Peace River Area Monitoring Program

JANUARY 2019

Monthly Ambient Air Quality Monitoring Report

Operation and Maintenance:

Maxxam Analytics

Data Validation and Report:

Peace River Area Monitoring Program

March 4, 2019

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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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Edmonton, AB, T5K 2J6
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March 4, 2019

RE: PRAMP – January 2019 Monthly Ambient Air Quality Monitoring Report (Revision 1)

Enclosed is the revised January 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, as operated in the month of January 2019.

Two edits were made on the analytical results for the canister ID # 28908, method AC-058.

1. The analytical result for Cyclopentane was revised from 509ppb to 19.3ppb.
2. The Reported Detection Limits (RDL) were updated to reflect the revised laboratory analytical results provided by InnoTech Alberta.

The representative of the Person Responsible for this monitoring program is

PRAMP Airshed
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This report is prepared, reviewed and submitted by Michael Bisaga & Lily Lin of 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
30	842	56.27406	-116.98129
31	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 January 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.
- An ambient station audit was conducted on January 16 by AEP. The audit report is included in this monthly report.
- The Envidas data management service failed to restart following a Window update on January 13. No data were collected on January 13 between hour 1 and hour 6.
- TRS: 12 hours of data collected on January 6 between hour 10 and hour 21 were invalidated due to low station temperature.
- THC/CH4/NMHC:
  - 22 hours of data collected on January 6 between hour 1 and hour 22 were invalidated due to low station temperature.
  - The analyzer flamed out on January 18 hour 15. The issue was corrected, and the HC channels were put back online on January 19 hour 17. 27 hours of data were invalidated due to this event.
  - The analyzer failed the daily span check on January 20 due to low span gas pressure. The pressure was adjusted following another zero/span check. The analyzer passed the zero/span check. One hour of downtime was recorded due to the additional system check.

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.
- An ambient station audit was conducted on January 16 by AEP. The audit report is included in this monthly report.

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.
- An ambient station audit was conducted on January 15 by AEP. The audit report is included in this monthly report.
- THC/CH4/NMHC:
    - The N2 bottle was replaced on January 9. A zero/span check was initiated to confirm the analyzer's functionality. One hour of downtime was recorded due to this event.
    - A quick zero/span check was run few times after the audit on January 15 at hour 17 to test the canister program. One hour of downtime was recorded due to this event.

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 reach 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 January.
- One blank sample and one control sample were collected at the Reno station on January 18.
- 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).

Sample Date/Time	2019-01-18				
Canister Triggered Conc.	Blank				
Canister ID	28908				
Method	NA-025		NA-024		AC-058
Maximum Reading	0		0		19.3

Sample Date/Time	2019-01-18				
Canister Triggered Conc.	Controlled Sample				
Canister ID	28882				
Method	NA-025		NA-024		AC-058
Maximum Reading	2.0		2.3		5.84

Revisions to Alberta's Ambient Air Quality Data Warehouse

No revisions to historical data that were submitted to the Alberta's Ambient Air Quality Data Warehouse was 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

As the PRAMP Environmental Program Manager and Data & Reporting Specialist, we certify that we have reviewed and verified this report. The information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements. We also certify that at the time of this report's submission, all air data have been electronically uploaded to AEP and 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.

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

Michael Bisaga, Environmental Monitoring Program Manager, PRAMP Airshed

Lily Lin, Data& Reporting Specialist, PRAMP Airshed
February 26, 2019

Ambient Data Validation and Certification Form

Version # 1.0 (December 2017)

Ambient data certification requires validation of submitted data to ensure it is representative of the monitoring results and timeframe. Ambient data validation must be done by the data manager. Level 3 Validation must be done by a reviewer independent of both field operations and Primary Data Validation. Certification must be done by the person responsible or an external party given designated authority to report on its behalf. (Refer to AMD Chapter 9: Reporting clauses RC 3-M and RC 13-M). This form is applicable to only continuous ambient air monitoring data as per AMD Chapter 6: Ambient Data Quality.

Station Name(s)

PRAMP 842 station
PRAMP 986 station
PRAMP Reno station

Month/Year JANUARY/2019

LEVEL 1 VALIDATION	Completed
1. Review **Level 0** preliminary verification flags (e.g. datalogger flags)	☑
2. Review **Station Logs**	☑
3. Check instrument performance against **Operational Acceptance Criteria**	☑
4. Check calibration results against **Calibration Acceptance Criteria**	☑
5. Apply any necessary **Data Adjustments**	☑
6. Enter **Validation Codes** as necessary	☑
7. Update **Data Validation Log** notes as necessary	☑

LEVEL 2 VALIDATION	Completed
8. Check for expected parameter relationships (dependent data comparisons)	☑
9. Compare data against nearby sites (independent data comparisons for >1 station)	☑
10. Accept/reject additional data identified as suspect	☑
11. Enter **Validation Codes** as necessary	☑
12. Update **Data Validation Log** notes as necessary	☑

LEVEL 3 INDEPENDENT ASSESSMENT	Completed
13. Validation by independent reviewer that above validation steps are complete	☑
14. Name of independent reviewer: Mike Bisaga	

METADATA AND ACCOUNT INFORMATION VALIDATIONS	Completed
15. All metadata provided to Alberta's Ambient Air Data Warehouse is current	☑
16. All account information for Alberta's Ambient Air Data Warehouse is current	☑

AMBIENT DATA CERTIFICATION

Name of the Representative of the Person Responsible / External Person Certifying the Report: Mike Bisaga/ Lily Lin

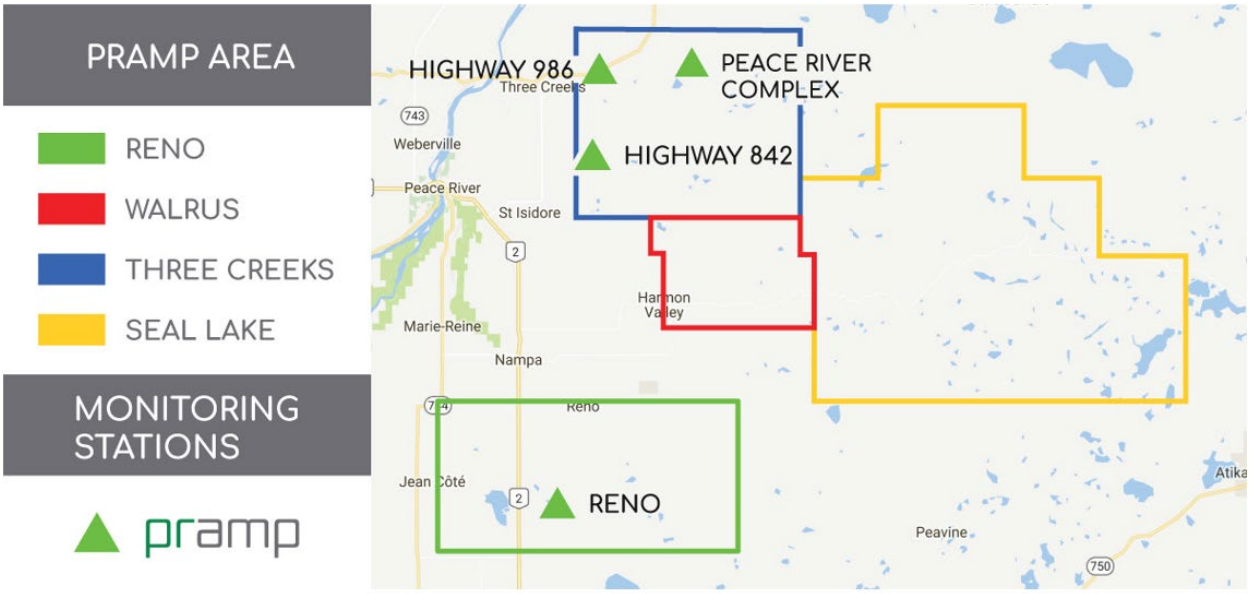
Company / Organization Name: PRAMP

I certify that the submitted data has been verified and validated as per the requirements of the Air Monitoring Directive Chapter 6: Ambient Data Quality. I also certify that the data presented with this certification form is complete and accurate.

Signature: LILY LIN Digitally signed by LILY LIN Date: 2019.02.15 13:51:57 -07'00' Date (dd-mon-yyyy): _____

Personal information is being collected under the authority of section 33(c) of the *Freedom of Information and Protection of Privacy Act*. It will be used in the administration of Alberta's Air Monitoring Directive. Questions about the collection of this information may be directed to Alberta Environment and Parks, Air Policy Section, 1st floor, 9820 – 106 Street NW, Edmonton AB T5K 2J6. AMDFeedback@gov.ab.ca.

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**	
• No data were collected on January 13 between hour 1 and hour 6 as the Envidas data management service failed to restart following a Window update on January 13. • The analyzer was audited by AEP on January 16. The analyzer passed the audit criteria. • A successful monthly calibration was performed on January 18.			
TRS	**Thermo / 43i-TLE**	**1152940011**	
• 12 hours of data collected on January 6 between hour 10 and hour 21 were flagged as invalid by the Envidas data management service invalidated due to low station temperature. The operating temperature stated in the analyzer manual is 15-35°C (may be safely operated over the range of 0-45°C). Data collected between 0°C and 45°C is considered valid, unless the data that were determined to be invalid by the Envida system. • No data were collected on January 13 between hour 1 and hour 6 as the Envidas data management service failed to restart following a Window update on January 13. • The analyzer was audited by AEP on January 16. The analyzer passed the audit criteria. • A successful monthly calibration was performed on January 18.			
THC/CH4/NMHC	**Thermo / 55i**	**1022143392**	
• 14 hours of data collected on January 6 between hour 9 and hour 22 were flagged as invalid by the Envidas data management service invalidated due to low station temperature. The operating temperature stated in the analyzer manual is 15-35°C. Data collected outside the manual specification range is considered invalid. • No data were collected on January 13 between hour 1 and hour 6 as the Envidas data management service failed to restart following a Window update on January 13. • The analyzer was audited by AEP on January 16. The analyzer passed the audit criteria. • A successful monthly calibration was performed on January 18. • The analyzer flamed out on January 18 hour 15. The H2 gas bottle was replaced on January 18, and the connection between the gas bottle and the analyzer was redone and the regulator was adjusted on January 19. The analyzer was put back online on January 19 hour 17. 27 hours of data were discarded due to this event. • The analyzer failed the daily span check on January 20 due to low span gas pressure. The pressure was adjusted, and then a zero/span check was initiated. The analyzer passed the zero/span check. As this issue only affected the zero/span system, not the analyzer's functionality, data collected between January 19 hour 18 and January 20 hour 19 are considered valid. One hour of downtime was recorded due to the additional system check.			

Parameter	Make / Model	Serial Number	
Relative Humidity (RH)	**RM Young / 43172VC**	**61012322**	
• No data were collected on January 13 between hour 1 and hour 6 as the Envidas data management service failed to restart following a Window update on January 13. • The RH sensor was audited by AEP on January 16. The sensor passed the audit criteria.			
Barometric Pressure (BP)	**MetOne / 090D**	**F3845**	
• No data were collected on January 13 between hour 1 and hour 6 as the Envidas data management service failed to restart following a Window update on January 13. • The BP sensor was audited by AEP on January 16. The 13sensor passed the audit criteria.			
Ambient Temperature (AT)	**RM Young 43172VC**	**61012322**	
• No data were collected on January 13 between hour 1 and hour 6 as the Envidas data management service failed to restart following a Window update on January 13. • The AT sensor was audited by AEP on January 16. The sensor passed the audit criteria.			
Station Temperature (ST)	**Maxxam**	**N/A**	
• The HVAC system failed on January 6. A portable heater was installed to improve the station temperature on January 7. • The HVAC system was repaired on January 21.			
Wind Speed/Wind Direction (WS/ WD)	**RM Young / 5305VK**	**129612**	
• Wind direction data contained in this report represents where the wind is coming from. • No data was collected on January 13 between hour 1 and hour 6 as the Envidas data management service failed to restart following a Window update on January 13. • The wind system was audited by AEP on January 16. The system passed the audit criteria.			

Monitored Data Summary

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	WSV (km/hr)	WDV (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.8	0	4	January 17 at hour 10	6.2	E	2.8	January 13	99.2	93.9
TRS (ppb)	10	3	-	-	-	-	0.6	0.22	1.07	January 31 at hour 4	9	N	0.903	January 7	97.6	92.3
THC (ppm)	-	-	-	-	-	-	2.07	1.92	2.52	January 11 at hour 9	2.9	SE	2.20	January 26	92.5	88.6
CH4 (ppm)	-	-	-	-	-	-	2.07	1.92	2.52	January 11 at hour 9	2.9	SE	2.20	January 26	92.5	88.6
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.05	January 14 at hour 3	5.8	SSW	0.00	January 1	92.5	88.6
RH (%)	-	-	-	-	-	-	78.7	58	100	January 12 at hour 19	4.7	SE	95.8	January 17	99.2	99.2
BP (millibar)	-	-	-	-	-	-	941	921	959	January 27 at hour 21	7	NNW	958	January 2	99.2	99.2
Ext. Temp. (°C)	-	-	-	-	-	-	-10.5	-30.6	7.4	January 26 at hour 22	20.5	W	5.0	January 8	99.2	99.2
Stn. Temp. (°C)	-	-	-	-	-	-	21.3	-1.6	26.1	January 7 at hour 7	15.8	NW	24.6	January 6	99.2	99.2
VWS (km/hr)	-	-	-	-	-	-	0.4	0.3	26.6	January 27 at hour 0	26.6	WNW	13.1	January 21	99.2	99.2
VWD (sector)	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	99.2	99.2

Note:

1. Data/ Time given is the first minimum and maximum value that were recorded.

842 Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	
SO2	**Thermo / 43C**	**835033373**	
• The analyzer was audited by AEP on January 16. The analyzer passed the audit criteria. • A successful monthly calibration was performed on January 8.			
TRS	**Thermo / 43i-TLE**	**1162460023**	
• The analyzer was audited by AEP on January 16. The analyzer passed the audit criteria. • A successful monthly calibration was performed on January 8.			
THC/CH4/NMHC	**Thermo / 55i**	**1505664392**	
• The analyzer was audited by AEP on January 16. The analyzer passed the audit criteria. • A successful monthly calibration was performed on January 9. • A CH4 spike was recorded on January 20 at 20:55. The minute data were discarded, and hour 20 data was re-averaged.			
Relative Humidity (RH)	**Campbell Scientific / HMP45C**	**C2608**	
• The RH sensor was audited by AEP on January 16. The sensor passed the audit criteria.			
Barometric Pressure (BP)	**MetOne / 92**	**K12864**	
• The BP sensor was audited by AEP on January 16. The 15sensor passed the audit criteria.			
Ambient Temperature (AT)	**Campbell Scientific / HMP45C**	**C2608**	
• The AT sensor was audited by AEP on January 16. The sensor passed the audit criteria.			
Station Temperature (ST)	**Maxxam**	**N/A**	
• No issue was identified this month.			
Wind Speed/Wind Direction (WS/ WD)	**RM Young / 5305VK**	**124638**	
• Wind direction data contained in this report represents where the wind is coming from. • The wind system was audited by AEP on January 16. The system passed the audit criteria.			

Monitored Data Summary

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	WSV (km/hr)	WDV (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	January 19 at hour 6	11	E	1.4	January 1	100.0	94.6
TRS (ppb)	10	3	-	-	-	-	0.2	0.08	0.50	January 3 at hour 21	3.1	ESE	0.30	January 17	100.0	94.6
THC (ppm)	-	-	-	-	-	-	2.03	1.92	2.39	January 8 at hour 23	4.3	NE	2.09	January 26	100.0	94.7
CH4 (ppm)	-	-	-	-	-	-	2.03	1.92	2.39	January 8 at hour 23	4.3	NE	2.09	January 26	100.0	94.7
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.00	January 1 at hour 0	22.7	SSW	0.00	January 1	100.0	94.7
RH (%)	-	-	-	-	-	-	80.1	58	95	January 12 at hour 22	3.8	SE	93.0	January 26	100.0	100.0
BP (millibar)	-	-	-	-	-	-	942	922	960	January 27 at hour 22	6.7	NNW	959	January 2	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-10.3	-29.8	5.9	January 26 at hour 21	20.7	WSW	4.1	January 8	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	21.7	20.2	22.2	January 26 at hour 0	16.1	WSW	22.1	January 7	100.0	100.0
VWS (km/hr)	-	-	-	-	-	-	1.1	0.1	36.0	January 2 at hour 1	36	SW	16.9	January 21	100.0	99.9
VWD (sector)	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	100.0	99.9

Note:

1. Data/ Time given is the first minimum and maximum value that were recorded.

Reno Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	
SO2	**API / 100A**	**841**	
• A successful monthly calibration was performed on January 10. • The analyzer was audited by AEP on January 15. The analyzer passed the audit criteria.			
TRS	**Thermo / 43i-TLE**	**1162460022**	
• A successful monthly calibration was performed on January 10. • The analyzer was audited by AEP on January 15. The analyzer passed the audit criteria.			
THC/CH4/NMHC	**Thermo / 55i**	**1314057759**	
• The N2 bottle was replaced on January 9. A zero/span check was initiated to confirm the analyzer's functionality. The analyzer passed the check requirements. One hour of downtime was recorded due to this event. • A successful monthly calibration was performed on January 10. • The analyzer was audited by AEP on January 15. The analyzer passed the audit criteria. • A quick zero/span check was run few times after the audit at hour 17 to test the canister program. One hour of downtime was recorded due to this event. • A CH4 spike was recorded on January 18 at 14:03. The minute data were discarded, and hour 14 data was re-averaged. • A CH4 spike was recorded on January 24 at 11:12. The minute data were discarded, and hour 11 data was re-averaged.			
Relative Humidity (RH)	**RM Young / 43172VC**	**60837897**	
• The RH sensor was audited by AEP on January 15. The sensor passed the audit criteria.			
Barometric Pressure (BP)	**MetOne / 92**	**R12877**	
• The BP sensor was audited by AEP on January 15. The 17sensor passed the audit criteria.			
Ambient Temperature (AT)	**RM Young / 43172VC**	**60837897**	
• The AT sensor was audited by AEP on January 16. The sensor passed the audit criteria.			
Station Temperature (ST)	**Maxxam**	**N/A**	
• No issue was identified this month.			
Wind Speed/Wind Direction (WS/ WD)	**RM Young / 5305VK**	**149769**	
• Wind direction data contained in this report represents where the wind is coming from. • The wind system was audited by AEP on January 15. The system passed the audit criteria.			

Monitored Data Summary

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	WSV (km/hr)	WDV (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	0.0	0	2	January 19 at hour 11	7.3	SE	1.0	January 1	100.0	94.6
TRS (ppb)	10	3	-	-	-	-	0.4	0.32	1.33	January 29 at hour 6	3.2	S	0.619	January 25	100.0	94.6
THC (ppm)	-	-	-	-	-	-	2.03	1.91	3.28	January 3 at hour 23	1	ENE	2.16	January 26	99.6	94.2
CH4 (ppm)	-	-	-	-	-	-	2.03	1.91	3.28	January 3 at hour 23	1	ENE	2.16	January 26	99.6	94.2
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.01	January 14 at hour 3	5.9	S	0.00	January 1	99.6	94.2
RH (%)	-	-	-	-	-	-	72.3	53	92	January 13 at hour 20	5.2	S	87.2	January 3	100.0	100.0
BP (millibar)	-	-	-	-	-	-	937	916	955	January 27 at hour 22	5.3	NNW	954	January 6	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-9.5	-29.2	6.1	January 26 at hour 15	19	WSW	4.4	January 8	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	22.4	17.8	24.4	January 10 at hour 12	5.9	SE	23.7	January 9	100.0	100.0
VWS (km/hr)	-	-	-	-	-	-	0.8	0.3	21.7	January 26 at hour 20	21.7	WSW	12.9	January 28	100.0	100.0
VWD (sector)	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	100.0	100.0

Note:

1. Data/ Time given is the first minimum and maximum value that were recorded.

TABLES, CHARTS, WIND ROSES AND EQUIPMENMT CALIBRATION RECORDS

986 STATION

peace river area monitoring program pramp

PEACE RIVER AREA MONITORING PROGRAM

986b Station - January 2019

Summary of Hourly Averages

SULPHUR DIOXIDE (SO_2) in ppb

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

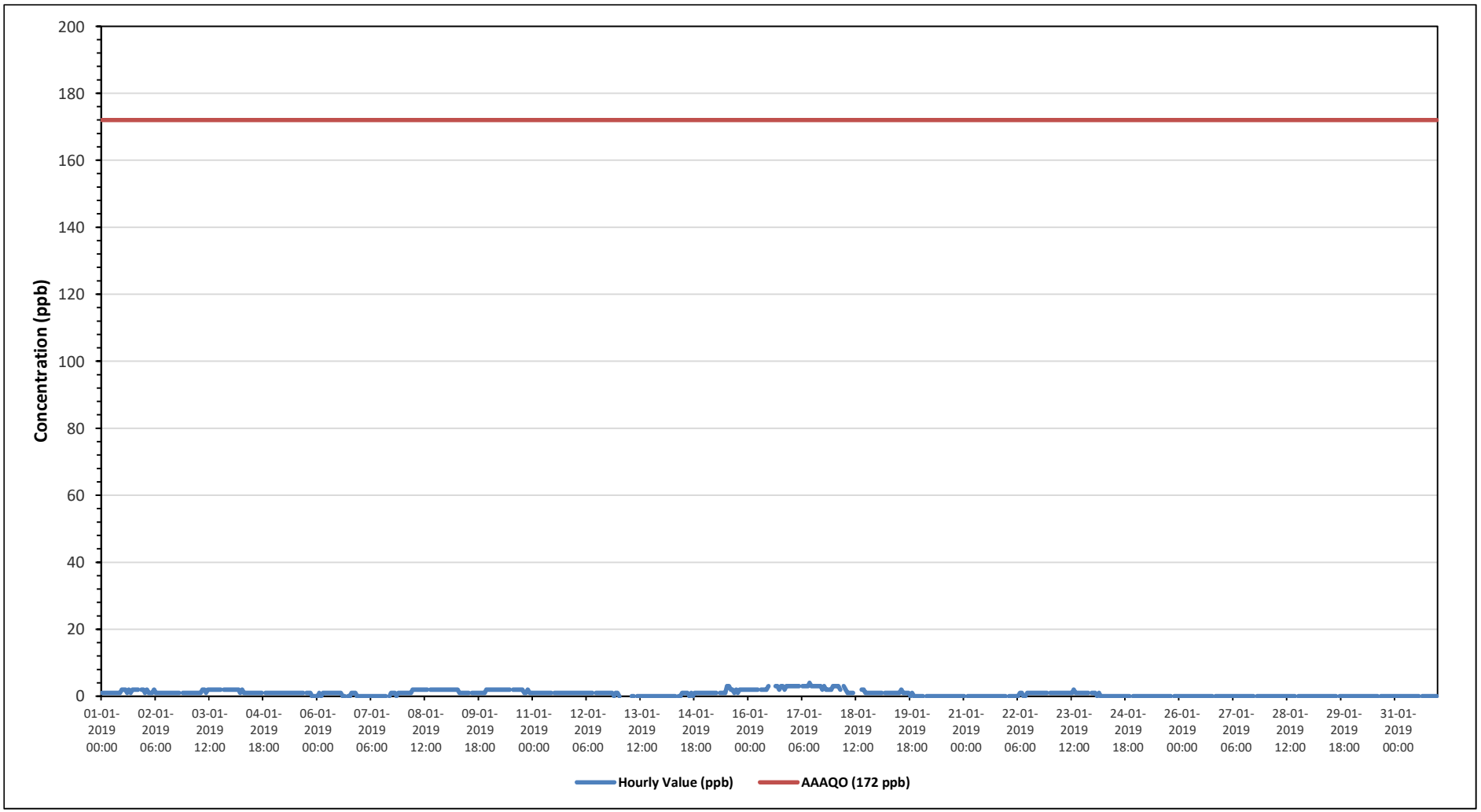
Number of 1-Hour Exceedences: 0 Number of 24-Hour Exceedences: 0 30-Day Exceedence: 0

Maximum Hourly Value:	4	ppb	on January 17 at hour 10	Hours in Service:	744
Maximum Daily Value:	2.8	ppb	on January 17	Hours of Data:	699
Minimum Hourly Value:	0	ppb	on January 5 at hour 21	Hours of Missing Data:	6
Minimum Daily Value:	0.0	ppb	on January 13	Hours of Calibration:	39
Monthly Average:	0.8	ppb		Operational Uptime:	99.2

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			
Jan 1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	2	2	2	2	S	2	2	1	2	1.4
Jan 2	1	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	2	1.1
Jan 3	1	1	1	1	1	1	1	1	2	2	1	2	2	2	2	2	2	2	2	S	2	2	2	2	1	2	1.6
Jan 4	2	2	2	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	2	1.3
Jan 5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	0	0	0	0	1	0.9
Jan 6	0	1	0	1	1	1	1	1	1	1	1	1	1	1	0	0	S	0	0	1	1	1	0	0	0	1	0.7
Jan 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	1	1	0	1	1	1	0	1	0.3
Jan 8	1	1	1	1	1	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	1	2	1.8
Jan 9	2	2	2	2	2	2	2	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	2	2	1	2	1.4
Jan 10	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2	1	1	2	1	1	1	2	1.8
Jan 11	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Jan 12	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1.0
Jan 13	0	X	X	X	X	X	X	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0.0**
Jan 14	0	0	0	0	0	0	0	0	S	0	0	1	1	1	1	0	1	0	1	1	1	1	1	1	0	1	0.5
Jan 15	1	1	1	1	1	1	1	S	1	1	1	1	3	3	2	2	1	2	1	2	2	2	2	2	1	3	1.5
Jan 16	2	2	2	2	2	2	S	2	2	2	2	3	Q	Q	Q	3	3	2	3	3	2	3	3	3	2	3	2.4
Jan 17	3	3	3	3	3	S	3	3	3	3	**4**	3	3	3	3	3	3	2	3	2	2	2	2	3	2	**4**	**2.8**
Jan 18	3	3	3	2	S	3	2	1	1	1	1	C	C	C	C	2	2	1	1	1	1	1	1	1	1	3	1.6
Jan 19	1	1	1	S	1	1	1	1	1	1	1	1	1	2	1	1	1	1	0	1	0	0	0	0	0	2	0.8
Jan 20	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 21	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 22	S	0	0	0	0	0	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	S	0	1	0.6
Jan 23	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	S	1	1	2	1.0
Jan 24	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	0.1
Jan 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0
Jan 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0
Jan 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.0
Jan 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0.0
Jan 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0.0
Jan 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0.0
Jan 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0.0
Diurnal Maximum	3	3	3	3	3	3	3	3	3	3	4	3	3	3	3	3	3	2	3	3	2	3	3	3			
Daiurnal Average	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.7	0.9	0.8	0.9	0.7	0.9	0.9	0.8	0.9	0.9	0.8	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

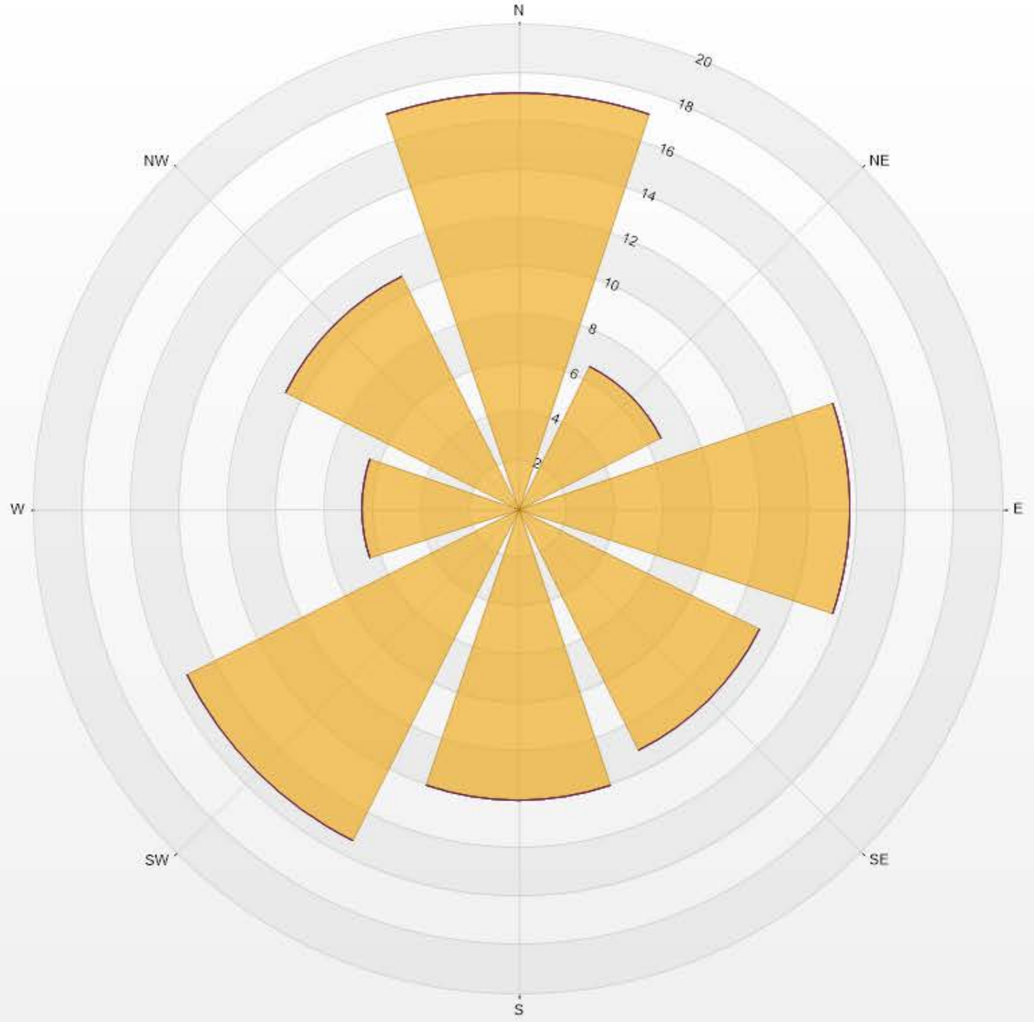
Timeseries Chart of Hourly Average for SO2 - 986b Station



Wind: PRAMP 986 Poll.: PRAMP 986-SO2[ppb] Monthly: 01-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 6.87% Valid Data: 94.59% Calm Avg: 0.67 [ppb]

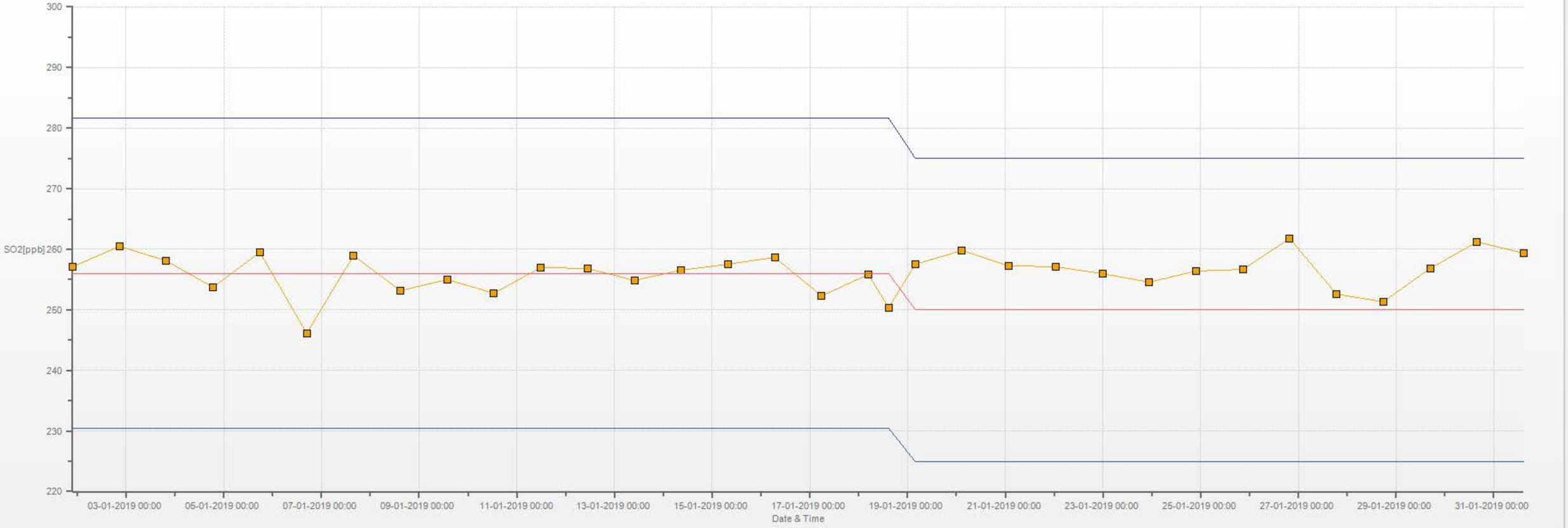
Direction	0-10	10-50	50-100	100-170	>170.0	Total
N	17.17	0	0	0	0	17.17
NE	6.58	0	0	0	0	6.58
E	13.73	0	0	0	0	13.73
SE	11.16	0	0	0	0	11.16
S	12.02	0	0	0	0	12.02
SW	15.31	0	0	0	0	15.31
W	6.44	0	0	0	0	6.44
NW	10.73	0	0	0	0	10.73
Summary	93.14	0	0	0	0	93.14

PRAMP 986 Poll.: PRAMP 986-SO2[ppb] 01-01-2019 00:00 - 31-01-2019 23:00 Calm: 6.87% Calm Poll Avg: 0.67[ppb]



% Icon Classes (ppb) | 93 0-10 | 0 10-50 | 0 50-100 | 0 100-170 | 0 >170.0

SO2[ppb] Calibration: PRAMP 986 Monthly: 01-2019 Type: Span



PEACE RIVER AREA MONITORING PROGRAM

986b Station - January 2019

Summary of Hourly Averages

TOTAL REDUCED SULPHUR (TRS) in ppb

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

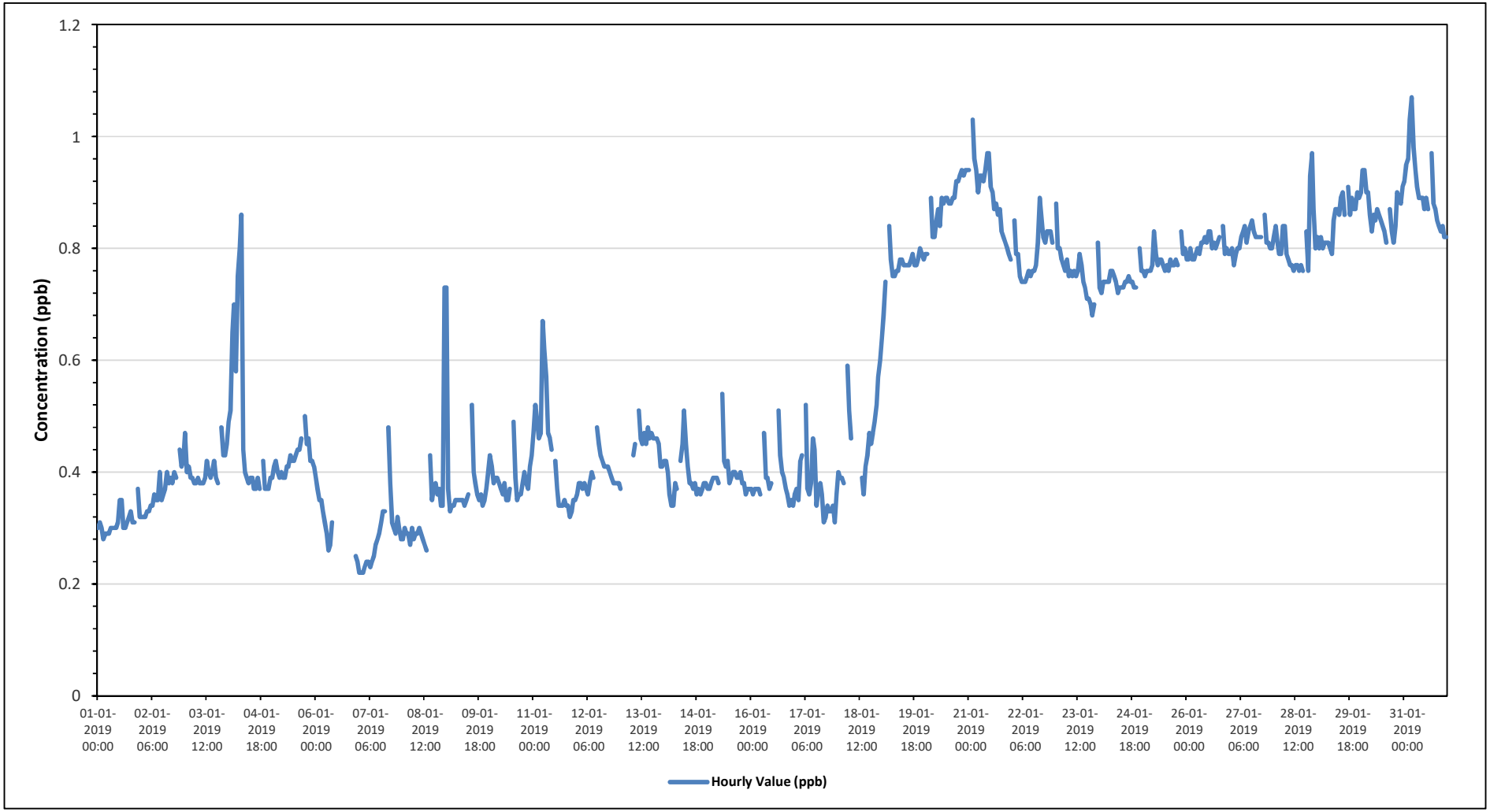
Number of 1-Hour Exceedences: 0 Number of 24-Hour Exceedences: 0

Maximum Hourly Value:	1.07	ppb	on January 31 at hour 4	Hours in Service:	744
Maximum Daily Value:	0.90	ppb	on January 31	Hours of Data:	687
Minimum Hourly Value:	0.22	ppb	on January 7 at hour 0	Hours of Missing Data:	18
Minimum Daily Value:	0.29	ppb	on January 7	Hours of Calibration:	39
Monthly Average:	0.57	ppb		Operational Uptime:	97.6

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Jan 1	0.3	0.31	0.3	0.28	0.29	0.29	0.29	0.3	0.3	0.3	0.3	0.31	0.35	0.35	0.3	0.3	0.31	0.32	0.33	0.31	0.31	S	0.37	0.32	0.28	0.37	0.31
Jan 2	0.32	0.32	0.32	0.33	0.33	0.34	0.34	0.36	0.35	0.35	0.4	0.35	0.36	0.37	0.4	0.38	0.39	0.38	0.4	0.39	S	0.44	0.41	0.42	0.32	0.44	0.37
Jan 3	0.47	0.4	0.41	0.39	0.39	0.38	0.38	0.39	0.38	0.38	0.38	0.39	0.42	0.4	0.39	0.4	0.42	0.39	0.38	S	0.48	0.43	0.43	0.45	0.38	0.48	0.41
Jan 4	0.49	0.51	0.65	0.7	0.58	0.75	0.8	0.86	0.44	0.4	0.39	0.38	0.39	0.39	0.37	0.37	0.39	0.37	S	0.42	0.37	0.37	0.37	0.39	0.37	0.86	0.48
Jan 5	0.39	0.41	0.42	0.4	0.39	0.4	0.39	0.39	0.41	0.41	0.43	0.42	0.42	0.43	0.44	0.44	0.46	S	0.5	0.45	0.46	0.42	0.42	0.41	0.39	0.50	0.42
Jan 6	0.39	0.37	0.35	0.35	0.33	0.31	0.29	0.26	0.27	0.31	T	T	T	T	T	T	T	T	T	T	T	T	0.25	0.24	0.24	0.39	0.31
Jan 7	**0.22**	0.22	0.22	0.23	0.24	0.24	0.23	0.24	0.25	0.27	0.28	0.29	0.31	0.33	0.33	S	0.48	0.38	0.31	0.3	0.29	0.32	0.3	0.28	**0.22**	0.48	**0.29**
Jan 8	0.28	0.3	0.29	0.29	0.27	0.3	0.28	0.29	0.29	0.3	0.29	0.28	0.27	0.26	S	0.43	0.35	0.37	0.38	0.36	0.37	0.34	0.34	0.73	0.26	0.73	0.33
Jan 9	0.73	0.37	0.33	0.34	0.34	0.35	0.35	0.35	0.35	0.35	0.34	0.35	0.36	S	0.52	0.4	0.38	0.36	0.35	0.36	0.34	0.35	0.37	0.4	0.33	0.73	0.38
Jan 10	0.43	0.41	0.38	0.39	0.39	0.38	0.37	0.36	0.38	0.35	0.35	0.37	S	0.49	0.39	0.35	0.36	0.36	0.38	0.4	0.38	0.37	0.41	0.43	0.35	0.49	0.39
Jan 11	0.47	0.52	0.49	0.46	0.47	0.67	0.62	0.57	0.47	0.46	0.44	S	0.42	0.37	0.34	0.34	0.34	0.35	0.34	0.34	0.32	0.33	0.35	0.35	0.32	0.67	0.43
Jan 12	0.36	0.38	0.38	0.37	0.38	0.37	0.36	0.38	0.4	0.39	S	0.48	0.45	0.43	0.42	0.41	0.41	0.41	0.4	0.39	0.38	0.38	0.38	0.38	0.36	0.48	0.40
Jan 13	0.37	X	X	X	X	X	X	0.43	0.45	S	0.51	0.46	0.45	0.47	0.45	0.48	0.46	0.47	0.46	0.46	0.46	0.45	0.41	0.41	0.37	0.51	0.45
Jan 14	0.42	0.42	0.4	0.36	0.34	0.34	0.38	0.37	S	0.42	0.45	0.51	0.45	0.41	0.38	0.38	0.37	0.38	0.36	0.37	0.36	0.37	0.38	0.38	0.34	0.51	0.39
Jan 15	0.37	0.37	0.38	0.39	0.39	0.39	0.38	S	0.54	0.42	0.41	0.42	0.38	0.39	0.4	0.4	0.39	0.39	0.4	0.38	0.38	0.36	0.37	0.37	0.36	0.54	0.39
Jan 16	0.37	0.36	0.37	0.37	0.37	0.36	S	0.47	0.39	0.39	0.37	0.38	Q	Q	Q	0.51	0.43	0.4	0.39	0.37	0.36	0.34	0.35	0.34	0.34	0.51	0.38
Jan 17	0.36	0.37	0.35	0.42	0.43	S	0.52	0.37	0.36	0.38	0.46	0.44	0.34	0.37	0.38	0.36	0.31	0.32	0.34	0.33	0.33	0.34	0.31	0.36	0.31	0.52	0.37
Jan 18	0.4	0.39	0.39	0.38	S	0.59	0.51	0.46	C	C	C	C	C	0.39	0.36	0.41	0.43	0.47	0.45	0.47	0.49	0.52	0.57	0.6	0.36	0.60	0.46
Jan 19	0.64	0.68	0.74	S	0.84	0.78	0.75	0.75	0.76	0.76	0.78	0.78	0.77	0.77	0.77	0.77	0.78	0.79	0.77	0.77	0.78	0.8	0.79	0.78	0.64	0.84	0.77
Jan 20	0.79	0.79	S	0.89	0.82	0.82	0.85	0.87	0.84	0.89	0.88	0.89	0.89	0.88	0.88	0.89	0.89	0.92	0.92	0.93	0.94	0.93	0.94	0.94	0.79	0.94	0.88
Jan 21	0.94	S	1.03	0.96	0.94	0.9	0.93	0.93	0.92	0.94	0.97	0.97	0.91	0.9	0.87	0.88	0.86	0.87	0.83	0.82	0.81	0.8	0.79	0.78	0.78	1.03	0.89
Jan 22	S	0.85	0.79	0.79	0.75	0.74	0.74	0.74	0.75	0.76	0.75	0.76	0.76	0.77	0.81	0.89	0.85	0.82	0.81	0.83	0.83	0.83	0.81	S	0.74	0.89	0.79
Jan 23	0.88	0.8	0.8	0.78	0.77	0.76	0.78	0.75	0.76	0.75	0.76	0.75	0.76	0.79	0.77	0.74	0.73	0.71	0.71	0.7	0.68	0.7	S	0.81	0.68	0.88	0.76
Jan 24	0.73	0.72	0.74	0.74	0.74	0.74	0.76	0.76	0.75	0.74	0.72	0.73	0.73	0.73	0.74	0.74	0.75	0.74	0.74	0.73	0.73	S	0.8	0.76	0.72	0.80	0.74
Jan 25	0.76	0.75	0.76	0.76	0.76	0.77	0.83	0.79	0.77	0.78	0.78	0.77	0.76	0.77	0.76	0.78	0.77	0.77	0.78	0.77	S	0.83	0.79	0.8	0.75	0.83	0.78
Jan 26	0.78	0.78	0.8	0.78	0.78	0.79	0.8	0.79	0.81	0.81	0.82	0.81	0.83	0.83	0.8	0.81	0.8	0.81	0.82	S	0.84	0.79	0.8	0.79	0.78	0.84	0.80
Jan 27	0.79	0.8	0.77	0.79	0.8	0.8	0.82	0.83	0.84	0.81	0.83	0.84	0.85	0.83	0.82	0.82	0.82	0.82	S	0.86	0.81	0.81	0.8	0.8	0.77	0.86	0.82
Jan 28	0.82	0.84	0.81	0.79	0.79	0.84	0.84	0.79	0.78	0.77	0.77	0.76	0.77	0.77	0.76	0.77	0.76	S	0.83	0.76	0.93	0.97	0.87	0.8	0.76	0.97	0.81
Jan 29	0.82	0.8	0.82	0.8	0.81	0.81	0.81	0.8	0.79	0.85	0.87	0.87	0.86	0.89	0.9	0.86	S	0.91	0.86	0.89	0.87	0.87	0.9	0.89	0.79	0.91	0.85
Jan 30	0.9	0.94	0.94	0.9	0.9	0.86	0.83	0.86	0.85	0.87	0.86	0.85	0.84	0.83	0.81	S	0.87	0.83	0.81	0.84	0.9	0.89	0.88	0.91	0.81	0.94	0.87
Jan 31	0.92	0.95	0.96	1.03	**1.07**	0.98	0.94	0.91	0.89	0.89	0.89	0.87	0.89	0.87	S	0.97	0.88	0.87	0.85	0.84	0.83	0.84	0.82	0.82	0.82	**1.07**	**0.90**
Diurnal Maximum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Daiurnal Average	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6			

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

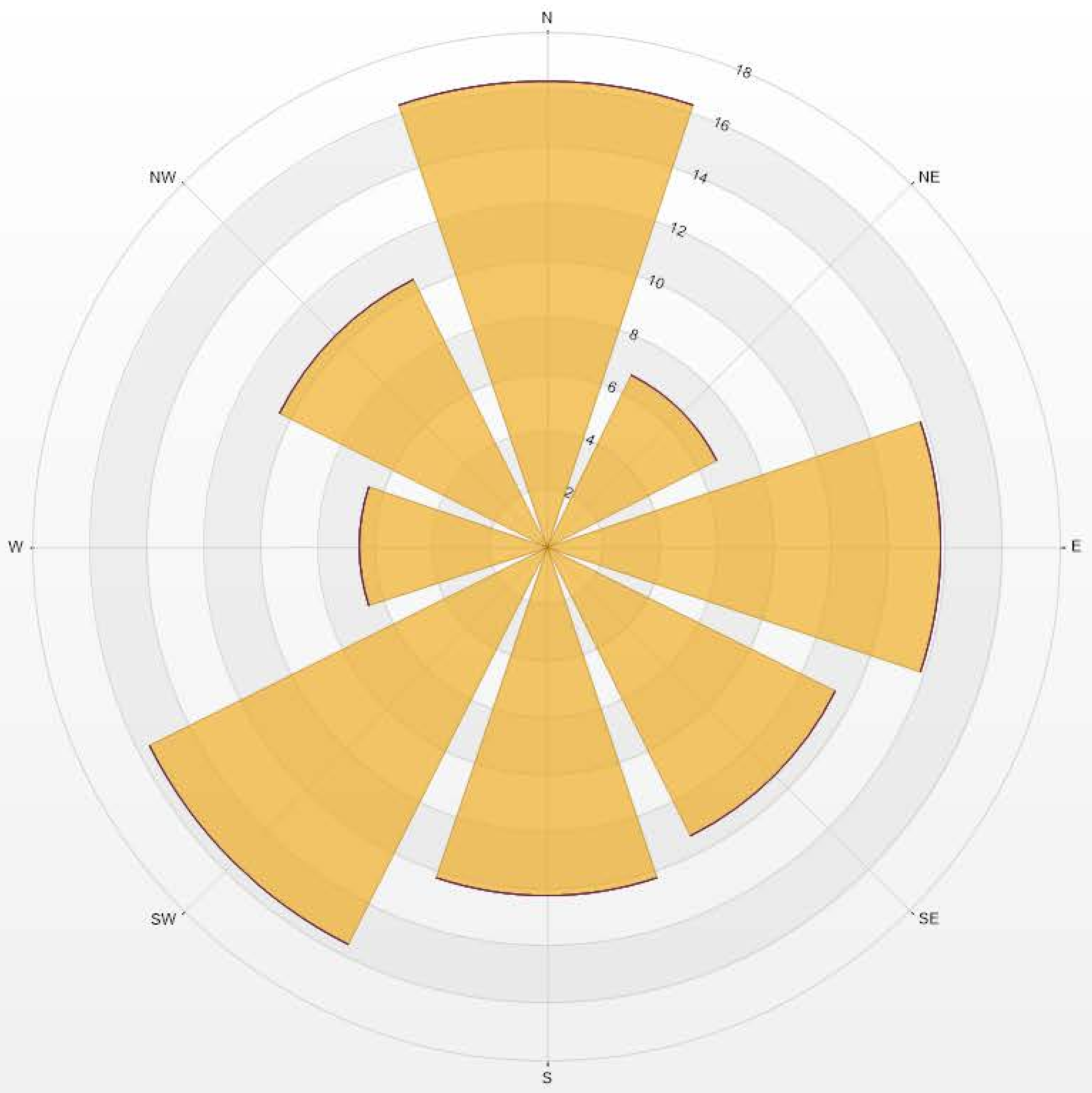
Timeseries Chart of Hourly Average for TRS - 986b Station



Wind: PRAMP 986 Poll.: PRAMP 986-TRS[ppb] Monthly: 01-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 6.99% Valid Data: 92.96% Calm Avg: 0.69 [ppb]

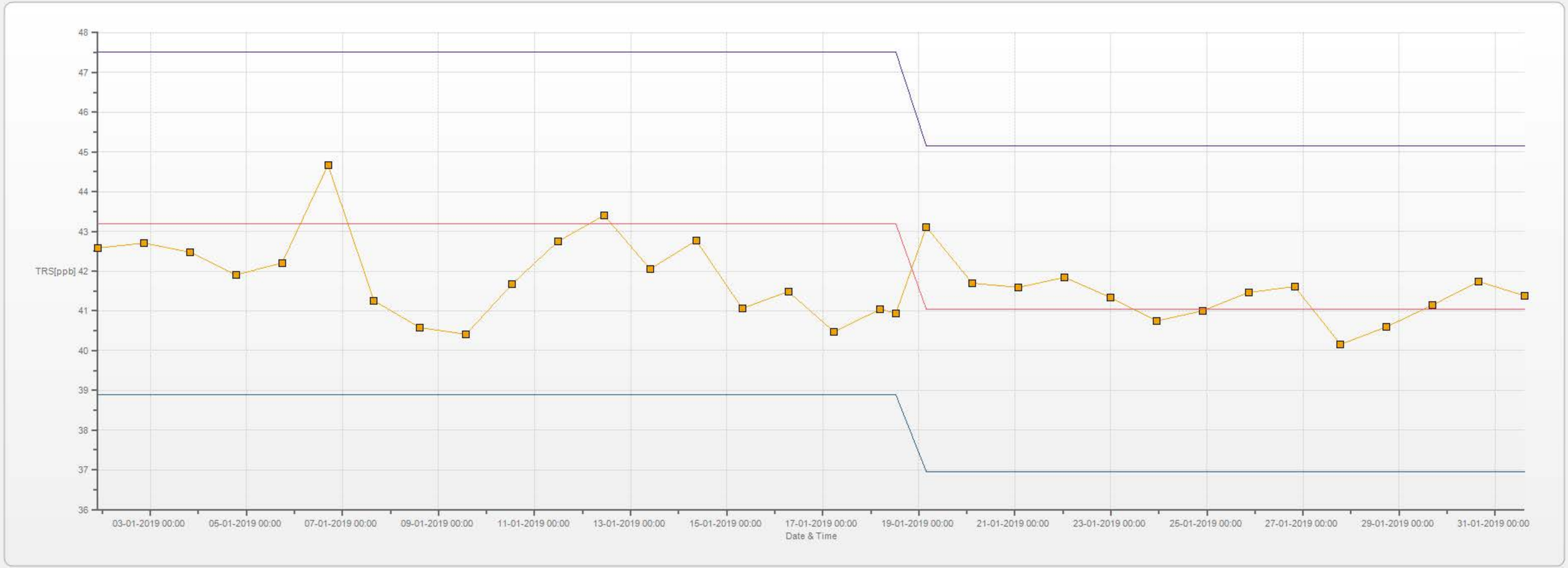
Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	16.3	0	0	0	0	16.3
NE	6.7	0	0	0	0	6.7
E	13.83	0	0	0	0	13.83
SE	11.35	0	0	0	0	11.35
S	12.23	0	0	0	0	12.23
SW	15.57	0	0	0	0	15.57
W	6.55	0	0	0	0	6.55
NW	10.48	0	0	0	0	10.48
Summary	93.01	0	0	0	0	93.01

PRAMP 986 Poll.: PRAMP 986-TRS[ppb] 01-01-2019 00:00 - 31-01-2019 23:00 Calm: 6.99% Calm Poll Avg: 0.69[ppb]



%	Icon	Classes (ppb)
93		0-2
0		2-5
0		5-10
0		10-50
0		>50.0

TRS[ppb] Calibration: PRAMP 986 Monthly: 01-2019 Type: Span



peace river area monitoring program pramp

PEACE RIVER AREA MONITORING PROGRAM

986b Station - January 2019

Summary of Hourly Averages

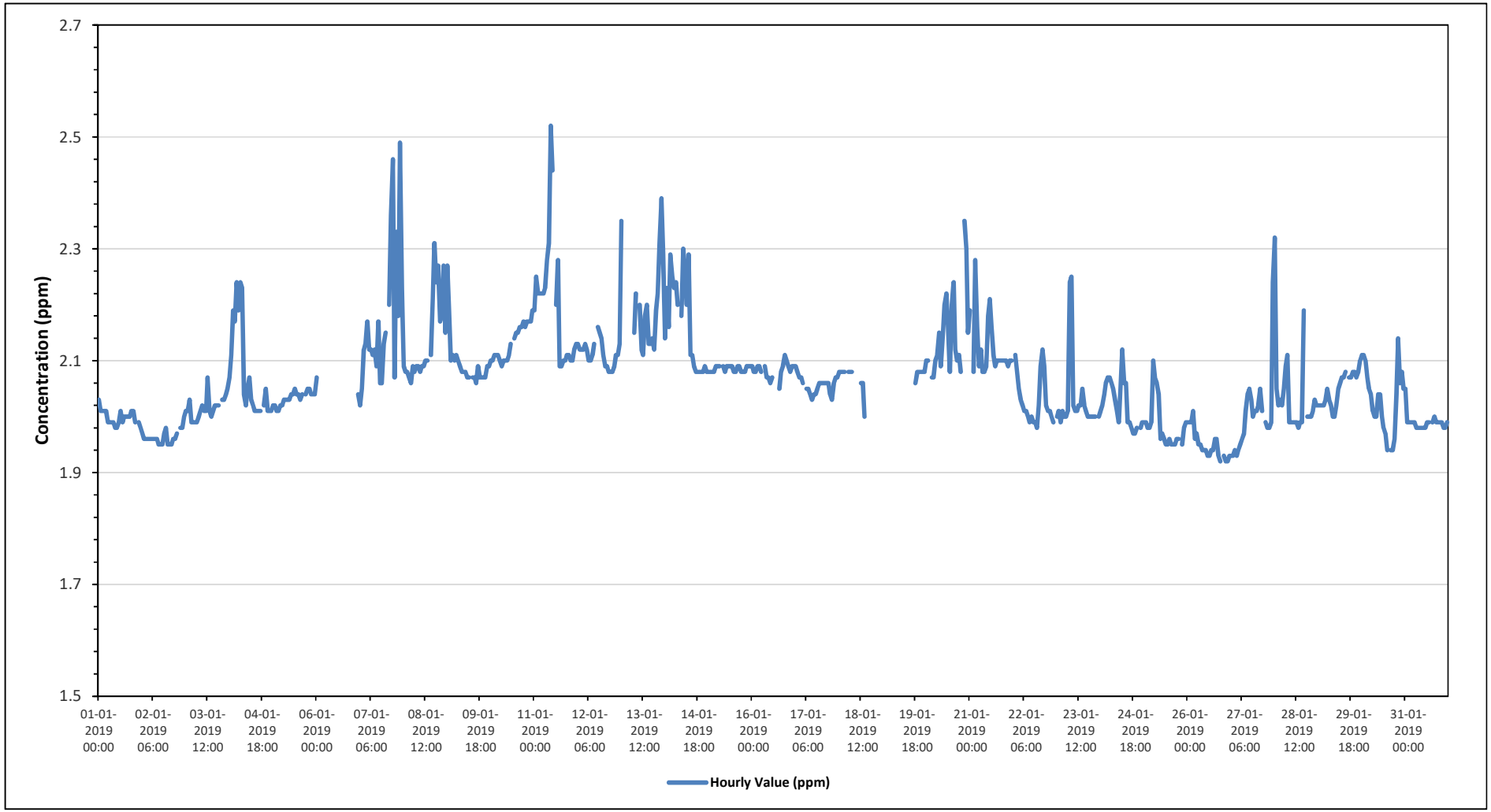
TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	2.52	ppm	on January 11 at hour 9	Hours in Service:	744
Maximum Daily Value:	2.20	ppm	on January 13	Hours of Data:	651
Minimum Hourly Value:	1.92	ppm	on January 26 at hour 18	Hours of Missing Data:	56
Minimum Daily Value:	1.95	ppm	on January 26	Hours of Calibration:	37
Monthly Average:	2.07	ppm		Operational Uptime:	92.5

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Jan 1	2.03	2.01	2.01	2.01	2.01	1.99	1.99	1.99	1.99	1.98	1.98	1.99	2.01	1.99	2.00	2.00	2.00	2.00	2.01	2.01	1.99	S	1.99	1.98	1.98	2.03	2.00
Jan 2	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.95	1.95	1.97	1.98	1.95	1.95	1.95	1.96	1.96	1.97	S	1.98	1.98	2.00	1.95	2.00	1.96
Jan 3	2.01	2.01	2.03	1.99	1.99	1.99	1.99	2.00	2.01	2.02	2.01	2.01	2.07	2.01	2.00	2.01	2.02	2.02	2.02	S	2.03	2.03	2.04	2.05	1.99	2.07	2.02
Jan 4	2.07	2.11	2.19	2.17	2.24	2.19	2.24	2.23	2.04	2.02	2.05	2.07	2.03	2.02	2.01	2.01	2.01	2.01	S	2.02	2.05	2.01	2.01	2.01	2.01	2.24	2.08
Jan 5	2.02	2.02	2.01	2.01	2.02	2.02	2.03	2.03	2.03	2.03	2.04	2.04	2.05	2.04	2.04	2.03	2.04	S	2.04	2.05	2.05	2.04	2.04	2.04	2.01	2.05	2.03
Jan 6	2.07	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	2.04	2.04	2.07	2.06
Jan 7	2.02	2.05	2.12	2.13	2.17	2.12	2.12	2.11	2.12	2.09	2.17	2.06	2.06	2.13	2.15	S	2.20	2.36	2.46	2.07	2.33	2.18	2.49	2.23	2.02	2.49	2.17
Jan 8	2.09	2.08	2.08	2.07	2.06	2.09	2.08	2.09	2.09	2.08	2.09	2.09	2.10	2.10	S	2.11	2.21	2.31	2.24	2.27	2.17	2.18	2.27	2.15	2.06	2.31	2.13
Jan 9	2.27	2.20	2.10	2.11	2.10	2.11	2.10	2.09	2.08	2.08	2.08	2.07	2.07	S	2.07	2.07	2.06	2.09	2.07	2.07	2.07	2.07	2.09	2.09	2.06	2.27	2.10
Jan 10	2.10	2.10	2.11	2.11	2.11	2.10	2.09	2.10	2.10	2.10	2.11	2.13	S	2.14	2.15	2.15	2.16	2.16	2.17	2.16	2.17	2.17	2.17	2.19	2.09	2.19	2.13
Jan 11	2.19	2.25	2.22	2.22	2.22	2.22	2.23	2.28	2.31	**2.52**	2.44	S	2.20	2.28	2.09	2.09	2.10	2.10	2.11	2.11	2.10	2.10	2.12	2.13	2.09	**2.52**	2.20
Jan 12	2.13	2.12	2.12	2.12	2.13	2.12	2.10	2.10	2.11	2.13	S	2.16	2.15	2.14	2.11	2.09	2.09	2.08	2.08	2.08	2.09	2.11	2.11	2.13	2.08	2.16	2.11
Jan 13	2.35	X	X	X	X	X	X	2.15	2.22	S	2.20	2.12	2.11	2.18	2.20	2.13	2.13	2.14	2.12	2.19	2.22	2.31	2.39	2.29	2.11	2.39	**2.20**
Jan 14	2.14	2.23	2.16	2.29	2.25	2.23	2.24	2.20	S	2.18	2.30	2.25	2.20	2.29	2.11	2.11	2.09	2.08	2.08	2.08	2.08	2.08	2.09	2.08	2.08	2.30	2.17
Jan 15	2.08	2.08	2.08	2.08	2.09	2.09	2.09	S	2.09	2.08	2.09	2.09	2.09	2.09	2.08	2.08	2.09	2.09	2.08	2.08	2.08	2.09	2.09	2.09	2.08	2.09	2.09
Jan 16	2.09	2.08	2.08	2.09	2.09	2.08	S	2.09	2.07	2.07	2.06	2.07	Q	Q	Q	2.05	2.08	2.09	2.11	2.10	2.09	2.08	2.09	2.09	2.05	2.11	2.08
Jan 17	2.09	2.08	2.07	2.07	2.06	S	2.05	2.05	2.04	2.03	2.04	2.04	2.05	2.06	2.06	2.06	2.06	2.06	2.06	2.04	2.03	2.06	2.07	2.07	2.03	2.09	2.06
Jan 18	2.08	2.08	2.08	2.08	S	2.08	2.08	2.08	C	C	C	C	2.06	2.06	2.00	X	X	X	X	X	X	X	X	X	2.00	2.08	2.07
Jan 19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.06	2.08	2.08	2.08	2.08	2.08	2.06	2.08	2.08
Jan 20	2.10	2.10	S	2.07	2.07	2.10	2.11	2.15	2.09	2.14	2.20	2.22	2.16	2.08	2.20	2.24	2.12	2.10	2.11	2.08	S1	2.35	2.30	2.15	2.07	2.35	2.15
Jan 21	2.19	S	2.08	2.28	2.16	2.09	2.12	2.08	2.08	2.09	2.18	2.21	2.16	2.11	2.09	2.10	2.10	2.10	2.10	2.10	2.10	2.09	2.10	2.10	2.08	2.28	2.12
Jan 22	S	2.11	2.08	2.05	2.03	2.02	2.01	2.01	2.00	1.99	2.00	1.99	1.99	1.98	2.02	2.09	2.12	2.09	2.02	2.01	2.01	2.00	1.99	S	1.98	2.12	2.03
Jan 23	2.00	2.01	1.99	2.01	2.00	2.00	2.01	2.24	2.25	2.02	2.01	2.01	2.02	2.02	2.05	2.02	2.01	2.00	2.00	2.00	2.00	2.00	S	2.00	1.99	2.25	2.03
Jan 24	2.01	2.02	2.04	2.06	2.07	2.07	2.06	2.05	2.03	2.01	1.99	2.05	2.12	2.06	2.06	1.99	1.99	1.98	1.97	1.97	1.98	S	1.98	1.99	1.97	2.12	2.02
Jan 25	1.99	1.99	1.98	1.98	1.99	2.10	2.07	2.06	2.04	1.96	1.97	1.96	1.95	1.95	1.96	1.95	1.95	1.95	1.96	1.96	S	1.95	1.98	1.99	1.95	2.10	1.98
Jan 26	1.99	1.99	1.99	2.01	1.96	1.97	1.95	1.95	1.94	1.94	1.94	1.93	1.93	1.94	1.94	1.96	1.96	1.93	**1.92**	S	1.93	1.92	1.92	1.93	**1.92**	2.01	**1.95**
Jan 27	1.93	1.93	1.94	1.93	1.94	1.95	1.96	1.97	2.01	2.04	2.05	2.03	2.00	2.01	2.01	2.02	2.05	2.01	S	1.99	1.98	1.98	1.99	2.24	1.93	2.24	2.00
Jan 28	2.32	2.05	2.02	2.03	2.02	2.05	2.09	2.11	1.99	1.99	1.99	1.99	1.99	1.98	1.99	1.99	2.19	S	2.00	2.00	2.00	2.01	2.03	2.02	1.98	2.32	2.04
Jan 29	2.02	2.02	2.02	2.02	2.03	2.05	2.03	2.02	2.00	2.00	2.02	2.05	2.06	2.07	2.07	2.08	S	2.07	2.07	2.08	2.08	2.07	2.08	2.10	2.00	2.10	2.05
Jan 30	2.11	2.11	2.10	2.07	2.05	2.04	2.01	2.00	2.00	2.04	2.04	2.00	1.98	1.97	1.94	S	1.94	1.94	1.96	2.04	2.14	2.06	2.08	2.05	1.94	2.14	2.03
Jan 31	2.05	1.99	1.99	1.99	1.99	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.99	1.99	S	1.99	2.00	1.99	1.99	1.99	1.99	1.98	1.98	1.99	1.98	2.05	1.99
Diurnal Maximum	2.35	2.25	2.22	2.29	2.25	2.23	2.24	2.28	2.31	2.52	2.44	2.25	2.20	2.29	2.20	2.24	2.21	2.36	2.46	2.27	2.33	2.35	2.49	2.29			
Daiurnal Average	2.09	2.07	2.06	2.07	2.07	2.07	2.07	2.08	2.06	2.06	2.07	2.06	2.06	2.06	2.05	2.05	2.06	2.07	2.07	2.06	2.07	2.07	2.09	2.08			

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

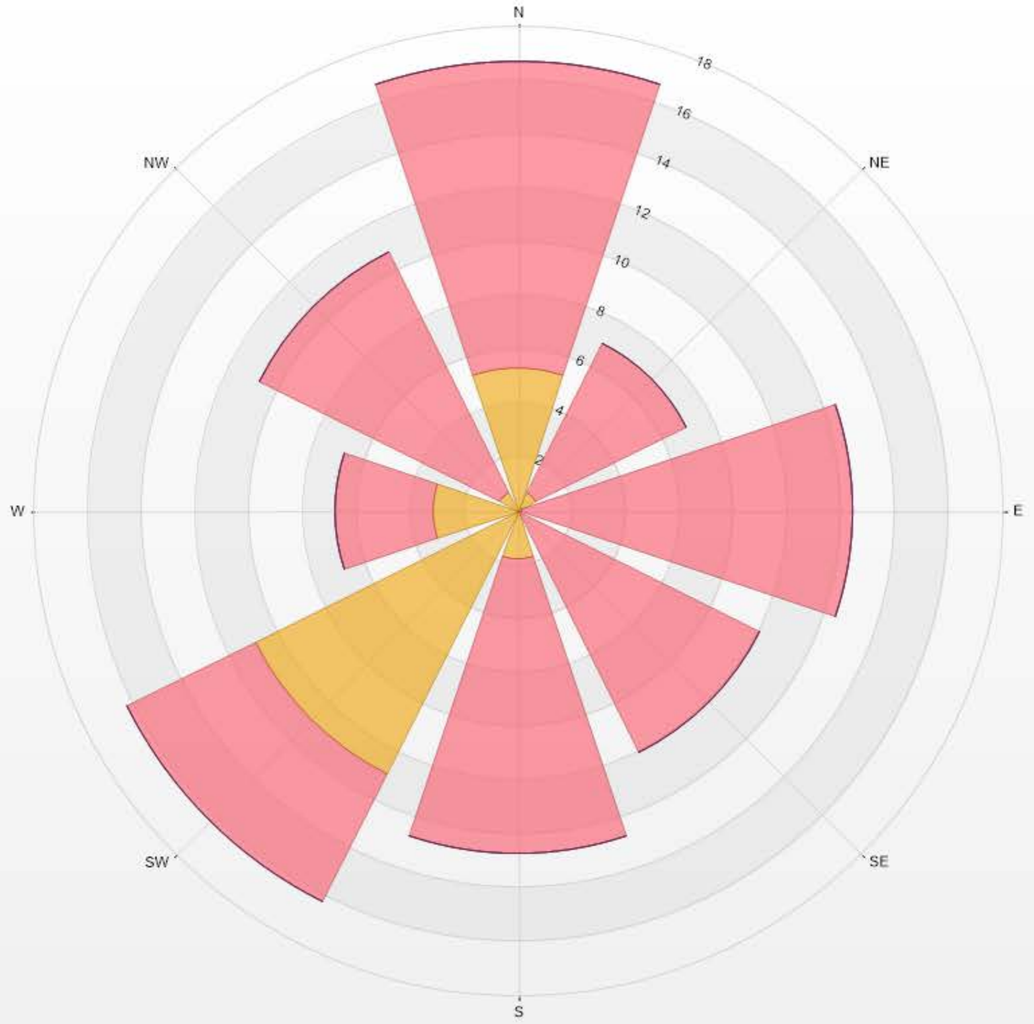
Timeseries Chart of Hourly Average for THC - 986b Station



Wind: PRAMP 986 Poll.: PRAMP 986-THC55[ppm] Monthly: 01-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 7.28% Valid Data: 89.17% Calm Avg: 2.14 [ppm]

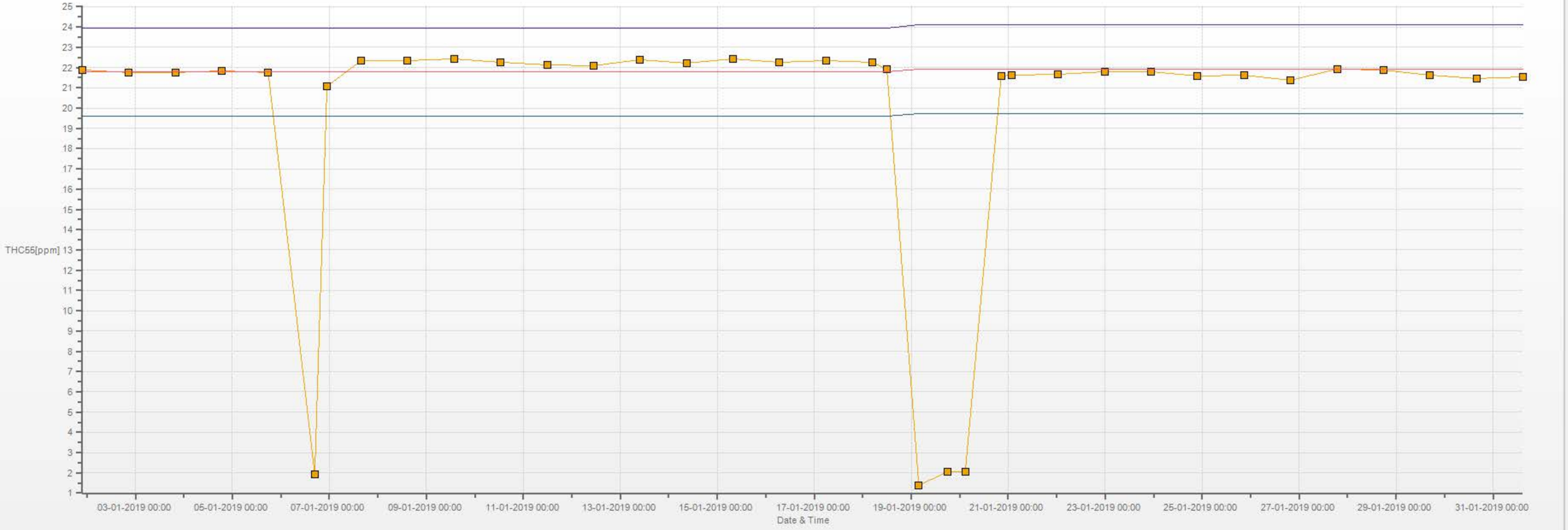
Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	5.31	11.38	0	0	0	16.69
NE	0.76	6.22	0	0	0	6.98
E	0.15	12.29	0	0	0	12.44
SE	0	10.02	0	0	0	10.02
S	1.82	10.93	0	0	0	12.75
SW	10.93	5.31	0	0	0	16.24
W	3.19	3.64	0	0	0	6.83
NW	0.76	10.02	0	0	0	10.78
Summary	22.92	69.81	0	0	0	92.73

PRAMP 986 Poll.: PRAMP 986-THC55[ppm] 01-01-2019 00:00 - 31-01-2019 23:00 Calm: 7.28% Calm Poll Avg: 2.14[ppm]



%	Icon	Classes (ppm)									
23		0-2	70		2-5	0		5-10	0		10-40	0		>40.0

THC55[ppm] Calibration: PRAMP 986 Monthly: 01-2019 Type: Span



peace river area monitoring program pramp

PEACE RIVER AREA MONITORING PROGRAM

986b Station - January 2019

Summary of Hourly Averages

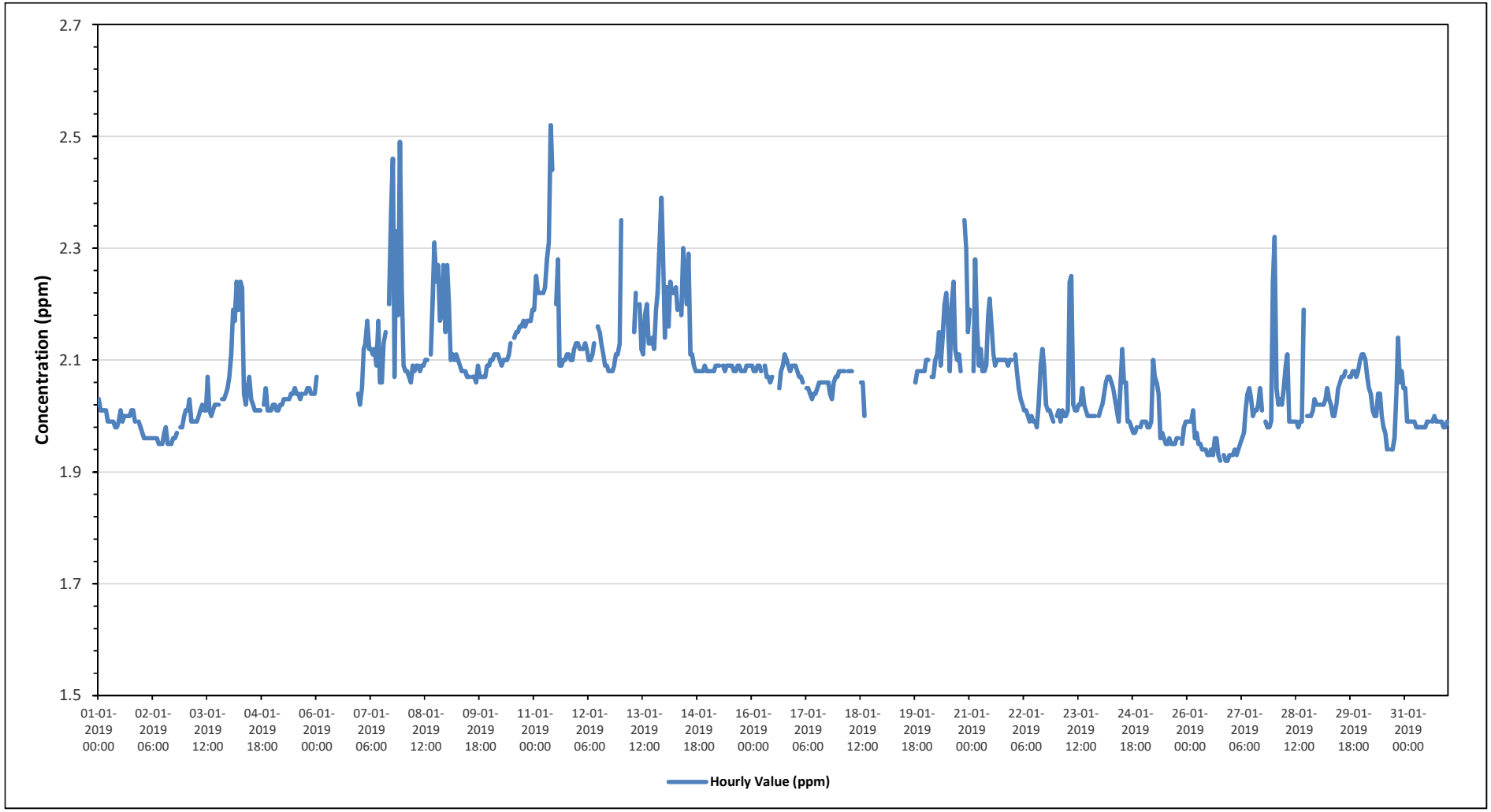
METHANE (CH4) in ppm

Maximum Hourly Value:	2.52	ppm	on January 11 at hour 9	Hours in Service:	744
Maximum Daily Value:	2.20	ppm	on January 13	Hours of Data:	651
Minimum Hourly Value:	1.92	ppm	on January 26 at hour 18	Hours of Missing Data:	56
Minimum Daily Value:	1.95	ppm	on January 26	Hours of Calibration:	37
Monthly Average:	2.07	ppm		Operational Uptime:	92.5

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	2.03	2.01	2.01	2.01	2.01	1.99	1.99	1.99	1.99	1.98	1.98	1.99	2.01	1.99	2.00	2.00	2.00	2.00	2.01	2.01	1.99	S	1.99	1.98	1.98	2.03	2.00
Jan 2	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.95	1.95	1.97	1.98	1.95	1.95	1.95	1.96	1.96	1.97	S	1.98	1.98	2.00	1.95	2.00	1.96
Jan 3	2.01	2.01	2.03	1.99	1.99	1.99	1.99	2.00	2.01	2.02	2.01	2.01	2.07	2.01	2.00	2.01	2.02	2.02	2.02	S	2.03	2.03	2.04	2.05	1.99	2.07	2.02
Jan 4	2.07	2.11	2.19	2.17	2.24	2.19	2.24	2.23	2.04	2.02	2.05	2.07	2.03	2.02	2.01	2.01	2.01	2.01	S	2.02	2.05	2.01	2.01	2.01	2.01	2.24	2.08
Jan 5	2.02	2.02	2.01	2.01	2.02	2.02	2.03	2.03	2.03	2.03	2.04	2.04	2.05	2.04	2.04	2.03	2.04	S	2.04	2.05	2.05	2.04	2.04	2.04	2.01	2.05	2.03
Jan 6	2.07	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	2.04	2.04	2.07	2.06
Jan 7	2.02	2.05	2.12	2.13	2.17	2.12	2.12	2.11	2.12	2.09	2.17	2.06	2.06	2.13	2.15	S	2.20	2.36	2.46	2.07	2.33	2.18	2.49	2.23	2.02	2.49	2.17
Jan 8	2.09	2.08	2.08	2.07	2.06	2.09	2.08	2.09	2.09	2.08	2.09	2.09	2.10	2.10	S	2.11	2.21	2.31	2.24	2.27	2.17	2.18	2.27	2.15	2.06	2.31	2.13
Jan 9	2.27	2.20	2.10	2.11	2.10	2.11	2.10	2.09	2.08	2.08	2.08	2.07	2.07	S	2.07	2.07	2.06	2.09	2.07	2.07	2.07	2.07	2.09	2.09	2.06	2.27	2.10
Jan 10	2.10	2.10	2.11	2.11	2.11	2.10	2.09	2.10	2.10	2.10	2.11	2.13	S	2.14	2.15	2.15	2.16	2.16	2.17	2.16	2.17	2.17	2.17	2.19	2.09	2.19	2.13
Jan 11	2.19	2.25	2.22	2.22	2.22	2.22	2.23	2.28	2.31	**2.52**	2.44	S	2.20	2.28	2.09	2.09	2.10	2.10	2.11	2.11	2.10	2.10	2.12	2.13	2.09	**2.52**	2.20
Jan 12	2.13	2.12	2.12	2.12	2.13	2.12	2.10	2.10	2.11	2.13	S	2.16	2.15	2.13	2.11	2.09	2.09	2.08	2.08	2.08	2.09	2.11	2.11	2.13	2.08	2.16	2.11
Jan 13	2.35	X	X	X	X	X	X	2.15	2.22	S	2.20	2.12	2.11	2.18	2.20	2.13	2.13	2.14	2.12	2.19	2.22	2.31	2.39	2.29	2.11	2.39	**2.20**
Jan 14	2.14	2.23	2.16	2.24	2.22	2.22	2.23	2.19	S	2.18	2.30	2.25	2.20	2.29	2.11	2.11	2.09	2.08	2.08	2.08	2.08	2.08	2.09	2.08	2.08	2.30	2.16
Jan 15	2.08	2.08	2.08	2.08	2.09	2.09	2.09	S	2.09	2.08	2.09	2.09	2.09	2.09	2.08	2.08	2.09	2.09	2.08	2.08	2.08	2.09	2.09	2.09	2.08	2.09	2.09
Jan 16	2.09	2.08	2.08	2.09	2.09	2.08	S	2.09	2.07	2.07	2.06	2.07	Q	Q	Q	2.05	2.08	2.09	2.11	2.10	2.09	2.08	2.09	2.09	2.05	2.11	2.08
Jan 17	2.09	2.08	2.07	2.07	2.06	S	2.05	2.05	2.04	2.03	2.04	2.04	2.05	2.06	2.06	2.06	2.06	2.06	2.06	2.04	2.03	2.06	2.07	2.07	2.03	2.09	2.06
Jan 18	2.08	2.08	2.08	2.08	S	2.08	2.08	2.08	C	C	C	C	2.06	2.06	2.00	X	X	X	X	X	X	X	X	X	2.00	2.08	2.07
Jan 19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.06	2.08	2.08	2.08	2.08	2.08	2.06	2.08	2.08
Jan 20	2.10	2.10	S	2.07	2.07	2.10	2.11	2.15	2.09	2.14	2.20	2.22	2.16	2.08	2.20	2.24	2.12	2.10	2.11	2.08	S1	2.35	2.30	2.15	2.07	2.35	2.15
Jan 21	2.19	S	2.08	2.28	2.16	2.09	2.12	2.08	2.08	2.09	2.18	2.21	2.16	2.11	2.09	2.10	2.10	2.10	2.10	2.10	2.10	2.09	2.10	2.10	2.08	2.28	2.12
Jan 22	S	2.11	2.08	2.05	2.03	2.02	2.01	2.01	2.00	1.99	2.00	1.99	1.99	1.98	2.02	2.09	2.12	2.09	2.02	2.01	2.01	2.00	1.99	S	1.98	2.12	2.03
Jan 23	2.00	2.01	1.99	2.01	2.00	2.00	2.01	2.24	2.25	2.02	2.01	2.01	2.02	2.02	2.05	2.02	2.01	2.00	2.00	2.00	2.00	2.00	S	2.00	1.99	2.25	2.03
Jan 24	2.01	2.02	2.04	2.06	2.07	2.07	2.06	2.05	2.03	2.01	1.99	2.05	2.12	2.06	2.06	1.99	1.99	1.98	1.97	1.97	1.98	S	1.98	1.99	1.97	2.12	2.02
Jan 25	1.99	1.99	1.98	1.98	1.99	2.10	2.07	2.06	2.04	1.96	1.97	1.96	1.95	1.95	1.96	1.95	1.95	1.95	1.96	1.96	S	1.95	1.98	1.99	1.95	2.10	1.98
Jan 26	1.99	1.99	1.99	2.01	1.96	1.97	1.95	1.95	1.94	1.94	1.94	1.93	1.93	1.94	1.93	1.96	1.96	1.93	**1.92**	S	1.93	1.92	1.92	1.93	**1.92**	2.01	**1.95**
Jan 27	1.93	1.93	1.94	1.93	1.94	1.95	1.96	1.97	2.01	2.04	2.05	2.03	2.00	2.01	2.01	2.02	2.05	2.01	S	1.99	1.98	1.98	1.99	2.24	1.93	2.24	2.00
Jan 28	2.32	2.05	2.02	2.03	2.02	2.05	2.09	2.11	1.99	1.99	1.99	1.99	1.99	1.98	1.99	1.99	2.19	S	2.00	2.00	2.00	2.01	2.03	2.02	1.98	2.32	2.04
Jan 29	2.02	2.02	2.02	2.02	2.03	2.05	2.03	2.02	2.00	2.00	2.02	2.05	2.06	2.07	2.07	2.08	S	2.07	2.07	2.08	2.08	2.07	2.08	2.10	2.00	2.10	2.05
Jan 30	2.11	2.11	2.10	2.07	2.05	2.04	2.01	2.00	2.00	2.04	2.04	2.00	1.98	1.97	1.94	S	1.94	1.94	1.96	2.04	2.14	2.06	2.08	2.05	1.94	2.14	2.03
Jan 31	2.05	1.99	1.99	1.99	1.99	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.99	1.99	S	1.99	2.00	1.99	1.99	1.99	1.99	1.98	1.98	1.99	1.98	2.05	1.99
Diurnal Maximum	2.35	2.25	2.22	2.28	2.24	2.22	2.24	2.28	2.31	2.52	2.44	2.25	2.20	2.29	2.20	2.24	2.21	2.36	2.46	2.27	2.33	2.35	2.49	2.29			
Daiurnal Average	2.09	2.07	2.06	2.07	2.07	2.07	2.07	2.08	2.06	2.06	2.07	2.06	2.06	2.06	2.05	2.05	2.06	2.07	2.07	2.06	2.07	2.07	2.09	2.08			

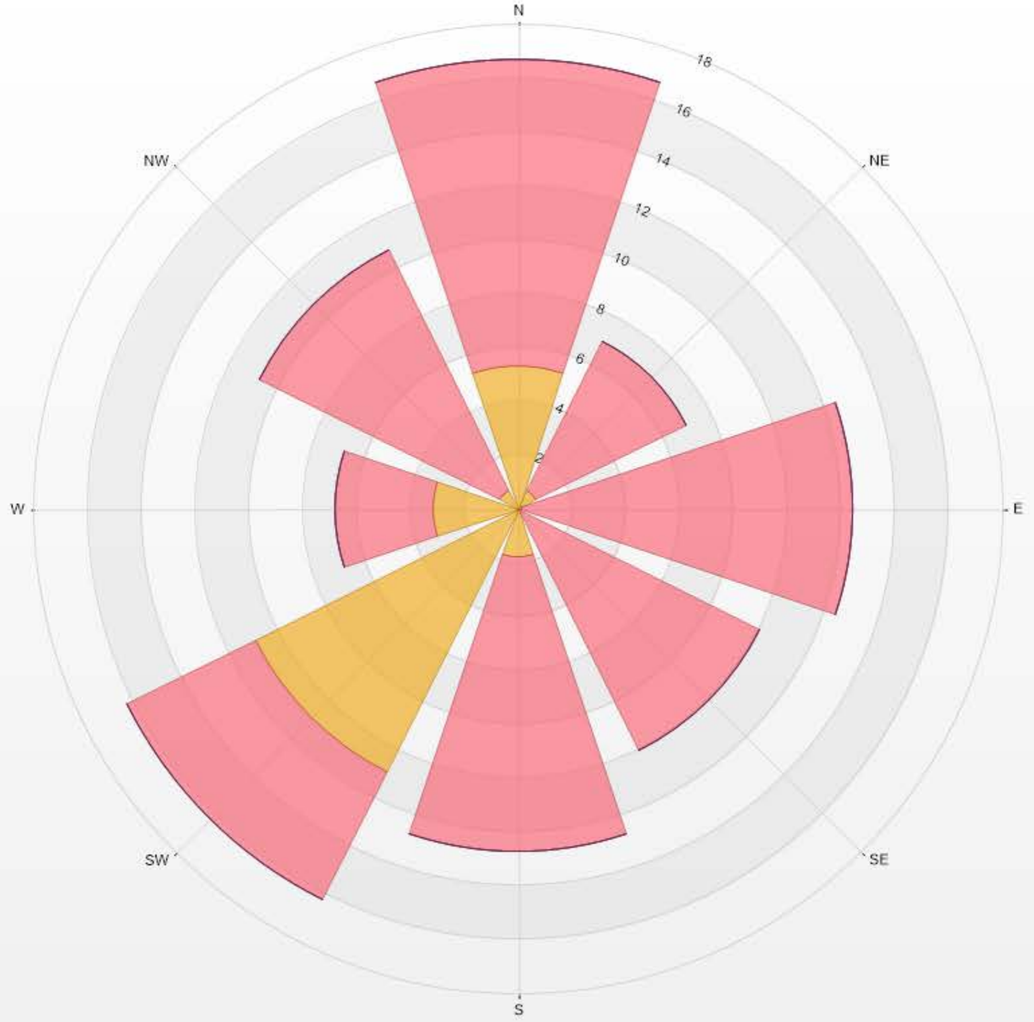
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

Timeseries Chart of Hourly Average for CH4 - 986b Station



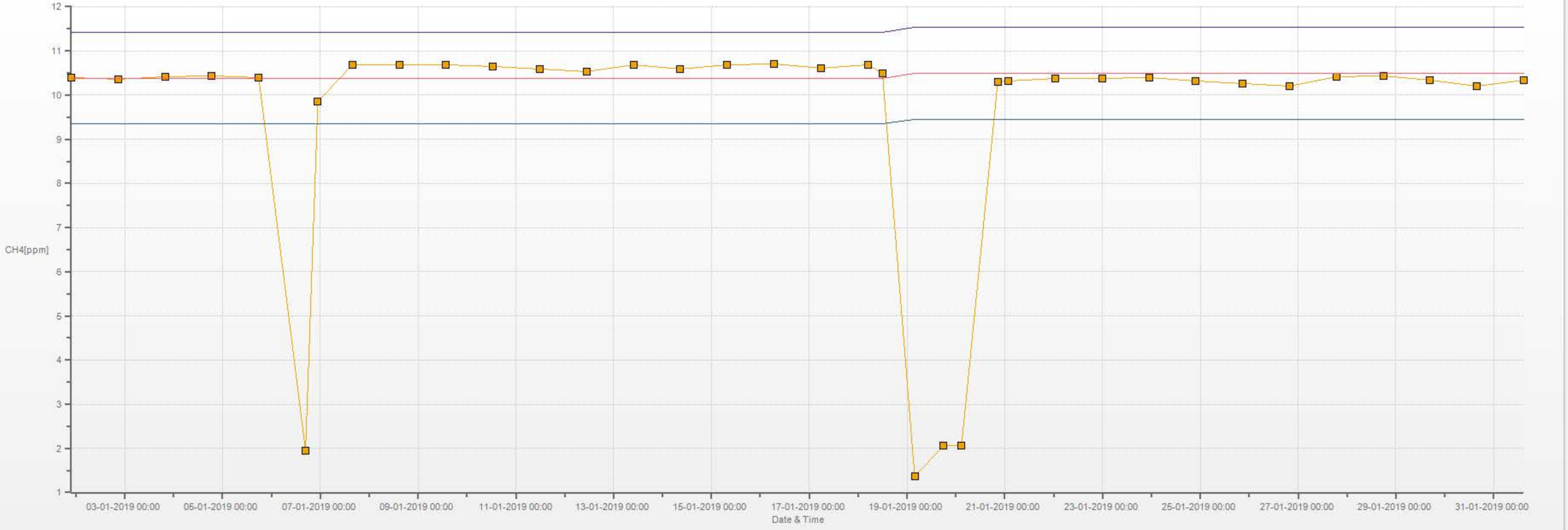
Wind: PRAMP 986 Poll.: PRAMP 986-CH4[ppm] Monthly: 01-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 7.28% Valid Data: 89.17% Calm Avg: 2.14 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	5.31	11.38	0	0	0	16.69
NE	0.76	6.22	0	0	0	6.98
E	0.15	12.29	0	0	0	12.44
SE	0	10.02	0	0	0	10.02
S	1.82	10.93	0	0	0	12.75
SW	10.93	5.31	0	0	0	16.24
W	3.19	3.64	0	0	0	6.83
NW	0.76	10.02	0	0	0	10.78
Summary	22.92	69.81	0	0	0	92.73



%	Icon	Classes (ppm)									
23		0-2	70		2-5	0		5-10	0		10-20	0		>20.0

CH4[ppm] Calibration: PRAMP 986 Monthly: 04-2019 Type: Span



peace river area monitoring program pramp

PEACE RIVER AREA MONITORING PROGRAM

986b Station - January 2019

Summary of Hourly Averages

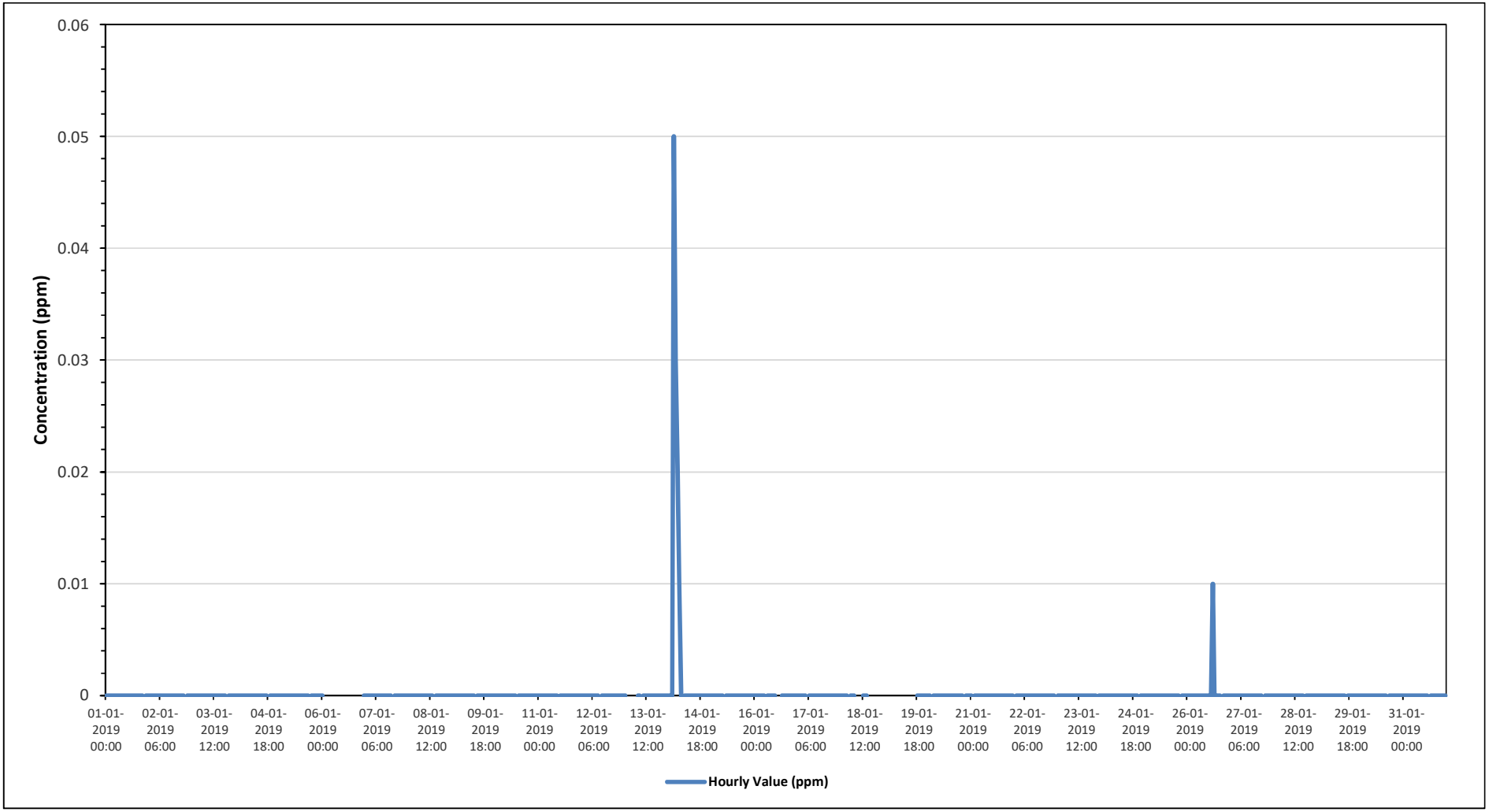
NON-METHANE HYDROCARBONS (NMHC) in ppm

Maximum Hourly Value:	0.05	ppm	on January 14 at hour 3	Hours in Service:	744
Maximum Daily Value:	0.00	ppm	on January 1	Hours of Data:	651
Minimum Hourly Value:	0.00	ppm	on January 1 at hour 0	Hours of Missing Data:	56
Minimum Daily Value:	0.00	ppm	on January 1	Hours of Calibration:	37
Monthly Average:	0.00	ppm		Operational Uptime:	92.5

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	**0.00**	0.00	**0.00**
Jan 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00
Jan 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 6	0.00	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	0.00	0.00	0.00	0.00
Jan 7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 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	0.00
Jan 11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 13	0.00	X	X	X	X	X	X	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 14	0.00	0.00	0.00	**0.05**	0.03	0.02	0.01	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.05**	0.00
Jan 15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 16	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	Q	Q	Q	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 17	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 18	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	C	C	C	C	0.00	0.00	0.00	X	X	X	X	X	X	X	X	X	0.00	0.00	0.00
Jan 19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 20	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S1	0.00	0.00	0.00	0.00	0.00	0.00
Jan 21	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 22	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00
Jan 23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00
Jan 24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00
Jan 25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00
Jan 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	0.01	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Jan 27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diurnal Maximum	0.00	0.00	0.00	0.05	0.03	0.02	0.01	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			
Daiurnal Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

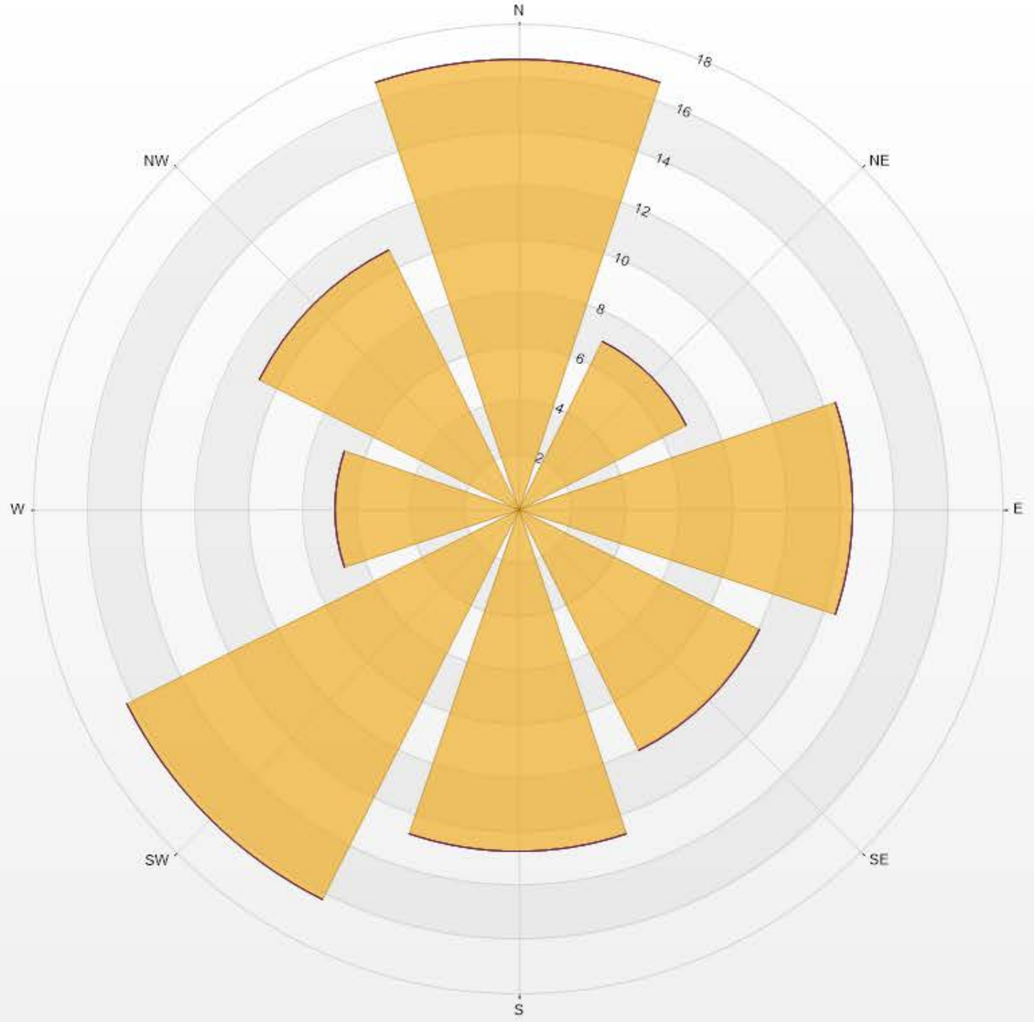
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

Timeseries Chart of Hourly Average for NMHC - 986b Station



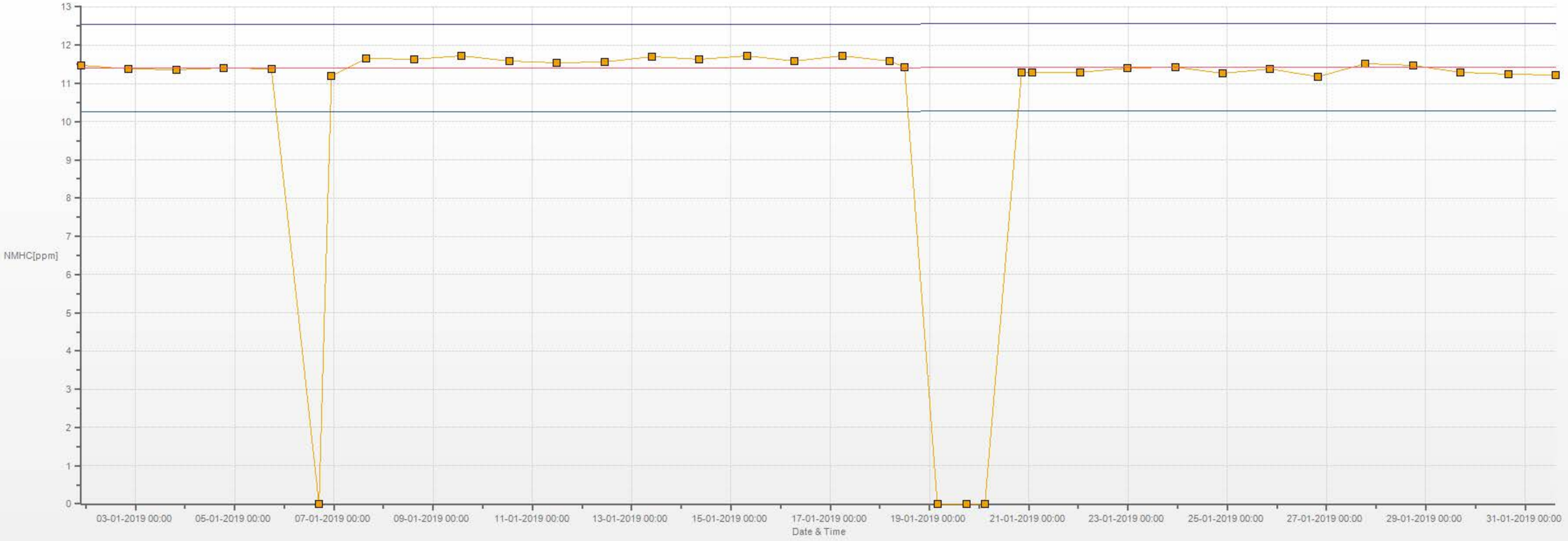
Wind: PRAMP 986 Poll.: PRAMP 986-NMHC[ppm] Monthly: 01-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 7.28% Valid Data: 89.17% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	16.69	0	0	0	0	16.69
NE	6.98	0	0	0	0	6.98
E	12.44	0	0	0	0	12.44
SE	10.02	0	0	0	0	10.02
S	12.75	0	0	0	0	12.75
SW	16.24	0	0	0	0	16.24
W	6.83	0	0	0	0	6.83
NW	10.77	0	0	0	0	10.77
Summary	92.72	0	0	0	0	92.72



%	Icon	Classes (ppm)									
93		0-0.1	0		0.1-0.3	0		0.3-0.9	0		0.9-2	0		>2.0

NMHC[ppm] Calibration: PRAMP 986 Monthly: 01-2019 Type: Span



PEACE RIVER AREA MONITORING PROGRAM

986b Station - January 2019

Summary of Hourly Averages

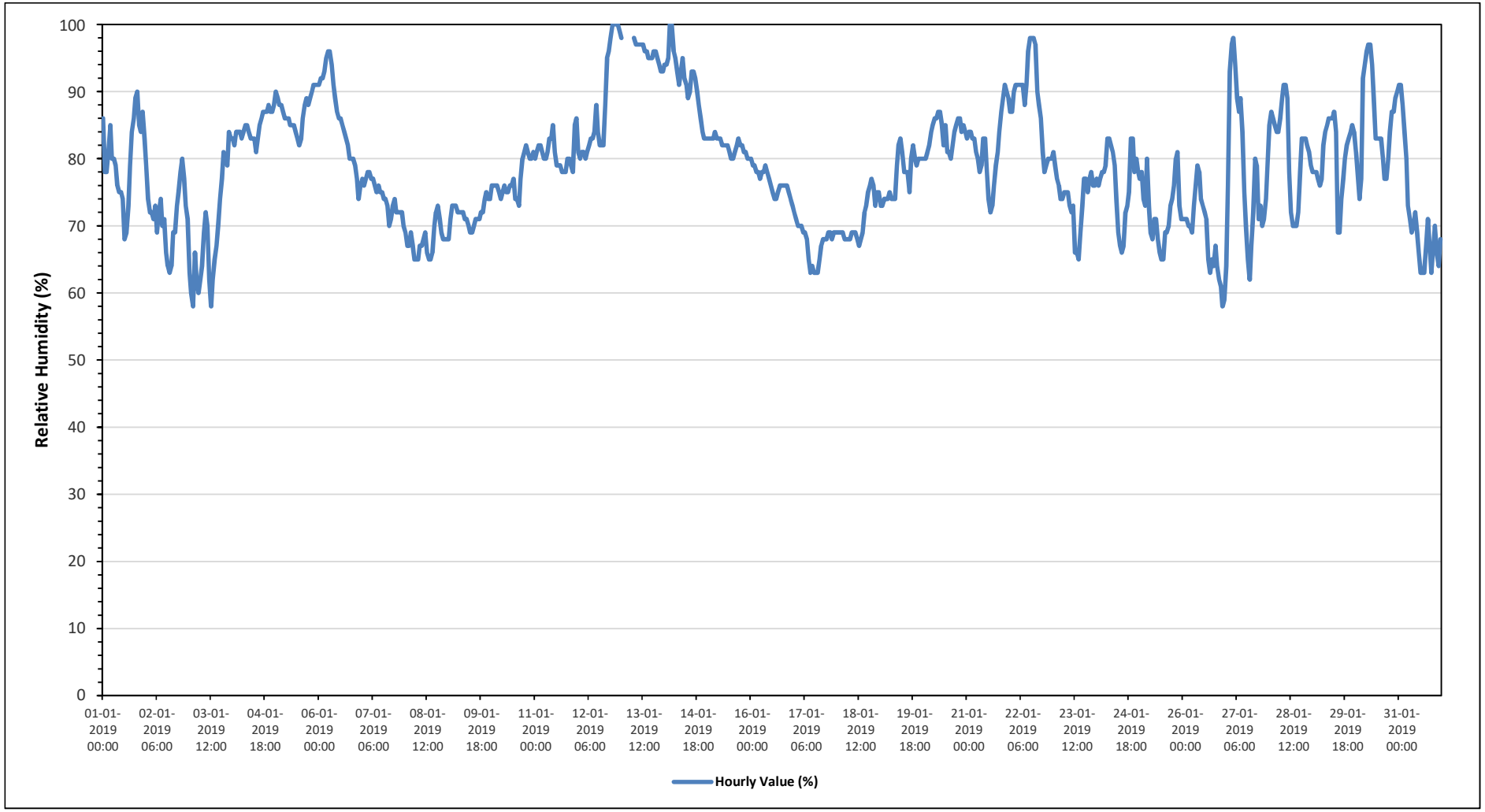
RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	100	%	on January 12 at hour 19	Hours in Service:	744
Maximum Daily Value:	95.8	%	on January 13	Hours of Data:	738
Minimum Hourly Value:	58	%	on January 3 at hour 12	Hours of Missing Data:	6
Minimum Daily Value:	67.5	%	on January 17	Hours of Calibration:	0
Monthly Average:	78.7	%		Operational Uptime:	99.2

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	86	78	78	81	85	80	80	79	76	75	75	74	68	69	73	79	84	86	89	90	85	84	87	83	68	90	80.2
Jan 2	79	74	72	72	71	73	69	72	74	70	71	66	64	63	64	69	69	73	75	78	80	77	73	71	63	80	71.6
Jan 3	63	60	58	66	62	60	62	64	69	72	70	62	**58**	62	65	67	70	74	77	81	80	79	84	83	**58**	84	68.7
Jan 4	83	82	84	84	84	83	84	85	85	84	83	83	83	81	83	85	86	87	87	87	88	87	87	88	81	88	84.7
Jan 5	90	89	88	88	87	86	86	86	85	85	85	84	83	82	83	86	88	89	88	89	90	91	91	91	82	91	87.1
Jan 6	91	92	92	93	95	96	96	94	91	89	87	86	86	85	84	83	82	80	80	80	79	77	74	76	74	96	86.2
Jan 7	77	76	77	78	78	77	77	76	75	76	75	75	74	74	73	70	71	73	74	72	72	72	72	70	70	78	74.3
Jan 8	69	67	67	69	67	65	65	65	67	67	68	69	66	65	65	66	70	72	73	71	69	68	68	68	65	73	67.8
Jan 9	68	71	73	73	73	72	72	72	72	71	71	70	69	69	70	71	71	71	72	72	74	75	74	74	68	75	71.7
Jan 10	76	76	76	76	75	74	75	76	75	75	76	76	77	74	74	73	77	80	81	82	81	80	80	81	73	82	76.9
Jan 11	80	81	82	82	81	80	80	81	83	83	85	81	79	79	79	78	78	78	80	80	79	78	85	86	78	86	80.8
Jan 12	81	80	81	81	80	81	82	83	83	84	88	84	82	82	82	88	95	96	98	**100**	**100**	**100**	**100**	99	80	**100**	87.9
Jan 13	98	X	X	X	X	X	X	98	97	97	97	97	97	96	96	95	95	95	96	96	95	94	93	93	93	98	**95.8**
Jan 14	94	94	95	**100**	**100**	96	95	93	91	93	95	92	91	89	90	93	93	92	90	88	86	84	83	83	83	**100**	91.7
Jan 15	83	83	83	83	84	83	83	83	82	82	82	82	81	80	80	81	82	83	82	82	81	81	80	80	80	84	81.9
Jan 16	80	79	79	78	78	77	78	78	79	78	77	76	75	74	74	75	76	76	76	76	76	75	74	73	73	80	76.5
Jan 17	72	71	70	70	70	69	69	68	65	63	64	63	63	63	65	67	68	68	68	69	69	68	69	69	63	72	**67.5**
Jan 18	69	69	69	69	68	68	68	68	69	69	69	68	67	68	69	72	73	75	76	77	76	73	75	75	67	77	70.8
Jan 19	73	73	74	74	74	75	74	74	74	79	82	83	81	78	78	78	75	80	82	80	79	80	80	80	73	83	77.5
Jan 20	80	80	81	82	84	85	86	86	87	87	85	82	85	81	81	80	82	84	85	86	86	84	85	84	80	87	83.7
Jan 21	83	84	84	83	83	81	80	78	79	83	83	78	74	72	73	76	79	81	84	87	89	91	90	89	72	91	81.8
Jan 22	87	87	90	91	91	91	91	91	88	91	96	98	98	98	97	90	88	86	81	78	79	80	80	80	78	98	88.6
Jan 23	81	79	77	76	74	74	75	75	75	73	72	73	66	66	65	69	73	77	77	75	77	78	76	76	65	81	74.1
Jan 24	77	76	77	78	78	79	83	83	82	81	79	74	69	67	66	67	72	73	75	83	83	78	80	78	66	83	76.6
Jan 25	77	78	74	73	80	73	69	68	71	71	68	66	65	65	69	69	70	73	74	76	80	81	73	71	65	81	72.3
Jan 26	71	71	71	70	70	69	73	76	79	78	74	73	72	71	65	63	65	64	67	64	62	61	58	59	58	79	68.6
Jan 27	64	76	93	97	98	94	89	87	89	84	75	70	65	62	67	72	80	79	71	73	70	71	74	79	62	98	78.3
Jan 28	85	87	86	85	84	84	86	89	91	91	89	78	72	70	70	70	72	78	83	83	83	82	81	79	70	91	81.6
Jan 29	78	78	78	77	76	77	82	84	85	86	86	86	87	84	69	69	74	77	80	82	83	84	85	84	69	87	80.5
Jan 30	81	78	74	77	92	94	96	97	97	94	89	83	83	83	83	80	77	77	80	84	87	87	89	90	74	97	85.5
Jan 31	91	91	88	84	80	73	71	69	70	72	69	66	63	63	63	67	71	67	63	67	70	66	64	68	63	91	71.5
Diurnal Maximum	98	94	95	100	100	96	96	98	97	97	97	98	98	98	97	95	95	96	98	100	100	100	100	99			
Daiurnal Average	79.6	78.7	79.0	79.7	80.1	79.0	79.2	79.9	80.2	80.1	79.5	77.4	75.6	74.7	74.7	75.7	77.6	78.8	79.5	80.3	80.3	79.5	79.5	79.4			

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

Timeseries Chart of Hourly Average for RH - 986b Station



PEACE RIVER AREA MONITORING PROGRAM

986b Station - January 2019

Summary of Hourly Averages

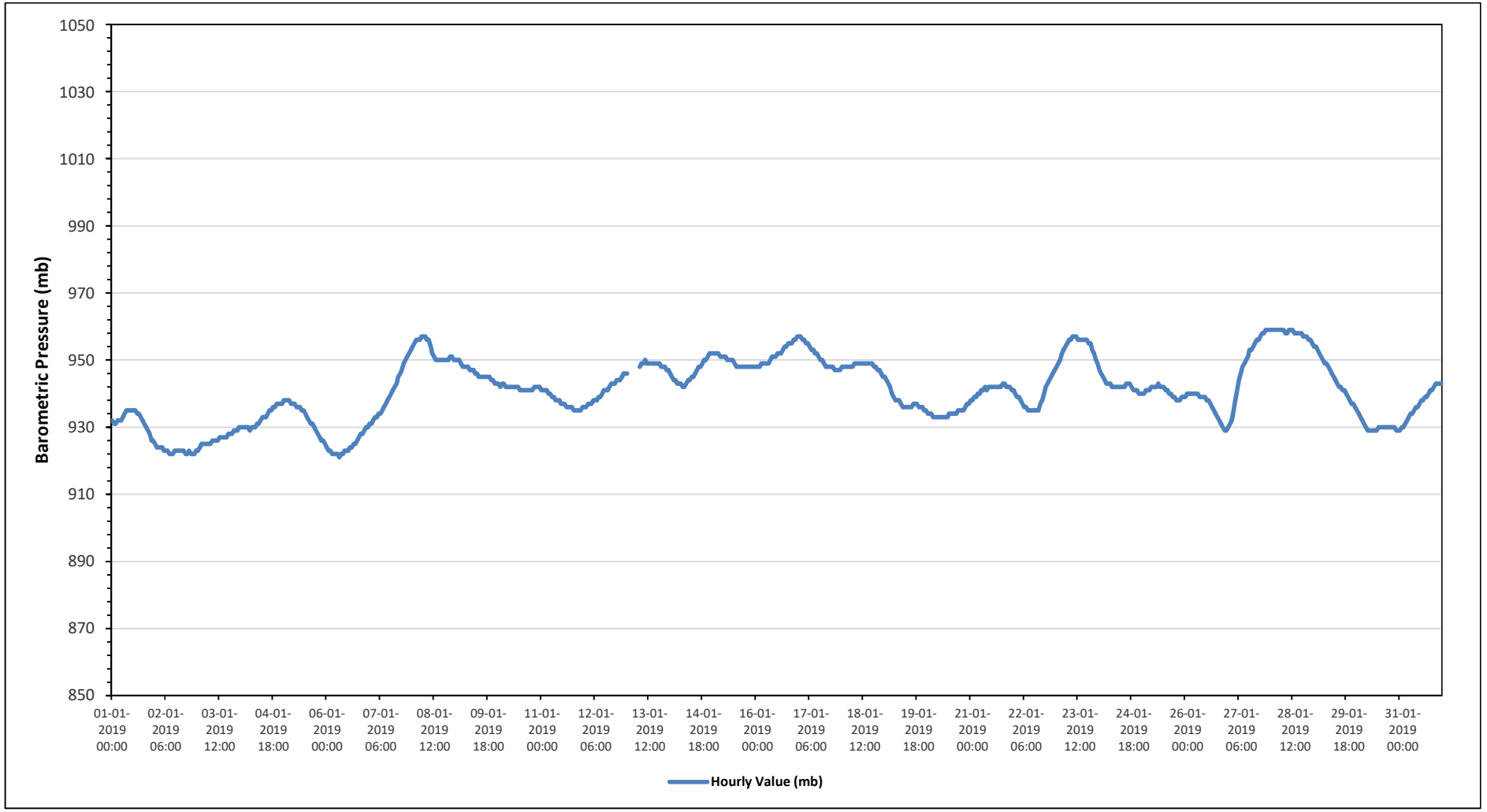
BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	959	mb	on January 27 at hour 21	Hours in Service:	744
Maximum Daily Value:	958	mb	on January 28	Hours of Data:	738
Minimum Hourly Value:	921	mb	on January 6 at hour 7	Hours of Missing Data:	6
Minimum Daily Value:	923	mb	on January 2	Hours of Calibration:	0
Monthly Average:	941	mb		Operational Uptime:	99.2

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	932	931	931	932	932	932	933	934	935	935	935	935	935	935	934	934	933	932	931	930	929	928	926	926	926	935	932
Jan 2	925	924	924	924	924	923	923	923	922	922	922	923	923	923	923	923	923	922	922	923	922	922	922	923	922	925	**923**
Jan 3	923	924	925	925	925	925	925	925	926	926	926	926	927	927	927	927	927	928	928	928	929	929	929	930	923	930	927
Jan 4	930	930	930	930	930	929	930	930	930	931	931	932	933	933	933	934	935	935	936	936	937	937	937	937	929	937	933
Jan 5	938	938	938	938	937	937	937	936	936	936	935	935	934	933	932	931	931	930	929	928	927	926	926	925	925	938	933
Jan 6	924	923	923	922	922	922	922	**921**	922	922	923	923	923	924	924	925	925	926	927	928	928	929	930	930	**921**	930	925
Jan 7	931	931	932	933	933	934	934	935	936	937	938	939	940	941	942	943	945	946	947	949	950	951	952	953	931	953	941
Jan 8	954	955	956	956	956	957	957	957	956	956	954	952	951	950	950	950	950	950	950	950	950	951	951	950	950	957	953
Jan 9	950	950	950	949	948	948	948	948	947	947	947	946	946	945	945	945	945	945	945	945	944	944	943	943	943	950	946
Jan 10	943	942	943	943	942	942	942	942	942	942	942	942	941	941	941	941	941	941	941	941	942	942	942	942	941	943	942
Jan 11	941	941	941	941	940	940	939	939	938	938	938	937	937	937	936	936	936	936	935	935	935	935	935	936	935	941	938
Jan 12	936	936	937	937	937	938	938	938	939	939	940	941	941	941	942	943	943	943	944	944	944	945	946	946	936	946	941
Jan 13	946	X	X	X	X	X	X	948	949	949	950	949	949	949	949	949	949	949	949	948	948	948	947	947	946	950	948
Jan 14	946	945	944	944	943	943	943	942	942	943	944	944	945	945	946	947	948	948	949	950	950	951	952	952	942	952	946
Jan 15	952	952	952	952	951	951	951	951	950	950	950	950	949	948	948	948	948	948	948	948	948	948	948	948	948	952	950
Jan 16	948	948	948	949	949	949	949	949	950	951	951	951	952	952	952	953	954	954	955	955	955	956	956	957	948	957	952
Jan 17	957	957	956	956	955	955	954	953	953	952	952	951	950	950	949	948	948	948	948	948	947	947	947	947	947	957	951
Jan 18	948	948	948	948	948	948	948	949	949	949	949	949	949	949	949	949	949	949	948	948	947	947	946	945	945	949	948
Jan 19	945	944	943	942	940	939	938	938	938	937	936	936	936	936	936	936	937	937	937	936	936	936	935	935	935	945	938
Jan 20	934	934	934	933	933	933	933	933	933	933	933	933	934	934	934	934	934	935	935	935	935	936	937	937	933	937	934
Jan 21	938	938	939	939	940	940	941	941	942	941	942	942	942	942	942	942	942	942	943	943	942	942	942	941	938	943	941
Jan 22	941	940	939	939	938	937	936	936	935	935	935	935	935	935	935	937	938	940	942	943	944	945	946	947	935	947	939
Jan 23	948	949	950	952	953	954	955	956	956	957	957	957	956	956	956	956	956	956	955	955	953	952	950	949	948	957	954
Jan 24	947	946	945	944	943	943	943	942	942	942	942	942	942	942	942	943	943	943	942	941	941	941	940	940	940	947	943
Jan 25	940	940	941	941	941	942	942	942	942	943	942	942	942	941	941	940	940	939	939	938	938	938	939	939	938	943	941
Jan 26	939	940	940	940	940	940	940	940	939	939	939	939	938	938	937	936	935	934	933	932	931	930	929	929	929	940	937
Jan 27	930	931	932	935	938	941	944	946	948	949	950	951	953	953	954	955	956	956	957	958	958	**959**	**959**	**959**	930	**959**	949
Jan 28	**959**	**959**	**959**	**959**	**959**	**959**	**959**	**959**	958	958	**959**	**959**	**959**	958	958	958	958	958	957	957	957	956	956	955	955	**959**	**958**
Jan 29	954	954	953	952	951	950	949	949	948	947	946	945	944	943	942	942	941	941	940	939	938	937	937	936	936	954	945
Jan 30	935	934	933	932	931	930	929	929	929	929	929	929	930	930	930	930	930	930	930	930	930	930	929	929	929	935	930
Jan 31	929	930	930	931	932	933	934	934	935	936	936	937	938	938	939	939	940	941	941	942	943	943	943	943	929	943	937
Diurnal Maximum	959	959	959	959	959	959	959	959	958	958	959	959	959	958	958	958	958	958	957	958	958	959	959	959			
Daiurnal Average	941	940	941	941	940	940	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941			

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 BP - 986b Station



PEACE RIVER AREA MONITORING PROGRAM

986b Station - January 2019

Summary of Hourly Averages

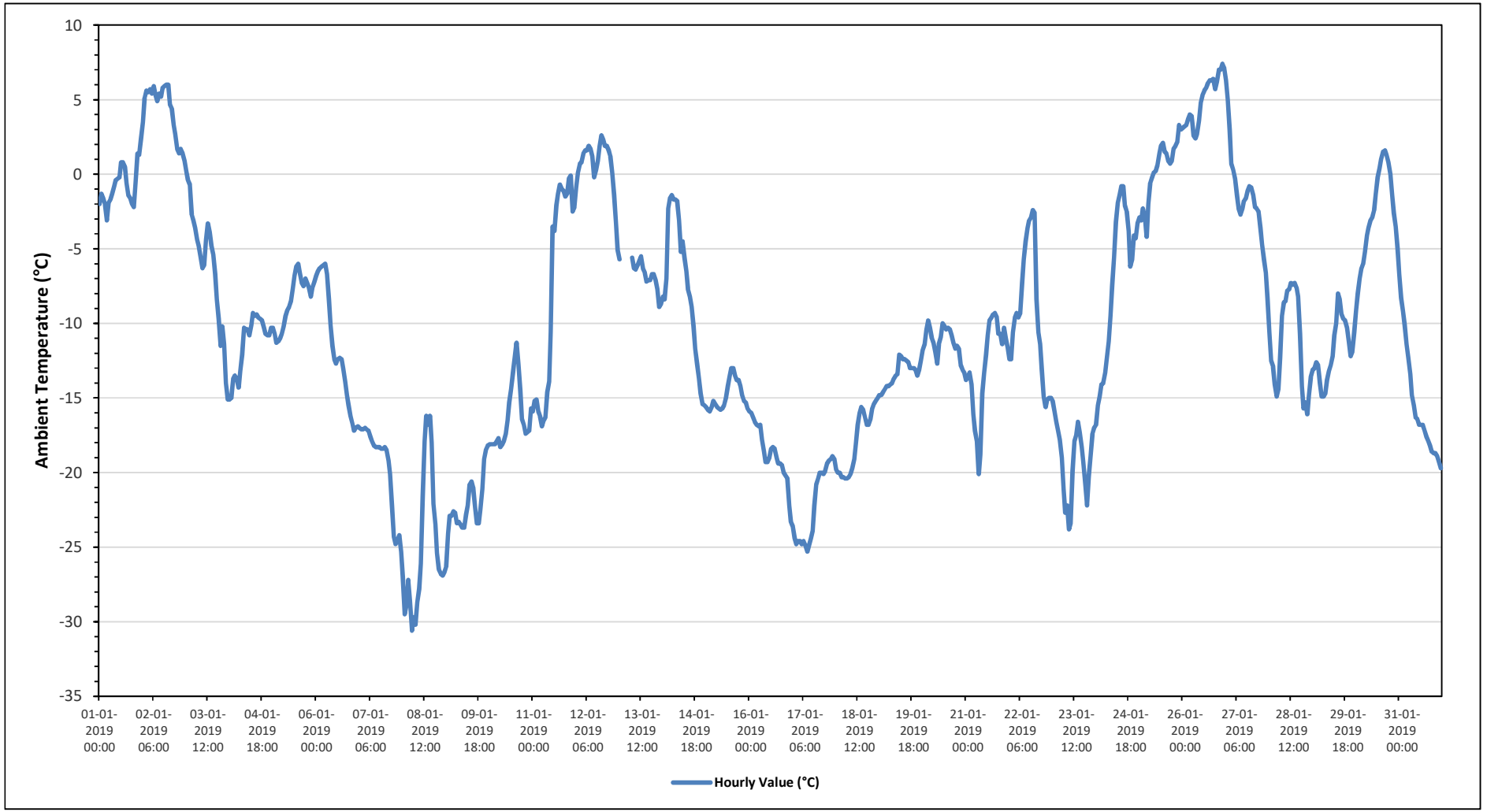
AMBIENT TEMPERATURE (AT) in Degree Celsius

Maximum Hourly Value:	7.4	°C	on January 26 at hour 22	Hours in Service:	744
Maximum Daily Value:	5.0	°C	on January 26	Hours of Data:	738
Minimum Hourly Value:	-30.6	°C	on January 8 at hour 5	Hours of Missing Data:	6
Minimum Daily Value:	-25.0	°C	on January 8	Hours of Calibration:	0
Monthly Average:	-10.5	°C		Operational Uptime:	99.2

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			
Jan 1	-2.0	-1.3	-1.6	-2.0	-3.1	-1.9	-1.7	-1.3	-0.8	-0.4	-0.3	-0.2	0.8	0.8	0.5	-0.6	-1.4	-1.6	-2.0	-2.2	-0.5	1.4	1.3	2.4	-3.1	2.4	-0.7
Jan 2	3.5	5.1	5.6	5.5	5.7	5.4	5.9	5.3	4.9	5.4	5.2	5.8	5.9	6.0	6.0	4.7	4.4	3.3	2.7	1.7	1.4	1.7	1.4	0.9	0.9	6.0	4.3
Jan 3	0.2	-0.4	-0.7	-2.7	-3.1	-3.6	-4.4	-4.8	-5.6	-6.3	-6.1	-4.4	-3.3	-3.9	-4.8	-5.4	-6.7	-8.4	-9.7	-11.5	-10.2	-11.4	-14.0	-15.1	-15.1	0.2	-6.1
Jan 4	-15.1	-15.0	-13.7	-13.5	-13.7	-14.3	-13.2	-12.1	-10.3	-10.4	-10.4	-10.8	-10.1	-9.3	-9.5	-9.4	-9.6	-9.7	-9.8	-10.3	-10.7	-10.8	-10.8	-10.3	-15.1	-9.3	-11.4
Jan 5	-10.3	-10.7	-11.3	-11.2	-11.0	-10.7	-10.2	-9.5	-9.1	-8.9	-8.5	-7.7	-6.8	-6.2	-6.0	-6.6	-7.3	-7.5	-7.0	-7.3	-7.6	-8.2	-7.6	-7.2	-11.3	-6.0	-8.5
Jan 6	-6.8	-6.5	-6.3	-6.2	-6.1	-6.0	-6.7	-8.4	-10.1	-11.5	-12.4	-12.7	-12.4	-12.3	-12.4	-13.0	-13.9	-14.8	-15.5	-16.2	-16.7	-17.2	-17.0	-16.9	-17.2	-6.0	-11.6
Jan 7	-17.0	-17.1	-17.1	-17.0	-17.1	-17.2	-17.6	-17.9	-18.2	-18.3	-18.3	-18.3	-18.4	-18.4	-18.3	-18.5	-19.2	-20.1	-22.2	-24.3	-24.8	-24.6	-24.2	-25.3	-25.3	-17.0	-19.6
Jan 8	-27.0	-29.5	-28.9	-27.2	-28.6	**-30.6**	-29.7	-30.2	-28.7	-27.8	-26.1	-21.6	-17.9	-16.2	-16.8	-16.2	-18.0	-22.1	-23.5	-25.4	-26.5	-26.8	-26.9	-26.7	**-30.6**	-16.2	**-25.0**
Jan 9	-26.3	-24.1	-22.9	-22.9	-22.6	-22.7	-23.4	-23.3	-23.5	-23.7	-23.7	-22.8	-22.2	-20.8	-20.6	-21.0	-22.3	-23.4	-23.4	-22.5	-21.1	-19.1	-18.5	-18.2	-26.3	-18.2	-22.3
Jan 10	-18.1	-18.1	-18.1	-18.1	-17.9	-17.7	-18.3	-18.1	-17.9	-17.4	-16.5	-15.3	-14.4	-13.3	-12.3	-11.3	-12.7	-14.5	-16.4	-16.8	-17.4	-17.3	-17.2	-15.7	-18.3	-11.3	-16.3
Jan 11	-15.9	-15.2	-15.1	-15.9	-16.2	-16.9	-16.5	-16.3	-14.6	-13.9	-10.6	-3.5	-3.8	-2.1	-1.3	-0.7	-1.0	-1.1	-1.5	-1.3	-0.3	-0.1	-2.5	-2.2	-16.9	-0.1	-7.9
Jan 12	-0.9	0.1	0.7	0.8	1.4	1.6	1.6	1.9	1.7	1.2	-0.2	0.3	0.9	1.9	2.6	2.3	1.9	1.9	1.6	1.2	0.1	-1.4	-3.3	-5.1	-5.1	2.6	0.6
Jan 13	-5.7	X	X	X	X	X	X	-5.6	-6.3	-6.4	-6.1	-5.8	-5.5	-6.3	-6.6	-7.2	-7.1	-7.1	-6.7	-6.7	-7.1	-7.7	-8.9	-8.7	-8.9	-5.5	-6.8
Jan 14	-8.2	-8.4	-7.0	-2.3	-1.6	-1.4	-1.7	-1.7	-1.8	-3.1	-5.2	-4.5	-5.6	-6.5	-7.7	-8.2	-8.9	-10.2	-11.7	-12.7	-13.7	-14.7	-15.4	-15.5	-15.5	-1.4	-7.4
Jan 15	-15.6	-15.8	-15.9	-15.6	-15.2	-15.4	-15.6	-15.7	-15.8	-15.7	-15.5	-15.0	-14.2	-13.5	-13.0	-13.0	-13.5	-13.8	-13.8	-14.2	-14.8	-15.2	-15.3	-15.7	-15.9	-13.0	-14.9
Jan 16	-15.9	-16.0	-16.3	-16.6	-16.8	-16.9	-16.8	-17.8	-18.6	-19.3	-19.3	-19.0	-18.4	-18.3	-18.4	-19.0	-19.4	-19.4	-19.5	-20.0	-20.2	-20.4	-22.2	-23.3	-23.3	-15.9	-18.7
Jan 17	-23.6	-24.4	-24.8	-24.6	-24.6	-24.8	-24.6	-24.9	-25.3	-24.9	-24.4	-23.9	-22.2	-20.8	-20.4	-20.0	-20.0	-20.1	-19.9	-19.4	-19.2	-19.1	-18.9	-19.1	-25.3	-18.9	-22.2
Jan 18	-19.8	-20.0	-20.0	-20.3	-20.3	-20.4	-20.4	-20.3	-20.1	-19.7	-19.1	-18.1	-16.8	-16.0	-15.6	-15.8	-16.3	-16.8	-16.8	-16.4	-15.7	-15.4	-15.2	-15.0	-20.4	-15.0	-17.9
Jan 19	-14.8	-14.8	-14.6	-14.4	-14.2	-14.2	-14.1	-14.0	-13.7	-13.5	-13.4	-12.1	-12.2	-12.4	-12.4	-12.5	-12.6	-13.0	-13.0	-13.0	-13.1	-13.5	-13.1	-12.5	-14.8	-12.1	-13.4
Jan 20	-11.8	-11.4	-10.4	-9.8	-10.3	-11.0	-11.3	-11.9	-12.7	-11.4	-10.9	-10.0	-10.2	-10.4	-10.3	-10.4	-10.8	-11.3	-11.7	-11.5	-11.7	-12.8	-13.1	-13.3	-13.3	-9.8	-11.3
Jan 21	-13.8	-13.6	-13.3	-14.1	-16.1	-17.2	-17.9	-20.1	-18.8	-14.7	-13.3	-12.1	-10.8	-9.8	-9.6	-9.4	-9.3	-9.6	-10.7	-10.7	-11.4	-10.3	-11.0	-11.6	-20.1	-9.3	-12.9
Jan 22	-12.4	-12.4	-10.6	-9.6	-9.3	-9.6	-9.3	-7.3	-5.7	-4.5	-3.6	-3.1	-2.9	-2.4	-2.6	-8.4	-10.6	-11.4	-13.1	-14.9	-15.6	-15.1	-15.0	-15.0	-15.6	-2.4	-9.4
Jan 23	-15.2	-15.9	-16.6	-17.2	-17.8	-19.0	-21.1	-22.7	-22.2	-23.8	-23.4	-19.9	-17.9	-17.5	-16.6	-17.3	-18.3	-19.3	-20.8	-22.2	-20.3	-18.9	-17.4	-17.0	-23.8	-15.2	-19.1
Jan 24	-16.8	-15.5	-14.9	-14.1	-14.0	-13.3	-12.4	-11.2	-9.5	-7.5	-5.6	-3.2	-1.9	-1.4	-0.8	-0.8	-2.1	-2.5	-3.8	-6.2	-5.7	-4.1	-4.3	-3.3	-16.8	-0.8	-7.3
Jan 25	-2.9	-3.1	-2.3	-2.8	-4.2	-2.0	-0.6	-0.2	0.1	0.2	0.6	1.4	1.9	2.1	1.5	1.4	0.9	0.7	0.9	1.7	1.9	2.2	3.3	3.0	-4.2	3.3	0.2
Jan 26	3.1	3.2	3.3	3.7	4.0	3.9	2.6	2.4	2.7	3.6	4.8	5.3	5.6	5.8	6.1	6.3	6.3	6.4	5.7	6.2	7.0	7.0	**7.4**	7.1	2.4	**7.4**	**5.0**
Jan 27	6.3	5.0	3.0	0.7	0.3	-0.3	-1.4	-2.3	-2.7	-2.3	-1.8	-1.6	-1.1	-0.8	-0.9	-1.4	-2.2	-2.3	-2.5	-3.6	-4.7	-5.7	-6.6	-8.3	-8.3	6.3	-1.6
Jan 28	-10.6	-12.5	-12.9	-14.1	-14.9	-14.4	-12.3	-9.5	-8.6	-8.5	-7.8	-7.7	-7.3	-7.4	-7.3	-7.6	-8.2	-10.7	-14.2	-15.7	-15.3	-16.1	-14.8	-13.6	-16.1	-7.3	-11.3
Jan 29	-13.1	-13.0	-12.6	-12.8	-14.0	-14.9	-14.9	-14.7	-13.8	-13.2	-12.8	-12.2	-10.8	-10.0	-8.0	-8.4	-9.4	-9.7	-9.8	-10.3	-11.2	-12.2	-11.9	-10.6	-14.9	-8.0	-11.8
Jan 30	-9.1	-8.0	-7.0	-6.3	-6.0	-5.2	-4.1	-3.6	-3.1	-2.9	-2.4	-1.3	-0.2	0.4	1.0	1.5	1.6	1.3	0.8	0.0	-1.4	-2.6	-3.5	-5.0	-9.1	1.6	-2.7
Jan 31	-6.7	-8.3	-9.2	-10.1	-11.4	-12.3	-13.4	-14.8	-15.5	-16.3	-16.4	-16.8	-16.8	-16.8	-17.2	-17.6	-17.9	-18.2	-18.6	-18.7	-18.7	-18.9	-19.3	-19.7	-19.7	-6.7	-15.4
Diurnal Maximum	6.3	5.1	5.6	5.5	5.7	5.4	5.9	5.3	4.9	5.4	5.2	5.8	5.9	6.0	6.1	6.3	6.3	6.4	5.7	6.2	7.0	7.0	7.4	7.1			
Daiurnal Average	-11.0	-11.3	-11.1	-11.0	-11.3	-11.4	-11.5	-11.3	-11.1	-10.8	-10.4	-9.4	-8.7	-8.3	-8.1	-8.5	-9.1	-9.8	-10.5	-11.1	-11.1	-11.2	-11.4	-11.5			

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

Timeseries Chart of Hourly Average for AT - 986b Station



PEACE RIVER AREA MONITORING PROGRAM

986b Station - January 2019

Summary of Hourly Averages

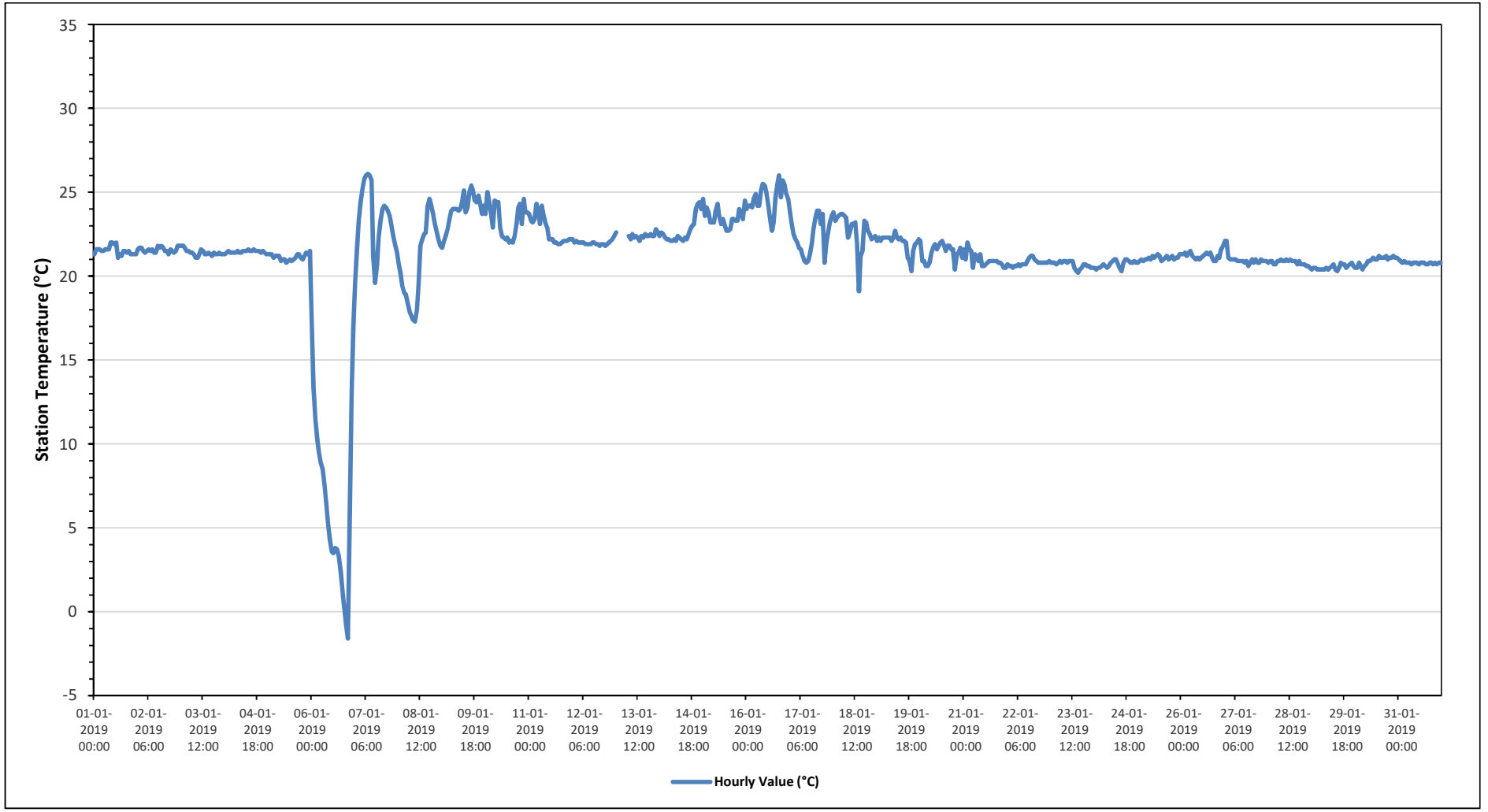
STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:	26.1	°C	on January 7 at hour 7	Hours in Service:	744
Maximum Daily Value:	24.6	°C	on January 16	Hours of Data:	738
Minimum Hourly Value:	-1.6	°C	on January 6 at hour 20	Hours of Missing Data:	6
Minimum Daily Value:	6.6	°C	on January 6	Hours of Calibration:	0
Monthly Average:	21.3	°C		Operational Uptime:	99.2

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	21.3	21.6	21.6	21.6	21.5	21.5	21.6	21.6	21.6	22.0	22.0	21.9	22.0	21.1	21.3	21.2	21.5	21.5	21.4	21.5	21.3	21.3	21.3	21.3	21.1	22.0	21.5
Jan 2	21.6	21.7	21.7	21.5	21.4	21.5	21.6	21.5	21.6	21.4	21.4	21.8	21.7	21.8	21.7	21.5	21.5	21.3	21.6	21.5	21.4	21.5	21.8	21.8	21.3	21.8	21.6
Jan 3	21.8	21.8	21.7	21.5	21.5	21.4	21.4	21.3	21.1	21.1	21.3	21.6	21.5	21.3	21.3	21.4	21.3	21.2	21.4	21.3	21.3	21.4	21.3	21.3	21.1	21.8	21.4
Jan 4	21.3	21.4	21.5	21.4	21.4	21.4	21.4	21.5	21.4	21.4	21.5	21.5	21.5	21.6	21.5	21.5	21.6	21.5	21.5	21.5	21.4	21.5	21.4	21.3	21.3	21.6	21.5
Jan 5	21.3	21.3	21.3	21.1	21.2	21.2	21.2	20.9	21.0	21.0	20.8	20.9	21.0	20.9	21.0	21.1	21.3	21.3	21.1	21.0	21.2	21.4	21.3	21.5	20.8	21.5	21.1
Jan 6	17.6	13.4	11.5	10.3	9.5	8.9	8.5	7.6	6.5	5.3	4.3	3.6	3.5	3.8	3.7	3.3	2.4	1.2	0.2	-0.8	**-1.6**	5.9	13.0	16.9	**-1.6**	17.6	**6.6**
Jan 7	19.7	21.7	23.3	24.4	25.2	25.8	26.0	**26.1**	26.0	25.7	21.2	19.6	20.7	22.3	23.3	24.0	24.2	24.1	23.9	23.6	23.0	22.4	21.9	21.4	19.6	**26.1**	23.3
Jan 8	20.8	20.2	19.4	19.0	18.9	18.4	17.9	17.6	17.4	17.3	18.0	19.4	21.8	22.2	22.5	22.6	24.2	24.6	24.2	23.7	23.1	22.6	22.2	21.8	17.3	24.6	20.8
Jan 9	21.7	22.1	22.4	22.8	23.4	23.9	24.0	24.0	24.0	23.9	24.0	24.4	25.1	23.8	24.1	25.0	25.4	25.1	24.5	24.4	24.8	24.3	23.7	24.2	21.7	25.4	24.0
Jan 10	23.7	25.0	24.4	23.7	22.9	24.5	24.4	24.4	22.9	22.4	22.3	22.2	22.3	22.0	22.1	22.0	22.4	23.1	24.1	24.3	23.1	24.6	23.8	23.8	22.0	25.0	23.4
Jan 11	23.7	23.3	23.2	23.4	24.3	23.9	23.1	24.2	23.6	23.2	22.9	22.2	22.2	22.2	22.0	22.0	21.9	21.9	22.0	22.1	22.1	22.1	22.2	22.2	21.9	24.3	22.7
Jan 12	22.2	22.0	22.1	22.0	22.0	22.0	22.0	21.9	21.9	21.9	21.9	22.0	22.0	21.9	21.9	21.8	21.9	21.9	21.8	21.9	22.0	22.1	22.2	22.4	21.8	22.4	22.0
Jan 13	22.6	X	X	X	X	X	X	22.4	22.2	22.5	22.3	22.4	22.3	22.1	22.4	22.3	22.5	22.4	22.4	22.5	22.4	22.4	22.8	22.6	22.1	22.8	22.4
Jan 14	22.4	22.6	22.5	22.3	22.2	22.2	22.1	22.1	22.2	22.1	22.4	22.3	22.2	22.1	22.3	22.2	22.5	22.8	23.0	23.1	24.0	24.3	24.4	24.0	22.1	24.4	22.7
Jan 15	24.6	23.6	24.1	23.8	23.2	23.2	23.2	23.9	24.3	23.6	23.1	23.4	23.0	22.7	22.7	22.8	23.4	23.4	23.3	23.3	24.0	23.8	23.4	24.5	22.7	24.6	23.5
Jan 16	24.0	24.2	24.2	24.1	24.6	24.9	24.2	24.2	25.1	25.5	25.4	25.0	24.2	23.4	22.7	23.2	24.7	25.5	26.0	24.7	25.7	25.4	24.9	24.6	22.7	26.0	**24.6**
Jan 17	23.8	23.0	22.5	22.2	22.0	21.7	21.6	21.2	20.9	20.8	20.9	21.3	22.0	22.8	23.5	23.9	23.9	23.1	23.7	20.8	21.9	22.6	23.2	23.6	20.8	23.9	22.4
Jan 18	23.8	23.3	23.5	23.6	23.7	23.7	23.6	23.5	22.3	22.6	23.1	23.1	23.2	21.9	19.1	21.2	21.5	23.3	23.2	22.7	22.5	22.2	22.3	22.4	19.1	23.8	22.7
Jan 19	22.1	22.3	22.1	22.3	22.3	22.3	22.3	22.3	22.1	22.3	22.7	22.3	22.2	22.3	22.1	22.1	22.0	21.1	20.9	20.3	21.5	21.9	22.0	22.2	20.3	22.7	22.0
Jan 20	22.1	20.9	20.9	20.6	20.6	20.8	21.4	21.7	21.9	21.6	21.8	22.0	22.1	21.8	21.5	21.8	21.8	21.6	21.6	20.4	21.3	21.4	21.7	21.1	20.4	22.1	21.4
Jan 21	21.6	21.0	22.0	21.6	21.5	20.5	21.3	21.2	20.9	21.3	20.6	20.6	20.7	20.8	20.9	20.9	20.9	20.9	20.9	20.8	20.8	20.7	20.5	20.5	20.5	22.0	21.0
Jan 22	20.7	20.6	20.6	20.5	20.6	20.6	20.7	20.6	20.7	20.7	20.7	20.9	21.1	21.2	21.2	21.0	20.9	20.8	20.8	20.8	20.8	20.8	20.8	20.9	20.5	21.2	20.8
Jan 23	20.8	20.8	20.8	20.7	20.8	20.9	20.8	20.9	20.9	20.8	20.9	20.9	20.9	20.5	20.3	20.2	20.4	20.5	20.7	20.7	20.6	20.6	20.5	20.5	20.2	20.9	20.7
Jan 24	20.5	20.4	20.5	20.5	20.6	20.7	20.6	20.5	20.6	20.8	20.9	21.0	21.0	20.7	20.5	20.3	20.8	21.0	21.0	20.9	20.8	20.8	20.9	20.8	20.3	21.0	20.7
Jan 25	20.8	20.9	21.0	20.9	21.0	21.0	21.1	21.0	21.2	21.1	21.2	21.3	21.2	20.9	21.0	21.1	21.2	21.0	21.1	21.2	21.0	21.1	21.1	21.3	20.8	21.3	21.1
Jan 26	21.3	21.3	21.4	21.2	21.4	21.5	21.2	21.1	21.0	21.1	21.0	21.1	21.2	21.3	21.4	21.3	21.4	21.1	20.9	20.9	21.2	21.1	21.6	21.8	20.9	21.8	21.2
Jan 27	22.1	22.1	21.1	21.0	21.0	21.0	21.0	20.9	20.9	20.9	20.9	20.8	20.9	20.6	20.8	21.0	20.8	21.0	20.8	20.8	21.0	20.9	20.9	20.9	20.6	22.1	21.0
Jan 28	20.8	20.9	20.9	20.7	20.7	20.9	20.9	21.0	20.9	20.9	21.0	20.9	21.0	20.9	20.9	20.9	20.7	20.9	20.7	20.7	20.7	20.6	20.6	20.5	20.5	21.0	20.8
Jan 29	20.4	20.5	20.5	20.4	20.4	20.4	20.4	20.4	20.5	20.4	20.5	20.6	20.7	20.4	20.3	20.5	20.8	20.7	20.7	20.5	20.6	20.7	20.8	20.6	20.3	20.8	20.5
Jan 30	20.5	20.5	20.8	20.6	20.4	20.6	20.7	20.9	20.9	21.0	21.1	21.0	21.0	21.2	21.1	21.1	21.1	21.2	21.0	21.1	21.1	21.2	21.1	21.1	20.4	21.2	20.9
Jan 31	21.0	20.9	20.8	20.9	20.8	20.8	20.8	20.7	20.8	20.8	20.8	20.7	20.8	20.8	20.8	20.7	20.7	20.8	20.8	20.7	20.8	20.7	20.8	20.8	20.7	21.0	20.8
Diurnal Maximum	24.6	25.0	24.4	24.4	25.2	25.8	26.0	26.1	26.0	25.7	25.4	25.0	25.1	23.8	24.1	25.0	25.4	25.5	26.0	24.7	25.7	25.4	24.9	24.6			
Daiurnal Average	21.7	21.5	21.5	21.4	21.4	21.4	21.4	21.4	21.3	21.2	21.1	21.1	21.2	21.1	21.0	21.2	21.3	21.3	21.3	21.1	21.2	21.4	21.6	21.8			

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

Timeseries Chart of Hourly Average for ST - 986b Station



PEACE RIVER AREA MONITORING PROGRAM

986b Station - January 2019

Summary of Hourly Averages

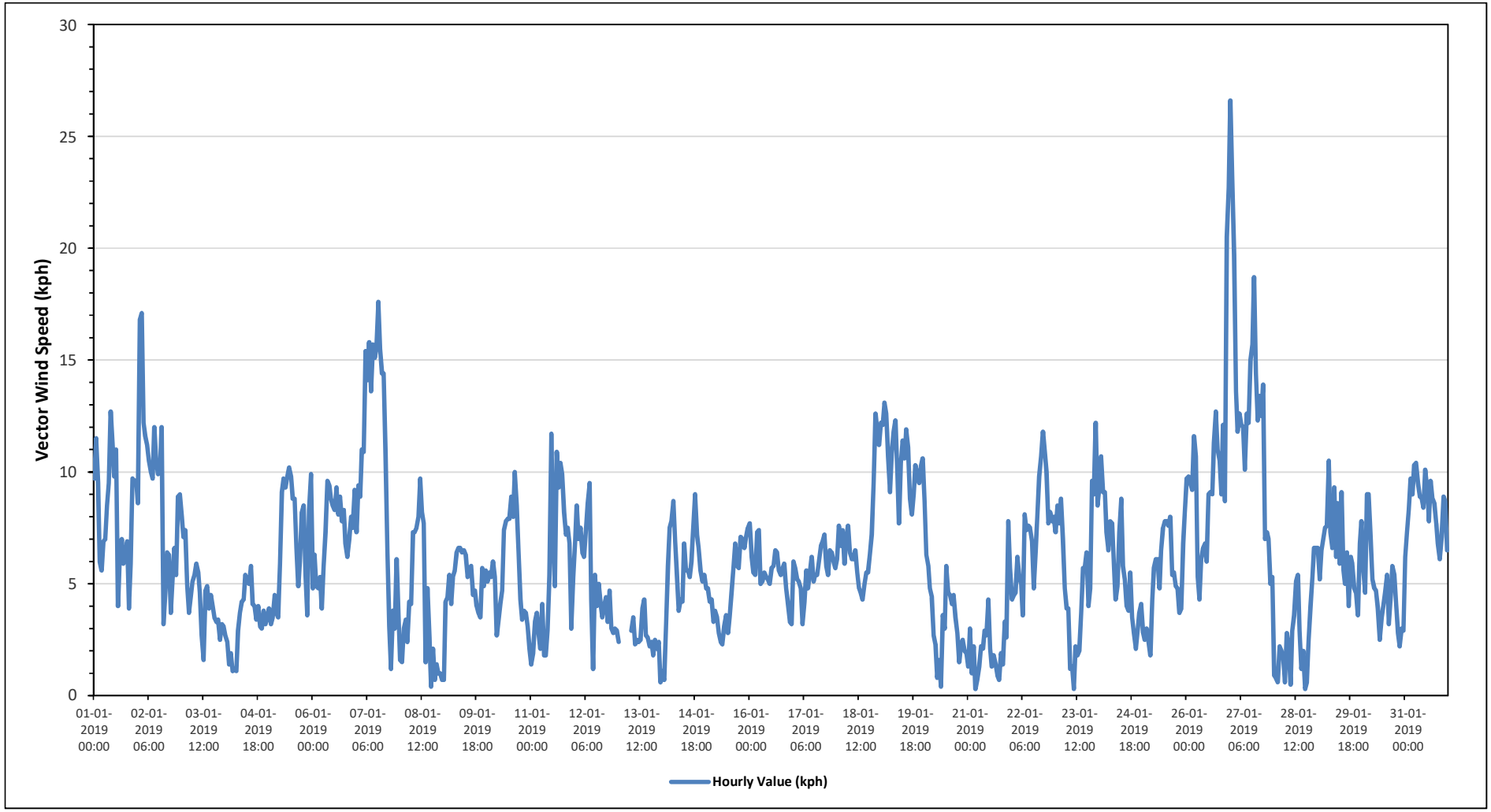
VECTOR WIND SPEED (WS) in km/hr

Maximum Hourly Value:	26.6	kph	on January 27 at hour 0	Hours in Service:	744
Maximum Daily Value:	13.1	kph	on January 27	Hours of Data:	738
Minimum Hourly Value:	0.3	kph	on January 21 at hour 4	Hours of Missing Data:	6
Minimum Daily Value:	2.3	kph	on January 21	Hours of Calibration:	0
Monthly Average:	0.4	kph		Operational Uptime:	99.2

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	9.7	11.5	9.5	6	5.6	6.9	7	8.5	9.5	12.7	11.3	9.8	11	4	6.3	7	5.9	6.3	6.9	3.9	5.9	9.7	9.6	9.6	3.9	12.7	8.1
Jan 2	8.6	16.8	17.1	12.2	11.6	11.2	10.5	10	9.7	12	10.5	9.9	10.1	12	3.2	4.7	6.4	6.3	3.7	5.2	6.6	5.4	8.9	9	3.2	17.1	9.2
Jan 3	8	7.1	7.4	4.9	3.7	4.5	5.1	5.4	5.9	5.5	4.6	2.7	1.6	4.7	4.9	3.9	4.5	4	3.5	3.3	3.4	2.5	3.2	3.1	1.6	8.0	4.5
Jan 4	2.7	2.4	1.4	1.9	1.1	1.2	1.1	2.9	3.7	4.2	4.3	5.4	5.1	5	5.8	4.1	4	3.4	4	3.1	3	3.8	3.2	3.5	1.1	5.8	3.3
Jan 5	3.9	3.2	3.5	4.5	3.7	3.5	5.9	9.1	9.7	9.3	9.8	10.2	9.8	8.8	8.8	6.6	4.9	6	8.2	8.5	5.4	3.6	8.3	9.9	3.2	10.2	6.9
Jan 6	4.8	6.3	4.9	4.8	5.3	3.9	5.8	7.3	9.6	9.4	8.8	8.5	8.3	9.3	8.1	8.9	7.8	8.3	6.8	6.2	7	8	7.5	9.2	3.9	9.6	7.3
Jan 7	7.3	9.4	8.9	11	10.9	15.4	14.1	15.8	13.6	15.7	15.1	15.5	17.6	15.5	14.4	14.4	10.8	6.4	3.1	1.2	3.8	3	6.1	3.6	1.2	17.6	10.5
Jan 8	1.6	1.5	3	3.4	2.4	4.2	4.1	7.3	7.3	7.5	8	9.7	8.2	7.7	1.5	4.8	2.6	0.4	2.1	0.7	1.4	1	1	0.7	0.4	9.7	3.8
Jan 9	0.7	4.2	4.4	5.4	4.1	5.3	5.6	6.4	6.6	6.6	6.4	6.5	6.3	5.3	5.7	5.8	4.5	4.7	4	3.7	3.5	5.7	4.9	5.6	0.7	6.6	5.1
Jan 10	5.1	5.5	5.3	6	5.3	2.7	3.4	4.1	4.7	7.4	7.8	7.9	7.9	8.9	8	10	8.5	6.4	4.3	3.4	3.8	3.7	3.1	2.1	2.1	10.0	5.6
Jan 11	1.4	1.9	3.3	3.7	2.8	2.1	4.1	1.8	1.8	2.9	5.4	11.7	7.4	4.9	10.9	9.3	10.4	9.9	8.2	7.2	7.5	6.8	3	5.3	1.4	11.7	5.6
Jan 12	6.8	8.5	7	7.5	6.4	6.2	7.4	8.6	9.5	4.3	1.2	5.4	4	5	4.2	3.5	4	4.4	3.3	4.7	3	2.8	3	2.9	1.2	9.5	5.2
Jan 13	2.4	X	X	X	X	X	X	2.9	3.5	2.3	2.5	2.4	2.5	3.9	4.3	2.7	2.6	2.2	2.4	1.8	2.5	2.1	2.4	0.6	0.6	4.3	2.6
Jan 14	1.1	0.7	3.2	5.8	7.5	7.8	8.7	6.9	5.5	3.8	4.3	4.2	6.8	5.6	5.6	5.3	6	7.6	9	7.2	6.6	5.6	5.1	5.4	0.7	9.0	5.6
Jan 15	4.8	4.8	4.2	4.3	3.3	3.8	3.5	2.8	2.4	2.3	3.1	3.6	2.8	3.5	4.6	5.7	6.8	5.8	5.7	7.1	7	6.6	7.1	7.5	2.3	7.5	4.7
Jan 16	7.7	6.2	5.5	5.4	7.3	7.4	5	5.1	5.5	5.3	5.2	5	5.7	5.8	6.5	6.4	5.6	5.4	5.7	5.9	4.8	4.1	3.3	3.2	3.2	7.7	5.5
Jan 17	6	5.7	5.2	5.1	4.8	3.2	4.2	5.6	4.8	5.5	6.2	5.1	5.4	5.4	6	6.7	6.9	7.2	5.8	5.4	6.5	6.4	6	5.7	3.2	7.2	5.6
Jan 18	6.1	7.6	6.7	7.4	5.9	7	7.6	6.4	6.1	6.1	6.5	5.5	4.8	4.6	4.3	5	5.5	5.5	6.3	7.2	9.5	12.6	11.9	11.2	4.3	12.6	7.0
Jan 19	12.2	12.1	13.1	12.6	10.7	9.1	10.8	11.8	12.3	10	7.7	10.4	11.4	10.6	11.9	11.1	8.8	8.1	9	10.3	9.9	9.5	10.3	10.6	7.7	13.1	10.6
Jan 20	8.7	6.3	5.8	4.8	4.4	2.7	2.3	0.8	1.6	0.4	3.6	3	5.8	4.6	4.5	4.1	4.5	3.5	2.8	1.5	2.2	2.5	2	1.9	0.4	8.7	3.5
Jan 21	1.3	3	1	2.2	**0.3**	0.7	1.3	2.2	2.1	2.9	2.7	4.3	2.1	1.3	1.8	1.4	0.9	0.7	1.9	1.4	3.3	2.6	7.8	5.7	**0.3**	7.8	**2.3**
Jan 22	4.3	4.5	4.6	6.2	5.3	5	3.6	8.1	7.4	7.6	7.5	6.9	4.8	6.5	8	9.8	10.7	11.8	10.9	10	7.7	8.2	7.8	8	3.6	11.8	7.3
Jan 23	7.3	8.5	7.7	8.8	7	4.8	3.9	3.9	1.2	1.3	0.3	2.2	1.8	2	3.7	5.7	5.7	6.4	4	4.8	9.6	9	12.2	8.5	0.3	12.2	5.4
Jan 24	9.3	10.7	9.1	9.1	7.3	6.5	7.8	7.7	5.8	4.3	4.9	7.3	8.8	5.8	5.2	4	3.8	5.5	3.5	2.8	2.1	2.8	3.7	4.1	2.1	10.7	5.9
Jan 25	2.8	2.5	3	2.4	1.8	4.3	5.7	6.1	6.1	4.8	6.5	7.5	7.8	7.8	7.6	8	5.4	5.5	4.9	4.8	3.7	3.9	6.8	8.2	1.8	8.2	5.3
Jan 26	9.7	9.8	9.5	9.2	11.6	10.7	5.3	4.3	6.1	6.6	6.8	6	9	9.1	9	11.3	12.7	11	10.5	9	12.1	8.7	20.5	22.7	4.3	22.7	10.1
Jan 27	**26.6**	23.2	19.7	13.6	11.8	12.6	12.1	12	10.1	12.6	12.2	15	15.7	18.7	14.4	12.3	13.4	12.5	13.9	7	7.3	7	5	5.3	5.0	**26.6**	**13.1**
Jan 28	0.9	0.8	0.6	2.2	2	1.7	0.6	2.8	2.2	0.5	2.9	3.6	5.1	5.4	2.9	1.2	2	0.3	0.6	2.5	4	5.3	6.6	6.6	0.3	6.6	2.6
Jan 29	6.6	5.2	6.5	7	7.5	7.6	10.5	7.3	6.6	9.3	6.2	8.6	5.9	9.1	5.6	5	6.4	4	6.2	5.9	4.8	4.6	3.6	6.8	3.6	10.5	6.5
Jan 30	7.8	5.6	4.6	9	9	7.1	5.2	4.8	4.7	3.9	2.5	3.5	4	4.6	5.4	3.2	4.5	5.8	5.4	4.1	2.8	2.2	3	2.9	2.2	9.0	4.8
Jan 31	6.2	7.3	8.3	9.7	9	10.3	10.4	9.5	8.9	8.9	8.4	10.1	9.3	7.8	9.6	8.8	8.6	7.7	6.8	6.1	7.1	8.9	8.7	6.5	6.1	10.4	8.5
Diurnal Maximum	27	23	20	14	12	15	14	16	14	16	15	16	18	19	14	14	13	13	14	10	12	13	21	23			
Daiurnal Average	6.2	6.8	6.5	6.5	6.0	6.0	6.1	6.4	6.3	6.3	6.2	7.0	7.0	6.9	6.5	6.5	6.3	5.9	5.6	5.0	5.4	5.4	6.3	6.3			

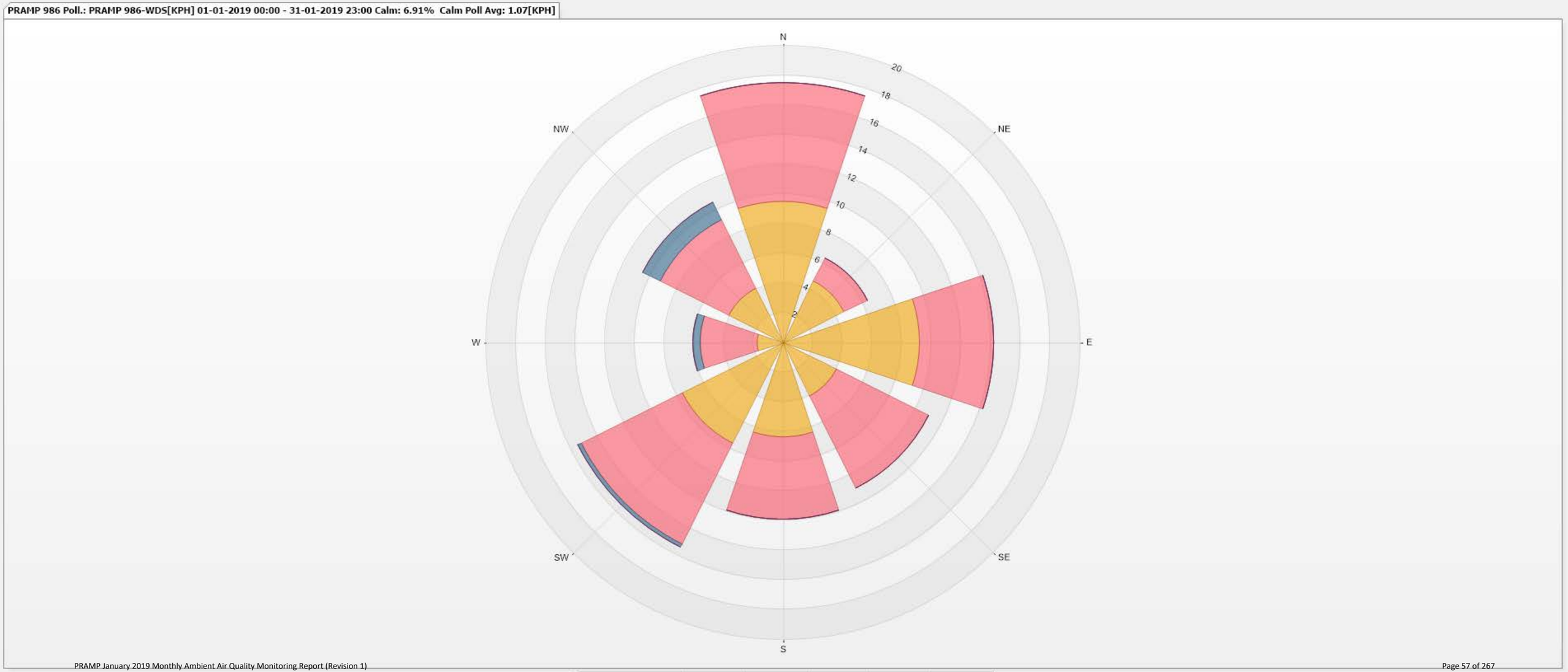
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

Timeseries Chart of Hourly Average for VWS - 986b Station



Wind: PRAMP 986 Poll.: PRAMP 986-WDS[KPH] Monthly: 01-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 6.91% Valid Data: 99.86% Calm Avg: 1.07 [KPH]

Direction	1.8-6	6-15	15-29	29-39	>39.0	Total
N	9.49	7.99	0	0	0	17.48
NE	4.61	1.76	0	0	0	6.37
E	9.21	5.01	0	0	0	14.22
SE	4.07	6.91	0	0	0	10.98
S	6.37	5.56	0	0	0	11.93
SW	7.59	7.59	0.27	0	0	15.45
W	1.76	3.79	0.54	0	0	6.09
NW	4.07	5.15	1.36	0	0	10.58
Summary	47.17	43.76	2.17	0	0	93.1


PRAMP 986 Poll.: PRAMP 986-WDS[KPH] 01-01-2019 00:00 - 31-01-2019 23:00 Calm: 6.91% Calm Poll Avg: 1.07[KPH]
N
NE
E
SE
S
SW
W
NW
20
18
16
14
12
10
8
6
4
2
% Icon Classes (KPH)
47 1.8-6
44 6-15
2 15-29
0 29-39
0 >39.0

PEACE RIVER AREA MONITORING PROGRAM

986b Station - January 2019

Summary of Hourly Averages

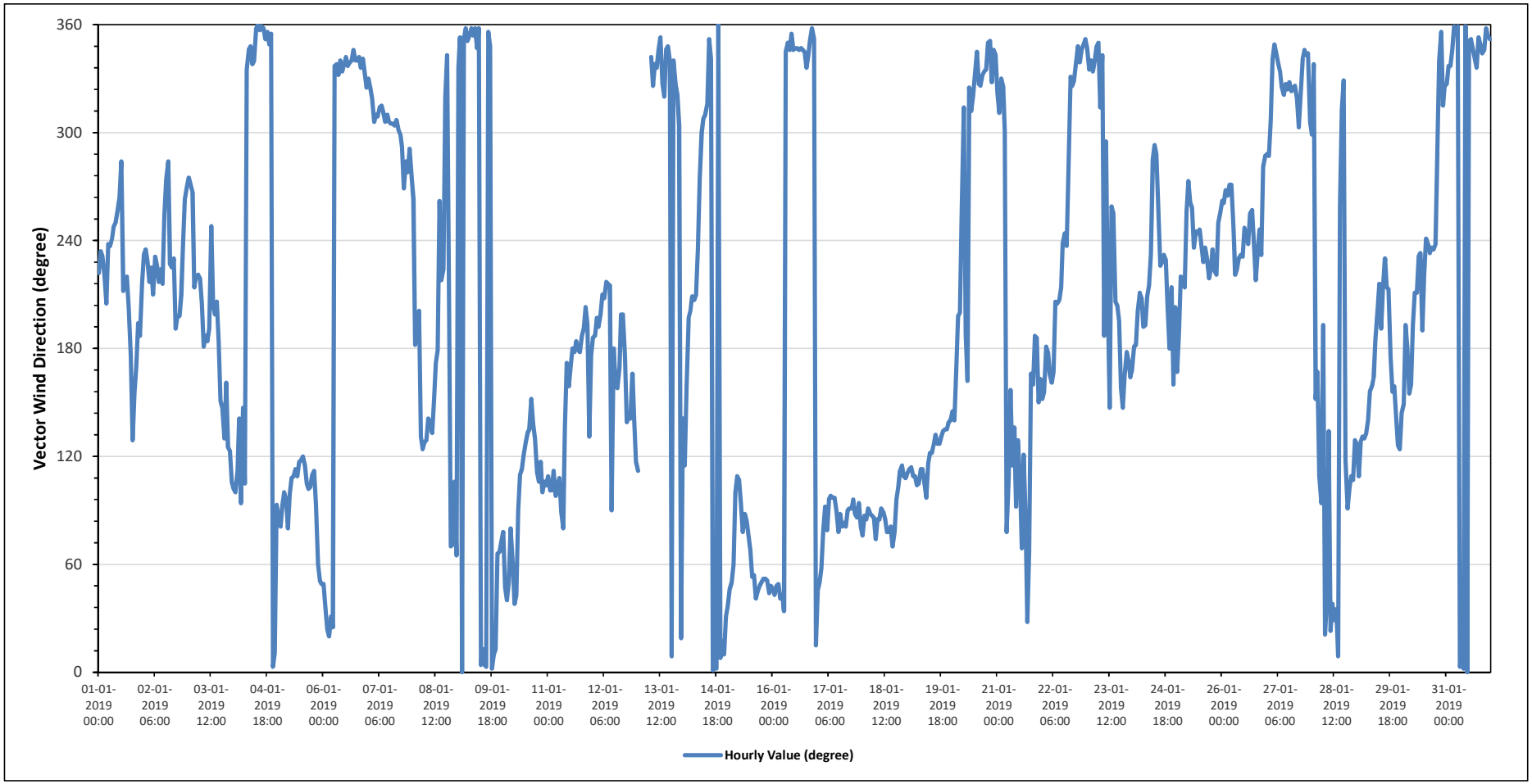
VECTOR WIND DIRECTION (WD) in sector

Monthly Average:	263 (W)	degree	
Hours in Service:	744		
Hours of Data:	738		
Hours of Missing Data:	6		
Hours of Calibration:	0		
Operational Uptime:	99.2		

Day	Hourly Period Starting at (MST)																						Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant
Jan 1	SW	SW	SW	SW	SSW	SW	SW	WSW	WSW	WSW	WSW	W	WNW	SSW	SW	SW	SSW	S	SE	SSE	SSE	SSW	S	SW	225	SW
Jan 2	SW	SW	SW	SW	SW	SSW	SW	SW	SW	SW	SW	WSW	W	WNW	SW	SW	SW	S	SSW	SSW	SSW	SW	W	W	232	SW
Jan 3	W	W	W	SSW	SW	SW	SW	SSW	S	S	S	S	WSW	SSW	SSW	SSW	S	SSE	SE	SE	SSE	SE	ESE	ESE	203	SSW
Jan 4	E	E	ESE	SE	E	SE	ESE	NNW	NNW	NNW	NNW	NNW	N	N	N	N	N	N	N	NNW	N	N	NNE	E	6	N
Jan 5	E	E	E	E	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	ESE	ESE	ESE	E	ENE	NE	NE	100	E
Jan 6	NE	NE	NNE	NNE	NNE	NNE	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	346	NNW
Jan 7	NNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	WNW	WNW	WNW	NW	WNW	WNW	WNW	W	WNW	W	WNW	W	308	NW
Jan 8	W	S	S	SSW	SE	ESE	SE	SE	SE	SE	SE	SSE	S	S	W	SW	SW	NW	NNW	SSW	ENE	ENE	ESE	ENE	156	SSE
Jan 9	NNW	N	N	N	N	N	N	N	N	N	NNW	N	N	NNE	N	N	N	NNW	N	N	NNE	ENE	ENE	ENE	6	N
Jan 10	ENE	NE	NE	NE	E	ENE	NE	NE	E	ESE	ESE	ESE	SE	SE	SE	SSE	SE	SE	ESE	ESE	ESE	E	ESE	ESE	106	ESE
Jan 11	ESE	E	E	ESE	E	ESE	ESE	E	E	SE	S	SSE	SSE	S	S	S	S	S	S	S	SSW	S	SE	S	167	SSE
Jan 12	S	S	SSW	S	SSW	SSW	SSW	SW	SW	SSW	E	S	SSE	SSE	SSE	SSW	SSW	S	SE	SE	SE	SSE	SE	ESE	186	S
Jan 13	ESE	X	X	X	X	X	X	NNW	NW	NNW	NNW	NNW	N	NW	NW	NNW	NNW	NNW	N	NNW	NW	NW	WNW	NNE	338	NNW
Jan 14	SE	ESE	SSE	SSW	SSW	SSW	SSW	SSW	SW	W	WNW	NW	NW	NW	N	NNW	N	N	N	N	N	NNE	N	NNE	316	NW
Jan 15	NE	NE	NE	ENE	E	ESE	ESE	E	ENE	E	E	ENE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	58	ENE
Jan 16	NE	NE	NE	NE	NE	NE	NE	NNW	N	NNW	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	NNE	6	N
Jan 17	NE	NE	ENE	ENE	E	ENE	E	E	E	E	E	ENE	E	E	E	E	E	E	E	E	E	E	E	E	84	E
Jan 18	ENE	E	E	E	E	E	E	ENE	E	E	E	E	E	ENE	ENE	E	ENE	ENE	E	ESE	ESE	ESE	ESE	ESE	92	E
Jan 19	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	ESE	ESE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	120	ESE
Jan 20	SE	SE	SSE	SSW	SSW	WSW	NW	S	SSE	NW	NW	NW	NNW	NNW	NW	NW	NNW	NNW	NNW	N	N	NNW	NNW	NNW	306	NW
Jan 21	NW	NW	NNW	NW	WNW	ENE	ESE	SSE	ESE	SE	E	SE	ESE	ENE	ESE	E	NNE	ENE	SSE	SSE	S	S	SSE	SSE	138	SE
Jan 22	SSE	SSE	S	S	SSE	SSE	SSE	SSW	SSW	SSW	SSW	WSW	WSW	SW	W	NNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	N	281	W
Jan 23	NNW	NNW	NNW	NNW	NNW	NNW	N	NW	NNW	S	WNW	SSW	SE	WSW	WSW	SSW	SSW	SSW	SSE	SE	SSE	S	S	SSE	226	SW
Jan 24	SSE	S	S	SSW	SSW	SSW	S	S	SSW	SSW	SW	WNW	WNW	WNW	WSW	SW	SW	SW	SW	SSW	S	SSW	SSE	SSW	213	SSW
Jan 25	SSE	S	SW	SW	SSW	WSW	W	W	WSW	SW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	238	SW
Jan 26	W	W	W	W	W	W	WSW	SW	SW	SW	SW	SW	WSW	WSW	SW	WSW	WSW	SW	SW	SW	WSW	SW	W	WNW	254	WSW
Jan 27	WNW	WNW	NW	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NNW	NW	NW	NW	NW	WNW	NW	NNW	NNW	NNW	NNW	NW	321	NW
Jan 28	WNW	NNW	SSE	SSE	ESE	E	S	NNE	NE	SE	NNE	NE	NNE	NE	N	WSW	NW	NNW	ESE	E	E	ESE	ESE	SE	73	ENE
Jan 29	SE	ESE	SE	SE	SE	SE	SE	SSE	SSE	SSE	S	SSW	SW	S	SSW	SW	SSW	SSW	S	SSE	SSE	SE	SE	ESE	162	SSE
Jan 30	SE	SSE	S	S	SSE	SSE	S	SSW	SSW	SW	SW	S	SW	WSW	SW	SW	SW	SW	SW	WNW	NNW	N	NW	NW	207	SSW
Jan 31	NW	NNW	NNW	NNW	N	N	N	N	N	N	N	N	N	N	NNW	NNW	NNW	N	NNW	NNW	NNW	N	N	N	351	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

Timeseries Chart of Hourly Average for VWD - 986b Station



842 STATION

PEACE RIVER AREA MONITORING PROGRAM

842b Station - January 2019

Summary of Hourly Averages

SULPHUR DIOXIDE (SO_2) in ppb

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

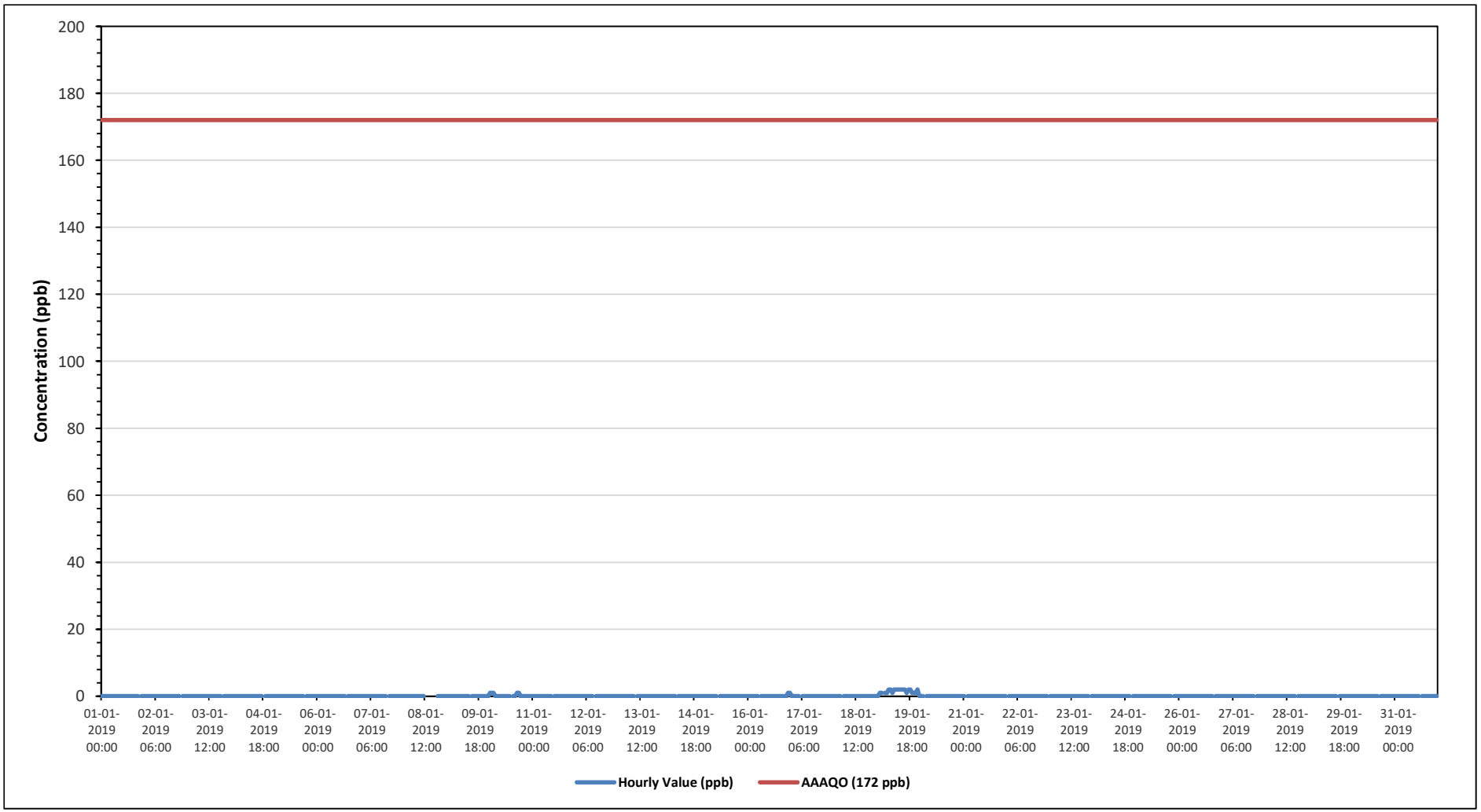
Number of 1-Hour Exceedences: 0 Number of 24-Hour Exceedences: 0 30-Day Exceedence: 0

Maximum Hourly Value:	2	ppb	on January 19 at hour 6	Hours in Service:	744
Maximum Daily Value:	1.4	ppb	on January 19	Hours of Data:	704
Minimum Hourly Value:	0	ppb	on January 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on January 1	Hours of Calibration:	40
Monthly Average:	0.1	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Jan 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0.0
Jan 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0
Jan 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0
Jan 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.0
Jan 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0.0
Jan 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0.0
Jan 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0.0
Jan 8	0	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	C	0	0	0	0	0	0	0	0.0
Jan 9	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 10	1	1	1	0	0	0	0	0	0	0	0	0	S	0	0	1	1	0	0	0	0	0	0	0	0	1	0.2
Jan 11	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
Jan 12	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
Jan 13	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
Jan 14	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
Jan 15	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
Jan 16	0	0	0	0	0	0	S	0	0	Q	Q	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0.1
Jan 17	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
Jan 18	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 19	0	1	1	S	1	1	2	2	1	2	2	2	2	2	2	2	1	2	2	1	1	1	2	0	0	2	1.4
Jan 20	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 21	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 22	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0
Jan 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0.0
Jan 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0.0
Jan 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0
Jan 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0
Jan 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.0
Jan 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0.0
Jan 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0.0
Jan 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0.0
Jan 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0.0
Diurnal Maximum	1	1	1	0	1	1	2	2	1	2	2	2	2	2	2	2	1	2	2	1	1	1	2	1			
Daiurnal Average	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	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

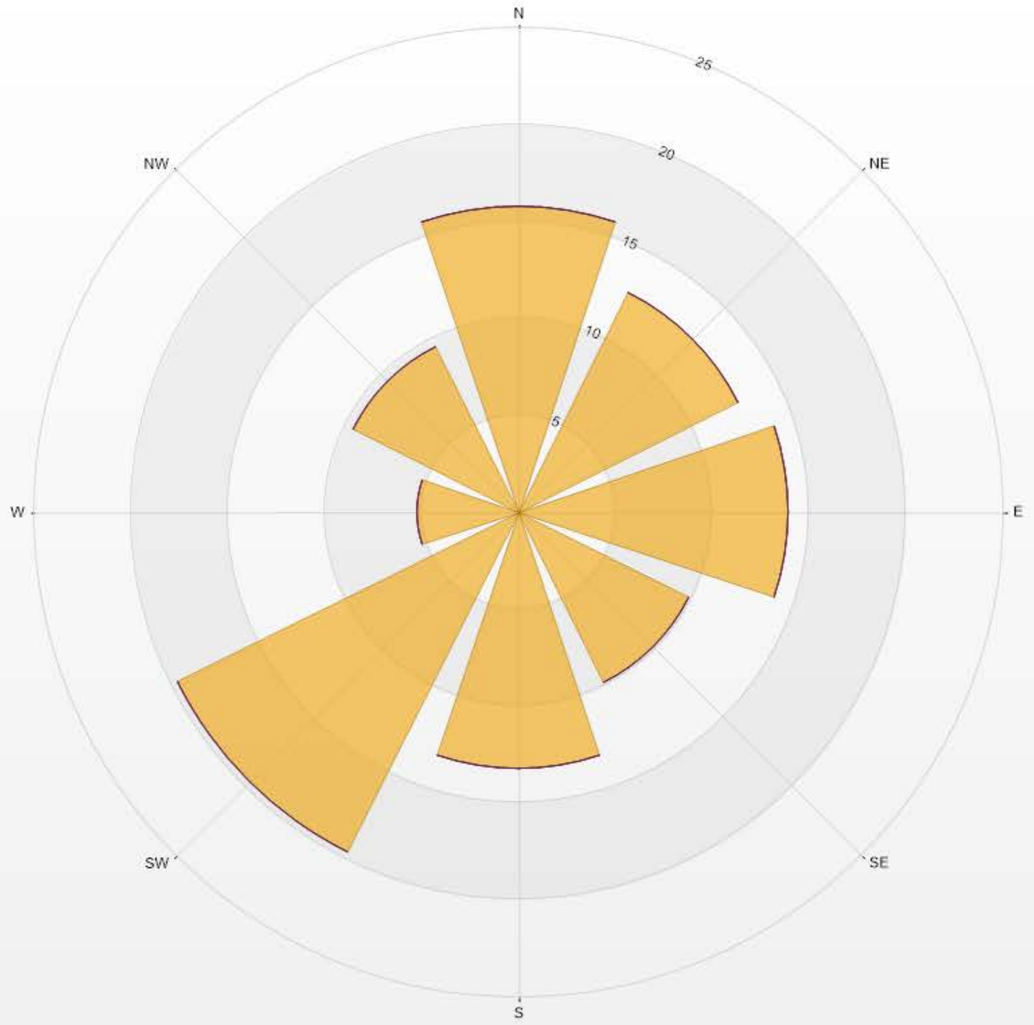
Timeseries Chart of Hourly Average for SO2 - 842b Station



Wind: PRAMP 842 Poll.: PRAMP 842-SO2[ppb] Monthly: 01-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 0.14% Valid Data: 94.49% Calm Avg: 0.08 [ppb]

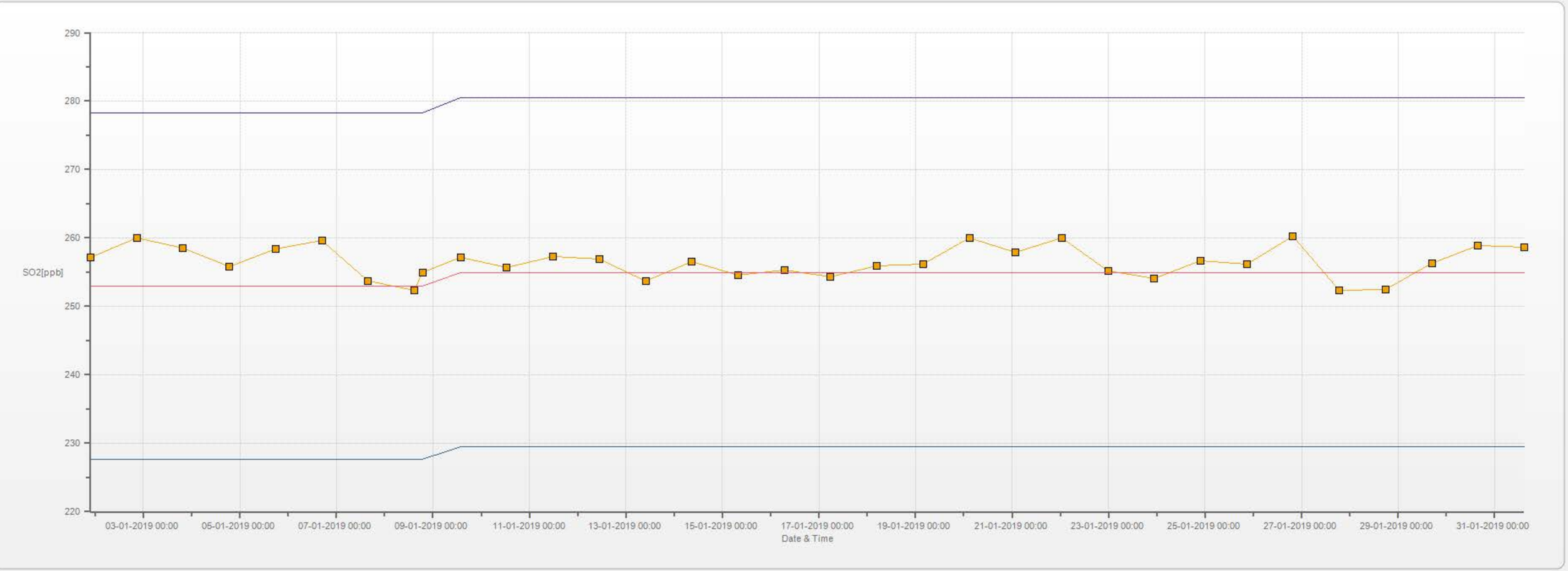
Direction	0-10	10-50	50-100	100-170	>170.0	Total
N	15.79	0	0	0	0	15.79
NE	12.66	0	0	0	0	12.66
E	13.94	0	0	0	0	13.94
SE	9.82	0	0	0	0	9.82
S	13.23	0	0	0	0	13.23
SW	19.63	0	0	0	0	19.63
W	5.26	0	0	0	0	5.26
NW	9.53	0	0	0	0	9.53
Summary	100	0	0	0	0	100

PRAMP 842 Poll.: PRAMP 842-SO2[ppb] 01-01-2019 00:00 - 31-01-2019 23:00 Calm: 0.14% Calm Poll Avg: 0.08[ppb]



%	Icon	Classes (ppb)									
100		0-10	0		10-50	0		50-100	0		100-170	0		>170.0

SO2[ppb] Calibration: PRAMP 842 Monthly: 01-2019 Type: Span



peace river area monitoring program pramp

PEACE RIVER AREA MONITORING PROGRAM

842b Station - January 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

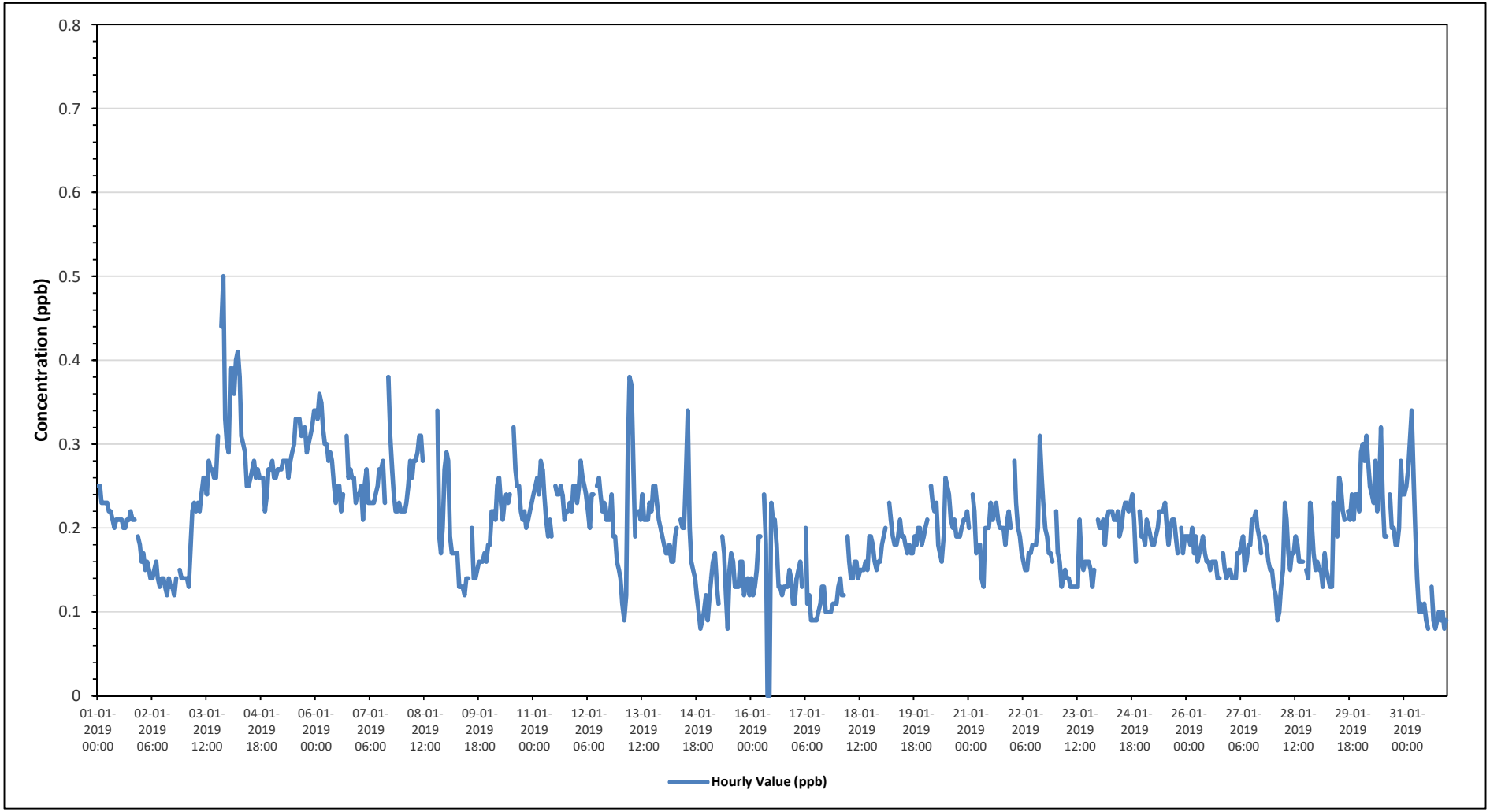
Number of 1-Hour Exceedences: 0 Number of 24-Hour Exceedences: 0

Maximum Hourly Value:	0.50	ppb	on January 3 at hour 21	Hours in Service:	744
Maximum Daily Value:	0.30	ppb	on January 4	Hours of Data:	704
Minimum Hourly Value:	0.08	ppb	on January 14 at hour 20	Hours of Missing Data:	0
Minimum Daily Value:	0.12	ppb	on January 17	Hours of Calibration:	40
Monthly Average:	0.20	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			
Jan 1	0.25	0.25	0.23	0.23	0.23	0.23	0.22	0.22	0.21	0.2	0.21	0.21	0.21	0.21	0.2	0.2	0.21	0.21	0.22	0.21	0.21	S	0.19	0.18	0.18	0.25	0.21
Jan 2	0.16	0.17	0.15	0.16	0.15	0.14	0.14	0.15	0.16	0.14	0.13	0.14	0.14	0.13	0.12	0.14	0.13	0.13	0.12	0.14	S	0.15	0.14	0.14	0.12	0.17	0.14
Jan 3	0.14	0.14	0.13	0.18	0.22	0.23	0.22	0.23	0.22	0.24	0.26	0.26	0.24	0.28	0.27	0.27	0.26	0.26	0.31	S	0.44	**0.5**	0.33	0.3	0.13	**0.50**	0.26
Jan 4	0.29	0.39	0.39	0.36	0.4	0.41	0.38	0.31	0.3	0.29	0.25	0.25	0.26	0.27	0.28	0.26	0.27	0.26	S	0.26	0.22	0.24	0.27	0.27	0.22	0.41	**0.30**
Jan 5	0.28	0.26	0.26	0.27	0.27	0.27	0.28	0.28	0.28	0.26	0.28	0.29	0.3	0.33	0.33	0.33	0.31	S	0.32	0.29	0.3	0.31	0.32	0.34	0.26	0.34	0.29
Jan 6	0.34	0.33	0.36	0.35	0.32	0.3	0.3	0.28	0.29	0.28	0.25	0.23	0.25	0.25	0.22	0.24	S	0.31	0.26	0.27	0.26	0.26	0.23	0.24	0.22	0.36	0.28
Jan 7	0.24	0.25	0.21	0.25	0.27	0.23	0.23	0.23	0.23	0.24	0.25	0.27	0.27	0.28	0.23	S	0.38	0.31	0.27	0.24	0.22	0.22	0.23	0.22	0.21	0.38	0.25
Jan 8	0.22	0.22	0.23	0.25	0.28	0.26	0.28	0.28	0.29	0.31	0.31	0.28	C	C	C	C	C	C	C	0.34	0.19	0.17	0.2	0.27	0.17	0.34	0.26
Jan 9	0.29	0.28	0.19	0.17	0.17	0.17	0.17	0.13	0.13	0.13	0.12	0.14	0.14	S	0.2	0.14	0.14	0.15	0.16	0.16	0.16	0.17	0.16	0.18	0.12	0.29	0.17
Jan 10	0.18	0.22	0.22	0.21	0.25	0.26	0.23	0.21	0.23	0.24	0.23	0.24	S	0.32	0.27	0.25	0.25	0.22	0.21	0.22	0.2	0.21	0.22	0.23	0.18	0.32	0.23
Jan 11	0.24	0.25	0.26	0.24	0.28	0.27	0.24	0.21	0.19	0.21	0.19	S	0.25	0.24	0.24	0.25	0.24	0.21	0.22	0.22	0.23	0.22	0.25	0.25	0.19	0.28	0.23
Jan 12	0.23	0.25	0.28	0.26	0.25	0.24	0.22	0.2	0.24	0.24	S	0.25	0.26	0.24	0.22	0.23	0.21	0.21	0.21	0.24	0.19	0.19	0.16	0.15	0.15	0.28	0.22
Jan 13	0.14	0.11	0.09	0.12	0.29	0.38	0.37	0.27	0.19	S	0.22	0.21	0.24	0.21	0.21	0.21	0.23	0.22	0.25	0.25	0.23	0.21	0.2	0.19	0.09	0.38	0.22
Jan 14	0.18	0.17	0.17	0.18	0.16	0.16	0.19	0.2	S	0.21	0.2	0.2	0.26	0.34	0.2	0.16	0.15	0.14	0.12	0.1	**0.08**	0.09	0.1	0.12	**0.08**	0.34	0.17
Jan 15	0.09	0.12	0.14	0.16	0.17	0.13	0.11	S	0.19	0.17	0.12	0.08	0.15	0.17	0.16	0.13	0.13	0.13	0.16	0.16	0.12	0.13	0.14	0.12	0.08	0.19	0.14
Jan 16	0.14	0.12	0.13	0.15	0.19	0.19	S	0.24	0.18	Q	Q	0.23	0.21	0.21	0.18	0.13	0.13	0.12	0.13	0.13	0.13	0.15	0.14	0.11	0.11	0.24	0.16
Jan 17	0.11	0.14	0.15	0.16	0.13	S	0.2	0.11	0.12	0.09	0.09	0.09	0.09	0.1	0.11	0.13	0.13	0.1	0.1	0.1	0.1	0.11	0.11	0.11	0.09	0.20	**0.12**
Jan 18	0.13	0.14	0.12	0.12	S	0.19	0.16	0.14	0.14	0.16	0.16	0.14	0.15	0.15	0.15	0.16	0.15	0.19	0.19	0.18	0.16	0.15	0.16	0.16	0.12	0.19	0.15
Jan 19	0.18	0.19	0.2	S	0.23	0.21	0.19	0.18	0.18	0.19	0.21	0.19	0.19	0.18	0.17	0.18	0.17	0.17	0.19	0.18	0.2	0.2	0.18	0.19	0.17	0.23	0.19
Jan 20	0.2	0.21	S	0.25	0.23	0.22	0.23	0.18	0.17	0.16	0.19	0.26	0.25	0.24	0.21	0.2	0.21	0.19	0.19	0.19	0.2	0.21	0.21	0.22	0.16	0.26	0.21
Jan 21	0.2	S	0.24	0.22	0.17	0.18	0.18	0.14	0.13	0.2	0.2	0.2	0.23	0.21	0.22	0.23	0.21	0.2	0.2	0.2	0.18	0.21	0.22	0.2	0.13	0.24	0.20
Jan 22	S	0.28	0.23	0.2	0.19	0.17	0.16	0.15	0.15	0.17	0.17	0.18	0.18	0.18	0.2	0.31	0.26	0.23	0.2	0.19	0.17	0.17	0.16	S	0.15	0.31	0.20
Jan 23	0.22	0.17	0.16	0.13	0.14	0.15	0.14	0.14	0.13	0.13	0.13	0.13	0.13	0.21	0.16	0.15	0.16	0.16	0.16	0.15	0.13	0.15	S	0.21	0.13	0.22	0.15
Jan 24	0.2	0.2	0.21	0.18	0.21	0.22	0.22	0.22	0.21	0.21	0.22	0.19	0.2	0.22	0.23	0.23	0.22	0.23	0.24	0.21	0.16	S	0.22	0.19	0.16	0.24	0.21
Jan 25	0.19	0.18	0.21	0.2	0.19	0.18	0.18	0.19	0.2	0.22	0.22	0.22	0.23	0.2	0.18	0.2	0.21	0.21	0.19	0.17	S	0.2	0.17	0.19	0.17	0.23	0.20
Jan 26	0.19	0.19	0.18	0.2	0.17	0.19	0.16	0.17	0.18	0.19	0.17	0.16	0.16	0.15	0.16	0.16	0.16	0.14	0.14	S	0.17	0.15	0.14	0.15	0.14	0.20	0.17
Jan 27	0.15	0.14	0.14	0.14	0.17	0.17	0.18	0.19	0.15	0.16	0.18	0.18	0.21	0.21	0.22	0.2	0.19	0.17	S	0.19	0.18	0.16	0.15	0.15	0.14	0.22	0.17
Jan 28	0.13	0.12	0.09	0.1	0.13	0.15	0.23	0.21	0.17	0.15	0.17	0.17	0.19	0.18	0.16	0.16	0.16	S	0.15	0.14	0.23	0.2	0.17	0.15	0.09	0.23	0.16
Jan 29	0.16	0.15	0.15	0.13	0.17	0.15	0.14	0.13	0.13	0.23	0.2	0.19	0.26	0.25	0.22	0.21	S	0.22	0.21	0.24	0.21	0.24	0.24	0.22	0.13	0.26	0.19
Jan 30	0.29	0.3	0.28	0.31	0.28	0.25	0.24	0.23	0.28	0.22	0.25	0.32	0.24	0.19	0.19	S	0.24	0.2	0.2	0.18	0.18	0.2	0.28	0.24	0.18	0.32	0.24
Jan 31	0.24	0.25	0.27	0.3	0.34	0.26	0.19	0.14	0.1	0.11	0.1	0.11	0.09	0.08	S	0.13	0.09	0.08	0.09	0.1	0.09	0.1	0.08	0.09	0.08	0.34	0.15
Diurnal Maximum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0			
Daiurnal Average	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2			

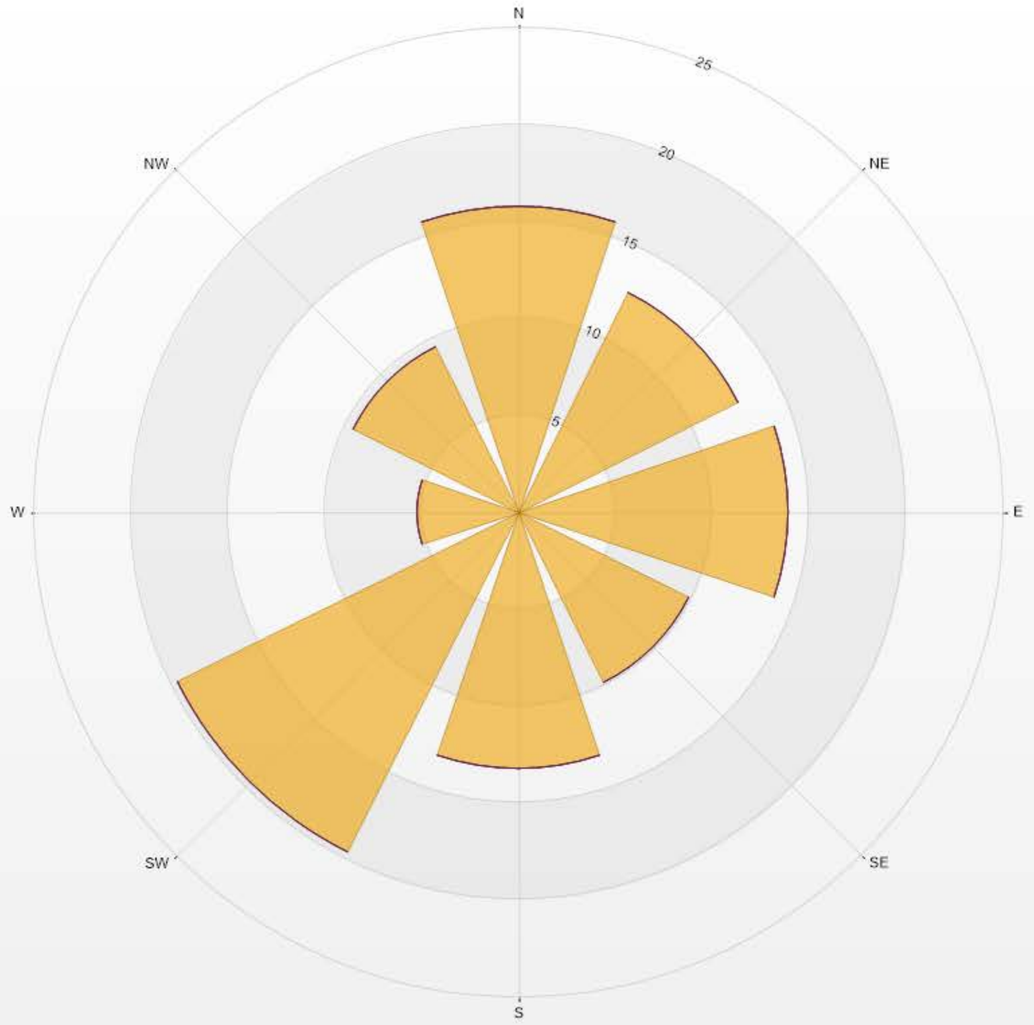
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

Timeseries Chart of Hourly Average for TRS - 842b Station



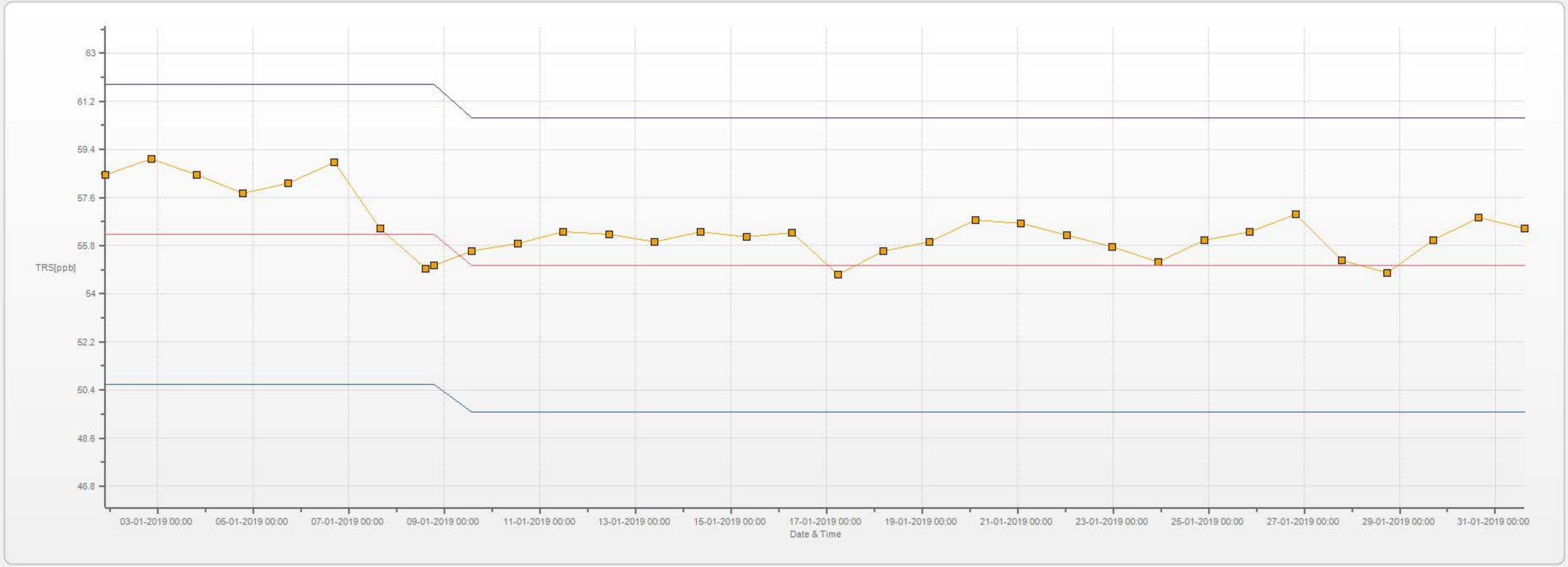
Wind: PRAMP 842 Poll.: PRAMP 842-TRS[ppb] Monthly: 01-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 0.14% Valid Data: 94.49% Calm Avg: 0.19 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	15.79	0	0	0	0	15.79
NE	12.66	0	0	0	0	12.66
E	13.94	0	0	0	0	13.94
SE	9.82	0	0	0	0	9.82
S	13.23	0	0	0	0	13.23
SW	19.63	0	0	0	0	19.63
W	5.26	0	0	0	0	5.26
NW	9.53	0	0	0	0	9.53
Summary	100	0	0	0	0	100



%	Icon	Classes (ppb)
100		0-2
0		2-5
0		5-10
0		10-50
0		>50.0

TRS[ppb] Calibration: PRAMP 842 Monthly: 01-2019 Type: Span



peace river area monitoring program pramp

PEACE RIVER AREA MONITORING PROGRAM

842b Station - January 2019

Summary of Hourly Averages

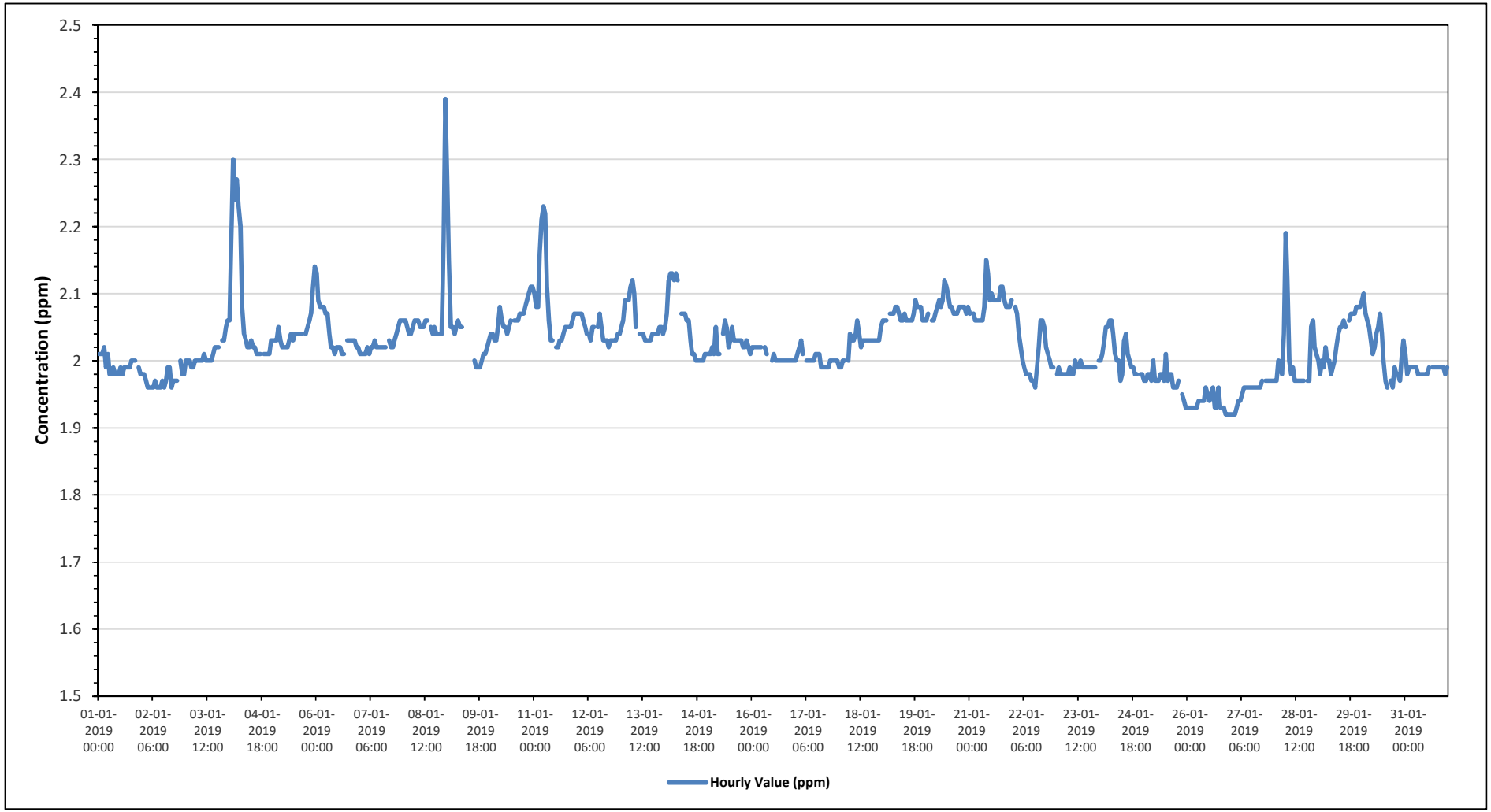
TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	2.39	ppm	on January 8 at hour 23	Hours in Service:	744
Maximum Daily Value:	2.09	ppm	on January 21	Hours of Data:	705
Minimum Hourly Value:	1.92	ppm	on January 26 at hour 21	Hours of Missing Data:	0
Minimum Daily Value:	1.94	ppm	on January 26	Hours of Calibration:	39
Monthly Average:	2.03	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			
Jan 1	2.01	2.01	2.01	2.02	1.99	2.01	1.98	1.98	1.99	1.98	1.98	1.98	1.99	1.98	1.99	1.99	1.99	1.99	2.00	2.00	2.00	S	1.99	1.98	1.98	2.02	1.99
Jan 2	1.98	1.98	1.97	1.96	1.96	1.96	1.96	1.97	1.96	1.96	1.96	1.97	1.96	1.97	1.99	1.99	1.96	1.97	1.97	1.97	S	2.00	1.98	1.98	1.96	2.00	1.97
Jan 3	2.00	2.00	2.00	1.99	1.99	2.00	2.00	2.00	2.00	2.00	2.01	2.00	2.00	2.00	2.00	2.01	2.02	2.02	2.02	S	2.03	2.03	2.05	2.06	1.99	2.06	2.01
Jan 4	2.06	2.18	2.30	2.24	2.27	2.23	2.20	2.08	2.04	2.03	2.02	2.02	2.03	2.02	2.02	2.01	2.01	2.01	S	2.01	2.01	2.01	2.01	2.03	2.01	2.30	2.08
Jan 5	2.03	2.03	2.03	2.05	2.03	2.02	2.02	2.02	2.02	2.03	2.04	2.03	2.04	2.04	2.04	2.04	2.04	S	2.04	2.05	2.06	2.07	2.11	2.14	2.02	2.14	2.04
Jan 6	2.13	2.09	2.08	2.08	2.08	2.07	2.07	2.04	2.02	2.02	2.01	2.02	2.02	2.02	2.01	2.01	S	2.03	2.03	2.03	2.03	2.03	2.02	2.02	2.01	2.13	2.04
Jan 7	2.01	2.01	2.01	2.01	2.02	2.01	2.02	2.02	2.03	2.02	2.02	2.02	2.02	2.02	2.02	S	2.03	2.02	2.02	2.03	2.04	2.05	2.06	2.06	2.01	2.06	2.02
Jan 8	2.06	2.06	2.05	2.04	2.04	2.05	2.06	2.06	2.06	2.05	2.05	2.05	2.06	2.06	S	2.05	2.04	2.05	2.04	2.04	2.04	2.04	2.18	**2.39**	2.04	**2.39**	2.07
Jan 9	2.26	2.15	2.05	2.05	2.04	2.05	2.06	2.05	2.05	C	C	C	C	C	C	2.00	1.99	1.99	1.99	2.00	2.01	2.01	2.02	2.03	1.99	2.26	2.04
Jan 10	2.04	2.04	2.03	2.03	2.05	2.08	2.06	2.05	2.05	2.04	2.05	2.06	S	2.06	2.06	2.06	2.07	2.07	2.07	2.08	2.09	2.10	2.11	2.11	2.03	2.11	2.06
Jan 11	2.10	2.08	2.08	2.16	2.21	2.23	2.22	2.11	2.06	2.03	2.03	S	2.02	2.02	2.03	2.03	2.04	2.05	2.05	2.05	2.05	2.06	2.07	2.07	2.02	2.23	2.08
Jan 12	2.07	2.07	2.07	2.06	2.05	2.04	2.04	2.03	2.05	2.05	S	2.05	2.07	2.05	2.03	2.03	2.03	2.02	2.03	2.03	2.03	2.03	2.04	2.04	2.02	2.07	2.04
Jan 13	2.05	2.06	2.09	2.09	2.09	2.11	2.12	2.10	2.05	S	2.04	2.04	2.04	2.03	2.03	2.03	2.03	2.04	2.04	2.04	2.04	2.05	2.05	2.04	2.03	2.12	2.06
Jan 14	2.05	2.07	2.12	2.13	2.13	2.12	2.13	2.12	S	2.07	2.07	2.07	2.06	2.06	2.03	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.00	2.13	2.06
Jan 15	2.01	2.01	2.02	2.01	2.05	2.01	2.01	S	2.04	2.06	2.05	2.02	2.03	2.05	2.03	2.03	2.03	2.03	2.03	2.02	2.02	2.03	2.02	2.01	2.01	2.06	2.03
Jan 16	2.02	2.02	2.02	2.02	2.02	2.02	S	2.02	2.01	Q	Q	2.00	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.02	2.01
Jan 17	2.00	2.01	2.02	2.03	2.01	S	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.01	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.00	2.00	2.00	1.99	2.03	2.00
Jan 18	1.99	1.99	2.00	2.00	S	2.00	2.04	2.03	2.03	2.04	2.06	2.04	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.05	1.99	2.06	2.03
Jan 19	2.06	2.06	2.06	S	2.07	2.07	2.07	2.08	2.08	2.07	2.06	2.06	2.07	2.06	2.06	2.06	2.06	2.07	2.09	2.08	2.08	2.08	2.06	2.06	2.06	2.09	2.07
Jan 20	2.06	2.07	S	2.06	2.06	2.07	2.08	2.09	2.08	2.09	2.12	2.11	2.10	2.08	2.08	2.07	2.07	2.07	2.08	2.08	2.08	2.08	2.07	2.08	2.06	2.12	2.08
Jan 21	2.07	S	2.07	2.06	2.06	2.06	2.06	2.06	2.08	2.15	2.13	2.09	2.10	2.09	2.09	2.09	2.09	2.11	2.11	2.09	2.08	2.08	2.08	2.09	2.06	2.15	**2.09**
Jan 22	S	2.08	2.07	2.04	2.02	2.00	1.99	1.98	1.98	1.98	1.97	1.97	1.96	1.99	2.02	2.06	2.06	2.05	2.02	2.01	2.00	1.99	1.99	S	1.96	2.08	2.01
Jan 23	1.98	1.99	1.98	1.98	1.98	1.98	1.98	1.99	1.98	1.98	2.00	1.99	1.99	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	S	2.00	1.98	2.00	1.99
Jan 24	2.00	2.01	2.03	2.05	2.05	2.06	2.06	2.04	2.01	2.00	2.00	1.97	1.98	2.03	2.04	2.01	2.00	1.99	1.99	1.98	1.98	S	1.98	1.98	1.97	2.06	2.01
Jan 25	1.97	1.97	1.98	1.98	1.97	2.00	1.97	1.97	1.97	1.98	1.98	1.97	2.01	1.97	1.98	1.98	1.96	1.96	1.96	1.97	S	1.95	1.94	1.93	1.93	2.01	1.97
Jan 26	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.96	1.95	1.94	1.95	1.96	1.93	1.93	1.96	1.93	S	1.93	**1.92**	1.92	1.92	**1.92**	1.96	**1.94**
Jan 27	1.92	1.92	1.92	1.93	1.94	1.94	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	S	1.97	1.97	1.97	1.97	1.97	1.92	1.97	1.95
Jan 28	1.97	1.97	2.00	1.99	1.98	2.04	2.19	2.12	2.00	1.98	1.99	1.97	1.97	1.97	1.97	1.97	1.97	S	1.97	1.97	2.05	2.06	2.02	2.01	1.97	2.19	2.01
Jan 29	2.00	1.98	2.00	1.99	2.02	2.00	2.00	1.98	1.99	2.00	2.02	2.04	2.05	2.05	2.06	2.05	S	2.06	2.07	2.07	2.07	2.08	2.08	2.08	1.98	2.08	2.03
Jan 30	2.09	2.10	2.07	2.06	2.05	2.03	2.01	2.02	2.04	2.05	2.07	2.04	2.00	1.97	1.96	S	1.97	1.96	1.99	1.98	1.98	1.97	2.01	2.03	1.96	2.10	2.02
Jan 31	2.01	1.98	1.99	1.99	1.99	1.99	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.99	S	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.98	1.99	1.98	2.01	1.99
Diurnal Maximum	2.26	2.18	2.30	2.24	2.27	2.23	2.22	2.12	2.08	2.15	2.13	2.11	2.10	2.09	2.09	2.09	2.09	2.11	2.11	2.09	2.09	2.10	2.18	2.39			
Daiurnal Average	2.03	2.03	2.04	2.03	2.04	2.04	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.01	2.02	2.02	2.02	2.02	2.02	2.03	2.04			

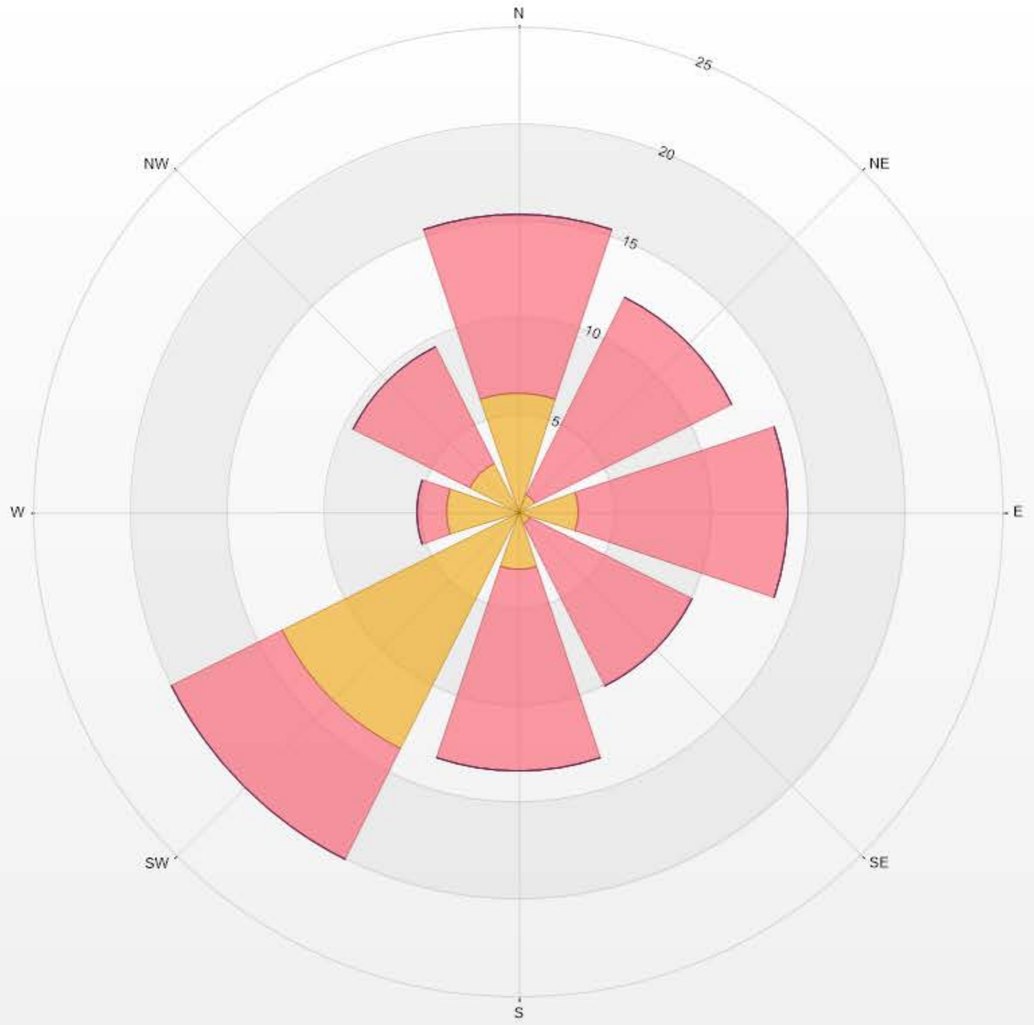
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

Timeseries Chart of Hourly Average for THC - 842b Station

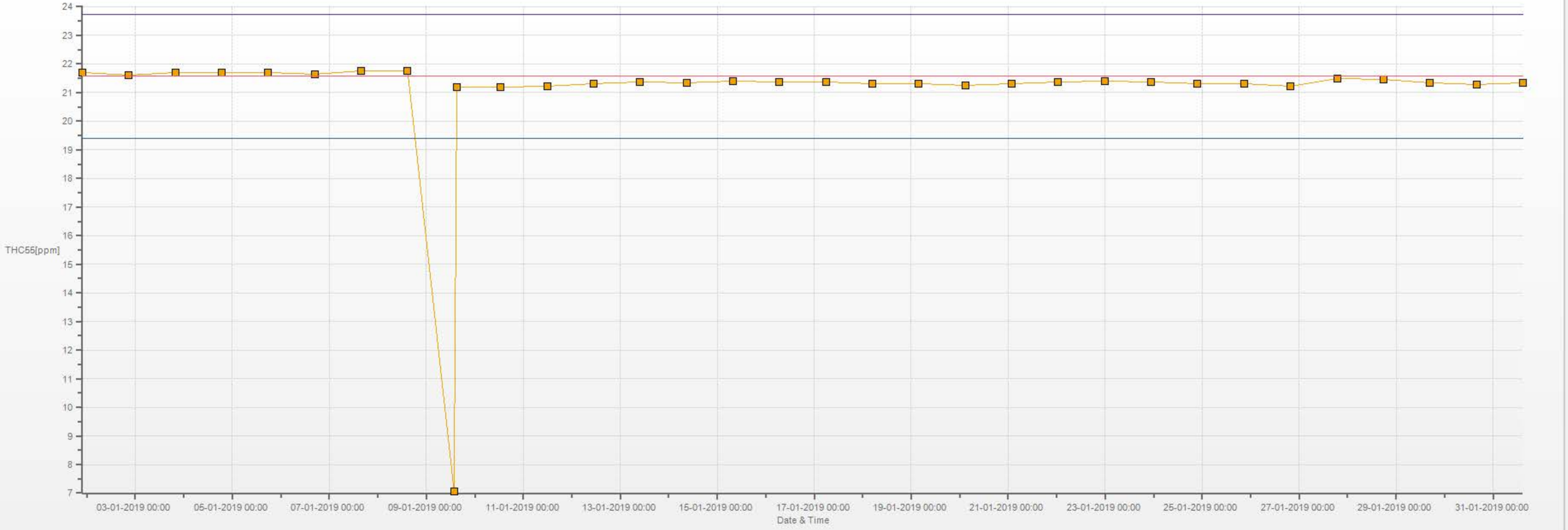


Wind: PRAMP 842 Poll.: PRAMP 842-THC55[ppm] Monthly: 01-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 0.14% Valid Data: 94.62% Calm Avg: 2.04 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	6.11	9.23	0	0	0	15.34
NE	0.99	11.36	0	0	0	12.35
E	3.13	10.8	0	0	0	13.93
SE	0.71	9.38	0	0	0	10.09
S	2.98	10.37	0	0	0	13.35
SW	13.64	6.39	0	0	0	20.03
W	3.69	1.56	0	0	0	5.25
NW	2.84	6.68	0	0	0	9.52
Summary	34.09	65.77	0	0	0	100



%	Icon	Classes (ppm)									
34		0-2	66		2-5	0		5-10	0		10-40	0		>40.0


THC55[ppm]
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
03-01-2019 00:00
05-01-2019 00:00
07-01-2019 00:00
09-01-2019 00:00
11-01-2019 00:00
13-01-2019 00:00
15-01-2019 00:00
17-01-2019 00:00
19-01-2019 00:00
21-01-2019 00:00
23-01-2019 00:00
25-01-2019 00:00
27-01-2019 00:00
29-01-2019 00:00
31-01-2019 00:00
Date & Time
Span Meas
Span Ref
Span Low
Span High

PEACE RIVER AREA MONITORING PROGRAM

842b Station - January 2019

Summary of Hourly Averages

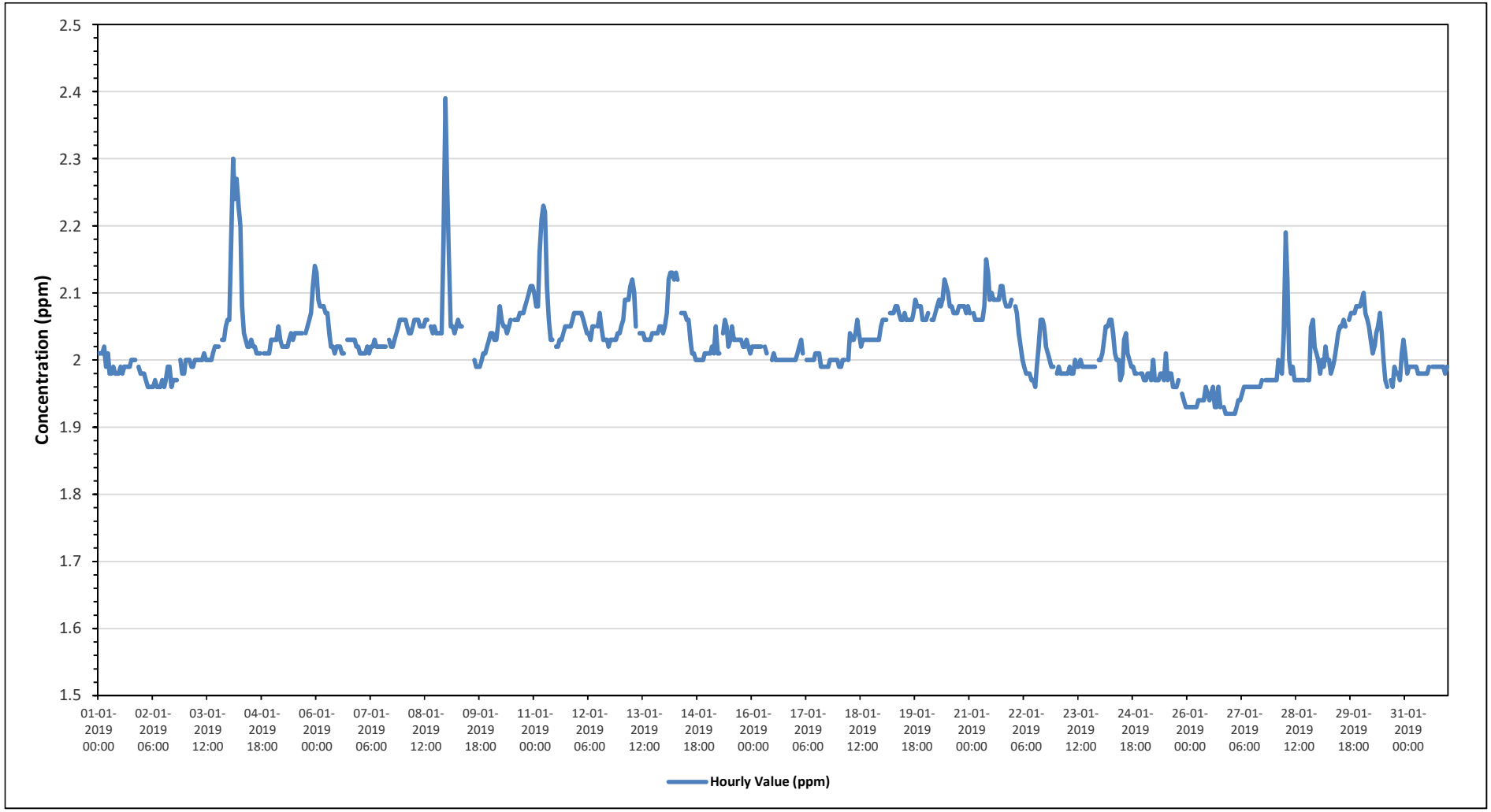
METHANE (CH4) in ppm

Maximum Hourly Value:	2.39	ppm	on January 8 at hour 23	Hours in Service:	744
Maximum Daily Value:	2.09	ppm	on January 21	Hours of Data:	705
Minimum Hourly Value:	1.92	ppm	on January 26 at hour 21	Hours of Missing Data:	0
Minimum Daily Value:	1.94	ppm	on January 26	Hours of Calibration:	39
Monthly Average:	2.03	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			
Jan 1	2.01	2.01	2.01	2.02	1.99	2.01	1.98	1.98	1.99	1.98	1.98	1.98	1.99	1.98	1.99	1.99	1.99	1.99	2.00	2.00	2.00	S	1.99	1.98	1.98	2.02	1.99
Jan 2	1.98	1.98	1.97	1.96	1.96	1.96	1.96	1.97	1.96	1.96	1.96	1.97	1.96	1.97	1.99	1.99	1.96	1.97	1.97	1.97	S	2.00	1.98	1.98	1.96	2.00	1.97
Jan 3	2.00	2.00	2.00	1.99	1.99	2.00	2.00	2.00	2.00	2.00	2.01	2.00	2.00	2.00	2.00	2.01	2.02	2.02	2.02	S	2.03	2.03	2.05	2.06	1.99	2.06	2.01
Jan 4	2.06	2.18	2.30	2.24	2.27	2.23	2.20	2.08	2.04	2.03	2.02	2.02	2.03	2.02	2.02	2.01	2.01	2.01	S	2.01	2.01	2.01	2.01	2.03	2.01	2.30	2.08
Jan 5	2.03	2.03	2.03	2.05	2.03	2.02	2.02	2.02	2.02	2.03	2.04	2.03	2.04	2.04	2.04	2.04	2.04	S	2.04	2.05	2.06	2.07	2.11	2.14	2.02	2.14	2.04
Jan 6	2.13	2.09	2.08	2.08	2.08	2.07	2.07	2.04	2.02	2.02	2.01	2.02	2.02	2.02	2.01	2.01	S	2.03	2.03	2.03	2.03	2.03	2.02	2.02	2.01	2.13	2.04
Jan 7	2.01	2.01	2.01	2.01	2.02	2.01	2.02	2.02	2.03	2.02	2.02	2.02	2.02	2.02	2.02	S	2.03	2.02	2.02	2.03	2.04	2.05	2.06	2.06	2.01	2.06	2.02
Jan 8	2.06	2.06	2.05	2.04	2.04	2.05	2.06	2.06	2.06	2.05	2.05	2.05	2.06	2.06	S	2.05	2.04	2.05	2.04	2.04	2.04	2.04	2.18	**2.39**	2.04	**2.39**	2.07
Jan 9	2.26	2.15	2.05	2.05	2.04	2.05	2.06	2.05	2.05	C	C	C	C	C	C	2.00	1.99	1.99	1.99	2.00	2.01	2.01	2.02	2.03	1.99	2.26	2.04
Jan 10	2.04	2.04	2.03	2.03	2.05	2.08	2.06	2.05	2.05	2.04	2.05	2.06	S	2.06	2.06	2.06	2.07	2.07	2.07	2.08	2.09	2.10	2.11	2.11	2.03	2.11	2.06
Jan 11	2.10	2.08	2.08	2.16	2.21	2.23	2.22	2.11	2.06	2.03	2.03	S	2.02	2.02	2.03	2.03	2.04	2.05	2.05	2.05	2.05	2.06	2.07	2.07	2.02	2.23	2.08
Jan 12	2.07	2.07	2.07	2.06	2.05	2.04	2.04	2.03	2.05	2.05	S	2.05	2.07	2.05	2.03	2.03	2.03	2.02	2.03	2.03	2.03	2.03	2.04	2.04	2.02	2.07	2.04
Jan 13	2.05	2.06	2.09	2.09	2.09	2.11	2.12	2.10	2.05	S	2.04	2.04	2.04	2.03	2.03	2.03	2.03	2.04	2.04	2.04	2.04	2.05	2.05	2.04	2.03	2.12	2.06
Jan 14	2.05	2.07	2.12	2.13	2.13	2.12	2.13	2.12	S	2.07	2.07	2.07	2.06	2.06	2.03	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.00	2.13	2.06
Jan 15	2.01	2.01	2.02	2.01	2.05	2.01	2.01	S	2.04	2.06	2.05	2.02	2.03	2.05	2.03	2.03	2.03	2.03	2.03	2.02	2.02	2.03	2.02	2.01	2.01	2.06	2.03
Jan 16	2.02	2.02	2.02	2.02	2.02	2.02	S	2.02	2.01	Q	Q	2.00	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.02	2.01
Jan 17	2.00	2.01	2.02	2.03	2.01	S	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.01	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.00	2.00	2.00	1.99	2.03	2.00
Jan 18	1.99	1.99	2.00	2.00	S	2.00	2.04	2.03	2.03	2.04	2.06	2.04	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.05	1.99	2.06	2.03
Jan 19	2.06	2.06	2.06	S	2.07	2.07	2.07	2.08	2.08	2.07	2.06	2.06	2.07	2.06	2.06	2.06	2.06	2.07	2.09	2.08	2.08	2.08	2.06	2.06	2.06	2.09	2.07
Jan 20	2.06	2.07	S	2.06	2.06	2.07	2.08	2.09	2.08	2.09	2.12	2.11	2.10	2.08	2.08	2.07	2.07	2.07	2.08	2.08	2.08	2.08	2.07	2.08	2.06	2.12	2.08
Jan 21	2.07	S	2.07	2.06	2.06	2.06	2.06	2.06	2.08	2.15	2.13	2.09	2.10	2.09	2.09	2.09	2.09	2.11	2.11	2.09	2.08	2.08	2.08	2.09	2.06	2.15	**2.09**
Jan 22	S	2.08	2.07	2.04	2.02	2.00	1.99	1.98	1.98	1.98	1.97	1.97	1.96	1.99	2.02	2.06	2.06	2.05	2.02	2.01	2.00	1.99	1.99	S	1.96	2.08	2.01
Jan 23	1.98	1.99	1.98	1.98	1.98	1.98	1.98	1.99	1.98	1.98	2.00	1.99	1.99	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	S	2.00	1.98	2.00	1.99
Jan 24	2.00	2.01	2.03	2.05	2.05	2.06	2.06	2.04	2.01	2.00	2.00	1.97	1.98	2.03	2.04	2.01	2.00	1.99	1.99	1.98	1.98	S	1.98	1.98	1.97	2.06	2.01
Jan 25	1.97	1.97	1.98	1.98	1.97	2.00	1.97	1.97	1.97	1.98	1.98	1.97	2.01	1.97	1.98	1.98	1.96	1.96	1.96	1.97	S	1.95	1.94	1.93	1.93	2.01	1.97
Jan 26	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.96	1.95	1.94	1.95	1.96	1.93	1.93	1.96	1.93	S	1.93	**1.92**	1.92	1.92	**1.92**	1.96	**1.94**
Jan 27	1.92	1.92	1.92	1.93	1.94	1.94	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	S	1.97	1.97	1.97	1.97	1.97	1.92	1.97	1.95
Jan 28	1.97	1.97	2.00	1.99	1.98	2.04	2.19	2.12	2.00	1.98	1.99	1.97	1.97	1.97	1.97	1.97	1.97	S	1.97	1.97	2.05	2.06	2.02	2.01	1.97	2.19	2.01
Jan 29	2.00	1.98	2.00	1.99	2.02	2.00	2.00	1.98	1.99	2.00	2.02	2.04	2.05	2.05	2.06	2.05	S	2.06	2.07	2.07	2.07	2.08	2.08	2.08	1.98	2.08	2.03
Jan 30	2.09	2.10	2.07	2.06	2.05	2.03	2.01	2.02	2.04	2.05	2.07	2.04	2.00	1.97	1.96	S	1.97	1.96	1.99	1.98	1.98	1.97	2.01	2.03	1.96	2.10	2.02
Jan 31	2.01	1.98	1.99	1.99	1.99	1.99	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.99	S	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.98	1.99	1.98	2.01	1.99
Diurnal Maximum	2.26	2.18	2.30	2.24	2.27	2.23	2.22	2.12	2.08	2.15	2.13	2.11	2.10	2.09	2.09	2.09	2.09	2.11	2.11	2.09	2.09	2.10	2.18	2.39			
Daiurnal Average	2.03	2.03	2.04	2.03	2.04	2.04	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.01	2.02	2.02	2.02	2.02	2.02	2.03	2.04			

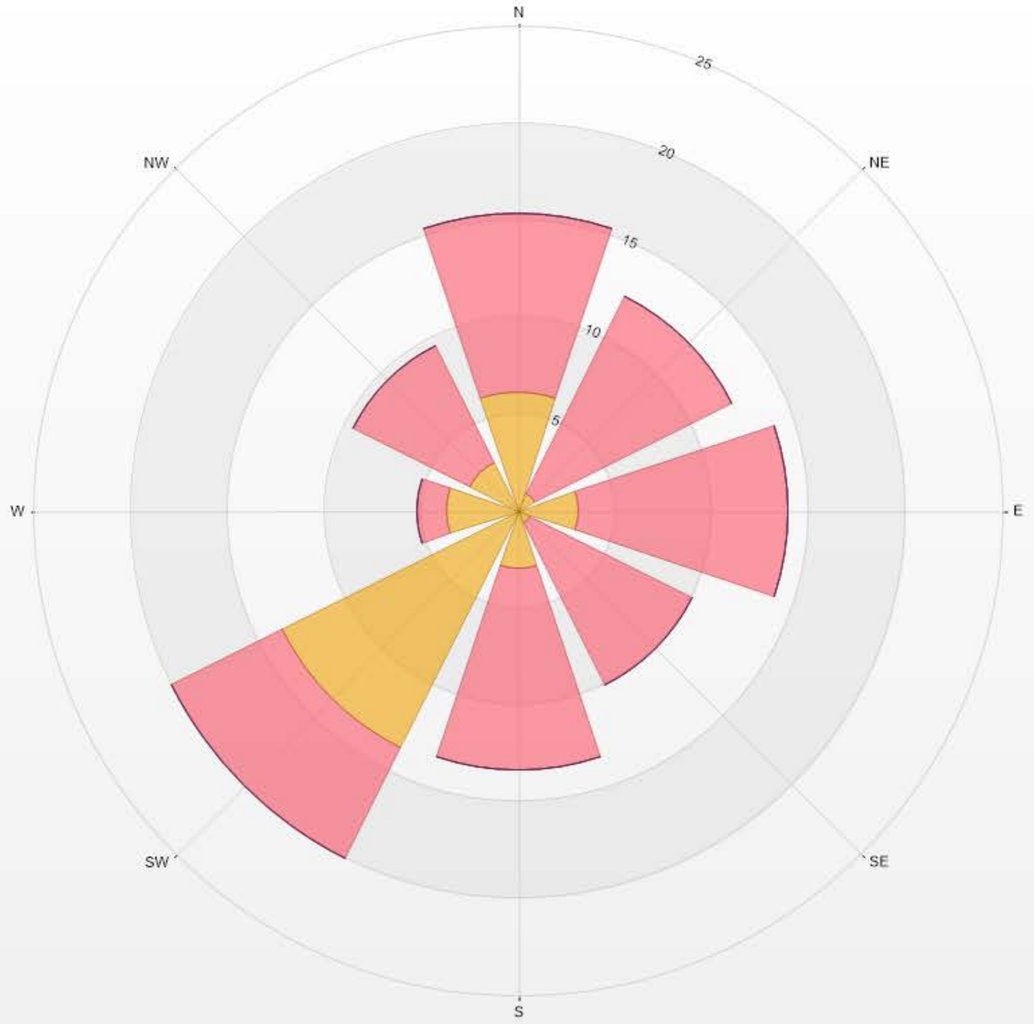
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

Timeseries Chart of Hourly Average for CH4 - 842b Station



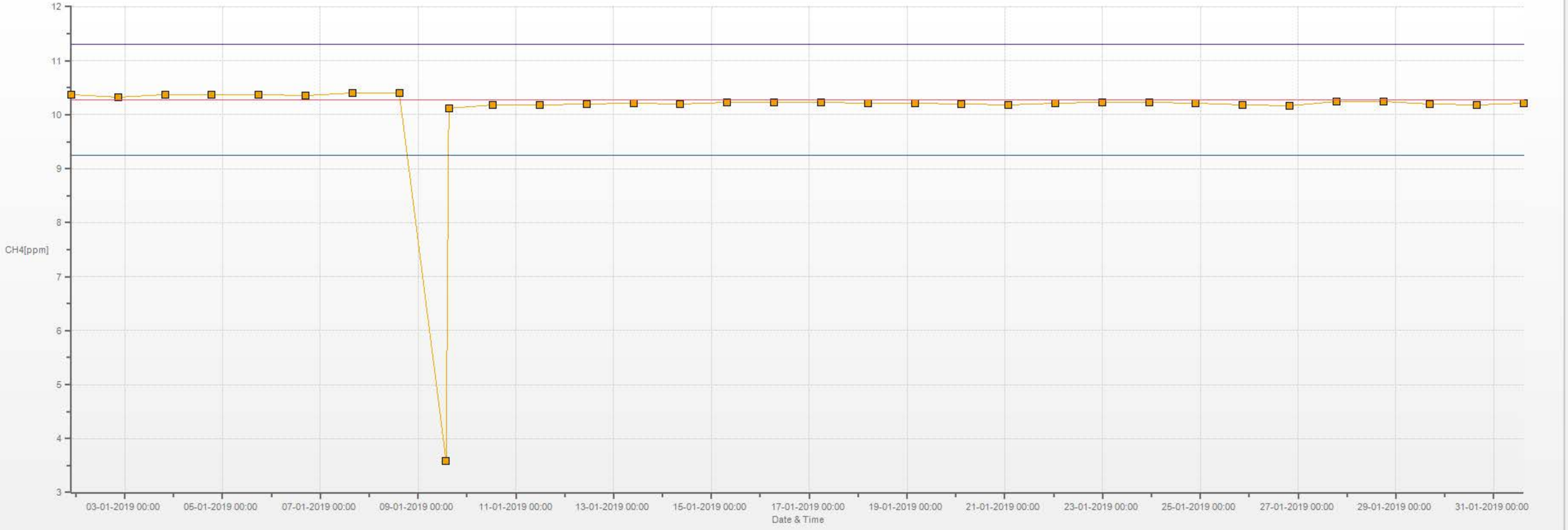
Wind: PRAMP 842 Poll.: PRAMP 842-CH4[ppm] Monthly: 01-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 0.14% Valid Data: 94.62% Calm Avg: 2.04 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	6.11	9.23	0	0	0	15.34
NE	0.99	11.36	0	0	0	12.35
E	3.13	10.8	0	0	0	13.93
SE	0.71	9.38	0	0	0	10.09
S	2.98	10.37	0	0	0	13.35
SW	13.64	6.39	0	0	0	20.03
W	3.69	1.56	0	0	0	5.25
NW	2.84	6.68	0	0	0	9.52
Summary	34.09	65.77	0	0	0	100



%	Icon	Classes (ppm)									
34		0-2	66		2-5	0		5-10	0		10-20	0		>20.0

CH4[ppm] Calibration: PRAMP 842 Monthly: 01-2019 Type: Span



peace river area monitoring program pramp

PEACE RIVER AREA MONITORING PROGRAM

842b Station - January 2019

Summary of Hourly Averages

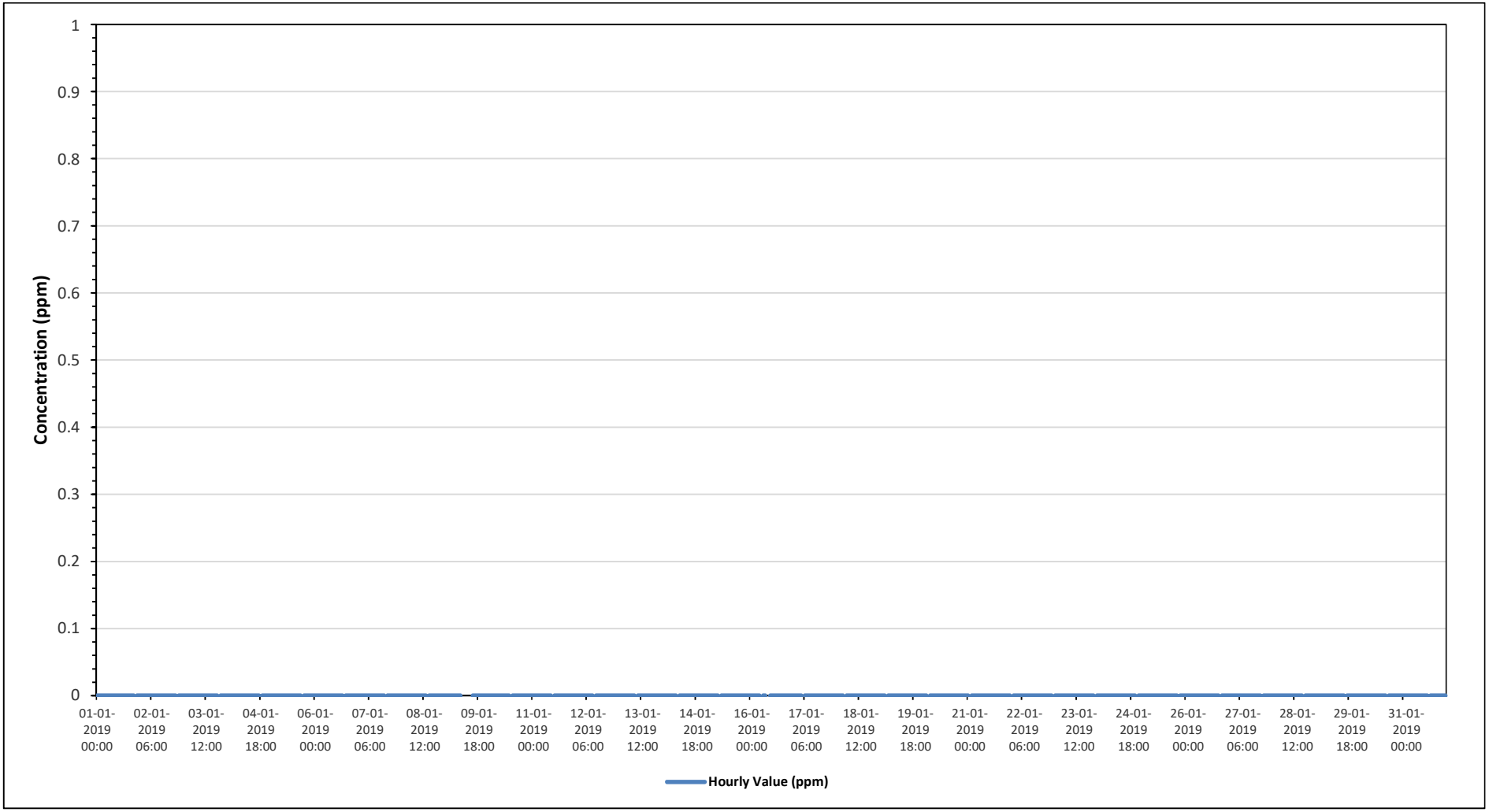
NON-METHANE HYDROCARBONS (NMHC) in ppm

Maximum Hourly Value:	0.00	ppm	on January 1 at hour 0	Hours in Service:	744
Maximum Daily Value:	0.00	ppm	on January 1	Hours of Data:	705
Minimum Hourly Value:	0.00	ppm	on January 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.00	ppm	on January 1	Hours of Calibration:	39
Monthly Average:	0.00	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	**0.00**	**0.00**	**0.00**
Jan 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00
Jan 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 9	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	0.00	0.00	0.00	0.00	0.00	0.00
Jan 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	0.00
Jan 11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 16	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	Q	Q	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 17	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 18	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 19	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 20	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 21	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 22	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00
Jan 23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00
Jan 24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00
Jan 25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00
Jan 26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diurnal Maximum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Daiurnal Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

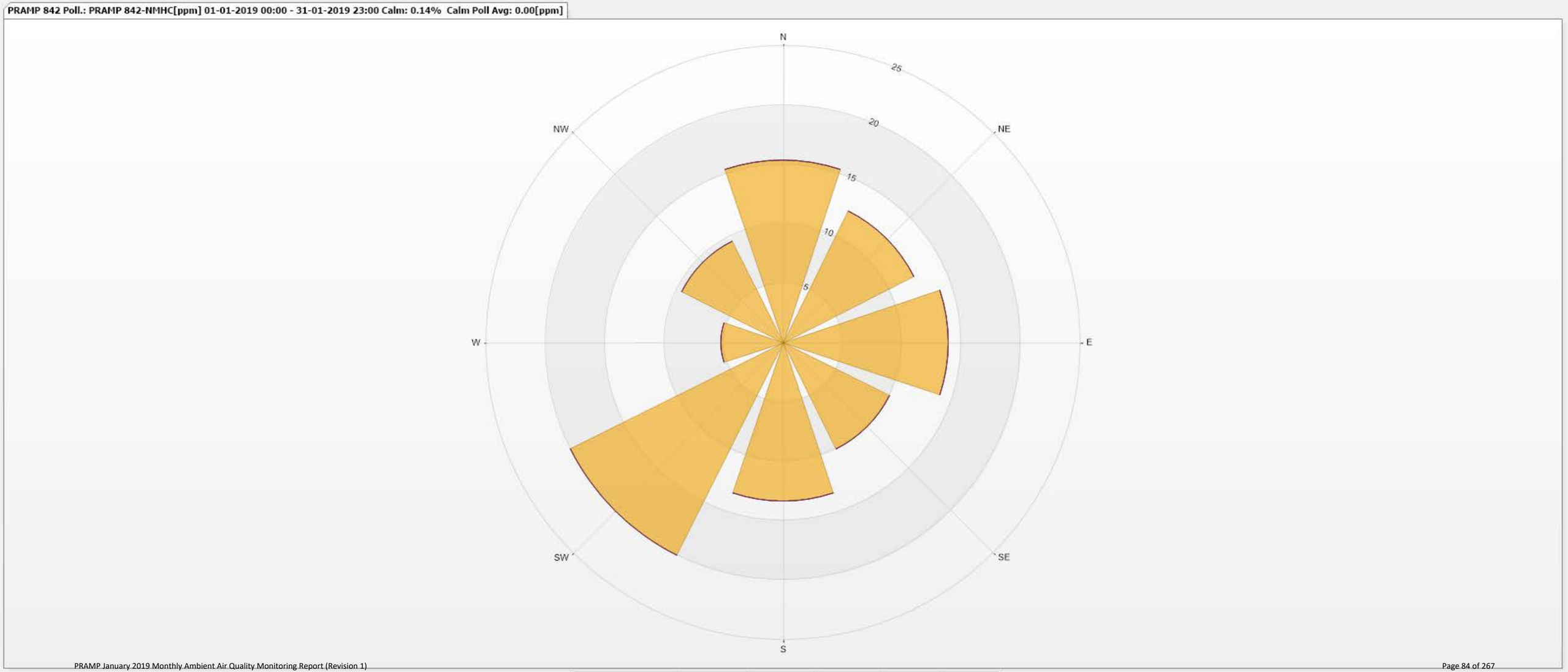
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

Timeseries Chart of Hourly Average for NMHC - 842b Station

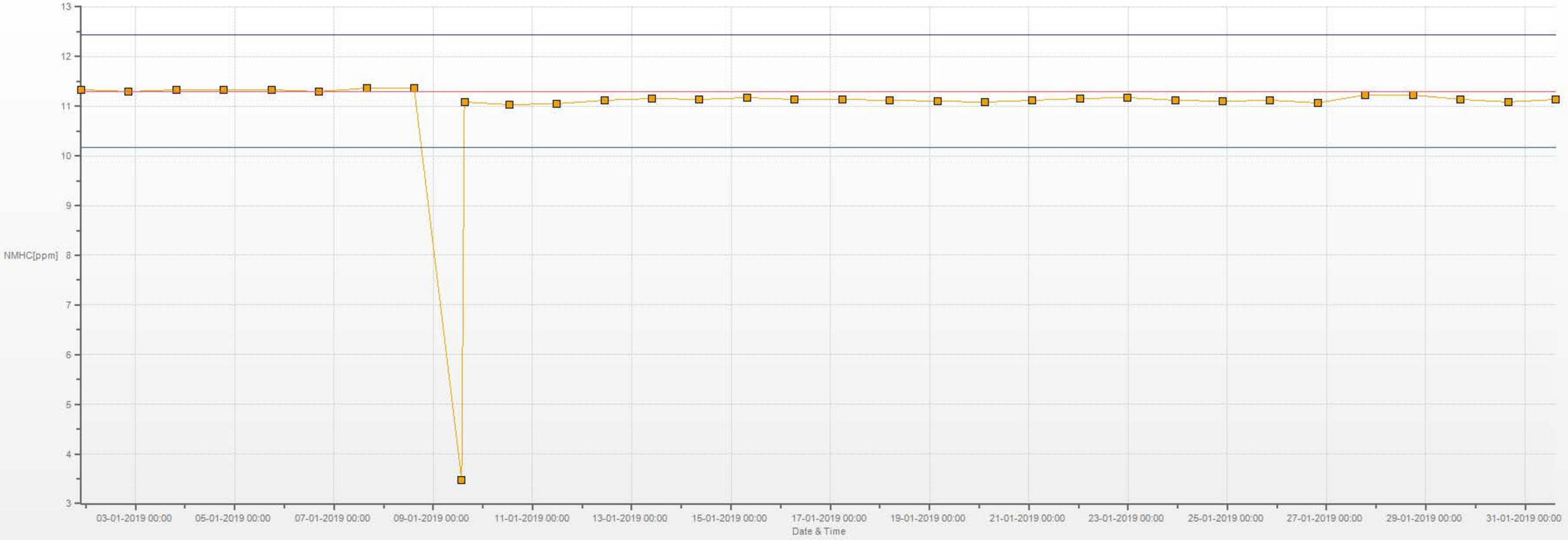


Wind: PRAMP 842 Poll.: PRAMP 842-NMHC[ppm] Monthly: 01-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 0.14% Valid Data: 94.62% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	15.34	0	0	0	0	15.34
NE	12.36	0	0	0	0	12.36
E	13.92	0	0	0	0	13.92
SE	10.09	0	0	0	0	10.09
S	13.35	0	0	0	0	13.35
SW	20.03	0	0	0	0	20.03
W	5.26	0	0	0	0	5.26
NW	9.52	0	0	0	0	9.52
Summary	100	0	0	0	0	100


PRAMP 842 Poll.: PRAMP 842-NMHC[ppm] 01-01-2019 00:00 - 31-01-2019 23:00 Calm: 0.14% Calm Poll Avg: 0.00[ppm]
N
NE
E
SE
S
SW
W
NW
25
20
15
10
5
% Icon Classes (ppm)
100 0-0.1
0 0.1-0.3
0 0.3-0.9
0 0.9-2
0 >2.0

NMHC[ppm] Calibration: PRAMP 842 Monthly: 01-2019 Type: Span



PEACE RIVER AREA MONITORING PROGRAM

842b Station - January 2019

Summary of Hourly Averages

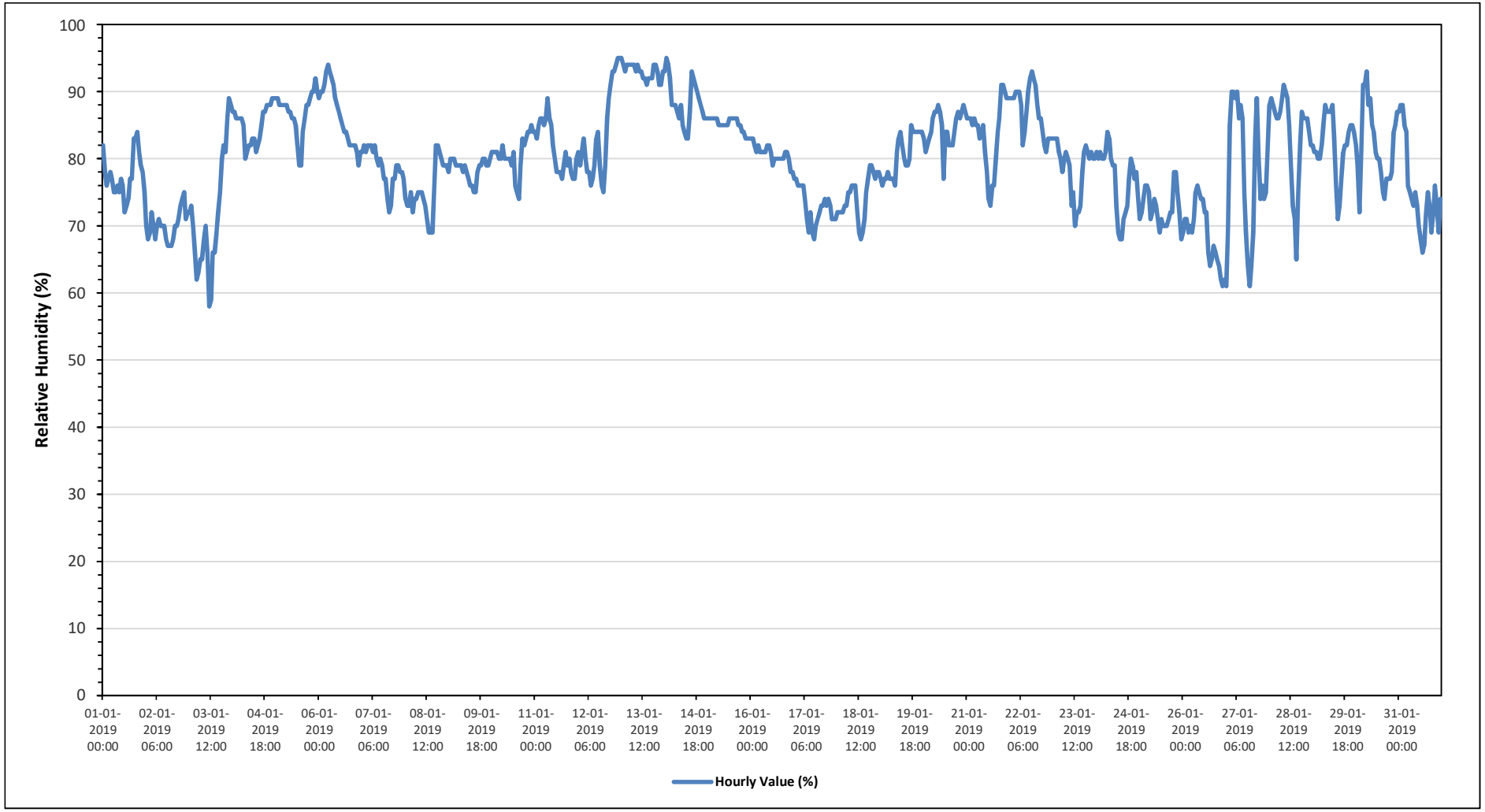
RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	95	%	on January 12 at hour 22	Hours in Service:	744
Maximum Daily Value:	93.0	%	on January 13	Hours of Data:	744
Minimum Hourly Value:	58	%	on January 3 at hour 11	Hours of Missing Data:	0
Minimum Daily Value:	68.8	%	on January 26	Hours of Calibration:	0
Monthly Average:	80.1	%		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	82	78	76	77	78	77	75	75	76	75	77	76	72	73	74	77	77	83	83	84	81	79	78	75	72	84	77.4
Jan 2	70	68	69	72	70	68	70	71	70	70	70	68	67	67	67	68	70	70	71	73	74	75	71	72	67	75	70.0
Jan 3	72	73	70	66	62	63	65	65	68	70	66	**58**	59	66	66	69	72	75	80	82	81	86	89	88	**58**	89	71.3
Jan 4	87	87	86	86	86	86	85	80	81	82	82	83	83	81	82	83	85	87	87	88	88	88	89	89	80	89	85.0
Jan 5	89	89	88	88	88	88	88	87	87	86	86	85	82	79	79	84	86	88	88	89	90	90	92	90	79	92	86.9
Jan 6	89	90	90	91	93	94	93	92	91	89	88	87	86	85	84	84	83	82	82	82	82	81	79	81	79	94	86.6
Jan 7	81	82	81	82	82	82	81	82	80	79	80	79	77	77	74	72	73	77	77	79	79	78	78	77	72	82	78.7
Jan 8	74	73	73	75	72	74	74	75	75	75	74	73	71	69	69	69	76	82	82	81	80	79	79	79	69	82	75.1
Jan 9	78	80	80	80	79	79	79	79	78	79	78	77	76	76	75	75	78	79	79	80	80	79	79	80	75	80	78.4
Jan 10	81	81	81	81	80	80	82	80	80	80	80	79	81	76	75	74	79	83	82	83	84	84	85	84	74	85	80.6
Jan 11	84	83	85	86	86	85	86	89	86	85	82	80	78	78	78	77	79	81	79	80	78	77	77	80	77	89	81.6
Jan 12	81	79	81	83	80	78	78	76	77	79	83	84	79	76	75	79	86	89	91	93	93	94	**95**	**95**	75	**95**	83.5
Jan 13	**95**	94	93	94	94	94	94	94	93	94	93	93	92	92	91	92	92	92	94	94	93	91	91	93	91	**95**	**93.0**
Jan 14	93	**95**	94	92	88	88	88	87	86	88	85	84	83	83	87	93	92	91	90	89	88	87	86	86	83	**95**	88.5
Jan 15	86	86	86	86	86	86	85	85	85	85	85	85	86	86	86	86	86	85	85	84	84	83	83	83	83	86	85.1
Jan 16	83	83	82	81	82	81	81	81	81	82	82	81	79	80	80	80	80	80	80	81	81	80	78	78	78	83	80.7
Jan 17	77	77	76	76	76	76	74	71	69	72	69	68	70	71	72	73	73	74	73	74	73	71	71	71	68	77	72.8
Jan 18	72	72	72	72	73	73	75	75	76	76	76	72	69	68	69	71	75	77	79	79	78	77	78	78	68	79	74.3
Jan 19	77	76	77	77	78	77	77	77	76	81	83	84	82	80	79	79	80	85	84	84	84	84	84	84	76	85	80.4
Jan 20	83	81	82	83	84	86	87	87	88	87	85	77	84	84	82	82	82	84	86	87	86	87	88	87	77	88	84.5
Jan 21	86	86	86	85	86	85	85	83	84	85	81	78	74	73	76	76	80	84	86	91	91	90	89	89	73	91	83.7
Jan 22	89	89	89	90	90	90	88	82	84	87	90	92	93	92	91	88	86	86	84	82	81	83	83	83	81	93	87.2
Jan 23	83	83	83	81	80	78	80	81	80	79	73	75	70	72	72	73	78	81	82	81	80	81	80	80	70	83	78.6
Jan 24	81	80	81	80	80	81	84	83	80	79	79	73	69	68	68	71	72	73	77	80	79	77	78	74	68	84	77.0
Jan 25	71	72	74	76	76	75	71	72	74	73	71	69	71	70	70	70	71	72	72	78	78	75	72	68	68	78	72.5
Jan 26	69	71	71	69	70	69	71	75	76	75	74	74	72	72	66	64	65	67	66	65	64	62	61	62	61	76	**68.8**
Jan 27	61	69	85	90	90	89	90	86	88	86	75	69	64	61	64	69	83	89	80	74	76	74	75	81	61	90	77.8
Jan 28	88	89	88	87	86	86	87	89	91	90	89	85	79	73	71	65	75	82	87	86	86	86	84	82	65	91	83.8
Jan 29	82	81	81	80	80	82	85	88	87	87	87	88	83	76	71	73	77	81	82	82	84	85	85	84	71	88	82.1
Jan 30	82	79	72	81	91	91	93	88	89	85	84	81	80	80	78	75	74	77	77	77	78	84	85	87	72	93	82.0
Jan 31	87	88	88	85	84	76	75	74	73	75	73	70	68	66	67	72	75	73	69	72	76	73	69	74	66	88	75.1
Diurnal Maximum	95	95	94	94	94	94	94	94	93	94	93	93	93	92	91	93	92	92	94	94	93	94	95	95			
Daiurnal Average	81.1	81.1	81.3	81.7	81.6	81.2	81.5	80.9	80.9	81.1	80.0	78.3	76.7	75.8	75.4	76.2	78.7	80.9	81.1	81.7	81.6	81.3	81.0	81.1			

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

Timeseries Chart of Hourly Average for RH - 842b Station



PEACE RIVER AREA MONITORING PROGRAM

842b Station - January 2019

Summary of Hourly Averages

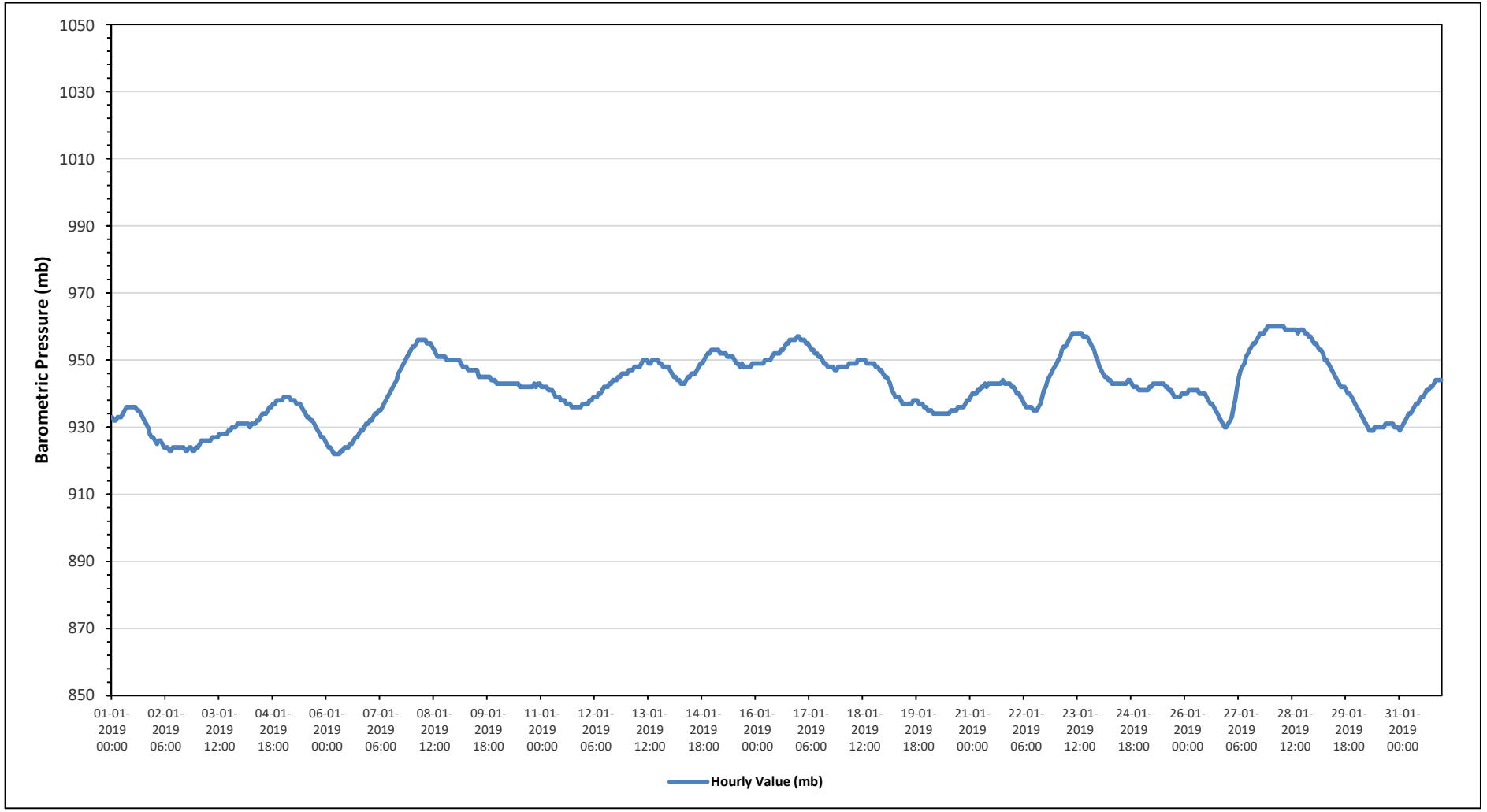
BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	960	mb	on January 27 at hour 22	Hours in Service:	744
Maximum Daily Value:	959	mb	on January 28	Hours of Data:	744
Minimum Hourly Value:	922	mb	on January 6 at hour 4	Hours of Missing Data:	0
Minimum Daily Value:	924	mb	on January 2	Hours of Calibration:	0
Monthly Average:	942	mb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	933	932	932	933	933	933	934	935	936	936	936	936	936	936	935	935	934	933	932	931	930	928	927	927	927	936	933
Jan 2	926	925	926	926	925	924	924	924	923	923	924	924	924	924	924	924	924	923	923	924	924	923	923	924	923	926	**924**
Jan 3	924	925	926	926	926	926	926	926	927	927	927	927	928	928	928	928	928	929	929	930	930	930	931	931	924	931	928
Jan 4	931	931	931	931	931	930	931	931	931	932	932	933	934	934	934	935	936	936	937	937	938	938	938	938	930	938	934
Jan 5	939	939	939	939	938	938	938	937	937	937	936	935	934	933	933	932	932	931	930	929	928	927	927	926	926	939	934
Jan 6	925	924	924	923	**922**	922	922	922	923	923	924	924	924	925	925	926	927	927	928	929	929	930	931	931	**922**	931	925
Jan 7	932	932	933	934	934	935	935	936	937	938	939	940	941	942	943	944	946	947	948	949	950	951	952	953	932	953	941
Jan 8	954	954	955	956	956	956	956	956	955	955	955	954	953	952	951	951	951	951	951	950	950	950	950	950	950	956	953
Jan 9	950	950	950	949	948	948	948	947	947	947	947	947	947	945	945	945	945	945	945	945	944	944	944	943	943	950	946
Jan 10	943	943	943	943	943	943	943	943	943	943	943	943	942	942	942	942	942	942	942	942	943	942	943	943	942	943	943
Jan 11	942	942	942	942	941	941	941	940	939	939	939	938	938	938	937	937	937	936	936	936	936	936	936	937	936	942	939
Jan 12	937	937	937	938	938	939	939	939	940	940	941	942	942	942	943	943	944	944	944	945	945	946	946	946	937	946	942
Jan 13	946	947	947	947	948	948	948	948	949	950	950	950	949	949	950	950	950	950	949	949	948	948	948	948	946	950	949
Jan 14	947	946	945	945	944	944	943	943	943	944	945	945	946	946	946	947	948	949	949	950	951	952	952	953	943	953	947
Jan 15	953	953	953	953	952	952	952	952	951	951	951	951	950	949	949	948	949	948	948	948	948	948	949	949	948	953	950
Jan 16	949	949	949	949	949	950	950	950	950	951	952	952	952	952	953	953	954	955	955	956	956	956	956	957	949	957	952
Jan 17	957	956	956	956	955	955	954	953	953	952	952	951	951	950	949	949	948	948	948	948	947	947	948	948	947	957	951
Jan 18	948	948	948	948	949	949	949	949	949	950	950	950	950	950	949	949	949	949	949	948	948	947	947	946	946	950	949
Jan 19	945	945	944	943	941	940	939	939	939	938	937	937	937	937	937	937	938	938	938	937	937	937	936	936	936	945	939
Jan 20	935	935	935	934	934	934	934	934	934	934	934	934	934	935	935	935	935	936	936	936	936	937	938	938	934	938	935
Jan 21	939	940	940	940	941	941	942	942	943	942	943	943	943	943	943	943	943	943	944	943	943	943	943	942	939	944	942
Jan 22	942	941	940	940	939	938	937	936	936	936	936	935	935	935	936	937	939	941	942	944	945	946	947	948	935	948	940
Jan 23	949	950	951	953	954	954	955	956	957	958	958	958	958	958	958	957	957	957	956	955	954	953	951	950	949	958	955
Jan 24	948	947	946	945	945	944	944	943	943	943	943	943	943	943	943	943	944	944	943	942	942	942	941	941	941	948	944
Jan 25	941	941	941	941	942	942	943	943	943	943	943	943	943	942	942	941	941	940	939	939	939	939	940	940	939	943	941
Jan 26	940	940	941	941	941	941	941	941	940	940	940	940	939	938	937	937	936	935	934	933	932	931	930	930	930	941	937
Jan 27	931	932	933	936	938	942	945	947	948	949	951	952	953	954	955	955	956	957	958	958	958	959	**960**	**960**	931	**960**	949
Jan 28	**960**	**960**	**960**	**960**	**960**	**960**	**960**	**960**	959	959	959	959	959	959	959	958	959	959	959	958	958	957	957	956	956	**960**	**959**
Jan 29	955	955	954	953	953	952	950	950	949	948	947	946	945	944	943	942	942	942	941	940	940	939	938	937	937	955	946
Jan 30	936	935	934	933	932	931	930	929	929	929	930	930	930	930	930	930	931	931	931	931	931	930	930	930	929	936	931
Jan 31	929	930	931	932	933	934	934	935	936	937	937	938	939	939	940	941	941	942	942	943	944	944	944	944	929	944	938
Diurnal Maximum	960	960	960	960	960	960	960	960	959	959	959	959	959	959	959	958	959	959	959	958	958	959	960	960			
Daiurnal Average	941	941	941	942	941	941	942	941	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942			

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 BP - 842b Station



PEACE RIVER AREA MONITORING PROGRAM

842b Station - January 2019

Summary of Hourly Averages

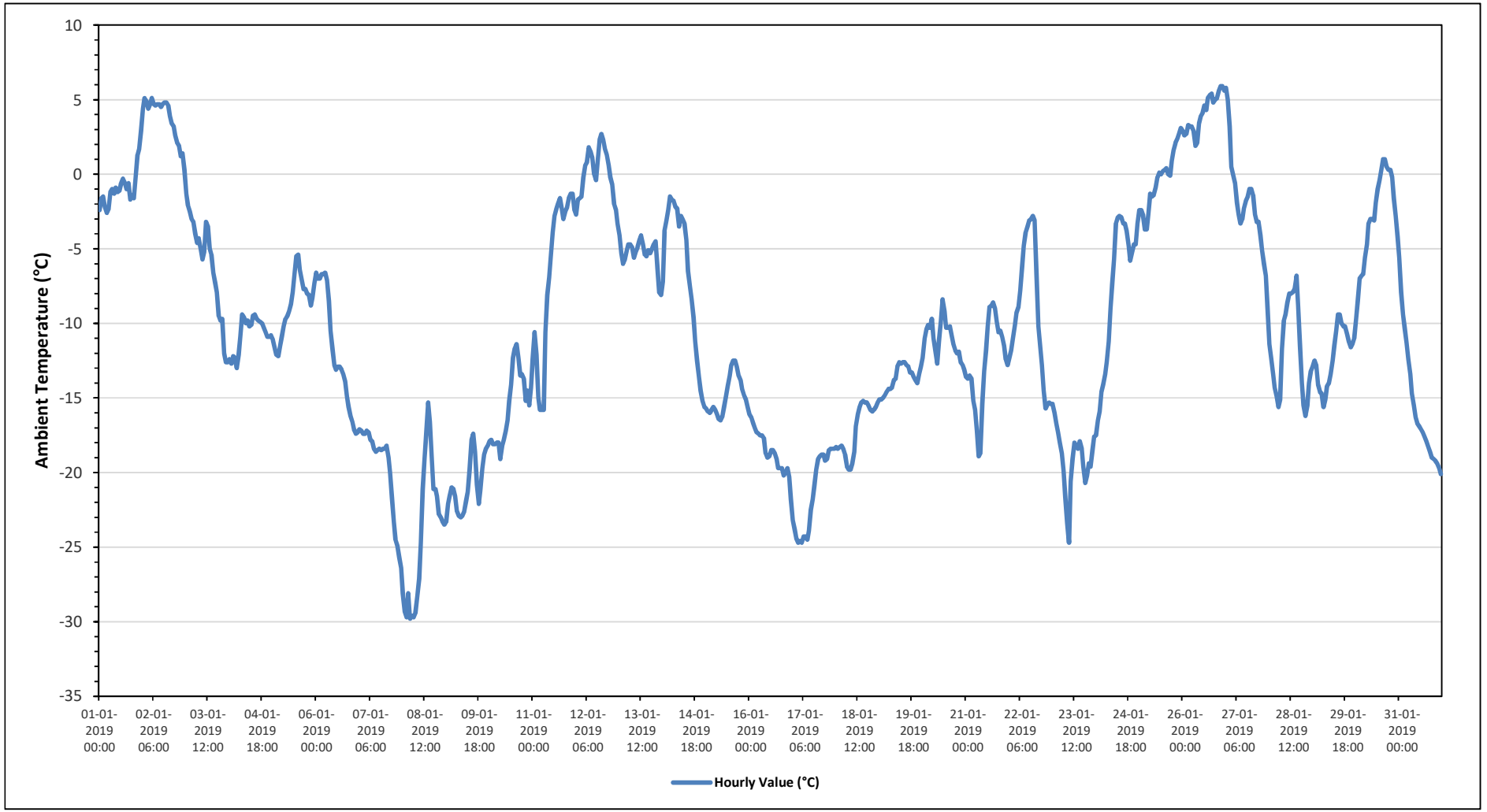
AMBIENT TEMPERATURE (AT) in Degree Celsius

Maximum Hourly Value:	5.9	°C	on January 26 at hour 21	Hours in Service:	744
Maximum Daily Value:	4.1	°C	on January 26	Hours of Data:	744
Minimum Hourly Value:	-29.8	°C	on January 8 at hour 4	Hours of Missing Data:	0
Minimum Daily Value:	-24.1	°C	on January 8	Hours of Calibration:	0
Monthly Average:	-10.3	°C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	-2.4	-1.6	-1.5	-2.2	-2.6	-2.3	-1.2	-1.0	-1.3	-0.9	-1.2	-1.1	-0.6	-0.3	-0.6	-1.0	-0.6	-1.7	-1.4	-1.6	-0.2	1.3	1.7	2.9	-2.6	2.9	-0.9
Jan 2	4.4	5.1	4.9	4.4	4.7	5.1	4.7	4.6	4.7	4.7	4.5	4.7	4.8	4.8	4.6	3.9	3.4	3.2	2.6	2.1	1.9	1.2	1.4	0.3	0.3	5.1	3.8
Jan 3	-1.3	-2.1	-2.5	-3.0	-3.2	-4.0	-4.6	-4.3	-5.0	-5.7	-5.2	-3.2	-3.5	-5.0	-5.4	-6.6	-7.3	-7.9	-9.5	-9.8	-9.7	-12.0	-12.6	-12.6	-12.6	-1.3	-6.1
Jan 4	-12.4	-12.7	-12.2	-12.3	-13.0	-12.1	-10.9	-9.4	-9.6	-10.0	-9.8	-10.2	-10.1	-9.5	-9.4	-9.7	-9.8	-9.9	-10.0	-10.3	-10.6	-10.9	-10.9	-10.8	-13.0	-9.4	-10.7
Jan 5	-11.1	-11.7	-12.1	-12.2	-11.5	-10.9	-10.2	-9.7	-9.5	-9.2	-8.7	-7.9	-6.7	-5.5	-5.4	-6.4	-7.1	-7.7	-7.7	-8.0	-8.1	-8.8	-8.3	-7.3	-12.2	-5.4	-8.8
Jan 6	-6.6	-7.0	-7.0	-6.7	-6.7	-6.6	-7.1	-8.5	-10.5	-11.7	-12.8	-13.1	-12.9	-12.9	-13.1	-13.4	-13.9	-14.9	-15.6	-16.2	-16.6	-17.1	-17.4	-17.3	-17.4	-6.6	-11.9
Jan 7	-17.1	-17.2	-17.4	-17.4	-17.2	-17.3	-17.8	-17.9	-18.4	-18.6	-18.5	-18.4	-18.5	-18.4	-18.4	-18.2	-19.0	-20.0	-21.7	-23.3	-24.5	-24.9	-25.7	-26.4	-26.4	-17.1	-19.7
Jan 8	-28.1	-29.3	-29.7	-28.1	**-29.8**	-29.6	-29.7	-29.4	-28.3	-27.1	-24.7	-21.1	-19.0	-17.4	-15.3	-16.6	-18.9	-21.1	-21.1	-21.6	-22.8	-23.0	-23.3	-23.5	**-29.8**	-15.3	**-24.1**
Jan 9	-23.3	-22.1	-21.6	-21.0	-21.1	-21.6	-22.6	-22.9	-23.0	-22.9	-22.6	-21.9	-21.3	-19.8	-17.8	-17.4	-18.6	-20.8	-22.1	-21.2	-19.7	-18.8	-18.4	-18.2	-23.3	-17.4	-20.9
Jan 10	-17.9	-17.8	-18.1	-18.1	-18.0	-18.0	-19.1	-18.2	-17.8	-17.2	-16.5	-15.2	-14.1	-12.3	-11.7	-11.4	-12.3	-13.5	-13.4	-13.7	-15.2	-14.5	-15.5	-14.3	-19.1	-11.4	-15.6
Jan 11	-12.4	-10.6	-12.1	-15.0	-15.8	-15.8	-15.8	-10.6	-8.1	-6.9	-5.6	-3.9	-2.8	-2.3	-2.0	-1.6	-2.3	-3.0	-2.5	-2.2	-1.6	-1.3	-1.3	-2.4	-15.8	-1.3	-6.6
Jan 12	-2.7	-1.7	-1.6	-1.5	-0.2	0.6	0.8	1.8	1.5	1.1	0.0	-0.4	1.0	2.3	2.7	2.3	1.7	1.3	0.6	-0.2	-0.7	-2.0	-2.4	-3.3	-3.3	2.7	0.0
Jan 13	-4.1	-5.3	-6.0	-5.7	-5.1	-4.7	-4.7	-4.9	-5.6	-5.2	-4.9	-4.4	-4.1	-4.7	-5.4	-5.5	-5.1	-5.3	-5.0	-4.7	-4.5	-6.3	-7.9	-8.1	-8.1	-4.1	-5.3
Jan 14	-7.2	-3.8	-3.1	-2.4	-1.5	-1.7	-1.8	-2.2	-2.3	-3.5	-2.8	-3.0	-3.3	-4.4	-6.5	-7.5	-8.4	-9.6	-11.2	-12.5	-13.6	-14.5	-15.2	-15.6	-15.6	-1.5	-6.6
Jan 15	-15.7	-15.9	-16.0	-15.8	-15.6	-15.8	-16.1	-16.4	-16.5	-16.2	-15.6	-14.9	-14.2	-13.5	-12.8	-12.5	-12.5	-12.9	-13.5	-13.8	-14.4	-14.8	-15.1	-15.6	-16.5	-12.5	-14.8
Jan 16	-16.1	-16.3	-16.7	-17.0	-17.3	-17.4	-17.5	-17.5	-17.7	-18.7	-19.0	-18.9	-18.5	-18.5	-18.7	-19.1	-19.7	-19.7	-19.7	-20.2	-20.0	-19.7	-20.3	-21.8	-21.8	-16.1	-18.6
Jan 17	-23.2	-23.8	-24.4	-24.7	-24.6	-24.7	-24.3	-24.3	-24.5	-23.9	-22.5	-21.8	-20.9	-19.8	-19.1	-18.9	-18.8	-18.8	-19.2	-19.1	-18.5	-18.4	-18.4	-18.4	-24.7	-18.4	-21.5
Jan 18	-18.3	-18.4	-18.3	-18.2	-18.4	-18.8	-19.6	-19.8	-19.8	-19.4	-18.6	-16.9	-16.1	-15.6	-15.3	-15.2	-15.3	-15.3	-15.5	-15.8	-15.9	-15.8	-15.6	-15.3	-19.8	-15.2	-17.1
Jan 19	-15.1	-15.1	-15.0	-14.8	-14.6	-14.4	-14.4	-14.3	-13.8	-13.7	-12.9	-12.6	-12.7	-12.6	-12.6	-12.8	-12.9	-13.3	-13.3	-13.6	-13.8	-14.0	-13.4	-12.9	-15.1	-12.6	-13.7
Jan 20	-12.3	-11.0	-10.4	-10.1	-10.3	-9.7	-11.0	-11.8	-12.7	-11.2	-9.9	-8.4	-9.2	-10.3	-10.3	-10.2	-10.8	-11.4	-11.8	-12.0	-11.9	-12.6	-12.8	-13.1	-13.1	-8.4	-11.1
Jan 21	-13.6	-13.7	-13.5	-13.7	-15.2	-15.8	-17.2	-18.9	-18.7	-15.4	-13.2	-11.8	-10.2	-8.9	-8.8	-8.6	-9.0	-9.9	-10.6	-10.5	-10.9	-11.5	-12.4	-12.8	-18.9	-8.6	-12.7
Jan 22	-12.3	-11.8	-11.0	-10.1	-9.3	-8.9	-7.8	-6.2	-4.8	-3.9	-3.5	-3.1	-3.0	-2.8	-3.1	-6.7	-10.2	-11.5	-12.8	-14.5	-15.7	-15.5	-15.3	-15.4	-15.7	-2.8	-9.1
Jan 23	-15.4	-16.0	-16.7	-17.3	-18.0	-18.7	-19.9	-21.6	-23.4	-24.7	-20.6	-19.1	-18.0	-18.3	-18.4	-17.9	-18.4	-19.6	-20.7	-20.2	-19.4	-19.6	-18.5	-17.6	-24.7	-15.4	-19.1
Jan 24	-17.5	-16.5	-15.9	-14.6	-14.1	-13.4	-12.6	-11.2	-9.0	-7.4	-5.7	-3.3	-2.9	-2.8	-2.9	-3.3	-3.3	-3.8	-4.8	-5.8	-5.2	-4.7	-4.7	-3.3	-17.5	-2.8	-7.9
Jan 25	-2.4	-2.4	-2.7	-3.7	-3.7	-2.7	-1.3	-1.5	-1.4	-0.9	-0.2	0.1	0.0	0.2	0.3	0.4	0.0	-0.1	0.9	1.6	2.1	2.4	2.7	3.1	-3.7	3.1	-0.4
Jan 26	2.9	2.6	2.7	3.3	3.2	3.2	2.9	1.9	2.1	3.4	3.9	4.1	4.6	4.3	5.1	5.3	5.4	4.8	5.0	5.1	5.6	**5.9**	**5.9**	5.6	1.9	**5.9**	**4.1**
Jan 27	5.8	5.0	3.2	0.5	-0.1	-0.6	-1.9	-2.7	-3.3	-3.0	-2.3	-1.8	-1.5	-1.0	-1.0	-1.4	-2.7	-3.2	-3.2	-4.1	-5.1	-6.0	-6.8	-8.9	-8.9	5.8	-1.9
Jan 28	-11.4	-12.3	-13.4	-14.3	-14.9	-15.6	-15.1	-11.7	-9.8	-9.4	-8.6	-8.0	-8.0	-7.9	-7.7	-6.8	-8.8	-11.5	-14.0	-15.5	-16.2	-15.5	-14.0	-13.2	-16.2	-6.8	-11.8
Jan 29	-12.9	-12.5	-12.8	-14.1	-14.6	-14.7	-15.6	-15.1	-14.2	-14.0	-13.4	-12.5	-11.5	-10.5	-9.4	-9.4	-10.0	-10.2	-10.2	-10.7	-11.2	-11.6	-11.4	-11.0	-15.6	-9.4	-12.2
Jan 30	-9.7	-8.5	-7.0	-6.8	-6.7	-5.6	-4.7	-3.3	-3.0	-3.0	-3.1	-1.9	-1.0	-0.4	0.2	1.0	1.0	0.5	0.3	0.3	-0.2	-1.6	-2.8	-4.2	-9.7	1.0	-2.9
Jan 31	-5.6	-7.9	-9.4	-10.3	-11.3	-12.4	-13.4	-14.7	-15.5	-16.3	-16.7	-16.9	-17.1	-17.3	-17.6	-17.9	-18.3	-18.6	-19.0	-19.1	-19.2	-19.4	-19.7	-20.1	-20.1	-5.6	-15.6
Diurnal Maximum	5.8	5.1	4.9	4.4	4.7	5.1	4.7	4.6	4.7	4.7	4.5	4.7	4.8	4.8	5.1	5.3	5.4	4.8	5.0	5.1	5.6	5.9	5.9	5.6			
Daiurnal Average	-10.8	-10.7	-10.9	-11.1	-11.2	-11.1	-11.3	-11.0	-10.9	-10.7	-10.0	-9.3	-8.8	-8.4	-8.3	-8.5	-9.1	-9.9	-10.3	-10.7	-10.8	-11.1	-11.2	-11.3			

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

Timeseries Chart of Hourly Average for AT - 842b Station



PEACE RIVER AREA MONITORING PROGRAM

842b Station - January 2019

Summary of Hourly Averages

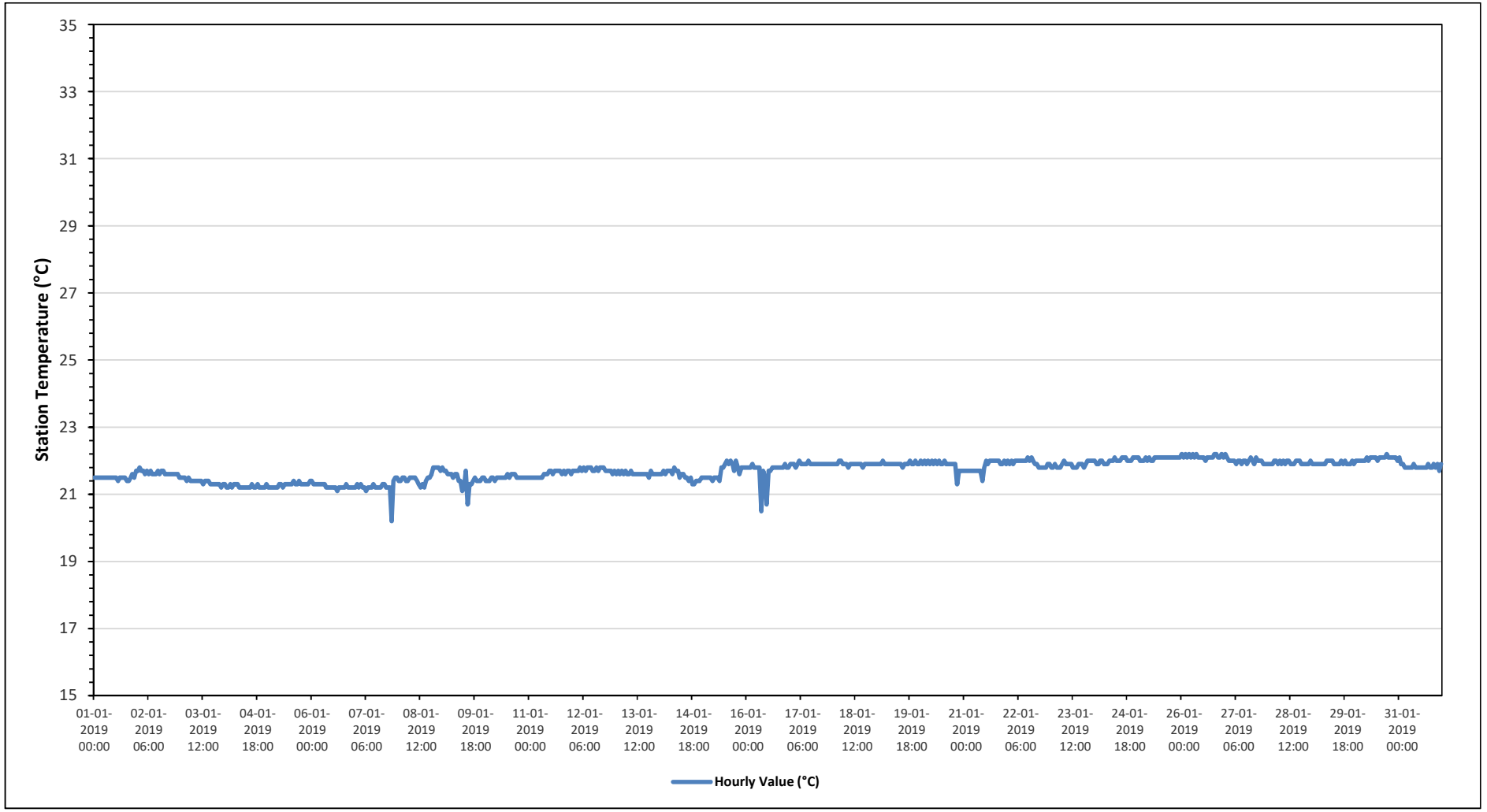
STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:	22.2	°C	on January 26 at hour 0	Hours in Service:	744
Maximum Daily Value:	22.1	°C	on January 26	Hours of Data:	744
Minimum Hourly Value:	20.2	°C	on January 7 at hour 20	Hours of Missing Data:	0
Minimum Daily Value:	21.2	°C	on January 7	Hours of Calibration:	0
Monthly Average:	21.7	°C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.4	21.5	21.5	21.5	21.5	21.4	21.4	21.5	21.6	21.5	21.7	21.4	21.7	21.5
Jan 2	21.7	21.8	21.7	21.7	21.6	21.7	21.6	21.7	21.6	21.6	21.6	21.7	21.6	21.7	21.7	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.5	21.5	21.8	21.6
Jan 3	21.5	21.5	21.5	21.4	21.5	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.3	21.4	21.4	21.4	21.3	21.3	21.3	21.3	21.3	21.3	21.2	21.3	21.2	21.5	21.4
Jan 4	21.3	21.2	21.2	21.3	21.2	21.3	21.3	21.3	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.3	21.2	21.2	21.3	21.2	21.2	21.2	21.2	21.3	21.2	21.3	21.2
Jan 5	21.2	21.2	21.2	21.2	21.2	21.2	21.3	21.3	21.2	21.3	21.3	21.3	21.3	21.3	21.4	21.3	21.3	21.4	21.3	21.3	21.3	21.3	21.3	21.4	21.2	21.4	21.3
Jan 6	21.4	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.2	21.2	21.2	21.2	21.2	21.2	21.1	21.2	21.2	21.2	21.2	21.3	21.2	21.2	21.2	21.2	21.1	21.4	21.2
Jan 7	21.2	21.3	21.2	21.3	21.2	21.2	21.1	21.2	21.2	21.2	21.3	21.2	21.2	21.2	21.2	21.3	21.3	21.2	21.2	21.2	**20.2**	21.4	21.5	21.5	**20.2**	21.5	**21.2**
Jan 8	21.4	21.4	21.5	21.5	21.4	21.4	21.5	21.5	21.5	21.5	21.4	21.3	21.2	21.3	21.2	21.4	21.5	21.5	21.6	21.8	21.8	21.8	21.8	21.7	21.2	21.8	21.5
Jan 9	21.8	21.7	21.7	21.6	21.6	21.6	21.5	21.6	21.6	21.4	21.4	21.1	21.2	21.7	20.7	21.3	21.3	21.4	21.5	21.4	21.4	21.4	21.5	21.5	20.7	21.8	21.5
Jan 10	21.4	21.4	21.4	21.5	21.5	21.4	21.5	21.5	21.5	21.5	21.5	21.5	21.6	21.5	21.6	21.6	21.6	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.4	21.6	21.5
Jan 11	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.6	21.6	21.6	21.7	21.7	21.6	21.7	21.7	21.7	21.7	21.6	21.7	21.6	21.7	21.7	21.6	21.5	21.7	21.6
Jan 12	21.7	21.7	21.7	21.7	21.8	21.7	21.8	21.7	21.8	21.8	21.8	21.7	21.7	21.8	21.7	21.8	21.8	21.8	21.7	21.7	21.7	21.7	21.6	21.7	21.6	21.8	21.7
Jan 13	21.6	21.7	21.6	21.7	21.6	21.7	21.6	21.6	21.7	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.5	21.7	21.6	21.6	21.6	21.6	21.5	21.7	21.6
Jan 14	21.6	21.6	21.7	21.6	21.7	21.7	21.7	21.6	21.8	21.7	21.7	21.5	21.6	21.6	21.5	21.5	21.4	21.5	21.3	21.3	21.4	21.4	21.4	21.5	21.3	21.8	21.6
Jan 15	21.5	21.5	21.5	21.5	21.5	21.4	21.5	21.5	21.5	21.4	21.8	21.8	21.9	22.0	21.9	22.0	21.9	21.7	22.0	21.8	21.6	21.8	21.8	21.8	21.4	22.0	21.7
Jan 16	21.8	21.8	21.8	21.9	21.8	21.8	21.8	21.8	20.5	21.7	21.5	20.7	21.7	21.7	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.9	21.8	21.8	20.5	21.9	21.7
Jan 17	21.9	21.9	21.9	21.8	21.9	22.0	21.9	21.9	21.9	21.9	22.0	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.8	22.0	21.9
Jan 18	21.9	21.9	21.9	22.0	22.0	21.9	21.9	21.9	21.8	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.8	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.8	22.0	21.9
Jan 19	21.9	21.9	21.9	22.0	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.8	21.9	21.9	21.9	22.0	21.9	21.9	22.0	21.9	21.9	21.8	22.0	21.9
Jan 20	22.0	21.9	22.0	21.9	22.0	21.9	22.0	21.9	22.0	21.9	22.0	21.9	21.9	22.0	21.9	21.9	21.9	21.9	21.9	21.9	21.3	21.7	21.7	21.7	21.3	22.0	21.9
Jan 21	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.4	21.8	22.0	21.9	22.0	22.0	22.0	22.0	22.0	22.0	21.9	21.9	22.0	21.9	21.4	22.0	21.8
Jan 22	22.0	21.9	22.0	21.9	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.1	22.0	22.1	22.0	21.9	21.9	21.8	21.8	21.8	21.8	21.8	21.9	21.9	21.8	22.1	21.9
Jan 23	21.8	21.8	21.9	21.8	21.8	21.8	21.9	22.0	21.9	21.9	21.9	21.9	21.8	21.8	21.8	21.9	21.9	21.9	21.8	21.9	22.0	22.0	22.0	22.0	21.8	22.0	21.9
Jan 24	22.0	21.9	21.9	22.0	22.0	21.9	21.9	21.9	22.0	22.0	22.0	22.1	22.0	22.0	22.0	22.1	22.1	22.1	22.0	22.0	22.0	22.1	22.1	22.1	21.9	22.1	22.0
Jan 25	22.1	22.0	22.0	22.0	22.1	22.0	22.1	22.0	22.0	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.0	22.1	22.1
Jan 26	**22.2**	22.1	**22.2**	22.1	**22.2**	22.1	**22.2**	22.1	**22.2**	22.1	22.1	22.1	22.1	22.0	22.1	22.1	22.1	22.1	**22.2**	**22.2**	22.1	22.1	**22.2**	22.1	22.0	**22.2**	**22.1**
Jan 27	**22.2**	22.1	22.0	22.0	22.0	22.0	21.9	22.0	22.0	21.9	22.0	22.0	21.9	22.0	22.1	22.0	21.9	22.1	22.0	22.0	22.0	21.9	21.9	21.9	21.9	**22.2**	22.0
Jan 28	21.9	21.9	21.9	22.0	22.0	21.9	22.0	21.9	22.0	21.9	22.0	22.0	21.9	21.9	21.9	22.0	22.0	22.0	21.9	21.9	21.9	21.9	21.9	22.0	21.9	22.0	21.9
Jan 29	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	22.0	22.0	22.0	22.0	21.9	21.9	21.9	21.9	22.0	21.9	22.0	21.9	21.9	21.9	22.0	21.9	21.9	22.0	21.9
Jan 30	22.0	22.0	22.0	22.0	22.0	22.0	22.1	22.0	22.1	22.1	22.1	22.1	22.0	22.1	22.1	22.1	22.1	**22.2**	22.1	22.1	22.1	22.1	22.1	22.0	22.0	**22.2**	22.1
Jan 31	22.1	21.9	21.9	21.8	21.8	21.8	21.8	21.8	21.9	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.9	21.8	21.8	21.9	21.8	21.9	21.7	21.9	21.7	22.1	21.8
Diurnal Maximum	22.2	22.1	22.2	22.1	22.2	22.1	22.2	22.1	22.2	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.2	22.2	22.2	22.1	22.1	22.2	22.1			
Daiurnal Average	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7			

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

Timeseries Chart of Hourly Average for ST - 842b Station



peace river area monitoring program pramp

PEACE RIVER AREA MONITORING PROGRAM

842b Station - January 2019

Summary of Hourly Averages

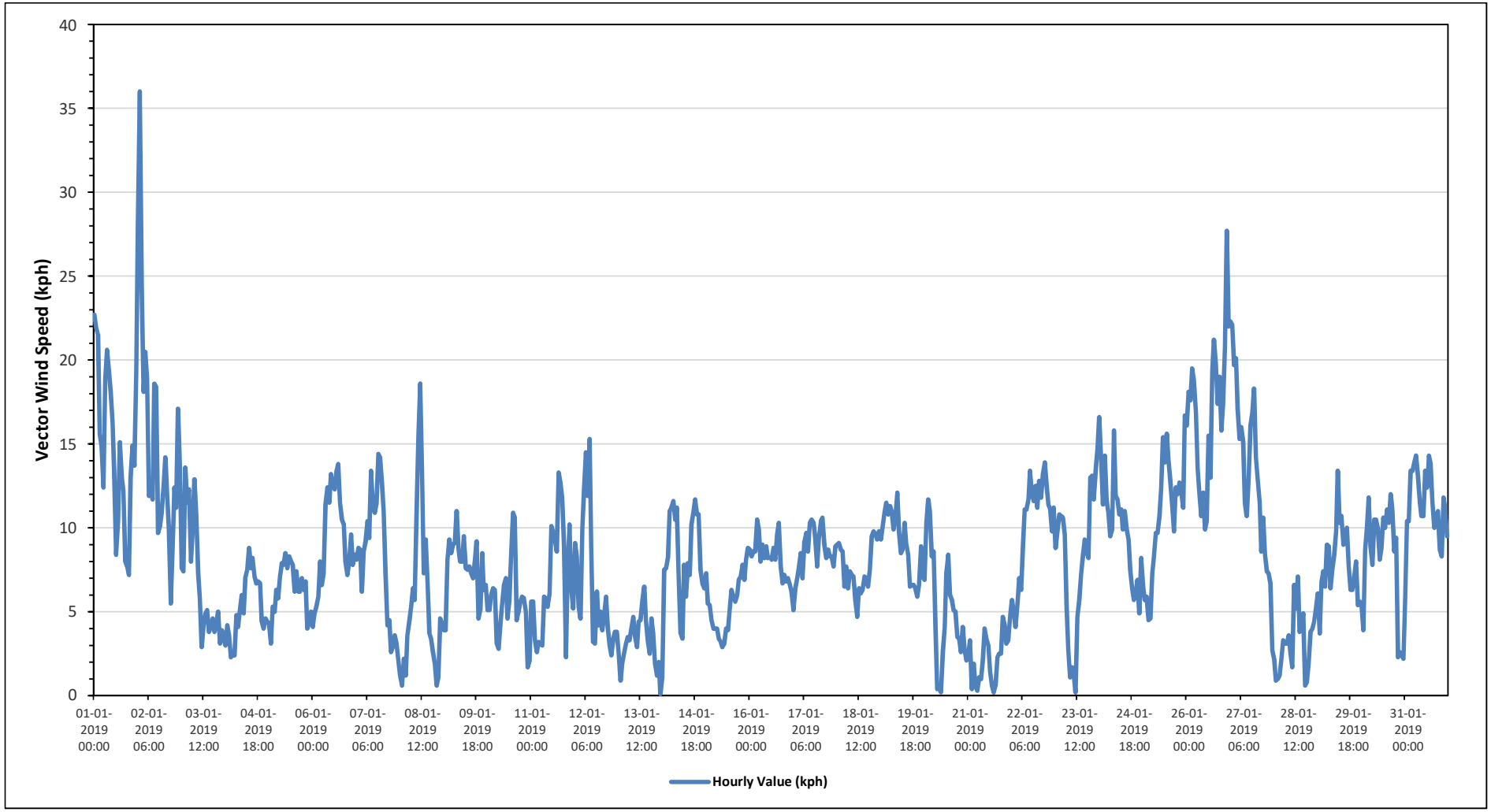
VECTOR WIND SPEED (WS) in km/hr

Maximum Hourly Value:	36.0	kph	on January 2 at hour 1	Hours in Service:	744
Maximum Daily Value:	16.9	kph	on January 26	Hours of Data:	743
Minimum Hourly Value:	0.1	kph	on January 13 at hour 23	Hours of Missing Data:	0
Minimum Daily Value:	2.2	kph	on January 21	Hours of Calibration:	1
Monthly Average:	1.1	kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	22.7	21.9	21.5	15.6	14.9	12.4	18.9	20.6	19.5	18.1	16.3	13.3	8.4	10.4	15.1	13	12.2	8	7.7	7.2	13	14.9	13.7	19.3	7.2	22.7	14.9
Jan 2	27.9	**36**	24.4	18.1	20.5	18.9	11.9	12.1	11.7	18.6	18.4	9.7	10.1	10.9	12.4	14.2	11.8	9.9	5.5	8.7	12.4	11.2	17.1	13.7	5.5	**36.0**	15.3
Jan 3	7.6	7.4	13.6	11.5	12.3	8	9.6	12.9	10.8	7.3	5.8	2.9	4.2	4.9	5.1	3.8	4.1	4.6	3.8	4.3	5	3.1	3.9	3.4	2.9	13.6	6.7
Jan 4	3	4.2	3.6	2.3	2.4	2.4	4.8	4.1	5.1	6	4.9	7	7.5	8.8	7.6	8.2	7.1	6.7	6.8	6.7	4.4	4	4.6	4.4	2.3	8.8	5.3
Jan 5	4.3	3.1	5.3	5	6.3	5.8	7.1	7.9	7.8	8.5	7.6	8.3	8	7.8	6.2	7.4	6.2	6.2	7	6.3	6.8	4	4.3	5	3.1	8.5	6.3
Jan 6	4.1	4.9	5.3	5.9	8	6.6	7.3	11.4	12.4	11.5	13.2	12.6	12.3	13.4	13.8	11.5	10.5	10.2	8	7.2	8	9.6	7.8	8.4	4.1	13.8	9.3
Jan 7	8.1	8.8	8.7	6.2	8.6	9.2	10.4	9.4	13.4	11.2	10.9	11.4	14.4	14.2	12.6	11	7.3	4.2	4.5	2.6	2.9	3.6	3.1	2	2.0	14.4	8.3
Jan 8	1.2	0.6	2.2	1.2	3.6	4.4	5.3	6.4	5.7	10.8	15.6	18.6	13.5	7.3	9.3	6.8	3.7	3.4	2.6	1.9	0.6	1.1	4.6	4.3	0.6	18.6	5.6
Jan 9	3.9	3.9	8.1	9.3	8.5	9	9.1	11	8.7	8	8	9.5	7.6	7.5	7.7	7.3	7	8.1	9.2	4.6	5.1	8.5	6.3	6.6	3.9	11.0	7.6
Jan 10	5.1	5.1	6	6.4	6.3	3.1	2.8	4.2	5.5	6.6	7	4.6	5.7	8.6	10.9	10.6	4.5	5	5.6	5.9	5.8	5	1.7	2.1	1.7	10.9	5.6
Jan 11	5.6	5.6	3.3	2.6	3.2	3.1	3	5.9	5.8	5.3	6.1	10.1	9.8	9.3	8.6	13.3	12.7	11.8	8.9	2.3	7.5	10.2	6.4	5.2	2.3	13.3	6.9
Jan 12	9.1	8.3	5.3	4.6	10	12.2	14.5	11.9	15.3	8.9	3.2	3.1	6.2	4.2	5	3.9	4.8	5.9	4.1	3	2.4	3.4	3.8	3.8	2.4	15.3	6.5
Jan 13	2.5	0.9	1.9	2.5	3.1	3.5	3.3	4	4.7	3.5	2.9	4.4	4.5	5.7	6.5	4.5	3.3	2.5	4.6	3.7	1.9	1.2	2	**0.1**	**0.1**	6.5	3.2
Jan 14	1.1	7.5	7.6	8.2	11	11.2	11.6	10.5	11.2	7	3.7	3.4	7.8	5.9	7.9	7.2	10.2	10.9	11.7	10.8	10.8	7.5	6.7	6.4	1.1	11.7	8.2
Jan 15	7.3	5.5	5.4	4.5	4	4	4	3.4	3.2	2.9	3.1	4	3.9	5.1	6.3	5.9	5.6	6	6.9	7.1	7.8	6.9	8.1	8.8	2.9	8.8	5.4
Jan 16	8.7	8.3	8.6	8.6	10.5	9.9	8	9	8.2	8.9	8.2	Q	8.1	8.8	8.1	9.6	10.3	7.7	6.7	7.2	6.8	7	6.6	6.2	6.2	10.5	8.3
Jan 17	5.1	6.4	7	7.6	8.5	7	9.2	9.7	8.6	10.3	10.5	10.3	9.4	7.7	9.4	10.4	10.6	9	8.2	8.7	8.3	8.3	7.7	8.9	5.1	10.6	8.6
Jan 18	9	9.1	8.7	8.6	6.5	7.7	6.4	7.4	7.2	7.1	5.7	4.7	6.4	6.1	6.3	7.1	7	6.5	7.5	9.5	9.8	9.6	9.3	9.8	4.7	9.8	7.6
Jan 19	9.3	10.1	10.9	11.5	10.8	11.3	11	9.9	10.6	12.1	9.8	8.5	8.7	10.3	9.1	8.4	6.5	6.6	6.6	6.4	5.9	6.6	8.9	7.1	5.9	12.1	9.0
Jan 20	6.9	10.3	11.7	11	8.3	8.6	4	0.4	0.5	0.2	2.6	4.1	7.3	8.4	6	5.7	5.1	5	3.5	3.4	2.6	4.1	2.7	2.1	0.2	11.7	5.2
Jan 21	2.4	3.3	0.4	1.9	0.6	0.3	1.1	1	2.2	4	3.4	3	1.4	0.6	0.2	0.6	2.3	2.5	2.5	4.7	4.2	3.1	3.3	4.7	0.2	4.7	**2.2**
Jan 22	5.7	4.9	4.1	5.4	7	6.3	8.7	11.1	11.1	11.7	13.4	12	11.6	12.5	11.2	12.8	11.8	13.2	13.9	12.6	11.4	11.1	9.8	11.2	4.1	13.9	10.2
Jan 23	8.8	9.8	10.8	10.7	10.6	9.6	5.2	2.7	1.1	1.7	1.2	0.2	4.7	5.7	7.3	8.4	9.3	8.6	8.2	13	13.1	11.7	13.4	14.8	0.2	14.8	7.9
Jan 24	16.6	14.1	11.4	14.3	11.7	10.9	9.5	9.9	15.8	11.9	11.7	10.8	11.1	9.9	11	9.9	9.3	7.5	6.4	5.7	6.2	6.9	4.9	8.2	4.9	16.6	10.2
Jan 25	6.5	5.7	5.9	4.5	4.6	7.3	8.2	9.7	9.7	10.7	12.3	15.4	13.9	15.6	14.1	12.8	11.3	9.8	12.4	12	12.7	12.2	11.2	16.7	4.5	16.7	10.6
Jan 26	16.1	18.1	17.6	19.5	18.8	16.9	13.5	12	10.7	12.1	9.9	10.4	15.5	13	19.4	21.2	19.8	17.4	19	15.8	17.4	20.7	27.7	22	9.9	27.7	**16.9**
Jan 27	22.3	22.1	19.7	20.1	17.1	15.3	16	15.1	11.5	10.7	12.9	16.1	16.9	18.3	14.2	12.9	11.5	8.6	10.6	8.4	7.4	7.3	6.7	2.7	2.7	22.3	13.5
Jan 28	2.2	0.9	1	1.2	2.2	3.3	3.1	3.1	3.6	2.5	1.7	6.6	5.2	7.1	3.8	4.2	4.9	0.6	0.8	1.9	3.8	4	4.4	5.2	0.6	7.1	3.2
Jan 29	6.1	3.7	6.8	7.4	6.5	9	8.9	6.4	7.5	8.4	9.8	13.4	10.3	10.7	9	9.3	10	7.7	6.3	6.3	7	8	5.4	5.6	3.7	13.4	7.9
Jan 30	5.5	3.9	8.7	10	11.8	8.9	7.8	10.5	10.5	10	8.1	8.8	10.6	10	11.1	10.3	12	11.1	8.6	9.4	2.3	2.6	2.4	2.2	2.2	12.0	8.2
Jan 31	5.9	10.4	10.4	13.4	13.4	13.9	14.3	13.1	11.5	10.7	10.7	13.4	12.4	14.3	13.8	11.5	10	10.6	11	8.7	8.3	11.8	11.2	9.5	5.9	14.3	11.4
Diurnal Maximum	28	36	24	20	21	19	19	21	20	19	18	19	17	18	19	21	20	17	19	16	17	21	28	22			
Daiurnal Average	8.1	8.5	8.6	8.4	8.8	8.4	8.3	8.6	8.7	8.6	8.3	8.7	8.9	9.1	9.3	9.2	8.5	7.6	7.4	7.0	7.1	7.4	7.4	7.4			

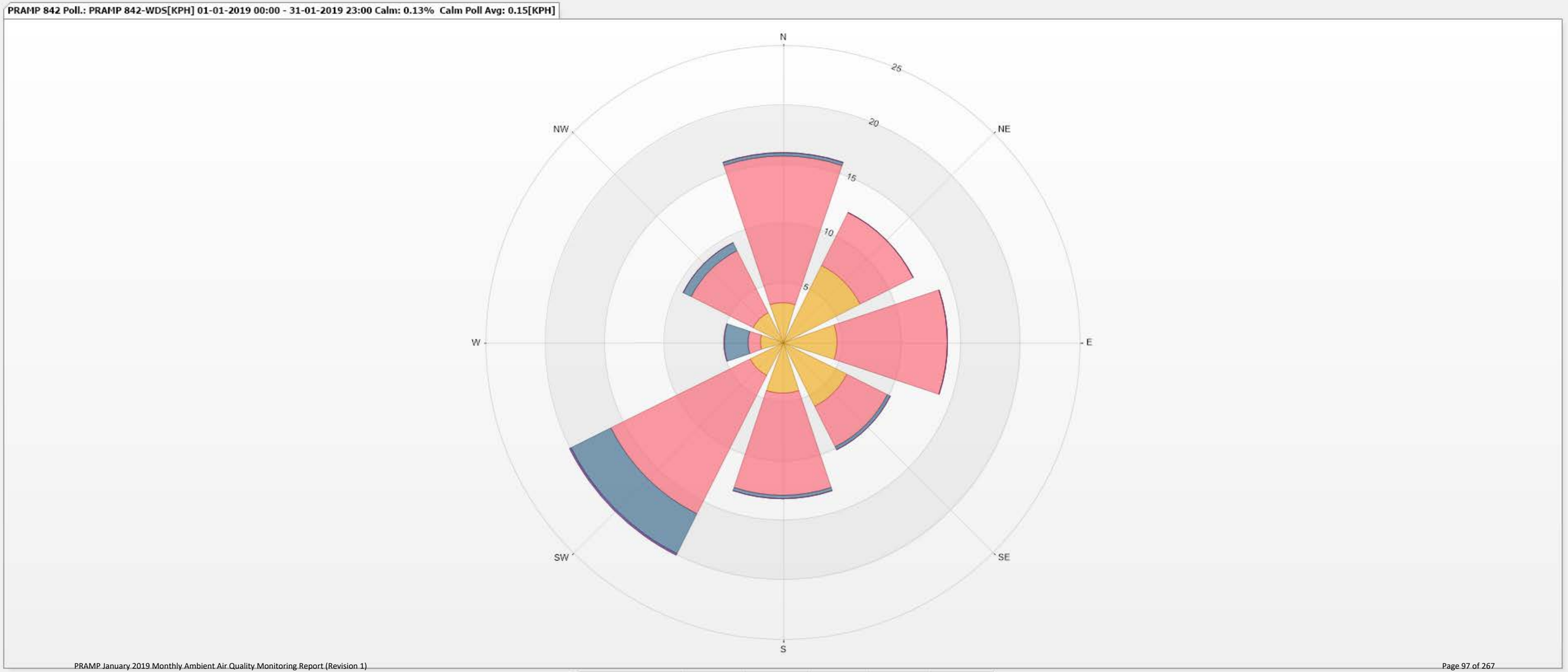
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

Timeseries Chart of Hourly Average for VWS - 842b Station



Wind: PRAMP 842 Poll.: PRAMP 842-WDS[KPH] Monthly: 01-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 0.13% Valid Data: 99.87% Calm Avg: 0.15 [KPH]

Direction	1.8-6	6-15	15-29	29-39	>39.0	Total
N	3.36	12.38	0.27	0	0	16.01
NE	7.27	4.98	0	0	0	12.25
E	4.58	9.29	0	0	0	13.87
SE	6.06	3.77	0.27	0	0	10.1
S	4.31	8.61	0.27	0	0	13.19
SW	3.1	13.06	3.77	0.13	0	20.06
W	1.88	1.08	2.02	0	0	4.98
NW	2.83	5.79	0.81	0	0	9.43
Summary	33.39	58.96	7.41	0.13	0	100


PRAMP 842 Poll.: PRAMP 842-WDS[KPH] 01-01-2019 00:00 - 31-01-2019 23:00 Calm: 0.13% Calm Poll Avg: 0.15[KPH]
N
NE
E
SE
S
SW
W
NW
5
10
15
20
25
% Icon Classes (KPH)
33 1.8-6
59 6-15
7 15-29
0 29-39
0 >39.0

peace river area monitoring program pramp

PEACE RIVER AREA MONITORING PROGRAM

842b Station - January 2019

Summary of Hourly Averages

VECTOR VECTOR WIND DIRECTION (WD) in sector

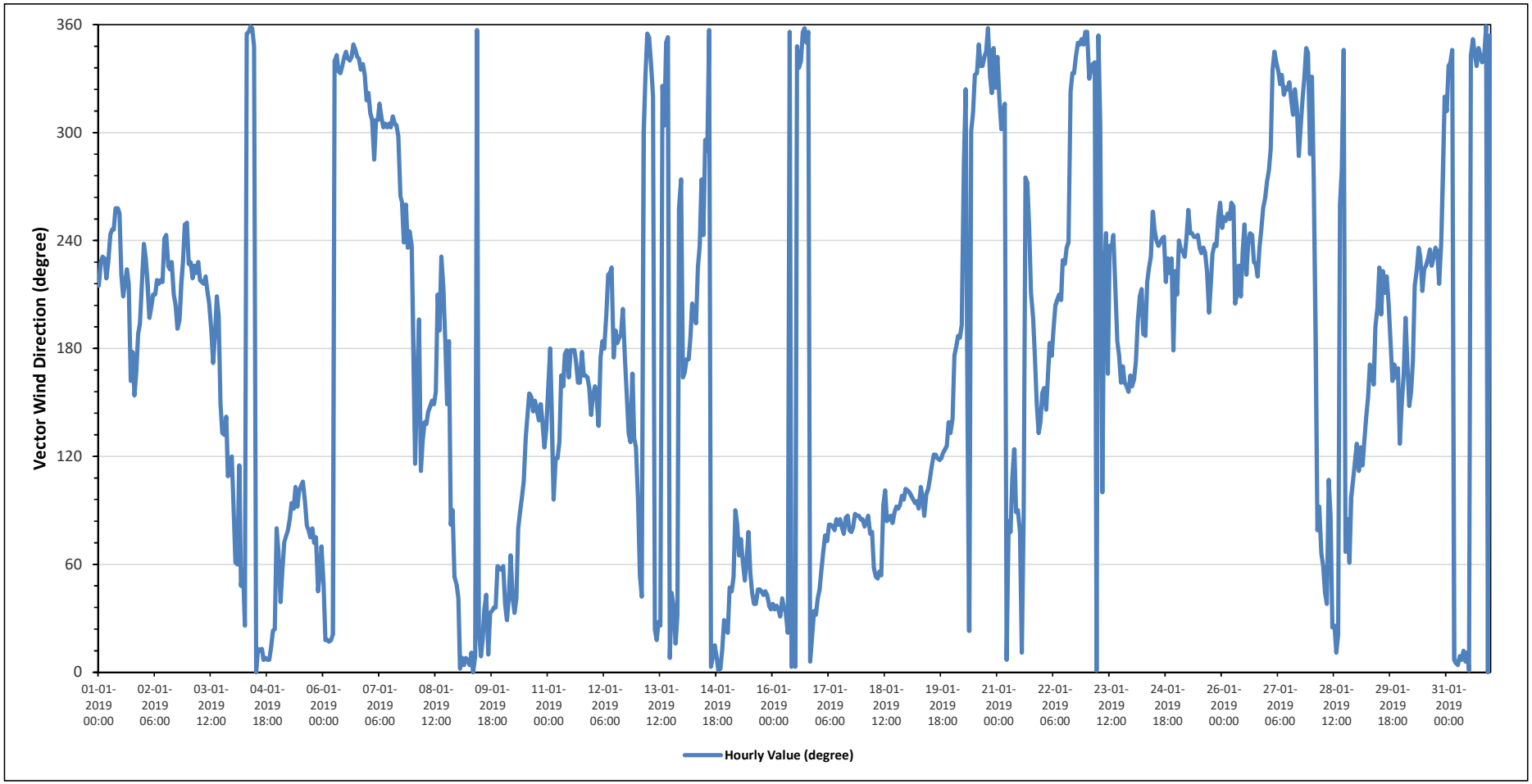
Monthly Average: 235 (SW) degree

Hours in Service: 744
Hours of Data: 743
Hours of Missing Data: 0
Hours of Calibration: 1
Operational Uptime: 100.0

Day	Hourly Period Starting at (MST)																						Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant
Jan 1	SSW	SW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SSW	SW	SW	SW	SSE	S	SSE	SSE	S	SSW	SW	223	SW
Jan 2	SW	SW	SW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	WSW	WSW	SW	SW	SW	SSW	SSW	S	SSW	SW	SW	WSW	WSW	221	SW
Jan 3	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SSW	SSW	S	S	S	SSW	SSW	SSE	SE	SE	SE	ESE	ESE	ESE	204	SSW
Jan 4	E	ENE	ENE	ESE	NE	ENE	NNE	N	N	N	N	NNW	N	NNE	NNE	NNE	N	N	N	N	NNE	NNE	NNE	E	17	NNE
Jan 5	ENE	NE	ENE	ENE	ENE	ENE	E	E	E	ESE	E	E	ESE	ESE	E	E	ENE	ENE	E	ENE	ENE	NE	NE	ENE	83	E
Jan 6	NE	NNE	NNE	NNE	NNE	NNE	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	345	NNW
Jan 7	NW	NW	NW	WNW	NW	NW	NW	NW	WNW	WNW	WNW	WNW	WNW	NW	WNW	WNW	WNW	W	W	WSW	WSW	SW	WSW	SW	300	WNW
Jan 8	S	ESE	SSE	SSW	ESE	SE	SE	SE	SE	SE	SSE	SSE	SSE	SSW	S	SW	SSW	S	SSE	S	E	E	NE	NE	156	SSE
Jan 9	NE	N	N	N	N	N	N	NNE	N	N	N	NNE	N	NNE	NE	NE	N	NNE	NE	NE	NE	ENE	ENE	ENE	21	NNE
Jan 10	ENE	NE	NNE	NE	ENE	NE	NNE	NE	E	E	E	ESE	SE	SE	SSE	SSE	SE	SSE	SE	SE	SSE	SE	SE	SE	110	ESE
Jan 11	SSE	S	SE	E	ESE	ESE	SE	SSE	SSE	S	S	SSE	S	S	S	S	SSE	SSE	S	SSE	SSE	SSE	SSE	SE	164	SSE
Jan 12	SSE	SSE	SSE	SE	S	S	S	SSW	SW	SW	SW	S	S	S	S	S	SSW	S	SSE	SE	SE	SSE	SE	SE	180	S
Jan 13	E	NE	NE	WNW	NNW	N	N	NNW	NW	NNE	NNE	NNE	NNE	NW	WNW	N	N	N	NE	NE	NNE	NNE	WSW	W	357	N
Jan 14	SSE	SSE	S	S	S	SSW	SSW	SSW	SW	SW	W	WSW	WNW	WNW	N	N	N	NNE	N	N	N	NNE	NNE	NNE	297	WNW
Jan 15	NNE	NE	NE	NE	E	E	ENE	ENE	ENE	NE	ENE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	48	NE
Jan 16	NE	NE	NE	NE	NNE	NE	NE	NNE	NNE	N	N	Q	N	NNW	NNW	NNW	N	N	N	N	N	NNE	NE	NNE	14	NNE
Jan 17	NE	NE	ENE	ENE	ENE	ENE	E	E	E	ENE	E	E	E	E	ENE	E	E	ENE	ENE	E	E	E	E	E	79	ENE
Jan 18	E	E	E	E	ENE	ENE	ENE	NE	NE	NE	NE	E	E	E	E	E	E	E	E	E	E	E	E	E	83	E
Jan 19	E	E	E	E	E	E	E	ESE	E	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	107	ESE
Jan 20	SE	S	S	S	S	S	W	NW	SE	NNE	WNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	NNW	NW	NNW	NW	273	W
Jan 21	NNW	NW	WNW	NW	NW	N	E	ENE	ESE	ESE	E	E	ENE	NNE	E	W	W	WSW	SSW	SSW	S	SSE	SE	SE	145	SE
Jan 22	SSE	SSE	SE	SSE	S	S	S	SSW	SSW	SSW	SSW	SW	SW	SW	WSW	NW	NNW	NNW	NNW	N	NNW	N	NNW	N	263	W
Jan 23	N	NNW	NNW	NNW	NNW	N	N	WNW	E	SW	WSW	SSE	SW	SW	WSW	SSW	S	S	SSE	SSE	SSE	SSE	SSE	SSE	202	SSW
Jan 24	SSE	SSE	S	SSW	SSW	SSW	S	S	SW	SW	SW	WSW	WSW	WSW	SW	WSW	WSW	WSW	SW	SW	SW	SW	S	SW	213	SSW
Jan 25	SSW	WSW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SSW	SW	SW	SW	SW	WSW	W	237	SW
Jan 26	WSW	WSW	WSW	WSW	WSW	W	WSW	SSW	SSW	SW	SSW	SW	WSW	SW	SW	WSW	WSW	SW	SW	SW	SW	WSW	WSW	W	242	WSW
Jan 27	W	W	WNW	NNW	NNW	NNW	NNW	NW	NNW	NW	NW	NW	NNW	NW	NW	NW	NW	WNW	WNW	NW	NNW	NNW	NNW	WNW	317	NW
Jan 28	NNW	W	S	ENE	E	ENE	ENE	NE	NE	ESE	E	NNE	NNE	NNE	NNE	WSW	W	NNW	ENE	E	ENE	E	ESE	ESE	49	NE
Jan 29	SE	ESE	SE	ESE	SE	SE	SSE	S	SSE	SSE	S	SSW	SW	SSW	SW	SSW	SW	SSW	S	SSE	S	SSE	SSE	SE	175	S
Jan 30	SE	SSE	SSW	S	SE	SSE	S	SSW	SW	SW	SW	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	W	NW	212	SSW
Jan 31	NW	NNW	NNW	NNW	N	N	N	N	N	NNE	N	NNE	N	NNW	N	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	354	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

Timeseries Chart of Hourly Average for VWD - 842b Station



RENO STATION

PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Summary of Hourly Averages

SULPHUR DIOXIDE (SO_2) in ppb

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

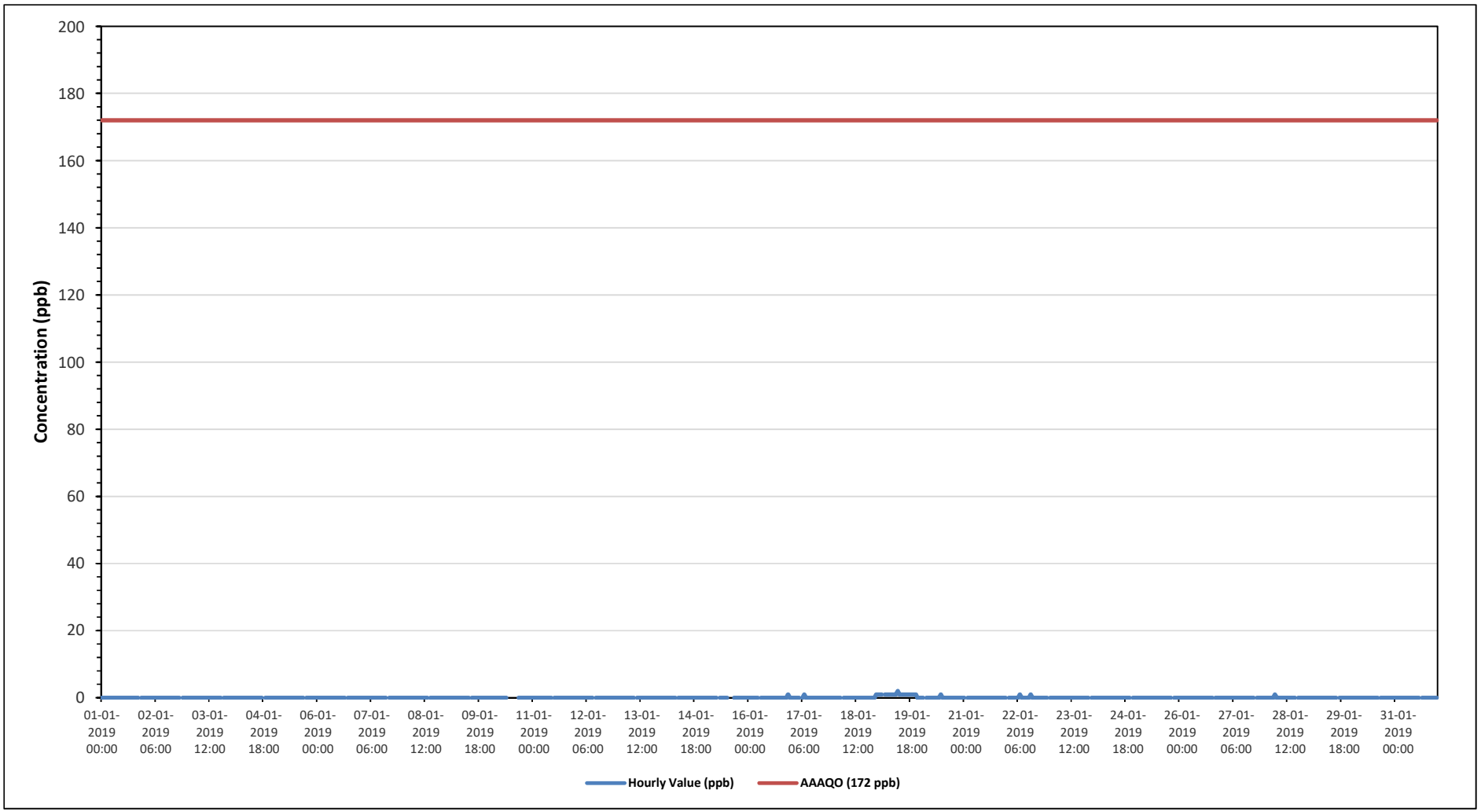
Number of 1-Hour Exceedences: 0 Number of 24-Hour Exceedences: 0 30-Day Exceedence: 0

Maximum Hourly Value:	2	ppb	on January 19 at hour 11	Hours in Service:	744
Maximum Daily Value:	1.0	ppb	on January 19	Hours of Data:	704
Minimum Hourly Value:	0	ppb	on January 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on January 1	Hours of Calibration:	40
Monthly Average:	0.0	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Jan 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0.0
Jan 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0
Jan 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0
Jan 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.0
Jan 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0.0
Jan 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0.0
Jan 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0.0
Jan 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 9	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 10	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0.0
Jan 11	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
Jan 12	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
Jan 13	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
Jan 14	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
Jan 15	0	0	0	0	0	0	0	S	0	0	0	0	0	Q	Q	Q	0	0	0	0	0	0	0	0	0	0	0.0
Jan 16	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.0
Jan 17	0	0	0	0	0	S	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Jan 18	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.0
Jan 19	1	1	1	S	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	0	0	0	2	1.0
Jan 20	0	0	S	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Jan 21	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 22	S	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	S	0	1	0.1
Jan 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0.0
Jan 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0.0
Jan 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0
Jan 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0
Jan 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.0
Jan 28	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	0.0
Jan 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0.0
Jan 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0.0
Jan 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0.0
Diurnal Maximum	1	1	1	0	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1			
Daiurnal Average	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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

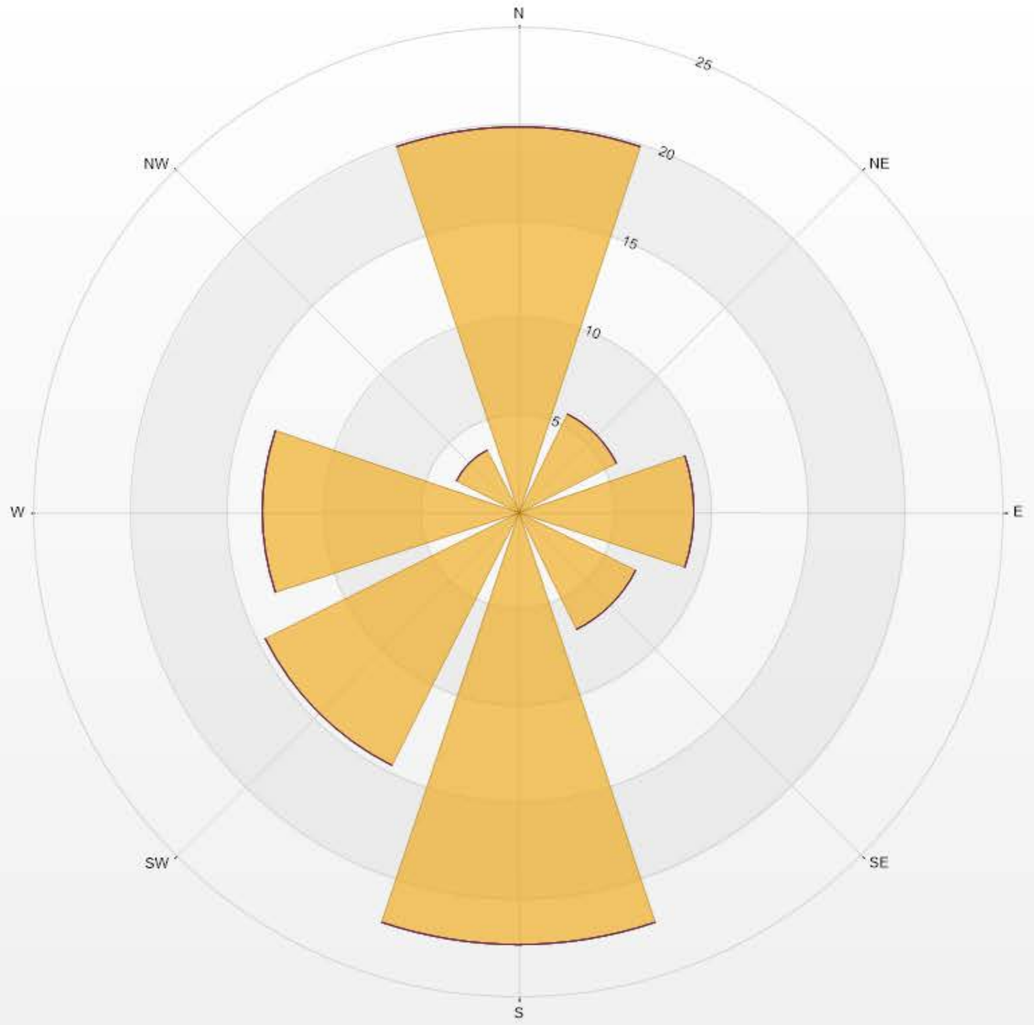
Timeseries Chart of Hourly Average for SO2 - Reno Site



Wind: PRAMP RENO Poll.: PRAMP RENO-SO2[ppb] Monthly: 01-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 4.83% Valid Data: 94.62% Calm Avg: 0.06 [ppb]

Direction	0-10	10-50	50-100	100-170	>170.0	Total
N	19.89	0	0	0	0	19.89
NE	5.68	0	0	0	0	5.68
E	9.09	0	0	0	0	9.09
SE	6.82	0	0	0	0	6.82
S	22.3	0	0	0	0	22.3
SW	14.63	0	0	0	0	14.63
W	13.21	0	0	0	0	13.21
NW	3.55	0	0	0	0	3.55
Summary	95.17	0	0	0	0	95.17

PRAMP RENO Poll.: PRAMP RENO-SO2[ppb] 01-01-2019 00:00 - 31-01-2019 23:00 Calm: 4.83% Calm Poll Avg: 0.06[ppb]



%	Icon	Classes (ppb)									
95		0-10	0		10-50	0		50-100	0		100-170	0		>170.0

peace river area monitoring program pramp

PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Summary of Hourly Averages

TOTAL REDUCED SULPHUR (TRS) in ppb

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

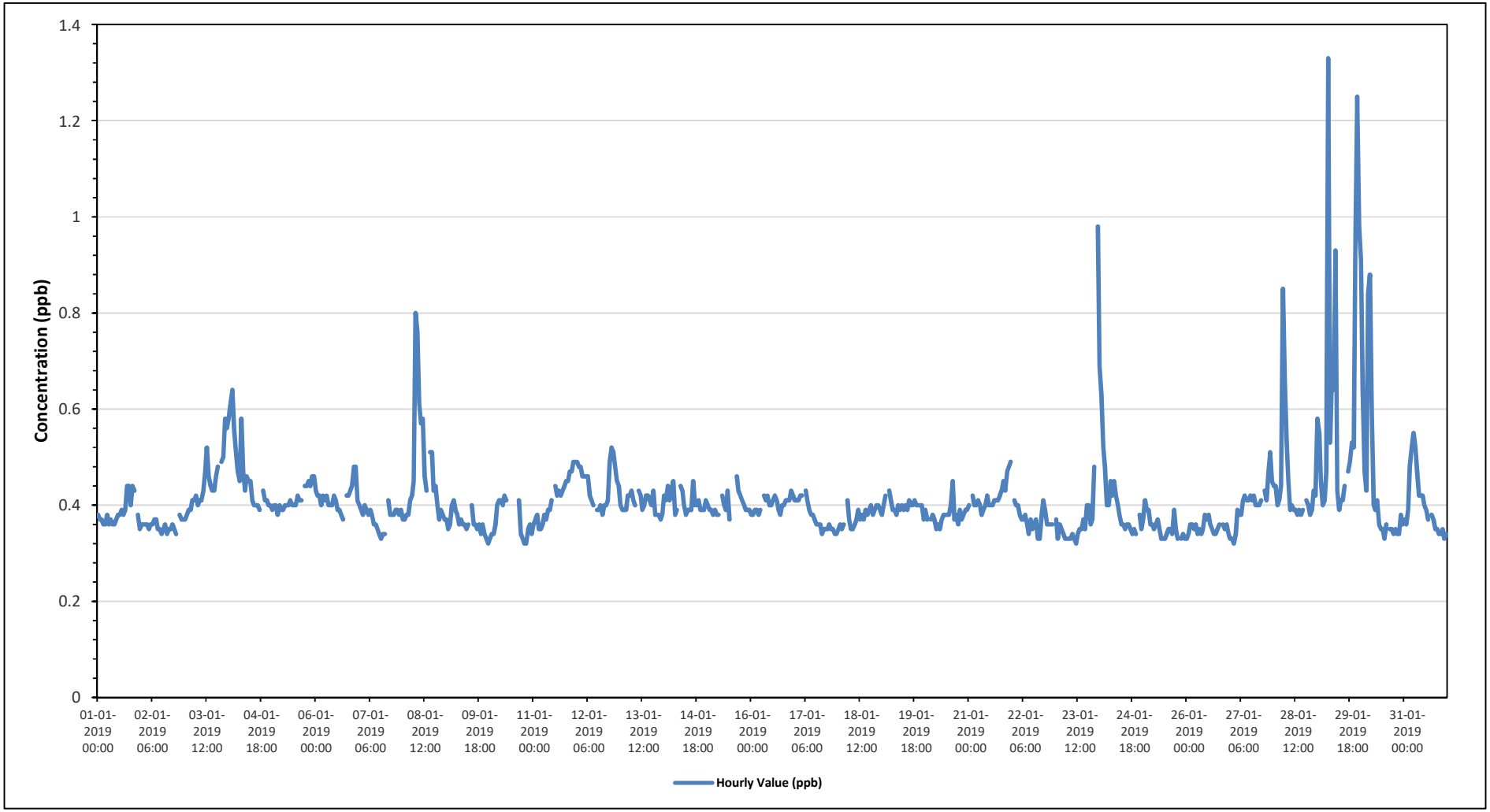
Number of 1-Hour Exceedences: 0 Number of 24-Hour Exceedences: 0

Maximum Hourly Value:	1.33	ppb	on January 29 at hour 6	Hours in Service:	744
Maximum Daily Value:	0.62	ppb	on January 29	Hours of Data:	704
Minimum Hourly Value:	0.32	ppb	on January 9 at hour 23	Hours of Missing Data:	0
Minimum Daily Value:	0.35	ppb	on January 25	Hours of Calibration:	40
Monthly Average:	0.41	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			
Jan 1	0.38	0.37	0.37	0.36	0.36	0.38	0.36	0.37	0.36	0.36	0.37	0.38	0.38	0.39	0.38	0.39	0.44	0.44	0.4	0.44	0.43	S	0.38	0.35	0.35	0.44	0.38
Jan 2	0.36	0.36	0.36	0.36	0.35	0.36	0.36	0.37	0.37	0.35	0.35	0.34	0.35	0.36	0.34	0.35	0.35	0.36	0.35	0.34	S	0.38	0.37	0.37	0.34	0.38	0.36
Jan 3	0.37	0.38	0.39	0.39	0.41	0.41	0.42	0.4	0.41	0.41	0.43	0.47	0.52	0.46	0.44	0.43	0.43	0.46	0.48	S	0.49	0.5	0.58	0.56	0.37	0.58	0.45
Jan 4	0.58	0.61	0.64	0.56	0.51	0.47	0.45	0.58	0.47	0.43	0.46	0.45	0.45	0.41	0.4	0.4	0.4	0.39	S	0.43	0.41	0.41	0.4	0.4	0.39	0.64	0.47
Jan 5	0.39	0.4	0.4	0.38	0.4	0.39	0.39	0.4	0.4	0.4	0.41	0.4	0.4	0.4	0.42	0.41	0.41	S	0.44	0.44	0.45	0.44	0.46	0.46	0.38	0.46	0.41
Jan 6	0.43	0.42	0.42	0.4	0.42	0.41	0.42	0.4	0.4	0.4	0.42	0.41	0.39	0.39	0.38	0.37	S	0.42	0.42	0.43	0.44	0.48	0.48	0.41	0.37	0.48	0.42
Jan 7	0.4	0.39	0.38	0.4	0.39	0.38	0.39	0.38	0.36	0.36	0.35	0.34	0.33	0.34	0.34	S	0.41	0.38	0.38	0.38	0.39	0.39	0.38	0.39	0.33	0.41	0.38
Jan 8	0.37	0.37	0.38	0.38	0.41	0.42	0.45	0.8	0.76	0.61	0.57	0.58	0.46	0.43	S	0.51	0.51	0.43	0.44	0.4	0.37	0.39	0.38	0.37	0.37	0.80	0.47
Jan 9	0.37	0.35	0.36	0.4	0.41	0.39	0.38	0.36	0.37	0.36	0.36	0.35	0.36	S	0.4	0.36	0.36	0.35	0.36	0.34	0.36	0.34	0.33	**0.32**	**0.32**	0.41	0.36
Jan 10	0.33	0.34	0.34	0.36	0.4	0.41	0.41	0.4	0.42	0.41	C	C	C	C	C	C	0.41	0.34	0.33	0.32	0.32	0.35	0.36	0.34	0.32	0.42	0.37
Jan 11	0.36	0.37	0.38	0.35	0.35	0.36	0.38	0.37	0.39	0.39	0.41	S	0.44	0.42	0.43	0.42	0.43	0.44	0.45	0.45	0.47	0.47	0.49	0.49	0.35	0.49	0.41
Jan 12	0.49	0.48	0.48	0.46	0.46	0.46	0.46	0.42	0.41	0.4	S	0.39	0.39	0.4	0.38	0.4	0.4	0.41	0.49	0.52	0.51	0.48	0.45	0.44	0.38	0.52	0.44
Jan 13	0.4	0.39	0.39	0.39	0.42	0.42	0.43	0.41	0.4	S	0.43	0.42	0.39	0.4	0.42	0.42	0.41	0.4	0.43	0.38	0.38	0.38	0.37	0.38	0.37	0.43	0.40
Jan 14	0.42	0.41	0.44	0.41	0.43	0.45	0.38	0.39	S	0.44	0.43	0.4	0.38	0.39	0.39	0.39	0.45	0.4	0.4	0.41	0.39	0.39	0.39	0.41	0.38	0.45	0.41
Jan 15	0.4	0.39	0.39	0.38	0.39	0.38	0.38	S	0.42	0.4	0.39	0.43	0.37	Q	Q	Q	0.46	0.43	0.42	0.41	0.4	0.39	0.39	0.39	0.37	0.46	0.40
Jan 16	0.38	0.38	0.39	0.39	0.38	0.39	S	0.42	0.41	0.42	0.4	0.4	0.41	0.42	0.41	0.39	0.38	0.4	0.4	0.41	0.41	0.41	0.43	0.42	0.38	0.43	0.40
Jan 17	0.41	0.41	0.41	0.42	0.42	S	0.43	0.41	0.39	0.38	0.38	0.37	0.36	0.36	0.36	0.34	0.35	0.35	0.35	0.36	0.35	0.35	0.34	0.34	0.34	0.43	0.38
Jan 18	0.35	0.36	0.35	0.36	S	0.41	0.37	0.35	0.35	0.36	0.37	0.39	0.37	0.38	0.37	0.39	0.38	0.39	0.4	0.38	0.39	0.4	0.4	0.39	0.35	0.41	0.38
Jan 19	0.38	0.4	0.42	S	0.43	0.41	0.39	0.39	0.38	0.4	0.39	0.4	0.39	0.4	0.39	0.41	0.4	0.4	0.41	0.4	0.4	0.4	0.4	0.37	0.37	0.43	0.40
Jan 20	0.39	0.37	S	0.37	0.38	0.37	0.35	0.36	0.35	0.37	0.38	0.38	0.38	0.38	0.4	0.45	0.37	0.38	0.36	0.39	0.37	0.38	0.39	0.39	0.35	0.45	0.38
Jan 21	0.4	S	0.42	0.4	0.4	0.41	0.4	0.38	0.39	0.4	0.42	0.4	0.4	0.4	0.41	0.41	0.41	0.42	0.43	0.45	0.43	0.47	0.48	0.49	0.38	0.49	0.42
Jan 22	S	0.41	0.4	0.4	0.38	0.37	0.37	0.38	0.36	0.34	0.37	0.35	0.36	0.37	0.33	0.33	0.38	0.41	0.39	0.36	0.36	0.36	0.36	S	0.33	0.41	0.37
Jan 23	0.37	0.33	0.36	0.35	0.34	0.33	0.33	0.33	0.33	0.34	0.33	0.32	0.34	0.35	0.35	0.37	0.35	0.4	0.4	0.36	0.37	0.48	S	0.38	0.32	0.98	0.38
Jan 24	0.69	0.63	0.52	0.48	0.4	0.4	0.45	0.42	0.45	0.42	0.4	0.38	0.36	0.36	0.35	0.36	0.36	0.35	0.34	0.35	0.34	S	0.38	0.35	0.34	0.69	0.41
Jan 25	0.37	0.41	0.39	0.39	0.36	0.36	0.35	0.36	0.37	0.35	0.33	0.33	0.33	0.34	0.35	0.35	0.34	0.39	0.35	0.33	S	0.33	0.34	0.33	0.33	0.41	**0.35**
Jan 26	0.33	0.34	0.36	0.36	0.35	0.36	0.34	0.35	0.34	0.35	0.38	0.37	0.38	0.36	0.35	0.34	0.34	0.35	0.36	S	0.36	0.35	0.36	0.34	0.33	0.38	0.35
Jan 27	0.33	0.33	0.32	0.34	0.39	0.38	0.38	0.41	0.42	0.41	0.41	0.42	0.41	0.42	0.4	0.4	0.4	0.41	S	0.43	0.41	0.47	0.51	0.45	0.32	0.51	0.40
Jan 28	0.44	0.44	0.4	0.41	0.44	0.85	0.66	0.54	0.45	0.39	0.4	0.39	0.39	0.38	0.39	0.38	0.39	S	0.41	0.4	0.38	0.39	0.43	0.42	0.38	0.85	0.44
Jan 29	0.58	0.55	0.45	0.4	0.41	0.47	**1.33**	0.53	0.67	0.64	0.93	0.43	0.39	0.41	0.41	0.44	S	0.47	0.49	0.53	0.52	0.96	1.25	0.98	0.39	**1.33**	**0.62**
Jan 30	0.91	0.65	0.47	0.43	0.84	0.88	0.59	0.4	0.39	0.41	0.36	0.35	0.35	0.33	0.36	S	0.35	0.35	0.34	0.35	0.34	0.34	0.38	0.36	0.33	0.91	0.46
Jan 31	0.37	0.36	0.39	0.48	0.52	0.55	0.52	0.47	0.42	0.42	0.42	0.4	0.39	0.37	S	0.38	0.37	0.35	0.35	0.34	0.34	0.35	0.33	0.34	0.33	0.55	0.40
Diurnal Maximum	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1			
Daiurnal Average	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	0.4	0.4	0.4	0.4			

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

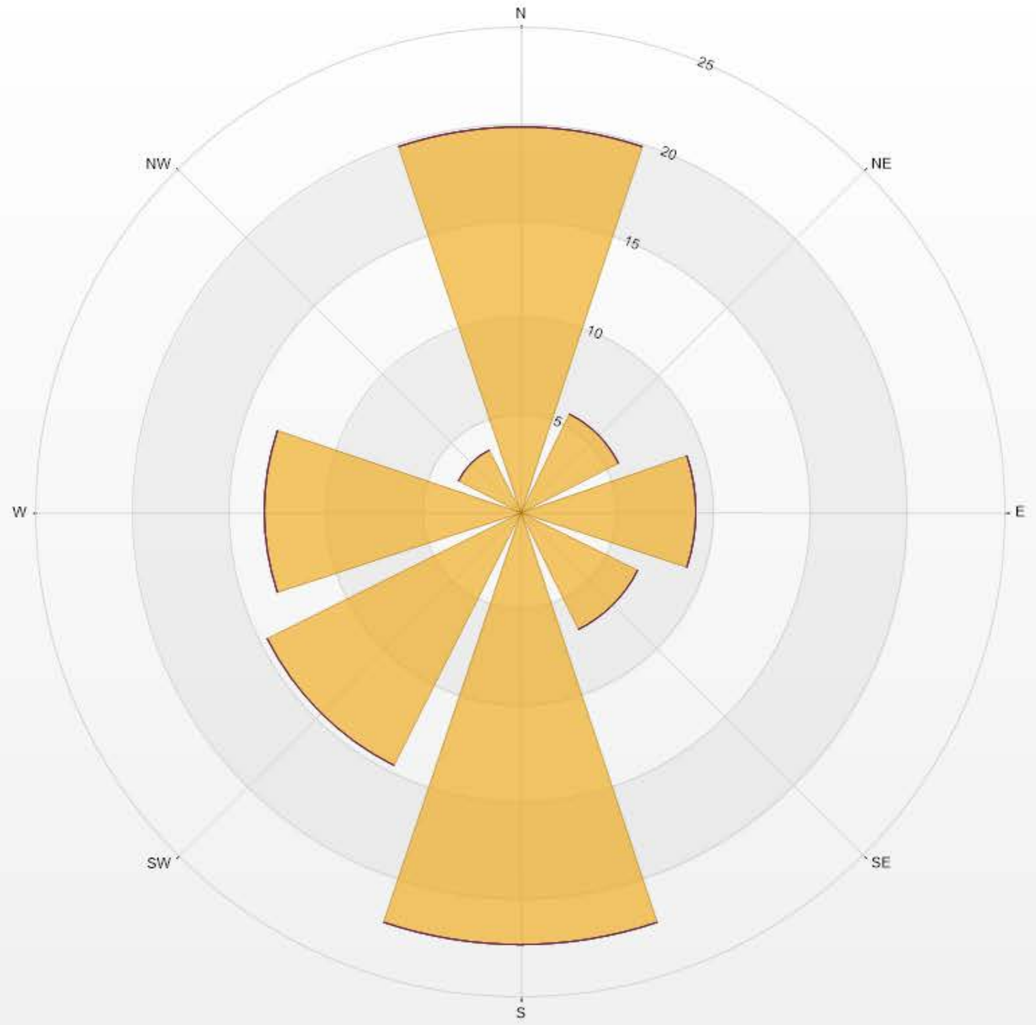
Timeseries Chart of Hourly Average for TRS - Reno Site



Wind: PRAMP RENO Poll.: PRAMP RENO-TRS[ppb] Monthly: 01-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 4.83% Valid Data: 94.62% Calm Avg: 0.45 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	19.89	0	0	0	0	19.89
NE	5.68	0	0	0	0	5.68
E	9.09	0	0	0	0	9.09
SE	6.82	0	0	0	0	6.82
S	22.3	0	0	0	0	22.3
SW	14.63	0	0	0	0	14.63
W	13.21	0	0	0	0	13.21
NW	3.55	0	0	0	0	3.55
Summary	95.17	0	0	0	0	95.17

PRAMP RENO Poll.: PRAMP RENO-TRS[ppb] 01-01-2019 00:00 - 31-01-2019 23:00 Calm: 4.83% Calm Poll Avg: 0.45[ppb]



% Icon Classes (ppb) | 95 0-2 | 0 2-5 | 0 5-10 | 0 10-50 | 0 >50.0

PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Summary of Hourly Averages

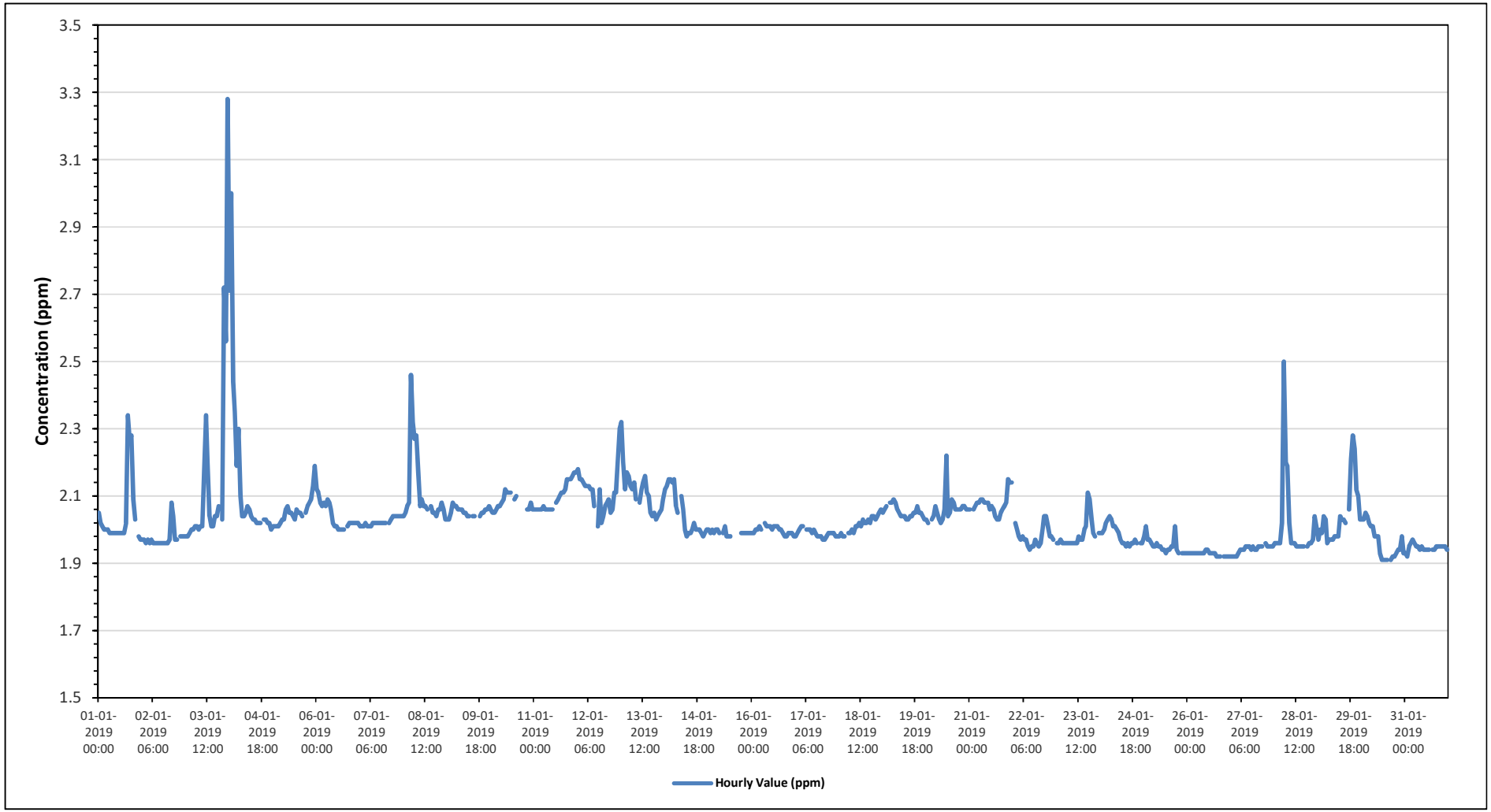
TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	3.28	ppm	on January 3 at hour 23	Hours in Service:	744
Maximum Daily Value:	2.16	ppm	on January 4	Hours of Data:	701
Minimum Hourly Value:	1.91	ppm	on January 30 at hour 11	Hours of Missing Data:	3
Minimum Daily Value:	1.93	ppm	on January 26	Hours of Calibration:	40
Monthly Average:	2.03	ppm		Operational Uptime:	99.6

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	2.05	2.02	2.01	2.00	2.00	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.02	2.34	2.26	2.28	2.09	2.03	S	1.98	1.97	1.97	2.34	2.04
Jan 2	1.97	1.97	1.96	1.97	1.96	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	2.08	2.04	1.97	1.97	S	1.98	1.98	1.98	1.96	2.08	1.97
Jan 3	1.98	1.98	1.99	2.00	2.00	2.01	2.01	2.00	2.01	2.01	2.17	2.34	2.20	2.04	2.01	2.01	2.04	2.04	2.07	S	2.03	2.72	2.56	**3.28**	1.98	**3.28**	2.15
Jan 4	2.71	3.00	2.44	2.35	2.19	2.30	2.10	2.04	2.04	2.05	2.07	2.06	2.04	2.03	2.03	2.02	2.02	2.02	S	2.03	2.03	2.02	2.02	2.00	2.00	3.00	**2.16**
Jan 5	2.01	2.01	2.01	2.01	2.02	2.03	2.03	2.06	2.07	2.05	2.05	2.04	2.03	2.06	2.05	2.05	2.04	S	2.05	2.07	2.08	2.09	2.13	2.19	2.01	2.19	2.05
Jan 6	2.12	2.11	2.08	2.07	2.08	2.07	2.09	2.08	2.06	2.02	2.01	2.01	2.00	2.00	2.00	2.00	S	2.01	2.02	2.02	2.02	2.02	2.02	2.02	2.00	2.12	2.04
Jan 7	2.01	2.01	2.01	2.02	2.01	2.01	2.01	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	S	2.02	2.03	2.04	2.04	2.04	2.04	2.04	2.04	2.01	2.04	2.02
Jan 8	2.04	2.05	2.07	2.08	2.46	2.32	2.27	2.28	2.17	2.07	2.09	2.07	2.07	2.06	S	2.07	2.05	2.05	2.04	2.06	2.06	2.08	2.06	2.03	2.03	2.46	2.11
Jan 9	2.03	2.03	2.05	2.08	2.07	2.07	2.06	2.06	2.06	2.05	2.05	2.04	2.04	S	2.04	2.04	Y	S1	2.04	2.05	2.05	2.06	2.06	2.07	2.03	2.08	2.05
Jan 10	2.06	2.05	2.05	2.06	2.07	2.07	2.08	2.09	2.12	2.11	2.11	2.11	S	2.09	2.10	C	C	C	C	C	2.06	2.06	2.08	2.06	2.05	2.12	2.08
Jan 11	2.06	2.06	2.06	2.06	2.06	2.07	2.06	2.06	2.06	2.06	2.06	S	2.08	2.09	2.10	2.11	2.11	2.12	2.15	2.15	2.15	2.16	2.17	2.17	2.06	2.17	2.10
Jan 12	2.18	2.15	2.15	2.14	2.13	2.13	2.13	2.12	2.12	2.07	S	2.01	2.12	2.02	2.04	2.07	2.08	2.09	2.05	2.06	2.11	2.11	2.21	2.30	2.01	2.30	2.11
Jan 13	2.32	2.20	2.12	2.17	2.16	2.13	2.12	2.14	2.09	S	2.08	2.12	2.14	2.16	2.11	2.10	2.05	2.04	2.05	2.03	2.04	2.05	2.06	2.09	2.03	2.32	2.11
Jan 14	2.12	2.13	2.15	2.15	2.14	2.15	2.07	2.05	S	2.10	2.06	2.00	1.98	1.99	1.99	2.00	2.02	2.00	2.00	2.00	1.99	1.98	1.99	2.00	1.98	2.15	2.05
Jan 15	2.00	1.99	2.00	1.99	2.00	2.00	1.99	S	1.99	2.01	1.98	1.98	1.98	Q	Q	Q	1.97	Y	1.99	1.99	1.99	1.99	1.99	1.99	1.97	2.01	1.99
Jan 16	1.99	1.99	2.00	2.00	2.01	2.00	S	2.02	2.01	2.01	2.01	2.00	2.01	2.01	2.01	2.00	2.00	1.99	1.98	1.98	1.99	1.99	1.99	1.98	1.98	2.02	2.00
Jan 17	1.98	1.99	2.00	2.01	2.01	S	2.00	2.00	2.00	1.99	2.00	1.99	1.98	1.98	1.98	1.97	1.97	1.98	1.99	1.99	1.99	1.99	1.98	1.98	1.97	2.01	1.99
Jan 18	1.98	1.99	1.98	1.98	S	1.99	1.99	2.00	1.99	2.01	2.01	2.02	2.01	2.03	2.02	2.02	2.03	2.02	2.04	2.04	2.03	2.04	2.05	2.06	1.98	2.06	2.01
Jan 19	2.05	2.06	2.07	S	2.08	2.08	2.09	2.08	2.06	2.05	2.04	2.04	2.04	2.03	2.03	2.04	2.04	2.05	2.05	2.07	2.05	2.05	2.04	2.03	2.03	2.09	2.05
Jan 20	2.03	2.02	S	2.03	2.04	2.07	2.05	2.03	2.02	2.03	2.06	2.22	2.04	2.05	2.09	2.08	2.06	2.06	2.06	2.06	2.07	2.07	2.06	2.06	2.02	2.22	2.06
Jan 21	2.06	S	2.06	2.07	2.08	2.08	2.09	2.09	2.08	2.08	2.08	2.06	2.07	2.06	2.04	2.03	2.03	2.05	2.06	2.07	2.08	2.15	2.14	2.14	2.03	2.15	2.08
Jan 22	S	2.02	2.00	1.98	1.97	1.98	1.97	1.97	1.95	1.94	1.95	1.95	1.97	1.96	1.95	1.96	2.00	2.04	2.04	2.01	1.98	1.98	1.97	S	1.94	2.04	1.98
Jan 23	1.96	1.96	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.98	1.97	1.97	2.00	2.01	2.11	2.09	2.03	1.99	1.98	S	1.99	1.96	2.11	1.98
Jan 24	1.99	1.99	2.00	2.02	2.03	2.04	2.03	2.01	2.01	2.00	1.99	1.97	1.96	1.96	1.95	1.96	1.95	1.96	1.96	1.97	1.96	S	1.96	1.96	1.95	2.04	1.98
Jan 25	1.98	2.01	1.97	1.97	1.96	1.95	1.95	1.96	1.95	1.95	1.94	1.94	1.93	1.94	1.94	1.95	1.95	2.01	1.94	1.93	S	1.93	1.93	1.93	1.93	2.01	1.95
Jan 26	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.93	1.93	1.93	1.93	1.92	1.92	1.92	S	1.92	1.92	1.92	1.92	1.92	1.94	**1.93**
Jan 27	1.92	1.92	1.92	1.92	1.93	1.94	1.94	1.94	1.95	1.95	1.95	1.94	1.95	1.94	1.94	1.95	1.95	1.95	S	1.96	1.95	1.95	1.95	1.95	1.92	1.96	1.94
Jan 28	1.96	1.96	1.96	1.96	2.02	2.50	2.20	2.19	2.02	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.95	S	1.95	1.96	1.96	1.97	2.04	2.01	1.95	2.50	2.01
Jan 29	1.97	2.00	1.99	2.04	2.03	1.96	1.97	1.97	1.97	1.98	1.98	1.98	2.04	2.03	2.03	2.02	S	2.06	2.21	2.28	2.24	2.12	2.10	2.03	1.96	2.28	2.04
Jan 30	2.03	2.03	2.05	2.04	2.02	2.01	2.01	1.98	1.98	1.98	1.93	**1.91**	1.91	1.91	1.91	S	1.91	1.92	1.92	1.93	1.94	1.94	1.98	1.93	**1.91**	2.05	1.96
Jan 31	1.93	1.92	1.95	1.96	1.97	1.96	1.95	1.95	1.94	1.95	1.94	1.94	1.94	1.94	S	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.94	1.92	1.97	1.95
Diurnal Maximum	2.71	3.00	2.44	2.35	2.46	2.50	2.27	2.28	2.17	2.11	2.17	2.34	2.20	2.16	2.11	2.11	2.34	2.26	2.28	2.28	2.24	2.72	2.56	3.28			
Daiurnal Average	2.05	2.05	2.03	2.03	2.05	2.06	2.04	2.03	2.02	2.01	2.01	2.02	2.01	2.01	2.01	2.01	2.02	2.03	2.03	2.03	2.03	2.05	2.05	2.07			

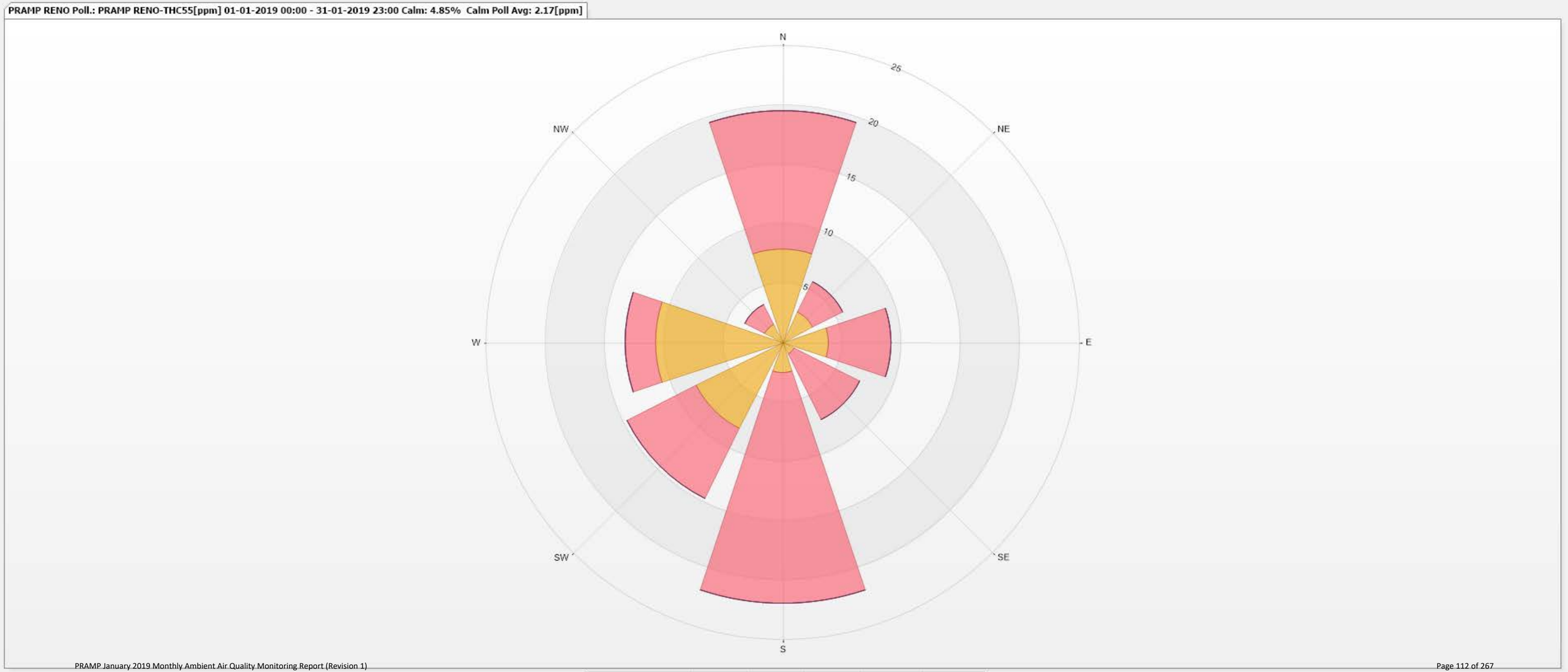
C	Calibration	S	Daily Zero/Span	Q	Quality Assurance	C1	Repeat Calibration	S1	Repeat Daily Zero/Span
G	Out for Repair	K	Collection Error	N	Not in Service	O	Operator Error	P	Power Failure
R	Recovery	X	Machine Malfunction	Y	Maintenance	T	Exceeds Temperature Limits	N	Not in Service

Timeseries Chart of Hourly Average for THC - Reno Site



Wind: PRAMP RENO Poll.: PRAMP RENO-THC55[ppm] Monthly: 01-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 4.85% Valid Data: 94.22% Calm Avg: 2.17 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	7.85	11.7	0	0	0	19.55
NE	2.85	2.85	0	0	0	5.7
E	3.85	5.28	0	0	0	9.13
SE	1.14	6.13	0	0	0	7.27
S	2.57	19.4	0	0	0	21.97
SW	8.13	6.56	0	0	0	14.69
W	10.7	2.57	0	0	0	13.27
NW	1.71	1.85	0	0	0	3.56
Summary	38.8	56.34	0	0	0	95.14


PRAMP RENO Poll.: PRAMP RENO-THC55[ppm] 01-01-2019 00:00 - 31-01-2019 23:00 Calm: 4.85% Calm Poll Avg: 2.17[ppm]
N
NE
E
SE
S
SW
W
NW
25
20
15
10
5
% Icon Classes (ppm)
39 0-2
56 2-5
0 5-10
0 10-40
0 >40.0

PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Summary of Hourly Averages

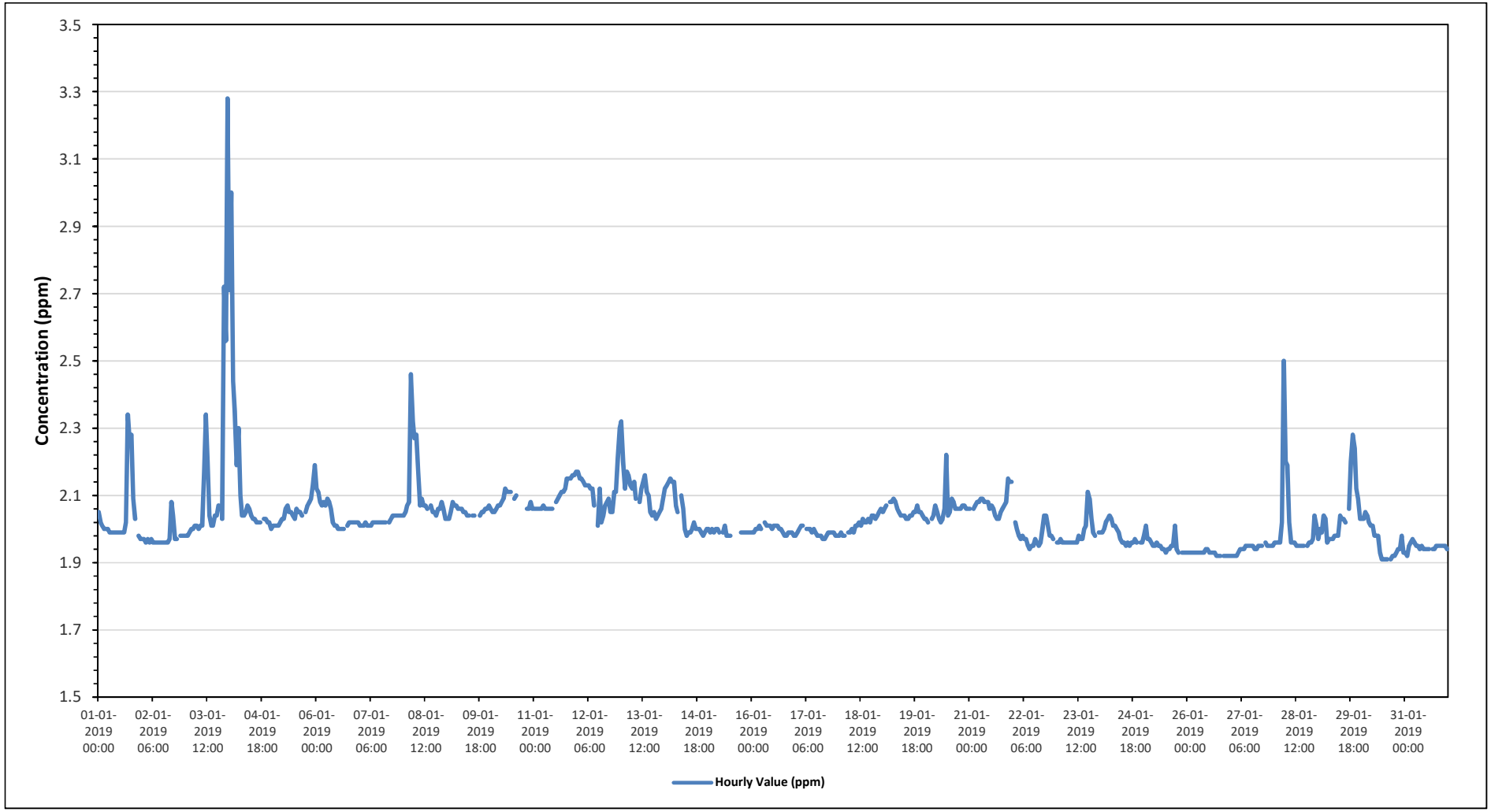
METHANE (CH4) in ppm

Maximum Hourly Value:	3.28	ppm	on January 3 at hour 23	Hours in Service:	744
Maximum Daily Value:	2.16	ppm	on January 4	Hours of Data:	701
Minimum Hourly Value:	1.91	ppm	on January 30 at hour 11	Hours of Missing Data:	3
Minimum Daily Value:	1.93	ppm	on January 26	Hours of Calibration:	40
Monthly Average:	2.03	ppm		Operational Uptime:	99.6

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	2.05	2.02	2.01	2.00	2.00	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.02	2.34	2.26	2.28	2.09	2.03	S	1.98	1.97	1.97	2.34	2.04
Jan 2	1.97	1.97	1.96	1.97	1.96	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	2.08	2.04	1.97	1.97	S	1.98	1.98	1.98	1.96	2.08	1.97
Jan 3	1.98	1.98	1.99	2.00	2.00	2.01	2.01	2.00	2.01	2.01	2.17	2.34	2.20	2.04	2.01	2.01	2.04	2.04	2.07	S	2.03	2.72	2.56	**3.28**	1.98	**3.28**	2.15
Jan 4	2.71	3.00	2.44	2.35	2.19	2.30	2.10	2.04	2.04	2.05	2.07	2.06	2.04	2.03	2.03	2.02	2.02	2.02	S	2.03	2.03	2.02	2.02	2.00	2.00	3.00	**2.16**
Jan 5	2.01	2.01	2.01	2.01	2.02	2.03	2.03	2.06	2.07	2.05	2.05	2.04	2.03	2.06	2.05	2.05	2.04	S	2.05	2.07	2.08	2.09	2.13	2.19	2.01	2.19	2.05
Jan 6	2.12	2.11	2.08	2.07	2.08	2.07	2.09	2.08	2.06	2.02	2.01	2.01	2.00	2.00	2.00	2.00	S	2.01	2.02	2.02	2.02	2.02	2.02	2.02	2.00	2.12	2.04
Jan 7	2.01	2.01	2.01	2.02	2.01	2.01	2.01	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	S	2.02	2.03	2.04	2.04	2.04	2.04	2.04	2.04	2.01	2.04	2.02
Jan 8	2.04	2.05	2.07	2.08	2.46	2.32	2.27	2.28	2.17	2.07	2.09	2.07	2.07	2.06	S	2.07	2.05	2.05	2.04	2.06	2.06	2.08	2.06	2.03	2.03	2.46	2.11
Jan 9	2.03	2.03	2.05	2.08	2.07	2.07	2.06	2.06	2.06	2.05	2.05	2.04	2.04	S	2.04	2.04	Y	S1	2.04	2.05	2.05	2.06	2.06	2.07	2.03	2.08	2.05
Jan 10	2.06	2.05	2.05	2.06	2.07	2.07	2.08	2.09	2.12	2.11	2.11	2.11	S	2.09	2.10	C	C	C	C	C	2.06	2.06	2.08	2.06	2.05	2.12	2.08
Jan 11	2.06	2.06	2.06	2.06	2.06	2.07	2.06	2.06	2.06	2.06	2.06	S	2.08	2.09	2.10	2.11	2.11	2.12	2.15	2.15	2.15	2.16	2.16	2.17	2.06	2.17	2.10
Jan 12	2.17	2.15	2.15	2.14	2.13	2.13	2.13	2.12	2.12	2.07	S	2.01	2.12	2.02	2.04	2.07	2.08	2.09	2.05	2.05	2.11	2.11	2.21	2.30	2.01	2.30	2.11
Jan 13	2.32	2.20	2.12	2.17	2.16	2.13	2.12	2.14	2.09	S	2.08	2.12	2.14	2.16	2.11	2.10	2.05	2.04	2.05	2.03	2.04	2.05	2.06	2.09	2.03	2.32	2.11
Jan 14	2.12	2.13	2.14	2.15	2.14	2.14	2.07	2.05	S	2.10	2.06	2.00	1.98	1.99	1.99	2.00	2.02	2.00	2.00	2.00	1.99	1.98	1.99	2.00	1.98	2.15	2.05
Jan 15	2.00	1.99	2.00	1.99	2.00	2.00	1.99	S	1.99	2.01	1.98	1.98	1.98	Q	Q	Q	1.97	Y	1.99	1.99	1.99	1.99	1.99	1.99	1.97	2.01	1.99
Jan 16	1.99	1.99	2.00	2.00	2.01	2.00	S	2.02	2.01	2.01	2.01	2.00	2.01	2.01	2.01	2.00	2.00	1.99	1.98	1.98	1.99	1.99	1.99	1.98	1.98	2.02	2.00
Jan 17	1.98	1.99	2.00	2.01	2.01	S	2.00	2.00	2.00	1.99	2.00	1.99	1.98	1.98	1.98	1.97	1.97	1.98	1.99	1.99	1.99	1.99	1.98	1.98	1.97	2.01	1.99
Jan 18	1.98	1.99	1.98	1.98	S	1.99	1.99	2.00	1.99	2.01	2.01	2.02	2.01	2.03	2.02	2.02	2.03	2.02	2.04	2.04	2.03	2.04	2.05	2.06	1.98	2.06	2.01
Jan 19	2.05	2.06	2.07	S	2.08	2.08	2.09	2.08	2.06	2.05	2.04	2.04	2.04	2.03	2.03	2.04	2.04	2.05	2.05	2.07	2.05	2.05	2.04	2.03	2.03	2.09	2.05
Jan 20	2.03	2.02	S	2.03	2.04	2.07	2.05	2.03	2.02	2.03	2.06	2.22	2.04	2.05	2.09	2.08	2.06	2.06	2.06	2.06	2.07	2.07	2.06	2.06	2.02	2.22	2.06
Jan 21	2.06	S	2.06	2.07	2.08	2.08	2.09	2.09	2.08	2.08	2.08	2.06	2.07	2.06	2.04	2.03	2.03	2.05	2.06	2.07	2.08	2.15	2.14	2.14	2.03	2.15	2.08
Jan 22	S	2.02	2.00	1.98	1.97	1.98	1.97	1.97	1.95	1.94	1.95	1.95	1.97	1.96	1.95	1.96	2.00	2.04	2.04	2.01	1.98	1.98	1.97	S	1.94	2.04	1.98
Jan 23	1.96	1.96	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.98	1.97	1.97	2.00	2.01	2.11	2.09	2.03	1.99	1.98	S	1.99	1.96	2.11	1.98
Jan 24	1.99	1.99	2.00	2.02	2.03	2.04	2.03	2.01	2.01	2.00	1.99	1.97	1.96	1.96	1.95	1.96	1.95	1.96	1.96	1.97	1.96	S	1.96	1.96	1.95	2.04	1.98
Jan 25	1.98	2.01	1.97	1.97	1.96	1.95	1.95	1.96	1.95	1.95	1.94	1.94	1.93	1.94	1.94	1.95	1.95	2.01	1.94	1.93	S	1.93	1.93	1.93	1.93	2.01	1.95
Jan 26	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.93	1.93	1.93	1.93	1.92	1.92	1.92	S	1.92	1.92	1.92	1.92	1.92	1.94	**1.93**
Jan 27	1.92	1.92	1.92	1.92	1.93	1.94	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.94	1.94	1.95	1.95	1.95	S	1.96	1.95	1.95	1.95	1.95	1.92	1.96	1.94
Jan 28	1.96	1.96	1.96	1.96	2.02	2.50	2.20	2.19	2.02	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.95	S	1.95	1.96	1.96	1.97	2.04	2.01	1.95	2.50	2.01
Jan 29	1.97	2.00	1.99	2.04	2.03	1.96	1.97	1.97	1.97	1.98	1.98	1.98	2.04	2.03	2.03	2.02	S	2.06	2.20	2.28	2.24	2.12	2.09	2.03	1.96	2.28	2.04
Jan 30	2.03	2.03	2.05	2.04	2.02	2.01	2.01	1.98	1.98	1.98	1.93	**1.91**	1.91	1.91	1.91	S	1.91	1.92	1.92	1.93	1.94	1.94	1.98	1.93	**1.91**	2.05	1.96
Jan 31	1.93	1.92	1.95	1.96	1.97	1.96	1.95	1.95	1.94	1.95	1.94	1.94	1.94	1.94	S	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.94	1.92	1.97	1.95
Diurnal Maximum	2.71	3.00	2.44	2.35	2.46	2.50	2.27	2.28	2.17	2.11	2.17	2.34	2.20	2.16	2.11	2.11	2.34	2.26	2.28	2.28	2.24	2.72	2.56	3.28			
Daiurnal Average	2.05	2.05	2.03	2.03	2.05	2.06	2.04	2.03	2.02	2.01	2.01	2.02	2.01	2.01	2.01	2.01	2.02	2.03	2.03	2.03	2.03	2.05	2.05	2.07			

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

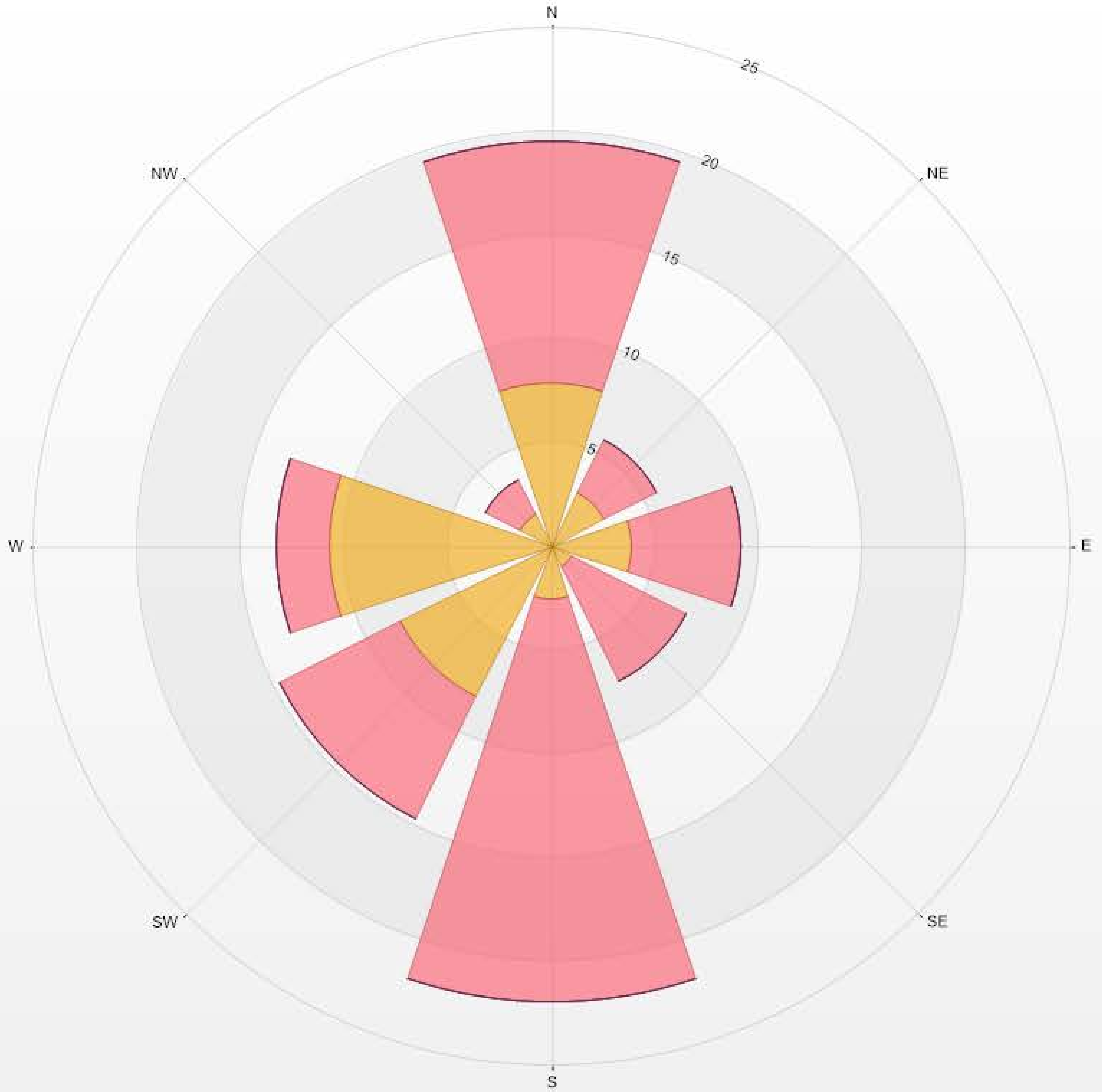
Timeseries Chart of Hourly Average for CH4 - Reno Site



Wind: PRAMP RENO Poll.: PRAMP RENO-CH4[ppm] Monthly: 01-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 4.85% Valid Data: 94.22% Calm Avg: 2.17 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	7.85	11.7	0	0	0	19.55
NE	2.85	2.85	0	0	0	5.7
E	3.85	5.28	0	0	0	9.13
SE	1.14	6.13	0	0	0	7.27
S	2.57	19.4	0	0	0	21.97
SW	8.13	6.56	0	0	0	14.69
W	10.7	2.57	0	0	0	13.27
NW	1.71	1.85	0	0	0	3.56
Summary	38.8	56.34	0	0	0	95.14

PRAMP RENO Poll.: PRAMP RENO-CH4[ppm] 01-01-2019 00:00 - 31-01-2019 23:00 Calm: 4.85% Calm Poll Avg: 2.17[ppm]



%	Icon	Classes (ppm)
39		0-2
56		2-5
0		5-10
0		10-20
0		>20.0

PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Summary of Hourly Averages

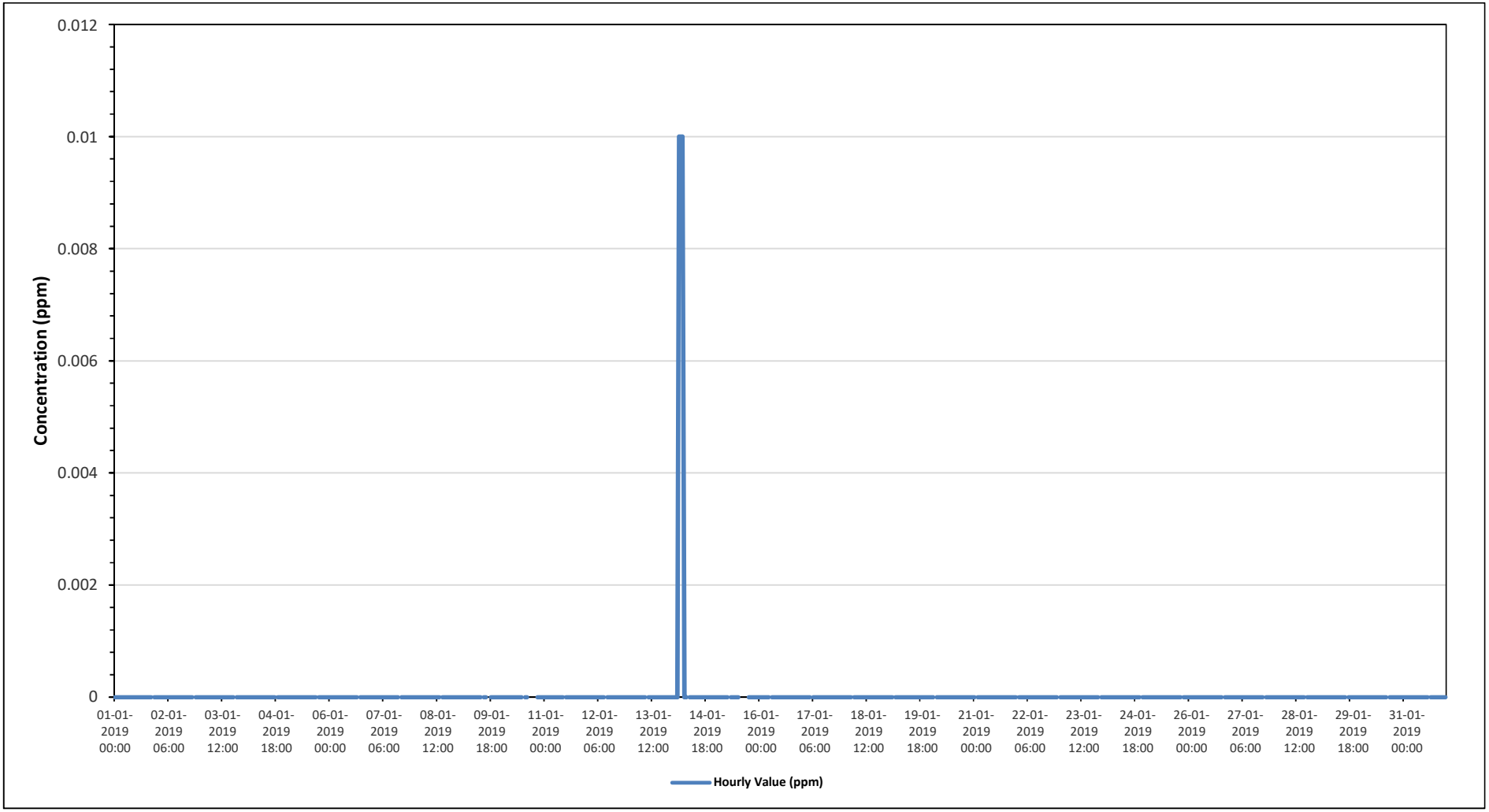
NON-METHANE HYDROCARBONS (NMHC) in ppm

Maximum Hourly Value:	0.01	ppm	on January 14 at hour 3	Hours in Service:	744
Maximum Daily Value:	0.00	ppm	on January 1	Hours of Data:	701
Minimum Hourly Value:	0.00	ppm	on January 1 at hour 0	Hours of Missing Data:	3
Minimum Daily Value:	0.00	ppm	on January 1	Hours of Calibration:	40
Monthly Average:	0.00	ppm		Operational Uptime:	99.6

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	**0.00**	0.00	**0.00**
Jan 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00
Jan 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	Y	S1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 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	C	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 14	0.00	0.00	0.00	**0.01**	**0.01**	**0.01**	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.01**	0.00
Jan 15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	Q	Q	Q	0.00	Y	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 16	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 17	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 18	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 19	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 20	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 21	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 22	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00
Jan 23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00
Jan 24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00
Jan 25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00
Jan 26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diurnal Maximum	0.00	0.00	0.00	0.01	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Daiurnal Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

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

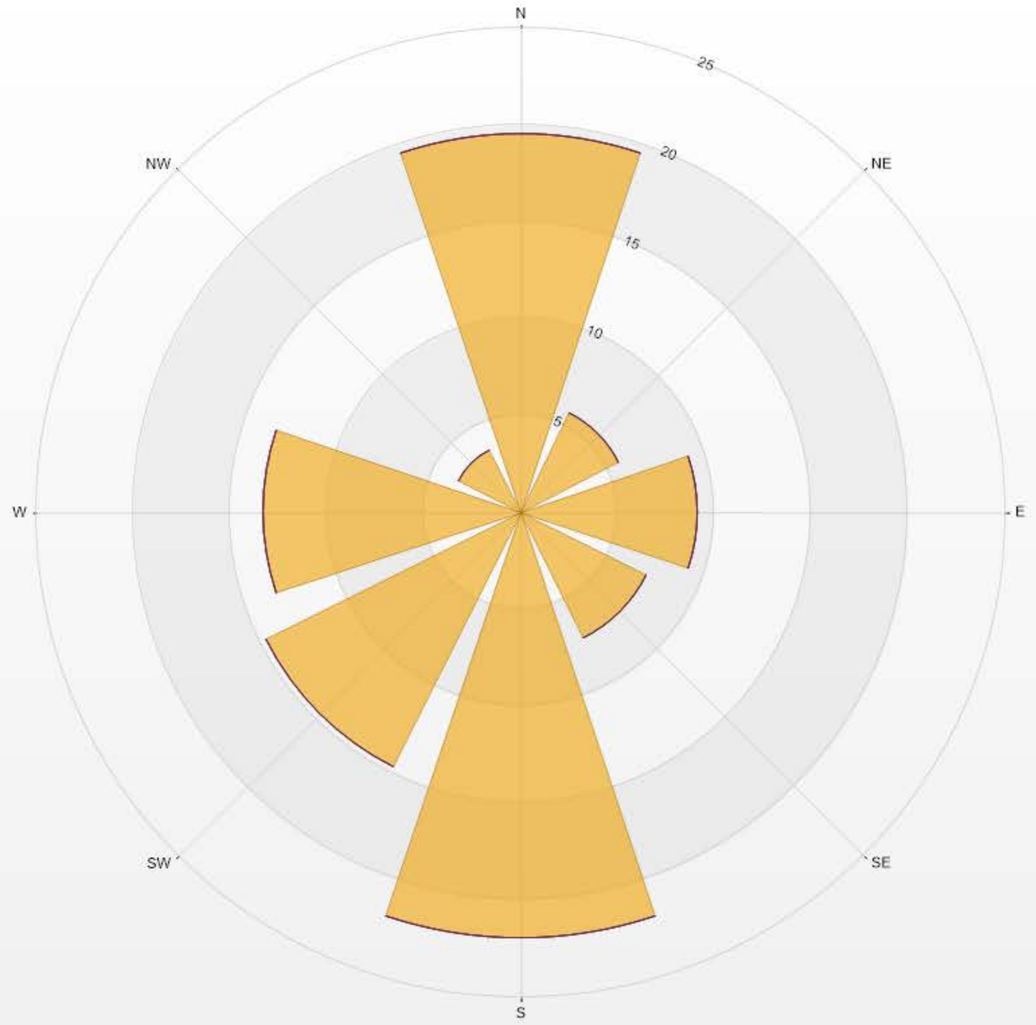
Timeseries Chart of Hourly Average for NMHC - Reno Site



Wind: PRAMP RENO Poll.: PRAMP RENO-NMHC[ppm] Monthly: 01-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 4.85% Valid Data: 94.22% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	19.54	0	0	0	0	19.54
NE	5.71	0	0	0	0	5.71
E	9.13	0	0	0	0	9.13
SE	7.28	0	0	0	0	7.28
S	21.97	0	0	0	0	21.97
SW	14.69	0	0	0	0	14.69
W	13.27	0	0	0	0	13.27
NW	3.57	0	0	0	0	3.57
Summary	95.16	0	0	0	0	95.16

PRAMP RENO Poll.: PRAMP RENO-NMHC[ppm] 01-01-2019 00:00 - 31-01-2019 23:00 Calm: 4.85% Calm Poll Avg: 0.00[ppm]



%	Icon	Classes (ppm)									
95		0-0.1	0	0.1-0.3	0	0.3-0.9	0	0.9-2	0	>2.0

PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Summary of Hourly Averages

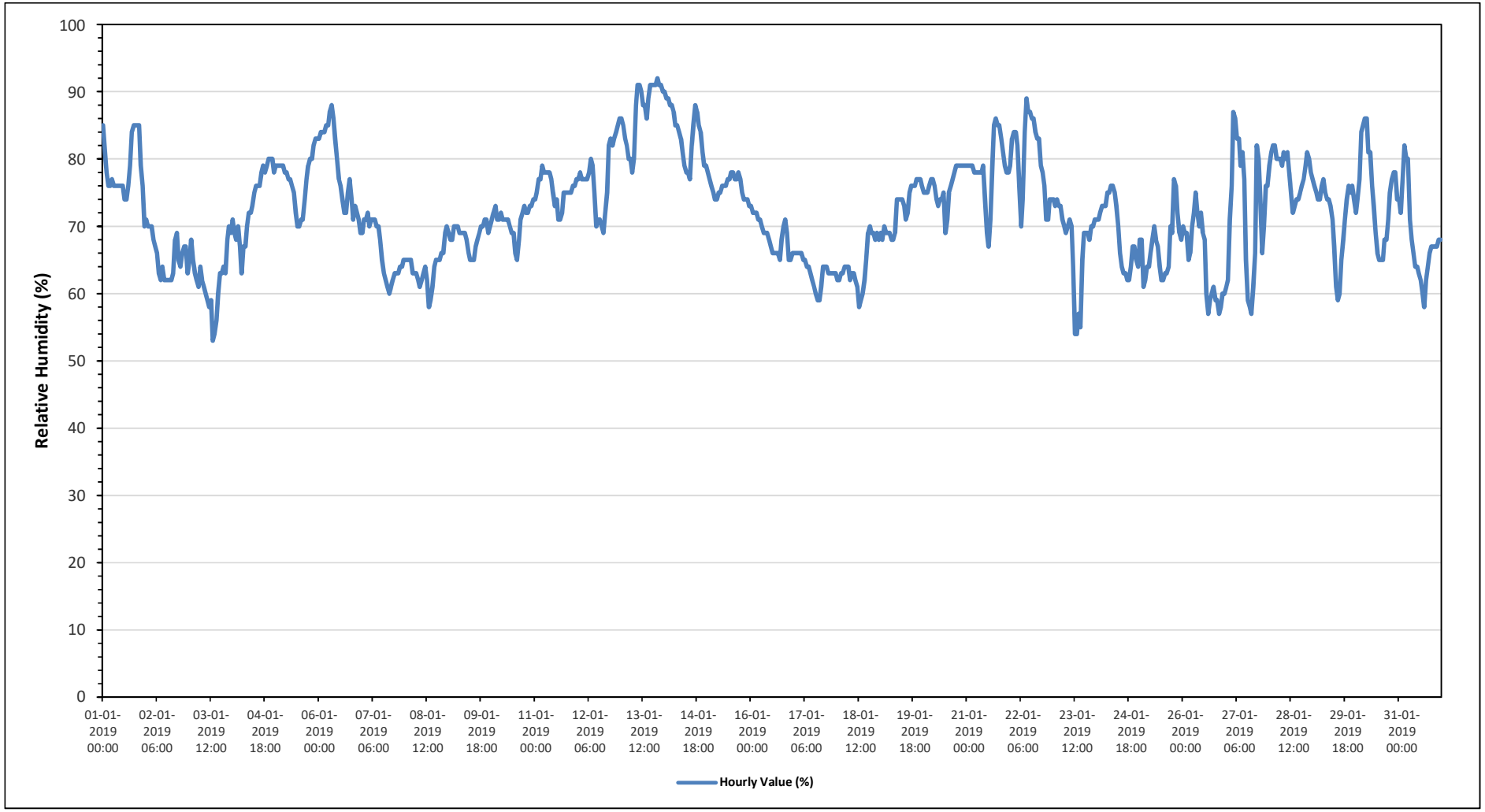
RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	92	%	on January 13 at hour 20	Hours in Service:	744
Maximum Daily Value:	87.2	%	on January 13	Hours of Data:	744
Minimum Hourly Value:	53	%	on January 3 at hour 13	Hours of Missing Data:	0
Minimum Daily Value:	62.1	%	on January 3	Hours of Calibration:	0
Monthly Average:	72.3	%		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	85	81	78	76	76	77	76	76	76	76	76	76	74	74	76	79	84	85	85	85	85	79	76	70	70	85	78.4
Jan 2	71	70	70	70	68	67	66	63	62	64	62	62	62	62	62	63	68	69	65	64	66	67	67	63	62	71	65.5
Jan 3	65	68	65	63	62	61	64	62	61	60	59	58	59	**53**	54	56	60	63	63	64	63	68	70	69	**53**	70	**62.1**
Jan 4	71	69	68	70	67	63	67	67	70	72	72	73	75	76	76	76	78	79	78	79	80	80	80	78	63	80	73.5
Jan 5	79	79	79	79	79	78	78	77	77	76	75	72	70	70	71	71	74	77	79	80	80	82	83	83	70	83	77.0
Jan 6	83	84	84	84	85	85	87	88	86	83	80	77	76	74	72	72	75	77	74	71	73	72	71	69	69	88	78.4
Jan 7	69	71	71	72	70	71	71	71	70	70	68	65	63	62	61	60	61	62	63	63	63	64	64	65	60	72	66.3
Jan 8	65	65	65	65	63	63	63	62	61	62	63	64	62	58	59	61	64	65	65	65	66	66	69	70	58	70	63.8
Jan 9	69	68	68	70	70	70	69	69	69	69	68	66	65	65	65	67	68	69	70	70	71	71	69	70	65	71	68.5
Jan 10	71	72	73	71	71	72	71	71	71	71	70	69	69	66	65	68	71	72	73	72	72	73	73	74	65	74	70.9
Jan 11	74	75	77	77	79	78	78	78	78	77	75	73	74	71	71	72	75	75	75	75	75	76	76	77	71	79	75.5
Jan 12	77	78	77	77	77	77	78	80	79	75	70	71	71	70	69	72	75	82	83	82	83	84	85	86	69	86	77.4
Jan 13	86	85	83	82	80	80	78	80	88	91	91	90	88	88	86	89	91	91	91	91	**92**	91	91	90	78	**92**	**87.2**
Jan 14	90	89	89	88	88	87	85	85	84	83	81	79	78	78	77	82	85	88	87	85	84	81	79	79	77	90	83.8
Jan 15	78	77	76	75	74	74	75	75	76	76	76	77	77	78	78	77	77	78	77	75	74	74	74	73	73	78	75.9
Jan 16	73	72	72	72	71	71	70	69	69	69	68	67	66	66	66	66	65	68	70	71	69	65	65	66	65	73	68.6
Jan 17	66	66	66	66	66	65	65	64	64	63	62	61	60	59	59	61	64	64	64	63	63	63	63	63	59	66	63.3
Jan 18	62	62	63	63	64	64	64	62	63	63	62	61	58	59	60	62	65	69	70	69	69	68	69	68	58	70	64.1
Jan 19	69	68	70	69	69	69	68	68	69	74	74	74	74	73	71	72	75	76	76	76	77	77	77	76	68	77	72.5
Jan 20	75	75	75	76	77	77	76	74	73	74	74	75	69	71	75	76	77	78	79	79	79	79	79	79	69	79	75.9
Jan 21	79	79	79	79	78	78	78	78	78	79	74	69	67	71	79	85	86	85	85	83	81	79	78	78	67	86	78.5
Jan 22	79	83	84	84	82	76	70	74	84	89	87	87	86	86	84	83	83	79	78	76	71	71	74	74	70	89	80.2
Jan 23	74	73	74	73	73	71	70	69	70	71	70	64	54	54	57	55	65	69	69	69	68	70	70	71	54	74	67.6
Jan 24	71	71	72	73	73	73	75	75	76	76	75	73	70	66	64	63	63	62	62	64	67	67	65	64	62	76	69.2
Jan 25	68	68	61	62	64	64	66	68	70	68	67	64	62	62	63	63	64	70	69	77	76	72	69	68	61	77	66.9
Jan 26	70	69	69	65	66	70	72	75	72	70	72	69	68	60	57	59	60	61	59	59	57	58	60	60	57	75	64.9
Jan 27	61	62	71	76	87	86	83	83	79	81	77	65	59	58	57	61	66	82	80	73	66	70	76	76	57	87	72.3
Jan 28	79	81	82	82	80	80	80	79	81	80	81	78	75	72	73	74	74	75	76	77	79	81	80	78	72	82	78.2
Jan 29	77	76	75	74	74	76	77	75	74	74	73	71	67	61	59	60	65	68	71	74	76	75	76	74	59	77	71.8
Jan 30	72	74	77	84	85	86	86	81	81	76	73	69	66	65	65	65	68	68	71	75	77	78	78	74	65	86	74.8
Jan 31	74	72	77	82	80	80	71	68	66	64	64	63	62	60	58	62	64	66	67	67	67	67	68	68	58	82	68.2
Diurnal Maximum	90	89	89	88	88	87	87	88	88	91	91	90	88	88	86	89	91	91	91	91	92	91	91	90			
Daiurnal Average	73.6	73.6	73.9	74.2	74.1	73.8	73.5	73.1	73.5	73.4	72.2	70.4	68.6	67.4	67.4	68.8	71.3	73.3	73.4	73.3	73.2	73.2	73.4	72.7			

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

Timeseries Chart of Hourly Average for RH - Reno Site



PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Summary of Hourly Averages

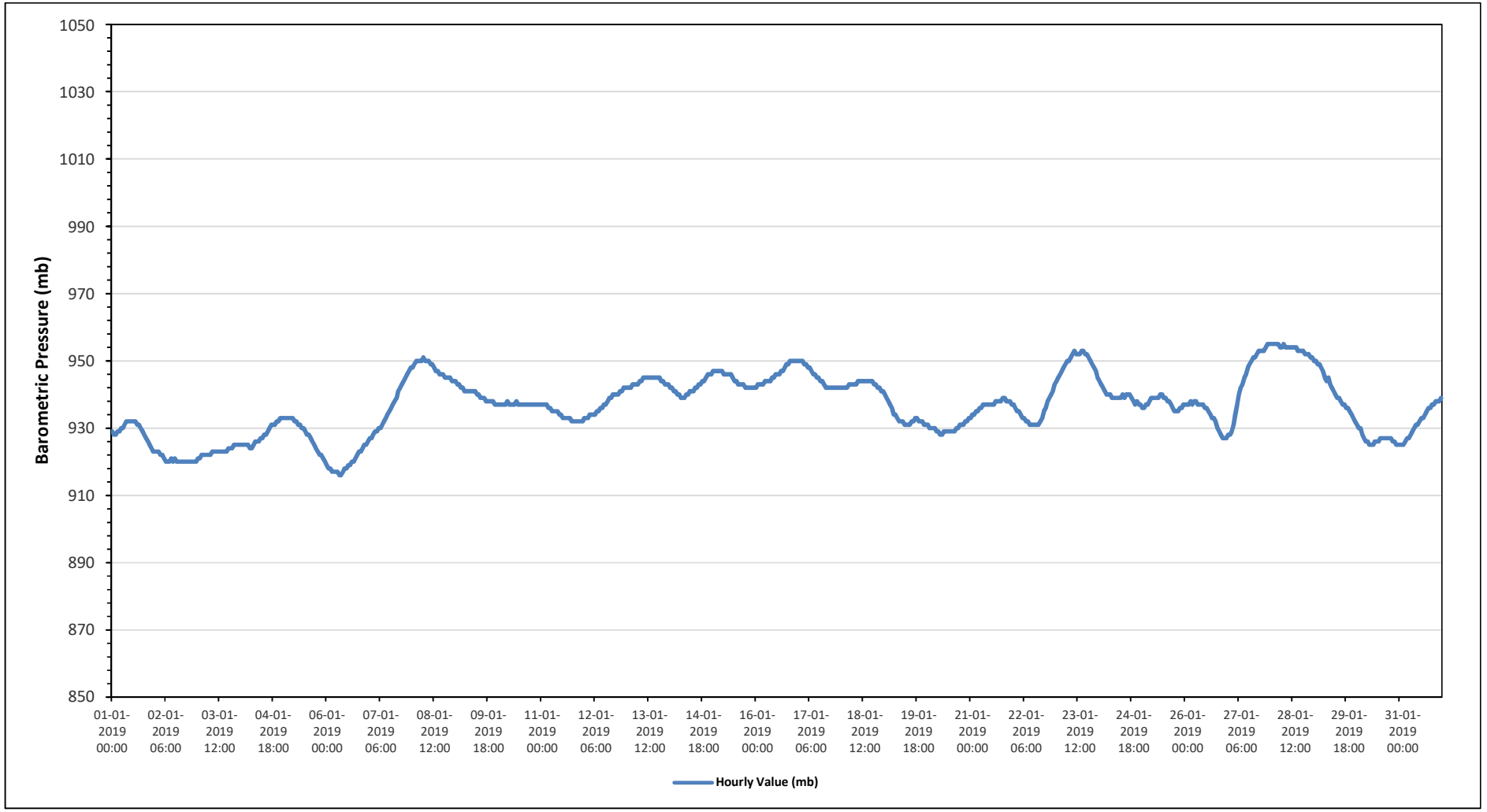
BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	955	mb	on January 27 at hour 22	Hours in Service:	744
Maximum Daily Value:	954	mb	on January 28	Hours of Data:	744
Minimum Hourly Value:	916	mb	on January 6 at hour 7	Hours of Missing Data:	0
Minimum Daily Value:	920	mb	on January 6	Hours of Calibration:	0
Monthly Average:	937	mb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	929	928	928	929	929	930	930	931	932	932	932	932	932	932	931	931	930	929	928	927	926	925	924	923	923	932	929
Jan 2	923	923	923	922	922	921	920	920	920	921	920	921	920	920	920	920	920	920	920	920	920	920	920	920	920	923	921
Jan 3	921	921	922	922	922	922	922	922	923	923	923	923	923	923	923	923	923	924	924	924	925	925	925	925	921	925	923
Jan 4	925	925	925	925	925	924	924	925	926	926	926	927	927	928	928	929	930	931	931	931	932	932	933	933	924	933	928
Jan 5	933	933	933	933	933	933	932	932	931	931	930	930	929	928	928	927	926	925	924	923	922	922	921	920	920	933	928
Jan 6	919	918	918	917	917	917	917	**916**	916	917	918	918	919	919	920	920	921	922	923	923	924	925	925	926	**916**	926	**920**
Jan 7	927	927	928	929	929	930	930	931	932	933	934	935	936	937	938	939	941	942	943	944	945	946	947	948	927	948	936
Jan 8	948	949	950	950	950	950	951	950	950	950	949	949	948	947	947	946	946	946	945	945	945	945	944	944	944	951	948
Jan 9	944	943	943	942	942	941	941	941	941	941	941	941	940	940	939	939	939	938	938	938	938	938	937	937	937	944	940
Jan 10	937	937	937	937	937	938	937	937	937	937	938	937	937	937	937	937	937	937	937	937	937	937	937	937	937	938	937
Jan 11	937	937	937	937	936	936	935	935	935	935	934	934	933	933	933	933	933	932	932	932	932	932	932	932	932	937	934
Jan 12	933	933	933	934	934	934	934	935	935	936	936	937	937	938	939	939	940	940	940	940	941	941	942	942	933	942	937
Jan 13	942	942	942	943	943	943	943	944	944	945	945	945	945	945	945	945	945	945	945	944	944	943	943	943	942	945	944
Jan 14	942	942	941	941	940	940	939	939	939	940	940	941	941	941	942	942	943	943	944	944	945	946	946	946	939	946	942
Jan 15	947	947	947	947	947	947	946	946	946	946	946	945	944	944	943	943	943	943	942	942	942	942	942	942	942	947	945
Jan 16	942	943	943	943	943	944	944	944	944	945	945	946	946	946	947	947	948	949	949	950	950	950	950	950	942	950	946
Jan 17	950	950	950	949	949	948	948	947	946	946	945	945	944	944	943	942	942	942	942	942	942	942	942	942	942	950	945
Jan 18	942	942	942	942	943	943	943	943	943	944	944	944	944	944	944	944	944	944	943	943	942	942	941	941	941	944	943
Jan 19	940	939	938	937	936	934	934	933	932	932	932	931	931	931	931	932	932	933	933	932	932	932	931	931	931	940	933
Jan 20	931	930	930	930	930	929	929	928	928	929	929	929	929	929	929	929	930	930	931	931	931	932	932	933	928	933	930
Jan 21	933	934	934	935	935	936	936	937	937	937	937	937	937	937	938	938	938	938	939	939	938	938	938	937	933	939	937
Jan 22	937	936	935	935	934	933	933	932	932	931	931	931	931	931	931	932	933	935	936	938	939	940	941	943	931	943	935
Jan 23	944	945	946	947	948	949	950	950	951	952	953	952	952	952	953	953	952	952	951	950	949	948	947	945	944	953	950
Jan 24	944	943	942	941	940	940	940	939	939	939	939	939	939	940	939	940	940	940	939	938	937	938	937	937	937	944	940
Jan 25	936	936	937	937	938	939	939	939	939	939	940	940	939	939	938	938	937	936	935	935	935	936	936	937	935	940	938
Jan 26	937	937	937	938	937	938	938	937	937	937	937	936	936	935	934	933	933	932	930	929	928	927	927	927	927	938	934
Jan 27	928	928	929	931	934	937	940	942	943	945	946	948	949	950	951	951	952	953	953	953	953	954	**955**	**955**	928	**955**	945
Jan 28	**955**	**955**	**955**	**955**	**955**	954	954	**955**	954	954	954	954	954	954	954	953	953	953	953	952	952	952	951	951	951	**955**	**954**
Jan 29	950	950	949	949	948	947	945	944	945	943	942	941	940	939	939	938	937	937	936	936	935	934	933	932	932	950	941
Jan 30	931	930	930	928	927	926	926	925	925	925	926	926	926	927	927	927	927	927	927	927	926	926	925	925	925	931	927
Jan 31	925	925	925	926	927	927	928	929	930	931	931	932	933	933	934	935	936	936	937	937	938	938	938	939	925	939	932
Diurnal Maximum	955	955	955	955	955	954	954	955	954	954	954	954	954	954	954	953	953	953	953	953	953	954	955	955			
Daiurnal Average	937	936	936	936	936	936	936	936	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937			

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

Timeseries Chart of Hourly Average for BP - Reno Site



PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Summary of Hourly Averages

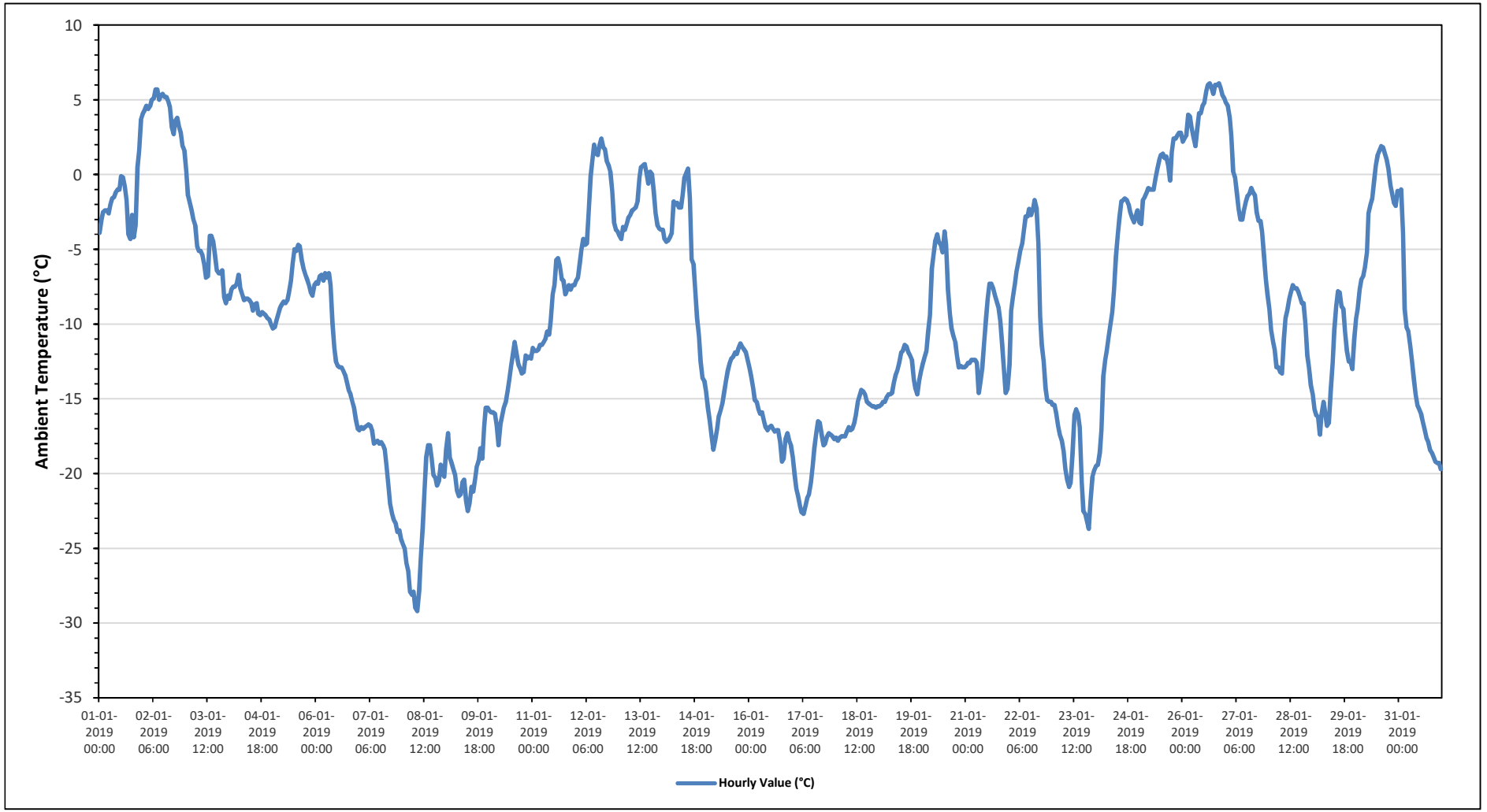
AMBIENT TEMPERATURE (AT) in Degree Celsius

Maximum Hourly Value:	6.1	°C	on January 26 at hour 15	Hours in Service:	744
Maximum Daily Value:	4.4	°C	on January 26	Hours of Data:	744
Minimum Hourly Value:	-29.2	°C	on January 8 at hour 8	Hours of Missing Data:	0
Minimum Daily Value:	-23.2	°C	on January 8	Hours of Calibration:	0
Monthly Average:	-9.5	°C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	-3.9	-3.0	-2.5	-2.4	-2.4	-2.6	-2.0	-1.6	-1.5	-1.2	-1.0	-1.0	-0.1	-0.2	-0.8	-1.7	-4.0	-4.3	-2.7	-4.2	-3.4	0.5	1.6	3.7	-4.3	3.7	-1.7
Jan 2	4.1	4.3	4.6	4.4	4.6	5.0	5.1	5.7	5.7	5.0	5.3	5.4	5.2	5.2	4.9	4.5	3.2	2.7	3.6	3.8	3.2	2.8	1.9	1.6	1.6	5.7	4.2
Jan 3	0.2	-1.4	-1.9	-2.4	-3.0	-3.4	-4.8	-5.1	-5.1	-5.4	-6.0	-6.9	-6.8	-4.1	-4.1	-4.5	-5.5	-6.4	-6.6	-6.6	-6.4	-8.2	-8.6	-8.1	-8.6	0.2	-5.0
Jan 4	-8.3	-7.7	-7.5	-7.5	-7.3	-6.7	-7.6	-8.0	-8.4	-8.3	-8.3	-8.4	-8.6	-9.1	-8.7	-8.6	-9.3	-9.4	-9.2	-9.3	-9.4	-9.6	-9.7	-10.0	-10.0	-6.7	-8.5
Jan 5	-10.3	-10.2	-9.8	-9.3	-8.9	-8.7	-8.5	-8.6	-8.4	-7.9	-7.1	-5.9	-5.0	-5.1	-4.7	-4.8	-5.7	-6.3	-6.7	-7.0	-7.4	-7.9	-8.1	-7.4	-10.3	-4.7	-7.5
Jan 6	-7.2	-7.3	-6.8	-6.7	-7.1	-6.6	-6.9	-6.6	-7.4	-9.9	-11.6	-12.5	-12.8	-12.9	-12.9	-13.1	-13.4	-13.9	-14.4	-14.7	-15.2	-15.6	-16.4	-17.0	-17.0	-6.6	-11.2
Jan 7	-17.1	-16.9	-17.0	-16.9	-16.8	-16.7	-16.8	-17.1	-18.0	-17.9	-17.8	-18.0	-17.9	-18.1	-18.4	-19.5	-20.9	-22.0	-22.7	-23.1	-23.3	-23.9	-23.8	-24.4	-24.4	-16.7	-19.4
Jan 8	-24.7	-25.0	-26.0	-26.5	-27.9	-28.1	-27.9	-29.0	**-29.2**	-27.8	-25.6	-23.6	-21.0	-18.9	-18.1	-18.1	-19.0	-20.1	-20.3	-20.8	-20.5	-19.4	-20.0	-20.2	**-29.2**	-18.1	**-23.2**
Jan 9	-18.4	-17.3	-18.9	-19.3	-19.7	-20.1	-21.1	-21.5	-21.4	-20.6	-20.4	-21.8	-22.5	-22.0	-20.9	-21.2	-20.4	-19.5	-19.1	-18.3	-19.0	-16.9	-15.6	-15.6	-22.5	-15.6	-19.6
Jan 10	-15.8	-15.9	-15.9	-16.0	-16.8	-18.1	-16.7	-16.1	-15.6	-15.2	-14.5	-13.7	-12.8	-12.0	-11.2	-12.0	-12.7	-13.0	-13.3	-13.2	-12.1	-12.3	-12.2	-12.3	-18.1	-11.2	-14.1
Jan 11	-11.6	-11.8	-11.8	-11.7	-11.4	-11.4	-11.2	-11.0	-10.5	-10.7	-9.8	-8.0	-7.4	-5.7	-5.6	-6.1	-7.0	-7.1	-8.0	-7.7	-7.4	-7.7	-7.4	-7.4	-11.8	-5.6	-9.0
Jan 12	-7.1	-6.9	-5.9	-5.0	-4.3	-4.7	-4.6	-2.4	-0.1	0.9	2.0	1.4	1.3	2.0	2.4	1.8	1.7	0.9	0.6	0.2	-1.1	-3.2	-3.7	-3.8	-7.1	2.4	-1.6
Jan 13	-4.1	-4.3	-3.5	-3.7	-3.3	-2.9	-2.7	-2.4	-2.3	-2.2	-1.8	-0.2	0.5	0.6	0.7	0.1	-0.6	0.2	0.0	-1.1	-2.6	-3.4	-3.6	-3.7	-4.3	0.7	-1.9
Jan 14	-3.7	-4.3	-4.5	-4.4	-4.2	-3.9	-1.8	-2.0	-1.9	-2.2	-2.2	-1.4	-0.2	0.1	0.4	-1.6	-5.7	-6.0	-7.7	-9.6	-10.8	-12.5	-13.6	-13.8	-13.8	0.4	-4.9
Jan 15	-14.5	-15.6	-16.5	-17.5	-18.4	-17.8	-17.0	-16.2	-15.8	-15.3	-14.6	-13.8	-13.1	-12.6	-12.3	-12.2	-11.9	-12.0	-11.6	-11.3	-11.5	-11.7	-11.9	-12.4	-18.4	-11.3	-14.1
Jan 16	-12.9	-13.5	-14.3	-15.1	-15.2	-15.7	-16.0	-15.9	-16.5	-16.9	-17.1	-16.9	-16.8	-17.0	-17.2	-17.1	-17.1	-17.9	-19.2	-19.0	-17.7	-17.3	-17.8	-18.1	-19.2	-12.9	-16.6
Jan 17	-18.9	-20.1	-21.0	-21.5	-22.2	-22.6	-22.7	-22.2	-21.6	-21.4	-20.6	-19.5	-18.3	-17.3	-16.5	-16.6	-17.4	-18.1	-18.0	-17.5	-17.3	-17.4	-17.5	-17.7	-22.7	-16.5	-19.3
Jan 18	-17.6	-17.8	-17.6	-17.5	-17.5	-17.5	-17.2	-16.9	-17.1	-17.0	-16.6	-16.1	-15.2	-14.8	-14.4	-14.5	-14.7	-15.2	-15.3	-15.4	-15.5	-15.5	-15.6	-15.5	-17.8	-14.4	-16.2
Jan 19	-15.5	-15.4	-15.2	-15.2	-14.9	-14.7	-14.7	-14.6	-13.9	-13.4	-13.1	-12.6	-11.9	-11.8	-11.4	-11.5	-11.9	-12.1	-12.4	-13.7	-14.3	-14.7	-13.8	-13.2	-15.5	-11.4	-13.6
Jan 20	-12.7	-12.2	-11.8	-10.6	-9.4	-6.3	-5.4	-4.4	-4.0	-4.5	-4.7	-5.2	-3.8	-4.7	-7.7	-9.3	-10.3	-10.8	-11.2	-12.1	-12.9	-12.8	-12.9	-12.9	-12.9	-3.8	-8.9
Jan 21	-12.8	-12.6	-12.6	-12.4	-12.4	-12.4	-12.6	-14.6	-13.9	-12.9	-11.2	-9.6	-8.3	-7.3	-7.3	-7.6	-8.1	-8.5	-8.9	-9.8	-11.4	-13.2	-14.6	-14.3	-14.6	-7.3	-11.2
Jan 22	-12.7	-9.1	-8.2	-7.3	-6.5	-5.8	-5.1	-4.6	-3.8	-2.8	-2.8	-2.3	-2.7	-2.3	-1.7	-2.2	-4.6	-9.5	-11.4	-12.5	-14.3	-15.1	-15.2	-15.2	-15.2	-1.7	-7.4
Jan 23	-15.4	-15.4	-16.0	-16.8	-17.4	-17.8	-18.5	-19.7	-20.4	-20.9	-20.6	-18.6	-16.1	-15.7	-16.0	-16.9	-20.6	-22.5	-22.7	-23.2	-23.7	-21.8	-20.2	-19.8	-23.7	-15.4	-19.0
Jan 24	-19.5	-19.4	-18.6	-17.1	-13.5	-12.4	-11.8	-10.8	-10.0	-9.2	-7.7	-5.5	-4.0	-2.9	-1.8	-1.7	-1.6	-1.7	-2.0	-2.5	-2.9	-3.2	-2.8	-2.4	-19.5	-1.6	-7.7
Jan 25	-3.2	-3.3	-1.7	-1.5	-1.2	-0.9	-1.0	-1.0	-1.0	-0.2	0.4	1.0	1.3	1.4	1.1	1.2	0.6	-0.4	1.5	2.4	2.4	2.6	2.8	2.8	-3.3	2.8	0.3
Jan 26	2.2	2.4	2.6	4.0	3.9	3.1	2.5	1.9	3.0	4.1	4.1	4.6	4.8	5.6	6.0	**6.1**	5.8	5.4	6.0	6.0	**6.1**	5.8	5.3	5.1	1.9	**6.1**	**4.4**
Jan 27	4.8	4.6	3.8	2.6	0.2	-0.2	-1.3	-2.3	-3.0	-3.0	-2.4	-1.8	-1.4	-1.3	-0.9	-1.2	-1.4	-2.5	-3.1	-3.1	-3.8	-5.4	-7.0	-8.0	-8.0	4.8	-1.5
Jan 28	-9.0	-10.4	-11.2	-11.7	-12.9	-12.9	-13.2	-13.3	-11.0	-9.6	-9.1	-8.3	-7.9	-7.4	-7.6	-7.6	-7.8	-8.2	-8.6	-8.6	-10.0	-12.1	-12.9	-14.1	-14.1	-7.4	-10.2
Jan 29	-14.7	-15.7	-16.1	-16.2	-17.4	-16.0	-15.2	-16.0	-16.8	-16.6	-14.4	-12.6	-10.4	-8.8	-7.8	-7.9	-8.8	-9.0	-10.5	-11.8	-12.5	-12.5	-13.0	-11.0	-17.4	-7.8	-13.0
Jan 30	-9.6	-9.0	-7.7	-7.0	-6.8	-6.2	-5.2	-2.6	-2.0	-1.6	-0.4	0.6	1.3	1.6	1.9	1.8	1.4	1.0	0.4	-0.7	-1.3	-1.9	-2.1	-1.1	-9.6	1.9	-2.3
Jan 31	-1.3	-1.0	-3.9	-9.0	-10.2	-10.5	-11.5	-12.4	-13.6	-14.7	-15.4	-15.7	-16.0	-16.5	-17.0	-17.6	-17.9	-18.4	-18.6	-18.9	-19.2	-19.3	-19.3	-19.7	-19.7	-1.0	-14.1
Diurnal Maximum	4.8	4.6	4.6	4.4	4.6	5.0	5.1	5.7	5.7	5.0	5.3	5.4	5.2	5.6	6.0	6.1	5.8	5.4	6.0	6.0	6.1	5.8	5.3	5.1			
Daiurnal Average	-10.0	-10.0	-10.1	-10.2	-10.3	-10.2	-10.1	-10.0	-9.9	-9.7	-9.2	-8.6	-8.0	-7.5	-7.3	-7.7	-8.6	-9.2	-9.4	-9.8	-10.2	-10.4	-10.6	-10.5			

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

Timeseries Chart of Hourly Average for AT - Reno Site



PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Summary of Hourly Averages

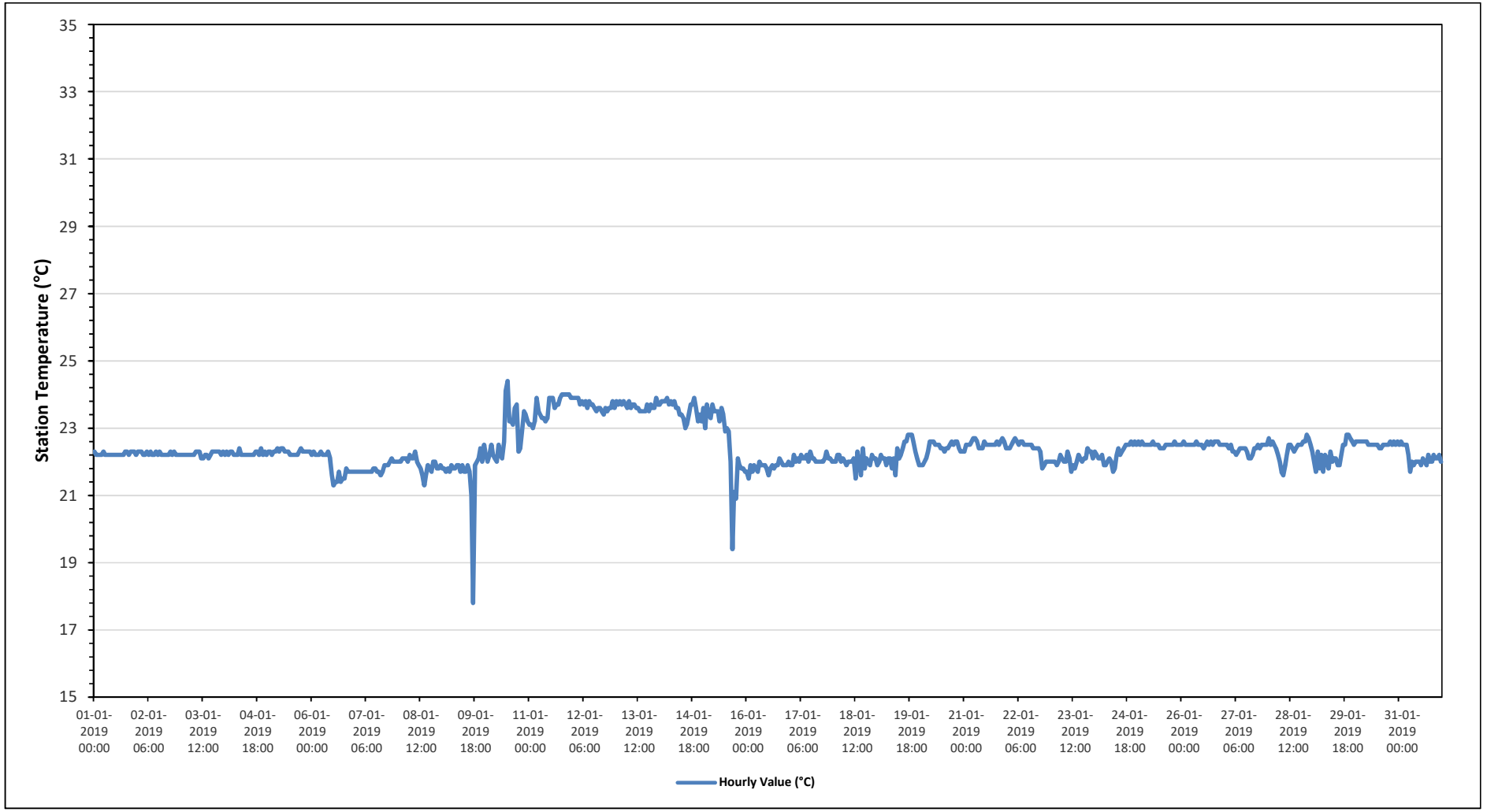
STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:	24.4	°C	on January 10 at hour 12	Hours in Service:	744
Maximum Daily Value:	23.7	°C	on January 12	Hours of Data:	744
Minimum Hourly Value:	17.8	°C	on January 9 at hour 17	Hours of Missing Data:	0
Minimum Daily Value:	21.7	°C	on January 9	Hours of Calibration:	0
Monthly Average:	22.4	°C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	22.3	22.2	22.2	22.2	22.2	22.3	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.3	22.3	22.2	22.3	22.3	22.3	22.2	22.2	22.3	22.2
Jan 2	22.3	22.3	22.3	22.2	22.2	22.3	22.2	22.3	22.2	22.2	22.3	22.2	22.3	22.2	22.2	22.2	22.2	22.2	22.3	22.2	22.3	22.2	22.2	22.2	22.2	22.3	22.2
Jan 3	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.3	22.3	22.3	22.1	22.1	22.2	22.2	22.1	22.2	22.3	22.3	22.3	22.3	22.3	22.2	22.3	22.1	22.3	22.2
Jan 4	22.2	22.3	22.2	22.3	22.3	22.2	22.2	22.2	22.4	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.3	22.3	22.2	22.4	22.2	22.3	22.2	22.2	22.4	22.2
Jan 5	22.3	22.3	22.2	22.3	22.3	22.4	22.3	22.4	22.4	22.3	22.3	22.3	22.2	22.2	22.2	22.2	22.2	22.3	22.4	22.3	22.3	22.3	22.3	22.3	22.2	22.4	22.3
Jan 6	22.2	22.3	22.2	22.2	22.2	22.3	22.2	22.2	22.2	22.3	22.1	21.6	21.3	21.4	21.4	21.7	21.4	21.5	21.5	21.8	21.7	21.7	21.7	21.7	21.3	22.3	21.9
Jan 7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.8	21.8	21.7	21.7	21.6	21.7	21.9	21.9	21.9	22.0	22.1	22.0	22.0	22.0	21.6	22.1	21.8
Jan 8	22.0	22.0	22.1	22.1	22.1	22.0	22.2	22.1	22.1	22.3	22.0	21.9	21.8	21.6	21.3	21.6	21.9	21.8	21.7	22.0	22.0	21.8	21.8	21.9	21.3	22.3	21.9
Jan 9	21.8	21.8	21.7	21.8	21.7	21.9	21.8	21.8	21.9	21.9	21.7	21.9	21.7	21.7	21.9	21.7	21.0	**17.8**	21.9	22.0	22.1	22.4	22.0	22.5	**17.8**	22.5	**21.7**
Jan 10	22.2	22.0	22.2	22.5	22.2	22.1	22.0	22.5	22.2	22.1	22.6	24.1	**24.4**	23.2	23.2	23.1	23.6	23.7	22.3	22.4	22.9	23.5	23.4	23.2	22.0	**24.4**	22.8
Jan 11	23.1	23.1	23.0	23.2	23.9	23.5	23.4	23.3	23.3	23.2	23.3	23.9	23.9	23.9	23.6	23.7	23.7	23.9	24.0	24.0	24.0	24.0	24.0	23.9	23.0	24.0	23.6
Jan 12	23.9	23.9	23.9	23.9	23.7	23.8	23.7	23.8	23.6	23.8	23.7	23.7	23.6	23.5	23.6	23.6	23.5	23.4	23.6	23.5	23.6	23.6	23.8	23.6	23.4	23.9	**23.7**
Jan 13	23.8	23.7	23.8	23.7	23.8	23.7	23.6	23.8	23.6	23.7	23.7	23.6	23.6	23.5	23.5	23.5	23.5	23.7	23.5	23.7	23.6	23.6	23.9	23.7	23.5	23.9	23.7
Jan 14	23.7	23.8	23.8	23.8	23.9	23.7	23.8	23.7	23.8	23.6	23.6	23.4	23.4	23.3	23.0	23.1	23.4	23.7	23.7	23.9	23.6	23.2	23.4	23.2	23.0	23.9	23.6
Jan 15	23.6	23.0	23.7	23.4	23.3	23.7	23.5	23.5	23.5	23.2	23.6	23.4	22.9	23.0	22.9	22.0	19.4	21.1	20.9	22.1	21.9	21.8	21.8	21.7	19.4	23.7	22.6
Jan 16	21.7	21.5	21.9	21.7	21.9	21.8	21.7	22.0	21.9	21.9	21.9	21.8	21.6	21.8	21.9	21.8	21.9	21.9	22.1	22.0	21.9	21.9	21.9	22.0	21.5	22.1	21.9
Jan 17	21.9	21.9	22.2	22.0	22.1	22.0	22.2	22.1	22.1	22.2	22.0	22.3	22.1	22.1	22.0	22.0	22.0	22.0	22.0	22.1	22.3	22.1	22.1	22.0	21.9	22.3	22.1
Jan 18	22.0	22.0	22.2	22.2	22.0	22.1	22.0	21.9	22.0	22.0	22.0	22.1	21.5	22.3	21.9	21.6	22.4	21.8	22.1	22.0	21.9	22.2	22.1	22.1	21.5	22.4	22.0
Jan 19	21.9	22.0	22.2	22.1	22.1	21.9	22.1	22.1	21.8	22.1	21.6	22.4	22.1	22.2	22.4	22.6	22.6	22.8	22.8	22.8	22.6	22.3	22.1	21.9	21.6	22.8	22.2
Jan 20	21.9	21.9	22.0	22.1	22.3	22.6	22.6	22.6	22.5	22.5	22.5	22.4	22.4	22.3	22.4	22.4	22.5	22.6	22.5	22.6	22.6	22.4	22.3	22.3	21.9	22.6	22.4
Jan 21	22.3	22.5	22.5	22.5	22.6	22.7	22.7	22.6	22.4	22.4	22.4	22.6	22.5	22.5	22.5	22.5	22.5	22.5	22.6	22.5	22.6	22.7	22.6	22.4	22.3	22.7	22.5
Jan 22	22.4	22.4	22.5	22.6	22.7	22.6	22.5	22.6	22.6	22.5	22.5	22.5	22.5	22.5	22.4	22.4	22.4	22.4	22.3	21.8	21.9	22.0	22.0	22.0	21.8	22.7	22.4
Jan 23	22.0	22.0	22.0	21.9	22.0	22.2	22.1	22.0	22.0	22.3	22.1	21.7	21.9	21.8	22.0	22.2	22.1	22.0	22.1	22.1	22.4	22.3	22.3	22.1	21.7	22.4	22.1
Jan 24	22.3	22.2	22.1	22.1	22.2	21.9	21.9	22.0	22.1	22.0	21.7	21.8	22.2	22.4	22.2	22.3	22.4	22.5	22.5	22.5	22.6	22.5	22.6	22.5	21.7	22.6	22.2
Jan 25	22.6	22.5	22.6	22.5	22.5	22.5	22.5	22.5	22.6	22.5	22.5	22.5	22.4	22.4	22.4	22.5	22.5	22.5	22.5	22.5	22.6	22.5	22.5	22.5	22.4	22.6	22.5
Jan 26	22.5	22.6	22.5	22.5	22.5	22.5	22.5	22.5	22.6	22.5	22.5	22.5	22.4	22.5	22.6	22.5	22.6	22.5	22.6	22.6	22.6	22.5	22.5	22.5	22.4	22.6	22.5
Jan 27	22.5	22.5	22.4	22.5	22.3	22.3	22.2	22.3	22.4	22.4	22.4	22.4	22.3	22.1	22.1	22.2	22.4	22.4	22.5	22.4	22.5	22.5	22.5	22.5	22.1	22.5	22.4
Jan 28	22.7	22.5	22.6	22.5	22.4	22.2	22.0	21.7	21.6	21.9	22.2	22.5	22.5	22.4	22.3	22.4	22.5	22.5	22.5	22.6	22.6	22.8	22.7	22.5	21.6	22.8	22.4
Jan 29	22.3	22.0	21.7	22.3	21.8	22.2	21.7	22.2	22.1	21.8	22.3	22.0	22.1	22.1	21.9	21.9	22.2	22.5	22.5	22.8	22.8	22.7	22.6	22.5	21.7	22.8	22.2
Jan 30	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.5	22.5	22.5	22.5	22.5	22.5	22.4	22.4	22.5	22.5	22.5	22.5	22.6	22.5	22.6	22.5	22.6	22.4	22.6	22.5
Jan 31	22.5	22.6	22.5	22.5	22.5	22.2	21.7	22.0	21.9	22.0	22.0	22.0	21.9	22.1	22.0	21.9	22.2	22.0	22.0	22.2	22.1	22.1	22.2	22.0	21.7	22.6	22.1
Diurnal Maximum	23.9	23.9	23.9	23.9	23.9	23.8	23.8	23.8	23.8	23.8	23.7	24.1	24.4	23.9	23.6	23.7	23.7	23.9	24.0	24.0	24.0	24.0	24.0	23.9			
Daiurnal Average	22.4	22.4	22.4	22.5	22.5	22.5	22.4	22.4	22.4	22.4	22.4	22.5	22.4	22.4	22.3	22.3	22.3	22.3	22.4	22.5	22.5	22.5	22.5	22.4			

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

Timeseries Chart of Hourly Average for ST - Reno Site



PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Summary of Hourly Averages

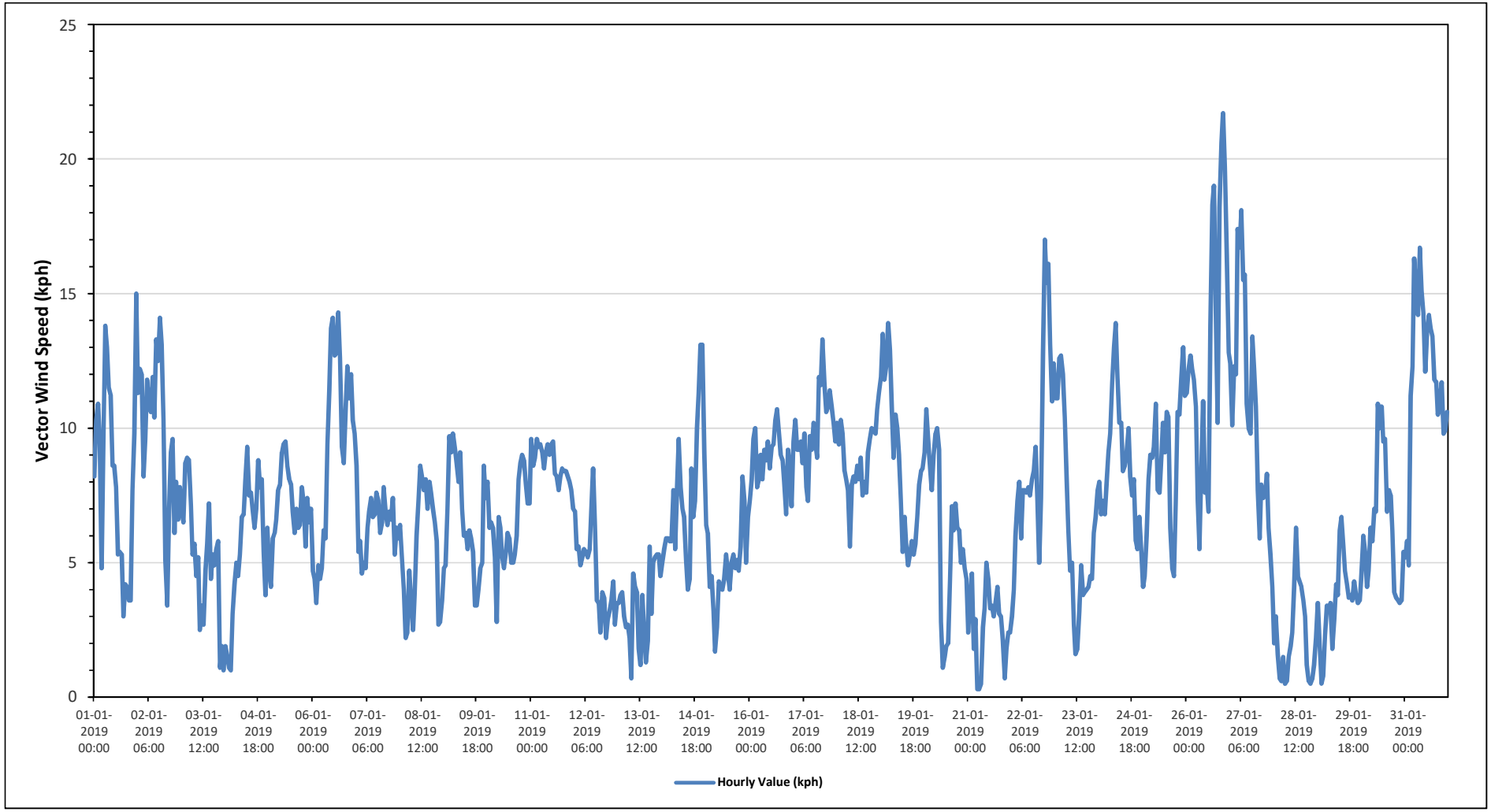
VECTOR WIND SPEED (WS) in km/hr

Maximum Hourly Value:	21.7	kph	on January 26 at hour 20	Hours in Service:	744
Maximum Daily Value:	12.9	kph	on January 26	Hours of Data:	744
Minimum Hourly Value:	0.3	kph	on January 21 at hour 5	Hours of Missing Data:	0
Minimum Daily Value:	2.2	kph	on January 28	Hours of Calibration:	0
Monthly Average:	0.8	kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	8.2	10.3	10.9	9.6	4.8	9.6	13.8	13	11.5	11.2	8.6	8.6	7.8	5.3	5.4	5.3	3	4.2	4.1	3.6	3.6	7.7	9.8	15	3.0	15.0	8.1
Jan 2	11.3	12.2	12	8.2	9.6	11.8	10.9	10.6	11.9	10.4	13.3	12.5	14.1	13.1	10.3	5.1	3.4	6.7	9.1	9.6	6.1	8	6.6	7.8	3.4	14.1	9.8
Jan 3	6.9	6.5	8.7	8.9	8.8	7.1	5.3	5.7	4.5	5.2	2.5	3.4	2.7	4.7	5.7	7.2	4.4	5.3	4.9	5.5	5.8	1.1	1.9	1	1.0	8.9	5.2
Jan 4	1.9	1.5	1.1	1	3.1	4.2	5	4.5	5.3	6.7	6.8	8	9.3	7.5	7.6	7	6.3	7	8.8	7.8	8.1	5.4	3.8	6.3	1.0	9.3	5.6
Jan 5	4.8	4.1	5.9	6.1	6.6	7.7	7.9	9.1	9.4	9.5	8.6	8.1	7.9	6.9	6.1	7	6.3	6.4	7.8	7.2	5.6	7.4	6.5	7	4.1	9.5	7.1
Jan 6	4.7	4.4	3.5	4.9	4.4	4.8	6.2	5.9	9.4	11.4	13.7	14.1	12.7	12.8	14.3	12.6	9.3	8.7	10.5	12.3	11.1	12	10.3	9.8	3.5	14.3	9.3
Jan 7	8.6	5.4	5.8	4.6	5	4.8	6.3	6.9	7.4	6.7	6.8	7.6	7.3	6.1	6.5	7.8	6.9	6.4	6.9	6.6	7.4	5.3	6.3	5.9	4.6	8.6	6.5
Jan 8	6.4	5.1	4	2.2	2.4	4.7	3.6	2.5	3.8	6	7.3	8.6	8.2	7.7	8.1	7	8	7.6	7	6.5	5.8	2.7	2.8	3.6	2.2	8.6	5.5
Jan 9	4.8	4.9	7	9.7	9.1	9.8	9.3	8.7	8	9.1	7	6	6.1	5.5	6.2	5.9	5.4	3.4	3.4	4	4.8	5	8.6	7.4	3.4	9.8	6.6
Jan 10	8	6.3	6.5	6.3	5.2	2.8	6.7	6.3	5.2	4.8	5.4	6.1	5.9	5	5	5.3	6	8.1	8.7	9	8.8	7.9	7.2	7.2	2.8	9.0	6.4
Jan 11	9.6	8.6	8.9	9.6	9.3	9.4	9.1	8.5	9.1	9.4	9	9.4	9.5	8.3	8.2	7.7	8.2	8.5	8.4	8.4	8.2	8	7.7	7	7.0	9.6	8.7
Jan 12	6.9	5.5	5.6	4.9	5.2	5.5	5.4	5.2	5.5	6.9	8.5	6.4	3.6	3.5	2.4	3.9	3.7	2.2	2.9	3.2	3.6	4.3	2.7	3.5	2.2	8.5	4.6
Jan 13	3.5	3.8	3.9	3	2.6	2.7	2.2	0.7	4.6	4.1	3.9	1.8	1.2	3.8	2.3	1.3	2.1	5.6	3.1	5	5.2	5.3	5.3	4.5	0.7	5.6	3.4
Jan 14	5	5.5	5.9	5.9	5.8	5.8	7.7	5.5	7.5	9.6	7.8	7	6.7	5.1	4	4.4	8.5	6.7	7.3	10	11.3	13.1	13.1	9.1	4.0	13.1	7.4
Jan 15	6.4	6.1	4.1	4.5	3.2	1.7	2.6	4.3	4.1	4	4.4	5.3	4.6	4	5	5.3	4.8	5.1	4.7	5.6	8.2	7.3	5	6.7	1.7	8.2	4.9
Jan 16	7.3	8.1	9.6	10	7.8	8.1	9	8.1	9.2	8.8	9.5	8.5	9.3	9.4	10.3	10.7	9.9	9	8.8	8	6.8	9.2	8.5	7.1	6.8	10.7	8.8
Jan 17	9.5	10.3	9.2	9.2	9.5	8.7	9.8	7.8	7.3	9.7	9.2	10.2	9.5	8.9	11.9	11.6	13.3	11.7	10.6	10.8	11.4	10.8	10.2	9.5	7.3	13.3	10.0
Jan 18	10.2	9.4	10.3	9.8	8.4	8.1	7.7	5.6	7.9	8.2	8	8.6	8.1	8.9	7.5	8	7.6	9.1	9.6	10	9.9	9.8	10.7	11.3	5.6	11.3	8.9
Jan 19	11.9	13.5	11.8	12.3	13.9	12.9	10.9	8.9	10.5	10	9	7.3	5.4	6.7	5.7	4.9	5.3	5.8	5.3	5.7	6.7	7.9	8.4	8.5	4.9	13.9	8.7
Jan 20	9.1	10.7	9.5	8.6	7.7	9	9.8	10	9.2	2.8	1.1	1.5	1.9	2	4.4	7.1	6.2	7.2	6.3	6.2	5	5.5	4.8	4.4	1.1	10.7	6.3
Jan 21	2.4	3.6	4.6	1.8	2.9	**0.3**	0.3	0.5	2.6	3.3	5	4.4	3.3	3.4	3	3.5	4.1	3.1	3	2.1	0.7	1.8	2.4	2.4	**0.3**	5.0	2.7
Jan 22	3	4	6	7.3	8	5.9	7.7	7.7	7.6	7.8	7.5	8.1	8.4	9.3	7.4	5	7.4	12.7	17	15.4	16.1	13.1	11	12.4	3.0	17.0	9.0
Jan 23	11.1	11.1	12.6	12.7	12	10.4	8.1	6.2	4.7	5	2.7	1.6	1.8	3.2	4.9	3.8	3.9	4	4.1	4.5	4.4	6.1	6.7	7.7	1.6	12.7	6.4
Jan 24	8	6.8	7.3	6.8	7.9	9.1	9.8	11.7	13	13.9	11.9	10.2	10.2	8.4	8.6	9.1	10	8.2	7.5	8.1	5.8	5.5	6.7	5.5	5.5	13.9	8.8
Jan 25	4.1	4.5	6	8.1	9	8.9	9.3	10.9	7.7	7.6	8.7	10.2	9.1	10.6	10.4	6.3	4.8	4.5	7.2	10.6	10.5	11.9	13	11.2	4.1	13.0	8.5
Jan 26	11.3	12.2	12.7	12.2	11.8	10.8	7.3	5.5	8.3	11	7.6	8	6.9	13.8	18.3	19	14.1	10.2	18.2	20.6	**21.7**	19.7	16.4	12.8	5.5	**21.7**	**12.9**
Jan 27	12.4	10.1	12.3	12	17.4	16.7	18.1	15.5	15.7	10.9	10	9.8	13.4	12.2	10.8	7.7	5.9	7.9	7.4	7.5	8.3	6.3	5.3	4.1	4.1	18.1	10.7
Jan 28	2	3	1.6	0.7	0.6	1.5	0.5	0.6	1.5	1.9	2.4	4.1	6.3	4.5	4.3	4.1	3.6	3	1.2	0.6	0.5	0.7	1.2	2.2	0.5	6.3	**2.2**
Jan 29	3.5	1.9	0.5	0.8	2.3	3.4	3.2	3.5	1.8	2.9	4.2	3.8	6.2	6.7	5.6	4.7	4.2	3.7	3.8	3.6	4.3	3.8	3.5	3.6	0.5	6.7	3.6
Jan 30	4.6	6	5.4	4.1	4.7	6.3	5.8	7	6.9	10.9	10	10.8	9.5	9.6	6.9	7.7	7.5	6.2	3.9	3.7	3.6	3.5	3.6	5.4	3.5	10.9	6.4
Jan 31	5.2	5.8	4.9	11.2	12.3	16.3	15	14.2	16.7	15.1	14.3	12.1	13.6	14.2	13.7	13.4	11.8	11.7	10.5	10.9	11.7	9.8	9.9	10.6	4.9	16.7	11.9
Diurnal Maximum	12	14	13	13	17	17	18	16	17	15	14	14	14	14	18	19	14	13	18	21	22	20	16	15			
Daiurnal Average	6.9	6.8	7.0	7.0	7.1	7.4	7.6	7.1	7.7	7.9	7.6	7.5	7.4	7.5	7.4	7.1	6.6	6.8	7.2	7.5	7.5	7.3	7.1	7.1			

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

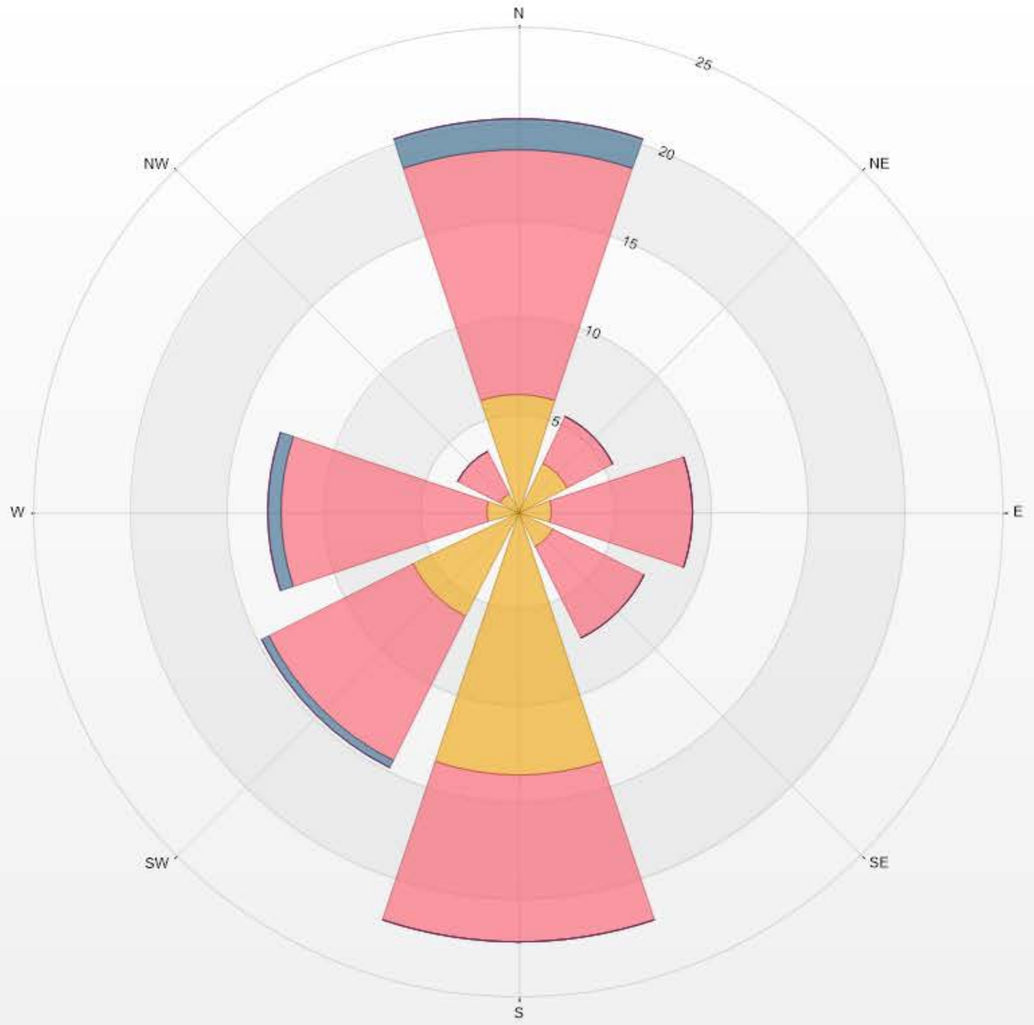
Timeseries Chart of Hourly Average for VWS - Reno Site



Wind: PRAMP RENO Poll.: PRAMP RENO-WDS[KPH] Monthly: 01-2019 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 4.57% Valid Data: 100.00% Calm Avg: 1.06 [KPH]

Direction	1.8-6	6-15	15-29	29-39	>39.0	Total
N	6.05	12.63	1.61	0	0	20.29
NE	2.82	2.69	0	0	0	5.51
E	1.75	7.26	0	0	0	9.01
SE	2.02	5.24	0	0	0	7.26
S	13.58	8.6	0	0	0	22.18
SW	6.05	8.33	0.4	0	0	14.78
W	1.61	10.62	0.67	0	0	12.9
NW	1.08	2.42	0	0	0	3.5
Summary	34.96	57.79	2.68	0	0	95.43

PRAMP RENO Poll.: PRAMP RENO-WDS[KPH] 01-01-2019 00:00 - 31-01-2019 23:00 Calm: 4.57% Calm Poll Avg: 1.06[KPH]



%	Icon	Classes (KPH)	35	1.8-6	58	6-15	3	15-29	0	29-39	0	>39.0

PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Summary of Hourly Averages

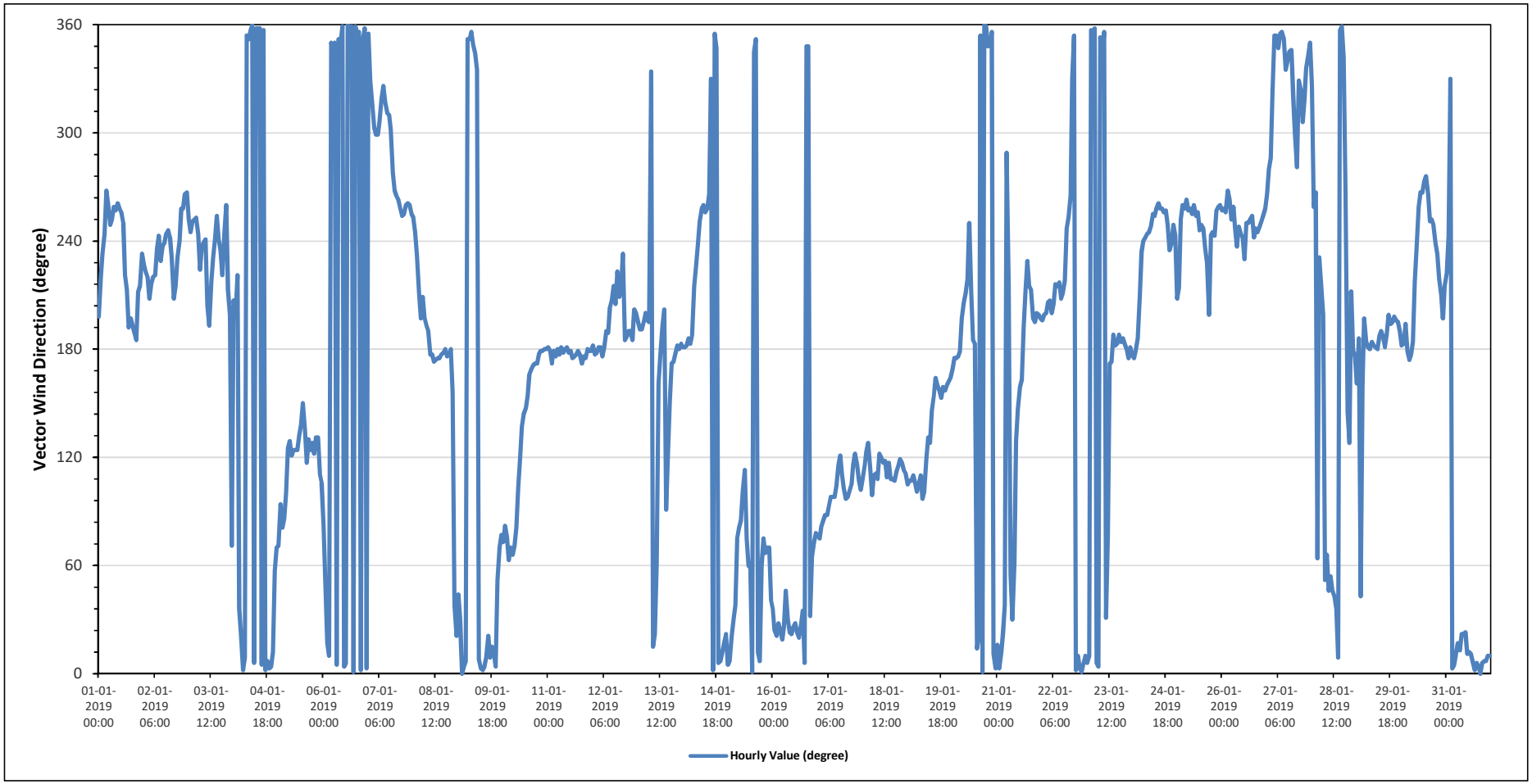
VECTOR WIND DIRECTION (WD) in sector

Monthly Average:	242 (WSW) degree	Hours in Service:	744
		Hours of Data:	744
		Hours of Missing Data:	0
		Hours of Calibration:	0
		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																						Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant
Jan 1	SSW	SW	SW	WSW	W	WSW	WSW	WSW	WSW	WSW	W	WSW	WSW	WSW	SW	SSW	S	SSW	S	S	S	SSW	SSW	SW	236	SW
Jan 2	SW	SW	SW	SSW	SW	SW	SW	SW	WSW	SW	SW	WSW	WSW	WSW	WSW	SW	SSW	SSW	SW	WSW	WSW	WSW	W	W	234	SW
Jan 3	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	WSW	WSW	SSW	S	SW	SW	WSW	WSW	WSW	SW	SW	WSW	WSW	SSW	SSW	ENE	241	WSW
Jan 4	SSW	SSW	SW	NE	NNE	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	NNE	ENE	ENE	6	N
Jan 5	ENE	E	E	E	E	SE	SE	ESE	ESE	ESE	ESE	SE	SE	SSE	SE	ESE	SE	ESE	SE	ESE	SE	SE	ESE	ESE	120	ESE
Jan 6	E	NE	NNE	N	N	NNW	N	N	N	NNW	N	N	N	N	N	N	N	N	N	N	N	N	N	N	0	N
Jan 7	N	NNW	NW	WNW	WNW	WNW	NW	NW	NW	NW	NW	NW	WNW	W	W	W	W	WSW	WSW	WSW	WSW	W	WSW	WSW	291	WNW
Jan 8	WSW	WSW	SW	SSW	SSW	SSW	SSW	S	S	S	S	S	S	S	S	S	S	S	S	S	S	SSE	NE	NNE	186	S
Jan 9	NE	NNE	N	N	N	N	N	N	NNW	NNW	NNW	N	N	N	N	N	NNE	N	NNE	NNE	N	NE	ENE	ENE	10	N
Jan 10	ENE	E	ENE	ENE	ENE	ENE	ENE	E	ESE	ESE	SE	SE	SE	SSE	SSE	SSE	S	S	S	S	S	S	S	S	137	SE
Jan 11	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	178	S
Jan 12	S	S	S	S	S	S	S	S	S	SSW	SSW	SSW	SSW	SW	SSW	SSW	SW	S	S	S	S	S	SSW	SSW	194	SSW
Jan 13	SSW	S	S	SSW	SSW	SSW	SSW	NNW	NNE	NNE	ENE	SSE	S	S	SSW	E	ESE	SSE	S	S	S	S	S	S	174	S
Jan 14	S	S	S	S	S	S	SSW	SW	SW	WSW	WSW	WSW	WSW	WSW	W	NNW	N	N	NNW	N	N	NNE	NNE	NNE	297	WNW
Jan 15	N	N	NNE	NNE	NE	ENE	E	E	E	ESE	ENE	ENE	ENE	N	NNW	N	NNE	N	ENE	ENE	ENE	ENE	ENE	NE	45	NE
Jan 16	NE	NNE	NNE	NNE	NNE	NNE	NNE	NE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NE	N	NNW	NNW	NNE	ENE	ENE	ENE	28	NNE
Jan 17	ENE	ENE	E	E	E	E	E	E	E	E	ESE	ESE	ESE	ESE	ESE	E	E	E	ESE	ESE	ESE	ESE	ESE	E	100	E
Jan 18	ESE	ESE	ESE	SE	ESE	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	114	ESE
Jan 19	ESE	ESE	ESE	ESE	ESE	E	ESE	ESE	E	E	ESE	SE	SE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	125	SE
Jan 20	SSE	S	S	S	S	SSW	SSW	SSW	SW	WSW	SSW	S	S	NNE	NNE	N	N	N	N	NNW	NNW	N	NNE	N	214	SSW
Jan 21	NNE	N	NNE	NNE	NE	WNW	SSW	NE	NNE	ENE	SE	SE	SSE	SSE	S	SSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	164	SSE
Jan 22	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SSW	SW	SSW	SSW	SW	WSW	WSW	W	NNW	N	N	N	N	N	N	N	288	WNW
Jan 23	N	N	N	N	N	N	N	N	NNW	N	NNE	ENE	S	S	S	S	S	S	S	S	S	S	S	S	2	N
Jan 24	S	S	S	S	SSW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	WSW	WSW	WSW	WSW	WSW	SW	WSW	WSW	WSW	239	WSW
Jan 25	SSW	SSW	WSW	WSW	WSW	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SSW	WSW	WSW	WSW	WSW	WSW	WSW	250	WSW
Jan 26	WSW	WSW	WSW	W	W	WSW	WSW	WSW	SW	WSW	WSW	WSW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	251	WSW
Jan 27	W	W	WNW	NW	N	N	NNW	N	N	N	NNW	NNW	NNW	NNW	NW	WNW	W	NNW	NW	NW	NW	NNW	NNW	N	331	NNW
Jan 28	NW	WSW	W	ENE	SW	SSW	SSW	NE	ENE	NE	NE	NE	NE	NE	N	N	N	NNW	W	SE	SE	SSW	S	S	17	NNE
Jan 29	SSE	S	NE	SSE	SSW	S	S	S	S	S	S	S	S	S	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	S	187	S
Jan 30	S	S	SSW	S	S	S	S	SW	WSW	WSW	W	W	W	W	W	WSW	WSW	WSW	WSW	SW	SW	SSW	SSW	SSW	235	SW
Jan 31	SW	WSW	NNW	N	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	N	N	N	N	N	N	N	8	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

Timeseries Chart of Hourly Average for VWD - Reno Site



VOC CANISTER SAMPLING RESULTS

PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Volatile Organic Compounds (VOCs) Results

Sample Date/Time	2019-01-18		
Canister Triggered Conc.	Blank		
Canister ID	28908		
Method	NA-025	NA-024	AC-058
Maximum Reading	0	0	19.3

Parameter	Result (ppbv)	RDL (ppbv)	Parameter	Result (ppbv)	Result (ppbv)	Parameter	RDL (ppbv)	RDL (ppbv)
1-Butene	0	2.64	2,5-Dimethylthiophene	0	0.3	1,1,1-Trichloroethane	0	0.02
Acetylene	0	2.11	2-Ethylthiophene	0	0.2	1,1,2,2-Tetrachloroethane	0	0.02
cis-2-Butene	0	1.06	2-Methylthiophene	0	0.2	1,1,2-Trichloroethane	0	0.02
Ethane	0	2.6	3-Methylthiophene	0	0.3	1,1-Dichloroethane	0	0.02
Ethylacetylene	0	1.59	Butyl mercaptan	0	0.3	1,1-Dichloroethylene	0	0.04
Ethylene	0	1.85	Carbon disulphide	0	0.2	1,2,3-Trimethylbenzene	0	0.05
Isobutane	0	2.6	Carbonyl sulphide	0	0.3	1,2,4-Trichlorobenzene	0	0.8
Isobutylene	0	2.6	Dimethyl disulphide	0	0.2	1,2,4-Trimethylbenzene	0	0.05
Methane	0	2.6	Dimethyl sulphide	0	0.2	1,2-Dibromoethane	0	0.02
n-Butane	0	5.3	Ethyl mercaptan	0	0.3	1,2-Dichlorobenzene	0	0.03
n-Propane	0	1.85	Ethyl sulphide	0	0.3	1,2-Dichloroethane	0	0.01
Propylene	0	2.6	Hydrogen sulphide	0	0.1	1,2-Dichloropropane	0	0.01
Propyne	0	2.6	Isobutyl mercaptan	0	0.3	1,3,5-Trimethylbenzene	0	0.02
trans-2-Butene	0	2.38	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	0.46	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	0.09	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	0.03	0.01
						2-Methylhexane	0.04	0.01
						2-Methylpentane	0.13	0.01
						3-Methylheptane	0	0.02
						3-Methylhexane	0.07	0.02
						3-Methylpentane	0.02	0.01
						Acetone	0.5	0.4
						Acrolein	0	0.3
						Benzene	0.14	0.01
						Benzyl chloride	0	0.4
						Bromodichloromethane	0	0.02
						Bromoform	0.04	0.02
						Bromomethane	0	0.01
						Carbon disulfide	0	0.01
						Carbon tetrachloride	0	0.01
						Chlorobenzene	0.03	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	0.05	0.02
						cis-2-Pentene	0	0.02
						Cyclohexane	0	0.02
						Cyclopentane	19.3	0.01
						Dibromochloromethane	0.02	0.01
						Ethanol	0.6	0.3
						Ethyl acetate	0	0.4
						Ethylbenzene	0.04	0.01
						Freon-11	0	0.02
						Freon-113	0	0.01
						Freon-114	0	0.02

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PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Volatile Organic Compounds (VOCs) Results

Sample Date/Time	2019-01-18		
Canister Triggered Conc.	Blank		
Canister ID	28908		
Method	NA-025	NA-024	AC-058
Maximum Reading	0	0	19.3

Parameter	Result (ppbv)	RDL (ppbv)	Parameter	Result (ppbv)	Result (ppbv)	Parameter	RDL (ppbv)	RDL (ppbv)
						Freon-12	0	0.02
						Hexachloro-1,3-butadiene	0	0.5
						Isobutane	0.19	0.02
						Isopentane	1.35	0.03
						Isoprene	0	0.01
						Isopropyl alcohol	0	0.4
						Isopropylbenzene	0.02	0.01
						m,p-Xylene	0.1	0.03
						m-Diethylbenzene	0	0.04
						m-Ethyltoluene	0	0.08
						Methyl butyl ketone	0	0.5
						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	0.04	0.01
						n-Hexane	0.02	0.01
						n-Nonane	0.04	0.01
						n-Octane	0.05	0.02
						n-Pentane	0.6	0.1
						n-Propylbenzene	0	0.05
						n-Undecane	0	0.5
						Naphthalene	0	0.5
						o-Ethyltoluene	0	0.1
						o-Xylene	0.02	0.01
						p-Diethylbenzene	0	0.04
						p-Ethyltoluene	0	0.07
						Styrene	0.08	0.04
						Tetrachloroethylene	0.07	0.04
						Tetrahydrofuran	0	0.4
						Toluene	0.27	0.01
						trans-1,2-Dichloroethylene	0	0.01
						trans-1,3-Dichloropropylene	0	0.04
						trans-2-Butene	0.08	0.01
						trans-2-Pentene	0	0.02
						Trichloroethylene	0	0.04
						Vinyl acetate	0	0.4
						Vinyl chloride	0	0.02

Method	Description
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

Note:

Zero value would be used in this report if real concentration is recorded below Reported Detection Limits (RDL)

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PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Volatile Organic Compounds (VOCs) Results

Sample Date/Time	**2019-01-18**		
Canister Triggered Conc.	**Controlled Sample**		
Canister ID	**28882**		
Method	**NA-025**	**NA-024**	**AC-058**
Maximum Reading	**2.0**	**2.3**	**5.84**

Parameter	**Result (ppbv)**	**RDL (ppbv)**
1-Butene	0	0.14
Acetylene	0	0.12
cis-2-Butene	0	0.06
Ethane	0	0.1
Ethylacetylene	0	0.09
Ethylene	0	0.10
Isobutane	0	0.1
Isobutylene	0	0.1
Methane	2.0	0.1
n-Butane	0	0.3
n-Propane	0	0.10
Propylene	0	0.1
Propyne	0	0.1
trans-2-Butene	0	0.13

Parameter	**Result (ppbv)**	**Result (ppbv)**
2,5-Dimethylthiophene	0	0.3
2-Ethylthiophene	0	0.2
2-Methylthiophene	0	0.2
3-Methylthiophene	0	0.3
Butyl mercaptan	0	0.3
Carbon disulphide	0	0.2
Carbonyl sulphide	0	0.3
Dimethyl disulphide	0	0.2
Dimethyl sulphide	0	0.2
Ethyl mercaptan	0	0.3
Ethyl sulphide	0	0.3
Hydrogen sulphide	2.3	0.1
Isobutyl mercaptan	0	0.3
Isopropyl mercaptan	0	0.3
Methyl mercaptan	0	0.2
Pentyl mercaptan	0	0.4
Propyl mercaptan	0	0.4
tert-Butyl mercaptan	0	0.3
Thiophene	0	0.2

Parameter	**RDL (ppbv)**	**RDL (ppbv)**
1,1,1-Trichloroethane	0	0.03
1,1,2,2-Tetrachloroethane	0	0.03
1,1,2-Trichloroethane	0	0.03
1,1-Dichloroethane	0	0.03
1,1-Dichloroethylene	0	0.06
1,2,3-Trimethylbenzene	0	0.07
1,2,4-Trichlorobenzene	0	1.2
1,2,4-Trimethylbenzene	0	0.07
1,2-Dibromoethane	0	0.03
1,2-Dichlorobenzene	0	0.04
1,2-Dichloroethane	0	0.01
1,2-Dichloropropane	0	0.01
1,3,5-Trimethylbenzene	0	0.03
1,3-Butadiene	0	0.03
1,3-Dichlorobenzene	0	0.4
1,4-Dichlorobenzene	0	0.6
1,4-Dioxane	0	0.6
1-Butene/Isobutylene	0.27	0.03
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	0.11	0.01
3-Methylheptane	0	0.03
3-Methylhexane	0	0.03
3-Methylpentane	0.02	0.01
Acetone	1.0	0.6
Acrolein	0	0.4
Benzene	0.18	0.01
Benzyl chloride	0	0.6
Bromodichloromethane	0	0.03
Bromoform	0	0.0
Bromomethane	0	0.01
Carbon disulfide	0	0.01
Carbon tetrachloride	0.04	0.01
Chlorobenzene	0	0.03
Chloroethane	0	0.03
Chloroform	0	0.03
Chloromethane	0.59	0.03
cis-1,2-Dichloroethene	0	0.01
cis-1,3-Dichloropropene	0	0.06
cis-2-Butene	0	0.03
cis-2-Pentene	0	0.03
Cyclohexane	0	0.03
Cyclopentane	5.84	0.01
Dibromochloromethane	0	0.01
Ethanol	1.7	0.4
Ethyl acetate	0	0.58
Ethylbenzene	0	0.01
Freon-11	0.23	0.03
Freon-113	0	0.01
Freon-114	0	0.03

PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Volatile Organic Compounds (VOCs) Results

Sample Date/Time	2019-01-18		
Canister Triggered Conc.	Controlled Sample		
Canister ID	28882		
Method	NA-025	NA-024	AC-058
Maximum Reading	2.0	2.3	5.84

Parameter	Result (ppbv)	RDL (ppbv)	Parameter	Result (ppbv)	Result (ppbv)	Parameter	RDL (ppbv)	RDL (ppbv)
						Freon-12	0.53	0.03
						Hexachloro-1,3-butadiene	0	0.73
						Isobutane	0.51	0.03
						Isopentane	0.71	0.0
						Isoprene	0	0.01
						Isopropyl alcohol	0	0.6
						Isopropylbenzene	0	0.01
						m,p-Xylene	0	0.04
						m-Diethylbenzene	0	0.06
						m-Ethyltoluene	0	0.12
						Methyl butyl ketone	0	0.72
						Methyl ethyl ketone	0	0.4
						Methyl isobutyl ketone	0	0.6
						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	1.01	0.0
						n-Decane	0	0.09
						n-Dodecane	0	0.6
						n-Heptane	0	0.01
						n-Hexane	0	0.01
						n-Nonane	0	0.01
						n-Octane	0	0.03
						n-Pentane	0.5	0.15
						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	0.06
						p-Ethyltoluene	0	0.10
						Styrene	0	0.06
						Tetrachloroethylene	0	0.06
						Tetrahydrofuran	0	0.6
						Toluene	0.03	0.01
						trans-1,2-Dichloroethylene	0	0.01
						trans-1,3-Dichloropropylene	0	0.06
						trans-2-Butene	0	0.01
						trans-2-Pentene	0	0.03
						Trichloroethylene	0	0.06
						Vinyl acetate	0	0.6
						Vinyl chloride	0	0.03

Method	Description
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

Note:

Zero value would be used in this report if real concentration is recorded below Reported Detection Limits (RDL)

AEP AMBIENT STATION AUDIT RECORDS

Monitoring Branch
Environmental Monitoring and Science Division
University Research Park
3535 Research Road, NW
Calgary, AB, T2L 2K8
http://aep.alberta.ca/

January 25th, 2019

Karla Reesor
Executive Director
Peace River Air Monitoring Project
Suite 91, 305-4625 Varsity Drive NW
Calgary, Alberta
T3A 0Z9

Ms. Reesor:

File Numbers: 2018-400A/408A

Subject: Ambient Air Monitoring Station Audit Results for the Peace River Air Monitoring Project (PRAMP)

Between the dates of January 15th, and 16th 2019 the Alberta Environment and Parks Ambient Air Monitoring Audit group conducted audits of the PRAMP ambient air monitoring stations. All continuous gas analyzers and meteorological sensors met audit criteria.

The following audit findings require action from PRAMP:

1. Based on observations and measurements made at the Reno station it appears that the wind speed and direction sensor siting does not meet AMD criteria found in Chapter 3 *SS 2-G* and Table 3/Figure 2. The wind sensor siting non-conformance was documented in the updated station site documents provided immediately following the audit. PRAMP is required to either site the wind sensor such that it meets AMD Chapter 3 siting requirements, or obtain written authorization from "The Director" to deviate from AMD siting requirements.

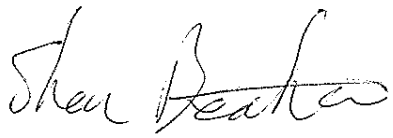
2. Based on observations and measurements made at the 986B station it appears that the wind speed and direction sensor siting does not meet AMD criteria found in Chapter 3 *SS 2-G* and Table 3/Figure 2. The wind sensor siting non-conformance was documented in the updated station site documents provided immediately following the audit. PRAMP is required to either site the wind sensor such that it meets AMD Chapter 3 siting requirements, or obtain written authorization from "The Director" to deviate from AMD siting requirements.

Upon receiving notification of this performance audit PRAMP was asked to provide the date of the most recent quality system audit as required by AMD Chapter 5 *QS 4-A* and *QS 4-B(b*). PRAMP indicated that the network QAP is currently in draft form. Additionally, PRAMP relies on Maxxam Analytics QAP which last underwent an internal audit March 30, 2018. The following action is required by PRAMP:

3. PRAMP must provide a timeline to finalize and implement a QAP that meets all requirements found in Chapter 5 of the Alberta AMD.

Please address the issues 1 through 3 noted above in writing as per AMD Chapter 8 *AUD 5-C* by February 25th, 2019 indicating what corrective actions have been taken and/or a timeline for completion. If you have any questions or comments, please contact the undersigned at 780-554-2238.

Yours truly,



Shea Beaton
Monitoring Systems Auditor
Phone: 403 351 0579
Cell: 780 554-2238
shea.beaton@gov.ab.ca

Attachments:

- Analyzer Audit Sheets
- PRAMP Audit Summary

CC: Al Clark – AEP/EMSD Ambient Air Monitoring Systems Auditor
Marty Collins – AEP/EMSD Air Monitoring Manager
Bob Myrick – AEP/EMSD Director of Airshed Sciences
Madhan Selvaraj – AEP Air Quality Specialist
Wally Qiu – AER Air Quality Specialist
Lily Lin – PRAMP
Mike Bisaga - PRAMP
air.reporting@gov.ab.ca

Audit Summary

Facility / Zone	PRAMP
Total # of parameters that passed	9
Total # of parameters audited in the network	9
Date(s) of the audit	January 15 & 16, 2019
Issue Date of Audit Summary	25-Jan-19

Station Name	Reno		
Auditor	Shea Beaton		
Audit Date	15-Jan-19		
Critical	**Pass**	**Fail**	
SO_2	X		
TRS	X		
NMHC	X		
Wind Speed / Wind Direction	X		
Wind head Orientation	X		
Manifold Fan	X		
Zero/Span Systems Operational	X		
Inspection Items	**OK**	**Need for Improvement**	
Sample pump venting/scrubbing	X		
Heating / Air Conditioning	X		
Manifold	X		
Sample Lines	X		
Safety	X		
Site Conditions		**X**	Does not meet AMD criteria
Non-critical	**OK**	**Opportunity for Improvement**	
RH	X		
Station Temperature	X		
Ambient Temperature	X		
Barometric Pressure	X		
Station Condition	X		
Station Documentation	X		

Not monitored at this location

Audit Summary

Facility / Zone	PRAMP
Total # of parameters that passed	9
Total # of parameters audited in the network	9
Date(s) of the audit	January 15 & 16, 2019
Issue Date of Audit Summary	25-Jan-19

Station Name	842B		
Auditor	Shea Beaton		
Audit Date	16-Jan-19		
Critical	**Pass**	**Fail**	
SO_2	X		
TRS	X		
NMHC	X		
Wind Speed / Wind Direction	X		
Wind head Orientation	X		
Manifold Fan	X		
Zero/Span Systems Operational	X		
Inspection Items	**OK**	**Need for Improvement**	
Sample pump venting/scrubbing	X		
Heating / Air Conditioning	X		
Manifold	X		
Sample Lines	X		
Safety	X		
Site Conditions	X		
Non-critical	**OK**	**Opportunity for Improvement**	
RH	X		
Station Temperature	X		
Ambient Temperature	X		
Barometric Pressure	X		
Station Condition	X		
Station Documentation	X		

Not monitored at this location

Audit Summary

Facility / Zone	PRAMP
Total # of parameters that passed	9
Total # of parameters audited in the network	9
Date(s) of the audit	January 15 & 16, 2019
Issue Date of Audit Summary	25-Jan-19

Station Name	986B		
Auditor	Shea Beaton		
Audit Date	16-Jan-19		
Critical	**Pass**	**Fail**	
SO_2	X		
TRS	X		
NMHC	X		
Wind Speed / Wind Direction	X		
Wind head Orientation	X		
Manifold Fan	X		
Zero/Span Systems Operational	X		
Inspection Items	**OK**	**Need for Improvement**	
Sample pump venting/scrubbing	X		
Heating / Air Conditioning	X		
Manifold	X		
Sample Lines	X		
Safety	X		
Site Conditions		**X**	Does not meet AMD criteria
Non-critical	**OK**	**Opportunity for Improvement**	
RH	X		
Station Temperature	X		
Ambient Temperature	X		
Barometric Pressure	X		
Station Condition	X		
Station Documentation	X		

Not monitored at this location

STATION AUDIT

File No. 2018 - 406/408A

Date: January 16, 2019 Performed by: SB

Station

Name: 986B Location: Hwy 986

Facility/Zone: PRAMP Operator: Maxxam

Temp: 26.6 Barometric Press: 713mmHg

Location

Latitude N 56.376
Longitude W -116.9406
Elevation 600m
Status of Site Documentation Supplied electronically during audit
Status of Network Documentation Complete
Status of QAP **In Draft**

Manifold Material Glass
Manifold Condition Good

Meteorological

	Observed	Audit Value
Wind Speed Direction	5.6km/h @ 355°	NNW 5-10
Station Temperature	24.3 C	24.1 C
Relative Humidity	74.1%	70%
Ambient Temperature	-18.2 C	-18.3 C
Solar Radiation	NA	NA
Pressure	952.1mBar (714mmHg)	713mmHg

Remarks:

- Trees to the East taller than tower - ~70m away from station and 13 to 16m tall

Alberta Government

SO_2 ANALYZER AUDIT

File No. 2018 - 407A

Date: January 16, 2019 Performed by: SB

Station

Name: 986B Location: Hwy 986

Facility/Zone: PRAMP Operator: Maxxam

Temp. 26.6 Barometric Press. 713mmHg

Monitor

Make/Model: Thermo 43C Serial No: 43C-62339-335

Inlet flow (sccm): 707 Full Scale Range ppm: 0.5

Last cal. Date: December 12, 2019 Old Correction Factor: 1.000

Zero/Bkg 85.4

Span Coef 0.921

Calibrator

Calibration Method: GAS DILUTION Make/Model: Sabio 2010D

Cylinder # : EX0012544 AMU # : 2003

CGA Date: 11-Sep-18 SO_2 Concentration PPM: 51.1

Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Concentration (ppm)	% Difference	
Air	Gas	Total			vs Audit Gas	Limits
4985	0.0	4985	0.0000	0.0000		
4937	40.0	4977	0.4107	0.3966	-3%	± 10%
5014	20.0	5034	0.2030	0.1991	-2%	± 10%
5014	10.1	5024	0.1027	0.0984	-4%	± 10%
				Absolute Average Percent Difference	3%	

Linear Regression Analysis:

y=mx+b (where x=calculated concentration, y=indicated concentration)

		LIMITS
Correlation Coeff.=	1.0000	**≥ 0.995**
m (Slope)=	0.9672	**0.90-1.10**
b (Intercept as % of full scale)=	0.0598	**± 3% F.S.**

Remarks:

Alberta Government

TRS ANALYZER AUDIT

File No. 2018 - 406A

Date: January 16, 2019 Performed by: SB

Station

Name: 986B Location: Hwy 986

Facility/Zone: PRAMP Operator: Maxxam

Temp. 26.6 Barometric Press. 713mmHg

Monitor

Make/Model: Thermo 43iTLE Serial No: 1152940011

Inlet flow (sccm): 487 Full Scale Range ppm: 0.1

Last cal. Date: December 12, 2018 Old Correction Factor: 1.000

Zero/Bkg 2.150

Span Coef 0.989

Calibrator

Calibration Method: GAS DILUTION Make/Model: Sabio 2010D

Cylinder # : EX0009231 AMU # : 2003

CGA Date: 11-Sep-18 H_2S Concentration PPM: 9.99

Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Concentration (ppm)	% Difference	
Air	Gas	Total			vs Audit Gas	Limits
4985	0.0	4985	0.0000	0.0000		
4938	38.8	4977	0.0779	0.0802	3%	± 10%
5015	19.3	5034	0.0383	0.0403	5%	± 10%
5014	9.6	5024	0.0191	0.0193	1%	± 10%
				Absolute Average Percent Difference	3%	

Linear Regression Analysis:

y=mx+b (where x=calculated concentration, y=indicated concentration)

		LIMITS
Correlation Coeff.=	0.9999	**≥ 0.995**
m (Slope)=	1.0325	**0.90-1.10**
b (Intercept as % of full scale)=	0.0324	**± 3% F.S.**

Remarks:

Non Methane Analyzer Audit

File No. 2018 - 408A

Date: January 16, 2019 Performed by: SB

Station:

Name: 986B Location: Hwy 986 Operator: Maxxam

Facility/Zone: PRAMP Temp. 26.6 BP: 713mmHg

Monitor:

Make/Model: Thermo 55i Serial No. 1022143392

Inlet flow (sccm): NA CH_4 Range ppm: 20.0

Last cal. Date: December 12, 2019 Non CH_4 Range ppm: 20.0

THC Range ppm: 40.0

Old Correction Factor: CH_4: 0.999

Non CH_4: 1.000

THC: 0.999

Calibration Method: Gas Dilution

Calibrator: Make/Model Sabio 2010 AMU# 1778

HC cylinder # FF50232 CH_4 conc. (ppm) 1019.0 CH_4 Equiv (C_3H_8 only) (ppm) 970.8

CGA Date 12-Oct-17 C_3H_8 conc. (ppm) 353.0 Total CH_4 Equiv. (ppm) 1989.8

Calibrator Flows			Calc. Conc.			Indicated Concentration			% Difference vs Audit Gas		
			CH_4	Non CH_4	THC	CH_4	Non CH_4	THC	Limit ± 10%		
Air	Gas	Total	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	CH_4	Non CH_4	THC
4980	0.0	4980	0.00	0.00	0.00	0.00	0.00	0.00			
4994	68.8	5063	13.85	13.19	27.04	14.45	13.53	27.98	4%	3%	3%
5036	34.2	5070	6.87	6.55	13.42	7.29	6.82	14.11	6%	4%	5%
5033	14.7	5048	2.97	2.83	5.79	3.12	2.91	6.02	5%	3%	4%
								Absolute Average Percent Difference	5%	3%	4%

Linear Regression Analysis: *y=mx+b (where x=calculated concentration, y=indicated concentration)*

	CH_4	**Non CH_4**	**THC**	**LIMITS**
Correlation Coeff.=	1.0000	1.0000	1.0000	**≥ 0.995**
m (Slope)=	1.0439	1.0263	1.0355	**0.90-1.10**
b (Intercept as % of FS)=	0.1638	0.1241	0.1336	**± 3% F.S.**

Remarks:

Alberta Government

Station Performance Audit Summary

Company: PRAMP Facility Name: NA

Approval No.: NA Site Name: 986B

Region: Lower Peace District: Peace River

Parameters audited:

H_2S		SO_2	X	NO_X		NH_3		O_3	
CO		CH_4	X	NonCH4	X	THC	X	TRS	X
$PM_{2.5}$		PM_{10}		TSP		BTEX		Wind Speed	X
Wind Dir	X	Amb. Temp	X	Stn.Temp	X	RH	X	Solar Radiation	
Rainfall		Precip		VWS		Other	BP		
All parameters monitored as per approval: Yes_____ No _____ N/A_X_____									

	YES	NO	N/A
GENERAL			
Has the location remained unchanged from previous audit?	X		
Is site secure?	X		
Are station operating conditions adequate?	X		
DATA ACQUISITION			
Are strip charts in use?		X	
Is a telemetry system for data acquisition in use?	X		
SYSTEM COMPONENTS			
Is a glass sampling manifold installed?	X		
Is sampling manifold clean?	X		
Is a manifold trap in place?	X		
Are spare manifold ports capped	X		
Is manifold oriented so it is not exactly horizontal?	X		
Are manifold ports situated to prevent water entering monitors?	X		
Is manifold pump properly installed and operative?	X		
Do sample lines extend at least 3/4"into manifold?	X		
Are monitor sampling lines connected to manifold?	X		
Are sampling lines clean?	X		
Are monitors properly mounted and secure?	X		
Are monitors properly exhausted from room or scrubbed?	X		
Are zero and span systems operational?	X		
WIND EQUIPMENT			
Is wind sensor properly oriented?	X		
Does wind equipment appear to be functioning properly?	X		
Date of last calibration. Date: April 4, 2018			

COMMENTS: _____

AUDITOR: Shea Beaton DATE: January 16, 2019

Alberta Government

Station Site Documents Audit Checklist

Station

Name: 986B Location: Hwy 986

Facility/Zone: PRAMP Operator: Maxxam

Required Elements of AMD Chapter 3 *SS 4-B*

Do the Site Documents Contain the Following:

	Meets AMD		NA	Current	
	YES	NO		YES	NO
(a) Name of Owner/ Approval Holder	X			X	
(b) Name of Operating Agency	X			X	
(c) Contact Information	X			X	
(d) Date the Site or Station was Established	X			X	
(e) Date the information was last updated	X			X	
(f) Location including Latitude and Longitude	X			X	
(g) Four Colour Photos Looking N, E, S, W From Manifold Inlet	X			X	
(h) Additional Photos/Sketches of AMD Standard Site Non-Conformance	X			X	
(i) List of Instruments Located at the Site	X			X	
(j) Site Description Including the following:					
(i) Land Use By Sector	X			X	
(ii) Site Elevation	X			X	
(iii) Greatest Angle of Elevation & Direction to Nearby Buildings	X			X	
(iv) Average Building height in the area	X			X	
(v) Distance to Nearest Trees	X			X	

Required Elements of AMD Chapter 3 *SS 4-D*

Do the Station Site Documents Contain the Following:

	Meets AMD		NA	Current	
	YES	NO		YES	NO
(a) Recent Area Map Covering Approximately 1Km^2	X			X	
(b) Plan View Sketch	X			X	
(c) Cross-Sectional Sketch of Area Within 500 m Radius			X		
(d) Colour Photos Showing Sample Manifold/Inlet	X			X	
(e) Colour Photo of the Station	X			X	
(f) Additional Photos/Sketches of AMD Standard Station Non-Conformance	X			X	

COMMENTS: Site does not appear to meet AMD criteria - trees to East taller than 10m tower
- Site non conformance documented

AUDITOR: Shea Beaton DATE: January 16, 2019

Alberta Government

STATION AUDIT

File No. 2018 - 403/405A

Date: January 16, 2019 Performed by: SB

Station

Name: 842B Location: TWP 842

Facility/Zone: PRAMP Operator: Maxxam

Temp: 23.4 Barometric Press: 713mmHg

Location

Latitude N 56°, 16', 26.9

Longitude W 116°, 58', 52.8"

Elevation 615m

Status of Site Documentation Update supplied following station audit

Status of Network Documentation Complete

Status of QAP **In Draft**

Manifold Material Glass

Manifold Condition Good

Meteorological

	Observed	Audit Value
Wind Speed Direction	7.8km/h @ 356°	5 - 10km/h North
Station Temperature	21.0	21.5
Relative Humidity	80.6	72.0
Ambient Temperature	-18.9 C	-18.3 C
Solar Radiation	NA	NA
Pressure	951.8mBar(713.9mmHg)	713mmHg

Remarks:

SO_2 ANALYZER AUDIT

File No. 2018 - 404A

Date: January 16, 2019 Performed by: SB

Station

Name: 842B Location: TWP 842

Facility/Zone: PRAMP Operator: Maxxam

Temp. 23.4 Barometric Press. 713mmHg

Monitor

Make/Model: Thermo 43i Serial No: 83503373

Inlet flow (sccm): 409 Full Scale Range ppm: 0.5

Last cal. Date: January 8, 2019 Old Correction Factor: 1.000

Zero/Bkg 14.6

Span Coef 1.02

Calibrator

Calibration Method: GAS DILUTION Make/Model: Sabio 2010D

Cylinder # : EX0012544 AMU # : 2003

CGA Date: 11-Sep-18 SO_2 Concentration PPM: 51.1

Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Concentration (ppm)	% Difference	
Air	Gas	Total			vs Audit Gas	Limits
5017	0.0	5017	0.0000	0.0001		
4972	39.8	5012	0.4058	0.4034	-1%	± 10%
5008	19.8	5028	0.2012	0.2017	0%	± 10%
5014	10.0	5024	0.1017	0.1014	0%	± 10%
				Absolute Average Percent Difference	0%	

Linear Regression Analysis:

y=mx+b (where x=calculated concentration, y=indicated concentration)

		LIMITS
Correlation Coeff.=	1.0000	**≥ 0.995**
m (Slope)=	0.9941	**0.90-1.10**
b (Intercept as % of full scale)=	0.1017	**± 3% F.S.**

Remarks:

Alberta Government

TRS ANALYZER AUDIT

File No. 2018 - 403A

Date: January 16, 2019 Performed by: SB

Station

Name: 842B Location: TWP 842

Facility/Zone: PRAMP Operator: Maxxam

Temp. 23.4 Barometric Press. 713mmHg

Monitor

Make/Model: Thermo 43iTLE Serial No: 1162460023

Inlet flow (sccm): 409 Full Scale Range ppm: 0.1

Last cal. Date: January 8, 2019 Old Correction Factor: 1.000

Zero/Bkg 3.090

Span Coef 0.898

Calibrator

Calibration Method: GAS DILUTION Make/Model: Sabio 2010D

Cylinder # : EX0009231 AMU # : 2003

CGA Date: 11-Sep-18 H_2S Concentration PPM: 9.99

Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Concentration (ppm)	% Difference	
Air	Gas	Total			vs Audit Gas	Limits
5017	0.0	5017	0.0000	-0.0001		
4973	38.7	5012	0.0771	0.0782	2%	± 10%
5009	19.2	5028	0.0381	0.0391	3%	± 10%
5015	9.5	5024	0.0189	0.0192	2%	± 10%
				Absolute Average Percent Difference	2%	

Linear Regression Analysis:

y=mx+b (where x=calculated concentration, y=indicated concentration)

		LIMITS
Correlation Coeff.=	1.0000	**≥ 0.995**
m (Slope)=	1.0152	**0.90-1.10**
b (Intercept as % of full scale)=	0.0468	**± 3% F.S.**

Remarks:

Non Methane Analyzer Audit

File No. 2018 - 405A

Date: January 16, 2019 Performed by: SB

Station:

Name: 842 Location: TWP 842 Operator: Maxxam

Facility/Zone: PRAMP Temp. 23.4 BP: 713mmHg

Monitor:

Make/Model: Thermo 55i Serial No. 1433563261

Inlet flow (sccm): NA CH_4 Range ppm: 20.0

Last cal. Date: January 9, 2018 Non CH_4 Range ppm: 20.0

THC Range ppm: 40.0

Old Correction Factor: CH_4: 0.999

Non CH_4: 0.999

THC: 0.999

Calibration Method: Gas Dilution

Calibrator: Make/Model Sabio 2010 AMU# 1778

HC cylinder # FF50232 CH_4 conc. (ppm) 1019.0 CH_4 Equiv (C_3H_8 only) (ppm) 970.8

CGA Date 12-Oct-17 C_3H_8 conc. (ppm) 353.0 Total CH_4 Equiv. (ppm) 1989.8

Calibrator Flows			Calc. Conc.			Indicated Concentration			% Difference vs Audit Gas		
			CH_4	Non CH_4	THC	CH_4	Non CH_4	THC	Limit ± 10%		
Air	Gas	Total	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	CH_4	Non CH_4	THC
5015	0.0	5015	0.00	0.00	0.00	0.00	0.00	0.00			
5015	68.7	5084	13.77	13.12	26.89	13.78	13.04	26.82	0%	-1%	0%
5034	34.4	5068	6.92	6.59	13.51	6.92	6.61	13.53	0%	0%	0%
5030	14.6	5045	2.95	2.81	5.76	2.99	2.91	5.90	1%	4%	2%
								Absolute Average Percent Difference	1%	1%	1%

Linear Regression Analysis: *y=mx+b (where x=calculated concentration, y=indicated concentration)*

	CH_4	**Non CH_4**	**THC**	**LIMITS**
Correlation Coeff.=	1.0000	1.0000	1.0000	**≥ 0.995**
m (Slope)=	0.9996	0.9912	0.9955	**0.90-1.10**
b (Intercept as % of FS)=	0.0787	0.3012	0.1899	**± 3% F.S.**

Remarks:

Alberta Government

Station Performance Audit Summary

Company: PRAMP Facility Name: NA

Approval No.: NA Site Name: 842B

Region: Lower Peace District: Peace River

Parameters audited:

H_2S		SO_2	X	NO_X		NH_3		O_3	
CO		CH_4	X	NonCH4	X	THC	X	TRS	X
$PM_{2.5}$		PM_{10}		TSP		BTEX		Wind Speed	X
Wind Dir	X	Amb. Temp	X	Stn.Temp	X	RH	X	Solar Radiation	
Rainfall		Precip		VWS		Other	BP		
All parameters monitored as per approval: Yes_____ No _____ N/A__X____									

	YES	NO	N/A
GENERAL			
Has the location remained unchanged from previous audit?	X		
Is site secure?	X		
Are station operating conditions adequate?	X		
DATA ACQUISITION			
Are strip charts in use?		X	
Is a telemetry system for data acquisition in use?	X		
SYSTEM COMPONENTS			
Is a glass sampling manifold installed?	X		
Is sampling manifold clean?	X		
Is a manifold trap in place?	X		
Are spare manifold ports capped	X		
Is manifold oriented so it is not exactly horizontal?	X		
Are manifold ports situated to prevent water entering monitors?	X		
Is manifold pump properly installed and operative?	X		
Do sample lines extend at least 3/4"into manifold?	X		
Are monitor sampling lines connected to manifold?	X		
Are sampling lines clean?	X		
Are monitors properly mounted and secure?	X		
Are monitors properly exhausted from room or scrubbed?	X		
Are zero and span systems operational?	X		
WIND EQUIPMENT			
Is wind sensor properly oriented?	X		
Does wind equipment appear to be functioning properly?	X		
Date of last calibration. Date: August 22, 2018			

COMMENTS: _____

AUDITOR: Shea Beaton DATE: January 16, 2019

Alberta Government

Station Site Documents Audit Checklist

Station

Name: 842B Location: TWP 842

Facility/Zone: PRAMP Operator: Maxxam

Required Elements of AMD Chapter 3 *SS 4-B*

Do the Site Documents Contain the Following:

	Meets AMD		NA	Current	
	YES	NO		YES	NO
(a) Name of Owner/ Approval Holder	X			X	
(b) Name of Operating Agency	X			X	
(c) Contact Information	X			X	
(d) Date the Site or Station was Established	X			X	
(e) Date the information was last updated	X			X	
(f) Location including Latitude and Longitude	X			X	
(g) Four Colour Photos Looking N, E, S, W From Manifold Inlet	X			X	
(h) Additional Photos/Sketches of AMD Standard Site Non-Conformance			X		
(i) List of Instruments Located at the Site	X			X	
(j) Site Description Including the following:					
(i) Land Use By Sector	X			X	
(ii) Site Elevation	X			X	
(iii) Greatest Angle of Elevation & Direction to Nearby Buildings	X			X	
(iv) Average Building height in the area	X			X	
(v) Distance to Nearest Trees	X			X	

Required Elements of AMD Chapter 3 *SS 4-D*

Do the Station Site Documents Contain the Following:

	Meets AMD		NA	Current	
	YES	NO		YES	NO
(a) Recent Area Map Covering Approximately 1Km^2	X			X	
(b) Plan View Sketch	X			X	
(c) Cross-Sectional Sketch of Area Within 500 m Radius			X		
(d) Colour Photos Showing Sample Manifold/Inlet	X			X	
(e) Colour Photo of the Station	X			X	
(f) Additional Photos/Sketches of AMD Standard Station Non-Conformance	X			X	

COMMENTS: - Electronic copy of Site Docs provided during audit.

AUDITOR: Shea Beaton DATE: January 18, 2019

Alberta Government

STATION AUDIT

File No. 2018 - 400A/402A

Date: January 15, 2019 Performed by: SB

Station

Name: Reno Location: Reno

Facility/Zone: PRAMP Operator: Maxxam

Temp: 24.5 Barometric Press: 707mmHg

Location

Latitude N 55°, 52', 10.7"
Longitude W 117°, 03', 27.1"
Elevation 641
Status of Site Documentation Supplied electronically during audit
Status of Network Documentation Complete
Status of QAP **In Draft**

Manifold Material Glass
Manifold Condition Good

Meteorological

	Observed	Audit Value
Wind Speed Direction	7.7km/h @ 345°	NNW 5-10km/h
Station Temperature	20.3 C	20.5 C
Relative Humidity	77.2%	72.3%
Ambient Temperature	-12.2C	-11.8 C
Solar Radiation	NA	NA
Pressure	942.9mBar(707mmHg)	707 mmHg

Remarks:

SO_2 ANALYZER AUDIT

File No. 2018-401A

Date: January 15, 2019 Performed by: SB

Station

Name: Reno Location: Reno

Facility/Zone: PRAMP Operator: Maxxam

Temp. 24.5 Barometric Press. 707mmHg

Monitor

Make/Model: API 100A Serial No: 841

Inlet flow (sccm): 661 Full Scale Range ppm: 0.5

Last cal. Date: January 10, 2019 Old Correction Factor: 1.000

Zero/Bkg 50.5

Span Coef 1.084

Calibrator

Calibration Method: GAS DILUTION Make/Model: Sabio 2010D

Cylinder # : EX0012544 AMU # : 2003

CGA Date: 11-Sep-18 SO_2 Concentration PPM: 51.1

Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Concentration (ppm)	% Difference	
Air	Gas	Total			vs Audit Gas	Limits
5041	0.0	5041	0.0000	0.0003		
5006	40.3	5046	0.4081	0.4006	-2%	± 10%
5027	19.9	5047	0.2015	0.2000	-1%	± 10%
5036	10.1	5046	0.1023	0.0997	-3%	± 10%
				Absolute Average Percent Difference	2%	

Linear Regression Analysis:

y=mx+b (where x=calculated concentration, y=indicated concentration)

		LIMITS
Correlation Coeff.=	1.0000	**≥ 0.995**
m (Slope)=	0.9822	**0.90-1.10**
b (Intercept as % of full scale)=	0.0710	**± 3% F.S.**

Remarks:

TRS ANALYZER AUDIT

File No. 2018-400A

Date: January 15, 2019 Performed by: SB

Station

Name: Reno Location: Reno

Facility/Zone: PRAMP Operator: Maxxam

Temp. 24.5 Barometric Press. 707mmHg

Monitor

Make/Model: Thermo 43iTLE Serial No: 1162460022

Inlet flow (sccm): 411 Full Scale Range ppm: 0.1

Last cal. Date: Jan 10, 2-19 Old Correction Factor: 1.000

Zero/Bkg 2.380

Span Coef 0.949

Calibrator

Calibration Method: GAS DILUTION Make/Model: Sabio 2010D

Cylinder # : EX0009231 AMU # : 2003

CGA Date: 11-Sep-18 H_2S Concentration PPM: 9.99

Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Concentration (ppm)	% Difference	
Air	Gas	Total			vs Audit Gas	Limits
5041	0.0	5041	0.0000	-0.0001		
5007	39.2	5046	0.0776	0.0791	2%	± 10%
5028	19.3	5047	0.0382	0.0394	3%	± 10%
5036	9.6	5046	0.0190	0.0195	3%	± 10%
				Absolute Average Percent Difference	3%	

Linear Regression Analysis:

y=mx+b (where x=calculated concentration, y=indicated concentration)

		LIMITS
Correlation Coeff.=	1.0000	**≥ 0.995**
m (Slope)=	1.0203	**0.90-1.10**
b (Intercept as % of full scale)=	0.0865	**± 3% F.S.**

Remarks:

Non Methane Analyzer Audit

File No. 2018-402A

Date: January 15, 2019 Performed by: SB

Station:

Name: Reno Location: Reno Operator: Maxxam

Facility/Zone: PRAMP Temp. 24.5 BP: 707mmHg

Monitor:

Make/Model: Thermo 55i Serial No. 1314057759

Inlet flow (sccm): NA CH_4 Range ppm: 20.0

Last cal. Date: January 10, 2019 Non CH_4 Range ppm: 20.0

THC Range ppm: 40.0

Old Correction Factor: CH_4: 0.998

Non CH_4: 1.001

THC: 0.999

Calibration Method: Gas Dilution

Calibrator: Make/Model Sabio 2010 AMU# 1778

HC cylinder # FF50232 CH_4 conc. (ppm) 1019.0 CH_4 Equiv (C_3H_8 only) (ppm) 970.8

CGA Date 12-Oct-17 C_3H_8 conc. (ppm) 353.0 Total CH_4 Equiv. (ppm) 1989.8

Calibrator Flows			Calc. Conc.			Indicated Concentration			% Difference vs Audit Gas		
			CH_4	Non CH_4	THC	CH_4	Non CH_4	THC	Limit ± 10%		
Air	Gas	Total	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	CH_4	Non CH_4	THC
5041	0.0	5041	0.00	0.00	0.00	0.00	0.00	0.00			
5047	69.0	5116	13.74	13.09	26.84	13.67	12.98	26.66	-1%	-1%	-1%
5060	34.9	5095	6.98	6.65	13.63	6.92	6.53	13.45	-1%	-2%	-1%
5060	14.9	5075	2.99	2.85	5.84	2.95	2.84	5.78	-1%	0%	-1%
								Absolute Average Percent Difference	1%	1%	1%

Linear Regression Analysis: *y=mx+b (where x=calculated concentration, y=indicated concentration)*

	CH_4	**Non CH_4**	**THC**	**LIMITS**
Correlation Coeff.=	1.0000	1.0000	1.0000	**≥ 0.995**
m (Slope)=	0.9952	0.9903	0.9933	**0.90-1.10**
b (Intercept as % of FS)=	-0.0751	-0.0297	-0.0674	**± 3% F.S.**

Remarks:

Alberta Government

Station Performance Audit Summary

Company: PRAMP Facility Name: NA

Approval No.: NA Site Name: Reno

Region: Upper Peace District: Peace River

Parameters audited:

H_2S		SO_2	X	NO_X		NH_3		O_3	
CO		CH_4	X	NonCH4	X	THC	X	TRS	X
$PM_{2.5}$		PM_{10}		TSP		BTEX		Wind Speed	X
Wind Dir	X	Amb. Temp	X	Stn.Temp	X	RH	X	Solar Radiation	
Rainfall		Precip		VWS		Other	BP		
All parameters monitored as per approval: Yes_____ No _____ N/A___X___									

	YES	NO	N/A
GENERAL			
Has the location remained unchanged from previous audit?	X		
Is site secure?	X		
Are station operating conditions adequate?	X		
DATA ACQUISITION			
Are strip charts in use?		X	
Is a telemetry system for data acquisition in use?	X		
SYSTEM COMPONENTS			
Is a glass sampling manifold installed?	X		
Is sampling manifold clean?	X		
Is a manifold trap in place?	X		
Are spare manifold ports capped	X		
Is manifold oriented so it is not exactly horizontal?	X		
Are manifold ports situated to prevent water entering monitors?	X		
Is manifold pump properly installed and operative?	X		
Do sample lines extend at least 3/4"into manifold?	X		
Are monitor sampling lines connected to manifold?	X		
Are sampling lines clean?	X		
Are monitors properly mounted and secure?	X		
Are monitors properly exhausted from room or scrubbed?	X		
Are zero and span systems operational?	X		
WIND EQUIPMENT			
Is wind sensor properly oriented?	X		
Does wind equipment appear to be functioning properly?	X		
Date of last calibration. Date: April 5, 2018			

COMMENTS: _____

AUDITOR: Shea Beaton DATE: January 15, 2019

Alberta Government

Station Site Documents Audit Checklist

Station

Name: Reno Location: Reno

Facility/Zone: PRAMP Operator: Maxxam

Required Elements of AMD Chapter 3 *SS 4-B*

Do the Site Documents Contain the Following:

	Meets AMD		NA	Current	
	YES	NO		YES	NO
(a) Name of Owner/ Approval Holder	X			X	
(b) Name of Operating Agency	X			X	
(c) Contact Information	X			X	
(d) Date the Site or Station was Established	X			X	
(e) Date the information was last updated	X			X	
(f) Location including Latitude and Longitude	X			X	
(g) Four Colour Photos Looking N, E, S, W From Manifold Inlet	X			X	
(h) Additional Photos/Sketches of AMD Standard Site Non-Conformance	X			X	
(i) List of Instruments Located at the Site	X			X	
(j) Site Description Including the following:					
(i) Land Use By Sector	X			X	
(ii) Site Elevation	X			X	
(iii) Greatest Angle of Elevation & Direction to Nearby Buildings	X			X	
(iv) Average Building height in the area	X			X	
(v) Distance to Nearest Trees	X			X	

Required Elements of AMD Chapter 3 *SS 4-D*

Do the Station Site Documents Contain the Following:

	Meets AMD		NA	Current	
	YES	NO		YES	NO
(a) Recent Area Map Covering Approximately 1Km^2	X			X	
(b) Plan View Sketch	X			X	
(c) Cross-Sectional Sketch of Area Within 500 m Radius			X		
(d) Colour Photos Showing Sample Manifold/Inlet	X			X	
(e) Colour Photo of the Station	X				**X**
(f) Additional Photos/Sketches of AMD Standard Station Non-Conformance	X			X	

COMMENTS: Site does not appear to meet AMD criteria - trees to South and West taller than 10m tower
- Siting non-conformace documented in newly updated site docs.

AUDITOR: Shea Beaton DATE: January 15, 2019

Alberta Government

REFERENCE DOCUMENTS

HOURLY INSTANTANEOUS DATA

986 STATION

peace river area monitoring program pramp

PEACE RIVER AREA MONITORING PROGRAM

986b Station - January 2019

Summary of Hourly Instantaneous Maximums

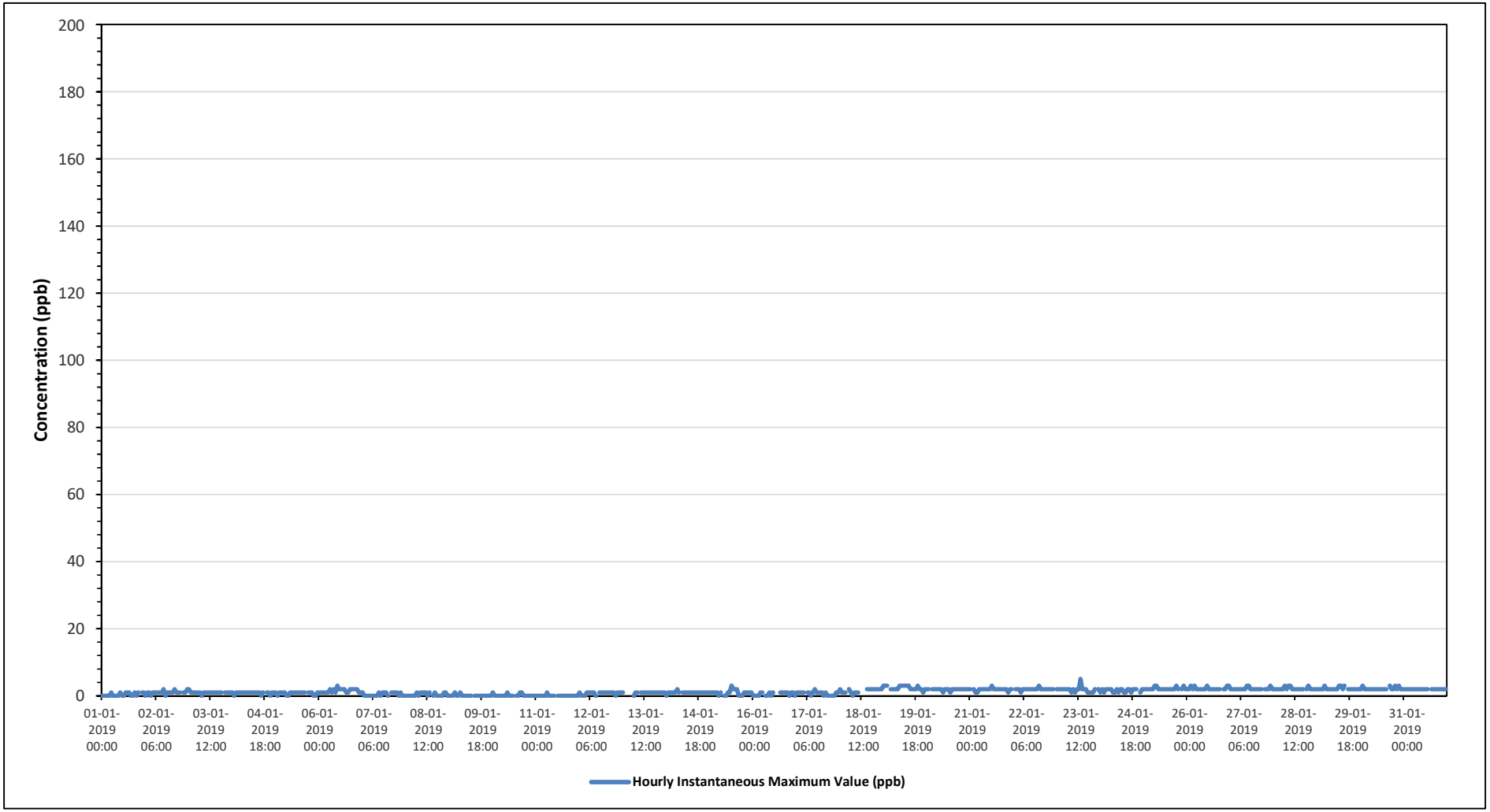
SULPHUR DIOXIDE (SO_2) in ppb

Maximum Hourly Value:	5	ppb	on January 23 at hour 13	Hours in Service:	744
Maximum Daily Value:	2.4	ppb	on January 19	Hours of Data:	701
Minimum Hourly Value:	0	ppb	on January 1 at hour 0	Hours of Missing Data:	5
Minimum Daily Value:	0.0	ppb	on January 11	Hours of Calibration:	38
Monthly Average:	1.3	ppb		Operational Uptime:	99.3

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			
Jan 1	0	0	0	0	0	1	0	0	0	0	1	0	0	1	1	1	0	0	1	0	1	S	1	1	0	1	0.4
Jan 2	0	1	1	0	1	1	1	1	1	1	2	0	1	1	1	1	2	1	1	1	S	1	1	2	0	2	1.0
Jan 3	2	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	0	2	1.0
Jan 4	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	S	1	1	0	1	1	0	1	0.9
Jan 5	1	0	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	S	1	1	1	0	0	1	0	1	0.8
Jan 6	1	1	1	1	1	1	2	1	2	1	3	2	2	2	2	1	1	2	2	2	2	2	1	1	1	3	1.5
Jan 7	1	0	0	0	0	0	0	0	0	1	0	1	1	1	0	S	1	1	1	1	0	1	0	0	0	1	0.4
Jan 8	0	0	0	0	0	0	1	0	1	1	1	1	0	1	S	0	1	0	0	0	0	1	1	0	0	1	0.4
Jan 9	0	0	0	1	0	0	1	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Jan 10	1	0	0	0	0	0	0	0	1	0	0	0	S	0	0	1	1	0	0	0	0	0	0	0	0	1	0.2
Jan 11	0	0	0	0	0	0	1	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Jan 12	1	0	0	0	1	1	1	1	1	0	S	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	0.8
Jan 13	1	X	X	X	X	X	0	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0.9
Jan 14	0	1	1	1	1	1	2	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	2	1.0
Jan 15	1	1	1	1	1	0	1	S	0	0	1	1	3	2	2	2	0	0	0	1	1	1	1	1	0	3	1.0
Jan 16	0	0	0	0	1	1	S	0	0	1	0	1	Q	Q	Q	1	1	1	1	0	1	0	1	1	0	1	0.6
Jan 17	1	1	1	1	1	S	1	1	0	1	2	1	1	1	1	0	1	0	0	0	0	0	1	1	0	2	0.7
Jan 18	2	1	1	1	S	2	1	0	1	1	1	C	C	C	C	2	2	2	2	2	2	2	2	2	0	2	1.5
Jan 19	3	3	3	S	2	2	2	2	2	3	3	3	3	3	3	2	2	2	2	3	2	2	1	2	1	3	2.4
Jan 20	2	2	S	2	2	2	2	2	2	1	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	2	1.9
Jan 21	2	S	2	1	1	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	1	2	2	1	3	1.9
Jan 22	S	2	2	2	1	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	S	1	3	2.0
Jan 23	2	2	2	2	2	2	2	2	1	2	1	2	2	5	2	2	2	1	1	1	1	2	S	2	1	5	1.9
Jan 24	1	2	1	2	2	2	2	1	1	2	1	2	2	1	1	2	2	1	2	2	2	S	1	2	1	2	1.6
Jan 25	2	2	2	2	2	2	3	3	2	2	2	2	2	2	2	2	2	2	3	2	S	2	3	2	2	3	2.2
Jan 26	2	2	3	2	3	2	2	2	2	2	2	3	2	2	2	2	2	2	2	S	2	2	3	3	2	3	2.2
Jan 27	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2	2	S	2	2	2	3	2	2	3	2.1
Jan 28	2	2	2	2	2	2	3	2	3	3	2	2	2	2	2	2	2	S	2	3	2	2	2	2	2	3	2.2
Jan 29	2	2	2	2	3	2	2	2	2	2	2	2	3	3	2	3	S	2	2	2	2	2	2	2	2	3	2.2
Jan 30	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	S	3	2	2	3	2	3	2	2	2	3	2.2
Jan 31	2	2	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2.0
Diurnal Maximum	3	3	3	2	3	2	3	3	3	3	3	3	3	5	3	3	3	2	3	3	2	3	3	3			
Daiurnal Average	1.2	1.1	1.2	1.1	1.2	1.3	1.4	1.1	1.2	1.3	1.4	1.4	1.5	1.6	1.4	1.4	1.3	1.2	1.3	1.3	1.2	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

Timeseries Chart of Hourly Instantaneous Maximum for SO2 - 986b Station



PEACE RIVER AREA MONITORING PROGRAM

986b Station - January 2019

Summary of Hourly Instantaneous Maximums

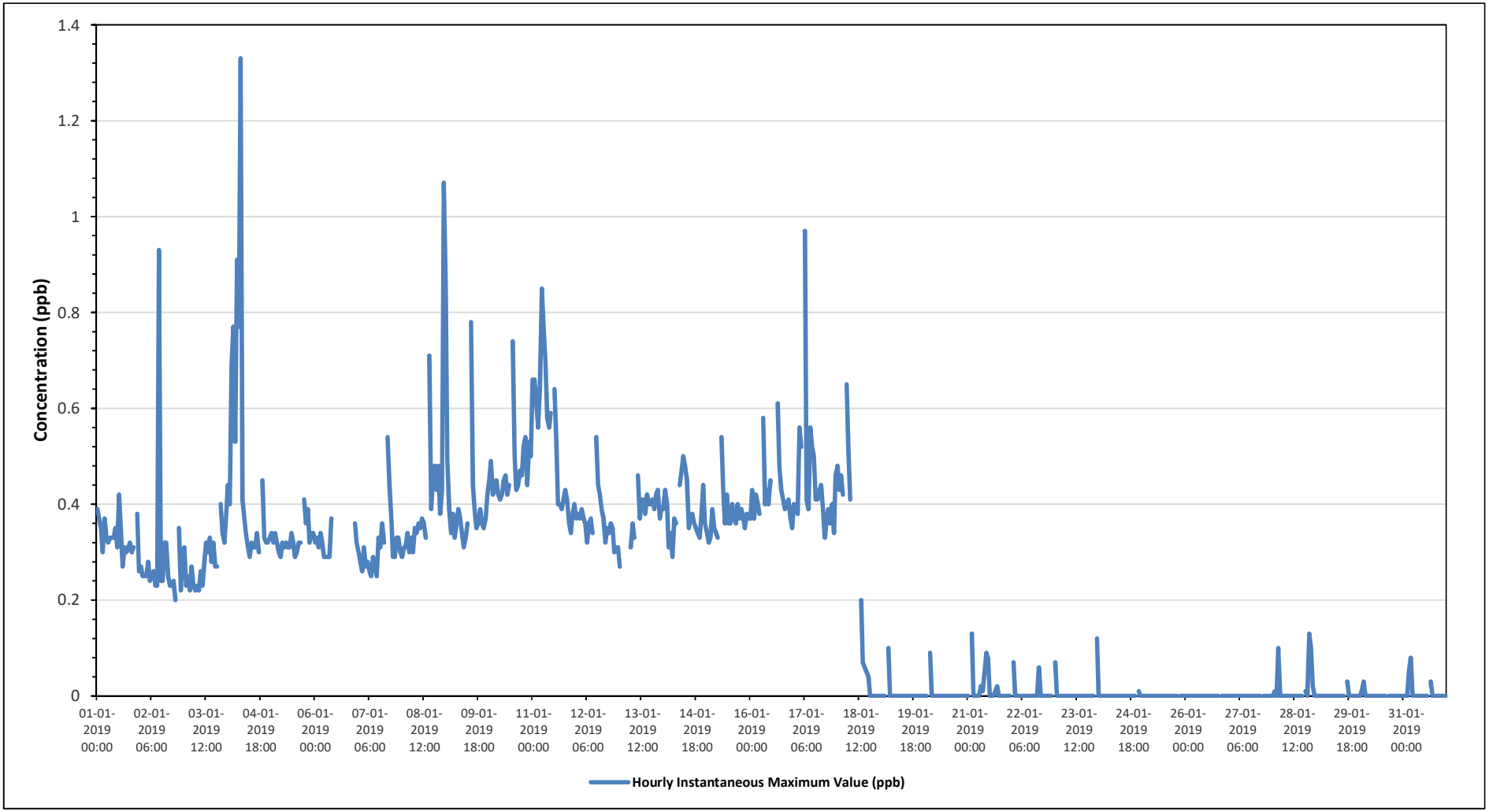
TOTAL REDUCED SULPHUR (TRS) in ppb

Maximum Hourly Value:	1.33	ppb	on January 31 at hour 4	Hours in Service:	744
Maximum Daily Value:	0.53	ppb	on January 11	Hours of Data:	688
Minimum Hourly Value:	-0.25	ppb	on January 27 at hour 2	Hours of Missing Data:	17
Minimum Daily Value:	-0.18	ppb	on January 26	Hours of Calibration:	39
Monthly Average:	0.18	ppb		Operational Uptime:	97.7

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Jan 1	0.39	0.37	0.35	0.3	0.37	0.33	0.32	0.33	0.33	0.33	0.35	0.31	0.42	0.34	0.27	0.31	0.3	0.31	0.32	0.3	0.31	S	0.38	0.26	0.26	0.42	0.33
Jan 2	0.27	0.25	0.25	0.25	0.28	0.24	0.25	0.26	0.23	0.23	0.93	0.24	0.24	0.32	0.32	0.25	0.23	0.23	0.24	0.2	S	0.35	0.22	0.3	0.20	0.93	0.29
Jan 3	0.31	0.23	0.25	0.22	0.27	0.23	0.22	0.23	0.22	0.26	0.23	0.28	0.32	0.3	0.33	0.28	0.32	0.27	0.27	S	0.4	0.34	0.32	0.37	0.22	0.40	0.28
Jan 4	0.44	0.4	0.69	0.77	0.53	0.91	0.77	**1.33**	0.41	0.37	0.34	0.31	0.29	0.32	0.31	0.31	0.34	0.3	S	0.45	0.33	0.32	0.32	0.33	0.29	**1.33**	0.47
Jan 5	0.34	0.32	0.34	0.32	0.3	0.29	0.32	0.31	0.32	0.31	0.31	0.34	0.32	0.29	0.3	0.32	0.32	S	0.41	0.36	0.39	0.32	0.34	0.34	0.29	0.41	0.33
Jan 6	0.32	0.33	0.31	0.34	0.32	0.29	0.29	0.29	0.29	0.37	T	T	T	T	T	T	T	T	T	T	T	T	0.36	0.32	0.29	0.37	0.32
Jan 7	0.3	0.28	0.26	0.31	0.27	0.28	0.26	0.25	0.29	0.27	0.25	0.33	0.31	0.36	0.32	S	0.54	0.44	0.37	0.29	0.29	0.33	0.33	0.3	0.25	0.54	0.31
Jan 8	0.29	0.31	0.31	0.34	0.3	0.33	0.3	0.35	0.34	0.36	0.35	0.37	0.36	0.33	S	0.71	0.39	0.45	0.48	0.43	0.48	0.38	0.43	1.07	0.29	1.07	0.41
Jan 9	0.85	0.49	0.39	0.34	0.38	0.33	0.36	0.39	0.37	0.34	0.31	0.33	0.36	S	0.78	0.44	0.39	0.35	0.36	0.39	0.36	0.35	0.37	0.42	0.31	0.85	0.41
Jan 10	0.45	0.49	0.42	0.43	0.45	0.42	0.41	0.42	0.45	0.46	0.42	0.44	S	0.74	0.5	0.43	0.44	0.47	0.46	0.52	0.54	0.44	0.53	0.5	0.41	0.74	0.47
Jan 11	0.66	0.66	0.61	0.56	0.65	0.85	0.77	0.7	0.58	0.56	0.59	S	0.64	0.53	0.4	0.4	0.39	0.41	0.43	0.41	0.36	0.34	0.38	0.4	0.34	0.85	**0.53**
Jan 12	0.37	0.38	0.37	0.39	0.37	0.36	0.32	0.36	0.37	0.34	S	0.54	0.44	0.42	0.39	0.37	0.32	0.35	0.34	0.36	0.35	0.3	0.31	0.31	0.30	0.54	0.37
Jan 13	0.27	X	X	X	X	X	0.31	0.36	0.33	S	0.46	0.37	0.41	0.41	0.38	0.42	0.4	0.4	0.41	0.39	0.42	0.43	0.37	0.39	0.27	0.46	0.39
Jan 14	0.39	0.43	0.4	0.31	0.34	0.29	0.37	0.36	S	0.44	0.47	0.5	0.48	0.45	0.35	0.37	0.38	0.36	0.35	0.34	0.33	0.38	0.44	0.36	0.29	0.50	0.39
Jan 15	0.34	0.32	0.33	0.39	0.35	0.34	0.33	S	0.54	0.42	0.36	0.42	0.36	0.36	0.4	0.37	0.36	0.4	0.37	0.39	0.37	0.35	0.38	0.37	0.32	0.54	0.37
Jan 16	0.37	0.43	0.37	0.42	0.4	0.38	S	0.58	0.4	0.43	0.4	0.45	Q	Q	Q	0.61	0.48	0.43	0.41	0.39	0.4	0.41	0.37	0.35	0.35	0.61	0.42
Jan 17	0.4	0.39	0.38	0.56	0.52	S	0.97	0.41	0.39	0.56	0.52	0.5	0.41	0.41	0.43	0.44	0.39	0.33	0.37	0.39	0.36	0.4	0.34	0.46	0.33	0.97	0.45
Jan 18	0.48	0.43	0.46	0.42	S	0.65	0.52	0.41	C	C	C	C	C	0.2	0.07	0.06	0.05	0.04	-0.03	-0.07	-0.07	-0.07	-0.05	-0.07	-0.07	0.65	0.19
Jan 19	-0.09	-0.07	-0.04	S	0.1	-0.05	-0.05	-0.05	-0.08	-0.06	-0.03	-0.05	-0.06	-0.09	-0.09	-0.06	-0.02	-0.08	-0.09	-0.06	-0.05	-0.05	-0.09	-0.08	-0.09	0.10	-0.06
Jan 20	-0.1	-0.05	S	0.09	-0.05	-0.04	-0.02	-0.04	-0.07	-0.04	-0.04	-0.02	-0.02	-0.05	-0.04	-0.07	-0.06	-0.05	-0.04	-0.06	-0.05	-0.08	-0.06	-0.05	-0.10	0.09	-0.04
Jan 21	-0.06	S	0.13	-0.05	-0.06	-0.07	-0.01	0.02	0.01	0.05	0.09	0.08	-0.01	-0.02	-0.02	0.01	0.02	-0.03	-0.04	-0.05	-0.04	-0.01	-0.08	-0.06	-0.08	0.13	-0.01
Jan 22	S	0.07	-0.01	-0.07	-0.09	-0.13	-0.12	-0.1	-0.1	-0.1	-0.1	-0.1	-0.14	-0.08	0	0.06	-0.05	-0.07	-0.1	-0.04	-0.08	-0.1	-0.11	S	-0.14	0.07	-0.07
Jan 23	0.07	-0.13	-0.07	-0.12	-0.14	-0.14	-0.11	-0.13	-0.1	-0.11	-0.06	-0.09	-0.05	-0.01	-0.04	-0.09	-0.11	-0.11	-0.11	-0.09	-0.09	-0.12	S	0.12	-0.14	0.12	-0.08
Jan 24	-0.07	-0.04	-0.05	-0.04	-0.08	-0.08	-0.06	-0.03	-0.07	-0.06	-0.11	-0.03	-0.07	-0.08	-0.08	-0.11	-0.07	-0.1	-0.06	-0.1	-0.09	S	0.01	-0.09	-0.11	0.01	-0.07
Jan 25	-0.1	-0.12	-0.08	-0.11	-0.11	-0.09	-0.01	-0.08	-0.12	-0.12	-0.09	-0.07	-0.12	-0.12	-0.08	-0.11	-0.13	-0.14	-0.14	-0.17	S	-0.07	-0.13	-0.13	-0.17	-0.01	-0.11
Jan 26	-0.14	-0.17	-0.16	-0.18	-0.15	-0.14	-0.16	-0.18	-0.19	-0.17	-0.17	-0.18	-0.12	-0.19	-0.19	-0.2	-0.22	-0.2	-0.2	S	-0.13	-0.21	-0.19	-0.19	-0.22	-0.12	**-0.18**
Jan 27	-0.2	-0.2	**-0.25**	-0.23	-0.16	-0.17	-0.15	-0.13	-0.15	-0.14	-0.13	-0.11	-0.09	-0.12	-0.12	-0.12	-0.12	-0.14	S	-0.04	-0.11	-0.12	-0.14	-0.1	**-0.25**	-0.04	-0.14
Jan 28	-0.08	0.01	-0.04	0.1	-0.03	-0.03	-0.05	-0.1	-0.14	-0.13	-0.12	-0.12	-0.1	-0.13	-0.12	-0.11	-0.14	S	0.01	-0.11	0.13	0.1	0.02	-0.11	-0.14	0.13	-0.06
Jan 29	-0.07	-0.1	-0.08	-0.13	-0.07	-0.06	-0.1	-0.13	-0.12	-0.09	-0.07	-0.06	-0.09	-0.06	-0.05	-0.06	S	0.03	-0.1	-0.04	-0.08	-0.07	-0.03	-0.02	-0.13	0.03	-0.07
Jan 30	0	0.01	0.03	-0.03	-0.03	-0.08	-0.1	-0.07	-0.11	-0.06	-0.07	-0.12	-0.13	-0.15	-0.12	S	-0.08	-0.13	-0.16	-0.11	-0.09	-0.05	-0.09	-0.02	-0.16	0.03	-0.08
Jan 31	-0.07	-0.04	-0.01	0.05	0.08	-0.01	-0.08	-0.11	-0.13	-0.14	-0.09	-0.17	-0.16	-0.2	S	0.03	-0.16	-0.16	-0.16	-0.15	-0.18	-0.13	-0.19	-0.14	-0.20	0.08	-0.10
Diurnal Maximum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	1	1			
Daiurnal Average	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	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

Timeseries Chart of Hourly Instantaneous Maximum for TRS - 986b Station



peace river area monitoring program

PEACE RIVER AREA MONITORING PROGRAM

986b Station - January 2019

Summary of Hourly Instantaneous Maximums

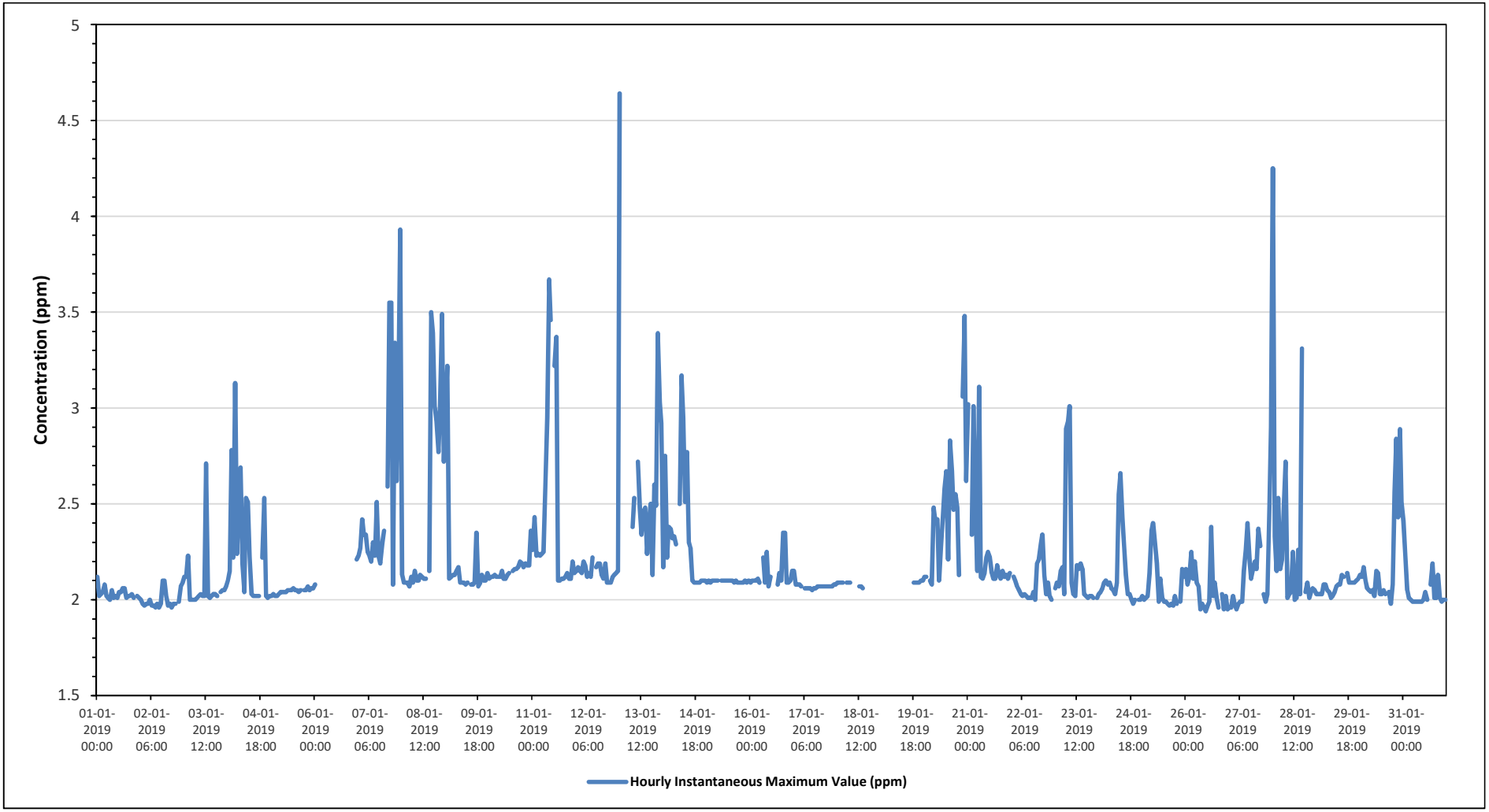
TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	4.64	ppm	on January 13 at hour 0	Hours in Service:	744
Maximum Daily Value:	2.69	ppm	on January 13	Hours of Data:	651
Minimum Hourly Value:	1.94	ppm	on January 26 at hour 11	Hours of Missing Data:	56
Minimum Daily Value:	2.00	ppm	on January 2	Hours of Calibration:	37
Monthly Average:	2.20	ppm		Operational Uptime:	92.5

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	2.12	2.02	2.03	2.04	2.08	2.02	2.01	2.00	2.05	2.01	2.02	2.01	2.04	2.04	2.06	2.06	2.01	2.02	2.02	2.03	2.01	S	2.02	2.01	2.00	2.12	2.03
Jan 2	2.00	1.98	1.97	1.98	1.98	2.00	1.97	1.97	1.96	1.98	1.96	1.98	2.10	2.10	2.02	1.97	1.98	1.96	1.98	1.98	S	1.99	2.07	2.09	1.96	2.10	**2.00**
Jan 3	2.12	2.12	2.23	2.00	2.00	2.00	2.00	2.01	2.02	2.03	2.02	2.02	2.71	2.02	2.01	2.02	2.03	2.03	2.02	S	2.04	2.05	2.05	2.07	2.00	2.71	2.07
Jan 4	2.10	2.15	2.78	2.22	3.13	2.24	2.57	2.69	2.19	2.04	2.53	2.51	2.22	2.03	2.02	2.02	2.02	2.02	S	2.22	2.53	2.02	2.01	2.02	2.01	3.13	2.27
Jan 5	2.02	2.03	2.02	2.02	2.03	2.04	2.04	2.04	2.04	2.05	2.05	2.05	2.06	2.05	2.05	2.04	2.05	S	2.05	2.05	2.07	2.05	2.06	2.06	2.02	2.07	2.04
Jan 6	2.08	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	2.21	2.08	2.21	2.15
Jan 7	2.23	2.27	2.42	2.34	2.34	2.25	2.23	2.20	2.30	2.23	2.51	2.23	2.19	2.29	2.36	S	2.59	3.55	3.55	2.08	3.34	2.62	3.11	3.93	2.08	3.93	2.57
Jan 8	2.13	2.09	2.09	2.09	2.07	2.12	2.09	2.15	2.10	2.10	2.13	2.12	2.11	2.11	S	2.15	3.50	3.39	3.01	2.93	2.77	3.02	3.49	2.72	2.07	3.50	2.46
Jan 9	3.00	3.22	2.11	2.12	2.13	2.13	2.15	2.17	2.09	2.09	2.09	2.08	2.09	S	2.08	2.08	2.09	2.35	2.07	2.09	2.13	2.10	2.10	2.14	2.07	3.22	2.20
Jan 10	2.11	2.12	2.12	2.13	2.12	2.12	2.12	2.15	2.11	2.11	2.13	2.14	S	2.15	2.16	2.16	2.17	2.20	2.19	2.17	2.19	2.18	2.18	2.36	2.11	2.36	2.16
Jan 11	2.26	2.43	2.23	2.24	2.23	2.24	2.25	2.60	2.95	3.67	3.46	S	3.22	3.37	2.10	2.10	2.11	2.11	2.12	2.14	2.11	2.11	2.20	2.14	2.10	3.67	2.45
Jan 12	2.15	2.17	2.15	2.14	2.20	2.18	2.12	2.14	2.12	2.22	S	2.17	2.19	2.19	2.13	2.11	2.19	2.09	2.09	2.09	2.12	2.13	2.14	2.15	2.09	2.22	2.15
Jan 13	**4.64**	X	X	X	X	X	X	2.38	2.53	S	2.72	2.48	2.34	2.46	2.48	2.24	2.39	2.50	2.13	2.60	2.49	3.39	3.03	2.92	2.13	**4.64**	**2.69**
Jan 14	2.17	2.75	2.22	2.38	2.37	2.32	2.33	2.29	S	2.50	3.17	2.95	2.51	2.77	2.30	2.27	2.10	2.09	2.09	2.09	2.09	2.10	2.10	2.10	2.09	3.17	2.35
Jan 15	2.09	2.10	2.09	2.10	2.10	2.10	2.10	S	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.09	2.10	2.09	2.09	2.09	2.09	2.10	2.09	2.10	2.09	2.10	2.10
Jan 16	2.09	2.10	2.10	2.10	2.11	2.09	S	2.22	2.09	2.25	2.07	2.12	Q	Q	Q	2.08	2.14	2.10	2.35	2.35	2.09	2.09	2.10	2.15	2.07	2.35	2.14
Jan 17	2.15	2.08	2.08	2.08	2.07	S	2.06	2.06	2.06	2.06	2.05	2.06	2.06	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.08	2.08	2.05	2.15	2.07
Jan 18	2.09	2.09	2.09	2.09	S	2.09	2.09	2.09	C	C	C	C	2.07	2.07	2.06	X	X	X	X	X	X	X	X	X	2.06	2.09	2.08
Jan 19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.09	2.09	2.09	2.09	2.10	2.10	2.09	2.10	2.09
Jan 20	2.12	2.12	S	2.10	2.08	2.48	2.40	2.42	2.10	2.27	2.42	2.58	2.67	2.21	2.83	2.67	2.47	2.55	2.48	2.13	S1	3.06	3.48	2.62	2.08	3.48	2.47
Jan 21	3.02	S	2.34	3.01	2.51	2.15	3.11	2.12	2.11	2.14	2.22	2.25	2.22	2.14	2.11	2.11	2.18	2.13	2.11	2.15	2.12	2.13	2.11	2.14	2.11	3.11	2.29
Jan 22	S	2.12	2.10	2.07	2.05	2.03	2.02	2.03	2.02	2.01	2.01	2.01	2.04	2.00	2.19	2.21	2.29	2.34	2.13	2.03	2.09	2.02	2.00	S	2.00	2.34	2.08
Jan 23	2.06	2.09	2.07	2.15	2.17	2.03	2.89	2.93	3.01	2.09	2.03	2.02	2.18	2.16	2.19	2.16	2.03	2.02	2.01	2.02	2.02	2.01	S	2.01	2.01	3.01	2.19
Jan 24	2.03	2.04	2.06	2.09	2.10	2.08	2.09	2.06	2.05	2.03	2.09	2.55	2.66	2.43	2.27	2.13	2.03	2.03	2.00	1.98	2.00	S	2.00	2.00	1.98	2.66	2.12
Jan 25	2.02	2.00	2.01	2.02	2.14	2.36	2.40	2.30	2.19	1.99	2.11	2.01	1.99	1.99	1.98	1.97	1.98	1.97	2.02	1.98	S	1.99	2.16	2.12	1.97	2.40	2.07
Jan 26	2.16	2.08	2.12	2.25	2.11	2.20	2.09	2.07	1.95	1.98	1.96	**1.94**	1.97	1.99	2.38	2.02	2.09	2.01	1.96	S	2.03	1.95	2.02	1.95	**1.94**	2.38	2.06
Jan 27	1.96	1.96	2.02	1.97	1.95	1.98	1.99	1.99	2.15	2.26	2.40	2.22	2.11	2.16	2.20	2.16	2.37	2.28	S	2.03	1.99	2.03	2.49	2.90	1.95	2.90	2.16
Jan 28	4.25	2.33	2.15	2.53	2.16	2.21	2.49	2.72	2.01	2.03	2.04	2.25	2.00	2.01	2.26	2.03	3.31	S	2.04	2.09	2.01	2.04	2.06	2.05	2.00	4.25	2.31
Jan 29	2.03	2.03	2.03	2.03	2.08	2.08	2.05	2.04	2.01	2.02	2.04	2.07	2.08	2.08	2.13	2.12	S	2.14	2.09	2.09	2.09	2.09	2.10	2.11	2.01	2.14	2.07
Jan 30	2.13	2.12	2.17	2.10	2.06	2.05	2.04	2.05	2.02	2.15	2.14	2.03	2.03	2.05	2.03	S	2.04	1.98	2.08	2.56	2.84	2.43	2.89	2.51	1.98	2.89	2.20
Jan 31	2.41	2.23	2.05	2.01	2.00	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.04	2.00	S	2.08	2.19	2.01	2.01	2.13	2.01	1.99	2.00	2.00	1.99	2.41	2.05
Diurnal Maximum	4.64	3.22	2.78	3.01	3.13	2.48	3.11	2.93	3.01	3.67	3.46	2.95	3.22	3.37	2.83	2.67	3.50	3.55	3.55	2.93	3.34	3.39	3.49	3.93			
Daiurnal Average	2.34	2.18	2.14	2.16	2.16	2.13	2.21	2.21	2.16	2.16	2.24	2.18	2.22	2.19	2.18	2.12	2.24	2.23	2.18	2.16	2.21	2.22	2.29	2.27			

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 Instantaneous Maximum for THC - 986b Station



peace river area monitoring program pramp

PEACE RIVER AREA MONITORING PROGRAM

986b Station - January 2019

Summary of Hourly Instantaneous Maximums

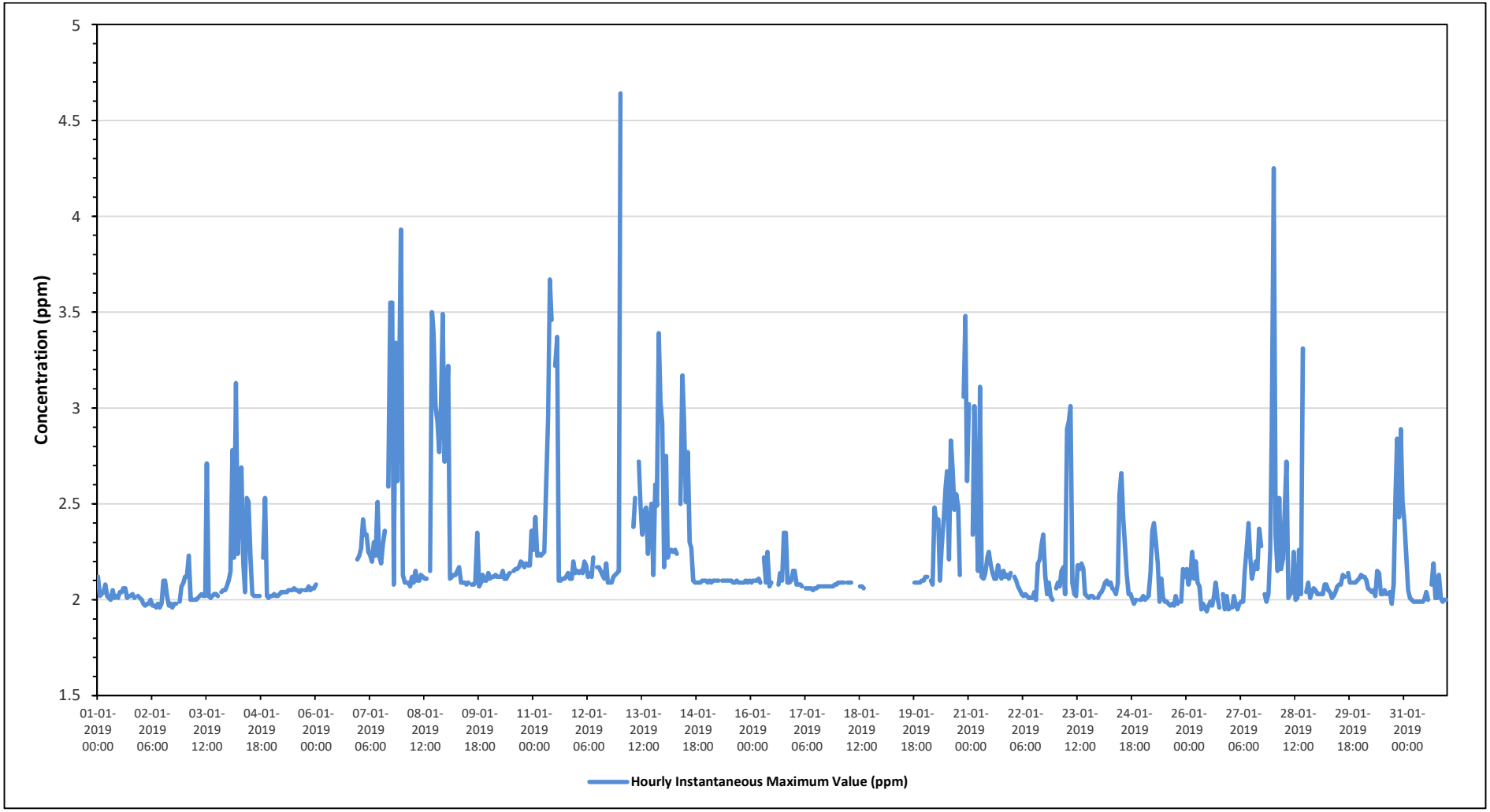
METHANE (CH4) in ppm

Maximum Hourly Value:	4.64	ppm	on January 13 at hour 0	Hours in Service:	744
Maximum Daily Value:	2.69	ppm	on January 13	Hours of Data:	651
Minimum Hourly Value:	1.94	ppm	on January 26 at hour 11	Hours of Missing Data:	56
Minimum Daily Value:	2.00	ppm	on January 2	Hours of Calibration:	37
Monthly Average:	2.20	ppm		Operational Uptime:	92.5

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	2.12	2.02	2.03	2.04	2.08	2.02	2.01	2.00	2.05	2.01	2.02	2.01	2.04	2.04	2.06	2.06	2.01	2.02	2.02	2.03	2.01	S	2.02	2.01	2.00	2.12	2.03
Jan 2	2.00	1.98	1.97	1.98	1.98	2.00	1.97	1.97	1.96	1.98	1.96	1.98	2.10	2.10	2.02	1.97	1.98	1.96	1.98	1.98	S	1.99	2.07	2.09	1.96	2.10	**2.00**
Jan 3	2.12	2.12	2.23	2.00	2.00	2.00	2.00	2.01	2.02	2.03	2.02	2.02	2.71	2.02	2.01	2.02	2.03	2.03	2.02	S	2.04	2.05	2.05	2.07	2.00	2.71	2.07
Jan 4	2.10	2.15	2.78	2.22	3.13	2.24	2.57	2.69	2.19	2.04	2.53	2.51	2.22	2.03	2.02	2.02	2.02	2.02	S	2.22	2.53	2.02	2.01	2.02	2.01	3.13	2.27
Jan 5	2.02	2.03	2.02	2.02	2.03	2.04	2.04	2.04	2.04	2.05	2.05	2.05	2.06	2.05	2.05	2.04	2.05	S	2.05	2.05	2.07	2.05	2.06	2.06	2.02	2.07	2.04
Jan 6	2.08	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	2.21	2.08	2.21	2.15
Jan 7	2.23	2.27	2.42	2.34	2.34	2.25	2.23	2.20	2.30	2.23	2.51	2.23	2.19	2.29	2.36	S	2.59	3.55	3.55	2.08	3.34	2.62	3.11	3.93	2.08	3.93	2.57
Jan 8	2.13	2.09	2.09	2.09	2.07	2.12	2.09	2.15	2.10	2.10	2.13	2.12	2.11	2.11	S	2.15	3.50	3.39	3.01	2.93	2.77	3.02	3.49	2.72	2.07	3.50	2.46
Jan 9	3.00	3.22	2.11	2.12	2.13	2.13	2.15	2.17	2.09	2.09	2.09	2.08	2.09	S	2.08	2.08	2.09	2.35	2.07	2.09	2.13	2.10	2.10	2.14	2.07	3.22	2.20
Jan 10	2.11	2.12	2.12	2.13	2.12	2.12	2.12	2.15	2.11	2.11	2.13	2.14	S	2.15	2.16	2.16	2.17	2.20	2.19	2.17	2.19	2.18	2.18	2.36	2.11	2.36	2.16
Jan 11	2.26	2.43	2.23	2.24	2.23	2.24	2.25	2.60	2.95	3.67	3.46	S	3.22	3.37	2.10	2.10	2.11	2.11	2.12	2.14	2.11	2.11	2.20	2.14	2.10	3.67	2.45
Jan 12	2.15	2.14	2.15	2.14	2.20	2.18	2.12	2.14	2.12	2.22	S	2.17	2.17	2.15	2.13	2.11	2.19	2.09	2.09	2.09	2.12	2.13	2.14	2.15	2.09	2.22	2.14
Jan 13	**4.64**	X	X	X	X	X	X	2.38	2.53	S	2.72	2.48	2.34	2.46	2.48	2.24	2.39	2.50	2.13	2.60	2.49	3.39	3.03	2.92	2.13	**4.64**	**2.69**
Jan 14	2.17	2.75	2.22	2.26	2.26	2.25	2.26	2.24	S	2.50	3.17	2.95	2.51	2.77	2.30	2.27	2.10	2.09	2.09	2.09	2.09	2.10	2.10	2.10	2.09	3.17	2.33
Jan 15	2.09	2.10	2.09	2.10	2.10	2.10	2.10	S	2.10	2.10	2.10	2.10	2.10	2.10	2.09	2.09	2.10	2.09	2.09	2.09	2.09	2.10	2.09	2.10	2.09	2.10	2.10
Jan 16	2.09	2.10	2.10	2.10	2.11	2.09	S	2.22	2.09	2.25	2.07	2.09	Q	Q	Q	2.08	2.14	2.10	2.35	2.35	2.09	2.09	2.10	2.15	2.07	2.35	2.14
Jan 17	2.15	2.08	2.08	2.08	2.07	S	2.06	2.06	2.06	2.06	2.05	2.06	2.06	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.08	2.08	2.05	2.15	2.07
Jan 18	2.09	2.09	2.09	2.09	S	2.09	2.09	2.09	C	C	C	C	2.07	2.07	2.06	X	X	X	X	X	X	X	X	X	2.06	2.09	2.08
Jan 19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.09	2.09	2.09	2.09	2.10	2.10	2.09	2.10	2.09
Jan 20	2.12	2.12	S	2.10	2.08	2.48	2.40	2.42	2.10	2.27	2.42	2.58	2.67	2.21	2.83	2.67	2.47	2.55	2.48	2.13	S1	3.06	3.48	2.62	2.08	3.48	2.47
Jan 21	3.02	S	2.34	3.01	2.51	2.15	3.11	2.12	2.11	2.14	2.22	2.25	2.18	2.14	2.11	2.11	2.18	2.13	2.11	2.15	2.12	2.13	2.11	2.14	2.11	3.11	2.29
Jan 22	S	2.12	2.10	2.07	2.05	2.03	2.02	2.03	2.02	2.01	2.01	2.01	2.04	2.00	2.19	2.21	2.29	2.34	2.13	2.03	2.09	2.02	2.00	S	2.00	2.34	2.08
Jan 23	2.06	2.09	2.07	2.15	2.17	2.03	2.89	2.93	3.01	2.09	2.03	2.02	2.18	2.16	2.19	2.16	2.03	2.02	2.01	2.02	2.02	2.01	S	2.01	2.01	3.01	2.19
Jan 24	2.03	2.04	2.06	2.09	2.10	2.08	2.09	2.06	2.05	2.03	2.09	2.55	2.66	2.43	2.27	2.13	2.03	2.03	2.00	1.98	2.00	S	2.00	2.00	1.98	2.66	2.12
Jan 25	2.02	2.00	2.01	2.02	2.14	2.36	2.40	2.30	2.19	1.99	2.11	2.01	1.99	1.99	1.98	1.97	1.98	1.97	2.02	1.98	S	1.99	2.16	2.12	1.97	2.40	2.07
Jan 26	2.16	2.08	2.12	2.25	2.11	2.20	2.09	2.07	1.95	1.98	1.96	**1.94**	1.97	1.99	1.97	2.02	2.09	2.01	1.96	S	2.03	1.95	2.02	1.95	**1.94**	2.25	2.04
Jan 27	1.96	1.96	2.02	1.97	1.95	1.98	1.99	1.99	2.15	2.26	2.40	2.22	2.11	2.16	2.20	2.16	2.37	2.28	S	2.03	1.99	2.03	2.26	2.90	1.95	2.90	2.15
Jan 28	4.25	2.33	2.15	2.53	2.16	2.21	2.49	2.72	2.01	2.03	2.04	2.25	2.00	2.01	2.26	2.03	3.31	S	2.04	2.09	2.01	2.04	2.06	2.05	2.00	4.25	2.31
Jan 29	2.03	2.03	2.03	2.03	2.08	2.08	2.05	2.04	2.01	2.02	2.04	2.07	2.08	2.08	2.13	2.12	S	2.14	2.09	2.09	2.09	2.09	2.10	2.11	2.01	2.14	2.07
Jan 30	2.13	2.12	2.12	2.10	2.06	2.05	2.04	2.05	2.02	2.15	2.14	2.03	2.03	2.05	2.03	S	2.04	1.98	2.08	2.56	2.84	2.43	2.89	2.51	1.98	2.89	2.19
Jan 31	2.41	2.23	2.05	2.01	2.00	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.04	2.00	S	2.08	2.19	2.01	2.01	2.13	2.01	1.99	2.00	2.00	1.99	2.41	2.05
Diurnal Maximum	4.64	3.22	2.78	3.01	3.13	2.48	3.11	2.93	3.01	3.67	3.46	2.95	3.22	3.37	2.83	2.67	3.50	3.55	3.55	2.93	3.34	3.39	3.49	3.93			
Daiurnal Average	2.34	2.18	2.14	2.15	2.16	2.13	2.21	2.21	2.16	2.16	2.24	2.18	2.22	2.19	2.16	2.12	2.24	2.23	2.18	2.16	2.21	2.22	2.29	2.27			

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 Instantaneous Maximum for CH4 - 986b Station



PEACE RIVER AREA MONITORING PROGRAM

986b Station - January 2019

Summary of Hourly Instantaneous Maximums

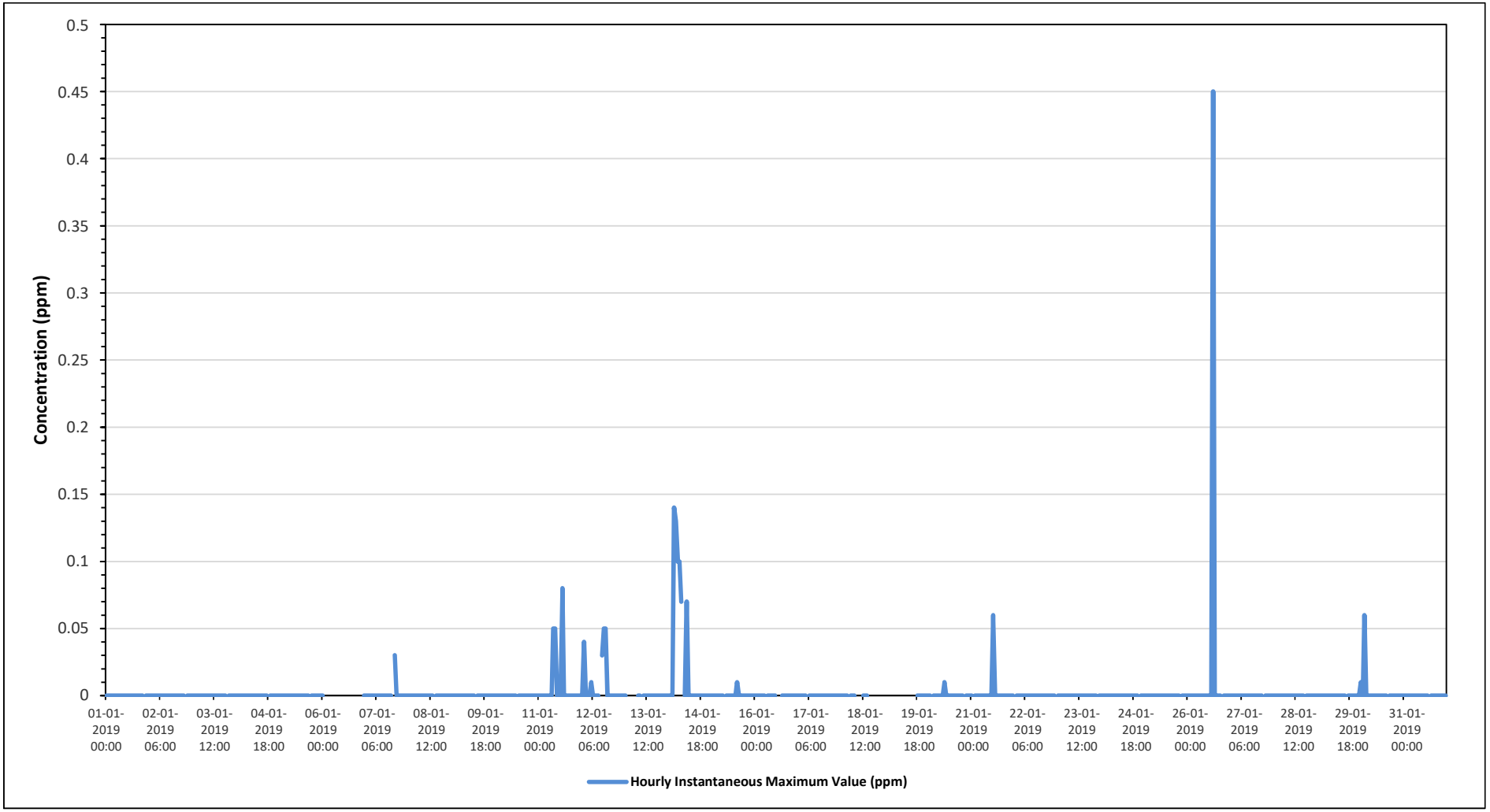
NON-METHANE HYDROCARBONS (NMHC) in ppm

Maximum Hourly Value:	0.45	ppm	on January 26 at hour 14	Hours in Service:	744
Maximum Daily Value:	0.03	ppm	on January 14	Hours of Data:	651
Minimum Hourly Value:	0.00	ppm	on January 1 at hour 0	Hours of Missing Data:	56
Minimum Daily Value:	0.00	ppm	on January 1	Hours of Calibration:	37
Monthly Average:	0.00	ppm		Operational Uptime:	92.5

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	**0.00**
Jan 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00
Jan 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 6	0.00	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	0.00	0.00	0.00	0.00
Jan 7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00
Jan 8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 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	0.00
Jan 11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	S	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
Jan 12	0.00	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	S	0.03	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
Jan 13	0.00	X	X	X	X	X	X	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 14	0.00	0.00	0.00	0.14	0.13	0.10	0.10	0.07	S	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	**0.03**
Jan 15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Jan 16	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	Q	Q	Q	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 17	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 18	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	C	C	C	C	0.00	0.00	0.00	X	X	X	X	X	X	X	X	X	0.00	0.00	0.00
Jan 19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 20	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	S1	0.00	0.00	0.00	0.00	0.01	0.00
Jan 21	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.06	0.00
Jan 22	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00
Jan 23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00
Jan 24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00
Jan 25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00
Jan 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	**0.45**	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	**0.45**	0.02
Jan 27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 30	0.01	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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00
Jan 31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	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	0.04	0.06	0.14	0.13	0.10	0.10	0.07	0.05	0.05	0.07	0.03	0.06	0.08	0.45	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Daiurnal Average	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	0.02	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

Timeseries Chart of Hourly Instantaneous Maximum for NMHC - 986b Station



PEACE RIVER AREA MONITORING PROGRAM

986b Station - January 2019

Summary of Hourly Instantaneous Maximums

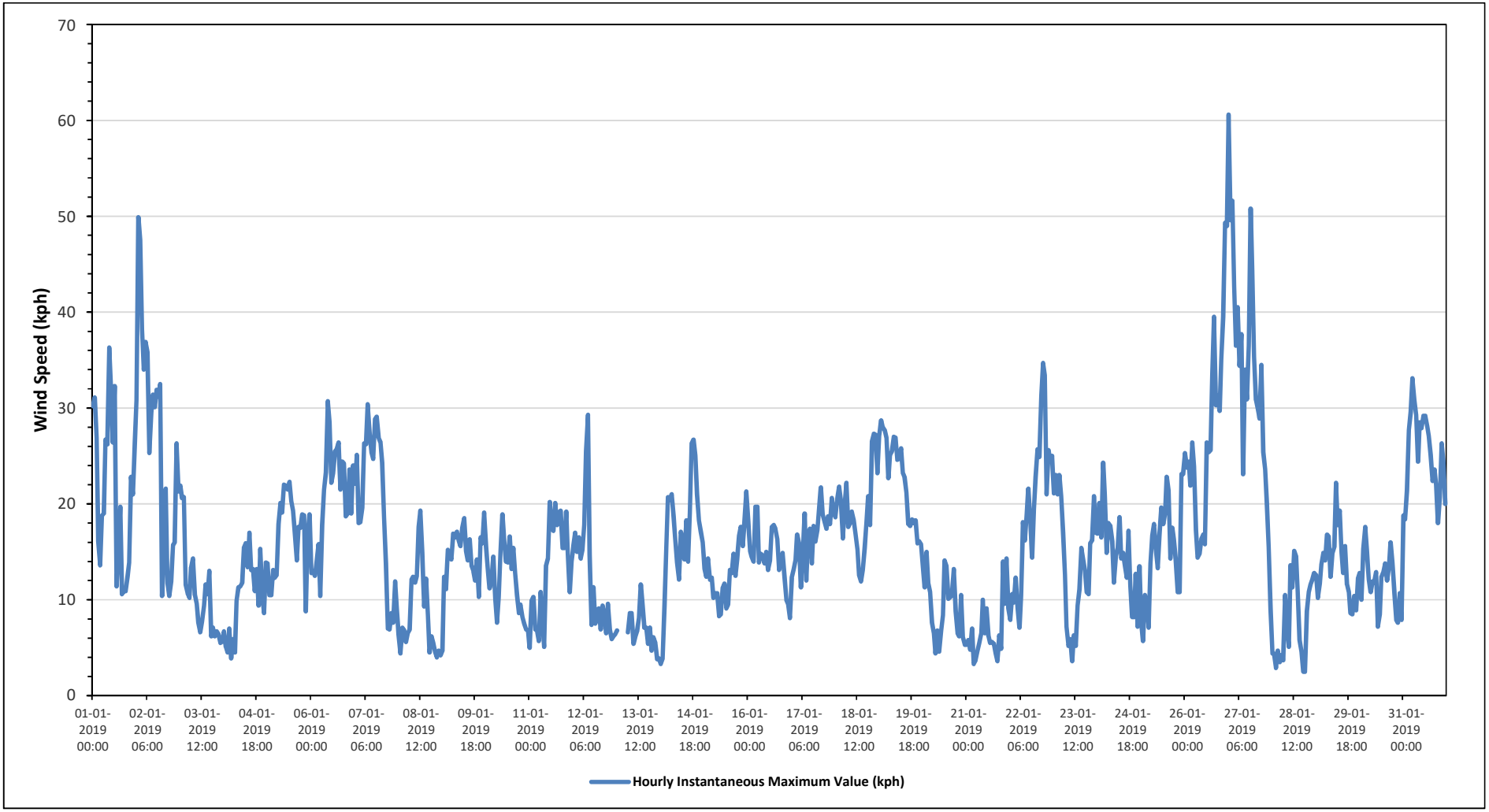
WIND SPEED (WS) in km/h

Maximum Hourly Value:	60.6	kph	on January 27 at hour 0	Hours in Service:	744
Maximum Daily Value:	34.4	kph	on January 27	Hours of Data:	739
Minimum Hourly Value:	2.5	kph	on January 28 at hour 17	Hours of Missing Data:	5
Minimum Daily Value:	6.7	kph	on January 21	Hours of Calibration:	0
Monthly Average:	16.1	kph		Operational Uptime:	99.3

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	30.2	31.1	26.9	16.1	13.6	18.8	19.0	26.7	26.2	36.3	31.5	26.4	32.3	11.4	15.5	19.7	10.6	10.9	10.9	12.4	13.9	22.8	21.0	26.4	10.6	36.3	21.3
Jan 2	30.8	49.9	47.5	38.2	34.0	36.9	35.8	25.3	29.5	31.4	30.1	31.9	31.2	32.5	10.4	15.2	21.6	11.7	10.4	11.9	15.7	16.0	26.3	21.3	10.4	49.9	26.9
Jan 3	21.9	20.6	20.7	11.6	10.7	10.2	13.4	14.3	10.5	9.6	7.6	6.6	7.7	9.4	11.6	10.6	13.0	6.2	7.1	6.2	6.7	6.4	5.5	5.6	5.5	21.9	10.6
Jan 4	6.7	5.1	4.5	7.0	3.9	5.9	4.5	9.9	11.3	11.4	11.8	15.4	15.9	13.4	17.0	13.1	13.2	10.9	13.2	9.4	15.3	10.6	8.6	13.9	3.9	17.0	10.5
Jan 5	13.8	10.5	10.5	13.1	12.3	12.6	17.9	20.1	19.1	22.0	21.9	21.5	22.3	20.3	19.3	16.9	14.1	17.6	17.5	18.9	18.8	8.8	16.8	18.9	8.8	22.3	16.9
Jan 6	12.8	13.0	12.5	14.1	15.8	10.4	17.8	21.5	23.3	30.7	28.5	22.2	23.2	25.5	25.7	26.4	21.5	24.4	24.2	18.7	19.0	23.6	19.0	24.0	10.4	30.7	20.7
Jan 7	22.1	25.1	18.0	18.1	19.6	26.3	26.2	30.4	27.4	25.4	24.7	28.8	29.1	26.9	26.4	24.3	18.6	13.8	7.0	6.9	8.6	7.6	11.9	9.0	6.9	30.4	20.1
Jan 8	6.4	4.4	7.1	6.8	5.6	6.5	6.9	12.1	12.4	11.8	12.5	17.6	19.3	14.9	9.3	12.2	8.4	4.5	6.2	5.5	4.5	4.0	4.7	4.2	4.0	19.3	8.7
Jan 9	4.7	12.4	11.1	15.2	14.8	14.2	16.9	16.5	17.1	16.2	15.6	17.5	18.5	15.1	14.1	16.3	13.6	13.0	12.0	14.2	10.3	16.5	15.9	19.1	4.7	19.1	14.6
Jan 10	15.6	13.0	11.2	12.0	14.5	10.1	7.6	10.3	15.1	18.9	16.1	14.0	13.9	16.6	13.2	15.4	12.8	10.5	8.6	9.5	8.2	7.5	6.9	6.8	6.8	18.9	12.0
Jan 11	5.0	9.9	10.3	6.9	6.9	5.7	10.8	7.3	5.1	13.6	14.3	20.2	17.5	17.2	20.1	17.8	19.1	19.3	15.4	15.4	19.2	14.7	10.8	14.0	5.0	20.2	13.2
Jan 12	15.7	17.0	15.0	16.5	14.3	15.2	17.8	25.5	29.3	14.7	7.4	11.3	7.5	8.7	9.1	6.9	9.4	8.4	6.5	9.6	6.9	5.9	6.2	6.4	5.9	29.3	12.1
Jan 13	6.8	X	X	X	X	X	6.6	8.6	8.6	5.4	6.2	6.7	8.1	11.6	9.4	7.1	7.1	5.4	7.1	4.7	6.1	5.5	3.8	3.9	3.8	11.6	6.8
Jan 14	3.3	3.9	9.4	15.8	20.7	20.4	21.0	18.7	16.3	13.9	12.1	17.1	16.4	14.2	18.3	14.0	19.1	26.3	26.7	25.0	21.0	18.3	17.1	16.0	3.3	26.7	16.9
Jan 15	13.2	12.4	14.3	12.1	12.3	10.2	10.7	10.7	8.3	8.5	11.2	11.7	9.1	9.5	13.1	12.8	14.8	12.5	14.2	16.7	17.6	15.6	18.1	21.3	8.3	21.3	13.0
Jan 16	18.2	15.1	14.5	14.0	19.7	19.7	13.9	14.8	14.6	13.8	15.0	13.1	14.1	17.6	17.8	17.4	16.3	13.1	14.1	14.9	12.4	10.0	9.5	8.1	8.1	19.7	14.7
Jan 17	12.3	13.2	14.1	16.8	15.9	11.3	14.9	19.0	12.0	17.0	17.4	13.8	17.7	16.1	17.3	19.7	21.7	18.9	18.1	17.4	18.7	17.9	20.6	19.1	11.3	21.7	16.7
Jan 18	18.6	20.6	21.8	20.2	16.4	19.6	22.2	17.6	18.0	19.2	18.3	16.9	15.2	12.6	11.9	13.1	15.4	17.9	20.8	17.8	26.5	27.3	27.2	23.2	11.9	27.3	19.1
Jan 19	27.1	28.7	28.0	27.7	26.9	22.7	25.1	25.5	27.0	26.9	24.6	24.7	25.8	23.2	22.8	21.2	17.9	17.7	18.4	18.0	18.3	15.9	16.1	15.8	15.8	28.7	22.8
Jan 20	13.5	11.3	15.0	11.7	10.8	7.6	6.5	4.4	6.8	4.6	6.8	8.4	14.1	13.5	10.1	10.3	10.5	13.2	8.8	6.5	6.2	10.5	6.1	5.3	4.4	15.0	9.3
Jan 21	5.3	5.8	4.8	7.0	3.3	3.7	4.7	5.5	6.5	10.0	6.5	9.1	6.2	5.5	5.6	5.4	4.4	3.6	6.3	4.9	14.0	9.6	14.3	9.1	3.3	14.3	**6.7**
Jan 22	7.9	10.6	9.7	12.3	9.1	7.1	10.4	18.1	16.2	18.9	21.6	18.5	14.4	19.5	22.8	25.7	24.9	31.3	34.7	33.4	21.0	25.6	24.4	25.0	7.1	34.7	19.3
Jan 23	21.1	23.0	21.0	23.0	20.8	17.0	12.6	7.2	5.2	5.9	3.6	6.3	5.2	9.4	11.1	15.4	14.4	13.1	10.8	10.6	15.9	16.2	20.8	17.0	3.6	23.0	13.6
Jan 24	16.9	20.1	16.5	24.3	21.0	14.9	18.0	17.7	16.1	11.8	14.5	15.4	18.6	14.3	14.9	13.5	12.3	17.2	11.5	8.2	8.2	12.7	7.2	13.5	7.2	24.3	15.0
Jan 25	7.4	5.7	10.5	9.8	7.1	13.8	16.7	17.9	15.3	13.3	16.7	19.6	17.9	19.0	22.8	21.4	14.3	17.5	16.3	14.1	10.8	10.8	23.1	23.1	5.7	23.1	15.2
Jan 26	25.3	23.8	24.4	21.9	26.4	23.9	17.3	14.4	14.8	16.3	16.8	15.8	26.4	25.4	25.6	33.4	39.5	30.3	31.3	29.7	35.1	39.5	49.3	49.0	14.4	49.3	27.3
Jan 27	**60.6**	49.6	51.6	42.7	36.5	40.5	34.4	37.7	23.1	34.0	30.9	36.5	50.8	44.3	35.3	30.8	29.9	28.9	34.5	25.4	23.6	20.2	15.5	9.0	9.0	**60.6**	**34.4**
Jan 28	4.4	4.4	2.9	4.7	3.5	4.2	3.7	10.5	7.2	5.1	13.6	11.3	15.1	14.5	10.9	5.8	4.6	**2.5**	2.5	8.8	10.8	11.6	12.1	12.8	**2.5**	15.1	7.8
Jan 29	12.6	10.2	11.7	13.7	14.9	14.1	16.8	16.6	12.4	14.9	15.5	22.2	17.8	19.3	14.9	12.8	15.6	11.6	10.8	8.6	8.5	10.4	8.9	12.2	8.5	22.2	13.6
Jan 30	12.8	10.0	15.3	17.6	15.1	12.1	10.8	11.9	11.8	12.9	7.2	8.5	12.4	12.9	13.8	12.0	13.4	16.0	13.9	10.8	7.9	7.6	10.7	7.9	7.2	17.6	11.9
Jan 31	18.8	18.4	21.4	27.7	29.6	33.1	30.8	29.3	24.4	28.5	27.9	29.2	29.2	28.1	27.1	25.1	22.4	23.6	22.0	18.0	20.7	26.3	24.5	20.0	18.0	33.1	25.3
Diurnal Maximum	60.6	49.9	51.6	42.7	36.5	40.5	35.8	37.7	29.5	36.3	31.5	36.5	50.8	44.3	35.3	33.4	39.5	31.3	34.7	33.4	35.1	39.5	49.3	49.0			
Daiurnal Average	15.9	16.6	16.7	16.6	15.9	15.6	15.9	17.0	15.8	16.9	16.4	17.4	18.5	17.5	16.7	16.5	15.9	15.2	14.9	13.9	14.5	14.7	15.6	15.5			

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

Timeseries Chart of Hourly Instantaneous Maximum for WS - 986b Station



842 STATION

peace river area monitoring program pramp

PEACE RIVER AREA MONITORING PROGRAM

842b Station - January 2019

Summary of Hourly Instantaneous Maximums

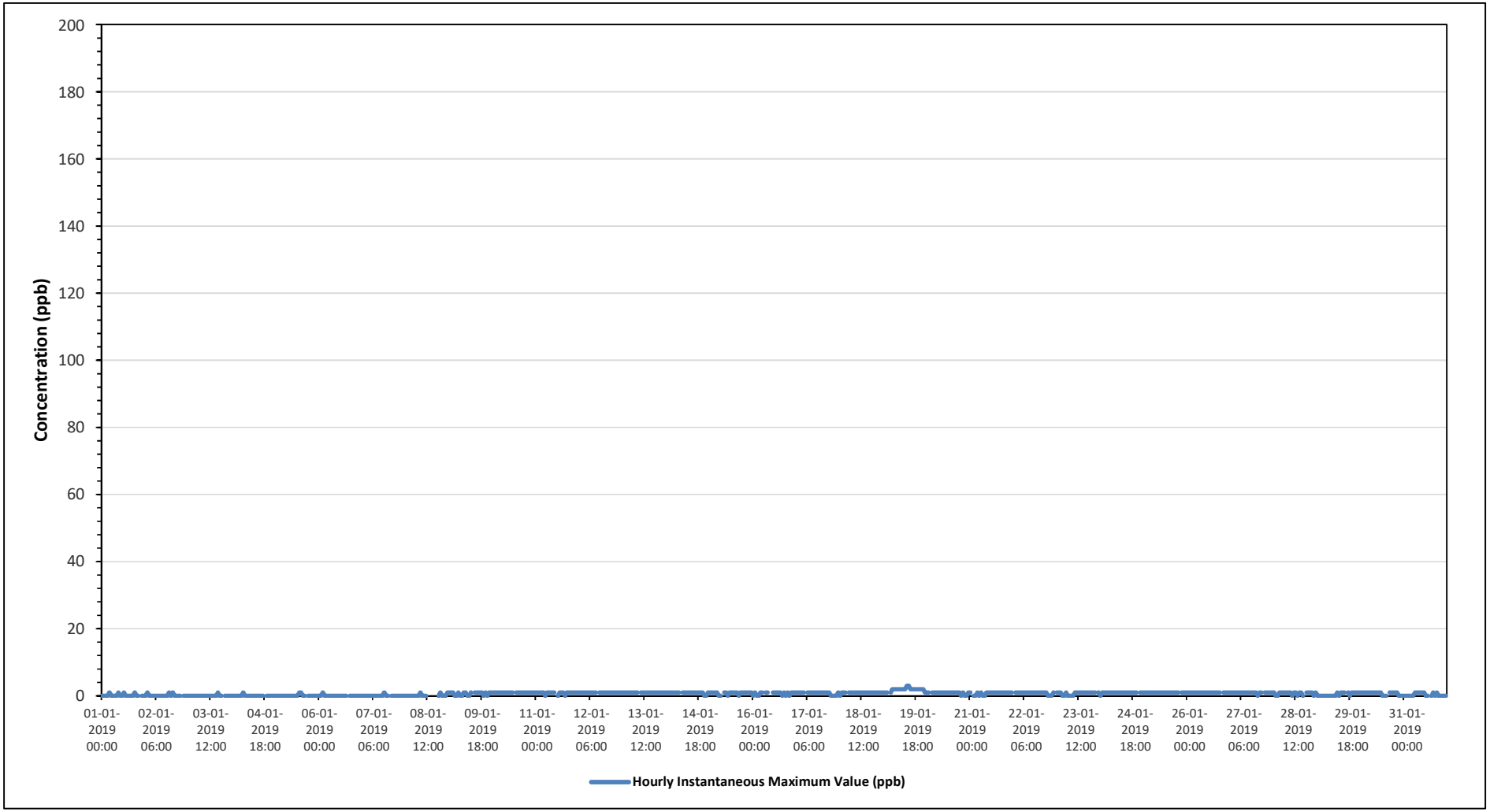
SULPHUR DIOXIDE (SO_2) in ppb

Maximum Hourly Value:	3	ppb	on January 19 at hour 13	Hours in Service:	744
Maximum Daily Value:	1.9	ppb	on January 19	Hours of Data:	705
Minimum Hourly Value:	0	ppb	on January 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on January 3	Hours of Calibration:	39
Monthly Average:	0.7	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Jan 1	**0**	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	S	0	0	**0**	1	0.2
Jan 2	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	S	0	0	0	0	1	0.1
Jan 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	S	0	0	0	0	0	1	**0.0**
Jan 4	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	0.0
Jan 5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	S	0	0	0	0	0	0	0	1	0.1
Jan 6	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0.0
Jan 7	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	S	0	0	0	0	0	0	0	0	0	1	0.0
Jan 8	0	0	0	0	0	0	0	0	1	0	0	0	C	C	C	C	C	C	0	1	0	0	0	1	0	1	0.2
Jan 9	1	1	1	0	0	1	0	0	1	1	0	0	1	S	1	1	1	1	1	0	1	0	1	1	0	1	0.7
Jan 10	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Jan 11	1	1	1	1	1	0	1	1	1	1	1	S	0	1	1	1	0	1	1	1	1	1	1	1	0	1	0.9
Jan 12	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Jan 13	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Jan 14	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	1	0.9
Jan 15	1	1	1	1	1	0	0	S	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	0.8
Jan 16	0	1	0	0	1	1	S	1	1	Q	Q	1	1	1	1	1	0	1	0	1	0	1	1	1	0	1	0.7
Jan 17	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	1	0.8
Jan 18	0	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1.0
Jan 19	1	1	1	S	1	2	2	2	2	2	2	2	2	**3**	**3**	2	2	2	2	2	2	2	2	1	1	**3**	**1.9**
Jan 20	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	0	1	0.9
Jan 21	1	S	0	0	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0.8
Jan 22	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	S	0	1	0.9
Jan 23	1	1	1	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	S	1	0	1	0.7
Jan 24	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	0	1	1.0
Jan 25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1.0
Jan 26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1.0
Jan 27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	S	1	1	1	1	1	0	1	1.0
Jan 28	1	0	0	1	1	1	1	1	1	1	0	1	1	0	1	1	0	S	1	1	1	1	0	1	0	1	0.7
Jan 29	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	S	1	0	1	1	1	1	1	0	1	0.4
Jan 30	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	S	1	1	1	1	1	0	0	0	0	1	0.7
Jan 31	0	0	0	0	0	0	1	1	1	1	1	1	0	0	S	0	1	0	1	0	0	0	0	0	0	1	0.3
Diurnal Maximum	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2	2	2	1			
Daiurnal Average	0.6	0.7	0.6	0.5	0.6	0.6	0.7	0.6	0.7	0.7	0.6	0.7	0.7	0.8	0.8	0.8	0.7	0.8	0.8	0.7	0.7	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

Timeseries Chart of Hourly Instantaneous Maximum for SO2 - 842b Station



peace river area monitoring program pramp

PEACE RIVER AREA MONITORING PROGRAM

842b Station - January 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

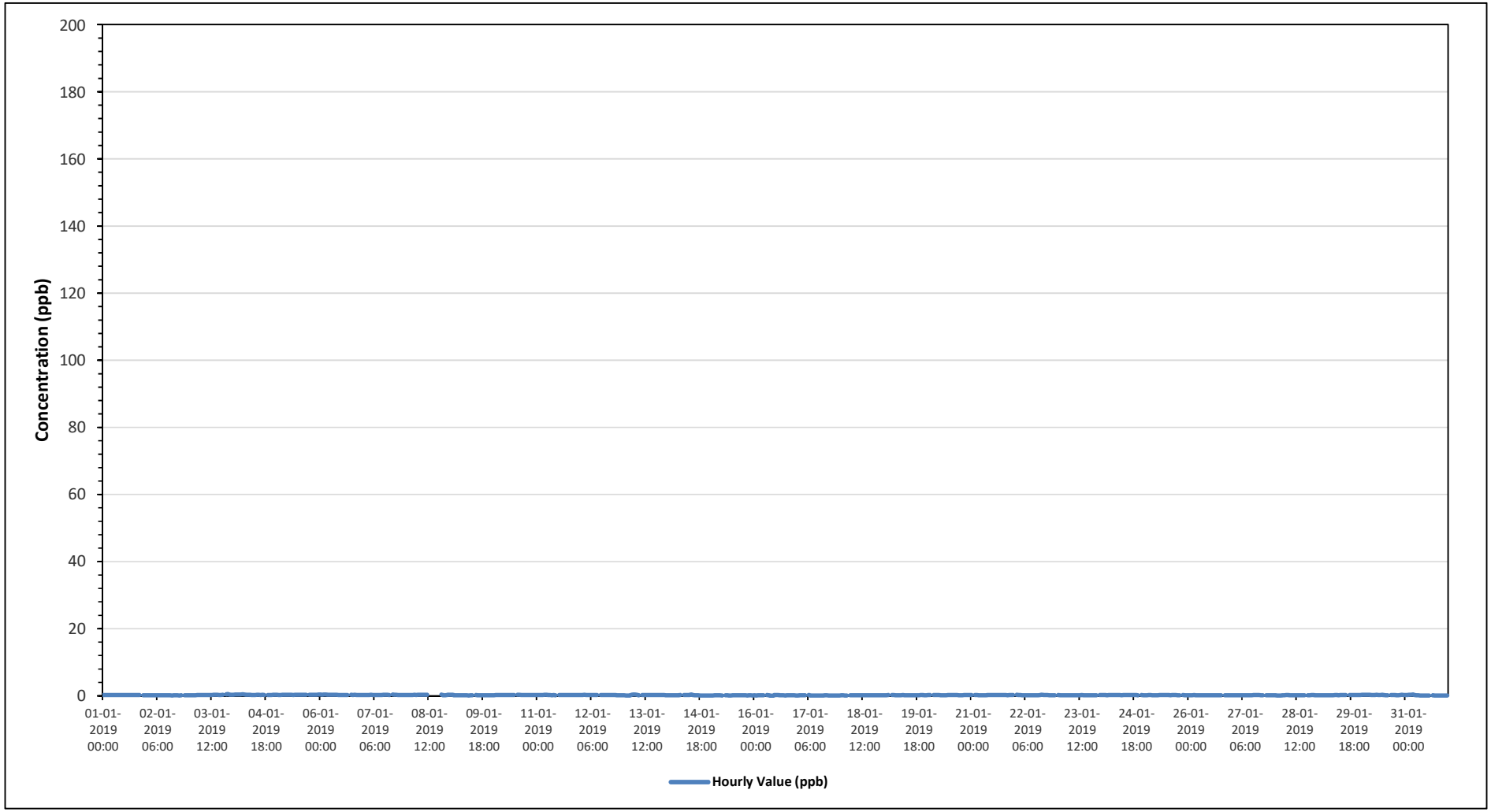
Number of 1-Hour Exceedences: 0 Number of 24-Hour Exceedences: 0

Maximum Hourly Value:	0.50	ppb	on January 3 at hour 21	Hours in Service:	744
Maximum Daily Value:	0.30	ppb	on January 4	Hours of Data:	704
Minimum Hourly Value:	0.08	ppb	on January 14 at hour 20	Hours of Missing Data:	0
Minimum Daily Value:	0.12	ppb	on January 17	Hours of Calibration:	40
Monthly Average:	0.20	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			
Jan 1	0.25	0.25	0.23	0.23	0.23	0.23	0.22	0.22	0.21	0.2	0.21	0.21	0.21	0.21	0.2	0.2	0.21	0.21	0.22	0.21	0.21	S	0.19	0.18	0.18	0.25	0.21
Jan 2	0.16	0.17	0.15	0.16	0.15	0.14	0.14	0.15	0.16	0.14	0.13	0.14	0.14	0.13	0.12	0.14	0.13	0.13	0.12	0.14	S	0.15	0.14	0.14	0.12	0.17	0.14
Jan 3	0.14	0.14	0.13	0.18	0.22	0.23	0.22	0.23	0.22	0.24	0.26	0.26	0.24	0.28	0.27	0.27	0.26	0.26	0.31	S	0.44	**0.5**	0.33	0.3	0.13	**0.50**	0.26
Jan 4	0.29	0.39	0.39	0.36	0.4	0.41	0.38	0.31	0.3	0.29	0.25	0.25	0.26	0.27	0.28	0.26	0.27	0.26	S	0.26	0.22	0.24	0.27	0.27	0.22	0.41	**0.30**
Jan 5	0.28	0.26	0.26	0.27	0.27	0.27	0.28	0.28	0.28	0.26	0.28	0.29	0.3	0.33	0.33	0.33	0.31	S	0.32	0.29	0.3	0.31	0.32	0.34	0.26	0.34	0.29
Jan 6	0.34	0.33	0.36	0.35	0.32	0.3	0.3	0.28	0.29	0.28	0.25	0.23	0.25	0.25	0.22	0.24	S	0.31	0.26	0.27	0.26	0.26	0.23	0.24	0.22	0.36	0.28
Jan 7	0.24	0.25	0.21	0.25	0.27	0.23	0.23	0.23	0.23	0.24	0.25	0.27	0.27	0.28	0.23	S	0.38	0.31	0.27	0.24	0.22	0.22	0.23	0.22	0.21	0.38	0.25
Jan 8	0.22	0.22	0.23	0.25	0.28	0.26	0.28	0.28	0.29	0.31	0.31	0.28	C	C	C	C	C	C	C	0.34	0.19	0.17	0.2	0.27	0.17	0.34	0.26
Jan 9	0.29	0.28	0.19	0.17	0.17	0.17	0.17	0.13	0.13	0.13	0.12	0.14	0.14	S	0.2	0.14	0.14	0.15	0.16	0.16	0.16	0.17	0.16	0.18	0.12	0.29	0.17
Jan 10	0.18	0.22	0.22	0.21	0.25	0.26	0.23	0.21	0.23	0.24	0.23	0.24	S	0.32	0.27	0.25	0.25	0.22	0.21	0.22	0.2	0.21	0.22	0.23	0.18	0.32	0.23
Jan 11	0.24	0.25	0.26	0.24	0.28	0.27	0.24	0.21	0.19	0.21	0.19	S	0.25	0.24	0.24	0.25	0.24	0.21	0.22	0.22	0.23	0.22	0.25	0.25	0.19	0.28	0.23
Jan 12	0.23	0.25	0.28	0.26	0.25	0.24	0.22	0.2	0.24	0.24	S	0.25	0.26	0.24	0.22	0.23	0.21	0.21	0.21	0.24	0.19	0.19	0.16	0.15	0.15	0.28	0.22
Jan 13	0.14	0.11	0.09	0.12	0.29	0.38	0.37	0.27	0.19	S	0.22	0.21	0.24	0.21	0.21	0.21	0.23	0.22	0.25	0.25	0.23	0.21	0.2	0.19	0.09	0.38	0.22
Jan 14	0.18	0.17	0.17	0.18	0.16	0.16	0.19	0.2	S	0.21	0.2	0.2	0.26	0.34	0.2	0.16	0.15	0.14	0.12	0.1	**0.08**	0.09	0.1	0.12	**0.08**	0.34	0.17
Jan 15	0.09	0.12	0.14	0.16	0.17	0.13	0.11	S	0.19	0.17	0.12	0.08	0.15	0.17	0.16	0.13	0.13	0.13	0.16	0.16	0.12	0.13	0.14	0.12	0.08	0.19	0.14
Jan 16	0.14	0.12	0.13	0.15	0.19	0.19	S	0.24	0.18	Q	Q	0.23	0.21	0.21	0.18	0.13	0.13	0.12	0.13	0.13	0.13	0.15	0.14	0.11	0.11	0.24	0.16
Jan 17	0.11	0.14	0.15	0.16	0.13	S	0.2	0.11	0.12	0.09	0.09	0.09	0.09	0.1	0.11	0.13	0.13	0.1	0.1	0.1	0.1	0.11	0.11	0.11	0.09	0.20	**0.12**
Jan 18	0.13	0.14	0.12	0.12	S	0.19	0.16	0.14	0.14	0.16	0.16	0.14	0.15	0.15	0.15	0.16	0.15	0.19	0.19	0.18	0.16	0.15	0.16	0.16	0.12	0.19	0.15
Jan 19	0.18	0.19	0.2	S	0.23	0.21	0.19	0.18	0.18	0.19	0.21	0.19	0.19	0.18	0.17	0.18	0.17	0.17	0.19	0.18	0.2	0.2	0.18	0.19	0.17	0.23	0.19
Jan 20	0.2	0.21	S	0.25	0.23	0.22	0.23	0.18	0.17	0.16	0.19	0.26	0.25	0.24	0.21	0.2	0.21	0.19	0.19	0.19	0.2	0.21	0.21	0.22	0.16	0.26	0.21
Jan 21	0.2	S	0.24	0.22	0.17	0.18	0.18	0.14	0.13	0.2	0.2	0.2	0.23	0.21	0.22	0.23	0.21	0.2	0.2	0.2	0.18	0.21	0.22	0.2	0.13	0.24	0.20
Jan 22	S	0.28	0.23	0.2	0.19	0.17	0.16	0.15	0.15	0.17	0.17	0.18	0.18	0.18	0.2	0.31	0.26	0.23	0.2	0.19	0.17	0.17	0.16	S	0.15	0.31	0.20
Jan 23	0.22	0.17	0.16	0.13	0.14	0.15	0.14	0.14	0.13	0.13	0.13	0.13	0.13	0.21	0.16	0.15	0.16	0.16	0.16	0.15	0.13	0.15	S	0.21	0.13	0.22	0.15
Jan 24	0.2	0.2	0.21	0.18	0.21	0.22	0.22	0.22	0.21	0.21	0.22	0.19	0.2	0.22	0.23	0.23	0.22	0.23	0.24	0.21	0.16	S	0.22	0.19	0.16	0.24	0.21
Jan 25	0.19	0.18	0.21	0.2	0.19	0.18	0.18	0.19	0.2	0.22	0.22	0.22	0.23	0.2	0.18	0.2	0.21	0.21	0.19	0.17	S	0.2	0.17	0.19	0.17	0.23	0.20
Jan 26	0.19	0.19	0.18	0.2	0.17	0.19	0.16	0.17	0.18	0.19	0.17	0.16	0.16	0.15	0.16	0.16	0.16	0.14	0.14	S	0.17	0.15	0.14	0.15	0.14	0.20	0.17
Jan 27	0.15	0.14	0.14	0.14	0.17	0.17	0.18	0.19	0.15	0.16	0.18	0.18	0.21	0.21	0.22	0.2	0.19	0.17	S	0.19	0.18	0.16	0.15	0.15	0.14	0.22	0.17
Jan 28	0.13	0.12	0.09	0.1	0.13	0.15	0.23	0.21	0.17	0.15	0.17	0.17	0.19	0.18	0.16	0.16	0.16	S	0.15	0.14	0.23	0.2	0.17	0.15	0.09	0.23	0.16
Jan 29	0.16	0.15	0.15	0.13	0.17	0.15	0.14	0.13	0.13	0.23	0.2	0.19	0.26	0.25	0.22	0.21	S	0.22	0.21	0.24	0.21	0.24	0.24	0.22	0.13	0.26	0.19
Jan 30	0.29	0.3	0.28	0.31	0.28	0.25	0.24	0.23	0.28	0.22	0.25	0.32	0.24	0.19	0.19	S	0.24	0.2	0.2	0.18	0.18	0.2	0.28	0.24	0.18	0.32	0.24
Jan 31	0.24	0.25	0.27	0.3	0.34	0.26	0.19	0.14	0.1	0.11	0.1	0.11	0.09	0.08	S	0.13	0.09	0.08	0.09	0.1	0.09	0.1	0.08	0.09	0.08	0.34	0.15
Diurnal Maximum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0			
Daiurnal Average	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	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

Timeseries Chart of Hourly Average for TRS - 842b Station



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PEACE RIVER AREA MONITORING PROGRAM

842b Station - January 2019

Summary of Hourly Instantaneous Maximums

TOTAL HYDROCARBONS (THC) in ppm

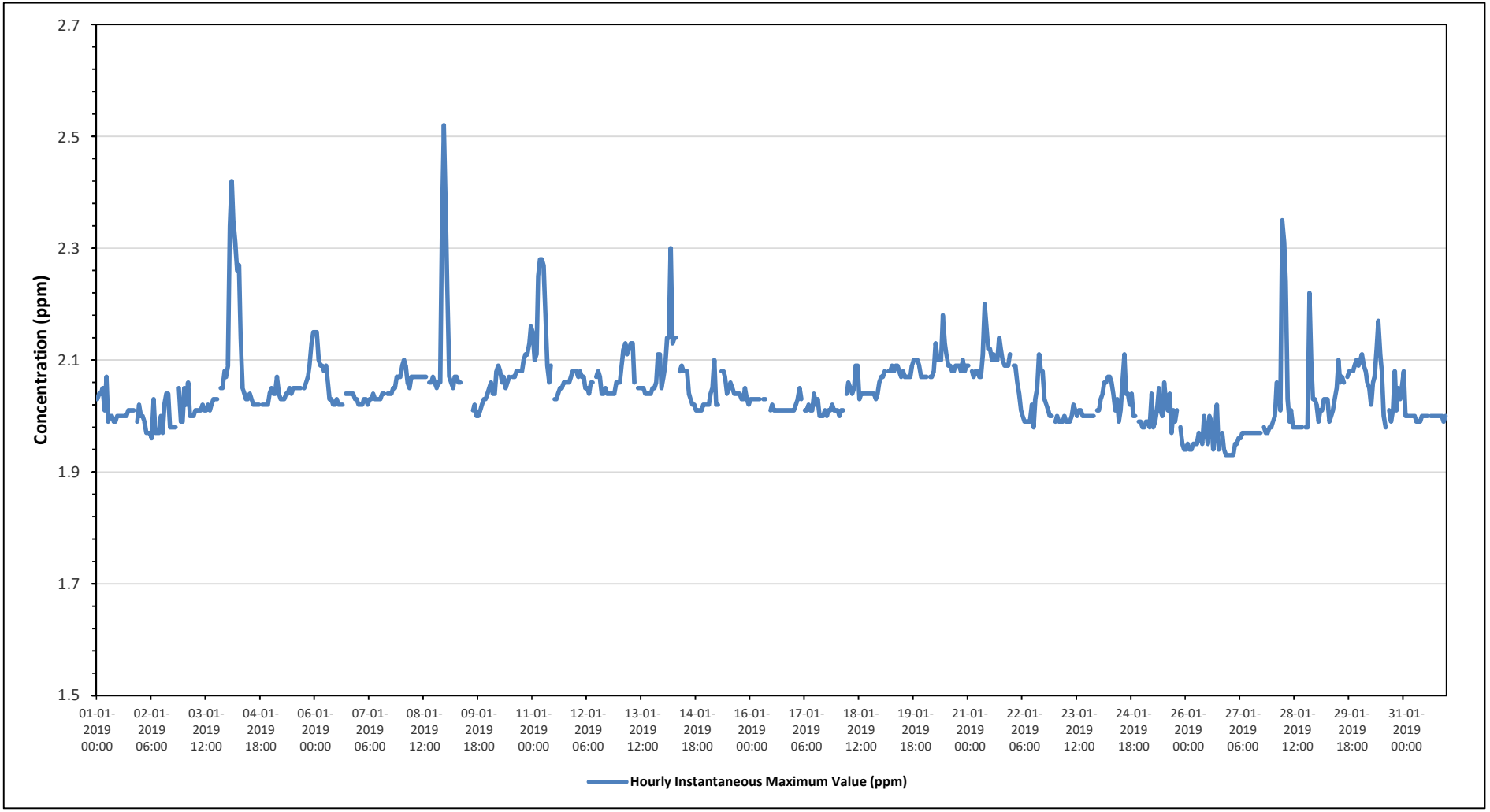
Maximum Hourly Value:	2.52	ppm	on January	at hour	
Maximum Daily Value:	2.11	ppm	on January		
Minimum Hourly Value:	1.93	ppm	on January	at hour	
Minimum Daily Value:	1.96	ppm	on January		
Monthly Average:	2.05	ppm			

Hours in Service:	744
Hours of Data:	705
Hours of Missing Data:	0
Hours of Calibration:	39
Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	2.03	2.04	2.04	2.05	2.01	2.07	1.99	2.00	2.00	1.99	1.99	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.01	S	1.99	2.02	1.99	2.07	2.01
Jan 2	2.00	2.00	1.99	1.97	1.97	1.97	1.96	2.03	1.97	1.97	1.97	2.00	1.97	2.02	2.04	2.04	1.98	1.98	1.98	1.98	S	2.05	1.99	1.99	1.96	2.05	1.99
Jan 3	2.05	2.02	2.06	2.00	2.00	2.00	2.01	2.01	2.01	2.01	2.02	2.01	2.01	2.02	2.01	2.02	2.03	2.03	2.03	S	2.05	2.05	2.08	2.07	2.00	2.08	2.03
Jan 4	2.09	2.34	2.42	2.35	2.31	2.26	2.27	2.14	2.05	2.04	2.03	2.03	2.04	2.03	2.02	2.02	2.02	2.02	S	2.02	2.02	2.02	2.02	2.04	2.02	2.42	**2.11**
Jan 5	2.05	2.04	2.04	2.07	2.04	2.03	2.03	2.03	2.04	2.04	2.05	2.04	2.05	2.05	2.05	2.05	2.05	S	2.05	2.06	2.07	2.09	2.13	2.15	2.03	2.15	2.06
Jan 6	2.15	2.15	2.10	2.09	2.09	2.08	2.09	2.06	2.03	2.03	2.02	2.02	2.03	2.02	2.02	2.02	S	2.04	2.04	2.04	2.04	2.04	2.03	2.03	2.02	2.15	2.05
Jan 7	2.02	2.02	2.02	2.03	2.03	2.02	2.03	2.03	2.04	2.03	2.03	2.03	2.03	2.04	2.04	S	2.04	2.04	2.04	2.05	2.05	2.07	2.07	2.07	2.02	2.07	2.04
Jan 8	2.09	2.10	2.09	2.06	2.05	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	S	2.06	2.06	2.07	2.06	2.05	2.06	2.06	2.36	**2.52**	2.05	**2.52**	2.10
Jan 9	2.36	2.22	2.07	2.06	2.05	2.07	2.07	2.06	2.06	C	C	C	C	C	C	2.01	2.02	2.00	2.00	2.01	2.02	2.03	2.03	2.04	2.00	2.36	2.07
Jan 10	2.05	2.06	2.04	2.04	2.08	2.09	2.08	2.06	2.07	2.05	2.06	2.07	S	2.07	2.07	2.08	2.08	2.08	2.08	2.10	2.11	2.11	2.13	2.16	2.04	2.16	2.08
Jan 11	2.15	2.10	2.11	2.25	2.28	2.28	2.27	2.18	2.09	2.06	2.09	S	2.03	2.03	2.04	2.05	2.05	2.06	2.06	2.06	2.06	2.07	2.08	2.08	2.03	2.28	2.11
Jan 12	2.08	2.07	2.08	2.07	2.07	2.05	2.05	2.04	2.06	2.06	S	2.07	2.08	2.07	2.04	2.04	2.05	2.04	2.04	2.04	2.04	2.04	2.06	2.06	2.04	2.08	2.06
Jan 13	2.06	2.09	2.12	2.13	2.11	2.12	2.13	2.13	2.06	S	2.05	2.05	2.05	2.05	2.04	2.04	2.04	2.04	2.05	2.05	2.06	2.11	2.11	2.05	2.04	2.13	2.08
Jan 14	2.07	2.09	2.14	2.14	2.30	2.13	2.14	2.14	S	2.08	2.09	2.08	2.08	2.08	2.04	2.03	2.02	2.02	2.01	2.01	2.01	2.01	2.02	2.02	2.01	2.30	2.08
Jan 15	2.02	2.02	2.04	2.05	2.10	2.02	2.02	S	2.08	2.08	2.07	2.04	2.05	2.06	2.05	2.04	2.04	2.04	2.04	2.03	2.03	2.05	2.03	2.02	2.02	2.10	2.04
Jan 16	2.03	2.03	2.03	2.03	2.03	2.03	S	2.03	2.03	Q	Q	2.01	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.03	2.02
Jan 17	2.01	2.02	2.03	2.05	2.03	S	2.01	2.01	2.02	2.01	2.01	2.04	2.02	2.03	2.00	2.00	2.00	2.01	2.00	2.01	2.01	2.02	2.01	2.01	2.00	2.05	2.02
Jan 18	2.01	2.00	2.01	2.01	S	2.04	2.06	2.05	2.04	2.05	2.09	2.09	2.03	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.03	2.04	2.06	2.00	2.09	2.04
Jan 19	2.07	2.07	2.08	S	2.08	2.08	2.09	2.08	2.09	2.09	2.08	2.07	2.08	2.07	2.07	2.07	2.07	2.09	2.10	2.10	2.10	2.09	2.07	2.07	2.07	2.10	2.08
Jan 20	2.07	2.07	S	2.07	2.07	2.08	2.13	2.10	2.10	2.10	2.18	2.13	2.11	2.09	2.09	2.08	2.08	2.09	2.09	2.09	2.08	2.10	2.08	2.09	2.07	2.18	2.09
Jan 21	2.09	S	2.08	2.07	2.08	2.08	2.07	2.07	2.11	2.20	2.16	2.12	2.12	2.10	2.11	2.10	2.10	2.14	2.12	2.10	2.09	2.09	2.09	2.11	2.07	2.20	2.10
Jan 22	S	2.09	2.09	2.06	2.04	2.01	2.00	1.99	1.99	1.99	1.99	2.02	1.98	2.03	2.05	2.11	2.08	2.08	2.03	2.02	2.01	2.00	2.00	S	1.98	2.11	2.03
Jan 23	1.99	2.00	1.99	1.99	1.99	2.00	1.99	1.99	1.99	2.00	2.02	2.01	2.00	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	S	2.01	1.99	2.02	2.00
Jan 24	2.01	2.03	2.04	2.06	2.06	2.07	2.07	2.06	2.04	2.01	2.03	1.99	2.01	2.06	2.11	2.04	2.04	2.02	2.04	2.00	2.00	S	1.99	1.99	1.99	2.11	2.03
Jan 25	1.98	1.98	1.99	1.99	1.98	2.04	1.98	1.99	2.01	2.05	2.01	2.00	2.06	2.02	2.01	2.04	1.97	2.01	1.99	2.01	S	1.98	1.95	1.94	1.94	2.06	2.00
Jan 26	1.94	1.95	1.94	1.94	1.95	1.95	1.95	1.97	1.96	1.95	2.00	1.97	1.95	2.00	1.99	1.94	1.97	2.02	1.94	S	1.97	1.94	1.93	1.93	1.93	2.02	**1.96**
Jan 27	1.93	1.93	1.93	1.95	1.95	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	S	1.98	1.97	1.97	1.98	1.98	1.93	1.98	1.96
Jan 28	1.99	2.00	2.06	2.05	2.01	2.35	2.31	2.24	2.03	1.99	2.01	1.98	1.98	1.98	1.98	1.98	1.98	S	1.98	1.98	2.22	2.10	2.03	2.03	1.98	2.35	2.05
Jan 29	2.02	1.99	2.01	2.01	2.03	2.03	2.03	1.99	2.00	2.01	2.03	2.05	2.10	2.06	2.07	2.06	S	2.07	2.08	2.08	2.08	2.09	2.10	2.09	1.99	2.10	2.05
Jan 30	2.10	2.11	2.09	2.08	2.06	2.05	2.02	2.06	2.07	2.12	2.17	2.11	2.08	2.00	1.98	S	2.01	1.99	2.01	2.08	2.01	2.05	2.03	2.05	1.98	2.17	2.06
Jan 31	2.08	2.00	2.00	2.00	2.00	2.00	2.00	1.99	1.99	1.99	2.00	2.00	2.00	2.00	S	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.99	2.00	1.99	2.08	2.00
Diurnal Maximum	2.36	2.34	2.42	2.35	2.31	2.35	2.31	2.24	2.11	2.20	2.18	2.13	2.12	2.10	2.11	2.11	2.10	2.14	2.12	2.10	2.22	2.11	2.36	2.52			
Daiurnal Average	2.05	2.05	2.06	2.06	2.06	2.07	2.06	2.05	2.04	2.04	2.05	2.04	2.03	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.04	2.04	2.05	2.06			

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

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



PEACE RIVER AREA MONITORING PROGRAM

842b Station - January 2019

Summary of Hourly Instantaneous Maximums

METHANE (CH4) in ppm

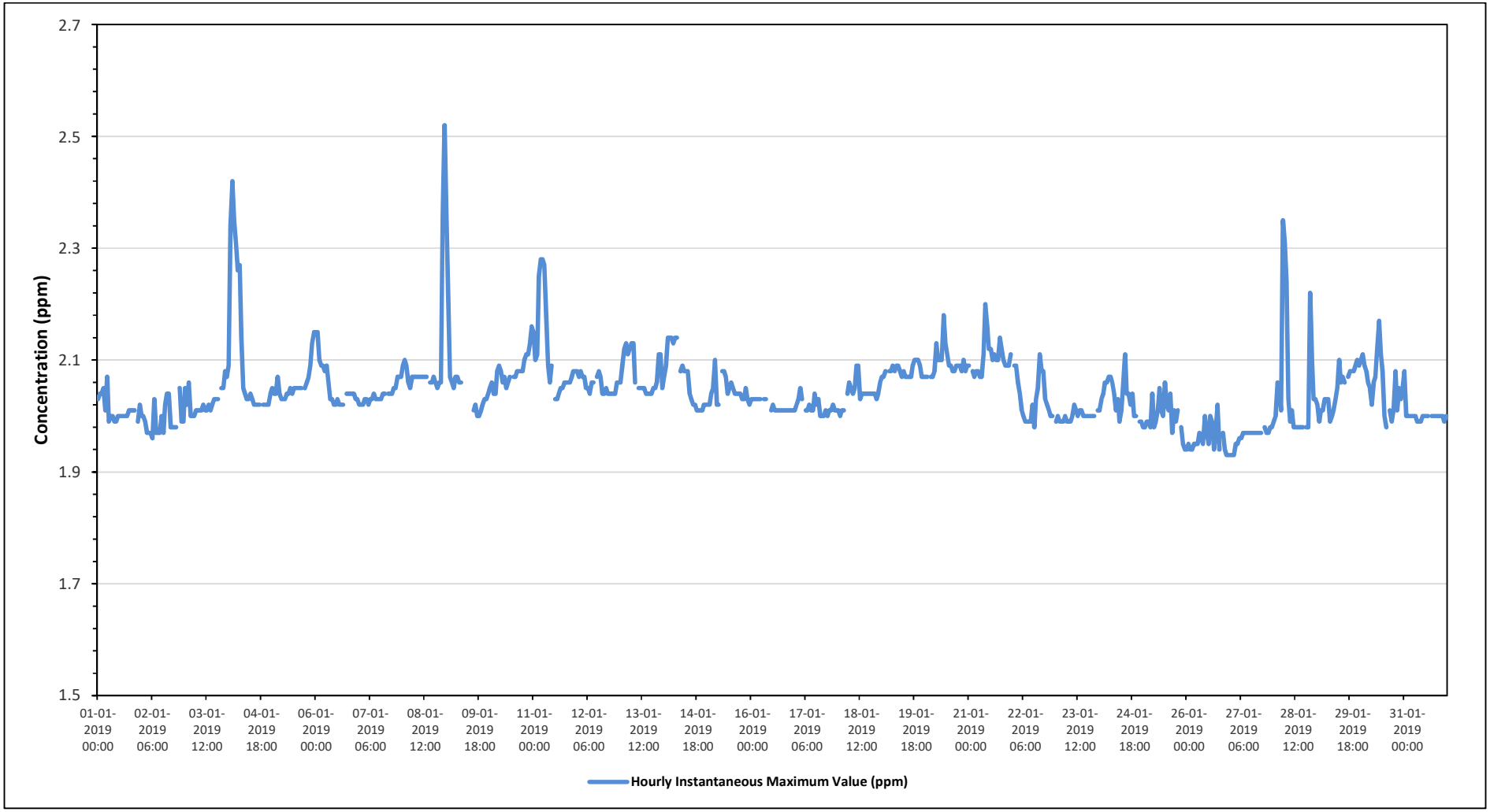
Maximum Hourly Value:	2.52	ppm	on January 8 at hour 23	Hours in Service:	744
Maximum Daily Value:	2.11	ppm	on January 4	Hours of Data:	704
Minimum Hourly Value:	1.93	ppm	on January 26 at hour 22	Hours of Missing Data:	1
Minimum Daily Value:	1.96	ppm	on January 26	Hours of Calibration:	39
Monthly Average:	2.04	ppm		Operational Uptime:	99.9

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	2.03	2.04	2.04	2.05	2.01	2.07	1.99	2.00	2.00	1.99	1.99	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.01	S	1.99	2.02	1.99	2.07	2.01
Jan 2	2.00	2.00	1.99	1.97	1.97	1.97	1.96	2.03	1.97	1.97	1.97	2.00	1.97	2.02	2.04	2.04	1.98	1.98	1.98	1.98	S	2.05	1.99	1.99	1.96	2.05	1.99
Jan 3	2.05	2.02	2.06	2.00	2.00	2.00	2.01	2.01	2.01	2.01	2.02	2.01	2.01	2.02	2.01	2.02	2.03	2.03	2.03	S	2.05	2.05	2.08	2.07	2.00	2.08	2.03
Jan 4	2.09	2.34	2.42	2.35	2.31	2.26	2.27	2.14	2.05	2.04	2.03	2.03	2.04	2.03	2.02	2.02	2.02	2.02	S	2.02	2.02	2.02	2.02	2.04	2.02	2.42	**2.11**
Jan 5	2.05	2.04	2.04	2.07	2.04	2.03	2.03	2.03	2.04	2.04	2.05	2.04	2.05	2.05	2.05	2.05	2.05	S	2.05	2.06	2.07	2.09	2.13	2.15	2.03	2.15	2.06
Jan 6	2.15	2.15	2.10	2.09	2.09	2.08	2.09	2.06	2.03	2.03	2.02	2.02	2.03	2.02	2.02	2.02	S	2.04	2.04	2.04	2.04	2.04	2.03	2.03	2.02	2.15	2.05
Jan 7	2.02	2.02	2.02	2.03	2.03	2.02	2.03	2.03	2.04	2.03	2.03	2.03	2.03	2.04	2.04	S	2.04	2.04	2.04	2.05	2.05	2.07	2.07	2.07	2.02	2.07	2.04
Jan 8	2.09	2.10	2.09	2.06	2.05	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	S	2.06	2.06	2.07	2.06	2.05	2.06	2.06	2.36	**2.52**	2.05	**2.52**	2.10
Jan 9	2.36	2.22	2.07	2.06	2.05	2.07	2.07	2.06	2.06	S	S	S	S	S	S	2.01	2.02	2.00	2.00	2.01	2.02	2.03	2.03	2.04	2.00	2.36	2.07
Jan 10	2.05	2.06	2.04	2.04	2.08	2.09	2.08	2.06	2.07	2.05	2.06	2.07	S	2.07	2.07	2.08	2.08	2.08	2.08	2.10	2.11	2.11	2.13	2.16	2.04	2.16	2.08
Jan 11	2.15	2.10	2.11	2.25	2.28	2.28	2.27	2.18	2.09	2.06	2.09	S	2.03	2.03	2.04	2.05	2.05	2.06	2.06	2.06	2.06	2.07	2.08	2.08	2.03	2.28	2.11
Jan 12	2.08	2.07	2.08	2.07	2.07	2.05	2.05	2.04	2.06	2.06	S	2.07	2.08	2.07	2.04	2.04	2.05	2.04	2.04	2.04	2.04	2.04	2.06	2.06	2.04	2.08	2.06
Jan 13	2.06	2.09	2.12	2.13	2.11	2.12	2.13	2.13	2.06	S	2.05	2.05	2.05	2.05	2.04	2.04	2.04	2.04	2.05	2.05	2.06	2.11	2.11	2.05	2.04	2.13	2.08
Jan 14	2.07	2.09	2.14	2.14	2.14	2.13	2.14	2.14	S	2.08	2.09	2.08	2.08	2.08	2.04	2.03	2.02	2.02	2.01	2.01	2.01	2.01	2.02	2.02	2.01	2.14	2.07
Jan 15	2.02	2.02	2.04	2.05	2.10	2.02	2.02	S	2.08	2.08	2.07	2.04	2.05	2.06	2.05	2.04	2.04	2.04	2.04	2.03	2.03	2.05	2.03	2.02	2.02	2.10	2.04
Jan 16	2.03	2.03	2.03	2.03	2.03	2.03	S	2.03	2.03	Q	Q	2.01	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.03	2.02
Jan 17	2.01	2.02	2.03	2.05	2.03	S	2.01	2.01	2.02	2.01	2.01	2.04	2.02	2.03	2.00	2.00	2.00	2.01	2.00	2.01	2.01	2.02	2.01	2.01	2.00	2.05	2.02
Jan 18	2.01	2.00	2.01	2.01	S	2.04	2.06	2.05	2.04	2.05	2.09	2.09	2.03	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.03	2.04	2.06	2.00	2.09	2.04
Jan 19	2.07	2.07	2.08	S	2.08	2.08	2.09	2.08	2.09	2.09	2.08	2.07	2.08	2.07	2.07	2.07	2.07	2.09	2.10	2.10	2.10	2.09	2.07	2.07	2.07	2.10	2.08
Jan 20	2.07	2.07	S	2.07	2.07	2.08	2.13	2.10	2.10	2.10	2.18	2.13	2.11	2.09	2.09	2.08	2.08	2.09	2.09	2.09	X	2.10	2.08	2.09	2.07	2.18	2.10
Jan 21	2.09	S	2.08	2.07	2.08	2.08	2.07	2.07	2.11	2.20	2.16	2.12	2.12	2.10	2.11	2.10	2.10	2.14	2.12	2.10	2.09	2.09	2.09	2.11	2.07	2.20	2.10
Jan 22	S	2.09	2.09	2.06	2.04	2.01	2.00	1.99	1.99	1.99	1.99	2.02	1.98	2.03	2.05	2.11	2.08	2.08	2.03	2.02	2.01	2.00	2.00	S	1.98	2.11	2.03
Jan 23	1.99	2.00	1.99	1.99	1.99	2.00	1.99	1.99	1.99	2.00	2.02	2.01	2.00	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	S	2.01	1.99	2.02	2.00
Jan 24	2.01	2.03	2.04	2.06	2.06	2.07	2.07	2.06	2.04	2.01	2.03	1.99	2.01	2.06	2.11	2.04	2.04	2.02	2.04	2.00	2.00	S	1.99	1.99	1.99	2.11	2.03
Jan 25	1.98	1.98	1.99	1.99	1.98	2.04	1.98	1.99	2.01	2.05	2.01	2.00	2.06	2.02	2.01	2.04	1.97	2.01	1.99	2.01	S	1.98	1.95	1.94	1.94	2.06	2.00
Jan 26	1.94	1.95	1.94	1.94	1.95	1.95	1.95	1.97	1.96	1.95	2.00	1.97	1.95	2.00	1.99	1.94	1.97	2.02	1.94	S	1.97	1.94	**1.93**	1.93	**1.93**	2.02	**1.96**
Jan 27	1.93	1.93	1.93	1.95	1.95	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	S	1.98	1.97	1.97	1.98	1.98	1.93	1.98	1.96
Jan 28	1.99	2.00	2.06	2.05	2.01	2.35	2.31	2.24	2.03	1.99	2.01	1.98	1.98	1.98	1.98	1.98	1.98	S	1.98	1.98	2.22	2.10	2.03	2.03	1.98	2.35	2.05
Jan 29	2.02	1.99	2.01	2.01	2.03	2.03	2.03	1.99	2.00	2.01	2.03	2.05	2.10	2.06	2.07	2.06	S	2.07	2.08	2.08	2.08	2.09	2.10	2.09	1.99	2.10	2.05
Jan 30	2.10	2.11	2.09	2.08	2.06	2.05	2.02	2.06	2.07	2.12	2.17	2.11	2.08	2.00	1.98	S	2.01	1.99	2.01	2.08	2.01	2.05	2.03	2.05	1.98	2.17	2.06
Jan 31	2.08	2.00	2.00	2.00	2.00	2.00	2.00	1.99	1.99	1.99	2.00	2.00	2.00	2.00	S	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.99	2.00	1.99	2.08	2.00
Diurnal Maximum	2.36	2.34	2.42	2.35	2.31	2.35	2.31	2.24	2.11	2.20	2.18	2.13	2.12	2.10	2.11	2.11	2.10	2.14	2.12	2.10	2.22	2.11	2.36	2.52			
Daiurnal Average	2.05	2.05	2.06	2.06	2.06	2.07	2.06	2.05	2.04	2.04	2.05	2.04	2.03	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.04	2.04	2.05	2.06			

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

Note: Hourly instantaneous maximums recorded on Jan 20 at hour 20 was flaged as machine malfunction (X). The recorded value was 520000.

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



PEACE RIVER AREA MONITORING PROGRAM

842b Station - January 2019

Summary of Hourly Instantaneous Maximums

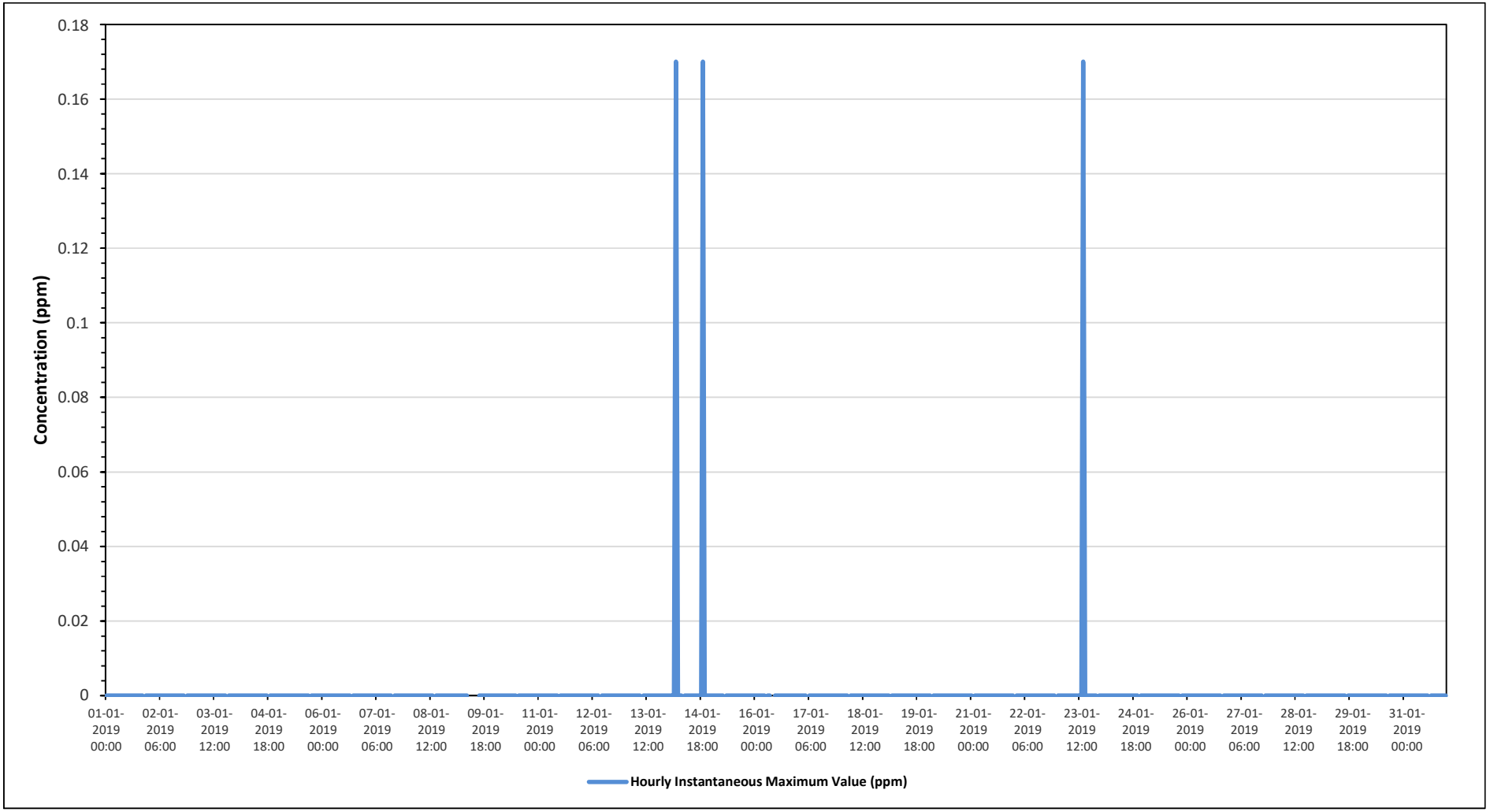
NON-METHANE HYDROCARBONS (NMHC) in ppm

Maximum Hourly Value:	0.17	ppm	on January 14 at hour 4	Hours in Service:	744
Maximum Daily Value:	0.01	ppm	on January 14	Hours of Data:	705
Minimum Hourly Value:	0.00	ppm	on January 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.00	ppm	on January 1	Hours of Calibration:	39
Monthly Average:	0.00	ppm		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	**0.00**	0.00	**0.00**
Jan 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00
Jan 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 9	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	0.00	0.00	0.00	0.00	0.00	0.00
Jan 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	0.00
Jan 11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 14	0.00	0.00	0.00	0.00	**0.17**	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.17**	0.00	0.00	0.00	0.00	0.00	**0.17**	**0.01**
Jan 15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 16	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	Q	Q	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 17	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 18	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 19	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 20	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 21	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 22	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00
Jan 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	**0.17**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	**0.17**	0.01
Jan 24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00
Jan 25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00
Jan 26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diurnal Maximum	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00			
Daiurnal Average	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	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

Timeseries Chart of Hourly Instantaneous Maximum for NMHC - 842b Station



peace river area monitoring program pramp

PEACE RIVER AREA MONITORING PROGRAM

842b Station - January 2019

Summary of Hourly Instantaneous Maximums

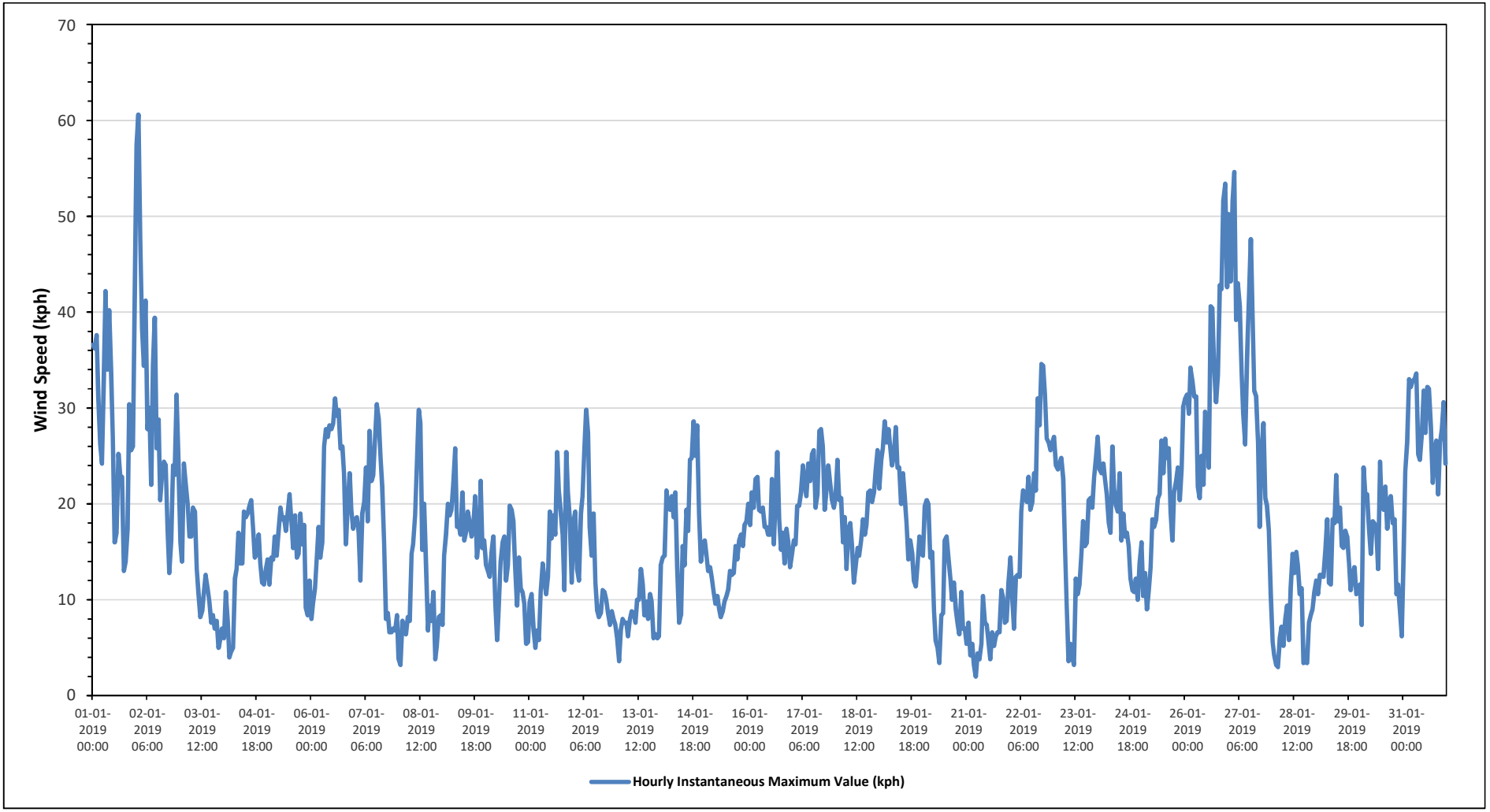
WIND SPEED (WS) in km/h

Maximum Hourly Value:	60.6	kph	on January 2 at hour 1	Hours in Service:	744
Maximum Daily Value:	33.6	kph	on January 27	Hours of Data:	743
Minimum Hourly Value:	2.0	kph	on January 21 at hour 5	Hours of Missing Data:	0
Minimum Daily Value:	6.5	kph	on January 21	Hours of Calibration:	1
Monthly Average:	18.0	kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	36.6	36.2	37.6	31.2	26.2	24.2	33.2	42.2	34.0	40.2	33.6	27.0	16.0	17.0	25.2	22.8	22.8	13.0	14.0	17.4	30.4	25.6	26.0	42.6	13.0	42.6	28.1
Jan 2	57.4	**60.6**	47.6	38.2	34.4	41.2	27.8	30.0	22.0	34.4	39.4	25.8	28.8	20.4	23.2	24.4	24.0	17.4	12.8	16.2	24.0	23.0	31.4	24.2	12.8	**60.6**	30.4
Jan 3	16.0	14.0	24.2	22.2	20.0	16.6	16.6	19.6	19.2	13.2	10.8	8.2	8.8	11.0	12.6	11.2	9.8	7.6	8.4	7.0	7.8	5.0	6.0	7.0	5.0	24.2	12.6
Jan 4	6.0	10.8	7.8	4.0	4.6	5.0	12.2	13.2	17.0	13.8	13.8	19.2	18.6	19.0	19.8	20.4	17.6	14.4	15.0	16.8	13.8	11.8	11.6	13.2	4.0	20.4	13.3
Jan 5	14.2	11.6	14.4	14.2	16.6	14.6	17.2	19.6	18.4	18.6	17.2	19.2	21.0	18.4	15.4	18.8	14.4	14.8	19.0	15.8	17.8	9.2	8.4	12.0	8.4	21.0	15.9
Jan 6	8.0	9.6	11.2	14.4	17.6	14.4	16.0	26.0	27.8	27.0	28.2	27.8	28.4	31.0	29.2	29.8	25.8	26.0	23.2	15.8	20.0	23.2	19.4	17.4	8.0	31.0	21.6
Jan 7	18.4	18.6	17.0	12.0	19.0	20.2	23.8	18.2	27.6	22.4	23.0	26.8	30.4	28.8	24.8	21.8	16.0	8.0	8.6	6.6	6.6	7.0	6.8	8.4	6.6	30.4	17.5
Jan 8	3.8	3.2	7.8	6.6	6.4	8.2	7.8	14.8	15.8	18.8	24.2	29.8	28.4	15.2	20.0	13.4	6.8	9.4	7.8	10.8	3.8	5.2	8.2	8.4	3.2	29.8	11.9
Jan 9	7.4	14.6	16.8	20.0	18.8	19.4	22.0	25.8	17.6	17.8	16.8	21.2	16.2	17.2	19.2	18.0	16.6	17.8	20.8	14.4	16.2	22.4	15.4	16.2	7.4	25.8	17.9
Jan 10	13.6	13.0	12.4	15.0	16.6	9.6	5.8	9.4	14.0	16.0	16.6	12.0	13.6	19.8	19.4	18.2	13.2	9.4	14.4	11.2	10.8	9.6	5.4	5.6	5.4	19.8	12.7
Jan 11	9.8	10.6	7.0	5.0	6.8	5.8	10.8	13.8	12.4	10.6	12.4	19.2	16.4	18.8	16.8	25.4	21.4	19.2	16.8	11.0	25.4	21.2	18.4	11.8	5.0	25.4	14.5
Jan 12	18.2	19.2	13.2	12.0	19.0	20.8	25.6	29.8	27.4	17.6	14.6	19.0	11.8	8.8	8.2	8.6	11.0	10.8	10.0	8.6	7.4	8.8	8.0	7.4	7.4	29.8	14.4
Jan 13	6.0	3.6	6.8	8.0	7.6	7.6	6.2	8.0	8.8	8.6	7.6	10.0	10.0	13.2	11.6	8.4	9.8	8.0	10.6	9.8	6.0	6.4	6.0	6.2	3.6	13.2	8.1
Jan 14	13.6	14.4	14.6	21.4	20.0	19.4	20.8	18.6	21.2	13.4	7.6	8.4	15.6	13.6	19.4	17.2	24.6	24.8	28.6	25.0	28.2	19.0	14.0	15.6	7.6	28.6	18.3
Jan 15	16.2	14.8	13.0	13.4	12.2	10.8	9.6	10.4	9.0	8.2	8.8	9.8	10.4	11.0	13.0	12.6	12.8	15.6	14.2	16.2	16.8	15.6	17.8	18.2	8.2	18.2	12.9
Jan 16	20.0	17.8	21.2	19.6	22.6	22.8	19.4	19.2	19.6	17.6	17.6	Q	16.8	22.6	15.8	20.2	25.4	18.4	15.2	17.0	13.8	17.4	16.0	13.4	13.4	25.4	18.7
Jan 17	14.6	16.2	15.8	19.8	19.8	21.2	24.0	22.0	20.8	24.2	22.4	25.2	25.6	19.6	21.0	27.6	27.8	26.0	19.4	21.6	24.0	22.2	20.4	19.6	14.6	27.8	21.7
Jan 18	20.6	24.6	20.4	20.6	16.0	18.6	13.2	17.4	18.0	15.6	11.8	13.4	15.4	14.6	16.2	18.4	16.8	17.8	21.2	21.4	20.2	21.2	23.4	25.6	11.8	25.6	18.4
Jan 19	21.6	24.6	25.8	28.6	26.4	27.8	26.0	24.0	25.2	28.0	23.8	23.8	20.0	23.2	20.8	18.0	14.2	16.2	14.8	12.0	11.4	13.8	16.6	14.8	11.4	28.6	20.9
Jan 20	14.6	19.8	20.4	20.0	14.4	15.0	8.8	5.8	5.0	3.4	8.4	8.6	16.2	16.6	14.2	12.2	10.0	11.8	9.0	7.4	6.4	10.8	7.0	7.0	3.4	20.4	11.4
Jan 21	5.4	7.6	4.2	5.4	3.2	**2.0**	4.4	3.8	5.4	10.4	7.6	7.4	5.6	3.8	6.6	5.2	6.2	6.6	6.6	11.0	10.2	7.6	7.8	11.8	**2.0**	11.8	**6.5**
Jan 22	14.4	10.2	7.0	12.4	12.6	12.4	19.2	21.4	20.8	20.2	22.8	19.4	20.2	23.2	21.4	31.0	28.2	34.6	34.4	31.4	26.8	26.4	25.6	26.4	7.0	34.6	21.8
Jan 23	27.0	24.0	23.6	24.2	24.8	22.6	15.0	9.6	3.6	5.4	4.0	3.2	12.2	10.6	11.6	15.0	18.2	15.6	16.0	20.4	20.6	19.6	22.8	24.8	3.2	27.0	16.4
Jan 24	27.0	23.6	23.2	24.2	22.6	21.0	18.0	17.0	26.0	21.6	19.8	19.2	23.2	16.2	19.0	16.6	17.0	15.6	12.2	11.0	10.8	12.2	10.0	13.8	10.0	27.0	18.4
Jan 25	16.0	10.4	12.8	9.0	11.0	13.4	18.4	17.6	18.4	20.6	21.0	26.6	23.2	26.8	24.8	25.8	19.2	16.2	21.2	22.4	23.8	20.4	23.6	30.2	9.0	30.2	19.7
Jan 26	31.0	31.4	29.4	34.2	32.8	31.2	31.2	21.8	20.6	25.0	22.0	29.6	28.0	23.8	40.6	40.4	34.2	30.6	33.4	42.8	42.4	51.6	53.4	42.6	20.6	53.4	33.5
Jan 27	50.2	43.2	51.6	54.6	39.2	43.0	40.6	33.6	29.4	26.2	35.2	41.6	47.6	40.2	31.8	31.2	26.4	17.6	25.6	28.4	20.6	19.8	17.2	10.6	10.6	54.6	**33.6**
Jan 28	5.6	4.2	3.2	3.0	6.0	7.2	5.2	8.0	9.4	5.8	11.2	14.8	12.8	15.0	13.6	10.6	11.2	3.4	3.6	3.4	7.6	8.4	9.0	10.8	3.0	15.0	8.0
Jan 29	12.0	10.6	12.6	12.6	12.4	15.2	18.4	11.8	11.6	18.4	18.0	23.0	18.2	19.6	15.6	15.4	17.2	16.6	13.8	11.0	12.6	13.4	10.6	11.0	10.6	23.0	14.7
Jan 30	11.6	7.4	23.8	20.8	21.0	17.4	14.8	18.2	18.0	17.4	13.2	24.4	20.2	19.4	21.8	17.4	20.4	20.8	18.0	18.4	10.6	11.6	8.8	6.2	6.2	24.4	16.7
Jan 31	14.8	23.4	26.4	33.0	32.2	32.8	33.0	33.6	25.2	24.6	27.0	31.8	27.4	32.2	32.0	28.0	22.2	25.6	26.6	21.0	26.4	27.8	30.6	24.2	14.8	33.6	27.6
Diurnal Maximum	57.4	60.6	51.6	54.6	39.2	43.0	40.6	42.2	34.0	40.2	39.4	41.6	47.6	40.2	40.6	40.4	34.2	34.6	34.4	42.8	42.4	51.6	53.4	42.6			
Daiurnal Average	17.8	17.9	18.5	18.7	18.2	18.1	18.2	18.8	18.4	18.2	18.1	19.8	19.6	19.1	19.5	19.5	18.1	16.4	16.6	16.2	16.9	16.7	16.3	16.4			

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

Timeseries Chart of Hourly Instantaneous Maximum for WS - 842b Station



RENO STATION

PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Summary of Hourly Instantaneous Maximums

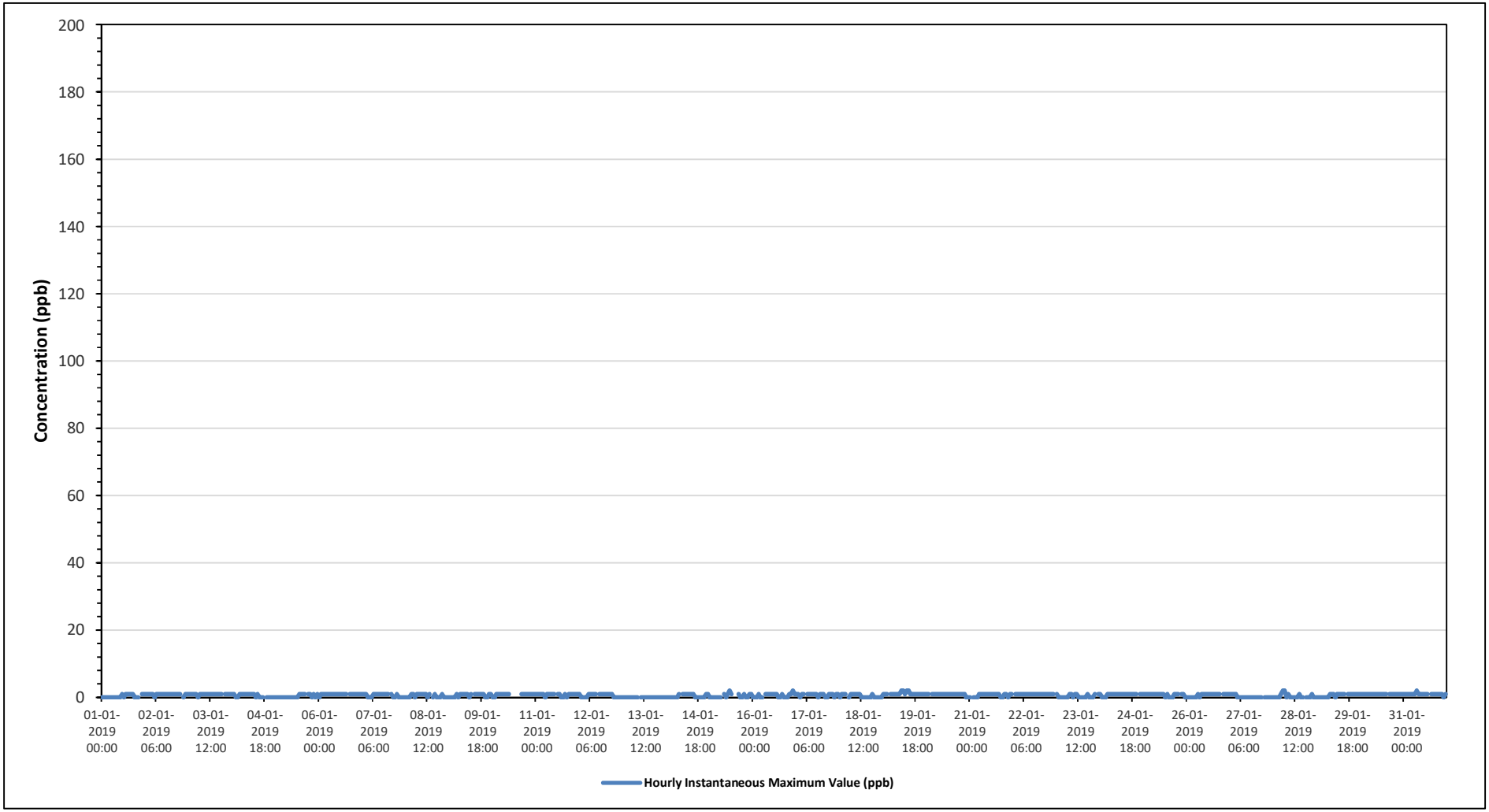
SULPHUR DIOXIDE (SO_2) in ppb

Maximum Hourly Value:	2	ppb	on January 15 at hour 11	Hours in Service:	744
Maximum Daily Value:	1.2	ppb	on January 19	Hours of Data:	704
Minimum Hourly Value:	0	ppb	on January 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0	ppb	on January 13	Hours of Calibration:	40
Monthly Average:	0.7	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Jan 1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	0	0	0	S	1	1	0	1	0.3
Jan 2	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	0	1	1	0	1	0.9
Jan 3	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	0	1	1.0
Jan 4	1	1	0	0	1	1	1	1	1	1	1	1	1	0	1	0	0	0	S	0	0	0	0	0	0	1	0.5
Jan 5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	S	1	1	0	1	0	1	0	1	0.3
Jan 6	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	0	1	1.0
Jan 7	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	S	1	0	0	1	0	0	0	0	0	1	0.6
Jan 8	0	0	0	1	1	0	1	1	1	1	1	1	0	1	S	0	1	0	0	0	1	0	0	0	0	1	0.5
Jan 9	0	0	0	0	1	0	1	1	1	1	1	0	1	S	1	1	1	1	1	1	0	0	1	1	0	1	0.7
Jan 10	0	0	1	1	1	1	1	1	1	1	C	C	C	C	C	C	1	1	1	1	1	1	1	1	0	1	0.9
Jan 11	1	1	1	1	1	0	1	1	1	1	1	S	1	1	0	0	1	0	1	1	1	1	1	1	0	1	0.8
Jan 12	1	0	0	0	0	1	1	1	1	1	S	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	0.6
Jan 13	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
Jan 14	0	0	0	0	0	0	0	1	S	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	0	1	0.4
Jan 15	0	0	0	0	0	0	0	S	1	0	1	2	1	Q	Q	Q	1	0	0	1	0	0	1	1	0	2	0.5
Jan 16	0	0	0	1	0	0	S	1	1	1	1	1	1	1	0	0	1	0	0	0	1	1	2	1	0	2	0.6
Jan 17	1	1	0	1	1	S	1	1	1	1	1	1	0	1	1	1	0	0	1	1	1	0	1	1	0	1	0.8
Jan 18	0	1	1	1	S	0	1	1	1	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0.4
Jan 19	1	1	1	S	1	1	1	1	1	1	2	2	1	2	2	1	1	1	1	1	1	1	1	1	1	2	1.2
Jan 20	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0.9
Jan 21	0	S	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	1	1	0	1	0.7
Jan 22	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1.0
Jan 23	1	0	0	0	0	0	0	1	1	0	1	1	0	0	0	0	0	1	0	0	0	1	S	1	0	1	0.3
Jan 24	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	0	1	0.9
Jan 25	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	1	1	S	1	1	0	0	1	0.8
Jan 26	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	0	1	0.7
Jan 27	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	0.2
Jan 28	0	0	0	0	1	2	2	0	1	0	0	0	0	0	1	0	0	S	0	0	0	1	0	0	0	2	0.3
Jan 29	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	S	1	1	1	1	1	1	1	0	1	0.7
Jan 30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1.0
Jan 31	1	1	1	1	1	1	1	2	1	1	1	1	1	1	S	1	1	1	1	1	1	1	0	1	0	2	1.0
Diurnal Maximum	1	1	1	1	1	2	2	2	1	1	2	2	1	2	2	1	1	1	1	1	1	1	2	1			
Daiurnal Average	0.5	0.5	0.4	0.5	0.6	0.5	0.8	0.8	0.9	0.8	0.8	0.9	0.7	0.8	0.8	0.6	0.7	0.6	0.7	0.6	0.6	0.6	0.7	0.7			

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

Timeseries Chart of Hourly Instantaneous Maximum for SO2 - Reno Site



PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Summary of Hourly Instantaneous Maximums

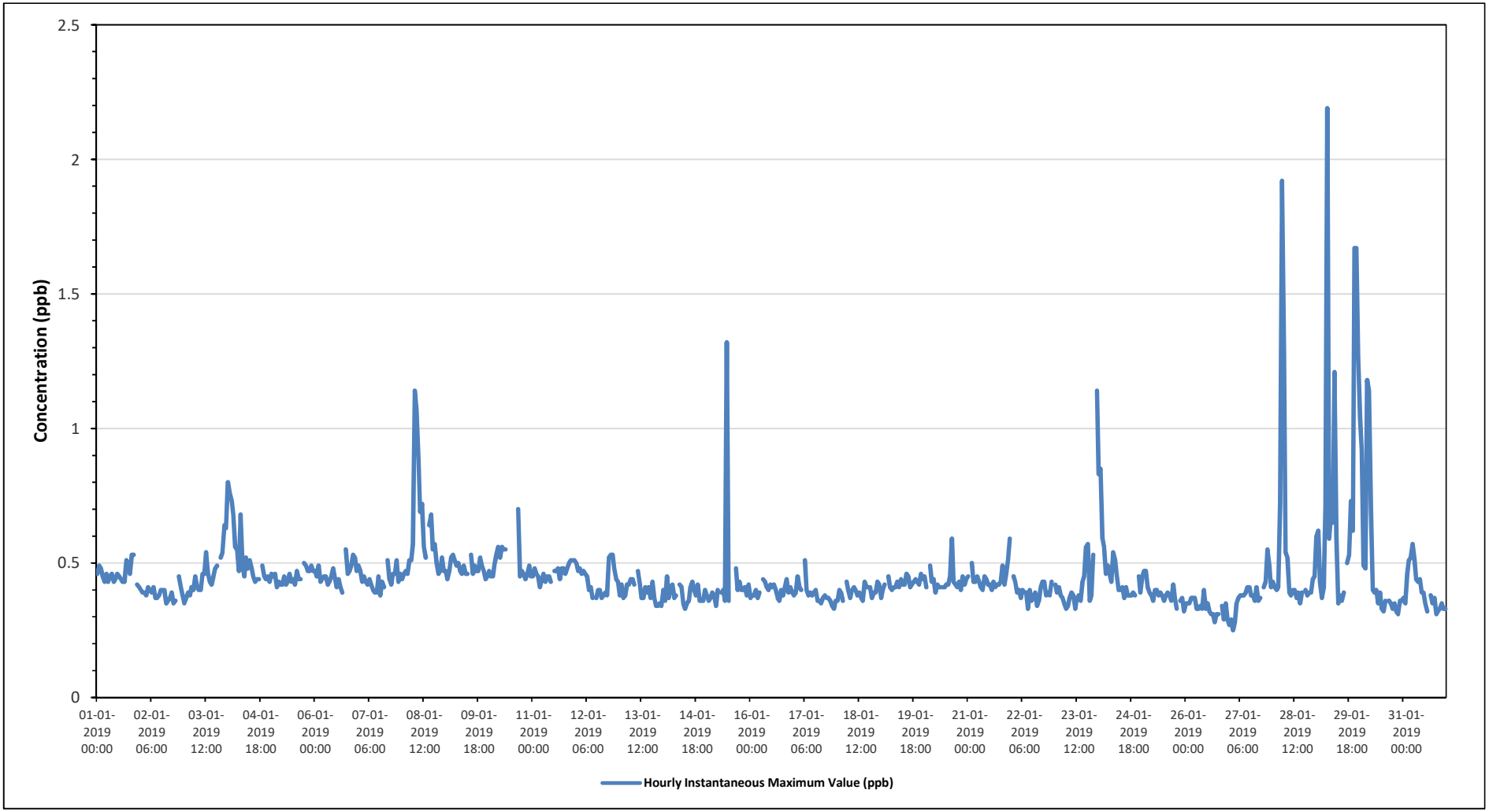
TOTAL REDUCED SULPHUR (TRS) in ppb

Maximum Hourly Value:	2.19	ppb	on January 29 at hour 6	Hours in Service:	744
Maximum Daily Value:	0.76	ppb	on January 29	Hours of Data:	704
Minimum Hourly Value:	0.25	ppb	on January 27 at hour 2	Hours of Missing Data:	0
Minimum Daily Value:	0.33	ppb	on January 26	Hours of Calibration:	40
Monthly Average:	0.45	ppb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	0.46	0.49	0.48	0.45	0.43	0.46	0.43	0.45	0.46	0.43	0.44	0.46	0.45	0.44	0.43	0.43	0.51	0.5	0.46	0.53	0.53	S	0.42	0.41	0.41	0.53	0.46
Jan 2	0.4	0.39	0.39	0.38	0.41	0.4	0.39	0.41	0.37	0.37	0.38	0.4	0.4	0.4	0.35	0.36	0.37	0.39	0.35	0.36	S	0.45	0.41	0.38	0.35	0.45	0.39
Jan 3	0.35	0.37	0.39	0.38	0.41	0.4	0.45	0.41	0.4	0.4	0.46	0.46	0.54	0.46	0.43	0.42	0.45	0.48	0.49	S	0.52	0.54	0.64	0.63	0.35	0.64	0.46
Jan 4	0.8	0.76	0.73	0.68	0.56	0.55	0.47	0.68	0.49	0.45	0.52	0.48	0.51	0.48	0.45	0.43	0.44	0.44	S	0.49	0.45	0.44	0.45	0.43	0.43	0.80	0.53
Jan 5	0.46	0.45	0.46	0.41	0.43	0.42	0.42	0.45	0.42	0.43	0.46	0.43	0.44	0.42	0.47	0.44	0.44	S	0.5	0.49	0.47	0.47	0.49	0.47	0.41	0.50	0.45
Jan 6	0.47	0.45	0.49	0.43	0.44	0.45	0.45	0.42	0.43	0.45	0.48	0.44	0.41	0.44	0.41	0.39	S	0.55	0.46	0.47	0.49	0.53	0.52	0.47	0.39	0.55	0.46
Jan 7	0.49	0.47	0.43	0.45	0.43	0.42	0.44	0.42	0.4	0.39	0.39	0.45	0.38	0.43	0.41	S	0.51	0.44	0.42	0.46	0.46	0.51	0.43	0.46	0.38	0.51	0.44
Jan 8	0.44	0.46	0.47	0.46	0.51	0.51	0.57	1.14	1.07	0.88	0.69	0.72	0.56	0.52	S	0.64	0.68	0.55	0.57	0.5	0.46	0.47	0.52	0.47	0.44	1.14	0.60
Jan 9	0.47	0.44	0.47	0.52	0.53	0.51	0.49	0.5	0.47	0.46	0.49	0.46	0.46	S	0.53	0.46	0.49	0.47	0.47	0.52	0.49	0.47	0.44	0.45	0.44	0.53	0.48
Jan 10	0.47	0.45	0.45	0.5	0.53	0.56	0.52	0.56	0.55	0.55	C	C	C	C	C	C	0.7	0.45	0.47	0.46	0.44	0.46	0.49	0.45	0.44	0.70	0.50
Jan 11	0.45	0.48	0.46	0.45	0.41	0.44	0.46	0.43	0.45	0.45	0.43	S	0.47	0.47	0.48	0.44	0.48	0.48	0.46	0.48	0.5	0.51	0.51	0.51	0.41	0.51	0.47
Jan 12	0.5	0.47	0.48	0.46	0.47	0.46	0.45	0.4	0.41	0.37	S	0.37	0.4	0.4	0.37	0.38	0.39	0.38	0.52	0.53	0.53	0.48	0.44	0.43	0.37	0.53	0.44
Jan 13	0.38	0.42	0.37	0.38	0.42	0.42	0.44	0.44	0.42	S	0.47	0.42	0.37	0.37	0.41	0.39	0.41	0.37	0.43	0.37	0.34	0.34	0.35	0.34	0.34	0.47	0.39
Jan 14	0.4	0.36	0.45	0.37	0.41	0.42	0.37	0.38	S	0.42	0.41	0.35	0.33	0.35	0.36	0.41	0.43	0.4	0.38	0.42	0.36	0.36	0.36	0.4	0.33	0.45	0.39
Jan 15	0.38	0.36	0.37	0.39	0.38	0.34	0.4	S	0.39	0.4	0.36	1.32	0.36	Q	Q	Q	0.48	0.4	0.43	0.4	0.4	0.41	0.38	0.42	0.34	1.32	0.44
Jan 16	0.37	0.38	0.38	0.4	0.37	0.39	S	0.44	0.43	0.41	0.4	0.42	0.41	0.42	0.4	0.37	0.36	0.4	0.38	0.41	0.44	0.39	0.41	0.39	0.36	0.44	0.40
Jan 17	0.38	0.39	0.45	0.41	0.4	S	0.51	0.4	0.38	0.39	0.38	0.39	0.4	0.36	0.36	0.35	0.37	0.38	0.37	0.37	0.36	0.34	0.33	0.36	0.33	0.51	0.38
Jan 18	0.36	0.4	0.39	0.36	S	0.43	0.4	0.37	0.4	0.41	0.4	0.38	0.39	0.37	0.36	0.43	0.41	0.41	0.41	0.37	0.39	0.39	0.43	0.42	0.36	0.43	0.39
Jan 19	0.37	0.4	0.42	S	0.45	0.41	0.4	0.41	0.41	0.43	0.41	0.44	0.42	0.42	0.46	0.45	0.41	0.42	0.43	0.44	0.43	0.42	0.46	0.44	0.37	0.46	0.42
Jan 20	0.45	0.41	S	0.49	0.43	0.44	0.39	0.42	0.41	0.41	0.41	0.41	0.42	0.42	0.45	0.59	0.43	0.42	0.41	0.43	0.4	0.45	0.42	0.44	0.39	0.59	0.43
Jan 21	0.45	S	0.5	0.43	0.43	0.45	0.43	0.41	0.4	0.45	0.44	0.42	0.42	0.4	0.43	0.41	0.42	0.42	0.43	0.49	0.42	0.46	0.51	0.59	0.40	0.59	0.44
Jan 22	S	0.45	0.43	0.39	0.4	0.37	0.4	0.39	0.39	0.33	0.4	0.36	0.37	0.39	0.34	0.36	0.41	0.43	0.43	0.38	0.39	0.38	0.43	S	0.33	0.45	0.39
Jan 23	0.42	0.39	0.41	0.38	0.37	0.35	0.33	0.34	0.37	0.39	0.38	0.33	0.37	0.38	0.36	0.43	0.45	0.56	0.57	0.36	0.38	0.53	S	1.14	0.33	1.14	0.43
Jan 24	0.83	0.85	0.59	0.56	0.46	0.49	0.46	0.43	0.54	0.51	0.45	0.4	0.4	0.41	0.37	0.41	0.38	0.38	0.38	0.39	0.38	S	0.45	0.39	0.37	0.85	0.47
Jan 25	0.45	0.47	0.47	0.41	0.39	0.38	0.36	0.4	0.4	0.38	0.39	0.38	0.36	0.38	0.39	0.38	0.36	0.42	0.37	0.33	S	0.36	0.37	0.32	0.32	0.47	0.39
Jan 26	0.35	0.35	0.35	0.37	0.37	0.37	0.33	0.33	0.34	0.33	0.4	0.33	0.35	0.32	0.31	0.31	0.28	0.31	0.31	S	0.34	0.29	0.35	0.29	0.28	0.40	**0.33**
Jan 27	0.27	0.29	**0.25**	0.28	0.35	0.37	0.38	0.38	0.38	0.39	0.41	0.41	0.38	0.38	0.36	0.41	0.36	0.37	S	0.41	0.43	0.55	0.49	0.41	**0.25**	0.55	0.38
Jan 28	0.43	0.41	0.4	0.41	0.72	1.92	1.29	0.54	0.52	0.39	0.38	0.4	0.4	0.37	0.39	0.35	0.39	S	0.4	0.38	0.39	0.39	0.44	0.45	0.35	1.92	0.53
Jan 29	0.6	0.62	0.43	0.37	0.41	0.71	**2.19**	0.59	0.69	0.65	1.21	0.6	0.35	0.38	0.36	0.39	S	0.5	0.53	0.73	0.62	1.67	1.67	1.27	0.35	**2.19**	**0.76**
Jan 30	1.04	0.92	0.49	0.48	1.18	1.14	0.7	0.4	0.39	0.4	0.35	0.39	0.33	0.32	0.36	S	0.36	0.35	0.33	0.35	0.32	0.31	0.36	0.36	0.31	1.18	0.51
Jan 31	0.37	0.35	0.46	0.51	0.52	0.57	0.51	0.44	0.43	0.44	0.39	0.39	0.35	0.32	S	0.38	0.35	0.37	0.31	0.32	0.33	0.35	0.33	0.33	0.31	0.57	0.40
Diurnal Maximum	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1			
Daiurnal Average	0.5	0.5	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	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

Timeseries Chart of Hourly Instantaneous Maximum for TRS - Reno Site



PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Summary of Hourly Instantaneous Maximums

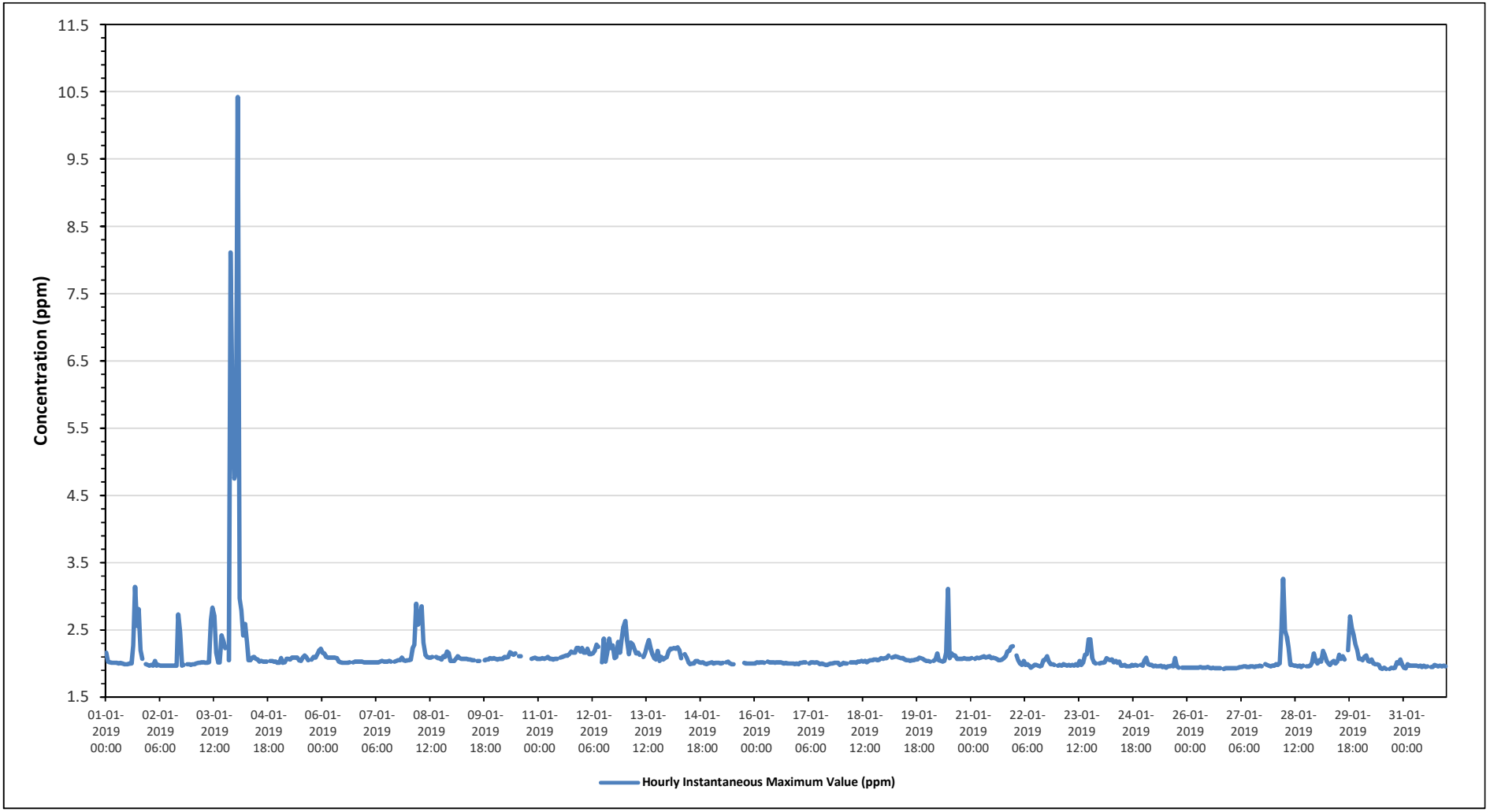
TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	####	ppm	on January 4 at hour 1	Hours in Service:	744
Maximum Daily Value:	2.70	ppm	on January 3	Hours of Data:	701
Minimum Hourly Value:	1.92	ppm	on January 26 at hour 20	Hours of Missing Data:	3
Minimum Daily Value:	1.94	ppm	on January 26	Hours of Calibration:	40
Monthly Average:	2.10	ppm		Operational Uptime:	99.6

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	2.16	2.03	2.02	2.01	2.01	2.01	2.01	2.00	2.01	2.00	1.99	1.99	1.99	2.00	2.00	2.27	3.14	2.56	2.81	2.20	2.07	S	1.99	1.98	1.98	3.14	2.14
Jan 2	1.97	1.98	1.97	2.04	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	2.73	2.47	1.97	1.98	S	1.99	1.99	1.98	1.97	2.73	2.03
Jan 3	1.99	1.99	2.00	2.01	2.01	2.02	2.02	2.01	2.01	2.02	2.65	2.83	2.71	2.16	2.02	2.02	2.42	2.33	2.23	S	2.05	8.11	5.77	4.75	1.99	8.11	**2.70**
Jan 4	4.87	**10.42**	2.97	2.79	2.42	2.59	2.33	2.05	2.05	2.09	2.10	2.07	2.06	2.03	2.04	2.03	2.03	2.03	S	2.04	2.04	2.03	2.03	2.01	2.01	**10.42**	2.66
Jan 5	2.01	2.08	2.01	2.02	2.07	2.07	2.06	2.09	2.09	2.09	2.09	2.05	2.04	2.09	2.12	2.10	2.05	S	2.06	2.10	2.09	2.13	2.19	2.22	2.01	2.22	2.08
Jan 6	2.16	2.15	2.10	2.09	2.09	2.09	2.09	2.09	2.08	2.03	2.02	2.01	2.01	2.01	2.01	2.02	S	2.02	2.03	2.03	2.03	2.03	2.03	2.02	2.01	2.16	2.05
Jan 7	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.04	2.03	2.03	2.03	2.04	2.03	S	2.03	2.04	2.05	2.05	2.09	2.05	2.04	2.05	2.02	2.09	2.03
Jan 8	2.05	2.06	2.23	2.28	2.89	2.58	2.63	2.85	2.31	2.13	2.10	2.09	2.09	2.10	S	2.10	2.08	2.08	2.06	2.11	2.10	2.18	2.16	2.04	2.04	2.89	2.23
Jan 9	2.04	2.04	2.07	2.11	2.08	2.07	2.07	2.07	2.07	2.06	2.06	2.05	2.05	S	2.04	2.04	Y	S1	2.05	2.06	2.06	2.08	2.07	2.08	2.04	2.11	2.06
Jan 10	2.07	2.06	2.07	2.07	2.07	2.10	2.09	2.10	2.17	2.15	2.13	2.15	S	2.11	2.11	C	C	C	C	C	2.07	2.08	2.09	2.07	2.06	2.17	2.10
Jan 11	2.07	2.07	2.08	2.07	2.08	2.10	2.07	2.07	2.06	2.07	2.07	S	2.09	2.10	2.11	2.12	2.12	2.14	2.18	2.16	2.16	2.23	2.23	2.18	2.06	2.23	2.11
Jan 12	2.23	2.16	2.16	2.22	2.14	2.14	2.15	2.19	2.28	2.25	S	2.02	2.37	2.03	2.16	2.37	2.23	2.27	2.08	2.10	2.32	2.16	2.36	2.55	2.02	2.55	2.21
Jan 13	2.63	2.35	2.14	2.31	2.29	2.22	2.15	2.16	2.13	S	2.10	2.16	2.27	2.35	2.23	2.14	2.08	2.06	2.19	2.04	2.10	2.06	2.08	2.10	2.04	2.63	2.19
Jan 14	2.18	2.22	2.22	2.23	2.22	2.24	2.20	2.08	S	2.14	2.09	2.02	1.99	2.00	2.00	2.04	2.04	2.02	2.01	2.02	2.00	1.99	2.00	2.01	1.99	2.24	2.09
Jan 15	2.02	2.00	2.01	2.01	2.01	2.00	2.01	S	2.02	2.03	2.00	1.99	1.99	Q	Q	Q	2.00	Y	2.01	2.00	2.00	2.00	2.00	2.00	1.99	2.03	2.01
Jan 16	2.00	2.02	2.01	2.02	2.02	2.01	S	2.03	2.02	2.02	2.02	2.01	2.02	2.02	2.02	2.01	2.00	2.01	2.00	2.00	2.00	2.00	1.99	2.00	1.99	2.03	2.01
Jan 17	1.99	2.01	2.01	2.02	2.02	S	2.00	2.02	2.02	2.01	2.02	2.01	1.99	2.00	1.99	1.98	1.98	1.99	2.00	2.00	2.01	2.01	2.01	1.98	1.98	2.02	2.00
Jan 18	1.99	2.01	2.00	2.00	S	2.02	2.02	2.02	2.01	2.03	2.03	2.04	2.03	2.04	2.02	2.04	2.05	2.05	2.06	2.06	2.05	2.06	2.08	2.07	1.99	2.08	2.03
Jan 19	2.08	2.08	2.12	S	2.09	2.10	2.11	2.10	2.09	2.08	2.08	2.06	2.05	2.05	2.04	2.05	2.05	2.06	2.06	2.09	2.08	2.07	2.05	2.04	2.04	2.12	2.07
Jan 20	2.04	2.03	S	2.04	2.06	2.15	2.05	2.04	2.03	2.04	2.16	3.11	2.08	2.15	2.12	2.12	2.07	2.07	2.07	2.07	2.08	2.07	2.07	2.07	2.03	3.11	2.12
Jan 21	2.08	S	2.07	2.09	2.08	2.09	2.10	2.11	2.09	2.10	2.11	2.08	2.09	2.08	2.07	2.05	2.05	2.06	2.08	2.11	2.18	2.19	2.25	2.26	2.05	2.26	2.11
Jan 22	S	2.12	2.05	2.00	1.98	2.04	1.98	1.99	1.97	1.94	1.96	1.98	1.98	1.97	1.96	1.97	2.05	2.06	2.11	2.03	1.99	1.99	1.98	S	1.94	2.12	2.00
Jan 23	1.97	1.98	1.97	1.99	1.98	1.97	1.98	1.97	1.98	1.97	1.99	1.97	2.04	1.98	2.01	2.13	2.14	2.36	2.36	2.08	2.02	2.00	S	2.00	1.97	2.36	2.04
Jan 24	2.01	2.01	2.02	2.08	2.06	2.05	2.06	2.02	2.04	2.01	2.03	1.97	1.97	1.98	1.96	1.96	1.96	1.98	1.97	1.98	1.97	S	1.98	1.97	1.96	2.08	2.00
Jan 25	2.05	2.09	1.99	1.98	1.98	1.96	1.97	1.96	1.96	1.97	1.95	1.96	1.94	1.96	1.96	1.97	1.96	2.08	1.96	1.94	S	1.94	1.94	1.94	1.94	2.09	1.97
Jan 26	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.94	1.94	1.94	1.95	1.94	1.93	1.94	1.93	1.93	1.93	1.93	S	**1.92**	1.93	1.93	1.93	**1.92**	1.95	**1.94**
Jan 27	1.93	1.93	1.93	1.93	1.94	1.95	1.95	1.96	1.96	1.95	1.95	1.96	1.96	1.95	1.96	1.96	1.97	1.96	S	1.99	1.98	1.97	1.96	1.97	1.93	1.99	1.96
Jan 28	1.97	1.99	1.98	2.00	2.53	3.26	2.49	2.40	2.24	1.98	1.98	1.97	1.97	1.96	1.97	1.95	1.97	S	1.96	1.96	1.97	2.01	2.15	2.04	1.95	3.26	2.12
Jan 29	2.00	2.05	2.03	2.19	2.13	2.04	2.00	1.98	2.02	2.04	2.00	2.03	2.13	2.07	2.11	2.06	S	2.20	2.70	2.53	2.43	2.29	2.20	2.07	1.98	2.70	2.14
Jan 30	2.07	2.05	2.10	2.12	2.04	2.03	2.06	2.00	1.99	1.99	1.98	1.93	1.92	1.94	1.92	S	1.92	1.94	1.93	1.94	2.02	2.00	2.06	1.98	1.92	2.12	2.00
Jan 31	1.94	1.93	1.99	1.97	1.97	1.97	1.97	1.97	1.96	1.97	1.95	1.97	1.95	1.96	S	1.95	1.95	1.98	1.97	1.96	1.97	1.96	1.97	1.96	1.93	1.99	1.96
Diurnal Maximum	4.87	10.42	2.97	2.79	2.89	3.26	2.63	2.85	2.31	2.25	2.65	3.11	2.71	2.35	2.23	2.37	3.14	2.56	2.81	2.53	2.43	8.11	5.77	4.75			
Daiurnal Average	2.15	2.33	2.08	2.09	2.11	2.13	2.09	2.08	2.05	2.04	2.05	2.08	2.06	2.04	2.03	2.05	2.11	2.11	2.10	2.06	2.06	2.26	2.19	2.14			

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 Instantaneous Maximum for THC - Reno Site



PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Summary of Hourly Instantaneous Maximums

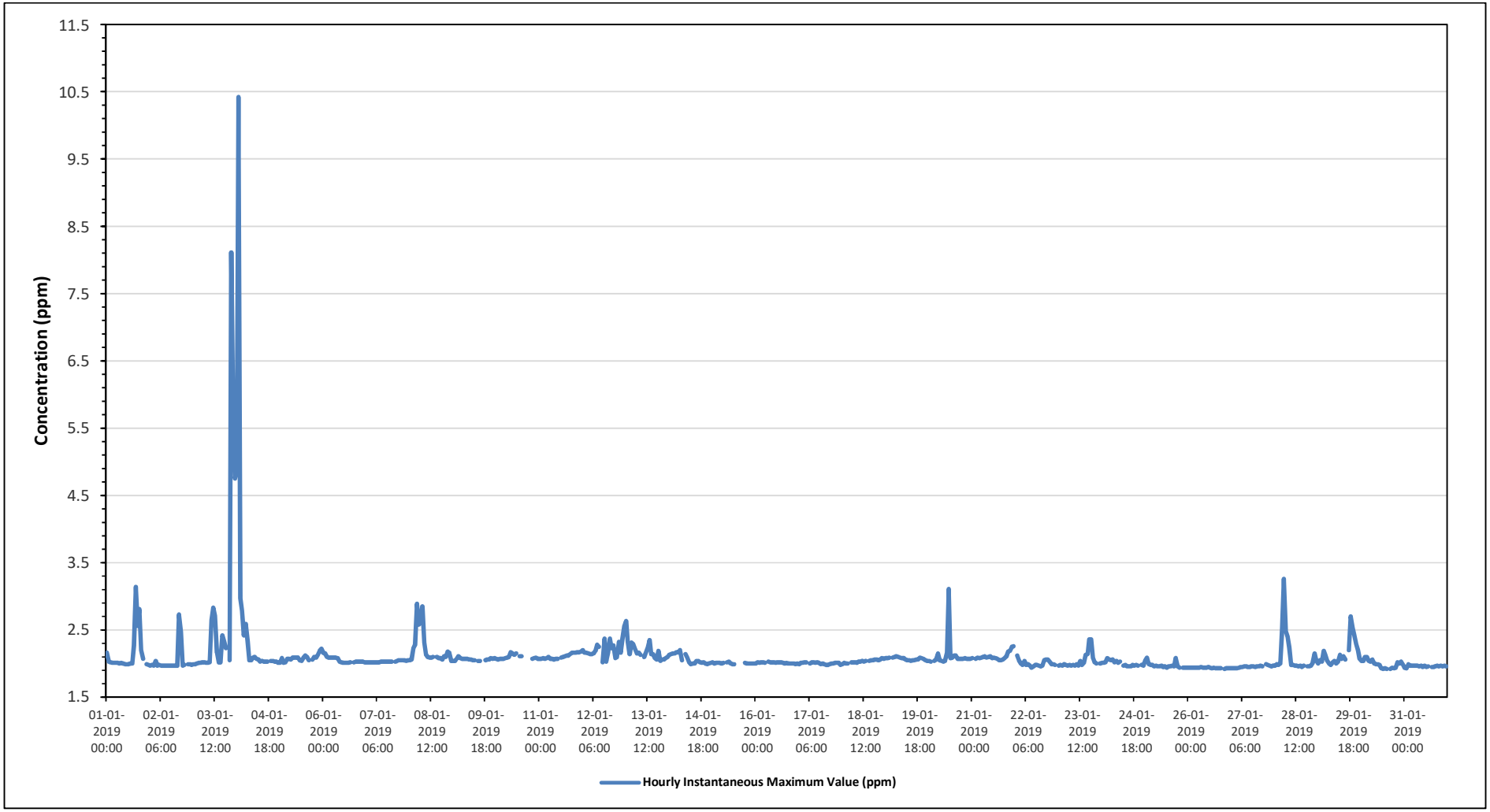
METHANE (CH4) in ppm

Maximum Hourly Value:	####	ppm	on January 4 at hour 1	Hours in Service:	744
Maximum Daily Value:	2.70	ppm	on January 3	Hours of Data:	699
Minimum Hourly Value:	1.92	ppm	on January 26 at hour 20	Hours of Missing Data:	5
Minimum Daily Value:	1.94	ppm	on January 26	Hours of Calibration:	40
Monthly Average:	2.10	ppm		Operational Uptime:	99.3

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	2.16	2.03	2.02	2.01	2.01	2.01	2.01	2.00	2.01	2.00	1.99	1.99	1.99	2.00	2.00	2.27	3.14	2.56	2.81	2.20	2.07	S	1.99	1.98	1.98	3.14	2.14
Jan 2	1.97	1.98	1.97	2.04	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	2.73	2.47	1.97	1.98	S	1.99	1.99	1.98	1.97	2.73	2.03
Jan 3	1.99	1.99	2.00	2.01	2.01	2.02	2.02	2.01	2.01	2.02	2.65	2.83	2.71	2.16	2.02	2.02	2.42	2.33	2.23	S	2.05	8.11	5.77	4.75	1.99	8.11	**2.70**
Jan 4	4.86	**10.42**	2.97	2.79	2.42	2.59	2.33	2.05	2.05	2.09	2.10	2.07	2.06	2.03	2.04	2.03	2.03	2.03	S	2.04	2.04	2.03	2.03	2.01	2.01	**10.42**	2.66
Jan 5	2.01	2.08	2.01	2.02	2.07	2.07	2.06	2.09	2.09	2.09	2.09	2.05	2.04	2.09	2.12	2.10	2.05	S	2.06	2.10	2.09	2.13	2.19	2.22	2.01	2.22	2.08
Jan 6	2.16	2.15	2.10	2.09	2.09	2.09	2.09	2.09	2.08	2.03	2.02	2.01	2.01	2.01	2.01	2.02	S	2.02	2.03	2.03	2.03	2.03	2.03	2.02	2.01	2.16	2.05
Jan 7	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.03	S	2.03	2.04	2.05	2.05	2.05	2.05	2.04	2.05	2.02	2.05	2.03
Jan 8	2.05	2.06	2.23	2.28	2.89	2.58	2.63	2.85	2.31	2.13	2.10	2.09	2.09	2.10	S	2.10	2.08	2.08	2.06	2.11	2.10	2.18	2.16	2.04	2.04	2.89	2.23
Jan 9	2.04	2.04	2.07	2.11	2.08	2.07	2.07	2.07	2.07	2.06	2.06	2.05	2.05	S	2.04	2.04	Y	S1	2.05	2.06	2.06	2.08	2.07	2.08	2.04	2.11	2.06
Jan 10	2.07	2.06	2.07	2.07	2.07	2.08	2.09	2.10	2.17	2.15	2.13	2.15	S	2.11	2.11	C	C	C	C	C	2.07	2.08	2.09	2.07	2.06	2.17	2.10
Jan 11	2.07	2.07	2.08	2.07	2.08	2.10	2.07	2.07	2.06	2.07	2.07	S	2.09	2.10	2.11	2.12	2.12	2.14	2.16	2.16	2.16	2.17	2.17	2.18	2.06	2.18	2.11
Jan 12	2.20	2.16	2.16	2.15	2.14	2.14	2.15	2.19	2.28	2.25	S	2.02	2.37	2.03	2.16	2.37	2.23	2.27	2.08	2.10	2.32	2.16	2.36	2.55	2.02	2.55	2.21
Jan 13	2.63	2.32	2.14	2.31	2.29	2.22	2.15	2.16	2.13	S	2.10	2.16	2.23	2.35	2.14	2.14	2.08	2.06	2.19	2.04	2.06	2.06	2.08	2.10	2.04	2.63	2.18
Jan 14	2.13	2.14	2.15	2.15	2.17	2.17	2.20	2.05	S	2.14	2.09	2.02	1.99	2.00	2.00	2.04	2.04	2.02	2.01	2.02	2.00	1.99	2.00	2.01	1.99	2.20	2.07
Jan 15	2.02	2.00	2.01	2.01	2.01	2.00	2.01	S	2.02	2.03	2.00	1.99	1.99	Q	Q	Q	2.00	Y	2.01	2.00	2.00	2.00	2.00	2.00	1.99	2.03	2.01
Jan 16	2.00	2.02	2.01	2.02	2.02	2.01	S	2.03	2.02	2.02	2.02	2.01	2.02	2.02	2.02	2.01	2.00	2.01	2.00	2.00	2.00	2.00	1.99	2.00	1.99	2.03	2.01
Jan 17	1.99	2.01	2.01	2.02	2.02	S	2.00	2.02	2.02	2.01	2.02	2.01	1.99	2.00	1.99	1.98	1.98	1.99	2.00	2.00	2.01	2.01	2.01	1.98	1.98	2.02	2.00
Jan 18	1.99	2.01	2.00	2.00	S	2.02	2.02	2.02	2.01	2.03	2.03	2.04	2.03	2.04	X	2.04	2.05	2.05	2.06	2.06	2.05	2.06	2.08	2.07	1.99	2.08	2.03
Jan 19	2.08	2.08	2.09	S	2.09	2.10	2.11	2.10	2.09	2.08	2.08	2.06	2.05	2.05	2.04	2.05	2.05	2.06	2.06	2.09	2.08	2.07	2.05	2.04	2.04	2.11	2.07
Jan 20	2.04	2.03	S	2.04	2.06	2.15	2.05	2.04	2.03	2.04	2.16	3.11	2.08	2.09	2.12	2.12	2.07	2.07	2.07	2.07	2.08	2.07	2.07	2.07	2.03	3.11	2.12
Jan 21	2.08	S	2.07	2.09	2.08	2.09	2.10	2.11	2.09	2.10	2.11	2.08	2.09	2.08	2.07	2.05	2.05	2.06	2.08	2.11	2.18	2.19	2.25	2.26	2.05	2.26	2.11
Jan 22	S	2.12	2.05	2.00	1.98	2.04	1.98	1.99	1.97	1.94	1.96	1.98	1.98	1.97	1.96	1.97	2.05	2.06	2.06	2.03	1.99	1.99	1.98	S	1.94	2.12	2.00
Jan 23	1.97	1.98	1.97	1.99	1.98	1.97	1.98	1.97	1.98	1.97	1.99	1.97	2.04	1.98	2.01	2.13	2.14	2.36	2.36	2.08	2.02	2.00	S	2.00	1.97	2.36	2.04
Jan 24	2.01	2.01	2.02	2.08	2.06	2.05	2.06	2.02	2.04	2.01	2.03	X	1.97	1.98	1.96	1.96	1.96	1.98	1.97	1.98	1.97	S	1.98	1.97	1.96	2.08	2.00
Jan 25	2.05	2.09	1.99	1.98	1.98	1.96	1.97	1.96	1.96	1.97	1.95	1.96	1.94	1.96	1.96	1.97	1.96	2.08	1.96	1.94	S	1.94	1.94	1.94	1.94	2.09	1.97
Jan 26	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.94	1.94	1.94	1.95	1.94	1.93	1.94	1.93	1.93	1.93	1.93	S	**1.92**	1.93	1.93	1.93	**1.92**	1.95	**1.94**
Jan 27	1.93	1.93	1.93	1.93	1.94	1.95	1.95	1.96	1.96	1.95	1.95	1.96	1.96	1.95	1.96	1.96	1.97	1.96	S	1.99	1.98	1.97	1.96	1.97	1.93	1.99	1.96
Jan 28	1.97	1.99	1.98	2.00	2.53	3.26	2.49	2.40	2.24	1.98	1.98	1.97	1.97	1.96	1.97	1.95	1.97	S	1.96	1.96	1.97	2.01	2.15	2.04	1.95	3.26	2.12
Jan 29	2.00	2.05	2.03	2.19	2.13	2.04	2.00	1.98	2.02	2.04	2.00	2.03	2.13	2.07	2.11	2.06	S	2.20	2.70	2.53	2.43	2.29	2.20	2.07	1.98	2.70	2.14
Jan 30	2.04	2.04	2.10	2.10	2.04	2.03	2.06	2.00	1.99	1.99	1.98	1.93	1.92	1.93	1.92	S	1.92	1.94	1.93	1.94	2.02	2.00	2.03	1.98	1.92	2.10	1.99
Jan 31	1.94	1.93	1.99	1.97	1.97	1.97	1.97	1.97	1.96	1.97	1.95	1.97	1.95	1.96	S	1.95	1.95	1.96	1.97	1.96	1.97	1.96	1.97	1.96	1.93	1.99	1.96
Diurnal Maximum	4.86	10.42	2.97	2.79	2.89	3.26	2.63	2.85	2.31	2.25	2.65	3.11	2.71	2.35	2.16	2.37	3.14	2.56	2.81	2.53	2.43	8.11	5.77	4.75			
Daiurnal Average	2.15	2.33	2.07	2.08	2.10	2.12	2.09	2.07	2.05	2.04	2.05	2.08	2.06	2.03	2.03	2.05	2.11	2.11	2.10	2.06	2.06	2.26	2.19	2.14			

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 Instantaneous Maximum for CH4 - Reno Site



PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Summary of Hourly Instantaneous Maximums

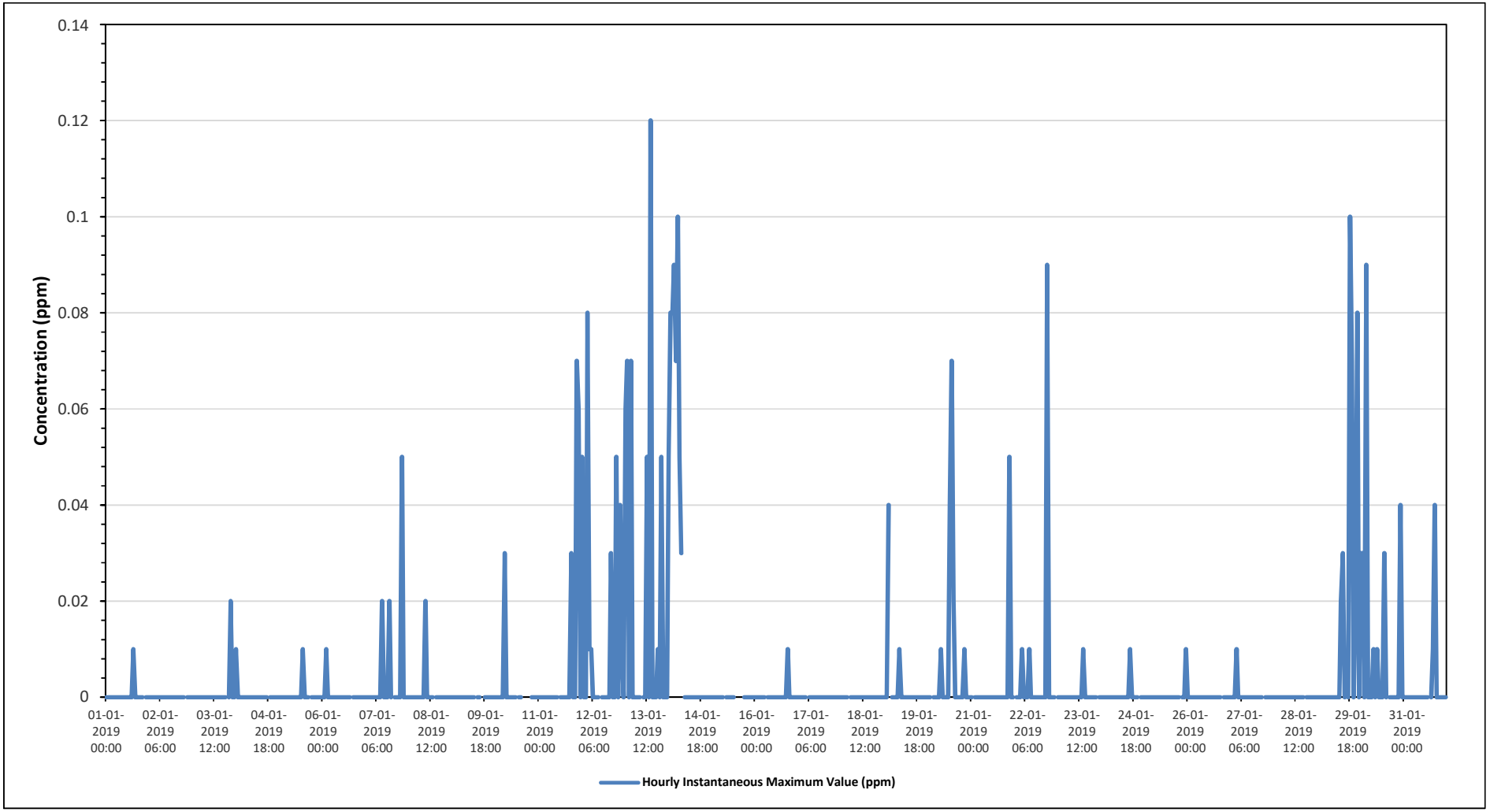
NON-METHANE HYDROCARBONS in ppm

Maximum Hourly Value:	0.12	ppm	on January 13 at hour 14	Hours in Service:	744
Maximum Daily Value:	0.02	ppm	on January 14	Hours of Data:	701
Minimum Hourly Value:	0.00	ppm	on January 1 at hour 0	Hours of Missing Data:	3
Minimum Daily Value:	0.00	ppm	on January 1	Hours of Calibration:	40
Monthly Average:	0.00	ppm		Operational Uptime:	99.6

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	**0.00**	0.01	**0.00**
Jan 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00
Jan 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.02	0.00	0.00	0.00	0.02	0.00
Jan 4	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Jan 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Jan 6	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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Jan 7	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	0.02	0.00	S	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.00
Jan 8	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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
Jan 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	Y	S1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 10	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	C	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.03	0.00
Jan 11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.07	0.06	0.00	0.00	0.07	0.01
Jan 12	0.05	0.00	0.00	0.08	0.01	0.01	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.05	0.00	0.04	0.01	0.00	0.00	0.08	0.01
Jan 13	0.06	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.05	0.00	**0.12**	0.00	0.00	0.00	0.01	0.00	0.05	0.00	0.00	0.00	0.00	**0.12**	0.02
Jan 14	0.05	0.08	0.08	0.09	0.07	0.10	0.05	0.03	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	**0.02**
Jan 15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	Q	Q	Q	0.00	Y	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 16	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Jan 17	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 18	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 19	0.00	0.00	0.04	S	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Jan 20	0.00	0.00	S	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.04	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.07	0.01
Jan 21	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05	0.00
Jan 22	S	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	S	0.00	0.09	0.01
Jan 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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.01	0.00
Jan 24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.01	0.00
Jan 25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.01	0.00	0.01	0.00
Jan 26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 27	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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Jan 28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.00	S	0.00	0.10	0.07	0.00	0.02	0.08	0.00	0.00	0.10	0.01
Jan 30	0.03	0.03	0.00	0.09	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.03	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.09	0.01
Jan 31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Diurnal Maximum	0.06	0.08	0.08	0.09	0.07	0.10	0.05	0.03	0.01	0.02	0.00	0.00	0.05	0.07	0.12	0.01	0.03	0.04	0.10	0.07	0.05	0.07	0.08	0.01			
Daiurnal Average	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.00			

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

Timeseries Chart of Hourly Instantaneous Maximum for NMHC - Reno Site



PEACE RIVER AREA MONITORING PROGRAM

Reno Site - January 2019

Summary of Hourly Instantaneous Maximums

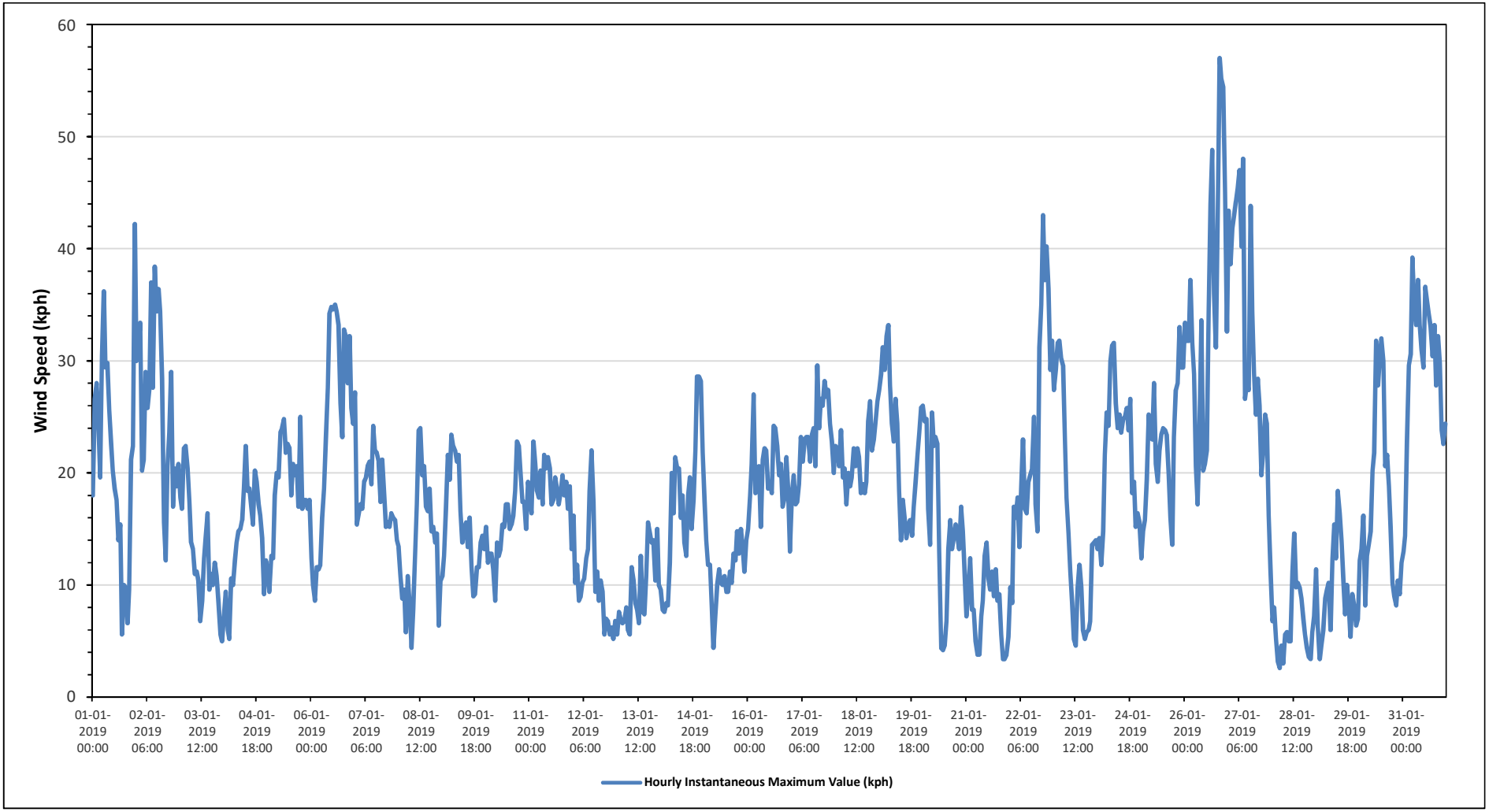
WIND SPEED (WS) in km/h

Maximum Hourly Value:	57.0	kph	on January 26 at hour 19	Hours in Service:	744
Maximum Daily Value:	34.8	kph	on January 26	Hours of Data:	744
Minimum Hourly Value:	2.6	kph	on January 28 at hour 4	Hours of Missing Data:	0
Minimum Daily Value:	6.5	kph	on January 28	Hours of Calibration:	0
Monthly Average:	18.4	kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily	Daily	Daily
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Jan 1	18.0	26.6	28.0	25.0	19.6	30.4	36.2	29.4	29.8	25.6	22.6	20.2	18.6	17.6	14.0	15.4	5.6	10.0	9.8	6.6	9.6	21.2	22.4	42.2	5.6	42.2	21.0
Jan 2	30.0	30.8	33.4	20.2	21.2	29.0	25.8	27.4	37.0	27.6	38.4	34.4	36.4	34.4	28.4	15.6	12.2	20.6	23.6	29.0	17.0	20.4	18.8	20.8	12.2	38.4	26.4
Jan 3	17.8	16.8	22.2	22.4	20.4	17.4	13.8	13.2	11.0	11.2	10.4	6.8	8.6	12.4	14.2	16.4	9.6	11.0	10.0	12.0	10.8	8.4	5.6	5.0	5.0	22.4	12.8
Jan 4	7.4	9.4	6.0	5.2	10.6	10.0	12.2	13.8	14.8	15.0	15.8	18.6	22.4	18.4	18.6	17.0	15.4	20.2	19.2	17.2	16.2	14.2	9.2	12.2	5.2	22.4	14.1
Jan 5	11.4	9.4	12.6	12.4	18.0	20.0	19.6	23.6	24.0	24.8	21.8	22.6	22.2	18.0	20.8	19.8	20.6	17.0	25.0	16.8	17.6	17.6	16.8	17.6	9.4	25.0	18.8
Jan 6	12.4	10.0	8.6	11.6	11.4	11.8	16.0	18.6	23.2	27.6	34.2	34.8	34.6	35.0	34.4	33.2	26.2	23.2	32.8	32.2	28.0	32.2	25.8	24.4	8.6	35.0	24.3
Jan 7	27.2	15.4	16.4	17.2	16.8	19.2	19.6	20.6	21.0	19.0	24.2	22.0	21.8	21.0	17.4	21.2	18.4	15.2	15.6	15.2	16.4	16.0	15.8	14.0	14.0	27.2	18.6
Jan 8	13.4	10.8	8.8	9.6	5.8	10.8	8.2	4.4	7.8	12.6	17.2	23.8	24.0	19.8	20.6	17.0	16.6	18.6	14.8	15.2	13.8	14.6	6.4	10.4	4.4	24.0	13.5
Jan 9	10.8	12.6	16.8	21.6	19.4	23.4	22.4	22.0	21.0	21.6	16.6	13.8	15.0	15.6	13.4	16.0	11.6	9.0	9.2	11.6	11.6	13.8	14.4	13.2	9.0	23.4	15.7
Jan 10	15.2	12.0	12.8	12.8	11.4	8.6	13.8	12.6	13.2	15.4	15.2	17.2	17.2	15.0	15.4	16.2	18.4	22.8	22.4	20.2	17.4	17.4	15.0	19.2	8.6	22.8	15.7
Jan 11	18.0	16.4	22.8	20.8	18.4	17.8	20.2	17.2	21.6	20.4	21.4	20.4	17.2	17.6	19.6	18.6	17.2	18.2	19.8	18.0	19.2	16.8	18.8	13.2	13.2	22.8	18.7
Jan 12	16.2	10.2	11.8	8.6	9.0	10.2	10.6	12.4	13.2	18.4	22.0	17.4	9.4	11.2	8.6	10.4	9.4	5.6	7.0	6.8	5.6	6.2	5.2	6.8	5.2	22.0	10.5
Jan 13	5.6	7.6	7.0	6.6	6.8	8.0	6.0	5.6	11.6	10.4	8.4	7.8	6.6	12.6	7.6	7.4	10.8	15.6	14.6	13.8	14.0	10.4	15.0	10.0	5.6	15.6	9.6
Jan 14	9.6	7.8	7.6	8.4	8.2	12.0	20.0	16.4	21.4	20.4	20.4	16.0	18.0	13.8	12.6	18.0	19.6	15.0	17.6	22.0	28.6	28.6	28.2	21.8	7.6	28.6	17.2
Jan 15	17.4	14.0	11.8	11.8	8.0	4.4	7.2	10.0	11.4	10.2	10.0	10.8	9.4	9.4	11.2	10.2	12.8	12.2	14.8	12.8	15.0	13.2	11.2	14.0	4.4	17.4	11.4
Jan 16	15.0	18.0	20.8	27.0	18.2	19.2	20.6	15.2	21.2	22.2	22.0	18.6	19.2	18.2	24.2	24.0	22.4	19.8	20.8	17.0	17.8	21.4	18.2	13.0	13.0	27.0	19.8
Jan 17	18.0	19.8	17.2	17.4	19.0	23.2	21.0	23.0	23.2	23.2	21.0	23.4	24.0	20.6	29.6	24.0	26.6	26.0	28.2	26.8	27.4	24.4	22.8	20.0	17.2	29.6	22.9
Jan 18	22.4	22.2	20.6	23.8	19.6	20.4	17.2	20.0	18.8	19.6	22.2	20.6	22.2	21.4	18.2	19.0	18.2	19.2	24.6	26.4	22.0	23.0	24.4	26.4	17.2	26.4	21.4
Jan 19	27.4	28.8	31.2	29.2	32.2	33.2	27.8	24.4	22.8	26.6	24.4	18.4	14.0	17.6	16.0	14.2	15.4	15.8	14.4	17.0	19.2	21.6	23.6	25.8	14.0	33.2	22.5
Jan 20	26.0	24.6	24.8	16.8	13.6	25.4	22.4	23.2	22.6	13.0	4.4	4.2	4.6	6.8	13.2	15.8	13.2	14.2	15.4	14.2	13.2	17.0	14.8	10.8	4.2	26.0	15.6
Jan 21	7.2	9.4	12.4	7.8	7.8	5.0	3.8	3.8	7.2	8.6	12.6	13.8	10.6	9.6	11.2	9.0	11.4	8.6	9.2	5.6	3.4	3.4	3.8	5.4	3.4	13.8	7.9
Jan 22	9.8	8.4	17.0	16.0	17.8	13.4	18.6	23.0	16.8	16.4	19.2	19.8	20.4	25.0	17.2	14.8	31.2	35.0	43.0	37.2	40.2	36.4	29.2	31.8	8.4	43.0	23.2
Jan 23	27.4	29.2	31.6	31.8	30.2	29.6	22.8	17.8	14.6	11.2	8.4	5.2	4.6	9.8	11.8	9.8	6.0	5.2	5.8	6.0	6.8	13.6	13.8	14.0	4.6	31.8	15.3
Jan 24	13.2	14.2	11.8	14.8	21.6	25.4	24.2	30.0	31.4	31.6	26.2	24.0	25.2	23.6	24.8	25.0	25.8	23.8	26.6	18.2	19.2	15.2	16.4	15.6	11.8	31.6	22.0
Jan 25	12.4	14.8	15.8	19.4	25.2	23.2	23.0	28.0	20.8	19.2	22.0	23.4	24.0	23.8	23.4	20.0	16.0	13.6	23.2	27.4	28.0	33.0	29.4	29.4	12.4	33.0	22.4
Jan 26	33.4	31.8	31.8	37.2	31.6	28.8	20.6	17.2	23.6	33.6	20.2	20.8	22.0	34.6	44.0	48.8	36.0	31.2	43.0	**57.0**	55.2	54.4	45.0	32.6	17.2	**57.0**	**34.8**
Jan 27	43.4	38.6	41.8	43.0	44.2	45.4	47.0	40.2	48.0	26.6	28.0	27.4	43.8	34.4	28.8	25.2	28.4	26.0	19.8	22.0	25.2	24.4	16.2	11.2	11.2	48.0	32.5
Jan 28	6.8	8.0	5.2	3.2	**2.6**	4.6	3.0	5.6	5.8	5.0	5.0	11.2	14.6	9.8	10.2	9.8	8.8	7.0	5.6	4.4	3.6	3.4	5.8	7.2	**2.6**	14.6	**6.5**
Jan 29	11.4	6.2	3.4	4.6	6.0	8.8	9.6	10.2	6.0	12.4	15.4	12.4	18.4	16.4	14.0	10.8	7.4	10.0	8.0	5.4	9.2	8.2	6.4	7.0	3.4	18.4	9.5
Jan 30	12.2	13.2	16.2	8.2	12.6	13.6	14.8	20.2	21.8	31.8	27.8	30.4	32.0	30.0	20.6	21.6	18.8	15.2	10.2	9.0	8.2	10.4	9.2	12.0	8.2	32.0	17.5
Jan 31	13.0	14.4	22.8	29.6	30.6	39.2	34.8	33.2	37.2	33.2	31.0	29.4	36.6	35.2	34.2	33.0	30.4	33.2	27.8	32.2	29.8	23.8	22.6	24.4	13.0	39.2	29.7
Diurnal Maximum	43.4	38.6	41.8	43.0	44.2	45.4	47.0	40.2	48.0	33.6	38.4	34.8	43.8	35.2	44.0	48.8	36.0	35.0	43.0	57.0	55.2	54.4	45.0	42.2			
Daiurnal Average	17.1	16.5	17.8	17.5	17.3	19.1	18.8	18.8	20.1	19.8	19.6	19.0	19.9	19.6	19.3	18.6	17.4	17.4	18.8	18.6	18.4	18.9	17.1	17.1			

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

Timeseries Chart of Hourly Instantaneous Maximum for WS - Reno Site



EQUIPMENT CALIBRATION / MAINTENANCE RECORDS

986 STATION

Thermo 43I-TLE Total Reduced Sulphur Analyzer Calibration

Date:	January 18, 2019	**Barometer/B.P./units:**	Station Probe	949	millibars
Company/Airshed:	PRAMP	**Thermometer/Station Temp:**	Station Thermometer	23	°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):	8:13	**Performed By/Reviewer:**	Chris Wesson	Rob Fisher	
End Time 24 hr. (mst):	12:31	**Cal Gas Expiry Date:**	November 7, 2020		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	CD Nova CDN-101 #516		

Analyzer:

Serial Number/Owner:	1152940011 Maxxam	**Range ppb:**	100
Last Calibration Date:	December 12, 2018	**As Found C.F.:**	1.004
Previous C.F.:	1.000	**New C.F.:**	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Sabio id# 30860808 expires August 21, 2019
Cal Gas Cylinder I.D. # :	LL119432
Cal Gas Conc. (ppm):	10.3

Standard Calibration Points for Ranges

Point	ppb
High	78
Mid	38
Low	19

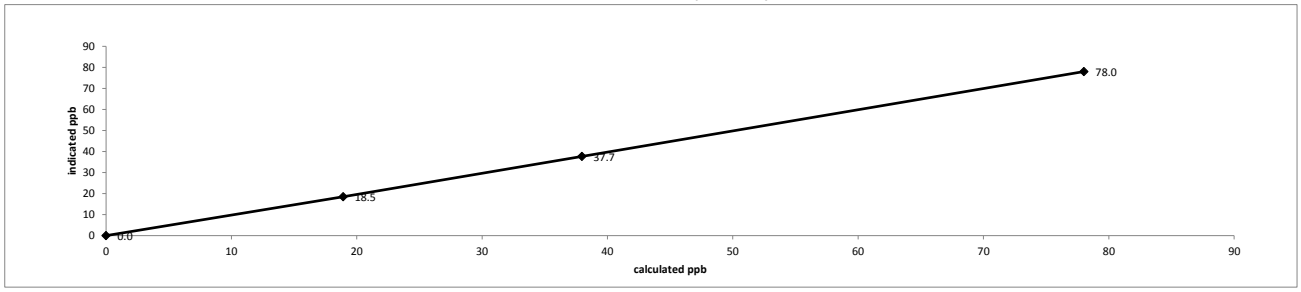
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**			
as found zero	7503	0.00	7503	0.0	0.01	n/a
as found high	7444	56.90	7501	78.0	77.7	1.004
adjusted zero	7502	0.00	7502	0.0	0	n/a
adjusted high	7441	56.90	7498	78.0	78	1.000
mid	7471	27.70	7499	38.0	37.68	1.008
low	7485	13.80	7499	18.9	18.5	1.023
calibrator zero	7498	0.00	7498	0.0	0.1	n/a
					Average C.F.=	1.010

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**0.999**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.23%**	**± 3% F.S.**
% change in C.F. from last cal=	**-0.37%**	**± 10%**

Thermo 43I-TLE Total Reduced Sulphur Analyzer Calibration



As found:		As left:	
Bkg:	2.17	Bkg:	2.62
Coef:	0.984	Coef:	0.984
Pmt:	-690.8	Pmt:	-690.8
Flash:	968	Flash:	968
Internal:	31.6	Internal:	32.3
Chamber:	44.9	Chamber:	45.2
Perm Oven Gas:	44.99	Perm Oven Gas:	45.00
Perm Oven Heater:	44.25	Perm Oven Heater:	44.25
Pressure:	658.6	Pressure:	659.2
Sample Flow:	0.481	Sample Flow:	0.481
Lamp Intensity:	91	Lamp Intensity:	89
Converter:	820	Converter:	820
Converter Set:	820	Converter Set:	820
Averaging Time:	120	Averaging Time:	120
Expected Value:	43.2	Expected Value:	41.1

Comments:

The analyzer sample inlet filter was changed.

The analyzer cooling fan filter(s) were cleaned.

The SO2 scrubber check was not performed, see comments below.
The manifold blower was found to be working normally.

The Scrubber check was performed during the AEP audit.

Maxxam
A Bureau Veritas Group Company

Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	January 18, 2019	**Barometer/B.P./units:**	Station Probe	949	millibars
Company/Airshed:	PRAMP	**Thermometer/Station Temp:**	Station Thermometer	23	°C
Location/Station Name:	986b	**Weather Conditions:**	Mix of sun and clouds		
Parameter:	CH4 / NMHC / THC	**Calibration Purpose:**	routine monthly		
Start/End Time 24 hr. (mst):	08:13/11:55	**Performed By/Reviewer:**	Chris Wesson	Rob Fisher	
Calibration Method:	Gas Dilution	**Cal Gas Expiry Date:**	October 18, 2025		

Analyzer:

			Correction Factors:		
Serial Number/Owner:	1022143392	Maxxam	**Previous C.F.:**	**As Found C.F.:**	**New C.F.:**
Measured Flow:	942 mL/min		**CH_4 =** 0.999	0.994	1.000
Last Calibration Date:	December 12, 2018		**NMHC =** 1.000	0.992	0.998
Range ppm:	20 CH4/20 NMHC/40 THC		**THC =** 0.999	0.993	0.999

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A		
High Flow Meter ID/Expiry Date:	N/A		
Calibrator ID/Expiry Date:	Sabio id# 17100415 expires August 21, 2019		
Cal Gas Cylinder I.D. # :	LL107207		
CH4 Cylinder Conc.=	600.0	207.0	**=C_3H_8 Cylinder Conc.**
CH_4 expressed as C_3H_8=	569.3	1169.3	**=total CH4 equivalent**

Standard Calibration Points for Analyzer Range of 20/20/40 ppm

Point	CH4	NMHC	THC
High	13.00	13.00	26.00
Mid	7.00	7.00	14.00
Low	3.00	3.00	6.00

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

Calibrator Flow Rates (cc/min)										Correction Factors:		
Point	**Diluent**	**Cal Gas**	**Total Flow**	**Calculated CH_4 (ppm)**	**Calculated NMHC (ppm)**	**Calculated THC (ppm)**	**Indicated CH_4 (ppm)**	**Indicated NMHC (ppm)**	**Indicated THC (ppm)**	**CH_4**	**NMHC**	**THC**
as found zero	2999	0.00	2999	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
as found high	2924	73.40	2997	14.69	13.94	28.64	14.78	14.06	28.85	0.994	0.992	0.993
adjusted zero	2999	0.00	2999	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2925	73.40	2998	14.69	13.94	28.63	14.69	13.97	28.66	1.000	0.998	0.999
mid	2963	36.80	3000	7.36	6.98	14.34	7.41	7.01	14.42	0.993	0.996	0.995
low	2981	18.50	2999	3.70	3.51	7.21	3.73	3.51	7.25	0.992	1.000	0.995
calibrator zero	3000	0.00	3000	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
									Average C.F.=	0.995	0.998	0.996

Linear Regression/Calibration Results:

	CH_4	NMHC	THC	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.000	1.003	1.001	0.95-1.05
b (Intercept as % of full scale)=	0.11%	-0.01%	0.06%	± 3% F.S.
% change in C.F. from last cal=	0.48%	0.84%	0.64%	± 10%

As Left Instrument Diagnostics:

Interface Board Voltages:	Bias Supply:	-311.7	Calibration History cnt'd:	NM Peak Area:	75643
Temperatures:	Detector Oven:	175.0	Crucial Settings:	Methane Start:	n/a
	Filter:	175.0		Methane End:	n/a
	Column Oven:	75.1		Backflush:	n/a
	Internal:	37.9		NMHV Start:	n/a
Cylinder Pressures/reg.:	Carrier:	1500 50		NMHC End:	n/a
	Fuel:	2500 50	Run History>1:	Date:	18Jan2019
	Span Gas:	1300 28		Time:	10:54
	Zero Air Generator:	50		CH_4 PK HT:	0
Internal Pressures:	Carrier:	31.3		CH_4 RT:	12.6
	Fuel:	40.5		CH_4 Baseline:	1716
	Air:	32.3		CH_4 LOD:	22
FID Status:	Status:	LIT		CH_4 SD:	7
	Counts:	21304		CH_4 CONC:	0.000
	Flame:	322.9		NM PK HT:	0
	Det Base:	175.0		NM Peak Area:	0
Flame and Power Stats:	Last Power On:	01Oct2018		NM CONC:	0.00
	Flameouts:	1		NM Base Start:	1716
	Det Oven at Start:	169.5		NM Base End:	1715
	Col Oven at Start:	74.8		NM LOD:	10
Calibration History:	Time:	18Jan2019@10:53		NM Start IDX:	8
	Type:	Span		NM End IDX:	70
	Status:	Good		NM Max Slope:	3.2e-01
	Check/Adjust:	Adjust		NM Min Slope:	-3.1e-01
	CH_4 Span Conc:	14.69		NM PT Count:	0
	CH_4 SP Ratio:	0.000765	Expected Values:	Previous CH4:	10.38
	CH_4 RT:	12.4		Previous NMHC	11.4
	CH_4 PK IDX:	22		Previous THC:	21.78
	CH_4 PK HT:	19191		New CH4:	10.49
	NM Span Conc:	13.94		New NMHC	11.43
	NM SP Ratio:	0.000184		New THC:	21.93

Comments:

The analyzer sample inlet filter was changed.

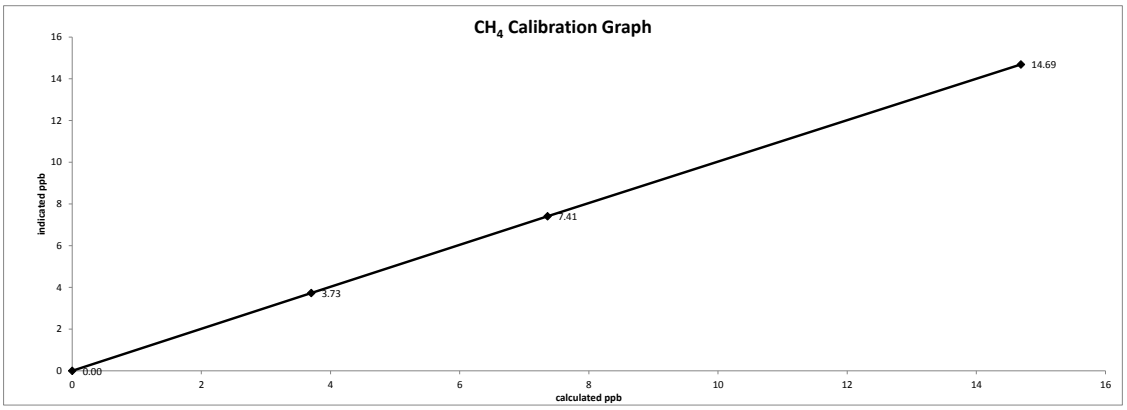
A new hydrogen cylinder was installed.

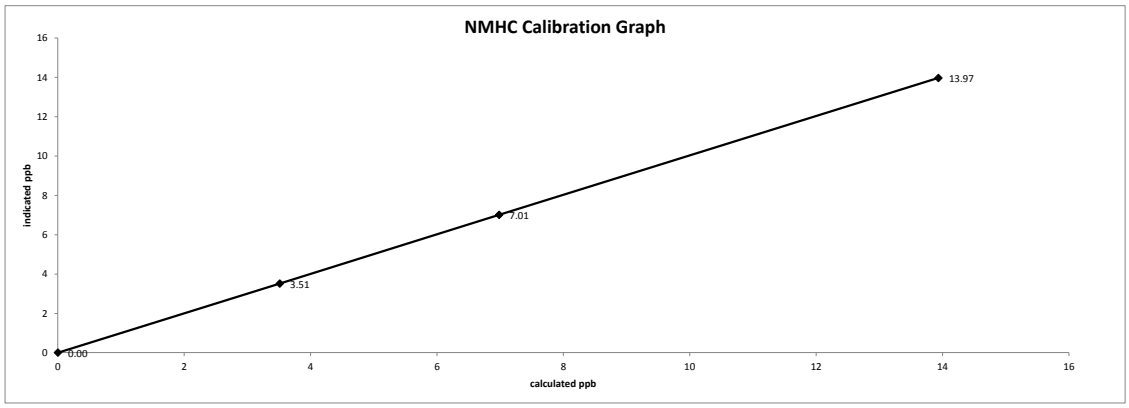
The analyzer cooling fan filter(s) were cleaned.

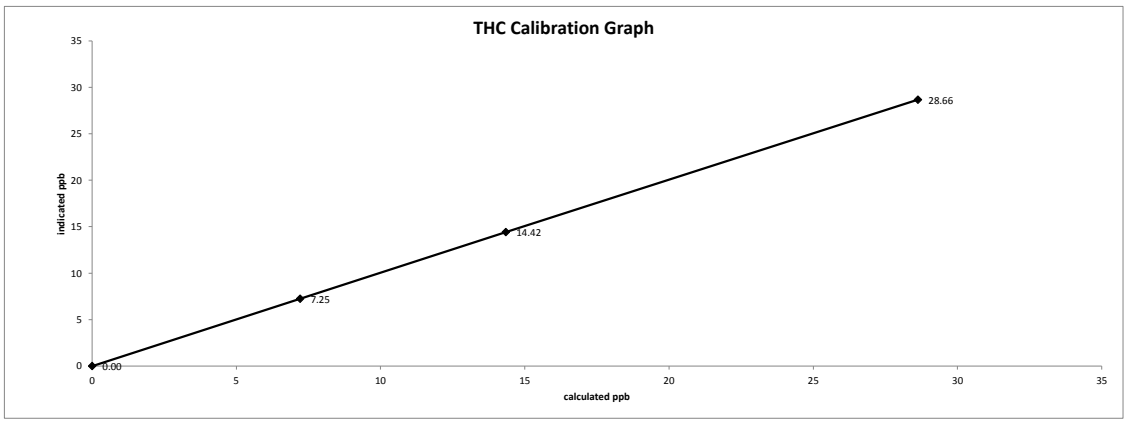
The manifold blower was found to be working normally.

Fuel gas cylinder was replaced.

Date:	January 18, 2019	Start/End Time 24 hr. (mst):	08:13/11:55
Company/Airshed:	PRAMP	Calibration Purpose:	routine monthly
Location/Station Name:	986b	Calibration Method:	Gas Dilution







Thermo 43C Sulphur Dioxide Analyzer Calibration

Date:	January 18, 2019	**Barometer/B.P./units:**	Station probe	949	millibars
Company/Airshed:	PRAMP	**Thermometer/Station Temp:**	Station Thermometer	23	°C
Location/Station Name:	986b	**Weather Conditions:**	Cloudy/Overcast		
Parameter:	Sulphur Dioxide	**Calibration Purpose:**	routine monthly		
Start Time 24 hr. (mst):	11:12	**Performed By/Reviewer:**	Chris Wesson	Rob Fisher	
End Time 24 hr. (mst):	14:45	**Cal Gas Expiry Date:**	October 24, 2020		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	n/a		

Analyzer:

Serial Number/Owner:	43C-62339-335 Maxxam	**Range ppb:**	500
Last Calibration Date:	December 12, 2018	**As Found C.F.:**	1.012
Previous C.F.:	1.000	**New C.F.:**	0.999

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Sabio id# 17100415 expires August 21, 2019
Cal Gas Cylinder I.D. # :	LL108015
Cal Gas Conc. (ppm):	47.9

Standard Calibration Points for Ranges

Point	ppb
High	**380**
Mid	**180**
Low	**90**

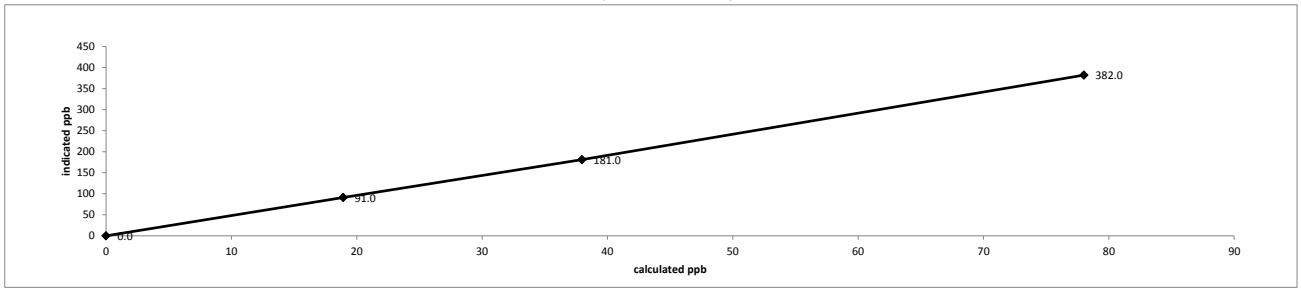
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**	**Concentration (ppb):**		
as found zero	6000	0.00	6000	0.0	-1	n/a
as found high	5954	47.80	6002	381.5	376	1.012
adjusted zero	6001	0.00	6001	0.0	0	n/a
adjusted high	5954	47.80	6002	381.5	382	0.999
mid	5981	22.70	6004	181.1	181	1.001
low	5990	11.40	6001	91.0	91	1.000
calibrator zero	6001	0.00	6001	0.0	0	n/a
					Average C.F.=	1.000

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**0.999**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.02%**	**± 3% F.S.**
% change in C.F. from last cal=	**-1.19%**	**± 10%**

Thermo 43C Sulphur Dioxide Analyzer Calibration



As found:		**As left:**	
Bkg:	85.6	Bkg:	84.2
Coef:	0.921	Coef:	0.921
Pmt:	-654	Pmt:	-654
0	Lamp=843	0	Lamp=842
Battery:	3.3	Battery:	3.3
Internal:	29.6	Internal:	26.3
Chamber:	45.3	Chamber:	45.3
Pressure:	402.0	Pressure:	403.2
Flow:	0.705	Flow:	0.709
Intensity:	~38000	Intensity:	~38000
Averaging Time:	120	Averaging Time:	120
Expected Value:	256.0	Expected Value:	256.0

Comments:

The analyzer sample inlet filter was changed.

The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

WIND SYSTEM

Meteorological Sensor Audit/Calibration

Location Information

Company:	PRAMP	**Performed By:**	Limin Li
Audit Location:	986B	**Reviewed By:**	Tom Bourque
Audit Date:	April 4, 2018	**Start/End Time (mst):**	16:22/17:42
Calibration Purpose:	routine annual	**Weather Conditions:**	Mainly sunny

Wind Sensor Information

Sensor ID Data:		**Sensor Outputs:**	
Sensor Make:	RM Young	**Velocity Voltage Output Range:**	0-1V
Sensor Model:	5305VK	**Velocity Unit Output Range:**	0-200 KPH
Serial #:	129612	**Direction Voltage Output Range:**	0-1 V
Previous Cal/Audit Date:	April 5, 2017	**Direction Unit Output Range:**	0-360 DEG

Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 id# CA03309 expires September 25, 2018

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

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.1	0.1	-
1000	18.4	18.5	18.5	0.996
2000	36.9	36.9	36.9	1.001
3000	55.3	55.3	55.3	1.000
4000	73.7	73.7	73.7	1.000
5000	92.2	92.2	92.2	1.000
6000	110.6	110.7	110.7	0.999
7000	129.0	129.2	129.2	0.998
8000	147.4	147.7	147.7	0.998
9000	165.9	166.2	166.2	0.998
10000	184.3	184.8	184.8	0.997
		The audit meets AMD requirements.	**Average Correction Factor=**	**0.999**

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

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	0	354	0.3	1.4	0.8
30	330	30	330	0.2	0.1	0.1
60	300	61	301	-0.7	-0.9	0.8
90	270	91	271	-1.1	-1.2	1.1
120	240	122	243	-1.7	-2.6	2.2
150	210	153	213	-2.5	-2.9	2.7
180	180	183	183	-2.6	-2.6	2.6
210	150	213	152	-2.6	-1.7	2.1
240	120	243	122	-2.8	-2.0	2.4
270	90	272	91	-2.3	-1.1	1.7
300	60	301	62	-0.8	-1.7	1.2
330	30	331	30	-0.5	-0.3	0.4
355	0	354	0	1.3	0.3	0.8
The audit meets AMD requirements.			**Average Absolute Degrees Difference=**			**1.5**

Comments:

CALIBRATORS

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2018-130A

Company Maxxam **Operator:** Mike

Calibrator:

Make/Model	Sabio	
Serial Number	17200415	
Last Verification Date	May 16, 2017	
NO Cylinder S/N	LL104183	
NO [PPM]	50.8 NOx [PPM]	50.9
Expiry Date	October 24, 2020	

Flow Measurement Device:

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 5057 Pt. #2 5055 Pt. #3 5070

Gas Flow (sccm)

Pt. #1 77.4 Pt. #2 37.9 Pt. #3 19.1

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5102	0.0	0.0000	0.0000	0.0001	-0.0002	-0.0001	Limit ± 10%	
5057	77.4	0.7775	0.7779	0.7973	0.0012	0.7985	3%	3%
5055	37.9	0.3809	0.3816	0.3896	0.0000	0.3896	2%	2%
5070	19.1	0.1914	0.1918	0.1962	0.0000	0.1962	2%	2%
						Absolute Average Percent Difference	2%	2%

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

NO		LIMITS	NOx	
Correlation=	1.0000	≥ 0.990	Correlation=	1.0000
m (Slope)=	1.0253	0.90-1.10	m (Slope)=	1.0266
b (Intercept % of FS)=	-0.0176	± 3% F.S.	b (Intercept % of FS)=	-0.0763

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
						NO_2	% Diff. Limit
5057	0.0	0.0000	0.7868	0.0006	0.7874		
5057	500.0	0.5003	0.2865	0.5016	0.7875	0%	± 10%
5057	275.0	0.2802	0.5066	0.2797	0.7862	0%	± 10%
5057	100.0	0.1053	0.6815	0.1046	0.7863	-1%	± 10%
				Absolute Average Percent Difference		0%	± 10%

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

NO_2		LIMITS
Correlation=	1.0000	≥ 0.995
m (Slope)=	1.0020	0.90-1.10
b (Intercept % of FS)=	-0.0259	± 3% F.S.

AENV Standards

Audit Calibrator

Make/Model	Thermo 146i
Serial/AMU Number	1809
SRM Gas Cylinder No.	APEX1170572
Cylinder Conc. (ppm)	49.99

NO_X Analyzer

Make/Model	Thermo 42i
Serial/AMU Number	1868
Last Calibration Date	August 16, 2018
Full Scale (ppm)	1.0
Cylinder Gas Expiry Date	November 15, 2020

COMMENTS:

Auditor: Shea Beaton Date: August 21, 2018

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2018-559A

Company: Maxxam **Operator:** Chris W

Calibrator:				**Flow Measurement Device:**	
Make/Model	API 700			Make/Model	Mesa Defender 530
Serial Number	690			Serial Number	L-153351 H-152571
Last Verification Date	March 2016			Temperature (°C)	23.5 C
NO Cylinder S/N	LL108015			Barometric Pressure	695 mmHg
NO [PPM]	52.2	NOx [PPM]	52.3		
Expiry Date	Oct 2020				

Dilution Flow (sccm)

Pt. #1 5000 Pt. #2 5000 Pt. #3 5000

Gas Flow (sccm)

Pt. #1 80 Pt. #2 40 Pt. #3 20

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4959	75.0	0.789	0.791	0.793	0.000	0.793	1%	0%
4971	36.5	0.383	0.384	0.384	0.000	0.384	0%	0%
4967	18.2	0.191	0.192	0.191	0.000	0.191	0%	-1%
						Absolute Average Percent Difference	0%	0%

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

NO		**LIMITS**	**NOx**	
Correlation=	1.0000	**≥ 0.990**	Correlation=	1.0000
m (Slope)=	1.0054	**0.90-1.10**	m (Slope)=	1.0031
b (Intercept % of FS)=	-0.0583	**± 3% F.S.**	b (Intercept % of FS)=	-0.0795

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
4959	0.000	0.000	0.790	-0.001	0.789	NO_2	% Diff. Limit
4959	0.500	0.497	0.293	0.493	0.786	-1%	± 10%
4959	0.275	0.273	0.517	0.269	0.787	-1%	± 10%
4959	0.100	0.102	0.688	0.099	0.787	-2%	± 10%
					Absolute Average Percent Difference	1%	± 10%

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

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	0.9946	**0.90-1.10**
b (Intercept % of FS)=	-0.1817	**± 3% F.S.**

AENV Standards		**NO_X Analyzer**	
Audit Calibrator		Make/Model	Teco 42i
Make/Model	Teco 146i	Serial/AMU Number	AMU 1868
Serial/AMU Number	AMU 1809	Last Calibration Date	March 14, 2018
SRM Gas Cylinder No.	APEX1170572	Full Scale (ppm)	1.0
Cylinder Conc. (ppm)	49.99	Cylinder Gas Expiry Date	November 2020

COMMENTS: Cylinder contains 47.9 ppm SO2.

Auditor: Al Clark Date: March 15, 2018

Operator Signature: Location: McIntyre Center Edmonton

CALIBRATION GASES

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2017-482CGA

Company: Maxxam **Operator's Name:** Mike

Cylinder #: LL104225 Concentration PPM: 49.2 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: SO2 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	Gas Flow/	Concentration	Cylinder
Dilution	Gas	Concentration (PPM)	Dilution Flow	Factor	Concentration
5000	0.0	0.000			
4989	79.5	0.764	0.01594	62.755	47.9
4995	39.6	0.380	0.00793	126.136	47.9
4992	19.6	0.188	0.00393	254.694	47.9
				Average Cylinder Concentration:	**47.9**

Previous Stated Concentration PPM: 49.2

Percent variance from Stated: **3**

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

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [X]

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

Auditor: Al Clark Date: December 13, 2017

Operator Signature: Al Clark Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2017-213CGA

Company: Maxxam **Operator's Name:** C. Wesson

Cylinder #: LL119500 Concentration PPM: 9.8 Tolerance(%) 2 Certified By: Praxair

Expiry Date: August 2020

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: September 22, 2017
Gas Type: H2S Conc. 20.43
Cylinder Number: CAL015272
Expiry Date: January 2019

Flow Measurement Device:

Make/Model: Mesa Definer 220
Serial Number: H-133034 L-132702
Temp.°C: 23.5 C
B.P. 705 mmhg

Reference Analyzer:

Make/Model: Teco 450i Serial/AMU Number: 1980

Instrument Settings: Zero: 22.4 Span: 1.091 Range: 0.1

Last Calibration: Date: Sep 22/17 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated	Gas Flow/	Concentration	Cylinder
Dilution	Gas	Concentration (PPM)	Dilution Flow	Factor	Concentration
5000	0.0	0.0000			
5114	39.5	0.0734	0.00772	129.468	9.5
5096	18.5	0.0345	0.00363	275.459	9.5
5089	9.5	0.0178	0.00187	535.684	9.5
				Average Cylinder Concentration:	**9.5**

Previous Stated Concentration PPM: 9.8

Percent variance from Stated: **3**

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

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [X]

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

Auditor: Al Clark Date: September 22, 2017

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

CH4 / C3H8 Cylinder Gas

File No. 2017-481CGA

Company: Maxxam **Operators name:** Mike

Cylinder #: LL119471 Conc CH4 (PPM) 599/207 Tolerance (%) 2 Certified By: Praxair

Expiry Date: October 2025

Reference Calibrator and Gas:

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

Flow Measurement Device:

Make/Model	Mesa Definer 220
Serial Number	H-133034 / L-132702
Temp.°C	23.1 C
B.P.	707 mmHg

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/	Concentration	Cylinder Concentration	
Dilution	Gas	CH4	C3H8	Dilution Flow	Factor	CH4	C3H8
3500	0.0	0.00	0.00				
3618	80.4	13.41	12.75	0.02	45.00	603	209
3547	39.8	6.73	6.47	0.01	89.12	600	210
3560	19.8	3.34	3.21	0.01	179.80	601	210
					Average Cylinder Concentration:	**601**	**209**

	CH4	C3H8
Previous Stated Concentration PPM:	599	207
Percent variance from Stated:	**0**	**1**

Cylinder gas tolerances based on CH4 only

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

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

Auditor: Al Clark Date: December 13, 2017

Operator Signature: Location: McIntyre Center Edmonton

842 STATION

Thermo 43I-TLE Total Reduced Sulphur Analyzer Calibration

Date:	January 8, 2019	**Barometer/B.P./units:**	Station Barometer	953	millibars
Company/Airshed:	PRAMP	**Thermometer/Station Temp:**	FS 181341226, expires Jun 7, 2020	23.85	°C
Location/Station Name:	842b	**Weather Conditions:**	Mainly sunny		
Parameter:	Total Reduced Sulphur	**Calibration Purpose:**	routine monthly		
Start Time 24 hr. (mst):	11:58	**Performed By/Reviewer:**	Ferdinand Roy	Rob Fisher	
End Time 24 hr. (mst):	18:48	**Cal Gas Expiry Date:**	May 16, 2020		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	CD Nova CDN-101 #553		

Analyzer:

Serial Number/Owner:	1162460023 Maxxam	**Range ppb:**	100
Last Calibration Date:	December 5, 2018	**As Found C.F.:**	1.012
Previous C.F.:	1.000	**New C.F.:**	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Environics id# 4760 expires March 2, 2019
Cal Gas Cylinder I.D. # :	LL119420
Cal Gas Conc. (ppm):	10.2

Standard Calibration Points for Ranges

Point	ppb
High	78
Mid	38
Low	19

SO2 Scrubber Check (10 minutes):

Start/End Time 24 hr.:	12:16/12:31
SO2 Analyzer Range:	500
Target Concentration (ppb):	380
As Found Zero:	0.0
Analyzer Response: (ppb):	0.0
Zero Corrected Result (ppb):	0.0

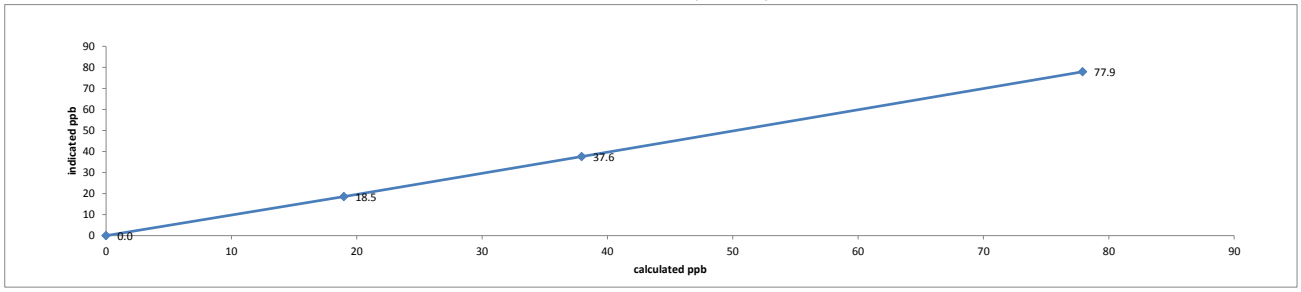
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**	**Concentration (ppb):**		
as found zero	7488	0.00	7488	0.0	0.03	n/a
as found high	7430	57.19	7487	77.9	77	1.012
adjusted zero	7487	0.00	7487	0.0	0	n/a
adjusted high	7430	57.19	7487	77.9	77.9	1.000
mid	7460	27.85	7488	37.9	37.6	1.009
low	7473	13.93	7487	19.0	18.54	1.024
calibrator zero	7488	0.00	7488	0.0	-0.02	n/a
					Average C.F.=	1.011

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**0.999**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.25%**	**± 3% F.S.**
% change in C.F. from last cal=	**-1.22%**	**± 10%**

Thermo 43I-TLE Total Reduced Sulphur Analyzer Calibration



As found:		As left:	
Bkg:	2.95	Bkg:	3.08
Coef:	0.905	Coef:	0.898
Pmt:	-720.4	Pmt:	-720.4
Flash:	985	Flash:	985
Internal:	31.4	Internal:	32.1
Chamber:	45.0	Chamber:	45.1
Perm Oven Gas:	44.99	Perm Oven Gas:	45.00
Perm Oven Heater:	44.11	Perm Oven Heater:	44.12
Pressure:	671.4	Pressure:	672.3
Sample Flow:	0.406	Sample Flow:	0.408
Lamp Intensity:	88	Lamp Intensity:	89
Converter:	850	Converter:	850
Converter Set:	850	Converter Set:	850
Averaging Time:	120	Averaging Time:	120
Expected Value:	56.2	Expected Value:	55.1

Comments:

The analyzer sample inlet filter was changed.

The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

The PRAMP scheduled IZS triggered at 14:00. The Adjusted Zero point started at 14:48

Thermo 43i Sulphur Dioxide Analyzer Calibration

Date:	January 8, 2019	**Barometer/B.P./units:**	Station Barometer	953	millibars
Company/Airshed:	PRAMP	**Thermometer/Station Temp:**	FS 181341226, expires Jun 7, 2020	23.85	°C
Location/Station Name:	842b	**Weather Conditions:**	Mainly sunny		
Parameter:	Sulphur Dioxide	**Calibration Purpose:**	routine monthly		
Start Time 24 hr. (mst):	11:58	**Performed By/Reviewer:**	Ferdinand Roy	Rob Fisher	
End Time 24 hr. (mst):	18:46	**Cal Gas Expiry Date:**	December 8, 2019		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	n/a		

Analyzer:

Serial Number/Owner:	835033373	Maxxam	**Range ppb:**	500
Last Calibration Date:	December 5, 2018		**As Found C.F.:**	1.010
Previous C.F.:	0.999		**New C.F.:**	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Environics id# 5212 expires March 1, 2019
Cal Gas Cylinder I.D. # :	EY0000597
Cal Gas Conc. (ppm):	50.4

Standard Calibration Points for Ranges

Point	ppb
High	380
Mid	180
Low	90

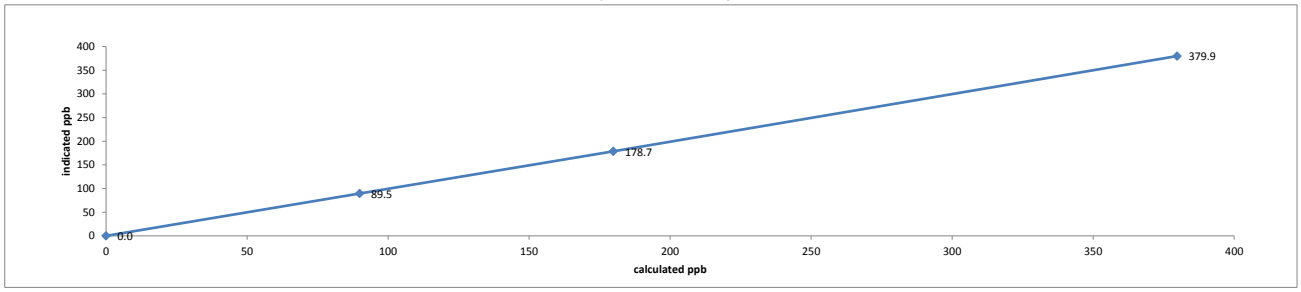
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**			
as found zero	5997	0.00	5997	0.0	-0.3	n/a
as found high	5952	45.19	5997	379.8	375.6	1.010
adjusted zero	5998	0.00	5998	0.0	0	n/a
adjusted high	5952	45.19	5997	379.8	379.9	1.000
mid	5976	21.40	5997	179.9	178.7	1.007
low	5985	10.69	5995	89.9	89.5	1.004
calibrator zero	5999	0.00	5999	0.0	0.1	n/a
					Average C.F.=	1.004

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)=	**0.09%**	**± 3% F.S.**
% change in C.F. from last cal=	**-1.13%**	**± 10%**

Thermo 43i Sulphur Dioxide Analyzer Calibration



As found:		As left:	
Bkg:	14.6	Bkg:	14.5
Coef:	1.010	Coef:	1.020
Pmt:	-621.2	Pmt:	-621.2
Flash:	897	Flash:	899
Internal:	26.2	Internal:	27.1
Chamber:	45.2	Chamber:	44.8
Perm Oven Gas:	45.66	Perm Oven Gas:	45.00
Perm Oven Heater:	45.16	Perm Oven Heater:	45.08
Pressure:	684.1	Pressure:	685.0
Sample Flow:	0.410	Sample Flow:	0.412
Lamp Intensity:	81	Lamp Intensity:	81
Averaging Time:	120	Averaging Time:	120
Expected Value:	253.0	Expected Value:	255.0

Comments:

The analyzer sample inlet filter was changed.

The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

The Analyzer power was cycled at 11:59 because of a blank display before starting the As Found Zero point. The Adjusted Zero point was interrupted by PRAMP scheduled IZS at 14:00. The Adjusted Zero point was restarted at 14:45.

Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	January 9, 2019	**Barometer/B.P./units:**	Station Barometer	947	millibars
Company/Airshed:	PRAMP	**Thermometer/Station Temp:**	FS 181341226, expires Jun 7, 2020	21.54	°C
Location/Station Name:	842b	**Weather Conditions:**	Mix of sun and clouds		
Parameter:	CH4 / NMHC / THC	**Calibration Purpose:**	routine monthly		
Start/End Time 24 hr. (mst):	9:33/15:05	**Performed By/Reviewer:**	Ferdinand Roy	Rob Fisher	
Calibration Method:	Gas Dilution	**Cal Gas Expiry Date:**	October 18, 2025		

Analyzer:

Serial Number/Owner:	1505664392	Maxxam
Measured Flow:	1.120L/min	
Last Calibration Date:	December 5, 2018	
Range ppm:	20 CH4/20 NMHC/40 THC	

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
CH_4 =	0.999	0.979	0.999
NMHC =	1.000	0.974	0.999
THC =	1.000	0.977	0.999

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A		
High Flow Meter ID/Expiry Date:	N/A		
Calibrator ID/Expiry Date:	Environics id# 4760 expires March 2, 2019		
Cal Gas Cylinder I.D. # :	LL43221		
CH4 Cylinder Conc.=	595.0	206.0	**=C_3H_8 Cylinder Conc.**
CH_4 expressed as C_3H_8=	566.5	1161.5	**=total CH4 equivalent**

Standard Calibration Points for Analyzer Range of 20/20/40 ppm

Point	CH4	NMHC	THC
High	**13.00**	**13.00**	**26.00**
Mid	**7.00**	**7.00**	**14.00**
Low	**3.00**	**3.00**	**6.00**

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

Calibrator Flow Rates (cc/min)										Correction Factors:		
Point	**Diluent**	**Cal Gas**	**Total Flow**	**Calculated CH_4 (ppm)**	**Calculated NMHC (ppm)**	**Calculated THC (ppm)**	**Indicated CH_4 (ppm)**	**Indicated NMHC (ppm)**	**Indicated THC (ppm)**	**CH_4**	**NMHC**	**THC**
as found zero	2996	0.00	2996	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
as found high	2924	72.12	2996	14.32	13.64	27.96	14.63	14.00	28.63	0.979	0.974	0.977
adjusted zero	2996	0.00	2996	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2925	72.13	2997	14.32	13.63	27.95	14.33	13.64	27.97	0.999	0.999	0.999
mid	2962	36.07	2998	7.16	6.81	13.97	7.17	6.85	14.02	0.998	0.995	0.997
low	2981	18.03	2999	3.58	3.41	6.98	3.59	3.47	7.06	0.997	0.982	0.989
calibrator zero	3001	0.00	3001	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
									Average C.F.=	0.998	0.992	0.995

Linear Regression/Calibration Results:

	CH_4	NMHC	THC	LIMITS
Correlation Coefficient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**1.001**	**0.999**	**1.000**	**0.95-1.05**
b (Intercept as % of full scale)=	**0.03%**	**0.16%**	**0.09%**	**± 3% F.S.**
% change in C.F. from last cal=	**2.01%**	**2.60%**	**2.35%**	**± 10%**

As Left Instrument Diagnostics:

Interface Board Voltages:	Bias Supply:	-293.8	Calibration History cnt'd:	NM Peak Area:	79874
Temperatures:	Detector Oven:	175.0	Crucial Settings:	Methane Start:	n/a
	Filter:	174.9		Methane End:	n/a
	Column Oven:	75.1		Backflush:	n/a
	Internal:	31.2		NMHV Start:	n/a
Cylinder Pressures/reg.:	Carrier:	1600 50		NMHC End:	n/a
	Fuel:	600 50	Run History>1:	Date:	09Jan19
	Span Gas:	1600 16		Time:	14:01
	Zero Air Generator:	50		CH_4 PK HT:	0
Internal Pressures:	Carrier:	31.1		CH_4 RT:	11.4
	Fuel:	47.3		CH_4 Baseline:	3181
	Air:	23.7		CH_4 LOD:	47
FID Status:	Status:	LIT		CH_4 SD:	15
	Counts:	35582		CH_4 CONC:	0.00
	Flame:	380.4		NM PK HT:	0
	Det Base:	175.0		NM Peak Area:	0
Flame and Power Stats:	Last Power On:	20Nov18		NM CONC:	0.00
	Flameouts:	2		NM Base Start:	3178
	Det Oven at Start:	121.5		NM Base End:	3204
	Col Oven at Start:	74.1		NM LOD:	9
Calibration History:	Time:	09Jan19@12:09		NM Start IDX:	15
	Type:	SPAN		NM End IDX:	80
	Status:	GOOD		NM Max Slope:	1.1e+00
	Check/Adjust:	ADJUST		NM Min Slope:	-3.8e-01
	CH_4 Span Conc:	14.32		NM PT Count:	0
	CH_4 SP Ratio:	0.000706	Expected Values:	Previous CH4:	10.27
	CH_4 RT:	12.2		Previous NMHC	11.3
	CH_4 PK IDX:	21		Previous THC:	21.57
	CH_4 PK HT:	20272		New CH4:	10.27
	NM Span Conc:	13.63		New NMHC	11.30
	NM SP Ratio:	0.000171		New THC:	21.57

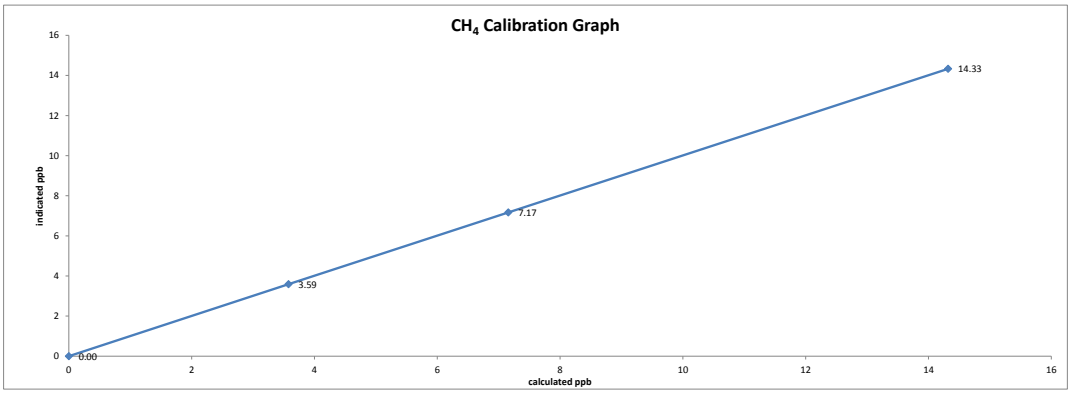
Comments:

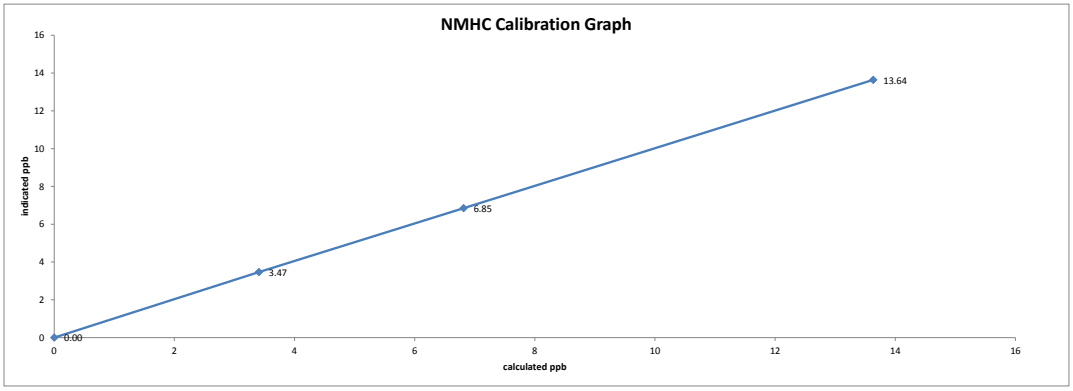
The analyzer sample inlet filter was changed.

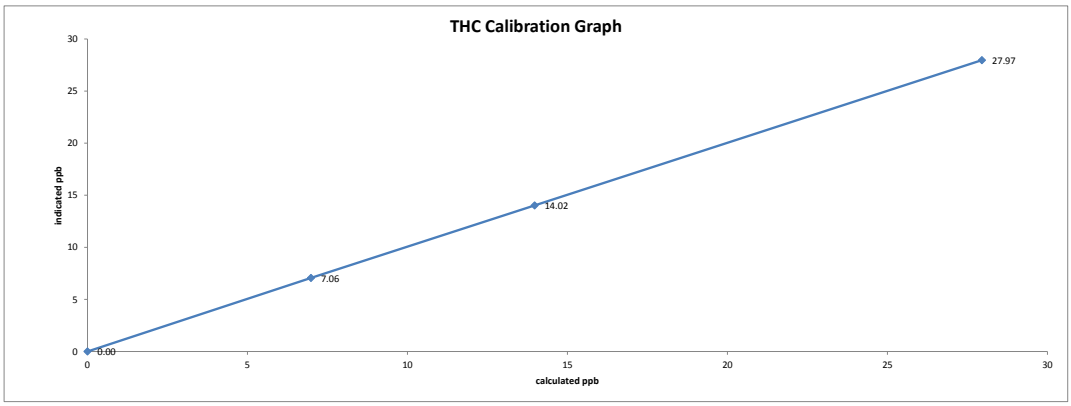
The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

Date:	January 9, 2019	Start/End Time 24 hr. (mst):	9:33/15:05
Company/Airshed:	PRAMP	Calibration Purpose:	routine monthly
Location/Station Name:	842b	Calibration Method:	Gas Dilution







WIND SYSTEM

Meteorological Sensor Audit/Calibration

Location Information

Company:	PRAMP	**Performed By:**	Chris Wesson
Audit Location:	842b	**Reviewed By:**	Rob Fisher
Audit Date:	August 22, 2018	**Start/End Time (mst):**	17:50 / 18:21
Calibration Purpose:	routine annual	**Weather Conditions:**	Smoke

Wind Sensor Information

Sensor ID Data:		**Sensor Outputs:**	
Sensor Make:	RM Young	**Velocity Voltage Output Range:**	0 - 1 V
Sensor Model:	05305VK	**Velocity Unit Output Range:**	0-200 KPH
Serial #:	124638	**Direction Voltage Output Range:**	0 - 1 V
Previous Cal/Audit Date:	August 30, 2017	**Direction Unit Output Range:**	0-360 °

Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 id# CA03309 expires September 25, 2018

Wind Speed Audit Data

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.4	0.4	-
1000	18.4	18.4	18.4	1.002
2000	36.9	36.8	36.8	1.002
3000	55.3	55.2	55.2	1.002
4000	73.7	73.6	73.6	1.002
5000	92.2	91.8	91.9	1.003
6000	110.6	110.2	110.2	1.003
7000	129.0	128.8	128.8	1.002
8000	147.4	147.2	147.2	1.002
9000	165.9	165.6	165.6	1.002
10000	184.3	184.5	184.2	1.000
		The audit meets AMD requirements.	**Average Correction Factor=**	**1.002**

Wind Direction Audit Data

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	1	355	1.0	0.0	0.5
30	330	30	330	0.0	0.0	0.0
60	300	60	300	0.0	0.0	0.0
90	270	91	270	-1.0	0.0	0.5
120	240	120	240	0.0	0.0	0.0
150	210	151	211	-1.0	-1.0	1.0
180	180	180	181	0.0	-1.0	0.5
210	150	210	151	0.0	-1.0	0.5
240	120	240	121	0.0	-1.0	0.5
270	90	270	90	0.0	0.0	0.0
300	60	300	60	0.0	0.0	0.0
330	30	330	30	0.0	0.0	0.0
355	0	355	1	0.0	1.0	0.5
The audit meets AMD requirements.			**Average Absolute Degrees Difference=**			**0.3**

Comments:

CALIBRATORS

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2018-553A

Company: Maxxam **Operator:** Chris W

Calibrator:

Make/Model	Environics 6100
Serial Number	5212
Last Verification Date	February 2017
NO Cylinder S/N	EY0000715
NO [PPM]	50.7 NOx [PPM] 50.8
Expiry Date	May 2021

Flow Measurement Device:

Make/Model	Mesa Defender 530
Serial Number	L-153351 H-152571
Temperature (°C)	24.0 C
Barometric Pressure	702 mmHg

Dilution Flow (sccm)

Pt. #1 5000 Pt. #2 5000 Pt. #3 5000

Gas Flow (sccm)

Pt. #1 80 Pt. #2 40 Pt. #3 20

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5000	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	Limit ± 10%	
5004	77.2	0.7822	0.7837	0.7769	0.0006	0.7774	-1%	-1%
5018	37.7	0.3809	0.3817	0.3777	0.0005	0.3782	-1%	-1%
5012	18.8	0.1902	0.1905	0.1884	-0.0002	0.1885	-1%	-1%
						Absolute Average Percent Difference	1%	1%

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

	NO	LIMITS	NOx
Correlation=	1.0000	≥ 0.990	1.0000
m (Slope)=	0.9934	0.90-1.10	0.9921
b (Intercept % of FS)=	-0.0332	± 3% F.S.	-0.0277

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
						NO_2	% Diff. Limit
5004	0.000	0.0000	0.7766	0.0007	0.7773		
5004	0.500	0.4846	0.2920	0.4797	0.7717	-1%	± 10%
5004	0.280	0.2731	0.5035	0.2713	0.7747	-1%	± 10%
5004	0.100	0.0958	0.6808	0.0962	0.7770	0%	± 10%
					Absolute Average Percent Difference	1%	± 10%

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

	NO_2	LIMITS
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9880	0.90-1.10
b (Intercept % of FS)=	0.1153	± 3% F.S.

AENV Standards

Audit Calibrator

Make/Model	Teco 146i
Serial/AMU Number	AMU 1809
SRM Gas Cylinder No.	APEX1170572
Cylinder Conc. (ppm)	49.99

NO_X Analyzer

Make/Model	Teco 42i
Serial/AMU Number	AMU 1868
Last Calibration Date	March 1, 2018
Full Scale (ppm)	1.0
Cylinder Gas Expiry Date	November 2020

COMMENTS: Cylinder contains 25 ppm SO2.

Auditor: Al Clark Date: March 1, 2018

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2018-554A

Company: Maxxam **Operator:** Chris W

Calibrator:				**Flow Measurement Device:**	
Make/Model	Environics 6100			Make/Model	Mesa Defender 530
Serial Number	4760			Serial Number	L-153351 H-152571
Last Verification Date	February 2017			Temperature (°C)	23.0 C
NO Cylinder S/N	EY0000715			Barometric Pressure	704 mmHg
NO [PPM]	50.7	NOx [PPM]	50.8		
Expiry Date	May 2021				

Dilution Flow (sccm)

Pt. #1 5000 Pt. #2 5000 Pt. #3 5000

Gas Flow (sccm)

Pt. #1 80 Pt. #2 40 Pt. #3 20

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5000	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	Limit ± 10%	
4935	77.0	0.7911	0.7926	0.7830	0.0017	0.7846	-1%	-1%
4951	37.5	0.3840	0.3848	0.3808	-0.0001	0.3806	-1%	-1%
4938	18.9	0.1941	0.1944	0.1915	0.0003	0.1918	-1%	-1%
					Absolute Average Percent Difference		1%	1%

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

NO		**LIMITS**	**NOx**	
Correlation=	1.0000	**≥ 0.990**	Correlation=	1.0000
m (Slope)=	0.9901	**0.90-1.10**	m (Slope)=	0.9901
b (Intercept % of FS)=	-0.0092	**± 3% F.S.**	b (Intercept % of FS)=	-0.0320

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
4935	0.000	0.0000	0.7877	0.0005	0.7881	NO_2	% Diff. Limit
4935	0.500	0.4912	0.2965	0.4844	0.7809	-1%	± 10%
4935	0.280	0.2755	0.5122	0.2729	0.7851	-1%	± 10%
4935	0.100	0.0977	0.6900	0.0991	0.7891	1%	± 10%
				Absolute Average Percent Difference		1%	± 10%

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

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	0.9836	**0.90-1.10**
b (Intercept % of FS)=	0.1675	**± 3% F.S.**

AENV Standards		**NO_X Analyzer**	
Audit Calibrator		Make/Model	Teco 42i
Make/Model	Teco 146i	Serial/AMU Number	AMU 1868
Serial/AMU Number	AMU 1809	Last Calibration Date	March 2, 2018
SRM Gas Cylinder No.	APEX1170572	Full Scale (ppm)	1.0
Cylinder Conc. (ppm)	49.99	Cylinder Gas Expiry Date	November 2020

COMMENTS: Cylinder contains 25 ppm SO2.

Auditor: Al Clark Date: March 2, 2018

Operator Signature: Location: McIntyre Center Edmonton

CALIBRATION GASES

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2016-438CGA

Company: Maxxam **Operator's Name:** Chris

Cylinder #: EY0000597 Concentration PPM: 50.4 Tolerance(%) 1.0 Certified By: Praxair

Expiry Date: December 8, 2019

Reference Calibrator and Gas:

Make/Model: Thermo 146i
Serial Number: AMU 1809
Last Verification Date: January 26, 2017
Gas Type: SO2 Conc. 98.07
Cylinder Number: CAL016625
Expiry Date: January 5, 2019

Flow Measurement Device:

Make/Model: Bios Befiner 220
Serial Number: AMU1941
Temp.°C: 24.4
B.P. 704.7

Reference Analyzer:

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

Instrument Settings: Zero: 9.5 Span: 1.023 Range: 1.0

Last Calibration: Date: 25-Jan-17 C.F. 1.000 Done By: SB

Calibrator Flows (sccm)		Indicated	Gas Flow/	Concentration	Cylinder
Dilution	Gas	Concentration (PPM)	Dilution Flow	Factor	Concentration
4923	0.0	0.000			
4916	80.7	0.834	0.01642	60.917	50.8
4902	40.3	0.416	0.00822	121.638	50.6
4916	19.9	0.206	0.00405	247.035	50.9
				Average Cylinder Concentration:	**50.7**

Previous Stated Concentration PPM: 50.4

Percent variance from Stated: **0.7**

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

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

Auditor: Shea Beaton Date: January 26, 2017

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2017-135CGA

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

Cylinder #: LL119420 Concentration PPM: 10.2 Tolerance(%) 2 Certified By: Praxair

Expiry Date: May 16, 2020

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: July 27, 2017
Gas Type: H2S Conc. 20.43
Cylinder Number: CAL015272
Expiry Date: Janaury 2019

Flow Measurement Device:

Make/Model: Mesa Definer 220
Serial Number: H-133034 L-132702
Temp.°C: 22.0 C
B.P. 700 mmhg

Reference Analyzer:

Make/Model: Teco 450i Serial/AMU Number: 1980
Instrument Settings: Zero: 21.9 Span: 1.069 Range: 0.1
Last Calibration: Date: July 27, 2017 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0020			
5117	38.9	0.0781	0.00760	131.542	10.0
5103	18.4	0.0379	0.00361	277.337	10.5
5097	9.4	0.0198	0.00184	542.234	10.7
				Average Cylinder Concentration:	**10.4**

Previous Stated Concentration PPM: 10.2

Percent variance from Stated: **2**

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

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [X]

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

Auditor: Al Clark Date: July 27, 2017

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

CH4 / C3H8 Cylinder Gas

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

Reference Calibrator and Gas:

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

Flow Measurement Device:

Make/Model	Mesa Definer 220
Serial Number	H-133034 / L-132702
Temp.°C	23.1 C
B.P.	707 mmHg

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/	Concentration	Cylinder Concentration	
Dilution	Gas	CH4	C3H8	Dilution Flow	Factor	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	C3H8
Previous Stated Concentration PPM:	595	206
Percent variance from Stated:	**0**	**2**

Cylinder gas tolerances based on CH4 only

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

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

Auditor: Al Clark Date: December 13, 2017

Operator Signature: Location: McIntyre Center Edmonton

RENO STATION

Thermo 43I-TLE Total Reduced Sulphur Analyzer Calibration

Date:	January 10, 2019	**Barometer/B.P./units:**	Station Probe	936.4	millibars
Company/Airshed:	PRAMP	**Thermometer/Station Temp:**	F.S. 181341226 expires Jun 7, 2020	25.5	°C
Location/Station Name:	Reno	**Weather Conditions:**	Mainly cloudy with sunny breaks		
Parameter:	Total Reduced Sulphur	**Calibration Purpose:**	routine monthly		
Start Time 24 hr. (mst):	10:05	**Performed By/Reviewer:**	Ferdinand Roy	Rob Fisher	
End Time 24 hr. (mst):	15:49	**Cal Gas Expiry Date:**	May 16, 2020		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	CD Nova CDN-101 #534		

Analyzer:

Serial Number/Owner:	1162460022 Maxxam	**Range ppb:**	100
Last Calibration Date:	December 4, 2018	**As Found C.F.:**	0.972
Previous C.F.:	1.000	**New C.F.:**	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Environics id# 4760 expires March 2, 2019
Cal Gas Cylinder I.D. # :	LL119420
Cal Gas Conc. (ppm):	10.2

Standard Calibration Points for Ranges

Point	ppb
High	78
Mid	38
Low	19

SO2 Scrubber Check (10 minutes):

Start/End Time 24 hr.:	10:17/10:32
SO2 Analyzer Range:	500
Target Concentration (ppb):	380
As Found Zero:	0.0
Analyzer Response: (ppb):	0.0
Zero Corrected Result (ppb):	0.0

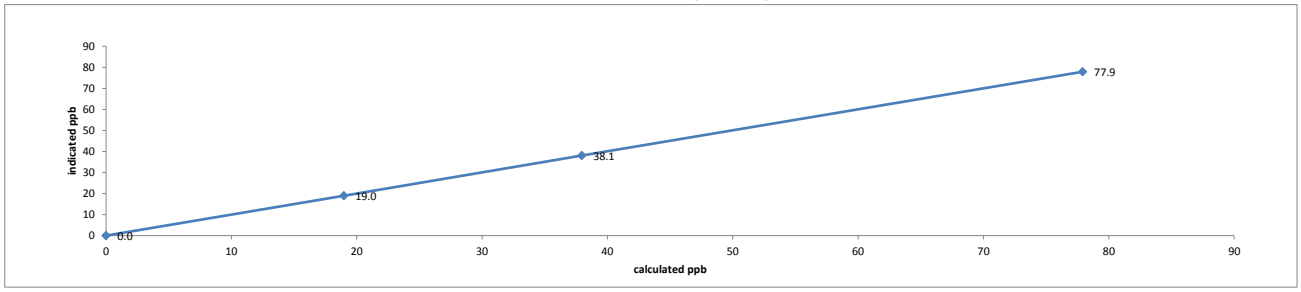
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**	**Concentration (ppb):**		
as found zero	7487	0.00	7487	0.0	-0.02	n/a
as found high	7430	57.19	7487	77.9	80.11	0.972
adjusted zero	7488	0.00	7488	0.0	0	n/a
adjusted high	7430	57.19	7487	77.9	77.9	1.000
mid	7460	27.86	7488	38.0	38.09	0.996
low	7475	13.93	7489	19.0	18.96	1.001
calibrator zero	7488	0.00	7488	0.0	0.06	n/a
					Average C.F.=	0.999

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**1.000**	**0.95-1.05**
b (Intercept as % of full scale)=	**-0.02%**	**± 3% F.S.**
% change in C.F. from last cal=	**2.77%**	**± 10%**

Thermo 43I-TLE Total Reduced Sulphur Analyzer Calibration



As found:		As left:	
Bkg:	2.37	Bkg:	2.38
Coef:	0.973	Coef:	0.949
Pmt:	-706.3	Pmt:	-706.7
Flash:	1001	Flash:	1005
Internal:	32.0	Internal:	32.4
Chamber:	45.1	Chamber:	45.0
Perm Oven Gas:	35.00	Perm Oven Gas:	35.00
Perm Oven Heater:	34.14	Perm Oven Heater:	34.14
Pressure:	638.6	Pressure:	639.8
Sample Flow:	0.410	Sample Flow:	0.411
Lamp Intensity:	83	Lamp Intensity:	83
Converter:	825	Converter:	825
Converter Set:	825	Converter Set:	825
Averaging Time:	120	Averaging Time:	120
Expected Value:	42.1	Expected Value:	40.3

Comments:

The analyzer sample inlet filter was changed.

The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

The Adjusted Zero was interrupted by PRAMP's auto IZS at 12:00. The Adjusted Zero was restarted at 12:12.

API 100A Sulphur Dioxide Analyzer Calibration

Date:	January 10, 2019	**Barometer/B.P./units:**	Station Probe	936.4	millibars
Company/Airshed:	PRAMP	**Thermometer/Station Temp:**	F.S. 181341226 expires Jun 7, 2020	25.5	°C
Location/Station Name:	Reno	**Weather Conditions:**	Mainly cloudy with sunny breaks		
Parameter:	Sulphur Dioxide	**Calibration Purpose:**	routine monthly		
Start Time 24 hr. (mst):	10:05	**Performed By/Reviewer:**	Ferdinand Roy	Rob Fisher	
End Time 24 hr. (mst):	15:50	**Cal Gas Expiry Date:**	December 8, 2019		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	n/a		

Analyzer:

Serial Number/Owner:	841 Maxxam	**Range ppb:**	500
Last Calibration Date:	December 4, 2018	**As Found C.F.:**	1.000
Previous C.F.:	1.001	**New C.F.:**	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Environics id# 5212 expires March 1, 2019
Cal Gas Cylinder I.D. # :	EY0000597
Cal Gas Conc. (ppm):	50.4

Standard Calibration Points for Ranges

Point	ppb
High	380
Mid	180
Low	90

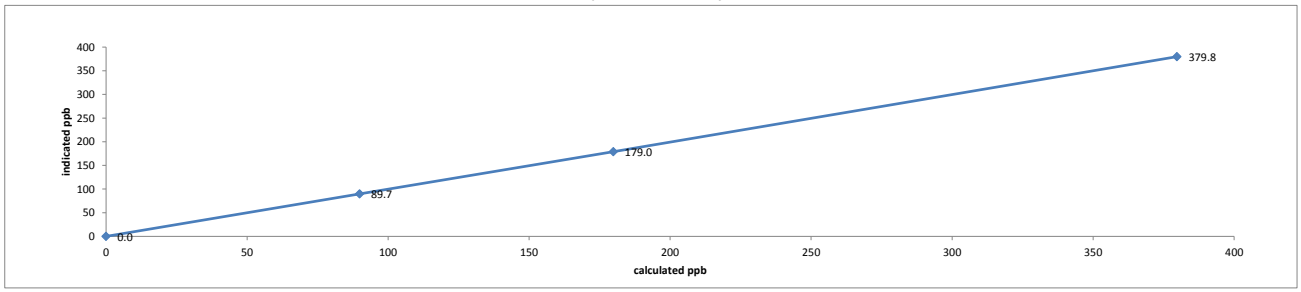
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**			
as found zero	5997	0.00	5997	0.0	0.5	n/a
as found high	5951	45.19	5996	379.8	380.4	1.000
adjusted zero	5999	0.00	5999	0.0	0	n/a
adjusted high	5952	45.19	5997	379.8	379.8	1.000
mid	5976	21.40	5997	179.9	179	1.005
low	5985	10.69	5995	89.9	89.7	1.002
calibrator zero	5999	0.00	5999	0.0	0.7	n/a
					Average C.F.=	1.002

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)=	**0.05%**	**± 3% F.S.**
% change in C.F. from last cal=	**0.12%**	**± 10%**

API 100A Sulphur Dioxide Analyzer Calibration



As found:		As left:	
Slope:	1.080	Slope:	1.084
Offset:	50.5	Offset:	50.5
Hvps:	763	Hvps:	763
Dcps:	2557	Dcps:	2557
Rcell Temp:	50.3	Rcell Temp:	50.8
Box Temp:	31.9	Box Temp:	32.0
Pmt Temp:	7.1	Pmt Temp:	7.1
Izs Temp:	35.0	Izs Temp:	35.1
Pres:	24.8	Pres:	25.0
Samp Fl:	656	Samp Fl:	661
Pmt:	66.0	Pmt:	62.1
Uv Lamp:	1852.1	Uv Lamp:	1833.1
Lamp Ratio:	91.5	Lamp Ratio:	90.2
Str Lgt:	27.3	Str Lgt:	27.3
Drk Pmt:	24.3	Drk Pmt:	24.2
Drk Lmp:	17.3	Drk Lmp:	17.3
Expected Value:	285.1	Expected Value:	296.7

Comments:

The analyzer sample inlet filter was changed.

The manifold blower was found to be working normally.

The Adjusted Zero point was interrupted by PRAMP's auto IZS at 12:00. The Adjusted Zero point was restarted at 12:12.

Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	January 10, 2019	**Barometer/B.P./units:**	Station Probe	936.8	millibars
Company/Airshed:	PRAMP	**Thermometer/Station Temp:**	F.S. 181341226 expires Jun 7, 2020	26.02	°C
Location/Station Name:	Reno	**Weather Conditions:**	Mainly cloudy with sunny breaks		
Parameter:	CH4 / NMHC / THC	**Calibration Purpose:**	routine monthly		
Start/End Time 24 hr. (mst):	14:56/20:08	**Performed By/Reviewer:**	Ferdinand Roy	Rob Fisher	
Calibration Method:	Gas Dilution	**Cal Gas Expiry Date:**	October 18, 2025		

Analyzer:

Serial Number/Owner:	1314057759	Maxxam
Measured Flow:	1.305L/min	
Last Calibration Date:	December 4, 2018	
Range ppm:	20 CH4/20 NMHC/40 THC	

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
CH_4 =	0.999	0.977	0.998
NMHC =	0.999	0.986	1.001
THC =	0.999	0.981	0.999

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A		
High Flow Meter ID/Expiry Date:	N/A		
Calibrator ID/Expiry Date:	Environics id# 4760 expires March 2, 2019		
Cal Gas Cylinder I.D. # :	LL43221		
CH4 Cylinder Conc.=	595.0	206.0	**=C_3H_8 Cylinder Conc.**
CH_4 expressed as C_3H_8=	566.5	1161.5	**=total CH4 equivalent**

Standard Calibration Points for Analyzer Range of 20/20/40 ppm

Point	CH4	NMHC	THC
High	13.00	13.00	26.00
Mid	7.00	7.00	14.00
Low	3.00	3.00	6.00

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

Calibrator Flow Rates (cc/min)										Correction Factors:		
Point	**Diluent**	**Cal Gas**	**Total Flow**	**Calculated CH_4 (ppm)**	**Calculated NMHC (ppm)**	**Calculated THC (ppm)**	**Indicated CH_4 (ppm)**	**Indicated NMHC (ppm)**	**Indicated THC (ppm)**	**CH_4**	**NMHC**	**THC**
as found zero	2998	0.00	2998	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
as found high	2926	72.13	2998	14.31	13.63	27.94	14.65	13.82	28.47	0.977	0.986	0.981
adjusted zero	2998	0.00	2998	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2926	72.13	2998	14.31	13.63	27.94	14.35	13.62	27.97	0.998	1.001	0.999
mid	2962	36.07	2998	7.16	6.81	13.97	7.11	6.82	13.93	1.007	0.999	1.003
low	2981	18.03	3000	3.58	3.41	6.98	3.53	3.40	6.93	1.013	1.002	1.007
calibrator zero	3001	0.00	3001	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
									Average C.F.=	1.006	1.000	1.003

Linear Regression/Calibration Results:

	CH_4	NMHC	THC	LIMITS
Correlation Coefficient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**1.003**	**1.000**	**1.001**	**0.95-1.05**
b (Intercept as % of full scale)=	**-0.18%**	**0.00%**	**-0.09%**	**± 3% F.S.**
% change in C.F. from last cal=	**2.19%**	**1.29%**	**1.75%**	**± 10%**

As Left Instrument Diagnostics:

Interface Board Voltages:	Bias Supply:	-289.5	Calibration History cnt'd:	NM Peak Area:	85998
Temperatures:	Detector Oven:	175.0	Crucial Settings:	Methane Start:	n/a
	Filter:	175.0		Methane End:	n/a
	Column Oven:	75.0		Backflush:	n/a
	Internal:	33.1		NMHV Start:	n/a
Cylinder Pressures/reg.:	Carrier:	2541 50		NMHC End:	n/a
	Fuel:	450 50	Run History>1:	Date:	10Jan19@
	Span Gas:	700 24		Time:	18:42
	Zero Air Generator:	52		CH_4 PK HT:	0
Internal Pressures:	Carrier:	31.3		CH_4 RT:	8.0
	Fuel:	41.6		CH_4 Baseline:	2360
	Air:	25.9		CH_4 LOD:	71
FID Status:	Status:	LIT		CH_4 SD:	23
	Counts:	27550		CH_4 CONC:	0.00
	Flame:	405.0		NM PK HT:	0
	Det Base:	175.0		NM Peak Area:	0
Flame and Power Stats:	Last Power On:	20Oct2018@16:42		NM CONC:	0.00
	Flameouts:	1		NM Base Start:	2329
	Det Oven at Start:	45.0		NM Base End:	2332
	Col Oven at Start:	26.6		NM LOD:	5
Calibration History:	Time:	10Jan19@17:08		NM Start IDX:	61
	Type:	SPAN		NM End IDX:	81
	Status:	GOOD		NM Max Slope:	8.8e-01
	Check/Adjust:	ADJUST		NM Min Slope:	-9.6e-01
	CH_4 Span Conc:	14.31		NM PT Count:	0
	CH_4 SP Ratio:	0.00076	Expected Values:	Previous CH4:	10.27
	CH_4 RT:	11.6		Previous NMHC	11.29
	CH_4 PK IDX:	18		Previous THC:	21.56
	CH_4 PK HT:	18838		New CH4:	10.03
	NM Span Conc:	13.63		New NMHC	11.11
	NM SP Ratio:	0.000158		New THC:	21.14

Comments:

The analyzer sample inlet filter was changed.

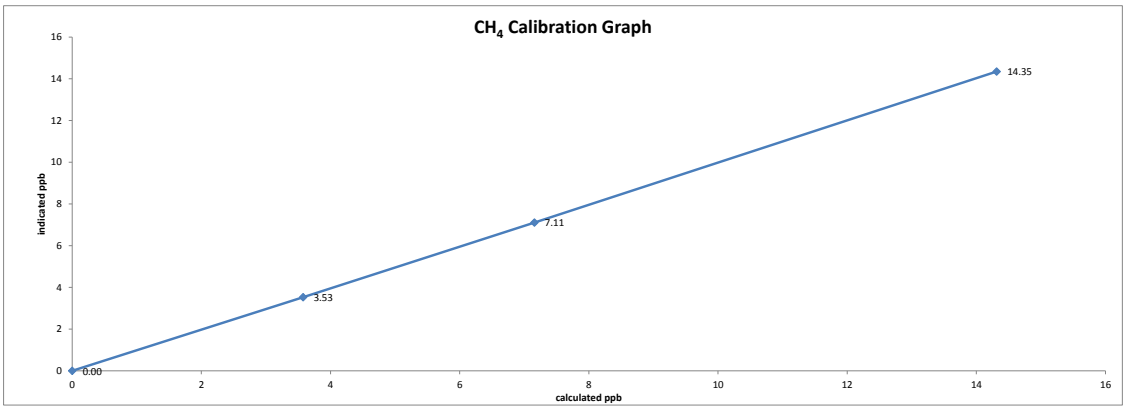
A new nitrogen cylinder was installed.

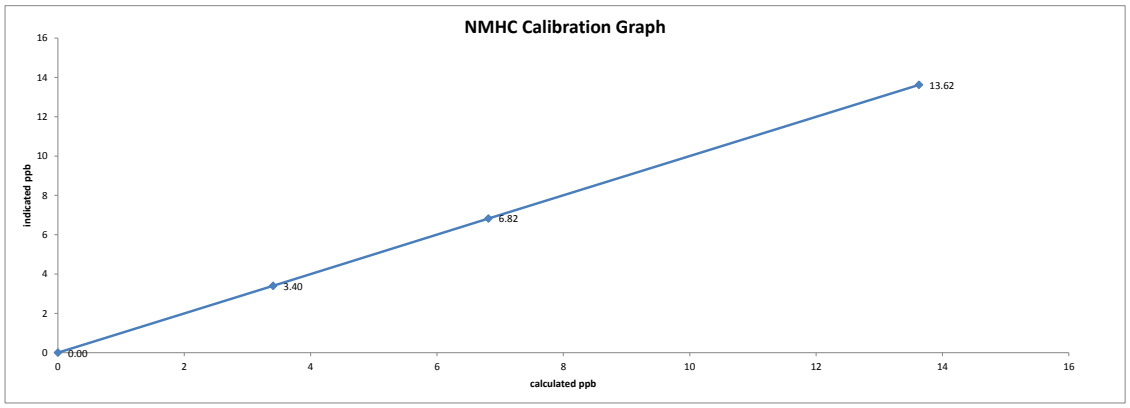
The analyzer cooling fan filter(s) were cleaned.

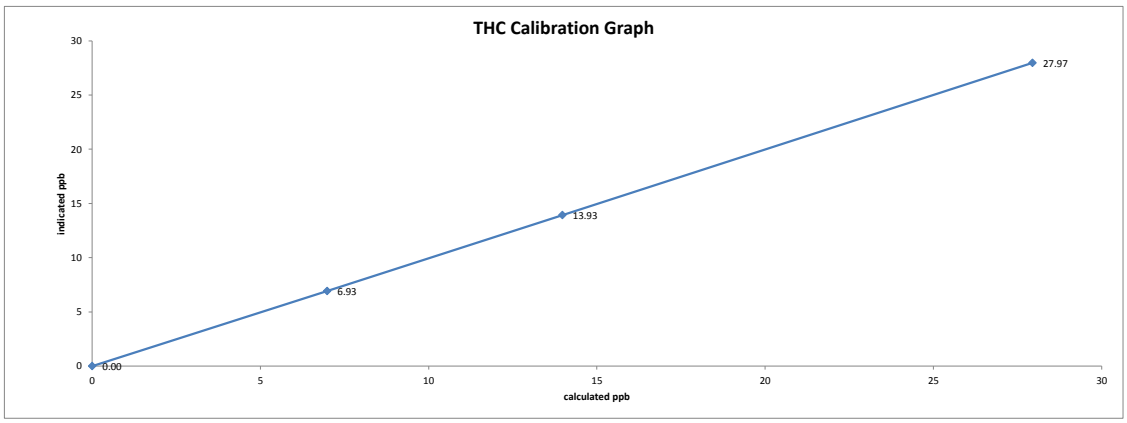
The manifold blower was found to be working normally.

Due to operator error, the calibration gas valve was still open prior to the Adjusted Zero. The Adjusted Zero point started at 16:18.

Date:	January 10, 2019	Start/End Time 24 hr. (mst):	14:56/20:08
Company/Airshed:	PRAMP	Calibration Purpose:	routine monthly
Location/Station Name:	Reno	Calibration Method:	Gas Dilution







WIND SYSTEM

Meteorological Sensor Audit/Calibration

Location Information

Company:	PRAMP	**Performed By:**	Limin Li
Audit Location:	RENO	**Reviewed By:**	Rob Fisher
Audit Date:	April 5, 2018	**Start/End Time (mst):**	16:00/16:30
Calibration Purpose:	routine annual	**Weather Conditions:**	Mainly sunny

Wind Sensor Information

Sensor ID Data:		**Sensor Outputs:**	
Sensor Make:	RM Young	**Velocity Voltage Output Range:**	0-1V
Sensor Model:	5305VK	**Velocity Unit Output Range:**	0-200 KPH
Serial #:	149769	**Direction Voltage Output Range:**	0-1 V
Previous Cal/Audit Date:	April 6, 2017	**Direction Unit Output Range:**	0-360 DEG

Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 id# CA03309 expires September 25, 2018

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

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.1	0.1	-
1000	18.4	18.4	18.5	0.998
2000	36.9	36.9	36.8	1.001
3000	55.3	55.2	55.2	1.001
4000	73.7	73.7	73.7	1.000
5000	92.2	92.1	92.1	1.001
6000	110.6	110.6	110.6	1.000
7000	129.0	129.0	129.1	1.000
8000	147.4	147.6	147.6	0.999
9000	165.9	166.2	166.2	0.998
10000	184.3	184.7	184.7	0.998
		The audit meets AMD requirements.	**Average Correction Factor=**	**1.000**

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

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	0	353	0.2	1.6	0.9
30	330	30	328	-0.5	2.4	1.4
60	300	61	299	-1.0	0.9	0.9
90	270	91	269	-1.1	1.4	1.2
120	240	120	239	0.4	0.9	0.7
150	210	150	210	-0.1	0.1	0.1
180	180	181	180	-0.6	-0.2	0.4
210	150	210	151	-0.4	-0.9	0.7
240	120	240	120	0.3	-0.4	0.4
270	90	269	91	1.4	-0.5	1.0
300	60	299	61	1.0	-0.8	0.9
330	30	328	30	2.3	0.2	1.3
355	0	353	0	2.5	0.2	1.4
The audit meets AMD requirements.			**Average Absolute Degrees Difference=**			**0.9**

Comments:

CALIBRATORS

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2018-553A

Company: Maxxam **Operator:** Chris W

Calibrator:

Make/Model	Environics 6100
Serial Number	5212
Last Verification Date	February 2017
NO Cylinder S/N	EY0000715
NO [PPM]	50.7 NOx [PPM] 50.8
Expiry Date	May 2021

Flow Measurement Device:

Make/Model	Mesa Defender 530
Serial Number	L-153351 H-152571
Temperature (°C)	24.0 C
Barometric Pressure	702 mmHg

Dilution Flow (sccm)
Pt. #1 5000 Pt. #2 5000 Pt. #3 5000

Gas Flow (sccm)
Pt. #1 80 Pt. #2 40 Pt. #3 20

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5000	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	Limit ± 10%	
5004	77.2	0.7822	0.7837	0.7769	0.0006	0.7774	-1%	-1%
5018	37.7	0.3809	0.3817	0.3777	0.0005	0.3782	-1%	-1%
5012	18.8	0.1902	0.1905	0.1884	-0.0002	0.1885	-1%	-1%
						Absolute Average Percent Difference	1%	1%

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

NO		LIMITS	NOx	
Correlation=	1.0000	≥ 0.990	Correlation=	1.0000
m (Slope)=	0.9934	0.90-1.10	m (Slope)=	0.9921
b (Intercept % of FS)=	-0.0332	± 3% F.S.	b (Intercept % of FS)=	-0.0277

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
						NO_2	% Diff. Limit
5004	0.000	0.0000	0.7766	0.0007	0.7773		
5004	0.500	0.4846	0.2920	0.4797	0.7717	-1%	± 10%
5004	0.280	0.2731	0.5035	0.2713	0.7747	-1%	± 10%
5004	0.100	0.0958	0.6808	0.0962	0.7770	0%	± 10%
					Absolute Average Percent Difference	1%	± 10%

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

NO_2		LIMITS
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9880	0.90-1.10
b (Intercept % of FS)=	0.1153	± 3% F.S.

AENV Standards
Audit Calibrator

Make/Model	Teco 146i
Serial/AMU Number	AMU 1809
SRM Gas Cylinder No.	APEX1170572
Cylinder Conc. (ppm)	49.99

NO_X Analyzer

Make/Model	Teco 42i
Serial/AMU Number	AMU 1868
Last Calibration Date	March 1, 2018
Full Scale (ppm)	1.0
Cylinder Gas Expiry Date	November 2020

COMMENTS: Cylinder contains 25 ppm SO2.

Auditor: Al Clark Date: March 1, 2018

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2018-554A

Company: Maxxam **Operator:** Chris W

Calibrator:				**Flow Measurement Device:**	
Make/Model	Environics 6100			Make/Model	Mesa Defender 530
Serial Number	4760			Serial Number	L-153351 H-152571
Last Verification Date	February 2017			Temperature (°C)	23.0 C
NO Cylinder S/N	EY0000715			Barometric Pressure	704 mmHg
NO [PPM]	50.7	NOx [PPM]	50.8		
Expiry Date	May 2021				

Dilution Flow (sccm)

Pt. #1 5000 Pt. #2 5000 Pt. #3 5000

Gas Flow (sccm)

Pt. #1 80 Pt. #2 40 Pt. #3 20

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5000	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	Limit ± 10%	
4935	77.0	0.7911	0.7926	0.7830	0.0017	0.7846	-1%	-1%
4951	37.5	0.3840	0.3848	0.3808	-0.0001	0.3806	-1%	-1%
4938	18.9	0.1941	0.1944	0.1915	0.0003	0.1918	-1%	-1%
					Absolute Average Percent Difference		1%	1%

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

NO		**LIMITS**	**NOx**	
Correlation=	1.0000	**≥ 0.990**	Correlation=	1.0000
m (Slope)=	0.9901	**0.90-1.10**	m (Slope)=	0.9901
b (Intercept % of FS)=	-0.0092	**± 3% F.S.**	b (Intercept % of FS)=	-0.0320

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
4935	0.000	0.0000	0.7877	0.0005	0.7881	NO_2	% Diff. Limit
4935	0.500	0.4912	0.2965	0.4844	0.7809	-1%	± 10%
4935	0.280	0.2755	0.5122	0.2729	0.7851	-1%	± 10%
4935	0.100	0.0977	0.6900	0.0991	0.7891	1%	± 10%
				Absolute Average Percent Difference		1%	± 10%

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

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	0.9836	**0.90-1.10**
b (Intercept % of FS)=	0.1675	**± 3% F.S.**

AENV Standards		**NO_X Analyzer**	
Audit Calibrator			
Make/Model	Teco 146i	Make/Model	Teco 42i
Serial/AMU Number	AMU 1809	Serial/AMU Number	AMU 1868
SRM Gas Cylinder No.	APEX1170572	Last Calibration Date	March 2, 2018
Cylinder Conc. (ppm)	49.99	Full Scale (ppm)	1.0
		Cylinder Gas Expiry Date	November 2020

COMMENTS: Cylinder contains 25 ppm SO2.

Auditor: Al Clark Date: March 2, 2018

Operator Signature: Location: McIntyre Center Edmonton

CALIBRATION GASES

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2016-438CGA

Company: Maxxam **Operator's Name:** Chris

Cylinder #: EY0000597 Concentration PPM: 50.4 Tolerance(%) 1.0 Certified By: Praxair

Expiry Date: December 8, 2019

Reference Calibrator and Gas:

Make/Model: Thermo 146i
Serial Number: AMU 1809
Last Verification Date: January 26, 2017
Gas Type: SO2 Conc. 98.07
Cylinder Number: CAL016625
Expiry Date: January 5, 2019

Flow Measurement Device:

Make/Model: Bios Befiner 220
Serial Number: AMU1941
Temp.°C: 24.4
B.P. 704.7

Reference Analyzer:

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

Instrument Settings: Zero: 9.5 Span: 1.023 Range: 1.0

Last Calibration: Date: 25-Jan-17 C.F. 1.000 Done By: SB

Calibrator Flows (sccm)		Indicated	Gas Flow/	Concentration	Cylinder
Dilution	Gas	Concentration (PPM)	Dilution Flow	Factor	Concentration
4923	0.0	0.000			
4916	80.7	0.834	0.01642	60.917	50.8
4902	40.3	0.416	0.00822	121.638	50.6
4916	19.9	0.206	0.00405	247.035	50.9
				Average Cylinder Concentration:	**50.7**

Previous Stated Concentration PPM: 50.4

Percent variance from Stated: **0.7**

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

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

Auditor: Shea Beaton Date: January 26, 2017

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2017-135CGA

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

Cylinder #: LL119420 Concentration PPM: 10.2 Tolerance(%) 2 Certified By: Praxair

Expiry Date: May 16, 2020

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: July 27, 2017
Gas Type: H2S Conc. 20.43
Cylinder Number: CAL015272
Expiry Date: Janaury 2019

Flow Measurement Device:

Make/Model: Mesa Definer 220
Serial Number: H-133034 L-132702
Temp.°C: 22.0 C
B.P. 700 mmhg

Reference Analyzer:

Make/Model: Teco 450i Serial/AMU Number: 1980
Instrument Settings: Zero: 21.9 Span: 1.069 Range: 0.1
Last Calibration: Date: July 27, 2017 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0020			
5117	38.9	0.0781	0.00760	131.542	10.0
5103	18.4	0.0379	0.00361	277.337	10.5
5097	9.4	0.0198	0.00184	542.234	10.7
				Average Cylinder Concentration:	**10.4**

Previous Stated Concentration PPM: 10.2

Percent variance from Stated: **2**

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

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [X]

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

Auditor: Al Clark Date: July 27, 2017

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

CH4 / C3H8 Cylinder Gas

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

Reference Calibrator and Gas:

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

Flow Measurement Device:

Make/Model	Mesa Definer 220
Serial Number	H-133034 / L-132702
Temp.°C	23.1 C
B.P.	707 mmHg

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/	Concentration	Cylinder Concentration	
Dilution	Gas	CH4	C3H8	Dilution Flow	Factor	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	C3H8
Previous Stated Concentration PPM:	595	206
Percent variance from Stated:	**0**	**2**

Cylinder gas tolerances based on CH4 only

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

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

Auditor: Al Clark Date: December 13, 2017

Operator Signature: Location: McIntyre Center Edmonton

LABORATORY ANALYTICAL RESULTS

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Karla Reesor 403 807 2995
Peace River Area Monitoring Program Committee

INVOICE: Office Manager

CLIENT SAMPLE ID	CANISTER ID	Matrix	Priority
PRAMP_RENO-20190118	28882	Ambient Air	Normal

DESCRIPTION: Methane Trigger

DATE SAMPLED: 18-Jan-19 14:05
DATE RECEIVED: 22-Jan-19
REPORT CREATED: 01-Feb-19
REPORT NUMBER: 19010213
REPORT REVISED: 01-Mar-19
VERSION: Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
19010213-002	1-Butene	K, T, U	< 0.14	ppmv	0.14	NA-025	23-Jan-19
19010213-002	Acetylene	K, T, U	< 0.12	ppmv	0.12	NA-025	23-Jan-19
19010213-002	n-Butane	K, T, U	< 0.3	ppmv	0.3	NA-025	23-Jan-19
19010213-002	cis-2-Butene	K, T, U	< 0.06	ppmv	0.06	NA-025	23-Jan-19
19010213-002	Ethane	K, T, U	< 0.1	ppmv	0.1	NA-025	23-Jan-19
19010213-002	Ethylacetylene	K, T, U	< 0.09	ppmv	0.09	NA-025	23-Jan-19
19010213-002	Ethylene	K, T, U	< 0.10	ppmv	0.10	NA-025	23-Jan-19
19010213-002	Isobutane	K, T, U	< 0.1	ppmv	0.1	NA-025	23-Jan-19
19010213-002	Isobutylene	K, T, U	< 0.1	ppmv	0.1	NA-025	23-Jan-19
19010213-002	Methane		2.0	ppmv	0.1	NA-025	23-Jan-19
19010213-002	n-Propane	K, T, U	< 0.10	ppmv	0.10	NA-025	23-Jan-19
19010213-002	Propylene	K, T, U	< 0.1	ppmv	0.1	NA-025	23-Jan-19
19010213-002	Propyne	K, T, U	< 0.1	ppmv	0.1	NA-025	23-Jan-19
19010213-002	trans-2-Butene	K, T, U	< 0.13	ppmv	0.13	NA-025	23-Jan-19
19010213-002	2,5-Dimethylthiophene	K, T, U	< 0.4	ppbv	0.4	NA-024	23-Jan-19
19010213-002	2-Ethylthiophene	K, T, U	< 0.3	ppbv	0.3	NA-024	23-Jan-19
19010213-002	2-Methylthiophene	K, T, U	< 0.3	ppbv	0.3	NA-024	23-Jan-19
19010213-002	3-Methylthiophene	K, T, U	< 0.4	ppbv	0.4	NA-024	23-Jan-19

Report certified by: Graham Knox, Admin. & Ops. Supervisor On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March 1, 2019 Inquiries: (780) 632 8455 E-mail: EAS.Results@innotechalberta.ca

InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP_RENO-20190118	28882	Ambient Air	18-Jan-19	14:05

DESCRIPTION: Methane Trigger

REPORT NUMBER: 19010213 **REPORT CREATED:** 01-Feb-19 **REPORT REVISED:** 01-Mar-19 **VERSION:** Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
19010213-002	Butyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	23-Jan-19
19010213-002	Carbon disulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	23-Jan-19
19010213-002	Carbonyl sulphide	K, T, U	< 0.4	ppbv	0.4	NA-024	23-Jan-19
19010213-002	Dimethyl disulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	23-Jan-19
19010213-002	Dimethyl sulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	23-Jan-19
19010213-002	Ethyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	23-Jan-19
19010213-002	Ethyl sulphide	K, T, U	< 0.4	ppbv	0.4	NA-024	23-Jan-19
19010213-002	Hydrogen sulphide		2.3	ppbv	0.1	NA-024	23-Jan-19
19010213-002	Isobutyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	23-Jan-19
19010213-002	Isopropyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	23-Jan-19
19010213-002	Methyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	23-Jan-19
19010213-002	Pentyl mercaptan	K, T, U	< 0.6	ppbv	0.6	NA-024	23-Jan-19
19010213-002	Propyl mercaptan	K, T, U	< 0.6	ppbv	0.6	NA-024	23-Jan-19
19010213-002	tert-Butyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	23-Jan-19
19010213-002	Thiophene	K, T, U	< 0.3	ppbv	0.3	NA-024	23-Jan-19
19010213-002	1,1,1-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	1,1,2,2-Tetrachloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	1,1,2-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	1,1-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	1,1-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Jan-19
19010213-002	1,2,3-Trimethylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	24-Jan-19
19010213-002	1,2,4-Trichlorobenzene	K, T, U	< 1.2	ppbv	1.2	AC-058	24-Jan-19
19010213-002	1,2,4-Trimethylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	24-Jan-19
19010213-002	1,2-Dibromoethane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	1,2-Dichlorobenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Jan-19

Report certified by: Krista Gegolick, Account Coordinator On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March 1, 2019 Inquiries: (780) 632 8455 E-mail: EAS.Results@innotechalberta.ca

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Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP_RENO-20190118	28882	Ambient Air	18-Jan-19	14:05

DESCRIPTION: Methane Trigger

REPORT NUMBER: 19010213 **REPORT CREATED:** 01-Feb-19 **REPORT REVISED:** 01-Mar-19 **VERSION:** Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
19010213-002	1,2-Dichloroethane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Jan-19
19010213-002	1,4-Dichlorobenzene	K, T, U	< 0.6	ppbv	0.6	AC-058	24-Jan-19
19010213-002	1,4-Dioxane	K, T, U	< 0.6	ppbv	0.6	AC-058	24-Jan-19
19010213-002	1-Butene/Isobutylene	I	0.27	ppbv	0.03	AC-058	24-Jan-19
19010213-002	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	2,2-Dimethylbutane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	2,3-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	2,3-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	2-Methylpentane		0.11	ppbv	0.01	AC-058	24-Jan-19
19010213-002	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	3-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	3-Methylpentane		0.02	ppbv	0.01	AC-058	24-Jan-19
19010213-002	Acetone		1.0	ppbv	0.6	AC-058	24-Jan-19
19010213-002	Acrolein	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Jan-19
19010213-002	Benzene		0.18	ppbv	0.01	AC-058	24-Jan-19

Report certified by: Krista Gegolick, Account Coordinator On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP_RENO-20190118	28882	Ambient Air	18-Jan-19	14:05

DESCRIPTION: Methane Trigger

REPORT NUMBER: 19010213 **REPORT CREATED:** 01-Feb-19 **REPORT REVISED:** 01-Mar-19 **VERSION:** Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
19010213-002	Benzyl chloride	K, T, U	< 0.6	ppbv	0.6	AC-058	24-Jan-19
19010213-002	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	Carbon disulfide	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	Carbon tetrachloride	I	0.04	ppbv	0.01	AC-058	24-Jan-19
19010213-002	Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	Chloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	Chloromethane		0.59	ppbv	0.03	AC-058	24-Jan-19
19010213-002	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	cis-1,3-Dichloropropene	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Jan-19
19010213-002	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	Cyclohexane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	Cyclopentane		5.84	ppbv	0.01	AC-058	24-Jan-19
19010213-002	Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	Ethanol		1.7	ppbv	0.4	AC-058	24-Jan-19
19010213-002	Ethyl acetate	K, T, U	< 0.6	ppbv	0.6	AC-058	24-Jan-19
19010213-002	Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	Freon-11	I	0.23	ppbv	0.03	AC-058	24-Jan-19
19010213-002	Freon-113	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	Freon-12		0.53	ppbv	0.03	AC-058	24-Jan-19
19010213-002	Hexachloro-1,3-butadiene	K, T, U	< 0.72	ppbv	0.72	AC-058	24-Jan-19

Report certified by: Krista Gegolick, Account Coordinator On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP_RENO-20190118	28882	Ambient Air	18-Jan-19	14:05

DESCRIPTION: Methane Trigger

REPORT NUMBER: 19010213 **REPORT CREATED:** 01-Feb-19 **REPORT REVISED:** 01-Mar-19 **VERSION:** Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
19010213-002	Isobutane		0.51	ppbv	0.03	AC-058	24-Jan-19
19010213-002	Isopentane		0.71	ppbv	0.04	AC-058	24-Jan-19
19010213-002	Isoprene	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	Isopropyl alcohol	K, T, U	< 0.6	ppbv	0.6	AC-058	24-Jan-19
19010213-002	Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Jan-19
19010213-002	m-Diethylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Jan-19
19010213-002	m-Ethyltoluene	K, T, U	< 0.12	ppbv	0.12	AC-058	24-Jan-19
19010213-002	Methyl butyl ketone	K, T, U	< 0.72	ppbv	0.72	AC-058	24-Jan-19
19010213-002	Methyl ethyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Jan-19
19010213-002	Methyl isobutyl ketone	K, T, U	< 0.6	ppbv	0.6	AC-058	24-Jan-19
19010213-002	Methyl methacrylate	K, T, U	< 0.10	ppbv	0.10	AC-058	24-Jan-19
19010213-002	Methyl tert butyl ether	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Jan-19
19010213-002	Methylcyclohexane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	Methylcyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	Methylene chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Jan-19
19010213-002	n-Butane		1.01	ppbv	0.04	AC-058	24-Jan-19
19010213-002	n-Decane	K, T, U	< 0.09	ppbv	0.09	AC-058	24-Jan-19
19010213-002	n-Dodecane	K, T, U	< 0.6	ppbv	0.6	AC-058	24-Jan-19
19010213-002	n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	n-Hexane		0.02	ppbv	0.01	AC-058	24-Jan-19
19010213-002	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	n-Pentane		0.5	ppbv	0.1	AC-058	24-Jan-19
19010213-002	n-Propylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	24-Jan-19
19010213-002	n-Undecane	K, T, U	< 0.7	ppbv	0.7	AC-058	24-Jan-19

Report certified by: Krista Gegolick, Account Coordinator On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP_RENO-20190118	28882	Ambient Air	18-Jan-19	14:05

DESCRIPTION: Methane Trigger

REPORT NUMBER: 19010213 **REPORT CREATED:** 01-Feb-19 **REPORT REVISED:** 01-Mar-19 **VERSION:** Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
19010213-002	Naphthalene	K, T, U	< 0.7	ppbv	0.7	AC-058	24-Jan-19
19010213-002	n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	p-Diethylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Jan-19
19010213-002	p-Ethyltoluene	K, T, U	< 0.10	ppbv	0.10	AC-058	24-Jan-19
19010213-002	Styrene	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Jan-19
19010213-002	Tetrachloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Jan-19
19010213-002	Tetrahydrofuran	K, T, U	< 0.6	ppbv	0.6	AC-058	24-Jan-19
19010213-002	Toluene		0.03	ppbv	0.01	AC-058	24-Jan-19
19010213-002	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	trans-1,3-Dichloropropylene	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Jan-19
19010213-002	trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-002	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-002	Trichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Jan-19
19010213-002	Vinyl acetate	K, T, U	< 0.6	ppbv	0.6	AC-058	24-Jan-19
19010213-002	Vinyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19

Report certified by: Krista Gegolick, Account Coordinator On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PRAMP_RENO-BLANK	28908	Ambient Air	18-Jan-19

DESCRIPTION: Methane Trigger

REPORT NUMBER: 19010213 **REPORT CREATED:** 01-Feb-19 **REPORT REVISED:** 01-Mar-19 **VERSION:** Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
19010213-001	1-Butene	K, T, U	< 2.64	ppmv	2.64	NA-025	23-Jan-19
19010213-001	Acetylene	K, T, U	< 2.11	ppmv	2.11	NA-025	23-Jan-19
19010213-001	n-Butane	K, T, U	< 5.3	ppmv	5.3	NA-025	23-Jan-19
19010213-001	cis-2-Butene	K, T, U	< 1.06	ppmv	1.06	NA-025	23-Jan-19
19010213-001	Ethane	K, T, U	< 2.6	ppmv	2.6	NA-025	23-Jan-19
19010213-001	Ethylacetylene	K, T, U	< 1.59	ppmv	1.59	NA-025	23-Jan-19
19010213-001	Ethylene	K, T, U	< 1.85	ppmv	1.85	NA-025	23-Jan-19
19010213-001	Isobutane	K, T, U	< 2.6	ppmv	2.6	NA-025	23-Jan-19
19010213-001	Isobutylene	K, T, U	< 2.6	ppmv	2.6	NA-025	23-Jan-19
19010213-001	Methane	K, T, U	< 2.6	ppmv	2.6	NA-025	23-Jan-19
19010213-001	n-Propane	K, T, U	< 1.85	ppmv	1.85	NA-025	23-Jan-19
19010213-001	Propylene	K, T, U	< 2.6	ppmv	2.6	NA-025	23-Jan-19
19010213-001	Propyne	K, T, U	< 2.6	ppmv	2.6	NA-025	23-Jan-19
19010213-001	trans-2-Butene	K, T, U	< 2.38	ppmv	2.38	NA-025	23-Jan-19
19010213-001	2,5-Dimethylthiophene	K, T, U	< 0.3	ppbv	0.3	NA-024	23-Jan-19
19010213-001	2-Ethylthiophene	K, T, U	< 0.2	ppbv	0.2	NA-024	23-Jan-19
19010213-001	2-Methylthiophene	K, T, U	< 0.2	ppbv	0.2	NA-024	23-Jan-19
19010213-001	3-Methylthiophene	K, T, U	< 0.3	ppbv	0.3	NA-024	23-Jan-19
19010213-001	Butyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	23-Jan-19
19010213-001	Carbon disulphide	K, T, U	< 0.2	ppbv	0.2	NA-024	23-Jan-19
19010213-001	Carbonyl sulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	23-Jan-19
19010213-001	Dimethyl disulphide	K, T, U	< 0.2	ppbv	0.2	NA-024	23-Jan-19
19010213-001	Dimethyl sulphide	K, T, U	< 0.2	ppbv	0.2	NA-024	23-Jan-19
19010213-001	Ethyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	23-Jan-19
19010213-001	Ethyl sulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	23-Jan-19

Report certified by: Graham Knox, Admin. & Ops. Supervisor On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PRAMP_RENO-BLANK	28908	Ambient Air	18-Jan-19

DESCRIPTION: Methane Trigger

REPORT NUMBER: 19010213 **REPORT CREATED:** 01-Feb-19 **REPORT REVISED:** 01-Mar-19 **VERSION:** Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
19010213-001	Hydrogen sulphide	K, T, U	< 0.1	ppbv	0.1	NA-024	23-Jan-19
19010213-001	Isobutyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	23-Jan-19
19010213-001	Isopropyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	23-Jan-19
19010213-001	Methyl mercaptan	K, T, U	< 0.2	ppbv	0.2	NA-024	23-Jan-19
19010213-001	Pentyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	23-Jan-19
19010213-001	Propyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	23-Jan-19
19010213-001	tert-Butyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	23-Jan-19
19010213-001	Thiophene	K, T, U	< 0.2	ppbv	0.2	NA-024	23-Jan-19
19010213-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Jan-19
19010213-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	24-Jan-19
19010213-001	1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	24-Jan-19
19010213-001	1,2,4-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	24-Jan-19
19010213-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-001	1,2-Dichloroethane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-001	1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-001	1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	1,3-Butadiene	I	0.12	ppbv	0.02	AC-058	24-Jan-19
19010213-001	1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	24-Jan-19
19010213-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Jan-19
19010213-001	1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Jan-19

Report certified by: Rebecca Holgate, Account Coordinator On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March 1, 2019

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PRAMP_RENO-BLANK	28908	Ambient Air	18-Jan-19

DESCRIPTION: Methane Trigger

REPORT NUMBER: 19010213 **REPORT CREATED:** 01-Feb-19 **REPORT REVISED:** 01-Mar-19 **VERSION:** Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
19010213-001	1-Butene/Isobutylene		0.46	ppbv	0.02	AC-058	24-Jan-19
19010213-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-001	2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-001	2,2-Dimethylbutane		0.09	ppbv	0.01	AC-058	24-Jan-19
19010213-001	2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-001	2,3-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-001	2-Methylheptane		0.03	ppbv	0.01	AC-058	24-Jan-19
19010213-001	2-Methylhexane		0.04	ppbv	0.01	AC-058	24-Jan-19
19010213-001	2-Methylpentane		0.13	ppbv	0.01	AC-058	24-Jan-19
19010213-001	3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	3-Methylhexane		0.07	ppbv	0.02	AC-058	24-Jan-19
19010213-001	3-Methylpentane		0.02	ppbv	0.01	AC-058	24-Jan-19
19010213-001	Acetone		0.5	ppbv	0.4	AC-058	24-Jan-19
19010213-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	24-Jan-19
19010213-001	Benzene		0.14	ppbv	0.01	AC-058	24-Jan-19
19010213-001	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Jan-19
19010213-001	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	Bromoform	I	0.04	ppbv	0.02	AC-058	24-Jan-19
19010213-001	Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-001	Carbon disulfide	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-001	Carbon tetrachloride	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-001	Chlorobenzene	I	0.03	ppbv	0.02	AC-058	24-Jan-19

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(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PRAMP_RENO-BLANK	28908	Ambient Air	18-Jan-19

DESCRIPTION: Methane Trigger

REPORT NUMBER: 19010213 **REPORT CREATED:** 01-Feb-19 **REPORT REVISED:** 01-Mar-19 **VERSION:** Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
19010213-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-001	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Jan-19
19010213-001	cis-2-Butene		0.05	ppbv	0.02	AC-058	24-Jan-19
19010213-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	Cyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	Cyclopentane		19.3	ppbv	0.01	AC-058	24-Jan-19
19010213-001	Dibromochloromethane	I	0.02	ppbv	0.01	AC-058	24-Jan-19
19010213-001	Ethanol		0.6	ppbv	0.3	AC-058	24-Jan-19
19010213-001	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Jan-19
19010213-001	Ethylbenzene		0.04	ppbv	0.01	AC-058	24-Jan-19
19010213-001	Freon-11	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	Freon-113	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-001	Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	Freon-12	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.50	AC-058	24-Jan-19
19010213-001	Isobutane		0.19	ppbv	0.02	AC-058	24-Jan-19
19010213-001	Isopentane		1.35	ppbv	0.03	AC-058	24-Jan-19
19010213-001	Isoprene	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-001	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Jan-19
19010213-001	Isopropylbenzene		0.02	ppbv	0.01	AC-058	24-Jan-19
19010213-001	m,p-Xylene		0.10	ppbv	0.03	AC-058	24-Jan-19
19010213-001	m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Jan-19

Report certified by: Rebecca Holgate, Account Coordinator On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: March 1, 2019 Inquiries: (780) 632 8455 E-mail: EAS.Results@innotechalberta.ca

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PRAMP_RENO-BLANK	28908	Ambient Air	18-Jan-19

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Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
19010213-001	m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	24-Jan-19
19010213-001	Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.50	AC-058	24-Jan-19
19010213-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	24-Jan-19
19010213-001	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Jan-19
19010213-001	Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	24-Jan-19
19010213-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Jan-19
19010213-001	Methylcyclohexane	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-001	Methylcyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	24-Jan-19
19010213-001	n-Butane		0.68	ppbv	0.03	AC-058	24-Jan-19
19010213-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Jan-19
19010213-001	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Jan-19
19010213-001	n-Heptane		0.04	ppbv	0.01	AC-058	24-Jan-19
19010213-001	n-Hexane		0.02	ppbv	0.01	AC-058	24-Jan-19
19010213-001	n-Octane		0.05	ppbv	0.02	AC-058	24-Jan-19
19010213-001	n-Pentane		0.6	ppbv	0.1	AC-058	24-Jan-19
19010213-001	n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	24-Jan-19
19010213-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	24-Jan-19
19010213-001	Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	24-Jan-19
19010213-001	n-Nonane		0.04	ppbv	0.01	AC-058	24-Jan-19
19010213-001	o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-001	o-Xylene		0.02	ppbv	0.01	AC-058	24-Jan-19
19010213-001	p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Jan-19
19010213-001	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	24-Jan-19
19010213-001	Styrene	I	0.08	ppbv	0.04	AC-058	24-Jan-19

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Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
19010213-001	Tetrachloroethylene	I	0.07	ppbv	0.04	AC-058	24-Jan-19
19010213-001	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Jan-19
19010213-001	Toluene		0.27	ppbv	0.01	AC-058	24-Jan-19
19010213-001	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	24-Jan-19
19010213-001	trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Jan-19
19010213-001	trans-2-Butene		0.08	ppbv	0.01	AC-058	24-Jan-19
19010213-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19
19010213-001	Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Jan-19
19010213-001	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Jan-19
19010213-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Jan-19

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Date: March 1, 2019 Inquiries: (780) 632 8455 E-mail: EAS.Results@innotechalberta.ca

Revision History

Order ID	Ver	Date	Reason
19010213	01	01-Feb-19	Report created
19010213	02	01-Mar-19	VOC Results for 19010213-001 corrected

Methods

Method	Description
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

19010213

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

Sample Comments

Result Comments

Note: Results relate only to items tested

END OF REPORT

This report, 267 of 267, ends the January 2019 Monthly Ambient Air Quality Monitoring Report.