW	NW	20	NNE	
Feb 17	NNW	NNW	NNW	NNW	NNW	NW	NNW	NW	SE	ESE	ESE	ESE	SE	W	WNW	WNW	SSW	W	SW	SSW	S	SSE	SSE	SSE	SSE	SSE	191	S
Feb 18	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	183	S
Feb 19	SSW	S	S	S	SSW	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	S	S	S	NNW	NNW	202	SSW	
Feb 20	NNW	NNW	N	NNW	N	N	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	344	NNW	
Feb 21	E	E	ESE	ESE	SE	SE	SE	SSE	SSE	SSE	S	S	S	SSW	SSW	SSW	S	SSW	S	S	S	SSE	SSE	SSE	SSE	S	171	S
Feb 22	SSW	SW	SW	SW	SW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	343	NNW	
Feb 23	NNW	NW	NW	NNW	N	N	N	N	N	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	341	NNW	
Feb 24	E	E	ESE	ESE	E	ESE	E	E	ESE	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	170	SSE	
Feb 25	ESE	SE	ESE	SE	SE	SE	SE	SE	SSE	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	SSW	SSW	SSW	SSW	SSW	190	S	
Feb 26	SSW	S	S	S	S	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	212	SSW	
Feb 27	SSW	S	S	S	SSW	SW	W	WNW	W	WNW	NNW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	302	WNW	
Feb 28	WNW	WNW	WNW	WNW	W	NNW	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	341	NNW	
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 - 986b Station*



# **842 STATION**



## PEACE RIVER AREA MONITORING PROGRAM

**842b Station - February 2019**

**Summary of Hourly Averages**

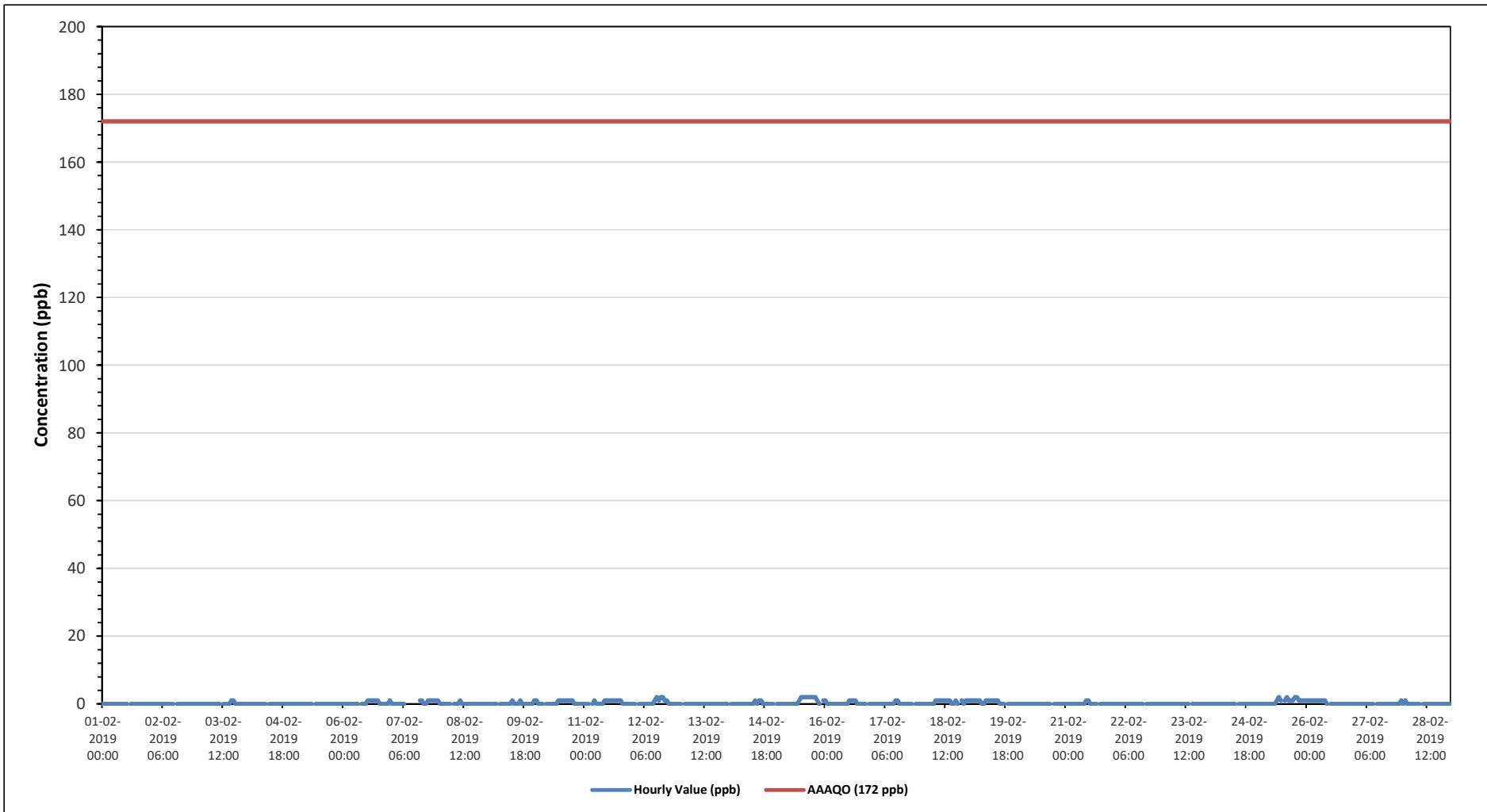
**SULPHUR DIOXIDE (SO<sub>2</sub>) in ppb**

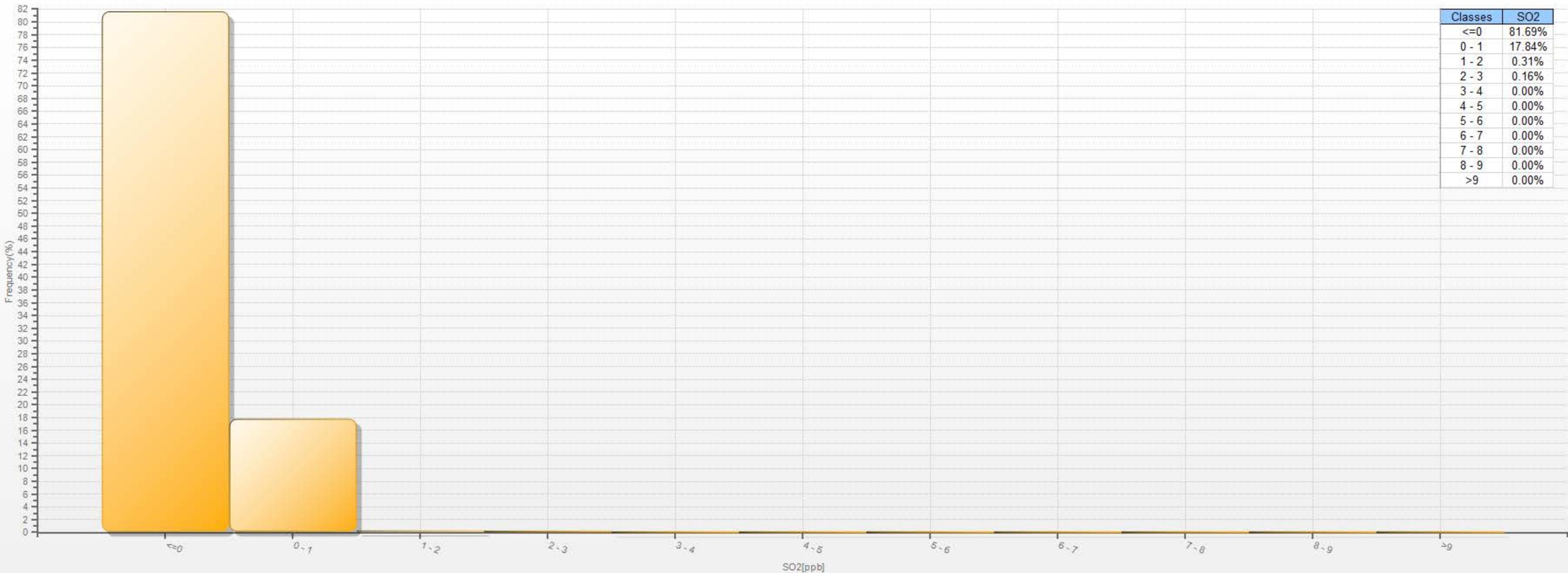
Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																																
Number of 1-Hour Exceedences:		0	Number of 24-Hour Exceedences:		0	30-Day Exceedence:		0																								
Maximum Hourly Value:		2	ppb on February 12 at hour 12																								Hours in Service:	672				
Maximum Daily Value:		0.8	ppb on February 15																								Hours of Data:	637				
Minimum Hourly Value:		0	ppb on February 1 at hour 0																								Hours of Missing Data:	0				
Minimum Daily Value:		0.0	ppb on February 1																								Hours of Calibration:	35				
Monthly Average:		0.2	ppb																								Operational Uptime:	100.0				
Day	Hourly Period Starting at (MST)																									Daily Minimum	Daily Maximum	Daily Average				
Feb 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			
Feb 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			
Feb 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	0.1			
Feb 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			
Feb 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			
Feb 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	0.3			
Feb 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	-			
Feb 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Feb 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1			
Feb 10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0.4			
Feb 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0.4			
Feb 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	1	1	0	0	0	0	0	0	0.4			
Feb 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			
Feb 14	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0.1			
Feb 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	1	0	0	0	0	0	0.8			
Feb 16	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0.2			
Feb 17	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	0.1			
Feb 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	0.5			
Feb 19	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0.6			
Feb 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			
Feb 21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0.1			
Feb 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			
Feb 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Feb 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Feb 25	0	0	0	0	0	0	0	0	1	2	1	S	1	2	1	1	1	2	2	2	1	1	1	1	1	0	0	2	0.8			
Feb 26	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.04			
Feb 27	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Feb 28	0	1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Diurnal Maximum	1	1	1	1	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1				
Diurnal Average	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.4	0.5	0.4	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.3							
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.

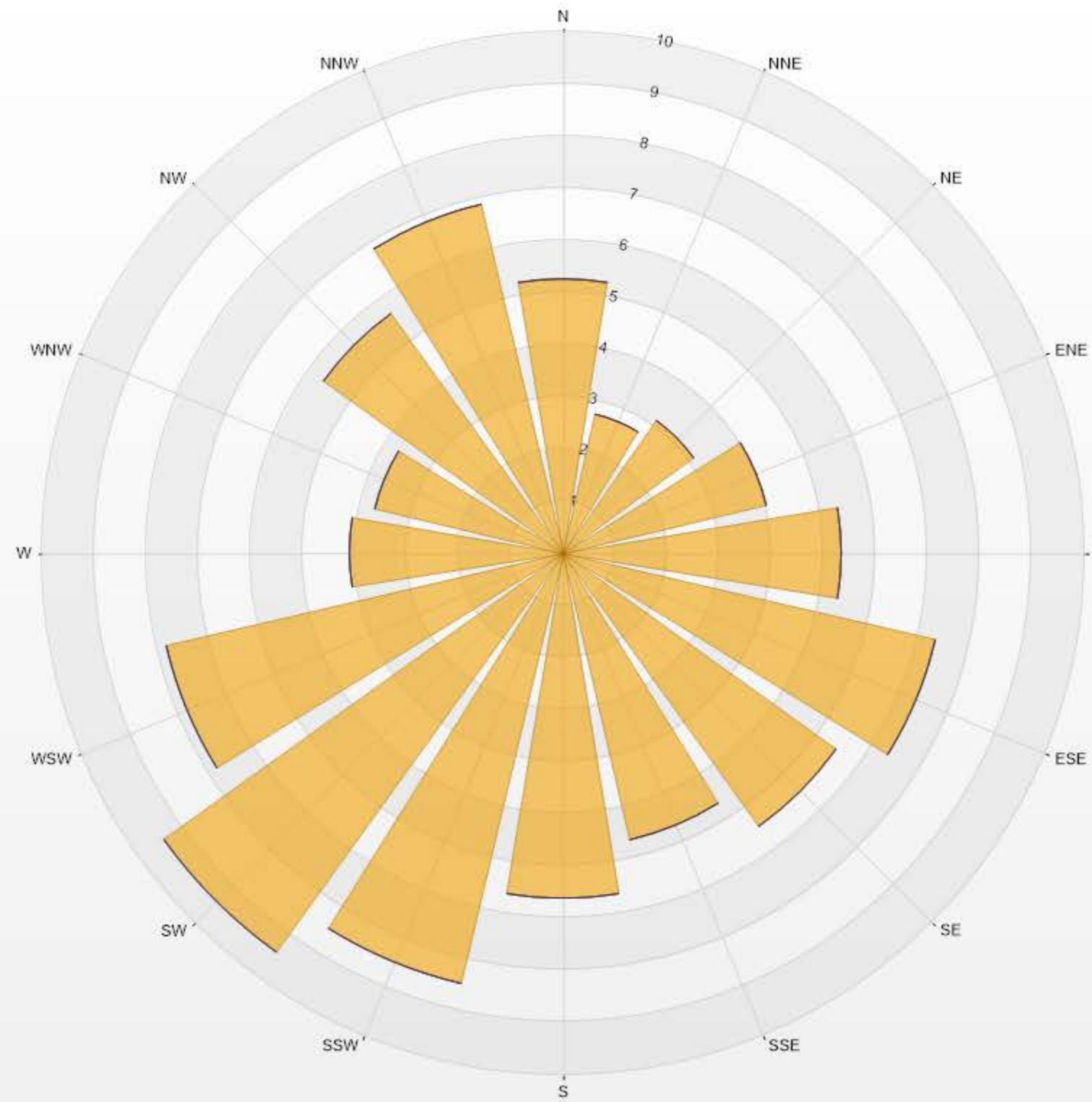
### *Timeseries Chart of Hourly Average for SO<sub>2</sub> - 842b Station*



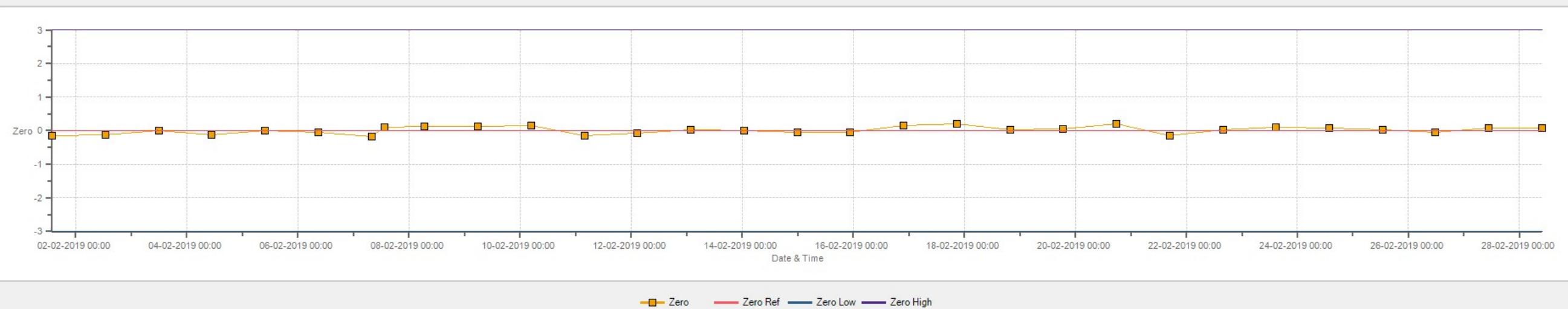


Wind: PRAMP 842 Poll.: PRAMP 842-SO2[ppb] Periodically: 01-02-2018 00:00-28-02-2019 23:00 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 7.38% Valid Data: 94.07% Calm Avg: 0.13 [ppb]

Direction	10-50	50-100	100-172	>172.0	Total
N	5.26	0	0	0	5.26
NNE	2.74	0	0	0	2.74
NE	3.12	0	0	0	3.12
ENE	4.01	0	0	0	4.01
E	5.35	0	0	0	5.35
ESE	7.36	0	0	0	7.36
SE	6.46	0	0	0	6.46
SSE	5.65	0	0	0	5.65
S	6.62	0	0	0	6.62
SSW	8.5	0	0	0	8.5
SW	9.42	0	0	0	9.42
WSW	7.82	0	0	0	7.82
W	4.09	0	0	0	4.09
WNW	3.71	0	0	0	3.71
NW	5.64	0	0	0	5.64
NNW	6.87	0	0	0	6.87
Summary	92.62	0	0	0	92.62



Zero



Span





## PEACE RIVER AREA MONITORING PROGRAM

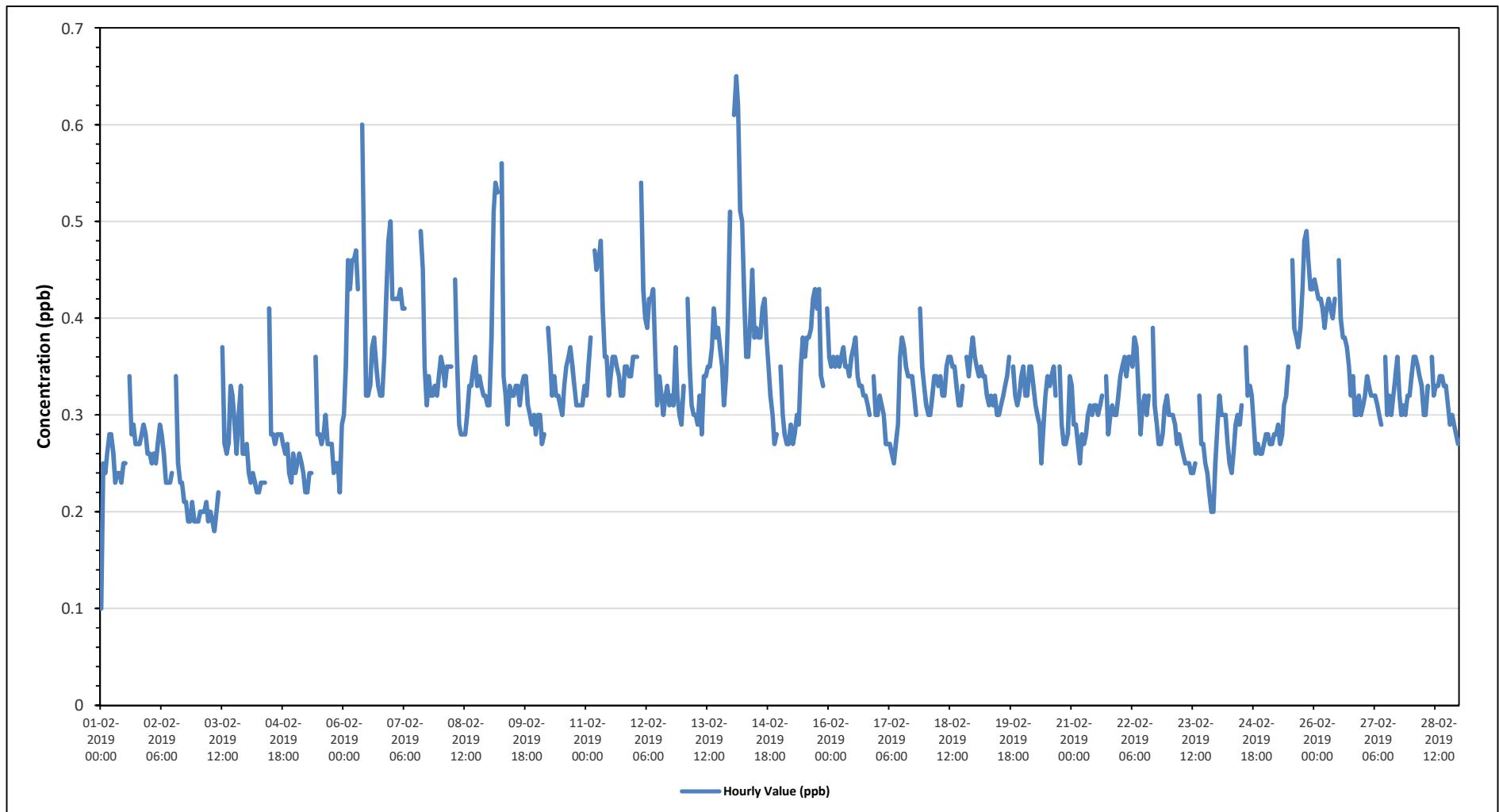
**842b Station - February 2019**  
**Summary of Hourly Averages**

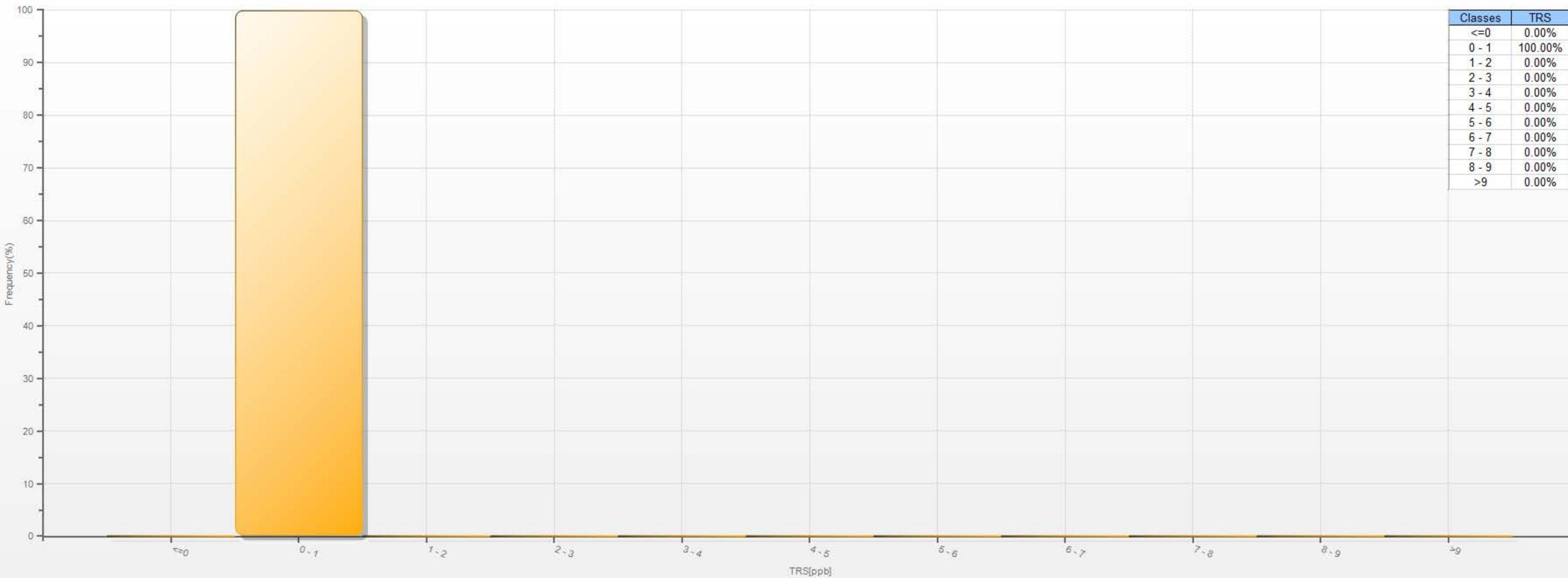
### TOTAL REDUCED SULPHUR (TRS) in ppb

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:		0.65	ppb on February 14 at hour 2																										
Maximum Daily Value:		0.42	ppb on February 14																										
Minimum Hourly Value:		0.10	ppb on February 1 at hour 0																										
Minimum Daily Value:		0.24	ppb on February 2																										
Monthly Average:		0.32	ppb																										
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Minimum	Daily Maximum	Daily Average		
Feb 1	0.1	0.25	0.24	0.26	0.28	0.28	0.26	0.23	0.24	0.24	0.23	0.25	0.25	S	0.34	0.28	0.29	0.27	0.27	0.27	0.28	0.29	0.28	0.26	0.10	0.34	0.26		
Feb 2	0.26	0.25	0.26	0.25	0.27	0.29	0.28	0.26	0.23	0.23	0.23	0.24	S	0.34	0.25	0.23	0.23	0.21	0.21	0.19	0.19	0.21	0.19	0.19	0.19	0.34	0.24		
Feb 3	0.19	0.2	0.2	0.21	0.19	0.2	0.19	0.18	0.2	0.22	S	0.37	0.27	0.26	0.27	0.33	0.32	0.29	0.26	0.3	0.33	0.26	0.26	0.18	0.37	0.25			
Feb 4	0.27	0.24	0.23	0.24	0.23	0.22	0.22	0.23	0.23	0.23	S	0.41	0.28	0.28	0.27	0.27	0.28	0.28	0.27	0.27	0.26	0.27	0.24	0.23	0.26	0.22	0.41	0.26	
Feb 5	0.24	0.25	0.26	0.25	0.24	0.22	0.22	0.24	0.24	S	0.36	0.28	0.28	0.27	0.28	0.3	0.27	0.27	0.27	0.24	0.25	0.25	0.22	0.29	0.22	0.36	0.26		
Feb 6	0.3	0.35	0.46	0.43	0.46	0.46	0.47	0.43	S	0.6	0.47	0.32	0.32	0.33	0.37	0.38	0.35	0.33	0.32	0.32	0.36	0.42	0.48	0.5	0.30	0.60	0.40		
Feb 7	0.42	0.42	0.42	0.42	0.41	0.41	S	C	C	C	C	C	C	0.49	0.45	0.35	0.31	0.34	0.32	0.32	0.33	0.32	0.34	0.31	0.49	-	0.31	0.49	
Feb 8	0.36	0.35	0.33	0.35	0.35	0.35	S	0.44	0.36	0.29	0.28	0.28	0.28	0.3	0.33	0.33	0.35	0.36	0.33	0.34	0.33	0.32	0.32	0.31	0.28	0.44	0.33		
Feb 9	0.31	0.38	0.51	0.54	0.53	S	0.56	0.34	0.32	0.29	0.33	0.32	0.32	0.33	0.33	0.31	0.33	0.34	0.34	0.31	0.3	0.29	0.3	0.28	0.28	0.56	0.36		
Feb 10	0.3	0.3	0.27	0.28	S	0.39	0.36	0.32	0.34	0.32	0.32	0.31	0.3	0.33	0.35	0.36	0.37	0.35	0.33	0.31	0.31	0.31	0.31	0.33	0.27	0.39	0.32		
Feb 11	0.32	0.35	0.38	S	0.47	0.45	0.46	0.48	0.41	0.36	0.36	0.32	0.34	0.36	0.36	0.35	0.34	0.32	0.32	0.35	0.35	0.34	0.34	0.36	0.32	0.48	0.37		
Feb 12	0.36	0.36	S	0.54	0.43	0.4	0.39	0.42	0.42	0.43	0.36	0.31	0.34	0.32	0.3	0.32	0.33	0.31	0.32	0.31	0.37	0.32	0.3	0.29	0.54	0.36			
Feb 13	0.33	S	0.42	0.35	0.31	0.3	0.3	0.29	0.32	0.28	0.34	0.34	0.35	0.35	0.37	0.41	0.38	0.39	0.37	0.35	0.31	0.34	0.4	0.51	0.28	0.51	0.35		
Feb 14	S	0.61	0.65	0.62	0.51	0.5	0.42	0.36	0.36	0.4	0.45	0.38	0.39	0.38	0.38	0.41	0.42	0.38	0.35	0.32	0.3	0.27	0.28	S	0.27	0.65	0.42		
Feb 15	0.35	0.3	0.28	0.27	0.27	0.29	0.27	0.28	0.3	0.29	0.35	0.38	0.36	0.38	0.38	0.39	0.42	0.43	0.41	0.43	0.34	0.33	S	0.41	0.27	0.43	0.34		
Feb 16	0.36	0.35	0.36	0.35	0.36	0.35	0.36	0.37	0.35	0.35	0.34	0.36	0.37	0.38	0.34	0.33	0.32	0.32	0.31	0.3	S	0.34	0.3	0.30	0.38	0.34			
Feb 17	0.3	0.32	0.31	0.3	0.27	0.27	0.27	0.26	0.25	0.27	0.29	0.36	0.38	0.37	0.35	0.34	0.34	0.34	0.32	0.3	S	0.41	0.35	0.33	0.41	0.32			
Feb 18	0.31	0.3	0.3	0.32	0.34	0.34	0.33	0.34	0.32	0.32	0.35	0.36	0.36	0.35	0.35	0.33	0.31	0.31	0.33	S	0.36	0.34	0.36	0.38	0.30	0.38	0.34		
Feb 19	0.36	0.35	0.34	0.35	0.34	0.34	0.32	0.31	0.32	0.31	0.32	0.3	0.3	0.31	0.32	0.33	0.34	0.36	S	0.35	0.32	0.31	0.32	0.34	0.30	0.36	0.33		
Feb 20	0.35	0.32	0.32	0.35	0.35	0.33	0.31	0.3	0.29	0.25	0.29	0.32	0.34	0.33	0.34	0.35	0.32	S	0.35	0.29	0.27	0.27	0.28	0.34	0.25	0.35	0.32		
Feb 21	0.33	0.29	0.29	0.27	0.25	0.28	0.27	0.28	0.3	0.31	0.3	0.31	0.3	0.31	0.3	0.31	0.32	S	0.34	0.28	0.3	0.31	0.3	0.3	0.32	0.25	0.34	0.30	
Feb 22	0.34	0.35	0.36	0.34	0.36	0.36	0.35	0.38	0.37	0.32	0.28	0.31	0.32	0.3	0.32	S	0.39	0.31	0.29	0.27	0.27	0.28	0.31	0.32	0.27	0.39	0.33		
Feb 23	0.3	0.3	0.29	0.27	0.28	0.27	0.26	0.25	0.25	0.24	0.24	0.25	0.24	0.25	S	0.32	0.27	0.27	0.25	0.24	0.22	0.2	0.2	0.25	0.20	0.32	0.26		
Feb 24	0.29	0.32	0.3	0.3	0.27	0.25	0.24	0.26	0.29	0.3	0.29	0.31	0.31	S	0.37	0.32	0.33	0.32	0.29	0.26	0.27	0.26	0.26	0.27	0.24	0.37	0.29		
Feb 25	0.28	0.28	0.27	0.27	0.28	0.28	0.29	0.27	0.28	0.31	0.32	0.35	S	0.46	0.39	0.38	0.37	0.39	0.43	0.48	0.49	0.46	0.43	0.43	0.27	0.49	0.36		
Feb 26	0.44	0.43	0.42	0.42	0.41	0.39	0.41	0.42	0.41	0.4	0.42	0.46	0.4	0.4	0.42	0.38	0.38	0.37	0.35	0.32	0.34	0.3	0.3	0.32	0.3	0.46	0.38		
Feb 27	0.31	0.32	0.34	0.33	0.32	0.32	0.32	0.31	0.3	0.29	S	0.36	0.3	0.32	0.3	0.32	0.34	0.36	0.32	0.3	0.31	0.3	0.32	0.32	0.29	0.36	0.32		
Feb 28	0.34	0.36	0.36	0.35	0.34	0.33	0.3	0.3	0.33	S	0.36	0.32	0.33	0.33	0.34	0.34	0.33	0.31	0.29	0.3	0.29	0.28	0.27	0.27	0.36	0.32			
Diurnal Maximum	0	1	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1				
Diurnal Average	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3		
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.

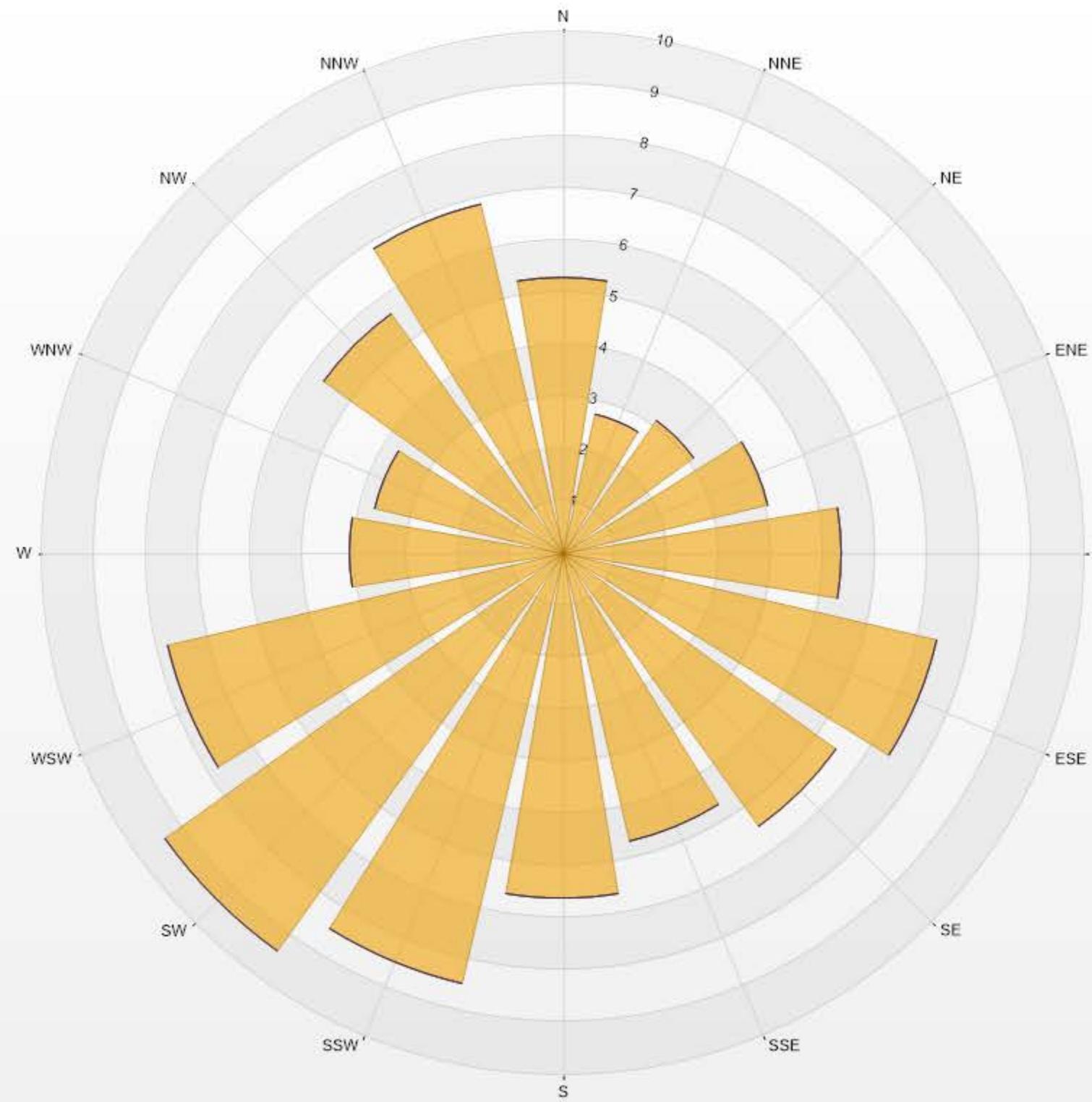
### *Timeseries Chart of Hourly Average for TRS - 842b Station*



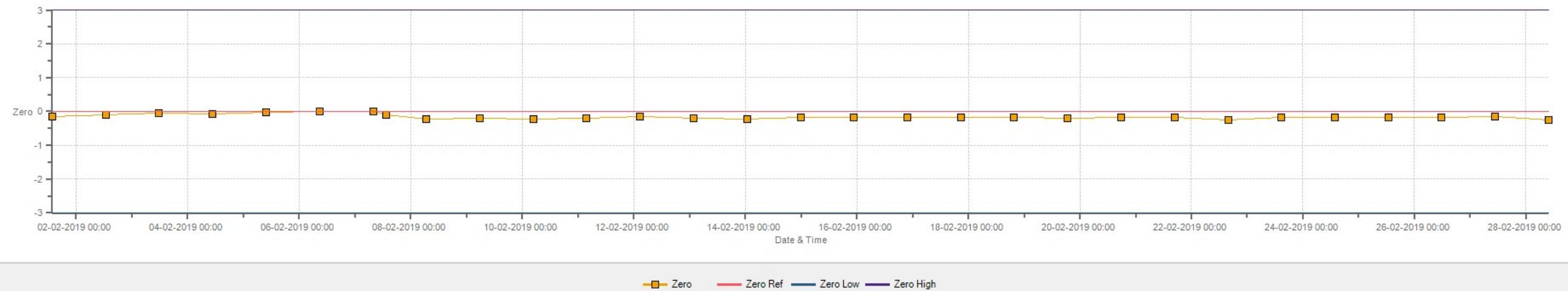


Wind: PRAMP 842 Poll.: PRAMP 842-TRS[ppb] Periodically: 01-02-2018 00:00-28-02-2019 23:00 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr  
 Calm: 7.37% Valid Data: 93.78% Calm Avg: 0.39 [ppb]

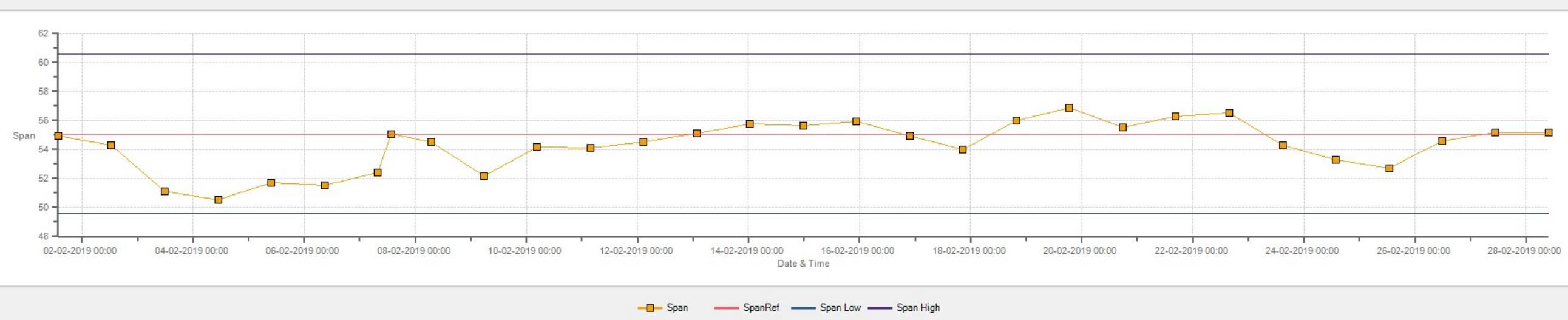
Direction	2-5	5-10	10-50	>50.0	Total
N	5.28	0	0	0	5.28
NNE	2.74	0	0	0	2.74
NE	3.12	0	0	0	3.12
ENE	4.04	0	0	0	4.04
E	5.34	0	0	0	5.34
ESE	7.38	0	0	0	7.38
SE	6.46	0	0	0	6.46
SSE	5.69	0	0	0	5.69
S	6.64	0	0	0	6.64
SSW	8.48	0	0	0	8.48
SW	9.4	0	0	0	9.4
WSW	7.79	0	0	0	7.79
W	4.09	0	0	0	4.09
WNW	3.69	0	0	0	3.69
NW	5.65	0	0	0	5.65
NNW	6.86	0	0	0	6.86
Summary	92.65	0	0	0	92.65



Zero



Span





## PEACE RIVER AREA MONITORING PROGRAM

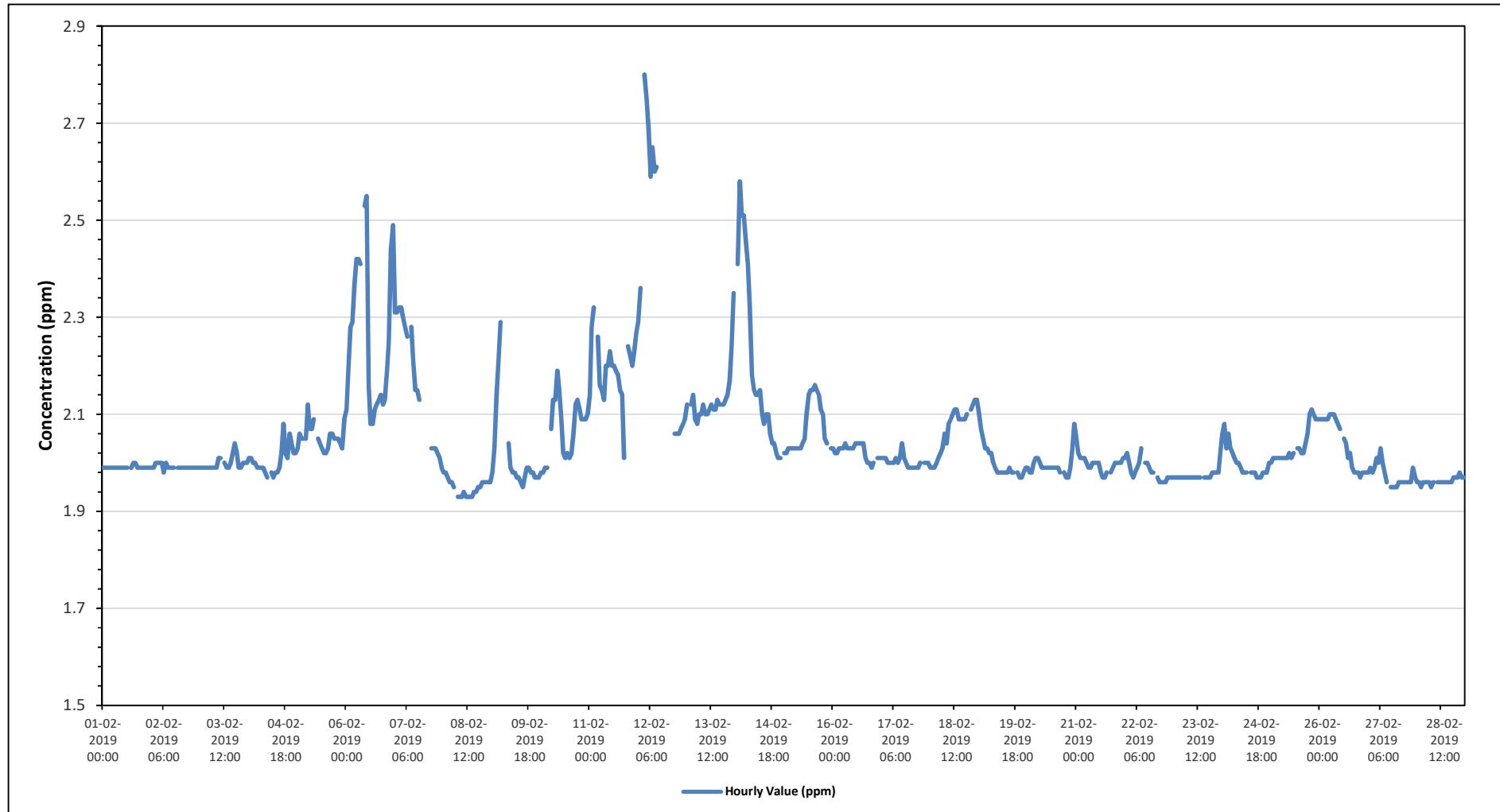
**842b Station - February 2019**

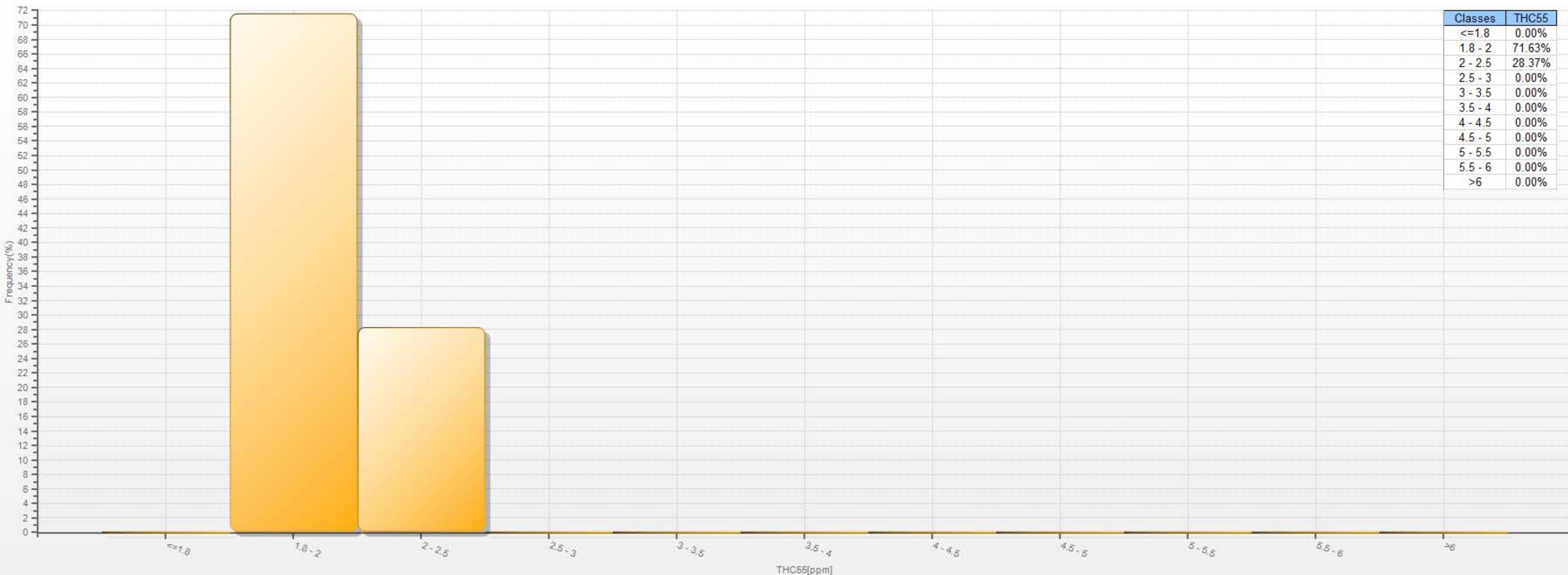
### Summary of Hourly Averages

#### TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	2.80 ppm on February 12 at hour 3	Hours in Service:	672	Daily Minimum	Daily Maximum	Daily Average																									
Maximum Daily Value:	2.26 ppm on February 6	Hours of Data:	627																												
Minimum Hourly Value:	1.93 ppm on February 8 at hour 7	Hours of Missing Data:	11																												
Minimum Daily Value:	1.95 ppm on February 8	Hours of Calibration:	34																												
Monthly Average:	2.05 ppm	Operational Uptime:	98.4																												
Day	Hourly Period Starting at (MST)																														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Minimum	Daily Maximum	Daily Average				
Feb 1	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	S	1.99	2.00	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99			
Feb 2	1.99	1.99	2.00	2.00	2.00	1.98	2.00	1.99	1.99	1.99	1.99	1.99	S	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.98	2.00	1.99			
Feb 3	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.01	2.01	S	2.00	1.99	1.99	2.00	2.02	2.04	2.02	1.99	1.99	2.00	2.00	2.00	2.00	1.99	2.04	2.00			
Feb 4	2.01	2.01	2.00	2.00	1.99	1.99	1.99	1.99	1.98	1.97	1.97	S	1.98	1.97	1.98	1.99	2.02	2.08	2.02	2.01	2.06	2.06	2.04	2.02	2.02	1.97	2.08	2.00			
Feb 5	2.03	2.06	2.05	2.05	2.05	2.12	2.07	2.07	2.09	S	2.05	2.04	2.03	2.02	2.02	2.03	2.06	2.06	2.05	2.05	2.05	2.04	2.03	2.09	2.02	2.12	2.05				
Feb 6	2.11	2.19	2.28	2.29	2.37	2.42	2.42	2.41	S	2.53	2.55	2.16	2.08	2.08	2.11	2.12	2.13	2.14	2.12	2.13	2.19	2.25	2.44	2.49	2.08	2.55	2.26				
Feb 7	2.31	2.31	2.32	2.32	2.30	2.28	2.26	S	2.28	2.21	2.15	2.15	2.13	C	C	C	C	2.03	2.03	2.03	2.02	2.01	1.99	1.99	2.32	2.17					
Feb 8	1.98	1.98	1.97	1.96	1.96	1.95	S	1.93	1.93	1.93	1.94	1.93	1.93	1.93	1.94	1.94	1.94	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.93	1.98	1.95				
Feb 9	1.98	2.03	2.14	2.21	2.29	S	2.40	S1	2.04	1.99	1.98	1.98	1.97	1.97	1.96	1.95	1.97	1.99	1.98	1.98	1.97	1.97	1.97	1.97	1.95	2.40	2.03				
Feb 10	1.98	1.98	1.99	1.99	S	2.07	2.13	2.13	2.19	2.15	2.09	2.09	2.02	2.01	2.02	2.01	2.02	2.06	2.12	2.13	2.11	2.09	2.09	2.09	2.10	1.98	2.19	2.07			
Feb 11	2.14	2.28	2.32	S	2.26	2.16	2.15	2.13	2.20	2.20	2.23	2.20	2.20	2.19	2.18	2.15	2.14	2.01	S1	2.24	2.22	2.20	2.23	2.27	2.01	2.32	2.20				
Feb 12	2.29	2.36	S	2.80	2.75	2.69	2.59	2.65	2.60	2.61	C1	C1	C1	C1	C1	C1	C1	C1	C1	2.06	2.06	2.06	2.07	2.08	2.09	2.06	2.80	-			
Feb 13	2.12	S	2.12	2.14	2.09	2.08	2.08	2.10	2.10	2.12	2.10	2.10	2.11	2.12	2.11	2.13	2.12	2.12	2.12	2.13	2.14	2.17	2.24	2.35	2.08	2.35	2.13				
Feb 14	S	2.41	2.58	2.51	2.51	2.46	2.41	2.32	2.18	2.15	2.14	2.14	2.15	2.10	2.08	2.10	2.10	2.06	2.04	2.04	2.02	2.01	2.01	S	2.01	2.58	2.21				
Feb 15	2.02	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.04	2.05	2.10	2.14	2.15	2.15	2.16	2.15	2.14	2.11	2.10	2.05	2.04	S	2.03	2.02	2.16	2.07			
Feb 16	2.03	2.02	2.02	2.03	2.03	2.03	2.04	2.03	2.03	2.03	2.04	2.04	2.04	2.04	2.04	2.04	2.01	2.00	1.99	2.00	S	2.01	2.01	1.99	2.04	2.02					
Feb 17	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.01	2.00	2.01	2.04	2.01	2.01	2.00	1.99	1.99	1.99	1.99	1.99	2.00	S	2.00	2.00	2.00	1.99	2.04	2.00				
Feb 18	1.99	1.99	1.99	2.00	2.01	2.02	2.03	2.06	2.04	2.08	2.09	2.10	2.11	2.11	2.09	2.09	2.09	2.09	2.10	S	2.11	2.12	2.13	2.13	1.99	2.13	2.07				
Feb 19	2.10	2.07	2.05	2.03	2.03	2.02	2.02	2.00	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	S	1.98	1.97	1.97	1.98	1.99	1.97	2.10	2.00					
Feb 20	1.99	1.98	1.98	2.00	2.01	2.01	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.98	1.98	1.98	1.97	1.97	1.97	1.98	2.03	2.08	1.97	2.08	1.99				
Feb 21	2.05	2.02	2.01	2.01	2.01	2.00	1.99	1.99	2.00	2.00	2.00	2.00	2.00	1.98	1.97	1.97	1.98	S	1.98	1.99	2.00	2.00	2.00	2.00	2.01	1.97	2.05	2.00			
Feb 22	2.01	2.02	2.00	1.98	1.97	1.98	1.99	2.00	2.03	Y	2.00	2.00	1.99	1.98	1.98	S	1.97	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.96	2.03	1.98				
Feb 23	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	S	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.97	2.02	1.97				
Feb 24	2.06	2.08	2.03	2.06	2.03	2.02	2.01	2.00	2.00	1.99	1.98	1.98	1.98	1.98	S	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	2.08	2.00	1.97	2.08	2.00		
Feb 25	2.00	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.02	2.01	2.02	2.02	2.02	S	2.03	2.02	2.02	2.04	2.06	2.10	2.11	2.10	2.09	2.09	2.09	2.00	2.11	2.04			
Feb 26	2.09	2.09	2.09	2.09	2.09	2.10	2.10	2.10	2.09	2.08	2.07	S	2.05	2.04	2.01	2.02	1.99	1.98	1.98	1.97	1.97	1.98	1.98	1.98	1.97	2.10	2.04				
Feb 27	1.98	1.99	1.98	1.99	2.01	2.00	2.03	2.00	1.98	1.96	1.96	S	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.95	2.03	1.97			
Feb 28	1.96	1.96	1.95	1.96	1.96	1.96	1.96	1.95	1.96	S	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.95	1.98	1.96					
Diurnal Maximum	2.31	2.41	2.58	2.80	2.75	2.69	2.59	2.65	2.60	2.61	2.55	2.20	2.20	2.19	2.18	2.16	2.15	2.14	2.13	2.24	2.22	2.25	2.44	2.49							
Diurnal Average	2.04	2.07	2.07	2.09	2.10	2.09	2.10	2.07	2.06	2.08	2.06	2.03	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.04	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	T	Exceeds Temperature Limits	N	Not in Service																		
R	Recovery	X	Machine Malfunction	Y	Maintenance																										
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																															
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																															

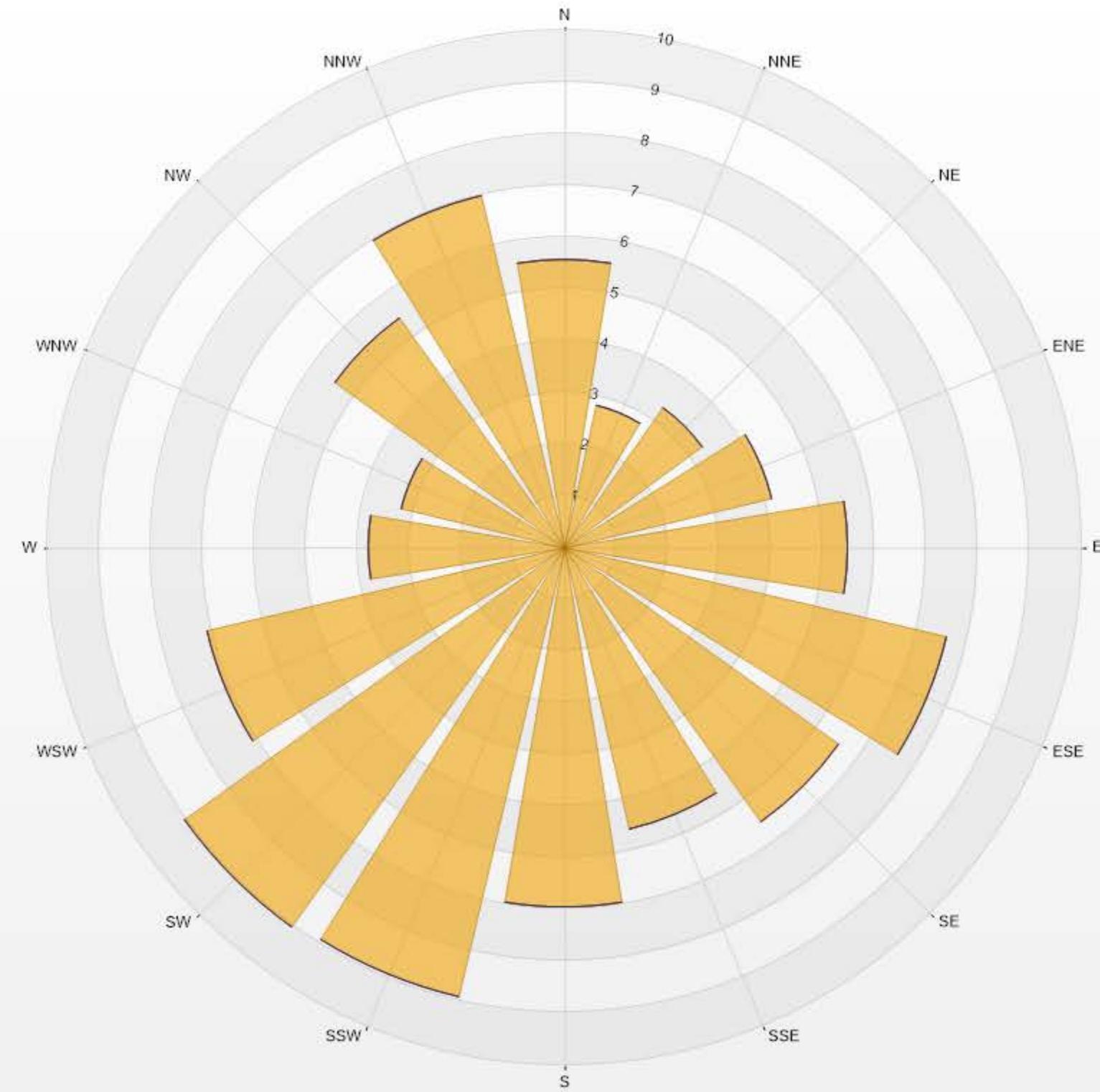
### *Timeseries Chart of Hourly Average for THC - 842b Station*





Wind: PRAMP 842 Poll.: PRAMP 842-THC55[ppm] Periodically: 01-02-2018 00:00-28-02-2019 23:00 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 7.46% Valid Data: 86.41% Calm Avg: 2.07 [ppm]

Direction	2-5	5-10	10-40	>40.0	Total
N	5.57	0	0	0	5.57
NNE	2.81	0	0	0	2.81
NE	3.31	0	0	0	3.31
ENE	4.13	0	0	0	4.13
E	5.48	0	0	0	5.48
ESE	7.6	0	0	0	7.6
SE	6.55	0	0	0	6.55
SSE	5.61	0	0	0	5.61
S	6.97	0	0	0	6.97
SSW	8.93	0	0	0	8.93
SW	9.04	0	0	0	9.04
WSW	7.09	0	0	0	7.09
W	3.79	0	0	0	3.79
WNW	3.23	0	0	0	3.23
NW	5.45	0	0	0	5.45
NNW	6.97	0	0	0	6.97
Summary	92.53	0	0	0	92.53



Zero



Span





## PEACE RIVER AREA MONITORING PROGRAM

**842b Station - February 2019**

### Summary of Hourly Averages

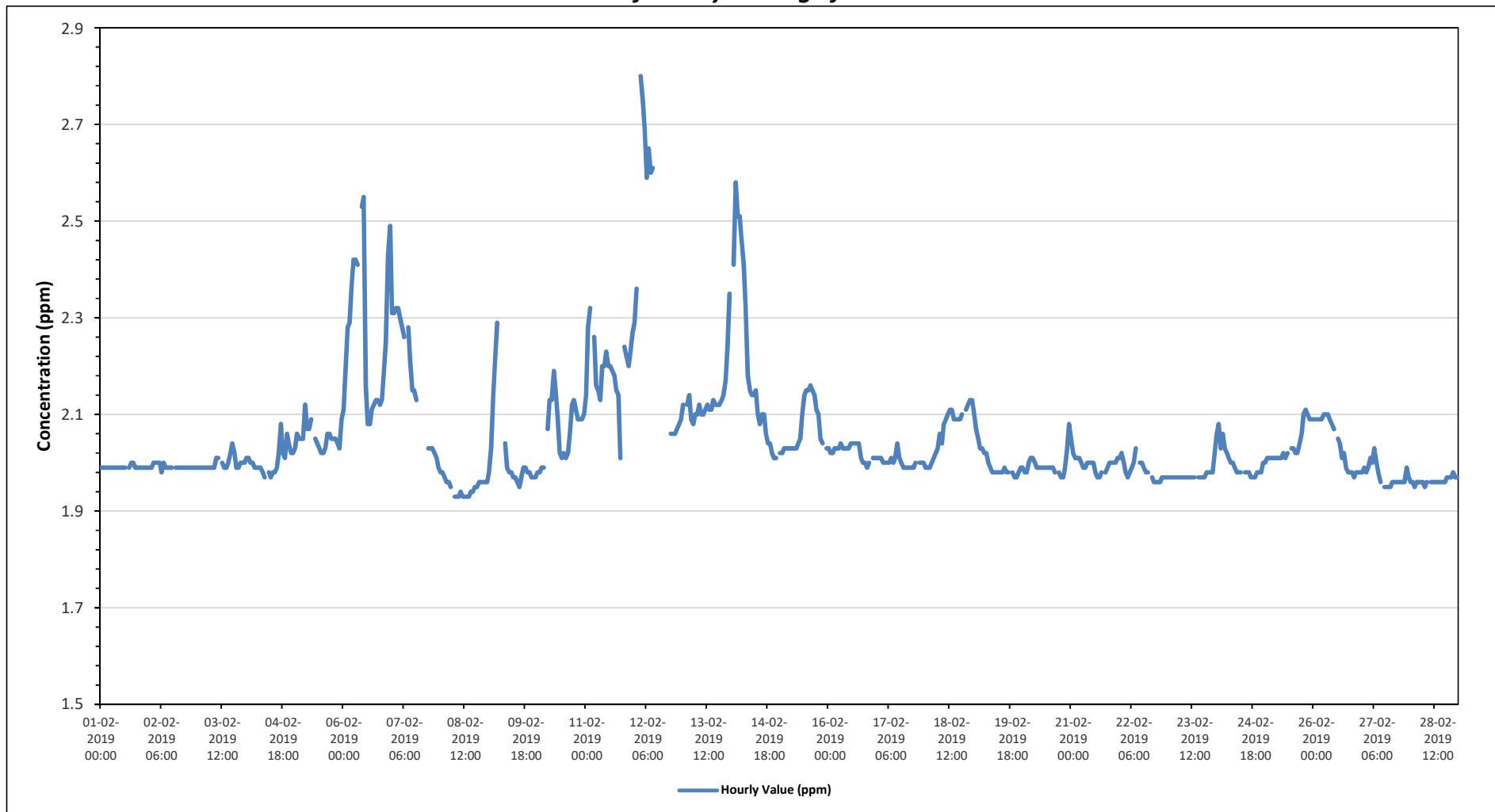
#### METHANE (CH<sub>4</sub>) in ppm

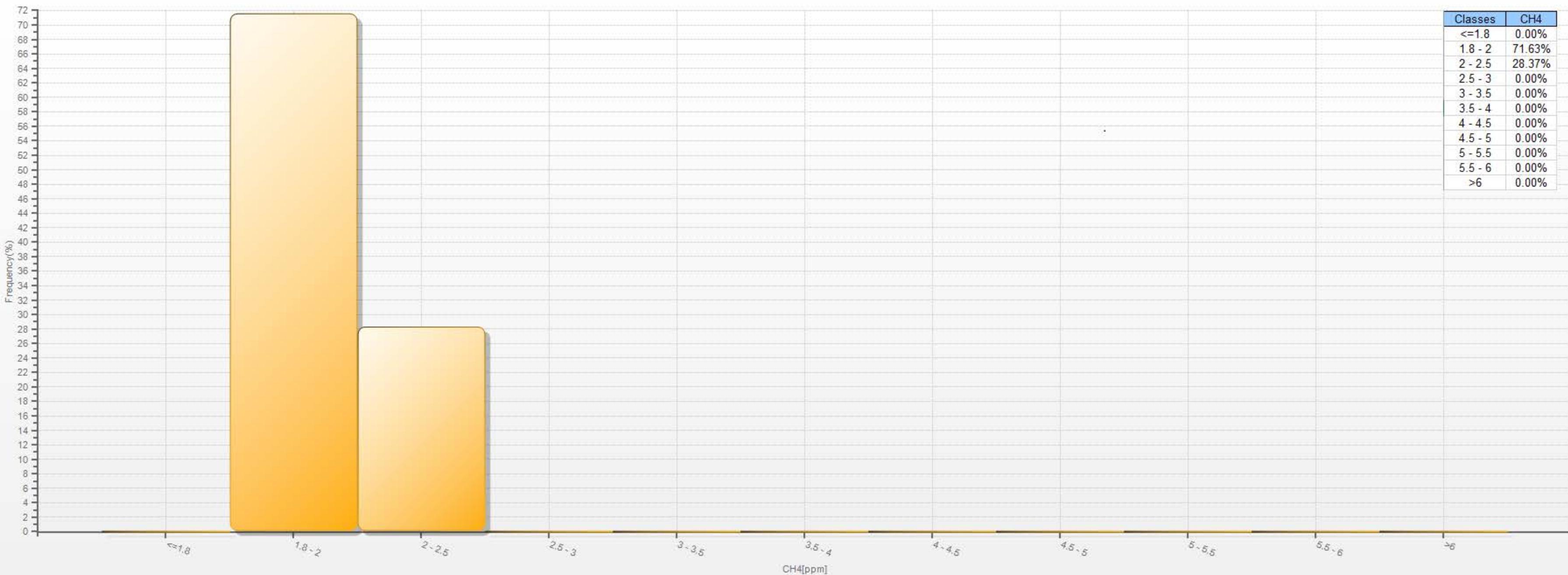
Maximum Hourly Value:	2.80 ppm on February 12 at hour 3	Hours in Service:	672																										
Maximum Daily Value:	2.26 ppm on February 6	Hours of Data:	627																										
Minimum Hourly Value:	1.93 ppm on February 8 at hour 7	Hours of Missing Data:	11																										
Minimum Daily Value:	1.95 ppm on February 8	Hours of Calibration:	34																										
Monthly Average:	2.05 ppm	Operational Uptime:	98.4																										
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23		
Feb 1	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	S	1.99	2.00	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99					
Feb 2	1.99	1.99	2.00	2.00	2.00	1.98	2.00	1.99	1.99	1.99	1.99	S	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.98	2.00					
Feb 3	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.01	2.01	S	2.00	1.99	1.99	2.00	2.02	2.04	2.02	1.99	1.99	2.00	2.00	1.99	2.04					
Feb 4	2.01	2.01	2.00	2.00	1.99	1.99	1.99	1.99	1.98	1.97	S	1.98	1.97	1.98	1.98	1.99	2.02	2.08	2.02	2.01	2.06	2.04	2.02	1.97					
Feb 5	2.03	2.06	2.05	2.05	2.05	2.12	2.07	2.07	2.09	S	2.05	2.04	2.03	2.02	2.02	2.03	2.06	2.06	2.05	2.05	2.05	2.04	2.03	2.09					
Feb 6	2.11	2.19	2.28	2.29	2.37	2.42	2.42	2.41	S	2.53	2.55	2.16	2.08	2.08	2.11	2.12	2.13	2.13	2.12	2.13	2.19	2.25	2.43	2.49					
Feb 7	2.31	2.31	2.32	2.32	2.30	2.28	2.26	S	2.28	2.21	2.15	2.15	2.13	C	C	C	C	2.03	2.03	2.03	2.02	2.01	1.99	1.99	2.32				
Feb 8	1.98	1.98	1.97	1.96	1.96	1.95	S	1.93	1.93	1.93	1.94	1.93	1.93	1.93	1.94	1.94	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.93					
Feb 9	1.98	2.03	2.14	2.21	2.29	S	2.40	S1	2.04	1.99	1.98	1.98	1.97	1.97	1.96	1.95	1.97	1.99	1.98	1.98	1.97	1.97	1.97	1.95					
Feb 10	1.98	1.98	1.99	1.99	S	2.07	2.13	2.13	2.19	2.15	2.09	2.09	2.02	2.01	2.02	2.06	2.12	2.13	2.11	2.09	2.09	2.09	2.10	1.98					
Feb 11	2.14	2.28	2.32	S	2.26	2.16	2.15	2.13	2.20	2.20	2.23	2.20	2.20	2.19	2.18	2.15	2.14	2.01	S1	2.24	2.22	2.20	2.23	2.27					
Feb 12	2.29	2.36	S	2.80	2.75	2.69	2.59	2.65	2.60	2.61	C1	C1	C1	C1	C1	C1	C1	C1	2.06	2.06	2.06	2.07	2.08	2.09	2.06	2.80			
Feb 13	2.12	S	2.12	2.14	2.09	2.08	2.08	2.10	2.10	2.12	2.10	2.10	2.11	2.12	2.11	2.13	2.12	2.12	2.12	2.13	2.14	2.17	2.24	2.35	2.08				
Feb 14	S	2.41	2.58	2.51	2.51	2.46	2.41	2.32	2.18	2.15	2.14	2.14	2.15	2.10	2.08	2.10	2.10	2.06	2.04	2.04	2.02	2.01	S	2.01	2.58				
Feb 15	2.02	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.04	2.05	2.10	2.14	2.15	2.15	2.16	2.15	2.14	2.11	2.10	2.05	2.04	S	2.03	2.02				
Feb 16	2.03	2.02	2.02	2.03	2.03	2.03	2.04	2.03	2.03	2.03	2.04	2.04	2.04	2.04	2.04	2.01	2.00	2.00	1.99	2.00	S	2.01	2.01	1.99	2.04				
Feb 17	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.01	2.00	2.01	2.04	2.01	2.00	1.99	1.99	1.99	1.99	1.99	2.00	S	2.00	2.00	2.00	1.99	2.04				
Feb 18	1.99	1.99	1.99	2.00	2.01	2.02	2.03	2.06	2.04	2.08	2.09	2.10	2.11	2.11	2.09	2.09	2.09	2.09	2.10	S	2.11	2.12	2.13	2.13	2.07				
Feb 19	2.10	2.07	2.05	2.03	2.03	2.02	2.02	2.00	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	S	1.98	1.97	1.97	1.98	2.10				
Feb 20	1.99	1.98	1.98	2.00	2.01	2.01	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.98	1.98	1.97	1.97	1.99	2.03	2.08	1.97	2.08	1.99				
Feb 21	2.05	2.02	2.01	2.01	2.01	2.00	1.99	1.99	2.00	2.00	2.00	2.00	1.98	1.97	1.97	1.98	S	1.98	1.98	1.99	2.00	2.00	2.00	2.01	2.05				
Feb 22	2.01	2.02	2.00	1.98	1.97	1.98	1.99	2.00	2.03	Y	2.00	2.00	1.99	1.98	1.98	S	1.97	1.96	1.96	1.96	1.96	1.97	1.97	1.96	2.03				
Feb 23	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	S	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.98	2.02					
Feb 24	2.06	2.08	2.03	2.06	2.03	2.02	2.01	2.00	2.00	1.99	1.98	1.98	1.98	1.98	S	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	2.08					
Feb 25	2.00	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.02	2.01	2.02	2.02	2.02	S	2.03	2.03	2.02	2.02	2.04	2.06	2.10	2.11	2.09	2.04					
Feb 26	2.09	2.09	2.09	2.09	2.10	2.10	2.10	2.09	2.08	2.07	S	2.05	2.04	2.01	2.02	1.99	1.98	1.98	1.97	1.98	1.98	1.98	1.98	2.04					
Feb 27	1.98	1.99	1.98	1.99	2.01	2.00	2.03	2.00	1.98	1.96	1.96	1.96	S	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.95					
Feb 28	1.96	1.96	1.95	1.96	1.96	1.96	1.96	1.95	1.96	S	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.96	1.96					
Diurnal Maximum	2.31	2.41	2.58	2.80	2.75	2.69	2.59	2.65	2.60	2.61	2.55	2.20	2.20	2.19	2.18	2.16	2.15	2.14	2.13	2.24	2.22	2.25	2.43	2.49					
Diurnal Average	2.04	2.07	2.07	2.09	2.10	2.09	2.10	2.07	2.06	2.08	2.06	2.03	2.03	2.02	2.02	2.02	2.02	2.02	2.03	2.04	2.06	2.03	2.04	1.96					
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.

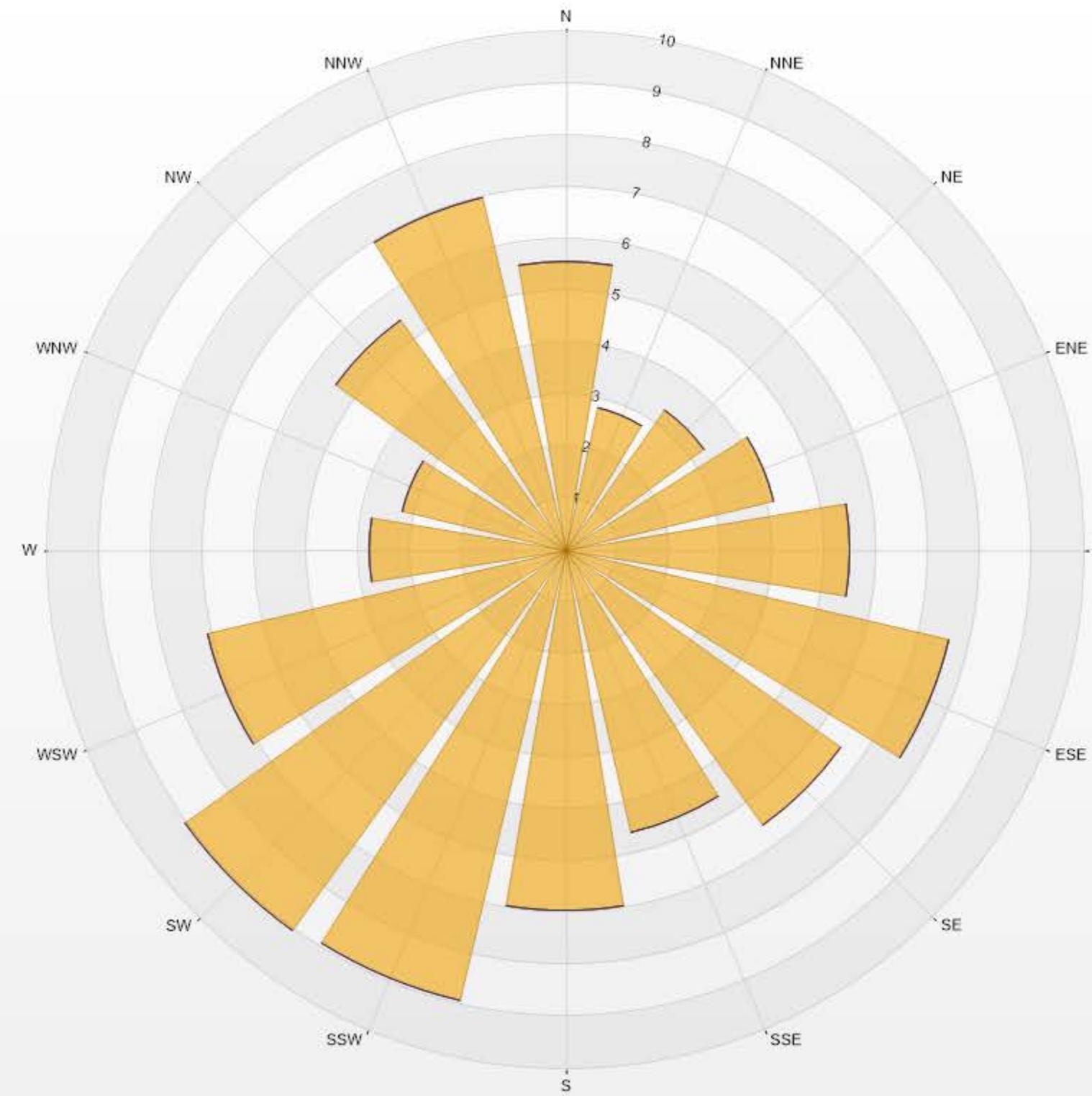
### *Timeseries Chart of Hourly Average for CH4 - 842b Station*





Wind: PRAMP 842 Poll.: PRAMP 842-CH4[ppm] Periodically: 01-02-2018 00:00-28-02-2019 23:00 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr  
Calm: 7.46% Valid Data: 86.41% Calm Avg: 2.07 [ppm]

Direction	2-5	5-10	10-20	>20.0	Total
N	5.57	0	0	0	5.57
NNE	2.81	0	0	0	2.81
NE	3.31	0	0	0	3.31
ENE	4.13	0	0	0	4.13
E	5.48	0	0	0	5.48
ESE	7.6	0	0	0	7.6
SE	6.55	0	0	0	6.55
SSE	5.61	0	0	0	5.61
S	6.97	0	0	0	6.97
SSW	8.93	0	0	0	8.93
SW	9.04	0	0	0	9.04
WSW	7.09	0	0	0	7.09
W	3.79	0	0	0	3.79
WNW	3.23	0	0	0	3.23
NW	5.45	0	0	0	5.45
NNW	6.97	0	0	0	6.97
Summary	92.53	0	0	0	92.53



Zero



Span





## PEACE RIVER AREA MONITORING PROGRAM

**842b Station - February 2019**

### Summary of Hourly Averages

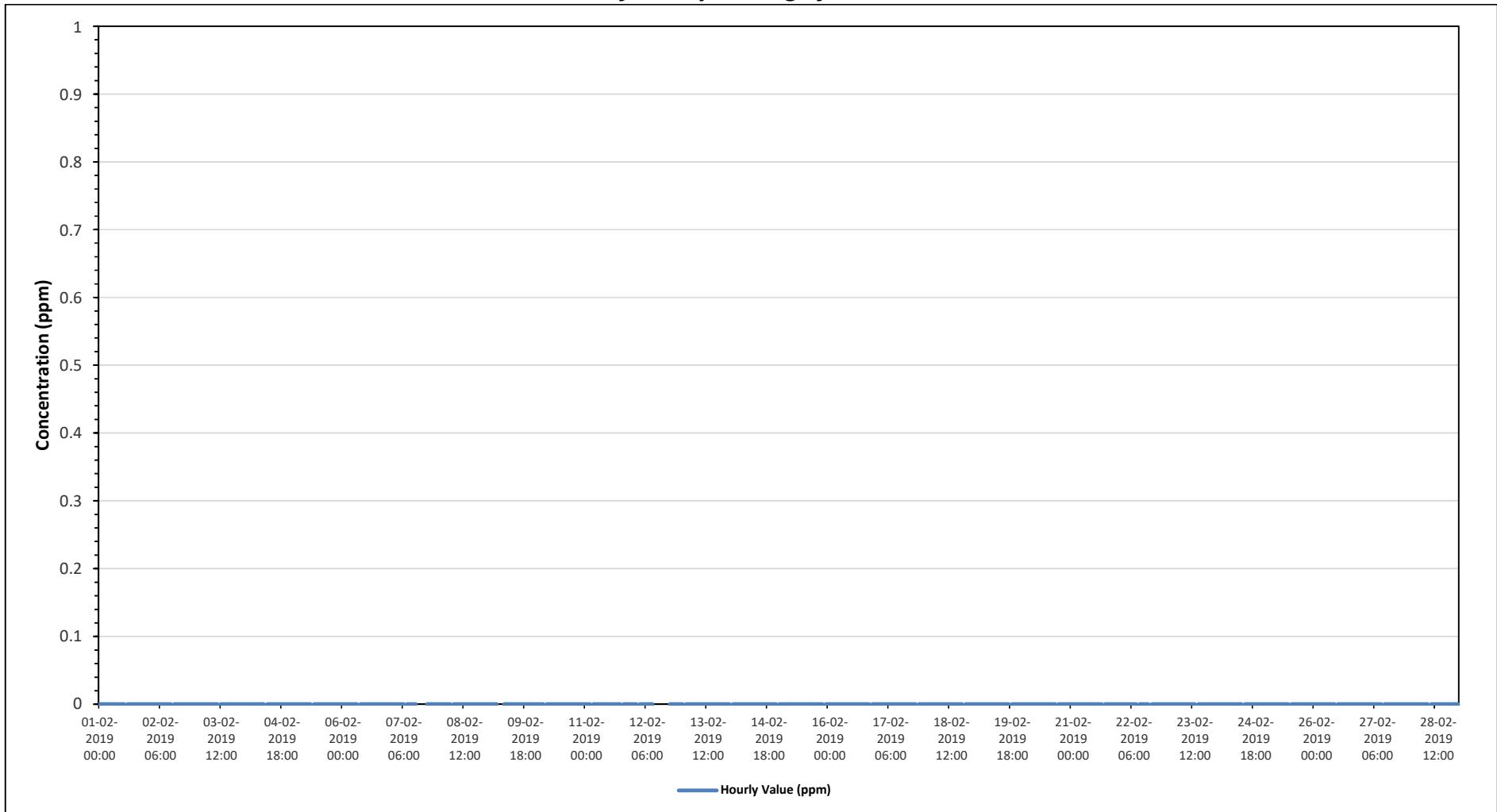
#### NON-METHANE HYDROCARBONS (NMHC) in ppm

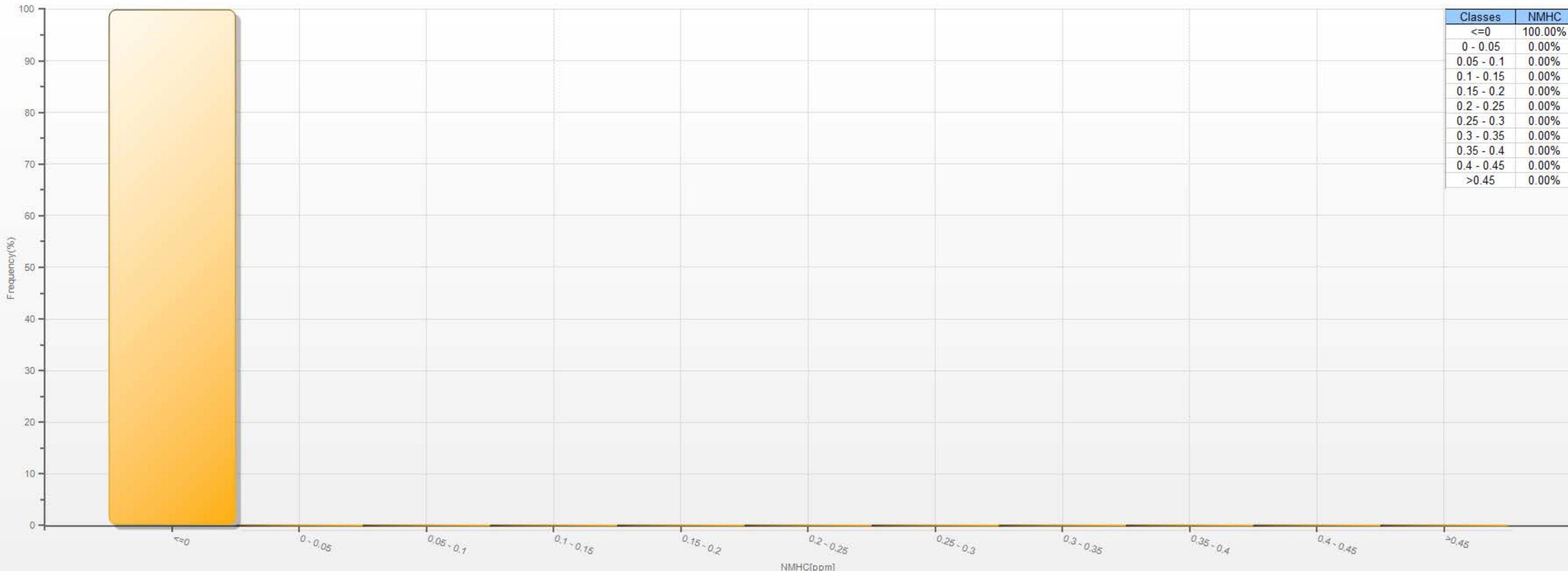
Maximum Hourly Value:	0.00	ppm	on February 1 at hour 0	Hours in Service:	672																					
Maximum Daily Value:	0.00	ppm	on February 1	Hours of Data:	627																					
Minimum Hourly Value:	0.00	ppm	on February 1 at hour 0	Hours of Missing Data:	11																					
Minimum Daily Value:	0.00	ppm	on February 1	Hours of Calibration:	34																					
Monthly Average:	0.00	ppm		Operational Uptime:	98.4																					
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
Feb 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		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C1	0.00	0.00	0.00	0.00	-							
Feb 13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	Y	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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		
Feb 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	S	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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Diurnal Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	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.

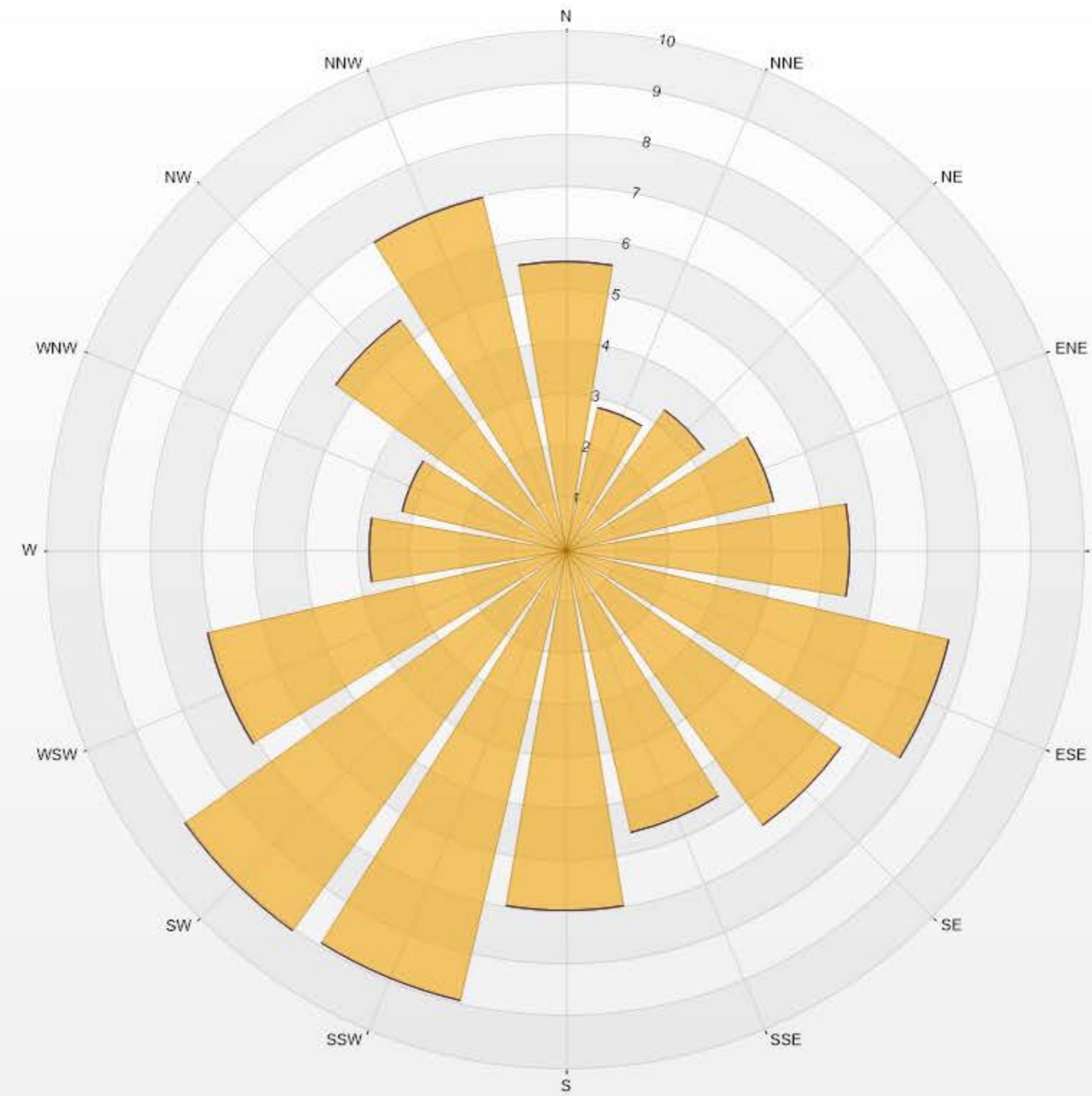
### **Timeseries Chart of Hourly Average for NMHC - 842b Station**



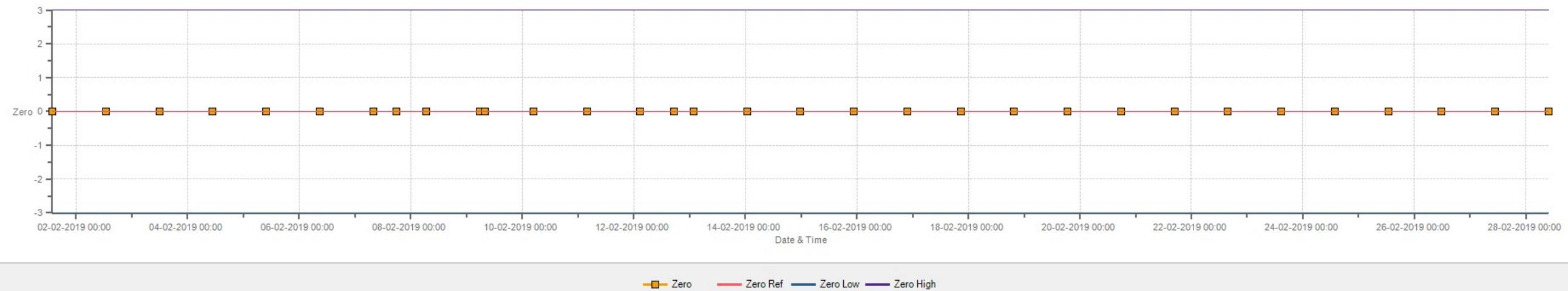


Wind: PRAMP 842 Poll.: PRAMP 842-NMHC[ppm] Periodically: 01-02-2018 00:00-28-02-2019 23:00 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 7.46% Valid Data: 86.41% Calm Avg: 0.00 [ppm]

Direction	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	5.57	0	0	0	5.57
NNE	2.81	0	0	0	2.81
NE	3.31	0	0	0	3.31
ENE	4.13	0	0	0	4.13
E	5.48	0	0	0	5.48
ESE	7.6	0	0	0	7.6
SE	6.55	0	0	0	6.55
SSE	5.61	0	0	0	5.61
S	6.97	0	0	0	6.97
SSW	8.93	0	0	0	8.93
SW	9.04	0	0	0	9.04
WSW	7.08	0	0.01	0	7.09
W	3.79	0	0	0	3.79
WNW	3.23	0	0	0	3.23
NW	5.45	0	0	0	5.45
NNW	6.97	0	0	0	6.97
Summary	92.52	0	0.01	0	92.53



Zero



Span





## PEACE RIVER AREA MONITORING PROGRAM

**842b Station - February 2019**

### Summary of Hourly Averages

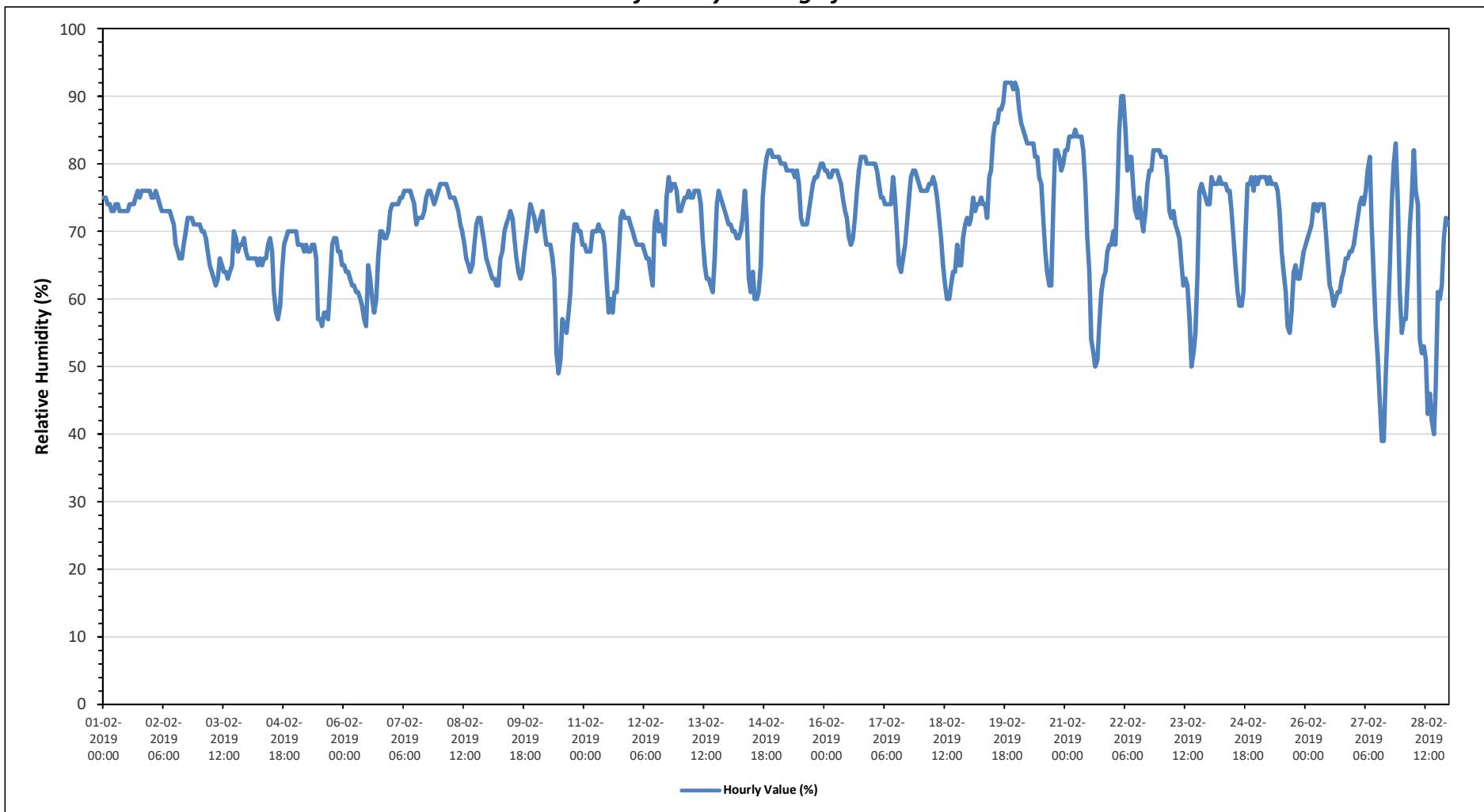
#### RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	92	%	on February 19 at hour 18	Hours in Service:	672																						
Maximum Daily Value:	81.8	%	on February 19	Hours of Data:	672																						
Minimum Hourly Value:	39	%	on February 27 at hour 14	Hours of Missing Data:	0																						
Minimum Daily Value:	59.7	%	on February 28	Hours of Calibration:	0																						
Monthly Average:	70.6	%		Operational Uptime:	100.0																						
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Feb 1	75	75	74	74	73	73	74	74	73	73	73	73	73	74	74	75	76	75	76	76	76	76	76	76	73	76	74
Feb 2	75	75	76	75	74	73	73	73	73	72	71	68	67	66	66	68	70	72	72	71	71	71	71	66	76	72	
Feb 3	71	70	70	69	67	65	64	63	62	63	66	65	64	64	63	64	65	70	69	67	68	68	69	69	67	71	66
Feb 4	66	66	66	66	65	66	65	66	66	68	69	67	61	58	57	59	64	68	69	70	70	70	70	70	57	70	66
Feb 5	70	68	68	68	67	68	67	67	68	68	66	57	57	56	58	58	57	62	68	69	69	67	67	65	56	70	65
Feb 6	65	64	64	63	62	62	61	61	60	59	57	56	65	63	60	58	60	66	70	70	69	69	70	70	56	73	64
Feb 7	74	74	74	75	75	76	76	76	75	74	71	72	72	73	75	76	76	75	74	75	76	71	76	74	71	76	74
Feb 8	77	77	77	77	76	75	75	75	74	73	71	70	68	66	65	64	65	68	71	72	72	70	68	66	64	77	71
Feb 9	65	64	63	63	62	62	66	67	70	71	72	73	72	69	66	64	63	64	67	69	72	74	73	72	62	74	68
Feb 10	70	71	72	73	70	68	68	68	66	63	52	49	51	57	56	55	58	61	68	71	71	70	70	68	49	73	64
Feb 11	68	67	67	67	70	70	70	70	71	70	70	68	63	58	60	58	61	61	66	72	73	72	72	71	58	73	67
Feb 12	70	69	68	68	68	68	67	66	66	64	62	71	73	70	71	70	68	75	78	76	77	76	73	62	78	70	
Feb 13	73	74	75	75	76	75	75	76	76	74	69	65	63	63	62	61	66	74	76	75	74	73	72	61	76	72	
Feb 14	71	71	70	70	69	69	70	72	76	72	63	61	64	60	60	61	65	75	79	81	82	82	81	81	60	82	71
Feb 15	81	81	80	80	79	79	79	79	78	79	77	72	71	71	71	73	75	77	78	78	79	80	80	71	81	77	
Feb 16	79	79	78	78	79	79	79	78	77	75	73	72	69	68	69	72	76	79	81	81	81	80	80	68	81	77	
Feb 17	80	80	79	77	75	75	74	74	74	78	75	70	65	64	66	68	71	75	78	79	78	77	64	80	74		
Feb 18	76	76	76	76	77	77	78	77	75	72	69	65	62	60	60	62	64	68	65	69	71	72	60	78	70		
Feb 19	71	72	75	73	74	74	75	74	74	72	78	79	84	86	86	88	88	92	92	92	92	91	92	71	92	82	
Feb 20	91	88	86	85	84	83	83	83	81	81	78	77	72	67	64	62	62	74	82	82	81	79	80	62	91	79	
Feb 21	82	82	84	84	84	85	84	84	84	82	77	69	64	54	52	50	51	56	61	63	64	67	68	50	85	71	
Feb 22	70	68	76	85	90	90	85	79	81	81	76	73	72	75	72	70	73	77	79	82	82	82	82	68	90	78	
Feb 23	81	81	81	78	73	72	73	71	70	69	65	62	63	62	57	50	52	55	64	76	77	76	75	74	50	81	69
Feb 24	74	78	77	77	77	78	77	77	76	76	73	69	65	61	59	59	61	70	77	78	76	78	59	78	73		
Feb 25	77	78	78	78	78	77	78	77	77	76	73	67	64	61	56	55	58	64	65	63	63	65	67	55	78	70	
Feb 26	68	69	70	71	74	74	73	74	74	70	66	62	61	59	60	61	61	63	64	66	67	67	59	74	67		
Feb 27	68	70	72	74	75	74	76	79	81	71	63	56	51	45	39	39	49	56	65	74	80	83	74	61	39	83	66
Feb 28	55	57	57	63	71	75	82	76	74	54	52	53	51	43	46	42	40	47	61	60	62	69	72	71	40	82	60
Diurnal Maximum	91	88	86	85	90	90	85	84	84	82	81	79	84	86	86	88	88	89	92	92	92	91	92				
Diurnal Average	73.0	73.0	73.3	73.6	73.8	73.6	73.4	73.4	71.5	69.7	67.6	66.0	64.0	62.6	62.0	63.2	66.8	71.5	73.3	73.9	74.2	73.2					
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 RH - 842b Station*





## **PEACE RIVER AREA MONITORING PROGRAM**

**842b Station - February 2019**

### **Summary of Hourly Averages**

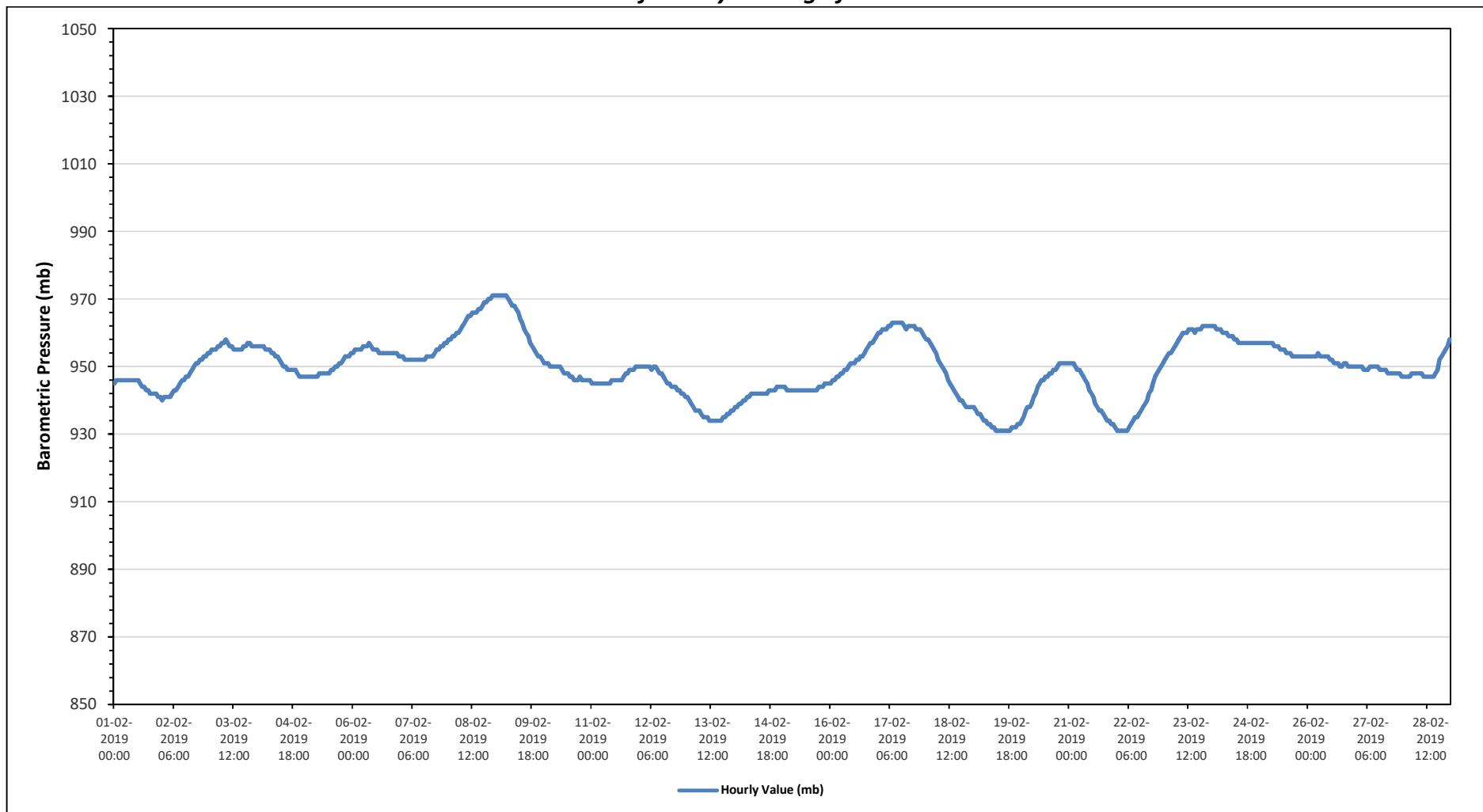
#### **BAROMETRIC PRESSURE (BP) in millibar**

Maximum Hourly Value:	971	mb	on February 8 at hour 22	Hours in Service:	672																	Daily	Daily	Daily	
Maximum Daily Value:	965	mb	on February 8	Hours of Data:	672																		941	946	944
Minimum Hourly Value:	931	mb	on February 19 at hour 11	Hours of Missing Data:	0																		940	954	947
Minimum Daily Value:	933	mb	on February 19	Hours of Calibration:	0																		947	956	952
Monthly Average:	950	mb		Operational Uptime:	100.0																		953	958	955
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
	945	946	946	946	946	946	946	946	946	946	946	946	946	945	944	944	943	943	942	942	942	941	941	944	
Feb 1	940	941	941	941	941	942	943	943	944	945	946	946	947	947	948	949	950	951	951	952	952	953	953	954	
Feb 2	954	955	955	955	956	956	957	957	958	957	956	956	955	955	955	955	956	956	957	957	956	956	956	956	
Feb 3	956	956	956	955	955	955	955	954	954	953	953	952	951	950	950	949	949	949	949	949	948	947	947	952	
Feb 4	947	947	947	947	947	947	947	948	948	948	948	948	949	949	949	950	950	950	951	951	952	953	953	954	
Feb 5	954	955	955	955	955	956	956	957	957	956	956	955	955	955	955	956	956	957	957	956	956	956	956	955	
Feb 6	953	953	952	952	952	952	952	952	952	952	952	952	953	953	953	954	954	954	954	954	954	953	953	955	
Feb 7	958	958	959	959	960	960	961	962	963	964	965	965	966	966	967	967	968	969	969	970	970	971	971	965	
Feb 8	971	971	971	971	971	971	970	969	968	968	967	966	964	963	961	960	959	957	956	955	954	953	952	971	
Feb 9	951	951	950	950	950	950	950	950	950	949	948	948	948	947	947	946	946	946	947	946	946	946	946	948	
Feb 10	945	945	945	945	945	945	945	945	945	945	945	945	946	946	946	946	946	947	948	948	949	949	950	950	
Feb 11	950	950	950	950	950	950	950	950	950	949	949	949	948	948	948	947	947	948	948	949	949	949	950	950	
Feb 12	941	940	939	939	937	937	937	936	935	935	935	935	934	934	934	934	934	935	935	936	937	937	934	941	
Feb 13	938	938	939	939	940	940	941	941	942	942	942	942	942	942	942	942	943	943	943	943	944	944	944	942	
Feb 14	944	944	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	944	944	944	944	944	
Feb 15	945	945	945	945	945	945	945	945	945	945	945	945	946	946	946	946	946	947	948	948	949	949	950	950	
Feb 16	946	946	947	947	947	948	948	949	949	950	951	951	951	952	952	953	953	954	955	956	957	958	959	959	
Feb 17	960	960	961	961	961	962	962	963	963	963	963	963	963	962	961	962	962	962	961	961	961	960	959	963	
Feb 18	958	958	957	956	955	954	952	951	950	949	948	946	945	944	943	942	941	940	940	939	938	938	938	947	
Feb 19	937	936	936	935	934	934	934	933	933	932	932	931	931	931	931	931	931	932	932	932	933	933	931	938	
Feb 20	934	935	937	938	938	939	941	942	944	945	946	946	946	947	947	948	948	949	950	951	951	951	951	945	
Feb 21	951	951	951	950	949	949	948	947	946	945	943	942	941	939	938	937	937	936	935	934	934	933	932	951	
Feb 22	931	931	931	931	931	931	932	933	934	935	935	936	937	938	939	940	942	943	945	947	948	949	950	938	
Feb 23	952	953	954	954	955	956	957	958	959	960	960	960	961	961	961	960	961	961	962	962	962	962	952	959	
Feb 24	962	962	961	961	961	960	960	960	959	959	959	958	958	957	957	957	957	957	957	957	957	957	957	959	
Feb 25	957	957	957	957	957	957	957	956	956	956	955	955	955	954	954	954	953	953	953	953	953	953	953	955	
Feb 26	953	953	953	953	953	954	953	953	953	953	953	952	952	951	951	951	950	950	951	950	950	950	950	952	
Feb 27	950	950	950	949	949	949	950	950	950	950	950	949	949	949	949	948	948	948	948	948	947	947	950	949	
Feb 28	947	947	947	947	948	948	948	948	948	948	947	947	947	947	947	947	948	948	949	952	953	954	955	949	
Diurnal Maximum	971	971	971	971	971	971	970	969	968	968	967	966	966	966	966	967	967	968	969	969	970	970	971	971	
Diurnal Average	949	950	950	950	950	950	950	950	950	950	949	949	949	949	949	949	949	950	950	950	950	950	950	949	
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 - 842b Station*





## PEACE RIVER AREA MONITORING PROGRAM

**842b Station - February 2019**

### Summary of Hourly Averages

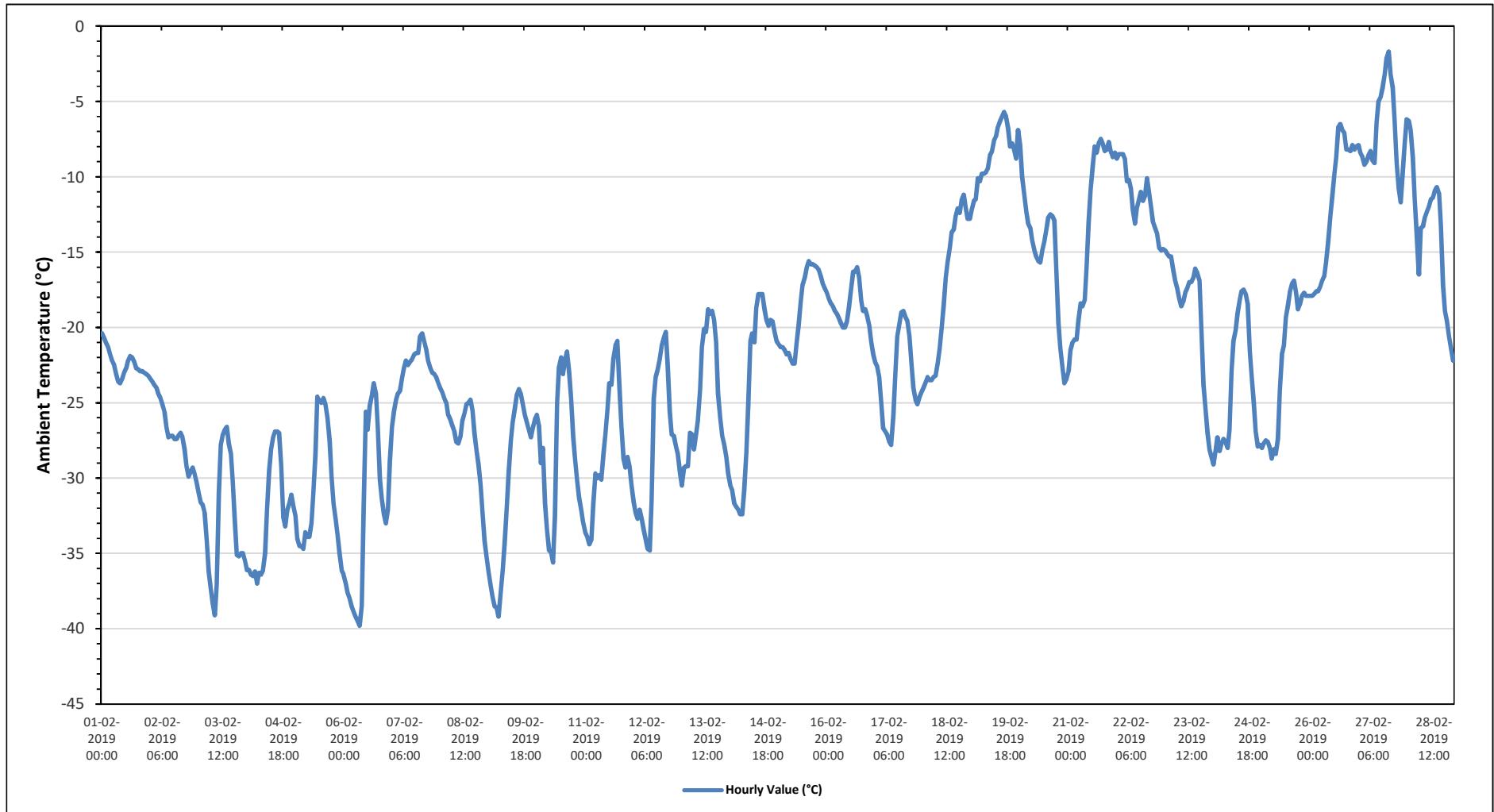
#### AMBIENT TEMPERATURE (AT) in Degree Celsius

Maximum Hourly Value:	-1.7	°C	on February 27 at hour 15	Hours in Service:	672	Daily Minimum	-23.7	Daily Maximum	-20.4	Daily Average	-22.4														
Maximum Daily Value:	-7.0	°C	on February 27	Hours of Data:	672																				
Minimum Hourly Value:	-39.8	°C	on February 6 at hour 8	Hours of Missing Data:	0																				
Minimum Daily Value:	-32.6	°C	on February 3	Hours of Calibration:	0																				
Monthly Average:	-22.0	°C		Operational Uptime:	100.0																				
Day	Hourly Period Starting at (MST)																				Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
Feb 1	-20.4	-20.7	-21.0	-21.3	-21.8	-22.2	-22.5	-23.1	-23.6	-23.7	-23.0	-23.0	-22.7	-22.2	-21.9	-22.0	-22.3	-22.7	-22.8	-22.9	-22.9	-23.0	-23.1	-23.2	
Feb 2	-23.4	-23.6	-23.8	-24.0	-24.4	-24.7	-25.1	-25.6	-26.6	-27.3	-27.2	-27.2	-27.4	-27.4	-27.2	-27.0	-27.3	-28.1	-29.2	-29.9	-29.6	-29.3	-29.7	-30.3	
Feb 3	-31.0	-31.6	-31.8	-32.3	-34.2	-36.2	-37.4	-38.3	-39.1	-37.1	-31.0	-27.8	-27.1	-26.8	-26.6	-27.7	-28.4	-30.2	-32.9	-35.1	-35.2	-35.0	-35.0	-35.5	
Feb 4	-36.1	-36.1	-36.4	-36.5	-36.2	-37.0	-36.3	-36.4	-36.1	-35.0	-32.1	-29.5	-28.1	-27.3	-26.9	-26.9	-27.0	-29.2	-32.6	-33.2	-32.1	-31.7	-31.1	-31.8	
Feb 5	-32.5	-34.0	-34.5	-34.5	-34.7	-33.6	-33.9	-33.9	-33.0	-31.1	-28.5	-24.6	-24.9	-25.0	-24.7	-25.1	-26.0	-27.5	-29.9	-31.7	-32.7	-33.8	-35.0	-36.1	
Feb 6	-36.4	-37.0	-37.6	-38.0	-38.5	-38.9	-39.2	-39.5	-39.8	-38.5	-32.0	-25.6	-26.8	-25.2	-24.5	-23.7	-24.4	-26.6	-30.1	-31.4	-32.4	-33.0	-32.1	-28.9	
Feb 7	-26.6	-25.6	-24.8	-24.4	-24.2	-23.4	-22.7	-22.2	-22.5	-22.3	-22.1	-21.8	-21.7	-21.7	-20.6	-20.4	-20.9	-21.5	-22.2	-22.7	-23.0	-23.1	-23.3	-23.7	
Feb 8	-24.0	-24.3	-24.7	-25.0	-25.8	-26.1	-26.5	-26.9	-27.6	-27.7	-27.2	-26.2	-25.7	-25.1	-25.0	-24.8	-25.5	-27.0	-28.2	-29.1	-30.5	-32.2	-34.2	-35.2	
Feb 9	-36.2	-37.1	-37.9	-38.5	-38.6	-39.2	-37.6	-36.1	-34.3	-31.9	-29.6	-27.5	-26.3	-25.4	-24.5	-24.1	-24.4	-25.1	-25.8	-26.3	-26.8	-27.3	-26.7	-26.1	
Feb 10	-25.8	-26.5	-29.0	-28.0	-31.7	-33.4	-34.8	-34.9	-35.6	-32.5	-25.0	-22.6	-22.0	-23.1	-22.1	-21.6	-23.0	-24.7	-27.3	-28.8	-30.2	-31.3	-32.1	-32.9	
Feb 11	-33.6	-33.9	-34.4	-34.1	-31.7	-29.7	-30.0	-29.8	-30.1	-28.4	-27.1	-25.5	-23.7	-23.8	-22.1	-21.2	-20.9	-24.0	-26.5	-28.7	-29.3	-28.6	-29.2	-30.5	
Feb 12	-31.6	-32.3	-32.7	-32.1	-32.7	-33.4	-34.1	-34.7	-34.8	-31.5	-24.7	-23.3	-22.8	-22.1	-21.2	-20.7	-20.3	-22.6	-25.6	-27.1	-27.2	-27.9	-28.4	-29.6	
Feb 13	-30.5	-29.3	-29.2	-29.2	-27.0	-27.1	-28.1	-27.1	-26.2	-24.1	-24.1	-21.3	-20.1	-20.3	-18.8	-19.1	-18.9	-19.5	-21.0	-24.4	-26.0	-27.2	-27.8	-28.6	
Feb 14	-30.5	-30.8	-31.7	-31.9	-32.1	-32.4	-32.4	-30.8	-28.3	-25.1	-20.9	-20.4	-21.0	-18.7	-17.8	-17.8	-17.8	-18.8	-19.5	-19.9	-19.5	-19.6	-20.3	-20.9	
Feb 15	-21.1	-21.3	-21.3	-21.5	-21.8	-21.7	-22.1	-22.4	-22.4	-21.0	-19.9	-18.3	-17.2	-16.7	-16.0	-15.6	-15.8	-15.8	-15.9	-16.0	-16.2	-16.6	-17.1	-17.4	
Feb 16	-17.7	-18.1	-18.4	-18.6	-18.9	-19.1	-19.4	-19.7	-20.0	-20.0	-19.6	-18.7	-17.5	-16.3	-16.3	-16.0	-16.7	-18.2	-18.9	-18.8	-19.2	-19.9	-20.9	-21.8	
Feb 17	-22.3	-22.6	-23.3	-25.0	-26.7	-26.9	-27.1	-27.6	-27.8	-25.9	-22.9	-20.6	-19.7	-19.0	-18.9	-19.3	-19.6	-20.6	-22.4	-24.0	-24.8	-25.1	-24.6	-24.3	
Feb 18	-24.0	-23.7	-23.3	-23.5	-23.5	-23.3	-23.2	-22.4	-21.4	-20.0	-18.6	-16.7	-15.7	-14.7	-13.7	-13.5	-12.6	-12.1	-12.4	-11.5	-11.2	-12.1	-12.8	-12.0	
Feb 19	-12.2	-11.6	-11.5	-10.1	-10.3	-9.8	-9.8	-9.7	-9.4	-8.6	-8.3	-7.6	-7.3	-6.7	-6.3	-6.0	-5.7	-6.0	-6.8	-8.0	-8.2	-8.8	-6.9	-12.2	-5.7
Feb 20	-7.9	-10.0	-11.2	-12.3	-13.1	-13.4	-14.2	-14.9	-15.3	-15.6	-15.7	-14.9	-14.3	-13.5	-12.7	-12.5	-12.6	-12.6	-12.9	-16.1	-19.7	-21.4	-22.6	-23.7	-7.9
Feb 21	-22.9	-21.5	-21.0	-20.8	-20.8	-19.5	-18.4	-18.6	-18.2	-16.1	-13.0	-10.9	-9.3	-8.0	-8.4	-7.8	-7.5	-7.8	-8.3	-8.2	-7.7	-8.3	-8.7	-8.4	-22.9
Feb 22	-8.8	-8.5	-8.5	-8.8	-10.3	-10.2	-10.8	-12.2	-13.1	-12.1	-11.5	-11.0	-11.6	-11.3	-10.1	-11.0	-12.0	-13.0	-13.4	-13.8	-14.7	-14.9	-14.8	-14.9	
Feb 23	-14.9	-15.1	-15.3	-15.3	-16.2	-16.9	-17.4	-18.1	-18.6	-18.3	-17.7	-17.4	-17.0	-17.0	-16.7	-16.1	-16.4	-16.9	-20.0	-23.8	-25.3	-27.0	-28.1	-28.6	
Feb 24	-29.1	-28.2	-27.3	-28.2	-27.7	-27.4	-27.6	-28.0	-26.8	-22.9	-20.9	-20.2	-19.1	-18.2	-17.6	-17.5	-17.8	-18.4	-21.6	-23.2	-25.0	-26.9	-27.9	-29.1	
Feb 25	-28.0	-27.7	-27.5	-27.6	-28.0	-28.7	-28.1	-28.4	-27.4	-24.2	-21.8	-21.2	-19.3	-18.5	-17.6	-17.1	-16.9	-17.7	-18.8	-18.4	-17.9	-17.7	-17.9	-28.7	
Feb 26	-17.9	-17.9	-17.8	-17.6	-17.6	-17.3	-16.9	-16.6	-15.7	-14.3	-12.6	-11.3	-9.8	-8.7	-6.7	-6.5	-6.9	-7.1	-8.2	-8.2	-8.3	-7.9	-8.2	-8.0	
Feb 27	-7.9	-8.4	-8.7	-9.2	-9.0	-8.6	-8.3	-8.9	-9.1	-6.4	-5.0	-4.7	-4.1	-3.2	-2.1	-1.7	-3.2	-4.1	-6.3	-9.1	-10.8	-11.7	-9.8	-7.7	
Feb 28	-6.2	-6.3	-6.9	-8.7	-11.5	-14.0	-16.5	-13.4	-13.3	-12.7	-12.3	-12.0	-11.5	-11.4	-10.9	-10.7	-11.1	-13.2	-17.2	-18.9	-19.6	-20.6	-21.4	-22.2	
Diurnal Maximum	-6.2	-6.3	-6.9	-8.5	-8.8	-8.6	-8.3	-8.9	-9.1	-6.4	-5.0	-4.7	-4.1	-3.2	-2.1	-1.7	-3.2	-4.1	-6.3	-8.0	-7.7	-7.9	-8.2	-6.9	
Diurnal Average	-23.6	-23.7	-24.0	-24.2	-24.6	-24.8	-25.0	-25.0	-24.8	-23.4	-21.2	-19.7	-19.0	-18.4	-17.8	-17.6	-17.9	-19.0	-20.8	-21.9	-22.4	-23.0	-23.3	-23.4	
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	T	Exceeds Temperature Limits	N	Not in Service												
R	Recovery	X	Machine Malfunction	Y	Maintenance																				

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

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

**Timeseries Chart of Hourly Average for AT - 842b Station**





## PEACE RIVER AREA MONITORING PROGRAM

**842b Station - February 2019**

### Summary of Hourly Averages

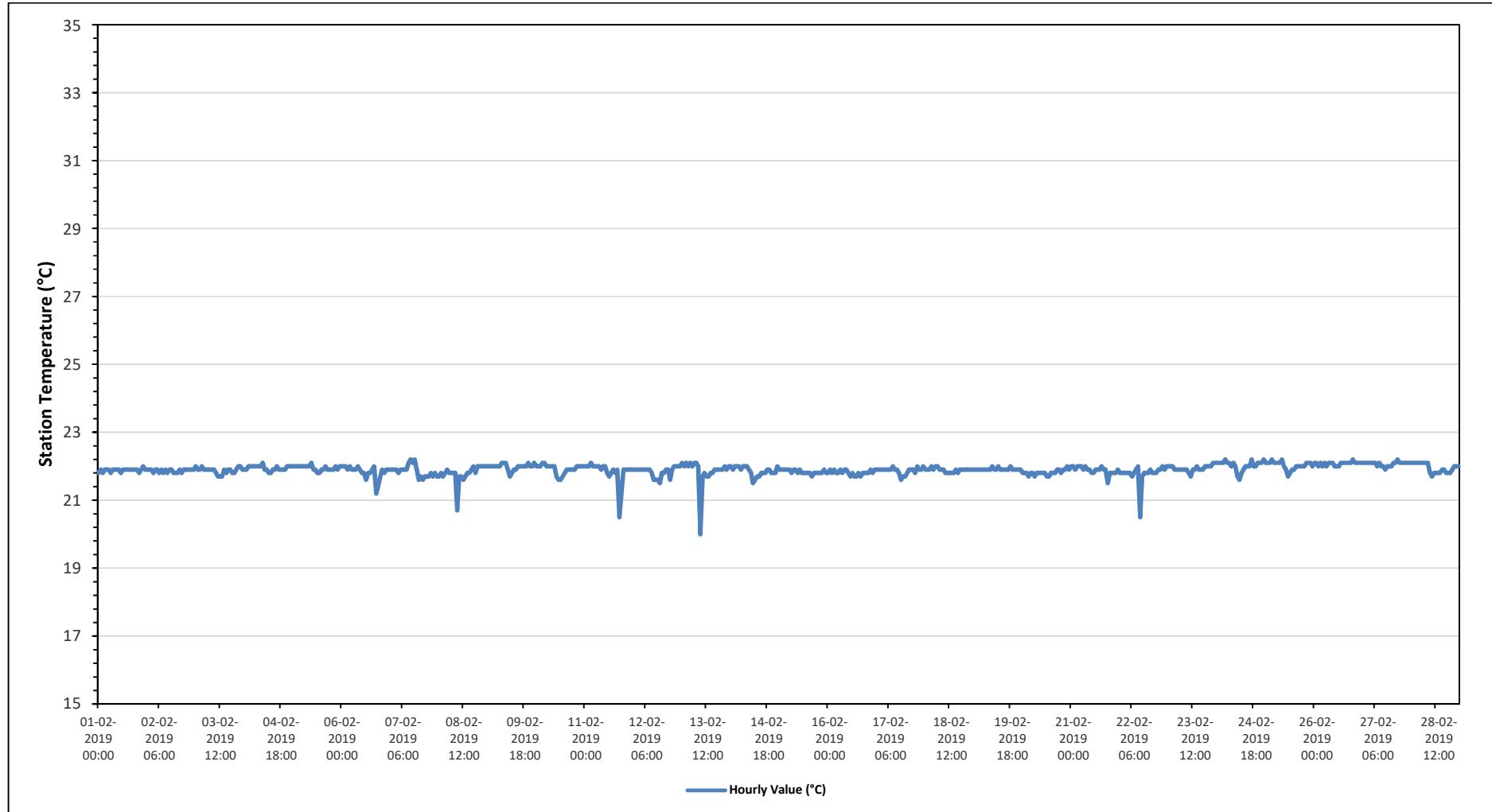
#### STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:	22.2	°C	on February 7 at hour 10	Hours in Service:	672	Daily Minimum	Daily Maximum	Daily Average																				
Maximum Daily Value:	22.1	°C	on February 26	Hours of Data:	672																							
Minimum Hourly Value:	20.0	°C	on February 13 at hour 9	Hours of Missing Data:	0																							
Minimum Daily Value:	21.8	°C	on February 22	Hours of Calibration:	0																							
Monthly Average:	21.9	°C		Operational Uptime:	100.0																							
Day	Hourly Period Starting at (MST)																											
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
Feb 1	21.8	21.9	21.8	21.9	21.9	21.9	21.8	21.9	21.9	21.9	21.9	21.8	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	22.0	21.9	21.9				
Feb 2	21.9	21.9	21.9	21.8	21.9	21.9	21.9	21.8	21.8	21.9	21.8	21.9	21.8	21.8	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.8	21.9	21.9				
Feb 3	22.0	21.9	21.9	22.0	21.9	21.9	21.9	21.9	21.9	21.9	21.8	21.7	21.7	21.7	21.9	21.8	21.9	21.9	21.8	21.8	21.9	22.0	21.7	22.0	21.9			
Feb 4	21.9	21.9	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.1	21.9	21.9	21.8	21.8	21.9	21.9	22.0	21.9	21.9	21.9	22.0	22.0	21.8	22.1	21.9			
Feb 5	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.1	21.9	21.9	21.8	21.8	21.9	21.9	22.0	21.9	21.9	21.9	22.0	22.0	21.8	22.1	22.0			
Feb 6	22.0	22.0	22.0	21.9	22.0	21.9	21.9	21.9	22.0	21.9	21.8	21.8	21.6	21.8	21.8	21.9	22.0	21.9	21.9	21.9	22.0	22.0	21.8	22.0	21.8			
Feb 7	21.9	21.9	21.9	21.8	21.9	21.9	21.9	21.9	22.1	22.2	21.1	22.2	21.1	22.2	21.9	21.6	21.7	21.6	21.7	21.7	21.8	21.7	21.6	22.2	21.9			
Feb 8	21.7	21.8	21.7	21.8	21.9	21.8	21.8	21.8	20.7	21.7	21.7	21.6	21.7	21.8	21.8	21.9	22.0	21.8	22.0	22.0	22.0	22.0	20.7	22.0	21.8			
Feb 9	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.1	22.1	22.1	21.9	21.7	21.8	21.9	21.9	22.0	22.0	22.0	22.0	22.0	22.1	22.0	22.1	22.1	22.0			
Feb 10	22.0	22.0	22.0	22.1	22.1	22.0	22.0	22.0	22.0	22.0	21.7	21.6	21.6	21.7	21.8	21.9	21.9	21.9	21.9	22.0	22.0	22.0	21.6	22.1	21.9			
Feb 11	22.0	22.0	22.0	22.1	22.0	22.0	22.0	22.0	22.0	21.9	22.0	22.0	21.8	21.8	21.9	21.8	20.5	21.2	21.9	21.9	21.9	21.9	20.5	22.1	21.8			
Feb 12	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.8	21.6	21.6	21.6	21.5	21.8	21.8	21.9	21.6	22.0	22.0	22.0	21.5	22.0	21.8				
Feb 13	22.1	22.0	22.1	22.0	22.1	22.0	22.1	22.1	22.0	20.0	21.7	21.8	21.7	21.7	21.8	21.8	21.9	21.9	21.9	22.0	22.0	20.0	22.1	21.9				
Feb 14	22.0	21.9	22.0	22.0	22.0	21.9	22.0	22.0	21.9	21.8	21.5	21.6	21.7	21.7	21.8	21.8	21.8	21.9	21.9	21.8	21.8	21.8	21.5	22.0	21.9			
Feb 15	21.9	21.9	21.9	21.9	21.9	21.9	21.8	21.9	21.9	21.8	21.9	21.8	21.8	21.8	21.8	21.7	21.8	21.8	21.8	21.8	21.9	21.8	21.7	21.9	21.8			
Feb 16	21.8	21.9	21.8	21.9	21.8	21.8	21.9	21.9	21.9	21.8	21.7	21.8	21.7	21.7	21.8	21.7	21.8	21.8	21.8	21.9	21.8	21.9	21.7	21.9	21.8			
Feb 17	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	22.0	21.9	21.9	21.8	21.6	21.7	21.7	21.8	21.9	21.9	21.9	21.8	22.0	21.9	21.6	22.0	21.9			
Feb 18	21.9	21.9	22.0	21.9	22.0	22.0	22.0	21.9	21.9	21.8	21.8	21.8	21.8	21.8	21.8	21.9	21.9	21.9	21.9	21.9	21.9	21.8	22.0	21.9				
Feb 19	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	22.0	22.0	21.9	21.9	21.9	21.9	22.0	22.0	21.9	21.9	21.9	21.9	21.9	22.0	21.9			
Feb 20	21.8	21.8	21.8	21.7	21.8	21.8	21.7	21.8	21.8	21.8	21.7	21.8	21.7	21.7	21.8	21.8	21.9	21.9	21.9	21.8	21.9	21.9	21.7	22.0	21.8			
Feb 21	22.0	22.0	21.9	22.0	22.0	22.0	21.9	22.0	21.9	21.9	21.8	21.8	21.9	21.9	22.0	21.9	21.9	21.5	21.8	21.8	21.8	21.9	21.5	22.0	21.9			
Feb 22	21.8	21.8	21.8	21.8	21.8	21.7	21.8	21.9	22.0	20.5	21.7	21.8	21.8	21.8	21.9	21.8	21.9	21.8	21.9	21.9	22.0	20.5	22.0	21.8				
Feb 23	22.0	22.0	22.0	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.8	21.7	21.9	21.9	22.0	21.9	21.9	22.0	22.0	22.1	22.1	21.7	22.1	21.9				
Feb 24	22.1	22.1	22.1	22.1	22.2	22.1	22.1	22.0	22.1	21.7	21.6	21.8	21.9	22.0	22.0	22.0	22.0	22.1	22.1	22.2	22.2	21.6	22.2	22.0				
Feb 25	22.1	22.1	22.1	22.2	22.1	22.1	22.1	22.1	22.2	22.0	21.9	21.7	21.8	21.9	22.0	22.0	22.0	22.0	22.0	22.1	22.1	22.0	21.7	22.2	22.0			
Feb 26	22.1	22.1	22.0	22.1	22.0	22.1	22.1	22.1	22.1	22.0	22.0	22.1	22.1	22.1	22.1	22.1	22.1	22.2	22.2	22.1	22.1	22.1	22.0	22.2	22.1			
Feb 27	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.0	22.0	21.9	22.0	22.0	22.0	22.1	22.1	22.1	22.1	22.1	22.1	22.1	21.9	22.2	22.1			
Feb 28	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	21.8	21.7	21.8	21.8	21.8	21.8	21.9	21.9	21.8	21.8	21.8	21.9	22.0	21.7	22.1	21.9			
Diurnal Maximum	22.1	22.1	22.1	22.2	22.2	22.1	22.1	22.1	22.2	22.1	22.2	22.1	22.2	22.1	22.1	22.2	22.2	22.1	22.1	22.1	22.1	22.1	22.2					
Diurnal Average	22.0	22.0	21.9	22.0	22.0	22.0	21.9	22.0	22.0	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.9	21.9	21.8	21.8	21.9	22.0	22.0	21.7	22.1	21.9		
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 - 842b Station*





## PEACE RIVER AREA MONITORING PROGRAM

**842b Station - February 2019**

### Summary of Hourly Averages

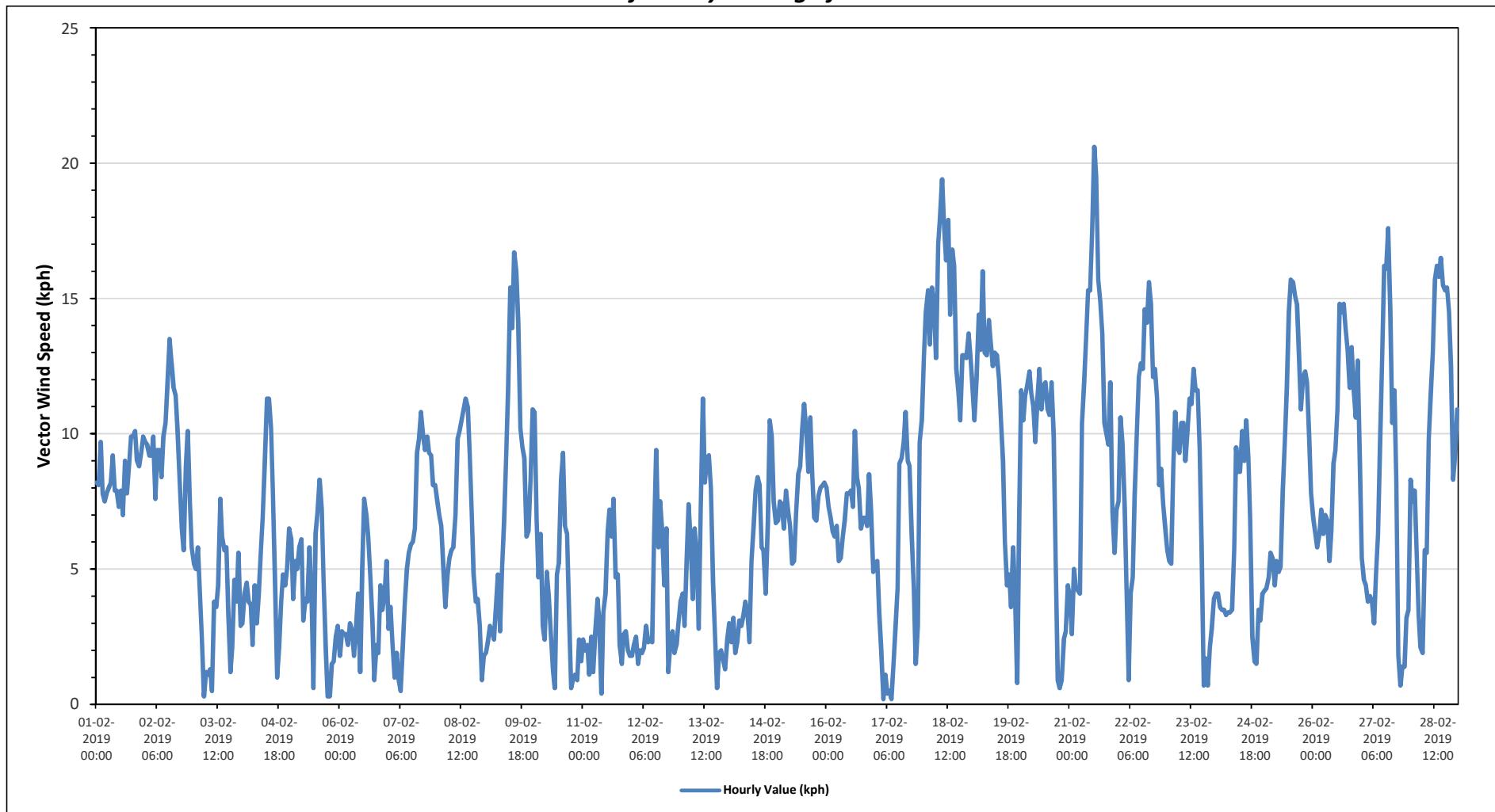
#### VECTOR WIND SPEED (VWS) in km/hr

Maximum Hourly Value:	20.6 kph	on February 21 at hour 12	Hours in Service:	672	Daily Minimum	Daily Maximum	Daily Average																					
Maximum Daily Value:	14.7 kph	on February 18	Hours of Data:	672																								
Minimum Hourly Value:	0.2 kph	on February 17 at hour 4	Hours of Missing Data:	0																								
Minimum Daily Value:	3.3 kph	on February 11	Hours of Calibration:	0																								
Monthly Average:	0.7 kph		Operational Uptime:	100.0																								
Day	Hourly Period Starting at (MST)																											
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Minimum	Daily Maximum	Daily Average	
Feb 1	8.2	8.1	9.7	7.8	7.5	7.8	8	8.2	9.2	7.9	7.9	7.3	7.9	7	9	7.8	8.8	9.9	9.9	10.1	9	8.8	9.3	9.9	7.0	10.1	8.5	
Feb 2	9.7	9.6	9.2	9.2	9.9	7.6	9.4	9.4	8.4	9.9	10.4	11.8	13.5	12.6	11.7	11.4	10.1	8.2	6.5	5.7	8.8	10.1	7.5	5.8	5.7	13.5	9.4	
Feb 3	5.2	5	5.8	4	2.5	0.3	1.2	1.1	1.3	0.5	3.8	3.6	4.4	7.6	6.2	5.7	5.8	3.4	1.2	2.1	4.6	3.8	5.6	2.9	0.3	7.6	3.7	
Feb 4	3	4.1	4.5	3.8	3.7	2.2	4.4	3	4.1	5.7	6.9	9	11.3	11.3	10.2	7.9	4.6	1	2.1	3.8	4.8	4.4	5	6.5	1.0	11.3	5.3	
Feb 5	6.1	3.9	5.3	5	5.8	6.1	3.1	3.9	3.8	5.8	3.8	0.6	6.3	7.1	8.3	7.2	4.6	2.1	0.3	0.3	1.5	1.6	2.5	2.9	0.3	8.3	4.1	
Feb 6	1.8	2.7	2.6	2.6	2.2	3	2.7	1.8	2.9	4.1	1.2	5	7.6	7	6.2	4.8	3.1	0.9	2.2	1.9	4.4	3.5	4	5.3	0.9	7.6	3.5	
Feb 7	2.8	3.6	2.2	1	1.9	0.9	0.5	2	3.7	5	5.6	5.9	6	6.5	9.3	9.8	10.8	10	9.4	9.9	9.3	9.2	8.1	8.1	0.5	10.8	5.9	
Feb 8	7.5	7	6.6	5.2	3.6	4.8	5.4	5.7	5.8	7	9.8	10.1	10.5	10.9	11.3	11	9.3	7.1	4.8	3.8	3.9	2.9	0.9	1.8	0.9	11.3	6.5	
Feb 9	1.9	2.3	2.9	2.7	2.4	3.7	4.8	2.7	5.1	6.7	9.2	11.6	15.4	13.9	16.7	16	14.1	10.2	9.5	9.1	6.2	6.4	8.3	10.9	1.9	16.7	8.0	
Feb 10	10.8	6.8	4.7	6.3	2.9	2.4	4.9	4	2.6	1.3	0.6	4.8	5.2	8.3	9.3	6.6	6.3	3.5	0.6	0.9	1.1	0.9	2.4	1.6	0.6	10.8	4.1	
Feb 11	2.4	2	2.2	1.1	2.5	1.2	2.7	3.9	3	0.4	3.4	4.1	6.4	7.2	6.2	7.6	4.7	4.8	2.2	1.5	2.6	2.7	2	1.8	0.4	7.6	3.3	
Feb 12	1.8	2.2	2.5	1.5	2	1.9	2.1	2.9	2.3	2.4	2.3	6.2	9.4	5.8	7.5	6.3	4.4	6.5	1.2	2.2	2.7	1.9	2.2	3	1.2	9.4	3.5	
Feb 13	3.8	4.1	2.9	5.3	7.4	6.1	3.9	6.5	5.4	2.8	7.3	11.3	8.2	9.1	9.2	8	4.5	2.6	0.6	1.9	2	1.6	1.3	2.4	0.6	11.3	4.9	
Feb 14	3	2.3	3.2	1.9	2.3	3.1	2.9	3.3	3.8	3.4	2.3	5.3	6.6	7.9	8.4	8.1	5.8	5.7	4.1	6.7	10.5	9.9	7.5	6.7	1.9	10.5	5.2	
Feb 15	6.8	7.5	7.4	6.5	7.9	7.2	6.6	5.2	5.3	7.1	8.5	8.8	10.2	11.1	10.1	8.6	10.6	8.4	6.9	6.8	7.7	8	8.1	8.2	5.2	11.1	7.9	
Feb 16	8	7.3	6.9	6.4	6.2	6.6	5.3	5.4	6.2	6.8	7.8	7.8	7.9	7.3	10.1	8.4	8	6.5	6.9	6.6	8.5	7.1	4.9	4.9	10.1	7.1		
Feb 17	5.1	5.3	3.4	2	0.2	1.1	0.4	0.5	0.2	1.5	2.8	4.3	8.9	9.1	9.7	10.8	9	8.8	6.3	4.3	1.5	2.9	9.7	10.5	0.2	10.8	4.9	
Feb 18	12.9	14.5	15.3	13.3	15.4	14.7	12.8	17	18	19.4	17.5	16.4	17.9	14.4	16.8	16.2	12.4	11.5	10.5	12.9	12.9	12.8	13.7	12.9	10.5	19.4	14.7	
Feb 19	11.7	10.5	12.1	14.4	13.1	16	13	12.9	14.2	13.4	12.5	13	12.9	12	10.6	9	6	4.4	4.8	3.6	5.8	4	0.8	6.9	0.8	16.0	9.9	
Feb 20	11.6	10.5	11.4	11.8	12.3	11.5	11	9.7	11.3	12.4	10.9	11.8	11.9	10.9	10.7	11.9	9.9	5.4	0.9	0.6	0.9	2.4	2.7	4.4	0.6	12.4	8.7	
Feb 21	4	2.6	5	4.3	4.2	4.1	10.4	11.9	13.5	15.3	15.3	17.5	20.6	19.5	15.7	14.9	13.7	10.4	10	9.6	11.9	7.1	5.6	7.2	2.6	20.6	10.6	
Feb 22	7.5	10.6	9.6	7.2	4.1	0.9	4.1	4.7	7.7	10	12.1	12.6	12.4	14.6	14.1	15.6	14.8	12.1	12.4	11.3	8.1	8.7	7.4	6.6	0.9	15.6	9.6	
Feb 23	5.7	5.3	5.2	8.8	10.8	9.5	9.3	10.4	10.4	9	10.1	11.3	11.1	12.4	11.6	11.6	9.4	5.8	0.7	1.7	0.7	2.1	2.8	3.9	0.7	12.4	7.5	
Feb 24	4.1	4.1	3.6	3.5	3.5	3.3	3.4	3.4	3.5	5.7	9.5	8.6	8.6	10.1	9	10.5	9.1	6.8	2.5	1.6	1.5	3.5	3.1	4.1	1.5	10.5	5.3	
Feb 25	4.2	4.3	4.7	5.6	5.4	4.4	5.3	4.9	5.1	7.9	9.8	11.7	14.5	15.7	15.6	15.1	14.8	12.9	10.9	12.1	12.3	11.9	9.9	7.8	4.2	15.7	9.5	
Feb 26	6.9	6.3	5.8	6.3	7.2	6.3	7	6.8	5.3	6.4	8.9	9.4	10.9	14.8	14.5	14.8	13.9	13.1	11.7	13.2	11.6	10.6	12.7	8.9	5.3	14.8	9.7	
Feb 27	5.4	4.6	4.4	3.8	4	3.8	3	4.8	6.3	9.8	12.7	16.2	16.1	17.6	14.5	10.4	11.6	8.3	1.8	0.7	1.4	1.4	3.2	3.5	0.7	17.6	7.1	
Feb 28	8.3	7.5	7.9	5.7	3.3	2.1	1.9	5.7	5.6	9.8	11.4	13	15.7	16.2	15.8	16.5	15.5	15.3	15.4	14.5	12.5	8.3	9.3	10.9	1.9	16.5	10.3	
Diurnal Maximum	13	15	15	14	15	16	13	17	18	19	18	21	20	17	17	16	15	15	15	13	13	14	13					
Diurnal Average	6.1	5.9	6.0	5.6	5.5	5.1	5.3	5.8	6.2	7.1	8.0	9.3	10.7	11.0	11.0	10.4	9.1	7.3	5.6	5.7	6.0	5.7	5.8	6.1				
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.

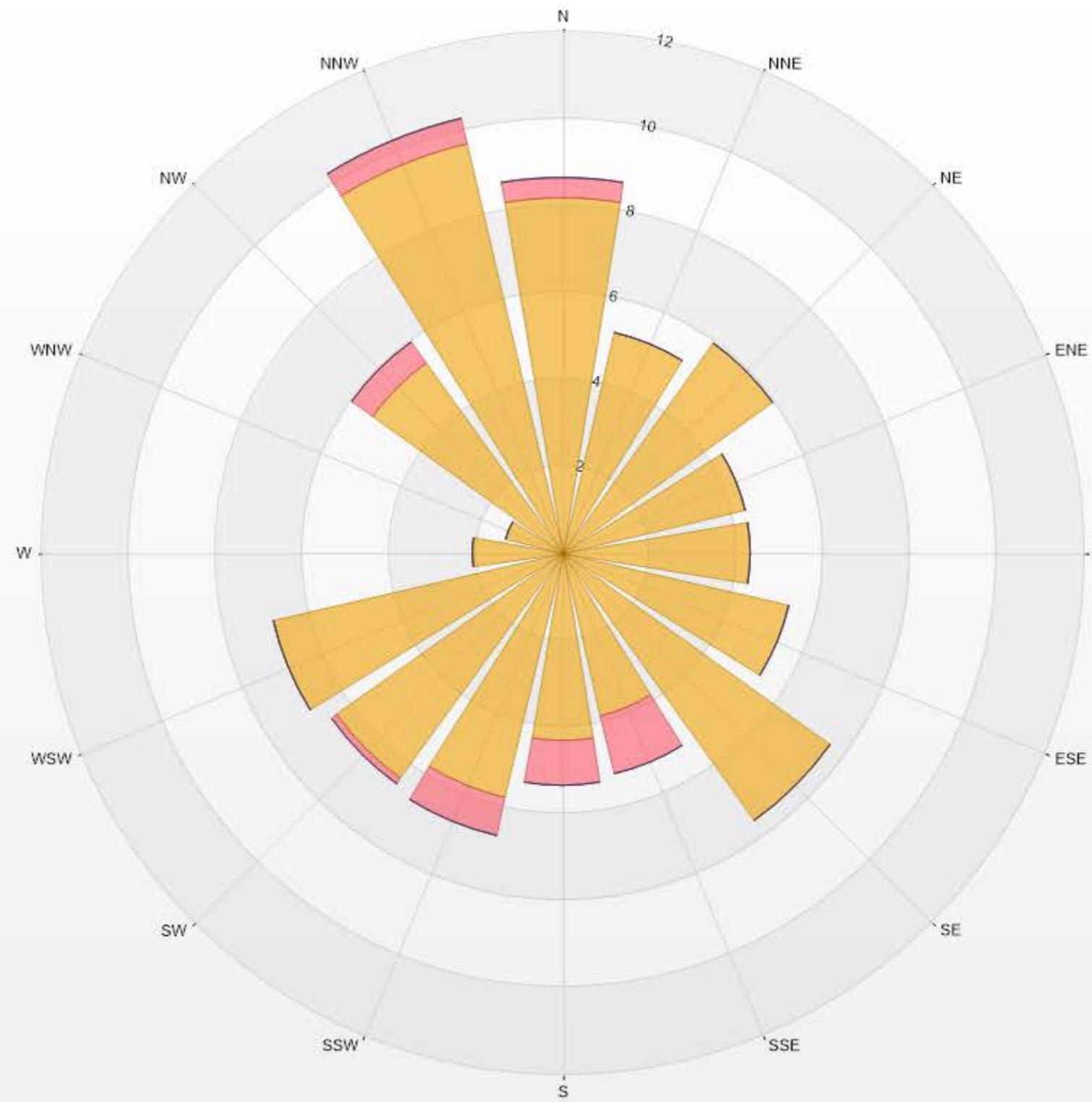
### *Timeseries Chart of Hourly Average for VWS - 842b Station*



Wind: PRAMP 842 Poll.: PRAMP 842-WDS[KPH] Monthly: 02-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.

Calm: 8.33% Valid Data: 100.00% Calm Avg: 1.01 [KPH]

Direction	6-15	15-29	29-39	>39.0	Total
N	8.18	0.45	0	0	8.63
NNE	5.21	0	0	0	5.21
NE	5.95	0	0	0	5.95
ENE	4.32	0	0	0	4.32
E	4.32	0	0	0	4.32
ESE	5.36	0	0	0	5.36
SE	7.59	0	0	0	7.59
SSE	3.87	1.34	0	0	5.21
S	4.32	1.04	0	0	5.36
SSW	5.8	0.89	0	0	6.69
SW	6.4	0.15	0	0	6.55
WSW	6.85	0	0	0	6.85
W	2.08	0	0	0	2.08
WNW	1.34	0	0	0	1.34
NW	5.36	0.6	0	0	5.96
NNW	9.67	0.6	0	0	10.27
Summary	86.62	5.07	0	0	91.69





## PEACE RIVER AREA MONITORING PROGRAM

842b Station - February 2019

### Summary of Hourly Averages

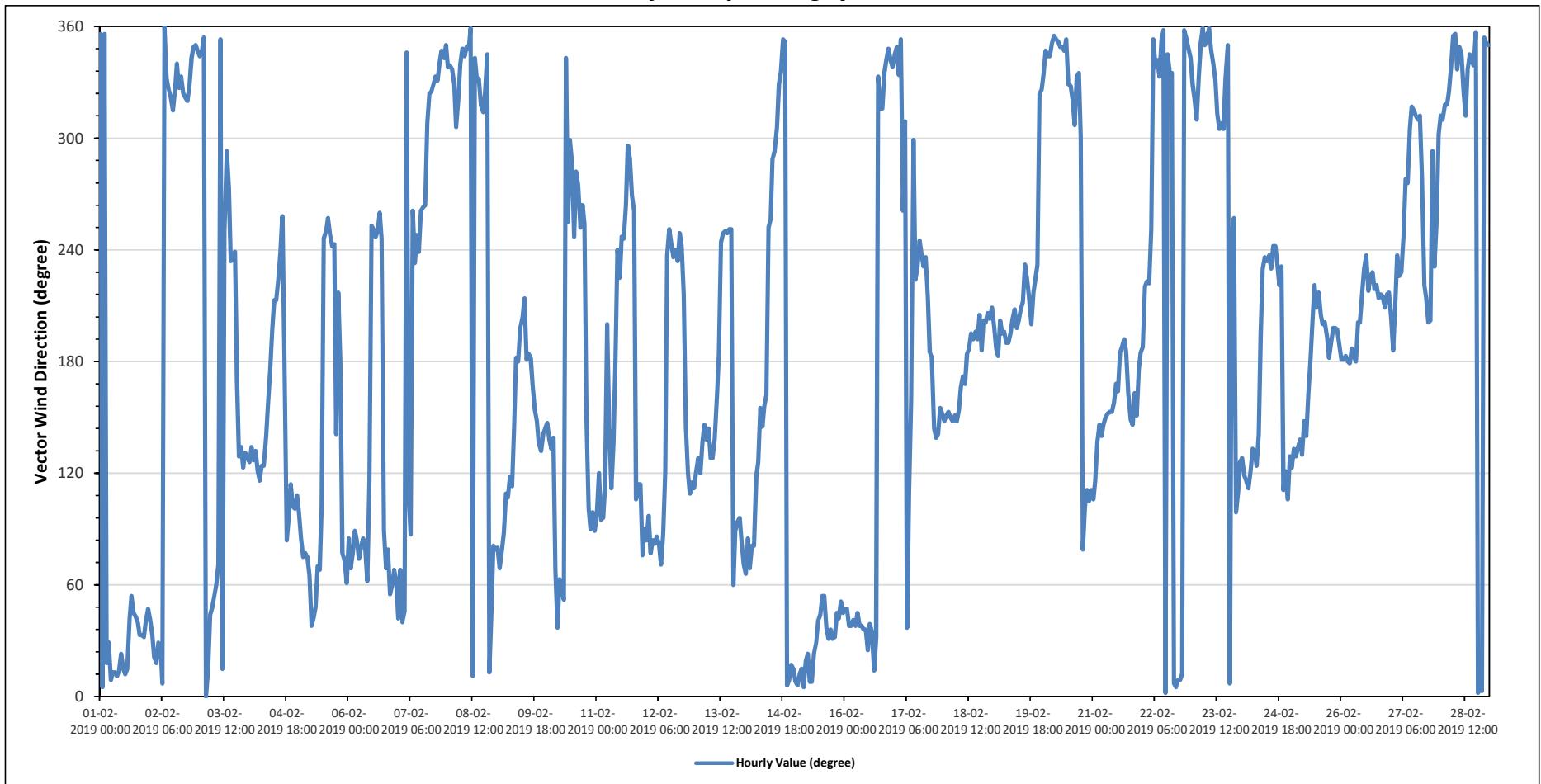
#### WIND DIRECTION (VWD) in sector

Monthly Average:		274 (W)	degree		Hours in Service:		672	Daily Average																			
							Hours of Data:	672	Degree	Quadrant																	
							Hours of Missing Data:	0																			
							Hours of Calibration:	0																			
							Operational Uptime:	100.0																			
Day							Hourly Period Starting at (MST)																				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant	
Feb 1	N	N	N	NNE	NNE	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NE	NE	NE	NE	NE	NNE	NNE	NNE	NE	NE	NE	NE	25	NNE
Feb 2	NE	NNE	NNE	NNE	NNE	NNE	N	NNW	NW	NW	NW	NNW	NNW	NW	NNW	N	NNW	NNW	347	NNW							
Feb 3	NNW	NNW	N	N	NNE	NE	NE	NE	ENE	ENE	N	NNE	WSW	WNW	W	SW	SW	WSW	SSE	SE	SE	ESE	SE	SE	SE	312	NW
Feb 4	SE	SE	SE	SE	ESE	ESE	ESE	ESE	SE	SSE	S	SSW	SSW	SSW	SW	WSW	WSW	S	E	E	ESE	E	E	ESE	165	SSE	
Feb 5	E	E	ENE	ENE	ENE	ENE	ENE	NE	NE	ENE	ENE	E	WSW	WSW	WSW	WSW	WSW	SE	ENE	ENE	ENE	ENE	ENE	ENE	77	ENE	
Feb 6	E	ENE	ENE	E	E	ENE	E	E	E	ENE	ESE	WSW	WSW	WSW	WSW	WSW	WSW	E	ENE	ENE	ENE	ENE	ENE	ENE	76	ENE	
Feb 7	NE	ENE	NE	NE	NNW	ESE	E	W	SW	WSW	WSW	W	W	W	NW	NW	NNW	N	320	NW							
Feb 8	NNW	NNW	NNW	NNW	NW	NW	NNW	NNW	NNW	NNW	N	NNE	NNW	NNW	NW	NW	NW	NNW	NNN	NNE	NE	E	ENE	342	NNW		
Feb 9	E	ENE	ENE	E	ESE	ESE	ESE	ESE	SE	S	SSW	SSW	SSW	S	S	S	S	SSE	SSE	SE	SE	SE	SE	SE	167	SSE	
Feb 10	SE	SE	SE	SE	ENE	NE	ENE	ENE	NE	NNW	WSW	WNW	WNW	WSW	W	W	WSW	W	WSW	SE	E	E	E	E	202	SSW	
Feb 11	E	ESE	E	E	ESE	SSW	SE	ESE	SE	S	WSW	WSW	WSW	WSW	W	WNW	WNW	W	W	ESE	ESE	ESE	ESE	ESE	222	SW	
Feb 12	E	E	ENE	E	E	E	E	ENE	E	ESE	SW	WSW	WSW	SW	WSW	WSW	WSW	SW	SE	ESE	ESE	ESE	ESE	ESE	203	SSW	
Feb 13	ESE	SE	ESE	SE	SE	SE	SE	SE	SE	SSE	S	WSW	ESE	E	E	E	E	ENE	174	S							
Feb 14	ENE	E	ENE	E	E	ESE	SE	SSE	SE	SSE	SSE	WSW	WSW	WNW	WNW	NNW	NNW	NNW	N	N	N	N	N	NNE	348	NNW	
Feb 15	N	N	NNE	NNE	N	NNE	NNE	N	N	NNE	NNE	NE	NE	NE	NE	NE	NE	NNE	NNE	NE	NE	NE	NE	NE	31	NNE	
Feb 16	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NNW	NNW	NNW	NNW	NNW	NNW	17	NNE	
Feb 17	NNW	NNW	NNW	N	W	NW	NE	ESE	SSE	WNW	SW	SW	WSW	SW	SW	SW	SSW	S	S	SE	SE	SSE	SSE	SSW	212	SSW	
Feb 18	SE	SSE	SSE	SSE	SE	SSE	SE	SSE	SSE	SSE	S	SSE	S	S	SSW	S	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	177	S	
Feb 19	SSW	S	S	SSW	SSW	SSW	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	203	SSW	
Feb 20	NNW	NNW	NNW	NNW	N	N	N	NNW	NNW	N	NNW	NNW	NW	NNW	NNW	NNW	NNW	NNW	ENE	ESE	ESE	ESE	ESE	ESE	344	NNW	
Feb 21	ESE	ESE	SE	SE	SE	SE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	S	S	SSE	SE	SSE	SSE	S	S	S	164	SSE	
Feb 22	S	SW	SW	SW	WSW	N	NNW	NNW	NNW	N	N	NNW	NNW	NNW	N	N	N	N	NNE	N	N	NNW	NNW	NNW	345	NNW	
Feb 23	NNW	NW	NW	NNW	N	N	N	N	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	N	N	N	334	NNW	
Feb 24	SE	ESE	ESE	ESE	ESE	SE	ESE	SE	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	ESE	ESE	ESE	ESE	ESE	SE	200	SSW	
Feb 25	ESE	SE	SE	SE	SE	SE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	S	190	S	
Feb 26	S	S	S	S	S	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	211	SSW	
Feb 27	SSW	S	SSW	SW	SW	WSW	WSW	W	W	WNW	NW	NW	NW	NW	W	SW	SSW	SSW	WNW	SW	WSW	WNW	W	280	W		
Feb 28	NW	NW	NW	NW	NNW	N	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	N	N	N	N	342	NNW	
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 - 842b Station*



# **RENO STATION**



## PEACE RIVER AREA MONITORING PROGRAM

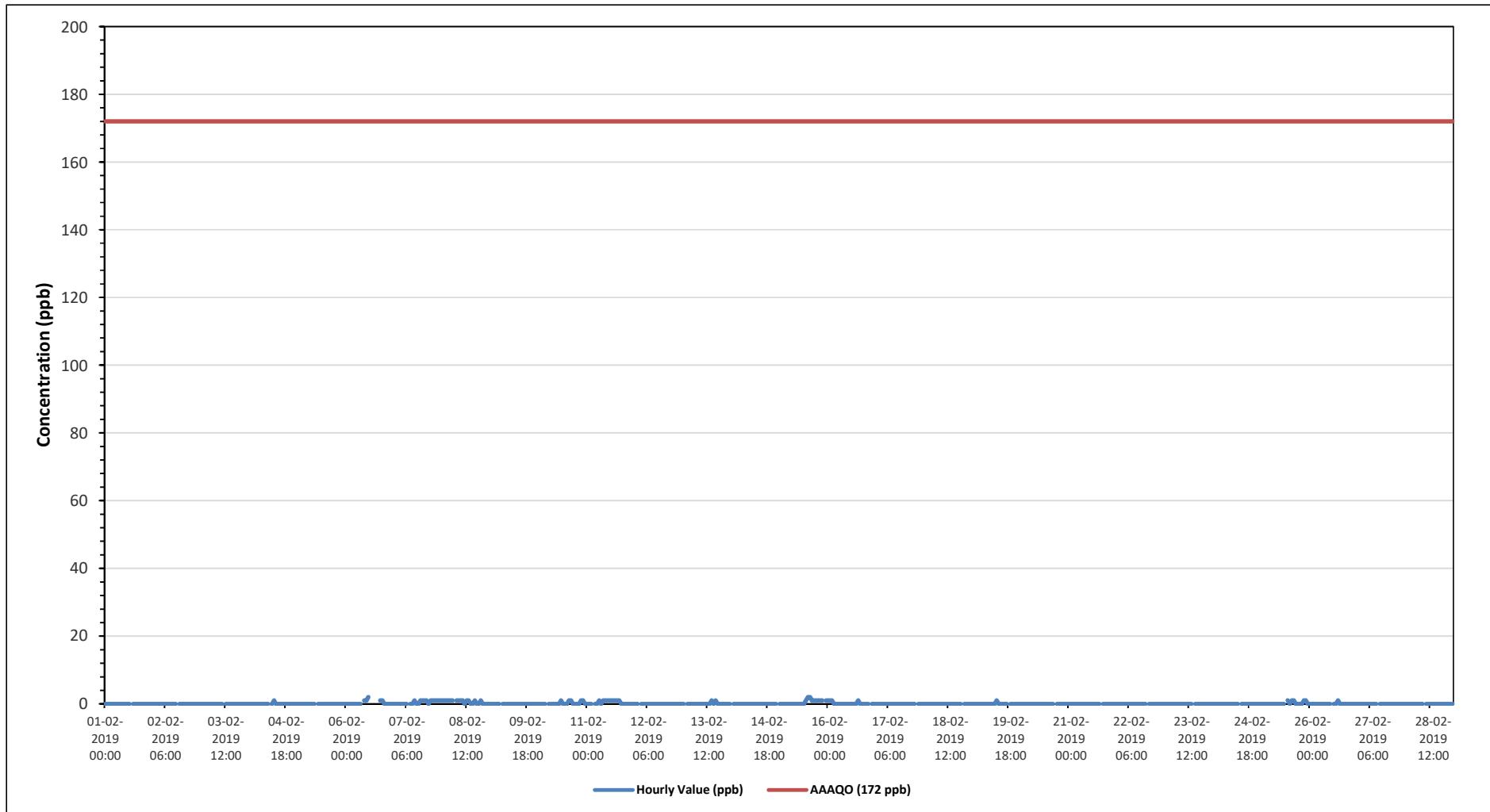
### Reno Site - February 2019 Summary of Hourly Averages

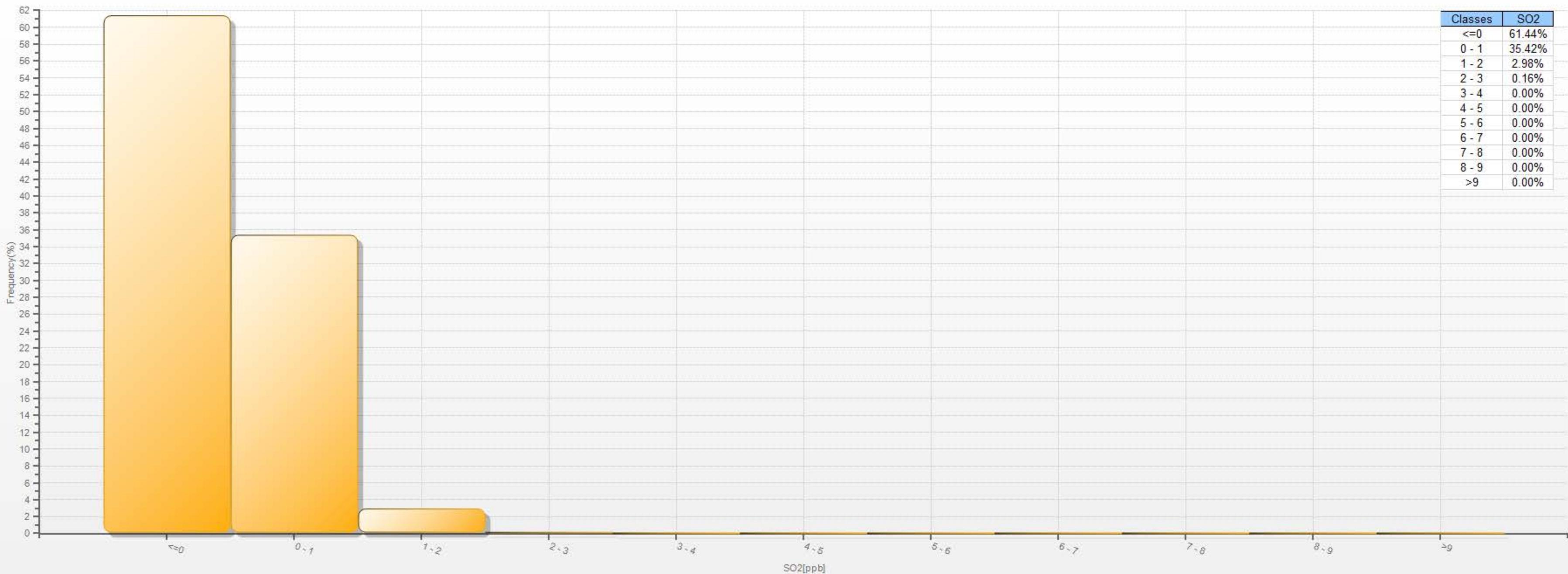
#### SULPHUR DIOXIDE (SO<sub>2</sub>) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																															
Number of 1-Hour Exceedences:		0	Number of 24-Hour Exceedences:		0	30-Day Exceedence:		0																							
Maximum Hourly Value:		2	ppb on February 6 at hour 11																								Hours in Service:	672			
Maximum Daily Value:		0.6	ppb on February 8																								Hours of Data:	638			
Minimum Hourly Value:		0	ppb on February 1 at hour 0																								Hours of Missing Data:	0			
Minimum Daily Value:		0.0	ppb on February 1																								Hours of Calibration:	34			
Monthly Average:		0.1	ppb																								Operational Uptime:	100.0			
Day	Hourly Period Starting at (MST)																									Daily Minimum	Daily Maximum	Daily Average			
Feb 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		
Feb 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		
Feb 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		
Feb 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		
Feb 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		
Feb 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	0.3		
Feb 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	0.5		
Feb 8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6		
Feb 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0		
Feb 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2		
Feb 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4		
Feb 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		
Feb 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	0.1		
Feb 14	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0		
Feb 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	0.5		
Feb 16	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2		
Feb 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		
Feb 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		
Feb 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		
Feb 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		
Feb 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		
Feb 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		
Feb 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0		
Feb 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0		
Feb 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2			
Feb 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Feb 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			
Feb 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			
Diurnal Maximum	1	1	1	1	1	1	1	1	1	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Diurnal Average	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	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.

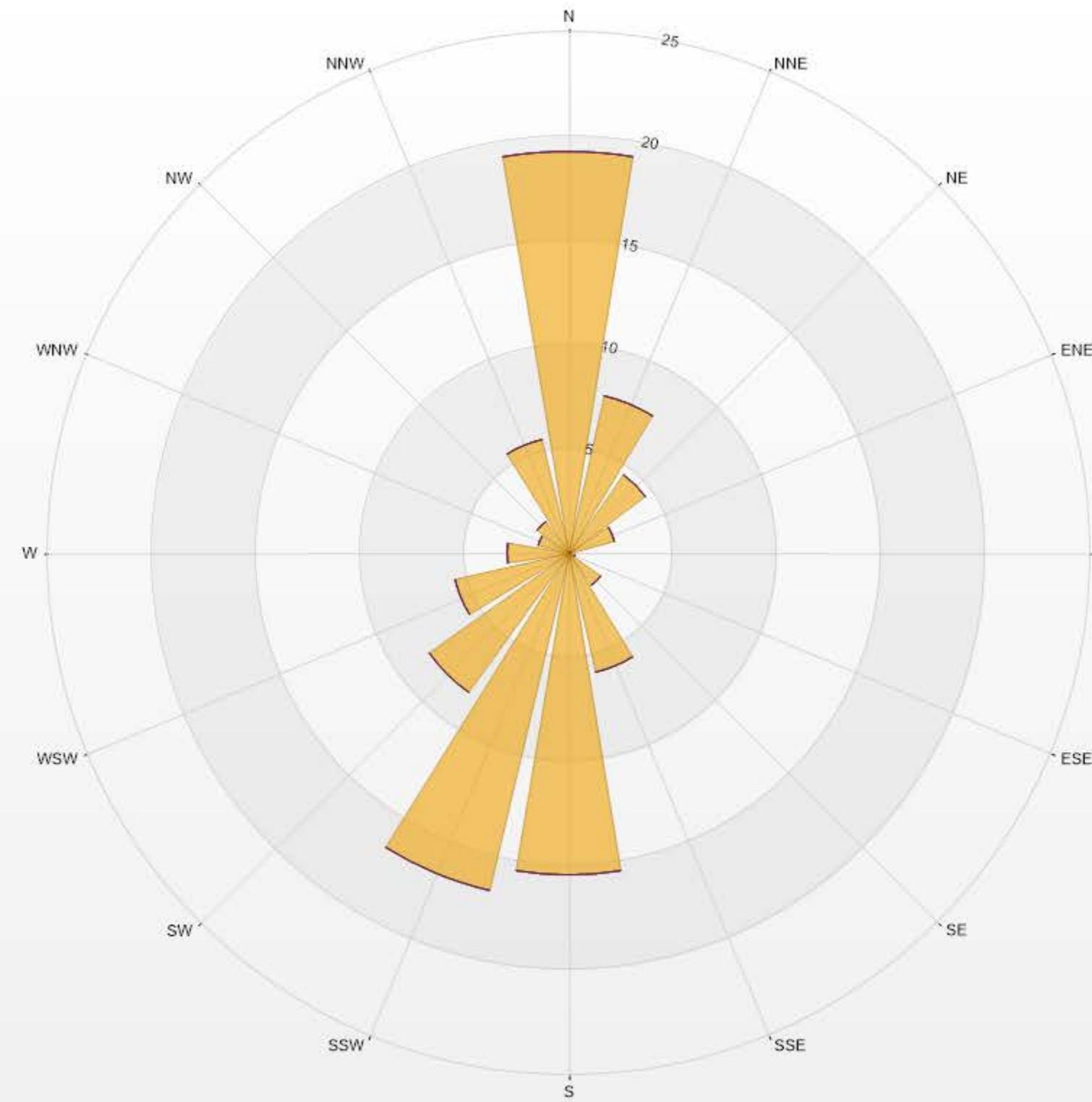
### *Timeseries Chart of Hourly Average for SO<sub>2</sub> - Reno Site*



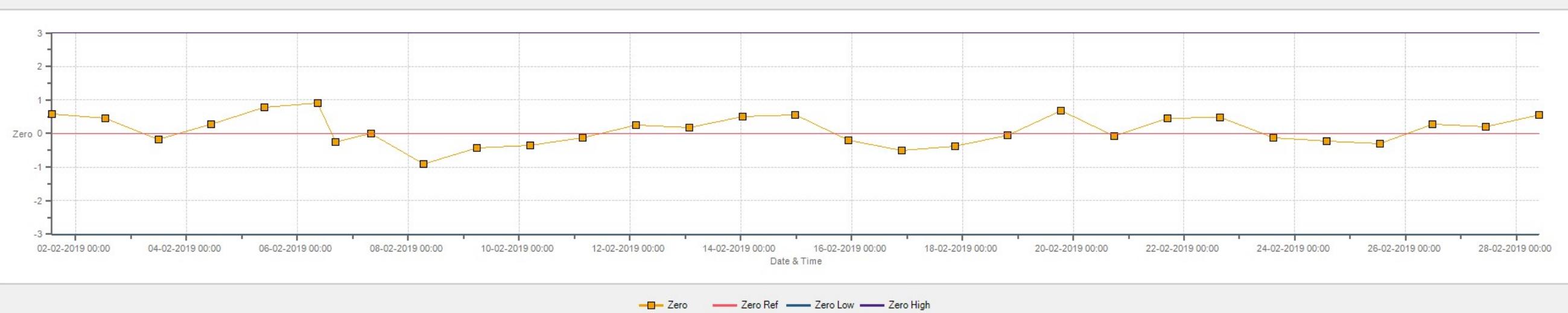


Wind: PRAMP RENO Poll.: PRAMP RENO-SO2[ppb] Monthly: 02-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 90.48% Calm Avg: 0.00 [ppb]

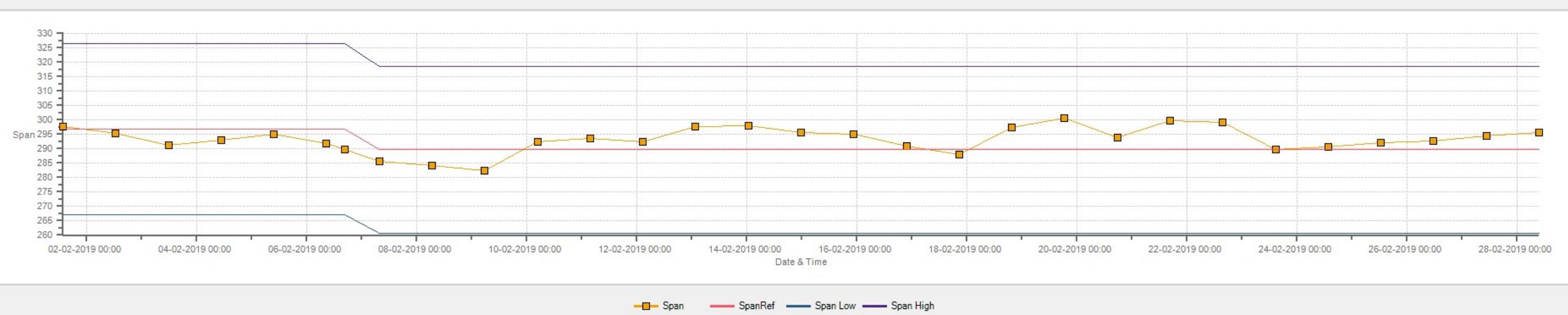
Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	19.24	0	0	0	0	19.24
NNE	7.73	0	0	0	0	7.73
NE	4.61	0	0	0	0	4.61
ENE	2.3	0	0	0	0	2.3
E	0.16	0	0	0	0	0.16
ESE	0.33	0	0	0	0	0.33
SE	1.97	0	0	0	0	1.97
SSE	5.92	0	0	0	0	5.92
S	15.46	0	0	0	0	15.46
SSW	16.61	0	0	0	0	16.61
SW	8.22	0	0	0	0	8.22
WSW	5.59	0	0	0	0	5.59
W	2.96	0	0	0	0	2.96
WNW	1.48	0	0	0	0	1.48
NW	1.81	0	0	0	0	1.81
NNW	5.59	0	0	0	0	5.59
Summary	100	0	0	0	0	100



Zero



Span





## PEACE RIVER AREA MONITORING PROGRAM

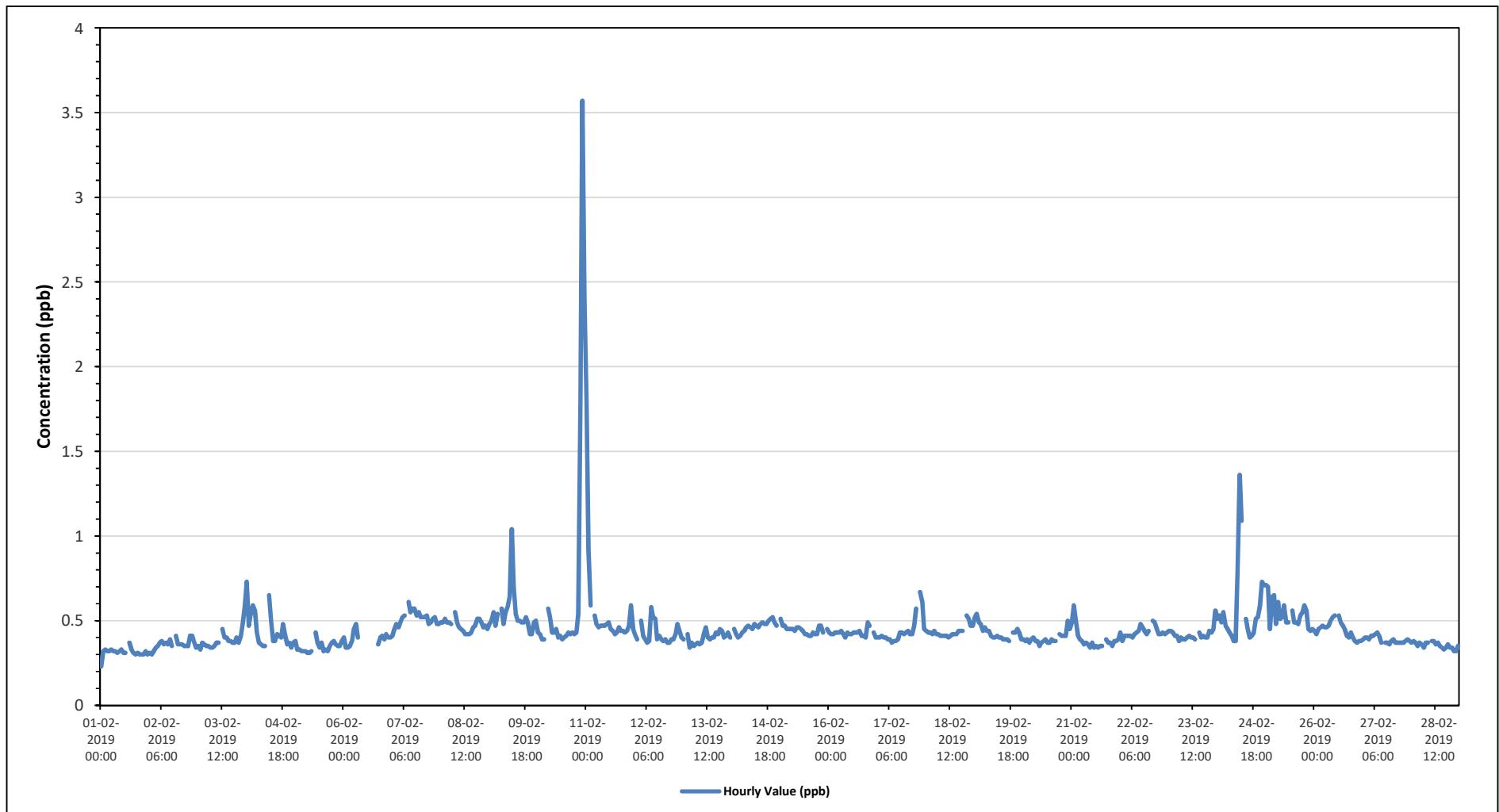
### Reno Site - February 2019 Summary of Hourly Averages

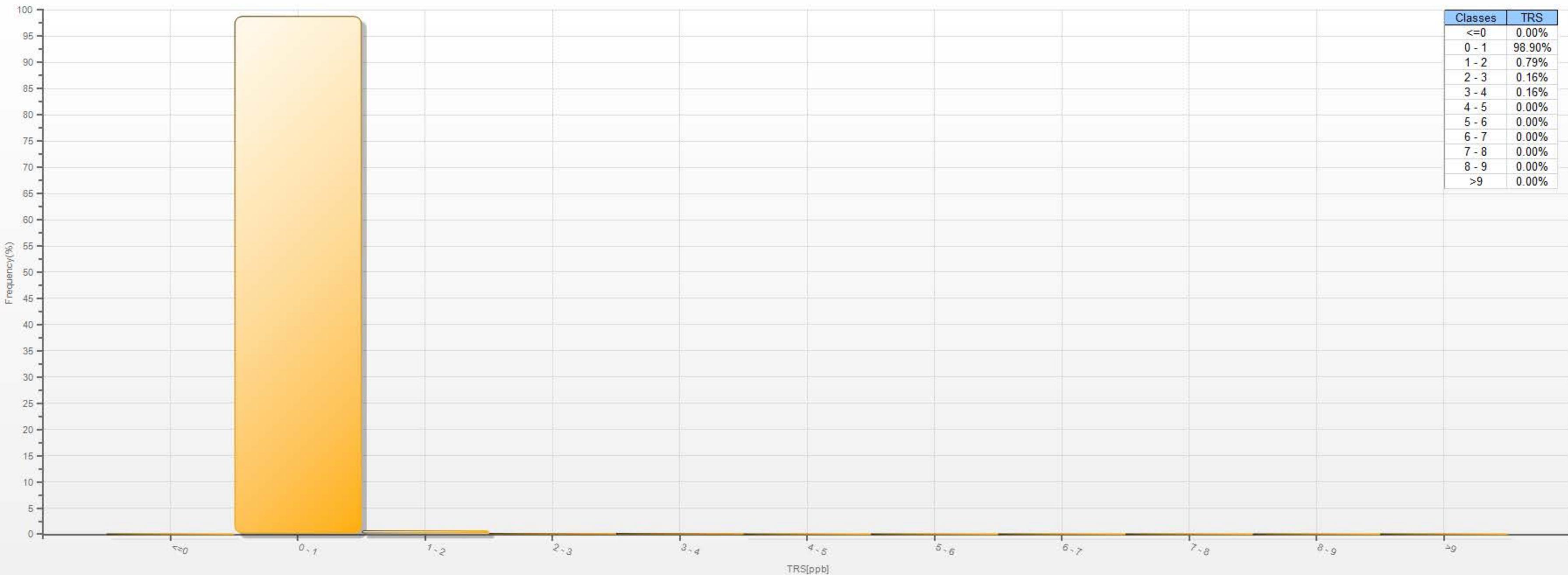
#### TOTAL REDUCED SULPHUR (TRS) in ppb

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:		3.57	ppb on February 10 at hour 22												Hours in Service:		672												
Maximum Daily Value:		0.72	ppb on February 10												Hours of Data:		635												
Minimum Hourly Value:		0.23	ppb on February 1 at hour 0												Hours of Missing Data:		0												
Minimum Daily Value:		0.31	ppb on February 1												Hours of Calibration:		37												
Monthly Average:		0.44	ppb												Operational Uptime:		100.0												
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Minimum	Daily Maximum	Daily Average		
Feb 1	0.23	0.32	0.33	0.32	0.32	0.33	0.32	0.32	0.31	0.32	0.33	0.31	0.31	S	0.37	0.33	0.31	0.3	0.31	0.3	0.3	0.3	0.32	0.3	0.23	0.37	0.31		
Feb 2	0.31	0.3	0.32	0.34	0.35	0.37	0.38	0.36	0.37	0.36	0.39	0.35	S	0.41	0.36	0.36	0.36	0.35	0.35	0.41	0.41	0.37	0.37	0.34	0.30	0.41	0.36		
Feb 3	0.35	0.33	0.37	0.36	0.35	0.35	0.34	0.34	0.35	0.37	0.37	S	0.45	0.4	0.4	0.38	0.38	0.37	0.37	0.4	0.41	0.41	0.48	0.58	0.33	0.58	0.39		
Feb 4	0.73	0.47	0.54	0.59	0.56	0.43	0.37	0.36	0.35	0.35	S	0.65	0.5	0.38	0.38	0.42	0.41	0.4	0.48	0.41	0.36	0.37	0.34	0.37	0.34	0.73	0.44		
Feb 5	0.38	0.33	0.33	0.32	0.32	0.32	0.31	0.31	0.32	S	0.43	0.37	0.34	0.37	0.32	0.33	0.32	0.35	0.37	0.38	0.36	0.35	0.35	0.38	0.31	0.43	0.35		
Feb 6	0.4	0.34	0.34	0.35	0.38	0.45	0.48	0.4	S	C	C	C	C	C	C	C	C	C	C	0.36	0.4	0.41	0.39	0.42	0.4	0.4	0.34	0.48	-
Feb 7	0.41	0.45	0.48	0.46	0.49	0.52	0.53	S	0.61	0.55	0.57	0.57	0.53	0.55	0.52	0.52	0.52	0.53	0.48	0.49	0.51	0.52	0.48	0.48	0.41	0.61	0.51		
Feb 8	0.49	0.49	0.51	0.49	0.49	0.48	S	0.55	0.49	0.46	0.45	0.44	0.42	0.42	0.42	0.43	0.46	0.47	0.51	0.51	0.49	0.46	0.47	0.45	0.42	0.55	0.47		
Feb 9	0.48	0.5	0.55	0.47	0.54	S	0.57	0.48	0.55	0.58	0.64	1.04	0.7	0.54	0.5	0.5	0.49	0.49	0.52	0.49	0.42	0.42	0.49	0.5	0.42	1.04	0.54		
Feb 10	0.43	0.42	0.39	0.39	S	0.57	0.52	0.43	0.43	0.45	0.4	0.41	0.39	0.4	0.41	0.43	0.42	0.43	0.42	0.43	0.54	1.81	S	2.39	0.39	3.57	0.72		
Feb 11	1.79	0.92	0.59	S	0.53	0.48	0.46	0.47	0.47	0.48	0.49	0.45	0.44	0.42	0.43	0.46	0.44	0.43	0.44	0.47	0.59	0.45	0.42	1.79	0.55				
Feb 12	0.42	0.39	S	0.5	0.41	0.39	0.37	0.38	0.58	0.52	0.51	0.39	0.41	0.39	0.38	0.39	0.37	0.37	0.39	0.42	0.48	0.44	0.4	0.37	0.58	0.42			
Feb 13	0.39	S	0.42	0.34	0.37	0.35	0.36	0.37	0.36	0.37	0.42	0.46	0.4	0.39	0.4	0.4	0.43	0.42	0.45	0.44	0.4	0.41	0.43	0.4	0.34	0.46	0.40		
Feb 14	S	0.45	0.42	0.4	0.41	0.43	0.44	0.46	0.47	0.46	0.45	0.48	0.47	0.46	0.46	0.48	0.49	0.48	0.48	0.5	0.51	0.52	0.49	0.47	S	0.40	0.52	0.46	
Feb 15	0.51	0.47	0.47	0.45	0.45	0.45	0.45	0.44	0.46	0.46	0.45	0.44	0.42	0.42	0.41	0.41	0.43	0.42	0.42	0.47	0.43	S	0.45	0.41	0.51	0.45			
Feb 16	0.43	0.42	0.42	0.43	0.43	0.44	0.42	0.4	0.43	0.42	0.42	0.43	0.43	0.44	0.41	0.41	0.4	0.49	0.47	S	0.43	0.4	0.40	0.49	0.43				
Feb 17	0.4	0.4	0.41	0.4	0.4	0.39	0.39	0.37	0.38	0.38	0.39	0.43	0.43	0.42	0.43	0.44	0.42	0.42	0.47	S	0.67	0.61	0.45	0.37	0.67	0.44			
Feb 18	0.44	0.43	0.43	0.42	0.44	0.42	0.42	0.41	0.41	0.41	0.4	0.41	0.42	0.42	0.42	0.44	0.44	0.44	S	0.53	0.51	0.47	0.47	0.40	0.53	0.44			
Feb 19	0.52	0.54	0.49	0.48	0.44	0.46	0.44	0.44	0.41	0.4	0.4	0.41	0.4	0.4	0.39	0.39	0.39	0.38	S	0.43	0.43	0.45	0.45	0.43	0.38	0.54	0.43		
Feb 20	0.39	0.38	0.39	0.37	0.39	0.4	0.38	0.38	0.35	0.37	0.38	0.39	0.37	0.37	0.39	0.38	S	0.42	0.41	0.41	0.41	0.41	0.41	0.45	0.35	0.50	0.39		
Feb 21	0.49	0.59	0.5	0.41	0.39	0.38	0.36	0.37	0.36	0.34	0.37	0.34	0.35	0.34	0.35	0.35	0.35	S	0.39	0.37	0.37	0.35	0.38	0.38	0.39	0.34	0.59	0.39	
Feb 22	0.43	0.38	0.41	0.41	0.41	0.41	0.4	0.42	0.43	0.44	0.48	0.46	0.44	0.42	0.44	0.44	0.44	0.44	S	0.5	0.49	0.45	0.42	0.43	0.42	0.43	0.38	0.50	0.43
Feb 23	0.44	0.44	0.43	0.41	0.41	0.38	0.4	0.39	0.39	0.4	0.41	0.4	0.4	0.39	S	0.43	0.4	0.41	0.4	0.4	0.44	0.43	0.45	0.56	0.38	0.56	0.42		
Feb 24	0.51	0.53	0.49	0.55	0.47	0.45	0.43	0.41	0.38	0.38	0.79	1.36	1.09	S	0.51	0.45	0.4	0.41	0.43	0.51	0.52	0.59	0.73	0.71	0.38	1.36	0.57		
Feb 25	0.71	0.7	0.45	0.64	0.65	0.48	0.61	0.51	0.52	0.59	0.49	0.49	S	0.56	0.49	0.49	0.48	0.53	0.55	0.59	0.56	0.45	0.44	0.45	0.44	0.71	0.54		
Feb 26	0.44	0.42	0.45	0.46	0.47	0.46	0.46	0.47	0.5	0.52	0.53	0.53	0.49	S	0.47	0.45	0.41	0.4	0.43	0.4	0.4	0.38	0.37	0.38	0.38	0.37	0.53	0.45	
Feb 27	0.39	0.4	0.4	0.39	0.41	0.41	0.42	0.43	0.41	0.37	S	0.37	0.37	0.36	0.38	0.39	0.37	0.37	0.37	0.37	0.38	0.39	0.38	0.36	0.43	0.39			
Feb 28	0.37	0.38	0.37	0.35	0.37	0.36	0.34	0.37	0.37	S	0.38	0.38	0.36	0.37	0.35	0.34	0.33	0.34	0.36	0.34	0.32	0.32	0.35	0.32	0.38	0.35			
Diurnal Maximum	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	4	2					
Diurnal Average	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	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.

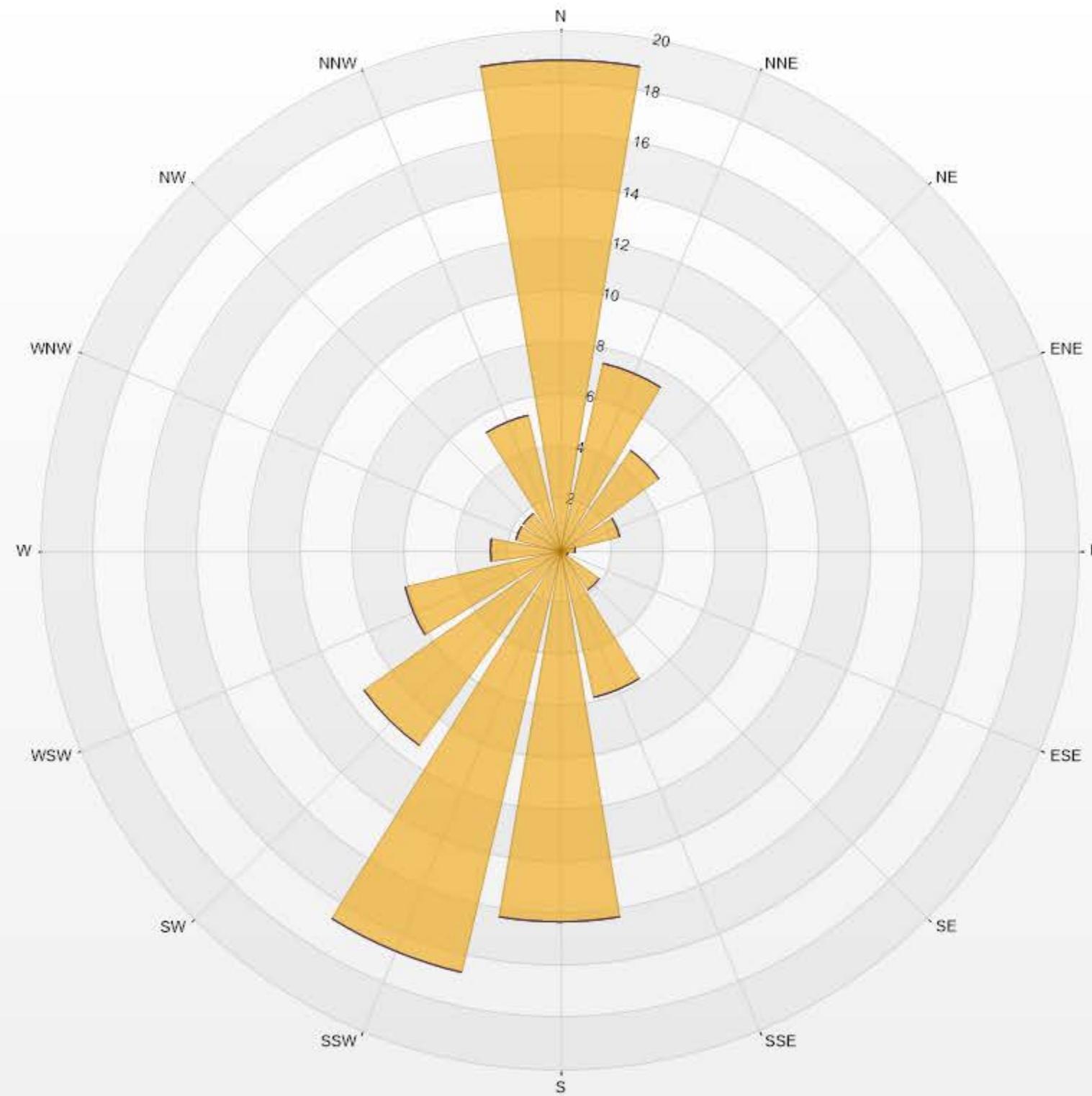
### *Timeseries Chart of Hourly Average for TRS - Reno Site*



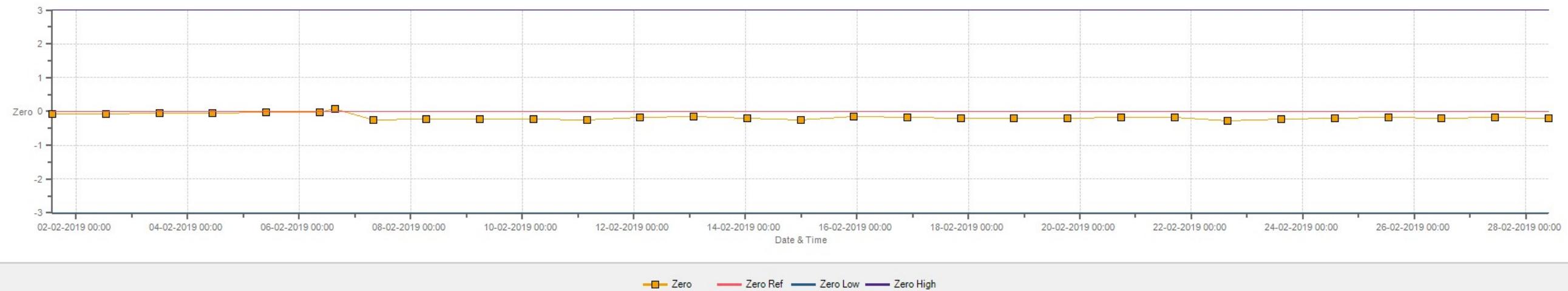


Wind: PRAMP RENO Poll.: PRAMP RENO-TRS[ppb] Monthly: 02-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 90.03% Calm Avg: 0.00 [ppb]

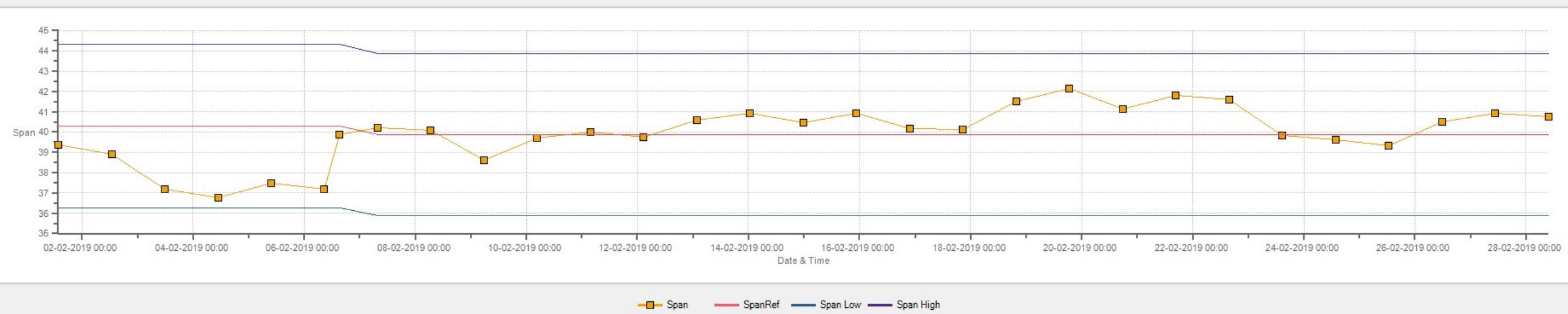
Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	19.34	0	0	0	0	19.34
NNE	7.77	0	0	0	0	7.77
NE	4.63	0	0	0	0	4.63
ENE	2.31	0	0	0	0	2.31
E	0.17	0	0	0	0	0.17
ESE	0.33	0	0	0	0	0.33
SE	1.98	0	0	0	0	1.98
SSE	5.95	0	0	0	0	5.95
S	15.21	0	0	0	0	15.21
SSW	16.36	0.17	0	0	0	16.53
SW	8.26	0	0	0	0	8.26
WSW	5.62	0	0	0	0	5.62
W	2.98	0	0	0	0	2.98
WNW	1.49	0	0	0	0	1.49
NW	1.82	0	0	0	0	1.82
NNW	5.62	0	0	0	0	5.62
Summary	100	0.17	0	0	0	100



Zero



Span





## PEACE RIVER AREA MONITORING PROGRAM

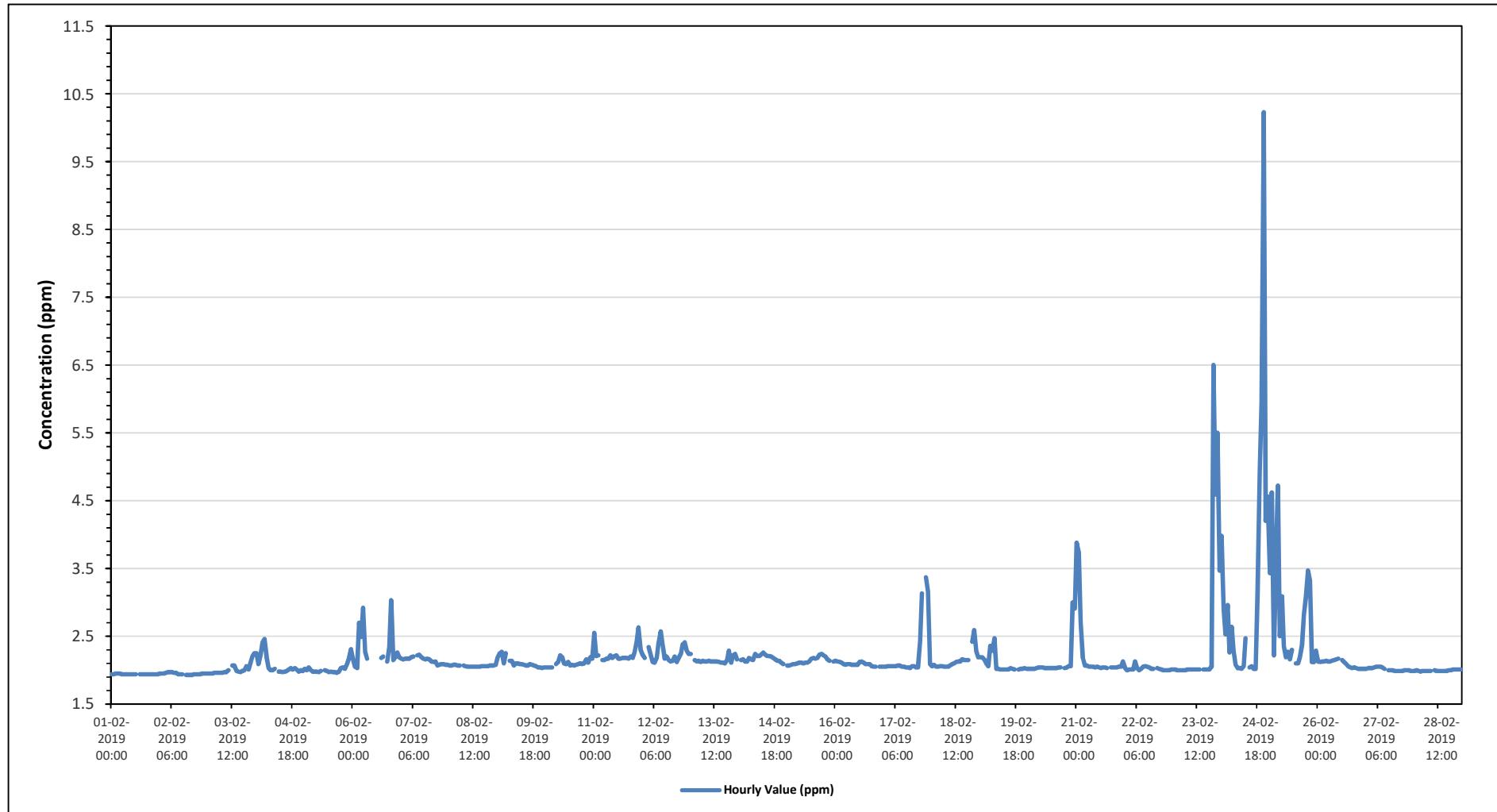
Reno Site - February 2019

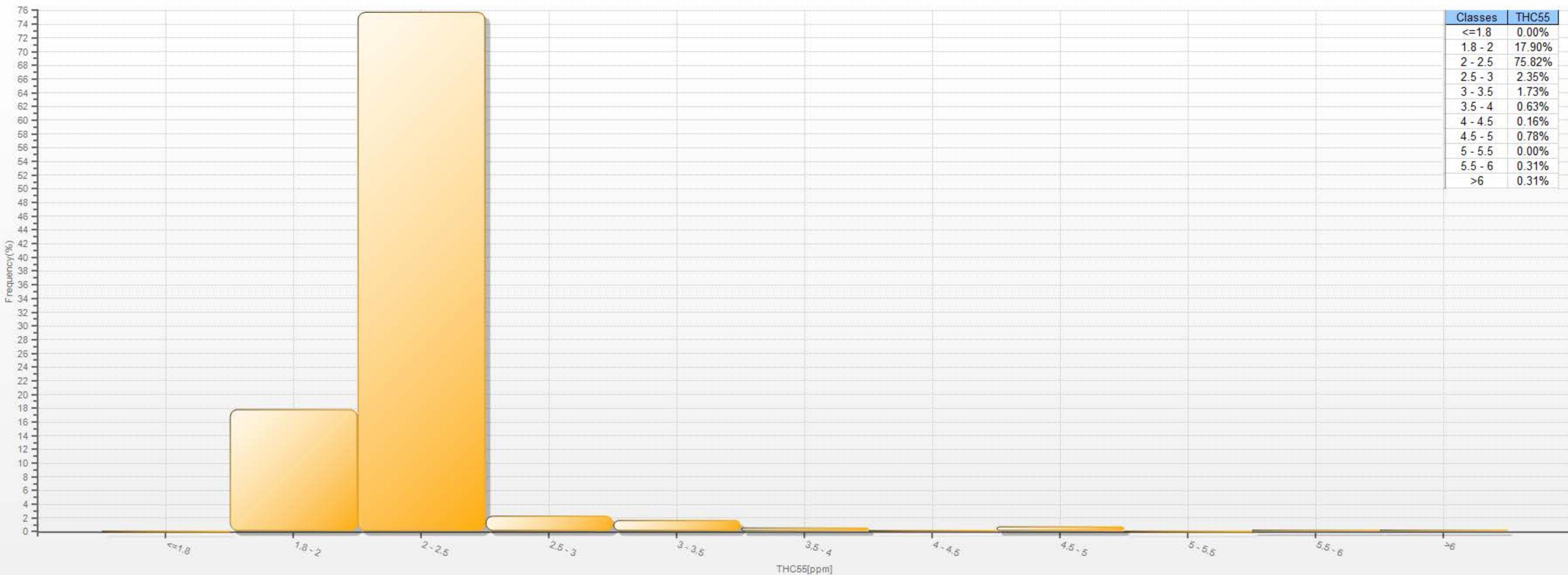
### Summary of Hourly Averages

#### TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	10.23	ppm	on February 24 at hour 21	Hours in Service:	672																					
Maximum Daily Value:	3.19	ppm	on February 24	Hours of Data:	637																					
Minimum Hourly Value:	1.93	ppm	on February 2 at hour 13	Hours of Missing Data:	0																					
Minimum Daily Value:	1.94	ppm	on February 1	Hours of Calibration:	35																					
Monthly Average:	2.18	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		
Feb 1	1.94	1.94	1.95	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	S	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94		
Feb 2	1.95	1.95	1.95	1.96	1.97	1.97	1.97	1.96	1.96	1.94	1.94	1.94	S	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.95	1.95	1.95	1.95		
Feb 3	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.97	1.97	2.00	S	2.07	2.07	1.99	1.98	1.97	1.99	2.00	2.06	2.01	2.10	2.21	2.25		
Feb 4	2.25	2.09	2.22	2.41	2.46	2.18	2.03	2.00	2.00	2.02	S	1.98	1.98	1.97	1.98	1.99	2.01	2.03	2.01	2.03	2.01	1.98	2.00	1.99		
Feb 5	2.02	2.00	2.04	2.00	1.98	1.98	1.98	1.97	1.99	S	2.00	1.99	1.97	1.98	1.97	1.97	1.96	1.98	2.03	2.04	2.02	2.09	2.17	2.31		
Feb 6	2.15	2.05	2.03	2.70	2.49	2.92	2.27	2.17	S	C	C	C	C	C	2.18	2.20	C	2.13	2.34	3.03	2.15	2.19	2.26	2.19	2.03	
Feb 7	2.17	2.16	2.17	2.17	2.17	2.19	2.20	S	2.22	2.23	2.19	2.17	2.16	2.17	2.16	2.13	2.12	2.13	2.07	2.08	2.09	2.09	2.08	2.08		
Feb 8	2.07	2.07	2.08	2.08	2.07	2.07	S	2.07	2.06	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.06	2.06	2.06	2.07	2.07	2.07	2.08	2.05		
Feb 9	2.19	2.25	2.27	2.10	2.25	S	2.14	2.14	2.07	2.10	2.10	2.09	2.09	2.08	2.07	2.07	2.09	2.08	2.07	2.07	2.06	2.04	2.03	2.04	2.03	
Feb 10	2.04	2.04	2.04	2.04	S	2.09	2.12	2.22	2.19	2.10	2.09	2.12	2.07	2.08	2.07	2.08	2.09	2.10	2.09	2.10	2.16	2.11	2.19	2.17	2.04	
Feb 11	2.55	2.21	2.22	S	2.15	2.15	2.17	2.17	2.22	2.18	2.21	2.22	2.17	2.17	2.18	2.18	2.18	2.17	2.20	2.18	2.26	2.42	2.63	2.30	2.15	
Feb 12	2.23	2.18	S	2.34	2.23	2.12	2.11	2.18	2.40	2.57	2.38	2.17	2.20	2.15	2.13	2.14	2.20	2.12	2.18	2.24	2.38	2.41	2.29	2.24	2.11	
Feb 13	2.24	S	2.15	2.13	2.14	2.12	2.14	2.13	2.13	2.14	2.13	2.13	2.13	2.13	2.12	2.11	2.10	2.15	2.29	2.11	2.22	2.24	2.16	2.10	2.29	
Feb 14	S	2.15	2.16	2.13	2.13	2.18	2.16	2.15	2.24	2.21	2.21	2.23	2.26	2.23	2.21	2.21	2.20	2.18	2.18	2.16	2.14	2.11	2.09	S	2.09	
Feb 15	2.07	2.07	2.08	2.09	2.09	2.10	2.11	2.11	2.10	2.11	2.11	2.13	2.17	2.18	2.17	2.18	2.23	2.24	2.22	2.20	2.16	2.14	S	2.13	2.07	
Feb 16	2.14	2.13	2.12	2.11	2.09	2.08	2.09	2.09	2.08	2.08	2.08	2.12	2.13	2.11	2.09	2.09	2.09	2.06	2.05	2.05	2.05	S	2.05	2.05	2.14	
Feb 17	2.05	2.05	2.06	2.06	2.06	2.06	2.06	2.07	2.07	2.05	2.05	2.04	2.04	2.03	2.06	2.06	2.04	2.04	2.43	3.13	S	3.37	3.16	2.09	2.03	
Feb 18	2.06	2.08	2.05	2.05	2.06	2.06	2.05	2.05	2.05	2.07	2.09	2.10	2.12	2.13	2.13	2.16	2.15	2.15	2.15	S	2.42	2.59	2.28	2.19	2.05	
Feb 19	2.19	2.19	2.16	2.10	2.06	2.36	2.29	2.47	2.02	2.02	2.01	2.01	2.01	2.01	2.03	2.02	2.01	S	2.01	2.02	2.02	2.03	2.02	2.01	2.47	
Feb 20	2.02	2.02	2.02	2.02	2.03	2.04	2.04	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.04	2.04	S	2.03	2.04	2.06	2.06	3.00	2.91	2.02	3.00	
Feb 21	3.88	3.73	2.71	2.18	2.07	2.07	2.05	2.05	2.05	2.04	2.05	2.04	2.03	2.04	2.04	2.04	S	2.04	2.04	2.04	2.05	2.05	2.13	2.03	3.88	
Feb 22	2.03	2.00	2.01	2.01	2.13	2.03	2.00	2.02	2.05	2.06	2.05	2.05	2.04	2.02	2.02	S	2.03	2.02	2.01	2.00	2.00	2.00	2.00	2.01	2.02	
Feb 23	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.01	2.01	2.01	2.01	S	2.01	2.01	2.01	2.01	2.05	6.50	4.59	5.50	3.47	2.00	
Feb 24	3.98	2.90	2.53	2.96	2.26	2.64	2.29	2.08	2.03	2.03	2.02	2.06	2.47	S	2.04	2.06	2.02	2.02	3.14	4.93	5.95	10.23	4.20	4.56	2.02	
Feb 25	3.43	4.62	2.22	3.52	4.72	2.50	3.09	2.35	2.19	2.27	2.16	2.30	S	2.10	2.10	2.19	2.37	2.82	3.10	3.47	3.32	2.12	2.12	2.29	2.10	4.72
Feb 26	2.13	2.12	2.13	2.13	2.14	2.13	2.13	2.14	2.15	2.16	2.17	S	2.15	2.12	2.09	2.06	2.04	2.03	2.04	2.03	2.02	2.02	2.02	2.02	2.17	
Feb 27	2.02	2.03	2.03	2.04	2.05	2.05	2.05	2.04	2.02	2.02	S	2.00	2.00	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.00	1.99	1.99	2.05		
Feb 28	1.99	2.00	1.99	1.98	1.99	1.99	1.99	1.99	1.99	S	2.00	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.01	2.01	2.01	1.98	2.01		
Diurnal Maximum	3.98	4.62	2.71	3.52	4.72	2.92	3.09	2.47	2.40	2.57	2.38	2.30	2.47	2.23	2.21	2.21	2.37	2.82	3.14	4.93	6.50	10.23	5.50	4.56		
Diurnal Average	2.29	2.26	2.12	2.19	2.21	2.15	2.13	2.09	2.08	2.10	2.08	2.07	2.09	2.07	2.07	2.07	2.07	2.09	2.17	2.30	2.44	2.55	2.39	2.28		
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							

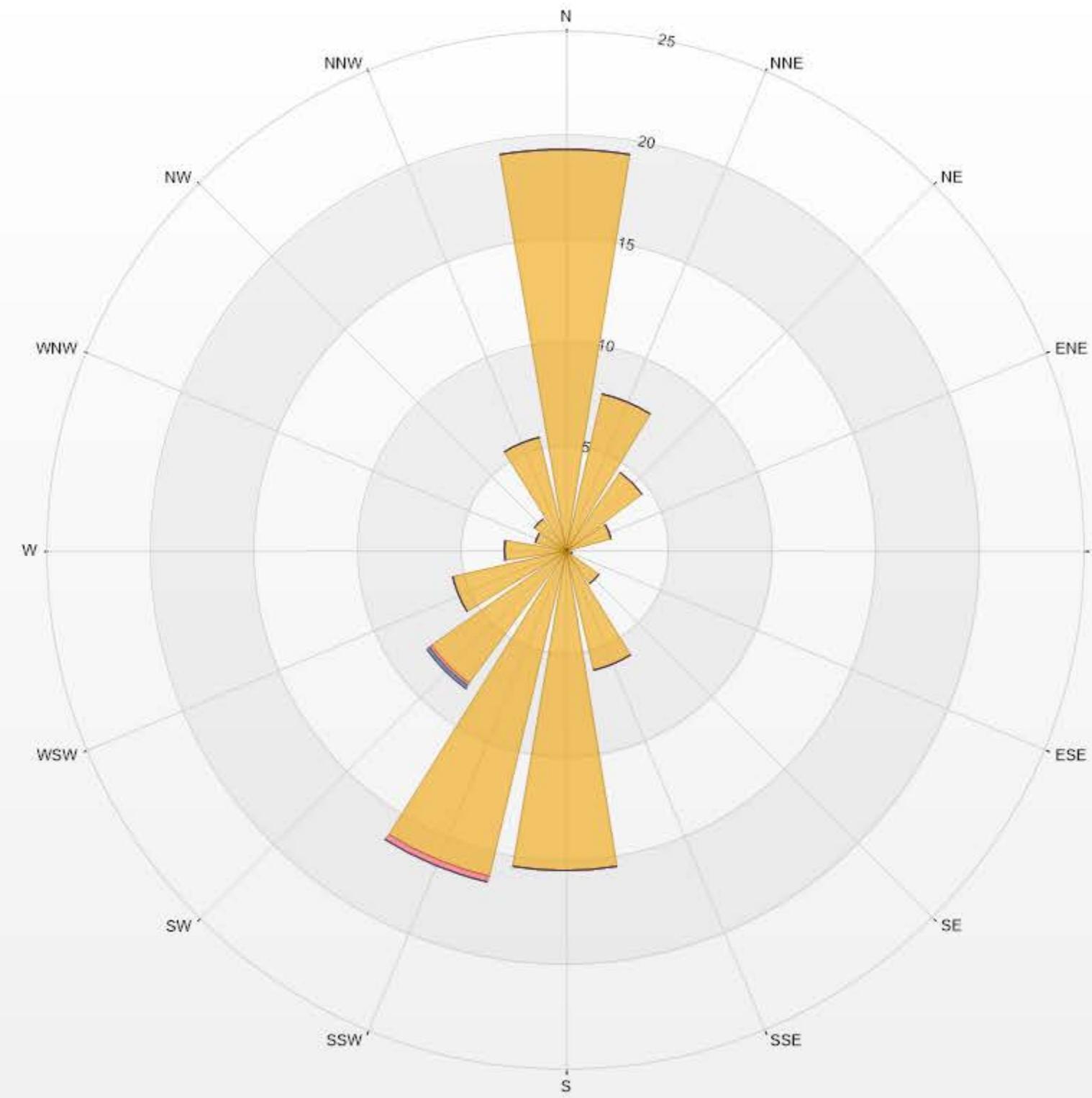
### *Timeseries Chart of Hourly Average for THC - Reno Site*



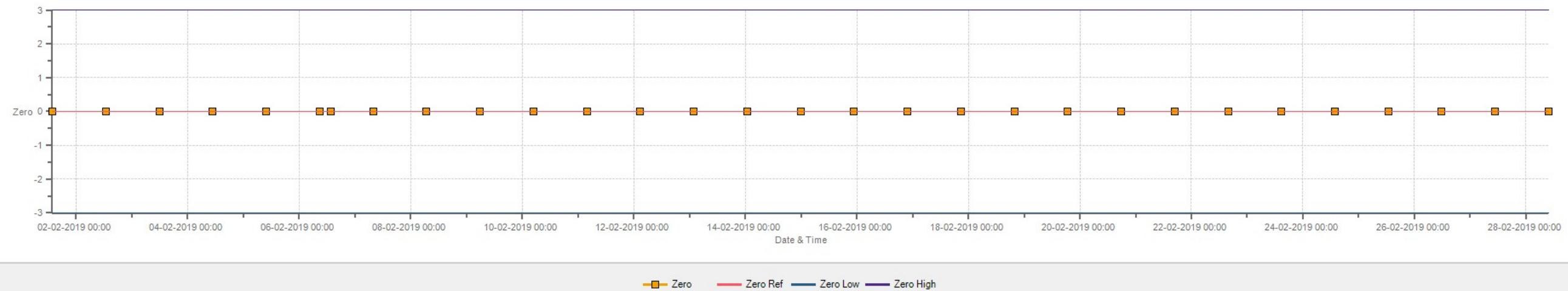


Wind: PRAMP RENO Poll.: PRAMP RENO-THC55[ppm] Monthly: 02-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 90.33% Calm Avg: 0.00 [ppm]

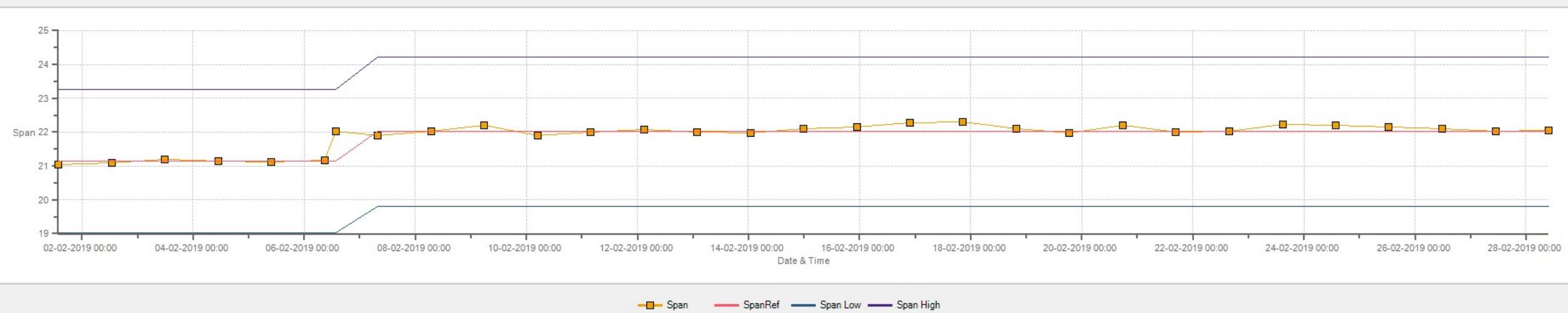
Direction	2-5	5-10	10-40	>40.0	Total
N	19.28	0	0	0	19.28
NNE	7.74	0	0	0	7.74
NE	4.61	0	0	0	4.61
ENE	2.31	0	0	0	2.31
E	0.16	0	0	0	0.16
ESE	0.33	0	0	0	0.33
SE	1.98	0	0	0	1.98
SSE	5.93	0	0	0	5.93
S	15.49	0	0	0	15.49
SSW	16.14	0.33	0	0	16.47
SW	7.91	0.16	0.16	0	8.23
WSW	5.6	0	0	0	5.6
W	2.97	0	0	0	2.97
WNW	1.48	0	0	0	1.48
NW	1.81	0	0	0	1.81
NNW	5.6	0	0	0	5.6
Summary	99.34	0.49	0.16	0	100



Zero



Span





## PEACE RIVER AREA MONITORING PROGRAM

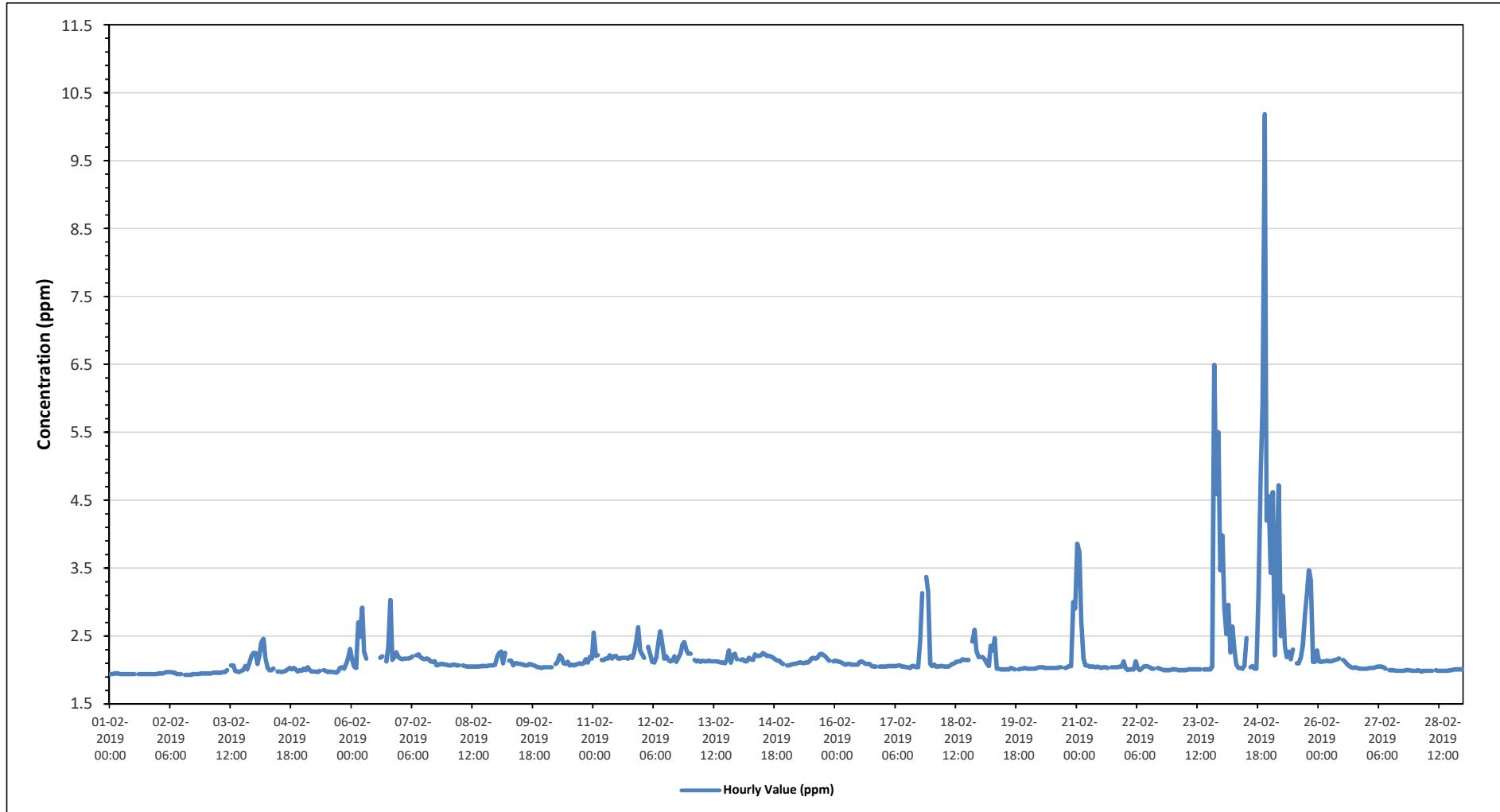
**Reno Site - February 2019**

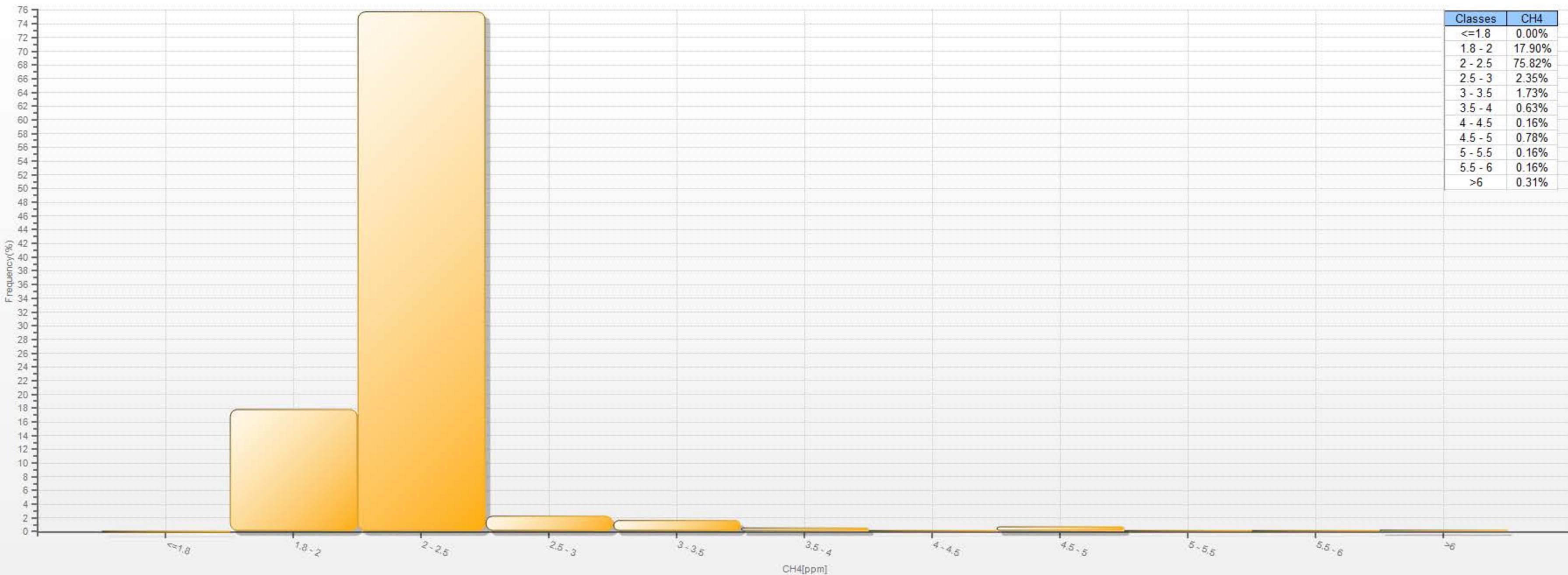
### Summary of Hourly Averages

#### METHANE (CH<sub>4</sub>) in ppm

Maximum Hourly Value:	10.18 ppm on February 24 at hour 21	Hours in Service:	672	Daily Minimum	Daily Maximum	Daily Average																				
Maximum Daily Value:	3.19 ppm on February 24	Hours of Data:	637																							
Minimum Hourly Value:	1.93 ppm on February 2 at hour 13	Hours of Missing Data:	0																							
Minimum Daily Value:	1.94 ppm on February 1	Hours of Calibration:	35																							
Monthly Average:	2.18 ppm	Operational Uptime:	100.0																							
Day	Hourly Period Starting at (MST)																									
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
Feb 1	1.94	1.94	1.95	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	S	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94		
Feb 2	1.95	1.95	1.95	1.96	1.97	1.97	1.97	1.96	1.96	1.94	1.94	1.94	S	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.95	1.95	1.95	1.95		
Feb 3	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.97	1.97	2.00	S	2.07	2.07	1.99	1.98	1.97	1.99	2.00	2.06	2.01	2.10	2.21	2.25		
Feb 4	2.25	2.09	2.22	2.41	2.46	2.18	2.03	2.00	2.00	2.02	S	1.98	1.98	1.97	1.98	1.99	2.01	2.03	2.01	2.03	2.01	1.98	2.00	1.99		
Feb 5	2.02	2.00	2.04	2.00	1.98	1.98	1.98	1.97	1.99	S	2.00	1.99	1.97	1.98	1.97	1.97	1.96	1.98	2.03	2.04	2.02	2.09	2.17	2.31		
Feb 6	2.15	2.05	2.03	2.70	2.49	2.92	2.27	2.17	S	C	C	C	C	C	2.18	2.20	C	2.13	2.34	3.03	2.15	2.19	2.26	2.19	2.03	
Feb 7	2.17	2.16	2.17	2.17	2.17	2.18	2.20	S	2.22	2.23	2.19	2.17	2.16	2.17	2.16	2.13	2.12	2.13	2.07	2.08	2.09	2.09	2.08	2.08		
Feb 8	2.07	2.07	2.08	2.08	2.07	2.07	S	2.07	2.06	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.06	2.06	2.06	2.07	2.07	2.07	2.08	2.05		
Feb 9	2.19	2.25	2.27	2.10	2.25	S	2.14	2.14	2.07	2.10	2.10	2.09	2.09	2.08	2.07	2.07	2.09	2.08	2.07	2.07	2.06	2.04	2.03	2.04	2.03	
Feb 10	2.04	2.04	2.04	2.04	S	2.09	2.12	2.22	2.19	2.10	2.09	2.12	2.07	2.08	2.07	2.08	2.09	2.10	2.09	2.10	2.16	2.11	2.19	2.17	2.04	
Feb 11	2.55	2.21	2.22	S	2.15	2.15	2.17	2.17	2.17	2.22	2.17	2.20	2.21	2.17	2.17	2.18	2.18	2.18	2.17	2.20	2.18	2.26	2.42	2.63	2.29	
Feb 12	2.23	2.18	S	2.34	2.23	2.12	2.11	2.18	2.40	2.57	2.38	2.17	2.20	2.15	2.13	2.14	2.20	2.12	2.18	2.24	2.38	2.41	2.29	2.24	2.11	
Feb 13	2.24	S	2.15	2.13	2.14	2.12	2.14	2.13	2.13	2.14	2.13	2.13	2.13	2.13	2.12	2.11	2.10	2.15	2.29	2.11	2.22	2.24	2.16	2.10	2.29	
Feb 14	S	2.15	2.16	2.13	2.13	2.18	2.16	2.15	2.23	2.21	2.21	2.22	2.25	2.23	2.21	2.21	2.20	2.18	2.16	2.14	2.11	2.09	S	2.09	2.25	
Feb 15	2.07	2.07	2.08	2.09	2.09	2.10	2.11	2.11	2.10	2.11	2.11	2.13	2.17	2.18	2.17	2.18	2.23	2.24	2.22	2.20	2.16	2.14	S	2.13	2.07	
Feb 16	2.14	2.13	2.12	2.11	2.09	2.08	2.09	2.09	2.08	2.08	2.08	2.08	2.12	2.13	2.11	2.09	2.09	2.09	2.06	2.05	2.05	S	2.05	2.05	2.14	
Feb 17	2.05	2.05	2.06	2.06	2.06	2.06	2.06	2.07	2.07	2.05	2.05	2.04	2.04	2.03	2.06	2.06	2.04	2.04	2.43	3.13	S	3.37	3.16	2.09	2.03	
Feb 18	2.06	2.08	2.05	2.05	2.06	2.06	2.05	2.05	2.05	2.07	2.09	2.10	2.12	2.13	2.13	2.16	2.15	2.15	2.15	S	2.42	2.59	2.28	2.19	2.05	
Feb 19	2.19	2.19	2.16	2.10	2.06	2.36	2.29	2.47	2.02	2.02	2.01	2.01	2.01	2.01	2.03	2.02	2.01	S	2.01	2.02	2.02	2.03	2.02	2.01	2.47	2.09
Feb 20	2.02	2.02	2.02	2.02	2.03	2.04	2.04	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.04	2.04	S	2.03	2.04	2.06	2.06	3.00	2.91	2.02	3.00	
Feb 21	3.86	3.73	2.71	2.18	2.07	2.07	2.05	2.05	2.05	2.04	2.05	2.04	2.04	2.03	2.04	2.04	2.03	S	2.04	2.04	2.04	2.04	2.05	2.13	2.03	3.86
Feb 22	2.03	2.00	2.01	2.01	2.13	2.03	2.00	2.02	2.05	2.06	2.05	2.05	2.04	2.02	2.02	S	2.03	2.02	2.01	2.00	2.00	2.00	2.00	2.01	2.02	
Feb 23	2.01	2.01	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	S	2.01	2.01	2.01	2.01	2.05	6.49	4.59	5.50	3.47	2.00	
Feb 24	3.98	2.90	2.53	2.96	2.26	2.64	2.29	2.08	2.03	2.03	2.02	2.06	2.47	S	2.04	2.06	2.02	2.02	3.14	4.91	5.92	10.18	4.20	4.56	2.02	10.18
Feb 25	3.43	4.62	2.22	3.52	4.72	2.50	3.09	2.35	2.19	2.27	2.16	2.30	S	2.10	2.10	2.19	2.37	2.82	3.10	3.47	3.32	2.12	2.29	2.10	4.72	2.76
Feb 26	2.13	2.12	2.13	2.13	2.14	2.13	2.13	2.14	2.15	2.16	2.16	2.17	S	2.15	2.12	2.09	2.06	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.07	2.09
Feb 27	2.02	2.03	2.03	2.04	2.05	2.05	2.05	2.05	2.04	2.02	S	2.00	2.00	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.00	1.99	1.99	1.99	2.01	
Feb 28	1.99	2.00	1.99	1.98	1.99	1.99	1.99	1.99	1.99	S	2.00	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.01	2.01	2.01	1.98	2.01		
Diurnal Maximum	3.98	4.62	2.71	3.52	4.72	2.92	3.09	2.47	2.40	2.57	2.38	2.30	2.47	2.23	2.21	2.21	2.37	2.82	3.14	4.91	6.49	10.18	5.50	4.56		
Diurnal Average	2.29	2.26	2.12	2.19	2.21	2.15	2.13	2.09	2.08	2.10	2.08	2.07	2.09	2.07	2.07	2.07	2.07	2.09	2.17	2.30	2.44	2.55	2.39	2.28		
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.																										

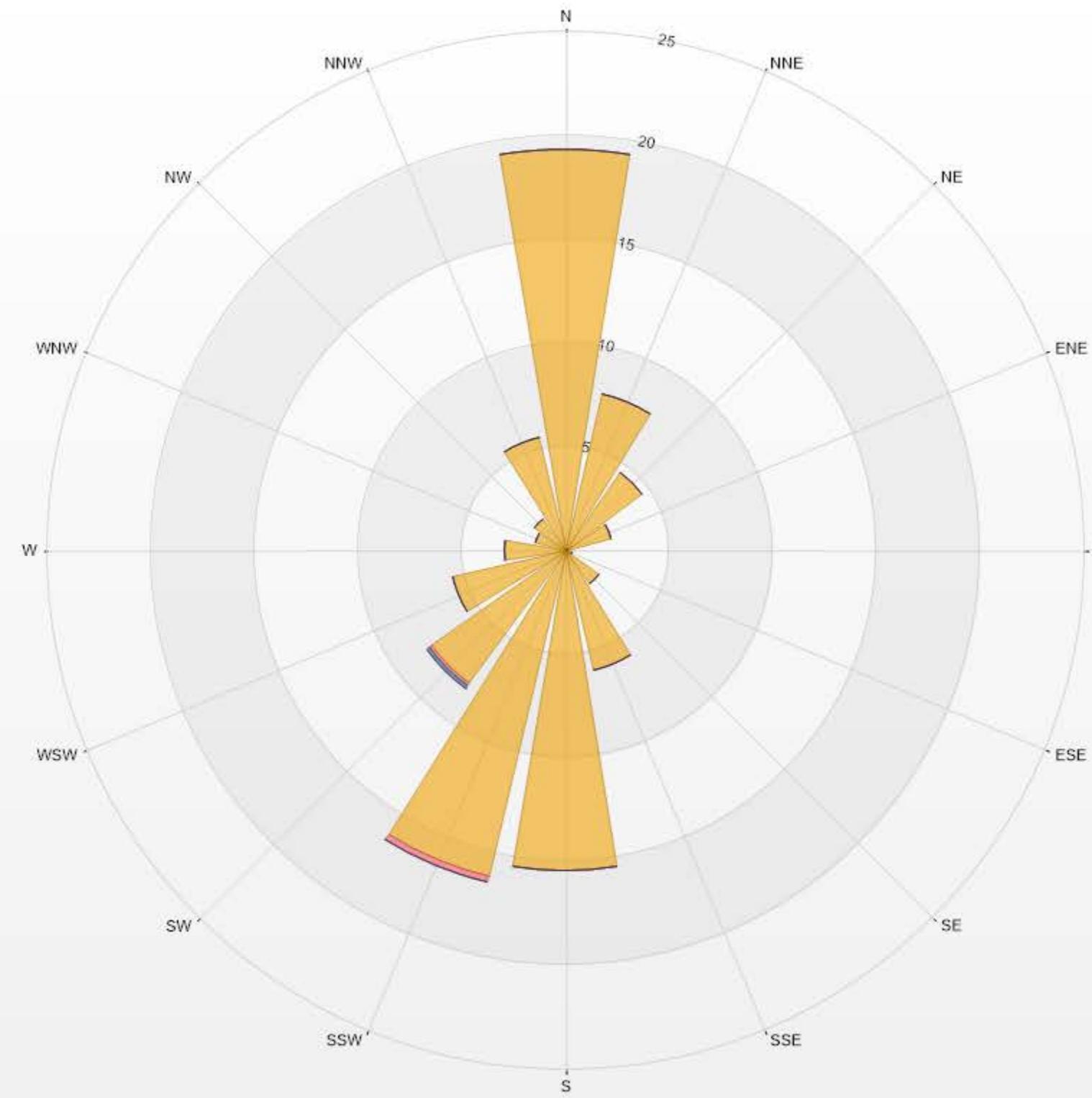
### *Timeseries Chart of Hourly Average for CH4 - Reno Site*



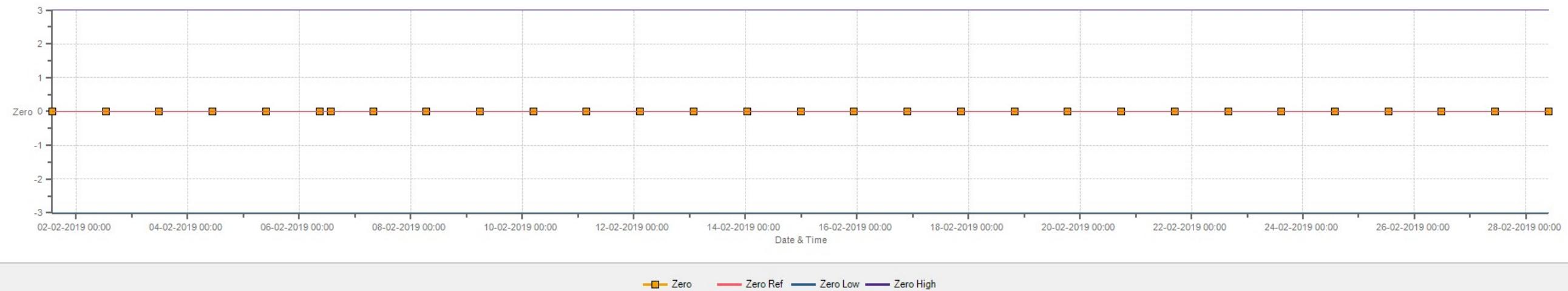


Wind: PRAMP RENO Poll.: PRAMP RENO-CH4[ppm] Monthly: 02-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 90.33% Calm Avg: 0.00 [ppm]

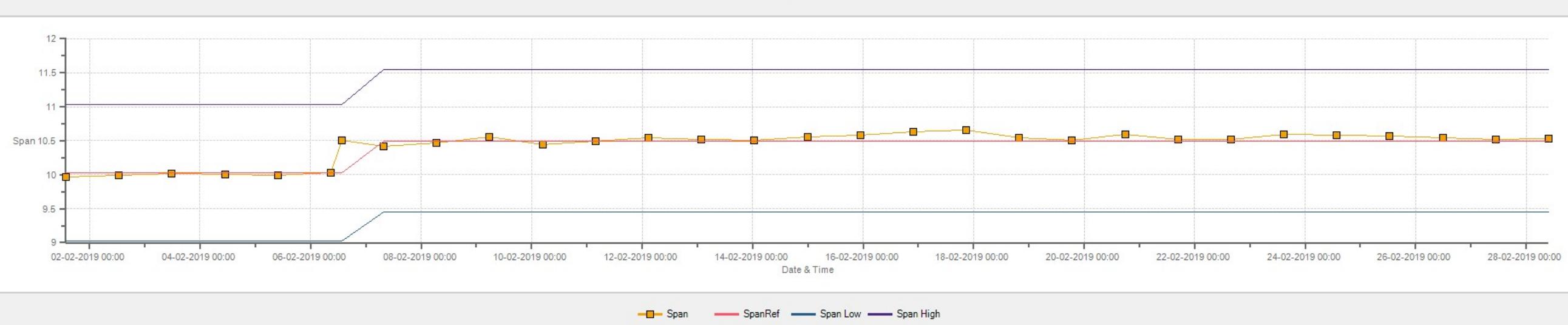
Direction	2-5	5-10	10-20	>20.0	Total
N	19.28	0	0	0	19.28
NNE	7.74	0	0	0	7.74
NE	4.61	0	0	0	4.61
ENE	2.31	0	0	0	2.31
E	0.16	0	0	0	0.16
ESE	0.33	0	0	0	0.33
SE	1.98	0	0	0	1.98
SSE	5.93	0	0	0	5.93
S	15.49	0	0	0	15.49
SSW	16.14	0.33	0	0	16.47
SW	7.91	0.16	0.16	0	8.23
WSW	5.6	0	0	0	5.6
W	2.97	0	0	0	2.97
WNW	1.48	0	0	0	1.48
NW	1.81	0	0	0	1.81
NNW	5.6	0	0	0	5.6
Summary	99.34	0.49	0.16	0	100



Zero



Span





## PEACE RIVER AREA MONITORING PROGRAM

**Reno Site - February 2019**

### Summary of Hourly Averages

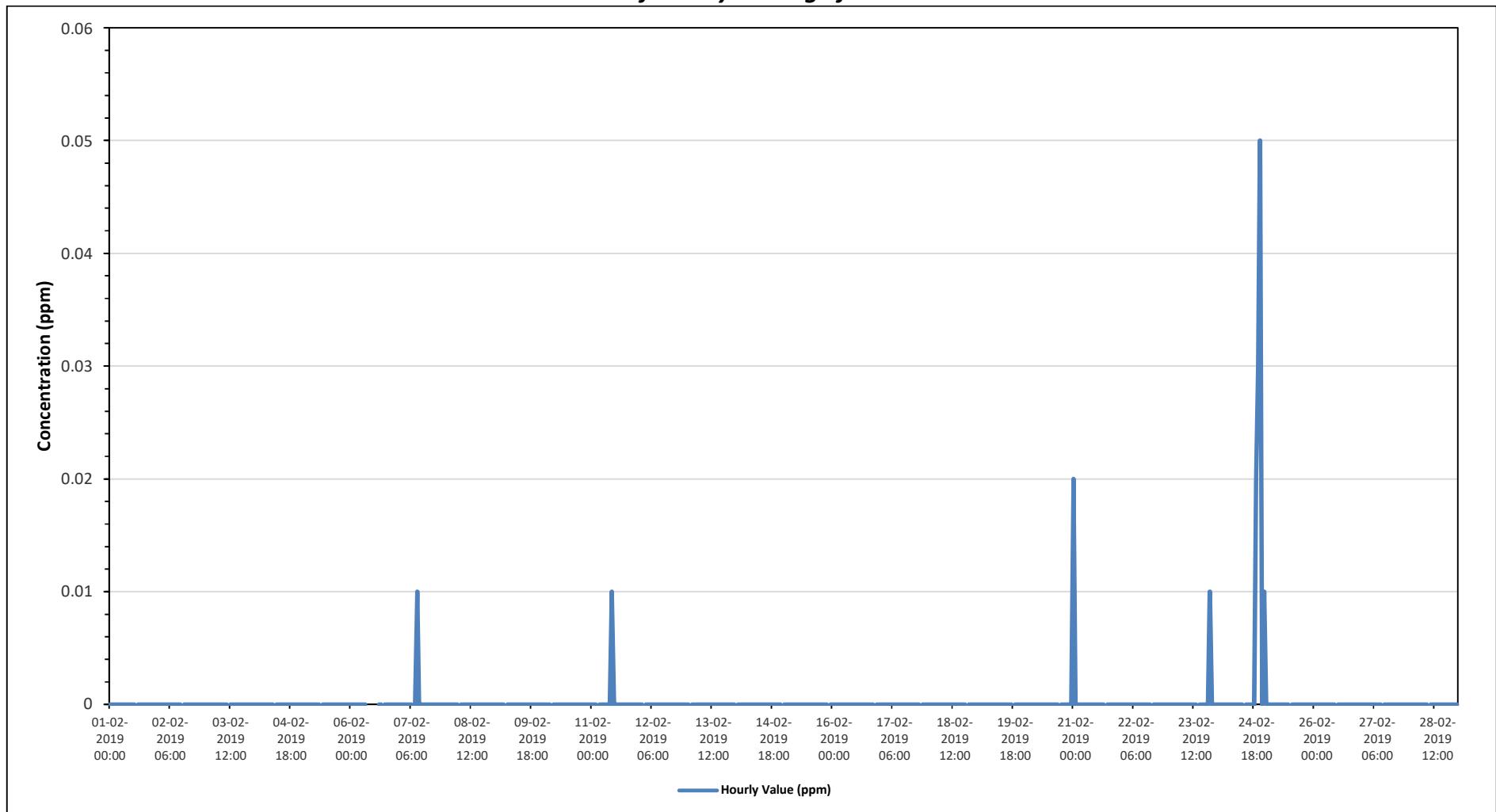
#### NON-METHANE HYDROCARBONS (NMHC) in ppm

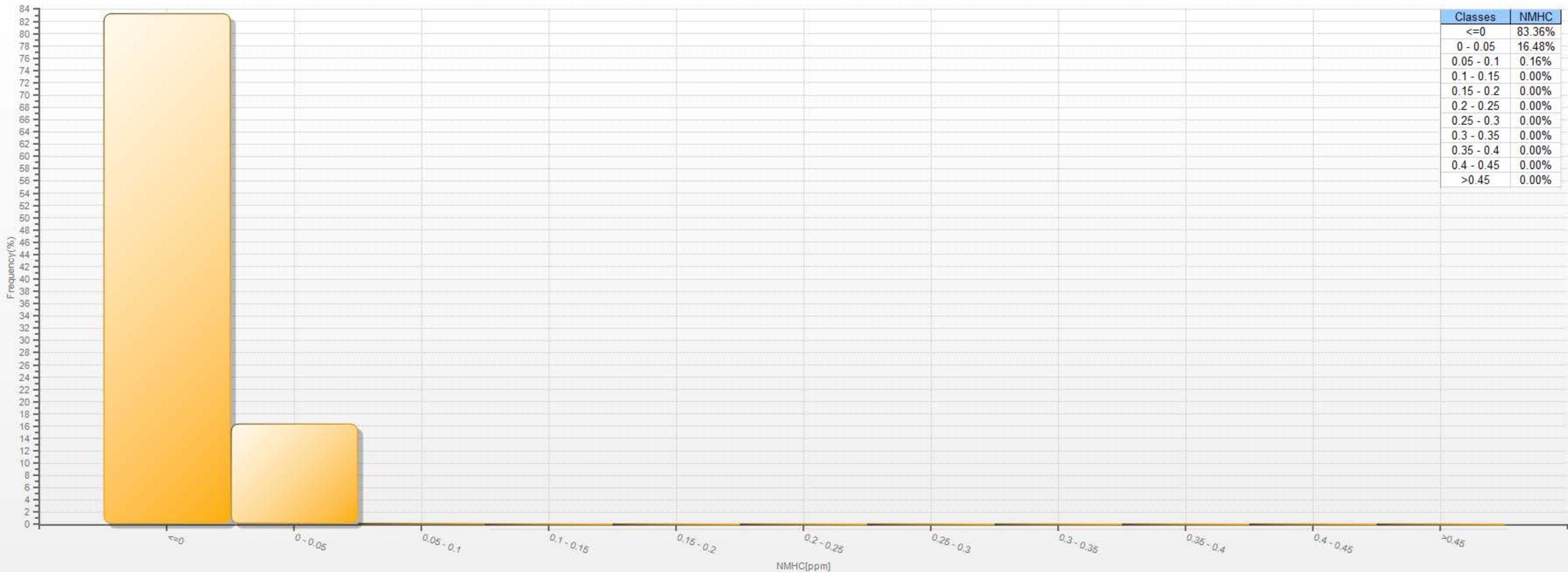
Maximum Hourly Value:	0.05	ppm on February 24 at hour 21	Hours in Service:	672	Daily Minimum	Daily Maximum	Daily Average																											
Maximum Daily Value:	0.00	ppm on February 24	Hours of Data:	637																														
Minimum Hourly Value:	0.00	ppm on February 1 at hour 0	Hours of Missing Data:	0																														
Minimum Daily Value:	0.00	ppm on February 1	Hours of Calibration:	35																														
Monthly Average:	0.00	ppm	Operational Uptime:	100.0																														
Day	Hourly Period Starting at (MST)																																	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23										
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Feb 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Feb 6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	C	C	C	C	C	0.00	0.00	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	-		
Feb 7	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	0.00	0.00	0.00	0.00	0.01	0.00	0.00					
Feb 8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Feb 9	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Feb 10	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Feb 11	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00						
Feb 12	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Feb 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	0.00	0.00	0.00	0.00	0.00	0.00					
Feb 14	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Feb 15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Feb 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Feb 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Feb 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Feb 19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Feb 20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Feb 21	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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00				
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00					
Feb 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	S	0.00	0.00	0.00	0.00	0.02	0.03	0.05	0.00	0.01	0.00	0.05	0.00	0.00	0.00	0.00					
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Feb 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	0.00	0.00					
Feb 27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Feb 28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.05	0.00	0.01	0.00	0.05	0.00	0.01							
Diurnal Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
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	T	Exceeds Temperature Limits	N	Not in Service																					
R	Recovery	X	Machine Malfunction	Y	Maintenance																													

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

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

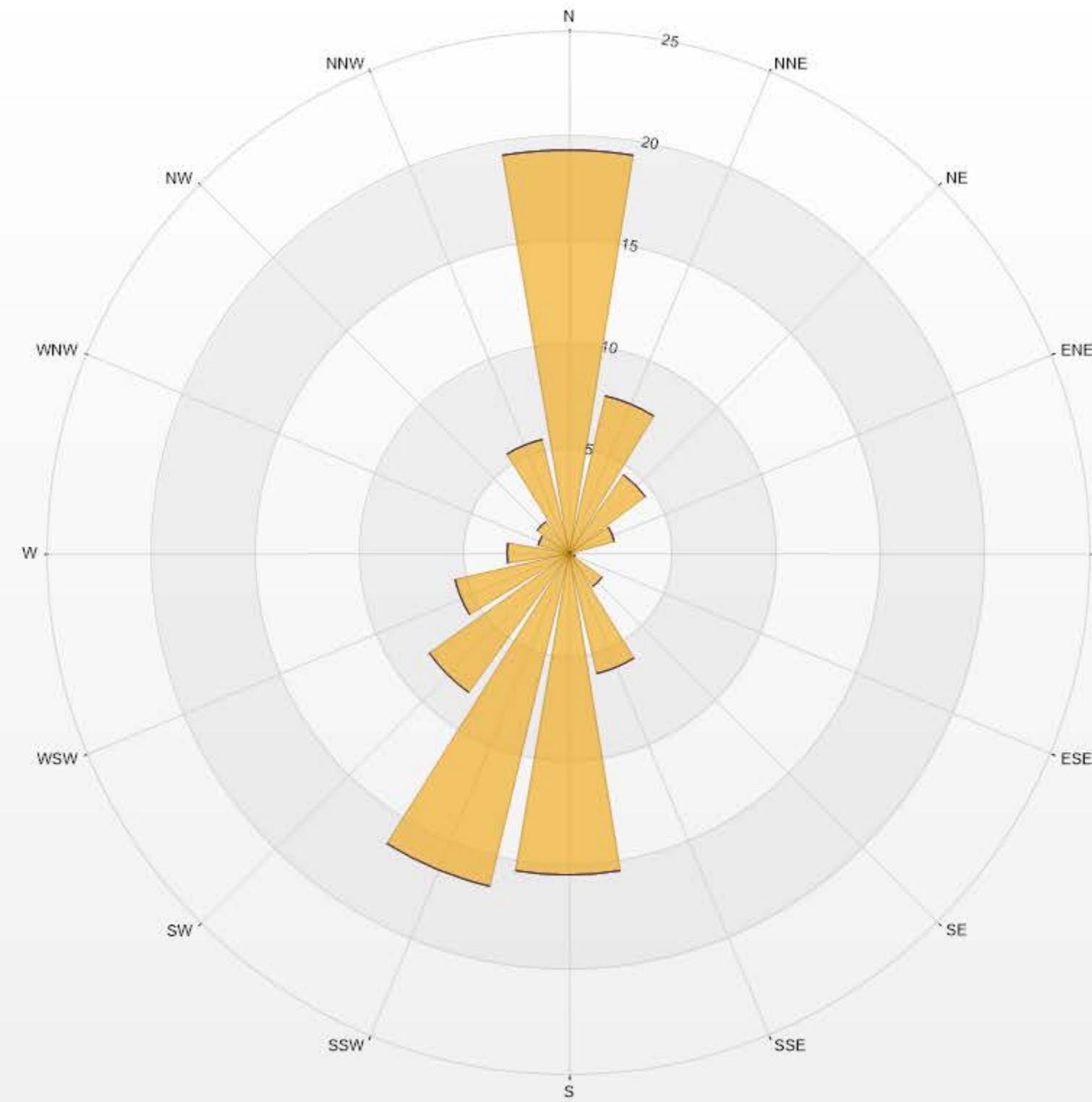
### *Timeseries Chart of Hourly Average for NMHC - Reno Site*



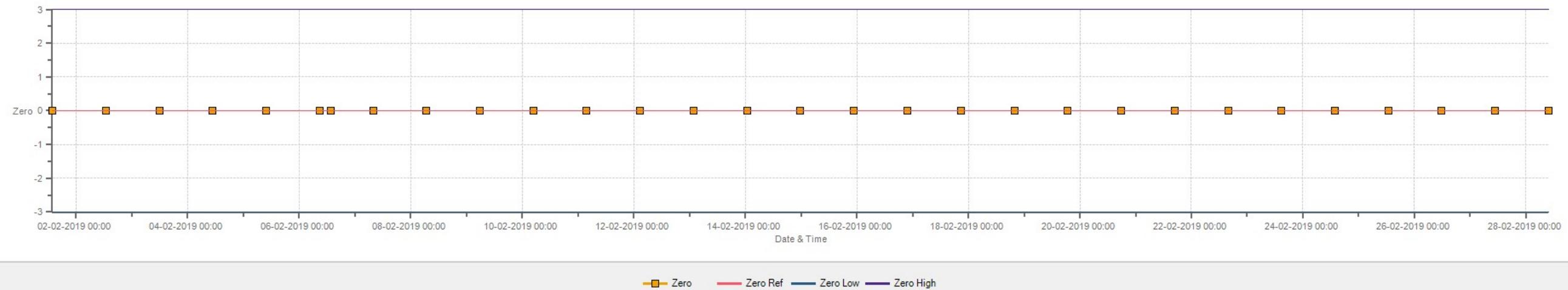


Wind: PRAMP RENO Poll.: PRAMP RENO-NMHC[ppm] Monthly: 02-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 90.33% Calm Avg: 0.00 [ppm]

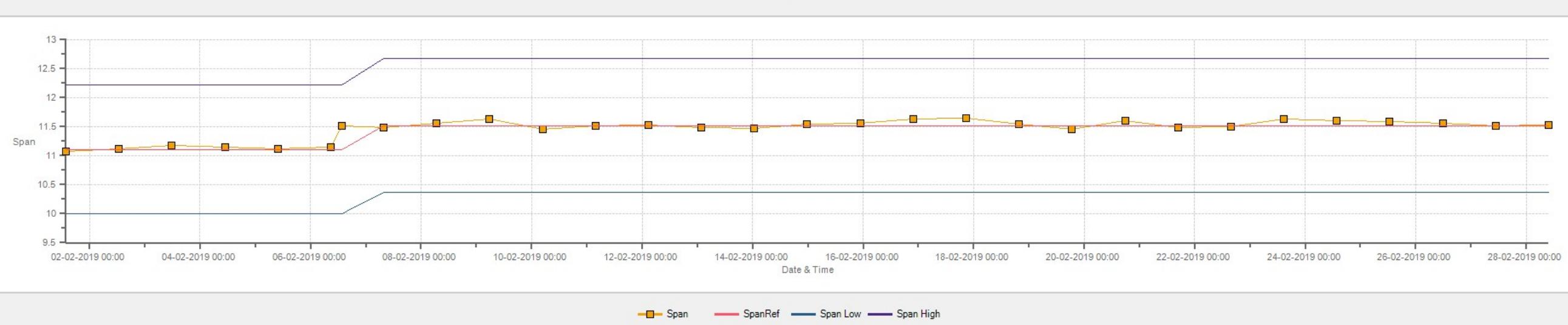
Direction	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	19.28	0	0	0	19.28
NNE	7.74	0	0	0	7.74
NE	4.61	0	0	0	4.61
ENE	2.31	0	0	0	2.31
E	0.16	0	0	0	0.16
ESE	0.33	0	0	0	0.33
SE	1.98	0	0	0	1.98
SSE	5.93	0	0	0	5.93
S	15.49	0	0	0	15.49
SSW	16.47	0	0	0	16.47
SW	8.24	0	0	0	8.24
WSW	5.6	0	0	0	5.6
W	2.97	0	0	0	2.97
WNW	1.48	0	0	0	1.48
NW	1.81	0	0	0	1.81
NNW	5.6	0	0	0	5.6
Summary	100	0	0	0	100



Zero



Span





## PEACE RIVER AREA MONITORING PROGRAM

**Reno Site - February 2019**

### Summary of Hourly Averages

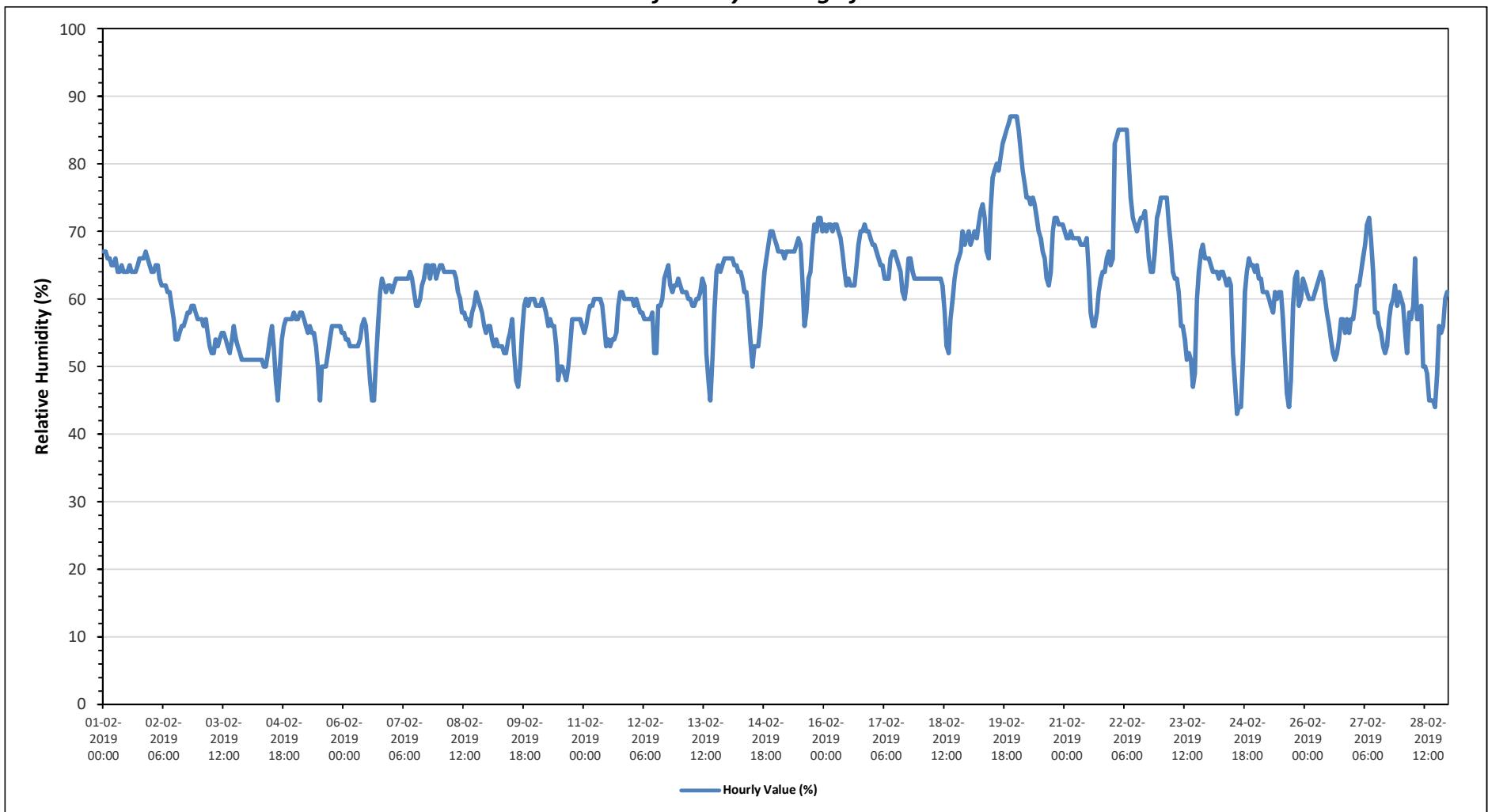
#### RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	87	%	on February 19 at hour 21	Hours in Service:	672																	Daily Minimum	Daily Maximum	Daily Average	
Maximum Daily Value:	76.6	%	on February 19	Hours of Data:	672																		54	65	59.4
Minimum Hourly Value:	43	%	on February 24 at hour 14	Hours of Missing Data:	0																		51	57	53.8
Minimum Daily Value:	52.6	%	on February 4	Hours of Calibration:	0																		45	58	54.3
Monthly Average:	61.3	%		Operational Uptime:	100.0																	45	63	55.0	
Day	Hourly Period Starting at (MST)																								
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
Feb 1	67	67	66	66	65	65	66	64	64	65	64	64	64	65	64	64	65	66	66	66	67	66	65	64	
Feb 2	64	64	65	65	63	62	62	61	61	59	57	54	54	55	56	56	57	58	58	59	59	58	57	54	
Feb 3	57	57	56	57	55	53	52	52	54	53	54	55	55	54	53	52	54	56	54	53	52	51	51	51	
Feb 4	51	51	51	51	51	51	51	51	50	50	52	54	56	53	48	45	50	54	56	57	57	57	58	45	
Feb 5	57	57	58	58	57	56	55	56	55	55	53	50	45	50	50	50	52	54	56	56	56	56	55	45	
Feb 6	55	54	54	53	53	53	53	53	54	56	57	56	52	48	45	45	51	56	61	63	62	61	62	45	
Feb 7	61	62	63	63	63	63	63	63	64	63	61	59	59	60	62	63	65	65	63	65	63	64	59	65	
Feb 8	65	65	64	64	64	64	64	64	63	61	60	58	58	57	57	56	58	59	61	60	59	58	55	60.4	
Feb 9	56	56	54	53	54	53	53	53	52	52	54	55	57	52	48	47	50	55	59	60	59	60	60	47	
Feb 10	59	59	59	60	59	58	56	57	56	56	53	48	50	50	49	48	50	53	57	57	57	56	48	60	
Feb 11	55	56	58	59	59	60	60	60	60	59	56	53	54	53	54	54	55	59	61	61	60	60	53	61	
Feb 12	60	59	60	59	58	58	57	57	57	58	52	52	59	59	60	63	64	65	62	61	62	62	52	65	
Feb 13	62	61	61	61	60	60	59	59	60	60	61	63	62	52	48	45	51	58	64	65	66	66	45	66	
Feb 14	66	66	66	65	65	64	64	63	61	61	58	54	50	53	53	53	56	60	64	66	68	70	50	70	
Feb 15	68	67	67	66	67	67	67	67	68	69	68	63	56	58	63	64	68	71	70	72	72	70	56	72	
Feb 16	71	70	71	71	70	71	71	70	69	67	64	62	63	62	62	65	68	70	70	71	70	70	69	71	
Feb 17	68	68	67	66	65	65	63	63	63	66	67	67	66	65	64	61	60	62	66	66	64	63	63	60	
Feb 18	63	63	63	63	63	63	63	63	63	63	63	62	58	53	52	57	60	63	65	66	67	70	68	62	
Feb 19	70	68	69	70	69	71	73	74	72	67	66	73	78	79	80	79	81	83	84	85	86	87	87	76.6	
Feb 20	87	85	82	79	77	75	75	74	75	74	72	70	69	67	66	63	62	64	70	72	71	71	71	72.6	
Feb 21	70	69	69	70	69	69	69	69	68	68	68	69	64	58	56	56	58	61	63	64	64	66	67	56	
Feb 22	66	83	84	85	85	85	85	85	80	75	72	71	70	71	72	72	73	70	66	64	64	67	72	73	
Feb 23	75	75	75	75	71	68	64	63	63	61	56	56	54	51	52	51	47	49	60	64	67	68	66	47	
Feb 24	66	65	64	64	64	63	64	64	63	62	63	62	52	48	43	44	44	51	61	64	66	65	64	43	
Feb 25	65	63	63	61	61	61	60	59	58	61	60	61	57	51	46	44	48	59	63	64	63	64	64	58.7	
Feb 26	62	61	60	60	61	62	63	64	63	60	58	56	54	52	51	52	54	57	55	57	55	57	51	64	
Feb 27	57	59	62	62	64	66	68	71	72	69	64	58	58	56	55	53	52	53	57	59	60	62	59	61	
Feb 28	60	59	55	52	58	57	59	66	57	57	59	50	50	49	45	45	45	44	49	56	55	56	60	61	
Diurnal Maximum	87	85	84	85	85	85	85	85	80	75	72	73	78	79	80	79	81	83	84	85	86	87	87	87	
Diurnal Average	63.7	63.9	63.8	63.5	63.1	62.9	62.8	63.0	62.3	61.8	60.9	59.6	58.4	56.9	55.3	54.8	56.4	58.9	62.2	63.1	63.2	63.6	63.5	63.6	
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 RH - Reno Site*





# **PEACE RIVER AREA MONITORING PROGRAM**

*Reno Site - February 2019*

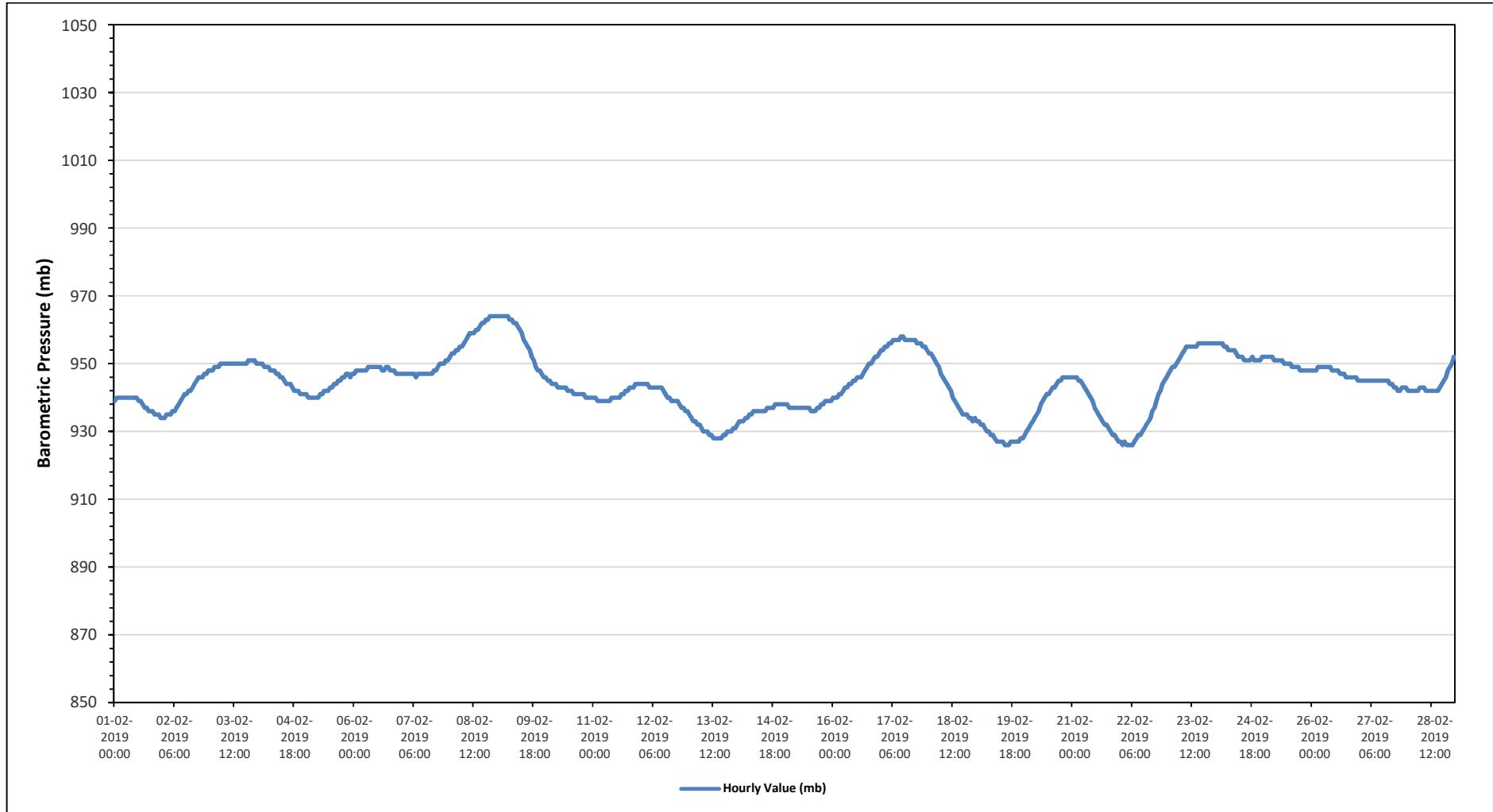
## Summary of Hourly Averages

## **BAROMETRIC PRESSURE (BP) in millibar**

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 - Reno Site*





## PEACE RIVER AREA MONITORING PROGRAM

**Reno Site - February 2019**

### Summary of Hourly Averages

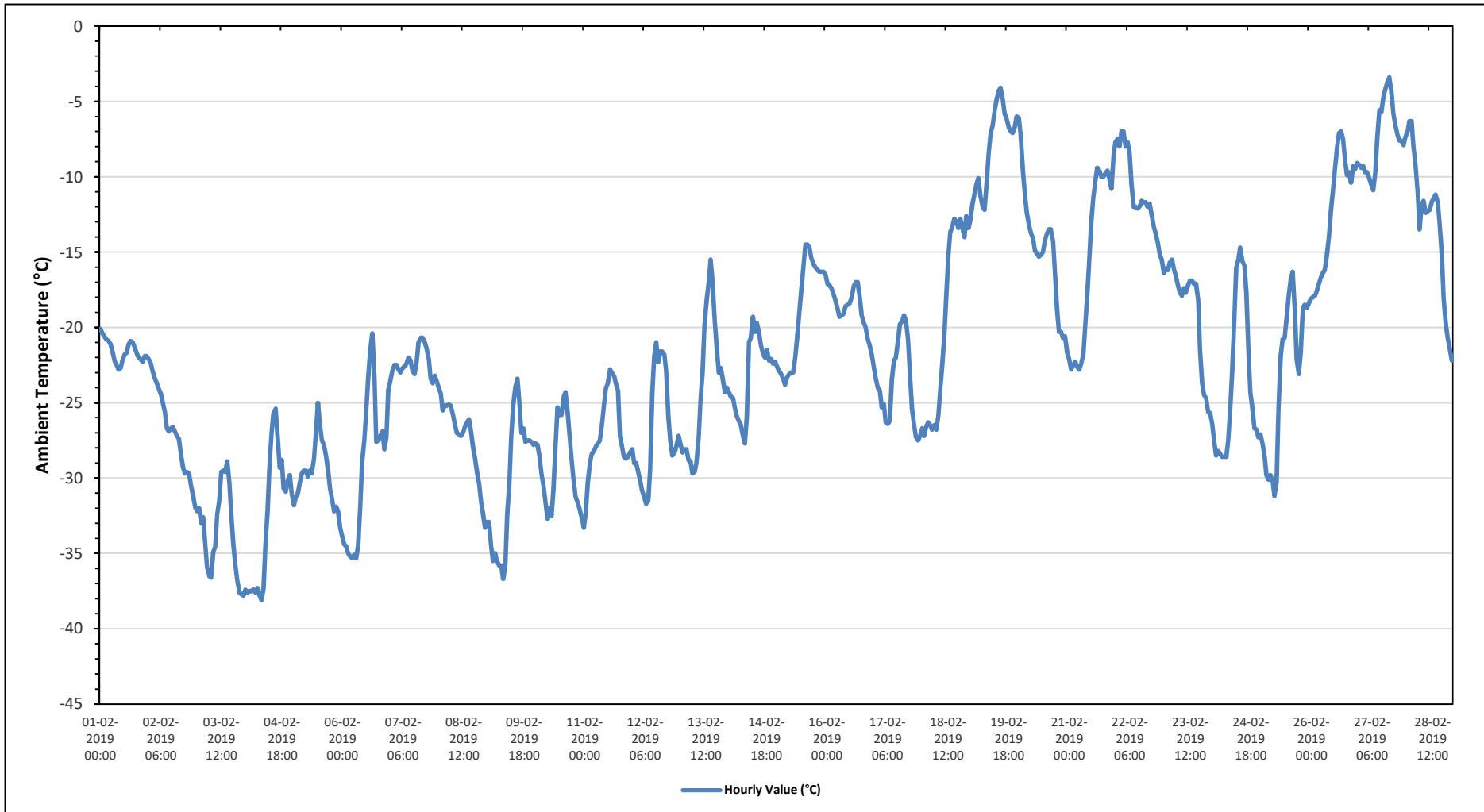
#### AMBIENT TEMPERATURE (AT) in Degree Celsius

Maximum Hourly Value:	-3.4	°C	on February 27 at hour 16	Hours in Service:	672	Daily Minimum	-22.8	Daily Maximum	-20.1	Daily Average	-21.6																	
Maximum Daily Value:	-7.5	°C	on February 27	Hours of Data:	672																							
Minimum Hourly Value:	-38.1	°C	on February 4 at hour 8	Hours of Missing Data:	0																							
Minimum Daily Value:	-33.6	°C	on February 3	Hours of Calibration:	0																							
Monthly Average:	-21.9	°C		Operational Uptime:	100.0																							
Day	Hourly Period Starting at (MST)																											
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Minimum	Daily Maximum	Daily Average	
Feb 1	-20.1	-20.4	-20.6	-20.8	-20.9	-21.1	-21.6	-22.2	-22.5	-22.8	-22.7	-22.2	-21.8	-21.7	-21.1	-20.9	-21.0	-21.3	-21.7	-22.0	-22.1	-22.3	-21.9	-21.9	-22.8	-20.1	-21.6	
Feb 2	-22.1	-22.4	-22.9	-23.4	-23.7	-24.1	-24.4	-25.0	-25.6	-26.7	-26.9	-26.7	-26.6	-26.9	-27.2	-27.4	-28.4	-29.3	-29.7	-29.6	-29.7	-30.5	-31.1	-31.9	-31.9	-22.1	-26.8	
Feb 3	-32.2	-32.0	-33.0	-32.6	-34.4	-35.9	-36.5	-36.6	-34.9	-34.6	-32.4	-31.5	-29.6	-29.5	-29.6	-28.9	-30.3	-32.3	-34.4	-35.7	-36.8	-37.6	-37.7	-37.8	-37.8	-28.9	-33.6	
Feb 4	-37.4	-37.6	-37.5	-37.5	-37.4	-37.6	-37.3	-37.8	-38.1	-37.3	-34.4	-32.1	-29.1	-27.0	-25.7	-25.4	-27.2	-29.3	-28.8	-30.7	-30.9	-30.2	-29.8	-31.0	-38.1	-25.4	-32.8	
Feb 5	-31.8	-31.3	-31.0	-30.3	-29.7	-29.5	-29.5	-29.9	-29.5	-29.7	-28.7	-27.1	-25.0	-26.4	-27.5	-27.8	-28.5	-29.5	-30.7	-31.4	-32.2	-31.9	-32.2	-33.3	-33.3	-25.0	-29.8	
Feb 6	-33.8	-34.4	-34.5	-35.0	-35.2	-35.3	-35.1	-35.3	-34.5	-31.9	-28.9	-27.5	-25.7	-23.3	-21.4	-20.4	-23.3	-27.6	-27.5	-27.2	-26.9	-28.1	-27.3	-24.1	-35.3	-20.4	-29.3	
Feb 7	-23.5	-22.9	-22.5	-22.5	-22.8	-23.0	-22.7	-22.6	-22.4	-22.0	-22.2	-22.9	-23.1	-22.3	-21.0	-20.7	-20.7	-21.0	-21.4	-22.1	-23.4	-23.7	-23.6	-23.7	-23.6	-23.7	-20.7	-22.4
Feb 8	-24.0	-24.4	-25.5	-25.2	-25.2	-25.1	-25.2	-25.8	-26.4	-27.0	-27.1	-27.2	-27.0	-26.6	-26.3	-26.1	-26.9	-27.9	-28.7	-29.6	-30.4	-31.5	-32.4	-33.3	-33.3	-24.0	-27.3	
Feb 9	-32.9	-32.9	-34.5	-35.5	-35.0	-35.5	-35.5	-35.8	-36.7	-35.8	-32.4	-30.3	-27.3	-25.1	-24.0	-23.4	-24.9	-27.0	-26.7	-27.6	-27.5	-27.6	-27.8	-36.7	-23.4	-30.4		
Feb 10	-27.7	-27.8	-28.5	-29.7	-30.6	-31.6	-32.7	-32.0	-32.5	-30.7	-27.7	-25.3	-25.8	-25.8	-24.6	-24.3	-25.7	-27.2	-28.8	-30.2	-31.3	-31.6	-32.1	-32.6	-32.7	-24.3	-29.0	
Feb 11	-33.3	-32.4	-30.3	-29.0	-28.4	-28.2	-27.9	-27.7	-27.5	-26.5	-25.2	-24.0	-23.7	-22.8	-23.0	-23.2	-23.7	-24.2	-27.2	-27.9	-28.6	-28.7	-28.6	-28.3	-33.3	-22.8	-27.1	
Feb 12	-28.1	-29.0	-29.6	-30.2	-30.8	-31.3	-31.7	-31.5	-29.4	-24.3	-21.9	-21.0	-22.3	-21.6	-21.6	-21.8	-22.9	-25.9	-27.5	-27.5	-28.5	-28.3	-27.9	-27.2	-31.7	-21.0	-26.8	
Feb 13	-27.7	-28.3	-28.1	-28.1	-28.8	-28.9	-29.7	-29.6	-29.0	-27.3	-27.3	-24.9	-22.9	-19.8	-18.2	-17.1	-15.5	-17.0	-19.5	-21.2	-23.0	-22.7	-23.4	-24.0	-29.7	-15.5	-24.1	
Feb 14	-24.3	-24.6	-24.7	-25.3	-25.9	-26.2	-26.5	-27.2	-27.7	-25.9	-21.0	-20.7	-19.3	-20.3	-19.7	-20.3	-21.2	-21.8	-22.0	-21.5	-22.2	-22.1	-22.4	-22.3	-27.7	-19.3	-23.1	
Feb 15	-22.6	-22.9	-23.1	-23.4	-23.8	-23.3	-23.1	-23.0	-23.0	-22.0	-20.7	-19.0	-17.6	-16.0	-14.5	-14.5	-14.7	-15.4	-15.8	-16.0	-16.2	-16.3	-16.3	-16.3	-16.3	-14.5	-19.1	
Feb 16	-16.5	-17.1	-17.2	-17.4	-17.8	-18.2	-18.8	-19.3	-19.2	-19.1	-18.6	-18.5	-18.4	-18.0	-17.3	-17.0	-17.0	-18.0	-19.2	-19.7	-20.0	-20.8	-21.2	-21.8	-21.8	-16.5	-18.6	
Feb 17	-22.6	-23.4	-24.0	-24.2	-25.3	-25.1	-26.3	-26.4	-26.2	-23.4	-22.2	-22.0	-20.9	-19.8	-19.6	-19.2	-19.6	-20.8	-23.3	-25.4	-26.5	-27.3	-27.5	-27.2	-27.5	-19.2	-23.7	
Feb 18	-26.7	-27.2	-26.6	-26.3	-26.5	-26.8	-26.5	-26.8	-26.5	-25.9	-24.1	-22.5	-20.5	-17.9	-15.2	-13.7	-13.3	-12.8	-13.0	-13.4	-12.8	-13.4	-14.0	-12.6	-13.4	-27.2	-12.6	-19.7
Feb 19	-12.9	-11.8	-11.2	-10.5	-10.1	-11.3	-12.0	-12.2	-10.4	-8.5	-7.1	-6.6	-5.6	-4.9	-4.1	-4.1	-4.9	-5.8	-6.2	-6.7	-7.0	-7.1	-6.7	-6.0	-12.9	-4.1	-8.1	
Feb 20	-6.1	-7.2	-9.5	-11.2	-12.4	-13.2	-13.7	-14.1	-14.9	-15.1	-15.3	-15.2	-15.0	-14.2	-13.8	-13.5	-13.5	-14.3	-16.3	-18.8	-20.3	-20.3	-20.7	-20.6	-20.7	-6.1	-14.6	
Feb 21	-21.7	-22.1	-22.8	-22.5	-22.3	-22.6	-22.8	-22.4	-21.8	-20.0	-17.8	-15.6	-12.9	-11.4	-10.3	-9.4	-9.6	-10.0	-10.0	-9.8	-9.6	-10.1	-10.8	-8.6	-22.8	-8.6	-15.7	
Feb 22	-7.7	-7.5	-8.0	-7.0	-7.0	-8.0	-7.7	-8.4	-10.5	-12.0	-12.0	-12.1	-12.0	-11.6	-11.7	-11.7	-12.0	-11.8	-12.5	-13.3	-13.8	-14.4	-15.2	-15.5	-15.5	-7.0	-11.0	
Feb 23	-16.4	-16.1	-16.2	-15.7	-15.5	-16.1	-16.6	-17.2	-17.7	-17.9	-17.4	-17.7	-17.2	-16.9	-16.9	-17.1	-17.1	-18.2	-21.5	-23.7	-24.5	-24.7	-25.6	-25.7	-25.7	-15.5	-18.7	
Feb 24	-26.4	-27.6	-28.5	-28.2	-28.4	-28.6	-28.6	-28.6	-27.5	-25.4	-23.0	-19.5	-16.1	-15.5	-14.7	-15.6	-15.9	-17.7	-21.7	-24.3	-25.4	-26.7	-26.8	-27.3	-28.6	-14.7	-23.7	
Feb 25	-27.1	-27.7	-28.5	-29.8	-30.1	-29.8	-30.2	-31.2	-30.2	-25.4	-21.9	-20.8	-19.3	-17.9	-16.8	-16.3	-16.3	-18.8	-22.1	-23.1	-21.6	-18.7	-18.5	-18.7	-31.2	-16.3	-23.6	
Feb 26	-18.4	-18.1	-18.0	-17.9	-17.6	-17.1	-16.7	-16.4	-16.2	-15.2	-13.9	-12.2	-10.8	-9.5	-8.1	-7.1	-7.0	-7.5	-8.9	-9.9	-9.7	-10.4	-9.3	-9.5	-18.4	-7.0	-12.7	
Feb 27	-9.1	-9.2	-9.4	-9.3	-9.7	-10.1	-10.5	-10.9	-9.7	-7.5	-5.6	-5.7	-4.7	-4.2	-3.7	-3.4	-4.4	-5.8	-6.6	-7.2	-7.6	-7.6	-7.9	-10.9	-3.4	-7.5		
Feb 28	-7.4	-7.0	-6.3	-6.3	-8.0	-9.2	-11.1	-13.5	-11.9	-11.6	-12.4	-12.3	-12.2	-11.7	-11.4	-11.2	-11.7	-13.1	-15.1	-18.1	-19.8	-20.7	-21.4	-22.2	-6.3	-12.7		
Durnal Maximum	-6.1	-7.0	-6.3	-6.3	-7.0	-8.0	-7.7	-8.4	-10.4	-8.5	-7.1	-5.6	-5.6	-4.7	-4.2	-3.7	-3.4	-4.4	-5.8	-6.6	-7.0	-7.1	-6.7	-6.0				
Durnal Average	-22.9	-23.0	-23.3	-23.4	-23.7	-24.0	-24.3	-24.6	-24.5	-23.5	-23.5	-21.8	-20.7	-19.6	-18.8	-18.2	-17.9	-18.4	-19.6	-20.9	-21.9	-22.4	-22.8	-22.9				
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 AT - Reno Site





## PEACE RIVER AREA MONITORING PROGRAM

Reno Site - February 2019

### Summary of Hourly Averages

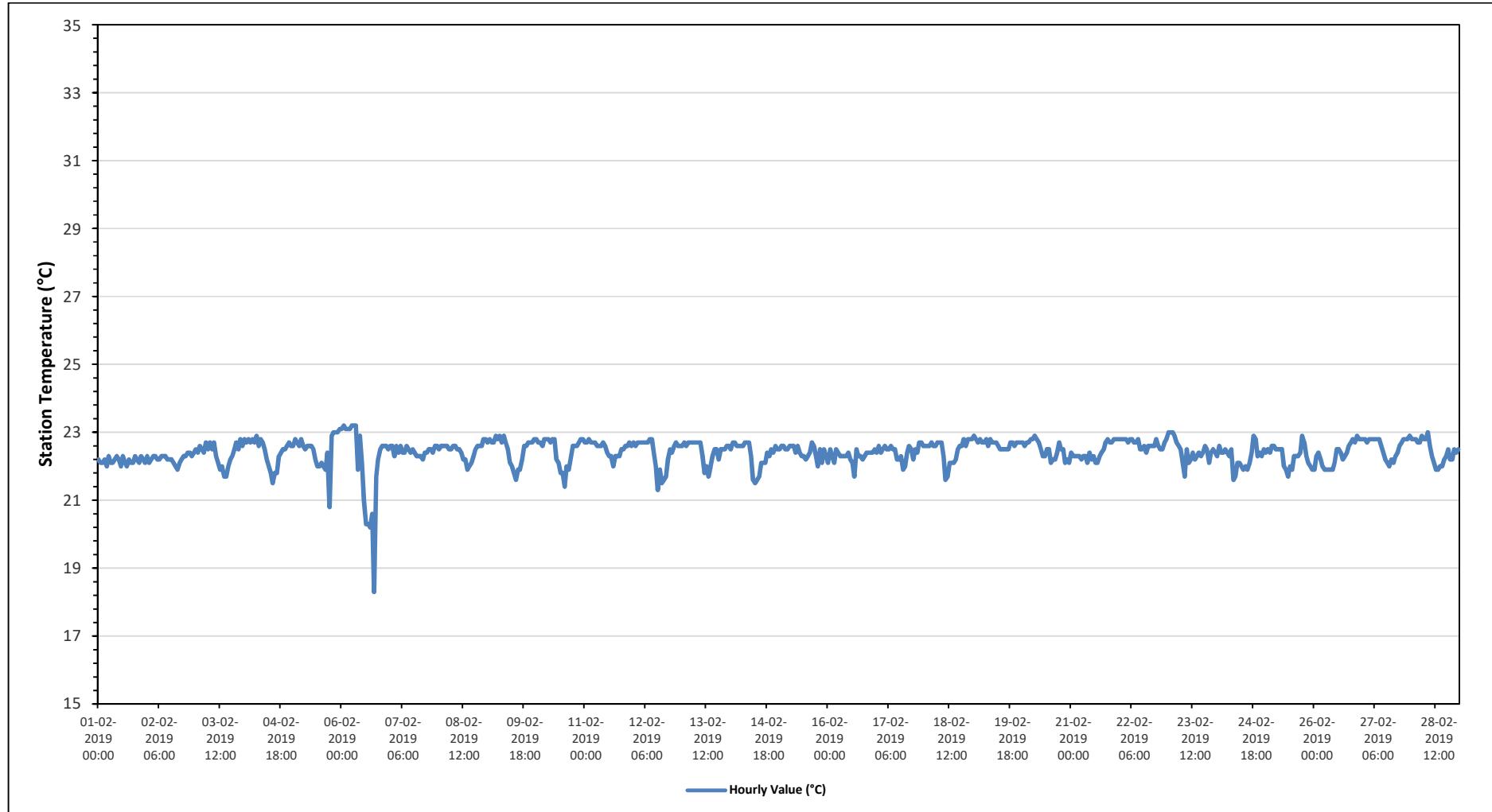
#### STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:	23.2	°C	on February 6 at hour 1	Hours in Service:	672																Daily Minimum	Daily Maximum	Daily Average		
Maximum Daily Value:	22.7	°C	on February 19	Hours of Data:	672																				
Minimum Hourly Value:	18.3	°C	on February 6 at hour 16	Hours of Missing Data:	0																				
Minimum Daily Value:	22.1	°C	on February 6	Hours of Calibration:	0																				
Monthly Average:	22.4	°C		Operational Uptime:	100.0																				
Day	Hourly Period Starting at (MST)																								
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
Feb 1	22.2	22.1	22.1	22.2	22.0	22.3	22.1	22.1	22.2	22.0	22.3	22.1	22.0	22.2	22.1	22.1	22.3	22.2	22.1	22.3	22.2	22.1	22.0	22.2	
Feb 2	22.3	22.1	22.2	22.3	22.3	22.2	22.2	22.3	22.3	22.2	22.2	22.1	22.0	21.9	22.1	22.2	22.3	22.3	22.4	22.4	22.3	22.3	21.9	22.2	
Feb 3	22.5	22.4	22.6	22.5	22.4	22.7	22.5	22.7	22.5	22.7	22.3	22.1	21.9	22.0	21.7	21.7	22.0	22.2	22.3	22.5	22.4	22.4	21.7	22.8	
Feb 4	22.8	22.7	22.8	22.7	22.8	22.7	22.9	22.6	22.8	22.7	22.5	22.2	22.0	21.8	21.5	21.8	21.8	22.3	22.4	22.5	22.5	22.6	21.5	22.9	
Feb 5	22.6	22.8	22.7	22.6	22.8	22.6	22.5	22.6	22.6	22.6	22.5	22.2	22.0	22.0	22.1	22.0	21.9	22.4	20.8	22.9	23.0	23.0	23.1	20.8	
Feb 6	23.1	23.2	23.1	23.1	23.1	23.2	23.2	23.2	23.2	21.9	22.9	22.1	21.0	20.3	20.3	20.2	20.6	18.3	21.7	22.2	22.5	22.6	22.5	18.3	
Feb 7	22.6	22.6	22.3	22.6	22.4	22.6	22.4	22.4	22.6	22.5	22.4	22.5	22.4	22.3	22.3	22.2	22.4	22.4	22.5	22.5	22.6	22.6	22.6	22.5	
Feb 8	22.5	22.6	22.6	22.6	22.5	22.5	22.6	22.6	22.5	22.5	22.4	22.2	22.2	21.9	22.0	22.1	22.3	22.5	22.6	22.6	22.6	22.8	21.9	22.8	
Feb 9	22.7	22.8	22.7	22.7	22.9	22.8	22.9	22.7	22.9	22.7	22.5	22.1	22.0	21.8	21.6	21.9	21.9	22.2	22.6	22.6	22.7	22.7	22.8	21.6	
Feb 10	22.8	22.7	22.7	22.6	22.8	22.8	22.8	22.7	22.8	22.8	22.2	22.1	21.8	21.8	21.4	22.0	21.9	22.2	22.6	22.6	22.7	22.8	22.8	22.5	
Feb 11	22.7	22.7	22.8	22.7	22.7	22.7	22.6	22.6	22.6	22.7	22.6	22.4	22.3	22.3	22.0	22.3	22.3	22.5	22.6	22.6	22.7	22.7	22.0	22.8	
Feb 12	22.7	22.6	22.7	22.7	22.7	22.7	22.7	22.7	22.8	22.8	22.4	22.0	21.3	21.9	21.5	21.6	21.7	22.2	22.5	22.4	22.6	22.6	21.3	22.8	
Feb 13	22.6	22.7	22.6	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.3	21.8	22.0	21.7	22.0	22.3	22.5	22.5	22.2	22.5	22.5	22.6	21.7	22.5	
Feb 14	22.5	22.7	22.7	22.6	22.6	22.6	22.6	22.7	22.7	22.7	22.3	21.6	21.5	21.6	21.7	22.1	22.1	22.4	22.3	22.5	22.4	22.6	21.5	22.7	
Feb 15	22.5	22.6	22.6	22.5	22.5	22.6	22.6	22.6	22.4	22.6	22.4	22.3	22.3	22.2	22.3	22.4	22.7	22.6	22.3	22.0	22.5	22.3	22.0	22.7	
Feb 16	22.1	22.5	22.3	22.1	22.5	22.4	22.3	22.3	22.3	22.3	22.4	22.2	22.1	21.7	22.5	22.3	22.3	22.2	22.4	22.4	22.4	22.5	21.7	22.3	
Feb 17	22.4	22.6	22.4	22.5	22.6	22.5	22.5	22.6	22.5	22.5	22.2	22.2	22.3	21.9	22.0	22.4	22.6	22.5	22.2	22.5	22.4	22.7	21.9	22.4	
Feb 18	22.6	22.6	22.7	22.7	22.6	22.6	22.7	22.7	22.7	22.3	21.6	21.7	22.1	22.1	22.1	22.2	22.5	22.6	22.6	22.8	22.8	22.8	21.6	22.8	
Feb 19	22.9	22.8	22.7	22.8	22.7	22.7	22.8	22.6	22.8	22.7	22.7	22.6	22.6	22.5	22.5	22.5	22.5	22.7	22.7	22.7	22.7	22.7	22.5	22.7	
Feb 20	22.7	22.6	22.7	22.7	22.8	22.8	22.9	22.8	22.7	22.5	22.3	22.3	22.5	22.5	22.1	22.2	22.2	22.4	22.7	22.5	22.5	22.1	22.1	22.5	
Feb 21	22.4	22.3	22.3	22.3	22.3	22.2	22.3	22.3	22.1	22.4	22.2	22.3	22.1	22.1	22.3	22.4	22.5	22.7	22.8	22.7	22.7	22.8	22.1	22.4	
Feb 22	22.8	22.8	22.8	22.7	22.8	22.8	22.7	22.7	22.8	22.5	22.5	22.6	22.4	22.6	22.6	22.6	22.8	22.6	22.5	22.5	22.7	22.8	22.4	22.7	
Feb 23	23.0	23.0	23.0	22.9	22.7	22.6	22.5	22.1	21.7	22.5	22.1	22.2	22.4	22.2	22.3	22.4	22.6	22.6	22.8	22.8	22.8	22.8	21.6	22.8	
Feb 24	22.3	22.6	22.4	22.4	22.5	22.3	22.5	21.6	21.7	22.1	22.1	22.0	21.9	22.0	21.9	21.9	22.1	22.4	22.9	22.3	22.5	22.6	21.6	22.9	
Feb 25	22.4	22.5	22.4	22.6	22.6	22.5	22.5	22.5	22.5	22.0	21.9	21.7	22.0	21.9	22.3	22.3	22.4	22.9	22.7	22.3	22.1	22.0	21.7	22.9	
Feb 26	21.9	22.3	22.4	22.2	22.0	21.9	21.9	21.9	21.9	22.1	22.5	22.4	22.2	22.3	22.4	22.6	22.7	22.8	22.7	22.9	22.8	22.8	21.9	22.9	
Feb 27	22.8	22.8	22.7	22.8	22.8	22.8	22.8	22.8	22.8	22.6	22.4	22.2	22.1	22.0	22.2	22.1	22.3	22.4	22.6	22.7	22.8	22.8	22.0	22.6	
Feb 28	22.8	22.8	22.8	22.7	22.9	22.8	22.8	23.0	22.6	22.3	22.1	21.9	21.9	22.0	22.0	22.2	22.3	22.5	22.5	22.5	22.4	22.5	21.9	23.0	
Durnal Maximum	23.1	23.2	23.1	23.1	23.1	23.2	23.2	23.2	23.0	22.9	22.7	22.7	22.6	22.5	22.6	22.6	22.7	22.7	22.9	23.0	23.0	23.0	23.1		
Durnal Average	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.5	22.5	22.3	22.1	22.0	22.0	22.1	22.1	22.3	22.5	22.5	22.5	22.6	22.6	22.6		
C	Calibration	S	Daily Zero/Span																						
G	Out for Repair	K	Collection Error	N	Not in Service																				
R	Recovery	X	Machine Malfunction	Y	Maintenance																				

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

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

### Timeseries Chart of Hourly Average for ST - Reno Site





## PEACE RIVER AREA MONITORING PROGRAM

**Reno Site - February 2019**

### Summary of Hourly Averages

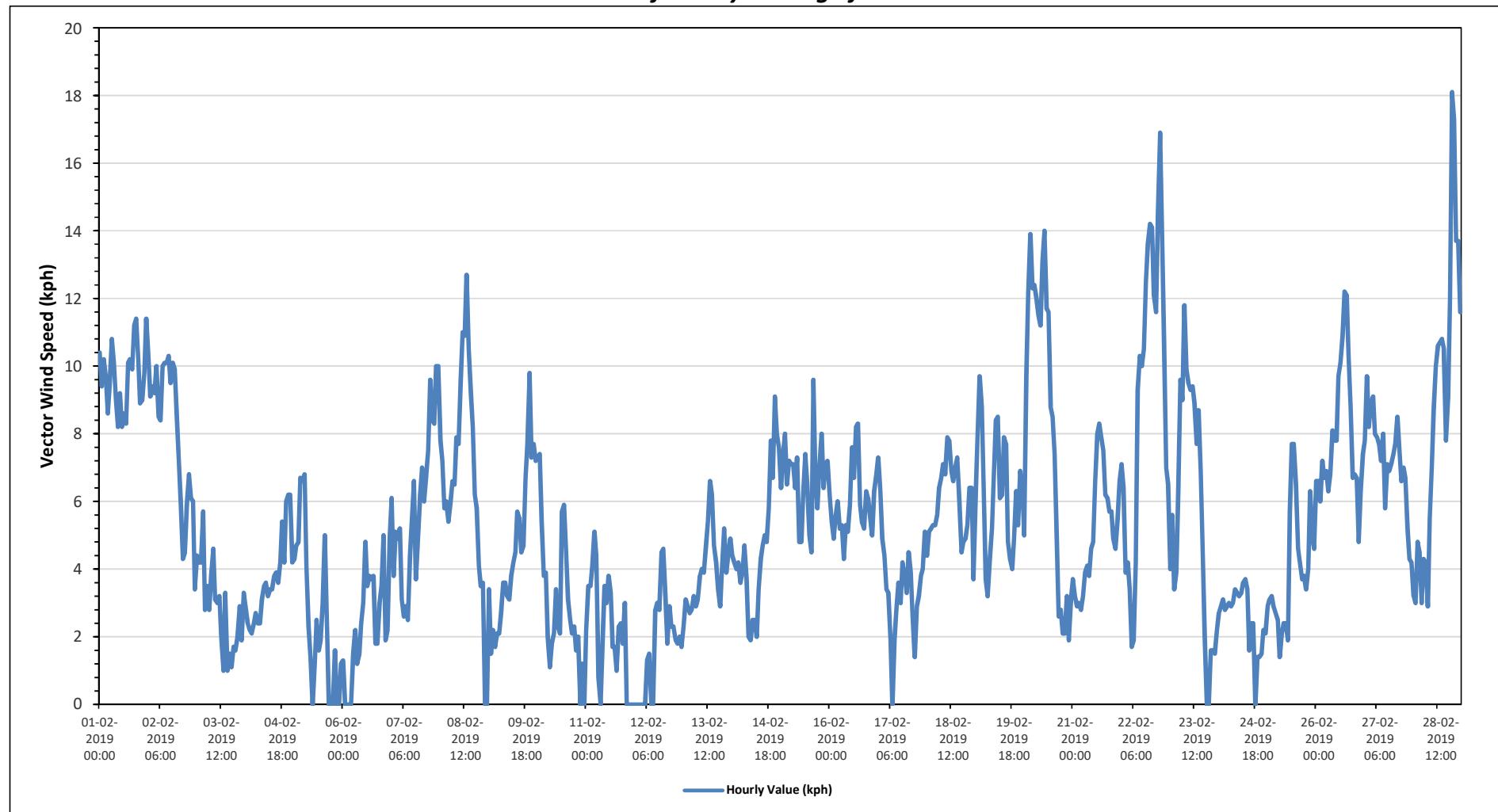
#### VECTOR WIND SPEED (VWS) in km/hr

Maximum Hourly Value:	18.1	kph	on February 28 at hour 19	Hours in Service:	672	Daily Minimum:	8.2	Daily Maximum:	11.4	Daily Average:	9.7																		
Maximum Daily Value:	9.7	kph	on February 1	Hours of Data:	641																								
Minimum Hourly Value:	0.8	kph	on February 11 at hour 6	Hours of Missing Data:	31																								
Minimum Daily Value:	2.7	kph	on February 24	Hours of Calibration:	0																								
Monthly Average:	0.9	kph		Operational Uptime:	95.4																								
Day	Hourly Period Starting at (MST)																												
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Minimum	Daily Maximum	Daily Average		
Feb 1	10.4	9.4	10.2	9.7	8.6	9.5	10.8	10.1	9	8.2	9.2	8.2	8.6	8.3	10.1	10.2	9.9	11.2	11.4	10.2	8.9	9	9.8	11.4	8.2	11.4	9.7		
Feb 2	10.3	9.1	9.4	9.2	10	8.5	8.4	10	10.1	10.1	10.3	9.5	10.1	9.9	8.6	7.2	6	4.3	4.5	5.9	6.8	6.1	6	3.4	10.3	8.1			
Feb 3	4.4	4.2	4.2	5.7	2.8	3.5	2.8	3.8	4.6	3.1	3	3.2	2	1	3.3	1	1.5	1.1	1.7	1.6	2	2.9	1.9	3.3	1.0	5.7	2.9		
Feb 4	2.9	2.4	2.2	2.1	2.4	2.7	2.4	2.4	3.1	3.5	3.6	3.2	3.4	3.4	3.8	3.9	3.6	4.2	5.4	4.2	6	6.2	6.2	4.2	2.1	6.2	3.6		
Feb 5	4.3	4.7	4.8	6.7	6.6	6.8	4.1	2.3	1.4	X	1.2	2.5	1.6	1.9	3	5	2.7	X	X	X	1.6	X	X	1.2	1.2	6.8	3.5		
Feb 6	1.3	X	X	X	X	1.5	2.2	1.2	1.5	2.4	3	4.8	3.5	3.8	3.7	3.8	1.8	1.8	3	3.5	5	1.9	2.2	4.9	1.2	5.0	2.8		
Feb 7	6.1	3.8	5.1	4.9	5.2	3.1	2.6	2.9	2.5	4.4	5.5	6.6	3.7	4.9	6.2	7	6	6.7	7.5	9.6	8.4	8.3	10	10	2.5	10.0	5.9		
Feb 8	7.8	7.2	5.8	6	5.4	6	6.6	6.5	7.9	7.7	9.6	11	10.9	12.7	10.5	9.2	8.2	6.2	5.8	4.1	3.5	3.6	X	X	3.5	12.7	7.4		
Feb 9	3.4	1.5	2.2	1.7	2.1	2.1	2.7	3.6	3.6	3.2	3.1	3.8	4.2	4.5	5.7	5.5	4.5	4.7	6.7	7.7	9.8	7.3	7.7	7.2	1.5	9.8	4.5		
Feb 10	7.3	7.4	5.4	3.8	3.9	2	1.1	1.8	2.1	3.4	2.3	2.1	5.7	5.9	4.5	3.1	2.5	2.1	2.3	1.6	2	X	1.2	X	1.1	7.4	3.3		
Feb 11	2.2	3.5	3.5	4.1	5.1	4.4	0.8	X	1.8	3.5	3	3.8	3.3	1.7	1.7	1	2.3	2.4	1.8	3	X	X	X	X	0.8	5.1	2.8		
Feb 12	X	X	X	X	X	X	1.3	1.5	X	X	2.8	3	2.8	4.5	4.6	3.2	1.8	2.9	2.3	2.3	1.9	1.8	2	1.7	1.3	4.6	-		
Feb 13	2.3	3.1	2.9	2.7	2.8	3.2	2.9	3.1	3.8	4	3.9	4.7	5.4	6.6	6.2	4.7	4.2	3.4	2.9	4.1	5.2	3.9	4.4	4.9	2.3	6.6	4.0		
Feb 14	4.4	4.2	4	4.2	3.6	3.9	4.7	3.7	2	1.9	2.5	2.5	2	3.4	4.3	4.7	5	4.8	5.8	7.8	6.7	9.1	8	7.6	1.9	9.1	4.6		
Feb 15	6.4	7.4	8	6.5	7.2	7.1	7.1	6.4	7.3	4.8	4.8	6.3	7.4	6.5	5	4.5	9.6	6.7	5.8	7.1	8	6.4	7.1	7.2	4.5	9.6	6.7		
Feb 16	6.2	5.4	4.9	5.6	6	5.2	5.3	4.3	5.3	5.1	5.9	7.6	6.7	8.2	8.3	5.9	5.4	5.2	6.3	6.1	5.5	5	6.3	6.8	4.3	8.3	5.9		
Feb 17	7.3	6.3	4.9	4.4	3.4	3.3	1.9	X	1.9	2.9	3.6	3	4.2	3.8	3.3	4.5	3.9	2.6	1.4	2.9	3.2	3.8	4	5.1	1.4	7.3	3.7		
Feb 18	4.4	5.1	5.2	5.3	5.3	5.6	6.4	6.7	7.1	6.8	7.9	7.8	6.9	6.6	7	7.3	6	4.5	4.8	4.9	5.3	6.4	6.4	3.7	7.9	6.0			
Feb 19	6.1	7.9	9.7	8.8	6.5	3.7	3.2	4.3	5.2	6.7	8.4	8.5	6.1	6.2	7.9	7.7	4.8	4.3	4	4.9	6.3	5.3	6.9	6.4	3.2	9.7	6.2		
Feb 20	5	9.7	12.2	13.9	12.3	12.4	12	11.5	11.2	13.1	14	11.7	11.6	8.8	8.5	7.4	4.9	2.6	2.8	2.1	2.1	3.2	1.9	3.1	1.9	14.0	8.3		
Feb 21	3.7	3.2	2.9	3	2.8	3.2	3.9	4.1	3.8	4.6	4.8	6.6	8	8.3	7.9	7.5	6.2	6.1	5.7	5.7	4.9	4.6	5.5	6.6	2.8	8.3	5.2		
Feb 22	7.1	6.4	3.9	4.2	3.4	1.7	1.9	4.2	9.3	10.3	10	10.5	12.5	13.6	14.2	14.1	12.1	11.6	14.5	16.9	13.8	10.7	7	6.5	1.7	16.9	9.2		
Feb 23	4	5.6	3.4	3.9	6.3	9.6	9	11.8	9.9	9.5	9.3	9.4	8.9	7.7	8.7	6.9	4.5	2.1	X	X	1.6	1.6	1.5	2.2	1.5	11.8	6.2		
Feb 24	2.7	2.9	3.1	2.8	2.9	3	2.9	3	3.4	3.3	3.2	3.3	3.6	3.7	3.4	1.6	2.4	2.4	X	1.4	1.4	1.5	2.2	2.1	1.4	3.7	2.7		
Feb 25	2.9	3.1	3.2	2.9	2.7	2.5	1.4	2.1	2.4	2.4	1.9	5.7	7.7	7.7	6.5	4.6	4.2	3.7	3.8	3.4	4	6.3	5	4.6	1.4	7.7	3.9		
Feb 26	6.6	6.6	6	7.2	6.7	6.9	6.3	6.8	8.1	7.8	7.8	9.7	10.1	10.9	12.2	12.1	10.3	8.8	6.7	6.8	6.7	4.8	6.3	7.4	4.8	12.2	7.9		
Feb 27	7.8	9.7	8.2	8.9	9.1	8	7.9	7.7	7.2	8	5.8	7.1	6.9	7.1	7.4	7.7	8.5	7.6	6.6	7	6.7	5.2	4.3	4.2	4.2	9.7	7.3		
Feb 28	3.2	3	4.8	4.5	3	4.3	4.2	2.9	5.5	7	8.7	10	10.6	10.7	10.8	10.5	7.8	9.1	12	18.1	17.3	13.7	13.7	11.6	2.9	18.1	8.6		
Diurnal Maximum	10	10	12	14	12	12	12	11	13	14	12	13	14	14	14	14	12	12	15	15	18	17	14	14	12				
Diurnal Average	5.2	5.5	5.4	5.5	5.2	5.0	4.5	5.0	5.2	5.7	5.7	6.3	6.4	6.5	6.7	6.1	5.4	4.9	5.4	5.9	5.7	5.5	5.5	5.5	2.9	18.1	8.6		
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	T	Exceeds Temperature Limits	N	Not in Service																
R	Recovery	X	Machine Malfunction	Y	Maintenance																								

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

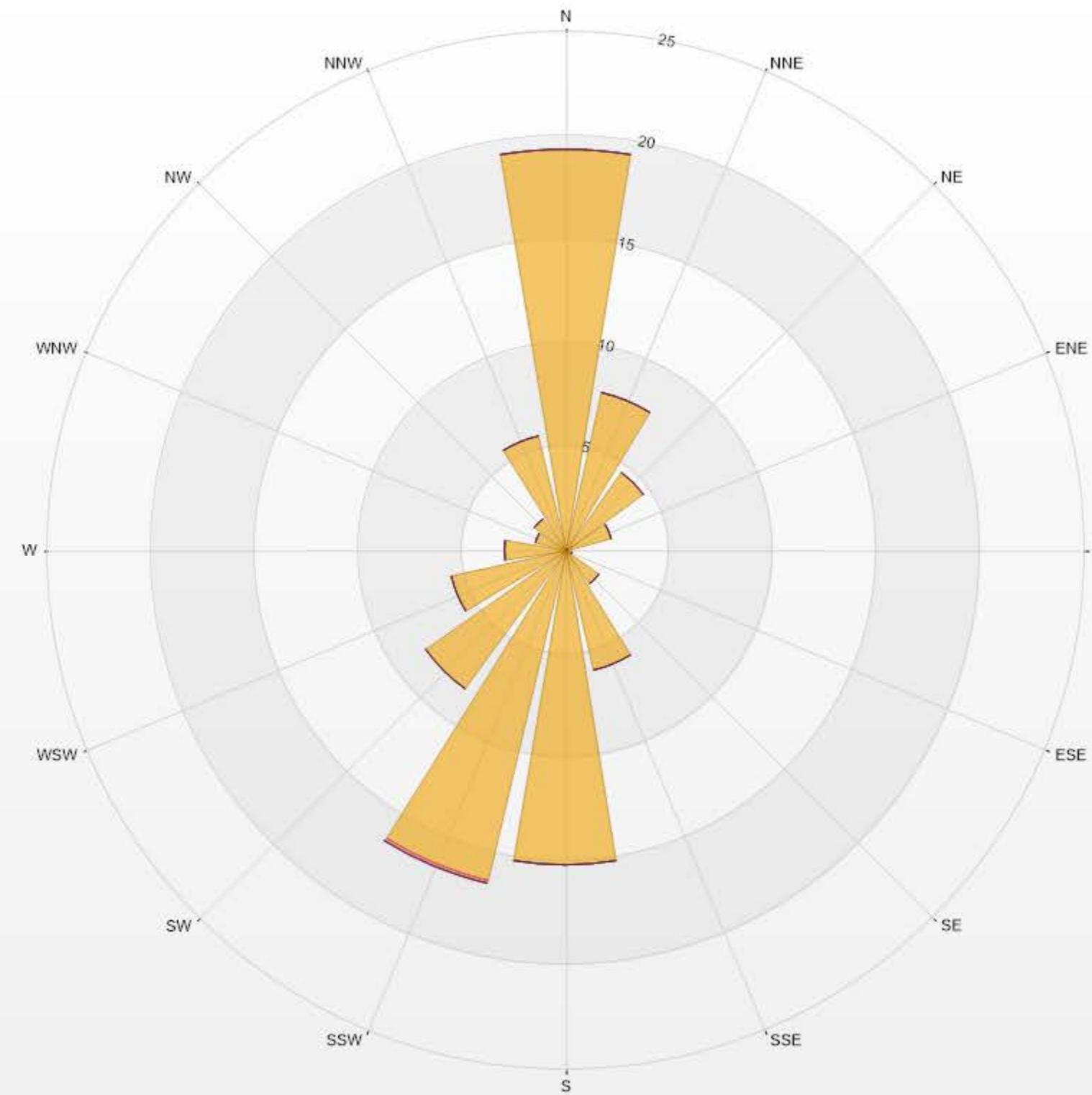
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

### *Timeseries Chart of Hourly Average for VWS - Reno Site*



Wind: PRAMP RENO Poll.: PRAMP RENO-TRS[ppb] Monthly: 02-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 90.03% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	19.34	0	0	0	0	19.34
NNE	7.77	0	0	0	0	7.77
NE	4.63	0	0	0	0	4.63
ENE	2.31	0	0	0	0	2.31
E	0.17	0	0	0	0	0.17
ESE	0.33	0	0	0	0	0.33
SE	1.98	0	0	0	0	1.98
SSE	5.95	0	0	0	0	5.95
S	15.21	0	0	0	0	15.21
SSW	16.36	0.17	0	0	0	16.53
SW	8.26	0	0	0	0	8.26
WSW	5.62	0	0	0	0	5.62
W	2.98	0	0	0	0	2.98
WNW	1.49	0	0	0	0	1.49
NW	1.82	0	0	0	0	1.82
NNW	5.62	0	0	0	0	5.62
Summary	100	0.17	0	0	0	100





## PEACE RIVER AREA MONITORING PROGRAM

Reno Site - February 2019

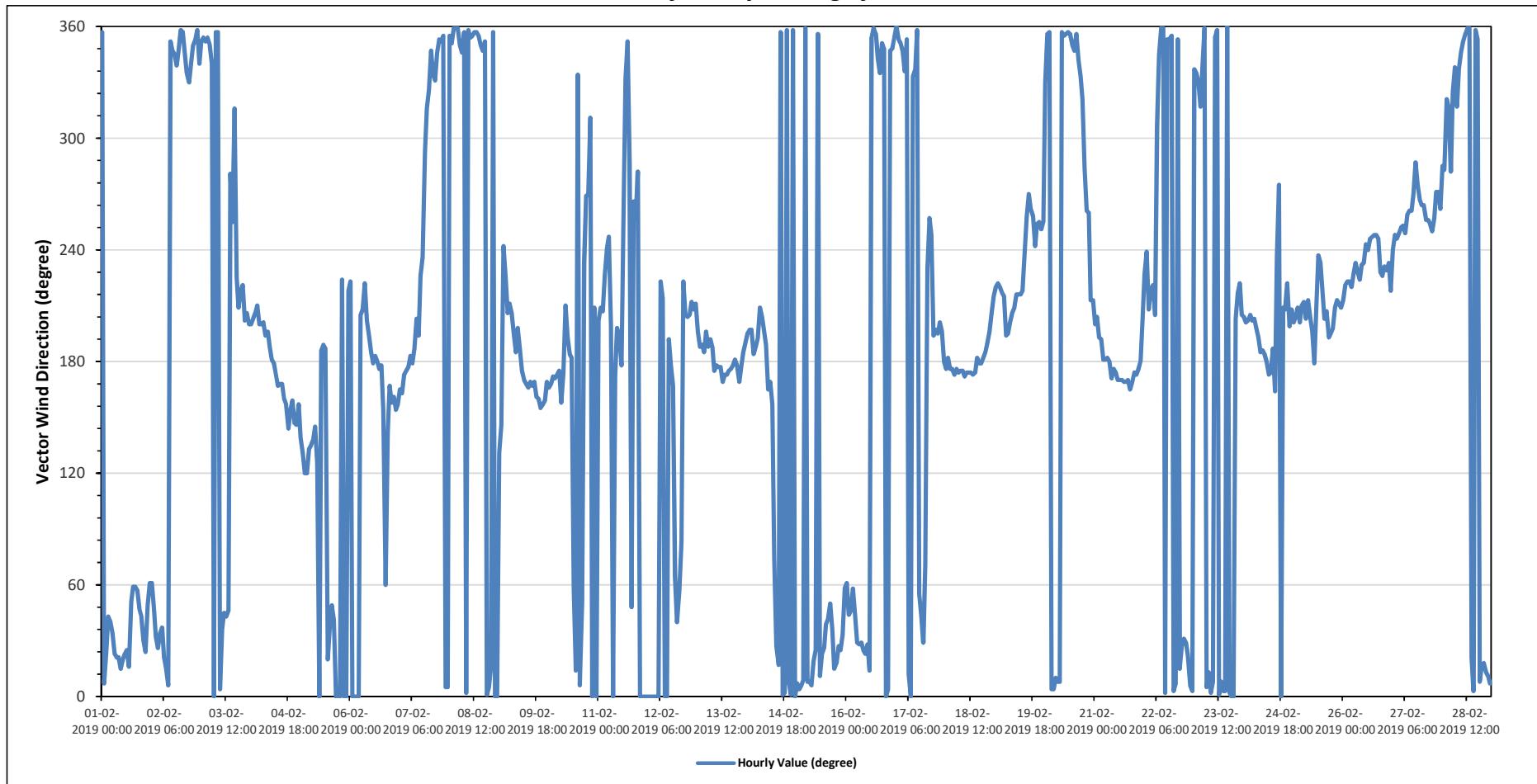
### Summary of Hourly Averages

#### WIND DIRECTION (VWD) in sector

Monthly Average:		330 (NNW) degree																							Hours in Service:		672	
																									Hours of Data:		641	
																									Hours of Missing Data:		31	
																									Hours of Calibration:		0	
																									Operational Uptime:		95.4	
Day		Hourly Period Starting at (MST)																								Degree	Quadrant	
Feb 1	N	N	NNE	NE	NE	NE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NE	ENE	ENE	ENE	NE	NE	NNE	NNE	NE	ENE	34	NE			
Feb 2	ENE	NE	NNE	NNE	NE	NE	NNE	NNE	N	N	NNW	NNW	NNW	N	N	NNW	NNW	NNW	N	N	N	NNW	6	N				
Feb 3	N	N	N	N	N	NNW	N	N	N	NE	NE	NE	NE	W	WSW	NW	SW	SSW	SW	SW	SSW	SSW	SSW	343	NNW			
Feb 4	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	S	S	SSE	SSE	SSE	SSE	SSE	SE	SSE	SSE	SE	SE	SSE	171	S			
Feb 5	SE	SE	ESE	ESE	SE	SE	SE	SE	SE	X	S	S	S	NNE	NE	NE	NE	X	X	X	SW	X	X	SW	124	ESE		
Feb 6	SW	X	X	X	X	SSW	SSW	SSW	SSW	S	S	S	S	S	SSE	ENE	SE	SSE	SSE	SSE	SSE	SSE	SSE	173	S			
Feb 7	SSE	S	S	S	S	S	S	S	SSW	SSW	SSW	SSW	SW	SW	WNW	NW	NW	NNW	NNW	NNW	N	N	N	N	320	NW		
Feb 8	N	N	N	N	N	N	NNW	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	356	N		
Feb 9	SE	SE	WSW	SW	SSW	SSW	SSW	SSW	S	SSW	S	S	SSE	170	SSE													
Feb 10	SSE	SSE	S	S	S	S	SSE	S	SSW	S	S	S	ENE	NNE	NNW	N	NE	SW	W	W	NW	X	SSW	X	174	S		
Feb 11	SSW	SSW	SSW	SW	WSW	WSW	SSW	X	S	SSW	SSW	S	WSW	NNW	N	WNW	NE	W	WSW	W	X	X	X	X	230	SW		
Feb 12	X	X	X	X	X	X	SW	SSW	X	X	S	S	SSE	ENE	ENE	E	SW	SSW	-	-								
Feb 13	SSW	S	S	S	SSW	S	S	S	S	S	S	S	SSE	S	S	S	S	S	S	SSE	S	S	S	S	180	S		
Feb 14	SSW	SSW	SSW	S	S	S	SSW	SSW	S	SSE	SSE	SSE	ENE	NNE	NNE	N	N	N	N	N	N	N	N	N	357	N		
Feb 15	N	N	N	N	N	N	N	N	N	NNE	NNE	NNE	NNE	NNE	NE	NE	NE	NNE	NNE	NNE	NNE	NNE	NNE	ENE	20	NNE		
Feb 16	ENE	NE	NE	ENE	NE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	NNW	NNW	NNW	N	N	NNW	NNW	NNW	N	12	NNE		
Feb 17	N	N	N	NNW	NNW	N	NNE	X	NNW	NNW	N	NE	NE	NNE	ENE	SW	WSW	WSW	SSW	SSW	SSW	SSW	SSW	S	337	NNW		
Feb 18	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	SSW	SSW	SSW	180	S
Feb 19	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	WSW	W	W	WSW	WSW	WSW	WSW	WSW	WSW	229	SW		
Feb 20	NNW	N	N	N	N	N	N	N	N	N	N	N	N	N	NNW	N	NNW	NNW	NW	WNW	W	WSW	SSW	SSW	354	N		
Feb 21	SSW	SSW	S	S	S	S	S	S	S	S	S	S	SSE	S	S	S	SSW	177	S									
Feb 22	SW	WSW	SSW	SW	SW	SSW	NW	NNW	N	N	N	N	N	N	N	N	N	N	N	NNE	NNE	NNE	N	N	2	N		
Feb 23	NNW	NNW	NNW	NW	NNW	N	N	NNE	N	N	N	N	N	N	N	N	N	N	N	X	X	SSW	SW	SSW	356	N		
Feb 24	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	S	S	S	S	SSE	SW	W	SSW	SSW	SSW	SSW	SSW	SSW	197	SSW			
Feb 25	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	SSW	SW	SW	SSW	S	SSW	210	SSW									
Feb 26	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	234	SW															
Feb 27	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	W	W	W	WNW	W	W	W	WSW	WSW	WSW	WSW	258	WSW			
Feb 28	WNW	W	NW	NW	W	NW	NNW	NNW	N	N	N	N	N	NNE	N	N	N	N	NNE	NNE	NNE	N	N	358	N			
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 - Reno Site*



## VOC CANISTER SAMPLING RESULTS

**PEACE RIVER AREA MONITORING PROGRAM**

986 Site - February 2019

Volatile Organic Compounds (VOCs) Results

Sample Date/Time Canister Triggered Conc. Canister ID	2019-02-20 Control Sample 28892							
	Method NA-025		Method NA-024		Method AC-058			
	Maximum Reading 2.2	Parameter Result (ppmv) RDL (ppmv)	Maximum Reading 4.1	Parameter Result (ppbv) RDL (ppbv)	Maximum Reading 3.6	Parameter Result (ppbv) RDL (ppbv)		
1-Butene	0	0.14	2,5-Dimethylthiophene	0	0.4	1,1,1-Trichloroethane	0	0.03
Acetylene	0	0.11	2-Ethylthiophene	0	0.3	1,1,2,2-Tetrachloroethane	0	0.03
cis-2-Butene	0	0.05	2-Methylthiophene	0	0.3	1,1,2-Trichloroethane	0	0.03
Ethane	0	0.1	3-Methylthiophene	0	0.4	1,1-Dichloroethane	0	0.03
Ethylacetylene	0	0.08	Butyl mercaptan	0	0.4	1,1-Dichloroethylene	0	0.05
Ethylene	0	0.10	Carbon disulphide	0	0.3	1,2,3-Trimethylbenzene	0	0.07
Isobutane	0	0.1	Carbonyl sulphide	4.1	0.4	1,2,4-Trichlorobenzene	0	1.1
Isobutylene	0	0.1	Dimethyl disulphide	0	0.3	1,2,4-Trimethylbenzene	0	0.07
Methane	2.2	0.1	Dimethyl sulphide	0	0.3	1,2-Dibromoethane	0	0.03
n-Butane	0	0.3	Ethyl mercaptan	0	0.4	1,2-Dichlorobenzene	0	0.04
n-Propane	0	0.10	Ethyl sulphide	0	0.4	1,2-Dichloroethane	0	0.01
Propylene	0	0.1	Hydrogen sulphide	2.1	0.1	1,2-Dichloropropane	0	0.01
Propyne	0	0.1	Isobutyl mercaptan	0	0.4	1,3,5-Trimethylbenzene	0	0.03
trans-2-Butene	0	0.12	Isopropyl mercaptan	0	0.4	1,3-Butadiene	0	0.03
			Methyl mercaptan	0	0.3	1,3-Dichlorobenzene	0	0.4
			Pentyl mercaptan	0	0.5	1,4-Dichlorobenzene	0	0.5
			Propyl mercaptan	0	0.5	1,4-Dioxane	0	0.5
			tert-Butyl mercaptan	0	0.4	1-Butene/Isobutylene	0.4	0.03
			Thiophene	0	0.3	1-Hexene/2-Methyl-1-pentene	0	0.03
						1-Pentene	0	0.01
						2,2,4-Trimethylpentane	0	0.01
						2,2-Dimethylbutane	0	0.01
						2,3,4-Trimethylpentane	0	0.01
						2,3-Dimethylbutane	0	0.03
						2,3-Dimethylpentane	0	0.03
						2,4-Dimethylpentane	0	0.01
						2-Methylheptane	0	0.01
						2-Methylhexane	0	0.01
						2-Methylpentane	0.05	0.01
						3-Methylheptane	0	0.03
						3-Methylhexane	0	0.03
						3-Methylpentane	0	0.01
						Acetone	3.6	0.5
						Acrolein	0	0.4
						Benzene	0.19	0.01
						Benzyl chloride	0	0.5
						Bromodichloromethane	0	0.03
						Bromoform	0	0.03
						Bromomethane	0	0.01
						Carbon disulfide	0	0.01
						Carbon tetrachloride	0.06	0.01
						Chlorobenzene	0	0.03
						Chloroethane	0	0.03
						Chloroform	0	0.03
						Chloromethane	0.47	0.03
						cis-1,2-Dichloroethene	0	0.01
						cis-1,3-Dichloropropene	0	0.05
						cis-2-Butene	0	0.03
						cis-2-Pentene	0	0.03
						Cyclohexane	0	0.03
						Cyclopentane	0.08	0.01
						Dibromochloromethane	0	0.01
						Ethanol	1.8	0.4
						Ethyl acetate	0	0.5
						Ethylbenzene	0	0.01
						Freon-11	0.25	0.03
						Freon-113	0.04	0.01
						Freon-114	0	0.03



## PEACE RIVER AREA MONITORING PROGRAM

986 Site - February 2019

## Volatile Organic Compounds (VOCs) Results

Sample Date/Time Canister Triggered Conc. Canister ID	2019-02-20 Control Sample 28892					
	Method	NA-025	Method	NA-024	Method	AC-058
	Maximum Reading	2.2	Maximum Reading	4.1	Maximum Reading	3.6
Parameter	Result (ppmv) RDL (ppmv)	Parameter	Result (ppbv) RDL (ppbv)	Parameter	Result (ppbv)	RDL (ppbv)
				Freon-12	0.46	0.03
				Hexachloro-1,3-butadiene	0	0.69
				Isobutane	0.45	0.03
				Isopentane	0.23	0.04
				Isoprene	0	0.01
				Isopropyl alcohol	0	0.5
				Isopropylbenzene	0	0.01
				m,p-Xylene	0	0.04
				m-Diethylbenzene	0	0.05
				m-Ethyltoluene	0	0.11
				Methyl butyl ketone	0	0.68
				Methyl ethyl ketone	0	0.4
				Methyl isobutyl ketone	0	0.5
				Methyl methacrylate	0	0.10
				Methyl tert butyl ether	0	0.04
				Methylcyclohexane	0	0.01
				Methylcyclopentane	0	0.03
				Methylene chloride	0	0.4
				n-Butane	0.64	0.04
				n-Decane	0	0.08
				n-Dodecane	0	0.5
				n-Heptane	0	0.01
				n-Hexane	0	0.01
				n-Nonane	0	0.01
				n-Octane	0	0.03
				n-Pentane	0.3	0.1
				n-Propylbenzene	0	0.07
				n-Undecane	0	0.7
				Naphthalene	0	0.7
				o-Ethyltoluene	0	0.01
				o-Xylene	0	0.01
				p-Diethylbenzene	0	0.05
				p-Ethyltoluene	0	0.10
				Styrene	0	0.05
				Tetrachloroethylene	0	0.05
				Tetrahydrofuran	0	0.5
				Toluene	0.2	0.01
				trans-1,2-Dichloroethylene	0.64	0.01
				trans-1,3-Dichloropropylene	0	0.05
				trans-2-Butene	0	0.01
				trans-2-Pentene	0	0.03
				Trichloroethylene	0	0.05
				Vinyl acetate	0	0.5
				Vinyl chloride	0	0.03

**PEACE RIVER AREA MONITORING PROGRAM**

842 Site - February 2019

Volatile Organic Compounds (VOCs) Results

Sample Date/Time Canister Triggered Conc. Canister ID	2019-02-07 Control Sample 28894							
	Method NA-025		Method NA-024		Method AC-058			
	Maximum Reading 1.9	Parameter Result (ppmv)	Maximum Reading 1.5	Parameter Result (ppbv)	Maximum Reading 2.1	Result (ppbv)		
1-Butene	0	0.14	2,5-Dimethylthiophene	0	0.4	1,1,1-Trichloroethane	0	0.03
Acetylene	0	0.11	2-Ethylthiophene	0	0.3	1,1,2,2-Tetrachloroethane	0	0.03
cis-2-Butene	0	0.05	2-Methylthiophene	0	0.3	1,1,2-Trichloroethane	0	0.03
Ethane	0	0.1	3-Methylthiophene	0	0.4	1,1-Dichloroethane	0	0.03
Ethylacetylene	0	0.08	Butyl mercaptan	0	0.4	1,1-Dichloroethylene	0	0.05
Ethylene	0	0.10	Carbon disulphide	0	0.3	1,2,3-Trimethylbenzene	0	0.07
Isobutane	0	0.1	Carbonyl sulphide	0.8	0.4	1,2,4-Trichlorobenzene	0	1.1
Isobutylene	0	0.1	Dimethyl disulphide	0	0.3	1,2,4-Trimethylbenzene	0	0.07
Methane	1.9	0.1	Dimethyl sulphide	0	0.3	1,2-Dibromoethane	0	0.03
n-Butane	0	0.3	Ethyl mercaptan	0	0.4	1,2-Dichlorobenzene	0	0.04
n-Propane	0	0.10	Ethyl sulphide	1.5	0.1	1,2-Dichloroethane	0	0.01
Propylene	0	0.1	Hydrogen sulphide			1,2-Dichloropropane	0	0.01
Propyne	0	0.1	Isobutyl mercaptan	0	0.4	1,3,5-Trimethylbenzene	0	0.03
trans-2-Butene	0	0.12	Isopropyl mercaptan	0	0.4	1,3-Butadiene	0.18	0.03
			Methyl mercaptan	0	0.3	1,3-Dichlorobenzene	0	0.4
			Pentyl mercaptan	0	0.5	1,4-Dichlorobenzene	0	0.5
			Propyl mercaptan	0	0.5	1,4-Dioxane	0	0.5
			tert-Butyl mercaptan	0	0.4	1-Butene/Isobutylene	0.51	0.03
			Thiophene	0	0.3	1-Hexene/2-Methyl-1-pentene	0	0.03
						1-Pentene	0	0.01
						2,2,4-Trimethylpentane	0	0.01
						2,2-Dimethylbutane	0	0.01
						2,3,4-Trimethylpentane	0	0.01
						2,3-Dimethylbutane	0	0.03
						2,3-Dimethylpentane	0	0.03
						2,4-Dimethylpentane	0	0.01
						2-Methylheptane	0	0.01
						2-Methylhexane	0	0.01
						2-Methylpentane	0.14	0.01
						3-Methylheptane	0	0.03
						3-Methylhexane	0	0.03
						3-Methylpentane	0.03	0.01
						Acetone	2	0.5
						Acrolein	0	0.4
						Benzene	0.25	0.01
						Benzyl chloride	0	0.5
						Bromodichloromethane	0	0.03
						Bromoform	0	0.03
						Bromomethane	0	0.01
						Carbon disulfide	0	0.01
						Carbon tetrachloride	0.05	0.01
						Chlorobenzene	0	0.03
						Chloroethane	0	0.03
						Chloroform	0	0.03
						Chloromethane	0.63	0.03
						cis-1,2-Dichloroethene	0	0.01
						cis-1,3-Dichloropropene	0	0.05
						cis-2-Butene	0	0.03
						cis-2-Pentene	0	0.03
						Cyclohexane	0	0.03
						Cyclopentane	0	0.01
						Dibromochloromethane	0	0.01
						Ethanol	2.1	0.4
						Ethyl acetate	0	0.5
						Ethylbenzene	0	0.01
						Freon-11	0.27	0.03
						Freon-113	0	0.01
						Freon-114	0	0.03



## PEACE RIVER AREA MONITORING PROGRAM

842 Site - February 2019

## Volatile Organic Compounds (VOCs) Results

Sample Date/Time	2019-02-07					
Canister Triggered Conc.	Control Sample					
Canister ID	28894					
Method	NA-025	Method	NA-024	Method	AC-058	
Maximum Reading	1.9	Maximum Reading	1.5	Maximum Reading	2.1	
Parameter	Result (ppmv)	RDL (ppmv)	Parameter	Result (ppbv)	RDL (ppbv)	Parameter
						Freon-12
						0.51
						0.03
						Hexachloro-1,3-butadiene
						0
						0.69
						Isobutane
						1.13
						0.03
						Isopentane
						0.64
						0.04
						Isoprene
						0
						0.01
						Isopropyl alcohol
						0
						0.5
						Isopropylbenzene
						0
						0.01
						m,p-Xylene
						0
						0.04
						m-Diethylbenzene
						0
						0.05
						m-Ethyltoluene
						0
						0.11
						Methyl butyl ketone
						0
						0.68
						Methyl ethyl ketone
						0
						0.4
						Methyl isobutyl ketone
						0
						0.5
						Methyl methacrylate
						0
						0.10
						Methyl tert butyl ether
						0
						0.04
						Methylcyclohexane
						0.02
						0.01
						Methylcyclopentane
						0
						0.03
						Methylene chloride
						0
						0.4
						n-Butane
						1.71
						0.04
						n-Decane
						0
						0.08
						n-Dodecane
						0
						0.5
						n-Heptane
						0
						0.01
						n-Hexane
						0.08
						0.01
						n-Nonane
						0
						0.01
						n-Octane
						0
						0.03
						n-Pentane
						0.7
						0.1
						n-Propylbenzene
						0
						0.07
						n-Undecane
						0
						0.7
						Naphthalene
						0
						0.7
						o-Ethyltoluene
						0
						0.01
						o-Xylene
						0
						0.01
						p-Diethylbenzene
						0
						0.05
						p-Ethyltoluene
						0
						0.10
						Styrene
						0
						0.05
						Tetrachloroethylene
						0
						0.05
						Tetrahydrofuran
						0
						0.5
						Toluene
						0.21
						0.01
						trans-1,2-Dichloroethylene
						0.78
						0.01
						trans-1,3-Dichloropropylene
						0
						0.05
						trans-2-Butene
						0
						0.01
						trans-2-Pentene
						0
						0.03
						Trichloroethylene
						0
						0.05
						Vinyl acetate
						0
						0.5
						Vinyl chloride
						0
						0.03

**PEACE RIVER AREA MONITORING PROGRAM**

Reno Site - February 2019

Volatile Organic Compounds (VOCs) Results

Sample Date/Time Canister Triggered Conc. Canister ID	2019-02-06							
	Control Sample H2823							
	Method	NA-025	Method	NA-024	Method	AC-058		
Maximum Reading	2		Maximum Reading	1.6		Maximum Reading	3	
Parameter	Result (ppmv)	RDL (ppmv)	Parameter	Result (ppbv)	RDL (ppbv)	Parameter	Result (ppbv)	RDL (ppbv)
1-Butene	0	0.14	2,5-Dimethylthiophene	0	0.4	1,1,1-Trichloroethane	0	0.03
Acetylene	0	0.11	2-Ethylthiophene	0	0.3	1,1,2,2-Tetrachloroethane	0	0.03
cis-2-Butene	0	0.05	2-Methylthiophene	0	0.3	1,1,2-Trichloroethane	0	0.03
Ethane	0	0.1	3-Methylthiophene	0	0.4	1,1-Dichloroethane	0	0.03
Ethylacetylene	0	0.08	Butyl mercaptan	0	0.4	1,1-Dichloroethylene	0	0.05
Ethylene	0	0.10	Carbon disulphide	0	0.3	1,2,3-Trimethylbenzene	0	0.07
Isobutane	0	0.1	Carbonyl sulphide	1.2	0.4	1,2,4-Trichlorobenzene	0	1.1
Isobutylene	0	0.1	Dimethyl disulphide	0	0.3	1,2,4-Trimethylbenzene	0	0.07
Methane	2	0.1	Dimethyl sulphide	0	0.3	1,2-Dibromoethane	0	0.03
n-Butane	0	0.3	Ethyl mercaptan	0	0.4	1,2-Dichlorobenzene	0	0.04
n-Propane	0	0.10	Ethyl sulphide	0	0.4	1,2-Dichloroethane	0	0.01
Propylene	0	0.1	Hydrogen sulphide	1.6	0.1	1,2-Dichloropropane	0	0.01
Propyne	0	0.1	Isobutyl mercaptan	0	0.4	1,3,5-Trimethylbenzene	0	0.03
trans-2-Butene	0	0.12	Isopropyl mercaptan	0	0.4	1,3-Butadiene	0.19	0.03
			Methyl mercaptan	0	0.3	1,3-Dichlorobenzene	0	0.4
			Pentyl mercaptan	0	0.5	1,4-Dichlorobenzene	0	0.5
			Propyl mercaptan	0	0.5	1,4-Dioxane	0	0.5
			tert-Butyl mercaptan	0	0.4	1-Butene/Isobutylene	0.92	0.03
			Thiophene	0	0.3	1-Hexene/2-Methyl-1-pentene	0	0.03
						1-Pentene	0	0.01
						2,2,4-Trimethylpentane	0	0.01
						2,2-Dimethylbutane	0	0.01
						2,3,4-Trimethylpentane	0	0.01
						2,3-Dimethylbutane	0	0.03
						2,3-Dimethylpentane	0	0.03
						2,4-Dimethylpentane	0	0.01
						2-Methylheptane	0	0.01
						2-Methylhexane	0	0.01
						2-Methylpentane	0.19	0.01
						3-Methylheptane	0	0.03
						3-Methylhexane	0	0.03
						3-Methylpentane	0.06	0.01
						Acetone	3	0.5
						Acrolein	0	0.4
						Benzene	0.27	0.01
						Benzyl chloride	0	0.5
						Bromodichloromethane	0	0.03
						Bromoform	0	0.03
						Bromomethane	0	0.01
						Carbon disulfide	0.07	0.01
						Carbon tetrachloride	0.07	0.01
						Chlorobenzene	0	0.03
						Chloroethane	0	0.03
						Chloroform	0	0.03
						Chloromethane	0.63	0.03
						cis-1,2-Dichloroethene	0	0.01
						cis-1,3-Dichloropropene	0	0.05
						cis-2-Butene	0	0.03
						cis-2-Pentene	0	0.03
						Cyclohexane	0	0.03
						Cyclopentane	0.08	0.01
						Dibromochloromethane	0	0.01
						Ethanol	3	0.4
						Ethyl acetate	0	0.5
						Ethylbenzene	0	0.01
						Freon-11	0.28	0.03
						Freon-113	0	0.01
						Freon-114	0	0.03

**PEACE RIVER AREA MONITORING PROGRAM**

Reno Site - February 2019

Volatile Organic Compounds (VOCs) Results

Sample Date/Time	2019-02-06					
Canister Triggered Conc.	Control Sample					
Canister ID	H2823					
Method	NA-025		Method	NA-024		Method
Maximum Reading	2		Maximum Reading	1.6		Maximum Reading
Parameter	Result (ppmv)	RDL (ppmv)	Parameter	Result (ppbv)	RDL (ppbv)	Parameter
						Freon-12
						0.51
						0.03
						Hexachloro-1,3-butadiene
						0
						0.69
						Isobutane
						1.17
						0.03
						Isopentane
						0.86
						0.04
						Isoprene
						0
						0.01
						Isopropyl alcohol
						0
						0.5
						Isopropylbenzene
						0
						0.01
						m,p-Xylene
						0
						0.04
						m-Diethylbenzene
						0
						0.05
						m-Ethyltoluene
						0
						0.11
						Methyl butyl ketone
						0
						0.68
						Methyl ethyl ketone
						0
						0.4
						Methyl isobutyl ketone
						0
						0.5
						Methyl methacrylate
						0
						0.10
						Methyl tert butyl ether
						0
						0.04
						Methylcyclohexane
						0.04
						0.01
						Methylcyclopentane
						0.05
						0.03
						Methylene chloride
						0
						0.4
						n-Butane
						1.64
						0.04
						n-Decane
						0
						0.08
						n-Dodecane
						0
						0.5
						n-Heptane
						0
						0.01
						n-Hexane
						0.13
						0.01
						n-Nonane
						0
						0.01
						n-Octane
						0
						0.03
						n-Pentane
						0.8
						0.1
						n-Propylbenzene
						0
						0.07
						n-Undecane
						0
						0.7
						Naphthalene
						0
						0.7
						o-Ethyltoluene
						0
						0.01
						o-Xylene
						0
						0.01
						p-Diethylbenzene
						0
						0.05
						p-Ethyltoluene
						0
						0.10
						Styrene
						0
						0.05
						Tetrachloroethylene
						0
						0.05
						Tetrahydrofuran
						0
						0.5
						Toluene
						0.24
						0.01
						trans-1,2-Dichloroethylene
						0
						0.01
						trans-1,3-Dichloropropylene
						0
						0.05
						trans-2-Butene
						0
						0.01
						trans-2-Pentene
						0
						0.03
						Trichloroethylene
						0
						0.05
						Vinyl acetate
						0
						0.5
						Vinyl chloride
						0
						0.03

**PEACE RIVER AREA MONITORING PROGRAM**

Reno Site - February 2019

Volatile Organic Compounds (VOCs) Results

Sample Date/Time	2019-02-17							
Canister Triggered Conc.	Methane							
Canister ID	28914							
Method	NA-025		Method	NA-024		Method		
Maximum Reading	3		Maximum Reading	2.6		Maximum Reading		
Parameter	Result (ppmv)	RDL (ppmv)	Parameter	Result (ppbv)	RDL (ppbv)	Parameter		
1-Butene	0	0.15	2,5-Dimethylthiophene	0	0.5	1,1,1-Trichloroethane	0	0.03
Acetylene	0	0.12	2-Ethylthiophene	0	0.3	1,1,2,2-Tetrachloroethane	0	0.03
cis-2-Butene	0	0.06	2-Methylthiophene	0	0.3	1,1,2-Trichloroethane	0	0.03
Ethane	0.2	0.2	3-Methylthiophene	0	0.5	1,1-Dichloroethane	0	0.03
Ethylacetylene	0	0.09	Butyl mercaptan	0	0.5	1,1-Dichloroethylene	0	0.06
Ethylene	0	0.11	Carbon disulphide	0	0.3	1,2,3-Trimethylbenzene	0	0.08
Isobutane	0	0.2	Carbonyl sulphide	2.6	0.5	1,2,4-Trichlorobenzene	0	1.2
Isobutylene	0	0.2	Dimethyl disulphide	0	0.3	1,2,4-Trimethylbenzene	0	0.08
Methane	3	0.2	Dimethyl sulphide	0	0.3	1,2-Dibromoethane	0	0.03
n-Butane	0	0.3	Ethyl mercaptan	0	0.5	1,2-Dichlorobenzene	0	0.05
n-Propane	0	0.11	Ethyl sulphide	0	0.5	1,2-Dichloroethane	0	0.02
Propylene	0	0.2	Hydrogen sulphide	2.5	0.2	1,2-Dichloropropane	0	0.02
Propyne	0	0.2	Isobutyl mercaptan	0	0.5	1,3,5-Trimethylbenzene	0	0.03
trans-2-Butene	0	0.14	Isopropyl mercaptan	0	0.5	1,3-Butadiene	0	0.03
			Methyl mercaptan	0	0.3	1,3-Dichlorobenzene	0	0.5
			Pentyl mercaptan	0	0.6	1,4-Dichlorobenzene	0	0.6
			Propyl mercaptan	0	0.6	1,4-Dioxane	0	0.6
			tert-Butyl mercaptan	0	0.5	1-Butene/Isobutylene	0.79	0.03
			Thiophene	0	0.3	1-Hexene/2-Methyl-1-pentene	0	0.03
						1-Pentene	0	0.02
						2,2,4-Trimethylpentane	0	0.02
						2,2-Dimethylbutane	0	0.02
						2,3,4-Trimethylpentane	0	0.02
						2,3-Dimethylbutane	0	0.03
						2,3-Dimethylpentane	0	0.03
						2,4-Dimethylpentane	0	0.02
						2-Methylheptane	0	0.02
						2-Methylhexane	0.03	0.02
						2-Methylpentane	0.23	0.02
						3-Methylheptane	0	0.03
						3-Methylhexane	0.05	0.03
						3-Methylpentane	0.12	0.02
						Acetone	3.3	0.6
						Acrolein	0	0.5
						Benzene	0.26	0.02
						Benzyl chloride	0	0.6
						Bromodichloromethane	0	0.03
						Bromoform	0	0.03
						Bromomethane	0	0.02
						Carbon disulfide	0	0.02
						Carbon tetrachloride	0.03	0.02
						Chlorobenzene	0	0.03
						Chloroethane	0	0.03
						Chloroform	0	0.03
						Chloromethane	0.5	0.03
						cis-1,2-Dichloroethene	0	0.02
						cis-1,3-Dichloropropene	0	0.06
						cis-2-Butene	0	0.03
						cis-2-Pentene	0	0.03
						Cyclohexane	0.11	0.03
						Cyclopentane	0.04	0.02
						Dibromochloromethane	0	0.02
						Ethanol	2.2	0.5
						Ethyl acetate	0	0.6
						Ethylbenzene	0	0.02
						Freon-11	0.22	0.03
						Freon-113	0.03	0.02
						Freon-114	0	0.03

**PEACE RIVER AREA MONITORING PROGRAM**

Reno Site - February 2019

## Volatile Organic Compounds (VOCs) Results

Sample Date/Time	2019-02-17					
Canister Triggered Conc.	Methane					
Canister ID	28914					
Method	NA-025	Method	NA-024	Method	AC-058	
Maximum Reading	3	Maximum Reading	2.6	Maximum Reading	3.3	
Parameter	Result (ppmv)	RDL (ppmv)	Parameter	Result (ppbv)	RDL (ppbv)	Parameter
						Freon-12
						0.46
						0.03
						Hexachloro-1,3-butadiene
						0
						0.76
						Isobutane
						2.3
						0.03
						Isopentane
						0.94
						0.05
						Isoprene
						0
						0.02
						Isopropyl alcohol
						0
						0.6
						Isopropylbenzene
						0
						0.02
						m,p-Xylene
						0
						0.05
						m-Diethylbenzene
						0
						0.06
						m-Ethyltoluene
						0
						0.12
						Methyl butyl ketone
						0
						0.76
						Methyl ethyl ketone
						0
						0.5
						Methyl isobutyl ketone
						0
						0.6
						Methyl methacrylate
						0
						0.11
						Methyl tert butyl ether
						0
						0.05
						Methylcyclohexane
						0.22
						0.02
						Methylcyclopentane
						0.23
						0.03
						Methylene chloride
						0
						0.5
						n-Butane
						2.89
						0.05
						n-Decane
						0
						0.09
						n-Dodecane
						0
						0.6
						n-Heptane
						0
						0.02
						n-Hexane
						0.08
						0.02
						n-Nonane
						0
						0.02
						n-Octane
						0
						0.03
						n-Pentane
						0.6
						0.2
						n-Propylbenzene
						0
						0.08
						n-Undecane
						0
						0.8
						Naphthalene
						0
						0.8
						o-Ethyltoluene
						0
						0.02
						o-Xylene
						0
						0.02
						p-Diethylbenzene
						0
						0.06
						p-Ethyltoluene
						0
						0.11
						Styrene
						0
						0.06
						Tetrachloroethylene
						0
						0.06
						Tetrahydrofuran
						0
						0.6
						Toluene
						0.32
						0.02
						trans-1,2-Dichloroethylene
						0
						0.02
						trans-1,3-Dichloropropylene
						0
						0.06
						trans-2-Butene
						0
						0.02
						trans-2-Pentene
						0
						0.03
						Trichloroethylene
						0
						0.06
						Vinyl acetate
						0
						0.6
						Vinyl chloride
						0
						0.03

**PEACE RIVER AREA MONITORING PROGRAM**

Reno Site - February 2019

Volatile Organic Compounds (VOCs) Results

Sample Date/Time Canister Triggered Conc. Canister ID	2019-02-20							
	Methane 28965							
	Method	NA-025	Method	NA-024	Method	AC-058		
Maximum Reading	2.3		Maximum Reading	3.3		Maximum Reading		
Parameter	Result (ppmv)	RDL (ppmv)	Parameter	Result (ppbv)	RDL (ppbv)	Parameter		
1-Butene	0	0.16	2,5-Dimethylthiophene	0	0.5	1,1,1-Trichloroethane	0	0.03
Acetylene	0	0.13	2-Ethylthiophene	0	0.3	1,1,2,2-Tetrachloroethane	0	0.03
cis-2-Butene	0	0.06	2-Methylthiophene	0	0.3	1,1,2-Trichloroethane	0	0.03
Ethane	0	0.2	3-Methylthiophene	0	0.5	1,1-Dichloroethane	0	0.03
Ethylacetylene	0	0.09	Butyl mercaptan	0	0.5	1,1-Dichloroethylene	0	0.06
Ethylene	0	0.11	Carbon disulphide	0	0.3	1,2,3-Trimethylbenzene	0	0.08
Isobutane	0	0.2	Carbonyl sulphide	3	0.5	1,2,4-Trichlorobenzene	0	1.3
Isobutylene	0	0.2	Dimethyl disulphide	0	0.3	1,2,4-Trimethylbenzene	0	0.08
Methane	2.3	0.2	Dimethyl sulphide	0	0.3	1,2-Dibromoethane	0	0.03
n-Butane	0	0.3	Ethyl mercaptan	0	0.5	1,2-Dichlorobenzene	0	0.05
n-Propane	0	0.11	Ethyl sulphide	0	0.5	1,2-Dichloroethane	0	0.02
Propylene	0	0.2	Hydrogen sulphide	3.3	0.2	1,2-Dichloropropane	0	0.02
Propyne	0	0.2	Isobutyl mercaptan	0	0.5	1,3,5-Trimethylbenzene	0	0.03
trans-2-Butene	0	0.14	Isopropyl mercaptan	0	0.5	1,3-Butadiene	0	0.03
			Methyl mercaptan	0	0.3	1,3-Dichlorobenzene	0	0.5
			Pentyl mercaptan	0	0.6	1,4-Dichlorobenzene	0	0.6
			Propyl mercaptan	0	0.6	1,4-Dioxane	0	0.6
			tert-Butyl mercaptan	0	0.5	1-Butene/Isobutylene	0	0.03
			Thiophene	0	0.3	1-Hexene/2-Methyl-1-pentene	0	0.03
						1-Pentene	0	0.02
						2,2,4-Trimethylpentane	0	0.02
						2,2-Dimethylbutane	0	0.02
						2,3,4-Trimethylpentane	0	0.02
						2,3-Dimethylbutane	0	0.03
						2,3-Dimethylpentane	0	0.03
						2,4-Dimethylpentane	0	0.02
						2-Methylheptane	0	0.02
						2-Methylhexane	0	0.02
						2-Methylpentane	0.08	0.02
						3-Methylheptane	0	0.03
						3-Methylhexane	0	0.03
						3-Methylpentane	0	0.02
						Acetone	0	0.6
						Acrolein	0	0.5
						Benzene	0	0.02
						Benzyl chloride	0	0.6
						Bromodichloromethane	0	0.03
						Bromoform	0	0.03
						Bromomethane	0	0.02
						Carbon disulfide	0	0.02
						Carbon tetrachloride	0	0.02
						Chlorobenzene	0	0.03
						Chloroethane	0	0.03
						Chloroform	0	0.03
						Chloromethane	0.49	0.03
						cis-1,2-Dichloroethene	0	0.02
						cis-1,3-Dichloropropene	0	0.06
						cis-2-Butene	0	0.03
						cis-2-Pentene	0	0.03
						Cyclohexane	0	0.03
						Cyclopentane	0	0.02
						Dibromochloromethane	0	0.02
						Ethanol	0	0.5
						Ethyl acetate	0	0.6
						Ethylbenzene	0	0.02
						Freon-11	0.19	0.03
						Freon-113	0	0.02
						Freon-114	0	0.03

**PEACE RIVER AREA MONITORING PROGRAM**

Reno Site - February 2019

Volatile Organic Compounds (VOCs) Results

Sample Date/Time	2019-02-20		
Canister Triggered Conc.	Methane		
Canister ID	28965		
Method	NA-025	Method	NA-024
Maximum Reading	2.3	Maximum Reading	3.3
Parameter	Result (ppmv) RDL (ppmv)	Parameter	Result (ppbv) RDL (ppbv)
			Freon-12 0.46 0.03
			Hexachloro-1,3-butadiene 0 0.79
			Isobutane 0.31 0.03
			Isopentane 0.3 0.05
			Isoprene 0 0.02
			Isopropyl alcohol 0 0.6
			Isopropylbenzene 0 0.02
			m,p-Xylene 0 0.05
			m-Diethylbenzene 0 0.06
			m-Ethyltoluene 0 0.13
			Methyl butyl ketone 0 0.79
			Methyl ethyl ketone 0 0.5
			Methyl isobutyl ketone 0 0.6
			Methyl methacrylate 0 0.11
			Methyl tert butyl ether 0 0.05
			Methylcyclohexane 0.05 0.02
			Methylcyclopentane 0.07 0.03
			Methylene chloride 0 0.5
			n-Butane 0.49 0.05
			n-Decane 0 0.09
			n-Dodecane 0 0.6
			n-Heptane 0 0.02
			n-Hexane 0 0.02
			n-Nonane 0 0.02
			n-Octane 0 0.03
			n-Pentane 0.2 0.2
			n-Propylbenzene 0 0.08
			n-Undecane 0 0.8
			Naphthalene 0 0.8
			o-Ethyltoluene 0 0.02
			o-Xylene 0 0.02
			p-Diethylbenzene 0 0.06
			p-Ethyltoluene 0 0.11
			Styrene 0 0.06
			Tetrachloroethylene 0 0.06
			Tetrahydrofuran 0 0.6
			Toluene 0 0.02
			trans-1,2-Dichloroethylene 0 0.02
			trans-1,3-Dichloropropylene 0 0.06
			trans-2-Butene 0 0.02
			trans-2-Pentene 0 0.03
			Trichloroethylene 0 0.06
			Vinyl acetate 0 0.6
			Vinyl chloride 0 0.03

**PEACE RIVER AREA MONITORING PROGRAM**

Reno Site - February 2019

Volatile Organic Compounds (VOCs) Results

Sample Date/Time	2019-02-23							
Canister Triggered Conc.	Methane							
Canister ID	11037							
Method	NA-025		Method	NA-024		Method		
Maximum Reading	6.1		Maximum Reading	0		Maximum Reading		
Parameter	Result (ppmv)	RDL (ppmv)	Parameter	Result (ppbv)	RDL (ppbv)	Parameter		
1-Butene	0	0.16	2,5-Dimethylthiophene	0	0.5	1,1,1-Trichloroethane	0	0.03
Acetylene	0	0.13	2-Ethylthiophene	0	0.3	1,1,2,2-Tetrachloroethane	0	0.03
cis-2-Butene	0	0.06	2-Methylthiophene	0	0.3	1,1,2-Trichloroethane	0	0.03
Ethane	0	0.2	3-Methylthiophene	0	0.5	1,1-Dichloroethane	0	0.03
Ethylacetylene	0	0.10	Butyl mercaptan	0	0.5	1,1-Dichloroethylene	0	0.06
Ethylene	0	0.11	Carbon disulphide	0	0.3	1,2,3-Trimethylbenzene	0	0.08
Isobutane	0	0.2	Carbonyl sulphide	0	0.5	1,2,4-Trichlorobenzene	0	1.3
Isobutylene	0	0.2	Dimethyl disulphide	0	0.3	1,2,4-Trimethylbenzene	0	0.08
Methane	6.1	0.2	Dimethyl sulphide	0	0.3	1,2-Dibromoethane	0	0.03
n-Butane	0	0.3	Ethyl mercaptan	0	0.5	1,2-Dichlorobenzene	0	0.05
n-Propane	0	0.11	Ethyl sulphide	0	0.5	1,2-Dichloroethane	0	0.02
Propylene	0	0.2	Hydrogen sulphide	0	0.2	1,2-Dichloropropane	0	0.02
Propyne	0	0.2	Isobutyl mercaptan	0	0.5	1,3,5-Trimethylbenzene	0	0.03
trans-2-Butene	0	0.15	Isopropyl mercaptan	0	0.5	1,3-Butadiene	0	0.03
			Methyl mercaptan	0	0.3	1,3-Dichlorobenzene	0	0.5
			Pentyl mercaptan	0	0.6	1,4-Dichlorobenzene	0	0.6
			Propyl mercaptan	0	0.6	1,4-Dioxane	0	0.6
			tert-Butyl mercaptan	0	0.5	1-Butene/Isobutylene	0	0.03
			Thiophene	0	0.3	1-Hexene/2-Methyl-1-pentene	0	0.03
						1-Pentene	0	0.02
						2,2,4-Trimethylpentane	0	0.02
						2,2-Dimethylbutane	0	0.02
						2,3,4-Trimethylpentane	0	0.02
						2,3-Dimethylbutane	0.17	0.03
						2,3-Dimethylpentane	0.06	0.03
						2,4-Dimethylpentane	0	0.02
						2-Methylheptane	0	0.02
						2-Methylhexane	0.07	0.02
						2-Methylpentane	0.57	0.02
						3-Methylheptane	0	0.03
						3-Methylhexane	0.13	0.03
						3-Methylpentane	0.38	0.02
						Acetone	0.7	0.6
						Acrolein	0	0.5
						Benzene	0.02	0.02
						Benzyl chloride	0	0.6
						Bromodichloromethane	0	0.03
						Bromoform	0	0.03
						Bromomethane	0	0.02
						Carbon disulfide	0	0.02
						Carbon tetrachloride	0	0.02
						Chlorobenzene	0	0.03
						Chloroethane	0	0.03
						Chloroform	0	0.03
						Chloromethane	0.54	0.03
						cis-1,2-Dichloroethene	0	0.02
						cis-1,3-Dichloropropene	0	0.06
						cis-2-Butene	0	0.03
						cis-2-Pentene	0	0.03
						Cyclohexane	0.79	0.03
						Cyclopentane	0.17	0.02
						Dibromochloromethane	0	0.02
						Ethanol	0	0.5
						Ethyl acetate	0	0.6
						Ethylbenzene	0	0.02
						Freon-11	0.19	0.03
						Freon-113	0	0.02
						Freon-114	0	0.03

**PEACE RIVER AREA MONITORING PROGRAM**

Reno Site - February 2019

Volatile Organic Compounds (VOCs) Results

Sample Date/Time	2019-02-23					
Canister Triggered Conc.	Methane					
Canister ID	11037					
Method	NA-025		Method	NA-024		Method
Maximum Reading	6.1		Maximum Reading	0		Maximum Reading
Parameter	Result (ppmv)	RDL (ppmv)	Parameter	Result (ppbv)	RDL (ppbv)	Parameter
						Freon-12
						0.47
						0.03
						Hexachloro-1,3-butadiene
						0
						0.81
						Isobutane
						0.85
						0.03
						Isopentane
						1.2
						0.05
						Isoprene
						0
						0.02
						Isopropyl alcohol
						0
						0.6
						Isopropylbenzene
						0
						0.02
						m,p-Xylene
						0
						0.05
						m-Diethylbenzene
						0
						0.06
						m-Ethyltoluene
						0
						0.13
						Methyl butyl ketone
						0
						0.81
						Methyl ethyl ketone
						0
						0.5
						Methyl isobutyl ketone
						0
						0.6
						Methyl methacrylate
						0
						0.11
						Methyl tert butyl ether
						0
						0.05
						Methylcyclohexane
						0.75
						0.02
						Methylcyclopentane
						0.62
						0.03
						Methylene chloride
						0
						0.5
						n-Butane
						0.83
						0.05
						n-Decane
						0
						0.10
						n-Dodecane
						0
						0.6
						n-Heptane
						0
						0.02
						n-Hexane
						0.08
						0.02
						n-Nonane
						0
						0.02
						n-Octane
						0
						0.03
						n-Pentane
						0.4
						0.2
						n-Propylbenzene
						0
						0.08
						n-Undecane
						0
						0.8
						Naphthalene
						0
						0.8
						o-Ethyltoluene
						0
						0.02
						o-Xylene
						0
						0.02
						p-Diethylbenzene
						0
						0.06
						p-Ethyltoluene
						0
						0.11
						Styrene
						0
						0.06
						Tetrachloroethylene
						0
						0.06
						Tetrahydrofuran
						0
						0.6
						Toluene
						0
						0.02
						trans-1,2-Dichloroethylene
						0
						0.02
						trans-1,3-Dichloropropylene
						0
						0.06
						trans-2-Butene
						0
						0.02
						trans-2-Pentene
						0
						0.03
						Trichloroethylene
						0
						0.06
						Vinyl acetate
						0
						0.6
						Vinyl chloride
						0
						0.03

**PEACE RIVER AREA MONITORING PROGRAM**

Reno Site - February 2019

Volatile Organic Compounds (VOCs) Results

Sample Date/Time	2019-02-24					
Canister Triggered Conc.	Methane					
Canister ID	555619					
Method	NA-025		Method	NA-024		Method
Maximum Reading	4.1		Maximum Reading	0		Maximum Reading
Parameter	Result (ppmv)	RDL (ppmv)	Parameter	Result (ppbv)	RDL (ppbv)	Parameter
1-Butene	0	0.15	2,5-Dimethylthiophene	0	0.5	1,1,1-Trichloroethane
Acetylene	0	0.12	2-Ethylthiophene	0	0.3	1,1,2,2-Tetrachloroethane
cis-2-Butene	0	0.06	2-Methylthiophene	0	0.3	1,1,2-Trichloroethane
Ethane	0	0.2	3-Methylthiophene	0	0.5	1,1-Dichloroethane
Ethylacetylene	0	0.09	Butyl mercaptan	0	0.5	1,1-Dichloroethylene
Ethylene	0	0.11	Carbon disulphide	0	0.3	1,2,3-Trimethylbenzene
Isobutane	0	0.2	Carbonyl sulphide	0	0.5	1,2,4-Trichlorobenzene
Isobutylene	0	0.2	Dimethyl disulphide	0	0.3	1,2,4-Trimethylbenzene
Methane	4.1	0.2	Dimethyl sulphide	0	0.3	1,2-Dibromoethane
n-Butane	0	0.3	Ethyl mercaptan	0	0.5	1,2-Dichlorobenzene
n-Propane	0	0.11	Ethyl sulphide	0	0.5	1,2-Dichloroethane
Propylene	0	0.2	Hydrogen sulphide	0	0.2	1,2-Dichloropropane
Propyne	0	0.2	Isobutyl mercaptan	0	0.5	1,3,5-Trimethylbenzene
trans-2-Butene	0	0.14	Isopropyl mercaptan	0	0.5	1,3-Butadiene
			Methyl mercaptan	0	0.3	1,3-Dichlorobenzene
			Pentyl mercaptan	0	0.6	1,4-Dichlorobenzene
			Propyl mercaptan	0	0.6	1,4-Dioxane
			tert-Butyl mercaptan	0	0.5	1-Butene/Isobutylene
			Thiophene	0	0.3	1-Hexene/2-Methyl-1-pentene
						1-Pentene
						2,2,4-Trimethylpentane
						2,2-Dimethylbutane
						2,3,4-Trimethylpentane
						2,3-Dimethylbutane
						2,4-Dimethylpentane
						2-Methylheptane
						2-Methylhexane
						2-Methylpentane
						3-Methylheptane
						3-Methylhexane
						3-Methylpentane
						Acetone
						Acrolein
						Benzene
						Benzyl chloride
						Bromodichloromethane
						Bromoform
						Bromomethane
						Carbon disulfide
						Carbon tetrachloride
						Chlorobenzene
						Chloroethane
						Chloroform
						Chloromethane
						cis-1,2-Dichloroethene
						cis-1,3-Dichloropropene
						cis-2-Butene
						cis-2-Pentene
						Cyclohexane
						Cyclopentane
						Dibromochloromethane
						Ethanol
						Ethyl acetate
						Ethylbenzene
						Freon-11
						Freon-113
						Freon-114

**PEACE RIVER AREA MONITORING PROGRAM**

Reno Site - February 2019

**Volatile Organic Compounds (VOCs) Results**

Sample Date/Time	2019-02-24					
Canister Triggered Conc.	Methane					
Canister ID	555619					
Method	NA-025		Method	NA-024		Method
Maximum Reading	4.1		Maximum Reading	0		Maximum Reading
Parameter	Result (ppmv)	RDL (ppmv)	Parameter	Result (ppbv)	RDL (ppbv)	Parameter
						Freon-12
						0.47
						0.03
						Hexachloro-1,3-butadiene
						0
						0.77
						Isobutane
						0.83
						0.03
						Isopentane
						0.87
						0.05
						Isoprene
						0
						0.02
						Isopropyl alcohol
						0
						0.6
						Isopropylbenzene
						0
						0.02
						m,p-Xylene
						0
						0.05
						m-Diethylbenzene
						0
						0.06
						m-Ethyltoluene
						0
						0.12
						Methyl butyl ketone
						0
						0.77
						Methyl ethyl ketone
						0
						0.5
						Methyl isobutyl ketone
						0
						0.6
						Methyl methacrylate
						0
						0.11
						Methyl tert butyl ether
						0
						0.05
						Methylcyclohexane
						0.33
						0.02
						Methylcyclopentane
						0.33
						0.03
						Methylene chloride
						0
						0.5
						n-Butane
						0.89
						0.05
						n-Decane
						0
						0.09
						n-Dodecane
						0
						0.6
						n-Heptane
						0
						0.02
						n-Hexane
						0
						0.02
						n-Nonane
						0
						0.02
						n-Octane
						0
						0.03
						n-Pentane
						0.3
						0.2
						n-Propylbenzene
						0
						0.08
						n-Undecane
						0
						0.8
						Naphthalene
						0
						0.8
						o-Ethyltoluene
						0
						0.02
						o-Xylene
						0
						0.02
						p-Diethylbenzene
						0
						0.06
						p-Ethyltoluene
						0
						0.11
						Styrene
						0
						0.06
						Tetrachloroethylene
						0
						0.06
						Tetrahydrofuran
						0
						0.6
						Toluene
						0
						0.02
						trans-1,2-Dichloroethylene
						0
						0.02
						trans-1,3-Dichloropropylene
						0
						0.06
						trans-2-Butene
						0
						0.02
						trans-2-Pentene
						0
						0.03
						Trichloroethylene
						0
						0.06
						Vinyl acetate
						0
						0.6
						Vinyl chloride
						0
						0.03

**PEACE RIVER AREA MONITORING PROGRAM**

Reno Site - February 2019

Volatile Organic Compounds (VOCs) Results

Sample Date/Time Canister Triggered Conc. Canister ID	2019-02-17							
	Blank							
	28934							
Method	NA-025		Method	NA-024		Method		
Maximum Reading	4.8		Maximum Reading	0		Maximum Reading		
Parameter	Result (ppmv)	RDL (ppmv)	Parameter	Result (ppbv)	RDL (ppbv)	Parameter		
1-Butene	0	1.51	2,5-Dimethylthiophene	0	0.3	1,1,1-Trichloroethane	0	0.02
Acetylene	0	1.21	2-Ethylthiophene	0	0.2	1,1,2,2-Tetrachloroethane	0	0.02
cis-2-Butene	0	0.60	2-Methylthiophene	0	0.2	1,1,2-Trichloroethane	0	0.02
Ethane	0	1.5	3-Methylthiophene	0	0.3	1,1-Dichloroethane	0	0.02
Ethylacetylene	0	0.91	Butyl mercaptan	0	0.3	1,1-Dichloroethylene	0	0.04
Ethylene	0	1.06	Carbon disulphide	0	0.2	1,2,3-Trimethylbenzene	0	0.05
Isobutane	0	1.5	Carbonyl sulphide	0	0.3	1,2,4-Trichlorobenzene	0	0.8
Isobutylene	0	1.5	Dimethyl disulphide	0	0.2	1,2,4-Trimethylbenzene	0	0.05
Methane	4.8	1.5	Dimethyl sulphide	0	0.2	1,2-Dibromoethane	0	0.02
n-Butane	0	3.0	Ethyl mercaptan	0	0.3	1,2-Dichlorobenzene	0	0.03
n-Propane	0	1.06	Ethyl sulphide	0	0.3	1,2-Dichloroethane	0	0.01
Propylene	0	1.5	Hydrogen sulphide	0	0.1	1,2-Dichloropropane	0	0.01
Propyne	0	1.5	Isobutyl mercaptan	0	0.3	1,3,5-Trimethylbenzene	0	0.02
trans-2-Butene	0	1.36	Isopropyl mercaptan	0	0.3	1,3-Butadiene	0.12	0.02
			Methyl mercaptan	0	0.2	1,3-Dichlorobenzene	0	0.3
			Pentyl mercaptan	0	0.4	1,4-Dichlorobenzene	0	0.4
			Propyl mercaptan	0	0.4	1,4-Dioxane	0	0.4
			tert-Butyl mercaptan	0	0.3	1-Butene/Isobutylene	0	0.02
			Thiophene	0	0.2	1-Hexene/2-Methyl-1-pentene	0	0.02
						1-Pentene	0	0.01
						2,2,4-Trimethylpentane	0	0.01
						2,2-Dimethylbutane	0	0.01
						2,3,4-Trimethylpentane	0	0.01
						2,3-Dimethylbutane	0	0.02
						2,3-Dimethylpentane	0	0.02
						2,4-Dimethylpentane	0	0.01
						2-Methylheptane	0	0.01
						2-Methylhexane	0	0.01
						2-Methylpentane	0.07	0.01
						3-Methylheptane	0	0.02
						3-Methylhexane	0	0.02
						3-Methylpentane	0.01	0.01
						Acetone	0	0.4
						Acrolein	0	0.3
						Benzene	0.29	0.01
						Benzyl chloride	0	0.4
						Bromodichloromethane	0	0.02
						Bromoform	0	0.02
						Bromomethane	0	0.01
						Carbon disulfide	0	0.01
						Carbon tetrachloride	0	0.01
						Chlorobenzene	0	0.02
						Chloroethane	0	0.02
						Chloroform	0	0.02
						Chloromethane	0	0.02
						cis-1,2-Dichloroethene	0	0.01
						cis-1,3-Dichloropropene	0	0.04
						cis-2-Butene	0.03	0.02
						cis-2-Pentene	0	0.02
						Cyclohexane	0	0.02
						Cyclopentane	0	0.01
						Dibromochloromethane	0	0.01
						Ethanol	0	0.3
						Ethyl acetate	0	0.4
						Ethylbenzene	0	0.01
						Freon-11	0	0.02
						Freon-113	0	0.01
						Freon-114	0	0.02



## PEACE RIVER AREA MONITORING PROGRAM

Reno Site - February 2019

## Volatile Organic Compounds (VOCs) Results

Sample Date/Time	2019-02-17					
Canister Triggered Conc.	Blank					
Canister ID	28934					
Method	NA-025	Method	NA-024	Method	AC-058	
Maximum Reading	4.8	Maximum Reading	0	Maximum Reading	0.68	
Parameter	Result (ppmv)	RDL (ppmv)	Parameter	Result (ppbv)	RDL (ppbv)	Parameter
						Freon-12
						0
						0.02
						Hexachloro-1,3-butadiene
						0
						0.50
						Isobutane
						0.68
						0.02
						Isopentane
						0.39
						0.03
						Isoprene
						0
						0.01
						Isopropyl alcohol
						0
						0.4
						Isopropylbenzene
						0
						0.01
						m,p-Xylene
						0
						0.03
						m-Diethylbenzene
						0
						0.04
						m-Ethyltoluene
						0
						0.08
						Methyl butyl ketone
						0
						0.50
						Methyl ethyl ketone
						0
						0.3
						Methyl isobutyl ketone
						0
						0.4
						Methyl methacrylate
						0
						0.07
						Methyl tert butyl ether
						0
						0.03
						Methylcyclohexane
						0
						0.01
						Methylcyclopentane
						0
						0.02
						Methylene chloride
						0
						0.3
						n-Butane
						0.68
						0.03
						n-Decane
						0
						0.06
						n-Dodecane
						0
						0.4
						n-Heptane
						0
						0.01
						n-Hexane
						0
						0.01
						n-Nonane
						0
						0.01
						n-Octane
						0.04
						0.02
						n-Pentane
						0.3
						0.1
						n-Propylbenzene
						0
						0.05
						n-Undecane
						0
						0.5
						Naphthalene
						0
						0.5
						o-Ethyltoluene
						0
						0.01
						o-Xylene
						0
						0.01
						p-Diethylbenzene
						0
						0.04
						p-Ethyltoluene
						0
						0.07
						Styrene
						0
						0.04
						Tetrachloroethylene
						0.1
						0.04
						Tetrahydrofuran
						0
						0.4
						Toluene
						0.5
						0.01
						trans-1,2-Dichloroethylene
						0
						0.01
						trans-1,3-Dichloropropylene
						0
						0.04
						trans-2-Butene
						0.05
						0.01
						trans-2-Pentene
						0
						0.02
						Trichloroethylene
						0
						0.04
						Vinyl acetate
						0
						0.4
						Vinyl chloride
						0
						0.02

**PEACE RIVER AREA MONITORING PROGRAM**

Reno Site - February 2019

Volatile Organic Compounds (VOCs) Results

Sample Date/Time Canister Triggered Conc. Canister ID	2019-02-20							
	Blank							
	28911							
Method	NA-025		Method	NA-024		Method	AC-058	
Maximum Reading	0		Maximum Reading	0		Maximum Reading	0.04	
Parameter	Result (ppmv)	RDL (ppmv)	Parameter	Result (ppbv)	RDL (ppbv)	Parameter	Result (ppbv)	
1-Butene	0	1.37	2,5-Dimethylthiophene	0	0.3	1,1,1-Trichloroethane	0	0.02
Acetylene	0	1.10	2-Ethylthiophene	0	0.2	1,1,2,2-Tetrachloroethane	0	0.02
cis-2-Butene	0	0.55	2-Methylthiophene	0	0.2	1,1,2-Trichloroethane	0	0.02
Ethane	0	1.4	3-Methylthiophene	0	0.3	1,1-Dichloroethane	0	0.02
Ethylacetylene	0	0.82	Butyl mercaptan	0	0.3	1,1-Dichloroethylene	0	0.04
Ethylene	0	0.96	Carbon disulphide	0	0.2	1,2,3-Trimethylbenzene	0	0.05
Isobutane	0	1.4	Carbonyl sulphide	0	0.3	1,2,4-Trichlorobenzene	0	0.8
Isobutylene	0	1.4	Dimethyl disulphide	0	0.2	1,2,4-Trimethylbenzene	0	0.05
Methane	0	1.4	Dimethyl sulphide	0	0.2	1,2-Dibromoethane	0	0.02
n-Butane	0	2.7	Ethyl mercaptan	0	0.3	1,2-Dichlorobenzene	0	0.03
n-Propane	0	0.96	Ethyl sulphide	0	0.3	1,2-Dichloroethane	0	0.01
Propylene	0	1.4	Hydrogen sulphide	0	0.1	1,2-Dichloropropane	0	0.01
Propyne	0	1.4	Isobutyl mercaptan	0	0.3	1,3,5-Trimethylbenzene	0	0.02
trans-2-Butene	0	1.23	Isopropyl mercaptan	0	0.3	1,3-Butadiene	0	0.02
			Methyl mercaptan	0	0.2	1,3-Dichlorobenzene	0	0.3
			Pentyl mercaptan	0	0.4	1,4-Dichlorobenzene	0	0.4
			Propyl mercaptan	0	0.4	1,4-Dioxane	0	0.4
			tert-Butyl mercaptan	0	0.3	1-Butene/Isobutylene	0	0.02
			Thiophene	0	0.2	1-Hexene/2-Methyl-1-pentene	0	0.02
						1-Pentene	0	0.01
						2,2,4-Trimethylpentane	0	0.01
						2,2-Dimethylbutane	0	0.01
						2,3,4-Trimethylpentane	0	0.01
						2,3-Dimethylbutane	0	0.02
						2,3-Dimethylpentane	0	0.02
						2,4-Dimethylpentane	0	0.01
						2-Methylheptane	0	0.01
						2-Methylhexane	0	0.01
						2-Methylpentane	0	0.01
						3-Methylheptane	0	0.02
						3-Methylhexane	0	0.02
						3-Methylpentane	0	0.01
						Acetone	0	0.4
						Acrolein	0	0.3
						Benzene	0	0.01
						Benzyl chloride	0	0.4
						Bromodichloromethane	0	0.02
						Bromoform	0	0.02
						Bromomethane	0	0.01
						Carbon disulfide	0	0.01
						Carbon tetrachloride	0	0.01
						Chlorobenzene	0	0.02
						Chloroethane	0	0.02
						Chloroform	0	0.02
						Chloromethane	0	0.02
						cis-1,2-Dichloroethene	0	0.01
						cis-1,3-Dichloropropene	0	0.04
						cis-2-Butene	0	0.02
						cis-2-Pentene	0	0.02
						Cyclohexane	0	0.02
						Cyclopentane	0	0.01
						Dibromochloromethane	0	0.01
						Ethanol	0	0.3
						Ethyl acetate	0	0.4
						Ethylbenzene	0	0.01
						Freon-11	0	0.02
						Freon-113	0	0.01
						Freon-114	0	0.02



## PEACE RIVER AREA MONITORING PROGRAM

Reno Site - February 2019

## Volatile Organic Compounds (VOCs) Results

Sample Date/Time	2019-02-20							
Canister Triggered Conc.	Blank							
Canister ID	28911							
Method	NA-025	Method	NA-024	Method	AC-058			
Maximum Reading	0	Maximum Reading	0	Maximum Reading	0.04			
Parameter	Result (ppmv)	RDL (ppmv)	Parameter	Result (ppbv)	RDL (ppbv)	Parameter		
						Freon-12		
						0	0.02	
						Hexachloro-1,3-butadiene	0	0.50
						Isobutane	0	0.02
						Isopentane	0	0.03
						Isoprene	0	0.01
						Isopropyl alcohol	0	0.4
						Isopropylbenzene	0	0.01
						m,p-Xylene	0	0.03
						m-Diethylbenzene	0	0.04
						m-Ethyltoluene	0	0.08
						Methyl butyl ketone	0	0.50
						Methyl ethyl ketone	0	0.3
						Methyl isobutyl ketone	0	0.4
						Methyl methacrylate	0	0.07
						Methyl tert butyl ether	0	0.03
						Methylcyclohexane	0	0.01
						Methylcyclopentane	0	0.02
						Methylene chloride	0	0.3
						n-Butane	0.04	0.03
						n-Decane	0	0.06
						n-Dodecane	0	0.4
						n-Heptane	0	0.01
						n-Hexane	0	0.01
						n-Nonane	0	0.01
						n-Octane	0	0.02
						n-Pentane	0	0.1
						n-Propylbenzene	0	0.05
						n-Undecane	0	0.5
						Naphthalene	0	0.5
						o-Ethyltoluene	0	0.01
						o-Xylene	0	0.01
						p-Diethylbenzene	0	0.04
						p-Ethyltoluene	0	0.07
						Styrene	0	0.04
						Tetrachloroethylene	0	0.04
						Tetrahydrofuran	0	0.4
						Toluene	0	0.01
						trans-1,2-Dichloroethylene	0	0.01
						trans-1,3-Dichloropropylene	0	0.04
						trans-2-Butene	0	0.01
						trans-2-Pentene	0	0.02
						Trichloroethylene	0	0.04
						Vinyl acetate	0	0.4
						Vinyl chloride	0	0.02

## **REFERENCE DOCUMENTS**

## **HOURLY INSTANTANEOUS DATA**

# **986 STATION**



## PEACE RIVER AREA MONITORING PROGRAM

986b Station - February 2019

### Summary of Hourly Instantaneous Maximums

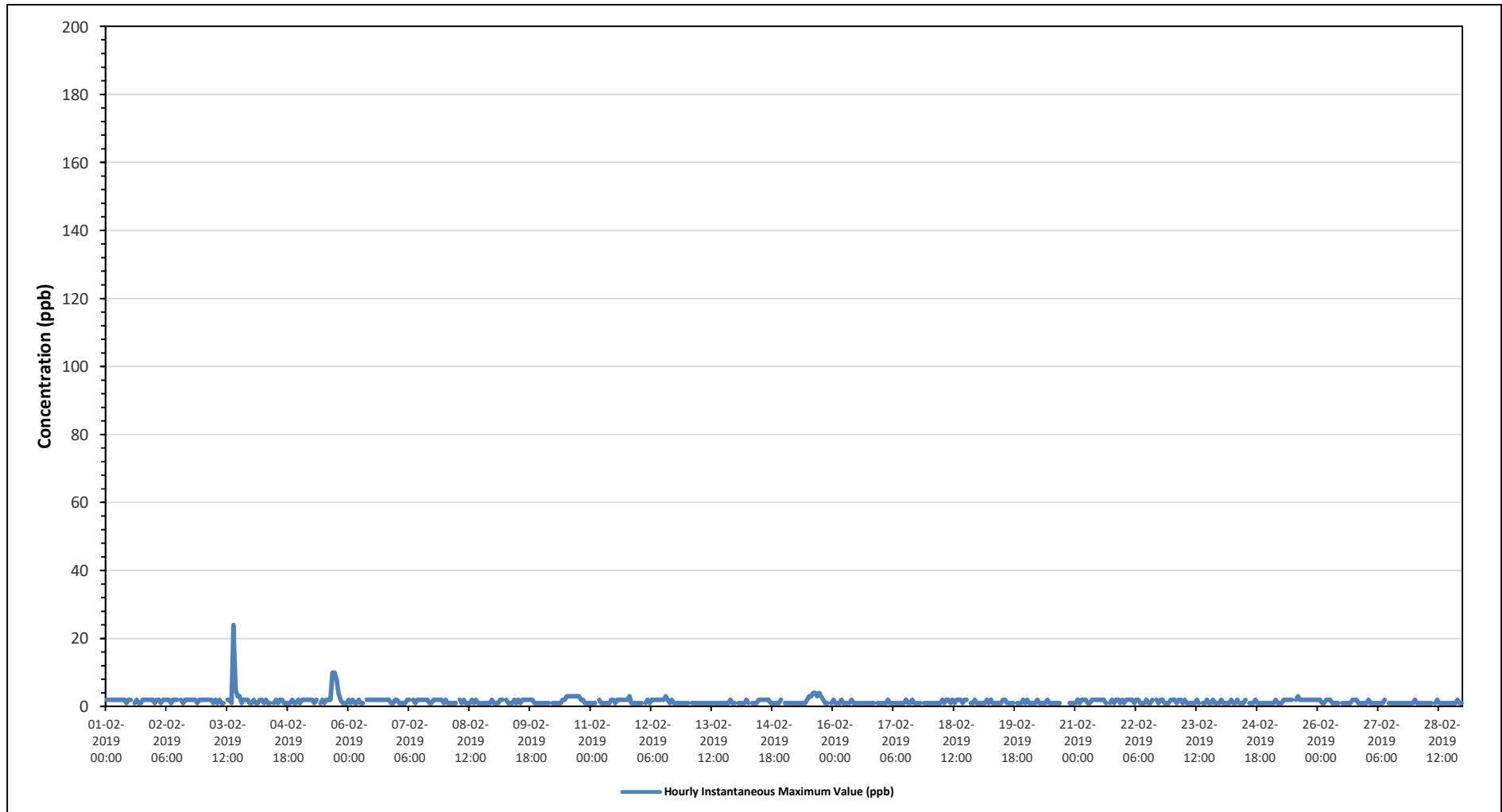
#### SULPHUR DIOXIDE (SO<sub>2</sub>) in ppb

Maximum Hourly Value:	24	ppb	on February 3 at hour 15	Hours in Service:	672																						
Maximum Daily Value:	2.9	ppb	on February 3	Hours of Data:	639																						
Minimum Hourly Value:	1	ppb	on February 1 at hour 10	Hours of Missing Data:	1																						
Minimum Daily Value:	1.0	ppb	on February 13	Hours of Calibration:	32																						
Monthly Average:	1.5	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			
Feb 1	2	2	2	2	2	2	2	2	2	1	2	2	2	1	2	1	1	2	2	2	2	2	2	1.8			
Feb 2	1	2	2	1	2	2	2	2	1	2	2	2	2	1	2	2	2	2	1	2	2	1	2	1.8			
Feb 3	2	2	2	2	2	1	2	1	2	1	1	S	2	2	1	24	5	3	3	1	2	2	1	1	2.9		
Feb 4	1	2	1	1	2	2	1	2	1	1	S	1	2	1	2	2	2	1	1	1	2	1	1	1.4			
Feb 5	1	2	2	2	2	2	2	1	2	1	S	1	2	1	2	2	2	10	10	8	4	2	1	1	10	2.7	
Feb 6	2	1	2	1	1	2	1	1	S	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	2	1.7	
Feb 7	2	1	1	1	1	2	2	S	2	1	2	2	2	2	2	2	1	1	2	2	2	1	1	1	2	1.7	
Feb 8	2	1	1	1	1	1	1	S	2	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1.3	
Feb 9	1	1	1	2	2	S	2	1	1	1	2	1	2	1	2	2	2	2	2	1	1	1	1	1	1	1.5	
Feb 10	1	1	1	1	S	1	1	1	1	1	2	2	3	3	3	3	3	3	3	2	2	1	1	1	3	1.8	
Feb 11	1	1	1	1	S	2	1	1	1	1	2	2	1	2	2	2	2	2	2	3	1	1	1	1	1	1.5	
Feb 12	1	1	S	1	2	1	2	2	2	2	2	2	3	2	1	2	1	1	1	1	1	1	1	1	1	1.5	
Feb 13	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	
Feb 14	S	1	1	1	1	2	1	S1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	2	S	1	2	1.4
Feb 15	1	1	1	1	1	1	1	1	1	1	1	2	3	3	4	4	3	4	3	2	1	1	S	1	1	4	1.8
Feb 16	2	1	1	1	2	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	2	1.1
Feb 17	1	1	1	2	1	1	1	1	1	1	1	1	2	1	1	2	1	1	1	1	S	1	1	1	1	1.1	
Feb 18	1	1	1	1	1	1	2	1	2	1	2	1	2	2	2	2	1	2	2	S	1	1	1	1	2	1.4	
Feb 19	1	1	1	1	1	2	1	1	1	1	2	2	2	1	1	1	1	1	1	S	1	1	1	1	2	1.2	
Feb 20	2	1	1	1	1	1	2	1	1	1	2	1	1	1	1	C	C	C	C	1	1	1	1	1	1	2	1.2
Feb 21	1	2	1	2	2	2	1	1	2	2	2	2	2	2	1	S	1	2	1	2	2	1	1	1	2	1.7	
Feb 22	1	2	2	2	2	1	2	1	1	2	1	1	2	S	2	1	2	2	1	1	1	1	1	2	1	2	1.5
Feb 23	2	2	1	2	2	1	2	1	1	1	2	1	S	1	1	1	2	1	1	1	2	1	1	1	2	1.3	
Feb 24	2	1	1	1	1	2	1	1	2	1	1	1	2	S	1	1	1	2	1	1	1	1	1	1	1	2	1.2
Feb 25	1	1	1	2	1	1	1	2	2	2	2	2	S	2	3	2	2	2	2	2	2	2	2	2	1	3	1.8
Feb 26	2	2	1	1	2	2	2	1	1	1	1	S	1	1	1	1	1	2	2	1	1	1	1	1	2	1.3	
Feb 27	1	2	1	1	1	1	1	1	2	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	
Feb 28	2	1	1	1	1	1	1	1	S	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	
Diurnal Maximum	2	2	2	2	2	2	2	2	2	2	2	3	3	4	24	10	10	8	4	2	2	2	2	2			
Diurnal Average	1.4	1.4	1.2	1.3	1.5	1.4	1.4	1.3	1.3	1.4	1.4	1.6	1.7	1.7	2.5	1.9	1.9	1.9	1.6	1.4	1.3	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 Instantaneous Maximum for SO<sub>2</sub> - 986b Station*





## PEACE RIVER AREA MONITORING PROGRAM

**986b Station - February 2019**

### Summary of Hourly Instantaneous Maximums

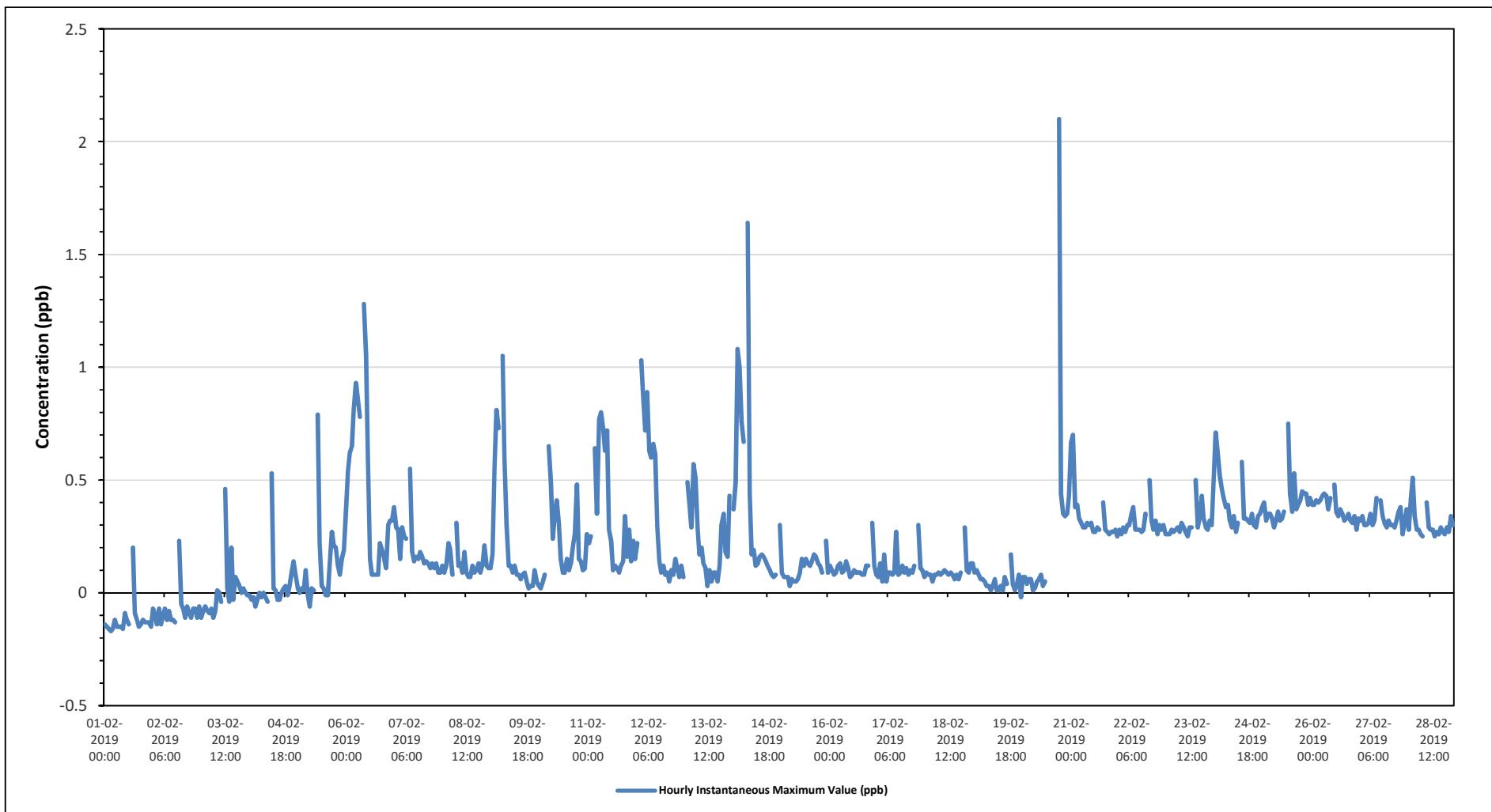
#### TOTAL REDUCED SULPHUR (TRS) in ppb

Maximum Hourly Value:	2.10	ppb	on February 20 at hour 19	Hours in Service:	672	Daily Minimum	Daily Maximum	Daily Average																					
Maximum Daily Value:	0.46	ppb	on February 6	Hours of Data:	637																								
Minimum Hourly Value:	-0.17	ppb	on February 1 at hour 3	Hours of Missing Data:	1																								
Minimum Daily Value:	-0.12	ppb	on February 1	Hours of Calibration:	34																								
Monthly Average:	0.21	ppb		Operational Uptime:	99.9																								
Day	Hourly Period Starting at (MST)																												
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
Feb 1	-0.14	-0.15	-0.16	<b>-0.17</b>	-0.16	-0.12	-0.15	-0.15	-0.16	-0.09	-0.12	-0.14	<b>S</b>	0.2	-0.09	-0.12	-0.15	-0.14	-0.12	-0.13	-0.13	-0.13	-0.15	<b>-0.17</b>	0.20	<b>-0.12</b>			
Feb 2	-0.07	-0.1	-0.14	-0.07	-0.14	-0.1	-0.07	-0.12	-0.08	-0.12	-0.12	-0.13	<b>S</b>	0.23	-0.05	-0.07	-0.11	-0.06	-0.09	-0.11	-0.07	-0.07	-0.11	-0.06	-0.14	0.23	-0.08		
Feb 3	-0.11	-0.08	-0.06	-0.08	-0.09	-0.07	-0.11	-0.08	0.01	0	-0.04	<b>S</b>	0.46	0.02	-0.04	0.2	-0.03	0.07	0.05	0.03	0	0.02	0	-0.01	-0.11	0.46	0.00		
Feb 4	-0.01	-0.03	-0.02	-0.06	-0.03	0	-0.02	0	-0.02	-0.04	<b>S</b>	0.53	0.02	0.01	-0.03	-0.03	0	0.02	0.03	-0.01	0.03	0.09	0.14	0.08	-0.06	0.53	0.03		
Feb 5	0.02	0	0.02	0.01	0.1	-0.01	-0.06	0.02	0.01	<b>S</b>	0.79	0.22	0.03	0.02	-0.01	-0.01	0.13	0.27	0.21	0.2	0.12	0.08	0.15	0.19	-0.06	0.79	0.11		
Feb 6	0.35	0.54	0.62	0.65	0.82	0.93	0.85	0.78	<b>S</b>	1.28	1.05	0.58	0.15	0.08	0.08	0.08	0.08	0.22	0.19	0.16	0.11	0.3	0.32	0.32	0.08	1.28	<b>0.46</b>		
Feb 7	0.38	0.29	0.28	0.15	0.29	0.25	0.24	<b>S</b>	0.55	0.18	0.14	0.16	0.15	0.18	0.16	0.13	0.14	0.13	0.11	0.13	0.11	0.13	0.09	0.09	0.09	0.09	0.55	0.19	
Feb 8	0.12	0.09	0.12	0.22	0.19	0.08	<b>S</b>	0.31	0.12	0.13	0.09	0.18	0.09	0.07	0.07	0.12	0.09	0.1	0.13	0.09	0.13	0.21	0.12	0.11	0.07	0.31	0.13		
Feb 9	0.11	0.17	0.56	0.81	0.73	<b>S</b>	1.05	0.6	0.3	0.12	0.12	0.09	0.12	0.08	0.08	0.06	0.08	0.09	0.05	0.02	0.03	0.03	0.1	0.05	0.02	1.05	0.24		
Feb 10	0.03	0.02	0.05	0.08	<b>S</b>	0.65	0.49	0.24	0.34	0.41	0.31	0.15	0.09	0.09	0.15	0.1	0.13	0.21	0.26	0.48	0.15	0.14	0.1	0.11	0.02	0.65	0.21		
Feb 11	0.26	0.22	0.25	<b>S</b>	0.64	0.35	0.77	0.8	0.73	0.63	0.72	0.28	0.23	0.1	0.12	0.11	0.09	0.12	0.14	0.34	0.16	0.28	0.14	0.23	0.09	0.80	0.34		
Feb 12	0.15	0.22	<b>S</b>	1.03	0.87	0.72	0.89	0.63	0.6	0.66	0.62	0.29	0.14	0.09	0.12	0.08	0.09	0.05	0.1	0.08	0.15	0.11	0.07	0.12	0.05	1.03	0.34		
Feb 13	0.07	<b>S</b>	0.49	0.39	0.29	0.57	0.51	0.29	0.17	0.2	0.13	0.11	0.03	0.1	0.05	0.09	0.05	0.12	0.3	0.35	0.18	0.16	0.43	0.03	0.57	0.22			
Feb 14	<b>S</b>	0.37	0.49	1.08	1	0.76	0.67	<b>S1</b>	1.64	0.44	0.17	0.19	0.12	0.13	0.16	0.17	0.16	0.14	0.12	0.1	0.08	0.07	0.08	<b>S</b>	0.07	1.64	0.39		
Feb 15	0.3	0.09	0.07	0.07	0.07	0.03	0.06	0.05	0.05	0.06	0.09	0.15	0.12	0.15	0.13	0.12	0.14	0.17	0.16	0.13	0.12	0.09	<b>S</b>	0.23	0.03	0.30	0.12		
Feb 16	0.09	0.12	0.1	0.08	0.09	0.12	0.13	0.09	0.1	0.14	0.11	0.07	0.08	0.1	0.09	0.09	0.09	0.08	0.08	0.12	0.12	<b>S</b>	0.31	0.12	0.07	0.31	0.11		
Feb 17	0.08	0.07	0.13	0.05	0.17	0.05	0.09	0.09	0.08	0.09	0.27	0.08	0.09	0.12	0.09	0.11	0.08	0.1	0.09	0.12	<b>S</b>	0.3	0.11	0.1	0.05	0.30	0.11		
Feb 18	0.07	0.09	0.08	0.08	0.05	0.08	0.08	0.09	0.08	0.09	0.1	0.09	0.08	0.09	0.08	0.09	0.08	0.06	0.06	0.09	<b>S</b>	0.29	0.1	0.09	0.13	0.05	0.29	0.09	
Feb 19	0.13	0.09	0.1	0.08	0.06	0.06	0.05	0.03	0.03	0.01	0.03	0.06	0.01	0.01	0.03	0.01	0.07	0.04	0.04	0.02	0.04	0.08	0.01	0.17	0.05	0.17	0.05		
Feb 20	-0.02	0.07	0.07	0.04	0.06	0.06	0.01	0.02	0.05	0.06	0.08	0.03	0.05	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>2.1</b>	0.44	0.35	0.34	0.35	-0.02	<b>2.10</b>	0.23	
Feb 21	0.43	0.67	0.7	0.38	0.39	0.33	0.31	0.29	0.29	0.31	0.3	0.31	0.27	0.27	0.29	0.28	<b>S</b>	0.4	0.28	0.27	0.26	0.27	0.27	0.28	0.26	0.70	0.34		
Feb 22	0.25	0.28	0.26	0.29	0.27	0.3	0.3	0.35	0.38	0.28	0.28	0.27	0.27	0.28	0.35	<b>S</b>	0.5	0.32	0.28	0.32	0.26	0.3	0.28	0.3	0.50	0.30			
Feb 23	0.26	0.26	0.26	0.28	0.27	0.28	0.29	0.27	0.31	0.29	0.27	0.25	0.29	0.29	0.27	<b>S</b>	0.5	0.29	0.33	0.43	0.33	0.29	0.28	0.32	0.3	0.50	0.30		
Feb 24	0.51	0.71	0.62	0.52	0.46	0.42	0.38	0.39	0.32	0.29	0.34	0.27	0.31	<b>S</b>	0.58	0.33	0.33	0.32	0.31	0.35	0.3	0.29	0.34	0.35	0.27	0.71	0.39		
Feb 25	0.38	0.4	0.32	0.35	0.33	0.29	0.32	0.36	0.32	0.33	0.36	<b>S</b>	0.75	0.44	0.36	0.53	0.37	0.39	0.41	0.45	0.44	0.44	0.44	0.39	0.29	0.75	0.39		
Feb 26	0.42	0.39	0.39	0.41	0.4	0.41	0.43	0.44	0.43	0.37	0.42	<b>S</b>	0.48	0.36	0.34	0.37	0.35	0.32	0.33	0.35	0.32	0.31	0.34	0.28	0.28	0.48	0.38		
Feb 27	0.33	0.32	0.34	0.3	0.3	0.31	0.35	0.3	0.32	0.42	<b>S</b>	0.41	0.34	0.31	0.29	0.32	0.3	0.3	0.29	0.32	0.36	0.38	0.26	0.31	0.26	0.42	0.33		
Feb 28	0.37	0.28	0.41	0.51	0.34	0.28	0.28	0.26	0.25	<b>S</b>	0.4	0.29	0.28	0.28	0.25	0.27	0.26	0.29	0.27	0.34	0.3	0.25	0.51	0.31					
Diurnal Maximum	1	1	1	1	1	1	1	2	1	1	1	0	1	1	1	1	1	0	0	2	0	0	0	0	0				
Diurnal Average	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	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 TRS - 986b Station*





## PEACE RIVER AREA MONITORING PROGRAM

**986b Station - February 2019**

### Summary of Hourly Instantaneous Maximums

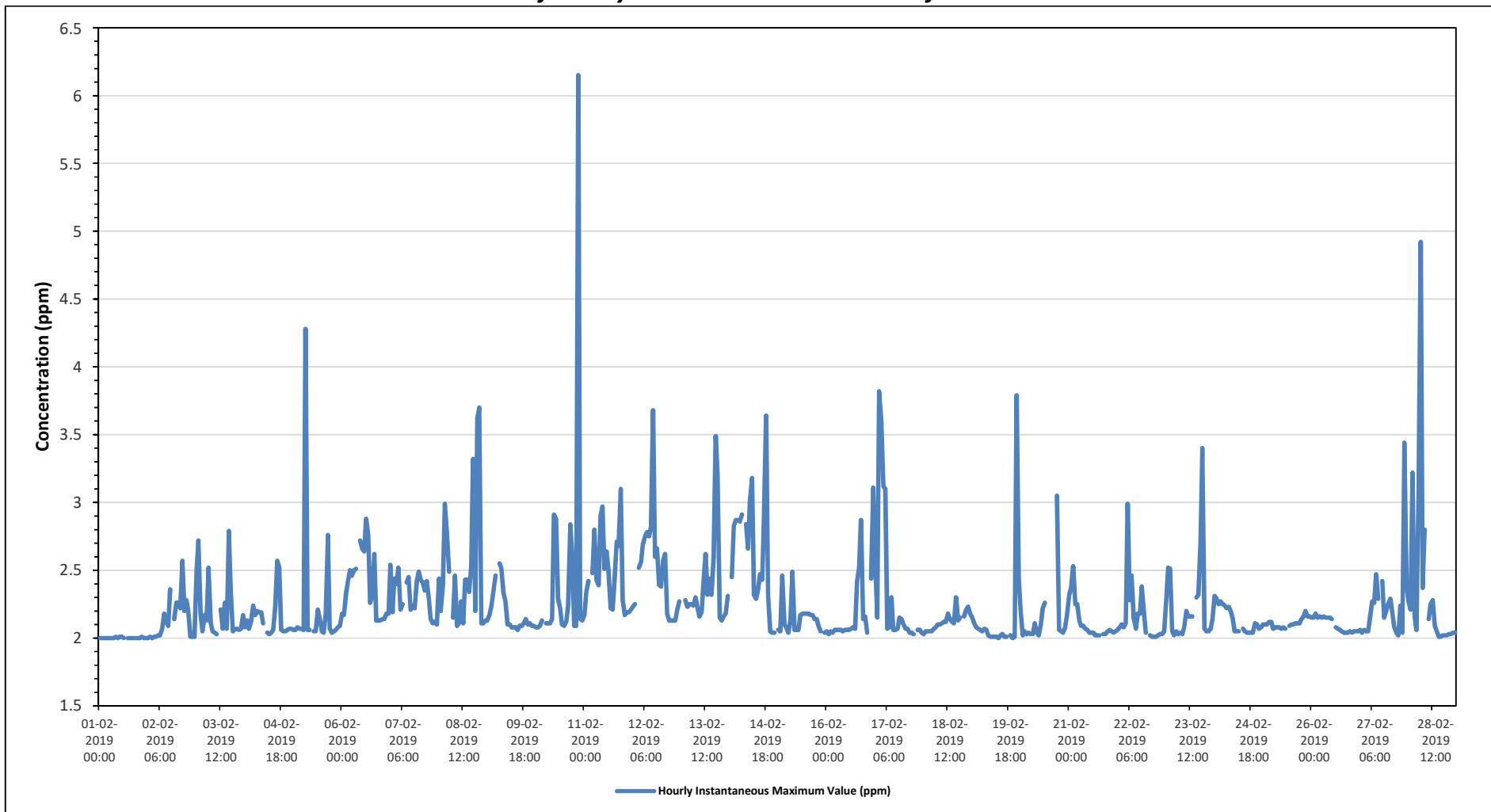
#### TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	6.15	ppm on February 10 at hour 21	Hours in Service:	672	Daily Minimum	Daily Maximum	Daily Average																						
Maximum Daily Value:	2.64	ppm on February 14	Hours of Data:	638																									
Minimum Hourly Value:	2.00	ppm on February 1 at hour 0	Hours of Missing Data:	1																									
Minimum Daily Value:	2.00	ppm on February 1	Hours of Calibration:	33																									
Monthly Average:	2.25	ppm	Operational Uptime:	99.9																									
Day	Hourly Period Starting at (MST)																												
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
Feb 1	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.00	2.01	2.00	2.01	2.00	S	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.00	2.00	2.00	2.00	2.00	2.00	
Feb 2	2.00	2.01	2.00	2.01	2.01	2.02	2.02	2.07	2.18	2.12	2.09	2.36	S	2.14	2.26	2.26	2.22	2.57	2.20	2.28	2.20	2.01	2.01	2.01	2.00	2.57	2.13		
Feb 3	2.51	2.72	2.18	2.05	2.17	2.13	2.52	2.11	2.05	2.04	2.03	S	2.21	2.07	2.26	2.07	2.79	2.34	2.05	2.07	2.07	2.06	2.07	2.17	2.03	2.79	2.21		
Feb 4	2.08	2.13	2.07	2.12	2.24	2.17	2.20	2.19	2.19	2.11	S	2.04	2.03	2.04	2.06	2.24	2.57	2.52	2.06	2.05	2.05	2.06	2.07	2.07	2.03	2.57	2.15		
Feb 5	2.06	2.06	2.08	2.07	2.07	2.06	4.28	2.06	2.06	S	2.05	2.05	2.21	2.15	2.05	2.04	2.18	2.76	2.07	2.04	2.05	2.06	2.08	2.09	2.04	4.28	2.20		
Feb 6	2.18	2.17	2.33	2.42	2.50	2.46	2.50	2.51	S	2.72	2.66	2.64	2.88	2.76	2.26	2.31	2.62	2.13	2.13	2.14	2.14	2.18	2.18	2.13	2.88	2.39			
Feb 7	2.54	2.19	2.44	2.40	2.52	2.21	2.25	S	2.41	2.45	2.21	2.24	2.22	2.42	2.49	2.43	2.41	2.35	2.42	2.29	2.14	2.11	2.12	2.10	2.10	2.54	2.32		
Feb 8	2.44	2.20	2.40	2.99	2.76	2.49	S	2.15	2.46	2.09	2.11	2.27	2.11	2.43	2.43	2.34	2.53	3.32	2.20	3.62	3.70	2.11	2.11	2.13	2.09	3.70	2.50		
Feb 9	2.13	2.17	2.24	2.35	2.46	S	2.55	2.51	2.33	2.27	2.10	2.10	2.08	2.08	2.08	2.06	2.09	2.09	2.11	2.14	2.10	2.11	2.09	2.09	2.06	2.55	2.19		
Feb 10	2.08	2.08	2.09	2.13	S	2.11	2.11	2.14	2.91	2.88	2.29	2.22	2.10	2.09	2.12	2.24	2.84	2.60	2.09	2.09	6.15	2.14	2.13	2.08	6.15	2.42			
Feb 11	2.17	2.34	2.42	S	2.48	2.80	2.43	2.39	2.90	2.97	2.51	2.64	2.50	2.22	2.21	2.43	2.71	2.68	3.10	2.28	2.17	2.19	2.19	2.21	2.17	3.10	2.48		
Feb 12	2.23	2.25	S	2.52	2.56	2.69	2.75	2.78	2.75	2.82	3.68	2.60	2.66	2.39	2.38	2.57	2.62	2.18	2.13	2.13	2.13	2.21	2.27	2.13	3.68	2.50			
Feb 13	2.33	S	2.28	2.23	2.25	2.25	2.24	2.30	2.23	2.16	2.19	2.41	2.62	2.32	2.44	2.32	2.60	3.49	3.20	2.15	2.13	2.16	2.18	2.31	2.13	3.49	2.38		
Feb 14	S	2.45	2.83	2.87	2.87	2.86	2.91	S1	2.84	2.66	3.01	3.18	2.32	2.29	2.35	2.47	2.43	2.93	3.64	2.32	2.05	2.04	2.04	S	2.04	3.64	2.64		
Feb 15	2.06	2.05	2.46	2.10	2.08	2.04	2.13	2.49	2.06	2.06	2.06	2.17	2.18	2.18	2.18	2.18	2.17	2.17	2.14	2.09	2.05	S	2.04	2.04	2.49	2.14			
Feb 16	2.05	2.03	2.05	2.04	2.06	2.06	2.06	2.06	2.05	2.06	2.06	2.07	2.08	2.07	2.07	2.42	2.52	2.87	2.14	2.16	2.04	S	2.44	3.11	2.03	3.11			
Feb 17	2.56	2.15	3.82	3.60	3.12	3.10	2.07	2.08	2.30	2.06	2.06	2.07	2.15	2.14	2.10	2.07	2.07	2.04	2.03	S	2.06	2.06	2.04	2.03	3.82	2.34			
Feb 18	2.03	2.05	2.05	2.05	2.05	2.07	2.08	2.10	2.10	2.11	2.12	2.12	2.18	2.14	2.12	2.12	2.11	2.30	2.13	2.15	S	2.16	2.21	2.23	2.18	2.03	2.30		
Feb 19	2.15	2.11	2.08	2.07	2.06	2.05	2.07	2.06	2.02	2.01	2.01	2.01	2.00	2.02	2.03	2.01	2.01	S	2.02	2.00	2.01	3.79	2.45	2.00	3.79	2.13			
Feb 20	2.21	2.02	2.05	2.03	2.04	2.03	2.03	2.11	2.04	2.02	2.10	2.22	2.26	C	C	C	C	C	3.05	2.06	2.05	2.04	2.08	2.17	2.02	3.05	2.14		
Feb 21	2.32	2.37	2.53	2.25	2.23	2.13	2.09	2.09	2.07	2.06	2.04	2.04	2.04	2.02	2.02	2.02	S	2.03	2.03	2.05	2.06	2.05	2.04	2.05	2.02	2.53	2.12		
Feb 22	2.06	2.08	2.10	2.08	2.11	2.99	2.28	2.46	2.14	2.07	2.18	2.18	2.38	2.19	2.04	S	2.02	2.01	2.01	2.02	2.03	2.03	2.05	2.01	2.99	2.15			
Feb 23	2.26	2.52	2.51	2.05	2.02	2.05	2.03	2.04	2.03	2.08	2.20	2.16	2.16	2.16	S	2.30	2.32	2.72	3.40	2.07	2.05	2.05	2.07	2.14	2.02	3.40	2.23		
Feb 24	2.31	2.29	2.25	2.27	2.25	2.24	2.22	2.23	2.20	2.14	2.05	2.05	2.05	2.05	S	2.07	2.05	2.04	2.04	2.04	2.11	2.10	2.07	2.08	2.04	2.31	2.14		
Feb 25	2.10	2.10	2.10	2.12	2.12	2.07	2.08	2.08	2.07	2.08	2.07	2.07	S	2.09	2.10	2.10	2.11	2.11	2.14	2.16	2.20	2.16	2.16	2.07	2.20	2.11			
Feb 26	2.15	2.15	2.18	2.15	2.16	2.15	2.16	2.15	2.15	2.15	2.14	S	2.08	2.07	2.06	2.05	2.04	2.04	2.05	2.04	2.05	2.05	2.05	2.04	2.18	2.10			
Feb 27	2.06	2.04	2.06	2.05	2.05	2.15	2.27	2.26	2.47	2.29	S	2.42	2.15	2.20	2.25	2.29	2.18	2.08	2.04	2.02	2.24	2.04	2.39	2.02	3.44	2.24			
Feb 28	2.27	2.21	3.22	2.16	2.06	3.10	4.92	2.37	2.80	S	2.14	2.25	2.28	2.09	2.05	2.01	2.02	2.02	2.02	2.03	2.03	2.04	2.04	2.01	4.92	2.35			
Diurnal Maximum	2.56	2.72	3.82	3.60	3.12	3.10	4.92	2.78	2.90	2.97	3.68	3.18	2.88	2.76	2.49	2.57	2.79	3.49	3.64	3.62	3.70	6.15	3.79	3.11					
Diurnal Average	2.20	2.18	2.33	2.27	2.27	2.31	2.42	2.22	2.26	2.25	2.26	2.26	2.23	2.19	2.17	2.20	2.30	2.39	2.34	2.16	2.15	2.23	2.22	2.17					
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 - 986b Station**





## PEACE RIVER AREA MONITORING PROGRAM

986b Station - February 2019

### Summary of Hourly Instantaneous Maximums

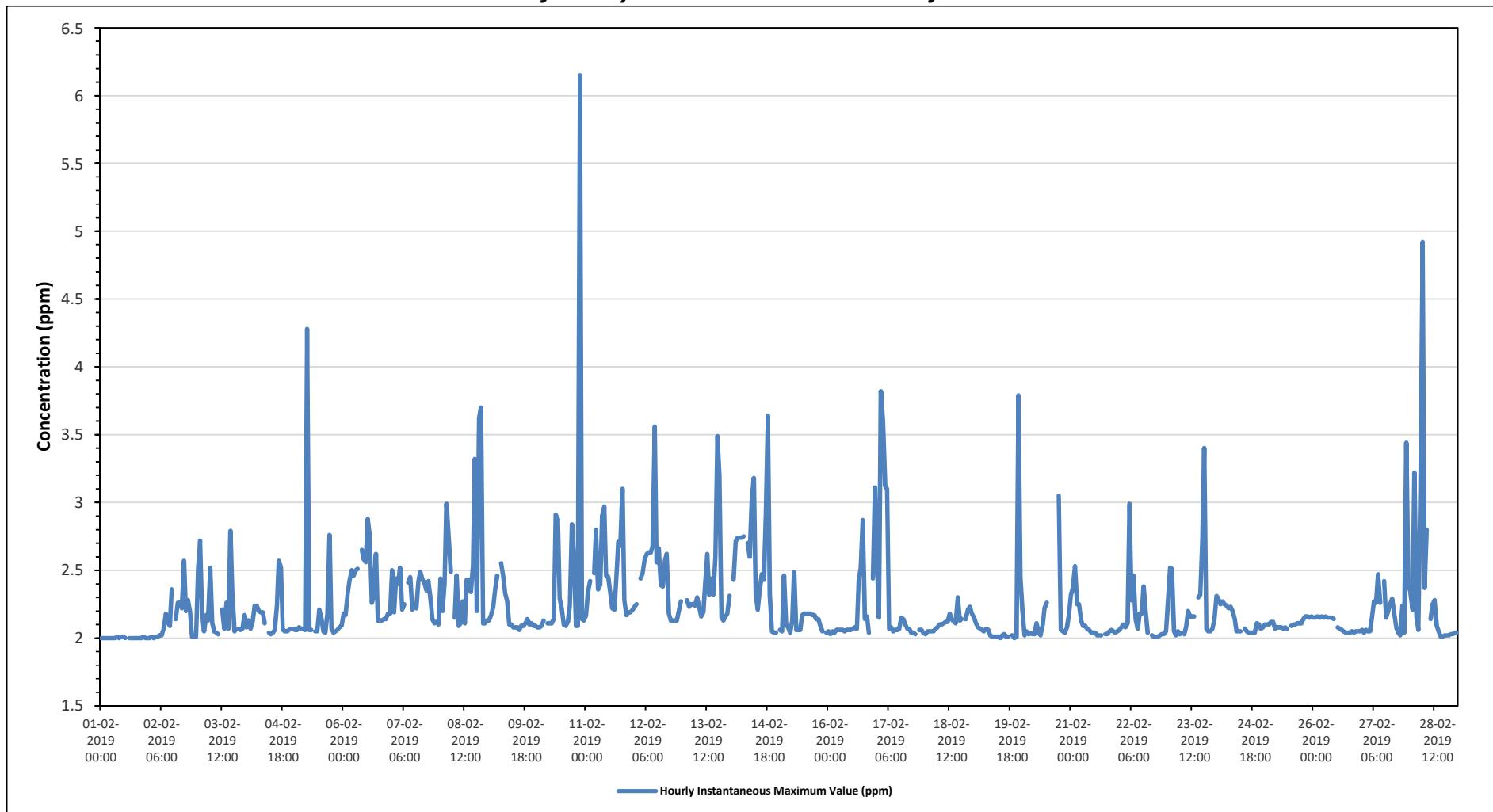
#### METHANE (CH<sub>4</sub>) in ppm

Maximum Hourly Value:	6.15	ppm on February 10 at hour 21	Hours in Service:	672																							
Maximum Daily Value:	2.59	ppm on February 14	Hours of Data:	638																							
Minimum Hourly Value:	2.00	ppm on February 1 at hour 0	Hours of Missing Data:	1																							
Minimum Daily Value:	2.00	ppm on February 1	Hours of Calibration:	33																							
Monthly Average:	2.25	ppm	Operational Uptime:	99.9																							
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Feb 1	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.01	2.01	2.01	S	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.00	2.00	2.00	2.00
Feb 2	2.00	2.01	2.00	2.01	2.01	2.02	2.02	2.07	2.18	2.12	2.09	2.36	S	2.14	2.26	2.26	2.22	2.57	2.20	2.28	2.20	2.01	2.01	2.01	2.00	2.57	2.13
Feb 3	2.51	2.72	2.18	2.05	2.17	2.13	2.52	2.11	2.05	2.04	2.03	S	2.21	2.07	2.26	2.07	2.79	2.34	2.05	2.07	2.07	2.06	2.07	2.17	2.03	2.79	2.21
Feb 4	2.08	2.13	2.07	2.12	2.24	2.24	2.20	2.19	2.19	2.11	S	2.04	2.03	2.04	2.06	2.24	2.57	2.52	2.06	2.05	2.05	2.06	2.07	2.07	2.03	2.57	2.15
Feb 5	2.06	2.06	2.08	2.07	2.07	2.06	4.28	2.06	2.06	S	2.05	2.05	2.21	2.15	2.05	2.04	2.18	2.76	2.07	2.04	2.05	2.06	2.08	2.09	2.04	4.28	2.20
Feb 6	2.18	2.17	2.33	2.42	2.50	2.46	2.50	2.51	S	2.65	2.58	2.56	2.88	2.76	2.26	2.31	2.62	2.13	2.13	2.14	2.14	2.18	2.18	2.13	2.88	2.38	
Feb 7	2.50	2.19	2.44	2.40	2.52	2.21	2.25	S	2.41	2.45	2.21	2.24	2.22	2.42	2.49	2.43	2.41	2.35	2.42	2.29	2.14	2.11	2.12	2.10	2.10	2.52	2.32
Feb 8	2.44	2.20	2.40	2.99	2.76	2.49	S	2.15	2.46	2.09	2.11	2.27	2.11	2.43	2.43	2.34	2.53	3.32	2.20	3.62	3.70	2.11	2.11	2.13	2.09	3.70	2.50
Feb 9	2.13	2.17	2.23	2.35	2.46	S	2.55	2.46	2.33	2.27	2.10	2.10	2.08	2.08	2.08	2.06	2.09	2.09	2.11	2.14	2.10	2.11	2.09	2.09	2.06	2.55	2.19
Feb 10	2.08	2.08	2.09	2.13	S	2.11	2.11	2.11	2.14	2.91	2.88	2.29	2.22	2.10	2.09	2.12	2.24	2.84	2.60	2.09	2.09	6.15	2.14	2.13	2.08	6.15	2.42
Feb 11	2.17	2.34	2.42	S	2.48	2.80	2.36	2.39	2.90	2.97	2.46	2.45	2.34	2.22	2.21	2.43	2.71	2.68	3.10	2.28	2.17	2.19	2.19	2.21	2.17	3.10	2.46
Feb 12	2.23	2.25	S	2.44	2.48	2.58	2.62	2.63	2.63	2.68	3.56	2.56	2.66	2.39	2.38	2.57	2.62	2.18	2.13	2.13	2.13	2.21	2.27	2.13	3.56	2.45	
Feb 13	2.28	S	2.28	2.23	2.25	2.25	2.24	2.30	2.23	2.16	2.19	2.41	2.62	2.32	2.44	2.32	2.60	3.49	3.20	2.15	2.13	2.16	2.18	2.31	2.13	3.49	2.38
Feb 14	S	2.43	2.71	2.74	2.74	2.74	2.75	S1	2.70	2.60	3.01	3.18	2.32	2.21	2.35	2.47	2.43	2.93	3.64	2.32	2.05	2.04	2.04	S	2.04	3.64	2.59
Feb 15	2.06	2.05	2.46	2.10	2.08	2.04	2.13	2.49	2.06	2.06	2.06	2.17	2.18	2.18	2.18	2.18	2.17	2.17	2.14	2.14	2.09	2.05	S	2.04	2.49	2.14	
Feb 16	2.05	2.03	2.05	2.04	2.06	2.06	2.06	2.06	2.05	2.06	2.06	2.06	2.07	2.08	2.07	2.42	2.52	2.87	2.14	2.16	2.04	S	2.44	3.11	2.03	3.11	2.20
Feb 17	2.56	2.15	3.82	3.60	3.12	3.10	2.07	2.08	2.05	2.06	2.06	2.07	2.15	2.14	2.10	2.07	2.07	2.04	2.03	S	2.06	2.06	2.04	2.03	3.82	2.33	
Feb 18	2.03	2.05	2.05	2.05	2.05	2.07	2.08	2.10	2.10	2.11	2.12	2.12	2.18	2.14	2.12	2.12	2.13	2.13	2.14	S	2.14	2.21	2.23	2.18	2.03	2.30	2.12
Feb 19	2.15	2.11	2.08	2.07	2.06	2.05	2.07	2.06	2.02	2.01	2.01	2.01	2.01	2.00	2.02	2.03	2.01	2.01	S	2.02	2.00	2.01	3.79	2.45	2.00	3.79	2.13
Feb 20	2.21	2.02	2.05	2.03	2.04	2.03	2.03	2.11	2.04	2.02	2.10	2.22	2.26	C	C	C	C	C	3.05	2.06	2.05	2.04	2.08	2.17	2.02	3.05	2.14
Feb 21	2.32	2.37	2.53	2.25	2.25	2.13	2.09	2.09	2.07	2.06	2.04	2.04	2.04	2.02	2.02	2.02	S	2.03	2.03	2.05	2.06	2.05	2.04	2.05	2.02	2.53	2.12
Feb 22	2.06	2.08	2.10	2.08	2.11	2.99	2.28	2.46	2.14	2.07	2.18	2.18	2.38	2.19	2.04	S	2.02	2.01	2.01	2.02	2.03	2.03	2.05	2.01	2.99	2.15	
Feb 23	2.26	2.52	2.51	2.05	2.02	2.05	2.03	2.04	2.03	2.08	2.20	2.16	2.16	2.16	S	2.30	2.32	2.72	3.40	2.07	2.05	2.05	2.07	2.14	2.02	3.40	2.23
Feb 24	2.31	2.29	2.25	2.27	2.25	2.24	2.22	2.23	2.20	2.14	2.05	2.05	2.05	2.05	S	2.07	2.05	2.04	2.04	2.04	2.11	2.10	2.07	2.08	2.04	2.31	2.14
Feb 25	2.10	2.10	2.10	2.12	2.12	2.07	2.08	2.08	2.07	2.08	2.07	2.07	S	2.09	2.10	2.10	2.11	2.11	2.14	2.16	2.16	2.15	2.15	2.07	2.16	2.11	
Feb 26	2.15	2.15	2.16	2.15	2.16	2.15	2.16	2.15	2.15	2.15	2.14	S	2.08	2.07	2.06	2.05	2.04	2.04	2.05	2.05	2.05	2.05	2.05	2.05	2.04	2.16	2.10
Feb 27	2.06	2.04	2.06	2.05	2.05	2.15	2.27	2.26	2.47	2.26	S	2.42	2.15	2.20	2.25	2.29	2.18	2.08	2.04	2.02	2.24	2.04	3.44	2.39	2.02	3.44	2.24
Feb 28	2.34	2.21	3.22	2.16	2.06	3.10	4.92	2.37	2.80	S	2.14	2.25	2.28	2.09	2.05	2.01	2.02	2.02	2.02	2.03	2.03	2.04	2.04	2.01	4.92	2.36	
Diarurnal Maximum	2.56	2.72	3.82	3.60	3.12	3.10	4.92	2.63	2.90	2.97	3.56	3.18	2.88	2.76	2.49	2.57	2.79	3.49	3.64	3.62	3.70	6.15	3.79	3.11			
Diarurnal Average	2.20	2.18	2.32	2.26	2.26	2.31	2.40	2.21	2.24	2.24	2.25	2.24	2.23	2.19	2.17	2.20	2.30	2.39	2.34	2.16	2.15	2.23	2.22	2.17			
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 - 986b Station**





## PEACE RIVER AREA MONITORING PROGRAM

**986b Station - February 2019**

### Summary of Hourly Instantaneous Maximums

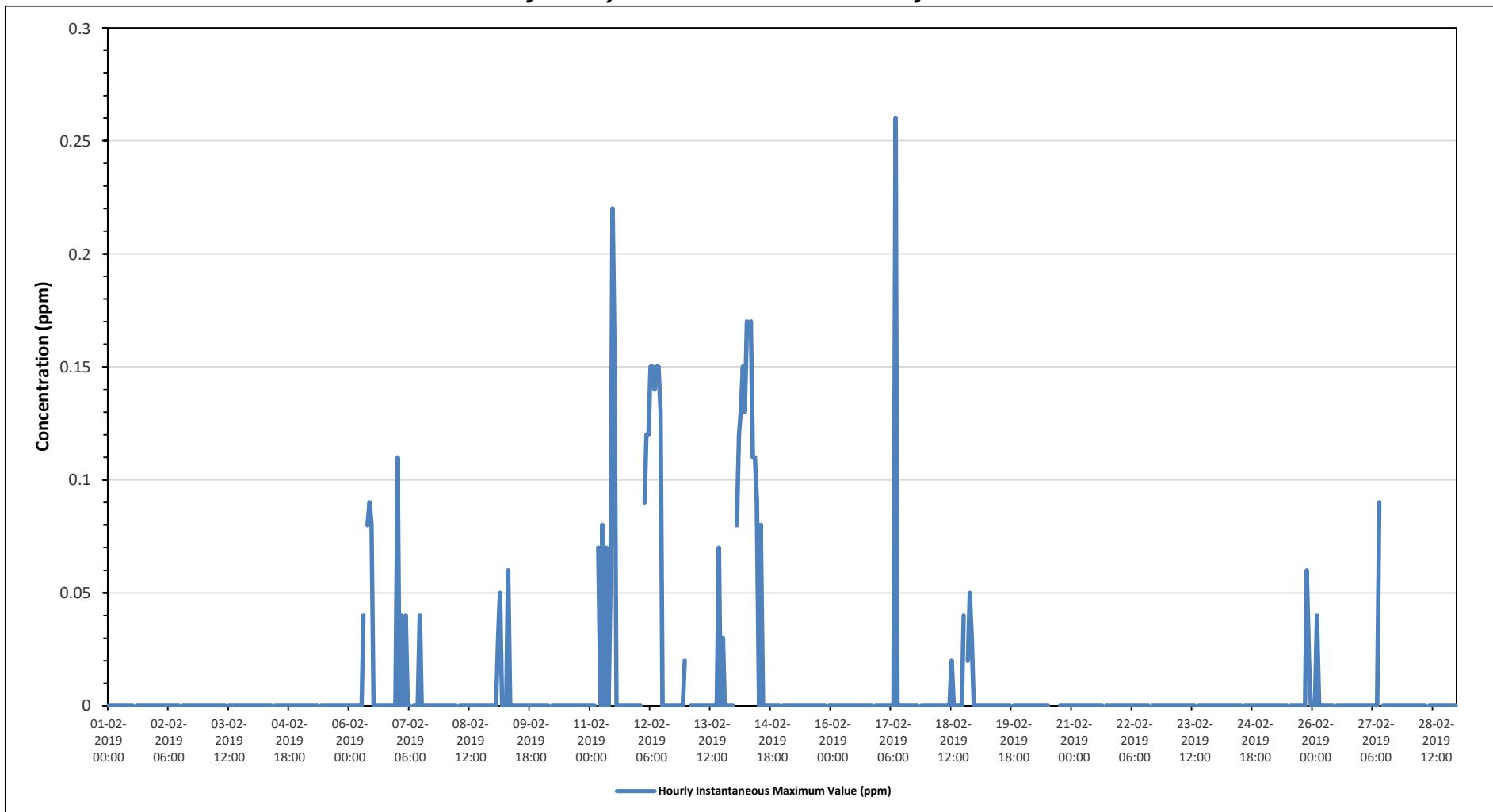
#### NON-METHANE HYDROCARBONS (NMHC) in ppm

Maximum Hourly Value:	0.26	ppm on February 17 at hour 8	Hours in Service:	672	Daily Minimum	Daily Maximum	Daily Average																						
Maximum Daily Value:	0.06	ppm on February 14	Hours of Data:	638																									
Minimum Hourly Value:	0.00	ppm on February 1 at hour 0	Hours of Missing Data:	1																									
Minimum Daily Value:	0.00	ppm on February 1	Hours of Calibration:	34																									
Monthly Average:	0.01	ppm	Operational Uptime:	100.0																									
Day	Hourly Period Starting at (MST)																												
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
Feb 1	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	S	0.08	0.09	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Feb 7	0.11	0.00	0.04	0.00	0.04	0.00	0.00	S	0.00	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	0.00	0.00			
Feb 8	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Feb 9	0.00	0.00	0.03	0.05	0.00	S	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01		
Feb 10	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 11	0.00	0.00	0.00	S	0.07	0.00	0.08	0.00	0.07	0.00	0.05	0.22	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.03		
Feb 12	0.00	0.00	S	0.09	0.12	0.12	0.15	0.15	0.14	0.15	0.15	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.05		
Feb 13	0.06	S	0.00	0.00	0.00	0.00	0.00	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	0.03	0.00	0.00	0.00	0.00	0.07	0.01		
Feb 14	S	0.08	0.12	0.13	0.15	0.13	0.17	S1	0.17	0.11	0.11	0.09	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.17	0.06	
Feb 15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	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	0.26	0.01		
Feb 18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.04	S	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01	
Feb 19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 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	C	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 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		
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.02	0.00	0.00	0.06	0.00	
Feb 26	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00		
Feb 27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00			
Feb 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			
Diurnal Maximum	0.11	0.08	0.12	0.13	0.15	0.13	0.17	0.15	0.26	0.15	0.22	0.16	0.08	0.00	0.00	0.07	0.00	0.04	0.00	0.02	0.06	0.03	0.02						
Diurnal Average	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	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	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 - 986b Station*





## PEACE RIVER AREA MONITORING PROGRAM

**986b Station - February 2019**

### Summary of Hourly Instantaneous Maximums

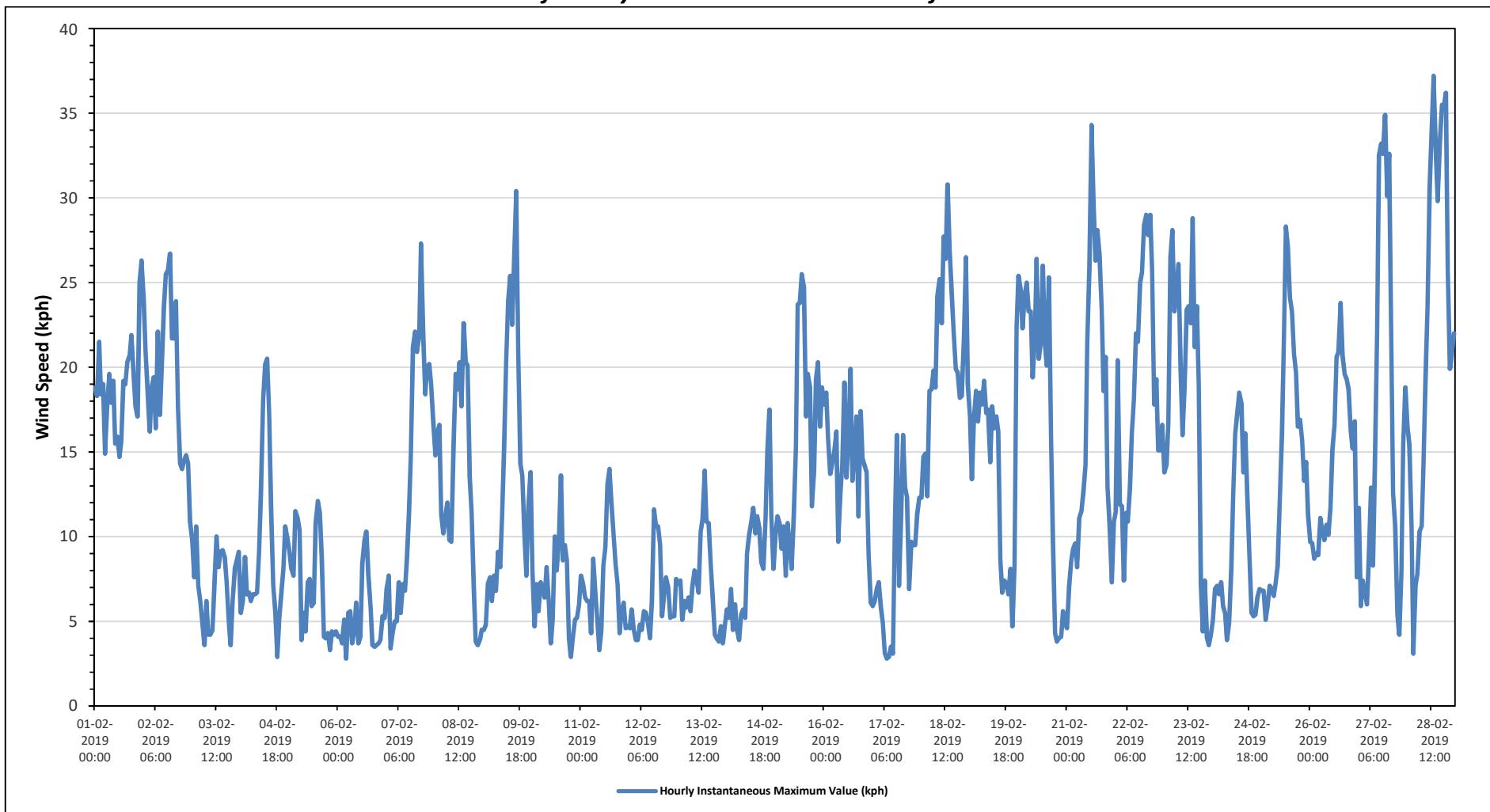
#### WIND SPEED (WS) in km/h

Maximum Hourly Value:	37.2	kph	on February 28 at hour 13	Hours in Service:	672	Daily Minimum:	14.7	Daily Maximum:	26.3	Daily Average:	18.9																	
Maximum Daily Value:	22.2	kph	on February 28	Hours of Data:	672																							
Minimum Hourly Value:	2.8	kph	on February 6 at hour 4	Hours of Missing Data:	0																							
Minimum Daily Value:	5.2	kph	on February 6	Hours of Calibration:	0																							
Monthly Average:	13.0	kph		Operational Uptime:	100.0																							
Day	Hourly Period Starting at (MST)																											
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Minimum	Daily Maximum	Daily Average	
Feb 1	18.8	18.3	21.5	18.4	19.0	14.9	17.8	19.6	17.9	19.2	15.5	15.9	14.7	19.2	19.0	20.3	20.7	21.9	19.7	17.7	17.1	25.0	26.3	14.7	26.3	18.9		
Feb 2	24.0	20.9	18.5	16.2	18.8	19.4	16.4	22.1	17.2	20.0	23.6	25.5	25.7	26.7	21.7	23.9	17.6	14.3	14.0	14.5	14.8	14.3	10.9	10.9	26.7	19.3		
Feb 3	9.8	7.6	10.6	7.1	6.2	4.9	3.6	6.2	4.2	4.2	4.5	7.4	10.0	8.2	9.1	9.2	8.8	7.3	5.1	3.6	6.3	8.1	8.6	9.1	3.6	10.6	7.1	
Feb 4	5.5	6.2	8.8	6.6	6.7	6.2	6.6	6.6	6.7	9.1	12.7	18.1	20.2	20.5	17.2	11.6	7.1	5.5	2.9	5.2	6.6	8.1	10.6	9.9	2.9	20.5	9.4	
Feb 5	9.1	8.1	7.7	11.5	11.1	10.4	3.9	5.5	4.4	7.3	7.5	5.9	6.1	10.8	12.1	11.4	8.7	4.1	4.0	4.3	3.3	4.4	4.2	4.4	3.3	12.1	7.1	
Feb 6	4.1	4.1	3.7	5.1	2.8	5.5	5.6	3.7	4.5	6.1	3.7	4.1	8.4	9.8	10.3	7.7	5.9	3.6	3.5	3.6	3.7	3.9	5.3	5.2	2.8	10.3	5.2	
Feb 7	6.9	7.7	3.4	4.4	5.0	5.0	7.3	5.5	7.2	6.8	8.7	11.3	14.8	21.2	22.1	20.9	21.8	27.3	22.1	18.4	20.0	20.2	19.0	16.8	3.4	27.3	13.5	
Feb 8	14.8	16.1	16.6	11.3	10.2	11.3	12.0	9.8	9.7	15.3	19.6	18.7	20.3	17.7	22.6	20.3	20.1	13.5	11.4	7.0	3.8	3.6	3.9	4.5	3.6	22.6	13.1	
Feb 9	4.5	4.8	7.2	7.6	6.2	7.7	6.8	9.1	8.2	11.1	15.4	20.2	23.9	25.4	22.5	26.6	30.4	20.8	14.3	13.6	10.2	7.7	11.8	13.8	4.5	30.4	13.7	
Feb 10	8.0	4.7	7.2	5.6	7.3	7.0	6.4	8.2	6.3	3.7	5.1	10.0	8.0	9.7	13.6	8.6	9.5	8.6	4.0	2.9	4.1	5.1	5.2	6.0	2.9	13.6	6.9	
Feb 11	7.7	7.2	6.4	6.2	4.3	8.7	6.8	5.1	3.3	4.4	8.3	9.4	13.1	14.0	12.0	10.2	8.4	7.2	4.3	5.6	6.1	4.6	4.7	3.3	14.0	7.3		
Feb 12	4.6	5.7	4.5	3.9	3.9	4.8	4.5	5.6	5.5	4.9	4.0	6.2	11.6	10.6	10.6	9.5	5.3	6.6	7.6	7.0	5.2	5.3	5.3	7.5	3.9	11.6	6.3	
Feb 13	7.2	7.4	5.1	6.2	5.8	6.4	5.6	7.1	8.0	7.5	6.7	10.3	11.0	13.9	10.9	10.8	8.3	6.4	4.2	4.0	3.8	4.7	4.8	3.7	13.9	7.1		
Feb 14	5.7	5.2	6.9	4.5	6.0	4.5	3.9	5.4	5.7	5.2	9.0	10.1	10.9	11.7	10.2	11.2	10.5	8.5	8.1	11.0	15.0	17.5	11.2	8.1	3.9	17.5	8.6	
Feb 15	10.2	11.2	10.8	9.3	10.6	7.7	10.8	9.5	8.1	11.2	15.3	23.7	23.8	25.5	24.8	17.1	19.6	18.8	11.8	13.9	19.3	20.3	16.5	18.8	7.7	25.5	15.4	
Feb 16	17.8	18.5	15.8	13.7	14.3	15.0	16.2	9.7	12.6	14.3	19.1	13.5	15.8	19.9	13.3	14.8	17.1	11.2	17.4	14.6	14.2	13.8	8.9	6.1	6.1	19.9	14.5	
Feb 17	5.9	6.2	6.9	7.3	5.8	4.9	3.1	2.8	2.9	3.5	3.1	11.0	16.0	7.1	11.4	16.0	12.9	12.3	6.9	9.7	9.5	9.5	11.3	12.3	2.8	16.0	8.3	
Feb 18	12.3	14.7	14.9	12.4	18.6	18.7	19.8	18.8	24.2	25.2	22.6	27.7	26.4	30.8	26.9	24.5	22.0	19.9	19.7	18.2	18.3	21.7	26.5	19.0	12.3	30.8	21.0	
Feb 19	17.1	13.4	17.1	18.6	16.8	18.5	17.8	19.2	17.3	17.5	14.4	17.7	16.4	17.1	16.2	8.6	6.7	7.4	7.2	6.6	8.1	4.7	8.3	22.4	4.7	22.4	14.0	
Feb 20	25.4	24.6	22.3	24.3	25.0	23.3	23.3	19.4	21.8	26.4	20.5	21.5	26.0	21.3	20.1	25.3	15.9	9.7	4.3	3.8	4.0	4.1	5.6	4.9	3.8	26.4	17.6	
Feb 21	4.6	7.1	8.6	9.3	9.6	8.2	11.1	11.5	12.6	14.2	21.5	25.9	34.3	29.7	26.3	28.1	26.6	23.4	18.6	20.6	12.9	10.6	7.3	10.8	4.6	34.3	16.4	
Feb 22	11.5	20.4	11.9	11.8	7.4	11.4	10.9	12.9	16.1	18.1	22.0	21.5	25.0	25.6	28.4	29.0	27.8	29.0	25.7	17.8	19.3	15.1	15.1	16.6	7.4	29.0	18.8	
Feb 23	13.8	14.2	16.7	26.5	28.1	23.3	24.4	26.1	19.9	16.0	18.7	23.4	23.6	22.6	28.8	21.2	23.6	19.0	7.2	4.4	7.4	4.0	3.6	4.2	3.6	28.8	17.5	
Feb 24	5.1	6.9	7.1	6.6	7.3	5.9	5.5	3.9	4.9	8.1	12.5	16.1	17.2	18.5	17.9	13.8	16.1	12.5	8.9	5.5	5.3	5.4	6.4	6.9	3.9	18.5	9.3	
Feb 25	6.8	6.8	5.1	5.9	7.1	6.9	6.5	7.3	8.3	12.2	16.1	21.5	28.3	27.1	24.1	23.3	20.8	19.7	16.5	16.9	15.7	13.3	14.4	11.3	5.1	28.3	14.2	
Feb 26	9.7	9.6	8.7	9.0	8.9	11.1	10.4	9.8	10.7	10.1	11.7	15.1	16.6	20.6	20.9	23.8	20.7	19.6	19.3	18.7	16.2	15.2	16.8	7.6	23.8	14.2		
Feb 27	11.7	5.9	7.4	6.7	6.0	8.8	12.9	8.3	14.4	22.0	32.5	33.2	32.6	34.9	30.1	32.6	21.5	12.6	10.6	5.4	4.2	7.9	15.4	18.8	4.2	34.9	16.5	
Feb 28	16.5	15.4	10.6	3.1	7.1	7.8	10.3	10.6	14.2	19.5	23.5	30.6	34.3	37.2	32.9	29.8	33.2	35.5	35.3	36.2	25.7	19.9	20.9	22.0	3.1	37.2	22.2	
Diurnal Maximum	25.4	24.6	22.3	26.5	28.1	23.3	24.4	26.1	24.2	26.4	32.5	33.2	34.3	37.2	32.9	32.6	33.2	35.5	35.3	36.2	25.7	21.7	26.5	26.3				
Diurnal Average	10.7	10.7	10.4	10.0	10.3	10.1	10.4	10.4	10.7	12.2	14.1	16.9	19.0	19.7	19.2	18.2	17.0	14.6	12.1	11.1	10.7	10.4	11.1	11.2				
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 WS - 986b Station**



# **842 STATION**



## PEACE RIVER AREA MONITORING PROGRAM

842b Station - February 2019

### Summary of Hourly Instantaneous Maximums

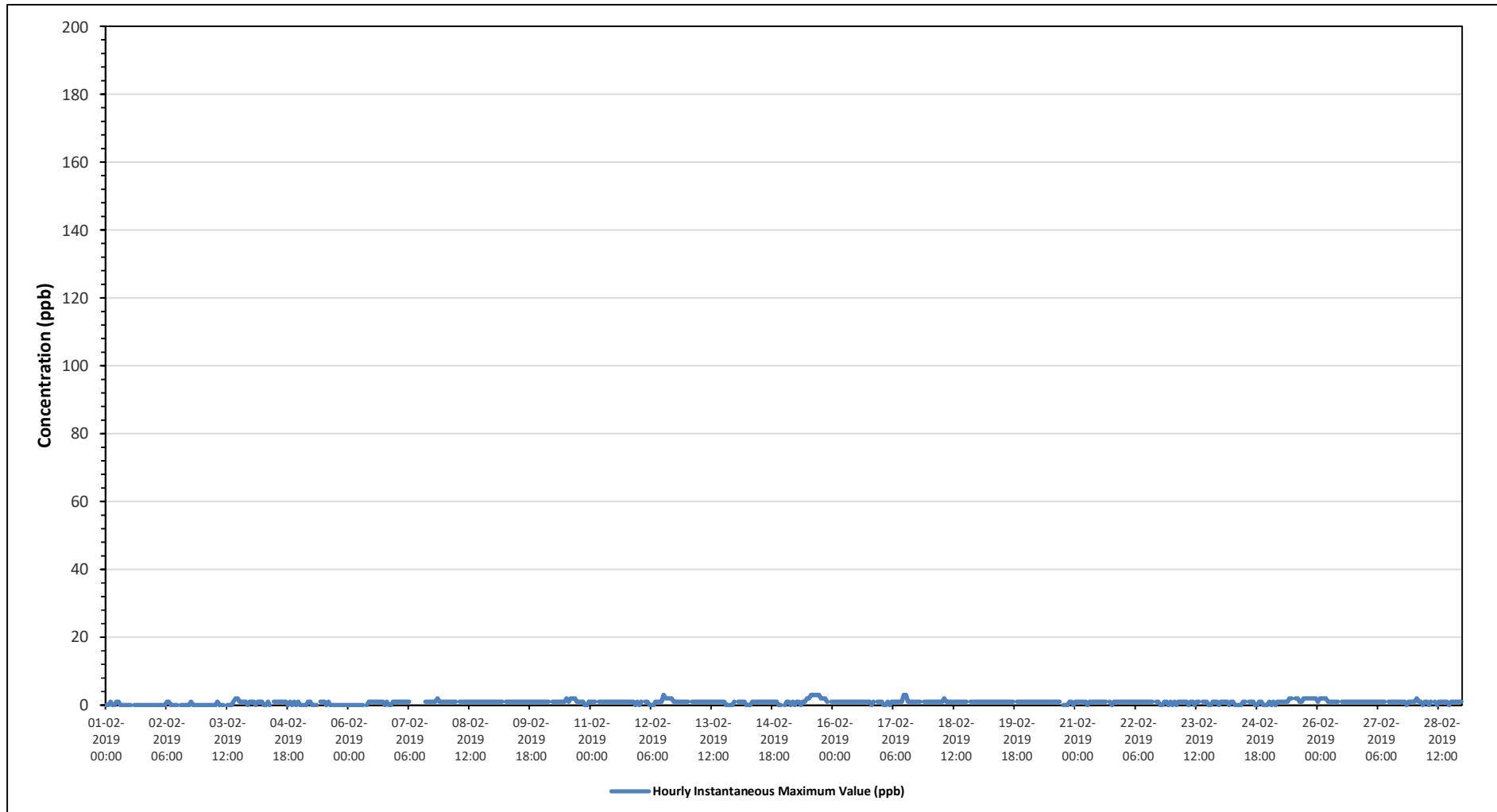
#### SULPHUR DIOXIDE (SO<sub>2</sub>) in ppb

Maximum Hourly Value:	3	ppb	on February 12 at hour 12	Hours in Service:	672																							
Maximum Daily Value:	1.5	ppb	on February 15	Hours of Data:	637																							
Minimum Hourly Value:	0	ppb	on February 1 at hour 0	Hours of Missing Data:	0																							
Minimum Daily Value:	0.1	ppb	on February 1	Hours of Calibration:	35																							
Monthly Average:	0.8	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				
Feb 1	0	0	1	0	0	1	1	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0.1			
Feb 2	0	0	0	0	0	0	1	1	0	0	0	0	0	S	0	0	0	0	0	1	0	0	0	0	0.1			
Feb 3	0	0	0	0	0	0	0	1	0	0	0	0	0	S	0	0	0	1	2	2	1	1	1	1	0.5			
Feb 4	1	1	0	1	1	1	0	0	1	0	S	1	1	1	1	1	1	1	1	0	1	0	1	0.7				
Feb 5	0	0	0	0	1	1	0	0	0	S	1	1	1	0	1	0	0	0	0	0	0	0	0	0.3				
Feb 6	0	0	0	0	0	0	0	0	S	0	1	1	1	1	1	1	1	1	0	1	0	0	1	0.5				
Feb 7	1	1	1	1	1	1	1	S	C	C	C	C	C	C	1	1	1	1	1	1	2	1	1	1	-			
Feb 8	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0			
Feb 9	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0			
Feb 10	1	1	1	1	1	S	1	1	1	1	1	1	1	1	2	1	2	2	2	1	1	1	0	0	2	1.1		
Feb 11	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1.0		
Feb 12	0	1	S	1	1	0	0	0	1	1	1	1	1	3	2	2	2	2	1	1	1	1	1	1	0	3	1.1	
Feb 13	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	1	0.8	
Feb 14	S	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	S	0	1	0.8	
Feb 15	0	1	1	0	1	0	1	1	0	1	1	2	2	3	3	3	3	3	3	2	2	2	1	S	1	0	3	1.5
Feb 16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	S	1	0	1	1.0	
Feb 17	1	0	0	1	0	1	1	1	1	1	1	3	3	1	1	1	1	1	1	1	1	1	S	1	0	3	1.0	
Feb 18	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1.0	
Feb 19	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	
Feb 20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	S	1	0	1	0.8	
Feb 21	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	0.9	
Feb 22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	1	0	0.9	
Feb 23	0	1	0	1	1	1	1	1	0	1	1	0	1	S	1	1	1	1	1	0	0	1	1	1	0	0	1	0.7
Feb 24	1	1	1	1	0	1	1	0	0	0	0	1	1	S	1	1	1	0	0	0	1	1	0	0	0	1	0.6	
Feb 25	1	0	1	0	1	1	1	1	2	2	2	S	2	2	1	1	2	2	2	2	2	2	2	0	2	1.4		
Feb 26	1	2	2	2	2	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.2	
Feb 27	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1.0	
Feb 28	1	2	1	1	0	1	1	0	1	S	1	0	1	1	1	1	1	1	0	1	1	1	1	1	0	2	0.9	
Diurnal Maximum	1	2	2	2	2	1	1	2	1	1	2	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2		
Diurnal Average	0.7	0.8	0.8	0.8	0.8	0.7	0.7	0.8	0.9	1.0	1.2	1.0	1.1	1.0	1.1	1.0	1.1	0.8	0.8	0.7	0.6	0.8	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 SO<sub>2</sub> - 842b Station*





## PEACE RIVER AREA MONITORING PROGRAM

**842b Station - February 2019**

### Summary of Hourly Instantaneous Maximums

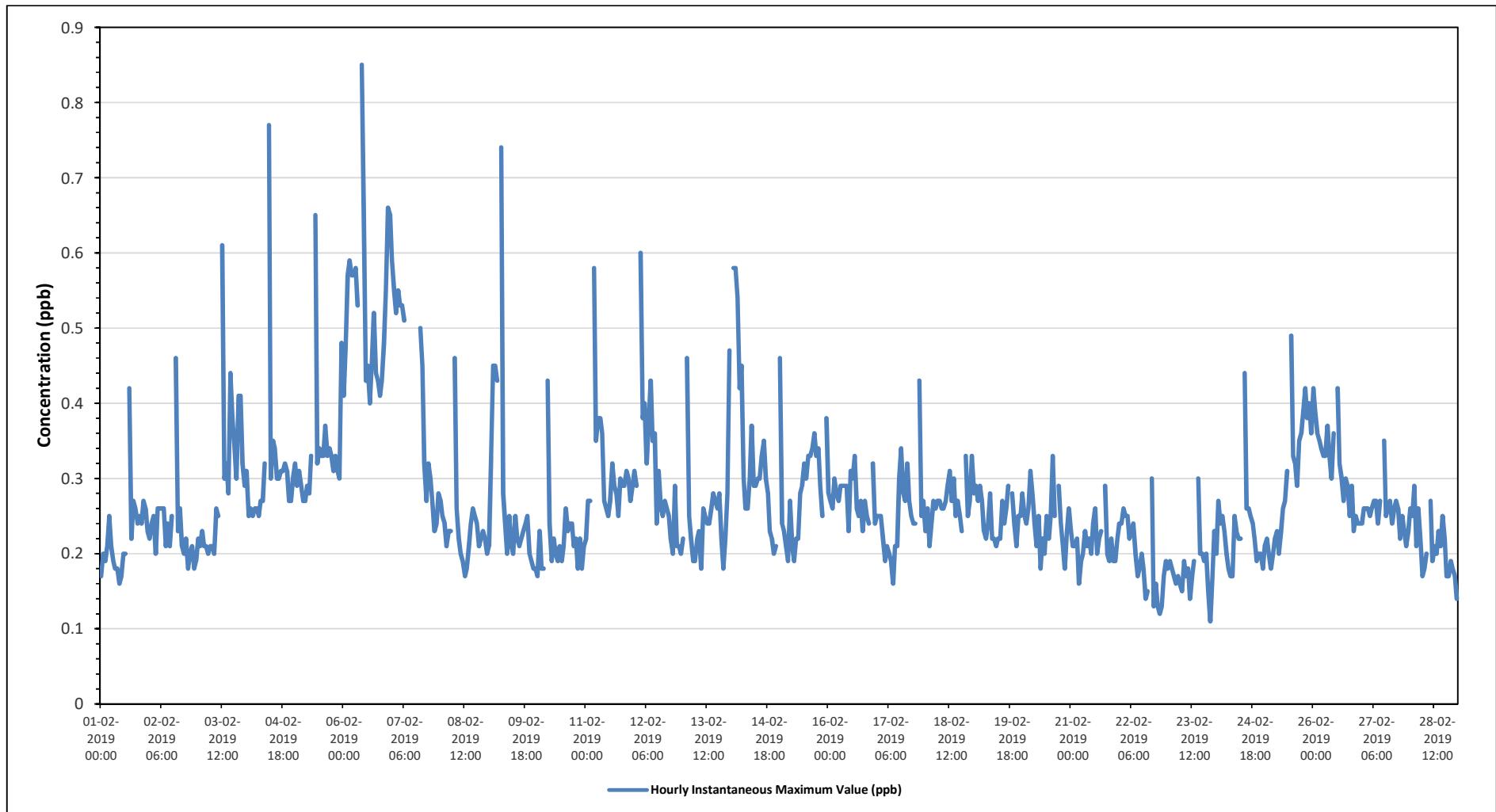
#### TOTAL REDUCED SULPHUR (TRS) in ppb

Maximum Hourly Value:	0.85	ppb	on February 6 at hour 9	Hours in Service:	672	Daily Minimum:	0.16	Daily Maximum:	0.42	Daily Average:	0.22																			
Maximum Daily Value:	0.53	ppb	on February 6	Hours of Data:	637																									
Minimum Hourly Value:	0.11	ppb	on February 23 at hour 21	Hours of Missing Data:	0																									
Minimum Daily Value:	0.18	ppb	on February 23	Hours of Calibration:	35																									
Monthly Average:	0.28	ppb		Operational Uptime:	100.0																									
Day	Hourly Period Starting at (MST)																													
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Minimum	Daily Maximum	Daily Average			
Feb 1	0.17	0.2	0.19	0.21	0.25	0.21	0.19	0.18	0.18	0.16	0.17	0.2	0.2	S	0.42	0.22	0.27	0.26	0.24	0.25	0.24	0.27	0.26	0.23	0.16	0.42	0.22			
Feb 2	0.22	0.24	0.25	0.2	0.26	0.26	0.26	0.26	0.21	0.24	0.21	0.25	S	0.46	0.23	0.26	0.21	0.2	0.22	0.18	0.2	0.21	0.18	0.19	0.18	0.46	0.23			
Feb 3	0.22	0.21	0.23	0.21	0.21	0.2	0.21	0.21	0.2	0.26	0.25	S	0.61	0.3	0.32	0.28	0.44	0.38	0.34	0.3	0.41	0.41	0.32	0.29	0.20	0.61	0.30			
Feb 4	0.31	0.25	0.26	0.25	0.26	0.26	0.25	0.27	0.27	0.32	S	0.77	0.3	0.35	0.34	0.3	0.3	0.31	0.31	0.32	0.31	0.31	0.27	0.27	0.3	0.25	0.77	0.31		
Feb 5	0.32	0.29	0.31	0.29	0.27	0.27	0.29	0.28	0.33	S	0.65	0.32	0.34	0.33	0.33	0.37	0.33	0.34	0.33	0.31	0.31	0.33	0.31	0.3	0.48	0.27	0.65	0.34		
Feb 6	0.41	0.47	0.57	0.59	0.57	0.57	0.58	0.53	S	0.85	0.66	0.43	0.45	0.4	0.45	0.52	0.44	0.43	0.41	0.43	0.48	0.55	0.66	0.65	0.40	0.85	0.53			
Feb 7	0.59	0.55	0.52	0.55	0.53	0.53	0.51	S	C	C	C	C	C	0.5	0.45	0.32	0.27	0.32	0.3	0.27	0.23	0.24	0.28	0.23	0.22	0.2	0.17	0.46	-	0.28
Feb 8	0.27	0.25	0.24	0.21	0.23	0.23	S	0.46	0.26	0.22	0.2	0.19	0.17	0.18	0.21	0.24	0.26	0.25	0.24	0.21	0.22	0.23	0.22	0.2	0.17	0.46	0.23			
Feb 9	0.21	0.33	0.45	0.45	0.43	S	0.74	0.28	0.24	0.2	0.25	0.21	0.2	0.25	0.22	0.21	0.22	0.23	0.24	0.25	0.2	0.19	0.18	0.18	0.18	0.74	0.28			
Feb 10	0.17	0.23	0.18	0.18	S	0.43	0.24	0.19	0.22	0.2	0.19	0.21	0.19	0.21	0.26	0.23	0.24	0.24	0.21	0.22	0.18	0.22	0.18	0.21	0.17	0.43	0.22			
Feb 11	0.22	0.27	0.27	S	0.58	0.35	0.38	0.38	0.36	0.27	0.26	0.25	0.27	0.32	0.29	0.28	0.25	0.3	0.29	0.29	0.31	0.3	0.27	0.29	0.22	0.58	0.31			
Feb 12	0.31	0.29	S	0.6	0.38	0.4	0.32	0.37	0.43	0.35	0.36	0.24	0.31	0.26	0.25	0.27	0.26	0.25	0.22	0.2	0.29	0.21	0.21	0.2	0.20	0.60	0.30			
Feb 13	0.22	S	0.46	0.25	0.22	0.19	0.19	0.22	0.23	0.18	0.26	0.25	0.24	0.24	0.26	0.28	0.27	0.26	0.28	0.22	0.22	0.28	0.47	0.18	0.47	0.26				
Feb 14	S	0.58	0.58	0.54	0.42	0.45	0.3	0.26	0.26	0.3	0.37	0.29	0.29	0.3	0.3	0.33	0.35	0.3	0.28	0.23	0.22	0.2	0.21	S	0.20	0.58	0.33			
Feb 15	0.46	0.24	0.23	0.21	0.19	0.27	0.21	0.19	0.22	0.22	0.28	0.29	0.32	0.3	0.33	0.33	0.34	0.36	0.33	0.34	0.29	0.25	0.25	S	0.38	0.19	0.46	0.29		
Feb 16	0.28	0.27	0.26	0.3	0.28	0.27	0.29	0.29	0.29	0.29	0.23	0.31	0.3	0.33	0.26	0.25	0.27	0.23	0.27	0.25	0.24	S	0.32	0.24	0.23	0.33	0.27			
Feb 17	0.25	0.25	0.25	0.22	0.19	0.21	0.2	0.19	0.16	0.21	0.21	0.3	0.34	0.28	0.27	0.32	0.27	0.25	0.24	0.24	S	0.43	0.25	0.27	0.16	0.43	0.25			
Feb 18	0.23	0.26	0.21	0.24	0.27	0.26	0.27	0.27	0.26	0.26	0.27	0.29	0.31	0.27	0.3	0.25	0.27	0.25	0.23	S	0.33	0.25	0.27	0.33	0.21	0.33	0.27			
Feb 19	0.28	0.29	0.27	0.29	0.27	0.23	0.22	0.24	0.28	0.22	0.21	0.22	0.22	0.27	0.24	0.26	0.29	S	0.28	0.24	0.21	0.25	0.25	0.21	0.29	0.25				
Feb 20	0.28	0.25	0.24	0.26	0.31	0.28	0.24	0.21	0.25	0.18	0.22	0.2	0.25	0.22	0.25	0.33	0.25	0.29	S	0.29	0.24	0.21	0.18	0.23	0.26	0.18	0.33	0.24		
Feb 21	0.23	0.21	0.22	0.16	0.19	0.2	0.23	0.21	0.22	0.2	0.24	0.26	0.2	0.22	0.23	S	0.29	0.2	0.19	0.22	0.19	0.19	0.22	0.16	0.29	0.21				
Feb 22	0.24	0.24	0.26	0.25	0.25	0.22	0.23	0.24	0.2	0.17	0.18	0.2	0.18	0.14	0.15	S	0.3	0.13	0.16	0.13	0.12	0.13	0.17	0.19	0.12	0.30	0.19			
Feb 23	0.18	0.19	0.18	0.17	0.16	0.17	0.16	0.15	0.19	0.17	0.18	0.14	0.17	0.19	S	0.3	0.2	0.2	0.19	0.2	0.15	0.11	0.17	0.23	0.11	0.30	0.18			
Feb 24	0.2	0.27	0.24	0.25	0.23	0.2	0.18	0.17	0.17	0.25	0.23	0.22	0.22	0.22	S	0.44	0.26	0.26	0.25	0.24	0.22	0.19	0.2	0.2	0.18	0.17	0.44	0.23		
Feb 25	0.21	0.22	0.2	0.18	0.2	0.22	0.23	0.2	0.23	0.26	0.27	0.31	S	0.49	0.33	0.32	0.29	0.35	0.36	0.39	0.42	0.38	0.4	0.36	0.18	0.49	0.30			
Feb 26	0.42	0.39	0.36	0.35	0.34	0.33	0.33	0.37	0.33	0.3	0.36	S	0.42	0.32	0.3	0.27	0.3	0.29	0.25	0.29	0.23	0.25	0.24	0.24	0.23	0.42	0.32			
Feb 27	0.24	0.26	0.26	0.25	0.26	0.27	0.27	0.24	0.24	0.27	S	0.35	0.25	0.26	0.27	0.24	0.26	0.27	0.26	0.22	0.25	0.23	0.21	0.23	0.21	0.35	0.26			
Feb 28	0.26	0.25	0.29	0.21	0.26	0.22	0.17	0.18	0.2	S	0.27	0.19	0.21	0.2	0.23	0.21	0.25	0.22	0.17	0.17	0.19	0.18	0.17	0.14	0.14	0.29	0.21			
Diarurnal Maximum	1	1	1	1	1	1	0	1	1	1	1	0	1	1	0	0	0	0	0	0	1	1	1	1	1	1				
Diarurnal Average	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3		
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	T	Exceeds Temperature Limits	N	Not in Service																	
R	Recovery	X	Machine Malfunction	Y	Maintenance																									

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

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

### *Timeseries Chart of Hourly Instantaneous Maximum for TRS - 842b Station*





## PEACE RIVER AREA MONITORING PROGRAM

**842b Station - February 2019**

### Summary of Hourly Instantaneous Maximums

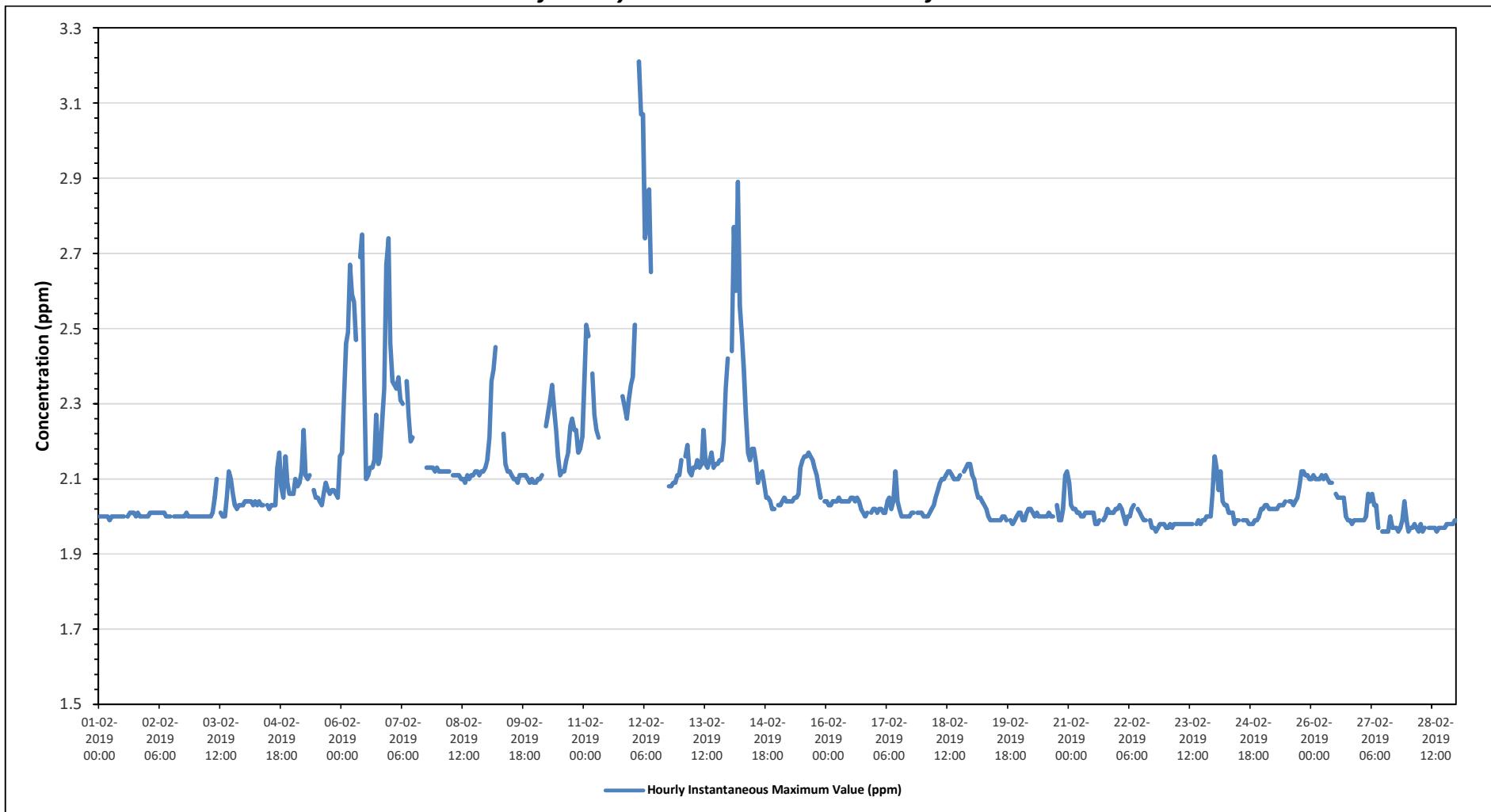
#### TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	3.21	ppm	on February 12 at hour 3	Hours in Service:	672																					
Maximum Daily Value:	2.38	ppm	on February 6	Hours of Data:	626																					
Minimum Hourly Value:	1.96	ppm	on February 22 at hour 19	Hours of Missing Data:	11																					
Minimum Daily Value:	1.97	ppm	on February 28	Hours of Calibration:	35																					
Monthly Average:	2.09	ppm		Operational Uptime:	98.4																					
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
Feb 1	2.00	2.00	2.00	2.00	1.99	2.00	2.00	2.00	2.00	2.00	2.00	2.00	S	2.00	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.00	1.99		
Feb 2	2.00	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.00	2.00	2.00	S	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00		
Feb 3	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.05	2.10	S	2.01	2.00	2.00	2.05	2.12	2.10	2.06	2.03	2.02	2.03	2.03	2.00		
Feb 4	2.04	2.04	2.04	2.03	2.04	2.03	2.04	2.03	2.03	2.04	S	2.03	2.02	2.03	2.03	2.13	2.17	2.08	2.05	2.16	2.09	2.06	2.06	2.02		
Feb 5	2.06	2.10	2.08	2.09	2.12	2.23	2.11	2.10	2.11	S	2.07	2.05	2.05	2.04	2.03	2.06	2.09	2.07	2.06	2.07	2.06	2.05	2.16	2.03		
Feb 6	2.17	2.31	2.46	2.49	2.67	2.59	2.57	2.47	S	2.69	2.75	2.37	2.10	2.11	2.13	2.13	2.15	2.27	2.14	2.16	2.26	2.34	2.67	2.74		
Feb 7	2.46	2.36	2.35	2.34	2.37	2.31	2.30	S	2.36	2.27	2.20	2.21	C	C	C	C	C	2.13	2.13	2.13	2.13	2.12	2.13	-	2.12	
Feb 8	2.12	2.12	2.12	2.12	2.12	2.12	S	2.11	2.11	2.11	2.10	2.10	2.09	2.11	2.10	2.11	2.11	2.12	2.12	2.12	2.12	2.13	2.09	2.13		
Feb 9	2.15	2.21	2.36	2.39	2.45	S	2.61	S1	2.22	2.14	2.12	2.12	2.11	2.10	2.10	2.09	2.11	2.11	2.11	2.10	2.09	2.10	2.09	2.09		
Feb 10	2.09	2.10	2.10	2.11	S	2.24	2.27	2.31	2.35	2.29	2.23	2.16	2.11	2.12	2.12	2.15	2.17	2.24	2.26	2.23	2.23	2.17	2.18	2.21	2.09	
Feb 11	2.36	2.51	2.48	S	2.38	2.27	2.23	2.21	2.21	2.21	2.23	2.20	2.20	2.19	2.18	2.15	2.14	2.04	S1	2.32	2.29	2.26	2.31	2.35	2.04	
Feb 12	2.37	2.51	S	3.21	3.07	3.07	2.74	2.78	2.87	2.65	C1	C1	C1	C1	C1	C1	C1	C1	2.08	2.08	2.09	2.09	2.11	2.11	2.08	
Feb 13	2.15	S	2.16	2.19	2.12	2.11	2.13	2.13	2.15	2.14	2.23	2.14	2.13	2.14	2.13	2.14	2.14	2.14	2.15	2.15	2.15	2.20	2.34	2.42	2.17	
Feb 14	S	2.44	2.77	2.60	2.89	2.56	2.48	2.39	2.27	2.17	2.15	2.18	2.18	2.14	2.09	2.11	2.12	2.09	2.05	2.05	2.05	2.04	2.02	2.02	2.08	
Feb 15	2.03	2.03	2.04	2.05	2.04	2.04	2.04	2.04	2.05	2.05	2.06	2.13	2.15	2.16	2.16	2.17	2.16	2.15	2.13	2.11	2.08	2.05	S	2.04	2.03	
Feb 16	2.04	2.03	2.03	2.04	2.04	2.04	2.05	2.04	2.04	2.04	2.05	2.05	2.05	2.04	2.05	2.04	2.02	2.01	2.00	2.01	S	2.01	2.02	2.00	2.05	
Feb 17	2.02	2.01	2.02	2.02	2.01	2.01	2.04	2.05	2.02	2.04	2.12	2.04	2.02	2.00	2.00	2.00	2.00	2.00	2.01	2.01	S	2.01	2.01	2.01	2.02	
Feb 18	2.00	2.00	2.00	2.01	2.02	2.03	2.05	2.07	2.09	2.10	2.10	2.11	2.12	2.12	2.11	2.10	2.10	2.11	S	2.12	2.13	2.14	2.14	2.00	2.14	
Feb 19	2.11	2.10	2.07	2.05	2.05	2.04	2.03	2.02	2.00	1.99	1.99	1.99	1.99	1.99	2.00	2.00	1.99	1.99	S	1.99	1.98	1.99	2.00	2.01	1.98	
Feb 20	2.01	1.99	1.99	2.01	2.02	2.02	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.00	2.00	2.00	2.00	S	2.03	1.99	2.02	2.11	2.12	1.99	
Feb 21	2.09	2.03	2.02	2.02	2.01	2.01	2.00	2.00	2.01	2.01	2.01	1.98	1.98	1.99	1.99	2.00	2.02	2.01	2.01	2.01	2.02	1.98	2.09	2.01		
Feb 22	2.02	2.03	2.02	2.00	1.98	2.00	2.00	2.02	2.03	Y	2.02	2.01	2.00	1.99	1.99	S	1.99	1.97	1.97	1.96	1.97	1.98	1.98	1.96	2.00	
Feb 23	1.97	1.97	1.98	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	S	1.98	1.99	1.98	1.99	2.00	2.00	2.06	1.97	2.06		
Feb 24	2.16	2.13	2.07	2.12	2.04	2.03	2.03	2.01	2.01	2.01	1.98	1.99	1.99	S	1.99	1.99	1.98	1.98	1.99	1.99	2.00	1.98	2.16	2.02		
Feb 25	2.02	2.03	2.03	2.02	2.02	2.02	2.02	2.03	2.03	2.03	2.04	S	2.04	2.04	2.03	2.04	2.05	2.08	2.12	2.11	2.11	2.10	2.02	2.12	2.05	
Feb 26	2.10	2.11	2.10	2.10	2.11	2.10	2.11	2.10	2.09	2.09	2.09	2.09	S	2.06	2.05	2.05	2.05	2.00	1.99	1.98	1.99	1.99	1.98	2.11	2.06	
Feb 27	1.99	1.99	1.99	2.00	2.06	2.04	2.06	2.03	2.03	1.97	S	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.96		
Feb 28	1.96	1.97	1.97	1.98	1.97	1.96	1.98	1.96	1.97	S	1.97	1.97	1.97	1.97	1.97	1.96	1.97	1.97	1.97	1.97	1.98	1.98	1.99	1.97		
Diurnal Maximum	2.46	2.51	2.77	3.21	3.07	3.07	2.74	2.78	2.87	2.69	2.75	2.37	2.20	2.19	2.18	2.17	2.17	2.27	2.26	2.32	2.29	2.34	2.67	2.74		
Diurnal Average	2.09	2.12	2.12	2.15	2.17	2.14	2.14	2.11	2.11	2.12	2.10	2.08	2.06	2.05	2.05	2.06	2.06	2.07	2.07	2.09	2.11					
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	T	Exceeds Temperature Limits	N	Not in Service			
R	Recovery	X	Machine Malfunction	Y	Maintenance																					

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

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

### **Timeseries Chart of Hourly Instantaneous Maximum for THC - 842b Station**





## PEACE RIVER AREA MONITORING PROGRAM

**842b Station - February 2019**

### Summary of Hourly Instantaneous Maximums

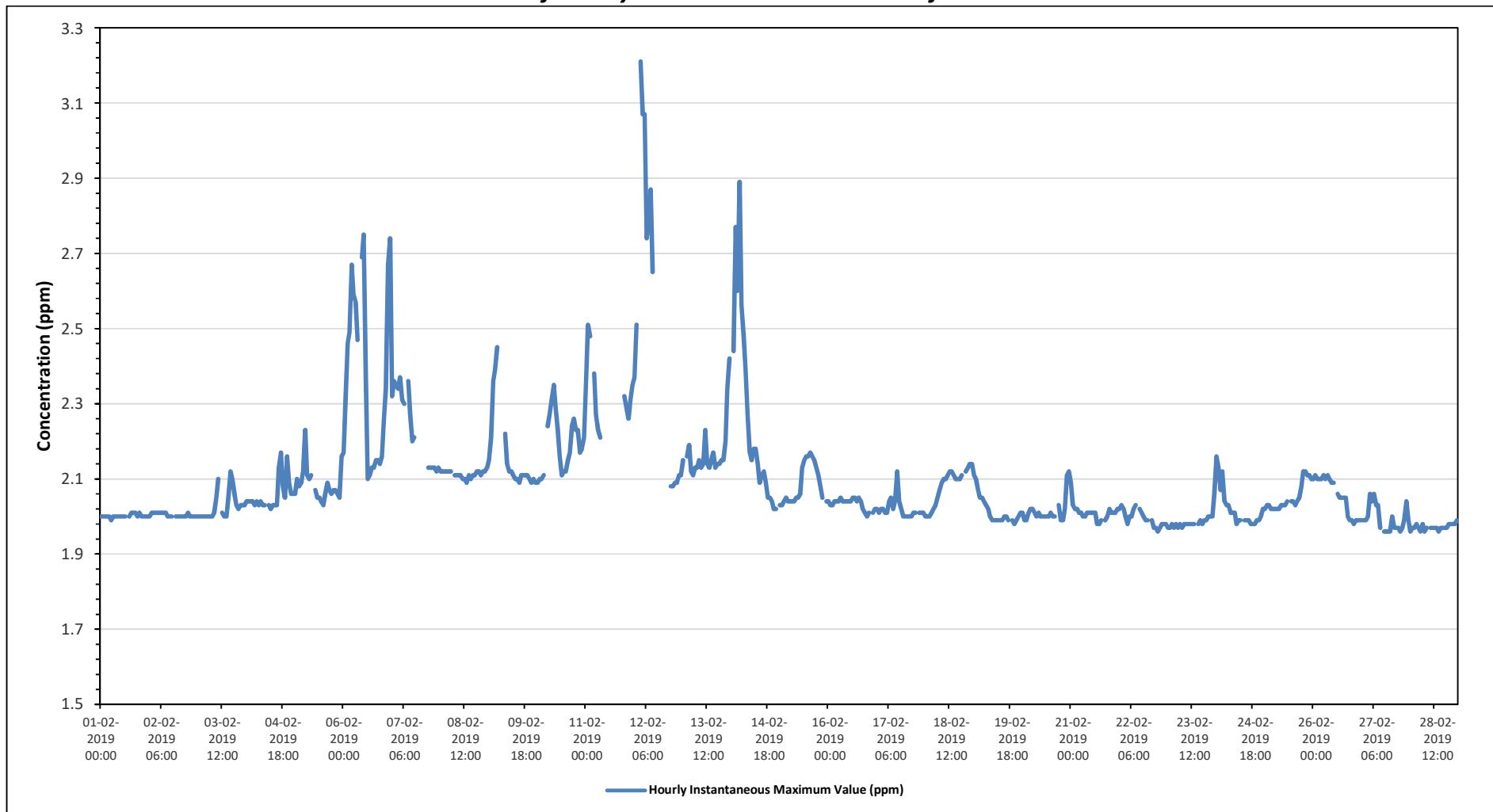
#### METHANE (CH<sub>4</sub>) in ppm

Maximum Hourly Value:	3.21	ppm	on February 12 at hour 3	Hours in Service:	672																					
Maximum Daily Value:	2.37	ppm	on February 6	Hours of Data:	626																					
Minimum Hourly Value:	1.96	ppm	on February 22 at hour 19	Hours of Missing Data:	11																					
Minimum Daily Value:	1.97	ppm	on February 28	Hours of Calibration:	35																					
Monthly Average:	2.09	ppm		Operational Uptime:	98.4																					
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
Feb 1	2.00	2.00	2.00	2.00	1.99	2.00	2.00	2.00	2.00	2.00	2.00	2.00	S	2.00	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.00	1.99		
Feb 2	2.00	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.00	2.00	2.00	S	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00			
Feb 3	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.05	2.10	S	2.01	2.00	2.00	2.05	2.12	2.10	2.06	2.03	2.02	2.03	2.03	2.00			
Feb 4	2.04	2.04	2.04	2.03	2.04	2.03	2.04	2.03	2.03	S	2.03	2.02	2.03	2.03	2.13	2.17	2.08	2.05	2.16	2.09	2.06	2.06	2.02			
Feb 5	2.06	2.10	2.08	2.09	2.12	2.23	2.11	2.10	2.11	S	2.07	2.05	2.05	2.04	2.03	2.06	2.09	2.07	2.06	2.05	2.16	2.05	2.03			
Feb 6	2.17	2.31	2.46	2.49	2.67	2.59	2.57	2.47	S	2.69	2.75	2.37	2.10	2.11	2.13	2.13	2.15	2.15	2.14	2.16	2.26	2.34	2.67			
Feb 7	2.32	2.36	2.35	2.34	2.37	2.31	2.30	S	2.36	2.27	2.20	2.21	C	C	C	C	C	2.13	2.13	2.13	2.12	2.12	2.13	-		
Feb 8	2.12	2.12	2.12	2.12	2.12	2.12	S	2.11	2.11	2.11	2.10	2.10	2.09	2.11	2.10	2.11	2.11	2.12	2.12	2.12	2.12	2.13	2.09			
Feb 9	2.15	2.21	2.36	2.39	2.45	S	2.61	S1	2.22	2.14	2.12	2.12	2.11	2.10	2.10	2.09	2.11	2.11	2.11	2.10	2.10	2.09	2.09			
Feb 10	2.09	2.10	2.10	2.11	S	2.24	2.27	2.31	2.35	2.29	2.23	2.16	2.11	2.12	2.12	2.15	2.17	2.24	2.26	2.23	2.23	2.17	2.18	2.09		
Feb 11	2.36	2.51	2.48	S	2.38	2.27	2.23	2.21	2.21	2.21	2.23	2.20	2.20	2.19	2.18	2.15	2.14	2.04	S1	2.32	2.29	2.26	2.31	2.35		
Feb 12	2.37	2.51	S	3.21	3.07	3.07	2.74	2.78	2.87	2.65	C1	C1	C1	C1	C1	C1	C1	C1	2.08	2.08	2.09	2.09	2.11	2.08		
Feb 13	2.15	S	2.16	2.19	2.12	2.11	2.13	2.13	2.15	2.14	2.23	2.14	2.13	2.14	2.15	2.17	2.13	2.14	2.14	2.15	2.15	2.20	2.34	2.42		
Feb 14	S	2.44	2.77	2.60	2.89	2.56	2.48	2.39	2.27	2.17	2.15	2.18	2.18	2.14	2.09	2.11	2.12	2.09	2.05	2.05	2.04	2.02	2.02	2.02		
Feb 15	2.03	2.03	2.04	2.05	2.04	2.04	2.04	2.04	2.05	2.05	2.06	2.13	2.15	2.16	2.16	2.17	2.16	2.15	2.13	2.11	2.08	2.05	2.04	2.03		
Feb 16	2.04	2.03	2.03	2.04	2.04	2.04	2.05	2.04	2.04	2.04	2.05	2.05	2.04	2.04	2.05	2.04	2.02	2.01	2.00	2.01	S	2.01	2.02	2.00		
Feb 17	2.02	2.01	2.02	2.02	2.01	2.01	2.04	2.05	2.02	2.04	2.12	2.04	2.02	2.00	2.00	2.00	2.00	2.01	2.01	S	2.01	2.01	2.01	2.02		
Feb 18	2.00	2.00	2.00	2.01	2.02	2.03	2.05	2.07	2.09	2.10	2.10	2.11	2.12	2.12	2.11	2.10	2.10	2.11	S	2.12	2.13	2.14	2.14	2.08		
Feb 19	2.11	2.10	2.07	2.05	2.05	2.04	2.03	2.02	2.00	1.99	1.99	1.99	1.99	1.99	2.00	2.00	1.99	1.99	1.99	1.99	2.00	2.01	1.98	2.11		
Feb 20	2.01	1.99	1.99	2.01	2.02	2.02	2.01	2.00	2.01	2.00	2.00	2.00	2.00	2.01	2.00	2.00	2.00	S	2.03	1.99	2.02	2.11	2.12	1.99	2.01	
Feb 21	2.09	2.03	2.02	2.02	2.01	2.01	2.00	2.00	2.01	2.01	2.01	2.01	1.98	1.98	1.99	1.99	2.00	2.02	2.01	2.01	2.01	2.02	1.98	2.09		
Feb 22	2.02	2.03	2.02	2.00	1.98	2.00	2.00	2.02	2.03	Y	2.02	2.01	2.00	1.99	1.99	S	1.99	1.97	1.97	1.96	1.97	1.98	1.98	1.96		
Feb 23	1.97	1.97	1.98	1.97	1.98	1.97	1.98	1.97	1.98	1.98	1.98	1.98	1.98	S	1.98	1.99	1.98	1.99	1.99	2.00	2.00	2.06	1.97	2.06		
Feb 24	2.16	2.13	2.07	2.12	2.04	2.03	2.03	2.01	2.01	1.98	1.99	1.99	S	1.99	1.99	1.99	1.98	1.98	1.99	1.99	2.00	1.98	2.16	2.02		
Feb 25	2.02	2.03	2.03	2.02	2.02	2.02	2.02	2.03	2.03	2.03	2.04	S	2.04	2.04	2.03	2.05	2.05	2.05	2.08	2.12	2.11	2.11	2.10	2.02		
Feb 26	2.10	2.11	2.10	2.10	2.11	2.10	2.11	2.10	2.09	2.09	2.09	S	2.06	2.05	2.05	2.05	2.05	2.05	2.00	1.99	1.99	1.99	1.98	2.11		
Feb 27	1.99	1.99	1.99	2.00	2.06	2.04	2.06	2.03	2.03	1.97	S	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.98	1.98	1.99			
Feb 28	1.96	1.97	1.97	1.98	1.97	1.96	1.98	1.96	1.97	S	1.97	1.97	1.97	1.97	1.96	1.97	1.97	1.97	1.97	1.98	1.98	1.99	1.97			
Diurnal Maximum	2.37	2.51	2.77	3.21	3.07	3.07	2.74	2.78	2.87	2.69	2.75	2.37	2.20	2.19	2.18	2.17	2.17	2.24	2.26	2.32	2.29	2.34	2.67	2.74		
Diurnal Average	2.09	2.12	2.12	2.15	2.17	2.14	2.14	2.11	2.12	2.10	2.08	2.06	2.05	2.05	2.06	2.06	2.07	2.07	2.09	2.11						
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	T	Exceeds Temperature Limits	N	Not in Service			
R	Recovery	X	Machine Malfunction	Y	Maintenance																					

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

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

### **Timeseries Chart of Hourly Instantaneous Maximum for CH4 - 842b Station**





## PEACE RIVER AREA MONITORING PROGRAM

**842b Station - February 2019**

### Summary of Hourly Instantaneous Maximums

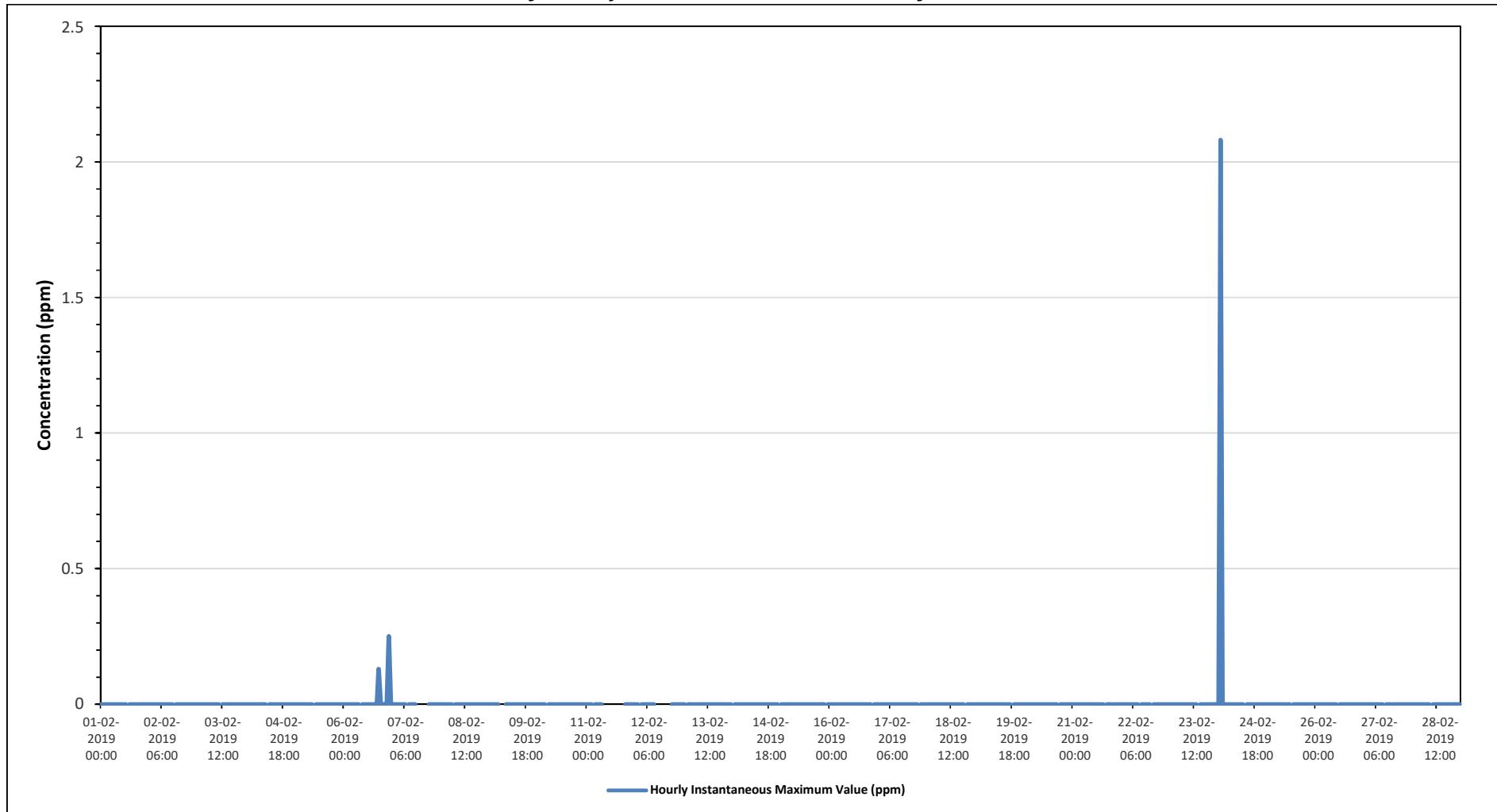
#### NON-METHANE HYDROCARBONS (NMHC) in ppm

Maximum Hourly Value:	2.08	ppm	on February 24 at hour 1	Hours in Service:	672																					
Maximum Daily Value:	0.09	ppm	on February 24	Hours of Data:	626																					
Minimum Hourly Value:	0.00	ppm	on February 1 at hour 0	Hours of Missing Data:	11																					
Minimum Daily Value:	0.00	ppm	on February 1	Hours of Calibration:	35																					
Monthly Average:	0.00	ppm		Operational Uptime:	98.4																					
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
Feb 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	
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	
Feb 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	C	C	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 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	-	
Feb 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C1	C1	C1	C1	C1	C1	C1	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 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	Y	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 24	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb 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	
Feb 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	S	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	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Diurnal Average	0.00	0.08	0.00	0.00	0.00	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	0.01	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 - 842b Station*





## PEACE RIVER AREA MONITORING PROGRAM

**842b Station - February 2019**

### Summary of Hourly Instantaneous Maximums

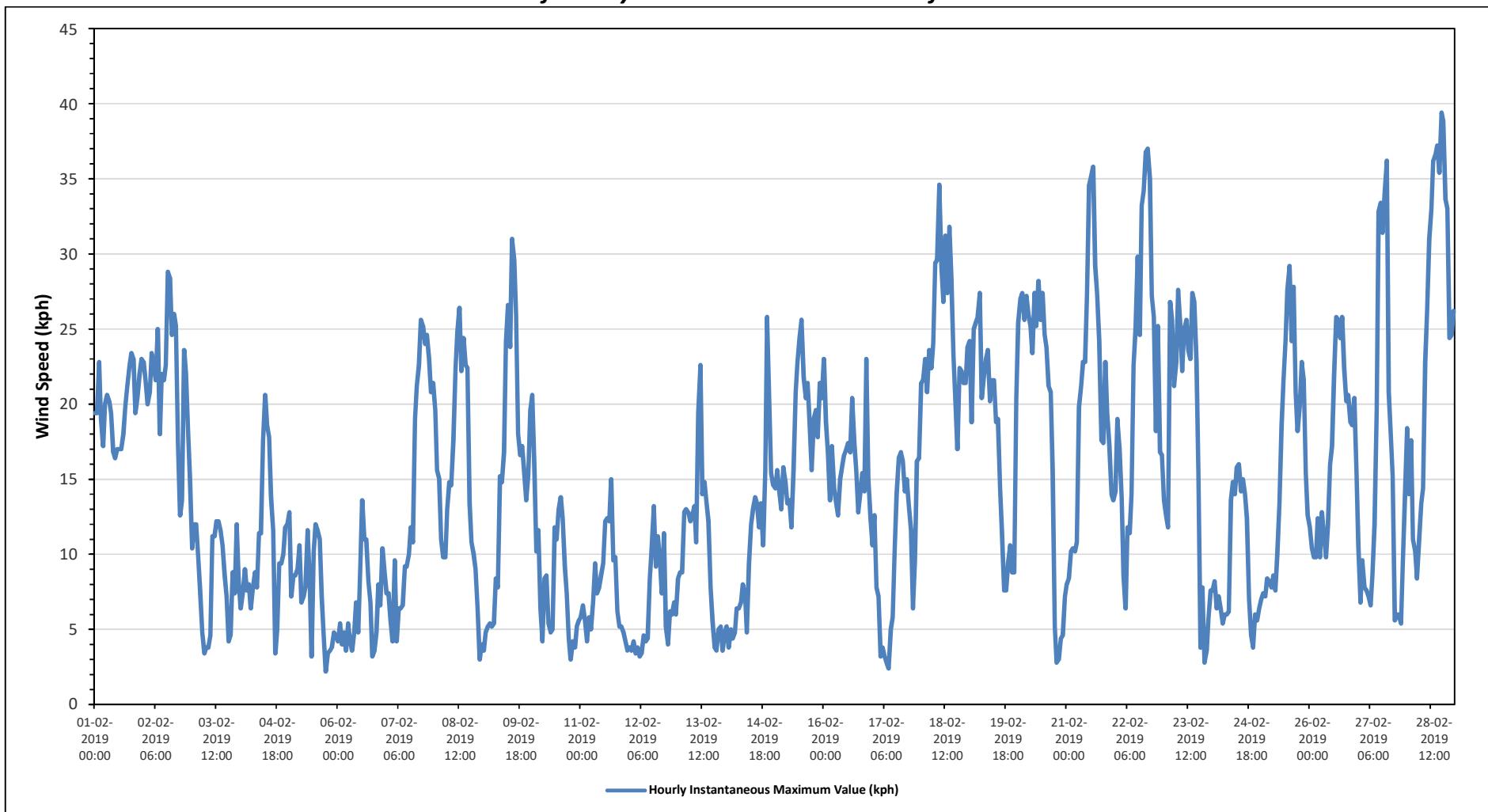
#### WIND SPEED (WS) in km/h

Maximum Hourly Value:	39.4	kph	on February 28 at hour 17	Hours in Service:	672																								
Maximum Daily Value:	24.9	kph	on February 28	Hours of Data:	672																								
Minimum Hourly Value:	2.2	kph	on February 5 at hour 18	Hours of Missing Data:	0																								
Minimum Daily Value:	6.4	kph	on February 12	Hours of Calibration:	0																								
Monthly Average:	14.7	kph		Operational Uptime:	100.0																								
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
Feb 1	19.4	19.4	22.8	19.0	17.2	20.0	20.6	20.2	19.4	16.8	16.4	17.0	17.0	18.0	19.8	21.2	22.6	23.4	23.0	19.4	20.4	22.0	23.0	16.4	23.4	19.8			
Feb 2	22.8	21.6	20.0	20.8	23.4	22.6	21.6	25.0	18.0	22.0	21.6	22.6	28.8	28.4	24.6	26.0	25.2	17.4	12.6	13.6	23.6	22.0	18.2	15.0	12.6	28.8	21.6		
Feb 3	10.4	12.0	12.0	9.8	7.6	4.8	3.4	3.8	3.8	4.6	11.2	11.2	12.2	12.2	11.6	10.6	8.6	7.2	4.2	4.6	8.8	7.4	12.0	8.2	3.4	12.2	8.4		
Feb 4	6.4	7.4	9.0	7.6	8.0	6.4	7.8	8.8	7.8	11.4	11.4	17.6	20.6	18.6	17.8	13.8	11.6	3.4	5.0	9.4	9.4	10.0	11.8	12.0	3.4	20.6	10.5		
Feb 5	12.8	7.2	8.6	8.6	9.0	10.6	6.8	7.2	7.8	11.6	8.4	3.2	10.2	12.0	11.6	11.0	7.2	4.4	2.2	3.4	3.6	3.8	4.8	4.6	2.2	12.8	7.5		
Feb 6	4.2	5.4	4.0	4.8	3.6	5.4	4.2	3.6	4.8	6.8	4.8	9.2	13.6	11.0	11.0	8.2	6.8	3.2	3.6	4.8	8.0	6.6	10.4	8.8	3.2	13.6	6.5		
Feb 7	7.4	7.4	5.6	4.2	9.6	4.2	6.4	6.4	6.6	9.2	9.2	10.0	11.8	10.8	19.0	21.2	22.6	25.6	25.2	24.0	24.6	23.0	20.8	21.4	4.2	25.6	14.0		
Feb 8	19.6	15.6	15.0	11.0	9.8	9.8	13.0	14.8	14.6	17.6	22.4	24.8	26.4	22.2	24.4	22.6	22.4	13.4	10.8	10.0	9.0	6.4	3.0	4.0	3.0	26.4	15.1		
Feb 9	3.6	4.8	5.2	5.4	5.2	5.4	8.4	7.8	15.2	14.8	16.8	24.2	26.6	23.8	31.0	29.6	26.0	18.0	16.6	17.2	15.4	13.6	15.2	19.6	3.6	31.0	15.4		
Feb 10	20.6	15.6	10.2	11.6	6.4	4.2	8.4	8.6	5.4	4.8	5.0	11.8	11.0	13.0	13.8	12.4	9.2	7.4	4.4	3.0	4.2	3.8	5.2	5.6	3.0	20.6	8.6		
Feb 11	5.8	6.6	5.6	4.2	5.8	5.0	6.8	9.4	7.4	7.8	8.6	9.4	12.2	12.4	12.2	15.0	9.6	9.8	6.2	5.2	5.2	4.8	4.2	3.6	3.6	15.0	7.6		
Feb 12	3.8	3.6	4.2	3.4	3.8	3.2	3.4	4.6	4.2	4.4	8.4	10.4	13.2	9.2	11.2	9.6	7.4	11.4	5.2	4.0	6.2	6.0	6.8	6.0	3.2	13.2	6.4		
Feb 13	8.4	8.8	8.8	12.8	13.0	12.8	12.2	12.6	13.2	10.8	19.4	22.6	14.0	14.8	13.6	12.2	7.8	5.6	3.8	3.6	5.0	5.2	3.6	4.8	3.6	22.6	10.4		
Feb 14	5.2	3.8	5.0	4.4	4.8	6.4	6.4	6.8	8.0	7.4	4.8	9.4	12.0	13.0	13.8	13.4	11.8	13.4	10.6	15.6	25.8	20.0	15.4	14.6	3.8	25.8	10.5		
Feb 15	14.4	15.6	14.2	13.0	15.8	14.8	13.4	13.6	11.8	15.6	20.8	22.8	24.4	25.6	21.8	20.4	21.4	18.6	15.6	19.0	19.6	17.8	21.4	20.4	11.8	25.6	18.0		
Feb 16	23.0	18.8	16.8	13.6	17.2	14.4	13.4	12.6	15.0	15.8	16.6	17.0	17.4	16.8	20.4	17.4	15.6	12.8	14.2	15.4	14.2	23.0	15.0	12.4	12.4	23.0	16.2		
Feb 17	10.6	12.6	7.8	7.2	3.2	3.8	3.2	2.8	2.4	5.0	5.8	10.4	14.0	16.4	16.8	16.2	14.2	15.0	13.2	11.6	6.4	9.6	16.2	16.4	2.4	16.8	10.0		
Feb 18	21.4	21.6	23.0	20.8	23.6	22.4	24.0	29.4	29.6	34.6	29.2	26.8	31.2	27.4	31.8	28.4	23.2	20.0	17.0	22.4	22.2	21.4	21.4	23.8	17.0	34.6	24.9		
Feb 19	24.2	18.8	25.0	25.4	25.8	27.4	20.4	21.8	23.0	23.6	20.2	21.6	21.6	18.8	19.0	14.4	11.4	7.6	7.6	9.4	10.6	8.8	8.8	20.4	7.6	27.4	18.2		
Feb 20	25.4	27.0	27.4	25.6	27.2	26.0	25.2	23.4	27.4	25.2	28.2	25.6	27.4	24.6	23.8	21.2	20.8	15.6	5.2	2.8	3.0	4.4	4.6	7.2	2.8	28.2	19.8		
Feb 21	8.0	8.4	10.2	10.4	10.2	10.8	19.8	21.2	22.8	22.8	27.2	34.6	35.2	35.8	29.2	27.4	24.2	17.6	17.4	22.8	19.4	17.2	14.0	13.6	8.0	35.8	20.0		
Feb 22	14.2	19.0	17.0	13.8	8.6	6.4	11.8	11.4	14.0	22.6	25.2	29.8	24.6	33.2	34.2	36.8	37.0	35.0	27.2	25.8	18.2	25.2	16.8	16.6	6.4	37.0	21.9		
Feb 23	13.6	12.6	11.8	26.8	25.6	21.2	22.8	27.6	25.2	22.2	25.0	25.6	23.6	23.0	27.4	26.8	22.8	15.4	3.8	7.8	2.8	3.6	5.8	7.6	2.8	27.6	17.9		
Feb 24	7.6	8.2	6.4	7.2	6.4	5.4	6.0	6.0	6.2	13.6	14.8	14.0	15.8	16.0	14.2	15.0	14.0	12.4	7.0	4.6	3.8	6.0	5.6	6.4	3.8	16.0	9.3		
Feb 25	7.0	7.4	7.2	8.4	8.2	7.8	8.6	7.6	10.0	13.4	18.6	21.6	24.2	27.6	29.2	24.2	27.8	20.8	18.2	19.8	22.8	21.6	15.4	12.6	7.0	29.2	16.3		
Feb 26	11.8	10.4	9.8	9.8	12.4	9.8	12.8	11.2	9.8	12.0	16.0	17.2	21.8	25.8	25.6	24.4	25.8	22.4	20.2	20.6	18.8	18.6	20.4	15.6	9.8	25.8	16.8		
Feb 27	10.6	6.8	9.6	7.8	7.6	7.2	6.6	8.6	12.0	19.6	32.8	33.4	31.4	34.0	36.2	20.8	17.8	15.2	5.6	6.0	6.0	5.4	9.4	13.8	5.4	36.2	15.2		
Feb 28	18.4	14.0	17.6	11.0	10.2	8.4	11.0	13.4	14.4	22.8	26.2	31.0	33.0	36.2	36.6	37.2	35.4	39.4	38.8	33.6	33.0	24.4	24.6	26.2	8.4	39.4	24.9		
Diarurnal Maximum	25.4	27.0	27.4	26.8	27.2	27.4	25.2	29.4	29.6	34.6	32.8	34.6	35.2	36.2	36.6	37.2	37.0	39.4	38.8	33.6	33.0	25.2	24.6	26.2					
Diarurnal Average	12.9	12.2	12.1	11.7	11.8	11.0	11.7	12.5	12.9	15.0	17.0	19.1	20.5	20.7	21.4	19.9	18.2	15.4	12.3	13.0	13.2	12.9	12.6	13.0					
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 WS - 842b Station**



## **RENO STATION**



## PEACE RIVER AREA MONITORING PROGRAM

Reno Site - February 2019

### Summary of Hourly Instantaneous Maximums

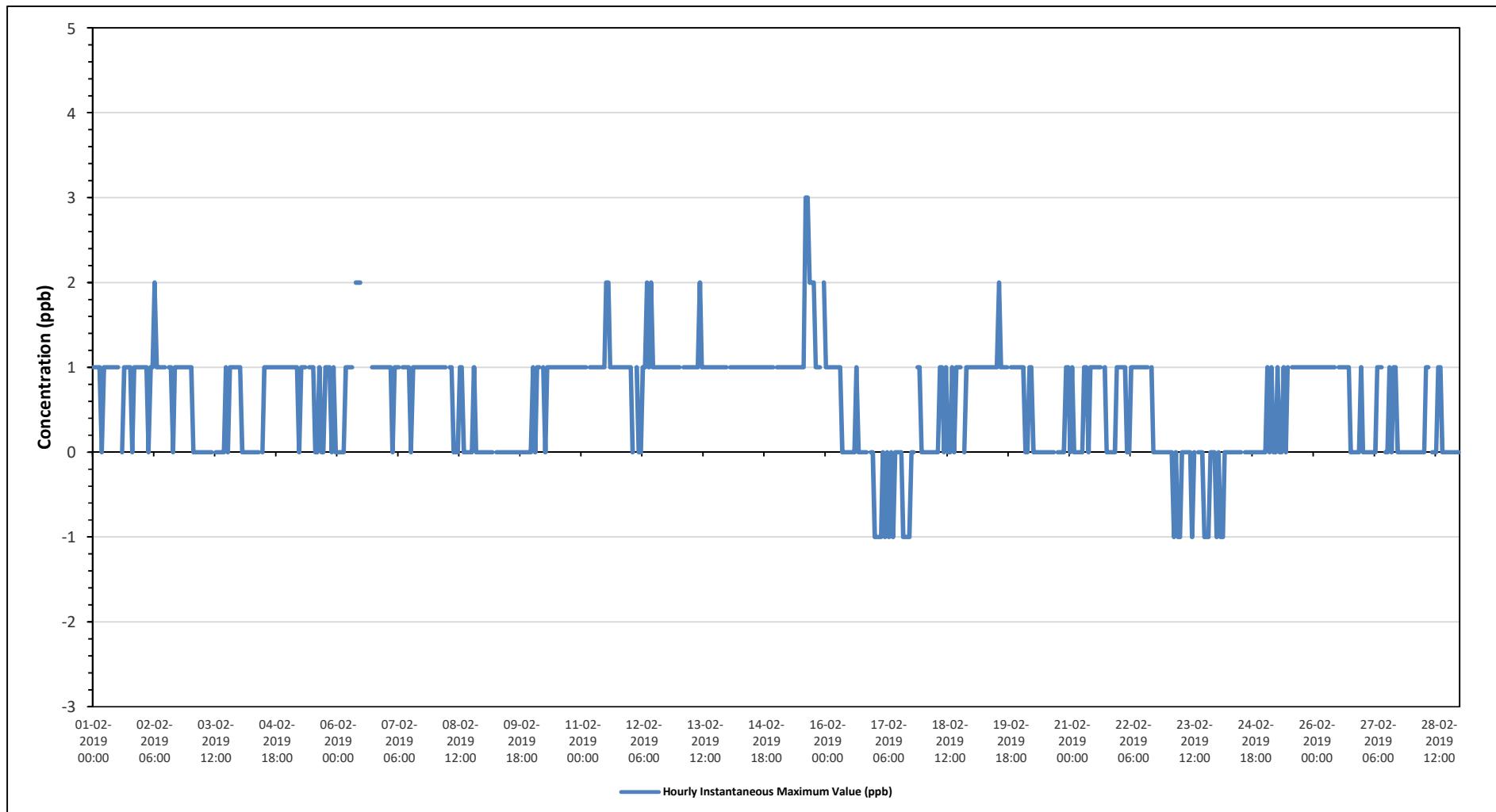
#### SULPHUR DIOXIDE (SO<sub>2</sub>) in ppb

Maximum Hourly Value:	3	ppb	on February 15 at hour 14	Hours in Service:	672																					
Maximum Daily Value:	1.3	ppb	on February 15	Hours of Data:	638																					
Minimum Hourly Value:	-1	ppb	on February 17 at hour 14	Hours of Missing Data:	0																					
Minimum Daily Value:	-0.4	ppb	on February 17	Hours of Calibration:	34																					
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		
Feb 1	1	1	1	1	0	1	1	1	1	1	1	1	1	S	0	1	1	1	1	0	1	1	1	1		
Feb 2	1	1	1	0	1	1	2	1	1	1	1	1	1	S	1	1	0	1	1	1	1	1	1	1		
Feb 3	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	1	1	1	1		
Feb 4	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	1	1	1	1	1	1	1	1		
Feb 5	1	1	1	1	1	0	1	1	1	S	1	1	1	0	0	1	0	0	1	1	1	0	1	0		
Feb 6	0	0	0	0	1	1	1	1	S	2	2	2	C	C	C	C	1	1	1	1	1	1	1	1		
Feb 7	1	1	1	0	1	1	1	S	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1		
Feb 8	1	1	1	1	1	1	1	S	1	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0		
Feb 9	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Feb 10	1	0	1	1	S	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Feb 11	1	1	1	S	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1		
Feb 12	1	0	S	1	1	0	0	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1		
Feb 13	1	S	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1		
Feb 14	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1		
Feb 15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	2	2	2	1	1	1	S	2		
Feb 16	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	S	0	0		
Feb 17	-1	-1	-1	-1	0	-1	0	-1	0	-1	0	0	0	0	-1	-1	-1	-1	0	0	S	1	1	-1		
Feb 18	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	1	1	1	S	0	1	1	0		
Feb 19	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1		
Feb 20	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0		
Feb 21	0	1	0	0	0	0	0	1	1	1	1	1	1	1	1	S	1	0	0	0	0	0	0	1		
Feb 22	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	S	1	0	0	0	0	0	0	0		
Feb 23	0	0	0	-1	0	-1	-1	0	0	0	0	-1	0	S	0	0	0	0	-1	-1	0	0	0	-1		
Feb 24	-1	0	-1	-1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	-1		
Feb 25	0	1	0	1	0	0	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0		
Feb 26	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	0.8		
Feb 27	0	0	0	0	0	0	1	1	1	S	0	0	1	0	1	1	0	0	0	0	0	0	0	0.3		
Feb 28	0	0	0	0	0	0	0	1	1	S	0	0	0	1	1	0	0	0	0	0	0	0	0	0.2		
Diurnal Maximum	1	1	1	1	1	1	2	1	2	2	2	2	2	2	3	3	2	2	2	1	1	1	1	2		
Diurnal Average	0.6	0.5	0.4	0.4	0.5	0.4	0.6	0.7	0.7	0.7	0.6	0.8	0.7	0.7	0.6	0.5	0.5	0.6	0.6	0.5	0.6	0.6	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 Instantaneous Maximum for SO<sub>2</sub> - Reno Site*





## PEACE RIVER AREA MONITORING PROGRAM

**Reno Site - February 2019**

### Summary of Hourly Instantaneous Maximums

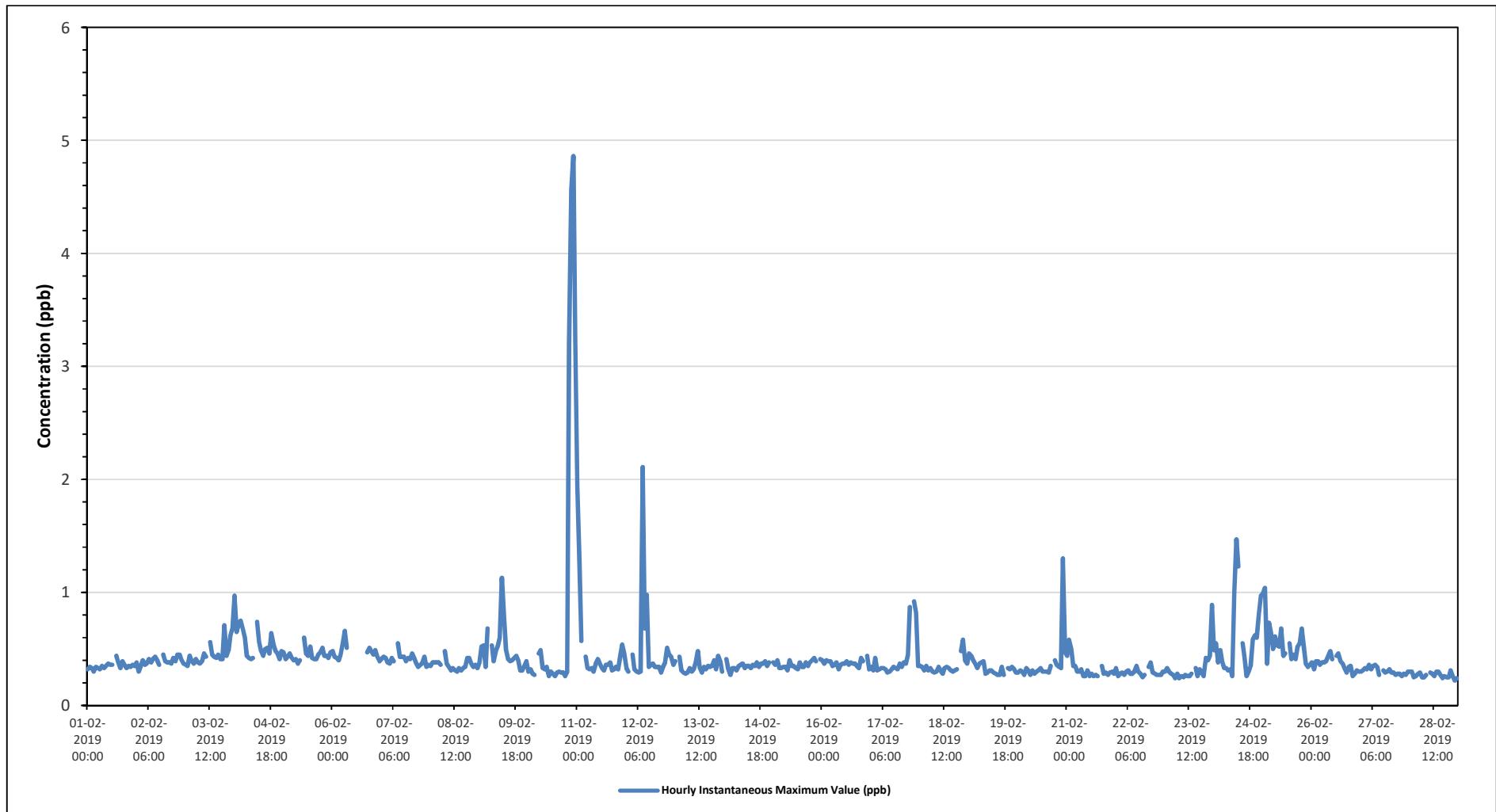
#### TOTAL REDUCED SULPHUR (TRS) in ppb

Maximum Hourly Value:	4.86 ppb	on February 10 at hour 22	Hours in Service:	672	Daily Minimum:	0.30	Daily Maximum:	0.44	Daily Average:	0.35																				
Maximum Daily Value:	0.95 ppb	on February 10	Hours of Data:	635																										
Minimum Hourly Value:	0.22 ppb	on February 28 at hour 22	Hours of Missing Data:	0																										
Minimum Daily Value:	0.27 ppb	on February 28	Hours of Calibration:	37																										
Monthly Average:	0.42 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						
Feb 1	0.32	0.34	0.33	0.3	0.34	0.33	0.32	0.35	0.33	0.35	0.37	0.36	0.36	S	0.44	0.38	0.33	0.39	0.36	0.33	0.35	0.34	0.36	0.35	0.30	0.44	0.35			
Feb 2	0.38	0.3	0.34	0.4	0.36	0.37	0.41	0.38	0.41	0.43	0.4	0.36	S	0.45	0.39	0.38	0.38	0.37	0.42	0.39	0.45	0.45	0.4	0.37	0.30	0.45	0.39			
Feb 3	0.36	0.35	0.44	0.39	0.37	0.41	0.38	0.37	0.39	0.46	0.43	S	0.56	0.45	0.43	0.42	0.45	0.41	0.41	0.71	0.44	0.49	0.62	0.69	0.35	0.71	0.45			
Feb 4	0.97	0.65	0.72	0.75	0.68	0.6	0.44	0.42	0.41	0.42	S	0.74	0.56	0.48	0.44	0.5	0.51	0.46	0.64	0.54	0.48	0.46	0.41	0.48	0.41	0.97	0.55			
Feb 5	0.47	0.41	0.43	0.46	0.42	0.4	0.41	0.37	0.4	S	0.6	0.46	0.44	0.52	0.42	0.41	0.41	0.45	0.47	0.51	0.44	0.44	0.42	0.47	0.37	0.60	0.44			
Feb 6	0.48	0.43	0.42	0.4	0.45	0.55	0.66	0.51	S	C	C	C	C	C	C	C	C	C	0.47	0.51	0.48	0.45	0.49	0.43	0.39	0.39	0.66	-		
Feb 7	0.41	0.43	0.42	0.38	0.37	0.42	0.39	S	0.55	0.43	0.43	0.43	0.39	0.42	0.41	0.46	0.42	0.37	0.34	0.36	0.37	0.43	0.34	0.36	0.34	0.55	0.41			
Feb 8	0.35	0.38	0.38	0.38	0.36	S	0.48	0.37	0.34	0.31	0.33	0.31	0.3	0.33	0.31	0.33	0.34	0.42	0.42	0.37	0.34	0.36	0.33	0.30	0.48	0.36				
Feb 9	0.38	0.52	0.53	0.34	0.68	S	0.53	0.39	0.48	0.53	0.6	1.13	0.79	0.5	0.41	0.39	0.4	0.42	0.44	0.4	0.31	0.31	0.35	0.39	0.31	1.13	0.49			
Feb 10	0.3	0.32	0.28	0.27	S	0.46	0.49	0.33	0.32	0.34	0.26	0.3	0.28	0.26	0.29	0.3	0.29	0.29	0.26	0.3	3.2	4.56	4.86	3.22	0.26	4.86	0.95			
Feb 11	1.94	1.26	0.57	S	0.43	0.33	0.32	0.33	0.3	0.37	0.41	0.37	0.33	0.31	0.36	0.36	0.38	0.31	0.32	0.34	0.32	0.44	0.54	0.46	0.30	1.94	0.48			
Feb 12	0.33	0.3	S	0.45	0.32	0.3	0.29	0.3	2.11	0.68	0.98	0.34	0.36	0.37	0.34	0.34	0.34	0.29	0.34	0.38	0.51	0.45	0.43	0.36	0.29	2.11	0.47			
Feb 13	0.39	S	0.43	0.31	0.29	0.28	0.29	0.33	0.3	0.32	0.38	0.48	0.33	0.29	0.34	0.32	0.35	0.34	0.35	0.4	0.32	0.44	0.39	0.3	0.28	0.48	0.35			
Feb 14	S	0.41	0.32	0.27	0.33	0.33	0.31	0.35	0.36	0.37	0.33	0.35	0.35	0.33	0.36	0.35	0.38	0.34	0.37	0.37	0.39	0.35	0.38	S	0.27	0.41	0.35			
Feb 15	0.38	0.36	0.4	0.33	0.33	0.34	0.34	0.31	0.4	0.35	0.35	0.33	0.32	0.38	0.34	0.34	0.38	0.35	0.38	0.4	0.42	0.39	S	0.41	0.31	0.42	0.36			
Feb 16	0.4	0.37	0.4	0.39	0.39	0.35	0.36	0.38	0.32	0.36	0.37	0.37	0.39	0.36	0.38	0.37	0.37	0.35	0.33	0.42	0.39	S	0.44	0.32	0.32	0.44	0.37			
Feb 17	0.34	0.31	0.42	0.31	0.32	0.33	0.33	0.32	0.29	0.3	0.32	0.34	0.33	0.32	0.37	0.34	0.38	0.37	0.45	0.87	S	0.92	0.82	0.35	0.29	0.92	0.41			
Feb 18	0.35	0.34	0.31	0.35	0.31	0.33	0.3	0.29	0.3	0.34	0.31	0.28	0.33	0.34	0.33	0.31	0.3	0.31	0.32	S	0.48	0.58	0.4	0.37	0.28	0.58	0.34			
Feb 19	0.46	0.44	0.4	0.37	0.33	0.37	0.38	0.39	0.28	0.29	0.31	0.31	0.29	0.28	0.27	0.27	0.27	0.27	0.27	S	0.33	0.32	0.34	0.32	0.29	0.27	0.46	0.33		
Feb 20	0.29	0.31	0.3	0.27	0.33	0.31	0.27	0.31	0.28	0.3	0.31	0.33	0.3	0.3	0.29	0.35	S	0.4	0.36	0.34	0.33	1.3	0.47	0.27	1.30	0.36				
Feb 21	0.44	0.58	0.5	0.35	0.35	0.3	0.3	0.32	0.26	0.26	0.31	0.26	0.28	0.26	0.27	0.26	S	0.35	0.28	0.29	0.27	0.29	0.3	0.28	0.26	0.58	0.32			
Feb 22	0.33	0.26	0.28	0.29	0.27	0.3	0.31	0.28	0.28	0.3	0.35	0.3	0.28	0.25	0.27	S	0.34	0.38	0.29	0.28	0.27	0.27	0.3	0.25	0.38	0.29				
Feb 23	0.3	0.33	0.3	0.28	0.27	0.24	0.28	0.24	0.26	0.25	0.27	0.26	0.26	0.28	S	0.33	0.26	0.32	0.29	0.26	0.42	0.4	0.44	0.89	0.24	0.89	0.32			
Feb 24	0.49	0.55	0.38	0.49	0.39	0.33	0.33	0.31	0.32	0.26	1	1.47	1.23	S	0.55	0.43	0.26	0.3	0.35	0.58	0.62	0.6	0.81	0.97	0.26	1.47	0.57			
Feb 25	0.99	1.04	0.37	0.73	0.64	0.5	0.61	0.53	0.52	0.68	0.44	0.46	S	0.55	0.41	0.45	0.41	0.52	0.55	0.68	0.53	0.37	0.34	0.36	0.34	1.04	0.55			
Feb 26	0.38	0.32	0.39	0.39	0.36	0.38	0.38	0.39	0.44	0.48	0.41	S	0.44	0.46	0.39	0.37	0.33	0.29	0.34	0.35	0.26	0.28	0.31	0.3	0.26	0.48	0.37			
Feb 27	0.3	0.31	0.33	0.32	0.36	0.32	0.35	0.36	0.34	0.27	S	0.31	0.29	0.3	0.32	0.29	0.27	0.28	0.28	0.26	0.28	0.27	0.3	0.26	0.36	0.30				
Feb 28	0.3	0.3	0.25	0.26	0.28	0.29	0.25	0.25	0.27	S	0.29	0.28	0.26	0.3	0.3	0.27	0.24	0.26	0.25	0.25	0.31	0.26	0.22	0.24	0.22	0.31	0.27			
Diurnal Maximum	2	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	3	5	5	3					
Diurnal Average	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	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 TRS - Reno Site**





## PEACE RIVER AREA MONITORING PROGRAM

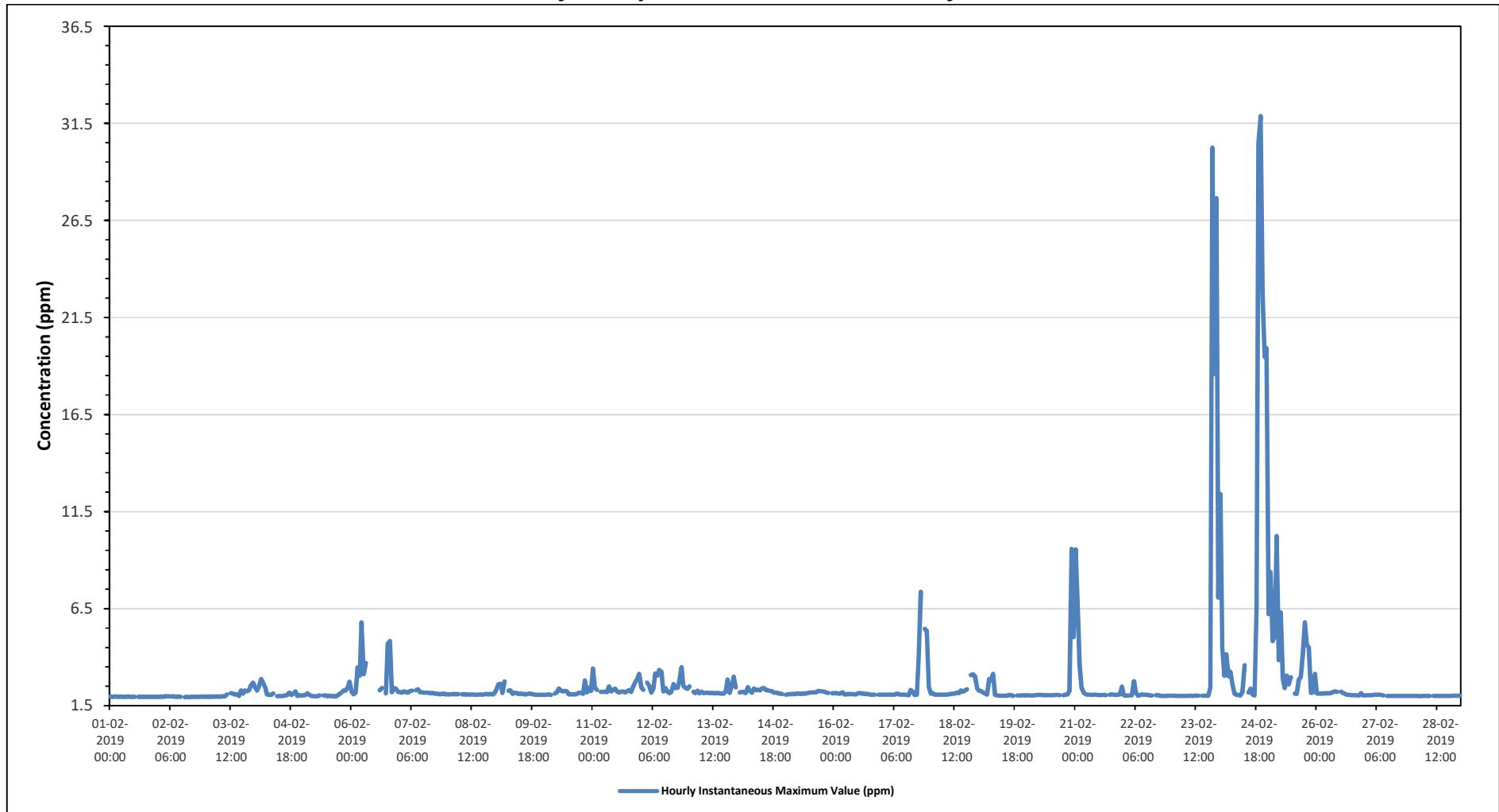
**Reno Site - February 2019**

### Summary of Hourly Instantaneous Maximums

#### TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	31.87	ppm on February 24 at hour 20	Hours in Service:	672	Daily Minimum:	1.95	Daily Maximum:	1.97	Daily Average:	1.96																			
Maximum Daily Value:	8.12	ppm on February 24	Hours of Data:	637																									
Minimum Hourly Value:	1.94	ppm on February 2 at hour 13	Hours of Missing Data:	0																									
Minimum Daily Value:	1.96	ppm on February 1	Hours of Calibration:	35																									
Monthly Average:	2.64	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		
Feb 1	1.97	1.95	1.97	1.97	1.95	1.97	1.96	1.95	1.97	1.95	1.96	1.95	1.95	1.96	1.95	1.96	1.95	1.96	1.95	1.96	1.95	1.96	1.96	1.96					
Feb 2	1.96	1.97	1.96	1.98	1.98	1.99	1.98	1.97	1.96	1.97	1.95	1.95	1.94	1.96	1.94	1.96	1.95	1.96	1.95	1.96	1.97	1.95	1.97	1.96					
Feb 3	1.96	1.97	1.96	1.97	1.97	1.97	1.97	1.97	1.99	1.98	2.08	S	2.15	2.12	2.08	2.08	2.00	2.29	2.12	2.28	2.25	2.30	2.55	2.69	1.96				
Feb 4	2.47	2.29	2.50	2.87	2.68	2.44	2.08	2.05	2.05	2.13	S	1.99	2.00	1.99	2.00	2.03	2.05	2.18	2.05	2.11	2.24	2.01	2.04	2.02	1.99				
Feb 5	2.04	2.04	2.14	2.06	2.00	1.99	1.99	1.99	2.03	S	2.03	2.03	1.99	2.02	1.98	2.00	1.97	2.03	2.11	2.17	2.28	2.44	2.73	1.97					
Feb 6	2.24	2.09	2.17	3.47	3.05	5.79	3.12	3.70	S	C	C	C	C	2.30	2.41	C	2.14	4.71	4.83	2.20	2.40	2.38	2.21	2.09	5.79	-			
Feb 7	2.20	2.17	2.23	2.20	2.18	2.25	2.27	S	2.30	2.34	2.20	2.19	2.17	2.18	2.18	2.14	2.16	2.13	2.12	2.10	2.10	2.12	2.08	2.08	2.34	2.18			
Feb 8	2.09	2.08	2.09	2.10	2.09	2.10	S	2.09	2.09	2.06	2.08	2.06	2.07	2.06	2.06	2.08	2.07	2.08	2.10	2.08	2.10	2.08	2.12	2.06	2.12	2.08			
Feb 9	2.36	2.60	2.63	2.16	2.75	S	2.27	2.29	2.11	2.16	2.16	2.10	2.12	2.10	2.09	2.09	2.12	2.11	2.09	2.07	2.05	2.06	2.05	2.06	2.05	2.75	2.20		
Feb 10	2.05	2.06	2.08	2.05	S	2.13	2.19	2.38	2.29	2.24	2.26	2.24	2.09	2.09	2.09	2.10	2.18	2.16	2.16	2.11	2.79	2.19	2.42	2.26	2.05	2.79	2.20		
Feb 11	3.41	2.41	2.32	S	2.21	2.21	2.22	2.20	2.49	2.23	2.31	2.38	2.23	2.18	2.22	2.22	2.19	2.25	2.31	2.21	2.48	2.71	2.85	3.13	2.18	3.41	2.41		
Feb 12	2.44	2.32	S	2.68	2.51	2.17	2.38	3.16	3.05	3.34	3.25	2.23	2.40	2.23	2.15	2.21	2.61	2.40	2.42	2.76	3.48	2.52	2.42	2.37	2.15	3.48	2.59		
Feb 13	2.49	S	2.21	2.15	2.27	2.14	2.22	2.15	2.16	2.17	2.15	2.15	2.15	2.14	2.16	2.14	2.12	2.13	2.22	2.84	2.16	2.51	2.99	2.44	2.12	2.99	2.27		
Feb 14	S	2.19	2.21	2.21	2.15	2.45	2.27	2.17	2.38	2.31	2.32	2.29	2.39	2.40	2.31	2.30	2.26	2.25	2.17	2.15	2.13	2.10	S	2.10	2.45	2.25			
Feb 15	2.07	2.08	2.09	2.10	2.10	2.11	2.12	2.11	2.11	2.13	2.12	2.16	2.18	2.19	2.19	2.19	2.26	2.25	2.24	2.22	2.17	2.16	S	2.14	2.07	2.26	2.15		
Feb 16	2.15	2.15	2.13	2.13	2.19	2.09	2.09	2.10	2.10	2.09	2.09	2.15	2.14	2.13	2.11	2.10	2.10	2.07	2.06	2.06	2.06	S	2.06	2.06	2.06	2.19	2.11		
Feb 17	2.06	2.06	2.07	2.06	2.06	2.06	2.07	2.11	2.10	2.07	2.06	2.06	2.05	2.04	2.31	2.22	2.05	2.07	4.00	7.37	S	5.46	5.35	2.46	2.04	7.37	2.71		
Feb 18	2.12	2.14	2.06	2.06	2.07	2.07	2.06	2.06	2.07	2.09	2.10	2.12	2.13	2.17	2.15	2.16	2.29	2.22	2.29	2.34	S	3.07	3.11	3.03	2.40	2.06	3.11	2.27	
Feb 19	2.27	2.25	2.19	2.13	2.08	2.87	2.81	3.14	2.05	2.03	2.02	2.02	2.02	2.02	2.05	2.04	2.01	S	2.03	2.03	2.03	2.04	2.03	2.01	3.14	2.18			
Feb 20	2.04	2.03	2.03	2.03	2.04	2.05	2.05	2.04	2.04	2.04	2.04	2.04	2.04	2.05	2.05	2.04	2.04	S	2.04	2.04	2.07	2.27	2.95	5.03	2.03	9.57	2.51		
Feb 21	9.55	7.05	3.56	2.44	2.18	2.09	2.06	2.06	2.05	2.06	2.07	2.05	2.04	2.05	2.05	2.04	2.04	S	2.06	2.08	2.07	2.05	2.06	2.08	2.48	2.04	9.55	2.71	
Feb 22	2.04	2.02	2.03	2.03	2.04	2.76	2.16	2.02	2.04	2.08	2.07	2.07	2.05	2.03	2.03	2.03	2.04	2.04	2.02	2.00	2.01	2.01	2.02	2.00	2.00	2.76	2.07		
Feb 23	2.02	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.02	2.01	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.43	30.25	18.58	27.64	7.07	2.01	30.25	5.32		
Feb 24	12.40	4.49	3.04	4.14	3.02	3.25	2.60	2.13	2.05	2.05	2.03	2.22	3.59	S	2.18	2.38	2.08	2.03	6.62	30.47	31.87	22.64	19.47	19.92	2.03	31.87	8.12		
Feb 25	6.22	8.37	4.83	5.05	10.24	3.85	6.30	2.88	2.41	3.05	2.60	2.97	S	2.12	2.11	2.85	2.96	4.22	4.65	4.49	2.16	2.19	3.13	2.11	10.24	4.15			
Feb 26	2.14	2.13	2.13	2.13	2.14	2.14	2.15	2.20	2.20	2.23	2.21	S	2.22	2.15	2.11	2.07	2.05	2.04	2.04	2.04	2.03	2.03	2.14	2.03	2.03	2.23	2.12		
Feb 27	2.03	2.04	2.04	2.05	2.06	2.06	2.06	2.05	2.03	S	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.00	2.00	2.00	2.00	2.02	2.02			
Feb 28	2.01	2.01	2.00	1.99	2.01	2.00	2.00	2.00	2.00	S	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.02	2.02	2.02	1.99	2.02	2.01			
Diurnal Maximum	12.40	8.37	4.83	5.05	10.24	5.79	6.30	3.70	3.05	3.34	3.25	2.97	3.59	2.40	2.31	2.85	2.96	4.22	6.62	30.47	31.87	22.64	19.92						
Diurnal Average	2.99	2.63	2.32	2.38	2.52	2.41	2.35	2.26	2.15	2.19	2.17	2.14	2.17	2.10	2.11	2.15	2.13	2.19	2.58	3.60	4.46	3.69	4.22	3.22					
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 THC - Reno Site**





## PEACE RIVER AREA MONITORING PROGRAM

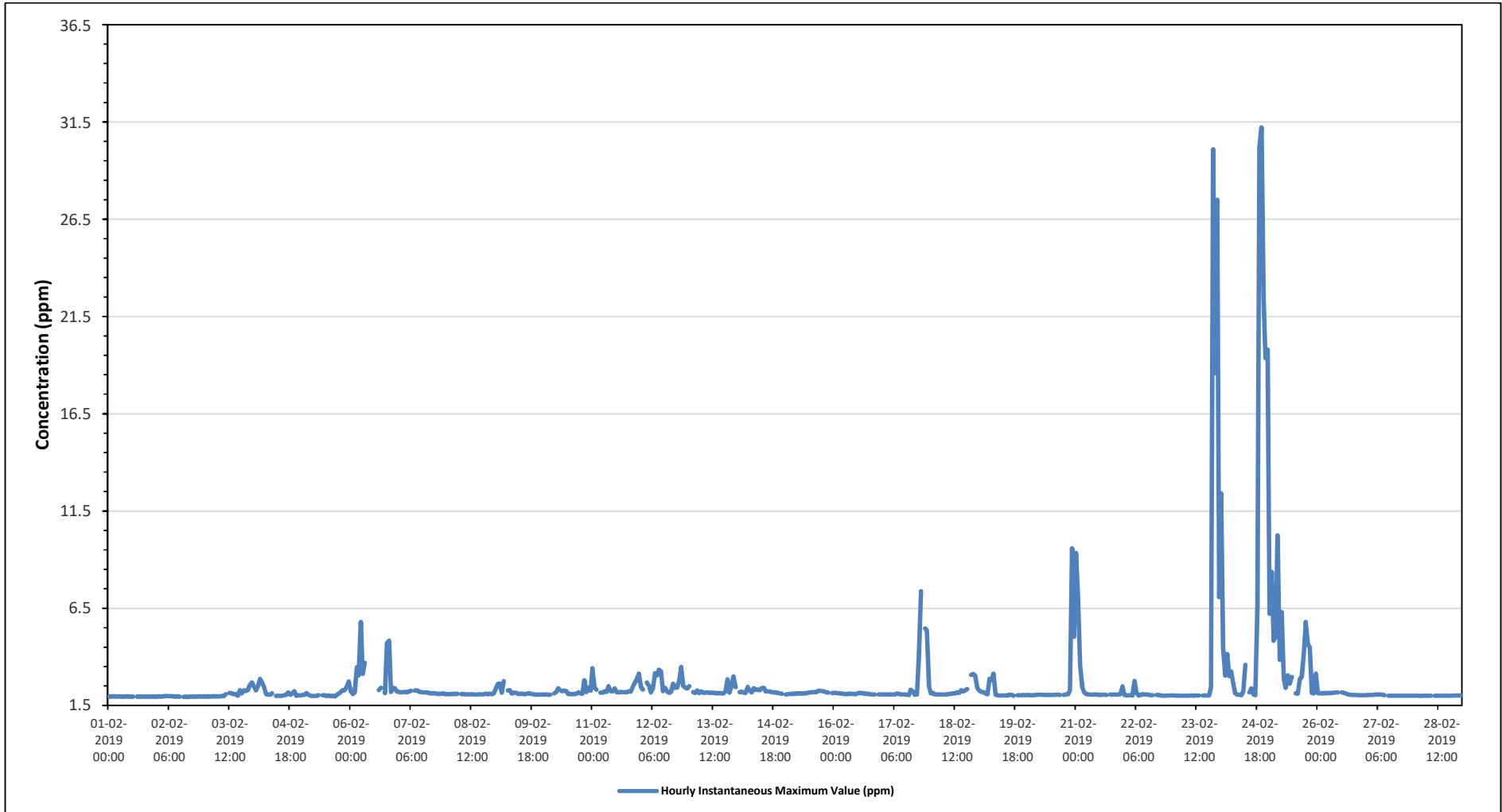
Reno Site - February 2019

### Summary of Hourly Instantaneous Maximums

#### METHANE (CH<sub>4</sub>) in ppm

Maximum Hourly Value:	31.22	ppm	on February 24 at hour 20	Hours in Service:	672																					
Maximum Daily Value:	8.06	ppm	on February 24	Hours of Data:	637																					
Minimum Hourly Value:	1.94	ppm	on February 2 at hour 13	Hours of Missing Data:	0																					
Minimum Daily Value:	1.96	ppm	on February 1	Hours of Calibration:	35																					
Monthly Average:	2.63	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			
Feb 1	1.97	1.95	1.97	1.97	1.95	1.97	1.95	1.96	1.95	1.97	1.95	1.96	1.95	1.96	1.95	1.96	1.95	1.96	1.95	1.96	1.95	1.96	1.96	1.96		
Feb 2	1.96	1.97	1.96	1.98	1.98	1.99	1.98	1.98	1.97	1.96	1.97	1.95	1.95	1.94	1.96	1.94	1.96	1.95	1.96	1.95	1.97	1.95	1.97	1.96		
Feb 3	1.96	1.97	1.96	1.97	1.97	1.97	1.97	1.97	1.99	1.98	2.08	S	2.15	2.12	2.08	2.08	2.00	2.29	2.12	2.28	2.25	2.30	2.55	2.69	1.96	
Feb 4	2.47	2.29	2.50	2.87	2.68	2.44	2.08	2.05	2.05	2.13	S	1.99	2.00	1.99	2.00	2.03	2.05	2.18	2.05	2.11	2.24	2.01	2.03	2.02	1.99	
Feb 5	2.04	2.04	2.14	2.06	2.00	1.99	1.99	1.99	2.03	S	2.03	2.03	1.99	2.02	1.98	2.00	1.97	2.03	2.11	2.17	2.28	2.44	2.73	1.97		
Feb 6	2.24	2.09	2.17	3.47	3.05	5.79	3.12	3.70	S	2.27	2.27	2.21	2.19	2.17	2.18	2.18	2.14	2.13	2.12	2.10	2.10	2.12	2.08	2.09		
Feb 7	2.20	2.17	2.19	2.20	2.18	2.22	2.25	S	2.09	2.09	2.06	2.08	2.06	2.06	2.07	2.06	2.08	2.07	2.08	2.10	2.10	2.08	2.08	2.27		
Feb 8	2.09	2.08	2.09	2.10	2.09	2.10	S	2.09	2.09	2.06	2.08	2.06	2.06	2.07	2.06	2.08	2.07	2.08	2.10	2.08	2.10	2.08	2.12	2.08		
Feb 9	2.36	2.60	2.63	2.16	2.75	S	2.27	2.29	2.11	2.16	2.16	2.10	2.10	2.10	2.09	2.09	2.12	2.11	2.09	2.07	2.05	2.06	2.05	2.06	2.05	
Feb 10	2.05	2.06	2.05	2.05	S	2.13	2.19	2.38	2.29	2.24	2.26	2.24	2.09	2.09	2.09	2.09	2.10	2.18	2.12	2.11	2.79	2.19	2.42	2.26	2.05	
Feb 11	3.41	2.41	2.32	S	2.16	2.16	2.22	2.20	2.49	2.23	2.22	2.38	2.19	2.18	2.20	2.19	2.19	2.19	2.22	2.21	2.48	2.66	2.85	3.13	2.16	
Feb 12	2.44	2.32	S	2.68	2.51	2.17	2.38	3.16	3.05	3.34	3.25	2.23	2.40	2.23	2.15	2.20	2.61	2.40	2.42	2.76	2.52	2.42	2.37	2.15		
Feb 13	2.49	S	2.19	2.15	2.27	2.14	2.22	2.15	2.16	2.17	2.15	2.15	2.14	2.13	2.14	2.12	2.13	2.22	2.84	2.16	2.51	2.99	2.44	2.12		
Feb 14	S	2.19	2.21	2.16	2.15	2.45	2.27	2.17	2.38	2.31	2.32	2.29	2.39	2.40	2.22	2.22	2.22	2.19	2.17	2.17	2.15	2.13	2.10	S	2.10	
Feb 15	2.07	2.08	2.09	2.10	2.10	2.11	2.12	2.11	2.11	2.12	2.12	2.16	2.18	2.19	2.19	2.19	2.26	2.25	2.24	2.22	2.17	2.16	S	2.14	2.07	
Feb 16	2.15	2.15	2.13	2.13	2.10	2.09	2.09	2.10	2.10	2.09	2.09	2.15	2.14	2.13	2.11	2.10	2.10	2.07	2.06	2.06	S	2.06	2.06	2.15	2.10	
Feb 17	2.06	2.06	2.07	2.06	2.06	2.06	2.07	2.11	2.10	2.07	2.06	2.06	2.05	2.04	2.31	2.22	2.05	2.07	4.00	7.37	S	5.46	5.35	2.46	2.04	
Feb 18	2.12	2.14	2.06	2.06	2.07	2.07	2.06	2.06	2.07	2.09	2.10	2.12	2.13	2.17	2.15	2.29	2.22	2.29	2.34	S	3.07	3.11	3.03	2.40		
Feb 19	2.27	2.20	2.19	2.13	2.08	2.87	2.81	3.14	2.05	2.03	2.02	2.02	2.02	2.02	2.05	2.04	2.01	S	2.03	2.03	2.04	2.03	2.01	3.14	2.18	
Feb 20	2.04	2.03	2.03	2.03	2.04	2.05	2.05	2.05	2.04	2.04	2.04	2.04	2.04	2.05	2.05	2.04	2.04	S	2.04	2.04	2.27	9.57	5.03	2.03	9.57	
Feb 21	9.34	7.05	3.56	2.44	2.18	2.09	2.06	2.06	2.05	2.06	2.07	2.05	2.04	2.05	2.05	2.04	S	2.06	2.05	2.07	2.05	2.06	2.08	2.48	2.04	
Feb 22	2.04	2.02	2.03	2.03	2.02	2.76	2.16	2.02	2.04	2.08	2.07	2.07	2.05	2.03	2.03	S	2.04	2.04	2.02	2.00	2.01	2.02	2.02	2.00		
Feb 23	2.02	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.02	2.01	2.02	2.02	2.02	2.02	S	2.02	2.02	2.02	2.02	2.43	30.09	18.58	27.49	7.07		
Feb 24	12.40	4.49	3.04	4.14	3.02	3.25	2.60	2.13	2.05	2.05	2.03	2.22	3.59	S	2.18	2.38	2.08	2.03	6.62	30.18	31.22	22.47	19.35	2.03		
Feb 25	6.22	8.37	4.83	5.05	10.24	3.85	6.30	2.88	2.41	3.05	2.63	2.97	S	2.12	2.11	2.85	2.96	4.22	4.65	4.49	2.15	2.13	3.13	2.11	10.24	
Feb 26	2.14	2.13	2.13	2.13	2.14	2.14	2.14	2.15	2.16	2.17	2.18	S	2.17	2.15	2.11	2.07	2.05	2.04	2.04	2.04	2.03	2.03	2.03	2.03	2.18	
Feb 27	2.03	2.04	2.04	2.04	2.05	2.06	2.06	2.06	2.05	2.03	S	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.01	2.00	2.00	2.00	2.00	2.02		
Feb 28	2.01	2.01	2.00	1.99	2.01	2.00	2.00	2.00	2.00	S	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.02	2.02	2.02	1.99	2.02		
Diurnal Maximum	12.40	8.37	4.83	5.05	10.24	5.79	6.30	3.70	3.05	3.34	3.25	2.97	3.59	2.40	2.31	2.85	2.96	4.22	6.62	30.18	31.22	22.47	27.49	19.79		
Diurnal Average	2.98	2.63	2.32	2.38	2.51	2.40	2.35	2.26	2.15	2.19	2.16	2.14	2.10	2.10	2.14	2.13	2.19	2.58	3.59	4.43	3.69	4.20	3.21			
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 Instantaneous Maximum for CH4 - Reno Site**





# **PEACE RIVER AREA MONITORING PROGRAM**

*Reno Site - February 2019*

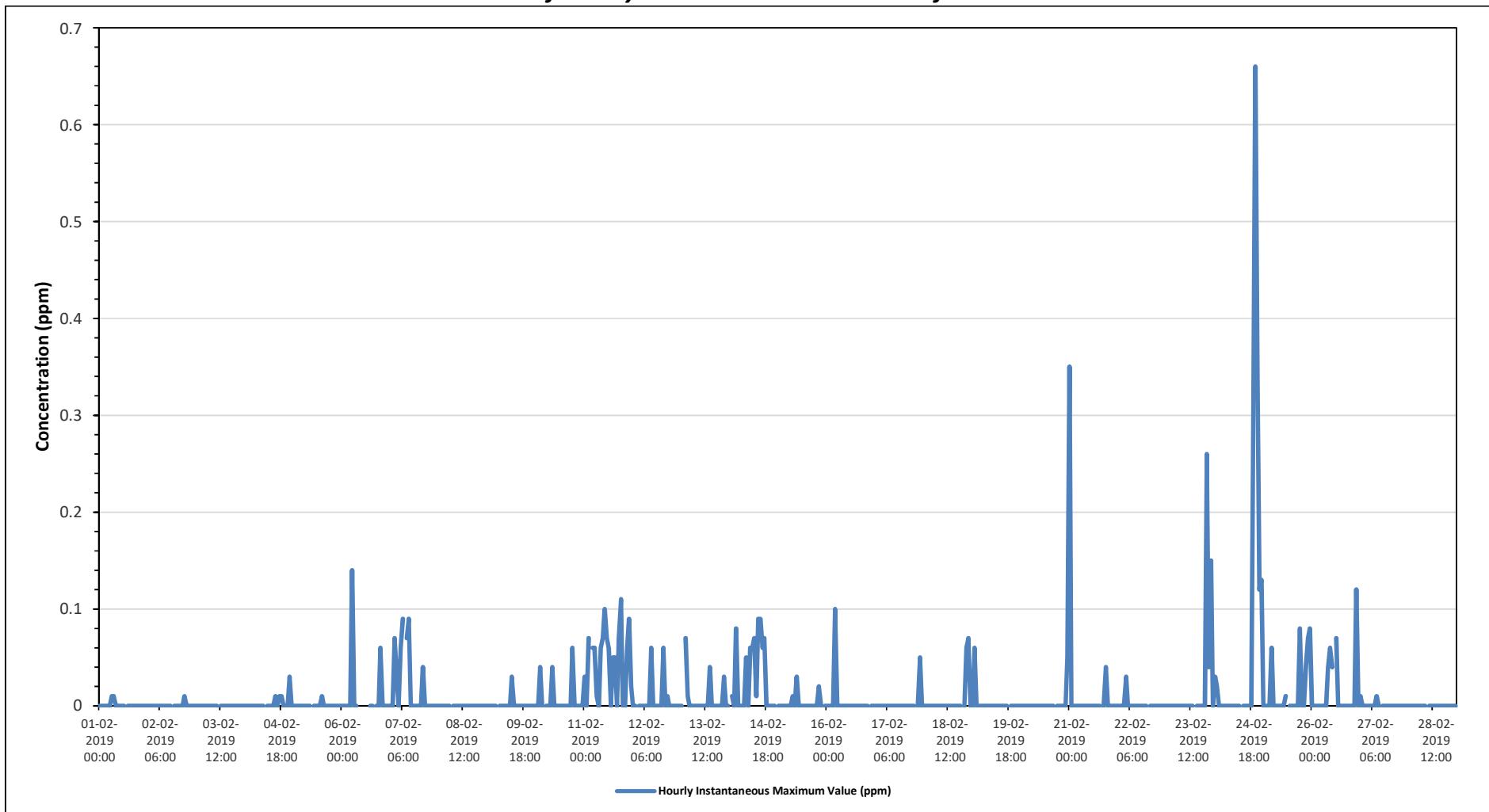
## Summary of Hourly Instantaneous Maximums

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

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

Daily Average is shown "-" if minimum data completeness criteria of 75% of 10 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 - Reno Site*





## PEACE RIVER AREA MONITORING PROGRAM

**Reno Site - February 2019**

### Summary of Hourly Instantaneous Maximums

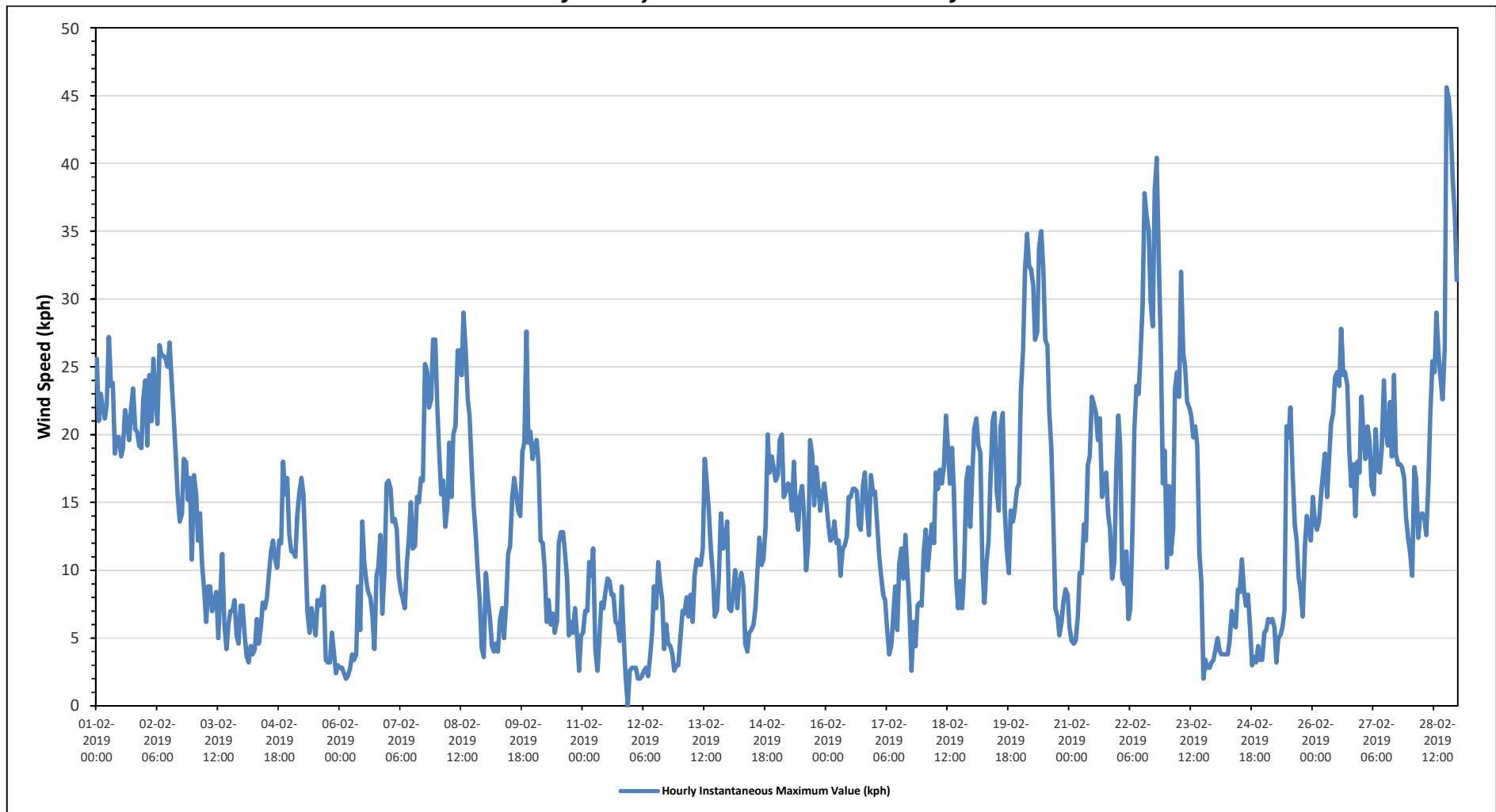
#### WIND SPEED (WS) in km/h

Maximum Hourly Value:	45.6	kph	on February 28 at hour 18	Hours in Service:	672																							
Maximum Daily Value:	24.1	kph	on February 28	Hours of Data:	672																							
Minimum Hourly Value:	0.0	kph	on February 11 at hour 22	Hours of Missing Data:	0																							
Minimum Daily Value:	4.4	kph	on February 12	Hours of Calibration:	0																							
Monthly Average:	13.6	kph		Operational Uptime:	100.0																							
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
Feb 1	25.6	21.0	23.0	22.0	21.2	22.2	27.2	23.6	23.8	18.6	19.8	19.8	18.4	19.0	21.8	21.0	19.6	22.0	23.4	20.4	20.2	19.2	19.0	22.6	18.4	27.2	21.4	
Feb 2	24.0	19.2	24.4	21.0	25.6	22.6	20.8	26.6	25.8	25.8	25.6	25.0	26.8	23.8	21.4	18.4	15.4	13.6	14.2	18.2	18.0	15.2	16.8	10.8	10.8	26.8	20.8	
Feb 3	17.0	15.6	12.2	14.2	10.6	8.6	6.2	8.8	8.8	7.0	7.6	8.4	5.0	8.2	11.2	6.0	4.2	6.0	7.0	7.0	5.2	4.6	7.4	4.2	17.0	8.5		
Feb 4	7.4	5.2	3.6	3.2	4.4	3.8	4.2	6.4	4.6	5.8	7.6	7.2	8.0	9.8	11.4	12.2	10.8	10.2	12.2	12.0	18.0	15.6	16.8	12.6	3.2	18.0	8.9	
Feb 5	11.4	11.4	11.0	14.0	15.8	16.8	15.6	11.2	7.0	5.4	7.2	6.2	5.2	7.8	7.4	8.0	8.8	3.4	3.2	5.4	4.0	2.4	3.0	2.4	16.8	8.1		
Feb 6	2.8	2.8	2.4	2.0	2.2	2.8	3.8	3.4	3.8	8.8	5.6	13.6	10.6	9.2	8.4	8.0	6.6	4.2	9.6	10.2	12.6	6.8	10.0	16.4	2.0	16.4	6.9	
Feb 7	16.6	16.0	13.6	13.8	13.0	9.6	8.4	8.0	7.2	10.6	12.2	15.0	11.6	11.8	15.4	15.0	16.8	16.6	25.2	24.6	22.0	22.6	27.0	27.0	7.2	27.0	15.8	
Feb 8	22.0	18.8	15.6	16.6	13.2	14.8	19.4	15.4	20.0	20.6	26.2	26.2	24.4	29.0	26.2	22.6	21.4	17.6	14.8	12.6	10.0	7.8	4.2	3.6	3.6	29.0	17.6	
Feb 9	9.8	8.0	6.6	4.4	4.0	4.6	4.0	6.4	7.2	5.0	7.6	11.2	11.8	15.4	16.8	15.6	14.4	14.0	18.8	19.4	27.6	19.4	20.2	18.2	4.0	27.6	12.1	
Feb 10	19.2	19.6	17.8	12.2	12.0	10.2	6.2	7.8	6.0	6.8	5.4	6.2	12.0	12.8	12.8	11.4	9.4	5.2	6.2	5.4	7.2	5.0	2.6	5.2	2.6	19.6	9.4	
Feb 11	5.4	7.0	7.0	10.6	9.6	11.6	4.2	2.6	5.0	7.6	7.2	8.4	9.4	9.2	8.2	8.2	6.2	6.0	4.8	8.8	5.2	2.0	0.0	2.6	0.0	11.6	6.5	
Feb 12	2.8	2.8	2.8	2.0	2.0	2.2	2.6	2.8	2.2	3.6	5.4	8.8	7.2	10.6	9.0	7.8	4.2	6.0	4.6	4.4	3.8	2.6	3.0	3.0	2.0	10.6	4.4	
Feb 13	5.0	7.0	6.8	8.0	6.6	8.2	6.2	9.6	10.8	10.4	10.4	11.6	18.2	16.4	14.6	11.6	9.6	6.6	7.0	9.4	14.2	11.6	12.0	13.6	5.0	18.2	10.2	
Feb 14	7.2	7.0	8.4	10.0	7.2	9.0	9.8	8.8	4.6	4.0	5.4	5.6	6.0	7.2	10.2	12.4	10.4	10.8	13.2	20.0	17.2	18.4	17.6	16.6	4.0	20.0	10.3	
Feb 15	17.0	19.6	20.0	15.4	15.8	16.4	16.2	14.4	18.0	14.4	13.0	15.4	16.2	14.2	10.0	12.0	19.6	18.4	14.8	17.6	16.0	14.4	15.6	16.4	10.0	20.0	15.9	
Feb 16	15.0	13.2	12.2	12.4	13.6	12.0	12.2	9.6	11.6	11.8	12.4	15.4	15.4	16.0	16.0	15.8	13.4	13.0	16.2	17.2	14.6	12.6	17.0	15.6	9.6	17.2	13.9	
Feb 17	15.8	13.6	11.2	9.6	8.2	7.8	5.6	3.8	4.4	6.6	8.8	5.6	10.4	11.6	9.4	12.6	9.8	7.4	2.6	6.2	4.4	7.4	7.6	7.4	2.6	15.8	8.2	
Feb 18	11.4	13.0	10.0	11.8	13.4	12.0	17.2	16.0	17.4	16.4	17.8	21.4	19.0	16.4	19.0	15.6	9.2	7.2	9.2	7.2	10.0	16.6	17.6	13.2	7.2	21.4	14.1	
Feb 19	17.2	20.4	21.2	19.8	18.6	10.0	7.6	10.6	12.2	16.8	21.0	21.6	15.8	14.4	20.6	21.6	14.6	11.4	9.8	14.4	13.6	14.4	16.0	16.4	7.6	21.6	15.8	
Feb 20	23.2	26.2	32.0	34.8	32.4	32.2	31.0	27.0	27.6	33.8	35.0	32.2	27.0	26.6	21.8	19.0	13.2	7.2	6.6	5.2	6.2	7.8	8.6	8.2	5.2	35.0	21.9	
Feb 21	5.8	4.8	4.6	4.8	6.6	9.8	9.8	13.4	12.2	17.8	18.4	22.8	22.2	21.6	19.6	21.2	15.4	16.6	17.2	14.2	13.0	9.4	10.6	17.2	4.6	22.8	13.7	
Feb 22	21.4	19.2	9.4	9.0	11.4	6.4	7.2	13.0	20.4	23.6	23.0	25.8	29.6	37.8	36.2	35.0	29.8	28.0	38.0	40.4	32.6	26.8	16.4	18.8	6.4	40.4	23.3	
Feb 23	10.2	16.2	11.2	13.0	23.4	24.6	22.8	32.0	26.0	25.0	22.4	22.0	21.4	19.8	20.6	19.2	11.2	9.2	2.0	3.4	2.8	3.2	3.4	2.0	32.0	15.3		
Feb 24	4.2	5.0	4.0	3.8	3.8	3.8	3.8	4.8	7.0	6.0	5.8	8.6	8.4	10.8	8.4	7.4	8.2	6.0	3.0	3.6	3.2	4.4	3.4	3.4	3.0	10.8	5.5	
Feb 25	5.4	5.6	6.4	6.2	6.4	5.8	3.2	5.0	5.2	5.8	7.0	20.6	19.8	22.0	17.2	13.4	12.2	9.4	8.6	6.6	11.8	14.0	13.0	12.2	3.2	22.0	10.1	
Feb 26	15.4	13.6	13.0	13.6	15.4	17.2	18.6	15.4	18.2	20.8	21.6	24.2	24.6	23.6	27.8	24.4	24.6	23.6	18.6	16.2	17.8	14.0	18.0	17.2	13.0	27.8	19.1	
Feb 27	22.8	19.8	18.2	20.6	19.4	16.2	15.6	20.4	17.4	17.2	19.0	24.0	20.4	19.2	22.4	18.4	24.4	18.6	17.8	17.8	17.6	16.8	14.0	12.4	24.4	18.8		
Feb 28	11.2	9.6	17.6	16.8	12.4	14.0	14.2	13.8	12.6	16.4	21.4	25.4	24.6	29.0	26.0	24.2	22.6	26.4	45.6	44.8	43.0	38.8	36.0	31.4	9.6	45.6	24.1	
Diurnal Maximum	25.6	26.2	32.0	34.8	32.4	32.2	31.0	32.0	27.6	33.8	35.0	32.2	29.6	37.8	36.2	35.0	29.8	28.0	45.6	44.8	43.0	38.8	36.0	31.4				
Diurnal Average	13.3	12.9	12.4	12.3	12.4	12.0	11.6	12.2	12.4	13.3	14.3	16.4	16.1	16.9	16.8	15.6	13.8	12.3	13.4	13.9	14.1	12.7	12.6	12.7				
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 WS - Reno Site**



# **EQUIPMENT CALIBRATION / MAINTENANCE RECORDS**

# Maxxam Standard Operating Procedures and Standard Work Instructions for PRAMP Air Monitoring Operations

Calibration Procedures:

TRS and SO2 Analyzers:

- AIR SOP-00209 Ambient Sulphur Monitoring

Methane, Non-Methane Analyzers:

- AIR SOP-00001 Methane, Non-Methane Hydrocarbon Analyzer Monitoring

Wind Systems:

- AIR SOP-000103 RM Young Wind Monitor Calibration

Equipment Support Documentation:

- AIR SOP-00225 The collection of VOC's in Ambient Air Using Canisters and Xontech
- AIR WI-00032 Dilution Calibration Operating Procedure
- AIR WI-00048 External Flow Measurement
- AIR WI-000196 Thermometer and Barometer Calibration Checks
- AIR WI-00044 Ambient Air Analyzer Maintenance, Repair, and Transport
- AIR WI-00046 Resetting Analyzers

## **986 STATION**



### Thermo 43C Sulphur Dioxide Analyzer Calibration

<b>Analyzer:</b>		Date: February 20, 2019	Barometer/B.P./units: Station Probe	948	millibars		
Company/Airshed:		PRAMP	Thermometer/Station Temp:	Station Probe	21.3	<sup>o</sup> C	
Location/Station Name:		986b	Weather Conditions:	Mix of sun and clouds			
Parameter:		Sulphur Dioxide	Calibration Purpose:	routine monthly			
Start Time 24 hr. (mst):		16:54	Performed By/Reviewer:	Chris Wesson	Rob Fisher		
End Time 24 hr. (mst):		20:33	Cal Gas Expiry Date:	October 24, 2020			
Calibration Method:		Gas Dilution	Converter Model & s/n (if applicable):	n/a			
Serial Number/Owner:		43C-62339-335   Maxxam	Range ppb:	500			
Last Calibration Date:		January 18, 2019	As Found C.F.:	1.003			
Previous C.F.:		0.999	New C.F.:	0.999			
Calibration Standards:		Standard Calibration Points for Ranges					
Low Flow Meter ID/Expiry Date:		N/A	Point	ppb			
High Flow Meter ID/Expiry Date:		N/A	High	380			
Calibrator ID/Expiry Date:		Sabio id# 17100415 expires August 21, 2019	Mid	180			
Cal Gas Cylinder I.D. #:		LL108015	Low	90			
Cal Gas Conc. (ppm):		47.9					
<b>ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015</b>							
Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):	
Point	Diluent	Cal Gas	Total				
as found zero	6000	0.00	6000	0.0	-0.3	n/a	
as found high	5954	47.80	6002	381.5	379.9	1.003	
adjusted zero	6000	0.00	6000	0.0	0	n/a	
adjusted high	5954	47.80	6002	381.5	382	0.999	
mid	5979	22.70	6002	181.2	180	1.006	
low	5989	11.40	6000	91.0	89.9	1.012	
calibrator zero	6000	0.00	6000	0.0	0.2	n/a	
				Average C.F. =	1.006		
Linear Regression/Calibration Results:							
Correlation Coefficient = <u>1.000</u>				LIMITS > or = 0.995			
Slope = <u>0.998</u>				0.95-1.05			
b (Intercept as % of full scale) = <u>0.16%</u>				± 3% F.S.			
% change in C.F. from last cal = <u>-0.44%</u>				± 10%			
<b>Thermo 43C Sulphur Dioxide Analyzer Calibration</b>							
<b>As found:</b> Bkg: 84.7 Coef: 0.921 Pmt: -654 0 Lamp=840 Battery: 3.3 Internal: 27.1 Chamber: 45.2 Pressure: 400.3 Flow: 0.702 Intensity: ~38000 Averaging Time: 120 Expected Value: 250.0				<b>As left:</b> Bkg: 85.2 Coef: 0.927 Pmt: -654 0 Lamp=839 Battery: 3.3 Internal: 26.9 Chamber: 45.2 Pressure: 401 Flow: 0.702 Intensity: 38178 Averaging Time: 120 Expected Value: 257.1			
<b>Comments:</b>							
The analyzer sample inlet filter was changed. The analyzer cooling fan filter(s) were cleaned. The manifold blower was found to be working normally.							



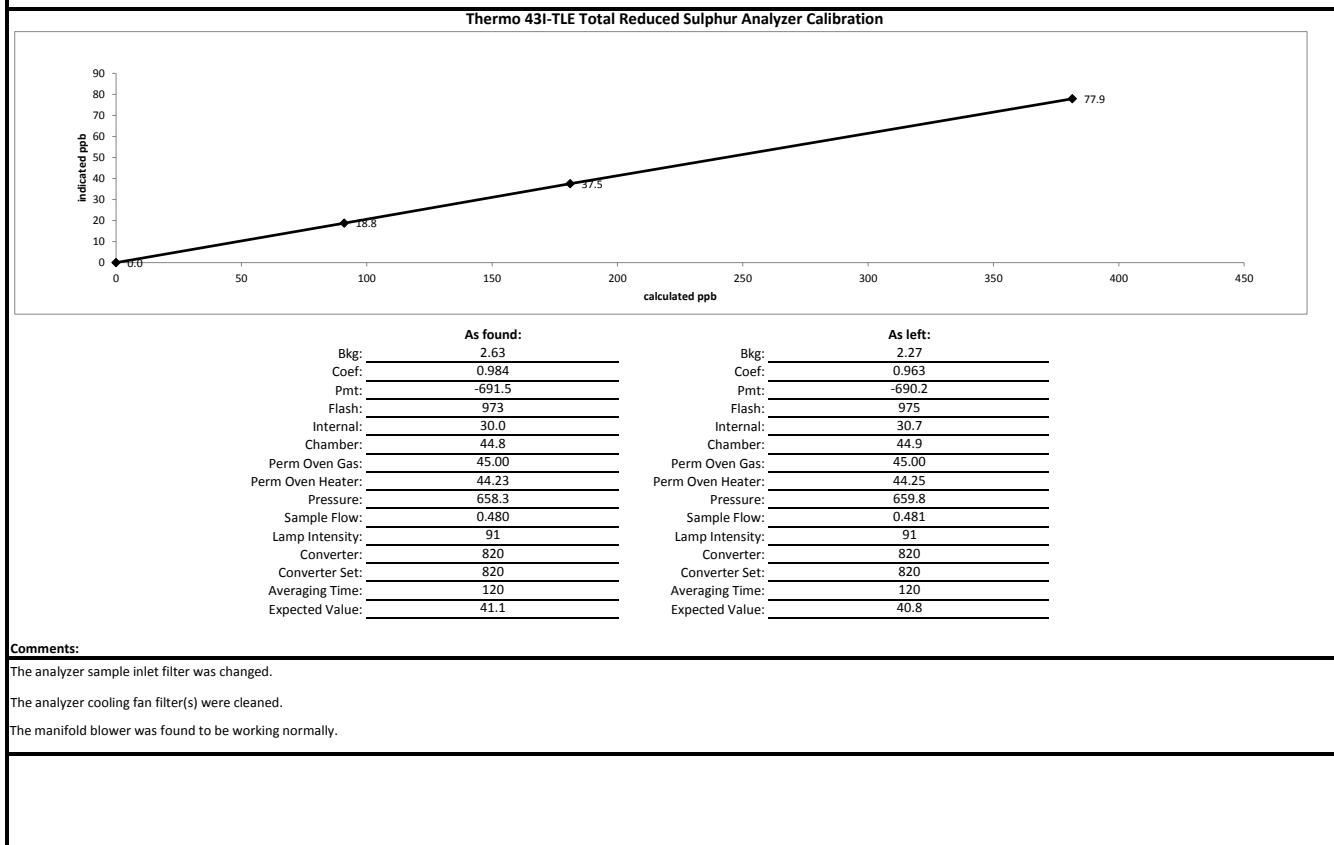
### Thermo 43I-TLE Total Reduced Sulphur Analyzer Calibration

Analyzer:	Date: February 20, 2019	Barometer/B.P./units: Station Probe	946	millibars	
Company/Airshed:	PRAMP	Thermometer/Station Temp:	Station Probe	20.9	°C
Location/Station Name:	986b	Weather Conditions:	Mix of sun and clouds		
Parameter:	Total Reduced Sulphur	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	13:16	Performed By/Reviewer:	Chris Wesson	Rob Fisher	
End Time 24 hr. (mst):	19:05	Cal Gas Expiry Date:	November 7, 2020		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	CD-Nova CDN-101 #516		
Serial Number/Owner:	1152940011   Maxxam	Range ppb:	100		
Last Calibration Date:	January 8, 2019	As Found C.F.:	0.989		
Previous C.F.:	1.000	New C.F.:	1.000		

Calibration Standards:	Standard Calibration Points for Ranges			SO2 Scrubber Check (10 minutes):	
Low Flow Meter ID/Expiry Date:	N/A			Start/End Time 24 hr.:	13:45 / 14:00
High Flow Meter ID/Expiry Date:	N/A			SO2 Analyzer Range:	500
Calibrator ID/Expiry Date:	Sabio id# 26701218 expires January 15, 2020			Target Concentration (ppb):	380
Cal Gas Cylinder I.D. #:	LL119432			As Found Zero:	-0.4
Cal Gas Conc. (ppm):	10.3			Analyzer Response (ppb):	-0.3
				Zero Corrected Result (ppb):	0.0

<i><b>ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015</b></i>					
Calibrator Flow Rates (cc/min)			Calculated	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	Concentration (ppb):	
as found zero	4998	0.00	4998	0.0	-0.36
as found high	4961	37.90	4999	77.9	0.989
adjusted zero	5000	0.00	5000	0.0	n/a
adjusted high	4961	37.90	4999	77.9	1.000
mid	4981	18.50	4999	38.0	1.014
low	4989	9.20	4998	18.9	1.008
calibrator zero	4998	0.00	4998	0.0	n/a
Average C.F.=				1.007	

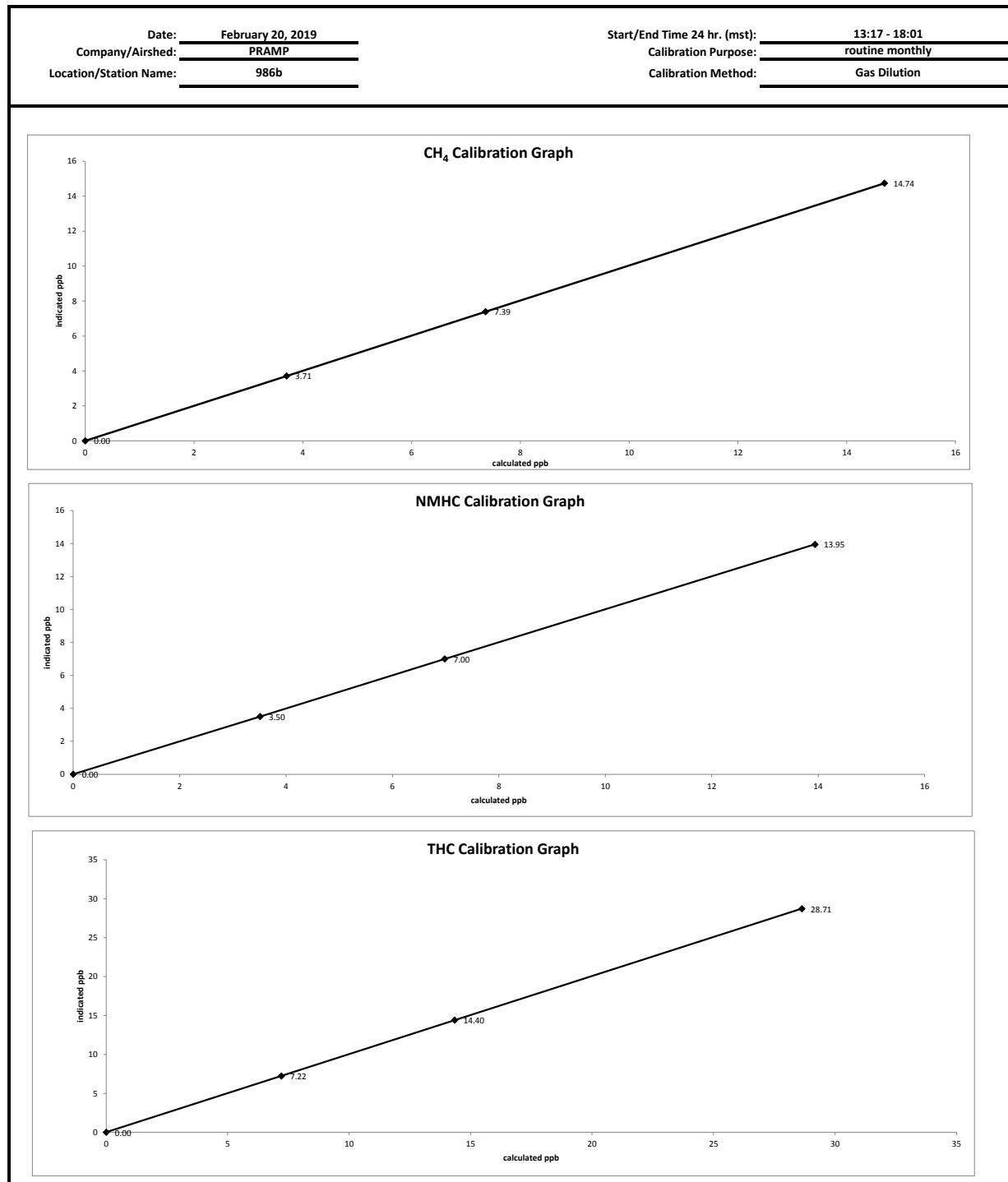
Linear Regression/Calibration Results:	LIMITS		
Correlation Coefficient =	1.000	> or = 0.995	
Slope =	1.000	0.95-1.05	
b (Intercept as % of full scale)=	0.16%	± 3% F.S.	
% change in C.F. from last cal=	1.09%	± 10%	





## Thermo 55i Methane/Non-Methane Analyzer Calibration

<p><b>Date:</b> February 20, 2019      <b>Barometer/B.P./units:</b> Station Probe      946      millibars</p> <p><b>Company/Airshed:</b> PRAMP      <b>Thermometer/Station Temp:</b> Station Probe      20.9      °C</p> <p><b>Location/Station Name:</b> 986b      <b>Weather Conditions:</b> Mix of sun and clouds</p> <p><b>Parameter:</b> CH<sub>4</sub> / NMHC / THC      <b>Calibration Purpose:</b> routine monthly</p> <p><b>Start/End Time 24 hr. (mst):</b> 13:17 - 18:01      <b>Performed By/Reviewer:</b> Chris Wesson      Rob Fisher</p> <p><b>Calibration Method:</b> Gas Dilution      <b>Cal Gas Expiry Date:</b> October 18, 2025</p>																																																																																																																																											
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<p><b>As Left Instrument Diagnostics:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td><b>Interface Board Voltages:</b></td> <td>Bias Supply: -311.1</td> <td><b>Calibration History cnt'd:</b></td> <td>NM Peak Area: 74809</td> </tr> <tr> <td><b>Temperatures:</b></td> <td>Detector Oven: 175.0</td> <td>Crucial Settings:</td> <td>Methane Start: n/a</td> </tr> <tr> <td></td> <td>Filter: 175.1</td> <td></td> <td>Methane End: n/a</td> </tr> <tr> <td></td> <td>Column Oven: 74.9</td> <td></td> <td>Backflush: n/a</td> </tr> <tr> <td></td> <td>Internal: 35.1</td> <td></td> <td>NMHV Start: n/a</td> </tr> <tr> <td><b>Cylinder Pressures/reg.:</b></td> <td>Carrier: 650</td> <td></td> <td>NMHV End: n/a</td> </tr> <tr> <td></td> <td>Fuel: 1800</td> <td></td> <td>Date: 20Feb2019</td> </tr> <tr> <td></td> <td>Span Gas: 800</td> <td></td> <td>Time: 16:47</td> </tr> <tr> <td></td> <td>Zero Air Generator: 50</td> <td></td> <td>CH<sub>4</sub> PK HT: 0</td> </tr> <tr> <td><b>Internal Pressures:</b></td> <td>Carrier: 31.3</td> <td></td> <td>CH<sub>4</sub> RT: 12.4</td> </tr> <tr> <td></td> <td>Fuel: 40.5</td> <td></td> <td>CH<sub>4</sub> Baseline: 645</td> </tr> <tr> <td></td> <td>Air: 31.7</td> <td></td> <td>CH<sub>4</sub> LOD: 30</td> </tr> <tr> <td><b>FID Status:</b></td> <td>Status: LIT</td> <td></td> <td>CH<sub>4</sub> SD: 10</td> </tr> <tr> <td></td> <td>Counts: 20514</td> <td></td> <td>CH<sub>4</sub> CONC: 0.00</td> </tr> <tr> <td></td> <td>Flame: 321.8</td> <td></td> <td>NM PK HT: 0</td> </tr> <tr> <td></td> <td>Det Base: 175.0</td> <td></td> <td>NM Peak Area: 0</td> </tr> <tr> <td><b>Flame and Power Stats:</b></td> <td>Last Power On: 19Jan2019@16:45</td> <td></td> <td>NM CONC: 0.00</td> </tr> <tr> <td></td> <td>Flameouts: 2</td> <td></td> <td>NM Base Start: 1650</td> </tr> <tr> <td></td> <td>Det Oven at Start: 168.5</td> <td></td> <td>NM Base End: 1647</td> </tr> <tr> <td></td> <td>Col Oven at Start: 74.7</td> <td></td> <td>NM LOD: 15</td> </tr> <tr> <td><b>Calibration History:</b></td> <td>Time: 20Feb2019@15:13</td> <td></td> <td>NM Start IDX: 12</td> </tr> <tr> <td></td> <td>Type: Span</td> <td></td> <td>NM End IDX: 68</td> </tr> <tr> <td></td> <td>Status: Good</td> <td></td> <td>NM Max Slope: 5.0e-01</td> </tr> <tr> <td></td> <td>Check/Adjust: Adjust</td> <td></td> <td>NM Min Slope: -6.2e-01</td> </tr> <tr> <td></td> <td>CH<sub>4</sub> Span Conc: 14.69</td> <td></td> <td>NM PT Count: 0</td> </tr> <tr> <td></td> <td>CH<sub>4</sub> SP Ratio: 0.000774</td> <td></td> <td>Previous CH4: 10.49</td> </tr> <tr> <td></td> <td>CH<sub>4</sub> RT: 12.4</td> <td></td> <td>Previous NMHC: 11.43</td> </tr> <tr> <td></td> <td>CH<sub>4</sub> PK IDX: 22</td> <td></td> <td>Previous THC: 21.93</td> </tr> <tr> <td></td> <td>CH<sub>4</sub> PK HT: 18978</td> <td></td> <td>New CH4: 10.38</td> </tr> <tr> <td></td> <td>NM Span Conc: 13.94</td> <td></td> <td>New NMHC: 11.43</td> </tr> <tr> <td></td> <td>NM SP Ratio: 0.000186</td> <td></td> <td>New THC: 21.81</td> </tr> <tr> <td></td> <td></td> <td>Expected Values:</td> <td></td> </tr> </table>												<b>Interface Board Voltages:</b>	Bias Supply: -311.1	<b>Calibration History cnt'd:</b>	NM Peak Area: 74809	<b>Temperatures:</b>	Detector Oven: 175.0	Crucial Settings:	Methane Start: n/a		Filter: 175.1		Methane End: n/a		Column Oven: 74.9		Backflush: n/a		Internal: 35.1		NMHV Start: n/a	<b>Cylinder Pressures/reg.:</b>	Carrier: 650		NMHV End: n/a		Fuel: 1800		Date: 20Feb2019		Span Gas: 800		Time: 16:47		Zero Air Generator: 50		CH <sub>4</sub> PK HT: 0	<b>Internal Pressures:</b>	Carrier: 31.3		CH <sub>4</sub> RT: 12.4		Fuel: 40.5		CH <sub>4</sub> Baseline: 645		Air: 31.7		CH <sub>4</sub> LOD: 30	<b>FID Status:</b>	Status: LIT		CH <sub>4</sub> SD: 10		Counts: 20514		CH <sub>4</sub> CONC: 0.00		Flame: 321.8		NM PK HT: 0		Det Base: 175.0		NM Peak Area: 0	<b>Flame and Power Stats:</b>	Last Power On: 19Jan2019@16:45		NM CONC: 0.00		Flameouts: 2		NM Base Start: 1650		Det Oven at Start: 168.5		NM Base End: 1647		Col Oven at Start: 74.7		NM LOD: 15	<b>Calibration History:</b>	Time: 20Feb2019@15:13		NM Start IDX: 12		Type: Span		NM End IDX: 68		Status: Good		NM Max Slope: 5.0e-01		Check/Adjust: Adjust		NM Min Slope: -6.2e-01		CH <sub>4</sub> Span Conc: 14.69		NM PT Count: 0		CH <sub>4</sub> SP Ratio: 0.000774		Previous CH4: 10.49		CH <sub>4</sub> RT: 12.4		Previous NMHC: 11.43		CH <sub>4</sub> PK IDX: 22		Previous THC: 21.93		CH <sub>4</sub> PK HT: 18978		New CH4: 10.38		NM Span Conc: 13.94		New NMHC: 11.43		NM SP Ratio: 0.000186		New THC: 21.81			Expected Values:	
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<p><b>Comments:</b></p> <p>The analyzer sample inlet filter was changed.</p> <p>The analyzer cooling fan filter(s) were cleaned.</p> <p>The manifold blower was found to be working normally.</p>																																																																																																																																											
<p>An operator error occurred at 14:01 during the As-Found High. The As-Found High was restarted at 14:05.</p> <p>An operator error occurred at 15:24 during the Adjusted High point. The Adjusted High point was restarted at 15:29.</p>																																																																																																																																											





## Meteorological System Checklist

Date:	February 20, 2019				
Technician:	Chris Wesson				
Reviewer:	Rob Fisher				
Station:	PRAMP 986b				
Unit:	Make:	Model:	Serial #:		
Temperature Sensor:	RM Young	43172VC	61012322		
Barometric Pressure Sensor:	MetOne	090D	F3845		
Relative Humidity Sensor:	RM Young	43172VC	61012322		
Anemometer:	RM Young	05305VK	129612		
AMBIENT TEMPERATURE SENSOR CHECK					
Previous check date:	December 12, 2018				
Parameter:	Temperature @ 2 metres				
Reference Thermometer ID:	F.S. 160459244 expires June 19, 2020				
Reference Temperature (°C):	-12.4				
Station - Ambient Temperature (°C):	-12.3				
Temperature Difference (°C):	-0.1				
BAROMETRIC PRESSURE SENSOR CHECK					
Previous check date:	December 12, 2018				
Reference Barometer ID:	Brunton 05490 expires January 17, 2020				
Reference Pressure - Units/Reading:	millibar	949.5			
Station Pressure - Units/Reading:	millibar	948.1			
Pressure Tolerance +/- 15% of error:	807 - 1092	0.15%			
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK					
Previous check date:	December 12, 2018				
Reference Hygrometer ID:	F.S. id# 160459244 expires June 19, 2020				
Reference Hygrometer % RH- Reading:	59.70				
Station Hygrometer % RH- Reading:	58.30				
RH Tolerance +/- 15% of difference:	50.75 - 68.66	2.3%			
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK					
WIND SPEED		WIND DIRECTION			
Previous check date:	December 12, 2018	Previous check date:	December 12, 2018		
Wind Speed Observed (kph):	0-10	Wind Direction Observed:	NW		
Wind speed on Data Logger (kph):	6	Wind Direction on Data Logger:	NW		
		Wind Direction Pass/Fail?:	Pass		

Company <u>Maxxam</u>	Operator: <u>Mike</u>
<b>Calibrator:</b> Make/Model <u>Sabio</u> Serial Number <u>17100415</u> Last Verification Date <u>May 16, 2017</u> NO Cylinder S/N <u>LL104183</u> NO [PPM] <u>50.8</u> NOx [PPM] <u>50.9</u> Expiry Date <u>October 24, 2020</u>	
<b>Flow Measurement Device:</b> Make/Model <u>Bios Definer 220</u> Serial Number <u>H=128686; L=129069</u> Temperature (°C) <u>22.2 C</u> Barometric Pressure <u>706.1mmHg</u>	
Dilution Flow (sccm) Pt. #1 <u>5120</u> Pt. #2 <u>5121</u> Pt. #3 <u>5128</u> Gas Flow (sccm) Pt. #1 <u>77.4</u> Pt. #2 <u>37.8</u> Pt. #3 <u>19</u>	

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO <sub>2</sub>	NOx	NO	NOx
5136	0.0	0.0000	0.0000	0.0001	-0.0002	0.0001	Limit ± 10%	
5120	77.4	0.7680	0.7695	0.7793	0.0003	0.7796	1%	1%
5121	37.8	0.3750	0.3757	0.3802	0.0000	0.3802	1%	1%
5128	19.0	0.1882	0.1885	0.1908	0.0005	0.1909	1%	1%
Absolute Average Percent Difference							1%	1%

LINEAR REGRESSION ANALYSIS								
$y=mx+b$ (where x=calculated concentration, y=indicated concentration)								
<b>NO</b>			<b>LIMITS</b>			<b>NOx</b>		
Correlation= 1.0000			<b>≥ 0.990</b>			Correlation= 1.0000		
m (Slope)= 1.0146			<b>0.90-1.10</b>			m (Slope)= 1.0130		
b (Intercept % of FS)= -0.0074			<b>± 3% F.S.</b>			b (Intercept % of FS)= -0.0059		

Flow	O <sub>3</sub> Conc	NO Decrease	NO	NO <sub>2</sub>	NOX	% Diff. Vs Audit gas
5120	0.0	0.0000	0.7794	0.0005	0.7799	NO <sub>2</sub> % Diff. Limit
5120	500.0	0.4827	0.2967	0.4854	0.7806	0% ± 10%
5120	275.0	0.2672	0.5122	0.2676	0.7798	0% ± 10%
5120	90.0	0.0896	0.6898	0.0890	0.7787	-1% ± 10%
Absolute Average Percent Difference						0% ± 10%

LINEAR REGRESSION ANALYSIS								
$y=mx+b$ (where x=calculated concentration, y=indicated concentration)								
<b>NO<sub>2</sub></b>			<b>LIMITS</b>			<b>NOx</b>		
Correlation= 1.0000			<b>≥ 0.995</b>			Correlation= 1.0000		
m (Slope)= 1.0053			<b>0.90-1.10</b>			m (Slope)= 1.0130		
b (Intercept % of FS)= -0.0370			<b>± 3% F.S.</b>			b (Intercept % of FS)= -0.0059		

AENV Standards			NO <sub>x</sub> Analyzer		
Audit Calibrator			Make/Model Thermo 42i		
Make/Model	Thermo 146i		Serial/AMU Number	1868	
Serial/AMU Number	1809		Last Calibration Date	August 16, 2018	
SRM Gas Cylinder No.	APEX1170572		Full Scale (ppm)	1.0	
Cylinder Conc. (ppm)	49.99		Cylinder Gas Expiry Date	November 15, 2020	

COMMENTS: \_\_\_\_\_

Auditor: Shea Beaton

Date: August 21, 2018

Operator Signature:

Location: McIntyre Center Edmonton

# Calibrator Performance Audit

## Oxides Of Nitrogen

File No. 2019-395A

Company	Maxxam		Operator:	Alex			
<b>Calibrator:</b> Make/Model Sabio 2010 Serial Number 26701218 Last Verification Date New NO Cylinder S/N LL107918 NO [PPM] 50.1      NOx [PPM] 50.2 Expiry Date August 2026			<b>Flow Measurement Device:</b> Make/Model N/A Serial Number N/A Temperature (°C) N/A Barometric Pressure N/A				
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 <sub>2</sub>	NOx	NO
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%
4997	79.8	0.800	0.802	0.789	0.000	0.789	-1%      -2%
4999	39.9	0.400	0.401	0.394	0.000	0.394	-1%      -2%
4998	20.0	0.200	0.201	0.196	0.001	0.197	-2%      -2%
Absolute Average Percent Difference						2%	2%

<b>LINEAR REGRESSION ANALYSIS</b>							
<i>y=mx+b</i> (where x=calculated concentration, y=indicated concentration)							
<b>NO</b> Correlation= 1.0000 <b>LIMITS</b> m (Slope)= 0.9868 $\geq 0.990$ b (Intercept % of FS)= -0.0750 <b>0.90-1.10</b> <b>± 3% F.S.</b>				<b>NO<sub>x</sub></b> Correlation= 1.0000 m (Slope)= 0.9844 b (Intercept % of FS)= -0.0350			

Flow	O <sub>3</sub> Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas
4997	0.000	0.000	0.786	0.000	0.786	NO <sub>2</sub> % Diff. Limit
4997	0.500	0.477	0.309	0.476	0.785	0% ± 10%
4997	0.250	0.240	0.546	0.234	0.785	-2% ± 10%
4997	0.100	0.097	0.689	0.096	0.785	-1% ± 10%
Absolute Average Percent Difference						1% ± 10%

<b>LINEAR REGRESSION ANALYSIS</b>							
<i>y=mx+b</i> (where x=calculated concentration, y=indicated concentration)							
<b>NO<sub>2</sub></b> Correlation= 0.9999 <b>LIMITS</b> m (Slope)= 0.9970 $\geq 0.995$ b (Intercept % of FS)= -0.1391 <b>0.90-1.10</b> <b>± 3% F.S.</b>							

<b>AENV Standards</b> <b>Audit Calibrator</b> Make/Model Teco 146i Serial/AMU Number AMU 1809 SRM Gas Cylinder No. APEX1236645 Cylinder Conc. (ppm) 50.05				<b>NO<sub>x</sub> Analyzer</b> Make/Model Teco 42i Serial/AMU Number AMU 2268 Last Calibration Date January 14, 2019 Full Scale (ppm) 1.0 Cylinder Gas Expiry Date June 2021			
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COMMENTS:							
Auditor: Al Clark				Date: Janaury 15, 2019			
Operator Signature:				Location: McIntyre Center Edmonton			



# Calibration Gas Audit

## Single Component Cylinder Gas

File No. 2017-486CGA

Company: Maxxam

Operator's Name: Mike

Cylinder #: LL108015 Concentration PPM: 47.9 Tolerance(%) 2 Certified By: Praxair

Expiry Date: October 2020

### Reference Calibrator and Gas:

Make/Model: R&R MFC 201

Serial Number: AMU 1690

Last Verification Date: December 13, 2017

Gas Type: SO<sub>2</sub> Conc. 98.07

Cylinder Number: CAL016625

Expiry Date: January 2019

### Flow Measurement Device:

Make/Model: Mesa Definer 220

Serial Number: H-133034 / L-132702

Temp. °C: 23.4 C

B.P. 707 mmHg

### Reference Analyzer:

Make/Model: Teco 43C Serial/AMU Number: 1623

Instrument Settings: Zero: 10.0 Span: 1.006 Range: 1.0

Last Calibration: Date: Dec12/17 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.000	X	X	X
4989	79.5	0.760	0.01594	62.755	47.7
4995	39.6	0.374	0.00793	126.136	47.2
4992	19.6	0.183	0.00393	254.694	46.6
Average Cylinder Concentration:					47.2

Previous Stated Concentration PPM: 47.9

Percent variance from Stated: 2

Meets Manufacturer Tolerance. Use manufacturers stated concentration  COMMENTS: \_\_\_\_\_

<=5% Outside Manufacturer Tolerance. Use manufacturers concentration  \_\_\_\_\_

>5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder  \_\_\_\_\_

Auditor: Al Clark

Date: December 13, 2017

Operator Signature:

Location: McIntyre Center Edmonton



## Calibration Gas Audit Single Component Cylinder Gas

File No. 2017-137CGA

Company: Maxxam	Operator's Name: Raja Abid Ashraf		
Cylinder #: LL119432	Concentration PPM: 10.3	Tolerance(%) 2	Certified By: Praxair
Expiry Date: May 16, 2020			
<b>Reference Calibrator and Gas:</b>  Make/Model: R&R MFC 201 Serial Number: AMU 1690 Last Verification Date: July 27, 2017 Gas Type: H2S Conc. 20.43 Cylinder Number: CAL015272 Expiry Date: Janauary 2019		<b>Flow Measurement Device:</b>  Make/Model: Mesa Definer 220 Serial Number: H-133034 L-132702 Temp. °C: 22.0 C B.P. 700 mmhg	
<b>Reference Analyzer:</b>  Make/Model: Teco 450i Serial/AMU Number: 1980 Instrument Settings: Zero: 21.9 Span: 1.069 Range: 0.1 Last Calibration: Date: July 27, 2017 C.F. 1.000 Done By: Al Clark			

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	X	X	X
5117	38.9	0.0595	0.00760	131.542	7.8
5103	18.4		0.00361	277.337	0.0
5097	9.4		0.00184	542.234	0.0
Average Cylinder Concentration:					2.6

Previous Stated Concentration PPM: 10.3

Percent variance from Stated: 75

Meets Manufacturer Tolerance. Use manufacturers stated concentration  COMMENTS: \_\_\_\_\_

<=5% Outside Manufacturer Tolerance. Use manufacturers concentration  Do not use.

> 5% Outside Manufacturer Tolerance. DO NOT USE this cylinder  X

Auditor: Al Clark

Date: July 27, 2017

Operator Signature:

Location: McIntyre Center Edmonton

# Calibration Gas Audit

## CH4 / C3H8 Cylinder Gas

Company: Maxxam	Operators name: Mike		
Cylinder #: LL107207	Conc CH4 (PPM) 600/207	Tolerance (%) 2	Certified By: Praxair
Expiry Date: October 2025			
<b>Reference Calibrator and Gas:</b> Make/Model R&R MFC 201 Serial Number AMU 1690 Last Verification Date December 13, 2017 Gas Type CH4 Conc. 990.4 Cylinder Number 5604875 Expiry Date July 2021 Gas Type C3H8 Conc. 246.5 Cylinder Number XF003845B Expiry Date July 2022		<b>Flow Measurement Device:</b> Make/Model Mesa Definer 220 Serial Number H-133034 / L-132702 Temp. °C 23.1 C B.P. 707 mmHg	
<b>Reference Analyzer:</b> Make/Model Teco 55i Serial/AMU Number: 2108 Instrument Settings Zero: N/A Span: N/A Range: 20.0 Last Calibration: Date: Dec 12/17 C.F. 1.000 Done By: Al Clark			

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	CH4	C3H8			CH4	C3H8
3500	0.0	0.00	0.00	X	X	X	X
3618	80.4	13.28	12.77	0.02	45.00	598	209
3547	39.8	6.71	6.47	0.01	89.12	598	210
3560	19.8	3.35	3.26	0.01	179.80	602	213
Average Cylinder Concentration:						<b>599</b>	<b>211</b>

<b>CH4</b>	<b>C3H8</b>
Previous Stated Concentration PPM: 600	207
Percent variance from Stated: 0	2

### Cylinder gas tolerances based on CH4 only

Meets Manufacturer Tolerance. Use manufacturers stated concentration  **COMMENTS:**

<=5% Outside Manufacturer Tolerance. Use manufacturers concentration

>5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Al Clark Date: December 13, 2017  
 Operator Signature: Location: McIntyre Center Edmonton

# **842 STATION**



## Thermo 43i Sulphur Dioxide Analyzer Calibration

Analyzer:		Date: February 7, 2019	Barometer/B.P./units: Station Probe	952	millibars
Company/Airshed: PRAMP		Thermometer/Station Temp: Station Probe	23	°C	
Location/Station Name: 842b		Weather Conditions: Light snow			
Parameter: Sulphur Dioxide		Calibration Purpose: shut down			
Start Time 24 hr. (mst): 8:30		Performed By/Reviewer: Chris Wesson	Rob Fisher		
End Time 24 hr. (mst): 10:25		Cal Gas Expiry Date: October 24, 2020			
Calibration Method: Gas Dilution		Converter Model & s/n (if applicable): n/a			
Serial Number/Owner: 8350333373 Maxxam		Range ppb: 500			
Last Calibration Date: January 8, 2019		As Found C.F.: 1.004			
Previous C.F.: 1.000		New C.F.: n/a			
Calibration Standards:					
Low Flow Meter ID/Expiry Date: N/A		Standard Calibration Points for Ranges			
High Flow Meter ID/Expiry Date: N/A		Point	ppb		
Calibrator ID/Expiry Date: Sabio id# 17100415 expires August 21, 2019		High	380		
Cal Gas Cylinder I.D. #: LL108015		Mid	180		
Cal Gas Conc. (ppm): 47.9		Low	90		
<b>ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015</b>					
Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	
Point	Diluent	Cal Gas	Total	Indicated Concentration (ppb):	Correction Factors (C.F.):
as found zero	5999	0.00	5999	0.0	-0.1
as found high	5954	47.80	6002	381.5	1.004
mid	5980	22.70	6003	181.1	1.010
low	5989	11.40	6000	91.0	1.018
				Average C.F.=	1.011
Linear Regression/Calibration Results:					
Correlation Coefficient = 1.000			LIMITS or = 0.995		
Slope = 1.003			0.90-1.10		
b (Intercept as % of full scale)= 0.17%			± 3% F.S.		
% change in C.F. from last cal= -0.36%			± 10%		
<b>Thermo 43i Sulphur Dioxide Analyzer Calibration</b>					
As found:			As left:		
Bkg:	14.5	Bkg:	n/a		
Coef:	1.020	Coef:	n/a		
Pmt:	-621.2	Pmt:	n/a		
Flash:	900	Flash:	n/a		
Internal:	27.2	Internal:	n/a		
Chamber:	45.9	Chamber:	n/a		
Perm Oven Gas:	45.00	Perm Oven Gas:	n/a		
Perm Oven Heater:	44.08	Perm Oven Heater:	n/a		
Pressure:	684.4	Pressure:	n/a		
Sample Flow:	0.410	Sample Flow:	n/a		
Lamp Intensity:	81	Lamp Intensity:	n/a		
Averaging Time:	120	Averaging Time:	n/a		
Expected Value:	255.0	Expected Value:	n/a		
Comments:					
A Shut-down calibration was performed to replace the pump.					



### Thermo 43i Sulphur Dioxide Analyzer Calibration

Date: February 7, 2019 Company/Airshed: PRAMP Location/Station Name: 842b Parameter: Sulphur Dioxide Start Time 24 hr. (mst): 10:32 End Time 24 hr. (mst): 13:32 Calibration Method: Gas Dilution		Barometer/B.P./units: Station Probe 952 millibars Thermometer/Station Temp: Station Probe 22 °C Weather Conditions: Light snow Calibration Purpose: post repair Performed By/Reviewer: Chris Wesson Rob Fisher Cal Gas Expiry Date: October 24, 2020 Converter Model & s/n (if applicable): n/a																																											
<b>Analyzer:</b> Serial Number/Owner: 8350333373 Maxxam Last Calibration Date: January 8, 2019 Previous C.F.: 1.000		Range ppb: 500 As Found C.F.: n/a New C.F.: 0.999																																											
<b>Calibration Standards:</b> Low Flow Meter ID/Expiry Date: N/A High Flow Meter ID/Expiry Date: N/A Calibrator ID/Expiry Date: Sabio id# 17100415 expires August 21, 2019 Cal Gas Cylinder I.D. #: LL108015 Cal Gas Conc. (ppm): 47.9		<b>Standard Calibration Points for Ranges</b> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Point</th> <th>ppb</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>380</td> </tr> <tr> <td>Mid</td> <td>180</td> </tr> <tr> <td>Low</td> <td>90</td> </tr> </tbody> </table>		Point	ppb	High	380	Mid	180	Low	90																																		
Point	ppb																																												
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<b>ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015</b>																																													
<b>Calibrator Flow Rates (cc/min)</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Point</th> <th>Diluent</th> <th>Cal Gas</th> <th>Total</th> <th>Calculated Concentration (ppb):</th> <th>Indicated Concentration (ppb):</th> <th>Correction Factors (C.F.):</th> </tr> </thead> <tbody> <tr> <td>adjusted zero</td> <td>6000</td> <td>0.00</td> <td>6000</td> <td>0.0</td> <td>0</td> <td>n/a</td> </tr> <tr> <td>adjusted high</td> <td>5954</td> <td>47.80</td> <td>6002</td> <td>381.5</td> <td>381.7</td> <td>0.999</td> </tr> <tr> <td>mid</td> <td>5980</td> <td>22.70</td> <td>6003</td> <td>181.1</td> <td>181.2</td> <td>1.000</td> </tr> <tr> <td>low</td> <td>5989</td> <td>11.40</td> <td>6000</td> <td>91.0</td> <td>89.8</td> <td>1.013</td> </tr> <tr> <td>calibrator zero</td> <td>6000</td> <td></td> <td>6000</td> <td>0.0</td> <td>0.2</td> <td>n/a</td> </tr> </tbody> </table>		Point	Diluent	Cal Gas	Total	Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):	adjusted zero	6000	0.00	6000	0.0	0	n/a	adjusted high	5954	47.80	6002	381.5	381.7	0.999	mid	5980	22.70	6003	181.1	181.2	1.000	low	5989	11.40	6000	91.0	89.8	1.013	calibrator zero	6000		6000	0.0	0.2	n/a	Average C.F.= 1.004	
Point	Diluent	Cal Gas	Total	Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):																																							
adjusted zero	6000	0.00	6000	0.0	0	n/a																																							
adjusted high	5954	47.80	6002	381.5	381.7	0.999																																							
mid	5980	22.70	6003	181.1	181.2	1.000																																							
low	5989	11.40	6000	91.0	89.8	1.013																																							
calibrator zero	6000		6000	0.0	0.2	n/a																																							
<b>Linear Regression/Calibration Results:</b> Correlation Coefficient = 1.000 Slope = 0.998 b (Intercept as % of full scale)= 0.10% % change in C.F. from last cal= n/a																																													
<b>Thermo 43i Sulphur Dioxide Analyzer Calibration</b> <div style="border: 1px solid black; padding: 10px; width: 100%;"> </div>																																													
<b>As found:</b> Bkg: 14.5 Coef: 1.020 Pmt: -621.2 Flash: 900 Internal: 27.2 Chamber: 45.9 Perm Oven Gas: 45.00 Perm Oven Heater: 44.08 Pressure: 683.8 Sample Flow: 0.424 Lamp Intensity: 81 Averaging Time: 120 Expected Value: 255.0		<b>As left:</b> Bkg: 14.9 Coef: 1.041 Pmt: -621.2 Flash: 900 Internal: 26.2 Chamber: 24.9 Perm Oven Gas: 45.0 Perm Oven Heater: 44.08 Pressure: 684.1 Sample Flow: 0.424 Lamp Intensity: 81 Averaging Time: 120 Expected Value: 248.8																																											
<b>Comments:</b> The analyzer sample inlet filter was changed. The analyzer cooling fan filter(s) were cleaned. The manifold blower was found to be working normally.																																													
A Post-repair calibration was performed following the pump replacement.																																													



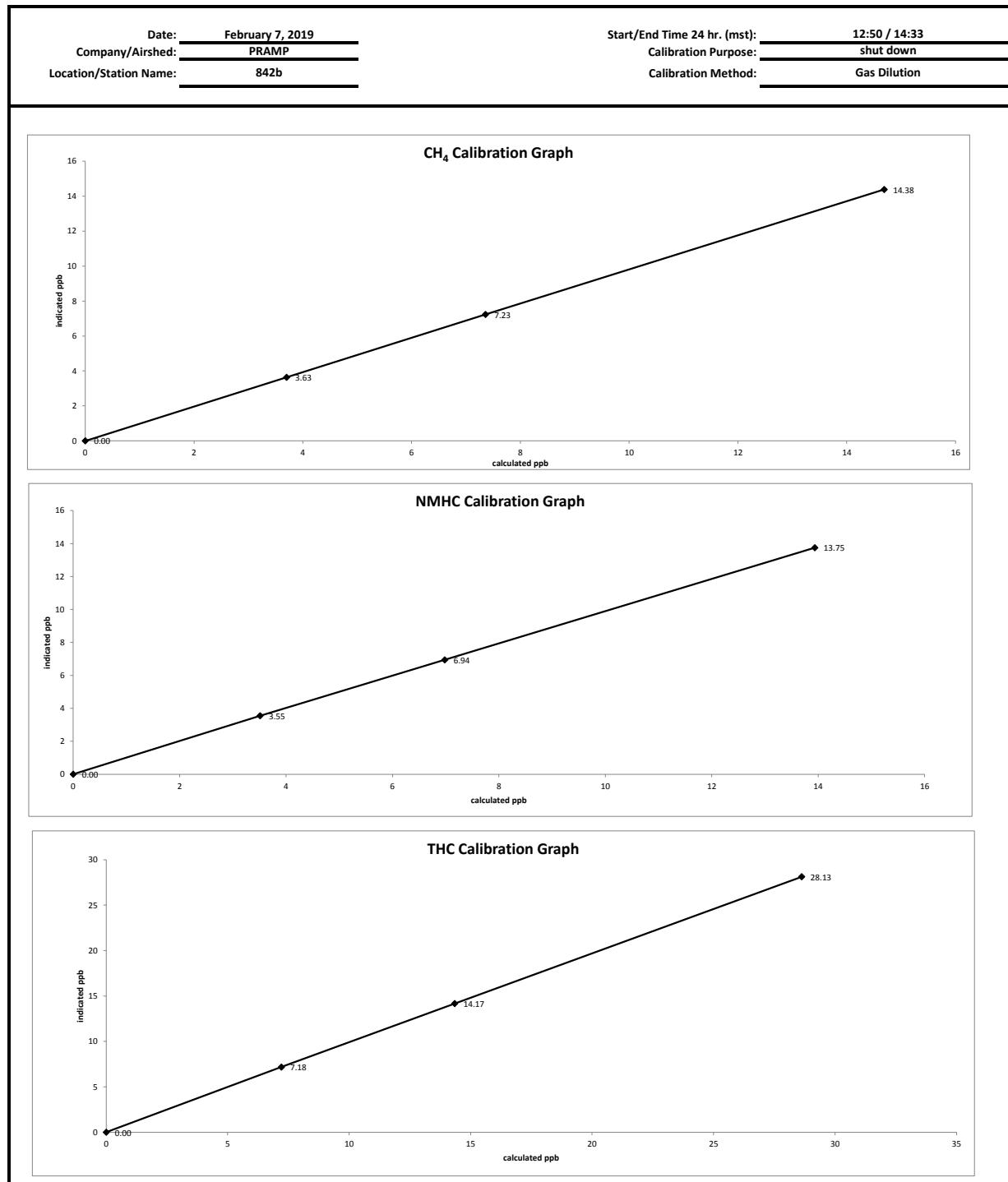
### Thermo 43I-TLE Total Reduced Sulphur Analyzer Calibration

Date: February 7, 2019	Barometer/B.P./units: Station Probe	952	millibars			
Company/Airshed: PRAMP	Thermometer/Station Temp: Station Probe	23	°C			
Location/Station Name: 842b	Weather Conditions: Light snow					
Parameter: Total Reduced Sulphur	Calibration Purpose: routine monthly					
Start Time 24 hr. (mst): 8:30	Performed By/Reviewer: Chris Wesson	Rob Fisher				
End Time 24 hr. (mst): 13:33	Cal Gas Expiry Date: November 7, 2020					
Calibration Method: Gas Dilution	Converter Model & s/n (if applicable): CD Nova CDN101 #553					
Analyzer:	Range ppb: 100					
Serial Number/Owner: 1164600023 Maxxam	As Found C.F.: 1.025					
Last Calibration Date: January 8, 2019	New C.F.: 1.000					
Previous C.F.: 1.000						
Calibration Standards:	Standard Calibration Points for Ranges					
Low Flow Meter ID/Expiry Date: N/A	Point: High	ppb: 78	SO2 Scrubber Check (10 minutes):			
High Flow Meter ID/Expiry Date: N/A	Point: Mid	ppb: 38	Start/End Time 24 hr.: 9:04 / 09:23			
Calibrator ID/Expiry Date: Sabio id# 26701218 expires January 15, 2020	Point: Low	ppb: 19	SO2 Analyzer Range: 500			
Cal Gas Cylinder I.D. #: LL119432	Target Concentration (ppb): 380					
Cal Gas Conc. (ppm): 10.3	As Found Zero: 0.0					
	Analyzer Response (ppb): 0.0					
	Zero Corrected Result (ppb): 0.0					
<b>ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015</b>						
<b>Calibrator Flow Rates (cc/min)</b>						
Point	Diluent	Cal Gas	Total	Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
as found zero	4998	0.00	4998	0.0	0.01	n/a
as found high	4961	37.90	4999	77.9	76.01	1.025
adjusted zero	4999	0.00	4999	0.0	0	n/a
adjusted high	4961	37.90	4999	77.9	77.93	1.000
mid	4981	18.50	4999	38.0	38.19	0.996
low	4989	9.20	4998	18.9	19.09	0.991
calibrator zero	4999	0.00	4999	0.0	0.03	n/a
				Average C.F.=	0.996	
Linear Regression/Calibration Results:						
Correlation Coefficient = 1.000	LIMITS			> or = 0.995		
Slope = 1.001	0.95-1.05			± 3% F.S.		
b (Intercept as % of full scale) = -0.10%	± 3% F.S.			± 10%		
% change in C.F. from last cal= -2.55%						
<b>Thermo 43I-TLE Total Reduced Sulphur Analyzer Calibration</b>						
<b>As found:</b>				<b>As left:</b>		
Bkg: 3.08	Perm Oven Gas: 45.00	Pmt: -720.4	Perm Oven Heater: 44.11	Bkg: 3.30	Perm Oven Gas: 45.0	Pmt: -720.4
Coef: 0.898	Pressure: 671.4	Flash: 990	Pressure: 671.4	Coef: 0.915	Pressure: 671.4	Flash: 989
Pmt: -720.4	Sample Flow: 0.408	Internal: 31.6	Sample Flow: 0.408	Flash: 989	Internal: 31.5	Internal: 31.5
Flash: 990	Lamp Intensity: 90	Chamber: 45.0	Lamp Intensity: 88	Internal: 31.5	Chamber: 45.1	Chamber: 45.1
Internal: 31.6	Converter: 855	Perm Oven Gas: 45.00	Converter: 861	Chamber: 45.1	Perm Oven Gas: 45.0	Perm Oven Gas: 45.0
Chamber: 45.0	Converter Set: 850	Perm Oven Heater: 44.11	Converter Set: 861	Perm Oven Heater: 44.12	Perm Oven Heater: 44.12	Perm Oven Heater: 44.12
Perm Oven Gas: 45.00	Averaging Time: 120	Pressure: 671.4	Averaging Time: 120	Pressure: 671.4	Pressure: 671.4	Pressure: 671.4
Perm Oven Heater: 44.11	Expected Value: 55.1	Sample Flow: 0.408	Expected Value: 55.1	Sample Flow: 0.408	Sample Flow: 0.408	Sample Flow: 0.408
Pressure: 671.4		Lamp Intensity: 90		Lamp Intensity: 88		Lamp Intensity: 88
Sample Flow: 0.408		Converter: 855		Converter: 861		Converter: 861
Lamp Intensity: 90		Converter Set: 850		Converter Set: 861		Converter Set: 861
Converter: 855		Averaging Time: 120		Averaging Time: 120		Averaging Time: 120
Converter Set: 850		Expected Value: 55.1		Expected Value: 55.1		Expected Value: 55.1
Comments:						



## Thermo 55i Methane/Non-Methane Analyzer Calibration

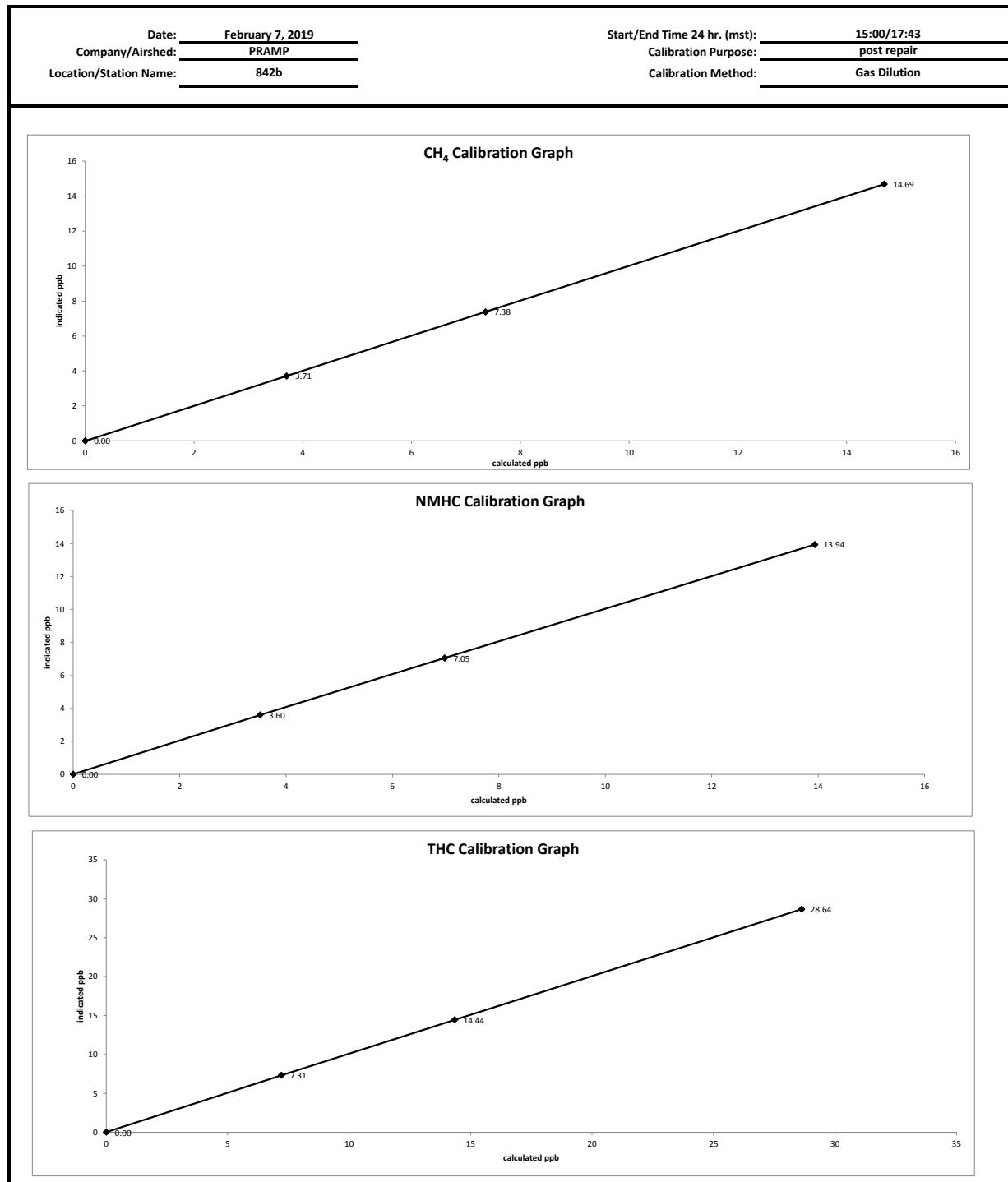
Date: February 7, 2019		Barometer/B.P./units: Station Probe 952.6 millibars	
Company/Airshed: PRAMP		Thermometer/Station Temp: Station Probe 22.5 °C	
Location/Station Name: 842b		Weather Conditions: Mix of sun and clouds	
Parameter: CH <sub>4</sub> / NMHC / THC		Calibration Purpose: shut down	
Start/End Time 24 hr. (mst): 12:50 / 14:33		Performed By/Reviewer: Chris Wesson Rob Fisher	
Calibration Method: Gas Dilution		Cal Gas Expiry Date: October 18, 2025	
Analyzer:			
Serial Number/Owner: 1505664392 Maxxam		Correction Factors:	
Measured Flow: 0.55 L/min		Previous C.F.: As Found C.F.: New C.F.:	
Last Calibration Date: January 9, 2019		$CH_4 =$	0.999 1.022 n/a
Range ppm: 20 CH <sub>4</sub> /20 NMHC/40 THC		$NMHC =$	0.999 1.014 n/a
		$THC =$	0.999 1.018 n/a
Calibration Standards:			
Low Flow Meter ID/Expiry Date: N/A		Standard Calibration Points for Analyzer Range of 20/20/40 ppm	
High Flow Meter ID/Expiry Date: N/A		Point CH <sub>4</sub> NMHC THC	High 13.00 13.00 26.00
Calibrator ID/Expiry Date: Sabio id# 17100415 expires August 21, 2019		Mid 7.00 7.00 14.00	
Cal Gas Cylinder I.D. #: LL107207		Low 3.00 3.00 6.00	
CH <sub>4</sub> Cylinder Conc.= 600.0 207.0 =C <sub>3</sub> H <sub>8</sub> Cylinder Conc.			
CH <sub>4</sub> expressed as C <sub>3</sub> H <sub>8</sub> = 569.3 1169.3 =total CH4 equivalent			
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015			
Calibrator Flow Rates (cc/min)			
Point	Diluent	Cal Gas	Total Flow
as found zero	2999	0.00	2999
as found high	2925	73.40	2998
mid	2963	36.80	3000
low	2981	18.50	2999
Calculated CH <sub>4</sub> (ppm) Calculated NMHC (ppm) Calculated THC (ppm)			
Indicated CH <sub>4</sub> (ppm) Indicated NMHC (ppm) Indicated THC (ppm)			
Correction Factors:			
CH <sub>4</sub> NMHC THC			
Correlation Coefficient = 1.000 1.000 1.000 > or = 0.995			
Slope = 0.979 0.985 0.982 0.90-1.10			
b (Intercept as % of full scale)= 0.04% 0.22% 0.13% ± 3% F.S.			
% change in C.F. from last cal= -2.26% -1.46% -1.87% ± 10%			
Linear Regression/Calibration Results:			
CH <sub>4</sub> NMHC THC LIMITS			
Correlation Coefficient = 1.000 1.000 1.000 > or = 0.995			
Slope = 0.979 0.985 0.982 0.90-1.10			
b (Intercept as % of full scale)= 0.04% 0.22% 0.13% ± 3% F.S.			
% change in C.F. from last cal= -2.26% -1.46% -1.87% ± 10%			
As Left Instrument Diagnostics:			
Interface Board Voltages: Bias Supply: n/a Calibration History cnt'd: NM Peak Area: n/a			
Temperatures: Detector Oven: n/a Crucial Settings: Methane Start: n/a			
Column Oven: n/a Methane End: n/a			
Internal: n/a Backflush: n/a			
Cylinder Pressures/reg.: Carrier: n/a NMHV Start: n/a			
Fuel: n/a NMHC End: n/a			
Span Gas: n/a NMH: n/a			
Zero Air Generator: n/a Run History>1: Date: n/a			
Carrier: n/a Time: n/a			
Fuel: n/a CH <sub>4</sub> PK HT: n/a			
Air: n/a CH <sub>4</sub> RT: n/a			
FID Status: Status: n/a CH <sub>4</sub> Baseline: n/a			
Counts: n/a CH <sub>4</sub> LOD: n/a			
Flame: n/a CH <sub>4</sub> SD: n/a			
Det Base: n/a CH <sub>4</sub> CONC: n/a			
Flameouts: n/a NM PK HT: n/a			
Det Oven at Start: n/a NM Peak Area: n/a			
Col Oven at Start: n/a NM CONC: n/a			
Calibration History: Time: n/a NM Base Start: n/a			
Type: n/a NM Base End: n/a			
Status: n/a NM Start IDX: n/a			
Check/Adjust: n/a NM End IDX: n/a			
CH <sub>4</sub> Span Conc: n/a NM Max Slope: n/a			
CH <sub>4</sub> SP Ratio: n/a NM Min Slope: n/a			
CH <sub>4</sub> RT: n/a NM PT Count: n/a			
CH <sub>4</sub> PK IDX: n/a Previous CH4: n/a			
CH <sub>4</sub> PK HT: n/a Previous NMHC: n/a			
NM Span Conc: n/a Previous THC: n/a			
NM SP Ratio: n/a New CH4: n/a			
Expected Values: New NMHC: n/a			
New THC: n/a			
Comments:			
A Shut-down calibration was performed to perform a pump-rebuild. A flow rate check was performed after the As-Found High.			





## Thermo 55i Methane/Non-Methane Analyzer Calibration

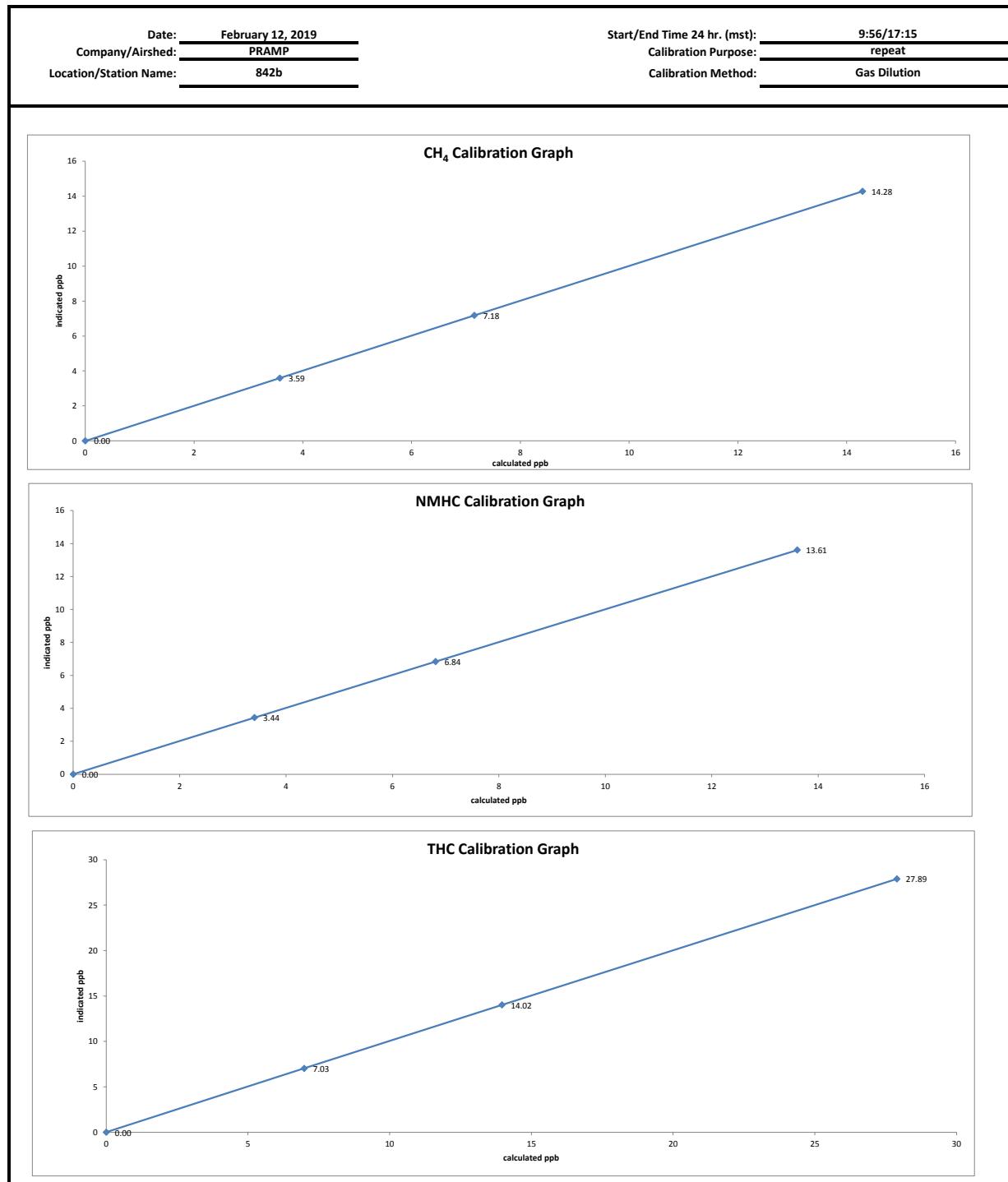
Date: February 7, 2019		Barometer/B.P./units: Station Probe 952.6 millibars	
Company/Airshed: PRAMP		Thermometer/Station Temp: Station Probe 22.5 °C	
Location/Station Name: 842b		Weather Conditions: Light snow	
Parameter: CH <sub>4</sub> / NMHC / THC		Calibration Purpose: post repair	
Start/End Time 24 hr. (mst): 15:00/17:43		Performed By/Reviewer: Chris Wesson Rob Fisher	
Calibration Method: Gas Dilution		Cal Gas Expiry Date: October 18, 2025	
Analyzer:			
Serial Number/Owner: 1505664392 Maxxam		Correction Factors:	
Measured Flow: 1.22 L/min		Previous C.F.: As Found C.F.: New C.F.:	
Last Calibration Date: n/a		CH <sub>4</sub> = n/a n/a 1.000	
Range ppm: 20 CH <sub>4</sub> /20 NMHC/40 THC		NMHC = n/a n/a 1.000	
THC = n/a n/a 1.000			
Calibration Standards:			
Low Flow Meter ID/Expiry Date: N/A		Standard Calibration Points for Analyzer Range of 20/20/40 ppm	
High Flow Meter ID/Expiry Date: N/A		Point CH <sub>4</sub> NMHC THC	
Calibrator ID/Expiry Date: Sabio Id# 17100415 expires August 21, 2019		High 13.00 13.00 26.00	
Cal Gas Cylinder I.D. #: LL107207		Mid 7.00 7.00 14.00	
CH <sub>4</sub> Cylinder Conc.= 600.0 207.0 =C <sub>3</sub> H <sub>8</sub> Cylinder Conc.		Low 3.00 3.00 6.00	
CH <sub>4</sub> expressed as C <sub>3</sub> H <sub>8</sub> = 569.3 1169.3 =total CH <sub>4</sub> equivalent			
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015			
Calibrator Flow Rates (cc/min)			
		Calculated CH <sub>4</sub> (ppm) Calculated NMHC (ppm) Calculated THC (ppm)	
Point	Diluent	Cal Gas	Total Flow
adjusted zero	2999	0.00	2999
adjusted high	2925	73.40	2998
mid	2963	36.80	3000
low	2981	18.50	2999
calibrator zero	2999	0.00	2999
		Indicated CH <sub>4</sub> (ppm) Indicated NMHC (ppm) Indicated THC (ppm)	
		CH <sub>4</sub> NMHC THC	
		n/a n/a n/a	
Average C.F.= 0.998 0.989 0.993			
Linear Regression/Calibration Results:			
		CH <sub>4</sub> NMHC THC	
Correlation Coefficient = 1.000 1.000 1.000		LIMITS > or = 0.995	
Slope = 1.000 0.999 1.000 0.95-1.05		± 3% F.S.	
b (Intercept as % of full scale)= 0.04% 0.24% 0.14%		n/a	
% change in C.F. from last cal= n/a n/a n/a			
As Left Instrument Diagnostics:			
Interface Board Voltages:		Calibration History cnt'd: NM Peak Area: 80701	
Temperatures:		Crucial Settings: Methane Start: n/a	
Detector Oven: 175.0		Methane End: n/a	
Filter: 175.0		Backflush: n/a	
Column Oven: 74.9		NMHV Start: n/a	
Internal: 30.2		NMHC End: n/a	
Cylinder Pressures/reg.:		Run History>1: Date: 07feb2019	
Carrier: 700 50		Time: 16:39	
Fuel: 2000 50		CH <sub>4</sub> PK HT: 0	
Span Gas: 1100 16		CH <sub>4</sub> RT: 11.4	
Zero Air Generator: 50		CH <sub>4</sub> Baseline: 3171	
Internal Pressures:		CH <sub>4</sub> LOD: 336	
Carrier: 31.1		CH <sub>4</sub> SD: 12	
Fuel: 47.3		CH <sub>4</sub> CONC: 0.00	
Air: 23.7		NM PK HT: 0	
FID Status:		NM Peak Area: 0	
Status: lit		NM CONC: 0.00	
Counts: 35800		NM Base Start: 3178	
Flame: 379.9		NM Base End: 3201	
Det Base: 175.0		NM LOD: 11	
Flame and Power Stats:		NM Start IDX: 11	
Last Power On: 20nov2018@18:11		NM End IDX: 78	
Flameouts: 3		NM Max Slope: 9.1e-01	
Det Oven at Start: 121.5		NM Min Slope: -4.2e-01	
Col Oven at Start: 74.1		NM PT Count: 0	
Calibration History:		Expected Values: Previous CH4: 10.27	
Time: 07feb2019@15:21		Previous NMHC: 11.3	
Type: span		Previous THC: 21.57	
Status: good		New CH4: 11.73	
Check/Adjust: adjust		New NMHC: 12.78	
CH <sub>4</sub> Span Conc: 14.69		New THC: 24.51	
CH <sub>4</sub> SP Ratio: 0.00072			
CH <sub>4</sub> RT: 12.2			
CH <sub>4</sub> PK IDX: 21			
CH <sub>4</sub> PK HT: 22403			
NM Span Conc: 13.94			
NM SP Ratio: 0.000173			
Comments:			
A Post-Repair calibration was performed following a pump-rebuild.			





### Thermo 55i Methane/Non-Methane Analyzer Calibration

<b>Thermo 55i Methane/Non-Methane Analyzer Calibration</b>																																																																																								
Date: February 12, 2019 Company/Airshed: PRAMP Location/Station Name: 842b Parameter: CH <sub>4</sub> / NMHC / THC Start/End Time 24 hr. (mst): 9:56/17:15 Calibration Method: Gas Dilution				Barometer/B.P./units: F.S. 10528 expires January 23, 2020 Thermometer/Station Temp: F.S. 181341226 expires Jun 7, 2020 Weather Conditions: Mainly sunny Calibration Purpose: repeat Performed By/Reviewer: Ferdinand Roy Cal Gas Expiry Date: October 18, 2025																																																																																				
<b>Analyzer:</b> Serial Number/Owner: 1505664392 Maxxam Measured Flow: 1.2467 L/min Last Calibration Date: February 7, 2019 Range ppm: 20 CH <sub>4</sub> /20 NMHC/40 THC																																																																																								
<b>Correction Factors:</b> <table border="1" style="margin-left: auto; margin-right: auto; width: fit-content;"> <tr> <th>Previous C.F.:</th> <th>As Found C.F.:</th> <th>New C.F.:</th> </tr> <tr> <td>CH<sub>4</sub> = 1.000</td> <td>0.968</td> <td>1.001</td> </tr> <tr> <td>NMHC = 1.000</td> <td>0.978</td> <td>1.000</td> </tr> <tr> <td>THC = 1.000</td> <td>0.970</td> <td>1.000</td> </tr> </table>												Previous C.F.:	As Found C.F.:	New C.F.:	CH <sub>4</sub> = 1.000	0.968	1.001	NMHC = 1.000	0.978	1.000	THC = 1.000	0.970	1.000																																																																	
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<b>Calibration Standards:</b> Low Flow Meter ID/Expiry Date: N/A High Flow Meter ID/Expiry Date: N/A Calibrator ID/Expiry Date: Sabio id# 26801218 expires January 15, 2020 Cal Gas Cylinder I.D. #: LL43221 CH <sub>4</sub> Cylinder Conc.= 595.0 206.0 =C <sub>2</sub> H <sub>6</sub> Cylinder Conc. CH <sub>4</sub> expressed as C <sub>2</sub> H <sub>6</sub> = 566.5 1161.5 =total CH <sub>4</sub> equivalent																																																																																								
<b>Standard Calibration Points for Analyzer Range of 20/20/40 ppm</b> <table border="1" style="margin-left: auto; margin-right: auto; width: fit-content;"> <thead> <tr> <th>Point</th> <th>CH<sub>4</sub></th> <th>NMHC</th> <th>THC</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>13.00</td> <td>13.00</td> <td>26.00</td> </tr> <tr> <td>Mid</td> <td>7.00</td> <td>7.00</td> <td>14.00</td> </tr> <tr> <td>Low</td> <td>3.00</td> <td>3.00</td> <td>6.00</td> </tr> </tbody> </table>												Point	CH <sub>4</sub>	NMHC	THC	High	13.00	13.00	26.00	Mid	7.00	7.00	14.00	Low	3.00	3.00	6.00																																																													
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<b>As Left Instrument Diagnostics:</b>																																																																																								
Interface Board Voltages: Temperatures: Cylinder Pressures/reg.: Internal Pressures: FID Status: Flame and Power Stats: Calibration History:				Bias Supply: -294.0 Detector Oven: 175.1 Filter: 175.1 Column Oven: 75.1 Internal: 31.7 Carrier: 600 50 Fuel: 1800 50 Span Gas: 1000 16 Zero Air Generator: 50 Carrier: 31.1 Fuel: 47.3 Air: 23.7 Status: LIT Counts: 36150 Flame: 380.3 Det Base: 175.0 Last Power On: 20Nov2018@18:11 Flameouts: 3 Det Oven at Start: 121.5 Col Oven at Start: 74.1 Time: 12Feb19@14:18 Type: SPAN Status: GOOD Check/Adjust: ADJUST CH <sub>4</sub> Span Conc: 14.29 CH <sub>4</sub> SP Ratio: 0.000697 CH <sub>4</sub> RT: 12.2 CH <sub>4</sub> PK IDX: 21 CH <sub>4</sub> PK HT: 20493 NM Span Conc: 13.61 NM SP Ratio: 0.00017				Calibration History cnt'd: Crucial Settings: Run History>1: Expected Values:																																																																																
				NM Peak Area: 80181 Methane Start: n/a Methane End: n/a Backflush: n/a NMHV Start: n/a NMHC End: n/a NMHC Start: 12Feb19 Time: 15:54 CH <sub>4</sub> PK HT: 0 CH <sub>4</sub> RT: 11.4 CH <sub>4</sub> Baseline: 3193 CH <sub>4</sub> LOD: 46 CH <sub>4</sub> SD: 17 CH <sub>4</sub> CONC: 0.00 NM PK HT: 0 NM Peak Area: 0 NM CONC: 0.00 NM Base Start: 3241 NM Base End: 3216 NM LOD: 8 NM Start IDX: 15 NM End IDX: 76 NM Max Slope: 4.3e-01 NM Min Slope: -9.1e-01 NM PT Count: 0 Previous CH4: 11.73 Previous NMHC: 12.78 Previous THC: 24.51 New CH4: 10.08 New NMHC: 11.02 New THC: 21.10																																																																																				
<b>Comments:</b> The analyzer sample inlet filter was changed.  The manifold blower was found to be working normally.  A Repeat calibration was performed due to the IZS Zero result was slightly high and the Span result was low. The internal span system troubleshooting occurred from 11:48 till 13:15. A repeat calibration was performed after the internal span system troubleshooting at 13:20.																																																																																								





## Meteorological System Checklist

Date:	February 7, 2019				
Technician:	Chris Wesson				
Reviewer:	Rob Fisher				
Station:	PRAMP 842b				
Unit:	Make:	Model:	Serial #:		
Temperature Sensor:	Campbell Scientific	HMP45C	C2608		
Barometric Pressure Sensor:	MetOne	92	K12864		
Relative Humidity Sensor:	Campbell Scientific	HMP45C	C2608		
Anemometer:	RM Young	05305VK	124638		
AMBIENT TEMPERATURE SENSOR CHECK					
Previous check date:	December 5, 2018				
Parameter:	Temperature @ 2 metres				
Reference Thermometer ID:	F.S. 160459244 expires June 19, 2020				
Reference Temperature (°C):	-20.0				
Station - Ambient Temperature (°C):	-21.6				
Temperature Difference (°C):	1.6				
BAROMETRIC PRESSURE SENSOR CHECK					
Previous check date:	December 5, 2018				
Reference Barometer ID:	Brunton 05490 expires January 17, 2020				
Reference Pressure - Units/Reading:	millibar	950.3			
Station Pressure - Units/Reading:	millibar	952.2			
Pressure Tolerance +/- 15% of error:	808 - 1093	-0.20%			
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK					
Previous check date:	December 5, 2018				
Reference Hygrometer ID:	F.S. id# 160459244 expires June 19, 2020				
Reference Hygrometer % RH- Reading:	59.90				
Station Hygrometer % RH- Reading:	72.50				
RH Tolerance +/- 15% of difference:	50.92 - 68.89	-21.0%			
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK					
WIND SPEED		WIND DIRECTION			
Previous check date:	December 5, 2018	Previous check date:	December 5, 2018		
Wind Speed Observed (kph):	0-10	Wind Direction Observed:	W		
Wind speed on Data Logger (kph):	6.8	Wind Direction on Data Logger:	W		
		Wind Direction Pass/Fail?:	Pass		



## Meteorological System Checklist

Date:	February 21, 2019				
Technician:	Chris Wesson				
Reviewer:	Rob Fisher				
Station:	PRAMP 842b				
Unit:	Make:	Model:	Serial #:		
Temperature Sensor:	Campbell Scientific	HMP45C	C2608		
Barometric Pressure Sensor:	MetOne	92	K12864		
Relative Humidity Sensor:	Campbell Scientific	HMP45C	C2608		
Anemometer:	RM Young	05305VK	124638		
AMBIENT TEMPERATURE SENSOR CHECK					
Previous check date:	February 7, 2019				
Parameter:	Temperature @ 2 metres				
Reference Thermometer ID:	F.S. 160459244 expires June 19, 2020				
Reference Temperature (°C):	-8.7				
Station - Ambient Temperature (°C):	-8.3				
Temperature Difference (°C):	-0.4				
BAROMETRIC PRESSURE SENSOR CHECK					
Previous check date:	February 7, 2019				
Reference Barometer ID:	Brunton 05490 expires January 17, 2020				
Reference Pressure - Units/Reading:	millibar	934			
Station Pressure - Units/Reading:	millibar	935.1			
Pressure Tolerance +/- 15% of error:	794 - 1074	-0.12%			
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK					
Previous check date:	February 7, 2019				
Reference Hygrometer ID:	F.S. id# 160459244 expires June 19, 2020				
Reference Hygrometer % RH- Reading:	59.57				
Station Hygrometer % RH- Reading:	60.80				
RH Tolerance +/- 15% of difference:	50.63 - 68.51	-2.1%			
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK					
WIND SPEED		WIND DIRECTION			
Previous check date:	February 7, 2019	Previous check date:	February 7, 2019		
Wind Speed Observed (kph):	5-15	Wind Direction Observed:	SE		
Wind speed on Data Logger (kph):	10	Wind Direction on Data Logger:	SE		
		Wind Direction Pass/Fail?:	Pass		

# Calibrator Performance Audit

## Oxides Of Nitrogen

File No. 2018-131A

<b>Company</b> Maxxam	<b>Operator:</b> Mike
<b>Calibrator:</b> Make/Model Sabio Serial Number 17100415 Last Verification Date May 16, 2017 NO Cylinder S/N LL104183 NO [PPM] 50.8 NOx [PPM] 50.9 Expiry Date October 24, 2020	
<b>Flow Measurement Device:</b> Make/Model Bios Definer 220 Serial Number H=128686; L=129069 Temperature (°C) 22.2 C Barometric Pressure 706.1mmHg	
Dilution Flow (sccm) Pt. #1 5120 Pt. #2 5121 Pt. #3 5128 Gas Flow (sccm) Pt. #1 77.4 Pt. #2 37.8 Pt. #3 19	

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO <sub>2</sub>	NOx	NO	NOx
5136	0.0	0.0000	0.0000	0.0001	-0.0002	0.0001	Limit ± 10%	
5120	77.4	0.7680	0.7695	0.7793	0.0003	0.7796	1%	1%
5121	37.8	0.3750	0.3757	0.3802	0.0000	0.3802	1%	1%
5128	19.0	0.1882	0.1885	0.1908	0.0005	0.1909	1%	1%
Absolute Average Percent Difference							1%	1%

LINEAR REGRESSION ANALYSIS								
$y=mx+b$ (where x=calculated concentration, y=indicated concentration)								
<b>NO</b>			<b>LIMITS</b>			<b>NOx</b>		
Correlation= 1.0000			≥ 0.990			Correlation= 1.0000		
m (Slope)= 1.0146			0.90-1.10			m (Slope)= 1.0130		
b (Intercept % of FS)= -0.0074			± 3% F.S.			b (Intercept % of FS)= -0.0059		

Flow O <sub>3</sub> Conc NO Decrease NO NO <sub>2</sub> NOX % Diff. Vs Audit gas							
5120	0.0	0.0000	0.7794	0.0005	0.7799	NO <sub>2</sub>	% Diff. Limit
5120	500.0	0.4827	0.2967	0.4854	0.7806	0%	± 10%
5120	275.0	0.2672	0.5122	0.2676	0.7798	0%	± 10%
5120	90.0	0.0896	0.6898	0.0890	0.7787	-1%	± 10%
Absolute Average Percent Difference							0% ± 10%

LINEAR REGRESSION ANALYSIS								
$y=mx+b$ (where x=calculated concentration, y=indicated concentration)								
<b>NO<sub>2</sub></b>			<b>LIMITS</b>			<b>NOx</b>		
Correlation= 1.0000			≥ 0.995			Correlation= 1.0000		
m (Slope)= 1.0053			0.90-1.10			m (Slope)= 1.0130		
b (Intercept % of FS)= -0.0370			± 3% F.S.			b (Intercept % of FS)= -0.0059		

AENV Standards				NO <sub>x</sub> Analyzer			
Audit Calibrator				Make/Model Thermo 42i			
Make/Model Thermo 146i				Serial/AMU Number 1868			
Serial/AMU Number 1809				Last Calibration Date August 16, 2018			
SRM Gas Cylinder No. APEX1170572				Full Scale (ppm) 1.0			
Cylinder Conc. (ppm) 49.99				Cylinder Gas Expiry Date November 15, 2020			

COMMENTS: \_\_\_\_\_

Auditor:

Date: August 21, 2018

Operator Signature:

Location: McIntyre Center Edmonton



# Calibrator Performance Audit

## Oxides Of Nitrogen

File No. 2019-395A

<b>Company</b>	Maxxam		<b>Operator:</b>	Alex			
<b>Calibrator:</b> Make/Model Sabio 2010 Serial Number 26701218 Last Verification Date New NO Cylinder S/N LL107918 NO [PPM] 50.1      NOx [PPM] 50.2 Expiry Date August 2026			<b>Flow Measurement Device:</b> Make/Model N/A Serial Number N/A Temperature (°C) N/A Barometric Pressure N/A				
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 <sub>2</sub>	NOx	NO
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%
4997	79.8	0.800	0.802	0.789	0.000	0.789	-1%      -2%
4999	39.9	0.400	0.401	0.394	0.000	0.394	-1%      -2%
4998	20.0	0.200	0.201	0.196	0.001	0.197	-2%      -2%
Absolute Average Percent Difference						2%	2%

**LINEAR REGRESSION ANALYSIS**  $y=mx+b$  (where x=calculated concentration, y=indicated concentration)

<u>NO</u>		<u>LIMITS</u>		<u>NO<sub>x</sub></u>	
Correlation=	1.0000	≥ 0.990		Correlation=	1.0000
m (Slope)=	0.9868	0.90-1.10		m (Slope)=	0.9844
b (Intercept % of FS)=	-0.0750	± 3% F.S.		b (Intercept % of FS)=	-0.0350

Flow	O <sub>3</sub> Conc	NO Decrease	NO	NO <sub>2</sub>	NOX	% Diff. Vs Audit gas
4997	0.000	0.000	0.786	0.000	0.786	NO <sub>2</sub> % Diff. Limit
4997	0.500	0.477	0.309	0.476	0.785	0% ± 10%
4997	0.250	0.240	0.546	0.234	0.785	-2% ± 10%
4997	0.100	0.097	0.689	0.096	0.785	-1% ± 10%
Absolute Average Percent Difference						1% ± 10%

**LINEAR REGRESSION ANALYSIS**  $y=mx+b$  (where x=calculated concentration, y=indicated concentration)

<u>NO<sub>2</sub></u>		<u>LIMITS</u>	
Correlation=	0.9999	≥ 0.995	
m (Slope)=	0.9970	0.90-1.10	
b (Intercept % of FS)=	-0.1391	± 3% F.S.	

<b>AENV Standards</b> <b>Audit Calibrator</b> Make/Model Teco 146i Serial/AMU Number AMU 1809 SRM Gas Cylinder No. APEX1236645 Cylinder Conc. (ppm) 50.05	<b>NO<sub>x</sub> Analyzer</b> Make/Model Teco 42i Serial/AMU Number AMU 2268 Last Calibration Date January 14, 2019 Full Scale (ppm) 1.0 Cylinder Gas Expiry Date June 2021
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COMMENTS: \_\_\_\_\_

Auditor: Al Clark Date: Janaury 15, 2019

Operator Signature: Location: McIntyre Center Edmonton



# Calibrator Performance Audit

## Oxides Of Nitrogen

File No. 2019-396A

Company <u>Maxxam</u>	Operator: <u>Alex</u>																																																															
<b>Calibrator:</b> Make/Model <u>Sabio 2010</u> Serial Number <u>26801218</u> Last Verification Date <u>New</u> NO Cylinder S/N <u>LL48147</u> NO [PPM] <u>50.5</u> NOx [PPM] <u>50.6</u> Expiry Date <u>August 2026</u>																																																																
<b>Flow Measurement Device:</b> Make/Model <u>N/A</u> Serial Number <u>N/A</u> Temperature (°C) <u>N/A</u> Barometric Pressure <u>N/A</u>																																																																
Dilution Flow (sccm) Pt. #1 <u>5000</u> Pt. #2 <u>5000</u> Pt. #3 <u>5000</u> Gas Flow (sccm) Pt. #1 <u>80</u> Pt. #2 <u>40</u> Pt. #3 <u>20</u>																																																																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Calibrator Flow (sccm)</th> <th colspan="2">Calculated Conc.(ppm)</th> <th colspan="3">Indicated Conc.(ppm)</th> <th colspan="2">% Difference vs Audit Gas</th> </tr> <tr> <th>Dilution</th> <th>Gas</th> <th>NO</th> <th>NOx</th> <th>NO</th> <th>NO<sub>2</sub></th> <th>NOx</th> <th>NO</th> <th>NOx</th> </tr> </thead> <tbody> <tr> <td>5000</td> <td>0.0</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td colspan="2">Limit ± 10%</td> </tr> <tr> <td>5015</td> <td>79.1</td> <td>0.797</td> <td>0.798</td> <td>0.793</td> <td>0.001</td> <td>0.794</td> <td>0%</td> <td>-1%</td> </tr> <tr> <td>5015</td> <td>39.6</td> <td>0.399</td> <td>0.400</td> <td>0.395</td> <td>0.001</td> <td>0.396</td> <td>-1%</td> <td>-1%</td> </tr> <tr> <td>5017</td> <td>19.8</td> <td>0.199</td> <td>0.200</td> <td>0.197</td> <td>0.000</td> <td>0.197</td> <td>-1%</td> <td>-1%</td> </tr> <tr> <td colspan="9" style="text-align: right;">Absolute Average Percent Difference <u>1%</u> <u>1%</u></td> </tr> </tbody> </table>		Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas		Dilution	Gas	NO	NOx	NO	NO <sub>2</sub>	NOx	NO	NOx	5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%		5015	79.1	0.797	0.798	0.793	0.001	0.794	0%	-1%	5015	39.6	0.399	0.400	0.395	0.001	0.396	-1%	-1%	5017	19.8	0.199	0.200	0.197	0.000	0.197	-1%	-1%	Absolute Average Percent Difference <u>1%</u> <u>1%</u>								
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**LINEAR REGRESSION ANALYSIS** $y=mx+b$  (where x=calculated concentration, y=indicated concentration)

<u>NO</u>		<u>LIMITS</u>		<u>NOx</u>	
Correlation=	1.0000	≥ 0.990	0.90-1.10	Correlation=	1.0000
m (Slope)=	0.9959	0.90-1.10	± 3% F.S.	m (Slope)=	0.9954
b (Intercept % of FS)=	-0.0968			b (Intercept % of FS)=	-0.0969

Flow	O <sub>3</sub> Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas
5015	0.000	0.000	0.792	0.001	0.793	NO <sub>2</sub> % Diff. Limit
5015	0.500	0.496	0.296	0.493	0.791	-1% ± 10%
5015	0.250	0.246	0.546	0.245	0.793	-1% ± 10%
5015	0.100	0.098	0.694	0.098	0.793	-1% ± 10%
Absolute Average Percent Difference						<u>1%</u> <u>± 10%</u>

**LINEAR REGRESSION ANALYSIS** $y=mx+b$  (where x=calculated concentration, y=indicated concentration)

<u>NO<sub>2</sub></u>		<u>LIMITS</u>	
Correlation=	1.0000	≥ 0.995	
m (Slope)=	0.9921	0.90-1.10	
b (Intercept % of FS)=	0.0909	± 3% F.S.	

<b>AENV Standards</b>		<b>NO<sub>x</sub> Analyzer</b>	
<b>Audit Calibrator</b>			
Make/Model	Teco 146i	Make/Model	Teco 42i
Serial/AMU Number	AMU 1809	Serial/AMU Number	AMU 1868
SRM Gas Cylinder No.	APEX1236645	Last Calibration Date	January 14, 2019
Cylinder Conc. (ppm)	50.05	Full Scale (ppm)	1.0
		Cylinder Gas Expiry Date	June 2021

COMMENTS: \_\_\_\_\_

Auditor: Al ClarkDate: Janauary 15, 2019Operator Signature: Colin BentlLocation: McIntyre Center Edmonton



# Calibration Gas Audit

## Single Component Cylinder Gas

File No. 2017-486CGA

Company: Maxxam

Operator's Name: Mike

Cylinder #: LL108015 Concentration PPM: 47.9 Tolerance(%) 2 Certified By: Praxair

Expiry Date: October 2020

### Reference Calibrator and Gas:

Make/Model: R&R MFC 201

Serial Number: AMU 1690

Last Verification Date: December 13, 2017

Gas Type: SO<sub>2</sub> Conc. 98.07

Cylinder Number: CAL016625

Expiry Date: January 2019

### Flow Measurement Device:

Make/Model: Mesa Definer 220

Serial Number: H-133034 / L-132702

Temp. °C: 23.4 C

B.P. 707 mmHg

### Reference Analyzer:

Make/Model: Teco 43C Serial/AMU Number: 1623

Instrument Settings: Zero: 10.0 Span: 1.006 Range: 1.0

Last Calibration: Date: Dec12/17 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.000	X	X	X
4989	79.5	0.760	0.01594	62.755	47.7
4995	39.6	0.374	0.00793	126.136	47.2
4992	19.6	0.183	0.00393	254.694	46.6
Average Cylinder Concentration:					47.2

Previous Stated Concentration PPM: 47.9

Percent variance from Stated: 2

Meets Manufacturer Tolerance. Use manufacturers stated concentration  COMMENTS: \_\_\_\_\_

<=5% Outside Manufacturer Tolerance. Use manufacturers concentration  \_\_\_\_\_

>5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder  \_\_\_\_\_

Auditor: Al Clark

Date: December 13, 2017

Operator Signature:

Location: McIntyre Center Edmonton



## Calibration Gas Audit

### Single Component Cylinder Gas

File No. 2017-137CGA

**Company:** Maxxam

**Operator's Name:** Raja Abid Ashraf

Cylinder #: LL119432 Concentration PPM: 10.3 Tolerance(%) 2 Certified By: Praxair

Expiry Date: May 16, 2020

#### Reference Calibrator and Gas:

Make/Model: R&R MFC 201

Serial Number: AMU 1690

Last Verification Date: July 27, 2017

Gas Type: H2S Conc. 20.43

Cylinder Number: CAL015272

Expiry Date: Janauary 2019

#### Flow Measurement Device:

Make/Model: Mesa Definer 220

Serial Number: H-133034 L-132702

Temp. °C: 22.0 C

B.P. 700 mmhg

#### Reference Analyzer:

Make/Model: Teco 450i

Serial/AMU Number: 1980

Instrument Settings: Zero: 21.9

Span: 1.069 Range: 0.1

Last Calibration: Date: July 27, 2017

C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	X	X	X
5117	38.9	0.0595	0.00760	131.542	7.8
5103	18.4		0.00361	277.337	0.0
5097	9.4		0.00184	542.234	0.0
Average Cylinder Concentration:					2.6

Previous Stated Concentration PPM: 10.3

Percent variance from Stated: 75

Meets Manufacturer Tolerance. Use manufacturers stated concentration  COMMENTS: \_\_\_\_\_

<=5% Outside Manufacturer Tolerance. Use manufacturers concentration  Do not use. \_\_\_\_\_

> 5% Outside Manufacturer Tolerance. DO NOT USE this cylinder  \_\_\_\_\_

Auditor: Al Clark

Date: July 27, 2017

Operator Signature:

Location: McIntyre Center Edmonton



# Calibration Gas Audit

## CH4 / C3H8 Cylinder Gas

Form No. F-GAS-004  
Version No. 1.1

File No. 2017-484CGA

Company: Maxxam Operators name: Mike  
Cylinder #: LL107207 Conc CH4 (PPM) 600/207 Tolerance (%) 2 Certified By: Praxair

Expiry Date: October 2025

Reference Calibrator and Gas:		Flow Measurement Device:	
Make/Model	R&R MFC 201	Make/Model	Mesa Definer 220
Serial Number	AMU 1690	Serial Number	H-133034 / L-132702
Last Verification Date	December 13, 2017	Temp. °C	23.1 C
Gas Type	CH4	B.P.	707 mmHg
Cylinder Number	5604875	Expiry Date	July 2021
Gas Type	C3H8	Conc.	246.5
Cylinder Number	XF003845B	Expiry Date	July 2022

Reference Analyzer:			
Make/Model	Teco 55i	Serial/AMU Number:	2108
Instrument Settings	Zero: N/A	Span: N/A	Range: 20.0
Last Calibration:	Date: Dec 12/17	C.F.	1.000 Done By: Al Clark

Calibrator Flows (sccm)	Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
	Dilution	Gas	CH4	C3H8	CH4	C3H8
3500	0.0	0.00	0.00	X	X	X
3618	80.4	13.28	12.77	0.02	45.00	598
3547	39.8	6.71	6.47	0.01	89.12	598
3560	19.8	3.35	3.26	0.01	179.80	602
Average Cylinder Concentration:					599	211

### CH4

Previous Stated Concentration PPM: 600

### C3H8

207

Percent variance from Stated: 0

2

#### Cylinder gas tolerances based on CH4 only

Meets Manufacturer Tolerance. Use manufacturers stated concentration  COMMENTS:

<=5% Outside Manufacturer Tolerance. Use manufacturers concentration

>5% Outside Manufacturer Tolerance. DO NOT USE this cylinder

Auditor: Al Clark

Date: December 13, 2017

Operator Signature:

Location: McIntyre Center Edmonton



# Calibration Gas Audit

## CH4 / C3H8 Cylinder Gas

Form No. F-GAS-004  
Version No. 1.1

File No. 2017-492CGA

Company:	Maxxam	Operators name:	Mike				
Cylinder #:	LL43221	Conc CH4 (PPM)	595/206	Tolerance (%)	2	Certified By:	Praxair
Expiry Date:	October 2025						
<b>Reference Calibrator and Gas:</b>				<b>Flow Measurement Device:</b>			
Make/Model	R&R MFC 201			Make/Model	Mesa Definer 220		
Serial Number	AMU 1690			Serial Number	H-133034 / L-132702		
Last Verification Date	December 13, 2017			Temp. °C	23.1 C		
Gas Type	CH4	Conc.	990.4	B.P.	707 mmHg		
Cylinder Number	5604875	Expiry Date	July 2021				
Gas Type	C3H8	Conc.	246.5				
Cylinder Number	XF003845B	Expiry Date	July 2022				
<b>Reference Analyzer:</b>							
Make/Model	Teco 55i			Serial/AMU Number:	2108		
Instrument Settings	Zero:	N/A		Span:	N/A	Range:	20.0
Last Calibration:	Date:	Dec 12/17		C.F.	1.000	Done By:	Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	CH4	C3H8			CH4	C3H8
3500	0.0	0.00	0.00				
3618	80.4	13.23	12.70	0.02	45.00	595	208
3547	39.8	6.65	6.44	0.01	89.12	593	209
3560	19.8	3.33	3.23	0.01	179.80	599	211
Average Cylinder Concentration:						596	209

### CH4

Previous Stated Concentration PPM: 595

### C3H8

206

Percent variance from Stated: 0

2

#### Cylinder gas tolerances based on CH4 only

Meets Manufacturer Tolerance. Use manufacturers stated concentration  COMMENTS:

<=5% Outside Manufacturer Tolerance. Use manufacturers concentration

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Al Clark

Date: December 13, 2017

Operator Signature:

Location: McIntyre Center Edmonton

# **RENO STATION**



## API 100A Sulphur Dioxide Analyzer Calibration

Date: February 6, 2019	Barometer/B.P./units: Station Probe	949	millibars			
Company/Airshed: PRAMP	Thermometer/Station Temp: Station Probe	23	°C			
Location/Station Name: Reno	Weather Conditions: Cloudy/Overcast					
Parameter: Sulphur Dioxide	Calibration Purpose: routine monthly					
Start Time 24 hr. (mst): 12:27	Performed By/Reviewer: Chris Wesson	Rob Fisher				
End Time 24 hr. (mst): 16:38	Cal Gas Expiry Date: October 24, 2020					
Calibration Method: Gas Dilution	Converter Model & s/n (if applicable): n/a					
Analyzer:						
Serial Number/Owner: 841 Maxxam	Range ppb: 500					
Last Calibration Date: January 6, 2019	As Found C.F.: 0.999					
Previous C.F.: 1.000	New C.F.: 1.000					
Calibration Standards:						
Low Flow Meter ID/Expiry Date: N/A	Standard Calibration Points for Ranges					
High Flow Meter ID/Expiry Date: N/A	Point	ppb				
Calibrator ID/Expiry Date: Sabio id# 17100415 expires August 21, 2019	High	380				
Cal Gas Cylinder I.D. #: LL108015	Mid	180				
Cal Gas Conc. (ppm): 47.9	Low	90				
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015						
Calibrator Flow Rates (cc/min)						
Point	Diluent	Cal Gas	Total	Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
as found zero	6000	0.00	6000	0.0	0.1	n/a
as found high	5954	47.80	6002	381.5	381.9	0.999
adjusted zero	6000	0.00	6000	0.0	0	n/a
adjusted high	5954	47.80	6002	381.5	381.3	1.000
mid	5980	22.80	6003	181.9	180.4	1.008
low	5989	11.40	6000	91.0	89.6	1.016
calibrator zero	6000	0.00	6000	0.0	-0.2	n/a
				Average C.F.=	1.008	
Linear Regression/Calibration Results:						
Correlation Coefficient = 1.000	LIMITS					
Slope = 1.000	> or = 0.995					
b (Intercept as % of full scale)= 0.17%	0.95-1.05					
% change in C.F. from last cal= 0.08%	± 3% F.S.					
% change in C.F. from last cal= 0.08%	± 10%					
API 100A Sulphur Dioxide Analyzer Calibration						
As found:				As left:		
Slope: 1.084	Offset: 50.5	Hvps: 763	Dcps: 2557	Rcell Temp: 50.3	Box Temp: 31.7	Pmt Temp: 7.1
Cell Temp: 50.6	Box Temp: 31.8	Izs Temp: 35.2	Pres: 25.3	Izs Temp: 35.2	Pres: 25.3	Samp Fl: 670
Pmt Temp: 7.1	Izs Temp: 35.2	Pres: 25.3	Pmt: 61.7	Uv Lamp: 1801	Lamp Ratio: 89.5	Drk Pmt: 24.7
Izs Temp: 35.2	Pres: 25.3	Samp Fl: 668	Drk Lmp: -17.5	Str Lgt: 27.9	Drk Pmt: 24.7	Drk Lmp: -17.5
Pres: 25.3	Samp Fl: 668	Pmt: 63.7	Expected Value: 296.7	Drk Lmp: -17.5	Expected Value: 289.6	
Comments:						
The analyzer sample inlet filter was changed.						
The manifold blower was found to be working normally.						



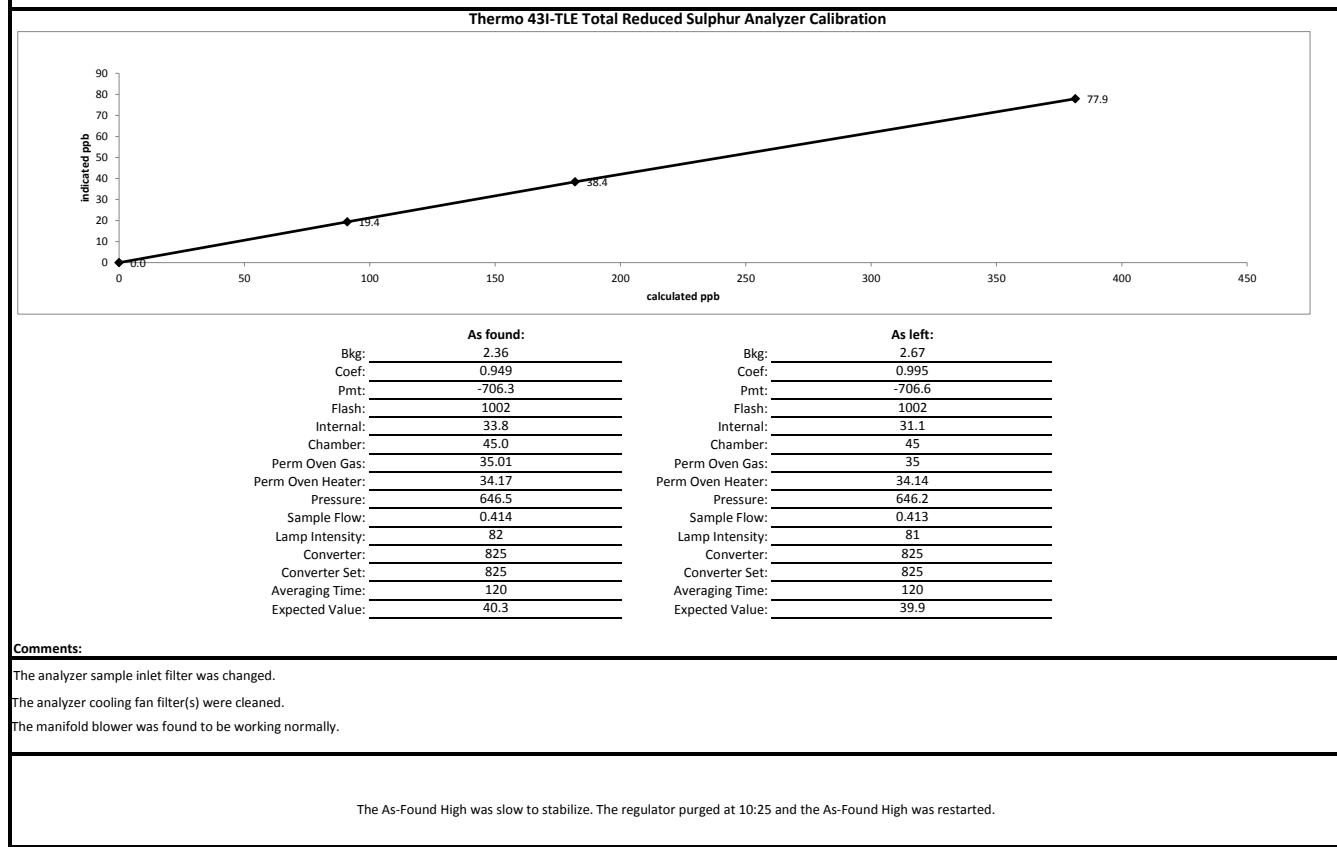
### Thermo 43I-TLE Total Reduced Sulphur Analyzer Calibration

Date:	February 6, 2019	Barometer/B.P./units:	Station Probe	949	millibars
Company/Airshed:	PRAMP	Thermometer/Station Temp:	Station Probe	23	°C
Location/Station Name:	Reno	Weather Conditions:	Cloudy/Overcast		
Parameter:	Total Reduced Sulphur	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	9:09	Performed By/Reviewer:	Chris Wesson	Rob Fisher	
End Time 24 hr. (mst):	15:18	Cal Gas Expiry Date:	November 7, 2020		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	CD Nova CDN-101 #534		
<b>Analyzer:</b>					
Serial Number/Owner:	1162460022	Range ppb:	100		
Last Calibration Date:	January 6, 2019	As Found C.F.:	1.052		
Previous C.F.:	1.000	New C.F.:	1.000		

Calibration Standards:	Standard Calibration Points for Ranges			SO2 Scrubber Check (10 minutes):	
Low Flow Meter ID/Expiry Date:	N/A			Start/End Time 24 hr.:	09:38/10:00
High Flow Meter ID/Expiry Date:	N/A			SO2 Analyzer Range:	500
Calibrator ID/Expiry Date:	Sabio id# 26701218 expires January 15, 2020			Target Concentration (ppb):	380
Cal Gas Cylinder I.D. #:	LL119432			As Found Zero:	0.1
Cal Gas Conc. (ppm):	10.3			Analyzer Response (ppb):	0.0
				Zero Corrected Result (ppb):	0.0

<b>ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015</b>						
Calibrator Flow Rates (cc/min)		Calculated	Indicated Concentration (ppb):	Correction Factors (C.F.):		
Point	Diluent	Cal Gas	Total	Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
as found zero	4998	0.00	4998	0.0	0.05	n/a
as found high	4961	37.90	4999	77.9	74.17	1.052
adjusted zero	4999	0.00	4999	0.0	0	n/a
adjusted high	4961	37.90	4999	77.9	77.9	1.000
mid	4981	18.50	4999	38.0	38.44	0.990
low	4989	9.20	4998	18.9	19.4	0.975
calibrator zero	4999	0.00	4999	0.0	0.27	n/a
Average C.F.=					0.989	

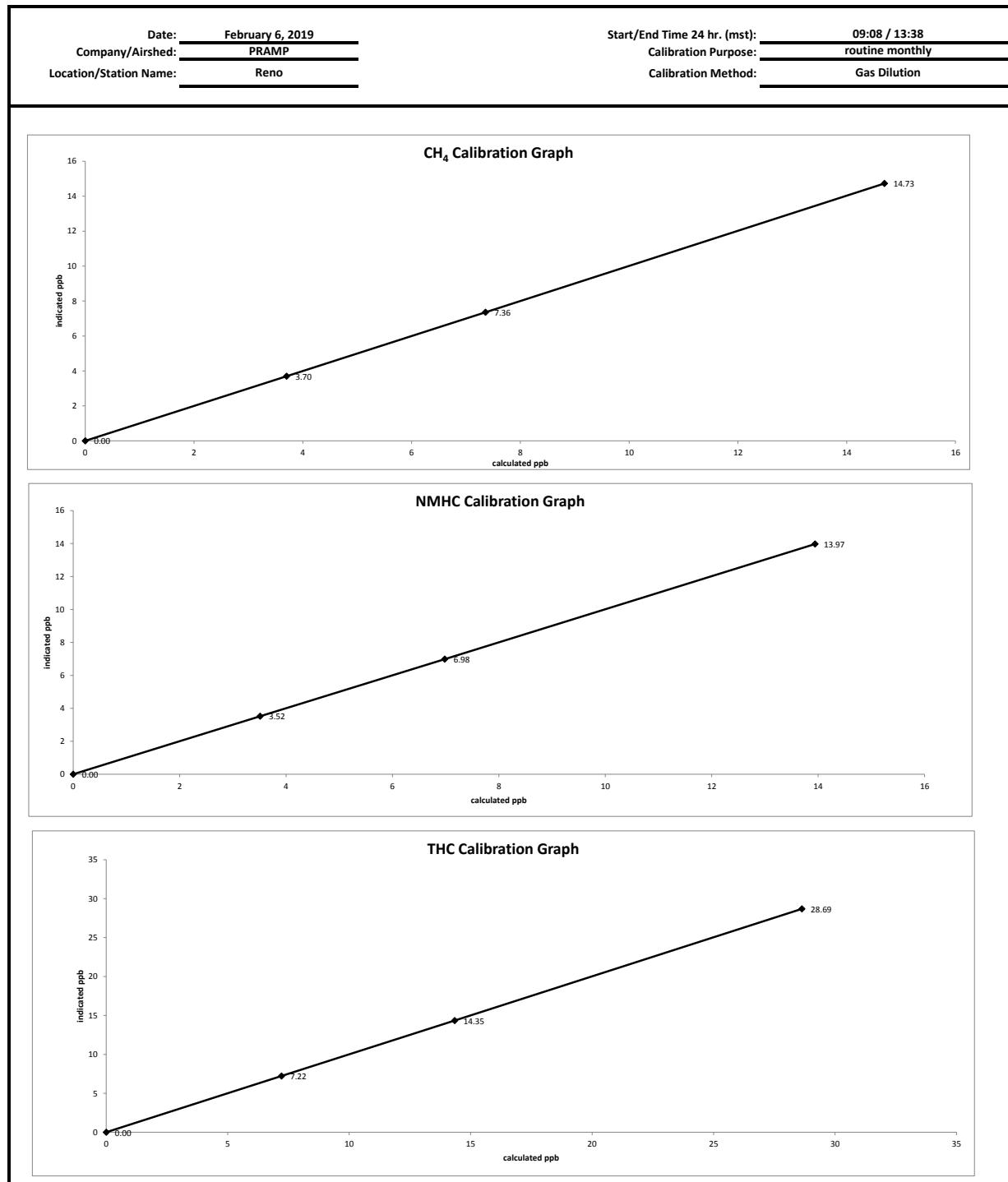
Linear Regression/Calibration Results:			
Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	1.002	0.95-1.05	± 3% F.S.
b (Intercept as % of full scale)=	-0.28%	± 10%	
% change in C.F. from last cal=	-5.15%		





### Thermo 55i Methane/Non-Methane Analyzer Calibration

Date: February 6, 2019		Barometer/B.P./units: Station Probe 949 millibars																																																																										
Company/Airshed: PRAMP		Thermometer/Station Temp: Station Probe 24 °C																																																																										
Location/Station Name: Reno		Weather Conditions: Cloudy/Overcast																																																																										
Parameter: CH <sub>4</sub> / NMHC / THC		Calibration Purpose: routine monthly																																																																										
Start/End Time 24 hr. (mst): 09:08 / 13:38		Performed By/Reviewer: Chris Wesson Rob Fisher																																																																										
Calibration Method: Gas Dilution		Cal Gas Expiry Date: October 18, 2025																																																																										
Analyzer:				Correction Factors:																																																																								
Serial Number/Owner: 1314057759 Maxxam		Previous C.F.: CH <sub>4</sub> = 0.998		As Found C.F.: 1.017		New C.F.: 0.998																																																																						
Measured Flow: 1.24 L/min		NMHC = 1.001		1.010		0.998																																																																						
Last Calibration Date: January 10, 2019		THC = 0.999		1.013		0.998																																																																						
Range ppm: 20 CH <sub>4</sub> /20 NMHC/40 THC																																																																												
Calibration Standards:				Standard Calibration Points for Analyzer Range of 20/20/40 ppm																																																																								
Low Flow Meter ID/Expiry Date: N/A				<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Point</th> <th>CH<sub>4</sub></th> <th>NMHC</th> <th>THC</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>13.00</td> <td>13.00</td> <td>26.00</td> </tr> <tr> <td>Mid</td> <td>7.00</td> <td>7.00</td> <td>14.00</td> </tr> <tr> <td>Low</td> <td>3.00</td> <td>3.00</td> <td>6.00</td> </tr> </tbody> </table>				Point	CH <sub>4</sub>	NMHC	THC	High	13.00	13.00	26.00	Mid	7.00	7.00	14.00	Low	3.00	3.00	6.00																																																					
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As Left Instrument Diagnostics:																																																																												
Interface Board Voltages:				Calibration History cnt'd:				NM Peak Area: 86686																																																																				
Temperatures:				Crucial Settings:				Methane Start: n/a																																																																				
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								NM Max Slope: 4.8e-01																																																																				
								NM Min Slope: -5.3e-01																																																																				
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Comments:																																																																												
The analyzer sample inlet filter was changed.																																																																												
A new span gas cylinder was installed.																																																																												
The analyzer cooling fan filter(s) were cleaned.																																																																												
The manifold blower was found to be working normally.																																																																												





## Meteorological System Checklist

Date:	February 6, 2019				
Technician:	Chris Wesson				
Reviewer:	Rob Fisher				
Station:	PRAMP Reno				
Unit:	Make:	Model:	Serial #:		
Temperature Sensor:	RM Young	43172VC	60837897		
Barometric Pressure Sensor:	MetOne	92	R12877		
Relative Humidity Sensor:	RM Young	43172VC	60837897		
Anemometer:	RM Young	05305VK	149769		
AMBIENT TEMPERATURE SENSOR CHECK					
Previous check date:	December 4, 2018				
Parameter:	Temperature @ 2 metres				
Reference Thermometer ID:	F.S. 160459244 expires June 19, 2020				
Reference Temperature (°C):	-25.0				
Station - Ambient Temperature (°C):	-26.5				
Temperature Difference (°C):	1.5				
BAROMETRIC PRESSURE SENSOR CHECK					
Previous check date:	December 4, 2018				
Reference Barometer ID:	Brunton 05490 expires January 17, 2020				
Reference Pressure - Units/Reading:	millibar	949			
Station Pressure - Units/Reading:	millibar	949.2			
Pressure Tolerance +/- 15% of error:	807 - 1091	-0.02%			
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK					
Previous check date:	December 4, 2018				
Reference Hygrometer ID:	F.S. id# 160459244 expires June 19, 2020				
Reference Hygrometer % RH- Reading:	49.50				
Station Hygrometer % RH- Reading:	53.40				
RH Tolerance +/- 15% of difference:	42.08 - 56.93	-7.9%			
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK					
WIND SPEED		WIND DIRECTION			
Previous check date:	December 4, 2018	Previous check date:	December 4, 2018		
Wind Speed Observed (kph):	0-10	Wind Direction Observed:	S		
Wind speed on Data Logger (kph):	4.8	Wind Direction on Data Logger:	S		
		Wind Direction Pass/Fail?:	Pass		

# Calibrator Performance Audit

## Oxides Of Nitrogen

File No. 2018-131A

<b>Company</b> Maxxam	<b>Operator:</b> Mike
<b>Calibrator:</b> Make/Model Sabio Serial Number 17100415 Last Verification Date May 16, 2017 NO Cylinder S/N LL104183 NO [PPM] 50.8 NOx [PPM] 50.9 Expiry Date October 24, 2020	
<b>Flow Measurement Device:</b> Make/Model Bios Definer 220 Serial Number H=128686; L=129069 Temperature (°C) 22.2 C Barometric Pressure 706.1mmHg	
Dilution Flow (sccm) Pt. #1 5120 Pt. #2 5121 Pt. #3 5128 Gas Flow (sccm) Pt. #1 77.4 Pt. #2 37.8 Pt. #3 19	

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO <sub>2</sub>	NOx	NO	NOx
5136	0.0	0.0000	0.0000	0.0001	-0.0002	0.0001	Limit ± 10%	
5120	77.4	0.7680	0.7695	0.7793	0.0003	0.7796	1%	1%
5121	37.8	0.3750	0.3757	0.3802	0.0000	0.3802	1%	1%
5128	19.0	0.1882	0.1885	0.1908	0.0005	0.1909	1%	1%
Absolute Average Percent Difference							1%	1%

LINEAR REGRESSION ANALYSIS								
$y=mx+b$ (where x=calculated concentration, y=indicated concentration)								
<b>NO</b>			<b>LIMITS</b>			<b>NOx</b>		
Correlation= 1.0000			<b>≥ 0.990</b>			Correlation= 1.0000		
m (Slope)= 1.0146			<b>0.90-1.10</b>			m (Slope)= 1.0130		
b (Intercept % of FS)= -0.0074			<b>± 3% F.S.</b>			b (Intercept % of FS)= -0.0059		

Flow	O <sub>3</sub> Conc	NO Decrease	NO	NO <sub>2</sub>	NOX	% Diff. Vs Audit gas
5120	0.0	0.0000	0.7794	0.0005	0.7799	NO <sub>2</sub> % Diff. Limit
5120	500.0	0.4827	0.2967	0.4854	0.7806	0% ± 10%
5120	275.0	0.2672	0.5122	0.2676	0.7798	0% ± 10%
5120	90.0	0.0896	0.6898	0.0890	0.7787	-1% ± 10%
Absolute Average Percent Difference						0% ± 10%

LINEAR REGRESSION ANALYSIS								
$y=mx+b$ (where x=calculated concentration, y=indicated concentration)								
<b>NO<sub>2</sub></b>			<b>LIMITS</b>					
Correlation= 1.0000			<b>≥ 0.995</b>					
m (Slope)= 1.0053			<b>0.90-1.10</b>					
b (Intercept % of FS)= -0.0370			<b>± 3% F.S.</b>					

AENV Standards			NO <sub>x</sub> Analyzer		
Audit Calibrator			Make/Model Thermo 42i		
Make/Model	Thermo 146i		Serial/AMU Number	1868	
Serial/AMU Number	1809		Last Calibration Date	August 16, 2018	
SRM Gas Cylinder No.	APEX1170572		Full Scale (ppm)	1.0	
Cylinder Conc. (ppm)	49.99		Cylinder Gas Expiry Date	November 15, 2020	

COMMENTS: \_\_\_\_\_

Auditor:

Date: August 21, 2018

Operator Signature:

Location: McIntyre Center Edmonton

# Calibrator Performance Audit

## Oxides Of Nitrogen

File No. 2019-395A

Company	Maxxam			Operator:		Alex			
<b>Calibrator:</b> Make/Model Sabio 2010 Serial Number 26701218 Last Verification Date New NO Cylinder S/N LL107918 NO [PPM] 50.1      NOx [PPM] 50.2 Expiry Date August 2026				<b>Flow Measurement Device:</b> Make/Model N/A Serial Number N/A Temperature (°C) N/A Barometric Pressure N/A					
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 <sub>2</sub>	NOx	NO	NOx	
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%		
4997	79.8	0.800	0.802	0.789	0.000	0.789	-1%	-2%	
4999	39.9	0.400	0.401	0.394	0.000	0.394	-1%	-2%	
4998	20.0	0.200	0.201	0.196	0.001	0.197	-2%	-2%	
Absolute Average Percent Difference								2%	2%

<b>LINEAR REGRESSION ANALYSIS</b>							
<i>y=mx+b</i> (where x=calculated concentration, y=indicated concentration)							
<b>NO</b> Correlation= 1.0000 <b>LIMITS</b> m (Slope)= 0.9868 $\geq 0.990$ b (Intercept % of FS)= -0.0750 <b>0.90-1.10</b> <b>± 3% F.S.</b>				<b>NO<sub>x</sub></b> Correlation= 1.0000 m (Slope)= 0.9844 b (Intercept % of FS)= -0.0350			

Flow	O <sub>3</sub> Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas
4997	0.000	0.000	0.786	0.000	0.786	NO <sub>2</sub> % Diff. Limit
4997	0.500	0.477	0.309	0.476	0.785	0% ± 10%
4997	0.250	0.240	0.546	0.234	0.785	-2% ± 10%
4997	0.100	0.097	0.689	0.096	0.785	-1% ± 10%
Absolute Average Percent Difference						1% ± 10%

<b>LINEAR REGRESSION ANALYSIS</b>							
<i>y=mx+b</i> (where x=calculated concentration, y=indicated concentration)							
<b>NO<sub>2</sub></b> Correlation= 0.9999 <b>LIMITS</b> m (Slope)= 0.9970 $\geq 0.995$ b (Intercept % of FS)= -0.1391 <b>0.90-1.10</b> <b>± 3% F.S.</b>							

<b>AENV Standards</b> <b>Audit Calibrator</b> Make/Model Teco 146i Serial/AMU Number AMU 1809 SRM Gas Cylinder No. APEX1236645 Cylinder Conc. (ppm) 50.05				<b>NO<sub>x</sub> Analyzer</b> Make/Model Teco 42i Serial/AMU Number AMU 2268 Last Calibration Date January 14, 2019 Full Scale (ppm) 1.0 Cylinder Gas Expiry Date June 2021			
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COMMENTS:							
Auditor: Al Clark				Date: Janaury 15, 2019			
Operator Signature:				Location: McIntyre Center Edmonton			



# Calibration Gas Audit

## Single Component Cylinder Gas

File No. 2017-486CGA

Company: Maxxam

Operator's Name: Mike

Cylinder #: LL108015 Concentration PPM: 47.9 Tolerance(%) 2 Certified By: Praxair

Expiry Date: October 2020

### Reference Calibrator and Gas:

Make/Model: R&R MFC 201

Serial Number: AMU 1690

Last Verification Date: December 13, 2017

Gas Type: SO<sub>2</sub> Conc. 98.07

Cylinder Number: CAL016625

Expiry Date: January 2019

### Flow Measurement Device:

Make/Model: Mesa Definer 220

Serial Number: H-133034 / L-132702

Temp. °C: 23.4 C

B.P. 707 mmHg

### Reference Analyzer:

Make/Model: Teco 43C Serial/AMU Number: 1623

Instrument Settings: Zero: 10.0 Span: 1.006 Range: 1.0

Last Calibration: Date: Dec12/17 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.000	X	X	X
4989	79.5	0.760	0.01594	62.755	47.7
4995	39.6	0.374	0.00793	126.136	47.2
4992	19.6	0.183	0.00393	254.694	46.6
Average Cylinder Concentration:					47.2

Previous Stated Concentration PPM: 47.9

Percent variance from Stated: 2

Meets Manufacturer Tolerance. Use manufacturers stated concentration  COMMENTS: \_\_\_\_\_

<=5% Outside Manufacturer Tolerance. Use manufacturers concentration  \_\_\_\_\_

>5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder  \_\_\_\_\_

Auditor: Al Clark

Date: December 13, 2017

Operator Signature:

Location: McIntyre Center Edmonton



## Calibration Gas Audit Single Component Cylinder Gas

File No. 2017-137CGA

Company: Maxxam	Operator's Name: Raja Abid Ashraf		
Cylinder #: LL119432	Concentration PPM: 10.3	Tolerance(%) 2	Certified By: Praxair
Expiry Date: May 16, 2020			
<b>Reference Calibrator and Gas:</b> Make/Model: R&R MFC 201 Serial Number: AMU 1690 Last Verification Date: July 27, 2017 Gas Type: H2S Conc. 20.43 Cylinder Number: CAL015272 Expiry Date: Janauary 2019		<b>Flow Measurement Device:</b> Make/Model: Mesa Definer 220 Serial Number: H-133034 L-132702 Temp. °C: 22.0 C B.P. 700 mmhg	
<b>Reference Analyzer:</b> Make/Model: Teco 450i Serial/AMU Number: 1980 Instrument Settings: Zero: 21.9 Span: 1.069 Range: 0.1 Last Calibration: Date: July 27, 2017 C.F. 1.000 Done By: Al Clark			

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	X	X	X
5117	38.9	0.0595	0.00760	131.542	7.8
5103	18.4		0.00361	277.337	0.0
5097	9.4		0.00184	542.234	0.0
Average Cylinder Concentration:					2.6

Previous Stated Concentration PPM: 10.3

Percent variance from Stated: 75

Meets Manufacturer Tolerance. Use manufacturers stated concentration  COMMENTS: \_\_\_\_\_

<=5% Outside Manufacturer Tolerance. Use manufacturers concentration  Do not use. \_\_\_\_\_

> 5% Outside Manufacturer Tolerance. DO NOT USE this cylinder  \_\_\_\_\_

Auditor: Al Clark

Date: July 27, 2017

Operator Signature:

Location: McIntyre Center Edmonton

# Calibration Gas Audit

## CH4 / C3H8 Cylinder Gas

Company: Maxxam	Operators name: Mike		
Cylinder #: LL107207	Conc CH4 (PPM) 600/207	Tolerance (%) 2	Certified By: Praxair
Expiry Date: October 2025			
<b>Reference Calibrator and Gas:</b> Make/Model R&R MFC 201 Serial Number AMU 1690 Last Verification Date December 13, 2017 Gas Type CH4 Conc. 990.4 Cylinder Number 5604875 Expiry Date July 2021 Gas Type C3H8 Conc. 246.5 Cylinder Number XF003845B Expiry Date July 2022		<b>Flow Measurement Device:</b> Make/Model Mesa Definer 220 Serial Number H-133034 / L-132702 Temp. °C 23.1 C B.P. 707 mmHg	
<b>Reference Analyzer:</b> Make/Model Teco 55i Serial/AMU Number: 2108 Instrument Settings Zero: N/A Span: N/A Range: 20.0 Last Calibration: Date: Dec 12/17 C.F. 1.000 Done By: Al Clark			

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	CH4	C3H8			CH4	C3H8
3500	0.0	0.00	0.00	X	X	X	X
3618	80.4	13.28	12.77	0.02	45.00	598	209
3547	39.8	6.71	6.47	0.01	89.12	598	210
3560	19.8	3.35	3.26	0.01	179.80	602	213
Average Cylinder Concentration:						<b>599</b>	<b>211</b>

<b>CH4</b>	<b>C3H8</b>
Previous Stated Concentration PPM: 600	207
Percent variance from Stated: 0	2

### Cylinder gas tolerances based on CH4 only

Meets Manufacturer Tolerance. Use manufacturers stated concentration  **COMMENTS:**

<=5% Outside Manufacturer Tolerance. Use manufacturers concentration

>5% Outside Manufacturer Tolerance. DO NOT USE this cylinder

Auditor: Al Clark Date: December 13, 2017  
 Operator Signature: Location: McIntyre Center Edmonton

## **LABORATORY ANALYTICAL RESULTS**

## ENVIRONMENTAL ANALYTICAL SERVICES

### TEST REPORT

Page 1 of 12

<b>RESULTS:</b> Karla Reesor Peace River Area Monitoring Program Committee	<b>CLIENT SAMPLE ID</b> PRAMP_986-20190220	<b>CANISTER ID</b> 28892	<b>Matrix</b> Ambient Air	<b>Priority</b> Normal
<b>DESCRIPTION:</b>				
<b>INVOICE:</b> Office Manager	<b>DATE SAMPLED:</b> 20-Feb-19	17:55	<b>DATE RECEIVED:</b> 26-Feb-19	
	<b>REPORT CREATED:</b> 12-Mar-19		<b>REPORT NUMBER:</b> 19020193	
			<b>VERSION:</b>	Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020193-001	1-Butene	K, T, U	< 0.14 ppmv	0.14	NA-025	27-Feb-19
19020193-001	Acetylene	K, T, U	< 0.11 ppmv	0.11	NA-025	27-Feb-19
19020193-001	n-Butane	K, T, U	< 0.3 ppmv	0.3	NA-025	27-Feb-19
19020193-001	cis-2-Butene	K, T, U	< 0.05 ppmv	0.05	NA-025	27-Feb-19
19020193-001	Ethane	K, T, U	< 0.1 ppmv	0.1	NA-025	27-Feb-19
19020193-001	Ethylacetylene	K, T, U	< 0.08 ppmv	0.08	NA-025	27-Feb-19
19020193-001	Ethylene	K, T, U	< 0.10 ppmv	0.10	NA-025	27-Feb-19
19020193-001	Isobutane	K, T, U	< 0.1 ppmv	0.1	NA-025	27-Feb-19
19020193-001	Isobutylene	K, T, U	< 0.1 ppmv	0.1	NA-025	27-Feb-19
19020193-001	Methane		2.2 ppmv	0.1	NA-025	27-Feb-19
19020193-001	n-Propane	K, T, U	< 0.10 ppmv	0.10	NA-025	27-Feb-19
19020193-001	Propylene	K, T, U	< 0.1 ppmv	0.1	NA-025	27-Feb-19
19020193-001	Propyne	K, T, U	< 0.1 ppmv	0.1	NA-025	27-Feb-19
19020193-001	trans-2-Butene	K, T, U	< 0.12 ppmv	0.12	NA-025	27-Feb-19
19020193-001	2,5-Dimethylthiophene	K, T, U	< 0.4 ppbv	0.4	NA-024	26-Feb-19
19020193-001	2-Ethylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	26-Feb-19
19020193-001	2-Methylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	26-Feb-19
19020193-001	3-Methylthiophene	K, T, U	< 0.4 ppbv	0.4	NA-024	26-Feb-19

Report certified by: Rebecca Holgate, Account Coordinator

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March 12, 2019  
PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

Inquiries: (780) 632 8455  
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Page 260 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 2 of 12

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP_986-20190220	28892	Ambient Air	20-Feb-19	17:55
<b>DESCRIPTION:</b>				
REPORT NUMBER: 19020193	REPORT CREATED: 12-Mar-19		VERSION: Version 01	

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020193-001	Butyl mercaptan	K, T, U	< 0.4 ppbv	0.4	NA-024	26-Feb-19
19020193-001	Carbon disulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	26-Feb-19
19020193-001	Carbonyl sulphide		4.1 ppbv	0.4	NA-024	26-Feb-19
19020193-001	Dimethyl disulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	26-Feb-19
19020193-001	Dimethyl sulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	26-Feb-19
19020193-001	Ethyl mercaptan	K, T, U	< 0.4 ppbv	0.4	NA-024	26-Feb-19
19020193-001	Ethyl sulphide	K, T, U	< 0.4 ppbv	0.4	NA-024	26-Feb-19
19020193-001	Hydrogen sulphide		2.1 ppbv	0.1	NA-024	26-Feb-19
19020193-001	Isobutyl mercaptan	K, T, U	< 0.4 ppbv	0.4	NA-024	26-Feb-19
19020193-001	Isopropyl mercaptan	K, T, U	< 0.4 ppbv	0.4	NA-024	26-Feb-19
19020193-001	Methyl mercaptan	K, T, U	< 0.3 ppbv	0.3	NA-024	26-Feb-19
19020193-001	Pentyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	26-Feb-19
19020193-001	Propyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	26-Feb-19
19020193-001	tert-Butyl mercaptan	K, T, U	< 0.4 ppbv	0.4	NA-024	26-Feb-19
19020193-001	Thiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	26-Feb-19
19020193-001	1,1,1-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	1,1,2-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	1,1-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	1,1-Dichloroethylene	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020193-001	1,2,3-Trimethylbenzene	K, T, U	< 0.07 ppbv	0.07	AC-058	05-Mar-19
19020193-001	1,2,4-Trichlorobenzene	K, T, U	< 1.1 ppbv	1.1	AC-058	05-Mar-19
19020193-001	1,2,4-Trimethylbenzene	K, T, U	< 0.07 ppbv	0.07	AC-058	05-Mar-19
19020193-001	1,2-Dibromoethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	1,2-Dichlorobenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	05-Mar-19

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Page 261 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED			
DESCRIPTION:	REPORT NUMBER:	REPORT CREATED:			VERSION:	
PRAMP_986-20190220	28892	Ambient Air	20-Feb-19	17:55		
Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020193-001	1,2-Dichloroethane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	1,2-Dichloropropane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	1,3-Butadiene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	1,3-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	05-Mar-19
19020193-001	1,4-Dichlorobenzene	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020193-001	1,4-Dioxane	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020193-001	1-Butene/Isobutylene		0.40 ppbv	0.03	AC-058	05-Mar-19
19020193-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	1-Pentene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	2,2,4-Trimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	2,2-Dimethylbutane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	2,3,4-Trimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	2,3-Dimethylbutane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	2,3-Dimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	2,4-Dimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	2-Methylheptane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	2-Methylhexane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	2-Methylpentane		0.05 ppbv	0.01	AC-058	05-Mar-19
19020193-001	3-Methylheptane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	3-Methylhexane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	3-Methylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	Acetone		3.6 ppbv	0.5	AC-058	05-Mar-19
19020193-001	Acrolein	K, T, U	< 0.4 ppbv	0.4	AC-058	05-Mar-19
19020193-001	Benzene		0.19 ppbv	0.01	AC-058	05-Mar-19

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Page 262 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP_986-20190220	28892	Ambient Air	20-Feb-19	17:55
<b>DESCRIPTION:</b>				
REPORT NUMBER: 19020193	REPORT CREATED: 12-Mar-19		VERSION: Version 01	

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020193-001	Benzyl chloride	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020193-001	Bromodichloromethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	Bromoform	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	Bromomethane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	Carbon disulfide	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	Carbon tetrachloride	I	0.06 ppbv	0.01	AC-058	05-Mar-19
19020193-001	Chlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	Chloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	Chloroform	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	Chloromethane		0.47 ppbv	0.03	AC-058	05-Mar-19
19020193-001	cis-1,2-Dichloroethene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	cis-1,3-Dichloropropene	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020193-001	cis-2-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	cis-2-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	Cyclohexane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	Cyclopentane		0.08 ppbv	0.01	AC-058	05-Mar-19
19020193-001	Dibromochloromethane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	Ethanol		1.8 ppbv	0.4	AC-058	05-Mar-19
19020193-001	Ethyl acetate	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020193-001	Ethylbenzene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	Freon-11	I	0.25 ppbv	0.03	AC-058	05-Mar-19
19020193-001	Freon-113	I	0.04 ppbv	0.01	AC-058	05-Mar-19
19020193-001	Freon-114	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	Freon-12		0.46 ppbv	0.03	AC-058	05-Mar-19
19020193-001	Hexachloro-1,3-butadiene	K, T, U	< 0.68 ppbv	0.68	AC-058	05-Mar-19

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Page 263 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 5 of 12

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED				
DESCRIPTION:			20-Feb-19	17:55			
REPORT NUMBER:	19020193	REPORT CREATED:	12-Mar-19		VERSION:	Version 01	
Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
19020193-001	Isobutane		0.45	ppbv	0.03	AC-058	05-Mar-19
19020193-001	Isopentane		0.23	ppbv	0.04	AC-058	05-Mar-19
19020193-001	Isoprene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020193-001	Isopropyl alcohol	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Mar-19
19020193-001	Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020193-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Mar-19
19020193-001	m-Diethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Mar-19
19020193-001	m-Ethyltoluene	K, T, U	< 0.11	ppbv	0.11	AC-058	05-Mar-19
19020193-001	Methyl butyl ketone	K, T, U	< 0.68	ppbv	0.68	AC-058	05-Mar-19
19020193-001	Methyl ethyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Mar-19
19020193-001	Methyl isobutyl ketone	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Mar-19
19020193-001	Methyl methacrylate	K, T, U	< 0.10	ppbv	0.10	AC-058	05-Mar-19
19020193-001	Methyl tert butyl ether	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Mar-19
19020193-001	Methylcyclohexane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020193-001	Methylcyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Mar-19
19020193-001	Methylene chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Mar-19
19020193-001	n-Butane		0.64	ppbv	0.04	AC-058	05-Mar-19
19020193-001	n-Decane	K, T, U	< 0.08	ppbv	0.08	AC-058	05-Mar-19
19020193-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Mar-19
19020193-001	n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020193-001	n-Hexane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020193-001	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Mar-19
19020193-001	n-Pentane		0.3	ppbv	0.1	AC-058	05-Mar-19
19020193-001	n-Propylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	05-Mar-19
19020193-001	n-Undecane	K, T, U	< 0.7	ppbv	0.7	AC-058	05-Mar-19

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Page 264 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 6 of 12

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED			
PRAMP_986-20190220	28892	Ambient Air	20-Feb-19 17:55			
<b>DESCRIPTION:</b>		REPORT CREATED:	12-Mar-19		VERSION:	Version 01
<b>Lab ID</b> <b>Parameter</b> <b>Qualifier</b> <b>Result Units</b> <b>RDL</b> <b>Method</b> <b>Analysis Date</b>						
19020193-001	Naphthalene	K, T, U	< 0.7 ppbv	0.7	AC-058	05-Mar-19
19020193-001	n-Nonane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	o-Ethyltoluene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	o-Xylene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	p-Diethylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020193-001	p-Ethyltoluene	K, T, U	< 0.10 ppbv	0.10	AC-058	05-Mar-19
19020193-001	Styrene	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020193-001	Tetrachloroethylene	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020193-001	Tetrahydrofuran	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020193-001	Toluene		0.20 ppbv	0.01	AC-058	05-Mar-19
19020193-001	trans-1,2-Dichloroethylene		0.64 ppbv	0.01	AC-058	05-Mar-19
19020193-001	trans-1,3-Dichloropropylene	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020193-001	trans-2-Butene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020193-001	trans-2-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020193-001	Trichloroethylene	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020193-001	Vinyl acetate	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020193-001	Vinyl chloride	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19

## **Revision History**

<b>Order ID</b>	<b>Ver</b>	<b>Date</b>	<b>Reason</b>
19020193	01	12-Mar-19	Report created

## **Methods**

<b>Method</b>	<b>Description</b>
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-024	Analysis for Reduced Sulfur Compounds in Air Samples
NA-025	Determination of Light Hydrocarbons (C1C4) in Ambient Air by Gas Chromatography Flame Ionization Detector

## **Qualifiers**

### **Data Qualifier    Translation**

B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

## **Order Comments**

19020193

Send results to Pramptech. Unknowns to be reported.

**Sample Comments**

## **Result Comments**

*Note: Results relate only to items tested*

## ENVIRONMENTAL ANALYTICAL SERVICES

### TEST REPORT

Page 1 of 12

<b>RESULTS:</b> Karla Reesor Peace River Area Monitoring Program Committee	<b>CLIENT SAMPLE ID</b> PRAMP-842-NMHL-20190207	<b>CANISTER ID</b> 28894	<b>Matrix</b> Ambient Air	<b>Priority</b> Normal
<b>DESCRIPTION:</b>				
<b>INVOICE:</b> Office Manager	<b>DATE SAMPLED:</b> 07-Feb-19	16:20	<b>DATE RECEIVED:</b> 13-Feb-19	
	<b>REPORT CREATED:</b> 12-Mar-19		<b>REPORT NUMBER:</b> 19020078	
			<b>VERSION:</b>	Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020078-001	1-Butene	K, T, U	< 0.14 ppmv	0.14	NA-025	14-Feb-19
19020078-001	Acetylene	K, T, U	< 0.11 ppmv	0.11	NA-025	14-Feb-19
19020078-001	n-Butane	K, T, U	< 0.3 ppmv	0.3	NA-025	14-Feb-19
19020078-001	cis-2-Butene	K, T, U	< 0.06 ppmv	0.06	NA-025	14-Feb-19
19020078-001	Ethane	K, T, U	< 0.1 ppmv	0.1	NA-025	14-Feb-19
19020078-001	Ethylacetylene	K, T, U	< 0.08 ppmv	0.08	NA-025	14-Feb-19
19020078-001	Ethylene	K, T, U	< 0.10 ppmv	0.10	NA-025	14-Feb-19
19020078-001	Isobutane	K, T, U	< 0.1 ppmv	0.1	NA-025	14-Feb-19
19020078-001	Isobutylene	K, T, U	< 0.1 ppmv	0.1	NA-025	14-Feb-19
19020078-001	Methane		1.9 ppmv	0.1	NA-025	14-Feb-19
19020078-001	n-Propane	K, T, U	< 0.10 ppmv	0.10	NA-025	14-Feb-19
19020078-001	Propylene	K, T, U	< 0.1 ppmv	0.1	NA-025	14-Feb-19
19020078-001	Propyne	K, T, U	< 0.1 ppmv	0.1	NA-025	14-Feb-19
19020078-001	trans-2-Butene	K, T, U	< 0.13 ppmv	0.13	NA-025	14-Feb-19
19020078-001	2,5-Dimethylthiophene	K, T, U	< 0.4 ppbv	0.4	NA-024	13-Feb-19
19020078-001	2-Ethylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	13-Feb-19
19020078-001	2-Methylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	13-Feb-19
19020078-001	3-Methylthiophene	K, T, U	< 0.4 ppbv	0.4	NA-024	13-Feb-19

Report certified by: Rebecca Holgate, Account Coordinator

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March 12, 2019  
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Page 272 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 2 of 12

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED				
DESCRIPTION:			07-Feb-19	16:20			
REPORT NUMBER:	19020078	REPORT CREATED:	12-Mar-19		VERSION:	Version 01	
Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
19020078-001	Butyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	13-Feb-19
19020078-001	Carbon disulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	13-Feb-19
19020078-001	Carbonyl sulphide		0.8	ppbv	0.4	NA-024	13-Feb-19
19020078-001	Dimethyl disulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	13-Feb-19
19020078-001	Dimethyl sulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	13-Feb-19
19020078-001	Ethyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	13-Feb-19
19020078-001	Ethyl sulphide	K, T, U	< 0.4	ppbv	0.4	NA-024	13-Feb-19
19020078-001	Hydrogen sulphide		1.5	ppbv	0.1	NA-024	13-Feb-19
19020078-001	Isobutyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	13-Feb-19
19020078-001	Isopropyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	13-Feb-19
19020078-001	Methyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	13-Feb-19
19020078-001	Pentyl mercaptan	K, T, U	< 0.6	ppbv	0.6	NA-024	13-Feb-19
19020078-001	Propyl mercaptan	K, T, U	< 0.6	ppbv	0.6	NA-024	13-Feb-19
19020078-001	tert-Butyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	13-Feb-19
19020078-001	Thiophene	K, T, U	< 0.3	ppbv	0.3	NA-024	13-Feb-19
19020078-001	1,1,1-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	20-Feb-19
19020078-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	20-Feb-19
19020078-001	1,1,2-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	20-Feb-19
19020078-001	1,1-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	20-Feb-19
19020078-001	1,1-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	20-Feb-19
19020078-001	1,2,3-Trimethylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	20-Feb-19
19020078-001	1,2,4-Trichlorobenzene	K, T, U	< 1.1	ppbv	1.1	AC-058	20-Feb-19
19020078-001	1,2,4-Trimethylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	20-Feb-19
19020078-001	1,2-Dibromoethane	K, T, U	< 0.03	ppbv	0.03	AC-058	20-Feb-19
19020078-001	1,2-Dichlorobenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	20-Feb-19

Report certified by: Rebecca Holgate, Account Coordinator

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March 12, 2019  
PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

Inquiries: (780) 632 8455

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Page 273 of 350

## ENVIRONMENTAL ANALYTICAL SERVICES

### TEST REPORT

Page 3 of 12

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED			
PRAMP-842-NMHL-20190207	28894	Ambient Air	07-Feb-19 16:20			
<b>DESCRIPTION:</b>						
REPORT NUMBER:	19020078	REPORT CREATED:	12-Mar-19		VERSION:	Version 01
Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020078-001	1,2-Dichloroethane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	1,2-Dichloropropane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020078-001	1,3-Butadiene	I	0.18 ppbv	0.03	AC-058	20-Feb-19
19020078-001	1,3-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	20-Feb-19
19020078-001	1,4-Dichlorobenzene	K, T, U	< 0.6 ppbv	0.6	AC-058	20-Feb-19
19020078-001	1,4-Dioxane	K, T, U	< 0.6 ppbv	0.6	AC-058	20-Feb-19
19020078-001	1-Butene/Isobutylene		0.51 ppbv	0.03	AC-058	20-Feb-19
19020078-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020078-001	1-Pentene	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	2,2,4-Trimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	2,2-Dimethylbutane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	2,3,4-Trimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	2,3-Dimethylbutane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020078-001	2,3-Dimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020078-001	2,4-Dimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	2-Methylheptane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	2-Methylhexane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	2-Methylpentane		0.14 ppbv	0.01	AC-058	20-Feb-19
19020078-001	3-Methylheptane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020078-001	3-Methylhexane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020078-001	3-Methylpentane		0.03 ppbv	0.01	AC-058	20-Feb-19
19020078-001	Acetone		2.0 ppbv	0.6	AC-058	20-Feb-19
19020078-001	Acrolein	K, T, U	< 0.4 ppbv	0.4	AC-058	20-Feb-19
19020078-001	Benzene		0.25 ppbv	0.01	AC-058	20-Feb-19

Report certified by: Rebecca Holgate, Account Coordinator

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March 12, 2019  
PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

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Page 274 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP-842-NMHL-20190207	28894	Ambient Air	07-Feb-19	16:20
<b>DESCRIPTION:</b>				
REPORT NUMBER: 19020078	REPORT CREATED: 12-Mar-19		VERSION: Version 01	

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020078-001	Benzyl chloride	K, T, U	< 0.6 ppbv	0.6	AC-058	20-Feb-19
19020078-001	Bromodichloromethane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020078-001	Bromoform	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020078-001	Bromomethane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	Carbon disulfide	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	Carbon tetrachloride	I	0.05 ppbv	0.01	AC-058	20-Feb-19
19020078-001	Chlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020078-001	Chloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020078-001	Chloroform	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020078-001	Chloromethane		0.63 ppbv	0.03	AC-058	20-Feb-19
19020078-001	cis-1,2-Dichloroethene	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	cis-1,3-Dichloropropene	K, T, U	< 0.06 ppbv	0.06	AC-058	20-Feb-19
19020078-001	cis-2-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020078-001	cis-2-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020078-001	Cyclohexane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020078-001	Cyclopentane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	Dibromochloromethane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	Ethanol		2.1 ppbv	0.4	AC-058	20-Feb-19
19020078-001	Ethyl acetate	K, T, U	< 0.6 ppbv	0.6	AC-058	20-Feb-19
19020078-001	Ethylbenzene	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	Freon-11	I	0.27 ppbv	0.03	AC-058	20-Feb-19
19020078-001	Freon-113	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	Freon-114	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020078-001	Freon-12		0.51 ppbv	0.03	AC-058	20-Feb-19
19020078-001	Hexachloro-1,3-butadiene	K, T, U	< 0.70 ppbv	0.70	AC-058	20-Feb-19

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Page 275 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 5 of 12

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED			
DESCRIPTION:					VERSION:	
REPORT NUMBER:	19020078	REPORT CREATED:	12-Mar-19			
Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020078-001	Isobutane		1.13 ppbv	0.03	AC-058	20-Feb-19
19020078-001	Isopentane		0.64 ppbv	0.04	AC-058	20-Feb-19
19020078-001	Isoprene	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	Isopropyl alcohol	K, T, U	< 0.6 ppbv	0.6	AC-058	20-Feb-19
19020078-001	Isopropylbenzene	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	m,p-Xylene	K, T, U	< 0.04 ppbv	0.04	AC-058	20-Feb-19
19020078-001	m-Diethylbenzene	K, T, U	< 0.06 ppbv	0.06	AC-058	20-Feb-19
19020078-001	m-Ethyltoluene	K, T, U	< 0.11 ppbv	0.11	AC-058	20-Feb-19
19020078-001	Methyl butyl ketone	K, T, U	< 0.70 ppbv	0.70	AC-058	20-Feb-19
19020078-001	Methyl ethyl ketone	K, T, U	< 0.4 ppbv	0.4	AC-058	20-Feb-19
19020078-001	Methyl isobutyl ketone	K, T, U	< 0.6 ppbv	0.6	AC-058	20-Feb-19
19020078-001	Methyl methacrylate	K, T, U	< 0.10 ppbv	0.10	AC-058	20-Feb-19
19020078-001	Methyl tert butyl ether	K, T, U	< 0.04 ppbv	0.04	AC-058	20-Feb-19
19020078-001	Methylcyclohexane		0.02 ppbv	0.01	AC-058	20-Feb-19
19020078-001	Methylcyclopentane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020078-001	Methylene chloride	K, T, U	< 0.4 ppbv	0.4	AC-058	20-Feb-19
19020078-001	n-Butane		1.71 ppbv	0.04	AC-058	20-Feb-19
19020078-001	n-Decane	K, T, U	< 0.08 ppbv	0.08	AC-058	20-Feb-19
19020078-001	n-Dodecane	K, T, U	< 0.6 ppbv	0.6	AC-058	20-Feb-19
19020078-001	n-Heptane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	n-Hexane		0.08 ppbv	0.01	AC-058	20-Feb-19
19020078-001	n-Octane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020078-001	n-Pentane		0.7 ppbv	0.1	AC-058	20-Feb-19
19020078-001	n-Propylbenzene	K, T, U	< 0.07 ppbv	0.07	AC-058	20-Feb-19
19020078-001	n-Undecane	K, T, U	< 0.7 ppbv	0.7	AC-058	20-Feb-19

Report certified by: Rebecca Holgate, Account Coordinator

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March 12, 2019  
PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

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Page 276 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 6 of 12

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED			
<b>DESCRIPTION:</b>		REPORT CREATED:	12-Mar-19		VERSION:	Version 01
Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020078-001	Naphthalene	K, T, U	< 0.7 ppbv	0.7	AC-058	20-Feb-19
19020078-001	n-Nonane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	o-Ethyltoluene	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	o-Xylene	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	p-Diethylbenzene	K, T, U	< 0.06 ppbv	0.06	AC-058	20-Feb-19
19020078-001	p-Ethyltoluene	K, T, U	< 0.10 ppbv	0.10	AC-058	20-Feb-19
19020078-001	Styrene	K, T, U	< 0.06 ppbv	0.06	AC-058	20-Feb-19
19020078-001	Tetrachloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	20-Feb-19
19020078-001	Tetrahydrofuran	K, T, U	< 0.6 ppbv	0.6	AC-058	20-Feb-19
19020078-001	Toluene		0.21 ppbv	0.01	AC-058	20-Feb-19
19020078-001	trans-1,2-Dichloroethylene		0.78 ppbv	0.01	AC-058	20-Feb-19
19020078-001	trans-1,3-Dichloropropylene	K, T, U	< 0.06 ppbv	0.06	AC-058	20-Feb-19
19020078-001	trans-2-Butene	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020078-001	trans-2-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020078-001	Trichloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	20-Feb-19
19020078-001	Vinyl acetate	K, T, U	< 0.6 ppbv	0.6	AC-058	20-Feb-19
19020078-001	Vinyl chloride	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19

Report certified by: Rebecca Holgate, Account Coordinator

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March 12, 2019  
PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

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Page 277 of 350

## **Revision History**

<b>Order ID</b>	<b>Ver</b>	<b>Date</b>	<b>Reason</b>
19020078	01	12-Mar-19	Report created

## **Methods**

<b>Method</b>	<b>Description</b>
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-024	Analysis for Reduced Sulfur Compounds in Air Samples
NA-025	Determination of Light Hydrocarbons (C1C4) in Ambient Air by Gas Chromatography Flame Ionization Detector

## **Qualifiers**

### **Data Qualifier    Translation**

B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

## **Order Comments**

19020078

Send results to pramptech@prampairshed.ca. Unknows to be reported.

**Sample Comments**

## **Result Comments**

*Note: Results relate only to items tested*

## ENVIRONMENTAL ANALYTICAL SERVICES

### TEST REPORT

Page 1 of 12

<b>RESULTS:</b>	Karla Reesor Peace River Area Monitoring Program Committee	<b>CLIENT SAMPLE ID</b> PRAMP_RENO-NMHL-2019-0206	<b>CANISTER ID</b> H2823	<b>Matrix</b> Ambient Air	<b>Priority</b> Normal
<b>DESCRIPTION:</b>					
<b>INVOICE:</b>	Office Manager	<b>DATE SAMPLED:</b> 06-Feb-19	13:50	<b>DATE RECEIVED:</b> 13-Feb-19	
		<b>REPORT CREATED:</b> 13-Mar-19		<b>REPORT NUMBER:</b> 19020077	
				<b>VERSION:</b>	Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020077-001	1-Butene	K, T, U	< 0.14 ppmv	0.14	NA-025	14-Feb-19
19020077-001	Acetylene	K, T, U	< 0.12 ppmv	0.12	NA-025	14-Feb-19
19020077-001	n-Butane	K, T, U	< 0.3 ppmv	0.3	NA-025	14-Feb-19
19020077-001	cis-2-Butene	K, T, U	< 0.06 ppmv	0.06	NA-025	14-Feb-19
19020077-001	Ethane	K, T, U	< 0.1 ppmv	0.1	NA-025	14-Feb-19
19020077-001	Ethylacetylene	K, T, U	< 0.09 ppmv	0.09	NA-025	14-Feb-19
19020077-001	Ethylene	K, T, U	< 0.10 ppmv	0.10	NA-025	14-Feb-19
19020077-001	Isobutane	K, T, U	< 0.1 ppmv	0.1	NA-025	14-Feb-19
19020077-001	Isobutylene	K, T, U	< 0.1 ppmv	0.1	NA-025	14-Feb-19
19020077-001	Methane		2.0 ppmv	0.1	NA-025	14-Feb-19
19020077-001	n-Propane	K, T, U	< 0.10 ppmv	0.10	NA-025	14-Feb-19
19020077-001	Propylene	K, T, U	< 0.1 ppmv	0.1	NA-025	14-Feb-19
19020077-001	Propyne	K, T, U	< 0.1 ppmv	0.1	NA-025	14-Feb-19
19020077-001	trans-2-Butene	K, T, U	< 0.13 ppmv	0.13	NA-025	14-Feb-19
19020077-001	2,5-Dimethylthiophene	K, T, U	< 0.4 ppbv	0.4	NA-024	13-Feb-19
19020077-001	2-Ethylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	13-Feb-19
19020077-001	2-Methylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	13-Feb-19
19020077-001	3-Methylthiophene	K, T, U	< 0.4 ppbv	0.4	NA-024	13-Feb-19

Report certified by: Krista Gegolick, Account Coordinator

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March-13-19

PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

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Page 284 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 2 of 12

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED			
DESCRIPTION:			REPORT NUMBER:	REPORT CREATED:	VERSION:	Version 01
PRAMP_RENO-NMHL-2019-0206	H2823	Ambient Air	06-Feb-19	13:50		
19020077-001	Butyl mercaptan	K, T, U	< 0.4 ppbv	0.4	NA-024	13-Feb-19
19020077-001	Carbon disulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	13-Feb-19
19020077-001	Carbonyl sulphide		1.2 ppbv	0.4	NA-024	13-Feb-19
19020077-001	Dimethyl disulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	13-Feb-19
19020077-001	Dimethyl sulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	13-Feb-19
19020077-001	Ethyl mercaptan	K, T, U	< 0.4 ppbv	0.4	NA-024	13-Feb-19
19020077-001	Ethyl sulphide	K, T, U	< 0.4 ppbv	0.4	NA-024	13-Feb-19
19020077-001	Hydrogen sulphide		1.6 ppbv	0.1	NA-024	13-Feb-19
19020077-001	Isobutyl mercaptan	K, T, U	< 0.4 ppbv	0.4	NA-024	13-Feb-19
19020077-001	Isopropyl mercaptan	K, T, U	< 0.4 ppbv	0.4	NA-024	13-Feb-19
19020077-001	Methyl mercaptan	K, T, U	< 0.3 ppbv	0.3	NA-024	13-Feb-19
19020077-001	Pentyl mercaptan	K, T, U	< 0.6 ppbv	0.6	NA-024	13-Feb-19
19020077-001	Propyl mercaptan	K, T, U	< 0.6 ppbv	0.6	NA-024	13-Feb-19
19020077-001	tert-Butyl mercaptan	K, T, U	< 0.4 ppbv	0.4	NA-024	13-Feb-19
19020077-001	Thiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	13-Feb-19
19020077-001	1,1,1-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	1,1,2-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	1,1-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	1,1-Dichloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	20-Feb-19
19020077-001	1,2,3-Trimethylbenzene	K, T, U	< 0.07 ppbv	0.07	AC-058	20-Feb-19
19020077-001	1,2,4-Trichlorobenzene	K, T, U	< 1.2 ppbv	1.2	AC-058	20-Feb-19
19020077-001	1,2,4-Trimethylbenzene	K, T, U	< 0.07 ppbv	0.07	AC-058	20-Feb-19
19020077-001	1,2-Dibromoethane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	1,2-Dichlorobenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	20-Feb-19

Report certified by: Krista Gegolick, Account Coordinator

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March-13-19

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Page 285 of 350

## ENVIRONMENTAL ANALYTICAL SERVICES

### TEST REPORT

Page 3 of 12

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED			
PRAMP_RENO-NMHL-2019-0206	H2823	Ambient Air	06-Feb-19 13:50			
<b>DESCRIPTION:</b>						
REPORT NUMBER:	19020077	REPORT CREATED:	13-Mar-19		VERSION:	Version 01
Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020077-001	1,2-Dichloroethane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	1,2-Dichloropropane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	1,3-Butadiene	I	0.19 ppbv	0.03	AC-058	20-Feb-19
19020077-001	1,3-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	20-Feb-19
19020077-001	1,4-Dichlorobenzene	K, T, U	< 0.6 ppbv	0.6	AC-058	20-Feb-19
19020077-001	1,4-Dioxane	K, T, U	< 0.6 ppbv	0.6	AC-058	20-Feb-19
19020077-001	1-Butene/Isobutylene		0.92 ppbv	0.03	AC-058	20-Feb-19
19020077-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	1-Pentene	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	2,2,4-Trimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	2,2-Dimethylbutane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	2,3,4-Trimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	2,3-Dimethylbutane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	2,3-Dimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	2,4-Dimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	2-Methylheptane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	2-Methylhexane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	2-Methylpentane		0.19 ppbv	0.01	AC-058	20-Feb-19
19020077-001	3-Methylheptane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	3-Methylhexane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	3-Methylpentane		0.06 ppbv	0.01	AC-058	20-Feb-19
19020077-001	Acetone		3.0 ppbv	0.6	AC-058	20-Feb-19
19020077-001	Acrolein	K, T, U	< 0.4 ppbv	0.4	AC-058	20-Feb-19
19020077-001	Benzene		0.27 ppbv	0.01	AC-058	20-Feb-19

Report certified by: Krista Gegolick, Account Coordinator

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March-13-19

PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

Inquiries: (780) 632 8455

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Page 286 of 350

## ENVIRONMENTAL ANALYTICAL SERVICES

### TEST REPORT

Page 4 of 12

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP_RENO-NMHL-2019-0206	H2823	Ambient Air	06-Feb-19	13:50
<b>DESCRIPTION:</b>				
REPORT NUMBER: 19020077	REPORT CREATED: 13-Mar-19		VERSION: Version 01	

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020077-001	Benzyl chloride	K, T, U	< 0.6 ppbv	0.6	AC-058	20-Feb-19
19020077-001	Bromodichloromethane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	Bromoform	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	Bromomethane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	Carbon disulfide	I	0.07 ppbv	0.01	AC-058	20-Feb-19
19020077-001	Carbon tetrachloride	I	0.07 ppbv	0.01	AC-058	20-Feb-19
19020077-001	Chlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	Chloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	Chloroform	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	Chloromethane		0.63 ppbv	0.03	AC-058	20-Feb-19
19020077-001	cis-1,2-Dichloroethene	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	cis-1,3-Dichloropropene	K, T, U	< 0.06 ppbv	0.06	AC-058	20-Feb-19
19020077-001	cis-2-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	cis-2-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	Cyclohexane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	Cyclopentane		0.08 ppbv	0.01	AC-058	20-Feb-19
19020077-001	Dibromochloromethane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	Ethanol		3.0 ppbv	0.4	AC-058	20-Feb-19
19020077-001	Ethyl acetate	K, T, U	< 0.6 ppbv	0.6	AC-058	20-Feb-19
19020077-001	Ethylbenzene	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	Freon-11	I	0.28 ppbv	0.03	AC-058	20-Feb-19
19020077-001	Freon-113	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	Freon-114	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	Freon-12		0.51 ppbv	0.03	AC-058	20-Feb-19
19020077-001	Hexachloro-1,3-butadiene	K, T, U	< 0.72 ppbv	0.72	AC-058	20-Feb-19

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Page 287 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 5 of 12

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED			
DESCRIPTION:	REPORT NUMBER:	REPORT CREATED:			VERSION:	
Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020077-001	Isobutane		1.17 ppbv	0.03	AC-058	20-Feb-19
19020077-001	Isopentane		0.86 ppbv	0.04	AC-058	20-Feb-19
19020077-001	Isoprene	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	Isopropyl alcohol	K, T, U	< 0.6 ppbv	0.6	AC-058	20-Feb-19
19020077-001	Isopropylbenzene	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	m,p-Xylene	K, T, U	< 0.04 ppbv	0.04	AC-058	20-Feb-19
19020077-001	m-Diethylbenzene	K, T, U	< 0.06 ppbv	0.06	AC-058	20-Feb-19
19020077-001	m-Ethyltoluene	K, T, U	< 0.12 ppbv	0.12	AC-058	20-Feb-19
19020077-001	Methyl butyl ketone	K, T, U	< 0.72 ppbv	0.72	AC-058	20-Feb-19
19020077-001	Methyl ethyl ketone	K, T, U	< 0.4 ppbv	0.4	AC-058	20-Feb-19
19020077-001	Methyl isobutyl ketone	K, T, U	< 0.6 ppbv	0.6	AC-058	20-Feb-19
19020077-001	Methyl methacrylate	K, T, U	< 0.10 ppbv	0.10	AC-058	20-Feb-19
19020077-001	Methyl tert butyl ether	K, T, U	< 0.04 ppbv	0.04	AC-058	20-Feb-19
19020077-001	Methylcyclohexane		0.04 ppbv	0.01	AC-058	20-Feb-19
19020077-001	Methylcyclopentane		0.05 ppbv	0.03	AC-058	20-Feb-19
19020077-001	Methylene chloride	K, T, U	< 0.4 ppbv	0.4	AC-058	20-Feb-19
19020077-001	n-Butane		1.64 ppbv	0.04	AC-058	20-Feb-19
19020077-001	n-Decane	K, T, U	< 0.09 ppbv	0.09	AC-058	20-Feb-19
19020077-001	n-Dodecane	K, T, U	< 0.6 ppbv	0.6	AC-058	20-Feb-19
19020077-001	n-Heptane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	n-Hexane		0.13 ppbv	0.01	AC-058	20-Feb-19
19020077-001	n-Octane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	n-Pentane		0.8 ppbv	0.1	AC-058	20-Feb-19
19020077-001	n-Propylbenzene	K, T, U	< 0.07 ppbv	0.07	AC-058	20-Feb-19
19020077-001	n-Undecane	K, T, U	< 0.7 ppbv	0.7	AC-058	20-Feb-19

Report certified by: Krista Gegolick, Account Coordinator

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PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

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Page 288 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 6 of 12

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED			
PRAMP_RENO-NMHL-2019-0206	H2823	Ambient Air	06-Feb-19 13:50			
<b>DESCRIPTION:</b>						
REPORT NUMBER:	19020077	REPORT CREATED:	13-Mar-19		VERSION:	Version 01
Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020077-001	Naphthalene	K, T, U	< 0.7 ppbv	0.7	AC-058	20-Feb-19
19020077-001	n-Nonane	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	o-Ethyltoluene	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	o-Xylene	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	p-Diethylbenzene	K, T, U	< 0.06 ppbv	0.06	AC-058	20-Feb-19
19020077-001	p-Ethyltoluene	K, T, U	< 0.10 ppbv	0.10	AC-058	20-Feb-19
19020077-001	Styrene	K, T, U	< 0.06 ppbv	0.06	AC-058	20-Feb-19
19020077-001	Tetrachloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	20-Feb-19
19020077-001	Tetrahydrofuran	K, T, U	< 0.6 ppbv	0.6	AC-058	20-Feb-19
19020077-001	Toluene		0.24 ppbv	0.01	AC-058	20-Feb-19
19020077-001	trans-1,2-Dichloroethylene	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	trans-1,3-Dichloropropylene	K, T, U	< 0.06 ppbv	0.06	AC-058	20-Feb-19
19020077-001	trans-2-Butene	K, T, U	< 0.01 ppbv	0.01	AC-058	20-Feb-19
19020077-001	trans-2-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19
19020077-001	Trichloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	20-Feb-19
19020077-001	Vinyl acetate	K, T, U	< 0.6 ppbv	0.6	AC-058	20-Feb-19
19020077-001	Vinyl chloride	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Feb-19

Report certified by: Krista Gegolick, Account Coordinator

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March-13-19  
PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

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Page 289 of 350

## **Revision History**

<b>Order ID</b>	<b>Ver</b>	<b>Date</b>	<b>Reason</b>
19020077	01	13-Mar-19	Report created

## **Methods**

<b>Method</b>	<b>Description</b>
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-024	Analysis for Reduced Sulfur Compounds in Air Samples
NA-025	Determination of Light Hydrocarbons (C1C4) in Ambient Air by Gas Chromatography Flame Ionization Detector

## **Qualifiers**

### **Data Qualifier    Translation**

B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

## **Order Comments**

19020077

Send results to pramptech@prampairshed.ca. Unknows to be reported.

**Sample Comments**

## **Result Comments**

*Note: Results relate only to items tested*

## ENVIRONMENTAL ANALYTICAL SERVICES

### TEST REPORT

Page 1 of 18

<b>RESULTS:</b> Karla Reesor Peace River Area Monitoring Program Committee	<b>CLIENT SAMPLE ID</b> PRAMP_Reno-20190217	<b>CANISTER ID</b> 28914	<b>Matrix</b> Ambient Air	<b>Priority</b> Normal
<b>DESCRIPTION:</b> Methane Trigger				
<b>INVOICE:</b> Office Manager	<b>DATE SAMPLED:</b> 18-Feb-19	9:30	<b>DATE RECEIVED:</b>	21-Feb-19
	<b>REPORT CREATED:</b> 12-Mar-19		<b>REPORT NUMBER:</b>	19020165
			<b>VERSION:</b>	Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020165-001	1-Butene	K, T, U	< 0.15 ppmv	0.15	NA-025	26-Feb-19
19020165-001	Acetylene	K, T, U	< 0.12 ppmv	0.12	NA-025	26-Feb-19
19020165-001	n-Butane	K, T, U	< 0.3 ppmv	0.3	NA-025	26-Feb-19
19020165-001	cis-2-Butene	K, T, U	< 0.06 ppmv	0.06	NA-025	26-Feb-19
19020165-001	Ethane		0.2 ppmv	0.2	NA-025	26-Feb-19
19020165-001	Ethylacetylene	K, T, U	< 0.09 ppmv	0.09	NA-025	26-Feb-19
19020165-001	Ethylene	K, T, U	< 0.11 ppmv	0.11	NA-025	26-Feb-19
19020165-001	Isobutane	K, T, U	< 0.2 ppmv	0.2	NA-025	26-Feb-19
19020165-001	Isobutylene	K, T, U	< 0.2 ppmv	0.2	NA-025	26-Feb-19
19020165-001	Methane		3.0 ppmv	0.2	NA-025	26-Feb-19
19020165-001	n-Propane	K, T, U	< 0.11 ppmv	0.11	NA-025	26-Feb-19
19020165-001	Propylene	K, T, U	< 0.2 ppmv	0.2	NA-025	26-Feb-19
19020165-001	Propyne	K, T, U	< 0.2 ppmv	0.2	NA-025	26-Feb-19
19020165-001	trans-2-Butene	K, T, U	< 0.14 ppmv	0.14	NA-025	26-Feb-19
19020165-001	2,5-Dimethylthiophene	K, T, U	< 0.5 ppbv	0.5	NA-024	21-Feb-19
19020165-001	2-Ethylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	21-Feb-19
19020165-001	2-Methylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	21-Feb-19
19020165-001	3-Methylthiophene	K, T, U	< 0.5 ppbv	0.5	NA-024	21-Feb-19

Report certified by: Rebecca Holgate, Account Coordinator

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March 12, 2019  
PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

Inquiries: (780) 632 8455

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Page 296 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED		
PRAMP_Reno-20190217	28914	Ambient Air	18-Feb-19 9:30		
<b>DESCRIPTION:</b> Methane Trigger	<b>REPORT NUMBER:</b> 19020165	<b>REPORT CREATED:</b> 12-Mar-19			<b>VERSION:</b> Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020165-001	Butyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	21-Feb-19
19020165-001	Carbon disulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	21-Feb-19
19020165-001	Carbonyl sulphide		2.6 ppbv	0.5	NA-024	21-Feb-19
19020165-001	Dimethyl disulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	21-Feb-19
19020165-001	Dimethyl sulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	21-Feb-19
19020165-001	Ethyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	21-Feb-19
19020165-001	Ethyl sulphide	K, T, U	< 0.5 ppbv	0.5	NA-024	21-Feb-19
19020165-001	Hydrogen sulphide		2.5 ppbv	0.2	NA-024	21-Feb-19
19020165-001	Isobutyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	21-Feb-19
19020165-001	Isopropyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	21-Feb-19
19020165-001	Methyl mercaptan	K, T, U	< 0.3 ppbv	0.3	NA-024	21-Feb-19
19020165-001	Pentyl mercaptan	K, T, U	< 0.6 ppbv	0.6	NA-024	21-Feb-19
19020165-001	Propyl mercaptan	K, T, U	< 0.6 ppbv	0.6	NA-024	21-Feb-19
19020165-001	tert-Butyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	21-Feb-19
19020165-001	Thiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	21-Feb-19
19020165-001	1,1,1-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	1,1,2-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	1,1-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	1,1-Dichloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	04-Mar-19
19020165-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08 ppbv	0.08	AC-058	04-Mar-19
19020165-001	1,2,4-Trichlorobenzene	K, T, U	< 1.2 ppbv	1.2	AC-058	04-Mar-19
19020165-001	1,2,4-Trimethylbenzene	K, T, U	< 0.08 ppbv	0.08	AC-058	04-Mar-19
19020165-001	1,2-Dibromoethane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	1,2-Dichlorobenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	04-Mar-19

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Page 297 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 3 of 18

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED		
PRAMP_Reno-20190217	28914	Ambient Air	18-Feb-19 9:30		
<b>DESCRIPTION:</b> Methane Trigger	<b>REPORT NUMBER:</b> 19020165	<b>REPORT CREATED:</b> 12-Mar-19			<b>VERSION:</b> Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020165-001	1,2-Dichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	1,2-Dichloropropane	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	1,3-Butadiene	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	1,3-Dichlorobenzene	K, T, U	< 0.5 ppbv	0.5	AC-058	04-Mar-19
19020165-001	1,4-Dichlorobenzene	K, T, U	< 0.6 ppbv	0.6	AC-058	04-Mar-19
19020165-001	1,4-Dioxane	K, T, U	< 0.6 ppbv	0.6	AC-058	04-Mar-19
19020165-001	1-Butene/Isobutylene		0.79 ppbv	0.03	AC-058	04-Mar-19
19020165-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	1-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	2,2,4-Trimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	2,2-Dimethylbutane	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	2,3,4-Trimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	2,3-Dimethylbutane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	2,3-Dimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	2,4-Dimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	2-Methylheptane	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	2-Methylhexane		0.03 ppbv	0.02	AC-058	04-Mar-19
19020165-001	2-Methylpentane		0.23 ppbv	0.02	AC-058	04-Mar-19
19020165-001	3-Methylheptane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	3-Methylhexane		0.05 ppbv	0.03	AC-058	04-Mar-19
19020165-001	3-Methylpentane		0.12 ppbv	0.02	AC-058	04-Mar-19
19020165-001	Acetone		3.3 ppbv	0.6	AC-058	04-Mar-19
19020165-001	Acrolein	K, T, U	< 0.5 ppbv	0.5	AC-058	04-Mar-19
19020165-001	Benzene		0.26 ppbv	0.02	AC-058	04-Mar-19

Report certified by: Rebecca Holgate, Account Coordinator

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March 12, 2019  
PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

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Page 298 of 350

## ENVIRONMENTAL ANALYTICAL SERVICES

### TEST REPORT

Page 4 of 18

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP_Reno-20190217	28914	Ambient Air	18-Feb-19	9:30
<b>DESCRIPTION:</b>	Methane Trigger			
<b>REPORT NUMBER:</b>	19020165	<b>REPORT CREATED:</b>	12-Mar-19	<b>VERSION:</b> Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020165-001	Benzyl chloride	K, T, U	< 0.6 ppbv	0.6	AC-058	04-Mar-19
19020165-001	Bromodichloromethane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	Bromoform	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	Bromomethane	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	Carbon disulfide	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	Carbon tetrachloride	I	0.03 ppbv	0.02	AC-058	04-Mar-19
19020165-001	Chlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	Chloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	Chloroform	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	Chloromethane		0.50 ppbv	0.03	AC-058	04-Mar-19
19020165-001	cis-1,2-Dichloroethene	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	cis-1,3-Dichloropropene	K, T, U	< 0.06 ppbv	0.06	AC-058	04-Mar-19
19020165-001	cis-2-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	cis-2-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	Cyclohexane		0.11 ppbv	0.03	AC-058	04-Mar-19
19020165-001	Cyclopentane		0.04 ppbv	0.02	AC-058	04-Mar-19
19020165-001	Dibromochloromethane	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	Ethanol		2.2 ppbv	0.5	AC-058	04-Mar-19
19020165-001	Ethyl acetate	K, T, U	< 0.6 ppbv	0.6	AC-058	04-Mar-19
19020165-001	Ethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	Freon-11	I	0.22 ppbv	0.03	AC-058	04-Mar-19
19020165-001	Freon-113	I	0.03 ppbv	0.02	AC-058	04-Mar-19
19020165-001	Freon-114	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	Freon-12		0.46 ppbv	0.03	AC-058	04-Mar-19
19020165-001	Hexachloro-1,3-butadiene	K, T, U	< 0.76 ppbv	0.76	AC-058	04-Mar-19

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Page 299 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 5 of 18

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED		
PRAMP_Reno-20190217	28914	Ambient Air	18-Feb-19 9:30		
<b>DESCRIPTION:</b> Methane Trigger	<b>REPORT NUMBER:</b> 19020165	<b>REPORT CREATED:</b> 12-Mar-19			<b>VERSION:</b> Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020165-001	Isobutane		2.30 ppbv	0.03	AC-058	04-Mar-19
19020165-001	Isopentane		0.94 ppbv	0.05	AC-058	04-Mar-19
19020165-001	Isoprene	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	Isopropyl alcohol	K, T, U	< 0.6 ppbv	0.6	AC-058	04-Mar-19
19020165-001	Isopropylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	m,p-Xylene	K, T, U	< 0.05 ppbv	0.05	AC-058	04-Mar-19
19020165-001	m-Diethylbenzene	K, T, U	< 0.06 ppbv	0.06	AC-058	04-Mar-19
19020165-001	m-Ethyltoluene	K, T, U	< 0.12 ppbv	0.12	AC-058	04-Mar-19
19020165-001	Methyl butyl ketone	K, T, U	< 0.76 ppbv	0.76	AC-058	04-Mar-19
19020165-001	Methyl ethyl ketone	K, T, U	< 0.5 ppbv	0.5	AC-058	04-Mar-19
19020165-001	Methyl isobutyl ketone	K, T, U	< 0.6 ppbv	0.6	AC-058	04-Mar-19
19020165-001	Methyl methacrylate	K, T, U	< 0.11 ppbv	0.11	AC-058	04-Mar-19
19020165-001	Methyl tert butyl ether	K, T, U	< 0.05 ppbv	0.05	AC-058	04-Mar-19
19020165-001	Methylcyclohexane		0.22 ppbv	0.02	AC-058	04-Mar-19
19020165-001	Methylcyclopentane		0.23 ppbv	0.03	AC-058	04-Mar-19
19020165-001	Methylene chloride	K, T, U	< 0.5 ppbv	0.5	AC-058	04-Mar-19
19020165-001	n-Butane		2.89 ppbv	0.05	AC-058	04-Mar-19
19020165-001	n-Decane	K, T, U	< 0.09 ppbv	0.09	AC-058	04-Mar-19
19020165-001	n-Dodecane	K, T, U	< 0.6 ppbv	0.6	AC-058	04-Mar-19
19020165-001	n-Heptane	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	n-Hexane		0.08 ppbv	0.02	AC-058	04-Mar-19
19020165-001	n-Octane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	n-Pentane		0.6 ppbv	0.2	AC-058	04-Mar-19
19020165-001	n-Propylbenzene	K, T, U	< 0.08 ppbv	0.08	AC-058	04-Mar-19
19020165-001	n-Undecane	K, T, U	< 0.8 ppbv	0.8	AC-058	04-Mar-19

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Page 300 of 350

## ENVIRONMENTAL ANALYTICAL SERVICES

### TEST REPORT

Page 6 of 18

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED			
PRAMP_Reno-20190217	28914	Ambient Air	18-Feb-19 9:30			
DESCRIPTION:	REPORT NUMBER:	REPORT CREATED:			VERSION:	
Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020165-001	Naphthalene	K, T, U	< 0.8 ppbv	0.8	AC-058	04-Mar-19
19020165-001	n-Nonane	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	o-Ethyltoluene	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	o-Xylene	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	p-Diethylbenzene	K, T, U	< 0.06 ppbv	0.06	AC-058	04-Mar-19
19020165-001	p-Ethyltoluene	K, T, U	< 0.11 ppbv	0.11	AC-058	04-Mar-19
19020165-001	Styrene	K, T, U	< 0.06 ppbv	0.06	AC-058	04-Mar-19
19020165-001	Tetrachloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	04-Mar-19
19020165-001	Tetrahydrofuran	K, T, U	< 0.6 ppbv	0.6	AC-058	04-Mar-19
19020165-001	Toluene		0.32 ppbv	0.02	AC-058	04-Mar-19
19020165-001	trans-1,2-Dichloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	trans-1,3-Dichloropropylene	K, T, U	< 0.06 ppbv	0.06	AC-058	04-Mar-19
19020165-001	trans-2-Butene	K, T, U	< 0.02 ppbv	0.02	AC-058	04-Mar-19
19020165-001	trans-2-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19
19020165-001	Trichloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	04-Mar-19
19020165-001	Vinyl acetate	K, T, U	< 0.6 ppbv	0.6	AC-058	04-Mar-19
19020165-001	Vinyl chloride	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Mar-19

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Date: March 12, 2019  
PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

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Page 301 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 7 of 18

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED		
PRAMP_Reno-Blank	28934	Ambient Air	18-Feb-19 9:30		
<b>DESCRIPTION:</b> Blank	<b>REPORT NUMBER:</b> 19020165	<b>REPORT CREATED:</b> 12-Mar-19			<b>VERSION:</b> Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020165-002	1-Butene	K, T, U	< 1.51 ppmv	1.51	NA-025	26-Feb-19
19020165-002	Acetylene	K, T, U	< 1.21 ppmv	1.21	NA-025	26-Feb-19
19020165-002	n-Butane	K, T, U	< 3.0 ppmv	3.0	NA-025	26-Feb-19
19020165-002	cis-2-Butene	K, T, U	< 0.60 ppmv	0.60	NA-025	26-Feb-19
19020165-002	Ethane	K, T, U	< 1.5 ppmv	1.5	NA-025	26-Feb-19
19020165-002	Ethylacetylene	K, T, U	< 0.91 ppmv	0.91	NA-025	26-Feb-19
19020165-002	Ethylene	K, T, U	< 1.06 ppmv	1.06	NA-025	26-Feb-19
19020165-002	Isobutane	K, T, U	< 1.5 ppmv	1.5	NA-025	26-Feb-19
19020165-002	Isobutylene	K, T, U	< 1.5 ppmv	1.5	NA-025	26-Feb-19
19020165-002	Methane		4.8 ppmv	1.5	NA-025	26-Feb-19
19020165-002	n-Propane	K, T, U	< 1.06 ppmv	1.06	NA-025	26-Feb-19
19020165-002	Propylene	K, T, U	< 1.5 ppmv	1.5	NA-025	26-Feb-19
19020165-002	Propyne	K, T, U	< 1.5 ppmv	1.5	NA-025	26-Feb-19
19020165-002	trans-2-Butene	K, T, U	< 1.36 ppmv	1.36	NA-025	26-Feb-19
19020165-002	2,5-Dimethylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	21-Feb-19
19020165-002	2-Ethylthiophene	K, T, U	< 0.2 ppbv	0.2	NA-024	21-Feb-19
19020165-002	2-Methylthiophene	K, T, U	< 0.2 ppbv	0.2	NA-024	21-Feb-19
19020165-002	3-Methylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	21-Feb-19
19020165-002	Butyl mercaptan	K, T, U	< 0.3 ppbv	0.3	NA-024	21-Feb-19
19020165-002	Carbon disulphide	K, T, U	< 0.2 ppbv	0.2	NA-024	21-Feb-19
19020165-002	Carbonyl sulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	21-Feb-19
19020165-002	Dimethyl disulphide	K, T, U	< 0.2 ppbv	0.2	NA-024	21-Feb-19
19020165-002	Dimethyl sulphide	K, T, U	< 0.2 ppbv	0.2	NA-024	21-Feb-19
19020165-002	Ethyl mercaptan	K, T, U	< 0.3 ppbv	0.3	NA-024	21-Feb-19
19020165-002	Ethyl sulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	21-Feb-19

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Page 302 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED		
PRAMP_Reno-Blank	28934	Ambient Air	18-Feb-19 9:30		
Blank	19020165	12-Mar-19			Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020165-002	Hydrogen sulphide	K, T, U	< 0.1 ppbv	0.1	NA-024	21-Feb-19
19020165-002	Isobutyl mercaptan	K, T, U	< 0.3 ppbv	0.3	NA-024	21-Feb-19
19020165-002	Isopropyl mercaptan	K, T, U	< 0.3 ppbv	0.3	NA-024	21-Feb-19
19020165-002	Methyl mercaptan	K, T, U	< 0.2 ppbv	0.2	NA-024	21-Feb-19
19020165-002	Pentyl mercaptan	K, T, U	< 0.4 ppbv	0.4	NA-024	21-Feb-19
19020165-002	Propyl mercaptan	K, T, U	< 0.4 ppbv	0.4	NA-024	21-Feb-19
19020165-002	tert-Butyl mercaptan	K, T, U	< 0.3 ppbv	0.3	NA-024	21-Feb-19
19020165-002	Thiophene	K, T, U	< 0.2 ppbv	0.2	NA-024	21-Feb-19
19020165-002	1,1,1-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	1,1,2-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	1,1-Dichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	1,1-Dichloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	05-Mar-19
19020165-002	1,2,3-Trimethylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020165-002	1,2,4-Trichlorobenzene	K, T, U	< 0.8 ppbv	0.8	AC-058	05-Mar-19
19020165-002	1,2,4-Trimethylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020165-002	1,2-Dibromoethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	1,2-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020165-002	1,2-Dichloroethane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	1,2-Dichloropropane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	1,3,5-Trimethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	1,3-Butadiene	I	0.12 ppbv	0.02	AC-058	05-Mar-19
19020165-002	1,3-Dichlorobenzene	K, T, U	< 0.3 ppbv	0.3	AC-058	05-Mar-19
19020165-002	1,4-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	05-Mar-19
19020165-002	1,4-Dioxane	K, T, U	< 0.4 ppbv	0.4	AC-058	05-Mar-19

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Page 303 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED		
PRAMP_Reno-Blank	28934	Ambient Air	18-Feb-19 9:30		
DESCRIPTION:	REPORT NUMBER:	REPORT CREATED:			VERSION:
Blank	19020165	12-Mar-19			Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020165-002	1-Butene/Isobutylene		0.44 ppbv	0.02	AC-058	05-Mar-19
19020165-002	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	1-Pentene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	2,2,4-Trimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	2,2-Dimethylbutane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	2,3,4-Trimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	2,3-Dimethylbutane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	2,3-Dimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	2,4-Dimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	2-Methylheptane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	2-Methylhexane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	2-Methylpentane		0.07 ppbv	0.01	AC-058	05-Mar-19
19020165-002	3-Methylheptane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	3-Methylhexane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	3-Methylpentane		0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	Acetone	K, T, U	< 0.4 ppbv	0.4	AC-058	05-Mar-19
19020165-002	Acrolein	K, T, U	< 0.3 ppbv	0.3	AC-058	05-Mar-19
19020165-002	Benzene		0.29 ppbv	0.01	AC-058	05-Mar-19
19020165-002	Benzyl chloride	K, T, U	< 0.4 ppbv	0.4	AC-058	05-Mar-19
19020165-002	Bromodichloromethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	Bromoform	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	Bromomethane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	Carbon disulfide	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	Carbon tetrachloride	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	Chlorobenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19

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Page 304 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP_Reno-Blank	28934	Ambient Air	18-Feb-19	9:30
REPORT NUMBER:	19020165	REPORT CREATED:	12-Mar-19	

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020165-002	Chloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	Chloroform	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	Chloromethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	cis-1,2-Dichloroethene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	cis-1,3-Dichloropropene	K, T, U	< 0.04 ppbv	0.04	AC-058	05-Mar-19
19020165-002	cis-2-Butene		0.03 ppbv	0.02	AC-058	05-Mar-19
19020165-002	cis-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	Cyclohexane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	Cyclopentane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	Dibromochloromethane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	Ethanol	K, T, U	< 0.3 ppbv	0.3	AC-058	05-Mar-19
19020165-002	Ethyl acetate	K, T, U	< 0.4 ppbv	0.4	AC-058	05-Mar-19
19020165-002	Ethylbenzene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	Freon-11	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	Freon-113	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	Freon-114	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	Freon-12	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	Hexachloro-1,3-butadiene	K, T, U	< 0.50 ppbv	0.50	AC-058	05-Mar-19
19020165-002	Isobutane		0.68 ppbv	0.02	AC-058	05-Mar-19
19020165-002	Isopentane		0.39 ppbv	0.03	AC-058	05-Mar-19
19020165-002	Isoprene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	Isopropyl alcohol	K, T, U	< 0.4 ppbv	0.4	AC-058	05-Mar-19
19020165-002	Isopropylbenzene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	m,p-Xylene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020165-002	m-Diethylbenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	05-Mar-19

Report certified by: Rebecca Holgate, Account Coordinator

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March 12, 2019  
PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

Inquiries: (780) 632 8455

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Page 305 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED		
PRAMP_Reno-Blank	28934	Ambient Air	18-Feb-19 9:30		
DESCRIPTION:	REPORT NUMBER:	REPORT CREATED:			VERSION:
Blank	19020165	12-Mar-19			Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020165-002	m-Ethyltoluene	K, T, U	< 0.08 ppbv	0.08	AC-058	05-Mar-19
19020165-002	Methyl butyl ketone	K, T, U	< 0.50 ppbv	0.50	AC-058	05-Mar-19
19020165-002	Methyl ethyl ketone	K, T, U	< 0.3 ppbv	0.3	AC-058	05-Mar-19
19020165-002	Methyl isobutyl ketone	K, T, U	< 0.4 ppbv	0.4	AC-058	05-Mar-19
19020165-002	Methyl methacrylate	K, T, U	< 0.07 ppbv	0.07	AC-058	05-Mar-19
19020165-002	Methyl tert butyl ether	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020165-002	Methylcyclohexane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	Methylcyclopentane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	Methylene chloride	K, T, U	< 0.3 ppbv	0.3	AC-058	05-Mar-19
19020165-002	n-Butane		0.68 ppbv	0.03	AC-058	05-Mar-19
19020165-002	n-Decane	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020165-002	n-Dodecane	K, T, U	< 0.4 ppbv	0.4	AC-058	05-Mar-19
19020165-002	n-Heptane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	n-Hexane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	n-Octane		0.04 ppbv	0.02	AC-058	05-Mar-19
19020165-002	n-Pentane		0.3 ppbv	0.1	AC-058	05-Mar-19
19020165-002	n-Propylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020165-002	n-Undecane	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020165-002	Naphthalene	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020165-002	n-Nonane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	o-Ethyltoluene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	o-Xylene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	p-Diethylbenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	05-Mar-19
19020165-002	p-Ethyltoluene	K, T, U	< 0.07 ppbv	0.07	AC-058	05-Mar-19
19020165-002	Styrene	K, T, U	< 0.04 ppbv	0.04	AC-058	05-Mar-19

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Page 306 of 350

## ENVIRONMENTAL ANALYTICAL SERVICES

### TEST REPORT

Page 12 of 18

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED			
DESCRIPTION:	Blank	Ambient Air	18-Feb-19	9:30		
REPORT NUMBER:	19020165	REPORT CREATED:	12-Mar-19		VERSION:	Version 01
Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020165-002	Tetrachloroethylene	I	0.10 ppbv	0.04	AC-058	05-Mar-19
19020165-002	Tetrahydrofuran	K, T, U	< 0.4 ppbv	0.4	AC-058	05-Mar-19
19020165-002	Toluene		0.50 ppbv	0.01	AC-058	05-Mar-19
19020165-002	trans-1,2-Dichloroethylene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020165-002	trans-1,3-Dichloropropylene	K, T, U	< 0.04 ppbv	0.04	AC-058	05-Mar-19
19020165-002	trans-2-Butene		0.05 ppbv	0.01	AC-058	05-Mar-19
19020165-002	trans-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020165-002	Trichloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	05-Mar-19
19020165-002	Vinyl acetate	K, T, U	< 0.4 ppbv	0.4	AC-058	05-Mar-19
19020165-002	Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19

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Page 307 of 350

## **Revision History**

<b>Order ID</b>	<b>Ver</b>	<b>Date</b>	<b>Reason</b>
19020165	01	12-Mar-19	Report created

## **Methods**

<b>Method</b>	<b>Description</b>
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-024	Analysis for Reduced Sulfur Compounds in Air Samples
NA-025	Determination of Light Hydrocarbons (C1C4) in Ambient Air by Gas Chromatography Flame Ionization Detector

## **Qualifiers**

### **Data Qualifier    Translation**

B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

## **Order Comments**

19020165

Send results to pramptech@prampairshed.ca. Unknowns to be reported. Return sample to reception for isotope analysis.

**Sample Comments**

## **Result Comments**

*Note: Results relate only to items tested*

## ENVIRONMENTAL ANALYTICAL SERVICES

### TEST REPORT

Page 1 of 18

<b>RESULTS:</b> Karla Reesor Peace River Area Monitoring Program Committee	<b>CLIENT SAMPLE ID</b> PRAMP-Reno-20190225	<b>CANISTER ID</b> 28965	<b>Matrix</b> Ambient Air	<b>Priority</b> Normal
<b>DESCRIPTION:</b> Methane trigger				
<b>INVOICE:</b> Office Manager	<b>DATE SAMPLED:</b> 21-Feb-19	8:46	<b>DATE RECEIVED:</b>	22-Feb-19
	<b>REPORT CREATED:</b> 12-Mar-19		<b>REPORT NUMBER:</b>	19020177
			<b>VERSION:</b>	Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020177-001	1-Butene	K, T, U	< 0.16 ppmv	0.16	NA-025	26-Feb-19
19020177-001	Acetylene	K, T, U	< 0.13 ppmv	0.13	NA-025	26-Feb-19
19020177-001	n-Butane	K, T, U	< 0.3 ppmv	0.3	NA-025	26-Feb-19
19020177-001	cis-2-Butene	K, T, U	< 0.06 ppmv	0.06	NA-025	26-Feb-19
19020177-001	Ethane	K, T, U	< 0.2 ppmv	0.2	NA-025	26-Feb-19
19020177-001	Ethylacetylene	K, T, U	< 0.09 ppmv	0.09	NA-025	26-Feb-19
19020177-001	Ethylene	K, T, U	< 0.11 ppmv	0.11	NA-025	26-Feb-19
19020177-001	Isobutane	K, T, U	< 0.2 ppmv	0.2	NA-025	26-Feb-19
19020177-001	Isobutylene	K, T, U	< 0.2 ppmv	0.2	NA-025	26-Feb-19
19020177-001	Methane		2.3 ppmv	0.2	NA-025	26-Feb-19
19020177-001	n-Propane	K, T, U	< 0.11 ppmv	0.11	NA-025	26-Feb-19
19020177-001	Propylene	K, T, U	< 0.2 ppmv	0.2	NA-025	26-Feb-19
19020177-001	Propyne	K, T, U	< 0.2 ppmv	0.2	NA-025	26-Feb-19
19020177-001	trans-2-Butene	K, T, U	< 0.14 ppmv	0.14	NA-025	26-Feb-19
19020177-001	2,5-Dimethylthiophene	K, T, U	< 0.5 ppbv	0.5	NA-024	25-Feb-19
19020177-001	2-Ethylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	25-Feb-19
19020177-001	2-Methylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	25-Feb-19
19020177-001	3-Methylthiophene	K, T, U	< 0.5 ppbv	0.5	NA-024	25-Feb-19

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On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

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Page 314 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 2 of 18

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED		
PRAMP-Reno-20190225	28965	Ambient Air	21-Feb-19 8:46		
<b>DESCRIPTION:</b> Methane trigger	<b>REPORT NUMBER:</b> 19020177	<b>REPORT CREATED:</b> 12-Mar-19			<b>VERSION:</b> Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020177-001	Butyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	25-Feb-19
19020177-001	Carbon disulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	25-Feb-19
19020177-001	Carbonyl sulphide		3.0 ppbv	0.5	NA-024	25-Feb-19
19020177-001	Dimethyl disulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	25-Feb-19
19020177-001	Dimethyl sulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	25-Feb-19
19020177-001	Ethyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	25-Feb-19
19020177-001	Ethyl sulphide	K, T, U	< 0.5 ppbv	0.5	NA-024	25-Feb-19
19020177-001	Hydrogen sulphide		3.3 ppbv	0.2	NA-024	25-Feb-19
19020177-001	Isobutyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	25-Feb-19
19020177-001	Isopropyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	25-Feb-19
19020177-001	Methyl mercaptan	K, T, U	< 0.3 ppbv	0.3	NA-024	25-Feb-19
19020177-001	Pentyl mercaptan	K, T, U	< 0.6 ppbv	0.6	NA-024	25-Feb-19
19020177-001	Propyl mercaptan	K, T, U	< 0.6 ppbv	0.6	NA-024	25-Feb-19
19020177-001	tert-Butyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	25-Feb-19
19020177-001	Thiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	25-Feb-19
19020177-001	1,1,1-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	1,1,2-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	1,1-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	1,1-Dichloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020177-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08 ppbv	0.08	AC-058	05-Mar-19
19020177-001	1,2,4-Trichlorobenzene	K, T, U	< 1.3 ppbv	1.3	AC-058	05-Mar-19
19020177-001	1,2,4-Trimethylbenzene	K, T, U	< 0.08 ppbv	0.08	AC-058	05-Mar-19
19020177-001	1,2-Dibromoethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	1,2-Dichlorobenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19

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Page 315 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED		
PRAMP-Reno-20190225	28965	Ambient Air	21-Feb-19 8:46		
DESCRIPTION: Methane trigger	REPORT NUMBER: 19020177	REPORT CREATED: 12-Mar-19			VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020177-001	1,2-Dichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	1,2-Dichloropropane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	1,3-Butadiene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	1,3-Dichlorobenzene	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020177-001	1,4-Dichlorobenzene	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020177-001	1,4-Dioxane	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020177-001	1-Butene/Isobutylene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	1-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	2,2,4-Trimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	2,2-Dimethylbutane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	2,3,4-Trimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	2,3-Dimethylbutane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	2,3-Dimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	2,4-Dimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	2-Methylheptane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	2-Methylhexane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	2-Methylpentane		0.08 ppbv	0.02	AC-058	05-Mar-19
19020177-001	3-Methylheptane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	3-Methylhexane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	3-Methylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	Acetone	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020177-001	Acrolein	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020177-001	Benzene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19

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Page 316 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 4 of 18

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP-Reno-20190225	28965	Ambient Air	21-Feb-19	8:46
<b>DESCRIPTION:</b>	Methane trigger			
<b>REPORT NUMBER:</b>	19020177	<b>REPORT CREATED:</b>	12-Mar-19	<b>VERSION:</b> Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020177-001	Benzyl chloride	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020177-001	Bromodichloromethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	Bromoform	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	Bromomethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	Carbon disulfide	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	Carbon tetrachloride	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	Chlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	Chloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	Chloroform	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	Chloromethane		0.49 ppbv	0.03	AC-058	05-Mar-19
19020177-001	cis-1,2-Dichloroethene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	cis-1,3-Dichloropropene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020177-001	cis-2-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	cis-2-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	Cyclohexane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	Cyclopentane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	Dibromochloromethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	Ethanol	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020177-001	Ethyl acetate	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020177-001	Ethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	Freon-11	I	0.19 ppbv	0.03	AC-058	05-Mar-19
19020177-001	Freon-113	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	Freon-114	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	Freon-12	I	0.46 ppbv	0.03	AC-058	05-Mar-19
19020177-001	Hexachloro-1,3-butadiene	K, T, U	< 0.79 ppbv	0.79	AC-058	05-Mar-19

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Page 317 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 5 of 18

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED		
PRAMP-Reno-20190225	28965	Ambient Air	21-Feb-19 8:46		
<b>DESCRIPTION:</b> Methane trigger	<b>REPORT NUMBER:</b> 19020177	<b>REPORT CREATED:</b> 12-Mar-19			<b>VERSION:</b> Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020177-001	Isobutane		0.31 ppbv	0.03	AC-058	05-Mar-19
19020177-001	Isopentane		0.30 ppbv	0.05	AC-058	05-Mar-19
19020177-001	Isoprene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	Isopropyl alcohol	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020177-001	Isopropylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	m,p-Xylene	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020177-001	m-Diethylbenzene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020177-001	m-Ethyltoluene	K, T, U	< 0.13 ppbv	0.13	AC-058	05-Mar-19
19020177-001	Methyl butyl ketone	K, T, U	< 0.79 ppbv	0.79	AC-058	05-Mar-19
19020177-001	Methyl ethyl ketone	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020177-001	Methyl isobutyl ketone	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020177-001	Methyl methacrylate	K, T, U	< 0.11 ppbv	0.11	AC-058	05-Mar-19
19020177-001	Methyl tert butyl ether	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020177-001	Methylcyclohexane		0.05 ppbv	0.02	AC-058	05-Mar-19
19020177-001	Methylcyclopentane		0.07 ppbv	0.03	AC-058	05-Mar-19
19020177-001	Methylene chloride	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020177-001	n-Butane		0.49 ppbv	0.05	AC-058	05-Mar-19
19020177-001	n-Decane	K, T, U	< 0.09 ppbv	0.09	AC-058	05-Mar-19
19020177-001	n-Dodecane	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020177-001	n-Heptane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	n-Hexane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	n-Octane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	n-Pentane		0.2 ppbv	0.2	AC-058	05-Mar-19
19020177-001	n-Propylbenzene	K, T, U	< 0.08 ppbv	0.08	AC-058	05-Mar-19
19020177-001	n-Undecane	K, T, U	< 0.8 ppbv	0.8	AC-058	05-Mar-19

Report certified by: Rebecca Holgate, Account Coordinator

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March 12, 2019  
PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

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Page 318 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED			
PRAMP-Reno-20190225	28965	Ambient Air	21-Feb-19 8:46			
<b>DESCRIPTION:</b>	Methane trigger					
<b>REPORT NUMBER:</b>	19020177	<b>REPORT CREATED:</b>	12-Mar-19		<b>VERSION:</b>	Version 01
Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020177-001	Naphthalene	K, T, U	< 0.8 ppbv	0.8	AC-058	05-Mar-19
19020177-001	n-Nonane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	o-Ethyltoluene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	o-Xylene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	p-Diethylbenzene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020177-001	p-Ethyltoluene	K, T, U	< 0.11 ppbv	0.11	AC-058	05-Mar-19
19020177-001	Styrene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020177-001	Tetrachloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020177-001	Tetrahydrofuran	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020177-001	Toluene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	trans-1,2-Dichloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	trans-1,3-Dichloropropylene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020177-001	trans-2-Butene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-001	trans-2-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-001	Trichloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020177-001	Vinyl acetate	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020177-001	Vinyl chloride	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 7 of 18

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED				
DESCRIPTION:			21-Feb-19	8:46			
REPORT NUMBER:	19020177	REPORT CREATED:	12-Mar-19		VERSION:	Version 01	
Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
19020177-002	1-Butene	K, T, U	< 1.37	ppmv	1.37	NA-025	26-Feb-19
19020177-002	Acetylene	K, T, U	< 1.10	ppmv	1.10	NA-025	26-Feb-19
19020177-002	n-Butane	K, T, U	< 2.7	ppmv	2.7	NA-025	26-Feb-19
19020177-002	cis-2-Butene	K, T, U	< 0.55	ppmv	0.55	NA-025	26-Feb-19
19020177-002	Ethane	K, T, U	< 1.4	ppmv	1.4	NA-025	26-Feb-19
19020177-002	Ethylacetylene	K, T, U	< 0.82	ppmv	0.82	NA-025	26-Feb-19
19020177-002	Ethylene	K, T, U	< 0.96	ppmv	0.96	NA-025	26-Feb-19
19020177-002	Isobutane	K, T, U	< 1.4	ppmv	1.4	NA-025	26-Feb-19
19020177-002	Isobutylene	K, T, U	< 1.4	ppmv	1.4	NA-025	26-Feb-19
19020177-002	Methane	K, T, U	< 1.4	ppmv	1.4	NA-025	26-Feb-19
19020177-002	n-Propane	K, T, U	< 0.96	ppmv	0.96	NA-025	26-Feb-19
19020177-002	Propylene	K, T, U	< 1.4	ppmv	1.4	NA-025	26-Feb-19
19020177-002	Propyne	K, T, U	< 1.4	ppmv	1.4	NA-025	26-Feb-19
19020177-002	trans-2-Butene	K, T, U	< 1.23	ppmv	1.23	NA-025	26-Feb-19
19020177-002	2,5-Dimethylthiophene	K, T, U	< 0.3	ppbv	0.3	NA-024	25-Feb-19
19020177-002	2-Ethylthiophene	K, T, U	< 0.2	ppbv	0.2	NA-024	25-Feb-19
19020177-002	2-Methylthiophene	K, T, U	< 0.2	ppbv	0.2	NA-024	25-Feb-19
19020177-002	3-Methylthiophene	K, T, U	< 0.3	ppbv	0.3	NA-024	25-Feb-19
19020177-002	Butyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	25-Feb-19
19020177-002	Carbon disulphide	K, T, U	< 0.2	ppbv	0.2	NA-024	25-Feb-19
19020177-002	Carbonyl sulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	25-Feb-19
19020177-002	Dimethyl disulphide	K, T, U	< 0.2	ppbv	0.2	NA-024	25-Feb-19
19020177-002	Dimethyl sulphide	K, T, U	< 0.2	ppbv	0.2	NA-024	25-Feb-19
19020177-002	Ethyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	25-Feb-19
19020177-002	Ethyl sulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	25-Feb-19

Report certified by: Rebecca Holgate, Account Coordinator

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

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PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

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Page 320 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP-Reno-Blank	28911	Ambient Air	21-Feb-19	8:46
<b>DESCRIPTION:</b>				
REPORT NUMBER: 19020177	REPORT CREATED: 12-Mar-19		VERSION: Version 01	

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020177-002	Hydrogen sulphide	K, T, U	< 0.1 ppbv	0.1	NA-024	25-Feb-19
19020177-002	Isobutyl mercaptan	K, T, U	< 0.3 ppbv	0.3	NA-024	25-Feb-19
19020177-002	Isopropyl mercaptan	K, T, U	< 0.3 ppbv	0.3	NA-024	25-Feb-19
19020177-002	Methyl mercaptan	K, T, U	< 0.2 ppbv	0.2	NA-024	25-Feb-19
19020177-002	Pentyl mercaptan	K, T, U	< 0.4 ppbv	0.4	NA-024	25-Feb-19
19020177-002	Propyl mercaptan	K, T, U	< 0.4 ppbv	0.4	NA-024	25-Feb-19
19020177-002	tert-Butyl mercaptan	K, T, U	< 0.3 ppbv	0.3	NA-024	25-Feb-19
19020177-002	Thiophene	K, T, U	< 0.2 ppbv	0.2	NA-024	25-Feb-19
19020177-002	1,1,1-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-002	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-002	1,1,2-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-002	1,1-Dichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-002	1,1-Dichloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	05-Mar-19
19020177-002	1,2,3-Trimethylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020177-002	1,2,4-Trichlorobenzene	K, T, U	< 0.8 ppbv	0.8	AC-058	05-Mar-19
19020177-002	1,2,4-Trimethylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020177-002	1,2-Dibromoethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-002	1,2-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-002	1,2-Dichloroethane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020177-002	1,2-Dichloropropane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020177-002	1,3,5-Trimethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-002	1,3-Butadiene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-002	1,3-Dichlorobenzene	K, T, U	< 0.3 ppbv	0.3	AC-058	05-Mar-19
19020177-002	1,4-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	05-Mar-19
19020177-002	1,4-Dioxane	K, T, U	< 0.4 ppbv	0.4	AC-058	05-Mar-19

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Page 321 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 9 of 18

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED				
DESCRIPTION:			21-Feb-19	8:46			
REPORT NUMBER:	19020177	REPORT CREATED:	12-Mar-19		VERSION:	Version 01	
Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
19020177-002	1-Butene/Isobutylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Mar-19
19020177-002	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Mar-19
19020177-002	1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	2,2-Dimethylbutane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	2,3-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Mar-19
19020177-002	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Mar-19
19020177-002	2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	2-Methylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Mar-19
19020177-002	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Mar-19
19020177-002	3-Methylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	Acetone	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Mar-19
19020177-002	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Mar-19
19020177-002	Benzene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Mar-19
19020177-002	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Mar-19
19020177-002	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Mar-19
19020177-002	Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	Carbon disulfide	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	Carbon tetrachloride	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Mar-19

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Page 322 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP-Reno-Blank	28911	Ambient Air	21-Feb-19	8:46
<b>DESCRIPTION:</b>				
REPORT NUMBER: 19020177	REPORT CREATED: 12-Mar-19		VERSION: Version 01	

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020177-002	Chloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-002	Chloroform	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-002	Chloromethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-002	cis-1,2-Dichloroethene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020177-002	cis-1,3-Dichloropropene	K, T, U	< 0.04 ppbv	0.04	AC-058	05-Mar-19
19020177-002	cis-2-Butene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-002	cis-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-002	Cyclohexane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-002	Cyclopentane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020177-002	Dibromochloromethane	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020177-002	Ethanol	K, T, U	< 0.3 ppbv	0.3	AC-058	05-Mar-19
19020177-002	Ethyl acetate	K, T, U	< 0.4 ppbv	0.4	AC-058	05-Mar-19
19020177-002	Ethylbenzene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020177-002	Freon-11	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-002	Freon-113	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020177-002	Freon-114	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-002	Freon-12	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-002	Hexachloro-1,3-butadiene	K, T, U	< 0.50 ppbv	0.50	AC-058	05-Mar-19
19020177-002	Isobutane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-002	Isopentane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-002	Isoprene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020177-002	Isopropyl alcohol	K, T, U	< 0.4 ppbv	0.4	AC-058	05-Mar-19
19020177-002	Isopropylbenzene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020177-002	m,p-Xylene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020177-002	m-Diethylbenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	05-Mar-19

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Page 323 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 11 of 18

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED				
DESCRIPTION:			21-Feb-19	8:46			
REPORT NUMBER:	19020177	REPORT CREATED:	12-Mar-19		VERSION:	Version 01	
Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
19020177-002	m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	05-Mar-19
19020177-002	Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.50	AC-058	05-Mar-19
19020177-002	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Mar-19
19020177-002	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Mar-19
19020177-002	Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	05-Mar-19
19020177-002	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Mar-19
19020177-002	Methylcyclohexane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	Methylcyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Mar-19
19020177-002	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Mar-19
19020177-002	n-Butane		0.04	ppbv	0.03	AC-058	05-Mar-19
19020177-002	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Mar-19
19020177-002	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Mar-19
19020177-002	n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	n-Hexane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Mar-19
19020177-002	n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	05-Mar-19
19020177-002	n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Mar-19
19020177-002	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Mar-19
19020177-002	Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Mar-19
19020177-002	n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Mar-19
19020177-002	p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Mar-19
19020177-002	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	05-Mar-19
19020177-002	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Mar-19

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Page 324 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED			
DESCRIPTION:			REPORT NUMBER:	REPORT CREATED:	VERSION:	Version 01
PRAMP-Reno-Blank	28911	Ambient Air	21-Feb-19	8:46		
Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020177-002	Tetrachloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	05-Mar-19
19020177-002	Tetrahydrofuran	K, T, U	< 0.4 ppbv	0.4	AC-058	05-Mar-19
19020177-002	Toluene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020177-002	trans-1,2-Dichloroethylene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020177-002	trans-1,3-Dichloropropylene	K, T, U	< 0.04 ppbv	0.04	AC-058	05-Mar-19
19020177-002	trans-2-Butene	K, T, U	< 0.01 ppbv	0.01	AC-058	05-Mar-19
19020177-002	trans-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020177-002	Trichloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	05-Mar-19
19020177-002	Vinyl acetate	K, T, U	< 0.4 ppbv	0.4	AC-058	05-Mar-19
19020177-002	Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19

## **Revision History**

<b>Order ID</b>	<b>Ver</b>	<b>Date</b>	<b>Reason</b>
19020177	01	12-Mar-19	Report created

## **Methods**

<b>Method</b>	<b>Description</b>
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-024	Analysis for Reduced Sulfur Compounds in Air Samples
NA-025	Determination of Light Hydrocarbons (C1C4) in Ambient Air by Gas Chromatography Flame Ionization Detector

## **Qualifiers**

### **Data Qualifier    Translation**

B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

## **Order Comments**

19020177

Send results to Pramptech. Unknowns to be reported. Return sample to reception for isotope analysis.

**Sample Comments**

## **Result Comments**

*Note: Results relate only to items tested*

## ENVIRONMENTAL ANALYTICAL SERVICES

### TEST REPORT

Page 1 of 18

<b>RESULTS:</b>	Karla Reesor Peace River Area Monitoring Program Committee	<b>CLIENT SAMPLE ID</b>	<b>CANISTER ID</b>	<b>Matrix</b>	<b>Priority</b>
		PRAMP_Reno-20190223	11037	Ambient Air	Normal
<b>DESCRIPTION:</b> Methane Trigger					
<b>INVOICE:</b>	Office Manager	<b>DATE SAMPLED:</b>	23-Feb-19 20:20	<b>DATE RECEIVED:</b>	27-Feb-19
		<b>REPORT CREATED:</b>	12-Mar-19	<b>REPORT NUMBER:</b>	19020199
				<b>VERSION:</b>	Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020199-001	1-Butene	K, T, U	< 0.16 ppmv	0.16	NA-025	01-Mar-19
19020199-001	Acetylene	K, T, U	< 0.13 ppmv	0.13	NA-025	01-Mar-19
19020199-001	n-Butane	K, T, U	< 0.3 ppmv	0.3	NA-025	01-Mar-19
19020199-001	cis-2-Butene	K, T, U	< 0.06 ppmv	0.06	NA-025	01-Mar-19
19020199-001	Ethane	K, T, U	< 0.2 ppmv	0.2	NA-025	01-Mar-19
19020199-001	Ethylacetylene	K, T, U	< 0.10 ppmv	0.10	NA-025	01-Mar-19
19020199-001	Ethylene	K, T, U	< 0.11 ppmv	0.11	NA-025	01-Mar-19
19020199-001	Isobutane	K, T, U	< 0.2 ppmv	0.2	NA-025	01-Mar-19
19020199-001	Isobutylene	K, T, U	< 0.2 ppmv	0.2	NA-025	01-Mar-19
19020199-001	Methane		6.1 ppmv	0.2	NA-025	01-Mar-19
19020199-001	n-Propane	K, T, U	< 0.11 ppmv	0.11	NA-025	01-Mar-19
19020199-001	Propylene	K, T, U	< 0.2 ppmv	0.2	NA-025	01-Mar-19
19020199-001	Propyne	K, T, U	< 0.2 ppmv	0.2	NA-025	01-Mar-19
19020199-001	trans-2-Butene	K, T, U	< 0.15 ppmv	0.15	NA-025	01-Mar-19
19020199-001	2,5-Dimethylthiophene	K, T, U	< 0.5 ppbv	0.5	NA-024	28-Feb-19
19020199-001	2-Ethylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	28-Feb-19
19020199-001	2-Methylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	28-Feb-19
19020199-001	3-Methylthiophene	K, T, U	< 0.5 ppbv	0.5	NA-024	28-Feb-19

Report certified by: Rebecca Holgate, Account Coordinator

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March 12, 2019  
PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

Inquiries: (780) 632 8455

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Page 332 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED		
PRAMP_Reno-20190223	11037	Ambient Air	23-Feb-19 20:20		
<b>DESCRIPTION:</b> Methane Trigger	<b>REPORT NUMBER:</b> 19020199	<b>REPORT CREATED:</b> 12-Mar-19			<b>VERSION:</b> Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020199-001	Butyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	28-Feb-19
19020199-001	Carbon disulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	28-Feb-19
19020199-001	Carbonyl sulphide	K, T, U	< 0.5 ppbv	0.5	NA-024	28-Feb-19
19020199-001	Dimethyl disulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	28-Feb-19
19020199-001	Dimethyl sulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	28-Feb-19
19020199-001	Ethyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	28-Feb-19
19020199-001	Ethyl sulphide	K, T, U	< 0.5 ppbv	0.5	NA-024	28-Feb-19
19020199-001	Hydrogen sulphide	K, T, U	< 0.2 ppbv	0.2	NA-024	28-Feb-19
19020199-001	Isobutyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	28-Feb-19
19020199-001	Isopropyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	28-Feb-19
19020199-001	Methyl mercaptan	K, T, U	< 0.3 ppbv	0.3	NA-024	28-Feb-19
19020199-001	Pentyl mercaptan	K, T, U	< 0.6 ppbv	0.6	NA-024	28-Feb-19
19020199-001	Propyl mercaptan	K, T, U	< 0.6 ppbv	0.6	NA-024	28-Feb-19
19020199-001	tert-Butyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	28-Feb-19
19020199-001	Thiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	28-Feb-19
19020199-001	1,1,1-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	1,1,2-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	1,1-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	1,1-Dichloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020199-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08 ppbv	0.08	AC-058	05-Mar-19
19020199-001	1,2,4-Trichlorobenzene	K, T, U	< 1.3 ppbv	1.3	AC-058	05-Mar-19
19020199-001	1,2,4-Trimethylbenzene	K, T, U	< 0.08 ppbv	0.08	AC-058	05-Mar-19
19020199-001	1,2-Dibromoethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	1,2-Dichlorobenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19

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On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March 12, 2019  
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Page 333 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 3 of 18

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED		
PRAMP_Reno-20190223	11037	Ambient Air	23-Feb-19 20:20		
<b>DESCRIPTION:</b> Methane Trigger	<b>REPORT NUMBER:</b> 19020199	<b>REPORT CREATED:</b> 12-Mar-19			<b>VERSION:</b> Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020199-001	1,2-Dichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	1,2-Dichloropropane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	1,3-Butadiene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	1,3-Dichlorobenzene	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020199-001	1,4-Dichlorobenzene	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020199-001	1,4-Dioxane	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020199-001	1-Butene/Isobutylene	U	0.04 ppbv	0.03	AC-058	05-Mar-19
19020199-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	1-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	2,2,4-Trimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	2,2-Dimethylbutane		0.06 ppbv	0.02	AC-058	05-Mar-19
19020199-001	2,3,4-Trimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	2,3-Dimethylbutane		0.17 ppbv	0.03	AC-058	05-Mar-19
19020199-001	2,3-Dimethylpentane		0.06 ppbv	0.03	AC-058	05-Mar-19
19020199-001	2,4-Dimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	2-Methylheptane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	2-Methylhexane		0.07 ppbv	0.02	AC-058	05-Mar-19
19020199-001	2-Methylpentane		0.57 ppbv	0.02	AC-058	05-Mar-19
19020199-001	3-Methylheptane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	3-Methylhexane		0.13 ppbv	0.03	AC-058	05-Mar-19
19020199-001	3-Methylpentane		0.38 ppbv	0.02	AC-058	05-Mar-19
19020199-001	Acetone		0.7 ppbv	0.6	AC-058	05-Mar-19
19020199-001	Acrolein	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020199-001	Benzene		0.02 ppbv	0.02	AC-058	05-Mar-19

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Page 334 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED		
PRAMP_Reno-20190223	11037	Ambient Air	23-Feb-19 20:20		
DESCRIPTION: Methane Trigger	REPORT NUMBER: 19020199	REPORT CREATED: 12-Mar-19			VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020199-001	Benzyl chloride	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020199-001	Bromodichloromethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	Bromoform	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	Bromomethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	Carbon disulfide	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	Carbon tetrachloride	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	Chlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	Chloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	Chloroform	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	Chloromethane		0.54 ppbv	0.03	AC-058	05-Mar-19
19020199-001	cis-1,2-Dichloroethene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	cis-1,3-Dichloropropene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020199-001	cis-2-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	cis-2-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	Cyclohexane		0.79 ppbv	0.03	AC-058	05-Mar-19
19020199-001	Cyclopentane		0.17 ppbv	0.02	AC-058	05-Mar-19
19020199-001	Dibromochloromethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	Ethanol	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020199-001	Ethyl acetate	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020199-001	Ethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	Freon-11	I	0.19 ppbv	0.03	AC-058	05-Mar-19
19020199-001	Freon-113	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	Freon-114	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	Freon-12	I	0.47 ppbv	0.03	AC-058	05-Mar-19
19020199-001	Hexachloro-1,3-butadiene	K, T, U	< 0.81 ppbv	0.81	AC-058	05-Mar-19

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Page 335 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED		
PRAMP_Reno-20190223	11037	Ambient Air	23-Feb-19 20:20		
DESCRIPTION: Methane Trigger	REPORT NUMBER: 19020199	REPORT CREATED: 12-Mar-19			VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020199-001	Isobutane		0.85 ppbv	0.03	AC-058	05-Mar-19
19020199-001	Isopentane		1.20 ppbv	0.05	AC-058	05-Mar-19
19020199-001	Isoprene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	Isopropyl alcohol	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020199-001	Isopropylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	m,p-Xylene	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020199-001	m-Diethylbenzene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020199-001	m-Ethyltoluene	K, T, U	< 0.13 ppbv	0.13	AC-058	05-Mar-19
19020199-001	Methyl butyl ketone	K, T, U	< 0.81 ppbv	0.81	AC-058	05-Mar-19
19020199-001	Methyl ethyl ketone	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020199-001	Methyl isobutyl ketone	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020199-001	Methyl methacrylate	K, T, U	< 0.11 ppbv	0.11	AC-058	05-Mar-19
19020199-001	Methyl tert butyl ether	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020199-001	Methylcyclohexane		0.75 ppbv	0.02	AC-058	05-Mar-19
19020199-001	Methylcyclopentane		0.62 ppbv	0.03	AC-058	05-Mar-19
19020199-001	Methylene chloride	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020199-001	n-Butane		0.83 ppbv	0.05	AC-058	05-Mar-19
19020199-001	n-Decane	K, T, U	< 0.10 ppbv	0.10	AC-058	05-Mar-19
19020199-001	n-Dodecane	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020199-001	n-Heptane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	n-Hexane		0.08 ppbv	0.02	AC-058	05-Mar-19
19020199-001	n-Octane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	n-Pentane		0.4 ppbv	0.2	AC-058	05-Mar-19
19020199-001	n-Propylbenzene	K, T, U	< 0.08 ppbv	0.08	AC-058	05-Mar-19
19020199-001	n-Undecane	K, T, U	< 0.8 ppbv	0.8	AC-058	05-Mar-19

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Page 336 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 6 of 18

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED			
DESCRIPTION:	REPORT NUMBER:	REPORT CREATED:			VERSION:	
PRAMP_Reno-20190223	11037	Ambient Air	23-Feb-19	20:20		
Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020199-001	Naphthalene	K, T, U	< 0.8 ppbv	0.8	AC-058	05-Mar-19
19020199-001	n-Nonane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	o-Ethyltoluene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	o-Xylene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	p-Diethylbenzene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020199-001	p-Ethyltoluene	K, T, U	< 0.11 ppbv	0.11	AC-058	05-Mar-19
19020199-001	Styrene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020199-001	Tetrachloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020199-001	Tetrahydrofuran	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020199-001	Toluene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	trans-1,2-Dichloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	trans-1,3-Dichloropropylene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020199-001	trans-2-Butene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-001	trans-2-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-001	Trichloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020199-001	Vinyl acetate	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020199-001	Vinyl chloride	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19

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Page 337 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 7 of 18

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED		
PRAMP_Reno-20190224	S5619	Ambient Air	24-Feb-19 19:40		
<b>DESCRIPTION:</b> Methane Trigger	<b>REPORT NUMBER:</b> 19020199	<b>REPORT CREATED:</b> 12-Mar-19			<b>VERSION:</b> Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020199-002	1-Butene	K, T, U	< 0.15 ppmv	0.15	NA-025	01-Mar-19
19020199-002	Acetylene	K, T, U	< 0.12 ppmv	0.12	NA-025	01-Mar-19
19020199-002	n-Butane	K, T, U	< 0.3 ppmv	0.3	NA-025	01-Mar-19
19020199-002	cis-2-Butene	K, T, U	< 0.06 ppmv	0.06	NA-025	01-Mar-19
19020199-002	Ethane	K, T, U	< 0.2 ppmv	0.2	NA-025	01-Mar-19
19020199-002	Ethylacetylene	K, T, U	< 0.09 ppmv	0.09	NA-025	01-Mar-19
19020199-002	Ethylene	K, T, U	< 0.11 ppmv	0.11	NA-025	01-Mar-19
19020199-002	Isobutane	K, T, U	< 0.2 ppmv	0.2	NA-025	01-Mar-19
19020199-002	Isobutylene	K, T, U	< 0.2 ppmv	0.2	NA-025	01-Mar-19
19020199-002	Methane		4.1 ppmv	0.2	NA-025	01-Mar-19
19020199-002	n-Propane	K, T, U	< 0.11 ppmv	0.11	NA-025	01-Mar-19
19020199-002	Propylene	K, T, U	< 0.2 ppmv	0.2	NA-025	01-Mar-19
19020199-002	Propyne	K, T, U	< 0.2 ppmv	0.2	NA-025	01-Mar-19
19020199-002	trans-2-Butene	K, T, U	< 0.14 ppmv	0.14	NA-025	01-Mar-19
19020199-002	2,5-Dimethylthiophene	K, T, U	< 0.5 ppbv	0.5	NA-024	28-Feb-19
19020199-002	2-Ethylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	28-Feb-19
19020199-002	2-Methylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	28-Feb-19
19020199-002	3-Methylthiophene	K, T, U	< 0.5 ppbv	0.5	NA-024	28-Feb-19
19020199-002	Butyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	28-Feb-19
19020199-002	Carbon disulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	28-Feb-19
19020199-002	Carbonyl sulphide	K, T, U	< 0.5 ppbv	0.5	NA-024	28-Feb-19
19020199-002	Dimethyl disulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	28-Feb-19
19020199-002	Dimethyl sulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	28-Feb-19
19020199-002	Ethyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	28-Feb-19
19020199-002	Ethyl sulphide	K, T, U	< 0.5 ppbv	0.5	NA-024	28-Feb-19

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Page 338 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED		
PRAMP_Reno-20190224	S5619	Ambient Air	24-Feb-19 19:40		
<b>DESCRIPTION:</b> Methane Trigger	<b>REPORT NUMBER:</b> 19020199	<b>REPORT CREATED:</b> 12-Mar-19			<b>VERSION:</b> Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020199-002	Hydrogen sulphide	K, T, U	< 0.2 ppbv	0.2	NA-024	28-Feb-19
19020199-002	Isobutyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	28-Feb-19
19020199-002	Isopropyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	28-Feb-19
19020199-002	Methyl mercaptan	K, T, U	< 0.3 ppbv	0.3	NA-024	28-Feb-19
19020199-002	Pentyl mercaptan	K, T, U	< 0.6 ppbv	0.6	NA-024	28-Feb-19
19020199-002	Propyl mercaptan	K, T, U	< 0.6 ppbv	0.6	NA-024	28-Feb-19
19020199-002	tert-Butyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	28-Feb-19
19020199-002	Thiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	28-Feb-19
19020199-002	1,1,1-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	1,1,2,2-Tetrachloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	1,1,2-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	1,1-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	1,1-Dichloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020199-002	1,2,3-Trimethylbenzene	K, T, U	< 0.08 ppbv	0.08	AC-058	05-Mar-19
19020199-002	1,2,4-Trichlorobenzene	K, T, U	< 1.2 ppbv	1.2	AC-058	05-Mar-19
19020199-002	1,2,4-Trimethylbenzene	K, T, U	< 0.08 ppbv	0.08	AC-058	05-Mar-19
19020199-002	1,2-Dibromoethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	1,2-Dichlorobenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020199-002	1,2-Dichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	1,2-Dichloropropane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	1,3,5-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	1,3-Butadiene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	1,3-Dichlorobenzene	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020199-002	1,4-Dichlorobenzene	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020199-002	1,4-Dioxane	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19

Report certified by: Rebecca Holgate, Account Coordinator

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March 12, 2019  
PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

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Page 339 of 350

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

Page 9 of 18

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED		
PRAMP_Reno-20190224	S5619	Ambient Air	24-Feb-19 19:40		
<b>DESCRIPTION:</b> Methane Trigger	<b>REPORT NUMBER:</b> 19020199	<b>REPORT CREATED:</b> 12-Mar-19			<b>VERSION:</b> Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020199-002	1-Butene/Isobutylene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	1-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	2,2,4-Trimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	2,2-Dimethylbutane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	2,3,4-Trimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	2,3-Dimethylbutane		0.06 ppbv	0.03	AC-058	05-Mar-19
19020199-002	2,3-Dimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	2,4-Dimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	2-Methylheptane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	2-Methylhexane		0.04 ppbv	0.02	AC-058	05-Mar-19
19020199-002	2-Methylpentane		0.28 ppbv	0.02	AC-058	05-Mar-19
19020199-002	3-Methylheptane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	3-Methylhexane		0.04 ppbv	0.03	AC-058	05-Mar-19
19020199-002	3-Methylpentane		0.17 ppbv	0.02	AC-058	05-Mar-19
19020199-002	Acetone	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020199-002	Acrolein	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020199-002	Benzene		0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	Benzyl chloride	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020199-002	Bromodichloromethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	Bromoform	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	Bromomethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	Carbon disulfide	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	Carbon tetrachloride	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	Chlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19

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PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

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Page 340 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP_Reno-20190224	S5619	Ambient Air	24-Feb-19	19:40
<b>DESCRIPTION:</b>	Methane Trigger			
<b>REPORT NUMBER:</b>	19020199	<b>REPORT CREATED:</b>	12-Mar-19	<b>VERSION:</b> Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020199-002	Chloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	Chloroform	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	Chloromethane		0.48 ppbv	0.03	AC-058	05-Mar-19
19020199-002	cis-1,2-Dichloroethene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	cis-1,3-Dichloropropene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020199-002	cis-2-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	cis-2-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	Cyclohexane		0.29 ppbv	0.03	AC-058	05-Mar-19
19020199-002	Cyclopentane		0.07 ppbv	0.02	AC-058	05-Mar-19
19020199-002	Dibromochloromethane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	Ethanol	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020199-002	Ethyl acetate	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020199-002	Ethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	Freon-11	I	0.20 ppbv	0.03	AC-058	05-Mar-19
19020199-002	Freon-113	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	Freon-114	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	Freon-12		0.47 ppbv	0.03	AC-058	05-Mar-19
19020199-002	Hexachloro-1,3-butadiene	K, T, U	< 0.76 ppbv	0.76	AC-058	05-Mar-19
19020199-002	Isobutane		0.83 ppbv	0.03	AC-058	05-Mar-19
19020199-002	Isopentane		0.87 ppbv	0.05	AC-058	05-Mar-19
19020199-002	Isoprene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	Isopropyl alcohol	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020199-002	Isopropylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	m,p-Xylene	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020199-002	m-Diethylbenzene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19

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Page 341 of 350

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED		
PRAMP_Reno-20190224	S5619	Ambient Air	24-Feb-19 19:40		
<b>DESCRIPTION:</b> Methane Trigger	<b>REPORT NUMBER:</b> 19020199	<b>REPORT CREATED:</b> 12-Mar-19			<b>VERSION:</b> Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020199-002	m-Ethyltoluene	K, T, U	< 0.12 ppbv	0.12	AC-058	05-Mar-19
19020199-002	Methyl butyl ketone	K, T, U	< 0.76 ppbv	0.76	AC-058	05-Mar-19
19020199-002	Methyl ethyl ketone	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020199-002	Methyl isobutyl ketone	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020199-002	Methyl methacrylate	K, T, U	< 0.11 ppbv	0.11	AC-058	05-Mar-19
19020199-002	Methyl tert butyl ether	K, T, U	< 0.05 ppbv	0.05	AC-058	05-Mar-19
19020199-002	Methylcyclohexane		0.33 ppbv	0.02	AC-058	05-Mar-19
19020199-002	Methylcyclopentane		0.33 ppbv	0.03	AC-058	05-Mar-19
19020199-002	Methylene chloride	K, T, U	< 0.5 ppbv	0.5	AC-058	05-Mar-19
19020199-002	n-Butane		0.89 ppbv	0.05	AC-058	05-Mar-19
19020199-002	n-Decane	K, T, U	< 0.09 ppbv	0.09	AC-058	05-Mar-19
19020199-002	n-Dodecane	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020199-002	n-Heptane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	n-Hexane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	n-Octane	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	n-Pentane		0.3 ppbv	0.2	AC-058	05-Mar-19
19020199-002	n-Propylbenzene	K, T, U	< 0.08 ppbv	0.08	AC-058	05-Mar-19
19020199-002	n-Undecane	K, T, U	< 0.8 ppbv	0.8	AC-058	05-Mar-19
19020199-002	Naphthalene	K, T, U	< 0.8 ppbv	0.8	AC-058	05-Mar-19
19020199-002	n-Nonane	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	o-Ethyltoluene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	o-Xylene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	p-Diethylbenzene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020199-002	p-Ethyltoluene	K, T, U	< 0.11 ppbv	0.11	AC-058	05-Mar-19
19020199-002	Styrene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19

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Page 342 of 350

## ENVIRONMENTAL ANALYTICAL SERVICES

### TEST REPORT

Page 12 of 18

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED			
PRAMP_Reno-20190224	S5619	Ambient Air	24-Feb-19 19:40			
DESCRIPTION:	REPORT NUMBER:	REPORT CREATED:			VERSION:	
Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
19020199-002	Tetrachloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020199-002	Tetrahydrofuran	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020199-002	Toluene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	trans-1,2-Dichloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	trans-1,3-Dichloropropylene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020199-002	trans-2-Butene	K, T, U	< 0.02 ppbv	0.02	AC-058	05-Mar-19
19020199-002	trans-2-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19
19020199-002	Trichloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	05-Mar-19
19020199-002	Vinyl acetate	K, T, U	< 0.6 ppbv	0.6	AC-058	05-Mar-19
19020199-002	Vinyl chloride	K, T, U	< 0.03 ppbv	0.03	AC-058	05-Mar-19

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PRAMP February 2019 Monthly Ambient Air Quality Monitoring Report

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Page 343 of 350

## **Revision History**

<b>Order ID</b>	<b>Ver</b>	<b>Date</b>	<b>Reason</b>
19020199	01	12-Mar-19	Report created

## **Methods**

<b>Method</b>	<b>Description</b>
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-024	Analysis for Reduced Sulfur Compounds in Air Samples
NA-025	Determination of Light Hydrocarbons (C1C4) in Ambient Air by Gas Chromatography Flame Ionization Detector

## **Qualifiers**

### **Data Qualifier    Translation**

B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

## **Order Comments**

19020199

Send results to pramptech@prampairshed.ca. Unknowns to be reported. Return sample to reception for isotope analysis.

**Sample Comments**

## **Result Comments**

*Note: Results relate only to items tested*

**END OF REPORT**

This report, 350 of 350, ends the February 2019 Monthly Ambient Air Quality Monitoring Report.