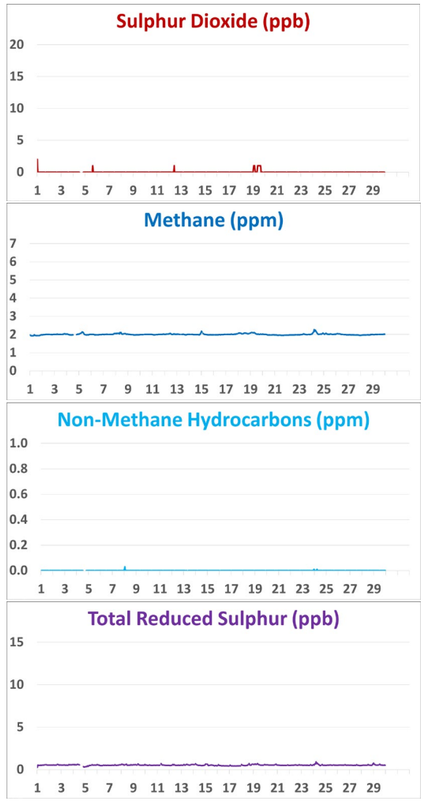
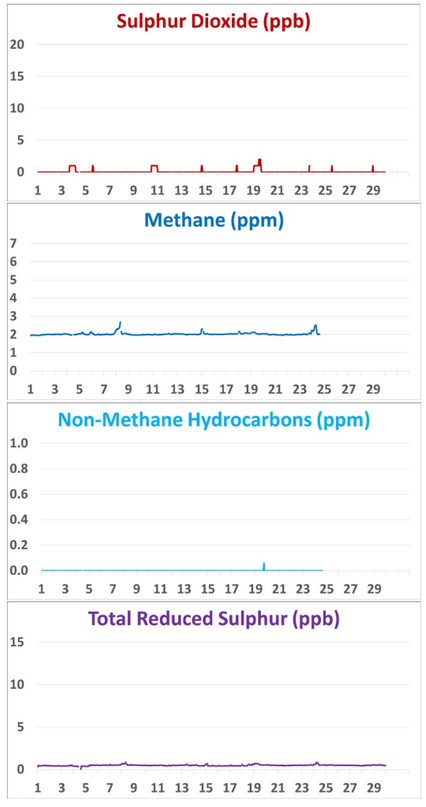
# February 2020: Continuous Monitoring Program

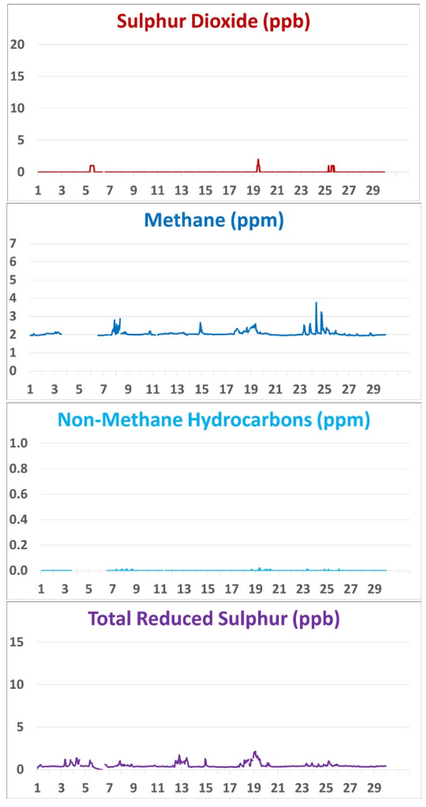
## Station 986c



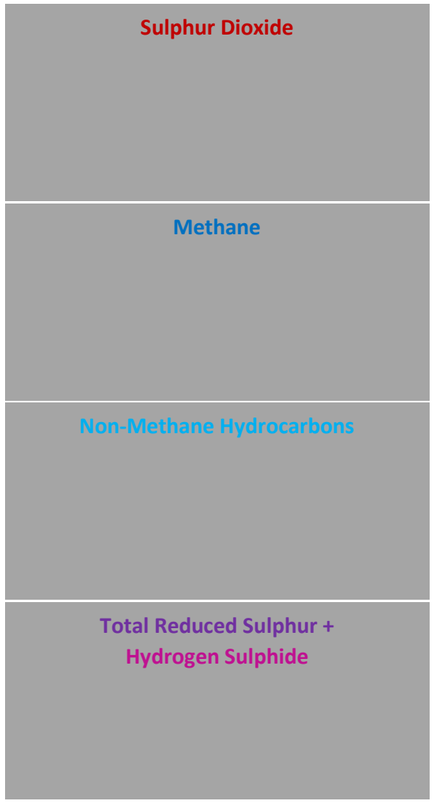

## Station 842b



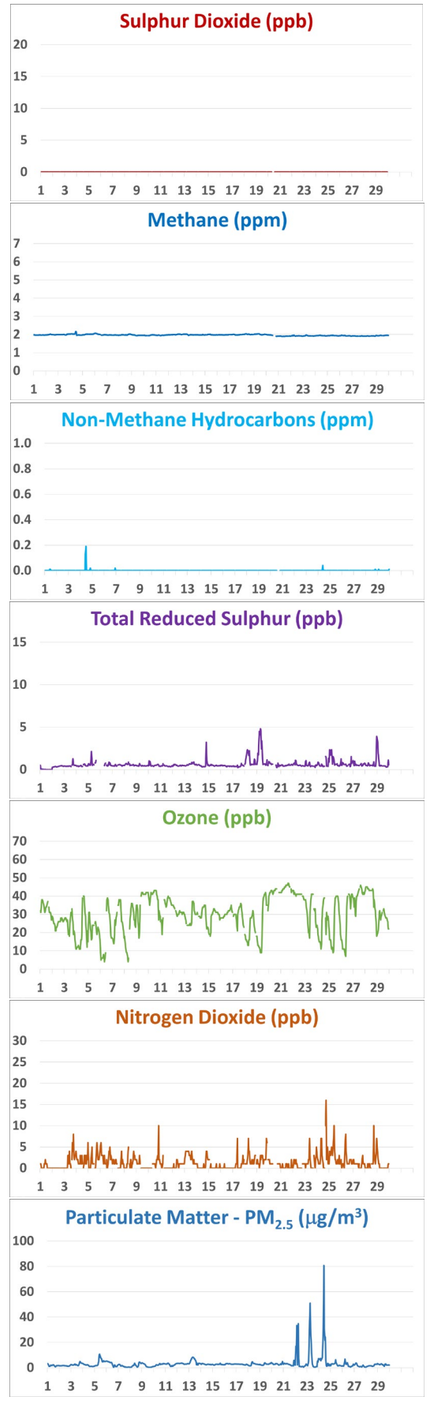

## Reno Station




## PRC Station *(coming soon)*




## AQHI Station – Cadotte Lake




## *Operational Summary*

**986c Station:**

- THC/CH4/NMHC: The analyzer failed the schedule zero-span check on February 13 hour 4. Two hours of downtime were recorded. Hourly data collected on February 20 hour 16 was considered invalid and was discarded as <75% of hourly data was retrieved. One hour of downtime was recorded due to this event.
- TRS: The analyzer spanned outside the lower acceptable range on February 17 hour 23. No data were discarded. However, one hour of downtime was recorded due to the repeat zero-span check which was conducted on February 18 hour 14.

**842b Station:**

- All parameters met the 90% operational uptime requirement, with an exception of THC/CH4/NMHC (81.6%) AEP reference #: 364605.
- THC/CH4/NMHC: Beginning February 16, there were multiple sporadic occasions where minute data averages for methane were flagged less sample (<Samp) or below record (BelowR) due to low methane values (values were recorded less than 1.8ppm). Hourly data were considered valid if >75% of valid minute data for an hour were recorded. Twenty hours of downtime were recorded due to this event. The analyzer began to show poor performance commencing February 27 and failed on February 28. A total of 128 hours of data was invalidated between February 24 and 29. The analyzer operational uptime for February was 81.6%.
- TRS: The analyzer spanned outside the lower acceptable range on February 17 hour 23. No data were discarded. However, one hour of downtime was recorded due to the repeat zero-span check which was conducted on February 18 hour 14.

**Reno Station:**

- All parameters met the 90% operational uptime requirement, with an exception of THC/CH4/NMHC (89.9%). AEP reference #: 364603.
- THC/CH4/NMHC: CH4 span response exhibited a sudden drift towards the lower acceptance limit on February 4 hour 13. Sixty-seven hours of data were discarded due to this event.
- TRS: The analyzer spanned outside the lower acceptable range on February 17 hour 23. No data were discarded. However, one hour of downtime was recorded due to the repeat zero-span check which was conducted on February 18 hour 14.

**AQHI – Cadotte Lake Station:**

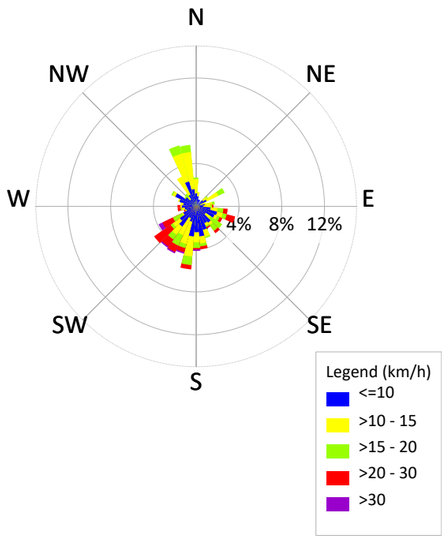
- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable, with an exception of PM2.5. AEP ref #: 363997.
- PM2.5: One hour of exceedance was recorded on February 24 hour 10, at concentration of 80.6 υg/m$^3$. Land clearing and brush burning were occurring in the area near the station.
- TRS: Hourly data collected from February 5 hour 16 to February 6 hour 6 were invalidated due to firmware crash. Sixteen hours of downtime were recorded due to this event.

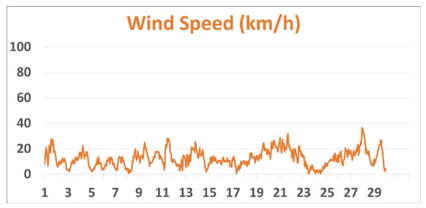
**VOCs Canister Sampling Program:**

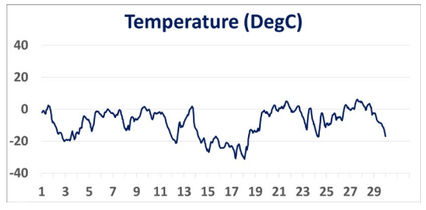
- Two CH4 canister events were recorded at the Reno site this month: on February 24 at 08:25, at concentration of 7.25 ppm, and on February 24 at 18:55, at concentration of 6.66 ppm.

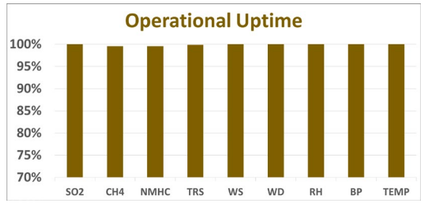
# February 2020: Continuous Monitoring Program

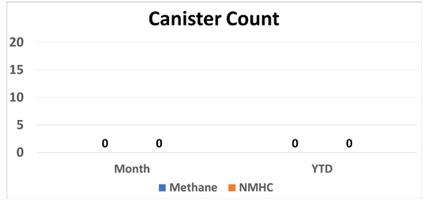
## Station 986c



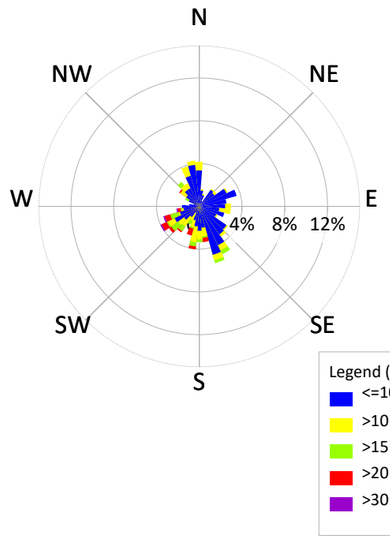



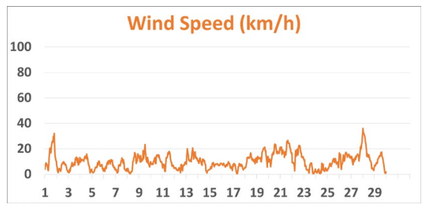



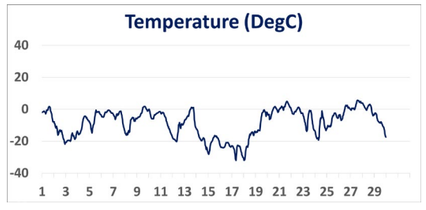



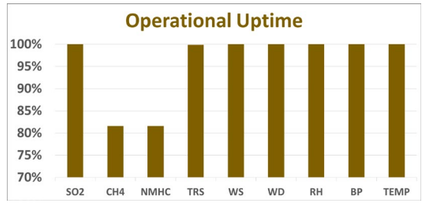



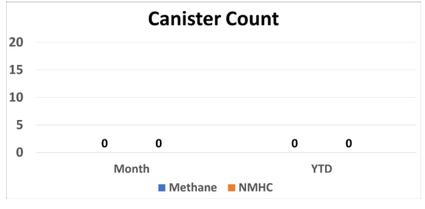

## Station 842b



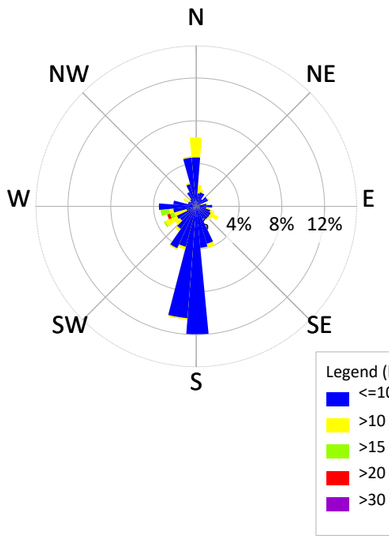



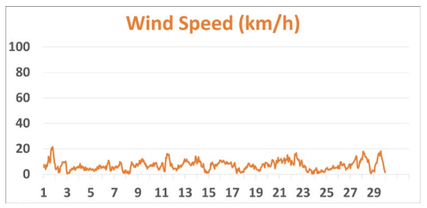



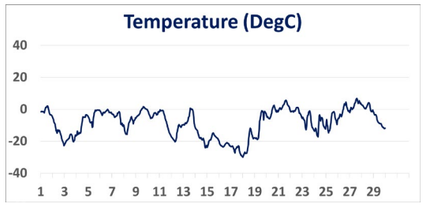



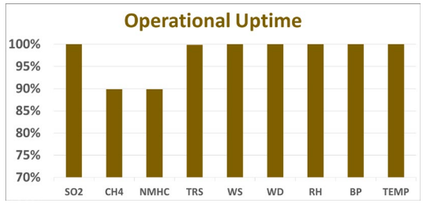



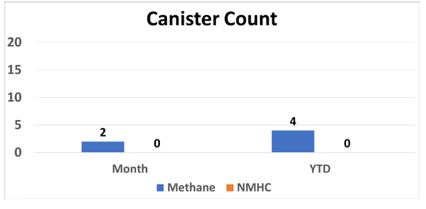

## Reno Station




## PRC Station *(coming soon)*

Wind Rose Diagram

Wind Speed

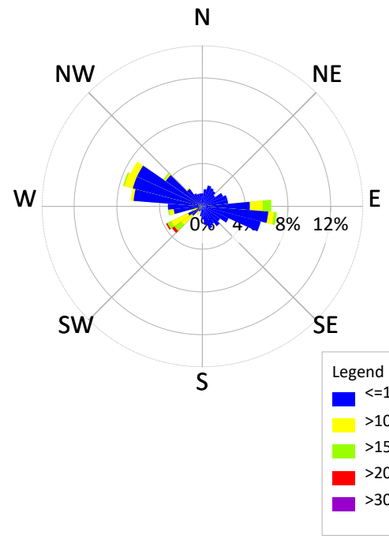
Temperature

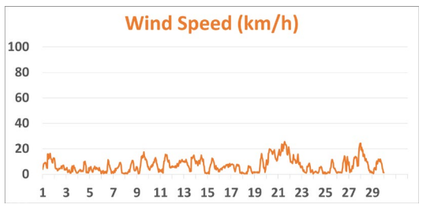
Operational Time

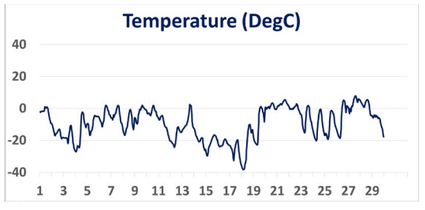
### Targets, Guidelines, and Objectives

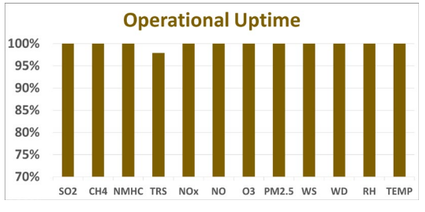
Sulphur Dioxide 1h AAAQO = 172 ppb
Ozone 1h AAAQO = 76 ppb
Particulate Matter AAAQG = 80 µg/m³
Nitrogen Dioxide AAAQO = 159 ppb
Operational Uptime Requirement = 90%
AQHI Risk Value = 1-3 Low, 4-6 Moderate, 7-9 High, 10+ Very High

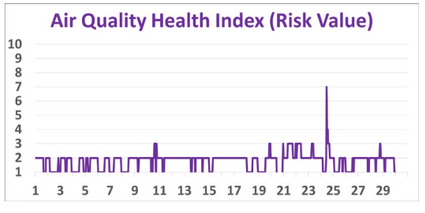
## AQHI Station – Cadotte Lake



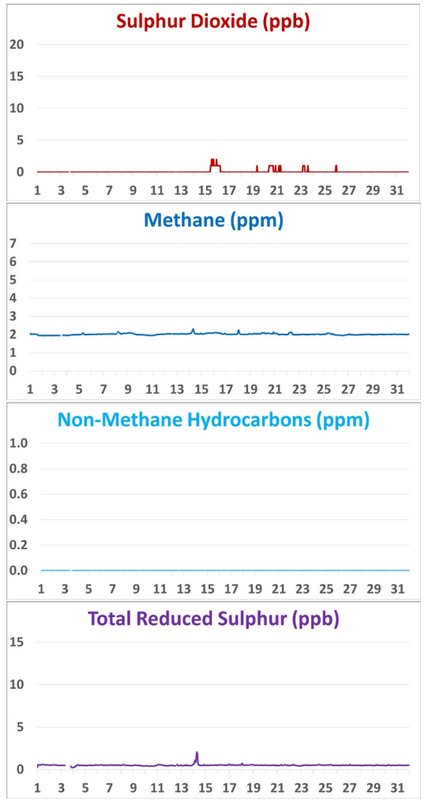



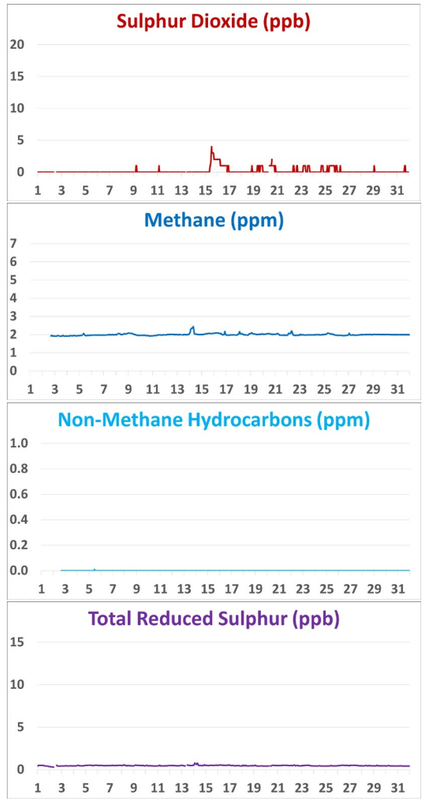



# March 2020: Continuous Monitoring Program

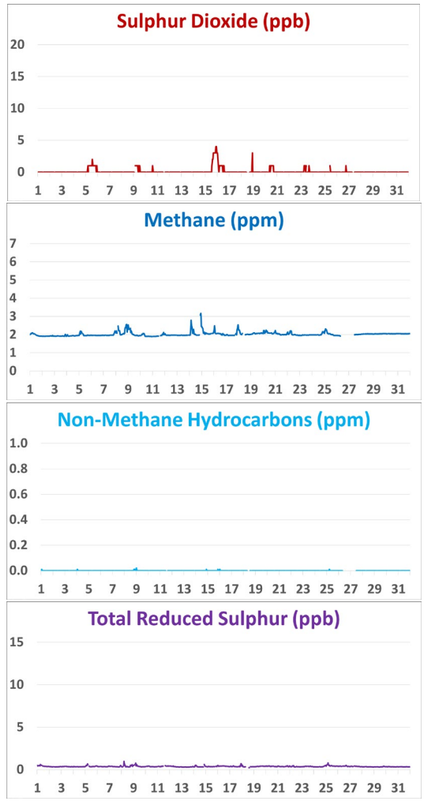
## Station 986c




## Station 842b




## Reno Station




## PRC Station *(coming soon)*

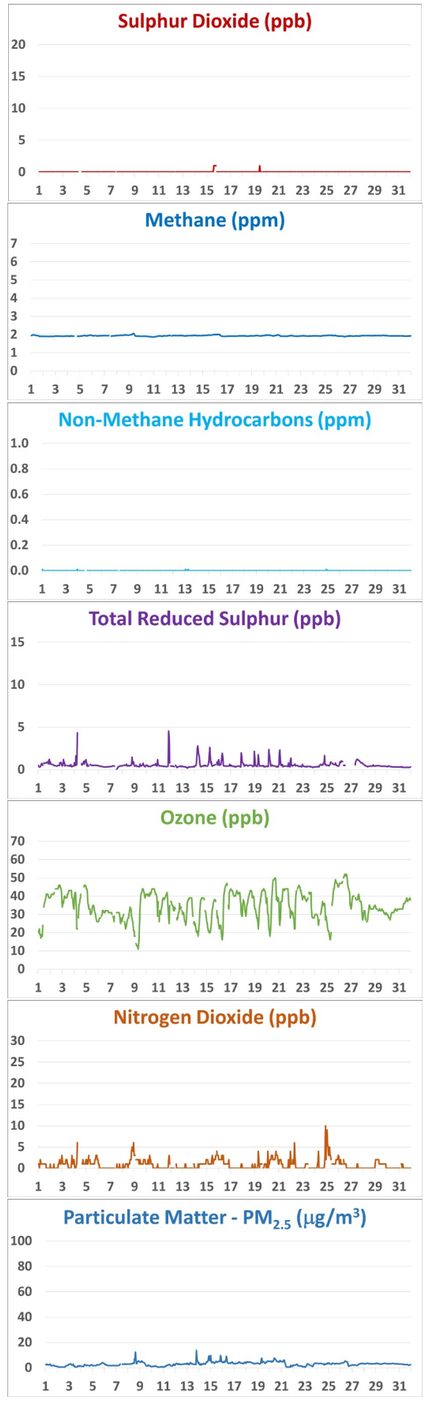
Sulphur Dioxide

Methane

Non-Methane Hydrocarbons

Total Reduced Sulphur + Hydrogen Sulphide

## AQHI Station – Cadotte Lake




## *Operational Summary*

**AEP Audits:**

- Reno Station was audited on March 11. 986c and AQHI-Cadotte Lake Stations were audited on March 12. 842b Station was audited on March 13. Complete audit results are included in the monthly technical reports on the PRAMP website.

**986c Station:**

- TRS: Following the shut-down calibration on March 3, the analyzer was put offline for few hours for scrubber material renewal. A successful post-repair calibration was performed after maintenance was completed. Four hours of downtime were recorded due to this event. The analyzer exhibited low span drifts with some results outside the acceptance limits in the week of March 9 – 15 due to low ambient temperatures.

**842b Station:**

- THC/CH4/NMHC: Data collected between March 1 and before a post-repair calibration were invalidated. Thirty-six hours of data were discarded due to this event.
- TRS: Additional instrument checks were initiated in response to unstable span results cause by low mid-month ambient temperatures. These extra checks resulted in two hours of downtime.
- SO2: A zero-span check was triggered in error on March 20, which led two hours of downtime.

**Reno Station:**

- THC/CH4/NMHC: Poor sample injections started being recorded on March 26 during hour 8. Remote troubleshooting was performed on March 26 hour 20. A successful post-repair calibration was completed on March 27. Twenty-three hours of data that were collected between March 26 hour 8 and March 27 hour 7 were discarded.
- SO2: The analyzer spanned low on March 19. A repeat zero-span check was initiated on March 20 at hour 6 to assess span response and the result was similar. During the station visit on March 26, an alarm (High PMT Temp) was noted on the analyzer. A successful as found points check was completed on March 27. Three hours of downtime were recorded due to the additional quality checks. The analyzer will be replace on the next visit to the station.
- TRS: The analyzer exhibited low span drifts with some results outside the acceptance limits in the week of March 9 – 15 due to low ambient temperatures.

**AQHI – Cadotte Lake Station:**

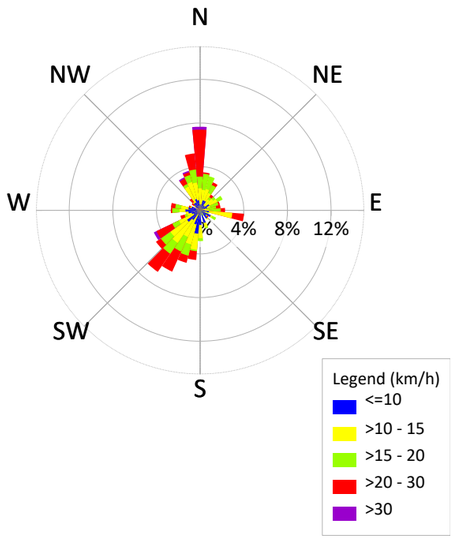
- All parameters: A power failure occurred on March 7 between hour 9 and hour 11. Three hours of data are missing due to this event.
- TRS: The analyzer exhibited low span drifts with some results outside the acceptance limits in the week of March 9 – 15 due to low ambient temperatures. A firmware crash caused eighteen hours of downtime.

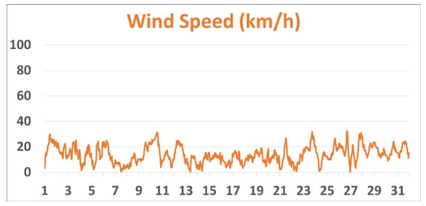
**VOCs Canister Sampling Program:**

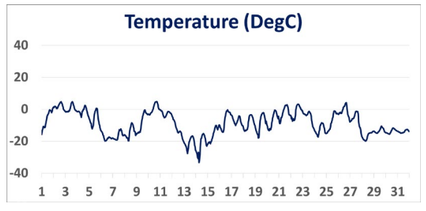
- No canister events were recorded this month.

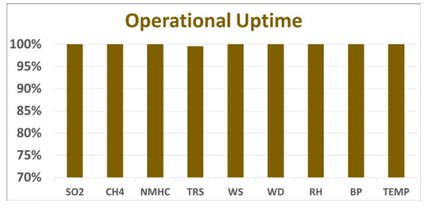
# March 2020: Continuous Monitoring Program

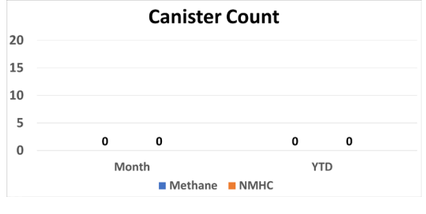
## Station 986c



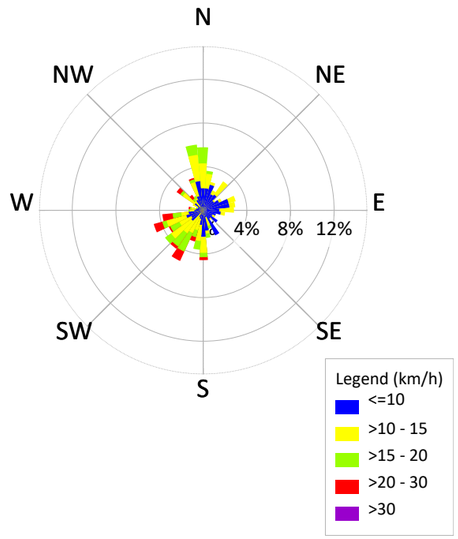



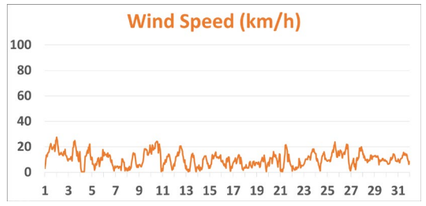



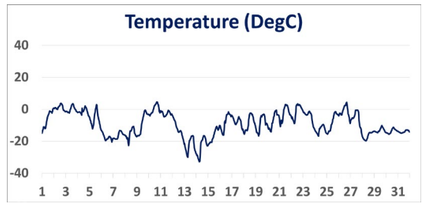



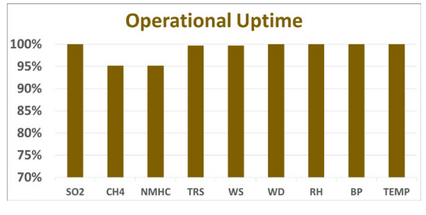



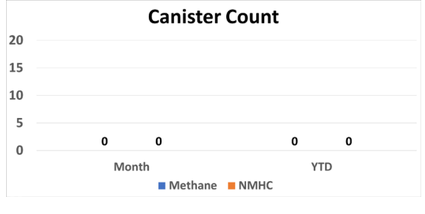

## Station 842b



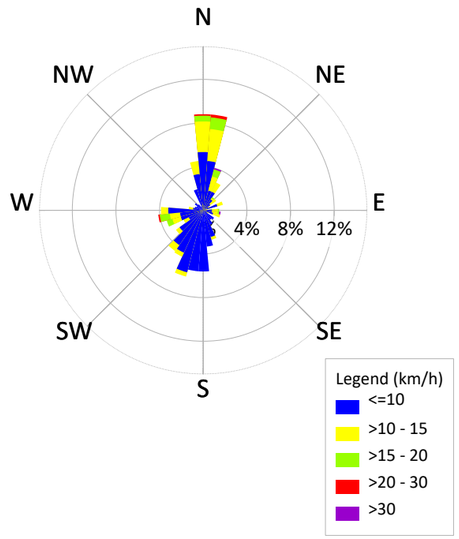



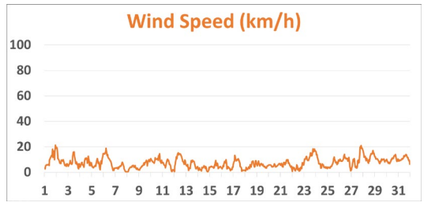



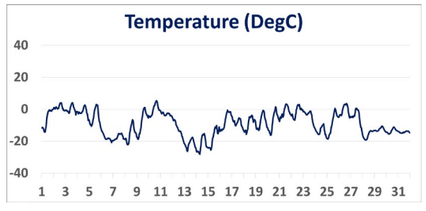



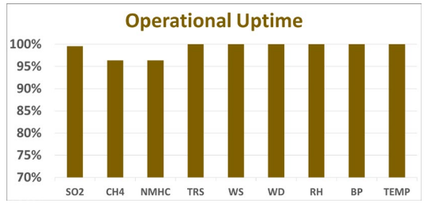



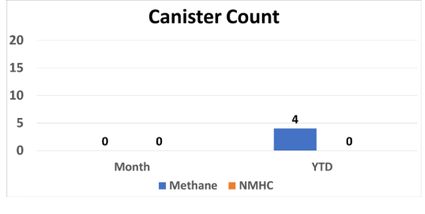

## Reno Station



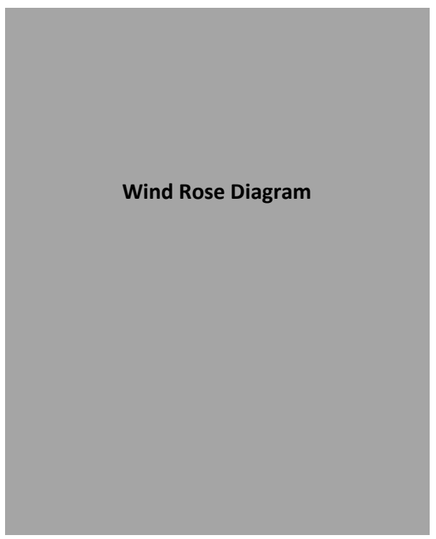



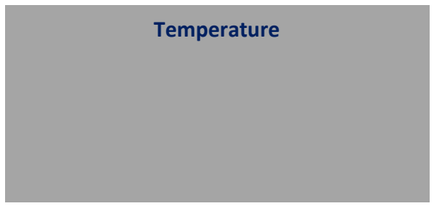




## PRC Station *(coming soon)*

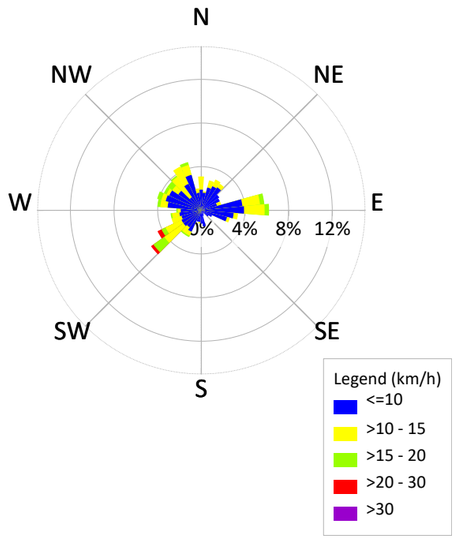


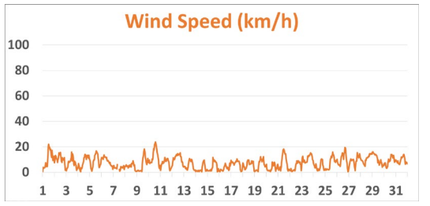


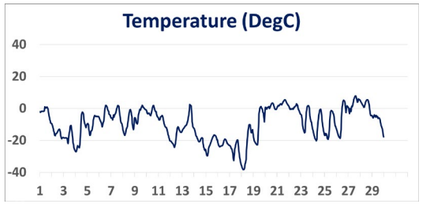
### Targets, Guidelines, and Objectives

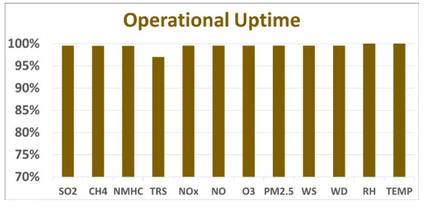
Sulphur Dioxide 1h AAAQO = 172 ppb
Ozone 1h AAAQO = 76 ppb
Particulate Matter AAAQG = 80 µg/m$^3$
Nitrogen Dioxide AAAQO = 159 ppb
Operational Uptime Requirement = 90%
AQHI Risk Value = 1-3 Low, 4-6 Moderate, 7-9 High, 10+ Very High

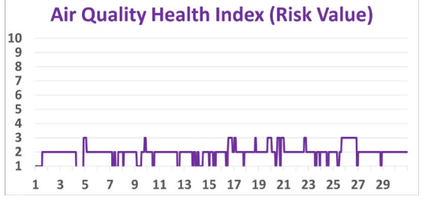
## AQHI Station – Cadotte Lake



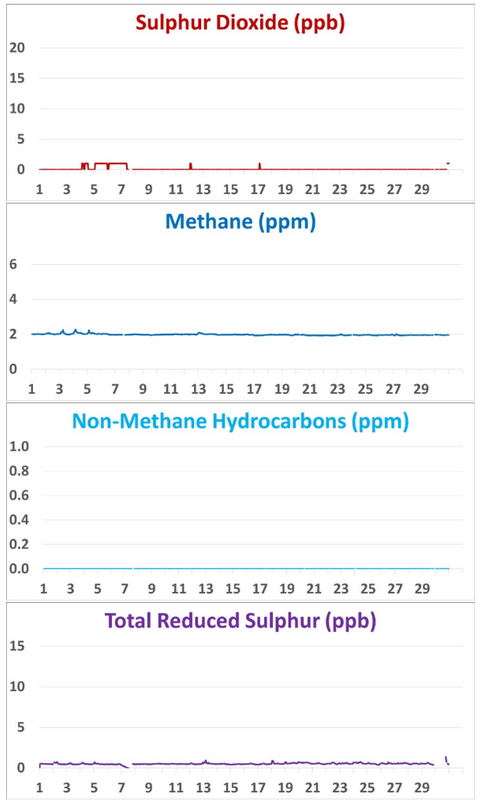



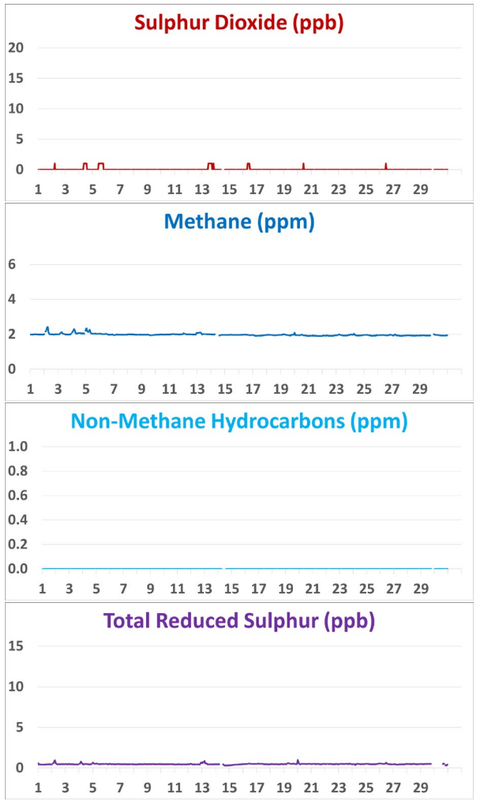



# April 2020: Continuous Monitoring Program

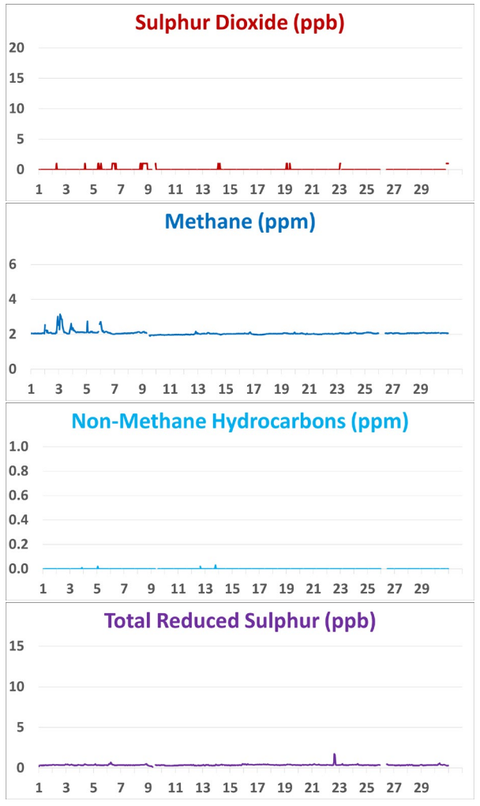
## Station 986c



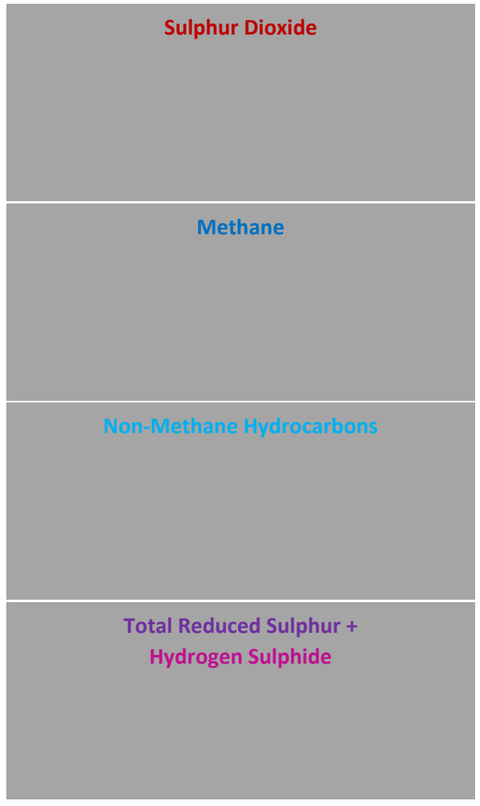

## Station 842b



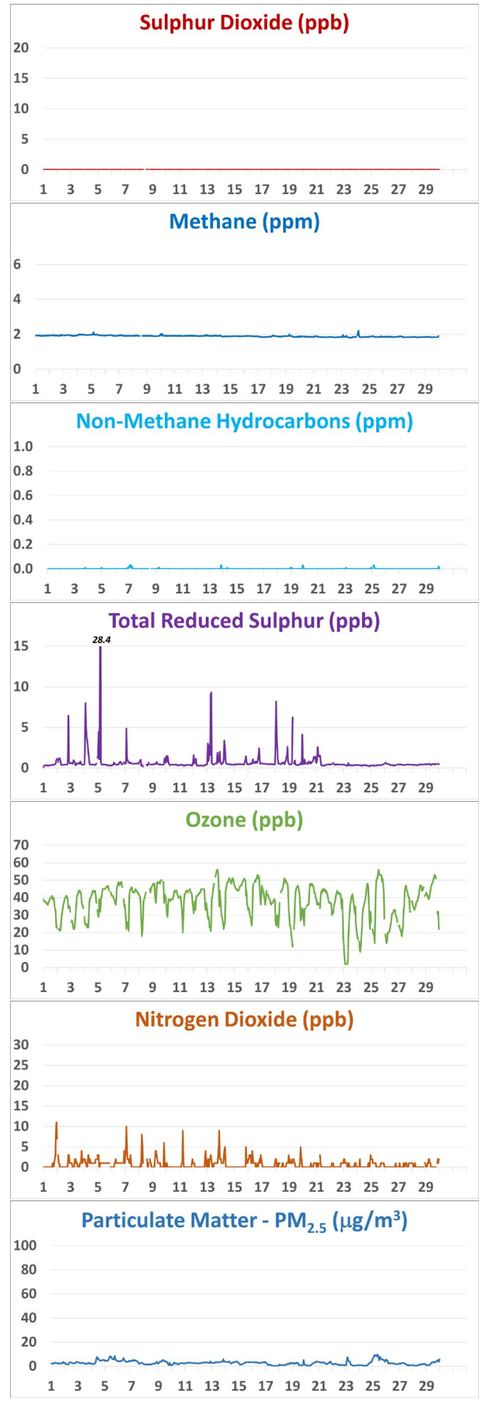

## Reno Station




## PRC Station *(coming soon)*




## AQHI Station – Cadotte Lake




## *Field Operations Summary*

**986c Station:**

- With the exception of WS, WD and ST, all hourly data on April 29 hour 21 and 22 are missing due to a power failure. Hourly data that was collected on April 29 hour 23 for all gas analyzers were invalidated as they were recovering from the power failure. The power failure interrupted the scheduled automatic zero-span check on April 29; the repeat zero-span check was successfully completed on April 30 hour 6 and 7. Two hours of downtime were recorded due to this event.
- SO2: The analyzer failed the daily span check on April 2 and 3 due to the permeation tube depletion. The permeation tube was replaced on April 3. One hour of downtime was recorded due to this maintenance activity.
- TRS: The convertor thermocouple failed after the power failure on April 29. The convertor was repaired on April 30. Nineteen hours of downtime were recorded due to the equipment failure as well as addition calibration checks.
- THC/CH4/NMHC: The daily span check did not execute properly on April 11 hour 15 and April 20 hour 6. Repeat zero-span checks were conducted. Two hours of downtime were recorded due to these events.

**842b Station:**

- Hourly data for all parameters on April 29 hour 21 and 22 are missing due to a power failure. Two hours of downtime were recorded due to event. Hourly data that was collected on April 29 hour 23 for all gas analyzers were invalidated as the analyzers were recovering from the power failure.
- TRS: The convertor thermocouple failed after a power failure on April 29. The convertor was repair and a successful as-found points check was conducted on April 30. Data that were collected between April 29 hour 23 and April 30 hour 13 were discarded. Sixteen hours of downtime were recorded due to the equipment failure as well as addition calibration checks.

**Reno Station:**

- Hourly data for all parameters on April 26 between hour 0 and hour 8 are missing due to a power failure. Nine hours of downtime were recorded due to event. Hourly data that was collected on April 26 hour 9 for all gas analyzers were invalidated as the analyzers were recovering from the power failure. Two hours of downtime were recorded due to the analyzer recovery and additional quality check.
- THC/CH4/NMHC: An as found-points check was performed on April 30 to assess span drift. No issue could be identified during this check. Two hours of downtime were recorded due to this additional quality check.
- SO2: Due to a persistent technical issue (internal temperature alarm), the API 100A, s/n: 841, was replaced and the API 100A, s/n: 1502, was installed on April 9. One hour of downtime was recorded due to the analyzer swap.

**AQHI – Cadotte Lake Station:**

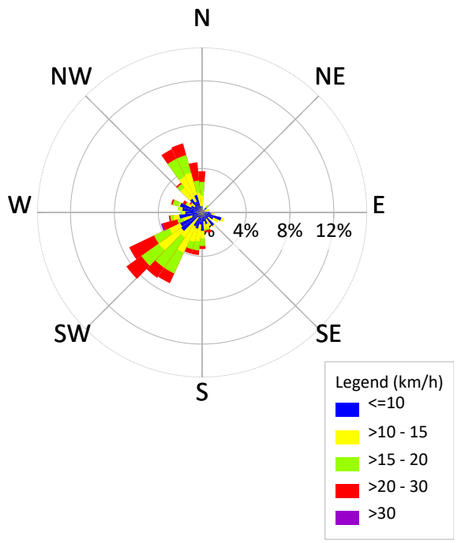
- TRS: Elevated ambient concentrations of TRS were measured throughout the month. These values are being investigated.

**VOC Canister Sampling Program:**

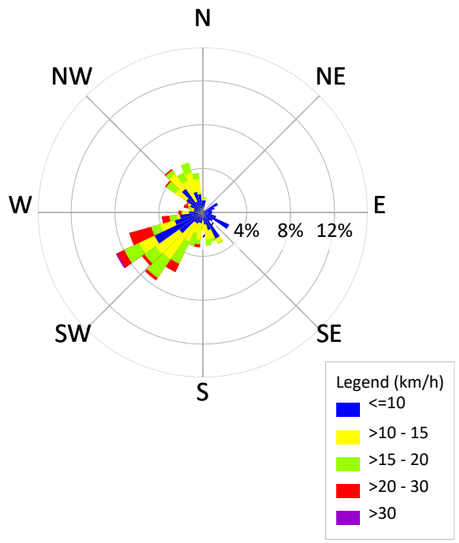
- No canister events were recorded this month.

# April 2020: Continuous Monitoring Program

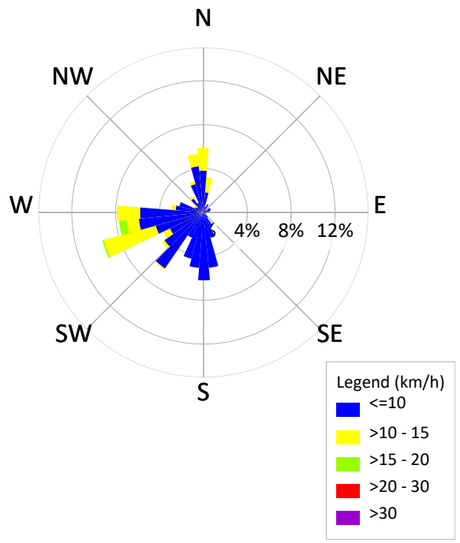
## Station 986c




## Station 842b



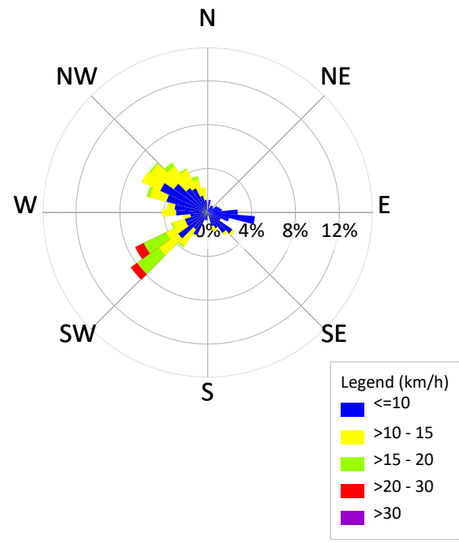

## Reno Station

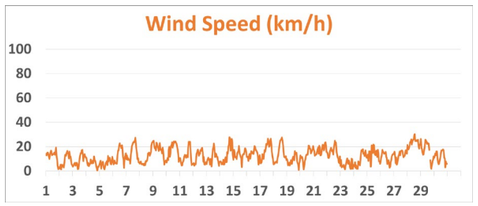


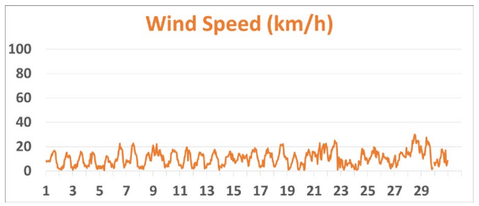

## PRC Station *(coming soon)*

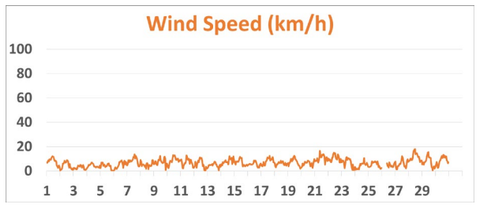
Wind Rose Diagram

## AQHI Station – Cadotte Lake

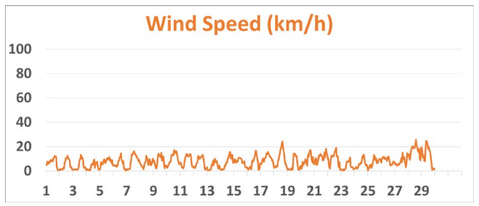


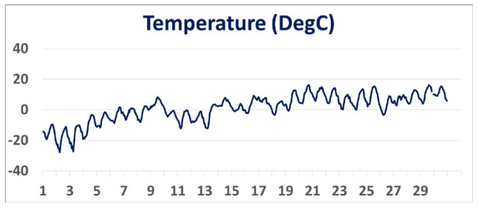



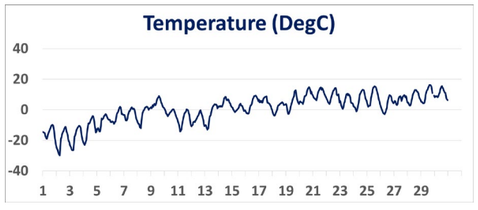



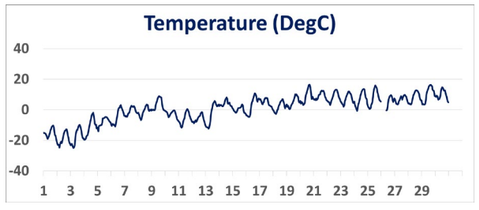




## Wind Speed

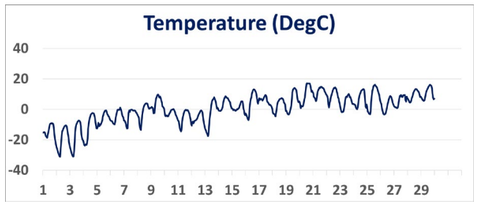


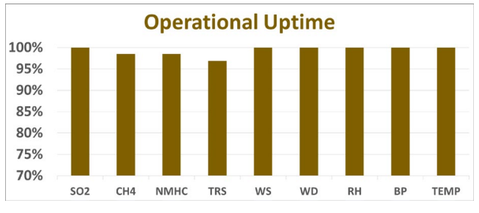



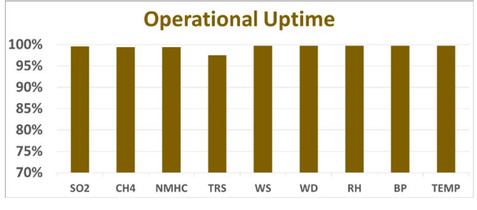



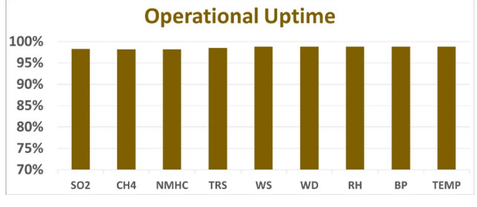




## Temperature

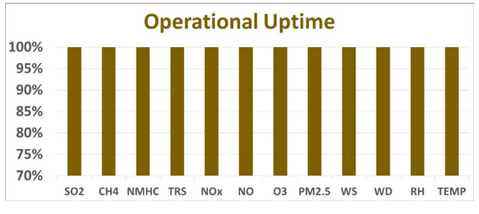


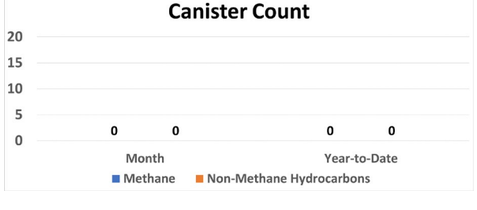



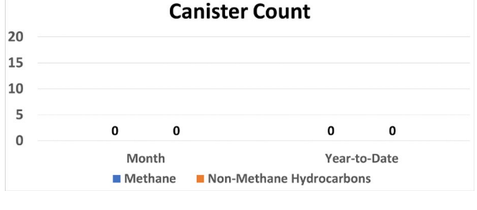



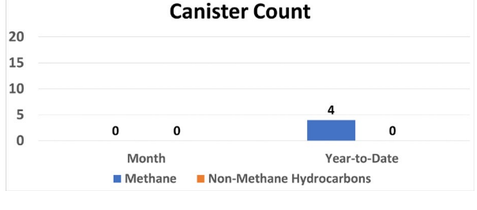



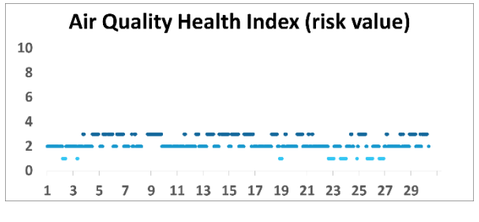

## Operational Time




## Targets, Guidelines, and Objectives

Sulphur Dioxide 1h AAAQO = 172 ppb
Ozone 1h AAAQO = 76 ppb
Particulate Matter AAAQG = 80 µg/m$^3$
Nitrogen Dioxide AAAQO = 159 ppb
Operational Uptime Requirement = 90%
AQHI Risk Value = 1-3 Low, 4-6 Moderate, 7-9 High, 10+ Very High