



Peace River Area Monitoring Program

NOVEMBER 2021

Monthly Ambient Air Quality Monitoring Report

PRAMP-202111

Operation and Maintenance:

Bureau Veritas Canada

Data Validation and Report:

Peace River Area Monitoring Program

December 16, 2021

Pages may be left blank for double-sided printing

Table of Contents

LIST OF ACRONYMS	4
COVER LETTER.....	5
NETWORK STATION SUMMARY.....	6
Listing of Continuous Monitoring Stations	6
Listing of Intermittent Monitoring Stations.....	6
Monitoring Notes during the Month of November 2021	6
986c Station	6
842b Station	7
Reno Station	7
AQHI – Cadotte Lake Station	7
VOCs Canister Sampling program:	8
Revisions to Alberta’s Ambient Air Quality Data Warehouse.....	8
Deviations from Authorized Monitoring Methods	8
Disclaimer.....	9
Certification.....	10
Map of PRAMP Continuous Monitoring Network	11
CONTINUOUS NETWORK EQUIPMENT AND MONITORING RESULTS SUMMARY	12
986c Station	13
842b Station.....	16
Reno Station.....	19
AQHI – Cadotte Lake Station.....	22
TABLES, CHARTS, WIND ROSES AND EQUIPMENT CALIBRATION RECORDS	25
986c STATION.....	26
842b STATION	70
RENO STATION	114
AQHI CADOTTE LAKE STATION.....	158
END OF REPORT	226

LIST OF ACRONYMS

AAAQOs	Alberta Ambient Air Quality Objectives
AEP	Alberta Environment and Parks
AMD	Air Monitoring Directive
AT	Ambient Temperature
BP	Barometric Pressure
CH ₄	Methane
EPEA	Environmental Protection and Enhancement Act
H ₂ S	Hydrogen Sulphide
kph	kilometers per hour
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
SO ₂	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	Degrees Celsius



Peace River Area Monitoring Program
Suite 91, 305 – 4625 Varsity Drive NW
Calgary, AB, T3A 0Z9
Phone #: 780-226-7068 / 587-225-2248
E-mail: pramptech@prampairshed.ca
www.prampairshed.ca

Alberta Environment and Parks (AEP)
11th Floor, Oxbridge Place
9820 106 Street
Edmonton, AB, T5K 2J6

December 16, 2021

RE: PRAMP – November 2021 Monthly Ambient Air Quality Monitoring Report

Enclosed is the November 2021 Monthly Ambient Air Quality Monitoring Report for the continuous ambient air quality monitoring stations of the Peace River Area Monitoring Program (PRAMP) regional air quality monitoring network.

The representative of the Person Responsible for this monitoring program is

PRAMP Airshed
Michael Bisaga / Lily Lin, Technical Program Managers
Suite 91, 305 – 4625 Varsity Drive NW
Calgary, AB, T3A 0Z9
Phone #: 780-226-7068 / 587-225-2248
E-mail: pramptech@prampairshed.ca

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

NETWORK STATION SUMMARY

Listing of Continuous Monitoring Stations

The PRAMP continuous ambient air quality monitoring network stations are:

- 986c Station
- 842b Station
- Reno Station
- AQHI Cadotte Lake

Station ID	Station Name	Latitude	Longitude
1562	986c	56.36980	-116.92500
1561	842b	56.27406	-116.98129
1563	Reno	55.86936	-117.05739
1651	AQHI-Cadotte Lake	56.49022	-116.42739

Listing of Intermittent Monitoring Stations

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

Monitoring Notes during the Month of November 2021

986c 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.
- **SO₂**: The permeation tube was replaced on November 4. One hour of downtime was recorded as a result. The expected span value was updated after the monthly calibration was completed on November 17.
- **Precipitation:**
 - Sporadic instances of atypical precipitation data were recorded from November 26 hour 13 to November 28 hour 7. The cause was likely due to a polling/communication error. One-minute data were reviewed and discarded if readings above 0.0mm were recorded. Hourly data were re-averaged based on the post-validation 1-minute data set. Hourly data are discarded if the criteria of having >75% of valid 1-minute data in an hour was not met. No hourly data were invalidated for this event.

- Hourly data collected on November 28 hour 20 and November 30 hour 6 were invalidated due to a polling/communication error between datalogger and interface. Eleven hours of downtime were recorded as a result.

842b 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.
- **THC/CH₄/NMHC:** Isolated or occasional bad injections were recorded starting November 13, and methane concentrations also trended lower, starting November 18. A successful shut-down calibration was completed before investigation/troubleshooting on November 25. No significant problems were found. The N₂ gas cylinder was replaced to fix the injection issue. The cause for the low recorded methane concentrations was likely because the analyzer required extra time to stabilize after the desiccant was replaced on November 2. Seven hours of downtime were recorded due to this event.

Reno Station

- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- All parameters met the 90% operational uptime requirement.
- **All parameters:** Due to Windows update, no data were collected on November 4 hour 1 and hour 2.
- **SO₂:**
 - On November 4, the API 100A, s/n: 1502, analyzer was removed following a shut-down calibration, and the Thermo 43i-TLE, s/n: 1162460023, analyzer was installed. Two hours of downtime were recorded due to this event.
 - A repeat multi-point calibration was performed on November 16 to correct the issue of daily span trending low. Five hours of downtime were recorded.
- **TRS:** The analyzer failed both scheduled and repeat span check on November 17. An as-found points check was completed on November 19. The analyzer passed the check requirements. The analyzer again failed the daily span check on November 23 and November 29, and the repeat span check on November 24. Maintenance was performed on the analyzer on December 2 to correct the drift. Because the analyzer passed the multi-point calibration on December 2, data collected between November 17 and November 29 were considered valid. Four hours of downtime were recorded due to additional quality checks.
- **WS/WD:** Both the wind speed and wind direction channels were put offline whilst modem antenna upgraded on November 4 hour 13. One hour of downtime was recorded.

AQHI – Cadotte Lake Station

- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- All parameters did meet the 90% operational uptime requirement. The monitoring program at this location was completed on November 23. Notification-PRAMP-20211122
- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) and /or Alberta Ambient Air Quality Guidelines (AAAQGs) where applicable.
- **All parameters:**

- Hourly data collected on November 2 hour 9 was discarded as data quality was affected by a short power outage.
- Hourly data collected on November 2 hour 15 was invalidated as datalogger was shut-down to allow hardware changes (to add additional inputs).
- **TRS:** The analyzer failed due to a firmware issue on November 6. The issue was fixed on November 7. A repeat zero-span check was completed to confirm the analyzer's functionality. Eleven hours of downtime were recorded as a result.
- **O3:** A repeat zero-span check was completed on November 17 hour 17 to assess the analyzer's functionality as the analyzer showed a sudden drift on the November 17 span check. The result met the check requirements. One hour of downtime was recorded due to this event.
- **PM2.5:** The PM unit failed due to a firmware issue on November 13. The issue was fixed on November 14. Twenty-five hours of downtime were recorded as a result.

VOCs Canister Sampling program

- The canister sampling program collects a 1-hour sample of air when the continuously measured non-methane hydrocarbon (NMHC) concentration reaches a specified trigger point. The current trigger point is 0.3 ppm for non-methane hydrocarbons. The trigger point is based on real-time monitoring data that are averaged over a 5-minute period.
- The canister sample collection systems are in place at Station 986c, 842b, and the Reno Station; a canister sample collection system is not part of the suite of instruments currently deployed at the AQHI-Cadotte Lake Station.
- Sample analysis and analytical results were prepared and provided by InnoTech Alberta.
- No canister events were recorded this month.

Revisions to Alberta's Ambient Air Quality Data Warehouse

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

Deviations from Authorized Monitoring Methods

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

Disclaimer

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

Equipment calibration / maintenance records were provided by Bureau Veritas.

Certification

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



Lily Lin, Technical Program Manager, PRAMP Airshed

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

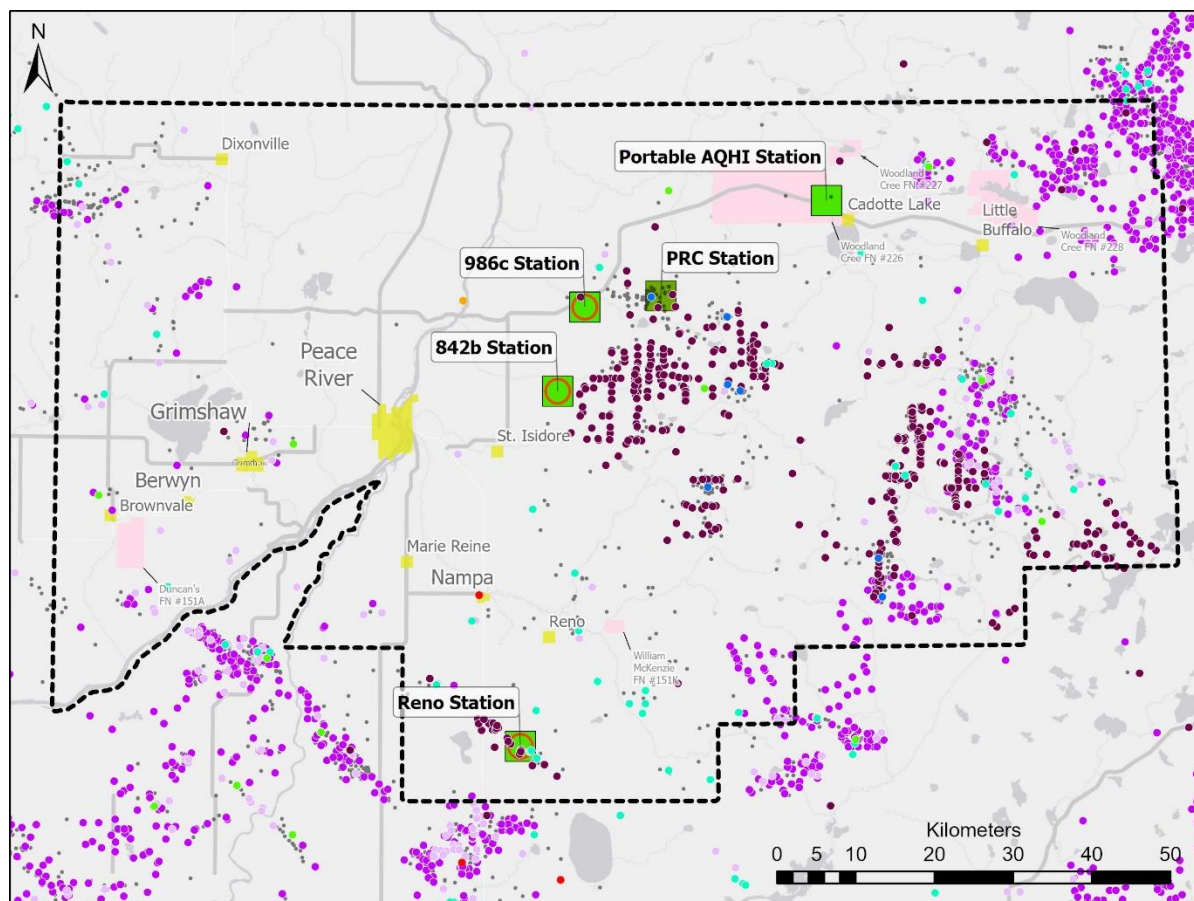
I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements. I also certify that at the time of this report's submission, all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



Michael Bisaga, Technical Program Manager, PRAMP Airshed

December 16, 2021

Map of PRAMP Continuous Monitoring Network



Peace River Area Monitoring Program



Contact: pramp@prampairshed.ca

Date Exported: 2021-05-27 11:53 AM

Sources: Esri, © OpenStreetMap contributors, HERE, Garmin, USGS, EPA, NPS, NRCAN, Esri, HERE, NPS

Map Legend

Monitoring Methods

- Continuous (existing)
- Continuous (planned)
- Triggered Canister (existing)

Industrial Facilities

- Heavy Oil/Bitumen Well or Battery
- Conventional Oil Well or Battery
- In-Situ Oil Sands Facility
- Natural Gas Well or Battery
- Gas Plant or Processing Facility
- Compressor Station or Pipeline Facility
- Pulp and Paper
- Agricultural Storage and Transfer
- Well (Not Associated with Batteries)

CONTINUOUS NETWORK EQUIPMENT AND MONITORING RESULTS SUMMARY

986c Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	
SO2	Thermo / 43iQTL	1193585646	
- No operational issues were identified this month. - The permeation tube was replaced on November 4. One hour of downtime was recorded as a result. The expected span value was updated after the monthly calibration was completed on November 17.			
TRS	Thermo / 43iQTL	1191833341	
- A successful monthly calibration was performed on November 17. - No operational issues were identified this month.			
THC/CH4/NMHC	Thermo / 55i	1193585652	
- A successful monthly calibration was performed on November 17. - No operational issues were identified this month.			
Relative Humidity (RH)	Rotronic / HC2-S3	20357528	
- The RH sensor was checked on November 17. The sensor passed the check requirements. - No operational issues were identified this month.			
Barometric Pressure (BP)	MetOne / 092	Y23358	
- The BP sensor was checked on November 17. The sensor passed the check requirements. - No operational issues were identified this month.			
Ambient Temperature (AT)	Rotronic / HC2-S3	20357528	
- The temperature sensor was checked on November 17. The sensor passed the check requirements. - No operational issues were identified this month.			

Parameter	Make / Model	Serial Number	
Station Temperature (ST)	Bureau Veritas Canada	N/A	
No operational issues were identified this month.			
Precipitation (Precip)	RM Young 52202	TB 16325	
- The temperature sensor was checked on November 17. The sensor passed the check requirements. - Sporadic instances of atypical precipitation data were recorded from November 26 hour 13 to November 28 hour 7. The cause was likely due to a polling/communication error. One-minute data were reviewed and discarded if readings above 0.0mm were recorded. Hourly data were re-averaged based on the post-validation 1-minute data set. Hourly data are discarded if <75% of valid 1-minute data in an hour requirement was not met. No hourly data were invalidated for this event. - Hourly data collected on November 28 hour 20 and November 30 hour 6 were invalidated due to a polling/communication error between datalogger and interface. Eleven hours of downtime were recorded as a result.			
Wind Speed/Wind Direction (WS/ WD)	RM Young / 05305L	174795	
- Wind direction data contained in this report represents where the wind is coming from. - The annual wind system calibration was completed on July 3, 2021. - The anemometer sensors were checked on November 17. The sensor passed the check requirements. - No operational issues were identified this month.			

Monitored Data Summary for 986c Station

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.1	0	2	November 2 at hour 16	12	W	0.8	November 2	99.9	94.8
TRS (ppb)	-	-	-	-	-	-	0.11	0.00	0.67	November 5 at hour 20	6.7	SSW	0.28	November 6	100.0	95.0
THC (ppm)	-	-	-	-	-	-	2.02	1.93	2.37	November 11 at hour 9	3.9	SSW	2.11	November 2	100.0	95.1
CH4 (ppm)	-	-	-	-	-	-	2.02	1.93	2.37	November 11 at hour 9	3.9	SSW	2.10	November 2	100.0	95.1
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.03	November 14 at hour 12	8.6	SSW	0.00	November 14	100.0	95.1
RH (%)	-	-	-	-	-	-	88.3	15	100	November 4 at hour 18	6.4	SSW	100.0	November 5	100.0	100.0
BP (millibar)	-	-	-	-	-	-	937	918	955	November 20 at hour 15	4.2	WSW	950	November 20	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-2.9	-19.3	9.6	November 3 at hour 15	9.4	W	3.6	November 4	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	22.0	21.4	23.1	November 1 at hour 15	5.5	NW	22.4	November 17	100.0	100.0
Precipitation (mm)*	-	-	-	-	-	-	9.0	0.0	2.2	November 30 at hour 19	11	SW	3.2	November 6	98.5	98.5
WSV (km/hr)	-	-	-	-	-	-	4.9	0.4	35.4	November 9 at hour 12	35.4	SSW	23.2	November 9	100.0	100.0
WDV (sector)	-	-	-	-	-	-	221 (SW)	-	-	-	-	-	-	-	100.0	100.0

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

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

Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) Exceedances at 986c Station

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

842b Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	
SO2	Thermo / 43iQTL	1200736629	
- The permeation tube for the daily span system was replaced on November 1. - A successful monthly calibration was performed on November 2. - No operational issues were identified this month.			
TRS	Thermo 43iQTL	1200736630	
- A successful monthly calibration was performed on November 2. - No operational issues were identified this month.			
THC/CH4/NMHC	Thermo / 55i	1501663728	
- A successful monthly calibration was performed on November 2. The desiccant for the H2 generator was changed during the monthly calibration. - Isolated or occasional bad injections were recorded starting November 13, and methane concentrations also trended lower, starting November 18. A successful shut-down calibration was completed before investigation/troubleshooting on November 25. No significant problems were found. The N2 gas cylinder was replaced to fix the injection issue. The cause for the low recorded methane concentrations was likely because the analyzer required extra time to stabilize after the desiccant was replaced on November 2. Seven hours of downtime were recorded due to this event.			
Relative Humidity (RH)	Rotronic / HC2A-S3	20370767	
- The RH sensor was checked on November 2. The sensor passed the check requirements. - No operational issues were identified this month.			
Barometric Pressure (BP)	MetOne / 092	Y23362	
- The BP sensor was checked on November 2. The sensor passed the check requirements. - No operational issues were identified this month.			

Parameter	Make / Model	Serial Number	
Ambient Temperature (AT)	Rotronic / HC2A-S3	20370767	
- The temperature sensor was checked on November 2. The sensor passed the check requirements. - No operational issues were identified this month.			
Station Temperature (ST)	Bureau Veritas Canada	N/A	
No operational issues were identified this month.			
Precipitation (Precip)	RM Young / 52202	TB 15878	
- The precipitation sensor was checked on November 2. The sensor passed the check requirements. - No operational issues were identified this month.			
Wind Speed/Wind Direction (WS/ WD)	RM Young / 05305AQ	174802	
- Wind direction data contained in this report represents where the wind is coming from. - The annual wind system calibration was completed on July 4, 2021. - anemometer sensors were checked on November 2. The sensor passed the check requirements. - No operational issues were identified this month.			

Monitored Data Summary for 842b Station

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.0	0	1	November 2 at hour 13	16.2	SSW	0.5	November 2	100.0	95.0
TRS (ppb)	-	-	-	-	-	-	0.25	0.07	0.58	November 5 at hour 23	4.7	SW	0.43	November 5	100.0	95.0
THC (ppm)	-	-	-	-	-	-	1.85	1.71	2.54	November 30 at hour 16	3.2	E	2.02	November 2	99.0	94.0
CH4 (ppm)	-	-	-	-	-	-	1.85	1.71	2.54	November 30 at hour 16	3.2	E	2.02	November 2	99.0	94.0
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.06	November 4 at hour 10	5	ENE	0.00	November 4	99.0	94.0
RH (%)	-	-	-	-	-	-	80.5	15	100	November 4 at hour 20	2.5	NNE	100.0	November 5	100.0	100.0
BP (millibar)	-	-	-	-	-	-	935	917	954	November 20 at hour 16	6.8	SSW	949	November 20	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-2.9	-18.6	9.8	November 1 at hour 14	6.3	SSE	3.8	November 4	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	22.1	19.5	24.8	November 2 at hour 10	10.8	SSW	22.5	November 2	100.0	100.0
Precipitation (mm)*	-	-	-	-	-	-	13.2	0.0	1.8	November 30 at hour 19	8.9	SSE	3.8	November 30	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	3.7	0.4	30.6	November 26 at hour 12	30.6	WSW	20.6	November 26	100.0	100.0
WDV (sector)	-	-	-	-	-	-	190 (S)	-	-	-	-	-	-	-	100.0	100.0

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

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

Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) Exceedances at 842b Station

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

Reno Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	
SO2	API 100A / Thermo 43i-TLE	1502 / 1162460023	
- On November 4, the API 100A, s/n: 1502, analyzer was removed following a shut-down calibration, and the Thermo 43i-TLE, s/n: 1162460023, analyzer was installed. Two hours of downtime were recorded due to this event. - A repeat multi-point calibration was performed on November 16 to correct the issue of daily span trending low. The expected span value was adjusted after the calibration was completed. Five hours of downtime were recorded.			
TRS	Thermo / 43i-TLE	1162460022	
- A successful monthly calibration was performed on November 4. - The analyzer failed both scheduled and repeat span check on November 17. An as-found points check was completed on November 19. The analyzer passed the check requirements. The analyzer again failed the daily span check on November 23 and November 29, and the repeat span check on November 24. Maintenance was performed on the analyzer on December 2 to correct the drift. Because the analyzer passed the multi-point calibration on December 2, data collected between November 17 and November 29 were considered valid. Four hours of downtime were recorded due to additional quality checks.			
THC/CH4/NMHC	Thermo / 55i	1505664392	
- A successful monthly calibration was performed on November 4. Both the H22 and span gas cylinders were replaced on November 4. - No operational issues were identified this month.			
Relative Humidity (RH)	RM Young / 43172VC	60837897	
- The RH sensor was checked on November 4. The sensor passed the check requirements. - No operational issues were identified this month.			

Parameter	Make / Model	Serial Number	
Barometric Pressure (BP)	MetOne / 092	K12864	
- The BP sensor was checked on November 4. The sensor passed the check requirements. - No operational issues were identified this month.			
Ambient Temperature (AT)	RM Young / 43172VC	60837897	
- The temperature sensor was checked on November 4. The sensor passed the check requirements. - No operational issues were identified this month.			
Station Temperature (ST)	Bureau Veritas Canada	N/A	
No operational issues were identified this month.			
Precipitation (Precip)	RM Young / 5202	TB15877	
- The precipitation sensor was checked on November 4. The sensor passed the check requirements. - No operational issues were 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 annual wind system calibration was completed on July 5, 2021. - anemometer sensors were checked on November 4. The sensor passed the check requirements. - No operational issues were identified this month. - Both the wind speed and wind direction channels were put offline whilst modem antenna upgraded on November 4 hour 13. One hour of downtime was recorded.			

Monitored Data Summary for Reno Station

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.0	0	2	November 4 at hour 6	1.8	S	0.1	November 2	98.8	93.6
TRS (ppb)	-	-	-	-	-	-	0.25	0.00	1.44	November 22 at hour 7	6.7	SSE	0.58	November 22	99.2	94.1
THC (ppm)	-	-	-	-	-	-	1.98	1.87	2.38	November 20 at hour 17	1	S	2.05	November 17	99.7	94.8
CH4 (ppm)	-	-	-	-	-	-	1.98	1.87	2.38	November 20 at hour 17	1	S	2.05	November 17	99.7	94.8
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.01	November 3 at hour 11	5.5	S	0.00	November 3	99.7	94.8
RH (%)	-	-	-	-	-	-	73.3	15	100	November 4 at hour 19	1	WSW	100.0	November 5	99.7	99.7
BP (millibar)	-	-	-	-	-	-	934	917	953	November 20 at hour 16	0.7	SSW	947	November 20	99.7	99.7
Ext. Temp. (°C)	-	-	-	-	-	-	-2.9	-19.9	10.0	November 4 at hour 11	10.5	E	4.3	November 4	99.7	99.7
Stn. Temp. (°C)	-	-	-	-	-	-	23.0	21.5	24.1	November 4 at hour 13	Y	Y	23.5	November 4	99.7	99.7
Precipitation (mm)*	-	-	-	-	-	-	12.6	0.0	2.1	November 30 at hour 17	6.1	SSE	4.7	November 25	99.7	99.6
WSV (km/hr)	-	-	-	-	-	-	2.7	0.1	27.3	November 9 at hour 9	27.3	E	15.5	November 9	99.6	99.6
WVDV (sector)	-	-	-	-	-	-	188 (S)	-	-	-	-	-	-	-	99.6	99.6

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

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

Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) Exceedances at Reno Station

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

AQHI – Cadotte Lake Station

Equipment Operation Summary

Parameter	Make / Model	Serial Number	
SO2	Teledyne / T100	722	
- A successful shut down calibration was completed on November 23 as the monitoring program at this location has completed. - No operational issues were identified this month.			
TRS	Teledyne T100U	132	
- The analyzer failed due to a firmware issue on November 6. The issue was fixed on November 7. A repeat zero-span check was completed to confirm the analyzer's functionality. Eleven hours of downtime were recorded as a result. - A successful shut down calibration was completed on November 23 as the monitoring program at this location has completed.			
NOx/NO/NO2	Teledyne / T200	837	
- A successful shut down calibration was completed on November 23 as the monitoring program at this location has completed. - No operational issues were identified this month.			
O3	Teledyne / T400	824	
- A repeat zero-span check was completed on November 17 hour 17 to assess the analyzer's functionality as the analyzer showed a sudden drift on the November 17 span check. The result met the check requirements. One hour of downtime was recorded due to this event. - A successful shut down calibration was completed on November 23 as the monitoring program at this location has completed.			
THC/CH4/NMHC	Thermo / 55i	1191032505	
- A successful shut down calibration was completed on November 23 as the monitoring program at this location has completed. - No operational issues were identified this month.			

Parameter	Make / Model	Serial Number	
PM 2.5	Teledyne / T640	318	
- The PM unit failed due to a firmware issue on November 13. The issue was fixed on November 14. Twenty-five hours of downtime were recorded as a result. - A successful shut down calibration was completed on November 23 as the monitoring program at this location has completed.			
Relative Humidity (RH)	Vaisala / HMP155	N2910506	
- The sensor was checked on November 23 before it was turned off for the station relocation. The sensor passed the check requirements. - No operational issues were identified this month.			
Barometric Pressure (BP)	MetOne / 092	A23927	
- The sensor was checked on November 23 before it was turned off for the station relocation. The sensor passed the check requirements. - No operational issues were identified this month.			
Ambient Temperature (AT)	Vaisala / HMP155	N2910506	
- The sensor was checked on November 23 before it was turned off for the station relocation. The sensor passed the check requirements. - No operational issues were identified this month.			
Station Temperature (ST)	Bureau Veritas Canada	N/A	
No operational issues were identified this month.			
Wind Speed/Wind Direction (WS/ WD)	RM Young 05305AQ	174801	
- Wind direction data contained in this report represents where the wind is coming from. - The annual wind system calibration was completed on July 22, 2021. - The anemometer sensors were checked on November 23 before it was turned off for the station relocation. The sensor passed the check requirements. - No operational issues were identified this month.			

Monitored Data Summary for AQHI - Cadotte Lake Station

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.0	0	1	November 2 at hour 14	6.6	SW	0.0	November 2	75.0	71.4
TRS (ppb)	-	-	-	-	-	-	0.26	0.00	0.70	November 7 at hour 10	10.4	WSW	0.40	November 15	73.5	69.8
NOx (ppb)	-	-	-	-	-	-	2.4	0	22	November 18 at hour 10	0.4	WNW	7.9	November 4	75.0	71.1
NO (ppb)	-	-	-	-	-	-	1.0	0	17	November 18 at hour 10	0.4	WNW	4.7	November 4	75.0	71.1
NO2 (ppb)	159	-	-	0	-	-	1.3	0	16	November 2 at hour 16	1.7	SSW	4.2	November 2	75.0	71.1
O3 (ppb)	76	-	-	0	-	-	16.0	1	34	November 18 at hour 13	14	WSW	26.6	November 9	75.1	71.5
THC (ppm)	-	-	-	-	-	-	1.95	1.90	2.08	November 2 at hour 16	1.7	SSW	2.00	November 3	74.6	71.1
CH4 (ppm)	-	-	-	-	-	-	1.95	1.90	2.07	November 2 at hour 14	6.6	SW	2.00	November 3	74.6	71.1
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.02	November 2 at hour 16	1.7	SSW	0.00	November 22	74.6	71.1
PM2.5 (µg/m3)	80	30	-	0	0	-	5.8	1.0	40.0	November 5 at hour 10	2.6	W	21.4	November 5	71.3	71.1
RH (%)	-	-	-	-	-	-	86.0	34	99	November 4 at hour 21	2.5	WSW	99.0	November 5	74.9	74.9
BP (millibar)	-	-	-	-	-	-	942	926	959	November 20 at hour 15	5.5	WSW	954	November 20	74.9	74.9
Ext. Temp. (°C)	-	-	-	-	-	-	-5.4	-22.2	7.2	November 3 at hour 15	2.9	SE	1.9	November 5	74.9	74.9
Stn. Temp. (°C)	-	-	-	-	-	-	22.4	21.3	24.4	November 12 at hour 14	6.9	SW	23.0	November 20	75.0	75.0
WSV (km/hr)	-	-	-	-	-	-	0.8	0.0	24.9	November 9 at hour 12	24.9	E	15.6	November 9	74.9	74.9
WDV (sector)	-	-	-	-	-	-	85 (E)	-	-	-	-	-	-	-	74.9	74.9

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

Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAGs) Exceedances at AQHI - Cadotte Lake Station

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

TABLES, CHARTS, WIND ROSES AND EQUIPMENT CALIBRATION RECORDS

986c STATION



PEACE RIVER AREA MONITORING PROGRAM

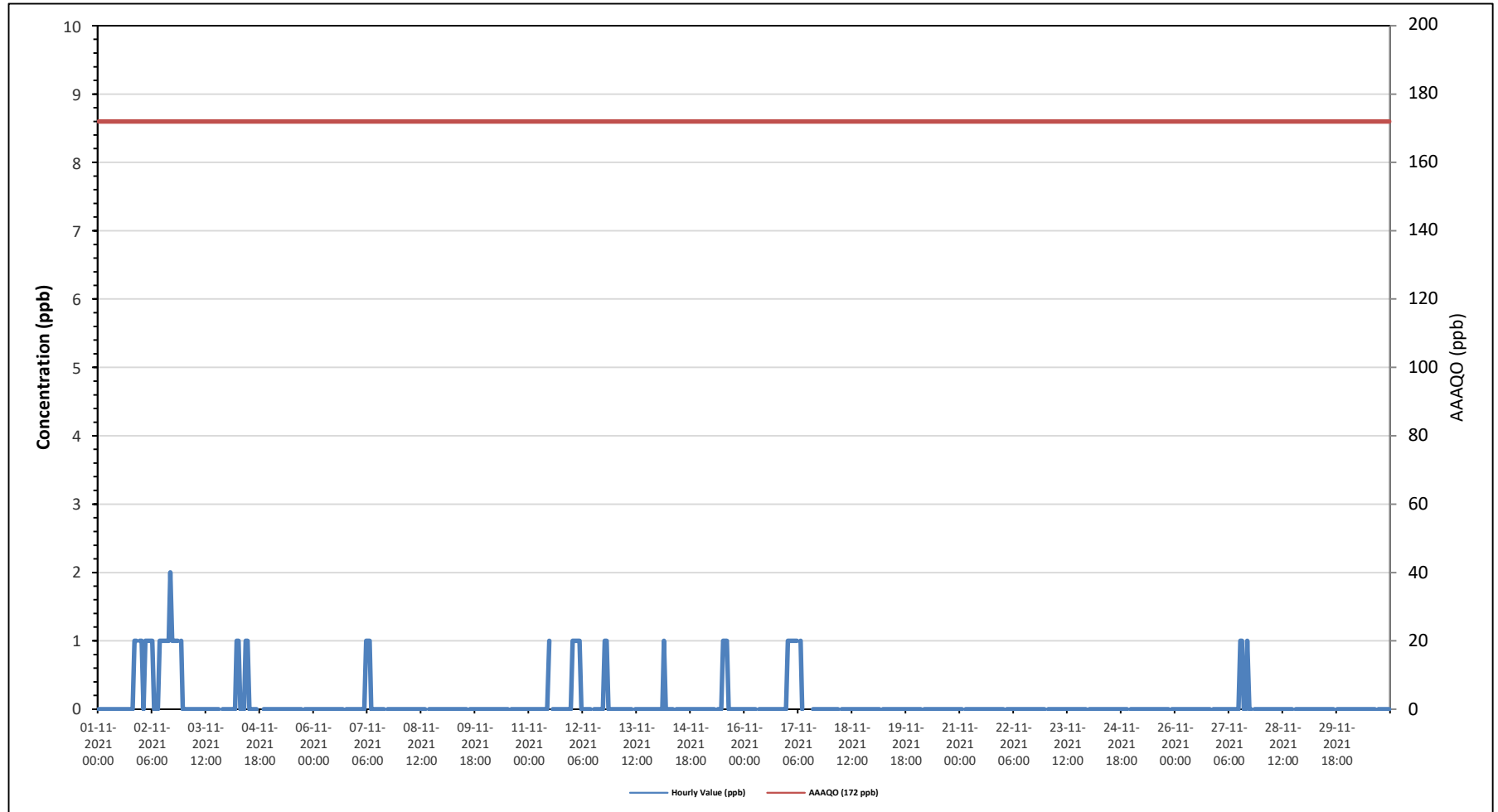
986c Station - November 2021

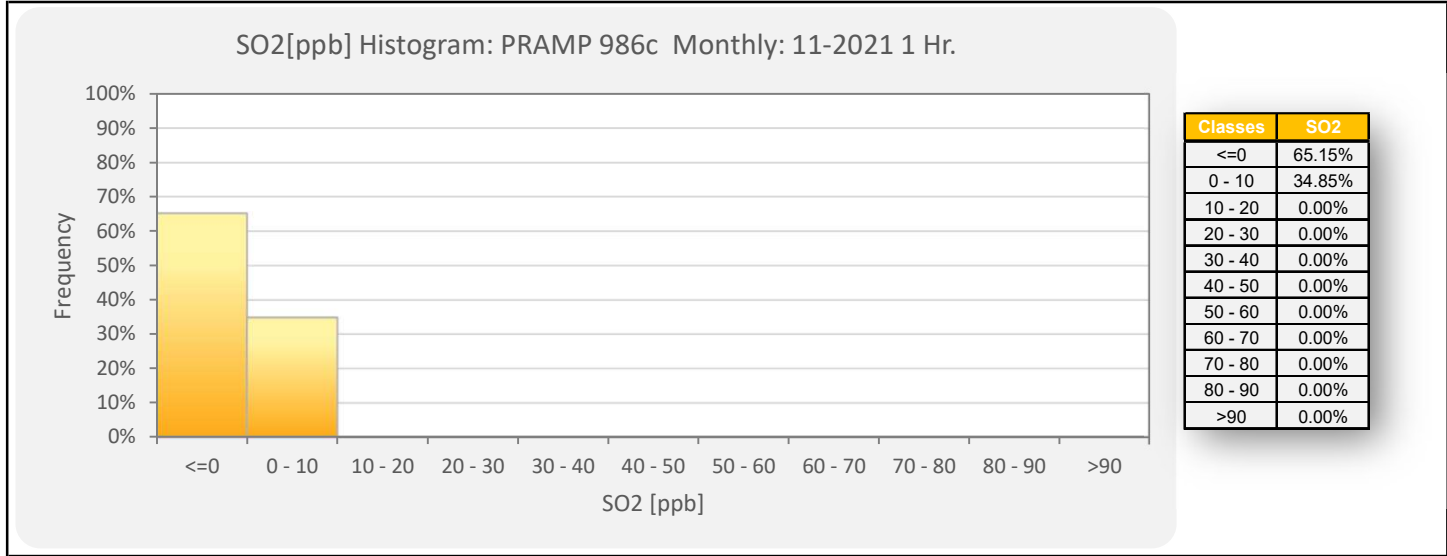
Summary of Hourly Averages

SULPHUR DIOXIDE (SO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																																								
Number of 1-Hour Exceedances:					0					Number of 24-Hour Exceedances:					0					30-Day Exceedance:					0															
Maximum Hourly Value:					2 ppb on November 2 at hour 16					Hours in Service:					720					Hours of Data:					683															
Maximum Daily Value:					0.8 ppb on November 2					Hours of Missing Data:					1					Hours of Calibration:					36															
Minimum Hourly Value:					0 ppb on November 1 at hour 0					Hours of Calibration:					36					Operational Uptime:					99.9															
Minimum Daily Value:					0.0 ppb on November 3					Operational Uptime:					99.9																									
Monthly Average:					0.1 ppb																																			
Day	0	1	2	3	4	5	6	7	8	9	Hourly Period Starting at (MST)													10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Minimum	Daily Maximum	Daily Average
Nov 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	S	1	0	0	1	0.1						
Nov 2	1	0	1	1	1	1	1	0	0	0	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	S	1	0	0	2	0.8							
Nov 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0						
Nov 4	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	NRM	0	S	0	0	0	0	0	0	1	0.2						
Nov 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0	0	0	0	0.0						
Nov 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0	0	0	0	0	0.0						
Nov 7	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1							
Nov 8	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	0	0	0	0	0	0.0						
Nov 9	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	0	0	0	0	0	0.0						
Nov 10	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	0	0	0	0	0	0.0						
Nov 11	0	0	0	0	0	0	0	0	0	0	0	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0								
Nov 12	1	1	1	1	1	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0.3							
Nov 13	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
Nov 14	0	0	0	1	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	1	0.0							
Nov 15	0	0	0	0	0	0	0	0	S	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1								
Nov 16	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Nov 17	1	1	1	1	1	1	S	1	0	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4								
Nov 18	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Nov 19	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Nov 20	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Nov 21	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Nov 22	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Nov 23	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0							
Nov 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0							
Nov 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0							
Nov 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0	0	0.0							
Nov 27	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	S	0	0	0	0	0	0	0	0	0	0	1	0.1								
Nov 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Nov 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Nov 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0																										

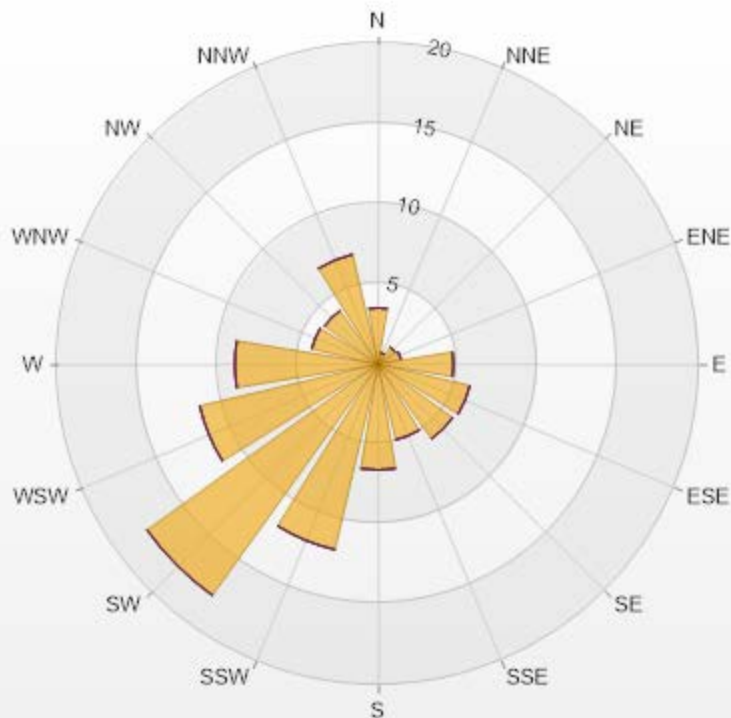
Timeseries Chart of Hourly Average for SO2 - 986c Station





Wind: PRAMP 986c Poll.: PRAMP 986c-SO2[ppb] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.86% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	3.51	0	0	0	0	3.51
NNE	0.73	0	0	0	0	0.73
NE	1.32	0	0	0	0	1.32
ENE	1.46	0	0	0	0	1.46
E	4.69	0	0	0	0	4.69
ESE	5.86	0	0	0	0	5.86
SE	5.71	0	0	0	0	5.71
SSE	4.83	0	0	0	0	4.83
S	6.59	0	0	0	0	6.59
SSW	11.86	0	0	0	0	11.86
SW	17.72	0	0	0	0	17.72
WSW	11.42	0	0	0	0	11.42
W	8.93	0	0	0	0	8.93
WNW	4.25	0	0	0	0	4.25
NW	4.1	0	0	0	0	4.1
NNW	7.03	0	0	0	0	7.03
Summary	100	0	0	0	0	100



PRAMP-202111

Page 31 of 226

% Icon Classes (ppb)

100

0-10

0

10-50

0

50-100

0

100-172

0

>172.0



PEACE RIVER AREA MONITORING PROGRAM

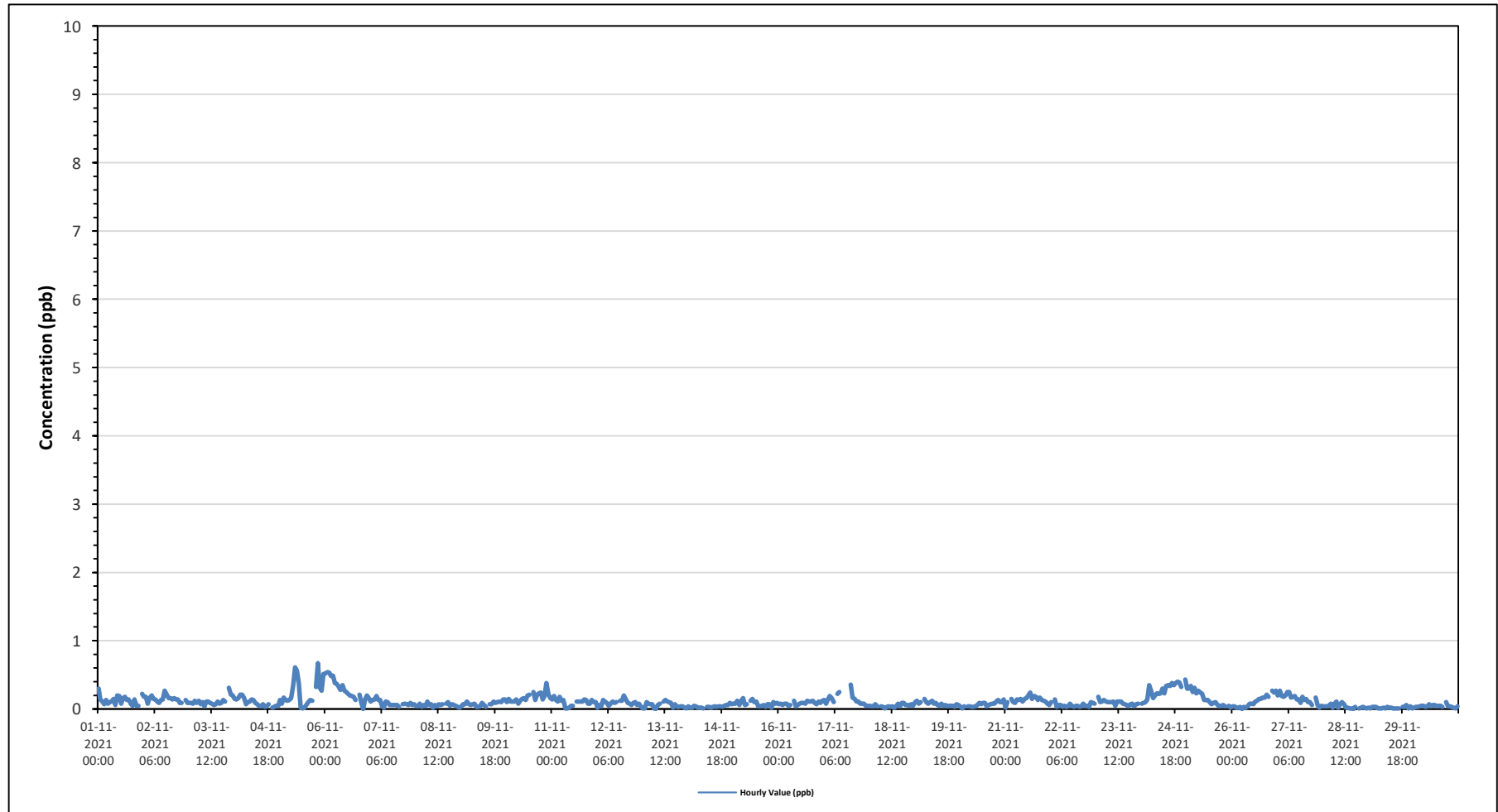
986c Station - November 2021

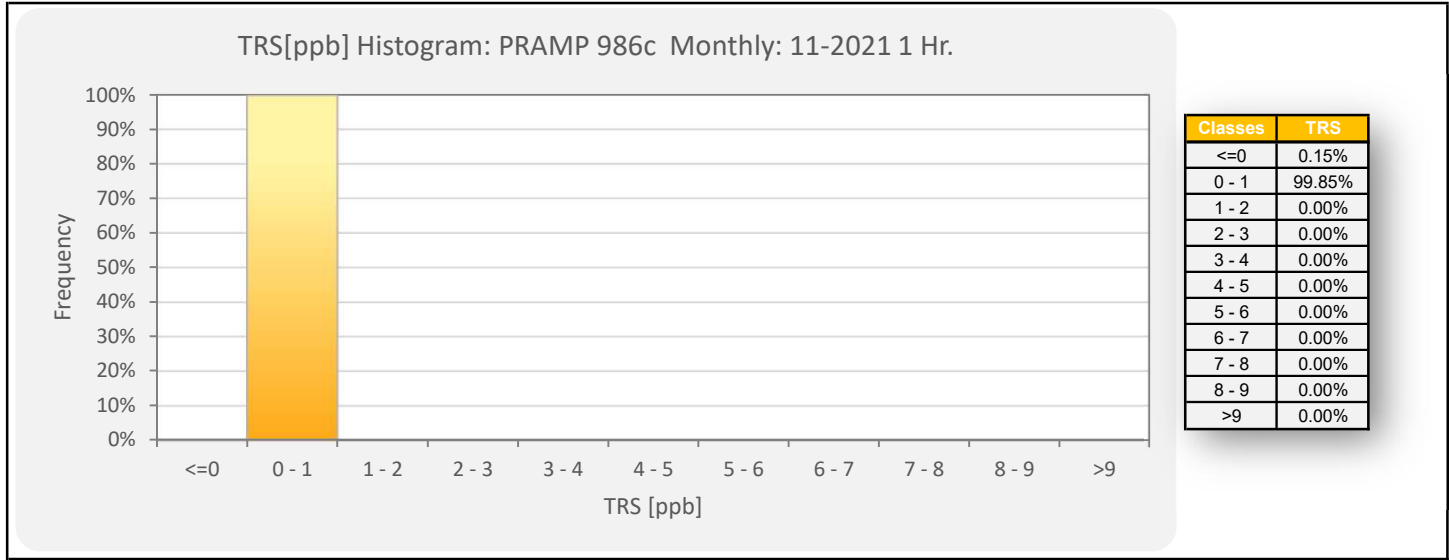
Summary of Hourly Averages

TOTAL REDUCED SULPHUR (TRS) in ppb

Maximum Hourly Value:		0.67	ppb	on November 5 at hour 20												Hours in Service:		720											
Maximum Daily Value:		0.28	ppb	on November 6												Hours of Data:		684											
Minimum Hourly Value:		0.00	ppb	on November 6 at hour 20												Hours of Missing Data:		0											
Minimum Daily Value:		0.02	ppb	on November 29												Hours of Calibration:		36											
Monthly Average:		0.11	ppb													Operational Uptime:		100.0											
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
Nov 1	0.3	0.14	0.11	0.07	0.13	0.08	0.1	0.11	0.15	0.06	0.2	0.19	0.08	0.16	0.18	0.13	0.14	0.08	0.05	0.14	0.05	0.05	S	0.22	0.05	0.30	0.13		
Nov 2	0.18	0.18	0.08	0.16	0.2	0.15	0.14	0.11	0.09	0.13	0.14	0.27	0.21	0.16	0.16	0.14	0.16	0.14	0.14	0.09	0.09	S	0.13	0.09	0.08	0.27	0.15		
Nov 3	0.09	0.09	0.08	0.12	0.09	0.12	0.07	0.1	0.04	0.11	0.11	0.09	0.08	0.06	0.07	0.11	0.08	0.09	0.13	0.11	S	0.31	0.21	0.2	0.04	0.31	0.11		
Nov 4	0.15	0.14	0.16	0.21	0.21	0.17	0.07	0.1	0.11	0.14	0.13	0.09	0.07	0.05	0.04	0.07	0.03	0.04	0.07	S	0.02	0.03	0.05	0.04	0.02	0.21	0.10		
Nov 5	0.13	0.08	0.17	0.13	0.12	0.13	0.16	0.35	0.61	0.56	0.38	0.02	0.01	0.02	0.06	0.1	0.13	0.12	S	0.32	0.67	0.31	0.27	0.51	0.01	0.67	0.23		
Nov 6	0.52	0.54	0.53	0.48	0.49	0.38	0.37	0.33	0.28	0.35	0.27	0.25	0.22	0.2	0.19	0.18	0.13	S	0.21	0.09	0	0.14	0.2	0.16	0.00	0.54	0.28		
Nov 7	0.11	0.13	0.14	0.19	0.13	0.13	0.04	0.02	0.11	0.1	0.06	0.06	0.06	0.06	0.06	0.03	S	0.07	0.08	0.07	0.06	0.09	0.06	0.07	0.02	0.19	0.08		
Nov 8	0.05	0.04	0.08	0.03	0.06	0.04	0.11	0.06	0.07	0.02	0.06	0.04	0.07	0.06	0.07	S	0.08	0.1	0.05	0.07	0.06	0.05	0.03	0.02	0.02	0.11	0.06		
Nov 9	0.04	0.07	0.07	0.11	0.07	0.06	0.07	0.08	0.03	0.03	0.04	0.09	0.06	0.03	S	0.07	0.07	0.11	0.09	0.1	0.11	0.1	0.14	0.14	0.03	0.14	0.08		
Nov 10	0.1	0.15	0.11	0.11	0.11	0.14	0.08	0.12	0.15	0.16	0.13	0.2	0.21	S	0.25	0.13	0.21	0.23	0.24	0.14	0.19	0.38	0.21	0.16	0.08	0.38	0.17		
Nov 11	0.14	0.19	0.13	0.11	0.18	0.12	0.13	0.01	0.01	0.02	0.05	0.05	S	0.11	0.11	0.11	0.14	0.13	0.08	0.08	0.13	0.1	0.1	0.01	0.01	0.19	0.10		
Nov 12	0.02	0.06	0.04	0.13	0.11	0.09	0.05	0.08	0.11	0.09	0.1	S	0.12	0.12	0.2	0.15	0.09	0.08	0.06	0.09	0.1	0.06	0.08	0.04	0.02	0.20	0.09		
Nov 13	0.01	0.01	0.1	0.08	0.07	0.07	0.01	0	0.06	0.08	S	0.11	0.13	0.11	0.1	0.09	0.02	0.07	0.03	0.03	0.04	0.04	0.02	0.01	0.00	0.13	0.06		
Nov 14	0.04	0.02	0.02	0.05	0.04	0.02	0.02	0.02	0.01	S	0.03	0.03	0.03	0.02	0.03	0.04	0.03	0.04	0.03	0.05	0.06	0.06	0.09	0.07	0.01	0.09	0.04		
Nov 15	0.08	0.08	0.12	0.06	0.12	0.16	0.06	0.07	S	0.12	0.15	0.1	0.11	0.04	0.04	0.05	0.06	0.03	0.07	0.07	0.02	0.1	0.08	0.09	0.02	0.16	0.08		
Nov 16	0.07	0.08	0.06	0.08	0.08	0.05	0.06	S	0.12	0.04	0.06	0.08	0.09	0.09	0.08	0.12	0.11	0.11	0.12	0.09	0.07	0.11	0.09	0.12	0.04	0.12	0.09		
Nov 17	0.13	0.08	0.14	0.19	0.16	0.1	S	0.22	0.25	C	C	C	C	C	C	0.36	0.17	0.15	0.11	0.11	0.08	0.08	0.05	0.05	0.05	0.36	0.14		
Nov 18	0.05	0.04	0.04	0.07	0.04	S	0.04	0.03	0.01	0.03	0.04	0.03	0.04	0.02	0.04	0.08	0.04	0.09	0.09	0.06	0.06	0.05	0.07	0.05	0.01	0.09	0.05		
Nov 19	0.1	0.12	0.08	0.1	S	0.15	0.1	0.08	0.1	0.12	0.08	0.09	0.06	0.05	0.08	0.05	0.06	0.04	0.05	0.05	0.05	0.03	0.07	0.06	0.03	0.15	0.08		
Nov 20	0.04	0.01	0.04	S	0.04	0.04	0.03	0.03	0.04	0.06	0.09	0.07	0.09	0.09	0.04	0.06	0.07	0.08	0.08	0.11	0.13	0.1	0.1	0.14	0.01	0.14	0.07		
Nov 21	0.02	0.1	S	0.15	0.1	0.09	0.14	0.13	0.15	0.11	0.15	0.16	0.2	0.24	0.15	0.19	0.18	0.13	0.17	0.13	0.12	0.11	0.08	0.06	0.02	0.24	0.13		
Nov 22	0.1	S	0.14	0.03	0.06	0.06	0.03	0.05	0.03	0.04	0.08	0.05	0.03	0.05	0.05	0.03	0.04	0.08	0.05	0.05	0.03	0.1	0.09	0.08	0.03	0.14	0.06		
Nov 23	S	0.18	0.1	0.11	0.13	0.11	0.1	0.1	0.1	0.11	0.05	0.11	0.11	0.11	0.08	0.07	0.06	0.04	0.07	0.08	0.04	0.07	0.08	S	0.04	0.18	0.09		
Nov 24	0.08	0.09	0.1	0.14	0.35	0.27	0.16	0.2	0.23	0.22	0.23	0.3	0.23	0.34	0.35	0.34	0.38	0.35	0.38	0.4	0.39	0.32	S	0.43	0.08	0.43	0.27		
Nov 25	0.3	0.3	0.34	0.25	0.31	0.23	0.27	0.24	0.22	0.13	0.13	0.13	0.1	0.07	0.09	0.1	0.06	0.04	0.05	0.06	0.04	S	0.05	0.02	0.02	0.34	0.15		
Nov 26	0.04	0.04	0.02	0.02	0.03	0	0.03	0.02	0.04	0.08	0.08	0.07	0.11	0.12	0.15	0.15	0.17	0.17	0.21	0.18	S	0.27	0.24	0.27	0.00	0.27	0.11		
Nov 27	0.2	0.27	0.19	0.18	0.2	0.25	0.25	0.17	0.18	0.19	0.14	0.14	0.09	0.18	0.13	0.15	0.1	0.1	0.06	S	0.17	0.06	0.02	0.05	0.02	0.27	0.15		
Nov 28	0.04	0.04	0.04	0.05	0.08	0.02	0.08	0.11	0.02	0.07	0.1	0.07	0.02	0.02	0.01	0.01	0	0.03	S	0.01	0.02	0.03	0.02	0.01	0.00	0.11	0.04		
Nov 29	0.02	0.01	0.03	0.03	0.03	0.01	0.01	0.01	0.02	0.01	0.03	0.02	0.02	0.01	0.01	0.01	0.01	S	0.03	0.03	0.06	0.01	0.04	0.01	0.01	0.06	0.02		
Nov 30	0.02	0.03	0.03	0.04	0.05	0.05	0.03	0.04	0.07	0.04	0.06	0.06	0.04	0.05	0.05	0.03	S	0.1	0.04	0.04	0.03	0.02	0.01	0.04	0.01	0.10	0.04		
Diurnal Maximum	0.52	0.54	0.53	0.48	0.49	0.38	0.37	0.35	0.61	0.56	0.38	0.30	0.23	0.34	0.36	0.34	0.38	0.35	0.38	0.40	0.67	0.38	0.27	0.51					
Diurnal Average	0.11	0.11	0.11	0.12	0.13	0.11	0.10	0.10	0.12	0.12	0.11	0.11	0.10	0.09	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.11	0.10	0.11					
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance												
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance							P	Power Failure				
X	InValid Data (Equipment Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																				
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																													
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																													

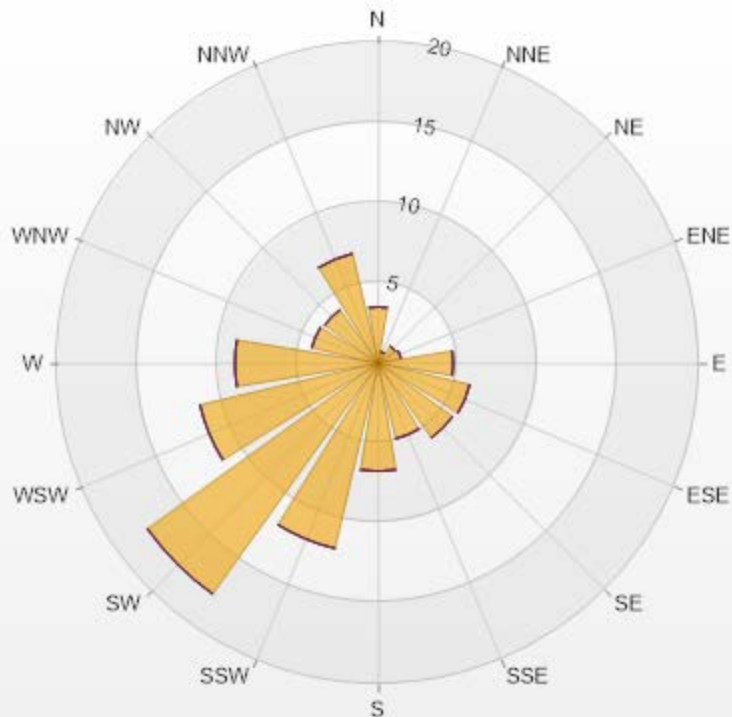
Timeseries Chart of Hourly Average for TRS - 986c Station





Wind: PRAMP 986c Poll.: PRAMP 986c-TRS[ppb] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.00% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	3.51	0	0	0	0	3.51
NNE	0.73	0	0	0	0	0.73
NE	1.32	0	0	0	0	1.32
ENE	1.46	0	0	0	0	1.46
E	4.68	0	0	0	0	4.68
ESE	5.85	0	0	0	0	5.85
SE	5.7	0	0	0	0	5.7
SSE	4.82	0	0	0	0	4.82
S	6.73	0	0	0	0	6.73
SSW	11.84	0	0	0	0	11.84
SW	17.69	0	0	0	0	17.69
WSW	11.4	0	0	0	0	11.4
W	8.92	0	0	0	0	8.92
WNW	4.24	0	0	0	0	4.24
NW	4.09	0	0	0	0	4.09
NNW	7.02	0	0	0	0	7.02
Summary	100	0	0	0	0	100



PRAMP-202111

Page 36 of 226

% Icon Classes (ppb)

100 0-2

0 2-5

0 5-10

0 10-50

0 >50.0



PEACE RIVER AREA MONITORING PROGRAM

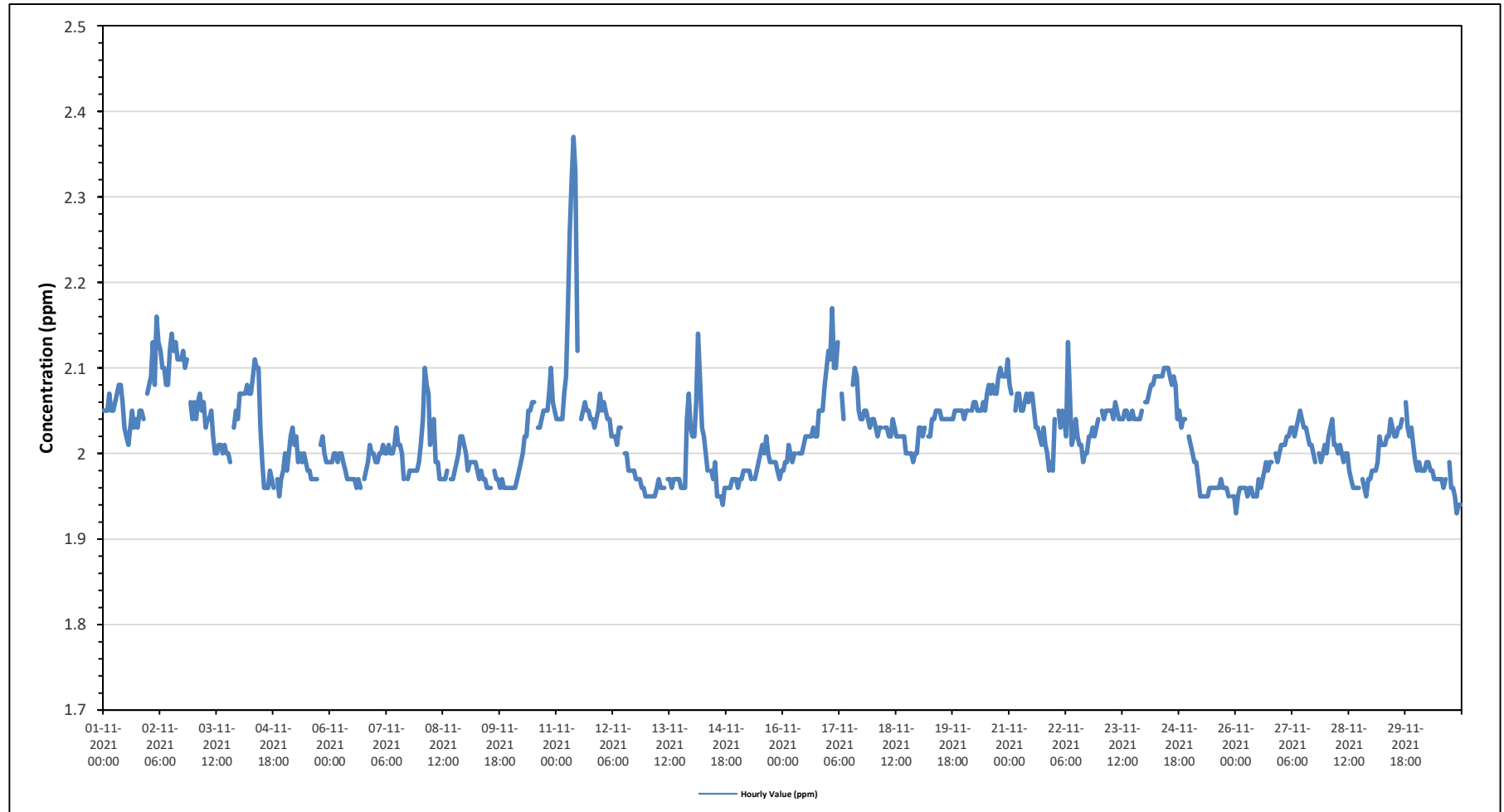
986c Station - November 2021

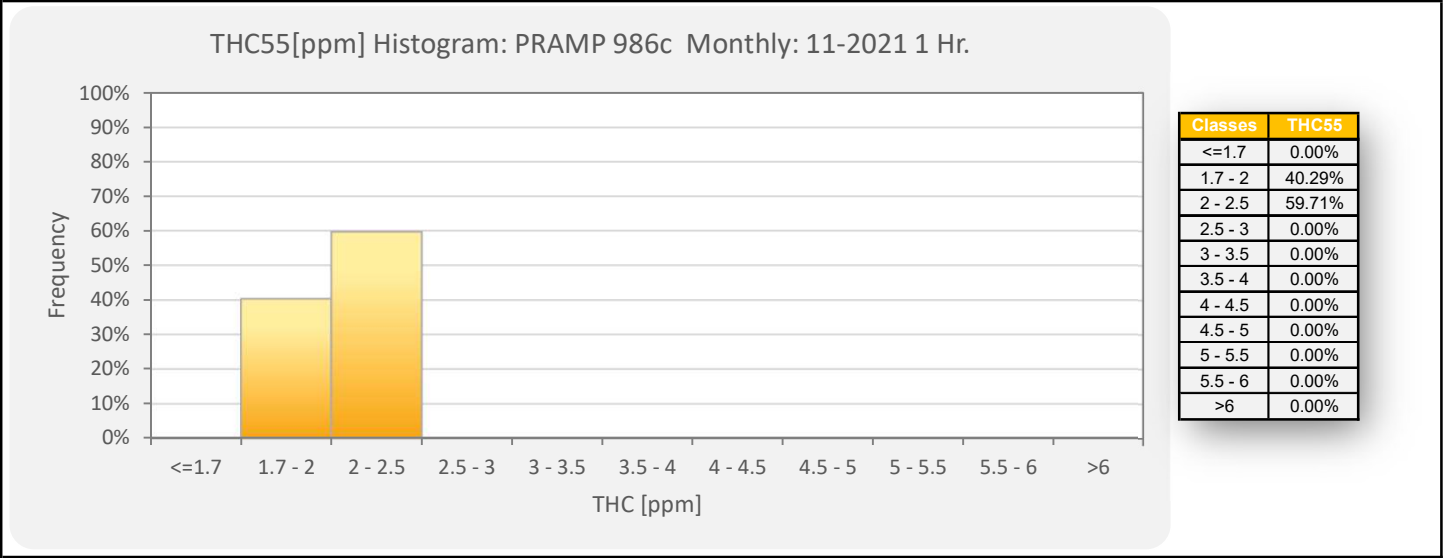
Summary of Hourly Averages

TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:																							2.37	ppm	on November 11 at hour 9					Hours in Service:										720							
Maximum Daily Value:																							2.11	ppm	on November 2					Hours of Data:										685							
Minimum Hourly Value:																							1.93	ppm	on November 26 at hour 0					Hours of Missing Data:										0							
Minimum Daily Value:																							1.96	ppm	on November 25					Hours of Calibration:										35							
Monthly Average:																							2.02	ppm											Operational Uptime:										100.0		
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average																					
Nov 1	2.05	2.05	2.05	2.07	2.05	2.05	2.06	2.07	2.08	2.08	2.06	2.03	2.02	2.01	2.03	2.05	2.03	2.04	2.03	2.05	2.05	2.04	S	2.07	2.01	2.08	2.05																				
Nov 2	2.08	2.09	2.13	2.08	2.16	2.13	2.12	2.10	2.10	2.08	2.08	2.12	2.14	2.12	2.13	2.11	2.11	2.11	2.12	2.10	2.11	S	2.06	2.04	2.04	2.16	2.11																				
Nov 3	2.06	2.04	2.06	2.07	2.05	2.06	2.03	2.04	2.04	2.05	2.02	2.00	2.00	2.01	2.01	2.00	2.01	2.00	2.00	1.99	S	2.03	2.05	2.04	1.99	2.07	2.03																				
Nov 4	2.07	2.07	2.07	2.07	2.08	2.07	2.07	2.09	2.11	2.10	2.10	2.03	1.99	1.96	1.96	1.96	1.98	1.97	1.96	S	1.97	1.95	1.97	1.98	1.95	2.11	2.03																				
Nov 5	2.00	1.98	2.00	2.02	2.03	2.01	2.02	1.99	2.00	1.99	2.00	1.99	1.98	1.98	1.97	1.97	1.97	1.97	S	2.01	2.02	2.00	1.99	1.99	1.97	2.03	1.99																				
Nov 6	1.99	1.99	2.00	2.00	1.99	2.00	2.00	1.99	1.98	1.97	1.97	1.97	1.97	1.97	1.96	1.97	1.96	S	1.97	1.98	1.99	2.01	2.00	2.00	1.96	2.01	1.98																				
Nov 7	1.99	1.99	2.00	2.00	2.01	2.00	2.00	2.01	2.00	2.00	2.01	2.03	2.01	2.01	2.00	1.97	S	1.97	1.98	1.98	1.98	1.98	1.98	1.99	1.97	2.03	2.00																				
Nov 8	2.01	2.04	2.10	2.08	2.07	2.01	2.03	2.04	1.99	1.99	1.97	1.97	1.97	1.97	1.98	S	1.97	1.97	1.98	1.99	2.00	2.02	2.02	2.01	1.97	2.10	2.01																				
Nov 9	2.00	1.98	1.99	1.99	1.99	1.99	1.98	1.97	1.98	1.97	1.97	1.96	1.96	1.96	S	1.98	1.97	1.97	1.96	1.97	1.96	1.96	1.96	1.96	1.96	2.00	1.97																				
Nov 10	1.96	1.96	1.96	1.97	1.98	1.99	2.00	2.02	2.02	2.05	2.05	2.06	2.06	S	2.03	2.03	2.04	2.05	2.05	2.05	2.07	2.10	2.06	2.05	1.96	2.10	2.03																				
Nov 11	2.04	2.04	2.04	2.04	2.07	2.09	2.17	2.26	2.32	2.37	2.33	2.12	S	2.04	2.05	2.06	2.05	2.05	2.04	2.04	2.03	2.04	2.05	2.07	2.03	2.37	2.10																				
Nov 12	2.05	2.06	2.05	2.04	2.04	2.02	2.02	2.02	2.01	2.03	2.03	S	2.00	2.00	1.98	1.98	1.98	1.98	1.98	1.97	1.97	1.96	1.96	1.95	1.95	2.06	2.00																				
Nov 13	1.95	1.95	1.95	1.95	1.95	1.96	1.97	1.96	1.96	1.96	S	1.97	1.97	1.96	1.97	1.97	1.97	1.97	1.96	1.96	1.96	2.04	2.07	2.03	1.95	2.07	1.97																				
Nov 14	2.02	2.02	2.06	2.14	2.09	2.03	2.02	2.00	1.98	S	1.98	1.97	1.99	1.95	1.95	1.95	1.94	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.94	2.14	1.99																				
Nov 15	1.96	1.97	1.97	1.98	1.98	1.98	1.98	1.97	S	1.97	1.98	1.99	2.00	2.01	2.00	2.02	2.00	1.99	1.99	1.99	1.98	1.97	1.98	1.96	2.02	1.98																					
Nov 16	1.98	1.99	1.99	2.01	2.00	1.99	2.00	S	2.00	2.00	2.00	2.01	2.02	2.02	2.02	2.02	2.03	2.02	2.02	2.05	2.05	2.05	2.08	2.10	1.98	2.10	2.02																				
Nov 17	2.12	2.11	2.17	2.10	2.10	2.13	S	2.07	2.04	C	C	C	C	2.08	2.10	2.09	2.05	2.04	2.04	2.05	2.05	2.04	2.03	2.04	2.03	2.17	2.08																				
Nov 18	2.04	2.03	2.02	2.03	2.03	S	2.03	2.03	2.02	2.02	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.00	2.00	2.00	1.99	2.00	2.00	1.99	2.04	2.02																					
Nov 19	2.03	2.03	2.02	2.03	S	2.02	2.02	2.04	2.04	2.05	2.05	2.05	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.05	2.05	2.05	2.05	2.05	2.02	2.05	2.04																				
Nov 20	2.04	2.05	2.05	S	2.05	2.06	2.06	2.05	2.05	2.05	2.06	2.05	2.07	2.08	2.07	2.08	2.07	2.07	2.09	2.10	2.09	2.09	2.09	2.11	2.04	2.11	2.07																				
Nov 21	2.08	2.07	S	2.05	2.07	2.07	2.05	2.05	2.06	2.07	2.06	2.07	2.07	2.05	2.03	2.03	2.02	2.01	2.03	2.01	2.00	1.98	1.99	1.98	1.98	2.08	2.04																				
Nov 22	2.04	S	2.05	2.03	2.05	2.04	2.02	2.13	2.07	2.01	2.02	2.04	2.02	2.01	2.01	1.99	2.00	2.00	2.02	2.02	2.03	2.02	2.03	2.04	1.99	2.13	2.03																				
Nov 23	S	2.05	2.04	2.05	2.05	2.05	2.05	2.04	2.06	2.05	2.04	2.04	2.04	2.05	2.05	2.04	2.04	2.05	2.04	2.04	2.04	2.04	2.05	S	2.04	2.06	2.05																				
Nov 24	2.06	2.06	2.07	2.08	2.08	2.09	2.09	2.09	2.09	2.09	2.10	2.10	2.10	2.09	2.08	2.09	2.08	2.04	2.05	2.03	2.04	2.04	S	2.02	2.02	2.10	2.07																				
Nov 25	2.01	2.00	1.99	1.99	1.97	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.96	1.96	1.96	1.95	S	1.95	1.95	1.95	2.01	1.96																				
Nov 26	1.93	1.95	1.96	1.96	1.96	1.96	1.95	1.96	1.96	1.95	1.95	1.95	1.97	1.96	1.97	1.98	1.99	1.98	1.99	1.99	S	2.00	1.99	2.00	1.93	2.00	1.97																				
Nov 27	2.01	2.01	2.01	2.02	2.02	2.03	2.03	2.02	2.03	2.04	2.05	2.04	2.03	2.03	2.02	2.01	2.01	2.00	1.99	S	2.00	1.99	2.00	2.01	1.99	2.05	2.02																				
Nov 28	2.00	2.02	2.03	2.04	2.01	2.01	2.00	2.01	2.00	1.99	2.00	2.00	1.98	1.97	1.96	1.96	1.96	1.96	S	1.97	1.96	1.95	1.97	1.97	1.95	2.04	1.99																				
Nov 29	1.98	1.98	1.98	1.99	2.02	2.01	2.01	2.01	2.02	2.02	2.04	2.03	2.02	2.02	2.03	2.03	2.04	S	2.06	2.03	2.02	2.03	2.01	1.99	1.98	2.06	2.02																				
Nov 30	1.98	1.99	1.98	1.98	1.98	1.99	1.99	1.98	1.98	1.97	1.97	1.97	1.97	1.97	1.96	1.97	S	1.99	1.96	1.96	1.95	1.93	1.94	1.94	1.93	1.99	1.97																				
Diurnal Maximum	2.12	2.11	2.17	2.14	2.16	2.13	2.17	2.26	2.32	2.37	2.33	2.12	2.14	2.12	2.13	2.11	2.11	2.11	2.12	2.10	2.11	2.10	2.09	2.11																							
Diurnal Average	2.02	2.02	2.03	2.03	2.03	2.03	2.02	2.03	2.03	2.03	2.03	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																							
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance																														
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance							P	Power Failure																						
X	Invalid Data (Equipment Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																																						
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																															
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																															

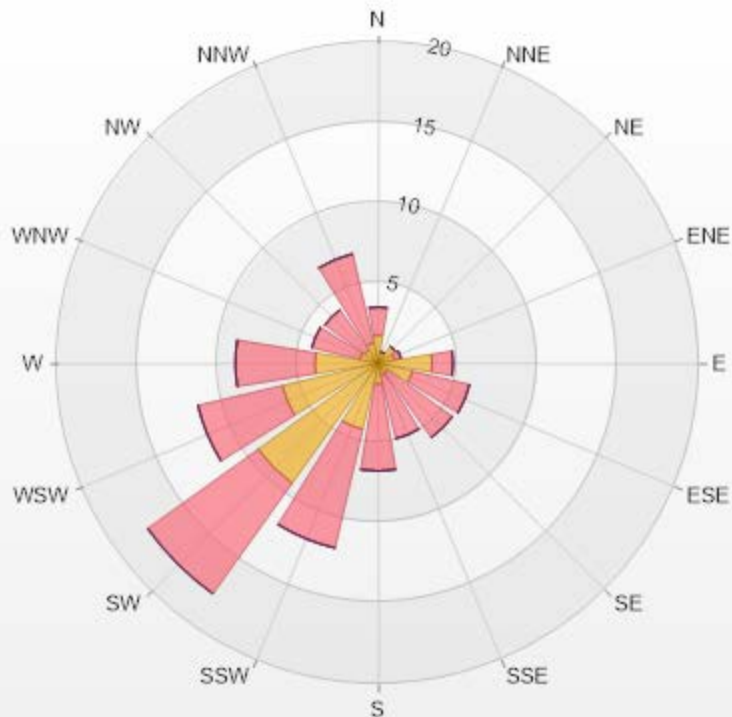
Timeseries Chart of Hourly Average for THC - 986c Station





Wind: PRAMP 986c Poll.: PRAMP 986c-THC55[ppm] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.14% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	1.75	1.75	0	0	0	3.5
NNE	0.73	0	0	0	0	0.73
NE	1.31	0	0	0	0	1.31
ENE	1.02	0.44	0	0	0	1.46
E	3.36	1.31	0	0	0	4.67
ESE	2.19	3.65	0	0	0	5.84
SE	0.73	4.96	0	0	0	5.69
SSE	0.73	4.09	0	0	0	4.82
S	1.31	5.4	0	0	0	6.71
SSW	4.23	7.59	0	0	0	11.82
SW	9.2	8.47	0	0	0	17.67
WSW	6.13	5.4	0	0	0	11.53
W	3.94	4.96	0	0	0	8.9
WNW	1.17	3.07	0	0	0	4.24
NW	1.02	3.07	0	0	0	4.09
NNW	1.31	5.69	0	0	0	7
Summary	40.13	59.85	0	0	0	100



PRAMP-202111

Page 41 of 226

% Icon Classes (ppm)

40

0-2

60

2-5

0

5-10

0

10-40

0

>40.0



PEACE RIVER AREA MONITORING PROGRAM

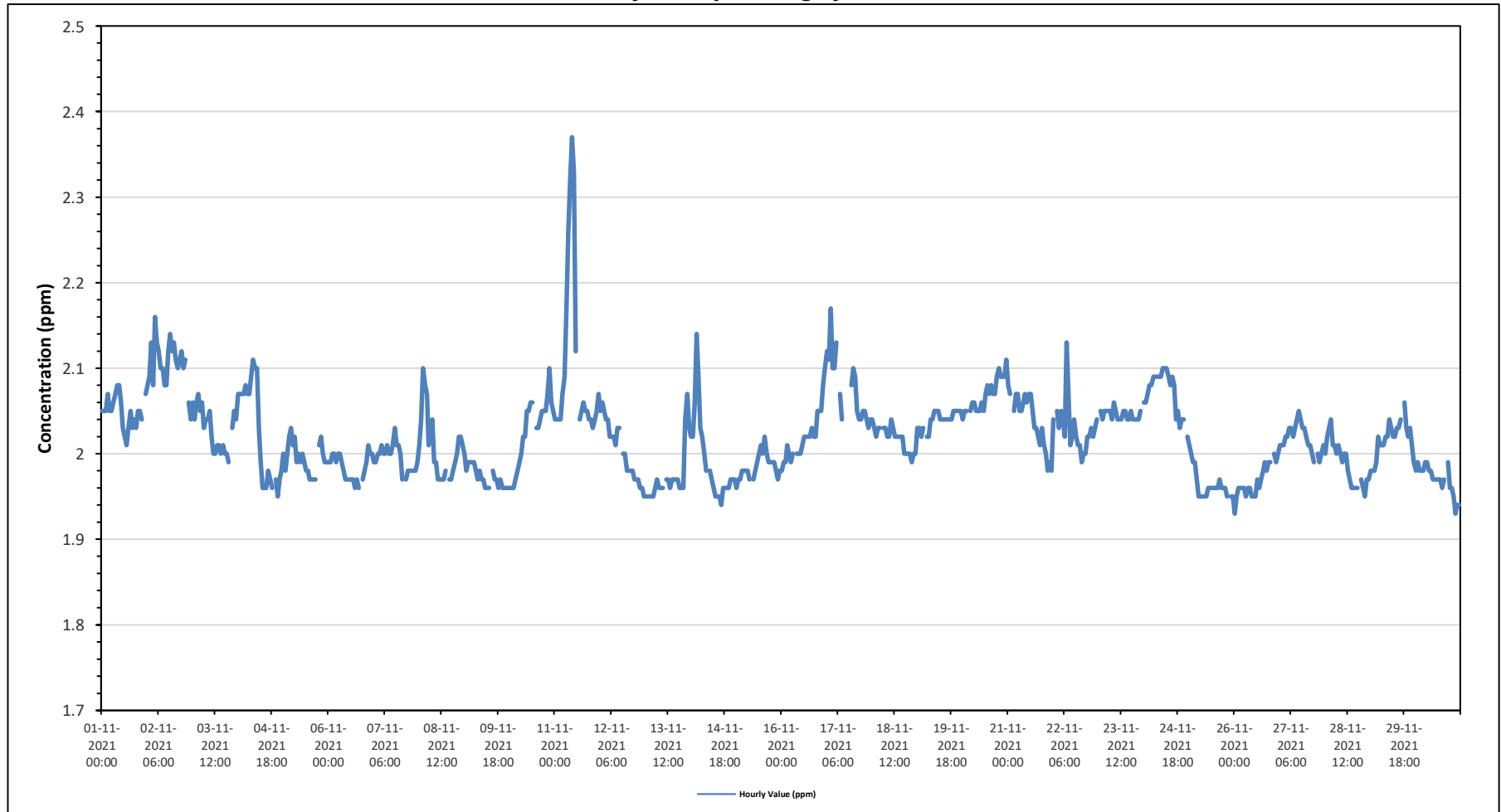
986c Station - November 2021

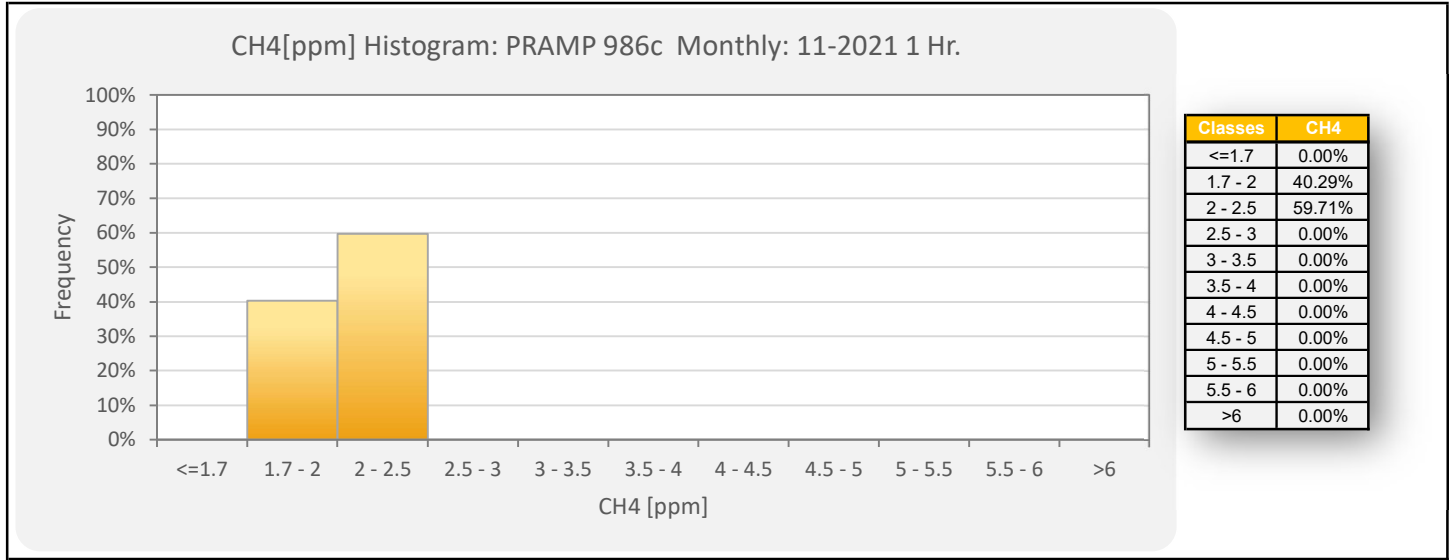
Summary of Hourly Averages

METHANE (CH4) in ppm

Maximum Hourly Value:																							2.37	ppm	on November 11 at hour 9										Hours in Service:										720
Maximum Daily Value:																							2.10	ppm	on November 2										Hours of Data:										685
Minimum Hourly Value:																							1.93	ppm	on November 26 at hour 0										Hours of Missing Data:										0
Minimum Daily Value:																							1.96	ppm	on November 25										Hours of Calibration:										35
Monthly Average:																							2.02	ppm											Operational Uptime:										100.0
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average																			
Nov 1	2.05	2.05	2.05	2.07	2.05	2.05	2.06	2.07	2.08	2.08	2.06	2.03	2.02	2.01	2.03	2.05	2.03	2.04	2.03	2.05	2.05	2.04	S	2.07	2.01	2.08	2.05																		
Nov 2	2.08	2.09	2.13	2.08	2.16	2.13	2.12	2.10	2.10	2.08	2.08	2.12	2.14	2.12	2.13	2.11	2.10	2.11	2.12	2.10	2.11	S	2.06	2.04	2.04	2.16	2.10																		
Nov 3	2.06	2.04	2.06	2.07	2.05	2.06	2.03	2.04	2.04	2.05	2.02	2.00	2.00	2.01	2.01	2.00	2.01	2.00	2.00	1.99	S	2.03	2.05	2.04	1.99	2.07	2.03																		
Nov 4	2.07	2.07	2.07	2.07	2.08	2.07	2.07	2.09	2.11	2.10	2.10	2.03	1.99	1.96	1.96	1.96	1.98	1.97	1.96	S	1.97	1.95	1.97	1.98	1.95	2.11	2.03																		
Nov 5	2.00	1.98	2.00	2.02	2.03	2.01	2.02	1.99	2.00	1.99	2.00	1.99	1.98	1.98	1.97	1.97	1.97	1.97	S	2.01	2.02	2.00	1.99	1.99	1.97	2.03	1.99																		
Nov 6	1.99	1.99	2.00	2.00	1.99	2.00	2.00	1.99	1.98	1.97	1.97	1.97	1.97	1.97	1.96	1.97	1.96	S	1.97	1.98	1.99	2.01	2.00	2.00	1.96	2.01	1.98																		
Nov 7	1.99	1.99	2.00	2.00	2.01	2.00	2.00	2.01	2.00	2.00	2.01	2.03	2.01	2.01	2.00	1.97	S	1.97	1.98	1.98	1.98	1.98	1.98	1.99	1.97	2.03	2.00																		
Nov 8	2.01	2.04	2.10	2.08	2.07	2.01	2.03	2.04	1.99	1.99	1.97	1.97	1.97	1.97	1.98	S	1.97	1.97	1.98	1.99	2.00	2.02	2.02	2.01	1.97	2.10	2.01																		
Nov 9	2.00	1.98	1.99	1.99	1.99	1.99	1.98	1.97	1.98	1.97	1.97	1.96	1.96	1.96	S	1.98	1.97	1.97	1.96	1.97	1.96	1.96	1.96	1.96	1.96	2.00	1.97																		
Nov 10	1.96	1.96	1.96	1.97	1.98	1.99	2.00	2.02	2.02	2.05	2.05	2.06	2.06	S	2.03	2.03	2.04	2.05	2.05	2.05	2.07	2.10	2.06	2.05	1.96	2.10	2.03																		
Nov 11	2.04	2.04	2.04	2.04	2.07	2.09	2.17	2.26	2.32	2.37	2.33	2.12	S	2.04	2.05	2.06	2.05	2.05	2.04	2.04	2.03	2.04	2.05	2.07	2.03	2.37	2.10																		
Nov 12	2.05	2.06	2.05	2.04	2.04	2.02	2.02	2.02	2.01	2.03	2.03	S	2.00	2.00	1.98	1.98	1.98	1.98	1.97	1.97	1.97	1.96	1.96	1.95	1.95	2.06	2.00																		
Nov 13	1.95	1.95	1.95	1.95	1.95	1.96	1.97	1.96	1.96	1.96	S	1.97	1.97	1.96	1.97	1.97	1.97	1.97	1.96	1.96	1.96	2.04	2.07	2.03	1.95	2.07	1.97																		
Nov 14	2.02	2.02	2.06	2.14	2.09	2.03	2.02	2.00	1.98	S	1.98	1.97	1.96	1.95	1.95	1.95	1.94	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.94	2.14	1.99																		
Nov 15	1.96	1.97	1.97	1.98	1.98	1.98	1.98	1.97	S	1.97	1.98	1.99	2.00	2.01	2.00	2.02	2.00	1.99	1.99	1.99	1.98	1.97	1.98	1.96	2.02	1.98																			
Nov 16	1.98	1.99	1.99	2.01	2.00	1.99	2.00	S	2.00	2.00	2.00	2.01	2.02	2.02	2.02	2.02	2.03	2.02	2.02	2.02	2.05	2.05	2.08	2.10	1.98	2.10	2.02																		
Nov 17	2.12	2.11	2.17	2.10	2.10	2.13	S	2.07	2.04	C	C	C	C	2.08	2.10	2.09	2.05	2.04	2.04	2.05	2.05	2.04	2.03	2.04	2.03	2.17	2.08																		
Nov 18	2.04	2.03	2.02	2.03	2.03	S	2.03	2.03	2.02	2.02	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.00	2.00	2.00	1.99	2.00	2.00	1.99	2.04	2.02																			
Nov 19	2.03	2.03	2.02	2.03	S	2.02	2.02	2.04	2.04	2.05	2.05	2.05	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.05	2.05	2.05	2.05	2.05	2.02	2.05	2.04																		
Nov 20	2.04	2.05	2.05	S	2.05	2.06	2.06	2.05	2.05	2.05	2.06	2.05	2.07	2.08	2.07	2.08	2.07	2.07	2.09	2.10	2.09	2.09	2.09	2.11	2.04	2.11	2.07																		
Nov 21	2.08	2.07	S	2.05	2.07	2.07	2.05	2.05	2.06	2.07	2.06	2.07	2.07	2.05	2.03	2.03	2.02	2.01	2.03	2.01	2.00	1.98	1.99	1.98	1.98	2.08	2.04																		
Nov 22	2.04	S	2.05	2.03	2.05	2.04	2.02	2.13	2.07	2.01	2.02	2.04	2.02	2.01	2.01	1.99	2.00	2.00	2.02	2.02	2.03	2.02	2.03	2.04	1.99	2.13	2.03																		
Nov 23	S	2.05	2.04	2.05	2.05	2.05	2.05	2.04	2.06	2.05	2.04	2.04	2.04	2.05	2.05	2.04	2.04	2.05	2.04	2.04	2.04	2.04	2.05	S	2.04	2.06	2.05																		
Nov 24	2.06	2.06	2.07	2.08	2.08	2.09	2.09	2.09	2.09	2.09	2.10	2.10	2.10	2.09	2.08	2.09	2.08	2.04	2.05	2.03	2.04	2.04	S	2.02	2.02	2.10	2.07																		
Nov 25	2.01	2.00	1.99	1.99	1.97	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.96	1.96	1.96	1.95	S	1.95	1.95	1.95	2.01	1.96																		
Nov 26	1.93	1.95	1.96	1.96	1.96	1.96	1.95	1.96	1.96	1.95	1.95	1.95	1.97	1.96	1.97	1.98	1.99	1.98	1.99	1.99	S	2.00	1.99	2.00	1.93	2.00	1.97																		
Nov 27	2.01	2.01	2.01	2.02	2.02	2.03	2.03	2.02	2.03	2.04	2.05	2.04	2.03	2.03	2.02	2.01	2.01	2.00	1.99	S	2.00	1.99	2.00	2.01	1.99	2.05	2.02																		
Nov 28	2.00	2.02	2.03	2.04	2.01	2.01	2.00	2.01	2.00	1.99	2.00	2.00	1.98	1.97	1.96	1.96	1.96	1.96	S	1.97	1.96	1.95	1.97	1.97	1.95	2.04	1.99																		
Nov 29	1.98	1.98	1.98	1.99	2.02	2.01	2.01	2.01	2.02	2.02	2.04	2.03	2.02	2.02	2.03	2.03	2.04	S	2.06	2.03	2.02	2.03	2.01	1.99	1.98	2.06	2.02																		
Nov 30	1.98	1.99	1.98	1.98	1.98	1.99	1.99	1.98	1.98	1.97	1.97	1.97	1.97	1.97	1.96	1.97	S	1.99	1.96	1.96	1.95	1.93	1.94	1.94	1.93	1.99	1.97																		
Diurnal Maximum	2.12	2.11	2.17	2.14	2.16	2.13	2.17	2.26	2.32	2.37	2.33	2.12	2.14	2.12	2.13	2.11	2.10	2.11	2.12	2.10	2.11	2.10	2.09	2.11																					
Diurnal Average	2.02	2.02	2.03	2.03	2.03	2.03	2.02	2.03	2.03	2.03	2.03	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																					
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance																												
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance							P	Power Failure																				
X	Invalid Data (Equipment Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																																				
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																													
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																													

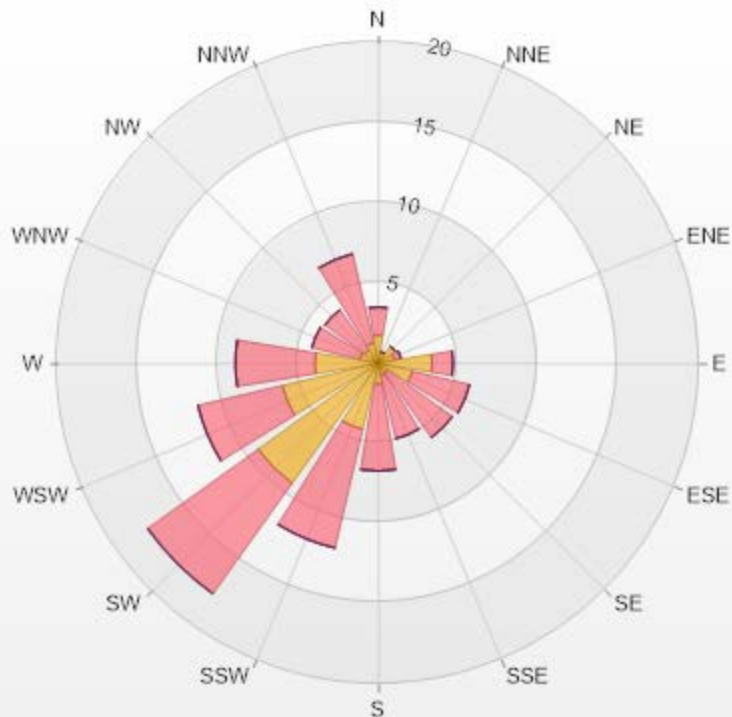
Timeseries Chart of Hourly Average for CH4 - 986c Station





Wind: PRAMP 986c Poll.: PRAMP 986c-CH4[ppm] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.14% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	1.75	1.75	0	0	0	3.5
NNE	0.73	0	0	0	0	0.73
NE	1.31	0	0	0	0	1.31
ENE	1.02	0.44	0	0	0	1.46
E	3.36	1.31	0	0	0	4.67
ESE	2.19	3.65	0	0	0	5.84
SE	0.73	4.96	0	0	0	5.69
SSE	0.73	4.09	0	0	0	4.82
S	1.31	5.4	0	0	0	6.71
SSW	4.23	7.59	0	0	0	11.82
SW	9.2	8.47	0	0	0	17.67
WSW	6.13	5.4	0	0	0	11.53
W	3.94	4.96	0	0	0	8.9
WNW	1.17	3.07	0	0	0	4.24
NW	1.02	3.07	0	0	0	4.09
NNW	1.31	5.69	0	0	0	7
Summary	40.13	59.85	0	0	0	100



PRAMP-202111

Page 46 of 226

% Icon Classes (ppm)

40

0-2

60

2-5

0

5-10

0

10-20

0

>20.0



PEACE RIVER AREA MONITORING PROGRAM

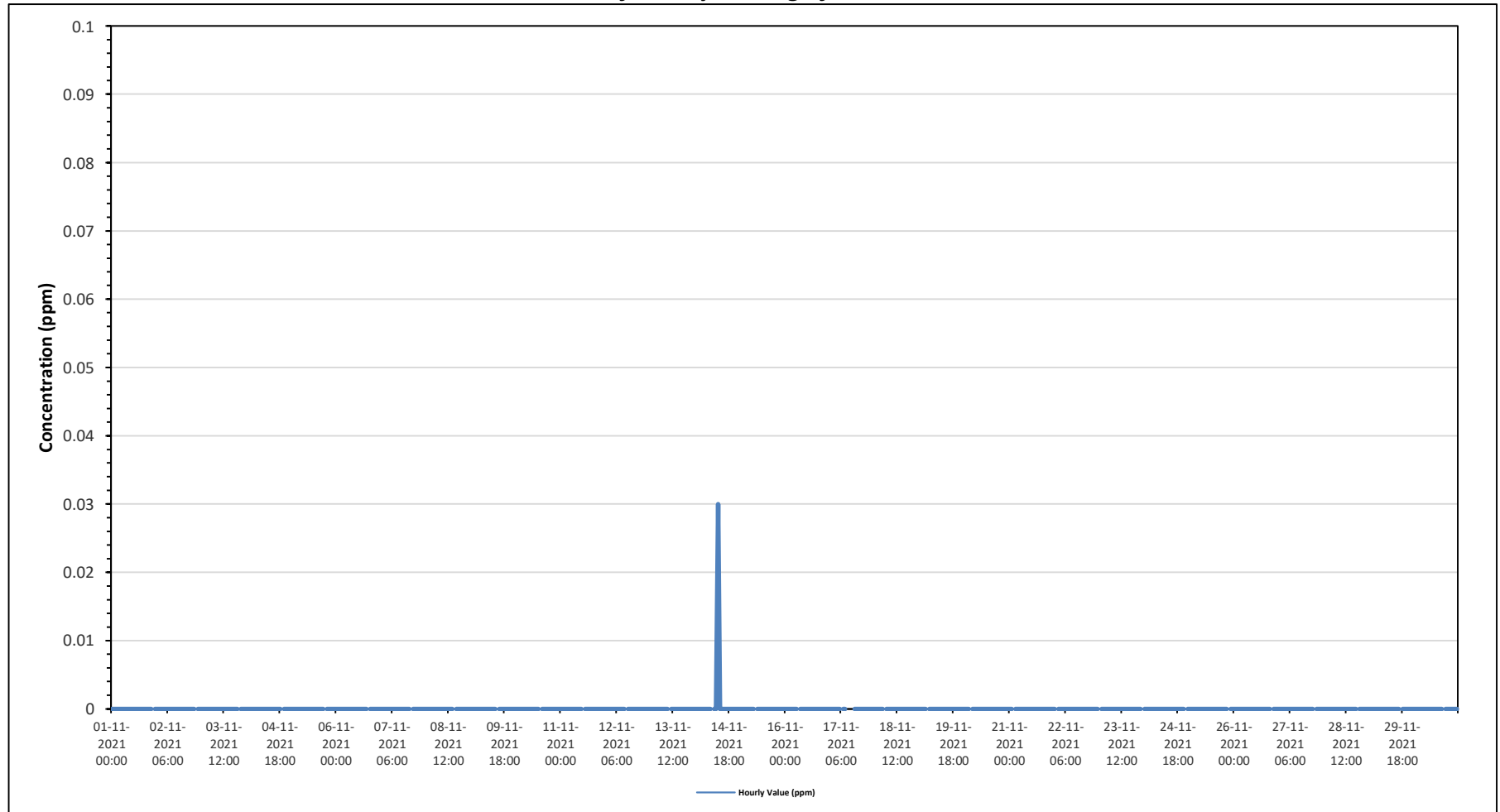
986c Station - November 2021

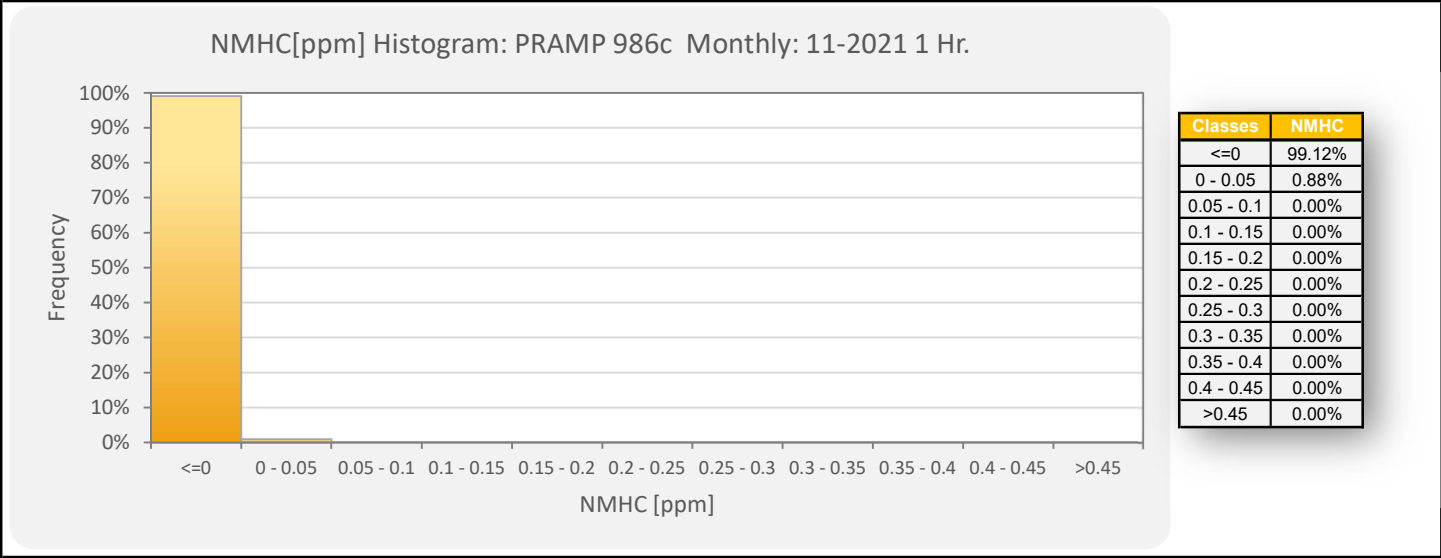
Summary of Hourly Averages

NON-METHANE HYDROCARBONS (NMHC) in ppm

Maximum Hourly Value:	0.03	ppm	on November 14 at hour 12	Hours in Service:	720																						
Maximum Daily Value:	0.00	ppm	on November 14	Hours of Data:	685																						
Minimum Hourly Value:	0.00	ppm	on November 1 at hour 0	Hours of Missing Data:	0																						
Minimum Daily Value:	0.00	ppm	on November 1	Hours of Calibration:	35																						
Monthly Average:	0.00	ppm		Operational Uptime:	100.0																						
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
Nov 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		
Nov 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	0.00	S	0.00	0.00	0.00		
Nov 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	0.00	S	0.00	0.00	0.00	0.00		
Nov 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		
Nov 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nov 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		
Nov 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		
Nov 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		
Nov 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		
Nov 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		
Nov 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		
Nov 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		
Nov 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		
Nov 14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00		
Nov 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		
Nov 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		
Nov 17	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nov 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		
Nov 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		
Nov 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		
Nov 21	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nov 22	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nov 23	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00		
Nov 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		
Nov 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		
Nov 26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00		
Nov 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	S	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00		
Nov 28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nov 29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nov 30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Diurnal Maximum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Diurnal Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance										
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance										
X	InValid Data (Equipment Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																		
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																											
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																											

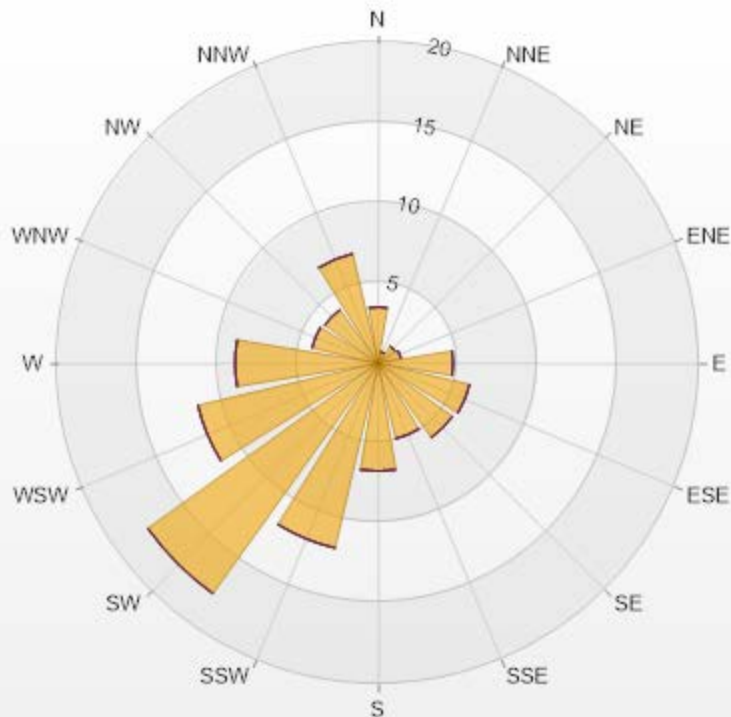
Timeseries Chart of Hourly Average for NMHC - 986c Station





Wind: PRAMP 986c Poll.: PRAMP 986c-NMHC[ppm] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.14% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	3.5	0	0	0	0	3.5
NNE	0.73	0	0	0	0	0.73
NE	1.31	0	0	0	0	1.31
ENE	1.46	0	0	0	0	1.46
E	4.67	0	0	0	0	4.67
ESE	5.84	0	0	0	0	5.84
SE	5.69	0	0	0	0	5.69
SSE	4.82	0	0	0	0	4.82
S	6.72	0	0	0	0	6.72
SSW	11.82	0	0	0	0	11.82
SW	17.66	0	0	0	0	17.66
WSW	11.53	0	0	0	0	11.53
W	8.91	0	0	0	0	8.91
WNW	4.23	0	0	0	0	4.23
NW	4.09	0	0	0	0	4.09
NNW	7.01	0	0	0	0	7.01
Summary	100	0	0	0	0	100



PRAMP-202111

Page 51 of 226

% Icon Classes (ppm)

100 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

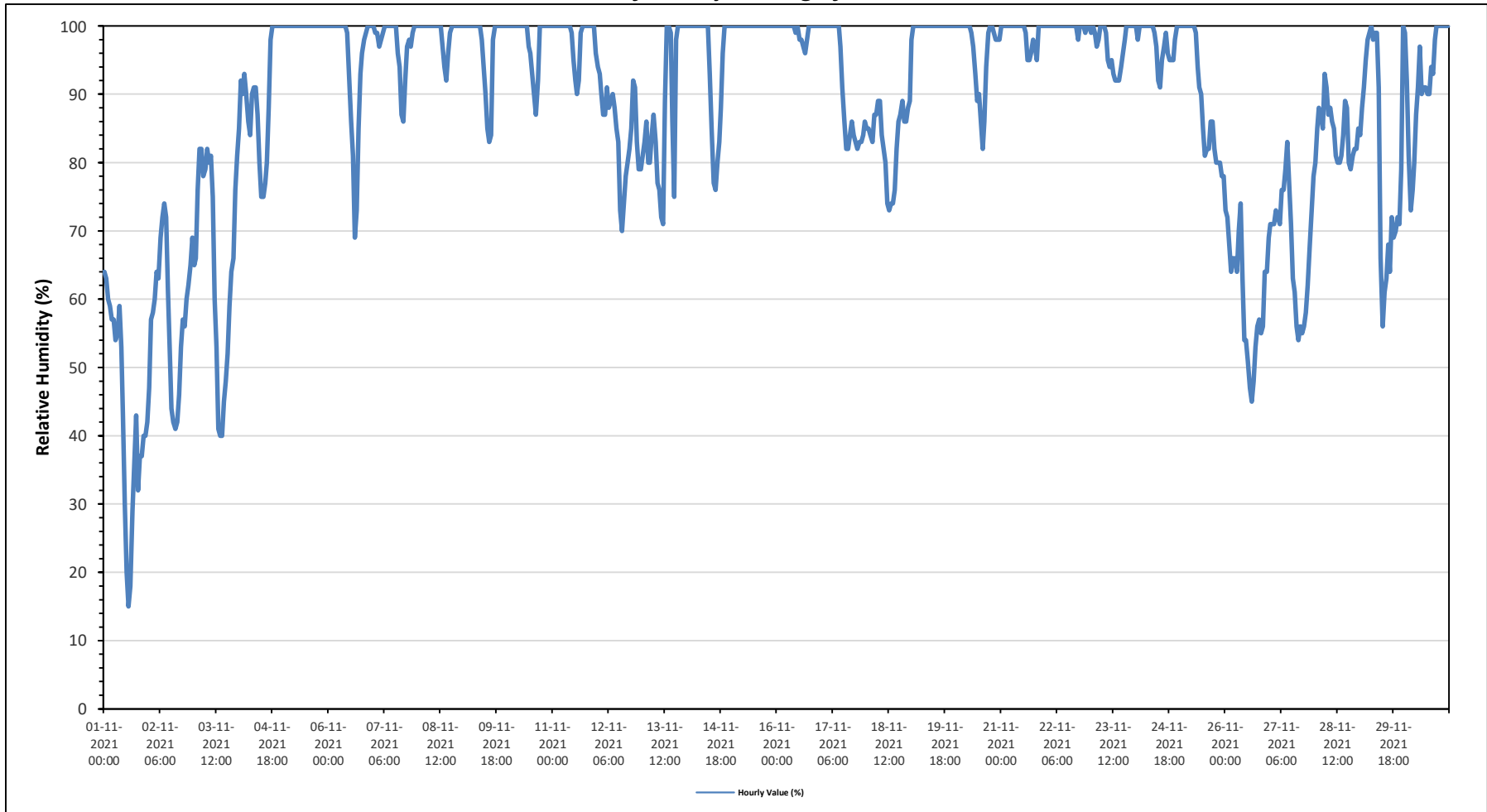
986c Station - November 2021

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:										100	%	on November 4 at hour 18										Hours in Service:										720
Maximum Daily Value:										100	%	on November 5										Hours of Data:										720
Minimum Hourly Value:										15	%	on November 1 at hour 13										Hours of Missing Data:										0
Minimum Daily Value:										43.5	%	on November 1										Hours of Calibration:										0
Monthly Average:										88.3	%											Operational Uptime:										100.0
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average						
Nov 1	64	63	60	59	57	57	54	55	59	53	43	30	20	15	18	29	36	43	32	37	37	40	40	42	15	64	43.5					
Nov 2	47	57	58	60	64	63	69	72	74	72	61	52	44	42	41	42	46	53	57	56	60	62	65	69	41	74	57.8					
Nov 3	65	66	76	82	82	78	79	82	80	81	75	60	53	41	40	40	45	48	52	59	64	66	76	81	40	82	65.5					
Nov 4	85	92	90	93	90	86	84	90	91	91	87	80	75	75	77	80	88	98	100	100	100	100	100	100	75	100	89.7					
Nov 5	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100.0					
Nov 6	100	100	100	100	100	100	100	100	100	100	99	92	86	81	69	73	85	93	96	98	99	100	100	100	69	100	94.6					
Nov 7	100	99	99	97	98	99	100	100	100	100	100	100	100	100	96	94	87	86	92	97	98	97	99	100	86	100	97.4					
Nov 8	100	100	100	100	100	100	100	100	100	100	100	100	100	100	97	94	92	96	99	100	100	100	100	100	92	100	99.1					
Nov 9	100	100	100	100	100	100	100	100	100	100	98	94	90	85	83	84	98	100	100	100	100	100	100	100	83	100	97.2					
Nov 10	100	100	100	100	100	100	100	100	100	100	100	97	96	93	90	87	92	100	100	100	100	100	100	100	87	100	98.1					
Nov 11	100	100	100	100	100	100	100	100	100	100	99	95	92	90	92	99	100	100	100	100	100	100	100	96	90	100	98.5					
Nov 12	94	93	90	87	87	91	88	89	90	88	85	83	73	70	74	78	80	82	85	92	91	83	79	79	70	94	84.6					
Nov 13	81	83	86	80	80	84	87	83	77	76	72	71	89	100	100	99	86	75	98	100	100	100	100	100	71	100	87.8					
Nov 14	100	100	100	100	100	100	100	100	100	100	100	100	93	85	77	76	80	83	88	96	100	100	100	100	76	100	94.9					
Nov 15	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100.0					
Nov 16	100	100	100	100	100	100	100	100	100	100	99	100	98	98	97	96	98	100	100	100	100	100	100	100	96	100	99.4					
Nov 17	100	100	100	100	100	100	100	100	100	100	97	91	86	82	82	84	86	84	83	82	83	83	84	86	82	100	91.4					
Nov 18	85	85	84	83	87	87	89	89	84	82	80	74	73	74	74	76	82	86	87	89	86	86	88	89	73	89	83.3					
Nov 19	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	98	100	99.9					
Nov 20	100	100	100	100	100	100	100	100	100	99	97	93	89	90	86	82	86	94	99	100	99	98	98	98	82	100	96.2					
Nov 21	100	100	100	100	100	100	100	100	100	100	100	100	100	99	95	95	96	98	97	95	100	100	100	100	95	100	99.0					
Nov 22	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	98	100	100	100	99	100	100	98	100	99.9					
Nov 23	99	100	99	97	98	100	100	100	100	99	95	94	95	93	92	92	94	96	98	100	100	100	100	100	92	100	97.2					
Nov 24	100	98	100	100	100	100	100	100	100	100	99	97	92	91	95	97	99	96	95	95	95	98	100	100	91	100	97.8					
Nov 25	100	100	100	100	100	100	100	100	99	94	91	90	85	81	82	82	86	86	82	80	80	80	78	78	78	100	89.8					
Nov 26	73	72	68	64	66	66	64	70	74	63	54	54	51	47	45	48	53	56	57	55	56	64	64	69	45	74	60.5					
Nov 27	71	71	71	73	72	71	76	76	79	83	77	71	63	61	56	54	56	55	56	58	62	68	73	78	54	83	68.0					
Nov 28	80	85	88	87	85	93	91	87	88	86	85	81	80	80	81	84	89	88	80	79	81	82	82	85	79	93	84.5					
Nov 29	84	88	91	95	98	99	100	98	99	99	91	66	56	61	63	68	64	72	69	70	72	71	79	100	56	100	81.4					
Nov 30	99	92	81	73	76	80	87	91	97	90	91	91	90	90	94	93	98	100	100	100	100	100	100	100	73	100	92.2					
Diurnal Maximum	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100								
Diurnal Average	90.8	91.5	91.4	91.0	91.3	91.8	92.3	92.7	93.0	91.7	89.0	85.1	82.3	80.4	79.6	80.7	83.8	86.0	87.0	88.0	88.7	89.3	90.2	91.7								
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance															
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance							P	Power Failure							
X	InValid Data (Equipment Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																							
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																

Timeseries Chart of Hourly Average for RH - 986c Station





PEACE RIVER AREA MONITORING PROGRAM

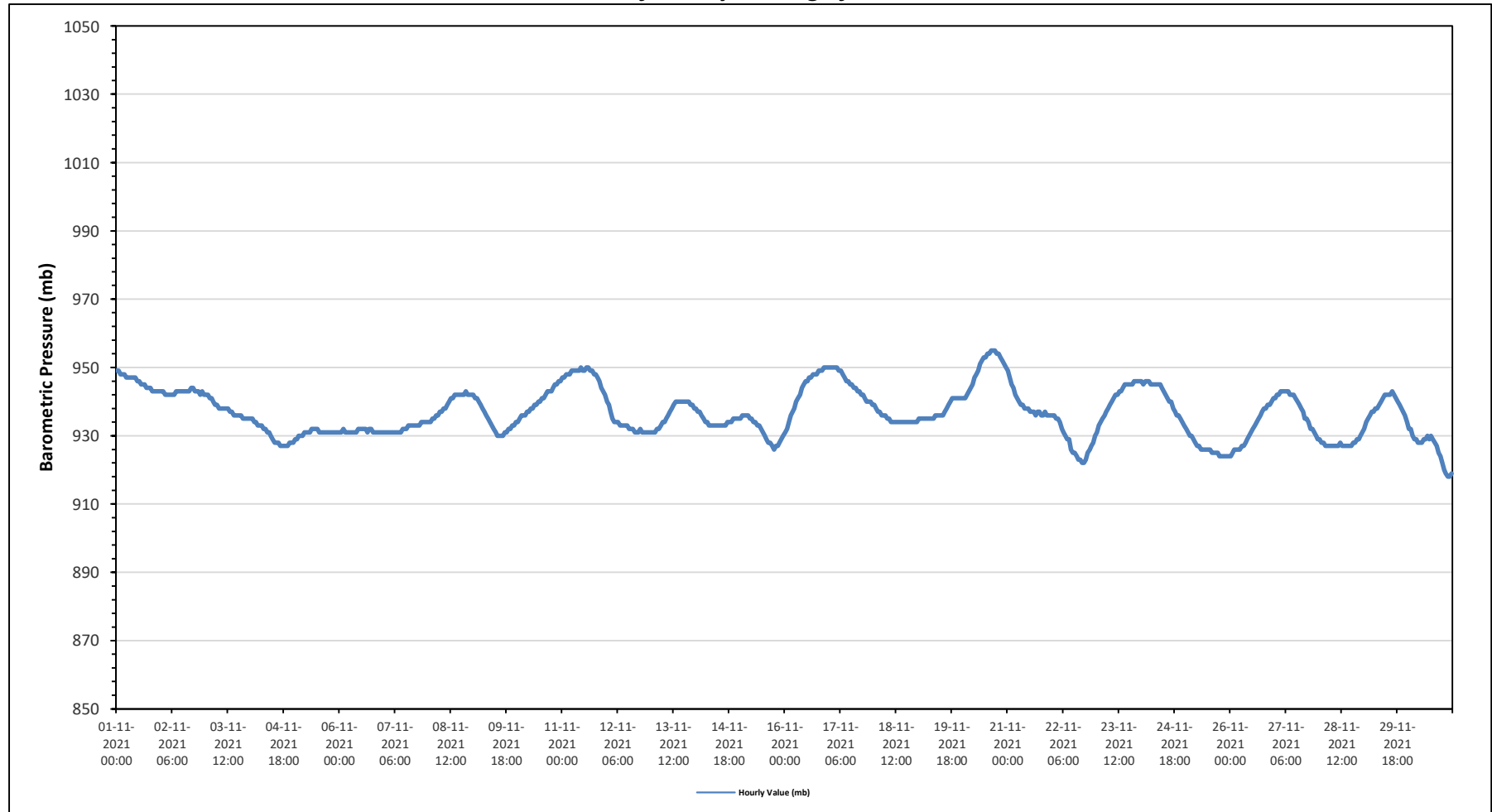
986c Station - November 2021

Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:				955	mb	on November 20 at hour 15														Hours in Service:				720									
Maximum Daily Value:				950	mb	on November 20														Hours of Data:				720									
Minimum Hourly Value:				918	mb	on November 30 at hour 21														Hours of Missing Data:				0									
Minimum Daily Value:				926	mb	on November 30														Hours of Calibration:				0									
Monthly Average:				937	mb															Operational Uptime:				100.0									
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23									
Nov 1	949	949	948	948	948	947	947	947	947	947	947	946	946	945	945	945	944	944	944	943	943	943	943	943	943	943	949	946					
Nov 2	943	943	942	942	942	942	942	942	943	943	943	943	943	943	943	943	944	944	944	943	943	943	942	943	942	942	944	943					
Nov 3	942	942	941	941	940	939	939	938	938	938	938	938	938	937	937	936	936	936	936	936	935	935	935	935	935	935	942	938					
Nov 4	935	935	934	934	933	933	933	932	932	931	931	930	929	928	928	928	927	927	927	927	927	928	928	928	928	927	935	930					
Nov 5	929	929	930	930	930	931	931	931	931	932	932	932	932	931	931	931	931	931	931	931	931	931	931	931	931	929	932	931					
Nov 6	931	931	932	931	931	931	931	931	931	931	932	932	932	932	932	931	932	932	932	931	931	931	931	931	931	931	932	931					
Nov 7	931	931	931	931	931	931	931	931	931	931	932	932	932	932	933	933	933	933	933	933	934	934	934	934	934	931	934	932					
Nov 8	934	934	935	935	936	936	937	937	938	938	939	940	941	941	942	942	942	942	942	942	943	942	942	942	942	934	943	939					
Nov 9	942	941	941	940	939	938	937	936	935	934	933	932	931	930	930	930	930	931	931	932	932	933	933	933	934	930	942	934					
Nov 10	934	935	936	936	936	937	937	938	938	939	939	940	940	941	941	942	943	943	943	944	945	945	946	946	946	934	946	940					
Nov 11	947	947	948	948	948	949	949	949	949	949	950	949	949	949	950	950	949	949	948	948	947	946	944	943	942	942	950	948					
Nov 12	940	939	937	935	934	934	934	933	933	933	933	933	932	932	932	931	931	931	932	931	931	931	931	931	931	931	940	933					
Nov 13	931	931	931	932	932	933	934	934	935	936	937	938	939	940	940	940	940	940	940	940	940	939	939	939	938	931	940	937					
Nov 14	938	937	937	936	935	934	934	933	933	933	933	933	933	933	933	933	933	934	934	934	935	935	935	935	933	938	934						
Nov 15	935	936	936	936	936	935	935	935	934	934	933	933	932	931	930	929	928	928	927	926	927	927	928	929	930	926	936	931					
Nov 16	931	932	934	936	937	938	940	941	942	944	945	946	946	947	947	948	948	948	949	949	949	950	950	950	950	931	950	944					
Nov 17	950	950	950	950	950	949	949	948	947	946	946	945	945	944	944	943	943	942	942	941	940	940	940	939	939	939	950	945					
Nov 18	939	938	937	937	936	936	936	935	935	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	939	935					
Nov 19	935	935	935	935	935	935	935	935	935	936	936	936	936	936	937	938	939	940	941	941	941	941	941	941	941	935	941	937					
Nov 20	941	941	942	943	944	945	947	948	949	951	952	953	953	954	954	955	955	955	954	954	953	952	951	950	941	955	950						
Nov 21	949	947	945	944	942	941	940	939	939	938	938	937	937	937	937	936	937	937	936	936	937	936	936	936	936	936	949	939					
Nov 22	936	936	935	935	934	932	931	930	929	929	926	925	925	924	923	923	922	922	923	925	926	927	928	930	922	936	928						
Nov 23	931	933	934	935	936	937	938	939	940	941	942	942	943	943	944	945	945	945	945	946	946	946	946	946	946	931	946	941					
Nov 24	946	945	946	946	946	945	945	945	945	945	945	944	943	942	941	940	940	938	937	936	936	935	934	933	933	933	946	942					
Nov 25	932	931	930	930	929	928	927	927	926	926	926	926	926	926	925	925	925	925	924	924	924	924	924	924	924	924	932	926					
Nov 26	924	925	926	926	926	926	927	927	928	929	930	931	932	933	934	935	936	937	938	938	939	939	940	941	924	941	932						
Nov 27	941	942	942	943	943	943	943	943	942	942	942	941	940	939	938	937	935	935	934	932	932	931	930	929	929	929	943	938					
Nov 28	929	928	928	927	927	927	927	927	927	927	927	928	927	927	927	927	927	927	928	928	929	929	930	931	927	931	928						
Nov 29	932	934	935	936	937	937	938	938	939	940	941	942	942	942	942	943	942	941	940	939	938	937	936	934	932	943	939						
Nov 30	932	932	930	929	929	928	928	928	929	929	930	929	930	929	928	927	925	924	922	920	919	918	918	919	918	932	926						
Diurnal Maximum	950	950	950	950	950	949	949	949	949	951	952	953	953	954	954	955	955	955	954	954	953	952	951	950									
Diurnal Average	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	936	936	936	936	936	936	936									
C	Monthly Calibration						S	Daily Zero-Span Check						Q	Quality Assurance																		
K	Collection Error						N	No Data (Machine Not in Service)						Y	Routine Maintenance						P	Power Failure											
X	Invalid Data (Equipment Malfunction /Recovery)						NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																									
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																	
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																	

Timeseries Chart of Hourly Average for BP - 986c Station





PEACE RIVER AREA MONITORING PROGRAM

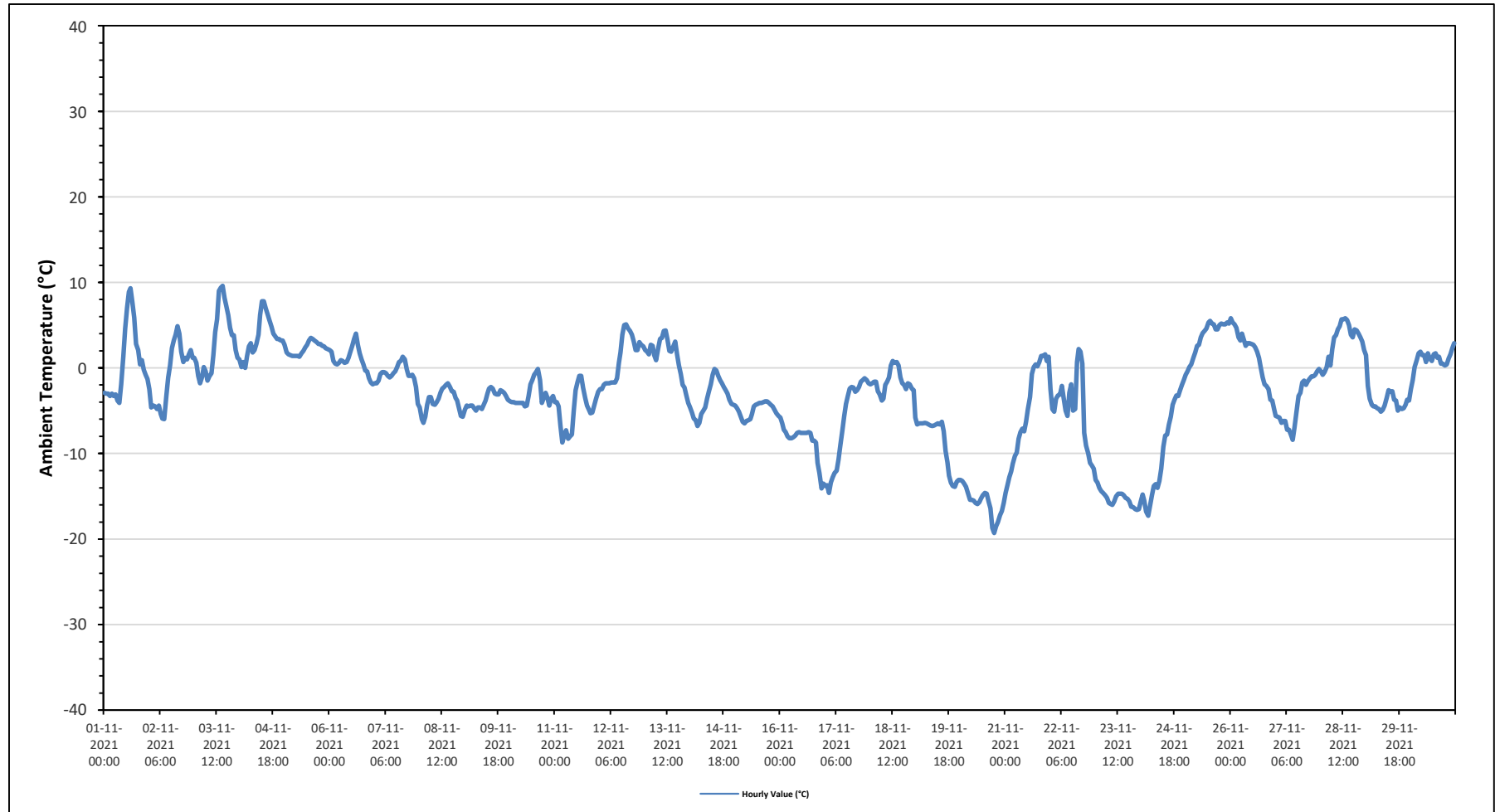
986c Station - November 2021

Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

Maximum Hourly Value:			9.6 °C	on November 3 at hour 15											Hours in Service:			720											
Maximum Daily Value:			3.6 °C	on November 4											Hours of Data:			720											
Minimum Hourly Value:			-19.3 °C	on November 20 at hour 18											Hours of Missing Data:			0											
Minimum Daily Value:			-15.7 °C	on November 20											Hours of Calibration:			0											
Monthly Average:			-2.9 °C												Operational Uptime:			100.0											
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
Nov 1	-2.9	-3	-3	-3.3	-3	-3.3	-3.1	-3.8	-4.1	-1.9	1.3	4.6	7	8.9	9.3	7.7	5.9	2.8	2.1	0.4	0.9	-0.2	-0.8	-1.3	-4.1	9.3	0.7		
Nov 2	-2.5	-4.6	-4.4	-4.5	-4.8	-4.4	-5.4	-5.9	-6	-3.3	-1.1	0.3	2.3	3.2	3.9	4.9	4	1.9	0.7	1.2	1	1.6	2.1	1.2	-6.0	4.9	-0.8		
Nov 3	1.2	0.6	-0.9	-1.8	-1.1	0.1	-0.4	-1.5	-1	-0.6	1.5	4.2	5.7	9	9.4	9.6	8.2	7.2	6.2	4.7	3.8	3.8	2.1	1.2	-1.8	9.6	3.0		
Nov 4	1	0.1	0.7	0	1.4	2.5	2.9	1.8	2.1	2.8	3.9	6.2	7.8	7.8	7	6.3	5.6	4.8	4	3.7	3.4	3.4	3.2	3.2	0.0	7.8	3.6		
Nov 5	2.7	1.8	1.6	1.5	1.4	1.4	1.4	1.4	1.3	1.7	2	2.4	2.7	3.2	3.5	3.4	3.2	3	2.8	2.8	2.6	2.5	2.3	2.2	1.3	3.5	2.3		
Nov 6	2.1	1.9	0.8	0.5	0.4	0.6	0.9	0.8	0.6	0.7	1.2	1.9	2.6	3.4	4	2.7	1.7	1	0.4	-0.3	-0.4	-1.2	-1.7	-1.9	-1.9	4.0	0.9		
Nov 7	-1.8	-1.8	-1.5	-0.7	-0.5	-0.5	-0.6	-0.9	-1.1	-0.9	-0.6	-0.4	0.1	0.7	0.8	1.3	1	-0.1	-0.9	-0.9	-0.8	-1.2	-2.2	-4.2	-4.2	1.3	-0.7		
Nov 8	-4.6	-6	-6.4	-5.7	-4.3	-3.4	-3.4	-4.2	-4.3	-4	-3.6	-2.9	-2.4	-2.2	-2	-1.8	-2.2	-2.7	-2.8	-3.5	-3.8	-4.7	-5.6	-5.7	-6.4	-1.8	-3.8		
Nov 9	-4.9	-4.4	-4.5	-4.4	-4.4	-4.7	-5	-4.6	-4.6	-4.8	-4.3	-3.8	-3	-2.4	-2.2	-2.4	-3	-3.1	-3.1	-2.6	-2.7	-2.9	-3.3	-3.7	-5.0	-2.2	-3.7		
Nov 10	-3.9	-4	-4	-4.1	-4.1	-4.1	-4.1	-4.1	-4.5	-4.4	-3.3	-1.9	-1.4	-0.8	-0.5	-0.1	-1.4	-4.1	-3.5	-2.9	-3.5	-4.4	-3.6	-3.3	-4.5	-0.1	-3.2		
Nov 11	-4	-4	-4.5	-6.8	-8.7	-7.9	-7.3	-8.3	-8	-7.8	-5	-2.6	-1.7	-0.9	-0.9	-2.3	-3.5	-4.4	-4.8	-5.3	-5.2	-4.4	-3.6	-2.8	-8.7	-0.9	-4.8		
Nov 12	-2.5	-2.5	-2	-1.8	-1.8	-1.8	-1.7	-1.7	-1.7	-1.2	0.6	1.8	3.9	5	5.1	4.6	4.3	3.9	3.1	2.1	2.1	3	2.7	2.5	-2.5	5.1	1.1		
Nov 13	2.1	1.9	1.6	2.7	2.6	1.5	0.9	2.3	3.4	3.5	4.3	4.4	3.3	2	1.9	2.5	3.1	1.6	0.3	-0.7	-2	-2.3	-3.2	-4.1	-4.1	4.4	1.4		
Nov 14	-4.6	-5.2	-5.9	-6.1	-6.8	-6.4	-5.4	-5	-4.6	-3.6	-2.7	-1.9	-0.8	-0.1	-0.3	-0.9	-1.4	-1.8	-2.2	-2.6	-3	-3.7	-4.2	-4.3	-6.8	-0.1	-3.5		
Nov 15	-4.4	-4.7	-5.1	-5.7	-6.3	-6.5	-6.2	-6.1	-6	-5.4	-4.5	-4.3	-4.2	-4.1	-4.1	-4	-3.9	-3.9	-4.1	-4.3	-4.5	-4.9	-5.3	-5.6	-6.5	-3.9	-4.9		
Nov 16	-5.8	-6.5	-7.2	-7.5	-8	-8.2	-8.2	-8.1	-7.9	-7.6	-7.5	-7.6	-7.6	-7.6	-7.6	-7.5	-7.6	-8.5	-8.5	-8.7	-11.1	-12.3	-14.1	-13.5	-14.1	-5.8	-8.5		
Nov 17	-13.8	-13.7	-14.6	-13.4	-12.8	-12.3	-12	-10.7	-9	-7.4	-5.7	-4.2	-3.3	-2.4	-2.2	-2.3	-2.8	-2.6	-2.2	-1.6	-1.4	-1.2	-1.4	-1.8	-14.6	-1.2	-6.5		
Nov 18	-1.9	-1.8	-1.6	-1.6	-2.7	-3.1	-3.8	-3.6	-2	-1.6	-1.1	0.3	0.8	0.6	0.7	0.3	-1.1	-1.8	-2	-2.5	-1.8	-1.9	-2.4	-2.6	-3.8	0.8	-1.6		
Nov 19	-5.8	-6.6	-6.5	-6.5	-6.5	-6.4	-6.5	-6.6	-6.7	-6.8	-6.7	-6.6	-6.5	-6.6	-6.3	-7.4	-9.7	-11	-12.6	-13.4	-13.8	-13.9	-13.3	-13.1	-13.9	-5.8	-8.6		
Nov 20	-13.1	-13.2	-13.5	-13.9	-14.6	-15.4	-15.4	-15.5	-15.8	-15.9	-15.7	-15.3	-14.9	-14.6	-14.7	-15.6	-16.4	-18.7	-19.3	-18.5	-18	-17.2	-16.7	-15.8	-19.3	-13.1	-15.7		
Nov 21	-14.6	-13.7	-12.8	-12.1	-11.2	-10.3	-9.9	-8.3	-7.5	-7.1	-7.4	-6.3	-4.8	-3.4	-0.7	0.1	0.4	0.2	0.7	1.4	1.4	1.6	0.8	1.3	-14.6	1.6	-5.1		
Nov 22	-2.5	-4.8	-5.1	-3.6	-3.2	-3.1	-2.1	-3.6	-5	-5.6	-2.9	-1.9	-5	-4.8	0.7	2.2	1.9	0.5	-7.6	-9.1	-10	-11.1	-11.4	-11.8	-11.8	2.2	-4.5		
Nov 23	-13.1	-13.4	-14	-14.4	-14.6	-14.9	-15.2	-15.8	-15.9	-16	-15.6	-15	-14.7	-14.7	-14.7	-14.9	-15.2	-15.3	-15.6	-16.2	-16.3	-16.5	-16.6	-16.5	-16.6	-13.1	-15.2		
Nov 24	-15.6	-14.8	-15.5	-16.8	-17.3	-16.1	-14.9	-13.8	-13.6	-14	-13.2	-11.8	-9.2	-7.9	-7.8	-6.6	-5.7	-4.3	-3.7	-3.2	-3.3	-2.6	-2	-1.4	-17.3	-1.4	-9.8		
Nov 25	-0.8	-0.4	0.1	0.4	1.2	1.8	2.6	2.7	3.6	4.1	4.3	4.6	5.3	5.5	5.2	5.1	4.5	4.5	5	5.2	5.1	5.1	5.3	5.2	-0.8	5.5	3.6		
Nov 26	5.8	5.3	5.1	4.7	3.6	3.2	4	3.3	2.6	2.9	2.9	2.8	2.7	2.4	1.9	1.2	0	-1.1	-1.9	-2.1	-2.5	-3.7	-3.8	-4.8	-4.8	5.8	1.4		
Nov 27	-5.6	-5.7	-5.8	-6.4	-6.2	-6.2	-7.2	-7.2	-7.8	-8.4	-6.9	-5.2	-3.3	-2.9	-1.7	-1.5	-2	-1.6	-1.3	-1	-1	-0.8	-0.4	-0.1	-8.4	-0.1	-4.0		
Nov 28	-0.4	-0.8	-0.5	0.1	1.3	0.3	2.2	3.6	3.8	4.5	4.9	5.7	5.7	5.8	5.6	5	3.9	3.6	4.5	4.4	4	3.6	3.1	2.1	-0.8	5.8	3.2		
Nov 29	1.5	-2.1	-3.6	-4.3	-4.5	-4.5	-4.7	-4.8	-5.1	-4.9	-4.4	-3.5	-2.6	-2.8	-2.7	-3.7	-3.8	-5	-4.6	-4.8	-4.7	-4.3	-3.7	-3.8	-5.1	1.5	-3.8		
Nov 30	-2.5	-1.4	0.1	0.9	1.7	1.9	1.5	1.5	0.7	1.7	1.1	0.8	1.6	1.7	1.2	1.3	0.5	0.5	0.3	0.4	1.1	1.6	2.3	2.9	-2.5	2.9	1.0		
Diurnal Maximum	5.8	5.3	5.1	4.7	3.6	3.2	4.0	3.6	3.8	4.5	4.9	6.2	7.8	9.0	9.4	9.6	8.2	7.2	6.2	5.2	5.1	5.1	5.3	5.2					
Diurnal Average	-3.8	-4.3	-4.4	-4.5	-4.5	-4.3	-4.2	-4.2	-4.1	-3.7	-2.8	-1.8	-1.1	-0.6	-0.3	-0.4	-1.1	-1.8	-2.4	-2.6	-2.8	-3.0	-3.2	-3.3					
C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance										
K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance								P	Power Failure	
X	InValid Data (Equipment Malfunction /Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																			
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																													
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																													

Timeseries Chart of Hourly Average for AT - 986c Station





PEACE RIVER AREA MONITORING PROGRAM

986c Station - November 2021

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

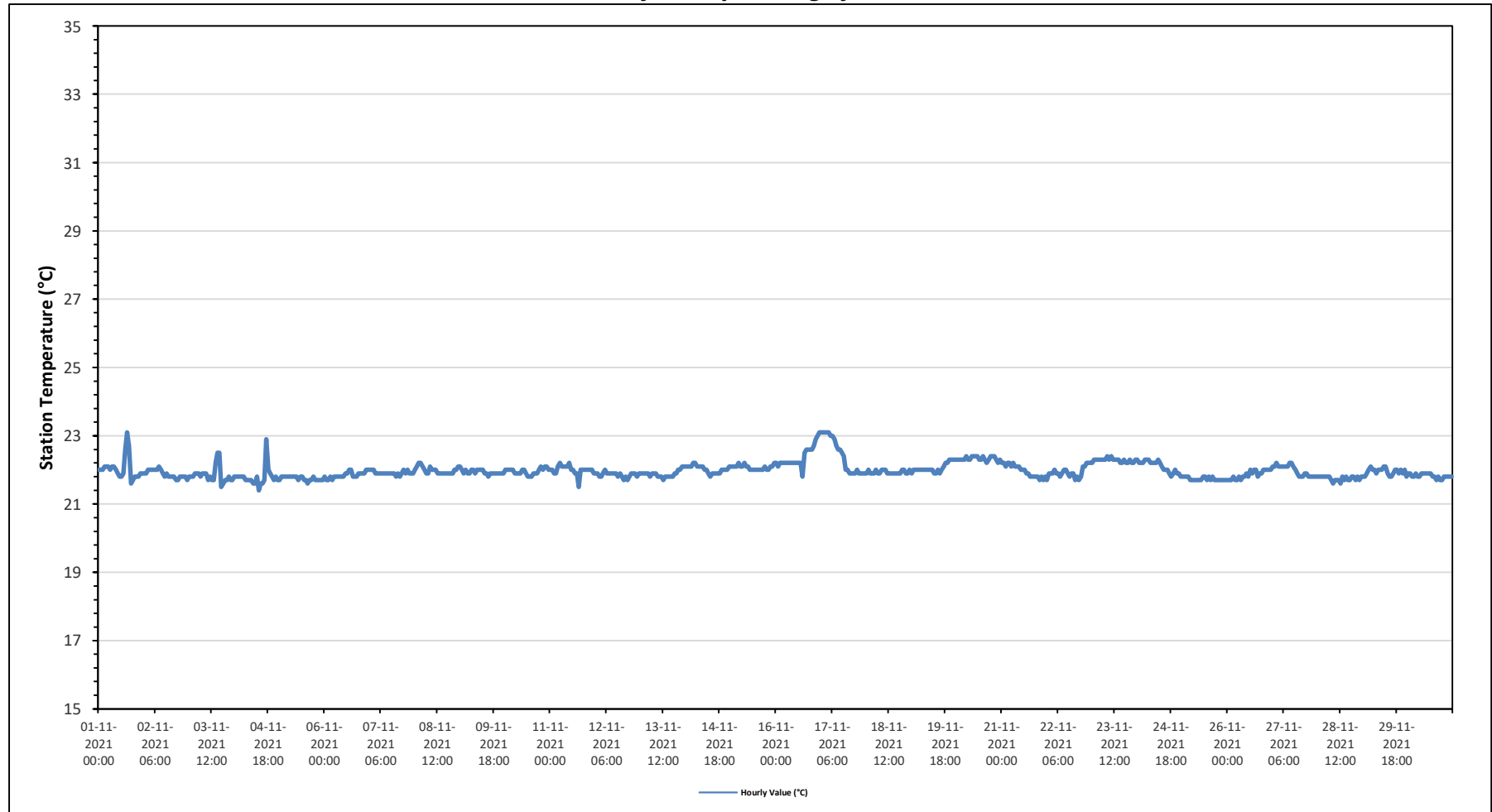
Maximum Hourly Value:	23.1	°C	on November 1 at hour 15	Hours in Service:	720
Maximum Daily Value:	22.4	°C	on November 17	Hours of Data:	720
Minimum Hourly Value:	21.4	°C	on November 4 at hour 13	Hours of Missing Data:	0
Minimum Daily Value:	21.7	°C	on November 25	Hours of Calibration:	0
Monthly Average:	22.0	°C		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average
Nov 1	22.0	22.0	22.0	22.1	22.1	22.1	22.0	22.1	22.1	22.0	21.9	21.8	21.8	21.9	22.6	23.1	22.7	21.6	21.7	21.8	21.8	21.9	21.9	21.6	23.1	22.0
Nov 2	21.9	21.9	22.0	22.0	22.0	22.0	22.0	22.0	22.1	22.0	21.9	21.8	21.9	21.8	21.8	21.8	21.7	21.7	21.8	21.8	21.8	21.8	21.7	21.7	22.1	21.9
Nov 3	21.8	21.8	21.8	21.9	21.9	21.9	21.8	21.9	21.9	21.9	21.7	21.8	21.7	21.7	22.2	22.5	22.5	21.5	21.6	21.7	21.8	21.7	21.7	21.5	22.5	21.9
Nov 4	21.8	21.8	21.8	21.8	21.8	21.8	21.7	21.7	21.7	21.7	21.6	21.6	21.8	21.4	21.6	21.6	21.7	22.9	22.0	21.9	21.8	21.7	21.8	21.7	21.4	22.9
Nov 5	21.7	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.7	21.8	21.8	21.7	21.7	21.6	21.7	21.7	21.8	21.7	21.7	21.7	21.7	21.6	21.8	21.7
Nov 6	21.8	21.7	21.7	21.8	21.7	21.8	21.8	21.8	21.8	21.8	21.8	21.9	21.9	21.9	22.0	21.8	21.8	21.8	21.9	21.9	21.9	21.9	22.0	21.7	22.0	21.8
Nov 7	22.0	22.0	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	21.8	21.9	21.8	21.9	22.0	21.9	22.0	21.9	21.9	21.8	22.0
Nov 8	22.0	22.1	22.2	22.2	22.1	22.0	21.9	21.9	22.1	22.0	22.0	22.0	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	22.0	22.0	22.1	21.9	22.2	22.0
Nov 9	22.1	22.0	21.9	22.0	21.9	21.9	22.0	22.0	21.9	22.0	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	22.1	21.9
Nov 10	22.0	22.0	22.0	22.0	22.0	22.0	21.9	21.9	21.9	22.0	22.0	21.9	21.8	21.8	21.8	21.9	21.9	21.9	22.0	22.1	22.0	22.1	22.1	22.0	21.8	22.1
Nov 11	22.0	22.0	21.9	21.9	22.1	22.2	22.1	22.1	22.1	22.1	22.2	22.0	22.0	21.9	21.9	21.5	22.0	22.0	22.0	22.0	22.0	22.0	21.9	21.5	22.2	22.0
Nov 12	21.9	21.9	21.8	21.8	21.9	22.0	21.9	21.9	21.9	21.9	21.9	21.9	21.8	21.9	21.8	21.7	21.8	21.8	21.9	21.9	21.9	21.8	21.9	21.7	22.0	21.9
Nov 13	21.9	21.9	21.9	21.9	21.9	21.8	21.9	21.9	21.9	21.8	21.8	21.8	21.7	21.8	21.8	21.8	21.8	21.8	21.9	21.9	22.0	22.1	22.1	21.7	22.1	21.9
Nov 14	22.1	22.1	22.1	22.1	22.2	22.2	22.1	22.1	22.1	22.1	22.0	22.0	21.9	21.8	21.9	21.9	21.9	21.9	21.9	22.0	22.0	22.0	22.1	21.8	22.2	22.0
Nov 15	22.1	22.1	22.1	22.1	22.2	22.1	22.1	22.2	22.1	22.1	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.1	22.0	22.0	22.1	22.1	22.0	22.2	22.1
Nov 16	22.2	22.1	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	21.8	22.5	22.6	22.6	22.6	22.6	22.6	22.6	23.1	21.8	23.1	22.4
Nov 17	23.1	23.1	23.1	23.1	23.1	23.0	23.0	22.9	22.7	22.6	22.6	22.5	22.4	22.0	22.0	21.9	21.9	21.9	21.9	22.0	21.9	21.9	21.9	21.9	21.9	22.4
Nov 18	21.9	22.0	21.9	21.9	21.9	22.0	21.9	21.9	22.0	22.0	22.0	21.9	21.9	21.9	21.9	21.9	21.9	21.9	22.0	22.0	21.9	21.9	22.0	21.9	22.0	21.9
Nov 19	21.9	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	21.9	21.9	22.0	21.9	22.0	22.1	22.2	22.2	22.3	22.3	22.3	21.9	22.3	22.1
Nov 20	22.3	22.3	22.3	22.3	22.3	22.4	22.3	22.3	22.4	22.4	22.4	22.4	22.3	22.3	22.4	22.3	22.2	22.3	22.4	22.4	22.4	22.3	22.2	22.2	22.4	22.3
Nov 21	22.2	22.2	22.1	22.2	22.2	22.1	22.2	22.1	22.1	22.1	22.0	22.0	22.0	21.9	21.9	21.8	21.8	21.8	21.8	21.8	21.7	21.8	21.7	21.7	22.2	22.0
Nov 22	21.7	21.9	21.9	21.9	22.0	21.9	21.9	21.8	21.9	22.0	22.0	21.9	21.8	21.9	21.9	21.7	21.8	21.7	21.8	22.1	22.1	22.2	22.2	21.7	22.2	21.9
Nov 23	22.2	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.4	22.3	22.4	22.3	22.3	22.3	22.3	22.2	22.2	22.3	22.2	22.2	22.2	22.2	22.2	22.2	22.4	22.3
Nov 24	22.3	22.2	22.2	22.2	22.3	22.3	22.3	22.2	22.2	22.2	22.2	22.3	22.2	22.1	22.0	22.0	22.0	21.9	21.8	21.9	22.0	21.9	21.9	21.8	21.8	22.1
Nov 25	21.8	21.8	21.8	21.8	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.8	21.8	21.7	21.8	21.7	21.8	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.8	21.7
Nov 26	21.7	21.7	21.7	21.8	21.7	21.7	21.8	21.7	21.8	21.8	21.9	21.8	22.0	21.9	22.0	22.0	21.8	21.9	21.9	22.0	22.0	22.0	22.0	21.7	22.0	21.9
Nov 27	22.1	22.1	22.2	22.1	22.1	22.1	22.1	22.1	22.1	22.2	22.2	22.1	22.0	21.9	21.8	21.8	21.8	21.9	21.9	21.8	21.8	21.8	21.8	21.8	22.2	22.0
Nov 28	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.7	21.6	21.7	21.7	21.7	21.6	21.8	21.7	21.8	21.7	21.7	21.8	21.8	21.7	21.8	21.7	21.6	21.8	21.7
Nov 29	21.8	21.8	21.9	22.0	22.1	22.0	22.0	21.9	22.0	22.0	22.0	22.1	22.1	21.9	21.8	21.8	21.9	22.0	22.0	21.9	22.0	21.8	21.8	21.8	22.1	21.9
Nov 30	21.9	21.9	21.8	21.8	21.9	21.8	21.8	21.9	21.9	21.9	21.9	21.9	21.9	21.8	21.8	21.7	21.8	21.7	21.7	21.8	21.8	21.8	21.8	21.7	21.9	21.8
Diurnal Maximum	23.1	23.1	23.1	23.1	23.1	23.0	23.0	22.9	22.7	22.6	22.6	22.5	22.4	22.3	22.6	23.1	22.7	22.9	22.6	22.6	22.7	22.9	23.0	23.1		
Diurnal Average	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	21.9	21.9	21.9	21.9	21.9	21.9	22.0	22.0	22.0	22.0	22.0			

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

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

Timeseries Chart of Hourly Average for ST - 986c Station





PEACE RIVER AREA MONITORING PROGRAM

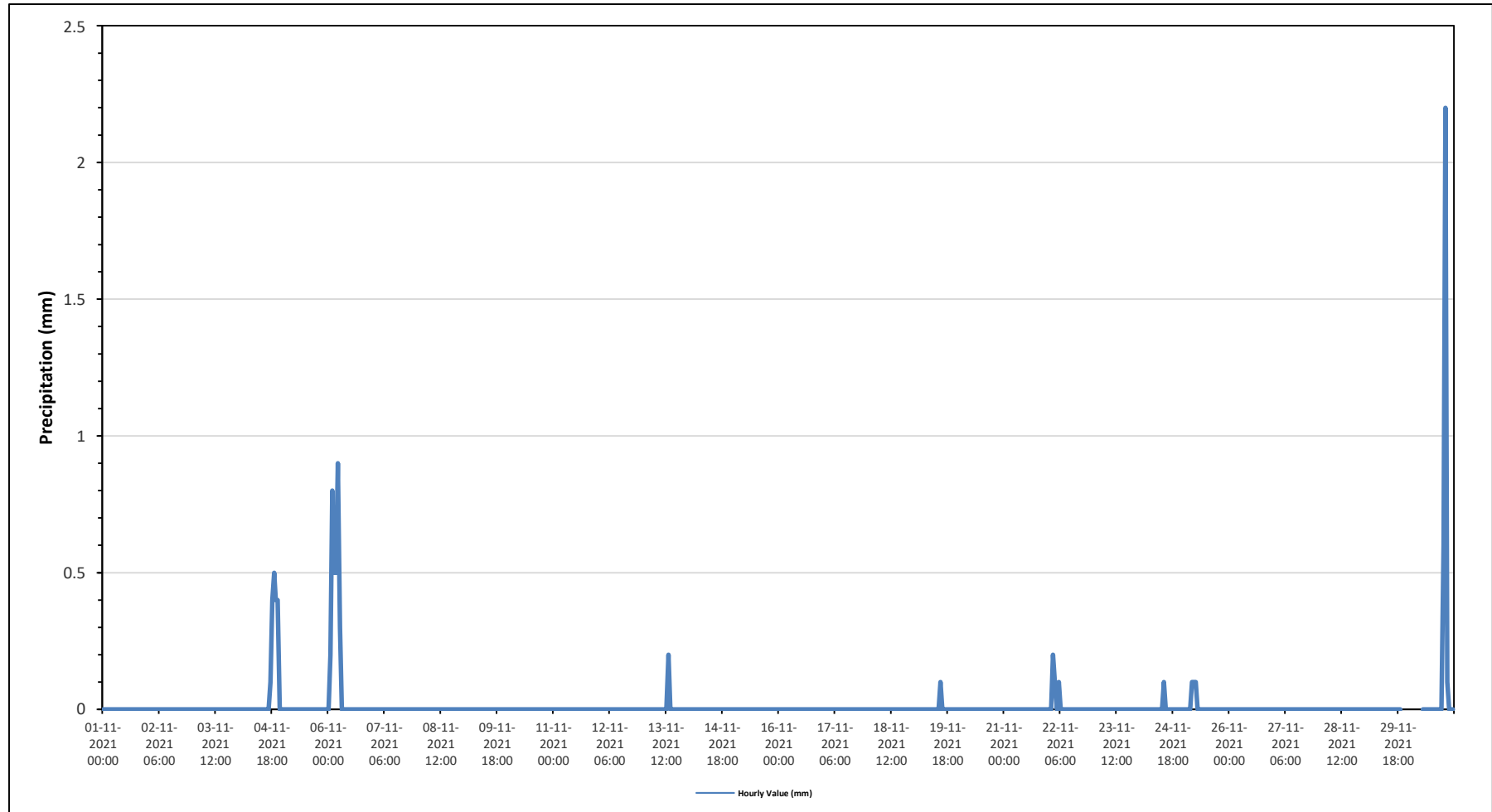
986c Station - November 2021

Summary of Hourly Averages

PRECIPITATION in mm

Maximum Hourly Value:										2.2		mm on November 30 at hour 19										Hours in Service:										720									
Maximum Daily Value:										3.2		mm on November 6										Hours of Data:										709									
Minimum Hourly Value:										0.0		mm on November 1 at hour 0										Hours of Missing Data:										11									
Minimum Daily Value:										0.0		mm on November 1										Hours of Calibration:										0									
Monthly Total:										9.0		mm										Operational Uptime:										98.5									
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Total															
Nov 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.4	0.5	0.4	0.4	0	0	0.0	0.5	1.8														
Nov 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 6	0	0.2	0.8	0.5	0.5	0.9	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.9	3.2														
Nov 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0.0	0.2	0.2														
Nov 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0.0	0.1	0.1														
Nov 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 22	0	0	0.2	0.1	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.2	0.4														
Nov 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.1														
Nov 25	0	0	0	0	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.3														
Nov 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0														
Nov 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					0.0	0.0	0.0														
Nov 30	X	X	X	X	X	X	X		0	0	0	0	0	0	0	0	0	0	0.6	2.2	0.1	0	0	0		2.2	2.9														
Diurnal Maximum	0.0	0.2	0.8	0.5	0.5	0.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.6	2.2	0.4	0.4	0.0	0.0																	
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0																	
C	Monthly Calibration							S							Daily Zero-Span Check							Q							Quality Assurance												
K	Collection Error							N							No Data (Machine Not in Service)							Y							Routine Maintenance							P			Power Failure		
X	InValid Data (Equipment Malfunction /Recovery)							NRM							UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																										
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																									
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																									

Timeseries Chart of Hourly Average for Precipitation - 986c Station





PEACE RIVER AREA MONITORING PROGRAM

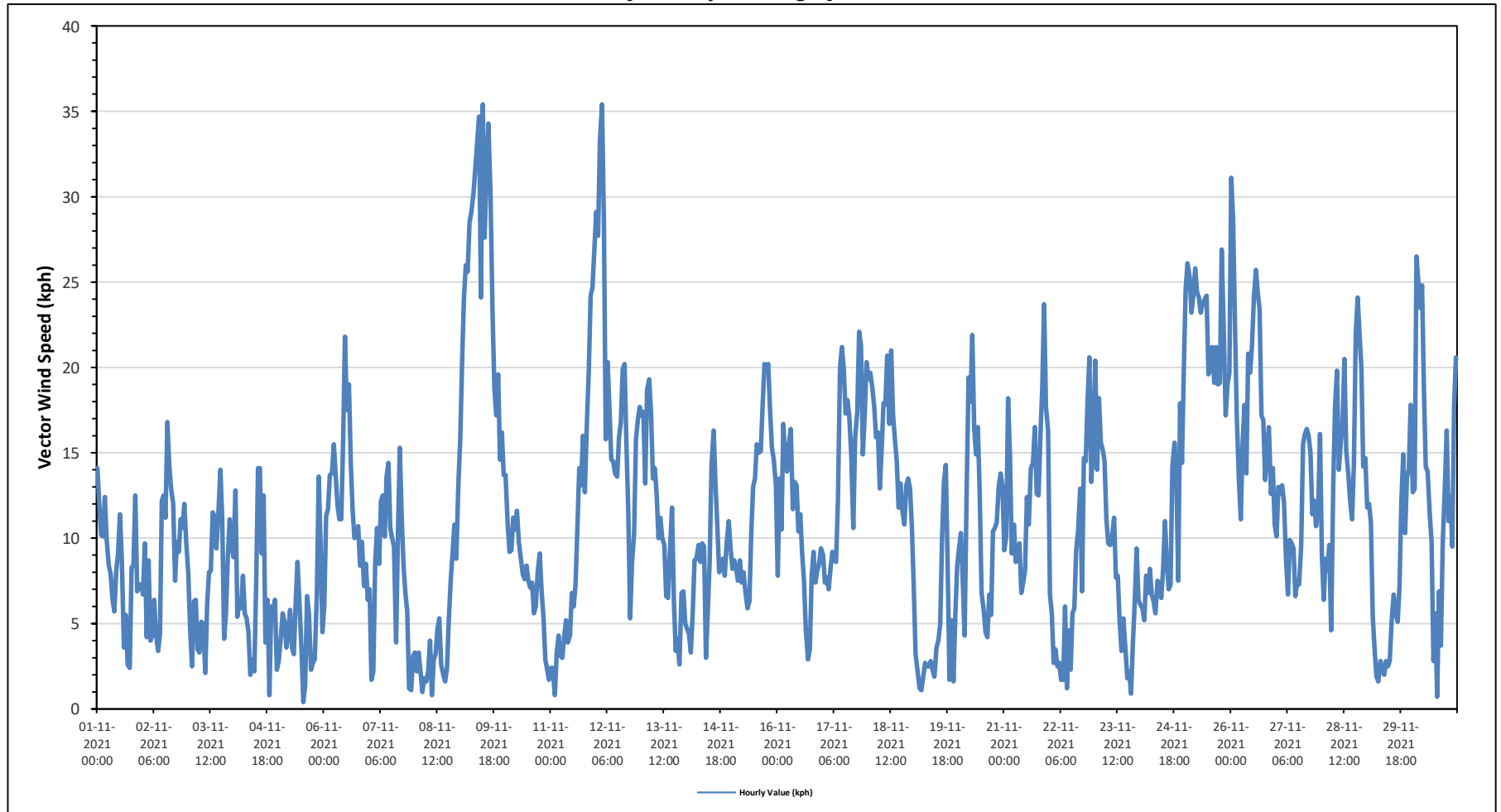
986c Station - November 2021

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

Maximum Hourly Value:	35.4	kph	on November 9 at hour 12	Hours in Service:	720																						
Maximum Daily Value:	23.2	kph	on November 9	Hours of Data:	720																						
Minimum Hourly Value:	0.4	kph	on November 5 at hour 13	Hours of Missing Data:	0																						
Minimum Daily Value:	1.6	kph	on November 8	Hours of Calibration:	0																						
Monthly Average:	4.9	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
Nov 1	14.1	12.0	10.2	10.1	12.4	9.9	8.4	7.9	6.4	5.7	8.1	9.1	11.4	8.8	3.6	5.5	2.6	2.4	8.3	8.4	12.5	6.9	7.3	7.3	2.4	14.1	5.5
Nov 2	6.7	9.7	4.2	8.7	4.0	4.3	6.4	4.4	3.4	4.4	12.2	12.5	11.2	16.8	14.3	12.9	12.0	7.5	9.8	9.2	11.1	10.6	12.0	9.8	3.4	16.8	5.5
Nov 3	7.9	4.6	2.5	6.3	6.4	3.5	3.3	5.1	5.0	2.1	6.1	8.0	8.1	11.5	11.3	9.4	11.3	14.0	11.1	4.1	5.6	8.9	11.1	9.7	2.1	14.0	5.2
Nov 4	8.9	12.8	5.4	6.3	5.9	7.8	5.6	5.3	4.5	2.0	2.9	2.2	7.3	14.1	14.1	9.1	12.5	3.9	6.4	0.8	6.0	5.8	6.4	2.3	0.8	14.1	2.7
Nov 5	2.8	4.0	5.6	5.1	3.6	4.5	5.8	3.6	3.2	6.2	8.6	6.0	3.5	0.4	1.4	6.6	5.6	2.3	2.7	2.9	6.7	13.6	9.7	4.5	0.4	13.6	4.1
Nov 6	6.0	11.3	11.7	13.7	13.8	15.5	13.7	11.9	11.1	11.1	15.6	21.8	17.5	19.0	14.4	11.6	10.0	10.5	10.7	8.4	9.8	7.2	8.5	6.4	6.0	21.8	11.4
Nov 7	7.0	1.7	2.2	8.5	10.6	8.5	12.2	12.5	10.1	13.6	14.4	10.6	10.0	9.5	3.9	10.3	15.3	11.3	8.4	6.8	5.7	1.2	1.1	3.1	1.1	15.3	7.9
Nov 8	3.3	2.2	3.3	2.2	1.0	1.8	1.6	2.2	4.0	0.8	2.9	3.2	4.7	5.3	2.6	2.0	1.6	2.4	5.3	7.5	9.1	10.8	8.8	13.2	0.8	13.2	1.6
Nov 9	15.8	20.3	24.1	26.0	25.6	28.5	29.1	30.2	31.7	33.2	34.7	24.1	35.4	27.6	31.3	34.3	30.3	23.1	18.7	17.2	19.6	14.6	16.2	13.7	13.7	35.4	23.2
Nov 10	13.7	10.8	9.2	9.3	11.2	10.5	11.6	9.8	8.9	7.9	7.6	8.4	7.5	7.1	7.4	5.6	6.0	8.0	9.1	6.9	5.4	2.9	2.3	1.7	1.7	13.7	4.5
Nov 11	2.4	2.4	0.8	3.3	4.3	3.1	3.0	4.2	5.2	3.9	4.3	6.8	6.0	7.3	10.6	14.1	13.1	16.0	12.7	16.8	19.8	24.2	24.7	26.9	0.8	26.9	6.9
Nov 12	29.1	27.7	33.3	35.4	28.6	15.8	20.3	17.6	14.6	14.5	13.8	13.6	15.9	16.8	19.9	20.2	15.5	11.6	5.3	8.5	10.3	15.8	16.9	17.7	5.3	35.4	13.7
Nov 13	17.2	17.4	13.2	18.7	19.3	17.3	13.5	14.1	12.6	10.0	11.2	10.0	9.6	6.6	6.5	9.2	11.8	6.4	3.4	4.1	2.6	6.8	6.9	5.0	2.6	19.3	7.7
Nov 14	4.7	4.4	3.3	5.6	8.7	8.8	9.6	8.6	9.7	9.5	3.0	5.7	8.6	14.2	16.3	13.2	10.7	8.0	8.5	8.8	7.8	9.7	11.0	9.4	3.0	16.3	3.9
Nov 15	8.2	8.7	8.2	7.5	8.7	7.4	8.0	6.7	5.9	6.3	10.3	13.0	13.5	15.5	15.0	15.1	17.8	20.2	19.8	20.2	17.5	15.3	14.6	13.1	5.9	20.2	7.6
Nov 16	7.8	13.5	10.5	16.7	14.7	13.9	15.5	16.4	11.7	13.3	13.1	10.4	11.4	9.1	7.5	4.6	2.9	3.5	7.8	9.2	7.4	8.1	8.5	9.4	2.9	16.7	6.8
Nov 17	9.0	7.4	7.7	7.0	8.2	9.2	8.7	8.6	12.2	20.0	21.2	19.9	17.3	18.1	17.1	15.0	10.6	15.9	17.4	22.1	21.3	14.9	17.2	20.3	7.0	22.1	13.5
Nov 18	19.3	19.7	18.8	17.7	15.9	16.2	12.9	15.2	17.9	17.8	20.7	16.7	21.0	17.2	15.8	14.5	11.8	13.2	11.6	10.8	13.1	13.5	12.9	10.7	10.7	21.0	14.0
Nov 19	7.2	3.2	2.3	1.2	1.1	1.9	2.7	2.5	2.5	2.8	2.3	1.9	3.6	4.0	5.0	10.0	13.3	14.3	8.4	1.7	5.2	1.6	5.5	8.4	1.1	14.3	2.7
Nov 20	9.4	10.3	7.5	4.3	13.1	19.4	18.0	21.9	16.5	14.9	16.5	12.6	6.8	5.8	4.5	4.2	6.7	5.5	10.4	10.6	10.9	13.1	13.8	13.0	4.2	21.9	2.7
Nov 21	9.3	10.1	18.2	14.9	9.1	10.8	8.6	8.8	9.7	6.8	7.4	8.1	12.4	10.8	14.1	14.4	16.5	12.6	12.5	16.0	18.8	23.7	17.7	16.3	6.8	23.7	10.1
Nov 22	6.7	5.6	2.7	3.5	2.5	2.7	1.7	1.7	6.0	1.2	4.6	2.3	5.6	5.9	9.3	10.4	12.9	6.9	14.7	14.5	18.1	20.6	13.3	15.3	1.2	20.6	4.9
Nov 23	20.4	14.0	18.2	15.6	15.2	14.5	11.1	9.7	9.6	10.2	11.2	7.7	7.8	5.1	3.4	5.3	3.7	1.8	2.2	0.9	3.9	6.3	9.4	6.4	0.9	20.4	6.2
Nov 24	6.1	5.9	5.2	7.8	6.8	8.2	6.7	6.3	5.6	7.5	7.1	6.5	8.2	11.0	8.6	7.0	7.3	14.2	15.6	13.6	7.5	17.9	14.4	19.8	5.2	19.8	5.9
Nov 25	24.6	26.1	25.3	23.2	24.2	25.8	24.4	24.1	23.2	23.7	24.0	24.2	19.6	20.1	21.2	19.1	21.2	19.0	19.1	26.9	22.0	17.2	19.0	19.7	17.2	26.9	21.2
Nov 26	31.1	28.7	22.6	17.1	13.4	11.1	15.6	17.8	13.8	20.8	19.7	21.2	24.2	25.7	24.4	23.4	17.2	16.9	13.4	15.3	16.5	12.6	14.1	10.8	10.8	31.1	16.4
Nov 27	10.1	13.0	12.6	13.1	12.1	8.7	6.7	9.9	9.7	9.4	6.6	7.5	7.3	9.6	15.5	16.1	16.4	16.0	15.0	11.4	12.2	10.7	11.7	16.1	6.6	16.4	9.9
Nov 28	9.0	6.4	8.8	8.1	9.6	4.6	13.2	17.8	19.8	14.0	15.5	16.7	20.5	15.1	13.7	12.1	11.1	14.5	22.1	24.1	22.0	20.0	14.2	14.7	4.6	24.1	13.0
Nov 29	11.8	12.0	10.9	5.4	3.5	1.9	1.6	2.8	2.3	2.0	2.8	2.5	2.8	5.1	6.7	5.6	5.1	7.2	12.2	14.9	10.3	13.6	14.0	17.8	1.6	17.8	4.2
Nov 30	12.7	12.9	26.5	25.0	23.5	24.8	18.7	14.2	13.9	11.4	9.8	2.8	5.6	0.7	6.9	3.7	9.7	13.0	16.3	11.0	12.4	9.5	17.8	20.6	0.7	26.5	11.8
Diurnal Maximum	31	29	33	35	29	29	29	30	32	33	35	24	35	28	31	34	30	23	22	27	22	24	25	27			
Diurnal Average	11.4	11.3	11.2	11.6	11.2	10.7	10.6	10.7	10.4	10.2	11.3	10.5	11.5	11.5	11.5	11.5	11.4	10.7	11.3	11.1	11.7	11.9	12.0	12.1			
C	Monthly Calibration						S	Daily Zero-Span Check						Q	Quality Assurance						P	Power Failure					
K	Collection Error						N	No Data (Machine Not in Service)						Y	Routine Maintenance												
X	InValid Data (Equipment Malfunction /Recovery)						NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																			
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																											
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																											

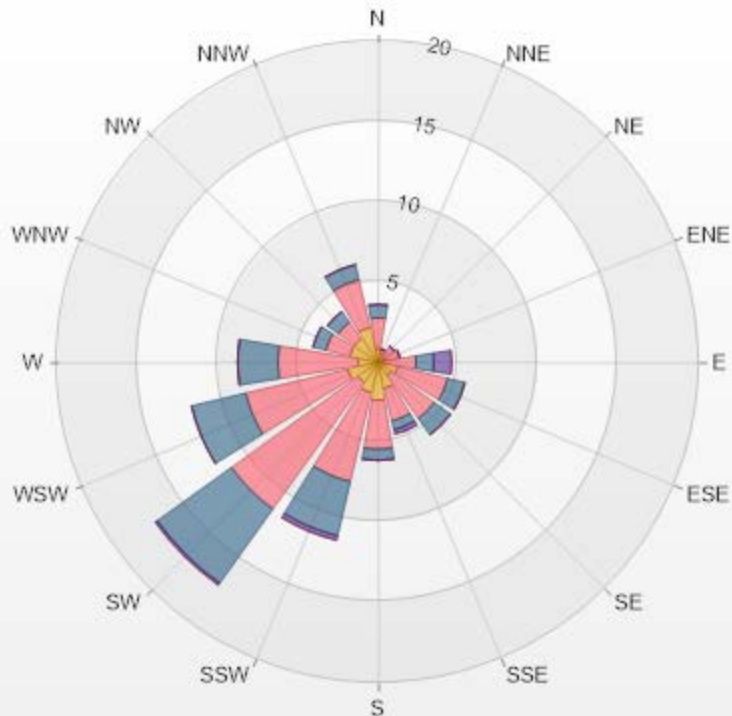
Timeseries Chart of Hourly Average for VWS - 986c Station



Wind: PRAMP 986c Monitor: WDS [KPH] Monthly: 11-2021 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.

Calm: 3.06% Valid Data: 100.00%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	0.83	1.94	0.83	0	0	3.6
NNE	0.56	0.28	0	0	0	0.84
NE	0.28	0.97	0	0	0	1.25
ENE	0.42	0.97	0	0	0	1.39
E	0.28	2.08	1.11	1.11	0	4.58
ESE	1.25	3.19	1.11	0	0	5.55
SE	0.97	3.33	1.25	0	0	5.55
SSE	1.67	2.08	0.56	0.28	0	4.59
S	2.36	3.06	0.69	0	0	6.11
SSW	1.94	5.69	3.47	0.28	0	11.38
SW	1.53	9.72	5.69	0.14	0	17.08
WSW	1.94	6.53	3.47	0	0	11.94
W	1.25	5	2.5	0	0	8.75
WNW	1.81	1.53	0.83	0	0	4.17
NW	1.81	1.25	0.83	0	0	3.89
NNW	2.22	3.06	0.97	0	0	6.25
Summary	21.12	50.68	23.31	1.81	0	96.92



PRAMP-202111

Page 65 of 226

% Icon Classes (KPH)

21

1.8-6.0

51

6.0-15.0

23

15.0-29.0

2

29.0-39.0

0

>39.0



PEACE RIVER AREA MONITORING PROGRAM

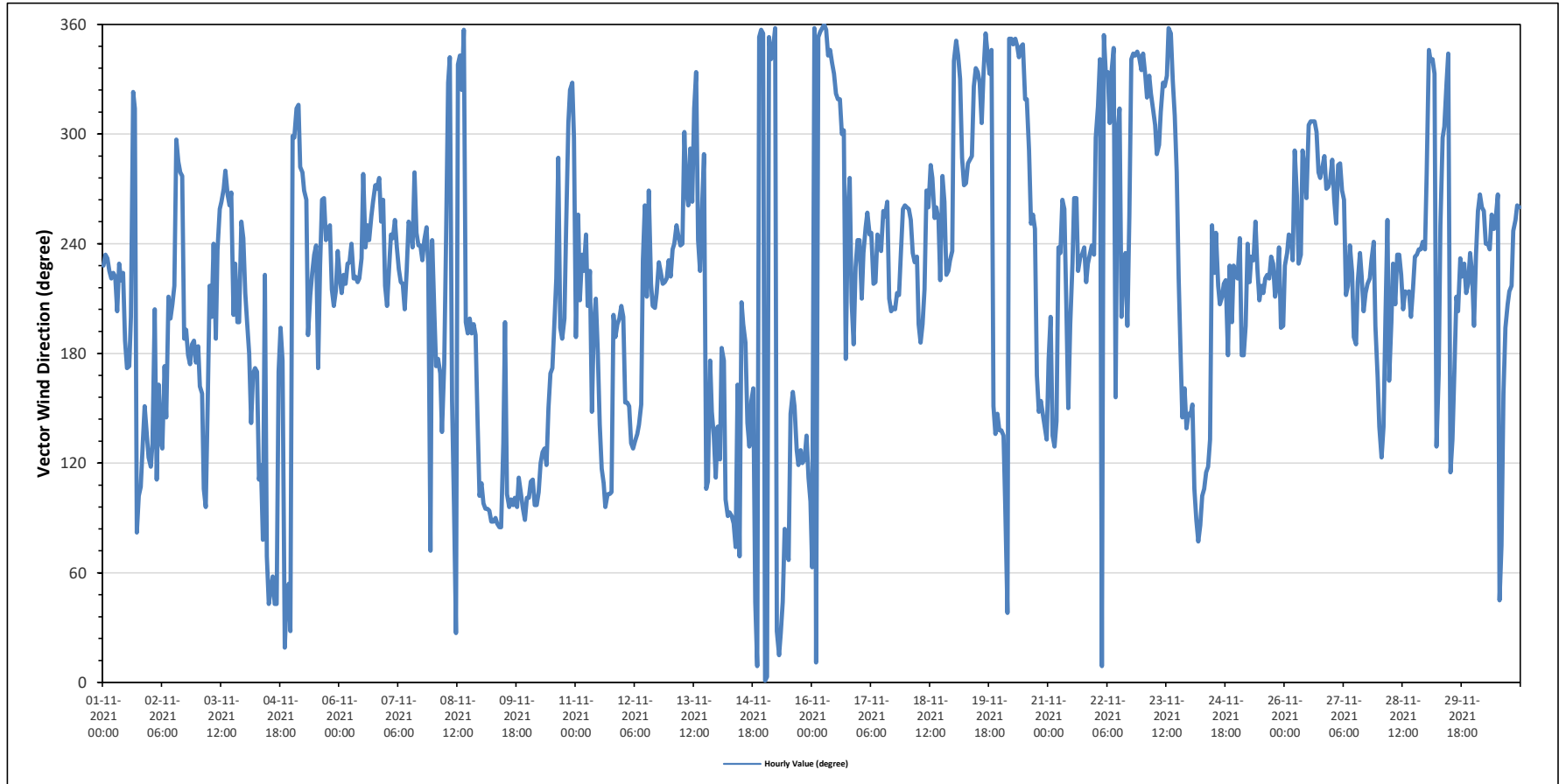
986c Station - November 2021

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:		221 (SW) degree										Hours in Service:		720													
												Hours of Data:		720													
												Hours of Missing Data:		0													
												Hours of Calibration:		0													
												Operational Uptime:		100.0													
Day	Hourly Period Starting at (MST)																							Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant	
Nov 1	SW	SW	SW	SW	SW	SW	SW	SSW	SW	SW	SW	S	S	S	SSW	NW	NW	E	E	ESE	SE	SSE	SE	ESE	196	SSW	
Nov 2	ESE	SE	SSW	ESE	SSE	SE	SE	S	SE	SSW	SSW	SSW	SW	WNW	WNW	W	W	S	S	S	S	S	S	S	199	SSW	
Nov 3	S	SSE	SSE	ESE	E	SSE	SW	SSW	WSW	S	SW	WSW	W	W	W	W	W	SSW	SW	SSW	SSW	WSW	WSW	234	SW		
Nov 4	SSW	SSW	S	SE	SSE	S	SSE	ESE	ESE	ENE	SW	ENE	NE	NE	ENE	NE	NE	SSE	SSW	S	NNE	NE	NE	NNE	101	E	
Nov 5	WNW	WNW	NW	NW	W	W	W	W	S	SSW	SW	SW	WSW	S	SW	W	W	WSW	WSW	WSW	SSW	SSW	SSW	SW	244	WSW	
Nov 6	SW	SSW	SW	SW	SW	SW	WSW	SW	SW	SW	SW	SW	W	SW	WSW	WSW	WSW	W	W	W	W	WSW	W	SW	239	WSW	
Nov 7	SSW	SW	WSW	WSW	WSW	SW	SW	SW	SSW	SW	WSW	WSW	WSW	SW	W	WSW	WSW	WSW	SW	WSW	WSW	SW	ENE	WSW	234	SW	
Nov 8	SSW	S	S	SSE	SE	S	SW	NNW	NNW	SSE	E	NNE	NNW	NNW	NW	N	SSW	S	SSW	S	SSW	S	SE	E	171	S	
Nov 9	ESE	E	E	E	E	E	E	E	E	E	E	SE	SSW	ESE	E	E	E	E	E	ESE	ESE	E	E	E	100	E	
Nov 10	E	ESE	ESE	E	E	ESE	ESE	SE	SE	ESE	SSE	SSE	S	SSW	SW	WNW	SSW	S	SSW	WSW	NW	NW	NNW	WNW	141	SE	
Nov 11	S	WSW	SSW	SW	SW	WSW	SSW	SW	SE	SSW	SSW	S	SE	ESE	ESE	E	ESE	ESE	ESE	SSW	S	SSW	SSW	SSW	172	S	
Nov 12	SSW	SSE	SSE	SSE	SE	SE	SE	SE	SE	SSE	SW	W	SSW	W	SW	SSW	SSW	SSW	SW	SW	SW	SW	SW	SW	184	S	
Nov 13	SW	SW	WSW	WSW	WSW	WSW	WSW	WNW	W	W	WNW	W	NW	NNW	WSW	SW	WSW	WNW	ESE	ESE	S	SE	SE	ESE	249	WSW	
Nov 14	SE	ESE	S	S	E	E	E	E	E	ENE	SSE	ENE	SSW	SSW	S	SE	SE	SSE	SSE	NE	N	N	N	N	116	ESE	
Nov 15	N	N	N	NNW	NNW	N	NNE	NNE	NNE	NE	E	ENE	ENE	SE	SSE	SSE	SE	ESE	SE	ESE	ESE	SE	ESE	E	99	E	
Nov 16	ENE	N	NNE	N	N	N	N	N	NNW	NNW	NNW	NNW	NW	NW	NW	WNW	WNW	S	WSW	W	SSW	S	SW	WSW	334	NNW	
Nov 17	WSW	SSW	SW	WSW	WSW	WSW	WSW	SW	SW	WSW	WSW	SW	WSW	WSW	W	SSW	SSW	SSW	SSW	SSW	SSW	SW	WSW	W	235	SW	
Nov 18	WSW	WSW	WSW	SW	SW	SW	SSW	S	SSW	SSW	W	WSW	W	W	WSW	WSW	WSW	SW	W	W	SW	SW	SW	SW	243	WSW	
Nov 19	NNW	N	NNW	NNW	WNW	W	W	WNW	WNW	WNW	NW	NNW	NNW	NNW	NW	NNW	N	NNW	NNW	NNW	SSE	SE	SE	SE	334	NNW	
Nov 20	SE	SE	E	NE	N	N	NNW	N	NNW	NNW	NNW	NNW	NW	NW	WNW	WSW	WSW	WSW	SSE	SE	SSE	SE	SE	SE	8	N	
Nov 21	S	SSW	SE	SE	SE	SW	SW	W	WSW	SSW	SSE	SSW	SW	W	SW	SW	SW	SW	SW	SW	SW	SW	WSW	SW	221	SW	
Nov 22	WNW	NW	NNW	N	N	NNW	NNW	NW	NNW	NNW	SSE	WNW	NW	SSW	SW	SW	SSW	WSW	NNW	NNW	NNW	NNW	NNW	NNW	318	NW	
Nov 23	NNW	NNW	NW	NNW	NW	NW	WNW	WNW	WNW	NNW	NNW	NW	NNW	N	N	NNW	NW	W	SW	S	SE	SSE	SE	SE	321	NW	
Nov 24	SE	SSE	ESE	E	ENE	E	E	ESE	ESE	ESE	SE	WSW	SW	WSW	SW	SSW	SSW	SW	SW	S	SW	SSW	SW	SW	190	S	
Nov 25	SW	WSW	S	S	SSW	WSW	SW	SW	SW	WSW	SW	SSW	SW	SSW	SW	SW	SW	SW	SSW	SW	SW	SSW	SSW	SSW	218	SW	
Nov 26	SW	SW	WSW	WSW	SW	WNW	W	SW	SW	WNW	W	W	WNW	NW	NW	NW	WNW	W	W	W	WNW	W	W	W	271	W	
Nov 27	WNW	W	WSW	W	WNW	W	W	SSW	SW	WSW	SW	S	S	SW	SW	SW	SSW	SSW	SW	SW	SW	WSW	SSW	SSE	229	SW	
Nov 28	SE	ESE	SE	SSW	WSW	SSE	SSW	SW	SSW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	WSW	SW	219	SW	
Nov 29	W	NNW	NNW	NNW	NNW	SE	SSE	WSW	WNW	WNW	NNW	NNW	ESE	SE	S	SSW	SSW	SW	SW	SW	SSW	SW	SW	SW	241	WSW	
Nov 30	SSW	SW	WSW	W	WSW	WSW	WSW	WSW	SW	WSW	WSW	WSW	W	NE	ENE	SSE	SSW	SSW	SSW	SSW	SW	WSW	WSW	W	WSW	244	WSW
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance										
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance							P	Power Failure		
X	Invalid Data (Machine Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																		
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																											
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																											

Timeseries Chart of Hourly Average for VWD - 986c Station





PEACE RIVER AREA MONITORING PROGRAM

986c Station - November 2021

Summary of Hourly Averages

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

WIND SPEED																												
Maximum Hourly Value:		35.4 kph on November 9 at hour 12													Hours in Service:		720											
Maximum Daily Value:		23.2 kph on November 9													Hours of Data:		720											
Minimum Hourly Value:		0.4 kph on November 5 at hour 13													Hours of Missing Data:		0											
Minimum Daily Value:		1.6 kph on November 8													Hours of Calibration:		0											
Monthly Average:		4.9 kph													Operational Uptime:		100											
WIND DIRECTION																												
Monthly Average:		221 (SW) degree																										
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
Nov 1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	2.4	14.1	5.5	
	14.1	12.0	10.2	10.1	12.4	9.9	8.4	7.9	6.4	5.7	8.1	9.1	11.4	8.8	3.6	5.5	2.6	2.4	8.3	8.4	12.5	6.9	7.3	7.3				
Nov 2	SW	SW	SW	SW	SW	SW	SW	SSW	SW	SW	SW	S	S	S	SSW	NW	NW	E	E	ESE	SE	SSE	SE	ESE	3.4	16.8	5.5	
	6.7	9.7	4.2	8.7	4.0	4.3	6.4	4.4	3.4	4.4	12.2	12.5	11.2	16.8	14.3	12.9	12.0	7.5	9.8	9.2	11.1	10.6	12.0	9.8				
Nov 3	ESE	SE	SSE	ESE	SSE	SE	SE	S	SE	SSW	SSW	SSW	SSW	SW	WNW	WNW	W	W	S	S	S	S	S	S	2.1	14.0	5.2	
	7.9	4.6	2.5	6.3	6.4	3.5	3.3	5.1	5.0	2.1	6.1	8.0	8.1	11.5	11.3	9.4	11.3	14.0	11.1	4.1	5.6	8.9	11.1	9.7				
Nov 4	S	SSE	SSE	ESE	E	SSE	SW	SSW	WSW	S	SW	WSW	W	W	W	W	W	W	SSW	SW	SSW	SSW	WSW	WSW	0.8	14.1	2.7	
	8.9	12.8	5.4	6.3	5.9	7.8	5.6	5.3	4.5	2.0	2.9	2.2	7.3	14.1	14.1	9.1	12.5	3.9	6.4	0.8	6.0	5.8	6.4	2.3				
Nov 5	SSW	SSW	S	SE	SSE	S	SSE	ESE	ENE	SW	ENE	NE	NE	ENE	NE	NE	SSE	SSW	S	NNE	NE	NE	NNE	NNE	0.4	13.6	4.1	
	2.8	4.0	5.6	5.1	3.6	4.5	5.8	3.6	3.2	6.2	8.6	6.0	3.5	0.4	1.4	6.6	5.6	2.3	2.7	2.9	6.7	13.6	9.7	4.5				
Nov 6	WNW	WNW	NW	NW	W	W	W	S	SSW	SW	SW	WSW	S	SW	W	W	WSW	WSW	SSW	SSW	SSW	SSW	SSW	SSW	6.0	21.8	11.4	
	6.0	11.3	11.7	13.7	13.8	15.5	13.7	11.9	11.1	11.1	15.6	21.8	17.5	19.0	14.4	11.6	10.0	10.5	10.7	8.4	9.8	7.2	8.5	6.4				
Nov 7	SW	SSW	SW	SW	SW	SW	WSW	SW	SW	SW	SW	SW	W	SW	WSW	WSW	WSW	W	W	W	WSW	W	SW	WSW	6.0	21.8	11.4	
	7.0	1.7	2.2	8.5	10.6	8.5	12.2	12.5	10.1	13.6	14.4	10.6	10.0	9.5	3.9	10.3	15.3	11.3	8.4	6.8	5.7	1.2	1.1	3.1				
Nov 8	SSW	SW	WSW	WSW	WSW	SW	SW	SW	SSW	SW	SSW	WSW	WSW	SW	W	WSW	WSW	WSW	SW	WSW	WSW	SW	ENE	WSW	1.1	15.3	7.9	
	3.3	2.2	3.3	2.2	1.0	1.8	1.6	2.2	4.0	0.8	2.9	3.2	4.7	5.3	2.6	2.0	1.6	2.4	5.3	7.5	9.1	10.8	8.8	13.2	0.8	13.2	1.6	
Nov 9	SSW	S	SSE	SE	S	SW	NNW	NNW	SSE	E	NNE	NNW	NNW	NW	N	SSW	S	SSW	S	SSW	S	SE	E	E	13.7	35.4	23.2	
	15.8	20.3	24.1	26.0	25.6	28.5	29.1	30.2	31.7	33.2	34.7	24.1	35.4	27.6	31.3	34.3	30.3	23.1	18.7	17.2	19.6	14.6	16.2	13.7				
Nov 10	ESE	E	E	E	E	E	E	E	E	E	E	SE	SSW	ESE	E	E	E	E	E	ESE	ESE	E	E	E	1.7	13.7	4.5	
	13.7	10.8	9.2	9.3	11.2	10.5	11.6	9.8	8.9	7.9	7.6	8.4	7.5	7.1	7.4	5.6	6.0	8.0	9.1	6.9	5.4	2.9	2.3	1.7				
Nov 11	E	ESE	ESE	E	E	ESE	ESE	SE	SE	ESE	SSE	SSE	S	SSW	SW	WNW	SSW	S	SSW	WSW	NW	NW	NNW	WNW	0.8	26.9	6.9	
	2.4	2.4	0.8	3.3	4.3	3.1	3.0	4.2	5.2	3.9	4.3	6.8	6.0	7.3	10.6	14.1	13.1	16.0	12.7	16.8	19.8	24.2	24.7	26.9				
Nov 12	S	WSW	SSW	SW	SW	WSW	SSW	SW	SE	SSW	SSW	S	SE	ESE	ESE	E	ESE	ESE	SSW	S	SSW	SSW	SSW	SSW	5.3	35.4	13.7	
	29.1	27.7	33.3	35.4	28.6	15.8	20.3	17.6	14.6	14.5	13.8	13.6	15.9	16.8	19.9	20.2	15.5	11.6	5.3	8.5	10.3	15.8	16.9	17.7				
Nov 13	SSW	SSE	SSE	SSE	SE	SE	SE	SE	SSE	SW	SSW	W	SSW	W	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	SW	2.6	19.3	7.7	
	17.2	17.4	13.2	18.7	19.3	17.3	13.5	14.1	12.6	10.0	11.2	10.0	9.6	6.6	6.5	9.2	11.8	6.4	3.4	4.1	2.6	6.8	6.9	5.0				
Nov 14	SW	SW	WSW	WSW	WSW	WSW	WSW	WNW	W	WNW	W	NW	NNW	WSW	SW	WSW	WNW	ESE	ESE	S	SE	ESE	ESE	ESE	3.0	16.3	3.9	
	4.7	4.4	3.3	5.6	8.7	8.8	9.6	8.6	9.7	9.5	3.0	5.7	8.6	14.2	16.3	13.2	10.7	8.0	8.5	8.8	7.8	9.7	11.0	9.4				
Nov 15	SE	ESE	S	S	E	E	E	E	ENE	SSE	ENE	SSW	SSW	S	SE	SE	SSE	SSE	NE	N	N	N	N	N	5.9	20.2	7.6	
	8.2	8.7	8.2	7.5	8.7	7.4	8.0	6.7	5.9	6.3	10.3	13.0	13.5	15.5	15.0	15.1	17.8	20.2	19.8	20.2	17.5	15.3	14.6	13.1				
Nov 16	N	N	N	NNW	NNW	N	NNE	NNE	NNE	NE	E	ENE	ENE	SE	SSE	SSE	SE	ESE	SE	ESE	ESE	SE	ESE	E	2.9	16.7	6.8	
	7.8	13.5	10.5	16.7	14.7	13.9	15.5	16.4	11.7	13.3	13.1	10.4	11.4	9.1	7.5	4.6	2.9	3.5	7.8	9.2	7.4	8.1	8.5	9.4				
Nov 17	ENE	N	NNE	N	N	N	N	NNW	NNW	NNW	NNW	NW	NW	NW	NNW	NNW	S	WSW	W	SSW	S	SW	WSW	7.0	22.1	13.5		
	9.0	7.4	7.7	7.0	8.2	9.2	8.7	8.6	12.2	20.0	21.2	19.9	17.3	18.1	17.1	15.0	10.6	15.9	17.4	22.1	21.3	14.9	17.2	20.3				
Nov 18	WSW	SSW	SW	WSW	WSW	WSW	SW	SW	WSW	WSW	SW	WSW	WSW	W	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	10.7	21.0	14.0	
	19.3	19.7	18.8	17.7	15.9	16.2	12.9	15.2	17.9	17.8	20.7	16.7	21.0	17.2	15.8	14.5	11.8	13.2	11.6	10.8	13.1	13.5	12.9	10.7				
Nov 19	WSW	WSW	WSW	SW	SW	SSW	S	SSW	SSW	W	WSW	W	W	WSW	WSW	WSW	SW	W	W	SW	SW	SW	SW	SW	1.1	14.3	2.7	
	7.2	3.2	2.3	1.2	1.1	1.9	2.7	2.5	2.5	2.8	2.3	1.9	3.6	4.0	5.0	10.0	13.3	14.3	8.4	1.7	5.2	1.6	5.5	8.4				
Nov 20	NNW	N	NNW	NNW	NNW	W	W	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	NNW	NNW	NNW	NNW	SSE	SE	SE	SE	1.1	14.3	2.7
	9.4	10.3	7.5	4.3	13.1	19.4	18.0	21.9	16.5	14.9	16.5	12.6	6.8	5.8	4.5	4.2	6.7	5.5	10.4	10.6	10.9	13.1	13.8	13.0	4.2	21.9	2.7	
	SE	SE	E	NE	N	NNW	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	WSW	WSW	SSE	SE	SSE	SE	SE	SE				



PEACE RIVER AREA MONITORING PROGRAM

986c Station - November 2021

Summary of Hourly Averages

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

WIND SPEED																																	
Maximum Hourly Value:		35.4 kph on November 9 at hour 12										Hours in Service:		720																			
Maximum Daily Value:		23.2 kph on November 9										Hours of Data:		720																			
Minimum Hourly Value:		0.4 kph on November 5 at hour 13										Hours of Missing Data:		0																			
Minimum Daily Value:		1.6 kph on November 8										Hours of Calibration:		0																			
Monthly Average:		4.9 kph										Operational Uptime:		100																			
WIND DIRECTION																																	
Monthly Average:		221 (SW) degree																															
Day	Hourly Period Starting at (MST)																							Daily Minimum		Daily Maximum		Daily Average					
Nov 21	9.3	10.1	18.2	14.9	9.1	10.8	8.6	8.8	9.7	6.8	7.4	8.1	12.4	10.8	14.1	14.4	16.5	12.6	12.5	16.0	18.8	23.7	17.7	16.3	6.8	23.7	10.1						
	S	SSW	SE	SE	SE	SW	SW	W	WSW	SSW	SSE	SSW	SW	W	W	SW	SW	SW	SW	SW	SW	SW	WSW	SW									
Nov 22	6.7	5.6	2.7	3.5	2.5	2.7	1.7	1.7	6.0	1.2	4.6	2.3	5.6	5.9	9.3	10.4	12.9	6.9	14.7	14.5	18.1	20.6	13.3	15.3	1.2	20.6	4.9						
	WNW	NW	NNW	N	N	NNW	NNW	NW	NNW	NNW	SSE	WNW	NW	SSW	SW	SW	SSW	WSW	NNW	NNW	NNW	NNW	NNW	NNW									
Nov 23	20.4	14.0	18.2	15.6	15.2	14.5	11.1	9.7	9.6	10.2	11.2	7.7	7.8	5.1	3.4	5.3	3.7	1.8	2.2	0.9	3.9	6.3	9.4	6.4	0.9	20.4	6.2						
	NNW	NNW	NW	NNW	NW	NW	WNW	WNW	WNW	NW	NNW	NW	NNW	N	N	NNW	NW	W	SW	S	SE	SSE	SE	SE									
Nov 24	6.1	5.9	5.2	7.8	6.8	8.2	6.7	6.3	5.6	7.5	7.1	6.5	8.2	11.0	8.6	7.0	7.3	14.2	15.6	13.6	7.5	17.9	14.4	19.8	5.2	19.8	5.9						
	SE	SSE	ESE	E	ENE	E	E	ESE	ESE	ESE	SE	WSW	SW	WSW	SW	SSW	SSW	SW	SW	S	SW	SSW	SW	SW									
Nov 25	24.6	26.1	25.3	23.2	24.2	25.8	24.4	24.1	23.2	23.7	24.0	24.2	19.6	20.1	21.2	19.1	21.2	19.0	19.1	26.9	22.0	17.2	19.0	19.7	17.2	26.9	21.2						
	SW	WSW	S	S	SSW	WSW	SW	SW	SW	WSW	SW	SSW	SW	SSW	SW	SW	SW	SW	SW	SSW	SW	SW	SSW	SSW									
Nov 26	31.1	28.7	22.6	17.1	13.4	11.1	15.6	17.8	13.8	20.8	19.7	21.2	24.2	25.7	24.4	23.4	17.2	16.9	13.4	15.3	16.5	12.6	14.1	10.8	10.8	31.1	16.4						
	SW	SW	WSW	WSW	SW	WNW	W	SW	SW	WNW	W	W	WNW	NW	NW	NW	WNW	W	W	W	WNW	W	W	W									
Nov 27	10.1	13.0	12.6	13.1	12.1	8.7	6.7	9.9	9.7	9.4	6.6	7.5	7.3	9.6	15.5	16.1	16.4	16.0	15.0	11.4	12.2	10.7	11.7	16.1	6.6	16.4	9.9						
	WNW	W	WSW	W	WNW	W	W	SSW	SW	WSW	SW	S	S	SW	SW	SSW	SSW	SW	SW	SW	WSW	SSW	SSE										
Nov 28	9.0	6.4	8.8	8.1	9.6	4.6	13.2	17.8	19.8	14.0	15.5	16.7	20.5	15.1	13.7	12.1	11.1	14.5	22.1	24.1	22.0	20.0	14.2	14.7	4.6	24.1	13.0						
	SE	ESE	SE	SSW	WSW	SSE	SSW	SW	SSW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	WSW	SW									
Nov 29	11.8	12.0	10.9	5.4	3.5	1.9	1.6	2.8	2.3	2.0	2.8	2.5	2.8	5.1	6.7	5.6	5.1	7.2	12.2	14.9	10.3	13.6	14.0	17.8	1.6	17.8	4.2						
	W	NNW	NNW	NNW	NNW	SE	SSE	WSW	WNW	NNW	NNW	NNW	ESE	SE	S	SSW	SSW	SW	SW	SW	SSW	SW	SW	SW									
Nov 30	12.7	12.9	26.5	25.0	23.5	24.8	18.7	14.2	13.9	11.4	9.8	2.8	5.6	0.7	6.9	3.7	9.7	13.0	16.3	11.0	12.4	9.5	17.8	20.6	0.7	26.5	11.8						
	SSW	SW	WSW	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	NE	ENE	SSE	SSW	SSW	SSW	SW	WSW	WSW	W	WSW									
C	Monthly Calibration										S Daily Zero-Span Check										Q Quality Assurance												
K	Collection Error										N No Data (Machine Not in Service)										Y Routine Maintenance												
X	Invalid Data (Equipment Malfunction/Recovery)										NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)										P Power Failure												
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																	
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																	

842b STATION



PEACE RIVER AREA MONITORING PROGRAM

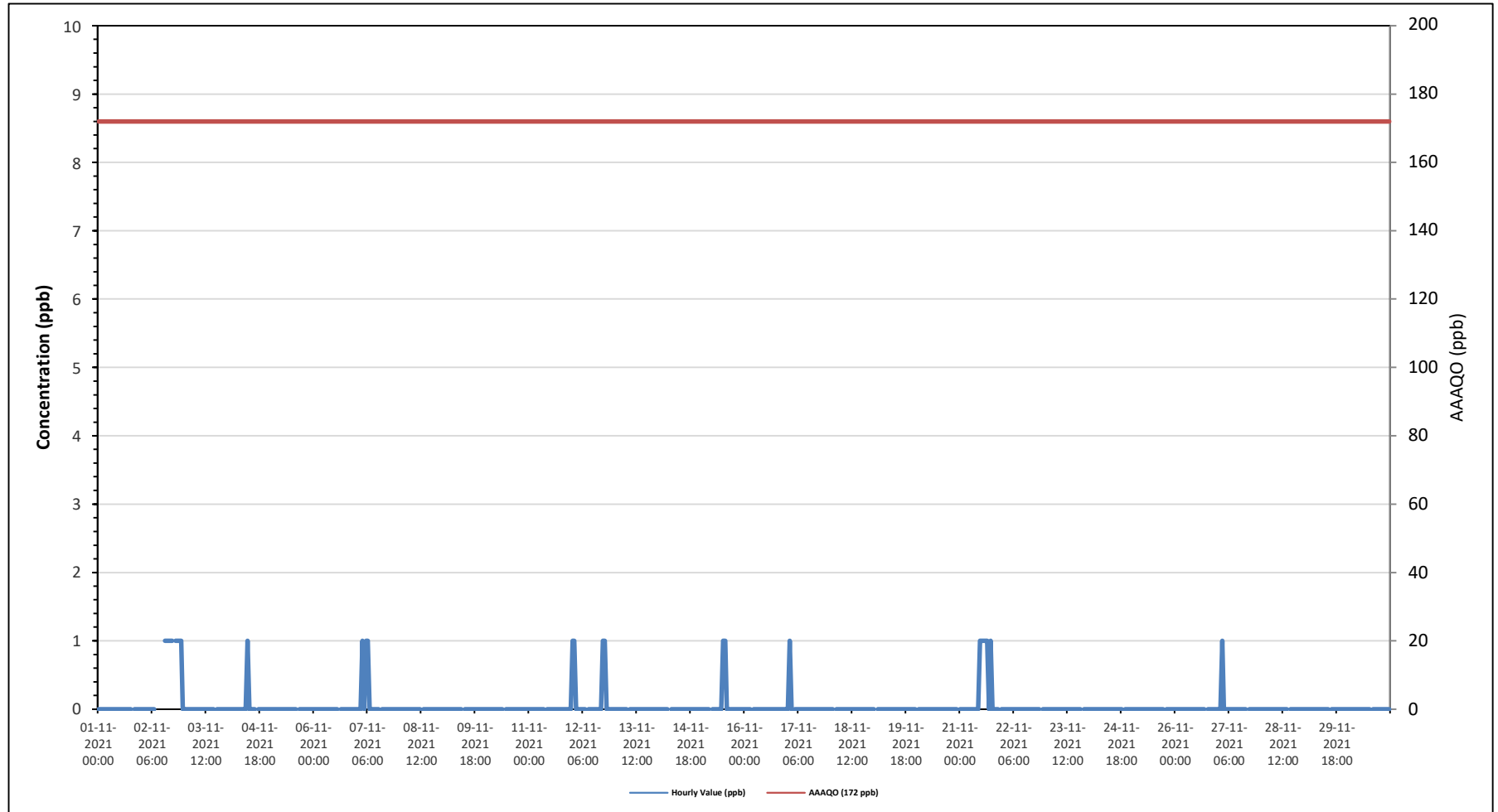
842b Station - November 2021

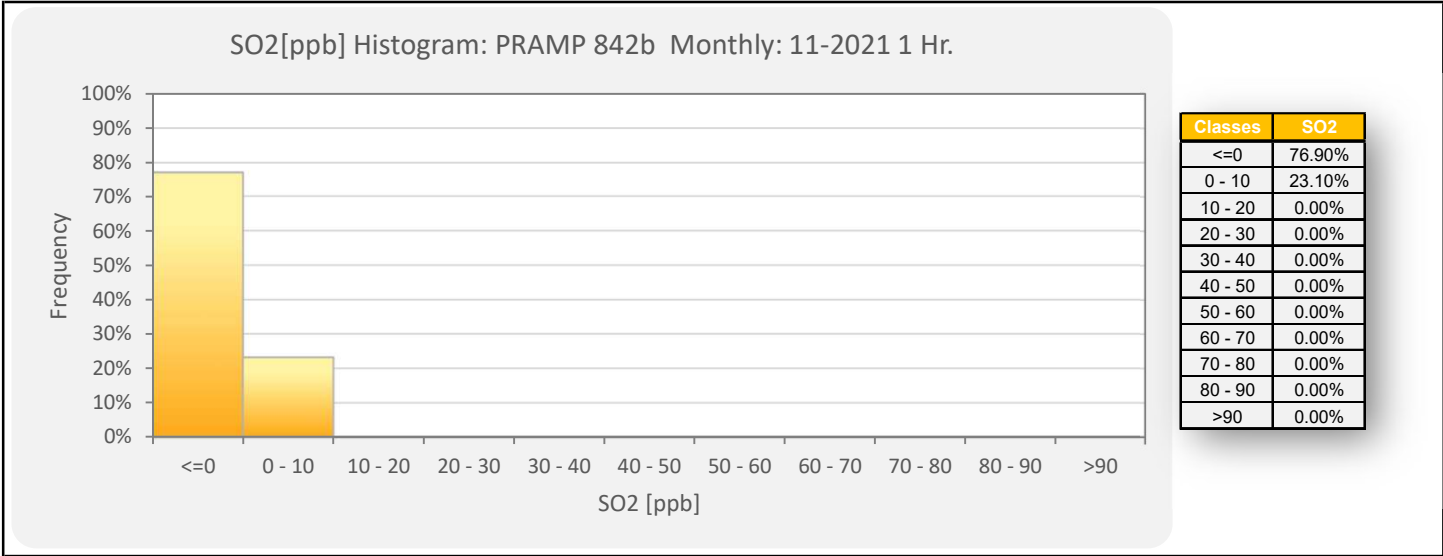
Summary of Hourly Averages

SULPHUR DIOXIDE (SO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																																								
Number of 1-Hour Exceedances:					0					Number of 24-Hour Exceedances:					0					30-Day Exceedance:					0															
Maximum Hourly Value:					1 ppb on November 2 at hour 13					Hours in Service:					720																									
Maximum Daily Value:					0.5 ppb on November 2					Hours of Data:					684																									
Minimum Hourly Value:					0 ppb on November 1 at hour 0					Hours of Missing Data:					0																									
Minimum Daily Value:					0.0 ppb on November 1					Hours of Calibration:					36																									
Monthly Average:					0.0 ppb					Operational Uptime:					100.0																									
Day	0	1	2	3	4	5	6	7	8	9	Hourly Period Starting at (MST)													10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Minimum	Daily Maximum	Daily Average
Nov 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0.0					
Nov 2	0	0	0	0	0	0	0	0	C	C	C	C	C	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	0	0	1	0.5							
Nov 3	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	0	0	0	0	0	0.0						
Nov 4	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0						
Nov 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
Nov 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
Nov 7	0	0	0	1	0	1	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1							
Nov 8	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
Nov 9	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
Nov 10	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
Nov 11	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
Nov 12	1	1	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0.2							
Nov 13	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
Nov 14	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
Nov 15	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1							
Nov 16	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
Nov 17	0	1	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0							
Nov 18	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
Nov 19	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
Nov 20	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0						
Nov 21	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	S	0	0	1	0.3							
Nov 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0.0							
Nov 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.0						
Nov 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0.0						
Nov 25	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	0	0	0	0	0	0.0						
Nov 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
Nov 27	0	0	1	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	1	0.0							
Nov 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
Nov 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
Nov 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0						
Diurnal Maximum	1	1	1	1	0	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0										
Diurnal Average	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0										
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance																							
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance							P	Power Failure															
X	Invalid Data (Equipment Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																															
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																								
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																								

Timeseries Chart of Hourly Average for SO2 - 842b Station

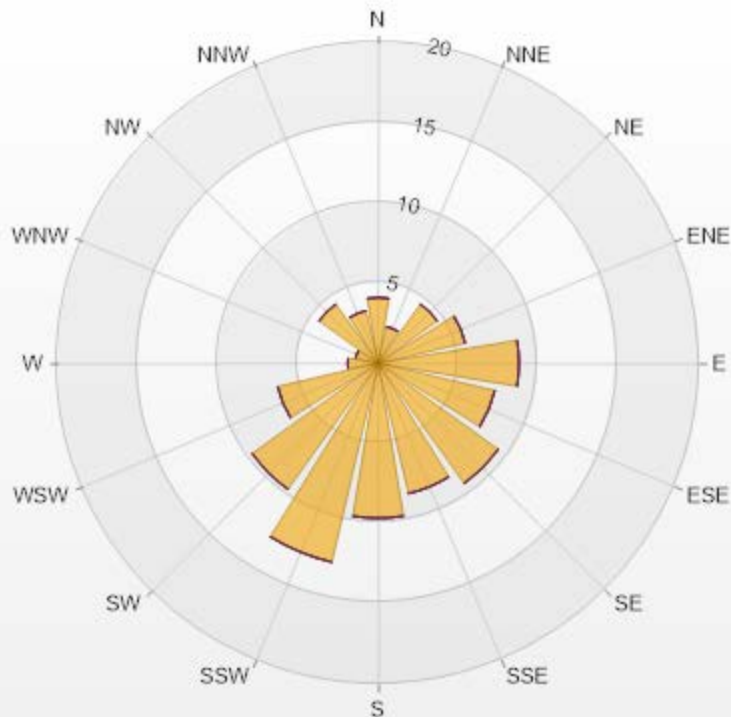




Wind: PRAMP 842b Poll.: PRAMP 842b-SO2[ppb] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.

Calm: 0.00% Valid Data: 95.00% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	4.09	0	0	0	0	4.09
NNE	2.34	0	0	0	0	2.34
NE	4.53	0	0	0	0	4.53
ENE	5.56	0	0	0	0	5.56
E	8.77	0	0	0	0	8.77
ESE	7.46	0	0	0	0	7.46
SE	9.21	0	0	0	0	9.21
SSE	8.33	0	0	0	0	8.33
S	9.65	0	0	0	0	9.65
SSW	12.72	0	0	0	0	12.72
SW	9.65	0	0	0	0	9.65
WSW	6.43	0	0	0	0	6.43
W	1.9	0	0	0	0	1.9
WNW	1.46	0	0	0	0	1.46
NW	4.53	0	0	0	0	4.53
NNW	3.36	0	0	0	0	3.36
Summary	100	0	0	0	0	100



PRAMP-202111

Page 75 of 226

% Icon Classes (ppb)

100

0-10

0

10-50

0

50-100

0

100-172

0

>172.0



PEACE RIVER AREA MONITORING PROGRAM

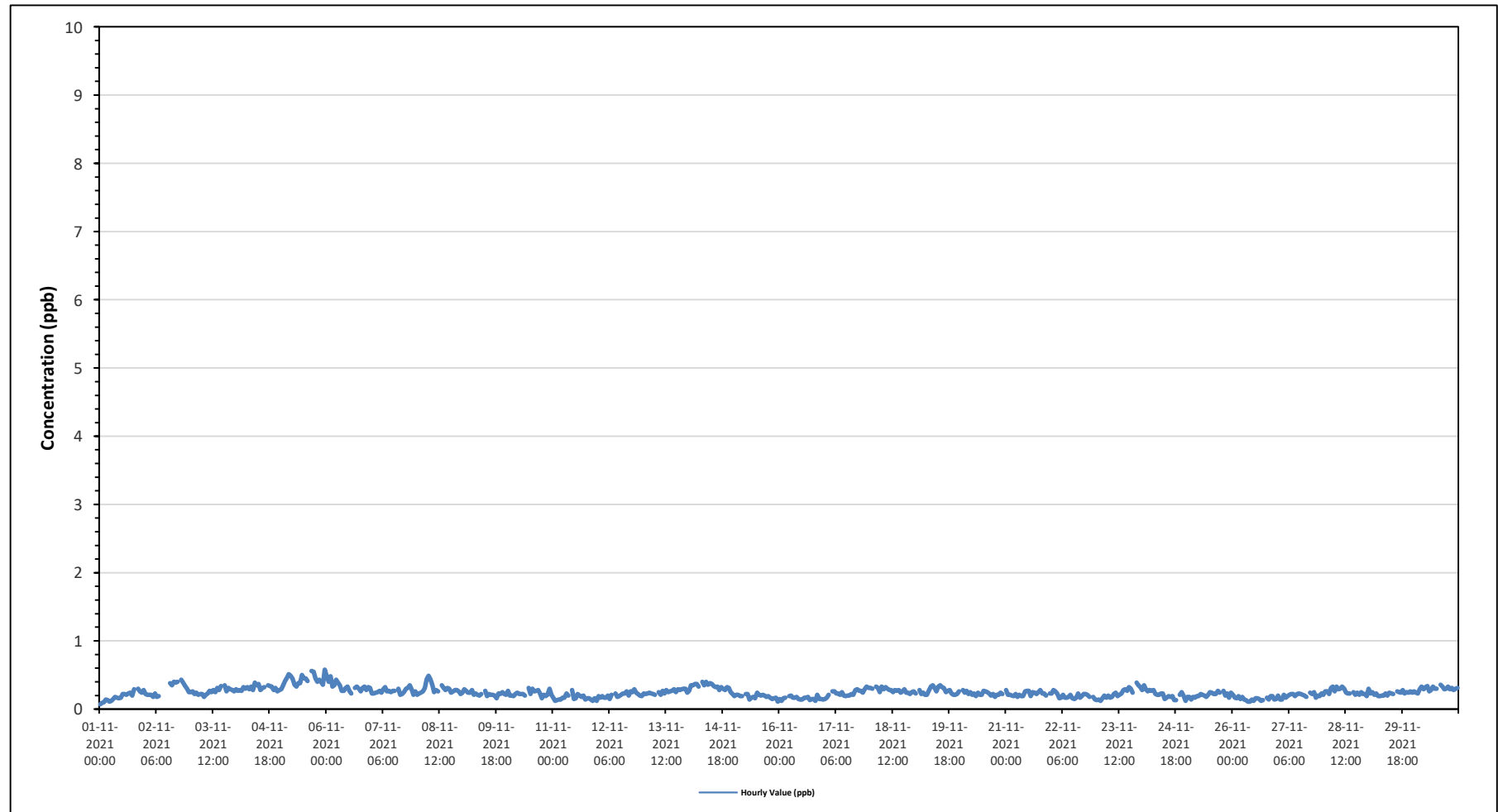
842b Station - November 2021

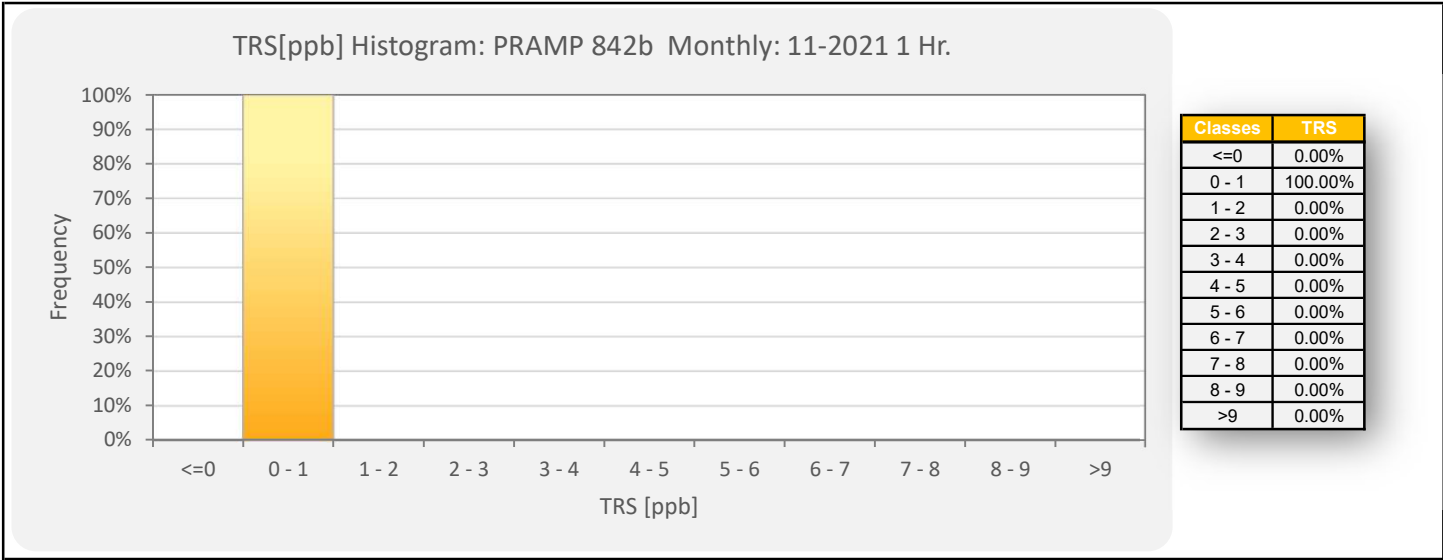
Summary of Hourly Averages

TOTAL REDUCED SULPHUR (TRS) in ppb

Maximum Hourly Value:	0.58	ppb	on November 5 at hour 23	Hours in Service:	720																										
Maximum Daily Value:	0.43	ppb	on November 5	Hours of Data:	684																										
Minimum Hourly Value:	0.07	ppb	on November 1 at hour 0	Hours of Missing Data:	0																										
Minimum Daily Value:	0.15	ppb	on November 26	Hours of Calibration:	36																										
Monthly Average:	0.25	ppb		Operational Uptime:	100.0																										
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average					
Nov 1	0.07	0.09	0.1	0.14	0.13	0.11	0.12	0.15	0.18	0.17	0.16	0.17	0.22	0.22	0.21	0.23	0.24	0.2	0.29	S	0.3	0.26	0.24	0.28	0.07	0.30	0.19				
Nov 2	0.22	0.21	0.21	0.21	0.18	0.23	0.18	0.19	C	C	C	C	C	0.38	0.35	0.4	0.39	0.4	S	0.43	0.39	0.34	0.3	0.25	0.18	0.43	0.29				
Nov 3	0.25	0.26	0.22	0.24	0.21	0.22	0.22	0.18	0.21	0.23	0.27	0.25	0.28	0.25	0.31	0.28	0.34	S	0.35	0.26	0.31	0.29	0.28	0.26	0.18	0.35	0.26				
Nov 4	0.29	0.27	0.28	0.27	0.32	0.3	0.32	0.29	0.33	0.28	0.39	0.35	0.37	0.28	0.31	0.32	S	0.35	0.34	0.33	0.28	0.31	0.26	0.28	0.26	0.39	0.31				
Nov 5	0.29	0.35	0.41	0.46	0.51	0.49	0.45	0.36	0.33	0.38	0.38	0.5	0.45	0.45	0.41	S	0.56	0.55	0.45	0.4	0.43	0.4	0.36	0.58	0.29	0.58	0.43				
Nov 6	0.49	0.4	0.48	0.33	0.35	0.43	0.39	0.35	0.27	0.27	0.31	0.33	0.27	0.23	S	0.31	0.33	0.3	0.26	0.31	0.33	0.28	0.32	0.31	0.23	0.49	0.33				
Nov 7	0.23	0.23	0.24	0.25	0.27	0.24	0.29	0.32	0.26	0.27	0.25	0.27	0.27	S	0.3	0.21	0.22	0.25	0.3	0.31	0.35	0.29	0.21	0.26	0.21	0.35	0.26				
Nov 8	0.21	0.23	0.24	0.26	0.31	0.44	0.49	0.44	0.36	0.25	0.28	0.26	S	0.35	0.31	0.28	0.31	0.3	0.24	0.26	0.28	0.28	0.26	0.22	0.21	0.49	0.30				
Nov 9	0.24	0.29	0.27	0.24	0.24	0.28	0.21	0.23	0.21	0.2	0.22	S	0.27	0.19	0.22	0.21	0.21	0.2	0.16	0.23	0.22	0.25	0.22	0.21	0.16	0.29	0.23				
Nov 10	0.27	0.2	0.2	0.19	0.22	0.24	0.22	0.22	0.22	0.2	S	0.31	0.22	0.3	0.26	0.27	0.28	0.23	0.16	0.21	0.19	0.21	0.3	0.21	0.16	0.31	0.23				
Nov 11	0.17	0.12	0.13	0.14	0.14	0.17	0.17	0.23	0.2	S	0.28	0.15	0.16	0.22	0.2	0.18	0.2	0.14	0.16	0.16	0.14	0.12	0.16	0.12	0.12	0.28	0.17				
Nov 12	0.19	0.17	0.19	0.17	0.17	0.2	0.15	0.21	S	0.23	0.18	0.19	0.21	0.21	0.23	0.23	0.26	0.2	0.26	0.25	0.29	0.24	0.22	0.2	0.19	0.15	0.29	0.21			
Nov 13	0.23	0.22	0.23	0.24	0.23	0.22	0.21	S	0.25	0.21	0.27	0.23	0.28	0.25	0.26	0.27	0.29	0.25	0.29	0.28	0.29	0.3	0.3	0.24	0.21	0.30	0.25				
Nov 14	0.27	0.35	0.35	0.37	0.37	0.33	S	0.4	0.35	0.4	0.36	0.38	0.37	0.34	0.32	0.33	0.28	0.32	0.3	0.28	0.32	0.31	0.25	0.22	0.22	0.40	0.33				
Nov 15	0.19	0.21	0.21	0.19	0.19	S	0.22	0.22	0.14	0.17	0.18	0.16	0.24	0.21	0.2	0.21	0.2	0.18	0.19	0.17	0.15	0.16	0.17	0.11	0.11	0.24	0.19				
Nov 16	0.15	0.12	0.16	0.17	S	0.19	0.2	0.17	0.17	0.18	0.15	0.14	0.14	0.17	0.17	0.18	0.13	0.15	0.15	0.12	0.21	0.15	0.15	0.14	0.12	0.21	0.16				
Nov 17	0.15	0.17	0.21	S	0.26	0.26	0.23	0.23	0.21	0.25	0.2	0.19	0.2	0.2	0.22	0.21	0.28	0.29	0.27	0.27	0.24	0.29	0.33	0.31	0.15	0.33	0.24				
Nov 18	0.31	0.3	S	0.33	0.31	0.25	0.33	0.29	0.32	0.3	0.28	0.28	0.25	0.28	0.27	0.28	0.24	0.26	0.29	0.24	0.24	0.22	0.25	0.26	0.22	0.33	0.28				
Nov 19	0.23	S	0.28	0.22	0.24	0.21	0.21	0.27	0.33	0.35	0.31	0.26	0.33	0.35	0.32	0.31	0.25	0.27	0.28	0.23	0.21	0.21	0.22	0.26	0.21	0.35	0.27				
Nov 20	S	0.28	0.24	0.27	0.22	0.25	0.21	0.23	0.19	0.24	0.21	0.21	0.27	0.26	0.25	0.23	0.2	0.22	0.18	0.21	0.21	0.24	0.22	S	0.18	0.28	0.23				
Nov 21	0.28	0.21	0.21	0.2	0.19	0.22	0.18	0.21	0.19	0.19	0.26	0.27	0.27	0.19	0.25	0.24	0.22	0.25	0.28	0.23	0.23	0.2	S	0.23	0.18	0.28	0.23				
Nov 22	0.23	0.28	0.26	0.23	0.16	0.17	0.21	0.17	0.17	0.18	0.21	0.16	0.15	0.17	0.23	0.17	0.19	0.22	0.22	0.21	0.18	S	0.18	0.14	0.14	0.28	0.20				
Nov 23	0.13	0.14	0.12	0.16	0.2	0.17	0.2	0.17	0.18	0.22	0.24	0.19	0.21	0.23	0.28	0.29	0.27	0.32	0.3	0.24	S	0.39	0.35	0.32	0.12	0.39	0.23				
Nov 24	0.28	0.35	0.29	0.26	0.28	0.27	0.28	0.22	0.21	0.21	0.23	0.23	0.15	0.17	0.19	0.18	0.19	0.13	0.13	S	0.21	0.25	0.19	0.12	0.12	0.35	0.22				
Nov 25	0.18	0.18	0.14	0.18	0.17	0.19	0.19	0.22	0.21	0.2	0.18	0.21	0.25	0.24	0.22	0.22	0.27	0.24	S	0.27	0.2	0.23	0.17	0.24	0.14	0.27	0.21				
Nov 26	0.21	0.17	0.16	0.19	0.15	0.18	0.14	0.13	0.11	0.11	0.14	0.12	0.16	0.16	0.15	0.12	0.13	S	0.17	0.14	0.19	0.19	0.14	0.15	0.11	0.21	0.15				
Nov 27	0.2	0.14	0.14	0.21	0.17	0.19	0.21	0.22	0.22	0.19	0.22	0.23	0.22	0.21	0.2	0.18	S	0.24	0.22	0.25	0.17	0.2	0.19	0.23	0.14	0.25	0.20				
Nov 28	0.21	0.26	0.26	0.22	0.31	0.33	0.26	0.33	0.29	0.3	0.33	0.3	0.24	0.23	0.23	S	0.25	0.21	0.24	0.21	0.25	0.22	0.22	0.19	0.19	0.33	0.26				
Nov 29	0.3	0.23	0.25	0.21	0.23	0.19	0.19	0.2	0.2	0.23	0.2	0.24	0.23	0.22	S	0.26	0.25	0.24	0.28	0.23	0.25	0.24	0.26	0.24	0.19	0.30	0.23				
Nov 30	0.26	0.24	0.23	0.29	0.33	0.29	0.32	0.34	0.26	0.28	0.33	0.3	0.3	S	0.36	0.33	0.29	0.3	0.33	0.29	0.31	0.28	0.3	0.31	0.23	0.36	0.30				
Diurnal Maximum	0.49	0.40	0.48	0.46	0.51	0.49	0.49	0.44	0.36	0.40	0.39	0.50	0.45	0.45	0.41	0.40	0.56	0.55	0.45	0.43	0.43	0.40	0.36	0.58							
Diurnal Average	0.23	0.23	0.23	0.24	0.24	0.25	0.24	0.25	0.23	0.24	0.25	0.25	0.25	0.25	0.26	0.25	0.26	0.26	0.25	0.25	0.25	0.25	0.24	0.24							
C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance												
K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance								P	Power Failure			
X	Invalid Data (Equipment Malfunction /Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																					
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																															
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																															

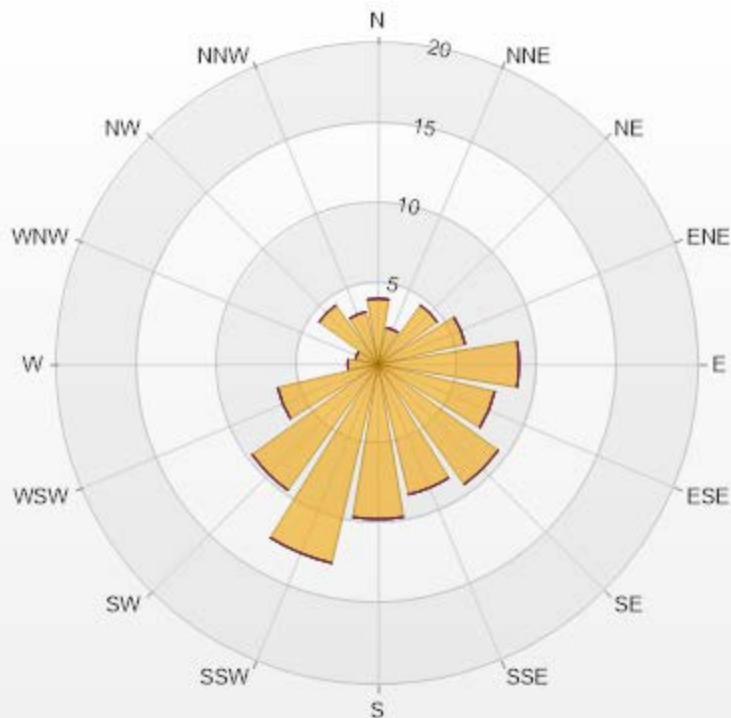
Timeseries Chart of Hourly Average for TRS - 842b Station





Wind: PRAMP 842b Poll.: PRAMP 842b-TRS[ppb] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.00% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	4.09	0	0	0	0	4.09
NNE	2.34	0	0	0	0	2.34
NE	4.53	0	0	0	0	4.53
ENE	5.56	0	0	0	0	5.56
E	8.77	0	0	0	0	8.77
ESE	7.46	0	0	0	0	7.46
SE	9.21	0	0	0	0	9.21
SSE	8.33	0	0	0	0	8.33
S	9.65	0	0	0	0	9.65
SSW	12.72	0	0	0	0	12.72
SW	9.65	0	0	0	0	9.65
WSW	6.43	0	0	0	0	6.43
W	1.9	0	0	0	0	1.9
WNW	1.46	0	0	0	0	1.46
NW	4.53	0	0	0	0	4.53
NNW	3.36	0	0	0	0	3.36
Summary	100	0	0	0	0	100



PRAMP-202111

Page 80 of 226

% Icon Classes (ppb)

100 0-2

0 2-5

0 5-10

0 10-50

0 >50.0



PEACE RIVER AREA MONITORING PROGRAM

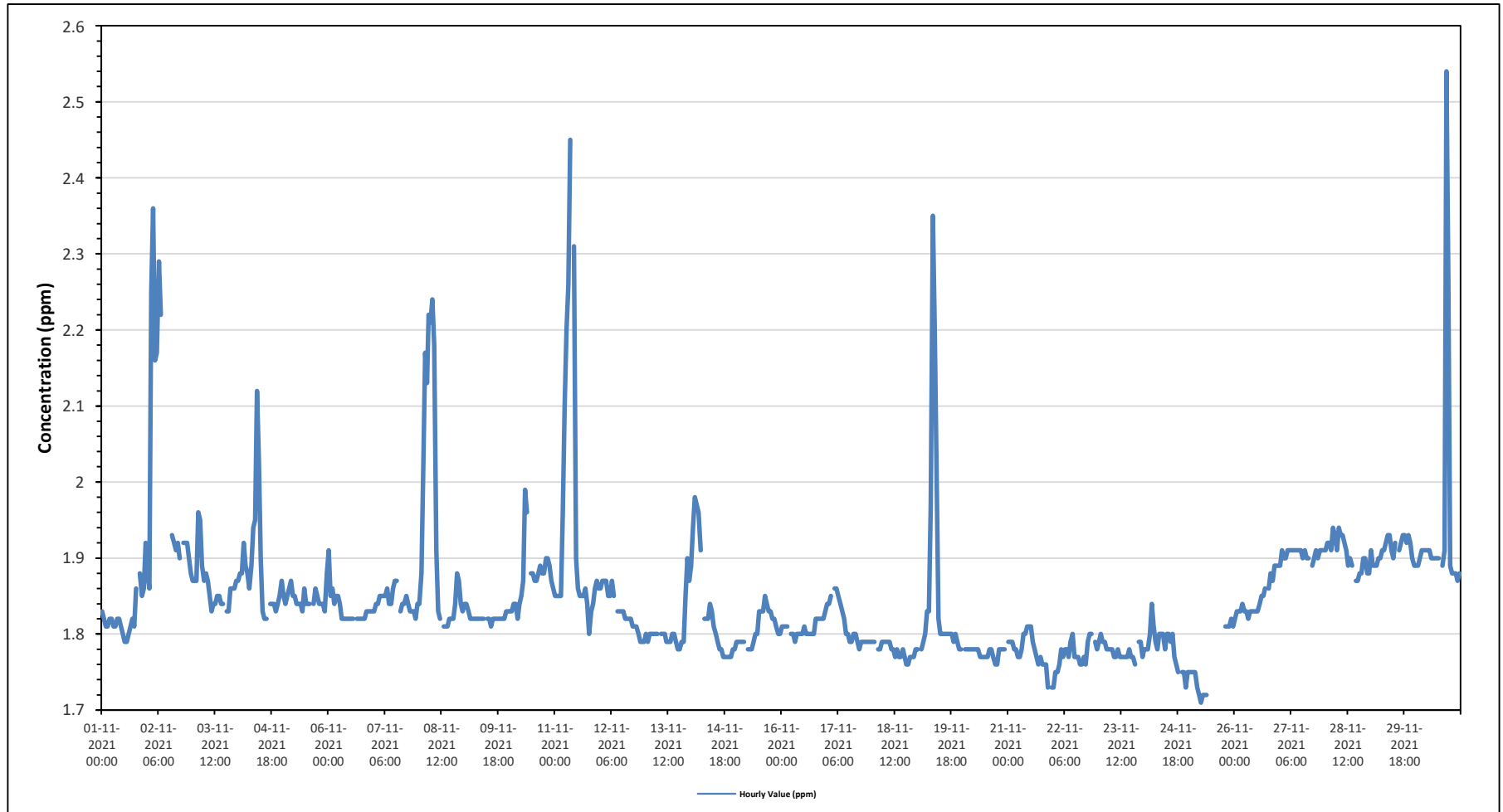
842b Station - November 2021

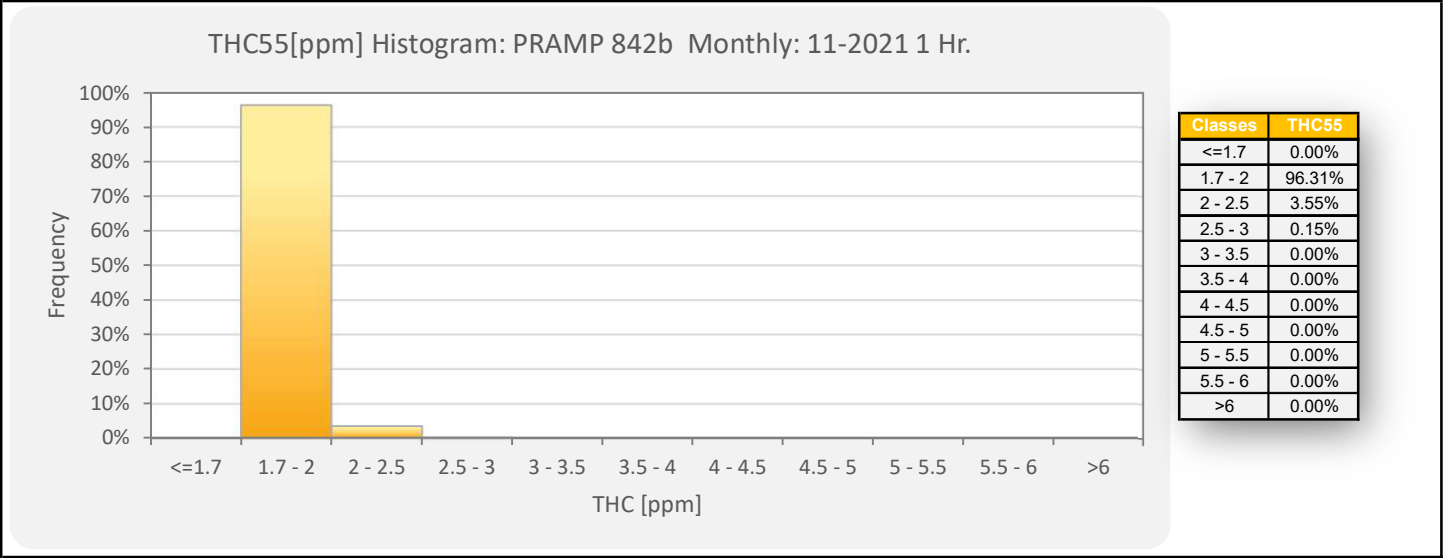
Summary of Hourly Averages

TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	2.54	ppm	on November 30 at hour 16											Hours in Service:	720													
Maximum Daily Value:	2.02	ppm	on November 2											Hours of Data:	677													
Minimum Hourly Value:	1.71	ppm	on November 25 at hour 6											Hours of Missing Data:	7													
Minimum Daily Value:	1.77	ppm	on November 22											Hours of Calibration:	36													
Monthly Average:	1.85	ppm												Operational Uptime:	99.0													
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				
Nov 1	1.83	1.82	1.81	1.81	1.82	1.82	1.81	1.81	1.82	1.82	1.81	1.80	1.79	1.79	1.80	1.81	1.82	1.81	1.86	S	1.88	1.85	1.86	1.92	1.79	1.92	1.82	
Nov 2	1.88	1.86	2.25	2.36	2.16	2.17	2.29	2.22	C	C	C	C	C	1.93	1.92	1.91	1.92	1.90	S	1.92	1.92	1.92	1.90	1.88	1.86	2.36	2.02	
Nov 3	1.87	1.87	1.87	1.96	1.95	1.89	1.87	1.88	1.87	1.85	1.83	1.84	1.84	1.85	1.85	1.84	1.84	S	1.83	1.83	1.86	1.86	1.86	1.87	1.83	1.96	1.86	
Nov 4	1.87	1.88	1.88	1.92	1.89	1.88	1.86	1.89	1.94	1.95	2.12	2.03	1.90	1.83	1.82	1.82	S	1.84	1.84	1.84	1.83	1.84	1.85	1.87	1.82	2.12	1.89	
Nov 5	1.85	1.84	1.85	1.86	1.87	1.85	1.85	1.84	1.84	1.84	1.83	1.86	1.84	1.84	1.84	S	1.84	1.86	1.85	1.84	1.84	1.84	1.83	1.88	1.83	1.88	1.85	
Nov 6	1.91	1.85	1.86	1.84	1.85	1.85	1.84	1.82	1.82	1.82	1.82	1.82	1.82	1.82	S	1.82	1.82	1.82	1.82	1.82	1.83	1.83	1.83	1.83	1.82	1.91	1.83	
Nov 7	1.83	1.84	1.84	1.85	1.85	1.85	1.85	1.86	1.84	1.84	1.86	1.87	1.87	S	1.83	1.84	1.84	1.85	1.84	1.83	1.83	1.83	1.82	1.84	1.82	1.87	1.84	
Nov 8	1.84	1.88	2.02	2.17	2.13	2.22	2.21	2.24	2.18	1.91	1.83	1.82	S	1.81	1.81	1.81	1.82	1.82	1.82	1.84	1.88	1.87	1.84	1.83	1.81	2.24	1.94	
Nov 9	1.84	1.84	1.83	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	S	S	1.82	1.82	1.81	1.82	1.82	1.82	1.82	1.82	1.82	1.83	1.83	1.81	1.84	1.82	
Nov 10	1.83	1.83	1.84	1.84	1.82	1.84	1.85	1.87	1.99	1.96	S	1.88	1.88	1.87	1.87	1.88	1.89	1.88	1.88	1.88	1.90	1.90	1.89	1.87	1.86	1.82	1.99	1.87
Nov 11	1.85	1.85	1.85	1.85	1.96	2.10	2.20	2.26	2.45	S	2.31	1.90	1.86	1.85	1.85	1.85	1.86	1.84	1.80	1.83	1.84	1.86	1.87	1.86	1.80	2.45	1.95	
Nov 12	1.86	1.87	1.87	1.87	1.85	1.85	1.87	1.85	S	1.83	1.83	1.83	1.83	1.82	1.82	1.82	1.82	1.81	1.81	1.81	1.80	1.79	1.79	1.79	1.79	1.87	1.83	
Nov 13	1.80	1.79	1.80	1.80	1.80	1.80	1.80	S	1.80	1.80	1.80	1.79	1.79	1.79	1.80	1.80	1.79	1.78	1.78	1.79	1.79	1.85	1.90	1.87	1.78	1.90	1.80	
Nov 14	1.89	1.94	1.98	1.97	1.96	1.91	S	1.82	1.82	1.82	1.84	1.83	1.81	1.80	1.79	1.78	1.78	1.77	1.77	1.77	1.77	1.78	1.78	1.77	1.98	1.83		
Nov 15	1.79	1.79	1.79	1.79	1.79	S	1.78	1.78	1.78	1.79	1.80	1.80	1.83	1.83	1.83	1.85	1.84	1.83	1.83	1.82	1.82	1.81	1.80	1.80	1.78	1.85	1.81	
Nov 16	1.81	1.81	1.81	1.81	S	1.80	1.80	1.79	1.80	1.80	1.80	1.80	1.81	1.80	1.80	1.80	1.80	1.80	1.82	1.82	1.82	1.82	1.82	1.83	1.79	1.83	1.81	
Nov 17	1.84	1.84	1.85	S	1.86	1.86	1.85	1.84	1.83	1.82	1.80	1.80	1.79	1.79	1.80	1.80	1.79	1.78	1.79	1.79	1.79	1.79	1.79	1.78	1.86	1.81		
Nov 18	1.79	1.79	S	1.78	1.78	1.79	1.79	1.79	1.79	1.79	1.78	1.78	1.77	1.78	1.77	1.77	1.78	1.77	1.76	1.76	1.77	1.77	1.77	1.78	1.76	1.79	1.78	
Nov 19	1.78	S	1.78	1.79	1.80	1.83	1.83	1.97	2.35	2.20	2.01	1.82	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.79	1.80	1.79	1.78	1.78	2.35	1.86		
Nov 20	S	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.77	1.77	1.77	1.77	1.77	1.78	1.78	1.77	1.76	1.76	1.78	1.78	1.78	1.78	S	1.76	1.78	1.78	
Nov 21	1.79	1.79	1.79	1.78	1.78	1.77	1.77	1.78	1.80	1.80	1.81	1.81	1.81	1.79	1.78	1.77	1.76	1.77	1.76	1.76	1.76	1.73	S	1.73	1.73	1.81	1.78	
Nov 22	1.73	1.75	1.75	1.76	1.78	1.77	1.78	1.78	1.77	1.79	1.80	1.77	1.77	1.77	1.76	1.76	1.77	1.76	1.79	1.80	1.80	S	1.79	1.78	1.73	1.80	1.77	
Nov 23	1.79	1.80	1.79	1.79	1.78	1.78	1.78	1.78	1.77	1.77	1.78	1.77	1.77	1.77	1.77	1.78	1.77	1.77	1.77	1.76	1.78	S	1.79	1.79	1.76	1.80	1.78	
Nov 24	1.78	1.78	1.78	1.80	1.84	1.81	1.79	1.78	1.80	1.80	1.80	1.78	1.80	1.80	1.79	1.80	1.77	1.76	1.75	S	1.75	1.75	1.73	1.75	1.73	1.84	1.78	
Nov 25	1.75	1.75	1.75	1.75	1.73	1.72	1.71	1.72	1.72	1.72	NRM	NRM	NRM	NRM	NRM	NRM	NRM	1.80	S	1.81	1.81	1.81	1.82	1.81	1.71	1.82	-	
Nov 26	1.82	1.83	1.83	1.83	1.84	1.83	1.83	1.82	1.83	1.83	1.83	1.83	1.83	1.84	1.85	1.85	1.86	S	1.86	1.88	1.87	1.89	1.89	1.89	1.82	1.89	1.85	
Nov 27	1.89	1.91	1.90	1.90	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.90	1.91	1.90	1.90	S	1.89	1.90	1.91	1.90	1.91	1.91	1.91	1.89	1.91	1.91	
Nov 28	1.91	1.92	1.92	1.91	1.94	1.93	1.91	1.94	1.93	1.93	1.92	1.91	1.89	1.90	1.89	S	1.87	1.87	1.88	1.88	1.90	1.90	1.88	1.88	1.87	1.94	1.90	
Nov 29	1.91	1.89	1.89	1.89	1.90	1.90	1.91	1.91	1.92	1.93	1.93	1.91	1.90	1.92	S	1.91	1.92	1.93	1.93	1.92	1.93	1.92	1.90	1.89	1.89	1.93	1.91	
Nov 30	1.89	1.89	1.90	1.91	1.91	1.91	1.91	1.91	1.90	1.90	1.90	1.90	1.90	S	1.89	1.91	2.54	2.27	1.89	1.88	1.88	1.88	1.87	1.88	1.87	2.54	1.94	
Diurnal Maximum	1.91	1.94	2.25	2.36	2.16	2.22	2.29	2.26	2.45	2.20	2.31	2.03	1.90	1.93	1.92	1.91	2.54	2.27	1.93	1.92	1.93	1.92	1.91	1.92				
Diurnal Average	1.84	1.84	1.86	1.87	1.87	1.87	1.87	1.88	1.89	1.85	1.86	1.84	1.83	1.83	1.82	1.82	1.85	1.83	1.82	1.83	1.83	1.83	1.83	1.83				
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance											
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance							P	Power Failure			
X	Invalid Data (Equipment Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																			
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																												
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																												

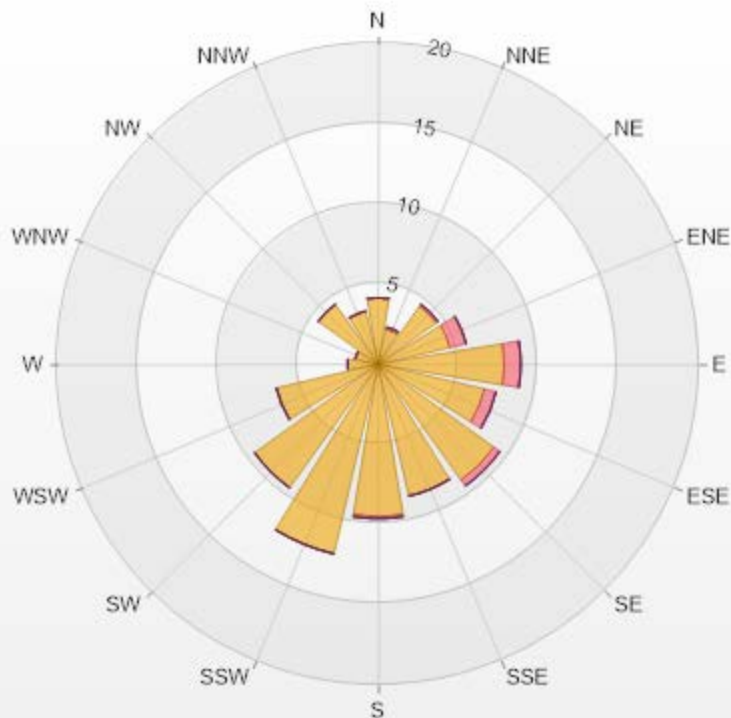
Timeseries Chart of Hourly Average for THC - 842b Station





Wind: PRAMP 842b Poll.: PRAMP 842b-THC55[ppm] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.03% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	4.14	0	0	0	0	4.14
NNE	2.22	0.15	0	0	0	2.37
NE	4.43	0.15	0	0	0	4.58
ENE	4.58	1.03	0	0	0	5.61
E	7.83	1.03	0	0	0	8.86
ESE	6.79	0.74	0	0	0	7.53
SE	8.86	0.44	0	0	0	9.3
SSE	8.42	0	0	0	0	8.42
S	9.6	0.15	0	0	0	9.75
SSW	12.11	0	0	0	0	12.11
SW	9.45	0	0	0	0	9.45
WSW	6.5	0	0	0	0	6.5
W	1.92	0	0	0	0	1.92
WNW	1.48	0	0	0	0	1.48
NW	4.58	0	0	0	0	4.58
NNW	3.4	0	0	0	0	3.4
Summary	96.31	3.69	0	0	0	100



PRAMP-202111

Page 85 of 226

% Icon Classes (ppm)

96 0-2

4 2-5

0 5-10

0 10-40

0 >40.0



PEACE RIVER AREA MONITORING PROGRAM

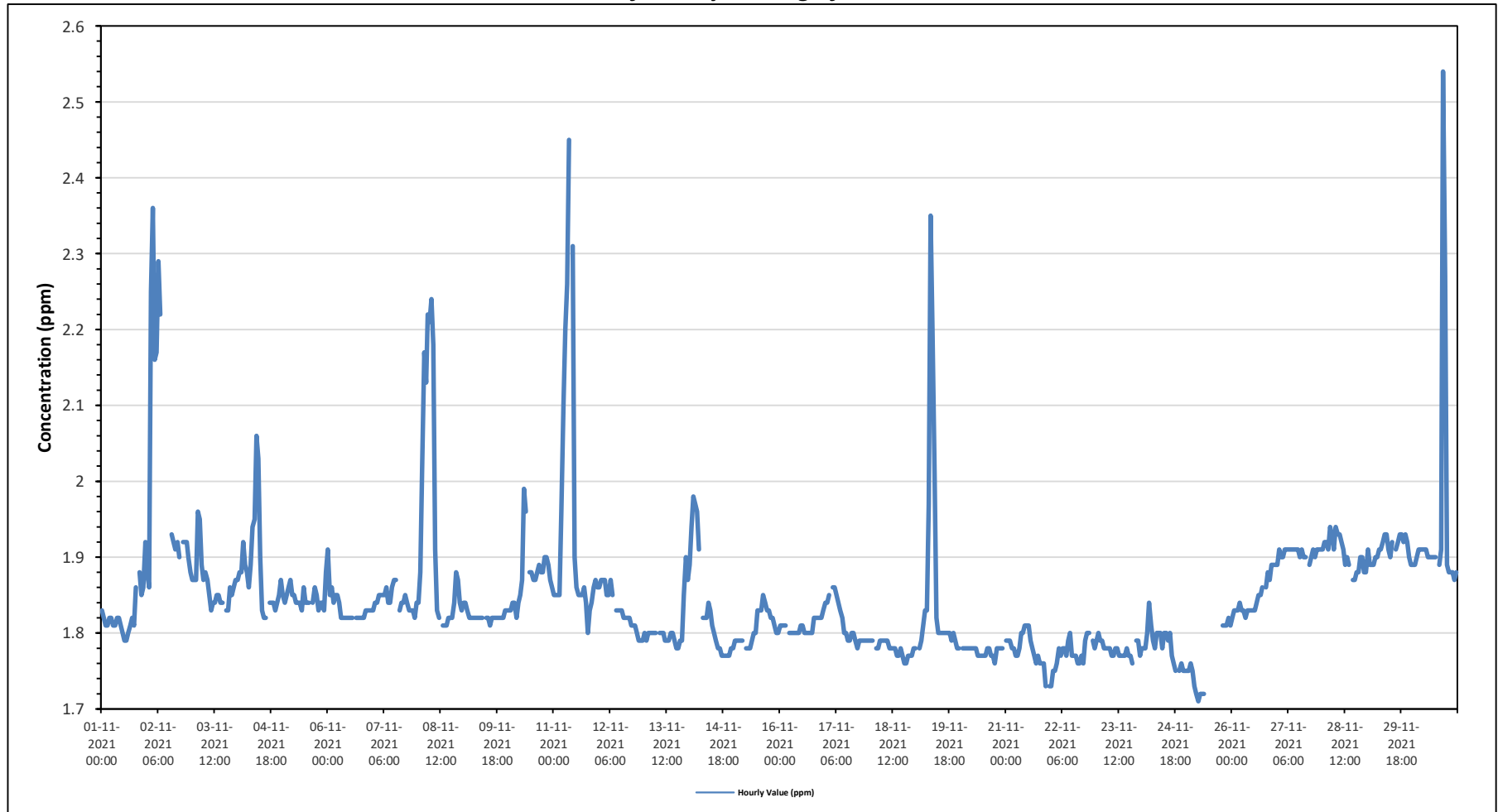
842b Station - November 2021

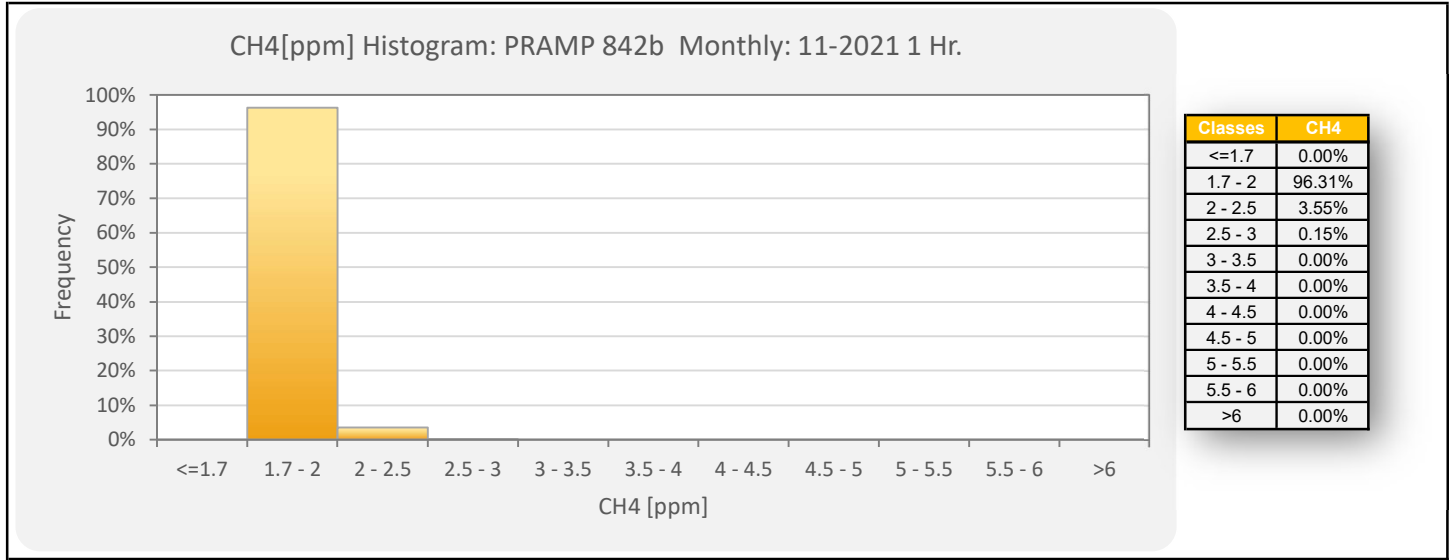
Summary of Hourly Averages

METHANE (CH4) in ppm

Maximum Hourly Value:		2.54	ppm	on November 30 at hour 16	Hours in Service:		720																						
Maximum Daily Value:		2.02	ppm	on November 2	Hours of Data:		677																						
Minimum Hourly Value:		1.71	ppm	on November 25 at hour 6	Hours of Missing Data:		7																						
Minimum Daily Value:		1.77	ppm	on November 22	Hours of Calibration:		36																						
Monthly Average:		1.85	ppm		Operational Uptime:		99.0																						
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
Nov 1	1.83	1.82	1.81	1.81	1.82	1.82	1.81	1.81	1.82	1.82	1.81	1.80	1.79	1.79	1.80	1.81	1.82	1.81	S	1.88	1.85	1.86	1.92	1.79	1.92	1.82			
Nov 2	1.88	1.86	2.25	2.36	2.16	2.17	2.29	2.22	C	C	C	C	C	1.93	1.92	1.91	1.92	1.90	S	1.92	1.92	1.92	1.90	1.88	1.86	2.36	2.02		
Nov 3	1.87	1.87	1.87	1.96	1.95	1.89	1.87	1.88	1.87	1.85	1.83	1.84	1.84	1.85	1.85	1.84	1.84	S	1.83	1.83	1.86	1.85	1.86	1.87	1.83	1.96	1.86		
Nov 4	1.87	1.88	1.88	1.92	1.89	1.88	1.86	1.89	1.94	1.95	2.06	2.03	1.90	1.83	1.82	1.82	S	1.84	1.84	1.84	1.83	1.84	1.85	1.87	1.82	2.06	1.88		
Nov 5	1.85	1.84	1.85	1.86	1.87	1.85	1.85	1.84	1.84	1.84	1.83	1.86	1.84	1.84	1.84	S	1.84	1.86	1.85	1.83	1.84	1.84	1.83	1.88	1.83	1.88	1.85		
Nov 6	1.91	1.85	1.86	1.84	1.85	1.85	1.84	1.82	1.82	1.82	1.82	1.82	1.82	1.82	S	1.82	1.82	1.82	1.82	1.82	1.83	1.83	1.83	1.83	1.82	1.91	1.83		
Nov 7	1.83	1.84	1.84	1.85	1.85	1.85	1.85	1.86	1.84	1.84	1.86	1.87	1.87	S	1.83	1.84	1.84	1.85	1.84	1.83	1.83	1.83	1.82	1.84	1.82	1.87	1.84		
Nov 8	1.84	1.88	2.02	2.17	2.13	2.22	2.21	2.24	2.18	1.91	1.83	1.82	S	1.81	1.81	1.81	1.82	1.82	1.82	1.84	1.88	1.87	1.84	1.83	1.81	2.24	1.94		
Nov 9	1.84	1.84	1.83	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	S	1.82	1.82	1.81	1.82	1.82	1.82	1.82	1.82	1.82	1.83	1.83	1.83	1.81	1.84	1.82		
Nov 10	1.83	1.83	1.84	1.84	1.82	1.84	1.85	1.87	1.99	1.96	S	1.88	1.88	1.87	1.87	1.88	1.89	1.88	1.88	1.90	1.90	1.89	1.87	1.86	1.82	1.99	1.87		
Nov 11	1.85	1.85	1.85	1.85	1.96	2.10	2.20	2.26	2.45	S	2.31	1.90	1.86	1.85	1.85	1.85	1.86	1.84	1.80	1.83	1.84	1.86	1.87	1.86	1.80	2.45	1.95		
Nov 12	1.86	1.87	1.87	1.87	1.85	1.85	1.87	1.85	S	1.83	1.83	1.83	1.83	1.82	1.82	1.82	1.82	1.81	1.81	1.81	1.80	1.79	1.79	1.79	1.79	1.87	1.83		
Nov 13	1.80	1.79	1.80	1.80	1.80	1.80	1.80	S	1.80	1.80	1.80	1.79	1.79	1.79	1.80	1.80	1.79	1.78	1.78	1.79	1.79	1.85	1.90	1.87	1.78	1.90	1.80		
Nov 14	1.89	1.94	1.98	1.97	1.96	1.91	S	1.82	1.82	1.82	1.84	1.83	1.81	1.80	1.79	1.78	1.78	1.77	1.77	1.77	1.77	1.77	1.78	1.78	1.77	1.98	1.83		
Nov 15	1.79	1.79	1.79	1.79	1.79	S	1.78	1.78	1.78	1.79	1.80	1.80	1.83	1.83	1.83	1.85	1.84	1.83	1.83	1.82	1.82	1.81	1.80	1.80	1.78	1.85	1.81		
Nov 16	1.81	1.81	1.81	1.81	S	1.80	1.80	1.80	1.80	1.80	1.80	1.81	1.81	1.80	1.80	1.80	1.80	1.82	1.82	1.82	1.82	1.82	1.83	1.80	1.83	1.81			
Nov 17	1.84	1.84	1.85	S	1.86	1.86	1.85	1.84	1.83	1.82	1.80	1.80	1.79	1.79	1.80	1.80	1.79	1.78	1.79	1.79	1.79	1.79	1.79	1.78	1.86	1.81			
Nov 18	1.79	1.79	S	1.78	1.78	1.79	1.79	1.79	1.79	1.79	1.78	1.78	1.78	1.78	1.77	1.77	1.78	1.77	1.76	1.76	1.77	1.77	1.77	1.78	1.76	1.79	1.78		
Nov 19	1.78	S	1.78	1.79	1.81	1.83	1.83	1.97	2.35	2.20	2.01	1.82	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.79	1.80	1.79	1.78	1.78	1.78	2.35	1.86		
Nov 20	S	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.77	1.77	1.77	1.77	1.77	1.78	1.78	1.77	1.77	1.76	1.78	1.78	1.78	1.78	S	1.76	1.78	1.78		
Nov 21	1.79	1.79	1.79	1.78	1.78	1.77	1.77	1.78	1.80	1.80	1.81	1.81	1.81	1.79	1.78	1.77	1.76	1.77	1.76	1.76	1.76	1.73	S	1.73	1.73	1.81	1.78		
Nov 22	1.73	1.75	1.75	1.76	1.78	1.77	1.78	1.78	1.77	1.79	1.80	1.77	1.77	1.77	1.76	1.76	1.77	1.76	1.79	1.80	1.80	S	1.79	1.78	1.73	1.80	1.77		
Nov 23	1.79	1.80	1.79	1.79	1.78	1.78	1.78	1.78	1.77	1.77	1.78	1.78	1.77	1.77	1.77	1.77	1.78	1.77	1.77	1.76	S	1.79	1.79	1.77	1.76	1.80	1.78		
Nov 24	1.78	1.78	1.78	1.80	1.84	1.81	1.79	1.78	1.80	1.80	1.80	1.78	1.80	1.80	1.79	1.80	1.77	1.76	1.75	S	1.75	1.76	1.75	1.75	1.75	1.84	1.78		
Nov 25	1.75	1.75	1.76	1.75	1.73	1.72	1.71	1.72	1.72	1.72	NRM	NRM	NRM	NRM	NRM	NRM	NRM	1.80	S	1.81	1.81	1.81	1.82	1.81	1.71	1.82	-		
Nov 26	1.82	1.83	1.83	1.83	1.84	1.83	1.83	1.82	1.83	1.83	1.83	1.83	1.83	1.84	1.85	1.85	1.86	S	1.86	1.88	1.87	1.89	1.89	1.89	1.82	1.89	1.85		
Nov 27	1.89	1.91	1.90	1.90	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.90	1.91	1.90	1.90	S	1.89	1.90	1.91	1.90	1.91	1.91	1.91	1.89	1.91	1.91		
Nov 28	1.91	1.92	1.92	1.91	1.94	1.93	1.91	1.94	1.93	1.93	1.92	1.91	1.89	1.90	1.89	S	1.87	1.87	1.88	1.88	1.90	1.90	1.88	1.88	1.87	1.94	1.90		
Nov 29	1.91	1.89	1.89	1.89	1.90	1.90	1.91	1.91	1.92	1.93	1.93	1.91	1.90	1.92	S	1.91	1.92	1.93	1.93	1.92	1.93	1.92	1.90	1.89	1.89	1.93	1.91		
Nov 30	1.89	1.89	1.90	1.91	1.91	1.91	1.91	1.91	1.90	1.90	1.90	1.90	1.90	1.90	S	1.89	1.91	2.54	2.27	1.89	1.88	1.88	1.87	1.88	1.87	2.54	1.94		
Diurnal Maximum	1.91	1.94	2.25	2.36	2.16	2.22	2.29	2.26	2.45	2.20	2.31	2.03	1.90	1.93	1.92	1.91	2.54	2.27	1.93	1.92	1.93	1.92	1.91	1.92					
Diurnal Average	1.84	1.84	1.86	1.87	1.87	1.87	1.88	1.89	1.85	1.86	1.84	1.83	1.83	1.82	1.82	1.82	1.85	1.83	1.82	1.83	1.83	1.83	1.83	1.83					
C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance										
K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance								P	Power Failure	
X	Invalid Data (Equipment Malfunction /Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																			
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																													
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																													

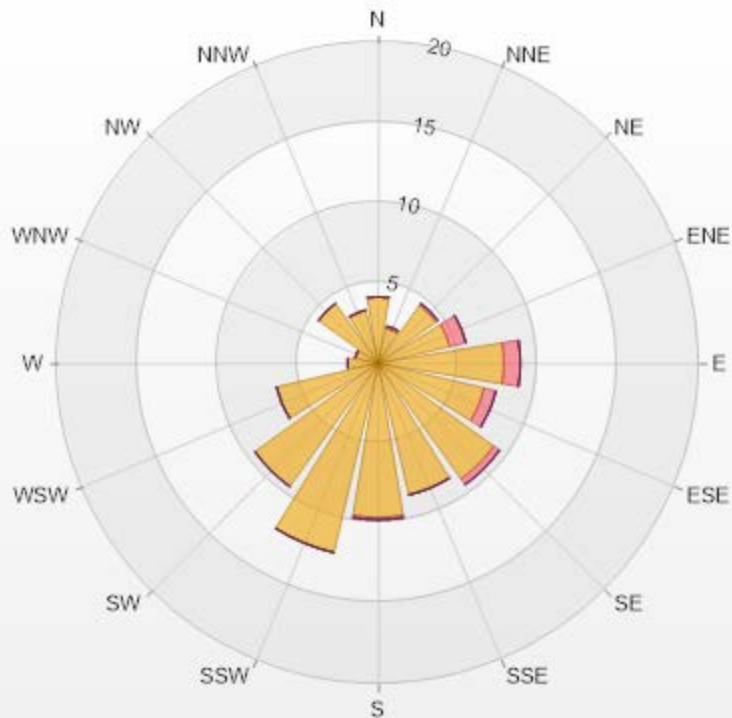
Timeseries Chart of Hourly Average for CH4 - 842b Station





Wind: PRAMP 842b Poll.: PRAMP 842b-CH4[ppm] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.03% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	4.14	0	0	0	0	4.14
NNE	2.22	0.15	0	0	0	2.37
NE	4.43	0.15	0	0	0	4.58
ENE	4.58	1.03	0	0	0	5.61
E	7.83	1.03	0	0	0	8.86
ESE	6.79	0.74	0	0	0	7.53
SE	8.86	0.44	0	0	0	9.3
SSE	8.42	0	0	0	0	8.42
S	9.6	0.15	0	0	0	9.75
SSW	12.11	0	0	0	0	12.11
SW	9.45	0	0	0	0	9.45
WSW	6.5	0	0	0	0	6.5
W	1.92	0	0	0	0	1.92
WNW	1.48	0	0	0	0	1.48
NW	4.58	0	0	0	0	4.58
NNW	3.4	0	0	0	0	3.4
Summary	96.31	3.69	0	0	0	100



PRAMP-202111

Page 90 of 226

% Icon Classes (ppm)

96 0-2

4 2-5

0 5-10

0 10-20

0 >20.0



PEACE RIVER AREA MONITORING PROGRAM

842b Station - November 2021

Summary of Hourly Averages

NON-METHANE HYDROCARBONS (NMHC) in ppm

Maximum Hourly Value:	0.06	ppm	on November 4 at hour 10	Hours in Service:	720
Maximum Daily Value:	0.00	ppm	on November 4	Hours of Data:	677
Minimum Hourly Value:	0.00	ppm	on November 1 at hour 0	Hours of Missing Data:	7
Minimum Daily Value:	0.00	ppm	on November 1	Hours of Calibration:	36
Monthly Average:	0.00	ppm		Operational Uptime:	99.0

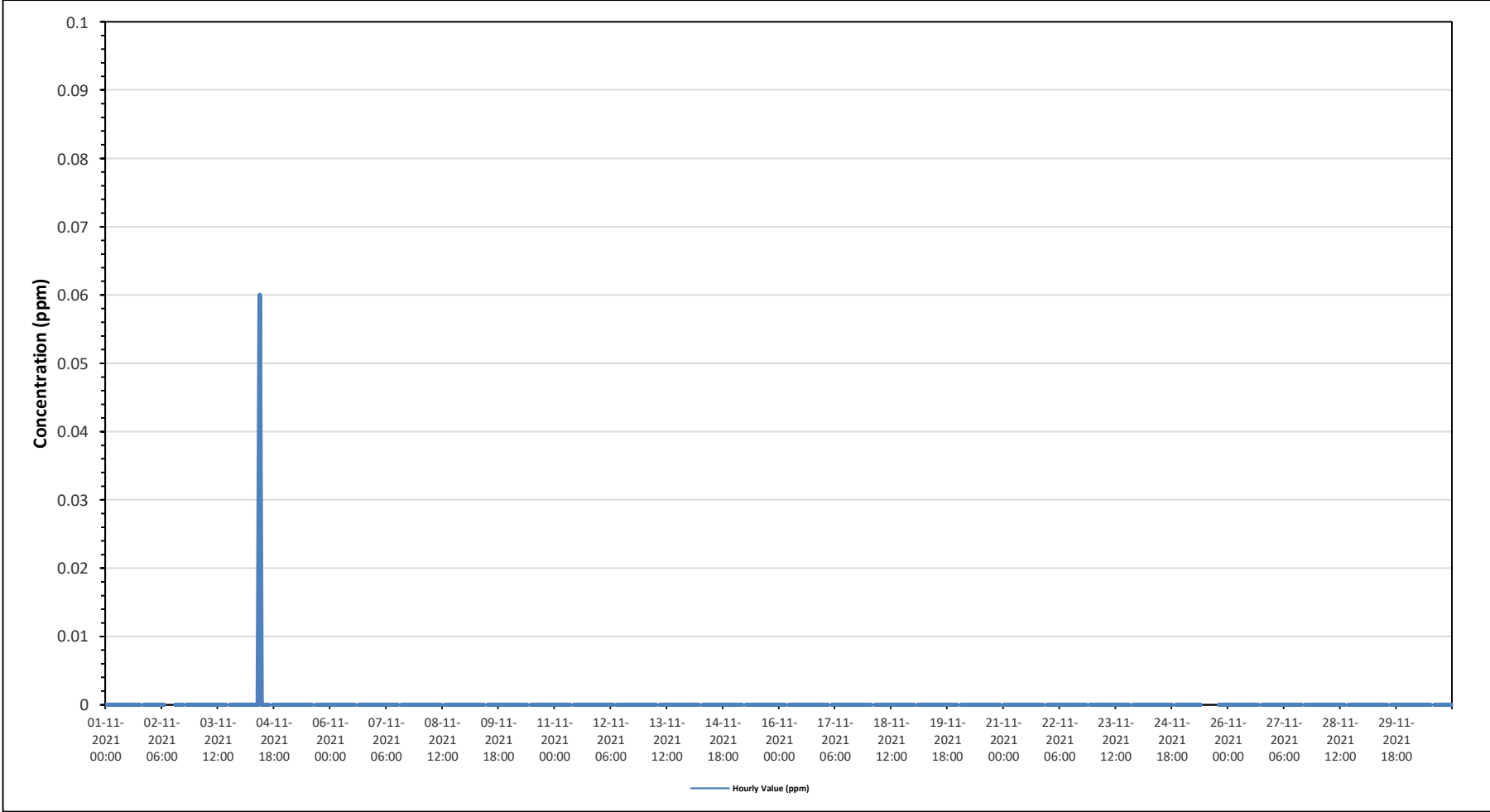
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average
Nov 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 4	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	0.00
Nov 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	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	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diurnal Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

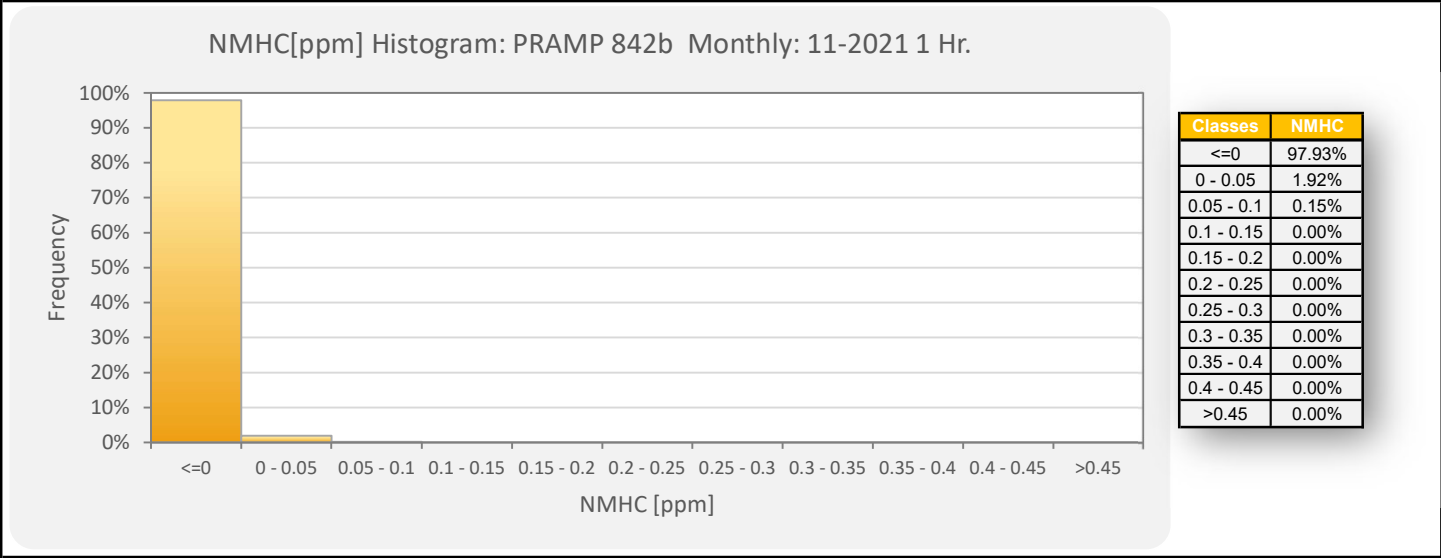
C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	N	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

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

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

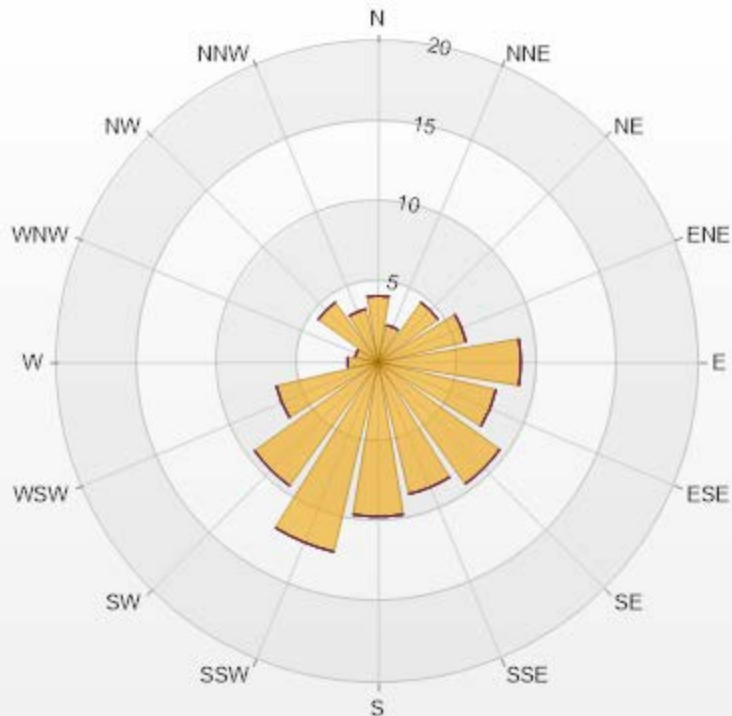
Timeseries Chart of Hourly Average for NMHC - 842b Station





Wind: PRAMP 842b Poll.: PRAMP 842b-NMHC[ppm] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.03% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	4.14	0	0	0	0	4.14
NNE	2.36	0	0	0	0	2.36
NE	4.58	0	0	0	0	4.58
ENE	5.61	0	0	0	0	5.61
E	8.86	0	0	0	0	8.86
ESE	7.53	0	0	0	0	7.53
SE	9.31	0	0	0	0	9.31
SSE	8.42	0	0	0	0	8.42
S	9.75	0	0	0	0	9.75
SSW	12.11	0	0	0	0	12.11
SW	9.45	0	0	0	0	9.45
WSW	6.5	0	0	0	0	6.5
W	1.92	0	0	0	0	1.92
WNW	1.48	0	0	0	0	1.48
NW	4.58	0	0	0	0	4.58
NNW	3.4	0	0	0	0	3.4
Summary	100	0	0	0	0	100



PRAMP-202111

Page 95 of 226

% Icon Classes (ppm)

100 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

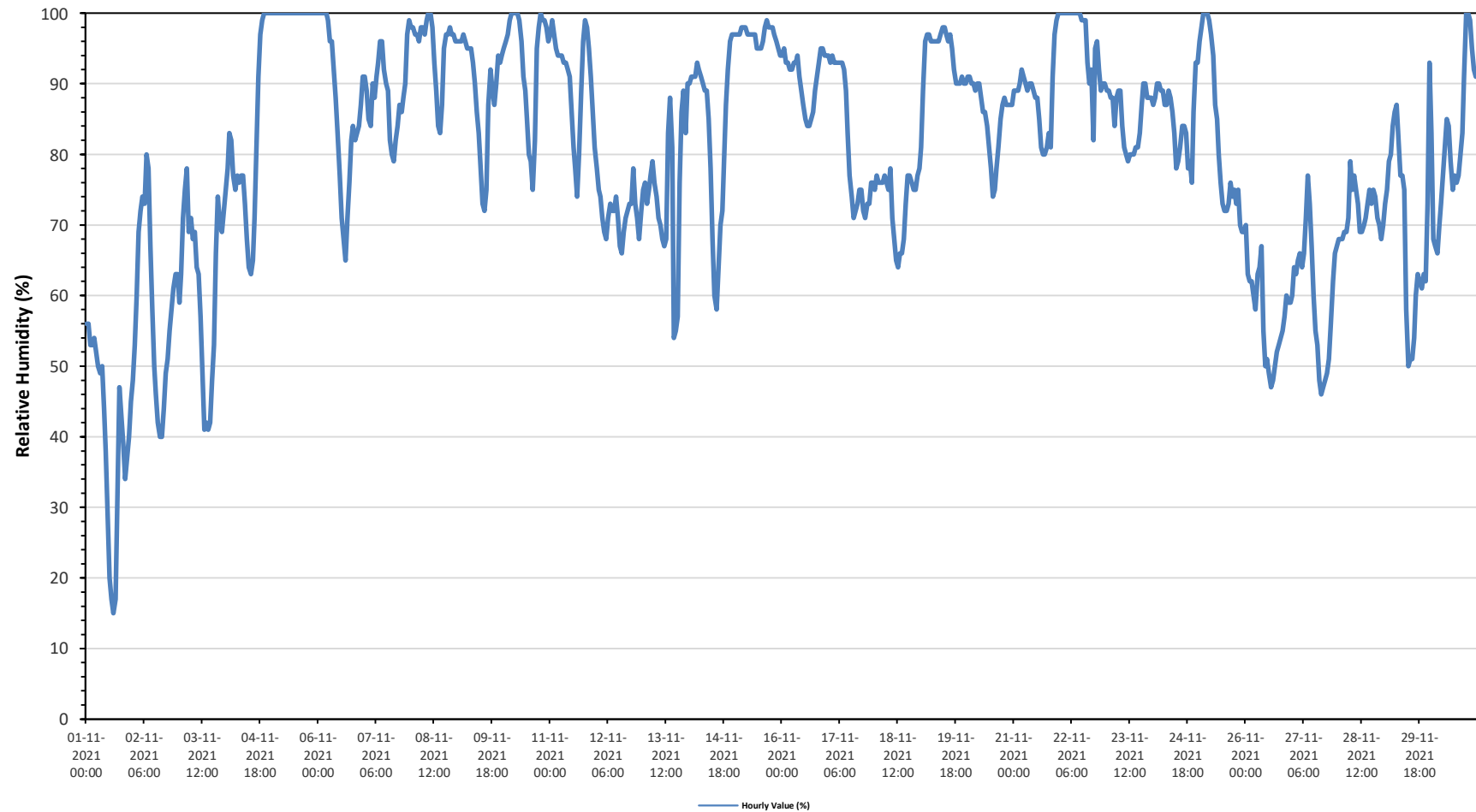
842b Station - November 2021

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:										100	%	on November 4 at hour 20										Hours in Service:										720
Maximum Daily Value:										100	%	on November 5										Hours of Data:										720
Minimum Hourly Value:										15	%	on November 1 at hour 14										Hours of Missing Data:										0
Minimum Daily Value:										40.4	%	on November 1										Hours of Calibration:										0
Monthly Average:										80.5	%											Operational Uptime:										100.0
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average						
Nov 1	56	56	53	53	54	52	50	49	50	44	38	29	20	17	15	17	32	47	43	39	34	37	40	45	15	56	40.4					
Nov 2	48	53	60	69	72	74	73	80	78	67	58	50	46	42	40	40	44	49	51	55	58	61	63	63	40	80	58.1					
Nov 3	59	63	71	75	78	69	71	68	69	64	63	57	49	41	42	41	42	48	53	66	74	70	69	72	41	78	61.4					
Nov 4	75	78	83	82	77	75	77	76	77	77	73	68	64	63	65	71	81	91	97	99	100	100	100	100	63	100	81.2					
Nov 5	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100.0					
Nov 6	100	100	100	100	100	99	96	96	92	88	83	77	71	68	65	71	76	82	84	82	83	84	87	91	65	100	86.5					
Nov 7	91	89	85	84	90	88	91	93	96	96	92	90	89	82	80	79	82	84	87	86	88	90	97	99	79	99	88.7					
Nov 8	98	98	97	97	96	98	98	97	99	100	100	98	93	89	84	83	87	95	97	97	98	97	97	96	83	100	95.4					
Nov 9	96	96	96	97	96	95	95	95	93	90	86	83	78	73	72	75	87	92	89	87	90	94	93	94	72	97	89.3					
Nov 10	95	96	97	99	100	100	100	100	99	96	91	89	85	80	79	75	82	95	98	100	99	99	98	96	75	100	93.7					
Nov 11	97	99	97	95	94	94	94	93	93	92	91	86	81	78	74	80	89	96	99	98	95	91	86	81	74	99	90.5					
Nov 12	78	75	74	71	69	68	71	73	72	72	74	71	67	66	69	71	72	73	73	78	73	71	68	72	66	78	71.7					
Nov 13	75	76	73	75	77	79	76	74	71	70	68	67	68	83	88	81	54	55	57	76	86	89	83	90	54	90	74.6					
Nov 14	90	91	91	91	93	92	91	90	89	89	85	78	68	60	58	64	70	72	79	87	92	96	97	97	58	97	83.8					
Nov 15	97	97	97	98	98	98	97	97	97	97	97	95	95	95	96	98	99	98	98	98	97	96	95	94	94	99	96.8					
Nov 16	94	95	93	93	92	92	93	93	93	94	91	89	87	85	84	84	85	86	89	91	93	95	95	94	84	95	90.9					
Nov 17	94	93	94	93	93	93	93	93	92	89	83	77	74	71	72	73	75	75	72	71	73	73	76	76	71	94	82.0					
Nov 18	75	77	76	76	76	77	76	75	78	71	68	65	64	66	66	68	73	77	77	76	75	75	77	78	64	78	73.4					
Nov 19	81	89	96	97	97	96	96	96	96	96	97	98	98	97	96	97	95	92	90	90	90	91	90	90	81	98	93.8					
Nov 20	91	91	90	90	89	90	90	88	86	86	84	81	78	74	75	78	81	85	87	88	87	87	87	87	74	91	85.4					
Nov 21	89	89	89	90	92	91	90	89	90	90	89	88	88	85	81	80	80	81	83	81	91	97	99	100	80	100	88.4					
Nov 22	100	100	100	100	100	100	100	100	100	100	100	99	99	99	93	90	92	82	95	96	92	89	90	90	82	100	96.1					
Nov 23	89	89	88	88	84	88	89	89	84	81	80	79	80	80	80	81	81	83	87	90	90	88	88	88	79	90	85.2					
Nov 24	87	88	90	90	89	89	87	87	89	88	86	83	78	79	81	84	84	83	78	79	76	86	93	93	76	93	85.3					
Nov 25	96	98	100	100	100	99	97	94	87	85	80	76	73	72	72	73	76	74	75	73	75	70	69	69	69	100	82.6					
Nov 26	70	63	62	62	60	58	63	64	67	55	50	51	49	47	48	50	52	53	54	55	57	60	59	59	47	70	57.0					
Nov 27	60	64	63	65	66	64	66	71	77	73	67	60	55	53	48	46	47	48	49	51	56	62	66	67	46	77	60.2					
Nov 28	68	68	68	69	69	71	79	75	77	75	73	69	69	70	71	73	75	73	75	74	71	70	68	70	68	79	71.7					
Nov 29	73	75	79	80	84	86	87	82	77	77	75	58	50	51	51	54	60	63	62	61	63	62	73	93	50	93	69.8					
Nov 30	83	68	67	66	70	73	77	81	85	84	79	75	77	76	77	80	83	91	100	100	99	95	92	91	66	100	82.0					
Diurnal Maximum	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100								
Diurnal Average	83.5	83.8	84.3	84.8	85.2	84.9	85.4	85.3	85.1	82.8	80.0	76.1	73.0	71.4	70.7	71.9	74.6	77.5	79.3	80.9	81.9	82.5	83.1	84.5								
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance															
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance							P	Power Failure							
X	InValid Data (Equipment Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																							
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																

Timeseries Chart of Hourly Average for RH - 842b Station





PEACE RIVER AREA MONITORING PROGRAM

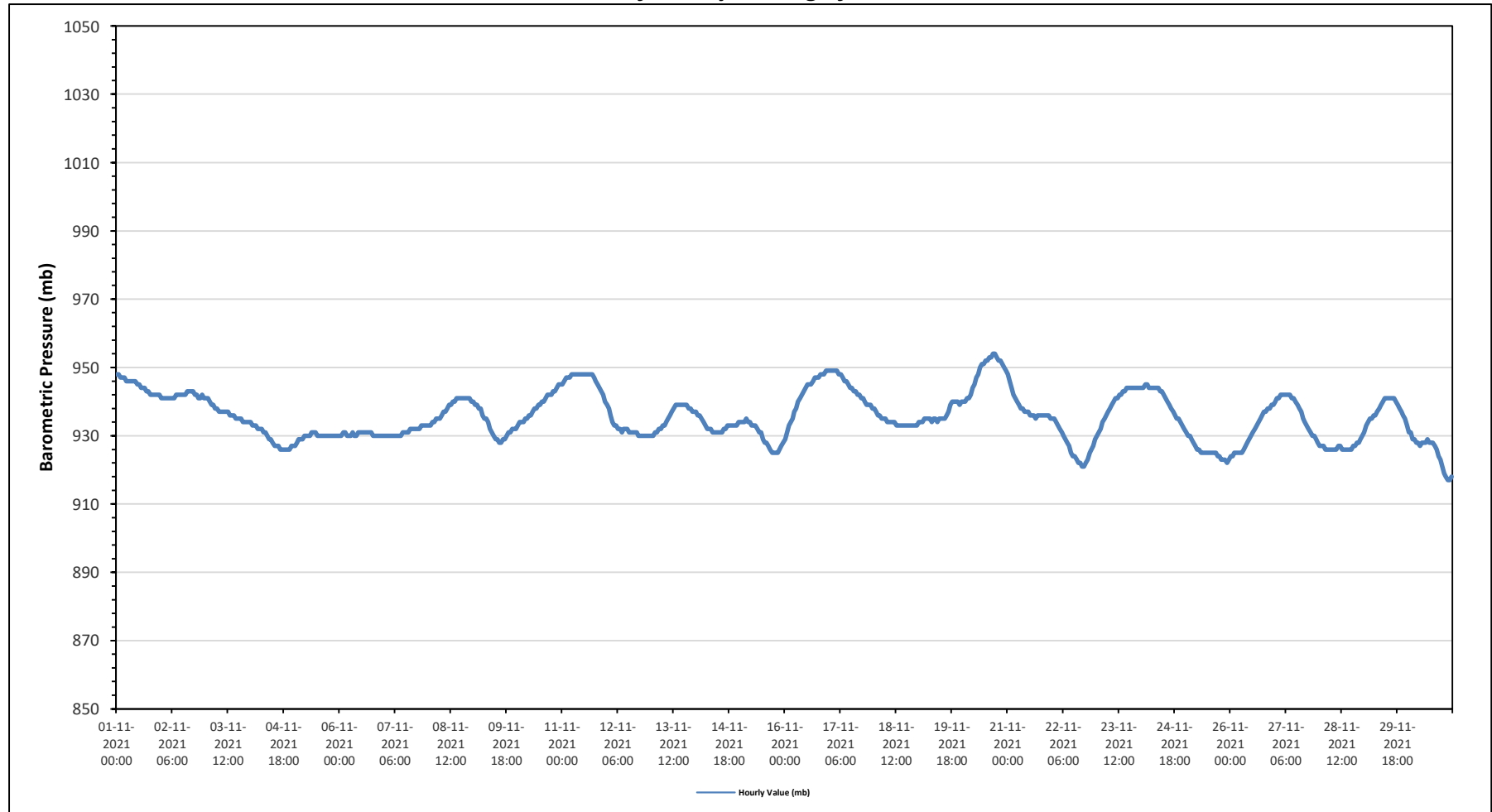
842b Station - November 2021

Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:										954	mb	on November 20 at hour 16										Hours in Service:										720
Maximum Daily Value:										949	mb	on November 20										Hours of Data:										720
Minimum Hourly Value:										917	mb	on November 30 at hour 21										Hours of Missing Data:										0
Minimum Daily Value:										925	mb	on November 30										Hours of Calibration:										0
Monthly Average:										935	mb											Operational Uptime:										100.0
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average						
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
Nov 1	948	948	947	947	947	946	946	946	946	946	946	945	945	944	944	944	943	943	942	942	942	942	942	942	942	942	948					
Nov 2	941	941	941	941	941	941	941	941	941	942	942	942	942	942	943	943	943	943	942	942	942	941	941	942	941	941	943					
Nov 3	941	941	940	939	939	938	938	937	937	937	937	937	937	936	936	936	935	935	935	935	934	934	934	934	934	934	941					
Nov 4	934	933	933	933	932	932	932	931	931	930	929	929	928	927	927	927	926	926	926	926	926	926	927	927	927	926	934					
Nov 5	927	928	929	929	929	930	930	930	930	931	931	931	930	930	930	930	930	930	930	930	930	930	930	930	930	927	931					
Nov 6	930	930	931	931	930	930	930	931	930	930	931	931	931	931	931	931	931	931	930	930	930	930	930	930	930	930	931					
Nov 7	930	930	930	930	930	930	930	930	930	930	931	931	931	931	931	932	932	932	932	932	932	933	933	933	933	933	931					
Nov 8	933	933	934	934	935	935	935	936	937	937	938	939	939	940	940	941	941	941	941	941	941	941	941	941	940	933	941					
Nov 9	940	939	939	938	938	936	935	935	934	932	931	930	929	929	928	928	929	929	930	931	931	932	932	932	932	928	940					
Nov 10	933	934	934	934	935	935	936	936	937	938	938	939	939	940	940	941	942	942	942	943	943	944	945	945	945	933	945					
Nov 11	945	946	947	947	947	948	948	948	948	948	948	948	948	948	948	948	948	947	946	945	944	943	942	940	940	948	946					
Nov 12	939	938	936	934	933	933	932	932	931	932	932	932	931	931	931	931	931	930	930	930	930	930	930	930	930	930	939					
Nov 13	930	930	931	931	932	932	933	933	934	935	936	937	938	939	939	939	939	939	939	939	938	938	937	937	930	939	936					
Nov 14	937	936	936	935	934	933	932	932	932	931	931	931	931	931	931	932	932	933	933	933	933	933	933	934	931	937						
Nov 15	934	934	934	935	934	934	933	933	933	932	931	931	929	928	928	927	926	925	925	925	925	926	927	928	925	935						
Nov 16	929	931	933	934	935	937	938	940	941	942	943	944	945	945	945	946	947	947	947	948	948	948	949	949	929	949						
Nov 17	949	949	949	949	949	948	948	947	946	946	945	944	944	943	943	942	942	941	941	940	939	939	939	938	938	949						
Nov 18	938	937	936	936	935	935	935	934	934	934	934	934	933	933	933	933	933	933	933	933	933	933	933	933	933	938						
Nov 19	934	934	934	935	935	935	935	934	935	935	934	935	935	935	935	936	937	939	940	940	940	940	939	940	934	940						
Nov 20	940	940	941	941	942	944	945	947	948	950	951	951	952	952	953	953	954	954	953	952	952	951	950	949	940	954						
Nov 21	948	946	944	942	941	940	939	938	938	937	937	937	936	936	936	935	936	936	936	936	936	936	936	935	935	948						
Nov 22	935	935	934	933	932	931	930	929	928	927	925	924	924	923	922	922	921	921	922	923	925	926	927	929	921	935						
Nov 23	930	931	932	934	935	936	937	938	939	940	941	941	942	942	943	943	944	944	944	944	944	944	944	944	930	944						
Nov 24	944	944	945	945	944	944	944	944	944	944	943	943	942	941	940	939	938	937	936	935	935	934	933	932	932	945						
Nov 25	931	930	930	929	928	927	926	926	925	925	925	925	925	925	925	925	925	924	924	923	923	923	922	923	922	931						
Nov 26	924	924	925	925	925	925	925	926	927	928	929	930	931	932	933	934	935	936	937	937	938	938	939	939	924	939						
Nov 27	940	941	941	942	942	942	942	942	942	941	941	940	939	938	937	935	934	933	932	931	930	930	929	928	928	942						
Nov 28	927	927	927	926	926	926	926	926	926	926	927	927	926	926	926	926	926	926	927	927	928	928	929	930	926	930						
Nov 29	931	933	934	935	935	936	936	937	938	939	940	941	941	941	941	941	940	939	938	937	936	935	933	931	941	937						
Nov 30	931	931	929	929	928	928	927	928	928	928	929	928	928	928	927	926	924	923	921	919	918	917	917	918	917	931						
Diurnal Maximum	949	949	949	949	949	948	948	948	948	950	951	951	952	952	953	953	954	954	953	952	952	951	950	949								
Diurnal Average	936	936	936	936	936	936	935	936	936	936	936	936	936	936	936	936	936	935	935	935	935	935	935	935								
C	Monthly Calibration										S Daily Zero-Span Check										Q Quality Assurance											
K	Collection Error										N No Data (Machine Not in Service)										Y Routine Maintenance											
X	Invalid Data (Equipment Malfunction /Recovery)										NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)										P Power Failure											
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																

Timeseries Chart of Hourly Average for BP - 842b Station





PEACE RIVER AREA MONITORING PROGRAM

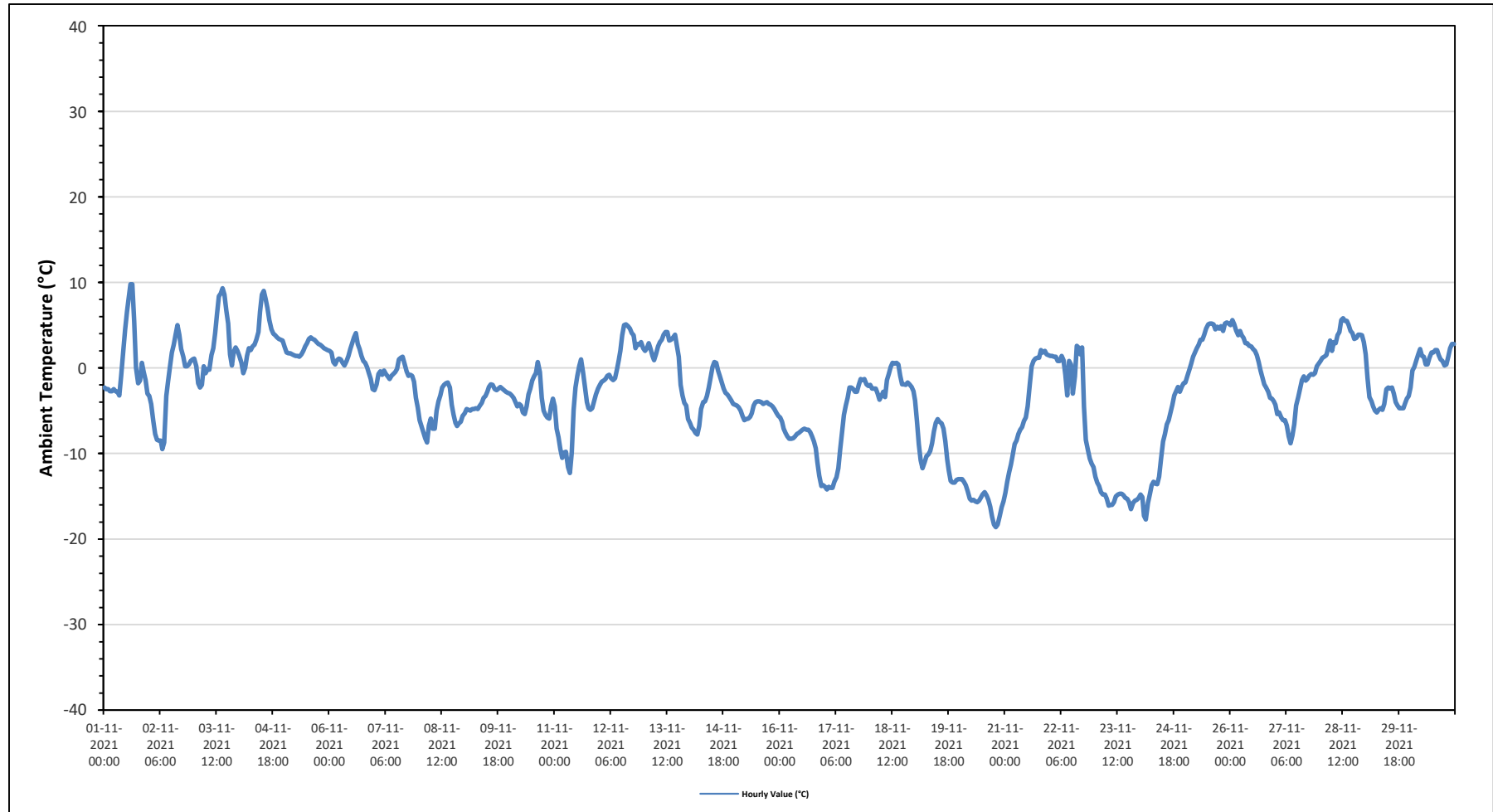
842b Station - November 2021

Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

Maximum Hourly Value:			9.8 °C	on November 1 at hour 14										Hours in Service:			720										
Maximum Daily Value:			3.8 °C	on November 4										Hours of Data:			720										
Minimum Hourly Value:			-18.6 °C	on November 20 at hour 19										Hours of Missing Data:			0										
Minimum Daily Value:			-15.6 °C	on November 20										Hours of Calibration:			0										
Monthly Average:			-2.9 °C											Operational Uptime:			100.0										
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
Nov 1	-2.3	-2.5	-2.5	-2.7	-2.7	-2.5	-2.7	-2.8	-3.2	-0.9	2	4.5	6.6	8.3	9.8	9.8	5.5	0	-1.8	-1.5	0.6	-0.5	-1.4	-3	-3.2	9.8	0.6
Nov 2	-3.3	-4.2	-6.2	-7.7	-8.4	-8.5	-8.5	-9.5	-8.7	-3.3	-1.5	0.2	1.8	2.7	3.9	5	3.9	2.2	1.3	0.2	0.2	0.4	0.8	1	-9.5	5.0	-1.9
Nov 3	1.1	0.2	-1.8	-2.3	-2	0.2	-0.6	-0.1	-0.2	1.5	2.3	4.1	6.3	8.4	8.7	9.3	8.6	6.7	5.2	1.6	0.3	1.9	2.4	2	-2.3	9.3	2.7
Nov 4	1.4	0.6	-0.6	0	1.4	2.3	2.1	2.5	2.7	3.3	4.2	6.6	8.6	9	8.1	7	5.6	4.5	4	3.8	3.6	3.4	3.3	3.2	-0.6	9.0	3.8
Nov 5	2.5	1.8	1.7	1.7	1.6	1.5	1.4	1.4	1.3	1.6	2	2.5	2.9	3.4	3.6	3.4	3.3	3	2.8	2.7	2.5	2.3	2.2	2.1	1.3	3.6	2.3
Nov 6	2	1.8	0.7	0.4	0.9	1.1	1	0.6	0.3	0.8	1.4	2.2	2.9	3.6	4.1	2.8	2.2	1.4	0.8	0.6	0.1	-0.6	-1.3	-2.5	-2.5	4.1	1.1
Nov 7	-2.6	-1.9	-0.7	-0.4	-0.8	-0.3	-0.7	-1	-1.3	-0.9	-0.7	-0.5	-0.1	1	1.2	1.3	0.4	-0.4	-0.9	-0.8	-0.9	-1.6	-3.5	-4.6	-4.6	1.3	-0.9
Nov 8	-6.1	-6.9	-7.5	-8.2	-8.7	-6.7	-5.9	-7.1	-7.1	-5	-3.9	-3.2	-2.3	-2	-1.8	-1.7	-2.3	-4.3	-5.5	-6.4	-6.8	-6.5	-6.3	-5.6	-8.7	-1.7	-5.3
Nov 9	-5.3	-4.8	-4.9	-5	-4.8	-4.8	-4.7	-4.8	-4.4	-4.1	-3.5	-3.3	-2.8	-2.2	-1.9	-2	-2.5	-2.6	-2.4	-2.2	-2.4	-2.6	-2.8	-2.9	-5.3	-1.9	-3.5
Nov 10	-3	-3.2	-3.5	-4	-4.5	-4.2	-4.4	-5.2	-5.4	-4.5	-3.1	-2.4	-1.5	-1	-0.6	0.7	-0.5	-3.5	-5	-5.5	-5.8	-5.9	-4.5	-3.6	-5.9	0.7	-3.5
Nov 11	-4.5	-7.1	-8.1	-9.5	-10.5	-9.9	-9.8	-11.6	-12.3	-9.9	-4.9	-2.3	-0.9	0.2	1	-0.4	-2.3	-4	-4.7	-4.9	-4.7	-3.9	-3.1	-2.4	-12.3	1.0	-5.4
Nov 12	-2	-1.6	-1.5	-1.3	-0.9	-0.8	-1.2	-1.4	-1.2	-0.2	0.9	2	3.8	5	5.1	4.9	4.6	4.1	3.8	2.3	2.8	2.7	3	2.3	-2.0	5.1	1.5
Nov 13	2	2.3	2.9	2.2	1.4	0.9	1.6	2.5	3	3.3	3.9	4.2	4.2	3.2	3.3	3.6	3.9	2.6	1.3	-2	-3.2	-4.1	-4.4	-6	-6.0	4.2	1.4
Nov 14	-6.4	-7	-7.2	-7.6	-7.8	-6.8	-4.8	-4	-3.9	-3.3	-2.3	-1.1	0.1	0.7	0.6	-0.3	-1	-1.7	-2.4	-2.9	-3.1	-3.4	-3.8	-4.2	-7.8	0.7	-3.5
Nov 15	-4.3	-4.4	-4.6	-5	-5.6	-6.1	-6	-5.9	-5.7	-5.3	-4.4	-4	-3.9	-3.9	-4	-4.2	-4.1	-4	-4.2	-4.3	-4.5	-4.8	-5.2	-5.6	-6.1	-3.9	-4.8
Nov 16	-5.8	-6.3	-7.1	-7.6	-8	-8.3	-8.3	-8.2	-8	-7.7	-7.6	-7.4	-7.2	-7.1	-7.2	-7.2	-7.5	-8	-8.6	-9.4	-11	-12.6	-13.8	-13.7	-13.8	-5.8	-8.5
Nov 17	-13.9	-14.2	-13.9	-14	-14	-13.3	-12.8	-11.7	-9.5	-7.5	-5.5	-4.4	-3.5	-2.3	-2.3	-2.5	-2.8	-2.8	-2	-1.3	-1.4	-1.3	-1.9	-2.1	-14.2	-1.3	-6.7
Nov 18	-2	-2.4	-2.4	-2.4	-3	-3.7	-3.2	-2.8	-3.4	-1.4	-0.7	0.1	0.6	0.5	0.6	0.4	-0.9	-1.9	-1.9	-2	-1.7	-1.9	-2.2	-2.7	-3.7	0.6	-1.7
Nov 19	-3.8	-6.2	-8.9	-10.8	-11.7	-11	-10.3	-10.1	-9.7	-8.8	-7.4	-6.4	-6	-6.3	-6.5	-7.1	-8.6	-10.7	-12	-13.2	-13.4	-13.4	-13.1	-13	-13.4	-3.8	-9.5
Nov 20	-13	-13	-13.3	-13.7	-14.4	-15.3	-15.4	-15.6	-15.7	-15.5	-15.2	-14.8	-14.5	-14.9	-15.4	-16.2	-17.4	-18.3	-18.6	-18.3	-17.3	-16.3	-15.6	-15.6	-18.6	-13.0	-15.6
Nov 21	-14.6	-13.3	-12.2	-11.3	-10.3	-8.9	-8.5	-7.7	-7.2	-6.9	-6.2	-5.8	-4.5	-1.9	0.2	0.8	1.1	1.2	1.2	2.1	1.8	2	1.6	1.5	-14.6	2.1	-4.4
Nov 22	1.4	1.4	1.3	1.3	0.8	0.8	1.4	0.9	-0.8	-3.2	0.8	0.4	-3	-1	2.6	2.4	1.6	2.4	-4.5	-8.4	-9.6	-10.6	-11.2	-11.6	-11.6	2.6	-1.9
Nov 23	-12.7	-13.4	-13.8	-14.5	-14.8	-14.8	-15.3	-16.1	-16	-16	-15.7	-15	-14.8	-14.7	-14.7	-14.9	-15.2	-15.3	-15.7	-16.5	-15.8	-15.5	-15.4	-15.2	-16.5	-12.7	-15.1
Nov 24	-14.8	-15.1	-17.3	-17.7	-15.8	-14.8	-13.7	-13.3	-13.5	-13.6	-12.7	-10.7	-8.6	-7.7	-6.6	-6.1	-5.2	-4.3	-3.2	-2.7	-2.2	-2.8	-2.2	-1.8	-17.7	-1.8	-9.4
Nov 25	-1.7	-1	-0.3	0.4	1.3	1.8	2.3	2.7	3.3	3.3	3.9	4.6	5.1	5.2	5.2	5.1	4.5	4.8	4.6	4.9	4.3	5.2	5.3	5.2	-1.7	5.3	3.3
Nov 26	5	5.6	5.1	4.4	3.8	4.3	3.8	3.5	2.9	2.9	2.6	2.5	2.2	2	1.5	0.7	-0.3	-1.1	-1.9	-2.3	-2.8	-3.5	-3.6	-3.9	-3.9	5.6	1.4
Nov 27	-4.3	-5.4	-5.2	-5.8	-6.1	-6.1	-6.7	-8	-8.8	-7.9	-6.6	-4.4	-3.4	-2.4	-1.4	-1	-1.5	-1.3	-0.9	-0.7	-0.8	-0.6	0.2	0.5	-8.8	0.5	-3.7
Nov 28	0.8	1.2	1.3	1.5	2.4	3.2	2	3	2.9	3.8	4.2	5.6	5.8	5.5	5.5	5	4.3	4.1	3.4	3.5	3.9	3.9	3.8	3	0.8	5.8	3.5
Nov 29	1.6	-1.2	-3.4	-3.9	-4.5	-5	-5.2	-4.9	-4.7	-4.9	-4.2	-2.5	-2.3	-2.4	-2.3	-3	-4	-4.4	-4.7	-4.7	-4.7	-4.1	-3.6	-3.3	-5.2	1.6	-3.6
Nov 30	-2.3	-0.3	0.1	0.9	1.6	2.2	1.4	1.3	0.4	0.4	1.2	1.8	1.8	2.1	2.1	1.5	1	0.8	0.3	0.4	1.3	2.3	2.8	2.8	-2.3	2.8	1.2
Diurnal Maximum	5.0	5.6	5.1	4.4	3.8	4.3	3.8	3.5	3.3	3.8	4.2	6.6	8.6	9.0	9.8	9.8	8.6	6.7	5.2	4.9	4.3	5.2	5.3	5.2			
Diurnal Average	-3.7	-4.0	-4.5	-4.8	-4.8	-4.5	-4.4	-4.4	-4.5	-3.7	-2.6	-1.6	-0.9	-0.3	0.1	-0.1	-0.8	-1.7	-2.4	-2.9	-3.1	-3.1	-3.1	-3.3			
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance										
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance							P	Power Failure		
X	InValid Data (Equipment Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																		
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																											
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																											

Timeseries Chart of Hourly Average for AT - 842b Station





PEACE RIVER AREA MONITORING PROGRAM

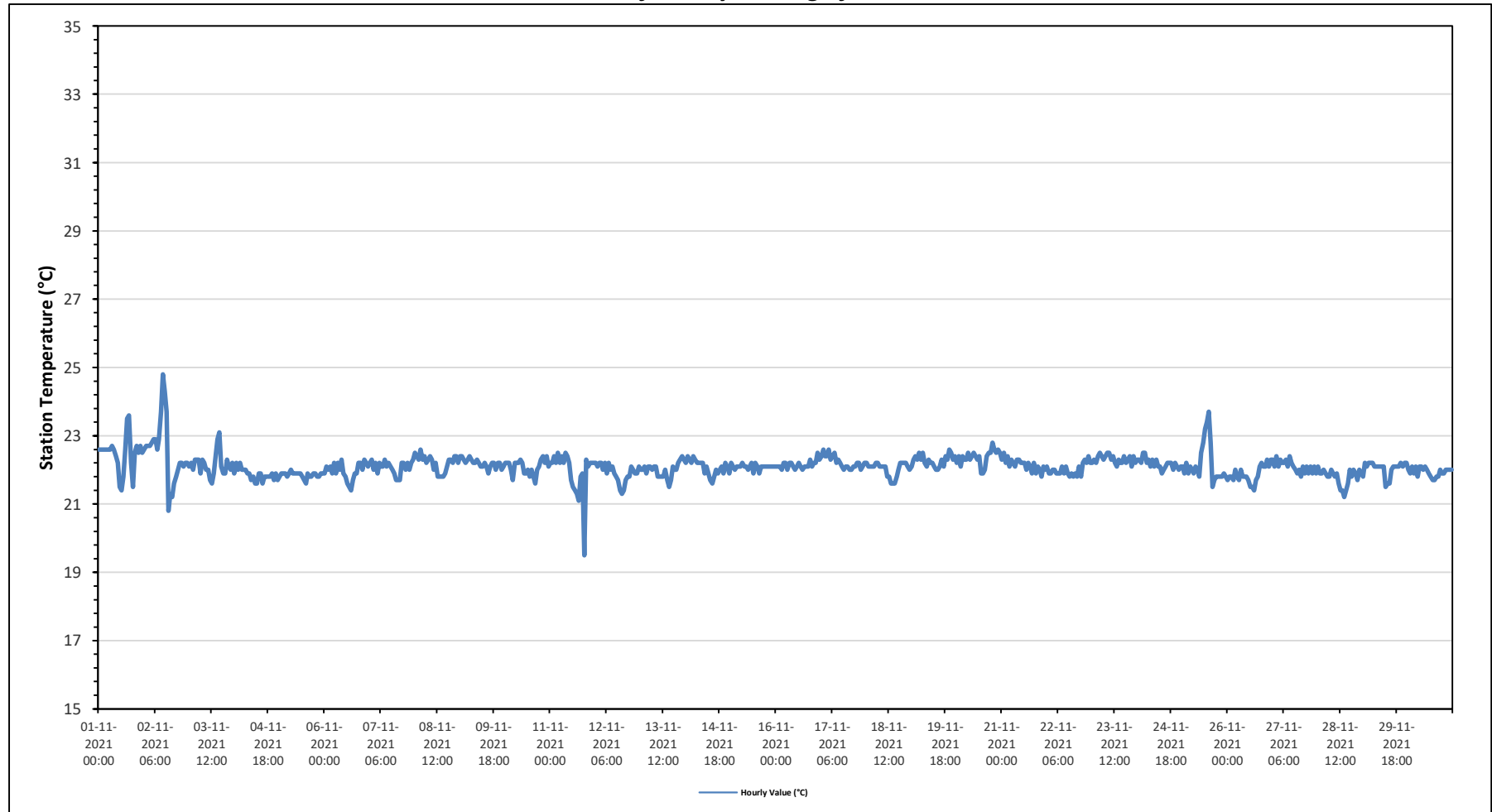
842b Station - November 2021

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:				24.8	°C	on November 2 at hour 10				Hours in Service:				720																												
Maximum Daily Value:				22.5	°C	on November 2				Hours of Data:				720																												
Minimum Hourly Value:				19.5	°C	on November 11 at hour 18				Hours of Missing Data:				0																												
Minimum Daily Value:				21.8	°C	on November 28				Hours of Calibration:				0																												
Monthly Average:				22.1	°C					Operational Uptime:				100.0																												
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average																
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23																		
Nov 1	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.7	22.6	22.4	22.2	21.5	21.4	21.8	22.6	23.5	23.6	22.2	21.5	22.5	22.7	22.5	22.7	22.5	21.4	23.6	22.5															
Nov 2	22.6	22.7	22.7	22.7	22.8	22.9	22.9	22.6	22.9	23.7	24.8	24.3	23.7	20.8	21.3	21.2	21.6	21.8	22.0	22.2	22.2	22.1	22.2	22.2	20.8	24.8	22.5															
Nov 3	22.1	22.2	22.0	22.3	22.3	22.3	21.9	22.3	22.2	22.0	22.0	21.7	21.6	21.9	22.4	22.9	23.1	22.1	21.9	21.9	22.3	22.1	22.0	22.2	21.6	23.1	22.2															
Nov 4	21.9	22.2	22.0	22.2	22.0	22.0	22.0	21.9	21.9	21.7	21.8	21.6	21.6	21.9	21.9	21.6	21.8	21.8	21.8	21.8	21.9	21.7	21.9	21.7	21.6	22.2	21.9															
Nov 5	21.8	21.9	21.9	21.9	21.8	21.9	22.0	21.9	21.9	21.9	21.9	21.9	21.8	21.7	21.6	21.9	21.8	21.8	21.9	21.9	21.8	21.8	21.9	21.9	21.6	22.0	21.9															
Nov 6	21.9	22.1	22.0	22.1	21.9	22.2	21.9	22.2	22.0	22.3	21.9	21.8	21.6	21.5	21.4	21.7	21.9	21.9	22.2	22.2	22.0	22.3	22.2	22.1	21.4	22.3	22.0															
Nov 7	22.2	22.3	22.0	22.2	21.9	22.2	22.1	22.1	22.3	22.1	22.2	22.1	22.0	21.9	21.7	21.7	21.7	22.2	22.2	22.0	22.2	22.0	22.2	22.3	21.7	22.3	22.1															
Nov 8	22.5	22.4	22.3	22.6	22.3	22.4	22.2	22.3	22.4	22.3	22.0	22.2	21.8	21.8	21.8	21.8	21.9	22.1	22.3	22.3	22.2	22.4	22.4	22.2	21.8	22.6	22.2															
Nov 9	22.4	22.4	22.3	22.2	22.3	22.4	22.3	22.2	22.2	22.3	22.2	22.1	22.1	22.2	22.1	21.9	22.1	22.2	22.2	22.0	22.2	22.2	22.0	22.1	21.9	22.4	22.2															
Nov 10	22.2	22.2	22.2	22.0	21.7	22.2	22.2	22.2	22.3	22.2	21.9	21.9	22.0	21.8	22.0	21.8	21.6	22.0	22.1	22.3	22.4	22.2	22.4	22.1	21.6	22.4	22.1															
Nov 11	22.2	22.2	22.4	22.2	22.5	22.2	22.4	22.2	22.5	22.4	22.2	21.7	21.5	21.4	21.3	21.1	21.8	21.9	19.5	22.3	22.1	22.2	22.2	22.2	19.5	22.5	21.9															
Nov 12	22.2	22.1	22.2	22.2	22.0	22.2	21.9	22.2	22.0	22.1	21.9	21.8	21.7	21.4	21.3	21.4	21.7	21.8	21.8	22.1	22.0	21.9	21.9	22.1	21.3	22.2	21.9															
Nov 13	22.0	22.0	22.1	21.9	22.1	22.1	22.0	22.1	22.1	21.8	21.8	21.8	21.8	22.0	21.7	21.5	21.7	22.1	22.0	22.0	22.2	22.3	22.4	22.3	21.5	22.4	22.0															
Nov 14	22.2	22.4	22.3	22.2	22.4	22.3	22.2	22.2	22.2	22.2	21.9	22.1	21.9	21.7	21.6	21.8	22.0	21.9	22.0	22.1	21.9	22.2	22.1	21.9	21.6	22.4	22.1															
Nov 15	22.2	22.1	22.0	22.1	22.1	22.1	22.2	22.1	22.1	22.0	22.1	22.2	21.9	22.2	22.1	21.9	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	21.9	22.2	22.1															
Nov 16	22.1	22.1	22.1	22.0	22.2	22.2	22.0	22.2	22.2	22.1	22.0	22.1	22.2	22.1	22.0	22.1	22.1	22.1	22.3	22.1	22.2	22.2	22.5	22.3	22.0	22.5	22.1															
Nov 17	22.4	22.6	22.4	22.4	22.6	22.3	22.4	22.5	22.2	22.3	22.2	22.1	22.0	22.1	22.1	22.0	22.0	22.1	22.1	22.2	22.2	22.0	22.1	22.2	22.0	22.6	22.2															
Nov 18	22.2	22.1	22.1	22.1	22.1	22.2	22.2	22.1	22.1	22.1	22.1	21.8	21.8	21.6	21.6	21.6	21.8	22.0	22.2	22.2	22.2	22.2	22.1	22.0	21.6	22.2	22.0															
Nov 19	22.1	22.3	22.4	22.3	22.5	22.3	22.5	22.2	22.1	22.3	22.2	22.2	22.1	22.0	22.0	22.1	22.3	22.1	22.4	22.3	22.6	22.5	22.3	22.4	22.0	22.6	22.3															
Nov 20	22.2	22.4	22.1	22.4	22.3	22.3	22.5	22.3	22.4	22.5	22.4	22.3	22.4	21.9	21.9	22.0	22.4	22.5	22.5	22.8	22.6	22.5	22.6	22.5	21.9	22.8	22.4															
Nov 21	22.3	22.5	22.2	22.4	22.1	22.3	22.2	22.1	22.3	22.3	22.2	22.2	22.2	22.0	22.2	22.1	21.9	22.2	21.9	22.1	22.0	21.8	22.1	22.0	21.8	22.5	22.2															
Nov 22	22.1	21.9	21.9	22.0	22.0	21.9	21.9	21.9	22.1	21.9	22.1	21.9	21.8	21.9	21.8	21.9	21.8	22.1	21.8	22.2	22.3	22.2	22.4	22.2	21.8	22.4	22.0															
Nov 23	22.2	22.3	22.2	22.4	22.5	22.4	22.3	22.4	22.5	22.5	22.3	22.4	22.2	22.1	22.3	22.2	22.2	22.4	22.2	22.3	22.4	22.1	22.4	22.2	22.1	22.5	22.3															
Nov 24	22.3	22.3	22.2	22.5	22.5	22.2	22.3	22.1	22.3	22.1	22.3	22.1	22.1	21.9	22.0	22.1	22.2	22.2	22.2	22.0	22.2	22.1	22.0	22.1	21.9	22.5	22.2															
Nov 25	22.1	21.9	22.2	21.9	22.1	22.0	21.9	22.1	22.0	21.8	22.5	22.8	23.2	23.4	23.7	22.8	21.5	21.7	21.8	21.8	21.8	21.8	21.9	21.8	21.5	23.7	22.2															
Nov 26	21.7	21.8	21.8	21.7	22.0	21.8	21.7	22.0	21.8	21.8	21.8	21.7	21.5	21.5	21.4	21.7	21.8	22.1	22.2	22.1	22.1	22.3	22.1	22.3	21.4	22.3	21.9															
Nov 27	22.3	22.1	22.4	22.1	22.3	22.2	22.2	22.3	22.1	22.4	22.2	22.1	22.0	21.9	22.0	21.8	22.1	21.9	22.1	21.9	22.1	21.9	22.1	21.9	21.8	22.4	22.1															
Nov 28	22.1	21.9	21.9	22.0	21.9	21.8	22.0	21.9	21.8	21.9	21.6	21.4	21.4	21.2	21.4	21.6	22.0	21.8	22.0	21.9	21.7	22.0	21.9	21.2	22.1	21.8																
Nov 29	21.8	22.2	22.1	22.2	22.2	22.1	22.1	22.1	22.1	22.1	22.1	22.1	21.5	21.6	21.6	22.0	22.1	22.1	22.1	22.2	22.1	22.2	22.2	22.2	21.5	22.2	22.0															
Nov 30	22.0	21.9	22.1	21.9	22.1	21.8	22.1	22.1	22.0	22.1	22.0	21.9	21.8	21.7	21.7	21.8	21.8	22.0	21.9	21.9	22.0	22.0	22.0	22.0	21.7	22.1	21.9															
Diurnal Maximum	22.6	22.7	22.7	22.7	22.8	22.9	22.9	22.7	22.9	23.7	24.8	24.3	23.7	23.4	23.7	23.5	23.6	22.5	22.5	22.8	22.7	22.5	22.7	22.5																		
Diurnal Average	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.1	22.0	21.8	21.9	21.9	22.0	22.0	22.0	22.1	22.2	22.1	22.2	22.1																		
C	Monthly Calibration						S						Daily Zero-Span Check						Q						Quality Assurance																	
K	Collection Error						N						No Data (Machine Not in Service)						Y						Routine Maintenance						P						Power Failure					
X	Invalid Data (Equipment Malfunction /Recovery)						NRM						UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																													
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																										
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																										

Timeseries Chart of Hourly Average for ST - 842b Station





PEACE RIVER AREA MONITORING PROGRAM

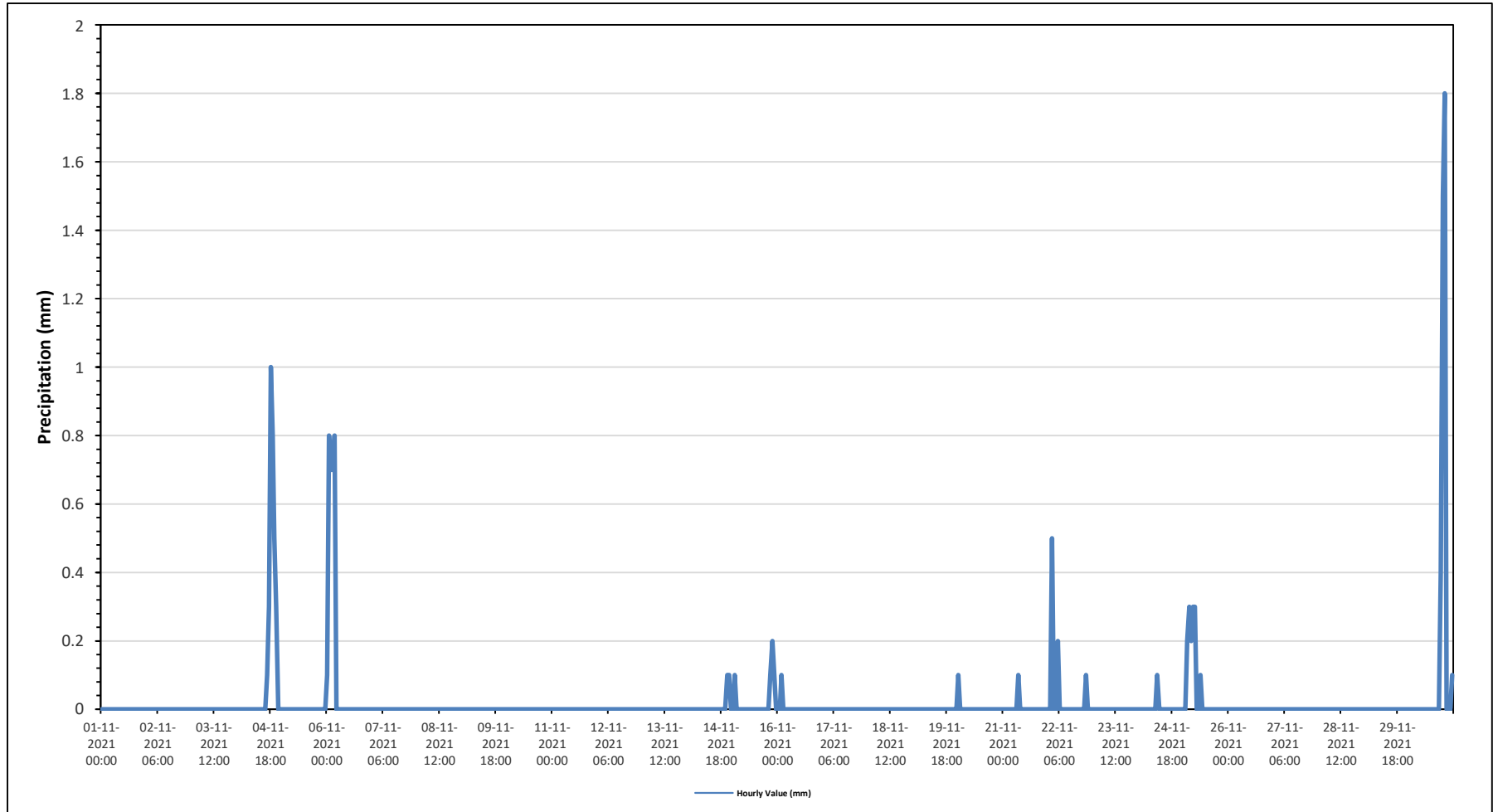
842b Station - November 2021

Summary of Hourly Averages

PRECIPITATION in mm

Maximum Hourly Value:		1.8 mm on November 30 at hour 19														Hours in Service:		720																															
Maximum Daily Value:		3.8 mm on November 30														Hours of Data:		720																															
Minimum Hourly Value:		0.0 mm on November 1 at hour 0														Hours of Missing Data:		0																															
Minimum Daily Value:		0.0 mm on November 1														Hours of Calibration:		0																															
Monthly Total:		13.2 mm														Operational Uptime:		100.0																															
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Total																							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23																						
Nov 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																						
Nov 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																						
Nov 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																						
Nov 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3	1	0.8	0.5	0.3	0	0	0.0	1.0	3.0																					
Nov 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																						
Nov 6	0.1	0.8	0.7	0.7	0.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.8	3.1																						
Nov 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																						
Nov 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																						
Nov 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																						
Nov 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																						
Nov 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																						
Nov 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																						
Nov 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																						
Nov 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0	0.0	0.1	0.2																					
Nov 15	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	0.1	0	0.0	0.2	0.5																					
Nov 16	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.1																					
Nov 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																					
Nov 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																					
Nov 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																					
Nov 20	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.1																					
Nov 21	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.1																					
Nov 22	0	0	0.5	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0.0	0.5	0.8																					
Nov 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																					
Nov 24	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.1																					
Nov 25	0	0	0.2	0.3	0.2	0.3	0.3	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.3	1.4																					
Nov 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																					
Nov 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																					
Nov 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																					
Nov 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0																					
Nov 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	1.5	1.8	0	0	0	0.1	0.0	1.8	3.8																					
Diurnal Maximum	0.1	0.8	0.7	0.7	0.8	0.3	0.3	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	1.5	1.8	0.5	0.3	0.1	0.1																									
Diurnal Average	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0																									
C	Monthly Calibration							S							Daily Zero-Span Check							Q							Quality Assurance																				
K	Collection Error							N							No Data (Machine Not in Service)							Y							Routine Maintenance							P							Power Failure						
X	Invalid Data (Equipment Malfunction /Recovery)							NRM							UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																																		
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																																	
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																																	

Timeseries Chart of Hourly Average for Precipitation - 842b Station





PEACE RIVER AREA MONITORING PROGRAM

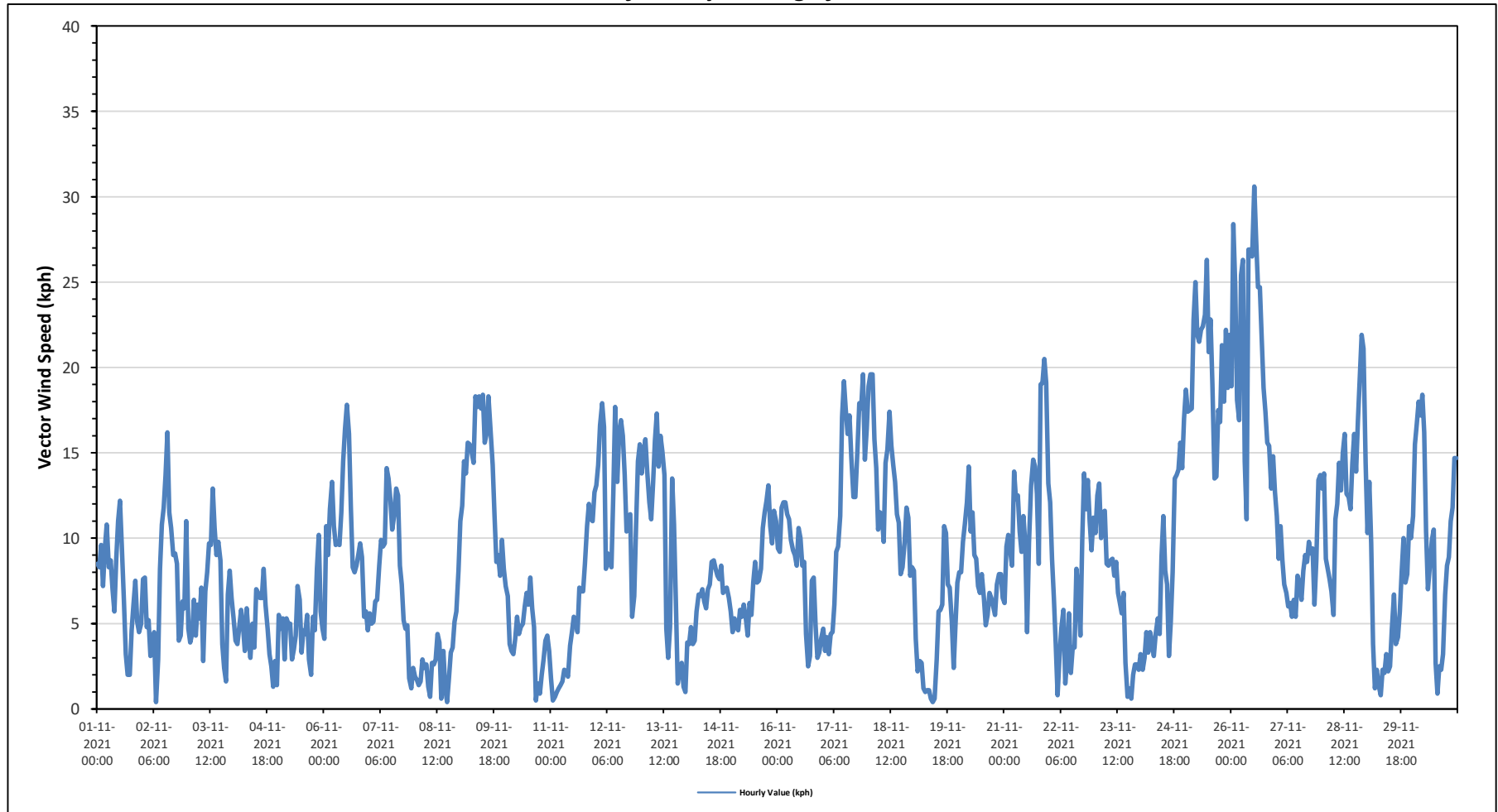
842b Station - November 2021

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

Maximum Hourly Value:	30.6	kph	on November 26 at hour 12	Hours in Service:	720																							
Maximum Daily Value:	20.6	kph	on November 26	Hours of Data:	720																							
Minimum Hourly Value:	0.4	kph	on November 2 at hour 7	Hours of Missing Data:	0																							
Minimum Daily Value:	0.6	kph	on November 22	Hours of Calibration:	0																							
Monthly Average:	3.7	kph		Operational Uptime:	100.0																							
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
Nov 1	8.5	8.3	9.6	7.2	9.4	10.8	8.3	8.7	7.0	5.7	8.8	11.0	12.2	9.5	6.3	3.2	2.0	2.0	4.6	6.1	7.5	5.1	4.5	5.0	2.0	12.2	6.3	
Nov 2	7.6	7.7	4.8	5.2	3.1	3.2	4.5	0.4	2.9	8.2	10.8	11.8	13.7	16.2	11.5	10.6	9.0	9.1	8.5	4.0	4.3	6.3	5.9	11.0	0.4	16.2	5.9	
Nov 3	4.7	3.9	4.4	6.4	4.3	6.1	5.3	7.1	2.8	6.9	8.0	9.7	9.6	12.9	10.6	9.0	9.8	8.7	3.8	2.4	1.6	6.7	8.1	6.5	1.6	12.9	5.9	
Nov 4	5.4	4.0	3.8	4.8	5.8	4.9	3.4	5.9	4.3	3.0	5.0	3.6	7.0	6.8	6.5	6.5	8.2	6.1	4.7	3.2	2.5	1.3	2.8	1.4	1.3	8.2	3.2	
Nov 5	5.5	4.7	5.3	2.9	5.3	5.0	5.0	2.9	3.5	4.3	7.2	6.4	3.3	4.6	4.4	5.5	2.9	2.0	5.4	4.6	8.2	10.2	5.7	4.7	2.0	10.2	3.8	
Nov 6	4.1	10.7	9.0	11.7	13.3	10.7	9.6	9.7	9.6	11.5	14.5	16.4	17.8	16.1	11.8	8.3	8.0	8.4	9.0	9.7	8.9	5.4	5.7	4.6	4.1	17.8	9.7	
Nov 7	5.6	5.0	5.1	6.3	6.4	8.4	9.9	9.5	9.7	14.1	13.5	12.3	10.5	11.3	12.9	12.5	8.4	7.3	5.2	4.7	4.9	1.8	1.2	2.4	1.2	14.1	7.1	
Nov 8	1.9	1.7	1.4	1.6	2.9	2.4	2.6	1.3	0.7	2.7	2.6	2.9	4.4	3.9	0.6	3.4	1.2	0.4	1.8	3.3	3.6	5.1	5.7	8.1	0.4	8.1	2.1	
Nov 9	11.0	11.9	14.5	13.8	15.6	15.5	15.1	14.4	18.3	17.7	18.3	17.6	18.4	15.6	16.1	18.3	16.3	14.3	11.3	8.6	9.0	7.8	9.9	8.2	7.8	18.4	14.0	
Nov 10	7.2	6.6	3.8	3.4	3.2	4.1	5.4	4.4	4.8	5.0	6.0	6.8	6.1	7.7	5.9	4.8	0.5	1.5	0.9	2.0	2.9	4.0	4.3	3.4	0.5	7.7	1.9	
Nov 11	1.8	0.5	0.7	1.0	1.2	1.4	1.6	2.3	2.2	1.9	3.7	4.5	5.4	5.2	4.5	7.1	6.9	6.9	8.5	10.7	12.0	11.1	11.0	12.7	0.5	12.7	5.0	
Nov 12	13.1	14.3	16.6	17.9	16.5	8.2	9.1	8.6	8.3	12.6	17.7	13.3	16.1	16.9	16.0	13.7	10.4	11.3	11.4	5.4	6.6	10.8	14.5	15.5	5.4	17.9	9.7	
Nov 13	13.8	14.9	15.8	13.9	12.1	11.1	13.2	15.7	17.3	14.2	16.0	15.1	13.7	4.7	3.0	4.8	13.5	10.8	6.3	1.5	2.2	2.7	1.3	1.0	1.0	17.3	8.3	
Nov 14	3.9	3.8	4.8	3.8	4.0	5.7	6.7	6.6	7.0	6.3	5.9	7.0	7.3	8.6	8.7	8.2	7.8	7.6	8.4	6.8	7.0	7.1	6.5	5.7	3.8	8.7	5.8	
Nov 15	4.5	5.3	4.8	4.6	5.8	5.4	6.1	5.3	4.3	6.2	5.5	7.4	8.6	7.4	7.5	8.2	10.6	11.5	12.2	13.1	10.7	9.7	11.6	11.0	4.3	13.1	7.2	
Nov 16	9.4	9.2	11.8	12.1	12.1	11.4	11.1	9.9	9.3	9.0	8.4	10.6	10.0	8.4	8.6	4.4	2.5	3.1	7.5	7.7	4.9	3.0	3.3	4.1	2.5	12.1	5.2	
Nov 17	4.7	3.4	4.2	3.2	4.4	4.5	6.1	9.2	9.5	11.3	17.1	19.2	17.5	16.1	17.2	14.7	12.4	12.4	15.2	17.9	17.6	19.6	14.6	16.4	3.2	19.6	11.7	
Nov 18	18.9	19.6	19.6	15.8	14.1	10.5	11.5	11.4	9.8	14.4	15.2	17.4	15.4	14.3	13.3	11.4	10.9	7.9	8.3	9.8	11.8	11.2	7.8	8.3	7.8	19.6	12.4	
Nov 19	8.1	4.1	2.2	2.8	2.7	1.2	1.0	1.1	1.1	0.6	0.4	0.6	2.9	5.7	5.8	6.1	10.7	10.3	7.3	7.1	5.1	2.4	5.0	7.4	0.4	10.7	2.6	
Nov 20	8.0	8.0	9.8	10.8	12.1	14.2	10.4	11.5	9.0	8.8	7.2	6.8	7.9	6.5	4.9	5.5	6.8	6.5	6.0	5.5	7.3	7.9	7.9	6.5	4.9	14.2	3.1	
Nov 21	6.2	9.5	10.2	9.3	8.4	13.9	12.3	12.5	10.4	9.2	11.3	9.7	4.5	9.7	13.1	14.6	14.2	12.6	8.5	19.0	19.1	20.5	19.1	13.2	4.5	20.5	10.1	
Nov 22	12.1	8.8	6.5	3.8	0.8	3.0	4.7	5.8	1.5	2.9	5.6	2.1	3.6	3.6	8.2	7.0	4.3	9.9	13.8	11.7	13.4	11.0	9.3	11.2	0.8	13.8	0.6	
Nov 23	10.3	12.5	13.2	10.0	11.5	11.6	8.5	8.4	8.7	8.8	7.8	8.6	6.8	6.2	5.6	6.8	2.7	0.7	1.2	0.6	2.0	2.6	2.6	2.3	0.6	13.2	5.5	
Nov 24	3.2	2.3	3.0	4.5	3.3	4.5	3.9	3.1	4.4	5.3	4.4	8.9	11.3	8.1	7.3	3.1	5.1	8.0	13.5	13.7	14.0	15.6	14.1	17.0	2.3	17.0	6.7	
Nov 25	18.7	17.4	17.5	17.6	22.8	25.0	21.9	21.5	22.2	22.4	23.1	26.3	20.9	22.8	19.0	13.5	13.6	17.5	16.8	21.3	18.0	22.2	18.8	21.9	13.5	26.3	19.1	
Nov 26	18.9	28.4	24.8	18.1	16.9	25.4	26.3	14.5	11.1	26.9	26.9	26.5	30.6	27.5	24.7	24.7	21.7	18.8	17.4	15.6	15.4	12.9	14.8	12.7	11.1	30.6	20.6	
Nov 27	11.3	8.8	10.7	8.7	7.3	6.8	6.0	6.2	5.4	6.4	5.4	7.8	7.4	6.4	8.1	9.0	8.6	9.8	9.1	9.4	6.1	8.7	13.4	13.7	5.4	13.7	6.2	
Nov 28	12.9	13.8	8.8	8.2	7.6	6.9	5.5	11.1	12.0	14.4	12.8	15.0	16.1	12.6	12.4	11.7	14.4	16.1	13.9	16.9	19.4	21.9	21.1	14.4	5.5	21.9	11.2	
Nov 29	10.3	13.3	9.7	3.8	1.2	2.3	1.4	0.8	2.3	2.1	3.2	2.2	2.5	4.7	6.7	3.8	4.2	5.7	8.0	10.0	7.4	7.9	10.7	10.0	0.8	13.3	1.7	
Nov 30	11.3	15.5	16.7	18.0	17.2	18.4	16.2	10.4	7.0	8.5	9.9	10.5	2.7	0.9	2.5	2.3	3.2	6.7	8.4	8.9	11.0	11.8	14.7	14.7	0.9	18.4	8.5	
Diurnal Maximum	19	28	25	18	23	25	26	22	22	27	27	31	28	25	25	22	19	17	21	19	22	21	22					
Diurnal Average	8.8	9.3	9.1	8.4	8.4	8.8	8.4	8.0	7.5	9.0	10.1	10.6	10.5	10.0	9.5	8.8	8.4	8.5	8.6	8.7	8.8	9.1	9.2	9.2				
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance											
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance							P	Power Failure			
X	Invalid Data (Equipment Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																			
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																												
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																												

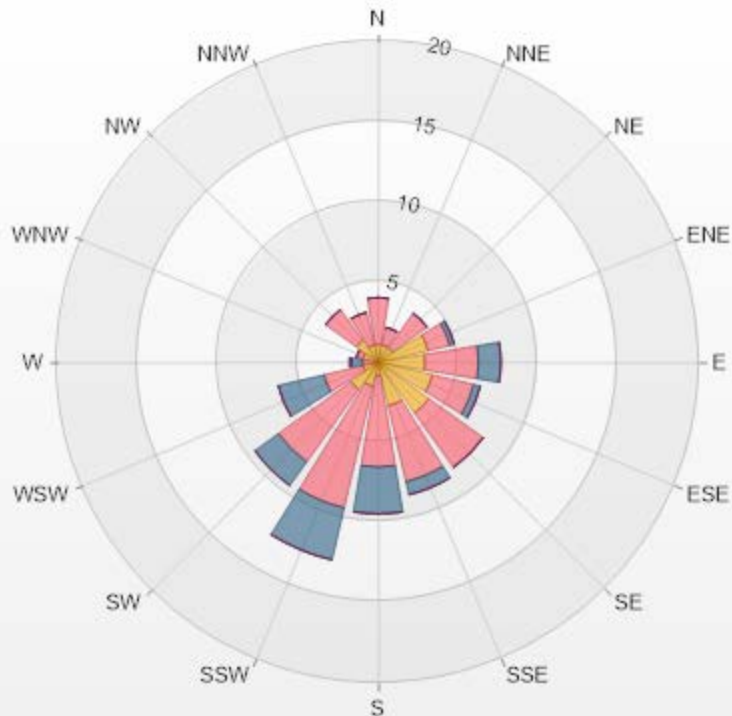
Timeseries Chart of Hourly Average for VWS - 842b Station



Wind: PRAMP 842b Monitor: WDS [KPH] Monthly: 11-2021 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.

Calm: 6.11% Valid Data: 100.00%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	1.11	2.92	0	0	0	4.03
NNE	1.11	1.11	0	0	0	2.22
NE	1.11	2.64	0	0	0	3.75
ENE	3.19	1.39	0.28	0	0	4.86
E	2.92	3.33	1.39	0	0	7.64
ESE	3.47	2.64	0.42	0	0	6.53
SE	3.89	4.17	0	0	0	8.06
SSE	2.78	4.86	0.83	0	0	8.47
S	0.83	5.69	2.92	0	0	9.44
SSW	1.53	7.78	3.33	0	0	12.64
SW	2.08	5.56	1.81	0	0	9.45
WSW	0.97	2.5	2.92	0	0	6.39
W	0.14	0.83	0.69	0.14	0	1.8
WNW	0.97	0.42	0	0	0	1.39
NW	1.67	2.36	0	0	0	4.03
NNW	1.11	2.08	0	0	0	3.19
Summary	28.88	50.28	14.59	0.14	0	93.89



PRAMP-202111

Page 109 of 226

% Icon Classes (KPH)

29 1.8-6.0

50 6.0-15.0

15 15.0-29.0

0 29.0-39.0

0 >39.0



PEACE RIVER AREA MONITORING PROGRAM

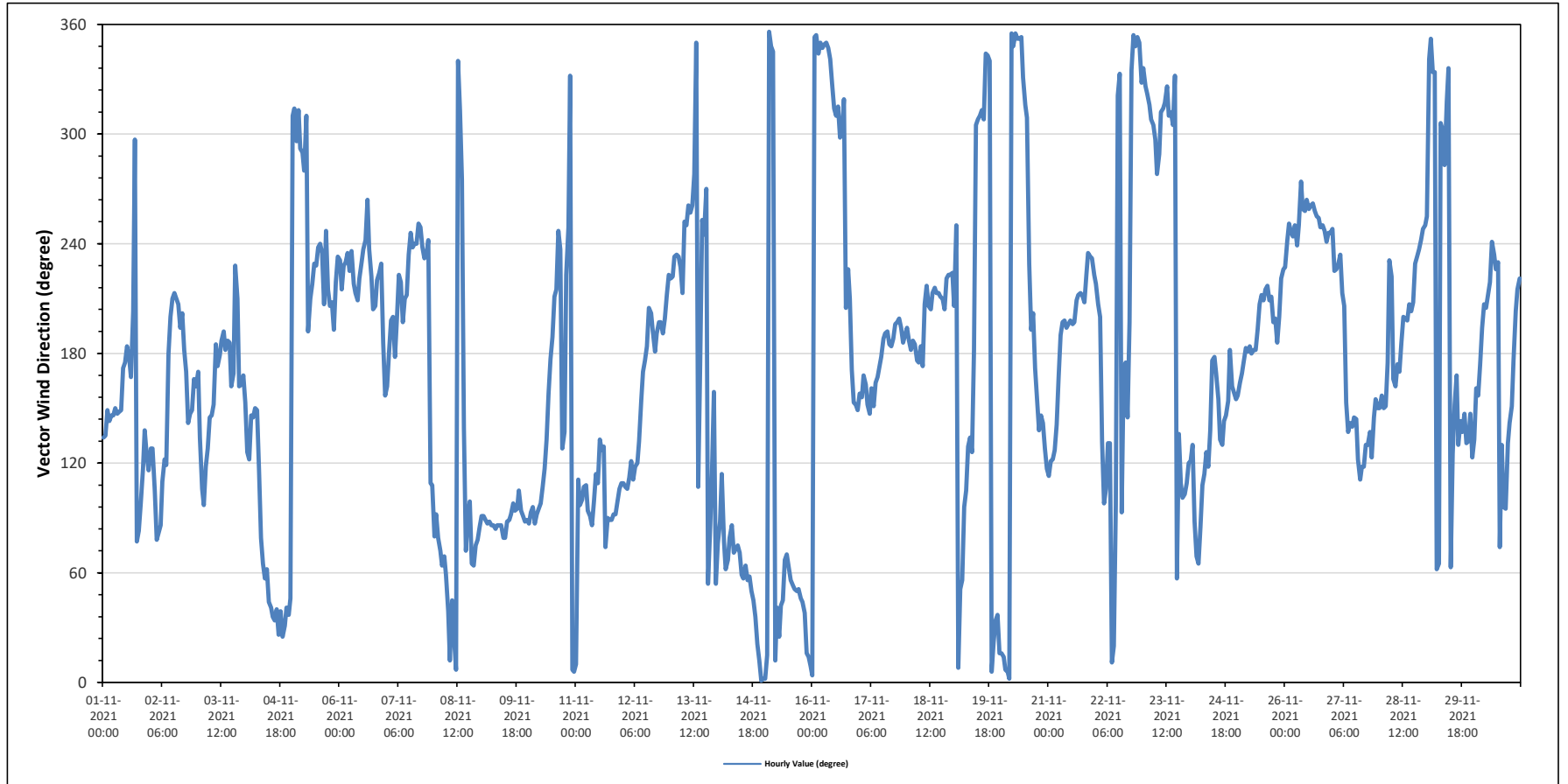
842b Station - November 2021

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:		190 (S) degree										Hours in Service: 720														
												Hours of Data: 720														
												Hours of Missing Data: 0														
												Hours of Calibration: 0														
												Operational Uptime: 100.0														
Day	Hourly Period Starting at (MST)																							Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant
Nov 1	SE	SE	SSE	SE	SE	SE	SSE	SE	SE	SSE	S	S	S	S	SSE	SSW	WNW	ENE	E	E	ESE	SE	ESE	ESE	148	SE
Nov 2	SE	SE	ESE	ENE	E	E	ESE	ESE	ESE	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSE	SE	SE	SSE	SSE	SSE	175	S
Nov 3	SSE	SE	ESE	E	ESE	SE	SE	SE	SE	SSE	S	S	S	S	S	S	SSE	SSE	SW	SSW	SSE	SSE	SSE	SSE	167	SSE
Nov 4	SSE	SE	ESE	SE	SE	SSE	SSE	ESE	ENE	ENE	ENE	ENE	NE	NE	NE	NE	NNE	NE	NNE	NNE	NE	NE	NE	NE	71	ENE
Nov 5	NW	NW	WNW	NW	WNW	WNW	W	NW	S	SSW	SW	SW	SW	SW	WSW	SW	SSW	WSW	SSW	SSW	SSW	S	SW	SW	240	WSW
Nov 6	SW	SSW	SW	SW	SW	SW	SW	SW	SSW	SSW	SW	SW	SW	WSW	W	SW	SW	SSW	SSW	SW	SW	SW	S	SSE	225	SW
Nov 7	SSE	S	SSW	SSW	S	SSW	SW	SW	SSW	SSW	SSW	SSW	SW	WSW	SW	WSW	WSW	WSW	SW	SW	SW	WSW	ESE	ESE	221	SW
Nov 8	E	E	ENE	ENE	ENE	ENE	ENE	NE	NNE	NE	NNE	N	NNW	NW	W	SE	ENE	E	E	ENE	ENE	ENE	E	E	61	ENE
Nov 9	E	E	E	E	E	E	E	E	E	E	E	ENE	ENE	E	E	E	E	E	ESE	E	E	E	E	E	89	E
Nov 10	E	E	E	E	E	E	E	ESE	ESE	SE	SSE	S	S	SSW	SSW	WSW	SW	SE	SE	SW	WSW	NNW	N	N	136	SE
Nov 11	N	ESE	E	E	ESE	ESE	E	E	E	E	ESE	ESE	SE	SE	SE	ENE	E	E	E	E	E	ESE	ESE	ESE	100	E
Nov 12	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SSE	SSE	S	S	SSW	SSW	S	S	S	SSW	SSW	S	SSW	SSW	SW	164	SSE
Nov 13	SW	SW	SW	SW	SW	SW	SSW	WSW	WSW	W	WSW	W	W	N	ESE	S	WSW	WSW	W	NE	E	ESE	SSE	NE	242	WSW
Nov 14	ENE	E	ESE	ENE	ENE	ENE	ENE	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	ENE	NE	NE	NNE	NNE	N	N	N	57	ENE
Nov 15	N	NNE	N	NNW	NNW	NNE	NE	NNE	NE	NE	ENE	ENE	ENE	NE	NE	NE	NE	NE	NE	NE	NNE	NNE	N	35	NE	
Nov 16	N	N	N	NNW	N	NNW	NNW	N	NNW	NNW	NW	NW	NW	NW	WNW	WNW	NW	SSW	SW	SSW	S	SSE	SSE	SSE	330	NNW
Nov 17	SSE	SSE	SSE	SSE	SSE	SE	SSE	SSE	SSE	SSE	S	S	S	S	S	S	S	S	SSW	SSW	SSW	SSW	S	S	183	S
Nov 18	SSW	S	S	S	S	S	S	S	S	SSW	SW	SSW	SSW	SSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	201	SSW
Nov 19	SSW	WSW	N	NE	NE	E	ESE	SE	SE	SE	S	WNW	NW	NW	NW	NW	NNW	NNW	NNW	N	NNE	NE	NE	NNE	347	NNW
Nov 20	NNE	NNE	N	N	N	N	NNW	N	N	N	NNW	NW	NW	NW	SW	S	SSW	S	SSE	SE	SE	SE	ESE	ESE	5	N
Nov 21	ESE	ESE	ESE	SE	SE	SSE	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	200	SSW
Nov 22	SW	SSW	SSW	SE	E	ESE	SE	SE	NNE	NNE	E	NW	NNW	E	S	S	SE	SSW	NNW	N	NNW	N	N	NNW	325	NW
Nov 23	NNW	NW	NW	NW	NW	WNW	WNW	W	WNW	NW	NW	NW	NW	NW	NNW	NNW	NNW	ENE	SE	ESE	E	ESE	ESE	ESE	314	NW
Nov 24	ESE	SE	E	ENE	ENE	E	ESE	ESE	SE	ESE	SE	S	S	SSE	SSE	SE	SE	SE	SE	SSE	S	SSE	SSE	SSE	149	SSE
Nov 25	SSE	SSE	SSE	S	S	S	S	S	S	S	S	S	SSW	SSW	SSW	SW	SSW	SSW	SSW	SSW	S	SSW	SW	SW	194	SSW
Nov 26	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	WSW	WSW	W	WSW	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	252	WSW
Nov 27	WSW	SW	SW	SW	SW	SSW	SSW	SSE	SE	SE	SE	SE	SE	ESE	ESE	ESE	ESE	SE	SE	SE	ESE	SE	SSE	SSE	160	SSE
Nov 28	SSE	SSE	SSE	SSE	S	SW	SW	SSE	SSE	S	SSE	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	WSW	WSW	WSW	203	SSW
Nov 29	WSW	NNW	N	NNW	NNW	ENE	ENE	NW	WNW	W	NW	NNW	ENE	SE	SSE	SSE	SE	SE	SE	SE	SE	SE	SE	ESE	129	SE
Nov 30	SE	SSE	SSE	S	SSW	SSW	SSW	SSW	SW	WSW	SW	SW	SW	ENE	SE	E	E	SE	SE	SSE	S	SSW	SSW	SW	189	S
C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance							
K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance							
X	Invalid Data (Machine Malfunction /Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)								P	Power Failure							
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																										
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																										

Timeseries Chart of Hourly Average for VWD - 842b Station





PEACE RIVER AREA MONITORING PROGRAM

842b Station - November 2021

Summary of Hourly Averages

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

WIND SPEED																												
Maximum Hourly Value:		30.6 kph on November 26 at hour 12													Hours in Service:		720											
Maximum Daily Value:		20.6 kph on November 26													Hours of Data:		720											
Minimum Hourly Value:		0.4 kph on November 2 at hour 7													Hours of Missing Data:		0											
Minimum Daily Value:		0.6 kph on November 22													Hours of Calibration:		0											
Monthly Average:		3.7 kph													Operational Uptime:		100											
WIND DIRECTION																												
Monthly Average:		190 (S) degree																										
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
Nov 1	8.5	8.3	9.6	7.2	9.4	10.8	8.3	8.7	7.0	5.7	8.8	11.0	12.2	9.5	6.3	3.2	2.0	2.0	4.6	6.1	7.5	5.1	4.5	5.0	2.0	12.2	6.3	
Nov 2	SE	SE	SSE	SE	SE	SE	SSE	SE	SSE	S	S	S	S	SSE	SSW	WNW	ENE	E	E	ESE	SE	ESE	ESE	ESE	0.4	16.2	5.9	
Nov 3	7.6	7.7	4.8	5.2	3.1	3.2	4.5	0.4	2.9	8.2	10.8	11.8	13.7	16.2	11.5	10.6	9.0	9.1	8.5	4.0	4.3	6.3	5.9	11.0	1.6	12.9	5.9	
Nov 4	SE	SE	ESE	ENE	E	E	ESE	ESE	ESE	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSE	SE	SE	SSE	SSE	SSE				
Nov 5	4.7	3.9	4.4	6.4	4.3	6.1	5.3	7.1	2.8	6.9	8.0	9.7	9.6	12.9	10.6	9.0	9.8	8.7	3.8	2.4	1.6	6.7	8.1	6.5	1.6	12.9	5.9	
Nov 6	SSE	SE	ESE	E	ESE	SE	SE	SSE	S	S	S	S	S	S	S	S	SSE	SSE	SW	SSW	SSE	SSE	SSE	SSE				
Nov 7	5.4	4.0	3.8	4.8	5.8	4.9	3.4	5.9	4.3	3.0	5.0	3.6	7.0	6.8	6.5	6.5	8.2	6.1	4.7	3.2	2.5	1.3	2.8	1.4	1.3	8.2	3.2	
Nov 8	SSE	SE	ESE	SE	SE	SSE	SSE	ESE	ENE	ENE	ENE	NE	NE	NE	NE	NE	NNE	NE	NNE	NE	NE	NE	NE	NE				
Nov 9	5.5	4.7	5.3	2.9	5.3	5.0	5.0	2.9	3.5	4.3	7.2	6.4	3.3	4.6	4.4	5.5	2.9	2.0	5.4	4.6	8.2	10.2	5.7	4.7	2.0	10.2	3.8	
Nov 10	NW	NW	WNW	NW	WNW	WNW	W	NW	S	SSW	SW	SW	SW	SW	WSW	SW	SSW	WSW	SSW	SSW	S	SW	SW					
Nov 11	4.1	10.7	9.0	11.7	13.3	10.7	9.6	9.7	9.6	11.5	14.5	16.4	17.8	16.1	11.8	8.3	8.0	8.4	9.0	9.7	8.9	5.4	5.7	4.6	4.1	17.8	9.7	
Nov 12	SW	SSW	SW	SW	SW	SW	SW	SSW	SSW	SSW	SW	SW	SW	WSW	W	SW	SW	SSW	SSW	SW	SW	S	SSE					
Nov 13	5.6	5.0	5.1	6.3	6.4	8.4	9.9	9.5	9.7	14.1	13.5	12.3	10.5	11.3	12.9	12.5	8.4	7.3	5.2	4.7	4.9	1.8	1.2	1.2	1.2	14.1	7.1	
Nov 14	SSE	S	SSW	SSW	S	SSW	SW	SSW	SSW	SSW	SW	WSW	SW	WSW	WSW	WSW	WSW	SW	SW	SW	WSW	ESE	ESE					
Nov 15	1.9	1.7	1.4	1.6	2.9	2.4	2.6	1.3	0.7	2.7	2.6	2.9	4.4	3.9	0.6	3.4	1.2	0.4	1.8	3.3	3.6	5.1	5.7	8.1	0.4	8.1	2.1	
Nov 16	E	E	ENE	ENE	ENE	ENE	ENE	NE	NNE	NE	NNE	N	NNW	NW	W	SE	ENE	E	E	ENE	ENE	ENE	ENE	E				
Nov 17	11.0	11.9	14.5	13.8	15.6	15.5	15.1	14.4	18.3	17.7	18.3	17.6	18.4	15.6	16.1	18.3	16.3	14.3	11.3	8.6	9.0	7.8	9.9	8.2	7.8	18.4	14.0	
Nov 18	E	E	E	E	E	E	E	E	E	E	E	ENE	ENE	E	E	E	E	E	E	ESE	E	E	E	E				
Nov 19	7.2	6.6	3.8	3.4	3.2	4.1	5.4	4.4	4.8	5.0	6.0	6.8	6.1	7.7	5.9	4.8	0.5	1.5	0.9	2.0	2.9	4.0	4.3	3.4	0.5	7.7	1.9	
Nov 20	E	E	E	E	E	E	E	ESE	ESE	SE	SSE	S	S	SSW	SSW	WSW	SW	SE	SE	SW	WSW	NNW	N	N				
Nov 21	1.8	0.5	0.7	1.0	1.2	1.4	1.6	2.3	2.2	1.9	3.7	4.5	5.4	5.2	4.5	7.1	6.9	6.9	8.5	10.7	12.0	11.1	11.0	12.7	0.5	12.7	5.0	
Nov 22	N	ESE	E	E	ESE	ESE	E	E	E	ESE	ESE	SE	SE	SE	ENE	E	E	E	E	E	E	ESE	ESE					
Nov 23	13.1	14.3	16.6	17.9	16.5	8.2	9.1	8.6	8.3	12.6	17.7	13.3	16.1	16.9	16.0	13.7	10.4	11.3	11.4	5.4	6.6	10.8	14.5	15.5	5.4	17.9	9.7	
Nov 24	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SSE	SSE	S	S	SSW	SSW	S	S	S	S	SSW	SSW	S	SSW	SSW				
Nov 25	13.8	14.9	15.8	13.9	12.1	11.1	13.2	15.7	17.3	14.2	16.0	15.1	13.7	4.7	3.0	4.8	13.5	10.8	6.3	1.5	2.2	2.7	1.3	1.0	1.0	17.3	8.3	
Nov 26	SW	SW	SW	SW	SW	SW	SSW	WSW	WSW	W	WSW	W	W	N	ESE	S	WSW	WSW	W	NE	E	ESE	SSE	NE				
Nov 27	3.9	3.8	4.8	3.8	4.0	5.7	6.7	6.6	7.0	6.3	5.9	7.0	7.3	8.6	8.7	8.2	7.8	7.6	8.4	6.8	7.0	7.1	6.5	5.7	3.8	8.7	5.8	
Nov 28	ENE	E	ESE	ENE	ENE	ENE	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	ENE	NE	NE	NE	NNE	NNE	N	N				
Nov 29	4.5	5.3	4.8	4.6	5.8	5.4	6.1	5.3	4.3	6.2	5.5	7.4	8.6	7.4	7.5	8.2	10.6	11.5	12.2	13.1	10.7	9.7	11.6	11.0	4.3	13.1	7.2	
Nov 30	N	NNE	N	NNW	NNW	NNE	NE	NNE	NE	NE	ENE	ENE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NNE	NNE	N				
Nov 1	9.4	9.2	11.8	12.1	12.1	11.4	11.1	9.9	9.3	9.0	8.4	10.6	10.0	8.4	8.6	4.4	2.5	3.1	7.5	7.7	4.9	3.0	3.3	4.1	2.5	12.1	5.2	
Nov 2	N	N	N	NNW	N	NNW	NNW	N	NNW	NNW	NW	NW	NW	NW	NNW	NNW	NW	SSW	SSW	SSW	S	SSE	SSE	SSE				
Nov 3	4.7	3.4	4.2	3.2	4.4	4.5	6.1	9.2	9.5	11.3	17.1	19.2	17.5	16.1	17.2	14.7	12.4	12.4	15.2	17.9	17.6	19.6	16.4	16.4	3.2	19.6	11.7	
Nov 4	SSE	SSE	SSE	SSE	SSE	SE	SSE	SSE	SSE	SSE	S	S	S	S	S	S	S	S	S	S	S	S	S	S				
Nov 5	18.9	19.6	19.6	15.8	14.1	10.5	11.5	11.4	9.8	14.4	15.2	17.4	15.4	14.3	13.3	11.4	10.9	7.9	8.3	9.8	11.8	11.2	7.8	8.3	7.8	19.6	12.4	
Nov 6	SSW	S	S	S	S	S	S	S	S	SSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW				
Nov 7	8.1	4.1	2.2	2.8	2.7	1.2	1.0	1.1	1.1	0.6	0.4	0.6	2.9	5.7	5.8	6.1	10.7	10.3	7.3	7.1	5.1	2.4	5.0	7.4	0.4	10.7	2.6	
Nov 8	SSW	WSW	N	NE	NE	E	ESE	SE	SE	SE	S	WNW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	N	NNE	NE	NE	NNE			
Nov 9	8.0	8.0	9.8	10.8	12.1	14.2	10.4	11.5	9.0	8.8	7.2	6.8	7.9	6.5	4.9	5.5	6.8	6.5	6.0	5.5	7.3	7.9	7.9	6.5	4.9	14.2	3.1	
Nov 10	NNE	NNE	N	N	N	NNW	N	N	N	NNW	N	N	N	NNW	NW	SW	S	SSW	S	SSE	SE	SE	SE	ESE				



PEACE RIVER AREA MONITORING PROGRAM

842b Station - November 2021

Summary of Hourly Averages

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

WIND SPEED																																		
Maximum Hourly Value:		30.6 kph on November 26 at hour 12										Hours in Service:		720																				
Maximum Daily Value:		20.6 kph on November 26										Hours of Data:		720																				
Minimum Hourly Value:		0.4 kph on November 2 at hour 7										Hours of Missing Data:		0																				
Minimum Daily Value:		0.6 kph on November 22										Hours of Calibration:		0																				
Monthly Average:		3.7 kph										Operational Uptime:		100																				
WIND DIRECTION																																		
Monthly Average:		190 (S) degree																																
Day	Hourly Period Starting at (MST)																										Daily Minimum	Daily Maximum	Daily Average					
Nov 21	6.2	9.5	10.2	9.3	8.4	13.9	12.3	12.5	10.4	9.2	11.3	9.7	4.5	9.7	13.1	14.6	14.2	12.6	8.5	19.0	19.1	20.5	19.1	13.2	4.5	20.5	10.1							
Nov 22	ESE	ESE	ESE	SE	SE	SSE	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	0.8	13.8	0.6							
	SW	SSW	SSW	SE	E	ESE	SE	NNE	NNE	E	NW	NNW	E	S	S	SE	SSW	NNW	N	NNW	N	N	NNW											
Nov 23	10.3	12.5	13.2	10.0	11.5	11.6	8.5	8.4	8.7	8.8	7.8	8.6	6.8	6.2	5.6	6.8	2.7	0.7	1.2	0.6	2.0	2.6	2.6	2.3	0.6	13.2	5.5							
	NNW	NW	NW	NW	NW	WNW	WNW	W	WNW	NW	NW	NW	NW	NW	NW	WNW	NNW	ENE	SE	ESE	E	ESE	ESE											
Nov 24	3.2	2.3	3.0	4.5	3.3	4.5	3.9	3.1	4.4	5.3	4.4	8.9	11.3	8.1	7.3	3.1	5.1	8.0	13.5	13.7	14.0	15.6	14.1	17.0	2.3	17.0	6.7							
	ESE	SE	E	ENE	ENE	E	ESE	ESE	SE	ESE	SE	S	S	SSE	SSE	SE	SE	SE	SSE	S	SSE	SSE	SSE											
Nov 25	18.7	17.4	17.5	17.6	22.8	25.0	21.9	21.5	22.2	22.4	23.1	26.3	20.9	22.8	19.0	13.5	13.6	17.5	16.8	21.3	18.0	22.2	18.8	21.9	13.5	26.3	19.1							
	SSE	SSE	SSE	S	S	S	S	S	S	S	S	SSW	SSW	SSW	SSW	SW	SSW	SSW	SSW	SSW	S	SSW	SW	SW										
Nov 26	18.9	28.4	24.8	18.1	16.9	25.4	26.3	14.5	11.1	26.9	26.9	26.5	30.6	27.5	24.7	24.7	21.7	18.8	17.4	15.6	15.4	12.9	14.8	12.7	11.1	30.6	20.6							
	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	WSW	WSW	W	WSW	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW										
Nov 27	11.3	8.8	10.7	8.7	7.3	6.8	6.0	6.2	5.4	6.4	5.4	7.8	7.4	6.4	8.1	9.0	8.6	9.8	9.1	9.4	6.1	8.7	13.4	13.7	5.4	13.7	6.2							
	WSW	SW	SW	SW	SW	SSW	SSW	SSE	SE	SE	SE	SE	ESE	ESE	ESE	ESE	SE	SE	ESE	SE	ESE	SE	SSE	SSE										
Nov 28	12.9	13.8	8.8	8.2	7.6	6.9	5.5	11.1	12.0	14.4	12.8	15.0	16.1	12.6	12.4	11.7	14.4	16.1	13.9	16.9	19.4	21.9	21.1	14.4	5.5	21.9	11.2							
	SSE	SSE	SSE	SSE	S	SW	SW	SSE	SSE	S	SSE	S	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	WSW	WSW	WSW											
Nov 29	10.3	13.3	9.7	3.8	1.2	2.3	1.4	0.8	2.3	2.1	3.2	2.2	2.5	4.7	6.7	3.8	4.2	5.7	8.0	10.0	7.4	7.9	10.7	10.0	0.8	13.3	1.7							
	WSW	NNW	N	NNW	NNW	ENE	ENE	NW	WNW	W	NW	NNW	ENE	SE	SSE	SSE	SE	SE	SE	SE	SE	SE	ESE											
Nov 30	11.3	15.5	16.7	18.0	17.2	18.4	16.2	10.4	7.0	8.5	9.9	10.5	2.7	0.9	2.5	2.3	3.2	6.7	8.4	8.9	11.0	11.8	14.7	14.7	0.9	18.4	8.5							
	SE	SSE	SSE	S	SSW	SSW	SSW	SSW	SW	WSW	SW	SW	SW	ENE	SE	E	SE	SE	SSE	S	SSW	SSW	SW											
C	Monthly Calibration										S	Daily Zero-Span Check										Q	Quality Assurance											
K	Collection Error										N	No Data (Machine Not in Service)										Y	Routine Maintenance											
X	Invalid Data (Equipment Malfunction / Recovery)										NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)										P	Power Failure											
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																		
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																		

RENO STATION



PEACE RIVER AREA MONITORING PROGRAM

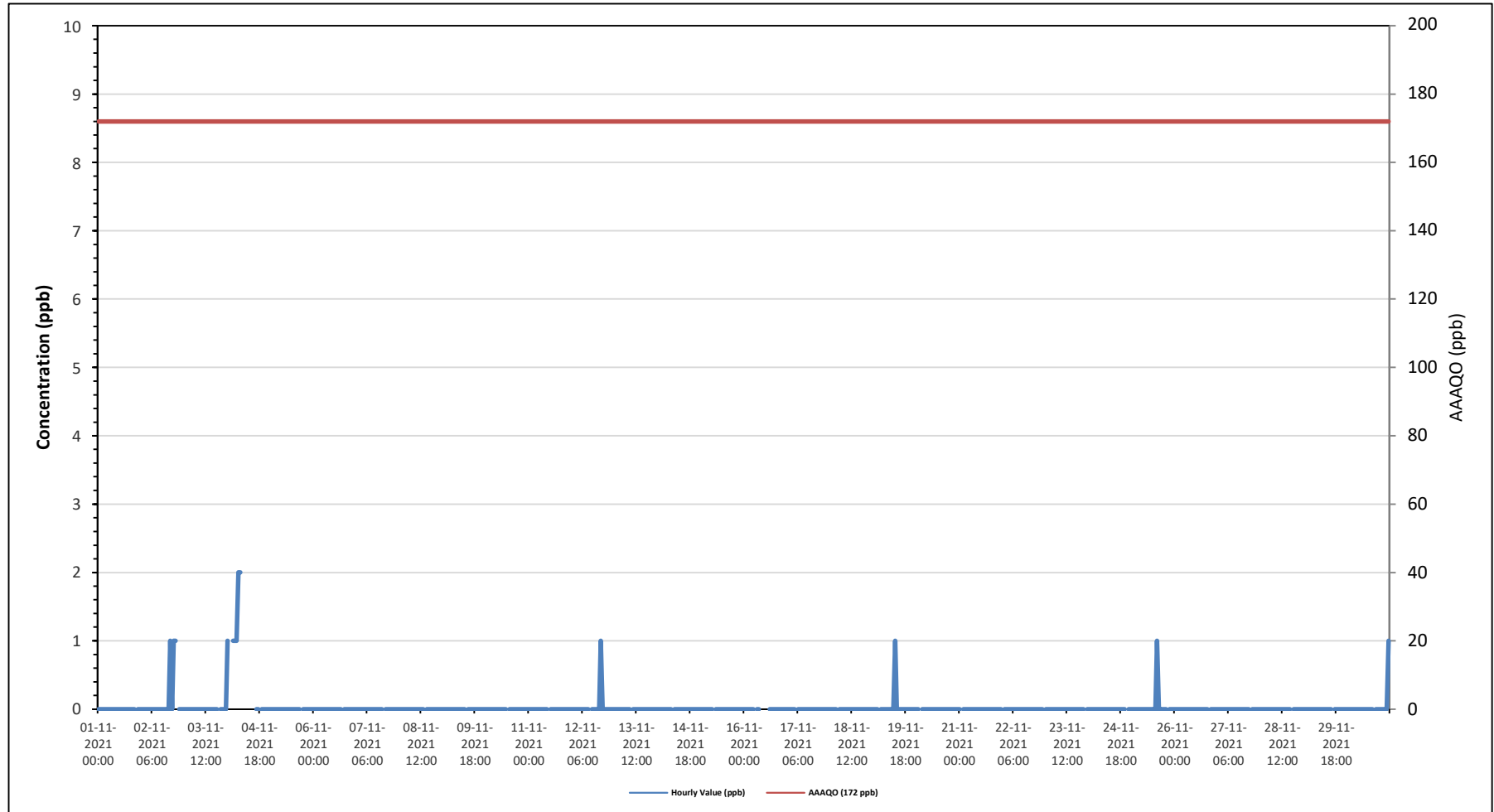
Reno Station - November 2021

Summary of Hourly Averages

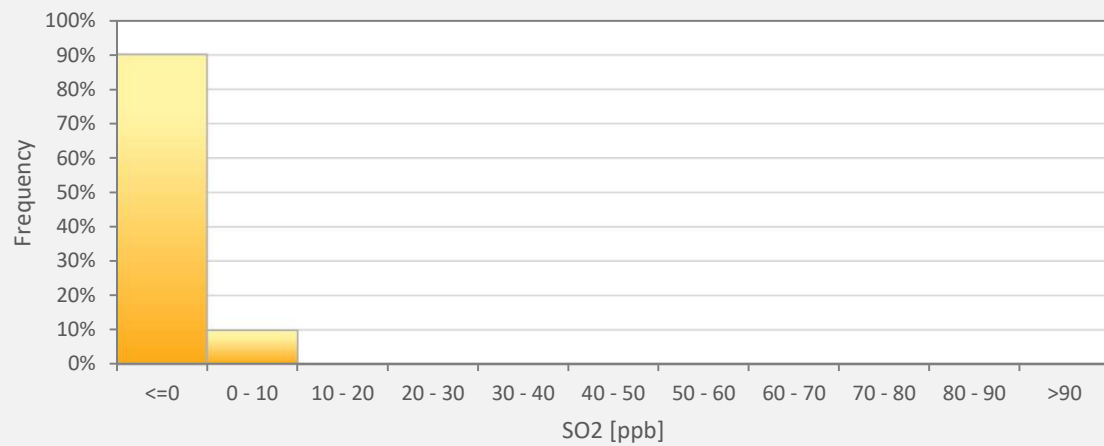
SULPHUR DIOXIDE (SO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																											
Number of 1-Hour Exceedances:			0		Number of 24-Hour Exceedances:			0		30-Day Exceedance:			0														
Maximum Hourly Value:			2 ppb		on November 4 at hour 6			Hours in Service:			720																
Maximum Daily Value:			0.1 ppb		on November 2			Hours of Data:			674																
Minimum Hourly Value:			0 ppb		on November 1 at hour 0			Hours of Missing Data:			9																
Minimum Daily Value:			0.0 ppb		on November 1			Hours of Calibration:			37																
Monthly Average:			0.0 ppb					Operational Uptime:			98.8																
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
Nov 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0
Nov 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	S	0	0	0	0	0	0.1
Nov 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
Nov 4	1	X	X	1	1	1	2	2	C	C	NRM	NRM	C	C	C	C	0	0	S	0	0	0	0	0	0	2	-
Nov 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	
Nov 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0	0	0	0	0.0	
Nov 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	
Nov 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	
Nov 9	0	0	0	0	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0	0	0	0	0	0	0	0.0	
Nov 10	0	0	0	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Nov 11	0	0	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Nov 12	0	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0.0	
Nov 13	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Nov 14	0	0	0	0	0	0	0	S	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Nov 15	0	0	0	0	0	0	S	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Nov 16	0	0	0	0	0	S	S	0	NRM	NRM	NRM	NRM	NRM	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Nov 17	0	0	0	0	S	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Nov 18	0	0	0	0	S	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Nov 19	0	0	0	S	S	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.0	
Nov 20	0	0	S	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Nov 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	
Nov 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	
Nov 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	
Nov 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Nov 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	S	0	0	0	0	1	0.0	
Nov 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0	0.0	
Nov 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.0	
Nov 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0.0	
Nov 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0.0	
Nov 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0	0.0	
Diurnal Maximum	1	0	0	1	1	1	2	2	0	0	0	0	1	0	1	0	1	0	1	1	0	0	0	1			
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance								
K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance								
X	Invalid Data (Equipment Malfunction / Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)								P	Power Failure								
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																											
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																											

Timeseries Chart of Hourly Average for SO2 - Reno Station



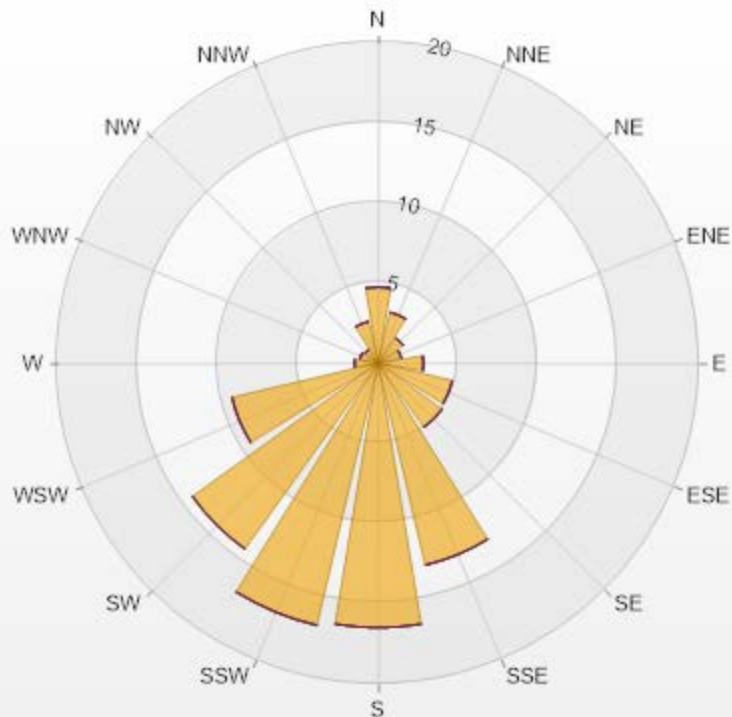
SO2[ppb] Histogram: PRAMP RENO Monthly: 11-2021 1 Hr.



Classes	SO2
<=0	90.06%
0 - 10	9.94%
10 - 20	0.00%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: PRAMP RENO Poll.: PRAMP RENO-SO2[ppb] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 93.61% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	4.75	0	0	0	0	4.75
NNE	3.26	0	0	0	0	3.26
NE	1.93	0	0	0	0	1.93
ENE	1.48	0	0	0	0	1.48
E	2.82	0	0	0	0	2.82
ESE	4.75	0	0	0	0	4.75
SE	4.9	0	0	0	0	4.9
SSE	12.91	0	0	0	0	12.91
S	16.47	0	0	0	0	16.47
SSW	16.77	0	0	0	0	16.77
SW	14.24	0	0	0	0	14.24
WSW	9.35	0	0	0	0	9.35
W	1.48	0	0	0	0	1.48
WNW	1.19	0	0	0	0	1.19
NW	1.04	0	0	0	0	1.04
NNW	2.67	0	0	0	0	2.67
Summary	100	0	0	0	0	100



PRAMP-202111

Page 119 of 226

% Icon Classes (ppb)

100 0-10

0 10-50

0 50-100

0 100-172

0 >172.0



PEACE RIVER AREA MONITORING PROGRAM

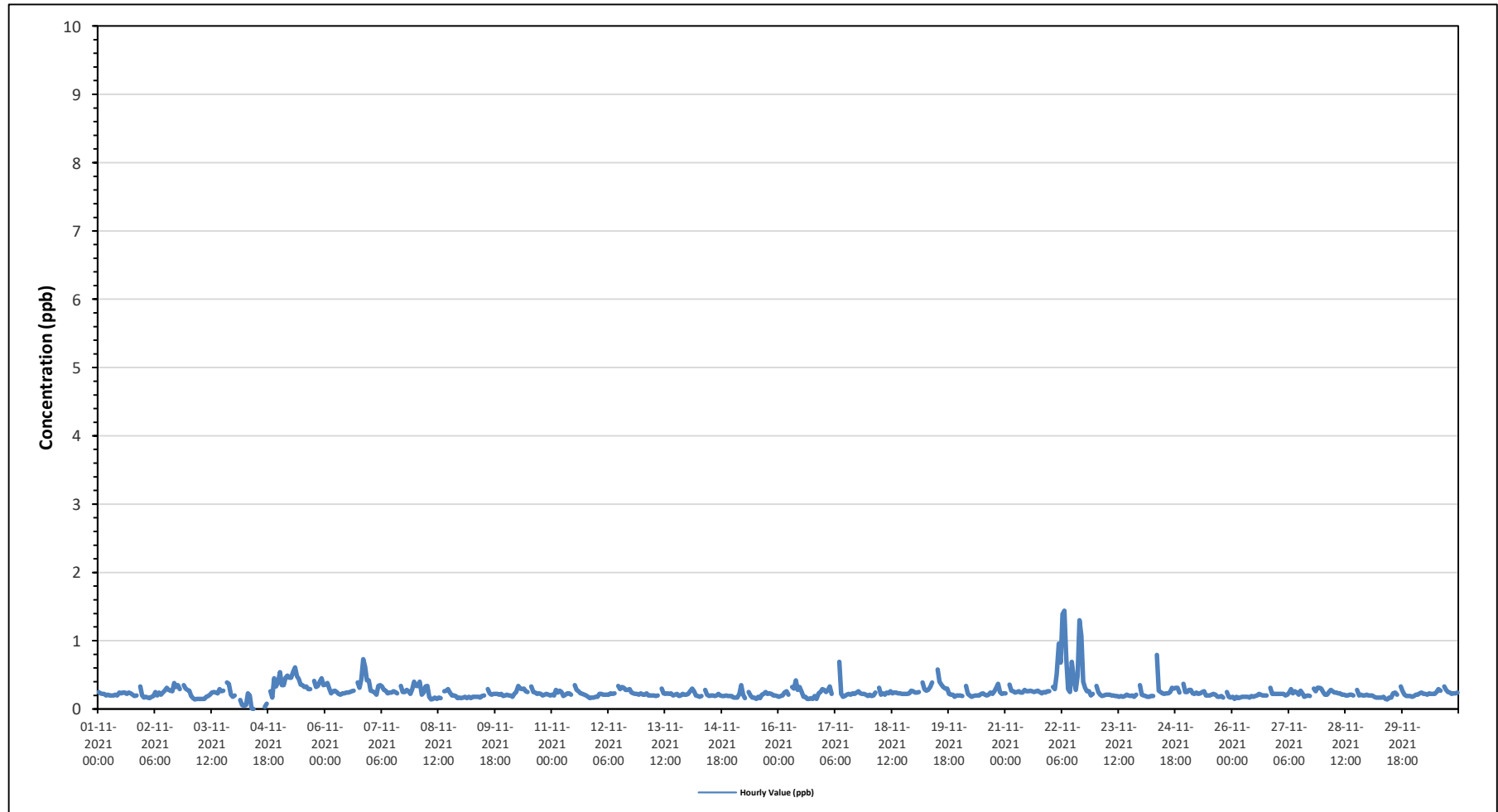
Reno Station - November 2021

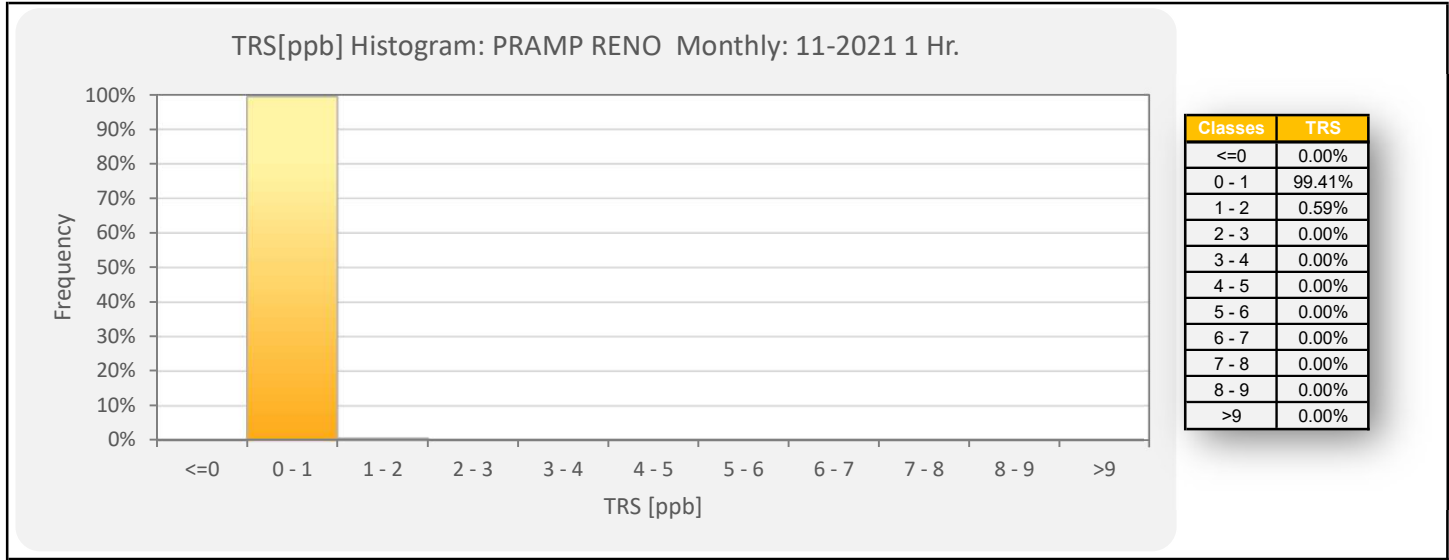
Summary of Hourly Averages

TOTAL REDUCED SULPHUR (TRS) in ppb

Maximum Hourly Value:	1.44	ppb	on November 22 at hour 7	Hours in Service:	720																						
Maximum Daily Value:	0.58	ppb	on November 22	Hours of Data:	678																						
Minimum Hourly Value:	0.00	ppb	on November 4 at hour 10	Hours of Missing Data:	6																						
Minimum Daily Value:	0.20	ppb	on November 26	Hours of Calibration:	36																						
Monthly Average:	0.25	ppb		Operational Uptime:	99.2																						
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
Nov 1	0.25	0.23	0.22	0.22	0.2	0.21	0.2	0.2	0.2	0.21	0.2	0.24	0.23	0.24	0.24	0.22	0.24	0.23	0.21	0.19	0.2	S	0.33	0.2	0.19	0.33	0.22
Nov 2	0.17	0.18	0.17	0.16	0.18	0.19	0.25	0.2	0.24	0.21	0.24	0.27	0.31	0.28	0.27	0.26	0.38	0.32	0.35	0.29	S	0.35	0.3	0.28	0.16	0.38	0.25
Nov 3	0.27	0.19	0.16	0.14	0.15	0.15	0.15	0.15	0.15	0.18	0.19	0.21	0.24	0.25	0.24	0.23	0.29	0.26	0.27	S	0.39	0.37	0.21	0.18	0.14	0.39	0.22
Nov 4	0.2	X	X	0.13	0.06	0.05	0.06	0.23	0.2	0.01	0	C	C	C	C	C	0.03	0.08	S	0.26	0.17	0.45	0.33	0.4	0.00	0.45	-
Nov 5	0.54	0.35	0.35	0.46	0.49	0.46	0.46	0.55	0.61	0.48	0.44	0.36	0.35	0.32	0.33	0.29	0.29	S	0.41	0.32	0.34	0.4	0.45	0.35	0.29	0.61	0.41
Nov 6	0.36	0.38	0.3	0.23	0.26	0.27	0.25	0.22	0.21	0.23	0.23	0.24	0.24	0.25	0.26	0.27	S	0.39	0.31	0.44	0.73	0.62	0.42	0.42	0.21	0.73	0.33
Nov 7	0.27	0.26	0.24	0.21	0.34	0.35	0.33	0.28	0.27	0.23	0.24	0.24	0.26	0.25	0.23	S	0.34	0.25	0.25	0.28	0.26	0.22	0.29	0.4	0.21	0.40	0.27
Nov 8	0.34	0.34	0.4	0.21	0.24	0.33	0.34	0.18	0.14	0.15	0.17	0.15	0.17	0.16	S	0.26	0.27	0.29	0.24	0.2	0.2	0.19	0.16	0.17	0.14	0.40	0.23
Nov 9	0.16	0.17	0.18	0.16	0.18	0.16	0.18	0.18	0.18	0.18	0.17	0.19	0.2	S	0.29	0.23	0.21	0.22	0.22	0.21	0.22	0.19	0.2	0.16	0.29	0.20	
Nov 10	0.21	0.2	0.2	0.18	0.22	0.25	0.34	0.3	0.29	0.3	0.26	0.25	S	0.33	0.25	0.24	0.22	0.23	0.22	0.2	0.21	0.22	0.21	0.2	0.18	0.34	0.24
Nov 11	0.21	0.2	0.28	0.24	0.27	0.25	0.19	0.21	0.23	0.23	0.21	S	0.35	0.28	0.26	0.23	0.22	0.21	0.2	0.18	0.16	0.17	0.17	0.18	0.16	0.35	0.22
Nov 12	0.18	0.22	0.22	0.21	0.21	0.21	0.21	0.23	0.22	0.23	S	0.34	0.29	0.32	0.31	0.28	0.28	0.29	0.24	0.23	0.22	0.22	0.21	0.23	0.18	0.34	0.24
Nov 13	0.21	0.21	0.23	0.2	0.2	0.2	0.2	0.19	0.2	S	0.3	0.23	0.22	0.23	0.22	0.23	0.2	0.21	0.22	0.19	0.2	0.22	0.21	0.21	0.19	0.30	0.21
Nov 14	0.22	0.26	0.3	0.26	0.2	0.19	0.18	0.19	S	0.28	0.21	0.19	0.2	0.2	0.19	0.2	0.22	0.2	0.19	0.19	0.2	0.19	0.19	0.19	0.18	0.30	0.21
Nov 15	0.17	0.17	0.17	0.22	0.35	0.21	0.16	S	0.25	0.2	0.17	0.17	0.15	0.18	0.16	0.21	0.22	0.25	0.22	0.23	0.22	0.2	0.2	0.19	0.15	0.35	0.20
Nov 16	0.18	0.19	0.2	0.24	0.26	0.21	S	0.32	0.3	0.42	0.28	0.32	0.26	0.18	0.18	0.15	0.15	0.16	0.15	0.19	0.15	0.23	0.25	0.29	0.15	0.42	0.23
Nov 17	0.28	0.25	0.28	0.33	0.22	S	0.4	NRM	0.69	0.22	0.18	0.19	0.21	0.22	0.21	0.23	0.22	0.24	0.26	0.23	0.22	0.22	0.21	0.19	0.18	0.69	0.26
Nov 18	0.21	0.19	0.2	0.24	S	0.31	0.21	0.23	0.21	0.24	0.23	0.26	0.23	0.24	0.24	0.23	0.23	0.22	0.22	0.22	0.23	0.27	0.26	0.19	0.31	0.23	
Nov 19	0.24	0.24	0.25	S	0.39	0.29	0.27	0.28	0.32	0.39	NRM	NRM	0.58	0.4	0.36	0.32	0.3	0.3	0.22	0.21	0.21	0.18	0.2	0.2	0.18	0.58	0.29
Nov 20	0.2	0.19	S	0.34	0.22	0.2	0.18	0.19	0.2	0.2	0.2	0.22	0.23	0.21	0.2	0.21	0.24	0.22	0.26	0.31	0.37	0.25	0.22	0.23	0.18	0.37	0.23
Nov 21	0.23	S	0.36	0.27	0.26	0.24	0.25	0.26	0.24	0.24	0.28	0.26	0.26	0.27	0.26	0.25	0.26	0.27	0.25	0.23	0.25	0.24	0.26	0.26	0.23	0.36	0.26
Nov 22	S	0.32	0.29	0.51	0.96	0.68	1.39	1.44	0.75	0.29	0.25	0.69	0.43	0.28	0.49	1.3	1.07	0.4	0.31	0.26	0.26	0.2	0.22	S	0.20	1.44	0.58
Nov 23	0.34	0.25	0.21	0.19	0.2	0.21	0.21	0.21	0.2	0.2	0.19	0.19	0.18	0.19	0.18	0.19	0.21	0.2	0.19	0.2	0.18	0.21	S	0.35	0.18	0.35	0.21
Nov 24	0.21	0.2	0.19	0.18	0.18	0.19	0.19	NRM	0.79	0.27	0.25	0.23	0.22	0.23	0.23	0.25	0.31	0.3	0.31	0.31	0.24	S	0.37	0.25	0.18	0.79	0.27
Nov 25	0.25	0.28	0.28	0.23	0.22	0.24	0.22	0.23	0.25	0.26	0.2	0.2	0.2	0.21	0.22	0.21	0.18	0.18	0.19	0.17	S	0.25	0.18	0.17	0.17	0.28	0.22
Nov 26	0.18	0.15	0.18	0.16	0.17	0.18	0.18	0.18	0.18	0.17	0.19	0.18	0.19	0.2	0.22	0.21	0.2	0.2	0.2	S	0.31	0.22	0.22	0.22	0.15	0.31	0.20
Nov 27	0.22	0.22	0.22	0.22	0.2	0.21	0.24	0.29	0.23	0.26	0.24	0.21	0.27	0.23	0.18	0.19	0.2	0.19	S	0.3	0.26	0.31	0.31	0.3	0.18	0.31	0.24
Nov 28	0.25	0.21	0.21	0.25	0.28	0.26	0.24	0.24	0.23	0.23	0.21	0.21	0.2	0.2	0.21	0.21	0.2	S	0.28	0.2	0.21	0.2	0.2	0.21	0.20	0.28	0.22
Nov 29	0.2	0.2	0.2	0.18	0.17	0.17	0.17	0.17	0.18	0.15	0.14	0.17	0.17	0.23	0.24	0.21	S	0.33	0.26	0.21	0.19	0.19	0.19	0.18	0.14	0.33	0.20
Nov 30	0.19	0.21	0.21	0.23	0.24	0.22	0.22	0.21	0.23	0.22	0.22	0.22	0.25	0.29	0.27	S	0.33	0.28	0.25	0.24	0.22	0.23	0.23	0.24	0.19	0.33	0.24
Diurnal Maximum	0.54	0.38	0.40	0.51	0.96	0.68	1.39	1.44	0.79	0.48	0.44	0.69	0.58	0.40	0.49	1.30	1.07	0.40	0.41	0.44	0.73	0.62	0.45	0.42			
Diurnal Average	0.24	0.23	0.24	0.23	0.26	0.24	0.27	0.28	0.29	0.24	0.22	0.25	0.25	0.25	0.25	0.27	0.27	0.25	0.25	0.24	0.25	0.26	0.25	0.25			
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance										
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance							P	Power Failure		
X	Invalid Data (Equipment Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																		
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																											
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																											

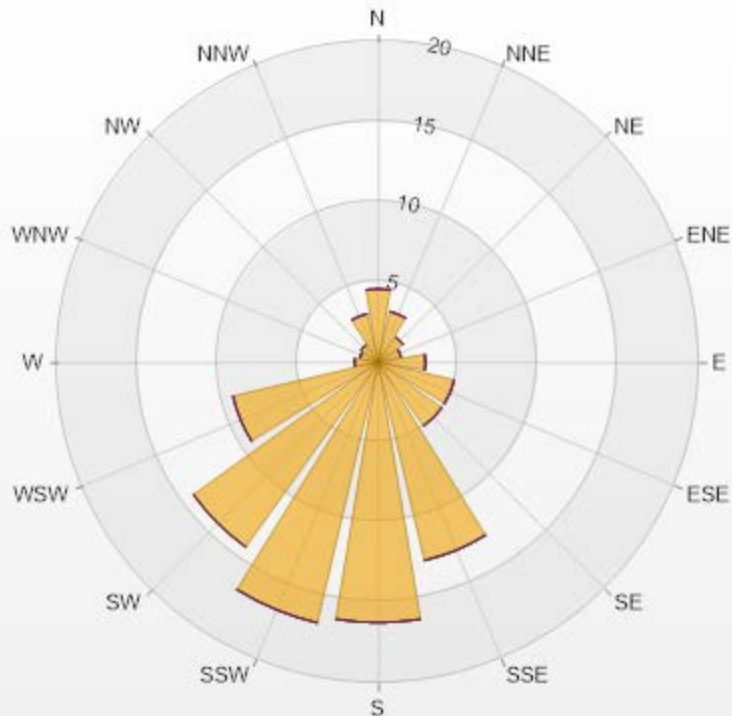
Timeseries Chart of Hourly Average for TRS - Reno Station





Wind: PRAMP RENO Poll.: PRAMP RENO-TRS[ppb] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.17% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	4.57	0	0	0	0	4.57
NNE	3.24	0	0	0	0	3.24
NE	1.92	0	0	0	0	1.92
ENE	1.47	0	0	0	0	1.47
E	2.95	0	0	0	0	2.95
ESE	4.87	0	0	0	0	4.87
SE	4.87	0	0	0	0	4.87
SSE	12.68	0	0	0	0	12.68
S	16.22	0	0	0	0	16.22
SSW	16.67	0	0	0	0	16.67
SW	14.16	0	0	0	0	14.16
WSW	9.29	0	0	0	0	9.29
W	1.47	0	0	0	0	1.47
WNW	1.18	0	0	0	0	1.18
NW	1.33	0	0	0	0	1.33
NNW	3.1	0	0	0	0	3.1
Summary	100	0	0	0	0	100



PRAMP-202111

Page 124 of 226

% Icon Classes (ppb)

100 0-2

0 2-5

0 5-10

0 10-50

0 >50.0



PEACE RIVER AREA MONITORING PROGRAM

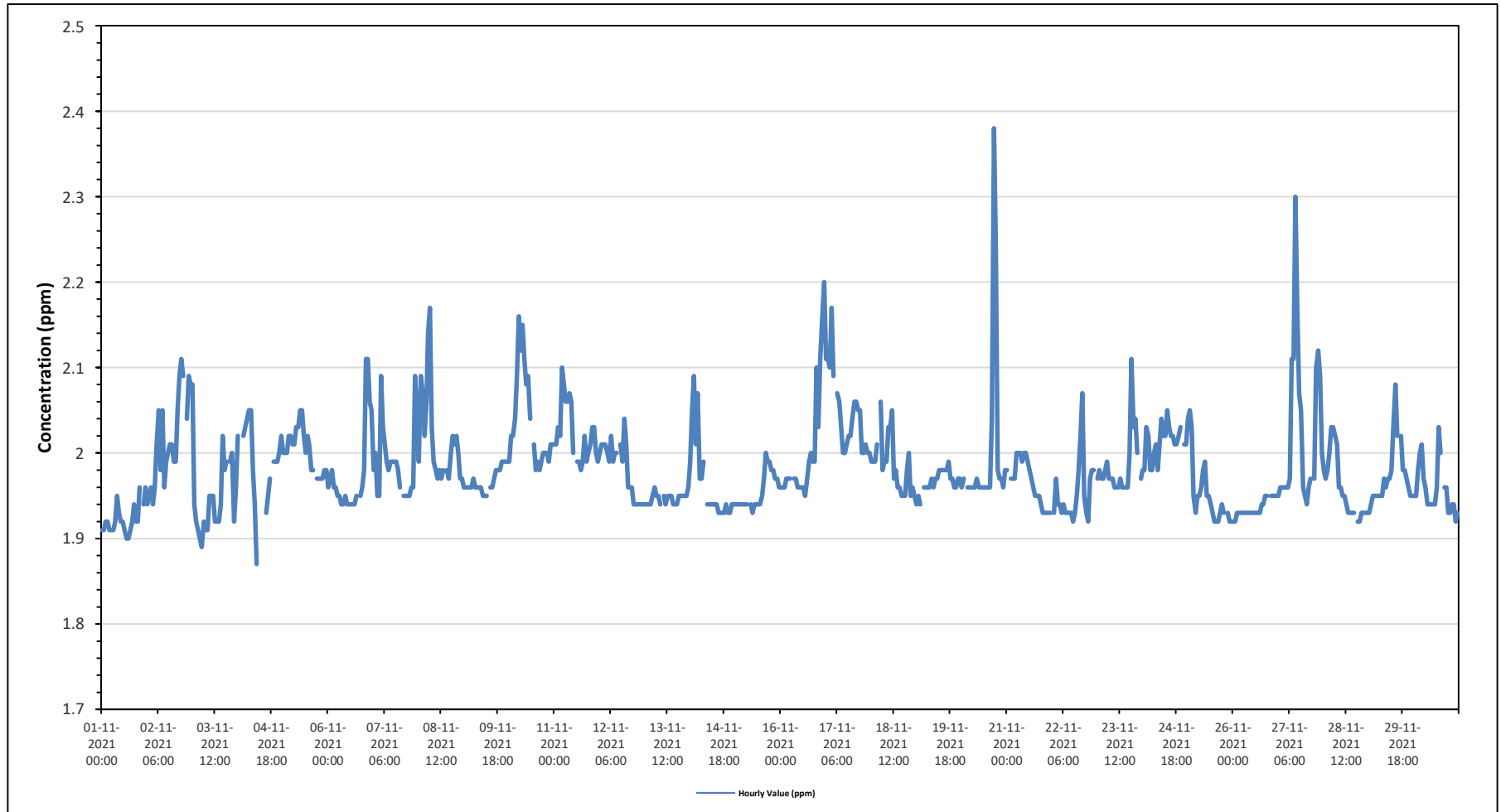
Reno Station - November 2021

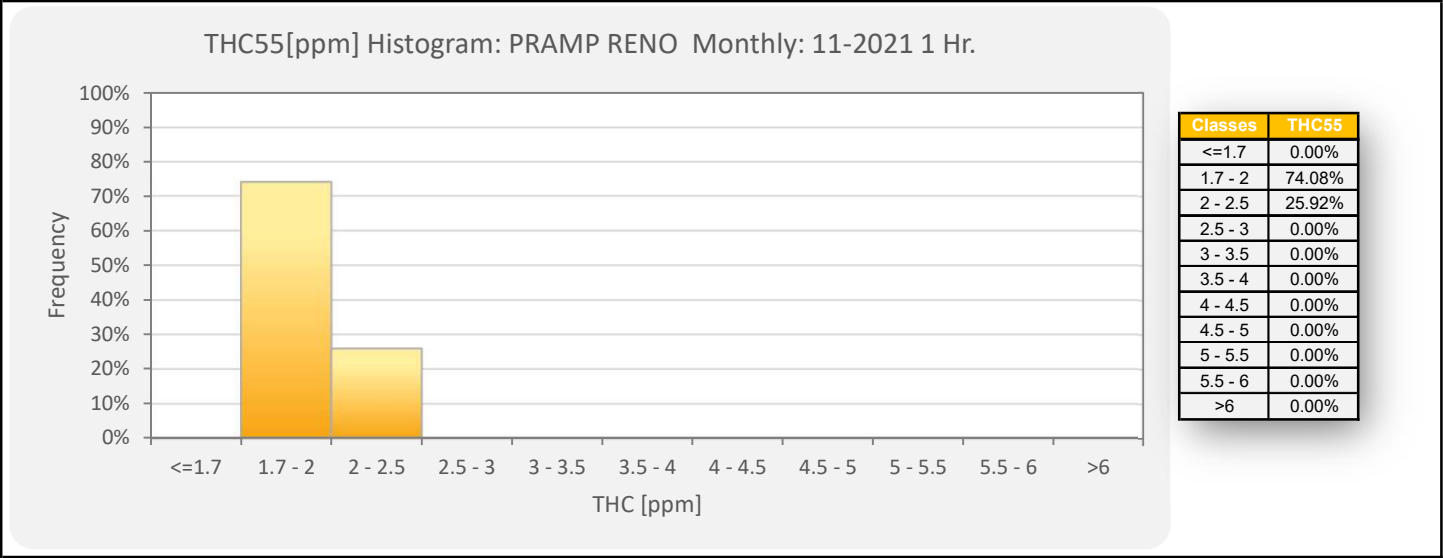
Summary of Hourly Averages

TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:		2.38	ppm	on November 20 at hour 17												Hours in Service:		720																	
Maximum Daily Value:		2.05	ppm	on November 17												Hours of Data:		683																	
Minimum Hourly Value:		1.87	ppm	on November 4 at hour 10												Hours of Missing Data:		2																	
Minimum Daily Value:		1.92	ppm	on November 1												Hours of Calibration:		35																	
Monthly Average:		1.98	ppm													Operational Uptime:		99.7																	
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average									
Nov 1	1.91	1.91	1.92	1.92	1.91	1.91	1.91	1.92	1.95	1.93	1.92	1.92	1.91	1.90	1.90	1.91	1.92	1.94	1.92	1.92	1.96	S	1.94	1.96	1.90	1.96	1.92								
Nov 2	1.94	1.95	1.96	1.94	1.96	2.01	2.05	1.98	2.05	1.96	1.99	2.00	2.01	2.01	1.99	1.99	2.05	2.09	2.11	2.09	S	2.04	2.09	2.08	1.94	2.11	2.01								
Nov 3	2.08	1.94	1.92	1.91	1.90	1.89	1.92	1.91	1.91	1.95	1.95	1.95	1.92	1.92	1.92	1.94	2.02	1.98	1.99	S	1.99	2.00	1.92	1.96	1.89	2.08	1.95								
Nov 4	2.02	X	X	2.02	2.03	2.04	2.05	2.05	1.98	1.94	1.87	C	C	C	C	1.93	1.95	1.97	S	1.99	1.99	1.99	2.00	2.02	1.87	2.05	-								
Nov 5	2.00	2.00	2.00	2.02	2.02	2.01	2.01	2.03	2.03	2.05	2.05	2.02	2.00	2.02	2.01	1.98	1.98	S	1.97	1.97	1.97	1.97	1.98	1.98	1.97	2.05	2.00								
Nov 6	1.96	1.97	1.98	1.96	1.96	1.95	1.95	1.94	1.94	1.95	1.94	1.94	1.94	1.94	1.95	S	1.95	1.96	1.98	2.11	2.11	2.06	2.05	1.94	2.11	1.98									
Nov 7	1.98	2.00	1.95	1.95	2.09	2.03	2.01	1.99	1.98	1.99	1.99	1.99	1.99	1.98	1.96	S	1.95	1.95	1.95	1.95	1.96	1.96	2.09	2.05	1.95	2.09	1.99								
Nov 8	1.99	2.09	2.07	2.02	2.06	2.14	2.17	2.03	1.99	1.98	1.97	1.98	1.97	1.98	S	1.98	1.97	2.00	2.02	2.01	2.02	2.00	1.97	1.97	1.97	2.17	2.02								
Nov 9	1.96	1.96	1.96	1.96	1.96	1.97	1.96	1.96	1.96	1.96	1.95	1.95	1.95	S	1.96	1.96	1.97	1.98	1.98	1.99	1.99	1.99	1.99	1.99	1.95	1.99	1.97								
Nov 10	1.99	2.02	2.02	2.04	2.09	2.16	2.12	2.15	2.11	2.08	2.09	2.04	S	2.01	1.98	1.99	1.98	1.99	2.00	2.00	2.00	1.99	2.01	2.01	1.98	2.16	2.04								
Nov 11	2.01	2.01	2.03	2.02	2.10	2.08	2.06	2.06	2.07	2.06	2.00	S	1.99	1.99	1.98	1.99	2.02	1.99	2.00	2.01	2.03	2.03	2.00	1.99	1.98	2.10	2.02								
Nov 12	2.00	2.01	2.01	2.01	2.00	1.99	2.02	1.99	2.00	2.00	S	2.01	1.99	2.04	2.01	1.96	1.96	1.96	1.94	1.94	1.94	1.94	1.94	1.94	1.94	2.04	1.98								
Nov 13	1.94	1.94	1.94	1.94	1.95	1.96	1.95	1.95	1.94	S	1.95	1.94	1.95	1.95	1.95	1.94	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.96	1.94	1.96	1.95								
Nov 14	1.99	2.05	2.09	2.01	2.07	1.97	1.97	1.99	S	1.94	1.94	1.94	1.94	1.94	1.94	1.93	1.93	1.93	1.93	1.94	1.93	1.93	1.94	1.94	1.93	2.09	1.96								
Nov 15	1.94	1.94	1.94	1.94	1.94	1.94	1.94	S	1.94	1.93	1.94	1.94	1.94	1.94	1.95	1.97	2.00	1.99	1.99	1.98	1.98	1.97	1.97	1.96	1.93	2.00	1.96								
Nov 16	1.96	1.96	1.96	1.97	1.97	1.97	S	1.97	1.97	1.96	1.96	1.96	1.96	1.95	1.97	1.99	2.00	1.99	1.99	2.10	2.03	2.11	2.16	2.20	1.95	2.20	2.00								
Nov 17	2.11	2.11	2.10	2.17	2.09	S	2.07	2.06	2.03	2.00	2.00	2.01	2.02	2.02	2.04	2.06	2.06	2.05	2.05	2.00	2.00	2.01	2.00	2.00	2.00	2.17	2.05								
Nov 18	1.99	1.99	1.99	2.01	S	2.06	1.98	1.99	1.99	2.03	2.03	2.05	1.97	1.98	1.96	1.96	1.95	1.95	1.95	1.98	2.00	1.95	1.96	1.95	1.95	2.06	1.99								
Nov 19	1.94	1.95	1.94	S	1.96	1.96	1.96	1.96	1.97	1.96	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.99	1.97	1.97	1.96	1.96	1.97	1.97	1.94	1.99	1.97								
Nov 20	1.96	1.97	S	1.96	1.96	1.96	1.96	1.96	1.97	1.96	1.96	1.96	1.96	1.96	1.96	2.04	2.38	2.24	1.98	1.97	1.97	1.96	1.98	1.96	2.38	2.00									
Nov 21	1.98	S	1.97	1.97	1.97	2.00	2.00	2.00	1.99	2.00	2.00	1.99	1.98	1.97	1.96	1.95	1.95	1.95	1.94	1.93	1.93	1.93	1.93	1.93	1.93	2.00	1.97								
Nov 22	S	1.93	1.97	1.94	1.94	1.93	1.94	1.93	1.93	1.93	1.93	1.92	1.93	1.95	1.98	2.02	2.07	1.95	1.93	1.92	1.97	1.98	1.98	S	1.92	2.07	1.95								
Nov 23	1.97	1.98	1.97	1.97	1.98	1.99	1.97	1.97	1.97	1.96	1.96	1.96	1.97	1.96	1.96	1.96	1.96	2.00	2.11	2.03	2.04	2.00	S	1.97	1.96	2.11	1.98								
Nov 24	1.98	1.98	2.03	2.02	1.98	1.98	2.00	2.01	1.98	2.01	2.04	2.02	2.02	2.05	2.03	2.02	2.02	2.01	2.01	2.02	2.03	S	2.01	2.01	1.98	2.05	2.01								
Nov 25	2.04	2.05	2.03	1.95	1.93	1.95	1.95	1.96	1.98	1.99	1.95	1.95	1.94	1.93	1.92	1.92	1.92	1.93	1.94	1.93	S	1.93	1.92	1.92	1.92	2.05	1.95								
Nov 26	1.92	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.95	1.95	S	1.95	1.95	1.95	1.95	1.92	1.95	1.94								
Nov 27	1.95	1.96	1.96	1.96	1.96	1.96	1.97	2.11	2.11	2.30	2.17	2.07	2.05	1.96	1.95	1.94	1.96	1.97	S	1.97	2.10	2.12	2.09	2.00	1.94	2.30	2.03								
Nov 28	1.98	1.97	1.98	2.00	2.03	2.03	2.02	2.01	1.96	1.96	1.95	1.95	1.94	1.93	1.93	1.93	1.93	S	1.92	1.92	1.93	1.93	1.93	1.93	1.92	2.03	1.96								
Nov 29	1.93	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.97	1.96	1.97	1.97	1.98	2.03	2.08	2.02	S	2.02	1.98	1.98	1.97	1.96	1.95	1.95	1.93	2.08	1.97								
Nov 30	1.95	1.95	1.98	2.00	2.01	1.97	1.96	1.94	1.94	1.94	1.94	1.94	1.96	2.03	2.00	S	1.96	1.96	1.93	1.93	1.94	1.94	1.92	1.93	1.92	2.03	1.96								
Diurnal Maximum	2.11	2.11	2.10	2.17	2.10	2.16	2.17	2.15	2.11	2.30	2.17	2.07	2.05	2.05	2.08	2.06	2.07	2.38	2.24	2.10	2.11	2.12	2.16	2.20											
Diurnal Average	1.98	1.98	1.98	1.98	1.99	1.99	1.99	1.98	1.99	1.98	1.97	1.97	1.97	1.97	1.97	1.98	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.98											
C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance																
K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance								P	Power Failure							
X	Invalid Data (Equipment Malfunction /Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																									
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																			
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																			

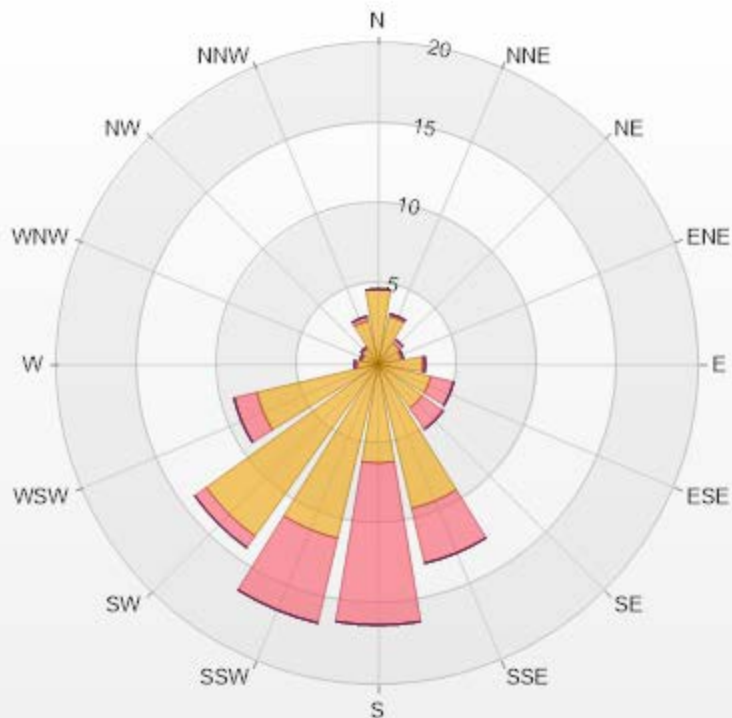
Timeseries Chart of Hourly Average for THC - Reno Station





Wind: PRAMP RENO Poll.: PRAMP RENO-THC55[ppm] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.86% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	4.69	0	0	0	0	4.69
NNE	3.07	0.15	0	0	0	3.22
NE	1.61	0.29	0	0	0	1.9
ENE	1.46	0.15	0	0	0	1.61
E	2.78	0.15	0	0	0	2.93
ESE	3.37	1.46	0	0	0	4.83
SE	3.37	1.61	0	0	0	4.98
SSE	9.22	3.51	0	0	0	12.73
S	6.15	10.1	0	0	0	16.25
SSW	11.13	5.42	0	0	0	16.55
SW	13.18	0.88	0	0	0	14.06
WSW	7.76	1.46	0	0	0	9.22
W	1.32	0.15	0	0	0	1.47
WNW	1.02	0.15	0	0	0	1.17
NW	1.17	0.15	0	0	0	1.32
NNW	2.78	0.29	0	0	0	3.07
Summary	74.08	25.92	0	0	0	100



PRAMP-202111

Page 129 of 226

% Icon Classes (ppm)

74

0-2

26

2-5

0

5-10

0

10-40

0

>40.0



PEACE RIVER AREA MONITORING PROGRAM

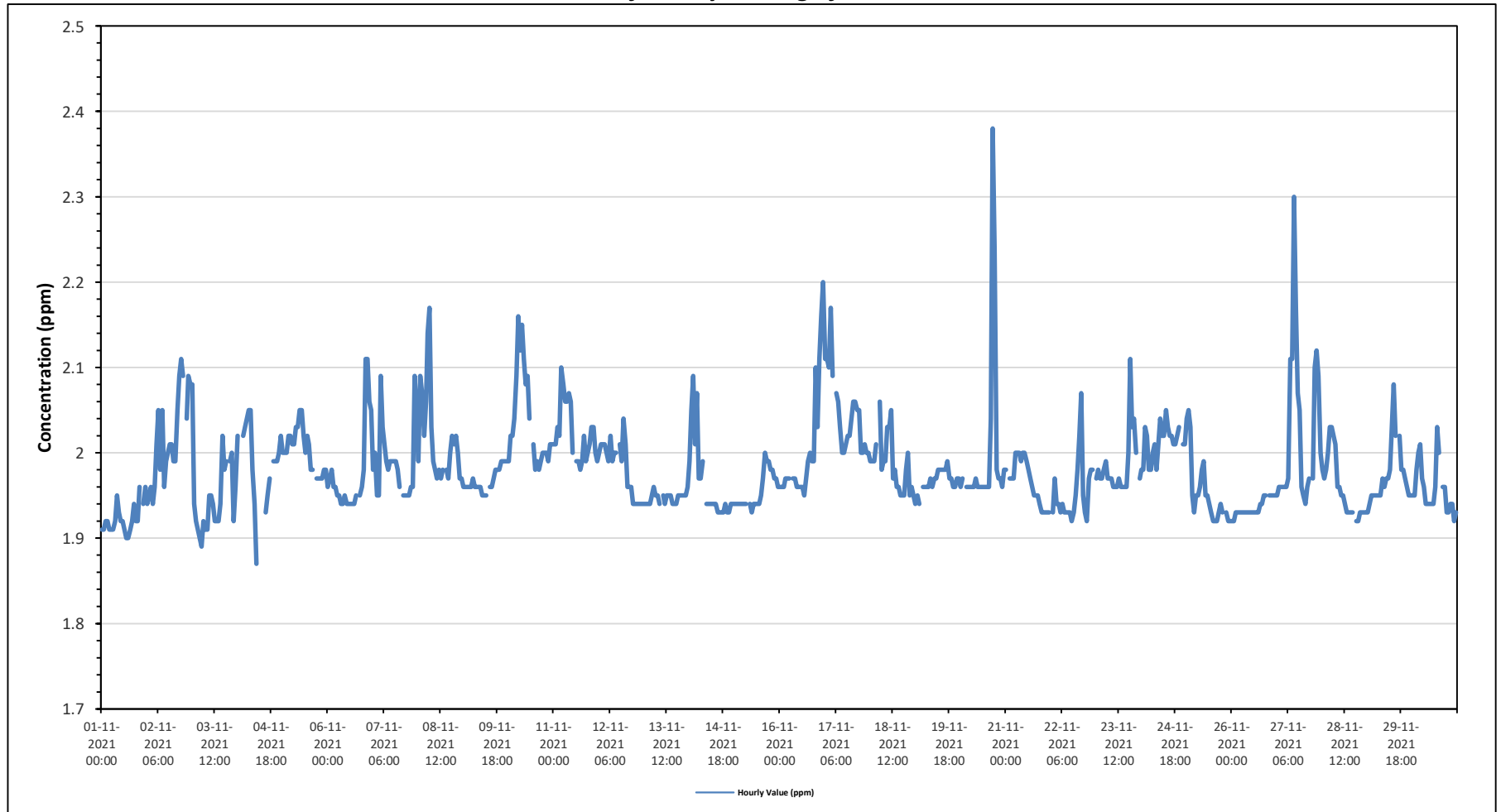
Reno Station - November 2021

Summary of Hourly Averages

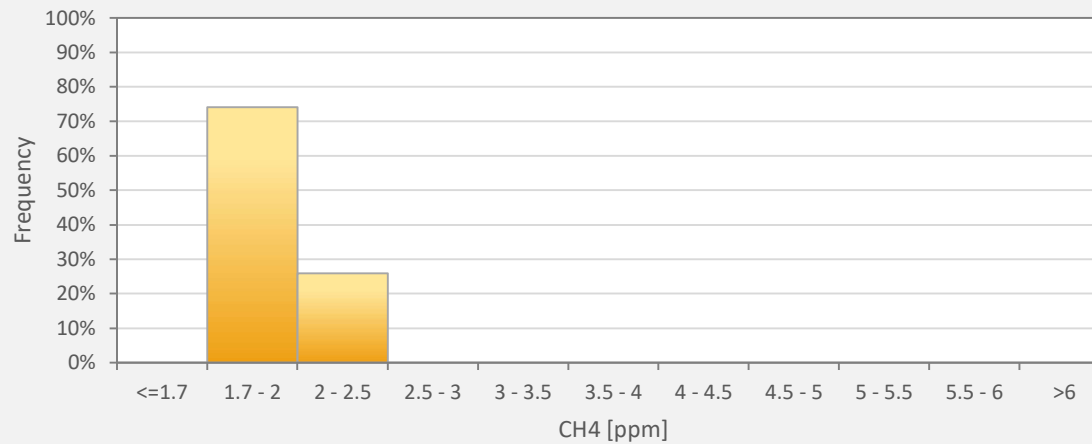
METHANE (CH₄) in ppm

Maximum Hourly Value:		2.38	ppm	on November 20 at hour 17												Hours in Service:		720											
Maximum Daily Value:		2.05	ppm	on November 17												Hours of Data:		683											
Minimum Hourly Value:		1.87	ppm	on November 4 at hour 10												Hours of Missing Data:		2											
Minimum Daily Value:		1.92	ppm	on November 1												Hours of Calibration:		35											
Monthly Average:		1.98	ppm													Operational Uptime:		99.7											
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
Nov 1	1.91	1.91	1.92	1.92	1.91	1.91	1.91	1.92	1.95	1.93	1.92	1.92	1.91	1.90	1.90	1.91	1.92	1.94	1.92	1.92	1.96	S	1.94	1.96	1.90	1.96	1.92		
Nov 2	1.94	1.95	1.96	1.94	1.96	2.01	2.05	1.98	2.05	1.96	1.99	2.00	2.01	2.01	1.99	1.99	2.05	2.09	2.11	2.09	S	2.04	2.09	2.08	1.94	2.11	2.01		
Nov 3	2.08	1.94	1.92	1.91	1.90	1.89	1.92	1.91	1.91	1.95	1.95	1.94	1.92	1.92	1.92	1.94	2.02	1.98	1.99	S	1.99	2.00	1.92	1.96	1.89	2.08	1.95		
Nov 4	2.02	X	X	2.02	2.03	2.04	2.05	2.05	1.98	1.94	1.87	C	C	C	C	1.93	1.95	1.97	S	1.99	1.99	1.99	2.00	2.02	1.87	2.05	-		
Nov 5	2.00	2.00	2.00	2.02	2.02	2.01	2.01	2.03	2.03	2.05	2.05	2.02	2.00	2.02	2.01	1.98	1.98	S	1.97	1.97	1.97	1.97	1.98	1.98	1.97	2.05	2.00		
Nov 6	1.96	1.97	1.98	1.96	1.96	1.95	1.95	1.94	1.94	1.95	1.94	1.94	1.94	1.94	1.95	S	1.95	1.96	1.98	2.11	2.11	2.06	2.05	1.94	2.11	1.98			
Nov 7	1.98	2.00	1.95	1.95	2.09	2.03	2.01	1.99	1.98	1.99	1.99	1.99	1.99	1.98	1.96	S	1.95	1.95	1.95	1.95	1.96	1.96	2.09	2.05	1.95	2.09	1.99		
Nov 8	1.99	2.09	2.07	2.02	2.06	2.14	2.17	2.03	1.99	1.98	1.97	1.98	1.97	1.98	S	1.98	1.97	2.00	2.02	2.01	2.02	2.00	1.97	1.97	1.97	2.17	2.02		
Nov 9	1.96	1.96	1.96	1.96	1.96	1.97	1.96	1.96	1.96	1.96	1.95	1.95	1.95	S	1.96	1.96	1.97	1.98	1.98	1.99	1.99	1.99	1.99	1.99	1.95	1.99	1.97		
Nov 10	1.99	2.02	2.02	2.04	2.09	2.16	2.12	2.15	2.11	2.08	2.09	2.04	S	1.91	1.98	1.99	1.98	1.99	2.00	2.00	2.00	1.99	2.01	2.01	1.98	2.16	2.04		
Nov 11	2.01	2.01	2.03	2.02	2.10	2.08	2.06	2.06	2.07	2.06	2.00	S	1.99	1.99	1.98	1.99	2.02	1.99	2.00	2.01	2.03	2.03	2.00	1.99	1.98	2.10	2.02		
Nov 12	2.00	2.01	2.01	2.01	2.00	1.99	2.02	1.99	2.00	2.00	S	1.95	2.01	1.99	2.04	2.01	1.96	1.96	1.96	1.94	1.94	1.94	1.94	1.94	1.94	2.04	1.98		
Nov 13	1.94	1.94	1.94	1.94	1.95	1.96	1.95	1.95	1.94	S	1.95	1.94	1.95	1.95	1.95	1.94	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.96	1.94	1.96	1.95		
Nov 14	1.99	2.05	2.09	2.01	2.07	1.97	1.97	1.99	S	1.94	1.94	1.94	1.94	1.94	1.94	1.93	1.93	1.93	1.93	1.94	1.93	1.93	1.94	1.94	1.93	2.09	1.96		
Nov 15	1.94	1.94	1.94	1.94	1.94	1.94	1.94	S	1.94	1.93	1.94	1.94	1.94	1.94	1.95	1.97	2.00	1.99	1.99	1.98	1.98	1.97	1.97	1.96	1.93	2.00	1.96		
Nov 16	1.96	1.96	1.96	1.97	1.97	1.97	S	1.97	1.97	1.96	1.96	1.96	1.96	1.95	1.97	1.99	2.00	1.99	1.99	2.10	2.03	2.11	2.16	2.20	1.95	2.20	2.00		
Nov 17	2.11	2.11	2.10	2.17	2.09	S	2.07	2.06	2.03	2.00	2.00	2.01	2.02	2.02	2.04	2.06	2.06	2.05	2.05	2.00	2.00	2.01	2.00	2.00	2.00	2.17	2.05		
Nov 18	1.99	1.99	1.99	2.01	S	2.06	1.98	1.99	1.99	2.03	2.03	2.05	1.97	1.98	1.96	1.96	1.95	1.95	1.95	1.98	2.00	1.95	1.96	1.95	1.95	2.06	1.99		
Nov 19	1.94	1.95	1.94	S	1.96	1.96	1.96	1.96	1.97	1.96	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.99	1.97	1.97	1.96	1.96	1.97	1.97	1.94	1.99	1.97		
Nov 20	1.96	1.97	S	1.96	1.96	1.96	1.96	1.96	1.97	1.96	1.96	1.96	1.96	1.96	1.96	2.04	2.38	2.24	1.98	1.97	1.97	1.96	1.98	1.96	2.38	2.00			
Nov 21	1.98	S	1.97	1.97	1.97	2.00	2.00	2.00	1.99	2.00	2.00	1.99	1.98	1.97	1.96	1.95	1.95	1.95	1.94	1.93	1.93	1.93	1.93	1.93	1.93	2.00	1.97		
Nov 22	S	1.93	1.97	1.94	1.94	1.93	1.94	1.93	1.93	1.93	1.93	1.92	1.93	1.95	1.98	2.02	2.07	1.95	1.93	1.92	1.97	1.98	1.98	S	1.92	2.07	1.95		
Nov 23	1.97	1.98	1.97	1.97	1.98	1.99	1.97	1.97	1.97	1.96	1.96	1.96	1.97	1.96	1.96	1.96	2.00	2.11	2.03	2.04	2.00	S	1.97	1.96	2.11	1.98			
Nov 24	1.98	1.98	2.03	2.02	1.98	1.98	2.00	2.01	1.98	2.01	2.04	2.02	2.02	2.05	2.03	2.02	2.02	2.01	2.01	2.02	2.03	S	2.01	2.01	1.98	2.05	2.01		
Nov 25	2.04	2.05	2.03	1.95	1.93	1.95	1.95	1.96	1.98	1.99	1.95	1.95	1.94	1.93	1.92	1.92	1.92	1.93	1.94	1.93	S	1.93	1.92	1.92	1.92	2.05	1.95		
Nov 26	1.92	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.95	1.95	S	1.95	1.95	1.95	1.95	1.92	1.95	1.94		
Nov 27	1.95	1.96	1.96	1.96	1.96	1.96	1.97	2.11	2.11	2.30	2.17	2.07	2.05	1.96	1.95	1.94	1.96	1.97	S	1.97	2.10	2.12	2.09	2.00	1.94	2.30	2.03		
Nov 28	1.98	1.97	1.98	2.00	2.03	2.03	2.02	2.01	1.96	1.96	1.95	1.95	1.94	1.93	1.93	1.93	1.93	S	1.92	1.92	1.93	1.93	1.93	1.93	1.92	2.03	1.96		
Nov 29	1.93	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.97	1.96	1.97	1.97	1.98	2.03	2.08	2.02	S	2.02	1.98	1.98	1.97	1.96	1.95	1.95	1.93	2.08	1.97		
Nov 30	1.95	1.95	1.98	2.00	2.01	1.97	1.96	1.94	1.94	1.94	1.94	1.94	1.96	2.03	2.00	S	1.96	1.96	1.93	1.93	1.94	1.94	1.92	1.93	1.92	2.03	1.96		
Diurnal Maximum	2.11	2.11	2.10	2.17	2.10	2.16	2.17	2.15	2.11	2.30	2.17	2.07	2.05	2.05	2.08	2.06	2.07	2.38	2.24	2.10	2.11	2.12	2.16	2.20					
Diurnal Average	1.98	1.98	1.98	1.98	1.99	1.99	1.99	1.99	1.98	1.99	1.98	1.97	1.97	1.97	1.97	1.97	1.98	1.99	1.99	1.98	1.99	1.99	1.99	1.98					
C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance										
K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance								P	Power Failure	
X	Invalid Data (Equipment Malfunction /Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																			
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																													
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																													

Timeseries Chart of Hourly Average for CH4 - Reno Station



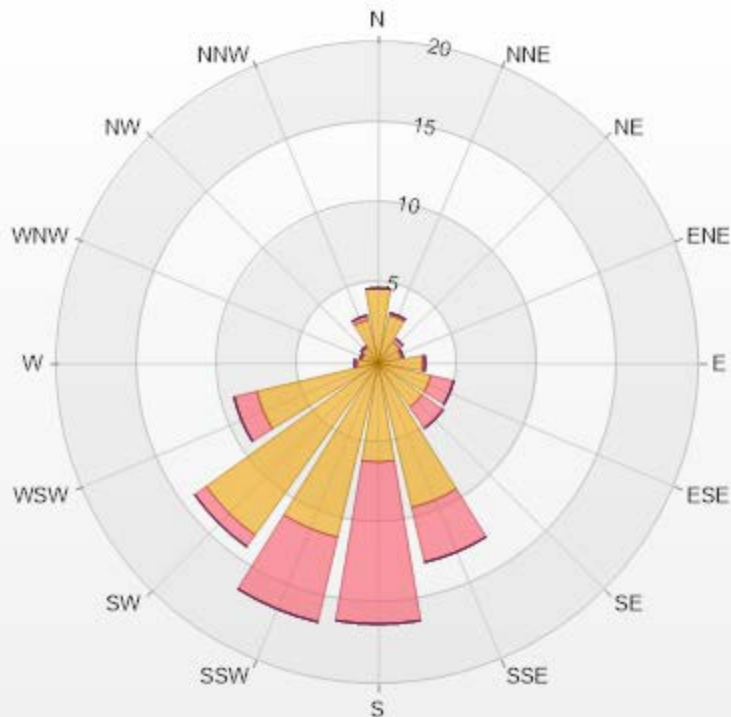
CH4[ppm] Histogram: PRAMP RENO Monthly: 11-2021 1 Hr.



Classes	CH4
<=1.7	0.00%
1.7 - 2	74.08%
2 - 2.5	25.92%
2.5 - 3	0.00%
3 - 3.5	0.00%
3.5 - 4	0.00%
4 - 4.5	0.00%
4.5 - 5	0.00%
5 - 5.5	0.00%
5.5 - 6	0.00%
>6	0.00%

Wind: PRAMP RENO Poll.: PRAMP RENO-CH4[ppm] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.86% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	4.69	0	0	0	0	4.69
NNE	3.07	0.15	0	0	0	3.22
NE	1.61	0.29	0	0	0	1.9
ENE	1.46	0.15	0	0	0	1.61
E	2.78	0.15	0	0	0	2.93
ESE	3.37	1.46	0	0	0	4.83
SE	3.37	1.61	0	0	0	4.98
SSE	9.22	3.51	0	0	0	12.73
S	6.15	10.1	0	0	0	16.25
SSW	11.13	5.42	0	0	0	16.55
SW	13.18	0.88	0	0	0	14.06
WSW	7.76	1.46	0	0	0	9.22
W	1.32	0.15	0	0	0	1.47
WNW	1.02	0.15	0	0	0	1.17
NW	1.17	0.15	0	0	0	1.32
NNW	2.78	0.29	0	0	0	3.07
Summary	74.08	25.92	0	0	0	100



PRAMP-202111

Page 134 of 226

% Icon Classes (ppm)

74

0-2

26

2-5

5-10

0

10-20

0

>20.0



PEACE RIVER AREA MONITORING PROGRAM

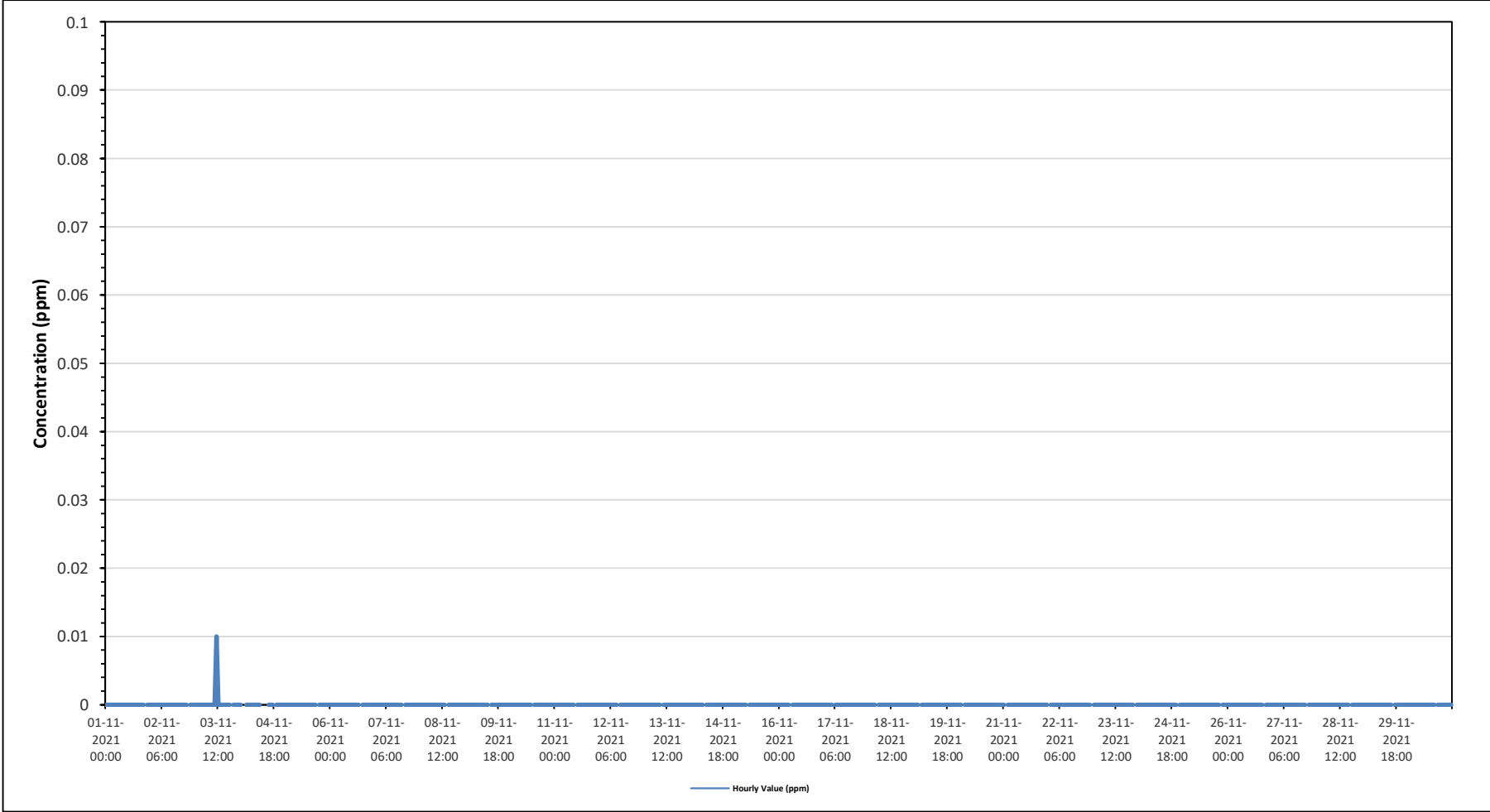
Reno Station - November 2021

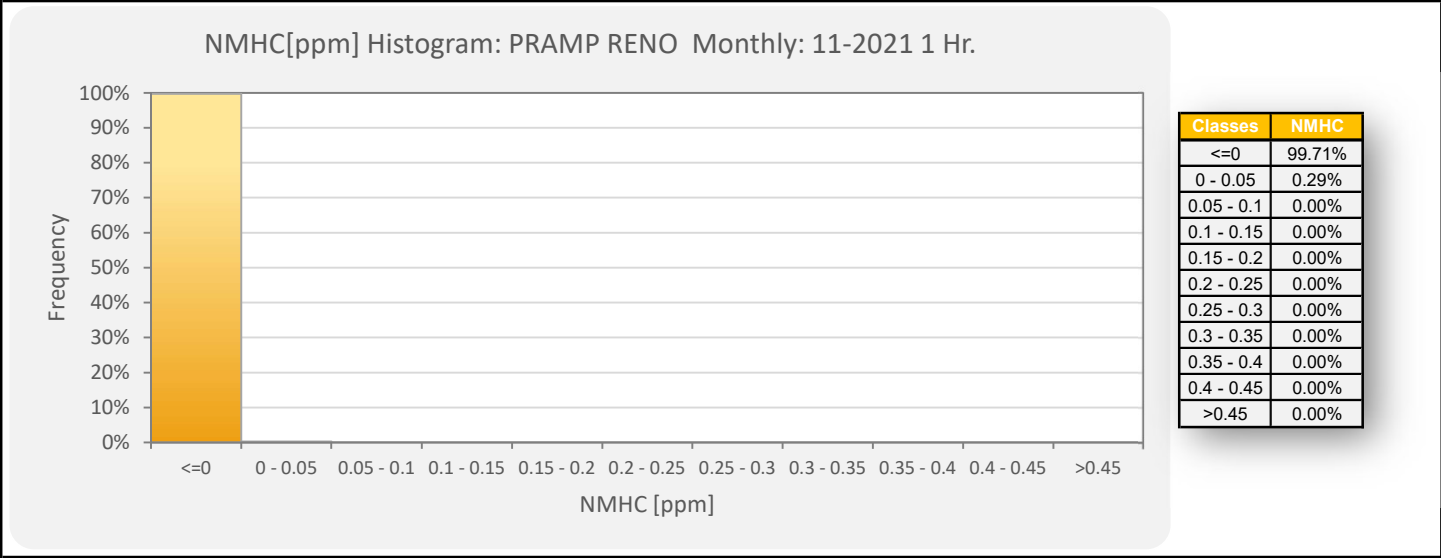
Summary of Hourly Averages

NON-METHANE HYDROCARBONS (NMHC) in ppm

Maximum Hourly Value:				0.01	ppm	on November 3 at hour 11				Hours in Service:				720														
Maximum Daily Value:				0.00	ppm	on November 3				Hours of Data:				683														
Minimum Hourly Value:				0.00	ppm	on November 1 at hour 0				Hours of Missing Data:				2														
Minimum Daily Value:				0.00	ppm	on November 1				Hours of Calibration:				35														
Monthly Average:				0.00	ppm					Operational Uptime:				99.7														
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
Nov 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.01	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
Nov 4	0.00	X	X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00
Nov 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	0.00
Nov 13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00
Nov 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	0.00
Nov 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	0.00
Nov 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	0.00
Nov 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	0.00
Nov 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	0.00
Nov 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	0.00
Nov 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	0.00	S	0.00	0.00	0.00
Nov 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	0.00	0.00	S	0.00	0.00	0.00
Nov 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	0.00	0.00	S	0.00	0.00	0.00	0.00
Nov 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	0.00
Nov 26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.01	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
Diurnal Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C	Monthly Calibration						S	Daily Zero-Span Check						Q	Quality Assurance													
K	Collection Error						N	No Data (Machine Not in Service)						Y	Routine Maintenance						P	Power Failure						
X	Invalid Data (Equipment Malfunction /Recovery)						NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																				
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																												
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																												

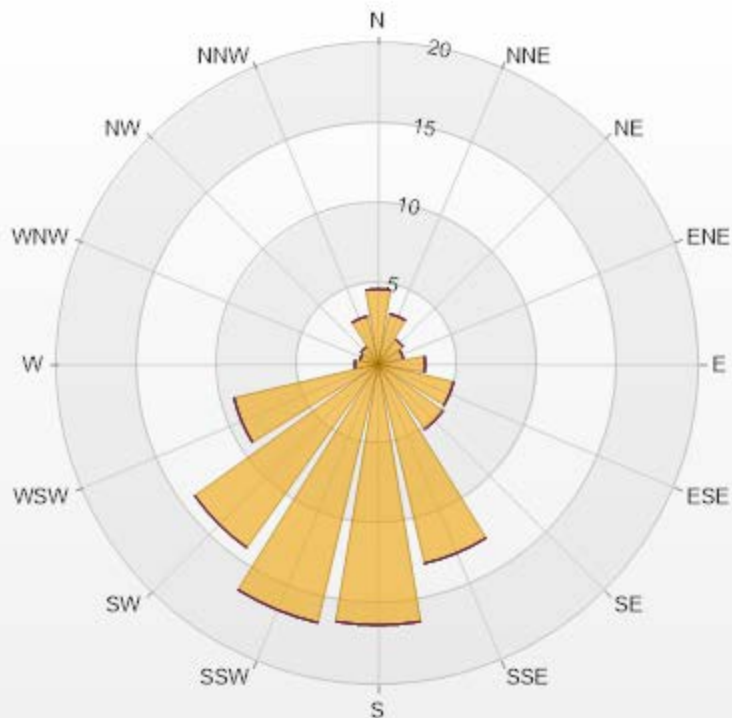
Timeseries Chart of Hourly Average for NMHC - Reno Station





Wind: PRAMP RENO Poll.: PRAMP RENO-NMHC[ppm] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.86% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	4.69	0	0	0	0	4.69
NNE	3.22	0	0	0	0	3.22
NE	1.9	0	0	0	0	1.9
ENE	1.61	0	0	0	0	1.61
E	2.93	0	0	0	0	2.93
ESE	4.83	0	0	0	0	4.83
SE	4.98	0	0	0	0	4.98
SSE	12.74	0	0	0	0	12.74
S	16.25	0	0	0	0	16.25
SSW	16.54	0	0	0	0	16.54
SW	14.06	0	0	0	0	14.06
WSW	9.22	0	0	0	0	9.22
W	1.46	0	0	0	0	1.46
WNW	1.17	0	0	0	0	1.17
NW	1.32	0	0	0	0	1.32
NNW	3.07	0	0	0	0	3.07
Summary	100	0	0	0	0	100



PRAMP-202111

Page 139 of 226

% Icon Classes (ppm)

100 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

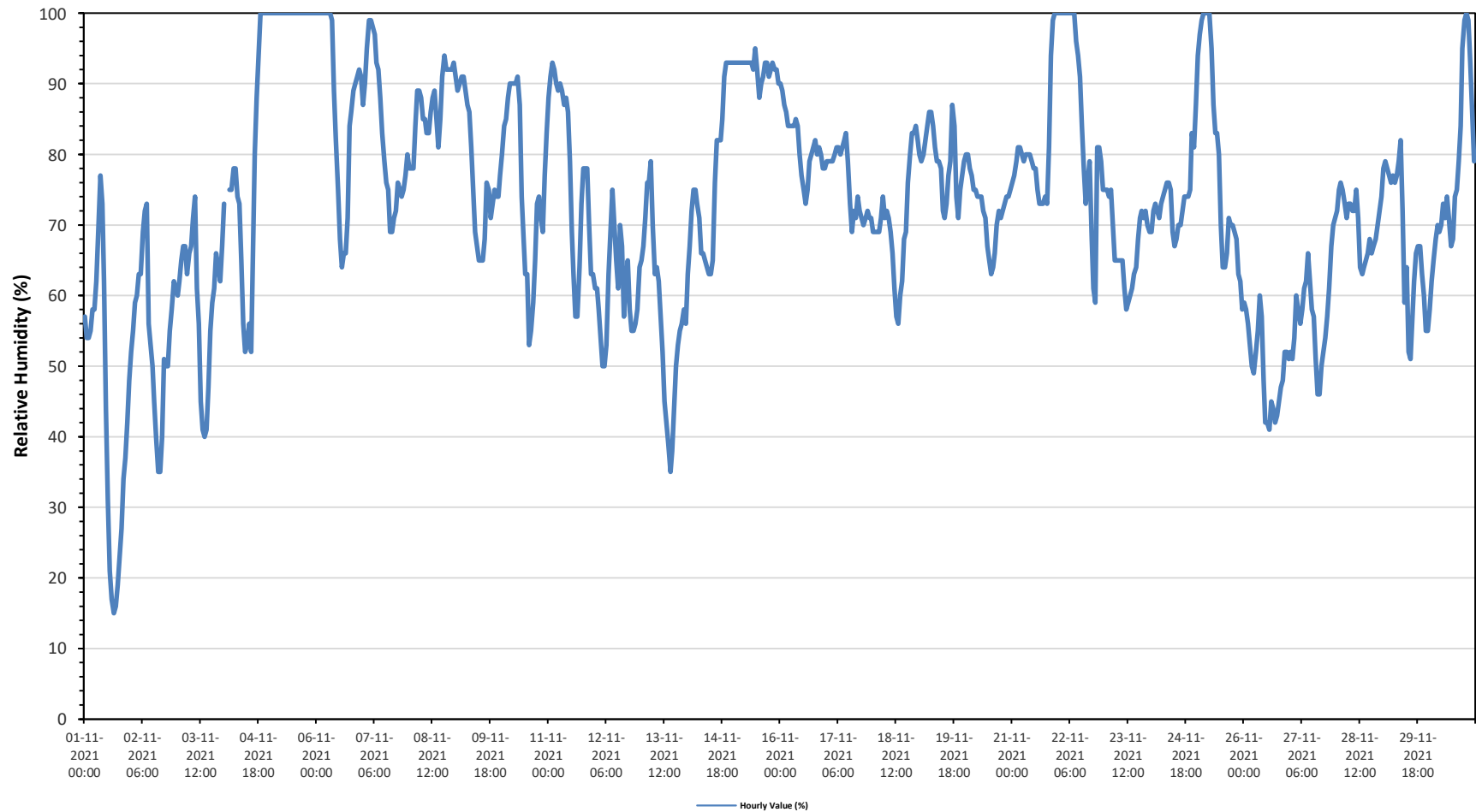
Reno Station - November 2021

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:				100	%	on November 4 at hour 19										Hours in Service:				720								
Maximum Daily Value:				100	%	on November 5										Hours of Data:				718								
Minimum Hourly Value:				15	%	on November 1 at hour 15										Hours of Missing Data:				2								
Minimum Daily Value:				43.9	%	on November 1										Hours of Calibration:				0								
Monthly Average:				73.3	%											Operational Uptime:				99.7								
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
Nov 1	57	54	54	55	58	58	62	70	77	73	62	44	31	21	17	15	16	19	23	27	34	37	42	48	15	77	43.9	
Nov 2	52	55	59	60	63	63	69	72	73	56	53	50	45	40	35	35	40	51	50	55	58	62	61	35	73	54.5		
Nov 3	60	62	65	67	67	63	66	67	71	74	61	56	45	41	40	41	47	55	59	61	66	64	62	67	40	74	59.5	
Nov 4	73	X	X	75	75	78	78	74	73	65	56	52	53	56	52	65	80	88	94	100	100	100	100	100	52	100	76.7	
Nov 5	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100.0	
Nov 6	100	100	100	100	100	100	100	100	99	89	82	75	68	64	66	66	71	84	86	89	90	91	92	91	64	100	87.6	
Nov 7	87	90	95	99	99	98	97	93	92	88	83	79	76	75	69	69	71	72	76	75	74	75	77	80	69	99	82.9	
Nov 8	78	78	78	84	89	89	88	85	85	83	83	86	88	89	85	81	85	91	94	92	92	92	92	93	78	94	86.7	
Nov 9	91	89	90	91	91	89	87	86	81	75	69	67	65	65	65	68	76	75	71	73	75	74	74	77	65	91	77.7	
Nov 10	80	84	85	88	90	90	90	90	91	87	74	68	63	63	53	55	59	65	73	74	71	69	77	83	53	91	75.9	
Nov 11	88	91	93	92	90	89	90	89	87	88	86	79	69	63	57	57	64	73	78	78	70	63	63	57	93	78.1		
Nov 12	61	61	58	54	50	50	53	63	69	75	70	65	61	70	67	57	62	65	58	55	55	56	58	64	50	75	60.7	
Nov 13	65	67	71	76	76	79	70	63	64	62	57	52	45	42	39	35	38	44	50	53	55	56	58	56	35	79	57.2	
Nov 14	63	67	72	75	75	73	71	66	66	65	64	63	63	65	76	82	82	82	85	91	93	93	93	93	63	93	75.8	
Nov 15	93	93	93	93	93	93	93	93	93	93	92	95	92	88	90	91	93	93	91	92	93	92	92	90	88	95	92.3	
Nov 16	90	89	87	86	84	84	84	84	85	84	80	77	75	73	75	79	80	81	82	80	81	80	78	78	73	90	81.5	
Nov 17	79	79	79	79	80	81	81	80	81	82	83	79	73	69	72	71	74	72	71	70	71	72	71	71	69	83	75.8	
Nov 18	69	69	69	69	71	74	71	72	71	69	66	61	57	56	60	62	68	69	76	80	83	83	84	82	56	84	70.5	
Nov 19	80	79	80	82	84	86	86	84	81	79	79	78	72	71	73	77	79	87	84	74	71	75	77	79	71	87	79.0	
Nov 20	80	80	78	77	75	75	74	74	74	72	71	67	65	63	64	66	70	72	71	72	73	74	74	75	63	80	72.3	
Nov 21	76	77	79	81	81	80	79	80	80	80	79	78	78	75	73	73	73	74	73	81	94	99	100	100	73	100	81.0	
Nov 22	100	100	100	100	100	100	100	100	100	96	94	91	84	78	73	76	79	68	61	59	81	81	79	75	59	100	86.5	
Nov 23	75	75	74	75	70	65	65	65	65	65	61	58	59	60	61	63	64	68	71	72	71	72	70	69	58	75	67.2	
Nov 24	69	72	73	72	71	73	74	75	76	76	75	69	67	68	70	70	72	74	74	74	75	83	81	87	67	87	73.8	
Nov 25	94	97	99	100	100	100	100	95	87	83	83	80	70	64	64	66	71	70	70	69	68	63	62	58	58	100	79.7	
Nov 26	59	58	56	53	50	49	52	55	60	57	48	42	42	41	45	44	42	43	45	47	48	52	52	51	41	60	49.6	
Nov 27	52	51	54	60	58	56	58	61	62	66	62	58	57	51	46	46	50	52	54	57	61	67	70	71	46	71	57.5	
Nov 28	72	75	76	75	73	71	73	73	72	72	75	71	64	63	64	65	66	68	66	67	68	70	72	74	63	76	70.2	
Nov 29	78	79	78	77	76	77	76	77	79	82	72	59	64	52	51	57	62	66	67	67	63	60	55	55	51	82	67.9	
Nov 30	58	62	65	68	70	69	70	73	71	74	71	67	68	74	75	79	84	95	99	100	99	93	86	79	58	100	77.0	
Diurnal Maximum	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100				
Diurnal Average	76.0	77.0	77.9	78.8	78.6	78.4	78.6	78.6	78.8	77.0	73.0	68.9	65.3	63.3	62.6	63.7	67.3	70.5	71.7	72.6	74.6	75.0	75.1	75.7				
C	Monthly Calibration						S	Daily Zero-Span Check										Q	Quality Assurance									
K	Collection Error						N	No Data (Machine Not in Service)										Y	Routine Maintenance									
X	InValid Data (Equipment Malfunction /Recovery)						NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)											Power Failure									
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																												
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																												

Timeseries Chart of Hourly Average for RH - Reno Station





PEACE RIVER AREA MONITORING PROGRAM

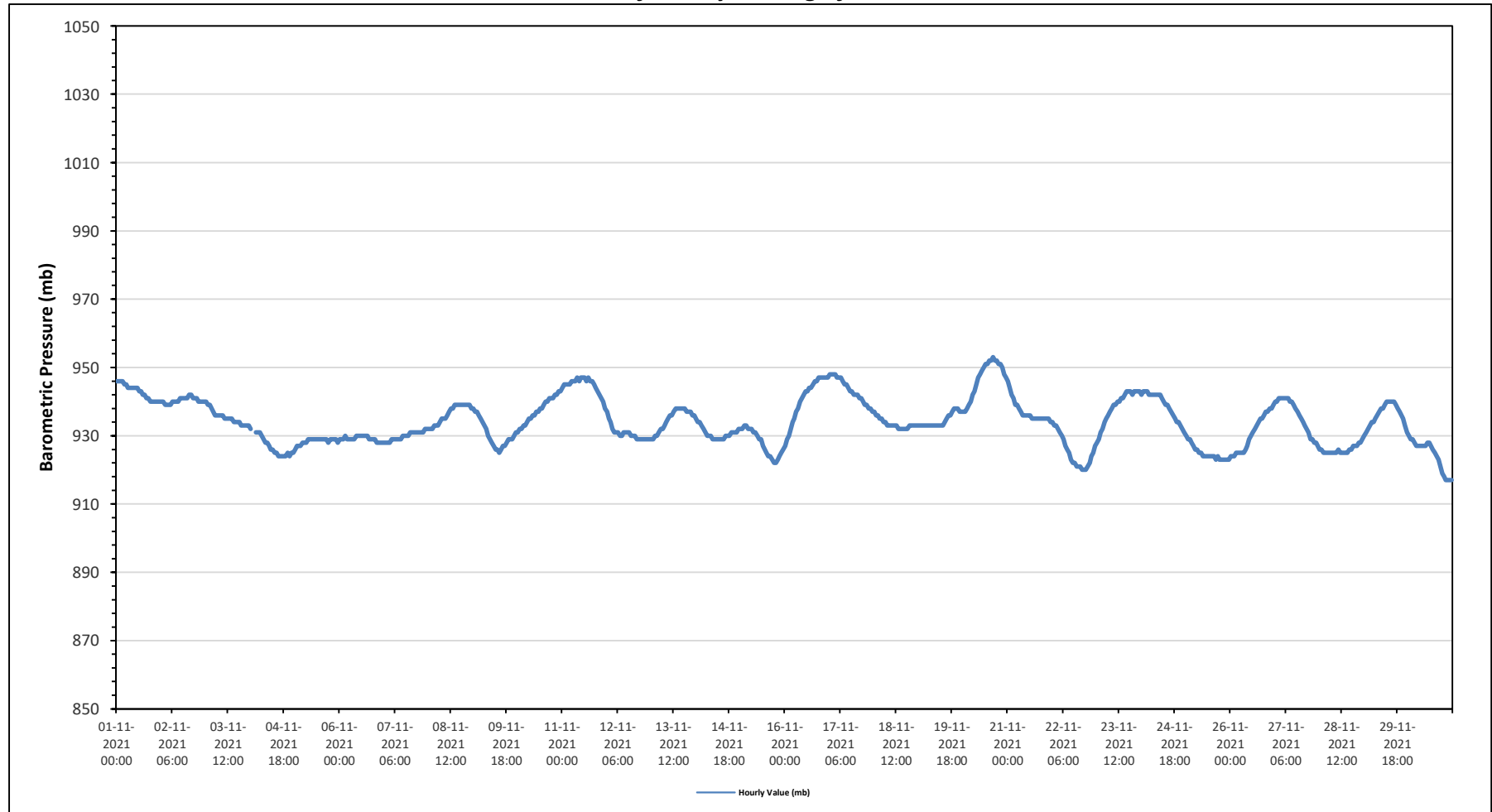
Reno Station - November 2021

Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:				953	mb	on November 20 at hour 16														Hours in Service:				720									
Maximum Daily Value:				947	mb	on November 20														Hours of Data:				718									
Minimum Hourly Value:				917	mb	on November 30 at hour 20														Hours of Missing Data:				2									
Minimum Daily Value:				924	mb	on November 30														Hours of Calibration:				0									
Monthly Average:				934	mb															Operational Uptime:				99.7									
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23									
Nov 1	946	946	946	946	945	945	944	944	944	944	944	944	943	943	942	942	941	941	940	940	940	940	940	940	940	940	946	943					
Nov 2	940	940	939	939	939	939	940	940	940	940	941	941	941	941	941	942	942	941	941	940	940	940	940	940	940	939	942	940					
Nov 3	940	939	939	938	937	936	936	936	936	936	935	935	935	935	935	934	934	934	934	933	933	933	933	933	933	940	935						
Nov 4	932	X	X	931	931	931	930	929	928	928	927	926	926	925	925	924	924	924	924	924	925	924	925	925	925	924	927						
Nov 5	926	927	927	927	928	928	928	929	929	929	929	929	929	929	929	929	929	929	928	929	929	929	929	928	926	929	928						
Nov 6	929	929	929	930	929	929	929	929	929	930	930	930	930	930	930	930	929	929	929	929	928	928	928	928	928	930	929						
Nov 7	928	928	928	928	929	929	929	929	929	929	930	930	930	930	931	931	931	931	931	931	931	931	932	932	928	932	930						
Nov 8	932	932	932	933	933	933	934	935	935	935	936	937	938	938	939	939	939	939	939	939	939	939	939	938	932	939	936						
Nov 9	938	937	937	936	935	934	933	932	930	929	928	927	926	926	925	926	927	927	928	929	929	929	930	931	925	938	930						
Nov 10	931	932	932	933	933	934	935	935	936	936	937	937	938	938	939	940	940	941	941	941	942	942	943	943	931	943	937						
Nov 11	944	945	945	945	945	946	946	946	947	946	947	947	947	946	947	946	946	945	944	943	942	941	940	938	938	947	945						
Nov 12	937	935	934	932	931	931	931	930	930	931	931	931	931	930	930	930	929	929	929	929	929	929	929	929	929	937	931						
Nov 13	929	929	930	930	931	932	932	933	934	935	936	936	937	938	938	938	938	938	938	937	937	937	936	936	929	938	935						
Nov 14	935	934	934	933	932	931	930	930	930	929	929	929	929	929	929	929	930	930	930	931	931	931	931	932	929	935	931						
Nov 15	932	932	933	933	932	932	932	931	931	930	929	929	927	926	925	924	924	923	922	922	923	924	925	926	922	933	928						
Nov 16	927	929	930	932	934	935	937	938	940	941	942	943	943	944	944	945	946	946	947	947	947	947	947	947	927	947	941						
Nov 17	948	948	948	948	947	947	947	946	945	945	944	943	943	942	942	942	941	941	940	939	939	938	938	937	937	948	943						
Nov 18	937	936	936	935	935	934	934	933	933	933	933	933	933	932	932	932	932	932	933	933	933	933	933	933	932	937	933						
Nov 19	933	933	933	933	933	933	933	933	933	933	933	933	933	933	934	935	936	936	937	938	938	938	937	937	933	938	935						
Nov 20	937	937	938	939	940	942	943	945	947	948	949	950	951	951	952	952	953	952	952	951	951	950	948	947	937	953	947						
Nov 21	946	944	942	941	939	939	938	937	936	936	936	936	936	935	935	935	935	935	935	935	935	935	935	934	934	946	937						
Nov 22	934	933	933	932	931	930	929	927	926	925	923	922	922	921	921	921	920	920	920	921	922	924	925	927	920	934	925						
Nov 23	928	929	931	932	934	935	936	937	938	939	939	940	940	941	941	942	943	943	943	942	943	943	943	943	928	943	939						
Nov 24	942	943	943	943	942	942	942	942	942	942	942	941	940	939	939	938	937	936	935	934	934	933	932	931	931	943	939						
Nov 25	930	929	929	928	927	926	926	925	925	924	924	924	924	924	924	924	923	924	923	923	923	923	923	923	923	930	925						
Nov 26	924	924	924	925	925	925	925	925	926	927	929	930	931	932	933	934	935	935	936	937	937	938	938	939	924	939	931						
Nov 27	940	940	941	941	941	941	941	941	940	940	939	938	937	936	935	934	933	932	931	929	929	928	928	927	927	941	936						
Nov 28	926	926	925	925	925	925	925	925	925	925	926	925	925	925	925	925	926	926	927	927	927	928	928	929	925	929	926						
Nov 29	930	931	932	933	934	934	935	936	937	938	938	939	940	940	940	940	940	939	938	937	936	935	933	931	930	940	936						
Nov 30	930	929	929	928	927	927	927	927	927	927	928	928	927	926	925	924	923	921	919	918	917	917	917	917	917	930	924						
Diurnal Maximum	948	948	948	948	947	947	947	946	947	948	949	950	951	951	952	952	953	952	952	951	951	950	948	947									
Diurnal Average	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	933									
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance																
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance							P	Power Failure								
X	InValid Data (Equipment Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																								
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																	
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																	

Timeseries Chart of Hourly Average for BP - Reno Station





PEACE RIVER AREA MONITORING PROGRAM

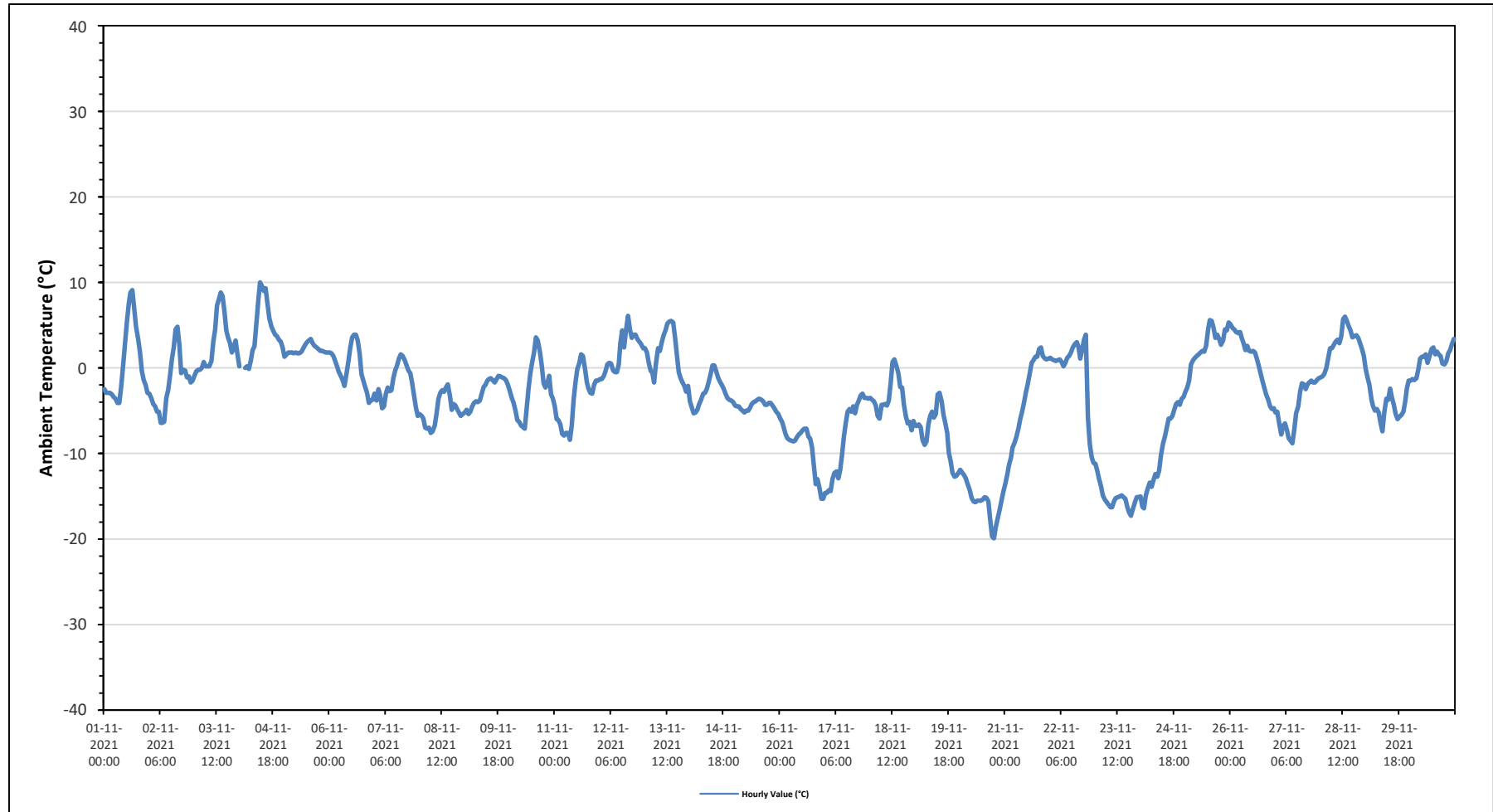
Reno Station - November 2021

Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

Maximum Hourly Value:														10.0 °C		on November 4 at hour 11														Hours in Service:				720															
Maximum Daily Value:														4.3 °C		on November 4														Hours of Data:				718															
Minimum Hourly Value:														-19.9 °C		on November 20 at hour 18														Hours of Missing Data:				2															
Minimum Daily Value:														-15.5 °C		on November 20														Hours of Calibration:				0															
Monthly Average:														-2.9 °C																Operational Uptime:				99.7															
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average																							
Nov 1	-2.5	-2.9	-2.9	-2.9	-3.1	-3.4	-3.6	-4.1	-4.1	-2.2	0.5	3	5.5	7.6	8.8	9.1	7	4.8	3.4	1.8	-0.4	-1.4	-2	-2.9	-4.1	9.1	0.5																						
Nov 2	-3	-3.5	-4.2	-4.5	-5.1	-5.1	-6.4	-6.4	-6.3	-3.5	-2.6	-0.9	1	2.4	4.5	4.8	2.8	-0.6	-0.2	-0.3	-1.1	-1	-1.7	-1.5	-6.4	4.8	-1.8																						
Nov 3	-1	-0.4	-0.2	-0.2	0	0.7	0.2	0.2	0.2	0.8	3.1	4.5	7.3	8	8.8	8.4	6.6	4.4	3.5	2.9	1.8	2.4	3.2	1.6	-1.0	8.8	2.8																						
Nov 4	0.2	X	X	0	0.2	-0.1	0.8	2.1	2.5	5.1	8.1	10	9.6	9	9.3	7.5	5.8	4.8	4.3	3.9	3.7	3.3	3.1	2.4	-0.1	10.0	4.3																						
Nov 5	1.3	1.6	1.8	1.8	1.8	1.7	1.8	1.7	1.7	1.9	2.3	2.7	3	3.2	3.4	2.9	2.6	2.4	2.2	2	2	1.9	1.8	1.8	1.3	3.4	2.1																						
Nov 6	1.8	1.7	1.4	0.8	0.2	-0.5	-0.9	-1.4	-2.1	-0.6	0.8	2.4	3.6	3.9	3.9	3.2	1.7	-0.7	-1.5	-2.2	-2.9	-4.1	-3.8	-3.7	-4.1	3.9	0.0																						
Nov 7	-3	-3.8	-2.5	-3.3	-4.7	-4.5	-3	-2.3	-2.7	-2.6	-1.2	-0.3	0.3	1.1	1.6	1.4	0.9	0.3	-0.3	-0.6	-1.8	-3.2	-4.6	-5.6	-5.6	1.6	-1.9																						
Nov 8	-5.4	-5.6	-5.9	-7	-7.1	-7	-7.6	-7.4	-6.7	-5.3	-3.6	-2.9	-2.6	-2.8	-2.3	-1.9	-3.2	-4.9	-4.2	-4.4	-4.8	-5.2	-5.6	-5.4	-7.6	-1.9	-5.0																						
Nov 9	-5.2	-4.9	-5.4	-5.1	-4.5	-4.1	-3.9	-4	-3.8	-3	-2.2	-2	-1.5	-1.3	-1.2	-1.4	-1.7	-1.3	-0.9	-1	-1.1	-1.2	-1.4	-1.9	-5.4	-0.9	-2.7																						
Nov 10	-2.7	-3.5	-4.1	-5	-6.1	-6.3	-6.7	-6.9	-7.1	-4.8	-2.5	-0.6	0.7	1.8	3.6	3.2	1.9	0.3	-1.8	-2.3	-1.8	-0.9	-3.1	-3.6	-7.1	3.6	-2.4																						
Nov 11	-4.5	-6	-6.1	-6.6	-7.7	-7.9	-7.6	-7.6	-8.4	-6.7	-3.7	-1.7	-0.1	0.5	1.6	1.4	-0.1	-1.7	-2.4	-2.9	-3	-2	-1.5	-1.5	-8.4	1.6	-3.6																						
Nov 12	-1.3	-1.3	-1	-0.4	0.4	0.6	0.5	-0.3	-0.5	-0.5	0.4	2.9	4.4	2.4	4.3	6.1	4.5	3.5	3.9	3.9	3.4	3.1	2.8	2.3	-1.3	6.1	1.8																						
Nov 13	2.3	1.8	0.6	-0.3	-0.6	-1.7	0.5	2.3	2	3	3.8	4.4	5.2	5.4	5.5	5.3	3.6	1.5	-0.5	-1.2	-1.7	-2.1	-2.8	-2.1	-2.8	5.5	1.4																						
Nov 14	-3.9	-4.6	-5.3	-5.2	-4.9	-4.2	-3.7	-3	-2.9	-2.4	-1.6	-0.7	0.3	0.3	-0.4	-1.1	-1.6	-2	-2.4	-3	-3.5	-3.7	-3.8	-4	-5.3	0.3	-2.8																						
Nov 15	-4.4	-4.5	-4.5	-4.8	-5	-5.2	-5	-5	-4.6	-4.2	-4	-3.9	-3.7	-3.6	-3.7	-3.9	-4.3	-4.3	-4.1	-4.1	-4.4	-4.7	-5.1	-5.4	-5.4	-3.6	-4.4																						
Nov 16	-5.9	-6.3	-6.9	-7.7	-8.2	-8.4	-8.5	-8.6	-8.5	-8.1	-7.8	-7.6	-7.3	-7.1	-7.1	-8	-8.3	-9.3	-11.5	-13.6	-13	-13.9	-15.3	-15.3	-15.3	-5.9	-9.3																						
Nov 17	-14.6	-14.6	-14.3	-14.4	-13	-12.3	-12.1	-12.9	-11.9	-10.1	-8	-6.4	-5.1	-4.8	-5.1	-4.5	-5.3	-4.3	-3.8	-3.2	-3	-3.5	-3.5	-3.6	-14.6	-3.0	-8.1																						
Nov 18	-3.5	-3.7	-3.9	-4.4	-5.6	-5.9	-4.3	-4.3	-4.2	-4.4	-3.8	-1.8	0.7	1	0.2	-0.6	-2.2	-2.3	-4.3	-5.6	-6.5	-6.3	-7.3	-6.2	-7.3	1.0	-3.7																						
Nov 19	-6.7	-6.8	-6.6	-6.9	-8.4	-9	-8.6	-6.6	-5.6	-5.1	-5.8	-5.4	-3.1	-2.9	-3.9	-5.5	-6.5	-7.6	-9.9	-10.9	-12.3	-12.7	-12.6	-12.3	-12.7	-2.9	-7.6																						
Nov 20	-11.9	-12.2	-12.5	-12.9	-13.6	-14.3	-15.2	-15.6	-15.7	-15.5	-15.5	-15.5	-15.4	-15.1	-15.2	-15.6	-17.8	-19.7	-19.9	-18.6	-17.6	-16.5	-15.4	-14.4	-19.9	-11.9	-15.5																						
Nov 21	-13.5	-12.5	-11.3	-10.5	-9.3	-8.7	-8	-7.1	-6	-5.1	-4.1	-2.9	-1.9	-0.6	0.6	0.9	1.3	1.3	2.2	2.4	1.4	1.1	1	1.1	-13.5	2.4	-3.7																						
Nov 22	1.2	1	0.9	0.8	0.9	1	0.7	0.2	0.6	1.2	1.4	1.8	2.4	2.8	3	2.5	1.1	2.1	3.3	3.9	-5.8	-8.9	-10.4	-11.1	-11.1	3.9	-0.1																						
Nov 23	-11.2	-12	-13	-13.8	-14.9	-15.4	-15.7	-16	-16.3	-16.3	-15.6	-15.2	-15.1	-15	-14.9	-15.1	-15.3	-16.2	-16.9	-17.3	-16.4	-15.7	-15.1	-15.1	-17.3	-11.2	-15.1																						
Nov 24	-15	-16.2	-16.4	-14.9	-14	-13.4	-13.9	-13.1	-12.4	-12.7	-12	-10.2	-8.8	-8	-7	-5.9	-5.9	-5.6	-4.9	-4.2	-4	-4.3	-3.6	-3.4	-16.4	-3.4	-9.6																						
Nov 25	-2.8	-2.3	-1.5	0.4	0.9	1.2	1.4	1.6	1.8	2	1.9	2.6	4.6	5.6	5.5	4.7	3.5	3.9	3.4	2.7	3.2	4.5	4.4	5.3	-2.8	5.6	2.4																						
Nov 26	5.1	4.7	4.5	4.2	4.1	4.2	3.5	2.9	2.1	2.6	2	1.9	2	1.8	1.1	0.3	-0.6	-1.5	-2.3	-3.1	-3.7	-4.5	-4.8	-4.7	-4.8	5.1	0.9																						
Nov 27	-5.2	-5.1	-6.4	-7.8	-6.8	-6.5	-7.2	-8.2	-8.5	-8.8	-7.2	-5.3	-4.5	-2.8	-1.8	-1.9	-2.5	-2	-1.7	-1.5	-1.7	-1.7	-1.4	-1.2	-8.8	-1.2	-4.5																						
Nov 28	-1.1	-1	-0.7	0	1.2	2.3	2.3	2.7	3.1	3.3	2.9	3.7	5.7	6	5.5	4.9	4.4	3.6	3.7	3.8	3.5	2.9	2.2	1.4	-1.1	6.0	2.8																						
Nov 29	-0.1	-1.1	-2	-3.7	-4.5	-5	-4.8	-5.2	-6.4	-7.4	-5.2	-3.6	-3.7	-2.4	-3.5	-4.3	-5.4	-6	-5.7	-5.5	-5.1	-3.9	-2.4	-1.5	-7.4	-0.1	-4.1																						
Nov 30	-1.5	-1.3	-1.4	-1.2	-0.2	1.1	1.3	1.3	1.6	0.6	1.3	2.2	2.4	1.6	1.9	1.6	1.4	0.5	0.4	0.8	1.7	2.1	2.8	3.4	-1.5	3.4	1.0																						
Diurnal Maximum	5.1	4.7	4.5	4.2	4.1	4.2	3.5	2.9	3.1	5.1	8.1	10.0	9.6	9.0	9.3	9.1	7.0	4.8	4.3	3.9	3.7	4.5	4.4	5.3																									
Diurnal Average	-3.9	-4.3	-4.5	-4.5	-4.6	-4.5	-4.5	-4.4	-4.3	-3.6	-2.6	-1.5	-0.5	-0.1	0.2	-0.1	-1.1	-1.9	-2.3	-2.6	-3.2	-3.3	-3.5	-3.6																									
C	Monthly Calibration							S							Daily Zero-Span Check							Q							Quality Assurance																				
K	Collection Error							N							No Data (Machine Not in Service)							Y							Routine Maintenance							P							Power Failure						
X	InValid Data (Equipment Malfunction /Recovery)														NRM														UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																				
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																																	
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																																	

Timeseries Chart of Hourly Average for AT - Reno Station





PEACE RIVER AREA MONITORING PROGRAM

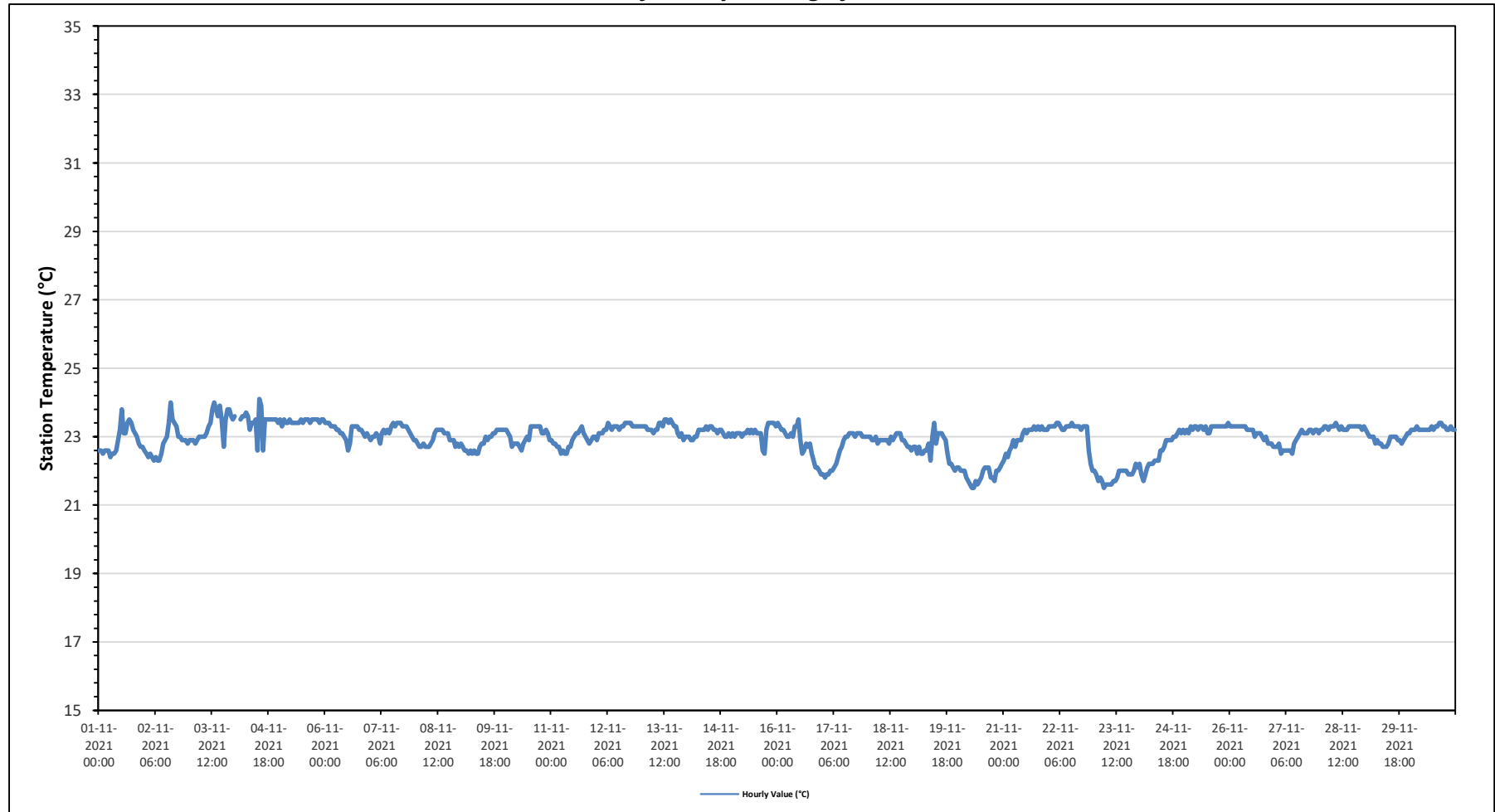
Reno Station - November 2021

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:				24.1	°C	on November 4 at hour 13										Hours in Service:				720								
Maximum Daily Value:				23.5	°C	on November 4										Hours of Data:				718								
Minimum Hourly Value:				21.5	°C	on November 20 at hour 7										Hours of Missing Data:				2								
Minimum Daily Value:				21.8	°C	on November 23										Hours of Calibration:				0								
Monthly Average:				23.0	°C											Operational Uptime:				99.7								
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
Nov 1	22.6	22.6	22.5	22.6	22.6	22.6	22.4	22.5	22.5	22.6	22.9	23.2	23.8	23.1	23.1	23.4	23.5	23.4	23.2	23.1	23.0	22.8	22.7	22.7	22.4	23.8	22.9	
Nov 2	22.6	22.5	22.4	22.5	22.4	22.3	22.4	22.3	22.3	22.5	22.8	22.9	23.0	23.4	24.0	23.5	23.4	23.3	23.0	22.9	22.9	22.9	22.8	22.3	24.0	22.8		
Nov 3	22.9	22.9	22.9	22.8	22.9	23.0	23.0	23.0	23.0	23.1	23.3	23.4	23.8	24.0	23.8	23.6	23.9	23.5	22.7	23.5	23.8	23.8	23.6	23.5	22.7	24.0	23.3	
Nov 4	23.6	X	X	23.5	23.6	23.6	23.7	23.6	23.2	23.4	23.4	23.5	22.6	24.1	23.9	22.6	23.5	23.5	23.5	23.5	23.5	23.5	23.4	22.6	24.1	23.5		
Nov 5	23.5	23.3	23.5	23.4	23.4	23.5	23.4	23.4	23.4	23.4	23.4	23.5	23.4	23.5	23.5	23.5	23.4	23.5	23.5	23.5	23.5	23.4	23.5	23.5	23.3	23.5	23.5	
Nov 6	23.4	23.4	23.4	23.3	23.3	23.3	23.2	23.2	23.1	23.1	23.0	22.9	22.6	22.8	23.3	23.3	23.3	23.3	23.2	23.2	23.1	23.0	23.1	23.0	22.6	23.4	23.2	
Nov 7	22.9	23.0	23.0	23.1	23.0	22.8	23.1	23.2	23.1	23.2	23.1	23.3	23.4	23.3	23.4	23.4	23.4	23.3	23.3	23.3	23.2	23.1	23.0	22.9	22.8	23.4	23.2	
Nov 8	22.9	22.8	22.7	22.7	22.8	22.7	22.7	22.7	22.8	22.9	23.1	23.2	23.2	23.2	23.2	23.1	23.1	23.1	22.9	22.9	22.9	22.7	22.8	22.7	22.7	23.2	22.9	
Nov 9	22.8	22.7	22.6	22.6	22.5	22.6	22.5	22.6	22.5	22.5	22.7	22.8	22.8	23.0	22.9	23.0	23.0	23.1	23.1	23.2	23.2	23.2	23.2	23.2	22.5	23.2	22.8	
Nov 10	23.2	23.1	23.0	22.7	22.8	22.8	22.7	22.6	22.8	22.9	23.0	22.9	23.3	23.3	23.3	23.3	23.3	23.3	23.3	23.1	23.1	23.2	23.1	22.9	22.6	23.3	23.0	
Nov 11	22.9	22.8	22.8	22.7	22.7	22.5	22.6	22.5	22.5	22.7	22.7	22.9	23.0	23.1	23.1	23.2	23.3	23.1	23.0	22.9	22.8	22.9	23.0	23.0	22.5	23.3	22.9	
Nov 12	22.9	23.1	23.1	23.1	23.2	23.2	23.4	23.3	23.2	23.3	23.3	23.3	23.2	23.3	23.3	23.4	23.4	23.4	23.4	23.3	23.3	23.3	23.3	23.3	22.9	23.4	23.3	
Nov 13	23.3	23.3	23.3	23.2	23.2	23.2	23.1	23.2	23.2	23.4	23.4	23.3	23.5	23.5	23.4	23.5	23.4	23.3	23.3	23.1	23.0	23.1	22.9	23.0	22.9	23.5	23.3	
Nov 14	23.0	23.0	22.9	22.9	23.0	23.0	23.2	23.2	23.2	23.2	23.3	23.2	23.3	23.3	23.2	23.2	23.1	23.2	23.2	23.1	23.0	23.0	23.1	23.0	22.9	23.3	23.1	
Nov 15	23.1	23.0	23.1	23.1	23.1	23.0	23.1	23.1	23.2	23.1	23.2	23.1	23.2	23.1	23.1	23.1	22.6	22.5	23.2	23.4	23.4	23.4	23.4	23.3	22.5	23.4	23.1	
Nov 16	23.4	23.3	23.2	23.2	23.1	23.0	23.0	23.1	23.0	23.3	23.3	23.5	22.9	22.5	22.6	22.8	22.7	22.8	22.5	22.3	22.1	22.1	22.0	21.9	21.9	23.5	22.8	
Nov 17	21.9	21.8	21.9	21.9	22.0	22.0	22.1	22.2	22.4	22.6	22.7	22.9	23.0	23.0	23.1	23.1	23.1	23.0	23.1	23.1	23.0	23.0	23.0	21.8	23.1	22.6		
Nov 18	23.0	23.0	22.9	22.9	23.0	22.8	22.9	22.9	22.9	22.9	22.9	22.8	23.0	22.9	23.0	23.1	23.1	23.1	22.9	22.9	22.8	22.7	22.7	22.6	22.6	23.1	22.9	
Nov 19	22.7	22.7	22.5	22.7	22.5	22.5	22.6	22.6	22.8	22.3	23.0	23.4	22.8	23.1	23.1	23.0	22.9	22.5	22.2	22.2	22.1	22.0	22.1	22.0	22.0	23.4	22.6	
Nov 20	22.1	22.0	22.0	22.0	21.8	21.7	21.6	21.5	21.5	21.7	21.6	21.7	21.8	22.0	22.1	22.1	22.1	21.8	21.8	21.7	22.0	22.0	22.1	22.2	21.5	22.2	21.9	
Nov 21	22.3	22.5	22.4	22.6	22.7	22.9	22.7	22.9	22.9	22.9	23.1	23.2	23.1	23.2	23.2	23.2	23.3	23.2	23.3	23.2	23.3	23.2	23.2	23.2	22.3	23.3	23.0	
Nov 22	23.3	23.3	23.3	23.3	23.4	23.3	23.2	23.2	23.3	23.3	23.3	23.3	23.4	23.3	23.3	23.3	23.3	23.2	23.3	23.3	23.3	22.6	22.2	22.0	22.0	23.4	23.2	
Nov 23	22.0	21.9	21.7	21.8	21.7	21.5	21.6	21.6	21.6	21.6	21.7	21.7	21.8	22.0	22.0	22.0	22.0	22.0	21.9	21.9	21.9	22.0	22.2	22.1	21.5	22.2	21.8	
Nov 24	22.2	21.9	21.7	21.9	22.1	22.2	22.2	22.2	22.3	22.3	22.3	22.6	22.6	22.7	22.9	22.9	22.9	22.9	23.0	23.0	23.1	23.2	23.1	23.2	21.7	23.2	22.6	
Nov 25	23.1	23.2	23.1	23.3	23.2	23.3	23.3	23.2	23.3	23.3	23.2	23.3	23.1	23.1	23.3	23.3	23.3	23.3	23.3	23.3	23.3	23.3	23.3	23.4	23.1	23.4	23.3	
Nov 26	23.3	23.3	23.3	23.3	23.3	23.3	23.3	23.3	23.3	23.2	23.2	23.2	23.2	23.0	23.1	23.1	23.1	23.0	22.9	23.0	22.8	22.8	22.8	22.7	22.7	23.3	23.1	
Nov 27	22.7	22.7	22.8	22.5	22.6	22.6	22.6	22.6	22.6	22.5	22.8	22.9	23.0	23.1	23.2	23.1	23.1	23.1	23.2	23.2	23.1	23.2	23.2	23.1	22.5	23.2	22.9	
Nov 28	23.2	23.2	23.3	23.3	23.2	23.3	23.3	23.3	23.4	23.3	23.2	23.3	23.2	23.2	23.2	23.3	23.3	23.3	23.3	23.3	23.3	23.3	23.2	23.3	23.2	23.4	23.3	
Nov 29	23.2	23.1	23.0	23.0	23.0	22.8	22.9	22.8	22.8	22.7	22.7	22.7	22.8	23.0	23.0	23.0	23.0	22.9	22.9	22.8	22.9	23.0	23.1	23.1	22.7	23.2	22.9	
Nov 30	23.2	23.2	23.2	23.3	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.3	23.2	23.3	23.3	23.4	23.3	23.3	23.3	23.2	23.2	23.3	23.2	23.2	23.2	23.4	23.2	
Diurnal Maximum	23.6	23.4	23.5	23.5	23.6	23.6	23.7	23.6	23.4	23.4	23.4	23.5	23.8	24.1	24.0	23.6	23.9	23.5	23.5	23.8	23.8	23.6	23.5					
Diurnal Average	22.9	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.9	23.0	23.0	23.0	23.1	23.2	23.1	23.1	23.1	23.0	23.0	23.0	22.9	22.9					
C	Monthly Calibration						S	Daily Zero-Span Check						Q	Quality Assurance													
K	Collection Error						N	No Data (Machine Not in Service)						Y	Routine Maintenance						P	Power Failure						
X	InValid Data (Equipment Malfunction /Recovery)						NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																				
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																												
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																												

Timeseries Chart of Hourly Average for ST - Reno Station





PEACE RIVER AREA MONITORING PROGRAM

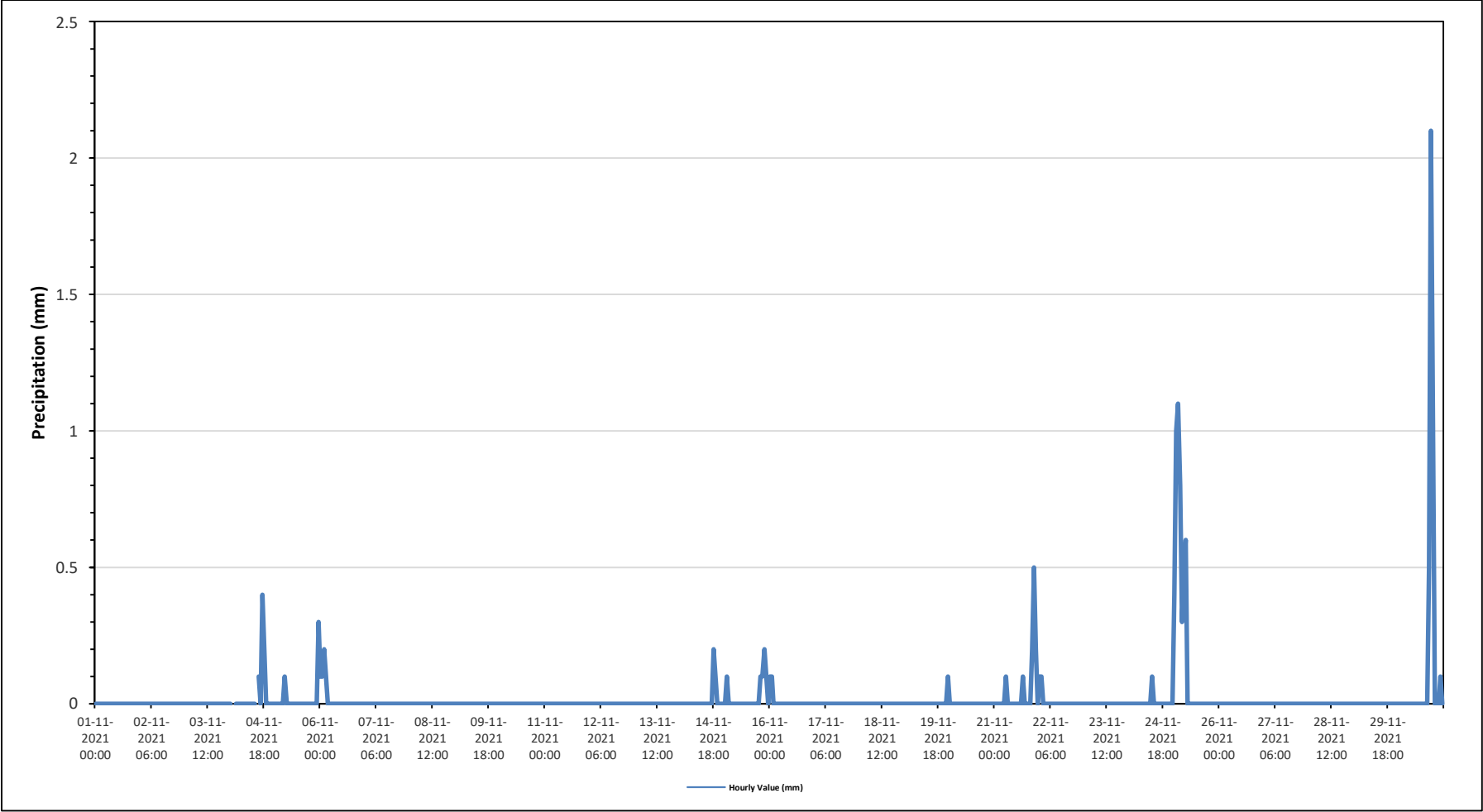
Reno Station - November 2021

Summary of Hourly Averages

PRECIPITATION in mm

Maximum Hourly Value:										2.1		mm		on November 30 at hour 17										Hours in Service:		720	
Maximum Daily Value:										4.7		mm		on November 25										Hours of Data:		717	
Minimum Hourly Value:										0.0		mm		on November 1 at hour 0										Hours of Missing Data:		2	
Minimum Daily Value:										0.0		mm		on November 1										Hours of Calibration:		1	
Monthly Total:										12.6		mm												Operational Uptime:		99.7	
Day	Hourly Period Starting at (MST)																							Daily	Daily	Daily	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Total
Nov 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 4	0	X	X	0	0	0	0	0	0	0	0	0	0	0	C	0.1	0	0.4	0.2	0	0	0	0	0	0.0	0.4	0.7
Nov 5	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.0	0.3	0.4
Nov 6	0.1	0.1	0.2	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.2	0.5
Nov 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.1	0	0	0	0	0.0	0.2	0.3
Nov 15	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.2	0.1	0	0.0	0.2	0.6
Nov 16	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.2
Nov 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.0	0.1	0.1
Nov 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 21	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0.2	0.5	0.2	0	0.0	0.5	1.1
Nov 22	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.2
Nov 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 24	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.1
Nov 25	0.4	1	1.1	0.8	0.3	0.5	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	1.1	4.7
Nov 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Nov 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	2.1	1	0	0	0	0.1	0	0.0	2.1	3.7
Diurnal Maximum	0.4	1.0	1.1	0.8	0.3	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.5	2.1	1.0	0.1	0.2	0.5	0.2	0.3			
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0			
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance										
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance										
X	InValid Data (Equipment Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)								P Power Failure										
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																											
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																											

Timeseries Chart of Hourly Average for Precipitation - Reno Station





PEACE RIVER AREA MONITORING PROGRAM

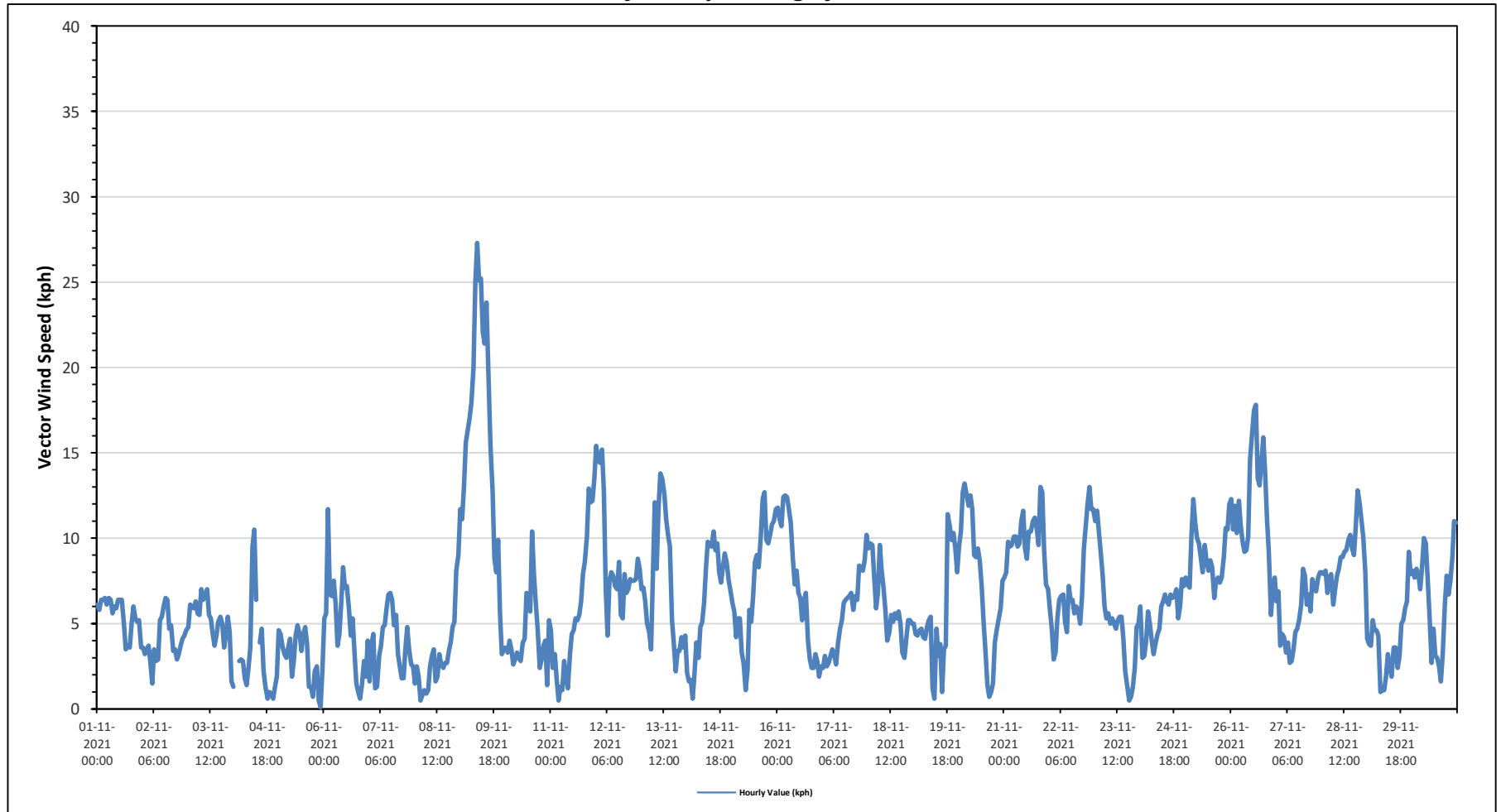
Reno Station - November 2021

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

Maximum Hourly Value:			27.3	kph	on November 9 at hour 9										Hours in Service:			720									
Maximum Daily Value:			15.5	kph	on November 9										Hours of Data:			717									
Minimum Hourly Value:			0.1	kph	on November 5 at hour 22										Hours of Missing Data:			3									
Minimum Daily Value:			1.3	kph	on November 29										Hours of Calibration:			0									
Monthly Average:			2.7	kph											Operational Uptime:			99.6									
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
Nov 1	6.1	5.8	6.4	6.4	6.5	6.1	6.5	6.4	5.6	6.0	5.9	6.4	6.4	6.4	5.0	3.5	3.7	3.6	5.0	6.0	5.3	5.1	5.2	3.6	3.5	6.5	5.4
Nov 2	3.6	3.2	3.5	3.7	2.7	1.5	3.5	2.8	2.9	5.2	5.4	6.0	6.5	6.4	4.7	4.9	3.4	3.5	2.9	3.2	3.7	4.1	4.3	4.6	1.5	6.5	3.8
Nov 3	4.8	6.1	6.0	5.9	6.3	5.6	5.5	7.0	6.4	6.7	7.0	5.5	5.3	4.4	3.7	4.3	5.1	5.4	5.0	3.6	4.3	5.4	4.5	1.6	1.6	7.0	5.1
Nov 4	1.3	X	X	2.8	2.9	2.8	1.8	1.4	2.4	3.6	9.5	10.5	6.4	Y	3.9	4.7	2.2	1.3	0.6	1.0	0.9	0.6	1.3	1.9	0.6	10.5	1.8
Nov 5	4.6	4.4	3.6	3.2	3.0	3.6	4.1	1.9	2.8	4.3	4.9	4.4	3.4	4.4	4.8	3.8	1.3	1.3	0.7	2.2	2.5	0.5	0.1	2.3	0.1	4.9	2.7
Nov 6	5.3	5.6	11.7	6.7	6.6	7.5	6.1	3.7	4.4	6.2	8.3	7.1	7.2	5.9	4.3	5.3	3.3	1.5	1.0	0.6	1.4	2.8	1.9	4.0	0.6	11.7	4.7
Nov 7	1.6	3.7	4.4	1.2	1.3	3.1	3.7	4.8	4.9	5.9	6.7	6.8	6.4	4.9	5.5	3.2	2.5	1.8	1.8	3.5	4.8	3.5	2.6	2.5	1.2	6.8	3.7
Nov 8	1.5	2.5	1.9	0.5	0.8	1.1	0.9	1.1	2.5	3.1	3.5	1.6	1.9	3.2	2.6	2.4	2.7	2.7	3.4	3.9	4.8	5.1	8.1	9.0	0.5	9.0	1.9
Nov 9	11.7	11.1	13.0	15.6	16.3	17.0	17.9	20.0	25.0	27.3	25.1	25.2	22.1	21.4	23.8	19.8	15.4	12.8	8.8	8.0	9.9	5.6	3.2	3.5	3.2	27.3	15.5
Nov 10	3.6	3.3	4.0	3.5	2.6	2.9	3.3	3.0	2.8	3.9	4.1	6.8	6.7	5.7	10.4	7.9	6.2	4.7	2.4	2.9	3.7	4.0	1.4	5.2	1.4	10.4	3.3
Nov 11	4.6	2.4	3.2	1.7	0.5	1.3	1.1	2.8	1.9	1.2	3.2	4.4	4.6	5.3	5.2	5.5	6.3	7.9	8.6	10.1	12.9	12.1	12.2	13.5	0.5	13.5	4.9
Nov 12	15.4	14.6	14.4	15.2	12.7	7.0	4.3	7.5	8.0	7.8	7.2	7.0	8.6	5.5	5.3	7.9	6.8	7.0	7.6	7.5	7.5	7.6	8.8	8.2	4.3	15.4	7.0
Nov 13	7.0	7.1	6.3	5.0	4.5	3.5	7.9	12.1	8.2	11.7	13.8	13.5	12.6	11.1	10.2	9.5	5.2	3.8	2.2	3.4	3.4	4.2	3.6	4.3	2.2	13.8	7.0
Nov 14	2.1	1.6	1.7	0.6	2.1	3.9	3.0	4.8	5.1	6.2	8.2	9.8	9.6	9.5	10.4	9.3	9.7	8.0	7.4	8.3	9.1	8.6	7.5	6.9	0.6	10.4	5.0
Nov 15	6.2	5.7	4.2	5.3	5.3	3.3	2.7	1.1	2.3	5.8	5.1	6.6	8.6	9.0	8.3	10.1	12.3	12.7	9.9	9.7	10.2	10.8	11.0	11.7	1.1	12.7	6.4
Nov 16	11.8	11.1	10.7	12.4	12.5	12.4	11.7	10.9	8.8	7.3	8.1	6.8	6.5	5.2	6.3	6.8	4.0	2.9	2.4	2.4	3.2	2.8	1.9	2.5	1.9	12.5	5.0
Nov 17	2.4	3.1	2.5	2.7	3.1	3.5	3.2	2.6	3.8	4.7	5.2	6.2	6.4	6.5	6.6	6.8	5.8	6.6	6.4	8.4	8.3	8.1	8.7	10.2	2.4	10.2	5.4
Nov 18	9.4	9.7	9.6	7.7	5.9	6.8	9.6	8.1	7.1	5.8	4.0	4.5	5.5	5.1	5.6	5.3	5.7	5.0	3.3	3.0	4.1	5.2	5.2	5.0	3.0	9.7	5.9
Nov 19	5.0	4.4	4.3	4.6	4.7	4.2	4.1	4.8	5.2	5.4	1.2	0.6	4.7	3.1	3.8	1.0	3.5	3.7	11.4	10.8	9.9	10.3	9.4	8.0	0.6	11.4	1.4
Nov 20	9.5	10.4	12.7	13.2	12.5	11.9	12.5	11.7	9.0	8.9	9.4	8.7	7.3	5.0	3.3	1.4	0.7	1.0	1.5	3.9	4.6	5.3	5.9	7.5	0.7	13.2	4.6
Nov 21	7.7	8.0	9.8	9.5	9.6	10.1	10.1	9.5	9.7	11.0	11.6	9.4	8.8	10.4	10.4	11.0	11.2	10.6	9.6	13.0	12.7	9.3	7.3	7.0	7.0	13.0	8.9
Nov 22	5.8	4.7	2.9	3.3	5.3	6.4	6.6	6.7	5.1	4.5	7.2	6.4	6.4	5.6	6.0	5.8	5.0	6.6	9.4	10.7	12.0	13.0	11.7	11.7	2.9	13.0	2.3
Nov 23	11.0	11.6	10.3	9.1	7.8	6.0	5.3	5.6	5.0	5.3	5.0	4.7	5.2	5.4	5.4	4.1	2.2	1.3	0.5	0.7	1.3	2.4	4.8	5.0	0.5	11.6	3.3
Nov 24	6.0	3.0	3.1	4.0	5.7	5.0	4.0	3.2	3.8	4.4	4.7	6.0	6.3	6.7	6.3	6.1	6.7	6.5	6.6	7.0	5.3	6.0	7.6	7.2	3.0	7.6	5.3
Nov 25	7.7	7.3	7.1	10.2	12.3	10.9	10.0	9.7	8.9	8.0	9.6	8.6	8.1	8.7	8.3	6.5	7.5	7.7	7.4	7.7	8.9	10.6	10.5	12.0	6.5	12.3	8.6
Nov 26	12.3	10.5	11.9	10.3	12.2	10.7	9.8	9.2	9.3	10.1	14.6	16.0	17.5	17.8	13.5	13.1	14.5	15.9	13.8	11.1	9.1	5.5	7.1	7.7	5.5	17.8	11.7
Nov 27	6.3	6.9	3.7	4.4	4.2	3.3	3.9	2.7	2.8	3.5	4.5	4.7	5.2	6.1	8.2	7.8	6.1	6.7	5.7	7.6	7.2	6.9	7.7	8.0	2.7	8.2	4.7
Nov 28	8.0	7.9	8.1	6.8	7.7	7.9	6.1	7.0	7.8	8.2	8.9	8.9	9.2	9.3	9.9	10.2	9.4	9.0	10.7	12.8	12.1	11.1	10.1	8.0	6.1	12.8	8.3
Nov 29	4.1	3.8	3.7	5.2	4.6	4.6	4.3	1.0	1.1	1.1	1.9	3.2	2.5	1.9	3.6	3.6	2.4	3.1	5.0	5.2	5.9	6.3	9.2	7.9	1.0	9.2	1.3
Nov 30	8.1	7.7	8.2	7.9	7.0	8.3	10.0	9.7	7.7	5.2	2.7	4.7	3.1	3.0	2.5	1.6	3.2	6.1	7.8	6.7	7.5	8.8	11.0	10.9	1.6	11.0	6.0
Diurnal Maximum	15	15	14	16	16	17	18	20	25	27	25	25	22	21	24	20	15	16	14	13	13	13	12	14			
Diurnal Average	6.5	6.5	6.7	6.3	6.3	6.1	6.1	6.1	6.0	6.6	7.2	7.4	7.3	7.0	6.9	6.4	5.8	5.7	5.6	6.2	6.6	6.4	6.5	6.7			
C	Monthly Calibration						S	Daily Zero-Span Check						Q	Quality Assurance												
K	Collection Error						N	No Data (Machine Not in Service)						Y	Routine Maintenance							P Power Failure					
X	Invalid Data (Equipment Malfunction /Recovery)						NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																			
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																											
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																											

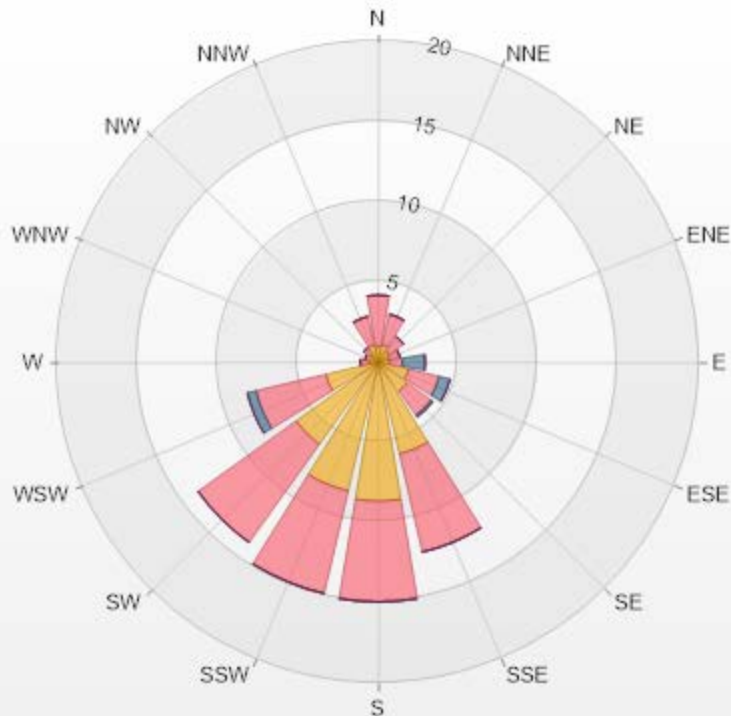
Timeseries Chart of Hourly Average for VWS - Reno Station



Wind: PRAMP RENO Monitor: WDS [KPH] Monthly: 11-2021 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.

Calm: 7.67% Valid Data: 99.58%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	0.98	3.21	0	0	0	4.19
NNE	1.12	1.95	0	0	0	3.07
NE	0.84	1.12	0	0	0	1.96
ENE	0.7	0.7	0	0	0	1.4
E	0.7	0.84	1.39	0	0	2.93
ESE	1.95	1.95	0.7	0	0	4.6
SE	2.23	1.81	0.14	0	0	4.18
SSE	5.86	6.28	0	0	0	12.14
S	8.65	6.28	0	0	0	14.93
SSW	8.23	6.56	0	0	0	14.79
SW	6.28	7.53	0	0	0	13.81
WSW	3.35	4.46	0.56	0	0	8.37
W	0.56	0.56	0	0	0	1.12
WNW	0.84	0	0	0	0	0.84
NW	0.56	0.56	0	0	0	1.12
NNW	1.12	1.81	0	0	0	2.93
Summary	43.97	45.62	2.79	0	0	92.38



PRAMP-202111

Page 153 of 226

% Icon Classes (KPH)

44 1.8-6.0

46 6.0-15.0

3 15.0-29.0

0 29.0-39.0

0 >39.0



PEACE RIVER AREA MONITORING PROGRAM

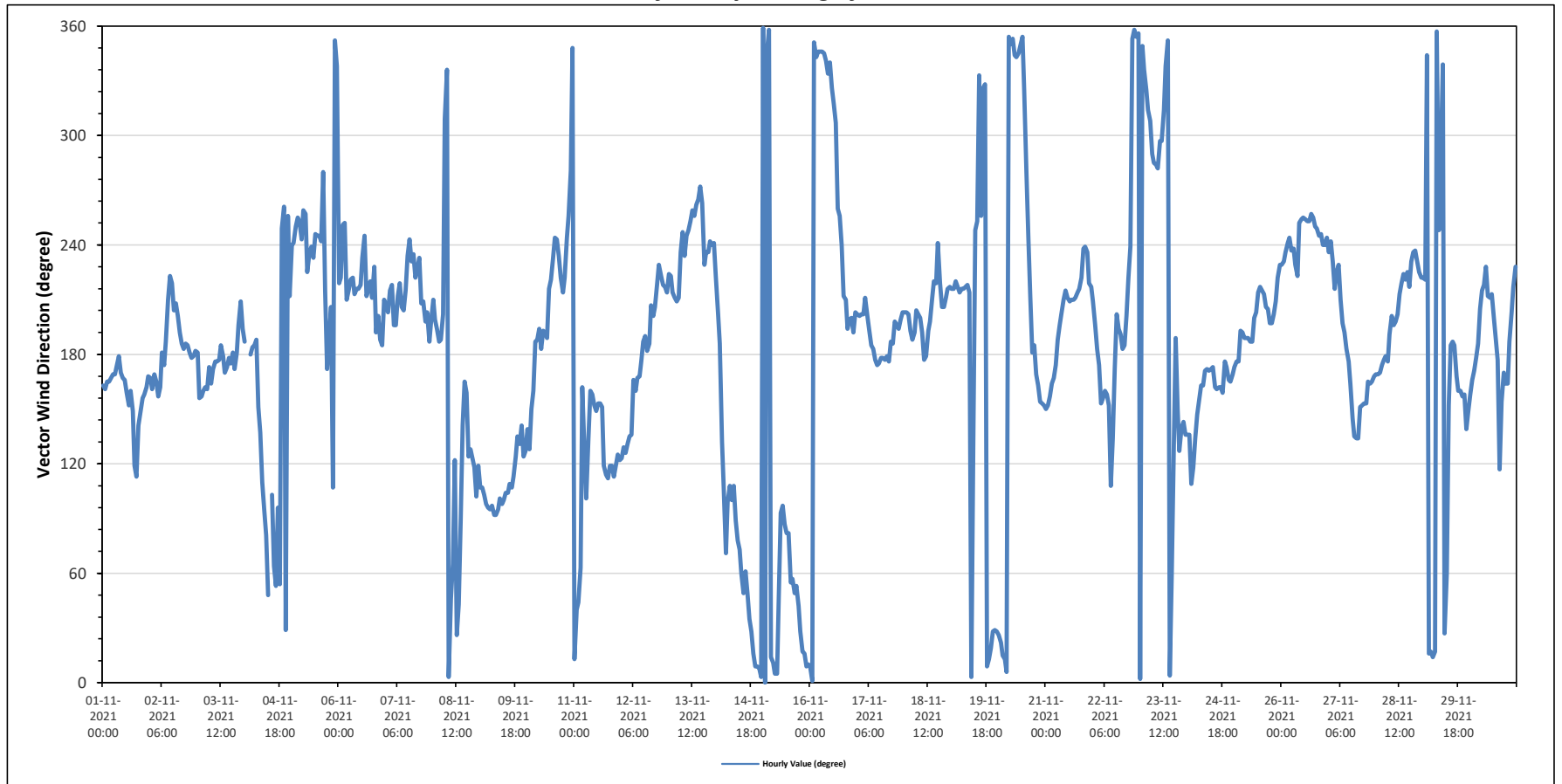
Reno Station - November 2021

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:		188 (S) degree										Hours in Service:		720													
												Hours of Data:		717													
												Hours of Missing Data:		3													
												Hours of Calibration:		0													
												Operational Uptime:		99.6													
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	
Nov 1	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	ESE	ESE	SE	SE	SSE	SSE	SSE	SSE	160	SSE	
Nov 2	SSE	SSE	SSE	SSE	SSE	SSE	S	S	S	SSW	SW	SW	SSW	SSW	SSW	S	S	S	S	S	S	S	S	S	189	S	
Nov 3	S	SSE	SSE	SSE	SSE	SSE	S	SSE	S	S	S	S	S	S	SSE	S	S	S	S	S	S	SSW	SSW	SSW	174	S	
Nov 4	S	X	X	S	S	S	S	SSE	SE	ESE	E	E	NE	Y	ESE	ENE	NE	E	NE	WSW	W	NNE	WSW	SSW	105	ESE	
Nov 5	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	WSW	SW	WSW	WSW	WSW	WSW	W	SSW	S	S	SSW	ESE	N	NNW	242	WSW	
Nov 6	SW	SW	WSW	WSW	SSW	SSW	SW	SW	SSW	SW	SW	SW	SW	WSW	SSW	SSW	SW	SSW	SW	S	SSW	S	S	SSW	223	SW	
Nov 7	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	WSW	SW	SW	SSW	SSW	SSW	SSW	SSW	S	SSW	216	SW
Nov 8	SSW	SSW	SSW	S	S	SSW	NW	NNW	N	NE	ENE	ESE	NNE	NE	E	SE	SSE	SSE	ESE	SE	ESE	ESE	E	ESE	114	ESE	
Nov 9	ESE	ESE	ESE	E	E	E	E	E	E	E	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	ESE	SE	103	ESE	
Nov 10	SE	SE	SSE	SSE	S	S	SSW	S	S	S	S	SW	SW	SW	WSW	WSW	SW	SW	SSW	SW	WSW	WSW	W	NNW	215	SSW	
Nov 11	NNE	NE	NE	ENE	SSE	SE	E	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	ESE	121	ESE	
Nov 12	ESE	SE	SE	SE	SE	SE	SSE	SSE	SSE	SSE	S	S	S	S	S	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SSW	171	S	
Nov 13	SW	SW	SSW	SSW	SSW	SSW	SW	WSW	SW	WSW	WSW	WSW	WSW	WSW	W	W	W	W	SW	SW	SW	WSW	WSW	WSW	244	WSW	
Nov 14	SW	SSW	S	SE	ESE	ENE	E	ESE	E	ESE	E	ENE	ENE	ENE	NE	ENE	NE	NE	NNE	NNE	N	N	N	N	53	NE	
Nov 15	N	N	NNW	N	NNE	NNE	N	N	NE	E	E	E	E	E	NE	ENE	NE	NE	NE	NNE	NNE	NNE	N	N	37	NE	
Nov 16	N	N	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	WSW	WSW	WSW	SSW	SSW	SSW	SSW	SSW	S	SSW	331	NNW	
Nov 17	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	S	S	S	S	S	S	S	S	S	S	SSW	SSW	SSW	SSW	SSW	189	S	
Nov 18	SSW	SSW	SSW	SSW	S	S	S	SSW	SSW	SSW	S	S	S	S	SSW	SSW	SW	SW	WSW	SW	SSW	SSW	SSW	SW	203	SSW	
Nov 19	SW	SW	SW	SW	SSW	SW	SW	SW	SW	SSW	N	SE	WSW	WSW	NNW	WSW	NW	NNW	N	NNE	NNE	NNE	NNE	NNE	321	NW	
Nov 20	NNE	NNE	NNE	NNE	N	N	N	N	NNW	NNW	NNW	NNW	N	NW	W	WSW	SSW	S	S	SSE	SSE	SSE	SSE	SSE	2	N	
Nov 21	SSE	SSE	SSE	SSE	SSE	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	WSW	SW	SW	SW	204	SSW	
Nov 22	SSW	SSW	S	S	SSE	SSE	SSE	SSE	SSE	ESE	SE	S	SSW	SSW	S	S	S	SSW	SW	WSW	N	N	N	N	189	S	
Nov 23	N	NNW	NNW	NW	NW	NW	WNW	WNW	WNW	W	WNW	WNW	NW	NNW	N	N	ENE	SE	S	SSE	SE	SE	SE	SE	326	NW	
Nov 24	SE	SE	ESE	ESE	SE	SE	SSE	SSE	SSE	S	S	S	S	S	SSE	SSE	SSE	SSE	SSE	S	S	SSE	SSE	SSE	160	SSE	
Nov 25	S	S	S	S	S	S	S	S	S	S	S	SSW	SSW	SSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	200	SSW	
Nov 26	SW	SW	SW	WSW	WSW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	246	WSW	
Nov 27	SW	WSW	SW	SW	SW	SW	SSW	SSW	S	S	S	SSE	SE	SE	SE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	173	S	
Nov 28	SSE	SSE	SSE	S	S	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	208	SSW	
Nov 29	SW	SW	NNW	NNE	NNE	NNE	NNE	N	WSW	W	NNW	NNE	ENE	SSE	S	S	S	SSE	SSE	SSE	SSE	SSE	SE	SSE	145	SE	
Nov 30	SSE	SSE	S	S	S	SSW	SSW	SW	SW	SSW	SSW	SSW	SSW	S	S	ESE	SSE	SSE	SSE	SSE	S	SSW	SW	SW	194	SSW	
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance										
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance										
X	Invalid Data (Machine Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																		
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																											
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																											

Timeseries Chart of Hourly Average for VWD - Reno Station





PEACE RIVER AREA MONITORING PROGRAM

Reno Station - November 2021

Summary of Hourly Averages

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

WIND SPEED																													
Maximum Hourly Value: 27.3 kph on November 9 at hour 9															Hours in Service: 720														
Maximum Daily Value: 15.5 kph on November 9															Hours of Data: 717														
Minimum Hourly Value: 0.1 kph on November 5 at hour 22															Hours of Missing Data: 3														
Minimum Daily Value: 1.3 kph on November 29															Hours of Calibration: 0														
Monthly Average: 2.7 kph															Operational Uptime: 99.6														
WIND DIRECTION																													
Monthly Average: 188 (S) degree																													
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
Nov 1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	3.5	6.5	5.4		
	6.1	5.8	6.4	6.4	6.5	6.1	6.5	6.4	5.6	6.0	5.9	6.4	6.4	6.4	5.0	3.5	3.7	3.6	5.0	6.0	5.3	5.1	5.2	3.6					
	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	S	SSE	SSE	SSE	SSE	SSE	SSE	ESE	ESE	ESE	SE	SE	SSE	SSE	SSE	SSE					
Nov 2	3.6	3.2	3.5	3.7	2.7	1.5	3.5	2.8	2.9	5.2	5.4	6.0	6.5	6.4	4.7	4.9	3.4	3.5	2.9	3.2	3.7	4.1	4.3	4.6	1.5	6.5	3.8		
	SSE	SSE	SSE	SSE	SSE	SSE	S	S	SSW	SW	SW	SSW	SSW	SSW	S	S	S	S	S	S	S	S	S	S					
Nov 3	4.8	6.1	6.0	5.9	6.3	5.6	5.5	7.0	6.4	6.7	7.0	5.5	5.3	4.4	3.7	4.3	5.1	5.4	5.0	3.6	4.3	5.4	4.5	1.6	1.6	7.0	5.1		
	S	SSE	SSE	SSE	SSE	SSE	S	SSE	S	S	S	S	S	S	SSE	S	S	S	S	S	S	SSW	SSW	SSW					
Nov 4	1.3	X	X	2.8	2.9	2.8	1.8	1.4	2.4	3.6	9.5	10.5	6.4	Y	3.9	4.7	2.2	1.3	0.6	1.0	0.9	0.6	1.3	1.9	0.6	10.5	1.8		
	S	X	X	S	S	S	S	SSE	SE	ESE	E	E	NE	Y	ESE	ENE	NE	E	NE	WSW	W	NNE	WSW	SSW					
Nov 5	4.6	4.4	3.6	3.2	3.0	3.6	4.1	1.9	2.8	4.3	4.9	4.4	3.4	4.4	4.8	3.8	1.3	1.3	0.7	2.2	2.5	0.5	0.1	2.3	0.1	4.9	2.7		
	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	WSW	SW	WSW	WSW	WSW	WSW	W	SSW	S	S	SSW	ESE	N	NNW					
Nov 6	5.3	5.6	11.7	6.7	6.6	7.5	6.1	3.7	4.4	6.2	8.3	7.1	7.2	5.9	4.3	5.3	3.3	1.5	1.0	0.6	1.4	2.8	1.9	4.0	0.6	11.7	4.7		
	SW	SW	WSW	WSW	SSW	SSW	SW	SW	SSW	SW	SW	SW	SW	WSW	SSW	SSW	SSW	SSW	SW	S	SSW	S	S	SSW					
Nov 7	1.6	3.7	4.4	1.2	1.3	3.1	3.7	4.8	4.9	5.9	6.7	6.8	6.4	4.9	5.5	3.2	2.5	1.8	1.8	3.5	4.8	3.5	2.6	2.5	1.2	6.8	3.7		
	SSW	SSW	SSW	SW	SSW	SSW	SSW	SW	SSW	SSW	SSW	SW	WSW	SW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	S	SSW					
Nov 8	1.5	2.5	1.9	0.5	0.8	1.1	0.9	1.1	2.5	3.1	3.5	1.6	1.9	3.2	2.6	2.4	2.7	2.7	3.4	3.9	4.8	5.1	8.1	9.0	0.5	9.0	1.9		
	SSW	SSW	SSW	S	S	SSW	NW	NNW	N	NE	ENE	ESE	NNE	NE	E	SE	SSE	SSE	ESE	SE	ESE	ESE	E	ESE					
Nov 9	11.7	11.1	13.0	15.6	16.3	17.0	17.9	20.0	25.0	27.3	25.1	25.2	22.1	21.4	23.8	19.8	15.4	12.8	8.8	8.0	9.9	5.6	3.2	3.5	3.2	27.3	15.5		
	ESE	ESE	ESE	E	E	E	E	E	E	E	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	SE	SE					
Nov 10	3.6	3.3	4.0	3.5	2.6	2.9	3.3	3.0	2.8	3.9	4.1	6.8	6.7	5.7	10.4	7.9	6.2	4.7	2.4	2.9	3.7	4.0	1.4	5.2	1.4	10.4	3.3		
	SE	SE	SSE	SSE	S	S	SSW	S	S	S	S	SW	SW	SW	WSW	WSW	SW	SW	SSW	SW	WSW	WSW	W	NNW					
Nov 11	4.6	2.4	3.2	1.7	0.5	1.3	1.1	2.8	1.9	1.2	3.2	4.4	4.6	5.3	5.2	5.5	6.3	7.9	8.6	10.1	12.9	12.1	12.2	13.5	0.5	13.5	4.9		
	NNE	NE	NE	ENE	SSE	SE	E	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	ESE					
Nov 12	15.4	14.6	14.4	15.2	12.7	7.0	4.3	7.5	8.0	7.8	7.2	7.0	8.6	5.5	5.3	7.9	6.8	7.0	7.6	7.5	7.5	7.6	8.8	8.2	4.3	15.4	7.0		
	ESE	SE	SE	SE	SE	SE	SSE	SSE	SSE	SSE	S	S	S	S	S	SSW	SSW	SSW	SW	SW	SW	SW	SW	SSW					
Nov 13	7.0	7.1	6.3	5.0	4.5	3.5	7.9	12.1	8.2	11.7	13.8	13.5	12.6	11.1	10.2	9.5	5.2	3.8	2.2	3.4	3.4	4.2	3.6	4.3	2.2	13.8	7.0		
	SW	SW	SSW	SSW	SSW	SSW	SW	WSW	SW	WSW	WSW	WSW	WSW	WSW	W	W	W	SW	SW	SW	SW	WSW	WSW	WSW					
Nov 14	2.1	1.6	1.7	0.6	2.1	3.9	3.0	4.8	5.1	6.2	8.2	9.8	9.6	9.5	10.4	9.3	9.7	8.0	7.4	8.3	9.1	8.6	7.5	6.9	0.6	10.4	5.0		
	SW	SSW	S	SE	ESE	ENE	E	ESE	E	ESE	E	ENE	ENE	ENE	NE	ENE	NE	NE	NNE	NNE	N	N	N	N					
Nov 15	6.2	5.7	4.2	5.3	5.3	3.3	2.7	1.1	2.3	5.8	5.1	6.6	8.6	9.0	8.3	10.1	12.3	12.7	9.9	9.7	10.2	10.8	11.0	11.7	1.1	12.7	6.4		
	N	N	NNW	N	NNE	NNE	N	NE	E	E	E	E	E	E	NE	ENE	NE	NE	NNE	NNE	NNE	N	N	N					
Nov 16	11.8	11.1	10.7	12.4	12.5	12.4	11.7	10.9	8.8	7.3	8.1	6.8	6.5	5.2	6.3	6.8	4.0	2.9	2.4	2.4	3.2	2.8	1.9	2.5	1.9	12.5	5.0		
	N	N	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	WSW	WSW	SSW	SSW	SSW	SSW	SSW	S	SSW						
Nov 17	2.4	3.1	2.5	2.7	3.1	3.5	3.2	2.6	3.8	4.7	5.2	6.2	6.4	6.5	6.6	6.8	5.8	6.6	6.4	8.4	8.3	8.1	8.7	10.2	2.4	10.2	5.4		
	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	S	S	S	S	S	S	S	S	S	S	SSW	SSW	SSW	SSW	SSW					
Nov 18	9.4	9.7	9.6	7.7	5.9	6.8	9.6	8.1	7.1	5.8	4.0	4.5	5.5	5.1	5.6	5.3	5.7	5.0	3.3	3.0	4.1	5.2	5.2	5.0	3.0	9.7	5.9		
	SSW	SSW	SSW	S	S	S	SSW	SSW	SSW	S	S	S	S	SSW	SSW	SW	SW	WSW	SW	SSW	SSW	SSW	SW	SW					
Nov 19	5.0	4.4	4.3	4.6	4.7	4.2	4.1	4.8	5.2	5.4	1.2	0.6	4.7	3.1	3.8	1.0	3.5	3.7	11.4	10.8	9.9	10.3	9.4	8.0	0.6	11.4	1.4		
	SW	SW	SW	SW	SSW	SW	SW	SW	SW	SSW	N	SE	WSW	WSW	NNW	WSW	NNW	N	NNE	NNE	NNE	NNE	NNE	NNE					
Nov 20	9.5	10.4	12.7	13.2	12.5	11.9	12.5	11.7	9.0	8.9	9.4	8.7	7.3	5.0	3.3	1.4	0.7	1.0	1.5	3.9	4.6	5.3	5.9	7.5	0.7	13.2	4.6		
	NNE	NNE	NNE	NNE	N	N	N	N	NNW	NNW	NNW	NNW	N	NW	W	WSW	SSW	S	S	SSE	SSE	SSE	SSE	SSE					



PEACE RIVER AREA MONITORING PROGRAM

Reno Station - November 2021

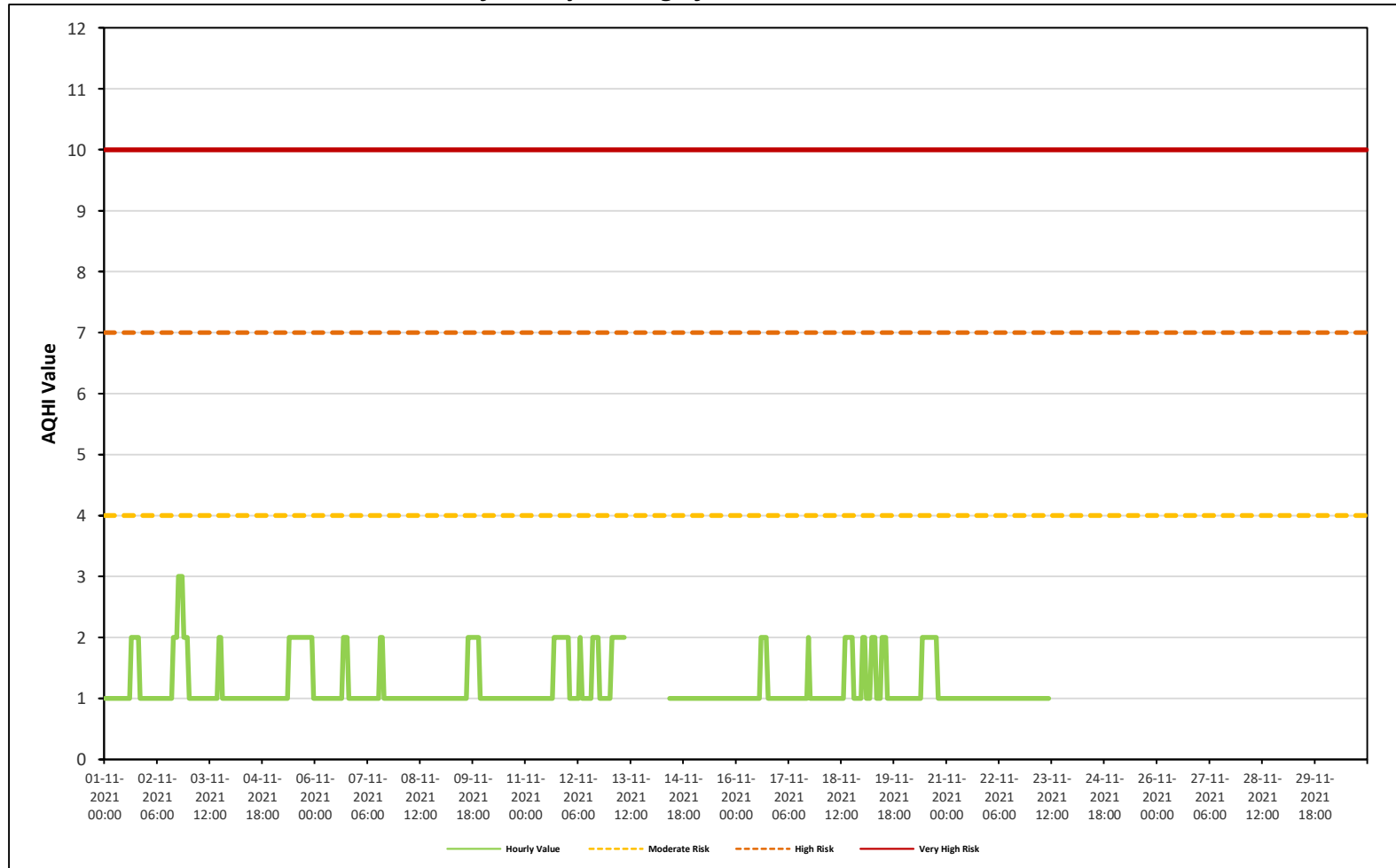
Summary of Hourly Averages

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

WIND SPEED																																	
Maximum Hourly Value:		27.3		kph		on November 9 at hour 9										Hours in Service:		720															
Maximum Daily Value:		15.5		kph		on November 9										Hours of Data:		717															
Minimum Hourly Value:		0.1		kph		on November 5 at hour 22										Hours of Missing Data:		3															
Minimum Daily Value:		1.3		kph		on November 29										Hours of Calibration:		0															
Monthly Average:		2.7		kph												Operational Uptime:		99.6															
WIND DIRECTION																																	
Monthly Average:		188		(S)		degree																											
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									
Nov 21	7.7	8.0	9.8	9.5	9.6	10.1	10.1	9.5	9.7	11.0	11.6	9.4	8.8	10.4	10.4	11.0	11.2	10.6	9.6	13.0	12.7	9.3	7.3	7.0		7.0	13.0	8.9					
	SSE	SSE	SSE	SSE	SSE	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	WSW	SW	SW	SW									
Nov 22	5.8	4.7	2.9	3.3	5.3	6.4	6.6	6.7	5.1	4.5	7.2	6.4	6.4	5.6	6.0	5.8	5.0	6.6	9.4	10.7	12.0	13.0	11.7	11.7	2.9	13.0	2.3						
	SSW	SSW	S	S	SSE	SSE	SSE	SSE	SSE	ESE	SE	S	SSW	SSW	S	S	S	SSW	SW	WSW	N	N	N	N									
Nov 23	11.0	11.6	10.3	9.1	7.8	6.0	5.3	5.6	5.0	5.3	5.0	4.7	5.2	5.4	5.4	4.1	2.2	1.3	0.5	0.7	1.3	2.4	4.8	5.0	0.5	11.6	3.3						
	N	NNW	NNW	NW	NW	NW	WNW	WNW	WNW	W	WNW	WNW	NW	NNW	N	N	ENE	SE	S	SSE	SE	SE	SE	SE									
Nov 24	6.0	3.0	3.1	4.0	5.7	5.0	4.0	3.2	3.8	4.4	4.7	6.0	6.3	6.7	6.3	6.1	6.7	6.5	6.6	7.0	5.3	6.0	7.6	7.2	3.0	7.6	5.3						
	SE	SE	ESE	ESE	SE	SE	SSE	SSE	SSE	S	S	S	S	SSE	SSE	SSE	SSE	SSE	S	S	SSE	SSE	SSE	SSE									
Nov 25	7.7	7.3	7.1	10.2	12.3	10.9	10.0	9.7	8.9	8.0	9.6	8.6	8.1	8.7	8.3	6.5	7.5	7.7	7.4	7.7	8.9	10.6	10.5	12.0	6.5	12.3	8.6						
	S	S	S	S	S	S	S	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW									
Nov 26	12.3	10.5	11.9	10.3	12.2	10.7	9.8	9.2	9.3	10.1	14.6	16.0	17.5	17.8	13.5	13.1	14.5	15.9	13.8	11.1	9.1	5.5	7.1	7.7	5.5	17.8	11.7						
	SW	SW	SW	WSW	WSW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW									
Nov 27	6.3	6.9	3.7	4.4	4.2	3.3	3.9	2.7	2.8	3.5	4.5	4.7	5.2	6.1	8.2	7.8	6.1	6.7	5.7	7.6	7.2	6.9	7.7	8.0	2.7	8.2	4.7						
	SW	WSW	SW	SW	SW	SW	SSW	SSW	S	S	SSE	SE	SE	SE	SE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE									
Nov 28	8.0	7.9	8.1	6.8	7.7	7.9	6.1	7.0	7.8	8.2	8.9	8.9	9.2	9.3	9.9	10.2	9.4	9.0	10.7	12.8	12.1	11.1	10.1	8.0	6.1	12.8	8.3						
	SSE	SSE	SSE	S	S	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW									
Nov 29	4.1	3.8	3.7	5.2	4.6	4.6	4.3	1.0	1.1	1.1	1.9	3.2	2.5	1.9	3.6	3.6	2.4	3.1	5.0	5.2	5.9	6.3	9.2	7.9	1.0	9.2	1.3						
	SW	SW	NNW	NNE	NNE	NNE	NNE	N	WSW	W	NNW	NNE	ENE	SSE	S	S	S	SSE	SSE	SSE	SSE	SSE	SE	SSE									
Nov 30	8.1	7.7	8.2	7.9	7.0	8.3	10.0	9.7	7.7	5.2	2.7	4.7	3.1	3.0	2.5	1.6	3.2	6.1	7.8	6.7	7.5	8.8	11.0	10.9	1.6	11.0	6.0						
	SSE	SSE	S	S	S	SSW	SSW	SW	SW	SSW	SSW	SSW	SSW	SSW	S	S	ESE	SSE	SSE	SSE	S	SSW	SW	SW									
C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance														
K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance								P	Power Failure					
X	Invalid Data (Equipment Malfunction/Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																							
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																	
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																	

AQHI CADOTTE LAKE STATION

Timeseries Chart of Hourly Average for AQHI - AQHI - Cadotte Lake Station





PEACE RIVER AREA MONITORING PROGRAM

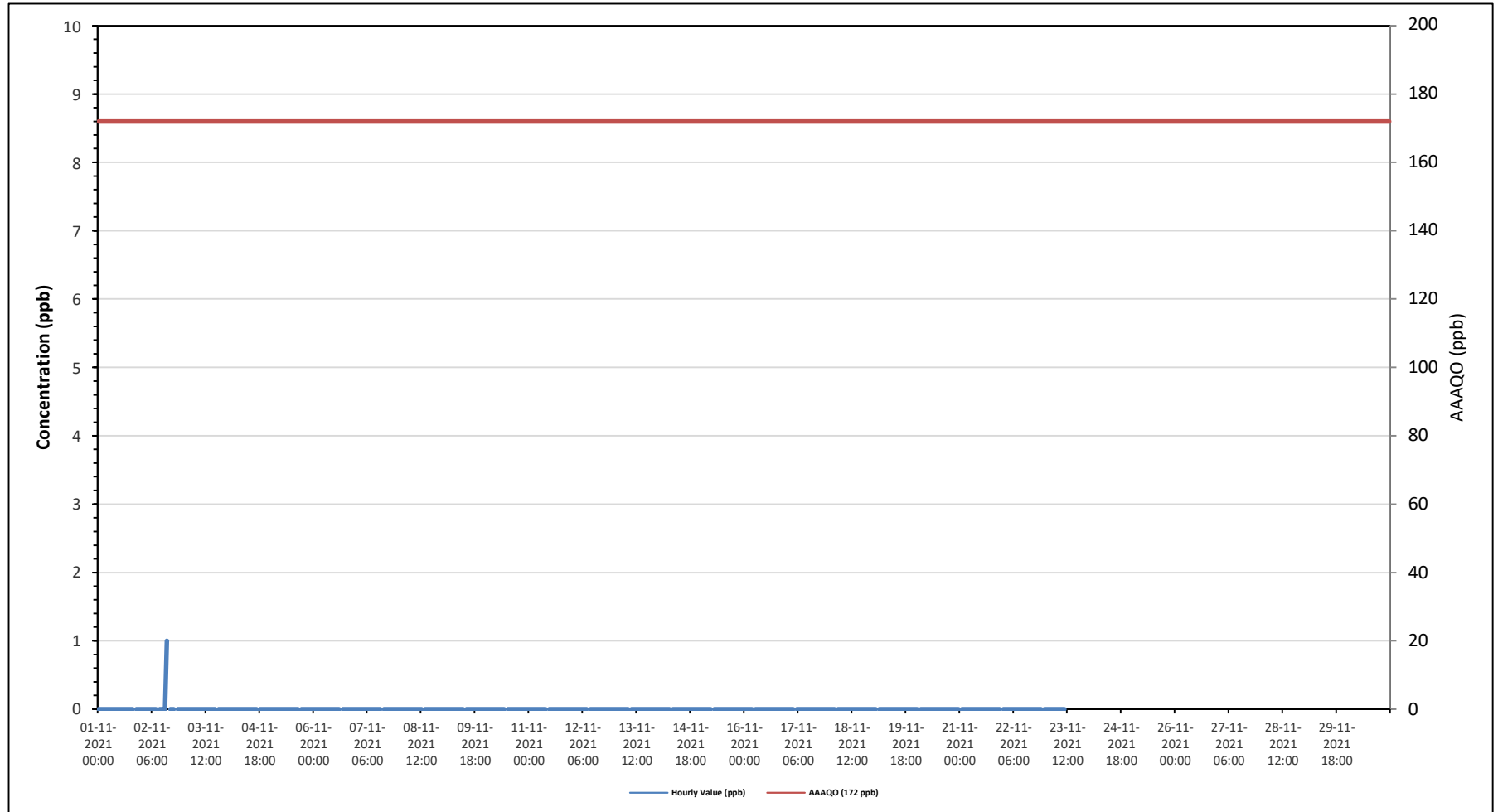
AQHI - Cadotte Lake Station - November 2021

Summary of Hourly Averages

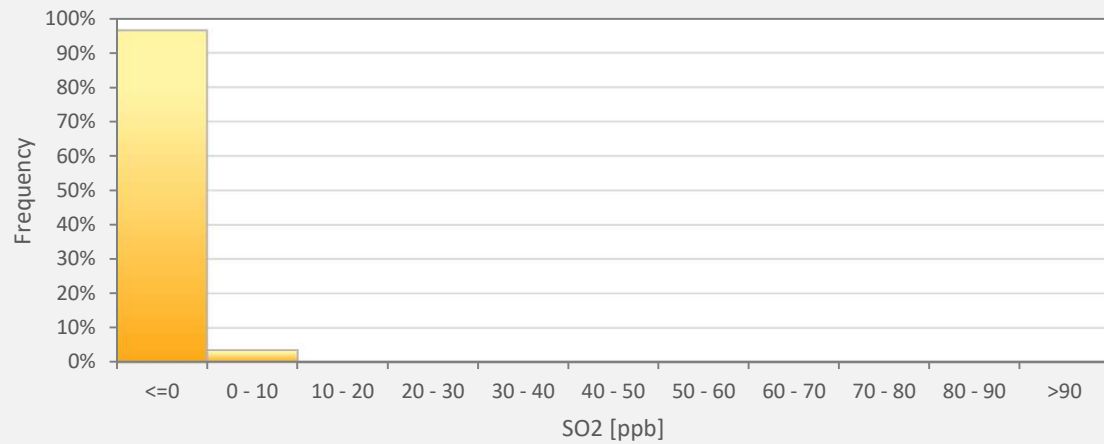
SULPHUR DIOXIDE (SO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																																					
Number of 1-Hour Exceedances:										0					Number of 24-Hour Exceedances:										0					30-Day Exceedance:					0		
Maximum Hourly Value:										1 ppb on November 2 at hour 14					Hours in Service:										720												
Maximum Daily Value:										0.0 ppb on November 2					Hours of Data:										514												
Minimum Hourly Value:										0 ppb on November 1 at hour 0					Hours of Missing Data:										2												
Minimum Daily Value:										0.0 ppb on November 1					Hours of Calibration:										26												
Monthly Average:										0.0 ppb					Operational Uptime:										75.0												
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													
Nov 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0										
Nov 2	0	0	0	0	0	0	0	0	0	X	0	0	0	0	1	Y	0	0	0	S	0	0	0	0	0	0	0.0										
Nov 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.0										
Nov 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0.0										
Nov 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0.0										
Nov 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0.0										
Nov 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0.0										
Nov 8	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0.0										
Nov 9	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0										
Nov 10	0	0	0	0	0	0	0	0	0	0	S	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0										
Nov 11	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0										
Nov 12	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0										
Nov 13	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										
Nov 14	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0										
Nov 15	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										
Nov 16	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										
Nov 17	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0										
Nov 18	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										
Nov 19	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										
Nov 20	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0										
Nov 21	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0										
Nov 22	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										
Nov 23	0	0	0	0	0	0	0	0	0	0	C	C	C														-										
Nov 24																																					
Nov 25																																					
Nov 26																																					
Nov 27																																					
Nov 28																																					
Nov 29																																					
Nov 30																																					
Diurnal Maximum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0													
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0													
C	Monthly Calibration									S	Daily Zero-Span Check									Q	Quality Assurance																
K	Collection Error									N	No Data (Machine Not in Service)									Y	Routine Maintenance									P	Power Failure						
X	Invalid Data (Equipment Malfunction / Recovery)									NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																										
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																					
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																					

Timeseries Chart of Hourly Average for SO2 - AQHI - Cadotte Lake Station



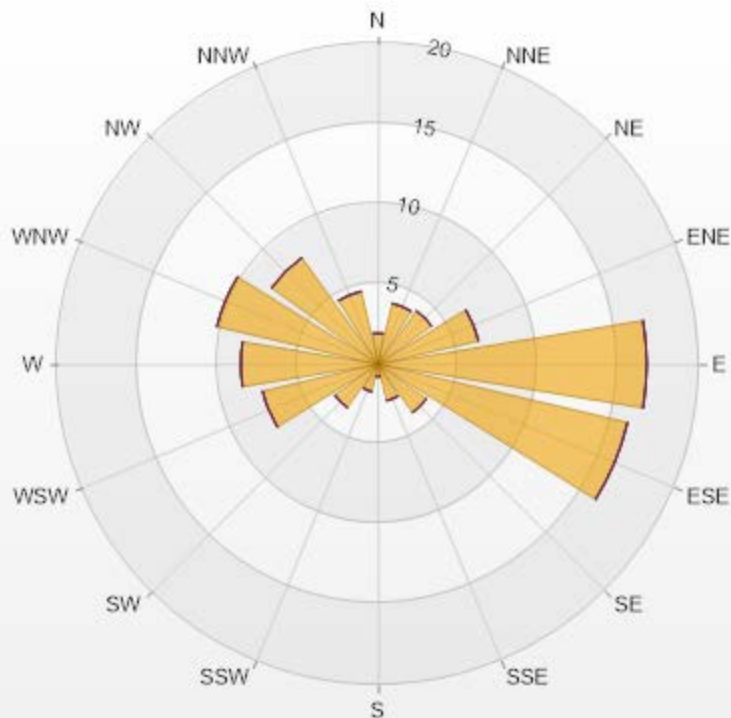
SO2[ppb] Histogram: AQHI Cadotte Lake Monthly: 11-2021 1 Hr.



Classes	SO2
<=0	96.50%
0 - 10	3.50%
10 - 20	0.00%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: AQHI Cadotte Lake Poll.: AQHI Cadotte Lake-SO2[ppb] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 71.39% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	1.95	0	0	0	0	1.95
NNE	3.89	0	0	0	0	3.89
NE	4.09	0	0	0	0	4.09
ENE	6.42	0	0	0	0	6.42
E	16.73	0	0	0	0	16.73
ESE	15.95	0	0	0	0	15.95
SE	3.7	0	0	0	0	3.7
SSE	2.33	0	0	0	0	2.33
S	0.78	0	0	0	0	0.78
SSW	1.75	0	0	0	0	1.75
SW	3.31	0	0	0	0	3.31
WSW	7.39	0	0	0	0	7.39
W	8.56	0	0	0	0	8.56
WNW	10.31	0	0	0	0	10.31
NW	8.17	0	0	0	0	8.17
NNW	4.67	0	0	0	0	4.67
Summary	100	0	0	0	0	100



PRAMP-202111

Page 164 of 226

% Icon Classes (ppb)

100 0-10

0 10-50

0 50-100

0 100-172

0 >172.0



PEACE RIVER AREA MONITORING PROGRAM

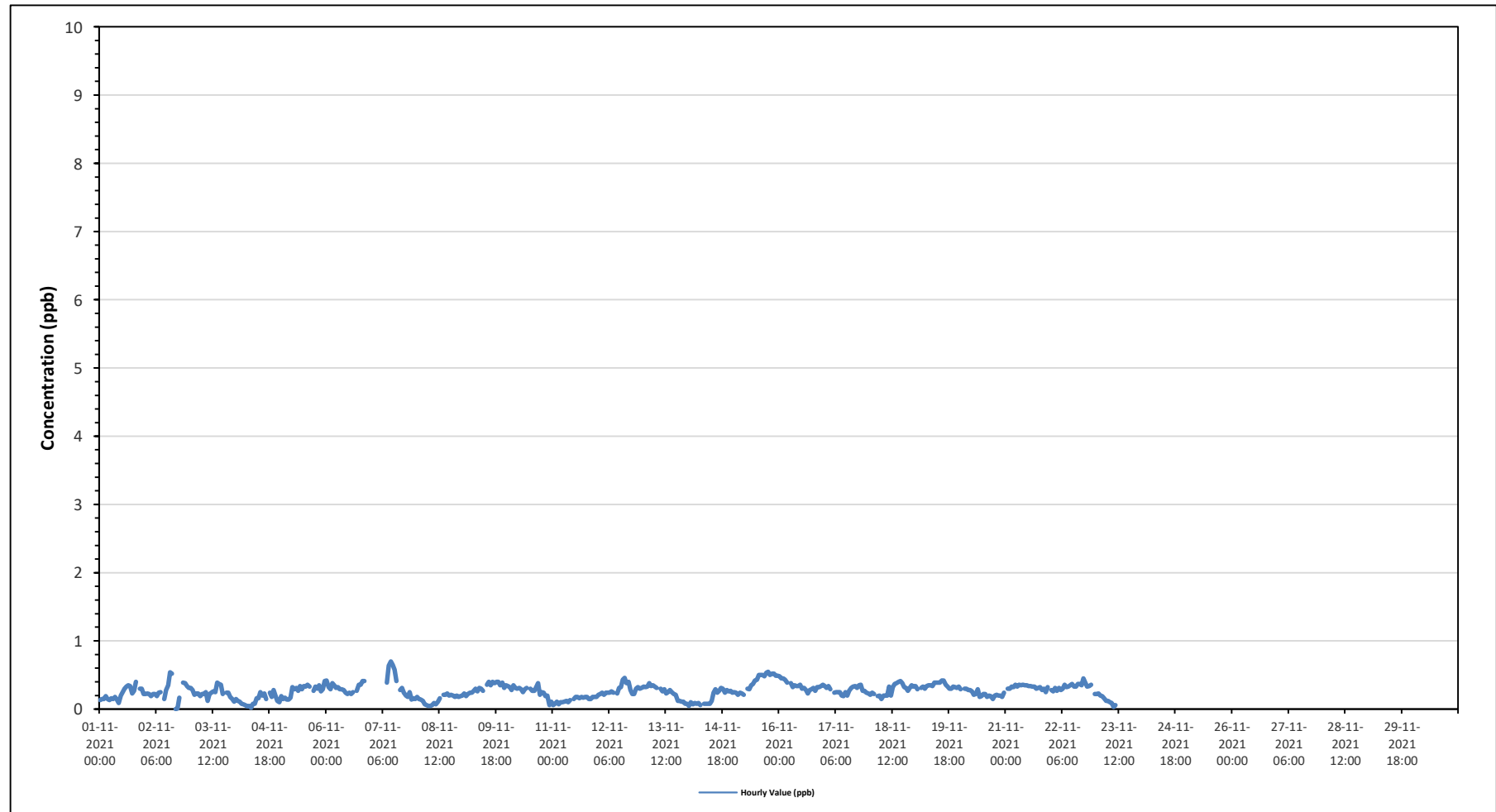
AQHI - Cadotte Lake Station - November 2021

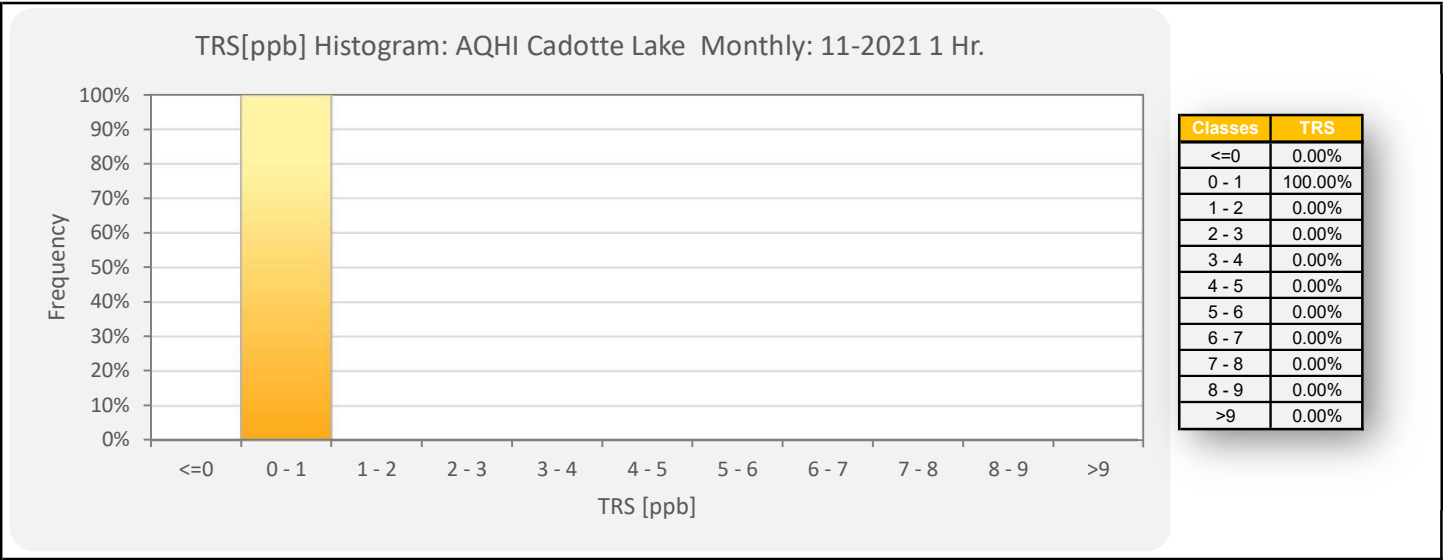
Summary of Hourly Averages

TOTAL REDUCED SULPHUR (TRS) in ppb

Maximum Hourly Value:										0.70		ppb		on November 7 at hour 10										Hours in Service:					720				
Maximum Daily Value:										0.40		ppb		on November 15										Hours of Data:					503				
Minimum Hourly Value:										0.00		ppb		on November 2 at hour 16										Hours of Missing Data:					13				
Minimum Daily Value:										0.14		ppb		on November 4										Hours of Calibration:					26				
Monthly Average:										0.26		ppb												Operational Uptime:					73.5				
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						
Nov 1	0.13	0.15	0.15	0.19	0.15	0.13	0.16	0.15	0.18	0.14	0.09	0.2	0.25	0.3	0.33	0.35	0.34	0.23	0.27	0.4	S	0.3	0.3	0.22	0.09	0.40	0.22						
Nov 2	0.22	0.23	0.22	0.19	0.22	0.22	0.19	0.24	0.25	X	0.15	0.28	0.35	0.54	0.52	Y	0	0.01	0.17	S	0.39	0.38	0.34	0.31	0.00	0.54	0.26						
Nov 3	0.31	0.28	0.21	0.23	0.23	0.19	0.22	0.22	0.25	0.12	0.22	0.24	0.26	0.25	0.39	0.37	0.36	0.22	S	0.24	0.24	0.18	0.15	0.11	0.11	0.39	0.24						
Nov 4	0.15	0.12	0.11	0.08	0.07	0.06	0.04	0.05	0.02	0.08	0.08	0.16	0.16	0.25	0.2	0.23	0.15	S	0.24	0.18	0.28	0.2	0.12	0.1	0.02	0.28	0.14						
Nov 5	0.19	0.15	0.17	0.14	0.14	0.17	0.32	0.29	0.31	0.27	0.34	0.29	0.34	0.33	0.36	0.33	S	0.27	0.33	0.3	0.35	0.26	0.29	0.41	0.14	0.41	0.28						
Nov 6	0.42	0.32	0.29	0.38	0.35	0.31	0.32	0.29	0.29	0.28	0.24	0.22	0.24	0.22	0.25	S	0.27	0.36	0.36	0.41	0.41	X	X	X	0.22	0.42	0.31						
Nov 7	X	X	X	X	X	X	X	NRM	0.39	0.64	0.7	0.65	0.58	0.41	S	0.28	0.31	0.24	0.2	0.18	0.25	0.14	0.16	0.15	0.14	0.70	-						
Nov 8	0.18	0.15	0.14	0.12	0.07	0.06	0.05	0.05	0.06	0.09	0.07	0.11	0.16	S	0.21	0.21	0.23	0.2	0.21	0.2	0.18	0.2	0.18	0.19	0.05	0.23	0.14						
Nov 9	0.2	0.23	0.19	0.22	0.24	0.24	0.27	0.3	0.26	0.31	0.3	0.27	S	0.36	0.4	0.35	0.4	0.38	0.4	0.4	0.35	0.39	0.31	0.35	0.19	0.40	0.31						
Nov 10	0.34	0.32	0.28	0.35	0.31	0.3	0.31	0.29	0.25	0.29	0.31	S	0.3	0.27	0.27	0.32	0.38	0.21	0.25	0.24	0.19	0.2	0.06	0.11	0.06	0.38	0.27						
Nov 11	0.06	0.08	0.11	0.07	0.1	0.1	0.11	0.12	0.1	0.13	S	0.15	0.18	0.18	0.16	0.18	0.17	0.18	0.18	0.15	0.15	0.18	0.18	0.18	0.06	0.18	0.14						
Nov 12	0.21	0.22	0.24	0.21	0.24	0.24	0.24	0.26	0.24	S	0.23	0.31	0.32	0.43	0.46	0.38	0.4	0.28	0.22	0.22	0.3	0.32	0.3	0.31	0.21	0.46	0.29						
Nov 13	0.33	0.32	0.33	0.38	0.34	0.35	0.33	0.31	S	0.3	0.26	0.29	0.23	0.25	0.28	0.25	0.22	0.21	0.12	0.12	0.11	0.11	0.08	0.08	0.08	0.38	0.24						
Nov 14	0.05	0.1	0.07	0.09	0.08	0.09	0.06	S	0.08	0.08	0.08	0.08	0.12	0.24	0.29	0.24	0.27	0.31	0.3	0.24	0.28	0.26	0.27	0.24	0.05	0.31	0.17						
Nov 15	0.25	0.24	0.21	0.24	0.23	0.21	S	0.3	0.29	0.35	0.37	0.42	0.43	0.5	0.5	0.5	0.48	0.53	0.55	0.5	0.52	0.52	0.49	0.49	0.21	0.55	0.40						
Nov 16	0.48	0.45	0.45	0.43	0.39	S	0.38	0.32	0.35	0.34	0.34	0.36	0.3	0.31	0.28	0.23	0.28	0.29	0.31	0.27	0.32	0.32	0.34	0.36	0.23	0.48	0.34						
Nov 17	0.34	0.31	0.34	0.29	S	0.24	0.25	0.25	0.25	0.2	0.19	0.25	0.2	0.27	0.31	0.33	0.34	0.31	0.35	0.36	0.27	0.27	0.24	0.23	0.19	0.36	0.28						
Nov 18	0.21	0.24	0.22	S	0.19	0.2	0.15	0.2	0.2	0.2	0.33	0.2	0.32	0.37	0.38	0.4	0.41	0.38	0.32	0.31	0.27	0.31	0.35	0.33	0.15	0.41	0.28						
Nov 19	0.34	0.29	S	0.31	0.33	0.3	0.34	0.35	0.35	0.34	0.39	0.39	0.39	0.39	0.42	0.42	0.36	0.33	0.3	0.3	0.33	0.32	0.31	0.33	0.29	0.42	0.34						
Nov 20	0.29	S	0.3	0.3	0.28	0.28	0.26	0.21	0.22	0.29	0.18	0.19	0.22	0.22	0.18	0.2	0.19	0.15	0.2	0.21	0.2	0.2	0.18	0.24	0.15	0.30	0.23						
Nov 21	S	0.3	0.3	0.33	0.32	0.36	0.33	0.36	0.35	0.36	0.35	0.35	0.34	0.34	0.33	0.33	0.3	0.31	0.32	0.28	0.3	0.25	0.32	S	0.25	0.36	0.32						
Nov 22	0.28	0.26	0.31	0.27	0.31	0.28	0.3	0.36	0.32	0.33	0.35	0.37	0.33	0.33	0.37	0.37	0.35	0.45	0.39	0.33	0.34	0.36	S	0.22	0.22	0.45	0.33						
Nov 23	0.22	0.23	0.2	0.19	0.16	0.12	0.12	0.1	0.09	0.03	0.06	C	C	C											0.03	0.23	-						
Nov 24																																	
Nov 25																																	
Nov 26																																	
Nov 27																																	
Nov 28																																	
Nov 29																																	
Nov 30																																	
Diurnal Maximum	0.48	0.45	0.45	0.43	0.39	0.36	0.38	0.36	0.39	0.64	0.70	0.65	0.58	0.54	0.52	0.50	0.48	0.53	0.55	0.50	0.52	0.52	0.49	0.49									
Diurnal Average	0.25	0.24	0.23	0.24	0.23	0.21	0.23	0.24	0.23	0.25	0.26	0.28	0.29	0.32	0.33	0.31	0.30	0.28	0.29	0.28	0.29	0.27	0.25	0.25									
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance																
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance							P	Power Failure								
X	Invalid Data (Equipment Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																								
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																	
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																	

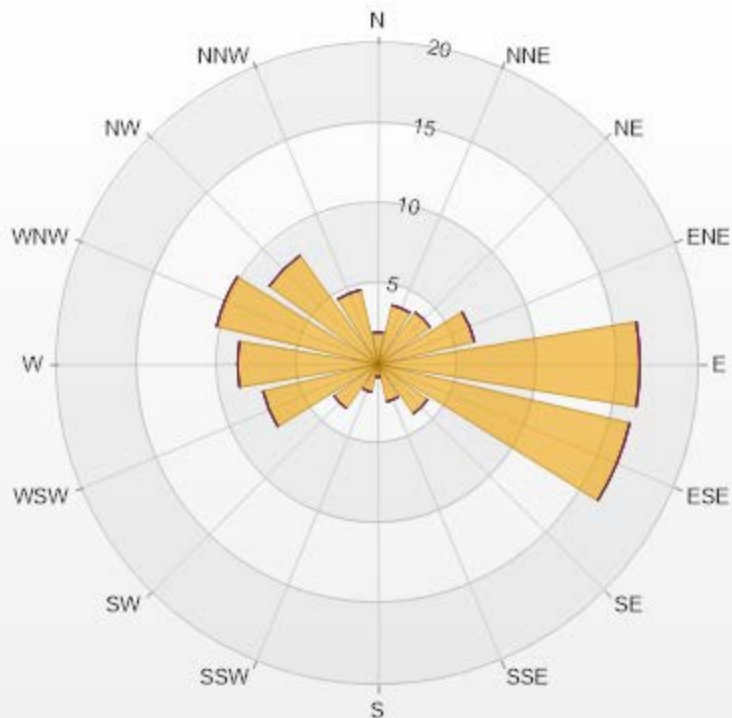
Timeseries Chart of Hourly Average for TRS - AQHI - Cadotte Lake Station





Wind: AQHI Cadotte Lake Poll.: AQHI Cadotte Lake-TRS[ppb] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 69.86% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	1.99	0	0	0	0	1.99
NNE	3.78	0	0	0	0	3.78
NE	3.98	0	0	0	0	3.98
ENE	6.16	0	0	0	0	6.16
E	16.3	0	0	0	0	16.3
ESE	16.1	0	0	0	0	16.1
SE	3.78	0	0	0	0	3.78
SSE	2.39	0	0	0	0	2.39
S	0.8	0	0	0	0	0.8
SSW	1.79	0	0	0	0	1.79
SW	3.38	0	0	0	0	3.38
WSW	7.36	0	0	0	0	7.36
W	8.75	0	0	0	0	8.75
WNW	10.34	0	0	0	0	10.34
NW	8.35	0	0	0	0	8.35
NNW	4.77	0	0	0	0	4.77
Summary	100	0	0	0	0	100



PRAMP-202111

Page 169 of 226

% Icon Classes (ppb)

100 0-2

0 2-5

0 5-10

0 10-50

0 >50.0



PEACE RIVER AREA MONITORING PROGRAM

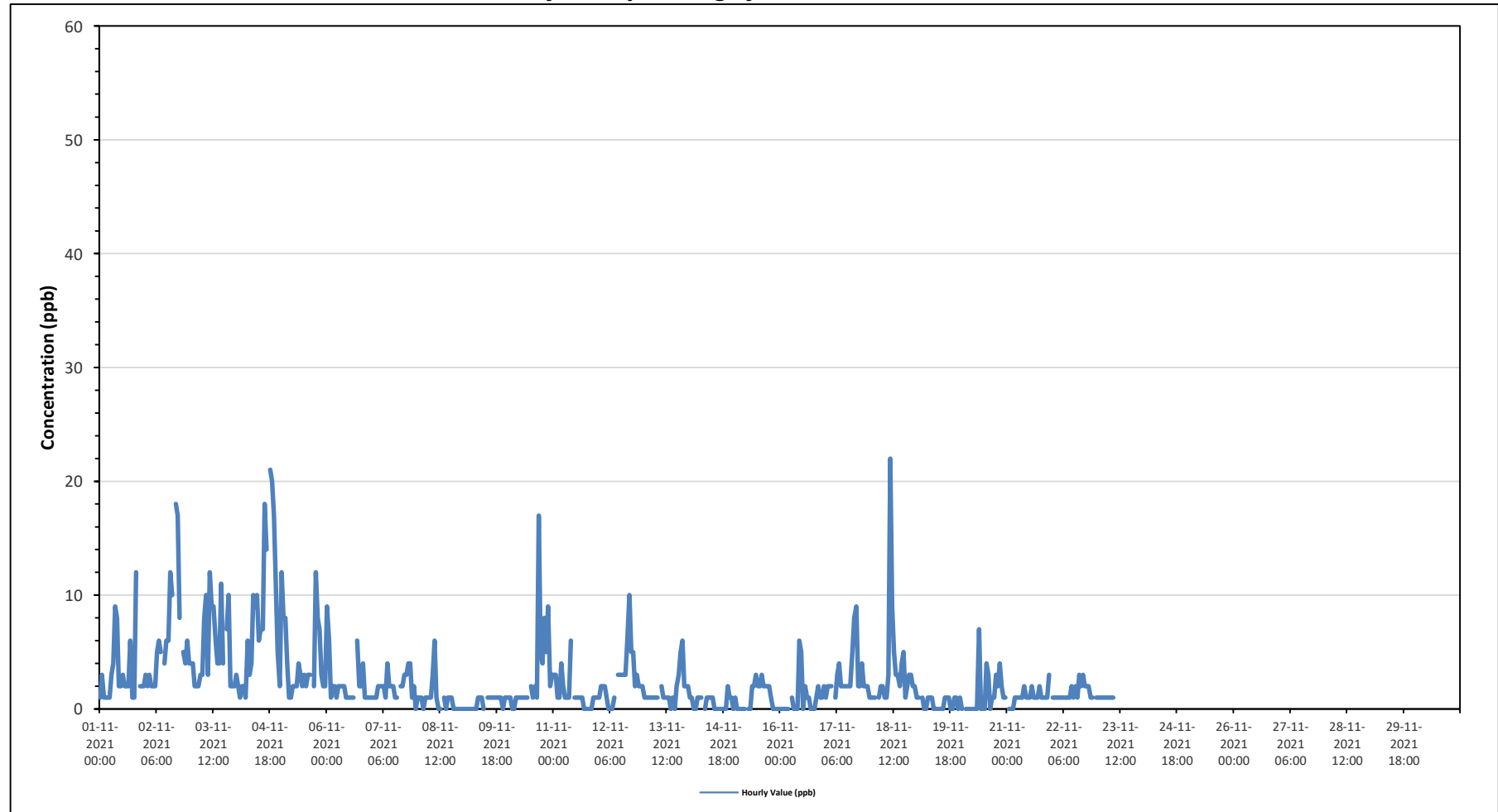
AQHI - Cadotte Lake Station - November 2021

Summary of Hourly Averages

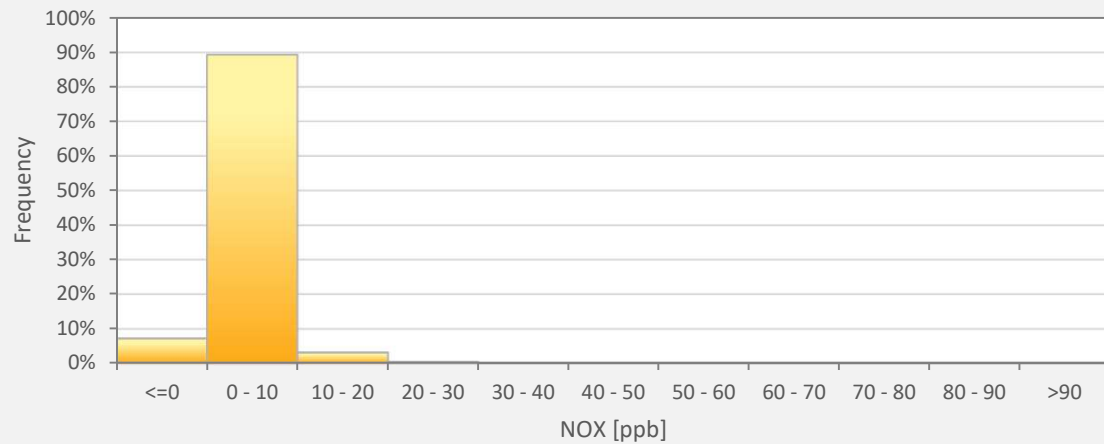
OXIDES OF NITROGEN (NOx) in ppb

Maximum Hourly Value:	22	ppb	on November 18 at hour 10	Hours in Service:	720																								
Maximum Daily Value:	7.9	ppb	on November 4	Hours of Data:	512																								
Minimum Hourly Value:	0	ppb	on November 7 at hour 23	Hours of Missing Data:	2																								
Minimum Daily Value:	0.5	ppb	on November 19	Hours of Calibration:	28																								
Monthly Average:	2.4	ppb		Operational Uptime:	75.0																								
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
Nov 1	1	3	1	1	1	1	3	4	9	8	2	2	3	2	2	2	6	1	1	12	S	2	2	2	1	12	3.1		
Nov 2	3	2	3	2	2	2	5	6	5	X	4	6	6	12	10	Y	18	17	8	S	7	10	2	2	2	2	18	6.2	
Nov 3	4	4	2	2	2	3	3	8	10	3	12	9	9	6	4	4	11	4	S	7	10	2	2	2	2	12	5.3		
Nov 4	3	2	1	2	2	1	6	3	4	10	9	10	6	7	7	18	14	S	21	20	17	11	5	2	1	21	7.9		
Nov 5	12	8	8	4	1	1	2	2	2	4	3	2	3	2	3	3	S	2	12	8	7	3	2	2	1	12	4.2		
Nov 6	9	6	1	2	2	1	2	2	2	2	1	1	1	1	1	S	6	2	2	4	1	1	1	1	1	9	2.3		
Nov 7	1	1	1	2	2	2	2	1	4	2	2	2	1	1	S	2	2	3	3	4	4	1	2	0	0	4	2.0		
Nov 8	1	1	1	0	1	1	1	1	3	6	1	0	0	S	1	0	1	1	1	0	0	0	0	0	0	6	0.9		
Nov 9	0	0	0	0	0	0	0	0	1	1	1	0	S	1	1	1	1	1	1	1	0	1	1	0	1	0	0.6		
Nov 10	1	1	0	0	1	1	1	1	1	1	1	S	2	1	2	1	17	5	4	8	5	9	2	3	0	17	3.0		
Nov 11	3	3	1	1	4	2	1	1	1	6	S	1	1	1	1	1	0	0	0	0	0	1	1	1	0	6	1.3		
Nov 12	1	2	2	2	1	0	0	0	1	S	3	3	3	3	3	6	10	5	5	2	3	2	2	2	0	10	2.7		
Nov 13	1	1	1	1	1	1	1	1	S	2	1	1	1	1	0	1	0	2	3	5	6	2	2	2	0	6	1.6		
Nov 14	1	1	0	0	1	1	1	S	0	1	1	1	1	0	0	0	0	0	0	0	2	1	1	0	0	2	0.6		
Nov 15	1	0	0	0	0	0	S	0	0	2	2	3	2	2	3	2	2	2	2	1	0	0	0	0	0	3	1.0		
Nov 16	0	0	0	0	0	S	1	0	0	0	6	5	0	2	1	1	0	0	0	1	2	1	1	2	0	6	1.0		
Nov 17	1	2	2	2	S	1	3	4	2	2	2	2	2	2	5	8	9	2	2	4	2	2	2	1	1	9	2.8		
Nov 18	1	1	1	S	1	2	2	1	1	3	22	9	5	3	3	2	4	5	1	2	3	3	2	2	1	22	3.4		
Nov 19	1	1	S	1	0	0	1	1	1	0	0	0	0	0	0	1	1	1	0	0	1	1	0	1	0	1	0.5		
Nov 20	0	S	0	0	0	0	0	0	0	7	0	0	0	4	3	0	1	1	3	2	4	2	1	1	0	7	1.3		
Nov 21	S	0	0	0	1	1	1	1	1	2	1	1	1	2	1	1	1	2	1	1	1	1	3	S	0	3	1.1		
Nov 22	1	1	1	1	1	1	1	1	1	1	2	1	2	1	3	2	3	2	2	2	1	1	S	1	1	3	1.4		
Nov 23	1	1	1	1	1	1	1	1	1	C	C	C	C	C											1	1	-		
Nov 24																													
Nov 25																													
Nov 26																													
Nov 27																													
Nov 28																													
Nov 29																													
Nov 30																													
Diurnal Maximum	12	8	8	4	4	3	6	8	10	10	22	10	9	12	10	18	18	17	21	20	17	11	6	4					
Diurnal Average	2.1	1.9	1.2	1.1	1.1	1.0	1.7	1.8	2.3	3.2	3.6	2.8	2.3	2.6	2.6	2.8	5.1	2.8	3.4	4.0	3.6	2.3	1.8	1.4					
C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance										
K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance								P	Power Failure	
X	Invalid Data (Equipment Malfunction /Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																			
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																													
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																													

Timeseries Chart of Hourly Average for NOx - AQHI - Cadotte Lake Station



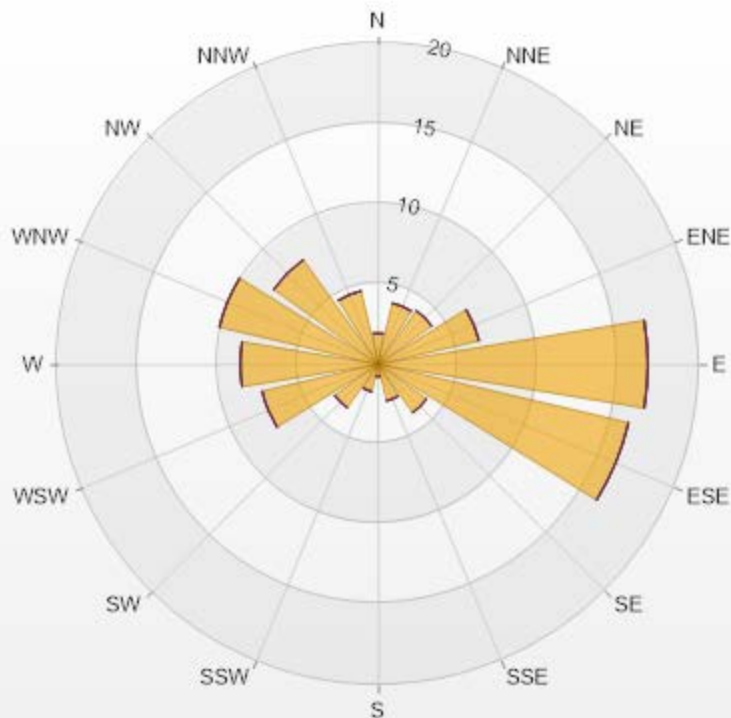
NOX[ppb] Histogram: AQHI Cadotte Lake Monthly: 11-2021 1 Hr.



Classes	NOX
<=0	7.23%
0 - 10	89.26%
10 - 20	3.13%
20 - 30	0.39%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: AQHI Cadotte Lake Poll.: AQHI Cadotte Lake-NOX[ppb] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 71.11% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	1.95	0	0	0	0	1.95
NNE	3.91	0	0	0	0	3.91
NE	4.1	0	0	0	0	4.1
ENE	6.45	0	0	0	0	6.45
E	16.8	0	0	0	0	16.8
ESE	16.02	0	0	0	0	16.02
SE	3.71	0	0	0	0	3.71
SSE	2.34	0	0	0	0	2.34
S	0.78	0	0	0	0	0.78
SSW	1.76	0	0	0	0	1.76
SW	3.32	0	0	0	0	3.32
WSW	7.42	0	0	0	0	7.42
W	8.59	0	0	0	0	8.59
WNW	10.16	0	0	0	0	10.16
NW	8.01	0	0	0	0	8.01
NNW	4.69	0	0	0	0	4.69
Summary	100	0	0	0	0	100



PRAMP-202111

Page 174 of 226

% Icon Classes (ppb)

100 0-30

0 30-50

0 50-76

0 76-159

0 >159.0



PEACE RIVER AREA MONITORING PROGRAM

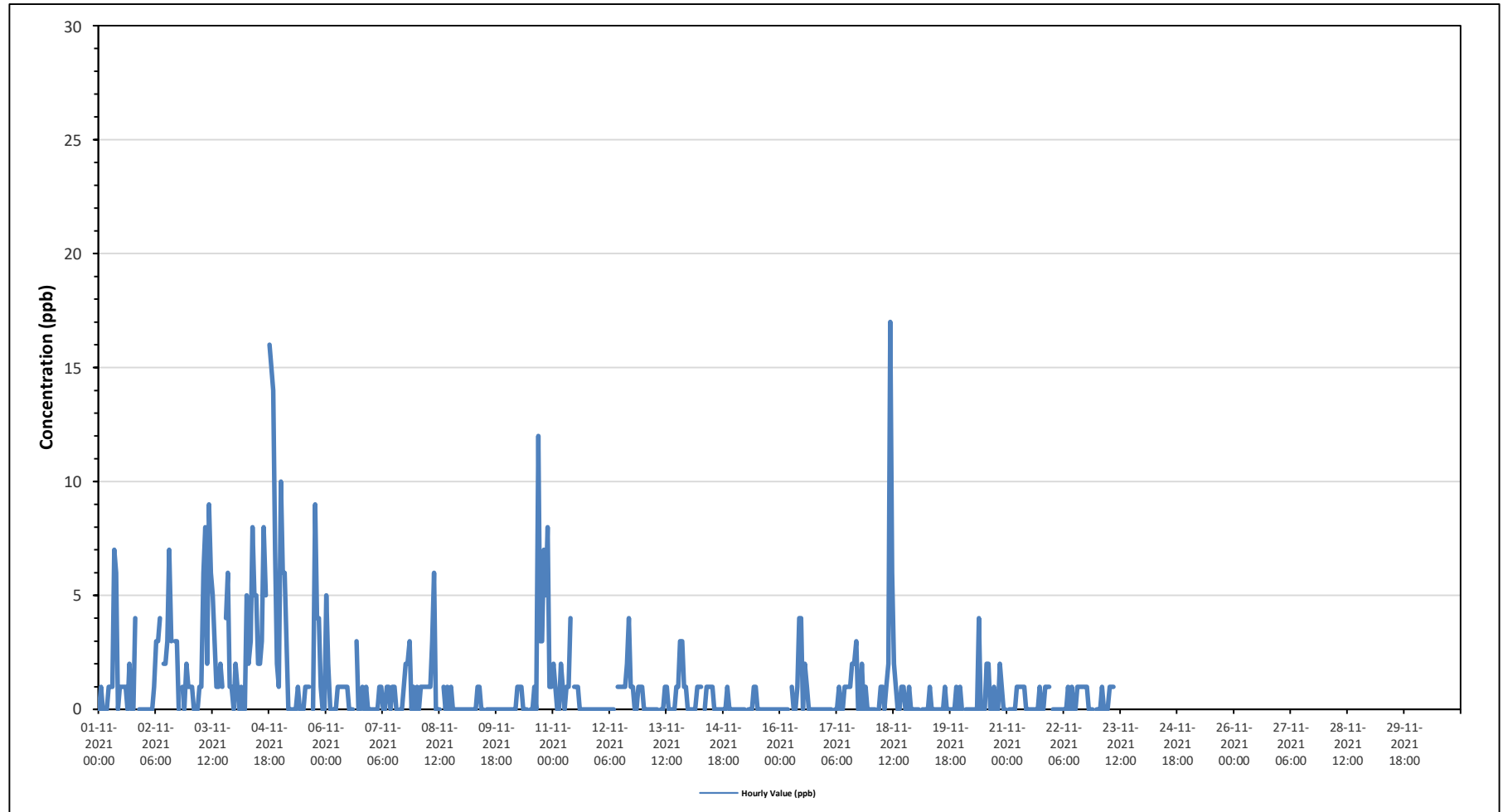
AQHI - Cadotte Lake Station - November 2021

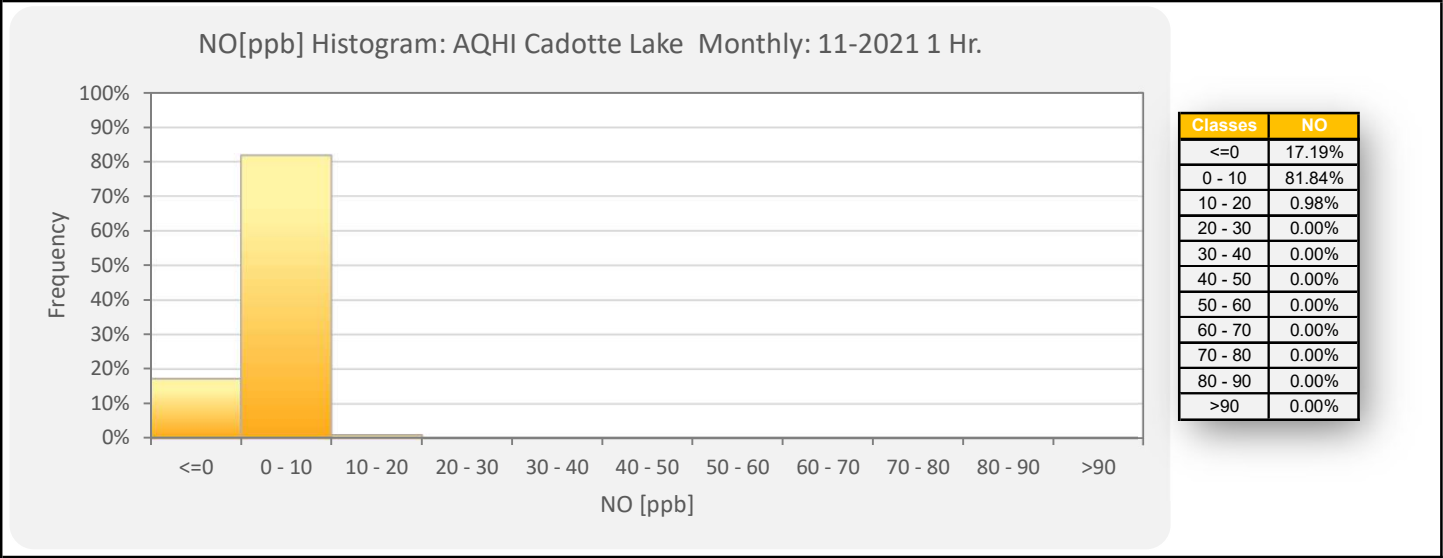
Summary of Hourly Averages

NITRIC OXIDE (NO) in ppb

Maximum Hourly Value:			17	ppb	on November 18 at hour 10										Hours in Service:			720									
Maximum Daily Value:			4.7	ppb	on November 4										Hours of Data:			512									
Minimum Hourly Value:			0	ppb	on November 1 at hour 0										Hours of Missing Data:			2									
Minimum Daily Value:			0.1	ppb	on November 9										Hours of Calibration:			28									
Monthly Average:			1.0	ppb											Operational Uptime:			75.0									
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
Nov 1	0	1	0	0	0	1	1	1	7	6	0	1	1	1	0	2	0	0	4	S	0	0	0	0	0	7	1.2
Nov 2	0	0	0	0	0	1	3	3	4	X	2	2	3	7	3	Y	3	3	0	S	1	0	2	1	0	7	1.8
Nov 3	1	1	0	0	0	1	1	6	8	2	9	6	5	3	1	1	2	1	S	4	6	1	1	0	0	9	2.6
Nov 4	2	1	0	1	0	0	5	2	3	8	5	5	2	2	3	8	5	S	16	15	14	7	2	1	0	16	4.7
Nov 5	10	6	6	3	0	0	0	0	0	1	0	0	0	1	1	1	S	0	9	4	4	1	0	0	0	10	2.0
Nov 6	5	2	0	0	0	0	1	1	1	1	1	1	0	0	0	S	3	0	0	1	0	1	0	0	0	5	0.8
Nov 7	0	0	0	0	1	1	0	0	1	1	0	1	1	0	S	0	0	1	2	2	3	0	1	0	0	3	0.7
Nov 8	1	0	1	1	1	1	1	1	3	6	0	0	0	S	1	0	1	0	1	0	0	0	0	0	0	6	0.8
Nov 9	0	0	0	0	0	0	0	0	1	1	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Nov 10	0	0	0	0	0	1	1	1	0	0	0	S	0	0	1	0	12	3	3	7	5	8	1	1	0	12	1.9
Nov 11	2	1	0	0	2	1	0	1	1	4	S	1	1	1	0	0	0	0	0	0	0	0	0	0	0	4	0.7
Nov 12	0	0	0	0	0	0	0	0	0	S	1	1	1	1	1	2	4	1	1	0	0	1	1	1	0	4	0.7
Nov 13	0	0	0	0	0	0	0	0	S	0	0	1	1	0	0	0	0	1	1	3	3	1	1	0	0	3	0.5
Nov 14	0	0	0	0	1	1	1	S	0	1	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0.3
Nov 15	0	0	0	0	0	0	S	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Nov 16	0	0	0	0	0	S	1	0	0	1	4	4	0	2	1	0	0	0	0	0	0	0	0	0	0	4	0.6
Nov 17	0	0	0	0	S	0	0	1	0	0	1	1	1	1	2	2	3	0	0	2	0	1	0	0	0	3	0.7
Nov 18	0	0	0	S	0	1	1	0	1	2	17	6	2	1	0	0	1	1	0	0	1	0	0	0	0	17	1.5
Nov 19	0	0	S	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	1	0.2
Nov 20	0	S	0	0	0	0	0	0	0	4	0	0	0	2	2	0	0	1	0	0	2	1	0	0	0	4	0.5
Nov 21	S	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	1	0	0	1	1	1	S	0	1	0.4
Nov 22	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	1	0	0	0	S	0	0	0	1	0.3
Nov 23	0	0	1	0	0	0	1	1	1	C	C	C	C	C											0	1	-
Nov 24																											
Nov 25																											
Nov 26																											
Nov 27																											
Nov 28																											
Nov 29																											
Nov 30																											
Diurnal Maximum	10	6	6	3	2	1	5	6	8	8	17	6	5	7	3	8	12	3	16	15	14	8	2	1			
Diurnal Average	1.0	0.5	0.4	0.2	0.2	0.5	0.8	0.9	1.5	2.0	2.0	1.5	0.9	1.1	0.9	0.8	1.8	0.7	1.6	2.0	2.0	1.1	0.5	0.2			
C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance								
K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance								
X	Invalid Data (Equipment Malfunction /Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)									Power Failure								
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																											
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																											

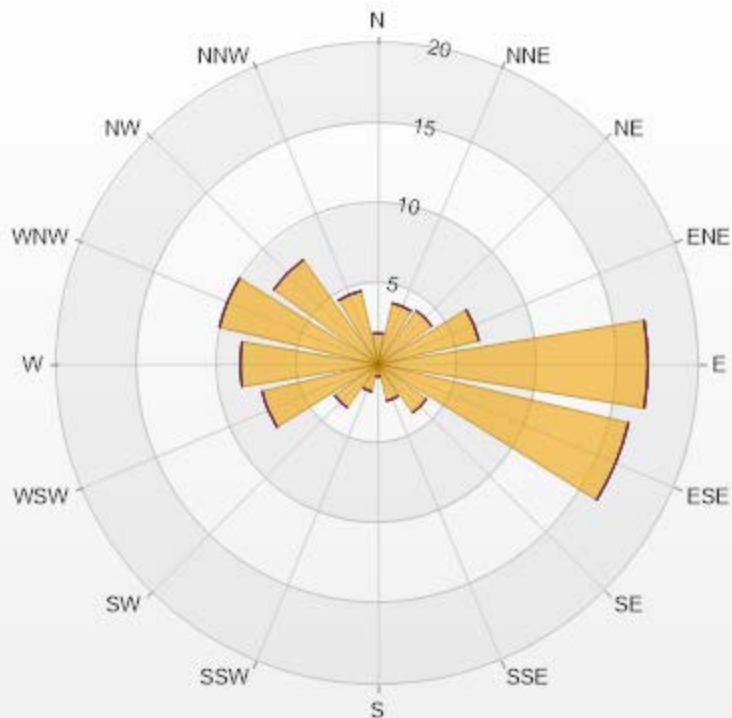
Timeseries Chart of Hourly Average for NO - AQHI - Cadotte Lake Station





Wind: AQHI Cadotte Lake Poll.: AQHI Cadotte Lake-NO[ppb] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 71.11% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	1.95	0	0	0	0	1.95
NNE	3.91	0	0	0	0	3.91
NE	4.1	0	0	0	0	4.1
ENE	6.45	0	0	0	0	6.45
E	16.8	0	0	0	0	16.8
ESE	16.02	0	0	0	0	16.02
SE	3.71	0	0	0	0	3.71
SSE	2.34	0	0	0	0	2.34
S	0.78	0	0	0	0	0.78
SSW	1.76	0	0	0	0	1.76
SW	3.32	0	0	0	0	3.32
WSW	7.42	0	0	0	0	7.42
W	8.59	0	0	0	0	8.59
WNW	10.16	0	0	0	0	10.16
NW	8.01	0	0	0	0	8.01
NNW	4.69	0	0	0	0	4.69
Summary	100	0	0	0	0	100



PRAMP-202111

Page 179 of 226

% Icon Classes (ppb)

100 0-30

0 30-50

0 50-76

0 76-159

0 >159.0



PEACE RIVER AREA MONITORING PROGRAM

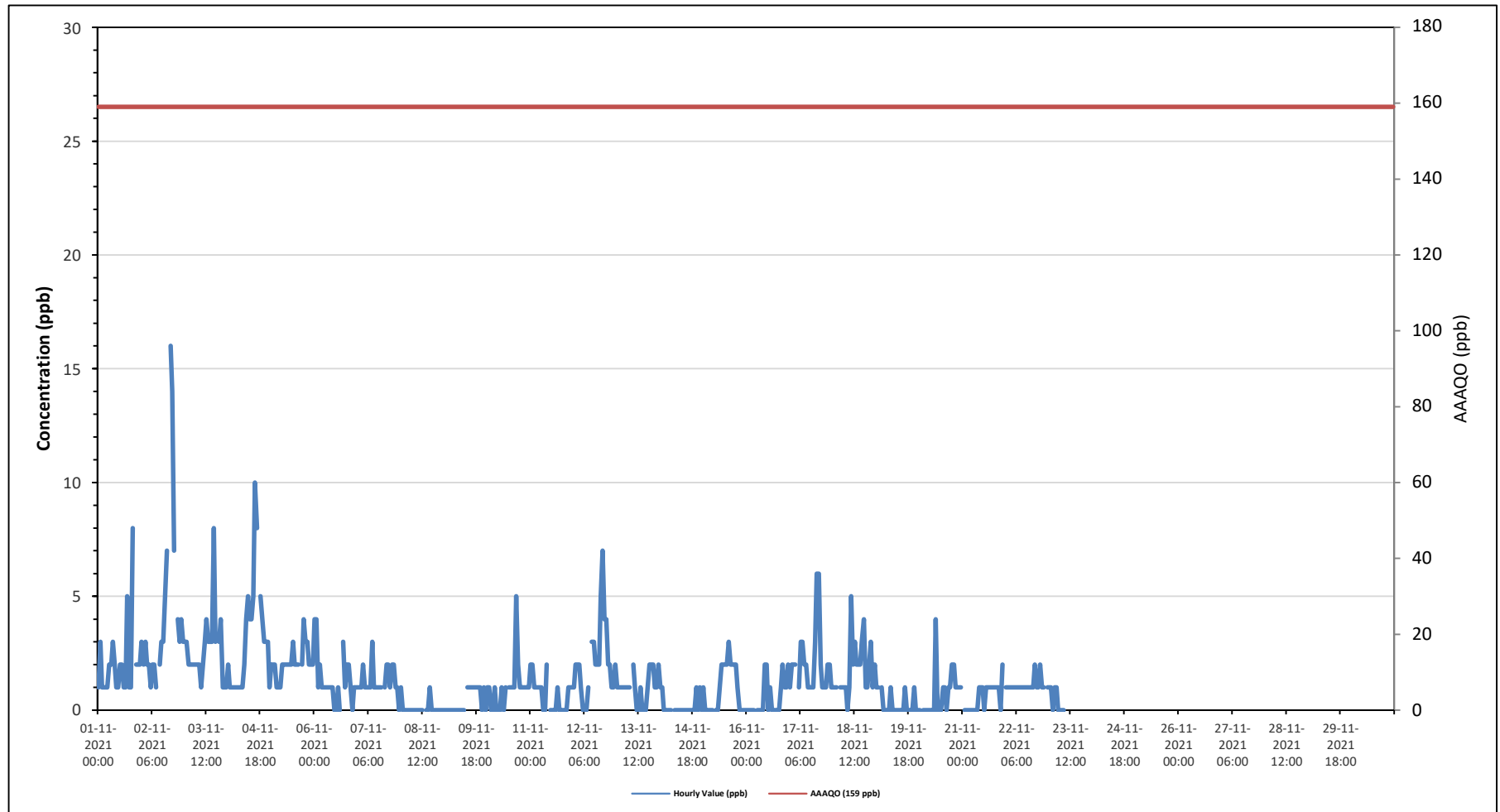
AQHI - Cadotte Lake Station - November 2021

Summary of Hourly Averages

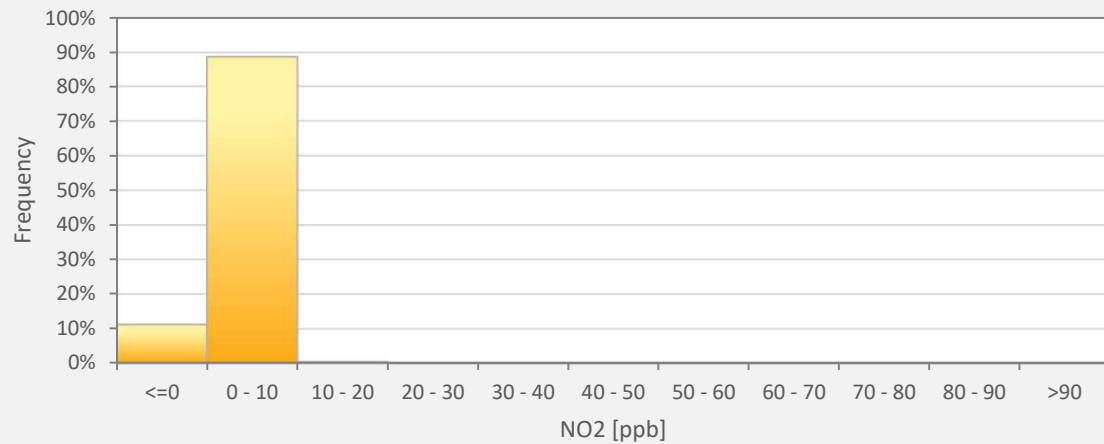
NITROGEN DIOXIDE (NO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb																														
Number of 1-Hour Exceedances: 0																														
Maximum Hourly Value: 16 ppb on November 2 at hour 16													Hours in Service: 720																	
Maximum Daily Value: 4.2 ppb on November 2													Hours of Data: 512																	
Minimum Hourly Value: 0 ppb on November 6 at hour 11													Hours of Missing Data: 2																	
Minimum Daily Value: 0.1 ppb on November 8													Hours of Calibration: 28																	
Monthly Average: 1.3 ppb													Operational Uptime: 75.0																	
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average				
Nov 1	1	3	1	1	1	1	2	2	3	2	1	1	2	2	1	1	5	1	1	8	S	2	2	2	1	8	2.0			
Nov 2	3	2	3	2	2	1	2	2	1	X	2	3	3	5	7	Y	16	14	7	S	4	3	4	3	1	16	4.2			
Nov 3	3	3	2	2	2	2	2	2	2	1	2	3	4	3	3	3	8	3	S	3	4	1	1	1	1	8	2.6			
Nov 4	2	1	1	1	1	1	1	1	1	2	4	5	4	4	5	10	8	S	5	4	3	3	3	1	1	10	3.1			
Nov 5	2	2	2	1	1	1	2	2	2	2	2	2	3	2	2	2	S	2	4	3	3	2	2	2	1	4	2.1			
Nov 6	4	4	1	2	1	1	1	1	1	1	1	0	0	1	0	S	3	1	2	2	1	0	1	1	0	4	1.3			
Nov 7	1	1	1	2	1	1	1	1	3	1	1	1	1	1	S	1	2	2	1	2	2	1	1	0	0	3	1.3			
Nov 8	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	1	0	0	0	0	0	0	0	0	1	0.1			
Nov 9	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	1	1	1	1	1	0	1	0	0	1	0.4			
Nov 10	1	1	0	0	1	0	0	0	0	1	0	1	S	1	1	1	5	2	1	1	1	1	1	0	5	1.0				
Nov 11	2	2	1	1	1	1	1	0	0	2	S	0	0	0	0	1	0	0	0	0	0	1	1	1	0	2	0.7			
Nov 12	1	2	2	2	1	0	0	0	1	S	3	3	2	2	2	5	7	4	4	2	2	1	1	2	0	7	2.1			
Nov 13	1	1	1	1	1	1	1	1	S	2	1	0	0	1	0	0	0	1	2	2	2	1	1	2	0	2	1.0			
Nov 14	1	1	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0.2				
Nov 15	1	0	0	0	0	0	S	0	0	1	2	2	2	2	3	2	2	2	2	1	0	0	0	0	3	1.0				
Nov 16	0	0	0	0	0	S	0	0	0	0	2	2	0	1	0	0	0	0	0	1	2	1	1	2	0	2	0.5			
Nov 17	1	2	2	2	S	1	3	3	2	2	1	1	1	1	3	6	6	2	1	1	1	2	2	1	1	6	2.0			
Nov 18	1	1	1	S	1	1	1	1	0	1	5	2	3	2	2	2	3	4	1	1	2	3	1	2	0	5	1.8			
Nov 19	1	1	S	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0.3			
Nov 20	0	S	0	0	0	0	0	0	0	0	4	0	0	0	1	0	1	1	2	2	1	1	1	0	4	0.7				
Nov 21	S	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	1	1	0	2	S	0	2	0.6				
Nov 22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	1	1	S	1	1	2	1.1			
Nov 23	1	1	0	1	1	0	0	0	0	C	C	C	C	C										0	1	-				
Nov 24																														
Nov 25																														
Nov 26																														
Nov 27																														
Nov 28																														
Nov 29																														
Nov 30																														
Diurnal Maximum	4	4	3	2	2	2	3	3	3	4	5	5	4	5	7	10	16	14	7	8	4	3	4	3						
Diurnal Average	1.3	1.3	0.9	0.9	0.7	0.6	0.8	0.8	0.9	1.2	1.4	1.3	1.3	1.5	1.6	1.9	3.4	2.0	1.7	1.8	1.5	1.1	1.3	1.1						
C	Monthly Calibration									S	Daily Zero-Span Check									Q	Quality Assurance									
K	Collection Error									N	No Data (Machine Not in Service)									Y	Routine Maintenance					P	Power Failure			
X	Invalid Data (Equipment Malfunction /Recovery)									NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																			
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																														
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																														

Timeseries Chart of Hourly Average for NO2 - AQHI - Cadotte Lake Station



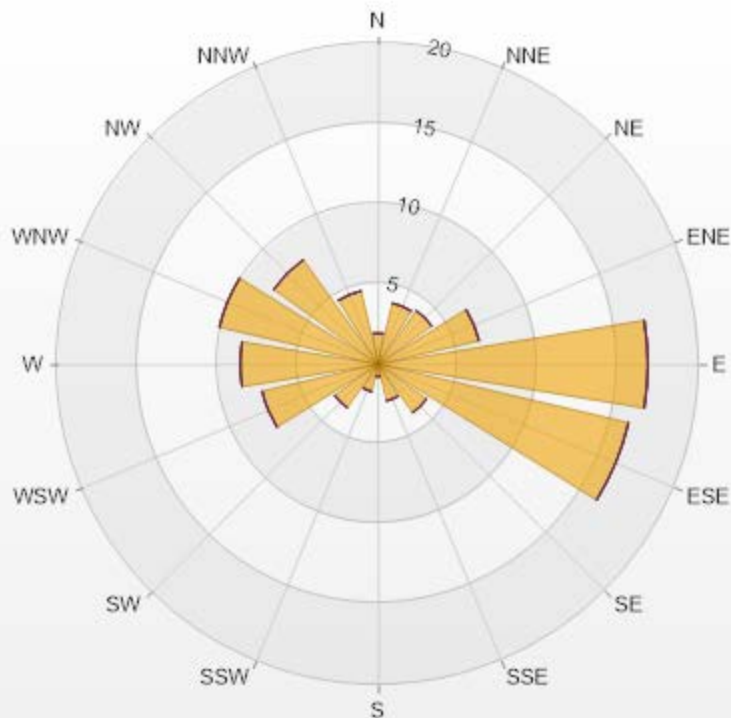
NO2[ppb] Histogram: AQHI Cadotte Lake Monthly: 11-2021 1 Hr.



Classes	NO2
<=0	11.13%
0 - 10	88.48%
10 - 20	0.39%
20 - 30	0.00%
30 - 40	0.00%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: AQHI Cadotte Lake Poll.: AQHI Cadotte Lake-NO2[ppb] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 71.11% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	1.95	0	0	0	0	1.95
NNE	3.91	0	0	0	0	3.91
NE	4.1	0	0	0	0	4.1
ENE	6.45	0	0	0	0	6.45
E	16.8	0	0	0	0	16.8
ESE	16.02	0	0	0	0	16.02
SE	3.71	0	0	0	0	3.71
SSE	2.34	0	0	0	0	2.34
S	0.78	0	0	0	0	0.78
SSW	1.76	0	0	0	0	1.76
SW	3.32	0	0	0	0	3.32
WSW	7.42	0	0	0	0	7.42
W	8.59	0	0	0	0	8.59
WNW	10.16	0	0	0	0	10.16
NW	8.01	0	0	0	0	8.01
NNW	4.69	0	0	0	0	4.69
Summary	100	0	0	0	0	100



PRAMP-202111

Page 184 of 226

% Icon Classes (ppb)

100 0-30

0 30-50

0 50-76

0 76-159

0 >159.0



PEACE RIVER AREA MONITORING PROGRAM

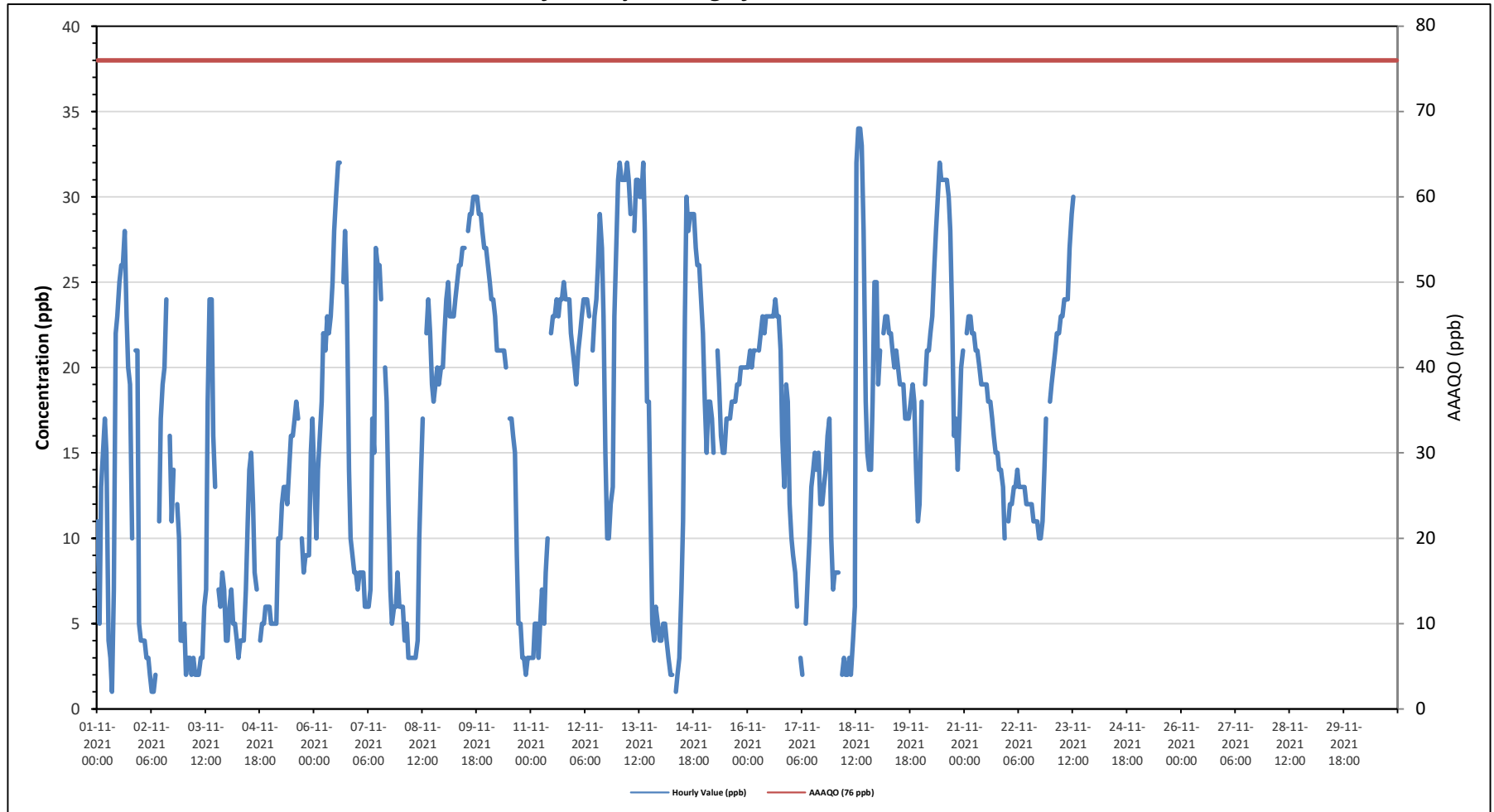
AQHI - Cadotte Lake Station - November 2021

Summary of Hourly Averages

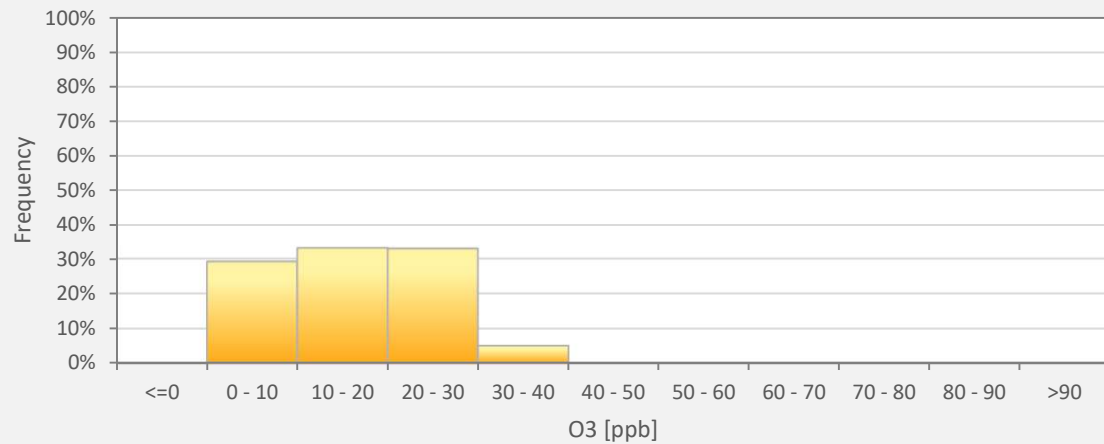
OZONE (O₃) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb																																			
Number of 1-Hour Exceedances:		0																																	
Maximum Hourly Value: 34 ppb on November 18 at hour 13														Hours in Service: 720																					
Maximum Daily Value: 26.6 ppb on November 9														Hours of Data: 515																					
Minimum Hourly Value: 1 ppb on November 1 at hour 8														Hours of Missing Data: 3																					
Minimum Daily Value: 6.6 ppb on November 4														Hours of Calibration: 26																					
Monthly Average: 16.0 ppb														Operational Uptime: 75.1																					
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average									
Nov 1	11	5	13	15	17	15	4	3	1	7	22	23	25	26	26	28	23	20	19	10	S	21	21	5	1	28	15.7								
Nov 2	4	4	4	3	3	2	1	1	2	X	11	17	19	20	24	Y	16	11	14	S	12	10	4	4	1	24	8.9								
Nov 3	5	2	3	3	2	3	2	2	2	3	3	6	7	18	24	24	16	13	S	7	6	8	7	4	2	24	7.4								
Nov 4	4	6	7	5	5	4	3	4	4	4	7	11	14	15	12	8	7	S	4	5	5	6	6	6	3	15	6.6								
Nov 5	5	5	5	5	10	10	12	13	13	12	14	16	16	17	18	17	S	10	8	9	9	9	15	17	5	18	11.5								
Nov 6	13	10	14	16	18	22	21	23	22	23	25	28	30	32	32	S	25	28	24	14	10	9	8	8	8	32	19.8								
Nov 7	7	8	8	8	6	6	6	7	17	15	27	26	26	24	S	20	18	12	7	5	6	6	8	6	5	27	12.1								
Nov 8	6	6	4	5	3	3	3	3	3	4	10	14	17	S	22	24	22	19	18	19	20	19	20	20	3	24	12.3								
Nov 9	22	24	25	23	23	23	24	25	26	26	27	27	S	28	29	29	30	30	30	29	29	28	27	27	22	30	26.6								
Nov 10	26	25	24	24	23	21	21	21	21	21	20	S	17	17	16	15	9	5	5	3	3	2	3	3	2	26	15.0								
Nov 11	3	3	5	5	3	5	7	5	8	10	S	22	23	23	24	23	24	24	25	24	24	24	22	21	3	25	15.5								
Nov 12	20	19	21	22	23	24	24	24	23	S	21	23	24	26	29	27	23	15	10	10	12	13	23	27	10	29	21.0								
Nov 13	31	32	31	31	31	32	31	29	S	28	31	31	30	30	32	28	18	18	12	5	4	6	5	4	4	32	23.0								
Nov 14	4	5	5	4	3	2	2	S	1	2	3	7	11	23	30	28	29	29	29	27	26	26	24	22	1	30	14.9								
Nov 15	18	15	18	18	17	15	S	21	19	16	15	15	17	17	17	18	18	18	19	19	20	20	20	20	15	21	17.8								
Nov 16	20	21	20	21	21	S	21	22	23	22	23	23	23	23	23	24	23	23	21	16	13	19	18	12	12	24	20.7								
Nov 17	10	9	8	6	S	3	2	NRM	5	8	10	13	14	15	14	15	12	12	13	14	16	17	10	7	2	17	10.6								
Nov 18	8	8	8	S	2	3	2	2	3	2	4	6	32	34	34	33	28	18	15	14	14	18	25	25	2	34	14.7								
Nov 19	19	21	S	22	23	23	22	22	21	20	21	20	19	19	19	17	17	17	18	19	18	14	11	12	11	23	18.9								
Nov 20	18	S	19	21	21	22	23	26	28	30	32	31	31	31	31	30	28	23	16	17	14	17	20	21	14	32	23.9								
Nov 21	S	22	23	23	22	22	21	21	20	19	19	19	19	18	18	17	16	15	15	14	14	13	10	S	10	23	18.2								
Nov 22	11	12	12	13	13	14	13	13	13	13	12	12	12	12	11	11	11	10	10	11	14	17	S	18	10	18	12.5								
Nov 23	19	20	21	22	22	23	23	24	24	24	27	29	30	C	C	C									19	30	-								
Nov 24																																			
Nov 25																																			
Nov 26																																			
Nov 27																																			
Nov 28																																			
Nov 29																																			
Nov 30																																			
Diurnal Maximum	31	32	31	31	31	32	31	29	28	30	32	31	32	34	34	33	30	30	30	29	29	28	27	27											
Diurnal Average	12.9	12.8	13.5	14.3	14.1	13.5	13.1	14.8	13.6	14.7	17.5	19.0	20.7	22.3	23.1	21.8	19.7	17.6	15.8	13.9	13.8	14.6	14.6	13.8											
C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance																
K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance								P	Power Failure							
X	InValid Data (Equipment Malfunction /Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																									
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																			
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																			

Timeseries Chart of Hourly Average for O3 - AQHI - Cadotte Lake Station



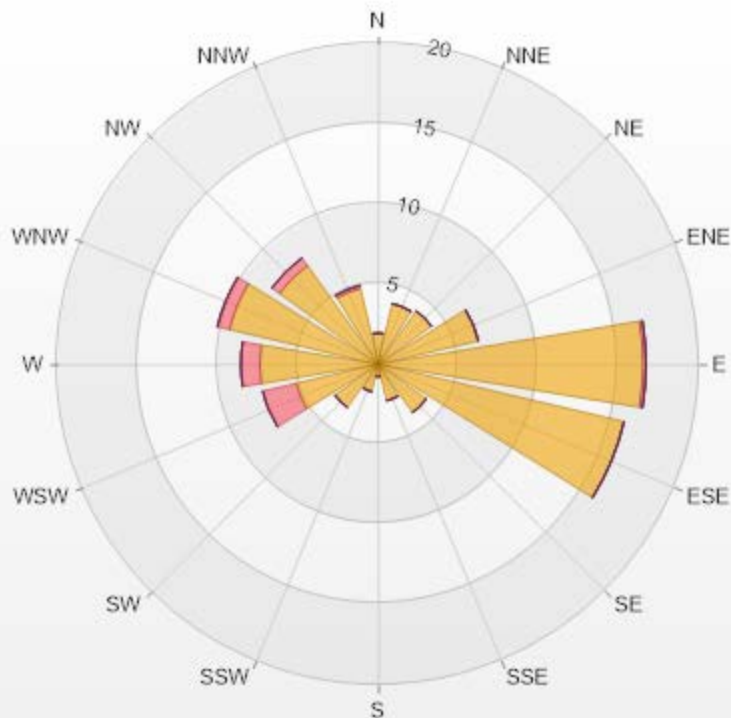
O3[ppb] Histogram: AQHI Cadotte Lake Monthly: 11-2021 1 Hr.



Classes	O3
<=0	0.00%
0 - 10	29.13%
10 - 20	33.01%
20 - 30	32.82%
30 - 40	5.05%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: AQHI Cadotte Lake Poll.: AQHI Cadotte Lake-O3[ppb] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 71.53% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	1.94	0	0	0	0	1.94
NNE	3.88	0	0	0	0	3.88
NE	4.08	0	0	0	0	4.08
ENE	6.41	0	0	0	0	6.41
E	16.5	0.19	0	0	0	16.69
ESE	15.73	0	0	0	0	15.73
SE	3.69	0	0	0	0	3.69
SSE	2.33	0	0	0	0	2.33
S	0.78	0	0	0	0	0.78
SSW	1.75	0	0	0	0	1.75
SW	3.3	0	0	0	0	3.3
WSW	5.24	2.14	0	0	0	7.38
W	7.38	1.17	0	0	0	8.55
WNW	9.51	0.78	0	0	0	10.29
NW	7.57	0.58	0	0	0	8.15
NNW	4.85	0.19	0	0	0	5.04
Summary	94.94	5.05	0	0	0	100



PRAMP-202111

Page 189 of 226

% Icon Classes (ppb)

95 0-30

5 30-50

0 50-76

0 76-159

0 >159.0



PEACE RIVER AREA MONITORING PROGRAM

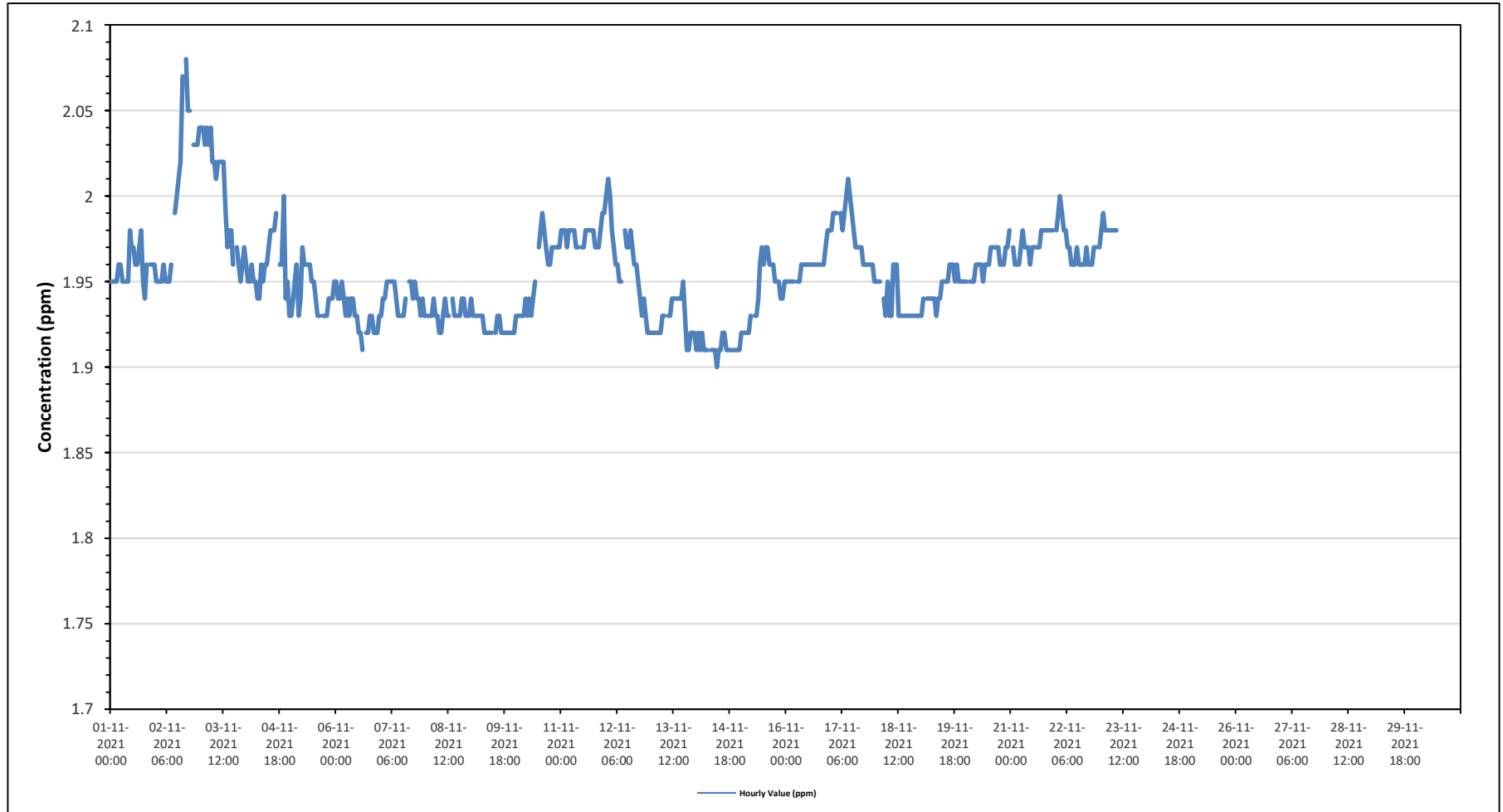
AQHI - Cadotte Lake Station - November 2021

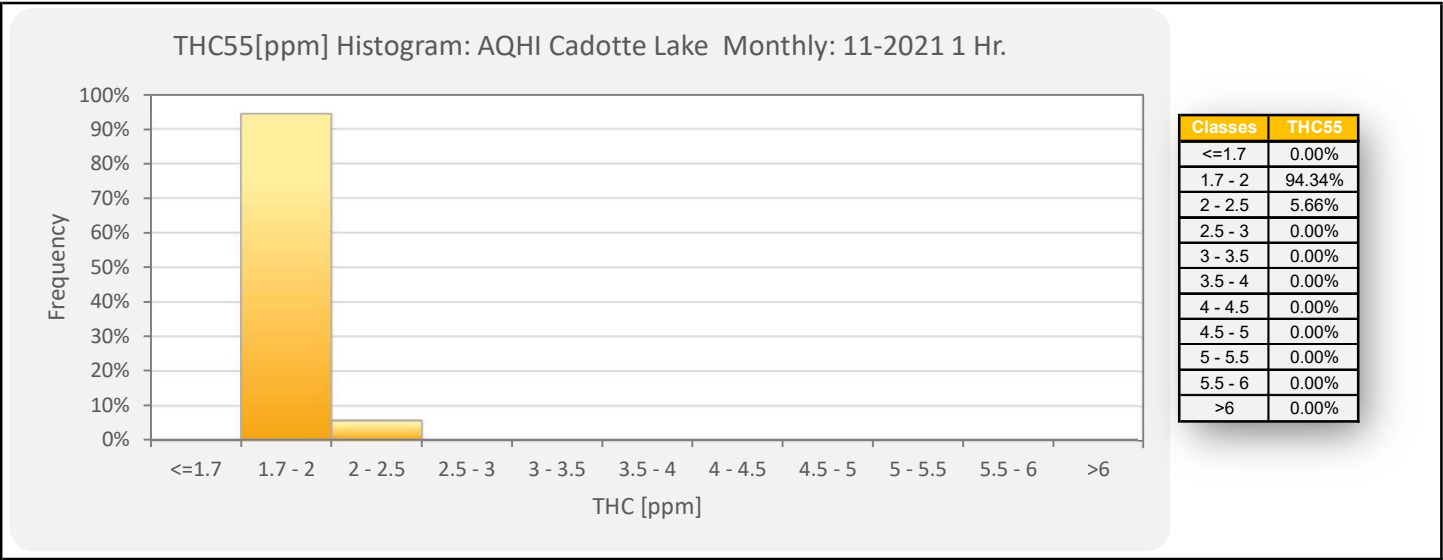
Summary of Hourly Averages

TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:										2.08 ppm on November 2 at hour 16		Hours in Service:										720							
Maximum Daily Value:										2.00 ppm on November 3		Hours of Data:										512							
Minimum Hourly Value:										1.90 ppm on November 14 at hour 11		Hours of Missing Data:										2							
Minimum Daily Value:										1.91 ppm on November 14		Hours of Calibration:										25							
Monthly Average:										1.95 ppm		Operational Uptime:										74.6							
Day Nov 1 Nov 2 Nov 3 Nov 4 Nov 5 Nov 6 Nov 7 Nov 8 Nov 9 Nov 10 Nov 11 Nov 12 Nov 13 Nov 14 Nov 15 Nov 16 Nov 17 Nov 18 Nov 19 Nov 20 Nov 21 Nov 22 Nov 23 Nov 24 Nov 25 Nov 26 Nov 27 Nov 28 Nov 29 Nov 30	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					
	1.95	1.95	1.95	1.95	1.96	1.96	1.95	1.95	1.95	1.95	1.98	1.97	1.97	1.96	1.96	1.97	1.98	1.95	1.94	1.96	S	1.96	1.96	1.96	1.94	1.98	1.96		
	1.95	1.95	1.95	1.95	1.96	1.95	1.95	1.95	1.96	X	1.99	2.00	2.01	2.02	2.07	Y	2.08	2.05	2.05	S	2.03	2.03	2.03	2.04	1.95	2.08	2.00		
	2.04	2.04	2.03	2.04	2.03	2.04	2.02	2.02	2.01	2.02	2.02	2.02	2.02	1.99	1.97	1.98	1.98	1.96	S	1.97	1.96	1.95	1.96	1.97	1.95	2.04	2.00		
	1.96	1.95	1.95	1.96	1.95	1.95	1.94	1.94	1.96	1.95	1.96	1.96	1.97	1.98	1.98	1.98	1.99	S	1.96	1.96	2.00	1.94	1.95	1.93	1.93	2.00	1.96		
	1.93	1.94	1.95	1.96	1.93	1.94	1.97	1.96	1.96	1.96	1.96	1.95	1.95	1.94	1.93	1.93	S	1.93	1.93	1.93	1.94	1.94	1.94	1.95	1.93	1.97	1.94		
	1.95	1.94	1.94	1.95	1.94	1.93	1.94	1.93	1.94	1.94	1.93	1.93	1.93	1.92	1.92	1.91	S	1.92	1.92	1.93	1.93	1.92	1.92	1.92	1.93	1.91	1.95	1.93	
	1.93	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.94	1.93	1.93	1.93	1.93	1.94	S	1.95	1.95	1.94	1.95	1.94	1.94	1.94	1.93	1.94	1.93	1.93	1.95	1.94	
	1.93	1.93	1.93	1.93	1.94	1.93	1.93	1.92	1.92	1.93	1.94	1.93	1.93	S	1.94	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.93	1.93	1.93	1.92	1.94	1.93	
	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.92	1.92	1.92	1.92	1.92	S	1.92	1.93	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.94	1.92
	1.93	1.93	1.93	1.93	1.93	1.94	1.93	1.94	1.93	1.94	1.93	1.94	S	1.97	1.98	1.99	1.98	1.97	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.93	1.99	1.95	
	1.98	1.98	1.98	1.97	1.98	1.98	1.98	1.98	1.97	1.97	S	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.97	1.97	1.97	1.98	1.99	1.99	1.97	1.99	1.98	
	2.00	2.01	2.00	1.98	1.97	1.96	1.96	1.95	1.95	S	1.98	1.97	1.97	1.97	1.98	1.97	1.96	1.96	1.95	1.94	1.93	1.94	1.93	1.92	1.92	1.92	2.01	1.96	
	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.93	S	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.93	1.91	1.91	1.92	1.92	1.92	1.91	1.95	1.93	
	1.91	1.92	1.91	1.92	1.91	1.91	1.91	S	1.91	1.91	1.91	1.90	1.91	1.91	1.92	1.92	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.90	1.92	1.91	
	1.92	1.92	1.92	1.92	1.92	1.92	1.93	S	1.93	1.93	1.94	1.96	1.97	1.96	1.97	1.97	1.96	1.96	1.96	1.95	1.95	1.95	1.94	1.94	1.95	1.92	1.97	1.94	
	1.95	1.95	1.95	1.95	1.95	S	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.98	1.98	1.95	1.98	1.96	
	1.98	1.99	1.99	1.99	S	1.99	1.98	1.99	2.00	2.01	2.00	1.99	1.98	1.97	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.96	1.96	1.95	1.95	1.95	2.01	1.98	
	1.95	1.95	1.95	S	1.94	1.93	1.95	1.93	1.93	1.96	1.96	1.96	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.96	1.94	
	1.93	1.94	S	1.94	1.94	1.94	1.94	1.94	1.93	1.94	1.94	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.95	1.96	1.95	1.95	1.95	1.95	1.93	1.96	1.95	
	1.95	S	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.95	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.97	1.97	1.98	1.95	1.98	1.96	
	S	1.97	1.96	1.96	1.96	1.97	1.98	1.97	1.97	1.97	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.98	S	1.96	1.98	1.97		
	1.98	1.99	2.00	1.99	1.98	1.98	1.97	1.97	1.96	1.96	1.96	1.96	1.97	1.96	1.96	1.96	1.96	1.97	1.96	1.96	1.96	1.97	S	1.97	1.96	2.00	1.97		
	1.98	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	C	C														1.98	1.99	-		
	Diurnal Maximum	2.04	2.04	2.03	2.04	2.03	2.04	2.02	2.02	2.01	2.02	2.02	2.02	2.02	2.02	2.07	1.98	2.08	2.05	2.05	1.98	2.03	2.03	2.03	2.04				
	Diurnal Average	1.95	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.95	1.95					
	C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance									
	K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance									
	X	Invalid Data (Equipment Malfunction /Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)									Power Failure									
	Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																												
	Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																												

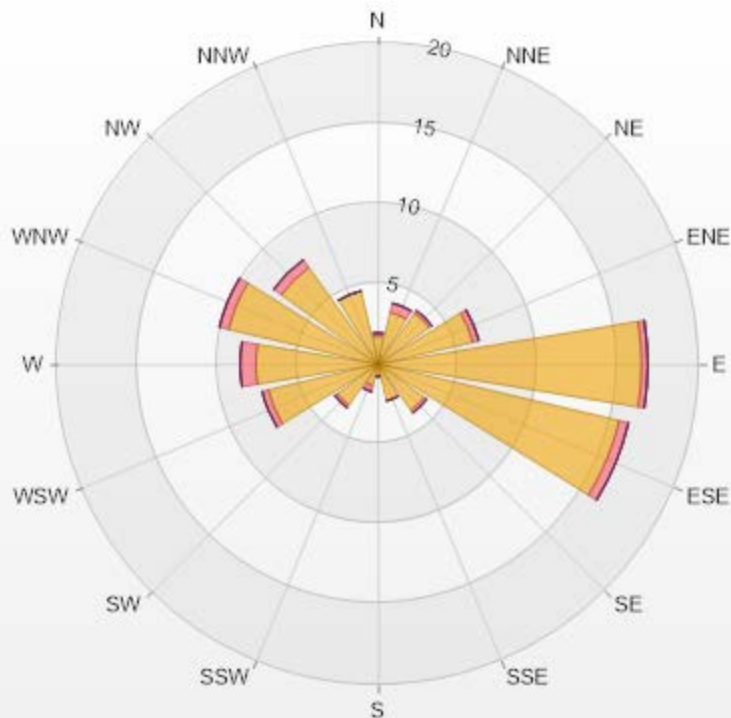
Timeseries Chart of Hourly Average for THC - AQHI - Cadotte Lake Station





Wind: AQHI Cadotte Lake Poll.: AQHI Cadotte Lake-THC55[ppm] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 71.11% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	1.76	0.2	0	0	0	1.96
NNE	3.32	0.59	0	0	0	3.91
NE	3.91	0.2	0	0	0	4.11
ENE	6.05	0.39	0	0	0	6.44
E	16.41	0.39	0	0	0	16.8
ESE	15.43	0.59	0	0	0	16.02
SE	3.52	0.2	0	0	0	3.72
SSE	2.34	0	0	0	0	2.34
S	0.78	0	0	0	0	0.78
SSW	1.37	0.39	0	0	0	1.76
SW	3.13	0.2	0	0	0	3.33
WSW	7.03	0.39	0	0	0	7.42
W	7.62	0.98	0	0	0	8.6
WNW	9.57	0.59	0	0	0	10.16
NW	7.42	0.59	0	0	0	8.01
NNW	4.69	0	0	0	0	4.69
Summary	94.35	5.7	0	0	0	100



PRAMP-202111

Page 194 of 226

% Icon Classes (ppm)

94 0-2

6 2-5

0 5-10

0 10-40

0 >40.0



PEACE RIVER AREA MONITORING PROGRAM

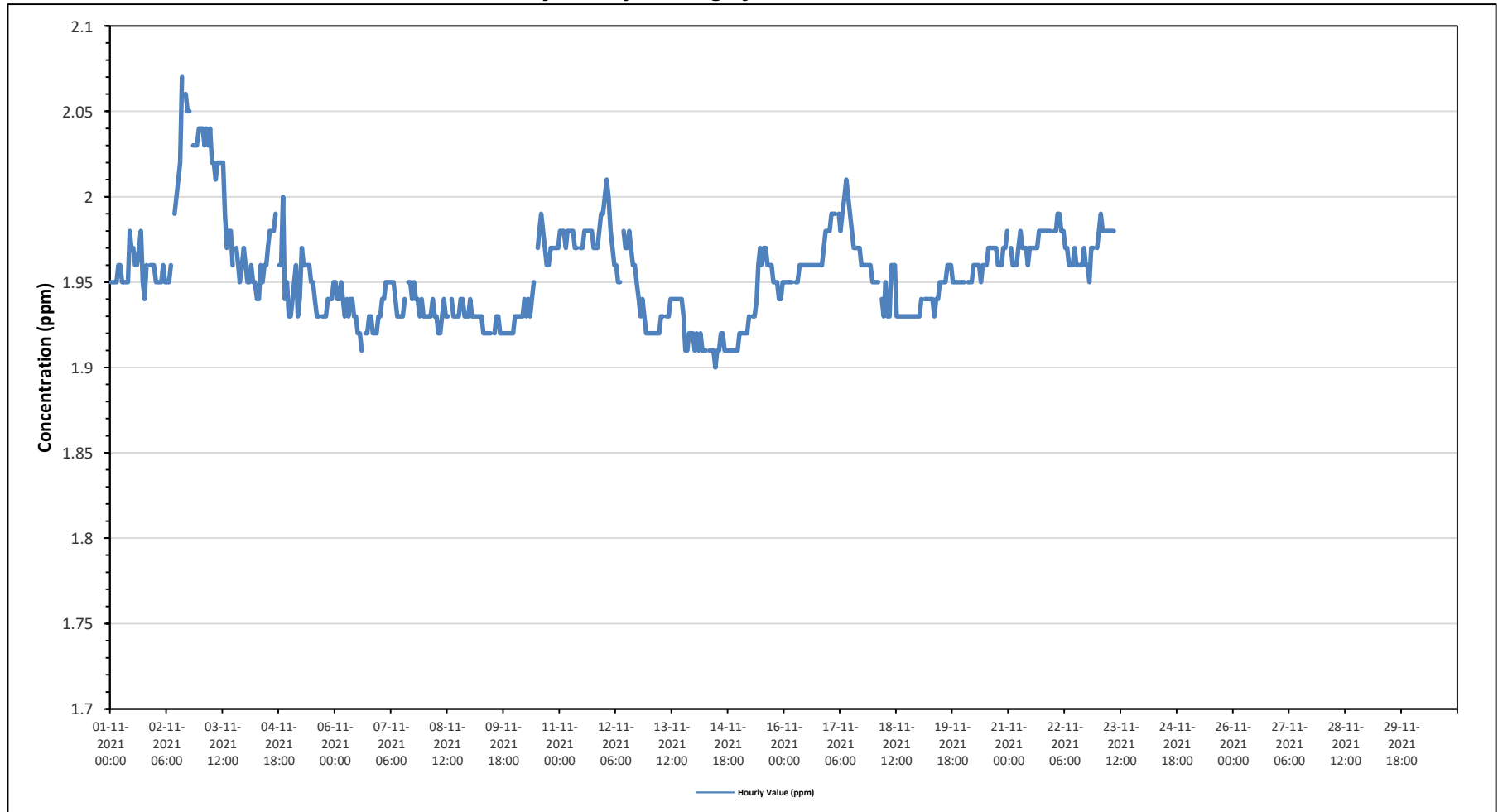
AQHI - Cadotte Lake Station - November 2021

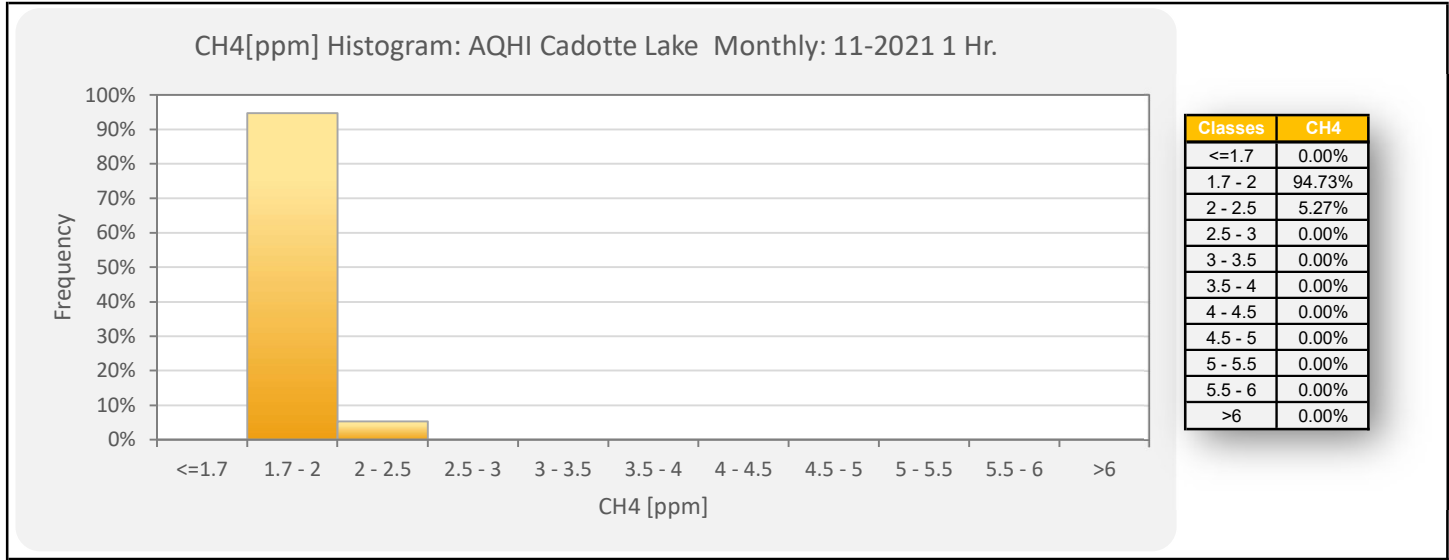
Summary of Hourly Averages

METHANE (CH4) in ppm

Maximum Hourly Value: 2.07 ppm on November 2 at hour 14														Hours in Service: 720															
Maximum Daily Value: 2.00 ppm on November 3														Hours of Data: 512															
Minimum Hourly Value: 1.90 ppm on November 14 at hour 11														Hours of Missing Data: 2															
Minimum Daily Value: 1.91 ppm on November 14														Hours of Calibration: 25															
Monthly Average: 1.95 ppm														Operational Uptime: 74.6															
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
Nov 1	1.95	1.95	1.95	1.95	1.96	1.96	1.95	1.95	1.95	1.95	1.95	1.98	1.97	1.97	1.96	1.96	1.97	1.98	1.95	1.94	1.96	S	1.96	1.96	1.96	1.94	1.98	1.96	
Nov 2	1.95	1.95	1.95	1.95	1.96	1.95	1.95	1.95	1.96	X	1.99	2.00	2.01	2.02	2.02	2.07	Y	2.06	2.05	2.05	S	2.03	2.03	2.03	2.04	1.95	2.07	2.00	
Nov 3	2.04	2.04	2.03	2.04	2.03	2.04	2.02	2.02	2.01	2.02	2.02	2.02	2.02	1.99	1.97	1.98	1.98	1.96	S	1.97	1.96	1.95	1.96	1.97	1.95	2.04	2.00		
Nov 4	1.96	1.95	1.95	1.96	1.95	1.95	1.94	1.94	1.96	1.95	1.96	1.96	1.97	1.98	1.98	1.98	1.99	S	1.96	1.96	2.00	1.94	1.95	1.93	1.93	2.00	1.96		
Nov 5	1.93	1.94	1.95	1.96	1.93	1.94	1.97	1.96	1.96	1.96	1.96	1.95	1.95	1.94	1.93	1.93	S	1.93	1.93	1.93	1.94	1.94	1.94	1.95	1.93	1.97	1.94		
Nov 6	1.95	1.94	1.94	1.95	1.94	1.93	1.94	1.93	1.94	1.94	1.93	1.93	1.92	1.92	1.91	S	1.92	1.92	1.93	1.93	1.92	1.92	1.92	1.92	1.93	1.91	1.95	1.93	
Nov 7	1.93	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.94	1.93	1.93	1.93	1.93	1.94	S	1.95	1.95	1.94	1.95	1.94	1.94	1.94	1.93	1.94	1.93	1.93	1.95	1.94	
Nov 8	1.93	1.93	1.93	1.93	1.94	1.93	1.93	1.92	1.92	1.93	1.94	1.93	1.93	S	1.94	1.93	1.93	1.93	1.93	1.94	1.94	1.93	1.93	1.93	1.92	1.94	1.93		
Nov 9	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.92	1.92	1.92	1.92	1.92	S	1.92	1.93	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.94	1.92	
Nov 10	1.93	1.93	1.93	1.93	1.93	1.94	1.93	1.94	1.93	1.94	1.95	S	1.97	1.98	1.99	1.98	1.97	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.93	1.99	1.95		
Nov 11	1.98	1.98	1.98	1.97	1.98	1.98	1.98	1.98	1.97	1.97	S	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.97	1.97	1.97	1.98	1.99	1.97	1.99	1.98		
Nov 12	2.00	2.01	2.00	1.98	1.97	1.96	1.96	1.95	1.95	S	1.98	1.97	1.97	1.97	1.98	1.97	1.96	1.96	1.95	1.94	1.93	1.94	1.93	1.92	1.92	1.92	2.01	1.96	
Nov 13	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.93	S	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.93	1.91	1.91	1.92	1.92	1.92	1.92	1.91	1.94	1.93	
Nov 14	1.91	1.92	1.91	1.92	1.91	1.91	1.91	S	1.91	1.91	1.91	1.90	1.91	1.91	1.92	1.92	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.90	1.92	1.91		
Nov 15	1.92	1.92	1.92	1.92	1.92	1.93	S	1.93	1.93	1.93	1.94	1.96	1.97	1.96	1.97	1.97	1.96	1.96	1.96	1.95	1.95	1.95	1.94	1.94	1.95	1.92	1.97	1.94	
Nov 16	1.95	1.95	1.95	1.95	1.95	S	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.98	1.98	1.95	1.98	1.96	
Nov 17	1.98	1.99	1.99	1.99	S	1.99	1.98	1.99	2.00	2.01	2.00	1.99	1.98	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.95	2.01	1.98	1.98	
Nov 18	1.95	1.95	1.95	S	1.94	1.93	1.95	1.93	1.93	1.96	1.96	1.96	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.96	1.94	
Nov 19	1.93	1.94	S	1.94	1.94	1.94	1.94	1.94	1.93	1.94	1.94	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.93	1.96	1.95	
Nov 20	1.95	S	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.95	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.97	1.97	1.98	1.95	1.98	1.96		
Nov 21	S	1.97	1.96	1.96	1.96	1.97	1.98	1.97	1.97	1.97	1.96	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.98	S	1.96	1.98	1.97		
Nov 22	1.98	1.98	1.99	1.99	1.98	1.98	1.97	1.97	1.96	1.96	1.96	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.97	1.97	S	1.97	1.95	1.99	1.97	1.97		
Nov 23	1.98	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	C	C														1.98	1.99	-		
Nov 24																													
Nov 25																													
Nov 26																													
Nov 27																													
Nov 28																													
Nov 29																													
Nov 30																													
Diurnal Maximum	2.04	2.04	2.03	2.04	2.03	2.04	2.02	2.02	2.01	2.02	2.02	2.02	2.02	2.02	2.02	2.07	1.98	2.06	2.05	2.05	1.98	2.03	2.03	2.03	2.04				
Diurnal Average	1.95	1.96	1.95	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.95	1.95					
C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance										
K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance								P	Power Failure	
X	Invalid Data (Equipment Malfunction /Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																			
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																													
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																													

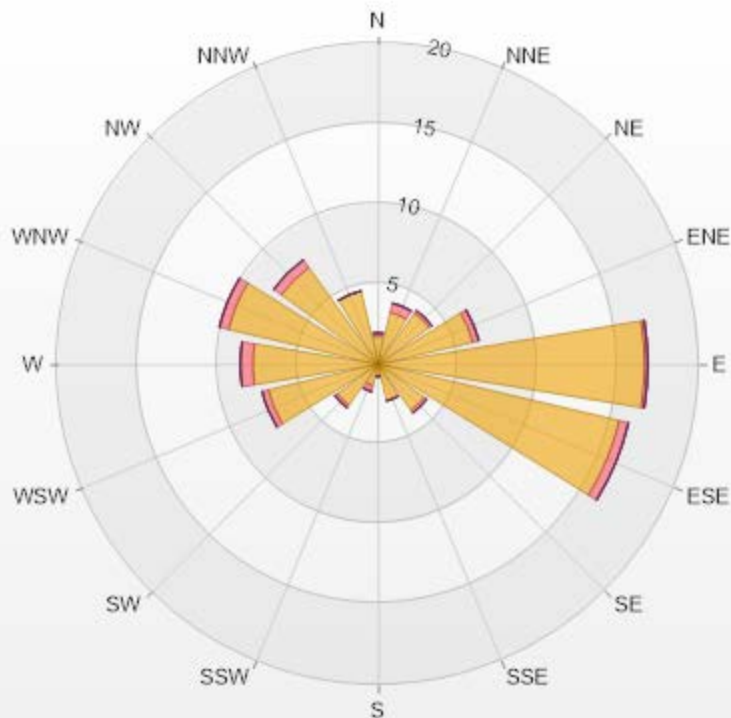
Timeseries Chart of Hourly Average for CH4 - AQHI - Cadotte Lake Station





Wind: AQHI Cadotte Lake Poll.: AQHI Cadotte Lake-CH4[ppm] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 71.11% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	1.76	0.2	0	0	0	1.96
NNE	3.32	0.59	0	0	0	3.91
NE	3.91	0.2	0	0	0	4.11
ENE	6.05	0.39	0	0	0	6.44
E	16.6	0.2	0	0	0	16.8
ESE	15.43	0.59	0	0	0	16.02
SE	3.52	0.2	0	0	0	3.72
SSE	2.34	0	0	0	0	2.34
S	0.78	0	0	0	0	0.78
SSW	1.37	0.39	0	0	0	1.76
SW	3.13	0.2	0	0	0	3.33
WSW	7.03	0.39	0	0	0	7.42
W	7.81	0.78	0	0	0	8.59
WNW	9.57	0.59	0	0	0	10.16
NW	7.42	0.59	0	0	0	8.01
NNW	4.69	0	0	0	0	4.69
Summary	94.73	5.31	0	0	0	100



PRAMP-202111

Page 199 of 226

% Icon Classes (ppm)

95 0-2

5 2-5

0 5-10

0 10-20

0 >20.0



PEACE RIVER AREA MONITORING PROGRAM

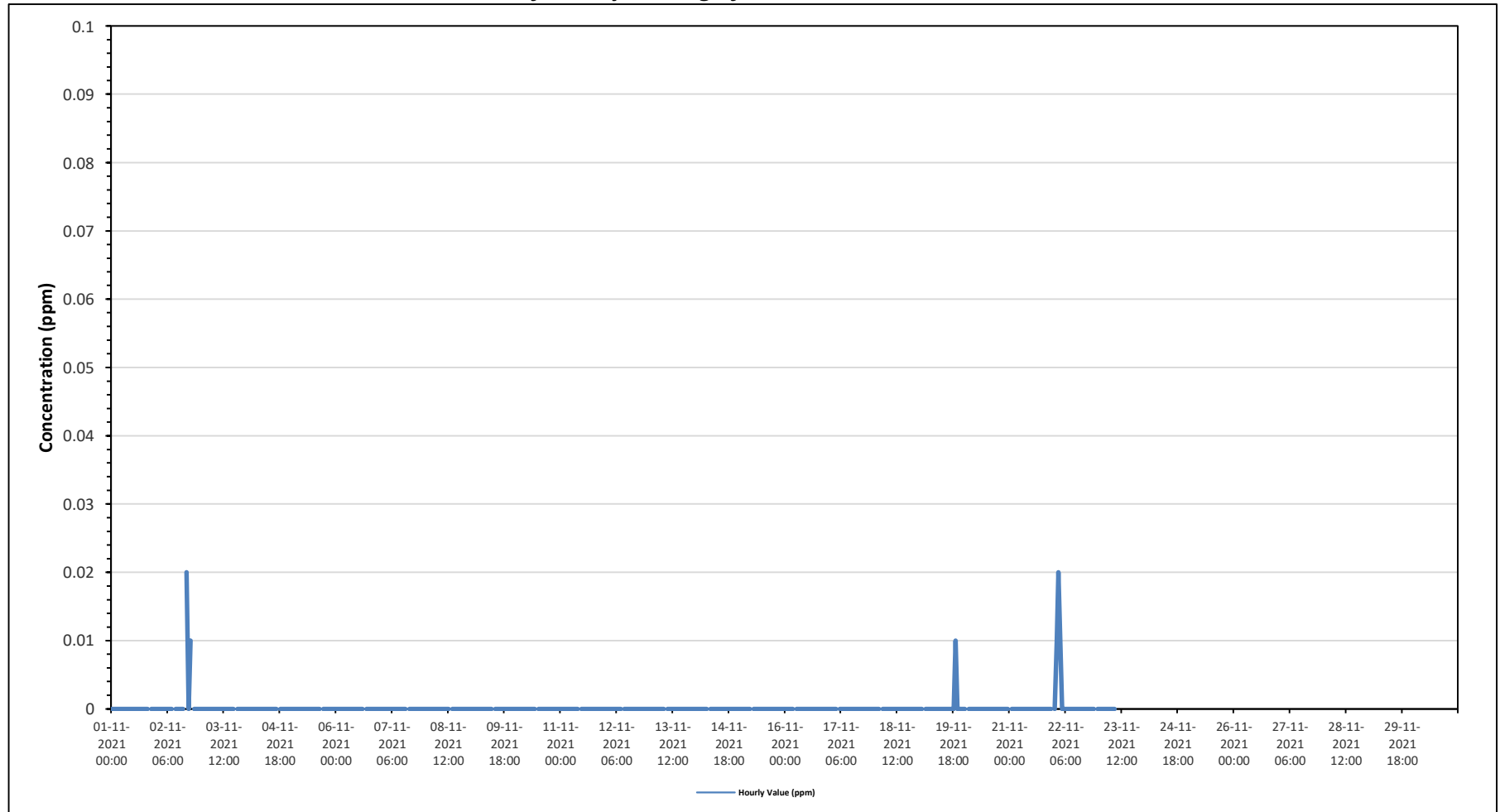
AQHI - Cadotte Lake Station - November 2021

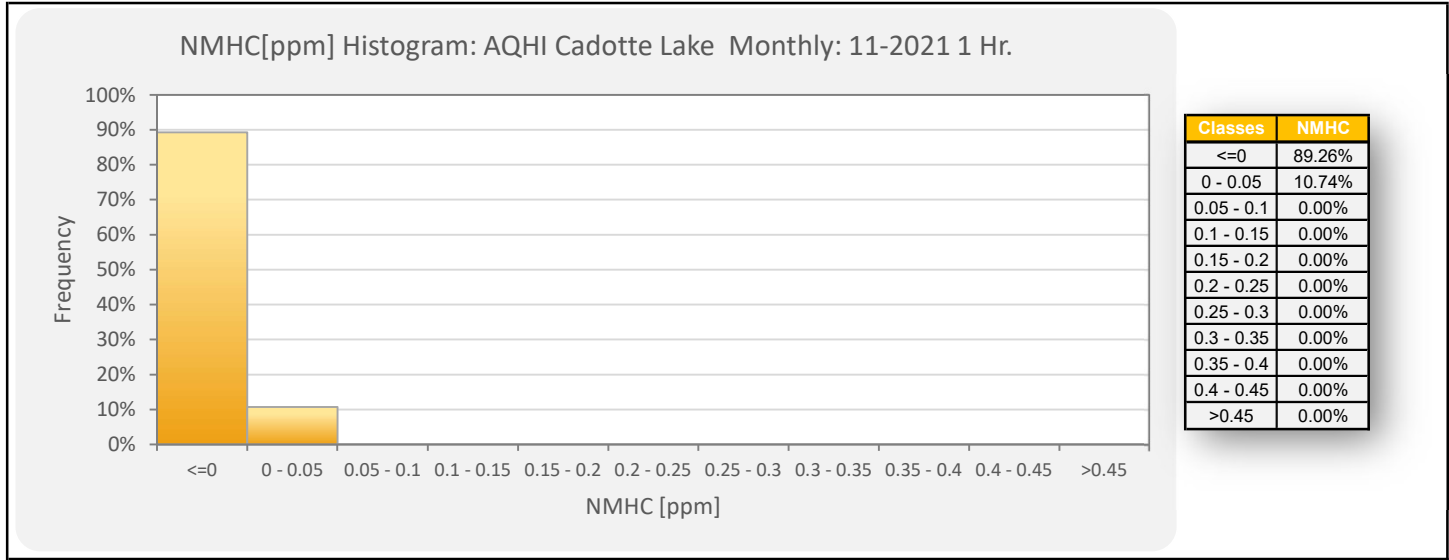
Summary of Hourly Averages

NON-METHANE HYDROCARBONS (NMHC) in ppm

Maximum Hourly Value:				0.02	ppm	on November 2 at hour 16				Hours in Service:				720															
Maximum Daily Value:				0.00	ppm	on November 22				Hours of Data:				512															
Minimum Hourly Value:				0.00	ppm	on November 1 at hour 0				Hours of Missing Data:				2															
Minimum Daily Value:				0.00	ppm	on November 1				Hours of Calibration:				25															
Monthly Average:				0.00	ppm					Operational Uptime:				74.6															
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
Nov 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	S	0.00	0.00	0.00	0.00	0.00	0.00			
Nov 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	0.00	0.00	0.00	0.00	0.00	0.00	Y	0.02	0.00	0.01	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00
Nov 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	0.00	0.00
Nov 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	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00
Nov 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	0.00	0.00
Nov 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	0.00	0.00
Nov 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	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00
Nov 11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 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	0.00	0.00
Nov 13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 15	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 16	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 17	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 18	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 19	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 20	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 21	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00
Nov 22	0.00	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.02	0.00	0.00
Nov 23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C																0.00	0.00	0.00	-
Nov 24																													
Nov 25																													
Nov 26																													
Nov 27																													
Nov 28																													
Nov 29																													
Nov 30																													
Diurnal Maximum	0.00	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diurnal Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C	Monthly Calibration							S	Daily Zero-Span Check							Q	Quality Assurance												
K	Collection Error							N	No Data (Machine Not in Service)							Y	Routine Maintenance												
X	Invalid Data (Equipment Malfunction /Recovery)							NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																				
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																													
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																													

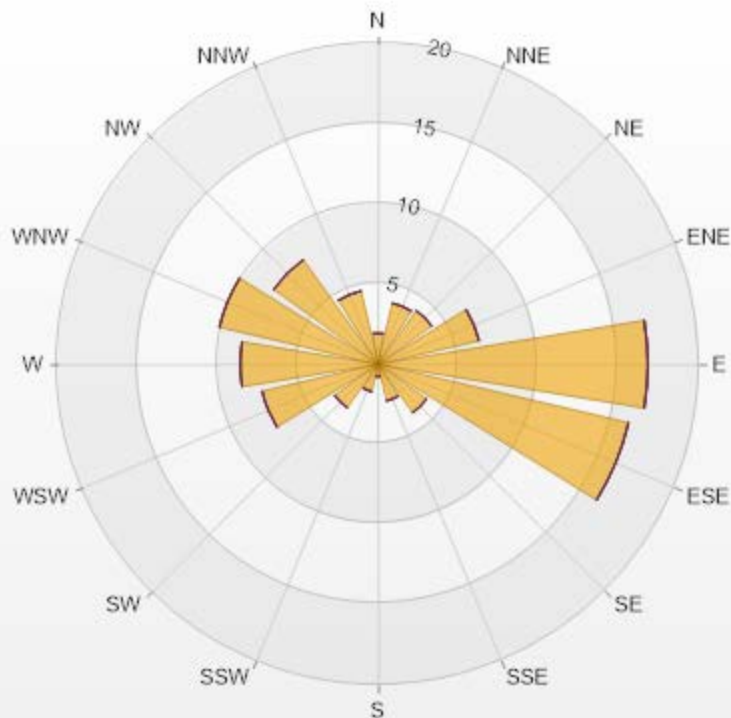
Timeseries Chart of Hourly Average for NMHC - AQHI - Cadotte Lake Station





Wind: AQHI Cadotte Lake Poll.: AQHI Cadotte Lake-NMHC[ppm] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 71.11% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	1.95	0	0	0	0	1.95
NNE	3.91	0	0	0	0	3.91
NE	4.1	0	0	0	0	4.1
ENE	6.45	0	0	0	0	6.45
E	16.8	0	0	0	0	16.8
ESE	16.02	0	0	0	0	16.02
SE	3.71	0	0	0	0	3.71
SSE	2.34	0	0	0	0	2.34
S	0.78	0	0	0	0	0.78
SSW	1.76	0	0	0	0	1.76
SW	3.32	0	0	0	0	3.32
WSW	7.42	0	0	0	0	7.42
W	8.59	0	0	0	0	8.59
WNW	10.16	0	0	0	0	10.16
NW	8.01	0	0	0	0	8.01
NNW	4.69	0	0	0	0	4.69
Summary	100	0	0	0	0	100



PRAMP-202111

Page 204 of 226

% Icon Classes (ppm)

100 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

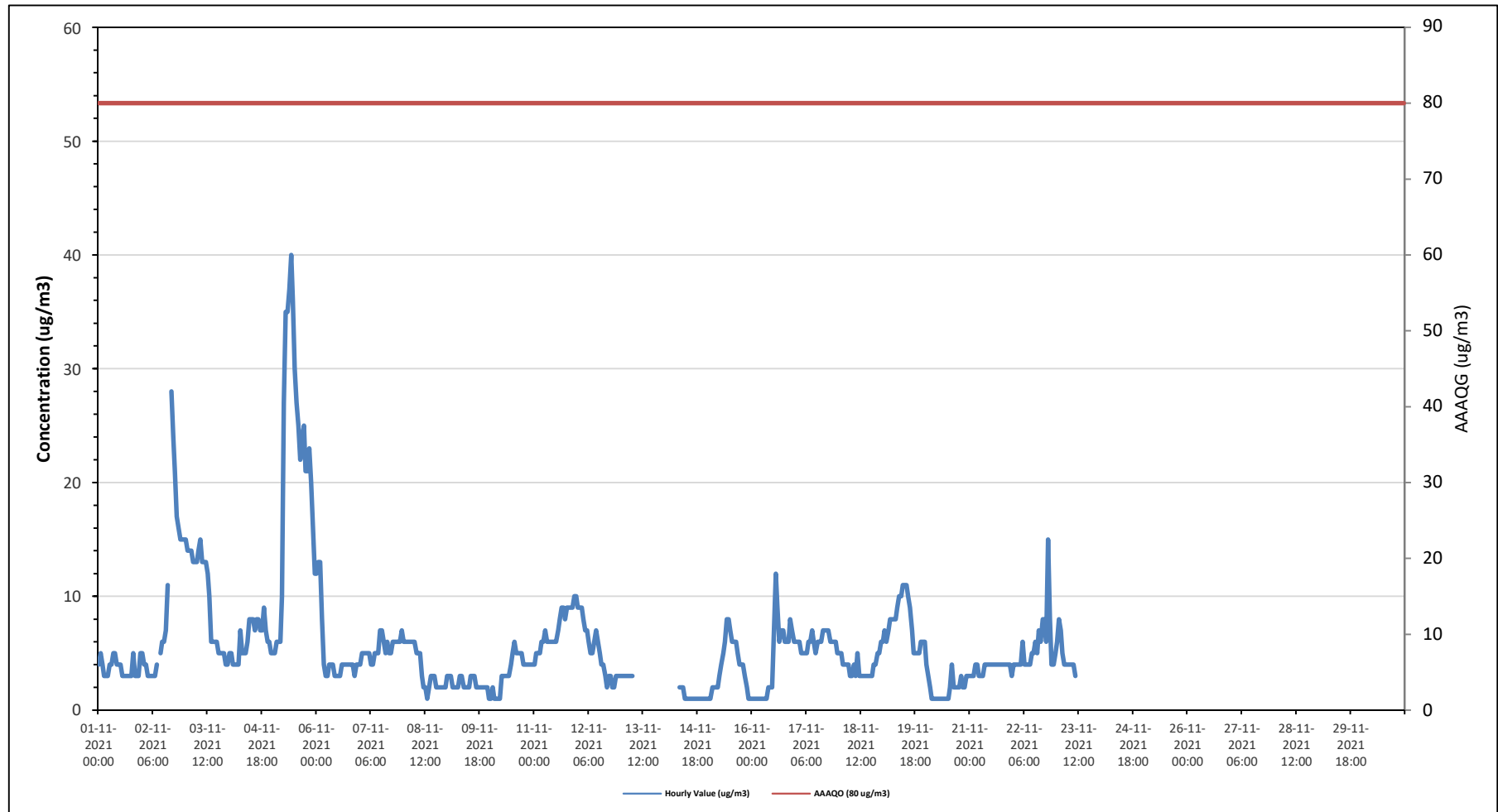
AQHI - Cadotte Lake Station - November 2021

Summary of Hourly Averages

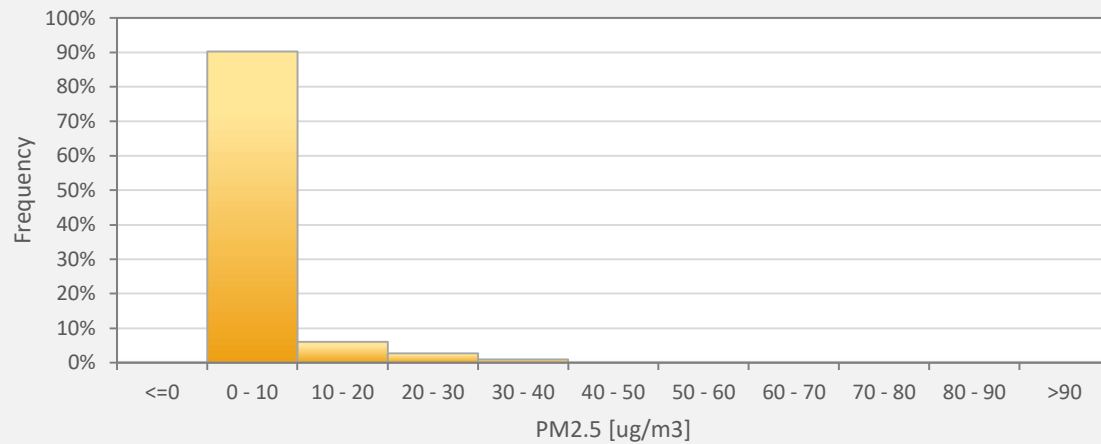
PARTICULATE MATTER 2.5 (PM_{2.5}) in µg/m³

Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m3, Alberta Ambient Air Quality Objective (AAAQO): 24-Hour 29 µg/m3																											
Number of 1-Hour Exceedances: 0										Number of 24-Hour Exceedances: 0																	
Maximum Hourly Value: 40.0 µg/m³ on November 5 at hour 10										Hours in Service: 720																	
Maximum Daily Value: 21.4 µg/m³ on November 5										Hours of Data: 512																	
Minimum Hourly Value: 1.0 µg/m³ on November 8 at hour 13										Hours of Missing Data: 27																	
Minimum Daily Value: 1.9 µg/m³ on November 20										Hours of Calibration: 1																	
Monthly Average: 5.8 µg/m³										Operational Uptime: 71.3																	
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
Nov 1	4	5	4	3	3	3	4	4	5	5	4	4	4	3	3	3	3	3	5	3	3	3	3	5	3.0	5.0	3.7
Nov 2	5	4	4	3	3	3	3	3	4	X	5	6	6	7	11	Y	28	24	21	17	16	15	15	15	3.0	28.0	9.9
Nov 3	15	14	14	14	13	13	13	14	15	13	13	13	12	10	6	6	6	6	5	5	5	4	4	4	4.0	15.0	9.9
Nov 4	5	5	4	4	4	4	7	5	5	5	6	8	8	8	7	8	8	7	7	9	7	6	6	5	4.0	9.0	6.2
Nov 5	5	5	6	6	6	10	27	35	35	37	40	36	30	27	25	22	24	25	21	21	23	20	16	12	5.0	40.0	21.4
Nov 6	12	13	13	8	4	3	3	4	4	4	3	3	3	3	4	4	4	4	4	4	3	4	4	4	3.0	13.0	5.0
Nov 7	4	5	5	5	5	5	4	4	5	5	5	7	7	6	5	6	5	5	6	6	6	6	7	7	4.0	7.0	5.4
Nov 8	6	6	6	6	6	6	6	5	5	5	3	2	2	1	2	3	3	3	2	2	2	2	2	2	1.0	6.0	3.7
Nov 9	3	3	3	2	2	2	2	3	3	2	2	2	2	3	3	3	2	2	2	2	2	2	1	1	1.0	3.0	2.3
Nov 10	1	2	1	1	1	1	3	3	3	3	3	4	5	6	5	5	5	4	4	4	4	4	4	4	1.0	6.0	3.4
Nov 11	4	5	5	5	6	6	7	6	6	6	6	6	6	7	8	9	9	8	9	9	9	9	10	10	4.0	10.0	7.1
Nov 12	9	9	9	8	7	7	6	5	5	6	7	6	5	4	4	3	2	3	3	2	2	3	3	3	2.0	9.0	5.0
Nov 13	3	3	3	3	3	3	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3.0	3.0	-
Nov 14	X	X	X	X	X	X	X	X	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	2.0	-
Nov 15	1	1	2	2	2	2	3	4	5	6	8	8	7	6	6	6	5	4	4	4	3	2	1	1	1.0	8.0	3.9
Nov 16	1	1	1	1	1	1	1	1	2	2	2	2	7	12	9	6	7	7	6	6	8	7	6	6	1.0	12.0	4.3
Nov 17	6	6	6	5	5	5	5	6	6	7	6	5	6	6	6	7	7	7	7	6	6	6	5	5	5.0	7.0	6.0
Nov 18	5	5	4	4	4	4	3	3	4	3	5	3	3	3	3	3	3	3	3	4	4	5	5	6	3.0	6.0	3.8
Nov 19	6	7	6	7	8	8	8	8	9	10	10	11	11	11	10	9	7	5	5	5	6	6	6	6	5.0	11.0	7.7
Nov 20	4	3	2	1	1	1	1	1	1	1	1	1	1	2	4	2	2	2	2	3	2	2	3	3	1.0	4.0	1.9
Nov 21	3	3	3	4	4	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3.0	4.0	3.7
Nov 22	4	4	4	4	4	6	4	4	4	4	5	5	6	5	7	6	8	8	6	15	8	4	4	5	4.0	15.0	5.6
Nov 23	6	8	7	5	4	4	4	4	4	4	3	C													3.0	8.0	-
Nov 24																											
Nov 25																											
Nov 26																											
Nov 27																											
Nov 28																											
Nov 29																											
Nov 30																											
Diurnal Maximum	15	14	14	14	13	13	27	35	35	37	40	36	30	27	25	22	28	25	21	21	23	20	16	15			
Diurnal Average	5.1	5.3	5.1	4.6	4.4	4.5	5.5	6.0	6.1	6.4	6.5	6.5	6.5	6.4	6.3	5.8	6.8	6.5	6.0	6.4	5.8	5.5	5.3	5.1			
C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance								
K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance								
X	Invalid Data (Equipment Malfunction /Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)									Power Failure								
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																											
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																											

Timeseries Chart of Hourly Average for PM2.5 - AQHI - Cadotte Lake Station



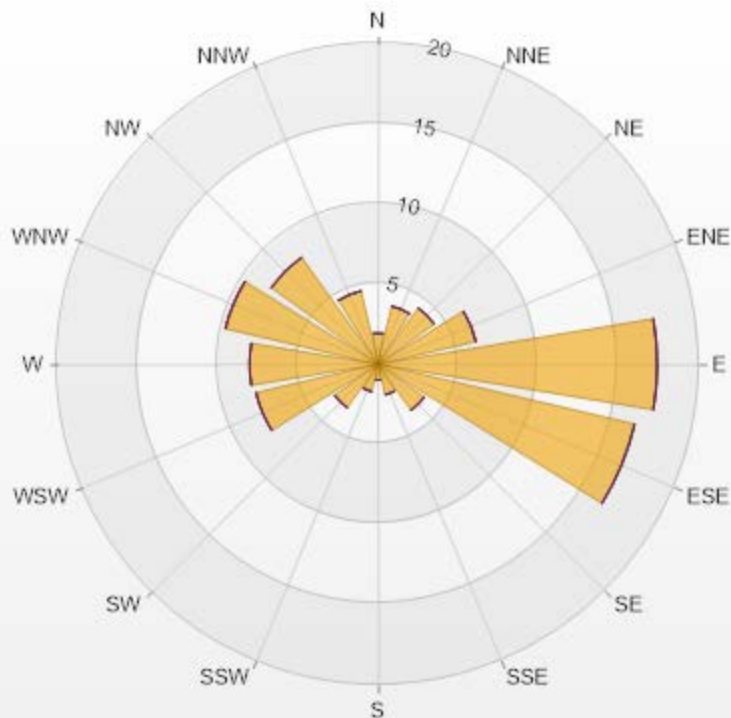
PM2.5[ug/m3(L)] Histogram: AQHI Cadotte Lake Monthly: 11-2021 1 Hr.



Classes	PM2.5
<=0	0.00%
0 - 10	90.23%
10 - 20	6.05%
20 - 30	2.73%
30 - 40	0.98%
40 - 50	0.00%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: AQHI Cadotte Lake Poll.: AQHI Cadotte Lake-PM2.5[ug/m3(L)] Monthly: 11-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 71.11% Calm Avg: 0.00 [ug/m3(L)]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	1.95	0	0	0	0	1.95
NNE	3.71	0	0	0	0	3.71
NE	4.3	0	0	0	0	4.3
ENE	6.25	0	0	0	0	6.25
E	17.38	0	0	0	0	17.38
ESE	16.41	0	0	0	0	16.41
SE	3.52	0	0	0	0	3.52
SSE	1.95	0	0	0	0	1.95
S	0.98	0	0	0	0	0.98
SSW	1.76	0	0	0	0	1.76
SW	3.32	0	0	0	0	3.32
WSW	7.81	0	0	0	0	7.81
W	8.01	0	0	0	0	8.01
WNW	9.77	0	0	0	0	9.77
NW	8.2	0	0	0	0	8.2
NNW	4.69	0	0	0	0	4.69
Summary	100	0	0	0	0	100



PRAMP-202111

Page 209 of 226

% Icon Classes (ug/m3(L))

100 0-50

0 50-80

0 80-120

0 120-240

0 >240.0



PEACE RIVER AREA MONITORING PROGRAM

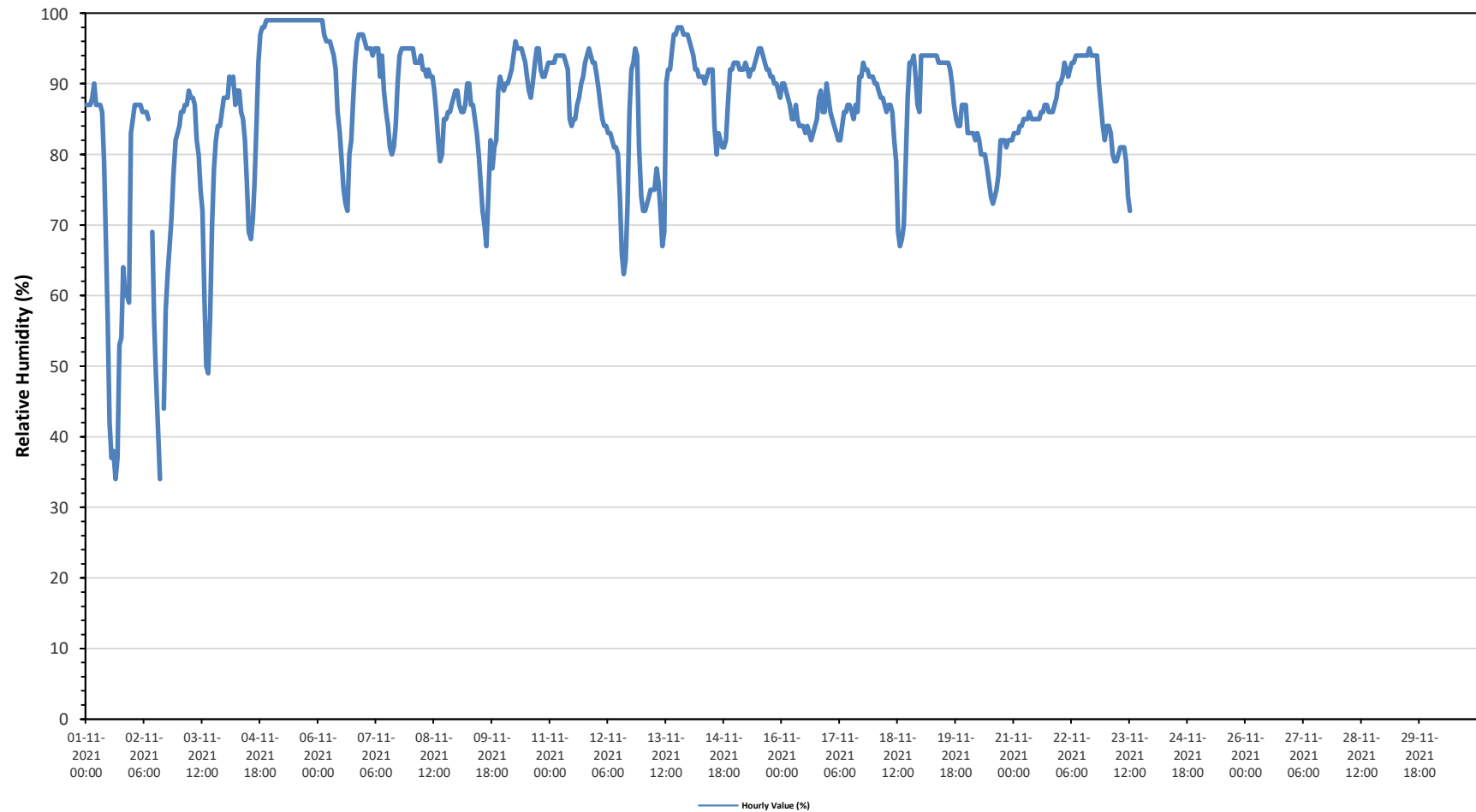
AQHI - Cadotte Lake Station - November 2021

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	99	%	on November 4 at hour 21	Hours in Service:	720																							
Maximum Daily Value:	99.0	%	on November 5	Hours of Data:	539																							
Minimum Hourly Value:	34	%	on November 1 at hour 15	Hours of Missing Data:	2																							
Minimum Daily Value:	67.2	%	on November 1	Hours of Calibration:	0																							
Monthly Average:	86.0	%		Operational Uptime:	74.9																							
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
	Nov 1	87	87	87	88	90	87	87	87	86	79	69	57	42	37	38	34	37	53	54	64	60	60	59	83	34	90	67.2
	Nov 2	85	87	87	87	87	86	86	86	85	X	69	56	49	42	34	Y	44	58	63	67	71	77	82	83	34	87	71.4
	Nov 3	84	86	86	87	87	89	88	88	87	82	80	75	72	60	50	49	57	70	78	82	84	84	86	88	49	89	78.3
	Nov 4	88	88	91	90	91	87	89	89	86	85	82	76	69	68	71	76	84	93	97	98	98	99	99	99	68	99	87.2
	Nov 5	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99.0
	Nov 6	99	99	99		97	96	96	96	95	94	92	86	83	79	75	73	72	80	82	87	93	96	97	97	72	99	90.0
	Nov 7	96	95	95	95	94	95	95	95	91	94	89	86	84	81	80	81	84	90	94	95	95	95	95	95	80	96	91.2
	Nov 8	95	95	93	93	93	94	92	92	91	92	91	89	86	82	79	80	85	85	86	86	87	88	89	89	79	95	88.9
	Nov 9	89	87	86	86	87	90	90	87	87	85	83	80	76	72	70	67	74	82	78	81	82	89	91	90	67	91	82.9
	Nov 10	89	90	90	91	92	94	96	95	95	95	94	93	91	89	88	90	93	95	95	92	91	91	92	93	88	96	92.3
	Nov 11	93	93	93	94	94	94	94	94	93	92	85	84	85	85	87	88	90	91	93	94	95	94	93	93	84	95	91.3
	Nov 12	91	89	87	85	84	84	83	83	82	81	81	80	74	66	63	65	73	86	92	93	95	94	81	74	63	95	81.9
	Nov 13	72	72	73	74	75	75	75	78	76	72	67	69	90	92	92	95	97	97	98	98	98	97	97	97	67	98	84.4
	Nov 14	96	95	94	92	92	91	91	91	90	91	92	92	92	84	80	83	82	81	81	82	87	92	92	93	80	96	89.0
	Nov 15	93	93	92	92	92	93	92	91	92	92	93	94	95	95	94	93	92	92	91	91	90	90	89	88	88	95	92.0
	Nov 16	90	90	89	88	87	85	85	87	85	84	84	84	83	84	83	82	83	84	85	88	89	86	86	90	82	90	85.9
	Nov 17	88	86	85	84	83	82	82	84	86	86	87	87	86	85	87	86	91	91	93	92	92	91	91	91	82	93	87.3
	Nov 18	90	90	89	88	88	87	86	87	87	86	82	79	69	67	68	70	79	88	93	93	94	91	87	86	67	94	84.3
	Nov 19	94	94	94	94	94	94	94	94	94	93	93	93	93	93	93	92	90	87	85	84	84	87	87	87	84	94	91.1
	Nov 20	83	83	83	83	82	83	82	80	80	80	78	76	74	73	74	75	77	82	82	82	81	82	82	82	73	83	80.0
	Nov 21	83	83	83	84	84	85	85	85	86	85	85	85	85	85	86	86	87	87	86	86	86	87	88	90	83	90	85.5
	Nov 22	90	91	93	92	91	92	93	93	94	94	94	94	94	94	94	95	94	94	94	94	90	87	84	82	82	95	92.0
	Nov 23	84	84	83	80	79	79	80	81	81	81	79	74	72												72	84	-
	Nov 24																											
	Nov 25																											
	Nov 26																											
	Nov 27																											
	Nov 28																											
	Nov 29																											
	Nov 30																											
	Diurnal Maximum	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99			
Diurnal Average	89.5	89.4	89.2	88.8	88.7	88.7	88.7	88.7	88.1	87.3	84.4	82.0	80.1	77.8	76.6	78.9	80.3	84.9	86.5	87.9	88.3	88.9	88.4	89.5				
C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance									
K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance								P	Power Failure
X	Invalid Data (Equipment Malfunction /Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																		
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																												
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																												

Timeseries Chart of Hourly Average for RH - AQHI - Cadotte Lake Station





PEACE RIVER AREA MONITORING PROGRAM

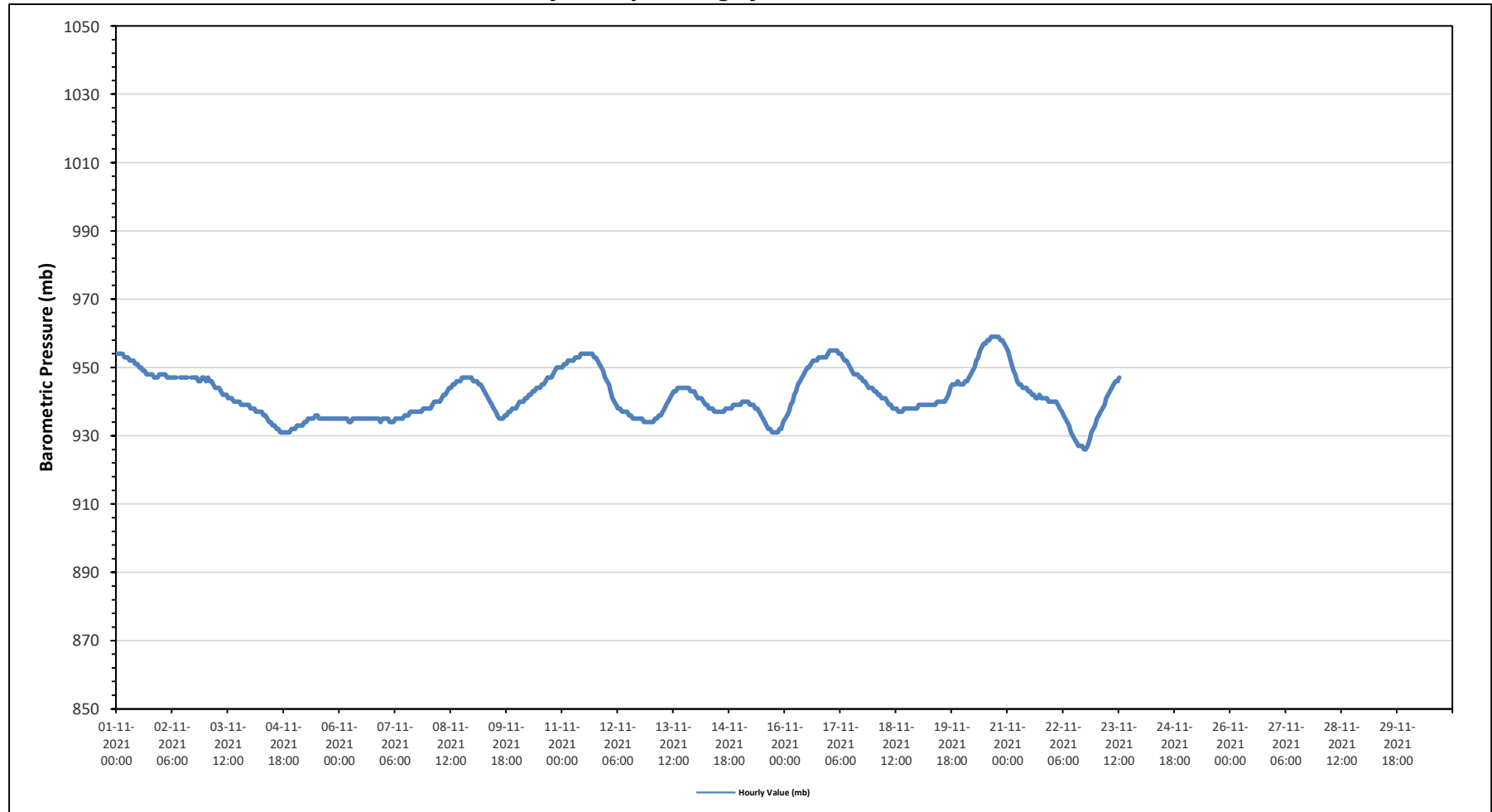
AQHI - Cadotte Lake Station - November 2021

Summary of Hourly Averages

BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:										959	mb	on November 20 at hour 15										Hours in Service:										720
Maximum Daily Value:										954	mb	on November 20										Hours of Data:										539
Minimum Hourly Value:										926	mb	on November 22 at hour 17										Hours of Missing Data:										2
Minimum Daily Value:										932	mb	on November 22										Hours of Calibration:										0
Monthly Average:										942	mb											Operational Uptime:										74.9
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average						
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
Nov 1	954	954	954	954	953	953	953	952	952	952	951	951	950	950	949	949	948	948	948	948	947	947	947	948	947	954	951					
Nov 2	948	948	948	947	947	947	947	947	947	X	947	947	947	947	947	947	Y	947	947	947	947	946	946	947	947	946	948	947				
Nov 3	946	947	946	946	945	944	944	944	943	942	942	942	941	941	941	940	940	940	940	939	939	939	939	939	939	947	942					
Nov 4	938	938	938	937	937	937	937	936	936	935	934	934	933	933	932	932	931	931	931	931	931	931	932	932	931	938	934					
Nov 5	932	933	933	933	933	934	934	935	935	935	935	936	936	936	935	935	935	935	935	935	935	935	935	935	932	936	935					
Nov 6	935	935	935	935	935	934	934	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	934	935	934	935	935					
Nov 7	935	935	935	934	934	934	935	935	935	935	935	936	936	936	937	937	937	937	937	937	937	938	938	938	934	938	936					
Nov 8	938	938	939	940	940	940	940	941	942	942	943	944	944	945	945	946	946	946	947	947	947	947	947	947	938	947	943					
Nov 9	946	946	946	945	945	944	943	942	941	940	939	938	937	936	935	935	935	936	936	937	937	938	938	938	935	946	940					
Nov 10	939	940	940	940	941	941	942	942	943	943	944	944	944	945	945	946	947	947	947	948	949	950	950	950	939	950	944					
Nov 11	950	951	951	952	952	952	952	953	953	953	954	954	954	954	954	954	954	953	953	952	951	950	949	947	947	954	952					
Nov 12	946	945	943	941	940	939	938	938	937	937	937	937	936	936	935	935	935	935	935	935	934	934	934	934	934	946	937					
Nov 13	934	934	935	935	936	936	937	938	939	940	941	942	943	943	944	944	944	944	944	944	944	943	943	943	934	944	940					
Nov 14	942	941	941	941	940	939	939	938	938	938	937	937	937	937	937	937	938	938	938	938	939	939	939	939	937	942	939					
Nov 15	939	940	940	940	940	939	939	939	939	938	938	937	936	935	934	933	932	932	931	931	931	932	932	934	931	940	936					
Nov 16	935	936	937	939	940	942	943	945	946	947	948	949	950	950	951	952	952	952	953	953	953	953	953	954	935	954	947					
Nov 17	955	955	955	955	955	954	954	953	952	952	951	950	949	948	948	948	947	947	946	946	945	944	944	944	944	955	950					
Nov 18	943	943	942	942	941	941	941	940	939	939	938	938	938	937	937	937	938	938	938	938	938	938	938	938	937	943	939					
Nov 19	939	939	939	939	939	939	939	939	939	939	940	940	940	940	940	941	942	944	945	945	945	946	945	945	939	946	941					
Nov 20	945	946	946	947	948	949	950	952	953	955	956	957	957	958	958	959	959	959	959	959	958	958	957	956	945	959	954					
Nov 21	955	953	951	949	948	946	945	945	944	944	944	943	943	942	942	941	941	942	941	941	941	941	940	940	940	955	944					
Nov 22	940	940	940	939	938	937	936	935	934	933	931	930	929	928	927	927	927	926	926	927	929	931	932	933	926	940	932					
Nov 23	935	936	937	938	939	941	942	943	944	945	946	946	947												935	947	-					
Nov 24																																
Nov 25																																
Nov 26																																
Nov 27																																
Nov 28																																
Nov 29																																
Nov 30																																
Diurnal Maximum	955	955	955	955	955	954	954	953	953	955	956	957	957	958	958	959	959	959	959	959	958	958	957	956								
Diurnal Average	942	942	942	942	942	942	942	942	942	942	942	942	942	941	941	941	941	941	941	942	941	942	942	942								
C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance													
K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance								P	Power Failure				
X	Invalid Data (Equipment Malfunction /Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																						
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																

Timeseries Chart of Hourly Average for BP - AQHI - Cadotte Lake Station





PEACE RIVER AREA MONITORING PROGRAM

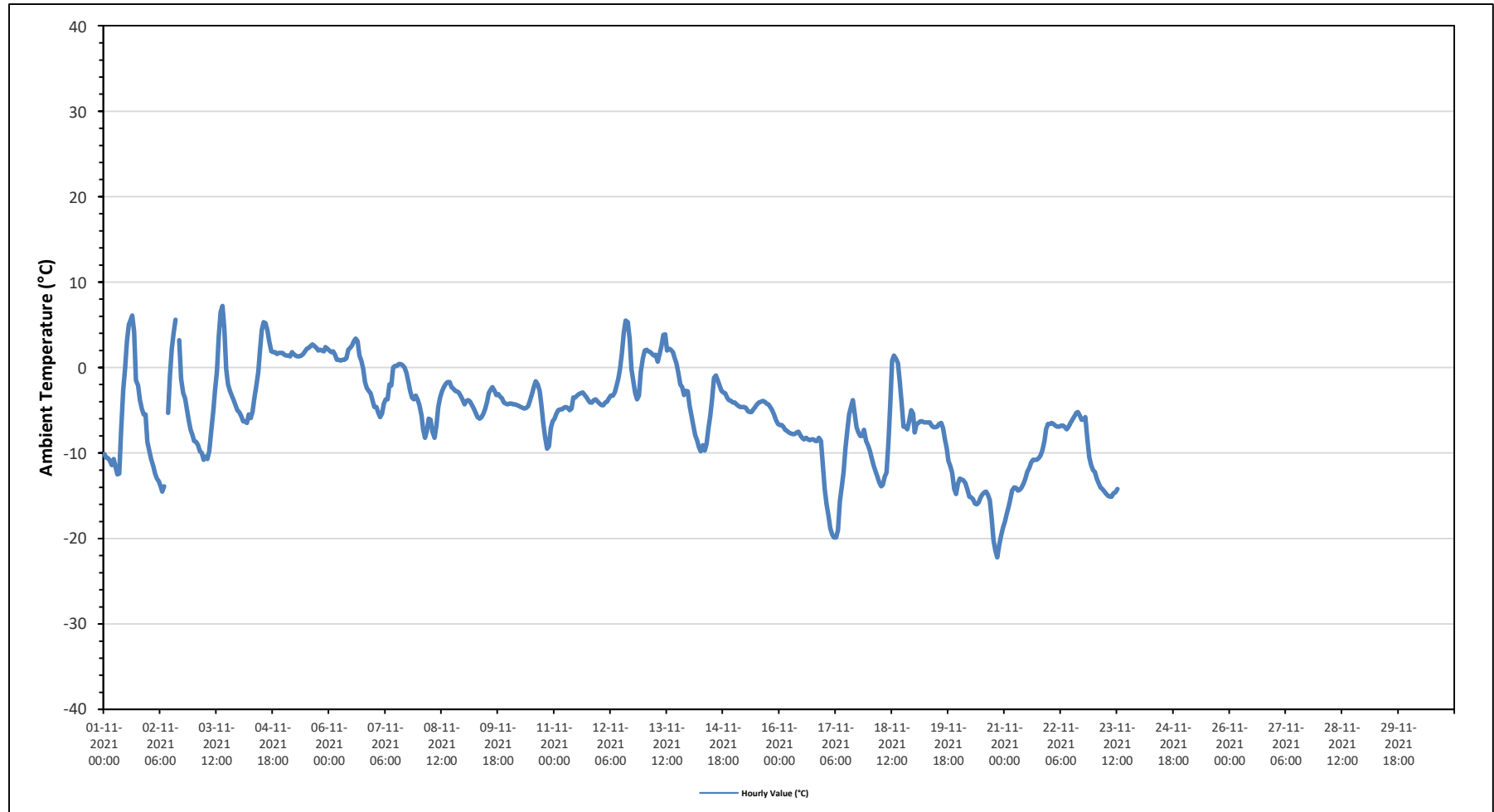
AQHI - Cadotte Lake Station - November 2021

Summary of Hourly Averages

AMBIENT TEMPERATURE (AT) in Degree Celsius

Maximum Hourly Value:		7.2 °C	on November 3 at hour 15												Hours in Service:		720											
Maximum Daily Value:		1.9 °C	on November 5												Hours of Data:		539											
Minimum Hourly Value:		-22.2 °C	on November 20 at hour 20												Hours of Missing Data:		2											
Minimum Daily Value:		-16.3 °C	on November 20												Hours of Calibration:		0											
Monthly Average:		-5.4 °C													Operational Uptime:		74.9											
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
Nov 1	-10.1	-10.5	-10.6	-10.9	-11.4	-10.7	-11.6	-12.5	-12.4	-7.4	-2.6	-0.1	3.1	5	5.5	6.1	4.2	-1.5	-2.1	-3.8	-4.8	-5.5	-5.5	-8.7	-12.5	6.1	-5.0	
Nov 2	-9.7	-10.7	-11.5	-12.4	-13	-13.3	-13.9	-14.5	-13.9	X	-5.3	-0.9	2.2	4.1	5.6	Y	3.2	-1.3	-3	-3.6	-4.9	-6.2	-7.3	-7.9	-14.5	5.6	-6.3	
Nov 3	-8.6	-8.7	-9.1	-9.8	-10	-10.8	-10.4	-10.7	-9.8	-7.3	-5.2	-2.6	-0.5	3.7	6.5	7.2	4.5	-0.2	-2	-2.7	-3.3	-3.8	-4.4	-5	-10.8	7.2	-4.3	
Nov 4	-5.2	-5.7	-6.3	-6.3	-6.5	-5.5	-5.9	-5.2	-3.6	-2.2	-0.5	1.9	4.4	5.3	5.2	4.4	3.1	1.9	1.8	1.8	1.6	1.7	1.7	1.7	-6.5	5.3	-0.7	
Nov 5	1.5	1.4	1.4	1.3	1.8	1.6	1.4	1.3	1.3	1.4	1.6	1.9	2.2	2.3	2.5	2.7	2.5	2.3	2	2.1	2	1.9	2.4	2.2	1.3	2.7	1.9	
Nov 6	2	1.8	1.9	1.5	0.9	0.9	0.8	0.9	0.9	1.1	2.1	2.3	2.6	3.1	3.4	3.1	1.4	0.8	-0.1	-1.7	-2.4	-2.7	-3	-3.8	-3.8	3.4	0.7	
Nov 7	-4.6	-4.6	-5.3	-5.8	-5.4	-4.2	-3.7	-3.7	-2	-2.1	0	0.2	0.2	0.4	0.4	0.3	0	-0.6	-1.6	-2.7	-3.5	-3.7	-3.3	-3.7	-5.8	0.4	-2.5	
Nov 8	-4.4	-5.6	-7.2	-8.2	-7.4	-6	-6.1	-7.5	-8.2	-6.8	-4.6	-3.5	-2.8	-2.3	-1.9	-1.7	-1.7	-2.3	-2.5	-2.7	-2.8	-2.9	-3.3	-3.7	-8.2	-1.7	-4.4	
Nov 9	-4.3	-3.9	-3.8	-4	-4.4	-4.8	-5.3	-5.8	-6	-5.8	-5.4	-4.8	-4	-3	-2.6	-2.3	-2.7	-3.2	-3.1	-3.4	-3.6	-4.1	-4.2	-4.3	-6.0	-2.3	-4.1	
Nov 10	-4.2	-4.2	-4.3	-4.3	-4.4	-4.5	-4.6	-4.7	-4.8	-4.7	-4.5	-3.8	-3.1	-2.3	-1.6	-1.9	-2.7	-4.5	-6.6	-8.2	-9.5	-9.2	-7.1	-6.3	-9.5	-1.6	-4.8	
Nov 11	-6	-5.4	-5	-4.9	-4.9	-4.7	-4.6	-4.7	-5	-4.8	-3.5	-3.5	-3.3	-3.1	-3	-2.9	-3.2	-3.5	-3.8	-4.1	-4.1	-3.8	-3.7	-4	-6.0	-2.9	-4.1	
Nov 12	-4.2	-4.4	-4.4	-4.1	-4	-3.6	-3.3	-3.3	-2.9	-2.1	-1.2	-0.1	1.7	4.1	5.5	5.3	3.4	-0.2	-1.6	-3	-3.7	-3.3	-0.5	1.1	-4.4	5.5	-1.2	
Nov 13	2	2.1	1.9	1.8	1.6	1.4	1.5	0.7	1.6	2.5	3.8	3.9	2	2.2	2.1	1.8	1.1	0.4	-0.7	-2	-2.3	-3.2	-2.7	-2.8	-3.2	3.9	0.9	
Nov 14	-4.5	-5.6	-6.8	-7.9	-8.5	-9.3	-9.8	-9.1	-9.7	-8.9	-7.1	-5.6	-3.6	-1.2	-0.9	-1.5	-2.1	-2.7	-2.9	-3	-3.5	-3.8	-3.9	-4.1	-9.8	-0.9	-5.3	
Nov 15	-4.1	-4.3	-4.5	-4.6	-4.6	-4.6	-4.7	-5.1	-5.2	-5.2	-4.9	-4.6	-4.3	-4.1	-4	-3.9	-4	-4.2	-4.3	-4.6	-5	-5.5	-6.1	-6.6	-6.6	-3.9	-4.7	
Nov 16	-6.7	-6.7	-6.9	-7.3	-7.4	-7.6	-7.7	-7.8	-7.8	-7.6	-7.5	-7.9	-8.2	-8.4	-8.2	-8.4	-8.5	-8.4	-8.4	-8.6	-8.6	-8.2	-8.6	-11.4	-11.4	-6.7	-8.0	
Nov 17	-14.2	-16	-17.3	-18.8	-19.5	-19.9	-19.9	-19	-15.7	-14	-12.3	-9.5	-7.4	-5.5	-4.6	-3.8	-5.4	-7	-7.6	-8	-8	-7.3	-8.6	-9.1	-19.9	-3.8	-11.6	
Nov 18	-9.7	-10.6	-11.4	-12.1	-12.7	-13.4	-13.9	-13.7	-12.8	-12.3	-8.8	-4.3	0.8	1.4	1	0.5	-1.7	-4.2	-6.9	-6.9	-7.2	-6.3	-5	-5.4	-13.9	1.4	-7.3	
Nov 19	-7.6	-6.6	-6.5	-6.3	-6.3	-6.4	-6.4	-6.4	-6.4	-6.8	-7	-7	-6.9	-6.6	-6.5	-7.1	-8.4	-9.5	-10.9	-11.5	-12.3	-14.2	-14.8	-13.6	-14.8	-6.3	-8.4	
Nov 20	-13	-13.1	-13.2	-13.5	-14.2	-15.1	-15.2	-15.4	-15.9	-16	-15.8	-15.3	-14.9	-14.6	-14.5	-14.9	-15.5	-17.6	-20.2	-21.4	-22.2	-20.7	-19.6	-18.7	-22.2	-13.0	-16.3	
Nov 21	-18	-17.1	-16.3	-15.3	-14.4	-14	-14.1	-14.4	-14.3	-14	-13.6	-13	-12.2	-11.7	-11.1	-10.8	-10.8	-10.8	-10.6	-10.3	-9.7	-8.6	-7.2	-6.6	-18.0	-6.6	-12.5	
Nov 22	-6.6	-6.5	-6.6	-6.8	-6.9	-6.9	-6.8	-6.8	-7	-7.2	-6.9	-6.5	-6.1	-5.7	-5.3	-5.2	-5.6	-6.1	-6.1	-5.8	-8.5	-10.5	-11.4	-12	-12.0	-5.2	-7.1	
Nov 23	-12.2	-13	-13.5	-14	-14.2	-14.5	-14.8	-15	-15.1	-15.1	-14.7	-14.6	-14.2												-15.1	-12.2	-	
Nov 24																												
Nov 25																												
Nov 26																												
Nov 27																												
Nov 28																												
Nov 29																												
Nov 30																												
Diurnal Maximum	2.0	2.1	1.9	1.8	1.8	1.6	1.5	1.3	1.6	2.5	3.8	3.9	4.4	5.3	6.5	7.2	4.5	2.3	2.0	2.1	2.0	1.9	2.4	2.2				
Diurnal Average	-6.6	-6.9	-7.2	-7.5	-7.6	-7.6	-7.8	-7.9	-7.6	-6.6	-5.4	-4.2	-3.1	-1.7	-1.2	-1.6	-2.2	-3.7	-4.6	-5.2	-5.7	-5.9	-5.7	-6.0				
C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance									
K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance									
X	Invalid Data (Equipment Malfunction /Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)									Power Failure									
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																												
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																												

Timeseries Chart of Hourly Average for AT - AQHI - Cadotte Lake Station





PEACE RIVER AREA MONITORING PROGRAM

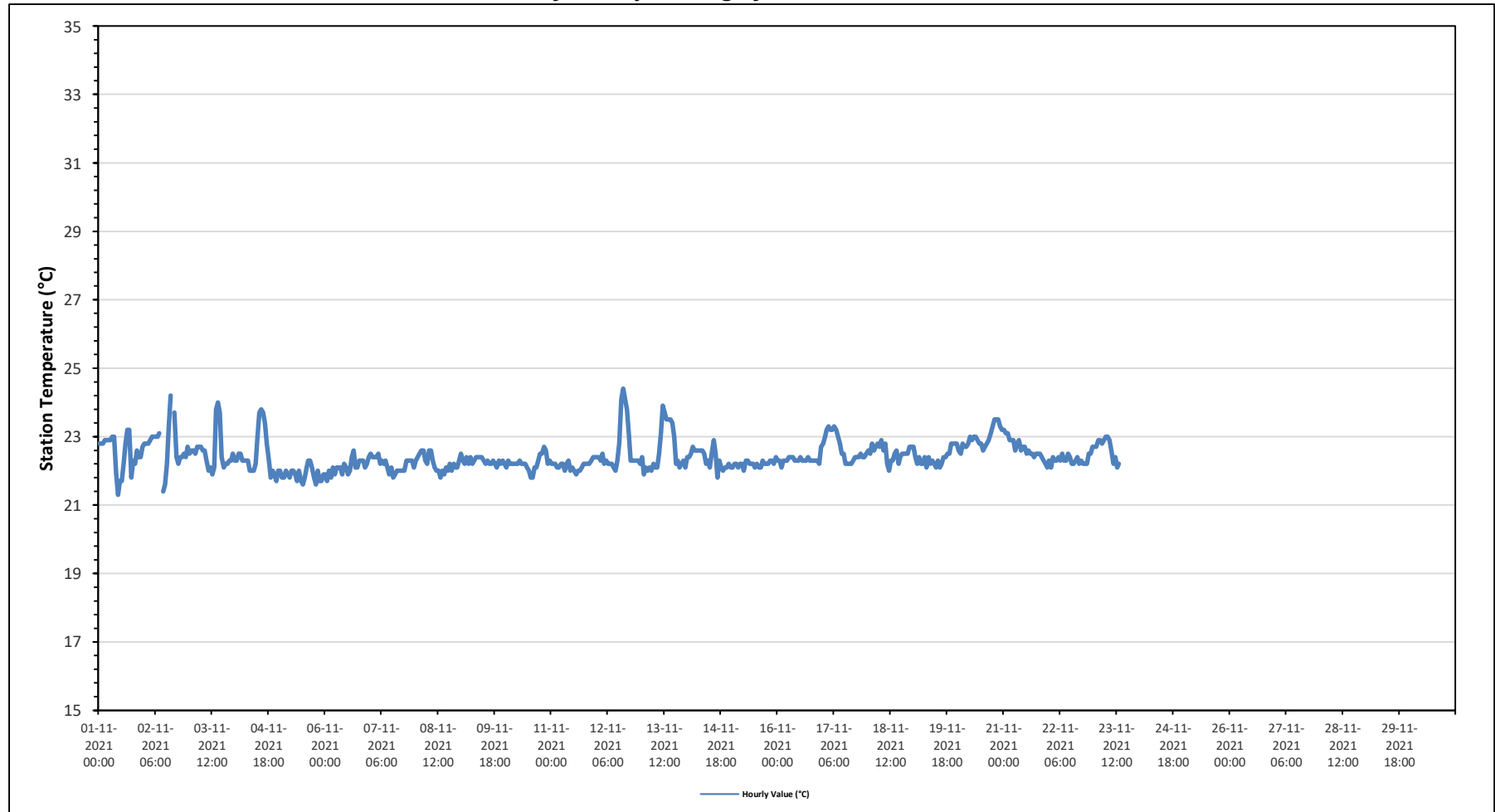
AQHI - Cadotte Lake Station - November 2021

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:	24.4	°C	on November 12 at hour 14	Hours in Service:	720																														
Maximum Daily Value:	23.0	°C	on November 20	Hours of Data:	540																														
Minimum Hourly Value:	21.3	°C	on November 1 at hour 10	Hours of Missing Data:	2																														
Minimum Daily Value:	21.9	°C	on November 5	Hours of Calibration:	0																														
Monthly Average:	22.4	°C		Operational Uptime:	75.0																														
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								
	Nov 1	22.8	22.8	22.8	22.9	22.9	22.9	23.0	23.0	21.9	21.3	21.7	21.7	22.2	22.8	23.2	23.2	21.8	22.3	22.2	22.6	22.4	22.4	22.7	21.3	23.2	22.5								
	Nov 2	22.8	22.8	22.8	22.9	23.0	23.0	23.0	23.1	X	21.4	21.6	22.2	23.3	24.2	Y	23.7	22.4	22.2	22.4	22.4	22.5	22.4	22.7	21.4	24.2	22.7								
	Nov 3	22.5	22.6	22.6	22.5	22.7	22.7	22.6	22.6	22.3	22.0	22.1	21.9	22.1	23.8	24.0	23.7	22.4	22.1	22.2	22.2	22.3	22.3	22.5	21.9	24.0	22.6								
	Nov 4	22.3	22.3	22.5	22.5	22.3	22.3	22.3	22.3	22.0	22.0	22.2	23.0	23.7	23.8	23.7	23.4	22.8	22.3	21.8	22.0	21.9	21.7	22.0	21.7	23.8	22.5								
	Nov 5	22.0	21.8	21.8	22.0	21.9	21.8	22.0	22.0	21.9	21.7	22.0	21.7	21.6	21.8	22.1	22.3	22.3	22.1	21.8	21.6	22.0	21.7	21.7	21.9	21.6	22.3	21.9							
	Nov 6	21.9	21.7	22.0	21.8	22.1	21.9	22.1	22.1	22.1	21.9	22.2	22.1	21.9	22.0	22.4	22.6	22.1	22.1	22.3	22.3	22.3	22.1	22.2	22.4	21.7	22.6	22.1							
	Nov 7	22.5	22.4	22.4	22.4	22.5	22.2	22.3	22.2	22.3	22.1	21.9	22.1	21.8	21.9	22.0	22.0	22.0	22.0	22.3	22.3	22.3	22.3	22.1	21.8	22.5	22.2								
	Nov 8	22.3	22.4	22.5	22.6	22.6	22.3	22.2	22.6	22.6	22.3	22.1	22.0	22.0	21.8	22.0	21.9	22.1	22.0	22.2	22.0	22.2	22.1	22.1	22.3	21.8	22.6	22.2							
	Nov 9	22.5	22.3	22.2	22.4	22.2	22.4	22.2	22.3	22.4	22.4	22.4	22.4	22.3	22.2	22.3	22.2	22.2	22.3	22.2	22.1	22.3	22.2	22.3	22.2	22.1	22.5	22.3							
	Nov 10	22.1	22.3	22.2	22.2	22.2	22.2	22.2	22.3	22.2	22.2	22.2	22.1	22.0	21.8	21.8	22.1	22.1	22.3	22.5	22.5	22.7	22.6	22.2	22.3	21.8	22.7	22.2							
	Nov 11	22.2	22.2	22.2	22.1	22.1	22.2	22.2	22.0	22.2	22.3	22.0	22.1	22.0	21.9	22.0	22.0	22.1	22.2	22.2	22.2	22.2	22.3	22.4	22.4	21.9	22.4	22.2							
	Nov 12	22.4	22.4	22.3	22.5	22.2	22.3	22.2	22.2	22.2	22.1	22.0	22.3	22.8	24.1	24.4	24.1	23.8	23.1	22.3	22.3	22.3	22.3	22.3	22.2	22.0	24.4	22.6							
	Nov 13	22.4	21.9	22.1	22.0	22.1	22.0	22.2	22.1	22.1	22.5	23.1	23.9	23.7	23.5	23.5	23.5	23.4	23.0	22.2	22.3	22.1	22.2	22.3	22.1	21.9	23.9	22.6							
	Nov 14	22.4	22.4	22.5	22.7	22.6	22.6	22.6	22.6	22.6	22.5	22.2	22.3	22.1	22.5	22.9	22.5	21.8	22.3	22.1	22.0	22.1	22.1	22.2	22.1	21.8	22.9	22.4							
	Nov 15	22.1	22.2	22.2	22.1	22.2	22.2	22.0	22.3	22.3	22.2	22.2	22.2	22.1	22.2	22.1	22.1	22.3	22.2	22.2	22.2	22.3	22.3	22.2	22.4	22.0	22.4	22.2							
	Nov 16	22.3	22.3	22.1	22.3	22.3	22.3	22.4	22.4	22.4	22.3	22.3	22.3	22.4	22.3	22.3	22.3	22.4	22.3	22.3	22.3	22.3	22.3	22.2	22.7	22.1	22.7	22.3							
	Nov 17	22.8	23.0	23.2	23.3	23.2	23.2	23.3	23.2	23.0	22.8	22.5	22.5	22.2	22.2	22.2	22.2	22.3	22.4	22.4	22.4	22.5	22.4	22.4	22.5	22.2	23.3	22.7							
	Nov 18	22.6	22.5	22.8	22.6	22.7	22.8	22.7	22.9	22.6	22.8	22.2	22.0	22.3	22.3	22.5	22.6	22.2	22.4	22.5	22.5	22.5	22.5	22.7	22.7	22.0	22.9	22.5							
	Nov 19	22.7	22.4	22.2	22.4	22.2	22.2	22.4	22.1	22.4	22.2	22.3	22.2	22.1	22.3	22.1	22.2	22.4	22.4	22.5	22.5	22.8	22.8	22.8	22.8	22.1	22.8	22.4							
	Nov 20	22.6	22.5	22.8	22.7	22.7	22.8	23.0	22.9	23.0	23.0	22.9	22.8	22.8	22.6	22.7	22.8	22.9	23.1	23.3	23.5	23.5	23.5	23.3	23.2	22.5	23.5	23.0							
	Nov 21	23.2	23.1	23.1	22.9	22.9	22.9	22.6	22.8	22.9	22.6	22.7	22.7	22.5	22.6	22.5	22.5	22.4	22.5	22.5	22.5	22.4	22.3	22.2	22.1	22.1	23.2	22.6							
	Nov 22	22.3	22.1	22.4	22.3	22.3	22.4	22.3	22.5	22.3	22.3	22.5	22.4	22.2	22.2	22.3	22.4	22.2	22.3	22.2	22.2	22.2	22.5	22.5	22.7	22.1	22.7	22.3							
	Nov 23	22.7	22.7	22.9	22.9	22.8	22.9	23.0	23.0	22.9	22.6	22.2	22.4	22.1	22.2											22.1	23.0	-							
	Nov 24																																		
	Nov 25																																		
	Nov 26																																		
	Nov 27																																		
	Nov 28																																		
	Nov 29																																		
	Nov 30																																		
	Diurnal Maximum	23.2	23.1	23.2	23.3	23.2	23.2	23.3	23.2	23.1	23.0	23.1	23.9	23.7	24.1	24.4	24.1	23.8	23.1	23.3	23.5	23.5	23.5	23.3	23.2										
Diurnal Average	22.5	22.4	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.3	22.2	22.3	22.2	22.4	22.7	22.6	22.6	22.4	22.3	22.3	22.4	22.3	22.4												
C	Monthly Calibration									S	Daily Zero-Span Check									Q	Quality Assurance														
K	Collection Error									N	No Data (Machine Not in Service)									Y	Routine Maintenance					P	Power Failure								
X	Invalid Data (Equipment Malfunction /Recovery)									NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																								
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																																			
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																																			

Timeseries Chart of Hourly Average for ST - AQHI - Cadotte Lake Station





PEACE RIVER AREA MONITORING PROGRAM

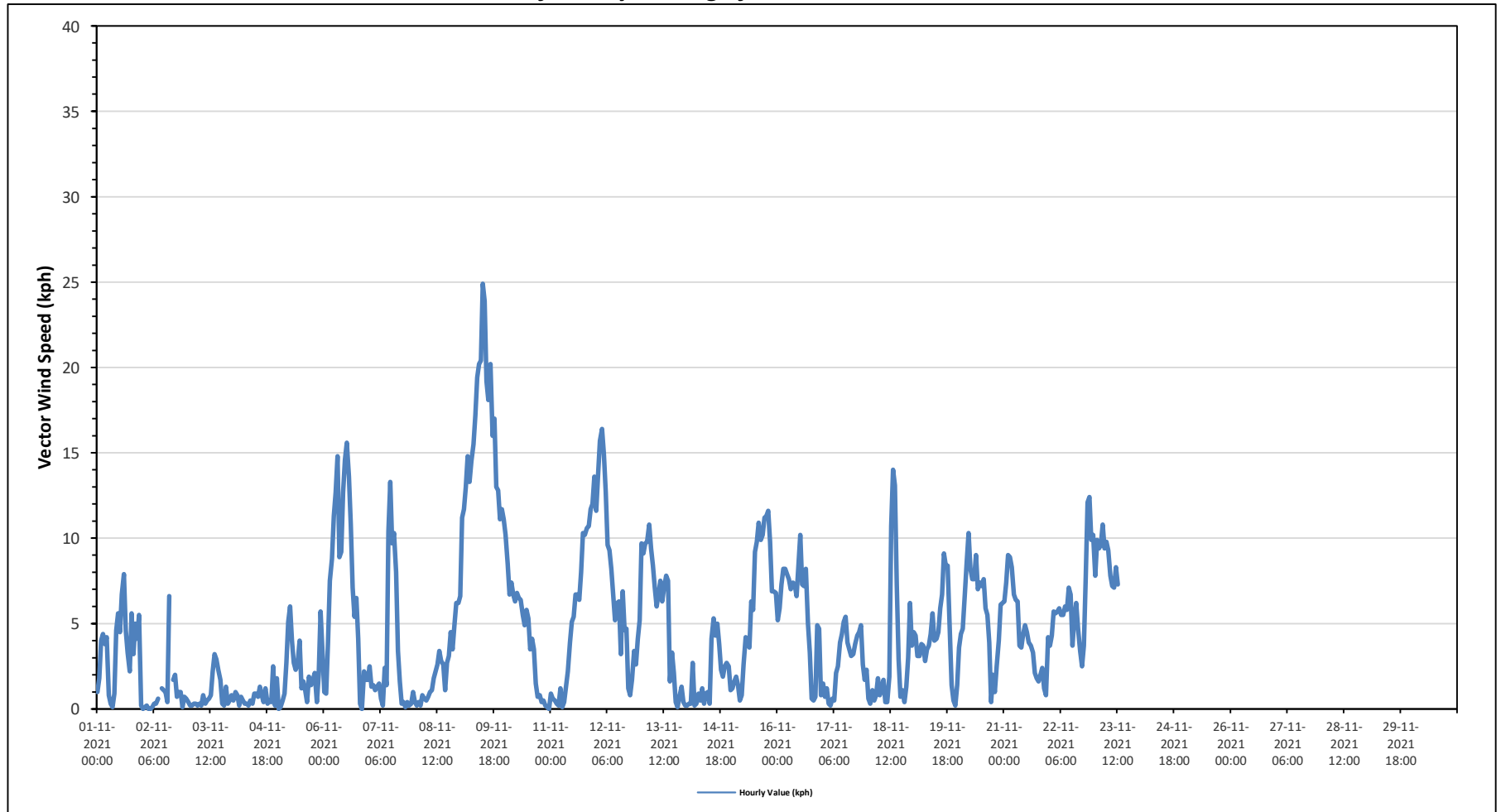
AQHI - Cadotte Lake Station - November 2021

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr

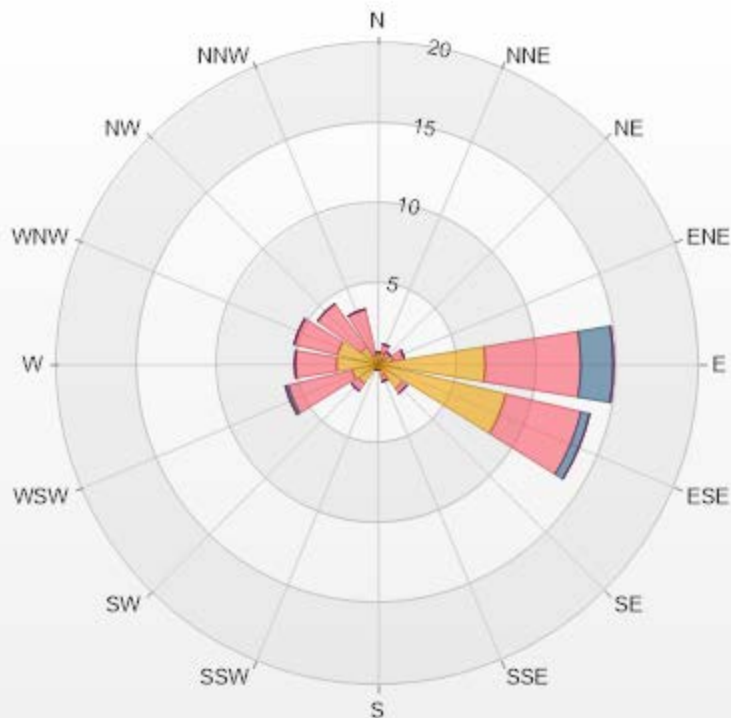
Maximum Hourly Value:	24.9	kph	on November 9 at hour 12	Hours in Service:	720																							
Maximum Daily Value:	15.6	kph	on November 9	Hours of Data:	539																							
Minimum Hourly Value:	0.0	kph	on November 2 at hour 0	Hours of Missing Data:	2																							
Minimum Daily Value:	0.1	kph	on November 4	Hours of Calibration:	0																							
Monthly Average:	0.8	kph		Operational Uptime:	74.9																							
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
Nov 1	1.0	1.8	4.0	4.4	3.8	4.2	0.8	0.3	0.1	0.9	4.6	5.6	4.5	6.7	7.9	4.6	3.3	2.2	5.6	3.2	5.0	4.1	5.5	0.2	0.1	7.9	3.4	
Nov 2	0.0	0.1	0.2	0.0	0.0	0.1	0.3	0.3	0.6	X	1.2	1.1	1.0	0.4	6.6	Y	1.7	2.0	0.7	1.0	1.0	0.1	0.7	0.6	0.0	6.6	0.4	
Nov 3	0.4	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.8	0.3	0.5	0.6	0.8	2.2	3.2	2.9	2.3	1.7	0.3	0.2	1.3	0.3	0.5	0.8	0.2	3.2	0.3	
Nov 4	0.5	1.0	0.8	0.2	0.7	0.5	0.3	0.3	0.2	0.5	0.3	0.9	0.9	0.7	1.3	0.8	0.4	1.2	0.3	0.5	0.4	2.5	0.2	1.8	0.2	2.5	0.1	
Nov 5	0.0	0.1	0.5	0.9	2.7	5.1	6.0	4.0	2.7	2.3	2.6	4.0	1.2	1.6	1.1	0.4	1.9	1.4	1.7	2.1	0.4	2.0	5.7	3.4	0.0	6.0	1.5	
Nov 6	1.0	0.9	3.9	7.5	8.8	11.3	12.7	14.8	8.9	9.2	12.7	14.6	15.6	13.6	10.8	7.1	5.4	6.5	4.1	0.3	0.0	2.2	1.7	1.7	0.0	15.6	6.7	
Nov 7	2.5	1.3	1.4	1.1	1.3	1.5	0.6	0.2	2.4	1.4	10.4	13.3	9.7	10.3	8.0	3.4	1.6	0.3	0.4	0.1	0.4	0.2	0.3	1.0	0.1	13.3	2.1	
Nov 8	0.4	0.2	0.4	0.2	0.8	0.6	0.5	0.7	1.0	1.1	1.8	2.2	2.6	3.4	2.8	2.6	1.1	2.7	3.1	4.5	3.5	4.9	6.2	6.2	0.2	6.2	0.5	
Nov 9	6.6	11.2	11.7	13.0	14.8	13.3	14.5	15.5	17.2	19.4	20.2	20.4	24.9	23.9	19.2	18.1	20.2	16.0	17.0	13.0	12.8	11.1	11.7	11.1	6.6	24.9	15.6	
Nov 10	10.2	8.5	6.7	7.4	6.7	6.3	6.8	6.5	6.4	5.5	4.9	5.8	5.3	3.5	4.1	3.5	1.5	0.7	0.8	0.4	0.5	0.2	0.1	0.0	0.0	10.2	4.1	
Nov 11	0.9	0.6	0.5	0.3	0.2	1.2	0.1	0.4	1.3	2.2	3.9	5.1	5.4	6.7	6.7	6.4	8.0	10.3	10.2	10.6	10.7	11.7	12.0	13.6	0.1	13.6	4.9	
Nov 12	11.6	13.7	15.7	16.4	14.9	12.7	9.6	9.3	8.2	6.7	5.2	6.2	6.3	3.2	6.9	4.6	4.7	1.2	0.8	1.7	3.4	2.6	4.1	5.2	0.8	16.4	5.6	
Nov 13	9.7	9.1	9.7	9.8	10.8	9.4	8.4	7.1	6.0	6.7	7.5	6.3	7.2	7.8	7.5	1.6	3.3	2.1	0.4	0.1	0.7	1.3	0.4	0.2	0.1	10.8	4.9	
Nov 14	0.2	0.3	0.3	2.7	0.2	0.3	0.9	0.5	1.2	0.3	0.9	1.0	0.3	4.1	5.3	4.3	5.0	3.8	2.3	1.9	2.5	2.7	2.5	1.1	0.2	5.3	1.4	
Nov 15	1.2	1.6	1.9	1.4	0.5	0.8	2.6	4.2	4.0	3.6	6.3	5.8	9.2	9.8	10.9	9.9	10.2	11.2	11.3	11.6	9.8	6.9	6.9	6.8	0.5	11.6	5.2	
Nov 16	5.2	5.9	7.3	8.2	8.2	7.9	7.6	7.0	7.4	7.3	6.6	8.4	10.2	7.3	7.2	8.2	5.0	3.3	0.6	0.5	0.7	4.9	4.7	0.8	0.5	10.2	5.1	
Nov 17	1.5	0.7	1.2	0.3	0.2	0.6	0.5	2.1	2.5	3.9	4.4	5.1	5.4	3.9	3.5	3.1	3.2	3.8	4.3	4.5	4.9	2.6	1.7	2.3	0.2	5.4	2.6	
Nov 18	0.6	0.3	1.1	0.5	0.8	1.8	0.8	1.3	1.7	0.4	0.4	1.9	10.7	14.0	13.1	7.3	2.9	0.7	1.1	0.4	1.3	3.0	6.2	3.7	0.3	14.0	2.3	
Nov 19	4.5	4.3	3.1	3.1	3.8	3.7	2.8	3.5	3.7	4.4	5.6	4.0	4.1	4.5	5.9	6.7	9.1	8.4	8.4	5.1	1.4	0.5	0.2	1.4	0.2	9.1	4.1	
Nov 20	3.6	4.4	4.7	6.5	8.6	10.3	8.2	7.6	7.6	9.0	7.0	7.4	7.2	7.6	5.9	5.5	3.9	0.4	2.0	1.0	2.5	4.0	6.1	6.2	0.4	10.3	3.6	
Nov 21	6.3	7.4	9.0	8.9	8.3	6.7	6.4	6.3	3.7	3.6	4.4	4.9	4.5	3.9	3.7	3.3	2.1	1.8	1.6	2.0	2.4	1.2	0.8	4.2	0.8	9.0	4.4	
Nov 22	3.7	4.3	5.7	5.6	5.7	5.9	5.5	5.5	6.0	5.8	7.1	6.7	3.7	5.3	6.2	4.7	3.4	2.5	3.7	7.7	12.1	12.4	9.9	10.2	2.5	12.4	1.9	
Nov 23	7.8	9.9	9.4	9.6	10.8	9.4	9.8	9.3	7.8	7.2	7.1	8.3	7.3												7.1	10.8	-	
Nov 24																												
Nov 25																												
Nov 26																												
Nov 27																												
Nov 28																												
Nov 29																												
Nov 30																												
Diurnal Maximum	12	14	16	16	15	13	15	16	17	19	20	20	25	24	19	18	20	16	17	13	13	12	12	14				
Diurnal Average	3.5	3.8	4.3	4.7	4.9	4.9	4.6	4.6	4.4	4.6	5.5	6.1	6.4	6.6	6.7	5.2	4.6	3.8	3.7	3.3	3.5	3.7	4.0	3.8				
C	Monthly Calibration								S	Daily Zero-Span Check								Q	Quality Assurance									
K	Collection Error								N	No Data (Machine Not in Service)								Y	Routine Maintenance								P	Power Failure
X	Invalid Data (Equipment Malfunction /Recovery)								NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																		
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.																												
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.																												

Timeseries Chart of Hourly Average for VWS - AQHI - Cadotte Lake Station



Wind: AQHI Cadotte Lake Monitor: WDS [KPH] Monthly: 11-2021 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 36.36% Valid Data: 74.86%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	0.74	0	0	0	0	0.74
NNE	0.74	0.56	0	0	0	1.3
NE	0.37	0.56	0	0	0	0.93
ENE	0.93	0.74	0	0	0	1.67
E	6.68	5.94	2.04	0	0	14.66
ESE	8.16	4.82	0.56	0	0	13.54
SE	1.86	0.37	0	0	0	2.23
SSE	0.74	0.37	0	0	0	1.11
S	0.37	0	0	0	0	0.37
SSW	0.37	0	0	0	0	0.37
SW	1.48	0.56	0	0	0	2.04
WSW	1.67	4.08	0.19	0	0	5.94
W	2.6	2.6	0	0	0	5.2
WNW	2.6	2.78	0	0	0	5.38
NW	1.3	3.34	0	0	0	4.64
NNW	0.56	2.97	0	0	0	3.53
Summary	31.17	29.69	2.79	0	0	63.65



PRAMP-202111

Page 221 of 226

% Icon Classes (KPH)

31 1.8-6.0

30 6.0-15.0

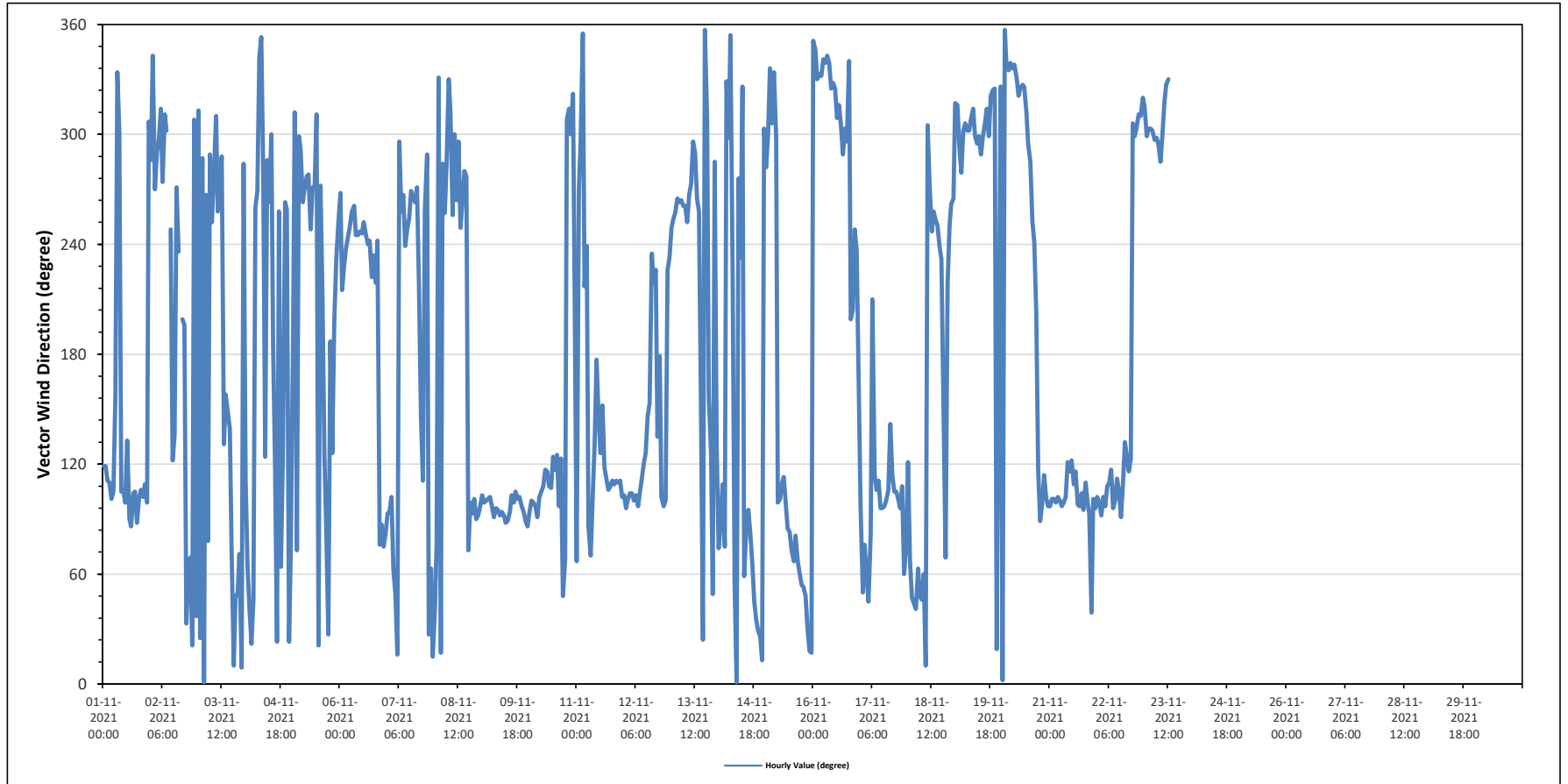
3 15.0-29.0

0 29.0-39.0

0 >39.0

WIND DIRECTION (VWD) in sector

Timeseries Chart of Hourly Average for VWD - AQHI - Cadotte Lake Station





PEACE RIVER AREA MONITORING PROGRAM

AQHI - Cadotte Lake Station - November 2021

Summary of Hourly Averages

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

WIND SPEED																												
Maximum Hourly Value:		24.9	kph	on November 9 at hour 12										Hours in Service:		720												
Maximum Daily Value:		15.6	kph	on November 9										Hours of Data:		539												
Minimum Hourly Value:		0.0	kph	on November 2 at hour 0										Hours of Missing Data:		2												
Minimum Daily Value:		0.1	kph	on November 4										Hours of Calibration:		0												
Monthly Average:		0.8	kph											Operational Uptime:		74.9												
WIND DIRECTION																												
Monthly Average:		85	(E)	degree																								
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
Nov 1	1.0	1.8	4.0	4.4	3.8	4.2	0.8	0.3	0.1	0.9	4.6	5.6	4.5	6.7	7.9	4.6	3.3	2.2	5.6	3.2	5.0	4.1	5.5	0.2	0.1	7.9	3.4	
Nov 2	ESE	ESE	ESE	ESE	E	ESE	SSE	NNW	WNW	ESE	ESE	E	SE	E	E	ESE	ESE	E	E	ESE	E	ESE	E	NW				
	0.0	0.1	0.2	0.0	0.0	0.1	0.3	0.3	0.6	X	1.2	1.1	1.0	0.4	6.6	Y	1.7	2.0	0.7	1.0	1.0	0.1	0.7	0.6	0.0	6.6	0.4	
Nov 3	WNW	NNW	W	WNW	WNW	NW	W	NW	WNW	X	WSW	ESE	SE	W	SW	Y	SSW	SSW	NNE	ENE	ENE	NNE	NW	NE				
	0.4	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.8	0.3	0.5	0.6	0.8	2.2	3.2	2.9	2.3	1.7	0.3	0.2	1.3	0.3	0.5	0.8	0.2	3.2	0.3	
Nov 4	NW	NNE	WNW	N	W	ENE	WNW	WSW	W	NW	WSW	W	WNW	SE	SSE	SE	SE	ENE	N	NE	NE	ENE	N	WNW				
	0.5	1.0	0.8	0.2	0.7	0.5	0.3	0.3	0.2	0.5	0.3	0.9	0.9	0.7	1.3	0.8	0.4	1.2	0.3	0.5	0.4	2.5	0.2	1.8	0.2	2.5	0.1	
Nov 5	ESE	ENE	NE	NNE	NE	WSW	W	NNW	N	W	ESE	WNW	W	WNW	S	ESE	NNE	WSW	ENE	SE	W	WSW	NNE	ENE				
	0.0	0.1	0.5	0.9	2.7	5.1	6.0	4.0	2.7	2.3	2.6	4.0	1.2	1.6	1.1	0.4	1.9	1.4	1.7	2.1	0.4	2.0	5.7	3.4	0.0	6.0	1.5	
Nov 6	S	NW	ENE	WNW	WNW	W	W	W	WSW	W	W	NW	NNE	W	SSW	SE	E	NNE	S	SE	SSW	SW	WSW					
	1.0	0.9	3.9	7.5	8.8	11.3	12.7	14.8	8.9	9.2	12.7	14.6	15.6	13.6	10.8	7.1	5.4	6.5	4.1	0.3	0.0	2.2	1.7	1.7	0.0	15.6	6.7	
Nov 7	W	SSW	SW	SW	WSW	WSW	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	WSW	ENE	E	ENE	E				
	2.5	1.3	1.4	1.1	1.3	1.5	0.6	0.2	2.4	1.4	10.4	13.3	9.7	10.3	8.0	3.4	1.6	0.3	0.4	0.1	0.4	0.2	0.3	1.0	0.1	13.3	2.1	
Nov 8	E	E	E	ENE	NE	NNE	WNW	WSW	W	WSW	WSW	WSW	W	W	W	W	SW	SE	ESE	WSW	WNW	NNE	ENE	NNE				
	0.4	0.2	0.4	0.2	0.8	0.6	0.5	0.7	1.0	1.1	1.8	2.2	2.6	3.4	2.8	2.6	1.1	2.7	3.1	4.5	3.5	4.9	6.2	6.2	0.2	6.2	0.5	
Nov 9	NE	ENE	NNW	NNW	NNW	WSW	W	NNW	NW	WSW	NNW	W	NNW	WSW	W	W	W	ENE	E	E	E	E	E	E				
	6.6	11.2	11.7	13.0	14.8	13.3	14.5	15.5	17.2	19.4	20.2	20.4	24.9	23.9	19.2	18.1	20.2	16.0	17.0	13.0	12.8	11.1	11.7	11.1	6.6	24.9	15.6	
Nov 10	ESE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	ESE	ESE	ESE	E	E	E	E	E	E				
	10.2	8.5	6.7	7.4	6.7	6.3	6.8	6.5	6.4	5.5	4.9	5.8	5.3	3.5	4.1	3.5	1.5	0.7	0.8	0.4	0.5	0.2	0.1	0.0	0.0	10.2	4.1	
Nov 11	E	E	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	E	ESE	NE	ENE	NW	NW	WNW	NW	SSW				
	0.9	0.6	0.5	0.3	0.2	1.2	0.1	0.4	1.3	2.2	3.9	5.1	5.4	6.7	6.7	6.4	8.0	10.3	10.2	10.6	10.7	11.7	12.0	13.6	0.1	13.6	4.9	
Nov 12	ENE	W	WNW	N	SW	WSW	E	ENE	E	SE	S	SE	SE	SSE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E				
	11.6	13.7	15.7	16.4	14.9	12.7	9.6	9.3	8.2	6.7	5.2	6.2	6.3	3.2	6.9	4.6	4.7	1.2	0.8	1.7	3.4	2.6	4.1	5.2	0.8	16.4	5.6	
Nov 13	ESE	E	E	ESE	ESE	E	ESE	E	ESE	ESE	ESE	ESE	SE	SSE	SW	SW	SW	SE	S	E	E	E	SW	SW				
	9.7	9.1	9.7	9.8	10.8	9.4	8.4	7.1	6.0	6.7	7.5	6.3	7.2	7.8	7.5	1.6	3.3	2.1	0.4	0.1	0.7	1.3	0.4	0.2	0.1	10.8	4.9	
Nov 14	WSW	WSW	WSW	W	W	W	W	W	WSW	W	W	WNW	WNW	W	WSW	SSE	NNE	N	NW	SSE	SE	NE	WNW	SE				
	0.2	0.3	0.3	2.7	0.2	0.3	0.9	0.5	1.2	0.3	0.9	1.0	0.3	4.1	5.3	4.3	5.0	3.8	2.3	1.9	2.5	2.7	2.5	1.1	0.2	5.3	1.4	
Nov 15	ENE	E	ESE	ENE	NNW	WNW	N	SW	NE	N	W	SW	NW	ENE	E	E	E	ENE	NE	NE	NNE	NNE	NNE	WNW				
	1.2	1.6	1.9	1.4	0.5	0.8	2.6	4.2	4.0	3.6	6.3	5.8	9.2	9.8	10.9	9.9	10.2	11.2	11.3	11.6	9.8	6.9	6.9	6.8	0.5	11.6	5.2	
Nov 16	W	WNW	NNW	NW	NNW	WNW	E	ESE	ESE	E	E	E	ENE	ENE	E	ENE	ENE	NE	NE	NE	NNE	NNE	NNE	NNE				
	5.2	5.9	7.3	8.2	8.2	7.9	7.6	7.0	7.4	7.3	6.6	8.4	10.2	7.3	7.2	8.2	5.0	3.3	0.6	0.5	0.7	4.9	4.7	0.8	0.5	10.2	5.1	
Nov 17	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW				
	1.5	0.7	1.2	0.3	0.2	0.6	0.5	2.1	2.5	3.9	4.4	5.1	5.4	3.9	3.5	3.1	3.2	3.8	4.3	4.5	4.9	2.6	1.7	2.3	0.2	5.4	2.6	
Nov 18	E	NE	ENE	ENE	NE	E	SSW	ESE	ESE	ESE	E	E	E	E	ESE	SE	ESE	ESE	ESE	E	E	ESE	ENE	ENE				
	0.6	0.3	1.1	0.5	0.8	1.8	0.8	1.3	1.7	0.4	0.4	1.9	10.7	14.0	13.1	7.3	2.9	0.7	1.1	0.4	1.3	3.0	6.2	3.7	0.3	14.0	2.3	
Nov 19	ESE	ENE	NE	NE	NE	ENE	NE	NE	ENE	N	WNW	W	WSW	WSW	WSW	WSW	SW	SW	SE	ENE	SW	WSW	W	W				
	4.5	4.3	3.1	3.1	3.8	3.7	2.8	3.5	3.7	4.4	5.6	4.0	4.1	4.5	5.9	6.7	9.1	8.4	8.4	5.1	1.4	0.5	0.2	1.4	0.2	9.1	4.1	
Nov 20	NW	NW	WNW	W	WNW	NW	NNW	WNW	NNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	SSE	NW			
	3.6	4.4	4.7	6.5	8.6	10.3	8.2	7.6	7.6	9.0	7.0	7.4	7.2	7.6	5.9	5.5	3.9	0.4	2.0	1.0	2.5	4.0	6.1	6.2	0.4	10.3	3.6	
	N	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW				

PRAMP-202111
Page 225 of 226

END OF REPORT

This page, 226 of 226, ends the November 2021 Monthly Ambient Air Quality Monitoring Report.



Peace River Area Monitoring Program

NOVEMBER 2021

Ambient Air Monitoring Calibration Report

- 842b STATION-

CAL-PRAMP-202111-01561

Operation and Maintenance:

Bureau Veritas Canada

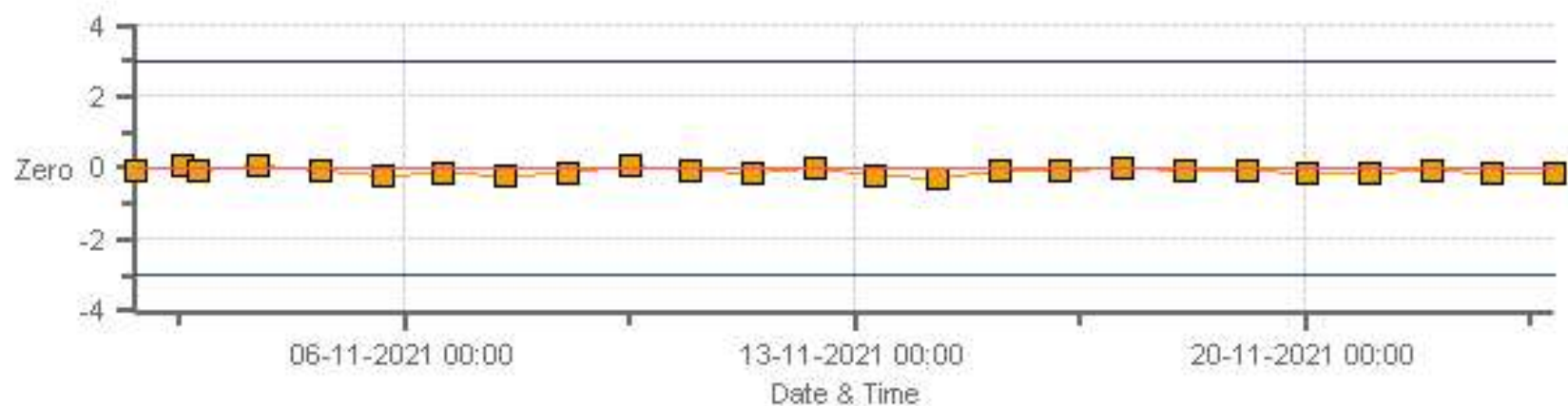
Data Validation and Report:

Bureau Veritas Canada

December 15, 2021

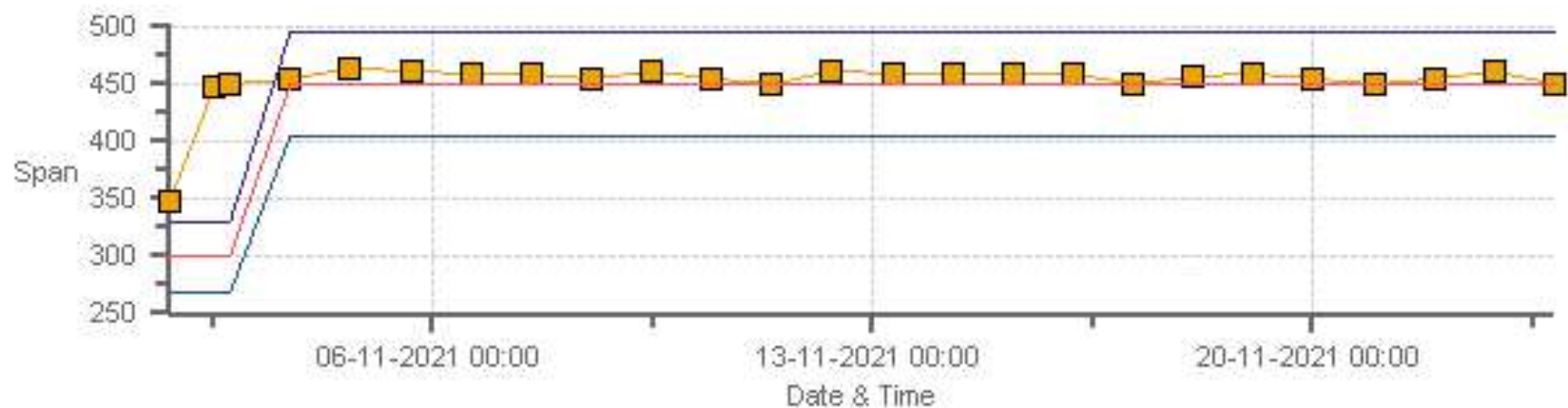
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: PRAMP 842b Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



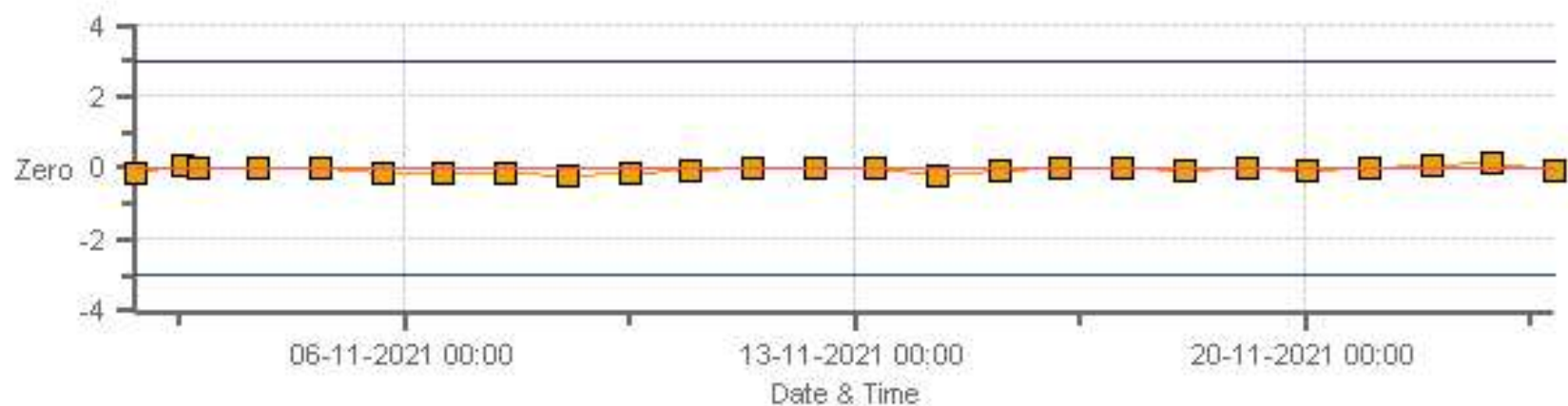
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: PRAMP 842b Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



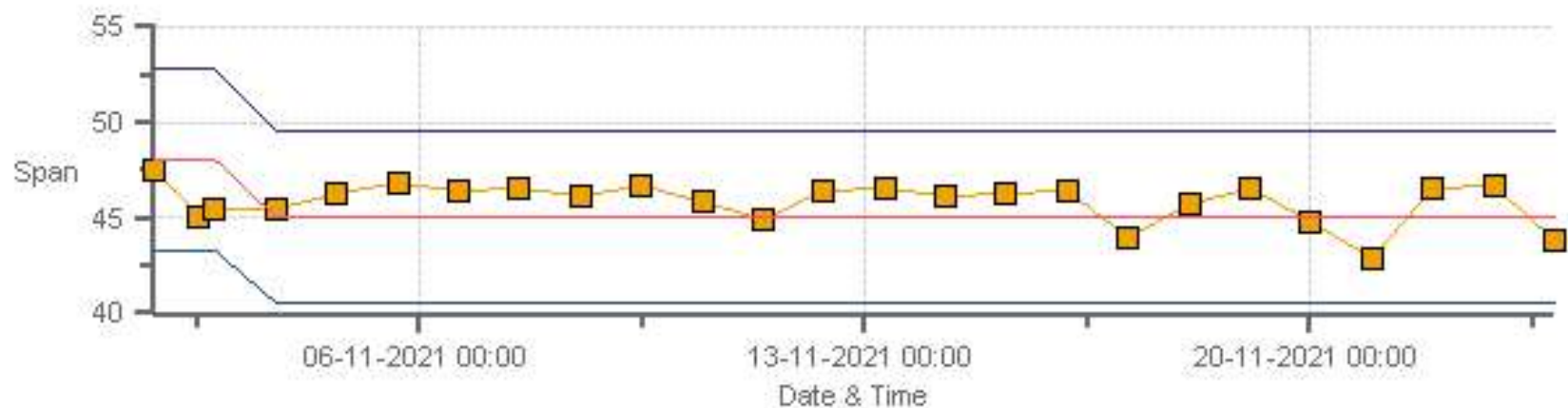
Span SpanRef Span Low Span High

TRS[ppb] Calibration: PRAMP 842b Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



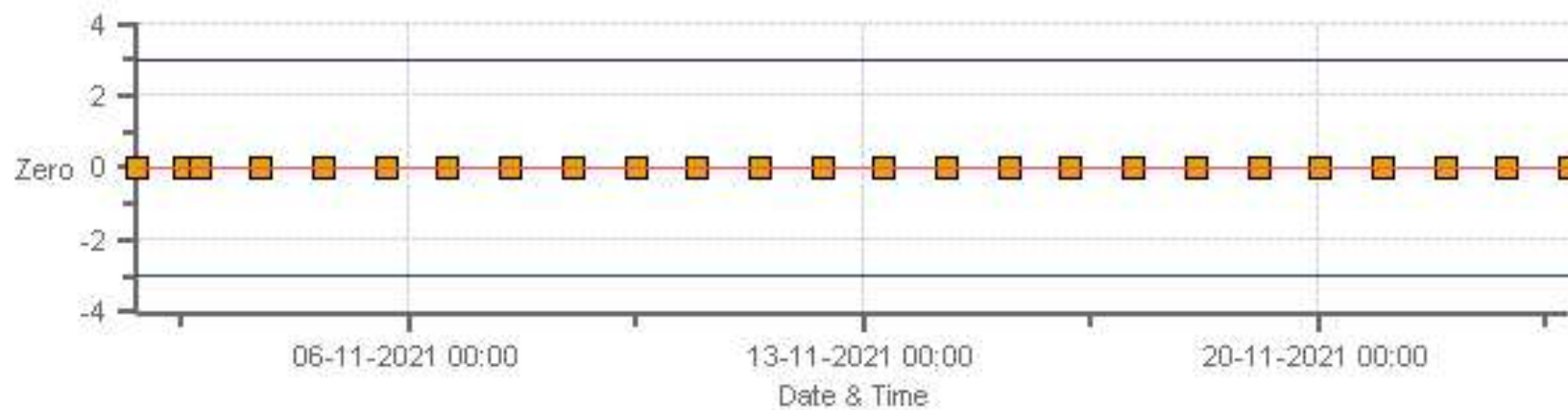
Zero Zero Ref Zero Low Zero High

TRS[ppb] Calibration: PRAMP 842b Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



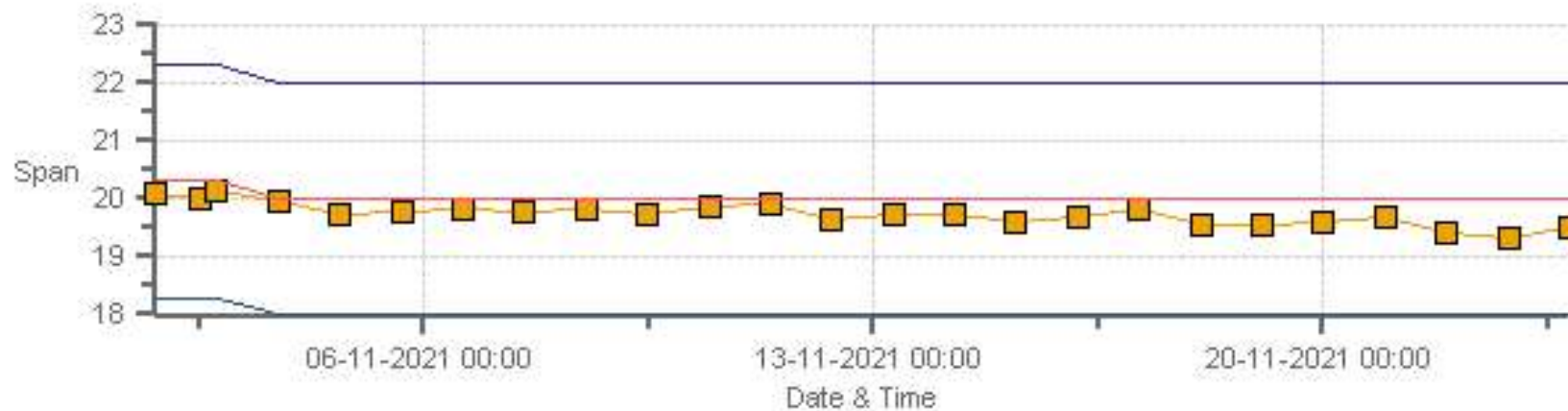
Span SpanRef Span Low Span High

THC55[ppm] Calibration: PRAMP 842b Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



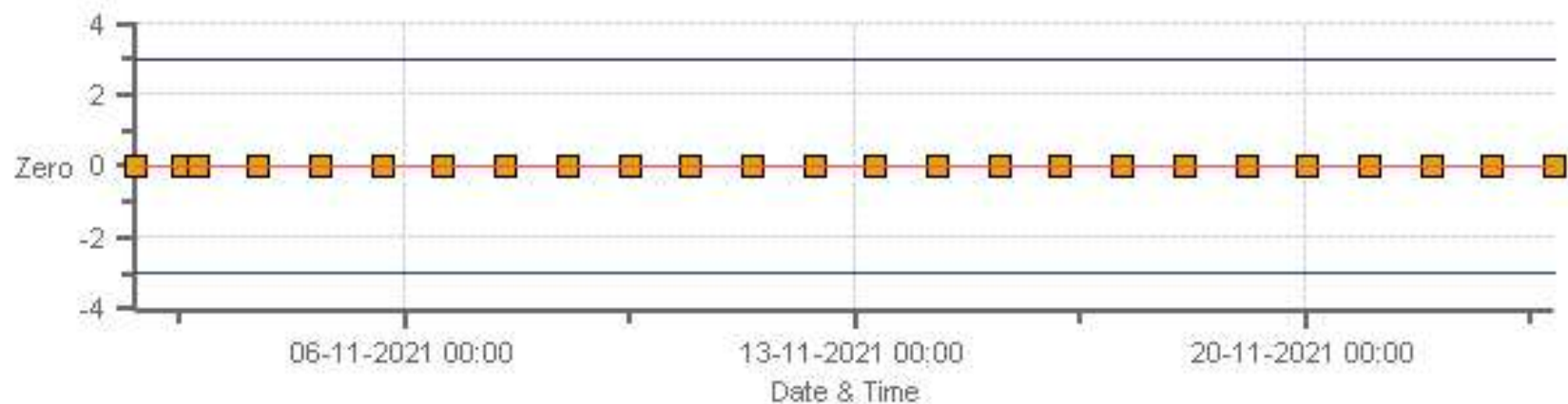
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: PRAMP 842b Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



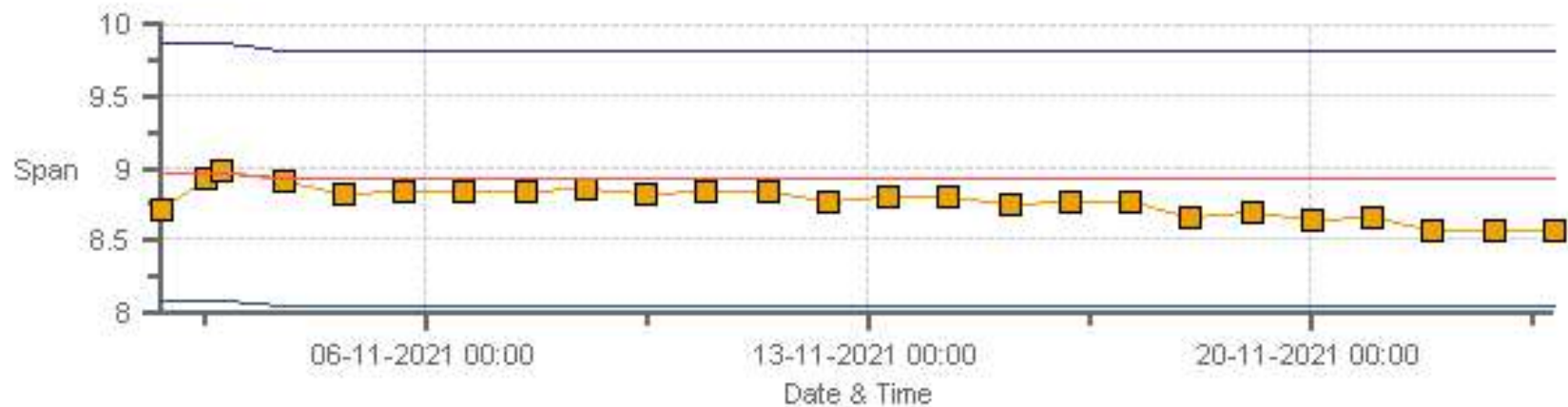
Span SpanRef Span Low Span High

CH4[ppm] Calibration: PRAMP 842b Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



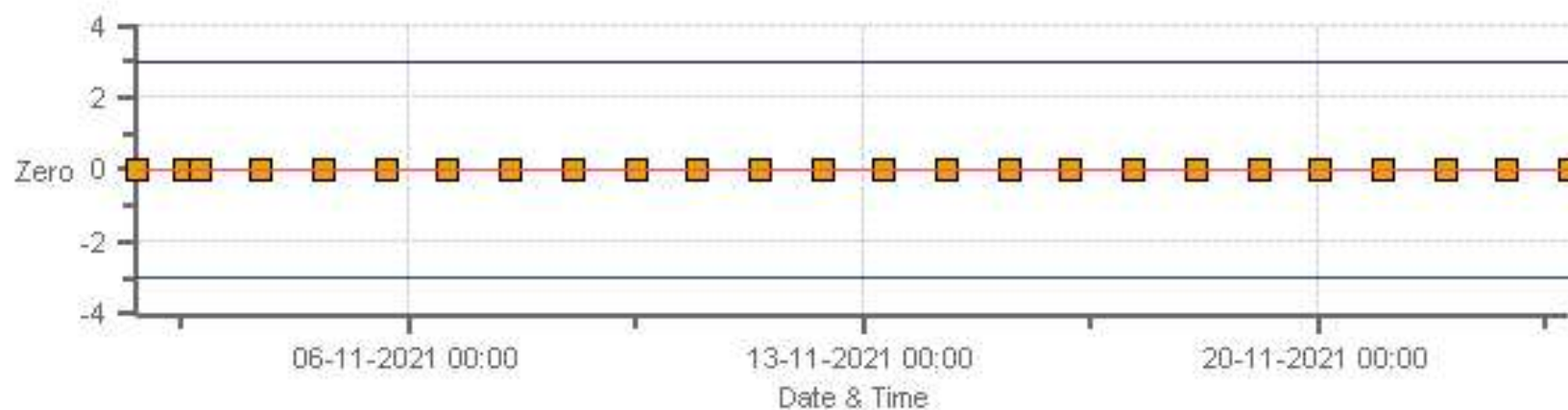
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: PRAMP 842b Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



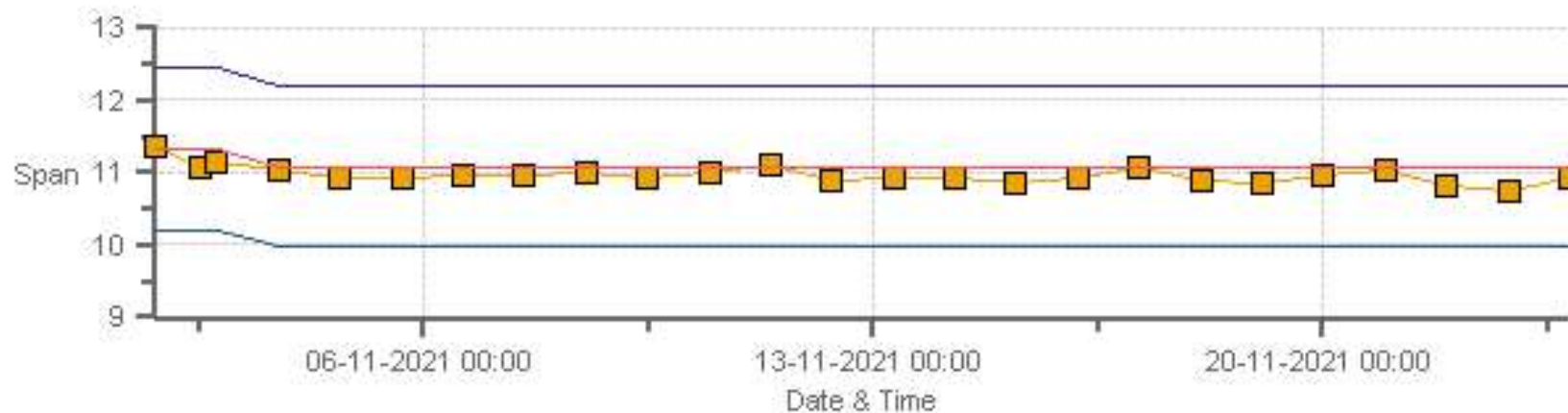
Span SpanRef Span Low Span High

NMHC[ppm] Calibration: PRAMP 842b Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: PRAMP 842b Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	02-Nov-2021	PREVIOUS CALIBRATION DATE:	07-Oct-2021
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	PRAMP	TEMPERATURE (°C):	21.6
LOCATION:	842b	BAROMETRIC (mBar):	942
PURPOSE:	Routine	START TIME (MST):	08:09
PERFORMED BY:	Chris Wesson	END TIME (MST):	12:50

ANALYZER:

MAKE/MODEL	Thermo 43iQTL	RANGE	500 ppb
SERIAL #	1200736629	FLOW (mL/min)	425
INITIAL		FINAL	
BKG/OFFSET	8.1	BKG/OFFSET	8.3
COEF/SLOPE	1.089	COEF/SLOPE	1.113
Expected (reference) Value	299.2	Expected (reference) Value	447.2

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Sabio
MODEL:	2010	MODEL:	2020
ID:	58100720	ID:	18500921
MFC CALIBRATION DATE:	12-Oct-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL19664	HIGH ID	n/a
CONC (ppm):	24.20	EXPIRY DATE	n/a
CYLINDER (psi):	700	LOW ID	n/a
EXPIRY DATE	03-Jul-2023	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
3500	55.00	3500	0.00	-0.1	0	1.029	0.999
3447	55.00	3502	380.07	369.3	380.3	1.029	0.999
3474	26.00	3500	179.77	n/a	182	n/a	0.988
3489	13.00	3502	89.83	n/a	91.2	n/a	0.985

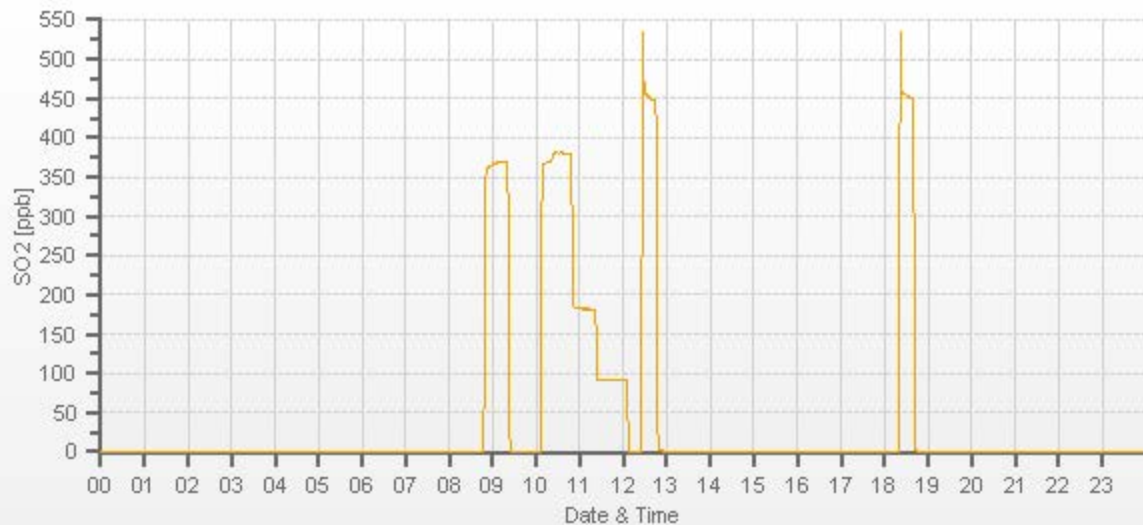
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.2%

COMMENTS:

Sample filter changed. Monthly calibration - no issues.

SO2[ppb] Station: PRAMP 842b Daily: 02-11-2021 Type: AVG 1 Min. [1 Min.]



CAL-PRAMP-202111-01561

TRS Analyzer Calibration by Dilution



DATE:	02-Nov-2021	PREVIOUS CALIBRATION DATE:	07-Oct-2021
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	PRAMP	TEMPERATURE (°C):	21.6
LOCATION:	842b	BAROMETRIC (mBar):	942
PURPOSE:	Routine	START TIME (MST):	08:09
PERFORMED BY:	Chris Wesson	END TIME (MST):	12:50

ANALYZER:

MAKE/MODEL	Thermo 43iQTL	RANGE	100 ppb
SERIAL #	1200736630	FLOW (mL/min)	373
INITIAL		FINAL	
BKG/OFFSET	12.9	BKG/OFFSET	12.6
COEF/SLOPE	0.888	COEF/SLOPE	0.871
Expected (reference) Value	48.02	Expected (reference) Value	45.03

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Sabio
MODEL:	2010	MODEL:	2020
ID:	58100720	ID:	18500921
MFC CALIBRATION DATE:	12-Oct-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0002519	HIGH ID	n/a
CONC (ppm):	9.41	EXPIRY DATE	n/a
CYLINDER (psi):	1600	LOW ID	n/a
EXPIRY DATE	10-Nov-2023	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
3500	29.00	3500	0.00	0	0	0.977	1.001
3473	29.00	3502	77.92	79.75	77.88	0.977	1.001
3486	14.10	3500	37.91	n/a	37.9	n/a	1.000
3495	7.10	3502	19.08	n/a	19.25	n/a	0.991

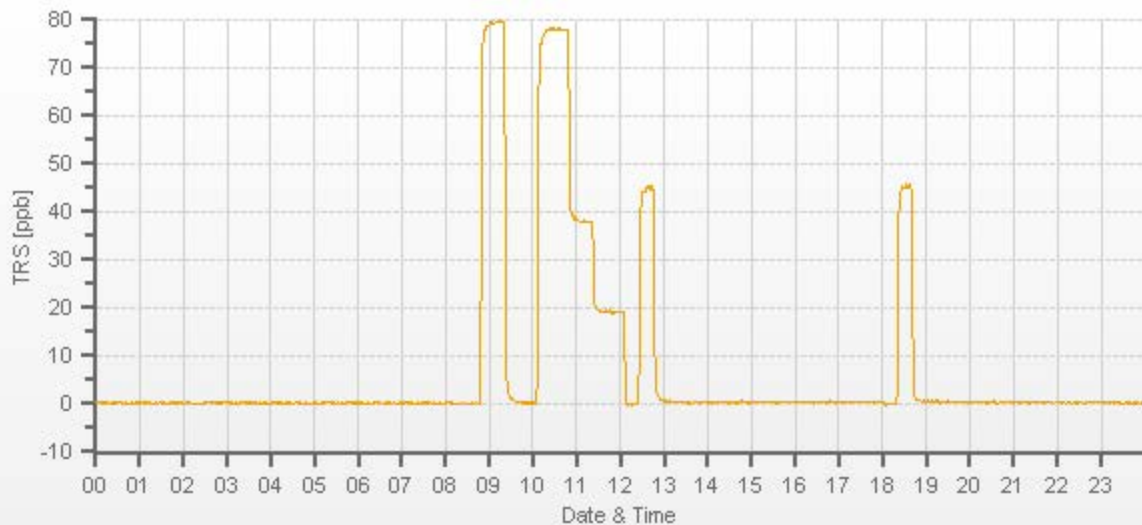
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.999	0.1%

COMMENTS:

TRS Converter CDNOVA CDN #576.
Sample filter changed. Monthly calibration - no issues.

TRS[ppb] Station: PRAMP 842b Daily: 02-11-2021 Type: AVG 1 Min. [1 Min.]



CAL-PRAMP-202111-01561

Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	02-Nov-2021	PREVIOUS CALIBRATION DATE:	07-Oct-2021	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	21.6		Thermo 55i	1501663728	1059
LOCATION:	842b	BAROMETRIC (mBar):	942	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Routine	START TIME (MST):	08:09	RANGE (ppm):	20	20	40
PERFORMED BY:	Chris Wesson	END TIME (MST):	12:44	PREVIOUS CF:	1.002	1.000	1.001

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	Teledyne	CYLINDER ID:	LL119576	HIGH ID:	n/a
MODEL:	2010	MODEL:	T701	CH ₄ /C ₃ H ₈ (ppm):	870.0 299.0	HIGH EXPIRY:	n/a
ID:	26701218	ID:	74	CYLINDER (psi):	1600	LOW ID:	n/a
MFC CALIBRATION DATE:	12-Oct-2021	OXIDIZER ID:	Internal	EXPIRY DATE	22-Dec-2028	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

POINT (CH ₄ /NMHC)	HIGH	MID	LOW	CH ₄ EQUIVILANCE	
TARGET	14	7	3.5	C ₃ H ₈ as CH ₄	822.3
RANGE	12 - 16	6 - 8	2 - 4	THC as CH ₄	1692.3

EXPECTED (REFERENCE) VALUE:

INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	8.97	11.33	20.30		8.93	11.08	20.00

CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
2700	44.70	2700	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.012	0.977	0.995	1.001	1.001	1.001
2655	44.70	2700	14.40	13.61	28.02	14.23	13.93	28.15	14.39	13.60	27.99	1.012	0.977	0.995	1.001	1.001	1.001
2677	22.30	2699	7.19	6.79	13.98	n/a	n/a	n/a	7.03	6.78	13.81	n/a	n/a	n/a	1.023	1.002	1.012
2689	11.20	2700	3.61	3.41	7.02	n/a	n/a	n/a	3.49	3.41	6.99	n/a	n/a	n/a	1.034	1.000	1.004

LINEAR REGRESSION ANALYSIS:

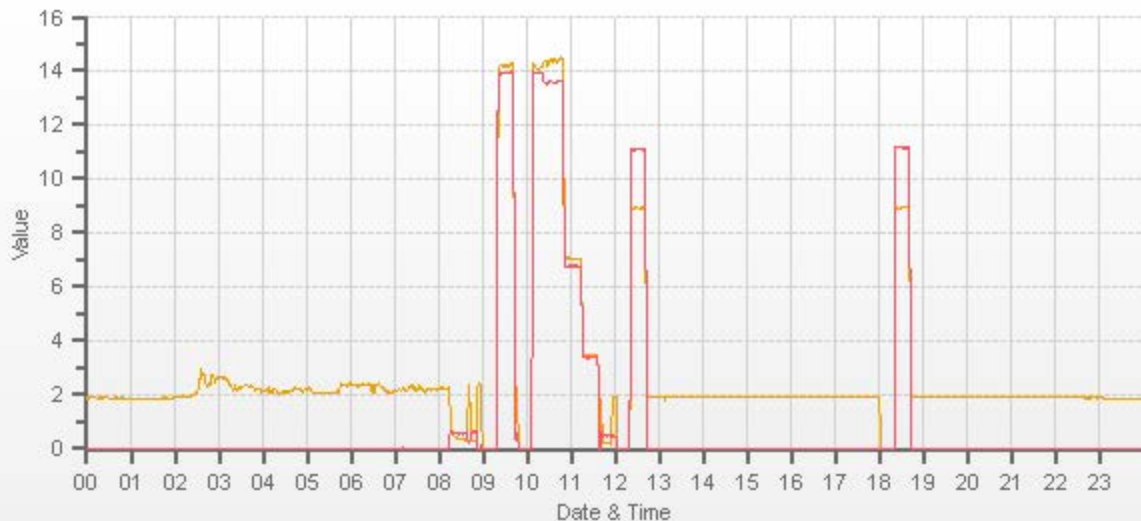
	CORRELATION	SLOPE	INTERCEPT
CH ₄	1.000	1.001	-0.4%
NMHC	1.000	0.999	0.0%
THC	1.000	0.999	-0.1%

Comments:

Swapped zero air at 08:56 and restarted zero.

Use Zero Chrom?

No



CAL-PRAMP-202111-01561

Page 14 of 19
CH4 [ppm] NMHC [ppm]

Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	25-Nov-2021	PREVIOUS CALIBRATION DATE:	02-Nov-2021	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	21.9		Thermo 55i	1501663728	1027
LOCATION:	842b	BAROMETRIC (mBar):	925	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Removal/Shut-down	START TIME (MST):	09:56	RANGE (ppm):	20	20	40
PERFORMED BY:	Chris Wesson	END TIME (MST):	12:00	PREVIOUS CF:	1.001	1.001	1.001

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	Teledyne	CYLINDER ID:	LL119576	HIGH ID:	n/a
MODEL:	2010	MODEL:	M701	CH ₄ /C ₃ H ₈ (ppm):	870.0 299.0	HIGH EXPIRY:	n/a
ID:	58100720	ID:	5004	CYLINDER (psi):	1600	LOW ID:	n/a
MFC CALIBRATION DATE:	12-Oct-2021	OXIDIZER ID:	Internal	EXPIRY DATE	22-Dec-2028	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

POINT (CH ₄ /NMHC)	HIGH	MID	LOW	CH ₄ EQUIVILANCE	
TARGET	14	7	3.5	C ₃ H ₈ as CH ₄	822.3
RANGE	12 - 16	6 - 8	2 - 4	THC as CH ₄	1692.3

EXPECTED (REFERENCE) VALUE:

INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	8.93	11.08	20.00		8.93	11.08	20.00

CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
2750	45.50	2750	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a	1.073	1.046	1.060	n/a	n/a	n/a
2705	45.50	2750	14.39	13.60	28.00	13.41	13.01	26.41	n/a	n/a	n/a	1.073	1.046	1.060	n/a	n/a	n/a
2731	22.70	2754	7.17	6.78	13.95	6.65	6.49	13.14	n/a	n/a	n/a	1.078	1.044	1.062	n/a	n/a	n/a
2740	11.40	2751	3.61	3.41	7.01	3.31	3.27	6.58	n/a	n/a	n/a	1.089	1.042	1.066	n/a	n/a	n/a

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
CH ₄	1.000	0.933	-0.1%
NMHC	1.000	0.956	0.0%
THC	1.000	0.944	0.0%

Comments:

Shutdown for troubleshooting (low CH₄ response)

Use Zero Chrom?

No

Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	25-Nov-2021	PREVIOUS CALIBRATION DATE:	n/a	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	23.5		Thermo 55i	1501663728	1029
LOCATION:	842b	BAROMETRIC (mBar):	924	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Install/Post-Repair	START TIME (MST):	14:02	RANGE (ppm):	20	20	40
PERFORMED BY:	Chris Wesson	END TIME (MST):	16:17	PREVIOUS CF:	n/a	n/a	n/a

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	Teledyne	CYLINDER ID:	LL119576	HIGH ID:	n/a
MODEL:	2010	MODEL:	M701	CH ₄ /C ₃ H ₈ (ppm):	870.0 299.0	HIGH EXPIRY:	n/a
ID:	58100720	ID:	5004	CYLINDER (psi):	1600	LOW ID:	n/a
MFC CALIBRATION DATE:	12-Oct-2021	OXIDIZER ID:	Internal	EXPIRY DATE	22-Dec-2028	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

POINT (CH ₄ /NMHC)	HIGH	MID	LOW	CH ₄ EQUIVILANCE	
TARGET	14	7	3.5	C ₃ H ₈ as CH ₄	822.3
RANGE	12 - 16	6 - 8	2 - 4	THC as CH ₄	1692.3

EXPECTED (REFERENCE) VALUE:

INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	8.93	11.08	20.00		8.93	11.08	20.00

CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
2750	45.50	2750	0.00	0.00	0.00	n/a	n/a	n/a	0.00	0.00	0.00	n/a	n/a	n/a	1.002	1.000	1.001
2705	45.50	2750	14.39	13.60	28.00	n/a	n/a	n/a	14.37	13.60	27.98	n/a	n/a	n/a	1.002	1.000	1.001
2731	22.70	2754	7.17	6.78	13.95	n/a	n/a	n/a	7.07	6.80	13.88	n/a	n/a	n/a	1.014	0.997	1.005
2741	11.40	2752	3.60	3.41	7.01	n/a	n/a	n/a	3.52	3.45	6.96	n/a	n/a	n/a	1.024	0.987	1.007

LINEAR REGRESSION ANALYSIS:

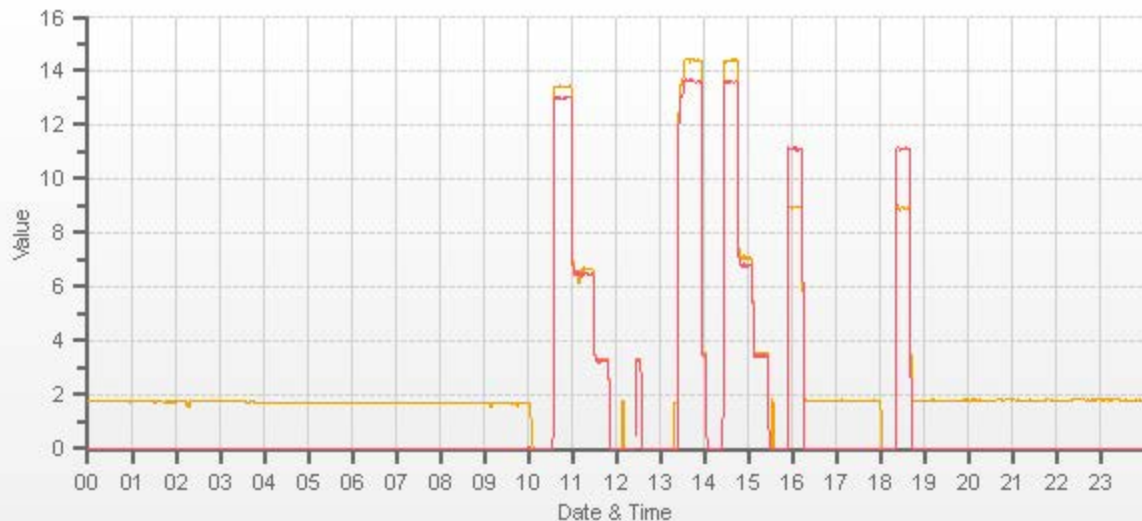
	CORRELATION	SLOPE	INTERCEPT
CH ₄	1.000	0.999	-0.2%
NMHC	1.000	0.999	0.1%
THC	1.000	1.000	-0.1%

Comments:

Post-repair following troubleshooting

Use Zero Chrom?

Yes



CAL-PRAMP-202111-01561

Page 17 of 19
CH4 [ppm] NMHC [ppm]

Meteorological System Checklist



Date:	November 2, 2021		
Technician:	Limin Li		
Station:	PRAMP 842b		
Unit:	Make:	Model:	Serial #:
Precipitation Sampler:	RM Young	52202	TB 15878
Temperature Sensor:	Rotronic	HC2A-S3	20370767
Barometric Pressure Sensor:	MetOne	92	Y23362
Relative Humidity Sensor:	Rotronic	HC2A-S3	20370767
Anemometer:	RM Young	05305AQ	174802
PRECIPITATION SENSOR CHECK			
Checklist:	Reply:	Comments:	
Previous check date:	October 14, 2021	Channel offline = 10:57 - 11:03	
Is the sensor Level?	yes		
Is the heater operating properly?	yes		
Are the bucket drain holes clean?	yes		
Is the screen on the housing? (screen should be on between July and September)	no		
Is the housing clean?	yes		
Is the area around the housing clean and free from obstacles?	yes		
TIP TEST - Slowly pour water until 5 tips are heard. (10 tips = 1 ml)			
# of Tips	Data Logger Response (ml):	Manual Specification = +/- 0.1 ml	
10	1.0	0.00	
AMBIENT TEMPERATURE SENSOR CHECK			
Previous check date:	October 7, 2021		
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	F.S. 181341226 expires Jul 29, 2022		
Reference Temperature (°C):	-1.6		
Station - Ambient Temperature (°C):	-1.1		
Temperature Difference (°C):	-0.5		
BAROMETRIC PRESSURE SENSOR CHECK			
Previous check date:	October 7, 2021		
Reference Barometer ID:	BRUNTON #05535, Expire: Feb 17, 2022		
Reference Pressure - Units/Reading:	millibar	943.2	
Station Pressure - Units/Reading:	millibar	942.3	
Pressure Tolerance +/- 15% of error:	802 - 1085	0.10%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Previous check date:	October 7, 2021		
Reference Hygrometer ID:	F.S. 181341226 expires Jul 29, 2022		
Reference Hygrometer % RH- Reading:	55.50		
Station Hygrometer % RH- Reading:	54.30		
RH Tolerance +/- 15% of difference:	47.18 - 63.83	2.2%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	October 7, 2021	Previous check date:	October 7, 2021
Wind Speed Observed (kph):	10~20	Wind Direction Observed:	S
Wind speed on Data Logger (kph):	12.7	Wind Direction on Data Logger:	S
		Wind Direction Pass/Fail?:	Pass
Comments			

No issues



Meteorological Sensor Audit/Calibration

Location Information

Company: PRAMP
 Audit Location: 842b
 Audit Date: July 4, 2021
 Calibration Purpose: routine annual

Performed By: Limin Li
 Reviewed By: Chris Wesson
 Start/End Time (mst): 12:16/13:43
 Weather Conditions: Mainly cloudy with sunny breaks

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	n/a
Sensor Model:	05305AQ	Velocity Unit Output Range:	0-200
Serial #:	174802	Direction Voltage Output Range:	0-1
Previous Cal/Audit Date:	December 16, 2020	Direction Unit Output Range:	0-360

Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 id# CA03309 expires June 07, 2023

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

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.0	0.0	-
1000	18.4	18.3	18.3	1.007
2000	36.9	36.7	36.7	1.004
3000	55.3	55.1	55.1	1.003
4000	73.7	73.6	73.6	1.002
5000	92.2	92.0	92.0	1.002
6000	110.6	110.5	110.5	1.001
7000	129.0	128.9	128.9	1.001
8000	147.4	147.3	147.3	1.001
9000	165.9	165.8	165.8	1.000
10000	184.3	184.2	184.2	1.001
The audit meets AMD requirements.			Average Correction Factor=	1.002

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

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	0	355	0.0	0.0	0.0
30	330	29	331	1.0	-1.0	1.0
60	300	58	301	2.0	-1.0	1.5
90	270	88	272	2.0	-2.0	2.0
120	240	118	241	2.0	-1.0	1.5
150	210	149	211	1.0	-1.0	1.0
180	180	179	180	1.0	0.0	0.5
210	150	210	149	0.0	1.0	0.5
240	120	241	119	-1.0	1.0	1.0
270	90	272	88	-2.0	2.0	2.0
300	60	301	58	-1.0	2.0	1.5
330	30	331	29	-1.0	1.0	1.0
355	0	355	0	0.0	0.0	0.0
The audit meets AMD requirements.			Average Absolute Degrees Difference=		1.0	

Comments:

Change 2 speed bearing.



Peace River Area Monitoring Program

NOVEMBER 2021

Ambient Air Monitoring Calibration Report

- 986c STATION-

CAL-PRAMP-202111-01562

Operation and Maintenance:

Bureau Veritas Canada

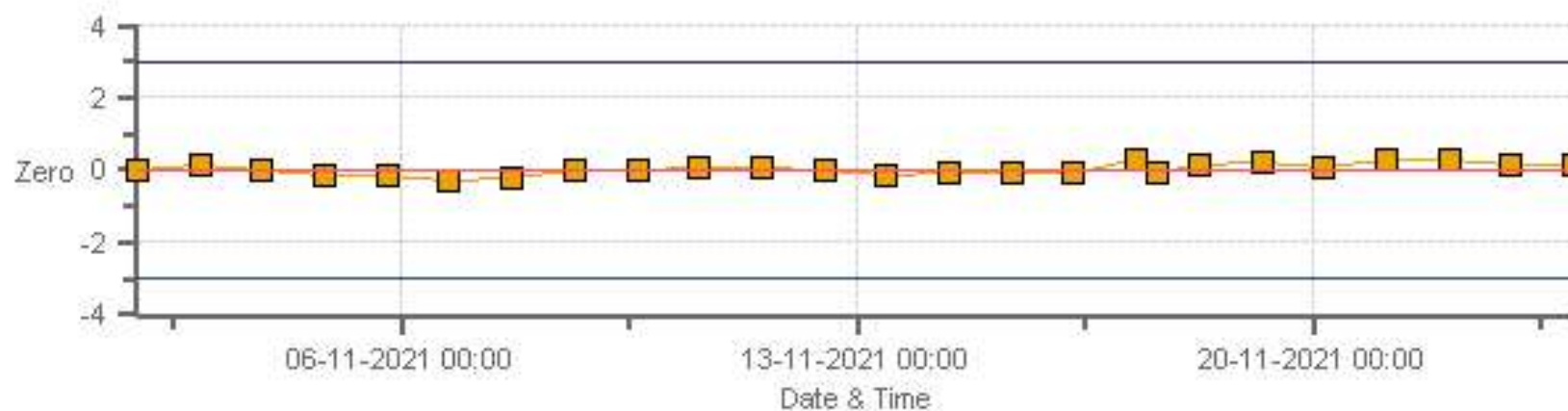
Data Validation and Report:

Bureau Veritas Canada

December 15, 2021

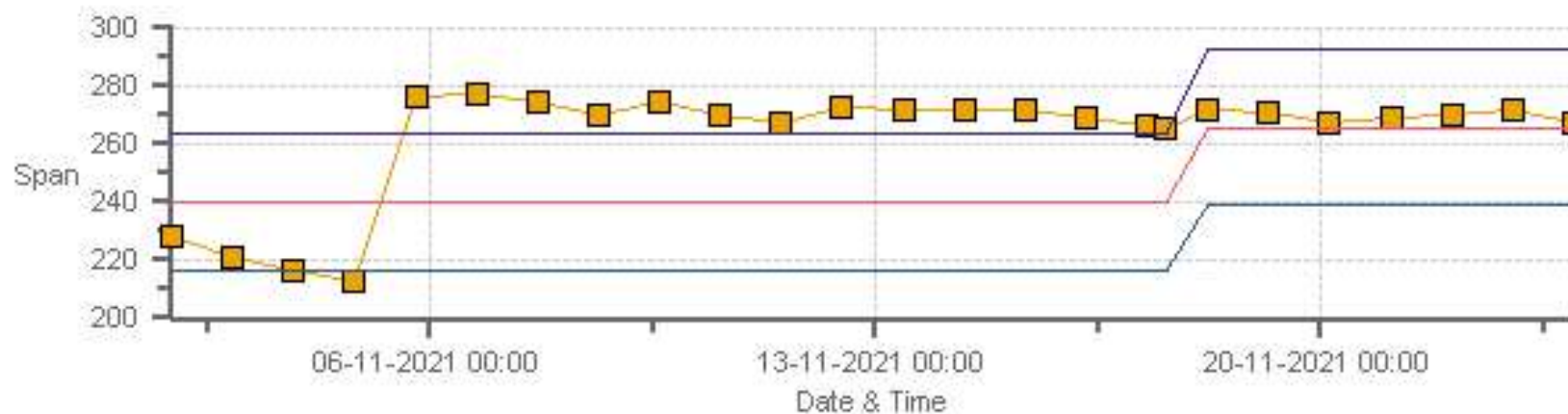
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: PRAMP 986c Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



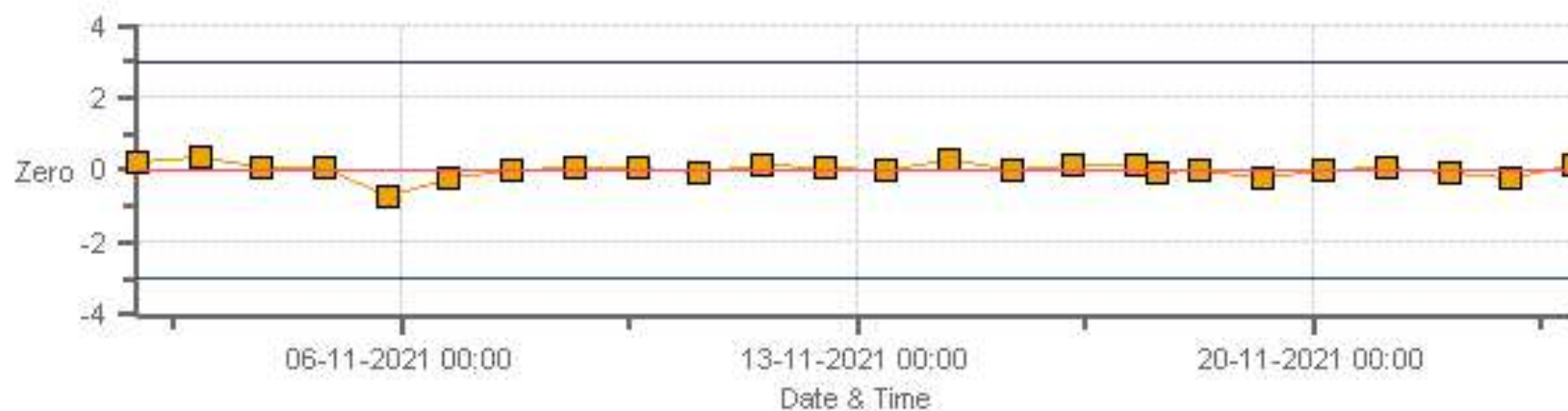
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: PRAMP 986c Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

TRS[ppb] Calibration: PRAMP 986c Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero -Zero



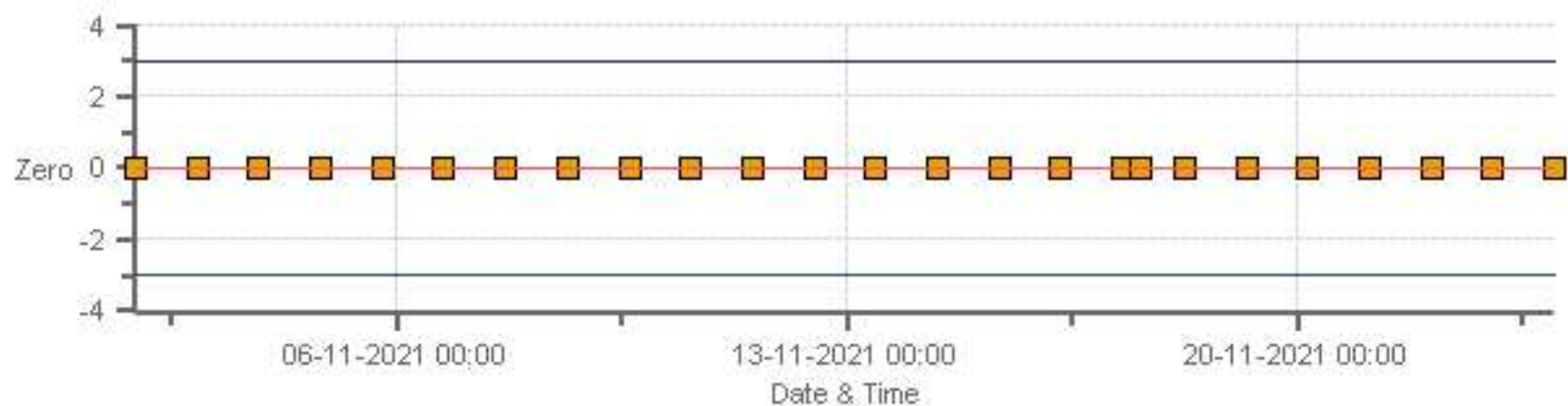
Zero Zero Ref Zero Low Zero High

TRS[ppb] Calibration: PRAMP 986c Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero -Span



Span Span Ref Span Low Span High

THC55[ppm] Calibration: PRAMP 986c Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



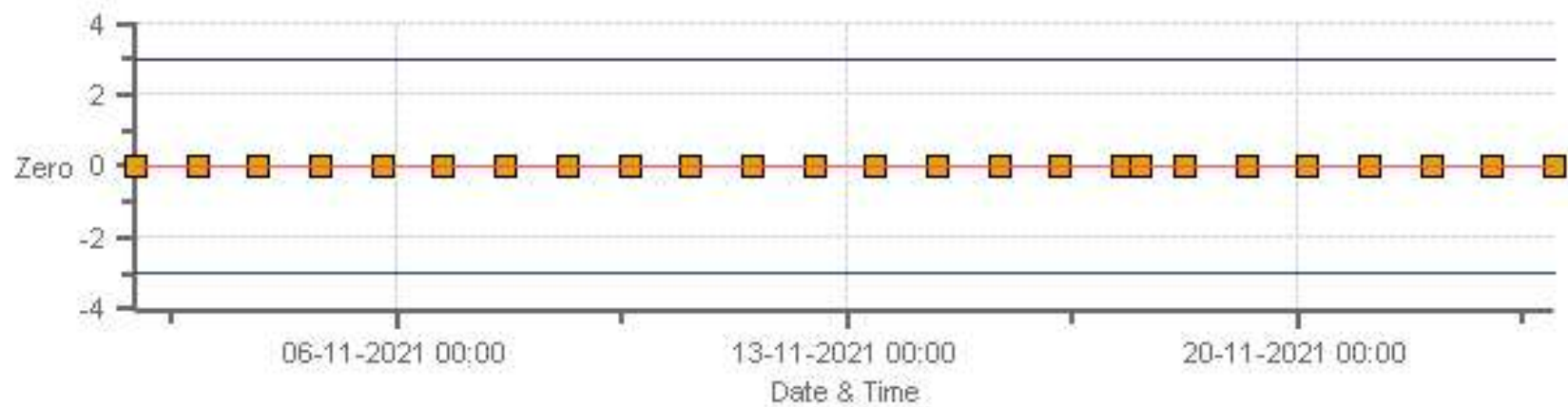
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: PRAMP 986c Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



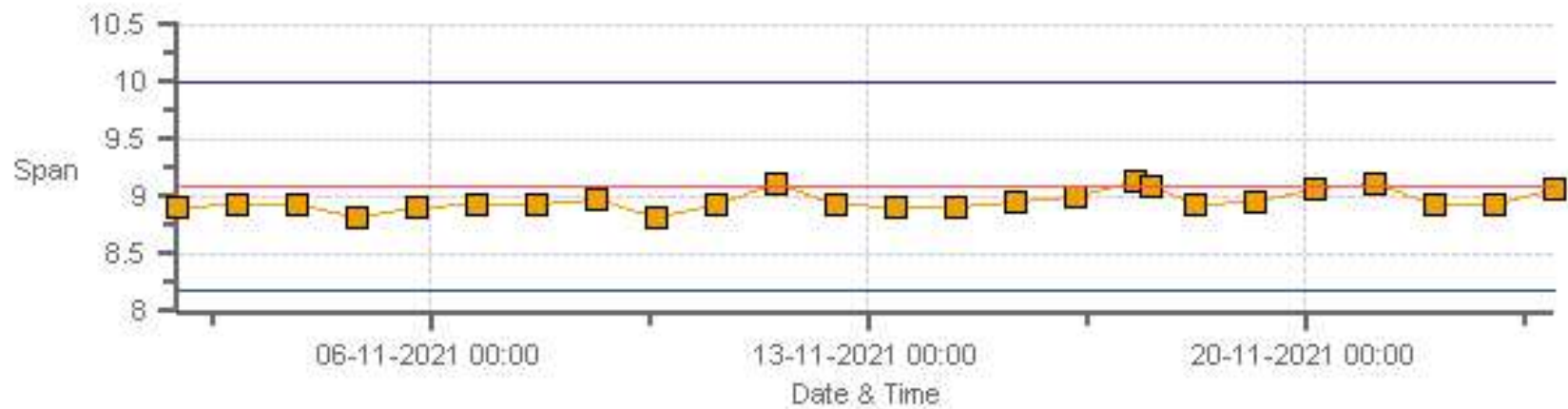
Span Span Ref Span Low Span High

CH4[ppm] Calibration: PRAMP 986c Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



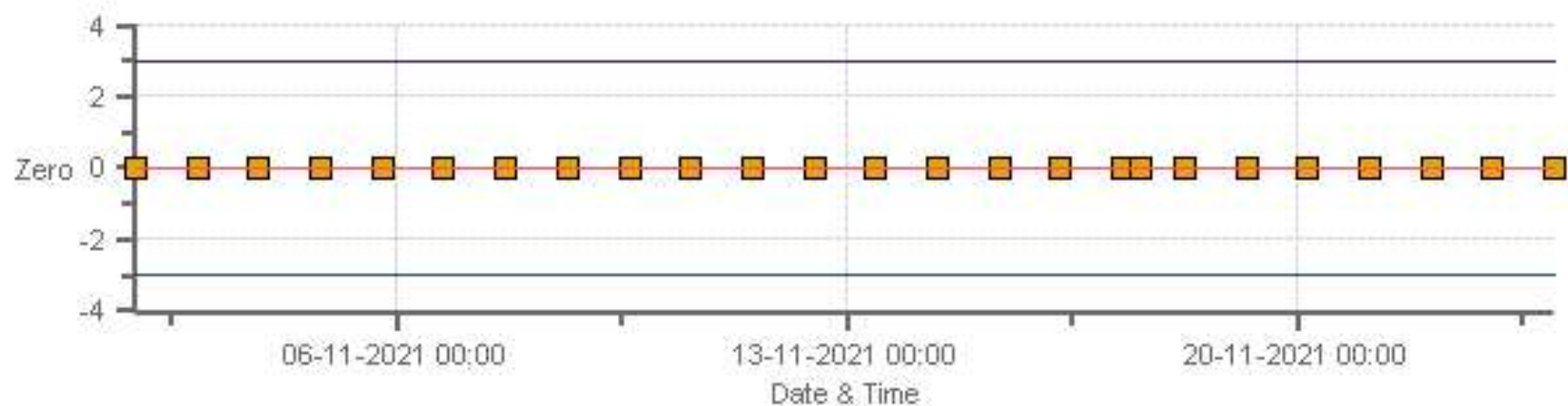
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: PRAMP 986c Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NMHC[ppm] Calibration: PRAMP 986c Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: PRAMP 986c Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	04-Nov-2021	PREVIOUS CALIBRATION DATE:	19-Oct-2021
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	PRAMP	TEMPERATURE (°C):	22.0
LOCATION:	986C	BAROMETRIC (mBar):	927
PURPOSE:	As-Found	START TIME (MST):	16:54
PERFORMED BY:	Chris Wesson	END TIME (MST):	18:08

ANALYZER:

MAKE/MODEL	Thermo 43iQTL	RANGE	500 ppb
SERIAL #	1193585646	FLOW (mL/min)	426
INITIAL		FINAL	
BKG/OFFSET	13.4	BKG/OFFSET	n/a
COEF/SLOPE	1.026	COEF/SLOPE	n/a
Expected (reference) Value	240	Expected (reference) Value	n/a

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Sabio
MODEL:	2010	MODEL:	2020
ID:	58100720	ID:	18500921
MFC CALIBRATION DATE:	12-Oct-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL19664	HIGH ID	n/a
CONC (ppm):	24.20	EXPIRY DATE	n/a
CYLINDER (psi):	700	LOW ID	n/a
EXPIRY DATE	03-Jul-2023	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
3999	62.80	3999	0.00	0.1	n/a	1.019	n/a
3937	62.80	4000	379.94	373.1	n/a	1.019	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

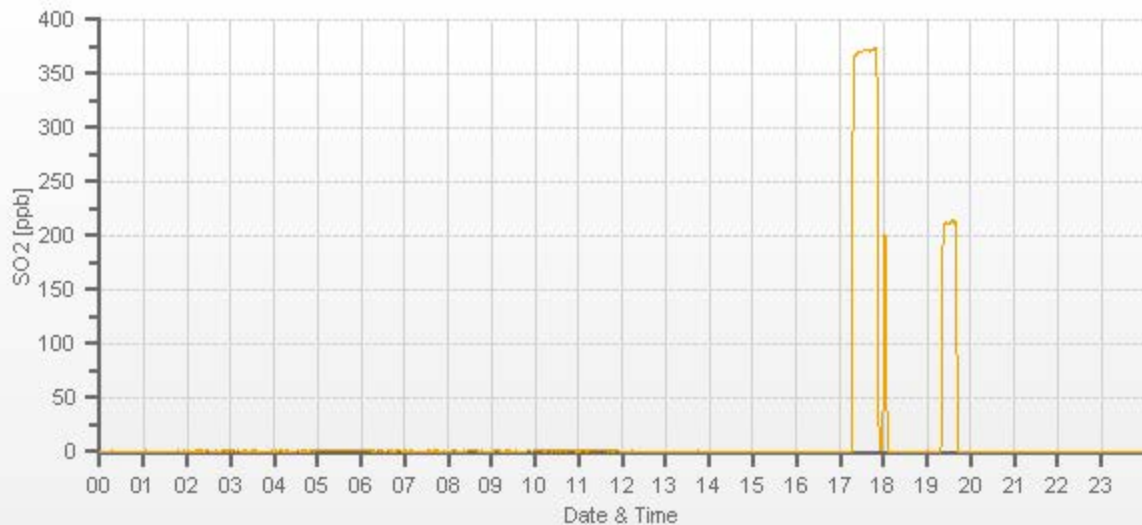
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	n/a	n/a	n/a

COMMENTS:

As-found to confirm analyzer stability (perm tube depleted and replaced).

SO2[ppb] Station: PRAMP 986c Daily: 04-11-2021 Type: AVG 1 Min. [1 Min.]



CAL-PRAMP-202111-01562

SO2 Analyzer Calibration by Dilution



DATE:	17-Nov-2021	PREVIOUS CALIBRATION DATE:	19-Oct-2021
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	PRAMP	TEMPERATURE (°C):	22.9
LOCATION:	986C	BAROMETRIC (mBar):	946
PURPOSE:	Routine	START TIME (MST):	08:54
PERFORMED BY:	Ferdinand Roy	END TIME (MST):	14:05

ANALYZER:

MAKE/MODEL	Thermo 43iQTL	RANGE	500 ppb
SERIAL #	1193585646	FLOW (mL/min)	431
INITIAL		FINAL	
BKG/OFFSET	13.3	BKG/OFFSET	13.3
COEF/SLOPE	1.026	COEF/SLOPE	1.023
Expected (reference) Value	240	Expected (reference) Value	265.9

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	EnviroNics	MAKE:	API
MODEL:	2000	MODEL:	701
ID:	1991	ID:	850
MFC CALIBRATION DATE:	24-Sep-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0002357	HIGH ID	n/a
CONC (ppm):	24.90	EXPIRY DATE	n/a
CYLINDER (psi):	810	LOW ID	n/a
EXPIRY DATE	13-Nov-2024	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
3999	61.00	3999	0.00	0.1	0	1.001	1.000
3939	61.00	4000	379.73	379.4	379.9	1.001	1.000
3970	30.48	4000	189.71	n/a	191.5	n/a	0.991
3987	14.40	4001	89.64	n/a	90	n/a	0.996

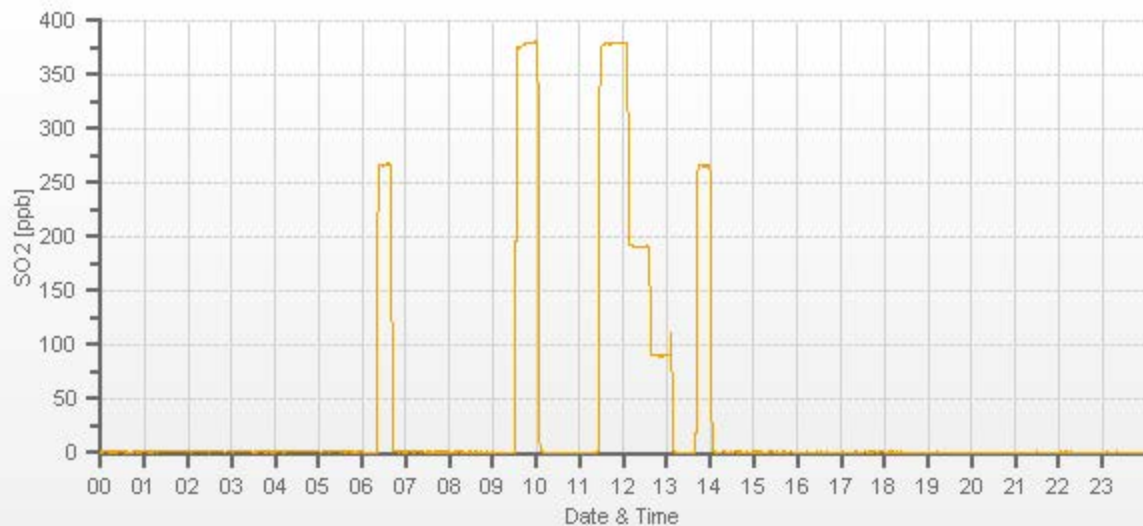
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.001	0.1%

COMMENTS:

Sample filter changed. Monthly calibration - no issues.

SO2[ppb] Station: PRAMP 986c Daily: 17-11-2021 Type: AVG 1 Min. [1 Min.]



CAL-PRAMP-202111-01562

TRS Analyzer Calibration by Dilution



DATE:	17-Nov-2021	PREVIOUS CALIBRATION DATE:	19-Oct-2021
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	PRAMP	TEMPERATURE (°C):	22.9
LOCATION:	986C	BAROMETRIC (mBar):	946
PURPOSE:	Routine	START TIME (MST):	08:54
PERFORMED BY:	Ferdinand Roy	END TIME (MST):	14:05

ANALYZER:

MAKE/MODEL	Thermo 43iQTL	RANGE	100 ppb
SERIAL #	1191833341	FLOW (mL/min)	428
INITIAL		FINAL	
BKG/OFFSET	13.1	BKG/OFFSET	13.2
COEF/SLOPE	0.912	COEF/SLOPE	0.899
Expected (reference) Value	43.1	Expected (reference) Value	44.39

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	EnviroNics	MAKE:	API
MODEL:	2000	MODEL:	701
ID:	1991	ID:	850
MFC CALIBRATION DATE:	24-Sep-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0002472	HIGH ID	n/a
CONC (ppm):	9.41	EXPIRY DATE	n/a
CYLINDER (psi):	1190	LOW ID	n/a
EXPIRY DATE	10-Nov-2023	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
3999	33.06	3999	0.00	0.18	0	0.984	1.000
3967	33.06	4000	77.76	79.23	77.76	0.984	1.000
3984	16.16	4000	38.02	n/a	37.91	n/a	1.003
3993	8.09	4001	19.04	n/a	18.98	n/a	1.003

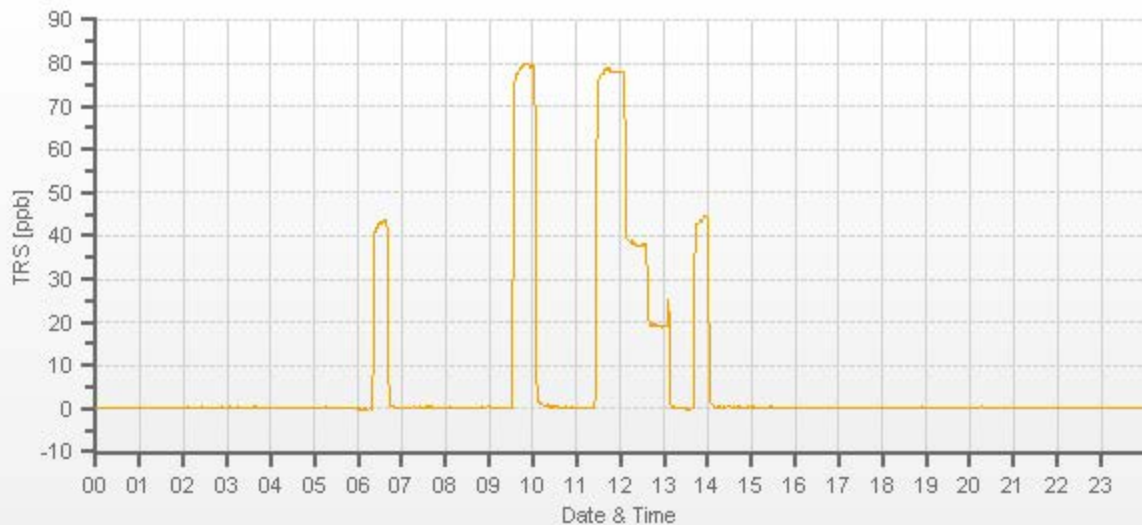
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.0%

COMMENTS:

TRS Converter CDNOVA CDN-101 #583. Sample filter changed. Monthly calibration - no issues.

TRS[ppb] Station: PRAMP 986c Daily: 17-11-2021 Type: AVG 1 Min. [1 Min.]



CAL-PRAMP-202111-01562

Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	17-Nov-2021	PREVIOUS CALIBRATION DATE:	19-Oct-2021	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	22.0		Thermo 55i	1193585652	1271.3
LOCATION:	986C	BAROMETRIC (mBar):	946	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Routine	START TIME (MST):	09:21	RANGE (ppm):	20	20	40
PERFORMED BY:	Ferdinand Roy	END TIME (MST):	13:07	PREVIOUS CF:	1.000	0.998	0.999

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	API	CYLINDER ID:	LL84567	HIGH ID:	n/a
MODEL:	2010	MODEL:	701	CH ₄ /C ₃ H ₈ (ppm):	591.0 200.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	850	CYLINDER (psi):	500	LOW ID:	n/a
MFC CALIBRATION DATE:	27-Sep-2021	OXIDIZER ID:	00941	EXPIRY DATE	17-Jul-2027	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

POINT (CH ₄ /NMHC)	HIGH	MID	LOW	CH ₄ EQUIVILANCE	
TARGET	14	7	3.5	C ₃ H ₈ as CH ₄	550.0
RANGE	12 - 16	6 - 8	2 - 4	THC as CH ₄	1141.0

EXPECTED (REFERENCE) VALUE:

INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.10	10.73	19.83		9.09	10.73	19.78

CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3250	79.70	3250	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.011	0.995	1.003	1.001	1.000	1.000
3168	79.70	3248	14.50	13.50	28.00	14.35	13.57	27.92	14.49	13.50	28.00	1.011	0.995	1.003	1.001	1.000	1.000
3209	39.90	3249	7.26	6.75	14.01	n/a	n/a	n/a	7.23	6.85	14.08	n/a	n/a	n/a	1.004	0.986	0.995
3230	19.90	3250	3.62	3.37	6.99	n/a	n/a	n/a	3.58	3.45	7.03	n/a	n/a	n/a	1.011	0.976	0.994

LINEAR REGRESSION ANALYSIS:

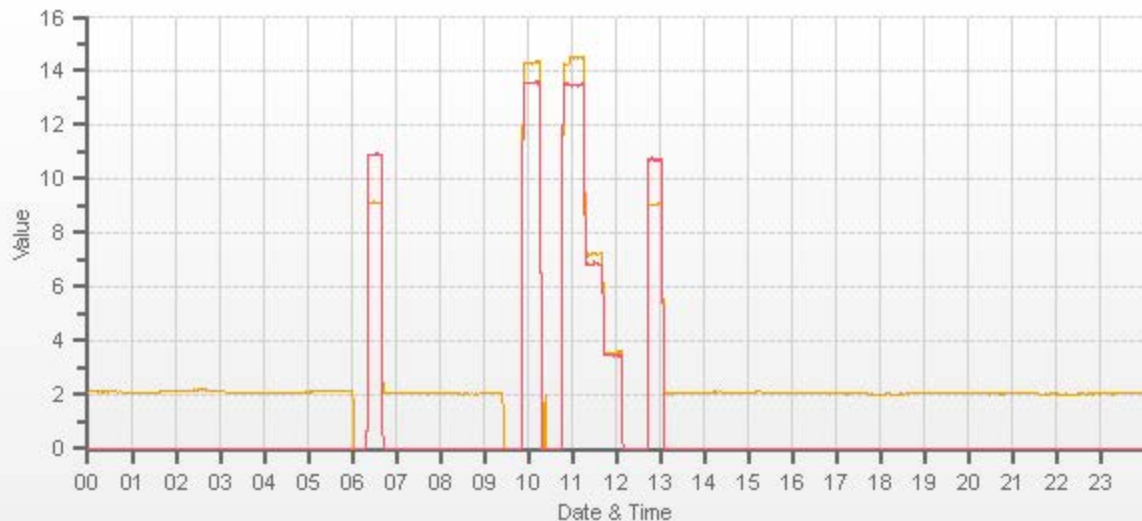
	CORRELATION	SLOPE	INTERCEPT
CH ₄	1.000	1.000	-0.1%
NMHC	1.000	0.999	0.3%
THC	1.000	1.000	0.1%

Comments:

Sample filter changed. Monthly calibration - no issues.

Use Zero Chrom?

No



CAL-PRAMP-202111-01562

Meteorological System Checklist



Date:	November 17, 2021		
Technician:	Ferdinand Roy		
Station:	PRAMP 986c		
Unit:	Make:	Model:	Serial #:
Precipitation Sampler:	RM Young	52202	TB 16325
Temperature Sensor:	Rotronic	HC2-S3	20357528
Barometric Pressure Sensor:	MetOne	092	Y23358
Relative Humidity Sensor:	Rotronic	HC2-S3	20357528
Anemometer:	RM Young	05305L	174795
PRECIPITATION SENSOR CHECK			
Checklist:	Reply:	Comments:	
Previous check date:	October 19, 2021		
Is the sensor Level?	yes		
Is the heater operating properly?	yes		
Are the bucket drain holes clean?	yes		
Is the screen on the housing? (screen should be on between July and September)	no	Removed screen on housing.	
Is the housing clean?	yes		
Is the area around the housing clean and free from obstacles?	yes		
AMBIENT TEMPERATURE SENSOR CHECK			
Previous check date:	October 19, 2021		
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	F.S. 160348895 expires Sep 4, 2022		
Reference Temperature (°C):	-5.7		
Station - Ambient Temperature (°C):	-5.0		
Temperature Difference (°C):	-0.7		
BAROMETRIC PRESSURE SENSOR CHECK			
Previous check date:	October 19, 2021		
Reference Barometer ID:	FS 10528 expires Feb 17, 2022		
Reference Pressure - Units/Reading:	millibar	946	
Station Pressure - Units/Reading:	millibar	945.7	
Pressure Tolerance +/- 15% of error:	804 - 1088	0.03%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Previous check date:	October 19, 2021		
Reference Hygrometer ID:	F.S. 160348895 expires Sep 4, 2022		
Reference Hygrometer % RH- Reading:	78.10		
Station Hygrometer % RH- Reading:	93.20		
RH Tolerance +/- 15% of difference:	66.39 - 89.82	-19.3%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	October 19, 2021	Previous check date:	October 19, 2021
Wind Speed Observed (kph):	15~25	Wind Direction Observed:	SW
Wind speed on Data Logger (kph):	22.3	Wind Direction on Data Logger:	SW
		Wind Direction Pass/Fail?:	Pass

Comments

Station Hygrometer RH reading failed. Temp/RH probe to be replaced on next site visit.



Meteorological Sensor Audit/Calibration

Location Information

Company: PRAMP
Audit Location: 986C
Audit Date: July 3, 2021
Calibration Purpose: routine annual

Performed By: Limin Li
Reviewed By: Chris Wesson
Start/End Time (mst): 15:58 / 17:20
Weather Conditions: Mainly cloudy with sunny breaks

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	n/a
Sensor Model:	05305L	Velocity Unit Output Range:	0-180
Serial #:	174795	Direction Voltage Output Range:	n/a
Previous Cal/Audit Date:	July 16, 2020	Direction Unit Output Range:	0-360

Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 id# CA03309 expires June 07, 2023

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

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.0	0.0	-
1000	18.4	18.3	18.3	1.007
2000	36.9	36.7	36.7	1.004
3000	55.3	55.1	55.1	1.003
4000	73.7	73.6	73.6	1.002
5000	92.2	92.0	92.0	1.002
6000	110.6	110.5	110.5	1.001
7000	129.0	128.9	128.9	1.001
8000	147.4	147.3	147.3	1.001
9000	165.9	165.8	165.8	1.000
10000	184.3	184.2	184.2	1.001
The audit meets AMD requirements.			Average Correction Factor=	1.002

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

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	1	354	1.0	1.0	1.0
30	330	30	333	0.0	-3.0	1.5
60	300	59	303	1.0	-3.0	2.0
90	270	88	273	2.0	-3.0	2.5
120	240	118	243	2.0	-3.0	2.5
150	210	147	209	3.0	1.0	2.0
180	180	177	177	3.0	3.0	3.0
210	150	209	147	1.0	3.0	2.0
240	120	242	117	-2.0	3.0	2.5
270	90	273	87	-3.0	3.0	3.0
300	60	303	59	-3.0	1.0	2.0
330	30	333	30	-3.0	0.0	1.5
355	0	354	1	1.0	1.0	1.0
The audit meets AMD requirements.			Average Absolute Degrees Difference=			2.0

Comments:

Magnetic declination = 15Deg(E)



Peace River Area Monitoring Program

NOVEMBER 2021

Ambient Air Monitoring Calibration Report

- RENO STATION-

CAL-PRAMP-202111-01563

Operation and Maintenance:

Bureau Veritas Canada

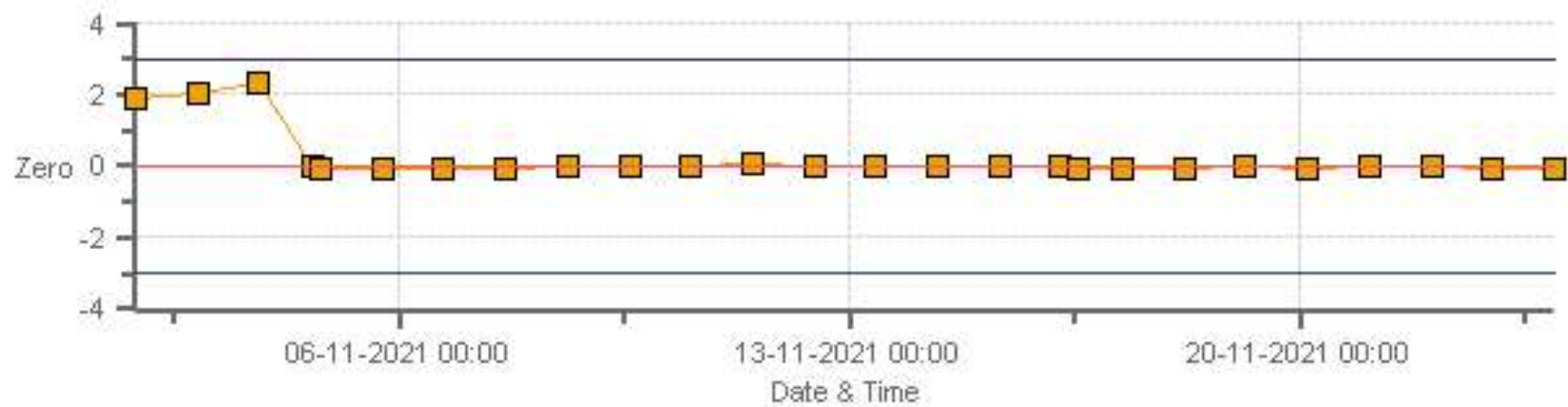
Data Validation and Report:

Bureau Veritas Canada

December 15, 2021

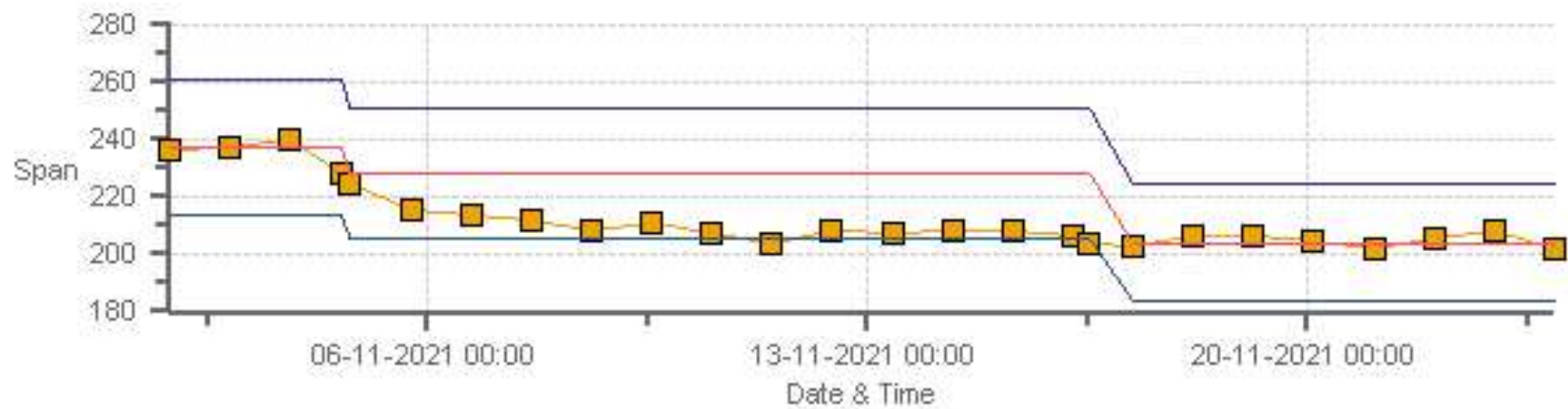
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: PRAMP RENO Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



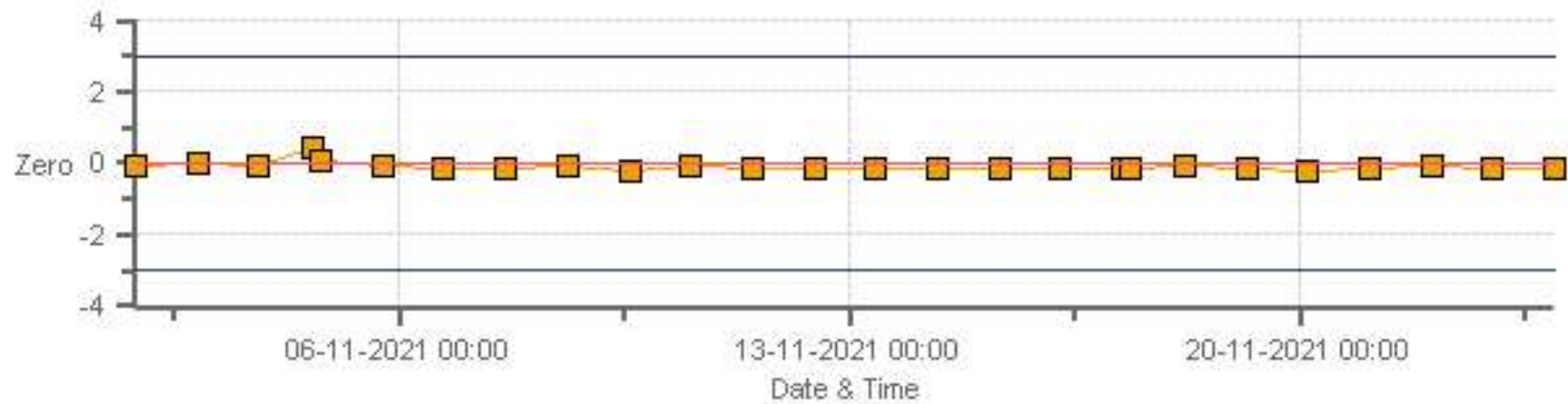
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: PRAMP RENO Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



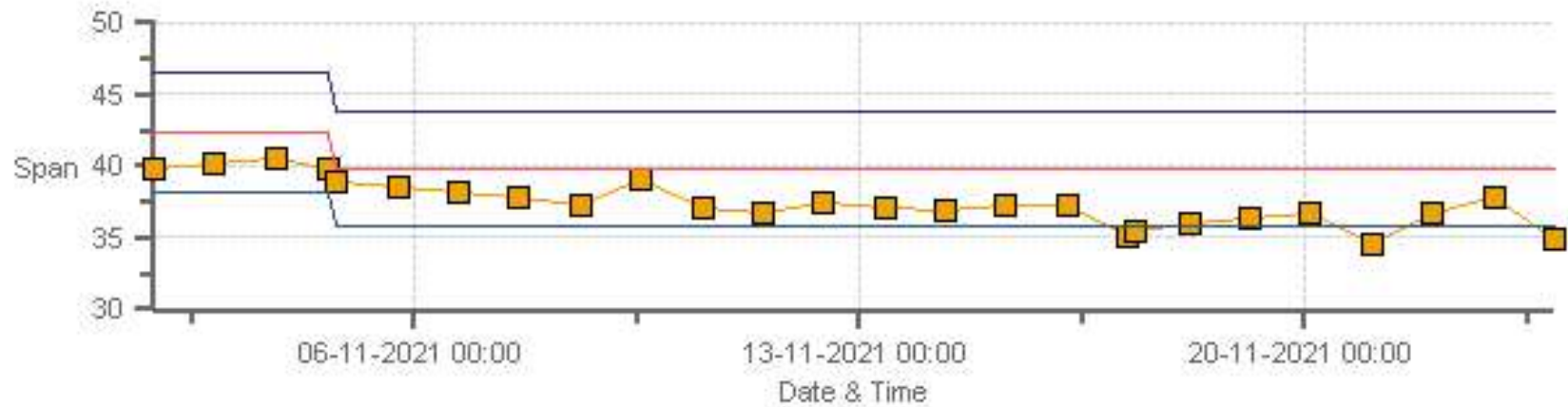
Span Span Ref Span Low Span High

TRS[ppb] Calibration: PRAMP RENO Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



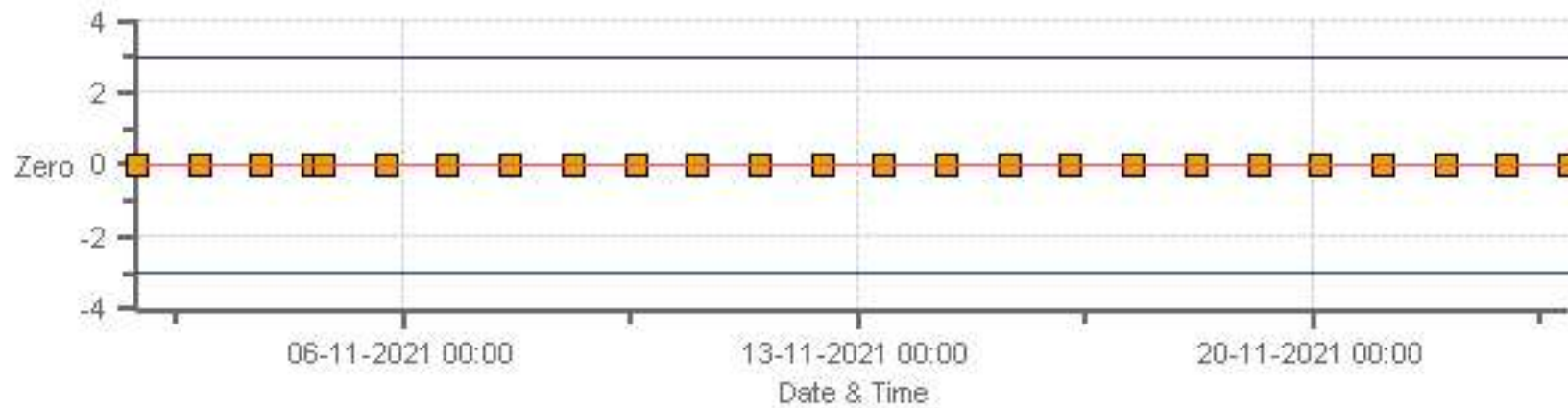
Zero Zero Ref Zero Low Zero High

TRS[ppb] Calibration: PRAMP RENO Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



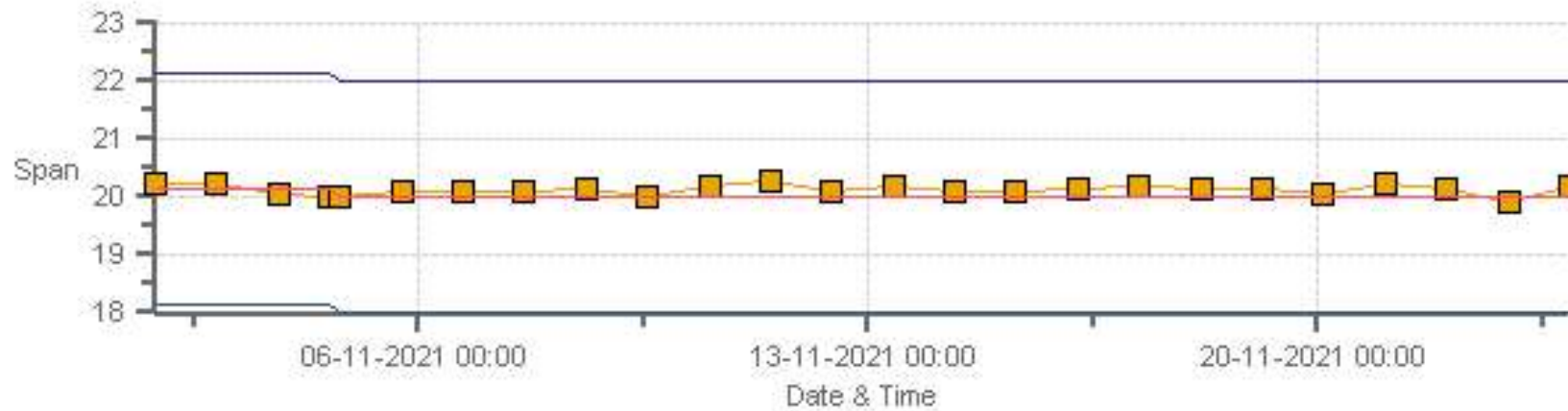
Span SpanRef Span Low Span High

THC55[ppm] Calibration: PRAMP RENO Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



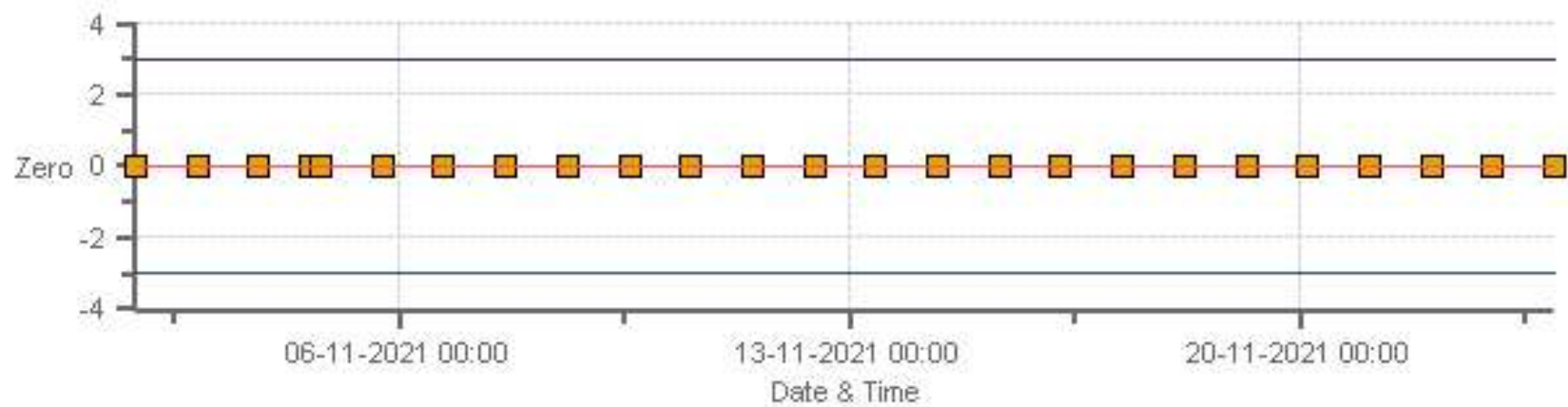
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: PRAMP RENO Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



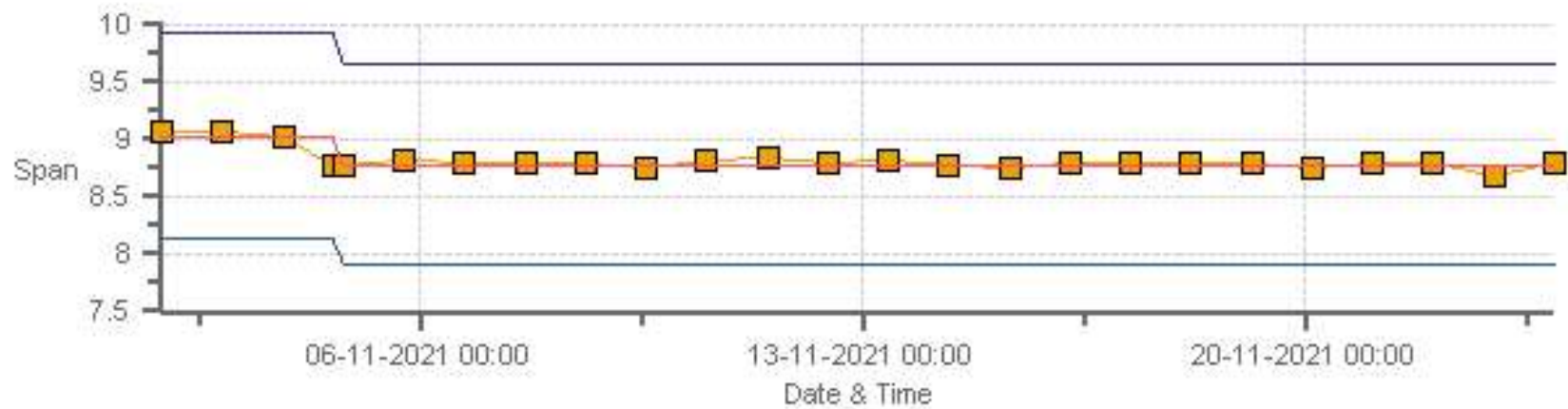
Span SpanRef Span Low Span High

CH4[ppm] Calibration: PRAMP RENO Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



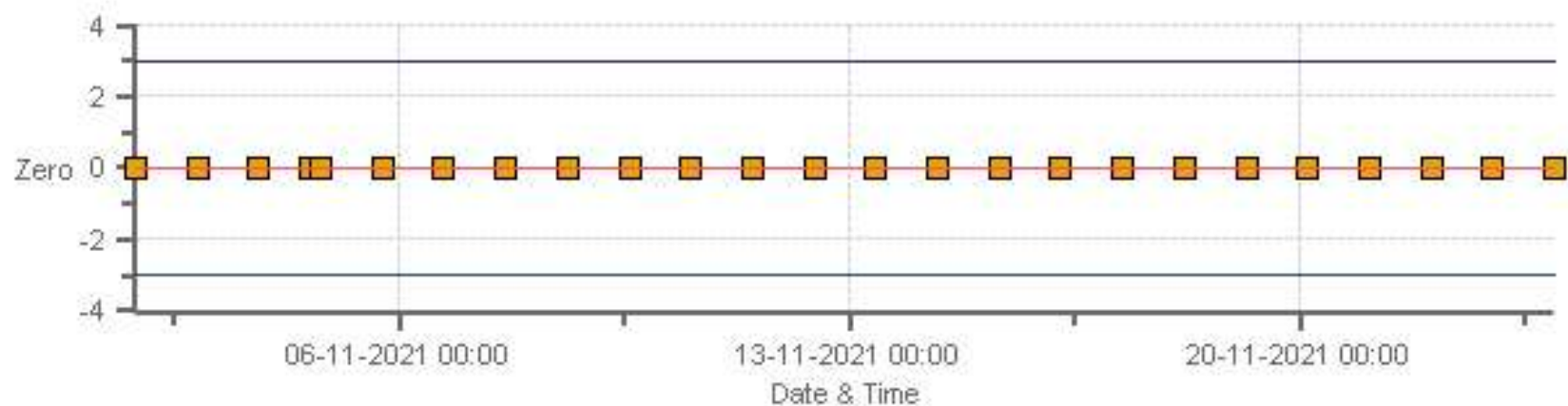
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: PRAMP RENO Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



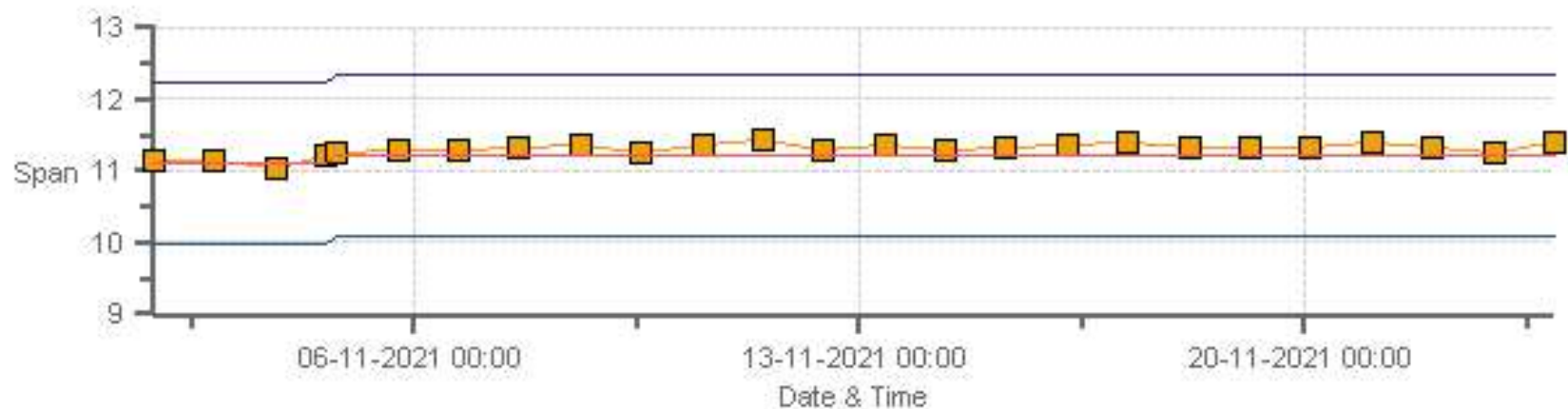
Span SpanRef Span Low Span High

NMHC[ppm] Calibration: PRAMP RENO Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: PRAMP RENO Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	04-Nov-2021	PREVIOUS CALIBRATION DATE:	06-Oct-2021
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	PRAMP	TEMPERATURE (°C):	23.9
LOCATION:	Reno	BAROMETRIC (mBar):	929
PURPOSE:	Removal/Shut-down	START TIME (MST):	08:24
PERFORMED BY:	Chris Wesson	END TIME (MST):	10:08

ANALYZER:

MAKE/MODEL	API 100A	RANGE	500 ppb
SERIAL #	1502	FLOW (mL/min)	631
INITIAL		FINAL	
BKG/OFFSET	83.9	BKG/OFFSET	n/a
COEF/SLOPE	1.046	COEF/SLOPE	n/a
Expected (reference) Value	237.3	Expected (reference) Value	n/a

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Sabio
MODEL:	2010	MODEL:	2020
ID:	58100720	ID:	18500921
MFC CALIBRATION DATE:	12-Oct-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL19664	HIGH ID	n/a
CONC (ppm):	24.20	EXPIRY DATE	n/a
CYLINDER (psi):	700	LOW ID	n/a
EXPIRY DATE	03-Jul-2023	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
3999	62.80	3999	0.00	2.3	n/a	1.016	n/a
3937	62.80	4000	379.94	376.4	n/a	1.016	n/a
3970	29.70	4000	179.69	179.4	n/a	1.015	n/a
3985	14.90	4000	90.15	91	n/a	1.016	n/a

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.985	0.5%

COMMENTS:

Removal for maintenance

SO2 Analyzer Calibration by Dilution



DATE:	04-Nov-2021	PREVIOUS CALIBRATION DATE:	n/a
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	PRAMP	TEMPERATURE (°C):	21.8
LOCATION:	Reno	BAROMETRIC (mBar):	926
PURPOSE:	Install/Post-Repair	START TIME (MST):	12:10
PERFORMED BY:	Chris Wesson	END TIME (MST):	15:21

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1162460023	FLOW (mL/min)	396
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	2.98
COEF/SLOPE	n/a	COEF/SLOPE	0.994
Expected (reference) Value	n/a	Expected (reference) Value	228.2

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Sabio
MODEL:	2010	MODEL:	2020
ID:	58100720	ID:	18500921
MFC CALIBRATION DATE:	12-Oct-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL19664	HIGH ID	n/a
CONC (ppm):	24.20	EXPIRY DATE	n/a
CYLINDER (psi):	700	LOW ID	n/a
EXPIRY DATE	03-Jul-2023	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
3502	55.00	3502	0.00	n/a	0	n/a	1.000
3448	55.00	3503	379.96	n/a	380	n/a	1.000
3474	26.00	3500	179.77	n/a	181.8	n/a	0.989
3489	13.00	3502	89.83	n/a	91.4	n/a	0.983

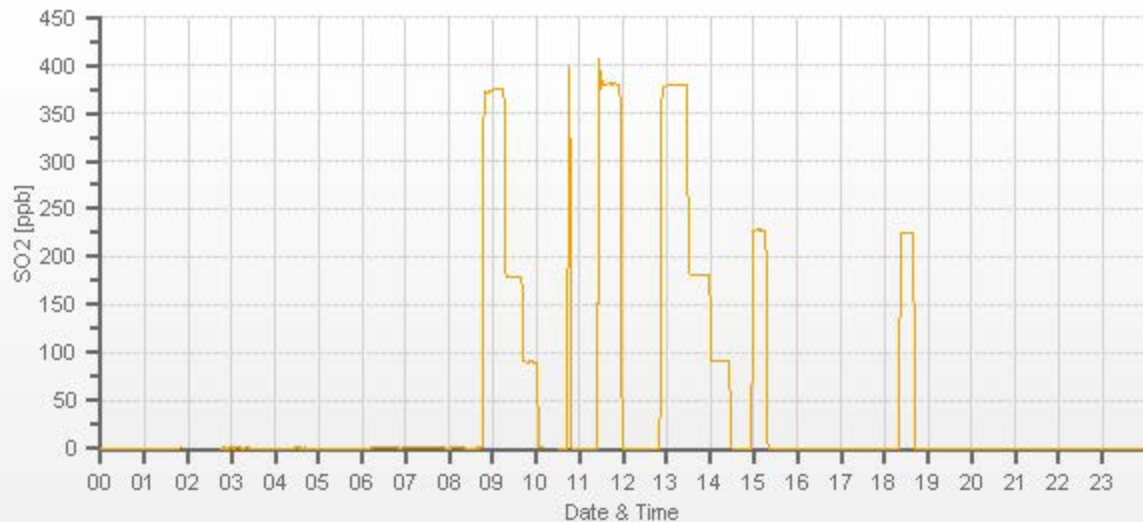
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.999	0.2%

COMMENTS:

Removal for maintenance

SO2[ppb] Station: PRAMP RENO Daily: 04-11-2021 Type: AVG 1 Min. [1 Min.]



CAL-PRAMP-202111-01563

SO2 Analyzer Calibration by Dilution



DATE:	16-Nov-2021	PREVIOUS CALIBRATION DATE:	04-Nov-2021
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	PRAMP	TEMPERATURE (°C):	24.0
LOCATION:	Reno	BAROMETRIC (mBar):	938
PURPOSE:	Repeat	START TIME (MST):	08:48
PERFORMED BY:	Ferdinand Roy	END TIME (MST):	13:10

ANALYZER:

MAKE/MODEL	Thermo 431-TLE	RANGE	500 ppb
SERIAL #	1162460023	FLOW (mL/min)	403
INITIAL		FINAL	
BKG/OFFSET	2.95	BKG/OFFSET	2.97
COEF/SLOPE	0.994	COEF/SLOPE	0.993
Expected (reference) Value	228.2	Expected (reference) Value	203.8

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	EnviroNics	MAKE:	API
MODEL:	2000	MODEL:	701
ID:	1991	ID:	850
MFC CALIBRATION DATE:	24-Sep-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0002357	HIGH ID	n/a
CONC (ppm):	24.90	EXPIRY DATE	n/a
CYLINDER (psi):	800	LOW ID	n/a
EXPIRY DATE	13-Nov-2024	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
4001	61.00	4001	0.00	0	0	1.002	0.999
3939	61.00	4000	379.79	378.9	380	1.002	0.999
3969	30.48	3999	189.77	n/a	189.9	n/a	0.999
3984	14.43	3998	89.88	n/a	89.6	n/a	1.003

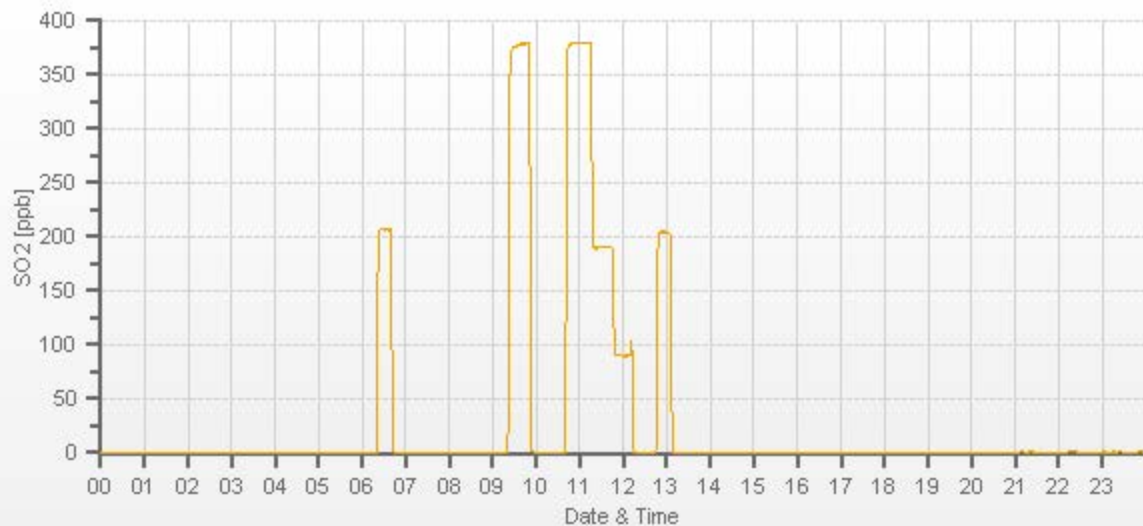
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.001	0.0%

COMMENTS:

Repeat Calibration - no issues.

SO2[ppb] Station: PRAMP RENO Daily: 16-11-2021 Type: AVG 1 Min. [1 Min.]



CAL-PRAMP-202111-01563

TRS Analyzer Calibration by Dilution



DATE:	04-Nov-2021	PREVIOUS CALIBRATION DATE:	06-Oct-2021
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	PRAMP	TEMPERATURE (°C):	23.8
LOCATION:	Reno	BAROMETRIC (mBar):	927
PURPOSE:	Routine	START TIME (MST):	10:49
PERFORMED BY:	Chris Wesson	END TIME (MST):	15:21

ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	100 ppb
SERIAL #	1162460022	FLOW (mL/min)	403
INITIAL		FINAL	
BKG/OFFSET	3.05	BKG/OFFSET	3.01
COEF/SLOPE	1.013	COEF/SLOPE	0.973
Expected (reference) Value	42.38	Expected (reference) Value	39.84

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Sabio
MODEL:	2010	MODEL:	2020
ID:	58100720	ID:	18500921
MFC CALIBRATION DATE:	12-Oct-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0002519	HIGH ID	n/a
CONC (ppm):	9.41	EXPIRY DATE	n/a
CYLINDER (psi):	1600	LOW ID	n/a
EXPIRY DATE	10-Nov-2023	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

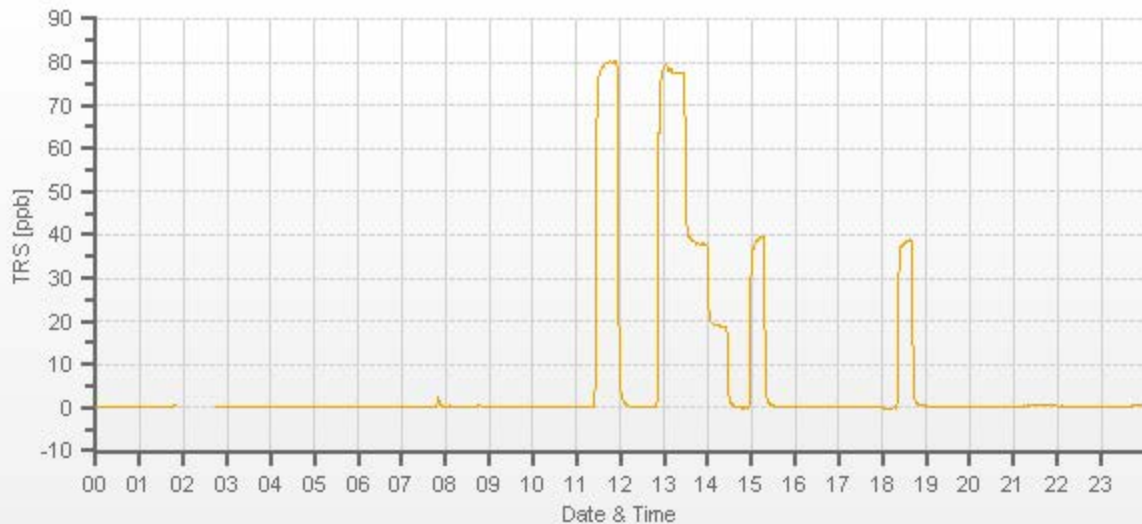
FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
3502	29.00	3502	0.00	0.03	0	0.969	1.000
3474	29.00	3503	77.90	80.39	77.9	0.969	1.000
3486	14.10	3500	37.91	n/a	38.27	n/a	0.991
3495	7.10	3502	19.08	n/a	19.11	n/a	0.998

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.1%

COMMENTS:

TRS Converter CDNOVA CDN-101 #552.
Sample filter changed. Monthly calibration - no issues.



TRS Analyzer Calibration by Dilution



DATE:	19-Nov-2021	PREVIOUS CALIBRATION DATE:	04-Nov-2021
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	PRAMP	TEMPERATURE (°C):	23.5
LOCATION:	Reno	BAROMETRIC (mBar):	931
PURPOSE:	As-Found	START TIME (MST):	10:06
PERFORMED BY:	Ferdinand Roy	END TIME (MST):	11:49

ANALYZER:

MAKE/MODEL	Thermo 431-TLE	RANGE	100 ppb
SERIAL #	1162460022	FLOW (mL/min)	405
INITIAL		FINAL	
BKG/OFFSET	3.01	BKG/OFFSET	n/a
COEF/SLOPE	0.973	COEF/SLOPE	n/a
Expected (reference) Value	39.84	Expected (reference) Value	n/a

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	EnviroNics	MAKE:	API
MODEL:	2000	MODEL:	701
ID:	1991	ID:	850
MFC CALIBRATION DATE:	24-Sep-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0002472	HIGH ID	n/a
CONC (ppm):	9.41	EXPIRY DATE	n/a
CYLINDER (psi):	1120	LOW ID	n/a
EXPIRY DATE	10-Nov-2023	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

START TIME:	10:40	SO2 Conc (ppb)	380
END TIME:	10:58	Analyzer Response (ppb)	0.2

CALIBRATION:

FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
4001	33.22	4001	0.00	0.07	n/a	1.031	n/a
3969	33.22	4002	78.10	75.8	n/a	1.031	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

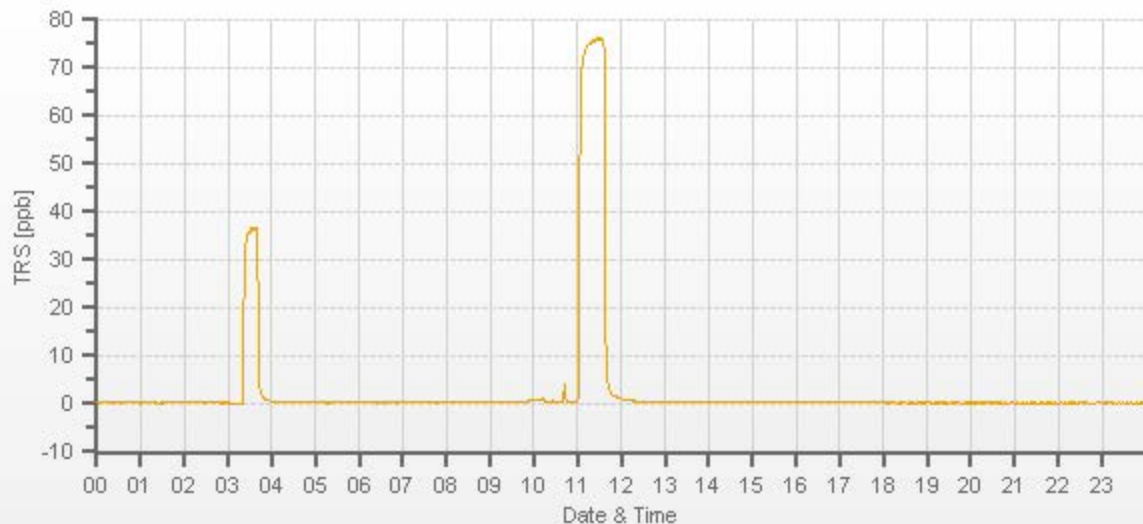
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	n/a	n/a	n/a

COMMENTS:

TRS Converter CDNOVA CDN-101 #552. As-Found - passed. Analyzer response slow.

TRS[ppb] Station: PRAMP RENO Daily: 19-11-2021 Type: AVG 1 Min. [1 Min.]



CAL-PRAMP-202111-01563

Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	04-Nov-2021	PREVIOUS CALIBRATION DATE:	06-Oct-2021	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	23.8		Thermo 55i	1505664392	1035
LOCATION:	Reno	BAROMETRIC (mBar):	927	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Routine	START TIME (MST):	10:49	RANGE (ppm):	20	20	40
PERFORMED BY:	Chris Wesson	END TIME (MST):	14:33	PREVIOUS CF:	0.999	1.000	0.999

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	Teledyne	CYLINDER ID:	LL119576	HIGH ID:	n/a
MODEL:	2010	MODEL:	M701	CH ₄ /C ₃ H ₈ (ppm):	870.0 299.0	HIGH EXPIRY:	n/a
ID:	26701218	ID:	4568	CYLINDER (psi):	1600	LOW ID:	n/a
MFC CALIBRATION DATE:	12-Oct-2021	OXIDIZER ID:	Internal	EXPIRY DATE	22-Dec-2028	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

POINT (CH ₄ /NMHC)	HIGH	MID	LOW	CH ₄ EQUIVILANCE	
TARGET	14	7	3.5	C ₃ H ₈ as CH ₄	822.3
RANGE	12 - 16	6 - 8	2 - 4	THC as CH ₄	1692.3

EXPECTED (REFERENCE) VALUE:

INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	8.97	11.33	20.30		8.78	11.23	20.01

CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3501	44.70	3501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.027	1.020	1.023	1.000	1.003	1.002
2655	44.70	2700	14.40	13.61	28.02	14.02	13.35	27.38	14.40	13.57	27.97	1.027	1.020	1.023	1.000	1.003	1.002
2677	22.30	2699	7.19	6.79	13.98	n/a	n/a	n/a	7.30	6.85	14.15	n/a	n/a	n/a	0.985	0.992	0.988
2688	11.20	2699	3.61	3.41	7.02	n/a	n/a	n/a	3.69	3.47	7.17	n/a	n/a	n/a	0.978	0.983	0.979

LINEAR REGRESSION ANALYSIS:

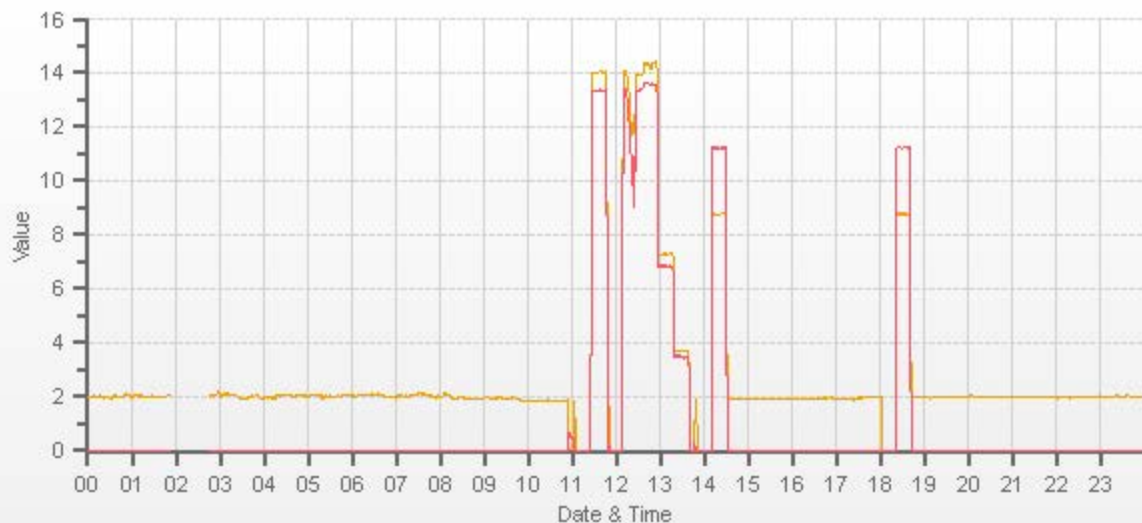
	CORRELATION	SLOPE	INTERCEPT
CH ₄	1.000	0.999	0.3%
NMHC	1.000	0.996	0.2%
THC	1.000	0.997	0.3%

Comments:

12:10-12:20 (start of adjusted high). Concentration unstable whilst changing H₂ gas

Use Zero Chrom?

No



CAL-PRAMP-202111-01563

Page 19 of 21
CH4 [ppm] NMHC [ppm]

Meteorological System Checklist



Date:	November 4, 2021		
Technician:	Chris Wesson		
Station:	PRAMP Reno		
Unit:	Make:	Model:	Serial #:
Precipitation Sampler:	RM Young	52202	TB 15877
Temperature Sensor:	RM Young	43172VC	60837897
Barometric Pressure Sensor:	MetOne	92	K12864
Relative Humidity Sensor:	RM Young	43172VC	60837897
Anemometer:	RM Young	05305VK	149769
PRECIPITATION SENSOR CHECK			
Checklist:	Reply:	Comments:	
Previous check date:	October 6, 2021	Offline for audit: 13:51-14:15	
Is the sensor Level?	yes		
Is the heater operating properly?	yes		
Are the bucket drain holes clean?	yes		
Is the screen on the housing? (screen should be on between July and September)	no		
Is the housing clean?	yes		
Is the area around the housing clean and free from obstacles?	yes		
TIP TEST - Slowly pour water until 10 tip are heard. (10 tips = 1 ml)			
# of Tips	Data Logger Response (ml):	Manual Specification = +/- 0.1 ml	
10	0.90	0.10	
AMBIENT TEMPERATURE SENSOR CHECK			
Previous check date:	October 6, 2021		
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	F.S. 181341226 expires Jul 29, 2022		
Reference Temperature (°C):	9.6		
Station - Ambient Temperature (°C):	9.7		
Temperature Difference (°C):	-0.1		
BAROMETRIC PRESSURE SENSOR CHECK			
Previous check date:	October 6, 2021		
Reference Barometer ID:	BRUNTON #05535, Expire: Feb 17, 2022		
Reference Pressure - Units/Reading:	millibar	923.3	
Station Pressure - Units/Reading:	millibar	925	
Pressure Tolerance +/- 15% of error:	785 - 1062	-0.18%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Previous check date:	October 6, 2021		
Reference Hygrometer ID:	F.S. 181341226 expires Jul 29, 2022		
Reference Hygrometer % RH- Reading:	51.40		
Station Hygrometer % RH- Reading:	51.20		
RH Tolerance +/- 15% of difference:	43.69 - 59.11	0.4%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	October 6, 2021	Previous check date:	October 6, 2021
Wind Speed Observed (kph):	0~5	Wind Direction Observed:	E
Wind speed on Data Logger (kph):	3	Wind Direction on Data Logger:	E
		Wind Direction Pass/Fail?:	Pass
Comments			

Confirm precip result at next visit



Meteorological Sensor Audit/Calibration

Location Information

Company: PRAMP
Audit Location: Reno
Audit Date: July 5, 2021
Calibration Purpose: routine annual

Performed By: Limin Li
Reviewed By:
Start/End Time (mst): 12:46/13:50
Weather Conditions: Mainly sunny

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1
Sensor Model:	05305VK	Velocity Unit Output Range:	0-200
Serial #:	149769	Direction Voltage Output Range:	0-1
Previous Cal/Audit Date:	June 17, 2020	Direction Unit Output Range:	0-360

Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 id# CA03309 expires June 07, 2023

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

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.0	0.0	-
1000	18.4	18.4	18.4	1.002
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	92.2	92.2	0.999
6000	110.6	110.6	110.6	1.000
7000	129.0	129.2	129.2	0.999
8000	147.4	147.6	147.6	0.999
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=	1.000

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

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	1	354	1.0	1.0	1.0
30	330	32	329	-2.0	1.0	1.5
60	300	62	300	-2.0	0.0	1.0
90	270	93	270	-3.0	0.0	1.5
120	240	122	240	-2.0	0.0	1.0
150	210	152	211	-2.0	-1.0	1.5
180	180	182	181	-2.0	-1.0	1.5
210	150	212	151	-2.0	-1.0	1.5
240	120	241	121	-1.0	-1.0	1.0
270	90	270	91	0.0	-1.0	0.5
300	60	300	61	0.0	-1.0	0.5
330	30	329	31	1.0	-1.0	1.0
355	0	354	0	1.0	0.0	0.5
		The audit meets AMD requirements.	Average Absolute Degrees Difference=		1.1	

Comments:

Bearings replaced. Declination = 15deg East



Peace River Area Monitoring Program

NOVEMBER 2021

Ambient Air Monitoring Calibration Report

- AQHI - CADOTTE LAKE STATION-

CAL-PRAMP-202111-01651

Operation and Maintenance:

Bureau Veritas Canada

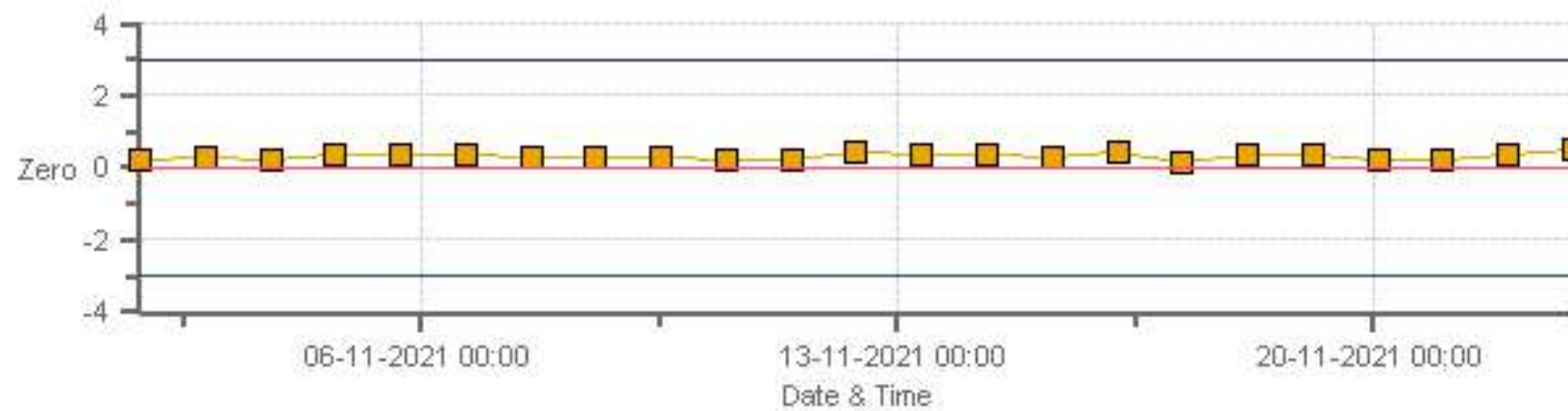
Data Validation and Report:

Bureau Veritas Canada

December 15, 2021

DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: AQHI Cadotte Lake Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



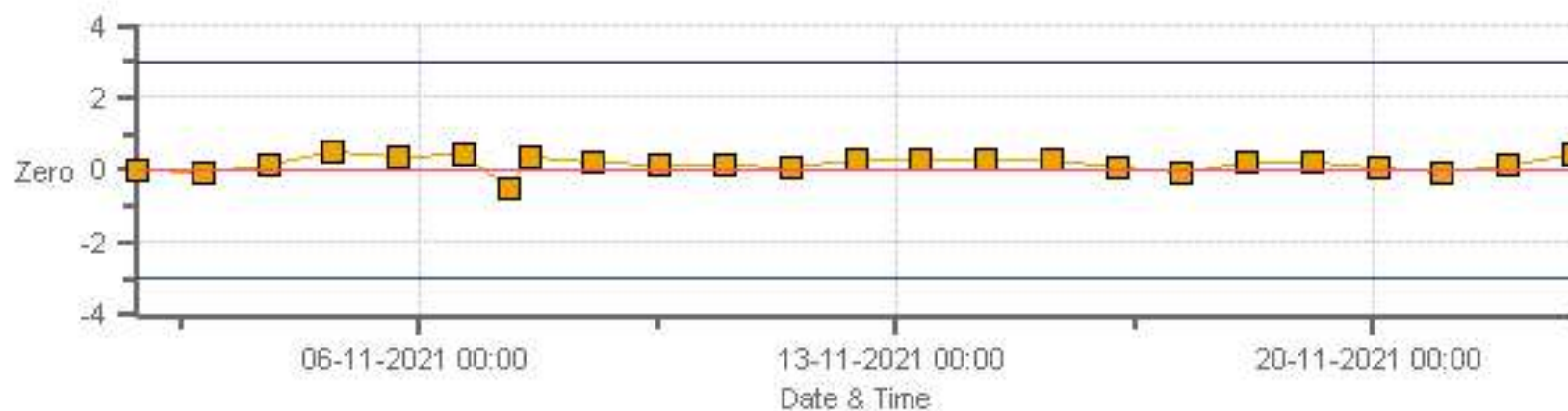
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: AQHI Cadotte Lake Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

TRS[ppb] Calibration: AQHI Cadotte Lake Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



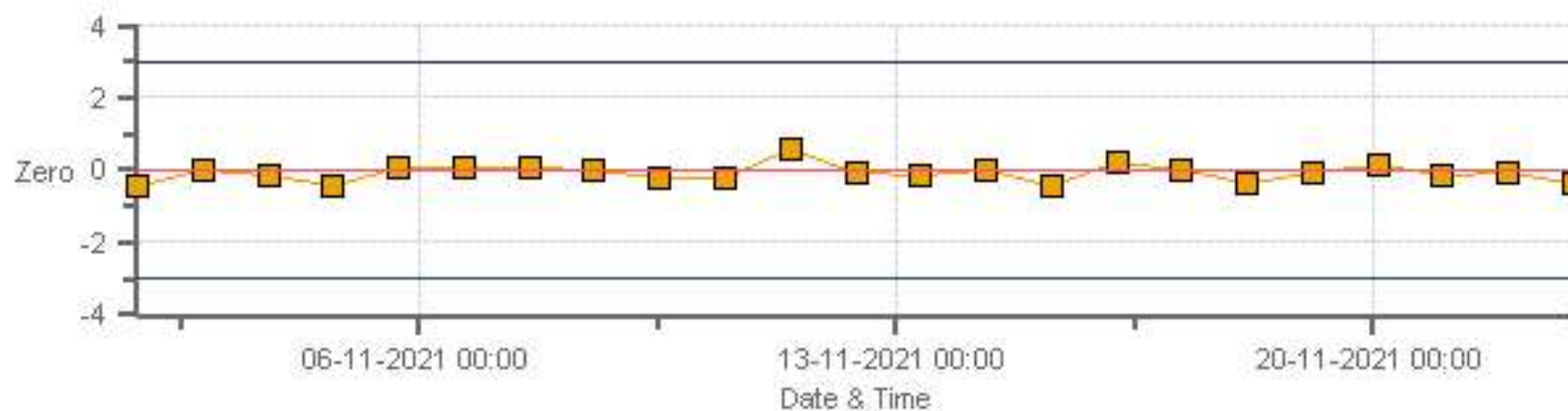
Zero Zero Ref Zero Low Zero High

TRS[ppb] Calibration: AQHI Cadotte Lake Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NOX[ppb] Calibration: AQHI Cadotte Lake Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



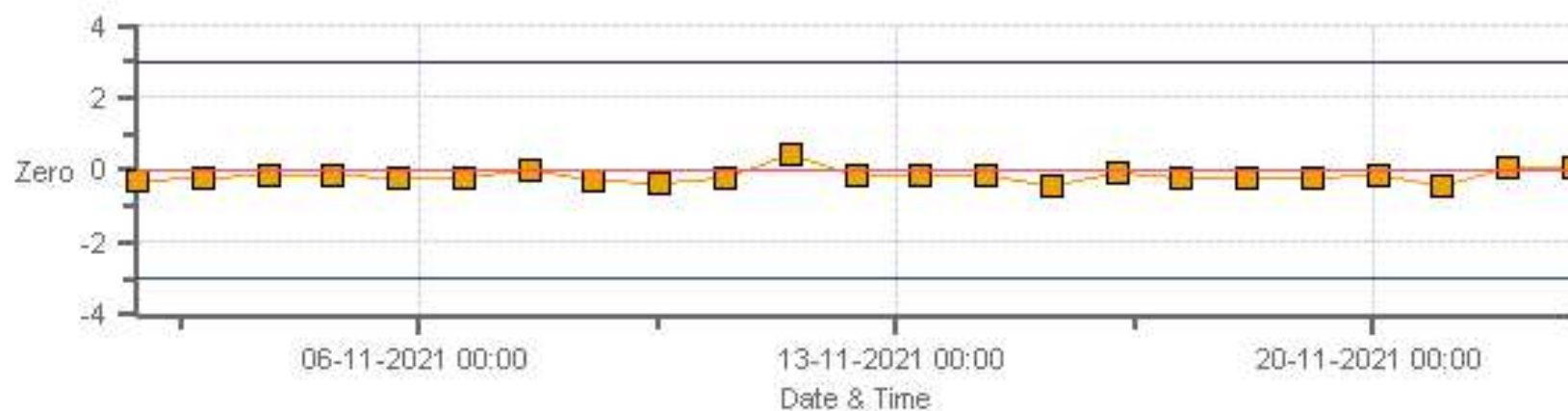
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: AQHI Cadotte Lake Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NO2[ppb] Calibration: AQHI Cadotte Lake Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



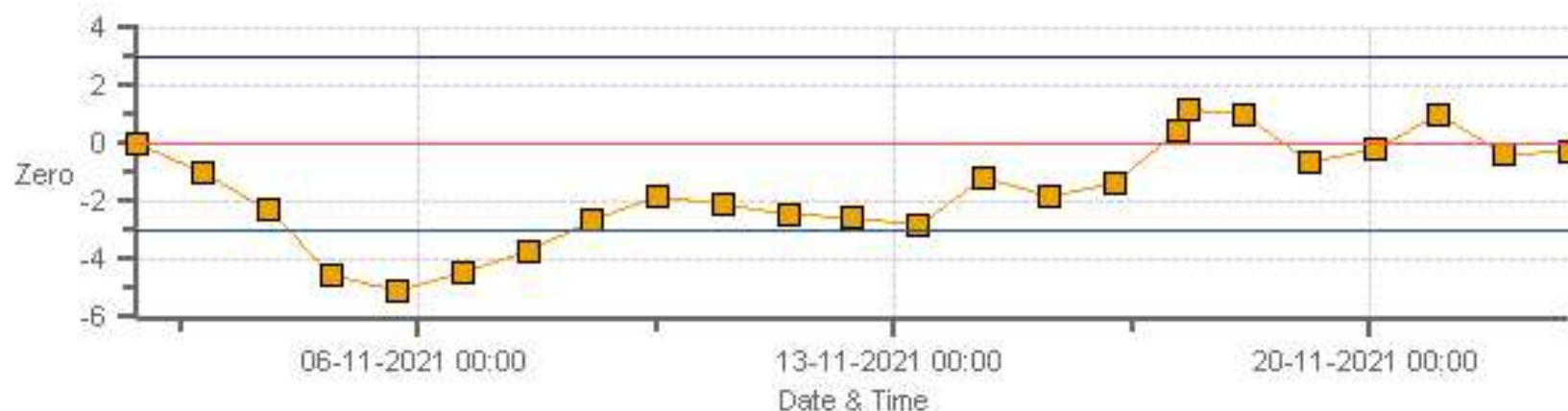
Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: AQHI Cadotte Lake Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

03[ppb] Calibration: AQHI Cadotte Lake Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



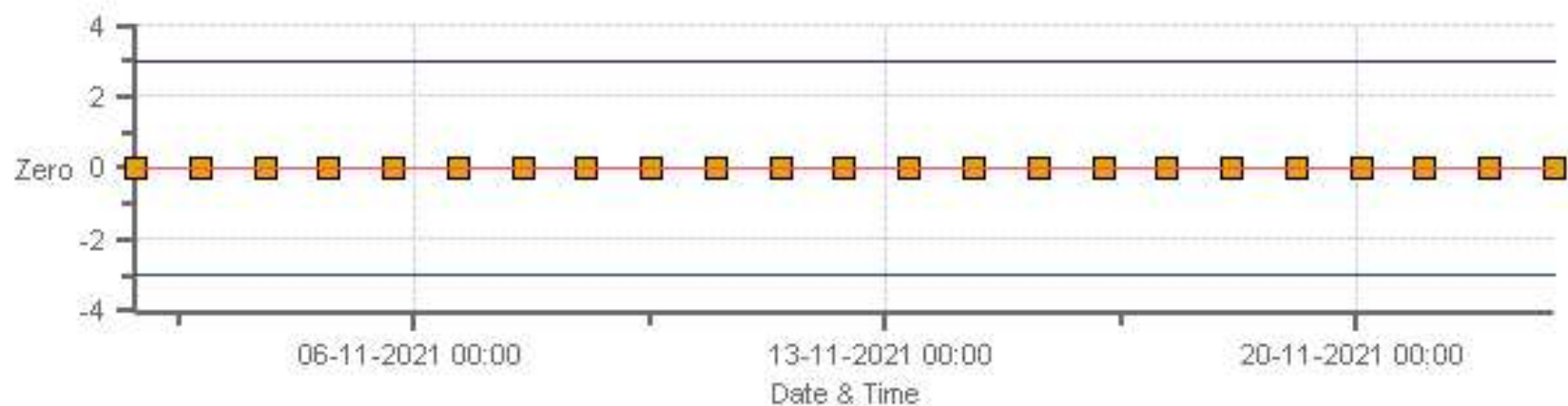
Zero Zero Ref Zero Low Zero High

03[ppb] Calibration: AQHI Cadotte Lake Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



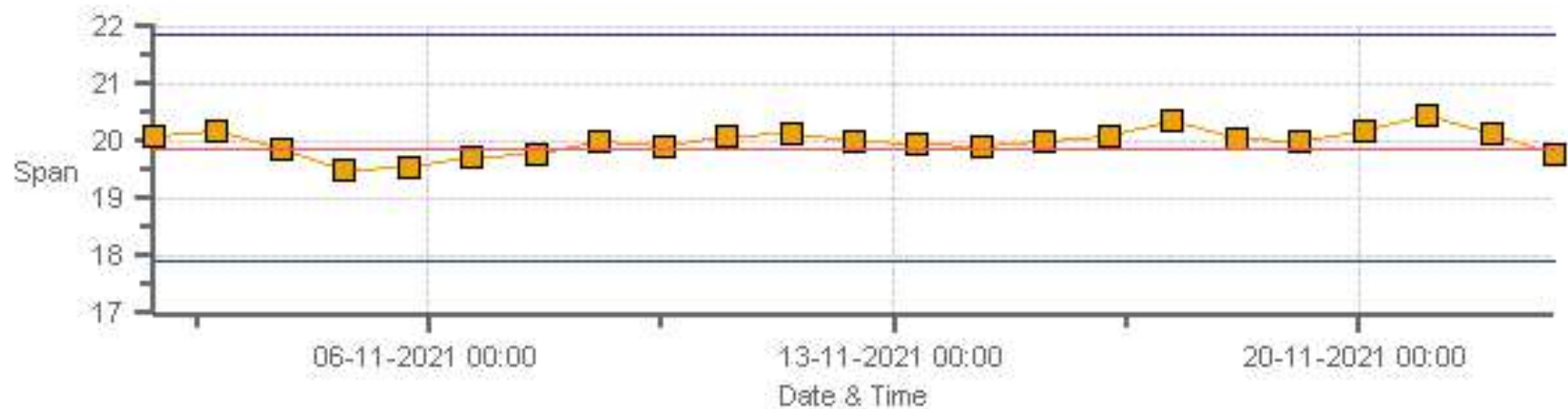
Span SpanRef Span Low Span High

THC55[ppm] Calibration: AQHI Cadotte Lake Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



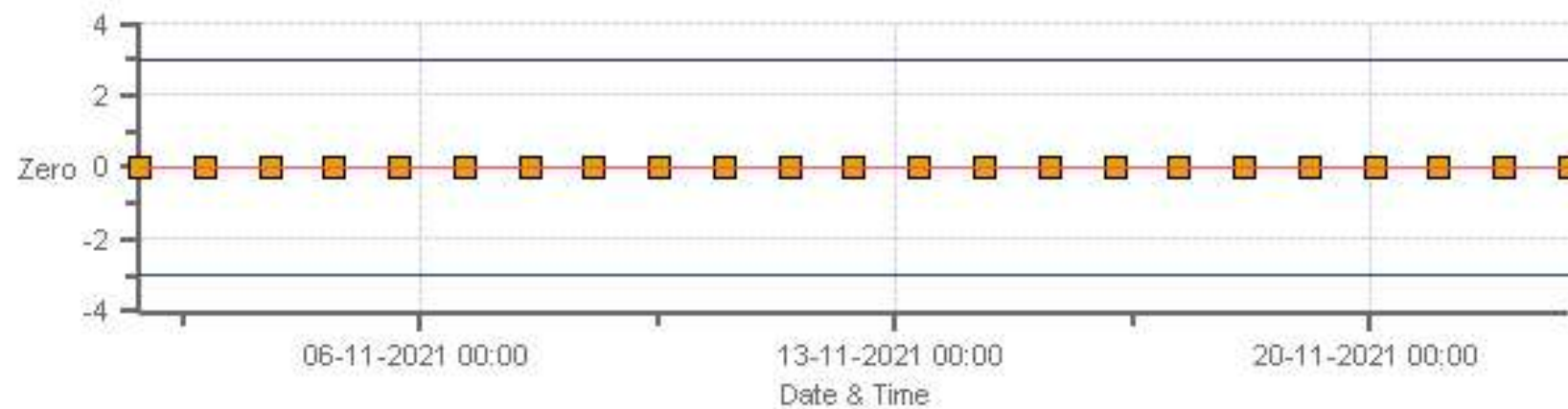
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: AQHI Cadotte Lake Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

CH4[ppm] Calibration: AQHI Cadotte Lake Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



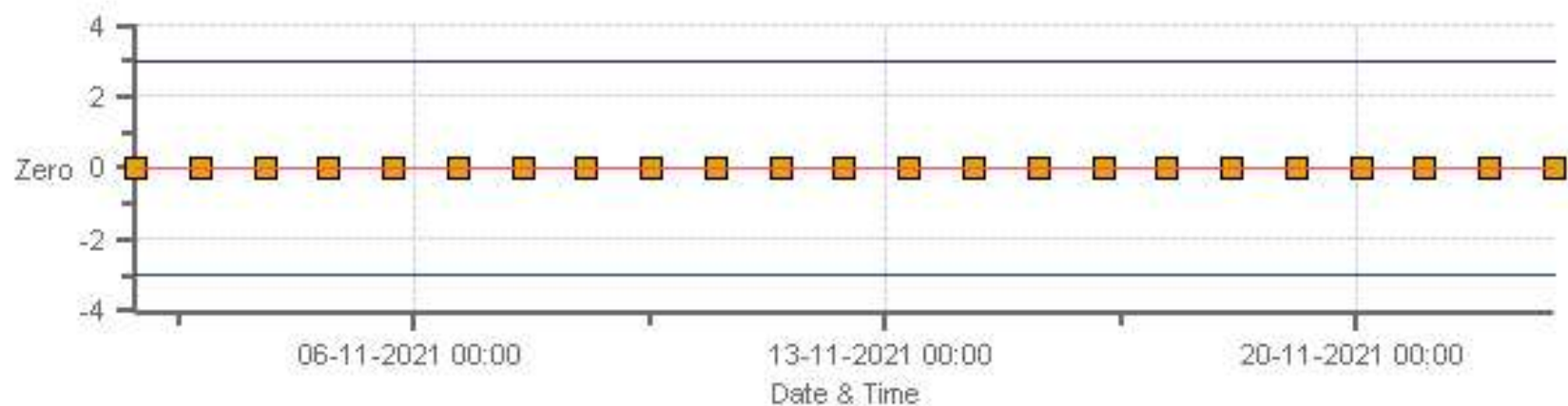
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: AQHI Cadotte Lake Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



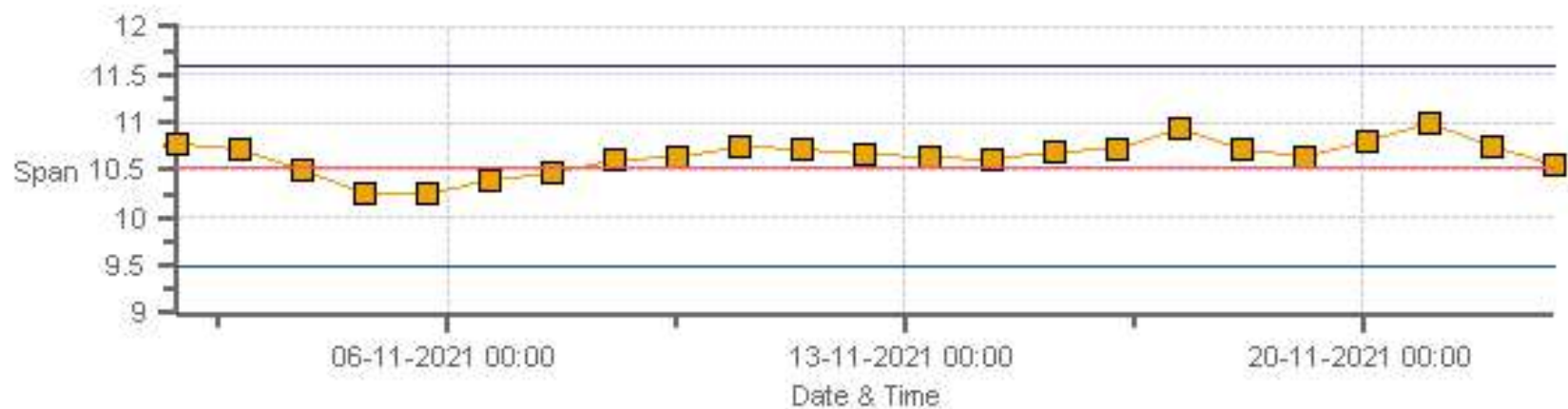
Span SpanRef Span Low Span High

NMHC[ppm] Calibration: AQHI Cadotte Lake Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: AQHI Cadotte Lake Periodically: 01-11-2021 00:00-23-11-2021 23:59 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	23-Nov-2021	PREVIOUS CALIBRATION DATE:	20-Oct-2021
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	PRAMP	TEMPERATURE (°C):	22.8
LOCATION:	Cadotte Lake	BAROMETRIC (mBar):	946
PURPOSE:	Removal/Shut-down	START TIME (MST):	11:08
PERFORMED BY:	Chris Wesson	END TIME (MST):	13:26

ANALYZER:

MAKE/MODEL	Teledyne T100	RANGE	500 ppb
SERIAL #	722	FLOW (mL/min)	532
INITIAL		FINAL	
BKG/OFFSET	22.9	BKG/OFFSET	n/a
COEF/SLOPE	0.933	COEF/SLOPE	n/a
Expected (reference) Value	265.9	Expected (reference) Value	n/a

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Teledyne
MODEL:	2010	MODEL:	M701
ID:	58100720	ID:	5004
MFC CALIBRATION DATE:	12-Oct-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	LL19664	HIGH ID	n/a
CONC (ppm):	24.20	EXPIRY DATE	n/a
CYLINDER (psi):	600	LOW ID	n/a
EXPIRY DATE	03-Jul-2023	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

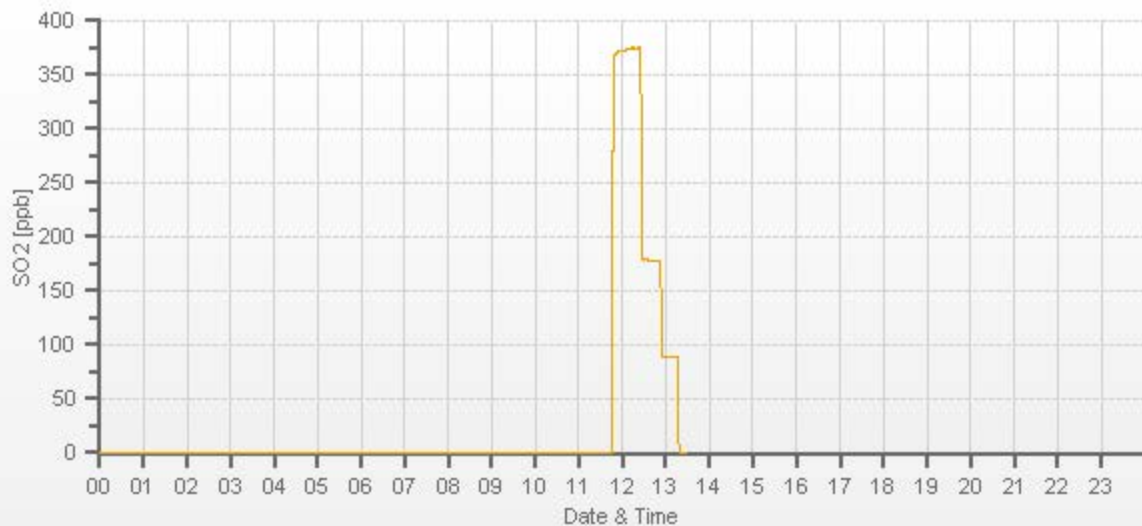
FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
3501	55.00	3501	0.00	-0.1	n/a	1.013	n/a
3448	55.00	3503	379.96	375.1	n/a	1.013	n/a
3474	26.00	3500	179.77	178.4	n/a	1.007	n/a
3489	13.00	3502	89.83	89.3	n/a	1.005	n/a

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.987	0.1%

COMMENTS:

Shutdown for station move



TRS Analyzer Calibration by Dilution



DATE:	23-Nov-2021	PREVIOUS CALIBRATION DATE:	20-Oct-2021
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	PRAMP	TEMPERATURE (°C):	22.8
LOCATION:	Cadotte Lake	BAROMETRIC (mBar):	946
PURPOSE:	Removal/Shut-down	START TIME (MST):	11:08
PERFORMED BY:	Chris Wesson	END TIME (MST):	13:26

ANALYZER:

MAKE/MODEL	Teledyne T100U	RANGE	100 ppb
SERIAL #	132	FLOW (mL/min)	505
INITIAL		FINAL	
BKG/OFFSET	25.3	BKG/OFFSET	n/a
COEF/SLOPE	1.052	COEF/SLOPE	n/a
Expected (reference) Value	52.96	Expected (reference) Value	n/a

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Teledyne
MODEL:	2010	MODEL:	M701
ID:	58100720	ID:	5004
MFC CALIBRATION DATE:	12-Oct-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0002519	HIGH ID	n/a
CONC (ppm):	9.41	EXPIRY DATE	n/a
CYLINDER (psi):	1600	LOW ID	n/a
EXPIRY DATE	10-Nov-2023	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

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

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

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

CALIBRATION:

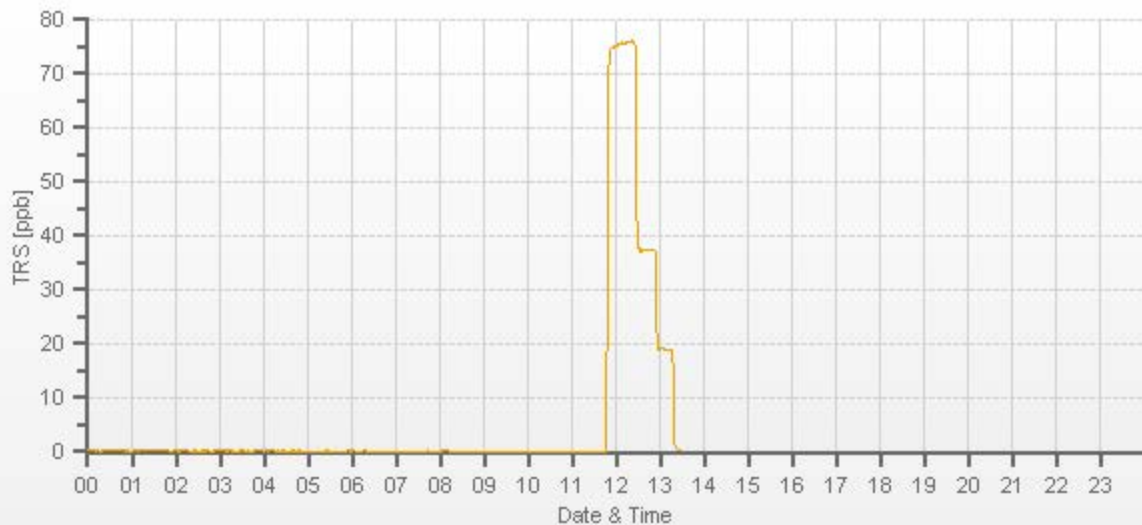
FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
3501	29.00	3501	0.00	0.09	n/a	1.020	n/a
3474	29.00	3503	77.90	76.44	n/a	1.020	n/a
3486	14.10	3500	37.91	37.71	n/a	1.008	n/a
3495	7.10	3502	19.08	19.15	n/a	1.001	n/a

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.979	0.3%

COMMENTS:

Shutdownn for station move Converter: CDNova CDN-101 #534
--



NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:		
DATE:	23-Nov-2021	PREVIOUS CALIBRATION DATE:	20-Oct-2021	MAKE/MODEL:	Teledyne T200	PREVIOUS CF.
CLIENT:	PRAMP	TEMPERATURE (°C):	22.5	SERIAL #:	837	NOx 1.000
LOCATION:	Cadotte Lake	BAROMETRIC (mBar):	945	FLOW (mL/min):	441	NO 1.000
PURPOSE	Removal/Shut-down	START TIME (MST):	09:25	RANGE (ppb):	500	NO2 1.001
PERFORMED BY:	Chris Wesson	END TIME (MST):	13:26	GPT FOR O3?	Yes	

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	Teledyne	CYLINDER ID:	LL48147	HIGH ID:	n/a
MODEL:	2010	MODEL:	M701	NO/NOx (PPM):	50.5 50.6	HIGH EXPIRY:	n/a
ID:	26701218	ID:	5004	CYLINDER (psi):	600	LOW ID:	n/a
MFC CALIBRATION DATE:	12-Oct-2021	OXIDIZER ID:	n/a	EXPIRY DATE	20-Aug-2026	LOW EXPIRY:	n/a

CALIBRATION SETTINGS:

INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	0.1	-0.5	n/a	BKG/OFFSET:	n/a	n/a	n/a
SLOPE/COEF/CE:	1.111	1.098	0.999	SLOPE/COEF/CE:	n/a	n/a	n/a

EXPECTED (REFERENCE) VALUE:

INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	331.0	3.5	327.4		n/a	n/a	n/a

CALIBRATION PARAMETERS:

POINT	NO TARGET (PPB)	NO2 TARGET (PPB)	NO2 RANGE	O3 POINT
HIGH	395	250	240-275	n/a
MID	180	154	150-157	Mid
LOW	90	54	50-58	Low
EXTRA 1	n/a	340	300-370	High

NO/NOx CALIBRATION:

FLOW RATE			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
4999	38.80	4999	0.0	0.0	0.0	0.7	0.5	-0.2	n/a	n/a	n/a	1.047	1.049	1.050	1.040	1.045	1.040
4959	38.80	4998	392.0	392.8	0.8	375.1	374.8	-0.2	n/a	n/a	n/a	1.047	1.049	1.050	n/a	n/a	n/a
4980	17.70	4998	178.8	179.2	0.4	171.1	171.9	0.8	n/a	n/a	n/a	1.050	1.045	1.040	n/a	n/a	n/a
4989	8.80	4998	88.9	89.1	0.2	86.2	86.2	0.0	n/a	n/a	n/a	1.040	1.040	1.040	n/a	n/a	n/a

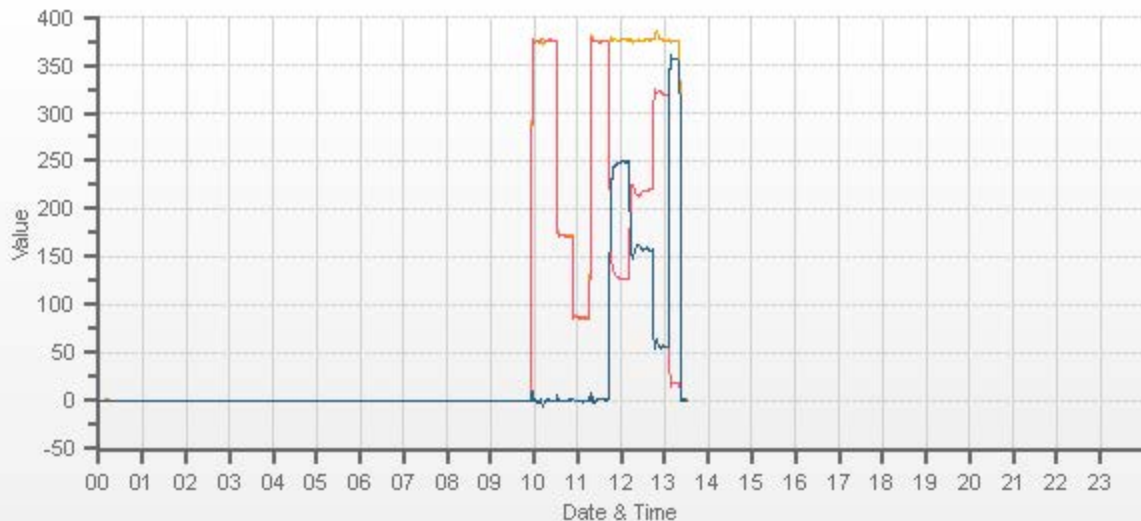
GPT CALIBRATION:

Point	CALIBRATOR			INDICATED (ppb)			NO DROP / O3 Conc (ppb)	NO2 GAIN (ppb)	NO2 Corr. FACTOR	CONV. EFFICIENCY
	GAS	TOTAL	O3 SETPOINT	NO	NOx	NO2				
REFERENCE	38.80	4998	0	374.2	375.8	1.6	246.1	246.8	0.997	100.28%
AS-FOUND HIGH	38.80	4998	270	128.1	376.4	248.4	246.1	246.8	0.997	100.28%
ADJUSTED HIGH	n/a	n/a	n/a	18.7	n/a	n/a	355.5	n/a	n/a	n/a
MID	38.80	4998	170	218.6	376.2	157.6	155.6	156	0.997	100.26%
LOW	38.80	4998	60	318.4	374.4	56.0	55.8	54.4	1.026	97.49%
NO2 adjustment not required.									AVERAGE:	99.34%

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	COMMENTS:
NO	1.000	0.954	0.17%	
NOx	1.000	0.952	0.19%	
NO2	1.000	1.011	-0.36%	

Additional GPT for O3, setpoint = 380, actual (O3 conc) = 355.5 ppb
shutdown for trailer move



CAL-PRAMP-202111-01651

Ozone Calibration by Direct GPT



DATE:	23-Nov-2021	PREVIOUS CALIBRATION DATE:	21-Oct-2021
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	PRAMP	TEMPERATURE (°C):	23.0
LOCATION:	Cadotte Lake	BAROMETRIC (mBar):	947
PURPOSE:	Removal/Shut-down	START TIME (MST):	13:26
PERFORMED BY:	Chris Wesson	END TIME (MST):	15:23

ANALYZER:

MAKE/MODEL	Teledyne T400	RANGE	500 ppb
SERIAL #	824	FLOW (mL/min)	745
INITIAL		FINAL	
BKG/OFFSET	-0.6	BKG/OFFSET	n/a
COEF/SLOPE	1.018	COEF/SLOPE	n/a
Expected (reference) Value	292.4	Expected (reference) Value	n/a

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Teledyne
MODEL:	2010	MODEL:	M701
ID:	26701218	ID:	5004
MFC CALIBRATION DATE:	12-Oct-2021	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Direct GPT	
GPT DATE:	23-Nov-2021	GPT END TIME:	

CALIBRATION PARAMETERS:

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

CALIBRATION:

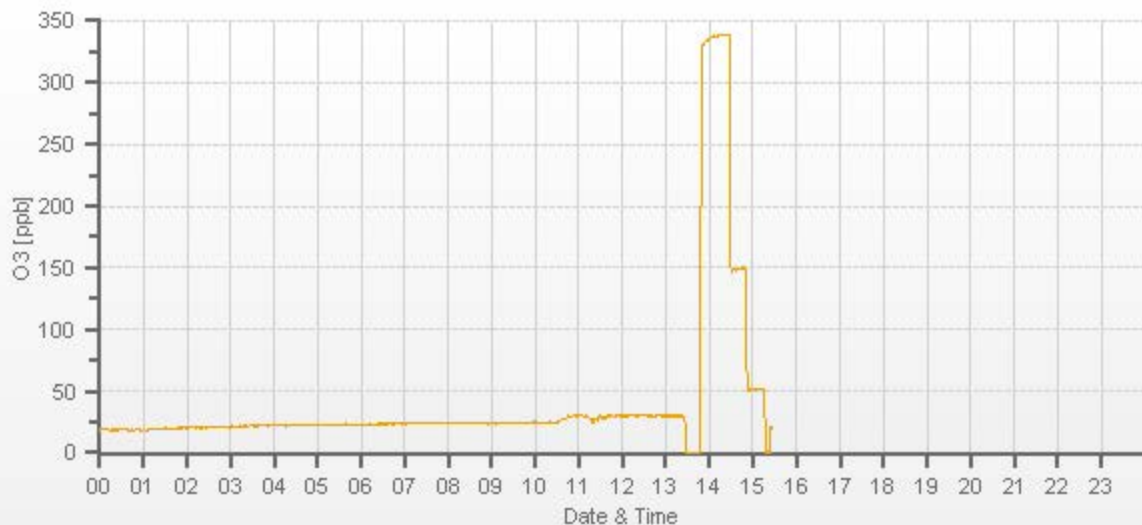
FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
5000	XXXX	5000	0.0	-0.5	n/a	XXXX	XXXX
5000	XXXX	5000	355.5	338.0	n/a	1.050	n/a
5000	XXXX	5000	155.6	149.1	n/a	1.040	n/a
5000	XXXX	5000	55.8	51.7	n/a	1.069	n/a

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.954	-0.1%

COMMENTS:

shutdown for station move



Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	23-Nov-2021	PREVIOUS CALIBRATION DATE:	20-Oct-2021	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	22.5		Thermo 55i	1191032505	1168
LOCATION:	Cadotte Lake	BAROMETRIC (mBar):	945	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Removal/Shut-down	START TIME (MST):	09:25	RANGE (ppm):	20	20	40
PERFORMED BY:	Chris Wesson	END TIME (MST):	11:08	PREVIOUS CF:	0.999	1.001	1.000

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	Teledyne	CYLINDER ID:	LL119576	HIGH ID:	n/a
MODEL:	2010	MODEL:	M701	CH ₄ /C ₃ H ₈ (ppm):	870.0 299.0	HIGH EXPIRY:	n/a
ID:	58100720	ID:	5004	CYLINDER (psi):	1800	LOW ID:	n/a
MFC CALIBRATION DATE:	12-Oct-2021	OXIDIZER ID:	Internal	EXPIRY DATE	22-Dec-2028	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

POINT (CH ₄ /NMHC)	HIGH	MID	LOW	CH ₄ EQUIVILANCE	
TARGET	14	7	3.5	C ₃ H ₈ as CH ₄	822.3
RANGE	12 - 16	6 - 8	2 - 4	THC as CH ₄	1692.3

EXPECTED (REFERENCE) VALUE:

INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.34	10.54	19.88		n/a	n/a	n/a

CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3251	X	3251	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a	X	X	X	X	X	X
3203	53.80	3257	14.37	13.58	27.95	14.69	13.45	28.13	n/a	n/a	n/a	0.978	1.010	0.994	n/a	n/a	n/a
3224	26.90	3251	7.20	6.80	14.00	7.36	6.79	14.15	n/a	n/a	n/a	0.978	1.002	0.990	n/a	n/a	n/a
3240	13.40	3253	3.58	3.39	6.97	3.71	3.41	7.12	n/a	n/a	n/a	0.966	0.993	0.979	n/a	n/a	n/a

LINEAR REGRESSION ANALYSIS:

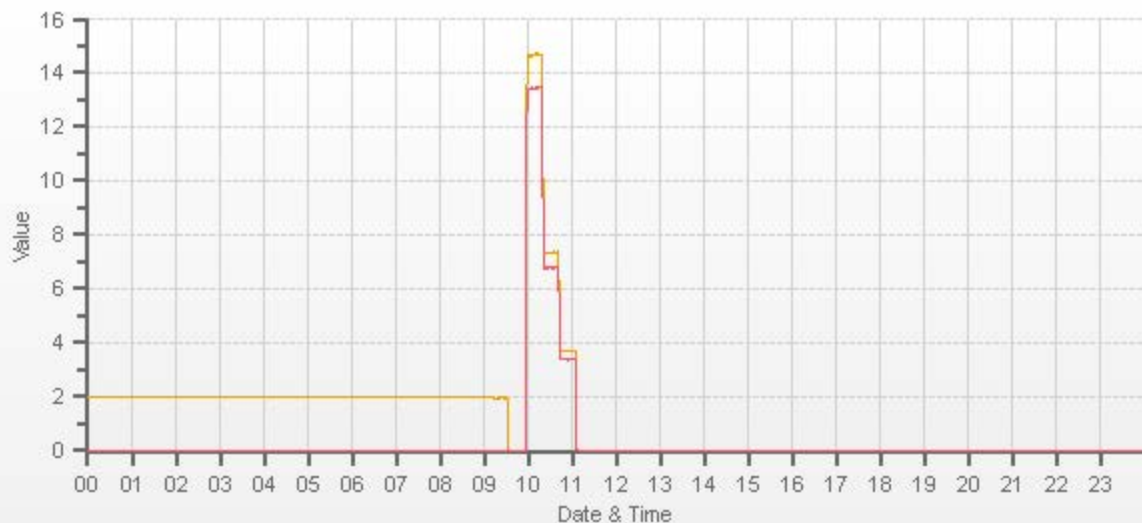
	CORRELATION	SLOPE	INTERCEPT
CH ₄	1.000	1.021	0.1%
NMHC	1.000	0.989	0.2%
THC	1.000	1.005	0.1%

Comments:

Shutdown for trailer move

Use Zero Chrom?

Yes



CAL-PRAMP-202111-01651



Teledyne T640 Audit/Calibration

Date/Previous Audit Date:	November 23, 2021	October 20, 2021	Weather Conditions:	Light snow	
Company:	PRAMP		Start Time (mst):	11:18	
Station:	Cadotte Lake		End Time (mst):	11:35	
Parameter:	PM 2.5		Performed By/Reviewer:	Chris Wesson	Ferdinand Roy
Instrument Data:					
Make/Model:	Teledyne T640		Serial Number:	318	
Owner:	PRAMP		Alarms (detail in comments):	No	
Reference Standards/I.D./Expiry Date:					
Flow Standard: Deltacal DC-1 #201587, expires Nov01, 2022			Temperature: Deltacal DC-1 #201587, expires Nov01, 2022		
Digital Manometer: Deltacal DC-1 #201587, expires Nov01, 2022			Pressure: Deltacal DC-1 #201587, expires Nov01, 2022		
DIAGNOSTICS:					
Ambient Pressure (mmHg)	709.8	Ambient Temp (°C)	-13.8	ASC Heater Duty (%)	0.0
Box Temp (°C)	27.4	Current PMT HV (V)	1542	LED Temp (°C)	35.18
P3 Value	45	PMT Setting (V)	1547	Pump PWM (%)	43
Sample Flow (L/min)	4.96	Sample RH (%RH)	5.5	Sample Temp (°C)	24.7
Item:	As-found		As-left		Tolerance
	Reference	T640x	Reference	T640x	
Zero Test (Leak Check)	PM10	0.0	n/a	n/a	0.0 to 0.2
	PM2.5	0.0	n/a	n/a	
Ambient Pressure (mmHg)	710.0	708.4	n/a	n/a	+/- 10 mm Hg
Ambient Temperature (°C)	-13.30	-13.7	n/a		+/- 2°C
Sample Flow (L/min)	4.78	4.98	n/a	n/a	+/- 5% of T640x (e.g., 4.75 ~ 5.25 lpm)
Comments:					
No issues.					

Meteorological System Checklist



Date:	November 23, 2021		
Technician:	Chris Wesson		
Station:	PRAMP Cadotte Lake		
Unit:	Make:	Model:	Serial #:
Temperature Sensor:	Vaisala	HMP155	N2910506
Barometric Pressure Sensor:	MetOne	92	A2397
Relative Humidity Sensor:	Vaisala	HMP155	N2910506
Anemometer:	RM Young	05305AQ	174801
AMBIENT TEMPERATURE SENSOR CHECK			
Previous check date:	October 20, 2021		
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	F.S. 181341226 expires June 10, 2021		
Reference Temperature (°C):	-13.8		
Station - Ambient Temperature (°C):	-14.6		
Temperature Difference (°C):	0.8		
BAROMETRIC PRESSURE SENSOR CHECK			
Previous check date:	October 20, 2021		
Reference Barometer ID:	Brunton 05535 expires Feb 17, 2022		
Reference Pressure - Units/Reading:	millibar	945.5	
Station Pressure - Units/Reading:	millibar	946.6	
Pressure Tolerance +/- 15% of error:	804 - 1087	-0.12%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Previous check date:	October 20, 2021		
Reference Hygrometer ID:	F.S. 181341226 expires June 10, 2021		
Reference Hygrometer % RH- Reading:	70.10		
Station Hygrometer % RH- Reading:	72.90		
RH Tolerance +/- 15% of difference:	59.59 - 80.62	-4.0%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	March 17, 2021	Previous check date:	March 17, 2021
Wind Speed Observed (kph):	5~10	Wind Direction Observed:	W
Wind speed on Data Logger (kph):	5.6	Wind Direction on Data Logger:	W
		Wind Direction Pass/Fail?:	Pass
Comments			
No issues. Completed 12:11-12:14			



Meteorological Sensor Audit/Calibration

Location Information

Company:	PRAMP	Performed By:	Ferdinand Roy
Audit Location:	Cadotte Lake	Reviewed By:	Chris Wesson
Audit Date:	July 22, 2021	Start/End Time (mst):	12:47-15:52
Calibration Purpose:	routine annual	Weather Conditions:	Cloudy/Overcast

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	n/a
Sensor Model:	05305AQ	Velocity Unit Output Range:	0-180
Serial #:	174801	Direction Voltage Output Range:	n/a
Previous Cal/Audit Date:	June 18, 2020	Direction Unit Output Range:	0-360

Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 id# CA03309 expires June 7, 2023

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

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.0	0.0	-
1000	18.4	18.3	18.3	1.007
2000	36.9	36.7	36.7	1.004
3000	55.3	55.1	55.1	1.003
4000	73.7	73.6	73.6	1.002
5000	92.2	92.0	92.0	1.002
6000	110.6	110.5	110.5	1.001
7000	129.0	128.9	128.9	1.001
8000	147.4	147.3	147.3	1.001
9000	165.9	165.8	165.8	1.000
10000	184.3	184.2	184.2	1.001
			Average Correction Factor=	1.002

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

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	0	353	0.1	2.0	1.1
30	330	27	330	3.5	-0.3	1.9
60	300	56	300	3.9	0.1	2.0
90	270	87	269	3.5	1.1	2.3
120	240	118	238	2.4	2.5	2.5
150	210	149	207	1.5	3.5	2.5
180	180	178	177	1.8	2.8	2.3
210	150	208	148	2.1	2.5	2.3
240	120	239	117	1.1	2.9	2.0
270	90	270	86	-0.1	3.6	1.9
300	60	300	57	0.2	3.5	1.8
330	30	330	27	-0.1	3.0	1.6
355	0	353	0	1.8	0.1	1.0
The audit meets AMD requirements.				Average Absolute Degrees Difference=		1.9

Comments:

Physical inspection completed - no issues.