



## Peace River Area Monitoring Program

# DECEMBER 2021

## Monthly Ambient Air Quality Monitoring Report

### PRAMP-202112

#### **Operation and Maintenance:**

Bureau Veritas Canada

#### **Data Validation and Report:**

Peace River Area Monitoring Program

January 17, 2022

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## 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 <sub>4</sub>	Methane
EPEA	Environmental Protection and Enhancement Act
H <sub>2</sub> 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 <sub>2</sub>	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



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January 17, 2022

**RE: PRAMP – December 2021 Monthly Ambient Air Quality Monitoring Report**

Enclosed is the December 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

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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 Grimshaw

Station ID	Station Name	Latitude	Longitude
1562	986c	56.36980	-116.92500
1561	842b	56.27406	-116.98129
1563	Reno	55.86936	-117.05739
1689	AQHI-Grimshaw	56.186570	-117.604994

### Listing of Intermittent Monitoring Stations

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

### Monitoring Notes during the Month of December 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.
- **All gas parameters:** The scheduled zero-span check was interrupted by a scheduled logger restart on December 13. A repeat zero-span check was completed at hour 7. One hour of downtime was recorded due to this additional quality check.
- **TRS:**
  - Low ambient temperatures, particularly in the latter half of the month, had a marked effect on TRS span results. This is a perennial problem when the moisture levels in sample air drop very low, causing TRS analyzer to respond more slowly due to the SO2 scrubber requiring a certain humidity to function optimally. Although daily span check results were often below the requirements, and the daily zero check results were occasionally close to or outside the allowable drift range (while low temperatures were occurring), experience indicates the analyzer's performance remains in compliance with AMD performance criteria, and collected data remain valid.

- SO2 scrubber material was renewed after the shut-down calibration on December 7. The analyzer was allowed time to stabilize overnight. A post-repair calibration was completed on December 8. Seventeen hours of downtime were recorded due to this maintenance activity.
- **THC/CH4/NMHC:** The analyzer failed due to repeat flame outs on December 8 hour 0. Troubleshooting was completed and a successful post-repair calibration was completed on December 8. Eight hours of downtime were recorded due to this event.
- **RH:** Abnormal periods of high RH values (100%) were recorded, starting December 8. The sensor will be replaced during the January 2022 monthly site visit.

#### 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.
- **TRS:**
  - Low ambient temperatures, particularly in the latter half of the month, had a marked effect on TRS span results. This is a perennial problem when the moisture levels in sample air drop very low, causing TRS analyzer to respond more slowly due to the SO2 scrubber requiring a certain humidity to function optimally. Although daily span check results were often below the requirements, and the daily zero check results were occasionally close to or outside the allowable drift range (while low temperatures were occurring), experience indicates the analyzer's performance remains in compliance with AMD performance criteria, and collected data remain valid.
  - SO2 scrubber material was renewed after the shut-down calibration on December 7. The analyzer was allowed time to stabilize overnight. A post-repair calibration was completed on December 8. Twenty-five hours of downtime were recorded due to this maintenance activity.
- **THC/CH4/NMHC:** The analyzer failed due to low carrier (N2) supply pressure on December 16 hour 8. The gas pressure was adjusted by PRAMP field operational assistant, and a successful repeat zero-span check was completed at hour 13. Six 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.
- **TRS:**
  - Low ambient temperatures, particularly in the latter half of the month, had a marked effect on TRS span results. This is a perennial problem when the moisture levels in sample air drop very low, causing TRS analyzer to respond more slowly due to the SO2 scrubber requiring a certain humidity to function optimally. Although daily span check results were often below the requirements, and the daily zero check results were occasionally close to or outside the allowable drift range (while low temperatures were occurring) , experience indicates the analyzer's performance remains in compliance with AMD performance criteria, and collected data remain valid.

- SO2 scrubber material was renewed after the shut-down calibration on December 2. The analyzer was allowed time to stabilize overnight. A post-repair calibration was completed on December 3. Eighteen hours of downtime were recorded due to this maintenance activity.
- A repeat multi-point calibration was completed on December 13 to check and correct span drift. Six hours of downtime were recorded due to this additional quality check.

#### AQHI – Grimshaw Station

- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- All parameters met the 90% operational uptime requirement, except PM2.5 (74.4%). **AEP Reference #: 387000.**
- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) and /or Alberta Ambient Air Quality Guidelines (AAAQGs) where applicable.
- The AQM station and all monitoring equipment were moved from the last monitoring location, which was Cadotte Lake, to the town of Grimshaw on November 24. All equipment were allowed time to stabilize. The station was back online after an installation calibration and/or meteorological sensor check/verification was completed on the equipment on December 1. During the equipment stabilizing period, the O3 analyzer was replaced from Teledyne T200, s/n: 824, to API 400A, s/n: 445, to address noise issues that were identified during the previous months (while the analyzer was running at Cadotte Lake).
- **All parameters:** Due to a datalogger error, no data were collected between December 20 hour 13 and December 21 hour 13. Twenty-five hours of downtime were recorded.
- **PM2.5:** Abnormal data were identified during the December 28's data review. The PM unit was reset on December 28 hour 7. A subsequent data review suggested that data should be invalidated back to the time the datalogger reset, which was December 21 One hundred sixty-two hours of downtime were recorded due to this event.
- **THC/CH4/NMHC:** An as found points check was completed to verify NMHC drift. No issue was found. Two hours of downtime were recorded due to this additional quality check.
- **TRS:** Low ambient temperatures, particularly in the latter half of the month, had a marked effect on TRS span results. This is a perennial problem when the moisture levels in sample air drop very low, causing TRS analyzer to respond more slowly due to the SO2 scrubber requiring a certain humidity to function optimally. Although daily span check results were often below the requirements, and the daily zero check results were occasionally close to or outside the allowable drift range (while low temperatures were occurring), experience indicates the analyzer's performance remains in compliance with AMD performance criteria, and collected data remain valid.

#### 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-Grimshaw Station.



- Sample analysis and analytical results were prepared and provided by InnoTech Alberta.
- One canister event was recorded at the 986c station this month.

Station	Parameter	Date	Time	Concentration (ppm)
986c	Non-methane HC	15-Dec	17:00	0.50

Note: The date for the canister sample collected was recorded incorrectly on the chain of custody form (EAS CANISTER sample ID: 21120153-001). Instead of December 15, 2021, December 16, 2021 was recorded.

### 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).

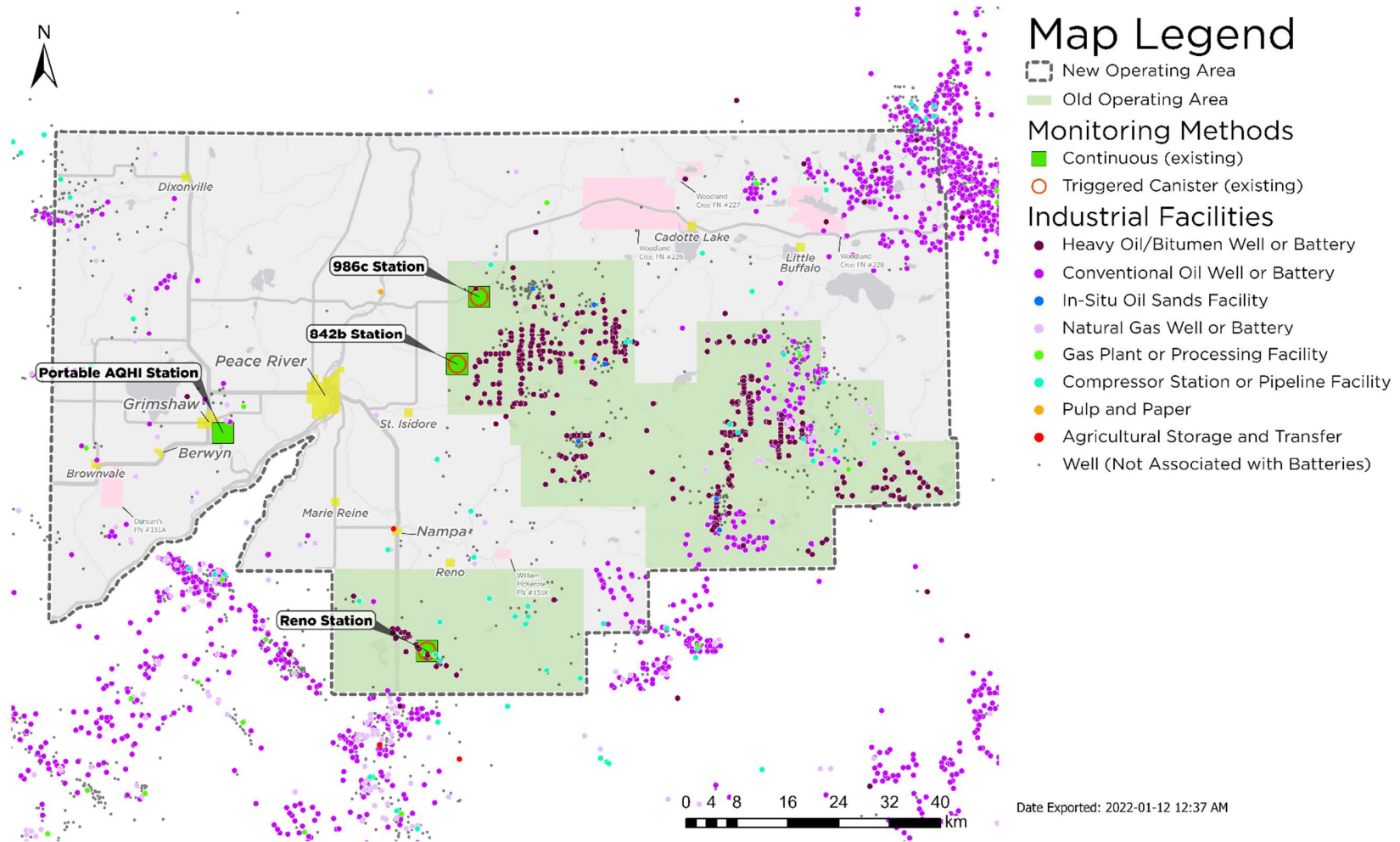
I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements. I also certify that at the time of this report's submission, all 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

January 17, 2022

Map of PRAMP Continuous Monitoring Network



## Map Legend

- New Operating Area
  - Old Operating Area
- ### Monitoring Methods
- Continuous (existing)
  - 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**

<b>Parameter</b>	<b>Make / Model</b>	<b>Serial Number</b>	
<b>SO2</b>	<b>Thermo / 43iQTL</b>	<b>1193585646</b>	
<ul style="list-style-type: none"> <li>• A successful monthly calibration was performed on December 7.</li> <li>• No operational issues were identified this month.</li> </ul>			
<b>TRS</b>	<b>Thermo / 43iQTL</b>	<b>1191833341</b>	
<ul style="list-style-type: none"> <li>• SO2 scrubber material was renewed after the shut-down calibration on December 7. The analyzer was allowed time to stabilize overnight. A post-repair calibration was completed on December 8. Seventeen hours of downtime were recorded due to this maintenance activity.</li> <li>• Low ambient temperatures, particularly in the latter half of the month, had a marked effect on TRS span results. This is a perennial problem when the moisture levels in sample air drop very low, causing TRS analyzer to respond more slowly due to the SO2 scrubber requiring a certain humidity to function optimally. Although daily span check results were often below the requirements, and the daily zero check results were occasionally close to or outside the allowable drift range (while low temperatures were occurring), experience indicates the analyzer’s performance remains in compliance with AMD performance criteria, and collected data remain valid.</li> </ul>			
<b>THC/CH4/NMHC</b>	<b>Thermo / 55i</b>	<b>1193585652</b>	
<ul style="list-style-type: none"> <li>• The analyzer failed due to repeat flame outs on December 8 hour 0. Troubleshooting was completed and a successful post-repair calibration was completed on December 8. Eight hours of downtime were recorded due to this event. A successful monthly calibration was performed on December 17.</li> </ul>			
<b>Relative Humidity (RH)</b>	<b>Rotronic / HC2-S3</b>	<b>20357528</b>	
<ul style="list-style-type: none"> <li>• The RH sensor was checked on December 7. The sensor passed the check requirements.</li> <li>• No operational issues were identified this month.</li> </ul>			

Parameter	Make / Model	Serial Number	
<b>Barometric Pressure (BP)</b>	<b>MetOne / 092</b>	<b>Y23358</b>	
<ul style="list-style-type: none"> <li>The BP sensor was checked on December 7. The sensor passed the check requirements.</li> <li>No operational issues were identified this month.</li> </ul>			
<b>Ambient Temperature (AT)</b>	<b>Rotronic / HC2-S3</b>	<b>20357528</b>	
<ul style="list-style-type: none"> <li>The temperature sensor was checked on December 7. The sensor passed the check requirements.</li> <li>No operational issues were identified this month.</li> </ul>			
<b>Station Temperature (ST)</b>	<b>Bureau Veritas Canada</b>	<b>N/A</b>	
<ul style="list-style-type: none"> <li>No operational issues were identified this month.</li> </ul>			
<b>Precipitation (Precip)</b>	<b>RM Young 52202</b>	<b>TB 16325</b>	
<ul style="list-style-type: none"> <li>The temperature sensor was checked on December 7. The sensor passed the check requirements.</li> <li>No operational issues were identified this month.</li> </ul>			
<b>Wind Speed/Wind Direction (WS/ WD)</b>	<b>RM Young / 05305L</b>	<b>174795</b>	
<ul style="list-style-type: none"> <li>Wind direction data contained in this report represents where the wind is coming from.</li> <li>The annual wind system calibration was completed on July 3, 2021.</li> <li>The anemometer sensors were checked on December 7. The sensor passed the check requirements.</li> <li>No operational issues were identified this month.</li> </ul>			

### 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	December 27 at hour 6	15.2	WNW	0.7	December 6	99.9	95.0
TRS (ppb)	10	3	-	-	-	-	0.08	0.00	0.43	December 5 at hour 12	14.1	SW	0.27	December 5	97.6	92.7
THC (ppm)	-	-	-	-	-	-	2.18	1.94	2.51	December 15 at hour 5	5.5	WSW	2.37	December 15	98.8	94.2
CH4 (ppm)	-	-	-	-	-	-	2.18	1.94	2.51	December 15 at hour 5	5.5	WSW	2.36	December 18	98.8	94.2
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.20	December 15 at hour 17	4.5	S	0.01	December 15	98.8	94.2
RH (%)	-	-	-	-	-	-	86.4	53	100	December 1 at hour 5	9.6	ESE	100.0	December 22	100.0	100.0
BP (millibar)	-	-	-	-	-	-	936	906	956	December 5 at hour 7	10.8	SW	954	December 5	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-18.8	-38.1	4.6	December 1 at hour 3	23.3	W	-3.0	December 8	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	22.4	16.0	23.6	December 26 at hour 14	4.9	WNW	23.4	December 28	100.0	100.0
Precipitation (mm)*	-	-	-	-	-	-	0.3	0.0	0.1	December 8 at hour 5	10.3	W	0.3	December 8	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	4.2	0.5	33.9	December 2 at hour 7	33.9	WNW	16.7	December 2	100.0	100.0
WDV (sector)	-	-	-	-	-	-	266 (W)	-	-	-	-	-	-	-	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	
<ul style="list-style-type: none"> <li>• A successful monthly calibration was performed on December 7.</li> <li>• No operational issues were identified this month.</li> </ul>			
TRS	Thermo 43iQTL	1200736630	
<ul style="list-style-type: none"> <li>• SO2 scrubber material was renewed after the shut-down calibration on December 7. The analyzer was allowed time to stabilize overnight. A post-repair calibration was completed on December 8. Twenty-five hours of downtime were recorded due to this maintenance activity.</li> <li>• Low ambient temperatures, particularly in the latter half of the month, had a marked effect on TRS span results. This is a perennial problem when the moisture levels in sample air drop very low, causing TRS analyzer to respond more slowly due to the SO2 scrubber requiring a certain humidity to function optimally. Although daily span check results were often below the requirements, and the daily zero check results were occasionally close to or outside the allowable drift range (while low temperatures were occurring), experience indicates the analyzer's performance remains in compliance with AMD performance criteria, and collected data remain valid.</li> </ul>			
THC/CH4/NMHC	Thermo / 55i	1501663728	
<ul style="list-style-type: none"> <li>• A successful monthly calibration was performed on December 8.</li> <li>• The analyzer failed due to low carrier (N2) supply pressure on December 16 hour 8. The gas pressure was adjusted by PRAMP field operational assistant, and a successful repeat zero-span check was completed at hour 13. Six hours of downtime were recorded due to this event.</li> </ul>			
Relative Humidity (RH)	Rotronic / HC2A-S3	20370767	
<ul style="list-style-type: none"> <li>• The RH sensor was checked on December 7. The sensor passed the check requirements.</li> <li>• No operational issues were identified this month.</li> </ul>			



Parameter	Make / Model	Serial Number	
<b>Barometric Pressure (BP)</b>	<b>MetOne / 092</b>	<b>Y23362</b>	
<ul style="list-style-type: none"> <li>The BP sensor was checked on December 7. The sensor passed the check requirements.</li> <li>No operational issues were identified this month.</li> </ul>			
<b>Ambient Temperature (AT)</b>	<b>Rotronic / HC2A-S3</b>	<b>20370767</b>	
<ul style="list-style-type: none"> <li>The temperature sensor was checked on December 7. The sensor passed the check requirements.</li> <li>No operational issues were identified this month.</li> </ul>			
<b>Station Temperature (ST)</b>	<b>Bureau Veritas Canada</b>	<b>N/A</b>	
<ul style="list-style-type: none"> <li>No operational issues were identified this month.</li> </ul>			
<b>Precipitation (Precip)</b>	<b>RM Young / 52202</b>	<b>TB 15878</b>	
<ul style="list-style-type: none"> <li>The precipitation sensor was checked on December 7. The sensor passed the check requirements.</li> <li>No operational issues were identified this month.</li> </ul>			
<b>Wind Speed/Wind Direction (WS/ WD)</b>	<b>RM Young / 05305AQ</b>	<b>174802</b>	
<ul style="list-style-type: none"> <li>Wind direction data contained in this report represents where the wind is coming from.</li> <li>The annual wind system calibration was completed on July 4, 2021.</li> <li>The anemometer sensors were checked on December 7. The sensor passed the check requirements.</li> <li>No operational issues were identified this month.</li> </ul>			

### 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	0.1	0	2	December 27 at hour 6	15	SSE	0.4	December 7	100.0	95.0
TRS (ppb)	10	3	-	-	-	-	0.30	0.05	0.70	December 20 at hour 17	10.8	SSW	0.58	December 20	96.6	91.6
THC (ppm)	-	-	-	-	-	-	1.89	1.80	2.46	December 15 at hour 3	3	SE	2.07	December 15	99.2	94.3
CH4 (ppm)	-	-	-	-	-	-	1.89	1.80	2.46	December 15 at hour 3	3	SE	2.07	December 15	99.2	94.3
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.06	December 7 at hour 9	7.5	SSE	0.00	December 7	99.2	94.3
RH (%)	-	-	-	-	-	-	77.3	51	100	December 8 at hour 3	8	SW	90.7	December 22	100.0	100.0
BP (millibar)	-	-	-	-	-	-	935	905	955	December 5 at hour 7	7.7	SW	952	December 5	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-18.8	-37.9	4.6	December 1 at hour 0	27.3	WSW	-2.9	December 8	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	22.6	21.1	24.0	December 6 at hour 19	6	SSE	23.1	December 26	100.0	100.0
Precipitation (mm)*	-	-	-	-	-	-	0.2	0.0	0.1	December 8 at hour 4	13.6	WSW	0.2	December 8	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	2.2	0.0	34.8	December 2 at hour 10	34.8	W	13.5	December 2	100.0	100.0
WDV (sector)	-	-	-	-	-	-	225 (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 (AAAOs) 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
<b>SO2</b>	<b>Thermo 43i-TLE</b>	<b>1162460023</b>
<ul style="list-style-type: none"> <li>• A successful monthly calibration was performed on December 2.</li> <li>• No operational issues were identified this month.</li> </ul>		
<b>TRS</b>	<b>Thermo / 43i-TLE</b>	<b>1162460022</b>
<ul style="list-style-type: none"> <li>• SO2 scrubber material was renewed after the shut-down calibration on December 2. The analyzer was allowed time to stabilize overnight. A post-repair calibration was completed on December 3. Eighteen hours of downtime were recorded due to this maintenance activity.</li> <li>• A repeat multi-point calibration was completed on December 13 to check and correct span drift. Six hours of downtime were recorded due to this additional quality check.</li> <li>• Low ambient temperatures, particularly in the latter half of the month, had a marked effect on TRS span results. This is a perennial problem when the moisture levels in sample air drop very low, causing TRS analyzer to respond more slowly due to the SO2 scrubber requiring a certain humidity to function optimally. Although daily span check results were often below the requirements, and the daily zero check results were occasionally close to or outside the allowable drift range (while low temperatures were occurring), experience indicates the analyzer's performance remains in compliance with AMD performance criteria, and collected data remain valid.</li> </ul>		
<b>THC/CH4/NMHC</b>	<b>Thermo / 55i</b>	<b>1505664392</b>
<ul style="list-style-type: none"> <li>• A successful monthly calibration was performed on December 2.</li> <li>• No operational issues were identified this month.</li> </ul>		
<b>Relative Humidity (RH)</b>	<b>RM Young / 43172VC</b>	<b>60837897</b>
<ul style="list-style-type: none"> <li>• The RH sensor was checked on December 2. The sensor passed the check requirements.</li> <li>• No operational issues were identified this month.</li> </ul>		

Parameter	Make / Model	Serial Number	
<b>Barometric Pressure (BP)</b>	<b>MetOne / 092</b>	<b>K12864</b>	
<ul style="list-style-type: none"> <li>The BP sensor was checked on December 2. The sensor passed the check requirements.</li> <li>No operational issues were identified this month.</li> </ul>			
<b>Ambient Temperature (AT)</b>	<b>RM Young / 43172VC</b>	<b>60837897</b>	
<ul style="list-style-type: none"> <li>The temperature sensor was checked on December 2. The sensor passed the check requirements.</li> <li>No operational issues were identified this month.</li> </ul>			
<b>Station Temperature (ST)</b>	<b>Bureau Veritas Canada</b>	<b>N/A</b>	
<ul style="list-style-type: none"> <li>No operational issues were identified this month.</li> </ul>			
<b>Precipitation (Precip)</b>	<b>RM Young / 5202</b>	<b>TB15877</b>	
<ul style="list-style-type: none"> <li>The precipitation sensor was checked on December 2. The sensor passed the check requirements.</li> <li>No operational issues were identified this month.</li> </ul>			
<b>Wind Speed/Wind Direction (WS/ WD)</b>	<b>RM Young / 5305VK</b>	<b>149769</b>	
<ul style="list-style-type: none"> <li>Wind direction data contained in this report represents where the wind is coming from.</li> <li>The annual wind system calibration was completed on July 5, 2021.</li> <li>The anemometer sensors were checked on December 2. The sensor passed the check requirements.</li> <li>No operational issues were identified this month.</li> </ul>			

### 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	0.1	0	2	December 10 at hour 16	9.1	SSW	1.0	December 20	100.0	95.0
TRS (ppb)	10	3	-	-	-	-	0.25	0.00	0.69	December 15 at hour 1	1.5	SSW	0.35	December 20	96.8	91.6
THC (ppm)	-	-	-	-	-	-	2.01	1.92	2.64	December 5 at hour 21	1.4	S	2.12	December 6	100.0	95.1
CH4 (ppm)	-	-	-	-	-	-	2.01	1.92	2.64	December 5 at hour 21	1.4	S	2.12	December 6	100.0	95.1
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.00	December 1 at hour 0	17.3	WSW	0.00	December 1	100.0	95.1
RH (%)	-	-	-	-	-	-	64.8	42	100	December 8 at hour 3	6.7	SW	79.8	December 22	100.0	100.0
BP (millibar)	-	-	-	-	-	-	934	904	955	December 5 at hour 11	11.2	WSW	952	December 5	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-18.3	-37.5	4.6	December 1 at hour 1	18.7	WSW	-1.0	December 1	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	21.7	16.9	26.2	December 2 at hour 13	12.1	W	23.8	December 2	100.0	100.0
Precipitation (mm)*	-	-	-	-	-	-	2.3	0.0	0.8	December 8 at hour 2	6.6	SSW	1.7	December 8	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	2.2	0.0	23.0	December 2 at hour 9	23	WSW	10.2	December 2	100.0	100.0
WDV (sector)	-	-	-	-	-	-	271 (W)	-	-	-	-	-	-	-	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 (AAAOs) 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 – Grimshaw Station

### Equipment Operation Summary

Parameter	Make / Model	Serial Number	
<b>SO2</b>	<b>Teledyne / T100</b>	<b>722</b>	
<ul style="list-style-type: none"> <li>• A successful installation calibration was performed on December 1.</li> <li>• No operational issues were identified this month.</li> </ul>			
<b>TRS</b>	<b>Teledyne T100U</b>	<b>132</b>	
<ul style="list-style-type: none"> <li>• A successful installation calibration was performed on December 1.</li> <li>• Low ambient temperatures, particularly in the latter half of the month, had a marked effect on TRS span results. This is a perennial problem when the moisture levels in sample air drop very low, causing TRS analyzer to respond more slowly due to the SO2 scrubber requiring a certain humidity to function optimally. Although daily span check results were often below the requirements, and the daily zero check results were occasionally close to or outside the allowable drift range (while low temperatures were occurring), experience indicates the analyzer's performance remains in compliance with AMD performance criteria, and collected data remain valid.</li> </ul>			
<b>NOx/NO/NO2</b>	<b>Teledyne / T200</b>	<b>837</b>	
<ul style="list-style-type: none"> <li>• A successful installation calibration was performed on December 1.</li> <li>• No operational issues were identified this month.</li> </ul>			
<b>O3</b>	<b>API / 400A</b>	<b>824</b>	
<ul style="list-style-type: none"> <li>• A successful installation calibration was performed on December 1.</li> <li>• No operational issues were identified this month</li> </ul>			
<b>THC/CH4/NMHC</b>	<b>Thermo / 55i</b>	<b>1191032505</b>	
<ul style="list-style-type: none"> <li>• A successful installation calibration was performed on December 1.</li> <li>• An as found points check was completed to verify NMHC drift. No issue was found. Two hours of downtime were recorded due to this additional quality check.</li> </ul>			

Parameter	Make / Model	Serial Number	
<b>PM 2.5</b>	<b>Teledyne / T640</b>	<b>318</b>	
<ul style="list-style-type: none"> <li>• A successful installation calibration was performed on December 1.</li> <li>• Abnormal data were identified during the December 28's data review. The PM unit was reset on December 28 hour 7. A subsequent data review suggested that data should be invalidated back to the time the datalogger reset, which was December 21. One hundred sixty-two hours of downtime were recorded due to this event.</li> </ul>			
<b>Relative Humidity (RH)</b>	<b>Vaisala / HMP155</b>	<b>N2910506</b>	
<ul style="list-style-type: none"> <li>• The sensor was checked on December 1. The sensor passed the check requirements.</li> <li>• No operational issues were identified this month.</li> </ul>			
<b>Barometric Pressure (BP)</b>	<b>MetOne / 092</b>	<b>A23927</b>	
<ul style="list-style-type: none"> <li>• The sensor was checked on December 1. The sensor passed the check requirements.</li> <li>• No operational issues were identified this month.</li> </ul>			
<b>Ambient Temperature (AT)</b>	<b>Vaisala / HMP155</b>	<b>N2910506</b>	
<ul style="list-style-type: none"> <li>• The sensor was checked on December 1. The sensor passed the check requirements.</li> <li>• No operational issues were identified this month.</li> </ul>			
<b>Station Temperature (ST)</b>	<b>Bureau Veritas Canada</b>	<b>N/A</b>	
<ul style="list-style-type: none"> <li>• No operational issues were identified this month.</li> </ul>			
<b>Wind Speed/Wind Direction (WS/ WD)</b>	<b>RM Young 05305AQ</b>	<b>174801</b>	
<ul style="list-style-type: none"> <li>• Wind direction data contained in this report represents where the wind is coming from.</li> <li>• The annual wind system calibration was completed on July 22, 2021.</li> <li>• The anemometer sensors were checked on December 1. The sensor passed the check requirements.</li> <li>• No operational issues were identified this month.</li> </ul>			

### Monitored Data Summary for AQHI - Grimshaw 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	December 1 at hour 18	2.1	WNW	0.2	December 15	96.6	90.7
TRS (ppb)	10	3	-	-	-	-	0.32	0.00	1.49	December 15 at hour 9	1.1	NNE	0.68	December 15	96.6	90.7
NOx (ppb)	-	-	-	-	-	-	9.1	1	74	December 1 at hour 19	1.7	WNW	27.5	December 15	96.6	90.4
NO (ppb)	-	-	-	-	-	-	2.0	0	43	December 1 at hour 19	1.7	WNW	8.8	December 15	96.6	90.4
NO2 (ppb)	159	-	-	0	-	-	7.1	1	35	December 31 at hour 7	2	NNW	18.7	December 15	96.6	90.4
O3 (ppb)	76	-	-	0	-	-	24.6	1	39	December 2 at hour 5	26.5	SW	32.1	December 2	96.6	90.0
THC (ppm)	-	-	-	-	-	-	2.04	1.91	3.47	December 31 at hour 8	2.9	NNW	2.21	December 31	96.3	90.0
CH4 (ppm)	-	-	-	-	-	-	2.03	1.91	2.34	December 31 at hour 23	0.4	NNE	2.15	December 18	96.3	90.0
NMHC (ppm)	-	-	-	-	-	-	0.01	0.00	1.32	December 31 at hour 8	2.9	NNW	0.07	December 31	96.3	90.0
PM2.5 (µg/m3)	80	30	-	0	0	-	7.7	1.0	40.0	December 12 at hour 23	9.7	NNE	15.1	December 30	74.4	72.9
RH (%)	-	-	-	-	-	-	74.8	49	96	December 8 at hour 3	10.9	WSW	83.4	December 22	96.6	96.6
BP (millibar)	-	-	-	-	-	-	938	907	958	December 5 at hour 7	13	WNW	955	December 5	96.6	96.6
Ext. Temp. (°C)	-	-	-	-	-	-	-18.5	-36.0	5.2	December 1 at hour 0	35.3	WSW	-3.0	December 8	96.6	96.6
Stn. Temp. (°C)	-	-	-	-	-	-	22.3	21.0	23.9	December 27 at hour 9	4.1	SSE	23.2	December 27	96.6	96.6
WSV (km/hr)	-	-	-	-	-	-	7.6	0.2	41.8	December 2 at hour 9	41.8	W	18.6	December 2	96.6	96.6
WDV (sector)	-	-	-	-	-	-	304 (WNW)	-	-	-	-	-	-	-	96.6	96.6

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

### Alberta Ambient Air Quality Objectives (AAAOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) Exceedances at AQHI - Grimshaw Station

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

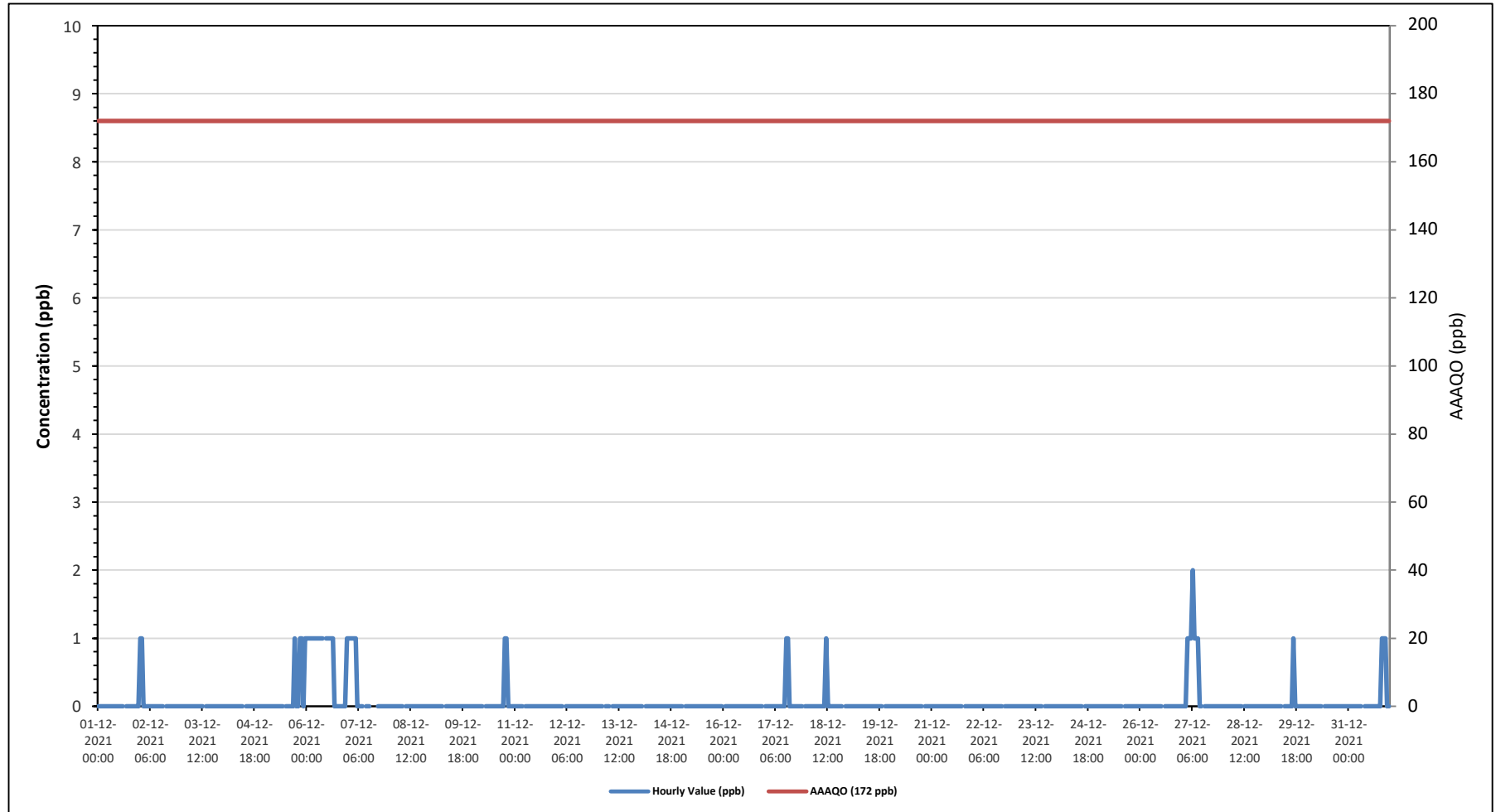


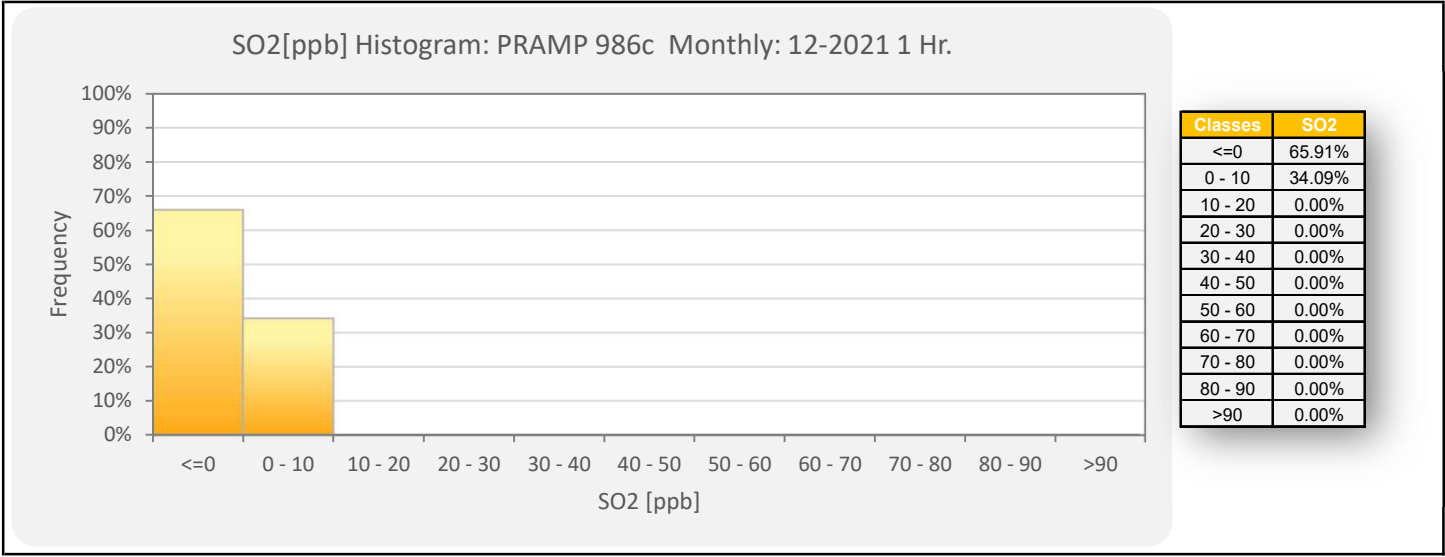
## TABLES, CHARTS, WIND ROSES AND EQUIPMENT CALIBRATION RECORDS

986c STATION



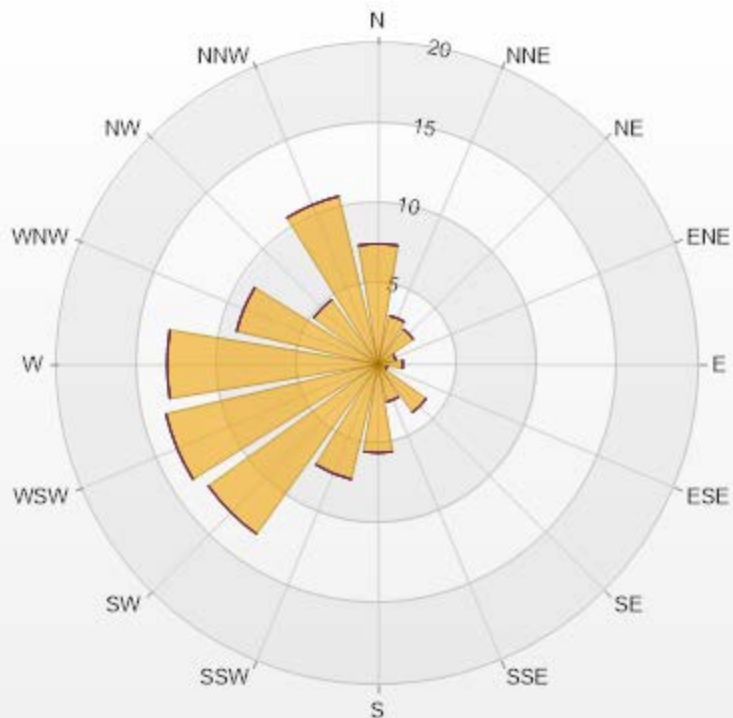
Timeseries Chart of Hourly Average for SO2 - 986c Station





Wind: PRAMP 986c Poll.: PRAMP 986c-SO2[ppb] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 95.03% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	7.5	0	0	0	0	7.5
NNE	3.11	0	0	0	0	3.11
NE	2.69	0	0	0	0	2.69
ENE	1.13	0	0	0	0	1.13
E	1.56	0	0	0	0	1.56
ESE	0.57	0	0	0	0	0.57
SE	3.68	0	0	0	0	3.68
SSE	2.4	0	0	0	0	2.4
S	5.52	0	0	0	0	5.52
SSW	7.36	0	0	0	0	7.36
SW	13.01	0	0	0	0	13.01
WSW	13.58	0	0	0	0	13.58
W	13.15	0	0	0	0	13.15
WNW	9.05	0	0	0	0	9.05
NW	4.95	0	0	0	0	4.95
NNW	10.75	0	0	0	0	10.75
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100 0-10

0 10-50

0 50-100

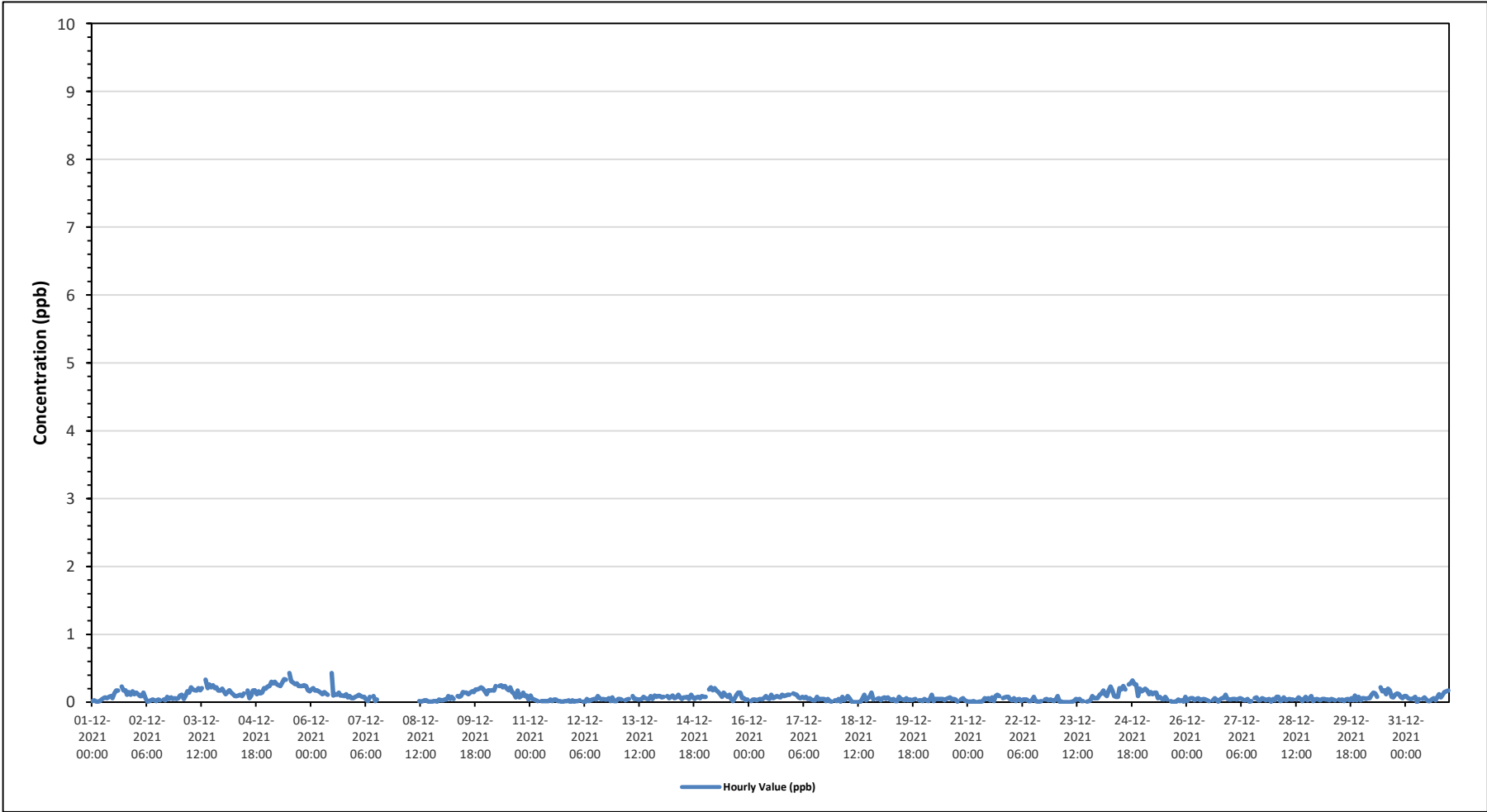
0 100-172

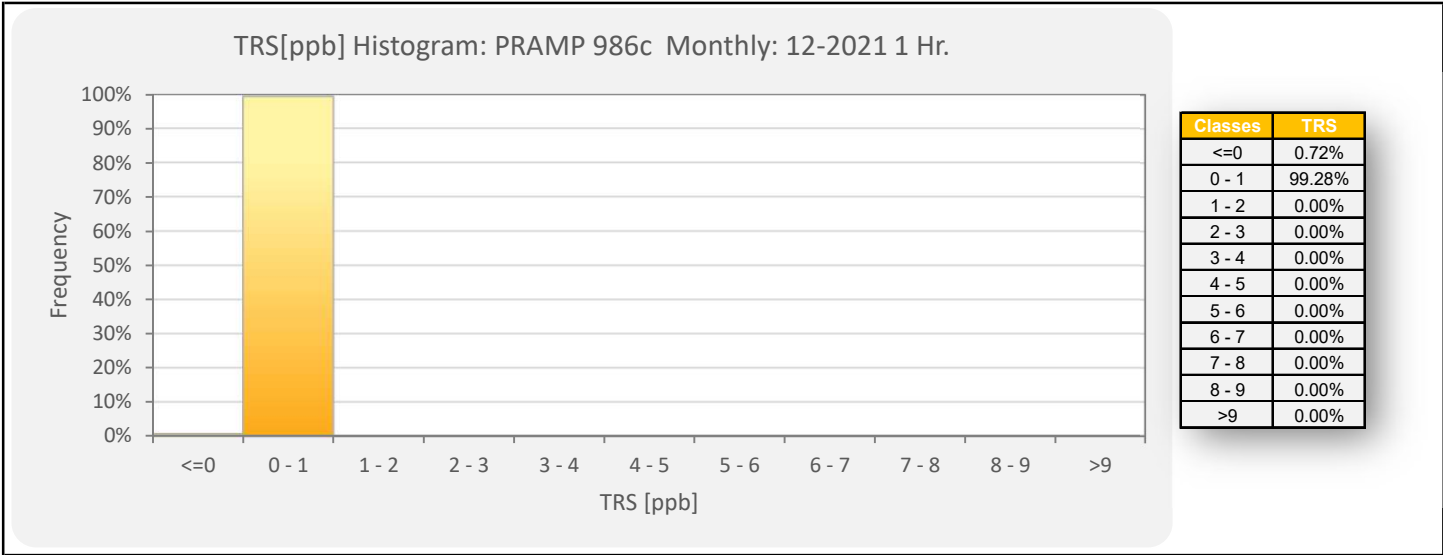
0 >172.0





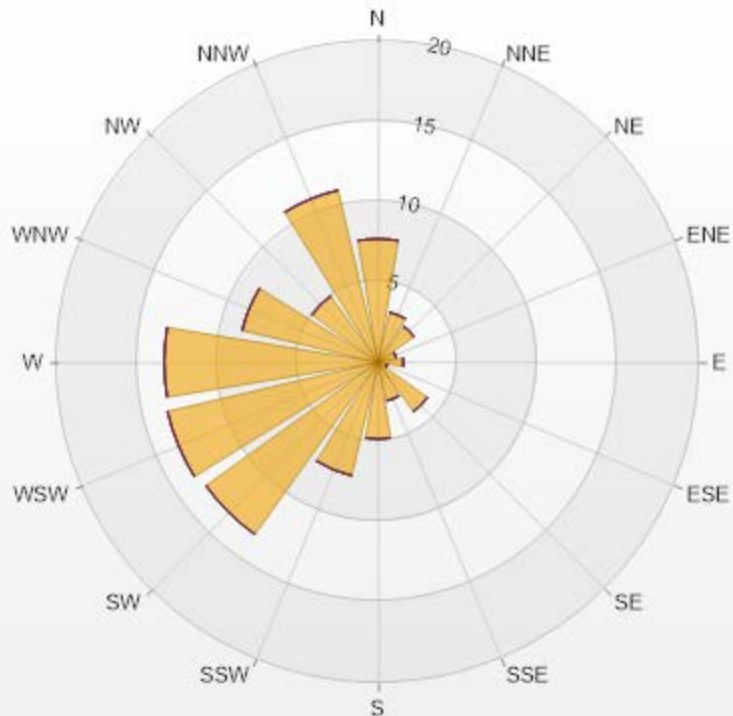
Timeseries Chart of Hourly Average for TRS - 986c Station





Wind: PRAMP 986c Poll.: PRAMP 986c-TRS[ppb] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 92.74% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	7.68	0	0	0	0	7.68
NNE	3.19	0	0	0	0	3.19
NE	2.75	0	0	0	0	2.75
ENE	1.16	0	0	0	0	1.16
E	1.59	0	0	0	0	1.59
ESE	0.58	0	0	0	0	0.58
SE	3.77	0	0	0	0	3.77
SSE	2.46	0	0	0	0	2.46
S	4.78	0	0	0	0	4.78
SSW	7.25	0	0	0	0	7.25
SW	13.19	0	0	0	0	13.19
WSW	13.48	0	0	0	0	13.48
W	13.33	0	0	0	0	13.33
WNW	8.7	0	0	0	0	8.7
NW	5.07	0	0	0	0	5.07
NNW	11.01	0	0	0	0	11.01
Summary	100	0	0	0	0	100



PRAMP-202112

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% Icon Classes (ppb)

100 0-2

0 2-5

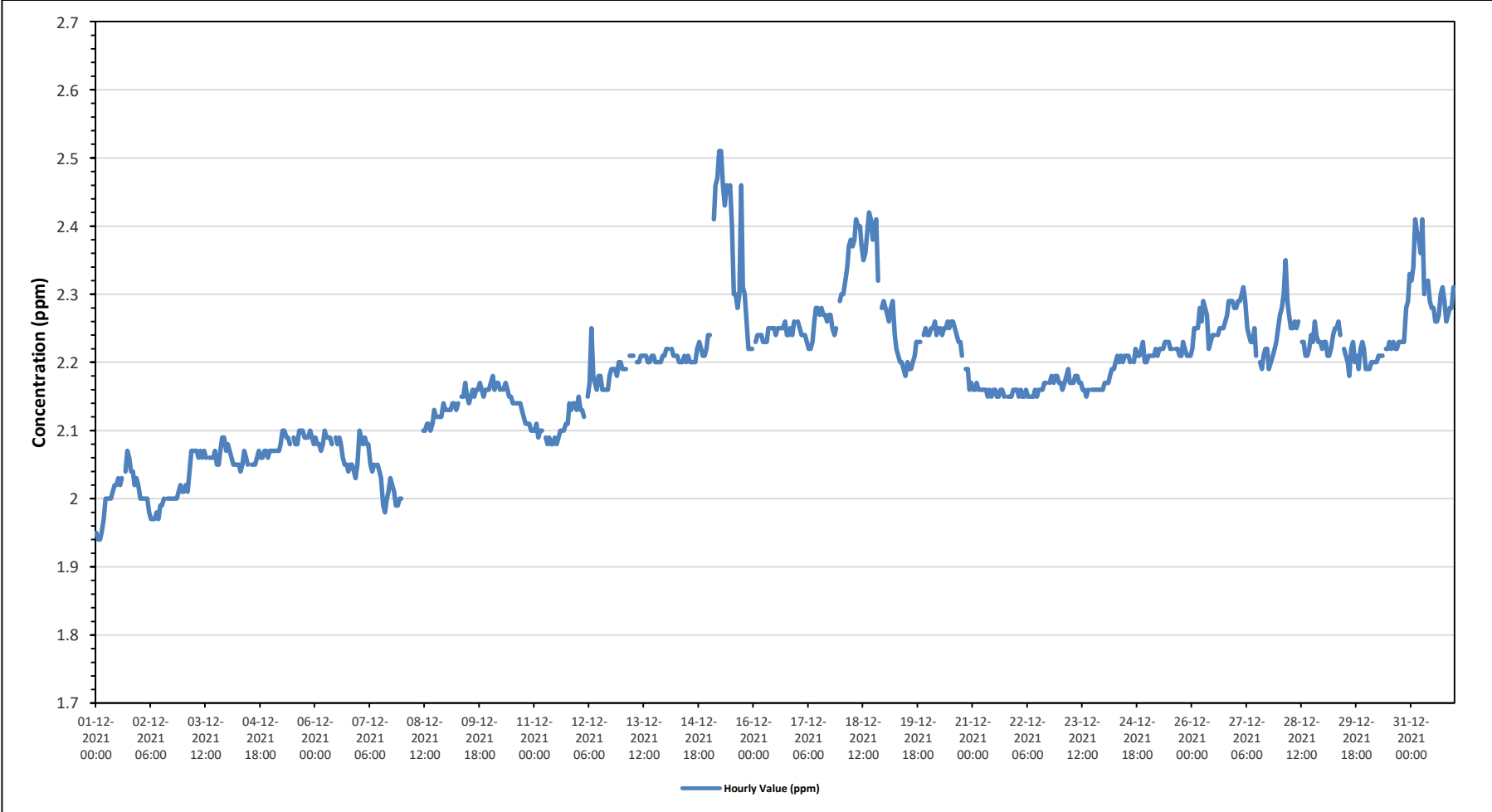
0 5-10

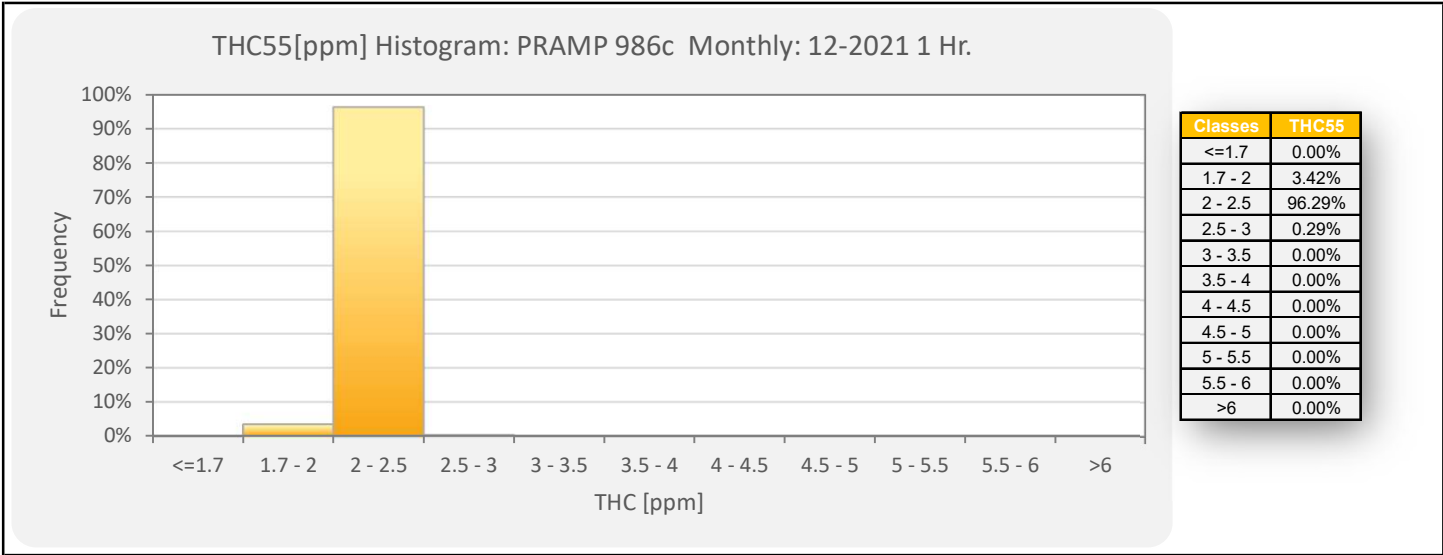
0 10-50

0 >50.0



Timeseries Chart of Hourly Average for THC - 986c Station

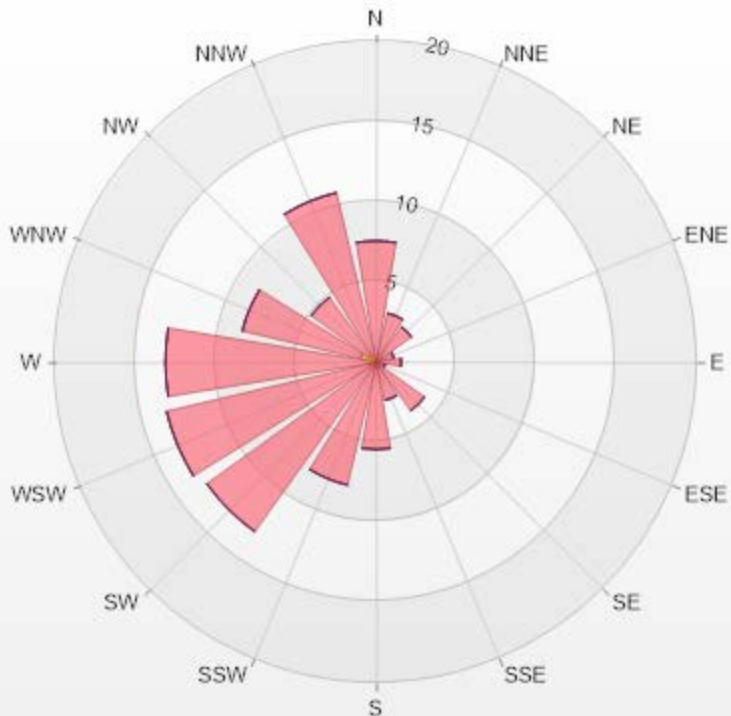




Wind: PRAMP 986c Poll.: PRAMP 986c-THC55[ppm] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.22% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	0.14	7.42	0	0	0	7.56
NNE	0	3.14	0	0	0	3.14
NE	0	2.71	0	0	0	2.71
ENE	0	1.14	0	0	0	1.14
E	0	1.57	0	0	0	1.57
ESE	0.14	0.43	0	0	0	0.57
SE	0	3.71	0	0	0	3.71
SSE	0	2.43	0	0	0	2.43
S	0.29	5.14	0	0	0	5.43
SSW	0.29	7.56	0	0	0	7.85
SW	0	12.98	0	0	0	12.98
WSW	0.43	12.98	0	0	0	13.41
W	0.29	12.84	0	0	0	13.13
WNW	1	7.56	0	0	0	8.56
NW	0.57	4.42	0	0	0	4.99
NNW	0.29	10.56	0	0	0	10.85
Summary	3.44	96.59	0	0	0	100





PRAMP-202112

% Icon Classes (ppm)

3

0-2

97

2-5

0

5-10

0

10-40

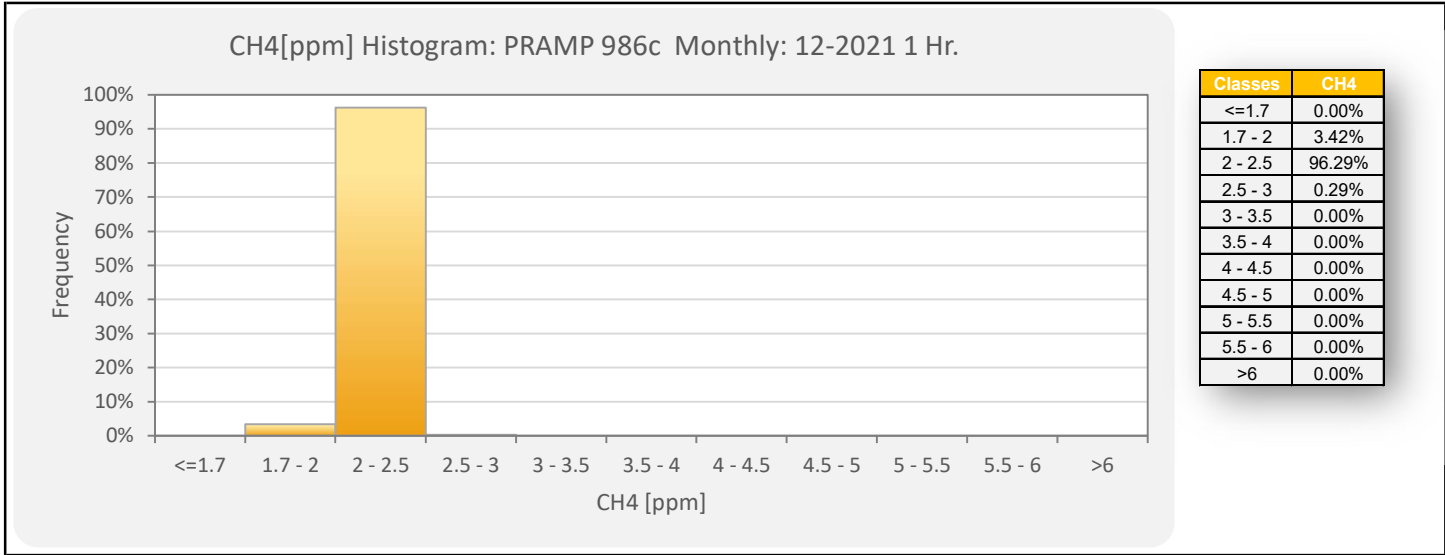
0

>40.0



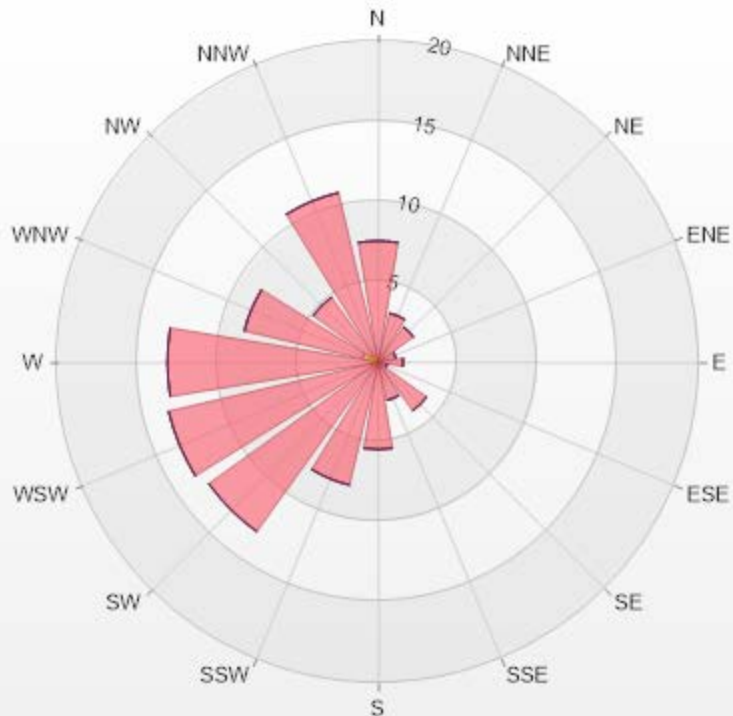
*Timeseries Chart of Hourly Average for CH4 - 986c Station*





Wind: PRAMP 986c Poll.: PRAMP 986c-CH4[ppm] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.22% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	0.14	7.42	0	0	0	7.56
NNE	0	3.14	0	0	0	3.14
NE	0	2.71	0	0	0	2.71
ENE	0	1.14	0	0	0	1.14
E	0	1.57	0	0	0	1.57
ESE	0.14	0.43	0	0	0	0.57
SE	0	3.71	0	0	0	3.71
SSE	0	2.43	0	0	0	2.43
S	0.29	5.14	0	0	0	5.43
SSW	0.29	7.56	0	0	0	7.85
SW	0	12.98	0	0	0	12.98
WSW	0.43	12.98	0	0	0	13.41
W	0.29	12.84	0	0	0	13.13
WNW	1	7.56	0	0	0	8.56
NW	0.57	4.42	0	0	0	4.99
NNW	0.29	10.56	0	0	0	10.85
Summary	3.44	96.59	0	0	0	100



PRAMP-202112

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% Icon Classes (ppm)

3

0-2

97

2-5

0

5-10

0

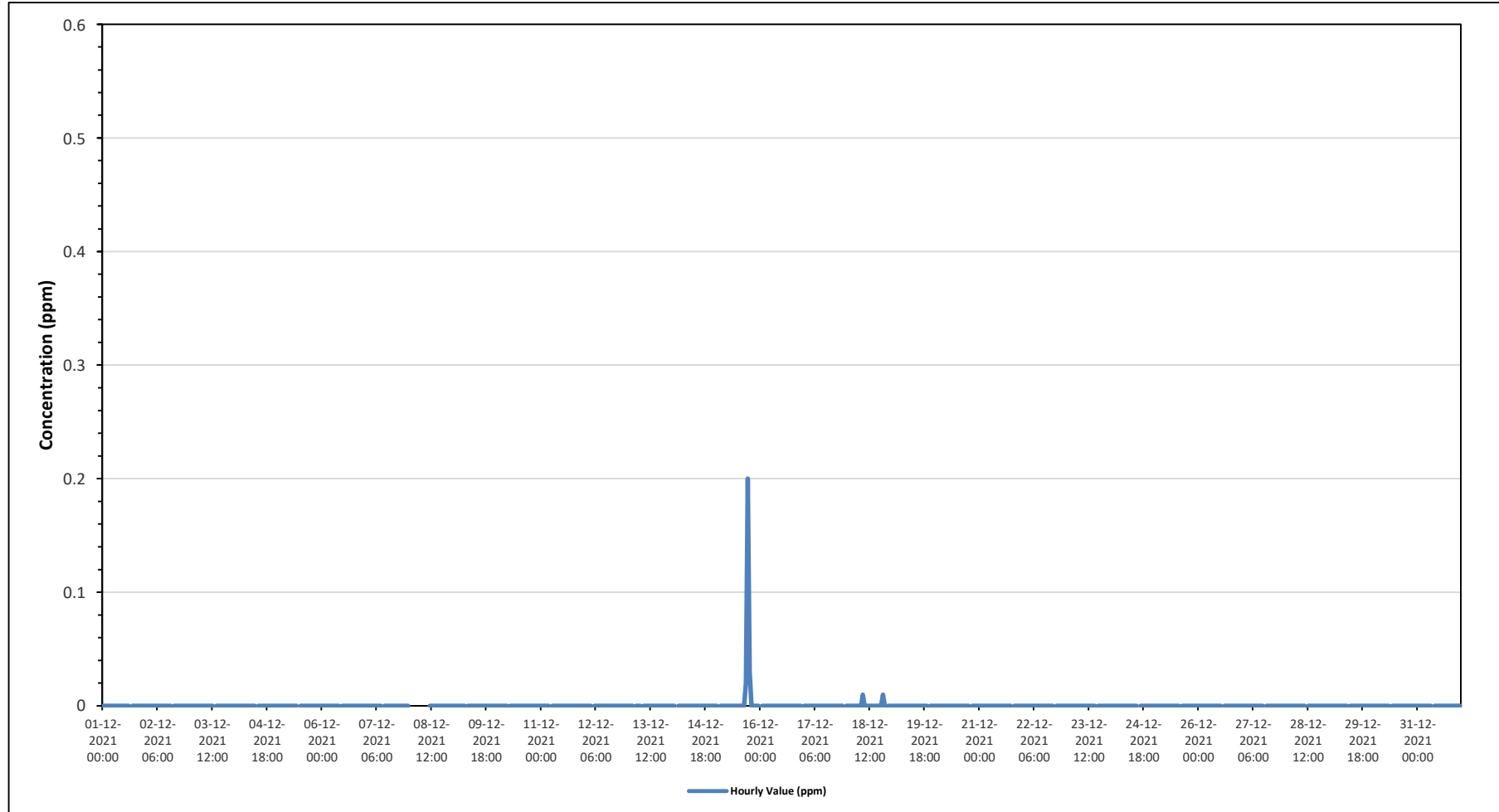
10-20

0

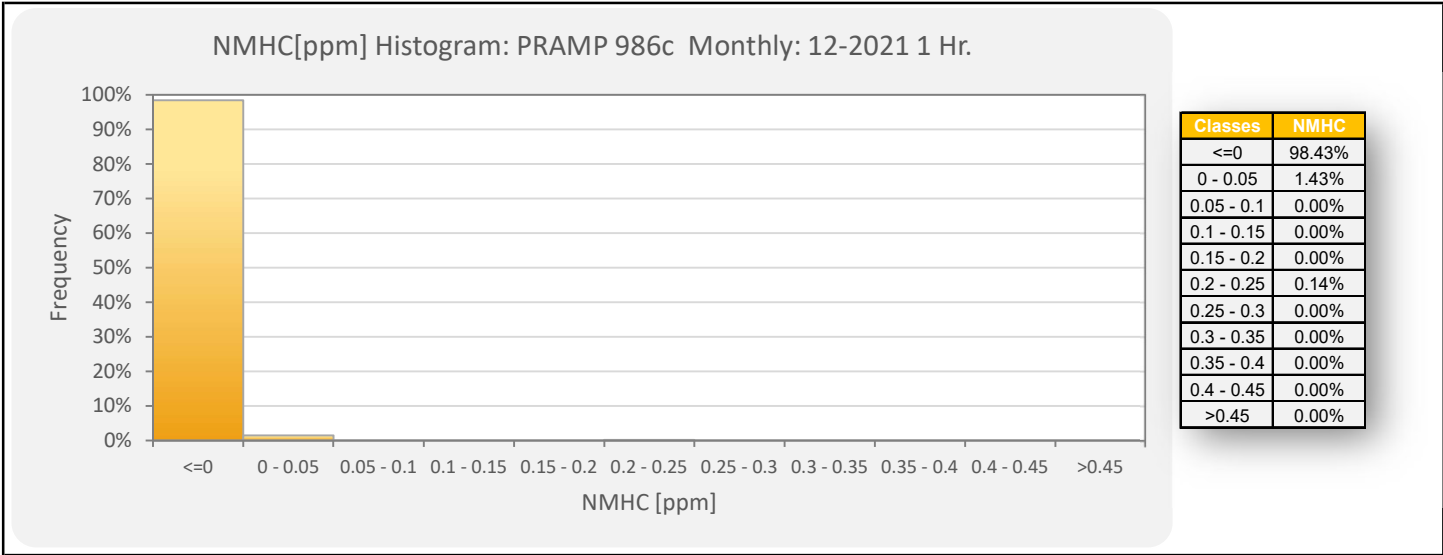
>20.0



**Timeseries Chart of Hourly Average for NMHC - 986c Station**

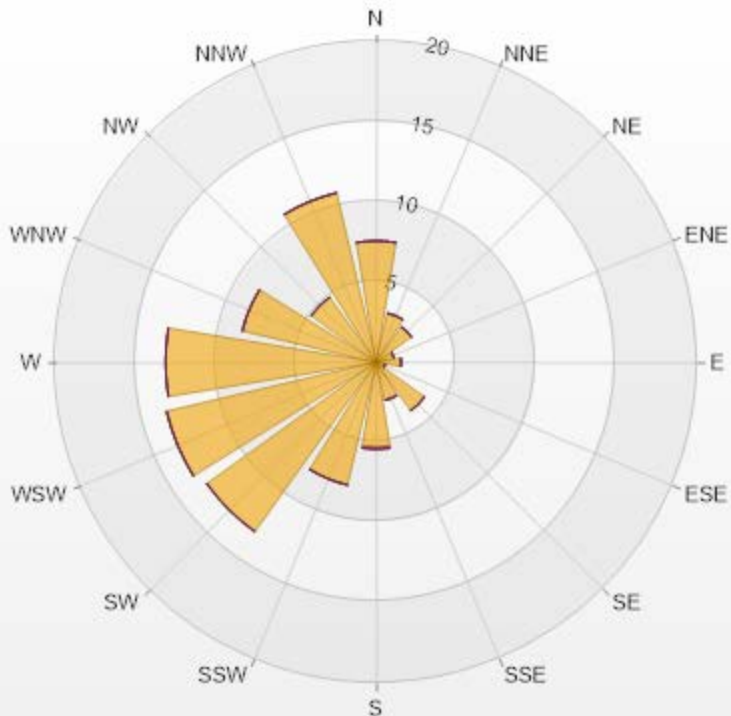






Wind: PRAMP 986c Poll.: PRAMP 986c-NMHC[ppm] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.22% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	7.56	0	0	0	0	7.56
NNE	3.14	0	0	0	0	3.14
NE	2.71	0	0	0	0	2.71
ENE	1.14	0	0	0	0	1.14
E	1.57	0	0	0	0	1.57
ESE	0.57	0	0	0	0	0.57
SE	3.71	0	0	0	0	3.71
SSE	2.43	0	0	0	0	2.43
S	5.28	0.14	0	0	0	5.42
SSW	7.85	0	0	0	0	7.85
SW	12.98	0	0	0	0	12.98
WSW	13.41	0	0	0	0	13.41
W	13.12	0	0	0	0	13.12
WNW	8.56	0	0	0	0	8.56
NW	4.99	0	0	0	0	4.99
NNW	10.84	0	0	0	0	10.84
Summary	100	0.14	0	0	0	100



PRAMP-202112

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% 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 - December 2021

Summary of Hourly Averages

## RELATIVE HUMIDITY (RH) in %

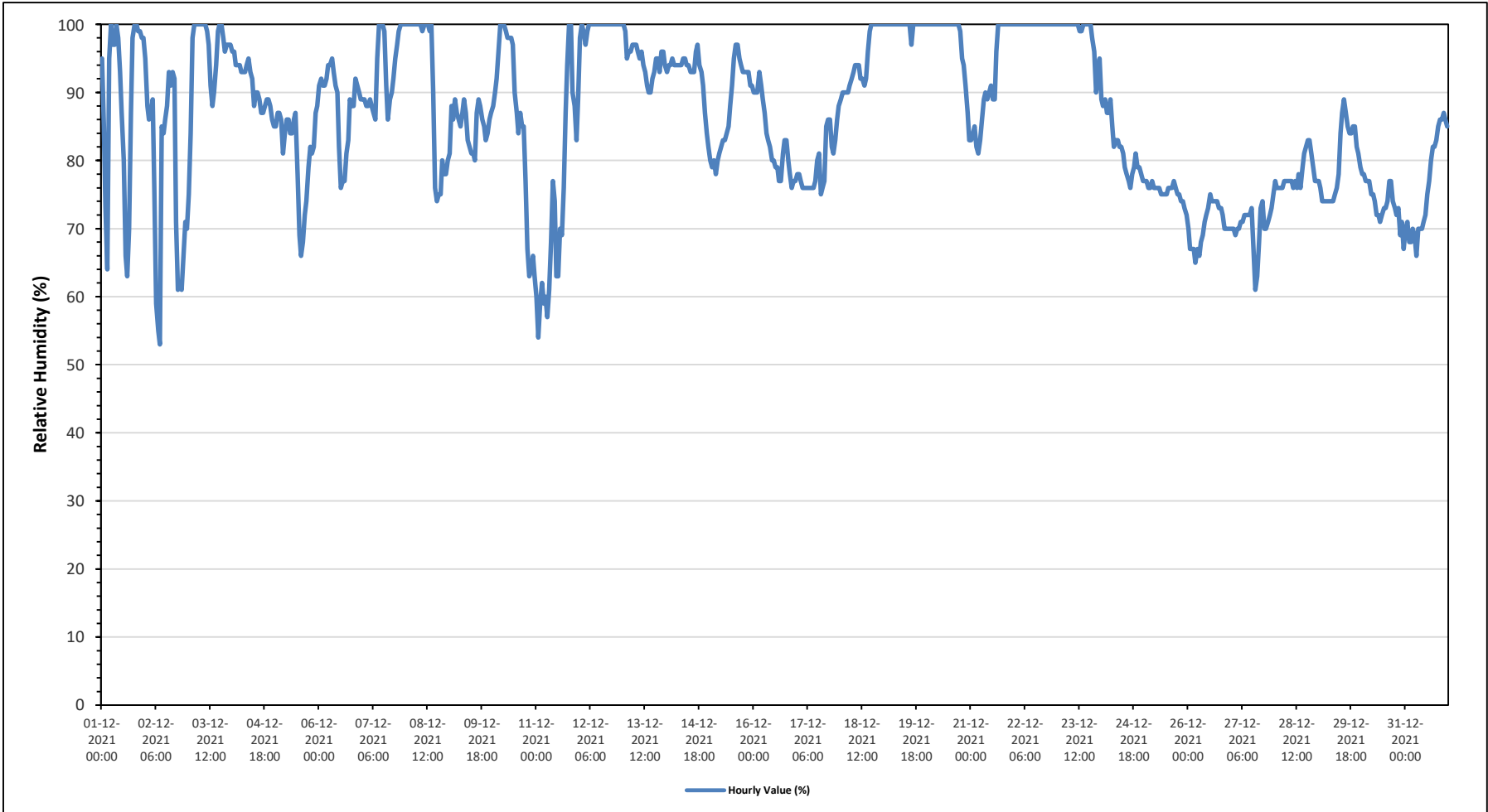
Maximum Hourly Value:	100 %	on December 1 at hour 5	Hours in Service:	744
Maximum Daily Value:	#### %	on December 22	Hours of Data:	744
Minimum Hourly Value:	53 %	on December 2 at hour 8	Hours of Missing Data:	0
Minimum Daily Value:	70.4 %	on December 27	Hours of Calibration:	0
Monthly Average:	86.4 %		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	
Dec 1	95	85	73	64	95	100	97	97	100	98	93	87	80	66	63	70	87	98	100	100	99	99	98	98	63	100	89.3	
Dec 2	95	88	86	87	89	76	59	55	53	85	84	86	88	93	91	93	92	71	61	62	61	66	71	70	53	95	77.6	
Dec 3	75	84	98	100	100	100	100	100	100	100	99	97	91	88	90	94	99	100	100	98	96	97	97	97	75	100	95.8	
Dec 4	96	96	94	94	94	93	93	93	94	95	93	92	88	90	90	89	87	87	88	89	89	88	86	85	85	96	91.0	
Dec 5	85	87	87	86	81	84	86	86	84	84	86	87	78	69	66	68	72	74	79	82	81	82	87	88	66	88	81.2	
Dec 6	91	92	91	91	92	94	94	95	93	91	90	82	76	77	77	81	83	89	88	88	92	91	90	89	76	95	88.2	
Dec 7	89	89	88	88	89	88	87	86	95	100	100	100	99	91	86	89	90	92	95	97	99	100	100	100	86	100	93.2	
Dec 8	100	100	100	100	100	100	100	100	100	99	100	100	100	99	100	90	76	74	75	75	80	78	78	80	74	100	91.8	
Dec 9	81	88	86	89	87	86	85	87	89	87	83	82	81	81	80	87	89	88	86	85	83	84	86	87	80	89	85.3	
Dec 10	88	90	92	96	100	100	100	99	98	98	98	97	90	87	84	87	85	85	77	67	63	64	66	63	63	100	86.4	
Dec 11	60	54	59	62	59	60	57	61	68	77	74	63	63	70	69	76	87	94	100	100	90	88	83	89	54	100	73.5	
Dec 12	98	100	99	97	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	97	100	99.7	
Dec 13	100	99	95	96	96	97	97	97	96	95	96	94	93	91	90	90	92	93	95	95	93	96	96	94	90	100	94.8	
Dec 14	93	94	94	95	94	94	94	94	94	95	95	94	93	93	93	96	97	94	93	91	87	84	82	82	82	97	92.8	
Dec 15	80	79	80	78	80	81	82	83	83	84	85	88	91	95	97	97	95	94	93	93	93	91	91	91	78	97	87.8	
Dec 16	90	90	90	93	91	89	87	84	83	84	82	80	80	79	79	77	77	81	83	83	80	78	76	77	77	76	93	82.8
Dec 17	78	78	77	76	76	76	76	76	76	76	77	80	81	75	76	77	85	86	86	82	81	83	86	88	75	88	79.5	
Dec 18	89	90	90	90	90	91	92	93	94	94	94	92	92	91	92	96	99	100	100	100	100	100	100	100	89	100	94.5	
Dec 19	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	97	100	100	100	100	100	100	100	97	100	99.9	
Dec 20	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	95	94	91	87	83	83	100	97.9	
Dec 21	83	84	85	82	81	83	86	89	90	89	90	91	89	89	96	100	100	100	100	100	100	100	100	100	81	100	92.0	
Dec 22	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	100.0
Dec 23	100	100	100	100	100	100	100	100	100	100	100	100	99	99	100	100	100	100	100	98	96	90	92	95	90	100	98.7	
Dec 24	89	88	89	87	87	89	85	82	83	83	82	82	81	79	78	77	76	78	79	81	79	79	78	77	76	89	82.0	
Dec 25	77	77	76	76	77	76	76	76	76	76	75	75	75	76	76	76	77	76	75	75	74	74	73	72	72	77	75.5	
Dec 26	70	67	67	67	65	67	66	68	69	71	72	73	75	74	74	74	74	73	73	72	70	70	70	70	65	75	70.5	
Dec 27	70	70	69	70	70	71	71	72	72	72	72	73	67	61	63	68	73	74	70	70	71	72	73	75	61	75	70.4	
Dec 28	77	76	76	76	76	77	77	77	77	77	76	77	76	78	76	79	81	82	83	83	81	79	77	77	76	83	78.0	
Dec 29	77	76	74	74	74	74	74	74	74	75	76	78	84	87	89	87	85	84	84	85	85	82	81	79	74	89	79.7	
Dec 30	78	78	77	77	77	75	75	74	72	72	71	72	73	73	74	77	77	74	73	72	73	69	71	67	67	78	73.8	
Dec 31	70	71	68	68	70	69	66	70	70	70	71	72	75	77	80	82	82	83	85	86	86	87	86	85	66	87	76.2	
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	100	100	100	
Diurnal Average	86.3	86.1	85.8	85.8	86.7	86.8	85.9	86.1	86.5	87.9	87.5	86.9	85.7	84.8	84.7	86.2	87.7	88.0	87.8	87.2	86.4	86.0	85.9	85.7				

<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b>	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 - 986c Station**





## PEACE RIVER AREA MONITORING PROGRAM

**986c Station - December 2021**

**Summary of Hourly Averages**

### BAROMETRIC PRESSURE (BP) in millibar

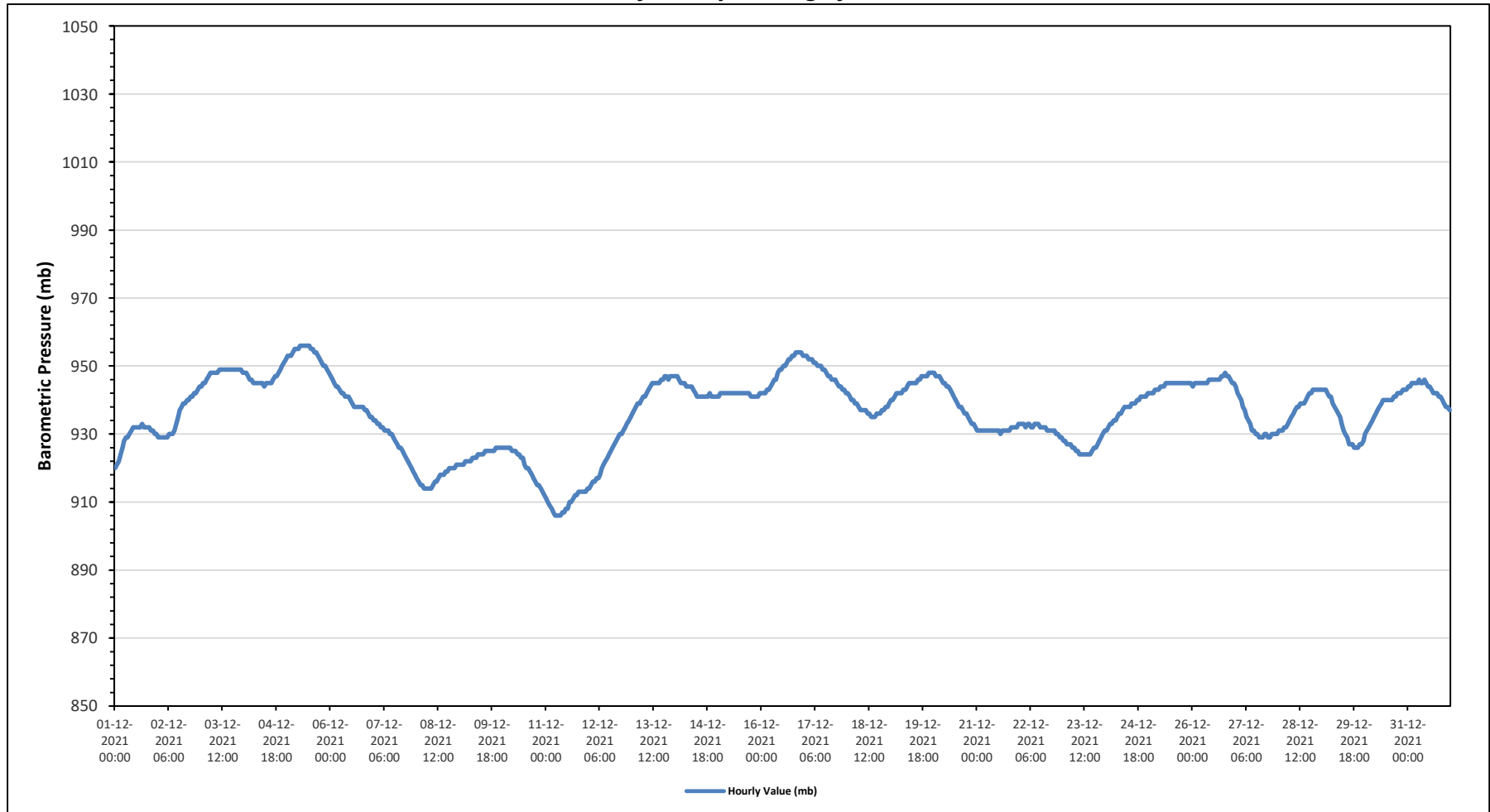
Maximum Hourly Value:	956 mb	on December 5 at hour 7	Hours in Service:	744
Maximum Daily Value:	954 mb	on December 5	Hours of Data:	744
Minimum Hourly Value:	906 mb	on December 11 at hour 5	Hours of Missing Data:	0
Minimum Daily Value:	910 mb	on December 11	Hours of Calibration:	0
Monthly Average:	936 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
Dec 1	920	921	922	924	926	928	929	929	930	931	932	932	932	932	932	933	932	932	932	931	931	930	930	920	933	929.3	
Dec 2	929	929	929	929	929	929	930	930	930	931	933	935	937	938	939	939	940	940	941	941	942	942	943	944	929	944	935.4
Dec 3	944	945	945	946	947	948	948	948	948	948	949	949	949	949	949	949	949	949	949	949	949	949	948	944	949	948.0	
Dec 4	948	948	947	946	946	945	945	945	945	945	945	944	945	945	945	946	947	947	948	949	950	951	952	944	952	946.6	
Dec 5	953	953	953	954	955	955	955	<b>956</b>	<b>956</b>	<b>956</b>	<b>956</b>	<b>956</b>	955	955	954	954	953	952	951	950	950	949	948	948	<b>956</b>	<b>953.5</b>	
Dec 6	947	946	945	944	944	943	942	942	941	941	941	940	939	938	938	938	938	938	937	937	936	935	935	935	947	940.1	
Dec 7	934	934	933	933	932	932	931	931	931	930	930	929	928	927	926	926	925	924	923	922	921	920	919	918	934	927.5	
Dec 8	917	916	915	915	914	914	914	914	914	915	916	916	917	918	918	918	919	919	920	920	920	921	921	914	921	917.1	
Dec 9	921	921	921	922	922	922	922	923	923	923	924	924	924	924	925	925	925	925	925	925	926	926	926	921	926	923.8	
Dec 10	926	926	926	926	926	925	925	925	924	924	923	923	921	920	920	919	918	917	916	915	915	914	913	912	912	926	920.8
Dec 11	911	910	909	908	907	<b>906</b>	<b>906</b>	<b>906</b>	<b>906</b>	907	907	908	908	910	910	911	912	912	913	913	913	913	914	<b>906</b>	914	909.7	
Dec 12	914	915	916	916	917	917	918	920	921	922	922	923	924	925	926	927	928	929	930	931	932	933	934	935	914	935	924.3
Dec 13	936	937	938	939	939	940	941	941	942	943	944	945	945	945	945	945	946	946	947	947	946	947	947	947	936	947	943.3
Dec 14	947	947	946	945	945	944	944	944	944	944	943	942	941	941	941	941	941	941	941	942	941	941	941	941	941	947	942.9
Dec 15	941	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	941	941	941	941	941	941	941	942	941.8
Dec 16	942	942	942	943	943	944	945	946	946	948	949	949	950	950	951	952	952	953	953	954	954	954	953	942	954	948.7	
Dec 17	953	953	952	952	952	951	951	950	950	950	949	949	948	947	947	946	946	946	945	944	944	943	943	942	942	953	948.0
Dec 18	942	941	940	940	939	939	938	937	937	937	937	936	936	935	935	935	936	936	936	937	937	938	938	939	935	942	937.5
Dec 19	940	940	941	942	942	942	942	943	943	944	945	945	945	945	946	946	947	947	947	947	948	948	948	948	940	948	944.5
Dec 20	948	947	947	947	946	945	945	944	944	943	942	941	940	939	938	938	937	936	936	935	934	933	933	932	948	940.4	
Dec 21	931	931	931	931	931	931	931	931	931	931	931	931	931	930	931	931	931	931	931	932	932	932	932	930	933	931.2	
Dec 22	933	933	933	932	933	933	932	932	933	933	933	932	932	932	932	931	931	931	931	931	930	930	929	929	929	933	931.7
Dec 23	928	928	927	927	927	926	926	925	925	924	924	924	924	924	924	924	925	926	926	927	928	929	930	931	924	931	926.2
Dec 24	931	932	933	933	934	934	935	936	936	937	938	938	938	938	939	939	940	940	941	941	941	941	942	931	942	937.3	
Dec 25	942	942	942	943	943	943	944	944	944	945	945	945	945	945	945	945	945	945	945	945	945	945	945	942	945	944.3	
Dec 26	944	945	945	945	945	945	945	945	945	946	946	946	946	946	946	946	947	947	948	947	947	946	945	944	948	945.8	
Dec 27	944	942	941	940	938	937	935	934	933	931	931	930	930	929	929	930	930	929	929	930	930	930	930	929	944	933.0	
Dec 28	931	931	931	932	932	933	934	935	936	937	938	938	939	939	939	940	941	942	942	943	943	943	943	931	943	937.7	
Dec 29	943	943	943	942	941	941	939	938	937	936	935	933	931	930	929	927	927	927	926	926	926	927	927	928	926	943	933.4
Dec 30	930	931	932	933	934	935	936	937	938	939	940	940	940	940	940	941	941	942	942	942	943	943	943	930	943	938.4	
Dec 31	944	944	945	945	945	946	945	945	946	945	944	943	942	942	942	941	941	940	939	938	938	937	937	937	946	942.8	
Diurnal Maximum	953	953	953	954	955	955	955	956	956	956	956	956	956	955	955	954	954	953	953	954	954	954	953				
Diurnal Average	936	936	936	936	936	936	936	936	936	936	936	937	936	936	936	936	936	937	937	937	937	936	937				

<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b>	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 - 986c Station**





## PEACE RIVER AREA MONITORING PROGRAM

986c Station - December 2021

Summary of Hourly Averages

### AMBIENT TEMPERATURE (AT) in Degree Celsius

Maximum Hourly Value:	4.6 °C	on December 1 at hour 3	Hours in Service:	744
Maximum Daily Value:	-3.0 °C	on December 8	Hours of Data:	744
Minimum Hourly Value:	-38.1 °C	on December 26 at hour 4	Hours of Missing Data:	0
Minimum Daily Value:	-33.8 °C	on December 26	Hours of Calibration:	0
Monthly Average:	-18.8 °C		Operational Uptime:	100.0

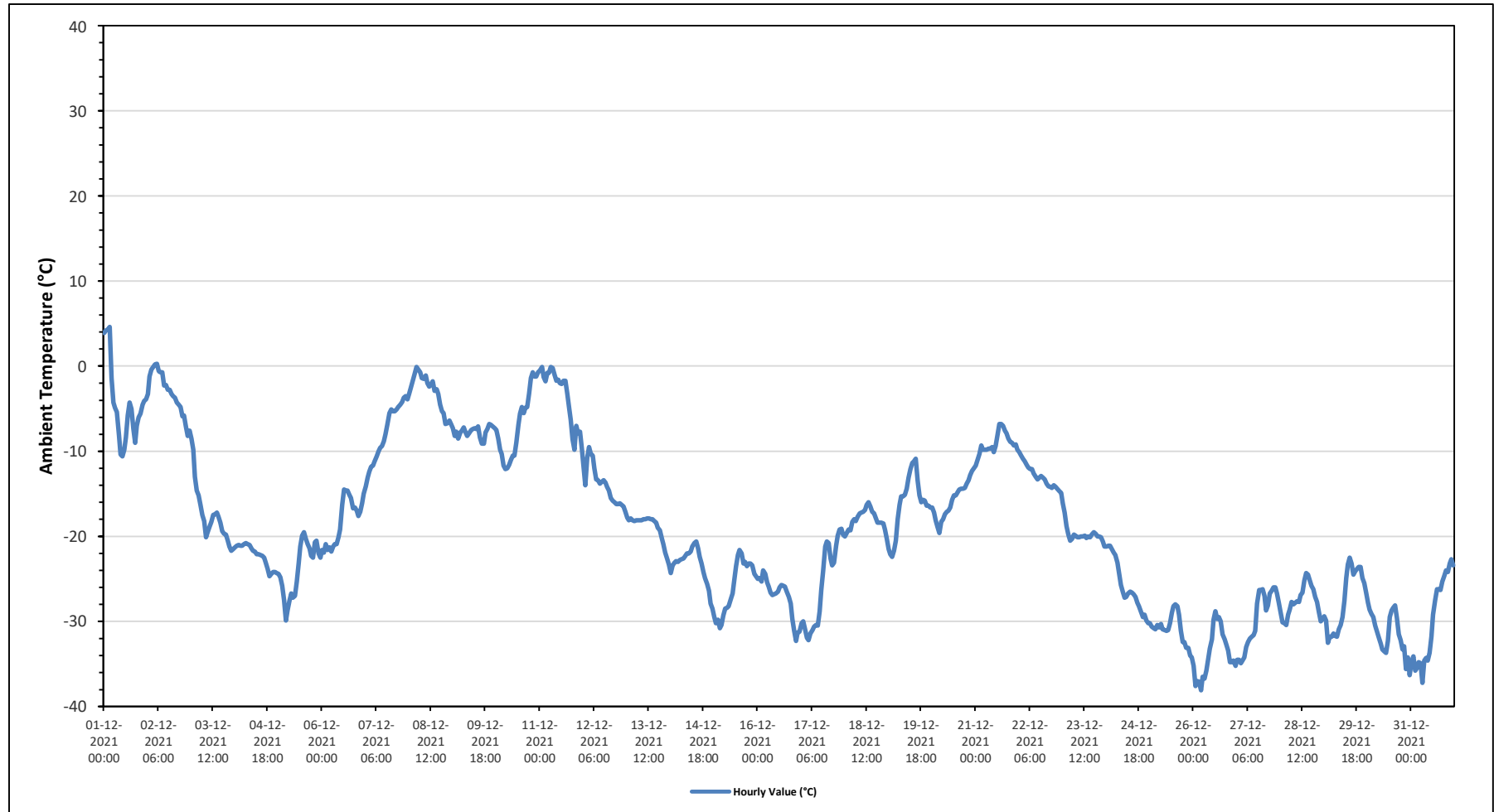
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Dec 1	3.9	4.2	4.3	4.6	-1.4	-4.3	-4.9	-5.4	-8.1	-10.4	-10.6	-9.8	-8.4	-5.8	-4.3	-5	-7.3	-9	-7	-6	-5.6	-4.5	-4.1	-3.9	-10.6	4.6	-4.5
Dec 2	-3.3	-1.2	-0.4	-0.1	0.2	0.3	-0.6	-0.7	-0.7	-2.3	-2.2	-2.8	-2.8	-3.3	-3.5	-3.7	-4.3	-4.5	-4.8	-5.9	-5.8	-7.1	-8.2	-7.6	-8.2	0.3	-3.1
Dec 3	-8.5	-9.8	-13	-14.6	-15.2	-16.3	-17.5	-18.2	-20.1	-19.5	-18.9	-18.3	-17.5	-17.4	-17.2	-17.7	-18.4	-19.4	-19.7	-19.8	-20.5	-21.2	-21.7	-21.5	-21.7	-8.5	-17.6
Dec 4	-21.3	-21.1	-21	-21.1	-21.1	-20.9	-20.8	-20.9	-21	-21.4	-21.7	-21.8	-22.1	-22.1	-22.2	-22.3	-22.5	-23.1	-23.8	-24.7	-24.4	-24.2	-24.2	-24.3	-24.7	-20.8	-22.3
Dec 5	-24.4	-24.8	-25.8	-27.5	-29.9	-28.7	-27.6	-27.2	-27	-25.3	-23.2	-21.2	-19.9	-19.5	-20.3	-20.9	-21.4	-22.3	-22.5	-20.7	-20.5	-22	-22.5	-29.9	-19.5	-23.8	
Dec 6	-21.6	-21.9	-20.9	-21.6	-21.3	-21.8	-21.2	-20.9	-20.9	-20.1	-19.2	-16.3	-14.5	-14.6	-14.6	-15.1	-15.5	-16.7	-16.6	-17	-17.6	-17.1	-16.1	-15	-21.9	-14.5	-18.3
Dec 7	-14.1	-13.1	-12.4	-11.8	-11.7	-11.2	-10.6	-10	-9.6	-9.4	-8.8	-8	-6.9	-5.5	-5.1	-5.3	-5.3	-5.1	-4.8	-4.5	-4.2	-3.7	-3.5	-3.9	-14.1	-3.5	-7.9
Dec 8	-3.3	-2.5	-1.6	-0.9	-0.1	-0.4	-0.7	-1.4	-1.5	-1.1	-2	-2.4	-2.1	-1.8	-2.9	-2.7	-3.3	-4.5	-5.3	-5.5	-6.8	-6.7	-6.4	-6.8	-6.8	-0.1	-3.0
Dec 9	-7.3	-8.2	-7.7	-8.5	-7.8	-7.6	-7.2	-7.8	-8.2	-7.9	-7.5	-7.4	-7.3	-7.4	-7.1	-8.4	-9.1	-9.1	-7.8	-7.4	-6.8	-6.9	-7.1	-7.3	-9.1	-6.8	-7.7
Dec 10	-7.5	-8.5	-9.8	-10.3	-11.7	-12.1	-12	-11.6	-11	-10.5	-10.5	-9	-6.9	-5.6	-4.8	-5.5	-4.9	-4.8	-3.3	-1.4	-0.7	-1.2	-1.2	-0.7	-12.1	-0.7	-6.9
Dec 11	-0.5	-0.1	-1.3	-1.8	-0.8	-0.8	-0.1	-0.2	-1	-1.7	-1.6	-2	-2.1	-1.7	-1.7	-3.2	-4.9	-6.3	-8.6	-9.8	-7	-7.9	-7.7	-9.7	-9.8	-0.1	-3.4
Dec 12	-11.7	-14	-10.8	-9.5	-10.3	-10.5	-12	-13.3	-13.4	-13.8	-13.6	-13.4	-13.7	-14.2	-14.6	-15.5	-15.8	-16	-16.2	-16.2	-16.1	-16.3	-16.5	-17.1	-17.1	-9.5	-13.9
Dec 13	-17.8	-18.1	-17.9	-18.1	-18.2	-18.1	-18.1	-18.1	-18.1	-18	-18	-17.9	-17.9	-18	-18	-18.2	-18.4	-19	-19.3	-20.2	-20.9	-21.9	-22.6	-23.3	-23.3	-17.8	-18.9
Dec 14	-24.3	-23.4	-23.1	-22.9	-23	-22.8	-22.7	-22.6	-22.3	-22	-22	-21.8	-21.2	-20.8	-20.6	-21.4	-22.4	-23.2	-24.2	-24.9	-25.6	-26.4	-27.9	-28.5	-28.5	-20.6	-23.3
Dec 15	-29.5	-30.2	-29.8	-30.8	-30.4	-29.3	-28.5	-28.4	-28.2	-27.4	-26.7	-25.2	-23.5	-22.2	-21.6	-22	-23.2	-23	-23.5	-23.2	-23.2	-23.4	-24.4	-24.7	-30.8	-21.6	-25.9
Dec 16	-25	-24.9	-25.3	-24	-24.4	-25.4	-25.9	-26.6	-26.9	-26.8	-26.7	-26.5	-26	-25.7	-25.8	-25.9	-26.5	-27.1	-27.9	-29.7	-31.1	-32.3	-31.3	-31.2	-32.3	-24.0	-27.0
Dec 17	-30.2	-30	-30.9	-31.9	-32.2	-31.4	-31	-30.6	-30.4	-30.5	-28.8	-26.3	-24.1	-21.2	-20.6	-20.8	-22.6	-23.4	-23.1	-21.1	-19.9	-19.2	-19.1	-19.8	-32.2	-19.1	-25.8
Dec 18	-20	-19.6	-19.2	-19.3	-18.3	-18	-18.2	-17.7	-17.3	-17.2	-17.1	-16.9	-16.3	-16	-16.5	-17.1	-17.3	-17.9	-18.4	-18.4	-18.5	-19.2	-20.3	-20.3	-20.3	-16.0	-18.0
Dec 19	-21.5	-22.1	-22.4	-21.7	-20.5	-18	-16.3	-15.3	-15.3	-15.1	-14.4	-13.1	-12.1	-11.4	-11.2	-10.9	-13.4	-15.2	-16	-15.7	-15.8	-16.4	-16.4	-16.6	-22.4	-10.9	-16.1
Dec 20	-16.6	-17.2	-18.1	-18.9	-19.6	-18.3	-18	-17.4	-17.1	-17	-16.6	-15.7	-15.2	-15.2	-14.8	-14.5	-14.4	-14.4	-14.3	-13.8	-13.4	-12.8	-12.3	-12	-19.6	-12.0	-15.7
Dec 21	-11.7	-11	-10.3	-9.3	-9.8	-9.8	-9.8	-9.7	-9.7	-9.5	-10.1	-9.4	-8.1	-6.8	-6.8	-7	-7.6	-7.9	-8.5	-8.9	-9	-9.3	-9.2	-9.8	-11.7	-6.8	-9.1
Dec 22	-10.1	-10.5	-10.9	-11.2	-11.6	-11.9	-12.1	-12.1	-12.6	-13	-13.3	-13.1	-12.9	-13.1	-13.3	-13.8	-14.1	-14.2	-14.3	-14	-14.2	-14.4	-14.7	-14.9	-14.9	-10.1	-12.9
Dec 23	-16.1	-17.2	-18.8	-19.8	-20.5	-20.3	-19.8	-19.9	-20.1	-20.1	-20	-20	-19.9	-20.2	-20	-20.1	-19.8	-19.5	-19.7	-20	-20	-20.1	-20.6	-21.2	-21.2	-16.1	-19.7
Dec 24	-21.2	-21.1	-21.1	-21.5	-21.9	-22.2	-23.1	-24.5	-25.7	-26.5	-27.2	-27.1	-26.7	-26.5	-26.6	-26.8	-27.1	-27.8	-28.2	-28.9	-29.5	-29.2	-29.9	-30.2	-30.2	-21.1	-25.9
Dec 25	-30.2	-30.6	-30.8	-30.9	-30.4	-30.7	-30.3	-30.9	-31	-31.1	-31	-30.2	-29	-28.2	-28	-28.2	-29.2	-31.1	-32.4	-32.4	-33.1	-33.1	-34	-34.2	-34.2	-28.0	-30.9
Dec 26	-35.2	-37.6	-37	-37.1	-38.1	-36.5	-36.7	-35.8	-34.6	-33.2	-32.1	-29.8	-28.8	-29.7	-29.5	-30	-31.5	-32.1	-32.7	-33.4	-34.8	-34.8	-34.6	-35.2	-38.1	-28.8	-33.8
Dec 27	-34.5	-34.5	-34.9	-34.6	-34.2	-33	-32.4	-32	-31.8	-31.6	-31.1	-27.9	-26.3	-26.3	-26.2	-27	-28.7	-28.1	-26.7	-26.4	-26	-26.7	-27.8	-34.9	-26.0	-29.8	
Dec 28	-29	-30.1	-30.2	-30.4	-29.2	-28.6	-27.7	-28	-27.8	-27.6	-27.7	-26.9	-26.6	-25.2	-24.3	-24.5	-25.2	-25.8	-26.2	-27.1	-27.7	-28.9	-30	-29.7	-30.4	-24.3	-27.7
Dec 29	-29.4	-29.9	-32.5	-31.8	-31.8	-31.4	-31.7	-31.8	-30.9	-30.4	-29.5	-27.6	-24.9	-23.3	-22.5	-23.2	-24.5	-24.1	-23.8	-23.6	-23.6	-24.9	-25.5	-26.6	-32.5	-22.5	-27.5
Dec 30	-27.8	-28.6	-29.1	-29.5	-30.5	-31.2	-31.9	-32.6	-33.3	-33.5	-33.7	-32.3	-29.5	-28.7	-28.4	-28.1	-29.6	-31.5	-32.2	-33.3	-32.9	-35.6	-34.2	-36.3	-36.3	-27.8	-31.4
Dec 31	-34.7	-34.1	-35.8	-35.5	-34.8	-34.9	-37.2	-34.6	-34.3	-34.6	-33.7	-31.8	-29.2	-27.5	-26.2	-26.2	-26.3	-25.3	-24.7	-24	-24.2	-23.2	-22.7	-23.4	-37.2	-22.7	-30.0
Diurnal Maximum	3.9	4.2	4.3	4.6	0.2	0.3	-0.1	-0.2	-0.7	-1.1	-1.6	-2.0	-2.1	-1.7	-1.7	-2.7	-3.3	-4.5	-3.3	-1.4	-0.7	-1.2	-1.2	-0.7			
Diurnal Average	-18.9	-19.1	-19.3	-19.4	-19.7	-19.6	-19.6	-19.5	-19.7	-19.7	-19.4	-18.5	-17.5	-16.9	-16.7	-17.1	-17.9	-18.4	-18.6	-18.7	-18.7	-19.0	-19.2	-19.5			

<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b>	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 - 986c Station





PEACE RIVER AREA MONITORING PROGRAM

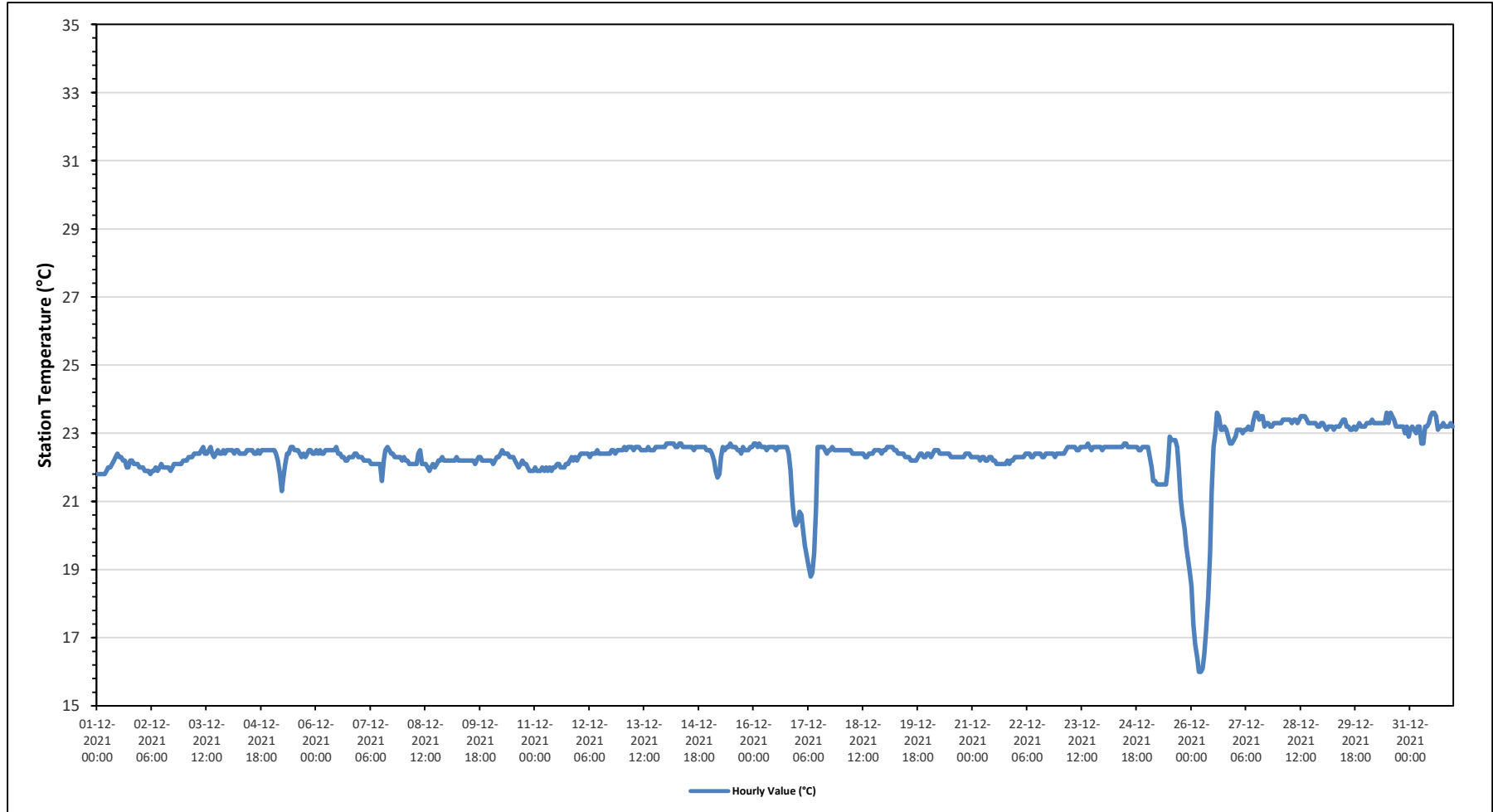
986c Station - December 2021

Summary of Hourly Averages

STATION TEMPERATURE (ST) in Degree Celsius

Summary of Hourly Averages table including maximum/minimum values, monthly average, and a detailed hourly data table with columns for Day, Hourly Period (0-23), and Daily Minimum/Maximum/Average. Includes a legend for error codes (C, K, X, S, N, NRM, Q, Y, P) and a note about data completeness criteria.

**Timeseries Chart of Hourly Average for ST - 986c Station**





**PEACE RIVER AREA MONITORING PROGRAM**

**986c Station - December 2021**

**Summary of Hourly Averages**

**PRECIPITATION in mm**

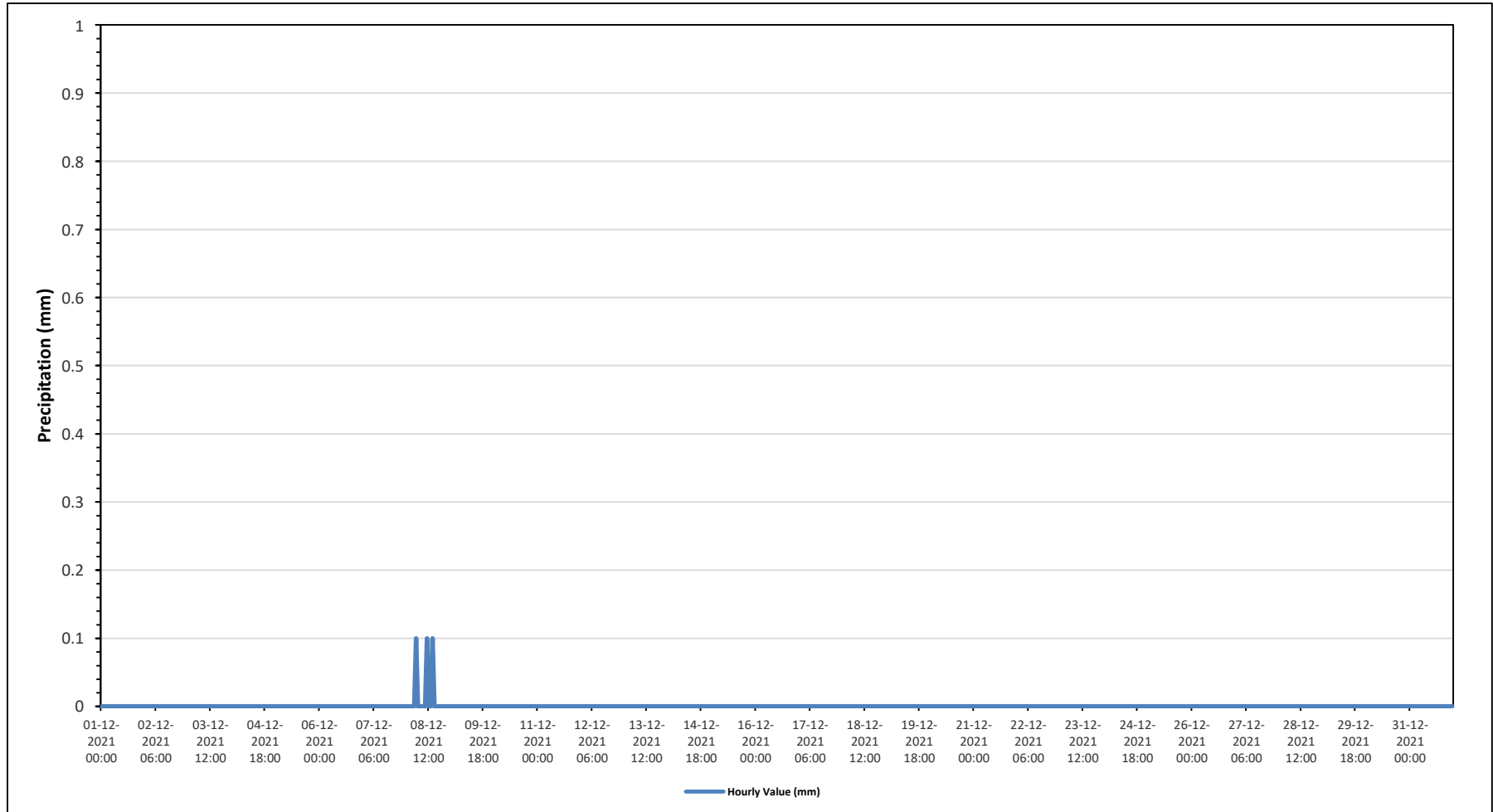
Maximum Hourly Value:	0.1 mm on December 8 at hour 5	Hours in Service:	744
Maximum Daily Value:	0.3 mm on December 8	Hours of Data:	744
Minimum Hourly Value:	0.0 mm on December 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 mm on December 1	Hours of Calibration:	0
Monthly Total:	0.3 mm	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
Dec 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
Dec 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
Dec 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
Dec 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 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
Dec 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 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
Dec 8	0	0	0	0	0	0.1	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0.0	0.1	0.3
Dec 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
Dec 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
Dec 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
Dec 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
Dec 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
Dec 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
Dec 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
Dec 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
Dec 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
Dec 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
Dec 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
Dec 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
Dec 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
Dec 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 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
Dec 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 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
Dec 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
Dec 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
Dec 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
Dec 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Diurnal Maximum	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0	0.0

<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b>	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 - 986c Station**





## PEACE RIVER AREA MONITORING PROGRAM

**986c Station - December 2021**

**Summary of Hourly Averages**

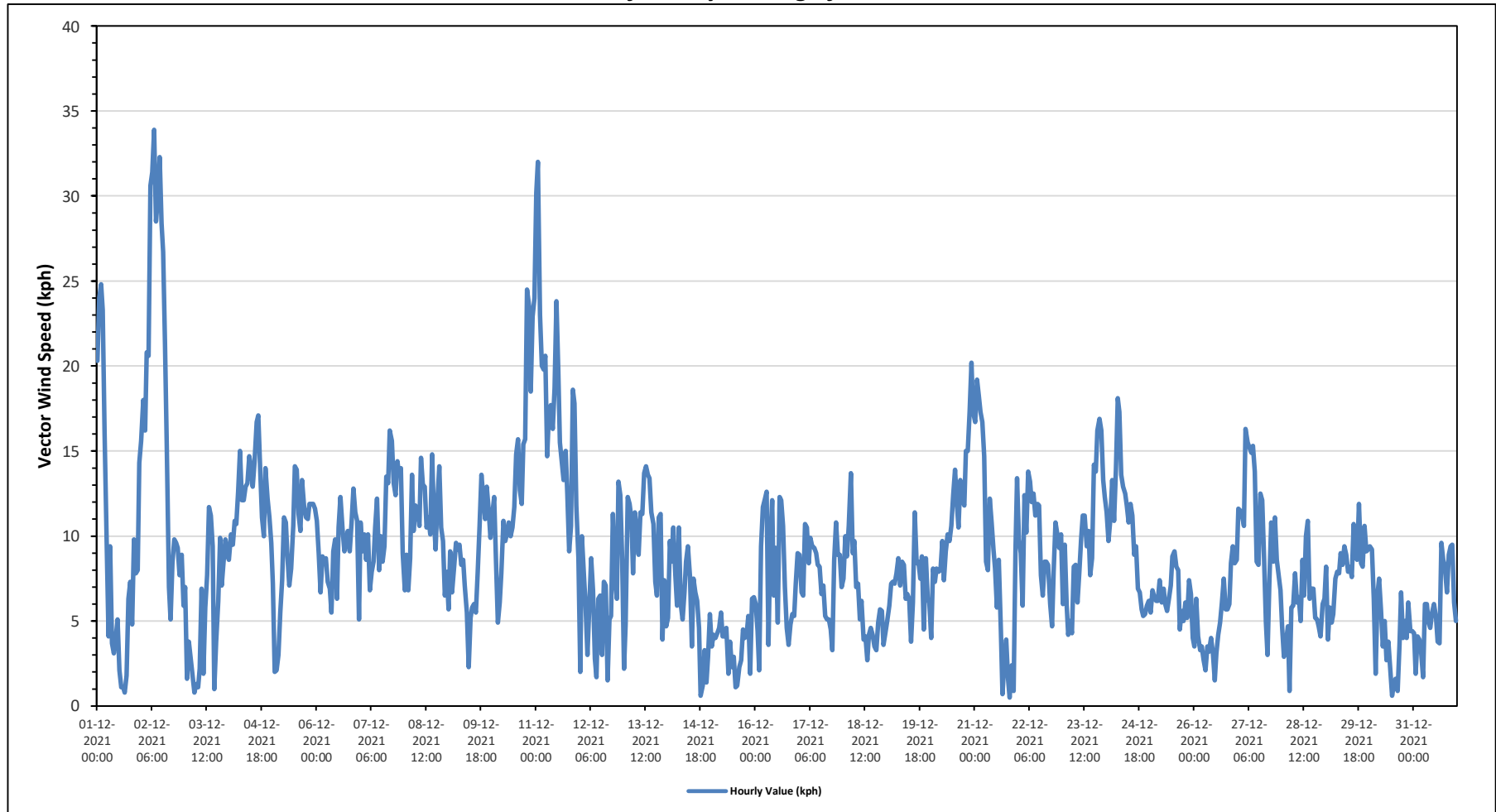
**VECTOR WIND SPEED (VWS) in km/hr**

Maximum Hourly Value:	33.9 kph on December 2 at hour 7	Hours in Service:	744
Maximum Daily Value:	16.7 kph on December 2	Hours of Data:	744
Minimum Hourly Value:	0.5 kph on December 21 at hour 19	Hours of Missing Data:	0
Minimum Daily Value:	1.4 kph on December 12	Hours of Calibration:	0
Monthly Average:	4.2 kph	Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily	Daily	Daily	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Dec 1	20.3	24.0	24.8	23.3	16.1	9.6	4.1	9.4	3.7	3.1	4.0	5.1	2.1	1.1	1.1	0.8	1.8	6.3	7.3	4.8	9.8	7.8	8.0	14.3	0.8	24.8	5.2
Dec 2	15.6	18.0	16.2	20.8	20.6	30.6	31.4	<b>33.9</b>	28.5	29.9	32.3	28.4	26.7	21.3	15.0	7.0	5.1	8.4	9.8	9.6	9.3	7.7	8.9	5.9	5.1	<b>33.9</b>	<b>16.7</b>
Dec 3	7.0	1.6	3.8	2.8	1.8	0.8	1.3	1.1	2.2	6.9	1.9	5.8	7.7	11.7	11.2	9.4	1.0	3.8	6.2	9.9	7.1	8.5	9.8	9.0	0.8	11.7	2.5
Dec 4	8.6	10.1	9.5	10.9	10.7	12.6	15.0	12.1	12.1	12.9	13.1	14.7	14.1	12.9	14.4	16.7	17.1	14.0	11.1	10.0	14.0	12.2	11.1	9.6	8.6	17.1	11.3
Dec 5	7.2	2.0	2.1	3.0	5.5	7.4	11.1	10.8	8.8	7.1	8.1	10.6	14.1	13.9	11.3	10.3	13.3	11.7	11.1	11.0	11.9	11.9	11.9	11.6	2.0	14.1	8.5
Dec 6	10.9	9.0	6.7	8.8	8.6	8.7	7.3	6.9	5.5	9.1	9.8	6.3	10.5	12.3	10.4	9.1	9.7	10.3	9.1	10.8	12.8	11.4	10.9	5.1	5.1	12.8	7.6
Dec 7	10.8	9.1	10.1	8.6	10.1	6.8	7.9	8.5	10.5	12.2	8.0	10.0	8.5	9.4	13.5	13.1	16.2	15.6	13.1	12.4	14.4	13.6	14.0	9.0	6.8	16.2	10.1
Dec 8	6.8	8.9	6.8	8.7	13.6	10.3	11.8	11.5	10.6	14.6	13.0	12.9	10.5	11.1	10.1	14.8	11.0	9.2	12.1	14.1	10.5	9.7	6.5	7.9	6.5	14.8	9.8
Dec 9	5.7	9.1	6.7	8.2	9.6	9.2	9.5	8.3	8.6	7.1	5.5	2.3	5.2	5.8	6.0	5.5	7.9	10.6	13.6	12.3	11.0	12.9	11.6	9.9	2.3	13.6	8.0
Dec 10	11.4	12.3	8.5	4.9	6.1	7.8	10.9	9.7	10.2	10.8	10.0	10.5	11.7	14.8	15.7	12.7	11.9	15.4	15.7	24.5	23.5	18.5	22.9	24.0	4.9	24.5	12.3
Dec 11	30.2	32.0	23.0	20.0	19.8	20.6	14.7	17.4	17.7	16.3	18.7	23.8	19.7	15.5	14.4	13.3	15.0	12.5	9.1	10.6	18.6	17.8	11.8	8.7	8.7	32.0	14.7
Dec 12	2.0	10.0	7.9	5.9	3.0	5.9	8.7	6.8	2.8	1.7	6.3	6.5	3.0	7.3	7.1	1.5	5.1	5.3	11.3	7.5	6.3	13.2	12.4	8.6	1.5	13.2	<b>1.4</b>
Dec 13	2.2	4.8	12.3	11.9	11.0	7.8	11.4	10.3	8.9	11.4	11.3	13.7	14.1	13.6	13.4	11.4	10.7	7.3	6.5	11.1	11.3	3.9	7.4	4.7	2.2	14.1	8.0
Dec 14	5.2	9.7	8.5	10.5	7.9	5.9	10.5	6.0	5.1	6.7	8.5	9.4	7.6	3.5	7.5	6.7	6.2	4.6	0.6	1.2	3.3	1.4	2.9	5.4	0.6	10.5	4.7
Dec 15	3.5	4.2	4.0	4.3	4.6	5.5	4.1	4.1	4.6	1.9	3.8	2.3	2.9	1.1	1.2	2.3	2.7	4.5	4.0	4.1	5.3	1.9	6.3	6.4	1.1	6.4	2.5
Dec 16	6.0	4.4	2.1	9.4	11.7	12.2	12.6	3.6	9.6	12.1	6.5	9.3	4.9	12.3	12.1	10.6	7.0	4.6	3.6	4.8	5.4	5.3	7.2	9.0	2.1	12.6	4.9
Dec 17	8.9	6.7	6.5	10.7	10.5	8.4	9.9	9.4	9.3	9.0	8.3	8.2	6.6	7.1	5.3	5.1	5.1	4.5	3.3	8.6	10.8	8.9	8.9	7.0	3.3	10.8	7.4
Dec 18	7.5	10.0	8.8	10.6	13.7	9.0	9.7	7.0	7.2	5.1	6.2	3.9	4.1	2.7	4.2	4.6	4.2	3.5	3.3	4.9	5.7	5.6	3.6	4.3	2.7	13.7	4.9
Dec 19	5.0	5.9	7.2	7.3	7.2	7.8	8.7	7.1	8.5	8.3	6.3	6.6	6.3	3.8	6.1	11.4	8.4	8.5	7.5	8.8	4.5	8.7	6.3	6.1	3.8	11.4	6.8
Dec 20	4.0	8.1	7.3	8.1	7.9	8.0	9.7	7.4	9.1	10.1	9.7	10.6	12.4	13.9	11.9	10.5	13.3	12.1	11.8	15.0	15.0	17.3	20.2	17.3	4.0	20.2	10.9
Dec 21	16.7	19.2	18.2	17.3	16.7	14.7	8.5	8.0	12.2	10.8	9.2	8.1	5.8	8.6	4.4	0.7	2.6	3.9	1.6	<b>0.5</b>	2.4	0.9	9.1	13.4	<b>0.5</b>	19.2	6.6
Dec 22	9.8	9.0	5.9	12.4	10.2	13.8	13.2	12.0	12.5	11.2	11.9	11.8	7.7	6.5	8.5	8.5	8.3	6.0	4.7	7.9	10.8	10.1	9.3	10.1	4.7	13.8	7.3
Dec 23	6.0	9.5	6.0	4.2	5.0	4.3	8.2	8.3	6.1	7.9	9.9	11.2	11.2	9.4	10.3	7.7	8.7	14.2	13.8	16.2	16.9	16.2	13.3	12.3	4.2	16.9	9.7
Dec 24	11.4	9.7	11.0	13.3	10.9	13.9	18.1	17.3	13.6	12.9	12.5	11.8	10.8	11.9	11.2	8.9	9.4	6.9	6.7	5.7	5.3	5.4	5.9	6.2	5.3	18.1	10.3
Dec 25	5.5	6.8	6.4	6.2	6.2	7.4	6.1	6.9	6.0	5.6	6.3	7.1	8.8	9.1	8.2	8.0	4.5	5.6	5.0	6.1	5.2	7.4	6.6	4.0	4.0	9.1	6.2
Dec 26	3.5	6.3	4.1	3.3	3.5	2.7	2.1	3.5	3.2	4.0	3.1	1.5	3.1	4.2	4.9	6.1	7.5	5.7	5.7	6.0	8.4	9.4	8.4	8.6	1.5	9.4	4.8
Dec 27	11.6	11.5	11.2	10.6	16.3	15.5	15.2	14.9	15.3	13.8	8.5	8.3	12.5	12.1	8.7	4.9	3.0	7.3	10.8	8.5	11.1	8.6	7.7	6.8	3.0	16.3	9.4
Dec 28	4.7	2.9	3.8	4.7	0.9	5.8	5.9	7.8	6.1	6.4	5.0	8.6	6.5	10.0	10.9	6.3	6.9	6.9	5.2	5.1	4.7	4.1	6.0	6.3	0.9	10.9	5.7
Dec 29	8.2	3.9	5.8	4.9	5.4	7.5	7.9	7.8	9.0	8.3	9.4	8.9	7.9	8.2	7.6	10.7	8.9	8.6	11.9	8.4	8.2	10.6	9.1	9.2	3.9	11.9	6.1
Dec 30	9.4	9.2	6.3	1.9	6.6	7.5	5.7	3.5	5.0	2.7	3.8	2.2	0.6	1.2	1.6	0.9	3.6	6.7	4.0	5.0	4.0	6.1	4.4	4.4	0.6	9.4	1.8
Dec 31	4.3	1.9	4.1	3.9	3.1	1.7	6.0	6.0	4.9	4.6	5.5	6.0	5.2	3.8	3.7	9.6	8.6	8.2	6.7	8.9	9.4	9.5	6.1	5.0	1.7	9.6	5.4
Diurnal Maximum	30	32	25	23	21	31	31	34	29	30	32	28	27	21	16	17	17	16	16	25	24	19	23	24			
Diurnal Average	8.7	9.3	8.6	9.1	9.2	9.3	9.9	9.3	8.9	9.2	8.9	9.2	8.8	9.0	8.8	8.0	7.9	8.2	7.9	8.8	9.6	9.2	9.3	8.7			
<b>C</b>	Monthly Calibration						<b>S</b>	Daily Zero-Span Check						<b>Q</b>	Quality Assurance												
<b>K</b>	Collection Error						<b>N</b>	No Data (Machine Not in Service)						<b>Y</b>	Routine Maintenance												
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)						<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)						<b>P</b>	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 VWS - 986c Station*

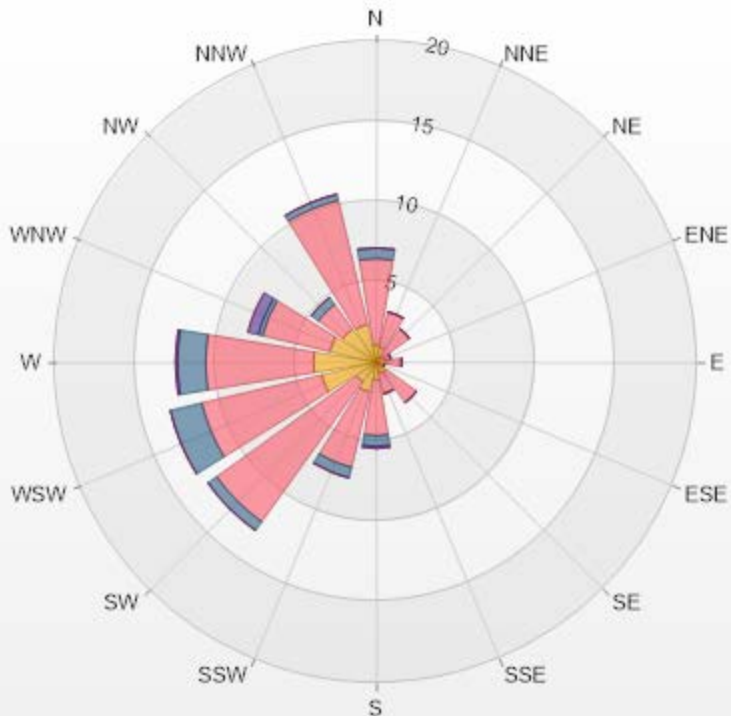


Wind: PRAMP 986c Monitor: WDS [KPH] Monthly: 12-2021 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.

Calm: 3.63% 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	1.08	5.38	0.67	0	0	7.13
NNE	0.94	2.28	0	0	0	3.22
NE	0.4	2.15	0	0	0	2.55
ENE	0.54	0.4	0	0	0	0.94
E	0.67	0.94	0	0	0	1.61
ESE	0.13	0.4	0	0	0	0.53
SE	0.81	2.28	0	0	0	3.09
SSE	0.67	1.34	0	0	0	2.01
S	1.08	3.49	0.67	0.13	0	5.37
SSW	1.88	4.84	0.67	0	0	7.39
SW	1.48	10.75	0.67	0	0	12.9
WSW	3.49	7.66	2.02	0	0	13.17
W	3.9	6.72	1.75	0.13	0	12.5
WNW	2.96	4.3	0.27	0.67	0	8.2
NW	2.55	1.88	0.54	0	0	4.97
NNW	2.42	7.93	0.4	0	0	10.75
Summary	25	62.74	7.66	0.93	0	96.33





PRAMP-202112

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% Icon Classes (KPH)	25	63	8	1	0
1.8-6.0	25	63	8	1	0
6.0-15.0					
15.0-29.0					
29.0-39.0					
>39.0					



**PEACE RIVER AREA MONITORING PROGRAM**

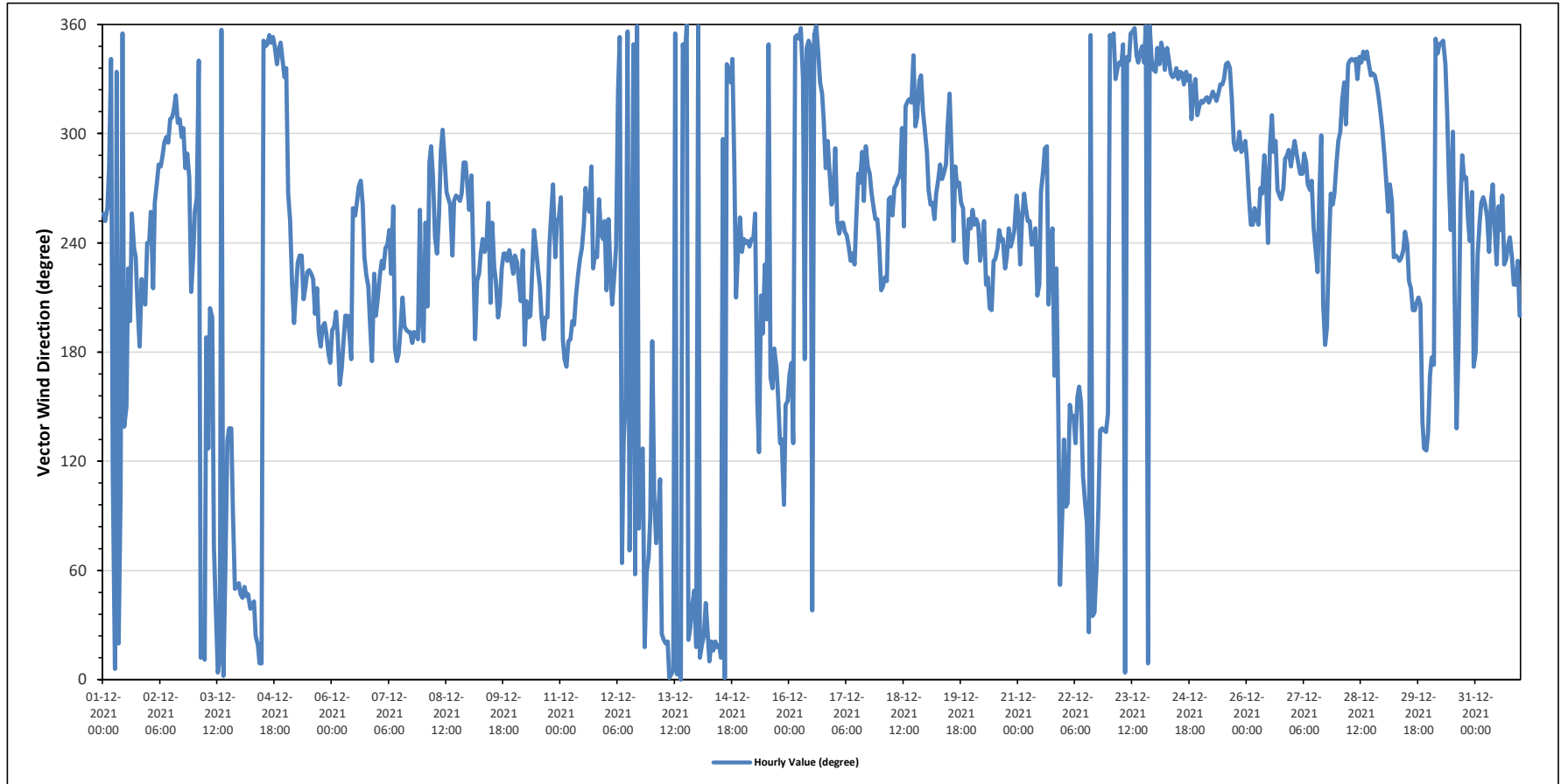
**986c Station - December 2021**

**Summary of Hourly Averages**

**WIND DIRECTION (VWD) in sector**

Monthly Average: 266 (W) degree										Hours in Service: 744																					
										Hours of Data: 744																					
										Hours of Missing Data: 0																					
										Hours of Calibration: 0																					
										Operational Uptime: 100.0																					
Day	Hourly Period Starting at (MST)																							Daily Average							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant					
Dec 1	WSW	WSW	WSW	W	NNW	ESE	N	NNW	NNE	E	N	SE	SSE	SW	SSW	WSW	SW	SW	SSW	S	SW	SSW	SSW	WSW	254	WSW					
Dec 2	WSW	WSW	SSW	W	W	W	W	WNW	WNW	WNW	WNW	NW	NW	NW	NW	NW	WNW	WNW	W	WNW	W	SSW	SW	286	WNW						
Dec 3	WSW	W	NNW	NNE	NNE	NNE	S	SE	SSW	SSW	ENE	NE	N	NNE	N	N	ENE	SE	SE	SE	E	NE	NE	NE	42	NE					
Dec 4	NE	NE	NE	NE	NE	NE	NE	NE	NNE	NNE	N	N	N	NNW	NNW	N	N	N	NNW	NNW	N	NNW	NNW	9	N						
Dec 5	NNW	W	WSW	SW	SSW	SSW	SW	SW	SW	SSW	SW	SW	SW	SW	SSW	SSW	S	S	SSW	SSW	S	S	S	210	SSW						
Dec 6	S	SSW	SSW	S	SSE	S	S	SSW	SSW	S	S	WSW	WSW	W	W	W	W	SW	SW	SW	S	S	SW	SSW	213	SSW					
Dec 7	SSW	SW	SW	SW	SW	WSW	WSW	SW	WSW	S	S	S	SSW	SSW	S	S	S	S	S	S	S	S	WSW	SSW	206	SSW					
Dec 8	S	WSW	SSW	WNW	WNW	W	WSW	SW	WSW	WNW	WNW	WNW	W	W	W	W	W	W	W	W	W	WNW	WNW	W	265	W					
Dec 9	WSW	W	SW	S	SW	SW	SW	WSW	SW	WSW	W	SSW	WSW	SW	SW	SSW	SSW	SW	SW	SW	SW	SW	SW	SW	231	SW					
Dec 10	SW	SW	SW	SSW	SW	S	SSW	SSW	SSW	SW	WSW	SW	SW	SW	SSW	S	SSW	SSW	SW	WSW	W	SW	WSW	WSW	229	SW					
Dec 11	W	S	S	S	S	S	SSW	SSW	SSW	SW	SW	WSW	W	WSW	WSW	W	SW	SW	SW	W	WSW	WSW	WSW	WSW	226	SW					
Dec 12	SSW	WSW	SW	SSW	SW	SW	NW	N	ENE	SE	SSE	N	ENE	SSE	NNW	ENE	N	E	ESE	SE	NNE	ENE	ENE	E	76	ENE					
Dec 13	S	E	ENE	E	ESE	NNE	NNE	NNE	NNE	N	N	N	N	N	N	N	N	N	NNE	NNE	NNE	NE	NE	NNE	22	NNE					
Dec 14	N	NNE	NNE	NNE	NE	NNE	N	NNE	NNE	NNE	NNE	NNE	NNE	WNW	N	NNW	NNW	NNW	NNW	W	SSW	WSW	WSW	SW	5	N					
Dec 15	WSW	WSW	WSW	SW	WSW	WSW	WSW	SSE	SE	SSW	S	SW	SSW	NNW	SSE	SSE	S	S	SSE	SE	E	SSE	SSE	187	S						
Dec 16	SSE	S	SE	N	N	N	N	NNW	S	NNW	N	NNW	NE	N	N	NNW	NNW	NW	NW	W	WNW	W	W	W	335	NNW					
Dec 17	WNW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	WSW	W	W	WNW	W	WNW	W	W	W	WSW	WSW	WSW	WSW	255	WSW					
Dec 18	SSW	SW	SW	SW	W	W	WSW	W	W	W	W	WNW	WSW	NW	NW	NW	NNW	WNW	NW	NNW	NNW	NW	WNW	271	W						
Dec 19	WNW	W	W	W	WSW	W	W	W	W	W	W	WNW	NW	WNW	WSW	W	W	W	W	WSW	SW	SW	WSW	WSW	269	W					
Dec 20	WSW	WSW	WSW	WSW	SW	WSW	WSW	SW	SW	SSW	SSW	SW	SW	SW	WSW	WSW	WSW	SW	SW	WSW	SW	WSW	WSW	W	239	WSW					
Dec 21	WSW	SW	WSW	W	WSW	WSW	WSW	WSW	WSW	WSW	SSW	SW	W	W	WNW	WNW	SSW	SW	WSW	SSE	SW	SE	NE	E	247	WSW					
Dec 22	SE	E	E	SSE	SE	SE	SE	SSE	SSE	ESE	E	E	NNE	N	NE	NE	ENE	E	SE	SE	SE	SE	SE	121	ESE						
Dec 23	N	NNW	N	NNW	NNW	NNW	NNW	NNW	N	NNW	NNW	N	N	N	NNW	NNW	NNW	NNW	NNW	N	N	N	NNW	NNW	349	NNW					
Dec 24	NNW	NNW	NNW	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	NNW	NW	NNW	335	NNW					
Dec 25	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	WNW	WNW	WNW	WNW	WNW	317	NW					
Dec 26	WNW	W	WSW	WSW	WSW	WSW	W	W	WNW	W	WSW	WNW	NW	WNW	WNW	W	W	W	W	WNW	WNW	WNW	W	277	W						
Dec 27	WNW	WNW	WNW	W	W	W	WNW	WNW	W	W	W	WSW	SW	SW	W	WNW	SSW	S	S	WSW	W	W	W	WNW	267	W					
Dec 28	WNW	WNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	WNW	332	NNW					
Dec 29	WNW	W	WSW	W	W	SW	SW	SW	SW	SW	SW	WSW	WSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SE	SE	SE	SE	216	SW					
Dec 30	SSE	S	S	N	NNW	NNW	N	N	NNW	NW	W	WSW	WNW	SSW	SE	S	W	WNW	W	W	WSW	WSW	W	S	266	W					
Dec 31	S	SW	WSW	W	W	W	WSW	SW	W	W	WSW	SW	WSW	WSW	W	SW	SW	WSW	WSW	SW	SW	SW	SSW	237	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 (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 - December 2021**

**Summary of Hourly Averages**

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

WIND SPEED	
Maximum Hourly Value:	33.9 kph on December 2 at hour 7
Maximum Daily Value:	16.7 kph on December 2
Minimum Hourly Value:	0.5 kph on December 21 at hour 19
Minimum Daily Value:	1.4 kph on December 12
Monthly Average:	4.2 kph
Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Hours of Calibration:	0
Operational Uptime:	100

WIND DIRECTION	
Monthly Average:	266 (W) 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
Dec 1	20.3	24.0	24.8	23.3	16.1	9.6	4.1	9.4	3.7	3.1	4.0	5.1	2.1	1.1	1.1	0.8	1.8	6.3	7.3	4.8	9.8	7.8	8.0	14.3	0.8	24.8	5.2
Dec 2	15.6	18.0	16.2	20.8	20.6	30.6	31.4	<b>33.9</b>	28.5	29.9	32.3	28.4	26.7	21.3	15.0	7.0	5.1	8.4	9.8	9.6	9.3	7.7	8.9	5.9	5.1	<b>33.9</b>	<b>16.7</b>
Dec 3	7.0	1.6	3.8	2.8	1.8	0.8	1.3	1.1	2.2	6.9	1.9	5.8	7.7	11.7	11.2	9.4	1.0	3.8	6.2	9.9	7.1	8.5	9.8	9.0	0.8	11.7	2.5
Dec 4	8.6	10.1	9.5	10.9	10.7	12.6	15.0	12.1	12.9	13.1	14.7	14.1	12.9	14.4	16.7	17.1	14.0	11.1	10.0	14.0	12.2	11.1	9.6	9.6	8.6	17.1	11.3
Dec 5	7.2	2.0	2.1	3.0	5.5	7.4	11.1	10.8	8.8	7.1	8.1	10.6	14.1	13.9	11.3	10.3	13.3	11.7	11.1	11.0	11.9	11.9	11.9	11.6	2.0	14.1	8.5
Dec 6	10.9	9.0	6.7	8.8	8.6	8.7	7.3	6.9	5.5	9.1	9.8	6.3	10.5	12.3	10.4	9.1	9.7	10.3	9.1	10.8	12.8	11.4	10.9	5.1	5.1	12.8	7.6
Dec 7	10.8	9.1	10.1	8.6	10.1	6.8	7.9	8.5	10.5	12.2	8.0	10.0	8.5	9.4	13.5	13.1	16.2	15.6	13.1	12.4	14.4	13.6	14.0	9.0	6.8	16.2	10.1
Dec 8	6.8	8.9	6.8	8.7	13.6	10.3	11.8	11.5	10.6	14.6	13.0	12.9	10.5	11.1	10.1	14.8	11.0	9.2	12.1	14.1	10.5	9.7	6.5	7.9	6.5	14.8	9.8
Dec 9	5.7	9.1	6.7	8.2	9.6	9.2	9.5	8.3	8.6	7.1	5.5	2.3	5.2	5.8	6.0	5.5	7.9	10.6	13.6	12.3	11.0	12.9	11.6	9.9	2.3	13.6	8.0
Dec 10	11.4	12.3	8.5	4.9	6.1	7.8	10.9	9.7	10.2	10.8	10.0	10.5	11.7	14.8	15.7	12.7	11.9	15.4	15.7	24.5	23.5	18.5	22.9	24.0	4.9	24.5	12.3
Dec 11	30.2	32.0	23.0	20.0	19.8	20.6	14.7	17.4	17.7	16.3	18.7	23.8	19.7	15.5	14.4	13.3	15.0	12.5	9.1	10.6	18.6	17.8	11.8	8.7	8.7	32.0	14.7
Dec 12	2.0	10.0	7.9	5.9	3.0	5.9	8.7	6.8	2.8	1.7	6.3	6.5	3.0	7.3	7.1	1.5	5.1	5.3	11.3	7.5	6.3	13.2	12.4	8.6	1.5	13.2	<b>1.4</b>
Dec 13	2.2	4.8	12.3	11.9	11.0	7.8	11.4	10.3	8.9	11.4	11.3	13.7	14.1	13.6	13.4	11.4	10.7	7.3	6.5	11.1	11.3	3.9	7.4	4.7	2.2	14.1	8.0
Dec 14	5.2	9.7	8.5	10.5	7.9	5.9	10.5	6.0	5.1	6.7	8.5	9.4	7.6	3.5	7.5	6.7	6.2	4.6	0.6	1.2	3.3	1.4	2.9	5.4	0.6	10.5	4.7
Dec 15	3.5	4.2	4.0	4.3	4.6	5.5	4.1	4.1	4.6	1.9	3.8	2.3	2.9	1.1	1.2	2.3	2.7	4.5	4.0	4.1	5.3	1.9	6.3	6.4	1.1	6.4	2.5
Dec 16	6.0	4.4	2.1	9.4	11.7	12.2	12.6	3.6	9.6	12.1	6.5	9.3	4.9	12.3	12.1	10.6	7.0	4.6	3.6	4.8	5.4	5.3	7.2	9.0	2.1	12.6	4.9
Dec 17	8.9	6.7	6.5	10.7	10.5	8.4	9.9	9.4	9.3	9.0	8.3	8.2	6.6	7.1	5.3	5.1	5.1	4.5	3.3	8.6	10.8	8.9	8.9	7.0	3.3	10.8	7.4
Dec 18	7.5	10.0	8.8	10.6	13.7	9.0	9.7	7.0	7.2	5.1	6.2	3.9	4.1	2.7	4.2	4.6	4.2	3.5	3.3	4.9	5.7	5.6	3.6	4.3	2.7	13.7	4.9
Dec 19	5.0	5.9	7.2	7.3	7.2	7.8	8.7	7.1	8.5	8.3	6.3	6.6	6.3	3.8	6.1	11.4	8.4	8.5	7.5	8.8	4.5	8.7	6.3	6.1	3.8	11.4	6.8
Dec 20	4.0	8.1	7.3	8.1	7.9	8.0	9.7	7.4	9.1	10.1	9.7	10.6	12.4	13.9	11.9	10.5	13.3	12.1	11.8	15.0	15.0	17.3	20.2	17.3	4.0	20.2	10.9



**PEACE RIVER AREA MONITORING PROGRAM**

986c Station - December 2021

Summary of Hourly Averages

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

WIND SPEED		WIND DIRECTION																																																	
Maximum Hourly Value:	33.9 kph on December 2 at hour 7	Hours in Service:	744																																																
Maximum Daily Value:	16.7 kph on December 2	Hours of Data:	744																																																
Minimum Hourly Value:	0.5 kph on December 21 at hour 19	Hours of Missing Data:	0																																																
Minimum Daily Value:	1.4 kph on December 12	Hours of Calibration:	0																																																
Monthly Average:	4.2 kph	Operational Uptime:	100																																																
Monthly Average: 266 (W) degree																																																			
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average																									
Dec 21	16.7	19.2	18.2	17.3	16.7	14.7	8.5	8.0	12.2	10.8	9.2	8.1	5.8	8.6	4.4	0.7	2.6	3.9	1.6	0.5	2.4	0.9	9.1	13.4	0.5	19.2	6.6																								
Dec 22	9.8	9.0	5.9	12.4	10.2	13.8	13.2	12.0	12.5	11.2	11.9	11.8	7.7	6.5	8.5	8.5	8.3	6.0	4.7	7.9	10.8	10.1	9.3	10.1	4.7	13.8	7.3																								
Dec 23	6.0	9.5	6.0	4.2	5.0	4.3	8.2	8.3	6.1	7.9	9.9	11.2	11.2	9.4	10.3	7.7	8.7	14.2	13.8	16.2	16.9	16.2	13.3	12.3	4.2	16.9	9.7																								
Dec 24	11.4	9.7	11.0	13.3	10.9	13.9	18.1	17.3	13.6	12.9	12.5	11.8	10.8	11.9	11.2	8.9	9.4	6.9	6.7	5.7	5.3	5.4	5.9	6.2	5.3	18.1	10.3																								
Dec 25	5.5	6.8	6.4	6.2	6.2	7.4	6.1	6.9	6.0	5.6	6.3	7.1	8.8	9.1	8.2	8.0	4.5	5.6	5.0	6.1	5.2	7.4	6.6	4.0	4.0	9.1	6.2																								
Dec 26	3.5	6.3	4.1	3.3	3.5	2.7	2.1	3.5	3.2	4.0	3.1	1.5	3.1	4.2	4.9	6.1	7.5	5.7	5.7	6.0	8.4	9.4	8.4	8.6	1.5	9.4	4.8																								
Dec 27	11.6	11.5	11.2	10.6	16.3	15.5	15.2	14.9	15.3	13.8	8.5	8.3	12.5	12.1	8.7	4.9	3.0	7.3	10.8	8.5	11.1	8.6	7.7	6.8	3.0	16.3	9.4																								
Dec 28	4.7	2.9	3.8	4.7	0.9	5.8	5.9	7.8	6.1	6.4	5.0	8.6	6.5	10.0	10.9	6.3	6.9	6.9	5.2	5.1	4.7	4.1	6.0	6.3	0.9	10.9	5.7																								
Dec 29	8.2	3.9	5.8	4.9	5.4	7.5	7.9	7.8	9.0	8.3	9.4	8.9	7.9	8.2	7.6	10.7	8.9	8.6	11.9	8.4	8.2	10.6	9.1	9.2	3.9	11.9	6.1																								
Dec 30	9.4	9.2	6.3	1.9	6.6	7.5	5.7	3.5	5.0	2.7	3.8	2.2	0.6	1.2	1.6	0.9	3.6	6.7	4.0	5.0	4.0	6.1	4.4	4.4	0.6	9.4	1.8																								
Dec 31	4.3	1.9	4.1	3.9	3.1	1.7	6.0	6.0	4.9	4.6	5.5	6.0	5.2	3.8	3.7	9.6	8.6	8.2	6.7	8.9	9.4	9.5	6.1	5.0	1.7	9.6	5.4																								
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.																																																			

842b STATION



**PEACE RIVER AREA MONITORING PROGRAM**

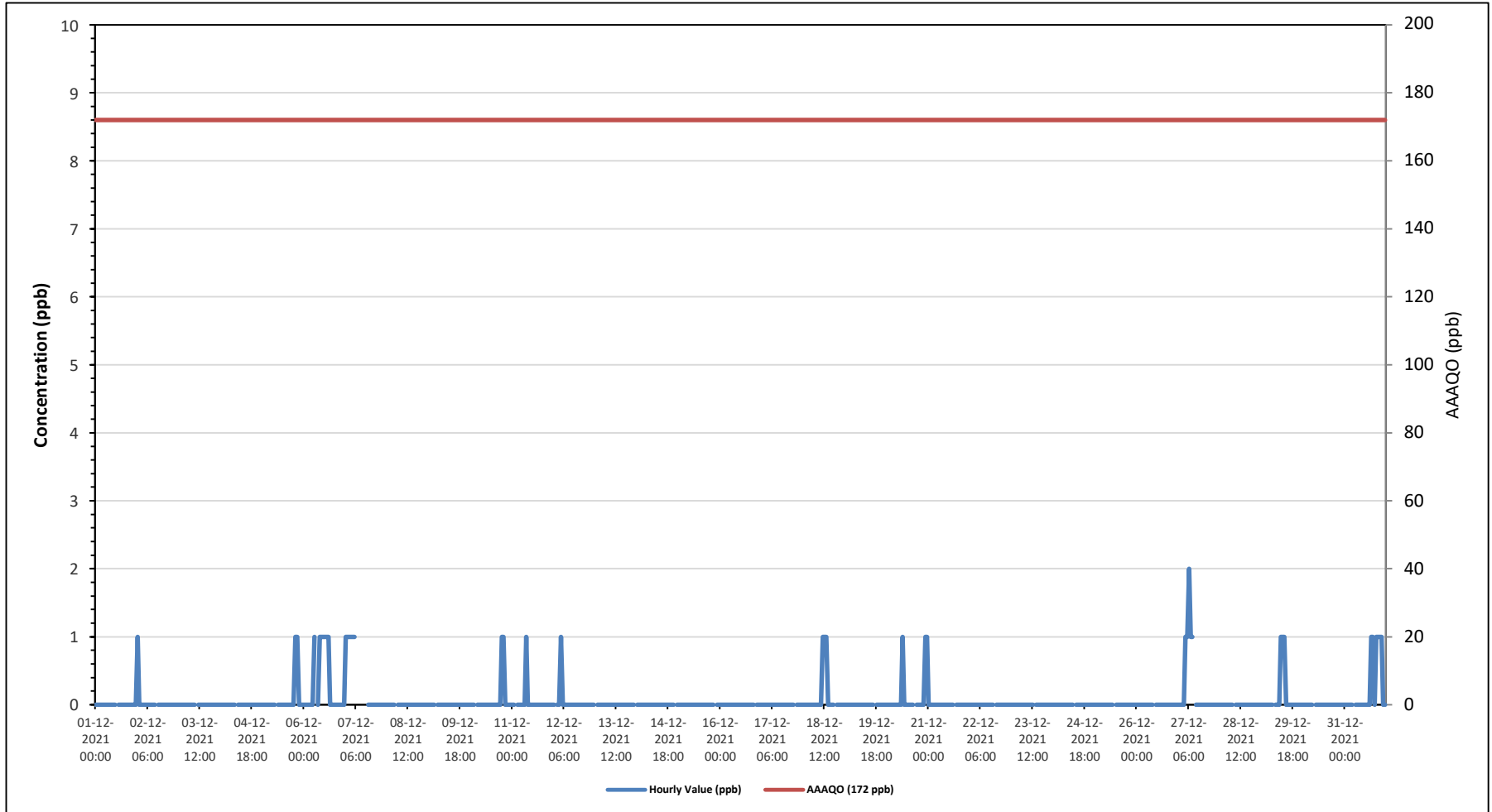
**842b Station - December 2021**

**Summary of Hourly Averages**

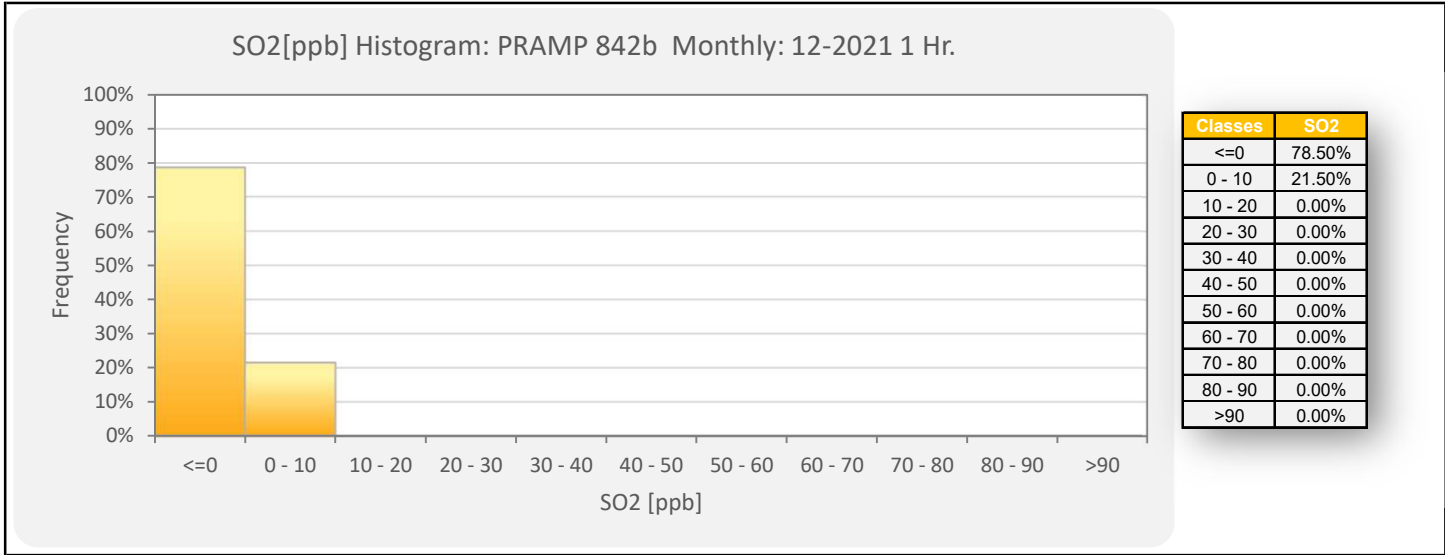
**SULPHUR DIOXIDE (SO<sub>2</sub>) in ppb**

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																															
Number of 1-Hour Exceedances: 0					Number of 24-Hour Exceedances: 0					30-Day Exceedance: 0																					
Maximum Hourly Value: 2 ppb on December 27 at hour 6															Hours in Service: 744																
Maximum Daily Value: 0.4 ppb on December 7															Hours of Data: 707																
Minimum Hourly Value: 0 ppb on December 1 at hour 0															Hours of Missing Data: 0																
Minimum Daily Value: 0.0 ppb on December 1															Hours of Calibration: 37																
Monthly Average: 0.1 ppb															Operational Uptime: 100.0																
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
Dec 1	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			
Dec 2	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Dec 3	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Dec 4	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			
Dec 5	0	0	0	0	0	0	0	S	0	S	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0			
Dec 6	0	0	0	0	0	0	1	S	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0			
Dec 7	1	1	1	1	1	1	S	1	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Dec 8	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Dec 9	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Dec 10	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0			
Dec 11	0	0	S	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Dec 12	0	S	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			
Dec 13	S	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			
Dec 14	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			
Dec 15	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			
Dec 16	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			
Dec 17	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			
Dec 18	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	S	S	0	0	0	0	0	0	0			
Dec 19	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			
Dec 20	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	1	0	0			
Dec 21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0			
Dec 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0			
Dec 23	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Dec 24	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Dec 25	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Dec 26	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Dec 27	0	0	0	0	1	1	2	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Dec 28	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Dec 29	0	0	0	0	0	0	0	S	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Dec 30	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Dec 31	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	0	0	0	0	0	0			
Diurnal Maximum	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1			
Diurnal Average	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
<b>C</b>	Monthly Calibration							<b>S</b>	Daily Zero-Span Check							<b>Q</b>	Quality Assurance														
<b>K</b>	Collection Error							<b>N</b>	No Data (Machine Not in Service)							<b>Y</b>	Routine Maintenance							<b>P</b>	Power Failure						
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)							<b>NRM</b>	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

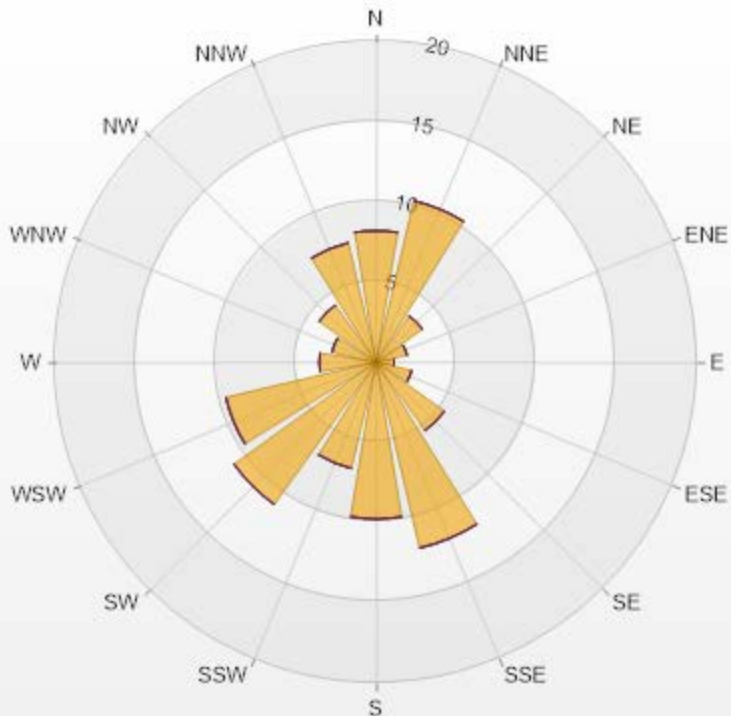






Wind: PRAMP 842b Poll.: PRAMP 842b-SO2[ppb] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 95.03% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	8.2	0	0	0	0	8.2
NNE	10.33	0	0	0	0	10.33
NE	3.54	0	0	0	0	3.54
ENE	1.98	0	0	0	0	1.98
E	1.13	0	0	0	0	1.13
ESE	2.26	0	0	0	0	2.26
SE	5.23	0	0	0	0	5.23
SSE	11.88	0	0	0	0	11.88
S	9.76	0	0	0	0	9.76
SSW	6.79	0	0	0	0	6.79
SW	10.89	0	0	0	0	10.89
WSW	9.62	0	0	0	0	9.62
W	3.54	0	0	0	0	3.54
WNW	2.83	0	0	0	0	2.83
NW	4.38	0	0	0	0	4.38
NNW	7.64	0	0	0	0	7.64
Summary	100	0	0	0	0	100



PRAMP-202112

% 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 - December 2021*

Summary of Hourly Averages

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

Maximum Hourly Value:	0.70 ppb	on December 20 at hour 17	Hours in Service:	744
Maximum Daily Value:	0.58 ppb	on December 20	Hours of Data:	682
Minimum Hourly Value:	0.05 ppb	on December 31 at hour 18	Hours of Missing Data:	25
Minimum Daily Value:	0.11 ppb	on December 31	Hours of Calibration:	37
Monthly Average:	0.30 ppb		Operational Uptime:	96.6

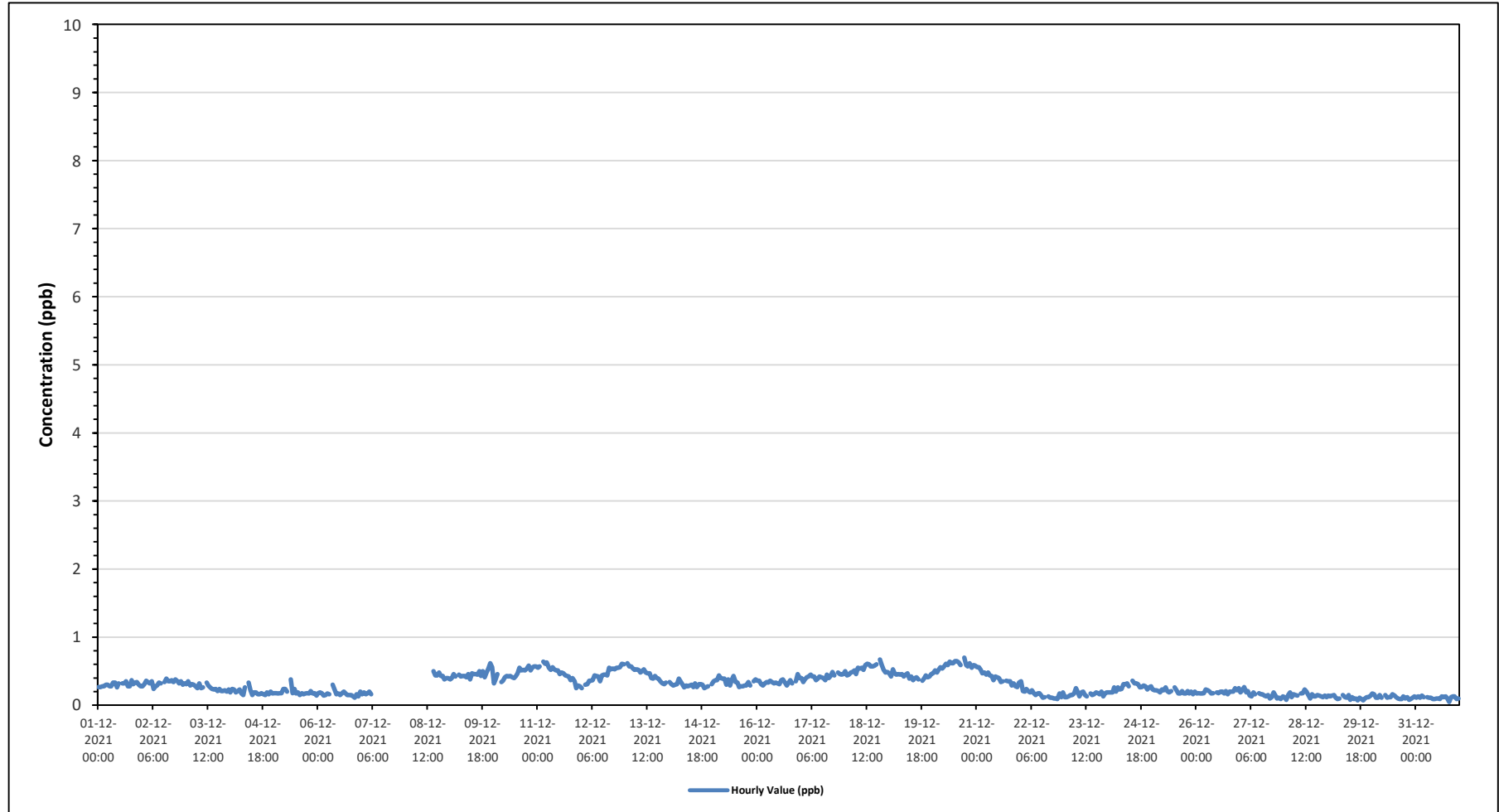
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Dec 1	0.27	0.27	0.28	0.28	0.3	0.3	0.28	0.28	0.33	0.33	0.26	0.32	S	0.32	0.32	0.35	0.28	0.28	0.37	0.31	0.33	0.34	0.3	0.28	0.26	0.37	0.30	
Dec 2	0.28	0.31	0.36	0.34	0.32	0.35	0.24	0.28	0.29	0.33	0.32	S	0.34	0.39	0.35	0.35	0.37	0.34	0.38	0.35	0.32	0.35	0.3	0.32	0.24	0.39	0.33	
Dec 3	0.31	0.35	0.29	0.31	0.3	0.28	0.25	0.32	0.25	0.26	S	0.33	0.29	0.26	0.24	0.23	0.24	0.21	0.24	0.21	0.21	0.22	0.2	0.23	0.20	0.35	0.26	
Dec 4	0.19	0.24	0.23	0.19	0.21	0.23	0.17	0.15	0.26	S	0.33	0.22	0.15	0.19	0.19	0.16	0.16	0.18	0.16	0.15	0.19	0.16	0.2	0.17	0.15	0.33	0.19	
Dec 5	0.18	0.18	0.17	0.18	0.18	0.24	0.24	0.2	S	0.38	0.18	0.24	0.17	0.19	0.15	0.18	0.16	0.17	0.18	0.17	0.21	0.17	0.18	0.14	0.14	0.38	0.19	
Dec 6	0.18	0.19	0.18	0.14	0.15	0.17	0.16	S	0.3	0.23	0.16	0.17	0.15	0.18	0.2	0.17	0.15	0.15	0.15	0.13	0.11	0.16	0.13	0.2	0.11	0.30	0.17	
Dec 7	0.16	0.19	0.16	0.18	0.2	0.16	S	0.27	C	C	C	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	0.16	0.27	-		
Dec 8	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	C	C	C	0.5	0.44	0.44	0.48	0.43	0.43	0.38	0.4	0.4	0.38	0.50	-	
Dec 9	0.38	0.4	0.46	0.42	S	0.45	0.42	0.43	0.43	0.41	0.46	0.38	0.47	0.46	0.46	0.45	0.5	0.43	0.5	0.41	0.48	0.54	0.62	0.56	0.38	0.62	0.46	
Dec 10	0.32	0.38	0.46	S	0.34	0.36	0.41	0.43	0.42	0.43	0.41	0.4	0.43	0.47	0.55	0.51	0.52	0.51	0.54	0.58	0.51	0.55	0.57	0.57	0.32	0.58	0.46	
Dec 11	0.55	0.57	S	0.64	0.61	0.63	0.55	0.52	0.56	0.53	0.51	0.51	0.46	0.48	0.47	0.44	0.43	0.42	0.37	0.4	0.35	0.25	0.29	0.28	0.25	0.64	0.47	
Dec 12	0.25	S	0.3	0.31	0.36	0.36	0.37	0.44	0.4	0.39	0.39	0.3	0.38	0.29	0.37	0.43	0.34	0.33	0.27	0.28	0.29	0.34	0.29	S	0.35	0.38	0.27	
Dec 13	S	0.62	0.57	0.57	0.54	0.52	0.53	0.52	0.48	0.5	0.53	0.48	0.47	0.47	0.4	0.39	0.43	0.4	0.39	0.35	0.32	0.31	0.33	S	0.31	0.62	0.46	
Dec 14	0.34	0.31	0.29	0.3	0.31	0.39	0.35	0.31	0.26	0.29	0.28	0.29	0.3	0.27	0.32	0.27	0.31	0.31	0.3	0.25	0.27	0.28	S	0.31	0.25	0.39	0.30	
Dec 15	0.35	0.37	0.37	0.44	0.4	0.39	0.39	0.3	0.38	0.29	0.37	0.43	0.34	0.33	0.27	0.28	0.28	0.29	0.29	0.34	0.29	S	0.35	0.38	0.27	0.44	0.34	
Dec 16	0.36	0.36	0.31	0.29	0.32	0.34	0.33	0.36	0.34	0.32	0.33	0.32	0.31	0.37	0.38	0.33	0.29	0.33	0.37	0.32	S	0.35	0.46	0.4	0.29	0.46	0.34	
Dec 17	0.4	0.34	0.38	0.41	0.42	0.45	0.42	0.42	0.37	0.39	0.42	0.41	0.4	0.37	0.45	0.4	0.43	0.49	0.44	S	0.48	0.46	0.45	0.46	0.34	0.49	0.42	
Dec 18	0.5	0.44	0.45	0.48	0.49	0.51	0.46	0.55	0.54	0.55	0.52	0.59	0.61	0.6	0.57	0.57	0.58	0.6	S	0.67	0.59	0.52	0.48	0.49	0.44	0.67	0.54	
Dec 19	0.47	0.42	0.53	0.47	0.45	0.46	0.45	0.46	0.42	0.45	0.47	0.39	0.42	0.37	0.4	0.41	0.38	S	0.36	0.39	0.44	0.41	0.42	0.46	0.36	0.53	0.43	
Dec 20	0.47	0.51	0.48	0.52	0.56	0.54	0.57	0.61	0.59	0.64	0.62	0.62	0.65	0.65	0.63	0.59	S	0.7	0.59	0.57	0.62	0.55	0.59	0.58	0.47	0.70	0.58	
Dec 21	0.56	0.56	0.52	0.47	0.48	0.45	0.48	0.44	0.43	0.37	0.42	0.41	0.4	0.34	0.35	S	0.36	0.35	0.35	0.29	0.32	0.28	0.27	0.33	0.27	0.56	0.40	
Dec 22	0.35	0.21	0.2	0.24	0.21	0.19	0.22	0.18	0.15	0.17	0.18	0.15	0.11	0.12	S	0.13	0.11	0.11	0.1	0.1	0.09	0.17	0.12	0.19	0.09	0.35	0.17	
Dec 23	0.12	0.12	0.13	0.15	0.15	0.17	0.25	0.2	0.13	0.19	0.2	0.15	0.13	S	0.17	0.15	0.16	0.19	0.18	0.16	0.2	0.13	0.18	0.19	0.12	0.25	0.17	
Dec 24	0.19	0.19	0.19	0.26	0.2	0.26	0.23	0.24	0.31	0.31	0.32	0.28	S	0.36	0.32	0.32	0.31	0.26	0.27	0.29	0.28	0.23	0.26	0.28	0.19	0.36	0.27	
Dec 25	0.23	0.22	0.22	0.21	0.19	0.23	0.22	0.26	0.21	0.19	0.21	S	0.26	0.22	0.17	0.17	0.21	0.17	0.17	0.21	0.17	0.2	0.16	0.2	0.16	0.26	0.20	
Dec 26	0.17	0.18	0.17	0.17	0.18	0.23	0.22	0.2	0.17	0.18	S	0.19	0.18	0.2	0.2	0.17	0.21	0.16	0.2	0.2	0.2	0.25	0.22	0.25	0.16	0.25	0.20	
Dec 27	0.19	0.22	0.27	0.19	0.21	0.14	0.13	0.19	0.16	S	0.18	0.16	0.16	0.14	0.13	0.15	0.1	0.12	0.19	0.14	0.1	0.11	0.09	0.13	0.09	0.27	0.16	
Dec 28	0.12	0.08	0.15	0.19	0.12	0.16	0.15	0.14	S	0.17	0.18	0.18	0.23	0.2	0.15	0.1	0.16	0.13	0.13	0.15	0.14	0.13	0.12	0.14	0.12	0.08	0.23	0.15
Dec 29	0.14	0.13	0.14	0.15	0.11	0.09	0.1	S	0.15	0.12	0.11	0.15	0.08	0.12	0.09	0.1	0.07	0.11	0.09	0.07	0.1	0.12	0.12	0.14	0.07	0.15	0.11	
Dec 30	0.17	0.16	0.11	0.11	0.15	0.11	S	0.15	0.11	0.12	0.12	0.16	0.14	0.12	0.1	0.09	0.09	0.13	0.1	0.12	0.08	0.09	0.11	0.13	0.08	0.17	0.12	
Dec 31	0.11	0.13	0.11	0.14	0.12	S	0.12	0.11	0.11	0.09	0.09	0.1	0.1	0.09	0.13	0.12	0.13	0.1	0.05	0.12	0.13	0.13	0.09	0.1	0.05	0.14	0.11	
Diurnal Maximum	0.56	0.62	0.57	0.64	0.61	0.63	0.57	0.61	0.59	0.64	0.62	0.62	0.65	0.65	0.63	0.59	0.58	0.70	0.59	0.67	0.62	0.56	0.62	0.60				
Diurnal Average	0.29	0.30	0.29	0.30	0.30	0.32	0.31	0.32	0.32	0.32	0.32	0.32	0.30	0.31	0.31	0.30	0.29	0.30	0.29	0.29	0.29	0.29	0.30	0.31				

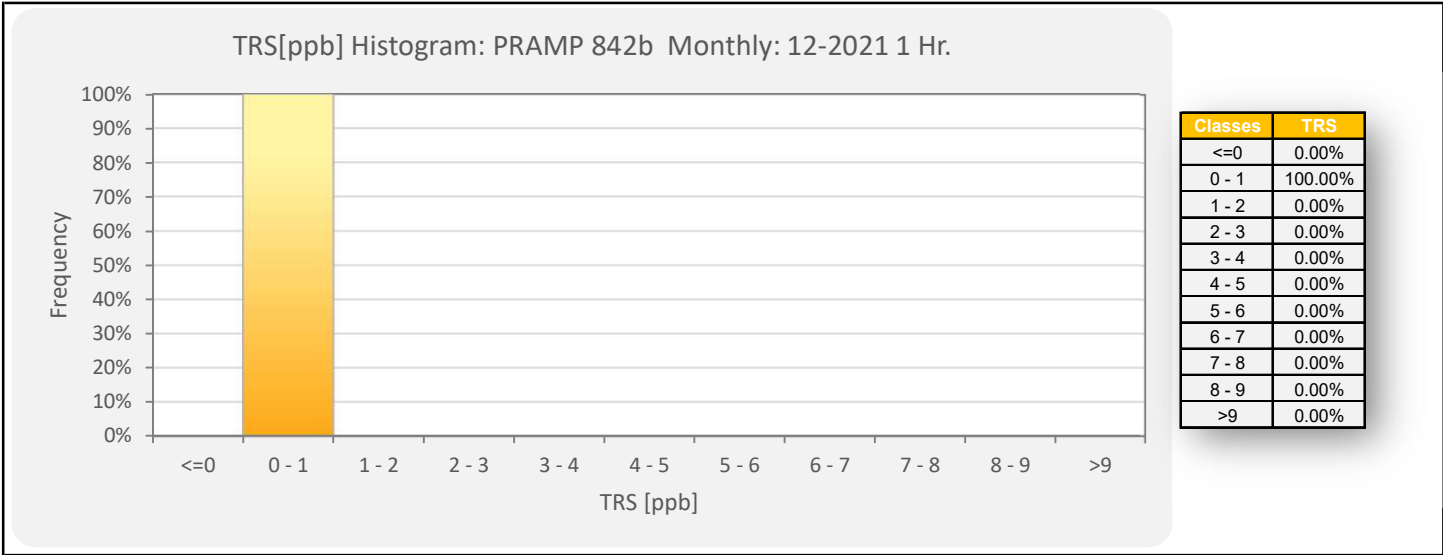
  

<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span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

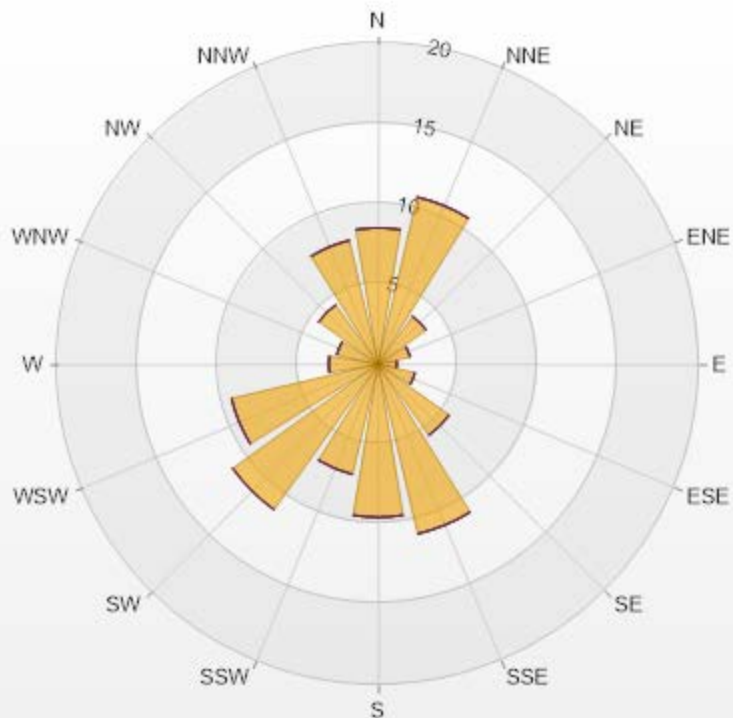
**Timeseries Chart of Hourly Average for TRS - 842b Station**





Wind: PRAMP 842b Poll.: PRAMP 842b-TRS[ppb] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 91.67% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	8.5	0	0	0	0	8.5
NNE	10.7	0	0	0	0	10.7
NE	3.67	0	0	0	0	3.67
ENE	2.05	0	0	0	0	2.05
E	1.17	0	0	0	0	1.17
ESE	2.35	0	0	0	0	2.35
SE	5.43	0	0	0	0	5.43
SSE	10.85	0	0	0	0	10.85
S	9.53	0	0	0	0	9.53
SSW	7.04	0	0	0	0	7.04
SW	11.14	0	0	0	0	11.14
WSW	9.38	0	0	0	0	9.38
W	3.08	0	0	0	0	3.08
WNW	2.64	0	0	0	0	2.64
NW	4.55	0	0	0	0	4.55
NNW	7.92	0	0	0	0	7.92
Summary	100	0	0	0	0	100



PRAMP-202112

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% 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 - December 2021

Summary of Hourly Averages

### TOTAL HYDROCARBONS (THC) in ppm

Maximum Hourly Value:	2.46 ppm on December 15 at hour 3	Hours in Service:	744
Maximum Daily Value:	2.07 ppm on December 15	Hours of Data:	702
Minimum Hourly Value:	1.80 ppm on December 21 at hour 8	Hours of Missing Data:	6
Minimum Daily Value:	1.81 ppm on December 22	Hours of Calibration:	36
Monthly Average:	1.89 ppm	Operational Uptime:	99.2

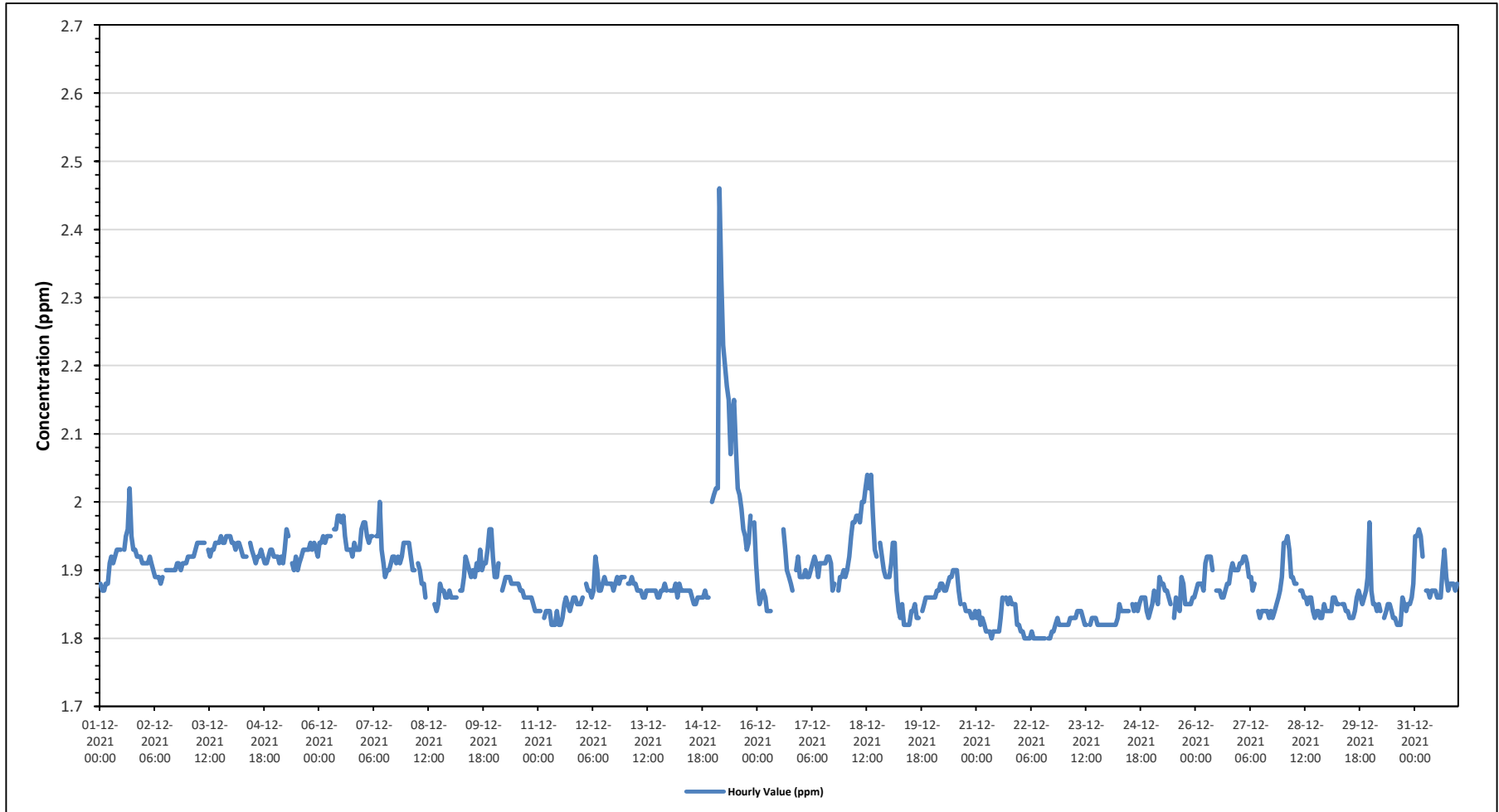
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
Dec 1	1.88	1.87	1.87	1.88	1.88	1.91	1.92	1.91	1.92	1.93	1.93	S	1.93	1.95	1.96	2.02	1.95	1.93	1.93	1.92	1.92	1.91	1.91	1.87	2.02	1.92
Dec 2	1.91	1.91	1.91	1.92	1.91	1.90	1.89	1.89	1.88	1.89	S	1.90	1.90	1.90	1.90	1.90	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.88	1.92	1.90
Dec 3	1.92	1.92	1.92	1.92	1.93	1.94	1.94	1.94	1.94	1.94	S	1.93	1.92	1.93	1.93	1.94	1.94	1.94	1.95	1.94	1.94	1.95	1.95	1.92	1.95	1.94
Dec 4	1.94	1.94	1.93	1.94	1.94	1.93	1.92	1.92	1.92	S	1.94	1.93	1.92	1.91	1.92	1.92	1.93	1.92	1.91	1.91	1.92	1.93	1.93	1.91	1.94	1.93
Dec 5	1.92	1.92	1.91	1.92	1.91	1.93	1.96	1.95	S	1.91	1.90	1.92	1.90	1.91	1.92	1.93	1.93	1.93	1.93	1.94	1.93	1.94	1.93	1.92	1.90	1.96
Dec 6	1.94	1.94	1.95	1.94	1.95	1.95	1.95	S	1.96	1.96	1.98	1.98	1.97	1.98	1.95	1.93	1.93	1.93	1.92	1.94	1.93	1.93	1.93	1.92	1.98	1.95
Dec 7	1.97	1.97	1.95	1.94	1.95	1.95	S	1.95	1.95	2.00	1.93	1.91	1.89	1.90	1.90	1.91	1.92	1.92	1.91	1.92	1.91	1.92	1.94	1.94	1.89	2.00
Dec 8	1.94	1.94	1.92	1.90	S	1.91	1.90	1.88	1.88	1.86	C	C	C	C	1.85	1.84	1.85	1.88	1.87	1.87	1.86	1.86	1.87	1.84	1.94	1.88
Dec 9	1.86	1.86	1.86	1.86	S	1.87	1.87	1.89	1.92	1.91	1.90	1.89	1.90	1.89	1.91	1.90	1.93	1.90	1.91	1.91	1.93	1.96	1.96	1.86	1.96	1.90
Dec 10	1.89	1.89	1.91	S	1.87	1.88	1.89	1.89	1.89	1.88	1.88	1.88	1.88	1.87	1.87	1.86	1.86	1.86	1.86	1.86	1.86	1.85	1.84	1.84	1.84	1.87
Dec 11	1.84	1.84	S	1.83	1.84	1.84	1.84	1.82	1.82	1.82	1.84	1.82	1.83	1.85	1.86	1.85	1.84	1.85	1.86	1.86	1.85	1.85	1.85	1.82	1.86	1.84
Dec 12	1.86	S	1.88	1.87	1.87	1.86	1.87	1.92	1.90	1.87	1.87	1.88	1.89	1.88	1.88	1.88	1.88	1.87	1.88	1.88	1.88	1.89	1.89	1.89	1.86	1.92
Dec 13	S	1.88	1.88	1.89	1.88	1.88	1.87	1.87	1.87	1.86	1.86	1.87	1.87	1.87	1.87	1.87	1.87	1.86	1.86	1.87	1.87	1.88	1.87	S	1.86	1.89
Dec 14	1.87	1.87	1.87	1.88	1.86	1.88	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.86	1.85	1.86	1.86	1.86	1.86	1.87	1.86	1.86	S	2.00	1.85	2.00
Dec 15	2.01	2.02	2.02	2.46	2.33	2.23	2.20	2.17	2.15	2.07	2.13	2.15	2.08	2.02	2.01	1.99	1.96	1.95	1.93	1.94	1.98	S	1.97	1.91	1.91	2.46
Dec 16	1.87	1.85	1.86	1.87	1.86	1.84	1.84	1.84	X	X	X	X	X	NRM	1.96	1.93	1.90	1.89	1.88	1.87	S	1.90	1.92	1.89	1.84	1.96
Dec 17	1.89	1.89	1.90	1.89	1.89	1.90	1.91	1.92	1.91	1.89	1.91	1.91	1.91	1.91	1.92	1.92	1.91	1.87	1.88	S	1.87	1.89	1.89	1.90	1.87	1.92
Dec 18	1.89	1.90	1.92	1.95	1.97	1.97	1.98	1.98	1.97	2.00	2.00	2.02	2.04	2.02	2.04	1.98	1.93	1.92	S	1.94	1.92	1.90	1.89	1.89	1.89	2.04
Dec 19	1.89	1.91	1.94	1.94	1.87	1.84	1.83	1.85	1.82	1.82	1.82	1.84	1.84	1.85	1.83	1.83	S	1.84	1.85	1.86	1.86	1.86	1.86	1.86	1.82	1.94
Dec 20	1.86	1.86	1.87	1.87	1.88	1.88	1.87	1.87	1.88	1.89	1.89	1.90	1.90	1.90	1.87	1.85	S	1.85	1.84	1.84	1.84	1.83	1.83	1.84	1.83	1.90
Dec 21	1.83	1.84	1.82	1.83	1.82	1.81	1.81	1.81	1.80	1.81	1.81	1.81	1.83	1.86	S	1.86	1.85	1.86	1.85	1.86	1.85	1.85	1.82	1.82	1.82	1.80
Dec 22	1.81	1.81	1.80	1.80	1.80	1.80	1.81	1.80	1.80	1.80	1.80	1.80	1.80	1.80	S	1.80	1.80	1.81	1.81	1.82	1.83	1.82	1.82	1.82	1.82	1.80
Dec 23	1.82	1.82	1.82	1.83	1.83	1.83	1.83	1.84	1.84	1.84	1.83	1.82	1.82	S	1.82	1.83	1.83	1.83	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.84
Dec 24	1.82	1.82	1.82	1.82	1.82	1.83	1.85	1.84	1.84	1.84	1.84	1.84	S	1.85	1.84	1.85	1.84	1.85	1.86	1.86	1.86	1.84	1.83	1.84	1.82	1.86
Dec 25	1.85	1.87	1.86	1.85	1.89	1.88	1.88	1.87	1.87	1.86	1.85	S	1.83	1.86	1.85	1.84	1.89	1.88	1.85	1.85	1.85	1.85	1.86	1.86	1.83	1.89
Dec 26	1.87	1.88	1.88	1.88	1.87	1.91	1.92	1.92	1.92	1.90	S	1.87	1.87	1.87	1.86	1.86	1.87	1.88	1.88	1.90	1.91	1.90	1.90	1.90	1.86	1.92
Dec 27	1.91	1.91	1.92	1.92	1.91	1.89	1.89	1.87	1.88	S	1.84	1.83	1.84	1.84	1.84	1.84	1.83	1.84	1.83	1.84	1.85	1.86	1.87	1.89	1.83	1.92
Dec 28	1.94	1.94	1.95	1.93	1.89	1.89	1.88	1.88	S	1.87	1.87	1.86	1.86	1.85	1.86	1.86	1.84	1.83	1.84	1.84	1.83	1.83	1.85	1.84	1.83	1.95
Dec 29	1.84	1.84	1.84	1.86	1.86	1.85	1.85	S	1.85	1.85	1.84	1.84	1.83	1.83	1.83	1.84	1.86	1.87	1.86	1.85	1.86	1.87	1.89	1.97	1.83	
Dec 30	1.87	1.85	1.85	1.84	1.85	1.84	S	1.83	1.84	1.85	1.85	1.84	1.83	1.83	1.82	1.82	1.86	1.85	1.84	1.85	1.85	1.86	1.88	1.82	1.88	
Dec 31	1.95	1.95	1.96	1.95	1.92	S	1.87	1.87	1.86	1.87	1.87	1.87	1.86	1.86	1.86	1.90	1.93	1.89	1.87	1.88	1.88	1.88	1.87	1.88	1.86	1.96
Diurnal Maximum	2.01	2.02	2.02	2.46	2.33	2.23	2.20	2.17	2.15	2.07	2.13	2.15	2.08	2.02	2.04	1.99	2.02	1.95	1.95	1.94	1.98	1.96	1.97	2.00		
Diurnal Average	1.89	1.89	1.89	1.91	1.90	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.88	1.88	1.89	1.88	1.89	1.88	1.88	1.88	1.88	1.88	1.88	1.89		

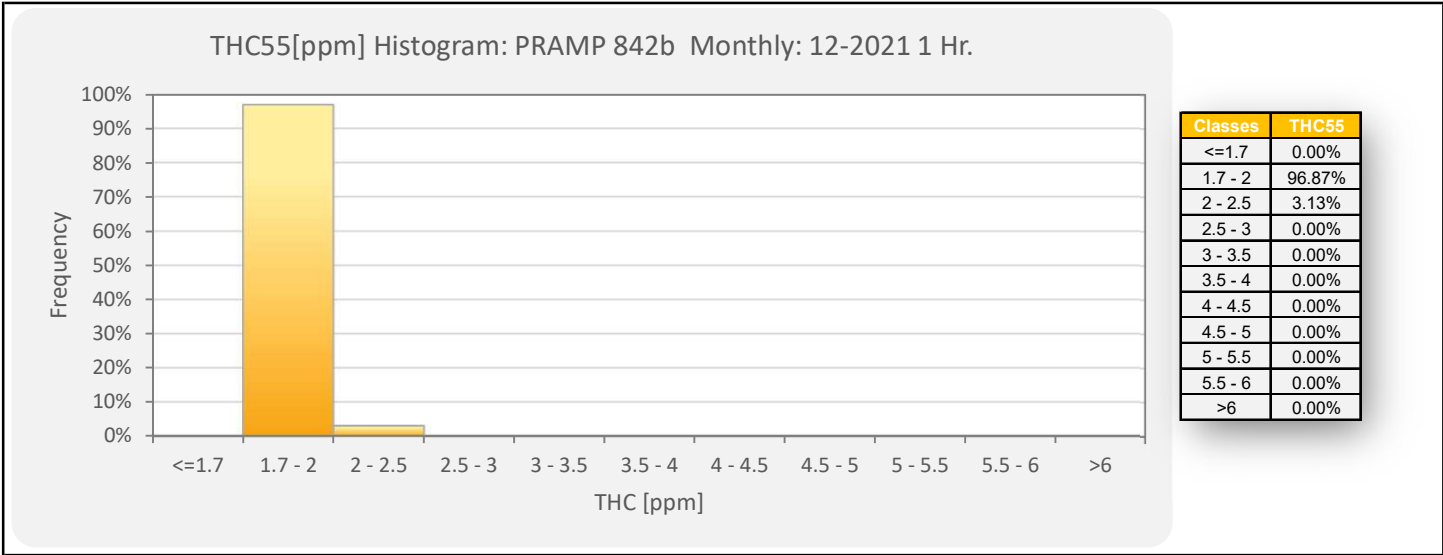
  

<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>N</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b> 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 - 842b Station**





Wind: PRAMP 842b Poll.: PRAMP 842b-THC55[ppm] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.35% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	7.55	0	0	0	0	7.55
NNE	10.26	0.14	0	0	0	10.4
NE	3.28	0.28	0	0	0	3.56
ENE	1.71	0.28	0	0	0	1.99
E	0.71	0.43	0	0	0	1.14
ESE	1.85	0.43	0	0	0	2.28
SE	4.42	0.85	0	0	0	5.27
SSE	12.54	0	0	0	0	12.54
S	9.97	0	0	0	0	9.97
SSW	6.84	0	0	0	0	6.84
SW	10.97	0	0	0	0	10.97
WSW	8.97	0.57	0	0	0	9.54
W	3.13	0.14	0	0	0	3.27
WNW	2.71	0	0	0	0	2.71
NW	4.42	0	0	0	0	4.42
NNW	7.55	0	0	0	0	7.55
Summary	96.88	3.12	0	0	0	100





### PEACE RIVER AREA MONITORING PROGRAM

#### 842b Station - December 2021

#### Summary of Hourly Averages

#### METHANE (CH4) in ppm

Maximum Hourly Value:	2.46 ppm on December 15 at hour 3	Hours in Service:	744
Maximum Daily Value:	2.07 ppm on December 15	Hours of Data:	702
Minimum Hourly Value:	1.80 ppm on December 21 at hour 8	Hours of Missing Data:	6
Minimum Daily Value:	1.81 ppm on December 22	Hours of Calibration:	36
Monthly Average:	1.89 ppm	Operational Uptime:	99.2

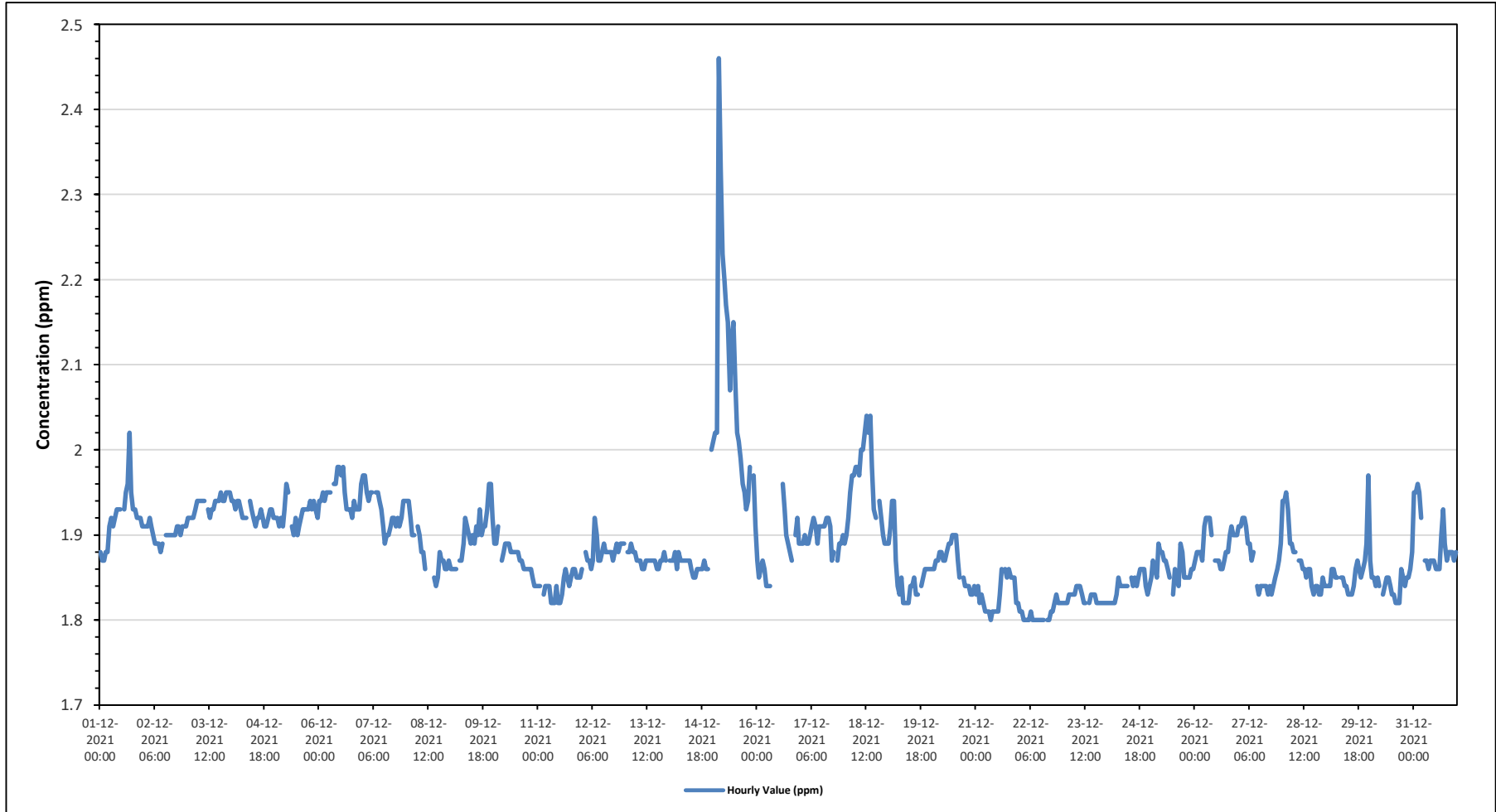
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Dec 1	1.88	1.87	1.87	1.88	1.88	1.91	1.92	1.91	1.92	1.93	1.93	S	1.93	1.95	1.96	2.02	1.95	1.93	1.93	1.92	1.92	1.91	1.91	1.87	2.02	1.92		
Dec 2	1.91	1.91	1.91	1.92	1.91	1.90	1.89	1.89	1.89	1.88	1.89	S	1.90	1.90	1.90	1.90	1.90	1.91	1.91	1.90	1.91	1.91	1.91	1.88	1.92	1.90		
Dec 3	1.92	1.92	1.92	1.92	1.93	1.94	1.94	1.94	1.94	1.94	S	1.93	1.92	1.93	1.93	1.94	1.94	1.94	1.95	1.94	1.94	1.95	1.95	1.92	1.95	1.94		
Dec 4	1.94	1.94	1.93	1.94	1.94	1.93	1.92	1.92	S	1.94	1.93	1.92	1.91	1.92	1.92	1.93	1.92	1.91	1.91	1.92	1.93	1.93	1.92	1.91	1.94	1.93		
Dec 5	1.92	1.92	1.91	1.92	1.91	1.93	1.96	1.95	S	1.91	1.90	1.92	1.90	1.91	1.92	1.93	1.93	1.93	1.93	1.94	1.93	1.94	1.93	1.92	1.90	1.96		
Dec 6	1.94	1.94	1.95	1.94	1.95	1.95	1.95	S	1.96	1.96	1.98	1.98	1.97	1.98	1.95	1.93	1.93	1.93	1.92	1.94	1.93	1.93	1.93	1.92	1.98	1.95		
Dec 7	1.97	1.97	1.95	1.94	1.95	1.95	S	1.95	1.95	1.94	1.93	1.91	1.89	1.90	1.90	1.91	1.92	1.92	1.91	1.92	1.91	1.92	1.94	1.94	1.89	1.97		
Dec 8	1.94	1.94	1.92	1.90	S	S	1.91	1.90	1.88	1.88	1.86	C	C	C	C	1.85	1.84	1.85	1.88	1.87	1.87	1.86	1.86	1.84	1.88	1.87		
Dec 9	1.86	1.86	1.86	1.86	S	1.87	1.87	1.89	1.92	1.91	1.90	1.89	1.90	1.89	1.91	1.90	1.93	1.90	1.91	1.91	1.93	1.96	1.96	1.86	1.96	1.90		
Dec 10	1.89	1.89	1.91	S	1.87	1.88	1.89	1.89	1.89	1.88	1.88	1.88	1.88	1.87	1.87	1.86	1.86	1.86	1.86	1.86	1.86	1.85	1.84	1.84	1.84	1.87		
Dec 11	1.84	1.84	S	1.83	1.84	1.84	1.84	1.82	1.82	1.82	1.84	1.82	1.83	1.85	1.86	1.85	1.84	1.85	1.86	1.86	1.85	1.85	1.85	1.82	1.86	1.84		
Dec 12	1.86	S	1.88	1.87	1.87	1.86	1.87	1.92	1.90	1.87	1.87	1.88	1.89	1.88	1.88	1.88	1.88	1.87	1.88	1.88	1.89	1.89	1.89	1.86	1.92	1.88		
Dec 13	S	1.88	1.88	1.89	1.88	1.88	1.87	1.87	1.87	1.86	1.86	1.87	1.87	1.87	1.87	1.87	1.86	1.86	1.87	1.87	1.88	1.87	S	1.86	1.89	1.87		
Dec 14	1.87	1.87	1.87	1.88	1.86	1.88	1.87	1.87	1.87	1.87	1.87	1.87	1.86	1.85	1.85	1.86	1.86	1.86	1.86	1.87	1.86	1.86	S	2.00	1.85	2.00		
Dec 15	2.01	2.02	2.02	2.46	2.33	2.23	2.20	2.17	2.15	2.07	2.13	2.15	2.08	2.02	2.01	1.99	1.96	1.95	1.93	1.94	1.98	S	1.97	1.91	1.91	2.46	2.07	
Dec 16	1.87	1.85	1.86	1.87	1.86	1.84	1.84	1.84	X	X	X	X	X	X	NRM	1.96	1.93	1.90	1.89	1.88	1.87	S	1.90	1.92	1.89	1.84	1.96	-
Dec 17	1.89	1.89	1.90	1.89	1.89	1.90	1.91	1.92	1.91	1.89	1.91	1.91	1.91	1.92	1.91	1.92	1.92	1.91	1.87	1.88	S	1.87	1.89	1.89	1.90	1.87	1.92	1.90
Dec 18	1.89	1.90	1.92	1.95	1.97	1.97	1.98	1.98	1.97	2.00	2.00	2.02	2.04	2.02	2.04	1.98	1.93	1.92	S	1.94	1.92	1.90	1.89	1.89	1.89	1.89	2.04	1.96
Dec 19	1.89	1.91	1.94	1.94	1.87	1.84	1.83	1.85	1.82	1.82	1.82	1.84	1.84	1.85	1.83	1.83	S	1.84	1.85	1.86	1.86	1.86	1.86	1.86	1.82	1.94	1.86	
Dec 20	1.86	1.86	1.87	1.87	1.88	1.88	1.87	1.87	1.88	1.89	1.89	1.90	1.90	1.90	1.87	1.85	S	1.85	1.84	1.84	1.84	1.83	1.83	1.84	1.83	1.90	1.87	
Dec 21	1.83	1.84	1.82	1.83	1.82	1.81	1.81	1.81	1.80	1.81	1.81	1.81	1.83	1.86	S	1.86	1.85	1.86	1.85	1.86	1.85	1.85	1.85	1.82	1.82	1.82	1.80	1.86
Dec 22	1.81	1.81	1.80	1.80	1.80	1.80	1.81	1.80	1.80	1.80	1.80	1.80	1.80	1.80	S	1.80	1.80	1.81	1.81	1.82	1.83	1.82	1.82	1.82	1.82	1.80	1.83	1.81
Dec 23	1.82	1.82	1.82	1.83	1.83	1.83	1.83	1.84	1.84	1.84	1.83	1.82	1.82	S	1.82	1.83	1.83	1.83	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.84	1.83
Dec 24	1.82	1.82	1.82	1.82	1.82	1.83	1.85	1.84	1.84	1.84	1.84	1.84	S	1.85	1.84	1.85	1.84	1.85	1.86	1.86	1.86	1.84	1.83	1.84	1.82	1.86	1.84	
Dec 25	1.85	1.87	1.86	1.85	1.89	1.88	1.88	1.87	1.87	1.86	1.85	S	1.83	1.86	1.85	1.84	1.89	1.88	1.85	1.85	1.85	1.85	1.86	1.86	1.83	1.89	1.86	
Dec 26	1.87	1.88	1.88	1.88	1.87	1.91	1.92	1.92	1.92	1.90	S	1.87	1.87	1.87	1.86	1.86	1.87	1.88	1.88	1.90	1.91	1.90	1.90	1.90	1.86	1.92	1.89	
Dec 27	1.91	1.91	1.92	1.92	1.91	1.89	1.89	1.87	1.88	S	1.84	1.83	1.84	1.84	1.84	1.84	1.83	1.84	1.83	1.84	1.85	1.86	1.87	1.89	1.83	1.92	1.87	
Dec 28	1.94	1.94	1.95	1.93	1.89	1.89	1.88	1.88	S	1.87	1.87	1.86	1.86	1.85	1.86	1.86	1.84	1.83	1.84	1.84	1.83	1.83	1.85	1.84	1.83	1.95	1.87	
Dec 29	1.84	1.84	1.84	1.86	1.86	1.85	1.85	S	1.85	1.85	1.84	1.84	1.83	1.83	1.83	1.84	1.86	1.87	1.86	1.85	1.86	1.87	1.89	1.97	1.83	1.97	1.86	
Dec 30	1.87	1.85	1.85	1.84	1.85	1.84	S	1.83	1.84	1.85	1.85	1.84	1.83	1.83	1.82	1.82	1.86	1.85	1.84	1.85	1.85	1.86	1.88	1.82	1.88	1.84		
Dec 31	1.95	1.95	1.96	1.95	1.92	S	1.87	1.87	1.86	1.87	1.87	1.87	1.86	1.86	1.86	1.90	1.93	1.89	1.87	1.88	1.88	1.88	1.87	1.88	1.86	1.96	1.89	
Diurnal Maximum	2.01	2.02	2.02	2.46	2.33	2.23	2.20	2.17	2.15	2.07	2.13	2.15	2.08	2.02	2.04	1.99	2.02	1.95	1.95	1.94	1.98	1.96	1.97	2.00				
Diurnal Average	1.89	1.89	1.89	1.91	1.90	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.88	1.88	1.89	1.88	1.89	1.88	1.88	1.88	1.88	1.88	1.88	1.89				

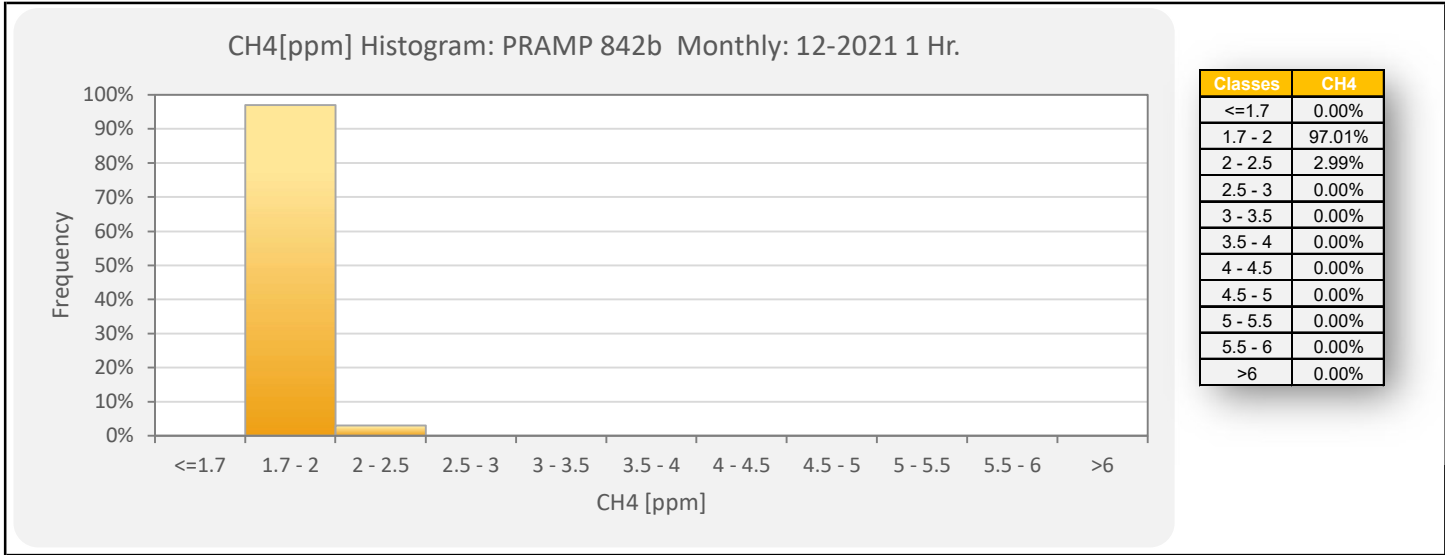
<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b>	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 CH4 - 842b Station**

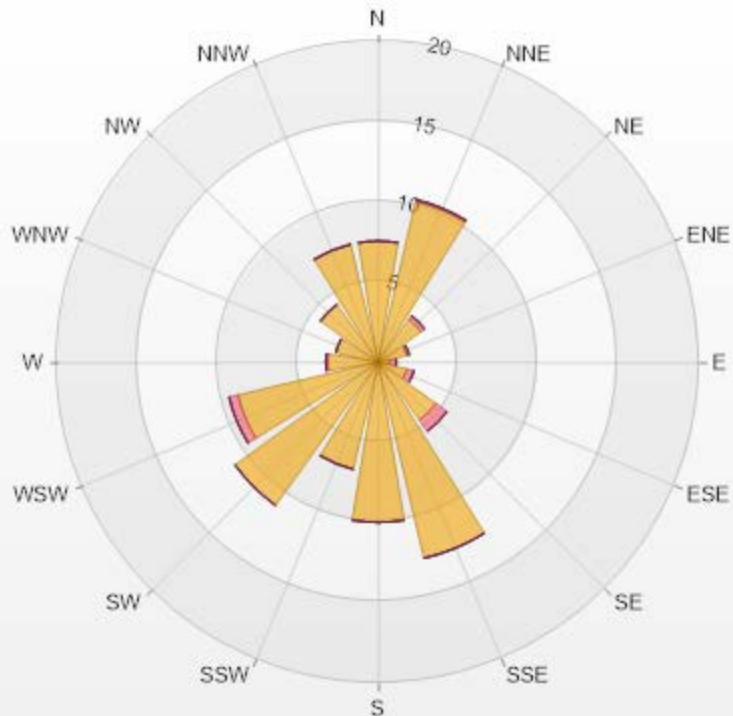






Wind: PRAMP 842b Poll.: PRAMP 842b-CH4[ppm] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.35% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	7.55	0	0	0	0	7.55
NNE	10.26	0.14	0	0	0	10.4
NE	3.28	0.28	0	0	0	3.56
ENE	1.85	0.14	0	0	0	1.99
E	0.71	0.43	0	0	0	1.14
ESE	1.85	0.43	0	0	0	2.28
SE	4.42	0.85	0	0	0	5.27
SSE	12.54	0	0	0	0	12.54
S	9.97	0	0	0	0	9.97
SSW	6.84	0	0	0	0	6.84
SW	10.97	0	0	0	0	10.97
WSW	8.97	0.57	0	0	0	9.54
W	3.13	0.14	0	0	0	3.27
WNW	2.71	0	0	0	0	2.71
NW	4.42	0	0	0	0	4.42
NNW	7.55	0	0	0	0	7.55
Summary	97.02	2.98	0	0	0	100



PRAMP-202112

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% Icon Classes (ppm)

97 0-2

3 2-5

0 5-10

0 10-20

0 >20.0



**PEACE RIVER AREA MONITORING PROGRAM**

**842b Station - December 2021**

**Summary of Hourly Averages**

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

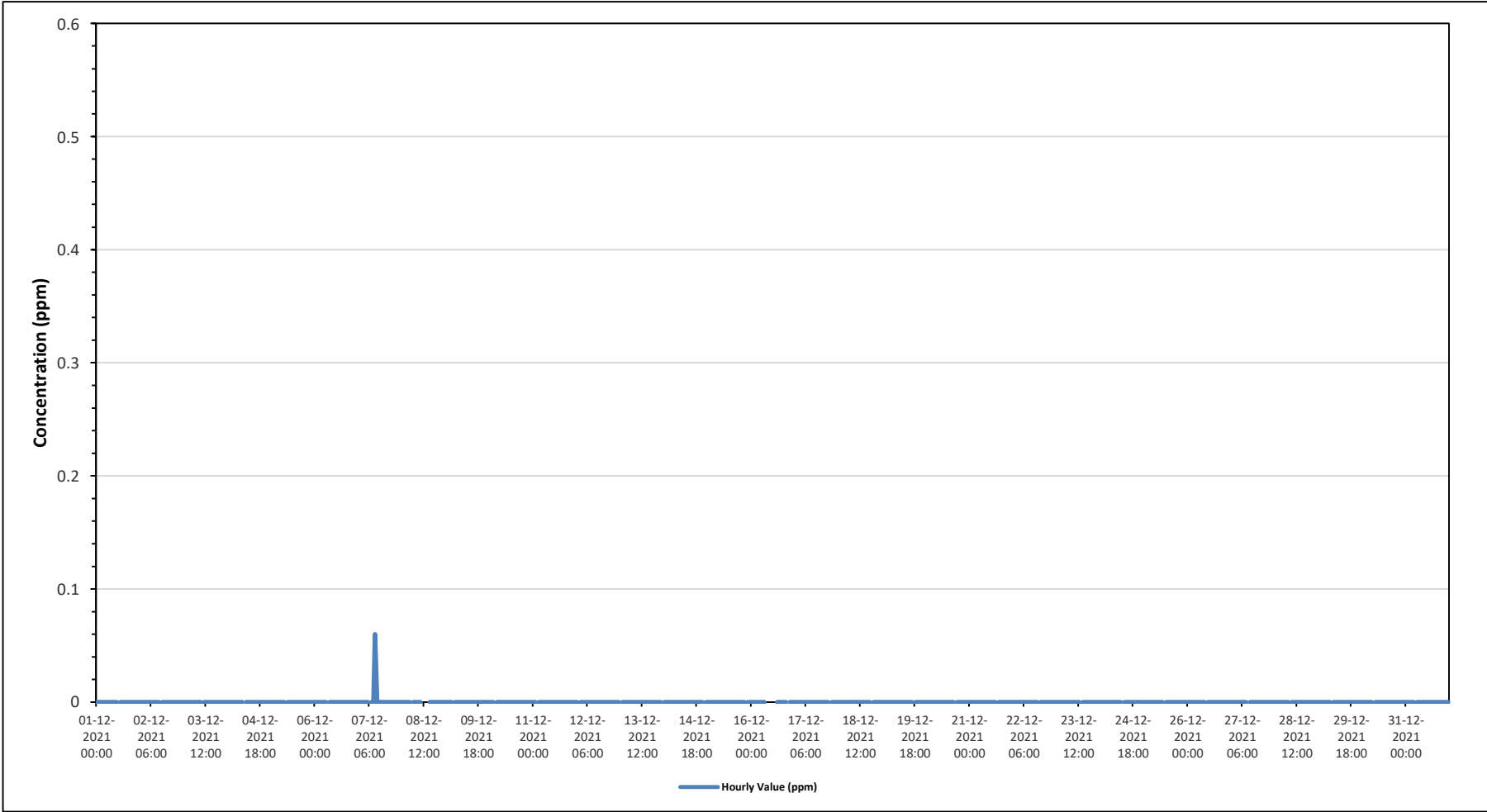
Maximum Hourly Value:	0.06 ppm on December 7 at hour 9	Hours in Service:	744
Maximum Daily Value:	0.00 ppm on December 7	Hours of Data:	702
Minimum Hourly Value:	0.00 ppm on December 1 at hour 0	Hours of Missing Data:	6
Minimum Daily Value:	0.00 ppm on December 1	Hours of Calibration:	36
Monthly Average:	0.00 ppm	Operational Uptime:	99.2

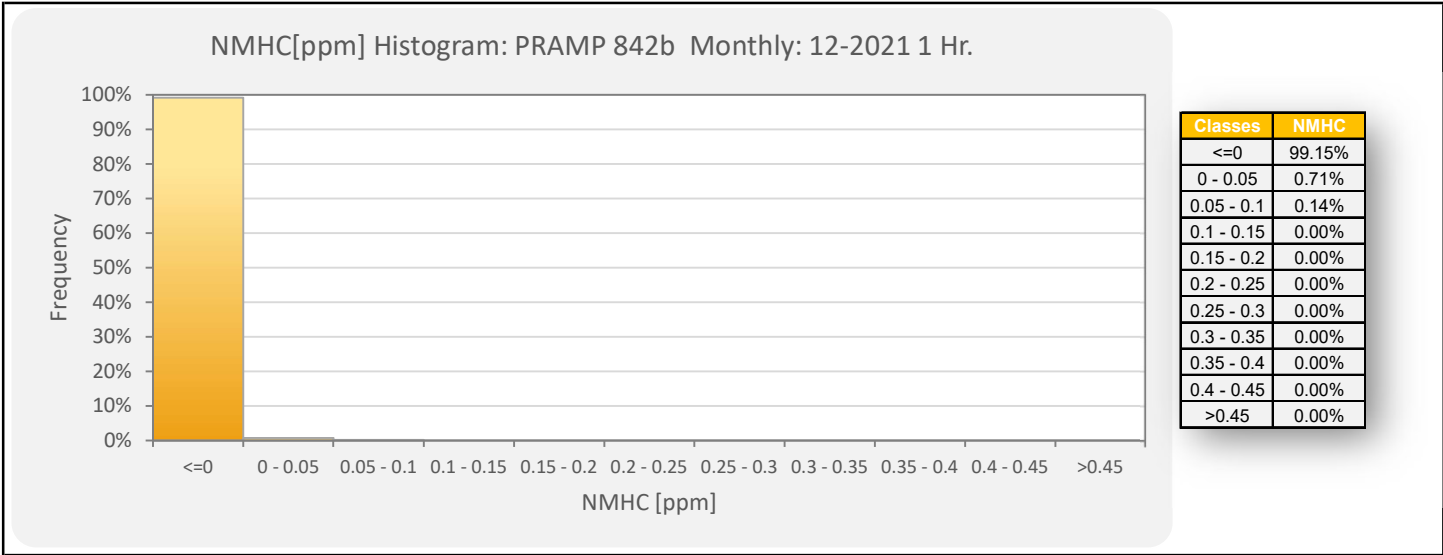
Day	Hourly Period Starting at (MST)																							Daily	Daily	Daily				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average			
Dec 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 6	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 7	0.00	0.00	0.00	0.00	0.00	S	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	0.00	0.00	0.00	0.06	0.00	0.00
Dec 8	0.00	0.00	0.00	0.00	S	S	0.00	0.00	0.00	0.00	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 9	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 10	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 11	0.00	S	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 12	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 13	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00
Dec 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	S	0.00	0.00	0.00
Dec 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	X	X	X	X	NRM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Dec 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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 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	S	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 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	S	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 29	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 30	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 31	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00

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

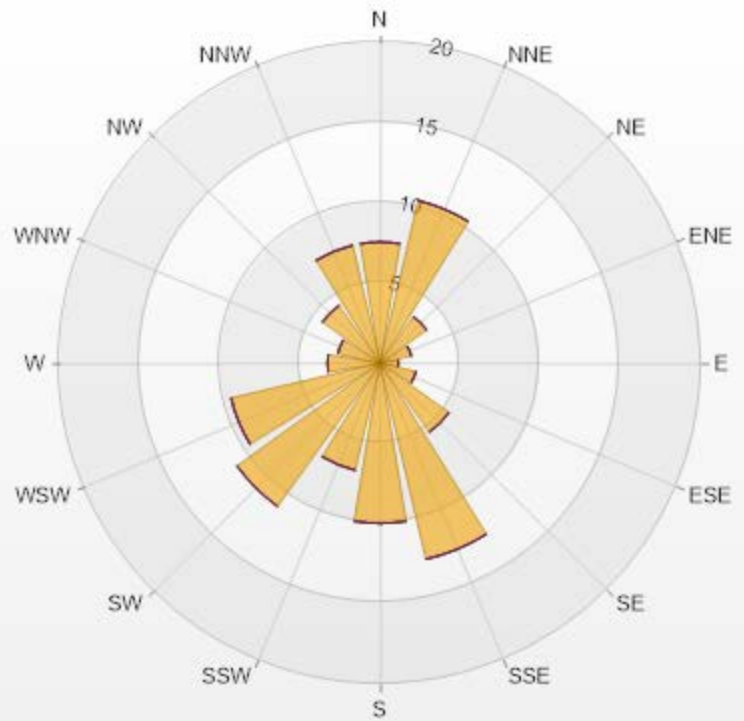
Timeseries Chart of Hourly Average for NMHC - 842b Station





Wind: PRAMP 842b Poll.: PRAMP 842b-NMHC[ppm] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 94.35% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	7.55	0	0	0	0	7.55
NNE	10.4	0	0	0	0	10.4
NE	3.56	0	0	0	0	3.56
ENE	1.99	0	0	0	0	1.99
E	1.14	0	0	0	0	1.14
ESE	2.28	0	0	0	0	2.28
SE	5.27	0	0	0	0	5.27
SSE	12.54	0	0	0	0	12.54
S	9.97	0	0	0	0	9.97
SSW	6.84	0	0	0	0	6.84
SW	10.97	0	0	0	0	10.97
WSW	9.54	0	0	0	0	9.54
W	3.28	0	0	0	0	3.28
WNW	2.71	0	0	0	0	2.71
NW	4.42	0	0	0	0	4.42
NNW	7.55	0	0	0	0	7.55
Summary	100	0	0	0	0	100



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



## PEACE RIVER AREA MONITORING PROGRAM

**842b Station - December 2021**

**Summary of Hourly Averages**

**RELATIVE HUMIDITY (RH) in %**

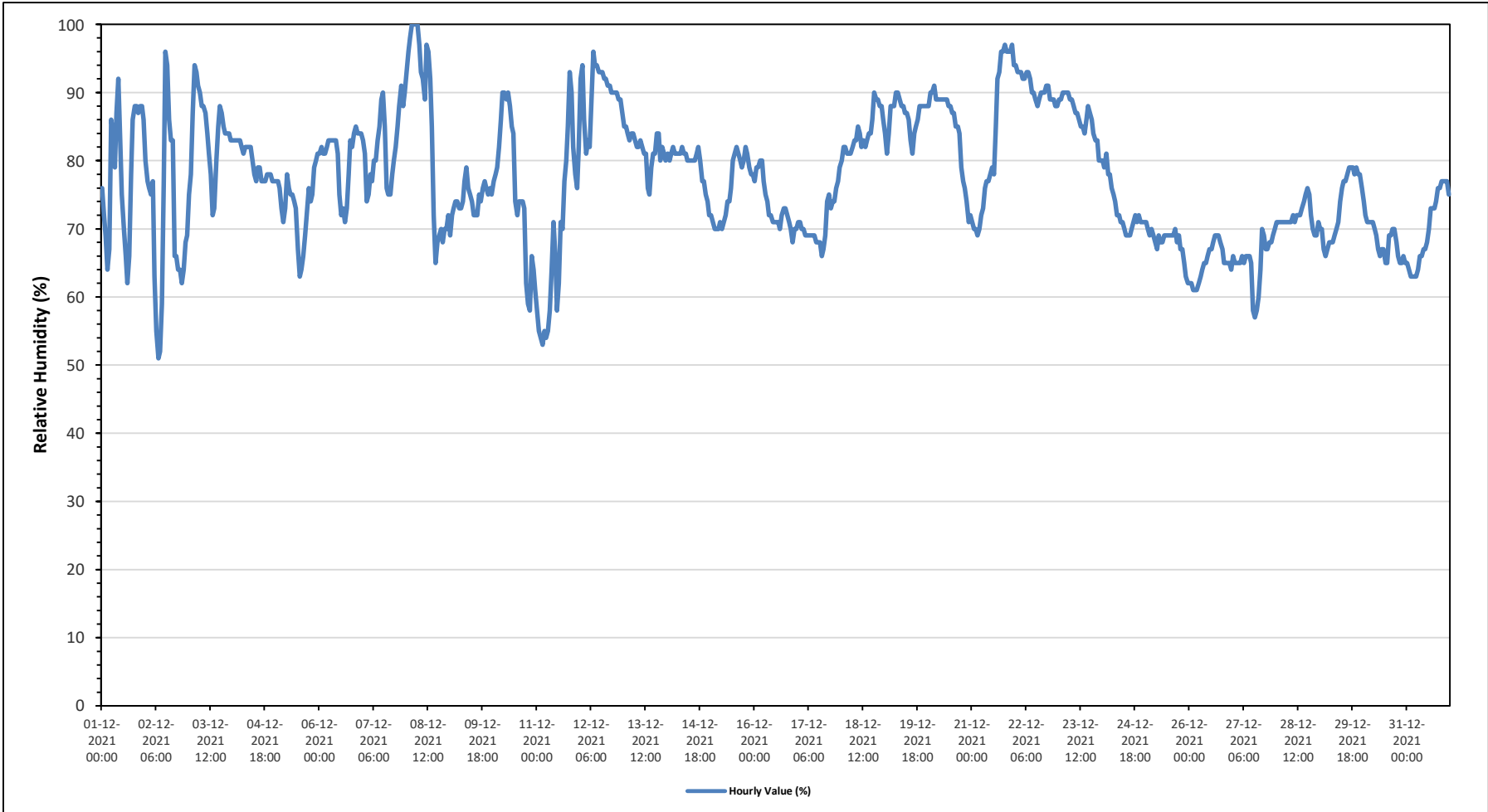
Maximum Hourly Value:	100 %	on December 8 at hour 3	Hours in Service:	744
Maximum Daily Value:	90.7 %	on December 22	Hours of Data:	744
Minimum Hourly Value:	51 %	on December 2 at hour 7	Hours of Missing Data:	0
Minimum Daily Value:	65.0 %	on December 26	Hours of Calibration:	0
Monthly Average:	77.3 %		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily	Daily	Daily	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Dec 1	76	72	69	64	67	86	84	79	87	92	83	75	70	66	62	66	78	86	88	88	87	88	88	86	62	92	78.6
Dec 2	80	77	76	75	77	63	55	51	52	59	77	96	94	86	83	66	66	64	64	62	64	68	69	51	96	71.1	
Dec 3	75	78	87	94	93	91	90	88	88	87	84	81	78	72	73	80	85	88	87	85	84	84	84	83	72	94	84.1
Dec 4	83	83	83	83	83	82	81	82	82	82	82	80	78	77	79	77	77	77	77	78	78	78	77	77	77	83	79.9
Dec 5	77	77	76	73	71	73	78	76	75	75	74	73	67	63	64	66	69	72	76	74	75	79	80	81	63	81	73.5
Dec 6	81	82	81	81	82	83	83	83	83	83	81	75	72	73	71	73	78	83	82	84	85	84	84	84	71	85	80.5
Dec 7	83	81	74	75	78	77	80	80	83	85	89	90	85	76	75	75	78	80	82	85	88	91	88	90	74	91	82.0
Dec 8	93	96	98	100	100	100	100	97	93	92	89	97	96	92	85	72	65	68	69	70	68	70	70	72	65	100	85.5
Dec 9	69	72	73	74	74	73	73	74	77	79	76	75	74	72	72	72	75	74	76	77	76	75	76	75	69	79	74.3
Dec 10	77	78	79	82	86	90	90	89	90	88	85	84	74	72	74	74	73	62	59	58	66	64	61	58	90	76.2	
Dec 11	58	55	54	53	55	54	55	58	64	71	66	58	62	71	70	77	80	85	93	90	82	78	76	82	53	93	68.6
Dec 12	92	94	86	81	83	82	89	96	94	94	93	93	92	92	91	91	90	90	90	90	80	89	89	87	81	96	90.0
Dec 13	85	85	84	83	84	84	83	82	82	83	82	81	81	76	75	79	81	81	84	84	80	82	81	80	75	85	81.8
Dec 14	81	80	81	82	81	81	81	81	82	81	81	80	80	80	80	81	82	80	77	77	75	74	72	72	82	82	79.6
Dec 15	72	71	70	70	70	71	70	71	72	74	74	76	80	81	82	81	80	79	80	82	81	79	78	78	70	82	75.9
Dec 16	77	79	79	80	80	77	75	74	72	72	71	71	71	71	70	72	73	73	72	71	70	68	70	70	68	80	73.3
Dec 17	71	71	70	70	69	69	69	69	69	69	68	68	68	66	67	69	74	75	73	74	74	76	77	79	66	79	71.0
Dec 18	80	82	82	81	81	81	82	83	83	85	84	82	83	82	83	84	84	86	90	89	89	88	88	86	80	90	84.1
Dec 19	84	81	84	88	88	88	90	90	89	88	88	87	87	86	83	81	84	85	86	88	88	88	88	88	81	90	86.5
Dec 20	88	90	90	91	89	89	89	89	89	89	88	88	87	87	85	85	84	86	90	89	89	88	88	86	71	91	84.8
Dec 21	71	70	70	69	70	72	73	76	77	77	78	79	78	85	92	93	96	96	97	96	96	96	97	94	69	97	83.3
Dec 22	94	93	93	93	92	93	93	92	90	90	89	88	89	90	90	90	91	91	89	89	89	88	88	88	88	94	90.7
Dec 23	89	89	90	90	90	90	89	89	88	87	87	86	85	85	84	86	88	87	86	84	83	83	80	80	80	90	86.5
Dec 24	80	79	81	78	78	76	75	74	72	72	71	71	70	69	69	69	70	71	72	71	72	71	71	71	69	81	73.0
Dec 25	71	70	69	70	69	68	67	69	68	68	69	69	69	69	69	69	70	68	69	67	67	65	63	62	62	71	68.1
Dec 26	62	62	61	61	61	62	63	64	65	65	66	67	67	68	69	69	69	68	67	65	65	65	65	64	61	69	65.0
Dec 27	66	65	65	65	65	66	65	66	66	66	65	58	57	58	60	64	70	69	67	67	68	68	69	70	57	70	65.2
Dec 28	71	71	71	71	71	71	71	71	71	72	71	72	72	72	73	74	75	76	75	72	70	69	69	71	69	76	71.8
Dec 29	70	70	67	66	67	68	68	68	69	70	71	74	76	77	77	78	79	79	79	78	79	78	78	76	66	79	73.4
Dec 30	74	72	71	71	71	71	70	69	67	66	67	67	65	65	69	69	70	70	68	66	65	65	66	65	65	74	68.3
Dec 31	65	64	63	63	63	63	64	66	66	67	67	68	70	73	73	73	74	76	76	77	77	77	75	63	77	69.9	
Diurnal Maximum	94	96	98	100	100	100	100	97	94	94	93	97	96	92	92	93	96	96	97	96	96	96	97	94			
Diurnal Average	77.3	77.1	76.7	76.7	77.0	77.2	77.3	77.3	77.6	78.3	78.0	77.7	76.7	75.8	75.9	76.5	77.7	78.6	78.6	78.0	77.4	77.5	77.2	77.0			
<b>C</b>	Monthly Calibration							<b>S</b>	Daily Zero-Span Check							<b>Q</b>	Quality Assurance										
<b>K</b>	Collection Error							<b>N</b>	No Data (Machine Not in Service)							<b>Y</b>	Routine Maintenance							<b>P</b>	Power Failure		
<b>X</b>	Invalid Data (Equipment Malfunction /Recovery)							<b>NRM</b>	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 - December 2021**

**Summary of Hourly Averages**

**BAROMETRIC PRESSURE (BP) in millibar**

Maximum Hourly Value:	955 mb on December 5 at hour 7	Hours in Service:	744
Maximum Daily Value:	952 mb on December 5	Hours of Data:	744
Minimum Hourly Value:	905 mb on December 11 at hour 5	Hours of Missing Data:	0
Minimum Daily Value:	909 mb on December 11	Hours of Calibration:	0
Monthly Average:	935 mb	Operational Uptime:	100.0

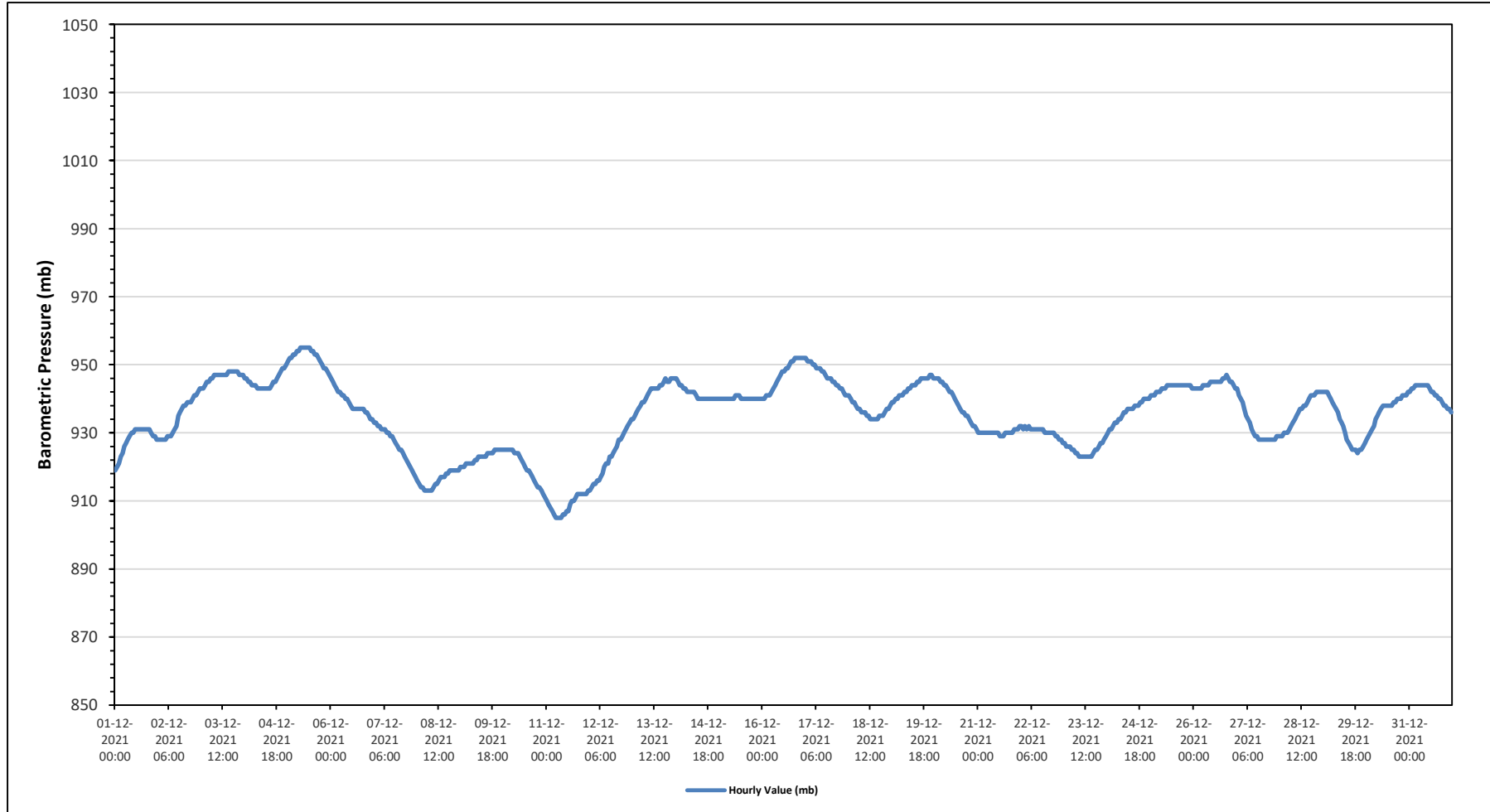
Day	Hourly Period Starting at (MST)																							Daily	Daily	Daily	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Dec 1	919	920	921	923	924	926	927	928	929	930	930	931	931	931	931	931	931	931	931	931	930	929	928	919	931	928.0	
Dec 2	928	928	928	928	928	929	929	929	930	931	932	935	936	937	938	938	939	939	939	940	941	941	942	943	928	943	934.5
Dec 3	943	943	944	945	945	946	946	947	947	947	947	947	947	947	947	948	948	948	948	948	948	947	947	947	943	948	946.5
Dec 4	946	946	945	945	944	944	944	943	943	943	943	943	943	943	944	945	945	946	947	948	949	949	950	943	950	945.0	
Dec 5	951	952	952	953	953	954	954	955	955	955	955	955	955	954	954	953	953	952	951	950	949	949	948	947	947	955	952.5
Dec 6	946	945	944	943	942	942	941	941	940	940	939	938	937	937	937	937	937	937	937	936	936	935	934	934	934	946	939.0
Dec 7	933	933	932	932	931	931	931	930	930	929	929	928	927	926	925	925	924	923	922	921	920	919	918	917	917	933	926.5
Dec 8	916	915	914	914	913	913	913	913	913	914	915	915	916	917	917	917	918	918	919	919	919	919	919	919	913	919	916.0
Dec 9	920	920	920	921	921	921	921	921	922	922	923	923	923	923	923	924	924	924	924	925	925	925	925	925	920	925	922.7
Dec 10	925	925	925	925	925	925	924	924	924	923	922	921	920	919	919	918	917	916	915	914	914	913	912	911	911	925	919.8
Dec 11	910	909	908	907	906	905	905	905	905	906	906	907	907	909	910	910	911	912	912	912	912	912	913	905	913	908.8	
Dec 12	913	914	915	915	916	916	917	918	920	921	921	923	923	924	925	926	928	928	929	930	931	932	933	934	913	934	923.0
Dec 13	934	935	936	937	938	939	939	940	941	942	943	943	943	943	943	944	944	945	946	945	945	946	946	946	934	946	941.8
Dec 14	946	945	944	944	943	943	942	942	942	942	942	941	940	940	940	940	940	940	940	940	940	940	940	940	940	946	941.5
Dec 15	940	940	940	940	940	940	940	940	940	941	941	941	940	940	940	940	940	940	940	940	940	940	940	940	940	941	940.1
Dec 16	940	940	941	941	941	942	943	944	945	946	947	948	948	949	949	950	951	951	952	952	952	952	952	952	940	952	947.0
Dec 17	952	951	951	951	950	950	949	949	949	948	948	947	946	946	946	945	945	944	944	943	943	942	941	941	941	952	946.7
Dec 18	941	940	939	939	938	937	937	936	936	936	935	935	934	934	934	934	934	935	935	935	935	937	937	938	934	941	936.3
Dec 19	939	939	940	940	941	941	941	942	942	943	943	944	944	944	945	945	946	946	946	946	946	947	947	946	939	947	943.5
Dec 20	946	946	946	945	945	944	944	943	942	942	941	940	939	938	937	936	936	935	935	934	933	932	932	931	931	946	939.3
Dec 21	930	930	930	930	930	930	930	930	930	930	930	929	929	929	930	930	930	930	930	930	931	931	931	932	929	932	930.1
Dec 22	932	931	932	931	932	931	931	931	931	931	931	931	931	930	930	930	930	930	929	929	928	928	927	927	927	932	930.3
Dec 23	927	926	926	926	925	925	924	924	923	923	923	923	923	923	923	923	924	925	925	926	927	927	928	929	923	929	924.9
Dec 24	930	931	931	932	933	933	934	934	935	936	936	937	937	937	937	938	938	938	939	939	940	940	940	940	930	940	936.0
Dec 25	941	941	941	942	942	942	943	943	943	944	944	944	944	944	944	944	944	944	944	944	944	944	943	941	944	943.2	
Dec 26	943	943	943	943	943	944	944	944	944	945	945	945	945	945	945	945	946	946	947	946	945	945	944	943	943	947	944.5
Dec 27	943	941	940	939	937	935	934	933	931	930	929	929	928	928	928	928	928	928	928	928	928	929	929	928	928	943	931.6
Dec 28	929	929	930	930	930	931	932	933	934	935	936	937	937	938	938	939	940	941	941	941	942	942	942	942	929	942	936.2
Dec 29	942	942	942	941	940	939	938	937	936	934	933	932	930	928	927	926	925	925	925	924	925	925	926	927	924	942	932.0
Dec 30	928	929	930	931	932	934	935	936	937	938	938	938	938	938	938	939	939	940	940	940	941	941	941	942	928	942	936.8
Dec 31	942	943	943	944	944	944	944	944	944	944	944	943	942	942	941	941	940	939	938	938	937	937	936	936	944	941.4	
Diurnal Maximum	952	952	952	953	953	954	954	955	955	955	955	955	955	954	954	953	953	952	952	952	952	952	952	952	952	952	952
Diurnal Average	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935

<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b>	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 - December 2021

Summary of Hourly Averages

### AMBIENT TEMPERATURE (AT) in Degree Celsius

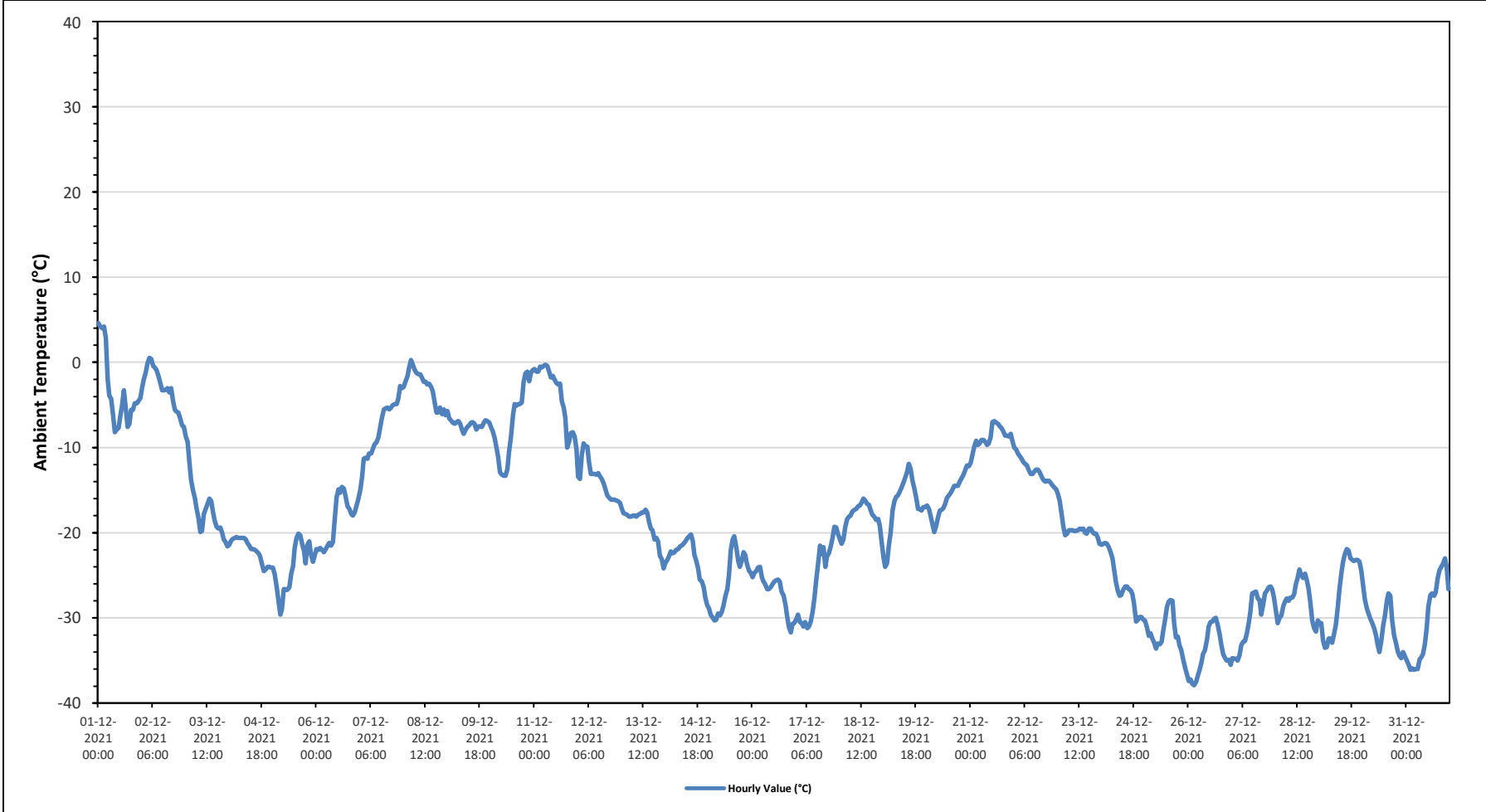
Maximum Hourly Value:	4.6 °C	on December 1 at hour 0	Hours in Service:	744
Maximum Daily Value:	-2.9 °C	on December 8	Hours of Data:	744
Minimum Hourly Value:	-37.9 °C	on December 26 at hour 3	Hours of Missing Data:	0
Minimum Daily Value:	-34.1 °C	on December 26	Hours of Calibration:	0
Monthly Average:	-18.8 °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
Dec 1	4.6	4.2	4	4.2	2.9	-2	-3.9	-4.3	-6.4	-8.2	-7.9	-7.7	-6.4	-5.1	-3.3	-5.4	-7.6	-7.2	-5.6	-5.6	-4.8	-4.8	-4.5	-4.2	-8.2	4.6	-3.5
Dec 2	-2.9	-2	-1.2	-0.1	0.5	0.4	-0.4	-0.6	-0.9	-1.6	-2.4	-3.3	-3.3	-3.2	-3	-3.5	-3	-4.5	-5.6	-5.8	-5.9	-6.6	-7.4	-7.6	-7.6	0.5	-3.1
Dec 3	-8.7	-9.3	-11.5	-13.8	-15	-15.9	-17.2	-18.3	-19.9	-19.8	-17.8	-17.2	-16.6	-16	-16.3	-17.5	-18.6	-19.3	-19.5	-19.4	-20	-20.8	-21.1	-21.6	-21.6	-8.7	-17.1
Dec 4	-21.4	-20.9	-20.7	-20.6	-20.5	-20.6	-20.6	-20.6	-20.6	-20.8	-21.2	-21.5	-21.9	-21.9	-22	-22.2	-22.4	-22.8	-23.7	-24.5	-24.3	-24	-24	-24.1	-24.5	-20.5	-22.0
Dec 5	-24.1	-24.9	-26.3	-28	-29.6	-29	-26.6	-26.7	-26.4	-24.8	-23.9	-21.8	-20.6	-20.1	-20.3	-21.3	-22.1	-23.6	-21.4	-21	-22.5	-23.4	-22.6	-22.6	-29.6	-20.1	-24.1
Dec 6	-21.9	-22	-21.8	-22	-22.3	-21.9	-21.5	-21.2	-21.5	-21.1	-18.7	-15.8	-14.9	-15.3	-14.6	-14.8	-15.6	-16.9	-17.2	-17.8	-18	-17.6	-16.8	-16.1	-22.3	-14.6	-18.6
Dec 7	-15	-13.4	-11.3	-11.2	-11.3	-10.7	-10.7	-10.1	-9.6	-9.4	-8.8	-7.8	-6.6	-5.5	-5.4	-5.3	-5.5	-5.3	-5	-4.9	-4.9	-4.3	-2.8	-3	-15.0	-2.8	-7.8
Dec 8	-2.9	-2.3	-1.6	-0.6	0.3	-0.3	-0.9	-1.2	-1.4	-1.4	-1.8	-2.3	-2.3	-2.6	-2.5	-2.9	-3.4	-4.7	-5.9	-5.9	-5.3	-6.1	-5.5	-6.2	-6.2	0.3	-2.9
Dec 9	-5.7	-6.6	-6.8	-7.1	-7.2	-7	-6.9	-7.2	-7.8	-8.4	-7.9	-7.6	-7.4	-7.1	-7	-7.2	-7.9	-7.5	-7.5	-7.6	-7.1	-6.8	-6.9	-7.1	-8.4	-5.7	-7.2
Dec 10	-7.6	-8.1	-8.9	-9.9	-11.1	-12.9	-13.2	-13.3	-13.3	-12.5	-10.5	-8.8	-6.2	-4.9	-5.1	-4.9	-4.9	-4.7	-2.3	-1.3	-1.1	-2.2	-1.3	-0.9	-13.3	-0.9	-7.1
Dec 11	-0.8	-1.1	-1.1	-0.5	-0.6	-0.4	-0.3	-0.4	-1.1	-1.8	-1.6	-2	-2.4	-2.6	-2.5	-4.6	-5.3	-6.5	-10	-9.3	-8.3	-8.2	-8.7	-10.2	-10.2	-0.3	-3.8
Dec 12	-13.4	-13.7	-10.9	-9.5	-9.9	-9.9	-11.7	-13.1	-13.1	-13.1	-13.2	-13	-13.4	-13.7	-14.2	-14.9	-15.6	-15.9	-16.1	-16.1	-16.1	-16.2	-16.3	-16.5	-16.5	-9.5	-13.7
Dec 13	-17.2	-17.7	-17.8	-17.9	-18.1	-18.1	-18	-18	-18.1	-17.9	-17.8	-17.6	-17.6	-17.3	-17.6	-18.7	-19.5	-19.7	-20.8	-20.6	-21	-22.7	-23.1	-24.2	-24.2	-17.2	-19.0
Dec 14	-23.5	-23.2	-22.7	-22.2	-22.4	-22.3	-22	-21.9	-21.6	-21.5	-21.3	-21	-20.7	-20.4	-20.2	-21	-22.6	-23.3	-24.2	-25.5	-25.7	-26.4	-27.6	-28.5	-28.5	-20.2	-23.0
Dec 15	-28.9	-29.6	-30	-30.3	-30.2	-29.5	-29.7	-29.3	-28.6	-27.4	-26.6	-25	-22	-20.8	-20.4	-21.8	-23.3	-24	-23.3	-22.3	-22.6	-23.7	-24.5	-24.7	-30.3	-20.4	-25.8
Dec 16	-25.2	-24.7	-24.5	-24.1	-24	-25.2	-25.7	-26.1	-26.6	-26.6	-26.4	-26	-25.7	-25.6	-25.5	-25.7	-26.9	-27.4	-28.5	-29.8	-31.1	-31.7	-30.7	-30.6	-31.7	-24.0	-26.8
Dec 17	-30.1	-29.6	-30.5	-30.6	-31	-30.5	-31.2	-31	-30.4	-29.3	-27.6	-25.7	-23.8	-21.5	-22.5	-21.7	-24	-22.8	-22.4	-21.5	-20.6	-19.3	-19.4	-20.1	-31.2	-19.3	-25.7
Dec 18	-20.7	-21.3	-20.8	-19.3	-18.4	-18.1	-18	-17.5	-17.3	-17.2	-16.9	-16.8	-16.5	-16	-16.2	-16.6	-16.7	-17.4	-17.9	-18.1	-18.5	-18.4	-19.2	-21.1	-21.3	-16.0	-18.1
Dec 19	-22.9	-24	-23.6	-21.5	-19.9	-17.4	-16.3	-15.8	-15.6	-15.2	-14.7	-14.1	-13.5	-12.8	-11.9	-12.5	-13.9	-14.8	-15.9	-17.2	-17.2	-17.4	-17	-17	-24.0	-11.9	-16.8
Dec 20	-16.8	-17.2	-18	-19	-19.9	-19.2	-18.2	-17.4	-17.3	-17.1	-16.6	-15.9	-15.6	-15.3	-14.9	-14.5	-14.5	-14.5	-14	-13.6	-13.2	-12.7	-12.1	-12.2	-19.9	-12.1	-15.8
Dec 21	-11.8	-10.8	-9.8	-9.2	-9.7	-9.5	-9.1	-9.1	-9.3	-9.7	-9.5	-8.8	-7	-6.9	-7.1	-7.2	-7.5	-7.7	-8.1	-8.6	-8.6	-8.7	-8.4	-9.2	-11.8	-6.9	-8.8
Dec 22	-10	-10.2	-10.7	-11	-11.3	-11.7	-11.9	-12.1	-12.6	-13.1	-13.1	-12.8	-12.6	-12.6	-12.9	-13.4	-13.8	-14	-13.9	-13.9	-14.1	-14.4	-14.7	-14.9	-14.9	-10.0	-12.7
Dec 23	-15.4	-16.2	-17.7	-19.3	-20.3	-20.1	-19.7	-19.7	-19.7	-19.7	-19.8	-19.7	-19.5	-19.6	-19.5	-20	-20.1	-19.5	-19.5	-19.9	-20.1	-20.1	-20.6	-21.3	-21.3	-15.4	-19.5
Dec 24	-21.4	-21.3	-21.2	-21.3	-21.7	-22.2	-23	-24.5	-25.8	-26.8	-27.4	-27.3	-26.7	-26.3	-26.3	-26.6	-26.7	-27.2	-28.3	-30.4	-30.2	-29.9	-29.9	-30.2	-30.4	-21.2	-25.9
Dec 25	-30.3	-31	-32.1	-31.8	-32.4	-32.9	-33.6	-33	-33.1	-33.8	-31.5	-30.2	-28.7	-28.1	-27.9	-28	-30.6	-32.3	-32.2	-33.2	-33.8	-35	-35.9	-36.6	-36.6	-27.9	-32.0
Dec 26	-37.4	-37.2	-37.7	-37.9	-37.5	-36.8	-36.1	-35.2	-34.2	-33.8	-32.5	-31	-30.5	-30.4	-30.1	-30	-30.8	-32	-33.2	-34.3	-34.7	-35	-34.9	-35.5	-37.9	-30.0	-34.1
Dec 27	-34.7	-34.8	-34.8	-35	-34.4	-33.2	-32.8	-32.7	-31.8	-30.6	-29.3	-27.1	-27	-26.9	-27.7	-27.9	-29.6	-28.5	-27.1	-26.8	-26.4	-26.3	-26.6	-27.6	-35.0	-26.3	-30.0
Dec 28	-29.1	-30.6	-30	-29.7	-28.6	-28.1	-27.7	-28	-27.6	-27.6	-29.2	-26.1	-25.3	-24.3	-25	-25.3	-24.8	-25.5	-26.5	-28.2	-30.3	-31.2	-31.6	-30.3	-31.6	-24.3	-27.9
Dec 29	-30.6	-30.6	-32.7	-33.5	-33.4	-32.4	-32.4	-32.9	-31.9	-30.8	-28.8	-26.5	-24.7	-23.4	-22.5	-21.9	-22.1	-23	-23.2	-23.3	-23.2	-23.2	-23.4	-24.5	-33.5	-21.9	-27.3
Dec 30	-26.3	-27.8	-28.8	-29.5	-30.1	-30.6	-31.2	-32	-33.1	-34	-32.7	-30.9	-29.7	-28	-27.1	-27.4	-30.3	-32	-32.9	-33.9	-34.4	-34.7	-34	-34.5	-34.7	-26.3	-31.1
Dec 31	-35	-35.5	-36.1	-35.9	-36.1	-36	-36	-34.9	-34.6	-34.2	-33.1	-31.2	-28.7	-27.3	-27.1	-27.4	-27	-25.4	-24.4	-24	-23.6	-23	-24	-26.6	-36.1	-23.0	-30.3
Diurnal Maximum	4.6	4.2	4.0	4.2	2.9	0.4	-0.3	-0.4	-0.9	-1.4	-1.6	-2.0	-2.3	-2.6	-2.5	-2.9	-3.0	-4.5	-2.3	-1.3	-1.1	-2.2	-1.3	-0.9			
Diurnal Average	-18.9	-19.1	-19.3	-19.3	-19.5	-19.5	-19.6	-19.6	-19.7	-19.7	-19.0	-18.2	-17.4	-16.8	-16.7	-17.1	-17.9	-18.3	-18.7	-18.9	-18.9	-19.2	-19.2	-19.7			

<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b>	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 - 842b Station**





## PEACE RIVER AREA MONITORING PROGRAM

**842b Station - December 2021**

**Summary of Hourly Averages**

### STATION TEMPERATURE (ST) in Degree Celsius

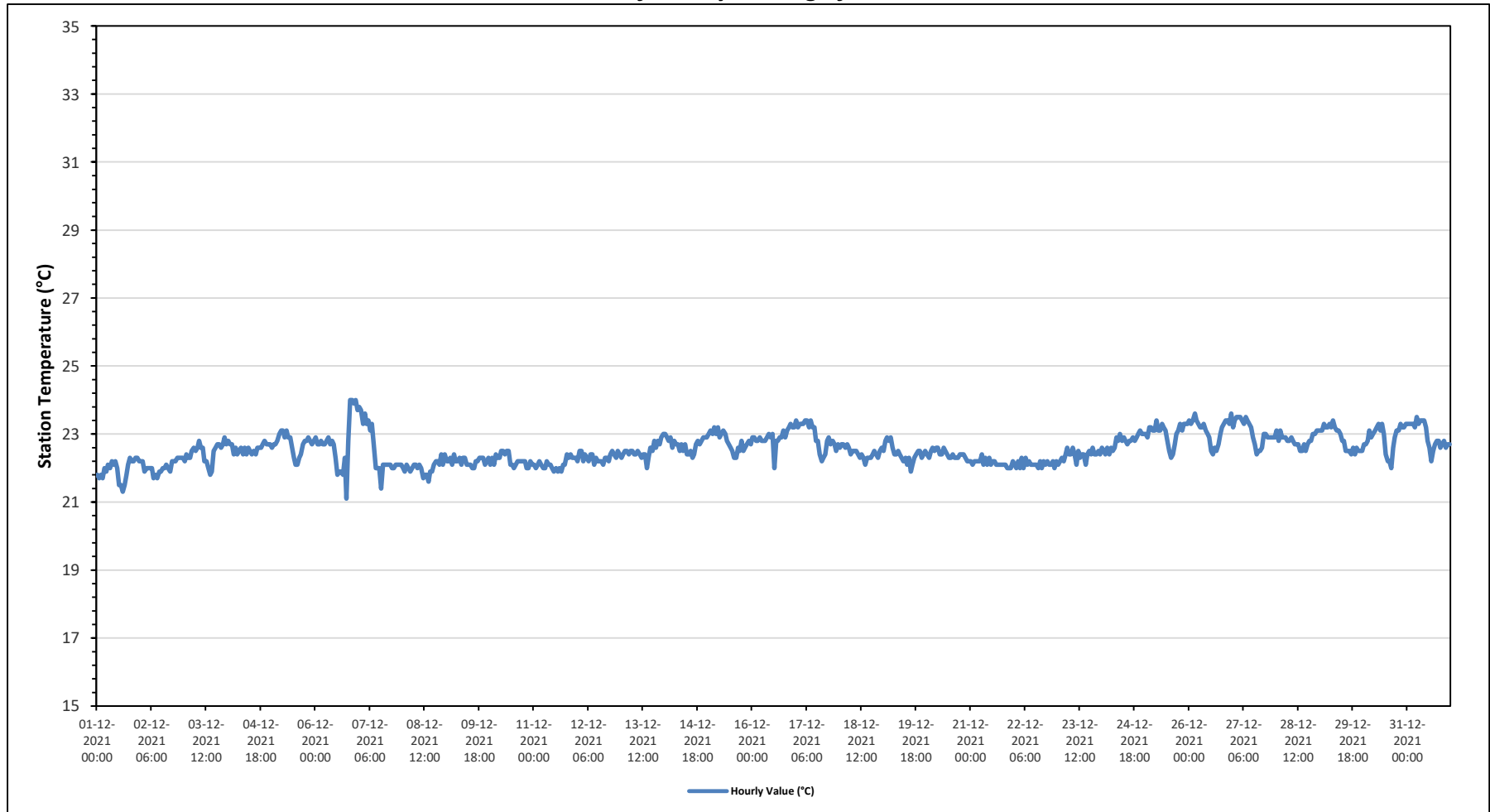
Maximum Hourly Value:	24.0	°C	on December 6 at hour 19	Hours in Service:	744
Maximum Daily Value:	23.1	°C	on December 26	Hours of Data:	744
Minimum Hourly Value:	21.1	°C	on December 6 at hour 17	Hours of Missing Data:	0
Minimum Daily Value:	21.9	°C	on December 1	Hours of Calibration:	0
Monthly Average:	22.6	°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
Dec 1	21.8	21.7	21.8	21.7	22.0	21.9	22.1	22.0	22.2	22.1	22.2	22.0	21.5	21.5	21.3	21.5	21.8	22.1	22.3	22.2	22.2	22.3	22.3	22.2	21.3	22.3	21.9
Dec 2	22.2	22.2	21.9	22.0	22.0	22.0	22.0	21.7	21.8	21.7	21.9	21.9	22.0	22.0	22.1	22.0	21.9	22.2	22.2	22.2	22.3	22.3	22.3	22.3	21.7	22.3	22.0
Dec 3	22.2	22.4	22.3	22.3	22.5	22.6	22.5	22.6	22.8	22.6	22.6	22.2	22.2	22.0	21.8	21.9	22.5	22.6	22.7	22.7	22.6	22.7	22.9	22.7	21.8	22.9	22.5
Dec 4	22.8	22.7	22.7	22.4	22.6	22.4	22.5	22.6	22.4	22.6	22.4	22.6	22.5	22.4	22.5	22.4	22.6	22.6	22.6	22.7	22.8	22.7	22.7	22.7	22.4	22.8	22.6
Dec 5	22.6	22.7	22.7	22.8	23.0	23.1	23.1	22.9	23.1	22.9	22.9	22.6	22.3	22.1	22.1	22.3	22.4	22.7	22.8	22.8	22.9	22.8	22.7	22.8	22.1	23.1	22.7
Dec 6	22.9	22.7	22.7	22.8	22.7	22.7	22.8	22.9	22.7	22.8	22.7	22.3	21.8	21.9	21.9	21.8	22.3	21.1	22.8	24.0	24.0	23.9	24.0	23.7	21.1	24.0	22.7
Dec 7	23.8	23.7	23.3	23.6	23.3	23.4	23.1	23.3	22.7	22.0	22.0	22.0	21.4	22.1	22.1	22.1	22.1	22.1	22.0	22.0	22.1	22.1	22.1	21.4	23.8	22.5	
Dec 8	22.0	21.9	22.1	22.0	21.9	22.0	22.1	22.1	22.0	22.1	22.0	21.7	21.8	21.8	21.6	21.9	21.9	22.1	22.2	22.2	22.1	22.4	22.1	22.4	21.6	22.4	22.0
Dec 9	22.2	22.2	22.3	22.1	22.4	22.2	22.2	22.3	22.1	22.3	22.3	22.1	22.1	22.1	22.0	22.0	22.2	22.2	22.3	22.3	22.3	22.1	22.2	22.3	22.0	22.4	22.2
Dec 10	22.1	22.3	22.1	22.4	22.3	22.3	22.5	22.5	22.4	22.5	22.5	22.1	22.1	22.0	22.1	22.2	22.2	22.2	22.2	22.2	22.0	22.0	22.2	22.1	22.0	22.5	22.2
Dec 11	22.1	22.0	22.1	22.2	22.1	22.0	22.0	22.2	22.1	22.1	22.0	21.9	22.0	21.9	22.0	21.9	22.1	22.1	22.4	22.3	22.4	22.3	22.3	21.9	22.4	22.1	22.1
Dec 12	22.2	22.5	22.5	22.2	22.4	22.3	22.2	22.4	22.4	22.1	22.3	22.2	22.2	22.2	22.1	22.3	22.3	22.2	22.4	22.5	22.4	22.3	22.5	22.4	22.1	22.5	22.3
Dec 13	22.3	22.4	22.5	22.5	22.4	22.5	22.5	22.4	22.4	22.5	22.4	22.3	22.4	22.4	22.0	22.3	22.6	22.5	22.8	22.6	22.8	22.7	22.9	23.0	22.0	23.0	22.5
Dec 14	23.0	22.9	22.8	22.9	22.6	22.8	22.7	22.7	22.5	22.7	22.5	22.7	22.4	22.4	22.5	22.3	22.4	22.7	22.8	22.7	22.8	22.9	22.9	22.9	22.3	23.0	22.7
Dec 15	23.0	23.1	23.0	23.2	23.0	23.2	22.9	23.0	23.1	23.0	22.8	22.7	22.6	22.5	22.3	22.3	22.6	22.5	22.8	22.5	22.6	22.7	22.8	22.7	22.3	23.2	22.8
Dec 16	22.9	22.9	22.8	22.8	22.9	22.8	22.8	22.8	22.9	23.0	22.9	23.0	22.0	22.8	22.8	22.9	22.9	23.1	22.9	23.1	23.2	23.3	23.2	23.2	22.0	23.3	22.9
Dec 17	23.4	23.2	23.3	23.3	23.3	23.4	23.4	23.2	23.4	23.2	23.2	22.8	22.8	22.4	22.2	22.3	22.4	22.8	22.9	22.7	22.8	22.7	22.5	22.2	22.2	23.4	22.9
Dec 18	22.6	22.7	22.7	22.6	22.7	22.6	22.4	22.5	22.5	22.5	22.4	22.3	22.4	22.3	22.1	22.3	22.3	22.3	22.4	22.5	22.4	22.3	22.5	22.6	22.1	22.7	22.5
Dec 19	22.5	22.8	22.9	22.8	22.9	22.6	22.4	22.4	22.5	22.4	22.3	22.2	22.3	22.1	22.3	21.9	22.1	22.3	22.4	22.5	22.5	22.3	22.4	22.5	21.9	22.9	22.4
Dec 20	22.4	22.3	22.5	22.6	22.5	22.6	22.6	22.4	22.4	22.6	22.5	22.4	22.3	22.3	22.4	22.3	22.3	22.3	22.4	22.4	22.4	22.3	22.2	22.2	22.2	22.6	22.4
Dec 21	22.2	22.1	22.2	22.2	22.2	22.2	22.4	22.1	22.3	22.1	22.3	22.1	22.2	22.2	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.0	22.0	22.0	22.4	22.2
Dec 22	22.1	22.0	22.2	22.0	22.3	22.0	22.3	22.1	22.2	22.1	22.1	22.1	22.1	22.0	22.2	22.0	22.2	22.1	22.2	22.1	22.1	22.1	22.0	22.2	22.0	22.3	22.1
Dec 23	22.1	22.2	22.3	22.2	22.4	22.6	22.4	22.4	22.6	22.4	22.1	22.5	22.3	22.4	22.4	22.1	22.4	22.5	22.4	22.6	22.4	22.4	22.5	22.4	22.1	22.6	22.4
Dec 24	22.6	22.5	22.4	22.6	22.4	22.6	22.5	22.6	22.9	22.8	23.0	22.8	22.9	22.8	22.7	22.8	22.8	22.9	22.8	22.9	23.0	23.1	23.0	23.0	22.4	23.1	22.8
Dec 25	23.0	22.9	23.2	23.2	23.1	23.1	23.4	23.1	23.1	23.3	23.2	23.1	22.8	22.5	22.3	22.4	22.7	23.0	23.1	23.3	23.1	23.3	23.3	23.3	22.3	23.4	23.0
Dec 26	23.4	23.3	23.4	23.6	23.4	23.3	23.2	23.2	23.3	23.1	23.0	22.9	22.5	22.4	22.6	22.5	22.7	23.0	23.2	23.3	23.4	23.4	23.3	23.6	22.4	23.6	23.1
Dec 27	23.2	23.4	23.5	23.5	23.5	23.4	23.3	23.5	23.4	23.3	23.2	22.9	22.7	22.4	22.5	22.5	22.6	23.0	23.0	22.9	22.9	22.9	22.9	22.9	22.4	23.5	23.1
Dec 28	23.1	22.8	23.1	22.9	22.9	22.9	22.8	22.8	22.9	22.8	22.7	22.7	22.5	22.5	22.7	22.5	22.7	22.8	22.8	23.0	23.0	23.1	23.1	22.5	23.1	22.8	
Dec 29	23.1	23.1	23.3	23.2	23.2	23.3	23.2	23.4	23.2	23.1	23.1	23.0	22.8	22.8	22.5	22.5	22.5	22.4	22.6	22.4	22.6	22.5	22.5	22.5	22.4	23.4	22.9
Dec 30	22.7	22.7	22.8	23.1	22.9	23.0	23.1	23.2	23.3	23.1	23.3	23.0	22.4	22.2	22.2	22.0	22.6	22.9	23.1	23.1	23.3	23.2	23.2	22.0	23.3	22.9	
Dec 31	23.3	23.3	23.3	23.3	23.2	23.5	23.3	23.4	23.4	23.4	23.2	22.8	22.6	22.2	22.5	22.7	22.8	22.8	22.6	22.7	22.8	22.7	22.7	22.2	22.2	23.5	23.0
Diurnal Maximum	23.8	23.7	23.5	23.6	23.5	23.5	23.4	23.5	23.4	23.4	23.3	23.1	22.9	22.8	22.8	22.9	22.9	23.1	23.2	24.0	24.0	23.9	24.0	23.7			
Diurnal Average	22.6	22.6	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.6	22.6	22.4	22.3	22.2	22.2	22.2	22.4	22.5	22.6	22.6	22.7	22.6	22.7	22.7			

<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)
		<b>Q</b>	Quality Assurance
		<b>Y</b>	Routine Maintenance
		<b>P</b>	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 - 842b Station**





**PEACE RIVER AREA MONITORING PROGRAM**

**842b Station - December 2021**

**Summary of Hourly Averages**

**PRECIPITATION in mm**

Maximum Hourly Value:	0.1 mm on December 8 at hour 4	Hours in Service:	744
Maximum Daily Value:	0.2 mm on December 8	Hours of Data:	744
Minimum Hourly Value:	0.0 mm on December 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 mm on December 1	Hours of Calibration:	0
Monthly Total:	0.2 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
Dec 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
Dec 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
Dec 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
Dec 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 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
Dec 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 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
Dec 8	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	0.1	0.2
Dec 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
Dec 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
Dec 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
Dec 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
Dec 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
Dec 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
Dec 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
Dec 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
Dec 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
Dec 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
Dec 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
Dec 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
Dec 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
Dec 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 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
Dec 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 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
Dec 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
Dec 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
Dec 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
Dec 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Diurnal Maximum	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diurnal 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	0.0	0.0	0.0

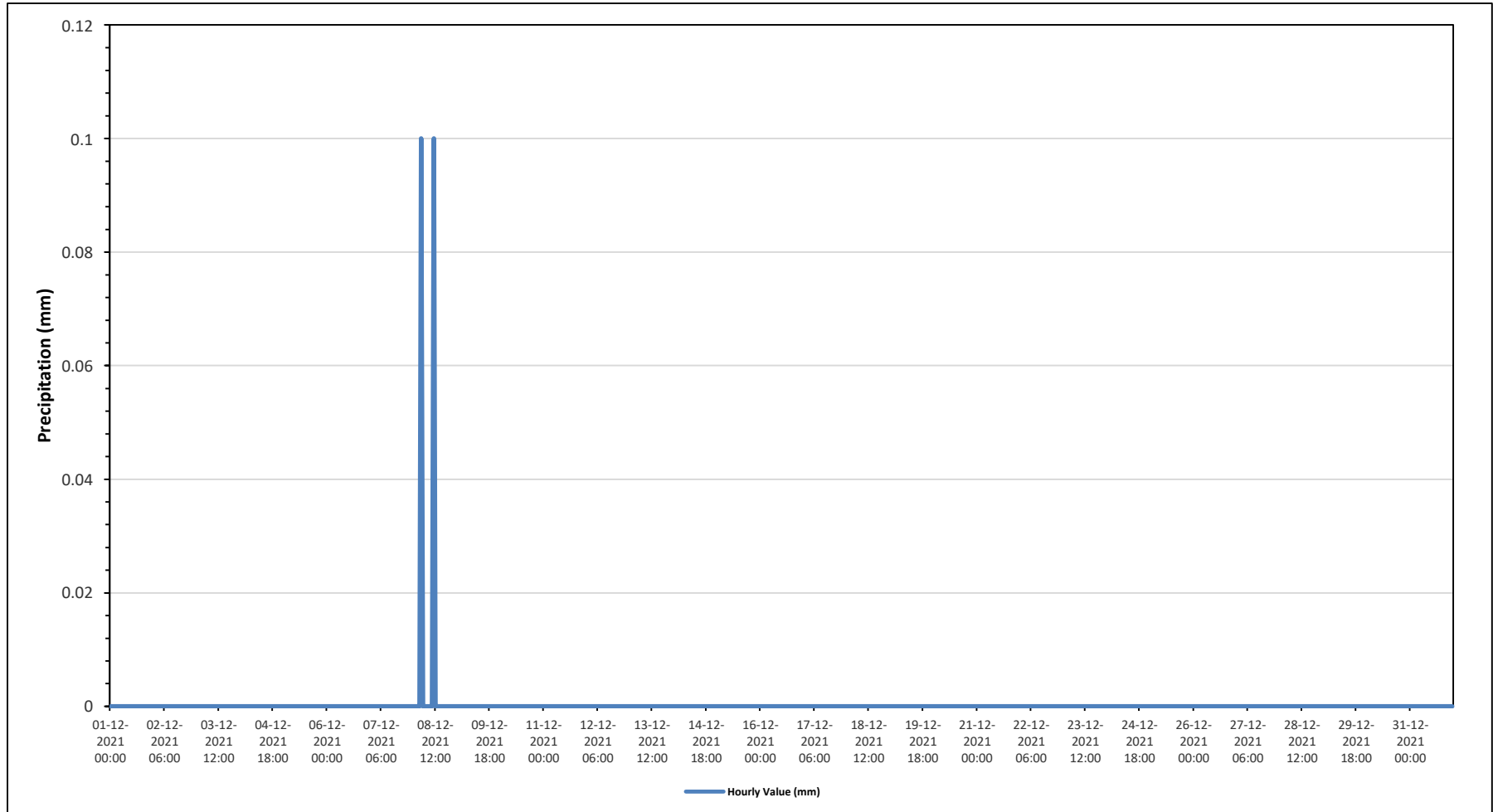
  

<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b>	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 - 842b Station**





**PEACE RIVER AREA MONITORING PROGRAM**

**842b Station - December 2021**

**Summary of Hourly Averages**

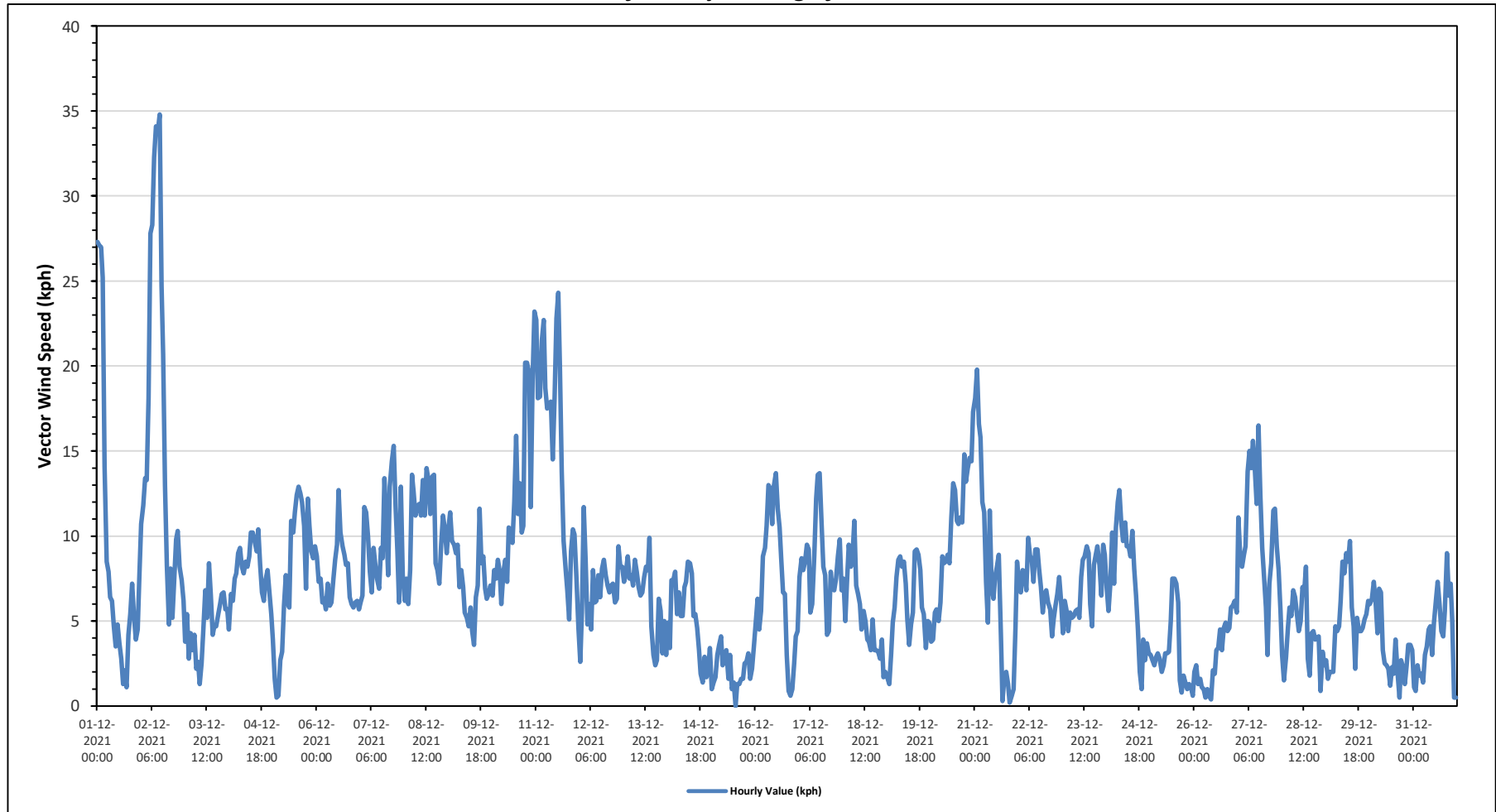
**VECTOR WIND SPEED (VWS) in km/hr**

Maximum Hourly Value:	34.8 kph	on December 2 at hour 10	Hours in Service:	744
Maximum Daily Value:	13.5 kph	on December 2	Hours of Data:	744
Minimum Hourly Value:	0.0 kph	on December 15 at hour 13	Hours of Missing Data:	0
Minimum Daily Value:	1.6 kph	on December 15	Hours of Calibration:	0
Monthly Average:	2.2 kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Dec 1	27.3	27.1	27.0	25.2	14.1	8.5	7.9	6.4	6.2	4.7	3.5	4.8	3.7	2.8	1.3	2.1	1.1	4.2	5.4	7.2	5.3	3.9	4.5	7.5	1.1	27.3	3.8
Dec 2	10.7	11.8	13.4	13.3	18.1	27.8	28.3	32.3	34.1	33.8	<b>34.8</b>	24.7	20.7	13.0	8.3	4.8	8.1	5.2	7.5	9.8	10.3	8.2	7.4	6.2	4.8	<b>34.8</b>	<b>13.5</b>
Dec 3	3.8	5.4	2.8	4.3	3.3	4.2	2.2	2.6	1.3	2.5	4.6	6.8	5.2	8.4	6.5	4.2	4.7	4.7	5.4	6.0	6.6	6.7	5.7	5.7	1.3	8.4	3.7
Dec 4	4.5	6.6	6.2	7.5	7.8	9.0	9.3	8.2	7.8	8.5	8.2	8.8	10.2	10.2	9.7	9.1	10.4	8.3	6.7	6.2	7.4	8.0	6.7	5.4	4.5	10.4	7.6
Dec 5	3.9	1.6	0.5	0.6	2.7	3.2	5.9	7.7	6.1	5.8	10.9	10.2	11.4	12.4	12.9	12.5	12.0	10.6	6.9	12.2	10.6	9.1	8.7	9.4	0.5	12.9	6.9
Dec 6	8.8	7.3	7.5	6.1	6.3	5.7	7.2	5.9	6.1	7.4	8.6	9.5	12.7	10.2	9.4	8.9	8.3	8.4	6.4	6.0	5.8	6.1	6.2	5.7	5.7	12.7	7.1
Dec 7	6.1	6.5	11.7	11.4	10.0	7.9	6.7	9.3	8.4	7.5	6.9	9.3	8.7	13.4	10.7	7.7	12.9	14.4	15.3	11.8	9.1	6.1	12.9	7.7	6.1	15.3	9.0
Dec 8	6.2	7.5	6.0	8.0	13.6	12.6	11.2	11.8	11.9	11.2	13.3	11.2	14.0	13.3	11.3	13.5	13.6	8.4	8.0	7.2	9.5	11.2	10.4	9.0	6.0	14.0	9.3
Dec 9	10.5	11.4	9.7	9.5	9.0	9.5	7.0	8.0	7.0	5.5	5.2	4.7	5.8	4.4	3.6	6.4	7.1	11.6	8.4	8.8	6.9	6.3	6.6	7.1	3.6	11.6	7.3
Dec 10	6.5	8.0	7.5	8.6	7.9	6.0	7.9	8.6	7.3	10.5	10.2	9.6	12.0	15.9	11.3	13.1	10.2	10.6	20.2	20.2	19.6	11.7	19.2	23.2	6.0	23.2	11.2
Dec 11	22.7	18.1	18.2	21.5	22.7	18.7	17.5	17.8	17.9	14.5	18.1	22.8	24.3	20.0	13.8	9.7	8.0	6.8	5.1	9.1	10.4	10.1	7.7	4.6	4.6	24.3	12.2
Dec 12	2.6	5.5	11.7	8.6	4.8	6.0	4.5	8.0	6.1	6.2	7.7	6.4	8.1	8.6	7.7	7.1	6.7	7.1	7.2	6.1	6.3	9.4	8.2	8.2	2.6	11.7	3.9
Dec 13	7.3	7.7	8.8	7.5	7.7	7.1	8.6	7.9	7.0	6.5	6.7	7.6	8.2	8.0	9.9	4.7	3.0	2.4	2.7	6.3	5.6	3.1	5.0	3.0	2.4	9.9	6.1
Dec 14	4.9	3.4	7.4	7.4	7.9	5.4	6.7	5.3	5.3	7.0	7.3	8.5	8.4	7.8	5.3	5.4	4.6	3.3	1.9	1.4	2.9	1.7	2.1	3.4	1.4	8.5	4.9
Dec 15	1.0	1.4	1.7	3.0	3.6	4.1	2.4	2.7	3.3	1.6	3.0	1.0	1.4	<b>0.0</b>	1.3	1.3	1.6	1.6	2.5	2.6	3.1	1.6	2.2	3.5	<b>0.0</b>	4.1	<b>1.6</b>
Dec 16	4.9	6.3	4.5	5.6	8.8	9.3	10.6	13.0	12.8	10.7	12.9	13.7	11.6	10.5	8.7	6.7	6.6	3.0	0.9	0.6	1.0	2.5	4.1	4.4	0.6	13.7	6.0
Dec 17	7.6	8.7	8.0	8.5	9.5	9.2	5.5	6.0	8.9	12.2	13.6	13.7	10.9	8.2	7.7	4.2	4.4	7.9	6.9	6.8	7.5	8.8	9.8	6.8	4.2	13.7	7.8
Dec 18	7.5	5.0	7.2	9.5	8.2	9.1	10.9	7.1	6.6	6.0	4.5	5.6	5.0	3.9	3.8	3.3	5.1	3.3	3.3	3.2	2.8	3.9	1.7	2.0	1.7	10.9	3.3
Dec 19	1.7	1.3	3.1	4.9	5.8	7.6	8.6	8.8	8.2	8.5	7.2	5.1	3.6	4.8	5.5	9.1	9.2	8.9	8.0	5.8	5.4	3.4	5.0	4.9	1.3	9.2	5.3
Dec 20	3.8	3.9	5.5	5.7	5.0	6.1	8.8	8.4	8.5	8.9	8.4	11.1	13.1	12.7	10.9	10.7	11.1	10.8	14.8	13.2	14.0	14.6	14.4	17.3	3.8	17.3	9.7
Dec 21	18.1	19.8	16.6	15.8	12.0	11.4	7.3	4.9	11.5	7.0	6.3	7.6	8.2	8.9	4.2	0.3	1.7	2.0	1.3	0.2	0.6	1.0	4.6	8.5	0.2	19.8	5.9
Dec 22	7.3	6.7	8.0	7.9	6.8	9.9	8.8	8.7	7.3	9.2	9.2	8.1	7.0	5.5	6.6	6.8	6.1	5.7	4.1	5.1	5.9	6.6	7.6	6.2	4.1	9.9	6.9
Dec 23	4.3	6.2	5.6	4.4	5.5	5.2	5.3	5.6	5.7	5.2	7.6	8.6	8.8	9.4	9.0	6.0	4.7	8.3	8.9	9.4	8.3	6.5	9.5	8.9	4.3	9.5	6.9
Dec 24	7.0	5.6	7.2	10.2	7.2	10.5	12.0	12.7	10.8	9.7	10.8	9.4	9.4	8.8	10.3	8.1	6.5	4.5	2.0	1.0	3.9	2.7	3.7	3.1	1.0	12.7	7.3
Dec 25	3.0	2.7	2.4	2.9	3.1	2.8	2.0	2.4	3.1	3.1	3.2	5.0	7.5	7.5	7.2	6.1	1.5	0.8	1.8	1.4	1.0	1.3	1.1	0.6	0.6	7.5	2.6
Dec 26	2.0	2.4	1.3	1.6	1.1	1.0	0.5	1.0	0.6	0.4	2.1	1.9	3.3	3.4	4.5	3.3	4.6	4.9	4.4	4.6	5.8	5.9	6.2	5.5	0.4	6.2	2.4
Dec 27	11.1	8.8	8.2	8.9	9.4	13.8	15.0	14.0	15.6	14.0	11.9	16.5	12.4	9.3	7.6	5.8	3.0	7.2	8.4	11.5	11.6	9.4	8.0	5.6	3.0	16.5	9.6
Dec 28	3.0	1.5	2.9	4.6	5.8	5.3	6.8	6.4	5.4	4.4	5.0	7.0	6.6	8.2	2.8	1.8	4.3	4.4	3.9	4.0	4.1	0.9	3.2	2.4	0.9	8.2	3.9
Dec 29	2.7	1.6	2.0	2.0	2.0	4.7	4.4	4.7	6.2	8.5	7.8	9.0	8.5	9.7	5.8	4.7	2.2	5.2	4.4	4.4	4.6	5.1	5.4	6.2	1.6	9.7	3.5
Dec 30	6.0	6.3	7.3	6.1	4.3	6.9	6.7	3.3	2.5	2.4	2.2	1.2	2.3	1.9	3.9	1.9	0.5	2.7	2.3	1.3	2.4	3.6	3.6	3.3	0.5	7.3	1.8
Dec 31	1.1	0.9	2.4	1.8	1.9	1.4	3.0	3.5	4.5	4.7	3.0	4.9	6.3	7.3	6.0	4.4	4.1	5.6	9.0	6.5	7.2	5.0	0.5	0.5	0.5	9.0	3.7
Diurnal Maximum	27	27	27	25	23	28	28	32	34	34	35	25	24	20	14	14	14	14	20	20	20	15	19	23			
Diurnal Average	7.0	7.0	7.5	7.8	7.6	8.1	8.0	8.2	8.2	8.0	8.5	8.8	9.0	8.7	7.3	6.2	6.1	6.2	6.3	6.4	6.6	5.9	6.5	6.3			
<b>C</b>	Monthly Calibration					<b>S</b>	Daily Zero-Span Check					<b>Q</b>	Quality Assurance														
<b>K</b>	Collection Error					<b>N</b>	No Data (Machine Not in Service)					<b>Y</b>	Routine Maintenance					<b>P</b>	Power Failure								
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)					<b>NRM</b>	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.																											

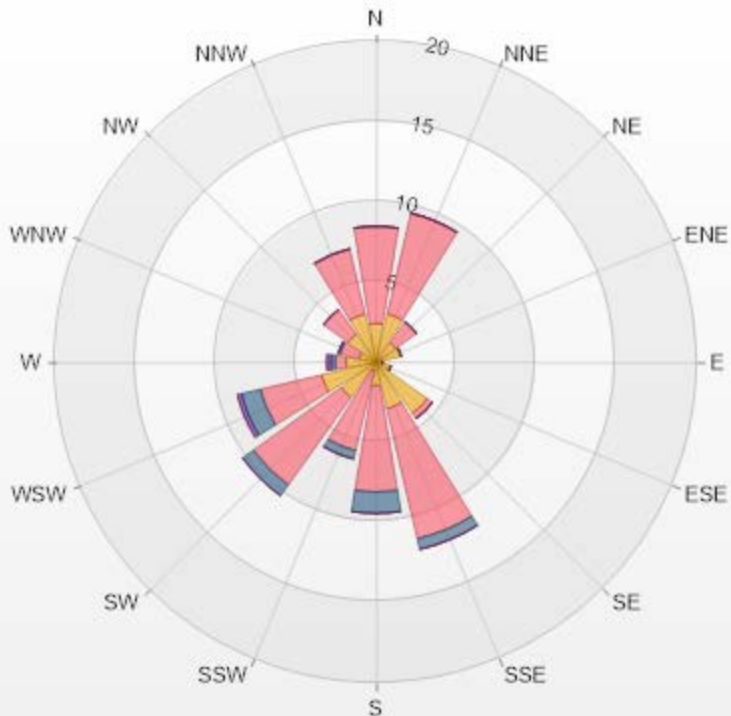
*Timeseries Chart of Hourly Average for VWS - 842b Station*



Wind: PRAMP 842b Monitor: WDS [KPH] Monthly: 12-2021 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.

Calm: 8.20% 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	2.42	6.05	0	0	0	8.47
NNE	3.09	6.45	0	0	0	9.54
NE	1.48	1.61	0	0	0	3.09
ENE	1.61	0	0	0	0	1.61
E	0.4	0	0	0	0	0.4
ESE	0.94	0	0	0	0	0.94
SE	3.9	0.4	0	0	0	4.3
SSE	2.96	8.33	0.67	0	0	11.96
S	1.48	6.59	1.34	0	0	9.41
SSW	0.54	5.11	0.54	0	0	6.19
SW	2.69	6.72	0.81	0	0	10.22
WSW	3.49	3.9	1.21	0.27	0	8.87
W	1.88	0.67	0.27	0.27	0	3.09
WNW	1.08	1.21	0.13	0	0	2.42
NW	2.15	1.88	0	0	0	4.03
NNW	3.09	4.17	0	0	0	7.26
Summary	33.2	53.09	4.97	0.54	0	91.8



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% Icon Classes (KPH)	33	1.8-6.0	53	6.0-15.0	5	15.0-29.0	1	29.0-39.0	0	>39.0
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**PEACE RIVER AREA MONITORING PROGRAM**

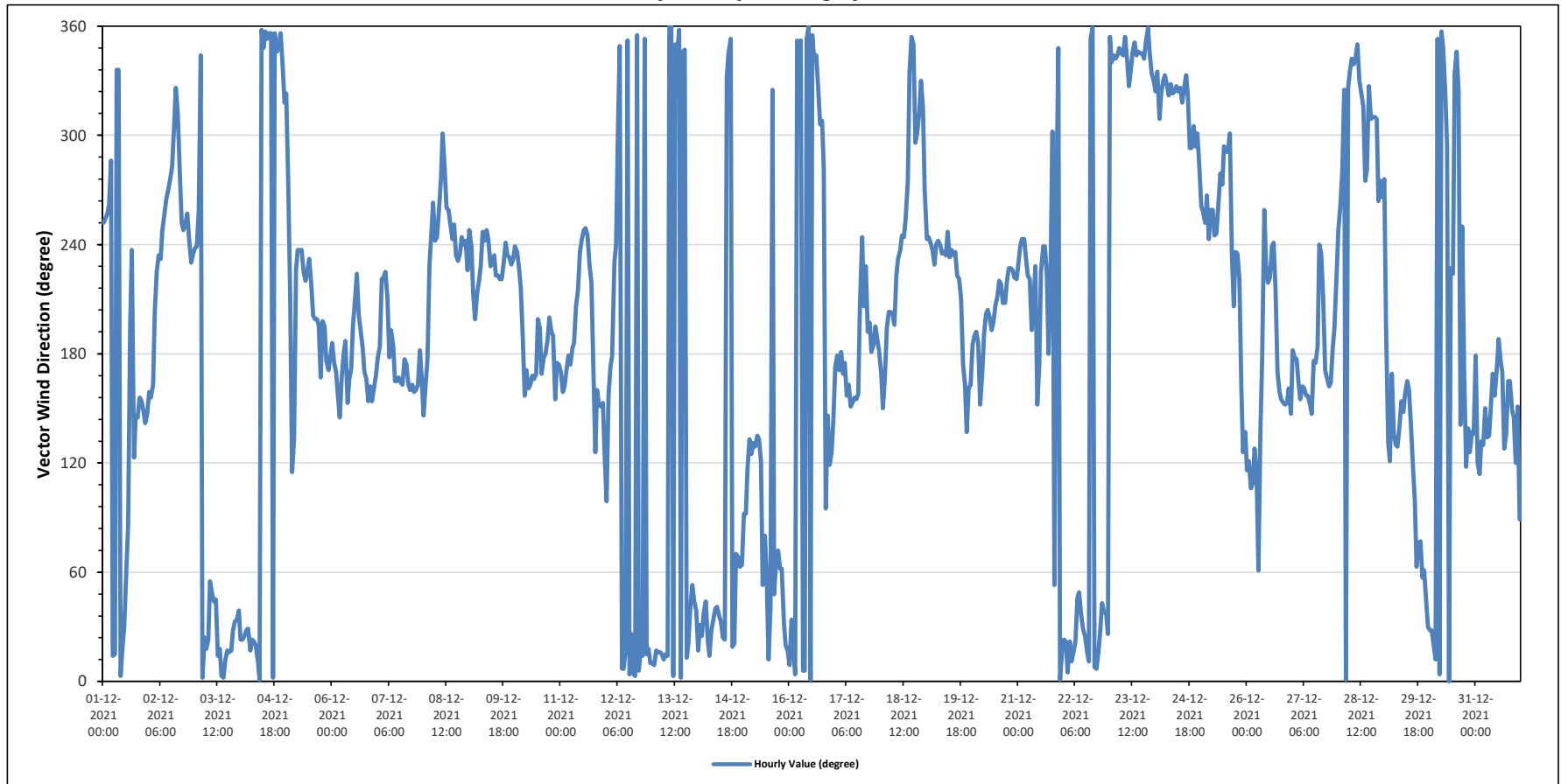
**842b Station - December 2021**

**Summary of Hourly Averages**

**WIND DIRECTION (VWD) in sector**

Monthly Average:		225 (SW) degree														Hours in Service:		744																	
																Hours of Data:		744																	
																Hours of Missing Data:		0																	
																Hours of Calibration:		0																	
																Operational Uptime:		100.0																	
Day	Hourly Period Starting at (MST)																							Daily Average											
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant									
Dec 1	WSW	WSW	WSW	W	WNW	NNE	NNE	NNW	NNW	N	NNE	NNE	ENE	E	S	SW	ESE	SE	SE	SSE	SSE	SSE	SE	SE	250	WSW									
Dec 2	SSE	SSE	SSE	SSW	SW	SW	SW	WSW	WSW	W	W	W	W	WNW	NW	NW	W	WSW	WSW	WSW	WSW	WSW	SW	SW	250	WSW									
Dec 3	SW	WSW	WSW	NNW	N	NNE	NNE	NNE	NE	NE	NE	NE	NNE	NNE	N	N	NNE	NNE	NNE	NNE	NNE	NE	NE	17	NNE										
Dec 4	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	NNW	N	N	N	N	N	N	NNW	NNW	N	NNW	NW	4	N										
Dec 5	NW	W	SSW	ESE	SE	SW	SW	SW	SW	SW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSE	SSW	SSW	S	S	206	SSW										
Dec 6	S	S	SSE	SSE	SE	SSE	S	S	SSE	SSE	S	SSW	SSW	SW	SSW	S	S	SSE	SSE	SSE	SSE	SSE	SSE	178	S										
Dec 7	S	S	SW	SW	SW	SSW	S	S	S	SSE	SSE	SSE	SSE	S	S	SSE	SSE	SSE	SSE	SSE	SSE	S	SSE	178	S										
Dec 8	SE	SSE	S	SW	WSW	W	WSW	WSW	WSW	W	WNW	W	WSW	WSW	WSW	WSW	WSW	SW	WSW	WSW	WSW	WSW	WSW	247	WSW										
Dec 9	WSW	WSW	SSW	SSW	SSW	SW	SW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	WSW	SW	SW	SW	SW	229	SW										
Dec 10	WSW	SW	SW	SW	S	SSE	S	SSE	SSE	SSE	SSE	SSE	SSW	SSW	SSE	S	S	S	SSW	S	S	SSE	S	184	S										
Dec 11	SSE	SSE	SSE	S	S	S	S	S	S	SSW	SSW	SW	WSW	WSW	WSW	WSW	SW	SW	S	SE	SSE	SSE	SSE	195	SSW										
Dec 12	E	SSE	S	S	SW	WSW	NW	NNW	N	N	NNE	N	N	NNE	N	N	N	N	NNE	NNE	N	NNE	NNE	6	N										
Dec 13	N	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	N	NNW	N	N	NNW	NNW	NNE	NNE	NE	NE	NE	10	N										
Dec 14	NNE	NNE	NNE	NE	NE	NNE	NNE	NNE	NE	NE	NE	NE	NNE	NNE	NNE	NNW	NNW	N	NNE	NNE	ENE	ENE	ENE	28	NNE										
Dec 15	E	E	ESE	SE	SE	SE	SE	SE	SE	ESE	NE	E	ENE	NNE	NE	NW	NE	ENE	ENE	ENE	NNE	NNE	NNE	86	E										
Dec 16	N	NE	NNE	N	N	NNW	N	N	N	N	N	N	N	NNW	NNW	NW	NW	W	E	SE	ESE	SE	SE	357	N										
Dec 17	S	S	S	S	SSE	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSW	WSW	SSW	SW	S	SSW	S	S	SSW	S	177	S										
Dec 18	SSE	SSE	SSE	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	WSW	WSW	WSW	W	NNW	N	N	WNW	WNW	NW	NNW	NW	225	SW										
Dec 19	WSW	WSW	WSW	SW	SW	WSW	WSW	WSW	SW	SW	SW	WSW	WSW	SW	SW	SW	SW	SW	SSW	S	SSE	SE	SSE	223	SW										
Dec 20	S	S	S	S	SSE	SSE	S	SSW	SSW	SSW	S	SSW	SSW	SSW	SW	SW	SSW	SSW	SW	SW	SW	SW	SW	209	SSW										
Dec 21	SW	WSW	WSW	WSW	SW	SW	SW	S	SSW	SW	SSE	S	SW	WSW	WSW	SW	S	SW	WNW	NE	W	NNW	N	229	SW										
Dec 22	NNE	NNE	N	NNE	NNE	NNE	NNE	NE	NE	NE	NNE	NNE	NNE	NNE	N	N	N	N	NNE	NNE	NE	NE	NE	23	NNE										
Dec 23	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	NNW	NW	NNW	NNW	N	NNW	NNW	NNW	NNW	NNW	N	N	NNW	NNW	344	NNW										
Dec 24	NW	NNW	NW	NW	NNW	NNW	NW	NW	NNW	NW	NW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	322	NW										
Dec 25	W	WSW	WSW	W	WSW	WSW	WSW	WSW	WSW	W	W	W	WNW	WNW	WNW	WNW	SW	SSW	SW	SW	SSE	SE	SE	269	W										
Dec 26	ESE	ESE	ESE	ESE	SE	ESE	ENE	SE	S	WSW	SW	SW	WSW	WSW	SSW	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	168	SSE										
Dec 27	S	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SE	S	S	S	WSW	SW	SSW	S	SSE	SSE	SSE	S	SSW	SW	172	S										
Dec 28	WSW	W	W	NW	N	NW	NNW	NNW	NNW	NNW	N	NNW	NW	NW	W	NW	NW	NW	NW	NW	NW	W	W	320	NW										
Dec 29	W	SSW	SE	ESE	SSE	SE	SE	SE	SE	SE	SSE	SSE	SSE	SE	ESE	E	ENE	ENE	ENE	ENE	ENE	NE	NNE	125	SE										
Dec 30	NNE	NNE	NNE	NNE	N	N	N	NNW	NW	WNW	N	SW	SW	NNW	NNW	NW	SE	WSW	SSE	ESE	SE	SE	SE	11	NNE										
Dec 31	S	ESE	ESE	SE	SE	SSE	SE	SE	SSE	SSE	S	S	S	S	SSE	SE	SE	SSE	SSE	SSE	SE	ESE	E	154	SSE										
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 - 842b Station**





**PEACE RIVER AREA MONITORING PROGRAM**

842b Station - December 2021

Summary of Hourly Averages

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

WIND SPEED																											
Maximum Hourly Value: 34.8 kph on December 2 at hour 10													Hours in Service: 744														
Maximum Daily Value: 13.5 kph on December 2													Hours of Data: 744														
Minimum Hourly Value: 0.0 kph on December 15 at hour 13													Hours of Missing Data: 0														
Minimum Daily Value: 1.6 kph on December 15													Hours of Calibration: 0														
Monthly Average: 2.2 kph													Operational Uptime: 100														
WIND DIRECTION																											
Monthly Average: 225 (SW) 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
Dec 1	27.3	27.1	27.0	25.2	14.1	8.5	7.9	6.4	6.2	4.7	3.5	4.8	3.7	2.8	1.3	2.1	1.1	4.2	5.4	7.2	5.3	3.9	4.5	7.5	1.1	27.3	3.8
Dec 2	10.7	11.8	13.4	13.3	18.1	27.8	28.3	32.3	34.1	33.8	34.8	24.7	20.7	13.0	8.3	4.8	8.1	5.2	7.5	9.8	10.3	8.2	7.4	6.2	4.8	34.8	13.5
Dec 3	3.8	5.4	2.8	4.3	3.3	4.2	2.2	2.6	1.3	2.5	4.6	6.8	5.2	8.4	6.5	4.2	4.7	4.7	5.4	6.0	6.6	6.7	5.7	5.7	1.3	8.4	3.7
Dec 4	4.5	6.6	6.2	7.5	7.8	9.0	9.3	8.2	7.8	8.5	8.2	8.8	10.2	10.2	9.7	9.1	10.4	8.3	6.7	6.2	7.4	8.0	6.7	5.4	4.5	10.4	7.6
Dec 5	3.9	1.6	0.5	0.6	2.7	3.2	5.9	7.7	6.1	5.8	10.9	10.2	11.4	12.4	12.9	12.5	12.0	10.6	6.9	12.2	10.6	9.1	8.7	9.4	0.5	12.9	6.9
Dec 6	8.8	7.3	7.5	6.1	6.3	5.7	7.2	5.9	6.1	7.4	8.6	9.5	12.7	10.2	9.4	8.9	8.3	8.4	6.4	6.0	5.8	6.1	6.2	5.7	5.7	12.7	7.1
Dec 7	6.1	6.5	11.7	11.4	10.0	7.9	6.7	9.3	8.4	7.5	6.9	9.3	8.7	13.4	10.7	7.7	12.9	14.4	15.3	11.8	9.1	6.1	12.9	7.7	6.1	15.3	9.0
Dec 8	6.2	7.5	6.0	8.0	13.6	12.6	11.2	11.8	11.9	11.2	13.3	11.2	14.0	13.3	11.3	13.5	13.6	8.4	8.0	7.2	9.5	11.2	10.4	9.0	6.0	14.0	9.3
Dec 9	10.5	11.4	9.7	9.5	9.0	9.5	7.0	8.0	7.0	5.5	5.2	4.7	5.8	4.4	3.6	6.4	7.1	11.6	8.4	8.8	6.9	6.3	6.6	7.1	3.6	11.6	7.3
Dec 10	6.5	8.0	7.5	8.6	7.9	6.0	7.9	8.6	7.3	10.5	10.2	9.6	12.0	15.9	11.3	13.1	10.2	10.6	20.2	20.2	19.6	11.7	19.2	23.2	6.0	23.2	11.2
Dec 11	22.7	18.1	18.2	21.5	22.7	18.7	17.5	17.8	17.9	14.5	18.1	22.8	24.3	20.0	13.8	9.7	8.0	6.8	5.1	9.1	10.4	10.1	7.7	4.6	4.6	24.3	12.2
Dec 12	2.6	5.5	11.7	8.6	4.8	6.0	4.5	8.0	6.1	6.2	7.7	6.4	8.1	8.6	7.7	7.1	6.7	7.1	7.2	6.1	6.3	9.4	8.2	8.2	2.6	11.7	3.9
Dec 13	7.3	7.7	8.8	7.5	7.7	7.1	8.6	7.9	7.0	6.5	6.7	7.6	8.2	8.0	9.9	4.7	3.0	2.4	2.7	6.3	5.6	3.1	5.0	3.0	2.4	9.9	6.1
Dec 14	4.9	3.4	7.4	7.4	7.9	5.4	6.7	5.3	7.0	7.3	8.5	8.4	7.8	5.3	5.4	4.6	3.3	1.9	1.4	2.9	1.7	2.1	3.4	1.4	8.5	4.9	
Dec 15	1.0	1.4	1.7	3.0	3.6	4.1	2.4	2.7	3.3	1.6	3.0	1.0	1.4	0.0	1.3	1.3	1.6	1.6	2.5	2.6	3.1	1.6	2.2	3.5	0.0	4.1	1.6
Dec 16	4.9	6.3	4.5	5.6	8.8	9.3	10.6	13.0	12.8	10.7	12.9	13.7	11.6	10.5	8.7	6.7	6.6	3.0	0.9	0.6	1.0	2.5	4.1	4.4	0.6	13.7	6.0
Dec 17	7.6	8.7	8.0	8.5	9.5	9.2	5.5	6.0	8.9	12.2	13.6	13.7	10.9	8.2	7.7	4.2	4.4	7.9	6.9	6.8	7.5	8.8	9.8	6.8	4.2	13.7	7.8
Dec 18	7.5	5.0	7.2	9.5	8.2	9.1	10.9	7.1	6.6	6.0	4.5	5.6	5.0	3.9	3.8	3.3	5.1	3.3	3.3	3.2	2.8	3.9	1.7	2.0	1.7	10.9	3.3
Dec 19	1.7	1.3	3.1	4.9	5.8	7.6	8.6	8.8	8.2	8.5	7.2	5.1	3.6	4.8	5.5	9.1	9.2	8.9	8.0	5.8	5.4	3.4	5.0	4.9	1.3	9.2	5.3
Dec 20	3.8	3.9	5.5	5.7	5.0	6.1	8.8	8.4	8.5	8.9	8.4	11.1	13.1	12.7	10.9	10.7	11.1	10.8	14.8	13.2	14.0	14.6	14.4	17.3	3.8	17.3	9.7





**PEACE RIVER AREA MONITORING PROGRAM**

**842b Station - December 2021**

**Summary of Hourly Averages**

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

WIND SPEED		Maximum Hourly Value: 34.8 kph on December 2 at hour 10		Hours in Service: 744																							
WIND DIRECTION		Maximum Daily Value: 13.5 kph on December 2		Hours of Data: 744																							
		Minimum Hourly Value: 0.0 kph on December 15 at hour 13		Hours of Missing Data: 0																							
		Minimum Daily Value: 1.6 kph on December 15		Hours of Calibration: 0																							
		Monthly Average: 2.2 kph		Operational Uptime: 100																							
		Monthly Average: 225 (SW) 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			
Dec 21	18.1	19.8	16.6	15.8	12.0	11.4	7.3	4.9	11.5	7.0	6.3	7.6	8.2	8.9	4.2	0.3	1.7	2.0	1.3	0.2	0.6	1.0	4.6	8.5	0.2	19.8	5.9
	SW	WSW	WSW	WSW	SW	SW	SW	S	SSW	SW	SSE	S	SW	WSW	WSW	SW	S	SW	WNW	NE	W	NNW	N	NNE			
Dec 22	7.3	6.7	8.0	7.9	6.8	9.9	8.8	8.7	7.3	9.2	9.2	8.1	7.0	5.5	6.6	6.8	6.1	5.7	4.1	5.1	5.9	6.6	7.6	6.2	4.1	9.9	6.9
	NNE	NNE	N	NNE	NNE	NNE	NNE	NE	NE	NE	NNE	NNE	NNE	NNE	N	N	N	N	NNE	NNE	NE	NE	NE	NNE			
Dec 23	4.3	6.2	5.6	4.4	5.5	5.2	5.3	5.6	5.7	5.2	7.6	8.6	8.8	9.4	9.0	6.0	4.7	8.3	8.9	9.4	8.3	6.5	9.5	8.9	4.3	9.5	6.9
	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	NNW	NW	NNW	NNW	N	NNW	NNW	NNW	NNW	NNW	N	N	NNW	NNW	NNW			
Dec 24	7.0	5.6	7.2	10.2	7.2	10.5	12.0	12.7	10.8	9.7	10.8	9.4	9.4	8.8	10.3	8.1	6.5	4.5	2.0	1.0	3.9	2.7	3.7	3.1	1.0	12.7	7.3
	NW	NNW	NW	NW	NNW	NNW	NW	NNW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	NW	WNW	WNW	WNW	WNW	WNW	W			
Dec 25	3.0	2.7	2.4	2.9	3.1	2.8	2.0	2.4	3.1	3.1	3.2	5.0	7.5	7.5	7.2	6.1	1.5	0.8	1.8	1.4	1.0	1.3	1.1	0.6	0.6	7.5	2.6
	W	WSW	WSW	W	WSW	WSW	WSW	WSW	W	W	W	WNW	WNW	WNW	WNW	SW	SSW	SW	SW	SW	SW	SSE	SE	SE			
Dec 26	2.0	2.4	1.3	1.6	1.1	1.0	0.5	1.0	0.6	0.4	2.1	1.9	3.3	3.4	4.5	3.3	4.6	4.9	4.4	4.6	5.8	5.9	6.2	5.5	0.4	6.2	2.4
	ESE	ESE	ESE	ESE	SE	ESE	ENE	SE	S	WSW	SW	SW	SW	WSW	WSW	SSW	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE			
Dec 27	11.1	8.8	8.2	8.9	9.4	13.8	15.0	14.0	15.6	14.0	11.9	16.5	12.4	9.3	7.6	5.8	3.0	7.2	8.4	11.5	11.6	9.4	8.0	5.6	3.0	16.5	9.6
	S	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SE	S	S	S	WSW	SW	SSW	S	SSE	SSE	SSE	SSE	S	SSW	SW			
Dec 28	3.0	1.5	2.9	4.6	5.8	5.3	6.8	6.4	5.4	4.4	5.0	7.0	6.6	8.2	2.8	1.8	4.3	4.4	3.9	4.0	4.1	0.9	3.2	2.4	0.9	8.2	3.9
	WSW	W	W	NW	N	NW	NNW	NNW	NNW	NNW	N	NNW	NW	NW	W	W	NW	NW	NW	NW	NW	W	W	W			
Dec 29	2.7	1.6	2.0	2.0	2.0	4.7	4.4	4.7	6.2	8.5	7.8	9.0	8.5	9.7	5.8	4.7	2.2	5.2	4.4	4.4	4.6	5.1	5.4	6.2	1.6	9.7	3.5
	W	SSW	SE	ESE	SSE	SE	SE	SE	SE	SSE	SE	SSE	SSE	SSE	SE	ESE	E	ENE	ENE	ENE	ENE	ENE	NE	NNE			
Dec 30	6.0	6.3	7.3	6.1	4.3	6.9	6.7	3.3	2.5	2.4	2.2	1.2	2.3	1.9	3.9	1.9	0.5	2.7	2.3	1.3	2.4	3.6	3.3	3.3	0.5	7.3	1.8
	NNE	NNE	NNE	NNE	N	N	N	NNW	NW	WNW	N	SW	SW	NNW	NNW	NW	SE	WSW	SSE	ESE	SE	SE	SE	SE			
Dec 31	1.1	0.9	2.4	1.8	1.9	1.4	3.0	3.5	4.5	4.7	3.0	4.9	6.3	7.3	6.0	4.4	4.1	5.6	9.0	6.5	7.2	5.0	0.5	0.5	0.5	9.0	3.7
	S	ESE	ESE	SE	SE	SSE	SE	SE	SSE	SSE	SSE	S	S	S	SSE	SE	SE	SSE	SSE	SSE	SE	ESE	SSE	E			
<b>C</b>	Monthly Calibration										<b>S</b> Daily Zero-Span Check										<b>Q</b> Quality Assurance						
<b>K</b>	Collection Error										<b>N</b> No Data (Machine Not in Service)										<b>Y</b> Routine Maintenance			<b>P</b> Power Failure			
<b>X</b>	Invalid Data (Equipment Malfunction/Recovery)										<b>NRM</b> 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.																											

## RENO STATION



# PEACE RIVER AREA MONITORING PROGRAM

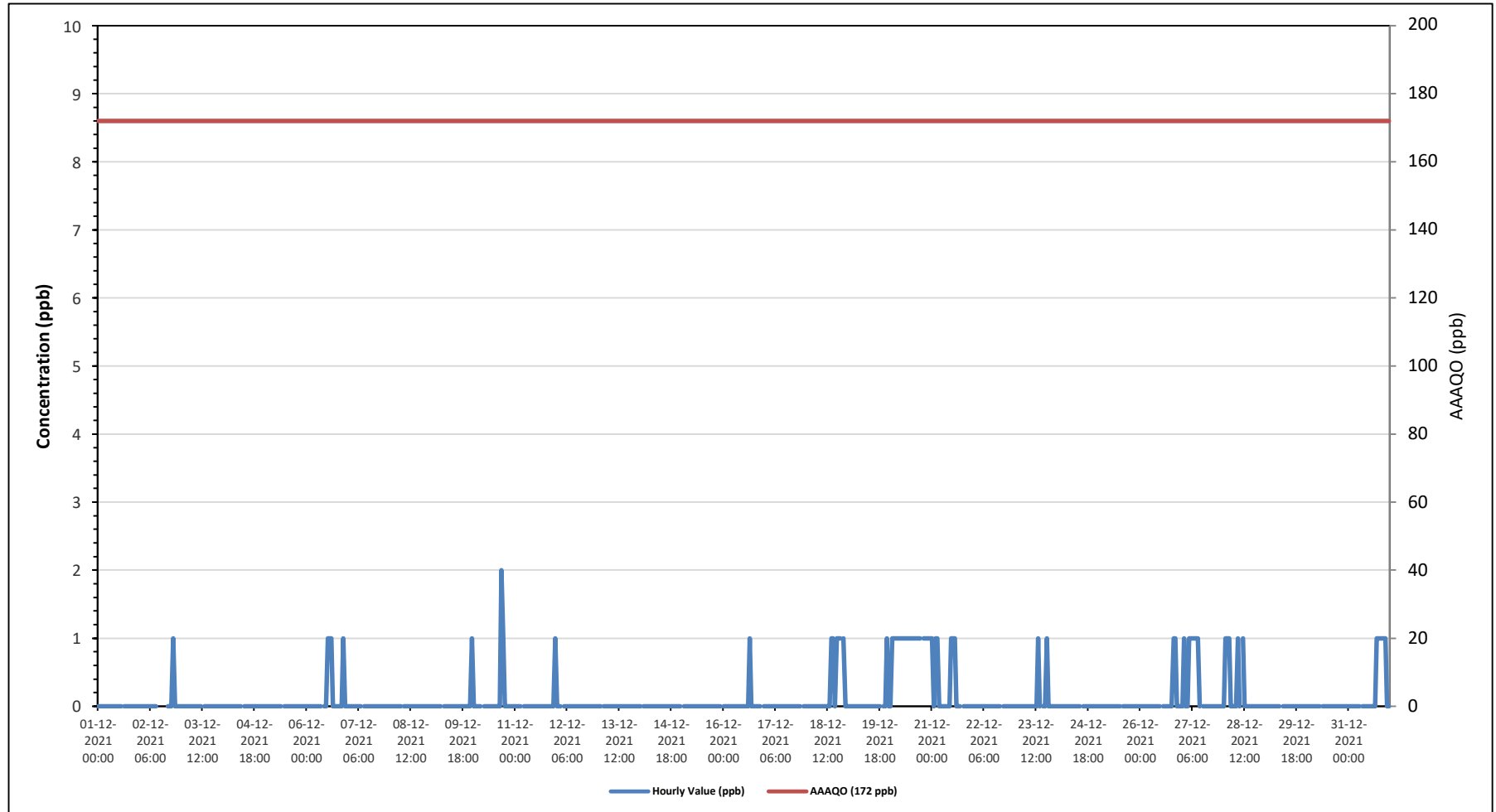
Reno Station - December 2021  
Summary of Hourly Averages

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

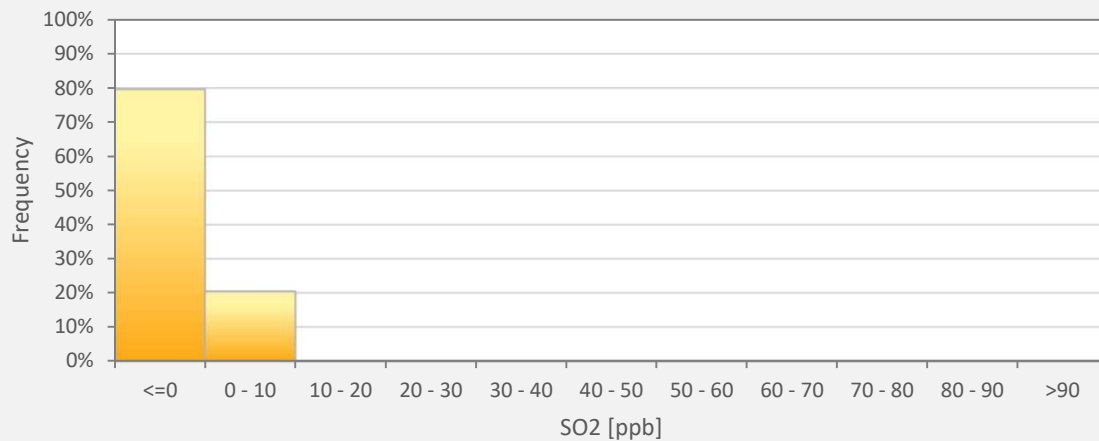
Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																																																
Number of 1-Hour Exceedances:							0							Number of 24-Hour Exceedances:							0			30-Day Exceedance:			0																					
Maximum Hourly Value:														2 ppb		on December 10 at hour 16						Hours in Service:			744																							
Maximum Daily Value:														1.0 ppb		on December 20						Hours of Data:			707																							
Minimum Hourly Value:														0 ppb		on December 1 at hour 0						Hours of Missing Data:			0																							
Minimum Daily Value:														0.0 ppb		on December 1						Hours of Calibration:			37																							
Monthly Average:														0.1 ppb								Operational Uptime:			100.0																							
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average																						
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23																								
Dec 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	0	0.0																		
Dec 2	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	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							
Dec 3	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Dec 4	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	0	0	0	0	0	0	0.0						
Dec 5	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	0	0	0	0	0	0	0.0						
Dec 6	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2					
Dec 7	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	0	0	0	0	0	0	0	0.0					
Dec 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0					
Dec 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0.0				
Dec 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	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	0.1				
Dec 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0.0				
Dec 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Dec 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Dec 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Dec 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Dec 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Dec 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Dec 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0		
Dec 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0		
Dec 20	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1.0		
Dec 21	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3		
Dec 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Dec 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
Dec 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Dec 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Dec 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Dec 27	0	1	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3
Dec 28	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2
Dec 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Dec 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Dec 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Diurnal Maximum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0		
Diurnal Average	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3		
<b>C</b>	Monthly Calibration													<b>S</b>	Daily Zero-Span Check						<b>Q</b>	Quality Assurance																										
<b>K</b>	Collection Error													<b>N</b>	No Data (Machine Not in Service)						<b>Y</b>	Routine Maintenance				<b>P</b>	Power Failure																					
<b>X</b>	Invalid Data (Equipment Malfunction /Recovery)													<b>NRM</b>	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 - Reno Station**



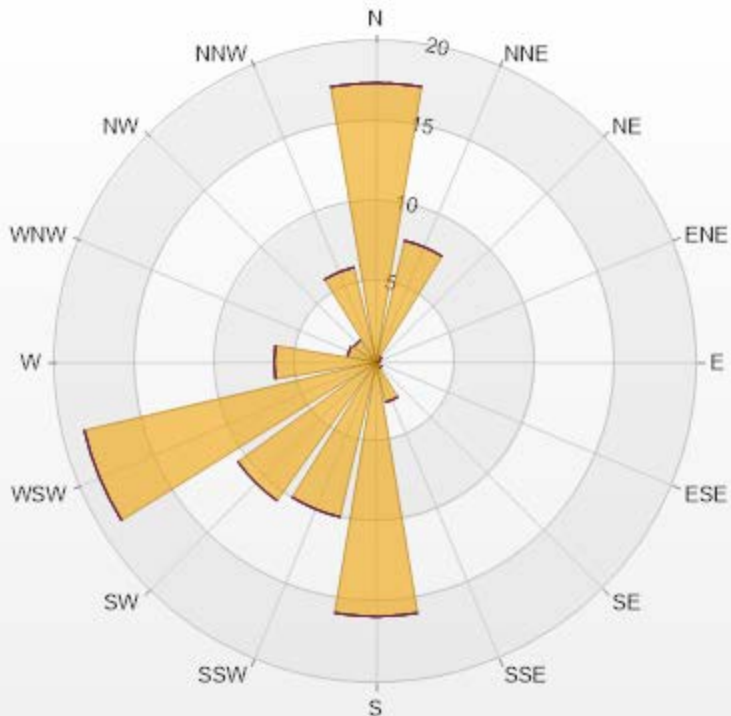
SO2[ppb] Histogram: PRAMP RENO Monthly: 12-2021 1 Hr.



Classes	SO2
<=0	79.63%
0 - 10	20.37%
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: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 95.03% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	17.4	0	0	0	0	17.4
NNE	7.78	0	0	0	0	7.78
NE	0.42	0	0	0	0	0.42
ENE	0.28	0	0	0	0	0.28
E	0.14	0	0	0	0	0.14
ESE	0	0	0	0	0	0
SE	0.42	0	0	0	0	0.42
SSE	2.55	0	0	0	0	2.55
S	15.84	0	0	0	0	15.84
SSW	9.9	0	0	0	0	9.9
SW	10.61	0	0	0	0	10.61
WSW	18.67	0	0	0	0	18.67
W	6.36	0	0	0	0	6.36
WNW	1.84	0	0	0	0	1.84
NW	1.7	0	0	0	0	1.7
NNW	6.08	0	0	0	0	6.08
Summary	100	0	0	0	0	100



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% 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 - December 2021**

**Summary of Hourly Averages**

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

Maximum Hourly Value:	0.69 ppb on December 15 at hour 1	Hours in Service:	744
Maximum Daily Value:	0.35 ppb on December 20	Hours of Data:	682
Minimum Hourly Value:	0.00 ppb on December 13 at hour 14	Hours of Missing Data:	24
Minimum Daily Value:	0.17 ppb on December 4	Hours of Calibration:	38
Monthly Average:	0.25 ppb	Operational Uptime:	96.8

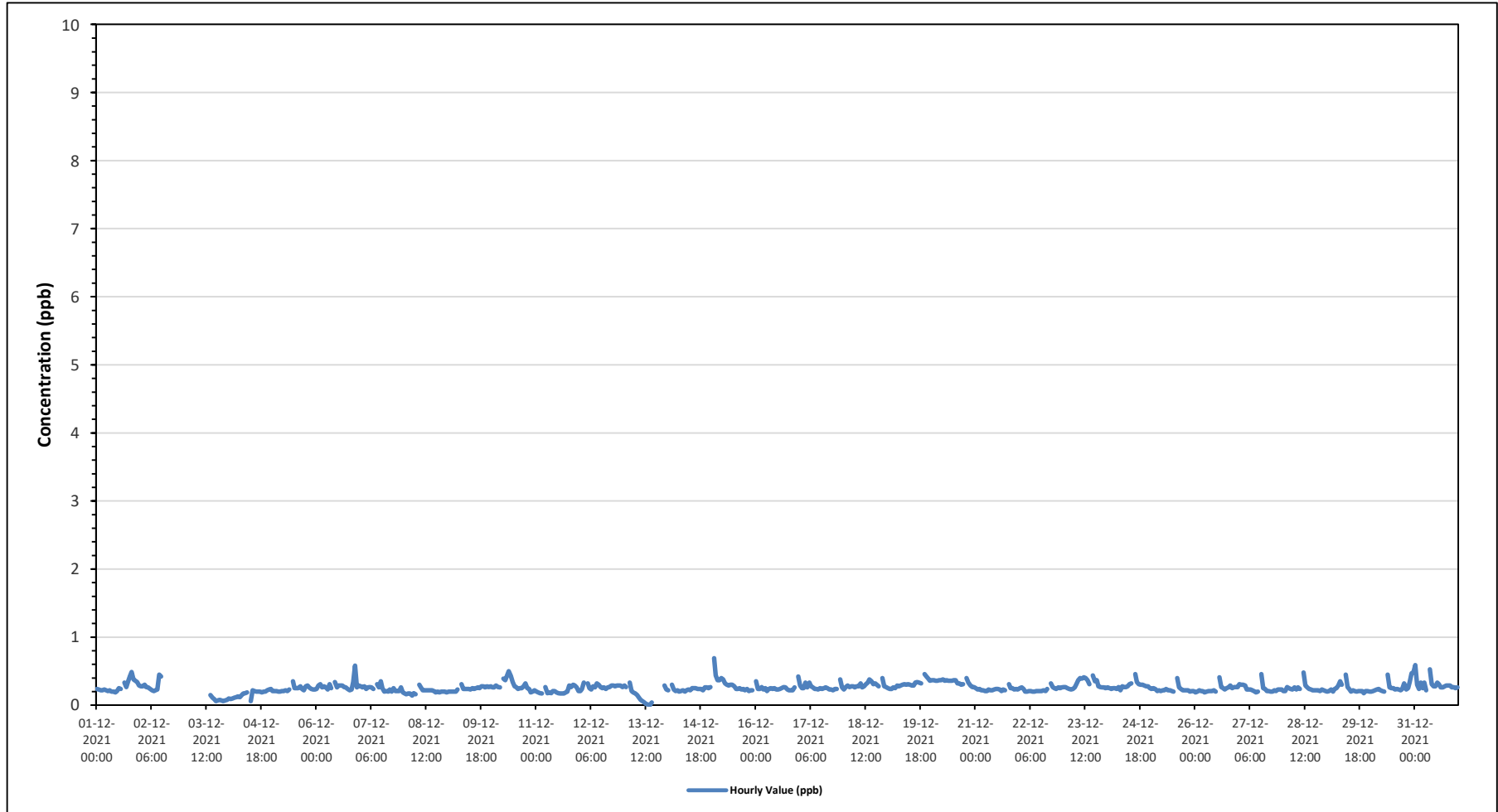
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Dec 1	0.24	0.23	0.22	0.22	0.23	0.22	0.21	0.22	0.2	0.2	0.19	0.21	0.25	0.24	S	0.33	0.27	0.35	0.43	0.49	0.38	0.36	0.34	0.29	0.19	0.49	0.27	
Dec 2	0.28	0.28	0.3	0.27	0.26	0.24	0.22	0.21	0.22	0.23	0.45	0.42	C	C	C	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	0.21	0.45	-	
Dec 3	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	NRM	C	C	C	C	C	0.15	0.11	0.09	0.06	0.07	0.08	0.07	0.06	0.07	0.08	0.06	0.15	-	
Dec 4	0.1	0.09	0.1	0.11	0.12	0.13	0.12	0.15	0.17	0.18	0.19	S	0.06	0.22	0.21	0.2	0.2	0.2	0.19	0.2	0.2	0.22	0.23	0.24	0.06	0.24	0.17	
Dec 5	0.21	0.21	0.21	0.2	0.2	0.21	0.21	0.22	0.21	0.23	S	0.35	0.25	0.25	0.25	0.28	0.24	0.22	0.28	0.29	0.26	0.24	0.23	0.23	0.20	0.35	0.24	
Dec 6	0.24	0.29	0.31	0.26	0.28	0.26	0.23	0.31	0.25	S	0.34	0.26	0.29	0.29	0.29	0.27	0.26	0.24	0.22	0.23	0.34	0.58	0.26	0.29	0.22	0.58	0.29	
Dec 7	0.28	0.26	0.28	0.24	0.26	0.27	0.26	0.24	S	0.31	0.26	0.35	0.25	0.2	0.21	0.2	0.23	0.2	0.25	0.21	0.21	0.21	0.26	0.19	0.19	0.35	0.24	
Dec 8	0.17	0.16	0.17	0.17	0.14	0.18	0.16	S	0.3	0.26	0.22	0.22	0.22	0.22	0.22	0.21	0.19	0.2	0.19	0.2	0.2	0.2	0.2	0.19	0.14	0.30	0.20	
Dec 9	0.2	0.2	0.2	0.2	0.2	0.23	S	0.31	0.24	0.24	0.24	0.24	0.23	0.25	0.24	0.25	0.26	0.25	0.28	0.28	0.26	0.28	0.27	0.28	0.20	0.31	0.24	
Dec 10	0.26	0.26	0.29	0.27	0.26	S	0.39	0.37	0.44	0.5	0.43	0.34	0.28	0.27	0.24	0.25	0.25	0.28	0.32	0.25	0.24	0.19	0.2	0.22	0.19	0.50	0.30	
Dec 11	0.2	0.19	0.18	0.17	S	0.27	0.18	0.19	0.18	0.21	0.21	0.19	0.18	0.17	0.17	0.19	0.2	0.29	0.27	0.3	0.29	0.26	0.21	0.17	0.30	0.21		
Dec 12	0.21	0.24	0.33	S	0.32	0.25	0.23	0.28	0.26	0.32	0.3	0.27	0.25	0.26	0.24	0.26	0.27	0.29	0.29	0.28	0.29	0.29	0.29	0.27	0.21	0.33	0.27	
Dec 13	0.29	0.27	S	0.33	0.21	0.19	0.17	0.15	0.11	0.08	0.06	0.04	0.02	0.01	0	0.04	NRM	NRM	NRM	NRM	NRM	NRM	0.29	0.23	0.00	0.33	-	
Dec 14	0.22	S	0.3	0.23	0.21	0.22	0.2	0.21	0.22	0.2	0.22	0.23	0.22	0.25	0.25	0.25	0.24	0.24	0.24	0.22	0.26	0.26	0.25	0.27	0.20	0.30	0.24	
Dec 15	S	0.69	0.44	0.37	0.37	0.4	0.38	0.32	0.3	0.29	0.3	0.3	0.28	0.24	0.24	0.25	0.23	0.24	0.22	0.24	0.21	0.22	0.22	S	0.21	0.69	0.31	
Dec 16	0.35	0.24	0.24	0.27	0.23	0.25	0.21	0.24	0.25	0.24	0.25	0.23	0.23	0.24	0.25	0.27	0.26	0.23	0.22	0.22	0.22	0.26	S	0.42	0.21	0.42	0.25	
Dec 17	0.29	0.25	0.25	0.33	0.26	0.33	0.28	0.26	0.24	0.24	0.23	0.25	0.24	0.25	0.26	0.25	0.23	0.23	0.22	0.24	0.24	S	0.38	0.26	0.22	0.38	0.26	
Dec 18	0.23	0.27	0.29	0.27	0.28	0.28	0.26	0.28	0.28	0.32	0.26	0.28	0.31	0.33	0.38	0.35	0.31	0.32	0.3	0.28	S	0.4	0.28	0.27	0.23	0.40	0.30	
Dec 19	0.25	0.24	0.24	0.26	0.25	0.29	0.28	0.29	0.3	0.31	0.3	0.31	0.3	0.29	0.29	0.33	0.34	0.33	0.32	S	0.46	0.42	0.39	0.36	0.24	0.46	0.31	
Dec 20	0.37	0.37	0.36	0.36	0.37	0.37	0.38	0.36	0.37	0.36	0.36	0.36	0.37	0.37	0.32	0.32	0.3	0.31	S	0.4	0.33	0.29	0.27	0.27	0.27	0.40	0.35	
Dec 21	0.25	0.23	0.24	0.22	0.22	0.21	0.21	0.23	0.22	0.23	0.24	0.24	0.23	0.21	0.23	0.22	0.21	0.23	S	0.31	0.25	0.25	0.23	0.24	0.23	0.21	0.31	0.23
Dec 22	0.25	0.26	0.24	0.2	0.2	0.21	0.21	0.2	0.2	0.21	0.21	0.21	0.21	0.22	0.21	0.24	S	0.32	0.27	0.25	0.24	0.26	0.25	0.26	0.20	0.32	0.23	
Dec 23	0.27	0.27	0.25	0.24	0.23	0.24	0.26	0.31	0.37	0.4	0.39	0.41	0.4	0.37	0.31	S	0.44	0.35	0.37	0.28	0.27	0.26	0.26	0.25	0.23	0.44	0.31	
Dec 24	0.26	0.25	0.24	0.25	0.25	0.24	0.27	0.22	0.28	0.27	0.27	0.28	0.31	0.32	S	0.46	0.34	0.31	0.3	0.3	0.29	0.28	0.28	0.25	0.22	0.46	0.28	
Dec 25	0.24	0.25	0.24	0.21	0.22	0.21	0.22	0.22	0.24	0.22	0.22	0.21	0.2	S	0.4	0.26	0.24	0.22	0.22	0.22	0.22	0.21	0.23	0.21	0.20	0.40	0.23	
Dec 26	0.19	0.2	0.22	0.21	0.21	0.19	0.2	0.21	0.21	0.21	0.22	0.2	S	0.41	0.27	0.25	0.23	0.25	0.26	0.29	0.25	0.27	0.27	0.27	0.19	0.41	0.24	
Dec 27	0.31	0.3	0.3	0.29	0.23	0.23	0.23	0.22	0.21	0.19	0.2	S	0.46	0.25	0.24	0.21	0.21	0.2	0.2	0.22	0.21	0.23	0.23	0.23	0.19	0.46	0.24	
Dec 28	0.21	0.21	0.27	0.25	0.24	0.23	0.26	0.23	0.26	0.24	S	0.48	0.29	0.26	0.24	0.23	0.22	0.22	0.22	0.22	0.21	0.23	0.22	0.21	0.21	0.48	0.25	
Dec 29	0.2	0.21	0.23	0.2	0.24	0.25	0.29	0.35	0.3	S	0.45	0.27	0.24	0.2	0.22	0.21	0.2	0.21	0.21	0.21	0.18	0.21	0.21	0.2	0.18	0.45	0.24	
Dec 30	0.2	0.21	0.22	0.23	0.24	0.22	0.21	0.2	S	0.45	0.26	0.25	0.25	0.23	0.24	0.23	0.22	0.24	0.32	0.23	0.25	0.34	0.47	0.48	0.20	0.48	0.27	
Dec 31	0.59	0.3	0.24	0.33	0.25	0.33	0.22	S	0.53	0.31	0.28	0.28	0.33	0.31	0.26	0.26	0.28	0.29	0.29	0.29	0.26	0.27	0.25	0.26	0.22	0.59	0.30	
Diurnal Maximum	0.59	0.69	0.44	0.37	0.37	0.40	0.39	0.37	0.53	0.50	0.45	0.48	0.46	0.41	0.40	0.46	0.44	0.35	0.43	0.49	0.46	0.58	0.47	0.48				
Diurnal Average	0.25	0.26	0.26	0.25	0.24	0.25	0.24	0.25	0.26	0.27	0.27	0.27	0.26	0.26	0.24	0.25	0.25	0.25	0.26	0.25	0.25	0.27	0.26	0.26				

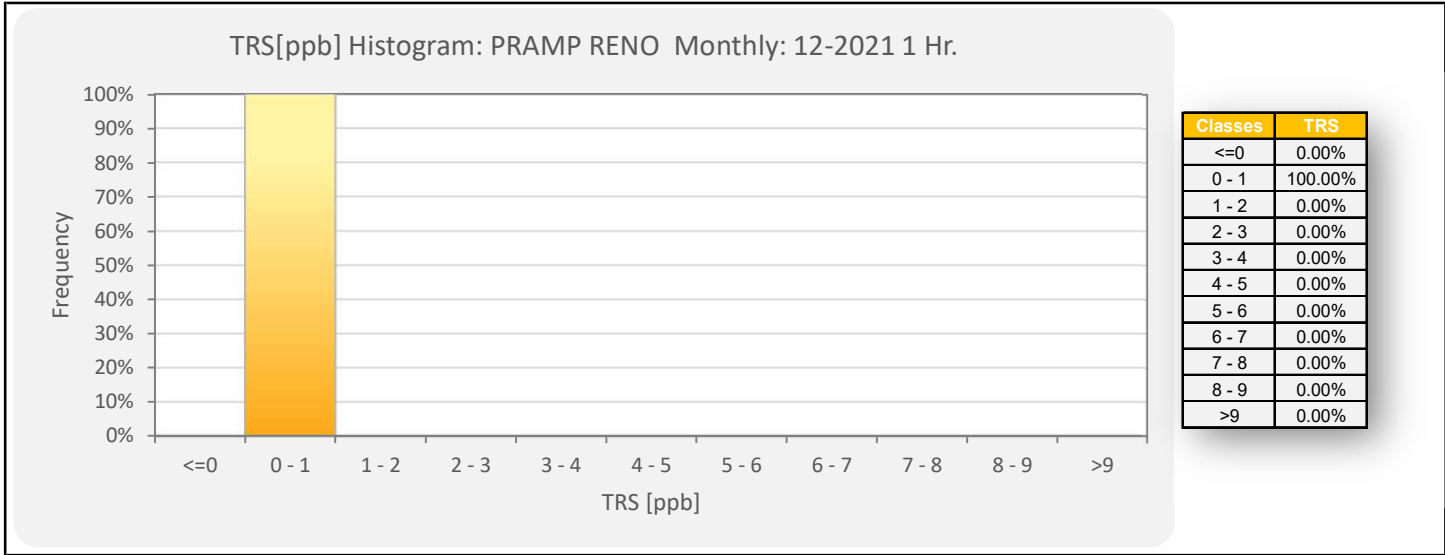
<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span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



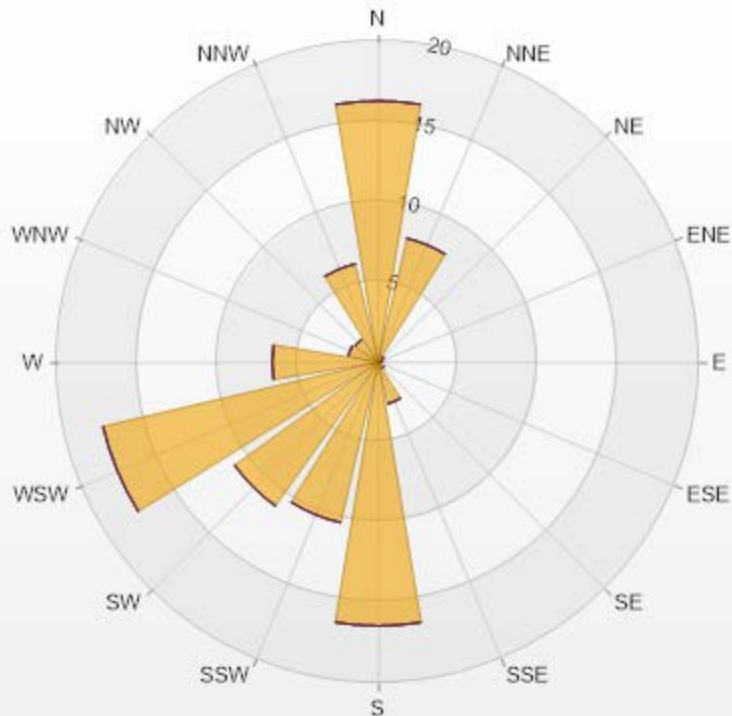
**Timeseries Chart of Hourly Average for TRS - Reno Station**





Wind: PRAMP RENO Poll.: PRAMP RENO-TRS[ppb] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 91.67% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	16.28	0	0	0	0	16.28
NNE	7.92	0	0	0	0	7.92
NE	0.44	0	0	0	0	0.44
ENE	0.29	0	0	0	0	0.29
E	0.15	0	0	0	0	0.15
ESE	0	0	0	0	0	0
SE	0.44	0	0	0	0	0.44
SSE	2.64	0	0	0	0	2.64
S	16.42	0	0	0	0	16.42
SSW	10.26	0	0	0	0	10.26
SW	11	0	0	0	0	11
WSW	17.6	0	0	0	0	17.6
W	6.6	0	0	0	0	6.6
WNW	1.91	0	0	0	0	1.91
NW	1.76	0	0	0	0	1.76
NNW	6.3	0	0	0	0	6.3
Summary	100	0	0	0	0	100



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% 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 - December 2021**

**Summary of Hourly Averages**

**TOTAL HYDROCARBONS (THC) in ppm**

Maximum Hourly Value:	2.64 ppm on December 5 at hour 21	Hours in Service:	744
Maximum Daily Value:	2.12 ppm on December 6	Hours of Data:	708
Minimum Hourly Value:	1.92 ppm on December 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	1.94 ppm on December 8	Hours of Calibration:	36
Monthly Average:	2.01 ppm	Operational Uptime:	100.0

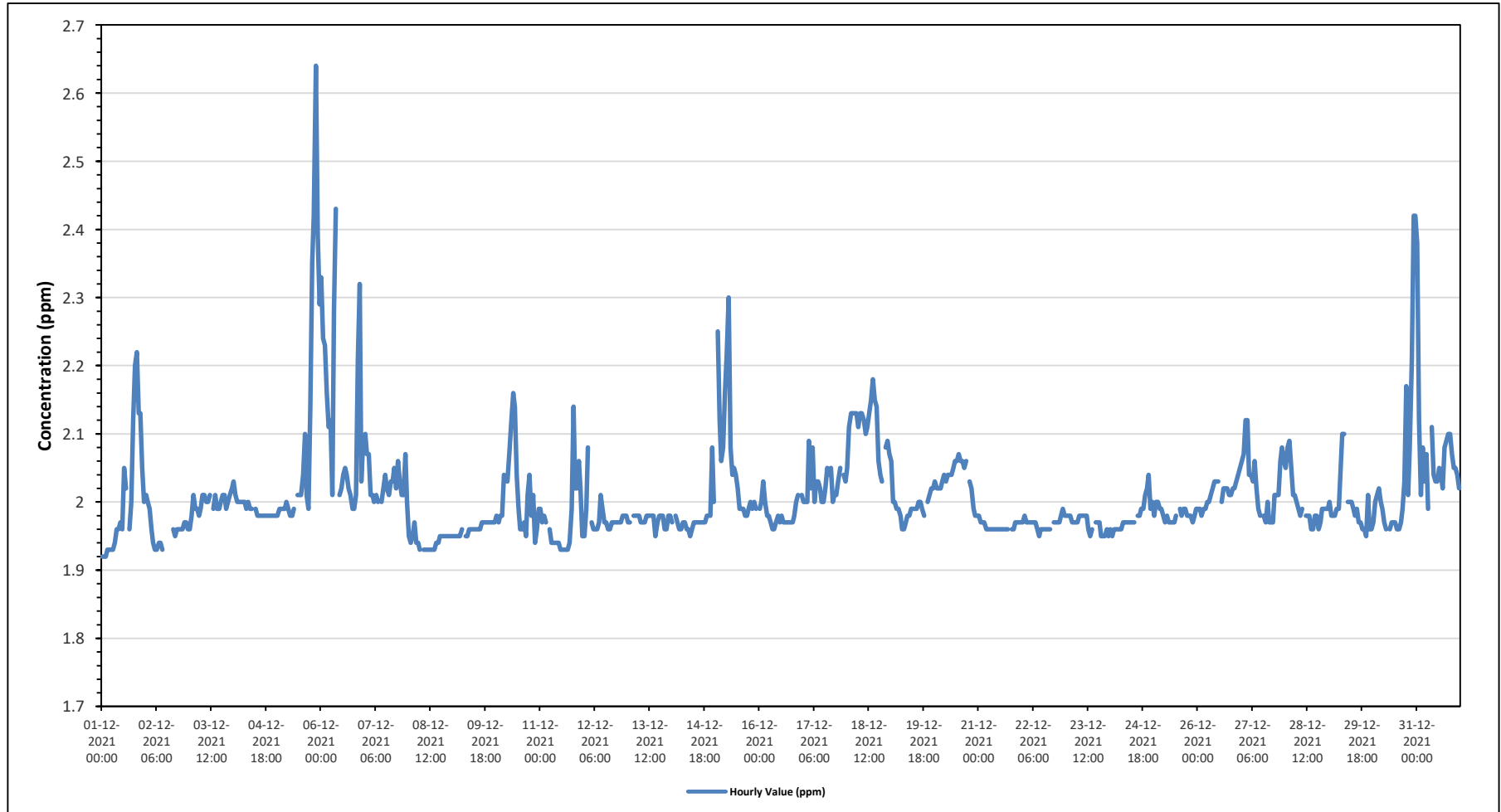
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23		
Dec 1	1.92	1.92	1.92	1.93	1.93	1.93	1.93	1.94	1.96	1.96	1.97	1.96	2.05	2.02	S	1.96	2.00	2.12	2.20	2.22	2.13	2.13	2.05	2.00	1.92	2.22	2.01		
Dec 2	2.01	2.00	1.99	1.96	1.94	1.93	1.93	1.94	1.94	1.93	C	C	C	C	C	1.96	1.95	1.96	1.96	1.96	1.96	1.97	1.97	1.96	1.93	2.01	1.96		
Dec 3	1.96	1.98	2.01	1.99	1.99	1.98	1.99	2.01	2.01	2.00	2.00	2.01	S	S	1.99	1.98	1.98	2.00	2.01	2.01	1.99	2.00	2.01	2.02	1.96	2.02	2.00		
Dec 4	2.03	2.01	2.00	2.00	2.00	2.00	2.00	1.99	2.00	1.99	1.99	S	S	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	2.03	1.99		
Dec 5	1.98	1.99	1.99	1.99	1.99	2.00	1.99	1.98	1.98	1.99	S	S	2.01	2.01	2.01	2.04	2.10	2.01	1.99	2.14	2.35	2.42	2.64	2.39	2.29	1.98	2.64	2.10	
Dec 6	2.33	2.24	2.23	2.16	2.11	2.12	2.01	2.28	2.43	S	S	2.01	2.02	2.04	2.05	2.04	2.02	2.01	1.99	1.99	2.01	2.21	2.32	2.03	2.09	1.99	2.43	2.12	
Dec 7	2.10	2.07	2.07	2.01	2.01	2.00	2.01	2.00	S	S	2.00	2.02	2.04	2.02	2.01	2.03	2.03	2.05	2.02	2.06	2.03	2.01	2.01	2.07	2.00	2.00	2.10	2.03	
Dec 8	1.95	1.94	1.95	1.97	1.94	1.94	1.93	S	S	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.93	1.97	1.94		
Dec 9	1.95	1.95	1.95	1.95	1.95	1.96	S	S	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.95	1.97	1.96		
Dec 10	1.98	1.97	1.98	1.98	2.04	S	S	2.03	2.07	2.12	2.16	2.14	2.04	1.99	1.96	1.96	1.97	1.95	2.01	2.04	1.98	2.01	1.94	1.96	1.99	1.94	2.16	2.01	
Dec 11	1.99	1.97	1.98	1.97	S	S	1.96	1.94	1.94	1.94	1.94	1.94	1.93	1.93	1.93	1.93	1.94	1.99	2.14	2.02	2.02	2.06	2.02	1.95	1.93	2.14	1.97		
Dec 12	1.95	1.99	2.08	S	S	1.97	1.96	1.96	1.96	1.97	2.01	1.99	1.97	1.97	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.95	2.08	1.98		
Dec 13	1.97	1.97	S	S	1.98	1.98	1.98	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.95	1.97	1.98	1.98	1.98	1.96	1.96	1.98	1.98	1.95	1.98	1.97		
Dec 14	1.97	S	S	S	1.98	1.97	1.96	1.97	1.97	1.96	1.96	1.95	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.98	2.08	2.00	1.95	2.08	1.97		
Dec 15	S	2.25	2.12	2.06	2.08	2.12	2.22	2.30	2.08	2.04	2.05	2.04	2.02	1.99	1.99	1.99	1.98	1.98	1.99	2.00	1.99	2.00	1.99	S	1.98	2.30	2.06		
Dec 16	1.99	2.00	2.03	2.00	1.98	1.98	1.97	1.96	1.96	1.97	1.98	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.98	2.00	2.01	S	2.01	1.96	2.03	1.98		
Dec 17	2.00	2.00	2.00	2.09	2.02	2.08	2.00	2.03	2.03	2.02	2.00	2.00	2.02	2.05	2.04	2.05	2.00	2.01	2.01	2.03	2.05	S	2.04	2.03	2.00	2.09	2.03		
Dec 18	2.05	2.11	2.13	2.13	2.13	2.11	2.13	2.13	2.13	2.12	2.10	2.11	2.13	2.15	2.18	2.15	2.14	2.06	2.04	2.03	S	S	2.08	2.09	2.07	2.03	2.18	2.11	
Dec 19	2.06	2.00	2.00	1.99	1.99	1.98	1.96	1.96	1.97	1.98	1.98	1.99	1.99	1.99	2.00	2.00	1.99	1.98	S	S	2.00	2.01	2.02	2.02	1.96	2.06	1.99		
Dec 20	2.03	2.02	2.02	2.02	2.03	2.04	2.03	2.04	2.04	2.04	2.05	2.06	2.06	2.07	2.06	2.06	2.05	2.06	S	S	2.03	2.02	1.99	1.98	1.98	1.98	2.07	2.03	
Dec 21	1.98	1.97	1.97	1.97	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	S	S	1.96	1.96	1.97	1.97	1.97	1.96	1.98	1.96		
Dec 22	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.96	1.95	1.96	1.96	1.96	1.96	1.96	1.96	S	S	1.97	1.97	1.97	1.97	1.98	1.99	1.98	1.95	1.99	1.97	
Dec 23	1.98	1.98	1.98	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.96	1.95	1.96	S	S	1.97	1.97	1.97	1.95	1.95	1.95	1.96	1.95	1.95	1.98	1.97
Dec 24	1.96	1.95	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	S	S	1.98	1.98	1.99	1.99	2.01	2.02	2.04	1.99	2.00	1.95	2.04	1.98
Dec 25	1.98	2.00	2.00	1.99	1.99	1.98	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.98	S	S	1.98	1.99	1.99	1.98	1.98	1.98	1.97	1.98	1.99	1.97	2.00	1.98	
Dec 26	1.99	1.99	1.98	1.99	1.99	2.00	2.00	2.01	2.02	2.03	2.03	2.03	S	S	2.00	2.02	2.02	2.02	2.01	2.01	2.02	2.02	2.03	2.04	2.05	1.98	2.05	2.01	
Dec 27	2.06	2.07	2.12	2.12	2.04	2.04	2.03	2.06	2.02	1.99	1.98	S	S	1.98	1.97	2.00	1.97	1.97	2.01	2.01	2.01	2.06	2.08	2.06	1.97	2.12	2.03		
Dec 28	2.05	2.08	2.09	2.05	2.01	2.01	2.00	1.99	1.98	1.99	S	S	1.98	1.98	1.96	1.96	1.98	1.98	1.96	1.97	1.99	1.99	1.99	1.99	1.96	2.09	2.00		
Dec 29	2.00	1.98	1.98	1.98	1.99	1.99	2.05	2.10	2.10	S	S	2.00	2.00	1.99	1.98	1.99	1.97	1.96	1.96	1.95	2.01	1.96	1.96	1.95	2.10	1.99	1.95	2.10	1.99
Dec 30	1.97	2.00	2.01	2.02	2.00	1.99	1.97	1.96	S	S	1.96	1.97	1.97	1.96	1.96	1.97	1.99	2.03	2.17	2.01	2.08	2.21	2.42	2.42	1.96	2.42	2.04		
Dec 31	2.38	2.12	2.01	2.08	2.03	2.07	1.99	S	S	2.11	2.04	2.03	2.03	2.05	2.04	2.02	2.08	2.09	2.10	2.10	2.07	2.05	2.05	2.04	2.02	1.99	2.38	2.07	
Diurnal Maximum	2.38	2.25	2.23	2.16	2.13	2.16	2.22	2.30	2.43	2.16	2.14	2.11	2.13	2.15	2.18	2.15	2.14	2.12	2.20	2.35	2.42	2.64	2.42	2.42	2.42	2.42	2.42	2.42	
Diurnal Average	2.02	2.02	2.02	2.01	2.00	2.00	1.99	2.01	2.02	1.99	2.00	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.01	2.01	2.02	2.04	2.03	2.02	2.02	2.02	2.02	2.02	

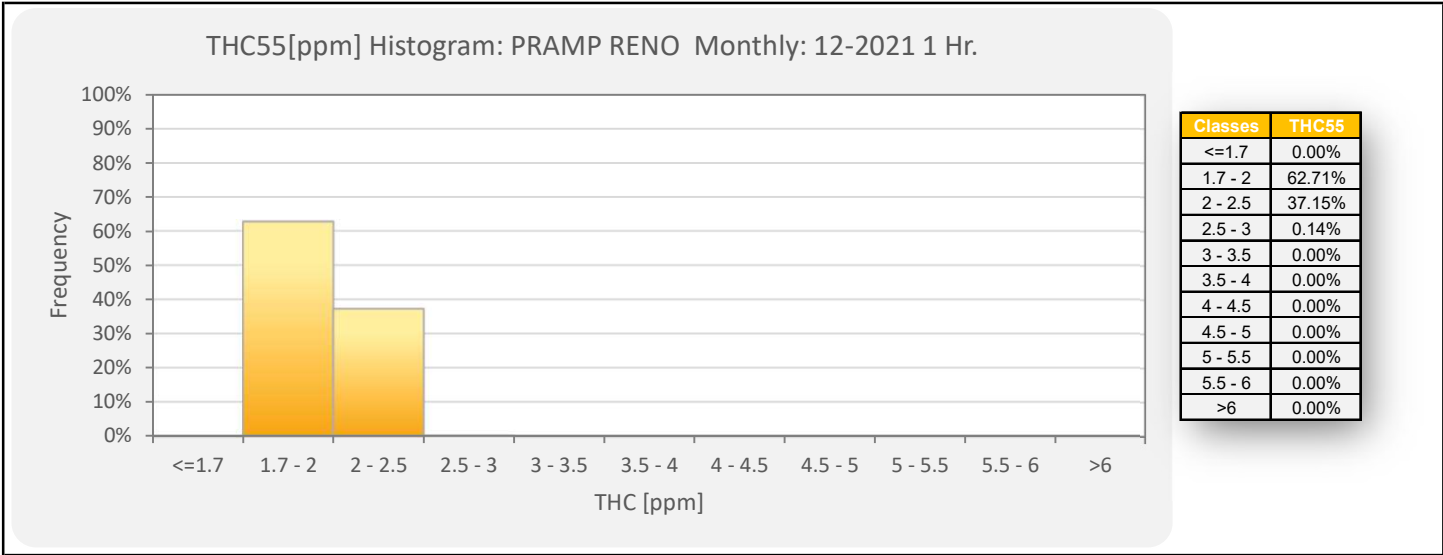
  

<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span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

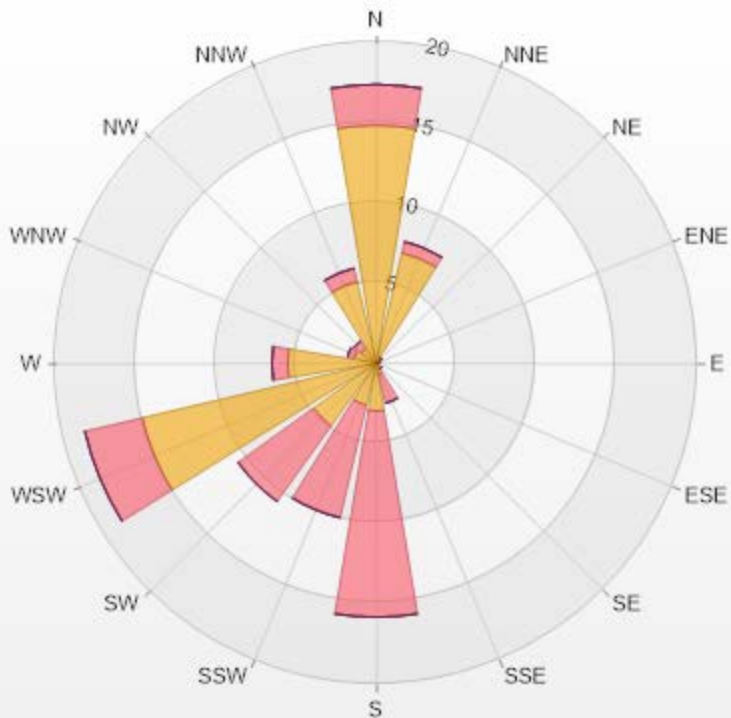




Wind: PRAMP RENO Poll.: PRAMP RENO-THC55[ppm] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 95.16% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	14.83	2.54	0	0	0	17.37
NNE	7.06	0.71	0	0	0	7.77
NE	0.42	0	0	0	0	0.42
ENE	0	0.28	0	0	0	0.28
E	0.14	0	0	0	0	0.14
ESE	0	0	0	0	0	0
SE	0.42	0	0	0	0	0.42
SSE	0.71	1.84	0	0	0	2.55
S	2.97	12.85	0	0	0	15.82
SSW	2.68	7.2	0	0	0	9.88
SW	4.8	5.79	0	0	0	10.59
WSW	14.97	3.67	0	0	0	18.64
W	5.51	0.99	0	0	0	6.5
WNW	1.41	0.42	0	0	0	1.83
NW	1.13	0.56	0	0	0	1.69
NNW	5.23	0.85	0	0	0	6.08
Summary	62.28	37.7	0	0	0	100





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% Icon Classes (ppm)	62	0-2	38	2-5	0	5-10	0	10-40	0	>40.0
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## PEACE RIVER AREA MONITORING PROGRAM

Reno Station - December 2021

Summary of Hourly Averages

### METHANE (CH4) in ppm

Maximum Hourly Value:	2.64 ppm on December 5 at hour 21	Hours in Service:	744
Maximum Daily Value:	2.12 ppm on December 6	Hours of Data:	708
Minimum Hourly Value:	1.92 ppm on December 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	1.94 ppm on December 8	Hours of Calibration:	36
Monthly Average:	2.01 ppm	Operational Uptime:	100.0

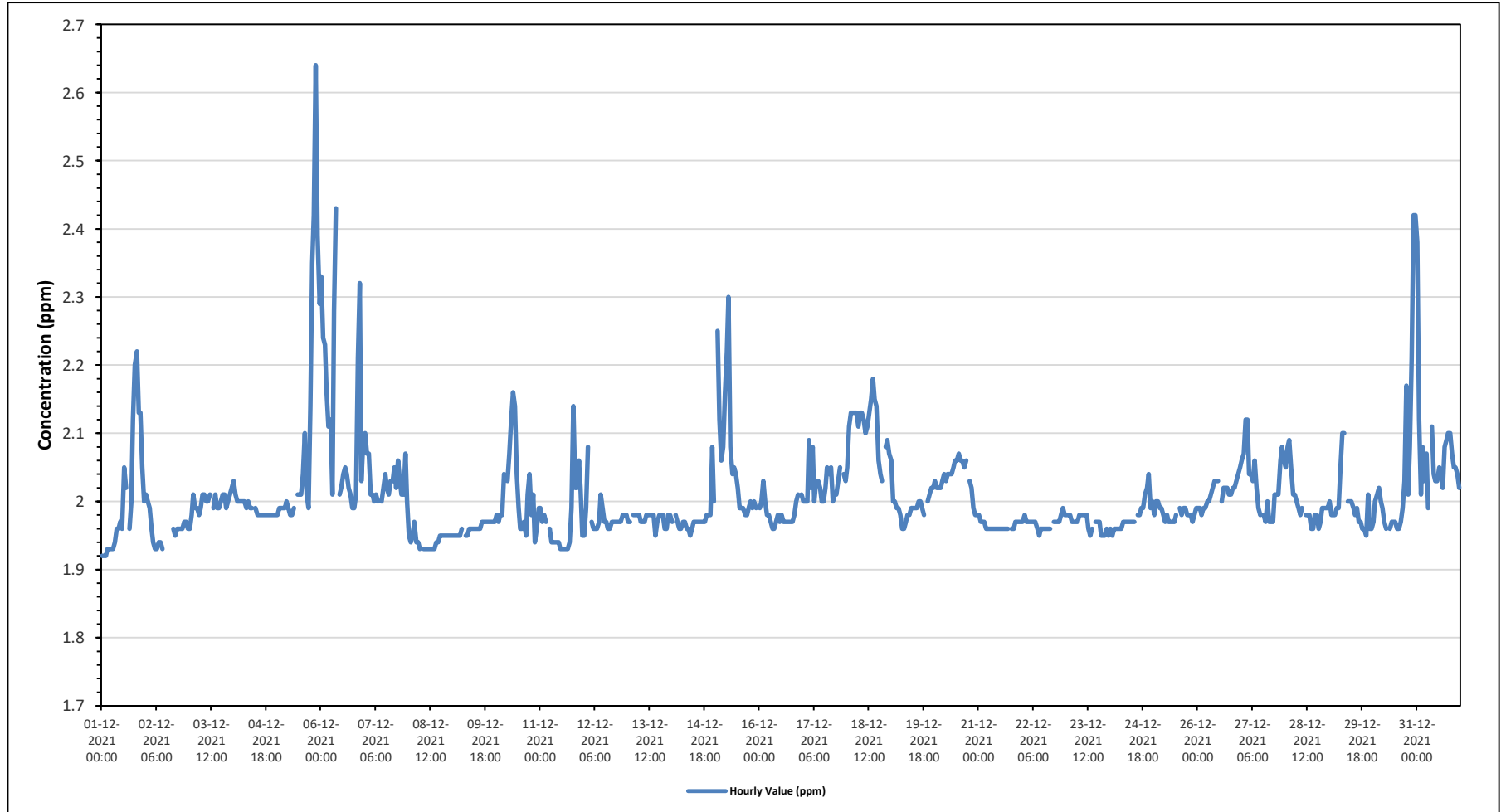
Day	Hourly Period Starting at (MST)																							Daily	Daily	Daily	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Dec 1	1.92	1.92	1.92	1.93	1.93	1.93	1.93	1.94	1.96	1.96	1.97	1.96	2.05	2.02	S	1.96	2.00	2.12	2.20	2.22	2.13	2.13	2.05	2.00	1.92	2.22	2.01
Dec 2	2.01	2.00	1.99	1.96	1.94	1.93	1.93	1.94	1.94	1.93	C	C	C	C	C	1.96	1.95	1.96	1.96	1.96	1.96	1.97	1.97	1.96	1.93	2.01	1.96
Dec 3	1.96	1.98	2.01	1.99	1.99	1.98	1.99	2.01	2.01	2.00	2.00	2.01	S	1.99	2.01	1.99	1.99	2.00	2.01	2.01	1.99	2.00	2.01	2.02	1.96	2.02	2.00
Dec 4	2.03	2.01	2.00	2.00	2.00	2.00	2.00	1.99	2.00	1.99	1.99	S	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	2.03	1.99
Dec 5	1.98	1.99	1.99	1.99	1.99	2.00	1.99	1.98	1.98	1.99	S	2.01	2.01	2.01	2.04	2.10	2.01	1.99	2.14	2.35	2.42	2.64	2.39	2.29	1.98	2.64	2.10
Dec 6	2.33	2.24	2.23	2.16	2.11	2.12	2.01	2.28	2.43	S	2.01	2.02	2.04	2.05	2.04	2.02	2.01	1.99	1.99	2.01	2.21	2.32	2.03	2.09	1.99	2.43	2.12
Dec 7	2.10	2.07	2.07	2.01	2.01	2.00	2.01	2.00	S	2.00	2.02	2.04	2.02	2.01	2.03	2.03	2.05	2.02	2.06	2.03	2.01	2.01	2.07	2.00	2.00	2.10	2.03
Dec 8	1.95	1.94	1.95	1.97	1.94	1.94	1.93	S	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.93	1.97	1.94
Dec 9	1.95	1.95	1.95	1.95	1.95	1.96	S	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.95	1.97	1.96
Dec 10	1.98	1.97	1.98	1.98	2.04	S	2.03	2.07	2.12	2.16	2.14	2.04	1.99	1.96	1.96	1.97	1.95	2.01	2.04	1.98	2.01	1.94	1.96	1.99	1.94	2.16	2.01
Dec 11	1.99	1.97	1.98	1.97	S	1.96	1.94	1.94	1.94	1.94	1.94	1.93	1.93	1.93	1.93	1.94	1.99	2.14	2.02	2.02	2.06	2.02	1.95	1.93	2.14	1.97	
Dec 12	1.95	1.99	2.08	S	1.97	1.96	1.96	1.96	1.97	2.01	1.99	1.97	1.97	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.95	2.08	1.98
Dec 13	1.97	1.97	S	1.98	1.98	1.98	1.98	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.95	1.97	1.98	1.98	1.98	1.96	1.96	1.98	1.98	1.95	1.98	1.97
Dec 14	1.97	S	1.98	1.97	1.96	1.96	1.97	1.97	1.96	1.96	1.95	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.98	2.08	2.00	1.95	2.08	1.97
Dec 15	S	2.25	2.12	2.06	2.08	2.16	2.22	2.20	2.08	2.04	2.05	2.04	2.02	1.99	1.99	1.99	1.98	1.98	1.99	2.00	1.99	2.00	1.99	S	1.98	2.30	2.06
Dec 16	1.99	2.00	2.03	2.00	1.98	1.98	1.97	1.96	1.96	1.97	1.98	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.98	2.00	2.01	S	2.01	1.96	2.03	1.98
Dec 17	2.00	2.00	2.00	2.09	2.02	2.08	2.00	2.03	2.03	2.02	2.00	2.00	2.02	2.05	2.04	2.05	2.00	2.01	2.01	2.03	2.05	S	2.04	2.03	2.00	2.09	2.03
Dec 18	2.05	2.11	2.13	2.13	2.13	2.11	2.13	2.13	2.13	2.12	2.10	2.11	2.13	2.15	2.18	2.15	2.14	2.06	2.04	2.03	S	2.08	2.09	2.07	2.03	2.18	2.11
Dec 19	2.06	2.00	2.00	1.99	1.99	1.98	1.96	1.96	1.97	1.98	1.98	1.99	1.99	1.99	2.00	2.00	1.99	1.98	S	2.00	2.01	2.02	2.02	1.96	2.06	1.99	
Dec 20	2.03	2.02	2.02	2.02	2.03	2.04	2.03	2.04	2.04	2.04	2.05	2.06	2.06	2.07	2.06	2.06	2.05	2.06	S	2.03	2.02	1.99	1.98	1.98	1.98	2.07	2.03
Dec 21	1.98	1.97	1.97	1.97	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	S	S	1.96	1.96	1.97	1.97	1.97	1.96	1.98	1.96
Dec 22	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.96	1.95	1.96	1.96	1.96	1.96	1.96	1.96	S	1.97	1.97	1.97	1.97	1.98	1.99	1.98	1.95	1.99	1.97
Dec 23	1.98	1.98	1.98	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.96	1.95	1.96	S	1.97	1.97	1.97	1.95	1.95	1.95	1.96	1.95	1.95	1.98	1.97
Dec 24	1.96	1.95	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.97	S	1.98	1.98	1.99	1.99	2.01	2.02	2.04	1.99	2.00	1.95	2.04	1.98
Dec 25	1.98	2.00	2.00	1.99	1.99	1.98	1.97	1.98	1.97	1.97	1.97	1.97	1.98	S	1.99	1.98	1.99	1.99	1.98	1.98	1.98	1.97	1.98	1.99	1.97	2.00	1.98
Dec 26	1.99	1.99	1.98	1.99	1.99	2.00	2.00	2.01	2.02	2.03	2.03	2.03	S	2.00	2.02	2.02	2.02	2.01	2.01	2.02	2.02	2.03	2.04	2.05	1.98	2.05	2.01
Dec 27	2.06	2.07	2.12	2.12	2.04	2.04	2.03	2.06	2.02	1.99	1.98	S	1.98	1.97	2.00	1.97	1.97	2.01	2.01	2.01	2.06	2.08	2.06	1.97	2.12	2.03	
Dec 28	2.05	2.08	2.09	2.05	2.01	2.01	2.00	1.99	1.98	1.99	S	1.98	1.98	1.96	1.96	1.98	1.98	1.96	1.97	1.99	1.99	1.99	1.99	1.99	1.96	2.09	2.00
Dec 29	2.00	1.98	1.98	1.98	1.99	1.99	2.05	2.10	2.10	S	2.00	2.00	1.99	1.98	1.99	1.97	1.97	1.96	1.96	1.95	2.01	1.96	1.96	1.95	2.10	1.99	
Dec 30	1.97	2.00	2.01	2.02	2.00	1.99	1.97	1.96	S	1.96	1.97	1.97	1.96	1.96	1.97	1.99	2.03	2.17	2.01	2.08	2.21	2.42	2.42	1.96	2.42	2.04	
Dec 31	2.38	2.12	2.01	2.08	2.03	2.07	1.99	S	2.11	2.04	2.03	2.03	2.05	2.04	2.02	2.08	2.09	2.10	2.10	2.07	2.05	2.05	2.04	2.02	1.99	2.38	2.07
Diurnal Maximum	2.38	2.25	2.23	2.16	2.13	2.16	2.22	2.30	2.43	2.16	2.14	2.11	2.13	2.15	2.18	2.15	2.14	2.12	2.20	2.35	2.42	2.64	2.42	2.42			
Diurnal Average	2.02	2.02	2.02	2.01	2.00	2.00	1.99	2.01	2.02	1.99	2.00	1.99	1.99	1.99	1.99	1.99	2.00	2.01	2.01	2.02	2.04	2.03	2.02				

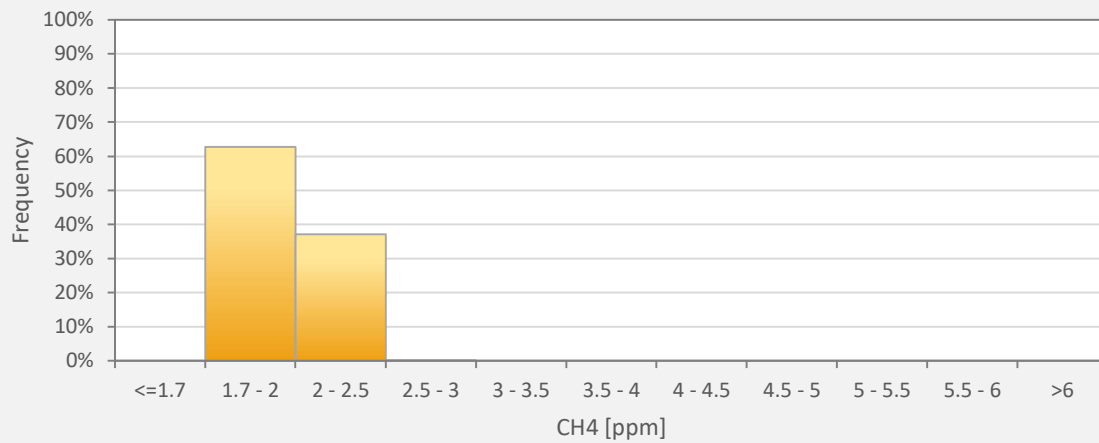
<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>N</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b> 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 CH4 - Reno Station**



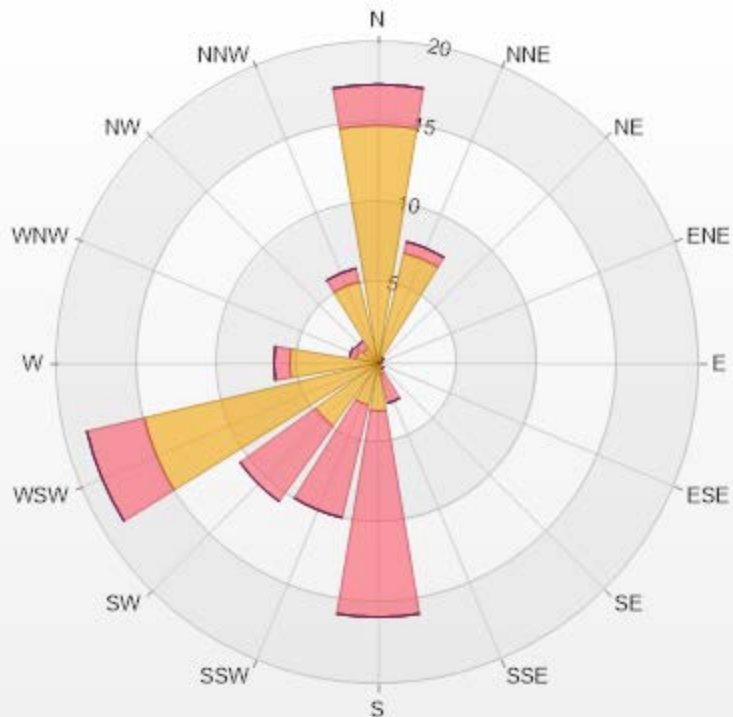
CH4[ppm] Histogram: PRAMP RENO Monthly: 12-2021 1 Hr.



Classes	CH4
<=1.7	0.00%
1.7 - 2	62.71%
2 - 2.5	37.15%
2.5 - 3	0.14%
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: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 95.16% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	14.83	2.54	0	0	0	17.37
NNE	7.06	0.71	0	0	0	7.77
NE	0.42	0	0	0	0	0.42
ENE	0	0.28	0	0	0	0.28
E	0.14	0	0	0	0	0.14
ESE	0	0	0	0	0	0
SE	0.42	0	0	0	0	0.42
SSE	0.71	1.84	0	0	0	2.55
S	2.97	12.85	0	0	0	15.82
SSW	2.68	7.2	0	0	0	9.88
SW	4.8	5.79	0	0	0	10.59
WSW	14.97	3.67	0	0	0	18.64
W	5.51	0.99	0	0	0	6.5
WNW	1.41	0.42	0	0	0	1.83
NW	1.13	0.56	0	0	0	1.69
NNW	5.23	0.85	0	0	0	6.08
Summary	62.28	37.7	0	0	0	100



PRAMP-202112

% Icon Classes (ppm)

62

0-2

38

2-5

0

5-10

0

10-20

0

>20.0



**PEACE RIVER AREA MONITORING PROGRAM**

**Reno Station - December 2021**

**Summary of Hourly Averages**

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

Maximum Hourly Value:	0.00 ppm on December 1 at hour 0	Hours in Service:	744
Maximum Daily Value:	0.00 ppm on December 1	Hours of Data:	708
Minimum Hourly Value:	0.00 ppm on December 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.00 ppm on December 1	Hours of Calibration:	36
Monthly Average:	0.00 ppm	Operational Uptime:	100.0

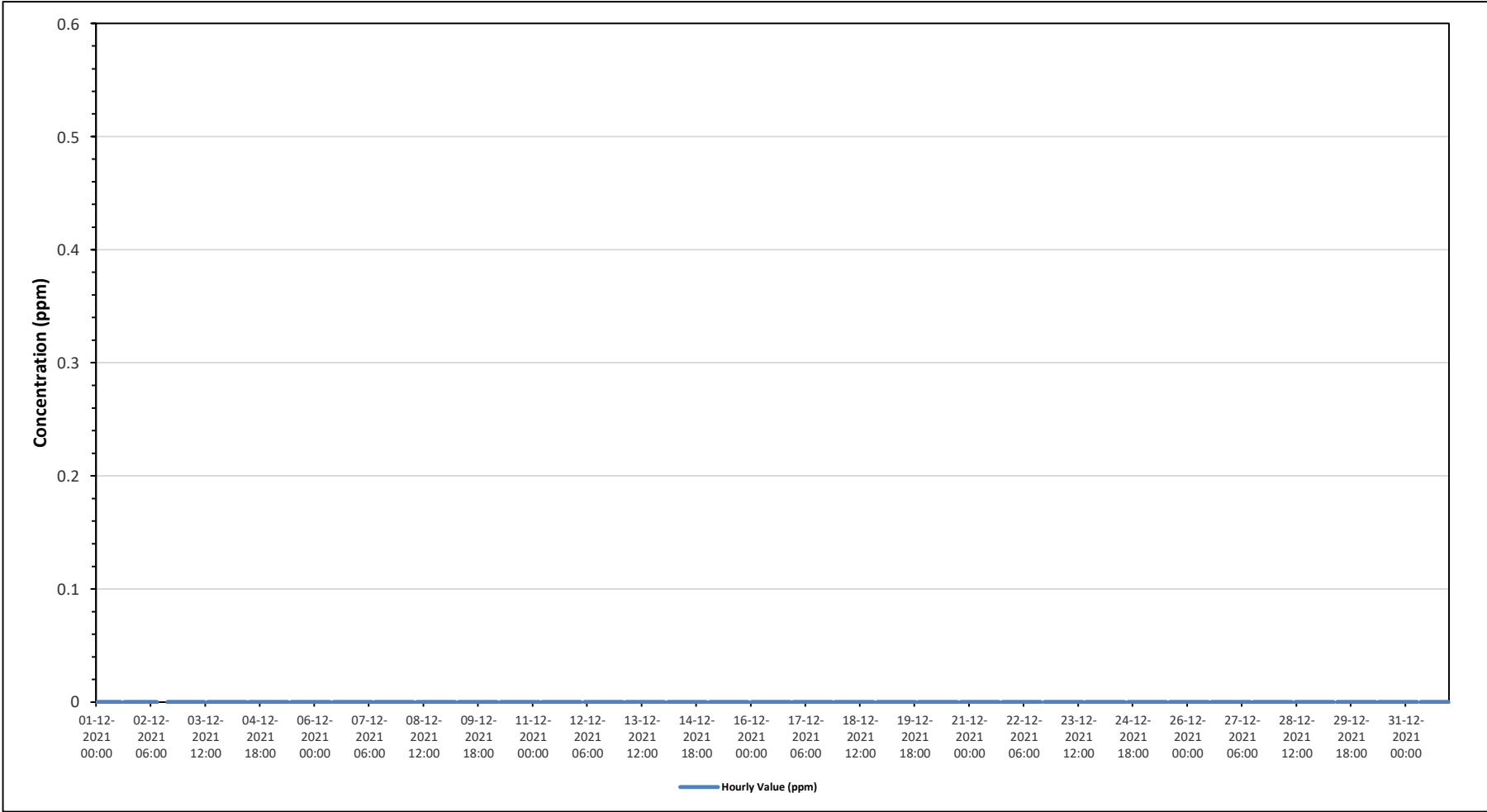
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average									
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23								
Dec 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00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

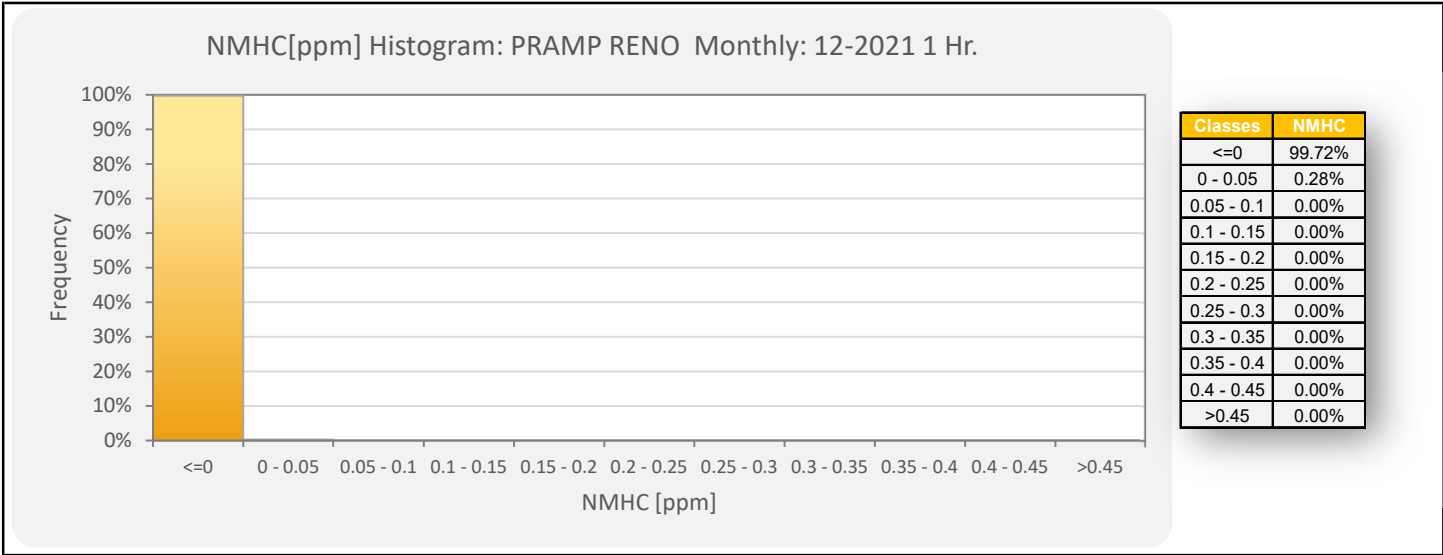
<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span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

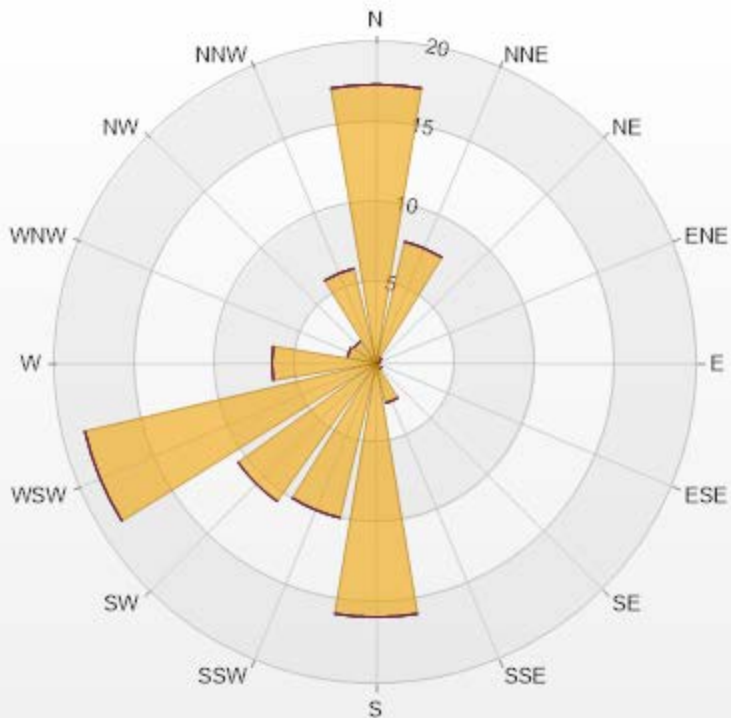






Wind: PRAMP RENO Poll.: PRAMP RENO-NMHC[ppm] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 95.16% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	17.37	0	0	0	0	17.37
NNE	7.77	0	0	0	0	7.77
NE	0.42	0	0	0	0	0.42
ENE	0.28	0	0	0	0	0.28
E	0.14	0	0	0	0	0.14
ESE	0	0	0	0	0	0
SE	0.42	0	0	0	0	0.42
SSE	2.54	0	0	0	0	2.54
S	15.82	0	0	0	0	15.82
SSW	9.89	0	0	0	0	9.89
SW	10.59	0	0	0	0	10.59
WSW	18.64	0	0	0	0	18.64
W	6.5	0	0	0	0	6.5
WNW	1.84	0	0	0	0	1.84
NW	1.69	0	0	0	0	1.69
NNW	6.07	0	0	0	0	6.07
Summary	100	0	0	0	0	100





PRAMP-202112

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% 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 - December 2021**

**Summary of Hourly Averages**

**RELATIVE HUMIDITY (RH) in %**

Maximum Hourly Value:	100 %	on December 8 at hour 3	Hours in Service:	744
Maximum Daily Value:	79.8 %	on December 22	Hours of Data:	744
Minimum Hourly Value:	42 %	on December 2 at hour 10	Hours of Missing Data:	0
Minimum Daily Value:	53.1 %	on December 2	Hours of Calibration:	0
Monthly Average:	64.8 %		Operational Uptime:	100.0

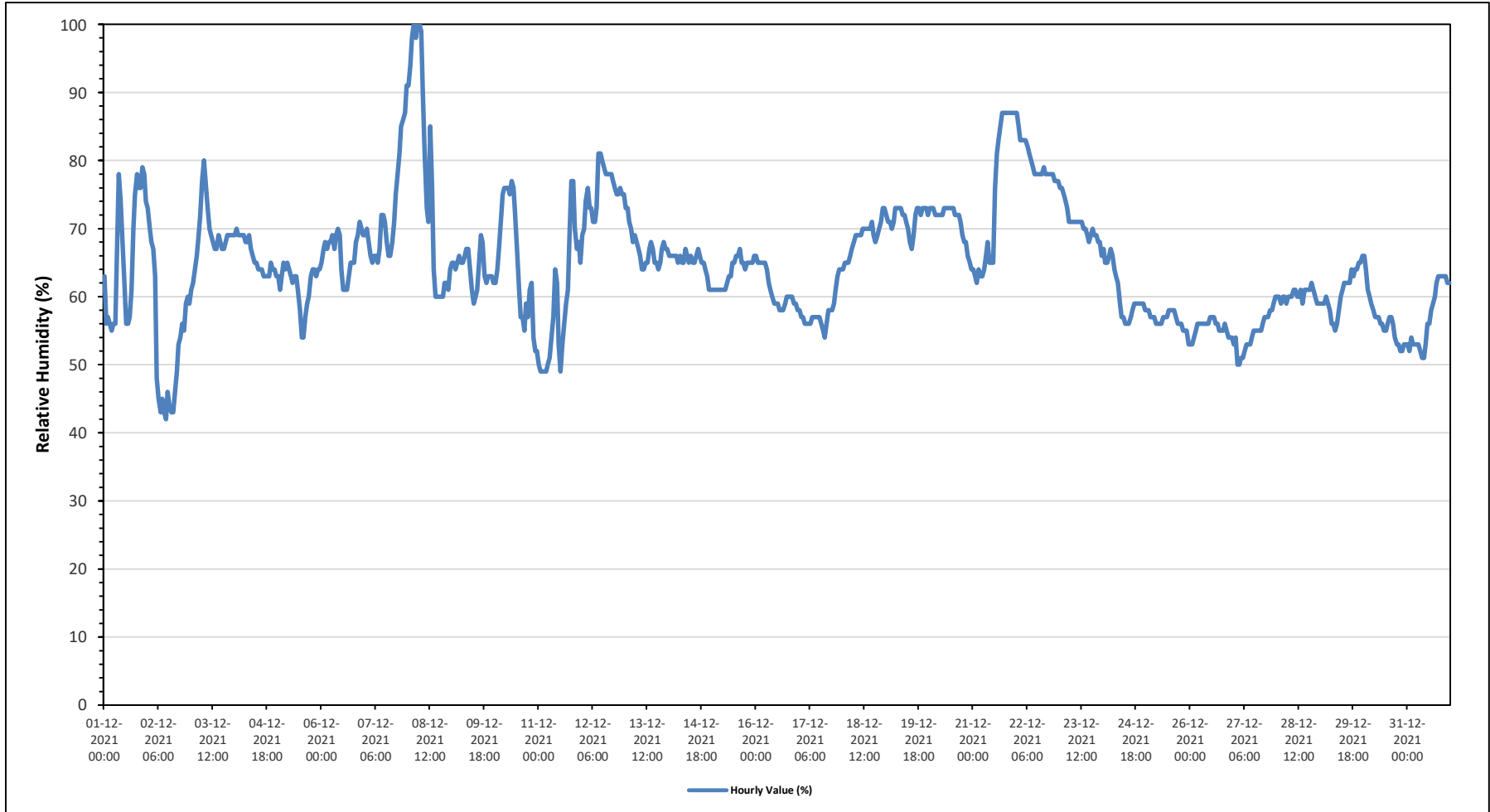
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Dec 1	63	56	57	56	55	56	56	68	78	74	68	63	56	56	57	61	70	75	78	76	76	79	78	74	55	79	66.1
Dec 2	73	70	68	67	63	48	45	43	45	43	42	46	44	43	43	46	49	53	54	56	55	59	60	59	42	73	53.1
Dec 3	61	62	64	66	69	72	77	80	77	73	70	69	68	67	67	69	68	67	67	68	69	69	69	69	61	80	69.0
Dec 4	69	70	69	69	69	69	68	68	69	67	66	65	65	64	64	64	63	63	63	63	65	64	64	63	63	70	66.0
Dec 5	63	61	63	65	64	65	64	63	62	63	63	61	58	54	54	57	59	60	63	64	64	63	64	64	54	65	61.7
Dec 6	65	67	68	67	68	68	69	67	69	70	69	64	61	61	61	63	65	65	65	68	69	71	70	69	61	71	66.6
Dec 7	69	70	68	66	65	66	66	65	67	72	72	71	68	66	66	68	71	75	78	81	85	86	87	91	65	91	72.5
Dec 8	91	94	98	100	98	100	100	99	90	81	73	71	85	76	64	60	60	60	60	62	62	62	61	64	60	100	77.9
Dec 9	65	65	64	65	66	65	65	66	67	67	64	61	59	60	61	65	69	68	63	62	63	63	63	62	59	69	64.1
Dec 10	62	64	67	71	75	76	76	76	75	77	76	72	67	61	57	57	55	59	57	61	62	54	52	52	52	77	65.0
Dec 11	50	49	49	49	49	50	51	54	57	64	62	53	49	53	56	59	61	69	77	77	70	67	68	65	49	77	58.7
Dec 12	69	70	74	76	73	73	71	71	73	81	81	80	79	78	78	78	77	76	75	75	76	75	75	75	69	81	75.5
Dec 13	73	73	71	70	68	69	68	67	66	64	64	65	65	67	68	67	65	65	64	65	67	68	67	67	64	73	67.2
Dec 14	66	66	66	66	66	65	66	65	65	67	66	65	66	65	65	66	67	66	65	65	64	63	61	61	61	67	65.1
Dec 15	61	61	61	61	61	61	61	61	62	63	63	65	65	66	66	67	65	65	64	65	65	65	65	66	61	67	63.5
Dec 16	66	65	65	65	65	65	64	62	61	60	59	59	59	58	58	58	59	60	60	60	60	59	59	58	58	66	61.0
Dec 17	58	57	57	56	56	56	56	57	57	57	57	57	56	55	54	56	58	58	59	61	63	64	64	64	54	64	57.8
Dec 18	64	65	65	65	66	67	68	69	69	69	69	70	70	70	70	71	69	68	69	70	71	73	73	73	64	73	68.8
Dec 19	72	71	71	70	71	73	73	73	73	72	72	71	70	68	67	69	72	73	73	72	73	73	73	72	67	73	71.5
Dec 20	73	73	73	72	72	72	72	72	73	73	73	73	73	73	72	72	71	69	68	68	66	65	64	64	64	73	71.0
Dec 21	64	63	62	64	63	63	64	66	68	65	65	65	76	81	83	85	87	87	87	87	87	87	87	87	62	87	74.7
Dec 22	87	85	83	83	83	83	82	81	80	79	78	78	78	78	78	79	78	78	78	78	78	77	77	77	77	87	79.8
Dec 23	76	76	75	74	73	71	71	71	71	71	71	71	71	70	70	69	68	69	70	69	69	68	68	66	66	76	70.8
Dec 24	67	65	65	66	67	66	64	63	62	59	57	57	56	56	56	57	58	59	59	59	59	59	58	58	56	67	60.5
Dec 25	58	58	57	57	57	56	56	56	56	57	57	57	58	58	58	58	57	56	56	56	55	55	55	53	53	58	56.5
Dec 26	53	53	54	55	56	56	56	56	56	56	56	57	57	57	56	56	55	55	55	56	55	54	54	54	53	57	55.3
Dec 27	53	54	50	50	51	51	52	53	53	53	54	55	55	55	55	56	57	57	57	58	58	59	60	60	50	60	54.6
Dec 28	60	60	59	60	60	59	60	60	61	61	61	60	60	61	59	61	61	61	61	62	61	60	59	59	59	62	60.2
Dec 29	59	59	59	60	59	58	56	56	55	56	58	60	61	62	62	62	62	64	63	64	64	65	65	66	55	66	60.6
Dec 30	66	64	61	60	59	58	57	57	56	56	56	55	55	56	57	56	54	53	53	52	52	53	53	52	52	66	56.5
Dec 31	53	52	54	53	53	53	53	52	51	51	53	56	56	58	59	60	62	63	63	63	63	62	62	62	51	63	57.0
Diurnal Maximum	91	94	98	100	98	100	100	99	90	81	81	80	85	81	83	85	87	87	87	87	87	87	87	91			
Diurnal Average	65.5	65.1	65.1	65.3	65.2	64.8	64.7	65.1	65.3	65.2	64.4	63.6	63.4	63.0	62.6	63.6	64.4	65.2	65.3	65.7	65.9	65.8	65.7	65.4			

<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b>	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 - December 2021

Summary of Hourly Averages

### BAROMETRIC PRESSURE (BP) in millibar

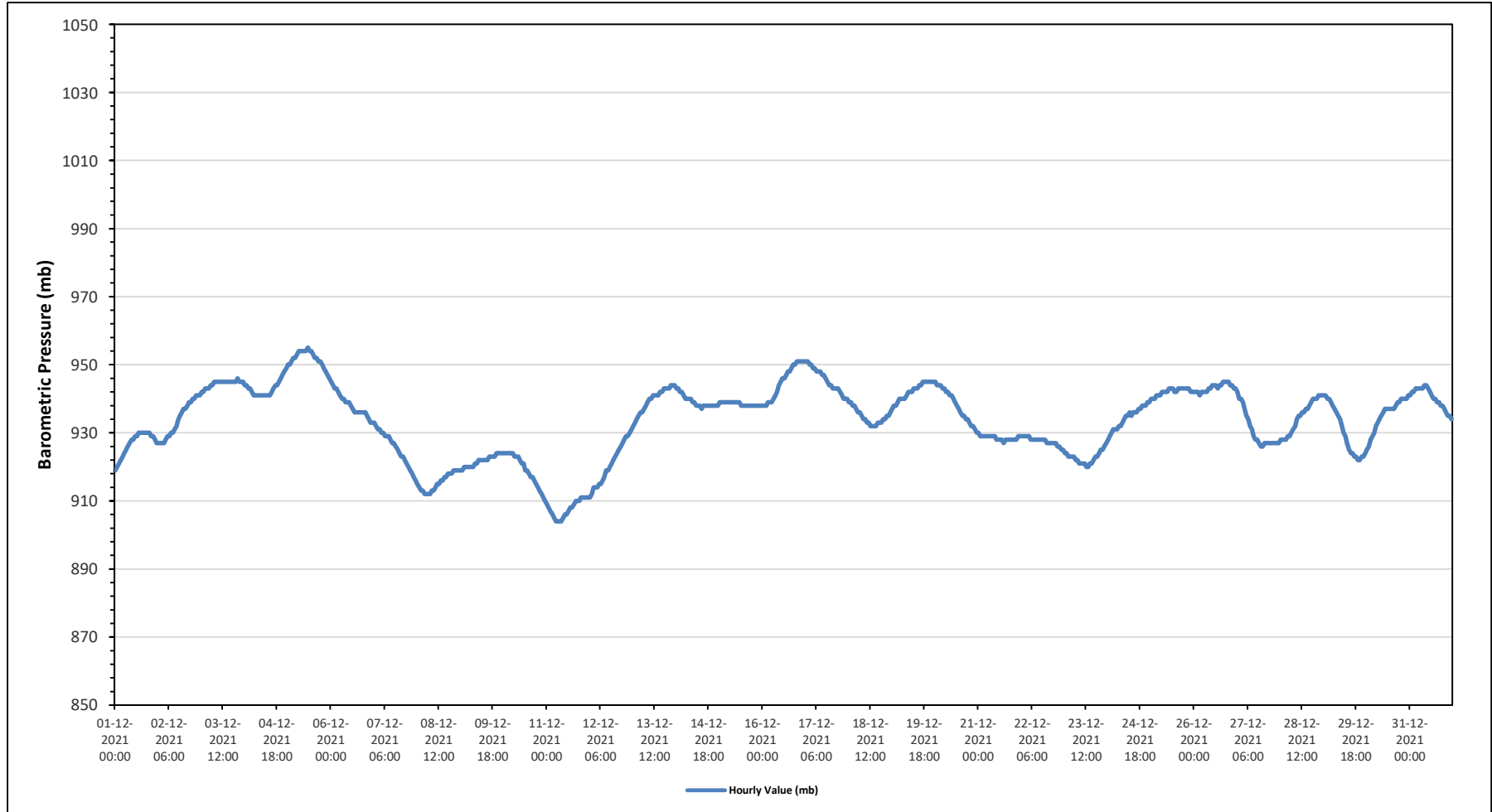
Maximum Hourly Value:	955 mb	on December 5 at hour 11	Hours in Service:	744
Maximum Daily Value:	952 mb	on December 5	Hours of Data:	744
Minimum Hourly Value:	904 mb	on December 11 at hour 5	Hours of Missing Data:	0
Minimum Daily Value:	908 mb	on December 11	Hours of Calibration:	0
Monthly Average:	934 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
Dec 1	919	920	921	922	923	924	925	926	927	928	928	929	929	930	930	930	930	930	930	930	929	929	928	927	919	930	926.8
Dec 2	927	927	927	927	928	929	929	930	930	931	932	934	935	936	937	937	938	939	939	940	940	941	941	941	927	941	934.0
Dec 3	942	942	943	943	943	944	944	945	945	945	945	945	945	945	945	945	945	945	945	945	946	945	945	945	942	946	944.5
Dec 4	944	944	943	943	942	941	941	941	941	941	941	941	941	941	942	943	944	944	945	946	947	948	949	941	949	943.1	
Dec 5	950	950	951	952	952	953	954	954	954	954	954	955	954	954	953	952	951	951	950	949	948	947	946	946	955	951.7	
Dec 6	945	944	943	943	942	941	940	940	939	939	939	938	937	936	936	936	936	936	936	936	936	936	936	933	945	938.2	
Dec 7	933	932	931	931	930	930	929	929	929	928	927	927	926	925	924	923	923	922	921	920	919	918	917	916	916	933	925.4
Dec 8	915	914	913	913	912	912	912	912	913	913	914	915	915	916	916	917	917	918	918	918	919	919	919	919	912	919	915.4
Dec 9	919	919	920	920	920	920	920	920	921	921	922	922	922	922	922	922	923	923	923	923	924	924	924	924	919	924	921.7
Dec 10	924	924	924	924	924	924	923	923	923	922	921	921	919	919	918	917	917	916	915	914	913	912	911	910	910	924	919.1
Dec 11	909	908	907	906	905	904	904	904	904	905	906	906	907	908	908	909	910	910	910	911	911	911	911	911	904	911	907.7
Dec 12	911	912	914	914	914	915	915	916	917	919	919	920	921	922	923	924	925	926	927	928	929	930	931	911	931	920.9	
Dec 13	932	933	934	935	936	936	937	938	939	940	940	941	941	941	941	942	942	943	943	943	943	943	944	944	932	944	939.7
Dec 14	943	943	942	942	941	940	940	940	940	939	939	938	938	938	937	938	938	938	938	938	938	938	938	938	937	943	939.3
Dec 15	939	939	939	939	939	939	939	939	939	939	939	939	939	938	938	938	938	938	938	938	938	938	938	938	938	939	938.5
Dec 16	938	938	938	939	939	939	940	941	942	944	945	946	946	947	948	948	949	950	950	951	951	951	951	938	951	945.1	
Dec 17	951	951	950	950	949	949	948	948	948	947	947	946	945	944	944	943	943	943	943	942	941	940	940	940	940	951	945.5
Dec 18	939	939	938	938	937	936	936	935	934	934	933	933	932	932	932	933	933	933	934	934	935	935	935	932	939	934.7	
Dec 19	937	938	938	939	940	940	940	940	941	942	942	942	943	943	943	944	944	945	945	945	945	945	945	937	945	942.1	
Dec 20	945	944	944	944	943	943	942	942	941	941	940	939	938	937	936	935	935	934	934	933	932	932	931	930	930	945	938.1
Dec 21	930	929	929	929	929	929	929	929	929	929	928	928	928	928	927	928	928	928	928	928	928	928	929	929	927	930	928.5
Dec 22	929	929	929	929	929	928	928	928	928	928	928	928	928	928	927	927	927	927	927	927	927	926	926	925	925	929	927.5
Dec 23	924	924	923	923	923	923	922	922	921	921	921	921	920	920	921	921	922	923	923	924	925	925	926	927	920	927	922.7
Dec 24	928	929	930	931	931	931	932	932	933	934	935	935	936	936	936	936	937	937	938	938	938	939	939	939	928	939	934.4
Dec 25	940	940	940	941	941	941	942	942	942	942	943	943	943	942	942	943	943	943	943	943	943	943	942	942	940	943	942.0
Dec 26	942	942	942	941	942	942	942	942	943	943	944	944	944	943	944	944	945	945	945	945	944	944	943	943	941	945	943.3
Dec 27	942	940	940	939	937	935	934	932	931	929	928	928	927	926	926	927	927	927	927	927	927	927	927	927	926	942	930.7
Dec 28	928	928	928	928	929	929	930	931	932	934	935	935	936	936	937	937	938	939	940	940	940	941	941	941	928	941	934.7
Dec 29	941	941	940	940	939	938	937	936	935	934	932	930	929	927	925	924	924	923	923	922	922	923	923	924	922	941	930.5
Dec 30	925	926	928	929	930	932	933	934	935	936	937	937	937	937	937	937	938	939	940	940	940	940	941	925	941	935.3	
Dec 31	941	942	942	943	943	943	943	944	944	943	942	941	940	940	939	939	938	938	937	936	935	934	934	934	934	944	940.2
Diurnal Maximum	951	951	951	952	952	953	954	954	954	954	955	954	954	953	952	952	951	951	951	951	951	951	951	951	951	951	951
Diurnal Average	933	933	933	933	933	933	933	933	934	934	934	934	934	933	933	933	934	934	934	934	934	934	934	934	934	934	934

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





## PEACE RIVER AREA MONITORING PROGRAM

Reno Station - December 2021

Summary of Hourly Averages

### AMBIENT TEMPERATURE (AT) in Degree Celsius

Maximum Hourly Value:	4.6 °C	on December 1 at hour 1	Hours in Service:	744
Maximum Daily Value:	-1.0 °C	on December 1	Hours of Data:	744
Minimum Hourly Value:	-37.5 °C	on December 27 at hour 3	Hours of Missing Data:	0
Minimum Daily Value:	-32.2 °C	on December 26	Hours of Calibration:	0
Monthly Average:	-18.3 °C		Operational Uptime:	100.0

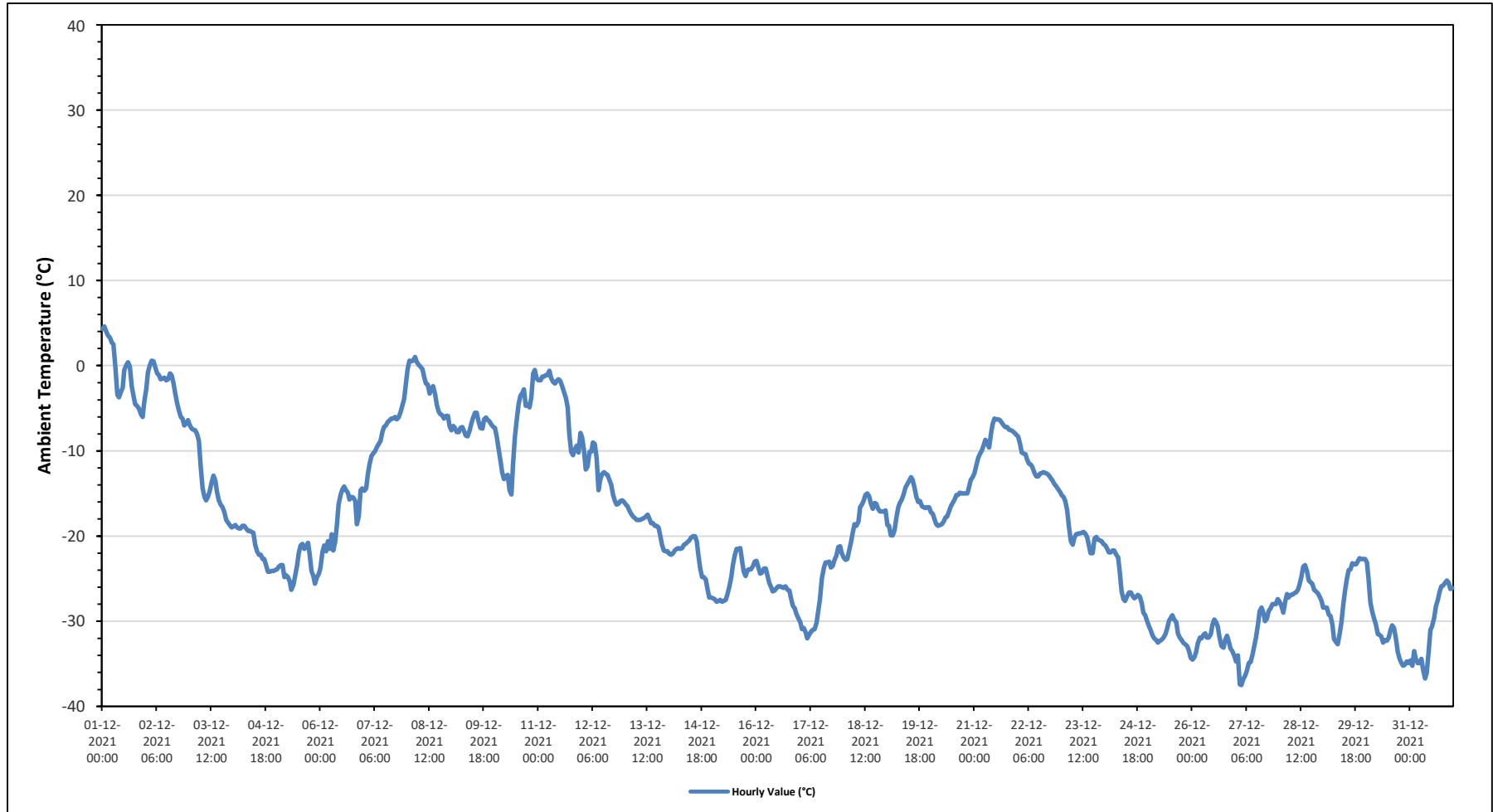
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Dec 1	4.3	4.6	4	3.5	3.3	2.7	2.5	0	-3.4	-3.7	-3.1	-2.6	-0.5	0	0.4	-0.1	-2.4	-3.6	-4.5	-4.7	-5	-5.7	-6	-4.1	-6.0	4.6	-1.0
Dec 2	-2.7	-0.8	0	0.6	0.5	-0.2	-0.9	-1.1	-1.6	-1.5	-1.4	-1.7	-1.6	-0.9	-1.1	-2	-3.3	-4.4	-5.3	-6	-6.2	-7	-6.8	-6.4	-7.0	0.6	-2.6
Dec 3	-7	-7.4	-7.5	-7.6	-8	-8.8	-11.9	-14.4	-15.4	-15.8	-15.4	-14.7	-13.7	-12.9	-13.5	-14.8	-15.8	-16.3	-16.6	-17.2	-18.1	-18.4	-18.7	-19	-19.0	-7.0	-13.7
Dec 4	-18.9	-18.7	-19	-19.1	-19.1	-18.8	-18.8	-19.1	-19.4	-19.4	-19.5	-19.6	-21	-21.8	-22.2	-22.2	-22.7	-22.7	-23.4	-24.2	-24.2	-24.1	-24.1	-24	-24.2	-18.7	-21.1
Dec 5	-23.9	-23.6	-23.4	-23.4	-24.8	-24.6	-24.8	-25.3	-26.3	-25.7	-24.6	-23.4	-22	-21.1	-20.9	-21.5	-21.2	-20.8	-22.1	-24.1	-24.7	-25.6	-24.8	-24.4	-26.3	-20.8	-23.6
Dec 6	-23.7	-21.9	-21.1	-21.8	-20.6	-21.5	-19.8	-21.7	-20.7	-18.6	-16.3	-15.1	-14.5	-14.2	-14.6	-14.9	-15.7	-15.4	-15.5	-15.9	-18.6	-17.7	-14.6	-14.4	-23.7	-14.2	-17.9
Dec 7	-14.7	-14.4	-12.8	-11.5	-10.6	-10.3	-10	-9.5	-9.2	-8.8	-7.8	-7.2	-7	-6.6	-6.4	-6.2	-6.2	-6	-6.3	-6	-5.4	-4.7	-3.9	-2	-14.7	-2.0	-8.1
Dec 8	-0.4	0.6	0.5	0.6	1	0.4	0.1	-0.1	-0.4	-1.4	-2.1	-2.2	-3.3	-2.7	-2.4	-3.4	-4.6	-5.4	-5.7	-5.8	-6.2	-5.9	-5.9	-7.1	-7.1	1.0	-2.6
Dec 9	-7.6	-7.1	-7.3	-7.8	-7.8	-7.3	-7.2	-7.7	-8.2	-8.3	-7.6	-6.8	-6.1	-5.5	-5.5	-6.5	-7.3	-7.4	-6.3	-6.1	-6.4	-6.5	-6.9	-7.2	-8.3	-5.5	-7.0
Dec 10	-7.3	-8.4	-9.8	-11	-12.5	-13.3	-13	-12.8	-14.6	-15.1	-11.6	-8.4	-6.1	-4.5	-3.5	-3.2	-2.8	-4.7	-4.5	-4.9	-3.7	-0.9	-0.5	-1.5	-15.1	-0.5	-7.4
Dec 11	-1.7	-1.7	-1.3	-1.3	-1.1	-1.1	-0.6	-1.5	-1.9	-2.1	-1.8	-1.6	-1.8	-2.4	-3.1	-3.8	-4.9	-8	-10.1	-10.5	-9.8	-9.4	-10.2	-7.9	-10.5	-0.6	-4.2
Dec 12	-8.4	-9.9	-12.2	-11.8	-10.1	-10.1	-9	-9.2	-10.9	-14.6	-13.3	-12.7	-12.5	-12.7	-12.8	-13.4	-14	-15.2	-15.9	-16.3	-16.2	-15.9	-15.8	-16	-16.3	-8.4	-12.9
Dec 13	-16.3	-16.5	-17	-17.4	-17.7	-17.9	-18.1	-18.1	-18.1	-18	-17.9	-17.7	-17.5	-18	-18.5	-18.5	-18.8	-18.8	-19	-20	-21	-21.7	-21.8	-21.8	-21.8	-16.3	-18.6
Dec 14	-22.1	-22.2	-22	-21.7	-21.5	-21.4	-21.5	-21.4	-21	-20.9	-20.7	-20.5	-20.2	-20	-20	-20.6	-22.2	-23.8	-24.8	-24.8	-25.1	-26.3	-27.2	-27.2	-27.2	-20.0	-22.5
Dec 15	-27.3	-27.4	-27.7	-27.6	-27.5	-27.7	-27.6	-27.5	-26.9	-25.9	-24.8	-23.4	-22.3	-21.5	-21.4	-23	-24.2	-24.7	-24	-23.9	-23.9	-23.5	-23	-27.7	-21.4	-24.9	
Dec 16	-22.9	-23.7	-24.4	-24.3	-23.8	-23.8	-24.6	-25.5	-26	-26.5	-26.4	-26.1	-25.9	-25.9	-26	-26.1	-25.9	-26.3	-26.4	-27.3	-28.2	-28.5	-29.1	-29.6	-29.6	-22.9	-26.0
Dec 17	-30.1	-30.9	-30.8	-31.3	-32	-31.6	-31.2	-31	-30.9	-30.2	-28.7	-27.4	-25	-23.7	-23.1	-23.1	-23	-23.7	-23.5	-22.7	-22.3	-21.3	-21.2	-22	-32.0	-21.2	-26.7
Dec 18	-22.5	-22.8	-22.7	-21.7	-20.7	-19.5	-18.6	-18.8	-18.3	-16.6	-16.3	-15.8	-15.2	-15	-15.3	-16.2	-16.8	-16.1	-16.2	-16.8	-17.1	-17.1	-17.1	-17	-22.8	-15.0	-17.9
Dec 19	-18.7	-18.8	-19.9	-19.9	-19.3	-17.8	-16.6	-16.1	-15.7	-15.1	-14.3	-13.9	-13.5	-13.1	-13.4	-14.3	-15.4	-16	-15.9	-16.5	-16.6	-16.7	-16.6	-16.6	-19.9	-13.1	-16.3
Dec 20	-17.2	-17.4	-18	-18.6	-18.8	-18.7	-18.6	-18.3	-17.8	-17.7	-17.1	-16.5	-16.1	-15.7	-15.2	-15.2	-14.9	-15	-15	-15	-15	-14.3	-13.4	-13.1	-18.8	-13.1	-16.4
Dec 21	-12.6	-11.7	-10.8	-10.3	-10	-9.4	-8.7	-9.1	-9.6	-8	-6.9	-6.2	-6.3	-6.3	-6.4	-6.7	-7	-7.2	-7.2	-7.5	-7.6	-7.7	-7.9	-8.1	-12.6	-6.2	-8.3
Dec 22	-8.3	-9.1	-10.2	-10.3	-10.4	-11	-11.5	-11.6	-11.9	-12.6	-13	-13	-12.7	-12.6	-12.5	-12.6	-12.7	-12.9	-13.2	-13.5	-13.9	-14.1	-14.5	-14.8	-14.8	-8.3	-12.2
Dec 23	-15.2	-15.4	-15.9	-17	-19	-20.6	-21	-20.2	-19.8	-19.7	-19.7	-19.6	-19.5	-19.7	-20.1	-21.1	-22	-22	-20.3	-20.1	-20.4	-20.5	-20.6	-20.9	-22.0	-15.2	-19.6
Dec 24	-21.1	-21.5	-21.9	-21.9	-21.7	-21.7	-22.2	-22.5	-24.2	-26.5	-27.4	-27.6	-27.1	-26.6	-26.6	-27	-27.3	-27.1	-26.9	-27.1	-27.9	-29	-29.3	-30	-30.0	-21.1	-25.5
Dec 25	-30.5	-31	-31.7	-32	-32.2	-32.5	-32.3	-32.2	-31.9	-31.5	-30.9	-30	-29.6	-29.3	-29.8	-30.1	-31.4	-31.9	-32.2	-32.5	-32.7	-32.9	-33.5	-34.3	-34.3	-29.3	-31.6
Dec 26	-34.5	-34.2	-33.7	-32.6	-31.9	-32	-31.6	-31.4	-31.9	-31.9	-31.5	-30.4	-29.8	-30.1	-30.6	-31.9	-32.9	-33.1	-32.2	-31.7	-32.4	-33.2	-33.5	-34.1	-34.5	-29.8	-32.2
Dec 27	-34.7	-34	-37.4	-37.5	-36.8	-36.4	-35.8	-34.9	-34.8	-33.9	-33	-31.9	-30.3	-28.8	-28.4	-29	-30	-29.7	-28.8	-28.5	-28	-28	-28	-27.4	-37.5	-27.4	-31.9
Dec 28	-27.7	-28.2	-29	-27.7	-26.8	-27.2	-26.9	-26.9	-26.7	-26.6	-26.3	-25.7	-24.8	-23.6	-23.4	-24.1	-25.2	-25.4	-25.6	-26.3	-26.5	-26.7	-27.1	-27.6	-29.0	-23.4	-26.3
Dec 29	-28.4	-28.4	-28.4	-29.2	-29.4	-30.4	-32.1	-32.4	-32.7	-31.5	-30.1	-28	-26.3	-25.1	-24	-23.9	-23.2	-23.3	-23.3	-23	-22.6	-22.7	-22.7	-22.7	-32.7	-22.6	-26.8
Dec 30	-23.1	-25	-27.8	-28.9	-29.7	-30.4	-31.5	-31.6	-31.8	-32.5	-32.2	-32.3	-31.9	-31	-30.5	-30.8	-32	-33.6	-34.4	-34.9	-35.2	-35.1	-34.7	-34.9	-35.2	-23.1	-31.5
Dec 31	-34.6	-35.2	-33.5	-34.4	-34.9	-34.9	-34.4	-35.8	-36.7	-36.1	-33.7	-31	-30.6	-29.6	-28.2	-27.5	-26.6	-25.9	-25.8	-25.5	-25.2	-25.5	-26.2	-26.1	-36.7	-25.2	-30.7
Diurnal Maximum	4.3	4.6	4.0	3.5	3.3	2.7	2.5	0.0	-0.4	-1.4	-1.4	-1.6	-0.5	0.0	0.4	-0.1	-2.4	-3.6	-4.5	-4.7	-3.7	-0.9	-0.5	-1.5			
Diurnal Average	-18.1	-18.1	-18.5	-18.5	-18.5	-18.6	-18.7	-19.0	-19.3	-19.2	-18.6	-17.8	-17.2	-16.8	-16.7	-17.2	-17.8	-18.3	-18.4	-18.7	-18.9	-18.9	-18.9	-18.9			

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





## PEACE RIVER AREA MONITORING PROGRAM

*Reno Station - December 2021*

Summary of Hourly Averages

### STATION TEMPERATURE (ST) in Degree Celsius

Maximum Hourly Value:	26.2 °C	on December 2 at hour 13	Hours in Service:	744
Maximum Daily Value:	23.8 °C	on December 2	Hours of Data:	744
Minimum Hourly Value:	16.9 °C	on December 31 at hour 9	Hours of Missing Data:	0
Minimum Daily Value:	19.2 °C	on December 31	Hours of Calibration:	0
Monthly Average:	21.7 °C		Operational Uptime:	100.0

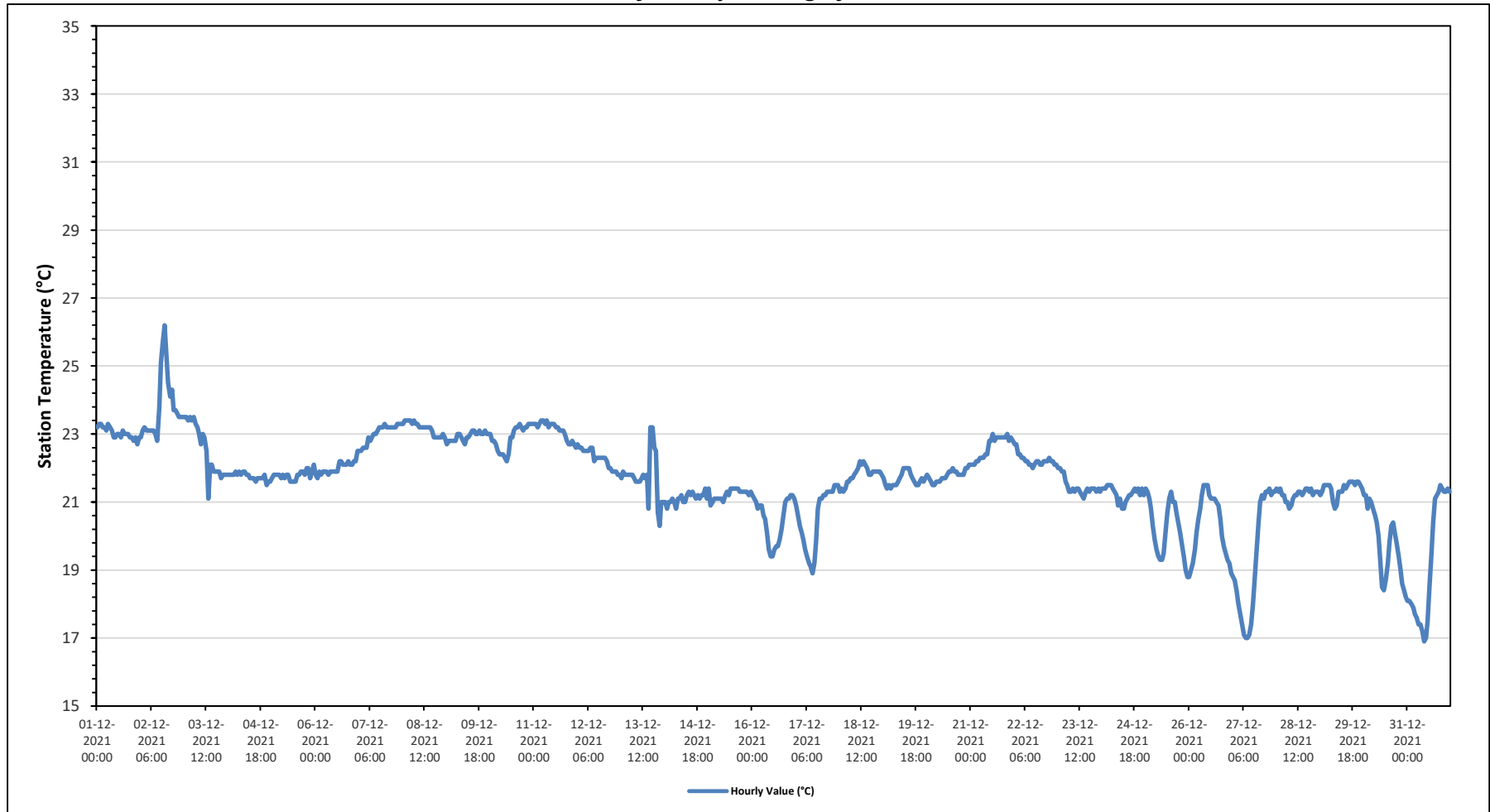
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Dec 1	23.2	23.3	23.3	23.2	23.2	23.1	23.3	23.2	23.1	22.9	22.9	23.0	23.0	22.9	23.1	23.0	23.0	23.0	22.9	22.9	22.8	22.9	22.7	22.9	22.7	23.3	23.0
Dec 2	22.9	23.1	23.2	23.1	23.1	23.1	23.1	23.1	23.0	22.8	23.8	25.1	25.7	26.2	25.4	24.5	24.1	24.3	23.7	23.7	23.6	23.5	23.5	23.5	22.8	26.2	23.8
Dec 3	23.5	23.5	23.4	23.5	23.4	23.5	23.3	23.2	23.0	22.7	23.0	22.9	22.5	21.1	22.1	22.1	21.9	21.9	21.9	21.9	21.7	21.8	21.8	21.8	21.1	23.5	22.6
Dec 4	21.8	21.8	21.8	21.8	21.9	21.8	21.9	21.8	21.9	21.9	21.8	21.8	21.7	21.7	21.7	21.6	21.7	21.7	21.7	21.7	21.8	21.5	21.6	21.6	21.5	21.9	21.8
Dec 5	21.7	21.8	21.8	21.8	21.8	21.7	21.8	21.7	21.8	21.8	21.6	21.6	21.6	21.6	21.8	21.8	21.9	21.9	21.8	22.0	22.0	21.7	21.9	22.1	21.6	22.1	21.8
Dec 6	21.8	21.7	21.9	21.8	21.9	21.9	21.9	21.8	21.9	21.9	21.9	21.9	21.9	22.2	22.2	22.1	22.1	22.1	22.2	22.1	22.1	22.2	22.2	22.5	21.7	22.5	22.0
Dec 7	22.5	22.5	22.6	22.6	22.6	22.9	22.8	22.9	23.0	23.0	23.1	23.2	23.2	23.2	23.3	23.2	23.2	23.2	23.2	23.2	23.2	23.3	23.3	23.3	22.5	23.3	23.0
Dec 8	23.3	23.4	23.4	23.4	23.4	23.3	23.4	23.3	23.3	23.2	23.2	23.2	23.2	23.2	23.2	23.1	23.2	23.1	22.9	22.9	22.9	22.9	23.0	22.9	22.9	23.4	23.2
Dec 9	22.7	22.8	22.8	22.8	22.8	22.8	23.0	23.0	22.9	22.8	22.7	22.9	22.9	23.0	23.1	23.1	23.0	23.0	23.1	23.0	23.0	23.1	23.0	23.0	22.7	23.1	22.9
Dec 10	23.0	22.8	22.8	22.7	22.5	22.4	22.4	22.4	22.3	22.2	22.4	22.9	22.9	23.1	23.2	23.2	23.3	23.2	23.1	23.2	23.2	23.3	23.3	23.3	22.2	23.3	22.9
Dec 11	23.3	23.3	23.2	23.3	23.4	23.4	23.3	23.4	23.2	23.3	23.3	23.3	23.2	23.2	23.1	23.1	23.1	23.0	22.8	22.7	22.7	22.8	22.7	22.6	22.6	23.4	23.1
Dec 12	22.7	22.6	22.6	22.5	22.5	22.5	22.5	22.6	22.6	22.2	22.3	22.3	22.3	22.3	22.3	22.3	22.2	22.0	22.0	21.9	21.9	21.9	21.8	21.8	21.8	21.8	22.3
Dec 13	21.7	21.9	21.8	21.8	21.8	21.8	21.8	21.7	21.6	21.6	21.6	21.7	21.8	21.7	21.8	20.8	23.2	23.2	22.6	22.5	20.7	20.3	21.0	21.0	20.3	23.2	21.7
Dec 14	21.0	20.8	21.0	21.0	21.1	21.0	20.8	21.1	21.1	21.2	21.0	21.0	21.2	21.3	21.2	21.3	21.2	21.1	21.2	21.1	21.2	21.4	21.1	20.8	21.4	21.1	
Dec 15	21.4	20.9	21.0	21.1	21.1	21.1	21.1	21.1	21.0	21.2	21.3	21.2	21.4	21.4	21.4	21.4	21.3	21.3	21.3	21.3	21.2	21.2	21.3	20.9	21.4	21.2	
Dec 16	21.2	21.1	21.0	20.8	20.9	20.9	20.6	20.5	20.1	19.6	19.4	19.4	19.6	19.7	19.7	19.9	20.2	20.6	21.0	21.1	21.1	21.2	21.2	21.1	19.4	21.2	20.5
Dec 17	20.9	20.6	20.3	20.1	19.9	19.6	19.4	19.2	19.1	18.9	19.2	19.8	20.8	21.1	21.1	21.2	21.2	21.3	21.3	21.3	21.3	21.5	21.5	18.9	21.5	20.5	
Dec 18	21.3	21.4	21.3	21.4	21.6	21.6	21.7	21.7	21.8	21.9	22.0	22.2	22.1	22.2	22.1	22.0	21.8	21.8	21.9	21.9	21.9	21.9	21.9	21.8	21.3	22.2	21.8
Dec 19	21.7	21.5	21.4	21.5	21.4	21.5	21.5	21.5	21.6	21.7	21.8	22.0	22.0	22.0	22.0	21.8	21.7	21.6	21.5	21.5	21.6	21.7	21.6	21.7	21.4	22.0	21.7
Dec 20	21.8	21.7	21.6	21.5	21.5	21.6	21.6	21.6	21.7	21.7	21.7	21.8	21.9	21.9	22.0	21.9	21.9	21.8	21.8	21.8	21.8	22.0	22.0	22.1	21.5	22.1	21.8
Dec 21	22.1	22.1	22.1	22.2	22.2	22.3	22.3	22.3	22.4	22.4	22.8	22.8	23.0	22.8	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.8	22.9	22.8	22.1	23.0	22.6
Dec 22	22.7	22.7	22.4	22.4	22.3	22.3	22.2	22.2	22.1	22.1	22.0	22.1	22.2	22.2	22.1	22.1	22.2	22.2	22.2	22.2	22.3	22.2	22.2	22.0	22.0	22.7	22.2
Dec 23	22.0	22.0	21.9	21.9	21.6	21.5	21.3	21.3	21.4	21.3	21.4	21.4	21.3	21.2	21.1	21.3	21.4	21.3	21.4	21.4	21.4	21.4	21.3	21.1	22.0	21.5	21.5
Dec 24	21.4	21.4	21.4	21.5	21.5	21.4	21.3	21.2	20.9	21.1	20.8	20.8	21.0	21.1	21.2	21.2	21.3	21.4	21.3	21.4	21.3	21.4	21.2	20.8	21.5	21.2	21.2
Dec 25	21.4	21.3	21.1	20.8	20.3	19.9	19.6	19.4	19.3	19.3	19.5	20.1	20.7	21.1	21.3	21.0	21.0	20.7	20.4	20.1	19.7	19.4	19.0	18.8	18.8	21.4	20.2
Dec 26	18.8	19.0	19.2	19.6	20.1	20.5	20.8	21.2	21.5	21.5	21.5	21.2	21.1	21.1	21.1	21.0	20.9	20.5	20.0	19.7	19.5	19.3	19.2	18.9	18.8	21.5	20.3
Dec 27	18.8	18.7	18.4	18.0	17.7	17.4	17.1	17.0	17.0	17.1	17.4	18.0	18.8	19.6	20.4	21.0	21.2	21.1	21.3	21.3	21.4	21.2	21.3	21.3	17.0	21.4	19.3
Dec 28	21.4	21.3	21.4	21.2	21.2	21.0	21.0	20.8	20.9	21.1	21.2	21.2	21.3	21.3	21.2	21.3	21.4	21.4	21.3	21.4	21.2	21.3	21.3	20.8	21.4	21.2	21.2
Dec 29	21.2	21.3	21.5	21.5	21.5	21.4	21.0	20.8	20.9	21.3	21.3	21.3	21.5	21.4	21.5	21.6	21.6	21.6	21.5	21.6	21.6	21.5	21.4	20.8	21.6	21.4	21.4
Dec 30	21.2	21.2	20.8	21.1	21.0	20.8	20.6	20.4	20.0	19.2	18.5	18.4	18.7	19.2	19.8	20.3	20.4	20.1	19.8	19.4	19.0	18.6	18.4	18.2	18.2	21.2	19.8
Dec 31	18.1	18.1	18.0	17.9	17.7	17.6	17.4	17.4	17.2	16.9	17.0	17.5	18.5	19.4	20.4	21.1	21.2	21.3	21.5	21.4	21.3	21.3	21.4	21.3	16.9	21.5	19.2
Diurnal Maximum	23.5	23.5	23.4	23.5	23.4	23.5	23.4	23.4	23.3	23.3	23.8	25.1	25.7	26.2	25.4	24.5	24.1	24.3	23.7	23.7	23.6	23.5	23.5	23.5	22.8	26.2	23.8
Diurnal Average	21.7	21.7	21.6	21.6	21.6	21.5	21.5	21.5	21.4	21.3	21.4	21.5	21.7	21.8	21.9	21.9	22.0	21.9	21.9	21.8	21.7	21.7	21.7	21.7	21.7	21.7	21.7

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





## PEACE RIVER AREA MONITORING PROGRAM

**Reno Station - December 2021**

**Summary of Hourly Averages**

### PRECIPITATION in mm

Maximum Hourly Value:	0.8 mm on December 8 at hour 2	Hours in Service:	744
Maximum Daily Value:	1.7 mm on December 8	Hours of Data:	744
Minimum Hourly Value:	0.0 mm on December 1 at hour 0	Hours of Missing Data:	0
Minimum Daily Value:	0.0 mm on December 1	Hours of Calibration:	0
Monthly Total:	2.3 mm	Operational Uptime:	100.0

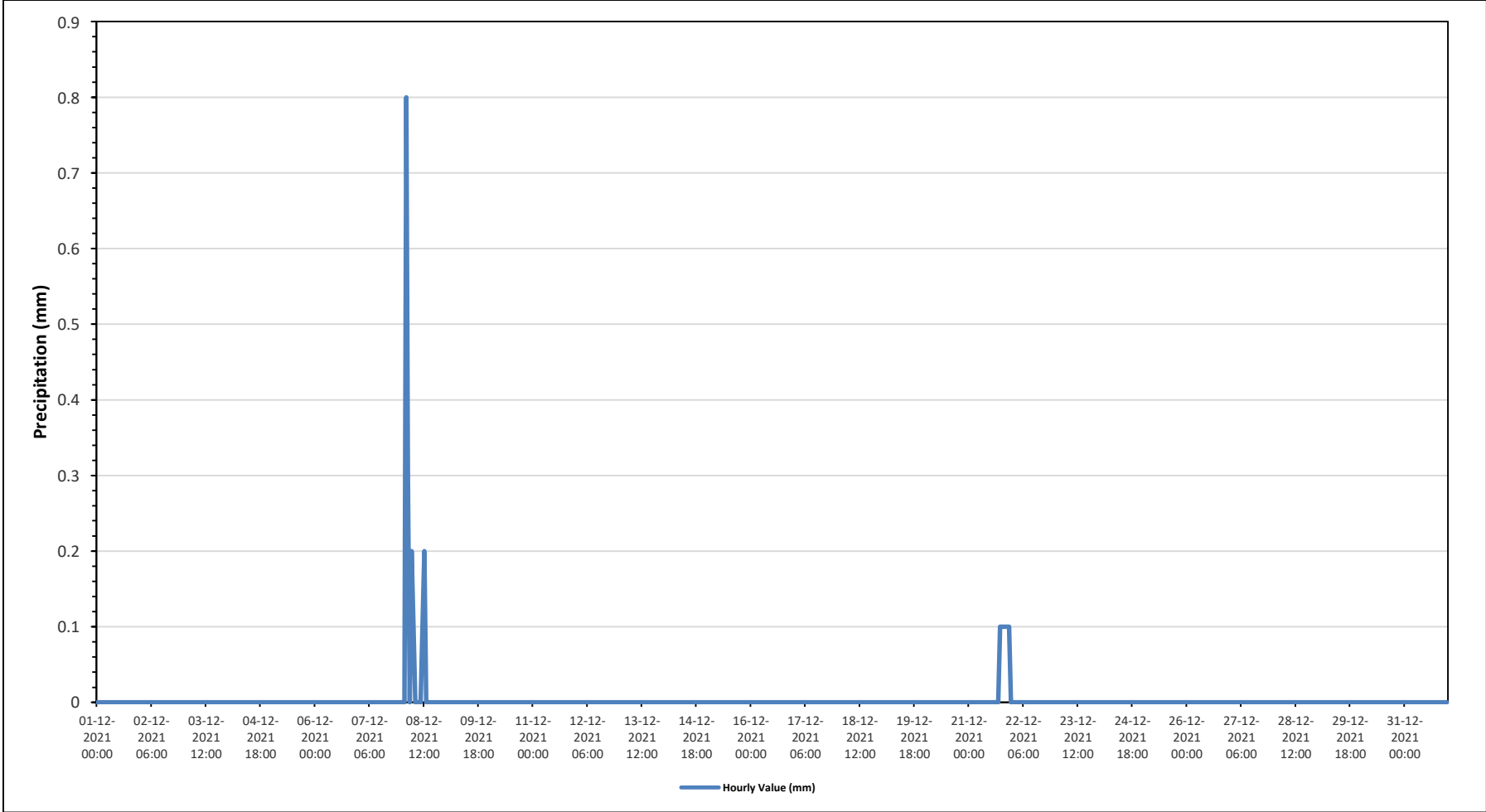
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Total		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Dec 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Dec 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 8	0	0	0.8	0.3	0	0.2	0.1	0	0	0	0	0	0.1	0.2	0	0	0	0	0	0	0	0	0	0	0	0.0	0.8	1.7
Dec 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 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
Dec 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
Dec 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
Dec 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 21	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	0.0	0.1	0.6
Dec 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 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
Dec 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 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
Dec 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
Dec 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
Dec 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
Dec 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Dec 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Diurnal Maximum	0.0	0.0	0.8	0.3	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	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				

<b>C</b>	Monthly Calibration	<b>S</b>	Daily Zero-Span Check	<b>Q</b>	Quality Assurance
<b>K</b>	Collection Error	<b>N</b>	No Data (Machine Not in Service)	<b>Y</b>	Routine Maintenance
<b>X</b>	InValid Data (Equipment Malfunction /Recovery)	<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b>	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 - December 2021

Summary of Hourly Averages

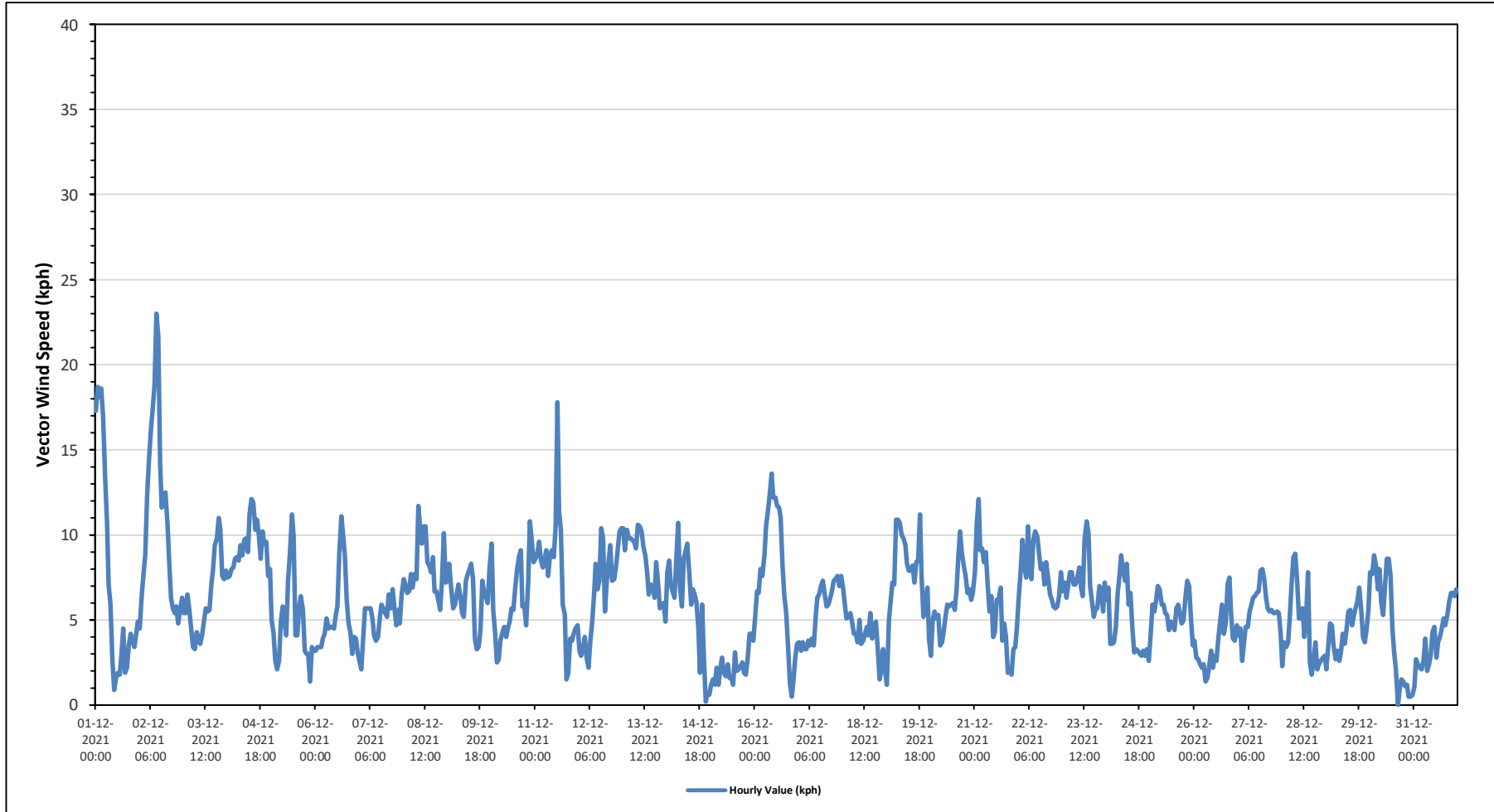
VECTOR WIND SPEED (VWS) in km/hr

Maximum Hourly Value:	23.0 kph	on December 2 at hour 9	Hours in Service:	744
Maximum Daily Value:	10.2 kph	on December 2	Hours of Data:	744
Minimum Hourly Value:	0.0 kph	on December 30 at hour 15	Hours of Missing Data:	0
Minimum Daily Value:	0.3 kph	on December 15	Hours of Calibration:	0
Monthly Average:	2.2 kph		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Dec 1	17.3	18.7	18.1	18.6	17.0	13.3	10.7	7.1	5.9	2.7	21.7	14.2	11.6	12.1	12.5	10.6	8.5	6.3	5.7	5.4	5.8	4.8	5.7	6.3	0.9	18.7	5.1
Dec 2	4.5	6.5	7.8	8.8	12.3	14.4	16.1	17.4	18.8	23.0	21.7	14.2	11.6	12.1	12.5	10.6	8.5	6.3	5.7	5.4	5.8	4.8	5.7	6.3	4.5	23.0	10.2
Dec 3	5.4	5.4	6.5	5.6	4.5	3.4	3.3	4.3	4.0	3.6	4.1	4.9	5.7	5.5	5.6	7.1	7.9	9.4	9.8	11.0	10.3	7.6	7.4	7.9	3.3	11.0	4.3
Dec 4	7.5	7.6	8.0	8.1	8.6	8.7	8.5	9.4	8.8	9.7	9.8	9.0	11.2	12.1	11.9	10.3	10.9	10.0	8.6	10.2	9.5	9.6	7.6	8.0	7.5	12.1	9.2
Dec 5	5.0	4.3	2.6	2.1	2.6	4.9	5.8	4.9	4.1	7.3	8.9	11.2	9.9	4.1	4.1	5.8	6.4	5.6	3.2	3.0	1.4	3.4	3.2	1.4	1.4	11.2	4.0
Dec 6	3.2	3.4	3.4	3.4	3.9	4.2	5.1	4.5	4.6	4.6	4.5	5.3	5.8	8.9	11.1	9.9	8.8	6.2	4.8	4.3	3.0	4.0	3.9	3.0	3.0	11.1	4.8
Dec 7	2.6	2.1	3.9	5.7	5.7	5.7	5.7	5.1	4.1	3.8	4.0	5.2	5.9	5.7	5.4	5.2	6.5	5.7	6.8	5.7	4.7	5.6	4.8	6.5	2.1	6.8	4.8
Dec 8	7.4	7.1	6.6	6.7	7.7	6.9	7.7	7.4	11.7	10.5	9.5	10.5	10.5	8.4	8.2	7.8	8.7	6.7	6.7	6.2	5.6	7.3	10.1	7.2	5.6	11.7	7.6
Dec 9	7.3	8.3	7.0	5.7	5.9	6.5	7.1	6.4	5.4	5.2	7.3	7.7	8.0	8.3	7.4	3.9	3.3	3.4	4.4	7.3	6.6	6.4	6.0	8.0	3.3	8.3	6.3
Dec 10	9.5	5.6	4.3	2.5	2.7	3.8	4.3	4.6	4.0	4.5	4.9	5.7	5.6	6.9	8.0	8.7	9.1	5.8	5.9	4.7	7.3	10.8	9.7	8.4	2.5	10.8	5.8
Dec 11	8.6	8.8	9.6	8.5	8.1	8.5	9.1	7.6	8.8	9.1	8.7	10.4	17.8	11.4	10.3	5.9	5.3	1.5	1.9	3.9	3.8	4.2	4.5	4.7	1.5	17.8	6.5
Dec 12	3.2	2.9	3.3	4.0	2.8	2.2	3.8	4.9	6.5	8.3	6.8	7.3	10.4	9.8	5.5	7.3	8.5	9.4	7.3	7.4	8.2	9.1	10.2	10.4	2.2	10.4	4.6
Dec 13	10.4	9.1	10.3	9.8	9.8	9.7	9.6	9.2	10.6	10.5	10.2	9.3	8.8	7.8	6.5	7.1	7.0	6.3	8.4	7.2	5.7	5.9	6.0	4.9	4.9	10.6	8.3
Dec 14	7.8	8.5	7.1	6.7	6.3	8.6	10.7	6.9	5.8	8.6	9.0	9.5	7.7	5.9	6.8	6.5	6.0	4.5	1.9	5.9	2.7	0.2	0.7	0.6	0.2	10.7	5.8
Dec 15	1.2	1.5	1.2	2.2	1.2	2.2	2.8	1.9	1.7	2.4	1.6	1.6	1.2	3.1	2.0	2.1	2.3	2.5	1.9	1.8	2.8	4.2	4.2	3.8	1.2	4.2	0.3
Dec 16	5.2	6.7	6.6	8.0	7.6	8.8	10.5	11.4	12.4	13.6	12.2	12.2	11.7	11.6	11.0	8.2	6.4	5.4	3.4	1.3	0.5	1.6	2.8	3.6	0.5	13.6	6.9
Dec 17	3.7	3.2	3.7	3.3	3.3	3.8	3.5	3.9	3.5	5.2	6.3	6.5	7.0	7.3	6.5	5.8	5.9	6.3	6.7	7.3	7.4	7.6	7.0	7.6	3.2	7.6	5.5
Dec 18	6.9	5.9	5.1	5.2	5.4	4.8	4.2	4.2	3.7	5.0	3.6	3.8	4.2	4.6	4.1	5.4	3.9	4.5	4.9	3.3	1.5	2.1	3.3	2.1	1.5	6.9	2.0
Dec 19	1.2	5.0	6.2	7.2	7.1	10.9	10.9	10.7	10.0	9.8	9.4	8.3	7.9	7.9	8.2	7.2	8.4	8.5	11.2	7.6	5.2	6.0	6.9	3.9	1.2	11.2	7.6
Dec 20	2.9	5.0	5.5	5.1	5.3	3.5	3.7	4.3	5.2	5.9	5.8	5.9	6.0	5.6	6.8	8.6	10.2	8.9	8.1	7.6	6.6	6.8	6.2	6.6	2.9	10.2	6.0
Dec 21	7.8	10.7	12.1	9.1	9.2	8.4	9.0	7.1	5.5	6.4	4.0	4.3	6.2	6.2	6.9	3.8	4.8	4.0	1.9	2.0	1.8	3.3	3.4	4.5	1.8	12.1	5.2
Dec 22	6.3	7.8	9.7	8.2	7.5	10.5	8.0	7.4	9.7	10.2	9.9	9.0	8.0	8.3	7.1	8.4	7.6	6.5	6.2	5.8	5.7	5.8	6.4	7.8	5.7	10.5	7.8
Dec 23	6.7	7.2	6.3	7.0	7.8	7.8	7.1	7.1	7.5	8.1	6.9	6.4	9.7	10.8	10.1	7.0	6.1	5.2	5.7	5.7	7.0	6.8	5.5	7.2	5.2	10.8	7.1
Dec 24	6.2	6.9	3.6	3.6	3.7	4.6	6.6	7.5	8.8	7.9	7.3	8.3	5.9	6.6	4.6	3.1	3.3	3.2	3.0	2.9	3.2	2.9	3.3	2.6	2.6	8.8	4.5
Dec 25	4.1	5.9	5.5	6.2	7.0	6.8	5.9	5.9	5.4	5.3	4.4	4.9	4.8	4.4	5.7	5.9	5.4	4.8	5.0	6.3	7.3	7.0	5.1	3.5	3.5	7.3	5.5
Dec 26	3.8	2.8	2.7	2.4	2.2	2.4	1.4	1.6	2.2	3.2	2.2	2.9	2.6	3.9	4.9	5.9	4.2	4.8	7.1	7.5	5.4	3.9	3.8	4.7	1.4	7.5	3.5
Dec 27	4.1	4.5	2.6	3.7	4.6	4.6	5.5	5.9	6.3	6.4	6.6	6.7	7.9	8.0	7.4	6.3	5.7	5.5	5.6	5.4	5.4	5.5	5.4	4.2	2.6	8.0	5.5
Dec 28	2.3	3.7	3.4	3.7	5.1	7.1	8.7	8.9	7.3	5.1	5.1	5.7	4.0	5.2	7.8	2.5	1.8	2.6	3.7	2.1	2.4	2.6	2.8	2.9	1.8	8.9	3.8
Dec 29	2.1	3.4	4.8	4.7	3.5	2.7	3.2	2.6	3.1	4.2	3.6	4.4	5.5	5.6	4.7	5.3	5.7	6.1	6.9	5.5	4.0	3.7	4.5	5.7	2.1	6.9	2.6
Dec 30	7.8	7.7	8.8	8.2	6.8	8.0	6.0	5.3	7.0	8.6	8.6	7.6	4.5	3.2	2.1	0.0	1.0	1.5	1.4	1.1	1.2	0.5	0.5	0.6	0.0	8.8	3.9
Dec 31	1.1	2.7	2.4	2.2	2.1	2.6	3.9	2.0	2.4	2.9	4.3	4.6	2.8	3.7	4.0	4.5	5.1	4.7	5.3	6.1	6.6	6.6	6.4	6.8	1.1	6.8	3.6
Diurnal Maximum	17	19	18	19	17	14	16	17	19	23	22	14	18	12	13	11	11	10	11	11	10	11	10	10			
Diurnal Average	5.6	6.1	6.1	6.0	6.0	6.5	6.7	6.4	6.6	7.1	6.8	6.9	7.1	6.9	6.8	6.1	6.0	5.4	5.4	5.3	5.0	5.1	5.2	5.2			
<b>C</b>	Monthly Calibration								<b>S</b>	Daily Zero-Span Check								<b>Q</b>	Quality Assurance								
<b>K</b>	Collection Error								<b>N</b>	No Data (Machine Not in Service)								<b>Y</b>	Routine Maintenance								
<b>X</b>	Invalid Data (Equipment Malfunction /Recovery)								<b>NRM</b>	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)								<b>P</b>	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 VWS - Reno Station**

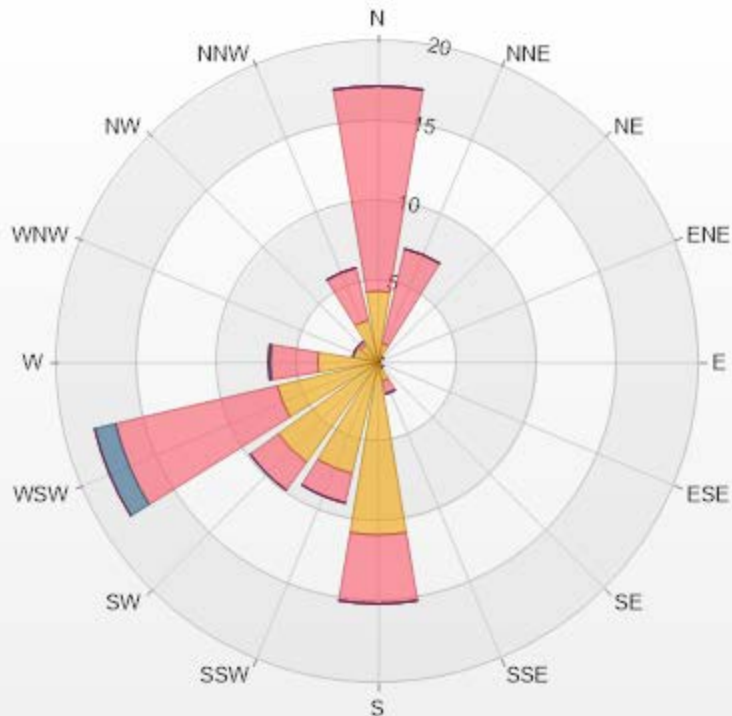


Wind: PRAMP RENO Monitor: WDS [KPH] Monthly: 12-2021 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.

Calm: 4.44% 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	4.44	12.77	0	0	0	17.21
NNE	1.21	6.05	0	0	0	7.26
NE	0.4	0	0	0	0	0.4
ENE	0.13	0	0	0	0	0.13
E	0	0	0	0	0	0
ESE	0	0	0	0	0	0
SE	0.27	0.13	0	0	0	0.4
SSE	1.21	0.81	0	0	0	2.02
S	10.75	4.3	0	0	0	15.05
SSW	7.12	1.88	0	0	0	9
SW	7.66	2.15	0	0	0	9.81
WSW	6.45	10.35	1.34	0	0	18.14
W	3.76	2.96	0.13	0	0	6.85
WNW	1.61	0	0	0	0	1.61
NW	1.34	0.27	0	0	0	1.61
NNW	2.69	3.36	0	0	0	6.05
Summary	49.04	45.03	1.47	0	0	95.54





PRAMP-202112

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% Icon Classes (KPH)	49	1.8-6.0	45	6.0-15.0	1	15.0-29.0	0	29.0-39.0	0	>39.0
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**PEACE RIVER AREA MONITORING PROGRAM**

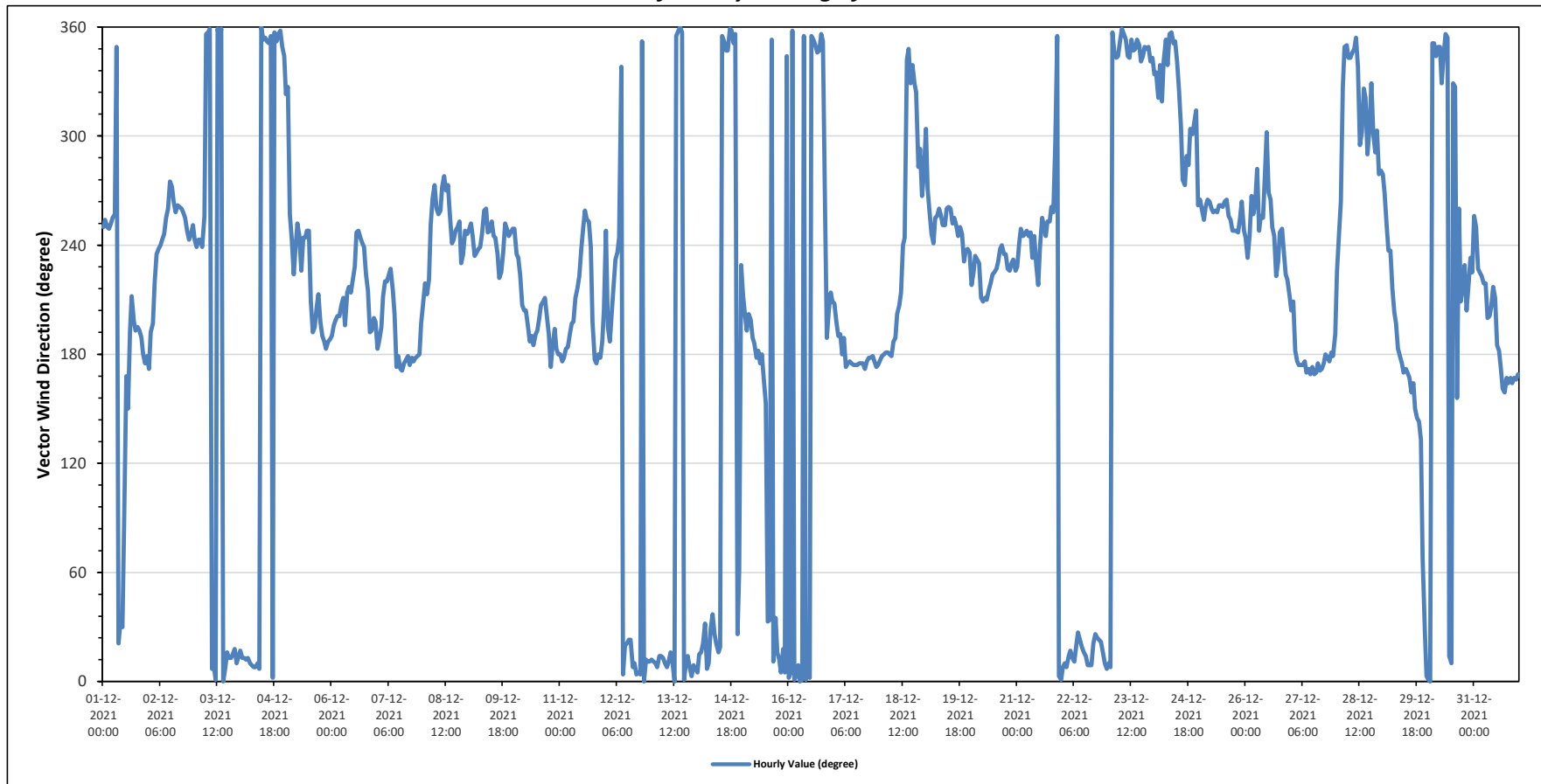
**Reno Station - December 2021**

**Summary of Hourly Averages**

**WIND DIRECTION (VWD) in sector**

Monthly Average: 271 (W) degree														Hours in Service: 744																					
														Hours of Data: 744																					
														Hours of Missing Data: 0																					
														Hours of Calibration: 0																					
														Operational Uptime: 100.0																					
Day	Hourly Period Starting at (MST)																							Daily Average											
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant									
Dec 1	WSW	WSW	WSW	WSW	WSW	WSW	WSW	NNW	NNE	NNE	NNE	E	SSE	SSE	S	SSW	SSW	S	SSW	S	S	S	S	S	242	WSW									
Dec 2	S	S	SSW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	W	W	W	WSW	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	248	WSW									
Dec 3	WSW	WSW	WSW	WSW	WSW	WSW	N	N	N	N	N	N	N	N	N	N	N	NNE	NNE	NNE	NNE	NNE	N	NNE	354	N									
Dec 4	NNE	NNE	NNE	NNE	NNE	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	NNW	NNW	NNW	1	N									
Dec 5	NW	NW	WSW	WSW	SW	WSW	WSW	WSW	WSW	SW	WSW	WSW	WSW	SSW	S	SSW	SSW	SSW	SSW	S	S	S	S	S	231	SW									
Dec 6	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SSW	SW	SW	WSW	WSW	WSW	WSW	WSW	SW	SSW	S	S	SSW	SSW	221	SW									
Dec 7	S	S	SSW	SSW	SW	SW	SW	SW	SSW	SSW	S	S	S	S	S	S	S	S	S	S	S	S	S	S	190	S									
Dec 8	SSW	SW	SSW	SW	WSW	W	W	WSW	WSW	WSW	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	WSW	WSW	251	WSW									
Dec 9	WSW	WSW	WSW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	245	WSW									
Dec 10	WSW	SW	SW	SW	SSW	SSW	SSW	SSW	S	S	S	S	S	SSW	SSW	SSW	SSW	SSW	S	S	S	SSW	S	S	201	SSW									
Dec 11	S	S	S	S	S	S	SSW	SSW	SSW	SW	SW	WSW	WSW	WSW	WSW	WSW	SSW	S	S	S	S	S	SSW	211	SSW										
Dec 12	WSW	SSW	S	SSW	SW	SW	SW	WSW	NNW	N	NNE	NNE	NNE	NNE	N	N	N	N	N	N	N	NNE	NNE	NNE	2	N									
Dec 13	NNE	NNE	N	N	NNE	NNE	NNE	N	NNE	NNE	N	N	N	N	N	N	N	N	NNE	N	N	N	N	N	8	N									
Dec 14	N	NNE	NNE	NNE	NNE	N	N	NNE	NE	NNE	NNE	NNE	NNE	N	N	NNW	NNW	N	N	N	NNE	ENE	SW	11	NNE										
Dec 15	SSW	SSW	S	SSW	SSW	S	S	S	S	S	S	SSE	SSE	NNE	NE	N	NNE	NE	NNE	NNE	N	NNW	NNW	31	NNE										
Dec 16	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	NNW	NNW	N	N	W	S	SSW	SSW	356	N										
Dec 17	SSW	SSW	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	178	S									
Dec 18	S	S	S	S	S	S	S	S	S	SSW	SSW	SSW	WSW	WSW	NNW	NNW	NNW	NNW	NNW	NNW	NW	W	WNW	W	223	SW									
Dec 19	WNW	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	252	WSW									
Dec 20	SW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	227	SW									
Dec 21	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	WSW	SW	SW	WSW	WSW	WSW	WSW	WSW	W	WSW	WNW	N	N	N	N	249	WSW									
Dec 22	N	N	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	16	NNE									
Dec 23	N	N	N	NNW	NNW	NNW	N	N	N	N	NNW	NNW	N	NNW	NNW	N	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	350	N									
Dec 24	NNW	NNW	NW	NNW	NW	NNW	N	NNW	N	N	N	NNW	NW	WNW	W	WNW	WNW	WNW	WNW	WNW	NW	NW	W	330	NNW										
Dec 25	W	WSW	WSW	W	W	W	WSW	WSW	WSW	WSW	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	WSW	258	WSW										
Dec 26	WSW	SW	WSW	W	WSW	W	W	WSW	WSW	WSW	W	WNW	W	W	WSW	WSW	SW	SW	WSW	WSW	SW	SW	SSW	246	WSW										
Dec 27	SSW	SSW	S	S	S	S	S	S	SSE	S	SSE	S	SSE	SSE	S	S	S	S	S	S	S	S	S	S	177	S									
Dec 28	SW	WSW	W	NW	NNW	N	NNW	NNW	NNW	NNW	N	NNW	WNW	WNW	NW	NW	WNW	WNW	WNW	WNW	WNW	WNW	W	W	323	NW									
Dec 29	W	W	WSW	SW	SW	SSW	SSW	S	S	S	SSE	S	SSE	SSE	SSE	SSE	SSE	SE	SE	SE	ENE	NNE	N	175	S										
Dec 30	N	N	N	N	NNW	NNW	NNW	NNW	NNW	N	N	NNE	N	NNW	NW	SSE	WSW	SSW	SSW	SSW	SW	SW	SSW	349	NNW										
Dec 31	WSW	WSW	SW	SW	SW	SW	SSW	SSW	SSW	SW	SSW	S	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	185	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								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 - Reno Station**





**PEACE RIVER AREA MONITORING PROGRAM**

**Reno Station - December 2021**

**Summary of Hourly Averages**

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

<b>WIND SPEED</b>																											
Maximum Hourly Value:		23.0 kph on December 2 at hour 9										Hours in Service:		744													
Maximum Daily Value:		10.2 kph on December 2										Hours of Data:		744													
Minimum Hourly Value:		0.0 kph on December 30 at hour 15										Hours of Missing Data:		0													
Minimum Daily Value:		0.3 kph on December 15										Hours of Calibration:		0													
Monthly Average:		2.2 kph										Operational Uptime:		100													
<b>WIND DIRECTION</b>																											
Monthly Average:		271 (W) 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			
Dec 1	17.3	18.7	18.1	18.6	17.0	13.3	10.7	7.1	5.9	2.7	0.9	1.6	1.9	1.8	3.1	4.5	1.9	2.2	3.5	4.2	3.8	3.4	4.2	4.9	0.9	18.7	5.1
	WSW	WSW	WSW	WSW	WSW	WSW	NNW	NNE	NNE	NNE	E	SSE	SSE	S	SSW	SSW	S	SSW	S	S	S	S	S				
Dec 2	4.5	6.5	7.8	8.8	12.3	14.4	16.1	17.4	18.8	23.0	21.7	14.2	11.6	12.1	12.5	10.6	8.5	6.3	5.7	5.4	5.8	4.8	5.7	6.3	4.5	23.0	10.2
	S	S	SSW	SW	SW	WSW	WSW	WSW	WSW	WSW	W	W	W	WSW	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW			
Dec 3	5.4	5.4	6.5	5.6	4.5	3.4	3.3	4.3	4.0	3.6	4.1	4.9	5.7	5.5	5.6	7.1	7.9	9.4	9.8	11.0	10.3	7.6	7.4	7.9	3.3	11.0	4.3
	WSW	WSW	WSW	WSW	WSW	WSW	N	N	N	N	N	N	N	N	N	N	N	NNE	NNE	NNE	NNE	N	NNE	NNE			
Dec 4	7.5	7.6	8.0	8.1	8.6	8.7	8.5	9.4	8.8	9.7	9.8	9.0	11.2	12.1	11.9	10.3	10.9	10.0	8.6	10.2	9.5	9.6	7.6	8.0	7.5	12.1	9.2
	NNE	NNE	NNE	NNE	NNE	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	NNW	NNW			
Dec 5	5.0	4.3	2.6	2.1	2.6	4.9	5.8	4.9	4.1	7.3	8.9	11.2	9.9	4.1	4.1	5.8	6.4	5.6	3.2	3.0	3.0	1.4	3.4	3.2	1.4	11.2	4.0
	NW	NW	WSW	WSW	SW	WSW	WSW	WSW	SW	WSW	WSW	WSW	WSW	SSW	S	SSW	SSW	SSW	SSW	S	S	S	S	S			
Dec 6	3.2	3.4	3.4	3.4	3.9	4.2	5.1	4.5	4.6	4.6	4.5	5.3	5.8	8.9	11.1	9.9	8.8	6.2	4.8	4.3	3.0	4.0	3.9	3.0	3.0	11.1	4.8
	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	SSW	SSW			
Dec 7	2.6	2.1	3.9	5.7	5.7	5.7	5.1	4.1	3.8	4.0	5.2	5.9	5.7	5.4	5.2	6.5	5.7	6.8	5.7	4.7	5.6	4.8	6.5	6.5	2.1	6.8	4.8
	S	S	SSW	SSW	SW	SW	SW	SW	SSW	SSW	S	S	S	S	S	S	S	S	S	S	S	S	S	SSW			
Dec 8	7.4	7.1	6.6	6.7	7.7	6.9	7.7	7.4	11.7	10.5	9.5	10.5	10.5	8.4	8.2	7.8	8.7	6.7	6.7	6.2	5.6	7.3	10.1	7.2	5.6	11.7	7.6
	SSW	SW	SSW	SW	WSW	W	W	WSW	WSW	WSW	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	WSW	WSW			
Dec 9	7.3	8.3	7.0	5.7	5.9	6.5	7.1	6.4	5.4	5.2	7.3	7.7	8.0	8.3	7.4	3.9	3.3	3.4	4.4	7.3	6.6	6.4	6.0	8.0	3.3	8.3	6.3
	WSW	WSW	WSW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW			
Dec 10	9.5	5.6	4.3	2.5	2.7	3.8	4.3	4.6	4.0	4.5	4.9	5.7	5.6	6.9	8.0	8.7	9.1	5.8	5.9	4.7	7.3	10.8	9.7	8.4	2.5	10.8	5.8
	WSW	SW	SW	SW	SSW	SSW	SSW	SSW	S	S	S	S	S	SSW	SSW	SSW	SSW	SSW	S	S	S	SSW	S	S			
Dec 11	8.6	8.8	9.6	8.5	8.1	8.5	9.1	7.6	8.8	9.1	8.7	10.4	17.8	11.4	10.3	5.9	5.3	1.5	1.9	3.9	3.8	4.2	4.5	4.7	1.5	17.8	6.5
	S	S	S	S	S	S	SSW	SSW	SSW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	SSW	S	S	S	S	S	SSW			
Dec 12	3.2	2.9	3.3	4.0	2.8	2.2	3.8	4.9	6.5	8.3	6.8	7.3	10.4	9.8	5.5	7.3	8.5	9.4	7.3	7.4	8.2	9.1	10.2	10.4	2.2	10.4	4.6
	WSW	SSW	S	SSW	SW	SW	SW	WSW	NNW	N	NNE	NNE	NNE	NNE	N	N	N	N	N	N	N	NNE	NNE	NNE			
Dec 13	10.4	9.1	10.3	9.8	9.8	9.7	9.6	9.2	10.6	10.5	10.2	9.3	8.8	7.8	6.5	7.1	7.0	6.3	8.4	7.2	5.7	5.9	6.0	4.9	4.9	10.6	8.3
	NNE	NNE	N	N	NNE	NNE	N	N	NNE	NNE	N	N	N	N	N	N	N	N	NNE	N	N	N	N	N			
Dec 14	7.8	8.5	7.1	6.7	6.3	8.6	10.7	6.9	5.8	8.6	9.0	9.5	7.7	5.9	6.8	6.5	6.0	4.5	1.9	5.9	2.7	0.2	0.7	0.6	0.2	10.7	5.8
	N	NNE	NNE	NNE	NNE	N	N	NNE	NE	NNE	NNE	NNE	NNE	N	N	NNW	NNW	N	N	N	NNE	ENE	ENE	SW			
Dec 15	1.2	1.5	1.2	2.2	1.2	2.2	2.8	1.9	1.7	2.4	1.6	1.6	1.2	3.1	2.0	2.1	2.3	2.5	1.9	1.8	2.8	4.2	4.2	3.8	1.2	4.2	0.3
	SSW	SSW	S	SSW	SSW	S	S	S	S	S	S	SSE	SSE	NNE	NE	N	NNE	NE	NNE	NNE	NNE	N	NNW	NNW			
Dec 16	5.2	6.7	6.6	8.0	7.6	8.8	10.5	11.4	12.4	13.6	12.2	12.2	11.7	11.6	11.0	8.2	6.4	5.4	3.4	1.3	0.5	1.6	2.8	3.6	0.5	13.6	6.9
	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	NNW	NNW	N	N	W	S	SSW	SSW	SSW			
Dec 17	3.7	3.2	3.7	3.3	3.3	3.8	3.5	3.9	3.5	5.2	6.3	6.5	7.0	7.3	6.5	5.8	5.9	6.3	6.7	7.3	7.4	7.6	7.0	7.6	3.2	7.6	5.5
	SSW	SSW	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S			
Dec 18	6.9	5.9	5.1	5.2	5.4	4.8	4.2	3.7	5.0	3.6	3.8	4.2	4.6	4.1	5.4	3.9	4.5	4.9	3.3	1.5	2.1	3.3	2.1	1.5	6.9	2.0	
	S	S	S	S	S	S	S	S	S	SSW	SSW	SSW	SSW	SSW	NNW	NNW	NNW	NNW	NW	W	WNW	W	W	W			
Dec 19	1.2	5.0	6.2	7.2	7.1	10.9	10.9	10.7	10.0	9.8	9.4	8.3	7.9	7.9	8.2	7.2	8.4	8.5	11.2	7.6	5.2	6.0	6.9	3.9	1.2	11.2	7.6
	NNW	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW			
Dec 20	2.9	5.0	5.5	5.1	5.3	3.5	3.7	4.3	5.2	5.9	5.8	5.9	6.0	5.6	6.8	8.6	10.2	8.9	8.1	7.6	6.6	6.8	6.2	6.6	2.9	10.2	6.0
	SW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	SW	WSW	SW	SW	SW	SW	SW	SW	SW			



**PEACE RIVER AREA MONITORING PROGRAM**

**Reno Station - December 2021**

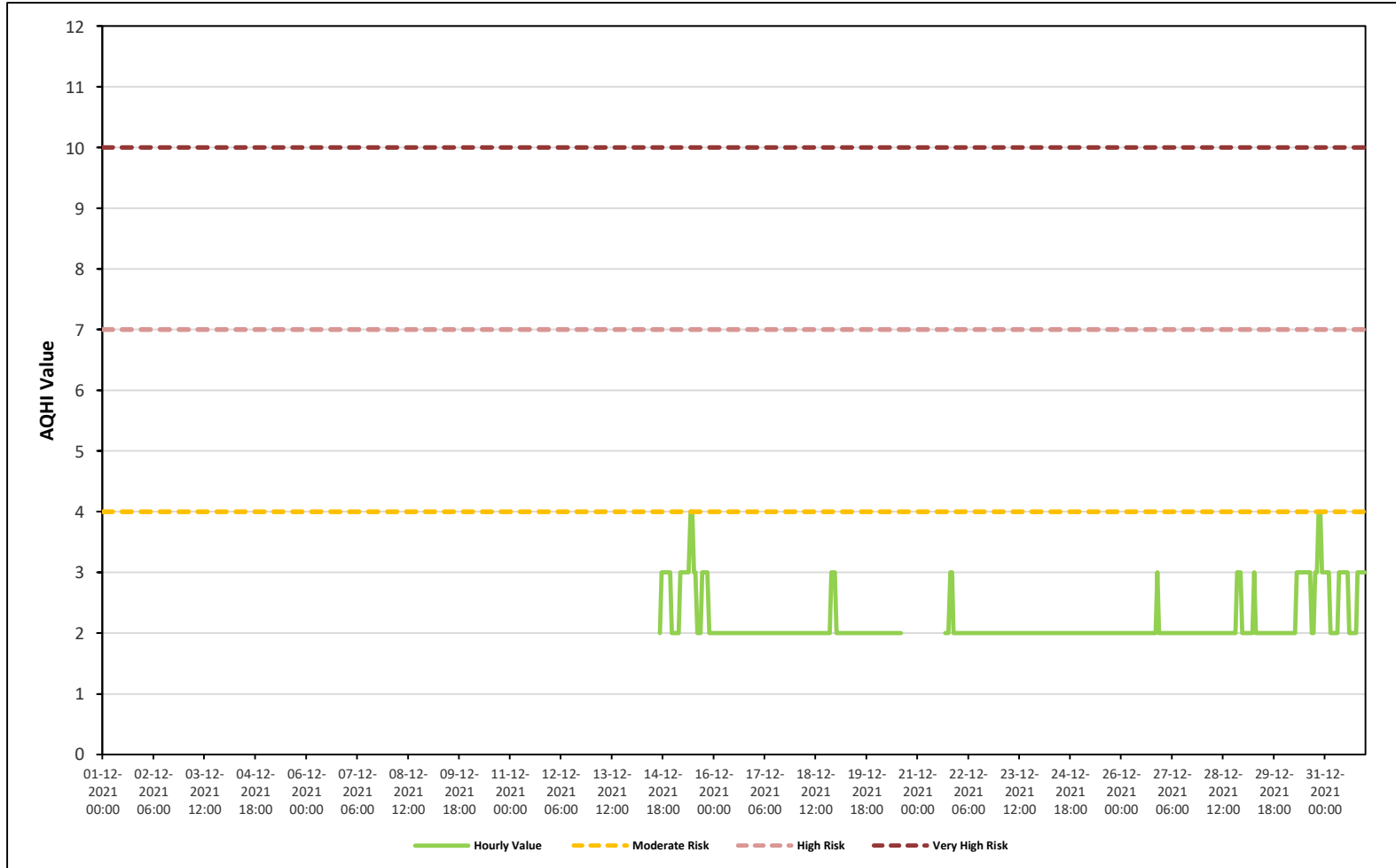
**Summary of Hourly Averages**

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

WIND SPEED		Maximum Hourly Value: 23.0 kph on December 2 at hour 9		Hours in Service: 744																								
WIND DIRECTION		Maximum Daily Value: 10.2 kph on December 2		Hours of Data: 744																								
		Minimum Hourly Value: 0.0 kph on December 30 at hour 15		Hours of Missing Data: 0																								
		Minimum Daily Value: 0.3 kph on December 15		Hours of Calibration: 0																								
		Monthly Average: 2.2 kph		Operational Uptime: 100																								
		Monthly Average: 271 (W) 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				
Dec 21	7.8	10.7	12.1	9.1	9.2	8.4	9.0	7.1	5.5	6.4	4.0	4.3	6.2	6.2	6.9	3.8	4.8	4.0	1.9	2.0	1.8	3.3	3.4	4.5	1.8	12.1	5.2	
Dec 22	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	WSW	SW	SW	WSW	WSW	WSW	WSW	WSW	W	WSW	WNW	N	N	N	5.7	10.5	7.8		
Dec 23	6.3	7.8	9.7	8.2	7.5	10.5	8.0	7.4	9.7	10.2	9.9	9.0	8.0	8.3	7.1	8.4	7.6	6.5	6.2	5.8	5.7	5.8	6.4	7.8	5.2	10.8	7.1	
Dec 24	N	N	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	NNE	NNE	NNE	NNE	NNE	NNE	N	N	2.6	8.8	4.5	
Dec 25	6.7	7.2	6.3	7.0	7.8	7.8	7.1	7.1	7.5	8.1	6.9	6.4	9.7	10.8	10.1	7.0	6.1	5.2	5.7	5.7	7.0	6.8	5.5	7.2	3.5	7.3	5.5	
Dec 26	N	N	N	NNW	NNW	NNW	N	N	N	N	NNW	NNW	N	NNW	NNW	N	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	1.4	7.5	3.5	
Dec 27	6.2	6.9	3.6	3.6	3.7	4.6	6.6	7.5	8.8	7.9	7.3	8.3	5.9	6.6	4.6	3.1	3.3	3.2	3.0	2.9	3.2	2.9	3.3	2.6	2.6	8.0	5.5	
Dec 28	NNW	NNW	NW	NNW	NW	NNW	N	NNW	N	N	N	NNW	NW	WNW	W	W	WNW	WNW	WNW	WNW	WNW	NW	NW	W	1.8	8.9	3.8	
Dec 29	4.1	5.9	5.5	6.2	7.0	6.8	5.9	5.9	5.4	5.3	4.4	4.9	4.8	4.4	5.7	5.9	5.4	4.8	5.0	6.3	7.3	7.0	5.1	3.5	2.1	6.9	2.6	
Dec 30	W	WSW	WSW	W	W	W	WSW	WSW	WSW	WSW	W	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	WSW	0.0	8.8	3.9
Dec 31	3.8	2.8	2.7	2.4	2.2	2.4	1.4	1.6	2.2	3.2	2.2	2.9	2.6	3.9	4.9	5.9	4.2	4.8	7.1	7.5	5.4	3.9	3.8	4.7	1.1	6.8	3.6	
	WSW	SW	WSW	W	WSW	W	W	WSW	WSW	WSW	W	WNW	W	W	WSW	WSW	SW	SW	WSW	WSW	SW	SW	SW	SSW				
	4.1	4.5	2.6	3.7	4.6	4.6	5.5	5.9	6.3	6.4	6.6	6.7	7.9	8.0	7.4	6.3	5.7	5.5	5.6	5.4	5.4	5.5	5.4	4.2				
	SSW	SSW	S	S	S	S	S	S	SSE	S	SSE	S	SSE	SSE	S	S	S	S	S	S	S	S	S	S				
	2.3	3.7	3.4	3.7	5.1	7.1	8.7	8.9	7.3	5.1	5.1	5.7	4.0	5.2	7.8	2.5	1.8	2.6	3.7	2.1	2.4	2.6	2.8	2.9				
	SW	WSW	W	NW	NNW	N	NNW	NNW	NNW	NNW	N	NNW	WNW	WNW	NW	NW	WNW	WNW	NNW	WNW	WNW	WNW	W	W				
	2.1	3.4	4.8	4.7	3.5	2.7	3.2	2.6	3.1	4.2	3.6	4.4	5.5	5.6	4.7	5.3	5.7	6.1	6.9	5.5	4.0	3.7	4.5	5.7				
	W	W	WSW	SW	SW	SSW	SSW	S	S	SSE	S	SSE	SSE	SSE	SSE	SSE	SSE	SE	SE	SE	SE	ENE	NNE	N				
	7.8	7.7	8.8	8.2	6.8	8.0	6.0	5.3	7.0	8.6	8.6	7.6	4.5	3.2	2.1	0.0	1.0	1.5	1.4	1.1	1.2	0.5	0.5	0.6				
	N	N	N	N	NNW	NNW	NNW	NNW	NNW	N	NNE	N	NNW	NW	SSE	WSW	SSW	SW	SW	SSW	SW	SW	SW	SW				
	1.1	2.7	2.4	2.2	2.1	2.6	3.9	2.0	2.4	2.9	4.3	4.6	2.8	3.7	4.0	4.5	5.1	4.7	5.3	6.1	6.6	6.6	6.4	6.8				
	WSW	WSW	SW	SW	SW	SW	SW	SSW	SSW	SSW	SW	SSW	S	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE				
<b>C</b>	Monthly Calibration							<b>S</b> Daily Zero-Span Check							<b>Q</b> Quality Assurance													
<b>K</b>	Collection Error							<b>N</b> No Data (Machine Not in Service)							<b>Y</b> Routine Maintenance							<b>P</b> Power Failure						
<b>X</b>	Invalid Data (Equipment Malfunction/Recovery)							<b>NRM</b> 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 GRIMSHAW STATION

**Timeseries Chart of Hourly Average for AQHI - AQHI - Grimshaw Station**





**PEACE RIVER AREA MONITORING PROGRAM**

**AQHI - Grimshaw Station - December 2021**

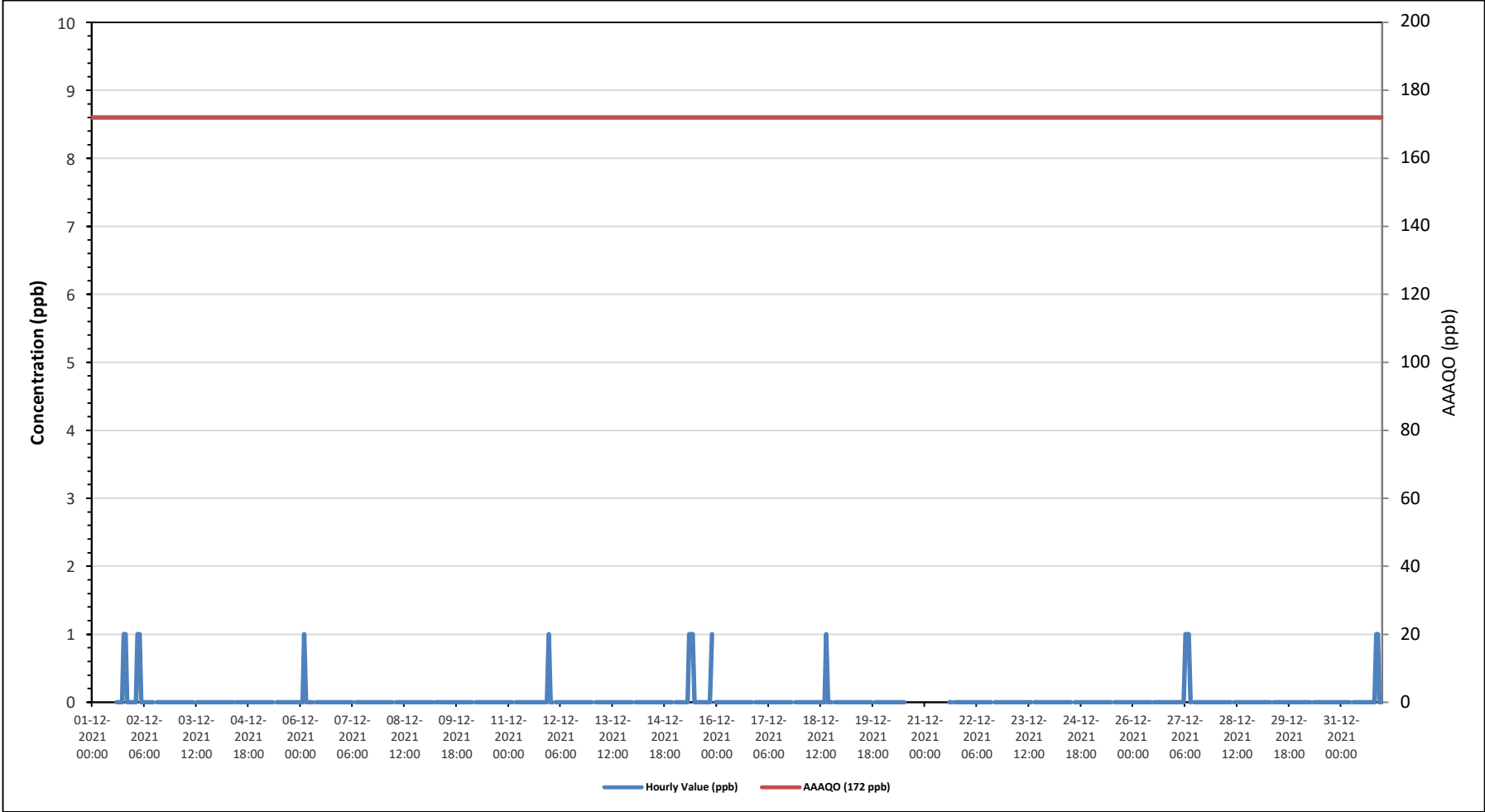
**Summary of Hourly Averages**

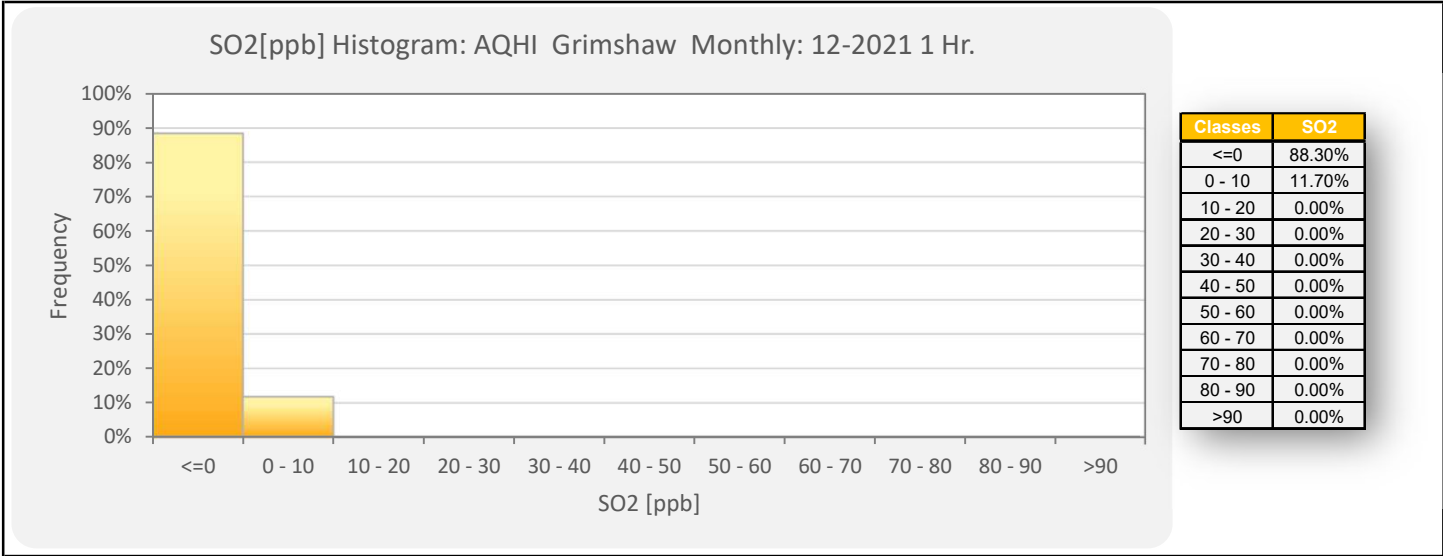
**SULPHUR DIOXIDE (SO<sub>2</sub>) in ppb**

<b>Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb</b>																													
Number of 1-Hour Exceedances:		0		Number of 24-Hour Exceedances:		0		30-Day Exceedance:		0																			
Maximum Hourly Value: 1 ppb on December 1 at hour 18													Hours in Service: 735																
Maximum Daily Value: 0.2 ppb on December 15													Hours of Data: 675																
Minimum Hourly Value: 0 ppb on December 1 at hour 14													Hours of Missing Data: 25																
Minimum Daily Value: 0.0 ppb on December 3													Hours of Calibration: 35																
Monthly Average: 0.0 ppb													Operational Uptime: 96.6																
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23		
Dec 1										C	C	C	C	C					1	1	0	0	0	0	0	1	-		
Dec 2	0	0	1	1	0	0	0	0	0	0	0	0	0	S					0	0	0	0	0	0	0	1	0.1		
Dec 3	0	0	0	0	0	0	0	0	0	0	0	S						0	0	0	0	0	0	0	0	0.0			
Dec 4	0	0	0	0	0	0	0	0	0	0	S							0	0	0	0	0	0	0	0	0.0			
Dec 5	0	0	0	0	0	0	0	0	0	S								0	0	0	0	0	0	0	0	0.0			
Dec 6	0	0	1	0	0	0	0	0	S									0	0	0	0	0	0	0	1	0.0			
Dec 7	0	0	0	0	0	0	0	S										0	0	0	0	0	0	0	0	0.0			
Dec 8	0	0	0	0	0	S												0	0	0	0	0	0	0	0	0.0			
Dec 9	0	0	0	0	S													0	0	0	0	0	0	0	0	0.0			
Dec 10	0	0	0	S														0	0	0	0	0	0	0	0	0.0			
Dec 11	0	0	0	S														0	0	0	0	0	1	0	1	0.0			
Dec 12	0	0	S															0	0	0	0	0	0	0	0	0.0			
Dec 13	0	S																0	0	0	0	0	0	0	0	0.0			
Dec 14	S																	0	0	0	0	0	S	0	0	0.0			
Dec 15	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	S	0	1	0.2			
Dec 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S		0	0	0.0				
Dec 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S			0	0	0.0				
Dec 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	S			0	1	0.0				
Dec 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S					0	0	0.0				
Dec 20	0	0	0	0	0	0	0	0	0	0	0	0	0	X	X	X	X	X	X	X	X	X	X	0	0	-			
Dec 21	X	X	X	X	X	X	X	X	X	X	X	X	X											0	0	-			
Dec 22	0	0	0	0	0	0	0	0	0	0	0	0	0	S									0	0	0.0				
Dec 23	0	0	0	0	0	0	0	0	0	0	0	0	0	S									0	0	0.0				
Dec 24	0	0	0	0	0	0	0	0	0	0	0	0	S										0	0	0.0				
Dec 25	0	0	0	0	0	0	0	0	0	0	0	S											0	0	0.0				
Dec 26	0	0	0	0	0	0	0	0	0	0	S												0	0	0.0				
Dec 27	0	0	0	0	0	1	1	1	1	0	S												0	1	0.1				
Dec 28	0	0	0	0	0	0	0	0	S														0	0	0.0				
Dec 29	0	0	0	0	0	0	0	S															0	0	0.0				
Dec 30	0	0	0	0	0	0	S																0	0	0.0				
Dec 31	0	0	0	0	0	S															1	1	0	1	0.1				
Diurnal Maximum	0	0	1	1	0	0	1	1	1	1	0	0	0	0	1	0	0	1	1	1	1	0	1						
Diurnal Average	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0						
C	Monthly Calibration													S										Daily Zero-Span Check					
K	Collection Error													N										No Data (Machine Not in Service)					
X	Invalid Data (Equipment Malfunction / Recovery)													NRM										UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)					
														Q										Quality Assurance					
														Y										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.																													



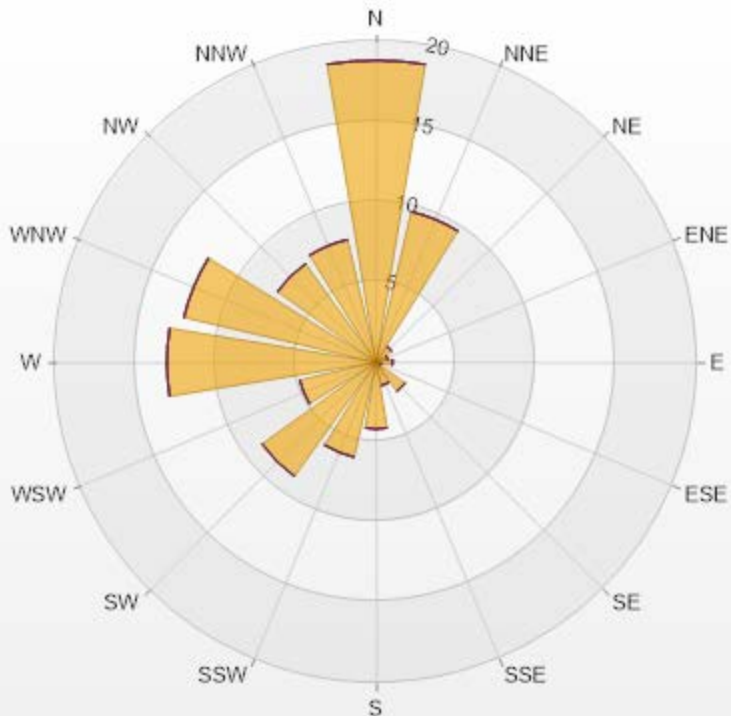
**Timeseries Chart of Hourly Average for SO2 - AQHI - Grimshaw Station**





Wind: AQHI Grimshaw Poll.: AQHI Grimshaw-SO2[ppb] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 90.73% Calm Avg: 0.00 [ppb]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	18.81	0	0	0	0	18.81
NNE	9.63	0	0	0	0	9.63
NE	1.19	0	0	0	0	1.19
ENE	0.74	0	0	0	0	0.74
E	1.04	0	0	0	0	1.04
ESE	0.3	0	0	0	0	0.3
SE	2.22	0	0	0	0	2.22
SSE	1.48	0	0	0	0	1.48
S	4.15	0	0	0	0	4.15
SSW	6.07	0	0	0	0	6.07
SW	8.74	0	0	0	0	8.74
WSW	4.89	0	0	0	0	4.89
W	13.04	0	0	0	0	13.04
WNW	12.3	0	0	0	0	12.3
NW	7.56	0	0	0	0	7.56
NNW	7.85	0	0	0	0	7.85
Summary	100	0	0	0	0	100



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% Icon Classes (ppb)

100 0-10

0 10-50

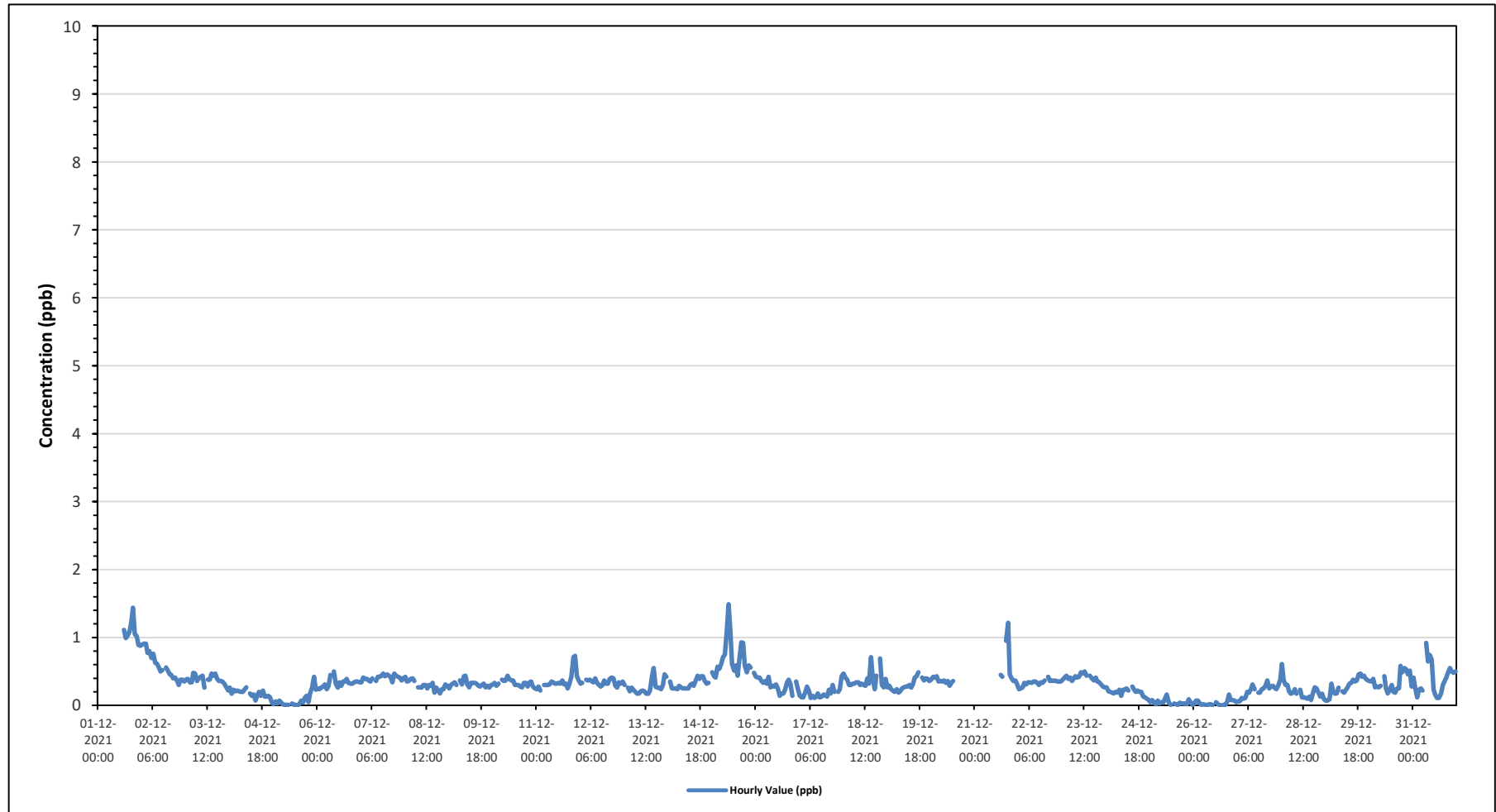
0 50-100

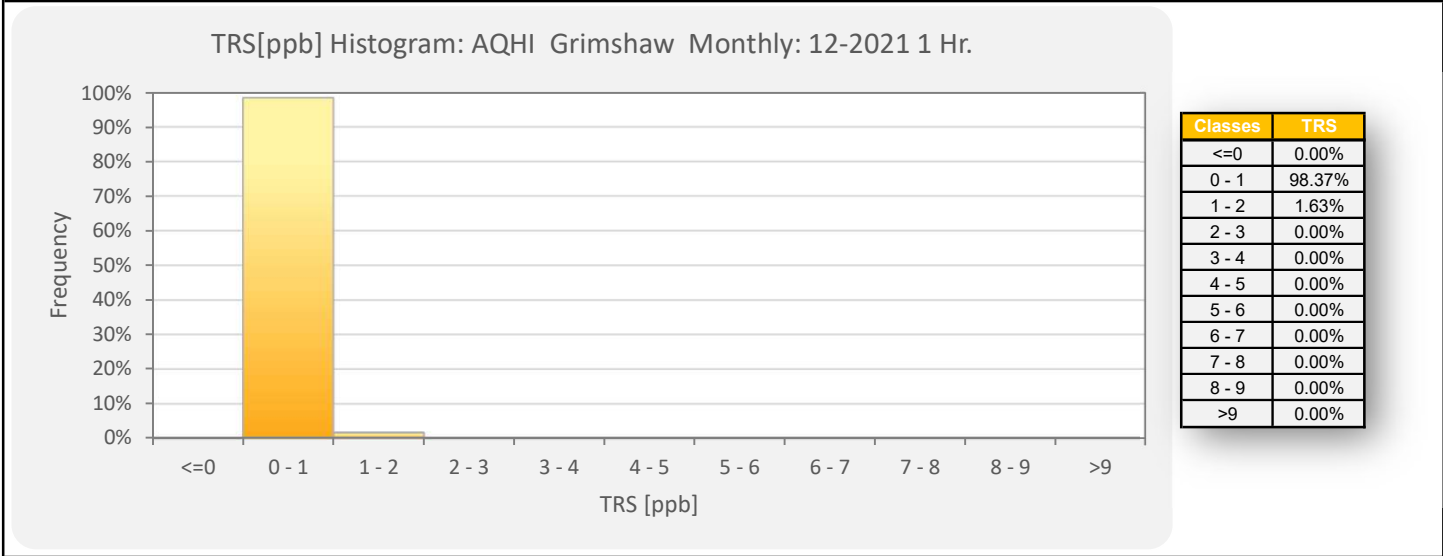
0 100-172

0 >172.0



**Timeseries Chart of Hourly Average for TRS - AQHI - Grimshaw Station**

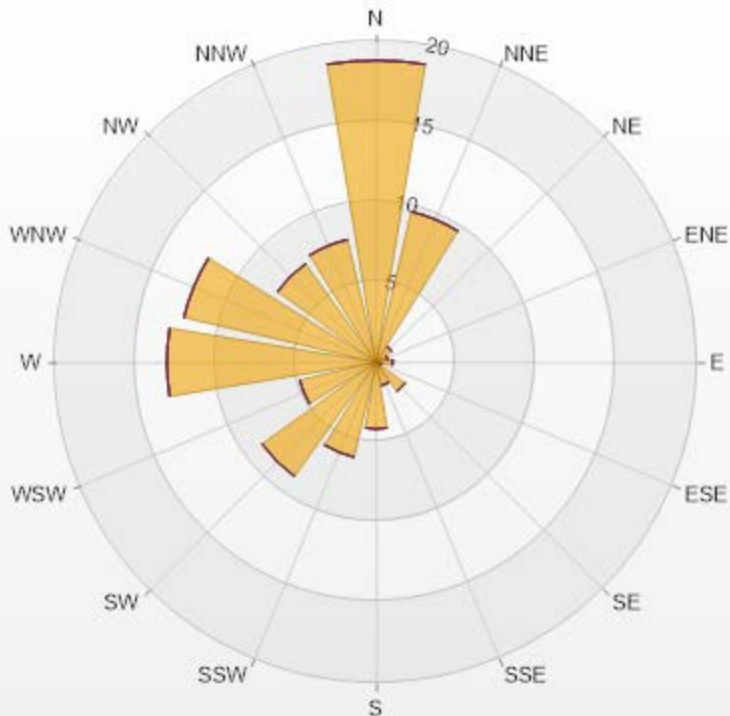




Wind: AQHI Grimshaw Poll.: AQHI Grimshaw-TRS[ppb] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 90.73% Calm Avg: 0.00 [ppb]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	18.81	0	0	0	0	18.81
NNE	9.63	0	0	0	0	9.63
NE	1.19	0	0	0	0	1.19
ENE	0.74	0	0	0	0	0.74
E	1.04	0	0	0	0	1.04
ESE	0.3	0	0	0	0	0.3
SE	2.22	0	0	0	0	2.22
SSE	1.48	0	0	0	0	1.48
S	4.15	0	0	0	0	4.15
SSW	6.07	0	0	0	0	6.07
SW	8.74	0	0	0	0	8.74
WSW	4.89	0	0	0	0	4.89
W	13.04	0	0	0	0	13.04
WNW	12.3	0	0	0	0	12.3
NW	7.56	0	0	0	0	7.56
NNW	7.85	0	0	0	0	7.85
Summary	100	0	0	0	0	100





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% Icon Classes (ppb)

100 0-2

0 2-5

0 5-10

0 10-50

0 >50.0



**PEACE RIVER AREA MONITORING PROGRAM**

**AQHI - Grimshaw Station - December 2021**

**Summary of Hourly Averages**

**OXIDES OF NITROGEN (NOx) in ppb**

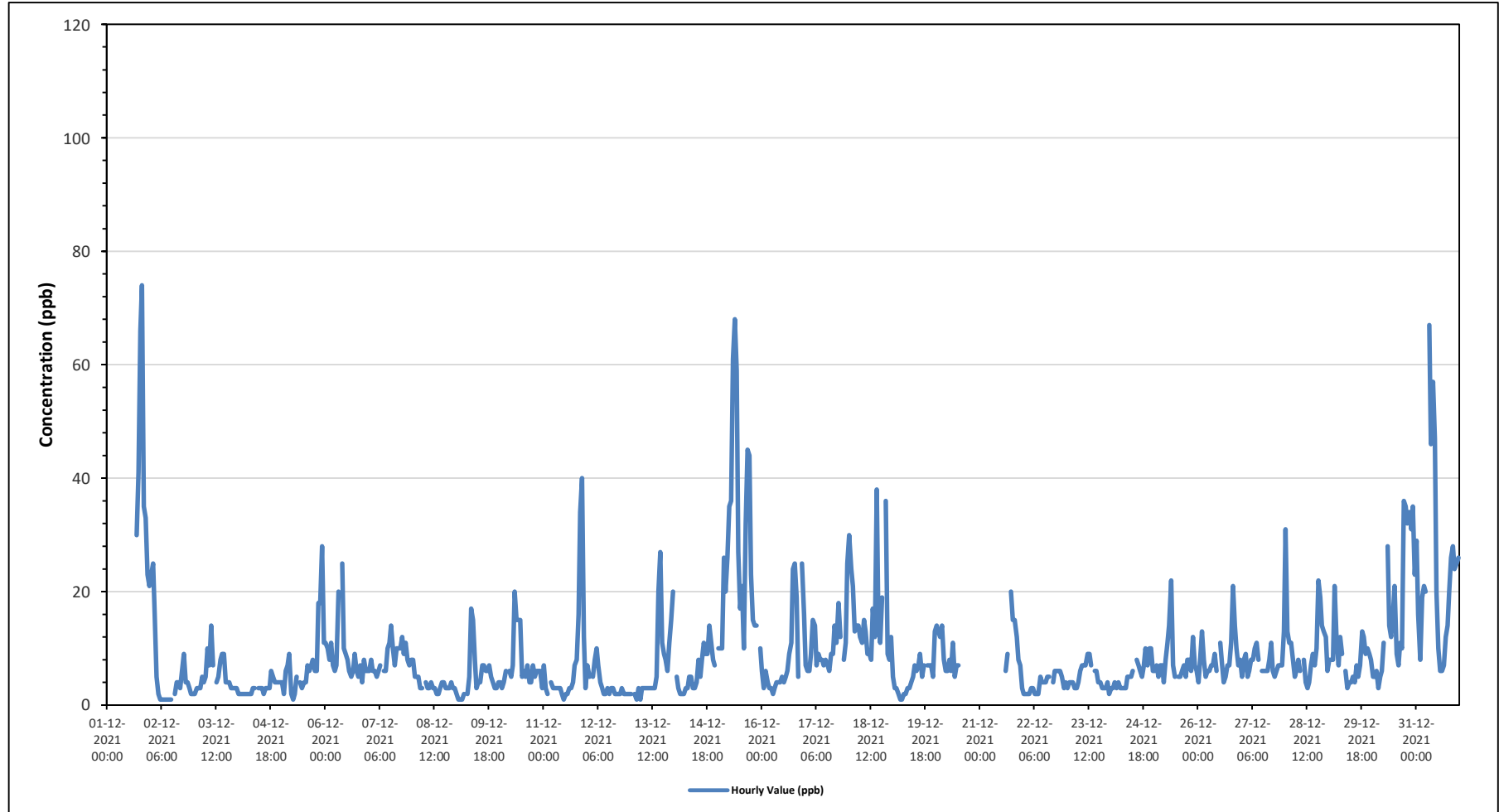
Maximum Hourly Value:	74 ppb on December 1 at hour 19	Hours in Service:	735
Maximum Daily Value:	27.5 ppb on December 15	Hours of Data:	673
Minimum Hourly Value:	1 ppb on December 2 at hour 5	Hours of Missing Data:	25
Minimum Daily Value:	3.0 ppb on December 4	Hours of Calibration:	37
Monthly Average:	9.1 ppb	Operational Uptime:	96.6

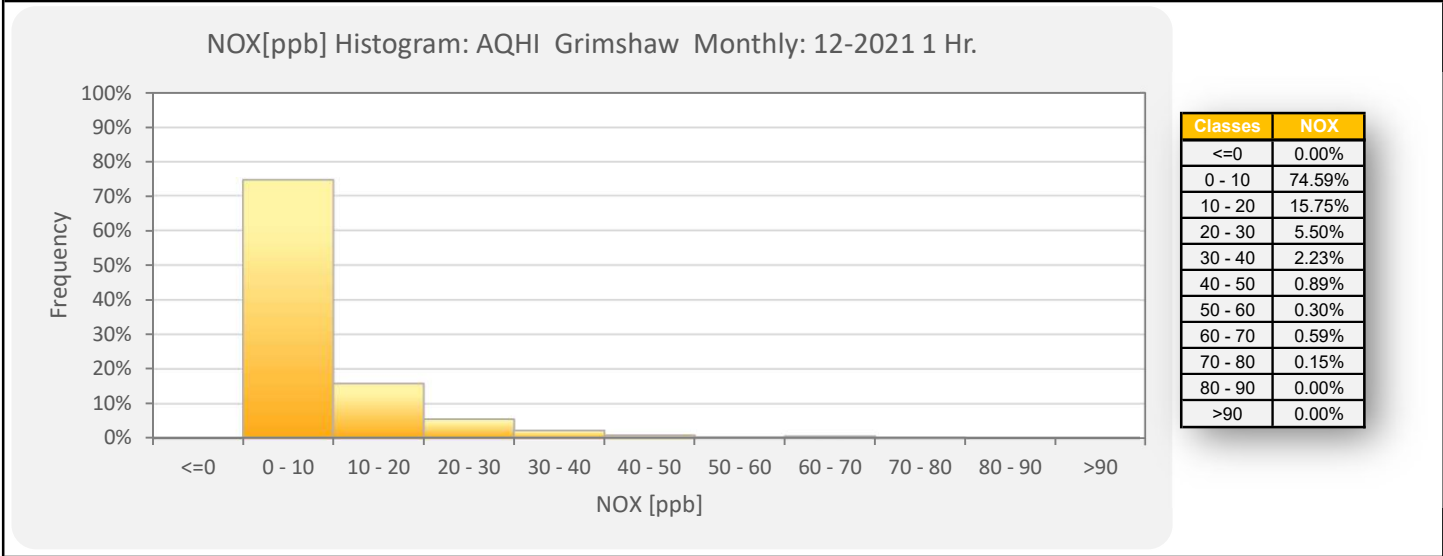
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Dec 1										C	C	C	C	C	C	C	30	41	66	74	35	33	23	21	21	74	-	
Dec 2	23	25	16	5	2	1	1	1	1	1	1	1	S	2	4	4	3	6	9	4	4	3	2	2	1	25	5.3	
Dec 3	2	3	3	3	5	4	5	10	7	14	7	S	4	5	8	9	9	4	4	4	3	3	3	2	2	14	5.3	
Dec 4	2	2	2	2	2	2	2	3	3	S	3	3	3	2	3	3	3	6	5	4	4	4	4	4	2	6	3.0	
Dec 5	4	2	6	7	9	2	1	2	5	S	4	3	4	4	7	6	7	8	6	6	18	18	28	11	1	28	7.3	
Dec 6	11	10	8	11	7	6	7	20	S	25	10	9	8	6	5	6	9	6	5	7	4	8	6	6	4	25	8.7	
Dec 7	6	8	6	6	5	6	7	S	6	6	10	11	14	10	7	10	10	10	12	9	11	8	7	8	5	14	8.4	
Dec 8	8	5	5	5	3	S	4	3	3	4	3	3	2	2	3	4	4	3	3	3	4	3	3	3	2	8	3.6	
Dec 9	2	1	1	1	2	S	2	5	17	15	8	3	4	4	7	7	6	6	7	5	4	3	3	4	1	17	5.1	
Dec 10	4	3	4	6	S	6	5	7	20	15	15	15	5	6	5	7	4	4	7	5	6	6	6	3	3	20	7.1	
Dec 11	7	3	2	S	4	3	3	3	3	2	1	2	2	2	3	3	4	7	8	16	34	40	12	3	1	40	7.3	
Dec 12	7	5	S	5	8	10	7	4	3	2	2	3	2	3	3	2	2	2	2	3	2	2	2	2	2	2	10	3.6
Dec 13	2	S	2	1	3	1	3	3	3	3	3	3	3	3	5	20	27	11	9	8	6	11	15	20	1	27	7.2	
Dec 14	S	5	3	2	2	2	3	3	5	5	3	3	4	8	5	8	11	9	9	14	11	8	7	S	2	14	5.9	
Dec 15	10	10	10	26	20	26	35	36	61	68	59	27	17	21	10	32	45	44	23	15	14	14	S	10	10	68	27.5	
Dec 16	6	3	6	4	3	3	2	3	4	4	4	5	4	5	6	9	11	24	25	19	5	S	25	16	2	25	8.5	
Dec 17	7	6	6	9	15	14	7	9	8	8	7	8	7	6	9	9	14	11	18	12	S	8	11	25	6	25	10.2	
Dec 18	30	24	21	13	14	14	12	11	15	13	9	9	8	17	12	38	15	11	19	S	36	9	8	12	8	38	16.1	
Dec 19	5	3	3	2	1	1	2	2	3	3	4	5	7	6	7	9	5	7	S	7	7	7	5	13	1	13	5.0	
Dec 20	14	13	12	14	8	6	6	8	6	11	5	7	7	X	X	X	X	X	X	X	X	X	X	X	X	5	14	-
Dec 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	6	9	S	20	15	15	12	8	7	3	3	20	-	
Dec 22	2	2	2	2	3	3	2	2	2	5	4	4	4	5	5	S	4	6	6	6	6	5	3	4	2	6	3.8	
Dec 23	3	4	4	4	3	3	4	6	7	7	7	9	9	7	S	6	6	4	4	3	3	3	4	2	2	9	4.9	
Dec 24	3	3	4	3	4	3	3	3	5	5	5	6	S	8	7	6	5	7	10	7	10	10	6	3	10	5.5		
Dec 25	6	7	5	7	7	4	8	11	14	22	7	5	S	5	5	6	7	5	8	8	6	12	7	6	4	22	7.7	
Dec 26	4	8	13	8	5	6	6	7	7	9	6	S	11	7	4	5	7	7	11	21	14	10	7	8	4	21	8.3	
Dec 27	5	8	9	5	6	8	8	10	11	8	S	6	6	6	6	8	11	6	5	6	7	7	13	5	13	7.5		
Dec 28	31	13	11	11	8	5	6	8	6	S	8	4	3	4	7	9	7	10	22	19	14	13	12	6	3	31	10.3	
Dec 29	8	8	8	21	12	7	12	9	S	6	3	4	4	5	4	7	5	7	13	12	9	10	9	8	3	21	8.3	
Dec 30	5	5	6	3	5	6	11	S	28	14	12	16	21	9	7	11	10	36	35	32	34	31	35	23	3	36	17.2	
Dec 31	29	16	8	19	21	20	S	67	46	57	47	20	10	6	6	7	12	14	20	26	28	24	25	26	6	67	24.1	
Diurnal Maximum	31	25	21	26	21	26	35	67	61	68	59	27	21	21	12	38	45	44	66	74	36	40	35	26				
Diurnal Average	8.8	7.3	6.6	7.3	6.7	6.3	6.3	9.5	11.0	12.4	9.5	7.1	6.7	6.2	5.9	9.3	10.1	11.3	13.2	12.9	12.0	11.1	10.2	9.3				

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

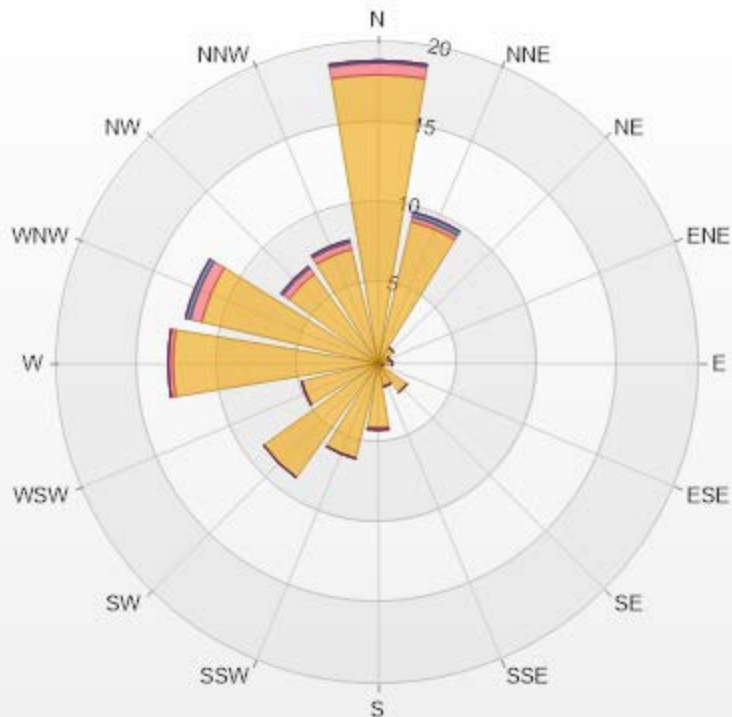
**Timeseries Chart of Hourly Average for NOx - AQHI - Grimshaw Station**





Wind: AQHI Grimshaw Poll.: AQHI Grimshaw-NOX[ppb] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 90.46% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	17.98	0.74	0.15	0	0	18.87
NNE	9.06	0.3	0.3	0	0	9.66
NE	1.19	0	0	0	0	1.19
ENE	0.74	0	0	0	0	0.74
E	0.89	0	0	0	0	0.89
ESE	0.3	0	0	0	0	0.3
SE	2.23	0	0	0	0	2.23
SSE	1.49	0	0	0	0	1.49
S	4.01	0.15	0	0	0	4.16
SSW	6.09	0	0	0	0	6.09
SW	8.77	0	0	0	0	8.77
WSW	4.9	0	0	0	0	4.9
W	12.78	0.3	0	0	0	13.08
WNW	11.29	0.74	0.3	0	0	12.33
NW	6.84	0.45	0.15	0	0	7.44
NNW	7.28	0.45	0.15	0	0	7.88
Summary	95.84	3.13	1.05	0	0	100



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% Icon Classes (ppb)	96	3	1	0	0
0-30	96	3	1	0	0
30-50		3			
50-76			1		
76-159				0	
>159.0					0



**PEACE RIVER AREA MONITORING PROGRAM**

**AQHI - Grimshaw Station - December 2021**

**Summary of Hourly Averages**

**NITRIC OXIDE (NO) in ppb**

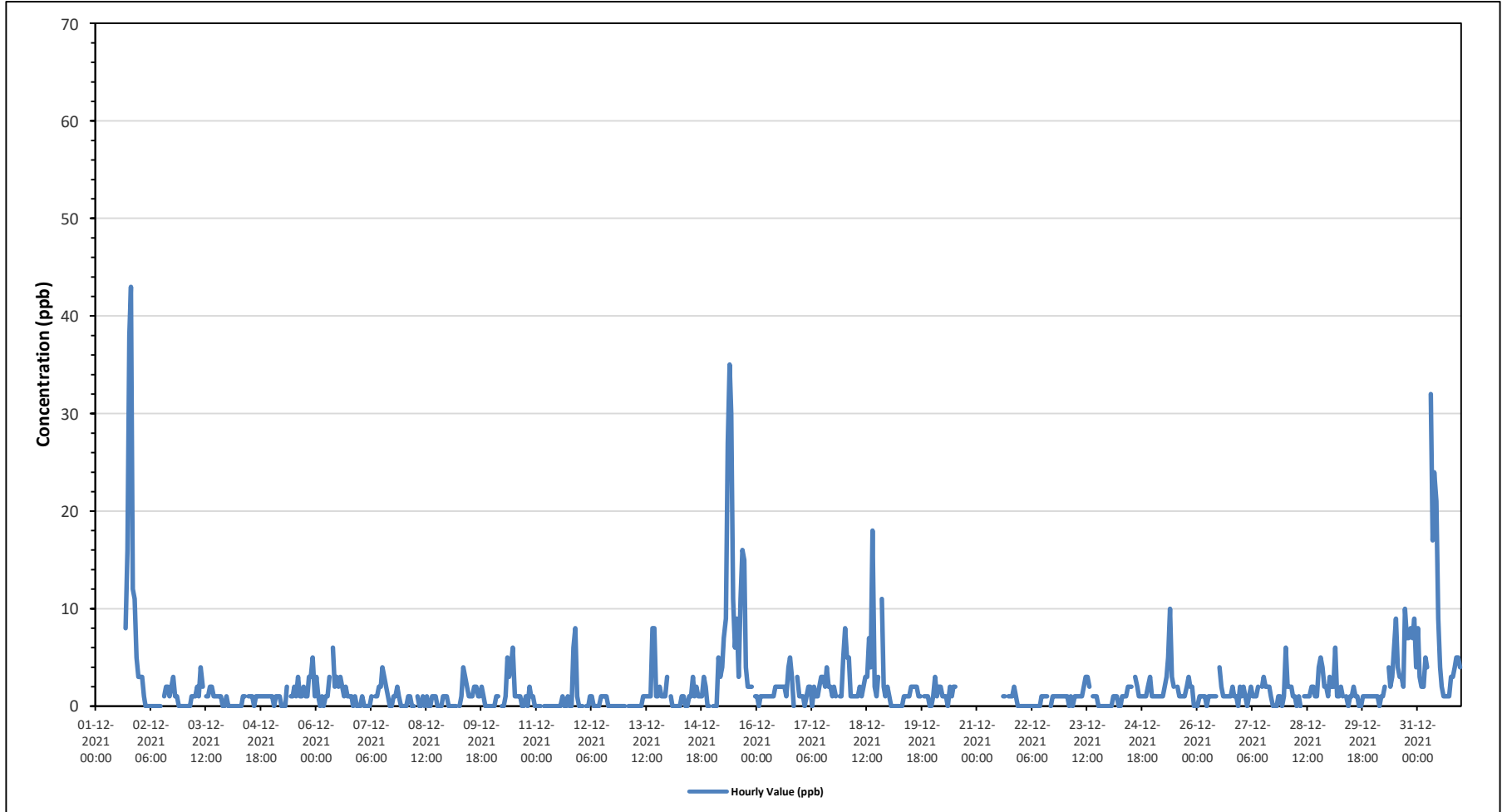
Maximum Hourly Value:	43 ppb on December 1 at hour 19	Hours in Service:	735
Maximum Daily Value:	8.8 ppb on December 15	Hours of Data:	673
Minimum Hourly Value:	0 ppb on December 2 at hour 3	Hours of Missing Data:	25
Minimum Daily Value:	0.3 ppb on December 12	Hours of Calibration:	37
Monthly Average:	2.0 ppb	Operational Uptime:	96.6

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
Dec 1										C	C	C	C	C	C	C	8	16	38	43	12	11	5	3	3	43	-	
Dec 2	3	3	1	0	0	0	0	0	0	0	0	0	S	1	2	2	1	2	3	1	1	0	0	0	0	0	3	0.9
Dec 3	0	0	0	0	1	1	1	2	1	4	2	S	1	1	2	2	1	1	1	1	1	0	0	1	0	4	1.0	
Dec 4	0	0	0	0	0	0	0	0	1	1	S	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	0.6	
Dec 5	1	0	1	1	1	0	0	0	0	2	S	1	1	2	1	3	1	1	2	1	1	3	3	5	1	0	5	1.4
Dec 6	3	1	0	1	0	1	1	3	S	6	2	3	2	3	2	1	2	1	1	1	0	1	0	0	0	6	1.5	
Dec 7	0	1	0	0	0	0	1	S	1	1	2	2	4	3	2	1	0	0	1	1	2	1	0	0	0	4	1.0	
Dec 8	0	0	1	1	0	0	S	1	0	0	1	0	1	0	0	1	1	1	0	0	0	1	1	1	0	1	0.5	
Dec 9	0	0	0	0	0	S	0	1	4	3	2	1	1	1	2	2	1	1	2	1	0	0	0	0	0	4	1.0	
Dec 10	0	0	1	1	S	0	0	1	5	3	4	6	1	1	1	1	0	0	1	0	2	1	1	0	0	6	1.3	
Dec 11	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	6	8	1	0	0	8	0.7	
Dec 12	0	0	S	0	0	1	1	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.3	
Dec 13	0	S	0	0	0	0	0	0	0	0	1	1	1	1	1	8	8	1	1	2	1	1	1	3	0	8	1.3	
Dec 14	S	1	0	0	0	0	0	1	1	0	0	1	1	3	1	2	1	1	1	3	2	0	0	S	0	3	0.9	
Dec 15	0	0	0	5	3	4	7	9	27	35	30	11	6	9	3	11	16	15	4	2	2	2	S	1	0	35	8.8	
Dec 16	1	0	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	4	5	3	0	S	3	1	0	5	1.7	
Dec 17	1	1	0	1	2	2	0	2	1	1	2	3	3	2	4	2	2	1	2	1	S	1	1	5	0	5	1.7	
Dec 18	8	5	5	1	1	1	1	1	2	1	2	3	3	7	4	18	2	1	3	S	11	2	1	2	1	18	3.7	
Dec 19	1	0	0	0	0	0	0	0	1	1	1	1	2	2	2	2	1	1	S	1	1	1	0	0	0	2	0.8	
Dec 20	1	3	1	2	2	1	1	1	0	2	1	2	2	X	X	X	X	X	X	X	X	X	X	X	X	0	3	-
Dec 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1	1	S	1	1	1	1	2	1	0	0	0	2	-
Dec 22	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	S	0	1	1	1	1	1	1	1	1	0	1	0.5
Dec 23	1	1	0	1	0	1	1	1	1	1	2	3	3	2	S	1	1	1	0	0	0	0	0	0	0	0	3	0.9
Dec 24	0	0	1	1	1	0	0	1	1	1	2	2	2	S	3	2	1	1	1	1	1	2	3	1	0	3	1.2	
Dec 25	1	1	1	1	1	1	2	3	5	10	3	2	S	2	1	1	1	1	2	3	2	2	0	0	0	10	2.0	
Dec 26	0	1	1	1	1	0	1	1	1	1	1	S	4	2	1	1	1	1	1	2	1	1	0	2	0	4	1.1	
Dec 27	1	2	1	0	1	2	1	1	1	1	S	2	3	2	2	2	1	0	0	0	1	1	0	1	0	3	1.2	
Dec 28	6	2	2	2	1	1	0	1	0	S	1	1	1	1	2	2	1	1	4	5	4	2	2	1	0	6	1.9	
Dec 29	3	2	2	6	1	1	2	1	S	1	0	1	1	2	1	1	0	0	1	1	1	1	1	1	0	6	1.3	
Dec 30	1	1	1	0	1	1	2	S	4	2	3	6	9	4	3	3	2	10	7	7	8	7	9	4	0	10	4.1	
Dec 31	8	3	2	2	5	4	S	32	17	24	9	4	2	1	1	1	1	3	3	4	5	5	4	1	32	7.0		
Diurnal Maximum	8	5	5	6	5	4	7	32	27	35	30	11	9	9	4	18	16	16	38	43	12	11	9	5				
Diurnal Average	1.4	1.0	0.8	1.0	0.8	0.8	0.9	2.4	2.9	3.7	3.2	2.4	2.3	2.1	1.8	2.6	1.9	2.3	3.0	3.0	2.4	2.0	1.4	1.2				

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

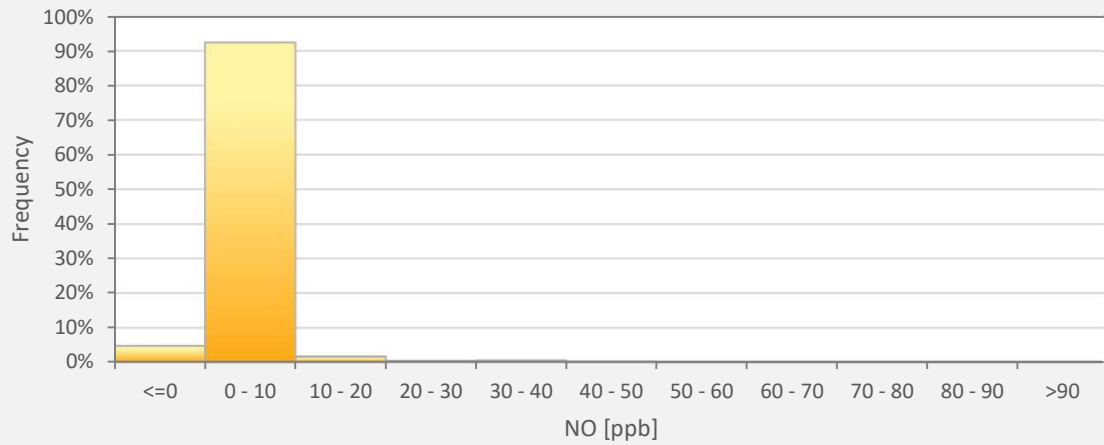
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

*Timeseries Chart of Hourly Average for NO - AQHI - Grimshaw Station*





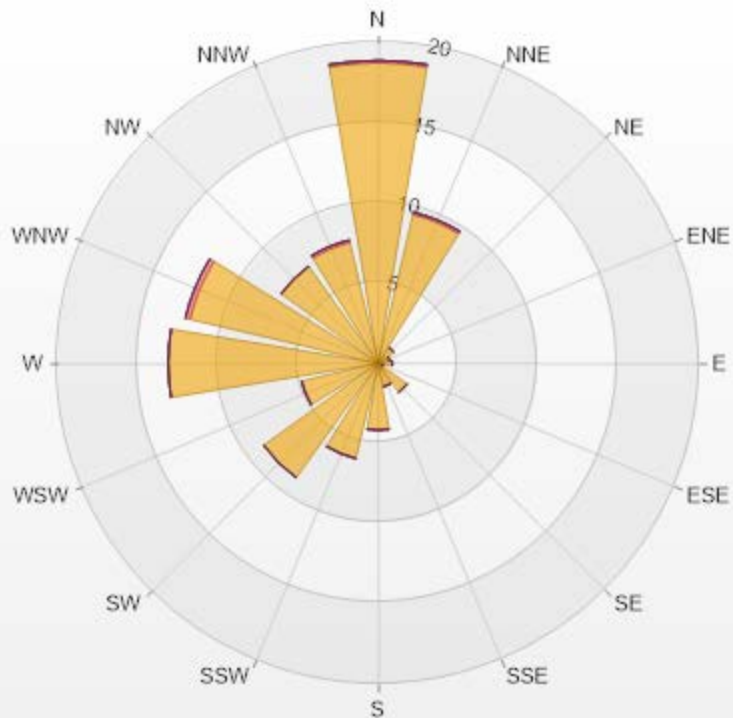
NO[ppb] Histogram: AQHI Grimshaw Monthly: 12-2021 1 Hr.



Classes	NO
<=0	4.75%
0 - 10	92.42%
10 - 20	1.63%
20 - 30	0.45%
30 - 40	0.59%
40 - 50	0.15%
50 - 60	0.00%
60 - 70	0.00%
70 - 80	0.00%
80 - 90	0.00%
>90	0.00%

Wind: AQHI Grimshaw Poll.: AQHI Grimshaw-NO[ppb] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 90.46% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	18.72	0.15	0	0	0	18.87
NNE	9.51	0.15	0	0	0	9.66
NE	1.19	0	0	0	0	1.19
ENE	0.74	0	0	0	0	0.74
E	0.89	0	0	0	0	0.89
ESE	0.3	0	0	0	0	0.3
SE	2.23	0	0	0	0	2.23
SSE	1.49	0	0	0	0	1.49
S	4.16	0	0	0	0	4.16
SSW	6.09	0	0	0	0	6.09
SW	8.77	0	0	0	0	8.77
WSW	4.9	0	0	0	0	4.9
W	13.08	0	0	0	0	13.08
WNW	12.04	0.3	0	0	0	12.34
NW	7.43	0	0	0	0	7.43
NNW	7.73	0.15	0	0	0	7.88
Summary	99.27	0.75	0	0	0	100



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**PEACE RIVER AREA MONITORING PROGRAM**

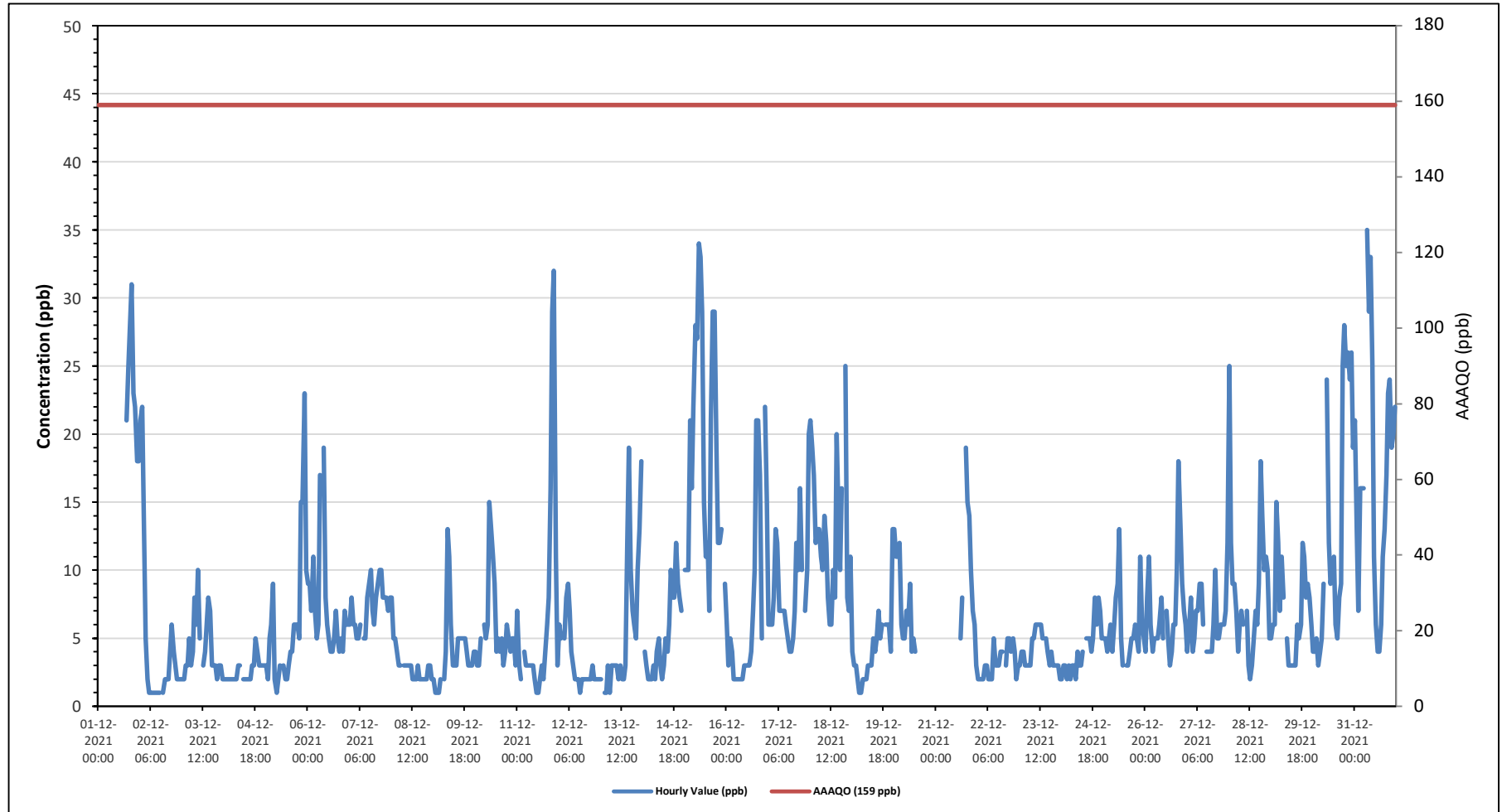
**AQHI - Grimshaw Station - December 2021**

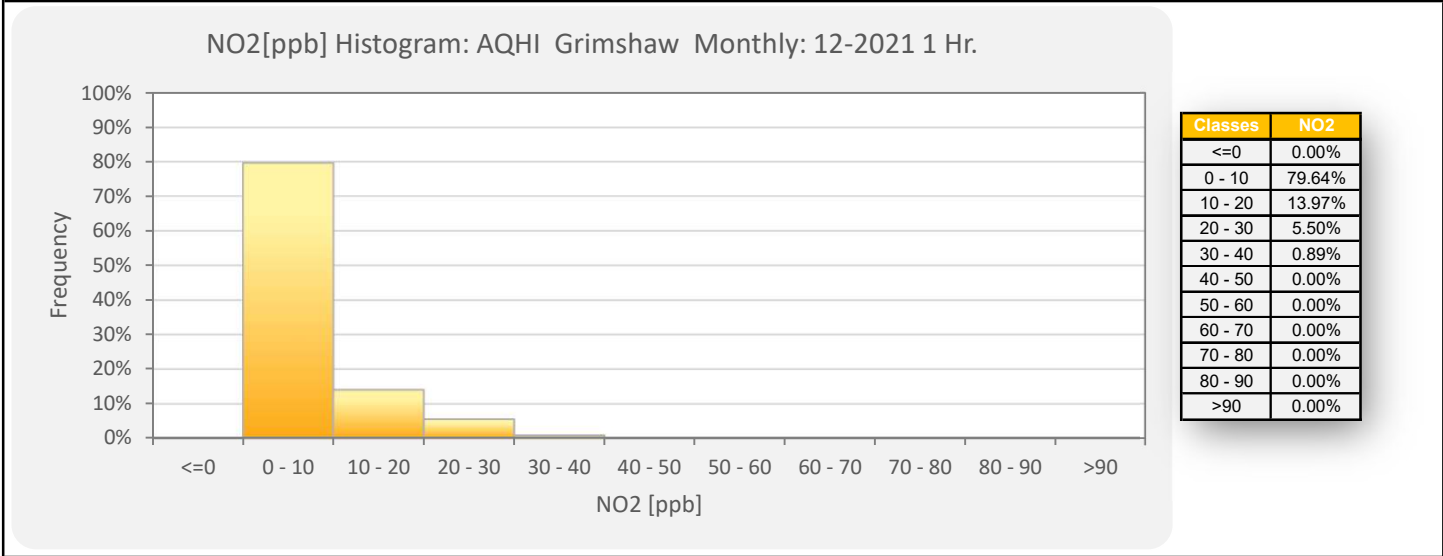
**Summary of Hourly Averages**

**NITROGEN DIOXIDE (NO<sub>2</sub>) in ppb**

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 159 ppb																												
Number of 1-Hour Exceedances: 0																												
Maximum Hourly Value: 35 ppb on December 31 at hour 7												Hours in Service: 735																
Maximum Daily Value: 18.7 ppb on December 15												Hours of Data: 673																
Minimum Hourly Value: 1 ppb on December 2 at hour 5												Hours of Missing Data: 25																
Minimum Daily Value: 2.6 ppb on December 4												Hours of Calibration: 37																
Monthly Average: 7.1 ppb												Operational Uptime: 96.6																
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
Dec 1										C	C	C	C	C	C	C	21	25	28	31	23	22	18	18	1	31	-	
Dec 2	21	22	14	5	2	1	1	1	1	1	1	1	1	S	1	2	2	2	4	6	4	3	2	2	2	1	22	4.4
Dec 3	2	2	3	3	5	3	4	8	6	10	5	S	3	4	6	8	7	3	3	3	2	3	3	2	2	2	10	4.3
Dec 4	2	2	2	2	2	2	2	2	3	S	2	2	2	2	2	2	3	3	5	4	3	3	3	3	2	5	2.6	
Dec 5	3	2	5	6	9	2	1	2	3	S	3	2	2	3	4	4	6	6	6	5	15	15	23	10	1	23	6.0	
Dec 6	9	9	7	11	7	5	6	17	S	19	8	6	5	4	4	5	7	5	4	5	4	7	6	6	4	19	7.2	
Dec 7	6	8	6	6	5	5	6	S	5	5	8	9	10	7	6	8	9	10	10	8	8	8	7	8	5	10	7.3	
Dec 8	8	5	5	4	3	S	S	3	3	3	3	3	2	2	2	3	2	2	2	2	2	3	3	2	2	8	3.0	
Dec 9	2	1	1	1	2	S	2	4	13	11	6	3	3	3	5	5	5	5	5	4	3	3	3	4	1	13	4.1	
Dec 10	4	3	3	5	S	6	5	6	15	13	11	9	4	5	4	5	3	4	6	5	4	5	5	3	3	15	5.8	
Dec 11	7	3	2	S	4	3	3	3	3	3	2	1	1	2	3	2	4	6	8	16	29	32	11	3	1	32	6.6	
Dec 12	6	5	S	5	8	9	7	4	3	2	2	2	1	2	2	2	2	2	2	3	2	2	2	2	2	9	3.3	
Dec 13	2	S	1	1	3	1	3	3	3	3	2	3	2	2	3	12	19	10	7	6	5	10	13	18	1	19	5.7	
Dec 14	S	4	3	2	2	2	3	2	4	5	3	2	3	5	4	6	10	8	8	12	9	8	7	S	2	12	5.1	
Dec 15	10	10	10	21	16	22	28	27	34	33	29	15	11	12	7	21	29	29	19	12	12	13	S	9	7	34	18.7	
Dec 16	6	3	5	4	2	2	2	2	2	2	3	3	3	3	4	7	10	21	21	17	5	S	22	15	2	22	7.1	
Dec 17	6	6	6	8	13	12	7	7	7	7	6	5	4	4	5	7	12	10	16	10	S	7	10	20	4	20	8.5	
Dec 18	21	19	17	12	13	13	11	10	14	12	8	6	6	10	8	20	14	10	16	10	S	8	7	11	6	25	12.7	
Dec 19	4	3	3	2	1	1	2	2	2	3	3	3	5	4	5	7	5	6	S	6	6	6	4	13	1	13	4.2	
Dec 20	13	11	11	12	6	5	5	7	6	9	4	5	4	X	X	X	X	X	X	X	X	X	X	X	X	4	13	-
Dec 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5	8	S	19	15	14	10	7	6	3	3	3	19	-
Dec 22	2	2	2	2	3	3	2	2	2	5	3	3	3	4	4	S	3	5	5	4	5	4	2	3	2	5	3.2	
Dec 23	3	4	4	3	3	3	3	5	5	6	6	6	6	5	S	5	4	3	4	3	3	3	3	2	2	6	4.0	
Dec 24	2	3	3	2	3	2	3	3	2	4	3	3	4	S	5	5	4	5	8	6	8	7	5	2	8	8	4.1	
Dec 25	5	5	4	5	6	4	6	8	9	13	5	3	S	3	3	4	5	5	6	5	4	11	6	5	3	13	5.7	
Dec 26	4	8	11	6	4	5	5	5	6	8	5	S	7	5	3	4	6	6	10	18	13	9	7	6	3	18	7.0	
Dec 27	4	6	8	4	5	7	7	9	9	6	S	4	4	4	4	6	10	5	5	6	6	6	7	12	4	12	6.3	
Dec 28	25	12	9	9	7	4	6	7	6	S	7	3	2	3	5	7	6	9	18	14	10	11	10	5	2	25	8.5	
Dec 29	5	6	6	15	12	7	11	8	S	5	3	3	3	3	3	6	5	6	12	11	8	9	8	6	3	15	7.0	
Dec 30	4	4	5	3	4	5	9	S	24	12	9	10	11	6	5	8	9	25	28	25	26	24	26	19	3	28	13.1	
Dec 31	21	13	7	16	16	16	S	35	29	33	25	11	6	4	4	6	11	13	17	23	24	19	20	22	4	35	17.0	
Diurnal Maximum	25	22	17	21	16	22	28	35	34	33	29	15	11	12	8	21	29	29	28	31	29	32	26	22				
Diurnal Average	7.4	6.5	5.8	6.3	5.9	5.5	5.6	7.1	8.1	8.7	6.4	4.7	4.3	4.1	4.2	6.6	8.1	9.0	10.2	9.8	9.5	9.2	8.7	8.2				
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)										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.																												

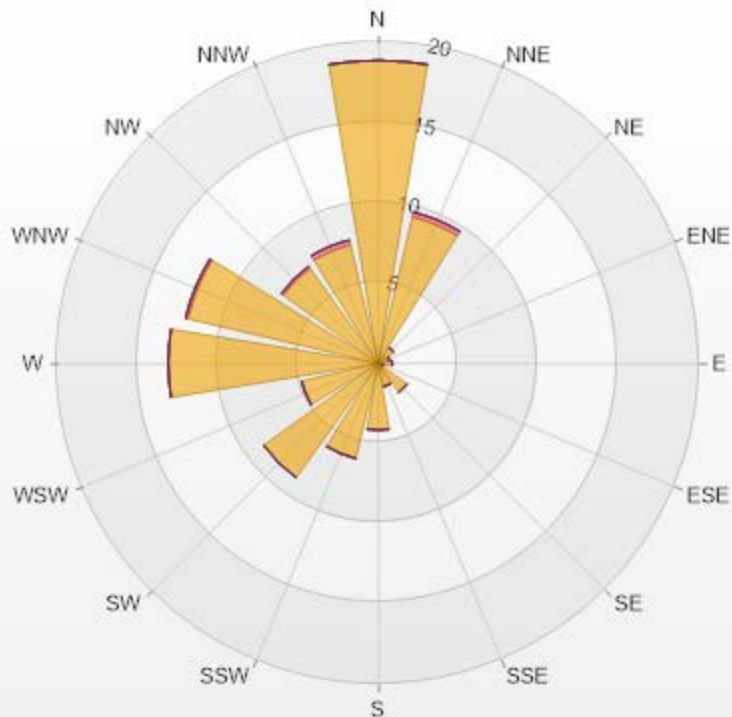
**Timeseries Chart of Hourly Average for NO2 - AQHI - Grimshaw Station**





Wind: AQHI Grimshaw Poll.: AQHI Grimshaw-NO2[ppb] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 90.46% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	18.87	0	0	0	0	18.87
NNE	9.36	0.3	0	0	0	9.66
NE	1.19	0	0	0	0	1.19
ENE	0.74	0	0	0	0	0.74
E	0.89	0	0	0	0	0.89
ESE	0.3	0	0	0	0	0.3
SE	2.23	0	0	0	0	2.23
SSE	1.49	0	0	0	0	1.49
S	4.16	0	0	0	0	4.16
SSW	6.09	0	0	0	0	6.09
SW	8.77	0	0	0	0	8.77
WSW	4.9	0	0	0	0	4.9
W	13.08	0	0	0	0	13.08
WNW	12.18	0.15	0	0	0	12.33
NW	7.28	0.15	0	0	0	7.43
NNW	7.58	0.3	0	0	0	7.88
Summary	99.11	0.9	0	0	0	100



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**PEACE RIVER AREA MONITORING PROGRAM**

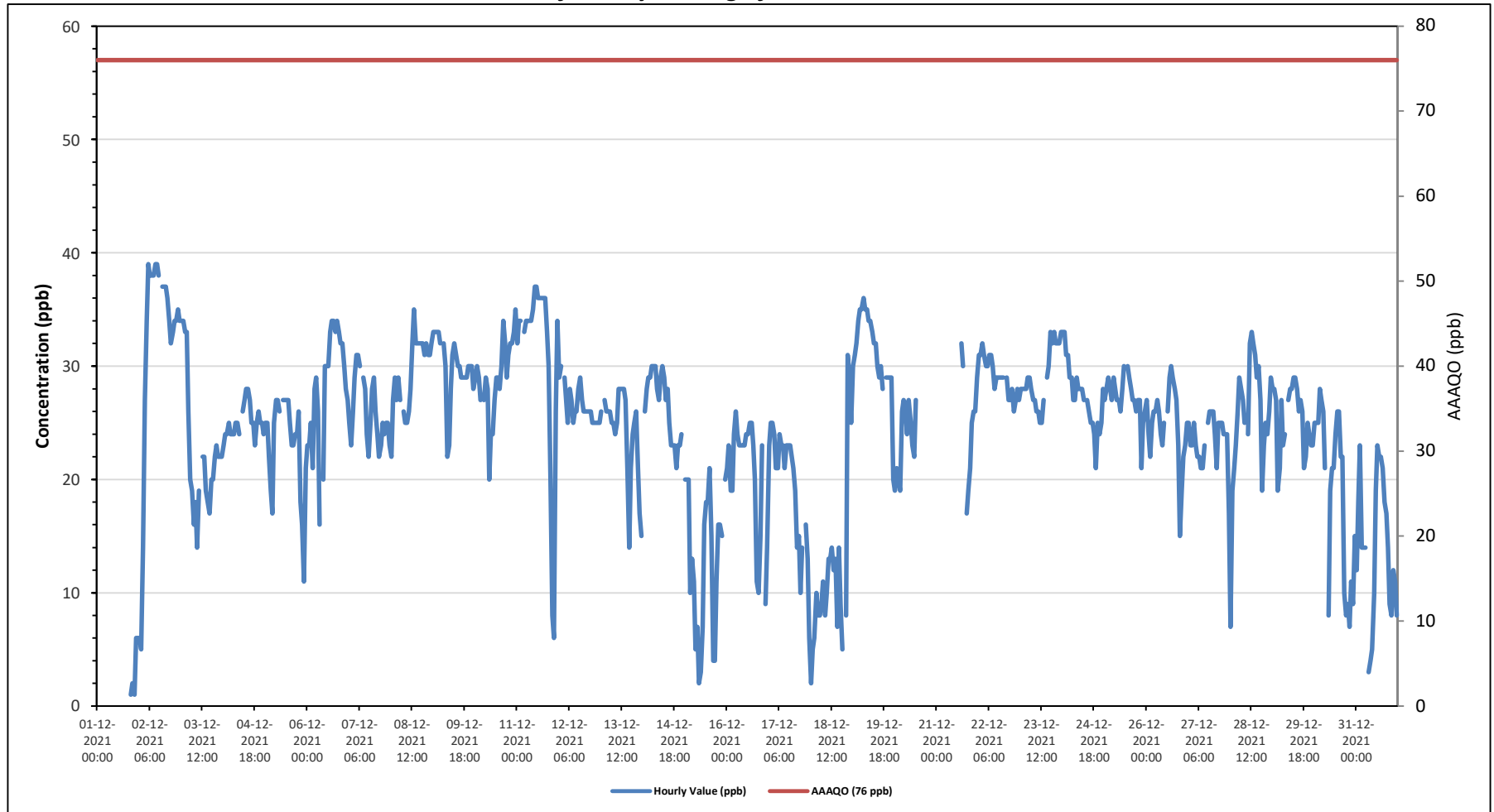
**AQHI - Grimshaw Station - December 2021**

**Summary of Hourly Averages**

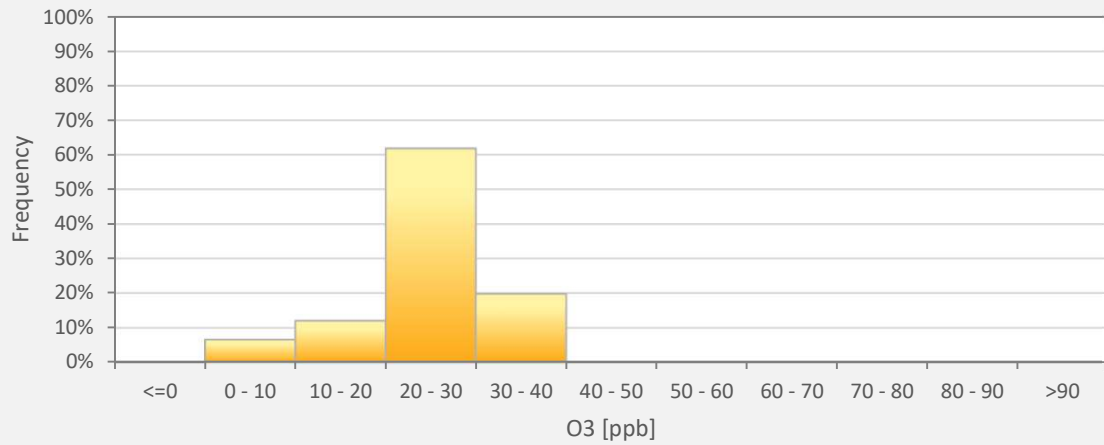
**OZONE (O<sub>3</sub>) in ppb**

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 76 ppb																																																							
Number of 1-Hour Exceedances: 0																																																							
Maximum Hourly Value: 39 ppb on December 2 at hour 5													Hours in Service: 729																																										
Maximum Daily Value: 32.1 ppb on December 2													Hours of Data: 670																																										
Minimum Hourly Value: 1 ppb on December 1 at hour 19													Hours of Missing Data: 25																																										
Minimum Daily Value: 11.7 ppb on December 18													Hours of Calibration: 34																																										
Monthly Average: 24.6 ppb													Operational Uptime: 96.6																																										
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average																													
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23																															
Dec 1																										1.0	6.0	-																											
Dec 2	6	5	14	27	34	39	38	38	38	39	39	38	S	37	37	C	C	C	C	1	2	1	6	6	5.0	39.0	32.1																												
Dec 3	34	34	33	33	26	20	19	16	18	14	19	S	22	22	19	18	17	20	20	22	23	22	22	22	14.0	34.0	22.4																												
Dec 4	23	24	24	25	24	24	24	25	25	24	S	26	27	28	28	27	25	25	23	25	26	25	25	24	23.0	28.0	25.0																												
Dec 5	25	25	22	19	17	25	27	27	26	S	27	27	27	27	25	23	23	24	24	26	18	16	11	21	11.0	27.0	23.1																												
Dec 6	23	23	25	21	28	29	26	16	S	20	30	30	30	33	34	34	33	34	33	32	32	30	28	27	16.0	34.0	28.3																												
Dec 7	25	23	26	29	31	31	30	S	29	28	24	22	25	28	29	26	24	22	23	25	24	25	25	23	22.0	31.0	26.0																												
Dec 8	22	27	29	27	29	27	S	26	25	25	26	28	32	35	32	32	32	32	32	31	32	31	31	32	22.0	35.0	29.3																												
Dec 9	33	33	33	33	32	S	32	30	22	23	28	31	32	31	30	30	29	29	29	29	30	30	30	28	22.0	33.0	29.9																												
Dec 10	29	30	29	27	S	27	29	28	20	24	24	27	29	29	28	30	34	32	29	31	32	32	33	35	20.0	35.0	29.0																												
Dec 11	32	34	34	S	33	34	34	34	34	35	37	37	36	36	36	36	33	30	20	8	6	26	34	6.0	37.0	31.1																													
Dec 12	29	30	S	29	27	25	28	27	25	26	26	28	29	27	26	26	26	26	25	25	25	25	25	25	25.0	30.0	26.6																												
Dec 13	26	S	27	26	26	26	25	25	24	25	28	28	28	28	27	21	14	21	24	25	26	21	17	15	14.0	28.0	24.0																												
Dec 14	S	26	28	29	29	30	30	30	28	27	29	30	29	27	28	25	23	23	23	21	23	23	24	S	21.0	30.0	26.6																												
Dec 15	20	20	20	10	13	11	5	7	2	3	7	16	18	18	21	15	4	4	11	16	16	15	S	20	2.0	21.0	12.7																												
Dec 16	21	23	19	19	24	26	24	23	2	23	23	24	24	25	25	23	20	11	10	15	23	S	9	14	9.0	26.0	20.5																												
Dec 17	23	25	25	24	21	21	24	23	23	21	23	23	23	22	21	19	14	15	10	14	S	16	13	6	6.0	25.0	19.5																												
Dec 18	2	5	6	10	8	8	9	11	8	10	13	13	14	12	13	7	14	9	5	S	8	31	29	25	2.0	31.0	11.7																												
Dec 19	30	31	32	34	35	35	36	35	35	34	34	33	32	32	30	29	30	28	S	29	29	29	29	20	20.0	36.0	31.3																												
Dec 20	19	21	20	19	26	27	26	24	27	25	23	22	27	X	X	X	X	X	X	X	X	X	X	X	19.0	27.0	-																												
Dec 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	32	30	S	17	19	21	25	26	26	29	17.0	32.0	-																												
Dec 22	31	31	32	31	30	30	31	31	30	28	29	29	29	29	29	29	S	29	27	27	28	26	27	28	27	26.0	32.0	29.1																											
Dec 23	28	28	28	28	29	29	28	27	27	26	26	25	25	27	S	29	30	33	32	33	32	32	32	33	25.0	33.0	29.0																												
Dec 24	33	33	31	31	29	29	27	27	29	28	28	28	27	S	27	26	25	25	24	21	25	24	25	28	21.0	33.0	27.4																												
Dec 25	27	28	29	28	27	29	28	27	27	26	28	30	S	30	29	28	27	27	26	27	27	21	25	26	21.0	30.0	27.3																												
Dec 26	27	24	22	25	26	26	27	26	24	23	25	S	26	29	30	29	28	27	23	15	19	22	23	25	15.0	30.0	24.8																												
Dec 27	25	23	23	25	23	22	22	21	21	23	S	25	26	26	26	24	21	25	25	25	24	24	24	17	17.0	26.0	23.5																												
Dec 28	7	19	21	23	26	29	28	27	25	S	24	32	33	32	31	29	30	27	19	23	25	24	26	29	7.0	33.0	25.6																												
Dec 29	28	28	27	19	21	27	23	24	S	27	28	28	29	29	28	26	27	26	21	22	25	24	23	23	19.0	29.0	25.3																												
Dec 30	25	25	25	28	27	26	21	S	8	19	21	21	24	26	26	22	22	10	8	9	7	11	9	15	7.0	28.0	18.9																												
Dec 31	12	18	23	14	14	14	S	3	4	5	10	19	23	22	22	21	18	17	14	9	8	12	11	8	3.0	23.0	14.0																												
Diurnal Maximum	34	34	34	34	35	39	38	38	38	39	39	38	36	37	37	37	36	34	33	33	34	34	35	35																															
Diurnal Average	23.8	24.9	25.3	24.8	25.5	25.9	26.0	24.4	23.2	23.4	25.1	26.7	26.9	27.7	27.5	25.8	24.7	23.6	22.2	22.5	22.6	22.7	23.1	23.1																															
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 O3 - AQHI - Grimshaw Station**



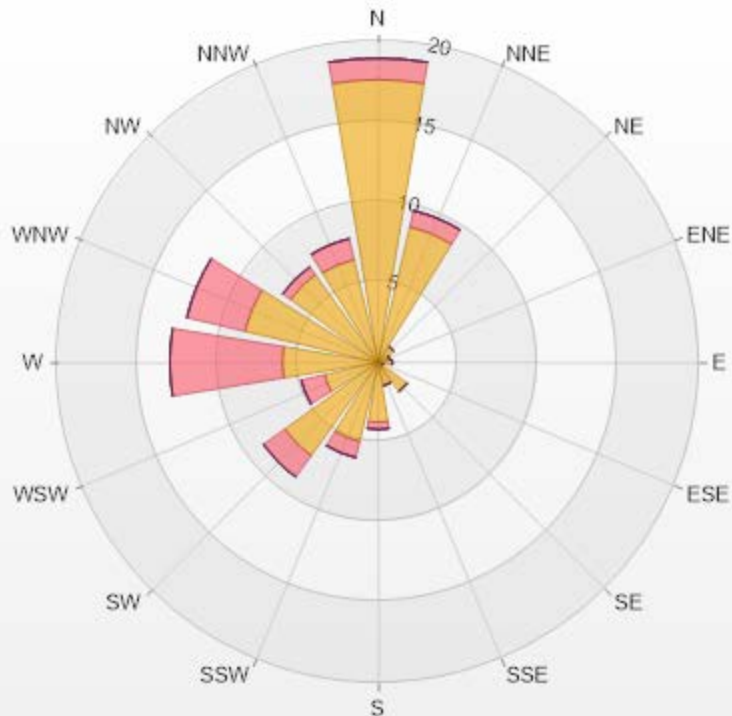
O3[ppb] Histogram: AQHI Grimshaw Monthly: 12-2021 1 Hr.



Classes	O3
<=0	0.00%
0 - 10	6.57%
10 - 20	11.94%
20 - 30	61.79%
30 - 40	19.70%
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 Grimshaw Poll.: AQHI Grimshaw-O3[ppb] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 90.05% Calm Avg: 0.00 [ppb]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	17.61	1.34	0	0	0	18.95
NNE	8.66	1.04	0	0	0	9.7
NE	1.19	0	0	0	0	1.19
ENE	0.75	0	0	0	0	0.75
E	0.9	0	0	0	0	0.9
ESE	0.3	0	0	0	0	0.3
SE	2.24	0	0	0	0	2.24
SSE	1.49	0	0	0	0	1.49
S	3.73	0.45	0	0	0	4.18
SSW	5.07	1.04	0	0	0	6.11
SW	7.16	1.64	0	0	0	8.8
WSW	3.43	1.49	0	0	0	4.92
W	5.97	7.01	0	0	0	12.98
WNW	8.51	3.73	0	0	0	12.24
NW	6.72	0.6	0	0	0	7.32
NNW	6.57	1.34	0	0	0	7.91
Summary	80.3	19.68	0	0	0	100



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% Icon Classes (ppb)

80 0-30

20 30-50

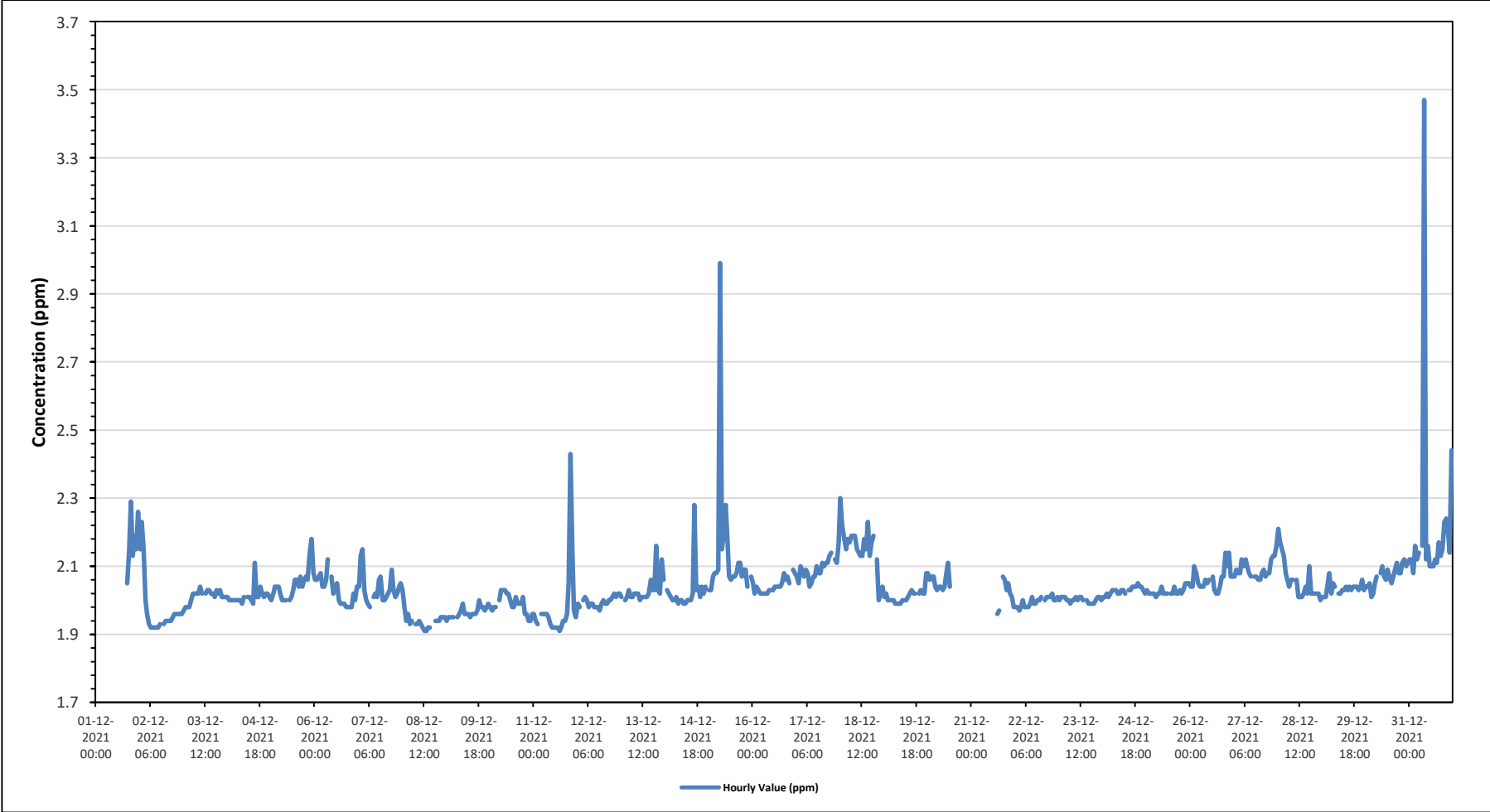
0 50-76

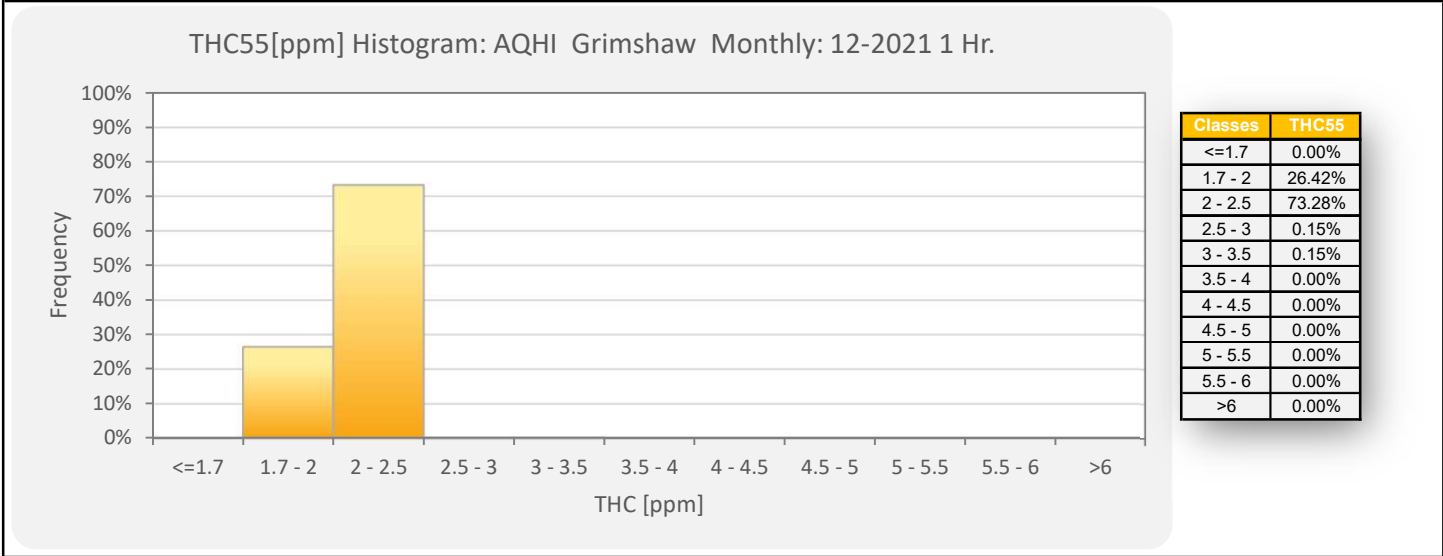
0 76-159

0 >159.0



**Timeseries Chart of Hourly Average for THC - AQHI - Grimshaw Station**

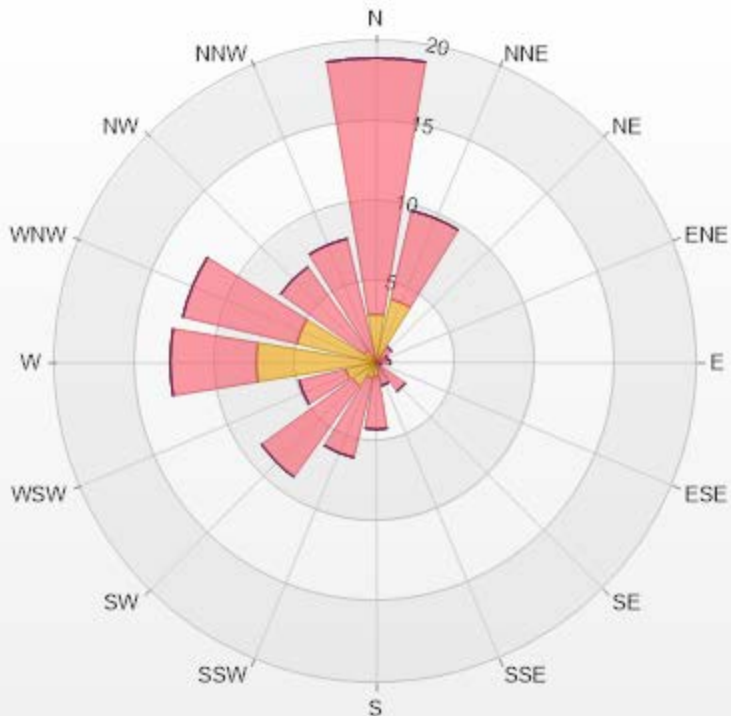






Wind: AQHI Grimshaw Poll.: AQHI Grimshaw-THC55[ppm] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 90.05% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	2.99	15.97	0	0	0	18.96
NNE	4.03	5.67	0	0	0	9.7
NE	0	1.19	0	0	0	1.19
ENE	0	0.75	0	0	0	0.75
E	0	0.9	0	0	0	0.9
ESE	0	0.3	0	0	0	0.3
SE	0	2.24	0	0	0	2.24
SSE	0.15	1.34	0	0	0	1.49
S	0.9	3.28	0	0	0	4.18
SSW	1.04	5.07	0	0	0	6.11
SW	1.79	7.01	0	0	0	8.8
WSW	1.94	2.99	0	0	0	4.93
W	7.46	5.37	0	0	0	12.83
WNW	5.07	7.31	0	0	0	12.38
NW	0.9	6.42	0	0	0	7.32
NNW	0.15	7.76	0	0	0	7.91
Summary	26.42	73.57	0	0	0	100



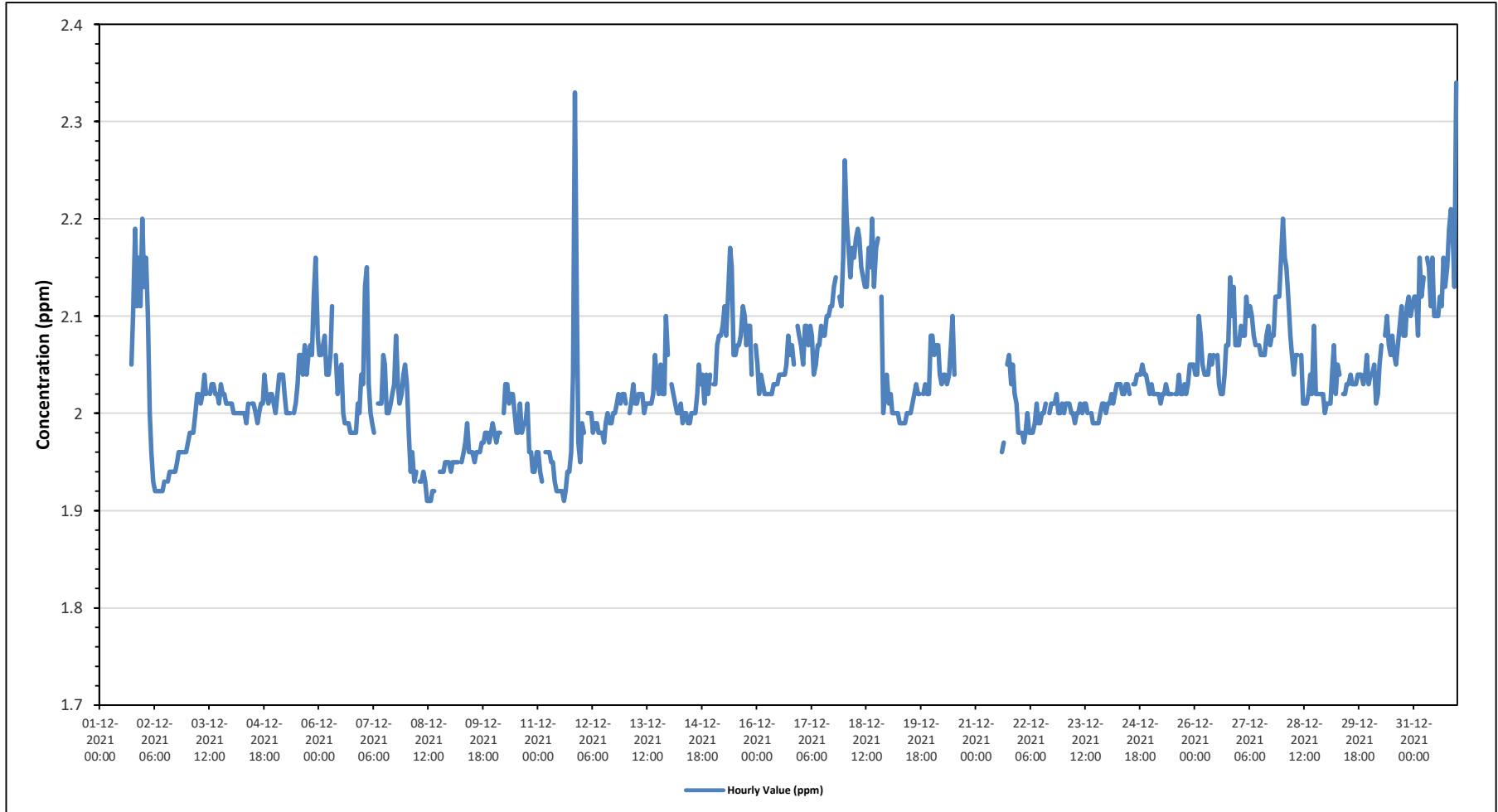
PRAMP-202112

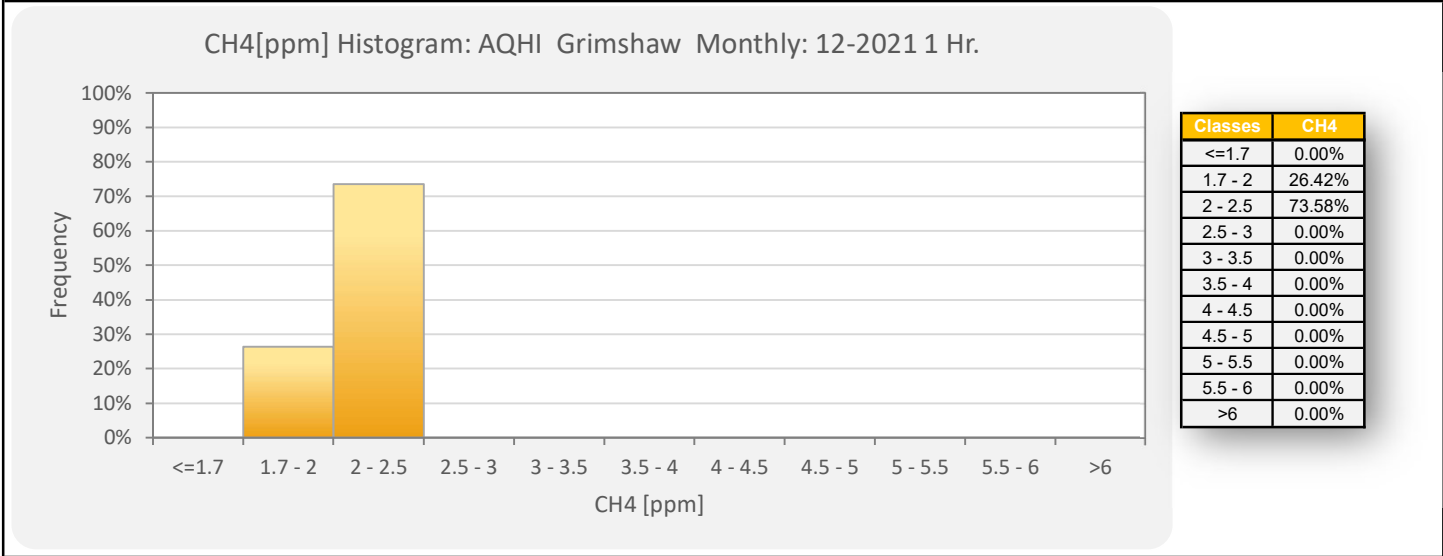
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% Icon Classes (ppm)	26	74	0	0	0
0-2	26	0	0	0	0
2-5	0	74	0	0	0
5-10	0	0	0	0	0
10-40	0	0	0	0	0
>40.0	0	0	0	0	0



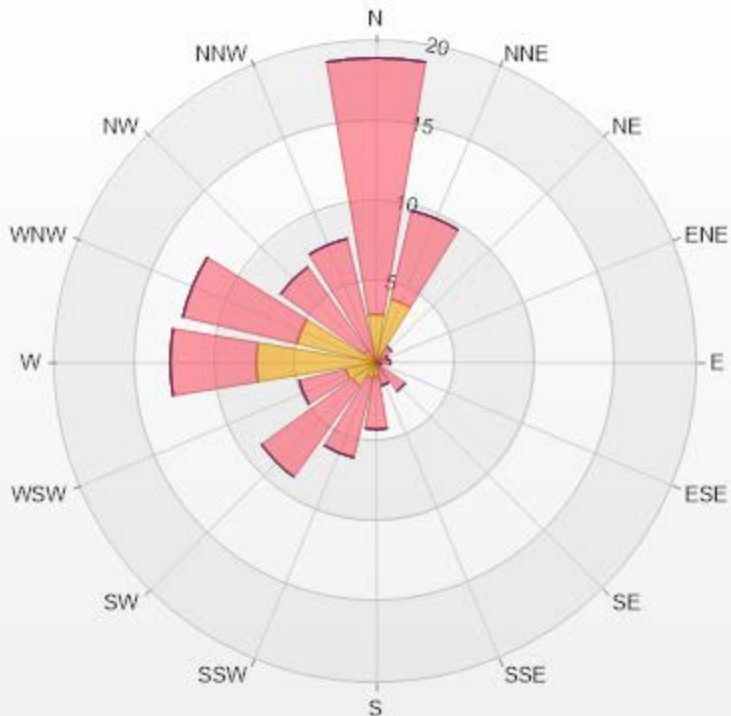
**Timeseries Chart of Hourly Average for CH4 - AQHI - Grimshaw Station**





Wind: AQHI Grimshaw Poll.: AQHI Grimshaw-CH4[ppm] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 90.05% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	2.99	15.97	0	0	0	18.96
NNE	4.03	5.67	0	0	0	9.7
NE	0	1.19	0	0	0	1.19
ENE	0	0.75	0	0	0	0.75
E	0	0.9	0	0	0	0.9
ESE	0	0.3	0	0	0	0.3
SE	0	2.24	0	0	0	2.24
SSE	0.15	1.34	0	0	0	1.49
S	0.9	3.28	0	0	0	4.18
SSW	1.04	5.07	0	0	0	6.11
SW	1.79	7.01	0	0	0	8.8
WSW	1.94	2.99	0	0	0	4.93
W	7.46	5.37	0	0	0	12.83
WNW	5.07	7.31	0	0	0	12.38
NW	0.9	6.42	0	0	0	7.32
NNW	0.15	7.76	0	0	0	7.91
Summary	26.42	73.57	0	0	0	100



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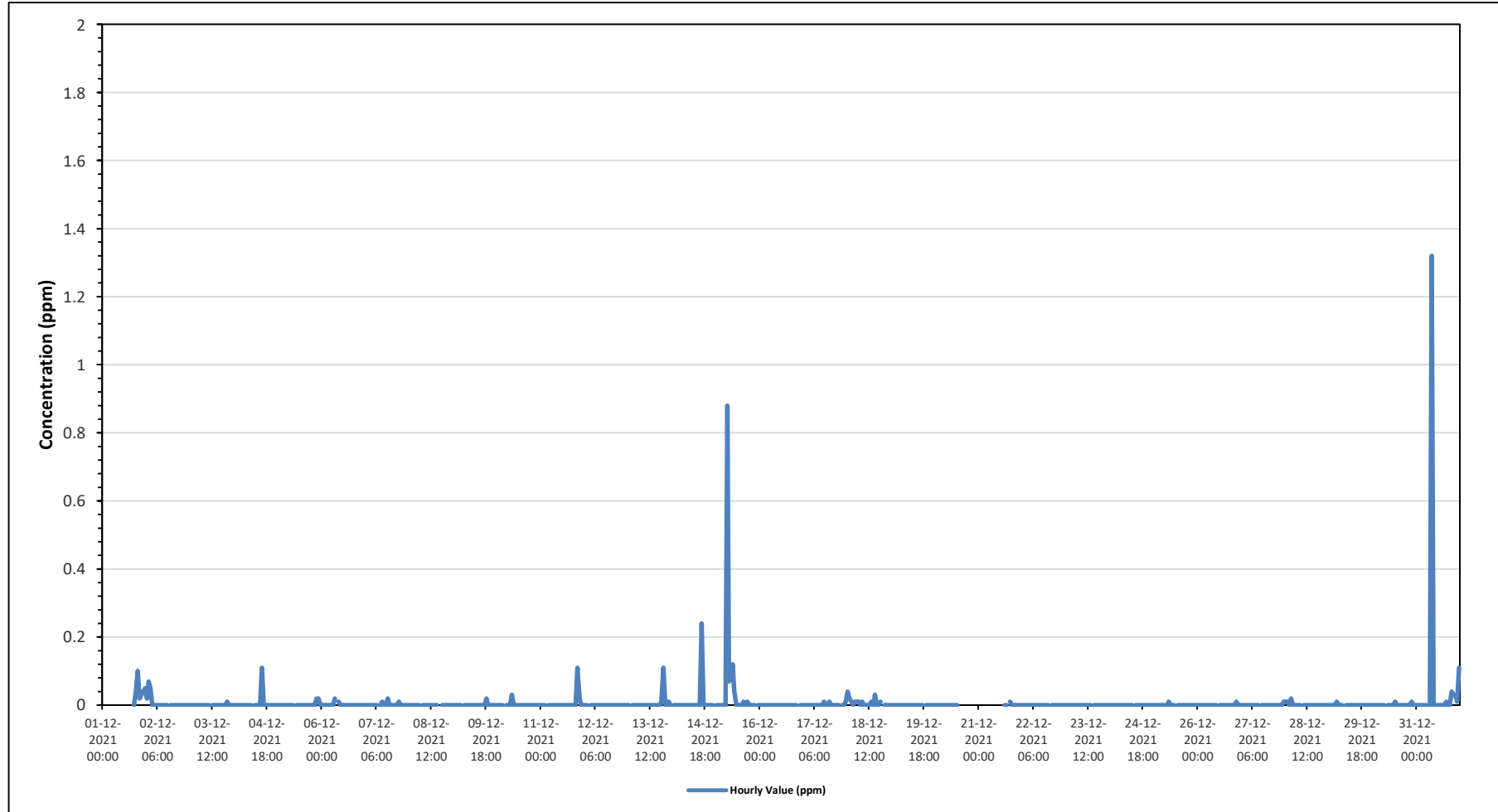
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% Icon Classes (ppm)	26	74	0	0	0
0-2	26	0	0	0	0
2-5	0	74	0	0	0
5-10	0	0	0	0	0
10-20	0	0	0	0	0
>20.0	0	0	0	0	0

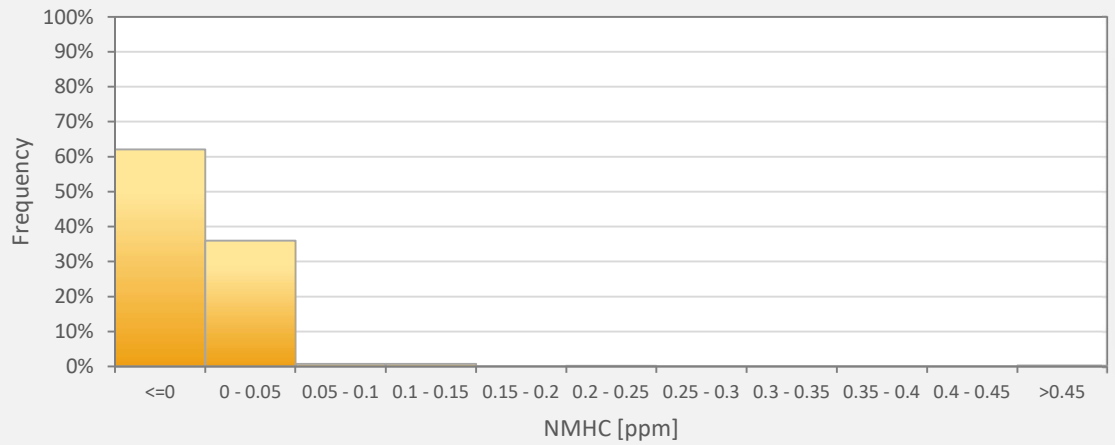




**Timeseries Chart of Hourly Average for NMHC - AQHI - Grimshaw Station**



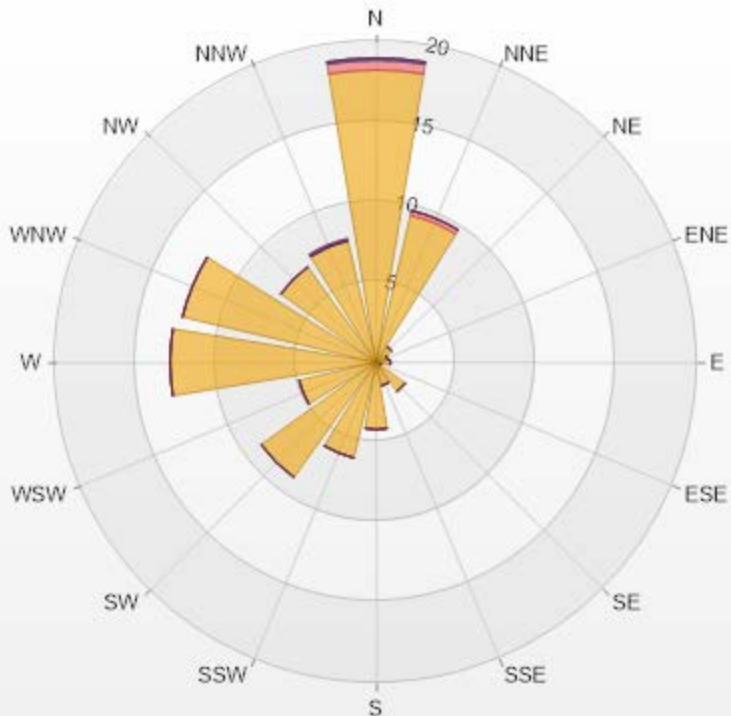
NMHC[ppm] Histogram: AQHI Grimshaw Monthly: 12-2021 1 Hr.



Classes	NMHC
<=0	62.09%
0 - 0.05	35.97%
0.05 - 0.1	0.75%
0.1 - 0.15	0.75%
0.15 - 0.2	0.00%
0.2 - 0.25	0.15%
0.25 - 0.3	0.00%
0.3 - 0.35	0.00%
0.35 - 0.4	0.00%
0.4 - 0.45	0.00%
>0.45	0.30%

Wind: AQHI Grimshaw Poll.: AQHI Grimshaw-NMHC[ppm] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 90.05% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-0.9	0.9-2	>2.0	Total
N	18.21	0.6	0.15	0	0	18.96
NNE	9.4	0.3	0	0	0	9.7
NE	1.19	0	0	0	0	1.19
ENE	0.75	0	0	0	0	0.75
E	0.9	0	0	0	0	0.9
ESE	0.3	0	0	0	0	0.3
SE	2.24	0	0	0	0	2.24
SSE	1.49	0	0	0	0	1.49
S	4.18	0	0	0	0	4.18
SSW	6.12	0	0	0	0	6.12
SW	8.81	0	0	0	0	8.81
WSW	4.93	0	0	0	0	4.93
W	12.84	0	0	0	0	12.84
WNW	12.39	0	0	0	0	12.39
NW	7.31	0	0	0	0	7.31
NNW	7.76	0	0	0.15	0	7.91
Summary	98.82	0.9	0.15	0.15	0	100



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% Icon Classes (ppm)

99 0-0.1

1 0.1-0.3

0 0.3-0.9

0 0.9-2

0 >2.0



**PEACE RIVER AREA MONITORING PROGRAM**

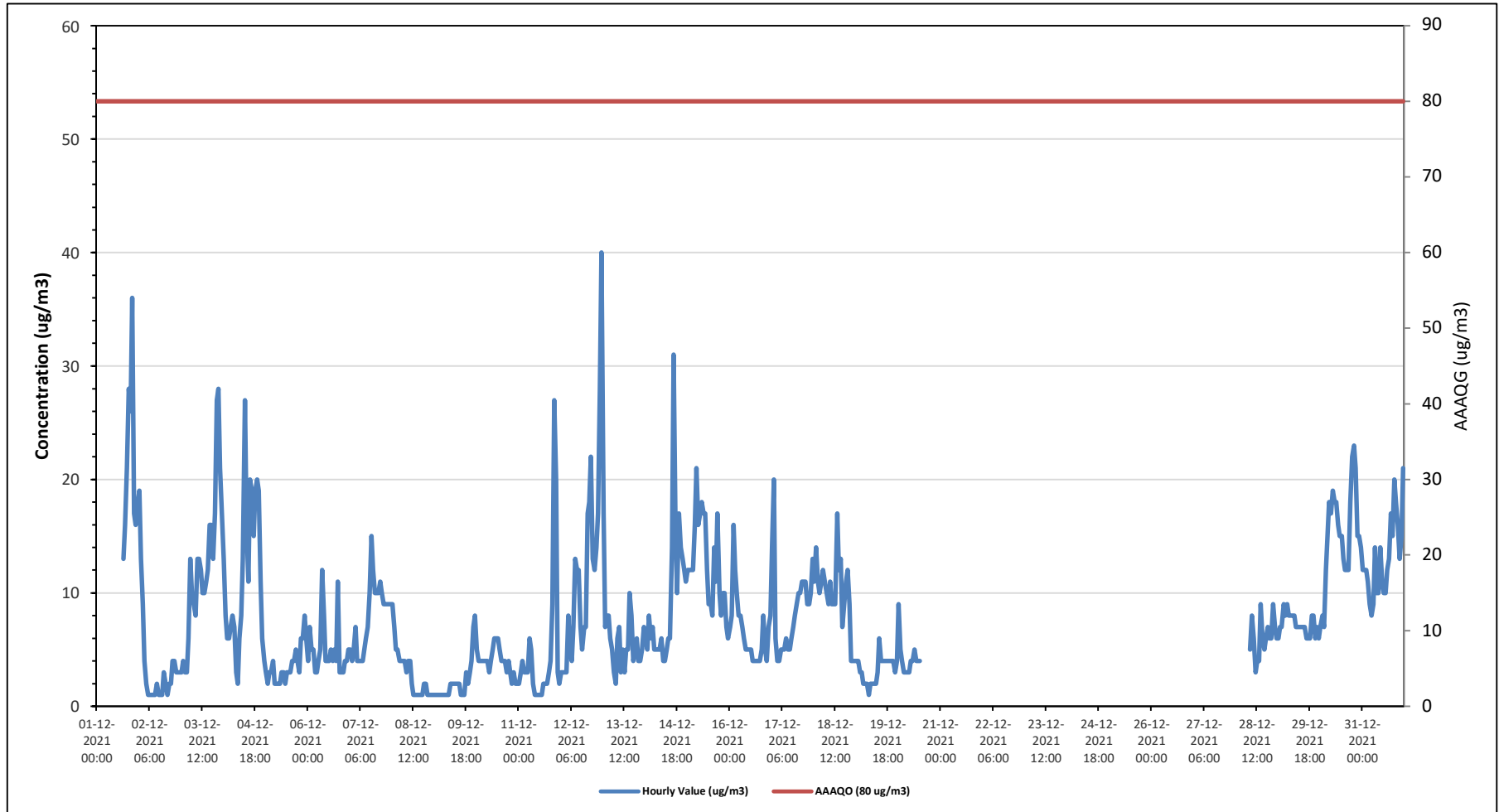
**AQHI - Grimshaw Station - December 2021**

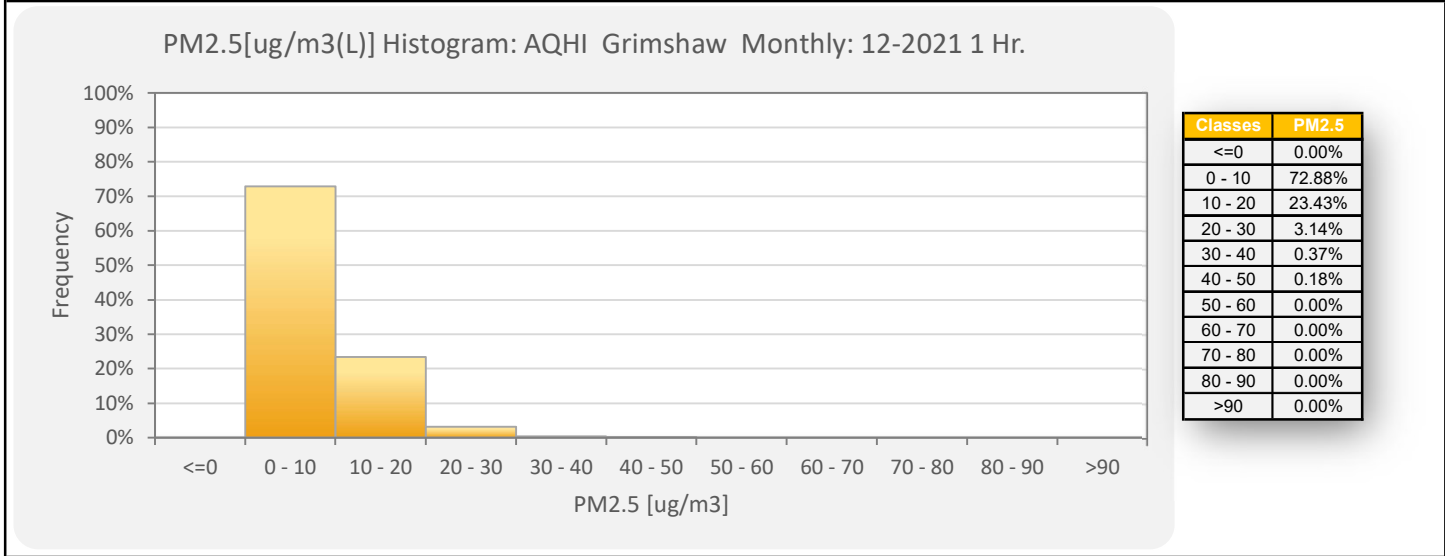
**Summary of Hourly Averages**

**PARTICULATE MATTER 2.5 (PM<sub>2.5</sub>) in µg/m<sup>3</sup>**

Alberta Ambient Air Quality Guideline (AAAQG): 1-Hour 80 µg/m <sup>3</sup> , Alberta Ambient Air Quality Objective (AAAQO): 24-Hour 29 µg/m <sup>3</sup>																																	
Number of 1-Hour Exceedances: 0										Number of 24-Hour Exceedances: 0																							
Maximum Hourly Value: 40 µg/m <sup>3</sup> on December 12 at hour 23										Hours in Service: 731																							
Maximum Daily Value: 15.1 µg/m <sup>3</sup> on December 30										Hours of Data: 542																							
Minimum Hourly Value: 1 µg/m <sup>3</sup> on December 2 at hour 5										Hours of Missing Data: 187																							
Minimum Daily Value: 2.1 µg/m <sup>3</sup> on December 9										Hours of Calibration: 2																							
Monthly Average: 7.7 µg/m <sup>3</sup>										Operational Uptime: 74.4																							
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23						
Dec 1														C	C	13	16	21	28	26	36	17	16	18	13	36	-						
Dec 2	19	13	9	4	2	1	1	1	1	1	2	1	1	1	3	2	1	2	2	4	4	3	3	3	1	19	3.5						
Dec 3	3	4	3	3	6	13	10	9	8	13	13	12	10	10	11	12	16	16	13	17	27	28	21	17	3	28	12.3						
Dec 4	13	8	6	6	7	8	7	3	2	6	8	13	27	16	11	20	19	15	19	20	19	11	6	4	2	27	11.4						
Dec 5	3	2	3	3	4	2	2	2	2	3	3	2	3	3	3	4	4	5	4	3	6	6	8	6	2	8	3.6						
Dec 6	4	7	5	5	3	3	4	5	12	8	4	4	4	5	4	5	4	11	3	3	3	4	4	5	3	12	5.0						
Dec 7	5	4	5	7	4	4	4	4	5	6	7	10	15	12	10	10	10	11	10	9	9	9	9	9	4	15	7.8						
Dec 8	9	7	5	5	4	4	4	4	3	4	4	2	1	1	1	1	1	1	2	2	1	1	1	1	1	9	2.9						
Dec 9	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	1	3	2	3	4	7	8	1	8	2.1						
Dec 10	5	4	4	4	4	4	4	3	4	5	6	6	6	5	4	4	4	3	4	3	2	3	2	2	2	6	4.0						
Dec 11	2	3	4	3	3	3	6	5	2	1	1	1	1	1	2	2	2	3	4	9	27	20	3	2	1	27	4.6						
Dec 12	3	3	3	3	8	5	4	7	13	12	12	7	5	7	7	17	18	22	13	12	14	17	28	40	3	40	11.7						
Dec 13	17	7	8	8	6	5	3	2	6	7	3	5	3	5	5	10	8	4	5	6	4	4	5	7	2	17	6.0						
Dec 14	6	5	8	6	7	5	5	5	5	6	4	4	5	6	6	14	31	16	10	17	14	13	12	11	4	31	9.2						
Dec 15	12	12	12	12	16	21	16	17	18	17	17	12	9	9	8	14	11	17	10	8	10	10	7	6	6	21	12.5						
Dec 16	7	8	16	12	10	8	8	7	6	5	5	5	5	4	4	4	4	5	8	5	4	7	8	4	4	16	6.6						
Dec 17	14	20	6	4	4	5	5	5	6	5	5	6	7	8	9	10	10	11	11	11	9	9	10	13	4	20	8.5						
Dec 18	11	14	11	10	11	12	11	10	9	11	9	9	9	17	12	13	7	9	11	12	9	4	4	4	4	4	17	10.0					
Dec 19	4	4	3	3	2	2	2	1	2	2	2	2	3	6	4	4	4	4	4	4	4	4	3	4	1	6	3.2						
Dec 20	9	5	4	3	3	3	3	4	4	5	4	4	4	X	X	X	X	X	X	X	X	X	X	X	3	9	-						
Dec 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-						
Dec 22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-						
Dec 23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-						
Dec 24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-						
Dec 25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-						
Dec 26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-						
Dec 27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-						
Dec 28	X	X	X	X	X	X	X	X	5	8	6	3	4	4	9	6	5	6	7	6	6	9	7	6	3	9	-						
Dec 29	6	7	7	9	8	9	8	8	8	8	7	7	7	7	7	6	6	6	6	8	8	6	7	6	6	9	7.2						
Dec 30	7	8	7	12	15	18	17	19	18	18	16	15	15	13	12	12	12	18	22	23	21	15	14	7	23	15.1							
Dec 31	12	12	12	11	9	8	9	14	10	10	14	11	10	10	12	13	17	15	20	18	16	13	15	21	8	21	13.0						
Diurnal Maximum	19	20	16	12	16	21	17	19	18	18	17	15	27	17	12	20	31	22	28	26	36	28	28	40									
Diurnal Average	7.8	7.2	6.5	6.1	6.2	6.5	6.1	6.2	6.5	7.1	6.7	6.2	6.8	6.9	6.6	8.6	9.2	9.6	9.4	10.0	11.2	9.3	8.7	9.3									
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 PM2.5 - AQHI - Grimshaw Station**

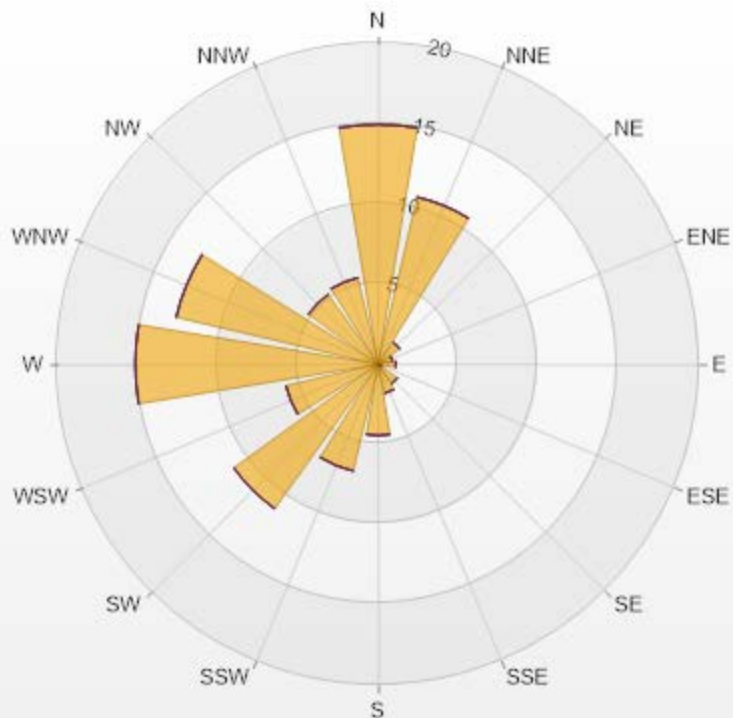




Wind: AQHI Grimshaw Poll.: AQHI Grimshaw-PM2.5[ug/m3(L)] Monthly: 12-2021 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 0.00% Valid Data: 72.85% Calm Avg: 0.00 [ug/m3(L)]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	14.94	0	0	0	0	14.94
NNE	10.7	0	0	0	0	10.7
NE	1.66	0	0	0	0	1.66
ENE	0.92	0	0	0	0	0.92
E	1.11	0	0	0	0	1.11
ESE	0.18	0	0	0	0	0.18
SE	1.48	0	0	0	0	1.48
SSE	1.85	0	0	0	0	1.85
S	4.43	0	0	0	0	4.43
SSW	6.83	0	0	0	0	6.83
SW	11.07	0	0	0	0	11.07
WSW	5.9	0	0	0	0	5.9
W	15.13	0	0	0	0	15.13
WNW	12.92	0	0	0	0	12.92
NW	5.35	0	0	0	0	5.35
NNW	5.54	0	0	0	0	5.54
Summary	100	0	0	0	0	100





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% 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 - Grimshaw Station - December 2021

Summary of Hourly Averages

RELATIVE HUMIDITY (RH) in %

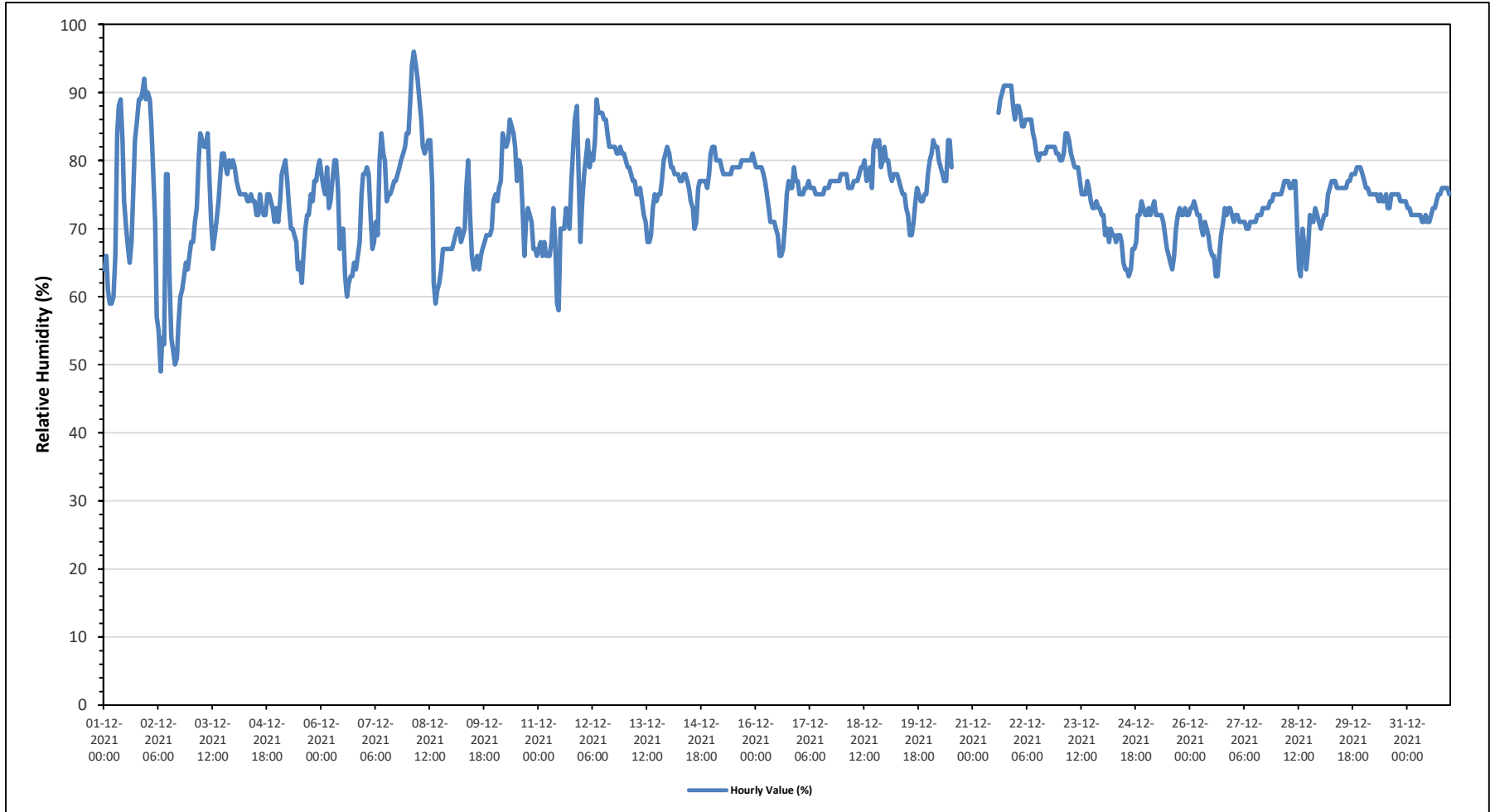
Maximum Hourly Value:	96 %	on December 8 at hour 3	Hours in Service:	744
Maximum Daily Value:	83.4 %	on December 22	Hours of Data:	719
Minimum Hourly Value:	49 %	on December 2 at hour 7	Hours of Missing Data:	25
Minimum Daily Value:	64.3 %	on December 2	Hours of Calibration:	0
Monthly Average:	74.8 %		Operational Uptime:	96.6

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Dec 1	64	66	61	59	59	60	66	84	88	89	83	74	70	67	65	68	76	83	86	89	89	90	92	89	59	92	75.7
Dec 2	90	89	85	78	71	57	55	49	54	53	78	78	63	54	52	50	51	56	60	61	63	65	64	66	49	90	64.3
Dec 3	68	68	71	73	80	84	83	82	82	84	77	71	67	69	71	74	78	81	81	79	78	80	79	80	67	84	76.7
Dec 4	79	77	76	75	75	75	75	74	74	75	74	74	72	72	75	73	72	72	75	74	74	73	71	73	71	79	74.2
Dec 5	71	74	78	79	80	77	73	70	70	69	68	64	65	62	66	70	72	72	75	74	77	77	79	80	62	80	72.6
Dec 6	78	76	75	79	73	74	77	80	80	76	67	70	70	63	60	62	63	63	65	64	66	68	75	78	60	80	70.9
Dec 7	78	79	78	72	67	68	71	69	80	84	81	80	74	75	75	76	77	77	78	79	80	81	82	84	67	84	76.9
Dec 8	84	89	94	96	94	92	89	86	82	81	82	83	83	77	62	59	61	62	64	67	67	67	67	67	59	96	77.3
Dec 9	67	68	69	70	70	68	69	70	76	80	72	66	64	65	66	64	66	67	68	69	69	69	70	74	64	80	69.0
Dec 10	75	74	76	77	84	83	82	83	86	85	84	82	77	80	79	73	66	71	73	72	71	67	67	66	66	86	76.4
Dec 11	67	68	66	68	66	66	66	68	73	68	59	58	70	70	73	72	70	77	82	86	88	77	68	58	88	70.7	
Dec 12	74	78	80	83	79	81	80	83	89	87	87	87	86	86	84	82	82	82	81	81	82	81	81	74	89	82.4	
Dec 13	80	79	79	78	77	77	75	75	76	74	72	71	68	68	69	73	75	74	75	75	77	80	81	82	68	82	75.4
Dec 14	81	79	79	78	78	78	77	77	78	78	77	76	74	73	70	71	76	77	77	77	77	76	78	81	70	81	76.8
Dec 15	82	82	80	80	80	79	78	78	78	78	78	79	79	79	79	80	80	80	80	80	80	81	80	81	78	82	79.5
Dec 16	79	79	79	79	78	77	75	73	71	71	71	70	69	66	66	67	71	75	77	76	76	79	77	77	66	79	74.1
Dec 17	75	75	75	76	76	77	76	76	76	75	75	75	75	75	76	76	77	77	77	77	77	77	78	75	78	76.0	
Dec 18	78	78	78	76	76	76	77	77	77	78	79	79	80	77	78	79	76	82	83	82	83	79	80	82	76	83	78.8
Dec 19	80	80	78	77	78	78	78	77	76	75	75	73	72	69	69	71	74	76	75	74	74	75	75	78	69	80	75.3
Dec 20	80	81	83	82	82	80	79	78	77	77	83	83	79	X	X	X	X	X	X	X	X	X	X	X	77	83	-
Dec 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	87	89	90	91	91	91	91	91	88	86	86	91	-
Dec 22	88	88	87	85	85	86	86	86	86	84	83	81	80	81	81	81	81	82	82	82	82	82	81	81	80	88	83.4
Dec 23	80	80	81	84	84	83	81	80	79	79	79	77	75	75	75	77	76	74	73	73	74	73	73	72	72	84	77.4
Dec 24	72	69	70	68	70	69	69	68	69	69	68	65	64	64	63	64	67	67	68	72	72	74	73	72	63	74	68.6
Dec 25	72	73	72	73	74	72	72	72	72	72	71	69	67	66	65	64	66	70	72	73	72	72	73	72	64	74	70.7
Dec 26	73	73	74	73	72	72	70	69	71	70	69	67	66	66	63	63	66	69	71	73	72	73	73	72	63	74	70.0
Dec 27	71	72	72	71	71	71	71	70	70	71	71	71	71	72	72	72	73	73	73	73	74	74	75	75	70	75	72.0
Dec 28	75	75	75	76	77	77	77	76	76	77	77	70	64	63	70	67	64	67	72	71	71	73	72	71	63	77	72.2
Dec 29	70	71	72	72	75	76	77	77	77	76	76	76	76	76	76	77	77	78	78	78	79	79	79	78	70	79	76.1
Dec 30	77	76	76	75	75	75	75	75	74	75	74	74	75	73	73	75	75	75	75	74	74	74	74	73	73	77	74.7
Dec 31	73	73	72	72	72	72	72	72	71	71	71	71	72	71	72	73	74	75	75	76	76	76	75	71	76	73.1	
Diurnal Maximum	90	89	94	96	94	92	89	86	89	89	87	87	86	86	87	89	90	91	91	91	91	91	92	89			
Diurnal Average	76.0	76.3	76.4	76.1	75.9	75.3	75.0	75.1	76.3	76.0	75.3	73.7	72.2	70.8	71.0	71.5	72.6	74.0	75.3	75.6	76.1	76.5	76.3	76.4			
<b>C</b>	Monthly Calibration							<b>S</b>	Daily Zero-Span Check							<b>Q</b>	Quality Assurance										
<b>K</b>	Collection Error							<b>N</b>	No Data (Machine Not in Service)							<b>Y</b>	Routine Maintenance							<b>P</b>	Power Failure		
<b>X</b>	Invalid Data (Equipment Malfunction /Recovery)							<b>NRM</b>	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 - Grimshaw Station**





### PEACE RIVER AREA MONITORING PROGRAM

AQHI - Grimshaw Station - December 2021

Summary of Hourly Averages

#### BAROMETRIC PRESSURE (BP) in millibar

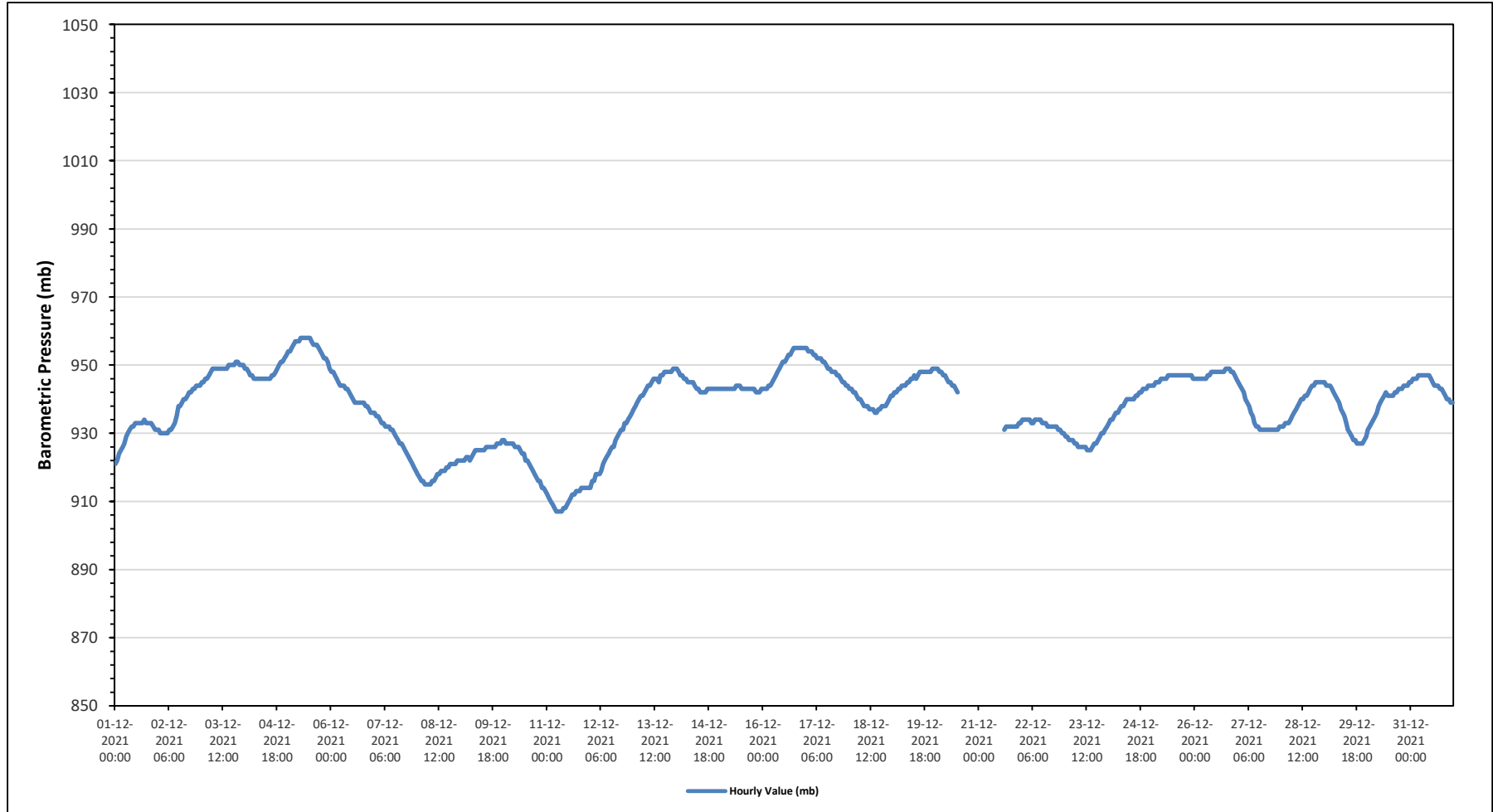
Maximum Hourly Value:	958 mb	on December 5 at hour 7	Hours in Service:	744
Maximum Daily Value:	955 mb	on December 5	Hours of Data:	719
Minimum Hourly Value:	907 mb	on December 11 at hour 5	Hours of Missing Data:	25
Minimum Daily Value:	911 mb	on December 11	Hours of Calibration:	0
Monthly Average:	938 mb		Operational Uptime:	96.6

Day	Hourly Period Starting at (MST)																							Daily	Daily	Daily	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Dec 1	921	922	924	925	926	927	929	930	931	932	932	933	933	933	933	933	934	933	933	933	933	932	931	931	921	934	930.2
Dec 2	931	930	930	930	930	930	931	931	932	933	935	938	938	939	940	940	941	942	942	943	943	944	944	944	930	944	936.7
Dec 3	945	945	946	946	947	948	949	949	949	949	949	949	949	949	949	950	950	950	950	951	951	950	950	950	945	951	948.8
Dec 4	949	949	948	947	947	946	946	946	946	946	946	946	946	946	947	947	948	949	950	951	951	952	953	946	953	947.8	
Dec 5	954	954	955	956	957	957	957	958	958	958	958	958	958	957	956	956	955	954	953	952	952	951	949	949	958	955.4	
Dec 6	948	948	947	946	945	944	944	944	943	943	942	941	940	939	939	939	939	939	938	938	937	936	936	936	936	948	941.4
Dec 7	936	935	935	934	933	933	932	932	932	931	931	930	929	928	927	927	926	925	924	923	922	921	920	919	919	936	928.5
Dec 8	918	917	916	916	915	915	915	915	916	916	917	918	918	919	919	920	920	921	921	921	921	922	922	922	915	922	918.2
Dec 9	922	922	922	923	923	922	923	924	925	925	925	925	925	925	926	926	926	926	926	926	927	927	928	922	928	924.8	
Dec 10	928	927	927	927	927	927	926	926	926	925	924	924	922	922	921	920	919	918	917	916	916	914	914	913	913	928	921.9
Dec 11	912	911	910	909	908	907	907	907	907	908	908	909	910	911	912	912	913	913	914	914	914	914	914	914	907	914	910.7
Dec 12	914	916	916	918	918	918	919	921	922	923	924	925	926	926	928	929	930	931	931	933	933	934	935	936	914	936	925.3
Dec 13	937	938	939	940	941	941	942	943	944	944	945	946	946	946	945	947	947	948	948	948	948	948	949	949	937	949	944.5
Dec 14	949	948	947	947	946	946	945	945	945	945	944	943	943	942	942	942	943	943	943	943	943	943	943	943	942	949	944.3
Dec 15	943	943	943	943	943	943	943	943	943	944	944	944	943	943	943	943	943	943	943	943	942	942	943	942	942	944	943.0
Dec 16	943	943	943	944	944	945	946	947	948	949	950	951	951	952	953	953	954	955	955	955	955	955	955	955	943	955	950.0
Dec 17	955	954	954	954	953	953	952	952	952	951	951	950	949	949	948	948	948	947	947	946	945	945	944	944	944	944	949.6
Dec 18	943	943	942	942	941	940	940	939	938	938	937	937	937	936	936	937	937	938	938	938	939	940	941	936	943	939.0	
Dec 19	941	942	942	943	943	944	944	944	945	945	946	946	947	946	947	948	948	948	948	948	948	948	949	949	941	949	945.8
Dec 20	949	949	948	948	947	947	946	945	945	944	944	943	942	X	X	X	X	X	X	X	X	X	X	942	949	-	
Dec 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	931	932	932	932	932	932	932	932	933	933	931	933	-
Dec 22	934	934	934	934	934	933	933	934	934	934	934	933	933	932	932	932	932	932	932	931	931	930	930	930	930	934	932.7
Dec 23	929	929	928	928	928	927	927	926	926	926	926	926	925	925	925	926	927	927	928	929	930	930	931	932	925	932	927.5
Dec 24	933	934	934	935	936	936	937	938	938	939	940	940	940	940	941	941	942	942	943	943	943	944	944	933	944	939.3	
Dec 25	944	944	945	945	945	946	946	946	946	947	947	947	947	947	947	947	947	947	947	947	947	947	946	944	947	946.3	
Dec 26	946	946	946	946	946	946	946	947	947	948	948	948	948	948	948	948	948	949	949	949	948	948	947	946	946	949	947.3
Dec 27	945	944	943	942	940	939	938	936	935	933	932	932	931	931	931	931	931	931	931	931	931	931	932	931	945	934.7	
Dec 28	932	932	933	933	933	934	935	936	937	938	939	940	941	941	942	943	944	944	945	945	945	945	945	932	945	939.3	
Dec 29	945	944	944	944	943	942	941	940	939	937	936	935	933	931	930	929	928	928	927	927	927	927	928	929	927	945	934.8
Dec 30	931	932	933	934	935	936	938	939	940	941	942	941	941	941	942	942	943	943	943	944	944	944	945	931	945	939.8	
Dec 31	945	946	946	946	947	947	947	947	947	947	947	946	945	944	944	943	943	942	941	940	939	939	939	939	947	944.3	
Diurnal Maximum	955	954	955	956	957	957	957	958	958	958	958	958	958	957	956	956	956	955	955	955	955	955	955	955	955	955	955
Diurnal Average	937	937	937	938	937	937	937	938	938	938	938	938	938	938	937	938	938	938	938	938	938	938	938	938	938	938	938

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





## PEACE RIVER AREA MONITORING PROGRAM

**AQHI - Grimshaw Station - December 2021**

**Summary of Hourly Averages**

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

Maximum Hourly Value:	5.2 °C on December 1 at hour 0	Hours in Service:	744
Maximum Daily Value:	-3.0 °C on December 8	Hours of Data:	719
Minimum Hourly Value:	-36.0 °C on December 27 at hour 4	Hours of Missing Data:	25
Minimum Daily Value:	-32.4 °C on December 27	Hours of Calibration:	0
Monthly Average:	-18.5 °C	Operational Uptime:	96.6

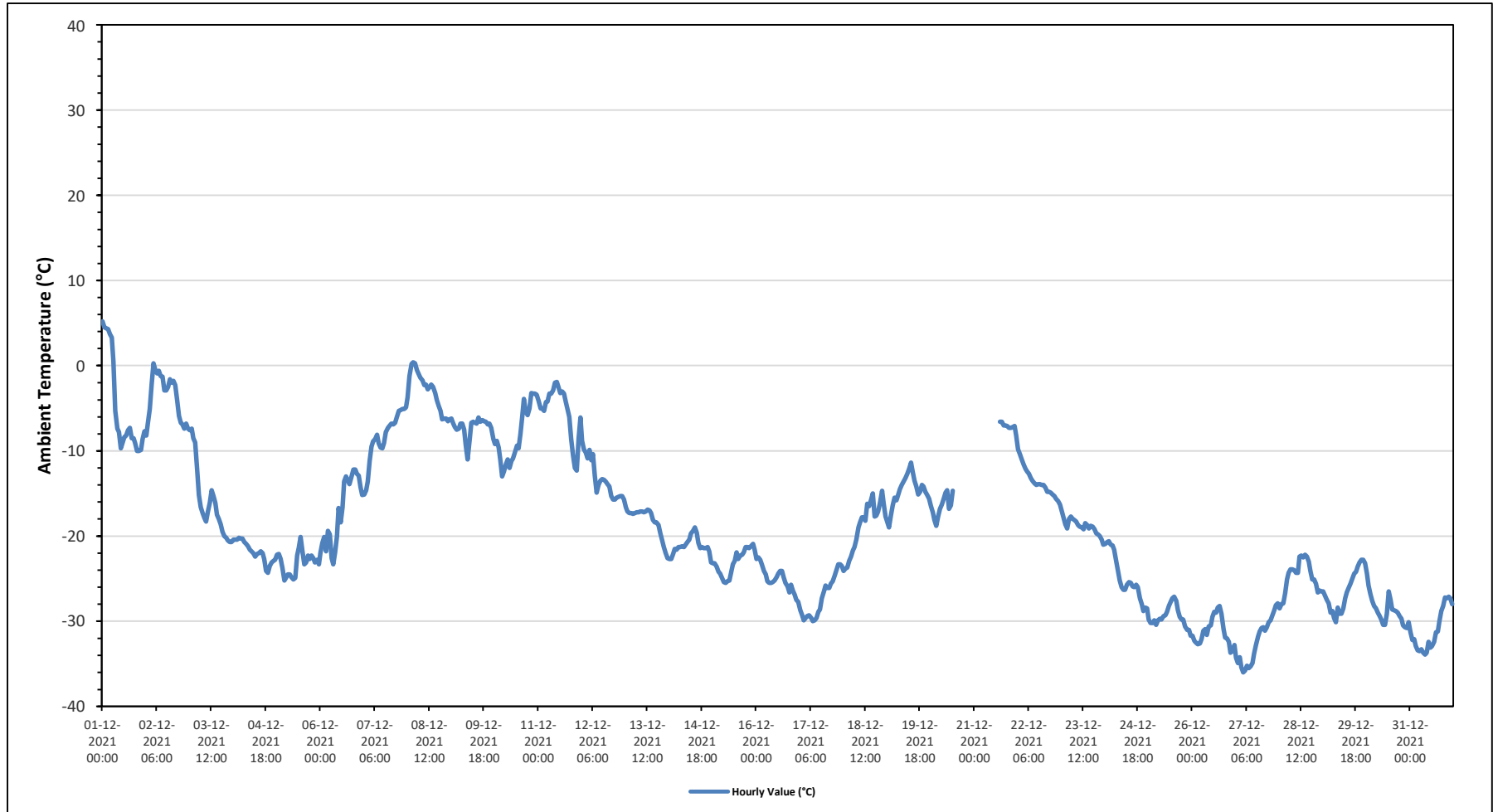
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Dec 1	5.2	4.5	4.4	4.3	3.7	3.3	0.5	-5.3	-7.4	-7.8	-9.7	-9	-8.4	-8.2	-7.6	-7.3	-8.5	-8.5	-9.1	-10	-10	-9.9	-8.6	-7.7	-10.0	5.2	-4.9	
Dec 2	-8.2	-6.7	-5.1	-2.2	0.3	-0.5	-0.9	-0.6	-1.2	-1.3	-2.9	-2.9	-2.5	-1.6	-2	-1.8	-2.3	-4	-5.9	-6.7	-6.9	-7.4	-6.8	-7.4	-8.2	0.3	-3.6	
Dec 3	-7.6	-7.4	-8.5	-9	-12	-15.2	-16.6	-17.3	-17.9	-18.3	-17.1	-16.1	-14.6	-15.3	-16.1	-17.5	-18	-18.6	-19.5	-20	-20.2	-20.5	-20.7	-20.7	-20.7	-20.7	-7.4	-16.0
Dec 4	-20.4	-20.4	-20.4	-20.2	-20.3	-20.3	-20.7	-20.9	-21.2	-21.6	-21.8	-22	-22.4	-22.1	-22	-21.8	-22	-22.7	-24.1	-24.3	-23.5	-23.1	-22.9	-22.8	-24.3	-24.3	-20.2	-21.8
Dec 5	-22.2	-22.1	-22.7	-23.8	-25.2	-24.9	-24.5	-24.8	-25.1	-24.9	-22.3	-21.4	-20.1	-21.8	-23.3	-23.1	-22.3	-22.7	-22.3	-22.6	-23.1	-22.8	-22.8	-23.3	-25.2	-20.1	-22.2	
Dec 6	-21.9	-20.8	-20.1	-21.8	-19.4	-19.8	-22.6	-23.3	-21.9	-20	-16.7	-18.4	-16.6	-13.6	-13	-13.5	-13.9	-13	-12.2	-12.2	-12.7	-12.9	-14.3	-15.2	-23.3	-12.2	-17.1	
Dec 7	-15.1	-14.6	-13.6	-11.2	-9.5	-8.9	-8.6	-8.1	-9.1	-9.6	-9.7	-9.1	-7.8	-7.3	-7	-6.8	-6.9	-6.7	-6.1	-5.3	-5.2	-5.1	-5.1	-4.9	-15.1	-4.9	-8.4	
Dec 8	-3.7	-1.2	0.2	0.4	0.3	-0.5	-1	-1.4	-1.7	-2.3	-2.2	-2.8	-2.5	-2.2	-2.5	-3.2	-4	-4.7	-5.3	-6.3	-6.2	-6.2	-6.5	-6.3	-6.5	0.4	-3.0	
Dec 9	-6.2	-6.8	-7.2	-7.5	-7.4	-6.8	-6.8	-7.5	-9.3	-11	-8.6	-6.7	-6.6	-6.7	-6.8	-6.1	-6.6	-6.4	-6.5	-6.6	-6.9	-6.8	-7.3	-8.6	-11.0	-6.1	-7.2	
Dec 10	-9.2	-8.8	-9.6	-11	-13	-12.4	-11.6	-11	-12	-11.2	-10.9	-10.2	-9.4	-9.7	-8	-5.9	-3.9	-5.4	-5.8	-5	-3.2	-3.3	-3.3	-3.4	-13.0	-3.2	-8.2	
Dec 11	-4.1	-5	-5	-5.3	-4.3	-4.2	-3.3	-3.3	-2.9	-2	-1.9	-2.5	-3.2	-3	-3.3	-4.3	-5.2	-6	-8.6	-10.5	-12	-12.3	-8.6	-6.1	-12.3	-1.9	-5.3	
Dec 12	-8.8	-9.8	-10.2	-10.9	-9.9	-11.1	-10.4	-12.9	-14.9	-14	-13.5	-13.3	-13.4	-13.6	-13.9	-14.2	-15.3	-15.7	-15.7	-15.5	-15.4	-15.3	-15.3	-15.7	-15.7	-8.8	-13.3	
Dec 13	-16.6	-17.1	-17.3	-17.3	-17.4	-17.3	-17.2	-17.2	-17.1	-17.1	-17.2	-17.1	-16.9	-17	-17.3	-18.1	-18.4	-18.4	-18.7	-19.7	-20.4	-21.3	-22	-22.6	-22.6	-16.6	-18.2	
Dec 14	-22.7	-22.7	-22.1	-21.5	-21.6	-21.3	-21.2	-21.3	-21	-20.7	-20.4	-19.7	-19.4	-19	-19.6	-20.8	-21.4	-21.3	-21.4	-21.4	-21.3	-21.8	-23.1	-23.1	-23.1	-19.0	-21.2	
Dec 15	-23.2	-23.2	-23.6	-24.2	-24.4	-24.9	-25.4	-25.5	-25.3	-25.2	-24.2	-23.3	-22.9	-21.9	-22.7	-22.3	-22.2	-21.9	-21.3	-21.3	-21.4	-21.2	-20.9	-21.6	-25.5	-20.9	-22.1	
Dec 16	-22.7	-22.5	-22.8	-23.3	-24.1	-24.5	-25.3	-25.5	-25.5	-25.4	-25.2	-24.8	-24.4	-24.1	-24.1	-24.8	-25.5	-25.9	-26.6	-25.7	-26.4	-26.9	-27.5	-27.7	-27.7	-22.5	-25.1	
Dec 17	-28.7	-29.2	-29.9	-29.6	-29.4	-29.3	-29.6	-30	-29.9	-29.6	-28.9	-28.6	-27.3	-26.5	-25.8	-26.1	-26.1	-25.6	-25.3	-24.6	-24	-23.3	-23.3	-23.5	-30.0	-23.3	-27.3	
Dec 18	-24.1	-23.8	-23.7	-22.9	-22.4	-21.7	-21.3	-20.4	-19	-18.4	-17.8	-17.8	-18.2	-16.2	-16.5	-15.8	-15	-17.7	-17.6	-17.1	-16.1	-14.7	-16.2	-17.7	-24.1	-14.7	-18.8	
Dec 19	-18.4	-19	-17.6	-16.4	-15.5	-15.8	-15.1	-14.5	-14	-13.6	-13.2	-12.7	-12.1	-11.4	-12.4	-13.5	-14.2	-15.1	-14.8	-14	-14.2	-14.8	-15.2	-15.6	-19.0	-11.4	-14.7	
Dec 20	-16.5	-17.2	-18.1	-18.8	-17.7	-16.8	-16.3	-15.6	-14.9	-14.6	-16.8	-16.4	-14.7	X	X	X	X	X	X	X	X	X	X	X	-18.8	-14.6	-	
Dec 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-8.2	-6.6	-	
Dec 22	-9.8	-10.4	-11	-11.6	-12.1	-12.4	-12.7	-13.2	-13.5	-13.8	-14	-14	-13.9	-13.9	-14	-14.3	-14.8	-14.8	-14.9	-15.1	-15.3	-15.6	-15.9	-16.3	-16.3	-9.8	-13.6	
Dec 23	-17	-17.8	-18.6	-19.1	-18	-17.7	-18	-18.1	-18.3	-18.7	-18.9	-19	-19.2	-18.5	-18.7	-19.1	-18.8	-18.9	-19.2	-19.7	-19.8	-20	-20.4	-21	-21.0	-17.0	-18.9	
Dec 24	-20.9	-20.7	-20.6	-21	-21.1	-21.6	-23	-24.2	-25.2	-26	-26.3	-26.3	-25.7	-25.4	-25.5	-25.9	-26	-25.7	-26	-27.3	-28	-28.8	-28.4	-28.5	-28.8	-20.6	-24.9	
Dec 25	-29.8	-30.2	-30.2	-29.9	-30.4	-29.9	-29.7	-29.8	-29.4	-29.3	-28.9	-28.2	-27.7	-27.3	-27.1	-27.6	-28.7	-29.5	-29.8	-29.8	-30.6	-31	-31	-31.7	-31.7	-27.1	-29.5	
Dec 26	-31.7	-32.3	-32.5	-32.7	-32.6	-32.1	-31.1	-30.9	-31.6	-30.6	-30.5	-29.5	-28.9	-29	-28.4	-28.2	-29.1	-30.9	-31.9	-32	-32.4	-33.7	-33.5	-32.8	-33.7	-28.2	-31.2	
Dec 27	-34.3	-34.9	-34.2	-35.4	-36	-35.8	-35.2	-35.5	-35.3	-34.9	-33.8	-32.8	-31.8	-31.2	-30.8	-30.7	-31.1	-30.7	-30.1	-29.9	-29.3	-28.7	-28.1	-27.9	-36.0	-27.9	-32.4	
Dec 28	-28.5	-28	-27.9	-26.7	-25.1	-24.3	-23.9	-23.9	-24	-24.3	-24.3	-22.4	-22.3	-22.5	-22.2	-22.4	-23	-24.1	-25.1	-25.1	-25.6	-26.4	-26.5	-28.5	-25.5	-22.2	-24.8	
Dec 29	-26.5	-27	-27.5	-27.9	-29	-28.8	-29.6	-30.1	-28.4	-29.1	-29.1	-28.5	-27.3	-26.6	-26.1	-25.6	-25	-24.4	-24.2	-23.6	-23.1	-22.8	-22.8	-23.2	-30.1	-22.8	-26.5	
Dec 30	-24.4	-25.8	-26.8	-27.6	-28.2	-28.5	-29	-29.4	-29.8	-30.4	-30.4	-29.1	-26.5	-27.5	-28.6	-28.7	-28.8	-29	-29.4	-29.7	-30.5	-30.7	-30.8	-30.1	-30.8	-24.4	-28.7	
Dec 31	-31.3	-32.2	-32.1	-32.9	-33.4	-33.5	-33.3	-33.7	-33.9	-33.7	-32.4	-33.1	-32.9	-32.4	-31.3	-31.2	-30	-28.8	-28.2	-27.2	-27.3	-27.1	-27.3	-28	-33.9	-27.1	-31.1	
Diurnal Maximum	5.2	4.5	4.4	4.3	3.7	3.3	0.5	-0.6	-1.2	-1.3	-1.9	-2.5	-2.5	-1.6	-2.0	-1.8	-2.3	-4.0	-5.3	-5.0	-3.2	-3.3	-3.3	-3.4				
Diurnal Average	-18.3	-18.4	-18.5	-18.6	-18.5	-18.6	-18.8	-19.2	-19.4	-19.3	-19.1	-18.6	-18.0	-17.7	-17.4	-17.5	-17.8	-18.1	-18.4	-18.5	-18.6	-18.7	-18.7	-18.9				

<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>N</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> Invalid Data (Equipment Malfunction /Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b> 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 - Grimshaw Station**





# PEACE RIVER AREA MONITORING PROGRAM

## AQHI - Grimshaw Station - December 2021

### Summary of Hourly Averages

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

Maximum Hourly Value:	23.9 °C	on December 27 at hour 9	Hours in Service:	744
Maximum Daily Value:	23.2 °C	on December 27	Hours of Data:	719
Minimum Hourly Value:	21.0 °C	on December 9 at hour 18	Hours of Missing Data:	25
Minimum Daily Value:	21.3 °C	on December 9	Hours of Calibration:	0
Monthly Average:	22.3 °C		Operational Uptime:	96.6

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Dec 1	23.2	23.2	23.2	23.2	23.2	23.3	23.2	23.3	23.4	22.9	23.3	23.1	23.5	23.2	23.5	23.7	23.8	23.5	21.9	21.4	21.5	21.5	21.5	21.4	21.4	23.8	22.9
Dec 2	21.4	21.6	22.0	22.1	22.7	23.1	23.2	23.2	23.2	23.1	22.9	22.9	23.3	23.2	23.4	23.3	23.6	23.2	22.5	21.7	21.4	21.4	21.5	21.4	21.4	23.6	22.6
Dec 3	21.5	21.5	21.5	21.6	21.6	21.8	22.0	22.1	22.2	22.2	22.0	21.7	21.6	21.8	21.8	22.0	22.1	22.2	22.3	22.4	22.5	22.4	22.5	22.4	21.5	22.5	22.0
Dec 4	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.4	22.4	22.3	22.3	22.2	22.3	22.4	22.3	22.4	22.5	22.6	22.6	22.6	22.5	22.4	22.5	22.2	22.6	22.4
Dec 5	22.3	22.3	22.4	22.5	22.6	22.7	22.7	22.8	22.7	22.8	22.6	22.3	22.3	22.3	22.3	22.4	22.4	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.3	22.8	22.5
Dec 6	22.6	22.5	22.4	22.3	22.4	22.4	22.4	22.5	22.5	22.5	22.1	21.7	21.9	21.8	21.7	21.7	21.8	21.9	21.8	21.8	21.9	21.8	21.7	21.7	21.7	22.6	22.1
Dec 7	21.7	21.6	21.7	21.6	21.4	21.4	21.3	21.3	21.4	21.3	21.4	21.6	21.9	22.2	22.3	22.2	22.2	22.2	22.3	22.5	22.7	22.8	23.0	21.3	23.0	21.9	
Dec 8	23.2	23.3	23.1	23.2	23.3	23.2	23.2	23.3	23.5	23.5	23.3	23.3	23.3	23.3	23.3	22.5	21.8	21.4	21.5	21.1	21.2	21.1	21.1	21.1	21.1	23.5	22.6
Dec 9	21.1	21.1	21.2	21.2	21.1	21.1	21.1	21.1	21.3	21.4	21.2	21.4	21.9	21.9	21.8	21.5	21.1	21.1	21.0	21.1	21.1	21.0	21.0	21.2	21.0	21.9	21.3
Dec 10	21.2	21.3	21.4	21.4	21.6	21.7	21.6	21.6	21.5	21.6	21.3	21.1	21.2	21.4	21.4	21.1	21.0	21.0	21.0	21.2	21.5	21.8	21.9	21.8	21.0	21.9	21.4
Dec 11	21.7	21.5	21.3	21.5	21.6	21.5	21.6	21.6	21.6	21.7	21.8	21.8	21.9	22.2	22.8	22.6	22.0	21.2	21.3	21.4	21.4	21.5	21.5	21.3	21.2	22.8	21.7
Dec 12	21.2	21.4	21.5	21.4	21.5	21.4	21.5	21.5	21.8	21.7	21.5	21.4	21.5	21.4	21.5	21.5	21.7	21.8	21.9	21.8	21.7	21.7	21.7	21.7	21.2	21.9	21.6
Dec 13	21.8	21.9	22.0	21.9	22.0	21.9	21.9	21.9	21.9	21.9	22.0	21.9	21.8	21.8	21.9	22.1	22.1	22.0	22.1	22.2	22.4	22.4	22.5	22.5	21.8	22.5	22.0
Dec 14	22.5	22.5	22.5	22.5	22.4	22.4	22.3	22.4	22.4	22.4	22.3	22.3	22.0	22.0	22.0	22.1	22.2	22.3	22.3	22.3	22.3	22.2	22.3	22.3	22.0	22.5	22.3
Dec 15	22.4	22.4	22.5	22.5	22.5	22.6	22.6	22.6	22.6	22.6	22.5	22.2	22.0	21.9	22.2	22.2	22.3	22.3	22.2	22.2	22.3	22.3	22.2	22.3	21.9	22.7	22.4
Dec 16	22.4	22.5	22.5	22.5	22.6	22.6	22.7	22.8	22.9	22.8	22.8	22.7	22.7	22.6	22.6	22.6	22.7	22.7	22.8	22.7	22.7	22.8	22.9	22.9	22.4	22.9	22.7
Dec 17	22.9	23.0	23.0	23.1	23.1	23.0	23.1	23.1	23.1	23.1	22.9	22.6	22.6	22.7	22.6	22.5	22.6	22.7	22.7	22.6	22.4	22.3	22.4	22.5	22.3	23.1	22.8
Dec 18	22.5	22.5	22.5	22.3	22.3	22.2	22.2	22.2	22.0	21.8	21.8	21.7	21.7	21.5	21.6	21.6	21.6	21.8	21.8	21.8	21.7	21.8	21.9	22.1	21.5	22.5	22.0
Dec 19	22.2	22.2	22.2	22.1	21.9	21.9	21.8	21.8	21.7	21.7	21.6	21.4	21.3	21.2	21.3	21.4	21.7	21.8	21.9	21.8	21.7	21.7	21.8	21.7	21.2	22.2	21.7
Dec 20	21.7	21.8	22.1	22.1	22.1	21.9	21.8	21.7	21.7	21.6	21.7	21.8	21.6	X	X	X	X	X	X	X	X	X	X	21.6	22.1	-	
Dec 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	21.7	22.0	22.2	22.2	22.2	22.2	22.2	22.2	22.1	21.9	21.7	22.2	-
Dec 22	21.4	21.2	21.2	21.3	21.4	21.4	21.4	21.4	21.5	21.5	21.5	21.4	21.4	21.4	21.5	21.4	21.5	21.6	21.7	21.6	21.6	21.6	21.7	21.7	21.2	21.7	21.5
Dec 23	21.7	21.9	22.0	22.2	22.1	21.9	21.9	21.9	22.0	22.0	21.9	22.0	22.0	21.9	21.8	22.0	22.0	22.1	22.1	22.1	22.1	22.1	22.1	22.1	21.7	22.2	22.0
Dec 24	22.2	22.1	22.1	22.1	22.1	22.2	22.3	22.6	22.7	22.8	22.8	22.8	22.7	22.7	22.7	22.6	22.6	22.6	22.7	22.8	22.9	22.9	23.0	23.0	22.1	23.0	22.6
Dec 25	23.0	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.0	22.8	22.7	22.9	22.7	22.7	22.8	23.0	23.1	23.1	23.2	23.2	23.2	23.2	22.7	23.2	23.0
Dec 26	23.2	23.2	23.2	23.2	23.2	23.1	23.1	23.0	23.1	23.0	22.9	22.8	22.7	22.9	22.9	22.8	22.9	23.0	23.1	23.2	23.2	23.2	23.3	23.3	22.7	23.3	23.1
Dec 27	23.3	23.1	23.3	23.4	23.3	23.3	23.4	23.5	23.6	23.9	23.8	22.9	23.0	23.1	23.0	22.9	23.0	23.1	22.9	22.9	22.9	22.8	22.8	22.8	22.8	23.9	23.2
Dec 28	22.8	22.9	22.8	22.8	22.6	22.4	22.4	22.3	22.3	22.3	22.2	22.3	22.4	22.2	22.3	22.4	22.7	22.7	22.7	22.7	22.7	22.8	22.9	22.8	22.2	22.9	22.5
Dec 29	22.9	22.9	22.9	23.0	23.0	23.1	23.0	23.2	22.9	22.8	22.8	22.7	22.6	22.5	22.4	22.4	22.3	22.3	22.3	22.4	22.4	22.3	22.3	22.3	22.3	23.2	22.7
Dec 30	22.4	22.6	22.8	23.0	23.1	23.1	23.1	23.1	23.1	23.1	23.0	22.7	22.6	22.7	22.7	22.8	22.9	23.0	23.0	23.0	23.0	23.1	23.1	22.4	23.1	22.9	
Dec 31	23.0	23.1	23.1	23.2	23.2	23.2	23.3	23.3	23.3	23.3	23.2	22.9	23.0	23.0	22.8	22.8	22.9	22.7	22.7	22.7	22.7	22.8	22.8	22.8	22.7	23.3	23.0
Diurnal Maximum	23.3	23.3	23.3	23.4	23.3	23.3	23.4	23.5	23.6	23.9	23.8	23.3	23.5	23.3	23.5	23.7	23.8	23.5	23.1	23.2	23.2	23.3	23.3	23.3	23.3	23.3	23.3
Diurnal Average	22.3	22.3	22.3	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.3	22.2	22.2	22.3	22.3	22.3	22.3	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2

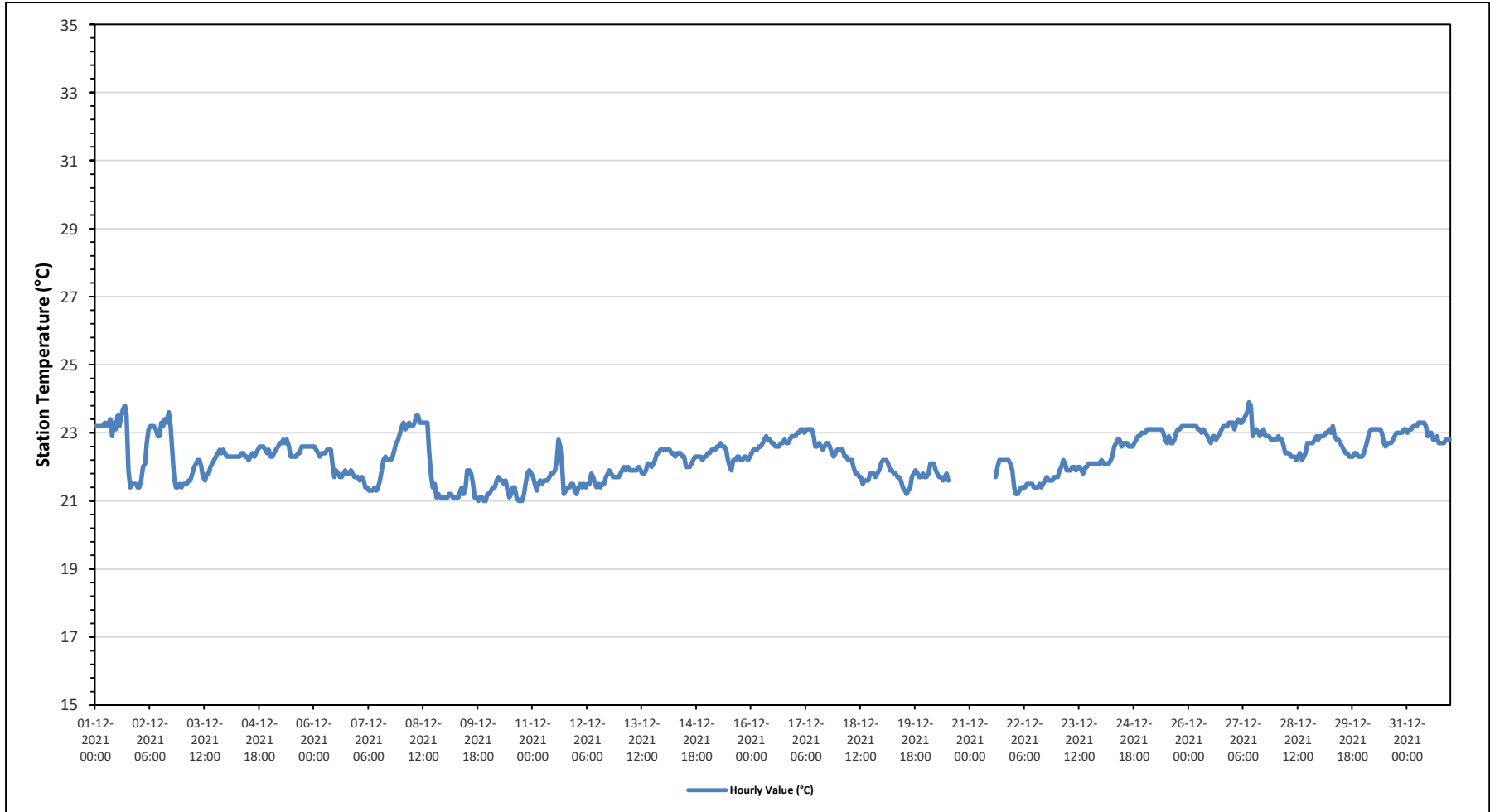
  

<b>C</b> Monthly Calibration	<b>S</b> Daily Zero-Span Check	<b>Q</b> Quality Assurance
<b>K</b> Collection Error	<b>N</b> No Data (Machine Not in Service)	<b>Y</b> Routine Maintenance
<b>X</b> Invalid Data (Equipment Malfunction /Recovery)	<b>NRM</b> UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	<b>P</b> 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 - AQHI - Grimshaw Station**





## PEACE RIVER AREA MONITORING PROGRAM

AQHI - Grimshaw Station - December 2021

Summary of Hourly Averages

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

Maximum Hourly Value:	41.8 kph	on December 2 at hour 9	Hours in Service:	744
Maximum Daily Value:	18.6 kph	on December 2	Hours of Data:	719
Minimum Hourly Value:	0.2 kph	on December 15 at hour 2	Hours of Missing Data:	25
Minimum Daily Value:	2.1 kph	on December 15	Hours of Calibration:	0
Monthly Average:	7.6 kph		Operational Uptime:	96.6

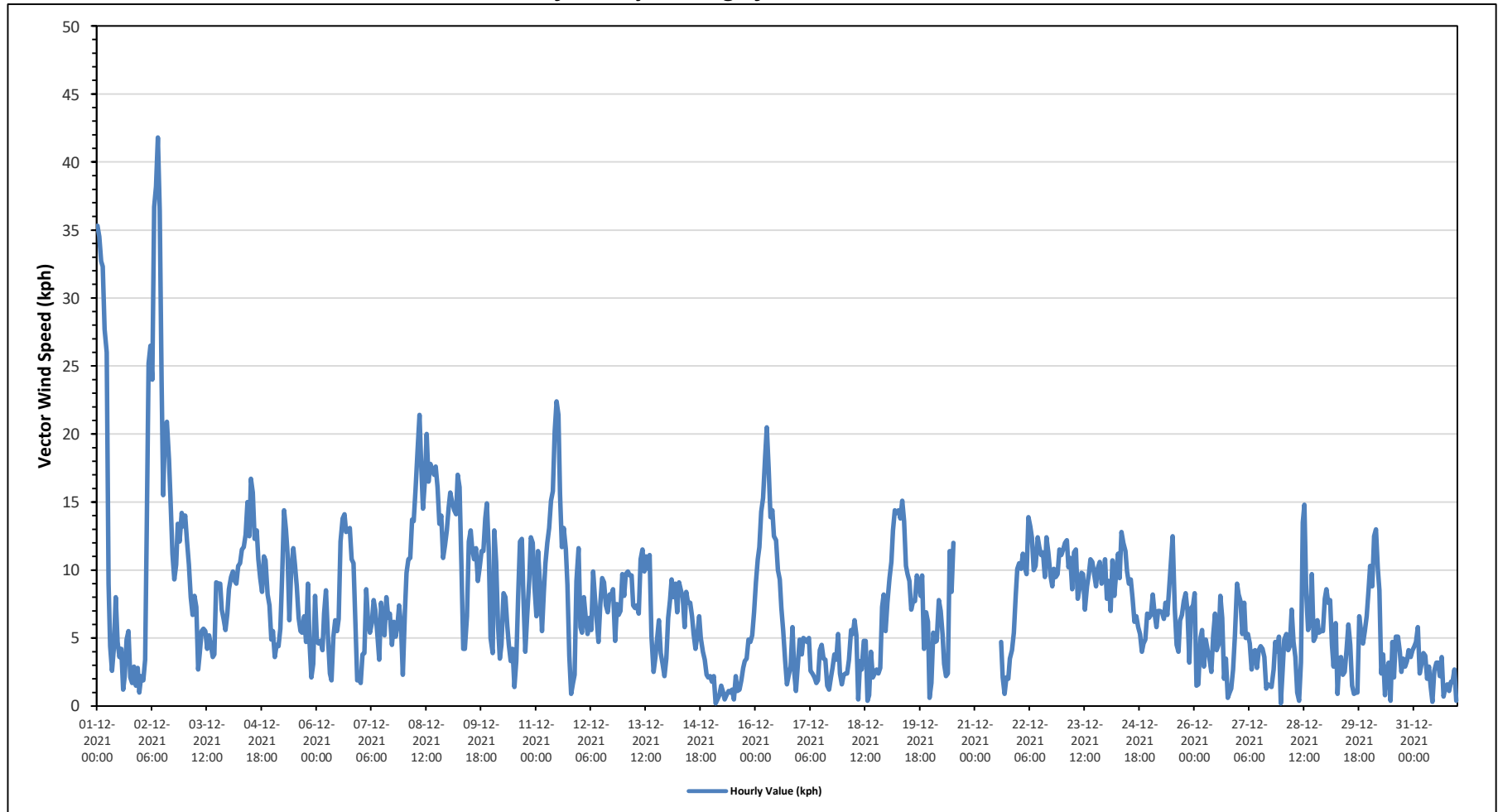
Day	Hourly Period Starting at (MST)																							Daily	Daily	Daily	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Minimum	Maximum	Average
Dec 1	35.3	34.5	32.7	32.3	27.7	26.0	9.0	4.4	2.6	4.3	8.0	4.7	3.6	4.2	1.2	2.2	4.9	5.5	2.1	1.7	2.9	1.5	2.8	1.0	1.0	35.3	10.6
Dec 2	2.2	1.9	3.4	13.0	25.2	26.5	24.0	36.7	38.2	41.8	36.4	23.9	15.5	20.4	20.9	18.1	15.0	11.2	9.3	10.4	13.4	12.1	14.2	13.2	1.9	41.8	18.6
Dec 3	14.0	12.1	10.4	8.0	6.7	8.1	7.3	2.7	3.9	5.5	5.7	5.5	4.2	5.2	4.5	3.6	3.8	9.1	9.0	9.0	7.1	6.4	5.6	6.8	2.7	14.0	6.8
Dec 4	8.6	9.5	9.9	9.2	9.0	10.3	10.5	11.5	11.7	12.6	15.0	12.5	16.7	15.7	12.3	12.9	10.8	9.4	8.4	11.0	10.7	8.2	7.4	4.9	4.9	16.7	10.8
Dec 5	5.5	3.6	4.5	4.4	5.7	9.7	14.4	13.0	11.3	6.3	10.1	11.6	10.4	8.8	6.5	5.5	5.4	6.6	4.7	9.0	4.7	2.1	3.1	8.1	2.1	14.4	7.3
Dec 6	4.7	4.6	4.8	4.1	6.8	8.5	5.3	2.4	1.9	5.1	6.3	5.5	6.4	12.1	13.8	14.1	12.8	12.9	13.1	10.8	10.5	6.2	1.9	2.1	1.9	14.1	7.4
Dec 7	1.7	3.8	3.9	8.6	6.2	5.4	6.1	7.8	7.1	5.5	3.4	7.6	6.1	5.2	8.0	6.5	6.8	4.5	6.2	5.1	6.0	7.4	6.0	2.3	1.7	8.6	5.7
Dec 8	7.0	9.8	10.8	10.9	13.7	13.6	15.9	18.9	21.4	17.9	14.5	16.5	20.0	16.5	17.8	17.4	17.0	17.6	16.1	13.4	14.0	10.9	11.8	12.9	7.0	21.4	14.8
Dec 9	14.6	15.7	15.0	14.4	14.1	17.0	16.1	10.4	4.2	4.2	6.6	12.1	12.9	11.5	10.8	11.6	9.2	10.2	11.4	11.4	13.8	14.9	11.6	5.0	4.2	17.0	11.6
Dec 10	3.9	12.9	10.6	6.0	3.5	4.5	8.3	8.0	5.9	4.5	3.3	4.2	1.4	3.3	8.0	12.1	12.3	8.0	4.0	6.6	9.3	12.4	12.0	8.7	1.4	12.9	7.2
Dec 11	6.6	11.4	8.8	5.5	8.4	10.5	12.0	13.1	15.1	15.8	20.2	22.4	21.4	15.6	11.7	13.1	11.5	8.9	3.7	0.9	1.7	2.3	9.2	11.6	0.9	22.4	10.9
Dec 12	5.8	5.4	8.0	6.5	5.3	6.5	5.6	9.9	7.9	6.4	4.7	7.5	9.4	9.1	7.4	6.9	8.2	8.1	8.6	4.8	7.5	6.7	7.0	9.7	4.7	9.9	7.2
Dec 13	8.1	9.7	9.9	9.6	9.6	7.4	7.2	7.4	6.8	10.8	11.5	9.9	11.0	10.1	11.1	5.1	2.5	3.6	4.9	6.3	3.9	3.1	2.2	3.5	2.2	11.5	7.3
Dec 14	6.5	7.8	9.3	8.0	9.0	6.9	9.1	8.5	8.0	5.8	8.4	7.6	7.6	6.6	5.3	4.2	5.2	6.6	5.0	4.0	3.4	2.3	2.1	2.2	2.1	9.3	6.2
Dec 15	1.8	2.2	0.2	0.5	0.8	1.5	1.1	0.5	0.8	1.1	1.0	1.2	0.5	2.2	1.1	1.2	1.9	2.8	3.3	3.5	4.9	4.7	5.2	6.9	0.2	6.9	2.1
Dec 16	9.1	10.8	11.7	14.3	15.3	18.4	20.5	17.5	13.9	14.4	12.5	12.2	10.0	9.3	7.2	5.5	3.4	1.6	2.3	2.9	5.8	2.4	1.1	3.0	1.1	20.5	9.4
Dec 17	4.9	3.8	5.0	4.9	4.7	5.0	2.6	2.4	2.1	1.7	1.9	4.1	4.5	3.5	3.4	1.5	1.2	2.1	2.8	3.8	3.4	5.3	2.4	1.6	1.2	5.3	3.3
Dec 18	2.3	2.4	2.4	3.4	5.6	5.3	6.3	5.2	0.5	3.3	2.7	4.8	4.8	0.4	0.8	4.0	2.1	2.4	2.7	2.4	2.8	7.3	8.2	5.5	0.4	8.2	3.7
Dec 19	7.6	9.4	10.6	12.9	14.4	14.2	14.4	13.8	15.1	13.6	10.3	9.7	9.2	7.1	7.7	7.7	9.6	9.1	8.1	9.6	4.2	6.9	6.2	0.6	0.6	15.1	9.7
Dec 20	1.7	5.4	4.7	4.8	7.8	7.0	5.3	3.1	2.2	2.4	11.4	8.4	12.0	X	X	X	X	X	X	X	X	X	X	X	1.7	12.0	-
Dec 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	4.7	2.1	0.9	2.1	2.0	3.5	4.1	5.4	8.1	10.1	0.9	10.1	-
Dec 22	10.5	10.1	11.2	10.2	9.7	13.9	13.2	12.4	10.0	10.3	12.4	11.7	11.1	11.3	9.5	12.4	11.3	9.6	8.8	10.1	9.5	9.7	11.5	11.1	8.8	13.9	10.9
Dec 23	11.5	12.0	12.2	10.2	10.9	8.6	11.3	11.5	7.9	8.7	9.8	9.7	7.1	8.8	9.7	10.8	10.6	9.7	8.8	10.1	10.6	9.0	9.5	10.8	7.1	12.2	10.0
Dec 24	7.9	9.2	7.0	10.7	8.1	9.8	11.2	9.4	12.8	12.0	11.4	9.9	9.0	9.3	7.9	6.2	6.6	5.8	5.3	4.0	4.6	4.9	6.8	6.5	4.0	12.8	8.2
Dec 25	6.7	8.2	6.8	5.8	7.0	7.0	6.9	6.4	7.6	6.7	8.7	10.7	12.5	7.2	4.5	4.0	6.3	6.7	7.7	8.3	7.0	3.2	7.2	7.4	3.2	12.5	7.1
Dec 26	8.3	1.5	1.6	5.0	5.6	2.9	4.9	4.1	3.6	2.5	5.2	6.8	4.1	4.5	8.1	6.5	2.0	3.5	0.6	1.0	1.3	2.7	5.2	9.0	0.6	9.0	4.2
Dec 27	8.2	7.7	5.3	7.6	5.0	5.3	4.6	2.7	4.0	4.1	2.8	4.1	4.4	4.2	3.6	1.3	1.6	1.5	1.4	2.7	4.7	4.0	5.1	0.2	0.2	8.2	4.0
Dec 28	2.3	4.9	5.3	4.1	4.4	7.1	4.7	3.6	1.0	0.4	3.2	13.5	14.8	8.3	5.6	6.1	9.7	4.8	5.1	6.3	5.4	5.5	5.5	7.9	0.4	14.8	5.8
Dec 29	8.6	7.6	7.8	4.5	2.9	6.1	0.9	3.5	3.6	2.3	2.5	4.1	6.0	4.5	1.5	0.9	1.0	1.0	6.6	5.3	4.6	5.5	6.6	8.5	0.9	8.6	4.4
Dec 30	10.3	8.8	12.5	13.0	10.1	8.5	2.4	3.8	0.8	2.6	3.2	0.4	4.7	2.1	5.1	5.1	4.0	2.5	3.5	2.9	3.3	4.1	3.6	4.1	0.4	13.0	5.1
Dec 31	4.4	4.7	5.8	2.4	3.1	3.9	3.7	2.0	2.9	1.5	0.3	2.6	3.2	3.2	2.2	3.6	0.7	1.3	1.6	1.1	1.8	1.8	2.7	0.4	0.3	5.8	2.5
Diurnal Maximum	35	35	33	32	28	27	24	37	38	42	36	24	21	20	21	18	17	18	16	13	14	15	14	13			
Diurnal Average	7.7	8.4	8.4	8.5	8.9	9.5	8.8	8.6	7.8	7.8	8.4	8.8	8.8	7.9	7.4	7.1	6.6	6.3	5.9	6.1	6.2	6.0	6.4	6.2			

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

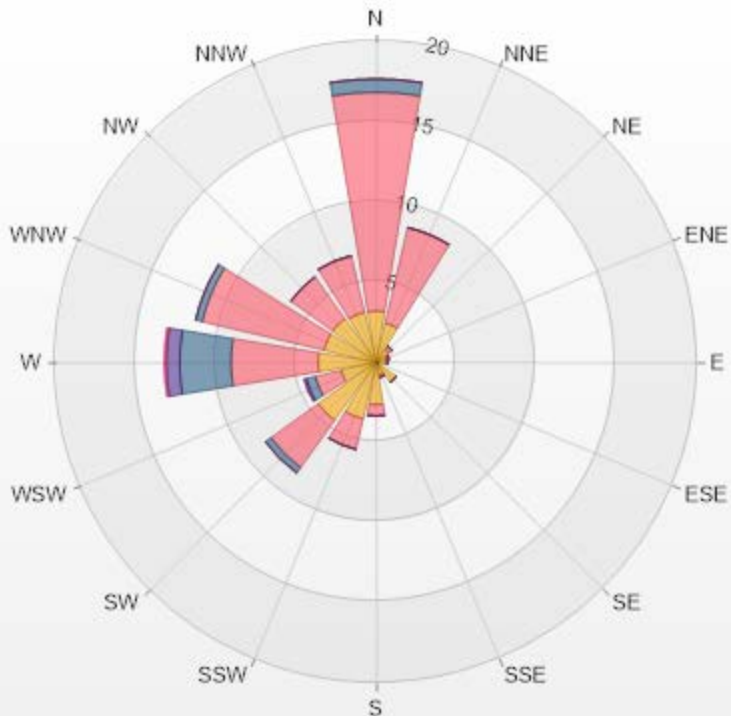
Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.  
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

**Timeseries Chart of Hourly Average for VWS - AQHI - Grimshaw Station**



Wind: AQHI Grimshaw Monitor: WDS [KPH] Monthly: 12-2021 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.  
 Calm: 8.21% Valid Data: 96.64%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	3.2	13.63	0.83	0	0	17.66
NNE	2.5	6.12	0	0	0	8.62
NE	0.97	0.28	0	0	0	1.25
ENE	0.7	0.14	0	0	0	0.84
E	0.7	0	0	0	0	0.7
ESE	0.14	0	0	0	0	0.14
SE	1.53	0	0	0	0	1.53
SSE	0.83	0.14	0	0	0	0.97
S	2.64	0.7	0	0	0	3.34
SSW	3.62	1.95	0	0	0	5.57
SW	4.45	3.62	0.42	0	0	8.49
WSW	2.23	1.67	0.56	0.14	0	4.6
W	3.62	5.42	3.2	0.83	0.14	13.21
WNW	3.34	7.79	0.42	0	0	11.55
NW	3.34	3.2	0	0	0	6.54
NNW	3.2	3.62	0	0	0	6.82
Summary	37.01	48.28	5.43	0.97	0.14	91.83



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% Icon Classes (KPH)	37	48	5	1	0
1.8-6.0	37				
6.0-15.0		48			
15.0-29.0			5		
29.0-39.0				1	
>39.0					0



**PEACE RIVER AREA MONITORING PROGRAM**

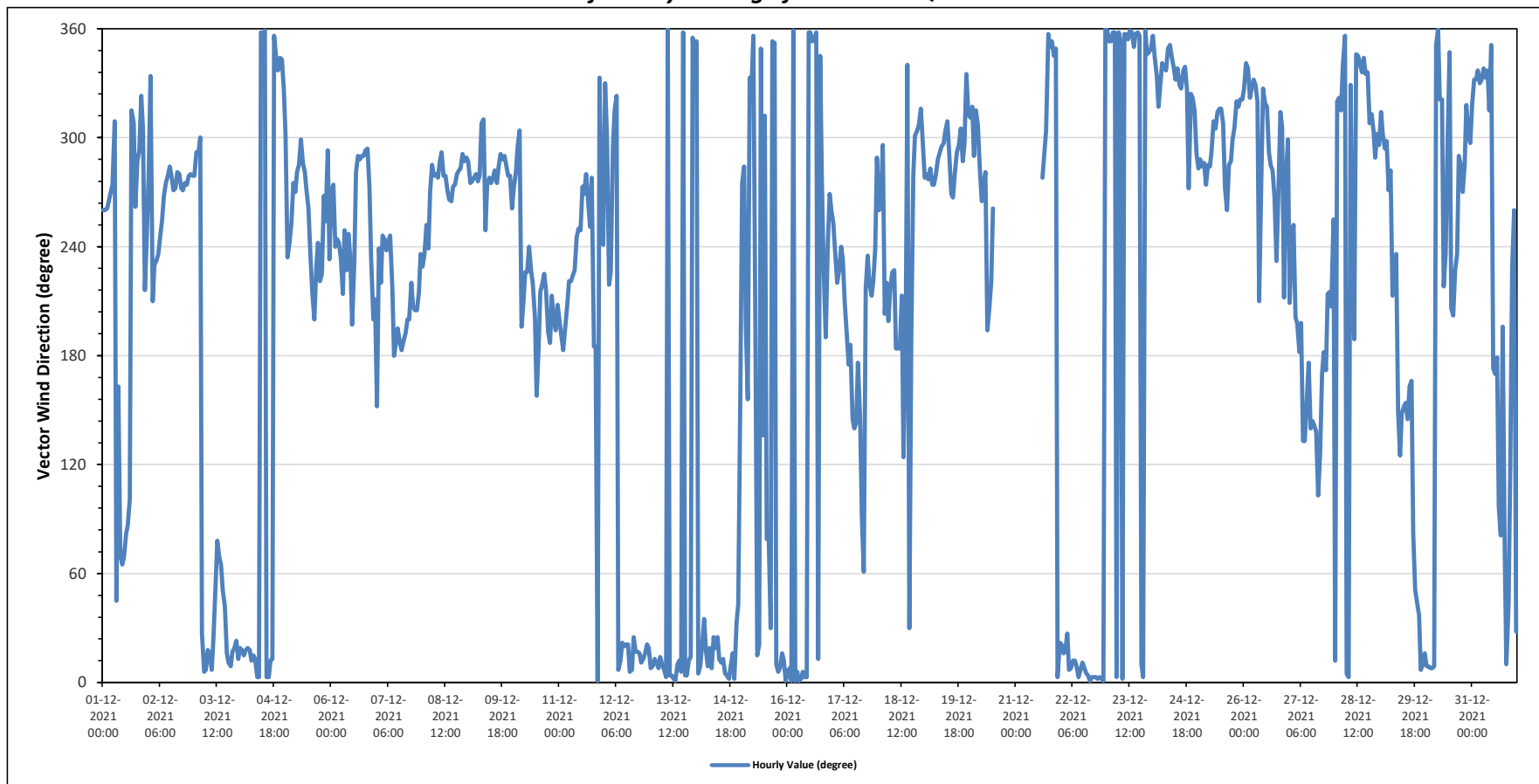
**AQHI - Grimshaw Station - December 2021**

**Summary of Hourly Averages**

**WIND DIRECTION (VWD) in sector**

Monthly Average:		304 (WNW) degree													Hours in Service:		744										
															Hours of Data:		719										
															Hours of Missing Data:		25										
															Hours of Calibration:		0										
															Operational Uptime:		96.6										
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	
Dec 1	WSW	WSW	W	W	W	W	NW	NE	SSE	ENE	ENE	ENE	E	E	E	NW	NW	W	WNW	WNW	NW	WNW	SW	WSW	293	WNW	
Dec 2	W	NNW	SSW	SW	SW	SW	WSW	WSW	W	W	W	WNW	W	W	W	W	W	W	W	W	W	W	W	W	269	W	
Dec 3	W	NNW	WNW	WNW	NNE	N	N	NNE	NNE	N	NNE	NE	ENE	ENE	ENE	NE	NE	NNE	NNE	N	NNE	NNE	NNE	NNE	16	NNE	
Dec 4	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	N	N	N	N	NNE	NNE	N	NNW	NNW	NNW	NNW	NW	3	N	
Dec 5	WNW	SW	WSW	WSW	W	W	W	WNW	WNW	WNW	W	W	W	SW	SSW	SSW	SW	WSW	SW	W	WSW	WNW	SW	257	WSW		
Dec 6	W	W	WSW	WSW	WSW	SW	SSW	WSW	SW	WSW	SW	SSW	SW	W	WNW	WNW	WNW	WNW	WNW	WNW	W	SW	SSW	SSW	252	WSW	
Dec 7	SSE	WSW	SW	WSW	WSW	SW	WSW	WSW	SW	S	S	SSW	S	S	S	S	SSW	SSW	SW	SSW	SSW	SSW	SSW	SW	210	SSW	
Dec 8	SW	SW	WSW	WSW	W	WNW	W	W	W	WNW	WNW	W	W	W	W	W	W	W	W	W	W	WNW	WNW	WNW	273	W	
Dec 9	WNW	W	W	W	W	W	W	NW	NW	WSW	W	W	W	W	W	W	WNW	WNW	WNW	WNW	WNW	W	W	W	281	W	
Dec 10	W	W	WNW	WNW	SSW	SSW	SW	SW	WSW	SW	SW	SSW	SSE	S	SSW	SW	SSW	S	S	SSW	SSW	SSW	SSW	SSW	219	SW	
Dec 11	SSW	S	S	SSW	SSW	SW	SW	SW	WSW	WSW	WSW	W	W	W	W	WSW	W	S	S	N	NNW	WSW	WSW	WSW	237	SW	
Dec 12	NNW	WNW	SW	SW	WNW	NW	NW	N	NNE	NNE	NNE	NNE	NNE	N	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	359	N	
Dec 13	N	N	NNE	NNE	N	NNE	N	N	N	N	N	N	N	N	N	NNE	N	N	N	N	NNE	NNE	N	NNW	5	N	
Dec 14	N	N	N	NNE	NE	NNE	N	NNE	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	N	NNE	N	NNE	NE	SSE	16	NNE
Dec 15	W	WNW	SSW	SSE	NNW	NNW	N	S	NNE	NNE	NNW	SE	NW	ENE	E	NNE	N	N	N	N	N	NNE	NNE	N	3	N	
Dec 16	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	NNE	NNW	W	SW	S	WSW	W	WSW	344	NNW	
Dec 17	WSW	SW	SW	SW	WSW	SW	SSW	S	S	S	SE	SE	SE	S	SE	E	ENE	SW	SW	SW	SSW	SW	WSW	WNW	203	SSW	
Dec 18	WSW	W	WNW	SSW	SW	SSW	SW	SW	SW	S	S	S	SSW	ESE	S	NNW	NNE	S	W	WNW	WNW	NW	WNW	242	WSW		
Dec 19	W	W	W	W	W	W	W	WNW	WNW	WNW	WNW	WNW	WNW	NW	WNW	W	W	W	WNW	WNW	WNW	WNW	WNW	NW	290	WNW	
Dec 20	NW	NW	WNW	NW	NW	W	W	W	W	SSW	SSW	SW	W	X	X	X	X	X	X	X	X	X	X	X	-	-	
Dec 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	W	WNW	WNW	N	N	N	NNW	NNW	N	NNE	-	-	
Dec 22	NNE	NNE	NNE	NNE	N	N	NNE	NNE	N	N	NNE	N	N	N	N	N	N	N	N	N	N	N	N	N	8	N	
Dec 23	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	NNW	NNW	NNW	357	N	
Dec 24	N	NNW	NNW	NW	NNW	NNW	NNW	NNW	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	W	NW	NW	NW	WNW	331	NNW	
Dec 25	W	WNW	WNW	WNW	W	WNW	WNW	WNW	NW	WNW	NW	NW	NW	NW	W	WSW	WNW	WNW	WNW	NW	NW	NW	NW	NW	297	WNW	
Dec 26	NW	NNW	NNW	NW	NW	NNW	NNW	NW	SSW	W	NW	NW	NW	WNW	WNW	W	SW	W	NW	NW	SSW	W	WNW	299	WNW		
Dec 27	SSW	WSW	WSW	SSW	SSW	S	SSW	SE	SE	SSE	S	SE	SE	SE	SE	ESE	SE	SSE	S	S	SSW	SSW	SSW	WSW	178	S	
Dec 28	NNE	NW	NW	NW	NNW	N	N	NNW	SW	S	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	326	NW	
Dec 29	NW	WNW	WNW	WNW	W	W	SSW	SW	SW	SSE	SE	SE	SSE	SSE	SE	SSE	E	NE	NE	NE	N	N	NNE	176	S		
Dec 30	N	N	N	N	N	N	N	NW	NW	SW	SW	WNW	NNW	SSW	SSW	SW	SW	WNW	WNW	W	WNW	NW	WNW	WNW	304	WNW	
Dec 31	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	N	S	SSE	S	E	E	SSW	ENE	N	NE	ESE	SW	WSW	NNE	348	NNW	
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 - AQHI - Grimshaw Station**





**PEACE RIVER AREA MONITORING PROGRAM**

**AQHI - Grimshaw Station - December 2021**

**Summary of Hourly Averages**

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

WIND SPEED																											
Maximum Hourly Value: 41.8 kph on December 2 at hour 9												Hours in Service: 744															
Maximum Daily Value: 18.6 kph on December 2												Hours of Data: 719															
Minimum Hourly Value: 0.2 kph on December 15 at hour 2												Hours of Missing Data: 25															
Minimum Daily Value: 2.1 kph on December 15												Hours of Calibration: 0															
Monthly Average: 7.6 kph												Operational Uptime: 96.6															
WIND DIRECTION																											
Monthly Average: 304 (WNW 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
Dec 1	35.3	34.5	32.7	32.3	27.7	26.0	9.0	4.4	2.6	4.3	8.0	4.7	3.6	4.2	1.2	2.2	4.9	5.5	2.1	1.7	2.9	1.5	2.8	1.0	1.0	35.3	10.6
	WSW	WSW	W	W	W	W	NW	NE	SSE	ENE	ENE	ENE	E	E	NW	NW	W	WNW	WNW	NW	WNW	SW	WSW				
Dec 2	2.2	1.9	3.4	13.0	25.2	26.5	24.0	36.7	38.2	41.8	36.4	23.9	15.5	20.4	20.9	18.1	15.0	11.2	9.3	10.4	13.4	12.1	14.2	1.9	1.9	41.8	18.6
	W	NNW	SSW	SW	SW	WSW	WSW	W	W	WNW	W	W	W	W	W	W	W	W	W	W	W	W	W				
Dec 3	14.0	12.1	10.4	8.0	6.7	8.1	7.3	2.7	3.9	5.5	5.7	5.5	4.2	5.2	4.5	3.6	3.8	9.1	9.0	9.0	7.1	6.4	5.6	2.7	2.7	14.0	6.8
	W	WNW	WNW	WNW	NNE	N	NNE	NNE	N	NNE	ENE	ENE	ENE	ENE	NE	NE	NNE	NNE	NNE	NNE	NNE	NNE	NNE				
Dec 4	8.6	9.5	9.9	9.2	9.0	10.3	10.5	11.5	11.7	12.6	15.0	12.5	16.7	15.7	12.3	12.9	10.8	9.4	8.4	11.0	10.7	8.2	7.4	4.9	4.9	16.7	10.8
	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	N	N	N	N	NNE	NNE	N	NNW	NNW	NNW	NNW	NW				
Dec 5	5.5	3.6	4.5	4.4	5.7	9.7	14.4	13.0	11.3	6.3	10.1	11.6	10.4	8.8	6.5	5.5	5.4	6.6	4.7	9.0	4.7	2.1	3.1	2.1	2.1	14.4	7.3
	WNW	SW	WSW	WSW	W	W	W	WNW	WNW	WNW	W	W	SW	SSW	SSW	SW	WSW	SW	SW	W	WSW	WNW	SW				
Dec 6	4.7	4.6	4.8	4.1	6.8	8.5	5.3	2.4	1.9	5.1	6.3	5.5	6.4	12.1	13.8	14.1	12.8	12.9	13.1	10.8	10.5	6.2	1.9	1.9	1.9	14.1	7.4
	W	W	WSW	WSW	WSW	SW	SSW	WSW	SW	WSW	SW	SSW	SW	W	WNW	WNW	WNW	WNW	WNW	WNW	W	SSW	SSW				
Dec 7	1.7	3.8	3.9	8.6	6.2	5.4	6.1	7.8	7.1	5.5	3.4	7.6	6.1	5.2	8.0	6.5	6.8	4.5	6.2	5.1	6.0	7.4	6.0	1.7	1.7	8.6	5.7
	SSE	WSW	SW	WSW	WSW	SW	WSW	WSW	SW	S	S	SSW	S	S	S	SSW	SSW	SW	SSW	SSW	SSW	SSW	SSW				
Dec 8	7.0	9.8	10.8	10.9	13.7	13.6	15.9	18.9	21.4	17.9	14.5	16.5	20.0	16.5	17.8	17.4	17.0	17.6	16.1	13.4	14.0	10.9	11.8	7.0	7.0	21.4	14.8
	SW	SW	WSW	WSW	W	WNW	W	W	W	WNW	WNW	W	W	W	W	W	W	W	W	W	W	WNW	WNW				
Dec 9	14.6	15.7	15.0	14.4	14.1	17.0	16.1	10.4	4.2	4.2	6.6	12.1	12.9	11.5	10.8	11.6	9.2	10.2	11.4	11.4	13.8	14.9	11.6	4.2	4.2	17.0	11.6
	WNW	W	W	W	W	W	W	NW	NW	WSW	W	W	W	W	W	W	WNW	WNW	WNW	WNW	WNW	W	W				
Dec 10	3.9	12.9	10.6	6.0	3.5	4.5	8.3	8.0	5.9	4.5	3.3	4.2	1.4	3.3	8.0	12.1	12.3	8.0	4.0	6.6	9.3	12.4	12.0	1.4	1.4	12.9	7.2
	W	W	WNW	WNW	SSW	SSW	SW	WSW	SW	SSW	SSE	S	SSW	SW	SSW	S	S	SSW	SSW	S	S	SSW	SSW				
Dec 11	6.6	11.4	8.8	5.5	8.4	10.5	12.0	13.1	15.1	15.8	20.2	22.4	21.4	15.6	11.7	13.1	11.5	8.9	3.7	0.9	1.7	2.3	9.2	0.9	0.9	22.4	10.9
	SSW	S	S	SSW	SSW	SW	SW	SW	SW	WSW	WSW	W	W	W	W	WSW	W	S	S	N	NNW	WSW	WSW				
Dec 12	5.8	5.4	8.0	6.5	5.3	6.5	5.6	9.9	7.9	6.4	4.7	7.5	9.4	9.1	7.4	6.9	8.2	8.1	8.6	4.8	7.5	6.7	7.0	4.7	4.7	9.9	7.2
	NNW	WNW	SW	SW	WNW	NW	NW	N	NNE	NNE	NNE	NNE	NNE	N	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE				
Dec 13	8.1	9.7	9.9	9.6	9.6	7.4	7.2	7.4	6.8	10.8	11.5	9.9	11.0	10.1	11.1	5.1	2.5	3.6	4.9	6.3	3.9	3.1	2.2	3.5	2.2	11.5	7.3
	N	N	NNE	NNE	N	NNE	N	N	N	N	N	N	N	N	N	NNE	N	N	N	N	NNE	NNE	N	NNW			
Dec 14	6.5	7.8	9.3	8.0	9.0	6.9	9.1	8.5	8.0	5.8	8.4	7.6	7.6	6.6	5.3	4.2	5.2	6.6	5.0	4.0	3.4	2.3	2.1	2.2	2.1	9.3	6.2
	N	N	N	NNE	NE	NNE	N	NNE	N	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	N	NNE	NNE	N	NNE				
Dec 15	1.8	2.2	0.2	0.5	0.8	1.5	1.1	0.5	0.8	1.1	1.0	1.2	0.5	2.2	1.1	1.2	1.9	2.8	3.3	3.5	4.9	4.7	5.2	0.2	0.2	6.9	2.1
	W	WNW	SSW	SSE	NNW	NNW	N	S	NNE	NNE	NNW	SE	NW	ENE	E	NNE	N	N	N	N	N	NNE	NNE				
Dec 16	9.1	10.8	11.7	14.3	15.3	18.4	20.5	17.5	13.9	14.4	12.5	12.2	10.0	9.3	7.2	5.5	3.4	1.6	2.3	2.9	5.8	2.4	1.1	3.0	1.1	20.5	9.4
	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	NNE	NNW	W	SW	S	WSW	W	WSW			
Dec 17	4.9	3.8	5.0	4.9	4.7	5.0	2.6	2.4	2.1	1.7	1.9	4.1	4.5	3.5	3.4	1.5	1.2	2.1	2.8	3.8	3.4	5.3	2.4	1.2	1.2	5.3	3.3
	WSW	SW	SW	SW	WSW	WSW	S	S	SE	SE	SE	S	SE	E	ENE	SW	SW	SSW	SW	WSW	WSW	WNW	WNW				
Dec 18	2.3	2.4	2.4	3.4	5.6	5.3	6.3	5.2	0.5	3.3	2.7	4.8	4.8	0.4	0.8	4.0	2.1	2.4	2.7	2.4	2.8	7.3	8.2	0.4	0.4	8.2	3.7
	WSW	W	WNW	SSW	SW	SSW	SW	SW	S	S	S	SSW	ESE	S	NNW	NNE	S	W	WNW	WNW	NW	NW	WNW				
Dec 19	7.6	9.4	10.6	12.9	14.4	14.2	14.4	13.8	15.1	13.6	10.3	9.7	9.2	7.1	7.7	7.7	9.6	9.1	8.1	9.6	4.2	6.9	6.2	0.6	0.6	15.1	9.7
	W	W	W	W	W	W	W	WNW	WNW	WNW	WNW	WNW	NW	NW	W	W	WNW	WNW	WNW	WNW	WNW	WNW	NW	NW			
Dec 20	1.7	5.4	4.7	4.8	7.8	7.0	5.3	3.1	2.2	2.4	11.4	8.4	12.0											1.7	1.7	12.0	-
	NW	NW	WNW	NW	NW	W	W	W	W	SSW	SSW	SW	W	X	X	X	X	X	X	X	X	X	X	X			





**PEACE RIVER AREA MONITORING PROGRAM**

**AQHI - Grimshaw Station - December 2021**

**Summary of Hourly Averages**

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

WIND SPEED		Maximum Hourly Value: 41.8 kph on December 2 at hour 9		Hours in Service: 744																								
WIND DIRECTION		Maximum Daily Value: 18.6 kph on December 2		Hours of Data: 719																								
		Minimum Hourly Value: 0.2 kph on December 15 at hour 2		Hours of Missing Data: 25																								
		Minimum Daily Value: 2.1 kph on December 15		Hours of Calibration: 0																								
		Monthly Average: 7.6 kph		Operational Uptime: 96.6																								
		Monthly Average: 304 (WNW 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				
Dec 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	4.7	2.1	0.9	2.1	2.0	3.5	4.1	5.4	8.1	10.1	0.9	10.1	-	
Dec 22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	W	WNW	WNW	N	N	N	NNW	NNW	N	NNE	8.8	13.9	10.9	
Dec 23	10.5	10.1	11.2	10.2	9.7	13.9	13.2	12.4	10.0	10.3	12.4	11.7	11.1	11.3	9.5	12.4	11.3	9.6	8.8	10.1	9.5	9.7	11.5	11.1	7.1	12.2	10.0	
Dec 24	NNE	NNE	NNE	NNE	N	N	NNE	NNE	N	N	NNE	N	N	N	N	N	N	N	N	N	N	N	N	N	4.0	12.8	8.2	
Dec 25	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	NNW	NNW	NNW	3.2	12.5	7.1	
Dec 26	7.9	9.2	7.0	10.7	8.1	9.8	11.2	9.4	12.8	12.0	11.4	9.9	9.0	9.3	7.9	6.2	6.6	5.8	5.3	4.0	4.6	4.9	6.8	6.5	0.6	9.0	4.2	
Dec 27	N	NNW	NNW	NW	NNW	NNW	NNW	NNW	NNW	N	NNW	NNW	NNW	NNW	NNW	NW	WSW	WNW	WNW	WNW	NW	NW	NW	NW	0.2	8.2	4.0	
Dec 28	8.3	1.5	1.6	5.0	5.6	2.9	4.9	4.1	3.6	2.5	5.2	6.8	4.1	4.5	8.1	6.5	2.0	3.5	0.6	1.0	1.3	2.7	5.2	9.0	0.4	14.8	5.8	
Dec 29	NW	NNW	NNW	NW	NW	NNW	NNW	NW	SSW	W	NW	NW	NW	WNW	WNW	W	WSW	WNW	WNW	WNW	NW	NW	NW	NW	0.9	8.6	4.4	
Dec 30	2.3	4.9	5.3	4.1	4.4	7.1	4.7	3.6	1.0	0.4	3.2	13.5	14.8	8.3	5.6	6.1	9.7	4.8	5.1	6.3	5.4	5.5	5.5	7.9	0.4	13.0	5.1	
Dec 31	NNE	NW	NW	NW	NNW	N	N	N	NNW	SW	S	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	WNW	WNW	WNW	WNW	0.3	5.8	2.5	
	8.6	7.6	7.8	4.5	2.9	6.1	0.9	3.5	3.6	2.3	2.5	4.1	6.0	4.5	1.5	0.9	1.0	6.6	5.3	4.6	5.5	6.6	8.5					
	NW	WNW	WNW	WNW	W	W	SSW	SW	SW	SSE	SE	SE	SSE	SSE	SE	SSE	SSE	E	NE	NE	NE	N	N	NNE				
	10.3	8.8	12.5	13.0	10.1	8.5	2.4	3.8	0.8	2.6	3.2	0.4	4.7	2.1	5.1	5.1	4.0	2.5	3.5	2.9	3.3	4.1	3.6	4.1				
	N	N	N	N	N	N	N	NW	NW	SW	SW	WNW	NNW	SSW	SSW	SW	SW	WNW	WNW	W	WNW	NW	WNW	WNW				
	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	N	S	SSE	S	E	E	SSW	ENE	N	NE	ESE	SW	WSW	NNE				
	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.

## VOC CANISTER SAMPLING RESULTS



**PEACE RIVER AREA MONITORING PROGRAM**

986c Site - December 2021

**Volatile Organic Compounds (VOCs) Results**

Sample Date/Time Canister Sample Canister ID		2021-12-16 @ 17:00 Non-methane Hydrocarbon 28961						
Method	NA-025	Method	NA-024	Method	AC-058			
Maximum Reading (ppmv)	2.6	Maximum Reading (ppmv)	3.8	Maximum Reading (ppmv)	6.9	n-Pentane		
Parameter	Result (ppmv)	RDL (ppmv)	Parameter	Result (ppbv)	RDL (ppbv)	Parameter	Result (ppbv)	RDL (ppbv)
1-Butene	0	0.16	2,5-Dimethylthiophene	0	0.5	1,1,1-Trichloroethane	0	0.03
Acetylene	0	0.12	2-Ethylthiophene	0	0.3	1,1,2,2-Tetrachloroethane	0	0.03
cis-2-Butene	0	0.06	2-Methylthiophene	0	0.3	1,1,2-Trichloroethane	0	0.03
Ethane	0	0.2	3-Methylthiophene	0	0.5	1,1-Dichloroethane	0	0.03
Ethylacetylene	0	0.09	Butyl mercaptan	0	0.5	1,1-Dichloroethylene	0	0.06
Ethylene	0	0.11	Carbon disulphide	0	0.3	1,2,3-Trimethylbenzene	0.16	0.08
Isobutane	0	0.2	Carbonyl sulphide	2.5	0.5	1,2,4-Trichlorobenzene	0	1.2
Isobutylene	0	0.2	Dimethyl disulphide	0	0.3	1,2,4-Trimethylbenzene	0.28	0.08
Methane	2.6	0.2	Dimethyl sulphide	0	0.3	1,2-Dibromoethane	0	0.03
n-Butane	0	0.3	Ethyl mercaptan	0	0.5	1,2-Dichlorobenzene	0	0.05
n-Propane	0	0.11	Ethyl sulphide	0	0.5	1,2-Dichloroethane	0	0.02
Propylene	0	0.2	Hydrogen sulphide	3.8	0.5	1,2-Dichloropropane	0	0.02
Propyne	0	0.2	Isobutyl mercaptan	0	0.5	1,3,5-Trimethylbenzene	0.23	0.03
trans-2-Butene	0	0.14	Isopropyl mercaptan	0	0.5	1,3-Butadiene	0	0.03
			Methyl mercaptan	0	0.3	1,3-Dichlorobenzene	0	0.5
			Pentyl mercaptan	0	0.6	1,4-Dichlorobenzene	0	0.6
			Propyl mercaptan	0	0.6	1,4-Dioxane	0	0.6
			tert-Butyl mercaptan	0	0.5	1-Butene/Isobutylene	0.83	0.03
			Thiophene	0	0.3	1-Hexene/2-Methyl-1-pentene	0.25	0.03
						1-Pentene	0.41	0.02
						2,2,4-Trimethylpentane	0	0.02
						2,2-Dimethylbutane	0.29	0.02
						2,3,4-Trimethylpentane	0	0.02
						2,3-Dimethylbutane	0.32	0.03
						2,3-Dimethylpentane	0.24	0.03
						2,4-Dimethylpentane	0.2	0.02
						2-Methylheptane	0.46	0.02
						2-Methylhexane	0.55	0.02
						2-Methylpentane	1.16	0.02
						3-Methylheptane	0.24	0.03
						3-Methylhexane	0.56	0.03
						3-Methylpentane	1.19	0.02
						Acetone	2.4	3.7
						Acrolein	0	0.5
						Benzene	0.91	0.02
						Benzyl chloride	0	0.6
						Bromodichloromethane	0	0.03
						Bromoform	0	0.03
						Bromomethane	0	0.02
						Carbon disulfide	0.22	0.02
						Carbon tetrachloride	0.1	0.02
						Chlorobenzene	0	0.03
						Chloroethane	0	0.03
						Chloroform	0	0.03
						Chloromethane	0.56	0.03
						cis-1,2-Dichloroethene	0	0.02
						cis-1,3-Dichloropropene	0	0.06
						cis-2-Butene	0	0.03
						cis-2-Pentene	0	0.03
						Cyclohexane	1.07	0.03
						Cyclopentane	0.51	0.02
						Dibromochloromethane	0	0.02
						Ethanol	2.2	2.8
						Ethyl acetate	0	0.6
						Ethylbenzene	0.26	0.02
						Freon-11	0.31	0.03
						Freon-113	0.05	0.02
						Freon-114	0	0.03



**PEACE RIVER AREA MONITORING PROGRAM**

986c Site - December 2021

Volatile Organic Compounds (VOCs) Results

Sample Date/Time	2021-12-16 @ 17:00							
Canister Sample	Non-methane Hydrocarbon							
Canister ID	28961							
Method	NA-025	Method	NA-024	Method	AC-058			
Maximum Reading (ppmv)	2.6	Methane	3.8	Hydrogen sulphide	6.9	n-Pentane		
Parameter	Result (ppmv)	RDL (ppmv)	Parameter	Result (ppbv)	RDL (ppbv)	Parameter	Result (ppbv)	RDL (ppbv)
						Freon-12	0.45	0.03
						Hexachloro-1,3-butadiene	0	0.78
						Isobutane	1.16	0.03
						Isopentane	5.92	0.05
						Isoprene	0	0.02
						Isopropyl alcohol	0.6	3.7
						Isopropylbenzene	0	0.02
						m,p-Xylene	0.52	0.05
						m-Diethylbenzene	0	0.06
						m-Ethyltoluene	0	0.12
						Methyl butyl ketone	0	0.78
						Methyl ethyl ketone	0	0.5
						Methyl isobutyl ketone	0	0.6
						Methyl methacrylate	0	0.11
						Methyl tert butyl ether	0	0.05
						Methylcyclohexane	0.82	0.02
						Methylcyclopentane	0.98	0.03
						Methylene chloride	0	0.5
						n-Butane	3.62	0.05
						n-Decane	0.2	0.09
						n-Dodecane	0	0.6
						n-Heptane	1.11	0.02
						n-Hexane	3.29	0.02
						n-Nonane	0.25	0.02
						n-Octane	0.43	0.03
						n-Pentane	6.9	0.2
						n-Propylbenzene	0	0.08
						n-Undecane	0	0.8
						Naphthalene	0	0.8
						o-Ethyltoluene	0	0.02
						o-Xylene	0.23	0.02
						p-Diethylbenzene	0	0.06
						p-Ethyltoluene	0	0.11
						Styrene	0.41	0.06
						Tetrachloroethylene	0	0.06
						Tetrahydrofuran	0	0.6
						Toluene	0.71	0.02
						trans-1,2-Dichloroethylene	0.22	0.09
						trans-1,3-Dichloropropylene	0	0.06
						trans-2-Butene	0	0.02
						trans-2-Pentene	0	0.03
						Trichloroethylene	0	0.06
						Vinyl acetate	0	0.6
						Vinyl chloride	0	0.03

Note: The date for the canister sample collected was recorded incorrectly on the chain of custody form (EAS CANISTER sample ID: 21120153-001, canister ID 28961). Instead of December 15, 2021, December 16, 2021 was recorded.



**PEACE RIVER AREA MONITORING PROGRAM**

986c Site - December 2021

**Volatile Organic Compounds (VOCs) Results**

Sample Date/Time Canister Sample Canister ID		2021-12-16 @ 17:00 Non-methane Hydrocarbon 28961						
Method	NA-025	Method	NA-024	Method	AC-058			
Maximum Reading (ppmv)	2.6	Maximum Reading (ppmv)	3.8	Maximum Reading (ppmv)	6.9	n-Pentane		
Parameter	Result (ppmv)	RDL (ppmv)	Parameter	Result (ppbv)	RDL (ppbv)	Parameter	Result (ppbv)	RDL (ppbv)
1-Butene	0	0.16	2,5-Dimethylthiophene	0	0.5	1,1,1-Trichloroethane	0	0.03
Acetylene	0	0.12	2-Ethylthiophene	0	0.3	1,1,2,2-Tetrachloroethane	0	0.03
cis-2-Butene	0	0.06	2-Methylthiophene	0	0.3	1,1,2-Trichloroethane	0	0.03
Ethane	0	0.2	3-Methylthiophene	0	0.5	1,1-Dichloroethane	0	0.03
Ethylacetylene	0	0.09	Butyl mercaptan	0	0.5	1,1-Dichloroethylene	0	0.06
Ethylene	0	0.11	Carbon disulphide	0	0.3	1,2,3-Trimethylbenzene	0.16	0.08
Isobutane	0	0.2	Carbonyl sulphide	2.5	0.5	1,2,4-Trichlorobenzene	0	1.2
Isobutylene	0	0.2	Dimethyl disulphide	0	0.3	1,2,4-Trimethylbenzene	0.28	0.08
Methane	2.6	0.2	Dimethyl sulphide	0	0.3	1,2-Dibromoethane	0	0.03
n-Butane	0	0.3	Ethyl mercaptan	0	0.5	1,2-Dichlorobenzene	0	0.05
n-Propane	0	0.11	Ethyl sulphide	0	0.5	1,2-Dichloroethane	0	0.02
Propylene	0	0.2	Hydrogen sulphide	3.8	0.5	1,2-Dichloropropane	0	0.02
Propyne	0	0.2	Isobutyl mercaptan	0	0.5	1,3,5-Trimethylbenzene	0.23	0.03
trans-2-Butene	0	0.14	Isopropyl mercaptan	0	0.5	1,3-Butadiene	0	0.03
			Methyl mercaptan	0	0.3	1,3-Dichlorobenzene	0	0.5
			Pentyl mercaptan	0	0.6	1,4-Dichlorobenzene	0	0.6
			Propyl mercaptan	0	0.6	1,4-Dioxane	0	0.6
			tert-Butyl mercaptan	0	0.5	1-Butene/Isobutylene	0.83	0.03
			Thiophene	0	0.3	1-Hexene/2-Methyl-1-pentene	0.25	0.03
						1-Pentene	0.41	0.02
						2,2,4-Trimethylpentane	0	0.02
						2,2-Dimethylbutane	0.29	0.02
						2,3,4-Trimethylpentane	0	0.02
						2,3-Dimethylbutane	0.32	0.03
						2,3-Dimethylpentane	0.24	0.03
						2,4-Dimethylpentane	0.2	0.02
						2-Methylheptane	0.46	0.02
						2-Methylhexane	0.55	0.02
						2-Methylpentane	1.16	0.02
						3-Methylheptane	0.24	0.03
						3-Methylhexane	0.56	0.03
						3-Methylpentane	1.19	0.02
						Acetone	2.4	3.7
						Acrolein	0	0.5
						Benzene	0.91	0.02
						Benzyl chloride	0	0.6
						Bromodichloromethane	0	0.03
						Bromoform	0	0.03
						Bromomethane	0	0.02
						Carbon disulfide	0.22	0.02
						Carbon tetrachloride	0.1	0.02
						Chlorobenzene	0	0.03
						Chloroethane	0	0.03
						Chloroform	0	0.03
						Chloromethane	0.56	0.03
						cis-1,2-Dichloroethene	0	0.02
						cis-1,3-Dichloropropene	0	0.06
						cis-2-Butene	0	0.03
						cis-2-Pentene	0	0.03
						Cyclohexane	1.07	0.03
						Cyclopentane	0.51	0.02
						Dibromochloromethane	0	0.02
						Ethanol	2.2	2.8
						Ethyl acetate	0	0.6
						Ethylbenzene	0.26	0.02
						Freon-11	0.31	0.03
						Freon-113	0.05	0.02
						Freon-114	0	0.03



**PEACE RIVER AREA MONITORING PROGRAM**

986c Site - December 2021

Volatile Organic Compounds (VOCs) Results

Sample Date/Time	2021-12-16 @ 17:00							
Canister Sample	Non-methane Hydrocarbon							
Canister ID	28961							
Method	NA-025	Method	NA-024	Method	AC-058			
Maximum Reading (ppmv)	2.6	Methane	Maximum Reading (ppmv)	3.8	Hydrogen sulphide	Maximum Reading (ppmv)	6.9	
Parameter	Result (ppmv)	RDL (ppmv)	Parameter	Result (ppbv)	RDL (ppbv)	Parameter	Result (ppbv)	RDL (ppbv)
						Freon-12	0.45	0.03
						Hexachloro-1,3-butadiene	0	0.78
						Isobutane	1.16	0.03
						Isopentane	5.92	0.05
						Isoprene	0	0.02
						Isopropyl alcohol	0.6	3.7
						Isopropylbenzene	0	0.02
						m,p-Xylene	0.52	0.05
						m-Diethylbenzene	0	0.06
						m-Ethyltoluene	0	0.12
						Methyl butyl ketone	0	0.78
						Methyl ethyl ketone	0	0.5
						Methyl isobutyl ketone	0	0.6
						Methyl methacrylate	0	0.11
						Methyl tert butyl ether	0	0.05
						Methylcyclohexane	0.82	0.02
						Methylcyclopentane	0.98	0.03
						Methylene chloride	0	0.5
						n-Butane	3.62	0.05
						n-Decane	0.2	0.09
						n-Dodecane	0	0.6
						n-Heptane	1.11	0.02
						n-Hexane	3.29	0.02
						n-Nonane	0.25	0.02
						n-Octane	0.43	0.03
						n-Pentane	6.9	0.2
						n-Propylbenzene	0	0.08
						n-Undecane	0	0.8
						Naphthalene	0	0.8
						o-Ethyltoluene	0	0.02
						o-Xylene	0.23	0.02
						p-Diethylbenzene	0	0.06
						p-Ethyltoluene	0	0.11
						Styrene	0.41	0.06
						Tetrachloroethylene	0	0.06
						Tetrahydrofuran	0	0.6
						Toluene	0.71	0.02
						trans-1,2-Dichloroethylene	0.22	0.09
						trans-1,3-Dichloropropylene	0	0.06
						trans-2-Butene	0	0.02
						trans-2-Pentene	0	0.03
						Trichloroethylene	0	0.06
						Vinyl acetate	0	0.6
						Vinyl chloride	0	0.03

## END OF REPORT

This page, 231 of 231, ends the December 2021 Monthly Ambient Air Quality Monitoring Report.



## **Peace River Area Monitoring Program**

# **DECEMBER 2021**

## **Ambient Air Monitoring Calibration Report**

### **- 842b STATION-**

### **CAL-PRAMP-202112-01561**

**Operation and Maintenance:**

Bureau Veritas Canada

**Data Validation and Report:**

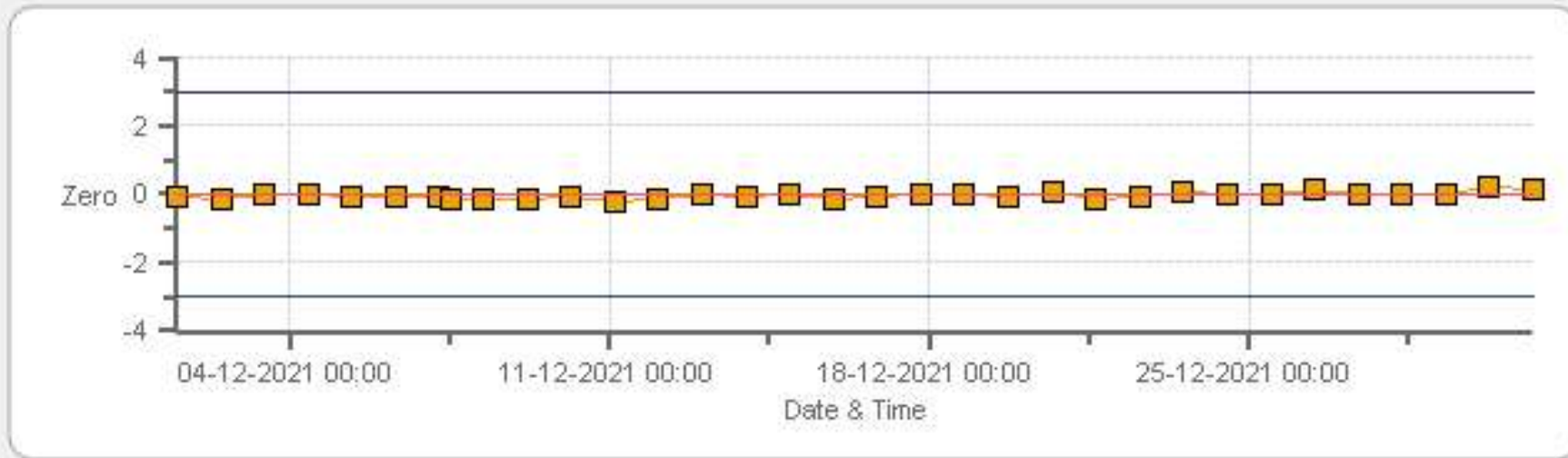
Bureau Veritas Canada

January 14, 2022



# DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: PRAMP 842b Monthly: 12-2021 Type: SpanAndZero - Zero



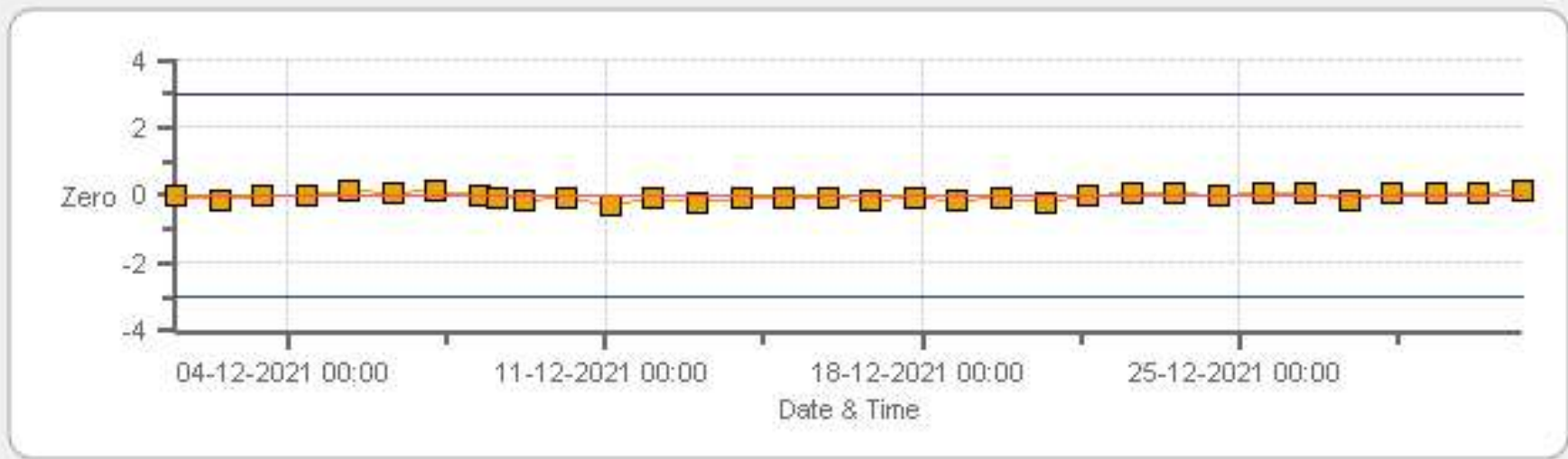
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: PRAMP 842b Monthly: 12-2021 Type: SpanAndZero - Span



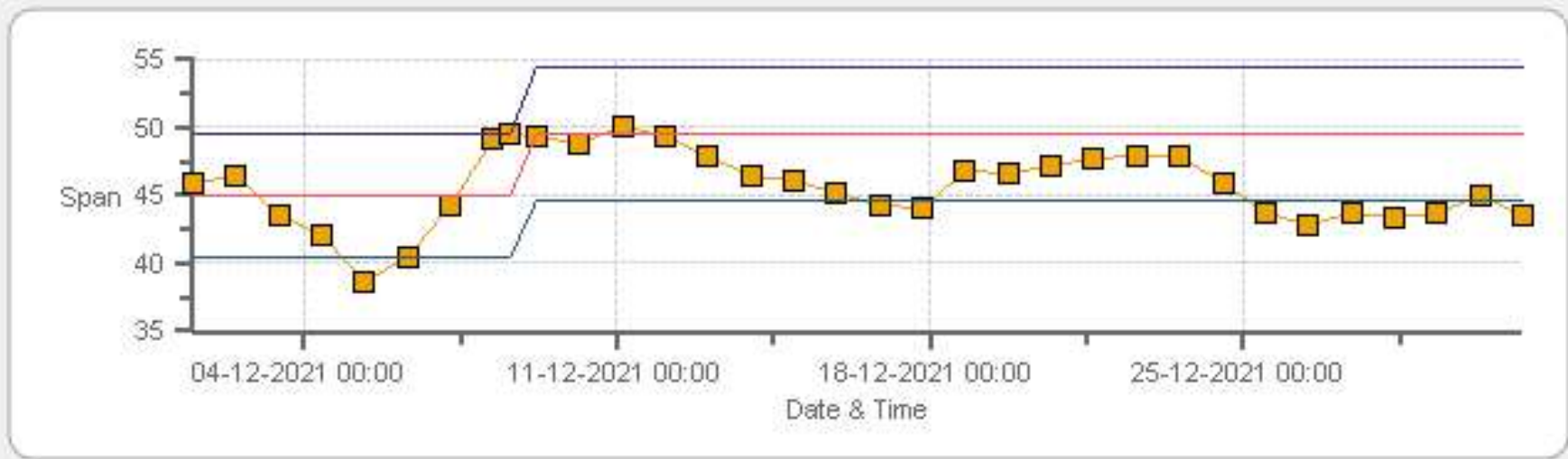
Span Span Ref Span Low Span High

TRS[ppb] Calibration: PRAMP 842b Monthly: 12-2021 Type: SpanAndZero - Zero



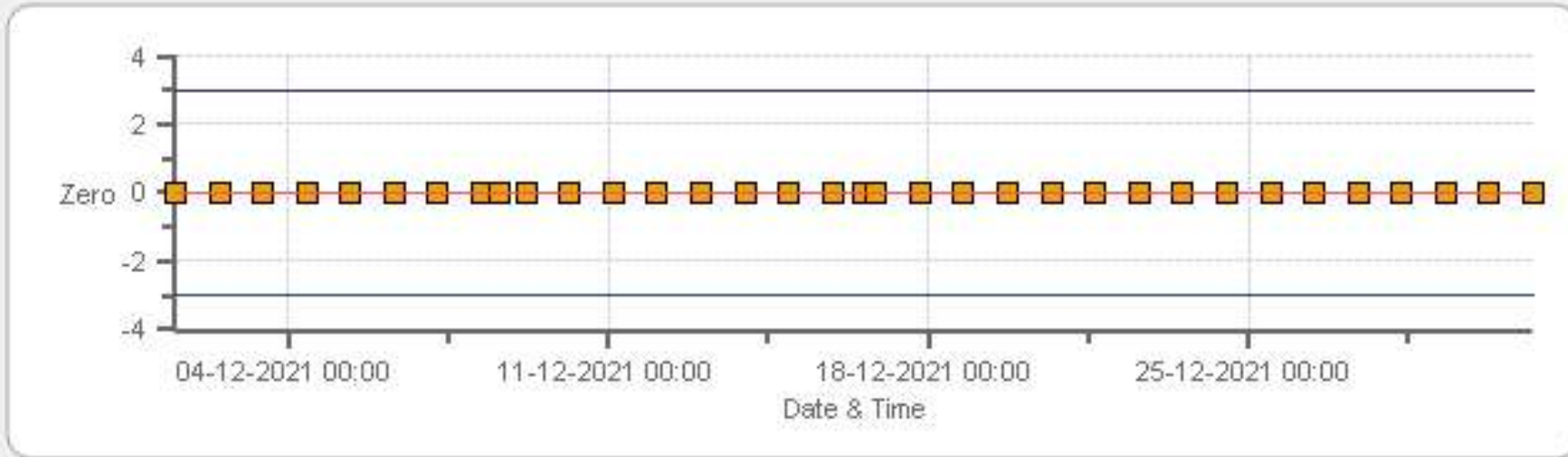
Zero Zero Ref Zero Low Zero High

TRS[ppb] Calibration: PRAMP 842b Monthly: 12-2021 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

THC55[ppm] Calibration: PRAMP 842b Monthly: 12-2021 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: PRAMP 842b Monthly: 12-2021 Type: SpanAndZero - Span



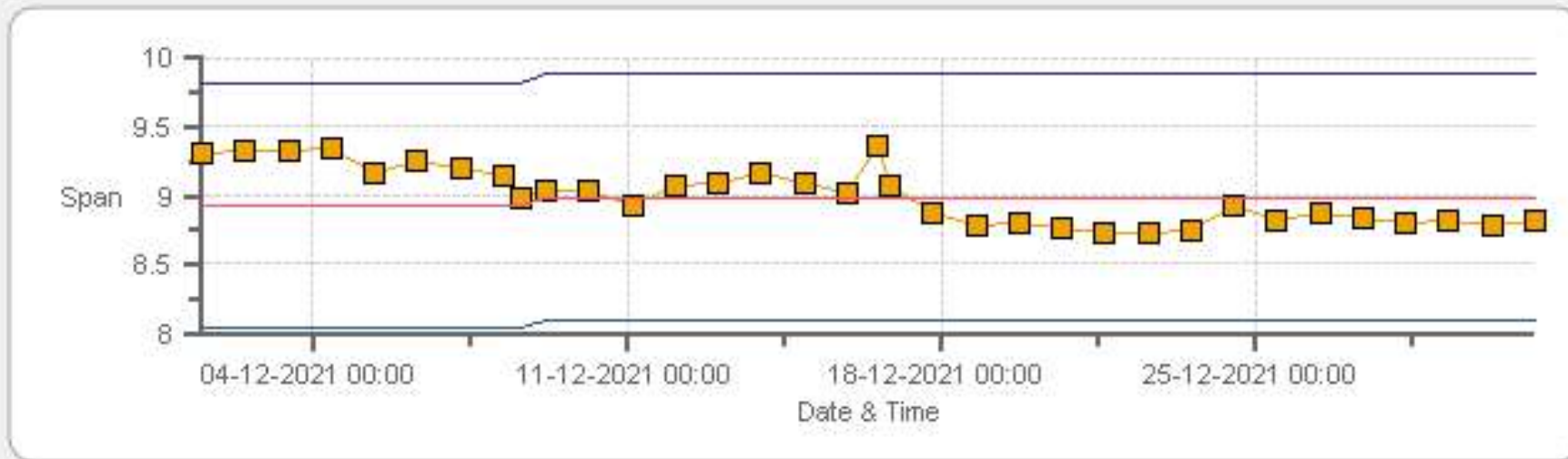
Span Span Ref Span Low Span High

CH4[ppm] Calibration: PRAMP 842b Monthly: 12-2021 Type: SpanAndZero - Zero



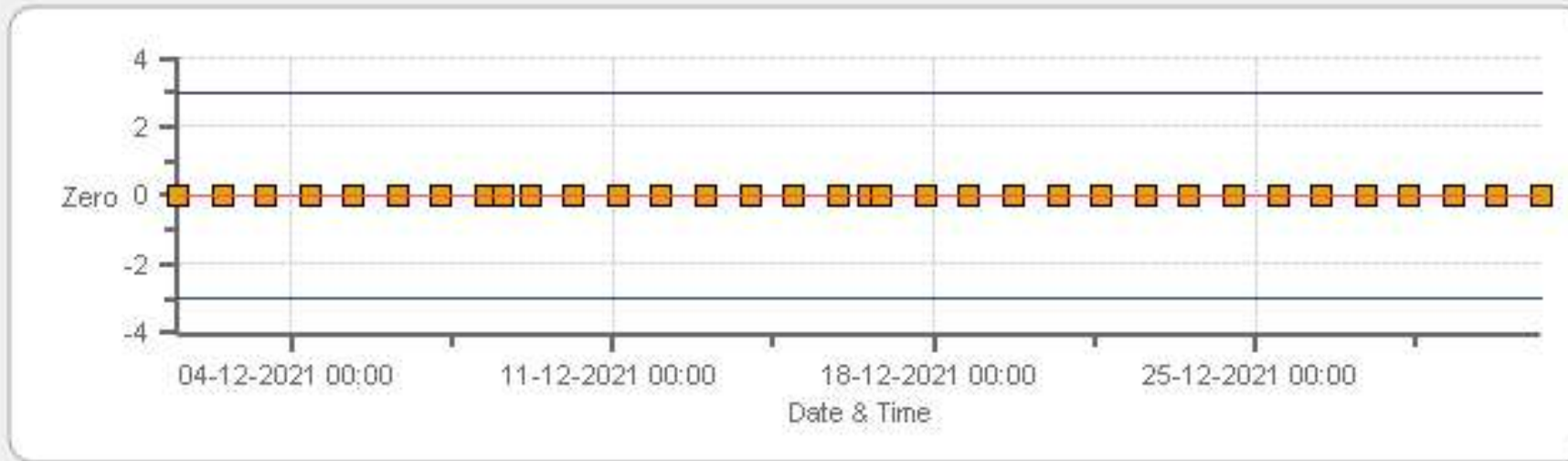
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: PRAMP 842b Monthly: 12-2021 Type: SpanAndZero - Span



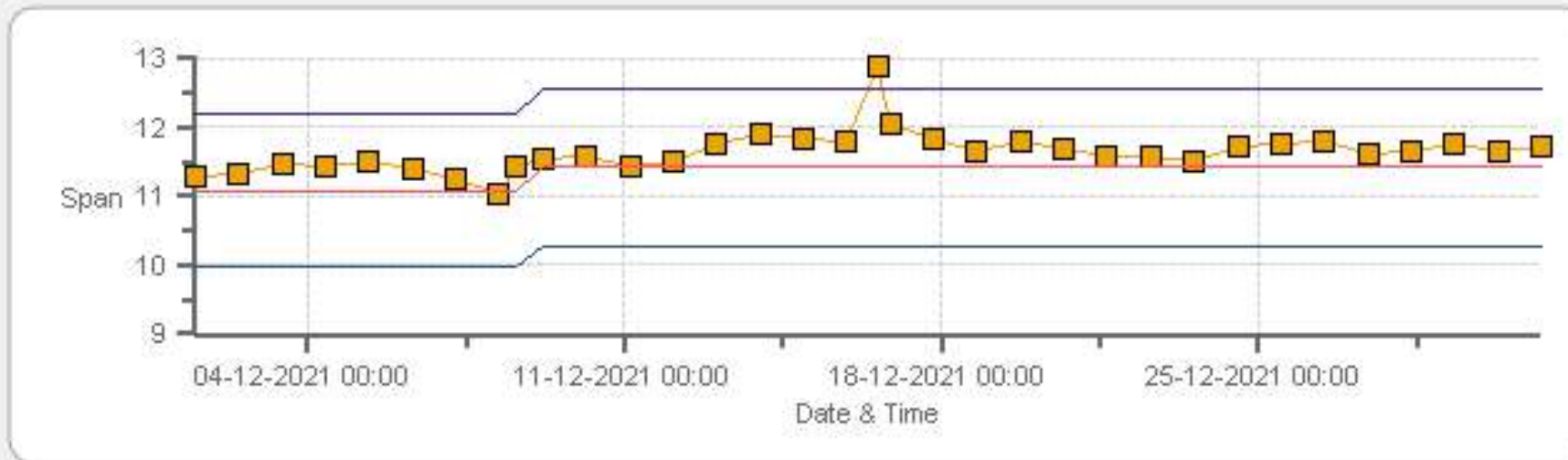
Span Span Ref Span Low Span High

NMHC[ppm] Calibration: PRAMP 842b Monthly: 12-2021 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: PRAMP 842b Monthly: 12-2021 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

# MULTI-POINT CALIBRATION RECORDS

# SO2 Analyzer Calibration by Dilution



DATE:	07-Dec-2021	PREVIOUS CALIBRATION DATE:	02-Nov-2021
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	0.999
CLIENT:	PRAMP	TEMPERATURE (°C):	22.2
LOCATION:	842b	BAROMETRIC (mBar):	931
PURPOSE:	Routine	START TIME (MST):	08:17
PERFORMED BY:	Limin Li	END TIME (MST):	12:18

## ANALYZER:

MAKE/MODEL	Thermo 43iQTL	RANGE	500 ppb
SERIAL #	1200736629	FLOW (mL/min)	422
INITIAL		FINAL	
BKG/OFFSET	8.4	BKG/OFFSET	8.5
COEF/SLOPE	1.113	COEF/SLOPE	1.12
Expected (reference) Value	449.8	Expected (reference) Value	471.5

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	API
MODEL:	2010	MODEL:	701
ID:	17200415	ID:	1105
MFC CALIBRATION DATE:	20-Sep-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0000647	HIGH ID	n/a
CONC (ppm):	51.60	EXPIRY DATE	n/a
CYLINDER (psi):	1200	LOW ID	n/a
EXPIRY DATE	24-Feb-2028	EXPIRY DATE	n/a

## CALIBRATION PARAMETERS:

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

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

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

## CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
6000	<del>        </del>	6000	0.00	0	0	<del>        </del>	<del>        </del>
5956	44.20	6000	380.12	377	380	1.008	1.000
5979	20.90	6000	179.74	n/a	180.2	n/a	0.997
5990	10.50	6000	90.30	n/a	89.2	n/a	1.012

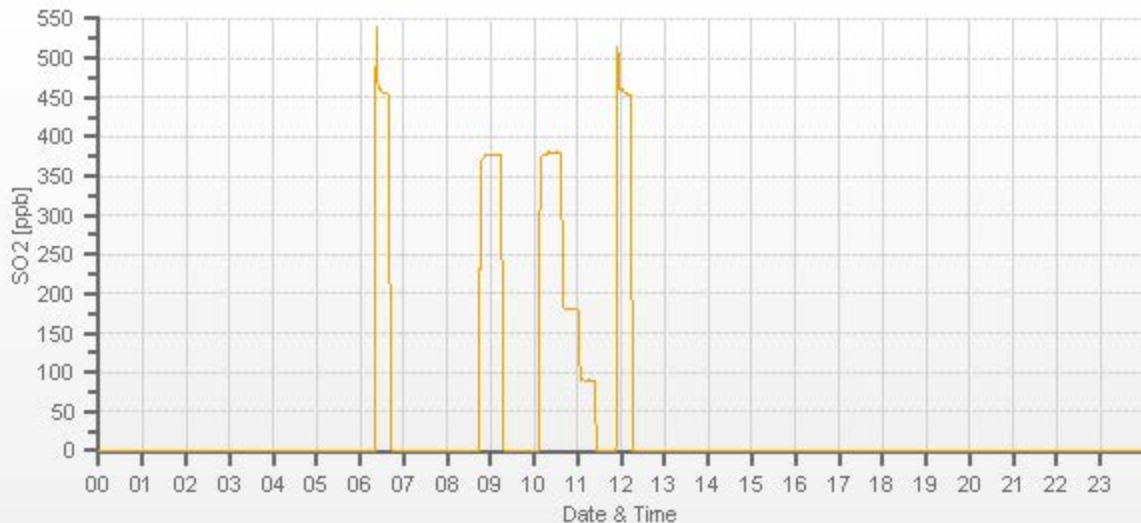
## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.001	-0.1%

## COMMENTS:

Sample filter changed. Monthly calibration - no issues.





# TRS Analyzer Calibration by Dilution



DATE:	07-Dec-2021	PREVIOUS CALIBRATION DATE:	02-Nov-2021
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	1.001
CLIENT:	PRAMP	TEMPERATURE (°C):	22.2
LOCATION:	842b	BAROMETRIC (mBar):	931
PURPOSE:	Removal/Shut-down	START TIME (MST):	08:17
PERFORMED BY:	Limin Li	END TIME (MST):	11:15

## ANALYZER:

MAKE/MODEL	Thermo 43iQTL	RANGE	100 ppb
SERIAL #	1200736630	FLOW (mL/min)	371
INITIAL		FINAL	
BKG/OFFSET	12.7	BKG/OFFSET	n/a
COEF/SLOPE	0.871	COEF/SLOPE	n/a
Expected (reference) Value	45.03	Expected (reference) Value	n/a

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	EnviroNics	MAKE:	API
MODEL:	6100	MODEL:	701
ID:	5212	ID:	1105
MFC CALIBRATION DATE:	21-Sep-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0002272	HIGH ID	n/a
CONC (ppm):	10.20	EXPIRY DATE	n/a
CYLINDER (psi):	1900	LOW ID	n/a
EXPIRY DATE	14-Sep-2024	EXPIRY DATE	n/a

## CALIBRATION PARAMETERS:

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

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

START TIME:	08:42	SO2 Conc (ppb)	380
END TIME:	09:02	Analyzer Response (ppb)	0.0

## CALIBRATION:

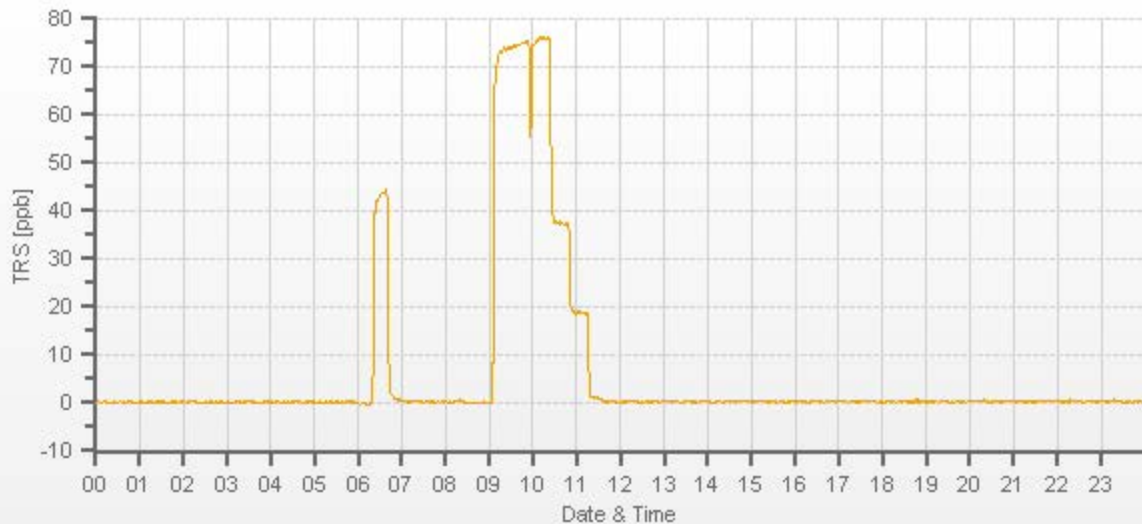
FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
7500	<del>7500</del>	7500	0.00	0.21	n/a	<del>1.001</del>	<del>1.001</del>
7443	57.35	7500	78.00	76.3	n/a	1.025	n/a
7472	27.94	7500	38.00	37.49	n/a	1.019	n/a
7486	13.97	7500	19.00	18.91	n/a	1.016	n/a

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.975	0.3%

## COMMENTS:

TRS Converter CDNOVA CDN #576. Repurge regulator at 09:55am



# TRS Analyzer Calibration by Dilution



DATE:	08-Dec-2021	PREVIOUS CALIBRATION DATE:	n/a
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	PRAMP	TEMPERATURE (°C):	21.4
LOCATION:	842b	BAROMETRIC (mBar):	916
PURPOSE:	Install/Post-Repair	START TIME (MST):	11:29
PERFORMED BY:	Limin Li	END TIME (MST):	14:51

## ANALYZER:

MAKE/MODEL	Thermo 43iQTL	RANGE	100 ppb
SERIAL #	1200736630	FLOW (mL/min)	372
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	13.3
COEF/SLOPE	n/a	COEF/SLOPE	0.891
Expected (reference) Value	n/a	Expected (reference) Value	49.52

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	EnviroNics	MAKE:	API
MODEL:	6100	MODEL:	701
ID:	5212	ID:	1105
MFC CALIBRATION DATE:	21-Sep-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0002272	HIGH ID	n/a
CONC (ppm):	10.20	EXPIRY DATE	n/a
CYLINDER (psi):	1900	LOW ID	n/a
EXPIRY DATE	14-Sep-2024	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:	11:59	SO2 Conc (ppb)	380
END TIME:	12:18	Analyzer Response (ppb)	0.1

## CALIBRATION:

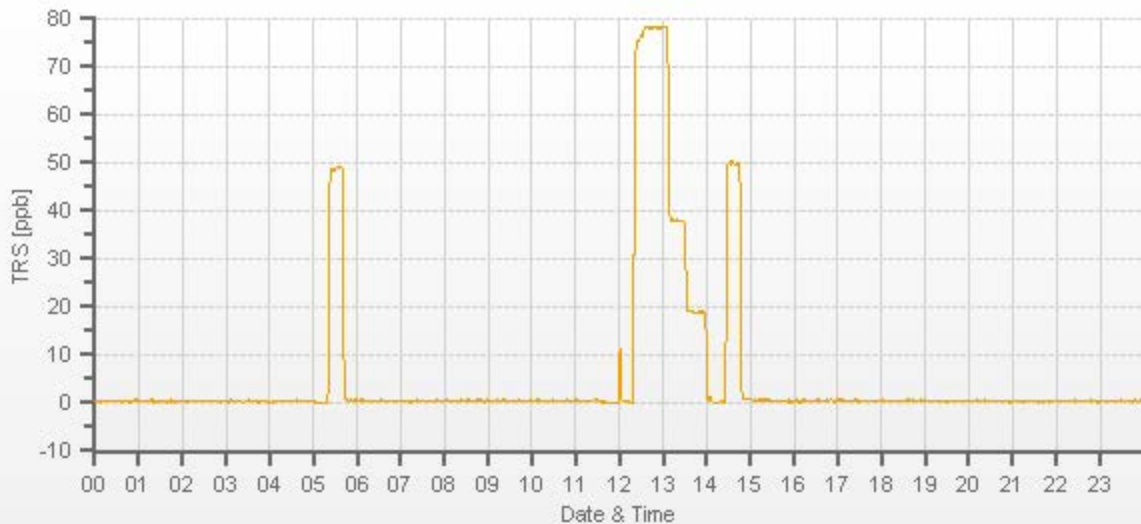
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	<del>7500</del>	7500	0.00	n/a	0	<del>n/a</del>	<del>n/a</del>
7443	57.35	7500	78.00	n/a	78	n/a	1.000
7472	27.94	7500	38.00	n/a	37.88	n/a	1.003
7486	13.97	7500	19.00	n/a	18.81	n/a	1.010

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.001	-0.1%

## COMMENTS:

TRS Converter CDNOVA CDN #576.
--------------------------------



# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	08-Dec-2021	PREVIOUS CALIBRATION DATE:	02-Nov-2021	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	21.4		Thermo 55i	1501663728	1015
LOCATION:	842b	BAROMETRIC (mBar):	916	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	11:29	RANGE (ppm):	20	20	40
PERFORMED BY:	Limin Li	END TIME (MST):	14:44	PREVIOUS CF:	1.001	1.001	1.001

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	API	CYLINDER ID:	LL70331	HIGH ID:	n/a
MODEL:	2010	MODEL:	701	CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	909.0   308.0	HIGH EXPIRY:	n/a
ID:	17200415	ID:	1105	CYLINDER (psi):	700	LOW ID:	n/a
MFC CALIBRATION DATE:	20-Sep-2021	OXIDIZER ID:	111	EXPIRY DATE	21-Jan-2028	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

POINT (CH <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE	
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>	847.0
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>	1756.0

## EXPECTED (REFERENCE) VALUE:

INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	8.93	11.08	20.00		8.99	11.43	20.41

## CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3500	<del>X</del>	3500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>
3444	55.80	3500	14.49	13.50	28.00	14.76	13.07	27.83	14.48	13.47	27.95	0.982	1.033	1.006	1.001	1.002	1.002
3472	27.90	3500	7.25	6.75	14.00	n/a	n/a	n/a	7.08	6.71	13.79	n/a	n/a	n/a	1.023	1.006	1.015
3486	14.00	3500	3.64	3.39	7.02	n/a	n/a	n/a	3.52	3.36	6.88	n/a	n/a	n/a	1.033	1.008	1.021

## LINEAR REGRESSION ANALYSIS:

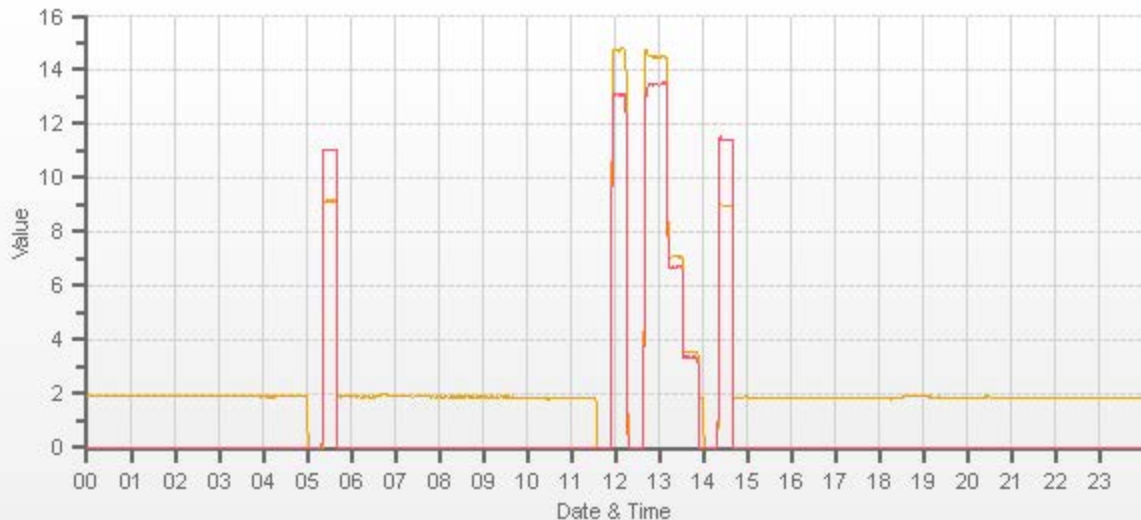
	CORRELATION	SLOPE	INTERCEPT
CH <sub>4</sub>	1.000	1.001	-0.4%
NMHC	1.000	0.998	-0.1%
THC	1.000	0.999	-0.2%

## Comments:

Sample filter changed. Monthly calibration - no issues.

Use Zero Chrom?

No



CAL-PRAMP-202112-01561

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CH4 [ppm] NMHC [ppm]

# Meteorological System Checklist



Date:	December 7, 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:	November 2, 2021	Tip test: 10:43-10:50
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)	yes	
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
<b>10</b>	1.0	0.00

### AMBIENT TEMPERATURE SENSOR CHECK

Previous check date:	November 2, 2021
Parameter:	Temperature @ 2 metres
Reference Thermometer ID:	Fisher SCIENTIFIC 170286131 expires August 24, 2022
Reference Temperature (°C):	-8.1
Station - Ambient Temperature (°C):	-8.8
Temperature Difference (°C):	0.7

### BAROMETRIC PRESSURE SENSOR CHECK

Previous check date:	November 2, 2021		
Reference Barometer ID:	BRUNTON 5490, Expire:Jan 12, 2022		
Reference Pressure - Units/Reading:	millibar	930.2	
Station Pressure - Units/Reading:	millibar	929.4	
Pressure Tolerance +/- 15% of error:	791 - 1070	0.09%	

### RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Previous check date:	November 2, 2021		
Reference Hygrometer ID:	Fisher SCIENTIFIC 170286131 expires August 24, 2022		
Reference Hygrometer % RH- Reading:	86.90		
Station Hygrometer % RH- Reading:	89.60		
RH Tolerance +/- 15% of difference:	73.87 - 99.94	-3.1%	

### ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Previous check date:	November 2, 2021	Previous check date:	November 2, 2021
Wind Speed Observed (kph):	5~10	Wind Direction Observed:	S
Wind speed on Data Logger (kph):	5.7	Wind Direction on Data Logger:	S
		Wind Direction Pass/Fail?:	Pass

Comments

No issues.





# Meteorological Sensor Audit/Calibration

## Location Information

Company:	PRAMP	Performed By:	Limin Li
Audit Location:	842b	Reviewed By:	Chris Wesson
Audit Date:	July 4, 2021	Start/End Time (mst):	12:16/13:43
Calibration Purpose:	routine annual	Weather Conditions:	Mainly cloudy with sunny breaks

## Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	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**

**DECEMBER 2021**

**Ambient Air Monitoring Calibration Report**

**- 986c STATION-**

**CAL-PRAMP-202112-01562**

**Operation and Maintenance:**

Bureau Veritas Canada

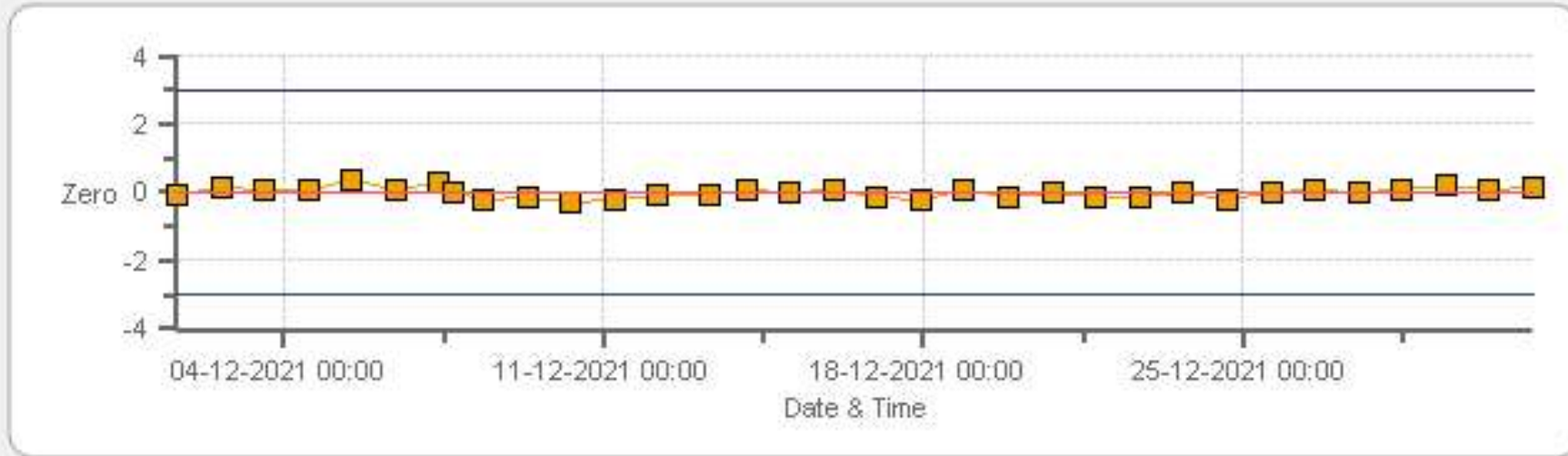
**Data Validation and Report:**

Bureau Veritas Canada

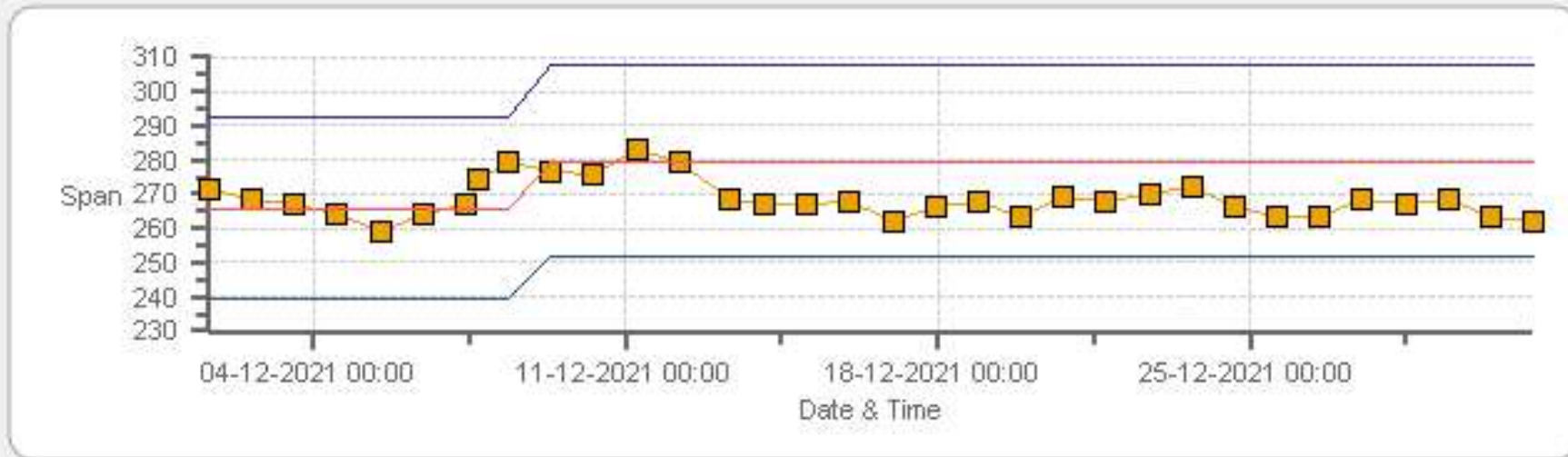
January 14, 2022

# DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

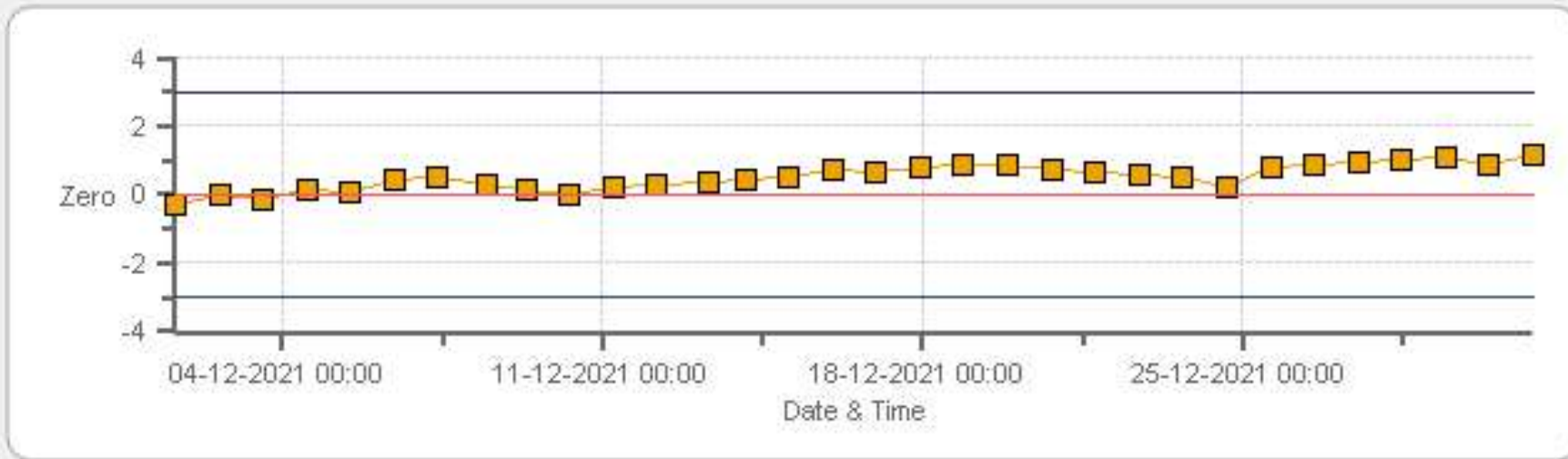
SO2[ppb] Calibration: PRAMP 986c Monthly: 12-2021 Type: SpanAndZero - Zero



SO2[ppb] Calibration: PRAMP 986c Monthly: 12-2021 Type: SpanAndZero - Span

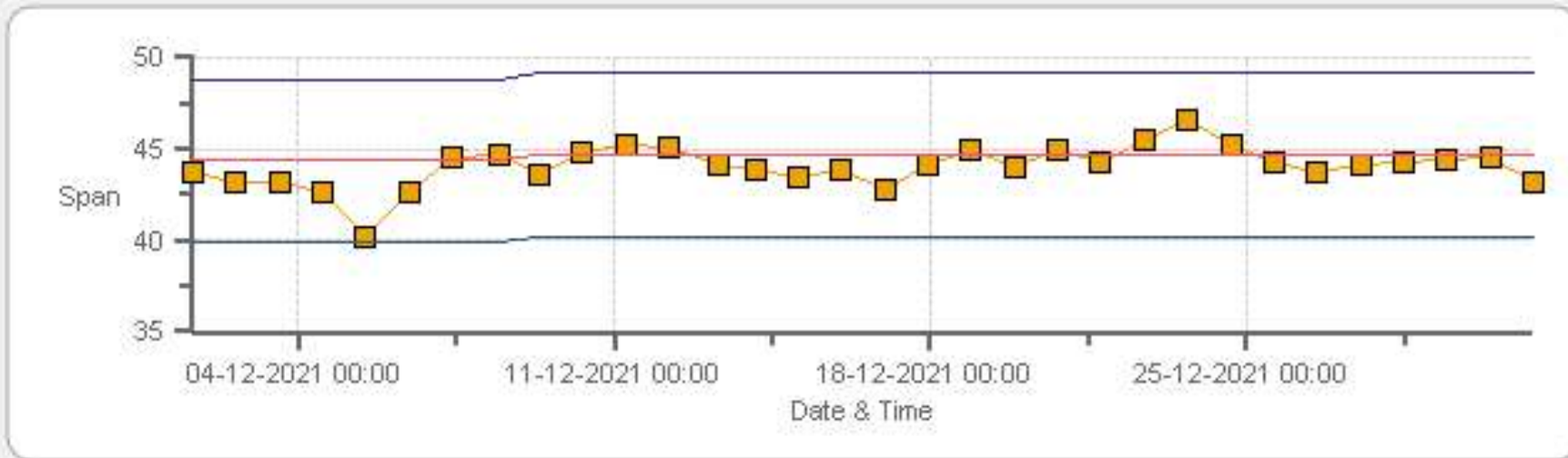


TRS[ppb] Calibration: PRAMP 986c Monthly: 12-2021 Type: SpanAndZero - Zero



■ Zero    
 — Zero Ref    
 — Zero Low    
 — Zero High

TRS[ppb] Calibration: PRAMP 986c Monthly: 12-2021 Type: SpanAndZero - Span



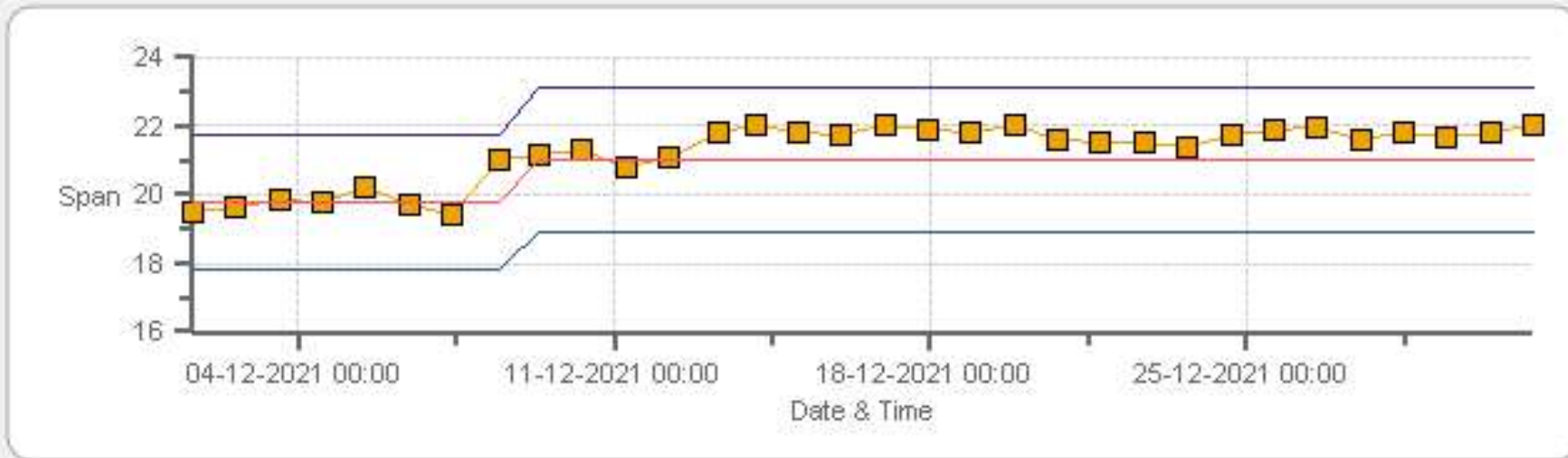
■ Span    
 — SpanRef    
 — Span Low    
 — Span High

THC55[ppm] Calibration: PRAMP 986c Monthly: 12-2021 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: PRAMP 986c Monthly: 12-2021 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

CH4[ppm] Calibration: PRAMP 986c Monthly: 12-2021 Type: SpanAndZero - Zero



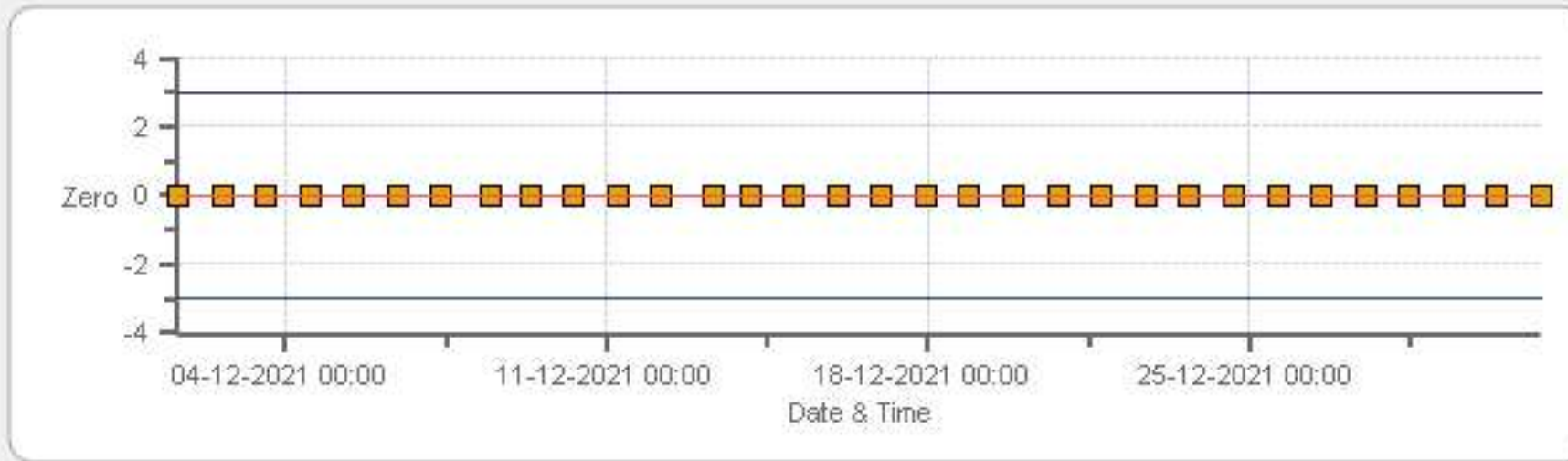
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: PRAMP 986c Monthly: 12-2021 Type: SpanAndZero - Span



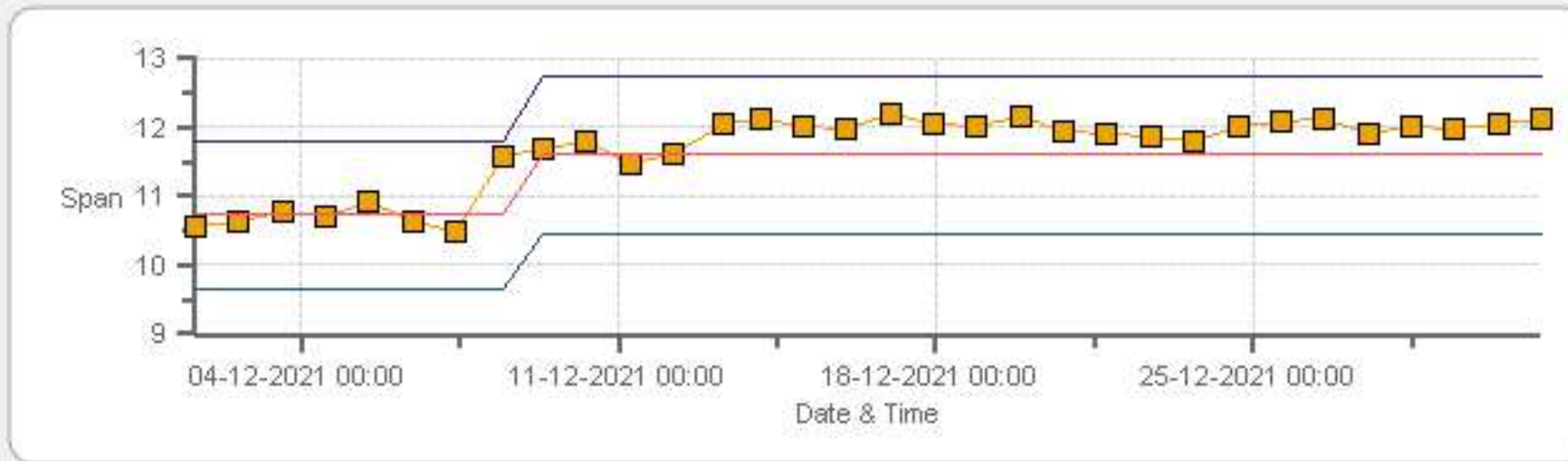
Span SpanRef Span Low Span High

NMHC[ppm] Calibration: PRAMP 986c Monthly: 12-2021 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: PRAMP 986c Monthly: 12-2021 Type: SpanAndZero - Span



Span SpanRef Span Low Span High



# MULTI-POINT CALIBRATION RECORDS

# SO2 Analyzer Calibration by Dilution



DATE:	07-Dec-2021	PREVIOUS CALIBRATION DATE:	17-Nov-2021
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	PRAMP	TEMPERATURE (°C):	22.5
LOCATION:	986C	BAROMETRIC (mBar):	928
PURPOSE:	Routine	START TIME (MST):	13:11
PERFORMED BY:	Limin Li	END TIME (MST):	16:57

## ANALYZER:

MAKE/MODEL	Thermo 43iQTL	RANGE	500 ppb
SERIAL #	1193585646	FLOW (mL/min)	426
INITIAL		FINAL	
BKG/OFFSET	13.4	BKG/OFFSET	14.1
COEF/SLOPE	1.023	COEF/SLOPE	1.044
Expected (reference) Value	265.9	Expected (reference) Value	279.7

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	API
MODEL:	2010	MODEL:	701
ID:	17200415	ID:	1105
MFC CALIBRATION DATE:	20-Sep-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY 0000647	HIGH ID	n/a
CONC (ppm):	51.60	EXPIRY DATE	n/a
CYLINDER (psi):	1500	LOW ID	n/a
EXPIRY DATE	24-Feb-2028	EXPIRY DATE	n/a

## CALIBRATION PARAMETERS:

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

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

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

## CALIBRATION:

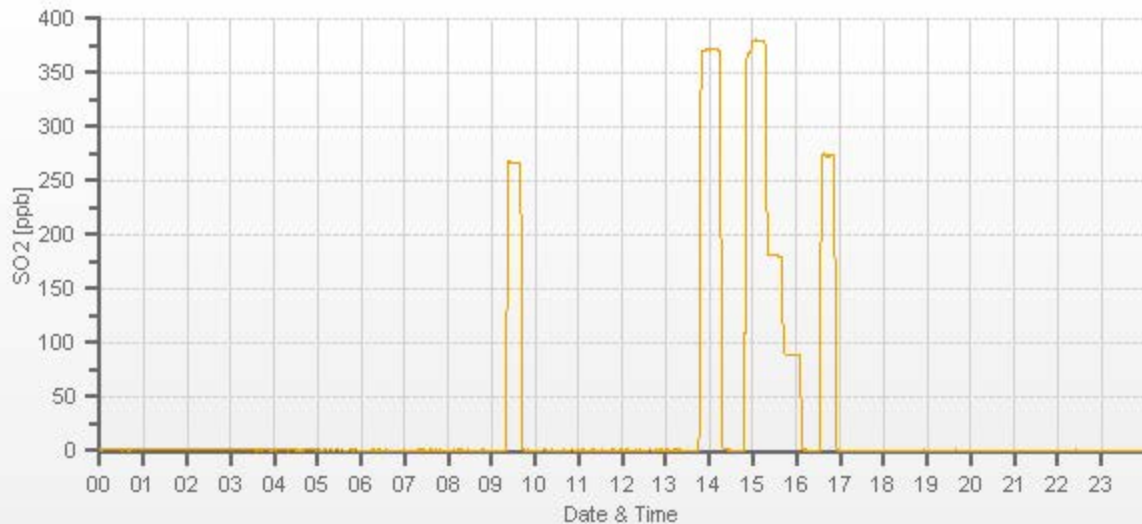
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
6000	<del>44.20</del>	6000	0.00	0.3	0	<del>1.023</del>	<del>1.001</del>
5956	44.20	6000	380.12	372	379.8	1.023	1.001
5979	20.90	6000	179.74	n/a	180.8	n/a	0.994
5990	10.50	6000	90.30	n/a	89.6	n/a	1.008

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.0%

## COMMENTS:

Sample filter changed. Monthly calibration - no issues.



# TRS Analyzer Calibration by Dilution



DATE:	07-Dec-2021	PREVIOUS CALIBRATION DATE:	17-Nov-2021
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	PRAMP	TEMPERATURE (°C):	22.5
LOCATION:	986C	BAROMETRIC (mBar):	928
PURPOSE:	Removal/Shut-down	START TIME (MST):	13:11
PERFORMED BY:	Limin Li	END TIME (MST):	15:20

## ANALYZER:

MAKE/MODEL	Thermo 43iQTL	RANGE	100 ppb
SERIAL #	1191833341	FLOW (mL/min)	423
INITIAL		FINAL	
BKG/OFFSET	13.4	BKG/OFFSET	n/a
COEF/SLOPE	0.899	COEF/SLOPE	n/a
Expected (reference) Value	44.39	Expected (reference) Value	n/a

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	EnviroNics	MAKE:	API
MODEL:	6100	MODEL:	701
ID:	5212	ID:	1105
MFC CALIBRATION DATE:	21-Sep-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0002272	HIGH ID	n/a
CONC (ppm):	10.20	EXPIRY DATE	n/a
CYLINDER (psi):	1900	LOW ID	n/a
EXPIRY DATE	14-Sep-2024	EXPIRY DATE	n/a

## CALIBRATION PARAMETERS:

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

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

START TIME:	13:39	SO2 Conc (ppb)	380
END TIME:	14:00	Analyzer Response (ppb)	0.0

## CALIBRATION:

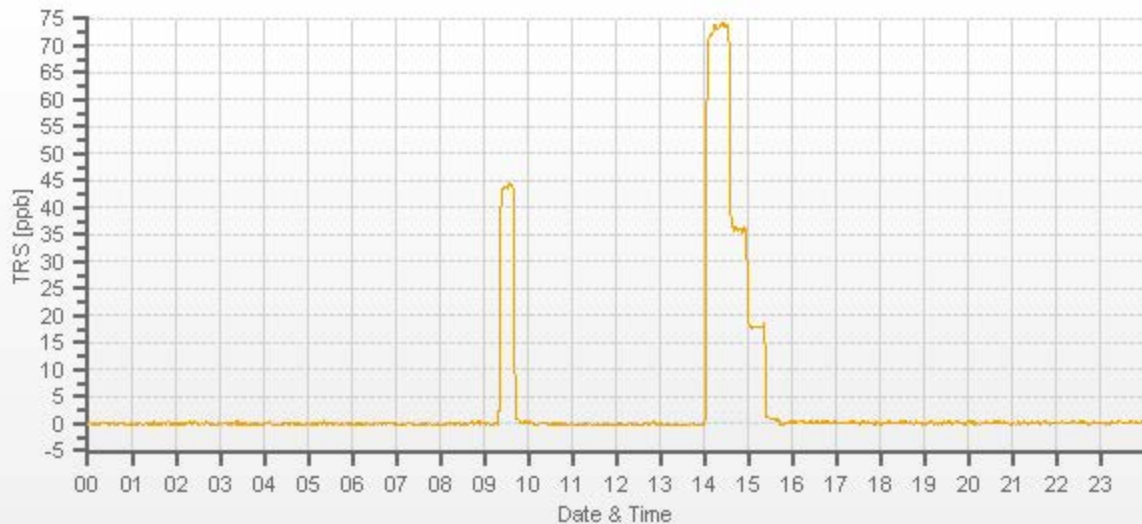
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	<del>7500</del>	7500	0.00	0.2	n/a	<del>1.000</del>	<del>1.000</del>
7443	57.35	7500	78.00	74.35	n/a	1.052	n/a
7472	27.94	7500	38.00	36.38	n/a	1.050	n/a
7486	13.97	7500	19.00	18.45	n/a	1.041	n/a

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.950	0.3%

## COMMENTS:

TRS Converter CDNOVA CDN-101 #583. Shutdown to renew SO2 scrubber
--



# TRS Analyzer Calibration by Dilution



DATE:	08-Dec-2021	PREVIOUS CALIBRATION DATE:	n/a
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	PRAMP	TEMPERATURE (°C):	21.5
LOCATION:	986C	BAROMETRIC (mBar):	915
PURPOSE:	Install/Post-Repair	START TIME (MST):	07:40
PERFORMED BY:	Limin Li	END TIME (MST):	10:58

## ANALYZER:

MAKE/MODEL	Thermo 43iQTL	RANGE	100 ppb
SERIAL #	1191833341	FLOW (mL/min)	423
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	13.5
COEF/SLOPE	n/a	COEF/SLOPE	0.927
Expected (reference) Value	n/a	Expected (reference) Value	44.69

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	EnviroNics	MAKE:	API
MODEL:	6100	MODEL:	701
ID:	5212	ID:	1105
MFC CALIBRATION DATE:	21-Sep-2021	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0002272	HIGH ID	n/a
CONC (ppm):	10.20	EXPIRY DATE	n/a
CYLINDER (psi):	1900	LOW ID	n/a
EXPIRY DATE	14-Sep-2024	EXPIRY DATE	n/a

## CALIBRATION PARAMETERS:

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

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

START TIME:	08:23	SO2 Conc (ppb)	380
END TIME:	08:42	Analyzer Response (ppb)	0.0

## CALIBRATION:

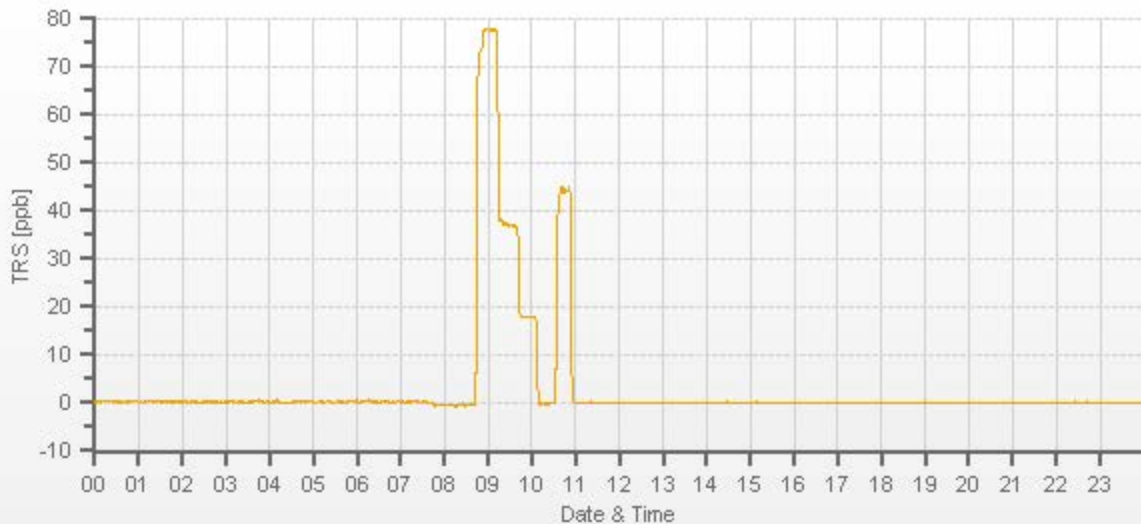
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
7500	<del>7500</del>	7500	0.00	n/a	0	<del>n/a</del>	<del>n/a</del>
7443	57.35	7500	78.00	n/a	78	n/a	1.000
7472	27.94	7500	38.00	n/a	37.16	n/a	1.023
7486	13.97	7500	19.00	n/a	18.27	n/a	1.040

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	-0.5%

## COMMENTS:

TRS Converter CDNOVA CDN-101 #583.  
Post-repair following scrubber exchange.



# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	08-Dec-2021	PREVIOUS CALIBRATION DATE:	17-Nov-2021	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	21.5		Thermo 55i	1193585652	1265
LOCATION:	986C	BAROMETRIC (mBar):	915	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Install/Post-Repair	START TIME (MST):	08:19	RANGE (ppm):	20	20	40
PERFORMED BY:	Limin Li	END TIME (MST):	10:44	PREVIOUS CF:	1.001	1.000	1.000

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	API	CYLINDER ID:	LL70331	HIGH ID:	n/a
MODEL:	2010	MODEL:	701	CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	909.0   308.0	HIGH EXPIRY:	n/a
ID:	17200415	ID:	1105	CYLINDER (psi):	1200	LOW ID:	n/a
MFC CALIBRATION DATE:	20-Sep-2021	OXIDIZER ID:	111	EXPIRY DATE:	21-Jan-2028	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

POINT (CH <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE	
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>	847.0
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>	1756.0

## EXPECTED (REFERENCE) VALUE:

INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	9.09	10.73	19.78		9.42	11.60	21.01

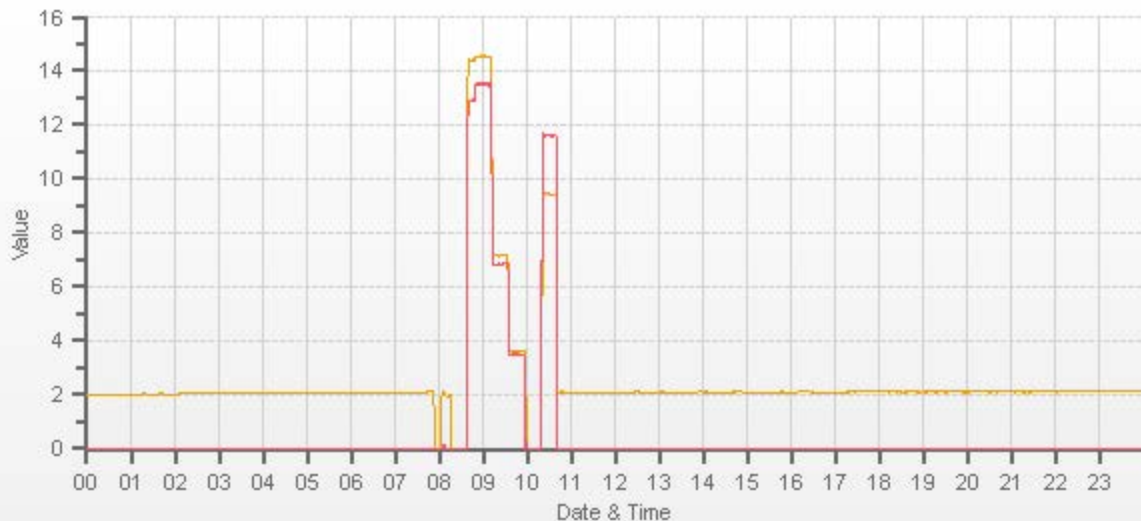
## CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3500	<del>3500</del>	3500	0.00	0.00	0.00	n/a	n/a	n/a	0.00	0.00	0.00	<del>n/a</del>	<del>n/a</del>	<del>n/a</del>	<del>n/a</del>	<del>n/a</del>	<del>n/a</del>
3444	55.80	3500	14.49	13.50	28.00	n/a	n/a	n/a	14.51	13.50	28.01	n/a	n/a	n/a	0.999	1.000	0.999
3472	27.90	3500	7.25	6.75	14.00	n/a	n/a	n/a	7.18	6.84	14.02	n/a	n/a	n/a	1.009	0.987	0.998
3486	14.00	3500	3.64	3.39	7.02	n/a	n/a	n/a	3.61	3.47	7.08	n/a	n/a	n/a	1.007	0.976	0.992

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments:
CH <sub>4</sub>	1.000	1.001	-0.1%	Sample filter changed. As-found not possible due to repeated flame-outs. Gas pressures adjusted.
NMHC	1.000	0.998	0.3%	
THC	1.000	1.000	0.1%	
Use Zero Chrom?				No





CAL-PRAMP-202112-01562

# Meteorological System Checklist



Date:	December 7, 2021
Technician:	Limin Li
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:	November 17, 2021	Tip test: 14:49-14:51
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)	yes	
Is the housing clean?	yes	
Is the area around the housing clean and free from obstacles?	yes	

### TIP TEST - Slowly pour water until 10 tips are heard. (10 tips = 1 ml)

# of Tips	Data Logger Response (ml):	Manual Specification = +/- 0.1 ml
<b>10</b>	1.0	0.00

### AMBIENT TEMPERATURE SENSOR CHECK

Previous check date:	November 17, 2021
Parameter:	Temperature @ 2 metres
Reference Thermometer ID:	Fisher SCIENTIFIC 170286131 expires August 24, 2022
Reference Temperature (°C):	-4.6
Station - Ambient Temperature (°C):	-5.0
Temperature Difference (°C):	0.4

### BAROMETRIC PRESSURE SENSOR CHECK

Previous check date:	November 17, 2021	
Reference Barometer ID:	BRUNTON 5490, Expire:Jan 12, 2022	
Reference Pressure - Units/Reading:	millibar	927.9
Station Pressure - Units/Reading:	millibar	927.1
Pressure Tolerance +/- 15% of error:	789 - 1067	0.09%

### RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Previous check date:	November 17, 2021	
Reference Hygrometer ID:	Fisher SCIENTIFIC 170286131 expires August 24, 2022	
Reference Hygrometer % RH- Reading:	74.00	
Station Hygrometer % RH- Reading:	84.80	
RH Tolerance +/- 15% of difference:	62.90 - 85.10	-14.6%

### ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Previous check date:	November 17, 2021	Previous check date:	November 17, 2021
Wind Speed Observed (kph):	10~20	Wind Direction Observed:	S
Wind speed on Data Logger (kph):	13.8	Wind Direction on Data Logger:	S
		Wind Direction Pass/Fail?:	Pass

Comments

RH reading high. Sensor will be swapped at next 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**

# **DECEMBER 2021**

## **Ambient Air Monitoring Calibration Report**

### **- RENO STATION-**

### **CAL-PRAMP-202112-01563**

**Operation and Maintenance:**

Bureau Veritas Canada

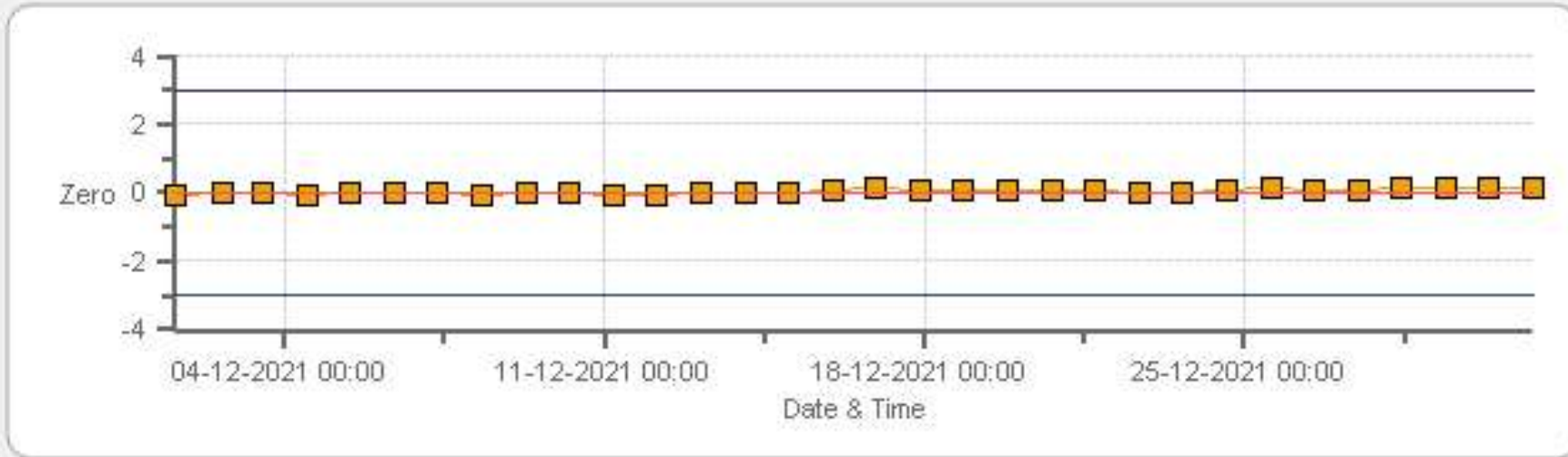
**Data Validation and Report:**

Bureau Veritas Canada

January 14, 2022

# DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: PRAMP RENO Monthly: 12-2021 Type: SpanAndZero - Zero



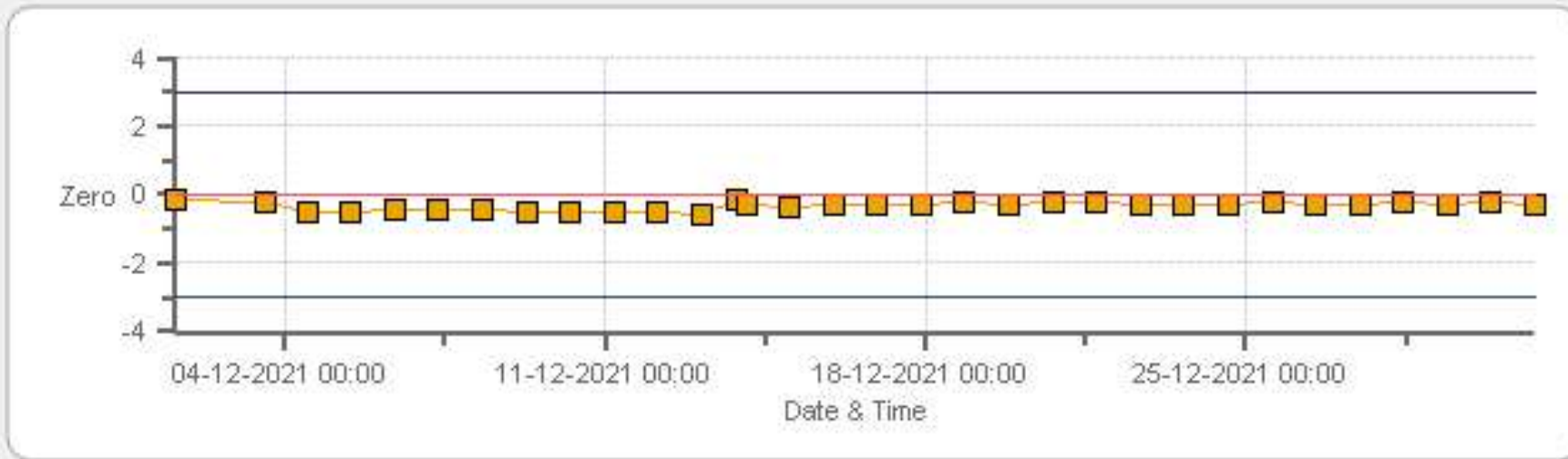
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: PRAMP RENO Monthly: 12-2021 Type: SpanAndZero - Span



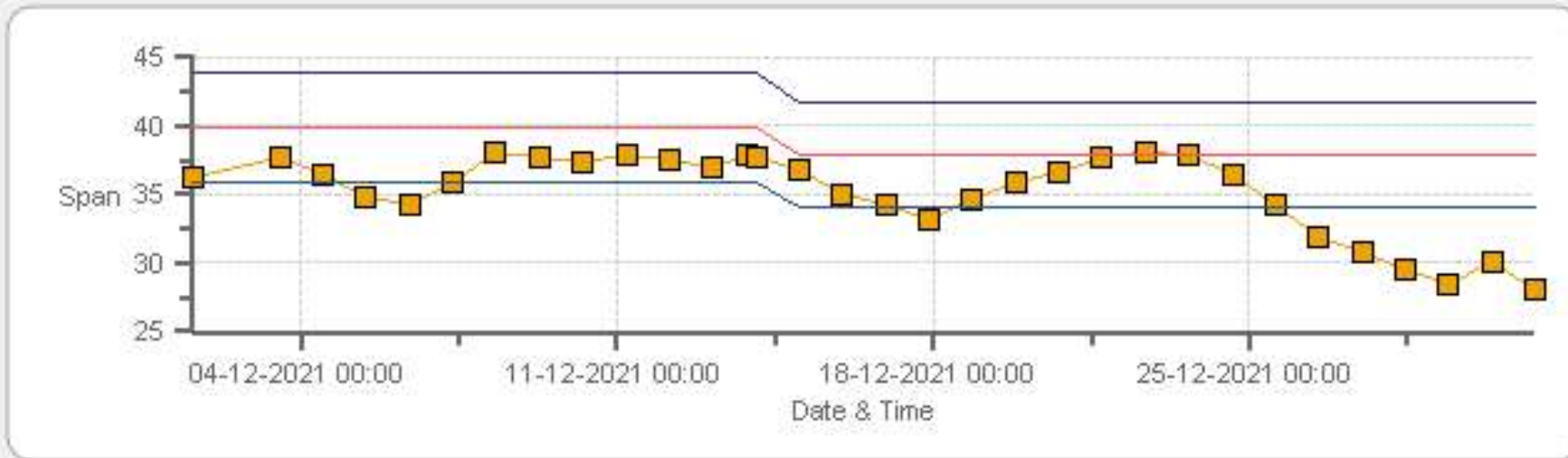
Span Span Ref Span Low Span High

TRS[ppb] Calibration: PRAMP RENO Monthly: 12-2021 Type: SpanAndZero - Zero



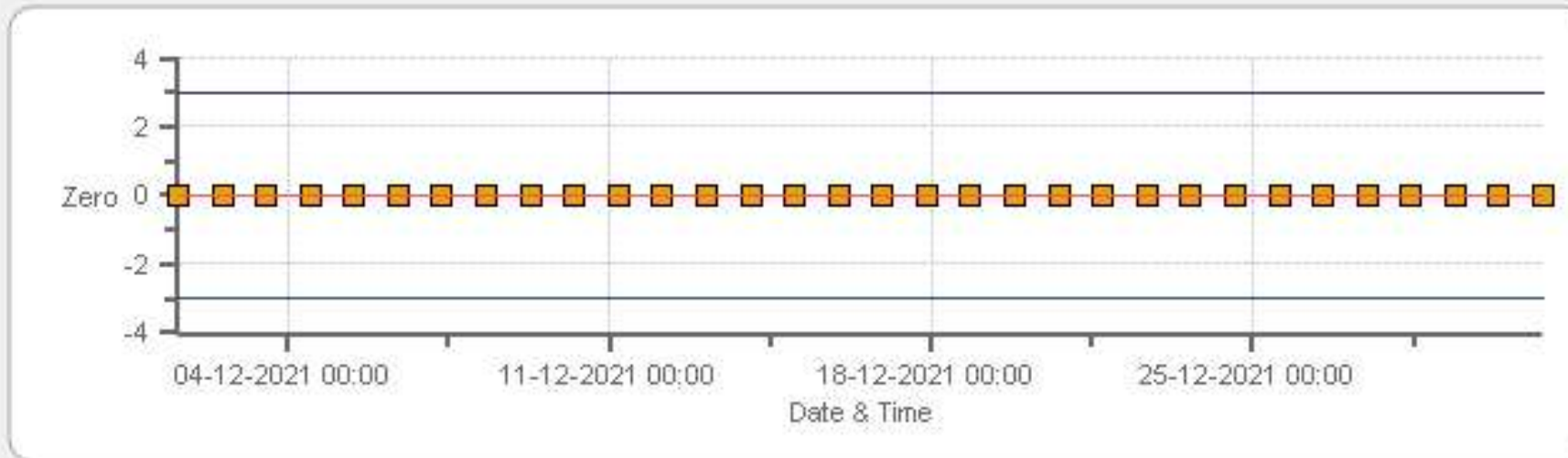
Zero Zero Ref Zero Low Zero High

TRS[ppb] Calibration: PRAMP RENO Monthly: 12-2021 Type: SpanAndZero - Span



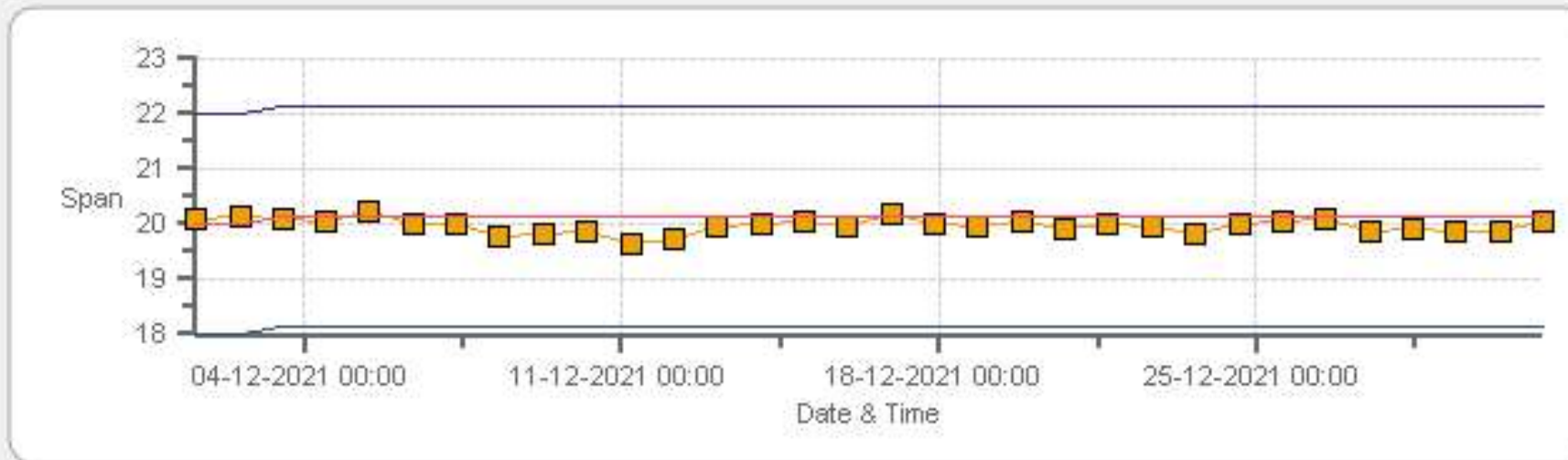
Span Span Ref Span Low Span High

THC55[ppm] Calibration: PRAMP RENO Monthly: 12-2021 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: PRAMP RENO Monthly: 12-2021 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

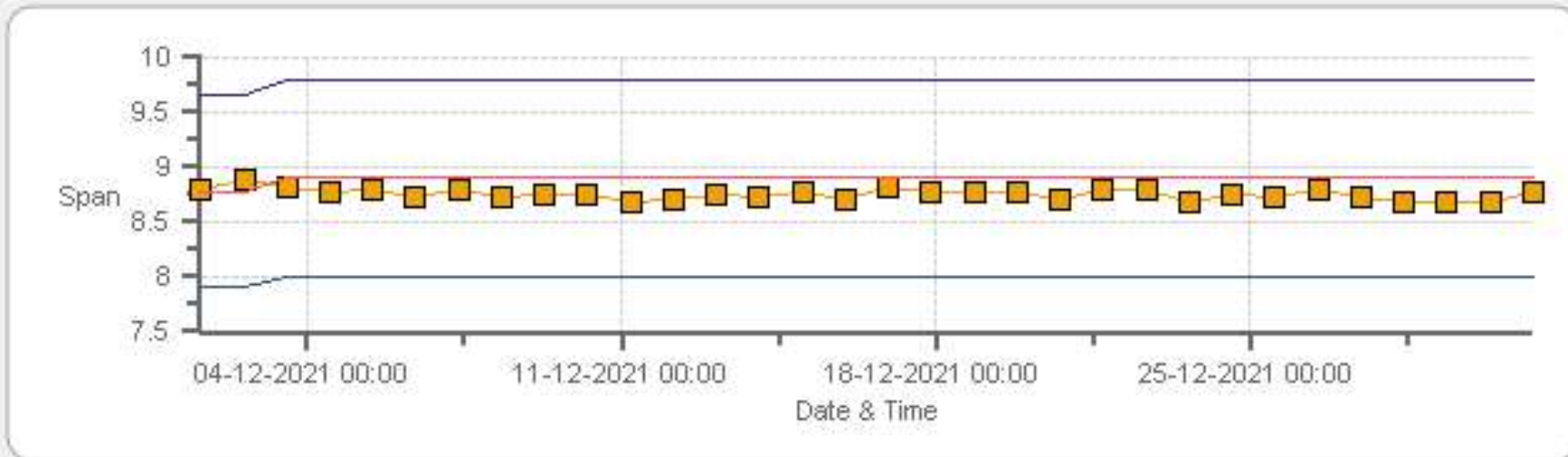


CH4[ppm] Calibration: PRAMP RENO Monthly: 12-2021 Type: SpanAndZero - Zero



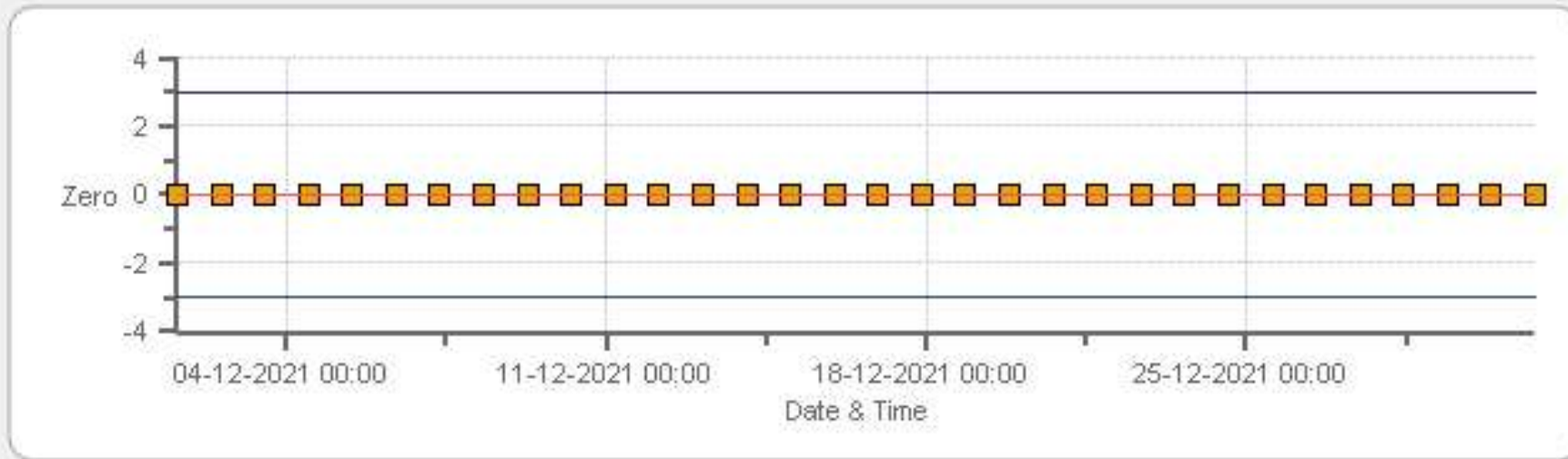
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: PRAMP RENO Monthly: 12-2021 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

NMHC[ppm] Calibration: PRAMP RENO Monthly: 12-2021 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: PRAMP RENO Monthly: 12-2021 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

# MULTI-POINT CALIBRATION RECORDS

# SO2 Analyzer Calibration by Dilution



DATE:	02-Dec-2021	PREVIOUS CALIBRATION DATE:	16-Nov-2021
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	0.999
CLIENT:	PRAMP	TEMPERATURE (°C):	23.3
LOCATION:	Reno	BAROMETRIC (mBar):	930
PURPOSE:	Routine	START TIME (MST):	10:24
PERFORMED BY:	Ferdinand Roy	END TIME (MST):	15:50

## ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	500 ppb
SERIAL #	1162460023	FLOW (mL/min)	398
INITIAL		FINAL	
BKG/OFFSET	2.99	BKG/OFFSET	2.99
COEF/SLOPE	0.993	COEF/SLOPE	0.996
Expected (reference) Value	203.8	Expected (reference) Value	205.2

## 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):	710	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:

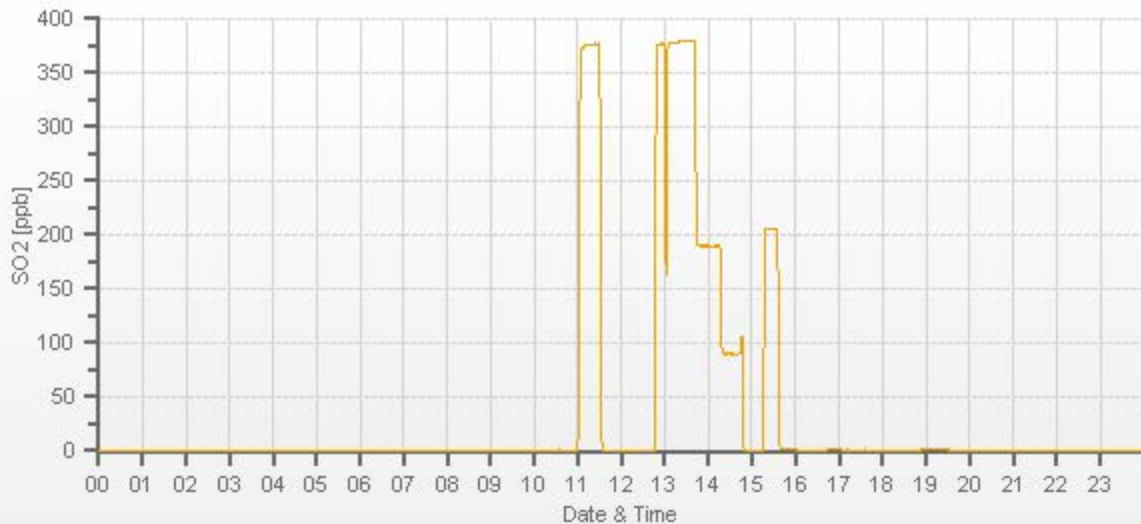
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
3999	<del>61.03</del>	3999	0.00	-0.1	0	<del>1.009</del>	<del>1.000</del>
3939	61.03	4000	379.88	376.3	380	1.009	1.000
3970	30.51	4000	189.88	n/a	189.8	n/a	1.000
3989	14.43	4004	89.76	n/a	89.6	n/a	1.002

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.0%

## COMMENTS:

Sample filter changed.  
Adjusted High point interrupted by Daily ZS - restarted.



# TRS Analyzer Calibration by Dilution



DATE:	02-Dec-2021	PREVIOUS CALIBRATION DATE:	04-Nov-2021
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	PRAMP	TEMPERATURE (°C):	25.7
LOCATION:	Reno	BAROMETRIC (mBar):	933
PURPOSE:	Removal/Shut-down	START TIME (MST):	12:11
PERFORMED BY:	Ferdinand Roy	END TIME (MST):	14:45

## ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	100 ppb
SERIAL #	1162460022	FLOW (mL/min)	406
INITIAL		FINAL	
BKG/OFFSET	2.99	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):	1100	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:

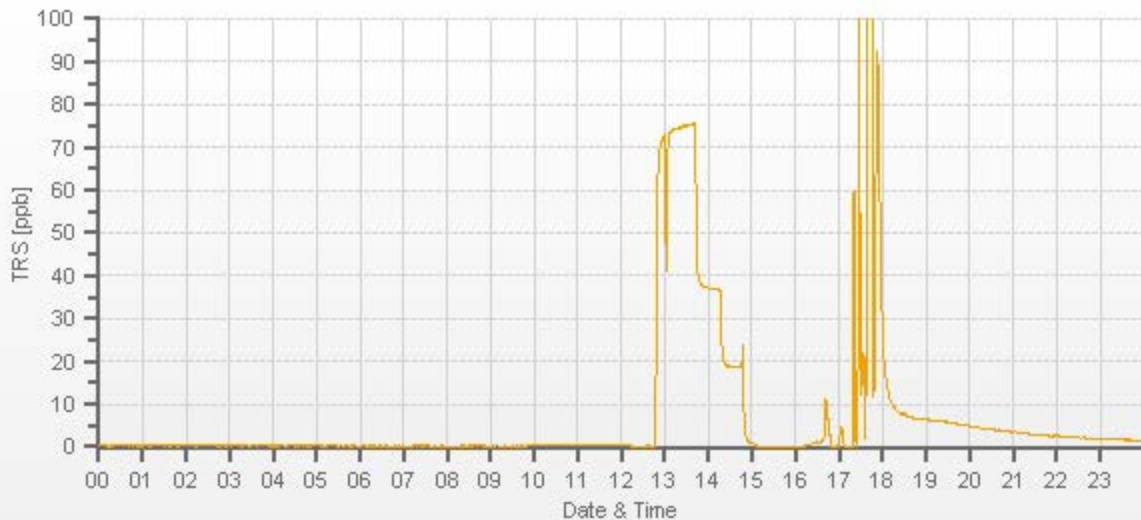
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
3996	<del>33.23</del>	3996	0.00	0.14	n/a	<del>1.044</del>	<del>n/a</del>
3967	33.23	4000	78.16	74.98	n/a	1.044	n/a
3984	16.16	4000	38.02	36.59	n/a	1.043	n/a
3996	8.09	4004	19.02	18.49	n/a	1.037	n/a

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.957	0.2%

## COMMENTS:

As-Found High point interrupted by Daily ZS - restarted.  
 Analyzer slow to stabilize for as-found. Shutdown to renew SO2 scrubber  
 TRS Converter CDNOVA CDN-101 #552



# TRS Analyzer Calibration by Dilution



DATE:	03-Dec-2021	PREVIOUS CALIBRATION DATE:	n/a
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	PRAMP	TEMPERATURE (°C):	23.1
LOCATION:	Reno	BAROMETRIC (mBar):	942
PURPOSE:	Install/Post-Repair	START TIME (MST):	09:28
PERFORMED BY:	Ferdinand Roy	END TIME (MST):	13:34

## ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	100 ppb
SERIAL #	1162460022	FLOW (mL/min)	411
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	3.45
COEF/SLOPE	n/a	COEF/SLOPE	0.983
Expected (reference) Value	n/a	Expected (reference) Value	39.84

## 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):	1080	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:	10:21	SO2 Conc (ppb)	380
END TIME:	10:39	Analyzer Response (ppb)	0.0

## CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
4000	<del>33.09</del>	4000	0.00	n/a	0	<del>n/a</del>	<del>0.999</del>
3967	33.09	4000	77.84	n/a	77.9	n/a	0.999
3985	16.17	4001	38.02	n/a	37.86	n/a	1.004
3992	8.10	4000	19.05	n/a	18.76	n/a	1.015

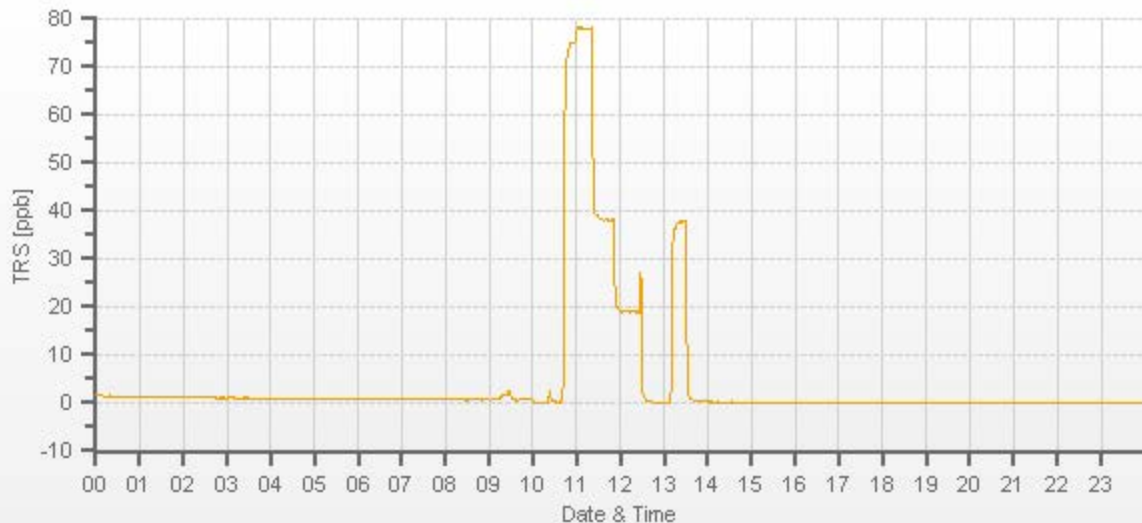
## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.002	-0.2%

## COMMENTS:

Sample filter changed.  
 Scrubber beads renewed. Post-Repair calibration - no issues.  
 TRS Converter CDNOVA CDN-101 #552





# TRS Analyzer Calibration by Dilution



DATE:	13-Dec-2021	PREVIOUS CALIBRATION DATE:	03-Dec-2021
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	0.999
CLIENT:	PRAMP	TEMPERATURE (°C):	22.0
LOCATION:	Reno	BAROMETRIC (mBar):	940
PURPOSE:	Repeat	START TIME (MST):	15:50
PERFORMED BY:	Ferdinand Roy	END TIME (MST):	21:31

## ANALYZER:

MAKE/MODEL	Thermo 43I-TLE	RANGE	100 ppb
SERIAL #	1162460022	FLOW (mL/min)	408
INITIAL		FINAL	
BKG/OFFSET	3.47	BKG/OFFSET	3.28
COEF/SLOPE	0.983	COEF/SLOPE	1
Expected (reference) Value	39.84	Expected (reference) Value	37.88

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	EnviroNics	MAKE:	Teledyne
MODEL:	2000	MODEL:	M701
ID:	1991	ID:	5004
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):	1000	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:	14:20	SO2 Conc (ppb)	380
END TIME:	14:38	Analyzer Response (ppb)	0.1

## CALIBRATION:

FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
4002	<del>33.24</del>	4002	0.00	-0.41	0	<del>1.028</del>	<del>1.000</del>
3970	33.24	4003	78.14	75.59	78.11	1.028	1.000
3985	16.19	4001	38.09	n/a	38.27	n/a	0.995
3995	8.10	4003	19.03	n/a	19.11	n/a	0.996

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.1%

## COMMENTS:

TRS Converter CDNOVA CDN-101#552. Repeat calibration - no issues.



# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	02-Dec-2021	PREVIOUS CALIBRATION DATE:	04-Nov-2021	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	23.3		Thermo 55i	1505664392	1122.5
LOCATION:	Reno	BAROMETRIC (mBar):	930	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Routine	START TIME (MST):	10:24	RANGE (ppm):	20	20	40
PERFORMED BY:	Ferdinand Roy	END TIME (MST):	14:28	PREVIOUS CF:	1.000	1.003	1.002

## 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 <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	591.0   200.0	HIGH EXPIRY:	n/a
ID:	17100415	ID:	850	CYLINDER (psi):	410	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 <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE	
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>	550.0
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>	1141.0

## EXPECTED (REFERENCE) VALUE:

INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	8.78	11.23	20.01		8.90	11.24	20.14

## CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
2999	<del>X</del>	2999	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>
2924	73.60	2998	14.51	13.50	28.01	14.46	13.68	28.14	14.50	13.49	27.99	1.003	0.987	0.995	1.001	1.001	1.001
2960	36.80	2997	7.26	6.75	14.01	n/a	n/a	n/a	7.21	6.80	14.03	n/a	n/a	n/a	1.006	0.993	0.999
2981	18.40	2999	3.63	3.37	7.00	n/a	n/a	n/a	3.65	3.50	7.16	n/a	n/a	n/a	0.993	0.964	0.978

## LINEAR REGRESSION ANALYSIS:

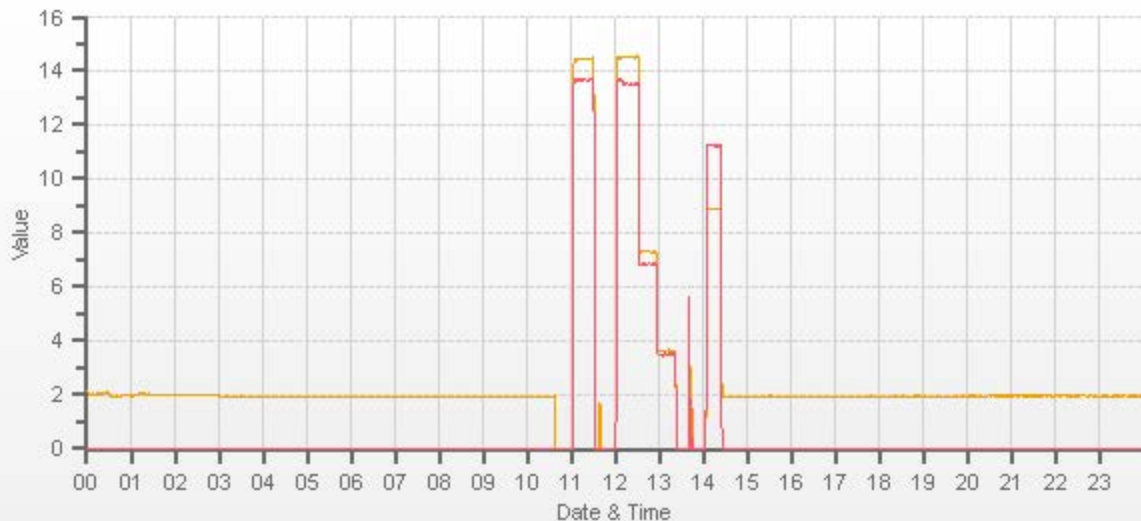
	CORRELATION	SLOPE	INTERCEPT
CH <sub>4</sub>	1.000	0.998	0.0%
NMHC	1.000	0.996	0.3%
THC	1.000	0.997	0.2%

## Comments:

Sample filter changed. Monthly calibration - no issues.

Use Zero Chrom?

No



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CH4 [ppm] NMHC [ppm]

# Meteorological System Checklist



Date:	December 2, 2021
Technician:	Ferdinand Roy
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:	November 4, 2021	Tip test = 12:28 - 12:44
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
<b>10</b>	1.00	0.00

### AMBIENT TEMPERATURE SENSOR CHECK

Previous check date:	November 4, 2021
Parameter:	Temperature @ 2 metres
Reference Thermometer ID:	F.S. 160348895 expires Sep 4, 2022
Reference Temperature (°C):	-1.7
Station - Ambient Temperature (°C):	-1.1
Temperature Difference (°C):	-0.6

### BAROMETRIC PRESSURE SENSOR CHECK

Previous check date:	November 4, 2021
Reference Barometer ID:	F.S. 10528, Expire: Feb 17, 2022
Reference Pressure - Units/Reading:	millibar 934
Station Pressure - Units/Reading:	millibar 936.4
Pressure Tolerance +/- 15% of error:	794 - 1074 -0.26%

### RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Previous check date:	November 4, 2021
Reference Hygrometer ID:	F.S. 160348895 expires Sep 4, 2022
Reference Hygrometer % RH- Reading:	47.27
Station Hygrometer % RH- Reading:	41.80
RH Tolerance +/- 15% of difference:	40.18 - 54.36 11.6%

### ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Previous check date:	November 4, 2021	Previous check date:	November 4, 2021
Wind Speed Observed (kph):	10~20	Wind Direction Observed:	W
Wind speed on Data Logger (kph):	11.1	Wind Direction on Data Logger:	W
		Wind Direction Pass/Fail?:	Pass

Comments

No issues.



# Meteorological Sensor Audit/Calibration

## Location Information

Company:	PRAMP	Performed By:	Limin Li
Audit Location:	Reno	Reviewed By:	
Audit Date:	July 5, 2021	Start/End Time (mst):	12:46/13:50
Calibration Purpose:	routine annual	Weather Conditions:	Mainly sunny

## Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1
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

# DECEMBER 2021

## Ambient Air Monitoring Calibration Report

### - AQHI - GRIMSHAW STATION-

### CAL-PRAMP-202112-01689

**Operation and Maintenance:**

Bureau Veritas Canada

**Data Validation and Report:**

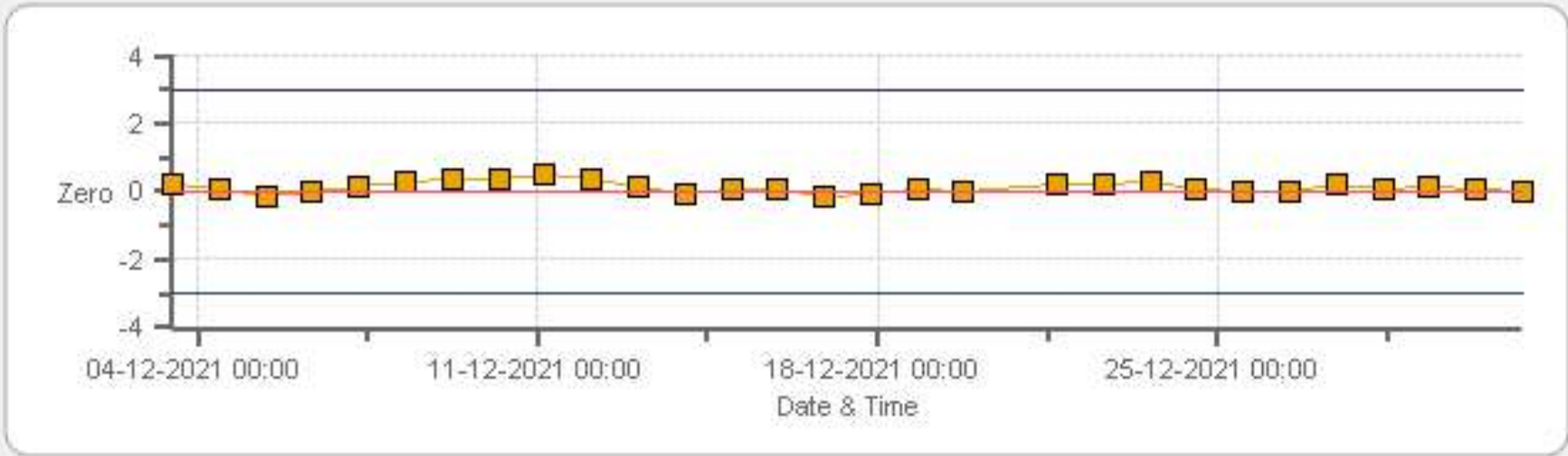
Bureau Veritas Canada

January 14, 2022



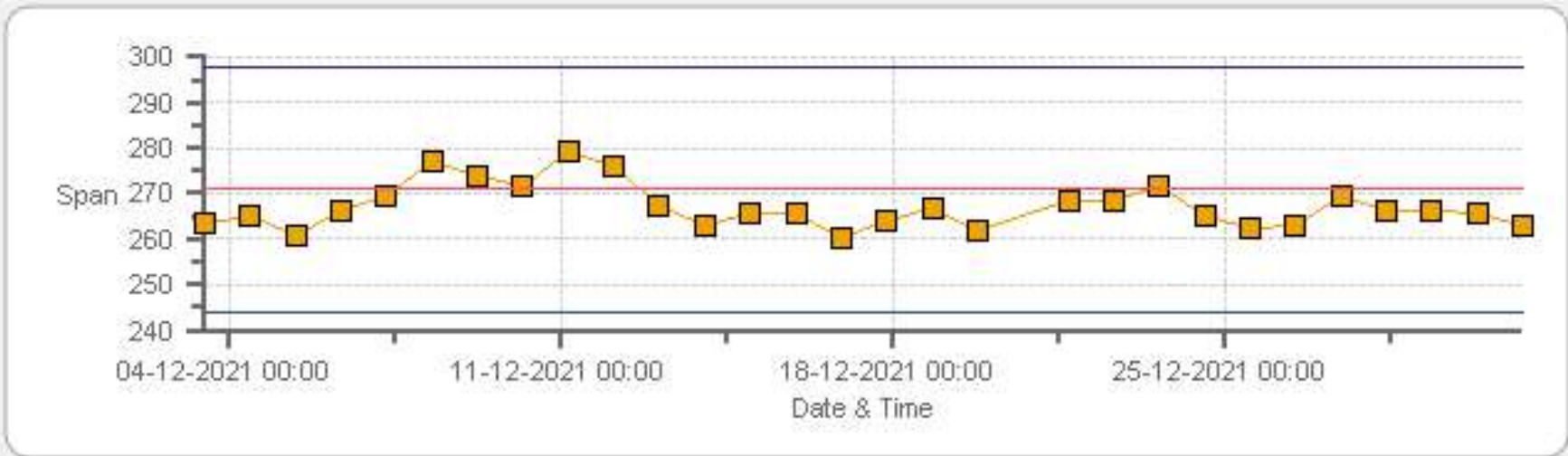
# DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: AQHI Grimshaw Periodically: 03-12-2021 00:00-31-12-2021 23:59 Type: SpanAndZero - Zero



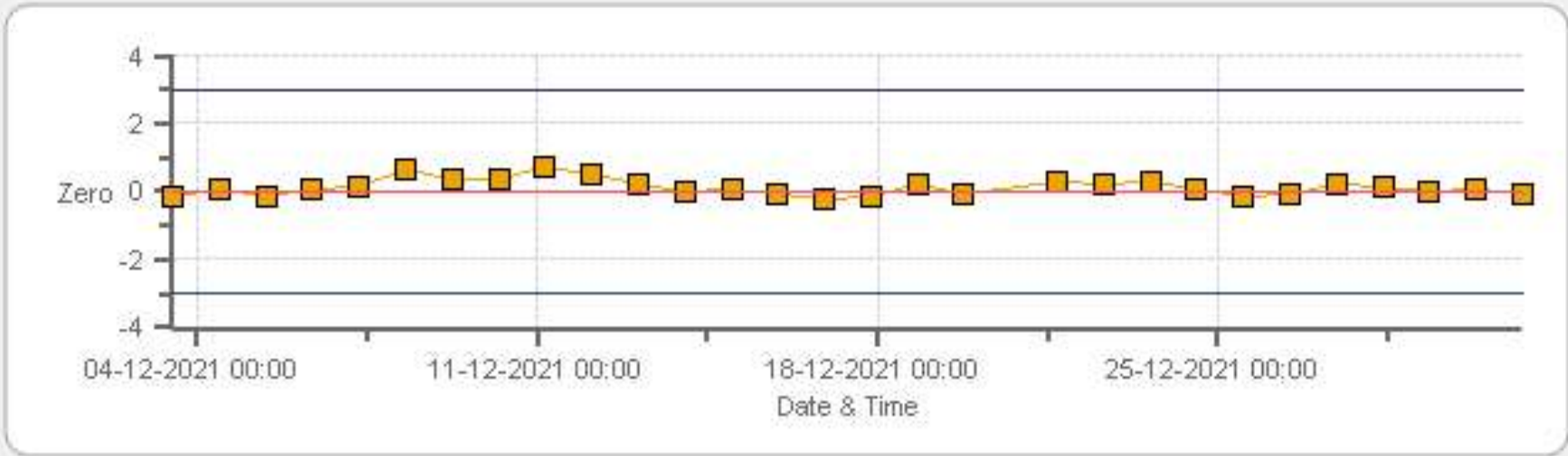
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: AQHI Grimshaw Periodically: 03-12-2021 00:00-31-12-2021 23:59 Type: SpanAndZero - Span



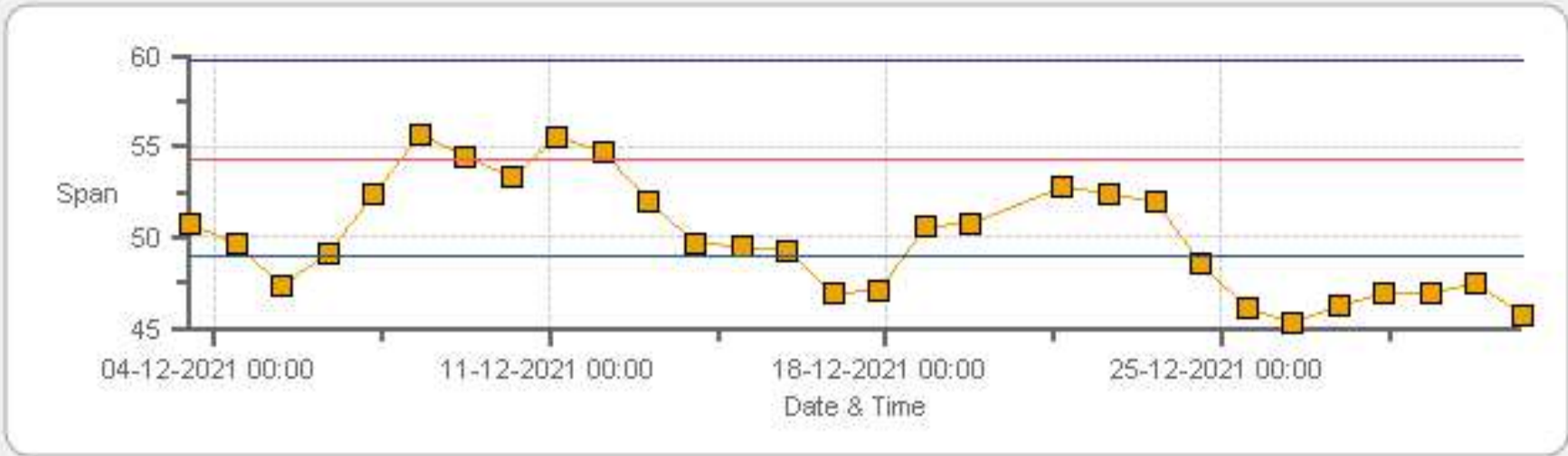
Span Span Ref Span Low Span High

TRS[ppb] Calibration: AQHI Grimshaw Periodically: 03-12-2021 00:00-31-12-2021 23:59 Type: SpanAndZero - Zero



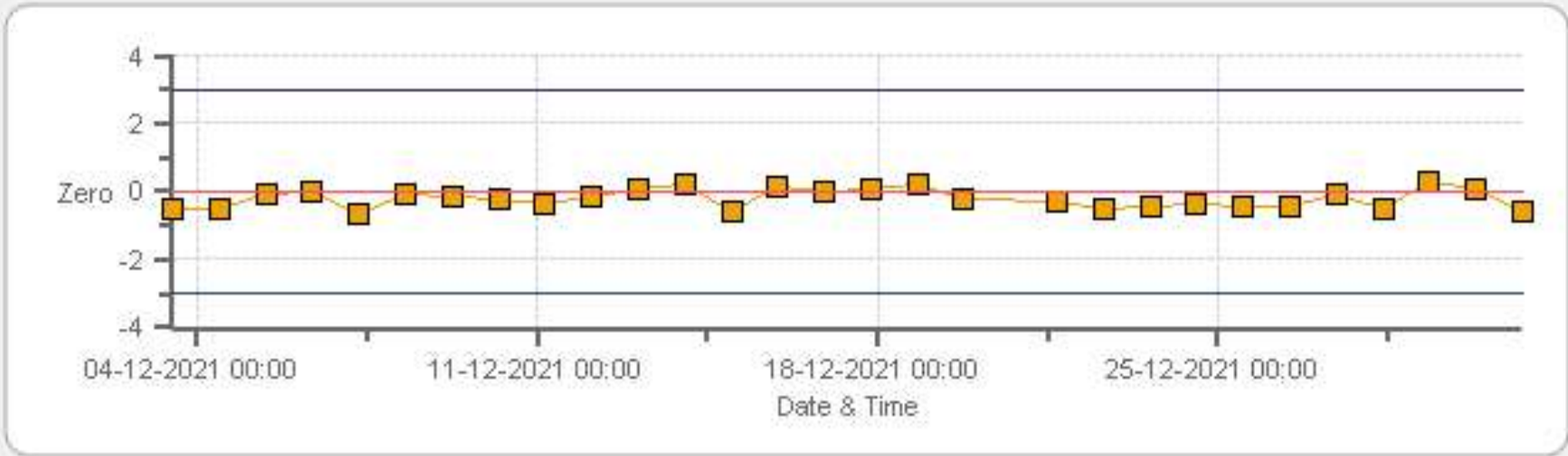
Zero Zero Ref Zero Low Zero High

TRS[ppb] Calibration: AQHI Grimshaw Periodically: 03-12-2021 00:00-31-12-2021 23:59 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NOX[ppb] Calibration: AQHI Grimshaw Periodically: 03-12-2021 00:00-31-12-2021 23:59 Type: SpanAndZero - Zero



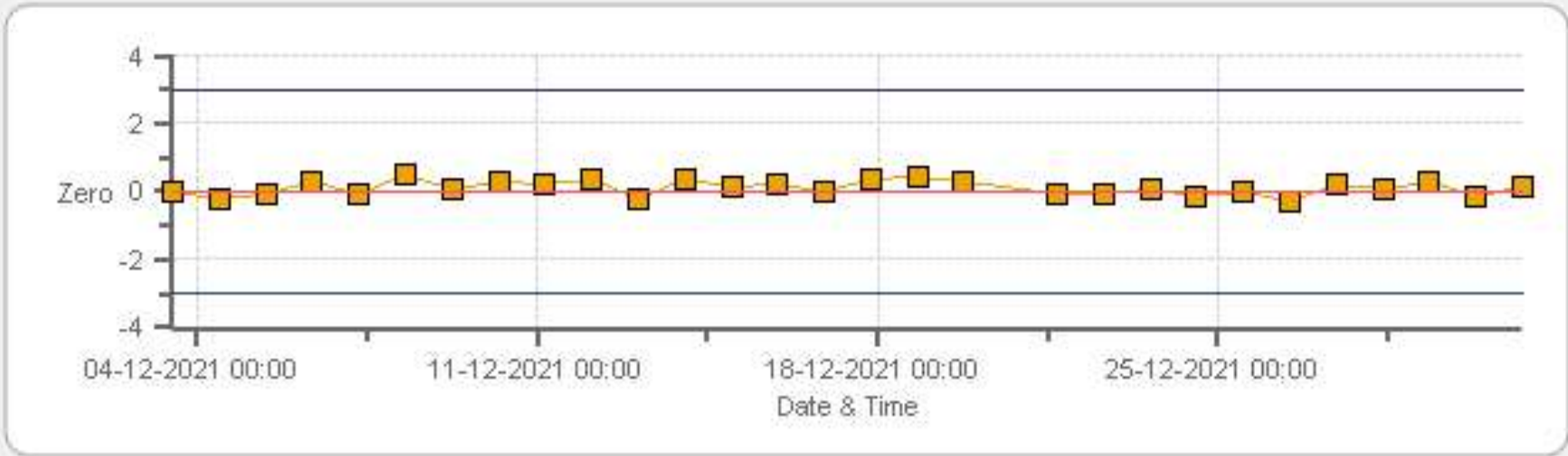
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: AQHI Grimshaw Periodically: 03-12-2021 00:00-31-12-2021 23:59 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NO2[ppb] Calibration: AQHI Grimshaw Periodically: 03-12-2021 00:00-31-12-2021 23:59 Type: SpanAndZero - Zero



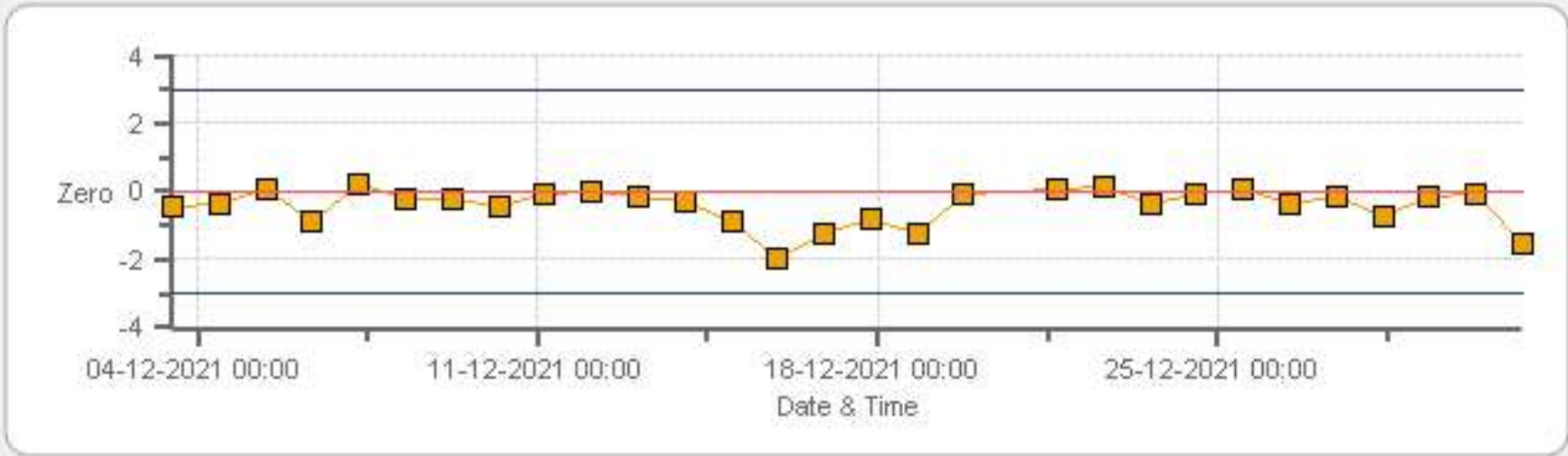
Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: AQHI Grimshaw Periodically: 03-12-2021 00:00-31-12-2021 23:59 Type: SpanAndZero - Span



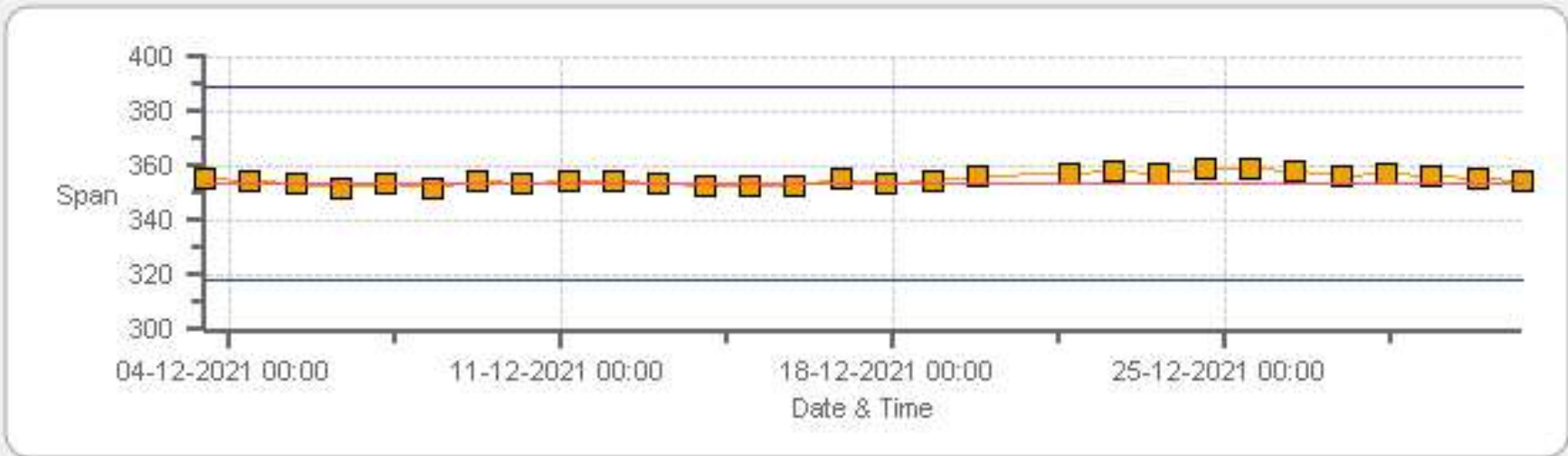
Span SpanRef Span Low Span High

O3[ppb] Calibration: AQHI Grimshaw Periodically: 03-12-2021 00:00-31-12-2021 23:59 Type: SpanAndZero - Zero



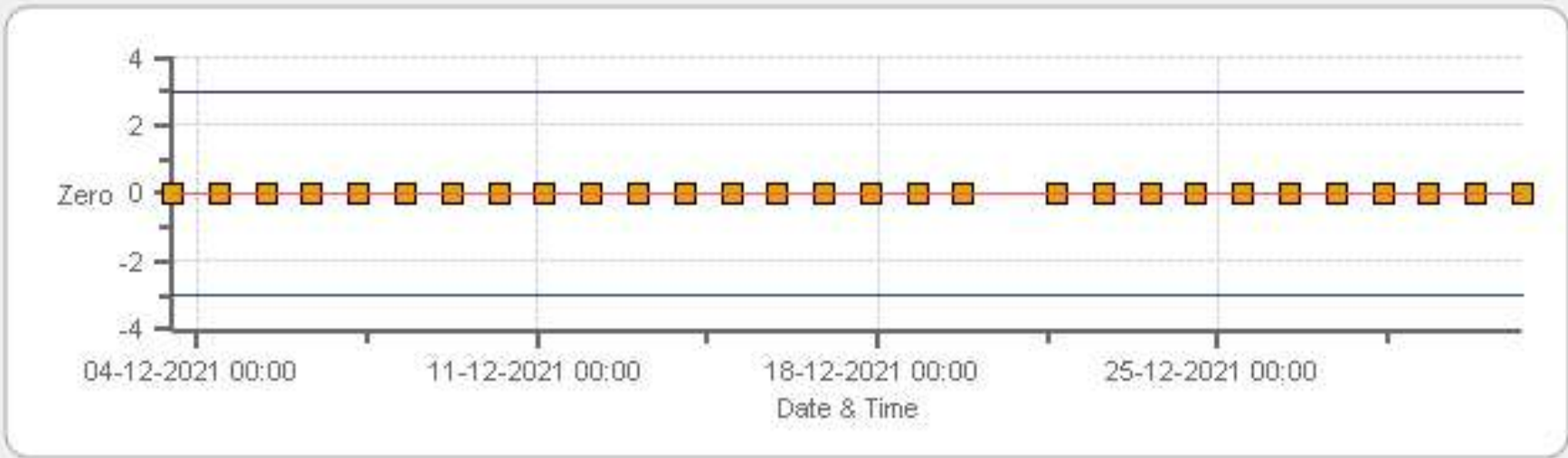
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: AQHI Grimshaw Periodically: 03-12-2021 00:00-31-12-2021 23:59 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

THC55[ppm] Calibration: AQHI Grimshaw Periodically: 03-12-2021 00:00-31-12-2021 23:59 Type: SpanAndZero - Zero



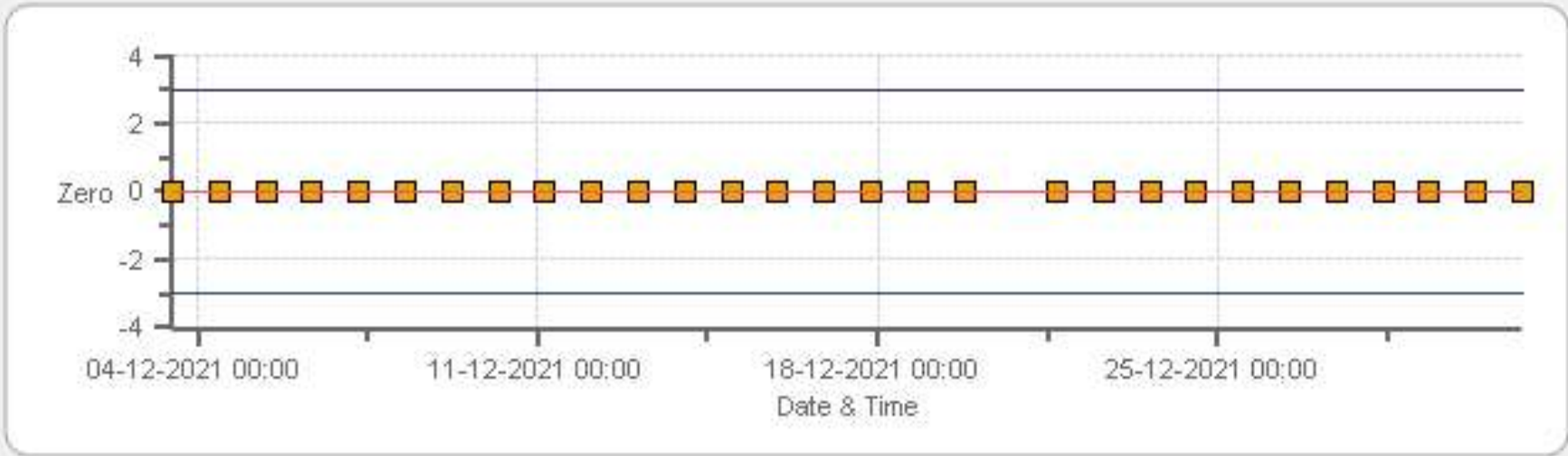
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: AQHI Grimshaw Periodically: 03-12-2021 00:00-31-12-2021 23:59 Type: SpanAndZero - Span



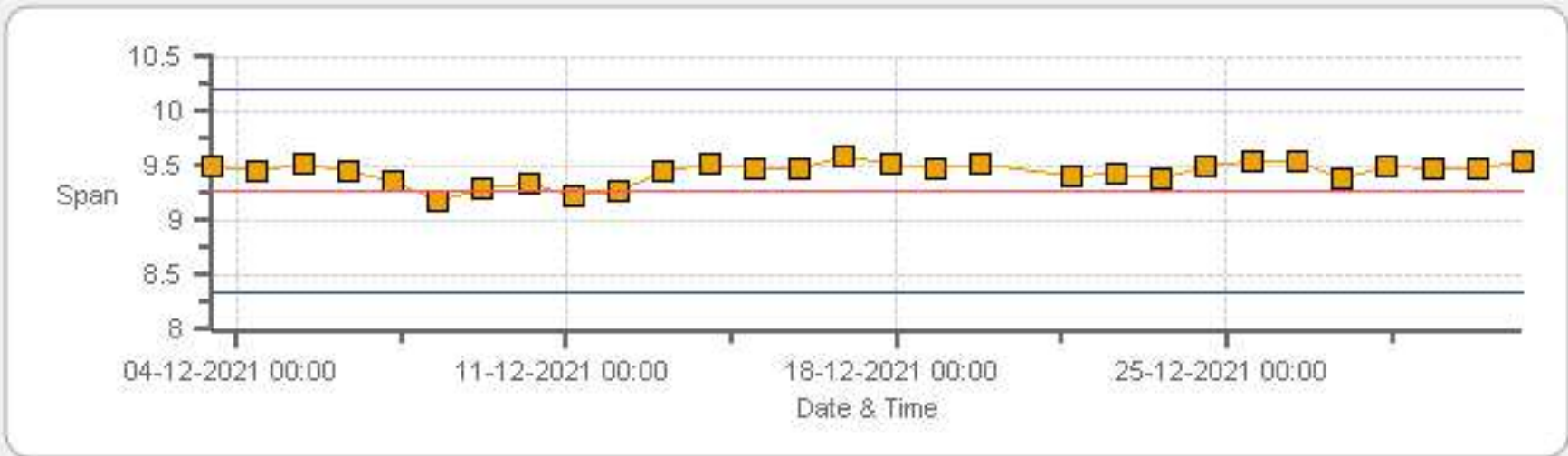
Span Span Ref Span Low Span High

CH4[ppm] Calibration: AQHI Grimshaw Periodically: 03-12-2021 00:00-31-12-2021 23:59 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

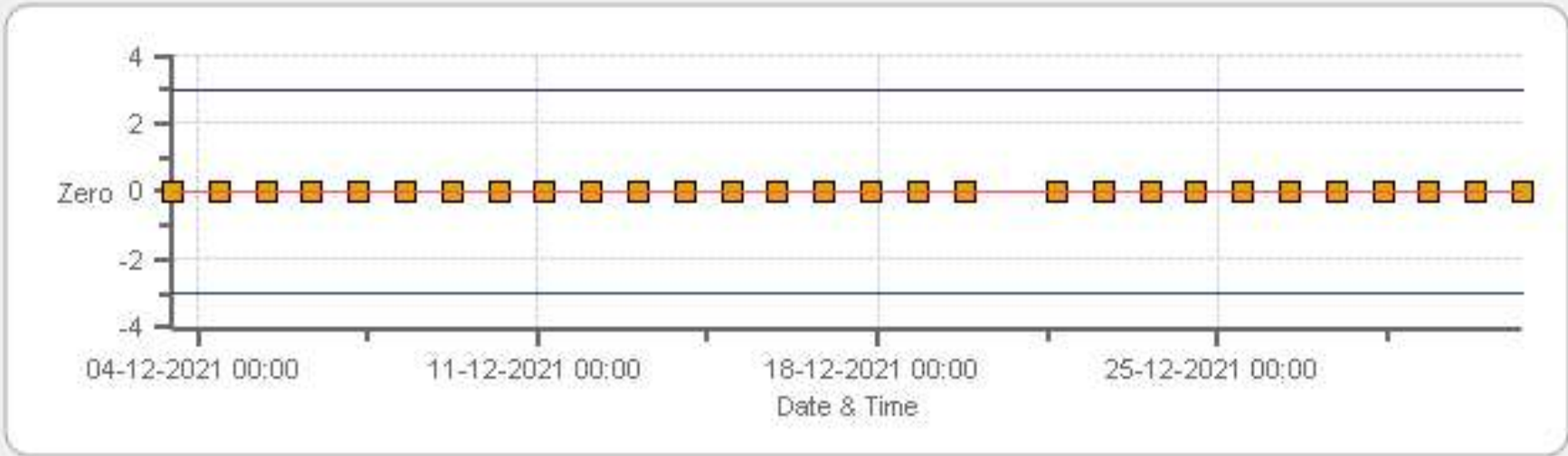
CH4[ppm] Calibration: AQHI Grimshaw Periodically: 03-12-2021 00:00-31-12-2021 23:59 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

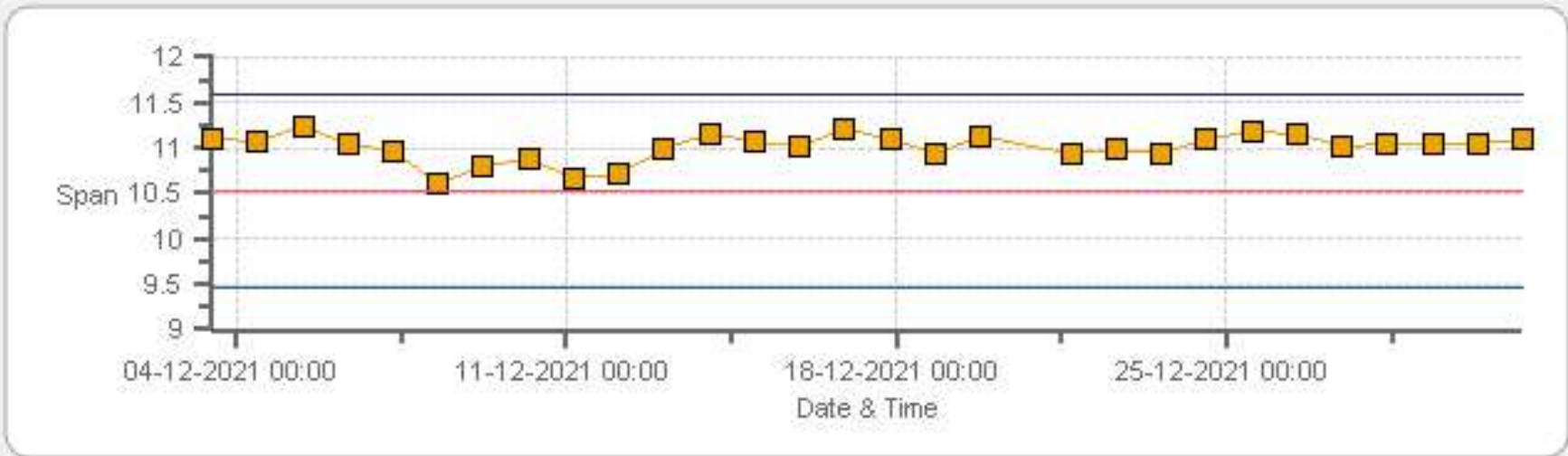


NMHC[ppm] Calibration: AQHI Grimshaw Periodically: 03-12-2021 00:00-31-12-2021 23:59 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: AQHI Grimshaw Periodically: 03-12-2021 00:00-31-12-2021 23:59 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

# MULTI-POINT CALIBRATION RECORDS

# SO2 Analyzer Calibration by Dilution



DATE:	01-Dec-2021	PREVIOUS CALIBRATION DATE:	n/a
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	PRAMP	TEMPERATURE (°C):	21.8
LOCATION:	Grimshaw	BAROMETRIC (mBar):	930
PURPOSE:	Install/Post-Repair	START TIME (MST):	09:16
PERFORMED BY:	Ferdinand Roy	END TIME (MST):	12:50

## ANALYZER:

MAKE/MODEL	Teledyne T100	RANGE	500 ppb
SERIAL #	722	FLOW (mL/min)	523
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	23.5
COEF/SLOPE	n/a	COEF/SLOPE	0.937
Expected (reference) Value	n/a	Expected (reference) Value	270.9

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	EnviroNics	MAKE:	API
MODEL:	2000	MODEL:	701
ID:	1991	ID:	850
MFC CALIBRATION DATE:	04-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):	710	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:

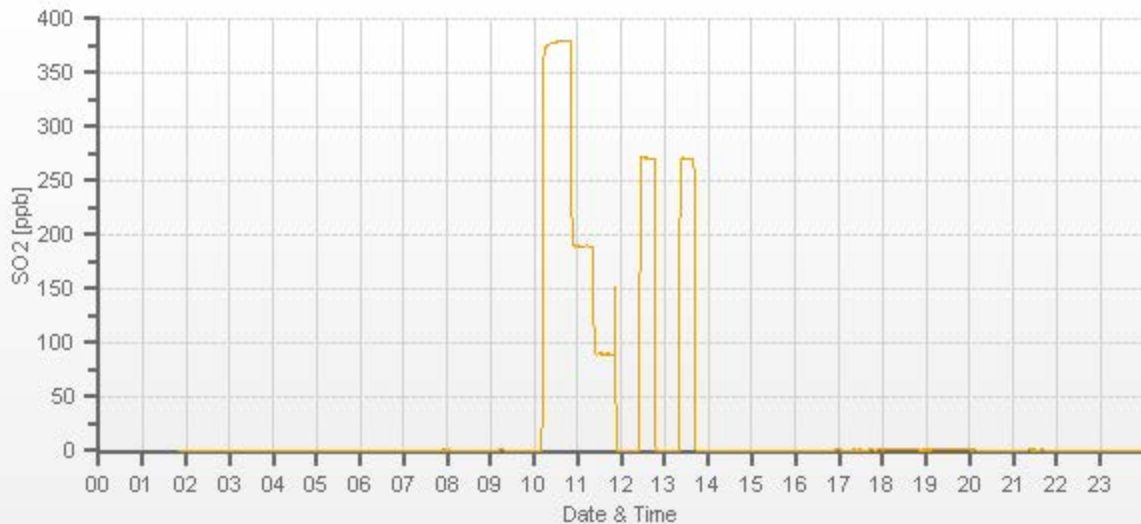
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
3997	<del>        </del>	3997	0.00	n/a	0	<del>        </del>	<del>        </del>
3938	61.02	3999	379.94	n/a	379.9	n/a	1.000
3968	30.49	3999	189.83	n/a	189.1	n/a	1.004
3983	14.44	3997	89.93	n/a	89.4	n/a	1.006

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	-0.1%

## COMMENTS:

Sample filter changed. Install calibration - no issues



# TRS Analyzer Calibration by Dilution



DATE:	01-Dec-2021	PREVIOUS CALIBRATION DATE:	n/a
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	PRAMP	TEMPERATURE (°C):	21.8
LOCATION:	Grimshaw	BAROMETRIC (mBar):	930
PURPOSE:	Install/Post-Repair	START TIME (MST):	09:16
PERFORMED BY:	Ferdinand Roy	END TIME (MST):	12:50

## ANALYZER:

MAKE/MODEL	Teledyne T100U	RANGE	100 ppb
SERIAL #	132	FLOW (mL/min)	496
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	25.5
COEF/SLOPE	n/a	COEF/SLOPE	1.081
Expected (reference) Value	n/a	Expected (reference) Value	54.32

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	EnviroNics	MAKE:	API
MODEL:	2000	MODEL:	701
ID:	1991	ID:	850
MFC CALIBRATION DATE:	04-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):	1090	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:

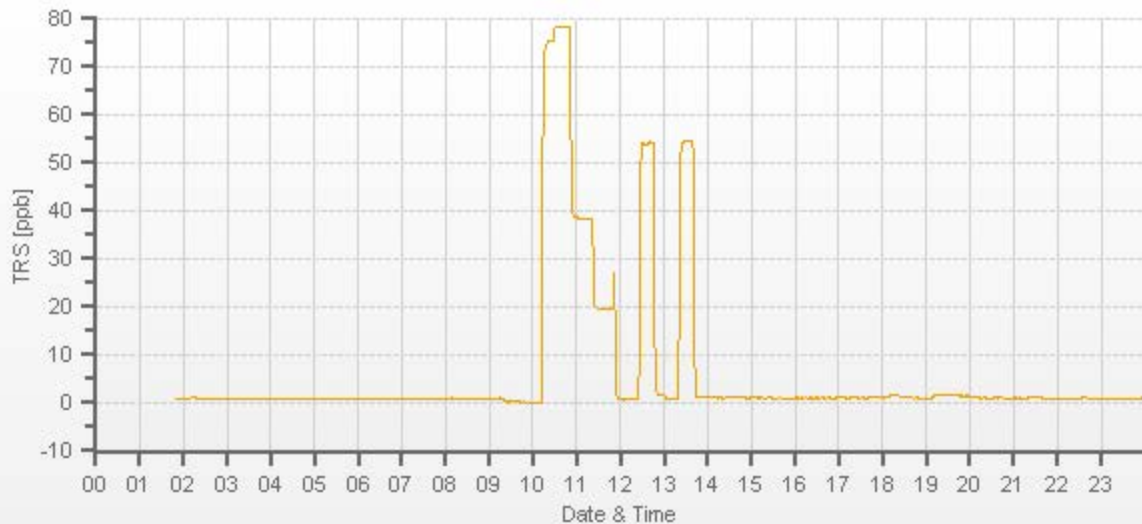
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
3997	<del>33.25</del>	3997	0.00	n/a	0	<del>n/a</del>	<del>1.000</del>
3966	33.25	3999	78.24	n/a	78.25	n/a	1.000
3983	16.17	3999	38.04	n/a	38.3	n/a	0.993
3989	8.10	3997	19.06	n/a	19.78	n/a	0.964

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.997	0.3%

## COMMENTS:

TRS Converter CD-NOVA CDN # 534. Sample filter changed. Install calibration - no issues



# NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	01-Dec-2021	PREVIOUS CALIBRATION DATE:	n/a	MAKE/MODEL:	Teledyne T200	PREVIOUS CF.	
CLIENT:	PRAMP	TEMPERATURE (°C):	21.8	SERIAL #:	837	NOx	n/a
LOCATION:	Grimshaw	BAROMETRIC (mBar):	930	FLOW (mL/min)	439	NO	n/a
PURPOSE:	Install/Post-Repair	START TIME (MST):	09:15	RANGE (ppb)	500	NO2	n/a
PERFORMED BY:	Ferdinand Roy	END TIME (MST):	16:09	GPT FOR O3?		Yes	

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	API	CYLINDER ID:	EY0002493	HIGH ID:	n/a
MODEL:	2010	MODEL:	701	NO/NOx (PPM):	50.9   51.1	HIGH EXPIRY:	n/a
ID:	17100415	ID:	850	CYLINDER (psi):	480	LOW ID:	n/a
MFC CALIBRATION DATE:	27-Sep-2021	OXIDIZER ID:	n/a	EXPIRY DATE	13-Nov-2028	LOW EXPIRY:	n/a

CALIBRATION SETTINGS:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	n/a	n/a	n/a	BKG/OFFSET:	0.5	0.3	n/a
SLOPE/COEF/CE:	n/a	n/a	n/a	SLOPE/COEF/CE:	1.13	1.115	0.999

EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	n/a	n/a	n/a		335.0	2.5	332.5

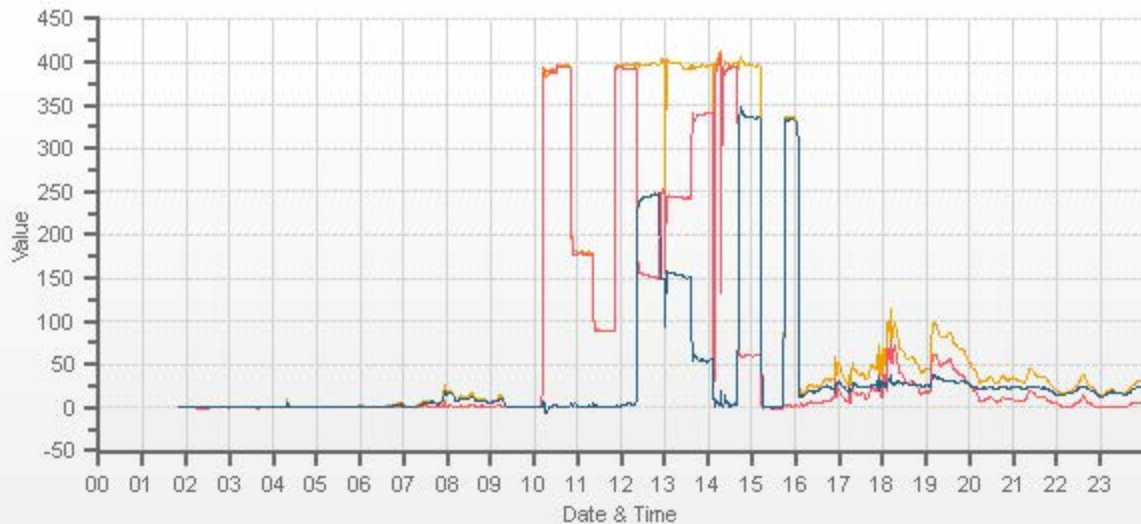
CALIBRATION PARAMETERS:				
POINT	NO TARGET (PPB)	NO2 TARGET (PPB)	NO2 RANGE	O3 POINT
HIGH	395	250	240-275	n/a
MID	180	154	150-157	Mid
LOW	90	54	50-58	Low
EXTRA 1	n/a	340	300-370	High

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
4997	<del>38.80</del>	4997	0.0	0.0	0.0	n/a	n/a	n/a	0.0	0.0	0.0	<del>n/a</del>	<del>n/a</del>	<del>n/a</del>	<del>1.000</del>	<del>1.000</del>	<del>n/a</del>
4958	38.80	4997	395.2	396.8	1.6	n/a	n/a	n/a	395.2	396.8	1.6	n/a	n/a	<del>n/a</del>	1.000	1.000	<del>n/a</del>
4980	17.70	4998	180.3	181.0	0.7	n/a	n/a	n/a	178.2	180.1	1.9	n/a	n/a	<del>n/a</del>	1.012	1.005	<del>n/a</del>
4988	8.80	4997	89.6	90.0	0.4	n/a	n/a	n/a	89.2	89.9	0.7	n/a	n/a	<del>n/a</del>	1.005	1.001	<del>n/a</del>

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	4997	0	392.9	397.1	4.1	<del>n/a</del>	<del>n/a</del>	<del>n/a</del>	<del>n/a</del>
AS-FOUND HIGH	38.80	4997	250	151.0	398.3	247.3	241.9	243.2	0.995	100.54%
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MID	38.80	4997	150	242.1	393.0	150.8	150.8	146.7	1.028	97.28%
LOW	38.80	4997	50	341.1	396.5	55.4	51.8	51.3	1.010	99.03%
NO2 adjustment not required.									AVERAGE:	98.95%

LINEAR REGRESSION ANALYSIS:				COMMENTS:
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	1.000	-0.13%	
NOx	1.000	1.000	-0.05%	
NO2	1.000	1.009	-0.48%	

Sample filter changed.  
GPT mid-point interrupted by daily zero/span.  
14:08-14:18 Operator error - Discard data.  
Extra O3 SETPOINT = 340; NO DROP/O3 = 332.9



CAL-PRAMP-202112-01689



# Ozone Calibration by Direct GPT



DATE:	01-Dec-2021	PREVIOUS CALIBRATION DATE:	n/a
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	PRAMP	TEMPERATURE (°C):	24.6
LOCATION:	Grimshaw	BAROMETRIC (mBar):	932
PURPOSE:	Install/Post-Repair	START TIME (MST):	15:27
PERFORMED BY:	Ferdinand Roy	END TIME (MST):	18:50

## ANALYZER:

MAKE/MODEL	API 400A	RANGE	500 ppb
SERIAL #	445	FLOW (mL/min)	810
INITIAL		FINAL	
BKG/OFFSET	n/a	BKG/OFFSET	-1
COEF/SLOPE	n/a	COEF/SLOPE	0.974
Expected (reference) Value	n/a	Expected (reference) Value	353.8

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	API
MODEL:	2010	MODEL:	701
ID:	17100415	ID:	850
MFC CALIBRATION DATE:	27-Sep-2021	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Direct GPT	
GPT DATE:	01-Dec-2021	GPT END TIME:	15:12

## CALIBRATION PARAMETERS:

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

## CALIBRATION:

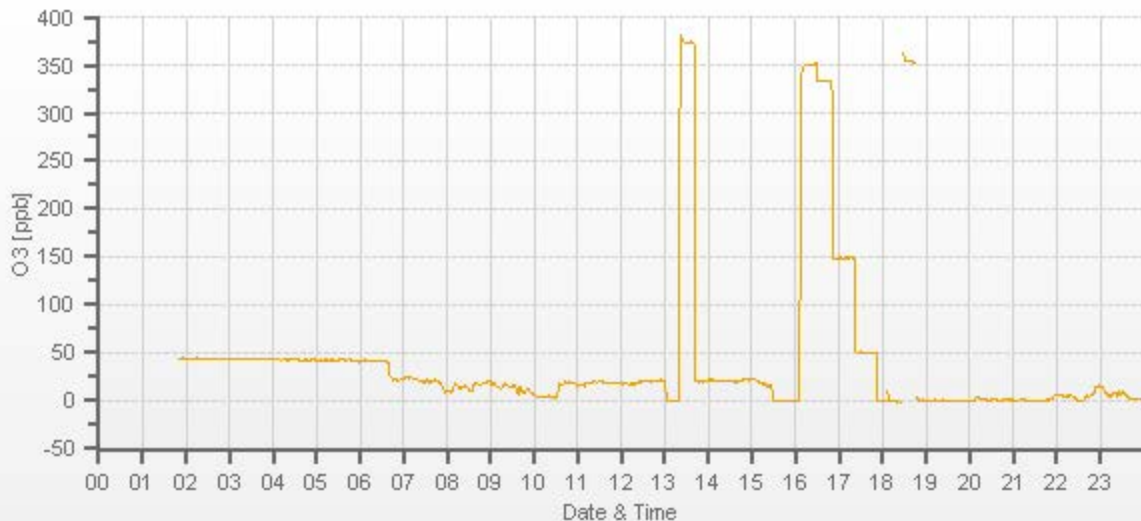
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
4997	<del>          </del>	4997	0.0	n/a	0.0	<del>          </del>	<del>          </del>
4997	<del>          </del>	4997	332.9	n/a	332.9	n/a	1.000
4997	<del>          </del>	4997	150.8	n/a	149.0	n/a	1.012
4997	<del>          </del>	4997	51.8	n/a	50.7	n/a	1.022

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.001	-0.2%

## COMMENTS:

Sample filter changed. Install calibration - no issues.



# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	01-Dec-2021	PREVIOUS CALIBRATION DATE:	n/a	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	24.4		Thermo 55i	1191032505	1144.7
LOCATION:	Grimshaw	BAROMETRIC (mBar):	932	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Install/Post-Repair	START TIME (MST):	12:57	RANGE (ppm):	20	20	40
PERFORMED BY:	Ferdinand Roy	END TIME (MST):	16:13	PREVIOUS CF:	n/a	n/a	n/a

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Enviro-nics	MAKE:	API	CYLINDER ID:	LL84567	HIGH ID:	n/a
MODEL:	2000	MODEL:	701	CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	591.0   200.0	HIGH EXPIRY:	n/a
ID:	1991	ID:	850	CYLINDER (psi):	450	LOW ID:	n/a
MFC CALIBRATION DATE:	24-Sep-2021	OXIDIZER ID:	00941	EXPIRY DATE:	17-Jul-2027	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

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

## EXPECTED (REFERENCE) VALUE:

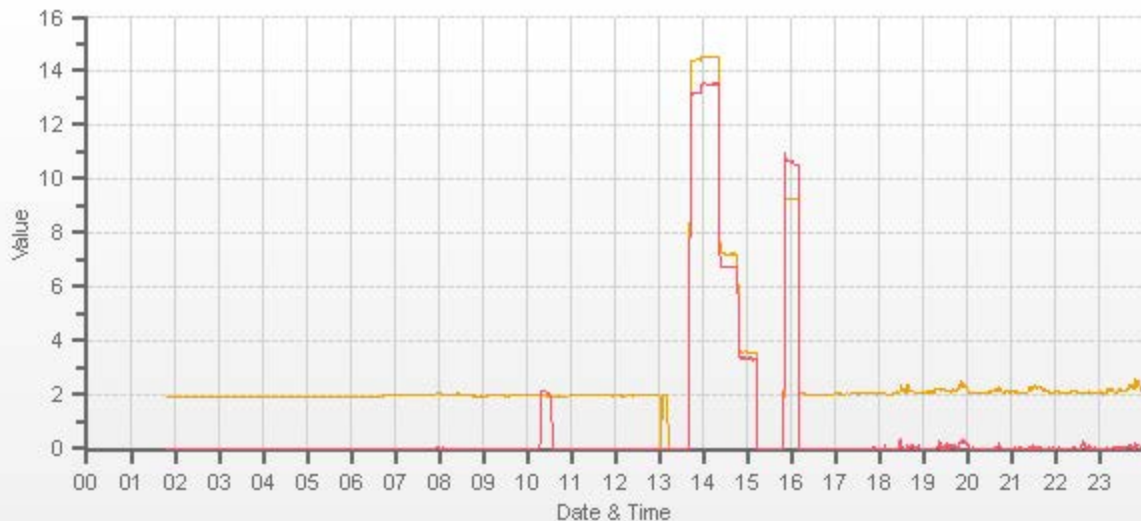
INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	n/a	n/a	n/a		n/a	9.28	10.53

## CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3002	<del>X</del>	3002	0.00	0.00	0.00	n/a	n/a	n/a	0.00	0.00	0.00	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>
2927	73.57	3000	14.49	13.49	27.98	n/a	n/a	n/a	14.51	13.51	28.02	n/a	n/a	n/a	0.999	0.998	0.998
2964	36.77	3001	7.24	6.74	13.98	n/a	n/a	n/a	7.22	6.75	13.97	n/a	n/a	n/a	1.003	0.998	1.001
2984	18.37	3003	3.62	3.36	6.98	n/a	n/a	n/a	3.58	3.33	6.90	n/a	n/a	n/a	1.010	1.010	1.012

## LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments:
CH <sub>4</sub>	1.000	1.002	-0.1%	Sample filter changed. Install calibration - no issues
NMHC	1.000	1.003	-0.1%	
THC	1.000	1.003	-0.1%	
				Use Zero Chrom? Yes



CAL-PRAMP-202112-01689

# Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	08-Dec-2021	PREVIOUS CALIBRATION DATE:	01-Dec-2021	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	21.4		Thermo 55i	1191032505	1137
LOCATION:	Grimshaw	BAROMETRIC (mBar):	920	PARAMETER:	CH4	NMHC	THC
PURPOSE	As-Found	START TIME (MST):	16:11	RANGE (ppm):	20	20	40
PERFORMED BY:	Limin Li	END TIME (MST):	17:22	PREVIOUS CF:	0.999	0.998	0.998

## CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	API	CYLINDER ID:	LL70331	HIGH ID:	n/a
MODEL:	2010	MODEL:	701	CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> (ppm):	909.0   308.0	HIGH EXPIRY:	n/a
ID:	17200415	ID:	1105	CYLINDER (psi):	700	LOW ID:	n/a
MFC CALIBRATION DATE:	20-Sep-2021	OXIDIZER ID:	111	EXPIRY DATE	21-Jan-2028	LOW EXPIRY:	n/a

## CALIBRATION PARAMETERS:

POINT (CH <sub>4</sub> /NMHC)	HIGH	MID	LOW	CH <sub>4</sub> EQUIVILANCE	
TARGET	14	7	3.5	C <sub>3</sub> H <sub>8</sub> as CH <sub>4</sub>	847.0
RANGE	12 - 16	6 - 8	2 - 4	THC as CH <sub>4</sub>	1756.0

## EXPECTED (REFERENCE) VALUE:

INITIAL	CH <sub>4</sub>	NMHC	THC	FINAL	CH <sub>4</sub>	NMHC	THC
	9.28	10.53	19.81		9.28	10.53	19.81

## CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC	CH <sub>4</sub>	NMHC	THC
3500	<del>55.80</del>	3500	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a	<del>0.989</del>	<del>1.035</del>	<del>1.010</del>	<del>n/a</del>	<del>n/a</del>	<del>n/a</del>
3444	55.80	3500	14.49	13.50	28.00	14.66	13.05	27.71	n/a	n/a	n/a	0.989	1.035	1.010	n/a	n/a	n/a
3472	27.90	3500	7.25	6.75	14.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
3486	14.00	3500	3.64	3.39	7.02	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:

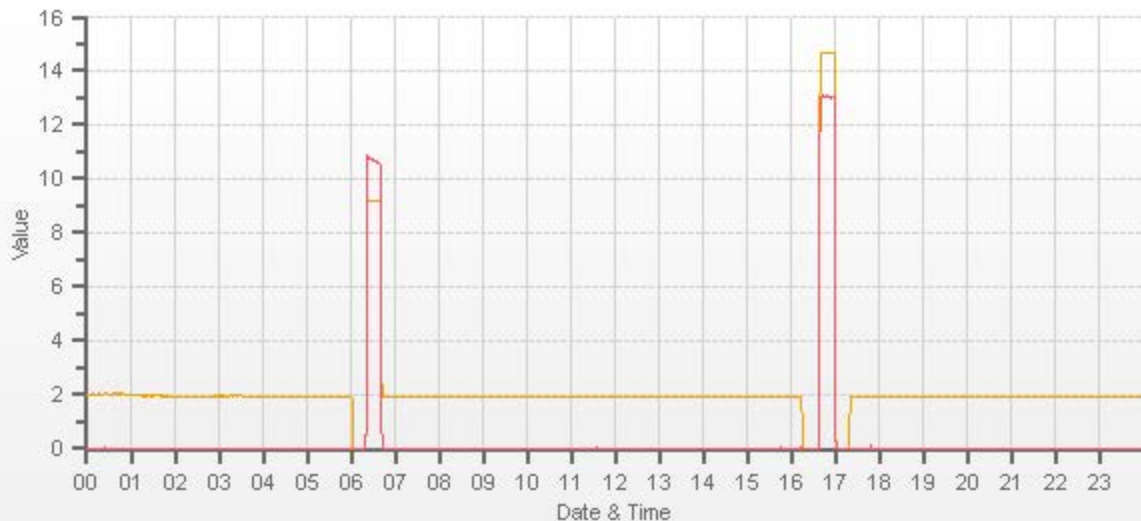
	CORRELATION	SLOPE	INTERCEPT
CH <sub>4</sub>	n/a	n/a	n/a
NMHC	n/a	n/a	n/a
THC	n/a	n/a	n/a

## Comments:

As found due to daily NMHC span drift.

Use Zero Chrom?

Yes



CAL-PRAMP-202112-01689



# Teledyne T640 Audit/Calibration

<b>Date/Previous Audit Date:</b>	December 1, 2021	n/a	<b>Weather Conditions:</b>	Mainly clear	
<b>Company:</b>	PRAMP		<b>Start Time (mst):</b>	13:16	
<b>Station:</b>	Cadotte Lake		<b>End Time (mst):</b>	15:03	
<b>Parameter:</b>	PM 2.5	<b>Performed By/Reviewer:</b>	Ferdinand Roy	Chris Wesson	
<b>Instrument Data:</b>					
<b>Make/Model:</b>	Teledyne T640		<b>Serial Number:</b>	318	
<b>Owner:</b>	PRAMP		<b>Alarms (detail in comments):</b>	No	
<b>Reference Standards/I.D./Expiry Date:</b>					
<b>Flow Standard:</b> Maxxam ID #3 expires June 29, 2022		<b>Temperature:</b> F.S. 160348895 expires Sep 4, 2022			
<b>Digital Manometer:</b> Dwyer 475 Mark III id# 2 expires Feb 17, 2022		<b>Pressure:</b> F.S. 10528 expires Feb 17, 2022			
<b>DIAGNOSTICS:</b>					
Ambient Pressure (mmHg)	699.3	Ambient Temp (°C)	-7.5	ASC Heater Duty (%)	0.0
Box Temp (°C)	27.1	Current PMT HV (V)	1542	LED Temp (°C)	35.30
P3 Value	45	PMT Setting (V)	1547	Pump PWM (%)	42
Sample Flow (L/min)	4.97	Sample RH (%RH)	7.6	Sample Temp (°C)	24.8
<b>Item:</b>	<b>As-found</b>		<b>As-left</b>		<b>Tolerance</b>
	<b>Reference</b>	<b>T640x</b>	<b>Reference</b>	<b>T640x</b>	
Zero Test (Leak Check)	PM10	0.0	0	0.0	0.0 to 0.2
	PM2.5	0.0	0	0.0	
Ambient Pressure (mmHg)	699.8	699.6	699.8074	699.6	+/- 10 mm Hg
Ambient Temperature (°C)	-8.75	-7	n/a		+/- 2°C
Sample Flow (L/min)	4.91	5.01	4.96	5	+/-5% of T640x (e.g., 4.75 – 5.25 lpm)
<b>Additional Monthly Maintenance :</b>					<b>Completed</b>
				Inlet cleaned?	Yes
				Sample tubing inspected (inner and outer)?	Yes
<b>Comments:</b>					
No issues.					

# Meteorological System Checklist



Date:	December 1, 2021
Technician:	Ferdinand Roy
Station:	PRAMP Cadotte Lake

Unit:	Make:	Model:	Serial #:
Temperature Sensor:	Vaisala	HMP155	N2910506
Barometric Pressure Sensor:	Met One	92	A2397
Relative Humidity Sensor:	Vaisala	HMP155	N2910506
Anemometer:	RM Young	05305AQ	174801

### AMBIENT TEMPERATURE SENSOR CHECK

Previous check date:	n/a
Parameter:	Temperature @ 2 metres
Reference Thermometer ID:	F.S. 160348895 expires Sep 4, 2022
Reference Temperature (°C):	-9.8
Station - Ambient Temperature (°C):	-9.0
Temperature Difference (°C):	-0.8

### BAROMETRIC PRESSURE SENSOR CHECK

Previous check date:	n/a
Reference Barometer ID:	FS 10528 February 17, 2022
Reference Pressure - Units/Reading:	millibar 932
Station Pressure - Units/Reading:	millibar 932.8
Pressure Tolerance +/- 15% of error:	792 - 1072 -0.09%

### RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Previous check date:	n/a
Reference Hygrometer ID:	F.S. 160348895 expires Sep 4, 2022
Reference Hygrometer % RH- Reading:	73.97
Station Hygrometer % RH- Reading:	75.60
RH Tolerance +/- 15% of difference:	62.87 - 85.07 -2.2%

### ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Previous check date:	n/a	Previous check date:	n/a
Wind Speed Observed (kph):	5~10	Wind Direction Observed:	NE
Wind speed on Data Logger (kph):	7.6	Wind Direction on Data Logger:	NE
		Wind Direction Pass/Fail?:	Pass

Comments

No issues.





# 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.



## **Peace River Area Monitoring Program**

# **DECEMBER 2021**

## **Ambient Air Monitoring**

## **Certified Laboratory Analysis Report**

### **LAB-PRAMP-202112**

**Operation and Maintenance:**

Bureau Veritas Canada

**Data Validation and Report:**

Peace River Area Monitoring Program

January 14, 2022



Highway 16A & 75 Street  
 PO Bag 4000  
 Vegreville, AB, T9C 1T4  
 Environmental Analytical Services  
 Phone: (780) 632-8403 Fax: (780) 632-8620

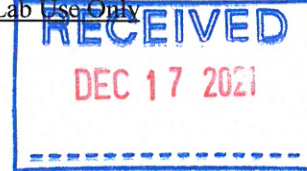
**EAS CANISTER**

Sample ID: 21120153-001 Priority: Normal



Customer ID: PRAMP  
 Cust Samp ID: PRAMP\_986-20211216 (NMHC)

Date Received- Lab Use Only



<b>Client Contact Details:</b>		<b>RUSH (Surcharge)</b> <input type="checkbox"/>
Contact: <u>Karla Ressor, Michael Bisaga/ Lily Lin</u>	Invoice Instructions:	
Company: <u>PRAMP Airshed</u>	Send to: officemanager@prampairshed.ca, karla@prampairshed.ca,	
PO#: <input type="checkbox"/> 842 Station <input type="checkbox"/> 986 Station <input type="checkbox"/> Reno Station	pramptech@prampairshed.ca Attention: PRAMP Office Manager	
Address: <input type="checkbox"/> 842 (Lat. 56.27406N, Long. 116.98129W)	Any correspondence related to canister analysis, send the information to karla@prampairshed.ca	
<input type="checkbox"/> 986 (Lat. 56.36988N, Long. 116.925636W)	and pramptech@prampairshed.ca	
<input type="checkbox"/> Reno (Lat. 55.86936N, Long. 117.05739W)	InnoTech Contact: <u>Graham Knox</u> Phone: <u>780-6328403</u> Cell: <u>780-6321519</u>	
Telephone: <u>403-8072995, 780-2667068/587-2252248</u>	Email: <u>Graham.Knox@innotechalberta.ca</u>	
Email: <u>karla@prampairshed.ca, pramptech@prampairshed.ca</u>		

Sample ID (PRAMP_statiom_yyyymmdd)	Canister Number	Sample Description	Date/Time Sampled		Analysis Requested
			From/To		
			Date (dd/mm/yy)	Time (24 Hr) (MST)	
PRAMP_842- _____ (Sample date: yyyymmdd)	<u>20211216 (NMHC) 28961</u>	<input type="checkbox"/> Methane Trigger	<u>16/12/21</u>	<u>17:05</u>	* AIR C1C4, AIR VOC, AIR RSC
PRAMP_986- _____ (Sample date: yyyymmdd)		<input checked="" type="checkbox"/> NMHC Trigger			* Unknown to be reported
PRAMP_Reno- _____ (Sample date: yyyymmdd)		<input type="checkbox"/> Methane Blank			* Carbon Isotopic Analysis (if sample is collected from Methane trigger)
		<input type="checkbox"/> NMHC Blank			
		<input type="checkbox"/> Expired Canister – No further analysis is required.			

**Sample Collection:**  
 Collect By Dwayne (Name) of \_\_\_\_\_ (Company) on Dec 16/2021 (Date/Time (MST)).



Highway 16A & 75 Street  
 PO Bag 4000  
 Vegreville, AB, T9C 1T4  
 Environmental Analytical Services  
 Phone: (780) 632-8403 Fax: (780) 632-8620

Sample ID: 21120153-002 Priority: Normal



Customer ID: PRAMP  
 Cust Samp ID: PRAMP\_986C-Blank

Date Received - Lab Use Only

**RECEIVED**  
 DEC 17 2021

**Client Contact Details:**

Contact: Karla Ressor, Michael Bisaga/ Lily Lin  
 Company: PRAMP Airshed  
 PO#:  842 Station  986 Station  Reno Station  
 Address:  842 (Lat. 56.27406N, Long. 116.98129W)  
 986 (Lat. 56.36988N, Long. 116.925636W)  
 Reno (Lat. 55.86936N, Long. 117.05739W)  
 Telephone: 403-8072995, 780-2667068/587-2252248  
 Email: karla@prampairshed.ca, pramptech@prampairshed.ca

**RUSH (Surcharge)**

Invoice Instructions:

Send to: officemanager@prampairshed.ca, karla@prampairshed.ca,  
 pramptech@prampairshed.ca Attention: PRAMP Office Manager

Any correspondence related to canister analysis, send the information to karla@prampairshed.ca and pramptech@prampairshed.ca

InnoTech Contact: Graham Knox Phone: 780-6328403 Cell: 780-6321519

Email: Graham.Knox@innotechalberta.ca

Sample ID (PRAMP_station_yyyymmdd)	Canister Number	Sample Description	Date/Time Sampled		Analysis Requested
			From/To		
			Date (dd/mm/yy)	Time (24 Hr) (MST)	
PRAMP_842- _____ (Sample date: yyyymmdd)	32249	<input type="checkbox"/> Methane Trigger	16/12/21	17:05	* AIR C1C4, AIR VOC, AIR RSC
PRAMP_986- <u>C-Blank</u> (Sample date: yyyymmdd)		<input type="checkbox"/> NMHC Trigger			* Unknown to be reported
PRAMP_Reno- _____ (Sample date: yyyymmdd)		<input type="checkbox"/> Methane Blank			* Carbon Isotopic Analysis (if sample is collected from Methane trigger)
		<input checked="" type="checkbox"/> NMHC Blank			
		<input type="checkbox"/> Expired Canister – No further analysis is required.			

**Sample Collection:**

Collect By Dwayne (Name) of \_\_\_\_\_ (Company) on Dec 16/2021 (Date/Time (MST)).



Canister ID: 28961

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: 1804 on: NOV 23 2021

Evacuated: NOV 24 2021 Recertified: \_\_\_\_\_  
(Use within: 3 months from evacuation or recertification date)  
Laboratory Contact Number: 780-632-8403

Sample ID: \_\_\_\_\_

Sampled By: \_\_\_\_\_

Starting Vacuum: -27.0 "Hg

End Vacuum: KG  
-2 "Hg/ psig



Canister ID: 32249

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: 1804 on: NOV 17 2021

Evacuated: NOV 23 2021 Recertified: \_\_\_\_\_  
(Use within: 3 months from evacuation or recertification date)  
Laboratory Contact Number: 780-632-8403

Sample ID: \_\_\_\_\_

Sampled By: \_\_\_\_\_

Starting Vacuum: -27.3 "Hg

End Pressure: KG  
-30 "Hg/ psig

Sample ID: 21120153-001 Priority: Normal



Customer ID: PRAMP  
Cust Samp ID: PRAMP\_986-20211216 (NMHC)



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

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

<p><b>RESULTS:</b> Karla Reesor                      403 807 2995 Peace River Area Monitoring Program Committee</p> <p><b>INVOICE:</b> Office Manager</p>	<p style="text-align: center;"><b>CLIENT SAMPLE ID</b> PRAMP_986-20211216 (NMHC)</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CANISTER ID:</b> 28961</p> <p><b>PRIORITY:</b> Normal</p> <p><b>DESCRIPTION:</b> NMHC Trigger</p> <p><b>DATE SAMPLED:</b> 16-Dec-21    17:05    <b>DATE RECEIVED:</b> 17-Dec-21</p> <p><b>REPORT CREATED:</b> 22-Dec-21    <b>REPORT NUMBER:</b> 21120153</p> <p style="text-align: right;"><b>VERSION:</b> Version 01</p>
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Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
21120153-001	1-Butene	K, T, U	< 0.14 ppmv	0.14	NA-025	17-Dec-21
21120153-001	Acetylene	K, T, U	< 0.11 ppmv	0.11	NA-025	17-Dec-21
21120153-001	n-Butane	K, T, U	< 0.3 ppmv	0.3	NA-025	17-Dec-21
21120153-001	cis-2-Butene	K, T, U	< 0.06 ppmv	0.06	NA-025	17-Dec-21
21120153-001	Ethane	K, T, U	< 0.1 ppmv	0.1	NA-025	17-Dec-21
21120153-001	Ethylacetylene	K, T, U	< 0.08 ppmv	0.08	NA-025	17-Dec-21
21120153-001	Ethylene	K, T, U	< 0.10 ppmv	0.10	NA-025	17-Dec-21
21120153-001	Isobutane	K, T, U	< 0.1 ppmv	0.1	NA-025	17-Dec-21
21120153-001	Isobutylene	K, T, U	< 0.1 ppmv	0.1	NA-025	17-Dec-21
21120153-001	Methane		2.6 ppmv	0.1	NA-025	17-Dec-21
21120153-001	n-Propane	K, T, U	< 0.10 ppmv	0.10	NA-025	17-Dec-21
21120153-001	Propylene	K, T, U	< 0.1 ppmv	0.1	NA-025	17-Dec-21
21120153-001	Propyne	K, T, U	< 0.1 ppmv	0.1	NA-025	17-Dec-21
21120153-001	trans-2-Butene	K, T, U	< 0.12 ppmv	0.12	NA-025	17-Dec-21
21120153-001	2,5-Dimethylthiophene	K, T, U	< 0.5 ppbv	0.5	NA-024	20-Dec-21
21120153-001	2-Ethylthiophene	K, T, U	< 0.4 ppbv	0.4	NA-024	20-Dec-21
21120153-001	2-Methylthiophene	K, T, U	< 0.4 ppbv	0.4	NA-024	20-Dec-21
21120153-001	3-Methylthiophene	K, T, U	< 0.5 ppbv	0.5	NA-024	20-Dec-21

Report certified by: Rebecca Dasilva, Account Coordinator      On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: December 22, 2021      LAB-PRAMP-202112      Inquiries: (780) 632 8455      E-mail: EAS.Results@innotechalberta.ca

<b>CLIENT SAMPLE ID</b>	<b>CANISTER ID</b>	<b>Matrix</b>	<b>DATE SAMPLED</b>
PRAMP_986-20211216 (NMHC)	28961	Ambient Air	16-Dec-21 17:05
<b>DESCRIPTION:</b>	NMHC Trigger		
<b>REPORT NUMBER:</b>	<b>REPORT CREATED:</b>	<b>VERSION:</b>	Version 01
21120153	22-Dec-21		

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120153-001	Butyl mercaptan	K, T, U	< 0.5	ppbv	0.5	NA-024	20-Dec-21
21120153-001	Carbon disulphide	K, T, U	< 0.4	ppbv	0.4	NA-024	20-Dec-21
21120153-001	Carbonyl sulphide		2.5	ppbv	0.5	NA-024	20-Dec-21
21120153-001	Dimethyl disulphide	K, T, U	< 0.4	ppbv	0.4	NA-024	20-Dec-21
21120153-001	Dimethyl sulphide	K, T, U	< 0.4	ppbv	0.4	NA-024	20-Dec-21
21120153-001	Ethyl mercaptan	K, T, U	< 0.5	ppbv	0.5	NA-024	20-Dec-21
21120153-001	Ethyl sulphide	K, T, U	< 0.5	ppbv	0.5	NA-024	20-Dec-21
21120153-001	Hydrogen sulphide		3.8	ppbv	0.5	NA-024	20-Dec-21
21120153-001	Isobutyl mercaptan	K, T, U	< 0.5	ppbv	0.5	NA-024	20-Dec-21
21120153-001	Isopropyl mercaptan	K, T, U	< 0.5	ppbv	0.5	NA-024	20-Dec-21
21120153-001	Methyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	20-Dec-21
21120153-001	Pentyl mercaptan	K, T, U	< 0.7	ppbv	0.7	NA-024	20-Dec-21
21120153-001	Propyl mercaptan	K, T, U	< 0.7	ppbv	0.7	NA-024	20-Dec-21
21120153-001	tert-Butyl mercaptan	K, T, U	< 0.5	ppbv	0.5	NA-024	20-Dec-21
21120153-001	Thiophene/sec-Butyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	20-Dec-21
21120153-001	1,1,1-Trichloroethane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-001	1,1,2-Trichloroethane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-001	1,1-Dichloroethane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-001	1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-001	1,2,3-Trimethylbenzene	I	0.16	ppbv	0.09	AC-058	21-Dec-21
21120153-001	1,2,4-Trichlorobenzene	K, T, U	< 0.5	ppbv	0.5	AC-058	21-Dec-21
21120153-001	1,2,4-Trimethylbenzene	I	0.28	ppbv	0.05	AC-058	21-Dec-21
21120153-001	1,2-Dibromoethane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-001	1,2-Dichlorobenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	21-Dec-21

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: December 22, 2021

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

<b>CLIENT SAMPLE ID</b>	<b>CANISTER ID</b>	<b>Matrix</b>	<b>DATE SAMPLED</b>
PRAMP_986-20211216 (NMHC)	28961	Ambient Air	16-Dec-21 17:05
<b>DESCRIPTION:</b>	NMHC Trigger		
<b>REPORT NUMBER:</b>	<b>REPORT CREATED:</b>	<b>VERSION:</b>	Version 01
21120153	22-Dec-21		

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120153-001	1,2-Dichloroethane	K, T, U	< 0.05	ppbv	0.05	AC-058	21-Dec-21
21120153-001	1,2-Dichloropropane	K, T, U	< 0.05	ppbv	0.05	AC-058	21-Dec-21
21120153-001	1,3,5-Trimethylbenzene	I	0.23	ppbv	0.05	AC-058	21-Dec-21
21120153-001	1,3-Butadiene	K, T, U	< 0.05	ppbv	0.05	AC-058	21-Dec-21
21120153-001	1,3-Dichlorobenzene	K, T, U	< 0.7	ppbv	0.7	AC-058	21-Dec-21
21120153-001	1,4-Dichlorobenzene	K, T, U	< 0.7	ppbv	0.7	AC-058	21-Dec-21
21120153-001	1,4-Dioxane	K, T, U	< 0.9	ppbv	0.9	AC-058	21-Dec-21
21120153-001	1-Butene/Isobutylene		0.83	ppbv	0.10	AC-058	21-Dec-21
21120153-001	1-Hexene/2-Methyl-1-pentene	I	0.25	ppbv	0.12	AC-058	21-Dec-21
21120153-001	1-Pentene		0.41	ppbv	0.05	AC-058	21-Dec-21
21120153-001	2,2,4-Trimethylpentane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-001	2,2-Dimethylbutane		0.29	ppbv	0.04	AC-058	21-Dec-21
21120153-001	2,3,4-Trimethylpentane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-001	2,3-Dimethylbutane		0.32	ppbv	0.16	AC-058	21-Dec-21
21120153-001	2,3-Dimethylpentane		0.24	ppbv	0.04	AC-058	21-Dec-21
21120153-001	2,4-Dimethylpentane		0.20	ppbv	0.05	AC-058	21-Dec-21
21120153-001	2-Methylheptane		0.46	ppbv	0.04	AC-058	21-Dec-21
21120153-001	2-Methylhexane		0.55	ppbv	0.05	AC-058	21-Dec-21
21120153-001	2-Methylpentane		1.16	ppbv	0.04	AC-058	21-Dec-21
21120153-001	3-Methylheptane		0.24	ppbv	0.05	AC-058	21-Dec-21
21120153-001	3-Methylhexane		0.56	ppbv	0.04	AC-058	21-Dec-21
21120153-001	3-Methylpentane		1.19	ppbv	0.04	AC-058	21-Dec-21
21120153-001	Acetone		2.4	ppbv	0.7	AC-058	21-Dec-21
21120153-001	Acrolein	K, T, U	< 0.5	ppbv	0.5	AC-058	21-Dec-21
21120153-001	Benzene		0.91	ppbv	0.05	AC-058	21-Dec-21

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: December 22, 2021

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca



<b>CLIENT SAMPLE ID</b> PRAMP_986-20211216 (NMHC)	<b>CANISTER ID</b> 28961	<b>Matrix</b> Ambient Air	<b>DATE SAMPLED</b> 16-Dec-21 17:05
<b>DESCRIPTION:</b> NMHC Trigger			
<b>REPORT NUMBER:</b> 21120153	<b>REPORT CREATED:</b> 22-Dec-21		<b>VERSION:</b> Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120153-001	Benzyl chloride	K, T, U	< 0.5	ppbv	0.5	AC-058	21-Dec-21
21120153-001	Bromodichloromethane	K, T, U	< 0.05	ppbv	0.05	AC-058	21-Dec-21
21120153-001	Bromoform	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-001	Bromomethane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-001	Carbon disulfide		0.22	ppbv	0.04	AC-058	21-Dec-21
21120153-001	Carbon tetrachloride	I	0.10	ppbv	0.04	AC-058	21-Dec-21
21120153-001	Chlorobenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-001	Chloroethane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-001	Chloroform	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-001	Chloromethane		0.56	ppbv	0.07	AC-058	21-Dec-21
21120153-001	cis-1,2-Dichloroethene	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-001	cis-1,3-Dichloropropene	K, T, U	< 0.05	ppbv	0.05	AC-058	21-Dec-21
21120153-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	21-Dec-21
21120153-001	cis-2-Pentene	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-001	Cyclohexane		1.07	ppbv	0.07	AC-058	21-Dec-21
21120153-001	Cyclopentane		0.51	ppbv	0.04	AC-058	21-Dec-21
21120153-001	Dibromochloromethane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-001	Ethanol		2.2	ppbv	0.9	AC-058	21-Dec-21
21120153-001	Ethyl acetate	K, T, U	< 0.5	ppbv	0.5	AC-058	21-Dec-21
21120153-001	Ethylbenzene	I	0.26	ppbv	0.05	AC-058	21-Dec-21
21120153-001	Freon-11		0.31	ppbv	0.04	AC-058	21-Dec-21
21120153-001	Freon-113	I	0.05	ppbv	0.04	AC-058	21-Dec-21
21120153-001	Freon-114	K, T, U	< 0.05	ppbv	0.05	AC-058	21-Dec-21
21120153-001	Freon-12		0.45	ppbv	0.05	AC-058	21-Dec-21
21120153-001	Hexachloro-1,3-butadiene	K, T, U	< 0.5	ppbv	0.5	AC-058	21-Dec-21

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: December 22, 2021

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

<b>CLIENT SAMPLE ID</b>	<b>CANISTER ID</b>	<b>Matrix</b>	<b>DATE SAMPLED</b>
PRAMP_986-20211216 (NMHC)	28961	Ambient Air	16-Dec-21 17:05
<b>DESCRIPTION:</b>	NMHC Trigger		
<b>REPORT NUMBER:</b>	<b>REPORT CREATED:</b>	<b>VERSION:</b>	Version 01
21120153	22-Dec-21		

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120153-001	Isobutane		1.16	ppbv	0.05	AC-058	21-Dec-21
21120153-001	Isopentane		5.92	ppbv	0.07	AC-058	21-Dec-21
21120153-001	Isoprene	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-001	Isopropyl alcohol	I	0.6	ppbv	0.5	AC-058	21-Dec-21
21120153-001	Isopropylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	21-Dec-21
21120153-001	m,p-Xylene	I	0.52	ppbv	0.07	AC-058	21-Dec-21
21120153-001	m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-001	m-Ethyltoluene	K, T, U	< 0.05	ppbv	0.05	AC-058	21-Dec-21
21120153-001	Methyl butyl ketone	K, T, U	< 0.7	ppbv	0.7	AC-058	21-Dec-21
21120153-001	Methyl ethyl ketone	K, T, U	< 0.5	ppbv	0.5	AC-058	21-Dec-21
21120153-001	Methyl isobutyl ketone	K, T, U	< 0.5	ppbv	0.5	AC-058	21-Dec-21
21120153-001	Methyl methacrylate	K, T, U	< 0.14	ppbv	0.14	AC-058	21-Dec-21
21120153-001	Methyl tert butyl ether	K, T, U	< 0.05	ppbv	0.05	AC-058	21-Dec-21
21120153-001	Methylcyclohexane		0.82	ppbv	0.04	AC-058	21-Dec-21
21120153-001	Methylcyclopentane		0.98	ppbv	0.09	AC-058	21-Dec-21
21120153-001	Methylene chloride	K, T, U	< 0.5	ppbv	0.5	AC-058	21-Dec-21
21120153-001	n-Butane		3.62	ppbv	0.04	AC-058	21-Dec-21
21120153-001	n-Decane		0.20	ppbv	0.10	AC-058	21-Dec-21
21120153-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	21-Dec-21
21120153-001	n-Heptane		1.11	ppbv	0.07	AC-058	21-Dec-21
21120153-001	n-Hexane		3.29	ppbv	0.05	AC-058	21-Dec-21
21120153-001	n-Octane		0.43	ppbv	0.04	AC-058	21-Dec-21
21120153-001	n-Pentane		6.90	ppbv	0.07	AC-058	21-Dec-21
21120153-001	n-Propylbenzene	K, T, U	< 0.10	ppbv	0.10	AC-058	21-Dec-21
21120153-001	n-Undecane	K, T, U	< 0.9	ppbv	0.9	AC-058	21-Dec-21

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: December 22, 2021

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

<b>CLIENT SAMPLE ID</b>	<b>CANISTER ID</b>	<b>Matrix</b>	<b>DATE SAMPLED</b>
PRAMP_986-20211216 (NMHC)	28961	Ambient Air	16-Dec-21 17:05
<b>DESCRIPTION:</b>	NMHC Trigger		
<b>REPORT NUMBER:</b>	<b>REPORT CREATED:</b>	<b>VERSION:</b>	Version 01
21120153	22-Dec-21		

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
21120153-001	Naphthalene	K, T, U	< 0.5 ppbv	0.5	AC-058	21-Dec-21
21120153-001	n-Nonane		0.25 ppbv	0.07	AC-058	21-Dec-21
21120153-001	o-Ethyltoluene	K, T, U	< 0.04 ppbv	0.04	AC-058	21-Dec-21
21120153-001	o-Xylene	I	0.23 ppbv	0.05	AC-058	21-Dec-21
21120153-001	p-Diethylbenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	21-Dec-21
21120153-001	p-Ethyltoluene	K, T, U	< 0.07 ppbv	0.07	AC-058	21-Dec-21
21120153-001	Styrene		0.41 ppbv	0.07	AC-058	21-Dec-21
21120153-001	Tetrachloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	21-Dec-21
21120153-001	Tetrahydrofuran	K, T, U	< 0.5 ppbv	0.5	AC-058	21-Dec-21
21120153-001	Toluene		0.71 ppbv	0.05	AC-058	21-Dec-21
21120153-001	trans-1,2-Dichloroethylene		0.22 ppbv	0.10	AC-058	21-Dec-21
21120153-001	trans-1,3-Dichloropropylene	K, T, U	< 0.04 ppbv	0.04	AC-058	21-Dec-21
21120153-001	trans-2-Butene	K, T, U	< 0.05 ppbv	0.05	AC-058	21-Dec-21
21120153-001	trans-2-Pentene	K, T, U	< 0.04 ppbv	0.04	AC-058	21-Dec-21
21120153-001	Trichloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	21-Dec-21
21120153-001	Vinyl acetate	K, T, U	< 0.5 ppbv	0.5	AC-058	21-Dec-21
21120153-001	Vinyl chloride	K, T, U	< 0.04 ppbv	0.04	AC-058	21-Dec-21

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: December 22, 2021

LAB-PRAMP-202112

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<b>CLIENT SAMPLE ID</b>	<b>CANISTER ID</b>	<b>Matrix</b>	<b>DATE SAMPLED</b>
PRAMP_986C-Blank	32249	Ambient Air	16-Dec-21 17:05
<b>DESCRIPTION:</b>	NMHC Blank		
<b>REPORT NUMBER:</b>	<b>REPORT CREATED:</b>	<b>VERSION:</b>	Version 01
21120153	22-Dec-21		

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
21120153-002	1-Butene	K, T, U	< 0.10 ppmv	0.10	NA-025	17-Dec-21
21120153-002	Acetylene	K, T, U	< 0.08 ppmv	0.08	NA-025	17-Dec-21
21120153-002	n-Butane	K, T, U	< 0.2 ppmv	0.2	NA-025	17-Dec-21
21120153-002	cis-2-Butene	K, T, U	< 0.04 ppmv	0.04	NA-025	17-Dec-21
21120153-002	Ethane	K, T, U	< 0.1 ppmv	0.1	NA-025	17-Dec-21
21120153-002	Ethylacetylene	K, T, U	< 0.06 ppmv	0.06	NA-025	17-Dec-21
21120153-002	Ethylene	K, T, U	< 0.07 ppmv	0.07	NA-025	17-Dec-21
21120153-002	Isobutane	K, T, U	< 0.1 ppmv	0.1	NA-025	17-Dec-21
21120153-002	Isobutylene	K, T, U	< 0.1 ppmv	0.1	NA-025	17-Dec-21
21120153-002	Methane	K, T, U	< 0.1 ppmv	0.1	NA-025	17-Dec-21
21120153-002	n-Propane	K, T, U	< 0.07 ppmv	0.07	NA-025	17-Dec-21
21120153-002	Propylene	K, T, U	< 0.1 ppmv	0.1	NA-025	17-Dec-21
21120153-002	Propyne	K, T, U	< 0.1 ppmv	0.1	NA-025	17-Dec-21
21120153-002	trans-2-Butene	K, T, U	< 0.09 ppmv	0.09	NA-025	17-Dec-21
21120153-002	2,5-Dimethylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	17-Dec-21
21120153-002	2-Ethylthiophene	K, T, U	< 0.2 ppbv	0.2	NA-024	17-Dec-21
21120153-002	2-Methylthiophene	K, T, U	< 0.2 ppbv	0.2	NA-024	17-Dec-21
21120153-002	3-Methylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	17-Dec-21
21120153-002	Butyl mercaptan	K, T, U	< 0.3 ppbv	0.3	NA-024	17-Dec-21
21120153-002	Carbon disulphide	K, T, U	< 0.2 ppbv	0.2	NA-024	17-Dec-21
21120153-002	Carbonyl sulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	17-Dec-21
21120153-002	Dimethyl disulphide	K, T, U	< 0.2 ppbv	0.2	NA-024	17-Dec-21
21120153-002	Dimethyl sulphide	K, T, U	< 0.2 ppbv	0.2	NA-024	17-Dec-21
21120153-002	Ethyl mercaptan	K, T, U	< 0.3 ppbv	0.3	NA-024	17-Dec-21
21120153-002	Ethyl sulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	17-Dec-21

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: December 22, 2021

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<b>CLIENT SAMPLE ID</b>	PRAMP_986C-Blank	<b>CANISTER ID</b>	32249	<b>Matrix</b>	Ambient Air	<b>DATE SAMPLED</b>	16-Dec-21 17:05
<b>DESCRIPTION:</b>	NMHC Blank						
<b>REPORT NUMBER:</b>	21120153	<b>REPORT CREATED:</b>	22-Dec-21	<b>VERSION:</b>	Version 01		

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120153-002	Hydrogen sulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	17-Dec-21
21120153-002	Isobutyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	17-Dec-21
21120153-002	Isopropyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	17-Dec-21
21120153-002	Methyl mercaptan	K, T, U	< 0.2	ppbv	0.2	NA-024	17-Dec-21
21120153-002	Pentyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	17-Dec-21
21120153-002	Propyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	17-Dec-21
21120153-002	tert-Butyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	17-Dec-21
21120153-002	Thiophene/sec-Butyl mercaptan	K, T, U	< 0.2	ppbv	0.2	NA-024	17-Dec-21
21120153-002	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	21-Dec-21
21120153-002	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Dec-21
21120153-002	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Dec-21
21120153-002	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Dec-21
21120153-002	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Dec-21
21120153-002	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Dec-21
21120153-002	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Dec-21
21120153-002	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Dec-21
21120153-002	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	21-Dec-21
21120153-002	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	21-Dec-21
21120153-002	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	21-Dec-21

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: December 22, 2021

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

<b>CLIENT SAMPLE ID</b>	<b>CANISTER ID</b>	<b>Matrix</b>	<b>DATE SAMPLED</b>
PRAMP_986C-Blank	32249	Ambient Air	16-Dec-21 17:05
<b>DESCRIPTION:</b>	NMHC Blank		
<b>REPORT NUMBER:</b>	<b>REPORT CREATED:</b>	<b>VERSION:</b>	Version 01
21120153	22-Dec-21		

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120153-002	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	21-Dec-21
21120153-002	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	21-Dec-21
21120153-002	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Dec-21
21120153-002	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	21-Dec-21
21120153-002	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Dec-21
21120153-002	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Dec-21
21120153-002	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Dec-21
21120153-002	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	Acetone	I	0.5	ppbv	0.4	AC-058	21-Dec-21
21120153-002	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Dec-21
21120153-002	Benzene	I	0.10	ppbv	0.03	AC-058	21-Dec-21
21120153-002	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Dec-21
21120153-002	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Dec-21
21120153-002	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: December 22, 2021

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

<b>CLIENT SAMPLE ID</b>	<b>CANISTER ID</b>	<b>Matrix</b>	<b>DATE SAMPLED</b>
PRAMP_986C-Blank	32249	Ambient Air	16-Dec-21 17:05
<b>DESCRIPTION:</b>	NMHC Blank		
<b>REPORT NUMBER:</b>	<b>REPORT CREATED:</b>	<b>VERSION:</b>	Version 01
21120153	22-Dec-21		

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
21120153-002	Chloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	21-Dec-21
21120153-002	Chloroform	K, T, U	< 0.02 ppbv	0.02	AC-058	21-Dec-21
21120153-002	Chloromethane	K, T, U	< 0.04 ppbv	0.04	AC-058	21-Dec-21
21120153-002	cis-1,2-Dichloroethene	K, T, U	< 0.02 ppbv	0.02	AC-058	21-Dec-21
21120153-002	cis-1,3-Dichloropropene	K, T, U	< 0.03 ppbv	0.03	AC-058	21-Dec-21
21120153-002	cis-2-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	21-Dec-21
21120153-002	cis-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	21-Dec-21
21120153-002	Cyclohexane	K, T, U	< 0.04 ppbv	0.04	AC-058	21-Dec-21
21120153-002	Cyclopentane	K, T, U	< 0.02 ppbv	0.02	AC-058	21-Dec-21
21120153-002	Dibromochloromethane	K, T, U	< 0.02 ppbv	0.02	AC-058	21-Dec-21
21120153-002	Ethanol	K, T, U	< 0.5 ppbv	0.5	AC-058	21-Dec-21
21120153-002	Ethyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	21-Dec-21
21120153-002	Ethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	21-Dec-21
21120153-002	Freon-11	K, T, U	< 0.02 ppbv	0.02	AC-058	21-Dec-21
21120153-002	Freon-113	K, T, U	< 0.02 ppbv	0.02	AC-058	21-Dec-21
21120153-002	Freon-114	K, T, U	< 0.03 ppbv	0.03	AC-058	21-Dec-21
21120153-002	Freon-12	K, T, U	< 0.03 ppbv	0.03	AC-058	21-Dec-21
21120153-002	Hexachloro-1,3-butadiene	K, T, U	< 0.3 ppbv	0.3	AC-058	21-Dec-21
21120153-002	Isobutane	I	0.09 ppbv	0.03	AC-058	21-Dec-21
21120153-002	Isopentane	K, T, U	< 0.04 ppbv	0.04	AC-058	21-Dec-21
21120153-002	Isoprene	K, T, U	< 0.02 ppbv	0.02	AC-058	21-Dec-21
21120153-002	Isopropyl alcohol	K, T, U	< 0.3 ppbv	0.3	AC-058	21-Dec-21
21120153-002	Isopropylbenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	21-Dec-21
21120153-002	m,p-Xylene	K, T, U	< 0.04 ppbv	0.04	AC-058	21-Dec-21
21120153-002	m-Diethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	21-Dec-21

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: December 22, 2021

Inquiries: (780) 632 8455

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<b>CLIENT SAMPLE ID</b>	<b>CANISTER ID</b>	<b>Matrix</b>	<b>DATE SAMPLED</b>
PRAMP_986C-Blank	32249	Ambient Air	16-Dec-21 17:05
<b>DESCRIPTION:</b>	NMHC Blank		
<b>REPORT NUMBER:</b>	<b>REPORT CREATED:</b>	<b>VERSION:</b>	Version 01
21120153	22-Dec-21		

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120153-002	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Dec-21
21120153-002	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	21-Dec-21
21120153-002	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Dec-21
21120153-002	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Dec-21
21120153-002	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	21-Dec-21
21120153-002	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Dec-21
21120153-002	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	21-Dec-21
21120153-002	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Dec-21
21120153-002	n-Butane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	21-Dec-21
21120153-002	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Dec-21
21120153-002	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-002	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Dec-21
21120153-002	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	n-Pentane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-002	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	21-Dec-21
21120153-002	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	21-Dec-21
21120153-002	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Dec-21
21120153-002	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-002	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Dec-21
21120153-002	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21
21120153-002	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Dec-21

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: December 22, 2021

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<b>CLIENT SAMPLE ID</b>	<b>CANISTER ID</b>	<b>Matrix</b>	<b>DATE SAMPLED</b>	
PRAMP_986C-Blank	32249	Ambient Air	16-Dec-21	17:05
<b>DESCRIPTION:</b>	NMHC Blank			
<b>REPORT NUMBER:</b>	21120153	<b>REPORT CREATED:</b>	22-Dec-21	<b>VERSION:</b> Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120153-002	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Dec-21
21120153-002	Toluene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Dec-21
21120153-002	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	21-Dec-21
21120153-002	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Dec-21
21120153-002	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21
21120153-002	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Dec-21
21120153-002	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Dec-21

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: December 22, 2021

LAB-PRAMP-202112

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## ENVIRONMENTAL ANALYTICAL SERVICES

### TEST REPORT

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### Revision History

Order ID	Ver	Date	Reason
21120153	01	22-Dec-21	Report created

## **Methods**

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

## Qualifiers

### Data Qualifier Translation

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



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### Order Comments

21120153

Send results to PRAMP Tech



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### Sample Comments



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### **Result Comments**

*Note:*

- 1. Results relate only to items tested and apply to the sample as received.*
- 2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.*

# End of Report